

REAL PROPERTY AND TOWER SITE LEASE BY AND BETWEEN
THE CITY OF LEE'S SUMMIT AND T-MOBILE CENTRAL LLC

This Lease is made this 24th day of April, 2007, by and between the City of Lee's Summit, Missouri, a municipal corporation ("Lessor" or "City"), and T-Mobile Central LLC, a Delaware limited liability company, its successors and assigns ("Lessee").

WITNESSETH THAT:

WHEREAS, Lessor is the owner in fee simple of a parcel of land located in the City of Lee's Summit, Jackson County, State of Missouri, legally described on the attached Exhibit A ("Property"); and

WHEREAS, a water tower, including an equipment shelter area and antenna mounts (collectively "Tower Facility") is located on the Property; and

WHEREAS, Lessor desires to lease to Lessee, and Lessee desires to lease from Lessor, a portion of the Property and Tower Facility (collectively "Leased Premises") for the purpose of constructing, installing, maintaining, operating, and removing, at its expense, a directional antenna, connecting cables, support structures and related site equipment for communication facilities ("Site Equipment").

NOW THEREFORE, the parties hereto agree as follows.

1. DEMISE AND USE OF PROPERTY

Lessee agrees to lease from Lessor, and Lessor agrees to lease to Lessee, the following property (collectively "Leased Premises"):

- a) a non-exclusive easement of reasonable access to the Tower Facility across the Property located in the City of Lee's Summit, Jackson County, State of Missouri, more particularly described in legal description attached and incorporated herein as **Exhibit A**. For the purposes of this Lease Agreement, reasonable access shall be access between 7:00 A.M. and 3:30 P.M. Monday through Friday, except on City Holidays as designated in Section 2-2 of the Lee's Summit Code of Ordinances. Such access shall be granted upon 1 hour notice to the Lee's Summit Water Utilities Department. Lessor shall grant reasonable access at all other times to the Leased Premises in the event of emergencies, in its sole discretion. In the event of an emergency, Lessee shall call Lee's Summit Water Utilities at 816-969-1902. Lessee shall provide Lessor with a list of Lessee's agents and employees authorized to access the Site Equipment located on the Leased Premises. Lessor shall not be responsible for monitoring access to Lessee's Site Equipment; and

- b) the right to construct, install, operate, maintain and remove the Site Equipment on the Tower Facility more particularly described in the site plan attached and incorporated herein as **Exhibit B**. This right shall be exercised in accordance with the plans and specifications for the Site Equipment attached and incorporated herein as **Exhibit B**, and all other provisions of this Lease Agreement.

2. TERM

The Initial Term of this Lease Agreement shall be for five (5) years commencing on the date ("Commencement Date") the Lessor signs this Lease Agreement. This Lease Agreement shall be automatically renewed for three (3) additional terms (each a "Renewal Term") of five years each, unless the Lessee provides the Lessor written notice of intention not to renew not less than 90 days prior to the expiration of the Initial Term or any Renewal Term; and/or Lessee is in default as provided in Paragraph 20 of this Lease Agreement; and/or this Lease Agreement is terminated as provided in Paragraph 28.

3. FEE

On the date of the execution of this Lease Agreement, Lessee shall remit the sum of \$17,805.00 to Lessor as a one-time only fee for the use of public property.

4. RENT

Lessee agrees to pay the Lessor, for the Leased Premises, rents paid annually in advance beginning on the Commencement Date and on each anniversary of it. The annual rent for the first year of the Initial Term of this Lease shall be \$22,790.00. Thereafter, the rent due hereunder will be increased on each anniversary of the Commencement Date to an amount equal to the amount of the annual installment of rent payable during the preceding year increased by an amount equal to the change in the CPI-KCMSA during such year. "CPI" means the Consumer Price Index-Kansas City Metropolitan Statistical Area Averages for Urban Wage Earners and Clerical Workers (1982-84=100) published by the United States Department of Labor, Bureau of Labor Statistics (or a reasonably equivalent index if such index is discontinued). In no event will the amount of the annual installment of rent due under this Lease Agreement following such adjustments be less than the amount of such installment during the preceding 12-month period.

All annual rent installments are to be paid at Lee's Summit City Hall, 220 SE Greet Street, P.O. Box 1600, Lee's Summit, Missouri 64063, or at such other place as Lessor may designate from time to time. Any rental payment paid beyond thirty (30) days in default shall have interest thereon at the highest non-usurious rate permitted by law.

5. ACCESS TO LEASED PREMISES AND SITE EQUIPMENT

Lessee agrees to provide prior written notice to the City of the date and time that all initial installation work pursuant to this Agreement will occur, along with a list of the names, addresses, and social security numbers of all contractors, subcontractors, and agents or employees of contractors or subcontractors, who will be performing work on behalf of Lessee pursuant to this Agreement. Lessee agrees that all contractors, subcontractors, and agents or employees of contractors or subcontractors, engaged by Lessee to perform work on behalf of Lessee pursuant to this Agreement will execute a consent to the City authorizing the City to perform a criminal background check on each contractor, subcontractor, agent or employee performing work.

6. CONSTRUCTION STANDARDS AND PERMIT REQUIREMENTS

Lessee shall, at its own cost, construct, install, operate and maintain the Site Equipment upon the Leased Premises. Lessee's construction and installation of Site Equipment shall be done according to plans and specifications approved by the Lessor and attached in **Exhibit B**. The Lessee may, at its expense, make such improvements on the Tower Facility as are necessary for the operation of a transmission site for wireless voice and data communication in accordance with the plans and specifications in **Exhibit B**. Construction shall be completed within 60 days from execution of this Lease Agreement. Lessor, in its sole discretion, may authorize a written extension of this 60-day construction period.

Lessee shall obtain all necessary permits, permission, sanctions, and approvals necessary to construct, install, operate, and maintain the Site Equipment. Lessee shall construct, install, operate, and maintain the Site Equipment in accordance with site standards, state statutes, ordinances, rules and regulations now in effect or that thereafter may be issued by the Federal Communications Commission or any other governing body. In the event that any alteration of the Property, Tower Facility, or Site Equipment is required to fulfill the covenants of this paragraph, it shall be done in accordance with the alteration procedures of Paragraph 13 of this Lease Agreement. Any damage done to the Property or Tower Facility during the construction, installation, maintenance, operation and/or removal of the Site Equipment shall be repaired or replaced within ten (10) days at Lessee's expense and to Lessor's sole satisfaction. In addition, if the City experiences an interruption of existing City services relating to the City's use of the Property or Tower Facility as a result of actions or omissions of the Lessee under this Lease Agreement, Lessee agrees to timely rectify any such interruption and pay all reasonable costs associated with the loss, repair and/or restoration of said city services.

7. REMOVAL OF SITE EQUIPMENT

Lessee may remove all personal property and trade fixtures of Lessee upon the expiration or termination of this Lease Agreement. Lessee shall remove the Site Equipment from the Leased Premises within 30 days of the date of termination or expiration, and shall repair any damage to the Leased Premises caused by construction, installation, operation, maintenance or removal of the Site

equipment. Any property that is not removed within 30 days of the date of termination or expiration of this Lease Agreement shall become property of the Lessor.

8. LIENS OR ENCUMBRANCES

The Lessee shall not suffer the Property, Tower Facility, or any construction or improvements thereon to become subject to any lien, charge, or encumbrance whatsoever, and shall indemnify the Lessor against all such liens, charges, and encumbrances; it being expressly agreed that the Lessee shall have no authority, express or implied, to create any lien, charge, or encumbrance upon the Leased Premises.

9. ASSIGNMENTS

The Lessee may assign this Lease Agreement to affiliates and subsidiaries with notice to the Lessor and Lessee may assign this Lease to third parties only with written approval from the Lessor. Such approval may not be unreasonably withheld. However, if Lessee assigns this Lease Agreement to a third party, the Lessor has an option, within Lessor's sole discretion, to renegotiate the terms of this Lease with the assignee. The Lessor reserves the right to lease antenna space on the Tower Facility to third parties consistent with the rights of the Lessee pursuant to this Lease Agreement.

10. INSURANCE

Lessee agrees to maintain at its expense at all times during this Lease Agreement, commercial general liability insurance, naming Lessor as an additional insured, in an amount not less than \$2,000,000.00 each occurrence bodily injury and/or property damage, \$2,000,000.00 personal and or advertising injury limit, \$2,000,000.00 products and completed operations aggregate, \$2,000,000.00 general aggregate, and \$50,000.00 Fire Damage Legal Liability, with Lessor named as additional insured on Lessee's general liability policy, written by an insurer licensed to do business in the State of Missouri. Lessee shall also carry Worker's Compensation Insurance as required by law. Lessee shall furnish to Lessor prior to any occupancy or work, a certificate of insurance confirming the above minimum limits. All policies of insurance shall provide for at least thirty (30) days prior written notice of cancellation or any changes of insurer to Lessor.

The Lessee, at Lessee's own expense, is to insure or self-insure any Site Equipment at the Leased Premises. The Lessor is not responsible for any loss or damage to the Site Equipment, regardless of the cause for such loss. The Lessee hereby waives its, or its insurers', right of subrogation against the Lessor for any loss of the Lessee's Site Equipment.

Lessee is to carry, during construction, auto liability insurance for any owned, hired or non-owned auto with a minimum liability limit of \$1,000,000 combined single limit, bodily injury and property damage. This is to be evidenced by a certificate of insurance provided to the Lessor prior to any occupancy or work.

In the event Lessee shall fail to procure insurance required under this Lease and fail to maintain the same in force continuously during the term, Lessor shall be entitled to procure the same and Lessee shall immediately reimburse Lessor for such premium expense.

11. INTERFERENCE AND STRUCTURAL COMPATIBILITY

Lessee agrees that the construction, installation, maintenance, operation and/or removal of the Site Equipment shall not interfere with any other communication systems currently in operation on the Tower Facility or Property, nor interfere with the City's use, or anticipated use, of the Tower Facility or Property. If Lessee's Site Equipment causes interference, Lessee shall take all measures reasonably necessary to correct and eliminate the interference. If the interference cannot be eliminated within 72 hours, Lessee shall immediately cease operating the Site Equipment until the interference has been eliminated. If the interference cannot be eliminated within 30 days, Lessor may terminate this Lease.

Before approving the placement of the Site Equipment, Lessor may require, at the Lessee's expense, any information that will insure that Lessee's use will not interfere with rights in the Property and Tower Facility retained by the Lessor or any prior lessee. Such information may include, but is not limited to, a certified interference study to indicate whether the proposed use will interfere with any existing communication facilities, a transition plan approved by the Lessor for continued operation of existing facilities during construction, installation or maintenance of Lessee's Site Equipment, an engineering study indicating that the Tower Facility can structurally support the Site Equipment, or a safety study certified by an industrial hygienist or other equally qualified inspector to ensure that access to the Tower Facility is at all times in compliance with any applicable safety standards. Any interference test required by the Lessor shall include frequencies provided by the Lessor, for its own exclusive anticipated use, as if they were existing uses.

Lessor agrees that antennas, related site equipment and/or frequencies, installed by other lessees after the installation of Lessee's Site Equipment, shall not interfere with the operation of Lessee. In the event any such interference occurs, the Lessor shall have the responsibility to coordinate the termination of the interference within 72 hours. If such interference is not terminated within 72 hours, and Lessee is unable to continue its operation, Lessee shall have the right, in addition to any other rights that it may have at law or in equity, to bring action to enjoin such interference or to terminate this Lease immediately upon notice to Lessor. Lessor shall not be responsible for any interruption in Lessee's service associated with the operation and maintenance of the Site Equipment, except as provided in this Lease Agreement.

12. MAINTENANCE AND REPAIRS

The Lessee shall have the sole responsibility to keep the Site Equipment, and any other structure, appurtenance or landscaping required to meet the covenants established by this Lease Agreement, in good condition through consistent maintenance and repair. "Good Condition" shall mean that the Site Equipment, and any other structure or appurtenance shall remain in as good condition as when initially constructed and installed, normal wear and tear excepted and casualty loss excepted. All required landscaping shall be maintained in proper repair and kept free of refuse

and debris at all times. Lessee's maintenance shall be exercised consistent with the interference provisions of Paragraph 11 of this Lease Agreement. In the event that Lessee's maintenance involves alteration of the Site Equipment, the alteration shall be exercised consistent with the interference provisions of Paragraph 11 of this Lease Agreement and the alteration provisions of Paragraph 13 of this Lease Agreement.

Lessor, at all times during the term of this Lease Agreement, reserves the right to take any action it deems necessary to maintain, alter or improve the Property and Tower Facility. In the event that Lessor or any other lessee undertakes maintenance of the Property, Tower Facility, or other communication facilities, Lessee shall take reasonable measures to protect the Site Equipment.

13. ALTERATIONS

The Lessee shall not make any alteration in the external elevation or architectural design of the Tower Facility or the Property, or injure or remove any of the principal structural supports thereof without the consent in writing of the Lessor. Lessor may require plans and specifications or other information consistent with the interference provisions of Paragraph 11 of this Lease Agreement, for any alteration of the Site Equipment deviating from the plans and specifications included in Exhibit B.

14. NEW STRUCTURES

Without prior written approval of Lessor, the Lessee shall not construct or permit to be constructed on the Property any new structures, or make or permit to be made any additions to the Tower Facility, except in accordance with plan and specifications previously approved by the Lessor.

15. UTILITIES

Lessee shall have the right to install utilities, at Lessee's expense, and to improve the present utilities on the Leased Premises as shown on the site plan of Exhibit B. Lessee shall, at its expense, separately meter charges for consumption of electricity and other utilities associated with its use of the Leased Premises, and shall timely pay all costs associated therewith.

16. UNLAWFUL USE

The Lessee shall not make or suffer any use or occupancy of the Leased Premises contrary to any law or ordinance now or hereafter in force.

17. TITLE AND QUIET POSSESSION

Lessor warrants that it is the owner of the Leased Premises; that it has the right to enter into this Lease Agreement; that the person signing this Lease Agreement has the authority to sign; and,

that Lessee is entitled to access to the Leased Premises and to the quiet possession of the Leased Premises consistent with the terms and conditions of this Lease Agreement throughout the Initial Term and each Renewal Term unless Lessee is in default as provided in Section 20 of this Lease Agreement. Lessee agrees to quit and deliver possession of the Leased Premises to Lessor or Lessor's assigns, successors or agents, when this Lease Agreement terminates by termination, expiration, default or forfeiture, and Lessee agrees that the Leased Premises shall be in substantially the same order and in as good condition as received, normal wear and use and damage caused by casualty excepted.

18. INDEMNIFICATION

The Lessee shall indemnify, defend, become responsible for and forever hold harmless the Lessor, and its officers, contractors, and employees from and against all suits, actions, reasonable attorney fees, costs, claims, of any character brought because of bodily injury or death received or sustained, or loss or damage received or sustained, by any person, persons, or property arising out of or resulting from any negligent act, error, or omission, or intentional misconduct of the Lessee or its contractors, or employees on the Property pursuant to this Lease Agreement; provided, however, that Lessee need not indemnify or hold Lessor harmless from claims, demands, losses or expenses arising out of the sole negligence of Lessor, its employees or agents. The indemnity required thereunder shall not be limited by reason of the specifications of any particular insurance coverage in Section 10 of this Lease Agreement.

The Lessee shall indemnify the Lessor against all costs and expenses, including reasonable attorney fees incurred in discharging the Leased Premises from any charge, lien, or encumbrance, or in obtaining possession after default of the Lessee or the termination of this Lease Agreement.

19. HAZARDOUS SUBSTANCES

Lessor represents that it has no knowledge of any substance, chemical or waste (collectively "substance") on the Leased Premises that is identified as hazardous, toxic or dangerous in any applicable federal, state or local law or regulation. Lessee shall not introduce or use any such substance on the Leased Premises in violation of any applicable law.

20. DEFAULT

Failure on the part of Lessee to pay rent within 30 days after same shall become due and rent is not paid within 10 days after notice to Lessee of nonpayment of rent, or failure of Lessee to promptly and faithfully keep and perform every covenant, condition and obligation of this Lease, other than payment of rent, on the part of Lessee to be kept and performed for more than twenty (20) days after notice of such default shall have been given to Lessee, shall, at the option of Lessor, cause the forfeiture of this Lease, without, however, releasing Lessee from liability, as hereinafter provided, and if such default shall not be corrected within the applicable period aforesaid, possession of the Leased Premises shall be delivered to Lessor. Thereupon Lessor shall be entitled to and may take immediate possession of the Leased Premises, any other notice or demand being hereby waived. If a default, other than non-payment of rent, is not cured within a 20 day period,

this Lease may not be terminated if the Lessee substantially commences action to cure the default within such 20 day period and proceeds with due diligence to fully cure the default within a mutually agreed upon period of time.

21. MORTGAGE

The Lessee may not use the Leased Premises in any manner as collateral security for a mortgage or lien lease of any kind. However, Lessee may, upon notice to Landlord, mortgage or grant a Security interest in this Lease Agreement and the Site Equipment, to any such mortgagees or holders of security interests including their successors or assigns, (hereinafter collectively referred to as "Mortgagees") provided Mortgagees execute an express written assumption of all responsibilities of the Lessee under this Lease, including annual rental fees. In the event Lessee mortgages or grants a security interest in this Lease Agreement and Site Equipment, Lessor shall execute such consent to leasehold financing as may reasonably be required by Mortgagees. Lessor agrees to notify Lessee and Lessee's Mortgagees simultaneously of any default by Lessee and to give Mortgagees the same right to cure any default by Lessee except that the cure period for any Mortgagee shall not be less than ten (10) days after receipt of the default notice. Failure to faithfully keep this provision shall be considered default pursuant to the Default paragraph above.

22. AMENDMENT

Oral agreements in conflict with any of the terms of this Lease Agreement shall be without force and effect. All amendments to this Lease Agreement shall be in writing executed by the parties or their respective successors in interest.

23. FRANCHISE REQUIREMENT

Lessor and Lessee agree that this Lease Agreement shall not be considered, construed or deemed in anyway a telecommunication franchise agreement for use of public property within the City of Lee's Summit, Missouri.

24. PARTIAL INVALIDITY

If any terms or conditions of this Lease Agreement or the application thereof to any person or event shall to any extent be invalid and unenforceable, the remainder of this Lease Agreement in the application of such term, covenant or condition to persons or events other than those to which it is held invalid or unenforceable shall not be affected and each term, covenant and condition of this Lease shall be valid and be enforced to the fullest extent permitted by law.

25. SERVICE OF NOTICE

All notices, demands and communications as provided herein shall be in writing and shall be served by registered or certified United States mail, return receipt requested to the following address or to such other address(es) as Lessor and Lessee may advise each other in writing pursuant to this Paragraph.

LESSOR: City Administrator
City of Lee's Summit
220 SW Green Street
Lee's Summit, MO 64063

LESSEE: T-Mobile Central LLC
12980 Foster, Suite 200
Overland Park, KS 66213
Attn: Lease Administrator

WITH COPIES TO: T-Mobile Central LLC
12920 SE 38th Street
Bellevue, WA 98006
Attn: PCS Lease Administration

26. MISCELLANEOUS

(a) This Lease Agreement applies to and binds the heirs, successors, executors, administrators and assigns of the Lessor and Lessee.

(b) This Lease Agreement is governed by the laws of the state of Missouri.

27. HOLDING OVER

In the event Lessee continues to occupy the Leased Premises after the last day of the term herein created, or after the last day of any extension of said term, and the Lessor elects to accept rent thereafter, a tenancy from month to month only shall be created and not for any longer period.

28. TERMINATION

This Lease Agreement may be terminated by:

- a) the Lessee, after the Initial Term of this Lease, upon giving 90 (ninety) days prior written notice of the intent to terminate to the Lessor. Upon termination, all prepaid rent shall be retained by Lessor.
- b) the Lessor, after the Initial Term of this Lease, upon giving 90 (ninety) days prior written notice of the intent to terminate to the Lessee, unless termination is a result of subsections (c) through (f) of this section. Upon termination, all prepaid rent shall be prorated to the end of the month that all Site Equipment is removed from the Leased Premises and returned to Lessee within 30 days of the removal.
- c) the Lessor, if Lessor determines that use of the Leased Premises by Lessee is a

- threat to health, safety or welfare or violates applicable laws or ordinances
- d) the Lessor, in accordance with the Default provisions of this Lease Agreement.
 - e) the Lessee, in accordance with the Casualty provisions of this Lease Agreement.
 - f) the Lessor or Lessee, in accordance with the Interference provisions of this Lease Agreement.

29. CASUALTY

Lessor will provide notice to Lessee of any casualty affecting the Property within forty-eight (48) hours of the casualty. If any part of the Tower Facility or Property is damaged by fire or other casualty so as to render the Leased Premises unsuitable, in Lessee's reasonable determination, the Lessee may terminate this Lease Agreement by providing written notice to Lessor, which termination shall be effective as of the date of receipt of such notice by the Lessor. Upon such termination, Lessee will be entitled to collect all insurance proceeds payable to Lessee on account thereof. All prepaid rent shall be prorated to the end of the month that all Site Equipment is removed from the Leased Premises and returned to Lessee within 30 days of the removal.

30. ENTIRE AGREEMENT

This Lease Agreement (including the Exhibits) constitutes the entire agreement between the parties and supersedes all prior written and verbal agreements, representations, promises or understandings between the parties regarding the subject matter hereof.

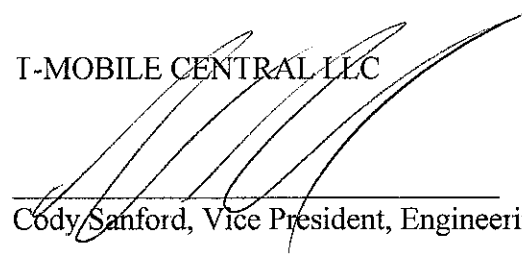
IN WITNESS WHEREOF, the parties hereto have executed this Lease on the date first written above.

CITY OF LEE'S SUMMIT, MISSOURI



Karen R. Messerli, Mayor

I-MOBILE CENTRAL LLC



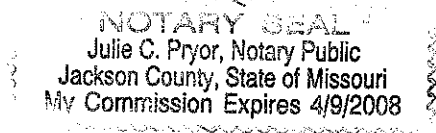
Cody Sanford, Vice President, Engineering and Operations

STATE OF MISSOURI)
) ss
COUNTY OF JACKSON)

On this 24th day of April, 2007, before me, a Notary Public in and for the State of Missouri, personally appeared Karen R. Messerli, known to me to be Mayor of the City of Lee's Summit, the municipality that executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said municipality for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument on behalf of said municipality.

WITNESS my hand and the official seal affixed the day and year first written above.

Julie C. Pryor
Notary Public



STATE OF TEXAS)
) ss
COUNTY OF COLLIN)

On this 9 day of January, 2007, before me, a Notary Public in and for the State of Texas, personally appeared Cody Sanford, known to me to be Vice President, Engineering and Operations of T-Mobile Central LLC, the limited liability company that executed the within and foregoing instrument, and acknowledged the said instrument to be the free and voluntary act and deed of said limited liability company for the uses and purposes therein mentioned, and on oath stated that he was authorized to execute said instrument on behalf of said limited liability company

WITNESS my hand and the official seal affixed the day and year first written above

Kimberly L. Dixon
Notary Public



REAL PROPERTY AND TOWER SITE LEASE
BY AND BETWEEN THE CITY OF LEE'S SUMMIT AND T-MOBILE CENTRAL LLC

EXHIBITS

Exhibit A - Legal Description - Property

Exhibit B - Equipment Structure Site Plan, Plans and Specifications

Exhibit A

Legal Description – Property

All that part of the southwest quarter of Section 10, Township 47 North, Range 31 West in the City of Lee's Summit, Jackson County, Missouri, described as follows:

Beginning at the intersection of the south line of said quarter section with the east right-of-way line of Missouri State Highway Route "RA" (also known as Ranson Road) said point being south 87 degrees 46 minutes 58 seconds east a distance of 43.54 feet from the southwest corner of said quarter section; thence north 1 degree 16 minutes 27 seconds east along the east right-of-way line of said highway a distance of 260.18 feet; thence north 2 degrees 16 minutes 27 seconds east along the east right-of-way line of said highway a distance of 206.79 feet; thence south 87 degrees 46 minutes 58 seconds east a distance of 466.00 feet; thence south 1 degree 43 minutes 01 second west a distance of 466.95 feet to the south line of said quarter section; thence north 87 degrees 46 minutes 58 seconds west along the south line of said quarter section a distance of 466.00 feet to the point of beginning, containing 218,062 square feet or 5.006 acres more or less.

Exhibit B



FINAL ENGINEERING APPROVALS

SSC	INITIALS	DATE
RF		
T-MOBILE		
OPERATIONS		
REAL ESTATE		

PROJECT INFORMATION

CELL SITE NUMBER: A5C 0226
 PROPERTY OWNER: CITY OF LEE'S SUMMIT
 207 SW MARKET STREET
 LEE'S SUMMIT, MISSOURI 64063
 CONTACT: AMY WENSON
 PHONE: (816) 968-7300

TOWER INFORMATION:
 38° 53' 44.16" N (NAD 83)
 94° 20' 21.12" W (NAD 83)
 LONGITUDE:
 1045' AMSL
 GROUND ELEV:
 170 ± AGL
 ANTENNA CENTERLINE:
 120' AGL

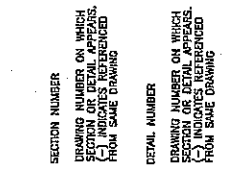
GENERAL NOTES

- THE CONTRACTOR SHALL SUPERVISE AND DIRECT ALL WORK USING HIS BEST SKILL AND JUDGEMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION AND SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SEQUENCES FOR CONSTRUCTION OF THE WORK UNDER THE CONTRACT.
- THE CONTRACTOR SHALL VISIT THE JOB SITE TO REVIEW THE SCOPE OF WORK AND EXISTING CONDITIONS INCLUDING, BUT NOT LIMITED TO ELECTRICAL SERVICE AND OVERALL COORDINATION.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS SHOWN TO BE ACCURATE. ANY DISCREPANCIES, CONFLICTS OR QUESTIONS, ETC. SHALL BE REPORTED TO SSC, INC. BEFORE PROCEEDING WITH THE WORK.
- THE CONTRACTOR SHALL PROTECT ALL AREAS FROM DAMAGE WHICH MAY OCCUR DURING CONSTRUCTION. ANY DAMAGE TO NEW AND EXISTING CONSTRUCTION, STRUCTURE, OR EQUIPMENT SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF SSC, INC. AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL SAFEGUARD THE OWNER'S PROPERTY DURING CONSTRUCTION AND SHALL REPLACE ANY DAMAGED PROPERTY OF THE OWNER TO ORIGINAL CONDITION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES AND TO PROTECT THEM THROUGHOUT THE PROJECT. ANY DAMAGE TO EXISTING UTILITIES SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF SSC, INC. AT THE EXPENSE OF THE CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE THE JOB IS IN PROGRESS AND UNTIL THE JOB IS COMPLETE.
- ALL CONSTRUCTION WORK SHALL CONFORM TO THE U.B.C., I.B.C., OR B.O.D.A. AND ALL APPLICABLE LOCAL REGULATIONS, ORDINANCES, STATUTES & CODES.
- T-MOBILE SHALL OBTAIN THE CONTRACTOR'S PRIVATE THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, LICENSES AND INSURANCES NECESSARY FOR PERFORMANCE OF THE WORK AND INCLUDE THOSE IN THE COST OF THE WORK TO THE OWNER.
- CITY APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY WORKMEN. ALL CONSTRUCTION SETS SHALL REFLECT SAME INFORMATION. THE CONTRACTOR SHALL ALSO ADVISE THE CITY OF ANY CHANGES TO THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND SEQUENCES FOR CONSTRUCTION. THE PERMITS AT ALL TIMES. THESE ARE TO BE UNDER THE CARE OF JOB SUPERINTENDENT.
- THE CONTRACTOR SHALL PROVIDE A PORTABLE PSE EQUIPMENT WITH A RATING OF NOT LESS THAN 2-1/2 OR 2-1/4 KW WITHIN 75 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF THE BUILD OUT AREA DURING CONSTRUCTION.
- ANY CONNECTION FEES FOR ELECTRICAL SERVICE SHALL BE PAID BY THE CONTRACTOR.

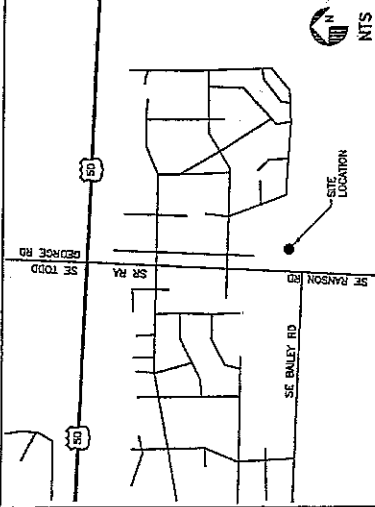
DRAWING INDEX

DWG NUMBER	TITLE	REVISION	RESPONSIBLE ENGINEER
A5C0226 - T01	PROJECT INFORMATION & GENERAL NOTES	Δ	HAY/SBK
A5C0226 - A01	OVERALL SITE PLAN	Δ	HAN
A5C0226 - A02	ENLARGED SITE PLAN	Δ	HAN
A5C0226 - A03	FOUNDATION PLAN & DETAILS	Δ	HAN
A5C0226 - A04	FOUNDATION PLAN & DETAILS	Δ	HAN
A5C0226 - A05	ANTENNA & COAX MOUNTING DETAILS	Δ	HAN
A5C0226 - A06	PC BRACK DETAILS AND COAX DETAILS	Δ	HAN
A5C0226 - A07	PC BRACK DETAILS AND COAX DETAILS	Δ	HAN
A5C0226 - A08	ANTENNA AND COAX DETAILS	Δ	HAN
A5C0226 - E01	ELECTRICAL PLAN & DETAILS	Δ	SKK
A5C0226 - E02	ELECTRICAL - GENERAL	Δ	SKK
A5C0226 - E03	PPC RACK RIBER DIAGRAM	Δ	SKK
A5C0226 - E04	PPC RACK RIBER DIAGRAM	Δ	SKK
A5C0226 - E05	GROUNDING RISER DIAGRAM	Δ	SKK
A5C0226 - E06	GROUNDING DETAILS	Δ	SKK
A5C0226 - SP1	SPECIFICATIONS (1 of 7)	Δ	HAN
A5C0226 - SP2	SPECIFICATIONS (2 of 7)	Δ	HAN
A5C0226 - SP3	SPECIFICATIONS (3 of 7)	Δ	HAN
A5C0226 - SP4	SPECIFICATIONS (4 of 7)	Δ	HAN
A5C0226 - SP5	SPECIFICATIONS (5 of 7)	Δ	HAN
A5C0226 - SP6	SPECIFICATIONS (6 of 7)	Δ	HAN
A5C0226 - SP7	SPECIFICATIONS (7 of 7)	Δ	HAN

SYMBOLS



AREA MAP



ABBREVIATIONS

ABBREVIATION	MEANING
ABL	ABOVE GRADE LINE
AMP	ARCHITECT
BLDC	BATTERY BACKUP UNIT
BU	BASE TRANSDUCER STATION
CL	CENTER LINE
CONSTR	CONSTRUCTION
CONTR	CONTRACTOR
DET	DETAIL
EA	ELEVATOR, ELEVATION
EQ	EQUIP
EQ	EQUAL
EQIP	EQUIPMENT
FIN	FINISH
FOUN	FOUNDATION
FTG	FOUNDING
GA	GAUGE
GALV	GALVANIZED
GRD	GROUND
HGT	HEIGHT
MIN	MINIMUM
MISC	MISCELLANEOUS
NOT	NOT IN CONTRACT
ON	ON CENTER
PL	PLATE
PROT	PROTECTION
PPC	PPC RACK
REQ'D	REQUIRED
SF	SQUARE FEET
SHT	SHEET
SHR	SIMILAR
SHS	SHIELD
SSA, INC.	SELECTIVE SITE CONSULTANTS, INC.
STD	STANDARD
STL	STRUCTURAL
STRUT	STRUCTURE
TOP	TOP OF CURB
TOP	TOP OF CONCRETE
TOP	TOP OF FINISH
TOS	TYPICAL
TYP	TYPICAL

EQUIPMENT

DESCRIPTION	FURNISHED	INSTALLED
ANTENNAS	T-MOBILE	CONTRACTOR
ULTRASTATE/PURCELL	T-MOBILE	CONTRACTOR
COAX	T-MOBILE	CONTRACTOR
PPC	CONTRACTOR	CONTRACTOR
COAX	CONTRACTOR	CONTRACTOR
HARNESS	T-MOBILE	CONTRACTOR
CONNECTORS	T-MOBILE	CONTRACTOR
LDF4 ANTENNA JUMPER	CONTRACTOR	CONTRACTOR

EQUIPMENT FURNISHED BY:

DESCRIPTION	FURNISHED	INSTALLED
ANTENNAS	T-MOBILE	CONTRACTOR
ULTRASTATE/PURCELL	T-MOBILE	CONTRACTOR
COAX	T-MOBILE	CONTRACTOR
PPC	CONTRACTOR	CONTRACTOR
COAX	CONTRACTOR	CONTRACTOR
HARNESS	T-MOBILE	CONTRACTOR
CONNECTORS	T-MOBILE	CONTRACTOR
LDF4 ANTENNA JUMPER	CONTRACTOR	CONTRACTOR

REV	DATE	DESCRIPTION
A	05/14/08	ISSUED FOR REVIEW
D	05/25/08	ISSUED FOR CONSTRUCTION
1	05/14/08	GENERATOR CHANGE

T-Mobile USA, INC.

SELECTIVE SITE CONSULTANTS, INC.
 800 W. 110th Street, Suite 300
 Overland Park, Kansas 66207
 Phone: 913-683-1777
 Fax: 913-683-1777

APPROVED BY	DATE
JAE HILL	
H.A. NOVEN	
H.A. NOVEN	
LEO BASKY/SZYMAL	
HAN/SBK	

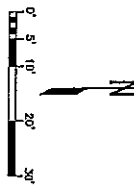
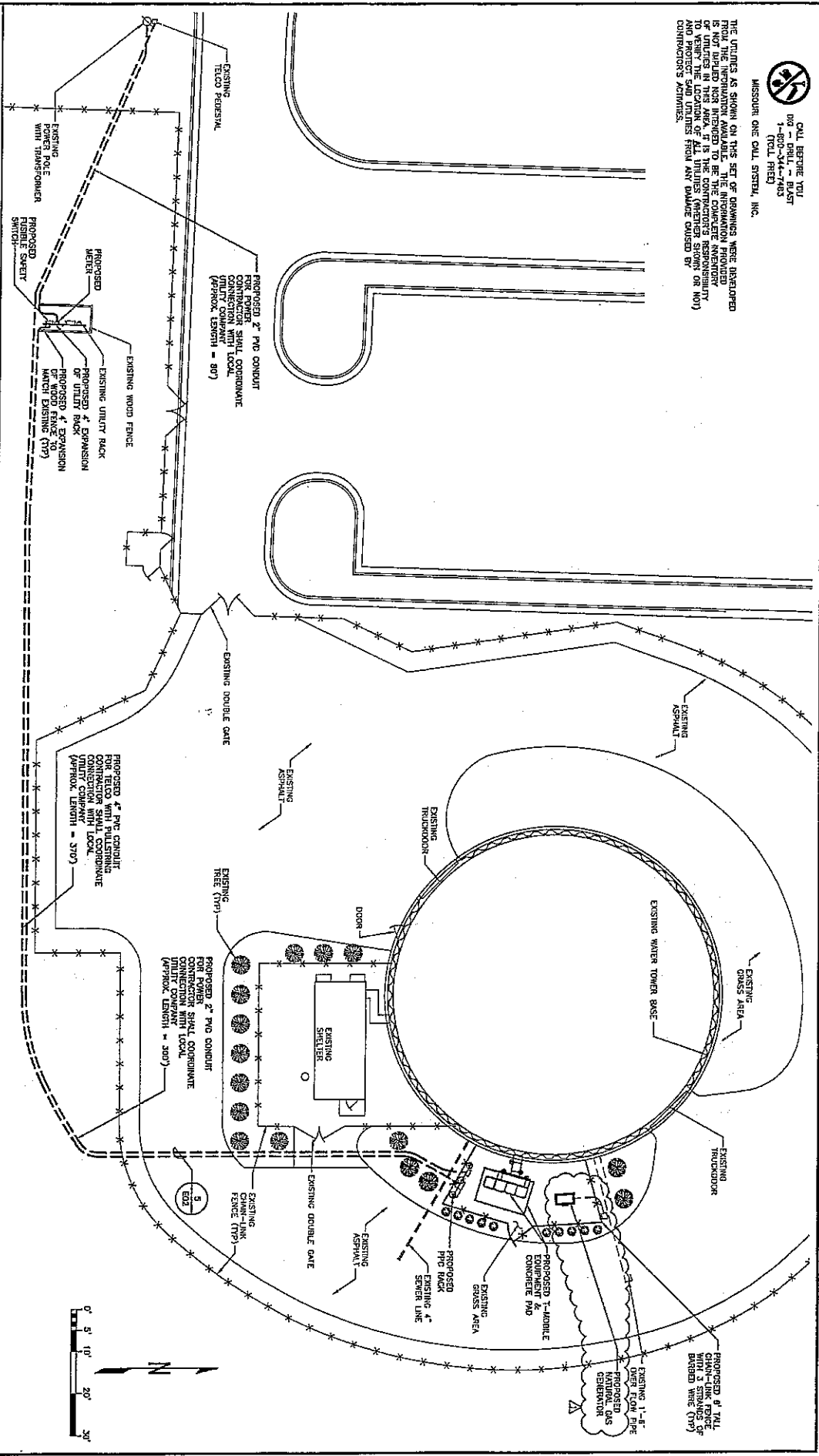
PROJECT INFORMATION & GENERAL NOTES	
HWY 50 AND 291 CELL SITE A5C 0226	
1251 SE RANSON RD LEE'S SUMMIT, MISSOURI 64081	
PROJECT NUMBER	A5C0226 - T01



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(TOLL FREE)

MISSOURI ONE CALL SYSTEM, INC.

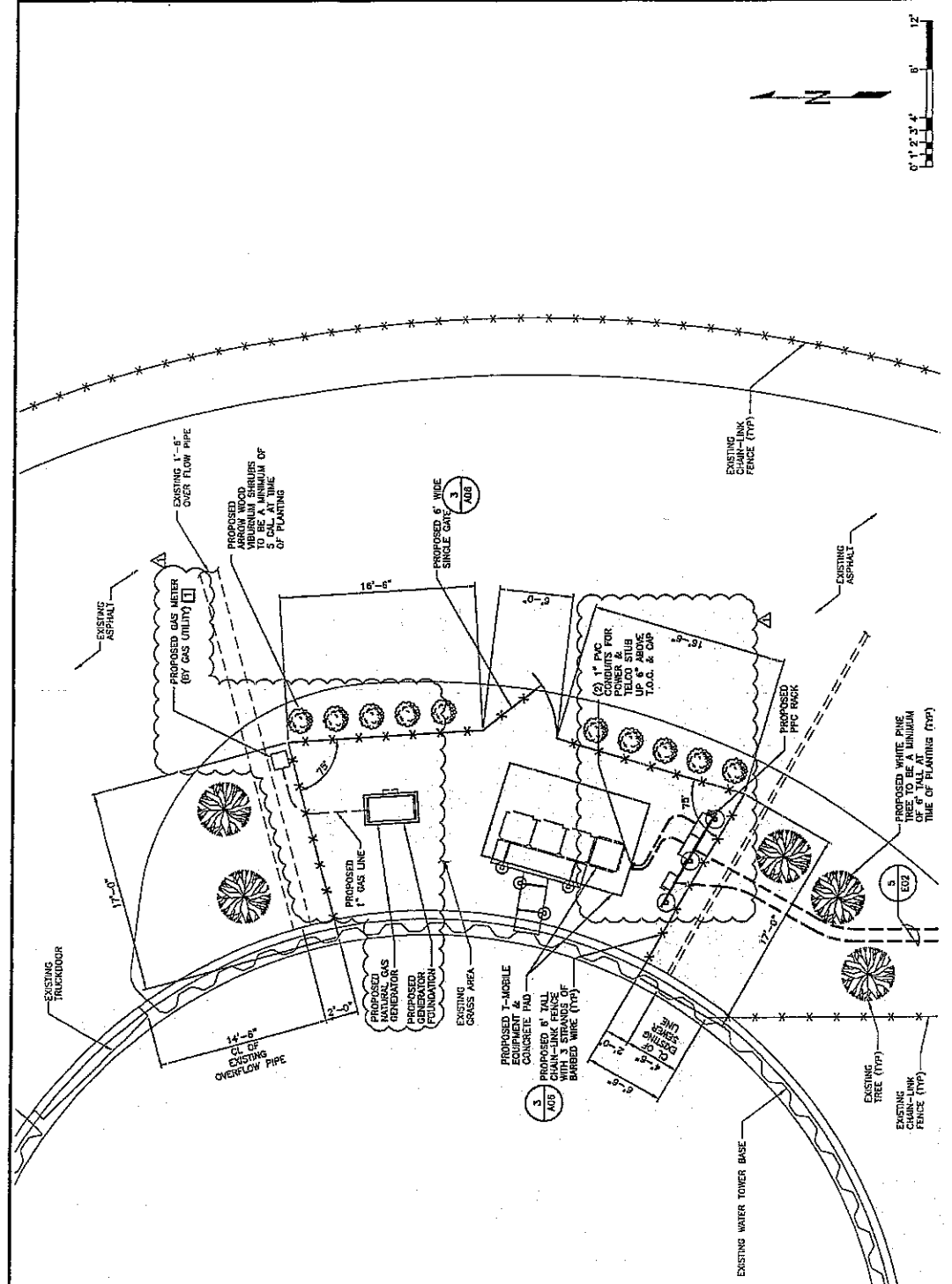
THE UTILITIES AS SHOWN ON THE SET OF DRAWINGS WERE DEVELOPED FROM THE INFORMATION AVAILABLE. THE INFORMATION PROVIDED IS NOT GUARANTEED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES (OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE CAUSED BY CONTRACTOR'S ACTIVITIES.



OVERALL SITE PLAN

NO.	DATE	REVISION DESCRIPTION	DESIGNED BY	CHECKED BY	DATE
0	08/14/08	ISSUED FOR REVIEW	JHH	JHH	
1	08/29/08	ISSUED FOR CONSTRUCTION	JHH	JHH	
1	09/14/08	GENERATOR CHANGE	JHH	JHH	

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<p>DATE APPROVED: 09/14/08 BY: JHH</p>			
<p>APPROVED BY: J.H.H. MOHR SVP</p>	<p>1251 SE RANSON RD LEWIS SUMMIT, MISSOURI 64081</p>	<p>HWY 50 AND 291 CELL SITE A5C 0226 OVERALL SITE PLAN</p>	<p>ASCO226 - A01</p>



NOTE:
 □ GAS METER LOCATION IS APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING THE METER RISER WITHIN A 10' RADIUS OF THE INDICATED LOCATION. COORDINATE WITH GAS COMPANY FOR EXACT LOCATION.



REV	DATE	REVISION DESCRIPTION	DESIGN
A	08/14/03	ISSUED FOR REVIEW	JRH
0	08/29/03	ISSUED FOR CONSTRUCTION	JRH
1	08/14/05	GENERATOR CHANGE	JRH

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<p>SELECTIVE SITE CONSULTANTS, INC. <small>AN AFFILIATE OF THE SELECTIVE GROUP</small> 8500 W. 112th Street, Suite 300 Overland Park, Kansas 66210 Phone: 813-435-7700 Fax: 813-435-7777</p>	<p>T-Mobile USA, INC.</p>
--	----------------------------------

<p>ENLARGED SITE PLAN</p>	<p>DESIGNED BY: JER. HILL CHECKED BY: H.A. HOWN APPROVED BY: H.A. HOWN LEAF DESIGN/CHECKER: H.A. HOWN DRAWING NUMBER: A5C0226 - A02</p>
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REV	DATE	REVISION DESCRIPTION	ISSUED BY	DATE
0	09/14/08	ISSUED FOR REVIEW	JHJ	
1	09/25/08	ISSUED FOR CONSTRUCTION	JHJ	
1	09/14/08	GENERATOR CHANGE	JHJ	

NOTES: THIS DRAWING HAS NOT BEEN CHECKED FOR CONFORMANCE WITH THE SOLE PURPOSE OF THIS DRAWING. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES.

Mobile
USA, INC.

SELECTIVE SITE CONSULTANTS, INC.
A Subsidiary of Selective Site Consultants Group

8920 W. 116th Street, Suite 300
Overland Park, Kansas 66210
Phone: 913-483-7700
Fax: 913-483-7777

TOWER ELEVATION

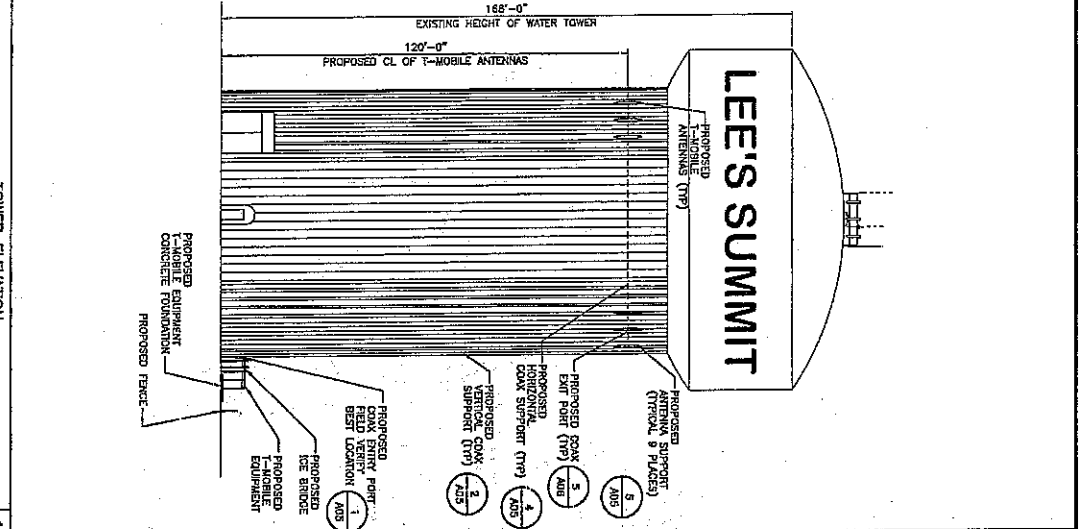
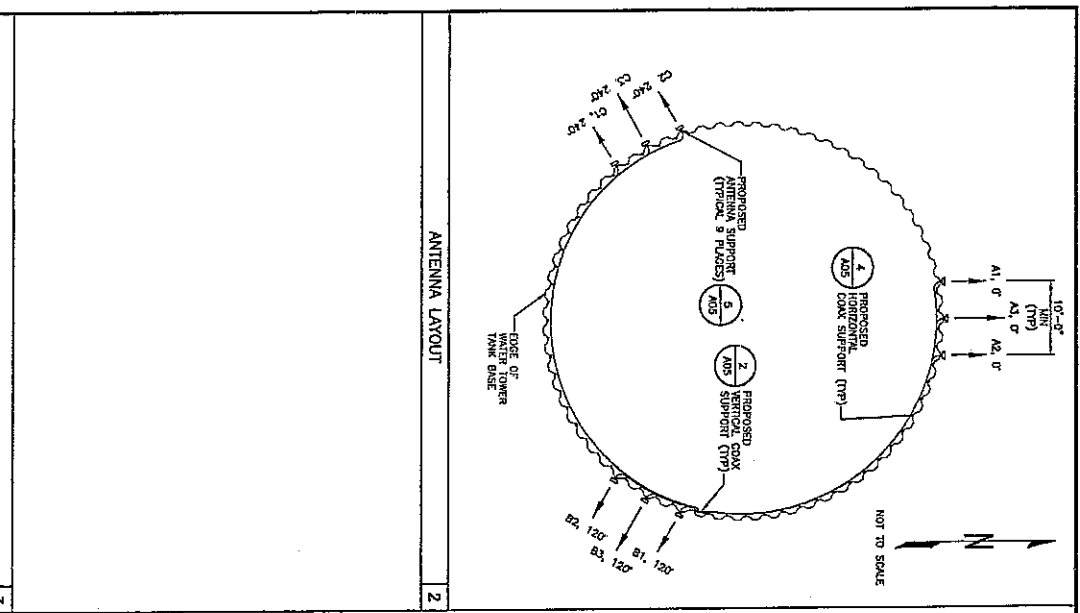
DESIGNED BY: J.R. HILL
CHECKED BY: H.A. MOON

DATE PREPARED: 08/14/08

DATE REVISION: 09/25/08

PROJECT NUMBER: ASC0226 - A03

HWY 50 AND 291
CELL SITE ASG 0226
TOWER ELEVATION & ANTENNA DETAILS
1251 SE RANSON RD
LEE'S SUMMIT, MISSOURI 64081



ANTENNA NUMBER	COAX COLOR CODE	BEAM WIDTH	ANTENNA HEIGHT	MODE	ELECTRICAL DOWNLINE	MECHANICAL DOWNLINE	HORIZONTAL ANGLE TO THE CENTER OF ANTENNA FROM GROUND LEVEL	COAXIAL SIZE	FEEDER LENGTH
A-1	RED 1 STRIPE	65°	65'	0	2	2	120°-0°	7/8"	200'
A-2	RED 2 STRIPE	65°	65'	0	2	2	120°-0°	1 5/8"	200'
A-3	RED 3 STRIPE	65°	65'	0	2	2	120°-0°	7/8"	200'
A-4	RED 4 STRIPE	65°	65'	0	2	2	120°-0°	1 5/8"	200'
A-5	RED 5 STRIPE	65°	65'	0	2	2	120°-0°	7/8"	200'
A-6	RED 6 STRIPE	65°	65'	0	2	2	120°-0°	1 5/8"	200'
B-1	YELLOW 1 STRIPE	65°	120'	0	2	2	120°-0°	7/8"	150'
B-2	YELLOW 2 STRIPE	65°	120'	0	2	2	120°-0°	1 5/8"	150'
B-3	YELLOW 3 STRIPE	65°	120'	0	2	2	120°-0°	7/8"	150'
B-4	YELLOW 4 STRIPE	65°	120'	0	2	2	120°-0°	1 5/8"	150'
B-5	YELLOW 5 STRIPE	65°	120'	0	2	2	120°-0°	7/8"	150'
B-6	YELLOW 6 STRIPE	65°	120'	0	2	2	120°-0°	1 5/8"	150'
C-1	BLUE 1 STRIPE	65°	240'	2	2	2	120°-0°	7/8"	230'
C-2	BLUE 2 STRIPE	65°	240'	2	2	2	120°-0°	1 5/8"	230'
C-3	BLUE 3 STRIPE	65°	240'	2	2	2	120°-0°	7/8"	230'

NOTES:

- COAXIAL FEEDER LENGTHS INDICATED ABOVE ARE APPROXIMATE. CONTRACTOR TO VERIFY ACTUAL LENGTH BEFORE ORDERING.
- COLOR CODING: USE 1 STRIPE PER WAVE LENGTH AND 2 STRIPES PER WAVELENGTH. LINE SUBSEQUENT EXPANSION COAX RINGS SHOULD BE BLUE 1 STRIPE, 4 STRIPES, ETC.
- LINE 1 & 2 TO HAVE UNKs, MOUNTED ON PIPE BELOW ANTENNAS.
- USE ANTENNAS; TERMINATE UNUSED ANTENNA POINTS WITH CONECTOR CAP & WEATHERPROOF HORIZONTAL JUNCTIONS FROM LINE'S MUST TERMINATE TO DEFENSE FOUNDATIONS IN EACH SECTION.
- CONTRACTOR MUST FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS ANTENNAS.

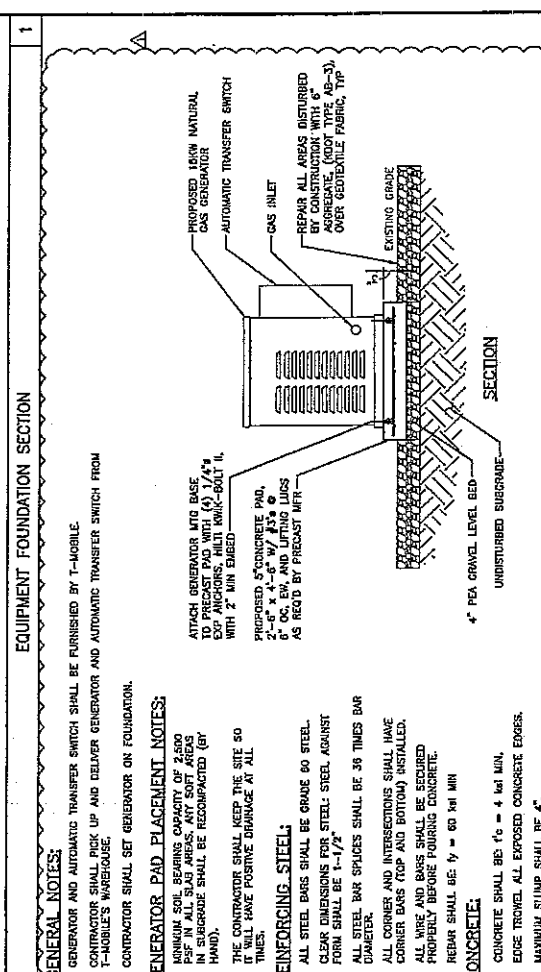
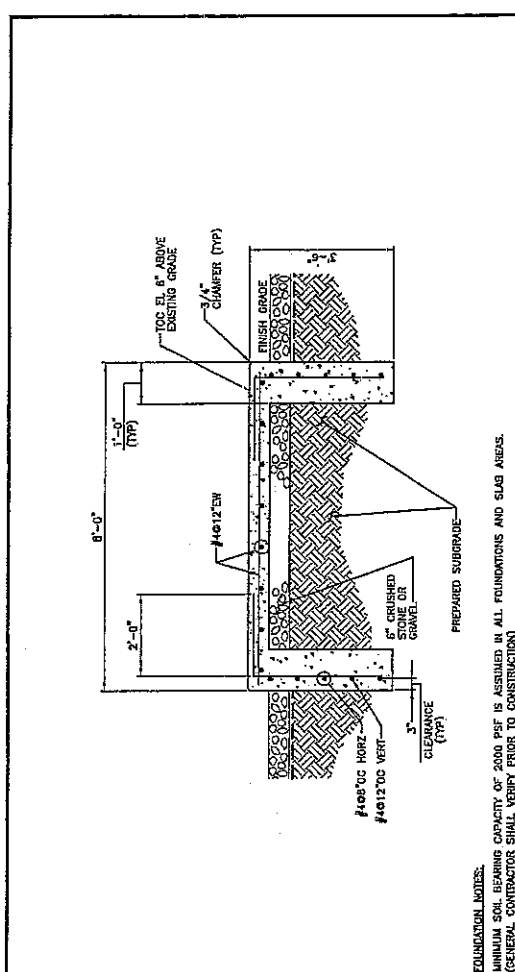
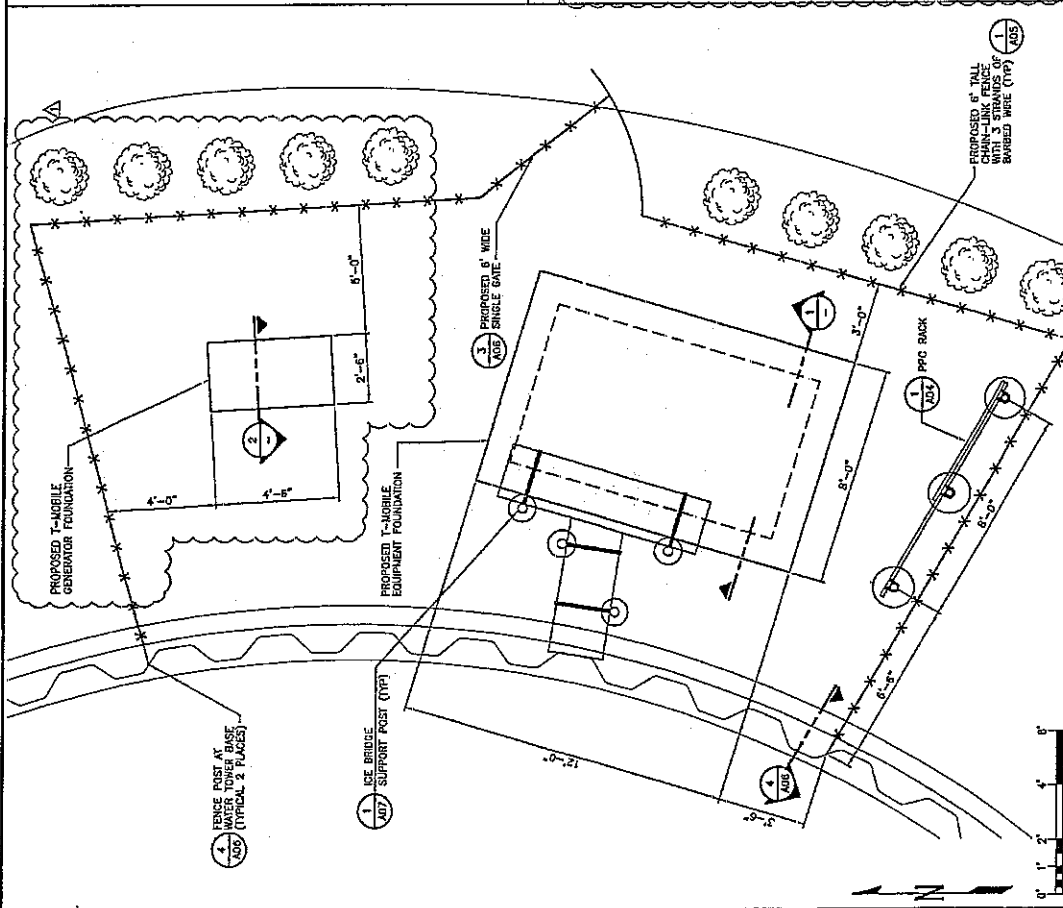
MINIMUM RF REQUIREMENTS

ANTENNA NUMBER	ANTENNA DIRECTION	MINIMUM ANTENNA SEPARATION	MINIMUM JUNCTION SEPARATION
A-1, A-2	0°	120'-0"	10'
B-1, B-2	120°	120'-0"	10'
C-1, C-2	240°	120'-0"	10'

LOCATIONS OF ANTENNAS AS SHOWN HAVE BEEN APPROVED BY CLIENT AND/OR CLIENT'S RADIO FREQUENCY ENGINEERS. SSC ASSUMES NO RESPONSIBILITY FOR, NOR HAS SSC PERFORMED ANY INVESTIGATIONS OR STUDIES CONCERNING THE COMPLIANCE OR NONCOMPLIANCE OF SAID ANTENNA LOCATIONS WITH ANY FCC RADIO FREQUENCY EXPOSURE REGULATIONS.

REMARKS:

ANTENNA HEIGHT = 120'-0"
FEEDER FIELD VENT = 1'-1/4"
FEEDER FIELD VENT = 1'-10"
FEEDER FIELD VENT = 1'-10"
FEEDER FIELD VENT = 1'-10"
FEEDER FIELD VENT = 1'-10"
FEEDER FIELD VENT = 1'-10"



FOUNDATION NOTES:

MINIMUM SOIL BEARING CAPACITY OF 2000 PSF IS ASSUMED IN ALL FOUNDATIONS AND SLAB AREAS. (GENERAL CONTRACTOR SHALL VERIFY PRIOR TO CONSTRUCTION)

EQUIPMENT FOUNDATION SECTION

GENERAL NOTES:

- GENERATOR AND AUTOMATIC TRANSFER SWITCH SHALL BE FURNISHED BY T-MOBILE.
- CONTRACTOR SHALL PICK UP AND DELIVER GENERATOR AND AUTOMATIC TRANSFER SWITCH FROM T-MOBILE'S WAREHOUSE.
- CONTRACTOR SHALL SET GENERATOR ON FOUNDATION.

GENERATOR PAD PLACEMENT NOTES:

- IF ANY SOIL BEHINDS CONCRETE PAD OF 2000 PSF IN SUBGRADE SHALL BE RECOMPACTED (BY HAND).
- THE CONTRACTOR SHALL KEEP THE SITE SO IT WILL HAVE POSITIVE DRAINAGE AT ALL TIMES.

REINFORCING STEEL:

- ALL STEEL BARS SHALL BE GRADE 60 STEEL.
- CLEAR DIMENSIONS FOR STEEL STEEL AGAINST FORM SHALL BE 1-1/2" DIAMETER.
- ALL STEEL BAR SPICES SHALL BE 36 TIMES BAR DIAMETER.
- ALL CORNER AND INTERSECTIONS SHALL HAVE CORNER BARS (TOP AND BOTTOM) INSTALLED.
- ALL WIRE AND BARS SHALL BE SECURED PROPERLY BEFORE POURING CONCRETE.
- REBAR SHALL BE: fy = 60 ksi MIN

CONCRETE:

- CONCRETE SHALL BE f'c = 4 ksi MIN.
- EDGE TROWEL ALL EXPOSED CONCRETE EDGES.
- MAXIMUM SLUMP SHALL BE 4".

PROPOSED 6" TALL CHAMFER WITH 3 STRANDES OF BARBED WIRE (TYP)

EQUIPMENT FOUNDATION PLAN

REV	DATE	REVISION DESCRIPTION
A	09/14/08	ISSUED FOR REVIEW
D	09/25/08	ISSUED FOR CONSTRUCTION
1	09/14/08	GENERATOR CHANGE

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 800 W. 11th Street, Suite 300
 Olathe, MO 64070
 Phone: 816-645-1111
 Fax: 816-645-1171

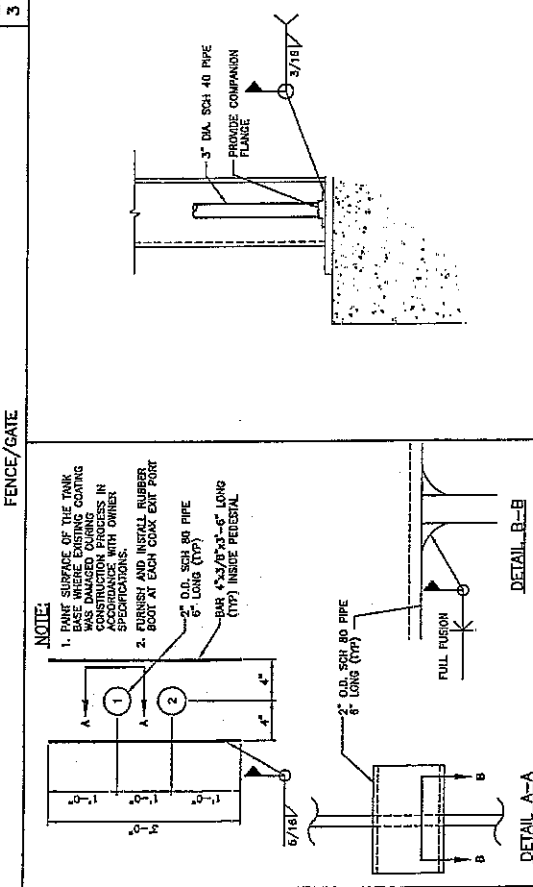
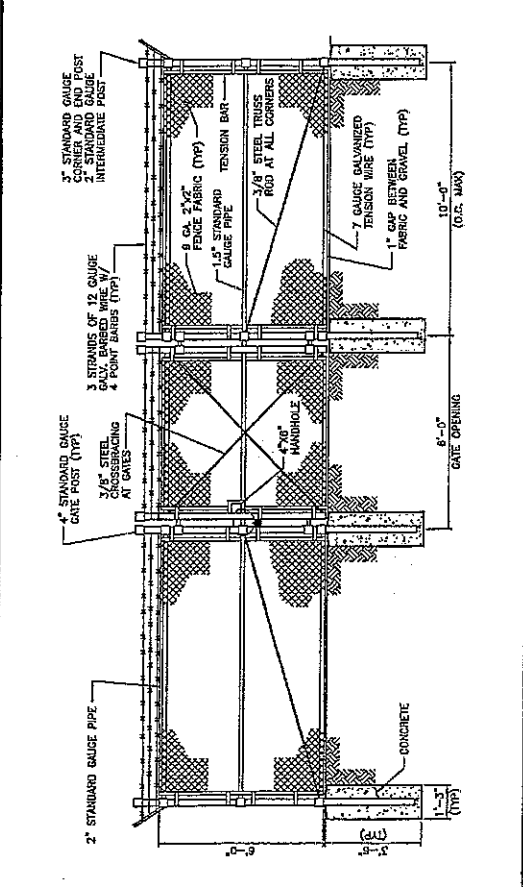
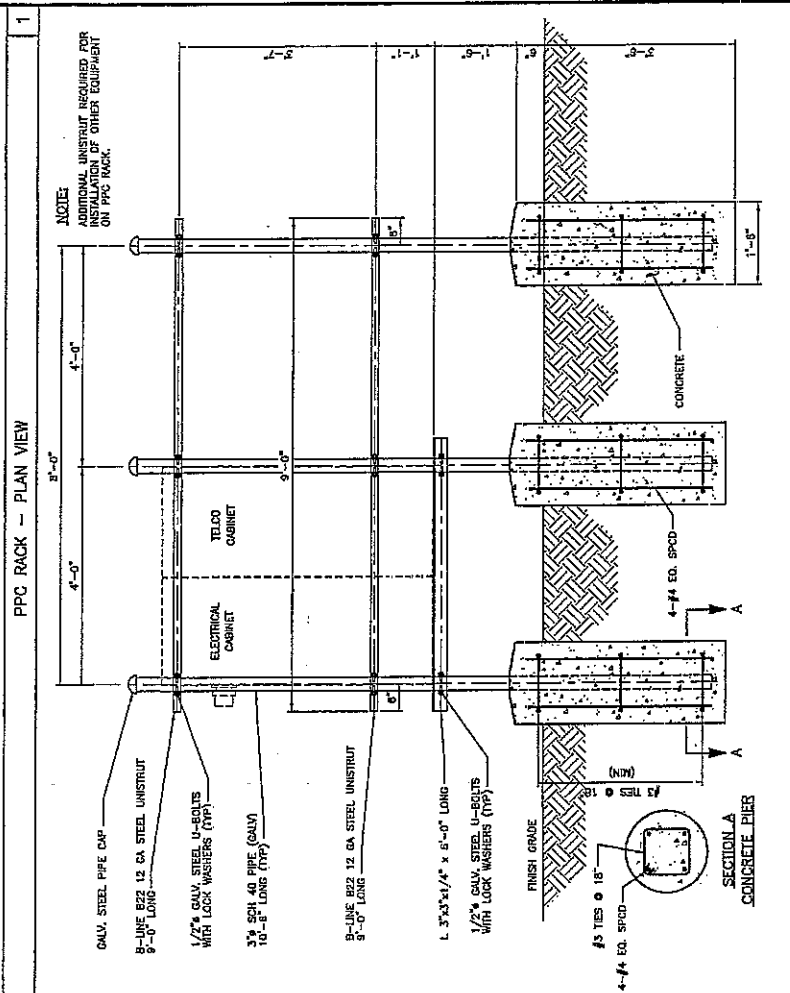
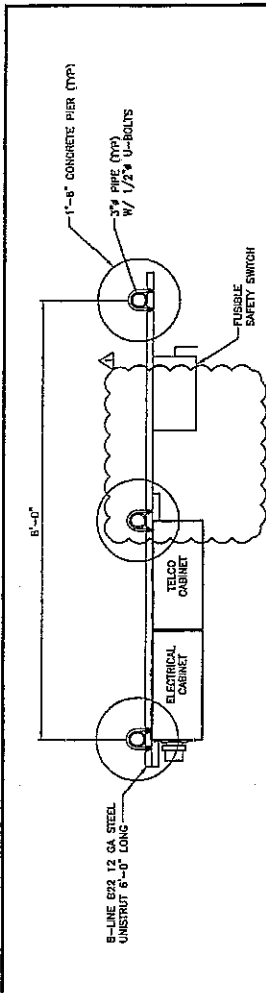
F-Mobile USA, INC.

PRECAST CONCRETE PAD, GENERATOR & STRUCTURAL NOTES

DESIGNED BY: JAY HILL
 CHECKED BY: H.A. NOVIN
 SUPERVISOR: H.A. NOVIN
 LOG BOOK/ACCOUNT: 100
 DRAWING NUMBER: A5C0226 - A04

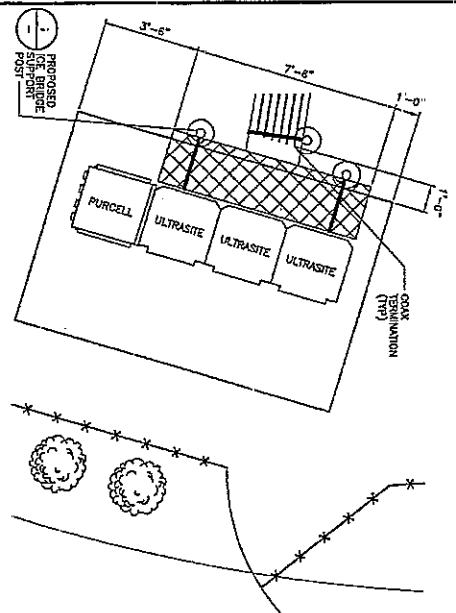
HWY 50 AND 291
 CELL SITE A5C 0226
 FOUNDATION PLAN & DETAILS
 1251 SE RANSON RD
 LEE'S SUMMIT, MISSOURI 64081

REV 1

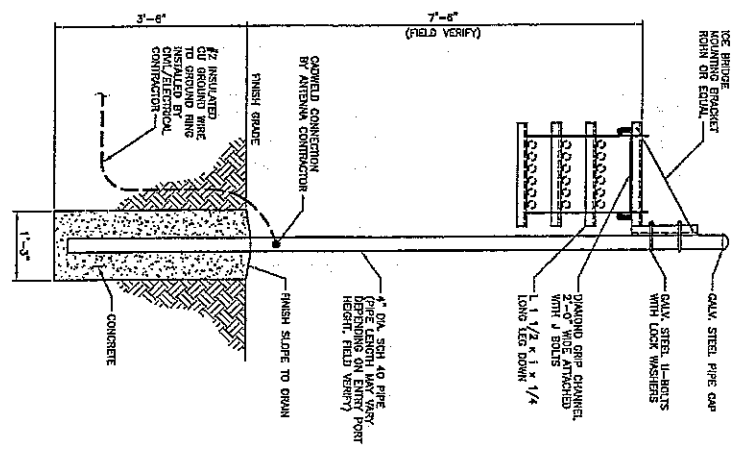


REV	DATE	REVISION DESCRIPTION
A	08/14/06	ISSUED FOR REVIEW
B	09/29/06	ISSUED FOR CONSTRUCTION
1	09/14/06	GENERATOR CHANGE

COAX EXIT DETAILS		FENCE POST BASE DETAIL @ WATER TOWER BASE		PPC RACK - ELEVATION	
DETAIL A-A	DETAIL B-B	<p>DESIGNED BY: J.R. HILL</p> <p>CHECKED BY: H.A. MOYAN</p> <p>SUPERVISOR: H.A. MOYAN</p> <p>LEAD SHOP/PROJECT MANAGER: HAN/SOR</p>			
<p>NOTE: METHOD OF FOUNDATION AND THE SOLE BASE SHALL BE THE RESPONSIBILITY OF THE CLIENT TO THE CONTRACTOR FOR THE CONTRACTOR, THE OWNER, AND IN THIS DRAWING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE FOUNDATION AND SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE FOUNDATION AND SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE FOUNDATION.</p>		<p>SELECTIVE SITE CONSULTANTS, INC.</p> <p>1000 Lakeside, Reynolds and Charleston County, Georgia</p> <p>8500 W. 110th Street, Suite 300</p> <p>Owensboro, KY 40301</p> <p>Phone: 502-438-7700</p> <p>Fax: 502-438-7777</p>			
<p>HWY 50 AND 281</p> <p>CELL SITE ASC 0226</p> <p>PPC RACK, FENCE AND COAX DETAILS</p> <p>1251 SE RANSON RD</p> <p>LEE'S SUMMIT, MISSOURI 64081</p> <p>AWAY/DATE: A5C0226 - A06</p>		<p>PLANS PROVIDED UNDER THE SUPERVISION OF:</p>		<p>2</p>	



ICE BRIDGE AND EQUIPMENT LAYOUT

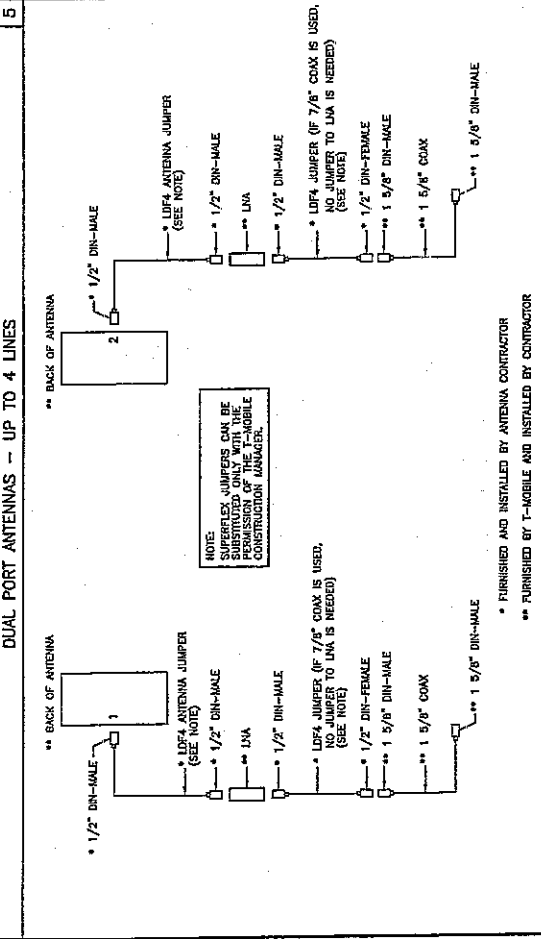
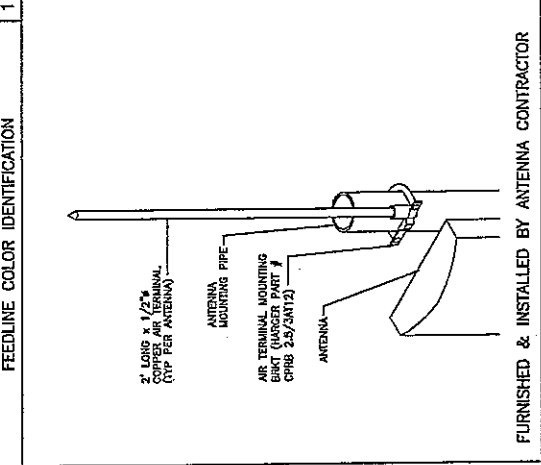
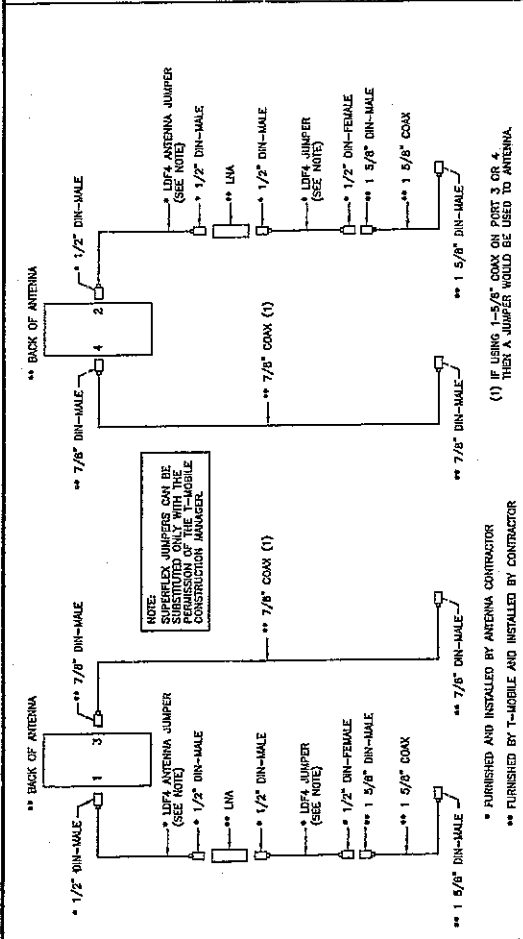
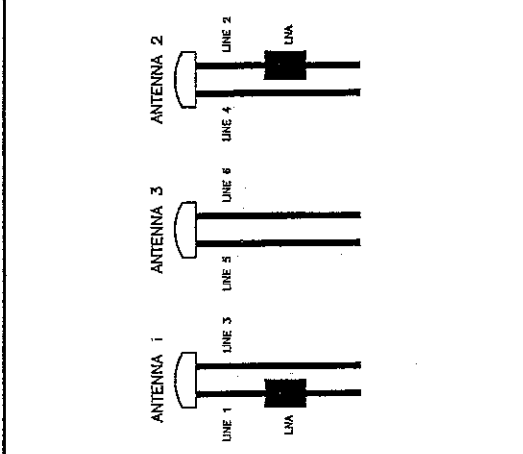
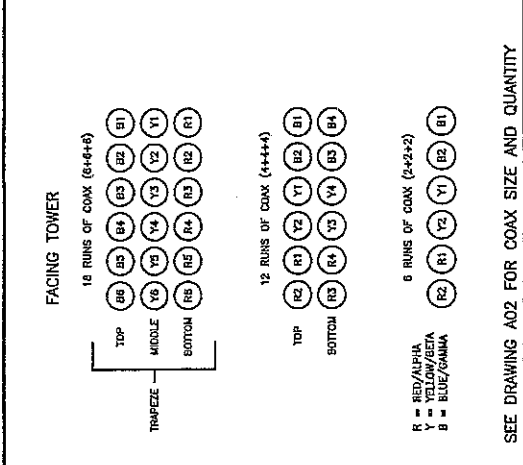


FURNISHED AND INSTALLED BY ANTENNA CONTRACTOR
ICE BRIDGE SUPPORT POST (CONCRETE PIER)

NO.	DATE	REVISION DESCRIPTION	BY	CHECKED BY	APPROVED BY
A	08/14/06	ISSUED FOR REVIEW	JRH	JRH	JRH
0	08/29/06	ISSUED FOR CONSTRUCTION	JRH	JRH	JRH
1	09/14/06	GENERATION CHANGE	JRH	JRH	JRH

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--	------------------------------------	--

<p>DESIGNED BY: J.R. HILL</p> <p>CHECKED BY: H.A. NORN</p> <p>DATE: 08/14/06</p>	<p>1251 SE RAMSON RD LEES SUMMIT, MISSOURI 64081</p>
--	--



FURNISHED & INSTALLED BY ANTENNA CONTRACTOR

2

AIR TERMINAL MOUNTING

HWY 50 AND 291
CELL SITE ASC 0226
ANTENNA AND COAX DETAILS

1251 SE RANSON RD
LEE'S SUMMIT, MISSOURI 64081

REV# NUMBER
ASC0226 - A08

4

PLEASE PREPARE WORK THE SUPERVISOR OF

DESIGNED BY
J.R. HILL

CHECKED BY
H.A. NOWIN

SUPERVISOR
H.A. NOWIN

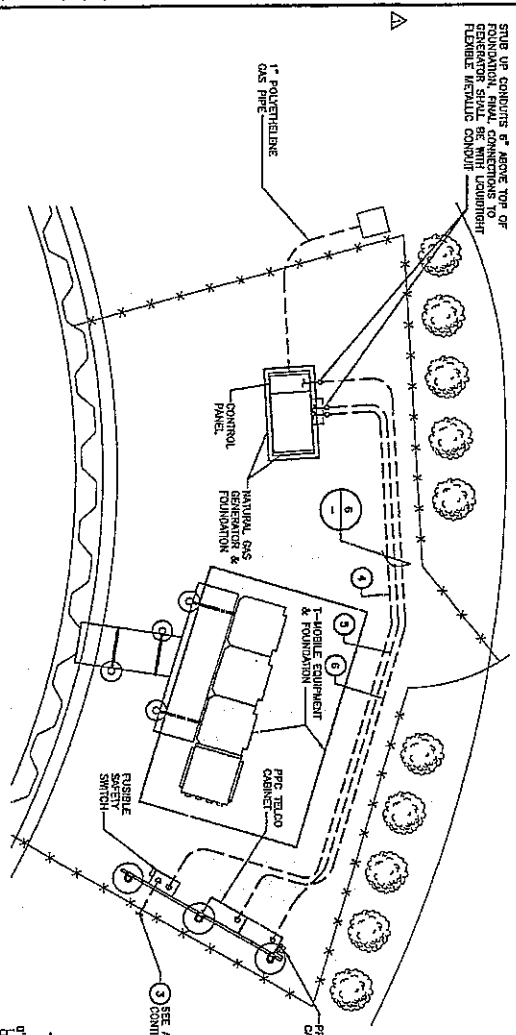
LEAD COAX CONTRACTOR
HAY/SBK

SELECTIVE SITE CONSULTANTS, INC.

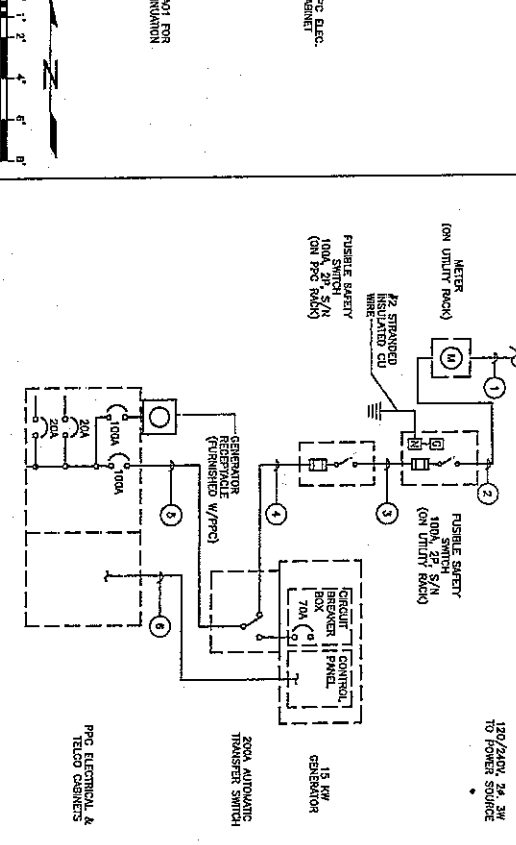
450 W. 100th Street, Suite 300
Dedeland Park, Kansas 66220
Phone: 913-438-7700
Fax: 913-438-7777

T-Mobile USA, INC.

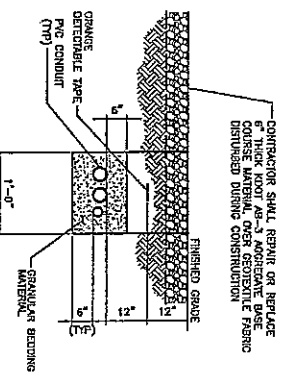
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ELECTRICAL PLAN

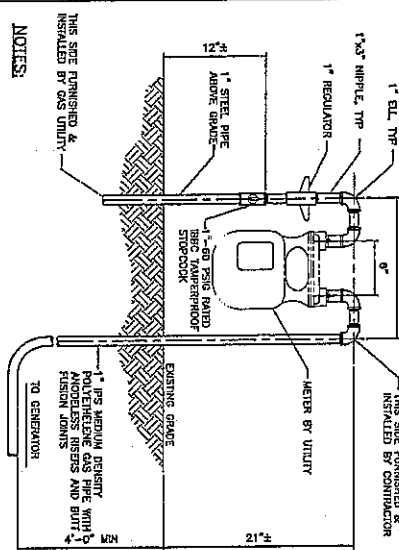


CONNECTION DIAGRAM



- NOTES:
1. MAINTENANCE AND POWER CONDUITS MAY BE RUN IN SEPARATE TRENCHES.
 2. SEE SITE PLAN FOR EXACT QUANTITY AND SIZE OF CONDUITS.

TRENCH DETAIL



- NOTES:
1. METER IS TO FACE STREET OR ESSENTIAL.
 2. PROVIDE SHUT-OFF VALVE AND REDUCER, AND INSTALL AT GAS INLET ON GENERATOR.

GAS METER DETAIL

NO.	FROM	TO	DISTRIBUTION	FUNCTION
1	SOURCE	METER	3#2, 2'0"	NORMAL POWER FEEDER TO METERS
2	METER	FUSIBLE SAFETY SWITCH	3#2, 1#80, 2'0"	NORMAL POWER FEEDER TO FUSIBLE SAFETY SWITCH ON UTILITY BACK
3	FUSIBLE SAFETY SWITCH	FUSIBLE SAFETY SWITCH	3#2, 1#80, 2'0"	NORMAL POWER FEEDER TO FUSIBLE SAFETY SWITCH ON PFC BACK
4	FUSIBLE SAFETY SWITCH	AUTOMATIC TRANSFER SWITCH	3#2, 1#80, 2'0"	POWER FEEDER TO AUTOMATIC TRANSFER SWITCH
5	AUTOMATIC TRANSFER SWITCH	PFC TELCO CABINET	2#22 SW (REDUCED #12-1-00), 0'4'0"	GENERATOR STARTING & ALARM RECEIVE INDICATION.
6	GENERATOR	PFC TELCO CABINET		

CIRCUIT SCHEDULE

1. ALL ELECTRICAL WORK SHALL CONFORM TO REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE FOR A RANKING SYSTEM.
2. GENERATOR AND AUTOMATIC TRANSFER SWITCH SHALL BE FURNISHED BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SETTING OF OPERATIONAL SETTINGS, AND THE OTHER WORK AS REQUIRED FOR A COMPLETE AND FURNISHED & INSTALLED.
3. GENERATOR AND AUTOMATIC TRANSFER SWITCH INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.
4. ALL ABOVEGROUND CONDUIT SHALL BE ROAD GALVANIZED STEEL (RGS).
5. ALL UNDERGROUND CONDUIT SHALL BE S3H 40 PFC EXCEPT THAT ELBOWS AND RISERS SHALL BE RGS. ALL UNDERGROUND ELBOWS SHALL BE SWEEPING BENDS.

GENERAL NOTES

NO.	DATE	DESCRIPTION	BY	CHKD.
1	09/14/06	ISSUED FOR REVIEW	JMH	JMH
2	09/23/06	ISSUED FOR CONSTRUCTION	JMH	JMH
3	09/14/06	GENERATOR CHANGE	JMH	JMH

1251 SE RANSON RD
 LEE'S SUMMIT, MISSOURI 64081

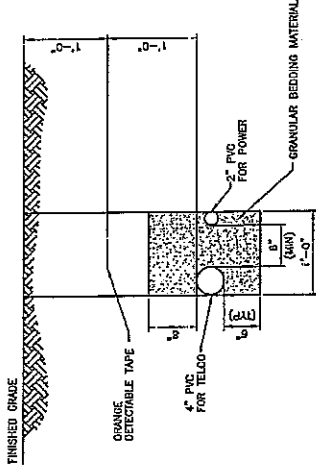
Lee's Mobile USA, Inc.

Siteone Site Construction, Inc.

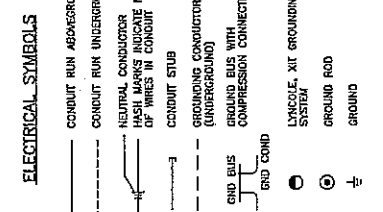
8830 W. 110th Street, Suite 200
 Overland Park, MO 66209
 Phone: 913-438-7700
 Fax: 913-438-7777

HW/SOK

AS020226 - E01



NOTE: COMMUNICATION AND POWER CONDUITS MAY BE RUN IN SEPARATE TRENCHES. CONDUITS SHALL MAINTAIN 8 INCHES MINIMUM SEPARATION.



TYPICAL CONDUIT TRENCH

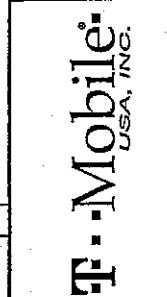
ELECTRICAL SYMBOLS

1. THE ELECTRICAL CONTRACTOR SHALL FIELD VERIFY THE POWER CONNECTION POINT WITH THE UTILITY COMPANY PRIOR TO COMMENCING WORK.
2. THE ELECTRICAL CONTRACTOR SHALL NOTIFY T-MOBILE'S CONSTRUCTION MANAGER AFTER CALLING FOR ELECTRICAL INSPECTION OF BELOW-GRADE CONDUITS AND OTHER ELECTRICAL WORK PRIOR TO COMMENCING.
3. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE SITE CONSTRUCTION MANAGER AFTER THE ELECTRICAL INSPECTION HAS BEEN PERFORMED AND ACCEPTED (GREEN TAGGED), #12 ON SHEET T01 OF THE CONSTRUCTION DOCUMENTS.
4. THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE UTILITY COMPANY REQUESTING ENERGIZING OF THE SITE AND SHALL NOTIFY THE SITE CONSTRUCTION MANAGER WHEN THIS TASK HAS BEEN COMPLETED.
5. THE ELECTRICAL CONTRACTOR SHALL CONVEY THE POLE NUMBER, TRANSFORMER NUMBER, AND THE WATER NUMBER TO THE SITE CONSTRUCTION MANAGER.

ELECTRICAL NOTES

REV	DATE	REVISION DESCRIPTION	ISSUED BY
A	08/14/06	ISSUED FOR REVIEW	JRH
D	08/28/08	ISSUED FOR CONSTRUCTION	JRH
I	08/14/08	GENERATOR CHANGE	JRH

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SELECTIVE SITE CONSULTANTS, INC.
 830 W. 11th Street, Suite 300
 Overland Park, MO 66204
 Tel: 913-485-7700
 Fax: 913-485-7777

BY THE CONTRACTOR
 THE SUPERVISOR ON

DESIGNED BY
 J.H. HULL

CHECKED BY
 H.A. MOYER

SUBMITTED
 H.A. MOYER

DATE SUBMITTED
 08/14/08

HWY 50 AND 291
 CELL SITE ASC 0226
 ELECTRICAL - GENERAL

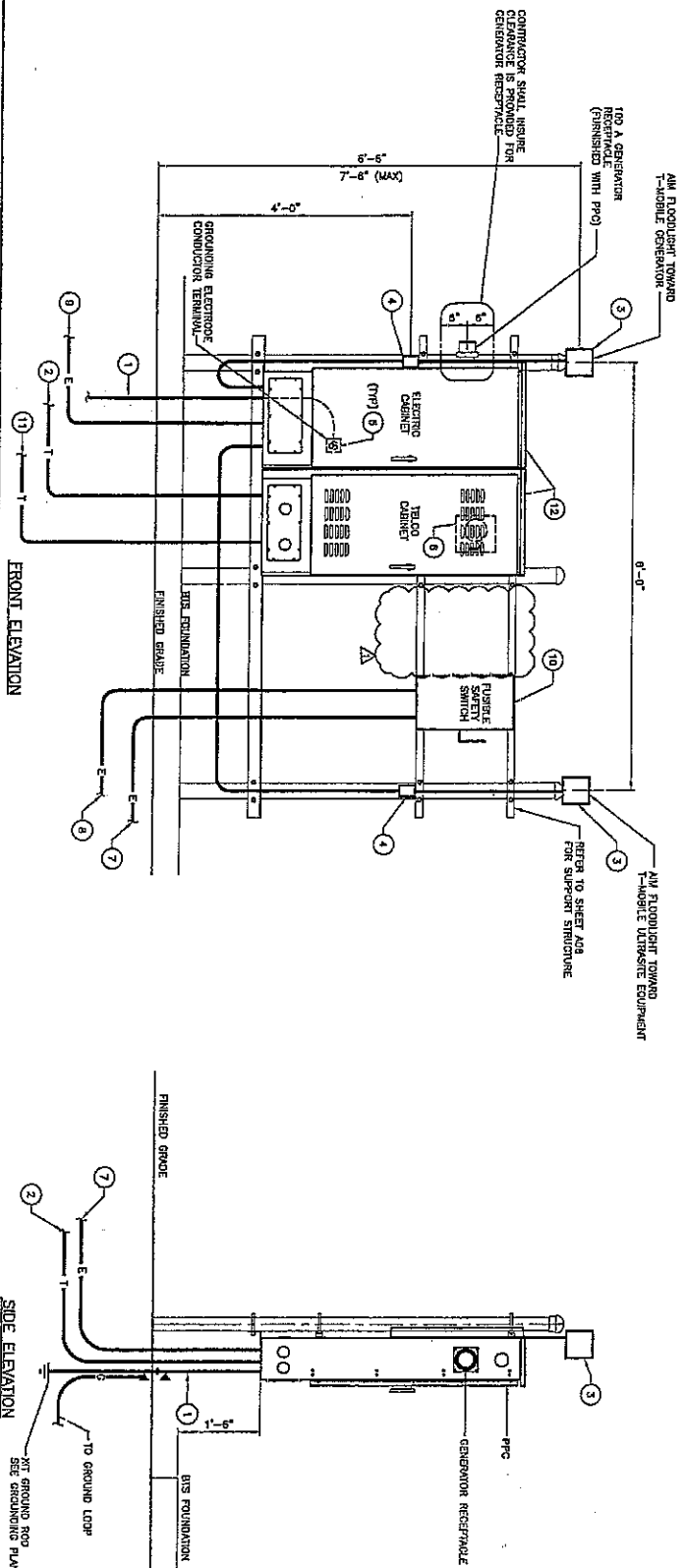
1251 SE RANSON RD
 LEE'S SUMMIT, MISSOURI 64081

DRAWING NUMBER
 ASC0226 -- E02

REV
 1

KEY NOTES

- 1 INSULATED GROUNDING ELECTRODE CONDUCTOR FROM ELECTRICAL CABINET GROUNDING ELECTRODE CONDUCTOR TERMINAL TO XIT GROUND ROD.
- 2 4" EMPTY CONDUIT WITH PUL WIRE FOR TELEPHONE SERVICE TO GIVE HEAD TO PLUM FOR TERMINATION POINT. USE LONG SNEED ELEPHANT BRAND AS DIRECTED BY URSI.
- 3 180 WATT, 120V QUANTUM FLOODLIGHT, GEN LIGHTING NO. 09-100, EXTEND 24 1/2" & 1 1/2" CONDUIT. CONNECT TO SINGLE POLE, 20A CIRCUIT BREAKER IN LOAD CENTER LOCATED IN ELECTRICAL CABINET.
- 4 20A, 120V SINGLE POLE LIGHT SWITCH, HUBBELL, NO. 1221 WITH WEATHERPROOF COVER.
- 5 APPLY CORROSION-RESISTANT FINISH TO MECHANICAL CONNECTIONS. USE COPPER BASED "N-ON" OR APPROVED EQUAL.
- 6 COOLING FAN ASSEMBLY, FIELD WIRE TO CIRCUIT BREAKER CBJ3 IN LOAD CENTER LOCATED IN ELECTRICAL CABINET.
- 7 2" C FROM FUSIBLE SAFETY SWITCH ON UTILITY RACK TO FUSIBLE SAFETY SWITCH ON PFC RACK. SEE DETAILS 1 & 2 ON SHEET E01.
- 8 2" C FROM FUSIBLE SAFETY SWITCH ON PFC RACK TO AUTOMATIC TRANSFER SWITCH. SEE DETAILS 1 & 2 ON SHEET E01.
- 9 2" C FROM AUTOMATIC TRANSFER SWITCH TO PFC ELECTRICAL CABINET. SEE DETAILS 1 & 2 ON SHEET E01.
- 10 FUSIBLE SAFETY SWITCH. SEE DETAILS 1 & 2 ON SHEET E01.
- 11 3/4" C FROM GENERATOR CONTROL PANEL TO PFC TELCO CABINET. SEE DETAILS 1 & 2 ON SHEET E01.
- 12 PFC ELECTRICAL & TELCO CABINETS TO BE HANGING & INSTALLED BY CONTRACTOR. MANUFACTURER: TROUBLESHOOTING ENGINEERS, INC. (E01) 722-0119. PART # LS11-M10. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR WORK INCORPORATION. SWANEE WOULD EXT. 187 DEAN CROUCH, EXT. 128



UTILITY RISER DIAGRAM

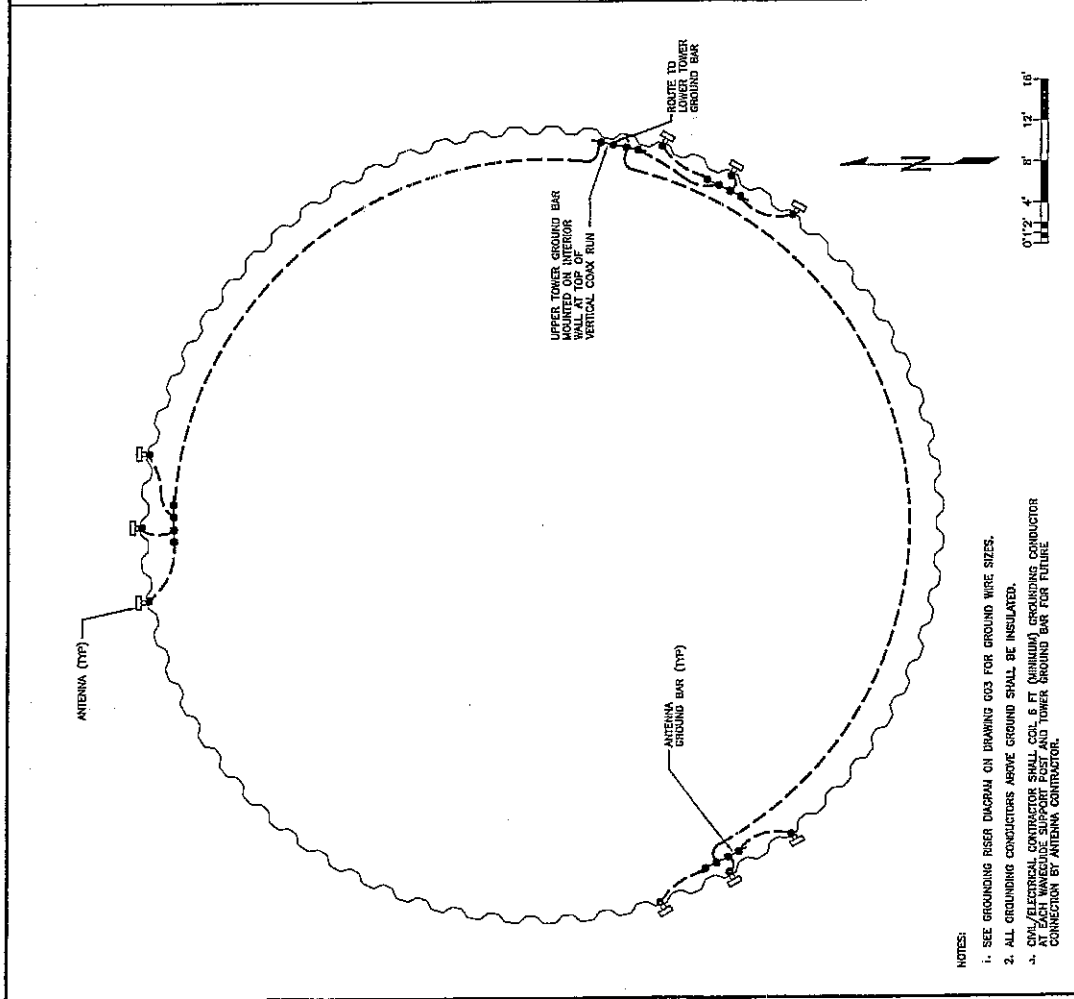
REV	DATE	REVISION DESCRIPTION	BY	CHKD	NOTED
A	08/14/08	ISSUED FOR REVIEW	JHT	JHT	NOTED: THIS DRAWING HAS BEEN REVISIONED AND IS THE FINAL DRAWING FOR CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS OF THE SITE PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITIES.
0	09/20/08	ISSUED FOR CONSTRUCTION	JHT	JHT	
1	09/14/08	GENERATOR CHANGE	JHT	JHT	

DESIGNED BY	DATE APPROVED	DATE
BY: H.A. HALL		
CHECKED BY	DATE APPROVED	DATE
BY: H.A. NOWIN		
APPROVED BY	DATE APPROVED	DATE
BY: H.A. NOWIN		
DATE APPROVED	DATE APPROVED	DATE
BY: H.A. NOWIN		

PROJECT NO.	1251 SE RANSON, RD
CLIENT	LEE'S SUMMIT, MISSOURI 64081
DATE	ASC0226 - E03



Selective Site Consultants, Inc.
 550 W. 118th Street, Suite 302
 Overland Park, Kansas 66210
 Tel: 913-453-2772

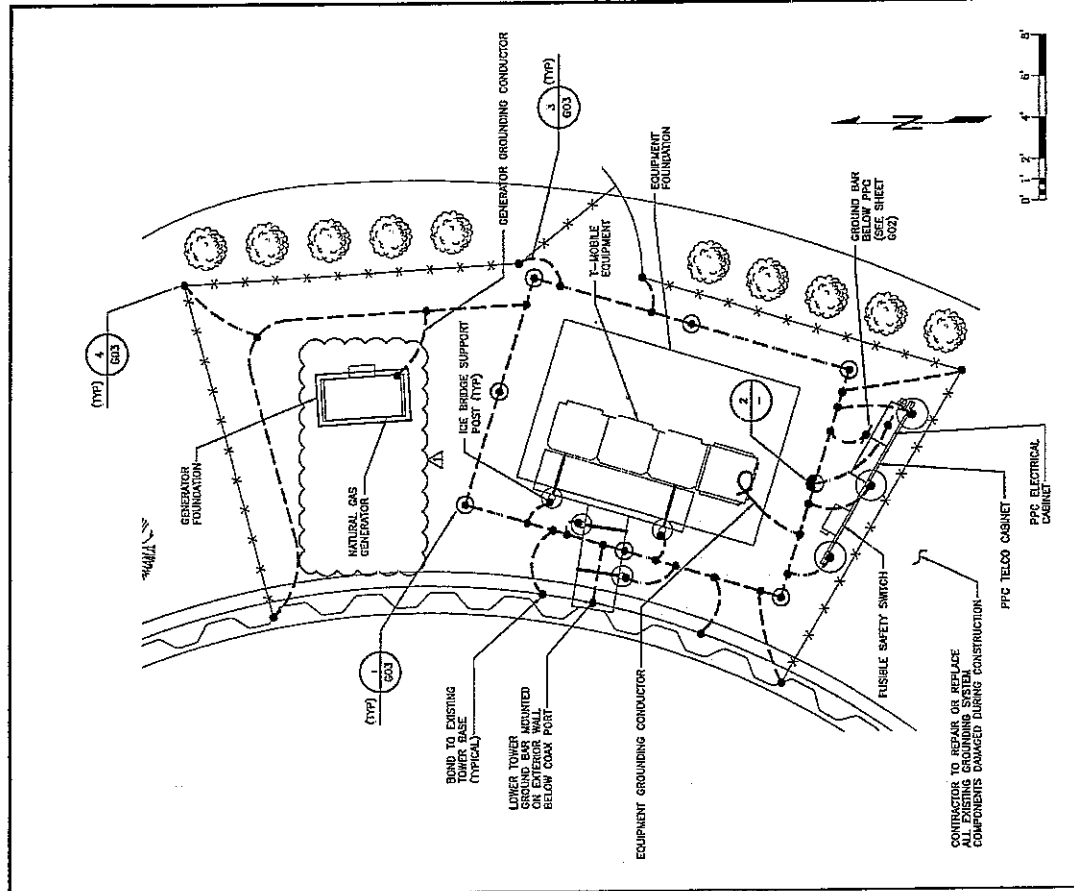


NOTES:

1. SEE GROUNDING RISER DIAGRAM ON DRAWING 003 FOR GROUND WIRE SIZES.
2. ALL GROUNDING CONDUCTORS ABOVE GROUND SHALL BE INSULATED.
3. CIVIL/ELECTRICAL CONTRACTOR SHALL COIL 6 FT (MINIMUM) GROUNDING CONDUCTOR TO LOWER TOWER GROUND BAR FOR FUTURE CONNECTION BY ANTENNA CONTRACTOR.

REV	DATE	REVISION DESCRIPTION
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B	08/28/08	ISSUED FOR CONSTRUCTION
C	09/14/08	GENERATOR CHANGE

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TOP OF WATER TOWER GROUNDING PLAN

1

BASE OF WATER TOWER GROUNDING PLAN

2

SELECTIVE SITE CONSULTANTS, INC.
CONSULTANTS IN ELECTRICAL, MECHANICAL, PLUMBING AND CHEMICAL/HAZARDOUS WASTE

3500 W. 110th Street, Suite 300
 Overland Park, Kansas 66210
 Phone: 813-438-7700
 Fax: 813-438-7777

**HWY 50 AND 291
 CELL SITE ASC 0226
 GROUNDING PLANS**

1251 SE RANSON RD
 LEE'S SUMMIT, MISSOURI 64081

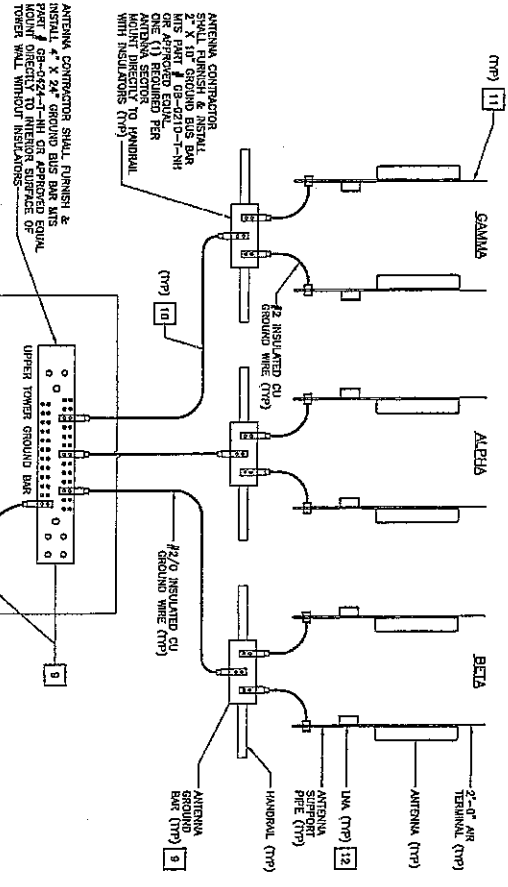
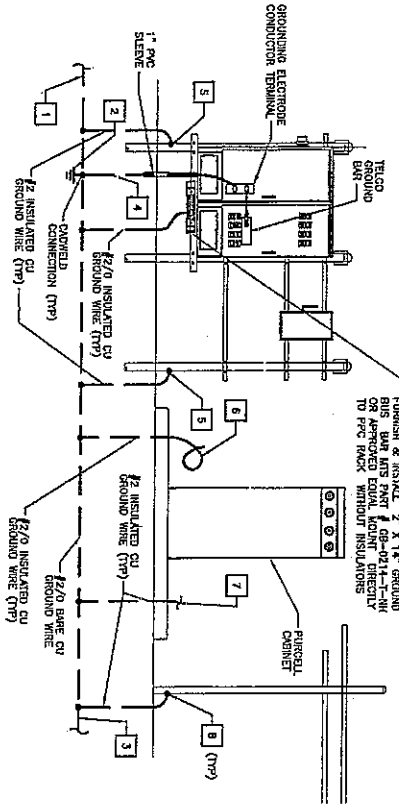
DRAWING NUMBER: A5C0226 - G01

- 1 FINISH AND INSTALL #2/0 BARE CU GROUND WIRE (SEE DWG 001 FOR GENERAL ROUTING).
- 2 FINISH AND INSTALL XIT GROUND SYSTEM MODEL KC-100S. (SEE SPECIFICATIONS).
- 3 IF EXISTING GROUND RING CONDUCTOR IS ENCOUNTERED, BOND TO EXISTING GROUND CONDUCTOR WITH #2/0 BARE CU GROUND WIRE. (SEE DWG 001 FOR GENERAL ROUTING).
- 4 FINISH AND INSTALL #2 INSULATED CU GROUND WIRE FROM PFC GROUNDING ELECTRODE TERMINAL TO XIT GROUND. (SEE DWG 001 FOR GENERAL ROUTING).
- 5 BOND PFC SUPPORT POSTS TO GROUND LOOP WITH #2 INSULATED CU GROUND WIRE AND CORDED CONNECTION.
- 6 FINISH AND INSTALL #2/0 INSULATED GROUND PIGTAIL, CORDED FROM GROUND LOOP AND COIL 10 FEET FOR FUTURE CONNECTION BY 1-MOBILE TO THE PIGTAIL CABINET GROUND BAR.
- 7 BOND GENERATOR FRAME TO GROUND LOOP WITH #2 INSULATED CU GROUND WIRE AND CORDED CONNECTION.

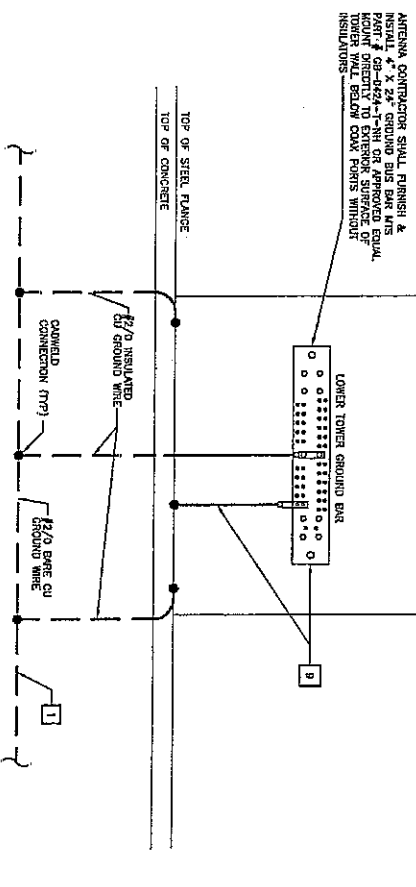
CIVIL / ELECTRICAL CONTRACTOR

- 8 BOND ICE BRIDGE SUPPORT POSTS TO GROUND LOOP WITH #2 INSULATED CU GROUND WIRE AND CORDED CONNECTION.
- 9 FINISH AND INSTALL TOWER GROUND BARS, BOND TO TOWER WITH #2/0 INSULATED CU GROUND WIRE & CORDED CONNECTIONS MOUNT LOWER TOWER GROUND BAR ON EXTERIOR WALL BELOW COAK PORT, MOUNT UPPER BAR ON INSIDE OF TOWER AT TOP OF VERTICAL COAK RAIL.
- 10 BOND ANTENNA HEADFRAME TO TOWER WITH #2/0 INSULATED CU GROUND WIRE AND MECHANICAL CONNECTIONS, MAKE CONNECTION TO HEADFRAME ABOVE CONNECTION TO TOWER, FINISH AND INSTALL ANTENNA GROUND BARS AS SHOWN ON THE TOWER GROUNDING RISER DIAGRAM.
- 11 FINISH AND INSTALL A 2'-0" LIGHTNING AIR TERMINAL ON EACH ANTENNA SUPPORT PIPE. (SEE DWG 008 FOR DETAIL).
- 12 BOND LUMS TO TOWER WITH MANUFACTURER'S GROUNDING KIT AND MECHANICAL CONNECTIONS, EACH LUM SHALL BE MOUNTED AS CLOSE TO ITS ANTENNA AS FEASIBLE, AND IF POSSIBLE SHALL BE MOUNTED IN A VERTICAL POSITION.

ANTENNA CONTRACTOR



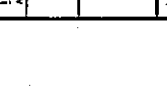
TOWER GROUNDING RISER DIAGRAM

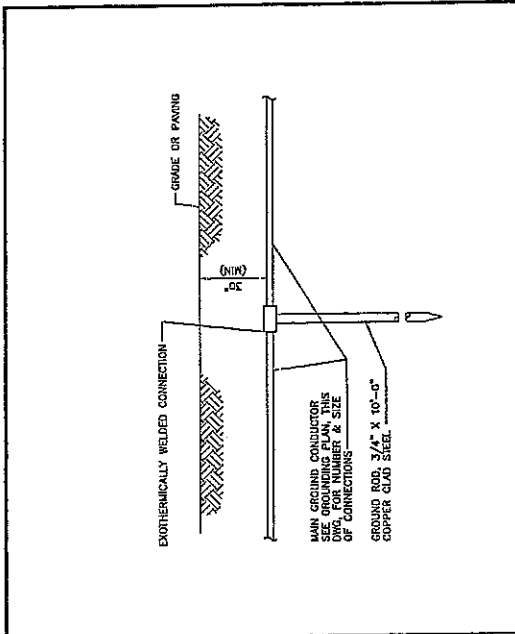


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1	09/14/08	GENERATOR CHANGE

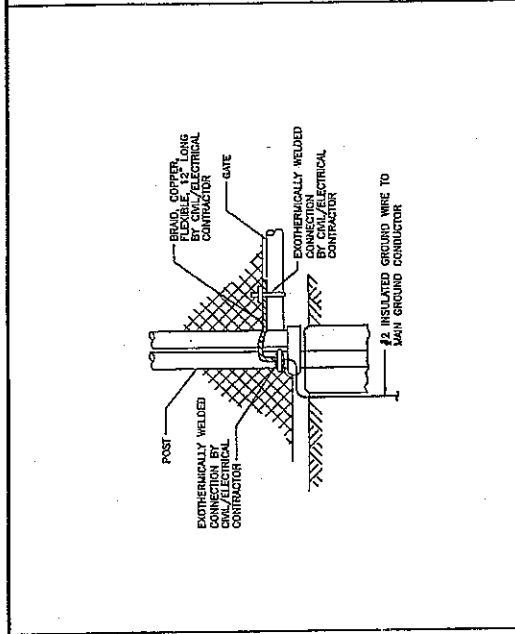
SELECTIVE SITE CONSULTANTS, INC.
 880 W. 11th Street, Suite 200
 Overland Park, KS 66204
 Phone: 913-458-7700
 Fax: 913-458-7777

DESIGNED BY: J.R. HILL
 CHECKED BY: H.A. MOYER
 SPECIFIED BY: H.A. MOYER
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 ASC0228 - G02

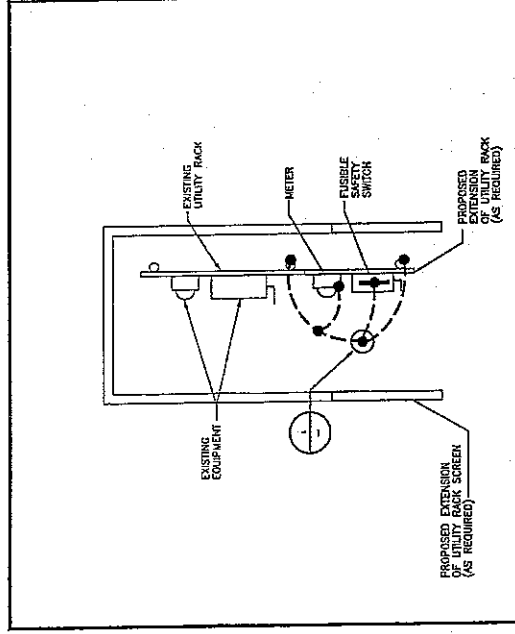




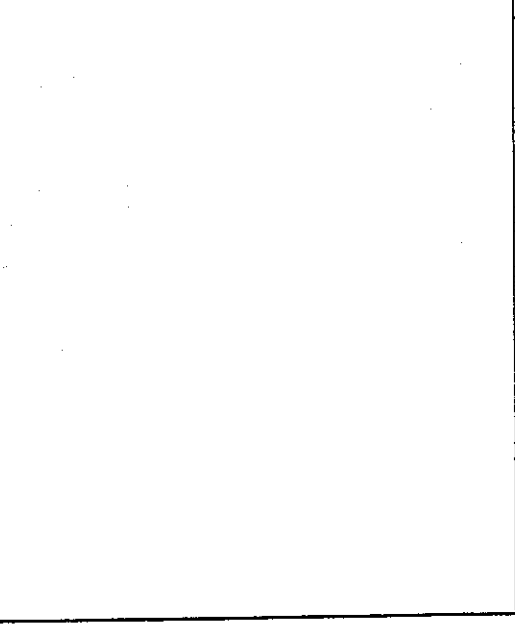
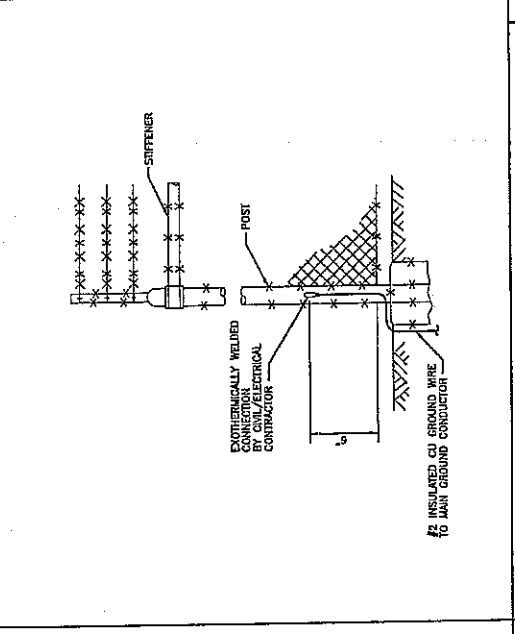
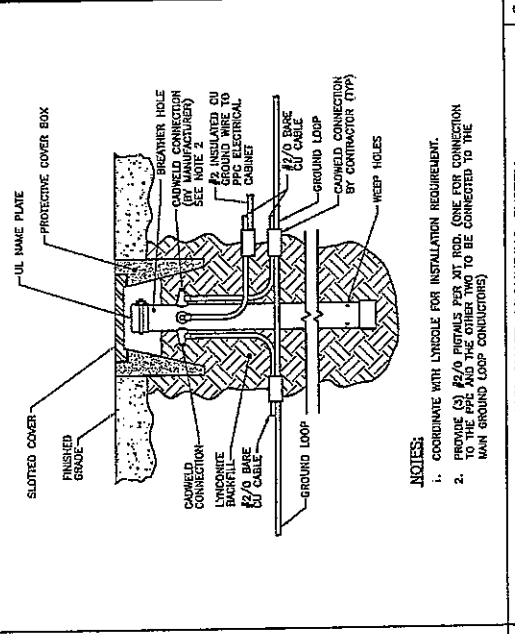
GROUND ROD



GATE AND POST GROUNDING



UTILITY RACK GROUNDING PLAN



NOTES:
 1. COORDINATE WITH LYRICOLE FOR INSTALLATION REQUIREMENT.
 2. PROVIDE (3) #2/0 RIGIDALS PER XT ROD. (ONE FOR CONNECTION TO THE PFC AND THE OTHER TWO TO BE CONNECTED TO THE MAIN GROUND LOOP CONDUCTORS)

XT STRAIGHT-SHAFT GROUNDING SYSTEM

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F-Mobile USA, INC.

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DESIGNED BY: J.R. HILL
 CHECKED BY: F.A. MORN
 SUPERVISOR: F.A. MORN
 DRAWING NUMBER: A5C0226 -- 003

CELL SITE A5C 0226
 GROUNDING DETAILS
 1251 SE RANSON RD
 LEE'S SUMMIT, MISSOURI 64081

- 3.7 ASPHALT FINISH ROAD.
- DIVISION 600 - ROOT FLEXIBLE PAVEMENT.
 - SECTION 403 - BUCKET ASPHALT CONCRETE PAVEMENT.

SECTION 02201 FENCING
PART 1 - GENERAL

- SCOPE OF SPECIFICATION
THIS SPECIFICATION PREScribes THE REQUIREMENTS FOR THE INSTALLATION OF CHAIN LINK FENCE (GALVANIZED AND THE ASSOCIATED POSTS, RAILS, BRACES, TERMINAL POSTS, GATES, BARBED WIRE, CONTRACTS, AND OTHER RELATED MATERIALS).

- RELATED SPECIFICATIONS
THE FOLLOWING SPECIFICATIONS PRESCRIBE ITEMS OF RELATED WORK:
- 02200: SITE WORK
COORDINATE WORK PRESCRIBED BY THIS SPECIFICATION WITH WORK PRESCRIBED BY THE ABOVE LISTED SPECIFICATIONS.

- TERMINOLOGY
1. CHAIN LINK FENCE CLASSIFICATION: CHAIN LINK FENCING SHALL BE CLASSIFIED BY FABRIC AS SHOWN IN TABLE 1 AND REFERRED TO AS GALVANIZED.

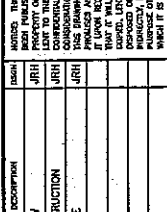
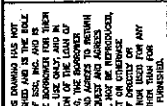
- BARBED WIRE. BARBED WIRE FOR ADDITIONAL SECURITY SHALL BE CLASSIFIED AS GALVANIZED (ZINC COATED).
- NPS: NOMINAL PIPE SIZE

- 1.2 REFERENCES
THE PUBLICATIONS LISTED BELOW FORM PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST EDITION AND AMENDMENT IN EFFECT AT THE TIME OF THE PROJECTS EXCEPT UNLESS NOTED OTHERWISE. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN, THE PUBLICATIONS LISTED BELOW SHALL BE THE REQUIREMENTS SPECIFIED HEREIN TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.

- ASTM A305 - SPECIFICATION FOR PIPE - STEEL, BLACK, AND HOT DIPPED, ZINC-COATED WELDED, AND SEAMLESS.
- ASTM A116 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) STEEL WORKED WIRE FENCE FABRIC.
- ASTM A120 - SPECIFICATION FOR PIPE, STEEL, BLACK, AND HOT DIPPED ZINC-COATED.
- ASTM A121 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) STEEL BARBED WIRE.
- ASTM A123 - SPECIFICATION FOR ZINC (HOT-DIPPED GALVANIZED) COVINGS ON IRON AND STEEL PRODUCTS.
- ASTM A143 - RECOMMENDED PRACTICE FOR SAFEGUARDING AGAINST ENBRITTELEMENT OF GALVANIZED STRUCTURAL STEEL PRODUCTS AND PROCEDURE FOR DETECTING BRITTLENESS.
- ASTM A165 - SPECIFICATION FOR ZINC COATING (HOT DIP) ON IRON AND STEEL FABRIC.
- ASTM A392 - SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC.
- ASTM A775 - SPECIFICATION FOR ZINC-COATED STEEL WIRE STRAND.
- ASTM A395 - SPECIFICATION FOR GALVANIZED STEEL SHEET.
- ASTM A576 - SPECIFICATION FOR STEEL SHEET AND STRIP, CRIBSON, HOT ROLLED, STRUCTURAL QUALITY.
- ASTM A941 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) CARBON STEEL WIRE FENCE FABRIC.
- ASTM A917 - SPECIFICATION FOR METALLIC COATED STEEL WIRE FOR CHAIN LINK FENCE FABRIC.
- ASTM F367 -- PRACTICE FOR INSTALLATION OF CHAIN LINK FENCE.
- ASTM F428 - SPECIFICATION FOR FENCE FITTINGS.

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6820 W. 110th Street, Suite 300
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- ASTM F696 - SPECIFICATION FOR STRENGTH REQUIREMENTS OF METAL POSTS AND RAILS FOR INDUSTRIAL CHAIN LINK FENCE.
- ASTM F1003 - SPECIFICATION FOR PIPE, STEEL, HOT-DIPPED, ZINC-COATED (GALVANIZED), HELD FOR FENCE STRONGHOUS.

- OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
1. OSHA CONSTRUCTION INDUSTRY STANDARDS, TITLE 29, CODE OF FEDERAL REGULATIONS, PART 192, SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.

- STORE MATERIALS 10 INCHES OFF THE GROUND OR SUB BY (USING WOOD BLOCKING OR OTHER APPROVED MATERIALS).
- STORE MATERIALS IN AREAS OF THE JOB SITE DESIGNATED OR APPROVED BY CONSTRUCTION MANAGER.

- GENERAL
CERTAIN PORTIONS OF THE WORK ARE SPECIFIED TO BE COMPLETED AND OPERATIONAL PRIOR TO COMPLETION OF ALL WORK. SEQUENCE EQUIPMENT AND GATE INSTALLATION, EQUIPMENT IN ADJACENT WORK AREAS, PLASSING AND SECURING SHALL BE SUBJECT TO THE APPROVAL OF CONSTRUCTION MANAGER.

- SUBMITTALS
MATERIALS ARE SUBJECT TO TESTING. MILL CERTIFICATES AND PRODUCT SPECIFICATION VERIFICATION SHALL BE SUBMITTED TO CONSTRUCTION MANAGER.

PART 2 - PRODUCTS

- MATERIALS
1. FENCE FABRIC
A. FABRIC SHALL BE 72 INCHES HIGH, HEAVY GALVANIZED CHAIN LINK FENCE CONFORMING TO ASTM A392, CLASS 2, OF 2 INCH LESH 9 GAGE WIRE (0.1875 INCHES IN DIAMETER), WITH THE TOP AND BOTTOM LINES WIGNED AND BARBED.
2. LINE POSTS
A. FOR FABRIC UP TO 4 FEET HIGH, LINE POSTS SHALL BE 2 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE WITH AN OUTSIDE DIAMETER OF 2.375 INCHES OR IN ACCORDANCE WITH ASTM A120.
B. FOR FABRIC MORE THAN 4 FEET HIGH, LINE POSTS SHALL BE 2-1/2 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE WITH AN OUTSIDE DIAMETER OF 2.875 INCHES, IN ACCORDANCE WITH ASTM A120.
3. END CORNER AND PULL POSTS
A. TOP, BOTTOM AND MID-SECTION RAILS SHALL CONFORM TO 2-1/4 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE IN ACCORDANCE WITH ASTM A120.
B. TENSION WIRE
A. TENSION WIRE SHALL BE 7 GAGE US STEEL WIRE GALVANIZED IN ACCORDANCE WITH ASTM A116 COATING CLASS III. THE TENSION WIRE SHALL BE STRETCHED NEAR THE TOP OF THE RAIL. THE TENSION WIRE SHALL BE STRETCHED AT THE TOP ALSO.
6. APPURTENANCES
A. BRACE BANDS, TENSION BANDS, AND TENSION BARS SHALL BE FABRICATED OF 3/8 INCH BY 7/8 INCH GALVANIZED STEEL. TENSION BARS SHALL BE 1/4 BY 3/4 INCH GALVANIZED STEEL BAR IN ACCORDANCE WITH ASTM A163.
7. FABRIC TIES
A. FABRIC TIES SHALL BE CLASS 1 GALVANIZED STEEL WIRE NO LESS THAN 9 GAGE

TABLE 1 LINE CORNER, PULL AND TERMINAL POST INSTALLATION SCHEDULE

LINE POST	FOUNDATION DIAMETER	FOUNDATION DEPTH	POST EMBEDEDMENT
LINE POST	0'-6"	3'-3"	3'-0"
TERMINAL POST	1'-0"	3'-3"	3'-0"
GATE POST	1'-0"	3'-3"	3'-0"
2-1/2 INCH	1'-6"	4'-0"	3'-6"
6 INCH	1'-6"	4'-0"	3'-6"
8 INCH	2'-0"	6'-0"	6'-0"

- POST TOPS
A. ONE POST TOP SHALL BE PROVIDED FOR EACH POST, WITH OPENINGS TO PERMIT THE INSTALLATION OF CONCRETE FOUNDATION. THE POST TOP SHALL BE FABRICATED FROM WELDABLE IRON THAT IS DESIGNED AS A WATER-TIGHT CLOSURE CAP FOR TUBULAR POSTS AND SHALL BE GALVANIZED PER ASTM A153.
- BARBED WIRE
A. BARBED WIRE SHALL CONSIST OF DOUBLE STRANDED, 12-1/2 GAGE WIRE, ASTM A192, WITH 3 INCHES SPACING BETWEEN STRANDS. THE TOP ONE FOOT OF THE FENCE SHALL CONSIST OF 3 STRANDED OF BARBED WIRE ATTACHED TO 45 DEGREE ANGLE HEAVY PRESSED WINGS CAPABLE OF WITHSTANDING WITHOUT FAILURE 250 POUNDS DOWNWARD PULL AT THE OUTERMOST END OF THE ANGLE.

- GATES
A. GATE MATERIALS SUCH AS FABRIC, BOLTS, NUTS, TENSION BARS, AND BARBED WIRE SHALL BE CONSISTENT WITH FENCE MATERIALS. GATES SHALL CONSIST OF THE FOLLOWING TYPES:
- SINGLE AND DOUBLE SWING GATES
- CONTINUER SLIDE GATES
- SLIDE GATES
- VERTICAL LIFT GATES
(REFER TO DRAWINGS FOR TYPES AND LOCATIONS.)
B. GATES SHALL BE MANUALLY OPERATED. SHOP DRAWINGS FOR GATES OVER 12 FEET HIGH SHALL BE SUBMITTED FOR APPROVAL.

PART 3 - EXECUTION

- EXAMINATION
THE PHYSICAL LOCATION OF FEATURES SUCH AS FENCE LINES, GATES, TERMINAL POSTS SHALL BE IN ACCORDANCE WITH THE PLANS. REMOVAL OF TREES, SHRUBS, OR LANDSCAPE AREAS IS SUBJECT TO PRIOR APPROVAL UNLESS SPECIFICALLY SHOWN TO BE REMOVED ON THE DRAWINGS.

- PREPARATION
PROVIDE A REASONABLY UNOBSTRUCTED PROFILE AT THE FENCE LINE. THE BOTTOM OF THE FENCE SHALL BE AT THE FINISHED GRADE AND NOT IN AN AREA WHERE THE FENCE COULD BE DAMAGED BY SUCH AS STRANDED AND DRAMAAGE BITCHES AND IT IS IMPROBATION TO CONFORM TO THE GROUND CONTOUR. THE FENCE SHALL SPAN THE DEPRESSION, UNLESS OTHERWISE SHOWN ON THE PLANS. CLOSE THE SPACE BELOW THE BOTTOM OF THE FENCE WITH EXTRA FENCE FABRIC OR BARBED WIRE. IF EXTRA LENGTH FENCE POSTS ARE REQUIRED, STANDARD LENGTH POSTS TOGETHER WITH AN INTERMEDIATE POSTS, STAKES, BRACES, EXTRA FABRIC, OR WIRE AS MAY BE REQUIRED.

- INSTALLATION
A. POST SPACING
1. INSTALL LINE POSTS AND BRACE POSTS AT INTERVALS NOT TO EXCEED 10 FEET. POSTS SHALL BE EVENLY SPACED. LOCATE CORNER AND TERMINAL POSTS ON THE CONSTRUCTION DEGREE OF DEFLECTION.
B. INSTALLATION OF LINE, CORNER, PULL, AND TERMINAL POSTS
1. SET LINE, CORNER, PULL, AND TERMINAL POSTS VERTICALLY IN CIRCULAR CONCRETE FOUNDATION IN ACCORDANCE WITH THE SCHEDULE IN TABLE 1 AND IN ACCORDANCE WITH ASTM F697.
2. THE EXPOSED SURFACE OF THE CONCRETE FOUNDATION SHALL BE SMOOTH 1/2 INCH FROM THE BOTTOM OF THE CONCRETE POUR.

TABLE 1 LINE CORNER, PULL AND TERMINAL POST INSTALLATION SCHEDULE

LINE POST	FOUNDATION DIAMETER	FOUNDATION DEPTH	POST EMBEDEDMENT
LINE POST	0'-6"	3'-3"	3'-0"
TERMINAL POST	1'-0"	3'-3"	3'-0"
GATE POST	1'-0"	3'-3"	3'-0"
2-1/2 INCH	1'-6"	4'-0"	3'-6"
6 INCH	1'-6"	4'-0"	3'-6"
8 INCH	2'-0"	6'-0"	6'-0"

HWY 60 AND 291
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SPECIFICATIONS (2 of 7)
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DRAWING NUMBER: A5C0226 - SP2
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3. Holes may be hand drilled as called, spread out from the excavations uniformly adjacent to the fence line or as directed by the construction manager. If rock is encountered drill into the rock rock at least 12 inches into the rock. The holes shall be drilled at least 12 inches from the edge of the excavation and shall be drilled at least 12 inches from the edge of the excavation. If solid rock is below soil, overburden shall be drilled to full depth required. Direct penetration into rock need not exceed minimum depths specified.
- G. SETTING POSTS
 1. REMOVE AIR LOOSE AND FOREIGN MATERIAL FROM THE SITES AND GROUPE OF THE HOLES. HOSTILE THE SOIL PRIOR TO PLACING THE CONCRETE. CENTER AND ALIGN THE HOLES. PLACE THE CONCRETE IN A CONTINUOUS POUR IN THE HOLE. REMOVE ALL EXCESS CONCRETE AND SMOOTH THE TOP SURFACE OF THE CONCRETE. REMOVE ALL EXCESS CONCRETE FROM THE HOLE.
 2. EXTEND FORMING RODS UP TO THE TOP OF THE BOTTOM OF THE HOLE. EXTEND FORMING RODS UP TO THE TOP OF THE BOTTOM OF THE HOLE. EXTEND FORMING RODS UP TO THE TOP OF THE BOTTOM OF THE HOLE. EXTEND FORMING RODS UP TO THE TOP OF THE BOTTOM OF THE HOLE.
 3. POSTS THAT ARE SET IN STEEP SLOPES SHALL BE SET IN PLACE USING A NON-SHOCK PORTLAND CEMENT GROUT PERMITTED BY THE ENGINEER.
 4. ENSURE THAT THE CONCRETE HAS CURED AT LEAST 72 HOURS OF ITS DESIGN STRENGTH AS PRESCRIBED ON THE PLAN DETAILS, OR HAS CURED A MINIMUM OF 7 DAYS AFTER SETTING THE POSTS.
- D. RAILS AND BRACING
 1. INSTALL FENCE WITH A TOP RAIL AND BOTTOM TENSION WIRE. IF TOP RAIL IS OMITTED FOR A TEMPORARY FENCE, INSTALL A TOP TENSION WIRE ALSO. TOP RAILS SHALL BE CONTINUOUS THROUGH POST COPS OR EXTENSION ARMS BENDING TO THE ROUTES FOR WIND LOADS. SPACE 8 FOOT MINIMUM FROM THE TIME AT 2 FEET ON CENTERS.
 2. INSTALL TENSION WIRES PARALLEL TO THE LINE OF FENCE BY WEAVING NO LESS THAN 8 GAGE WIRE OF THE APPROXIMATE THE THROUGH FABRIC AND TING TO EACH POST.
 3. INSTALL TOP RAIL AND TENSION WIRE PRIOR TO INSTALLATION OF THE CHAIN LINK FABRIC. TOP RAIL AND TENSION WIRE SHALL BE STRETCHED WITH THE USE OF A LINE POST. USE END CLAMPS FOR ATTACHING THE TOP RAIL OR TENSION WIRE AND ATTACHING TO PALS OR TENSION WIRE AND BENDED TO CORNER POSTS.
- E. INSTALLING FABRIC
 1. INSTALL THE CHAIN LINK FENCE FABRIC SO THAT THE POSTS ARE ENCLOSED. STRETCH THE FABRIC TIGHT, APPROXIMATELY 2 INCHES ABOVE THE GROUND, AND SECURELY TO THE POSTS.
 2. CUT THE FABRIC AND ATTACH EACH SPAN INDEPENDENTLY AT ALL TERMINAL AND CORNER POSTS. TO STRETCH FABRIC WITH FABRIC BRINGS SPREAD AT MAXIMUM BANDS, OR OTHER APPROVED MATERIAL ATTACHED AT MAXIMUM 15 INCH INTERVALS TO FASTEN FABRIC TO LINE POSTS. PULL AT THE TOP EDGE OF THE FABRIC TO THE FASTEN THE EDGE OF FABRIC TO THE BOTTOM TENSION WIRE WITH WIRE TIES AT INTERVALS NOT EXCEEDING 10 INCHES.
- F. BARBED WIRE
 1. INSTALL BARBED WIRE ON GATES TO MATCH THAT INSTALLED ON THE LINE FENCE. TO ACCOMMODATE BARBED WIRE, EXTEND THE END MEMBERS OF GATE ONE (1) FOOT ABOVE THE HORIZONTAL SECTION OF THE GATE FRAME. SPACE STRANDS UNIFORMLY ON AND PASS AND GATE POSTS OVER TOP OF FENCE. INCLUDE EXTENSION ARMS APPROXIMATELY 45 DEGREES. STRETCH THE STRANDS OF BARBED WIRE TO REMOVE SAG, AND ANCHOR FINALLY TO EXTENSION ARMS. USE 3 STRANDS OF BARBED WIRE.
 2. INSTALL GATES ACCORDING TO THE LOCATIONS, TYPE AND SIZE INDICATED ON THE PLANS.
 3. GATES SHALL BE PROPERLY BARBED AND TURNED TO PREVENT SCISSOR BARBING, AND WEAVING AND SHALL BE COVERED WITH SAE TYPE 30 GALVANIZED STEEL SHEET. VERTICAL MEMBERS OF THE GATE SHALL CARRY THE TOP OF 3 STRANDS OF BARBED WIRE. FIBER END METAL BRACES SHALL BE FURNISHED FOR FASTENING THE BARBED WIRE TO THE GATE FRAME. BRACES SHALL BE MADE OF 2" X 4" X 1/2" GALVANIZED STEEL. BRACES SHALL HAVE 1/2" X 1/2" X 1/2" WELDING METAL. BRACES SHALL BE WELDED TO THE GATE FRAME. BRACES SHALL BE WELDED TO THE GATE FRAME. BRACES SHALL BE WELDED TO THE GATE FRAME.
 4. INSTALL GATES FLUID, LEVEL, AND SECURE FOR THE FULL OPENING WITHOUT INTERFERENCE.

4. INSTALL BRASS NUTS SET IN CONCRETE IN ACCORDANCE WITH GATE MANUFACTURERS RECOMMENDATIONS. SET ALL BOLTS AND ANCHORS WITH PROPER TORQUE. INSTALL LUBRICATE, AND ADJUST EQUIPMENT TO ENSURE SMOOTH OPERATION.
- H. MISCELLANEOUS INSTALLATION
 1. USE U-SHAPED THE WIRES, CONFORMING TO THE DIMENSIONS OF PIPE, THAT CLASP THE BRASS NUTS TO THE GATE FRAME.
 2. BRASS NUTS FOR FASTENERS ON TENSION BANDS AND HARDWARE BOLTS ON THE SIDE OF THE FENCE OPPOSITE THE FABRIC, THE ENDS OF BOLTS, ONCE SET AND CHECKED FOR SMOOTH OPERATION, SHALL BE REBENT TO PREVENT REMOVAL OF NUTS.
 3. REPAIR DAMAGED IN THE FIELD WITH METHODS AND TECHNIQUES AS RECOMMENDED BY THE MANUFACTURER.
- I. CLEANING
 1. WHERE THE AREA OCCUPIED BY THE FENCE IS OTHER THE LIMITS OF CLEARING AND BRUSHING FOR THE PROJECT, THE CONTRACTOR SHALL PERFORM CLEARING TO A WIDTH OF AT LEAST 2 FEET ON EACH SIDE OF THE FENCE LINE AS NECESSARY TO ALLOW A PROPER FENCE INSTALLATION.
- J. PROTECTION
 1. A GUARANTEE SHALL BE FURNISHED FOR ALL MATERIALS, INSTALLATION AND WORKMANSHIP TO BE FREE OF DEFECTS FOR A PERIOD OF 1 YEAR FROM THE DATE OF ACCEPTANCE UNLESS NOTED OTHERWISE IN THE CONTRACT DOCUMENTS. ANY DEFECT IN INSTALLATION DURING THE GUARANTEE PERIOD WITHOUT COST TO THE OWNER.

NO	DATE	REVISION DESCRIPTION	ISSUED BY	REVISIONS
0	09/14/06	ISSUED FOR REVIEW	JRH	REVISIONS: THE GROUND LINE AND HOLE LOCATIONS AND SIZES FOR THE GATE FRAME SHALL BE AS SHOWN ON THE PLAN. THE GATE FRAME SHALL BE AS SHOWN ON THE PLAN. THE GATE FRAME SHALL BE AS SHOWN ON THE PLAN.
1	09/14/08	GENERATION CHANGE	JRH	REVISIONS: THE GATE FRAME SHALL BE AS SHOWN ON THE PLAN. THE GATE FRAME SHALL BE AS SHOWN ON THE PLAN. THE GATE FRAME SHALL BE AS SHOWN ON THE PLAN.



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 Date: 09/14/08

LEES SUMMIT, MISSOURI 64081
 HWY 50 AND 291
 CELL SITE ASG 0228
 SPECIFICATIONS (3 of 7)
 ASC0226 - SP3

SECTION 03000 - CONCRETE WORK

PART 1 - GENERAL

1.1 SCOPE
FORMWORK, REINFORCING STEEL, ACCESSORIES, CAST-IN PLACE CONCRETE, FINISHING, CURING AND TESTING FOR STRUCTURAL CONCRETE FOUNDATIONS.

1.2 REFERENCES:

- A. ACI (AMERICAN CONCRETE INSTITUTE).
 - 1. ACI 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS.
 - 2. ACI 304 RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE.
 - 3. ACI 305 RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING.
 - 4. ACI 306 RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING.
 - 5. ACI 308 STANDARD PRACTICE FOR CURING CONCRETE.
 - 6. ACI 309 STANDARD PRACTICE FOR CONSOLIDATION OF CONCRETE.
 - 7. ACI 318 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
 - 8. ACI-317 RECOMMENDED PRACTICE FOR CONCRETE FORMWORK.
- B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS) ARE THE PUBLISHED STANDARDS OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS ARE USED IN THE ACI STANDARDS AND ARE A PART OF THIS SPECIFICATION.

PART 2 - PRODUCTS

2.1 REINFORCEMENT MATERIALS:

- A. REINFORCING BARS: ASTM A615, GRADE 60, NEW DEFORMED BILLET-STEEL BARS, PLAIN FINISH.
- B. FURNISH CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS AS REQUIRED FOR SUPPORT OF REINFORCING STEEL AND WIRE FABRIC.

2.2 CONCRETE MATERIALS:

- A. PORTLAND CEMENT SHALL BE TYPE I, CONFORMING TO ASTM C-150.
- B. AGGREGATES SHALL CONFORM TO ASTM C-33.
 - 1. FINE AGGREGATE SHALL BE UNWASHED, CLEAN, SHARP, WASHED NATURAL, OR CRUSHED SAND, FREE FROM ORGANIC MATTER.
 - 2. COARSE AGGREGATE SHALL BE UNWASHED, CLEAN, OR WASHED, CRUSHED ROCK HAVING HARD, STRONG, Durable Pieces, FREE FROM IMPUREMENTS.
 - 3. MAXIMUM SIZES OF COARSE AGGREGATES SHALL BE 3/4 INCH IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM C-33 GRADATION SIZE NO. 67.
- C. WATER USED IN THE CONCRETE MIX SHALL BE POTABLE, CLEAN, AND FREE FROM OILS, ACIDS, SALTS, CHLORIDES, ALKALI, SUGAR, VEGETABLE, OR OTHER INJURIOUS SUBSTANCES.
- D. THE CONCRETE SHALL CONTAIN AN AIR-ENTRAPPING ADMIXTURE COMPLYING WITH THE REQUIREMENTS OF ASTM C-260 AND ASTM C-274. THE ADMIXTURE SHALL BE MANUFACTURED BY A REPUTABLE MANUFACTURER AND BOTTLED IN LIQUID SOLUTION. THE USE OF CALCIUM CHLORIDE OR AN ADMIXTURE CONTAINING CALCIUM CHLORIDE IS PROHIBITED.
- E. ALL MATERIALS SHALL BE MANUFACTURED BY A REPUTABLE MANUFACTURER TO ASSURE COMPATIBILITY.
 - 1. W.R. GRACE
 - 2. SNA CORP.
 - 3. MASTER BUILDERS
 - 4. EUCRID CHEMICAL CO.
- F. CURING COMPOUNDS SHALL CONFORM TO ASTM C309, TYPE 1, ID, CLASS A AND B AND ASTM C171 AS APPLICABLE.

2.3 CONCRETE MIX:

- A. PROPORTION CONCRETE MIX IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 301. THE STRENGTH OF CONCRETE SHALL BE AS INDICATED ON THE DRAWINGS. WHERE STRENGTH IS NOT CLEARLY INDICATED, CONCRETE OF MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3600 PSI SHALL BE USED.
- B. THE CONCRETE MIX SHALL BE DESIGNED FOR A MAXIMUM SLUMP OF THREE INCHES AT THE TIME OF PLACING. TESTS OF THE SIMPLEST CONSISTENCY TEST CAN BE AFFIDAVIT PLACED SHALL BE USED.
- C. ALL CONCRETE SHALL HAVE THREE (3) TO FIVE (5) PERCENT ENTRAINED AIR.
- D. ALL STRUCTURAL CONCRETE SHALL CONTAIN A WATER-REDUCING AGENT.

PART 3 - EXECUTION

3.1 GENERAL:

- A. CONTRACT AND ERECT FORMWORK IN ACCORDANCE WITH ACI 301 AND ACI 347.
- B. COLD-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 306.
- C. HOT-WEATHER CONCRETING SHALL BE IN ACCORDANCE WITH ACI 305.

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 BUILT 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 FINISHNESS. 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. ANCHORS AND ITEMS OF TEMPORARY BRACING, ANCHORAGE AND TEMPLATES AS REQUIRED TO MAINTAIN THE SETTING AND ALIGNMENT.

3.3 REINFORCEMENT PLACEMENT:

- A. PLACE REINFORCEMENT ACCORDING TO CHECKED AND RELEASED DRAWINGS AND IN ACCORDANCE WITH ACI 301 AND ACI 318.
- B. ADEQUATE FORMWORK SUPPORT AND SECURE REINFORCEMENT AGAINST DISPLACEMENT FROM FORMWORK CONSOLIDATION OR CONCRETE PLACEMENT AND CONSOLIDATION. SUPPORT REINFORCING ON METAL CHAIRS, RUNNERS, BOLSTERS, SPACERS AND HANGERS.
- C. SPACES OF REINFORCING BARS SHALL BE CLASS B UNLESS SHOWN OTHERWISE ON THE DRAWINGS. SPACES SHALL BE STAGGERED. FULL DEVELOPMENT LENGTH SHALL BE PROVIDED ACROSS JOINTS.
- D. LOCATE REINFORCING TO PROVIDE CONCRETE COVER AND SPACING SHOWN ON THE DRAWINGS. MINIMUM COVER SHALL BE AS REQUIRED BY ACI 318.
- E. 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 BRACING, TIES, AND CLEANS REMOVED. ALL OPENINGS FOR UTILITIES AND FULLY BOKED 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 CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301 AND ACI 304 AND SHALL BE CARRIED OUT AT SUCH A RATE THAT 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.

C. ALL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED AND COMPACTED BY VIBRATION SHOWING NO BUBBLING OR FORMING DURING THE OPERATION OF PLACING AND DEPOSING IN ACCORDANCE WITH ACI 303. THE CONCRETE SHALL BE THOROUGHLY WORKED AROUND REINFORCEMENT, EMBEDDED ITEMS, AND INTO THE CORNERS OF THE FORMS SO AS TO DRAINAGE 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 SLAG FINISH TOLERANCE AS PERMITTED FOR ALL FINISHES WITH 20 AND FOR LEVEL, FL = 10. THE MINIMUM LOCAL NUMBER FOR FINISHES: FF = 15 AND FOR LEVEL, FL = 10.
- B. SURFACES OF FLOOR SLABS SHALL RECEIVE TWO COATS OF A CLEAR SEALER/HARDNER.
- C. ABOVE GRADE WALL SURFACES SHALL HAVE A SMOOTH FORM FINISH AS DEFINED IN CHAPTER 10 OF ACI 301.

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 RELATIVE HUMIDITY OF 90 PERCENT AND PROPER HARDENING OF THE CONCRETE.
- B. CURING SHALL IMMEDIATELY FOLLOW THE FINISH OPERATION. CONCRETE SHALL BE KEPT CONTINUOUSLY MOIST AT LEAST OVERNIGHT, IMMEDIATELY FOLLOWING THE INITIAL CURING. BEFORE THE CONCRETE HAS DRIED, ADDITIONAL CURING SHALL BE ACCOMPLISHED BY ONE OF THE FOLLOWING METHODS OR METHODS:
 - 1. FOGGING OR CONTINUOUS SPRINKLING.
 - 2. ABSORPTIVE MAT OR FABRIC KEPT CONTINUOUSLY WET.
 - 3. NON-ABSORPTIVE FILM (POLYETHYLENE) OVER A PREVIOUSLY SPRINKLED SURFACE.
 - 4. SAND OR OTHER COVERING KEPT CONTINUOUSLY WET.
 - 5. CONTINUOUS STEAM (NOT EXCEEDING 150F) OR VAPOR MIST BATH.
 - 6. SPRAYED-ON CURING COMPOUND APPLIED IN TWO COATS, SPACED IN PERPENDICULAR DIRECTIONS.
- C. THE FINAL CURING SHALL CONTINUE UNTIL THE CUMULATIVE NUMBER OF DAYS OR THE FINAL CURING PERIOD HAS BEEN MET. THE CURING PERIOD SHALL BE 7 DAYS OR MORE IN CONTACT WITH CONCRETE IS ABOVE AIR 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.

REV	DATE	REVISION DESCRIPTION	ISSUED FOR REVIEW	ISSUED FOR CONSTRUCTION	GENERATOR CHANGE
A	09/14/08				
0	08/26/08				
1	08/14/08				

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DESIGNED BY J.P. HALL		HWY 50 AND 291 CELL SITE A5C 0226 SPECIFICATIONS (4 of 7)
CHECKED BY H.A. MOHR		
DRAWN BY M.C. MOHR		1251 SE RANSON RD LEE'S SUMMIT, MISSOURI 64081
DATE 1000 10/20/08		
PROJECT NO. HWY 50/R		ASCC0226 - SP4

SECTION 05120 STRUCTURAL STEEL

PART 1 - GENERAL

1.1 SCOPE

A. PROVIDE FABRICATION AND ERECTION OF STRUCTURAL STEEL AND OTHER ITEMS AS SHOWN ON THE DRAWINGS OR REQUIRED BY OTHER SECTIONS OF THESE SPECIFICATIONS.

1.2 REFERENCES:

- A. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
 - 1. MANUAL OF STEEL CONSTRUCTION, ALLOWABLE STRESS DESIGN (ASD).
- B. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM):
 - 1. ASTM A36: PPL, STEEL, BLACK AND HOT DIPPEL, ZINC-COATED WELDED AND SEAMLESS CARBON-STEEL PIPES, RIGID JOINTS, QUALITY.
 - 2. ASTM A136: ZINC-NI-COATED COILS FOR ROOF AND STEEL PRODUCTS.
 - 3. ASTM A307: DRAGON STEEL BOLTS AND NUTS, 80000 PSI TENSILE STRENGTH, 1/2" TO 1 1/2" DIA.
 - 4. ASTM A572: HIGH STRENGTH LOW ALLOY STEEL, STRUCTURAL, 50ksi (345MPa).
 - 5. ASTM A573: TENSILE STRENGTH AND SEAMLESS CARBON STEEL STRUCTURAL PRODUCTS.
 - 6. ASTM A574: CARBON AND LOW ALLOY STEEL NUTS.
 - 7. ASTM A575: CARBON AND LOW ALLOY STEEL BOLTS, 150 (1035MPa).
 - 8. ASTM A576: HEAT-TREATED STRUCTURAL STEEL BOLTS, 150 (1035MPa).
 - 9. ASTM A577: COMPRESSED STEEL WASHERS QUALITY BURNISHED ON IRON AND STEEL WITH STRUCTURAL FASTENERS.
- C. AMERICAN WELDING SOCIETY (AWS):
 - 1. AWS A5.1: COVERED CARBON STEEL ARC WELDING ELECTRODES.
 - 2. AWS A5.5: COVERED CARBON STEEL ELECTRODES FOR SHIELD METAL ARC WELDING.
 - 3. AWS D1.1: STRUCTURAL WELDING CODE - STEEL.
- D. RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RSCC):
 - 1. SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 BOLTS OR ASTM A490 BOLTS, AS EXPOSED BY AISC.
- E. STEEL STRUCTURES PAINTING COUNCIL (SSPC):
 - 1. SSPC-SP-13: POWER TOOL CLEANING.
 - 2. SSPC-SP-11: RED IRON OXIDE, ZINC CHROMATE, RAIN UNSEED OIL, AND ALKALD PAINT.
- F. SUBMITTALS:
 - 1. SUBMIT THE FOLLOWING FOR APPROVAL:
 - A. FABRICATION AND ERECTION DRAWINGS SHOWING ALL DETAILS, CONNECTIONS, MATERIAL DESIGNATIONS, AND ALL TOP OF STEEL DESIGNATIONS.
 - B. WELDERS SHALL BE QUALIFIED AS PRESCRIBED IN AWS D1.1.

PART 2 - PRODUCTS

- 2.1 STRUCTURAL STEEL:
 - A. SHAPES, PLATES AND BARS SHALL CONFORM TO ASTM A36.
 - B. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B.
 - C. STEEL PIPE SHALL CONFORM TO ASTM A53, TYPE E OR S, GRADE B.
- 2.2 ANCHOR BOLTS:
 - A. ANCHOR BOLTS SHALL CONFORM TO ASTM A307 WITH HEAVY HEXAGONAL NUTS.
- 2.3 BOLTS:
 - A. COMMON (MACHINE) BOLTS SHALL CONFORM TO ASTM A307 GRADE A AND NUTS TO ASTM A307. ONE COMMON BOLT ASSEMBLY SHALL CONSIST OF A BOLT, A HEAVY HEX NUT AND A HARDENED WASHER.
 - B. HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A572, ONE HIGH STRENGTH BOLT ASSEMBLY SHALL CONSIST OF A BOLT, A HEAVY HEX NUT AND A HARDENED WASHER. HARDENED WASHERS SHALL BE HARDENED TO A MINIMUM OF 150 (1035) KSI. THE HARDENED WASHER SHALL BE INSTALLED AGAINST THE ELEMENT TO BE TIGHTENED IN HIGHWAYS.
- 2.4 WELDING ELECTRODES:
 - A. WELDING ELECTRODES SHALL CONFORM WITH AWS D1.1 USING AWS E5.1 OR AWS A5.5 EXXX AND SHALL BE COMPATIBLE WITH THE WELDING PROCESS SELECTED.

2.5 PRIMERS

A. PRIMER SHALL BE A RED CROSS-CARBONATE PRIMER COMPLIING WITH SSPC PAINT SPECIFICATION NO. 11.

PART 3 - EXECUTION

3.1 FABRICATION:

- A. SHOP FABRICATE AND ASSEMBLE MATERIALS AS SPECIFIED HEREIN.
 - 1. FABRICATE PARTS OF STRUCTURAL STEEL IN ACCORDANCE WITH THE AISC-A50 SPECIFICATIONS, AND AS INDICATED ON THE APPROVED SHOP DRAWINGS.
 - 2. ALL EXPOSED STRUCTURAL STEEL SHALL BE HOT-DIP GALVANIZED PER ASTM A136.
 - 3. PROTECT MARK AND MATERIAL MARKS FOR FIELD ASSEMBLY AND FOR IDENTIFICATION AS TO LOCATION FOR WHICH INTENDED.
 - 4. FABRICATE AND DELIVER IN A SEQUENCE WHICH WILL EXPEDITE ERECTION AND MINIMIZE FIELD HANDLING OF MATERIALS.
 - 5. WHERE FINISHING IS REQUIRED, COMPLETE THE ASSEMBLY, INCLUDING WELDING OF UNITS, BEFORE START OF FINISHING OPERATIONS.
 - 6. PROVIDE FINISH SURFACE OF MEMBERS EXPOSED IN THE FINAL STRUCTURE FREE FROM MARKINGS, BURRS, AND OTHER DEFECTS.
- B. PROVIDE CONNECTIONS AS SPECIFIED HEREIN.
 - 1. PROVIDE BOLTS AND WASHERS OF TYPES AND SIZE REQUIRED FOR COMPLETE CONNECTIONS.
 - 2. INSTALL WITH STEERING TAPPED PREPARED IN ACCORDANCE WITH RSCC SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR ASTM A490 BOLTS.*
 - 3. WEAR SURFACE OF WELDS, CAPS AND METHODS USED IN CORRECTING WELDED WORK.
 - 4. THE PARTICIPATOR SHALL FINISH AND INSTALL ERECTION CLIPS FOR RT-LIP OF WELDED CONNECTIONS.
 - 5. DOUBLE ANGLE MEMBERS SHALL HAVE WELDED FILLETS SPACED IN ACCORDANCE WITH CHAPTER E4 OF THE AISC-A50 SPECIFICATION.
 - 6. GUSSET AND STIFFENER PLATES SHALL BE 3/8" THICK MINIMUM.


3.2 FINISHING:

- A. STRUCTURAL STEEL SHALL BE PRIMED AS SPECIFIED HEREIN, UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
- B. STRUCTURAL STEEL SURFACE PREPARATION SHALL CONFORM TO SSPC-SP-13, POWER TOOL CLEANING.
- C. SURFACE PREPARATION AND PRIMER SHALL BE IN ACCORDANCE WITH AISC CODE OF STANDARD PRACTICE AS INCLUDED IN THE ASD MANUAL OF STEEL CONSTRUCTION.
- D. STOPPING, TRIMMING, WELDING, HANDING AND APPLICATION OF PRIMER MEMBERS SHALL REMAIN CLOSED UNTIL REQUIRED FOR USE. MANUFACTURER'S PUT-LIFE REQUIREMENTS SHALL BE STRICTLY ADHERED TO.
- E. PRIMER SHALL BE APPLIED TO GRIT, CLEAN, PREPARED SURFACES AND UNDER FAVORABLE CONDITIONS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PRIMER SHALL BE APPLIED TO ALL SURFACES TO BE PROTECTED. THE PRIMER SHALL HAVE A THICKNESS OF 1.5 MILS. THE SURFACE TEMPERATURE IS LESS THAN 5 DEGREES F ABOVE THE DEW POINT.
- F. GENERALLY ALL PRIMER SHALL BE SPRAY APPLIED, BRUSH OR ROLLER APPLICATION SHALL BE RESTRICTED TO TOUCH-UP AND TO AREAS NOT ACCESSIBLE BY SPRAY GUN.
- G. PRIMER SHALL BE UNIFORMLY APPLIED WITHOUT RUNS, SAGS, SQUIBBS, BEADS, OR OTHER DEFECTS. ALL DEFECTS AND OTHER DEFECTS SHALL BE REPAIRED TO THE SATISFACTION OF THE ARCHITECT. SPECIAL ATTENTION SHALL BE PAID TO CORNERS, WELD LINES, BOLT HEADS, CONNERS, EDGES, ETC., TO OBTAIN THE REQUIRED NOMINAL FILM THICKNESS.
- H. THE DRY FILM THICKNESS OF THE PRIMER SHALL BE 2.0 MILS.
- I. IF THE PRIMER IS DAMAGED BY WELDING OR OTHER CAUSE, THE AREA SHALL BE TOUCHED-UP AND REPAIRED. THE TOUCH-UP PAINT SHALL BE COMPATIBLE WITH THE APPLIED PRIMER WITH MINIMUM DRY FILM THICKNESS OF 1.5 MILS.


3.3 INSULATION:

- A. INSULATION OF STRUCTURAL STEEL SHALL CONFORM WITH AISC CODE OF STANDARD PRACTICE.
 - B. WELDING SHALL BE DONE BY THE ELECTRIC SHIELDING OR SHIELDED METAL ARC PROCESS. WELDED CONNECTIONS SHALL CONFORM WITH AWS D1.1.
 - C. PROVIDE ANCHOR BOLTS AND OTHER CONNECTIONS REQUIRED FOR SECURING STRUCTURAL STEEL TO EXISTING CONSTRUCTION. PROVIDE ALL OTHER CONNECTIONS AND OTHER DEVICES NECESSARY FOR PRESTRESSING BOLTS AND ANCHORS TO ACQUIRE LOADINGS.
 - D. SPJCE MEMBERS ONLY WHERE INDICATED ON THE DRAWINGS.
 - E. ANY GAS CUTTING TECHNIQUES HAVE TO BE APPROVED IN WRITING BY THE PRODUCT STRUCTURAL ENGINEER.
 - F. PROVIDE TEMPORARY SHORING AND BRACING WITH CONNECTIONS OF SUFFICIENT STRENGTH TO SUPPORT THE WEIGHT OF THE STRUCTURE AND THE WEIGHT OF THE MEMBERS WHICH BEARING THEREON ARE IN PLACE AND THE FINAL CONNECTIONS HAVE BEEN MADE.
 - G. ALLEN AND ADJUST NUTS, AND OTHER SURFACES WHICH WILL BE IN THE PERMANENT POSITION, BEFORE ASSEMBLY.
 - H. INSTALL AND FULLY TENSION HIGH STRENGTH THREADED FASTENERS IN ACCORDANCE WITH AISC, SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM A325 OR ASTM A490 BOLTS.
- END OF SECTION

REV	DATE	REVISION DESCRIPTION	ISSUED BY	CHECKED BY
A	08/14/06	ISSUED FOR REVIEW	J.H.H.	J.H.H.
B	09/25/06	ISSUED FOR CONSTRUCTION	J.H.H.	J.H.H.
1	09/14/06	GENERATOR CHANGE	J.H.H.	J.H.H.



Mobile
USA, INC.



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DESIGNED BY	CHECKED BY	DATE	PROJECT
J.H.H.	H.A. MOYNI		HWY 50 AND 291 CELL SITE ASC 0226 SPECIFICATIONS (5 of 7)
J.H.H.	H.A. MOYNI		1251 SE RAMSON RD LEE'S SUMMIT, MISSOURI 64081
J.H.H.	H.A. MOYNI		ASCC0226 - SP5

SECTION 16000 ELECTRICAL

PART 1 - GENERAL

- 1.1 GENERAL CONDITIONS:
 - A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.
 - B. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITORS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION.
 - C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND DIMENSIONS. DIMENSIONS SHALL NOT BE SCALD TO DETERMINE DIMENSIONS.

- 1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES:
 - A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES.

- 1.3 REFERENCES:
 - A. THE PUBLICATIONS LISTED BELOW FORM PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADHERUM IN EFFECT ON THE DATE THIS SPECIFICATION IS ISSUED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE LATEST REVISIONS AND FOR THE REQUIREMENTS SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS. WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.
 1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
 2. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS)
 3. IEC (INTERNATIONAL ELECTROTECHNICAL COMMISSION)
 4. ISA (INTERNATIONAL SOCIETY OF AUTOMATIC CONTROL ENGINEERS)
 5. NECA (NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION)
 6. NEMA (NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION)
 7. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
 8. UL (UNDERWRITERS LABORATORIES, INC.)

1.4 SCOPE OF WORK

- A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIALS AND EQUIPMENT AND INSTALLING AND TESTING ALL ELECTRICAL AND LEAVE READY FOR OPERATION SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED.
- B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE CONTRACTOR.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.
- D. THE CONTRACTOR SHALL FURNISH TO THE OWNER CERTIFICATES OF FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES MAKING JURISDICTION.

PART 2 - PRODUCTS

- 2.1 GENERAL:
 - A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.
 - B. ALL MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.
 - C. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE LABELS OF APPROVAL AND SHALL CONFORM TO REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.
 - D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING RATING EQUAL TO OR GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AC MINIMUM, VERY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT.
- 2.2 MATERIALS AND EQUIPMENT:
 - A. CONDUIT:
 1. RIGID GALVANIZED STEEL CONDUIT (RGS) SHALL BE HOT-DIP GALVANIZED INSIDE AND OUTSIDE AND SHALL BE UNPAINTED AND ENAMELED OR LAQUERED INSIDE IN ACCORDANCE TO GALVANIZING.
 2. FLEXIBLE METAL CONDUIT SHALL BE GALVANIZED, ZINC-COATED STEEL, PVC COATED FOR OUTDOOR APPLICATIONS.
 3. CONDUIT CLAMPS, STAPLS AND CONDUIT BUNDLES SHALL BE STEEL OR ALUMINUM. ALL FITTINGS SHALL BE COMPRESSION TYPE AND WATER-TIGHT.

4. NON-METALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40 PVC, HIGH-VOLTAJE SOLVENT-RESISTENT-TYPE CONDUIT AS RECOMMENDED BY THE MANUFACTURER.

B. WIRE AND CABLE

1. WIRE AND CABLE SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN, 600 VOLT, SIZES AS INDICATED, #12 AWG MINIMUM.
2. NO. 10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID AND NO. 8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLIDNESS, PRESSURE-TYPE CONNECTORS CONSTRUCTED OF HIGH-STRENGTH, NON-CORROSION, TIN-PLATED COPPER DESIGNED TO FURNISH HIGH-PULLOUT STRENGTH AND HIGH CONDUCTIVITY JOINTS SHALL BE USED.
4. SUPPORT TRIPS SHALL BE SINGLE WEAVE, CLOSED MESH, HIGH-GRADE, NON-FLAMMABLE, TIN-COATED BRONZE CAPABLE OF SUPPORTING TEN TIMES THE CABLE DEAD WEIGHT, RUBBER BELLETS ON APPROVED EQUAL.

C. DISCONNECT SWITCHES

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-ACT, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCKED WITH ENCLOSURE, SQUARE 0 GAUGE 3110 OR APPROVED EQUAL.

D. EARTH GROUNDING

1. EARTH GROUNDING SYSTEM SHALL BE ELECTROLYTIC MAINTENANCE FREE WELDED COPPER-BRASS, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCKED WITH ENCLOSURE, SQUARE 0 GAUGE 3110 OR APPROVED EQUAL.
2. SELF CONTAINED GROUND ROD(S) USING ELECTROLYTICALLY ENHANCED DRAWINGS.
3. THE GROUND ROD SHALL OPERATE BY HYDROELECTROLYTIC PROCESS IMPROVING PERFORMANCE.
4. GROUND ROD SYSTEM SHALL BE 100% SELF ACTUATING/SEALED AND MAINTENANCE FREE. NO ADDITIONS OF CHEMICAL OR WATER SOLUTIONS REQUIRED.
5. ALL COPPER GROUND ROD SHALL CONSIST OF A 2" NOMINAL DIAMETER, HOLLOW COPPER TUBE WITH A WALL THICKNESS OF NOT LESS THAN .063 INCH. THE TUBE SHALL BE PROVIDED IN THE TOP OF THE TUBE AND DRAINAGE HOLES SHALL BE PROVIDED IN THE BOTTOM OF THE TUBE FOR ELECTROLYTE DRAINAGE INTO THE SURROUNDING SOIL.
6. THE GROUND ROD SHALL BE FILLED FROM THE FACTORY WITH NON-HAZARDOUS CALCULATED VOLUME OF ELECTROLYTE. THE ROD SHALL BE 10 FEET LONG FOR STRAIGHT (VERTICAL) INSTALLATION.
7. A STRANDED 2/0 AWG OR GROUND WIRE SHALL BE CONNECTED TO THE SIDE OF THE PRESSURE PLATE ON THE TOP END OF THE TUBE SHALL BE JOINED TO BOLT WITH AND TEMPORARY CONNECTIONS.
8. GROUND ACCESS BOX SHALL BE A POLYPLASTIC BOX FOR NON-TRAFFIC APPLICATIONS, INCLUDING BOLT DOWN FLUSH COVER WITH "BREAKER" HOLES, XIT MODEL #18-11.
9. BACKFILL MATERIAL SHALL BE NATURAL VOLCANIC NON-CORROSIVE FORM OF BENTONITE CLAY. BACKFILL SHALL BE COMPACTED TO THE SIDE OF THE BOX PER 50% BAG FOR OPTIMAL 30% SOLIDS DENSITY. FI VALUE SHALL BE 8-10 WITH MAXIMUM RESISTIVITY OF 3 OHM-IN AT 30% SOLIDS DENSITY.

E. SYSTEM GROUNDING

1. GROUNDING CONDUCTOR SHALL BE BARE, STRANDED, COPPER, SIZE AS INDICATED, EXCEPT ABOVE GROUND GROUNDING CONDUCTORS SHALL BE INSULATED.
2. CROSS SECTION.
3. CONNECTORS SHALL BE HIGH-CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS.
4. FOTHERING WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
5. GROUND RODS SHALL BE COPPER-CLAD STEEL WITH HIGH-STRENGTH STEEL CORE AND ELECTROLYTIC-GRADE COPPER OUTER SHEATH, NOTEN WELDED TO CORE, 3/4" x 10'-0".

F. OTHER MATERIALS:

1. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, THROUGHOUT OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.

PART 3 - EXECUTION

- 3.1 GENERAL:
 - A. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
 - B. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.
- 3.2 LABOR AND WORKMANSHIP:
 - A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE DONE BY EXPERIENCED MECHANICS OF THE PROPER TRADES.
 - B. ALL ELECTRICAL EQUIPMENT FURNISHED SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.
 - C. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION. CLEANING AND LEAVING THE INSTALLATION FINISHED AND READY FOR OPERATION.

3.3 COORDINATION

- A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OTHER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

3.4 INSTALLATION

- A. CONDUIT:
 1. PROVIDE RGS CONDUIT FOR ALL EXPOSED, EXTERIOR CONDUIT.
 2. PROVIDE SCHEDULE 40 PVC OR RGS CONDUIT BELOW GRADE, 1" MINIMUM, UNLESS NOTED OTHERWISE. ALL 90 DEGREE BENDS TO ABOVE GRADE SHALL BE RGS. CONDUIT DEPTH SHALL BE 24" CLEAR TO TOP OF CONDUIT, UNLESS NOTED OTHERWISE.
 3. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION IS NOT FEASIBLE FOR REASONS OF EQUIPMENT MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUIDTIGHT, PVC COATED FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS.
 4. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORTS TO ALLOW FOR EXPANSION AND CONTRACTION.
 5. A RUN OF CONDUIT BETWEEN BOXES OR FITTINGS SHALL NOT CONTAIN MORE THAN ONE 90 DEGREE BEND. BENDS SHALL BE LOCATED IMMEDIATELY AT THE BOX OR FITTING. THE RADIUS OF BENDS SHALL NEVER BE SHORTER THAN THAT OF THE CORRESPONDING TRADE ELBOW.
 6. WHERE CONDUIT HAS TO BE CUT IN THE FIELD, IT SHALL BE CUT SQUARE WITH A PIPE CUTTER USING CUTTING KNIVES.
 7. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANHOLE THROUGH THE CONDUIT BEFORE INSTALLATION OF WIRE OR CABLE. CLEAR ALL BULKHEADS AND REMOVE BURRS, DIRT, AND DEBRIS.
 8. INSTALL PULL STRINGS IN ALL EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END WITH ITS DESTINATION.
 9. PROVIDE INSULATED GROUNDING BUSINGS FOR ALL CONDUITS STUBBED INTO EQUIPMENT ENCLOSURES OR STUBBED OUT FOR FUTURE USE BY OTHERS.
 10. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER THAT CANNOT BE REMOVED.
 11. INSTALL 2" ORANGE DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUIT AND WIRE.
 12. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.



T-Mobile USA, INC.

NO.	DATE	REVISION DESCRIPTION	ISSUED BY	ISSUED FOR
0	08/14/08	ISSUED FOR REVIEW	JRH	ISSUED FOR REVIEW
1	08/24/08	ISSUED FOR CONSTRUCTION	JRH	ISSUED FOR CONSTRUCTION
2	09/14/08	GENERATOR CHANGE	JRH	GENERATOR CHANGE

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DESIGNED BY: J.R. HILL
 CHECKED BY: H.A. MOON
 SUPERVISOR: H.A. MOON
 LEAD ESTIMATOR: H.A. MOON
 DRAWING NUMBER: ASC0226 - SF6
 SHEET: 1

HWY 50 AND 291
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 SPECIFICATIONS (6 of 7)
 1251 SE RANSON RD
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<p>B. WIRE AND CABLE:</p> <ol style="list-style-type: none"> 1. ALL POWER WIRES SHALL BE COLOR CODED AS FOLLOWS: <table border="1"> <tr> <td>DESCRIPTION</td> <td>240/120 VOLT</td> </tr> <tr> <td>PHASE A</td> <td>RED</td> </tr> <tr> <td>PHASE B</td> <td>BLUE</td> </tr> <tr> <td>PHASE C</td> <td>WHITE</td> </tr> <tr> <td>NEUTRAL</td> <td>GREEN</td> </tr> <tr> <td>GROUND</td> <td>BROWN</td> </tr> </table> <ol style="list-style-type: none"> 2. SPICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE REMAINS WITH PRESSURE-TYPE CONNECTIONS. 3. PULLING LUBRICANTS SHALL BE SOAPSTONE, POWER POWDERED TALC, OR A GEARSE SHALL BE USED, AS THESE MAY BE HARMFUL TO CABLE INSULATION. CONTROLLER SHALL USE NYLON OR HEAVY ROPE FOR PULLING CABLE TO AVOID SCORING THE CONDUIT. 4. CABLES SHALL BE NEATLY TRIMMED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL ROOMS, EQUIPMENT, ETC., TO PERMIT MAKING A NEAT CONNECTION TO THE EQUIPMENT. ALL CABLES SHALL BE PROTECTED FROM MECHANICAL DAMAGE AND FROM MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS ARE PROHIBITED. ALL CABLES SHALL BE NEATLY AND PROTECTED FROM MECHANICAL DAMAGE AND EXPENSE. <p>C. DISCONNECT SWITCHES:</p> <ol style="list-style-type: none"> 1. INSTALL DISCONNECT SWITCHES LEVEL AND FLUSH, CONNECT TO WIRING SYSTEM AND GROUND AS INDICATED. <p>D. GROUNDING:</p> <ol style="list-style-type: none"> 1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE. 2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEMS INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING AMPERES AND JOINTS, AS SPECIFIED AS REQUIRED FOR A SAFETY-FREE INSTALLATION. 3. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE MOST DIRECT AND SHORTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISKS. 4. THREATEN GROUNDING AND BONDING CONNECTIONS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTIONS AND BOLTS, WHERE MANUFACTURER'S TORQUE TIGHTENING VALUES ARE SPECIFIED. TORQUE CONNECTIONS TO CONDUIT WITH TORQUE TIGHTENING VALUES SPECIFIED IN THE DATA TO ASSURE PERFORMANCE AND EFFECTIVE GROUNDING. 5. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. 6. ALL GROUND CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS, INSPECTION-BY-WELD BONDING CONNECTIONS SHALL BE APPROVED BY THE CONSTRUCTION INSPECTOR BEFORE BEING PERMANENTLY CONVEALED. 7. APPLY CORROSION-RESISTANT FINISH TO FIELD CONNECTIONS, AND PLACES WHERE "ON-OR" OR APPROVED EQUAL. 8. A SEPARATE CONDUIT, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL REAR AND FRONT CHASSIS. 9. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BOND #8 AWG GROUNDING CONDUIT TO A GROUND BOX. 10. DIRECT BURIED GROUND CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 30" BELOW GRADE, UNLESS NOTED OTHERWISE. 11. ALL GROUNDING CONDUCTORS EXPOSED IN OR PENETRATING CONCRETE SHALL BE REINFORCED OR INSTALLED IN PVC CONDUIT. 12. INSTALL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, REMOVE SEPARATE TIE FROM LEADING AND BONDING POINTS. INSTALL PROTECTIVE BOND TIE WITH BONDING. 13. DRIVE GROUND RODS UNTIL TOPS ARE 30 INCHES BELOW FINAL GRADE. 	DESCRIPTION	240/120 VOLT	PHASE A	RED	PHASE B	BLUE	PHASE C	WHITE	NEUTRAL	GREEN	GROUND	BROWN					
DESCRIPTION	240/120 VOLT																
PHASE A	RED																
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PHASE C	WHITE																
NEUTRAL	GREEN																
GROUND	BROWN																
<p>3.5 ACCEPTANCE TESTING:</p> <ol style="list-style-type: none"> 1. REMOVE PERSHING AND EQUIPMENT MARKS REQUIRED TESTS, AND SUBMIT TEST REPORTS UPON COMPLETION OF TESTS. 2. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NONCOMPLYING ITEMS SHALL BE REMOVED FROM THE JOBSITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE OF SUCH NON-COMPLIANCE. <p>B. TEST PROCEDURES:</p> <ol style="list-style-type: none"> 1. ALL FEEDERS SHALL HAVE THEIR INSULATION TESTED AFTER INSTALLATION, BUT BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUND. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. INSULATION TEST VALUES LESS THAN 50 MEGOHMS. 2. PRIOR TO ENERGIZING CIRCUIT, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS. 3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE AND NEUTRAL. SOLICIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES. 4. PERFORM GROUND TEST TO MEASURE GROUND RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 2-POINT FALL-OF-POTENTIAL METHOD. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS. <p>END OF SECTION END OF SPECIFICATION</p>																	
<table border="1"> <tr> <td>DATE</td> <td>ISSUED FOR REVIEW</td> <td>DATE</td> <td>ISSUED FOR CONSTRUCTION</td> </tr> <tr> <td>08/14/06</td> <td>08/29/08</td> <td>JRH</td> <td>JRH</td> </tr> <tr> <td></td> <td>ISSUED FOR CONSTRUCTION</td> <td></td> <td></td> </tr> <tr> <td>08/14/08</td> <td>GENERATOR CHANGE</td> <td>JRH</td> <td></td> </tr> </table> <p>NOTED: THIS DRAWING HAS NOT BEEN REVIEWED BY THE PROJECT MANAGER OR THE PROJECT ENGINEER. IT IS THE RESPONSIBILITY OF THE USER TO VERIFY THE ACCURACY OF THE INFORMATION PROVIDED HEREON. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.</p>	DATE	ISSUED FOR REVIEW	DATE	ISSUED FOR CONSTRUCTION	08/14/06	08/29/08	JRH	JRH		ISSUED FOR CONSTRUCTION			08/14/08	GENERATOR CHANGE	JRH		<p>1251 SE RANSON RD CELL SITE A5C 0226 SPECIFICATIONS (7 of 7) LEE'S SUMMIT, MISSOURI 64081</p> <p>HWY 50 AND 291 CELL SITE A5C 0226 SPECIFICATIONS (7 of 7) LEE'S SUMMIT, MISSOURI 64081</p> <p>ASCD0226 - SP7</p>
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