



**REVIEW BY FORT BEND COUNTY  
COMMISSIONERS COURT**

**Fort Bend County  
Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytx.gov

**Right of Way Permit**

**Commercial Driveway Permit**

Permit No: 2016-10755

**Applicant:** Crown Castle NG General LLC/Shift Companies

**Job Location Site:** WEST OF N.W.C. OF ROESNER RD AND SILVER HEARTH LN, KATY, TX  
77494

**Bond No.** [REDACTED] **Date of Bond:** 5/12/2014 **Amount:** \$50,000.00

The above applicant came to make use of certain Fort Bend County property subject to, "The Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Chapter 181, Vernon's Texas Statutes and Codes Annotated.

**Notes:**

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
  - a. 48 hours in advance of construction start up, and
  - b. When construction is completed and ready for final inspection, submit notification to Permit Administrator thru [MyGovernmentOnline.org](http://MyGovernmentOnline.org) portal.
3. This permit expires one (1) year from date of permit if construction has not commenced.

On this 13th day of December, 2016, Upon Motion of Commissioner Meyers, seconded by Commissioner Palterson, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

**Signature**

By: Charles O. Ay  
for County Engineer

By: N/A  
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Date Recorded 12-2-16 Comm. Court No. 13T

Clerk of Commissioners Court  
By: Ronda Willes  
Deputy



**PERMIT APPLICATION REVIEW FORM FOR  
CABLE, CONDUIT, AND POLE LINE ACTIVITY  
IN FORT BEND COUNTY**

**Fort Bend County  
Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytexas.gov

- Right of Way Permit**  
 **Commercial Driveway Permit**

Permit No: 2016-10755

The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

**(1) COMPLETE APPLICATION FORM:**

- a. Name of road, street, and/or drainage ditch affected.  
 b. Vicinity map showing course of directions  
 c. Plans and specifications

**(2) BOND:**

- County Attorney, approval when applicable.
- Perpetual bond currently posted.      Bond No:                           Amount: \$50,000.00
- Performance bond submitted.      Bond No:                           Amount:
- Cashier's Check      Check No:                           Amount:

**(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):**

\_\_\_\_\_  
Drainage District Approval

\_\_\_\_\_  
Date

**We have reviewed this project and agree it meets minimum requirements.**

*Charly O. AJ*

\_\_\_\_\_  
Permit Administrator

*12/6/16*

\_\_\_\_\_  
Date

# SHIFT

November 28, 2016

Carmen Escobar, CFM  
Permit Administrator  
Fort Bend County Engineering  
301 Jackson St, Richmond, TX 77469

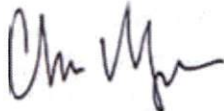
**RE: Cinco Ranch Traffic Control Plan  
- Shift Project #160614**

Carmen,

Per our conversation on the phone, the work we are doing in the ROW will not require any road closures. There is no TCP required, the contractor will take adequate measure to ensure they are not impeding the public way.

Please let me know if you need anything else.

Thank you,



Chris Myers  
Principal  
SHIFT Companies



**PROJECT NAME:** CINCO RANCH EXPANSION  
**PROJECT ADDRESS:** ROESNER RD & SILVER HEARTH LN  
**PROJECT TYPE:** METAL SLIMLINE POLE  
**HUB AREA:** CINCO RANCH - HGCW  
**NODE #(s):** CCR-45  
**COORDINATES:** LAT: 29.737675, LONG: -95.819318

PROJECT TEAM	
<b>ARCHITECT</b>	<b>OWNER INFO</b>
Company: SHIFT CONSULTING Address: 7333 E. MONTE VISTA RD SCOTTSDALE, AZ 85257 Phone Number: 480.264.0826 Fax Number: 480.264.0163 Contact: CHRIS MYERS	Company: CROWN CASTLE Address: 1220 AUGUSTA DR HOUSTON, TX 77057 Phone #: 817.448.3113 Email: BARRY.CAMPALU@CROWNCASTLE.COM Contact: BARRY CAMPALU
<b>STRUCTURAL</b>	<b>RF ENGINEER</b>
Company: T.B.D. Address: _____ Phone Number: _____ Fax Number: _____ Contact: _____	Company: CROWN CASTLE Address: 1220 AUGUSTA DR HOUSTON, TX 77057 Phone Number: _____ Fax Number: _____ Contact: _____
<b>FIBER ENGINEERING</b>	
Company: TDC2 Address: 710 EAST PARK BLVD. SUITE 110 PLANO, TX 75074 Phone: 972.423.6680 Email: sct@tdc2.com Contact: SCOTT CRUM	

PROJECT SUMMARY	
<b>PROJECT NAME:</b> CINCO RANCH EXPANSION	<b>APPLICANT:</b> CROWN CASTLE 1220 AUGUSTA DR HOUSTON, TX 77057 CONTACT: BARRY CAMPALU
<b>PROJECT AREA:</b> CINCO RANCH - HGCW	<b>CODES:</b> 2008 INTERNATIONAL BUILDING CODE (IBC) 2008 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) 2008 NATIONAL ELECTRICAL CODE (NEC) 2008 NATIONAL ELECTRICAL SAFETY CODE (NESC)
<b>JURISDICTION:</b> FORT BEND COUNTY ENGINEERING DEPT 1124 BLUME RD. ROSENBERG, TX 77471 PH: 281.933.7500 CONTACT: JOHNNY ORTEGA	<b>PLUMBING REQUIREMENTS:</b> FACILITY HAS NO PLUMBING.
<b>HANDICAPPED REQUIREMENTS:</b> -FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. -HANDICAPPED ACCESS REQUIREMENTS ARE NOT REQUIRED.	<b>POWER COMPANY:</b> CENTERPOINT ENERGY 5431 HIGHWAY BLVD. KATY, TX 77494 PH: 281.520.6275 CONTACT: KEN CORTEZ

NOTE: NOT ALL SITES ARE INCLUDED IN THIS SET. SEE NODE #5 AND #6 FOR SITES THAT ARE IN THIS SET.



**PROJECT DESCRIPTION**

CROWN CASTLE PROPOSES TO PROVIDE AN ENHANCED RESIDENTIAL WIRELESS COMMUNICATIONS SYSTEM FOR THE KATY, TEXAS AREA. THE SYSTEM WILL IMPROVE CELLULAR COMMUNICATIONS AND INCREASE CALL CAPACITY. THE NETWORK AND ASSOCIATED EQUIPMENT HAVE BEEN DESIGNED TO MINIMIZE VISUAL IMPACTS IN URBAN SETTINGS. THE PROPOSED SYSTEM WILL PROVIDE A CELLULAR NETWORK THAT CAN BE UTILIZED SIMULTANEOUSLY BY DIFFERENT LICENSED TELECOMMUNICATIONS COMPANIES.

A SUBJECT NODE WILL CONSIST OF NEW METAL SLIMLINE POLE. THEY WILL HAVE GROUND MOUNTED RADIO EQUIPMENT INSIDE A CABINET WITH A METER AND DISCONNECT ATTACHED. THERE WILL ALSO BE POLE-TOP ANTENNAS CONCEALED IN SHROUDS

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**FORT BEND COUNTY ENGINEER**  
 ENGINEER: *Richard W. Stables, PE, PTOE*  
 FOR: Richard W. Stables, P.E.  
 DATE: 11/11/16  
 THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN (1) YEAR FROM DATE OF APPROVAL.  
 APPROVED: *[Signature]*  
 Development Coordinator  
 DATE: 11/11/16

TEAM MEMBERS REVIEW	REVIEWED/DATE
R.F. ENGINEERING	
PRODUCT MANAGEMENT	
NETWORK REAL ESTATE TEAM	
UTILITY TEAM	
IMPLEMENTATION	
OPERATIONS	



CROWN CASTLE  
 800 E. JOHN CARPENTER Fwy  
 SUITE 200  
 IRVING, TX 75060

RECORD DRAWINGS ISSUE DATE: 10/16/16



Shift Companies, LLC  
 12311 F. ROAD 18TH FLOOR  
 SCOTTSDALE, ARIZONA 85257  
 PH: 480.264.0826  
 FAX: 480.264.0828

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RELEASE	
DATE	SUBMITTAL
6/29/16	1ST CITY SUBMITTAL
10/16/16	2ND CITY SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT
	10/16/16	CITY COMMENTS

**PROJECT NAME**  
 CINCO RANCH EXPANSION

**NODE ADDRESS**  
 NODE #:**CCR-45**  
 ROESNER RD & SILVER HEARTH LN

**HUB AREA**  
 CINCO RANCH - HGCW

**SHIFT JOB NUMBER** | **IN HOUSE**  
 150802 | DRAWN BY: BA  
 CHECKED BY: CM

**SHEET TITLE**  
 TITLE SHEET

**SHEET NUMBER** | **PAGE**  
 T1.1 | 1 OF 14

PLOT SCALE: 1:1 @ 24x36; 1:2 @ 11x17

PART 2 - EXECUTION	
<b>2.1</b>	<b>EXECUTION</b>
A	Provide (1) main ground from the antenna mounting bracket at the top of the pole to the main ground bus bar (TMGB) (location defined below). Main ground shall consist of #4 or #6 solid bare copper cable as highly susceptible to theft and may be a bit excessive to run to top of pole. #2 tin coated is recommended by Ops. As its cheaper and less likely to be stolen. Bare wire may also be used to connect to the top of the pole and spliced every 4' with corrosion resistant copper galvanneal sleeves.
B	Provide (2) main ground from the main ground bus bar (TMGB) (location defined below) to a ground rod as per the pole base. Main ground vertical consist of #4 or #6 solid bare copper cable. Bare ground shall be protected by a PVC U-Channel to the bottom of the pole and spaced every 24" with corrosion resistant copper galvanneal sleeves.
C	Ground rods shall be #4 in depth minimum and copper clad.
D	Ground rods shall be placed per NEC code with regards to depth and distance from wood pole.
E	Ground rods shall be located minimum of 2' from building.
F	#2 ground rod shall be attached directly to the ground rod via GalvWeld.
G	Main ground vertical shall be attached directly to a ground bus bar (TMGB) mounted to the base of the utility pole. Method of contact shall be 2 hole welded lug (WHL) to the main ground bus (TMGB) on the left or top set depending on the orientation of the TMGB.
H	Main ground vertical shall be attached directly to an antenna mounting bracket at an elevated directly to the antenna bracket via a self-tapping bolt or screw. A washer must be added to the thru bolt or screw to avoid damage to the lug while maintaining a secure bond.
I	TMGB shall be installed above the EMT Channel below the Wire Standoff directly to the antenna bracket.
J	All pole mounted devices, including but not limited to: antenna mounts and antennas, mounting brackets, cabinets shall be connected to the TMGB using compression type 2 hole outermost lugs.
K	All pole mounted devices, including but not limited to: antenna mounts and antennas, mounting brackets, cabinets shall be connected to the TMGB with a #6 copper braided cable LV coated and green in color.
L	All pole mounted devices, including but not limited to: antenna mounts and antennas, mounting brackets, cabinets shall be connected to the TMGB using compression type 2 hole outermost lugs.
M	Blacking of connector lugs is prohibited.
N	Placement of connector lugs on front and rear face of grounding lug is permitted.
O	Any modifications to the connector lugs is prohibited, including but not limited to grinding, cutting or bending.
P	Connector lugs must be placed with even spacing and must fit onto or contact with another connector lug.
Q	Spaced use of the connector lugs should be placed on the outside side of the bus bar.
R	All connector lugs shall have (2) compression per set.
S	All connector lugs must have NCO applied to any weld which contact another metal to hard oxidation including and especially the conductor in the compression end.
T	All connector lugs must be properly sealed from weather with heat shrink.
U	All connector lugs must be properly sealed using 3" minimum x 2" deep lug end in the following manner:
V	1. Flat weather on the backside of the lug
W	2. Seal thru the lug hole facing outward
X	3. Flat weather on the front side of the lug
Y	4. Lock weather on the front side of the weather
Z	5. Flat weather on the back side of the weather
AA	6. Flat weather on the back side of the weather
AB	7. Flat weather on the back side of the weather
AC	8. Flat weather on the back side of the weather
AD	9. Flat weather on the back side of the weather
AE	10. Flat weather on the back side of the weather
AF	11. Flat weather on the back side of the weather
AG	12. Flat weather on the back side of the weather
AH	13. Flat weather on the back side of the weather
AI	14. Flat weather on the back side of the weather
AJ	15. Flat weather on the back side of the weather
AK	16. Flat weather on the back side of the weather
AL	17. Flat weather on the back side of the weather
AM	18. Flat weather on the back side of the weather
AN	19. Flat weather on the back side of the weather
AO	20. Flat weather on the back side of the weather
AP	21. Flat weather on the back side of the weather
AQ	22. Flat weather on the back side of the weather
AR	23. Flat weather on the back side of the weather
AS	24. Flat weather on the back side of the weather
AT	25. Flat weather on the back side of the weather
AU	26. Flat weather on the back side of the weather
AV	27. Flat weather on the back side of the weather
AW	28. Flat weather on the back side of the weather
AX	29. Flat weather on the back side of the weather
AY	30. Flat weather on the back side of the weather
AZ	31. Flat weather on the back side of the weather
BA	32. Flat weather on the back side of the weather
BB	33. Flat weather on the back side of the weather
BC	34. Flat weather on the back side of the weather
BD	35. Flat weather on the back side of the weather
BE	36. Flat weather on the back side of the weather
BF	37. Flat weather on the back side of the weather
BG	38. Flat weather on the back side of the weather
BH	39. Flat weather on the back side of the weather
BI	40. Flat weather on the back side of the weather
BJ	41. Flat weather on the back side of the weather
BK	42. Flat weather on the back side of the weather
BL	43. Flat weather on the back side of the weather
BM	44. Flat weather on the back side of the weather
BN	45. Flat weather on the back side of the weather
BO	46. Flat weather on the back side of the weather
BP	47. Flat weather on the back side of the weather
BQ	48. Flat weather on the back side of the weather
BR	49. Flat weather on the back side of the weather
BS	50. Flat weather on the back side of the weather
BT	51. Flat weather on the back side of the weather
BU	52. Flat weather on the back side of the weather
BV	53. Flat weather on the back side of the weather
BW	54. Flat weather on the back side of the weather
BX	55. Flat weather on the back side of the weather
BY	56. Flat weather on the back side of the weather
BZ	57. Flat weather on the back side of the weather
CA	58. Flat weather on the back side of the weather
CB	59. Flat weather on the back side of the weather
CC	60. Flat weather on the back side of the weather
CD	61. Flat weather on the back side of the weather
CE	62. Flat weather on the back side of the weather
CF	63. Flat weather on the back side of the weather
CG	64. Flat weather on the back side of the weather
CH	65. Flat weather on the back side of the weather
CI	66. Flat weather on the back side of the weather
CJ	67. Flat weather on the back side of the weather
CK	68. Flat weather on the back side of the weather
CL	69. Flat weather on the back side of the weather
CM	70. Flat weather on the back side of the weather
CN	71. Flat weather on the back side of the weather
CO	72. Flat weather on the back side of the weather
CP	73. Flat weather on the back side of the weather
CQ	74. Flat weather on the back side of the weather
CR	75. Flat weather on the back side of the weather
CS	76. Flat weather on the back side of the weather
CT	77. Flat weather on the back side of the weather
CU	78. Flat weather on the back side of the weather
CV	79. Flat weather on the back side of the weather
AW	80. Flat weather on the back side of the weather
AX	81. Flat weather on the back side of the weather
AY	82. Flat weather on the back side of the weather
AZ	83. Flat weather on the back side of the weather
BA	84. Flat weather on the back side of the weather
BB	85. Flat weather on the back side of the weather
BC	86. Flat weather on the back side of the weather
BD	87. Flat weather on the back side of the weather
BE	88. Flat weather on the back side of the weather
BF	89. Flat weather on the back side of the weather
BF	90. Flat weather on the back side of the weather
BF	91. Flat weather on the back side of the weather
BF	92. Flat weather on the back side of the weather
BF	93. Flat weather on the back side of the weather
BF	94. Flat weather on the back side of the weather
BF	95. Flat weather on the back side of the weather
BF	96. Flat weather on the back side of the weather
BF	97. Flat weather on the back side of the weather
BF	98. Flat weather on the back side of the weather
BF	99. Flat weather on the back side of the weather
BF	100. Flat weather on the back side of the weather

PART 3 - TESTING AND DOCUMENTATION	
<b>3.1</b>	<b>TESTING</b>
A	5 Ohms to ground is required for acceptance. If 5 Ohms cannot be met w/ above requirements, additional ground rods will be added to the field until 5 Ohms is achieved.
<b>3.2</b>	<b>DOCUMENTATION</b>
A	Proof of the tests are required as well as test results in normal document format. Submit result of test to CC Construction Manager prior to final walkthrough. Submit all photos and tests with testbook damage per Section 01710 - Closeout Procedures and Required Documents.

GROUNDING SPECIFICATIONS		SCALE: NTS	6	GENERAL PROJECT NOTES		SCALE: NTS	10
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1. FORT BEND COUNTY MUST BE INVITED TO THE PRE-CONSTRUCTION MEETING.
2. CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT 48 HOURS PRIOR TO COMMENCING CONSTRUCTION AND 48 HOUR NOTICE TO ANY CONSTRUCTION ACTIVITY WITHIN THE LIMITS OF THE PAVING AT CONSTRUCTION@FORTBENDCOUNTYTX.GOV.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FROM FORT BEND COUNTY PRIOR TO COMMENCING CONSTRUCTION OF ANY IMPROVEMENTS WITHIN COUNTY ROAD RIGHT-OF-WAYS.
4. ALL PAVING IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH FORT BEND COUNTY RULES, REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS AS CURRENTLY AMENDED.
5. ALL ROAD WIDTHS, CURB RADIUS AND CURB ALIGNMENT SHOWN INDICATES BACK OF CURB.
6. A CONTINUOUS LONGITUDINAL REINFORCING BARS SHALL BE USED IN THE CURBS.
7. ALL CONCRETE PAVEMENT SHALL BE 5" SACK CEMENT WITH A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS. TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 80 FEET.
8. ALL WEATHER ACCESS TO ALL EXISTING STREETS AND DRIVEWAYS SHALL BE MAINTAINED AT ALL TIMES.
9. 4" X 12" REINFORCED CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ONLY. ALL OTHER AREAS SHALL BE 6" REINFORCED CONCRETE CURB.
10. AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACED IN ACCORDANCE WITH TxDOT PRE-12K STANDARD DETAIL SHEET "A.D.A. - HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A. REGULATIONS.
11. CURB HEADERS ARE REQUIRED AT CURB CONNECTIONS TO HANDICAP RAMPS WITH NO CONSTRUCTION JOINT WITHIN 8' OF RAMPS.
12. ALL INTERSECTIONS UTILIZING TRAFFIC CONTROL MEASURES SHALL HAVE A.D.A. WHEEL CHAIR RAMPS INSTALLED.
13. GUIDELINES ARE SET FORTH IN THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AS CURRENTLY AMENDED, SHALL BE OBSERVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION - BOTH DAY AND NIGHT.
14. ALL R-1 STOP SIGNS SHALL BE 30"x30" WITH DIAMOND SHAPE SHEETING PER TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
15. STREET NAME SIGNAGE SHALL BE 24" X 48" HIGH SIGN PLATE BLADE REFLECTIVE GREEN BACKGROUND. STREET NAMES SHALL BE UPPER AND LOWER CASE LETTERING WITH UPPER CASE LETTERS OF 6" MINIMUM AND LOWER CASE LETTERS OF 4.5" MINIMUM. THE LETTERS SHALL BE REFLECTIVE WHITE. STREET NAME SIGNS SHALL BE MOUNTED ON STOP SIGN POST.
16. A BLUE DOUBLE REINFORCED BUTTON SHALL BE PLACED AT ALL FIRE HYDRANT LOCATIONS. THE BUTTON SHALL BE PLACED 12 INCHES OFF OF THE CENTERLINE OF THE STREET ON THE SAME SIDE AS THE HYDRANT.

**NOTE: FORT BEND COUNTY NOTES SUPERSEDE ANY CONFLICTING NOTES.**

INSPECTION: THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTIONS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. NEITHER FAILURE TO INSPECT NOR FAILURE TO DISCOVER OR RECTIFY ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY OR ANY PROVISION OF THIS PROJECT SHALL BE CONSTRUED TO IMPLY AN ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.

FORT BEND COUNTY CONSTRUCTION NOTES		SCALE: NTS	8
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1. RIGHT-OF-WAY USE PERMIT SHALL BE OBTAINED BY CONTRACTOR PRIOR TO COMMENCING WORK.
2. A UTILITY LOCATE IS REQUIRED FOR ALL PROJECTS.
3. CROSSING OF EXISTING UTILITIES SHALL BE COORDINATED BY CONTRACTOR.
4. ALL WORK TO BE CONDUCTED IN CITY RIGHT OF WAY U.N.D.
5. ALL DISTURBED LANDSCAPING SHALL BE REPLACED TO SIMILAR EXISTING CONDITION.
6. ALL SURFACE REPAIR SHALL BE TO CITY SPECIFICATIONS.
7. ANY SIDEWALK CLOSURE SHALL BE COORDINATED WITH THE CITY AND PROPER SIGNAGE WILL BE PLACED.
8. TEMPORARY LIGHTING WILL BE COORDINATED WITH CITY AND PROVIDED WHENEVER EXISTING LIGHTING IS REMOVED OR UNAVAILABLE AS REQUIRED.
9. NO MATERIALS OR EQUIPMENT SHALL BE STORED ON PRIVATE PROPERTY OR BLOCK ACCESS TO PRIVATE PROPERTY.
10. OPEN EXCAVATIONS SHALL BE PROPERLY GUARDED AND SIGNED. NO OPEN EXCAVATIONS WILL BE LEFT ACCESSIBLE TO THE PUBLIC.
11. CLEARUP OF THE WORK AREA WILL BE COMPLETED EACH EVENING AND THE PROJECT AREA WILL BE RETURNED TO EXISTING CONDITION AT THE COMPLETION OF CONSTRUCTION AT EACH NO. LOCATION.
12. ALL WORK TO COMPLY WITH OSHA AND CITY GUIDELINES.
13. CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING PRIVATE IRRIGATION PRIOR TO EXCAVATION. CONTRACTOR WILL REPAIR OR REROUTE IRRIGATION IN POW AS NECESSARY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE AND REPLACE AT THEIR COST, ANY AND ALL DAMAGED PAVEMENT, SIDEWALK, CURB AND GUTTER OUTSIDE THE PAY LIMIT. DAMAGE DUE TO THEIR ACTIVITIES ON THE PROJECT, THIS INCLUDES, BUT IS NOT LIMITED TO THE REMOVAL AND REPLACEMENT OF NOWLY CRACKED, THE REMOVAL AND REPLACEMENT OF EXISTING CRACKS WHERE THE CRACKS HAVE BEEN ENLARGED DUE TO THE CONTRACTOR'S OPERATIONS, THE REMOVAL AND REPLACEMENT OF DEFORMED PAVEMENT, CURB AND GUTTER, SIDEWALK, ETC. ALL SAW CUTS USED FOR THE REMOVAL OF THESE ITEMS SHALL BE PERPENDICULAR AND PARALLEL TO THE CENTERLINE CONTROLLING THAT ITEM, OR AT THE DISCRETION OF THE CITY INSPECTOR.
15. THE VAULTS INSTALLED IN CONJUNCTION WITH THE INDIVIDUAL ANTENNA NODES SHALL BE FLUSH WITH THE GROUND.

ALU CERTIFIED TECH NOTE		SCALE: NTS	11
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CREW MUST HAVE ONE (1) ALL CERTIFIED PERSON - PERSONNEL WORKING/INSTALLING THE NODE CABINET MUST HAVE THE ALU METRO CELL CERTIFICATION - ONLY CERTIFIED PERSONNEL MAY INSTALL ALL METRO CELLS (I.E. NO TRAIN THE TRAINER OPTIONS PERMITTED) - A CERTIFIED INSTALLER MAY SUPERVISE ONE OR MORE NON-CERTIFIED "HELPERS" AS LONG AS THE CERTIFIED INSTALLER IS ON THE SAME SITE 100% OF THE TIME. I.E. NO ROAMING SUPERVISORS - A CERTIFIED INSTALLER MAY NOT ACT AS A ROAMING QUALITY AUDITOR UNLESS THE ORIGINAL INSTALLATION IS COMPLETED BY A CERTIFIED INSTALLER AND THE QUALITY AUDIT IS ONLY USED TO ENSURE INTERNAL QUALITY. IN NO WAY WILL THE AUDIT BE PORTFOLIOED AS AN ALCA/ELC/ELC AUDIT - CERTIFIED PERSONNEL HAVE ACCESS TO REMOTE TECHNICAL SUPPORT FOR ISSUES RELATED TO METRO CELL INSTALLATION, 866-888-8888 (8HILLCREST) - THE FOLLOWING PRODUCTS ARE COVERED: 9093 METRO CELL, INDOOR, 9394 METRO CELL, OUTDOOR, 9793 METRO CELL, INDOOR, 9794 METRO CELL, OUTDOOR, 9798 METRO RADIO OUTDOOR V1.0, AND THE 7310 CABINET.

ABBREVIATIONS AND SYMBOLS		SCALE: NTS	20
A/C	AIR CONDITIONING		
ADJ	ADJUSTABLE		
APP	ABOVE FINISH FLOOR		
ANSL	ABOVE MEAN SEA LEVEL		
APPROX	APPROXIMATELY		
AVIG	AMERICAN WIRE GAUGE		
BCW	BARE COPPER WIRE		
BLOC	BLOCK		
BS	BOTTOM OF BLOCK		
BOB	BUILDING STANDARD		
CLG	CLEAR		
CLR	CLEAR		
CONC	CONCRETE		
CONST	CONSTRUCTION		
CONT	CONTINUOUS		
CO	COMPANY		
DBL	DOUBLE		
DA	DIAMETER		
DM	DIMENSION		
DN	DOWN		
DTL	DETAIL		
DWG	DRAWING		
E	EAST		
EA	EACH		
EL	ELEVATION		
EL/ELEV	ELECTRICAL		
EPB	ELECTRICAL PULL BOX		
EQ	EQUAL		
EQUIP	EQUIPMENT		
EW	EACH WAY		
EX	EXISTING		
EXT	EXTERIOR		
FIN	FINISH		
FLOOR	FLOOR		
FLR	FLOOR		
FT	FOOT/FEET		
GA	GAUGE		
GALV	GALVANIZED		
GC	GENERAL CONTRACTOR		
GLB	GLUE LAMINATED BEAM		
GRND	GROUND		
GWB	GYP/SPLA WALL BOARD		
---	CENTER LINE		
---	PROPERTY LINE		
---	RIGHT-OF-WAY		
---	FIBER		
---	GAS		
---	POWER		
---	SANITARY SEWER		
---	STORM DRAIN		
---	WATER		
---	LIGHT CIRCUIT POWER		
---	OVERHEAD POWER LINE		

HR	HORIZONTAL		
HRT	HOUR		
HTAC	HEATING, VENTING AND AIR CONDITIONING		
IBC	INTERNATIONAL BUILDING CODE		
ID	INSIDE DIA		
IN	INCH		
INFO	INFORMATION		
INT	INTERIOR		
LBRS	POUNDS		
LF	LINEAR FEET		
LT	TOP OF		
MAX	MAXIMUM		
MECH	MECHANICAL		
MFL	METAL MANUFACTURER		
MGR	MANAGER		
MN	MINIMUM		
MISC	MISCELLANEOUS		
N	NORTH		
NA	NOT APPLICABLE		
NC	NOT IN CONTRACT		
NTS	NOT TO SCALE		
ON	ON CENTER		
OD	OUTSIDE DIAMETER		
OP	OPENING		
OPPOSITE	OPPOSITE		
PL	PROPERTY LINE		
PLY	PLYWOOD		
PAR	PARALLEL		
PROJ	PROJECT		
PRECU	PROPERTY PRESERVE TREATED		
PT	REQUIRED ROOM		
RCF	REFLECTED CEILING PLAN		
REGD	REQUIRED ROOM		
RLN	ROUGH OPENING		
ROW	RIGHT-OF-WAY		
RL	RECEIVE SIGNAL		



S	SCHEDULE		
SF	SQUARE FEET		
SHT	SHEET		
SMA	SIMILAR		
SPEC	SPECIFICATION		
SQ	SQUARE		
SS	SANITARY SEWER		
STL	STEEL		
STRUC	STRUCTURAL		
SUBP	SUBPENDED		
SY	SQUARE YARD		
THRU	THROUGH		
TAND	TRENCH		
TOP OF	TOP OF		
TOB	TOP OF BLOCK		
TOC	TOP OF CONCRETE		
TOM	TOP OF MASONRY		
TS	TUBE STEEL		
TX	TRANSIT SIGNAL		
TYP	TYPICAL		
UG	UNDERGROUND		
UL	UNDERWRITERS LAB		
UNH	UNIVERSAL RATCH HEAD		
UNCD	UNLESS NOTED OTHERWISE		
VERT	VERTICAL		
VERIFY	VERIFY IN FIELD		
VF	VENT TILE		
W	WEST		
WTH	WITH		
WIDW	WINDOW		
W/O	WITHOUT		
WORKING POINT	WORKING POINT		
WTR	WATER		

REVISION

KEY NOTE

DETAIL REFERENCE

ELEVATION REFERENCE

SECTION REFERENCE

ELEVATION MARKER

PHOTOGRAPH REFERENCE

ANTENNA ADJUTANT

VIEW NUMBER

SHEET NUMBER

SHEET GROUP

EXISTING TREE

EXISTING BUSH / SHRUB

APPROVED: [Signature]

DATE: 11/11/16

Development Coordinator



**CROWN CASTLE**  
600 E. JOHN CARPENTER Pkwy.  
SUITE 300  
IRVING, TX 75062

RECORD DRAWINGS ISSUE DATE: 10-18-16



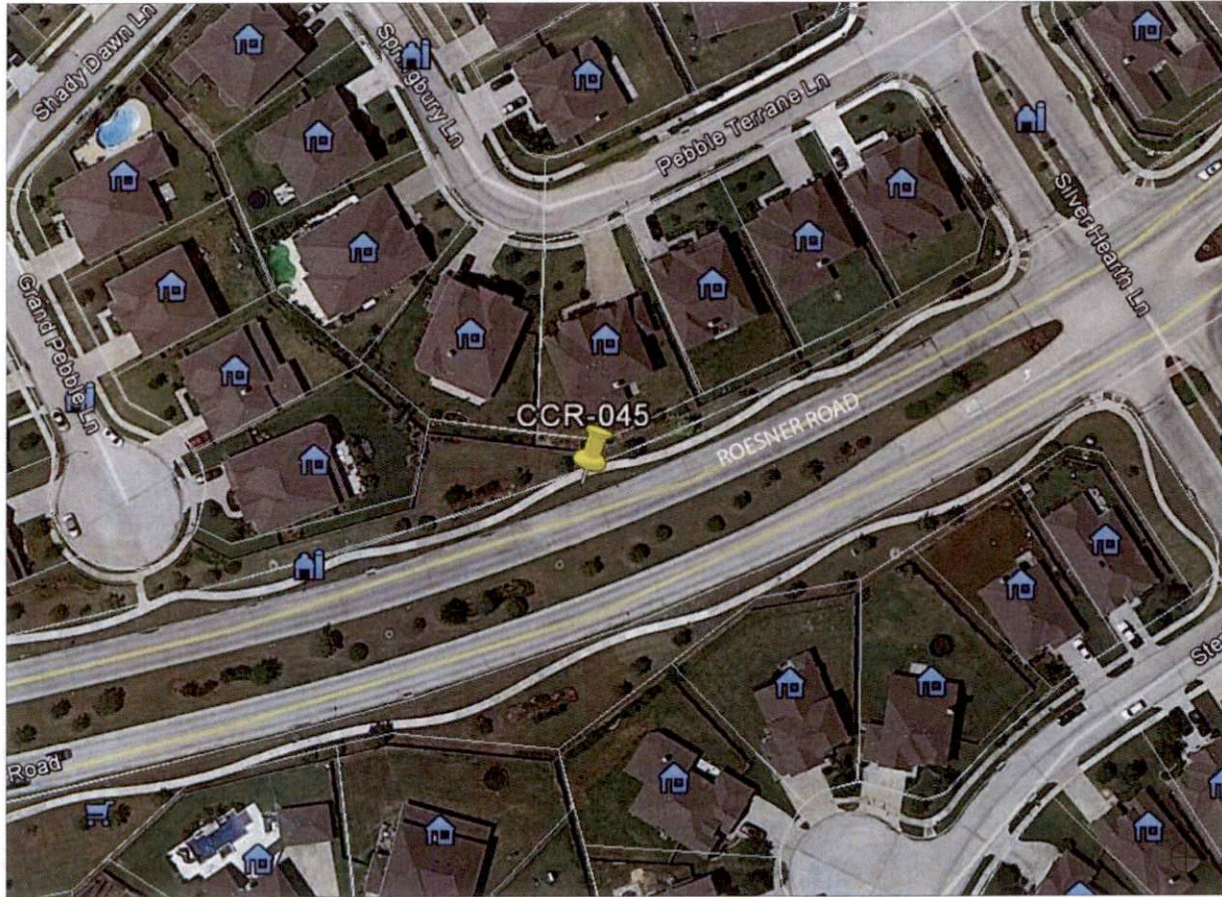
**Shift Companies, LLC**  
13111 HWY 103A Bldg  
SCOTSDALE, ARIZONA 85259  
Tel: 480.344.8889  
Fax: 480.344.9883

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RELEASE	
DATE	SUBMITTAL
6/3/16	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT





NODE AERIAL PLAN

**SUBJECT POLE:** CCR-45

**GPS COORDINATES:**

**LAT:** 28.737673

**LONG:** -95.819316

**POLE TYPE:** METAL SLIMLINE POLE

**POLE ID #:**

**UPPER ANTENNA RAD CENTER:** 30 - D A.F.G.

**LOWER ANTENNA RAD CENTER:** 30 - D A.F.G.

**APPROVED:**   
Development Coordinator

**DATE:** 11/11/16



**CROWN CASTLE**  
600 E. JOHN CARPENTER Fwy.  
SUITE 300  
IRVING, TX 75062

RECORD DRAWING ISSUE DATE: 10.16.16



**Shift Companies, LLC**  
7311 NORTH STEIN BOAT  
SECTIONAL ADDRESS ONLY  
PO BOX 300  
IRVING, TX 75039

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6/3/16	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT
	10/18/16	CITY COMMENTS

**PROJECT NAME**  
CINCO RANCH EXPANSION

**NODE ADDRESS**  
CINCO RANCH EXPANSION

**NODE #:** CCR-45  
**ROESNER RD & SILVER HEARTH LN**

**HUB AREA**  
CINCO RANCH - HGCW

**SHIFT JOB NUMBER** 150602 **IN HOUSE** RA  
DRAWN BY: RA  
CHECKED BY: CM

**SHEET TITLE**  
AERIAL

**SHEET NUMBER** A1.0 **PAGE** 4 OF 14

**PLOT SCALE:** 1:1 @ 24X36; 1:2 @ 11X17



SITE PHOTO (EXISTING)

N.T.S

PLAN CHECK #

CASE #

KEYNOTE	DESCRIPTION	DETAIL
A01	PROPOSED CROWN CASTLE OMNI ANTENNA	18D1.1
A02	PROPOSED CROWN CASTLE 2" U.G. CONDUIT (APPROXIMATE LOCATION P.V.)	21D1.1
A03	PROPOSED CROWN CASTLE REMOTE RADIO UNIT (RADIO EQUIPMENT CABINET)	18D1.1
A04	PROPOSED NEW METAL SLIMLINE POLE	21D1.1
A05	PROPOSED CROWN CASTLE UNDERGROUND CONC. FIBER VAULT	21D1.2
A06	PROPOSED CROWN CASTLE NODE IDENTIFICATION SIGNAGE	21D1.2
A07	PROPOSED CROWN CASTLE EQUIPMENT CABINET	18D1.1
A08	PROPOSED CROWN CASTLE PRESH FOUNDATION	12D1.1
A09	PROPOSED ELECTRICAL HAND HOLE	

KEYNOTE	DESCRIPTION	DETAIL
E01	PROPOSED POWER METER MOUNTED TO EQUIPMENT CABINET (DISTRIBUTED PANEL AND DISCONNECT)	18D1.1
U01	PROPOSED 2" CROWN CASTLE U.G. POWER CONDUIT (APPROXIMATE LOCATION P.V.)	21D1.1 & 21D1.2
U02	PROPOSED CROWN CASTLE P. U.S. FIBER CONDUIT BY OTHERS (APPROXIMATE LOCATION P.V.)	21D1.1 & 21D1.2



NOTES:  
 1. ANY DAMAGE TO EXISTING GUTTER, CURB, SIDEWALK AND ROADWAY DURING CONSTRUCTION TO BE REPAIRED OR REPLACED.  
 2. EXISTING VEGETATION DAMAGED IN CONSTRUCTION TO BE REPLACED BY SIMILAR SPECIES.

**GENERAL NOTES**

1. PAINT PROPOSED GROUND EQUIPMENT A NATURAL EARTH COLOR OR AS APPROVED BY CITY.
2. CONTRACTOR TO FIELD LOCATE EXIST. UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
3. EX. LANDSCAPE PLANTINGS AND DECORATIVE HANDSCAPES DISTURBED OR DESTROYED AS A RESULT OF CONSTRUCTION SHALL BE REPLACED WITH LIKE SIZE AND SPECIES.
4. CONTRACTOR TO HAND LOCATE EX. IRRIGATION PRIOR TO EXCAVATION.
5. SITE PLAN IS A DIAGRAMMATIC REPRESENTATION ONLY. VERIFY ALL DIMENSIONS.
6. VERIFY ALL PROPERTY LINE INFORMATION WITH AVAILABLE R.O.W. DATA.
7. EXIST. UTILITY LOCATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY (AS PROVIDED BY LOCAL UTILITIES).

**SUBJECT POLE:** CCR-45

**GPS COORDINATES:**

**LAT:** 29.727075  
**LONG:** 96.819318

**POLE TYPE:** METAL SLIMLINE POLE

**POLE ID #:**

**UPPER ANTENNA RAD CENTER:** 32' - 0" O.A.F.G.  
**LOWER ANTENNA RAD CENTER:** 30' - 0" O.A.F.G.

**SUBJECT POLE IS LOCATED IN:** FORT BEND COUNTY R.O.W.

APPROVED: *[Signature]*  
 Development Coordinator  
 DATE: 11/1/16



RECORD DRAWINGS ISSUE DATE: 10/18/16



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RELEASE DATE	SUBMITTAL
6/10/16	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

REVISIONS NO.	DATE	COMMENT
10/18/16		CITY COMMENTS

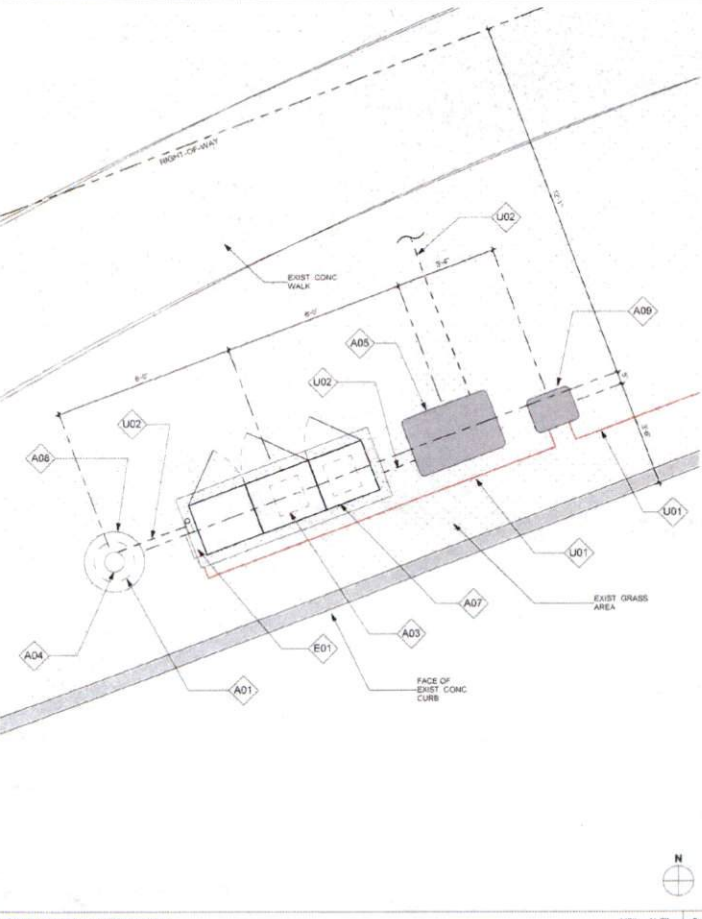
**PROJECT NAME:** CINCO RANCH EXPANSION

**NODE ADDRESS:** NODE #CCR-45  
 ROESNER RD & SILVER HEARTH LN

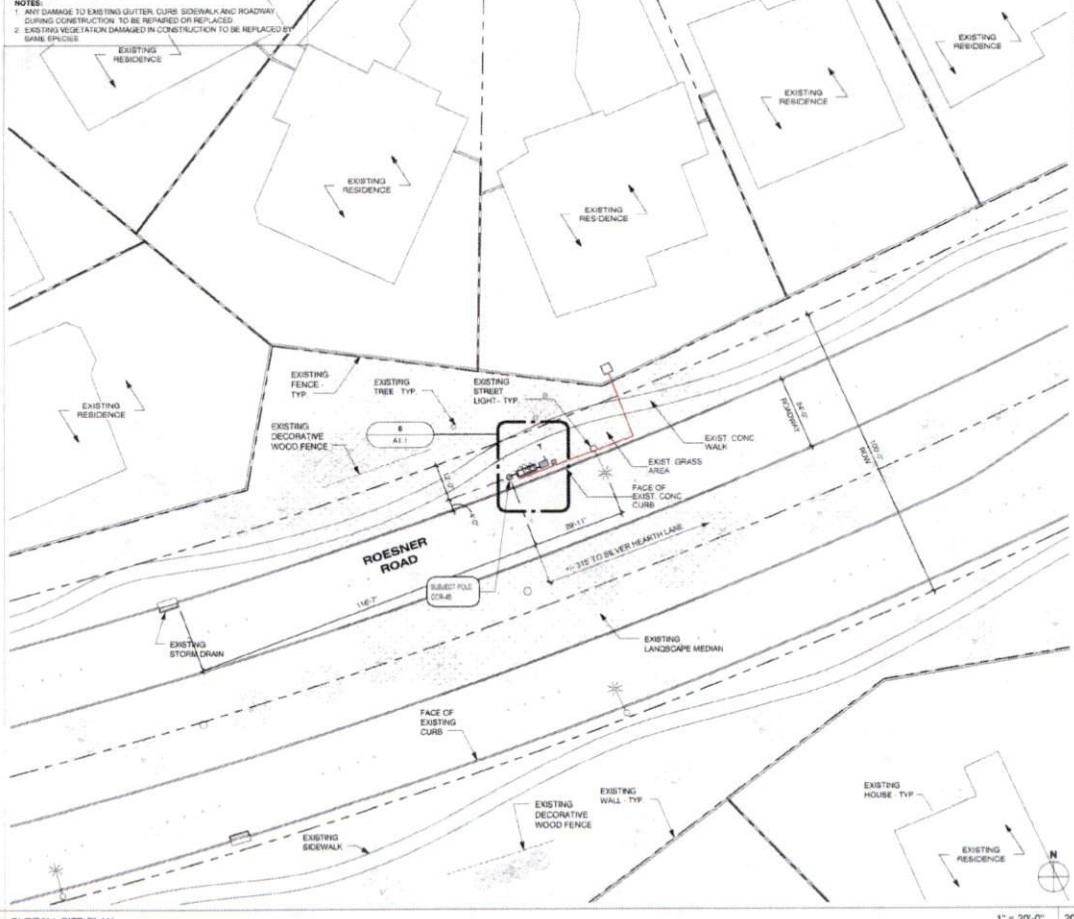
**HUB AREA:** CINCO RANCH - HGCW  
**SHIFT JOB NUMBER:** 150602  
**IN HOUSE:** IN HOUSE  
**DRAWN BY:** RA  
**CHECKED BY:** CM

**SHEET TITLE:** SITE PLAN, EQUIPMENT AND ANTENNA PLAN

**SHEET NUMBER:** A1.1  
**PAGE:** 5 OF 14  
**PLOT SCALE:** 1.1 @ 24"X36" 1.2 @ 11"X17"

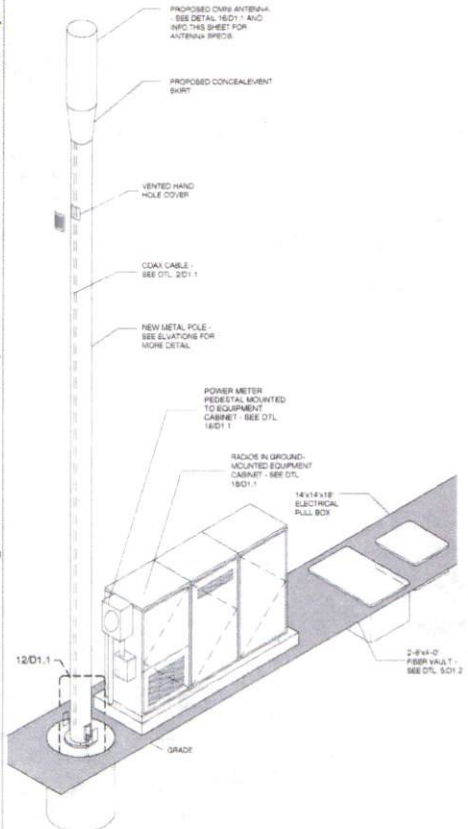


EQUIPMENT AND ANTENNA PLAN 1/2" = 1'-0" 8



OVERALL SITE PLAN 1" = 20'-0" 20

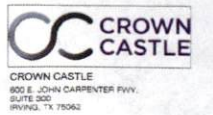
NOTE:  
ISO IS SCHEMATIC IN NATURE. FIBER VAULT, POWER METER PEDESTAL AND GROUND-MOUNTED RADIO EQUIPMENT PEDESTAL CAN BE RECONFIGURED TO SUIT PROJECT LOCATION



KEYNOTE LEGEND		
KEYNOTE	DESCRIPTION	DETAIL NUMBER
A01	PROPOSED CROWN CASTLE OMNI ANTENNA	16D1.1
A02	PROPOSED CROWN CASTLE 2" U.G. CONDUIT (APPROXIMATE LOCATION F.O.)	2D1.1
A03	PROPOSED CROWN CASTLE REMOTE RADIO UNITS (INSIDE EQUIPMENT CABINET)	16D1.1
A04	PROPOSED NEW METAL SLURRING POLE	2D1.1
A05	PROPOSED CROWN CASTLE UNDERGROUND CONC. FIBER VAULT	2D1.2
A06	PROPOSED CROWN CASTLE NODE IDENTIFICATION SIGNAGE	2D1.2
A07	PROPOSED CROWN CASTLE EQUIPMENT CABINET	16D1.1
A08	PROPOSED CROWN CASTLE POLE FOUNDATION	16D1.1
A09	PROPOSED ELECTRICAL HAND HOLE	
E01	PROPOSED POWER METER MOUNTED TO EQUIPMENT CABINET (DISTRIBUTED PANEL AND DISCONNECT)	16D1.1

MODEL	ABPHENCL-2C0130K10PWS
LENGTH	46'
WIDTH	14.5 DIA
DEPTH	NA
WEIGHT	35.1 LBS
PROPOSED PANEL ANTENNA SPECS	
PROPOSED POLE WIDTH = 6"Ø	
PROPOSED POLE HEIGHT = 27' - 0"	
14'-4" ANTENNA AND 1'-0" ANTENNA MOUNT	
POLE INFO	

APPROVED: *[Signature]*  
Development Coordinator  
DATE: 11/1/16



RECORD DRAWINGS ISSUE DATE: 10/18/16



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RELEASE	
DATE	SUBMITTAL
8/23/16	1ST CITY SUBMITTAL
10/18/16	2ND CITY SUBMITTAL

REVISIONS		
NO	DATE	COMMENT

PROJECT NAME  
**CINCO RANCH EXPANSION**

NODE ADDRESS  
**NODE #CCR-45**  
ROESNER RD & SILVER HEARTH LN

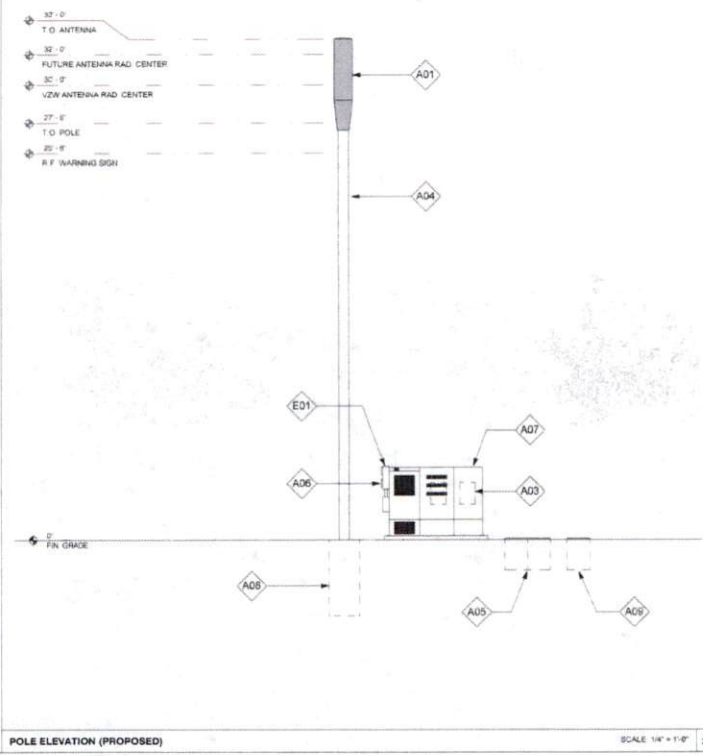
HUB AREA  
**CINCO RANCH - HGCV**

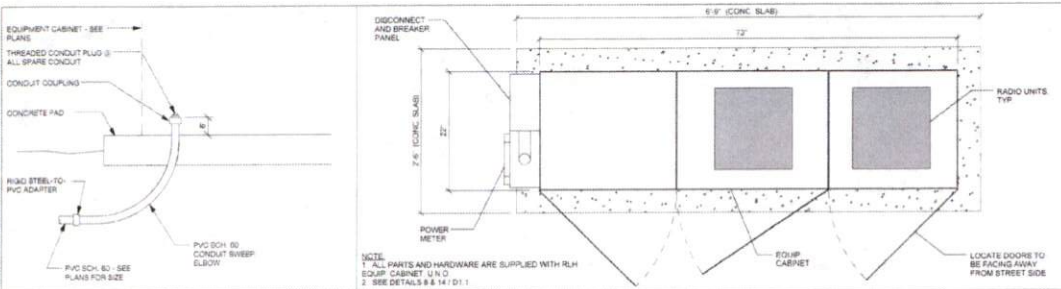
SHIFT JOB NUMBER: 150602  
IN HOUSE:   
DRAWN BY: NA  
CHECKED BY: CM

SHEET TITLE  
**POLE ELEVATION, PROPOSED**

SHEET NUMBER: A1.2  
PAGE: 6 OF 14

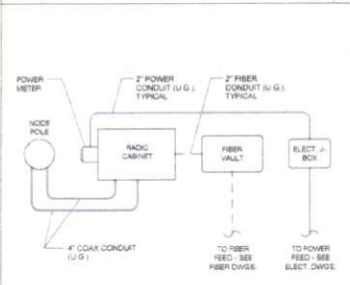
PLOT SCALE: 1/1 @ 24"x36", 1/2 @ 11"x17"



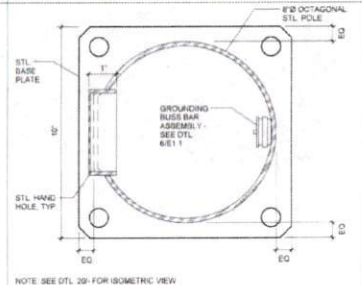


EQUIPMENT CABINET STUB UP DETL SCALE: N.T.S. 1

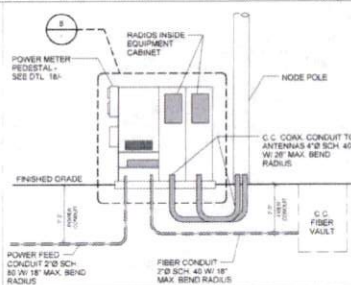
METER / BBU / RADIO EQUIPMENT CABINET PLAN SCALE: N.T.S. 8



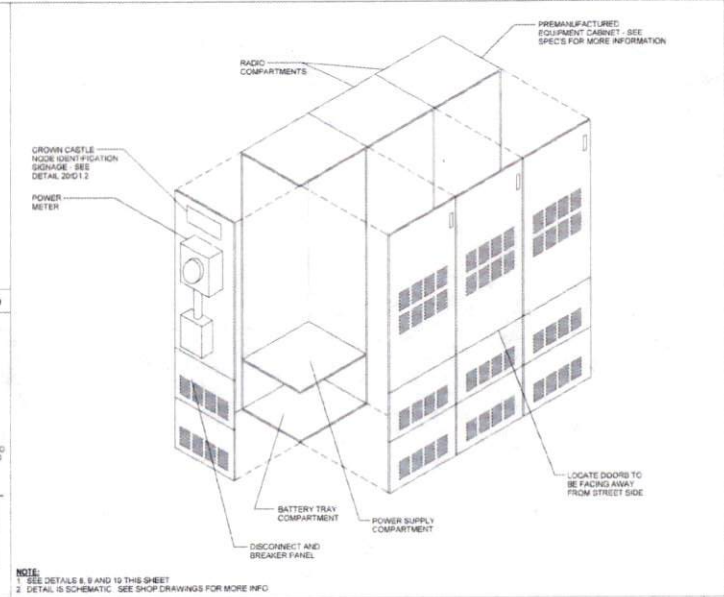
CONDUIT ROUTE SCALE: N.T.S. 2



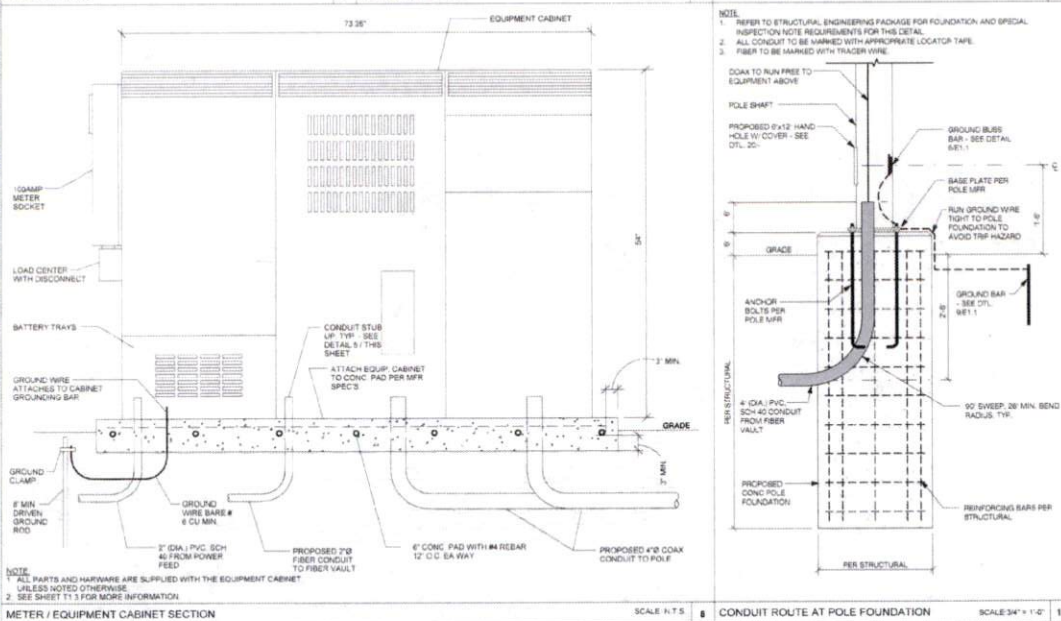
PLAN VIEW @ POLE SCALE: N.T.S. 6



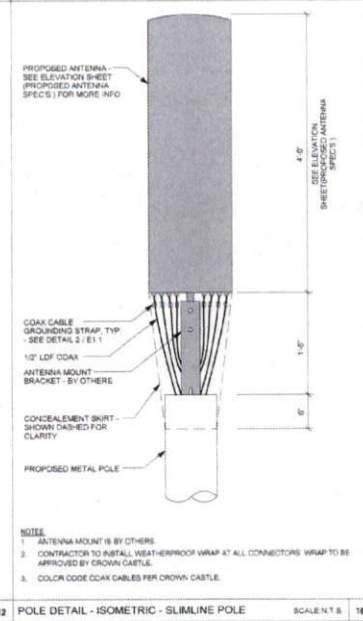
CONDUIT AND POWER RISER DIAGRAM SCALE: N.T.S. 10



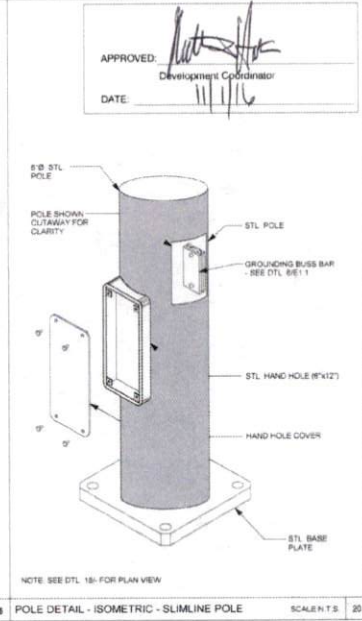
EQUIPMENT CABINET WITH METER ISOMETRIC SCALE: N.T.S. 18



METER / EQUIPMENT CABINET SECTION SCALE: N.T.S. 5



POLE DETAIL - ISOMETRIC - SLIMLINE POLE SCALE: N.T.S. 12



POLE DETAIL - ISOMETRIC - SLIMLINE POLE SCALE: N.T.S. 20



CROWN CASTLE  
800 E. JOHN CARPENTER Pkwy  
SUITE 200  
IRVING, TX 75063

RECORD DRAWINGS ISSUE DATE: 10.18.16



Shift Companies, LLC  
7311 E. HOUSTON AVE SUITE 600  
SCOTTSDALE, ARIZONA 85251  
PH: 480.254.5059  
FW: 480.254.1033

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RELEASE DATE	SUBMITTAL
6.03.16	1ST CITY SUBMITTAL
10.18.16	2ND CITY SUBMITTAL

NO.	DATE	COMMENT
10	10.18.16	CITY COMMENTS

PROJECT NAME  
**CINCO RANCH EXPANSION**

HUB AREA  
**CINCO RANCH - HGCW**

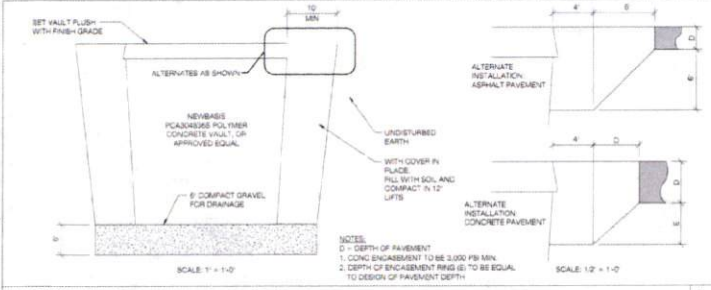
SHEET JOB NUMBER **150602** IN HOUSE  
DRAWN BY: NA  
CHECKED BY: CM

SHEET TITLE  
**CONSTRUCTION DETAILS**

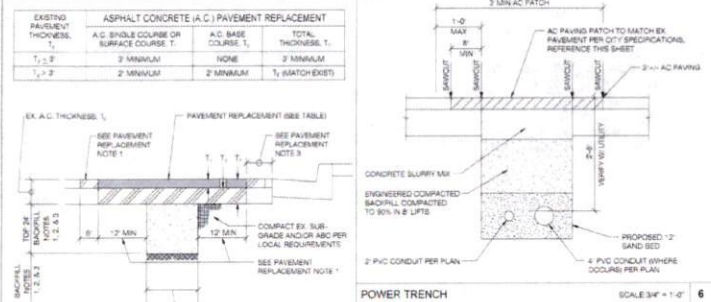
SHEET NUMBER **D1.1** PAGE **7 OF 14**

PLOT SCALE: 1" = 24' X 30'; 1.2" = 11' X 17'

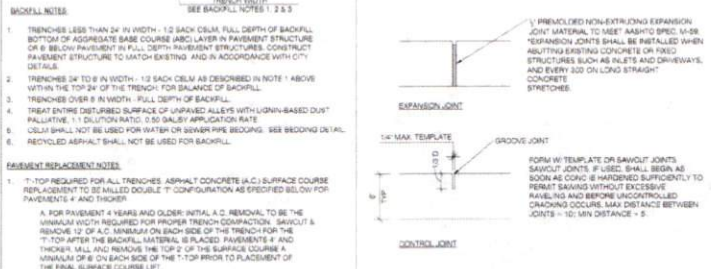
PLAN CHECK # CASE #



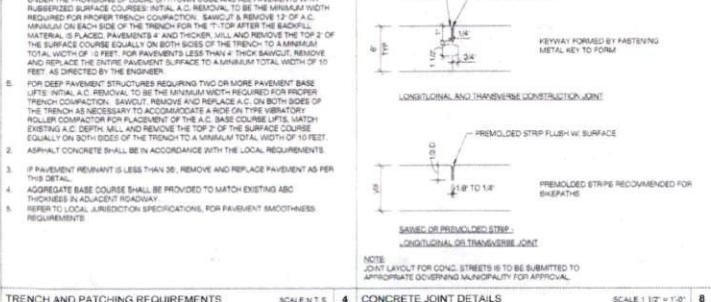
VAULT INSTALLATION SCALE 1" = 1'-0" 5



ASPHALT CONCRETE (A.C.) PAVEMENT REPLACEMENT SCALE 3/4" = 1'-0" 6



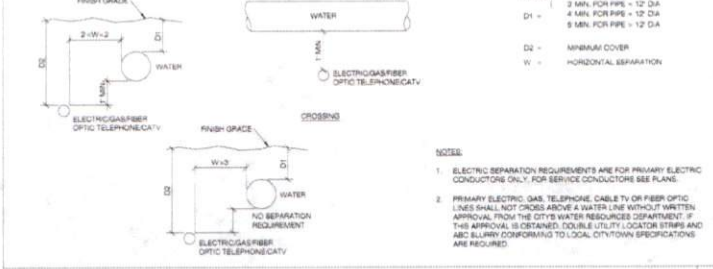
TRENCH AND PATCHING REQUIREMENTS SCALE N.T.S. 4



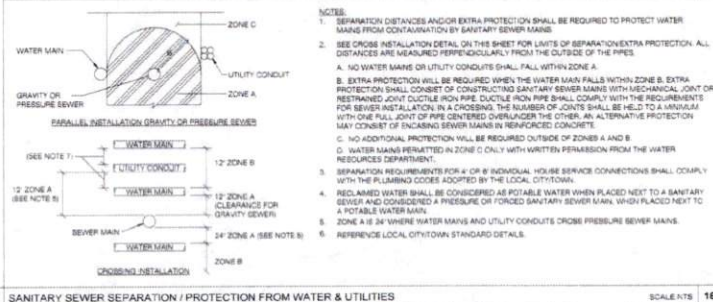
CONCRETE JOINT DETAILS SCALE 1 1/2" = 1'-0" 8



COAX WATERPROOFING - JMA TYPE SCALE N.T.S. 18



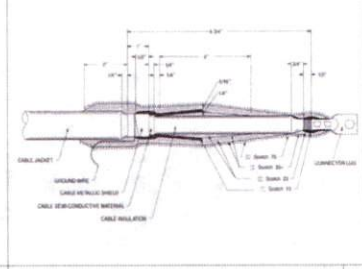
MINIMUM UTILITY SEPARATION REQUIREMENTS SCALE N.T.S. 16



SANITARY SEWER SEPARATION / PROTECTION FROM WATER & UTILITIES SCALE N.T.S. 16



COAX WATERPROOFING - FUSION TAPE TYPE SCALE N.T.S. 19



NODE IDENTIFICATION SIGNAGE SCALE N.T.S. 20

APPROVED: [Signature]  
Development Coordinator  
DATE: 11/1/16



CROWN CASTLE  
7331 E. HEIST WITH ROAD  
600 E. JOHN CARPENTER Pkwy.  
SUITE 300  
IRVING, TX 75060

RECORD DRAWINGS ISSUE DATE: 10/18/16



Shift Companies, LLC  
13311 NORTH WILLOW ROAD  
SCOTTSDALE, ARIZONA 85257  
PH: 480.348.8200  
WWW.SHIFT.COM

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RELEASE	
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6/3/16	1ST CITY SUBMITTAL
10/14/16	2ND CITY SUBMITTAL

REVISIONS		
NO.	DATE	COMMENT
	10/18/16	CITY COMMENTS

PROJECT NAME  
**CINCO RANCH EXPANSION**

HUB AREA

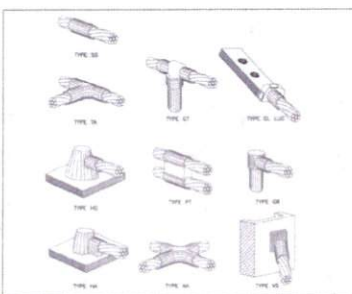
CINCO RANCH - HGCW

SHEET JOB NUMBER: 150602 IN HOUSE  
DRAWN BY: RA CHECKED BY: DM

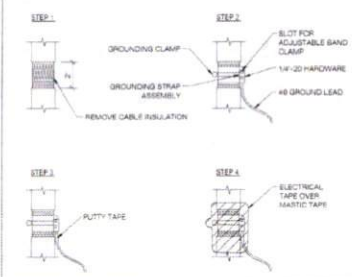
SHEET TITLE  
**CONSTRUCTION DETAILS**

SHEET NUMBER: D1.2 PAGE: 8 OF 14  
PLOT SCALE: 1:1 @ 24"x36", 1:2 @ 11"x17"

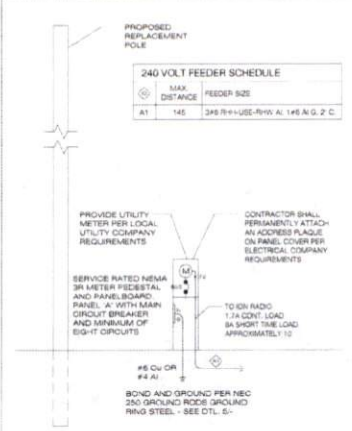




CADWELDED DETAILS SCALE: NTS 1



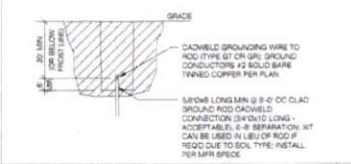
COAXIAL CABLE GROUNDING SCALE: NTS 2



ONE-LINE DIAGRAM SCALE: NTS 4

**NOTES:**  
 1. FIELD VERIFY SITE CONDITION.  
 2. ALL EQUIPMENT IS NEW UNLESS NOTED OTHERWISE.  
 3. ALL EXTERIOR EQUIPMENT SHALL BE WEATHERPROOF.  
 4. PROVIDE ADEQUATE SERVICE CONDUCTOR LENGTH AT THE BASE OF THE RISER POLE FOR LOCAL UTILITY COMPANY TO INSTALL UP THE POLE AND CONNECT TO UTILITY COMPANY. SECONDARY LINES WITH A 12" DRIP LOOP.  
 5. ALL TRENCHES SHALL BE MIN. 24" IN DEPTH.  
 6. ALL WIRE TO BE THIN OR THIN INSULATION OR EQUIVALENT EXCEPT WHERE NOTED OTHERWISE.  
 7. FUTURE BREAKERS IN PANEL 8 SHALL BE SERIES RATED WITH THEIR RESPECTIVE UPSTREAM RESIDUAL MAIN PROTECTIVE DEVICE. A TWO-TIER CORDON SYSTEM IS SPECIFIED.  
 8. WHERE NECESSARY TO TERMINATE OVERSIZED CONDUCTORS, CONTRACTOR TO CORRECT CONDUCTORS TO PANEL LUG APPROVED SIZE USING AN NEC COMPLIANT CONNECTOR.

**NOTES:**  
 1. VERIFY LIGHT GROUNDING REQUIREMENTS FOR LIGHT ARMS WHEN APPLICABLE.  
 2. ALL GROUND BARS ASSOCIATED WITH POLE TO BE MOUNTED AT INTERIOR (SCREENED FROM VIEW).  
 3. MOUNT ANTENNA GROUND BUS VERTICALLY BEHIND LOWER ANTENNA ARRAY.  
 4. ALL CONNECTORS SHALL BE DOUBLE LUG.  
 5. GROUND BAR NITS TO INCLUDE:  
 1/4" THICK 1/4" COPPER BUSS BAR, SS BRACKET, INSULATOR OR EQUIVALENT, 3/8" BOLT AND LOCKWASHER.



GROUND ROD DETAIL SCALE: NTS 9

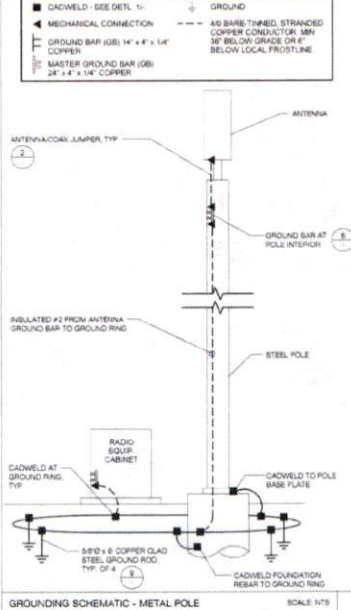
**PANEL A** FED FROM TRANSFORMER NEMA 3R VOLTAGE 240/120V 3P 3W BUS AMPS 60 MAIN BKR RG LUGS STANDARD

NO.	CB	CIRCUIT DESCRIPTION	KVA LOAD	NO.	CB	CIRCUIT DESCRIPTION	KVA LOAD
1	-	SPACE	0.00	2	201	RADIO EQUIPMENT	1.05
3	-	SPACE	0.00	4	201	RADIO EQUIPMENT	1.05
5	-	SPACE	0.00	6	201	SPARE	0.00
7	-	SPACE	0.00	8	-	SPACE	0.00
TOTAL CONNECTED KVA BY PHASE			11.8	TOTAL CONNECTED KVA BY PHASE			11.8
LIGHING			0	CONTRALOGS			0
LARGEST MOTOR			0	HEATING			0
OTHER MOTORS			0	NONCONTINUOUS			2.1
RECEPTACLES			0	TOTAL KVA			2.2

CONN. KVA CALC KVA  
 LIGHTING 0 0 (125%)  
 LARGEST MOTOR 0 0 (125%)  
 OTHER MOTORS 0 0 (125%)  
 RECEPTACLES 0 C

● PER NEC 210.4(B) PROVIDE COMMON TRIP HANDLES FOR ALL MULTI-CIRCUIT CONDUIT RUNS.

ELECTRICAL PANEL SCHEDULES SCALE: NTS 14



GROUNDING SCHEMATIC - METAL POLE SCALE: NTS 8

**POWER FEEDER SCHEDULE**

LENGTH	SIZE (AWG/KCMIL)	GROUND SIZE	CONDUIT SIZE
330	3	6	2"
380	1	4	2"
470	1/0	2	2"
590	2/0	2	2"
680	3/0	2	2"
800	4/0	1	2"
900	250	1/0	2-1/4"
1080	300	2/0	2-1/2"

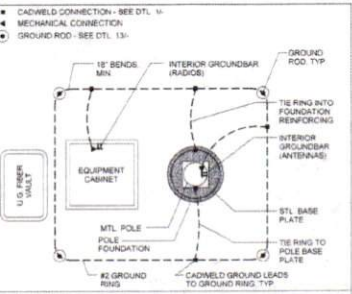


FEEDER SCHEDULE SCALE: NTS 15

**FAULT CURRENT CALCULATION**

Fault Point	Panel Transformer	Source (Fault Point)	Source I (amps)	Conduit Type	Wire/Bus Size	C value	E (volts)	L (length)	f	M	Isc	AC Rating
1	UTILITY XFORMER'S PEDESTAL	1	22000	NM	1 Set(s) of 2	3750	240	200	0.851	0.54	11884	22,000
2	Panel-A @ 20'	1	22000	NM	1 Set(s) of 2	3750	240	100	4.296	0.19	4185	10,000
3	Panel-A @ 150'	1	22000	NM	1 Set(s) of 2	3750	240	150	6.385	0.14	2979	10,000
4	Panel-A @ 200'	1	22000	NM	1 Set(s) of 2	3750	240	200	8.513	0.11	2313	10,000

FAULT CURRENT CALCULATION SCALE: NTS 20



EQUIPMENT GROUNDING SCHEMATIC DTL SCALE: NTS 17

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE AND ALL OTHER APPLICABLE LOCAL CODES.  
 2. CONTRACTOR SHALL OBTAIN ALL PERMITS. 70% ALL PERMIT FEE AND SCHEDULE ALL REQUIRED INSPECTIONS. CONTRACTOR SHALL OBTAIN LOCAL POWER COMPANY APPROVAL AND COORDINATE SERVICE ENTRANCE REQUIREMENTS.  
 3. CONTRACTOR SHALL VERIFY SERVICE LOCATIONS AND CONTACT PROJECT MANAGER WITH DISCREPANCIES FROM PLAN.  
 4. CONTRACTOR SHALL PROVIDE ALL LABELS AND MATERIAL DECEASED ON THE DRAWING AND ALL FEES INCIDENT TO COMPLETING AND PRESERVING THIS PROJECT AS FULLY OPERATIONAL. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED.  
 5. CONDUITORS SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT (UNDERGROUND) AND A/C CONDUIT ABOVE GROUND.  
 6. PROVIDE 1/2" SCHEDULE 40 PVC UNDERGROUND CONDUIT WITH FULL WIRE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND JUNCTION BOX. CONTRACTOR SHALL DETERMINE REQUIRED NUMBER AND LOCATION OF JUNCTION BOXES PER UTILITY STANDARDS.  
 7. USE 1/2" SCHEDULE 40 PVC CONDUIT AND APPROPRIATE FITTINGS TO ENTER AND LEAVE CONDUIT.  
 8. CONTRACTOR TO NOTIFY ALL APPROPRIATE PARTIES PRIOR TO CONSTRUCTION AND SHALL PROVIDE AND MAINTAIN A TRAFFIC CONTROL PLAN PER NOTED REQUIREMENTS.  
 9. CONTRACTOR TO LOCATE ALL UTILITIES IN PROJECT AREA PRIOR TO CONSTRUCTION THROUGH BLUE STAKE.  
 10. VERIFY DEPTH OF EXISTING UTILITY CROSSING POINTS VIA APPROVED TYPING METHODS AND NOTE ON PLAN SETS FOR AS-BUILT CLOSE-OUT.  
 11. NOTE DEPTH AND LOCATIONS OF ALL TALLED UTILITIES ON AS-BUILT REDLINE DRAWINGS.  
 12. IF EXISTING UTILITIES ARE ENCOUNTERED, CONTRACTOR SHALL NOTIFY OTHER PRIOR TO DISTURBING OR MODIFYING.  
 13. CONTRACTOR SHALL NOT RELOCATE PROPOSED EQUIPMENT OR POLE LOCATIONS WITHOUT WRITTEN APPROVAL FROM CROWN CASTLE AND PROJECT ENGINEER.  
 15. MATERIAL SUBSTITUTIONS ARE SUBJECT TO CROWN CASTLE AND ENGINEERING REVIEW PRIOR TO CONSTRUCTION.

ELECTRICAL NOTES SCALE: NONE 18

APPROVED: [Signature]  
 DATE: 11/11/16  
 Development Coordinator



CROWN CASTLE  
 600 E. JOHN CARPENTER Pkwy.  
 SUITE 200  
 IRVING, TX 75062

RECORD DRAWINGS ISSUE DATE: 10/16/16



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**RELEASE**

DATE	SUBMITTAL
03/16	1ST CITY SUBMITTAL
10/16/16	2ND CITY SUBMITTAL

**REVISIONS**

NO.	DATE	COMMENT
10	10/16/16	CITY COMMENTS

PROJECT NAME  
**CINCO RANCH EXPANSION**

HUB AREA  
**CINCO RANCH - HGCV**

SHIFT JOB NUMBER  
**150602**

SHEET TITLE  
**ELECTRICAL DETAILS**

SHEET NUMBER  
**E1.1**

PAGE  
**10 OF 14**

PLOT SCALE: 1/1 @ 24"X36"; 1/2 @ 11"X17"