



## Memorandum

### Department of Planning & Public Works

**To:** Planning and Public Works Committee

**From:** Annissa McCaskill-Clay, Lead Senior Planner

**Date:** September 21, 2009

**RE:** **T.S.P. 16-2009 Verizon Wireless (132 Woodcliffe Place Dr.)-EXEMPTION FROM PUBLIC HEARING REQUEST:** A request to obtain approval for a Telecommunication Siting Permit for the purpose of removing existing antennas and replacing with new antennas; replacing an emergency generator and enlargement of the concrete pad for said generator at an existing tower on a R3(PEU)-zoned 0.41 acre tract of land located a 132 Woodcliffe Place Drive in Woodcliffe Subdivision. (18T410128)

#### Summary

Verizon Wireless, a tenant on an existing tower located at 132 Woodcliffe Place, is requesting a Telecommunications Siting Permit for the purposes of: 1. Removing existing antennas and replacing with new antennas of similar dimension; 2. Replacing the existing emergency generator; and 3. Enlargement of the concrete pad for said generator within the existing equipment yard. A public hearing has not been held for the request as the Petitioners are requesting exemption from this requirement per Section 27 of City of Chesterfield Ordinance 2391. Said section permits applicants desiring relief or exemption from requirements of Ordinance 2391 to request it from City Council via a written statement. The relief from the requirement may be "temporary or permanent, partial or complete." Should the City Council determine that a public hearing is not necessary; the request for a Telecommunications Siting Permit will go back to Planning and Public Works Committee for discussion and recommendation to the City Council. If the City Council determines that a public hearing should be held, T.S.P. 16-2009 will be sent to Planning Commission for a hearing and go through the standard process for approval.

Attached are copies of the materials submitted by the Petitioners in support of their request, including their written statement detailing their request for exemption.

Respectfully submitted,

*Annissa McCaskill-Clay*

Annissa McCaskill-Clay, AICP  
Lead Senior Planner

CC: Michael G. Herring, City Administrator  
Rob Heggie, City Attorney  
Michael O. Geisel, Director of Planning & Public Works  
Aimee Nassif, Director of Planning & Development Services



Aug. 3, 2009

**VIA ELECTRONIC MAIL AND HAND DELIVERY**

Annissa McCaskill-Clay, AICP  
Lead Senior Planner  
City of Chesterfield  
690 Chesterfield Parkway West  
Chesterfield, Missouri 63017  
636.537.4737



Re: Verizon Wireless Long-Term Evolution – STLC Chesterfield – antenna and equipment modifications and replacement on communication located at 132 Woodcliffe Place Dr./215 Ruether Lane, Chesterfield, MO – permit requirements

Dear Ms. McCaskill-Clay:

I am writing to follow-up to my telephone conversations with you on June 15, 2009 and July 23, 2009, and my letter to you dated June 24, 2009, in regard to the above matter.

To recap, Verizon Wireless collocated upon the above-referenced facility in 1992. The facility is owned by Crown Castle USA, Inc. An additional wireless carrier is located upon the tower as well. As we have discussed, Verizon Wireless would like to modify its installation by replacing certain antennas on the tower with new antennas and by updating the emergency back-up generator located at the site. The purpose of the modification is to implement a technology upgrade at this site that will be compatible with a St. Louis metropolitan-area wide upgrade known as Long-Term Evolution (LTE.) Verizon Wireless' LTE project will ensure higher data speed transfer on mobile networking devices. A memorandum from Verizon Wireless further explaining the technology accompanied my June 24, 2009 letter to you and is attached to this letter again for your convenience.

**I. Ordinance No. 2391 (Wireless Ordinance) - Interpretation**

As we have discussed, we do not believe the work Verizon Wireless intends to perform (addressed more thoroughly below) meets the definition of "material modification" as set out in the City of Chesterfield's Wireless Telecommunications Facilities ordinance (Ord. No. 2391, § 3) (the "Wireless Ordinance"), codified at Chapter 30, Section 30-3. Chesterfield enacted the Wireless Ordinance to, among other matters, "[e]ncourage the collocation of wireless telecommunications facilities, thus helping to minimize the adverse visual impacts on the community." Section 30-2(7). Section 30-7 of the Wireless Ordinance identifies collocation "on existing

telecommunications towers or other tall structures” as the highest priority placement of wireless facilities within the City of Chesterfield.

Section 30-14(c) of the Wireless Ordinance provides “[a]ll wireless telecommunications facilities legally existing on or before the effective date of this chapter shall be allowed to continue as they presently exist, provided however, that any material modification to existing wireless telecommunications facilities must comply with this chapter.”

A *Material modification* is “. . . [a]n important, essential or significant change to an existing wireless telecommunications facility. Changes that materially affect the obvious physical appearance of a facility, materially increase a facility's height or structural loading, or otherwise materially affect the safety of the facility would be material modifications . . . Collocation on a telecommunications structure for which a facilities siting permit allowing such collocation had previously been granted in conformity with this chapter shall not be considered a material modification for purposes of this statute so long as such collocation does not increase the height of the wireless telecommunications facility and does not increase the previously-existing antenna array of the wireless telecommunications structure. Ordinary repair and/or maintenance (which includes the replacement or upgrade of components with substantially similar components), without any material addition, removal or other material modification of any visible components or aspects of a wireless telecommunications facility shall not be considered a material modification for purposes of this chapter.” Section 30-2 (emphasis added in underline).

We understand the City disagrees with our general interpretation of the Wireless Ordinance and believes the work we proposed constitutes a Material modification, and that a facilities siting permit should be applied for, with a request for waiver of provisions for which we believe exemption is in order given the nature (modification of existing collocation site) and scope (actual reduction in overall antenna mass on the tower) of the proposed modifications. ***A Telecommunications Siting Permit Application, along with the appropriate \$2,000 fee for collocation facilities, accompanies this letter.*** With submission of the application, applicant requests approval of the changes to its entire facility as shown on the plans that accompany the application and this letter.

## II. Project explanation

Attached hereto as Exhibit 1 is a set of plans showing that Verizon Wireless intends to remove four (4) existing antennas and replace those antennas with three (3) new antennas for a total net decrease of one (1) antenna associated with Verizon Wireless’ installation. Cut sheets for the antennas to be removed, and the antennas that will be replaced, are attached hereto as Exhibit 2. The overall weight and surface square footage of antennas associated with Verizon Wireless’ installation will decrease after implementation of the modifications. Also attached as Exhibit 3 is a letter from Pier Structural Engineering Corp. finding that “[b]ased on a comparison of the original design loads (including wind speeds), the current loads, and the

proposed loads, we have determined the tower structure and foundation ARE sufficient for the proposed loading.” (emphasis in original).

### **III. Wireless Ordinance Exemption Request**

Section 30-27 of the Code provides in part that “[a]ny applicant desiring relief or exemption from any aspect or requirement of this chapter may request such from the council via written statement at a pre-application meeting with City of Chesterfield staff, provided that the relief or exemption sought is contained in the submitted application for either a facilities siting permit, or in the case of an existing or previously granted facilities siting permit a request for material modification of its tower and/or facilities. Such relief may be temporary or permanent, partial or complete.” (emphasis added).

Based upon (i) the above and foregoing description of Verizon Wireless’ proposed modifications, (ii) the intent of the ordinance encouraging collocation generally, (iii) the fact this is an existing site that has been “on-air” for more than 15 years, and (iv) the improvement Verizon Wireless subscribers will derive from the proposed modifications, we would appreciate your determination that Verizon Wireless should be exempt from the following provisions of the Wireless Ordinance in applying for its facilities siting permit. This letter constitutes our formal request from relief from the below listed provisions pursuant to Section 27 of the Wireless Ordinance.

- A. Section 30-5(f)(13) - documentation to prove the need for the wireless facility. This facility has been operational in Chesterfield for 15 plus years. Applicant believes the existence of the site for this period of time is sufficient evidence of its importance in Verizon Wireless’ network.
- B. Section 30-5(f)(17) – certification that a topographic and geomorphologic study and analysis has been completed. Applicant has been advised the tower facility was properly permitted when it was constructed 15 years ago. A structural letter accompanied our letter to you dated June 24, 2009 and certifies the tower is structurally adequate to accommodate Verizon Wireless’ loading.
- C. Section 30-5(f)(19) – development of a plan to allow reasonable requests from the city to use space on its towers and space within the existing compound. Applicant is a collocater on this tower and does not own this tower.
- D. Section 30-5(j)(1) – submission of a “zone of visibility map”. Applicant has demonstrated, with technical documentation, the overall mass of the antennas will be reduced after its modifications have been made.
- E. Section 30-5(j)(2) – pictorial representations of before and after views from key viewpoints both inside and outside the City. Applicant has

demonstrated, with technical documentation, the overall mass of the antennas will be reduced after its modifications have been made.

Applicant believes other provisions of the Wireless Ordinance not specifically addressed herein have either been complied with through certifications in plans, in the Telecommunications Siting Permit Application, or are inapplicable because the application does not propose a new "telecommunications tower" or new "wireless telecommunications facility," as those terms are defined.

Should the city believe additional waiver requests should have been made pursuant to the Wireless Ordinance, we hereby request waiver of other material provisions of the Wireless Ordinance requiring submission of studies and other technical data in association with the issuance of a facilities siting permit.

Please contact me at (314) 913-1475 to discuss this matter at your convenience.

Sincerely,

Trena Prewitt

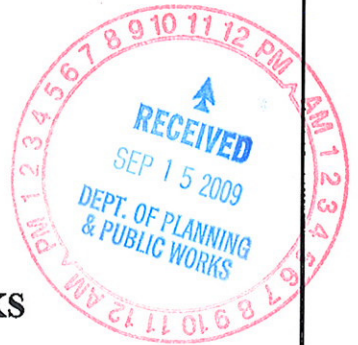
Attachments

Cc: Kathy Byrd, Verizon Wireless



# City of Chesterfield

## DEPARTMENT OF PLANNING & PUBLIC WORKS



*Prior to submitting an application to the Department of Planning & Public Works, the Petitioner is strongly urged to schedule a pre-application meeting. To schedule a meeting, please contact the Department at (636) 537-4746. For questions about this application, please contact the "Planner of the Day" at (636)-537-4733.*

*For information about this and other projects under review by the Department of Planning & Public Works, please visit "Planning Projects" at [www.chesterfield.mo.us](http://www.chesterfield.mo.us). A digital copy of the City of Chesterfield Ordinance 2391 which establishes the telecommunications facilities siting criteria is also available at the City of Chesterfield web-site.*

**Check application type:**

- New Facilities Siting Permit
- Co-location
- Alteration to Existing Facilities Siting Permit
- Recertification of Facilities Siting Permit



**Owner(s) of record of the hereinafter described property according to St. Louis County Assessor's**

**Record:** Crown Castle GT Company LLC

**Address:** 1001 Craig Rd. Ste. 445

**City:** St. Louis **State:** MO **Zip:** 63141

**Tel.:** (314) 432-3158 **Fax:** \_\_\_\_\_

**Applicant, if other than owner(s):** Verizon Wireless

**Address:** 10740 Mail Ave, Ste. 400

**City:** Overland Park **State:** KS **Zip:** 66211

**Tel.:** 913-344-2883 **Fax:** \_\_\_\_\_

**Legal Interest:** Existing Tenant

(Provide date of contract and date of expiration of contract)

\* Attach additional sheets as necessary.



**All applications for the construction or installation of new wireless telecommunications facilities, including antennas, shall be accompanied by a report containing the information hereinafter set forth:**

- 1) Documentation that demonstrates the need for the Wireless Telecommunications Facility to provide service primarily within the City and its police jurisdiction.
- 2) Name, address and phone number of the person preparing the report.
- 3) Name, address, and phone number of the property owner, operator, and Applicant, to include the legal form of the Applicant.
- 4) Postal address and locator number of the property.
- 5) Zoning District in which the property is situated.
- 6) Outboundary survey, as directed by the City of Chesterfield prepared by a licensed professional Surveyor, licensed to perform surveying within the State of Missouri, with an original seal and signature affixed thereto.
- 7) Five (5) copies of a detailed, scalable site plan prepared by a registered, licensed engineer or surveyor at any scale from one (1) inch equals twenty (20) feet to one (1) inch equals one hundred (100) feet from an accurate survey on one or more sheets whose maximum dimensions are thirty-six inches by forty-two inches (36" x 42"); page sizes eleven inches by seventeen inches (11" x 17") or twenty-four inches by thirty six inches (24" x 36") are acceptable and preferred alternative sizes. The site plan shall include at a minimum, the following information:
  - a. Proposed location of facility;
  - b. Location of and distance from boundary of the nearest residential zoning district(s);
  - c. Location of nearest ten (10) residential structures within one-half (½) miles of the proposed facility;
  - d. Location, size and height of all structures on the property which is the subject of the application and of all other structures within a radius of one hundred and ten percent (110%) of the height of the structure.
  - e. Location, size and height of all proposed and existing antennae and all appurtenant structures;
  - f. Type, locations and dimensions of all proposed and existing landscaping, and fencing;
  - g. At least two scaled cross-sections through the site, approximately perpendicular to each other; and
  - h. Proposed elevation of the highest feature of the tower, or attachments thereto, the elevation of the natural pre-existing ground elevation at the base of the proposed construction, and the elevation of the proposed finish grade at the base of the



construction. All elevations are to be referenced upon mean sea level and referenced to a current approved benchmark. A temporary benchmark is to be provided and maintained on-site for reference purposes.

- 8) The number, type and design of the Telecommunications Tower(s) Antenna(s) proposed and the basis for the calculations of the Telecommunications Tower's capacity to accommodate multiple users.
- 9) The make, model, type, and manufacturer of the Tower(s) Antenna(s) and design plan station the towers capacity to accommodate multiple users.
- 10) A description of the proposed Tower and Antenna(s) and all related fixtures, structures, appurtenances and apparatus, including height above pre-existing grade, materials, color and lighting.
- 11) The frequency, modulation and class of service of radio or other transmitting equipment.
- 12) Transmission and maximum effective radiated power of the Antenna(s).
- 13) Documentation that demonstrates and proves the need for the wireless telecommunications facility to provide service. Such documentation shall include propagation studies of the proposed site and all adjoining planned, proposed, in-service or existing sites that demonstrate a significant gap in coverage. Such propagation studies, including all backup data and assumptions used, shall show signal propagation at the height of the proposed antennae(s) and at increments of ten (10) feet lower, to allow verification of the applicant's need for the proposed height.
- 14) Applicant's proposed Tower maintenance and inspection procedures and related system of records.
- 15) Signed documentation such as the "Checklist to Determine Whether a Facility is Categorically Excluded" showing that the wireless telecommunications facility with the proposed installation will be in full compliance with the current FCC RF emissions guidelines. If not categorically excluded, a complete RF emissions study is required to provide verification.
- 16) A copy of the FCC license applicable for the use of Wireless Telecommunications Facilities.
- 17) Certification that a topographic and geomorphologic study and analysis has been conducted, and that taking into account the subsurface and substrata, and the proposed drainage plan, that the site is adequate to assure the stability of the proposed Wireless Telecommunications Facilities on the proposed site, which certification shall be reviewed by a licensed engineer designated by the City.
- 18) Applicant shall disclose in writing any agreement in existence prior to submission of the Application that would limit or preclude the ability of the Applicant to share any new Telecommunication Tower that it constructs.



By signing this application the applicant ensures that the proposed wireless tele communications facilities shall be maintained in a safe manner, and in compliance with all conditions of the facilities siting permit, without exception, unless specifically granted relief by the Council in writing, as well as all applicable and permissible local codes, ordinances, and regulations, including any and all applicable County, State, and Federal ordinances, rules, and regulations.

By signing this application the applicant attests that the construction of the wireless telecommunications facilities are legally permissible, including but not limited to the fact that the applicant is authorized to do business in the State of Missouri.

Check (✓) one: \*  I am the property owner.  I have legal interest in the property.  
 I am the duly appointed agent of the petitioner.

J. Trevor Wood

(Name- type, stamp or print clearly)

SSG, Inc.

(Name of Firm)

\* Attach additional sheets as necessary.

(Signature)

2500 W. 110th St. Suite 300

(Address, City, State, Zip)

Overland Park KS 66210

[THIS SPACE INTENTIONALLY LEFT BLANK]

**AGENCY CONSENT**

I hereby give CONSENT to Trevor Wood (type, stamp or print clearly full name of agent) to act on my behalf to submit, this application and all required material and documents, and to attend and represent me at all meetings and public hearings pertaining to the application(s) indicated above. Furthermore, I hereby give consent to the party designated above to agree to all terms and conditions which may arise as part of the approval of this application.

I hereby certify I have full knowledge of the property and I have an ownership interest and/or am the owner under contract in the subject of this application. I further certify the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related material and all attachments become official records of the City of Chesterfield, Missouri, and will not be returned. I understand that any false, inaccurate or incomplete information provided by me or my agent will result in the denial, revocation or administrative withdrawal of this application, request, approval or permits. I acknowledge that additional information may be required to process this application. I further consent to the City of Chesterfield to publish, copy or reproduce any copyrighted document submitted as a part of this application for any third party. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

**OWNER/CONTRACT PURCHASER INFORMATION:**

I am the  owner  contract purchaser. (check (✓) one)

Kelly Laebig - Property Manager  
(Name- type, stamp or print clearly)

[Signature]  
(Signature)

Crown Castle  
(Name of Firm)

2000 Corporate Dr., Canonsburg, PA  
(Address, City, State, Zip) 15317

Attach additional sheets as necessary.

**NOTARY PUBLIC INFORMATION: STATE OF MISSOURI, CITY OF CHESTERFIELD**

Pennsylvania, County of Washington

Before me appears Kelly Laebig who has executed the foregoing instrument was subscribed and sworn to before me this 16<sup>th</sup> day of June

20 09  
Signed Dianne L Toth Print Name: Dianne L Toth  
Notary Public

Seal/Stamp:

My Commission Expires: 6-9-2012

COMMONWEALTH OF PENNSYLVANIA  
Notarial Seal  
Dianne L. Toth, Notary Public  
Canonsburg Boro, Washington County  
My Commission Expires June 9, 2012  
Member, Pennsylvania Association of Notaries

**INSTRUCTIONS:** To be completed by individual submitting application (property owner, petitioner with consent, or authorized agent).

Project Name: STLC Chesterfield Submittal Date: 7/22/09

I hereby certify all property owners have full knowledge that the property they own is the subject of this application. I hereby certify that all owners and petitioners have been provided a complete copy of all material, attachments and documents submitted to the City of Chesterfield relating to this application. I further certify the statements or information made in any paper or plans submitted herewith are true and correct to the best of my knowledge. I understand this application, related application material and all attachments become official records of the City of Chesterfield, Missouri and will not be returned. I understand that any knowingly false, inaccurate or incomplete information provided by me will result in the denial, revocation or administrative withdrawal of this application, request, approval or permit. I further acknowledge that additional information may be required by the City of Chesterfield to process this application. I further represent and warrant that I have not made any arrangement to pay any commission, gratuity, or consideration, directly or indirectly, to any official, employee, or appointee of the City of Chesterfield with respect to this application. I further consent to the City of Chesterfield to publish, copy or reproduce any copyrighted documents submitted as a part of this application for any third party. I further agree to all terms and conditions which may be imposed as part of the approval of this application.

Consent is required from all property owner(s) and/or contract purchaser, if applicable, for an agent to act if the property owner(s) or contract purchaser does not intend to attend all meetings and public hearings and submit in person all material pertaining to the application. A separate form is required from each owner/contract purchaser. Consent to a firm shall be deemed consent for the entire firm, unless otherwise specified. Consent is valid for one year from date of notary, unless otherwise specified. Attach copy of last recorded warranty deed for subject property.

Check (✓) one: \*  I am the property owner.  I have legal interest in the property.  
 I am the duly appointed agent of the petitioner.

J. Trevor Wood  
(Name- type, stamp or print clearly)

[Signature]  
(Signature)

SSC, Inc.  
(Name of Firm)

8500 W. 110th St. Suite 300  
(Address, City, State, Zip) Overland Park  
KS 66210

\* Attach additional sheets as necessary.

**NOTARY PUBLIC INFORMATION: STATE OF MISSOURI, CITY OF CHESTERFIELD**

Before me appears J. Trevor Wood who has executed the foregoing instrument was subscribed and sworn to before me this 22nd day of July, 20 09.

Signed [Signature] Print Name: Megan Brown  
Notary Public

My Commission Expires: 7/6/2012

Seal/Stamp: **MEGAN BROWN**  
Notary Public - State of Kansas  
My Appt. Expires 7/6/2012



Principal Contact: Trena Prewitt Title: Site Acq. Specialist  
 Address: 1816 Lackland Hill Pkwy Ste. 480  
 City: St. Louis State: MO Zip: 63146  
 Tel.: 314-913-1475 Fax: \_\_\_\_\_  
 Email: tprewitt@ssc.us.com

Other Contact: Kathy Byrd  
 Address: 10740 Mail Ave, Ste. 480  
 City: Overland Park State: MO Zip: 66211  
 Tel.: 913-344-2883 Fax: \_\_\_\_\_  
 Email: Kathleen.Byrd@VerizonWireless.com

Other Contact: Sean Flanagan  
 Address: 1001 Craig Rd., Ste. 445  
 City: St. Louis State: MO Zip: 63141  
 Tel.: 314-569-3782 Fax: \_\_\_\_\_  
 Email: Sean.Flanagan@CrownCastle.com

Other Contact: Trevor Wood  
 Address: 8500 W. 110th St., Ste. 300  
 City: Overland Park State: KS Zip: 66210  
 Tel.: 913-438-7700 Fax: \_\_\_\_\_  
 Email: twood@ssc.us.com

Other Contact: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Tel.: \_\_\_\_\_ Fax: \_\_\_\_\_  
 Email: \_\_\_\_\_

Attach additional sheets as necessary.

**STAFF USE ONLY**

Project Planner: \_\_\_\_\_ Intake Date: \_\_\_\_\_  
 Application NOT Sufficient (date) \_\_\_\_\_  Application Sufficient (date) \_\_\_\_\_  
 Entered into Project List: \_\_\_\_\_

[REDACTED]

The filing fees for an application for review of a telecommunications facilities siting permit shall be based on the information below:

1. A new telecommunications tower or the increase in height of an existing tower will require a non-refundable fee of \$5,000.00.
2. A co-location on an existing telecommunications tower with no increase in height of the tower or structure will require a non-refundable fee of \$2,000.00.
3. Recertification of an existing telecommunications tower shall require no application fee.

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# Memo

**To:** City of Chesterfield  
**From:** Gene Buist  
**Date:** 9/15/2009  
**Re:** Chesterfield



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## Chesterfield Objectives

As Verizon Wireless begins preparation to introduce the next generation of wireless service, concerns have surfaced regarding the project and other upgrades to the site. Specifically, the concerns are:

1. Explanation of why the Long Term Evolution (LTE) project is necessary at this site
2. The frequency, modulation and class of service of radio or other transmitting equipment
3. Transmission and maximum effective radiated power of the antennas

The concerns are addressed below.

1. LTE is a new high speed data technology that allows for anticipated average throughput speeds above 10 Megabits per second on the downlink and 5 Megabits per second on the uplink. To achieve the maximum speeds, a customer must be in a strong signal environment. The Chesterfield site is the best server for the Chesterfield valley east of Long Rd. It also encompasses the Doubletree Hotel and Chesterfield Mall. Given the number of hotels within the coverage area of this site, Verizon Wireless wishes to provide the best service to the travelers that frequent the Chesterfield area along with any Chesterfield residents who choose the product over other high speed data services available. To do so, the Chesterfield site is a key site for LTE deployment.
2. The site will continue to operate Code Division Multiple Access (CDMA) technology that transmits from 869-891 MHz. LTE, which uses Orthogonal Frequency Division Multiplexing (OFDM), will transmit from 746-757 MHz.
3. CDMA uses a 20 Watt transmitter with ERP of 369 W. LTE operates with a 40 Watt transmitter with an ERP of 485 W. Verizon Wireless adheres to the FCC guidelines for transmit power. For any changes to a site, a complete review is performed to verify the transmit power is still within the FCC guidelines.

Gene Buist  
SR. Radio Frequency Engineer  
Verizon Wireless



To: City of Chesterfield

Crown Castle USA completes the following inspections on our business Unit 816929 CHESTERFIELD site.

Site ID: **816929** > Site Name: **CHESTERFIELD**

Site ID:  Go



- **Ground Based Inspection** – Yearly (Nov.-Dec. timeframe)
- **TIA Inspection** (Climbed Inspection) – Every five years (Due in 2010)
- **Ground Maintenance** – Mowing occurs twice a month between the months of April – October

*Mikel Hamrick*  
MWA Tower Operations Manager  
Crown Castle USA  
1001 Craig Rd. (Suite 445)  
St. Louis, MO 63146  
(office) 314.513.0135  
(mobile) 304.546.4404  
(e-fax) 724.416.4112  
[mike.hamrick@crowncastle.com](mailto:mike.hamrick@crowncastle.com)







**Owner:** Daniel Alabach. **Address:** 114 WOODCLIFFE PLACE DR **Parcel ID:** 18T 41 0139

**Owner:** John & Polly Ruf **Address:** 108 Woodcliffe Place Dr. **Parcel ID:** 18T 41 0140

**Owner:** Christopher & Erica Cannon **Address:** 156 Woodcliffe Place Dr. **Parcel ID:** 18T 41 0117

**Owner:** Zhu Tianwei & Geng Zhaohui **Address:** 170 Woodcliffe Place Dr. **Parcel ID:** 18T 41 0106

**Owner:** Kessler Homes **Address:** 143 Woodcliffe Place Dr. **Parcel ID:** 18T 41 0216

**Owner:** Larry Jr. & Katherine Wilson **Address:** 129 Woodcliffe Place Dr. **Parcel ID:** 18T 41 0205

**Owner:** CID Diggs **Address:** 115 Woodcliffe Place Dr. **Parcel ID:** 18T 41 0195

**Owner:** Peter & Lynn Johnston **Address:** 157 Woodcliffe Place Dr. **Parcel ID:** 18T 41 0227

**Owner:** Tara Montgomery **Address:** 101 Woodcliffe Place Dr. **Parcel ID:** 18T 41 0184

**Owner:** Allan & Phyllis Goldberg **Address:** 201 Wildhorse Springs Ct. **Parcel ID:** 18T 41 0151

**Owner:** Elmer & Ester Johnson **Address:** 200 Woodcliffe Place Dr. **Parcel ID:** 18T 43 0511



ULS License

**700 MHz Upper Band (Block C) License - WQJQ692 - Cellco Partnership**

Call Sign	WQJQ692	Radio Service	WU - 700 MHz Upper Band (Block C)
Status	Active	Auth Type	Regular
<b>Market</b>			
Market	REA004 - Mississippi Valley	Channel Block	C
Submarket	0	Associated Frequencies (MHz)	000746.00000000- 000757.00000000- 000776.00000000- 000787.00000000

**Dates**

Grant	11/26/2008	Expiration	06/13/2019
Effective	11/26/2008	Cancellation	

**Buildout Deadlines**

1st	06/13/2013	2nd	06/13/2019
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**Notification Dates**

1st		2nd	
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**Licensee**

FRN	0003290673	Type	General Partnership
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**Licensee**

Cellco Partnership  
1120 Sanctuary Pkwy #150 - GASA5REG  
Alpharetta, GA 30004  
ATTN Regulatory

P:(770)797-1070  
F:(770)797-1036  
E:network.regulatory@verizonwireless.com

**Contact**

Verizon Wireless

1300 I Street, NW - Suite 400 West  
Washington, DC 20005  
ATTN John T. Scott, III

P:(202)589-3760  
F:(202)589-3750  
E:john.scott@verizonwireless.com

**Ownership and Qualifications**

Radio Service Type	Mobile
Regulatory Status	Common Carrier Interconnected Yes

**Alien Ownership**

Is the applicant a foreign government or the representative of any foreign government?	No
Is the applicant an alien or the representative of an alien?	No



Is the applicant a corporation organized under the laws of any foreign government? No

Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country? No

Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country? Yes

If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application?

**Basic Qualifications**

The Applicant answered "No" to each of the Basic Qualification questions.

**Tribal Land Bidding Credits**

This license did not have tribal land bidding credits.

**Demographics**

Race

Ethnicity

Gender



**VERIZON WIRELESS  
DEPARTMENTAL APPROVALS**

CONSTRUCTION MANAGER	INITIALS TM	DATE 05/19/09
DESIGN ENGINEER	GB	05/19/09
OPERATIONS MANAGER	SY	05/19/09
IMPLEMENTATION MANAGER		
REAL ESTATE MANAGER	MC	05/27/09

LESSOR/LICENSOR APPROVAL

SEAN FLANAGAN	DATE 06/02/09
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**PROJECT INFORMATION**

**CELL SITE NAME:** STLC CHESTERFIELD **LTE & GENERATOR REPLACEMENT**

**PROPERTY OWNER:** CROWN CASTLE  
1001 CRAIG ROAD, SUITE 460  
SAINT LOUIS, MISSOURI 63146  
PHONE: 314-432-3158

**TOWER INFORMATION:**  
LATITUDE: 38° 39' 29.4" N  
LONGITUDE: 90° 35' 31.6" W  
TOWER HT: 120'-0"  
ANTENNA CENTERLINE: 124'-0"

**CROWN CASTLE NAME:** CHESTERFIELD  
**CROWN CASTLE #:** 816929

**VERIZON WIRELESS CONTACT:**  
MARION CRABLE (913) 344-2800

**PROJECT TEAM**

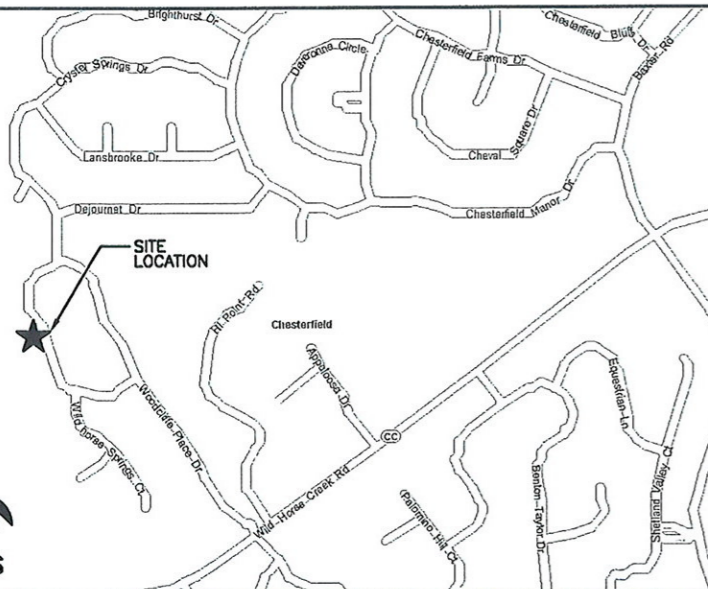
SELECTIVE SITE CONSULTANTS, INC.  
1816 LACKLAND HILL PARKWAY, SUITE 400  
ST. LOUIS, MISSOURI 63146  
PHONE: 314-993-1010  
FAX: 314-993-1036

M.L. OWENS LEAD CIVIL/STRUCTURAL  
T.M. SUPER LEAD ELECTRICAL  
S.A. ASH LEAD DESIGNER

**DIRECTIONS**

FROM STLC MTSO 1 ON MLK: TAKE MARTIN LUTHER KING WEST TO N 20TH ST. TAKE N 20TH STREET SOUTH TO PINE ST. TAKE PINE STREET WEST TO I-64. TAKE I-64 WEST (19.4 MI) TO CHESTERFIELD AIRPORT RD. TAKE CHESTERFIELD AIRPORT RD NORTH (0.5 MI) TO WILD HORSE CREEK RD. TAKE WILD HORSE CREEK RD WEST (0.9 MI) TO WOODCLIFFE PLACE DR. TAKE WOODCLIFFE PLACE DR NORTH (0.4 MI) TO SITE. SITE IS LOCATED ON THE RIGHT.

**AREA MAP**



**DRAWING INDEX**

DWG NUMBER	TITLE	REVISION	RESPONSIBLE ENGINEER
STL-0911 - T01	TITLE SHEET SURVEY	1	MLO/TMS
STL-0911 - A01	SITE PLAN	0	MLO
STL-0911 - A02	TOWER ELEVATION	0	MLO
STL-0911 - A03	CROSS SECTION	0	MLO
STL-0911 - A04	DETAILS	0	MLO
STL-0911 - E01	ELECTRICAL PLAN AND DETAILS	0	TMS
STL-0911 - SP1	SPECIFICATIONS (1 OF 2)	0	MLO
STL-0911 - SP2	SPECIFICATIONS (2 OF 2)	0	MLO

**ABBREVIATIONS**

AGL	ABOVE GRADE LINE	GND	GROUND
AMP	AMPERE	HT	HEIGHT
ARCH	ARCHITECT	LF	LINEAL FEET
BLDG	BUILDING	MIN	MINIMUM
CL	CENTER LINE	MISC	MISCELLANEOUS
CONC	CONCRETE	NTS	NOT TO SCALE
CONST	CONSTRUCTION	OC	ON CENTER
CONTR	CONTRACTOR	PL	PLATE
DET	DETAIL	REQ'D	REQUIRED
DIA	DIAMETER	SF	SQUARE FEET
DIAG	DIAGONAL	SHT	SHEET
DIM	DIMENSION	SIM	SIMILAR
DN	DOWN	SPECS	SPECIFICATIONS
DWG	DRAWING	SSC, INC.	SELECTIVE SITE CONSULTANTS, INC.
EA	EACH	STD	STANDARD
ELEC	ELECTRICAL	STL	STEEL
ELEV	ELEVATOR, ELEVATION	STRUCT	STRUCTURAL
EQ	EQUAL	TC	TOP OF CURB
EQUIP	EQUIPMENT	TOP	TOP OF PAVING
EXIST	EXISTING	TOS	TOP OF STEEL
FND	FOUNDATION	TOC	TOP OF CONCRETE
FTG	FOOTING	TYP	TYPICAL
GA	GAUGE	UNO	UNLESS NOTED OTHERWISE
GALV	GALVANIZED		

**GENERAL NOTES**

- THE CONTRACTOR SHALL SUPERVISE AND DIRECT ALL WORK USING HIS BEST SKILL AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES AND SEQUENCES FOR COORDINATING ALL PORTIONS 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 PRIOR TO SUBMITTING HIS BID. ANY DISCREPANCIES, CONFLICTS OR OMISSIONS, ETC. SHALL BE REPORTED TO VERIZON WIRELESS 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 VERIZON WIRELESS, 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 WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSES FOR REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED IN CONJUNCTION WITH THE EXECUTION OF WORK.
- 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. OR B.O.C.A. AND ALL APPLICABLE LOCAL REGULATIONS, ORDINANCES, STATUTES & CODES.
- VERIZON WIRELESS SHALL OBTAIN THE CONSTRUCTION PERMIT. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ADDITIONAL PERMITS, LICENSES AND INSPECTIONS 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 MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES. THESE ARE TO BE UNDER THE CARE OF JOB SUPERINTENDENT.
- PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A RATING OF NOT LESS THAN 2-A OR 2-A:10-B:C WITHIN 75 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF THE BUILD OUT AREA DURING CONSTRUCTION.
- ANY CONNECTION FEE FOR ELECTRICAL SERVICE SHALL BE PAID BY THE CONTRACTOR.

**DESCRIPTION OF PROPOSED SITE USE**

THE CONSTRUCTION OF THIS COMMUNICATION TOWER SITE IS FOR THE TRANSMISSION AND RECEPTION OF CALLS FOR A NEW WIRELESS TELEPHONE SYSTEM.



REV	DATE	REVISION DESCRIPTION	DSGN
A	02/16/09	ISSUED FOR REVIEW	SAA
B	03/17/09	REVISED PER NEW STANDARDS	MV
C	05/15/09	REVISED PER CLIENT COMMENTS	SAA
D	05/28/09	REVISED PER CLIENT COMMENTS	MV
O	06/03/09	ISSUED FOR CONSTRUCTION	DMG
1	09/11/09	ADDED CROSS SECTION SHEET	FG

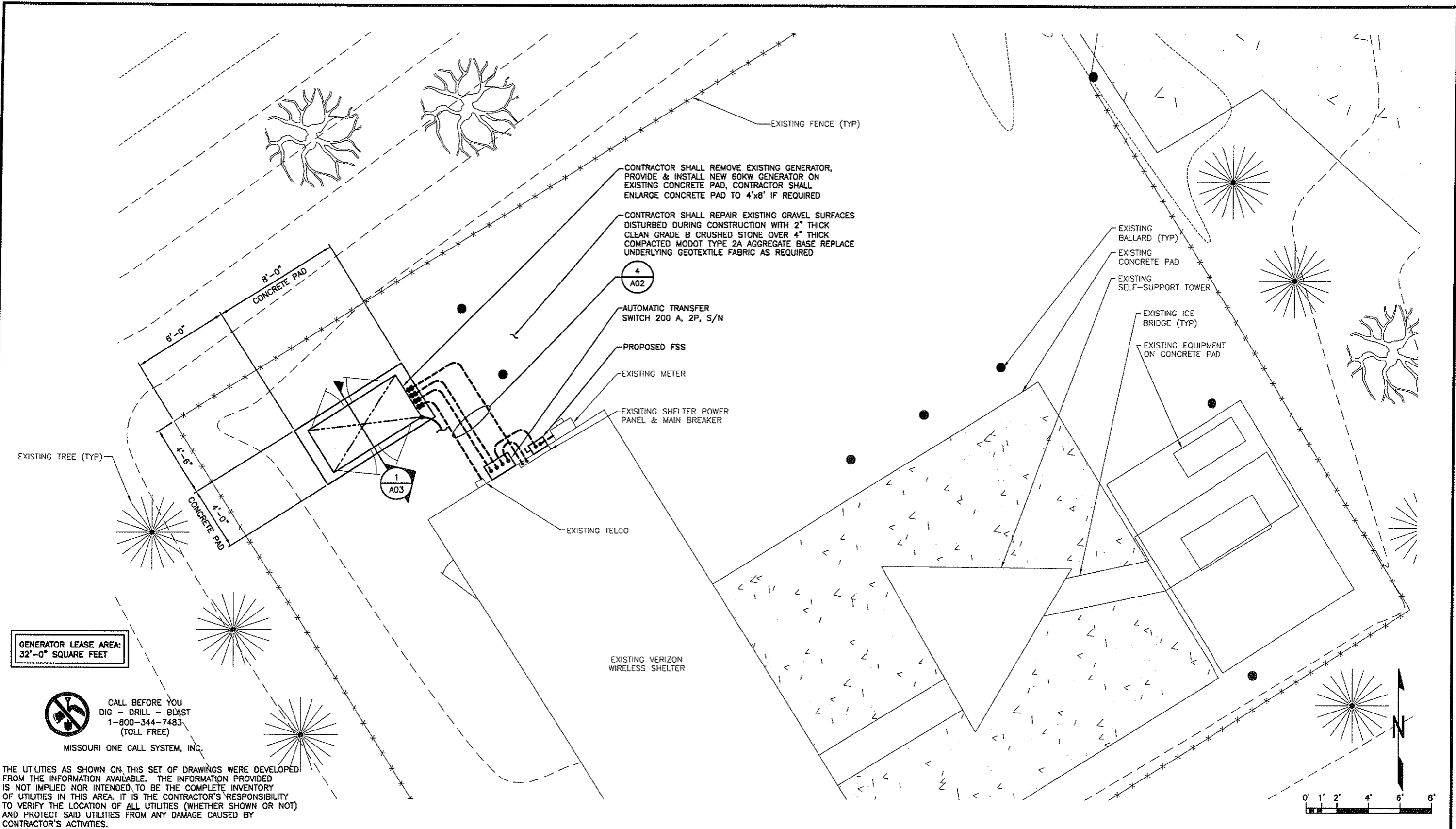
STATE OF MISSOURI  
CERTIFICATE OF AUTHORIZATION #001640  
RESPONSIBLE ENGINEERS:  
KIM KEVIN VANMAELE E-21561 STRUCTURAL/CIVIL  
MLO MICHAEL L. OWENS E-29058 STRUCTURAL/CIVIL  
SOK SHELTON KEISLING E-27323 ELECTRICAL  
TMS TERRANCE M. SUPER E-18521 ELECTRICAL

10740 NALL AVE., SUITE 400  
OVERLAND PARK, KS 66211  
PHONE: (913) 344-2800

1816 Lackland Hill Pkwy, Suite 400  
St. Louis, Missouri 63146  
Phone: 314-993-1010  
Fax: 314-993-1036

PLANS PREPARED UNDER THE SUPERVISION OF:	DESIGNED BY SAA
	CHECKED BY MLO
	SUPERVISOR TKW
	LEAD ENGR MLO/TMS

STLC CHESTERFIELD	
TITLE SHEET	
215 RUETHER LANE CHESTERFIELD, MISSOURI 63005	
DRAWING NUMBER STL-0911 - T01	REV 1



SITE PLAN

1

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0	06/03/09	ISSUED FOR CONSTRUCTION	DMG

STATE OF MISSOURI  
CERTIFICATE OF AUTHORIZATION #001640

RESPONSIBLE ENGINEERS:

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MLO MICHAEL L. OWENS E-29058 STRUCTURAL/CIVIL  
SDK SHELTON KESLING E-27323 ELECTRICAL  
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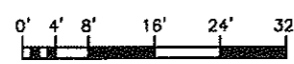
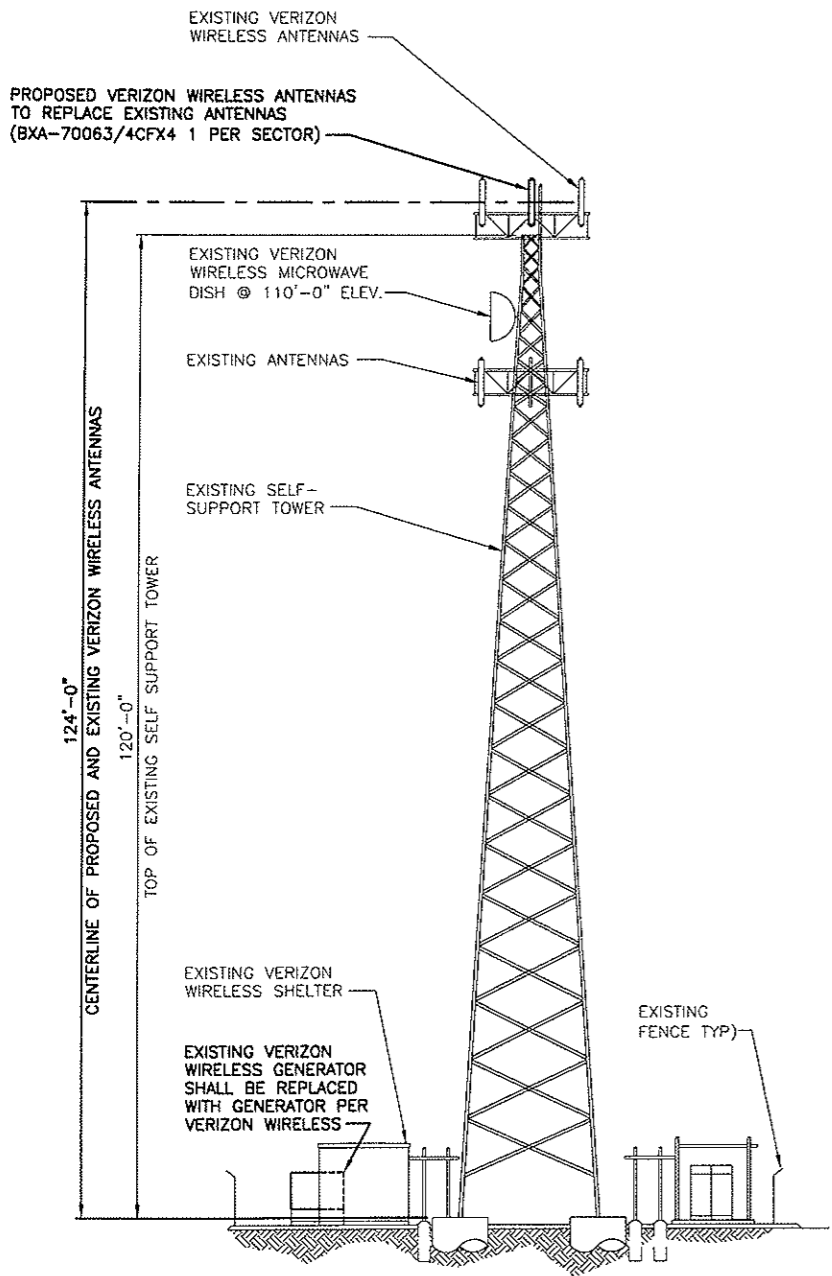
STLC CHESTERFIELD

SITE PLAN

215 RUETHER LANE  
CHESTERFIELD, MISSOURI 63005

DRAWING NUMBER  
STL-0911 - A01

REV  
0

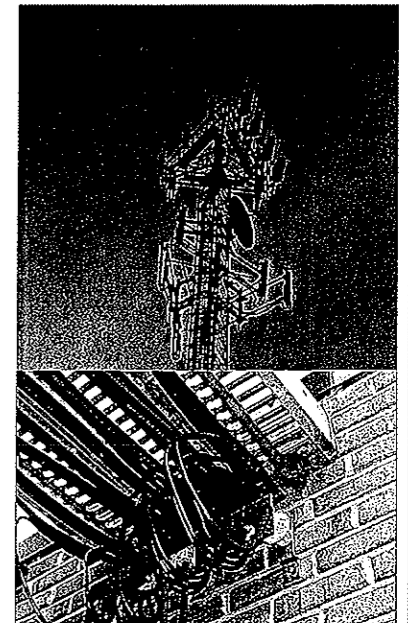
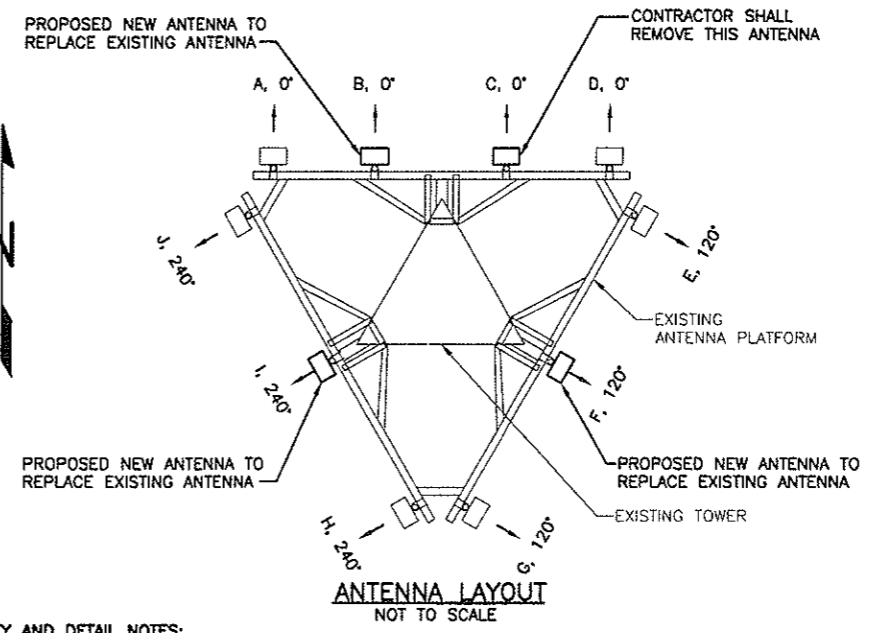


**ANTENNA KEY**

POSITION	STATUS	ANTENNA MODEL NO	ANTENNA VENDOR	AZIMUTH	ELECTRICAL DOWNTILT	MECHANICAL DOWNTILT	ANTENNA TYPE	ANTENNA LENGTH WIDTH AND DEPTH	ANTENNA WEIGHT	HEIGHT TO CL OF ANTENNA (AGL)	COAX	COAX MODEL EXISTING &/OR PROPOSED		COAXIAL FEEDER	
												SIZE	LENGTH		
A	EXISTING	DB844H80-XY	DECIBEL	0°		8	CDMA	48.0" x 6.5" x 8.5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
B	PROPOSED	BXA-70063/4CFX4	ANTEL	0°		5	LTE	47.4" x 11.2" x 5"	9.9 LBS	124'-0"	2	ANDREW	AVA5-50	7/8"	174'-0"
C	REMOVE	DB844H80-XY	DECIBEL	0°		8	CDMA	47.4" x 11.2" x 5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
D	EXISTING	DB844H80-XY	DECIBEL	0°			CDMA	48.0" x 6.5" x 8.5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
E	EXISTING	LPD-7908/4DIN	ANTEL	120°			CDMA	47.3" x 5.1" x 25.2"	35.3 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
F	PROPOSED	BXA-70063/4CFX4	ANTEL	120°			LTE	47.4" x 11.2" x 5"	9.9 LBS	124'-0"	2	ANDREW	AVA5-50	7/8"	174'-0"
G	EXISTING	LPD-7908/4DIN	ANTEL	120°			CDMA	47.3" x 5.1" x 25.2"	35.3 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
H	EXISTING	PD10197	RFS	240°			CDMA	46.0" x 7.0" x 4.5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
I	PROPOSED	BXA-70063/4CFX4	ANTEL	240°			LTE	47.4" x 11.2" x 5"	9.9 LBS	124'-0"	2	ANDREW	AVA5-50	7/8"	174'-0"
J	EXISTING	PD10197	RFS	240°			CDMA	46.0" x 7.0" x 4.5"	10 LBS	124'-0"	1	ANDREW	LDF5-50A	7/8"	174'-0"
A	EXISTING	LBX6-59	ANDREW	0°			MICROWAVE DISH	6' DIAMETER	143.0 LBS	110'-0"	1	ANDREW	LDF5-50A	7/8"	160'-0"

**EQUIPMENT**

EQUIPMENT FURNISHED AND/OR INSTALLED BY:		
DESCRIPTION	FURNISHED	INSTALLED
ANTENNA MOUNTS	TOWER VENDOR	CONTRACTOR
CABLE LADDER	TOWER VENDOR	CONTRACTOR
ANCHOR BOLTS	TOWER VENDOR	CONTRACTOR
TOWER BUS BARS	TOWER VENDOR	CONTRACTOR
ANTENNAS	VERIZON WIRELESS	CONTRACTOR
JUMPERS	CONTRACTOR	CONTRACTOR
COAX	VERIZON WIRELESS	CONTRACTOR
GROUND KITS	CONTRACTOR	CONTRACTOR
CONNECTORS	CONTRACTOR	CONTRACTOR
ENTRY PORT BOOTS	CONTRACTOR	CONTRACTOR
HANGER KITS	CONTRACTOR	CONTRACTOR



**ANTENNA KEY AND DETAIL NOTES:**

- 1.) ALL COAX SHALL BE COLOR CODED AT THREE (3) PLACES EACH: AT ANTENNA, EXTERIOR OF SHELTER, AND THE INTERIOR OF SHELTER.
- 2.) CONTRACTOR TO CALL PROJECT MANAGER TO SCHEDULE ANTENNA AND LINE SWEEP.
- 3.) ANTENNAS SHALL BE DESIGNATED FROM RIGHT TO LEFT. FACING THE ASSEMBLY FROM THE GROUND. RIGHT TO LEFT FACING THE BACK OF THE ANTENNA.
- 4.) THE OUTER MOST ANTENNAS ON EACH FACE SHALL BE DESIGNATED AS THE RECEIVE ANTENNAS. THE INNER ANTENNAS SHALL BE DESIGNATED AS THE TRANSMIT ANTENNAS.
- 5.) EACH TRANSMISSION LINE SHALL BE LABELED WITH BRASS "TOE TAGS". GRANGER PART NUMBER 1F035-8, STAMPED WITH 1/4" LETTERS/NUMBERS STAMPS, GRANGER PART NUMBER 3W639. THE LABELS SHALL BE ATTACHED WITH A SEMI-PERMANENT METHOD (I.E. BLACK UV RESISTANT CABLE TIES). THE TAGS SHALL BE PLACED SO AS NOT TO COME IN CONTACT WITH THE CONNECTOR ON THE LINE AND THE METAL OF THE TOWER. LINES SHALL BE LABELED AT THE TOP AND BOTTOM, AND OUTSIDE OF THE ENTRY PORT.
- 6.) EACH LINE SHALL ALSO BE LABELED AT THE LIGHTNING/SURGE PROTECTOR MOUNTING PLATE WITH A PRINTABLE LABEL MAKER TO INDICATE LINE NUMBER AND FUNCTION, THE SAME AS THE TOE TAG.
- 7.) CONTRACTOR SHALL INSTALL INTERMITTANT COAX TIN PLATED GROUND BARS AT 75' INTERVALS STARTING FROM THE ANTENNA CENTERLINE DOWN ON SELF SUPPORT AND GUYED TOWERS.
- 8.) CONTRACTOR SHALL FIELD VERIFY THE EXACT TMA'S (IF THEY ARE REQUIRED) PER THE OPERATIONS MANAGER.
- 9.) COAX GROUND KITS SHALL BE AT 75' INTERVALS STARTING FROM THE ANTENNA CENTERLINE DOWN.

STRUCTURAL TOWER ANALYSIS HAS BEEN PERFORMED BY PIER STRUCTURAL ENGINEERING CORP. REPORT DATED 04/15/2009. CONTRACTOR SHALL OBTAIN A COPY OF THIS REPORT AND SHALL FOLLOW ALL REPORT RECOMMENDATIONS.

LOCATION 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.

CONTRACTOR SHALL OBTAIN A COPY OF VERIZON WIRELESS ENGINEERING SITE DATA FORM FOR ANTENNA INFORMATION.

**TOWER ELEVATION**

2

**ANTENNA KEY AND GENERAL NOTES**

1

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STATE OF MISSOURI  
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PLANS PREPARED UNDER THE SUPERVISION OF:	
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CHECKED BY	MLO
SUPERVISOR	TKW
LEAD ENGR	MLO/TMS

STLC CHESTERFIELD  
 TOWER ELEVATION  
 215 RUETHER LANE  
 CHESTERFIELD, MISSOURI 63005

DRAWING NUMBER: STL-0911 - A02  
 REV: 0

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EXISTING SELF-SUPPORT TOWER  
 BASE ELEVATION = 538.6 FEET  
 TOP ELEVATION = 658.6 FEET

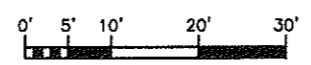
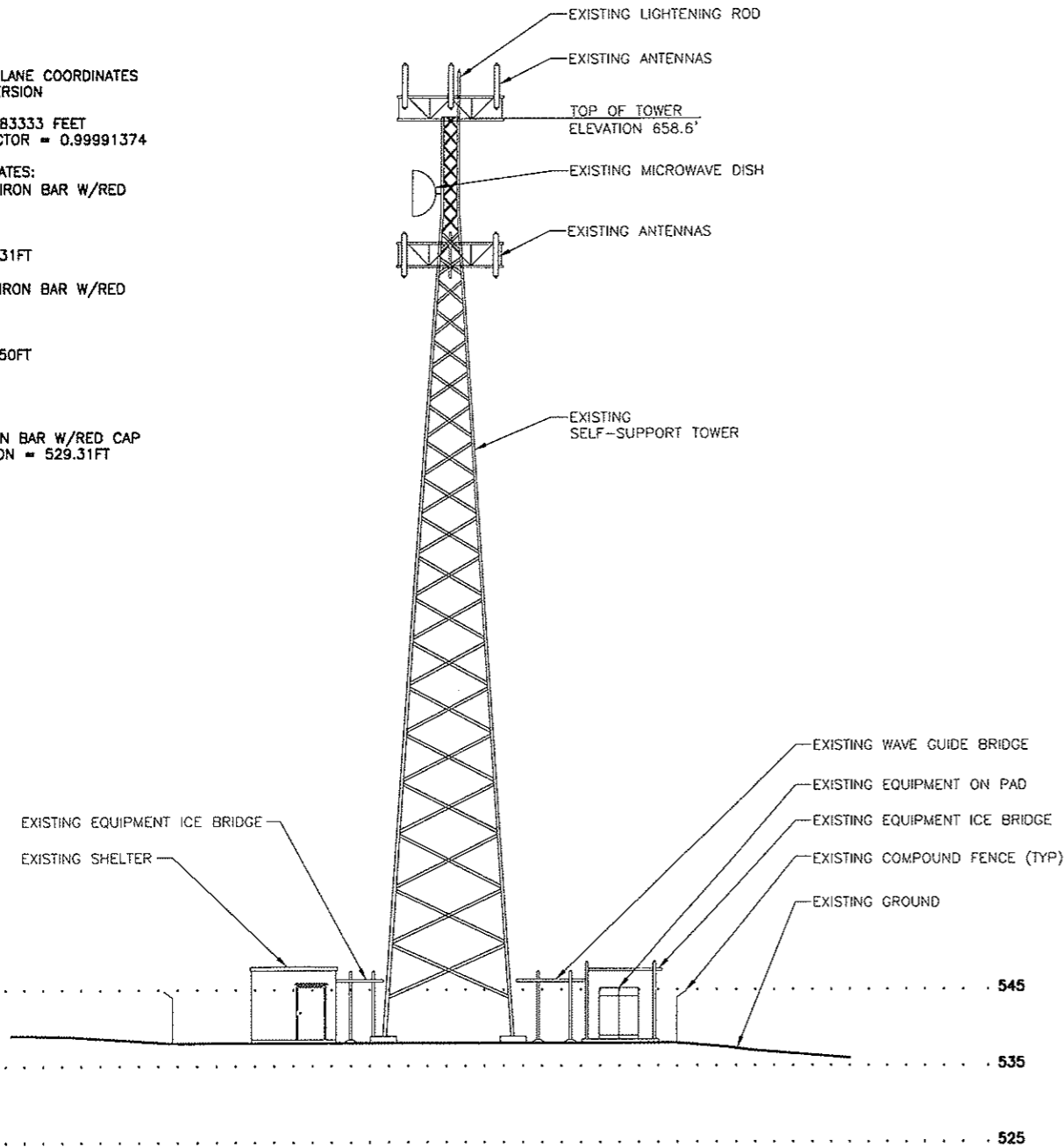
NOTE:  
 MISSOURI STATE PLANE COORDINATES  
 EAST ZONE CONVERSION

1 METER = 3.28083333 FEET  
 PROJECT GRID FACTOR = 0.99991374

PROJECT COORDINATES:  
 CP-1 (SET 1/2" IRON BAR W/RED  
 CONTROL CAP)  
 N 1028607.464  
 E 793789.139  
 ELEVATION = 529.31FT

CP-2 (SET 1/2" IRON BAR W/RED  
 CONTROL CAP)  
 N 1028346.208  
 E 793966.515  
 ELEVATION = 534.50FT

BENCH MARK  
 TOP OF 1/2" IRON BAR W/RED CAP  
 AT CP-1 ELEVATION = 529.31FT



EXISTING SELF-SUPPORT TOWER  
 BASE ELEVATION = 538.6 FEET  
 TOP ELEVATION = 658.6 FEET

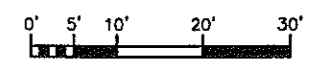
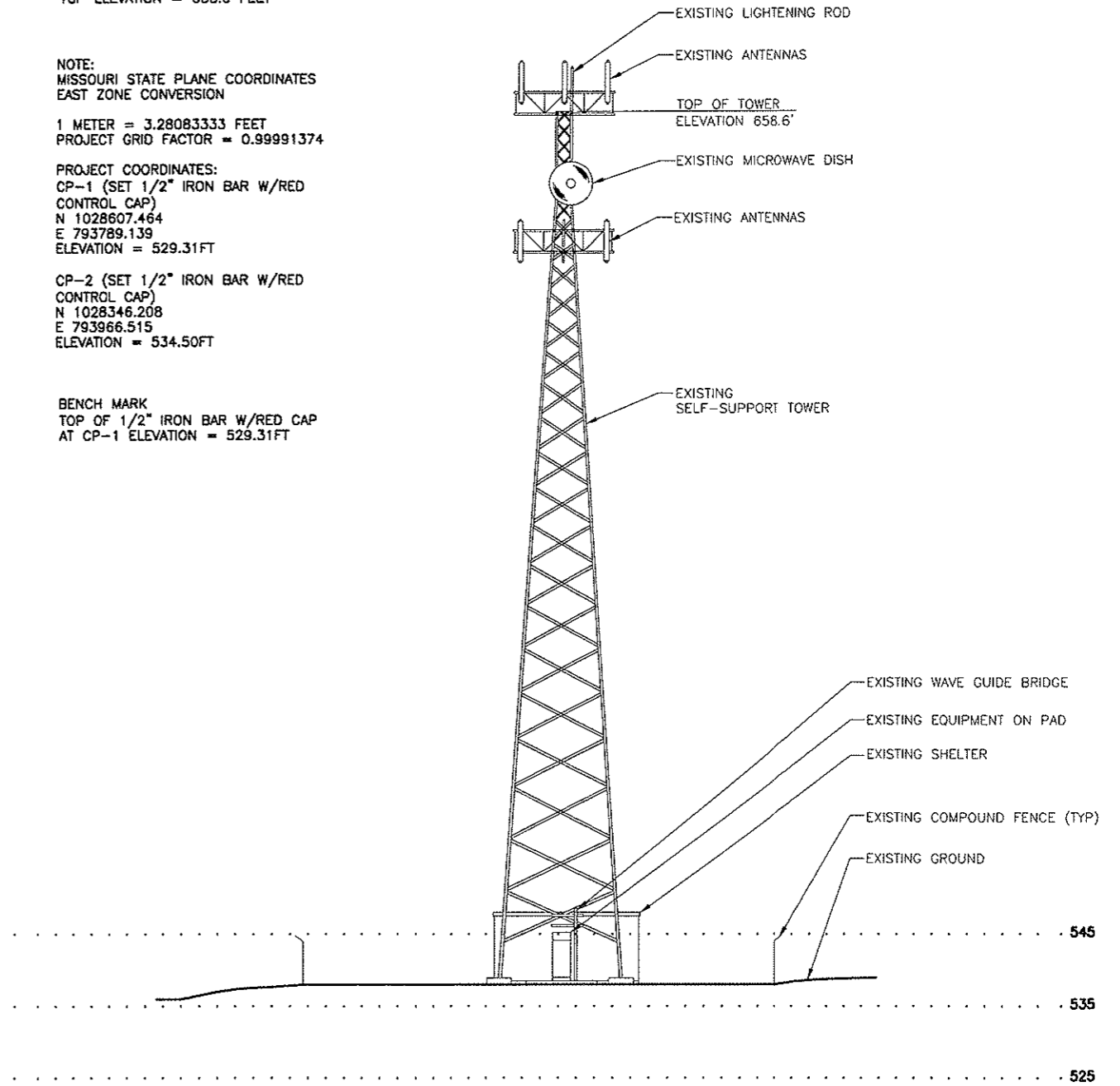
NOTE:  
 MISSOURI STATE PLANE COORDINATES  
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1 METER = 3.28083333 FEET  
 PROJECT GRID FACTOR = 0.99991374

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 N 1028346.208  
 E 793966.515  
 ELEVATION = 534.50FT

BENCH MARK  
 TOP OF 1/2" IRON BAR W/RED CAP  
 AT CP-1 ELEVATION = 529.31FT



SOUTH ELEVATION

2

EAST ELEVATION

1

REV	DATE	REVISION DESCRIPTION	DSGN
0	09/11/09	ISSUED FOR CONSTRUCTION	FG

STATE OF MISSOURI  
 CERTIFICATE OF AUTHORIZATION #001640  
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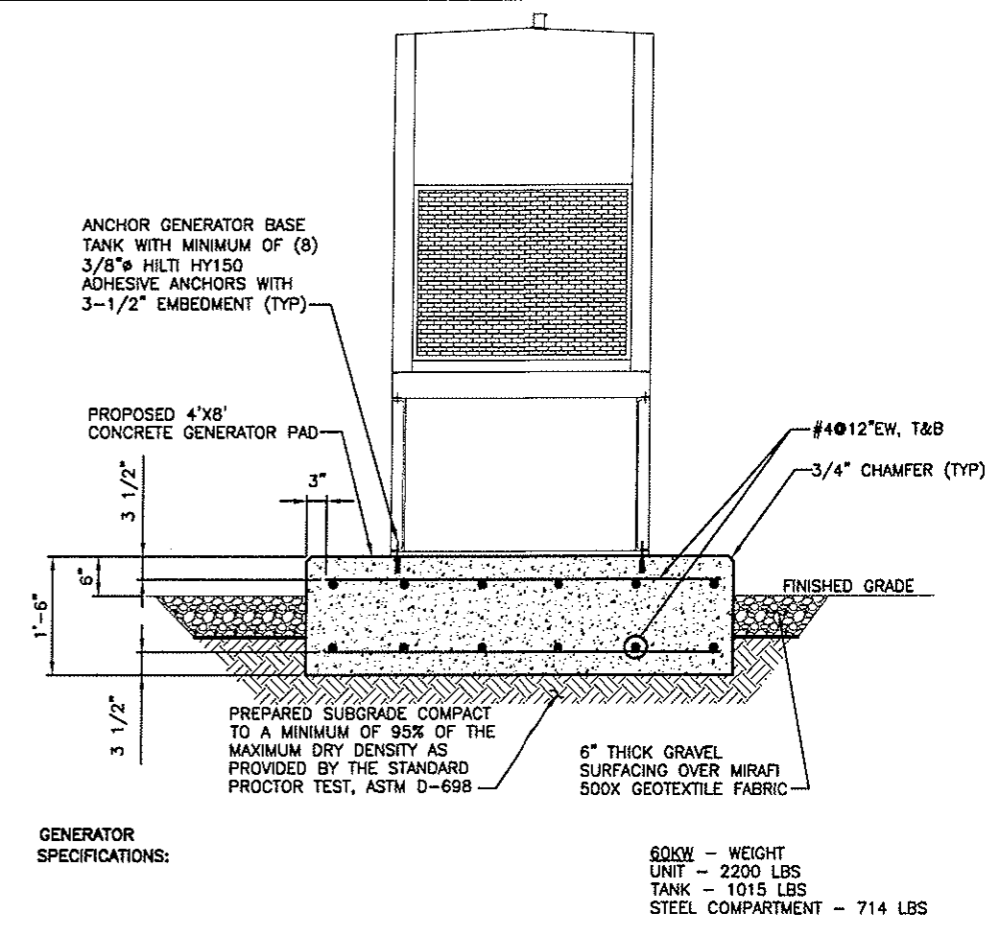
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PLANS PREPARED UNDER THE SUPERVISION OF:

DESIGNED BY	SAA
CHECKED BY	MLO
SUPERVISOR	TKW
LEAD ENGR	MLO/TMS

STLC CHESTERFIELD	
CROSS SECTIONS	
215 RUETHER LANE CHESTERFIELD, MISSOURI 63005	
DRAWING NUMBER	STL-0911 - A03
REV	0



GENERATOR SPECIFICATIONS:

60KW - WEIGHT  
 UNIT - 2200 LBS  
 TANK - 1015 LBS  
 STEEL COMPARTMENT - 714 LBS

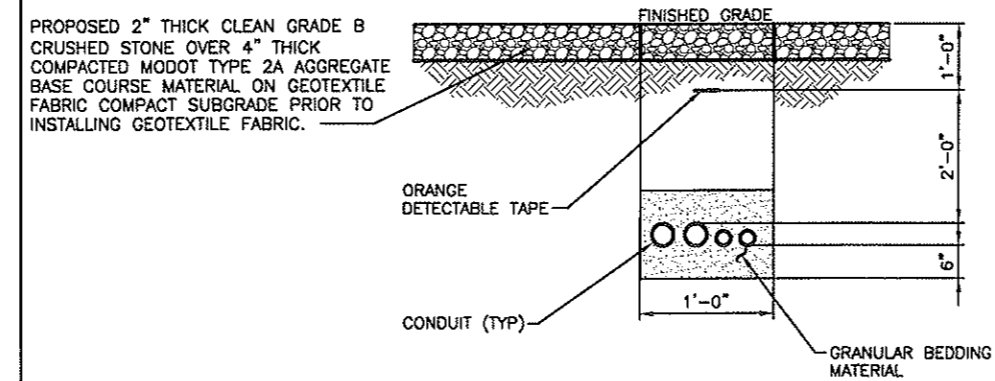
5

3

GENERATOR PAD

1

- NOTES:
1. COMMUNICATION AND POWER CONDUITS MAY BE RUN IN SEPARATE TRENCHES.
  2. SEE ELECTRICAL RISER DIAGRAM SHEET E01, DETAIL 4 FOR EXACT QUANTITY AND SIZES OF CONDUITS.



**FOUNDATION GENERAL NOTES:**

1. THE SITE SHALL BE STRIPPED OF ALL VEGETATION PRIOR TO FILL OR CONSTRUCTION OF THE FOUNDATION PAD.
2. ALL FILL SAND SHALL BE 0-15 P.I. WITH A COMPACTION TEST RUN ON EACH 6" LIFT - COMPACTED TO 90% MODIFIED PROCTOR.
3. ANY SOFT AREAS (TREE STUMP HOLES, ETC.) SHALL BE CUT OUT AND RECOMPACTED TO SAID PROCTOR.
4. THE CONTRACTOR SHALL KEEP THE SITE SO IT WILL HAVE POSITIVE DRAINAGE AT ALL TIMES.
5. ALL EXCAVATIONS SHALL BE FREE OF WATER BEFORE POURING CONCRETE.
6. MINIMUM SOIL BEARING CAPACITY OF 2,000 PSF IN ALL FOUNDATION AND SLAB AREAS.

**REINFORCING STEEL:**

1. ALL STEEL BARS SHALL BE GRADE 60 STEEL.
2. CLEAR DIMENSIONS FOR STEEL: STEEL AGAINST EARTH SHALL BE 3". STEEL AGAINST FORM SHALL BE 1-1/2"
3. ALL STEEL BAR SPLICES SHALL BE 36 TIMES BAR DIAMETER.
4. ALL CORNER AND INTERSECTIONS SHALL HAVE CORNER BARS (TOP AND BOTTOM) INSTALLED.
5. ALL WIRE AND BARS SHALL BE SECURED PROPERLY BEFORE POURING CONCRETE.

**CONCRETE:**

1. ALL CONCRETE SHALL BE 6 SACK MIX AND HAVE A MINIMUM OF 3000 PSI COMPRESSIVE STRENGTH AT 28 DAYS.
2. EDGE TROWEL ALL EXPOSED CONCRETE EDGES.
3. MAXIMUM SLUMP SHALL BE 4".

6

GENERATOR CONDUIT TRENCH

4

STRUCTURAL NOTES

2

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 PHONE: (913) 344-2800

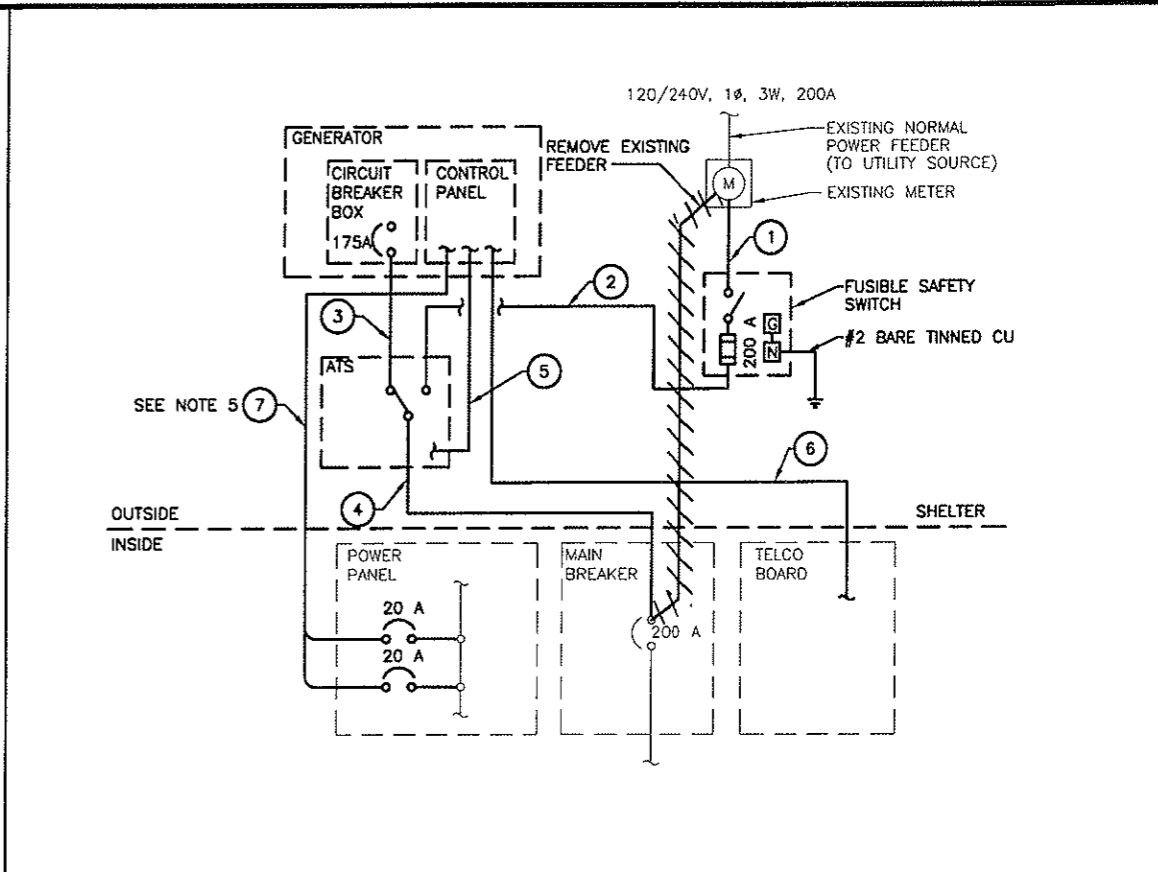
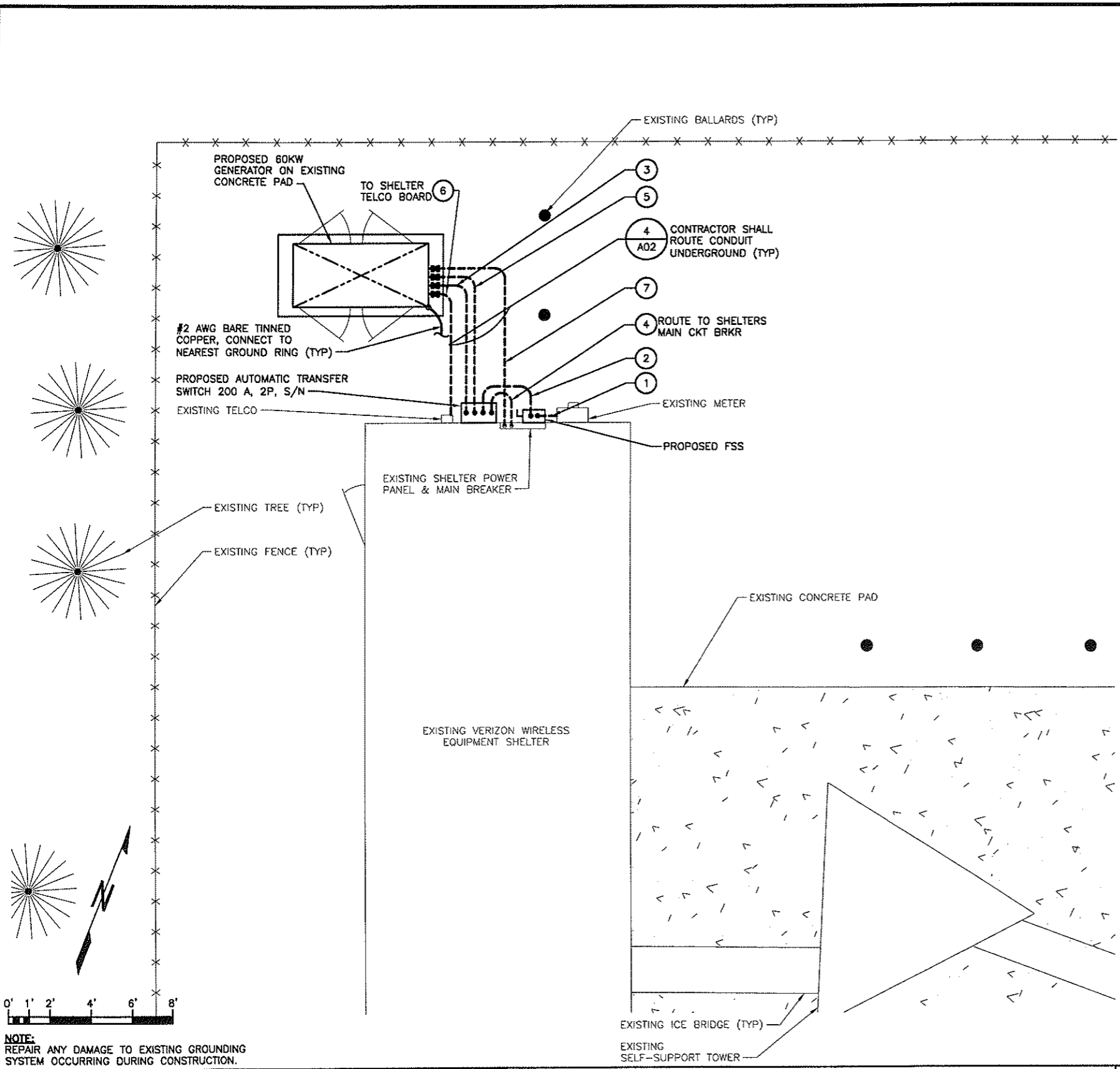
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DESIGNED BY	CHECKED BY	SUPERVISOR	LEAD ENGR
SAA	MLO	TKW	MLO/TMS

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 DETAILS  
 215 RUETHER LANE  
 CHESTERFIELD, MISSOURI 63005  
 DRAWING NUMBER: STL-0911 - A04  
 REV: 0

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CONNECTION DIAGRAM					1
	FROM	TO	CONFIGURATION	FUNCTION	
①	METER	FUSIBLE SAFETY SWITCH	3#3/0, 1#6G, 2°C	NORMAL POWER FEEDER TO FSS (MOVED)	
②	FUSIBLE SAFETY SWITCH	AUTOMATIC TRANSFER SWITCH	3#3/0, 1#6G, 2°C	NORMAL POWER FEEDER TO ATS	
③	GENERATOR	AUTOMATIC TRANSFER SWITCH	3#3/0, 1#6G, 2°C	EMERGENCY POWER FEEDER TO ATS	
④	AUTOMATIC TRANSFER SWITCH	SHELTER MAIN BREAKER	3#3/0, 1#6G, 2°C	POWER FEEDER FROM ATS	
⑤	AUTOMATIC TRANSFER SWITCH	GENERATOR	WIRING AS REQ'D, 3/4°C	GENERATOR START CIRCUIT	
⑥	GENERATOR	SHELTER TELCO BOARD	WIRING AS REQ'D, 3/4°C	GENERATOR STATUS AND ALARM REMOTE INDICATION	
⑦	SHELTER POWER PANEL	GENERATOR	4#12, 1#12G, 3/4°C	AUXILIARY GENERATOR LOADS (BLOCK HEATER & BATTERY CHARGER)	

- CIRCUIT SCHEDULE** 2
- ALL ELECTRICAL WORK SHALL CONFORM TO REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AS A MINIMUM STANDARD.
  - GENERATOR, BASE TANK AND AUTOMATIC TRANSFER SWITCH SHALL BE FURNISHED BY OWNER AND INSTALLED BY THE CONTRACTOR. ALL OTHER MATERIAL & EQUIPMENT SHALL BE CONTRACTOR FURNISHED & INSTALLED.
  - GENERATOR AND ATS INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.
  - ALL ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL (RGS). ALL UNDERGROUND CONDUIT SHALL BE SCH 40 PVC.
  - BATTERY CHARGER & BLOCK WATER HEATER CIRCUITS RUN IN SAME 3/4" C.

**ELECTRICAL PLAN** 4

**GENERAL NOTES** 3

REV	DATE	REVISION DESCRIPTION	DSGN
A	05/15/09	ISSUED FOR REVIEW	SAA
B	05/28/09	REVISED PER CLIENT COMMENTS	MV
0	06/03/09	ISSUED FOR CONSTRUCTION	DMG

STATE OF MISSOURI  
 CERTIFICATE OF AUTHORIZATION #001640  
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PLANS PREPARED UNDER THE SUPERVISION OF:	DESIGNED BY SAA	STLC CHESTERFIELD ELECTRICAL PLAN AND DETAILS 215 RUETHER LANE CHESTERFIELD, MISSOURI 63005
	CHECKED BY MLO	
	SUPERVISOR TKW	
	LEAD ENGR MLO/TMS	
	DRAWING NUMBER STL-0911 - E01	REV 0

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**PART 1 - GENERAL**

1.1 SUMMARY

A. 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, CONTROLS, AND OTHER RELATED MATERIALS.

B. 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.

C. TERMINOLOGY

- CHAIN LINK FENCE CLASSIFICATION: CHAIN LINK FENCING SHALL BE CLASSIFIED BY FABRIC CATEGORY AS GALVANIZED (ZINC COATED). WIRE TO BE 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 REVISION AND ADDENDUM IN EFFECT AT THE TIME OF THE PROJECT'S EXECUTION UNLESS NOTED OTHERWISE. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, ALL WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.

A. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

- ASTM A53 - SPECIFICATION FOR PIPE - STEEL, BLACK, AND HOT DIPPED, ZINC-COATED WELDED, AND SEAMLESS.
- ASTM A116 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) STEEL WOVEN WIRE FENCE FABRIC.
- ASTM A120 SPECIFICATION FOR PIPE, STEEL, BLACK, AND HOT DIPPED ZINC-COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.
- ASTM A121 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) STEEL BARBED WIRE.
- ASTM A123 - SPECIFICATION FOR ZINC (HOT-DIPPED GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS.
- ASTM A143 - RECOMMENDED PRACTICE FOR SAFEGUARDING AGAINST EMBRITTEMENT OF HOT DIPPED (GALVANIZED) STRUCTURAL STEEL PRODUCTS AND PROCEDURE FOR DETECTING EMBRITTEMENT.
- ASTM A153 - SPECIFICATION FOR ZINC COATING (HOT DIP) ON IRON AND STEEL HARDWARE.
- ASTM A392 - SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC.
- ASTM A475 - SPECIFICATION FOR ZINC-COATED STEEL WIRE STRAND.
- ASTM A525 - SPECIFICATION FOR GENERAL REQUIREMENTS FOR STEEL SHEET, ZINC-COATED (GALVANIZED) BY THE HOT DIP PROCESS.
- ASTM A570 - SPECIFICATION FOR STEEL, SHEET AND STRIP, CARBON, HOT ROLLED STRUCTURAL QUALITY.
- ASTM A641 - SPECIFICATION FOR ZINC-COATED (GALVANIZED) CARBON STEEL WIRE.
- ASTM A817 - SPECIFICATION FOR METALLIC COATED STEEL WIRE FOR CHAIN LINK FENCE FABRIC.
- ASTM F567 - PRACTICE FOR INSTALLATION OF CHAIN LINK FENCE.
- ASTM F626 - SPECIFICATION FOR FENCE FITTINGS.

- ASTM F669 - SPECIFICATION FOR STRENGTH REQUIREMENTS OF METAL POSTS AND RAILS FOR INDUSTRIAL CHAIN LINK FENCE.
- ASTM F1083 - SPECIFICATION FOR PIPE, STEEL, HOT-DIPPED, ZINC-COATED (GALVANIZED), WELDED FOR FENCE STRUCTURES.

B. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)

- OSHA CONSTRUCTION INDUSTRY STANDARD, TITLE 29, CODE OF FEDERAL REGULATIONS, PART 192, SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.

1.3 STORAGE AND PROTECTION

- STORE MATERIALS 12 INCHES OFF THE GROUND OR SLAB BY USING WOOD BLOCKING OR OTHER APPROVED MATERIALS.
- STORE MATERIALS IN AREAS OF THE JOB SITE DESIGNATED OR APPROVED BY CONSTRUCTION MANAGER.

1.4 SCHEDULING AND SEQUENCING

CERTAIN PORTIONS OF THE WORK ARE SPECIFIED TO BE COMPLETED AND OPERATIONAL PRIOR TO COMPLETION OF ALL WORK. SEQUENCE EQUIPMENT AND GATE INSTALLATION, AND PROPERLY PROTECT EQUIPMENT TO PREVENT CONTAMINATION OR DAMAGE TO EQUIPMENT IN ADJACENT WORK AREAS. PHASING AND SEQUENCING SHALL BE SUBJECT TO THE APPROVAL OF CONSTRUCTION MANAGER.

1.5 SUBMITTALS

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

**PART 2 - PRODUCTS**

2.1 MATERIALS

A. GENERAL

FENCE FABRIC, POSTS, TOP RAIL, TENSION WIRE, CORNER POSTS, BARBED WIRE, AND APPURTENANCES SHALL CONFORM TO THE ASTM CODES AND STANDARDS FOR THE APPROPRIATE TYPE OF MATERIALS AS LISTED IN SECTIONS OF THIS SPECIFICATION, AND MORE SPECIFICALLY LISTED IN THE SECTIONS BELOW.

B. MATERIALS SHALL BE UNIFORM, CONSISTENT, AND MEET THE FOLLOWING REQUIREMENTS.

- FENCE FABRIC
  - FABRIC SHALL BE 72 INCHES HIGH, HEAVY GALVANIZED CHAIN LINK FENCE CONFORMING TO ASTM A392, CLASS 2, OF 2 INCH MESH 9 GAGE WIRE (0.148 INCHES IN DIAMETER), WITH THE TOP AND BOTTOM EDGES TWISTED AND BARBED.
- LINE POSTS
  - FOR FABRIC UP TO 8 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.
  - FOR FABRIC MORE THAN 8 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.
- END CORNER AND PULL POSTS
  - END CORNER AND PULL POSTS 8 FEET HIGH OR LESS SHALL BE 2 1/2 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE IN ACCORDANCE WITH ASTM A120.
- TOP, BOTTOM AND MID-SECTION RAILS
  - TOP, BOTTOM AND MID-SECTION RAILS SHALL CONFORM TO 1-1/4 INCH NPS SCHEDULE 40 GALVANIZED STEEL PIPE IN ACCORDANCE WITH ASTM A120.
- TENSION WIRE
  - 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 BOTTOM OF THE FENCE AND ATTACHED AT TWO (2) FOOT INTERVALS. IF TOP RAIL IS NOT USED, THE TENSION WIRE SHALL BE STRETCHED AT THE TOP ALSO.
- APPURTENANCES
  - BRACE BANDS, TENSION BANDS, AND TENSION BARS SHALL BE FABRICATED OF 1/8 INCH BY 7/8 INCH GALVANIZED STEEL WITH GALVANIZED STEEL CARRIAGE BOLTS AND NUTS IN ACCORDANCE WITH ASTM A123. TENSION BARS SHALL BE 1/4 BY 3/4 INCH GALVANIZED STEEL BAR IN ACCORDANCE WITH ASTM A153.
- FABRIC TIES
  - FABRIC TIES SHALL BE CLASS I GALVANIZED STEEL WIRE NO LESS THAN 9 GAGE.

8. POST TOPS

- ONE POST TOP SHALL BE PROVIDED FOR EACH POST, WITH OPENINGS TO PERMIT THROUGH PASSAGE OF TOP RAIL. MATERIALS SHALL BE PRESSED STEEL OR MALLEABLE IRON THAT IS DESIGNED AS WATERTIGHT CLOSURE CAP FOR TUBULAR POSTS AND SHALL BE GALVANIZED PER ASTM A153.

9. BARBED WIRE

- BARBED WIRE SHALL CONSIST OF DOUBLE STRANDED, 12-1/2 GAGE WIRE ASTM A121, CLASS 3, WITH 4 POINT BARBS SPACED 5 INCHES APART. THE TOP ONE (1) FOOT OF THE FENCE SHALL CONSIST OF 3 STRANDS OF BARBED WIRE ATTACHED TO 45 DEGREE ANGLE HEAVY PRESSED ARMS CAPABLE OF WITHSTANDING WITHOUT FAILURE 250 POUNDS DOWNWARD PULL AT THE OUTERMOST END OF THE ARM.

10. GATES

- 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
  - CANTILEVER SLIDE GATES
  - OVERHEAD SLIDE GATES
  - VERTICAL LIFT GATES

(REFER TO DRAWINGS FOR TYPES AND LOCATIONS.)

- GATES SHALL BE MANUALLY OPERATED. SHOP DRAWINGS FOR GATES OVER 12 FEET WIDE SHALL BE SUBMITTED FOR APPROVAL.

**PART 3 - EXECUTION**

3.1 EXAMINATION

THE PHYSICAL LOCATIONS 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.

3.2 PREPARATION

PROVIDE A REASONABLY SMOOTH PROFILE AT THE FENCE LINE. THE BOTTOM OF THE FENCE SHALL NOT BE MORE THAN 2 INCHES ABOVE THE FINISHED GROUND LINE. WHERE THE FENCE CROSSES FEATURES SUCH AS STREAMS AND DRAINAGE DITCHES AND IT IS IMPRACTICAL TO CONFORM THE FENCE 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 AT SUCH LOCATIONS, THEY SHALL BE FURNISHED AND INSTALLED IN LIEU OF STANDARD LENGTH POSTS, TOGETHER WITH ANY INTERMEDIATE POSTS, STAKES, BRACES, EXTRA FABRIC, OR WIRE AS MAY BE REQUIRED.

3.3 INSTALLATION

A. POST SPACING

- 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 PLANS. INSTALL CORNER OR SLOPE POSTS WHERE CHANGES IN GRADE EXCEED A 30 DEGREE DEFLECTION.

B. INSTALLATION OF LINE, CORNER, PULL, AND TERMINAL POSTS

- SET LINE, CORNER, PULL, AND TERMINAL POSTS VERTICALLY IN CYLINDRICAL CONCRETE FOUNDATION IN ACCORDANCE WITH THE SCHEDULE IN TABLE 1 AND IN ACCORDANCE WITH ASTM F567.

TABLE 1 LINE, CORNER, PULL, AND TERMINAL POST INSTALLATION SCHEDULE

	FOUNDATION DIAMETER	FOUNDATION DEPTH	POST EMBEDMENT
LINE POST	0'-0"	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"
3-1/2 INCH	1'-6"	4'-0"	3'-6"
6 INCH	1'-6"	4'-0"	3'-6"
8 INCH	2'-0"	6'-0"	5'-6"

- THE EXPOSED SURFACE OF THE CONCRETE FOUNDATION SHALL BE SMOOTH 1/2 INCH CROWN, SLOPING AWAY FROM THE POST. THE POST SHALL BE 8 INCHES FROM THE BOTTOM OF THE CONCRETE POUR.

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KMY KEVIN VANMAELE E-21561 STRUCTURAL/CIVIL  
MLO MICHAEL L. OWENS E-29058 STRUCTURAL/CIVIL  
SDK SHELTON KEISLING E-27323 ELECTRICAL  
TMS TERRANCE M. SUPPER E-18521 ELECTRICAL



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SPECIFICATIONS (1 OF 2)	
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3. HOLES MAY BE HAND AUGURED OR DRILLED. SPREAD SOIL FROM THE EXCAVATIONS UNIFORMLY ADJACENT TO THE FENCE LINE OR AS DIRECTED BY THE CONSTRUCTION MANAGER. IF ROCK IS ENCOUNTERED, DRILL INTO THE ROCK FOR AT LEAST 12 INCHES FOR LINE POSTS, AND 18 INCHES FOR CORNER OR TERMINAL POSTS. DRILL HOLES 1 INCH LARGER THAN THE DIAMETERS AS PER THE SCHEDULE (REFER TO TABLE 1). IF SOLID ROCK IS BELOW SOIL OVERBURDEN, DRILL TO FULL DEPTH REQUIRED, EXCEPT PENETRATION INTO ROCK NEED NOT EXCEED MINIMUM DEPTHS SPECIFIED.
- C. SETTING POSTS
1. REMOVE ANY LOOSE AND FOREIGN MATERIALS FROM THE SIDES AND BOTTOMS OF THE HOLES; MOISTEN THE SOIL PRIOR TO PLACING THE CONCRETE. CENTER AND ALIGN POSTS IN THE HOLES. PLACE THE CONCRETE IN A CONTINUOUS POUR IN THE HOLE AROUND POST, AND TAMP TO CONSOLIDATE. CHECK POSTS FOR VERTICAL AND HORIZONTAL ALIGNMENT, AND SECURE TO ALLOW PROPER CURING OF THE CONCRETE.
  2. EXTEND FOOTINGS FOR GATE POSTS TO THE UNDERSIDE OF THE BOTTOM OF THE HINGE. KEEP CONCRETE SURFACES MOIST FOR AT LEAST 7 DAYS AFTER PLACEMENT, OR CURE WITH MEMBRANE CURING MATERIAL OR OTHER APPROVED METHOD.
  3. POSTS THAT ARE SET IN SLEEVED HOLES SHALL BE GROUTED IN PLACE USING A NON-SHRINK PORTLAND CEMENT GROUT APPROVED BY THE ENGINEER.
  4. PRIOR TO PLACING COMPONENTS SUCH AS FABRIC, RAILS, TENSION WIRE, AND GATES, ENSURE THAT THE CONCRETE HAS REACHED AT LEAST 75 PERCENT 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 CAPS OR EXTENSION ARMS BENDING TO THE RADIUS FOR WIRED RUNS. SPACE 9 GAGE MINIMUM FABRIC TIE WIRE AT 2 FEET ON CENTERS.
  2. INSTALL TENSION WIRES PARALLEL TO THE LINE OF FABRIC BY WEAVING NO LESS THAN 6 GAGE WIRE OF THE APPROPRIATE TYPE THROUGH FABRIC AND TYING TO EACH POST.
  3. INSTALL TOP RAIL AND TENSION WIRE PRIOR TO INSTALLATION OF THE CHAIN LINK FABRIC. PROVIDE AN EXPANSION/CONTRACTION COUPLING, STANDARD WITH THE MANUFACTURER, EVERY 100 FEET ON STRAIGHT RUNS, INSTALLED WITHIN 2 FEET OF A LINE POST. USE END CLAMPS FOR ATTACHING THE TOP RAIL OR TENSION WIRE, AND AND BRACES TO THE BRACE TERMINAL AND GATE POSTS. USE CORNER CLAMPS FOR ATTACHING TOP RAILS OR TENSION WIRE AND BRACES TO CORNER POSTS.
- E. INSTALLING FABRIC
1. INSTALL THE CHAIN LINK FENCE FABRIC SO THAT THE POSTS ARE ENCLOSED. STRETCH THE FABRIC TAUT, 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. USE STRETCHER BARS WITH FABRIC BANDS SPACED AT MAXIMUM 5 INCH INTERVALS TO FASTEN FABRIC TO TERMINAL POSTS. USE TIE WIRE, METAL BANDS, OR OTHER APPROVED MATERIAL ATTACHED AT MAXIMUM 15 INCH INTERVALS TO FASTEN FABRIC TO LINE POSTS. FASTEN THE TOP EDGE OF THE FABRIC TO THE TOP RAIL OR TENSION WIRE WITH WIRE TIES AT INTERVALS NOT EXCEEDING 15 INCHES. FASTEN THE EDGE OF FABRIC TO THE BOTTOM TENSION WIRE WITH WIRE TIES AT INTERVALS NOT EXCEEDING 15 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 GATES ONE (1) FOOT ABOVE THE HORIZONTAL SECTION OF THE GATE FRAME. SPACE STRANDS UNIFORMLY AND ATTACH TO FRAME WITH BANDS, CLIPS, OR EYEBOLTS. INCLINE EXTENSION ARMS ON LINE POSTS AND CORNER POSTS TOWARD THE PROPERTY ENCLOSED AT APPROXIMATELY 45 DEGREES. STRETCH THE STRANDS OF BARBED WIRE TO REMOVE SAG, AND ANCHOR FIRMLY TO EXTENSION ARMS. USE 3 STRANDS OF BARBED WIRE.
- G. INSTALLING GATES
1. INSTALL GATES ACCORDING TO THE LOCATIONS, TYPE, AND SIZE INDICATED ON THE PLANS.
  2. GATES SHALL BE PROPERLY BRACED AND TRUSSED TO PREVENT SAGGING, BUCKLING, AND WEAVING, AND SHALL BE COVERED WITH SAME TYPE OF FABRIC AS THE FENCE. VERTICAL MEMBERS OF THE GATE SHALL CARRY THE TOP OF 3 STRANDS OF BARBED WIRE. FIXED END RATCHET BANDS SHALL BE FURNISHED FOR FASTENING THE BARBED WIRE. FURNISH GATES WITH NECESSARY FITTINGS AND HARDWARE. LATCHES PROVIDED FOR USE WITH PADLOCK AND HINGES SHALL ALLOW SWING GATES TO SWING 180 DEGREES. PLUNGER BARS SHALL HAVE TOP, BOTTOM, AND MIDDLE LOCKING POINTS WITH THE MIDDLE POINT ARRANGED FOR PADLOCKING. GATES SHALL HAVE KEEPERS THAT ENGAGE AUTOMATICALLY WHEN THE GATE IS SWUNG OPEN.
  3. INSTALL GATES PLUMB, LEVEL, AND SECURE FOR THE FULL OPENING WITHOUT INTERFERENCES.

4. INSTALL GROUND ITEMS SET IN CONCRETE IN ACCORDANCE WITH GATE MANUFACTURER'S RECOMMENDATIONS. INSPECT ALL PARTS AND ATTACHMENTS FOR DEFECTS, AND INSTALL, LUBRICATE, AND ADJUST EQUIPMENT TO ENSURE SMOOTH OPERATION.
- H. MISCELLANEOUS INSTALLATION
1. USE U-SHAPED TIE WIRES, CONFORMING TO THE DIAMETERS OF PIPE, THAT CLASP THE PIPE AND FABRIC FIRMLY WITH ENDS TWISTED AT LEAST 2 FULL TURNS.
  2. BEND ENDS OF EXPOSED WIRES TO MINIMIZE HAZARDS TO PERSONS OR CLOTHING.
  3. INSTALL NUTS FOR FASTENERS ON TENSION BANDS AND HARDWARE BOLTS ON THE SIDE OF THE FENCE OPPOSITE THE FABRIC. THE ENDS OF BOLTS, ONCE SECURE AND CHECKED FOR SMOOTH OPERATION, SHALL BE PEENED TO PREVENT REMOVAL OF NUTS.
  4. REPAIR COATINGS DAMAGED IN THE FIELD WITH METHODS AND TECHNIQUES AS RECOMMENDED BY THE MANUFACTURER.
- 3.4 CLEARING
- A. WHERE THE AREA OCCUPIED BY THE FENCE IS OUTSIDE THE LIMITS OF CLEARING AND GRUBBING 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.
- 3.5 PROTECTION
- A. 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 OR WORKMANSHIP SHALL BE REPAIRED, AND DEFECTIVE MATERIALS SHALL BE REPLACED DURING THE GUARANTEE PERIOD WITHOUT COST TO THE OWNER.

END OF SECTION

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PLANS PREPARED UNDER THE SUPERVISION OF:

DESIGNED BY	SAA
CHECKED BY	MLO
SUPERVISOR	TKW
LEAD ENGR	MLO/TMS

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