

PLANNING COMMISSION REPORT
Regular Agenda – Public Hearing Item

PC Staff Report
2/23/2015

ITEM NO. 1 CONDITIONAL USE PERMIT FOR VERIZON WIRELESS; 1211 E 600 RD (SLD)

CUP-14-00550: Consider a Conditional Use Permit for a new 189' self-supporting communication tower located at 1211 E 600 Rd. Submitted by SSC, Inc and Horvath Communications for Verizon Wireless on behalf of Rex and Shirley Johnson, property owners of record.

STAFF RECOMMENDATION: Staff recommends approval of the Conditional Use Permit for a communication tower located at 1211 E 600 Rd and forwarding it to the County Commission for a recommendation of approval subject to the following conditions:

1. Provision of a note on the face of the site plan sheet T-1 stating: "The owner at the owner's expense shall remove any tower that is not in use for a period of three years or more." And
2. Provision of a note on the face of the site plan stating: "There shall be a sign placed on the exterior of the fence noting the name and telephone number of the tower owner/operator."

Reason for Request: *Enhancement of the area of Clinton Lake located southwest of the City of Lawrence.*

ATTACHMENTS

1. Site plan
2. RF Justification Report
3. Soils Map
4. Clinton Community Area Map

KEY POINTS

- Property is not encumbered by regulatory floodplain.
- Property is not located within any Lawrence Urban Growth Area.

ASSOCIATED CASES/OTHER ACTION REQUIRED

- Board of County Commissioners' approval of the Conditional Use.
- Submission and approval of a local building permit to Douglas County.
- Obtain a Conditional Use Permit from Douglas County.

PUBLIC COMMENT

- None received

SITE SUMMARY/PROJECT DESCRIPTION

Subject Property: 31.77 Acres
Proposed Improvements: 100' x 100' lease area
11'6" x 25' 5½" pad for equipment building
180' self-supporting tower with 9' lightning rod
Ground equipment includes shelter building with a generator.
The proposed tower shows space for up to five total carriers

GENERAL INFORMATION	
Current Zoning and Land Use:	A (Agricultural) District. Existing rural residential home on large tract including crop land
Surrounding Zoning and Land Use:	A (Agricultural) District in all directions. Existing rural residential home located along existing county roads and Clinton Lake park land.

I. ZONING AND USES OF PROPERTY NEARBY

The area between the Wakarusa River Arm and the Rock Creek Arm of Clinton Lake is zoned A (Agricultural) District. The property is located within the community of Clinton. Surrounding land uses include several rural residential homes located along county roads, larger agricultural areas are located to the west of the subject property, north and south of N 1200 Road. Clinton Presbyterian Church is located south of the subject property along the north side of N 1200 Road. Much of the area to the northeast and east is part of the Clinton Lake State Park land. This area includes boat access to the lake as well as camping and day-use areas.

South of the subject property, located on the south side of N 1200 Road, includes an area zoned B-3 (Limited Business) District that is developed with a residence and a retail store. This area was platted as part of the Clinton Townsite plat recorded in 1863.

South of the subject property, located on the south side of N 1180 Road, is the Clinton School District #25 building listed on the National Register of Historic Places.

Section 12-319-4.31 (d)(5) requires towers to be located in commercial, industrial or agricultural districts.

Staff Finding – This area, immediately surrounding the subject property, is uniformly zoned A (Agricultural) District. The area to the immediate east and south are developed with residential homes and a church while the surrounding area is used for agricultural purposes. Towers are allowed in the Agricultural District subject to a Conditional Use Permit.

II. CHARACTER OF THE AREA

Clinton, Kansas is a peninsula surrounded by Clinton Lake with the main access from N 851 Diagonal Road, County Road 6. The area includes multiple homes in a traditional urban pattern at the heart of the community. The main road, N 1190 Road/County Road 6, provides direct access to primary camping area along Clinton Lake.

Areas to the west are dominated by larger tracts of land with scattered rural residential homes located along county roads and agricultural fields. The area along the lake shoreline includes dense vegetation except where public access and camping areas are located. The subject property includes an area designated as Class 2 soils. The proposed tower site will occupy a small portion in the northeast corner of the parent parcel.

Staff Finding – This area is largely agricultural west of E 600 Road. Property to the north includes Clinton Lake State Park land.

III. SUITABILITY OF SUBJECT PROPERTY FOR THE USES TO WHICH IT HAS BEEN RESTRICTED

This property is currently restricted to uses allowed in the A (Agricultural) District. This district is associated with agricultural activities such as farms, truck gardens, nurseries, grazing and similar activities. The A (Agricultural) District allows both residential and non-residential uses.

The proposed request does not change the base zoning district or alter the allowed uses. Section 12-319.4.31(d) specifically identifies commercial, industrial or agricultural zoning districts as suitable for communication towers.

Staff Finding – The subject property, zoned A (Agricultural) District, is a suitable district for the proposed use. The base zoning district is not altered by this request. A communication tower is an allowed use in the A (Agricultural) District subject to a Conditional Use Permit.

IV. LENGTH OF TIME SUBJECT PROPERTY HAS REMAINED VACANT AS ZONED

The property is not vacant. This site is developed with a rural residence and related accessory buildings. The zoning has remained unchanged since 1966.

Staff Finding – The property is not vacant. The zoning has remained unchanged since 1966.

V. EXTENT TO WHICH REMOVAL OF RESTRICTIONS WILL DETRIMENTALLY AFFECT NEARBY PROPERTY

Section 12-319-1.01 of the County Zoning Regulations recognize that *"....certain uses may be desirable when located in the community, but that these uses may be incompatible with other uses permitted in a district...when found to be in the interest of the public health, safety, morals and general welfare of the community may be permitted, except as otherwise specified in any district from which they are prohibited."*

Communication towers are specifically recommended to be located in commercial, industrial or agricultural zoning districts.

Property on the south and east sides of the site are developed with homes located on rural residential lots. Visibility of the tower is an aesthetic concern that may be perceived by residents as a detriment. The height of the tower does not require lighting. This will mitigate some concerns by maintaining a "dark sky" in the area.

Staff Finding – Detrimental affects are mostly likely to be categorized as aesthetic in nature. The base zoning district is appropriate for the request. The height of the tower mitigates the requirements for lighting.

VI. RELATIVE GAIN TO THE PUBLIC HEALTH, SAFETY AND WELFARE BY THE DESTRUCTION OF THE VALUE OF THE PETITIONER'S PROPERTY AS COMPARED TO THE HARDSHIP IMPOSED UPON THE INDIVIDUAL LANDOWNERS

Approval of the request expands the structural network of towers and structures that are capable of supporting communication equipment. The proposed request facilitates cellular communications and wireless data use within the community. The proposed equipment does not conflict with existing emergency communication equipment.

The property will remain viable for existing land uses and uses permitted within the A (Agricultural) District.

Staff Finding – The benefit to the public is improved cellular communication and wireless data capacity within the Verizon network. Additionally, the structure provides an opportunity for other carriers to co-locate in the future. If denied, the property can continue to be used for current land uses and those uses allowed per the existing zoning of the property.

VII. CONFORMANCE WITH THE COMPREHENSIVE PLAN

The subject property is not located within an identified Urban Growth Area for any of the incorporated cities in Douglas County. Chapter 10; Community Facilities of *Horizon 2020* addresses public utilities. Key strategies (Page 10-10) primarily address municipal utilities such as water and wastewater planning. One strategy states:

- *The visual appearance of utility improvements will be addressed to ensure compatibility with existing and planned land use areas.*

The plan specifically addressed electric and telephone services and encourages this infrastructure to be placed underground in conjunction with new development where feasible. Communication towers support the wireless industry and accommodate the reduction of hardwire infrastructure. However, it should not be interpreted that wireless communication will replace hardwire needs in the community.

The plan recognizes that “telephone and electric utilities have a strong visual presence in the unincorporated Douglas County Landscape.” Large transmission lines and easements should be coordinated throughout the community to minimize visual and environmental impacts. This property and the surrounding area are flat. This tower will be very visible to surrounding property owners.

The Comprehensive Plan does not explicitly address communication towers.

Staff Finding – The comprehensive plan does not provide specific land use recommendations regarding communication towers. A Conditional Use Permit can be used to allow specific non-residential uses subject to approval of a site plan. This tool allows proportional development in harmony with the surrounding area. The proposed request is not inconsistent with the Comprehensive Plan.

STAFF REVIEW

In addition to typical site plan design standards, communication towers must address specific requirements of Section 12-319-4.31 of the County Zoning Regulations. As discussed above, the proposed use is located in an appropriate zoning district.

New communication towers require design that accommodates at least three two-way antennas for every 150’ of tower height or co-location space. The proposed tower includes space for multiple (up to 5) carriers. The site plan shows pad sites capable of supporting up to five carriers.

Opportunity to Co-locate

As part of the review of any application for a new communication tower the applicant is required to show justification for need for a new structure and that they have exhausted the possibility to co-locate equipment on another structure or tower in the area. The nearest communications towers are located more than 3 miles from the area intended to be covered.

The applicant's justification report is attached to this application. It shows the existing service coverage as well as the proposed coverage with construction of the new communication tower. The following graphics were prepared by staff to demonstrate the location of the existing towers in proximity to the proposed tower location.

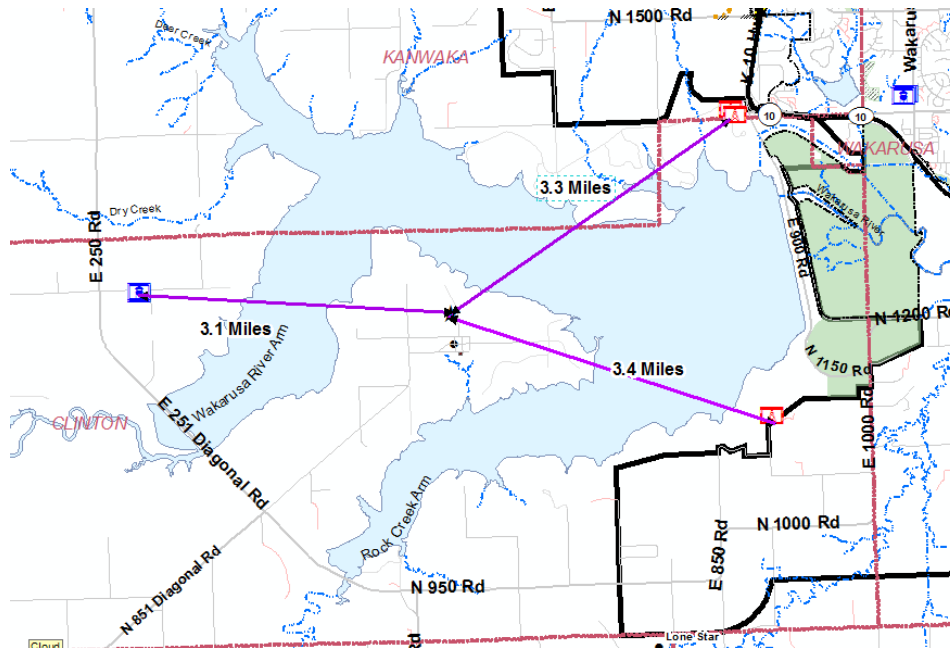


Figure 1: Distance to Nearest Towers

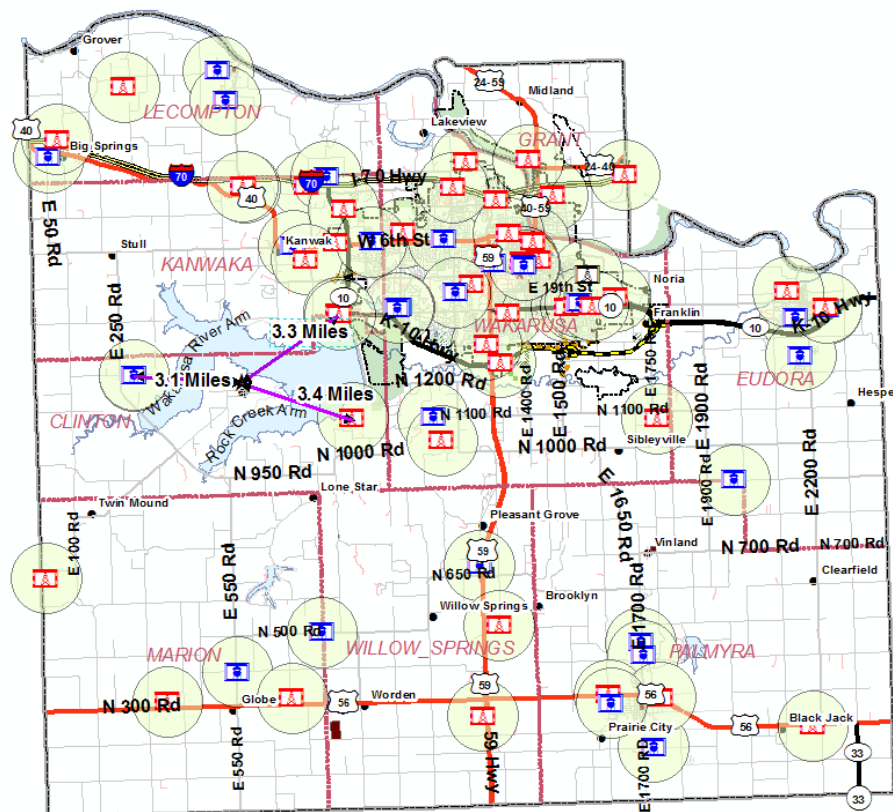


Figure 2: One-Mile Buffer of Existing Towers

Setback

The setback of the communication tower is required per Section 20-319-4.31(d) to be at least equal to the height of the tower to the nearest property line measured from the center of the tower. The tower setback may be reduced when documentation from a registered engineer is submitted certifying the "fall zone" of the tower in the event of a failure. Evaluation of the required structural documentation will continue to be reviewed with the submission of a building permit to the County Zoning and Codes Office. The proposed setback is shown to be 196' from the nearest property line. The proposed tower exceeds the required district setbacks.

The tower and ground equipment will be located in a lease area that is 100' by 100'.

Lighting

Lighting is not proposed with this application for the communication tower. Generally, towers less than 200' are not required to be lit. Lighting of ground equipment must be shielded and directed down.

Access, Circulation, and Off Street Parking

Access to this site is from E 600 Road. The applicant will be required to seek an access permit from the County for the driveway to the tower site. The access drive will provide maintenance access to the tower enclosure. This use does not require off-street parking. The design of the site provides adequate vehicular access and turnaround for maintenance activity at the site. The applicant has been advised that a Douglas County Entrance Permit will be required for this project. This permit will be coordinated with the Building Permit for the site.

Other

This area of land includes extensive shoreline and camping areas that are generally accessible by vehicle from the west side of Clinton Lake. An existing communication tower is located approximately 3.25 miles to the southwest from the subject property. A water tower is located to the northwest of the proposed tower site. The surrounding land uses include large tracts of land that are used for agricultural fields.

Prior to construction of the tower the applicant will be required to obtain a Conditional Use Permit, issued by the County Zoning and Codes Office, as well as applicable building and floodplain development permits.

The subject property includes Class 2 soils. The proposed tower is located in the northeast corner of the site. The majority of the site will not be disturbed with this proposed improvement.

Notes regarding the removal of the tower if vacant for three years or more and provision of signage on the tower providing contact for the owner operator of the tower are needed.

Conclusion

The proposed application meets the required documentation requirements of the County Zoning Regulations as conditioned.

SITE INFORMATION

SITE NAME:

CLINTON LAKE

SITE NUMBER:

HV962

SITE ADDRESS:

1211 E. 600 ROAD
LAWRENCE, KS 66047

COUNTY:

DOUGLAS

JURISDICTION:

DOUGLAS COUNTY

SITE COORDINATES:

N 38° 54' 58.144" (LAT)
W 95° 23' 33.697" (LON)

STRUCTURE TYPE:

SELF-SUPPORT

TOWER HEIGHT:

180'

PROPERTY OWNER NAME:

SHIRLEY B. AND REX D. JOHNSON

PROPERTY OWNER ADDRESS:

1211 E. 600 ROAD
LAWRENCE, KS 66047

PARCEL NUMBER:

023-125-15-0-00-006.00-0

POWER COMPANY:

WESTAR ENERGY
(800)-383-1183

FIBER PROVIDER:

AT&T
(785)-832-2700

KHA PROJECT MGR.:

CARRIE REINHART

BUILDING CODES AND STANDARDS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

BUILDING/DWELLING CODE:

INTERNATIONAL BUILDING CODE/2012

CONSTRUCTION CODE:

AMERICAN INST. STEEL CONSTRUCTION 13th EDITION

ELECTRIC CODE:

NATIONAL ELECTRIC CODE/2011

FIRE/LIFE SAFETY CODE:

INTERNATIONAL FIRE CODE/2009

DESIGN WIND SPEED:

115 MPH

RISK CATEGORY:

II

EXPOSURE CATEGORY:

C

IN THE EVENT A CONFLICT ARISES BETWEEN STANDARD REQUIREMENTS AND LISTED CODES, THE MORE RESTRICTIVE REQUIREMENT WILL TAKE PRECEDENCE.

SPECIAL NOTES:

HANDICAPPED REQUIREMENTS:
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, THEREFORE, HANDICAPPED ACCESS REQUIREMENTS NOT REQUIRED.

PLUMBING REQUIREMENTS:
FACILITY HAS NO PLUMBING OR REFRIGERANTS.

FAA AND FCC REQUIREMENTS:
THIS FACILITY SHALL MEET OR EXCEED ALL FAA AND FCC REQUIREMENTS.

CONSTRUCTION REQUIREMENTS:
ALL WORK MUST CONFORM TO HORVATH & VERIZON WIRELESS CONSTRUCTION INSTALLATION STANDARDS AND ALL APPLICABLE CODES AND ORDINANCES.

PROJECT SCOPE OF WORK:

THIS PROJECT CONSISTS OF THE INSTALLATION OF A 180' SELF-SUPPORT TOWER WITH FOUNDATION (REFER TO TOWER DRAWINGS PROVIDED BY TOWER MANUFACTURER), SITE WORK, THE INSTALLATION OF NEW LINES AND ANTENNAS, NEW UNMANNED EQUIPMENT SHELTER, AND ALL ASSOCIATED WORK.

THE CONTRACTOR MUST VERIFY ALL FIELD MEASUREMENTS AND CONDITIONS PRIOR TO BID AND TO COMMENCEMENT OF CONSTRUCTION.



HV962
CLINTON LAKE
RAWLAND



SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
LS-1	LAND SURVEY (BY OTHERS)
C-1	OVERALL SITE PLAN
C-2	SITE PLAN
C-3	GRADING PLAN
C-4	ROAD, FENCE AND COMPOUND SECTION
C-5	CULVERT AND TRENCH SECTIONS
S-1	TOWER ELEVATION AND DETAILS
S-2	ANTENNA DETAILS (VERIZON)
S-3	VERIZON MISCELLANEOUS DETAILS
S-4	VERIZON FOUNDATION DETAILS
E-1	ELECTRICAL PLAN
E-2	ONE-LINE DIAGRAM
E-3	UTILITY SERVICE DETAILS
GR-1	COMPOUND GROUNDING PLAN
GR-2	SHELTER / EQUIPMENT GROUNDING PLAN
GR-3	GROUNDING DETAILS
GN-1	GENERAL NOTES AND ABBREVIATIONS
GN-2	GENERAL NOTES
SP-1	SPECIFICATIONS
SP-2	SPECIFICATIONS
SP-3	SPECIFICATIONS
L-1	LANDSCAPE PLAN AND DETAILS

VERIZON WIRELESS DEPARTMENTAL APPROVALS

SIGNED:

RF ENGINEER

DATE:

SIGNED:

OPERATIONS MANAGER

DATE:

SIGNED:

CONSTRUCTION ENGINEER

DATE:

SIGNED:

CONSTRUCTION MANAGER

DATE:

SIGNED:

REAL ESTATE MANAGER

DATE:

LESSOR / LICENSOR APPROVAL

SIGNED:

DATE:

PRINTED NAME:

PLEASE CHECK:

☐ NO CHANGES

☐ CHANGES NEEDED (SEE PLANS)

811

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(913) 344-2800

PLANS PREPARED BY:

655 NORTH FRANKLIN STREET, SUITE 150
TAMPA, FL 33602
PHONE (813) 620-1460
WWW.KIMLEY-HORN.COM

REV: DATE: DESCRIPTION: BY:

2	02/12/15	REVISED PER COMMENTS	MAM
1	12/11/14	ADDED LANDSCAPE PLAN	MAM
0	10/21/14	ISSUED FOR REVIEW	KBB

DRAWN BY:

CHECKED BY:

KBB

CAR

KHA PROJECT NUMBER:

148468002

ENGINEER SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

HV962
CLINTON LAKE

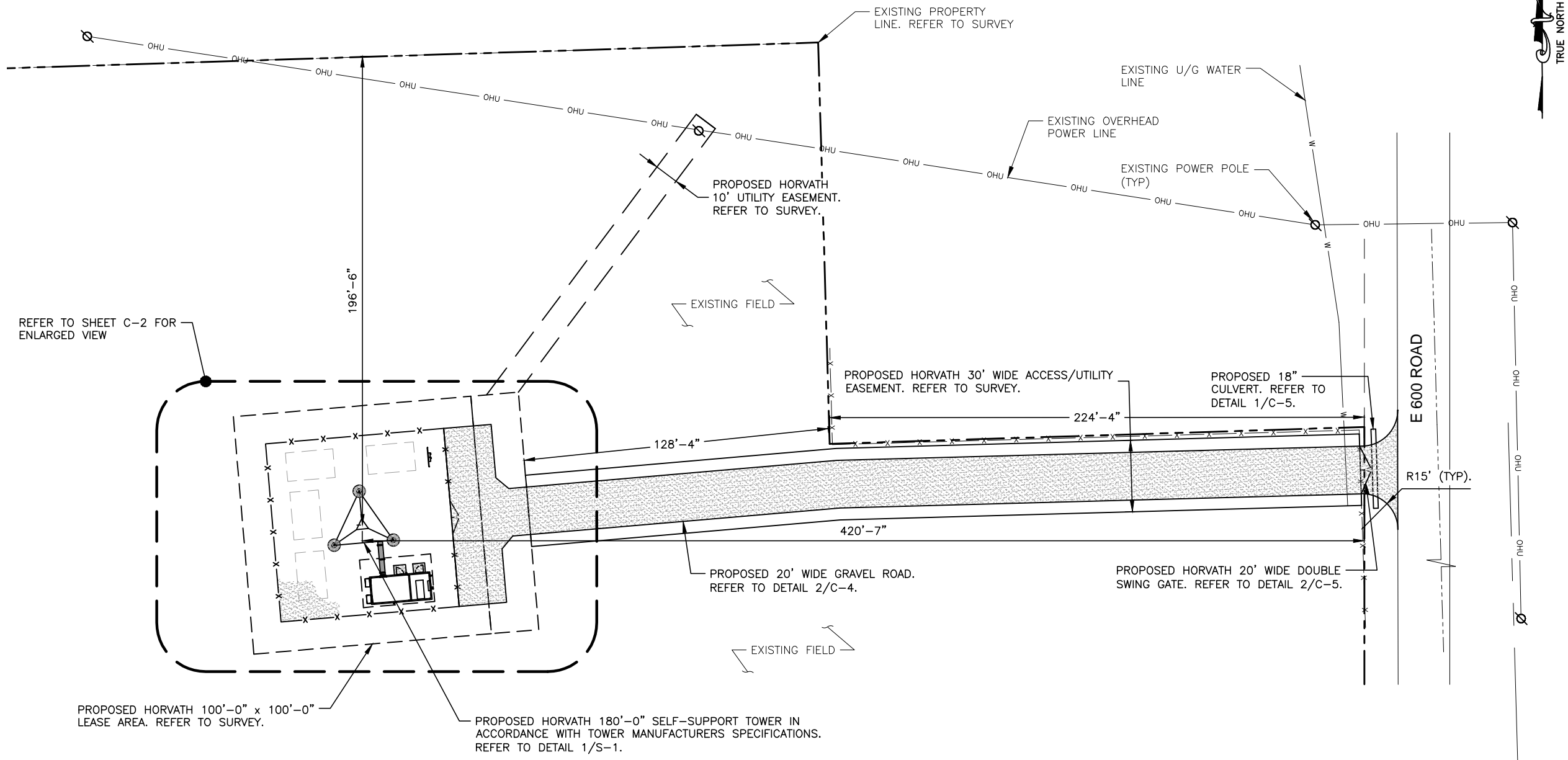
1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

T-1



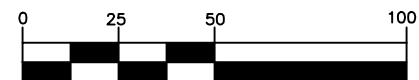
DIRECTION	REQUIRED SETBACK	PROPOSED TOWER SETBACK
NORTH	±180'	±196'
SOUTH	±180'	±1,049'
EAST	±180'	±436'
WEST	±180'	±868'

1
C-1

OVERALL SITE PLAN

SCALE: 1" = 50'
SCALE BASED ON 11"x17" ONLY

GRAPHIC SCALE



(IN FEET)



312 WEST COLFAX AVENUE
SOUTH BEND IN, 46601
PHONE: (574) 237-0464



10740 NALL AVENUE, SUITE 400
OVERLAND PARK, KS 66211
(913) 344-2800

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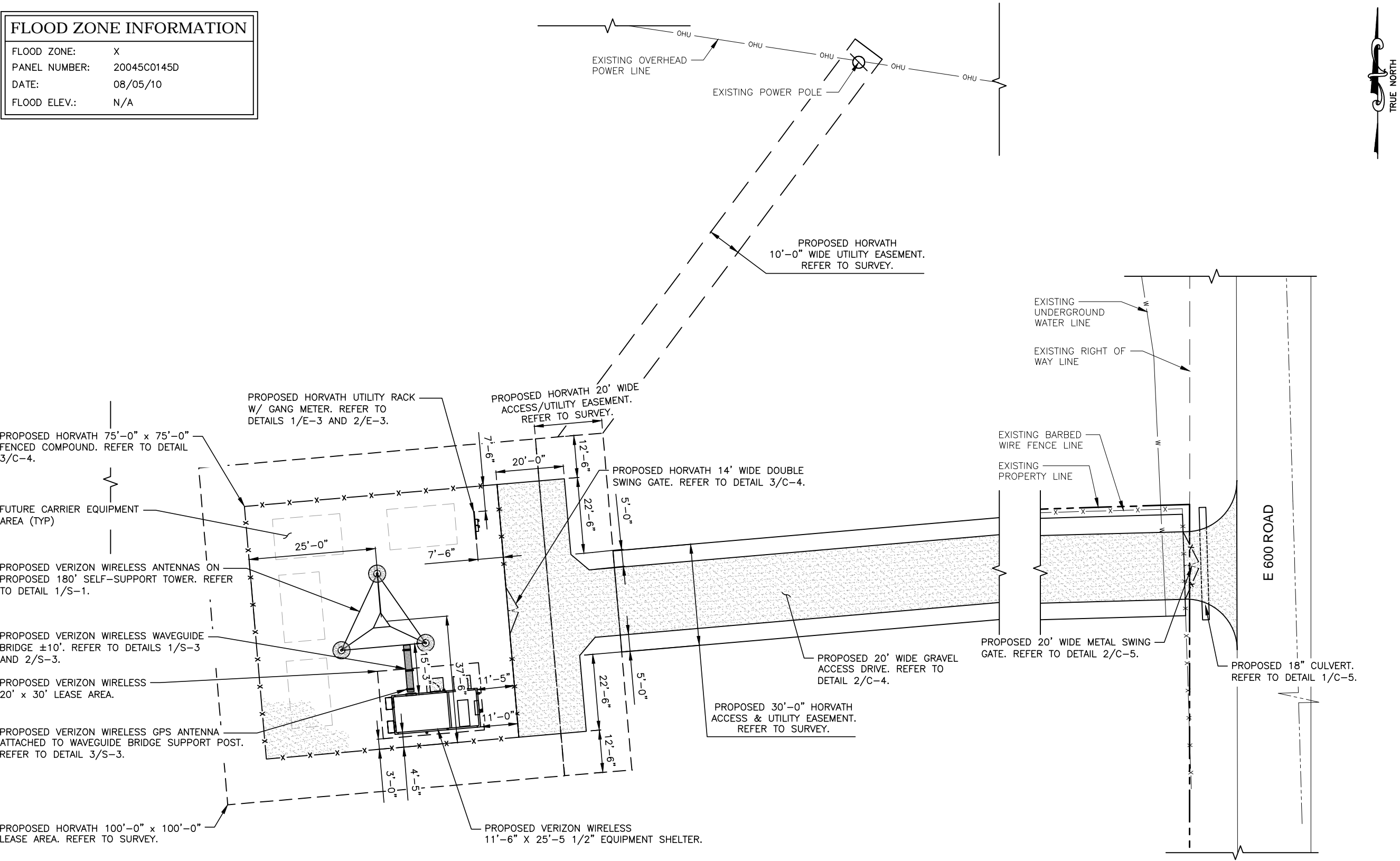
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OVERALL
SITE PLAN

SHEET NUMBER:

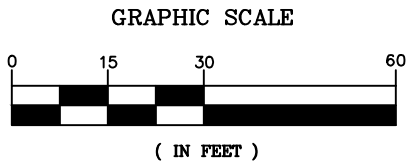
C-1

FLOOD ZONE INFORMATION	
FLOOD ZONE:	X
PANEL NUMBER:	20045C0145D
DATE:	08/05/10
FLOOD ELEV.:	N/A



1
C-2

SITE PLAN
SCALE: 1" = 30'
SCALE BASED ON 11"x17" ONLY





312 WEST COLFAX AVENUE
SOUTH BEND IN, 46601
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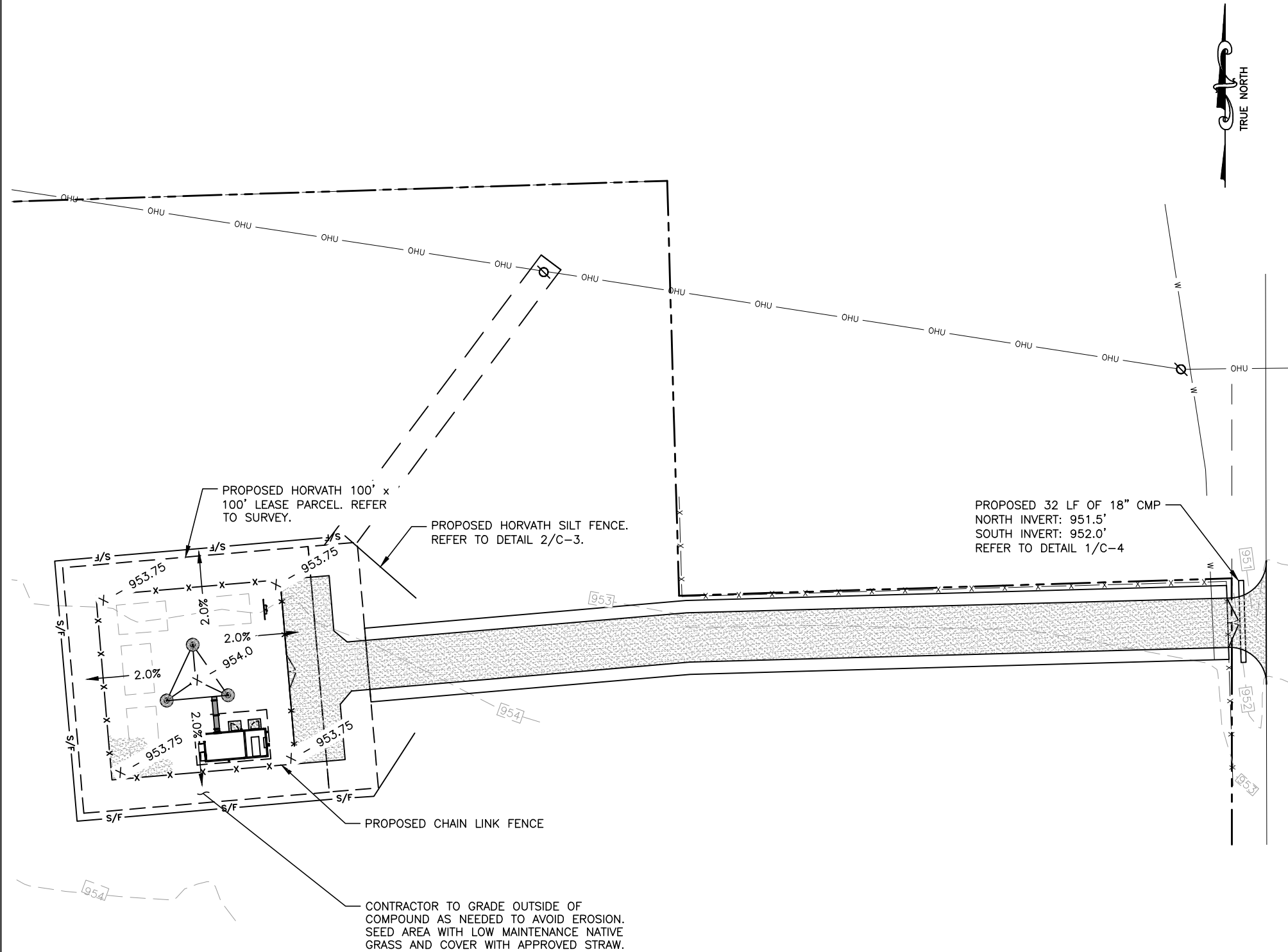
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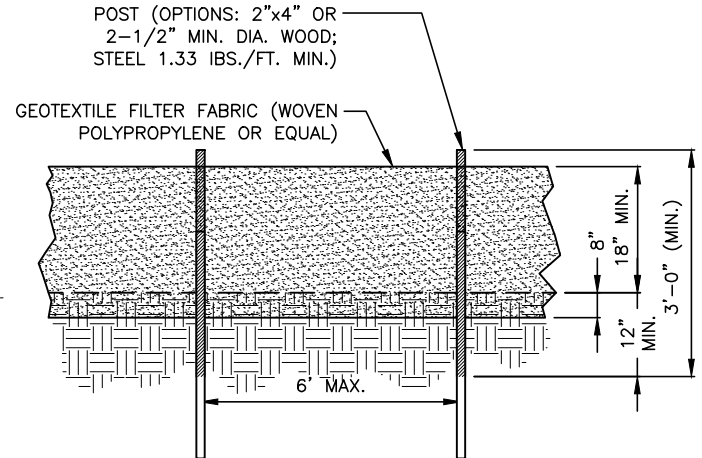
SITE PLAN

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C-2

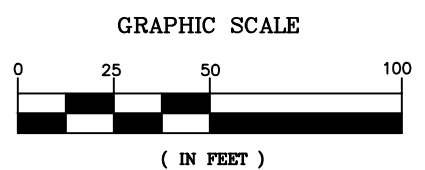


LEGEND	
	PROPOSED CONTOUR LINE
	EXISTING CONTOUR LINE
	PROPOSED SILT FENCE
X	SPOT ELEVATION



- NOTES:**
- CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION AND MAINTENANCE OF EROSION AND SEDIMENTATION CONTROLS DURING CONSTRUCTION. INSTALL SILT FENCE AS SHOWN WHERE ADDITIONALLY REQUIRED FOR PROTECTION OF ADJACENT PROPERTIES, ROADWAYS, AND WATERWAYS.
 - CONTRACTOR SHALL INSPECT INSTALLED EROSION CONTROL DEVICE WEEKLY DURING CONSTRUCTION AND AFTER HEAVY RAINS FOR DAMAGE OR EXCESSIVE SILTATION. MAINTENANCE SHALL INCLUDE CLEANING BUILT-UP SEDIMENT BEHIND THE BARRIERS AND/OR REPLACING DAMAGED SECTIONS.
 - THE EROSION CONTROL DEVICES SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL PERMANENT STABILIZATION IS ESTABLISHED.
 - HAY BALES SHALL NOT BE USED AS EROSION CONTROL.
 - CONTRACTOR IS RESPONSIBLE FOR PROVIDING SITE FREE OF DRAINAGE PROBLEMS.
 - CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICES FOR CONSTRUCTION TO PREVENT THE DIVERSION OF SEDIMENT LADEN STORM WATER RUNOFF OR ERODED MATERIALS FROM LEAVING THE CONSTRUCTION SITE.
 - CONTRACTOR SHALL PREVENT TRACKING OF SEDIMENT OUTSIDE OF CONSTRUCTION LIMITS. THIS MAY REQUIRE CLEANING AND/OR WASHING OF DEBRIS AND SEDIMENT FROM ALL VEHICLES PRIOR TO EXITING THE SITE. ANY SEDIMENT DEPOSITED ON THE ROADWAY SHALL BE SWEEP AS NECESSARY THROUGHOUT THE DAY OR AT THE END OF EVERY DAY AND DISPOSED OF IN AN APPROPRIATE MANNER. SEDIMENT SHALL NOT BE WASHED INTO STORM SEWER SYSTEMS.
 - ANY DEBRIS AND/OR SEDIMENT EXITING THE SITE DUE TO TRACKING OR FAILURE OF A SITE BMP SHALL BE CLEANED IMMEDIATELY BY THE CONTRACTOR BY A METHOD OTHER THAN FLUSHING. CONTRACTOR SHALL ALSO IMMEDIATELY REPAIR ANY BMPs THAT HAVE FAILED AND/OR INSTALL ADDITIONAL BMPs TO ENSURE SEDIMENT DOES NOT LEAVE THE SITE.

1 GRADING PLAN
SCALE: 1" = 50'
SCALE BASED ON 11"x17" ONLY



2 SILT FENCE DETAIL
SCALE: N.T.S.

HORVATH COMMUNICATIONS
312 WEST COLFAX AVENUE
SOUTH BEND IN, 46601
PHONE: (574) 237-0464

verizonwireless
10740 NALL AVENUE, SUITE 400
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(913) 344-2800

PLANS PREPARED BY:
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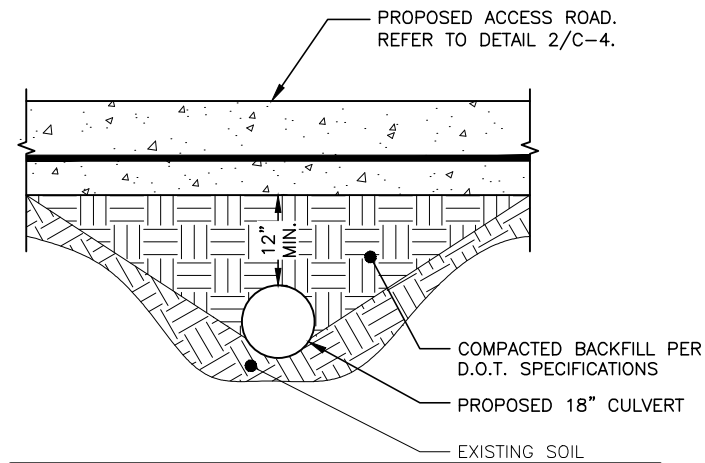
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PROJECT INFORMATION:
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CLINTON LAKE
1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:
GRADING PLAN

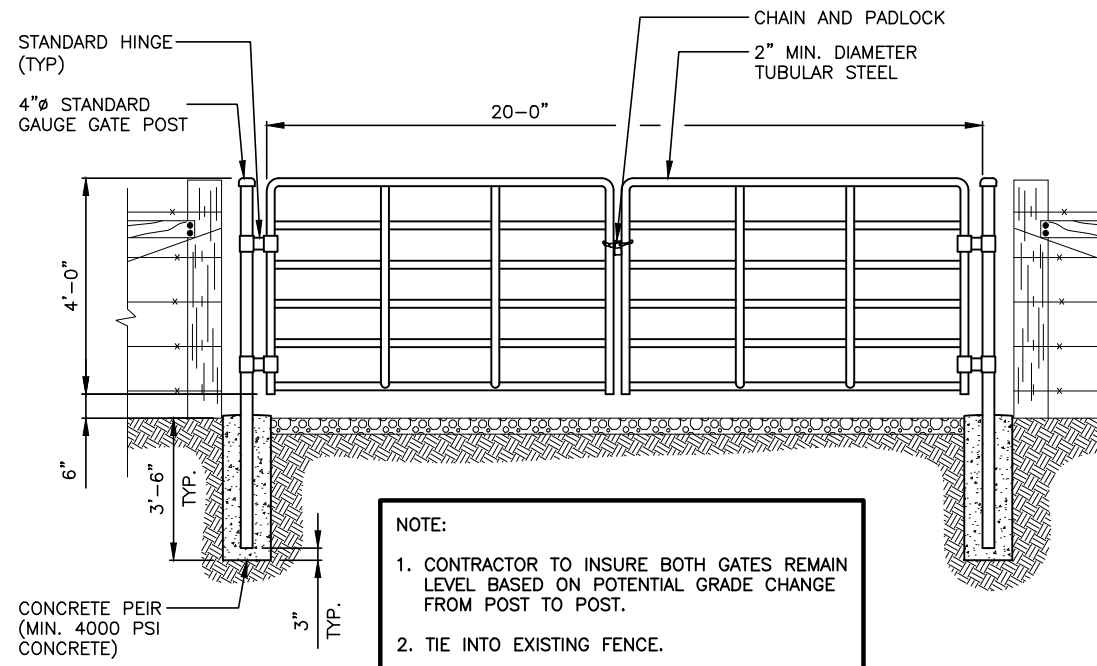
SHEET NUMBER:
C-3



NOTES:

1. CULVERT SPECIFICATIONS MUST COMPLY WITH LOCAL AND D.O.T. CODES AND REQUIREMENTS IF THEY DIFFER FROM THE DETAIL SHOWN.

1 ROAD CULVERT SECTION
SCALE: N.T.S.



2 VEHICLE GATE DETAIL
SCALE: N.T.S.

HORVATH
COMMUNICATIONS

312 WEST COLFAX AVENUE
SOUTH BEND IN, 46601
PHONE: (574) 237-0464

verizonwireless

10740 NALL AVENUE, SUITE 400
OVERLAND PARK, KS 66211
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PLANS PREPARED BY:

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CONSTRUCTION

PROJECT INFORMATION:

HV962
CLINTON LAKE

1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE: CULVERT AND TRENCH SECTIONS

SHEET NUMBER:

C-5

NOTES:

1. THESE DRAWINGS SHALL NOT BE RELIED UPON AS AN INDICATION THAT THE TOWER STRUCTURE, ITS COMPONENTS, AND ITS FOUNDATION HAVE ADEQUATE STRUCTURAL CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, MOUNTS, EQUIPMENT, AND COAXIAL CABLES. KIMLEY-HORN HAS NOT PERFORMED A STRUCTURAL ANALYSIS ON THE TOWER, FOUNDATION, ANTENNA MOUNT, AND ALL ITS COMPONENTS. IT IS THE RESPONSIBILITY OF THE OWNER TO HAVE A STRUCTURAL ANALYSIS PERFORMED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS PRIOR TO THE INSTALLATION OF ANY PROPOSED EQUIPMENT, COAXIAL CABLES, ANTENNAS, OR APPURTENANCES ON THE TOWER. THIS STRUCTURAL ANALYSIS SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
2. IF ANY WORK IS PERFORMED AT THIS SITE THAT REQUIRES THE SITE TO BE OFF AIR OR TURNED DOWN, THE SWITCH IS TO BE NOTIFIED 48 HOURS PRIOR TO CONSTRUCTION VIA NCR/CTS.
3. INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES, AND SUPPORT STRUCTURES. ANTENNA WORK TO BE INSTALLED PER THE REQUIREMENTS OF THE TOWER MANUFACTURER'S SPECIFICATION.
4. ANTENNA AND MOUNT DESIGN MUST COMPLY WITH TIA-EIA-222-G AND ALL LOCAL CODES.
5. CONTRACTOR TO PROVIDE THE PROPER COAX JUMPER SUPPORT ATTACHMENTS TO THE TOWER AND ANTENNA MOUNT.

THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

PROPOSED LIGHTNING ROD TO BE PROVIDED BY AND INSTALLED BY CONTRACTOR PER TOWER MANUFACTURER'S SPECS.

PROPOSED HORVATH 180'-0" SELF SUPPORT TOWER (DESIGNED BY OTHERS)

PROPOSED VERIZON WIRELESS WAVEGUIDE BRIDGE. REFER TO DETAILS 1/S-3 AND 2/S-3.

PROPOSED VERIZON WIRELESS 11'-6" x 25'-5 1/2" EQUIPMENT SHELTER.

PROPOSED CHAINLINK FENCE. REFER TO DETAIL 3/C-4.

PROPOSED VERIZON WIRELESS COAX CABLES ROUTED UP TOWER PER TOWER DESIGN

PROPOSED TOWER FOUNDATION. REFER TO FOUNDATION DRAWINGS PROVIDED BY TOWER MANUFACTURER.

1
S-1
TOWER ELEVATION
SCALE: N.T.S.

TOP OF LIGHTNING ROD
@ 189' AGL

OVERALL STRUCTURE HEIGHT
@ 180' AGL

PROPOSED VERIZON WIRELESS ANTENNAS
@ 180' AGL (RAD CENTER)

FUTURE CARRIERS
@ 170' AGL (RAD CENTER)

FUTURE CARRIERS
@ 160' AGL (RAD CENTER)

FUTURE CARRIERS
@ 150' AGL (RAD CENTER)

FUTURE CARRIERS
@ 140' AGL (RAD CENTER)

PROPOSED ANDREW SECTOR MOUNTS NO. QT-SF10-4-96 (OR APPROVED EQUIVALENT)

PROPOSED RAYCAP DISTRIBUTION BOX (TYP OF 2)

PROPOSED SELF-SUPPORT TOWER

PROPOSED VERIZON WIRELESS ANTENNA (TYP 4 PER SECTOR, 12 TOTAL)

TIE BACK (TYP)

(P) BETA SECTOR
AZ = 120°

PROPOSED RRU MOUNTED TO ANTENNA MOUNT PIPE (TYP 1 PER SECTOR, 3 TOTAL)

NOTES:

1. REFER TO ANTENNA SCHEDULE FOR ADDITIONAL INFO.
2. ADJUST ANTENNA MOUNTS AS REQUIRED TO ACHIEVE THE AZIMUTHS SPECIFIED AND LIMIT RF SHADOWING.
3. VERIFY TYPE AND SIZE OF TOWER LEG PRIOR TO ORDERING MOUNT.
4. UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL OF THE MATERIAL NECESSARY.

2
S-1
ANTENNA CONFIGURATION (VERIZON)
SCALE: N.T.S.

IT IS THE CLIENT'S RESPONSIBILITY TO VERIFY THE STRUCTURAL CAPACITY OF THE PROPOSED TOWER AND ITS FOUNDATION TO RESIST THE WIND/GRAVITY LOADS FROM THE PROPOSED ANTENNAS.



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DRAWN BY: KBB CHECKED BY: CAR

KHA PROJECT NUMBER:

148468002

ENGINEER SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

HV962
CLINTON LAKE

1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

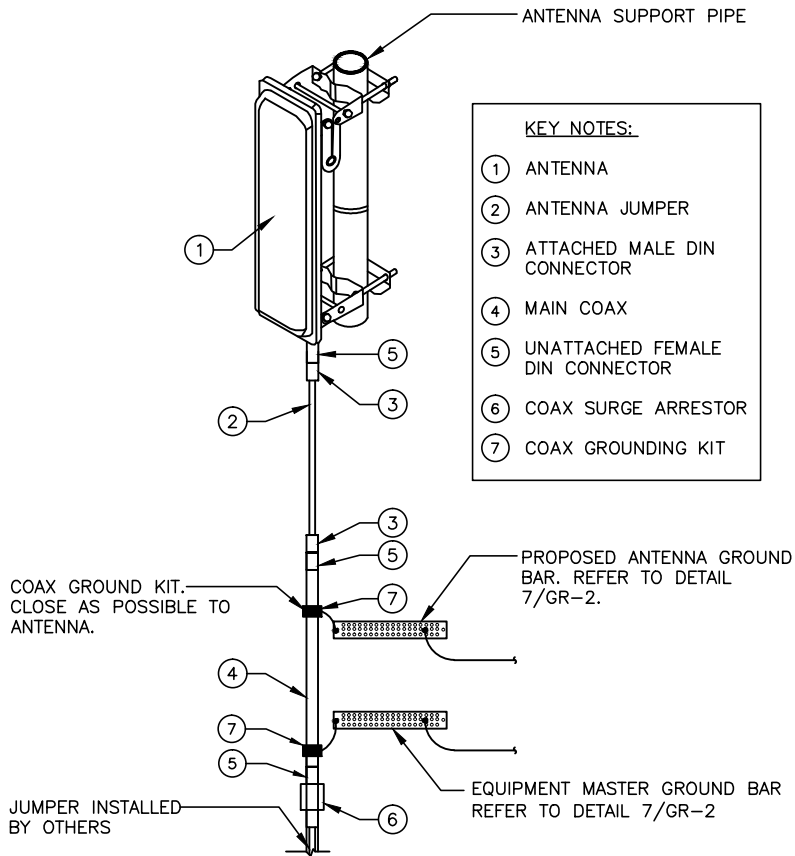
**TOWER ELEVATION
AND DETAILS**

SHEET NUMBER:

S-1

PENDING RF

1 ANTENNA SCHEDULE
S-2 SCALE: N.T.S.



2 ANTENNA MOUNT DETAIL
S-2 SCALE: N.T.S.

PENDING RF

3 PLUMBING DIAGRAM
S-2 SCALE: N.T.S.



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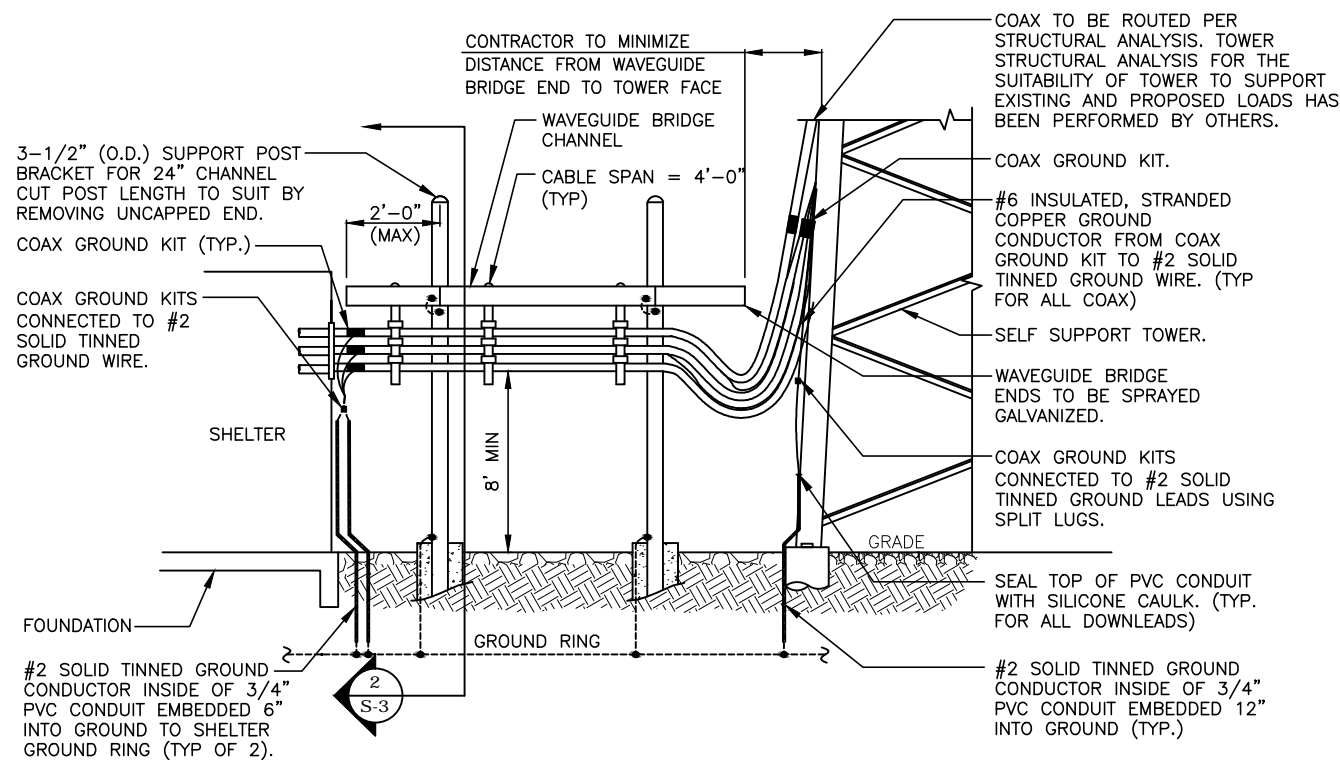
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SHEET TITLE:

ANTENNA DETAILS
(VERIZON)

SHEET NUMBER:

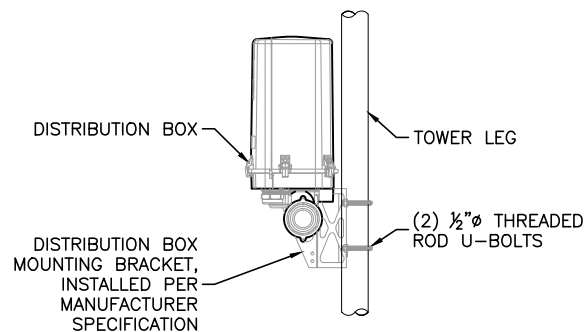
S-2



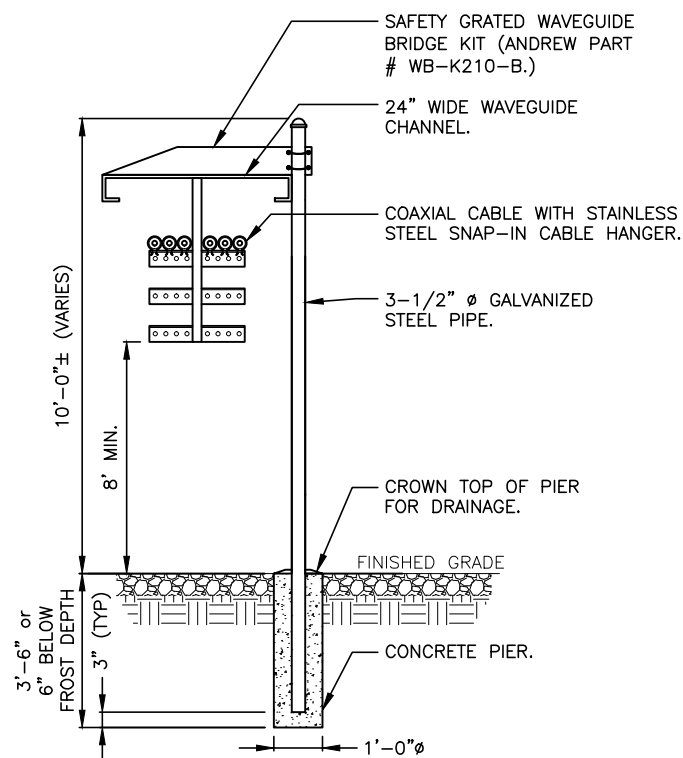
NOTES:

1. MAXIMUM ALLOWABLE SPAN BETWEEN SUPPORTS ON A CONTINUOUS SINGLE SECTION OF BRIDGE CHANNEL SHALL BE 8'
2. WHEN SPLICING BRIDGE CHANNEL SECTIONS, THE SPLICE SHOULD BE PROVIDED AT THE SUPPORT, IF POSSIBLE, OR AT A MAXIMUM OF 2 FEET FROM THE SUPPORT.
3. SUPPORT SHOULD BE PROVIDED AS CLOSE AS POSSIBLE TO THE ENDS OF WAVEGUIDE BRIDGES, WITH A MAXIMUM CANTILEVER DISTANCE OF 2 FEET FROM THE SUPPORT TO THE FREE END OF THE WAVEGUIDE BRIDGE.
4. CUT BRIDGE CHANNEL SECTIONS SHALL HAVE RAW EDGES PAINTED WITH 3 COATS OF ZINC RICH PAINT.
5. DEVIATIONS FROM STANDARDS FOR COMPONENT INSTALLATIONS ARE PERMITTED WITH THE RESPECTIVE MANUFACTURER'S APPROVAL.
6. DEVIATIONS FROM WAVEGUIDE BRIDGE FOUNDATIONS SHOWN ON SITE SPECIFIC DRAWINGS OR STANDARD DETAILS REQUIRE ENGINEERING APPROVAL.
7. ALL COAXIAL CABLE CONNECTIONS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.

1 WAVEGUIDE BRIDGE PROFILE
SCALE: N.T.S.



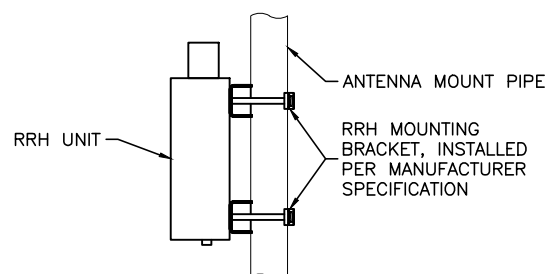
4 DISTRIBUTION BOX CONNECTION DETAIL
SCALE: N.T.S.



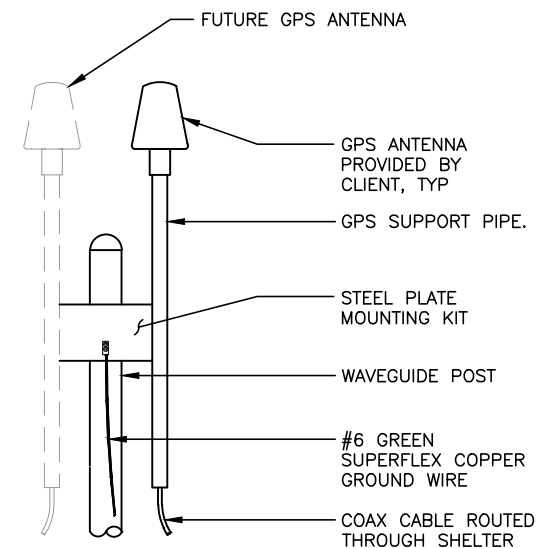
NOTES:

1. ALL SUPPORT POSTS MUST BE GROUNDED.
2. GROUNDING NOT SHOWN FOR CLARITY.
3. COAX CABLE QTY. AND LOCATION MAY VARY.

2 WAVEGUIDE BRIDGE SECTION
SCALE: N.T.S.



5 RRU CONNECTION DETAIL
SCALE: N.T.S.



NOTES:

1. CONTRACTOR TO SUPPLY ALL MATERIAL UNLESS OTHERWISE NOTED.
2. GPS ANTENNA MUST BE IN A LOCATION TO BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF 4 SATELLITES.
3. LOCATION OF ANTENNA MUST BE IN CLEAR VIEW OF THE SKY, WITHOUT ANY OBSTRUCTION OR BLOCKAGE EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.

3 GPS ANTENNA MOUNT DETAIL
SCALE: N.T.S.



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LAWRENCE, KS 66047
DOUGLAS COUNTY

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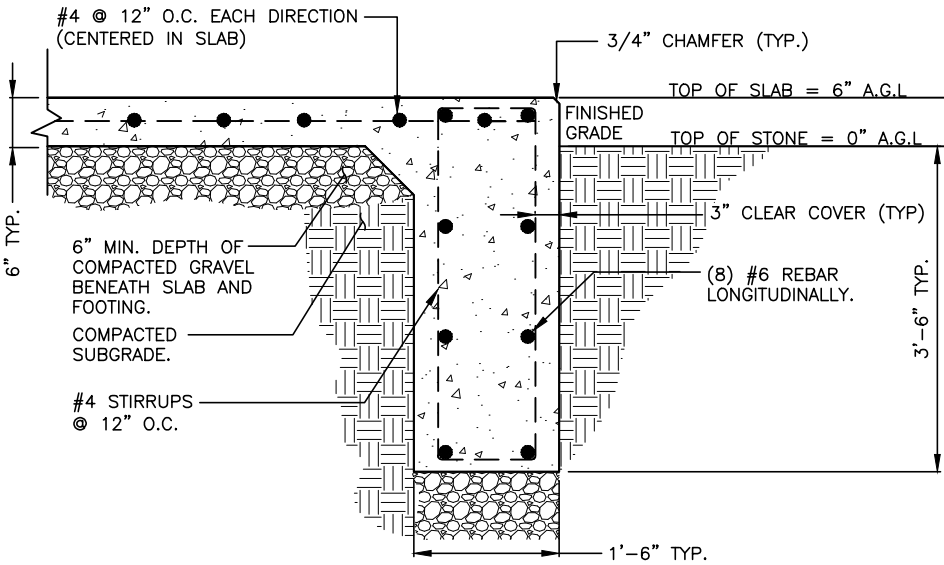
**VERIZON
MISCELLANEOUS DETAILS**

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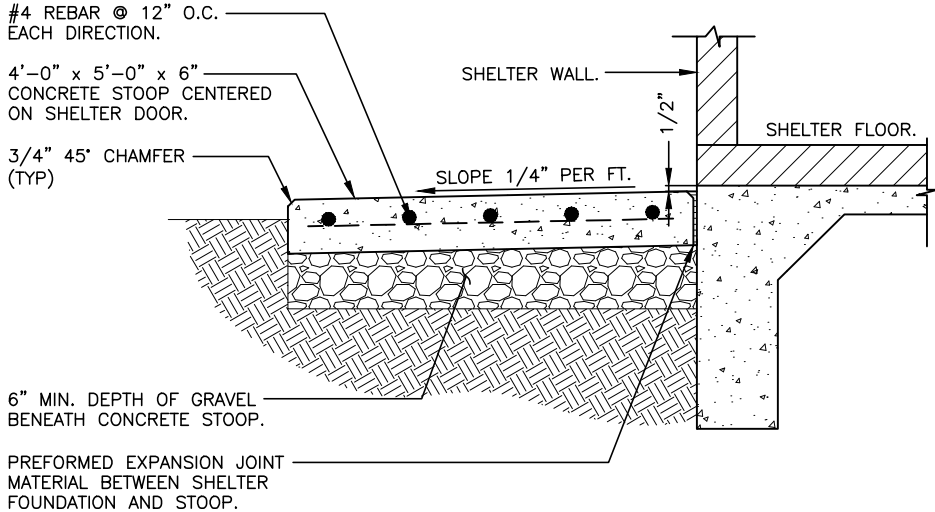
S-3

STRUCTURAL NOTES:

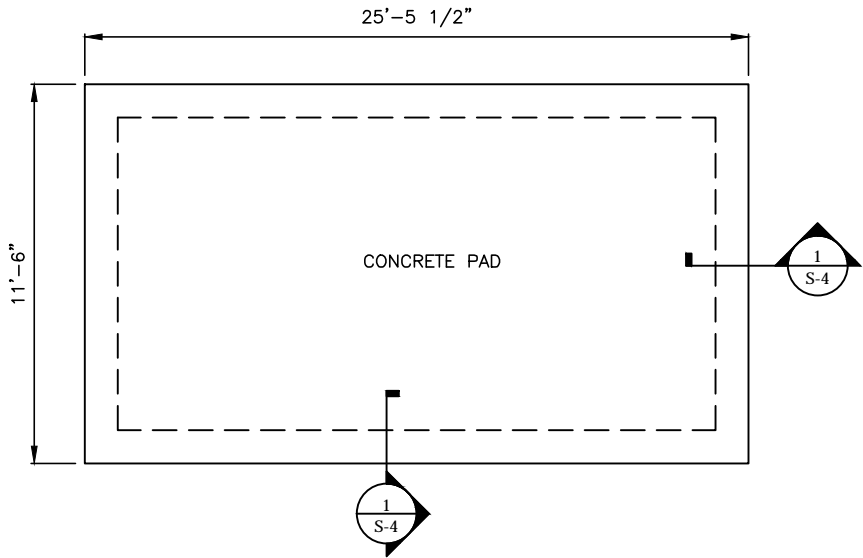
1. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED BY FIELD MEASUREMENT. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH CONSTRUCTION.
2. THE GENERAL CONTRACTOR AND HIS SUB CONSULTANTS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK.
3. STRUCTURAL STEEL SHALL CONFORM TO SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, AISC 360-05 INCLUDING THE COMMENTARY AND THE AISC CODE OF STANDARD PRACTICE.
4. STRUCTURAL STEEL PLATES, ANGLES, AND CHANNELS SHALL CONFORM TO ASTM A36. STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. STRUCTURAL STEEL BEAMS SHALL CONFORM TO ASTM A992, GRADE 50. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED-ASTM A123 AFTER FABRICATION. FIELD TOUCH UP WITH 3 COATS OF ZINC RICH PAINT ALL RAW EDGES AND/OR AREAS WHERE THE GALVANIZED FINISH HAS BEEN DISTURBED (ALL EXISTING AND NEW AREAS).
5. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS D1.1). STRUCTURAL WELDING CODE-STEEL WELD ELECTRODES SHALL BE E70XX. FIELD TOUCH UP WITH ZINC RICH PAINT (ALL EXISTING AND NEW AREAS) AFTER WELDING IS COMPLETE.
6. ALL THREADED STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLIES SHALL CONFORM TO ASTM A307 OR ASTM A36. ALL STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8 INCH MIN. UNLESS NOTED OTHERWISE, DIAMETER BEARING TYPE CONNECTIONS WITH THREADS EXCLUDED IN THE SHEAR PLANE. ALL EXPOSED FASTENERS, NUTS AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. CONCRETE EXPANSION ANCHORS SHALL BE HILTI KWIK BOLTS UNLESS OTHERWISE NOTED. ALL ANCHORS INTO CONCRETE SHALL BE STAINLESS STEEL.
7. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60, DEFORMED BILLET STEEL BARS. WELDED WIRE FABRIC REINFORCING SHALL CONFORM TO ASTM A185.
8. CONCRETE FOR THE FOUNDATION PAD SHALL BE 4000 PSI NORMAL WEIGHT CONCRETE. CONCRETE STRENGTH SHALL BE VERIFIED BY CONCRETE CYLINDER TESTS (A MINIMUM SET OF FOUR CYLINDERS). PROVIDE 4 TO 6% AIR ENTRAINMENT FOR ALL CONCRETE SUBJECT TO FREEZE - THAW CYCLE.
9. MINIMUM CONCRETE COVER REINFORCEMENT SHALL BE 2" UNLESS NOTED OTHERWISE. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH SHALL HAVE A MINIMUM CONCRETE COVER OF 3".
10. CONTRACTOR SHALL COORDINATE ALL PENETRATIONS, CONDUIT, CHAMFERS, AND EMBEDDED ITEMS PRIOR TO CONCRETE PLACEMENT AND/OR STEEL ERECTION. CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS.
11. DO NOT IMPOSE SERVICE LOAD (i.e. FLOOR DEAD AND LIVE LOADS, BACKFILL, ETC.) UNTIL THE CONCRETE HAS REACHED ITS SPECIFIED MINIMUM COMPRESSIVE STRENGTH.
12. BACKFILL SHALL BE CLEAN SAND FILL APPROVED FOR USE BY THE ENGINEER. NO UNAPPROVED MATERIAL WILL BE ALLOWED. CLEAN SAND FILL SHALL BE FREE OF ALL ROOTS, BOULDERS, OR OTHER DELETERIOUS MATERIAL.
13. SOIL SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY TO A MINIMUM OF 2 FEET BELOW THE BOTTOM OF THE FOOTINGS, AND SHALL OBTAIN A 2000 PSF MINIMUM ALLOWABLE BEARING CAPACITY.



1 SHELTER FOUNDATION DETAIL
S-4 SCALE: N.T.S.



2 SHELTER STOOP DETAIL
S-4 SCALE: N.T.S.



NOTE:
FASTEN SHELTER TO CONCRETE PAD PER MANUFACTURER'S SPECIFICATIONS.

3 SHELTER FOUNDATION PLAN
S-4 SCALE: N.T.S.



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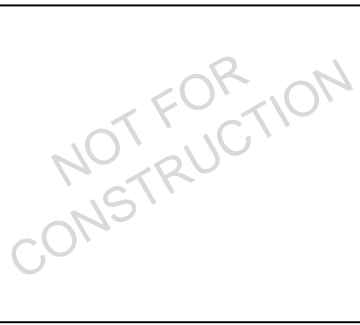
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ENGINEER SEAL:



PROJECT INFORMATION:

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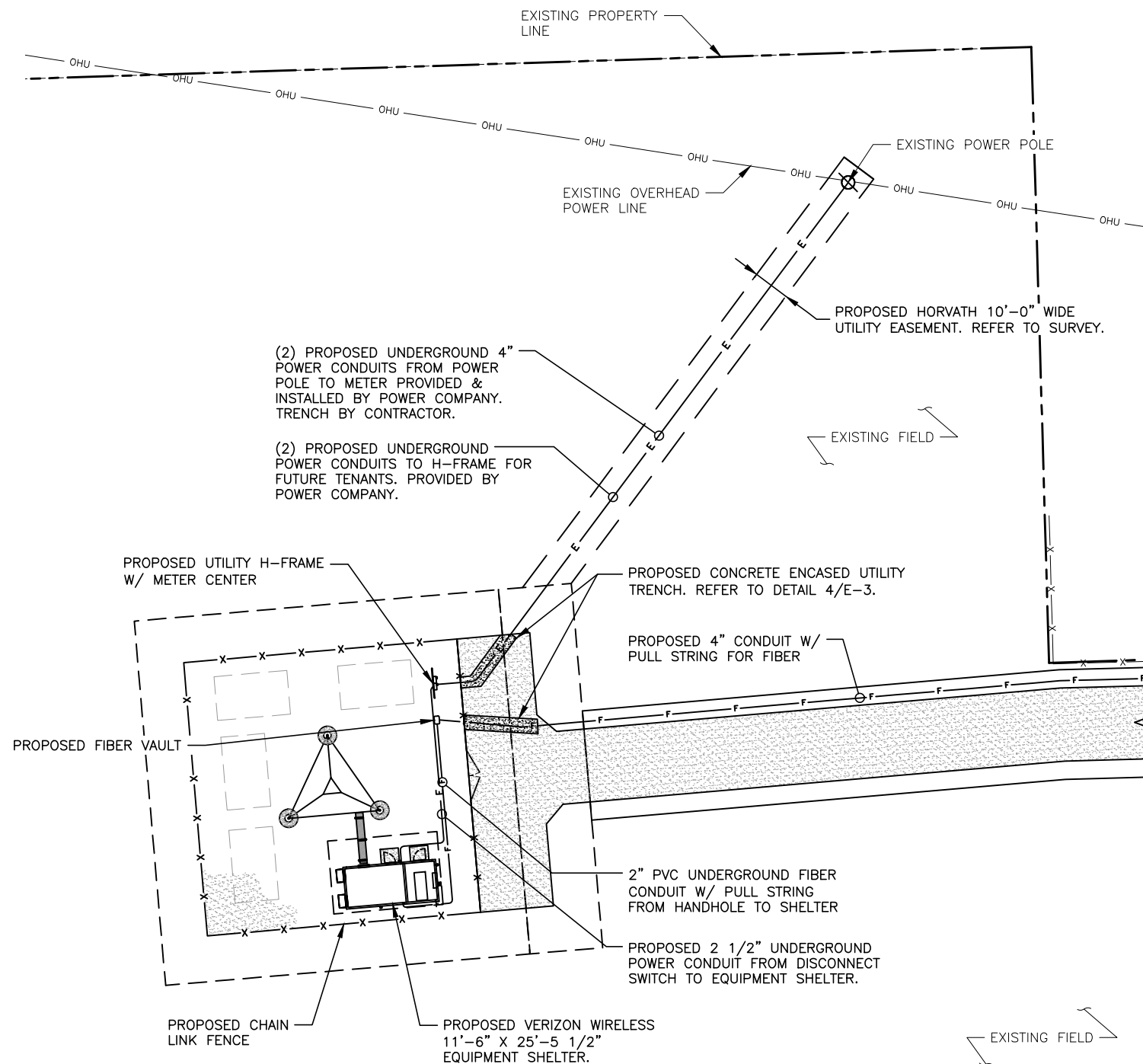
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DOUGLAS COUNTY

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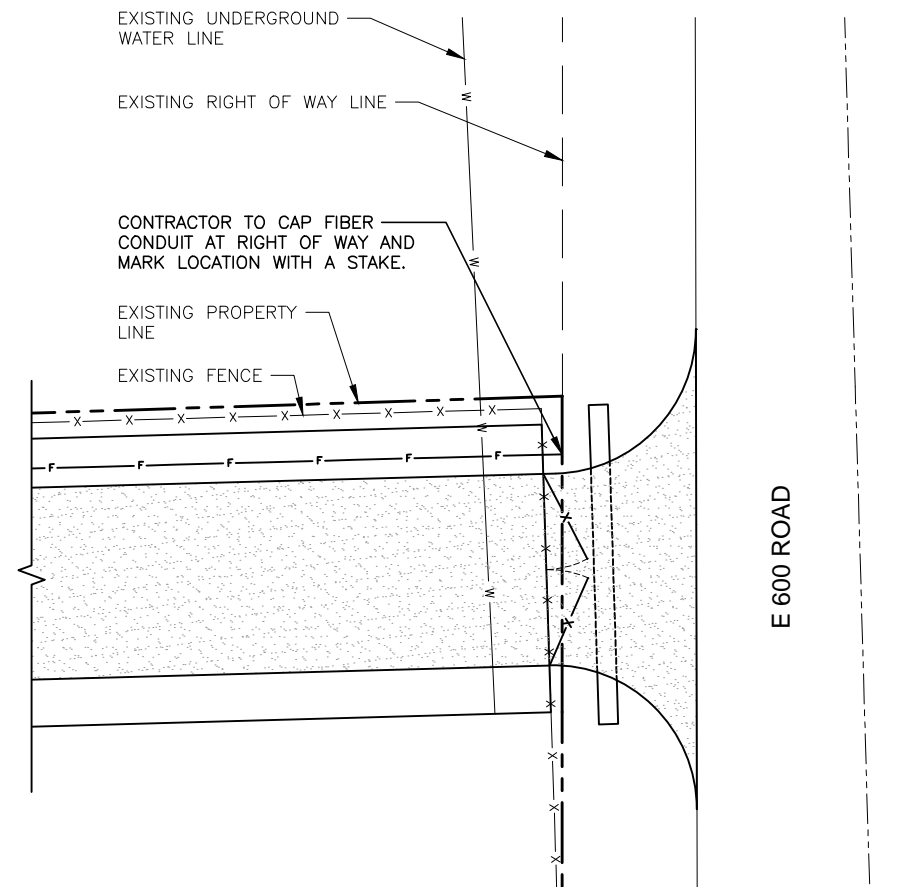
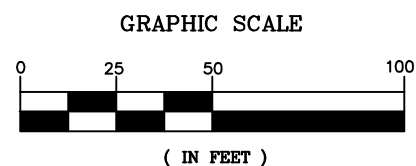
VERIZON
FOUNDATIONS DETAILS

SHEET NUMBER:

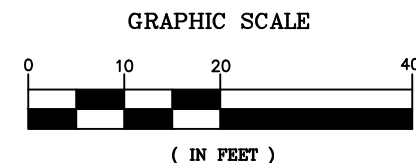
S-4



1
E-1
OVERALL ELECTRICAL PLAN
SCALE: 1" = 50'
SCALE BASED ON 11" x 17"



2
E-1
ENLARGED ENTRANCE ELECTRICAL PLAN
SCALE: 1" = 20'
SCALE BASED ON 11" x 17"



POWER DESIGN PENDING



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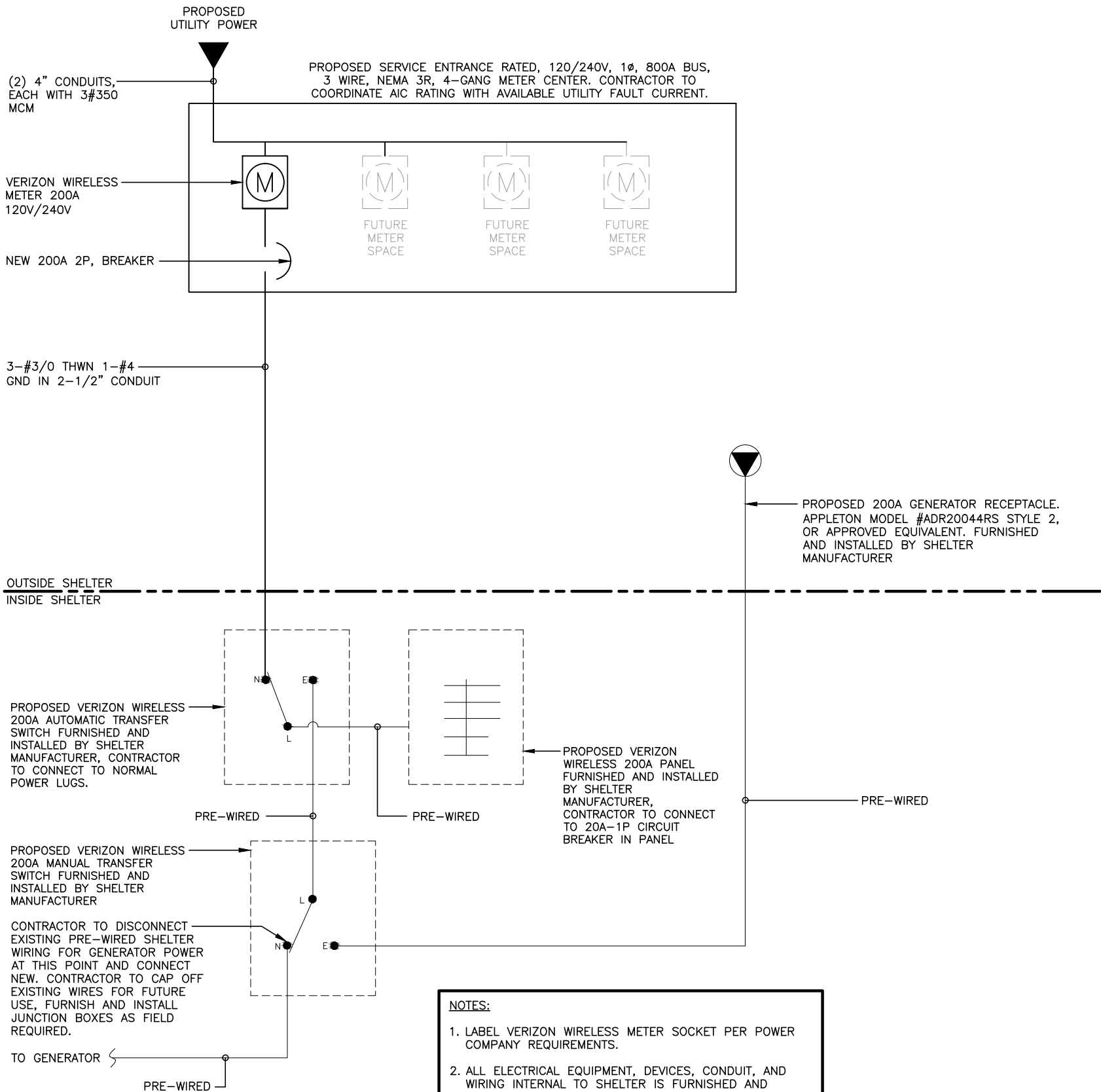
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DOUGLAS COUNTY

SHEET TITLE:

ELECTRICAL PLAN

SHEET NUMBER:

E-1



NOTES:

1. LABEL VERIZON WIRELESS METER SOCKET PER POWER COMPANY REQUIREMENTS.
2. ALL ELECTRICAL EQUIPMENT, DEVICES, CONDUIT, AND WIRING INTERNAL TO SHELTER IS FURNISHED AND INSTALLED BY SHELTER MANUFACTURER UNLESS OTHERWISE NOTED.
3. VERIFY TOWER LIGHTING REQUIREMENTS WITH MANUFACTURER.
4. VERIFY GENERATOR REQUIREMENTS WITH MANUFACTURER.

1
E-2

ELECTRICAL ONE-LINE DIAGRAM

SCALE: N.T.S.



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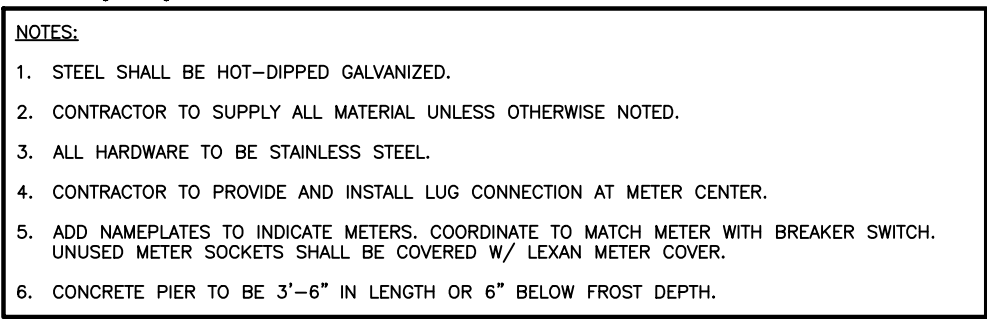
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DOUGLAS COUNTY

SHEET TITLE:

ONE-LINE
DIAGRAM

SHEET NUMBER:

E-2



A cross-sectional diagram of a trench installation. The diagram shows a central trench with a hatched pattern representing compacted backfill. Above the backfill is a layer of undisturbed soil, also with a hatched pattern. Below the backfill are two circular conduits: a larger one labeled 'POWER CONDUIT WHERE APPLICABLE, COORDINATE SIZE AND TYPE WITH LOCAL UTILITY' and a smaller one labeled 'TELEPHONE CONDUIT WHERE APPLICABLE, COORDINATE SIZE AND TYPE WITH LOCAL UTILITY'. Below the conduits is a layer labeled 'UTILITY WARNING TAPE'. The bottom of the trench is a layer of 'BACKFILL (SAND OR APPROPRIATE NATIVE SOIL)'. The entire trench is surrounded by 'UNDISTURBED SOIL'. The top of the diagram shows a 'TRENCH' cut into the existing surface, with a note 'MATCH EXISTING SURFACE MATERIAL AND FINISH GRADE.' and another note 'REPLACE GEOFABRIC AND STONE AS REQUIRED.' pointing to the edges of the trench. Dimensions are indicated: '3'-6" OR FROST DEPTH' for the total depth from the surface to the bottom of the trench; '1'-0"' for the depth from the surface to the top of the backfill; '4"' for the depth from the top of the backfill to the bottom of the trench; '6" MIN' for the width of the trench at the bottom; and '2" MIN. TO PRIMARY ELECTRIC' for the distance from the power conduit to the primary electric line.

Labels and dimensions in the diagram include:

- MATCH EXISTING SURFACE MATERIAL AND FINISH GRADE.
- TRENCH
- REPLACE GEOFABRIC AND STONE AS REQUIRED.
- 3'-6" OR FROST DEPTH
- 1'-0"
- UNDISTURBED SOIL
- COMPACTED BACKFILL
- BACKFILL (SAND OR APPROPRIATE NATIVE SOIL)
- UTILITY WARNING TAPE
- POWER CONDUIT WHERE APPLICABLE, COORDINATE SIZE AND TYPE WITH LOCAL UTILITY
- TELEPHONE CONDUIT WHERE APPLICABLE, COORDINATE SIZE AND TYPE WITH LOCAL UTILITY
- 4"
- 6" MIN
- 2" MIN. TO PRIMARY ELECTRIC

[illegible]

<p><u>NOTES:</u></p> <p>1. ENCASE ALL PVC CONDUITS/PIPES IN CONCRETE WHEN INSTALLED UNDER ACCESS ROADS OR HIGH TRAFFIC AREAS.</p>

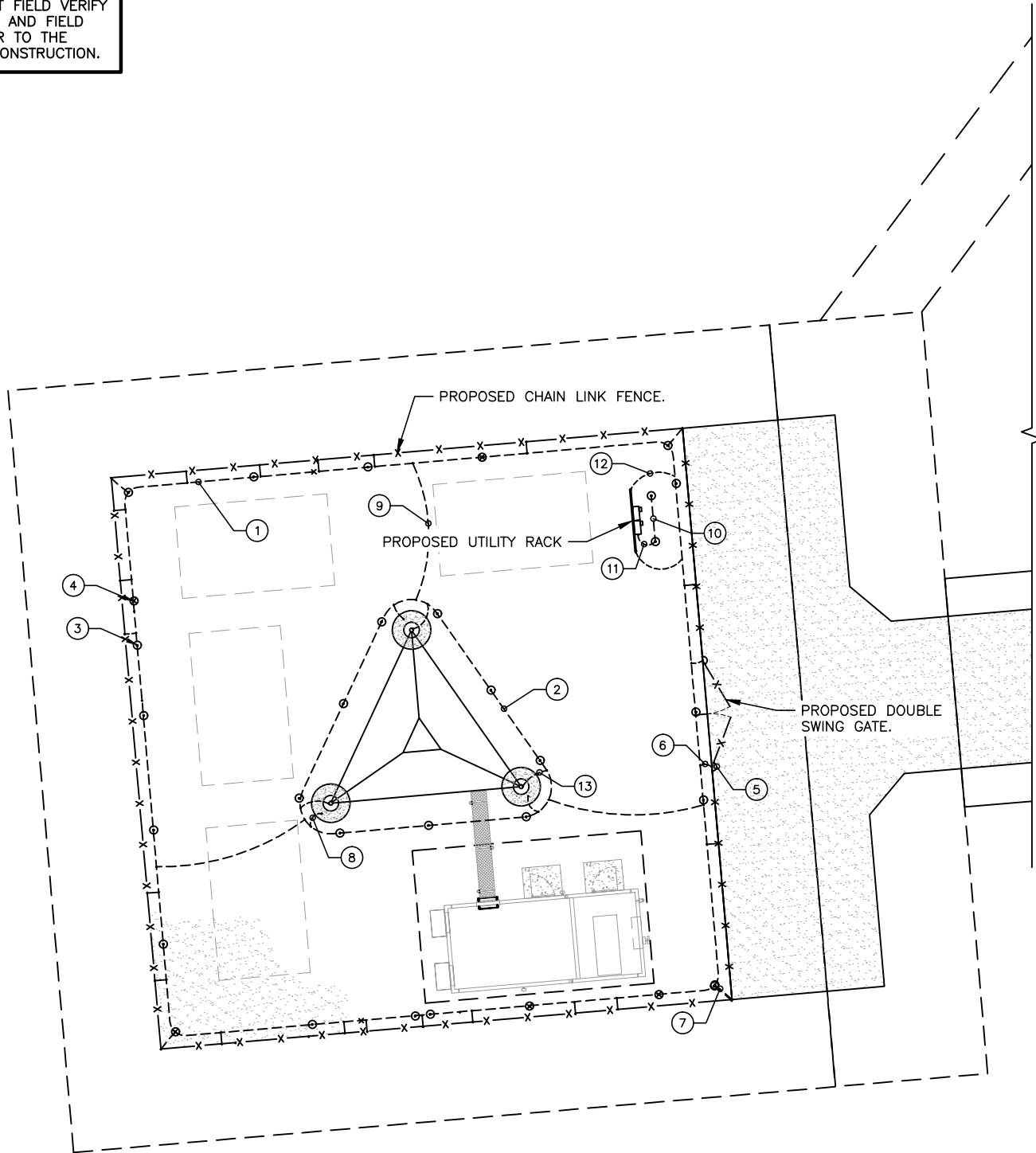
3
E-3

CONCRETE ENCASED UTILITY TRENCH DETAIL

SCALE: N.T.S.

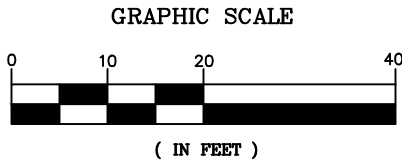


THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.



1
GR-1

GROUNDING PLAN
SCALE: 1" = 20'
SCALE BASED ON 11" x 17"



KEY NOTES:

- ① #2 SOLID, BARE, TINNED, COPPER EXTERNAL SITE GROUND RING. INSTALL MIN. 4 GROUND RODS (ONE AT EACH CORNER) SPACED 10' MIN. APART. BURIED AT 42" MIN. OR 6" BELOW FROST LEVEL, WHICHEVER IS GREATER.
- ② #2 SOLID, BARE, TINNED, COPPER TOWER GROUND RING INSTALLED MIN. 4 GROUND RODS SPACED MIN. 10' APART. MAINTAIN 2' FROM TOWER FOUNDATION. BURIED AT 42" MIN. OR 6" BELOW FROST LEVEL, WHICHEVER IS GREATER.
- ③ 5/8"Ø x 8' LONG COPPER GROUND ROD (TYP). REFER TO DETAIL 4/GR-3.
- ④ 5/8"Ø x 8' LONG COPPER GROUND ROD WITH TEST WELL (TYP). REFER TO DETAIL 2/GR-3.
- ⑤ #4/0 BRAIDED JUMPER TO GATE PIPE CONNECTOR. GROUNDING CABLE SHALL BE ATTACHED SO THAT IT WILL NOT BE SUBJECTED TO STRAIN WHICH MAY CAUSE DAMAGE WHEN GATE IS FULLY OPENED.
- ⑥ #2 SOLID, BARE, TINNED, COPPER INSULATED WELDING CONDUCTOR WITH APPROVED SLEEVE. EXOTHERMICALLY WELDED FROM GATE POST TO SITE GROUND RING. (TYP OF 2).
- ⑦ #2 SOLID, BARE, TINNED, COPPER WIRE FROM EXTERNAL SITE GROUND RING TO FENCE POST. (MAX 10' SEPARATION)
- ⑧ CONTRACTOR TO GROUND TOWER REINFORCEMENT STEEL TO EXTERNAL GROUND RING PRIOR TO INSTALLING CONCRETE FOUNDATION (TYP FOR 3).
- ⑨ #2 SOLID, BARE, TINNED, COPPER WIRE BONDED FROM TOWER GROUND RING TO EXTERNAL SITE GROUND RING (MIN 3 PLACES).
- ⑩ #2 BARE TINNED SOLID COPPER GROUND WIRE FROM DISCONNECT SWITCH TO SEPARATE GROUND SYSTEM W/ (2) 5/8"Ø x 8' GROUND RODS INSTALLED PER UTILITY COMPANY REQUIREMENTS. INSTALL MIN 6" ABOVE GRADE WITH MIN 8' BELOW GRADE. DO NOT BOND TO ANY EXTERNAL GROUND RING.
- ⑪ #2 BARE TINNED SOLID COPPER GROUND WIRE FROM UTILITY GROUND ROD. MAINTAIN MINIMUM 6' DISTANCE BETWEEN GROUND RODS. DO NOT BOND TO ANY EXTERNAL GROUND RING.
- ⑫ #2 BARE, TINNED, SOLID COPPER GROUND WIRE FROM THE H-FRAME POSTS TO GROUND RING (TYP).
- ⑬ #2 BARE, TINNED, SOLID COPPER GROUND WIRE FROM TOWER STEEL TO TOWER GROUND RING.

HORVATH
COMMUNICATIONS

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PLANS PREPARED BY:

Kimley»Horn

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REV.	DATE	DESCRIPTION	BY
2	02/12/15	REVISED PER COMMENTS	MAM
1	12/11/14	ADDED LANDSCAPE PLAN	MAM
0	10/21/14	ISSUED FOR REVIEW	KBB

DRAWN BY: KBB CHECKED BY: CAR

KHA PROJECT NUMBER: 148468002

ENGINEER SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

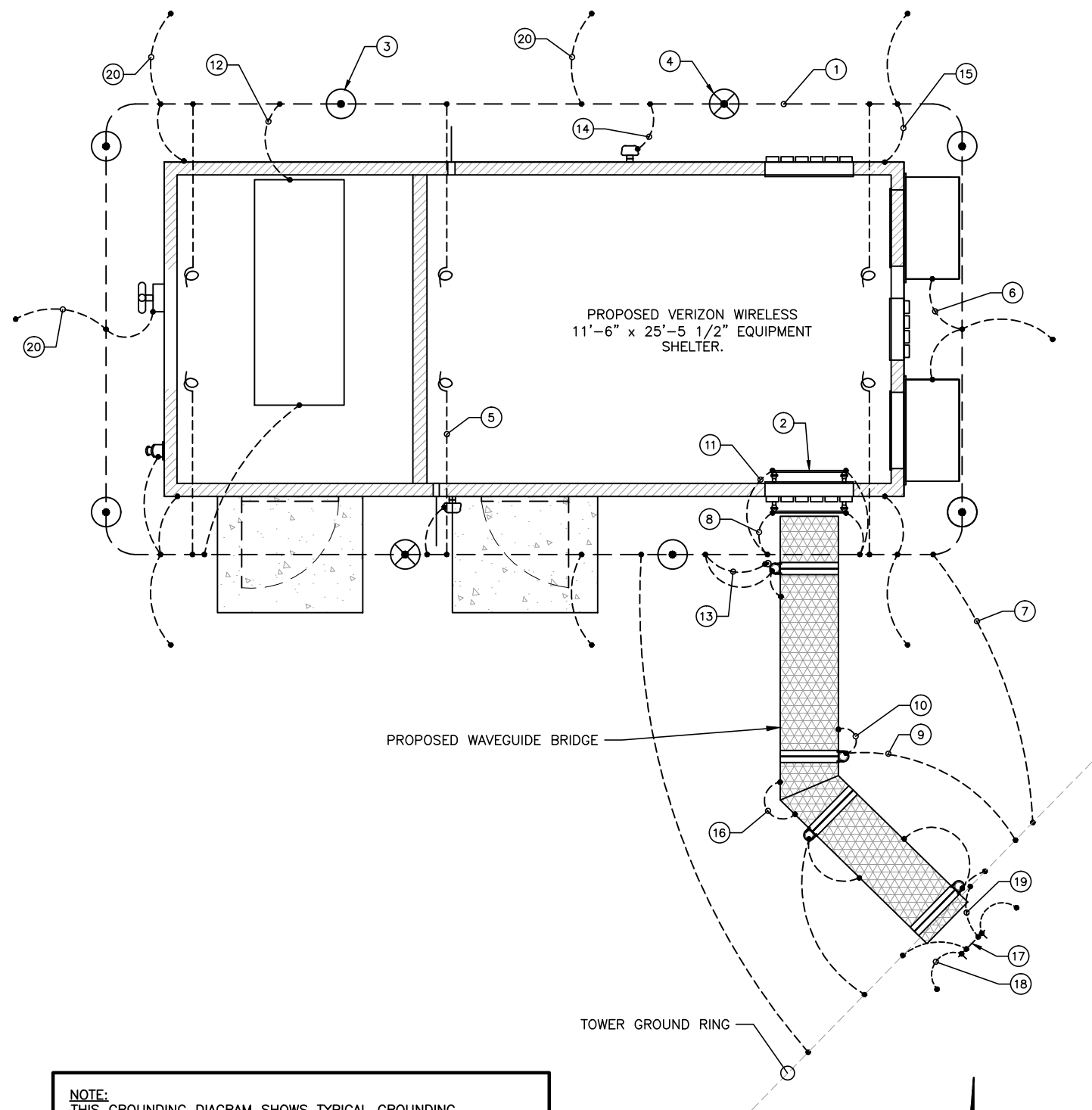
HV962
CLINTON LAKE

1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE: COMPOUND GROUNDING PLAN

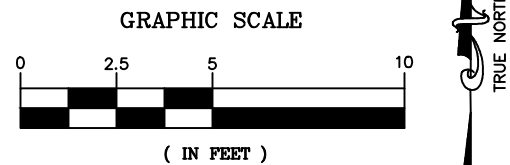
SHEET NUMBER: GR-1

THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.



NOTE:
THIS GROUNDING DIAGRAM SHOWS TYPICAL GROUNDING CONNECTIONS FOR VERIZON SHELTER, ICEBRIDGE AND EQUIPMENT. ACTUAL SITE CONDITIONS AND ORIENTATION MAY VARY.

1
GR-1
GROUNDING PLAN
SCALE: 1" = 5'
SCALE BASED ON 11" x 17"



- KEY NOTES:**
- ① #2 SOLID, BARE, TINNED, COPPER SHELTER GROUND RING. MAINTAIN 24" CLEARANCE FROM SHELTER FOUNDATION. BURIED AT 42" MIN. OR 6" BELOW FROST LEVEL, WHICHEVER IS GREATER.
 - ② SHELTER GROUND BAR (M.G.B.) REFER TO DETAIL 7/GR-3.
 - ③ 5/8"Ø x 8' LONG COPPER GROUND ROD (TYP). REFER TO DETAIL 4/GR-3.
 - ④ 5/8"Ø x 8' LONG COPPER GROUND ROD WITH TEST WELL (TYP). REFER TO DETAIL 2/GR-3.
 - ⑤ BOND SHELTER GROUND RING TO INTERIOR SHELTER GROUND HALO THROUGH SHELTER PENETRATIONS PROVIDED AND SEAL WITH SILICONE CAULK. (TYP FOR 6).
 - ⑥ #2 SOLID, BARE, TINNED, COPPER GROUND WIRE FROM HVAC EQUIPMENT TO SHELTER GROUND RING BY MEANS OF A MECHANICAL CONNECTION (TYP FOR 2).
 - ⑦ #2 SOLID, BARE, TINNED, COPPER WIRE FROM SHELTER GROUND RING TO TOWER GROUND RING. (MIN. 2 PLACES)
 - ⑧ #2 SOLID, BARE, TINNED, COPPER WIRE FROM EXTERIOR SHELTER GROUND BAR TO SHELTER GROUND RING. (MIN. 2 PLACES)
 - ⑨ #2 SOLID, BARE, TINNED, COPPER WIRE FROM WAVEGUIDE SUPPORT POST TO GROUND RING (TYP FOR ALL POSTS).
 - ⑩ #2 SOLID, BARE, TINNED, COPPER WIRE GROUNDING JUMPER FROM WAVEGUIDE BRIDGE STEEL TO SUPPORT POST. (TYP FOR ALL POSTS)
 - ⑪ #2 SOLID, BARE, TINNED, COPPER WIRE FROM INTERIOR MASTER GROUND BAR (M.G.B.) TO SHELTER GROUND RING THROUGH SHELTER PENETRATIONS PROVIDED AND SEAL WITH SILICONE CAULK. (TYP FOR 2).
 - ⑫ #2 SOLID, BARE, TINNED, COPPER WIRE FROM GENERATOR TO SHELTER GROUND RING THROUGH SHELTER PENETRATIONS PROVIDED AND SEAL WITH SILICONE CAULK. (TYP FOR 2).
 - ⑬ #2 BARE, TINNED, SOLID COPPER GROUND WIRE FROM SHELTER GROUND RING TO GPS ANTENNA.
 - ⑭ #2 BARE, TINNED, SOLID COPPER GROUND WIRE FROM MISCELLANEOUS METALLIC EQUIPMENT TO SHELTER GROUND RING.
 - ⑮ #2 BARE, TINNED, SOLID COPPER GROUND WIRE FROM SHELTER ANCHOR PLATES TO SHELTER GROUND RING.
 - ⑯ #2 BARE, TINNED, SOLID COPPER GROUND WIRE SPLICE FROM WAVEGUIDE BRIDGE SECTION TO ADJACENT SECTION. BOND BY MEANS OF EXOTHERMIC WELD OR UL APPROVED CLAMP, (TYP).
 - ⑰ TOWER BOTTOM GROUND BAR. TOWER GROUND BARS SHALL BE COPPER CLAD. REFER TO VERIZON WIRELESS GROUNDING SPECIFICATIONS.
 - ⑱ #2 SOLID, BARE, TINNED, COPPER WIRE FROM TOWER GROUND BAR TO TOWER FRAME STEEL. BOND BY MEANS OF EXOTHERMIC WELD OR UL APPROVED CLAMP.
 - ⑲ #2 SOLID, BARE, TINNED, COPPER WIRES FROM TOWER GROUND BAR TO TOWER GROUND RING IN DIFFERENT DIRECTIONS (TYP OF 2)
 - ⑳ BOND SHELTER GROUND RING TO EXTERNAL GROUND RING WITH #2 , SOLID, BARE, TINNED, COPPER WIRE (TYP).

NOTE:
PROVIDE GROUNDING AND BONDING IN ACCORDANCE WITH VERIZON WIRELESS NETWORK STANDARD NSTD46 "CELL SITE AND MICROWAVE RADIO STATION PROTECTION", LATEST EDITION UNLESS DIRECTED OTHERWISE BY DRAWINGS, NATIONAL ELECTRICAL CODE, OR AUTHORITIES HAVING JURISDICTION. THE ABOVE REFERENCED SPECIFICATIONS ARE AN INTEGRAL PART OF THE DESIGN DOCUMENTS AND MUST BE STRICTLY ADHERED TO. WHERE CONFLICTS BETWEEN THIS SPECIFICATION, CODES, AND AUTHORITIES HAVING JURISDICTION ARISE, THE MOST STRINGENT SHALL GOVERN. BUSS CONNECTORS SHALL BE 2-HOLE LONG BARREL TYPE COMPRESSION LUGS.

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REV: DATE: DESCRIPTION: BY:

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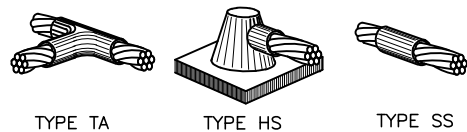
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KHA PROJECT NUMBER:
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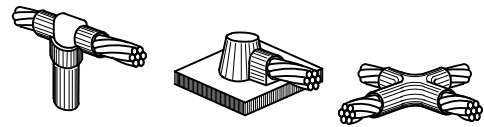
PROJECT INFORMATION:
HV962
CLINTON LAKE
1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:
**SHELTER
GROUNDING PLAN**

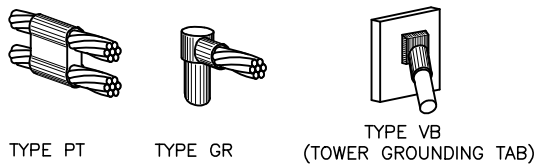
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GR-2



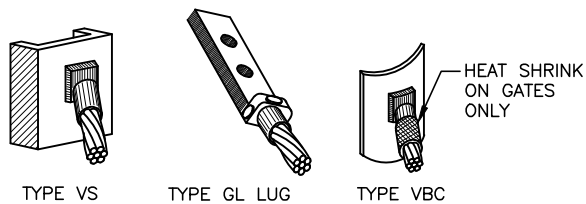
TYPE TA TYPE HS TYPE SS



TYPE GT TYPE HA TYPE XA



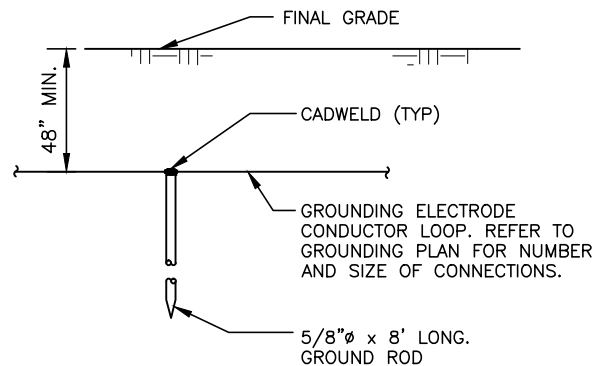
TYPE PT TYPE GR TYPE VB (TOWER GROUNDING TAB)



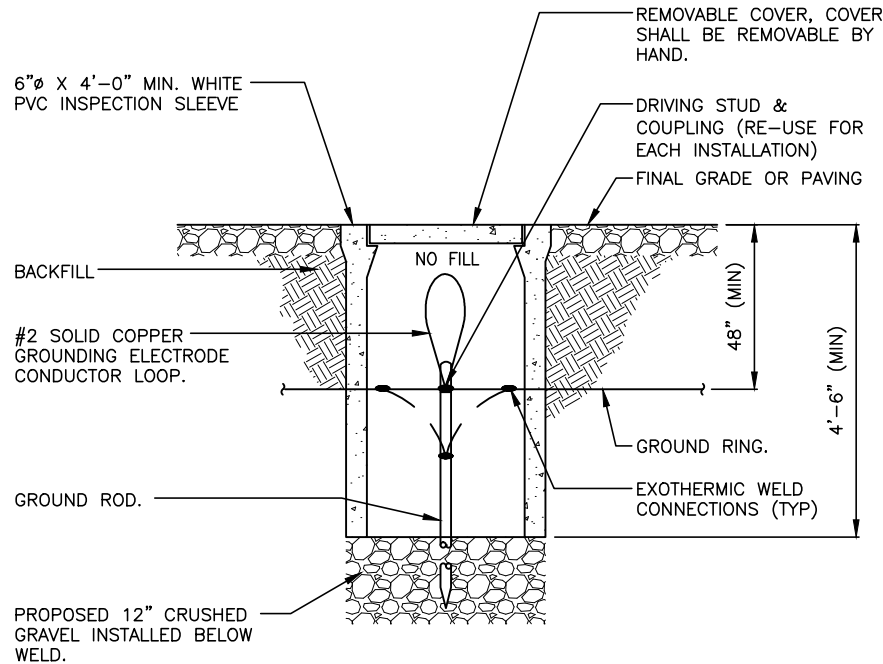
TYPE VS TYPE GL LUG TYPE VBC

NOTES:
1. CADWELD "TYPES" SHOWN ABOVE ARE EXAMPLES.
PROVIDE APPROPRIATE TYPES AS REQUIRED.

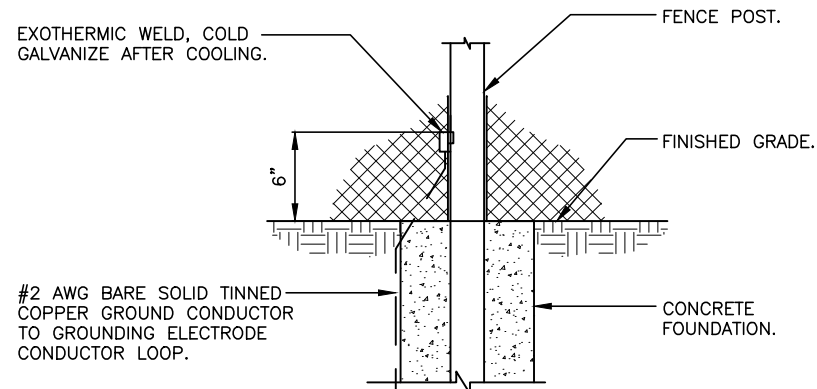
1 TYPICAL CAD WELDS
SCALE: N.T.S.



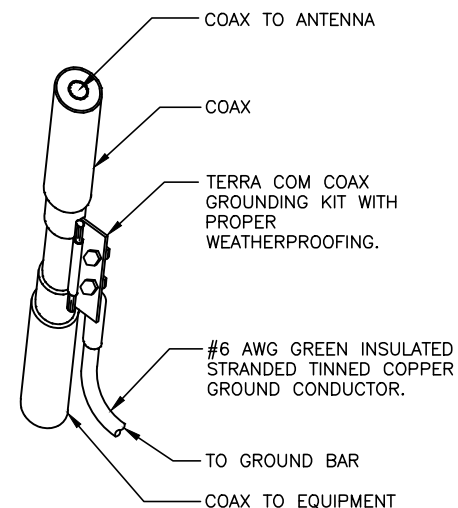
4 GROUND ROD DETAIL
SCALE: N.T.S.



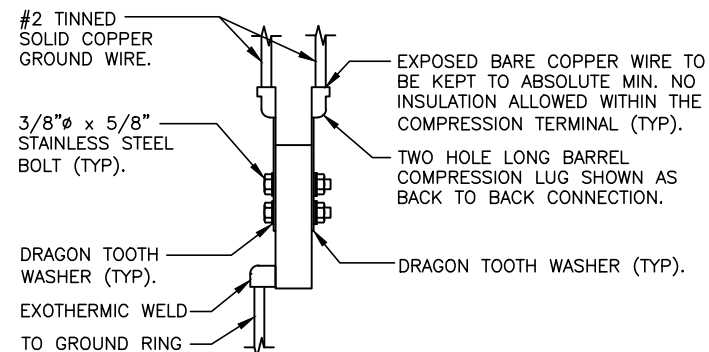
2 INSPECTION SLEEVE DETAIL
SCALE: N.T.S.



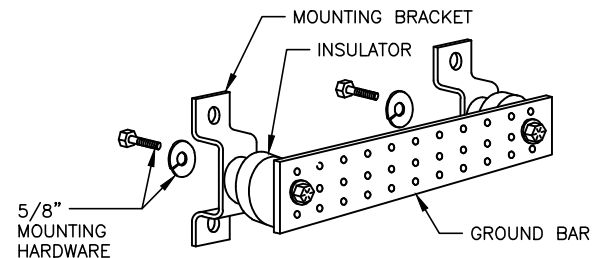
5 TYPICAL FENCE BONDING DETAIL
SCALE: N.T.S.



3 COAXIAL CABLE GROUNDING DETAIL
SCALE: N.T.S.



6 TYPICAL GROUND BAR BAR CONNECTION DETAIL
SCALE: N.T.S.



NOTES:
1. 1/4 inch THICK COPPER GROUND BR TIN PLATED AFTER FABRICATION (.0003 THICK).
2. HOLES TO HAVE 1/16 inch COUNTERSINK ON EACH SIDE.

7 TYPICAL GROUND BAR BAR DETAIL
SCALE: N.T.S.



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ENGINEER SEAL:

NOT FOR CONSTRUCTION

PROJECT INFORMATION:

HV962
CLINTON LAKE

1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

GROUNDING DETAILS

SHEET NUMBER:

GR-3

GENERAL NOTES

1.

THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.
2.

THE ARCHITECT/ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.
3.

THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CONSTRUCTION MANAGER OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.
4.

THE CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.
5.

THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THE PROJECT REQUIREMENTS.
6.

THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWING/CONTRACT DOCUMENTS.
7.

THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATION UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE. CONTRACTOR SHALL PROVIDE SERVICES FOR OFF LOADING AND PLACEMENT OF SHELTER IN ACCORDANCE WITH MANUFACTURER'S LIFTING PROCEDURES.
8.

THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDA OR CLARIFICATIONS AVAILABLE FOR USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT. REDLINED AS-BUILTS ARE TO BE DELIVERED TO THE CLIENT AT CLOSEOUT.
9.

THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
10.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ARCHITECT/ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.
11.

THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.
12.

THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.
13.

THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.
14.

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.
15.

FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (HANDICAPPED ACCESS NOT REQUIRED).
16.

FACILITY HAS NO PLUMBING.
17.

PRIOR TO OR UPON ENTERING INTO THE SITE COMPOUND, THE PERSONNEL ENTERING THE SITE AND THE SHELTER ARE TO CONTACT THE SWITCH AND THE CLIENT NOC INFORMING THEM OF THE FOLLOWING INFORMATION: WHO IS ENTERING THE SHELTER AND WHAT COMPANY THEY ARE WITH, WHY THEY ARE ENTERING THE SHELTER AND HOW LONG THEY PLAN TO BE AT THE SHELTER.
18.

UPON LEAVING THE SHELTER, THE "SITE" PERSONNEL ARE TO CONTACT THE SWITCH AND CLIENT NOC INFORMING THEM OF DEPARTURE.
19.

SHOULD THE SHELTER ACCESS OCCUR WHILE THE SWITCH IS UNMANNED, THEN AT MINIMUM THE CLIENT NOC WILL BE NOTIFIED OF THE ABOVE INFORMATION.
20.

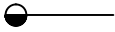
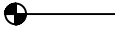
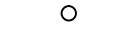

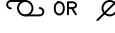
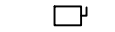

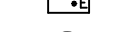
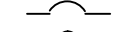


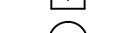


ALL INSTALLATION DEBRIS AND TRASH SHALL BE REMOVED FROM THE SITE ON A DAILY BASIS. ANY EXPENSE THAT IS INCURRED BY CLIENT FOR TRASH REMOVAL WILL BE BACK-CHARGED TO THE SUBCONTRACTOR.
21.


















THE CONTRACTOR SHALL NOTIFY ENGINEER, WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE CONSTRUCTION MANAGER.
22.













ALL ANTENNA OUTAGES MUST BE PLANNED AT A MINIMUM OF 24 HOURS IN ADVANCE. CONTRACTOR MUST CONTACT THE SWITCH AND THE NOC TO COORDINATE. IF THIS POLICY IS NOT ADHERED TO, THE CONTRACTOR WILL BE REMOVED FROM THE BIDDER'S LIST AND ANY OPPORTUNITY FOR FUTURE WORK.

A/C	AIR CONDITIONING
ADJ.	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
APPROX.	APPROXIMATELY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWG	AMERICAN WIRE GAUGE
A	AMPERE
BTS	BASE TRANSMISSION STATION
BLDG.	BUILDING
BLK.	BLOCK
B/S	BUILDING STANDARD
CIGBE	GROUND BAR
CLG	CEILING
CLR.	CLEAR
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
C.F.C.I.	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
DBL.	DOUBLE
DIA., Ø	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
DN	DOWN
DTL.	DETAIL
DWG.	DRAWING
E	EAST
EA.	EACH
EL., ELEV.	ELEVATION
ELECT.	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
EQ.	EQUAL
EQUIP.	EQUIPMENT
E.W.	EACH WAY
EXIST.	EXISTING
EXT.	EXTERIOR
FIN.	FINISH
FLR	FLOOR
FT.	FOOT
GRC.	GALVANIZED RIGID CONDUIT
G. OR GRD.	GROUND
GA.	GAUGE
GALV.	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
HORIZ.	HORIZONTAL
HR	HOUR
HT.	HEIGHT
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
I.D.	INSIDE DIA.
IN.	INCH
INFO	INFORMATION
INSUL.	INSULATION
INT.	INTERIOR
KVA	KILOVOLTS-AMPERE
KW	KILOWATT
LB(S)	POUND(S)
MGB	MASTER GROUND BAR
MAX.	MAXIMUM
MECH.	MECHANICAL
MFR.	MANUFACTURER
MGR.	MANAGER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTD.	MOUNTED
NEC	NATIONAL ELECTRICAL CODE
NEUT.	NEUTRAL
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOC	NETWORK OPERATIONS CENTER
NPS	NOMINAL PIPE SIZE
N.T.S.	NOT TO SCALE
O.F.C.I.	OWNER FURNISHED CONTRACTOR INSTALLED
OC, o/c	ON CENTER
OPP	OPPOSITE
OD	OUTSIDE DIAMETER
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
OHU	OVERHEAD UTILITY LINES
PLYWD.	PLYWOOD
PR	PAIR
PH	PHASE
PVC	POLYVINYL CHLORIDE
PROJ	PROJECT
PROP	PROPERTY
PT	PRESSURE TREATED
RECPT.	RECEPTACLE

REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
R.O.	ROUGH OPENING
R.O.W.	RIGHT-OF-WAY
S	SOUTH
S.O.	SERVICE GRADE OIL RESISTANT
SHT	SHEET
SIM.	SIMILAR
SPEC.	SPECIFICATION
XXX.XX'	SPOT ELEVATION
SQ.	SQUARE
SF	SQUARE FOOT
SS	STAINLESS STEEL
STL.	STEEL
STRUCT.	STRUCTURAL
THRU	THROUGH
T.O.C.	TOP OF CONCRETE
T.O.M.	TOP OF MASONRY
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
VERT.	VERTICAL
VIF	VERIFY IN FIELD
V	VOLT
W	WEST
W/	WITH
W/O	WITHOUT
W.P.	WEATHERPROOF
XFMR	TRANSFORMER

	MATCH LINE
	WORK POINT
	MECHANICAL BONDING CONNECTION
	EXOTHERMICALLY WELDED BONDING CONNECTION
	POWER POLE
	DISCONNECT SWITCH
	DOUBLE-THROW MANUAL TRANSFER SWITCH
	CIRCUIT BREAKER
	EMERGENCY GENERATOR RECEPTACLE
	TELCO PEDESTAL
	GROUND ROD
	GROUND ROD INSPECTION WELL
	REPRESENTS DETAIL NUMBER
	REF. DRAWING NUMBER

LEGEND	
	EXISTING CONTOUR LINE
	EXISTING CHAIN LINK FENCE
	EXISTING PROPERTY LINE
	EXISTING OVERHEAD UTILITIES
	EXISTING SANITARY SEWER LINE
	EXISTING STORM DRAIN LINE
	PROPOSED CONTOUR LINE
	PROPOSED CHAIN LINK FENCE
	PROPOSED LEASE AREA
	PROPOSED OVERHEAD UTILITIES
	PROPOSED UNDERGROUND TELCO
	PROPOSED UNDERGROUND ELECTRIC
	PROPOSED UNDERGROUND FIBER
	PROPOSED EASEMENT
	PROPOSED SILT FENCE
	PROPOSED GROUNDING
	FUTURE FEATURES

	NORTH ARROW
	ELEVATION
	SECTIONS & DETAILS
	BRICK
	CONCRETE
	EARTH
	GRAVEL
	STEEL
	METER
	GROUND
	REVISION
	KEYNOTE



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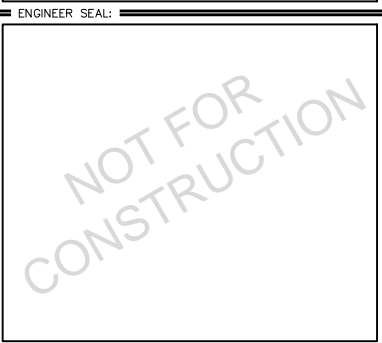
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REV:	DATE:	DESCRIPTION:	BY:
2	02/12/15	REVISED PER COMMENTS	MAM
1	12/11/14	ADDED LANDSCAPE PLAN	MAM
0	10/21/14	ISSUED FOR REVIEW	KBB

DRAWN BY:	CHECKED BY:
KBB	CAR

KHA PROJECT NUMBER:
148468002

ENGINEER SEAL:



PROJECT INFORMATION:

HV962
CLINTON LAKE

1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

GENERAL NOTES
AND ABBREVIATIONS

SHEET NUMBER:

GN-1

GENERAL NOTES:

1. FENCED SITE AREA SHALL BE CLEARED AND GRUBBED. REMOVE UNSUITABLE SOFT OR LOOSE SOILS, ORGANIC MATERIAL AND OR RUBBLE TO FIRM SUBGRADE. FILL UNDERCUT UP TO 6 INCHES BELOW FINISH GRADE.

2. IF ANY ARCHAEOLOGICAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL STOP WORK IMMEDIATELY AND NOTIFY EITHER KIMLEY HORN OR THE CLIENT.

3. IN ADDITION TO PROVIDING THEM IN THE CLOSE–OUT PACKAGE, THE CONTRACTOR SHALL LEAVE A COPY OF THE AS–BUILT DRAWINGS, MEG TEST, AND SWEEP TEST IN THE SHELTER AFTER CONSTRUCTION.

4. THE CONTRACTOR MUST CONTACT THE SURVEYOR TO STAKE OUT THE EASEMENTS AND LEASE AREA PRIOR TO CONSTRUCTION. ALL FEES ARE THE RESPONSIBILITY OF THE CONTRACTOR.

5. THE CONTRACTOR IS TO ENSURE THAT NO DAMAGE OR DEBRIS OCCURS ON THE ADJACENT PROPERTIES.

6. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS WITH LOW MAINTENANCE NATIVE GRASS TO PREVENT EROSION.

7. UNTIL THE COMPOUND IS SURROUNDED BY A PERMANENT FENCE, THE CONTRACTOR MUST ERECT A TEMPORARY FENCE AROUND THE TOWER AND POST A "NO TRESPASSING" SIGN. ALL CLIMBING PEGS MUST BE REMOVED UP TO 20’ UNTIL A PERMANENT FENCE IS INSTALLED.

8. THE CONTRACTOR MUST ENSURE THAT ALL DELIVERY TRUCKS WILL BE ABLE TO DELIVER THE MATERIAL TO THE COMPOUND. IF THE DELIVERY TRUCKS CAN NOT ACCESS THE COMPOUND THEN THE CONTRACTOR MUST MAKE OTHER ARRANGEMENTS TO GET THE MATERIAL TO THE COMPOUND. IF THIS IS REQUIRED THE CONTRACTOR MUST CONTACT KIMLEY HORN IMMEDIATELY. NO ADDITIONAL FEES WILL BE PASSED ON TO KIMLEY HORN OR THE CLIENT.

9. PROPOSED TOWER AND FOUNDATION TO BE INSTALLED IN ACCORDANCE WITH THE TOWER MANUFACTURER PLANS PROVIDED BY CLIENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE UNLOADING OF TOWER MATERIALS DELIVERED TO SITE BY THE TOWER MANUFACTURER.

10. CONTRACTOR MUST REFER TO THE GEOTECH REPORT FOR ALL COMPACTED FILL RECOMMENDATIONS. IF THE GEOTECH REPORT CONFLICTS WITH THE CONSTRUCTION DRAWINGS THEN STOP WORK AND CONTACT THE CLIENT AS SOON AS POSSIBLE.

11. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DOT AND/OR COUNTY SPECIFICATIONS PRIOR TO BID AND CONSTRUCTION. IF THE SPECIFICATIONS DIFFER FROM THE CONSTRUCTION DRAWINGS, THEN THE SPECIFICATIONS WILL GOVERN. NO ADDITIONAL COSTS FOR ADHERING TO THE SPECIFICATIONS WILL BE ALLOWED AFTER THE BID HAS BEEN ISSUED AND ACCEPTED NOR WILL PROJECT DELAYS BE TOLERATED.

12. THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.

13. PROPOSED LIGHTNING ROD IS TO BE INSTALLED A MINIMUM OF 3’ ABOVE HIGHEST APPURTENANCE.

14. IF THE OVERALL HEIGHT OF THE STRUCTURE INCLUDING APPURTENANCES EXCEEDS THE HEIGHT SHOWN ON THE DRAWINGS THEN CONTACT CLIENT IMMEDIATELY.

15. ANTENNA LOADING AND LOCATION BASED ON TOWER MANUFACTURER DRAWINGS.

16. THE TOWER ANCHOR BOLTS WILL BE PRE–SHIPPED AND THE CONTRACTOR MUST COORDINATE DELIVERY WITH CLIENT.

17. CONTRACTOR MUST PROVIDE TEMPORARY TOWER LIGHTING ONCE THE TOWER HAS REACHED 200’ UNTIL THE PERMANENT LIGHTING IS INSTALLED.

18. CONTRACTOR SHALL INSTALL BEACON EXTENSION MOUNT PER MANUFACTURERS SPECIFICATIONS.

19. WHEN TOWER LIGHTING IS REQUIRED, THE CONTRACTOR MUST VISUALLY MONITOR THE TOWER LIGHTING AT LEAST ONCE A DAY UNTIL THE LIGHTING IS ELECTRONICALLY MONITORED. IF ANY PROBLEMS OCCUR, THE CONTRACTOR MUST CONTACT CLIENT IMMEDIATELY.
20. PRIOR TO PERFORMING THE WORK, IT IS THE CLIENT’S RESPONSIBILITY TO VERIFY THE STRUCTURAL CAPACITY OF THE TOWER TO RESIST THE WIND/GRAVITY LOADS FROM THE PROPOSED ANTENNAS.

21. IF ANY WORK IS PERFORMED AT THIS SITE THAT REQUIRES THE SITE TO BE OFF AIR OR TURNED DOWN, THE SWITCH IS TO BE NOTIFIED 48 HOURS PRIOR TO CONSTRUCTION.

22. INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES, AND SUPPORT STRUCTURES. ANTENNA WORK TO BE INSTALLED PER THE REQUIREMENTS OF THE TOWER MANUFACTURER’S SPECIFICATION.

23. CONTRACTOR TO PROVIDE THE PROPER COAX JUMPER SUPPORT ATTACHMENTS TO THE TOWER AND ANTENNA MOUNT.

24. CONTRACTOR MUST CALL LOCAL UNDERGROUND UTILITY LOCATING SERVICE BEFORE ANY EXCAVATION OR TRENCHING IS PERFORMED TO FLAG ALL UNDERGROUND UTILITIES. CONTRACTOR MUST HAND DIG ALL TRENCHES & EXCAVATIONS AROUND EXISTING UNDERGROUND UTILITIES IN WORK AREA.

25. CONTRACTOR MUST VERIFY AND COORDINATE ALL POWER AND TELCO DESIGN INFORMATION PRIOR TO CONSTRUCTION WITH LOCAL UTILITY COMPANIES.

26. ENTRY LOCATIONS ON SHELTERS MAY VARY. VERIFY EXACT LOCATION ONCE SHELTER HAS ARRIVED.

27. CONTRACTOR TO COORDINATE THE EXACT LOCATION OF THE NEW TELCO PEDESTAL AND POWER POLE WITH LOCAL UTILITY COMPANIES.

28. IF CONDUIT RUNS HAVE MORE THEN (3)–90° TURNS THEN THE CONTRACTOR MUST INSTALL PULL BOXES AS NEEDED.

29. CONTRACTOR SHALL CORE DRILL THROUGH SHELTER WALL AND PROVIDE WEATHERPROOFING FOR ALL CONDUITS THAT DON’T HAVE A PENETRATION.

30. CONTRACTOR MUST CALL LOCAL UNDERGROUND UTILITY LOCATING SERVICE BEFORE ANY EXCAVATION OR TRENCHING IS PERFORMED TO FLAG ALL UNDERGROUND UTILITIES. CONTRACTOR MUST HAND DIG ALL TRENCHES & EXCAVATIONS AROUND EXISTING UNDERGROUND UTILITIES IN WORK AREA.

31. CONTRACTOR MUST VERIFY AND COORDINATE ALL POWER AND TELCO DESIGN INFORMATION PRIOR TO CONSTRUCTION WITH LOCAL UTILITY COMPANIES.

32. ALL EQUIPMENT INSTALLED ON THE H–FRAMES SHALL MAINTAIN A MINIMUM OF 3’ CLEARANCE TO ALL FENCES.

33. ALL CONDUIT ABOVE GROUND SHALL BE RIGID.

34. ALL CONDUIT INSTALLED IN FRONT OF THE GATE SHALL BE ENCLOSED IN CONCRETE.

35. FOR EQUIPMENT SHELTER INTERNAL WIRING REFER TO FIBREBOND SHELTER SHOP DRAWINGS.

36. A RESISTANCE TO GROUND OF FIVE (5) OHMS OR LESS IS THE OBJECTIVE FOR THE EARTH GROUND SYSTEMS AT CELL SITES.

37. ALL UNDERGROUND GROUND WIRE TO BE BURIED 30” DEEP OR 6” BELOW THE FROST LINE, WHICHEVER IS DEEPER.

38. ALL BURIED GROUND CONNECTIONS WILL BE MADE USING THE EXOTHERMIC WELD PROCESS.

39. ALL GROUND WIRES SHALL BE CONNECTED TO GROUND BARS USING TWO–HOLE CRIMP/COMPRESSION CONNECTORS.

40. AN APPROVED ANTIOXIDATION COMPOUND SHALL BE USED ON ALL EXTERNAL CONNECTIONS, EXCLUDING EXOTHERMIC WELDS, AND ON ALL EXTERNAL GROUND BARS. COAT ALL CONDUCTORS AND SURFACES PRIOR TO CONNECTION.

42. REFER TO SHELTER MANUFACTURER AND CLIENT SPECS FOR INTERNAL GROUNDING DETAILS.
43. GROUND CONDUCTOR RUNS SHALL BE STRAIGHT AS POSSIBLE, WITH A 6” MINIMUM RADIUS FOR CONDUCTORS UP TO #6, A 12” MINIMUM RADIUS FOR CONDUCTORS FROM #6 UP TO #4/0, A 24” MINIMUM RADIUS FOR #4/0 CONDUCTORS AND UP.
44. IF GROUNDED METALLIC OBJECTS ARE LESS THAN 6’ FROM A FENCE POST, THEN THE POST SHOULD BE GROUNDED TO THE GROUND RING.
45. ALL GROUND WIRES THAT ARE ROUTED ABOVE GROUND SHOULD BE INSTALLED IN 3/4”ø PVC, MINIMUM 12” BELOW GRADE TO 6” FROM ABOVE GROUND CONNECTION POINT.
46. AT THE TIME THE CONSTRUCTION DRAWINGS WERE CREATED, KIMLEY HORN DID NOT POSSESS A COPY OF THE PROPOSED TOWER MANUFACTURER DRAWINGS THUS WE DO NOT KNOW THE EXACT SIZE OF THE OVERALL TOWER FOOTPRINT. THE CONTRACTOR MUST COMPARE THE CONSTRUCTION DRAWINGS WITH THE TOWER DRAWINGS PRIOR TO BID AND/OR CONSTRUCTION AND IF THEY FIND ANY DISCREPANCIES OR POSSIBLE ISSUES THEY MUST NOTIFY THE CLIENT IMMEDIATELY.



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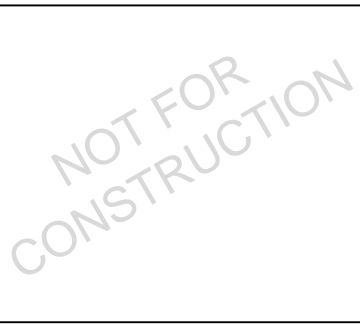
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PROJECT INFORMATION:

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CLINTON LAKE

1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

GN-2

GENERAL NOTES:

1. ZONING REGULATIONS AND CONDITIONAL USE PERMITS:

A. CLIENT WILL SUBMIT FOR AND OBTAIN ALL ZONING AND CONDITIONAL USE PERMITS. SOME USE PERMITS MAY HAVE SPECIFIC REQUIREMENTS FOR THE SITE RELATED TO CONSTRUCTION, SUCH AS NOISE REGULATIONS, HOURS OF WORK, ACCESS LIMITATIONS, ETC. THE CONSTRUCTION MANAGER WILL INFORM THE CONTRACTOR OF THESE REQUIREMENTS AT THE PRE-BID MEETING OR AS SHOWN IN CONSTRUCTION DOCUMENTS.
2. FAA PERMIT AND TOWER LIGHTING:

A. REFER TO CONSTRUCTION DOCUMENTS AND CONSTRUCTION MANAGER FOR FAA AND STATE LIGHTING REQUIREMENTS. CONTRACTOR SHALL PROVIDE TEMPORARY FAA APPROVED LIGHTING UNTIL PERMANENT LIGHTING IS OPERATIONAL.
3. TOWER SECURITY:

A. TOWER SHALL BE FENCED BY CONTRACTOR, TEMPORARILY OR PERMANENTLY WITHIN 24 HOURS OF ERECTION. DO NOT ALLOW THE GATE ACCESSING THE TOWER AREA TO REMAIN OPEN AND UNATTENDED AT ANY TIME FOR ANY REASON. KEEP THE GATE CLOSED AND LOCKED WHEN NOT IN USE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR RECEIVING, UNLOADING, AND INSTALLATION FOR PLACEMENT OF NEW CONCRETE SHELTER BUILDING OR CABINETS AND ERECTION OF TOWER.
5. CONFLICTS:

A. VERIFY ALL MEASUREMENTS AT THE SITE BEFORE ORDERING MATERIAL OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED DUE TO DIFFERENCES BETWEEN ACTUAL DIMENSIONS OR DIMENSIONS SHOWN ON PLANS. SUBMIT NOTICE OF ANY DISCREPANCY IN DIMENSIONS OR OTHERWISE TO THE CONSTRUCTION MANAGER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

B. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OF CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS CONTRACT DOCUMENTS GOVERNING THE WORK.
6. PHOTOS:

A. PROVIDE PHOTOGRAPHIC EVIDENCE OF ALL FOUNDATION INSTALLATION, GROUNDING AND TRENCHING AFTER PLACEMENT OF UTILITIES PRIOR TO BACKFILL.

SITE PREPARATION:

1. CONTRACTOR’S SCOPE OF WORK:

A. PROTECTION OF EXISTING TREES, VEGETATION AND LANDSCAPING MATERIALS WHICH MIGHT BE DAMAGED BY CONSTRUCTION ACTIVITIES.

B. TRIMMING OF EXISTING TREES AND VEGETATION AS REQUIRED FOR PROTECTION DURING CONSTRUCTION ACTIVITIES.

C. CLEARING AND GRUBBING OF STUMPS, VEGETATION, DEBRIS, RUBBISH, DESIGNATED TREES, AND SITE IMPROVEMENTS.

D. TOPSOIL STRIPPING AND STOCKPILING.

E. TEMPORARY EROSION CONTROL, SILTATION CONTROL, AND DUST CONTROL CONFORMING TO LOCAL AND STATE REQUIREMENTS AS APPLICABLE.

F. TEMPORARY PROTECTION OF ADJACENT PROPERTY, STRUCTURES, BENCHMARKS, AND MONUMENTS.

G. PROTECTION AND TEMPORARY RELOCATION, STORAGE AND REINSTALLATION OF EXISTING FENCING AND OTHER SITE IMPROVEMENTS SCHEDULED FOR REUSE.

H. REMOVAL AND LEGAL DISPOSAL OF CLEARED MATERIALS.
2. CONTRACTOR’S QUALITY ASSURANCE:

A. CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR CONTAINMENT OF SEDIMENT AND CONTROL OF EROSION ON SITE. ANY DAMAGE TO ADJACENT OR DOWNSTREAM PROPERTIES WILL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

B. CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES. DO NOT ALLOW WATER TO STAND OR POND. ANY DAMAGE TO STRUCTURES OR WORK ON THE SITE CAUSED BY INADEQUATE MAINTENANCE OF DRAINAGE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND ANY COST ASSOCIATED WITH REPAIRS FOR SUCH DAMAGE WILL BE AT THE CONTRACTOR’S EXPENSE.

C. CONTRACTOR SHALL PROPERLY DISPOSE ALL WASTE MATERIAL OFF-SITE OR AS DIRECTED BY THE CONSTRUCTION MANAGER AND IN ACCORDANCE WITH JURISDICTIONAL AUTHORITIES.
3. PRODUCTS AND MATERIALS (AS APPROVED BY CONSTRUCTION MANAGER OR AS WITHIN THE CONSTRUCTION DOCUMENTS):

A. MATERIALS USED FOR TREE PROTECTION, EROSION CONTROL, SILTATION.

B. MATERIALS USED FOR DUST CONTROL AS SUITABLE FOR SPECIFIC SITE CONDITIONS.

CIVIL SPECIFICATION NOTES

EARTHWORK:

1. CONTRACTOR’S SCOPE OF WORK:

A. EXCAVATION, TRENCHING, FILLING, COMPACTION AND GRADING FOR STRUCTURES, SITE IMPROVEMENTS AND UTILITIES.

B. MATERIALS FOR SUB-BASE, DRAINAGE FILL, FILL, BACKFILL AND GRAVEL FOR SLABS, PAVEMENTS AND IMPROVEMENTS.

C. ROCK EXCAVATION WITHOUT BLASTING.

D. SUPPLY OF ADDITIONAL MATERIALS FROM OFF-SITE AS REQUIRED.

E. REMOVAL AND LEGAL DISPOSAL OF EXCAVATED MATERIALS AS REQUIRED.

F. SITE GRADING.

G. PLACEMENT AND COMPACTION OF FILL, SUBGRADE AND GRAVEL SURFACING.

H. WHEN REQUIRED, CONSTRUCTION OF COMPOUND, ACCESS ROADS, FENCING AND ALL FOUNDATIONS.
2. CONTRACTOR’S QUALITY ASSURANCE:

A. COMPACTION: UNDER STRUCTURES, FOUNDATIONS, BUILDING SLABS, PAVEMENTS AND WALKWAYS 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 WITH PLUS OR MINUS 3 PERCENT OF OPTIMUM MOISTURE CONTENT.

B. GRADING TOLERANCES OUTSIDE BUILDING LINES: LAWNS, UNPAVED AREAS AND WALKS, PLUS OR MINUS 1 INCH. UNDER PAVEMENTS, PLUS OR MINUS 1/2 INCH.

C. GRADING TOLERANCE FOR FILL UNDER ALL CONCRETE APPLICATIONS: PLUS OR MINUS 1/2 INCH MEASURED WITH 10 FOOT STRAIGHTEDGE.

D. CONTRACTOR MUST REFER TO THE GEOTECH REPORT FOR ALL COMPACTED FILL RECOMMENDATIONS. IF THE GEOTECH REPORT CONFLICTS WITH THE CONSTRUCTION DRAWINGS THEN STOP WORK AND CONTACT THE CLIENT AS SOON AS POSSIBLE.
3. PRODUCTS AND MATERIALS (AS APPROVED BY CONSTRUCTION MANAGER OR AS WITHIN CONSTRUCTION DOCUMENTS):

A. SUB BASE MATERIAL: GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE OR SLAG AND NATURAL OR CRUSHED SAND.

B. WASHED MATERIAL: UNIFORMLY GRADED MIXTURE OF CRUSHED STONE OR GRAVEL, WITH 100 PERCENT PASSING A 1-1/2 INCH SIEVE AND NOT MORE THAN 5 PERCENT PASSING A NO. 4 SIEVE.

C. GRADING MATERIAL: SATISFACTORY NATIVE OR IMPORTED MATERIALS CONTAINING ROCK OR GRAVEL NOT LARGER THAN 2 INCHES IN ANY DIMENSION. GRADING MATERIAL SHALL NOT INCLUDE DEBRIS, WASTE, FROZEN MATERIALS, AND OTHER UNSUITABLE MATERIALS. IMPORTED MATERIAL SHALL HAVE A FINES CONTENT OF NO MORE THAN 5 PERCENT.

D. BACKFILL MATERIALS: SATISFACTORY NON-COHESIVE NATIVE OR IMPORTED SOIL MATERIALS FREE OF CLAY, DEBRIS, WASTE, AND OTHER UNSUITABLE MATERIALS. ROCK OR GRAVEL SHALL NOT EXCEED 4 INCHES IN ANY DIMENSION. IMPORTED MATERIAL SHALL HAVE A FINES CONTENT OF NO MORE THAN 5 PERCENT.

E. GRAVEL MATERIAL: EVENLY GRADED MIXTURE OF CRUSHED STONE OR GRAVEL, WITH 100 PERCENT PASSING A 1-1/2 INCH SIEVE AND NOT MORE THAN 5 PERCENT PASSING A NO. 4 SIEVE.

F. GEOTEXTILE FABRIC: TYPAR 3401 OR EQUIVALENT
4. CLEARING AND GRUBBING:

A. REMOVE ALL VEGETATION AND MATERIALS TO A MINIMUM DEPTH OF 6 INCHES. REMOVE STUMPS COMPLETELY UNDER FOUNDATIONS AND ROADWAY. DISPOSE OF CLEARING AND GRUBBING OFF-SITE, OR IN AN ON-SITE LOCATION APPROVED BY CONSTRUCTION MANAGER.
5. STRIPPING:

A. STRIP NOT LESS THAN 3 INCHES OF VEGETATION AND TOPSOIL FROM AREAS THAT WILL UNDERLAY GRAVEL, PAVEMENT, NEW STRUCTURES, OR NEW EMBANKMENTS. STOCKPILE STRIPPED TOPSOIL ON-SITE FOR REUSE IN FINAL LANDSCAPING.
6. COMMON WEEDING:

A. STERILIZE COMPOUND AREA WITH WEED KILLER/DEFOLIANT. THEN TREAT AREA WITH AN HERBICIDE SUCH AS PARQUET OR EQUIVALENT.
7. COMMON EXCAVATION:

A. EXCAVATE TO DEPTH, LINES, AND GRADES SHOWN ON THE PLANS OR AS OTHERWISE SPECIFIED.

B. TEMPORARILY STOCKPILE ON-SITE EXCAVATION AT AN APPROVED LOCATION WITHIN THE WORK AREA UNTIL SITE GRADING IS COMPLETE. STOCKPILE SHALL NOT EXCEED 15 FEET IN HEIGHT.

C. DISPOSE OF EXCESS EXCAVATION OFF-SITE. MATERIALS REMOVED FROM SITE MUST BE DISPOSED OF IN A LEGAL MANNER.

8. EMBANKMENT:

A. CONSTRUCT EMBANKMENT TO THE LINES AND GRADES SHOWN ON THE DRAWINGS.

B. CONSTRUCT EMBANKMENT FROM ON-SITE EXCAVATION MATERIALS. USE IMPORTED BACKFILL ONLY AFTER AVAILABLE ON-SITE EXCAVATION MATERIALS HAVE BEEN USED.

C. CONSTRUCT IN LIFTS OF NOT MORE THAN 9 INCHES IN LOOSE DEPTH. THE FULL WIDTH OF THE CROSS SECTION SHALL BE BROUGHT UP UNIFORMLY.

D. MATERIAL SHALL BE PLACED IN LAYERS AND SHALL BE NEAR OPTIMUM MOISTURE CONTENT BEFORE ROLLING TO OBTAIN THE PRESCRIBED COMPACTION. WETTING OR DRYING OF THE MATERIAL AND MANIPULATION TO SECURE A UNIFORM MOISTURE CONTENT THROUGHOUT THE LAYER MAY BE REQUIRED. SUCH OPERATIONS SHALL BE INCLUDED IN THE APPROPRIATE BID ITEM. SHOULD THE MATERIAL BE TOO WET TO PERMIT PROPER COMPACTION, REMOVE AND REPLACE FILL WITH MATERIAL IN CONFORMANCE WITH THESE SPECIFICATIONS. IT IS THE CONTRACTOR’S RESPONSIBILITY TO PROVIDE MATERIAL WITH AN ACCEPTABLE MOISTURE CONTENT.

E. WHEN APPLICABLE, DO NOT PLACE FROZEN MATERIAL IN THE EMBANKMENT, AND DO NOT PLACE EMBANKMENT MATERIAL UPON FROZEN MATERIAL.

F. BE RESPONSIBLE FOR THE STABILITY OF EMBANKMENTS AND REPLACE ANY PORTION WHICH HAS BECOME DISPLACED DUE TO THE CONTRACTOR’S OPERATIONS.

G. START LAYERS IN THE DEEPEST PORTION OF THE FILL, AND AS PLACEMENT PROGRESSES, CONSTRUCT LAYERS APPROXIMATELY PARALLEL TO THE FINISHED GRADE LINE.

H. ROUTE EQUIPMENT, BOTH LOADED AND EMPTY, OVER THE FULL WIDTH OF EMBANKMENT TO ENSURE UNIFORMITY OF MATERIAL PLACEMENT.

I. COMPACT EMBANKMENT UNDERLYING NEW GRAVEL PAVING, FLOOR SLABS, AND STRUCTURES TO 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 WITH PLUS OR MINUS 3 PERCENT OF OPTIMUM MOISTURE CONTENT. COMPACT NON-STRUCTURAL AREA EMBANKMENTS TO A MINIMUM OF 90 PERCENT OF ASTM D-1557.
9. SITE GRADING:

A. USING ON-SITE EXCAVATION MATERIALS, SHAPE, TRIM, FINISH, AND COMPACT SURFACE AREAS TO CONFORM TO THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE DRAWINGS OR AS DESIGNATED BY THE CONSTRUCTION MANAGER.

B. GRADE SURFACES TO DRAIN AND ELIMINATE ANY PONDING OR EROSION.

C. ELIMINATE WHEEL RUTS BY REGRADING.

D. CONSTRUCT FINISHED SURFACE OF SITE GRADING AREAS WITHIN ONE INCH FROM SPECIFIED GRADE.

10. SUBGRADE PREPARATION:

A. SHAPE TOP OF SUBGRADE TO THE LINES AND GRADES SHOWN ON THE DRAWINGS.

B. MAINTAIN TOP OF SUBGRADE IN A FREE-DRAINING CONDITION.

C. DO NOT STOCKPILE MATERIALS ON TOP OF SUBGRADE UNLESS AUTHORIZED BY CONSTRUCTION MANAGER.

D. COMPACT THE TOP 6 INCHES OF SUBGRADE TO A 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.

E. REMOVE AND REPLACE SOFT SOILS ON AREAS THAT "PUMP" OR DEFORM UNDER WEIGHT OF COMPACTION EQUIPMENT.

F. CONSTRUCT TOP OF SUBGRADE WITHIN ONE INCH OF ESTABLISHED GRADE AND CROSS-SECTION.
11. GEOTEXTILE FABRIC:

A. LAY GEOTEXTILE FABRIC OVER COMPACTED SUBGRADE AS PER CONSTRUCTION DOCUMENTS IN COMPOUND AND UNDER LENGTH OF ROAD (WHEN REQUIRED). LAP ALL JOINTS A MINIMUM OF 12 INCHES.
12. GRAVEL SURFACING:

A. CONSTRUCT GRAVEL SURFACING AREAS USING CRUSHED AGGREGATE BASE AND FINISH COURSES AS SPECIFIED BY CONSTRUCTION MANAGER OR CONSTRUCTION DOCUMENTS.

B. SPREAD GRAVEL AND RAKE TO A UNIFORM SURFACE.



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NOT FOR CONSTRUCTION

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CLINTON LAKE

1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

SPECIFICATIONS

SHEET NUMBER:

SP-1

CIVIL SPECIFICATION NOTES

TRENCHING:

CONTRACTOR MUST NOTIFY "ONE-CALL" UTILITY LOCATING SERVICE THREE DAYS PRIOR TO CONSTRUCTION TO FLAG ALL UNDERGROUND UTILITIES.

1. MATERIALS:

A. FILL MATERIAL SHALL BE OBTAINED, TO THE MAXIMUM EXTENT POSSIBLE, FROM EXCAVATIONS ON-SITE. THE STRUCTURAL FILL SHOULD BE SAND AND SHALL BE APPROVED BY THE CONSTRUCTION MANAGER AND SHALL CONFORM TO LOCAL GOVERNING JURISDICTION AND UTILITY COMPANY REQUIREMENTS. THE FILL MATERIAL SHALL BE FREE FROM PERCEPTIBLE AMOUNTS OF WOOD, DEBRIS OR TOPSOIL AND SHALL NOT CONTAIN MARBLE OR OTHER ELEMENTS, WHICH TEND TO KEEP IT IN A PLASTIC STATE. MATERIALS DESIGNATED AS HAZARDOUS OR INDUSTRIAL BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA) ARE TO BE AVOIDED. THE FILL MATERIAL SHALL CONTAIN FINES SUFFICIENT TO FILL ALL VOIDS IN THE MATERIAL.

2. PIPE DETECTION AND IDENTIFICATION:

A. UTILIZING WARNING TAPE: ALL ELECTRIC SERVICE TRENCHES SHALL BE MARKED WITH WARNING TAPE.

3. TRENCH EXCAVATION:

A. DIG TRENCH TO LINES AND GRADES SHOWN ON THE PLANS OR AS DIRECTED BY CONSTRUCTION MANAGER.

B. TRENCH WIDTH SHALL BE SUFFICIENT TO ALLOW FOR SATISFACTORY CONSTRUCTION AND INSPECTION OF THE PROJECT, WITHOUT ENDANGERING OTHER CONSTRUCTION WORK OR ADJACENT FACILITIES.

C. DISPOSAL OF EXCESS AND UNSUITABLE EXCAVATION MATERIAL PROPERLY, AS DIRECTED BY CONSTRUCTION MANAGER.

D. USE HAND METHODS FOR EXCAVATION THAT CANNOT BE ACCOMPLISHED WITHOUT ENDANGERING EXISTING OR NEW STRUCTURES OR OTHER FACILITIES.

4. TRENCH PROTECTION:

A. PROVIDE MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO PROTECT TRENCHES AT ALL TIMES.

B. SHEETING AND BRACING: MEET OR EXCEED OSHA REQUIREMENTS.

5. BACKFILLING:

A. A PRELIMINARY EARTH RESISTIVITY TEST SHALL BE PERFORMED PRIOR TO BACKFILLING.

B. BACKFILL AND/OR BEDDING SHALL NOT BE PLACED IN A TRENCH UNTIL THE TRENCH WORK AND BACKFILL HAS BEEN INSPECTED AND APPROVED BY THE CLIENT. CONTRACTOR TO NOTIFY CLIENT'S CONSTRUCTION MANAGER AT LEAST 24 HOURS IN ADVANCE OF EXPECTED BACKFILL.

C. IF BACKFILL MATERIAL IS NOT SUITABLE (CONTAINS DEBRIS OR ROCK), REPLACE WITH A LOW RESISTANCE GROUND ENHANCEMENT MATERIAL.

D. WHENEVER CLIENT REQUIRES THE REMOVAL OF WET OR OTHERWISE UNSTABLE SUBGRADE FROM THE FILL MATERIAL PREVIOUSLY PLACED BY THE CONTRACTOR, THE CONTRACTOR SHALL BEAR THE COST OF ALL REMOVAL OF UNSTABLE SOIL AND WITH BACKFILLING OF THE TRENCH.

E. BACKFILL SHALL BE PLACED AND PACKED DOWN TIGHTLY TO ACHIEVE 95 PERCENT MAXIMUM DRY DENSITY AS OBTAINED THROUGH THE STANDARD PROCTOR METHOD (ASTM D-698).

F. FOLLOWING AN APPROVED INSPECTION, BACKFILL MATERIAL SHALL BE DEPOSITED IN THE TRENCH WITH HAND SHOVELS (NOT BY MEANS OF WHEELBARROWS, CARTS, TRUCKS, BULLDOZERS, OR SIMILAR EQUIPMENT) IN 4" LAYERS AND COMPACTED BY MECHANICAL TAMPERS UNTIL THE CONDUCTOR OR PIPE HAS A COVER OF NOT LESS THAN 12" THE REMAINDER OF THE BACKFILL MATERIAL SHALL THEN BE DEPOSITED IN THE TRENCH IN 8" LAYERS AND MECHANICALLY COMPACTED.

G. PROTECT CONDUIT FROM LATERAL MOVEMENT, DAMAGE FROM IMPACT OR UNBALANCED LOADING TO AVOID DISPLACEMENT OF CONDUIT AND/OR STRUCTURES. ANY SUBSEQUENT SETTLEMENT SHALL BE CONSIDERED THE RESULT OF IMPROPER COMPACTION AND SHALL BE PROMPTLY CORRECTED.

H. IF REQUIRED COMPACTION DENSITY HAS NOT BEEN OBTAINED, REMOVE THE BACKFILL FROM THE TRENCH OR STRUCTURE, REPLACE WITH APPROVED BACKFILL, AND RECOMPACT AS SPECIFIED.

CHAIN LINK FENCES AND GATES

1. GENERAL:

A. PROVIDE CHAIN LINK FENCES AND GATES AS COMPLETE UNITS BY A SINGLE SUPPLY SOURCE INCLUDING NECESSARY ERECTION ACCESSORIES, FITTINGS, AND FASTENINGS.

2. PRODUCTS AND MATERIALS (AS APPROVED BY CONSTRUCTION MANAGER OR AS WITHIN CONSTRUCTION DOCUMENTS):

A. REFER TO DRAWINGS FOR FABRIC HEIGHT AND OVER WITH 2-INCH MESH SHALL BE KNUCKLED AT ONE SELVAGE AND TWISTED AT THE OTHER; ALL MESHES 60 INCHES HIGH AND UNDER SHALL BE KNUCKLED AT BOTH SELVAGES.

B. STEEL FABRIC:

COMPLY WITH CHAIN LINK FENCE MANUFACTURER'S INSTITUTE (CLFMI) PRODUCT MANUAL. FURNISH ONE PIECE OF FABRIC WIDTHS. WIRE SIZE INCLUDES ZINC OR ALUMINUM COATING.

1. SIZE: 2-INCH MESH, 9 GAUGE (0.148-INCH DIAMETER) WIRE.

2. GALVANIZED STEEL FINISH: ASTM A392, CLASS 2, WITH A MINIMUM 2.0 OZ. ZINC PER SQ. FT. OF UNCOATED WIRE SURFACE.

C. FRAMEWORK AND ACCESSORIES:

1. GENERAL REQUIREMENTS: EXCEPT AS INDICATED OTHERWISE, CONFORM TO THE CHAIN LINK FENCE MANUFACTURERS INSTITUTE (CLFMI) PRODUCT MANUAL, INDUSTRIAL STEEL GUIDE FOR FENCE RAILS, POSTS, GATES AND ACCESSORIES.

2. STRENGTH REQUIREMENTS FOR POSTS AND RAILS CONFORMING TO ASTM F1043.

3. TYPE 1 PIPE: HOT-DIPPED GALVANIZED STEEL PIPE CONFORMING TO ASTM F1083, PLAN ENDS, STANDARD WEIGHT (SCHEDULE 40) WITH NOT LESS THAN 1.8 OZ. ZINC PER SQ. FT. OF SURFACE AREA COATED.

4. FITTINGS: COMPLY WITH ASTM F626. MILL FINISHED ALUMINUM OR GALVANIZED STEEL, TO SUIT MANUFACTURER'S STANDARDS.

5. TOP RAIL: MANUFACTURER'S LONGEST LENGTHS, WITH EXPANSION TYPE COUPLINGS, APPROXIMATELY 6 INCHES LONG, FOR EACH JOINT. PROVIDE MEANS FOR ATTACHING TOP RAIL SECURELY TO EACH GATE CORNER, PULL AND END POST.

A. GALVANIZED STEEL: 1-1/4 INCH NPS (1.66 INCH OD) TYPE I OR II STEEL PIPE OR 1.625 INCH X 1.25 INCH ROLL-FORMED C SECTIONS WEIGHTING 1.35 LBS. PER FT.

D. SWING GATES:

COMPLY WITH ASTM F900. PROVIDE HARDWARE AND ACCESSORIES FOR EACH GATE, GALVANIZED PER ASTM A153, AND IN ACCORDANCE WITH THE FOLLOWING:

1. HINGES: NON-LIFT-OFF TYPE, OFFSET TO PERMIT 180 DEG. GATE OPENING.

2. LATCH: FORKED TYPE OR PLUNGER-BAR TYPE TO PERMIT OPERATION FROM EITHER SIDE OF GATE, WITH PADLOCK EYE AS INTEGRAL PART OF LATCH.

3. KEEPER: PROVIDE KEEPER FOR VEHICLE GATES, WHICH AUTOMATICALLY ENGAGES GATE LEAF AND HOLDS IT IN OPEN POSITION UNTIL MANUALLY RELEASED.

4. GATE STOPS: PROVIDE GATE STOPS FOR DOUBLE GATES, CONSISTING OF 2" O.D. x 12" LONG PIPE GATE KEEPER, EMBEDDED IN CONCRETE, AND DESIGNED TO ENGAGE CENTER DROP ROD OR PLUNGER BAR. INCLUDE LOCKING DEVICE AND PADLOCK EYES AS INTEGRAL PART OF LATCH, PERMITTING BOTH GATE LEAVES TO BE LOCKED WITH SINGLE PADLOCK.

E. CONCRETE:

PROVIDE CONCRETE CONSISTING OF PORTLAND CEMENT, ASTM C150, AGGREGATES ASTM C33, AND CLEAN WATER.



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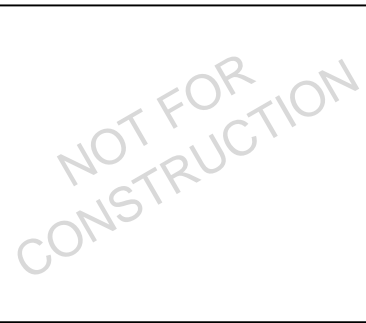
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KHA PROJECT NUMBER:

148468002

ENGINEER SEAL:



PROJECT INFORMATION:

HV962
CLINTON LAKE

1211 E. 600 ROAD
LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

SPECIFICATIONS

SHEET NUMBER:

SP-2

ELECTRICAL SPECIFICATION NOTES

GENERAL NOTES:

- OBTAIN PERMITS AND PAY FEES RELATED TO ELECTRICAL WORK PERFORMED ON THIS PROJECT. DELIVER COPIES OF ALL PERMITS TO CLIENT REPRESENTATIVE.
- SCHEDULE AND ATTEND INSPECTIONS RELATED TO ELECTRICAL WORK REQUIRED BY JURISDICTION HAVING AUTHORITY. CORRECT AND PAY FOR ANY WORK REQUIRED TO PASS ANY FAILED INSPECTION.
- ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM APPROVED BY CLIENT TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED 3 OHMS TO GROUND. THE COMPLETED SITE SHALL BE TESTED AND A REPORT SENT TO CLIENT REPRESENTATIVE.
- REDLINED AS-BUILTS ARE TO BE DELIVERED TO CLIENT REPRESENTATIVE.
- PROVIDE TWO COPIES OF OPERATION AND MAINTENANCE MANUALS IN THREE-RING BINDER.
- FURNISH AND INSTALL THE COMPLETE ELECTRICAL SERVICE, CABLE TRAY, TELCO CONDUIT AND GROUNDING SYSTEMS.
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A NEAT MANNER, AND SHALL BE SUBJECT TO APPROVAL BY CLIENT REPRESENTATIVE.
- CONDUCT A PRE-CONSTRUCTION SITE VISIT AND VERIFY EXISTING SITE CONDITIONS AFFECTING THIS WORK. REPORT ANY OMISSIONS OR DISCREPANCIES FOR CLARIFICATION PRIOR TO THE START OF CONSTRUCTION.
- PROTECT ADJACENT STRUCTURES AND FINISHES FROM DAMAGE. REPAIR TO ORIGINAL CONDITION ANY DAMAGED AREA.
- REMOVE DEBRIS ON A DAILY BASIS. DEBRIS NOT REMOVED IN A TIMELY FASHION WILL BE REMOVED BY OTHERS AND THE RESPONSIBLE SUBCONTRACTOR SHALL BE CHARGED ACCORDINGLY. REMOVAL OF DEBRIS SHALL BE COORDINATED WITH THE CLIENT'S REPRESENTATIVE. DEBRIS SHALL BE REMOVED FROM THE PROPERTY AND DISPOSED OF LEGALLY. USE OF THE PROPERTY'S DUMPSTER IS PROHIBITED.
- UPON COMPLETION OF WORK, THE SHELTER SHALL BE CLEAN AND FREE OF DUST AND FINGERPRINTS.
- ALL CONSTRUCTION SHALL BE INSPECTED AND APPROVED BY LOCAL AUTHORITIES.
- WIRING DEVICES AND EQUIPMENT SHALL BE UL LISTED AND SPECIFICATION GRADE.
- FUSES IN SERVICE SWITCHES SHALL BE CLASS "J" CURRENT LIMITING TYPE, 200,000 A.I.C. DISCONNECT SWITCHES TO HAVE REJECTION CLIPS.
- MATERIALS SHALL BE NEW AND CONFORM TO THE APPLICABLE STANDARDS ESTABLISHED FOR EACH ITEM BY THE ORGANIZATIONS LISTED BELOW:
 - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
 - UNDERWRITER'S LABORATORY (UL)
 - NATIONAL ELECTRICAL MANUFACTURING ASSOCIATION (NEMA)
 - AMERICAN STANDARDS ASSOCIATION (ASA)
 - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
- INSTALLATION OF MATERIALS SHALL COMPLY WITH REGULATIONS OF:
 - THE NATIONAL ELECTRICAL CODE (NFPA 70)
 - THE NATIONAL ELECTRICAL SAFETY CODE (ANSI C-2)
 - THE LIFE SAFETY CODE (NFPA 101)
 - LIQUEFIED PETROLEUM GAS (NFPA58)
 - LOCAL CODES
- ALL CONDUITS SHALL BE SUPPORTED AS PER 2008 N.E.C (NFPA70).

GROUNDING NOTES:

- PROVIDE GROUNDING AND BONDING IN ACCORDANCE WITH TIA-607, "COMMERCIAL BUILDING & BONDING REQUIREMENTS FOR TELECOMMUNICATIONS" AND IEEE 1100, "GUIDE FRO MEASURING EARTH RESISTIVITY, GROUND IMPEDANCE AND EARTH SURFACE POTENTIALS OF A GROUND SYSTEM" LATEST EDITION UNLESS DIRECTED OTHERWISE BY DRAWINGS, NATIONAL ELECTRICAL CODE, OR AUTHORITIES HAVING JURISDICTION. THE ABOVE REFERENCED SPECIFICATIONS ARE AN INTEGRAL PART OF THE DESIGN DOCUMENTS AN MUST BE STRICTLY ADHERED TO. WHERE CONFLICTS BETWEEN THIS SPECIFICATION, CODES, AND AUTHORITIES HAVING JURISDICTION ARISE, THE MOST STRINGENT SHALL GOVERN. BUSS CONNECTORS SHALL BE 2-HOLE LONG BARREL TYPE COMPRESSION LUGS.
- LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS AND STAR AND LOCK WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
- SURFACE CONNECTIONS SHALL BE MADE TO BARE METAL. PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. APPLY NON-OXIDIZING AGENT TO CONNECTIONS.
- COPPER BUSSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
- GROUND CONDUCTOR RUNS SHALL BE STRAIGHT AS POSSIBLE, WITH A 6" MINIMUM RADIUS FOR CONDUCTORS UP TO #6, A 12" MINIMUM RADIUS FOR CONDUCTORS FROM #6 UP TO #4/0, A 24" MINIMUM RADIUS FOR #4/0 CONDUCTORS AND UP.
- HARDWARE (I.E., NUTS BOLTS, WASHERS, ETC.) IS TO BE STAINLESS STEEL.
- GROUND COAXIAL CABLES AT POINTS SHOWN ON GROUNDING RISER DIAGRAM WITH MANUFACTURER'S GROUNDING KITS.
- GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE (CADWELD) TO GROUND RING AND GROUND RODS. REMAINING GROUNDING CONNECTIONS SHALL BE MECHANICAL CONNECTIONS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
- GROUND RING COMPRISED OF #2 SOLID BARE TINNED COPPER CONDUCTOR SHALL HAVE A MINIMUM DISTANCE OF 24" FROM THE STRUCTURE AND BE BURIED A MINIMUM OF 42" BELOW GRADE.
- CADWELD GROUND RODS TO GROUND RING. RODS TO BE MINIMUM 5/8" x 8'-0" GALVANIZED STEEL OR AS DIRECTED BY LOCAL UTILITY CODES. THE TOP OF GROUND ROD SHALL EXTEND NO MORE THAN 6 INCHES ABOVE THE BOTTOM OF THE TRENCH.
- INTERCONNECT SHELTER GROUND RING AND TOWER GROUND RING WITH EXOTHERMIC WELD.
- INSTALL GROUNDING KIT. BOND COAXIAL CABLE OUTER CONDUCTOR TO GROUNDING CONDUCTOR.
- INSTALL GROUND RODS ON EXTERNAL GROUND RING AT 10' MIN. INTERVALS, 15' MAX. BOND EXTERNAL GROUND RING TO FENCE POSTS AT 20' INTERVALS, MAXIMUM.
- ALL ELECTRICAL GROUNDING SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC) AND THE LATEST EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780, APPROVED BY LOCAL AUTHORITY.
- ALL GROUNDING CONNECTIONS SHALL BE COATED WITH AN ANTI-CORROSIVE AGENT SUCH AS "T&B KOPR SHIELD", "NO-OXY", "NOALOX" OR "PENETROX". VERIFY PRODUCT WITH CONSTRUCTION ENGINEER.
- GROUND WIRES SHALL BE #2 SOLID BARE TINNED COPPER FROM CONDUCTOR FOR BONDING CONNECTIONS UNLESS OTHERWISE NOTED ON PLANS.
- DOCUMENT GROUND RING INSTALLATION AND CONNECTIONS WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PRESENT PHOTO ARCHIVE AT SITE "PUNCH LIST" WALK TO CLIENT REPRESENTATIVE.
- THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDED USING LOCKNUTS AND BONDING NUTS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTORS. RECEPTACLES AND EQUIPMENT BRANCH CIRCUITS SHALL BE GROUNDED WITH A FULL-SIZED EQUIPMENT GROUNDING CONDUCTOR RUN IN THE CIRCUIT'S CONDUIT.

- GROUNDING SYSTEM SHALL BE INSPECTED DURING CONSTRUCTION AND BEFORE BACKFILLING. REFER TO VERIZON WIRELESS STANDARD NSTD46 FOR ADDITIONAL REQUIREMENTS.
- MAKE BONDING CONNECTIONS TO ELEMENTS UNDER TENSION (SUCH AS DOWN GUYS) USING COMPRESSION FITTINGS.
- PERMANENT CONNECTIONS SHALL BE EITHER EXOTHERMIC WELDS OR IRREVERSIBLE COMPRESSION CONNECTIONS. GROUND CONNECTIONS THAT WILL BE REMOVED DURING TESTING SHALL BE MECHANICAL TYPE FITTINGS.
- WHEN THE METALLIC FENCING RAILS SPAN FROM POST TO POST CREATING A CONDUCTIVE PATH, CONNECTION POINTS ALONG FENCE SHALL NOT EXCEED 20'. IF RAILS ARE NOT PRESENT, EACH FENCE POST MUST BE BONDED TO GROUND RING.

FAA NOTES:

- THE FLASHING STROBE LIGHTS, MARKER LIGHTS, FAA LIGHTING CONTROL PANEL AND MOUNTING DETAIL, ALL REQUIRED WIRING (INCLUDING CONDUITS AND WIRES AS SHOWN ON THE DRAWINGS) AND PHOTOCELL UNIT SHALL BE SUPPLIED BY THE TOWER MANUFACTURER.
- THE STROBE LIGHTS, MARKER LIGHTS, PHOTOCELL UNIT AND FAA LIGHTING CONTROL PANEL AND ALL NECESSARY ACCESSORIES FOR MOUNTING AND WIRING SHALL BE INSTALLED AS SHOWN ON DRAWINGS AND IN ACCORDANCE WITH MANUFACTURER INSTALLATION STANDARDS. INSTALLATION BY CONTRACTOR.
- THE PHOTO SENSOR MUST BE MOUNTED OUTSIDE FACING THE UNOBSTRUCTED NORTHERN SKY AND AWAY FROM ALL ARTIFICIAL LIGHTS.
- RELAY CONTACTS FOR THE ALARM ACTUATED BY:
 - POWER FAILURE.
 - OBSTRUCTION MARKER LIGHT FAILURE
- RELAY CONTACTS FOR MARKER ACTUATED BY:
 - POWER FAILURE
 - MISSED ALARM FLASHES FOR RED AND WHITE
 - INCORRECT INTENSITY
 - PHOTOELECTRIC CELL FAILURE
 - MODE STATUS CHANGE
- THE FAA LIGHTING CONTROL PANEL SHALL BE INSTALLED AT THE BASE OF THE TOWER OR AT A CONVENIENT LOCATION IN ACCORDANCE WITH THE TOWER SUPPLIER DESIGN AND IN ACCORDANCE WITH THE NFPA 37 & 58 REQUIREMENTS. CONTROL PANELS SHALL BE LOCATED AT A DISTANCE OF 15' (MIN.) AWAY FROM ANY FUEL TANK.
- ALL WIRING FROM THE FAA LIGHTING CONTROL PANEL TO THE STROBE LIGHTS, MARKER LIGHTS, AND PHOTOCELL UNIT SHALL BE PERFORMED IN ACCORDANCE WITH MANUFACTURER INSTALLATION STANDARDS. INSTALLATION BY CONTRACTOR.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH FAA, FCC REGULATIONS, NEC AND CODES THAT ARE ADOPTED BY THE AUTHORITY HAVING JURISDICTION.
- CONTRACTOR SHALL REFER TO NSTD46 SECTION 11.9 IN THE CLIENT GROUNDING SPECIFICATIONS FOR FURTHER INFORMATION.
- CONTRACTOR SHALL REFER TO LIGHTING MANUFACTURERS SPECIFICATIONS FOR FURTHER INFORMATION.
- CONTRACTOR SHALL SUPPORT AND SECURE S.O. CORD TO TOWER AT LEAST EVERY 100' OR PER THE LIGHTING MANUFACTURERS SPECIFICATIONS.



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REV: DATE: DESCRIPTION: BY:

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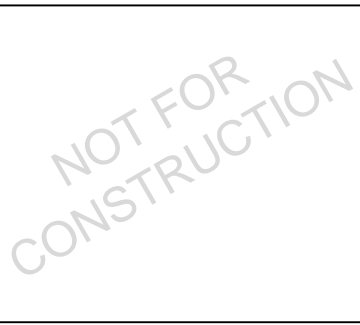
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ENGINEER SEAL:



PROJECT INFORMATION:

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CLINTON LAKE


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LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

SPECIFICATIONS

SHEET NUMBER:

SP-3

PLANT MATERIAL LIST				
SYMBOL	QTY	COMMON NAME	BOTANICAL NAME	SPECIFICATIONS
	108 EA	SAND CHERRY	PRUNUS BESSEYI	18-24" HT AT PLANTING, 36" O.C., 2 GAL. SIZE MIN.

LANDSCAPE INSTALLATION NOTES:

- SIZES SPECIFIED IN THE PLANT LIST ARE MINIMUM SIZES TO WHICH THE PLANTS ARE TO BE INSTALLED.
- ALL LANDSCAPING SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE DOUGLAS COUNTY STANDARDS AND IN ACCORDANCE WITH CURRENT INDUSTRY STANDARDS IN A NEAT, HEALTHY, AND WEED FREE CONDITION.
- IT IS THE LANDSCAPE CONTRACTORS RESPONSIBILITY TO ENSURE THAT ALL PLANT BED AREAS HAVE PROPER DRAINAGE FOR OPTIMUM GROWTH OF LANDSCAPE MATERIAL BEFORE INSTALLATION BEGINS.
- THE CONTRACTOR SHALL ENSURE THAT ALL PLANTING ISLANDS AND OTHER AREAS SHALL BE CLEAN OF TRASH, CONSTRUCTION DEBRIS OTHER WASTE MATERIALS TO A DEPTH OF 24" PRIOR TO LANDSCAPE INSTALLATION.
- THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL UNDERGROUND AND OVERHEAD UTILITIES. PLANT MATERIAL IS TO BE LOCATED SUCH THAT IT WILL NOT INTERFERE WITH ANY UNDERGROUND OR OVERHEAD UTILITIES.
- ALL PLANT BEDS AND TREE RINGS SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE AND THEN TOP-DRESSED WITH 3" DEEP PINE BARK MULCH. ALL NEW TREES SHALL HAVE A TREE RING WITH A MINIMUM 24" RADIUS, ALL NEW TREES AND PALMS SHALL BE STAKED.
- TREES, SHRUBS AND GROUND COVER SHALL BE INSTALLED USING THE FOLLOWING PROCEDURE: PLANT PITS SHALL BE EXCAVATED TO TWICE THE DIAMETER OF THE PLANT ROOT BALL. AERATE EXISTING SOIL BEFORE BACKFILLING PIT. ADD AGRIFORM FERTILIZER TABLETS TO EACH PLANT PIT, AS PER THE SPECIFICATIONS.
- THE CONTRACTOR MUST MAINTAIN THE LANDSCAPING FOR 1 YEAR FROM THE DATE OF CONSTRUCTION COMPLETION. THIS INCLUDES BUT IS NOT LIMITED TO WATERING AND INSURING THAT THE LANDSCAPING DOES NOT DIE. IF ANY OF THE LANDSCAPING DIES WITHIN THE 1 YEAR TIME FRAME, THE CONTRACTOR MUST REPLACE IT WITH EQUIVALENT LANDSCAPING. LOCAL JURISDICTION WATERING GUIDELINES SHALL BE FOLLOWED THOROUGHLY.
- CONTRACTOR MUST CONFIRM LANDSCAPE REQUIREMENTS AND SPECIFICATIONS WITH LOCAL JURISDICTION.
- IF EXISTING TREES REMAIN, LOCATION/SPACING OF NEW TREES MAY BE MODIFIED TO AVOID CONFLICT.

PROPOSED SAND CHERRY SHRUBS.
REFER TO PLANT MATERIAL LIST.

PROPOSED HORVATH 75'-0" x 75'-0"
FENCED COMPOUND.

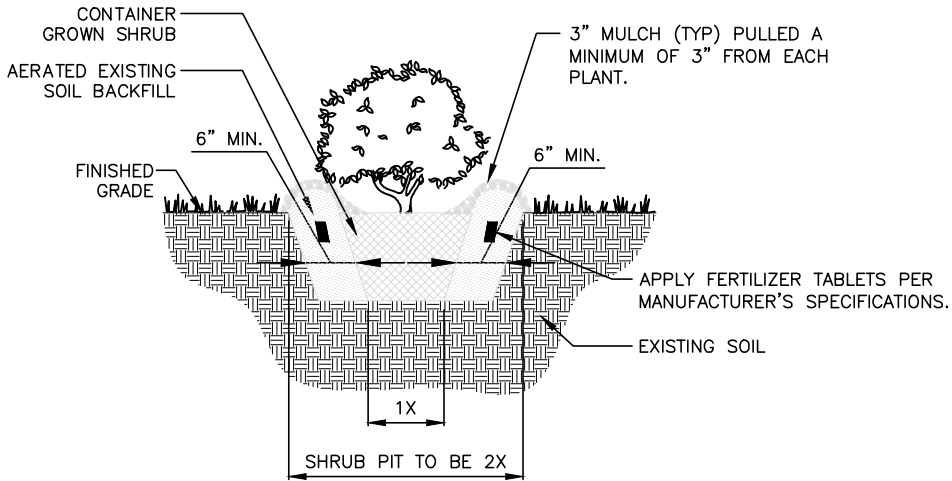
PROPOSED HORVATH 100'-0" x 100'-0"
LEASE AREA. REFER TO SURVEY.

PROPOSED HORVATH 180'-0" SELF-SUPPORT
TOWER IN ACCORDANCE WITH TOWER
MANUFACTURERS SPECIFICATIONS.

PROPOSED HORVATH
14' WIDE DOUBLE
SWING GATE.

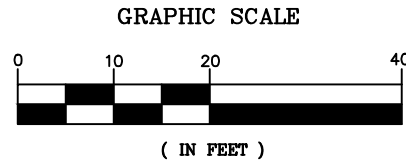
PROPOSED 20' WIDE
GRAVEL ACCESS DRIVE.

PROPOSED VERIZON WIRELESS
11'-6" X 25'-5 1/2" EQUIPMENT SHELTER.



2
L-1
SHRUB PLANTING DETAIL
SCALE: N.T.S.

1
L-1
LANDSCAPE PLAN
SCALE: 1" = 20'
SCALE BASED ON 11"x17" ONLY



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LAWRENCE, KS 66047
DOUGLAS COUNTY

SHEET TITLE:

**LANDSCAPE PLAN
AND DETAILS**

SHEET NUMBER:

L-1



From: Hank Madden – RF Engineer, Verizon Wireless

December 23, 2014

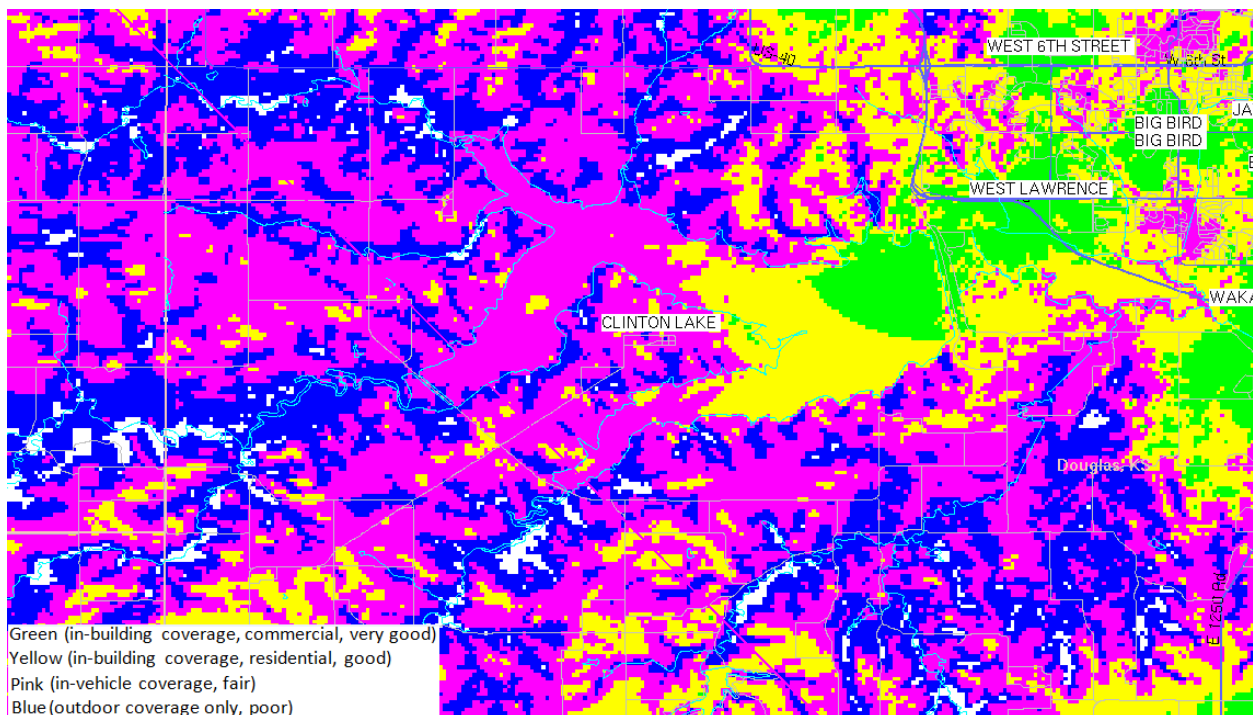
To: **The City Representatives**

RE: **Proposed Clinton Lake cell site**

Dear City/County Representatives,

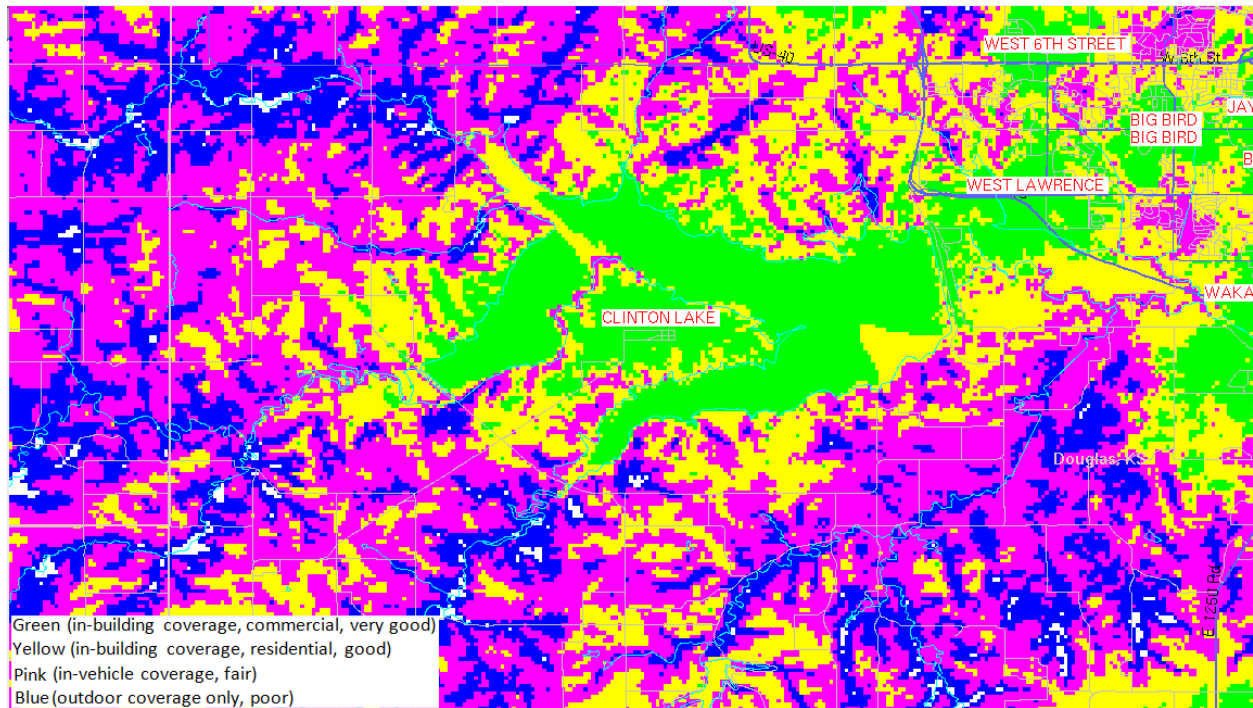
Verizon Wireless is proud to serve the greater Lawrence, KS area and we are always diligent to maintain excellent service and improvements. At this time, we are trying to enhance the area of Clinton Lake located just southwest of the city of Lawrence, KS where coverage service reliability and data performance must be improved. The primary area that needs improvement at this time is the community of Clinton and the areas just west and southwest of the lake. The fast growing 4G (LTE) data usage has required us to plan for a new cell site in this area to improve coverage and data performance. The current signal level in this area is shown below, Map 1.

Map 1 – Existing Coverage



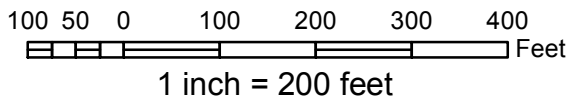
Below is Map 2 showing coverage improvement with the proposed new cell site, Clinton Lake. Notice that the community of Clinton and much of the lake area should improve significantly.

Map 2 – Coverage with the new cell site



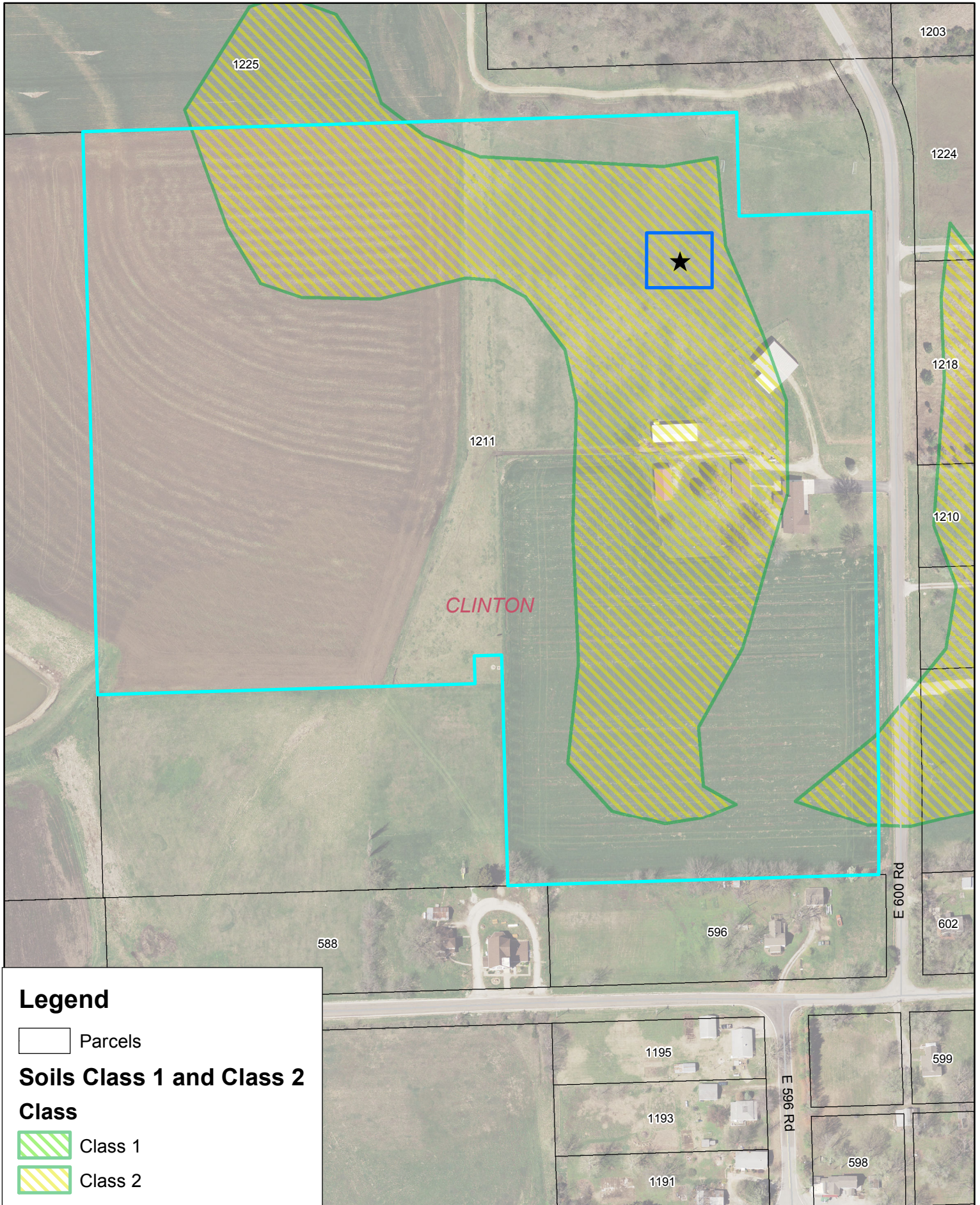
As 4G (LTE) data usage continues to increase dramatically as wireless customers utilize their phones for more day to day task and recreation, the demand also increases to meet these needs by creating new opportunities to develop methods of improving coverage, capacity, and data throughput. The most challenging is capacity and data throughput. Verizon Wireless is meeting the expectations of our customers by designing this proposed cell site in the Clinton Lake area.

This coverage improvement will afford our customers the best possible data performance at the location identified. Verizon Wireless continues to strive to provide the best possible wireless experience for its customers while still recognizing the needs and desires of the surrounding community and being a good neighbor.




DISCLAIMER NOTICE
The map is provided "as is" without warranty or any representation of accuracy, timeliness or completeness. The burden for determining accuracy, completeness, timeliness, merchantability and fitness for or the appropriateness for use rests solely on the requester. The City of Lawrence makes no warranties, express or implied, as to the use of the map. There are no implied warranties of merchantability or fitness for a particular purpose. The requester acknowledges and accepts the limitations of the map, including the fact that the map is dynamic and is in a constant state of maintenance, correction and update.

Date: 2/3/2015



Legend

 Parcels

Soils Class 1 and Class 2

Class

 Class 1

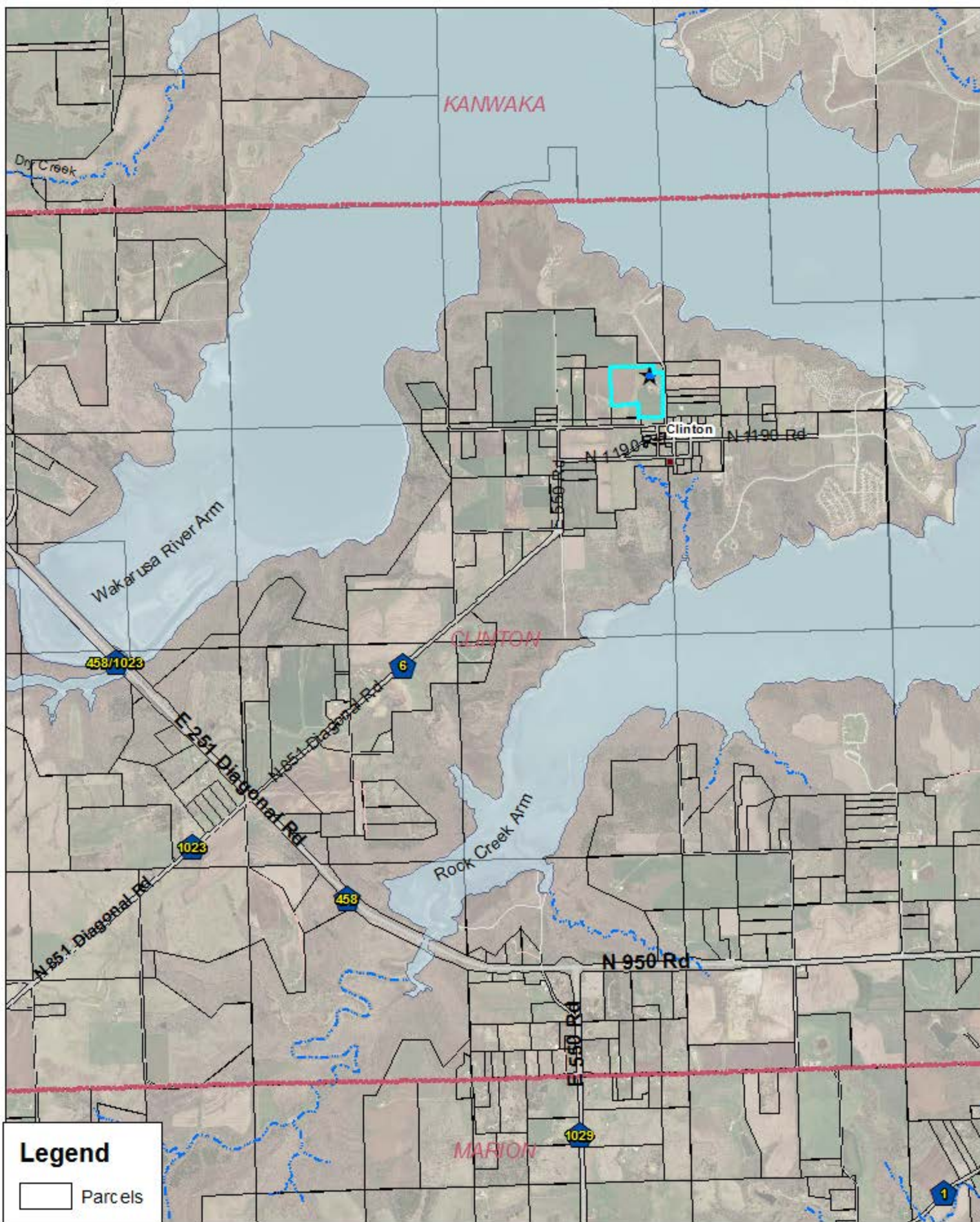
 Class 2

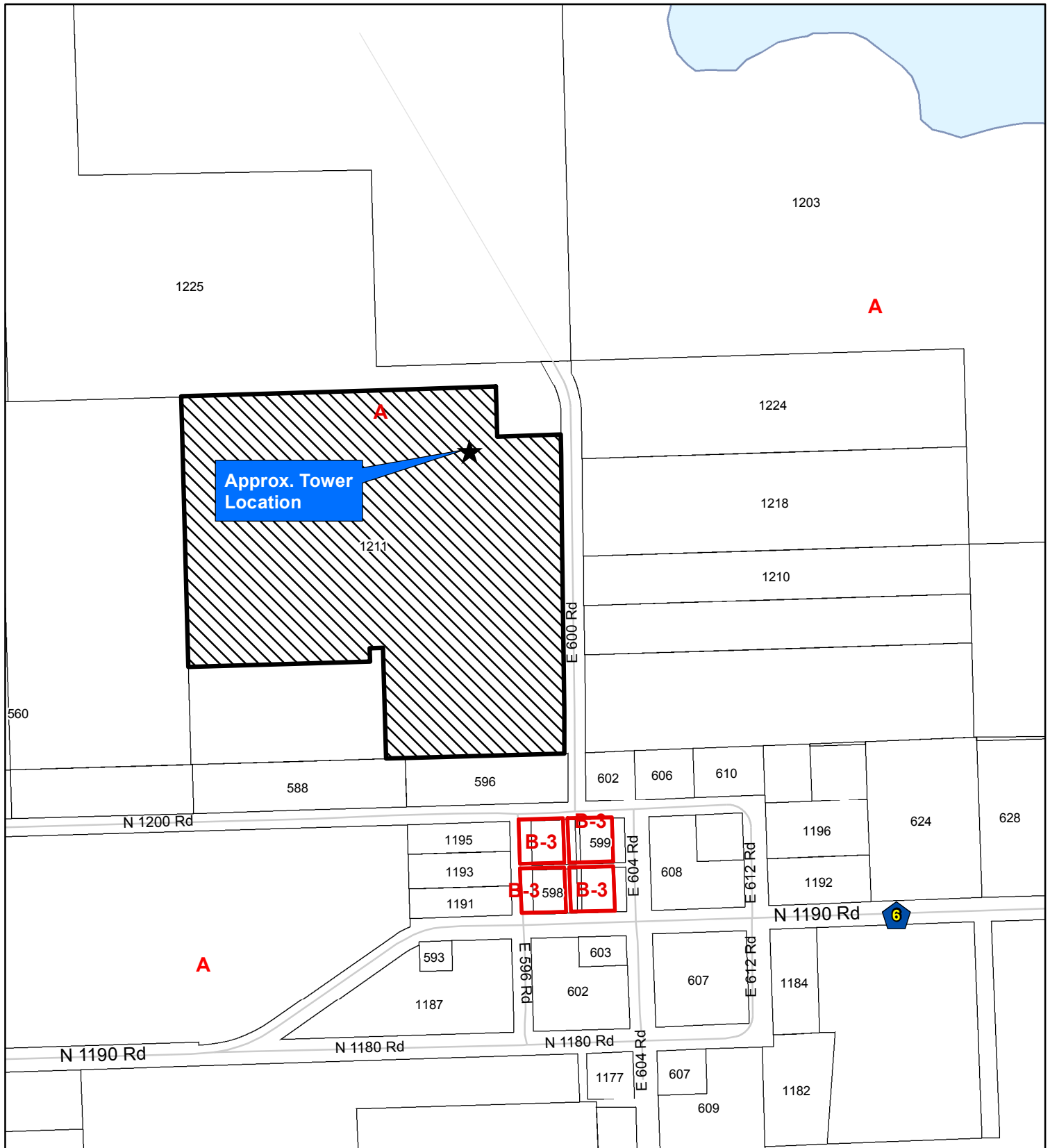
1,400 0 1,400 2,800 4,200 5,600
Feet
1 inch = 3,000 feet

DISCLAIMER NOTICE

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Date: 2/13/2015





**CUP-14-00550: Conditional Use Permit for a New
Verizon Wireless Communications Tower
Located in the Northeast Corner of 1211 E 600 Road**

Lawrence-Douglas County Planning Office
February 2015

 Subject Property



I own the property north of the proposed Verizon tower location. I do not want this tower erected right next to my home.

- 1) City of Lawrence declined Verizon a tower permit after public opposition during the City Commission meeting 9 DEC 2014.
 - a. Neighbors stated the tower was too close to their homes and would lower property values.
 - b. My home should be given the same considerations as the homes of Lawrence residents.
- 2) What is the full scope of this project? The height of the tower has increased since we received notification of the intent to build next to our property.
 - a. A letter from SSC, Inc. dated 22 DEC 2014 states the tower is 180' in height.
 - b. A letter from the City of Lawrence dated 30 JAN 2014 states the tower is 198'.
 - c. How big is this structure?
 - d. What support facilities accompany the tower?
 - e. Will there be permanent noise producing equipment (generators or transformers) on site?
- 3) If this tower is permitted, what plans are there to remove the tower once its permitted purpose is no longer viable?
 - a. Is there a bond or fund established to remove the tower?
 - b. Is the property owner responsible to remove the tower once it becomes obsolete or the company finds a better deal elsewhere?
 - c. The microwave tower building in downtown Lawrence is a good example of an unsightly structure that no longer serves its permitted purpose to house defunct microwave technology.
- 4) If this tower is permitted, will there be construction activities on my property?
 - a. Someone placed (and did not remove) surveyor stakes on my property adjacent to the proposed tower site late last year. I found one stake with my tractor tire while mowing.
 - b. Will workers expect to use my land to access the building site?
 - c. Will I be compensated for use of and any damage caused to my property?
- 5) Has the builder considered alternative sites that afford a greater stand-off distance from occupied residences?
- 6) The Clinton lake water tower is less than a mile from the proposed building site of this tower.
 - a. Can the company use this water tower in lieu of or to augment construction of a new tower?
- 7) There are already seven (7) towers and 24 antennas supporting cellular signals within a four (4) mile radius from my home.
 - a. Can the use of additional low visibility antennas achieve the similar results to the construction of a new tower?
- 8) If this tower is permitted, it will lower the resale value of my home and property. This fact is based on common sense.
 - a. Would you want a 198' tower in your neighbor's yard?
 - b. Realtors will struggle to sell my home at a price comparable to similar properties because it has a huge tower next to it.
 - c. You'll not see too many home listings offering a beautiful view of a cellphone tower to entice prospective buyers.
- 9) Current studies have determined no harmful effects to humans living next to cellphone towers. We used to line our homes and protective clothing with asbestos too.

Dan Hodges

1225 E 600 Rd.