



SPECIAL INSPECTIONS/CONSTRUCTION CONTROL NOTES:

WHERE PERMIT APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE SPECIAL INSPECTORS TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPE OF WORK LISTED ON THE STRUCTURAL NOTES & SPECIAL INSPECTIONS PAGE.

780 CMR SECTION 107.6.2.2 CONSTRUCTION. THE REGISTERED DESIGN PROFESSIONALS WHO ARE RESPONSIBLE FOR THE DESIGN, PLANS, CALCULATIONS, AND SPECIFICATIONS, THEIR DESIGNEE OR THE REGISTERED DESIGN PROFESSIONALS WHO HAVE BEEN RETAINED FOR CONSTRUCTION PHASE SERVICES, SHALL PERFORM THE FOLLOWING TASKS:

1. REVIEW, FOR CONFORMANCE TO THIS CODE AND THE DESIGN CONCEPT, SHOP DRAWINGS, SAMPLES AND OTHER SUBMITTALS BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS.
2. PERFORM THE DUTIES FOR REGISTERED DESIGN PROFESSIONALS IN CHAPTER 17: STRUCTURAL TESTS AND SPECIAL INSPECTIONS.
3. BE PRESENT AT INTERVALS APPROPRIATE TO THE STAGE OF CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK AND TO DETERMINE IF THE WORK IS BEING PERFORMED IN A MANNER CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND THIS CODE.

SEE SHEET S-1 FOR FURTHER INFORMATION.

FOR CONSTRUCTION

PREPARED FOR:

118 FLANDERS ROAD  
WESTBOROUGH, MA 01581

45 BEECHWOOD DRIVE  
N. ANDOVER, MA 01845

TEL: (978) 557-5553  
FAX: (978) 336-5586

NEW BEDFORD 5 MA

CROWN SITE #875083

3057 ACUSHNET AVENUE

NEW BEDFORD, MA 02745

STRUCTURAL NOTE:

ALL LINES AND ANTENNAS TO BE INSTALLED IN ACCORDANCE WITH PASSING STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND VERIZON WIRELESS ANTENNA DESIGN SHEET/RECOMMENDATION. REFER TO STRUCTURAL MODIFICATION TO TOWER BY P.J.F. PAUL J. FORD & COMPANY DATED 06/22/2018 PRIOR TO CONSTRUCTION.

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

VICINITY MAP

SCALE: N.T.S.

DIRECTIONS TO SITE:

GET ON I-495 S FROM FRIBERG PKWY AND MA-9 E/STATE HWY 9 E/BOSTON WORCESTER TURNPIKE.HEAD NORTHWEST ON FRIBERG PKWY TOWARD RESEARCH DR. TURN LEFT ONTO RESEARCH DR. TURN RIGHT TO MERGE ONTO MA-9 E/STATE HWY 9 E/BOSTON WORCESTER TURNPIKE. USE THE RIGHT LANE TO MERGE ONTO I-495 S VIA THE RAMP TO CAPE COD. CONTINUE ON I-495 S. TAKE MA-140 S TO ASHLEY BLVD IN NEW BEDFORD. TAKE EXIT 6 FROM MA-140 S. MERGE ONTO I-495 S. KEEP LEFT TO STAY ON I-495 S. TAKE EXIT 7B FOR MASSACHUSETTS 24 S TOWARD FALL RIVER. MERGE ONTO MA-24 S. TAKE EXIT 12 FOR MA-140 TOWARD NEW BEDFORD/TAUNTON. TURN RIGHT ONTO MA-140 S/COUNTY ST (SIGNS FOR NEW BEDFORD/GALLERIA MALL DR). USE THE LEFT LANE TO TAKE EXIT 6 FOR ASHLEY BLVD TOWARD MA-18. CONTINUE ON ASHLEY BLVD. DRIVE TO ACUSHNET AVE. CONTINUE ONTO ASHLEY BLVD. TURN LEFT ONTO ACUSHNET AVE. 3057 ACUSHNET AVE.

CONSULTANT TEAM

PROJECT ENGINEER

HUDSON DESIGN GROUP, LLC  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: 1-(978)-557-5553  
FAX: 1-(978)-336-5586

MEP ENGINEER

HUDSON DESIGN GROUP, LLC  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: 1-(978)-557-5553  
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PROJECT SUMMARY

SITE NAME:

NEW BEDFORD 5 MA

SITE ADDRESS:

3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

APPLICANT:

VERIZON WIRELESS  
118 FLANDERS ROAD  
WESTBOROUGH, MA 01581

ZONING DISTRICT:

MUB -- MIXED USE BUSINESS

ZONING JURISDICTION:

CITY OF NEW BEDFORD, MA

LATITUDE:

N 41° 42' 17.50"

LONGITUDE:

W 70° 56' 07.62"

PARCEL ID:

MAP: 132-I LOT 72

PROPERTY OWNER:

CHILD & FAMILY SERVICES INC  
3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

TOWER OWNER:

CROWN CASTLE INTERNATIONAL CORP.  
500 WEST CUMMINGS PARK #3600  
WOBURN, MA 01801  
781-970-0052

SHEET INDEX	
SHEET NO.	DESCRIPTION
T-1	TITLE SHEET
C-1	PLOT PLAN
A-1	COMPOUND PLAN
A-2	SOUTHEAST ELEVATION
A-3	ANTENNA PLAN & DETAILS
A-4	DETAILS
A-5	EQUIPMENT PLAN
A-6	EQUIPMENT DETAILS
S-1	STRUCTURAL NOTES & SPECIAL INSPECTIONS
S-2	STRUCTURAL DETAILS
E-1	ELECTRICAL NOTES & WIRING DIAGRAM
E-2	ELECTRICAL DETAILS & NOTES
E-3	GROUNDING PLAN
E-4	GROUNDING DETAILS
MODS	STRUCTURAL MODS

72 HOURS

CALL BEFORE YOU DIG

CALL TOLL FREE 1-888-DIG-SAFE

OR CALL 811

UNDERGROUND SERVICE ALERT

NOTE TO GENERAL CONTRACTOR:

'RF' DESIGN AND EQUIPMENT IS BASED UPON RFDS ISSUED BY VZW DATED: MARCH 25, 2019. THE CONTRACTOR OF RECORD SHALL CONTACT VZW PRIOR TO ANY AND ALL ORDERING/PURCHASING/INSTALLATION OF EQUIPMENT TO VERIFY THAT THE 'RF' LISTED IN THE DRAWING SET IS CURRENT AND UP TO DATE.

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
7	05/09/19	ADDED WETLAND	HH
6	03/12/19	REVISED ANTENNA MOUNT	HH
5	09/07/18	CHANGED TO 15KW DC GENSET	JH
4	08/10/18	RF & STRUCT. MODIFICATIONS	JH
3	03/14/18	REVISED PER COMMENTS	HH
2	02/08/18	REVISED PER COMMENTS	MR
1	05/05/17	REVISED PER LATEST RFDS	JH
0	09/23/15	ISSUED FOR CONSTRUCTION	JV

SITE NAME:

NEW BEDFORD 5 MA  
CROWN SITE # 875083

SITE ADDRESS:

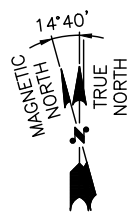
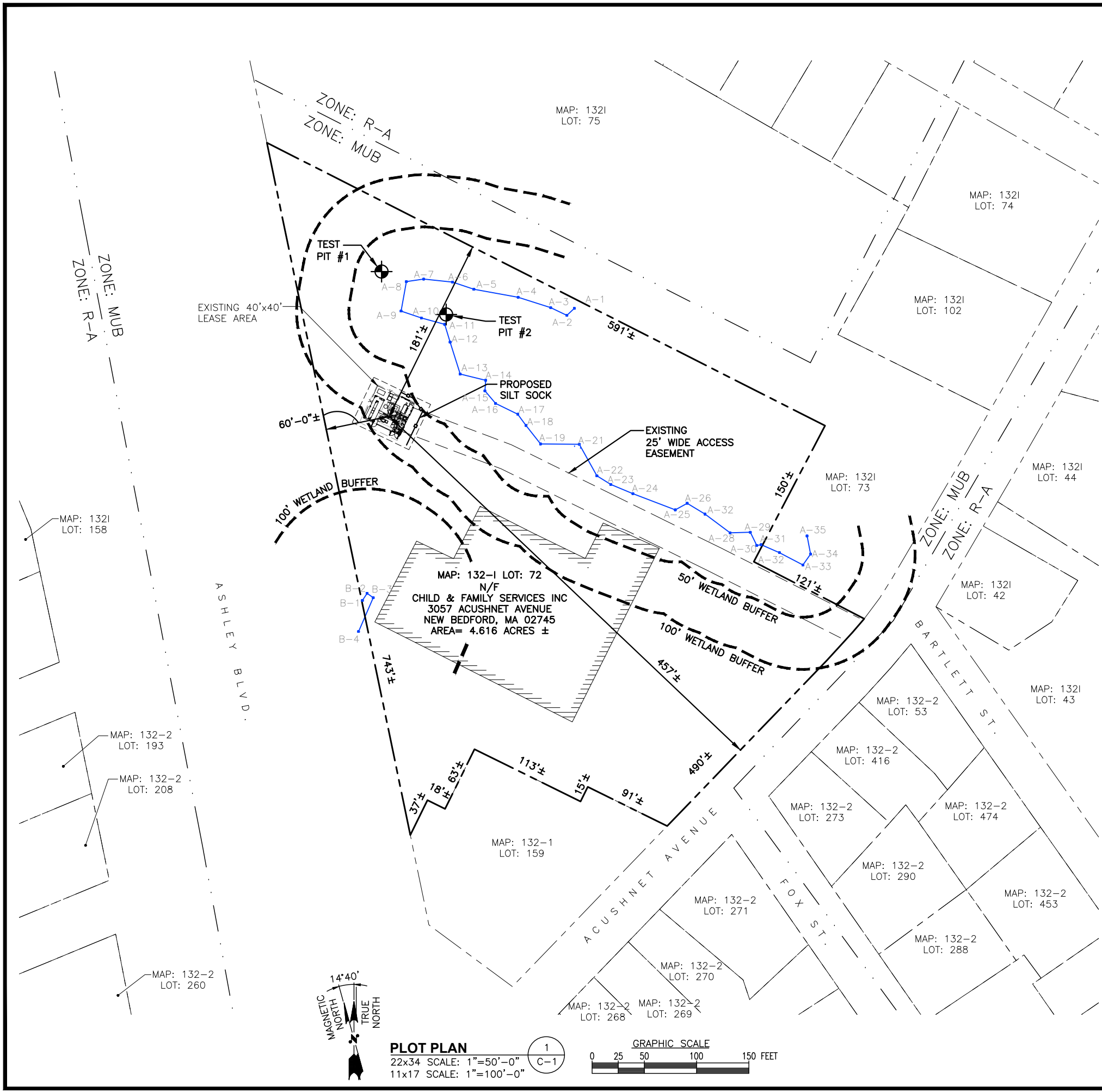
3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

SHEET TITLE

TITLE SHEET

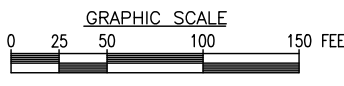
SHEET NUMBER

T-1



**PLOT PLAN**  
22x34 SCALE: 1"=50'-0"  
11x17 SCALE: 1"=100'-0"

1  
C-1



**SOURCE:**

1. CITY OF NEW BEDFORD MA TAX MAP AND MASS OLIVER GIS ONLINE MAPS.
2. WETLAND DELINEATION BY A & D KLUMB ENVIRONMENTAL, LLC ON APRIL 30, 2019 AND SURVEYED BY NORTHEAST SURVEY CONSULTANTS ON MAY 07, 2019.

**SITE SPECIFIC NOTES:**

1. SITE SURVEY HAS NOT BEEN CONDUCTED BY HUDSON DESIGN GROUP, LLC FOR THIS PROJECT. ALL SETBACKS SHOWN ON THIS PLAN ARE TAKEN FROM TIP OF PROPOSED ANTENNAS TO PROPERTY LINES AND ARE APPROXIMATE.
2. VERIFY AZIMUTHS W/ RF ENGINEER.
3. PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLAN AND RECORD DOCUMENTS AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. A FULL BOUNDARY SURVEY WAS NOT PERFORMED.

**ZONES:**

MUB	MIXED OF BUSINESS
R-A	RESIDENTIAL A

**LEGEND:**

- PROPERTY LINE - SUBJECT PARCEL
- PROPERTY LINE - ABUTTERS
- ZONING BOUNDARY LINE
- EXISTING BUILDING

**ZONING INFORMATION:**

JURISDICTION:	CITY OF NEW BEDFORD	
ZONING DISTRICT TYPE:	MUB - MIXED USE BUSINESS	
DIMENSION REQUIREMENTS:	REQUIRED	PROP.±
FRONT YARD SETBACK:	20'	457' & 181'
SIDE YARD SETBACK:	8'	60'
REAR YARD SETBACK:	20'	N/A
(ALL MEASUREMENTS ARE IN FEET ± UNLESS OTHERWISE NOTED)		

FOR CONSTRUCTION

PREPARED FOR:

**verizon**

118 FLANDERS ROAD  
WESTBOROUGH, MA 01581

**HG HUDSON Design Group LLC**

45 BEECHWOOD DRIVE  
N. ANDOVER, MA 01845

TEL: (978) 557-5553  
FAX: (978) 336-5586

COMMONWEALTH OF MASSACHUSETTS

DEREK J. CREASER  
CIVIL  
No. 79195  
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

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APPROVED BY: DPH

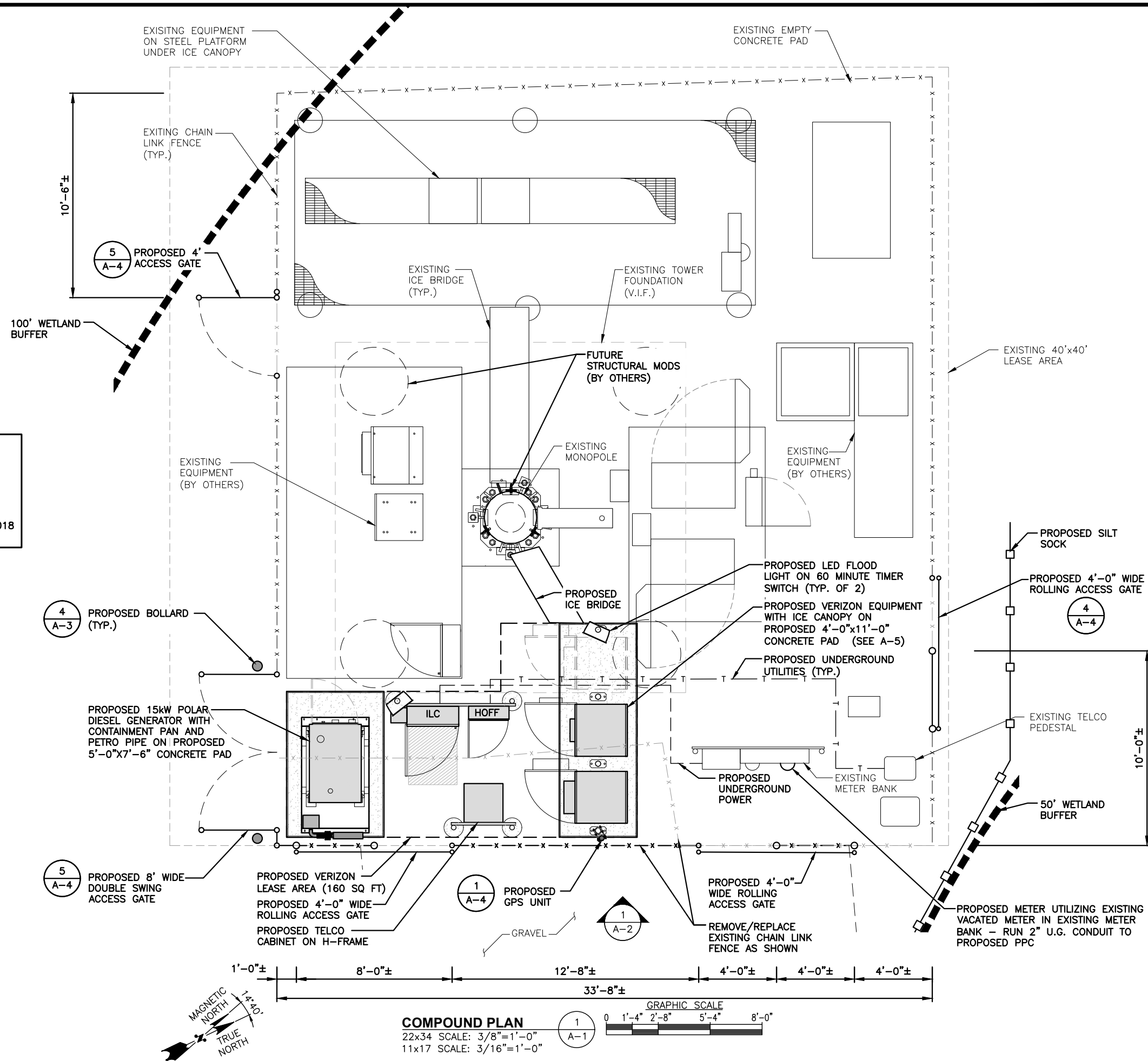
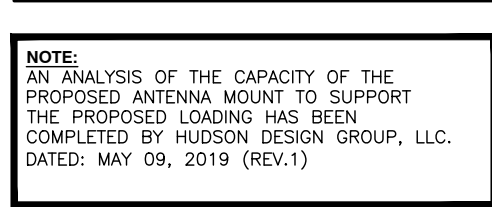
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0	09/23/15	ISSUED FOR CONSTRUCTION

SITE NAME:  
NEW BEDFORD 5 MA  
CROWN SITE # 875083

SITE ADDRESS:  
3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

SHEET TITLE  
PLOT PLAN

SHEET NUMBER  
C-1




**FOR CONSTRUCTION**

PREPARED FOR:

**verizon** ✓

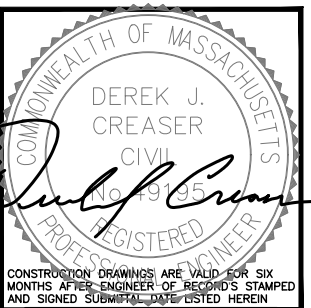
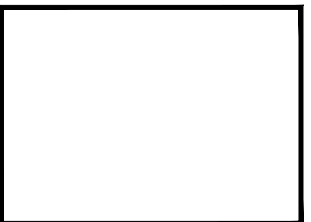
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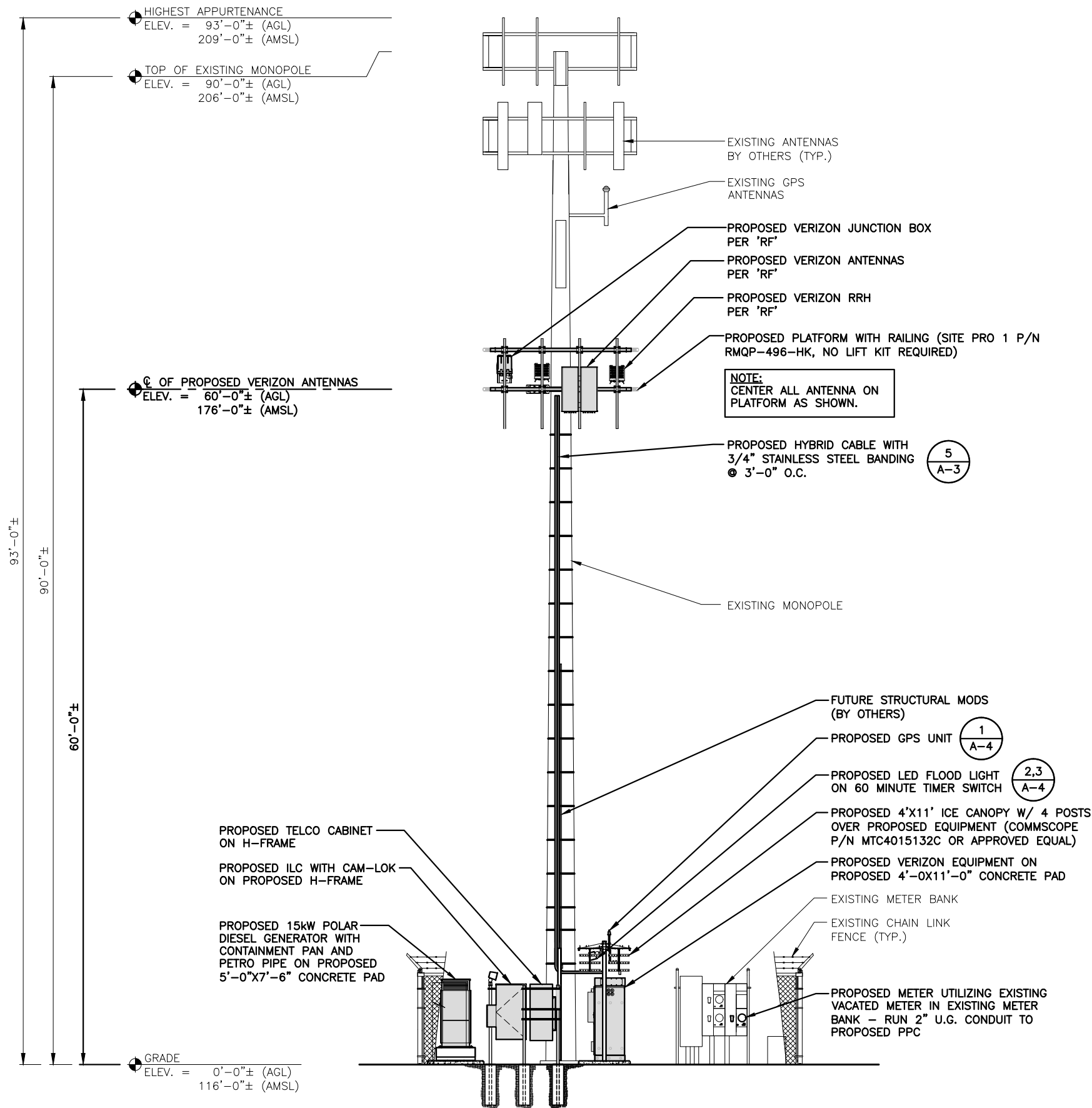
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SHEET TITLE

# COMPOUND PLAN

SHEET NUMBER  
**A-1**





## PROPOSED ANTENNA INFORMATION

SECTOR	STATUS	AZIMUTH	CABLE LENGTH
1	PROPOSED	25°	90'
2	PROPOSED	150°	90'
3	PROPOSED	260°	90'

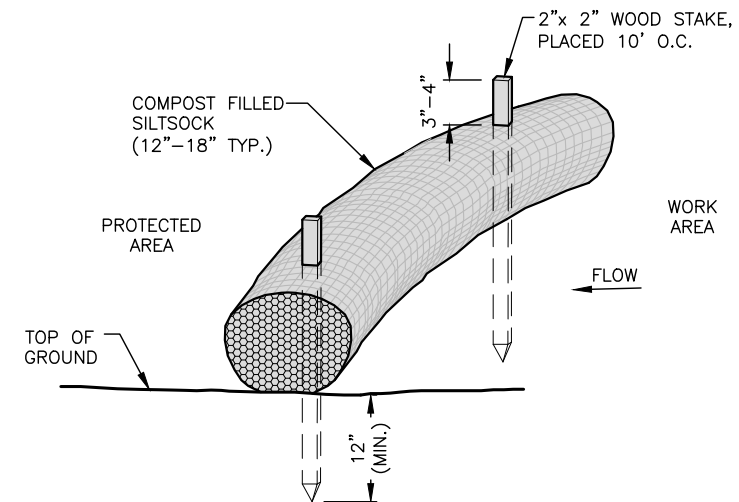
NOTE: CABLE LENGTH = EXACT LENGTH PLUS 25'

### STRUCTURAL NOTE:

ALL LINES AND ANTENNAS TO BE INSTALLED IN ACCORDANCE WITH PASSING STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND VERIZON WIRELESS ANTENNA DESIGN SHEET/RECOMMENDATION. REFER TO STRUCTURAL MODIFICATION TO TOWER BY P.J.F. PAUL J. FORD & COMPANY DATED 06/22/2018 PRIOR TO CONSTRUCTION.

### NOTE:

AN ANALYSIS OF THE CAPACITY OF THE PROPOSED ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DATED: MAY 09, 2019 (REV.1)



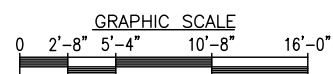
- NOTES:
- SILT SOCK SHALL BE FILTREXX SILT SOCK, OR APPROVED EQUAL.
  - COMPOST MATERIAL SHALL BE DISPERSED ON SITE, AS DETERMINED BY THE ENGINEER.
  - SILT SOCK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS, AND REPAIR OR REPLACEMENT SHALL BE PERFORMED PROMPTLY AS NEEDED.
  - SEE SPECIFICATIONS FOR SOCK SIZE, AND COMPOST FILL, REQUIREMENTS.

**SILT SOCK DETAIL**  
SCALE: N.T.S.

## SOUTHEAST ELEVATION

22x34 SCALE: 3/16"=1'-0"  
11x17 SCALE: 3/32"=1'-0"

1  
A-2



FOR CONSTRUCTION

PREPARED FOR:

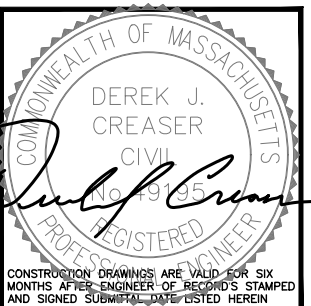
**verizon**

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CHECKED BY: JX

APPROVED BY: DPH

## SUBMITTALS

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SHEET TITLE  
SOUTHEAST  
ELEVATION

SHEET NUMBER

A-2



PROPOSED SIDE-BY-SIDE ANTENNA  
MOUNT COMMSCOPE P/N  
BSAMNT-SBS-2-2 (TYP. OF 1 PER  
SECTOR, TOTAL OF 3)

ALPHA  
SECTOR  
25°

PROPOSED PLATFORM WITH RAILING  
(SITE PRO 1 P/N RMQP-496-HK,  
NO LIFT KIT REQUIRED)

PROPOSED VERIZON JUNCTION BOX  
PER 'RF'

PROPOSED VERIZON RRH  
PER 'RF'

PROPOSED VERIZON PANEL  
ANTENNA PER 'RF'

NOTE:  
CENTER ALL ANTENNA ON  
PLATFORM AS SHOWN.

PROPOSED SIDE-BY-SIDE ANTENNA  
MOUNT COMMSCOPE P/N  
BSAMNT-SBS-2-2  
(TYP. OF 1 PER SECTOR,  
TOTAL OF 3)

PROPOSED VERIZON PANEL  
ANTENNA PER 'RF'

PROPOSED VERIZON RRH  
PER 'RF'

PROPOSED VERIZON  
JUNCTION BOX PER 'RF'

NOTE:  
CENTER ALL ANTENNA ON  
PLATFORM AS SHOWN.

Q OF PROPOSED PLATFORM MOUNT  
& VERIZON ANTENNAS  
ELEV. = 60'-0"± (AGL)  
176'-0"± (AMSL)

#### STRUCTURAL NOTE:

ALL LINES AND ANTENNAS TO BE INSTALLED IN  
ACCORDANCE WITH PASSING STRUCTURAL ANALYSIS  
PROVIDED BY CROWN CASTLE AND VERIZON WIRELESS  
ANTENNA DESIGN SHEET/RECOMMENDATION.  
REFER TO STRUCTURAL MODIFICATION TO TOWER  
BY P.J.F. PAUL J. FORD & COMPANY DATED 06/22/2018  
PRIOR TO CONSTRUCTION.

FOR CONSTRUCTION

PREPARED FOR:

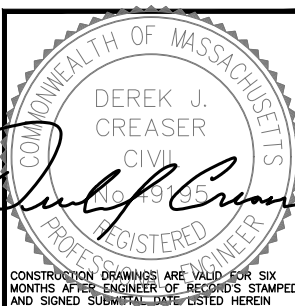
verizon

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HG  
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APPROVED BY: DPH

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SITE NAME:

NEW BEDFORD 5 MA  
CROWN SITE # 875083

SITE ADDRESS:

3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

SHEET TITLE

ANTENNA PLAN &  
DETAILS

SHEET NUMBER

A-3

GAMMA  
SECTOR  
260°

BETA  
SECTOR  
150°

#### ANTENNA PLAN, RRH & JUNCTION BOX PLAN

22x34 SCALE: N.T.S.

1  
A-3

#### PARTIAL ELEVATION

22x34 SCALE: 1/2"=1'-0"  
11x17 SCALE: 1/4"=1'-0"

2  
A-3

GRAPHIC SCALE

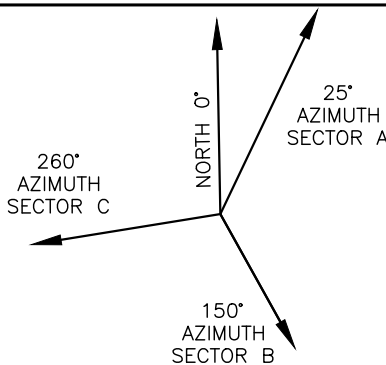


#### NOTE:

AN ANALYSIS OF THE CAPACITY OF THE  
PROPOSED ANTENNA MOUNT TO SUPPORT  
THE PROPOSED LOADING HAS BEEN  
COMPLETED BY HUDSON DESIGN GROUP, LLC.  
DATED: MAY 09, 2019 (REV.1)

#### NOTE:

1. VERIFY AZIMUTHS W/ RF ENGINEER.



ANTENNA ORIENTATION

CONTRACTOR TO SPEC  
HANGERS PER CABLE  
TYPE AND SIZE

SITE PRO1 ICE BRIDGE  
#IB24D-216T3 (OR  
APPROVED EQUAL)

SITE PRO 1 BOLT-ON  
BASE SHOE (P# BSA300)  
WITH (3) 5/8"Ø WEDGE  
ANCHORS

12"Ø 3000 PSI  
CONCRETE PILE  
CUT POST AS  
REQUIRED (TYP.)

#### CABLE BRIDGE DETAIL

22x34 SCALE: N.T.S.

3  
A-3

CONCRETE FILL

6" STD. (6.63" O.D.)  
PIPE FILLED  
WITH CONCRETE  
(PAINTED YELLOW)

FINISH GRADE

CONCRETE PIER

#### CONCRETE FILLED BOLLARD

22x34 SCALE: N.T.S.

4  
A-3

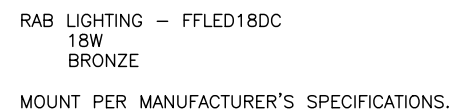
#### CABLE MOUNT DETAIL

22x34 SCALE: N.T.S.

5  
A-3

ANDREW COAX MOUNTING  
BAND (P# EX-P1060) OR  
APPROVED EQUAL

CONTRACTOR TO SPEC  
HANGERS PER CABLE  
TYPE AND SIZE



**LED FLOOD LIGHT DETAIL** 2  
SCALE: N.T.S. A-4



TYPE: DOUBLE GANG  
HINGE: VERTICAL  
INSERT: WP217  
DEPTH: 2-1/4"  
COLOR: CLEAR



TIME CYCLE: 6 HOURS  
SWITCH: SPST  
HOLD: NO  
OR APPROVED EQUIVALENT

OR APPROVED EQUIVALENT

**SWITCH DETAIL**  
SCALE: N.T.S.



1. ALTERNATE FOOTINGS FOR ALL FENCE POSTS IN LEDGE: IF LEDGE IS ENCOUNTERED AT GRADE, OR AT A DEPTH SHALLOWER THAN 3'-6", CORE DRILL AN 8" DIA HOLE 18" INTO THE LEDGE. CENTER POST IN THE HOLE AND FILL WITH CONCRETE OR GROUT. IF LEDGE IS BELOW FINISH GRADE, COAT BACKFILLED SECTION OF POST WITH COAL TAR, AND BACKFILL WITH WELL-DRAINING GRAVEL.

2. ATTACH EACH GATE WITH 1-1/2 PAIR OF NON-LIFT-OFF TYPE, MALLEABLE IRON OR FORGING, PIN-TYPE HINGES. ASSEMBLIES SHALL ALLOW FOR 180° OF GATE TRAVEL.



A-4

**HG**  
**HUDSON**  
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COMMONWEALTH OF MASSACHUSETTS  
DEREK J. CREASER  
CIVIL  
No. 49195  
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

APPROVED BY: DPH

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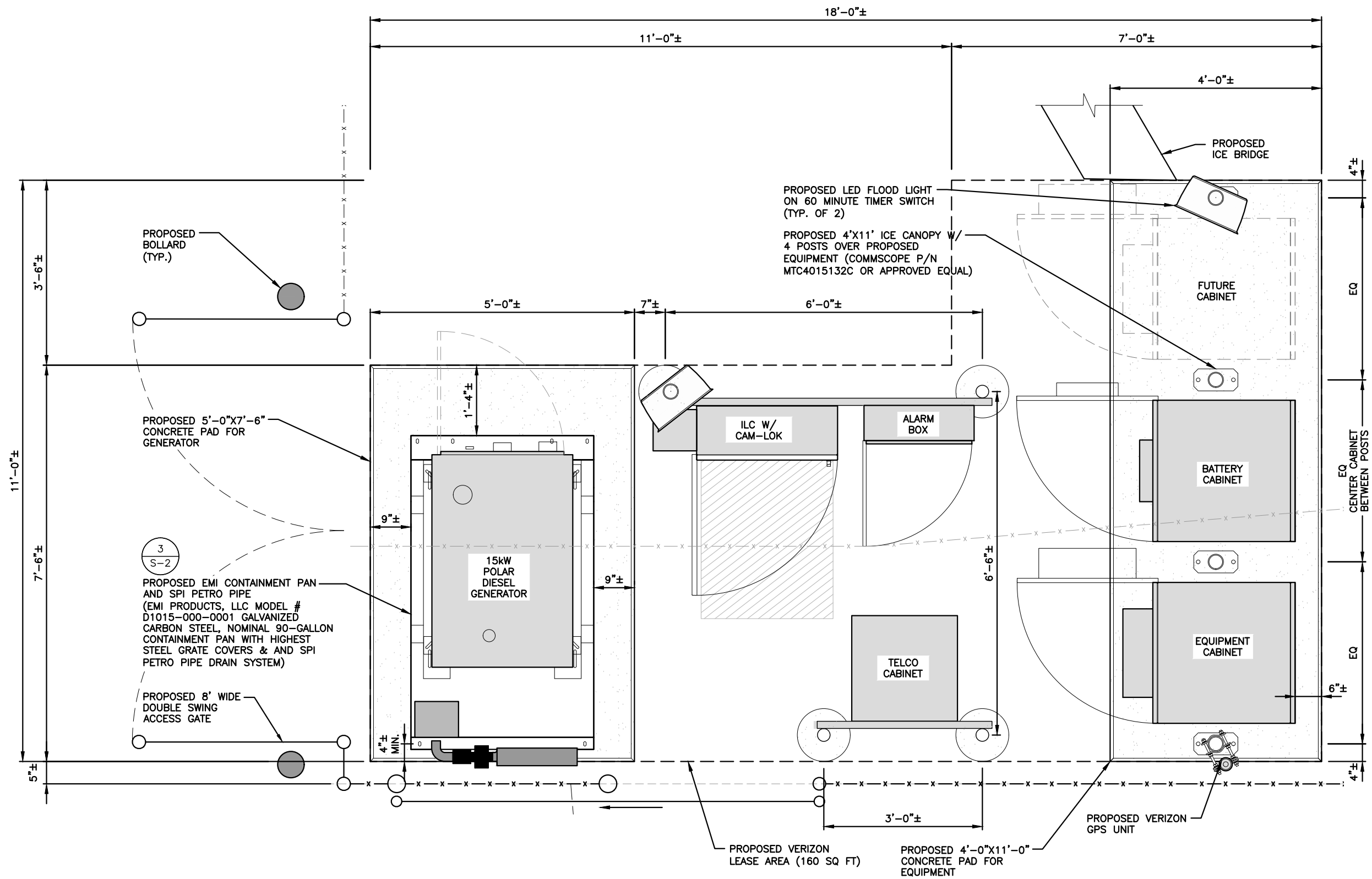
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NEW BEDFORD, MA 02745

SHEET TITLE  
EQUIPMENT PLAN

SHEET NUMBER

**A-5**



**EQUIPMENT DETAIL**

22x34 SCALE: 1"=1'-0"

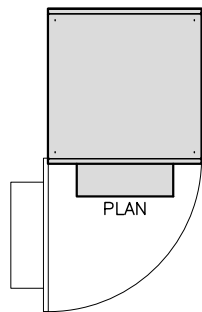
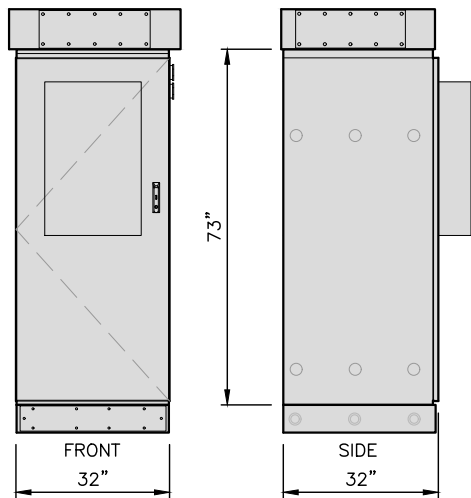
11x17 SCALE: 1/2"=1'-0"

1  
A-5

GRAPHIC SCALE

0 .5 1 2 3 FEET

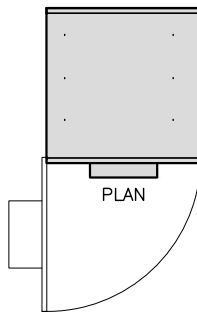
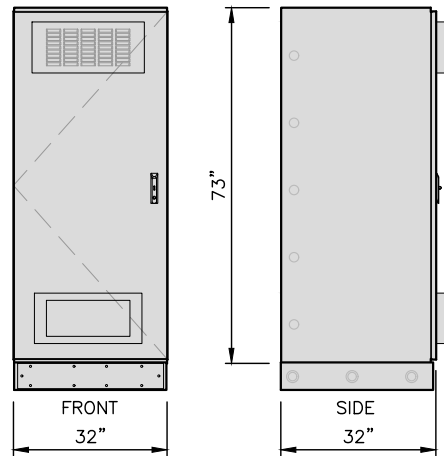




**EQUIPMENT CABINET (1) DETAIL**  
SCALE: N.T.S.

1  
A-6

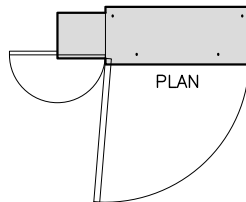
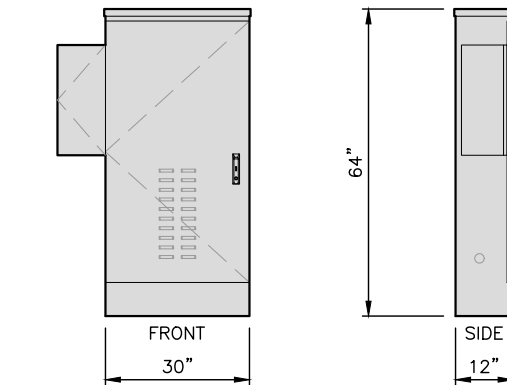
EQUIPMENT CABINET (1)
CHARLES INDUSTRIES, LTD.
PM63912MC1
w/ TOP HAT & PLINTH
700lbs + 55lbs + 55lbs



**BATTERY CABINET DETAIL**  
SCALE: N.T.S.

2  
A-6

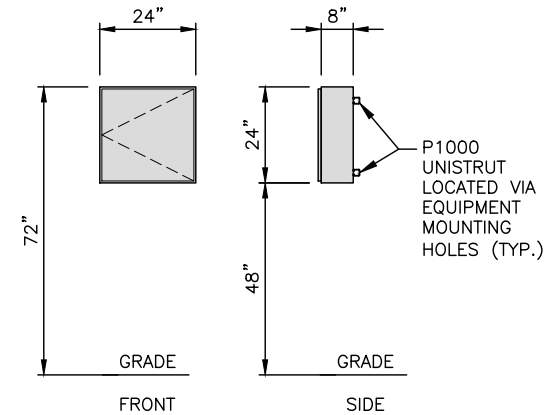
POWER CABINET
CHARLES INDUSTRIES, LTD.
BB48E1HN1
w/ PLINTH
2,650lbs + 55lbs



**POWER TELCO CABINET DETAIL**  
SCALE: N.T.S.

3  
A-6

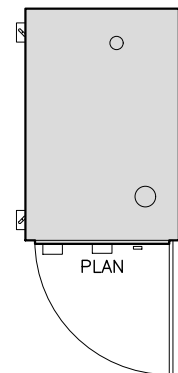
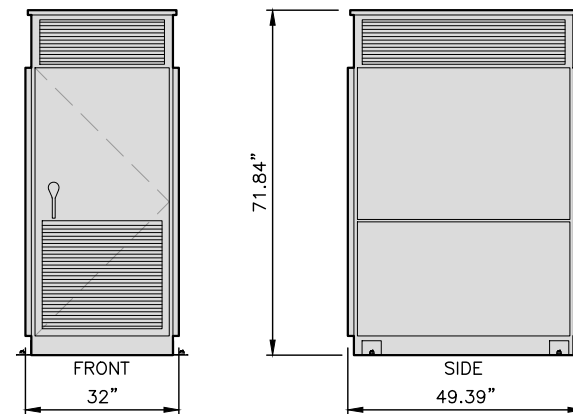
POWER TELCO CABINET
INTERSECT, INC.
AA-CL-3S PTLC SERIES
200 AMP 150 lbs.



**HOFFMAN BOX DETAIL**  
SCALE: N.T.S.

4  
A-6

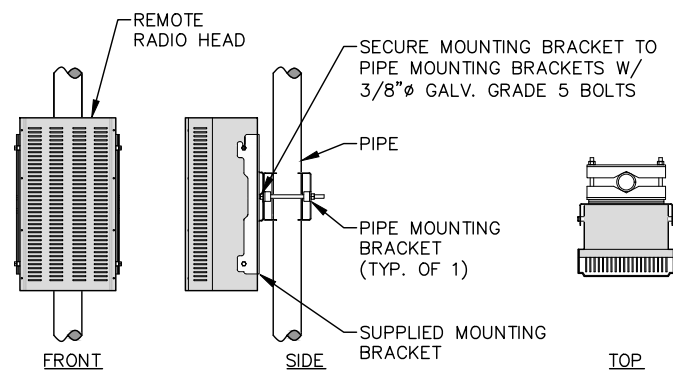
PANEL ENCLOSURE
COOPER INDUSTRIES
24248RHC
16 GA.



**GENERATOR DETAIL**  
SCALE: N.T.S.

7  
A-6

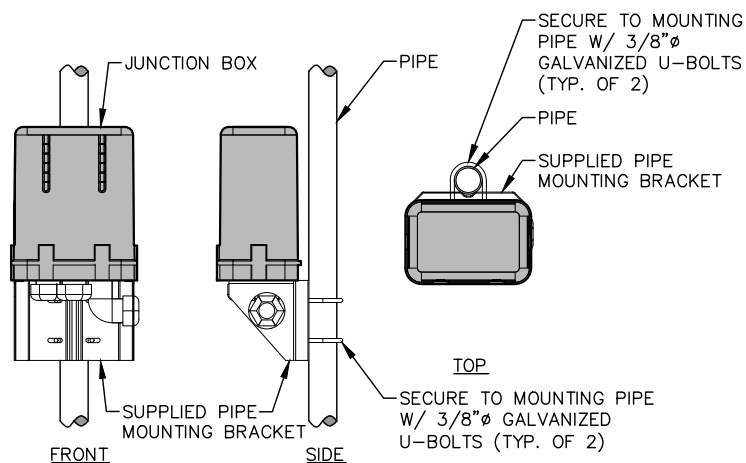
GENERATOR
POLAR POWER, INC.
8220Y-STNV88-15kW
DRY WEIGHT - 1,248 lbs.



**REMOTE RADIO HEAD**  
22x34 SCALE: N.T.S.

5  
A-6

REFER TO LATEST  
ANTENNA DESIGN FOR  
RRH MODEL AND SIZE



**JUNCTION BOX**  
22x34 SCALE: N.T.S.

6  
A-6

FOR CONSTRUCTION

PREPARED FOR:

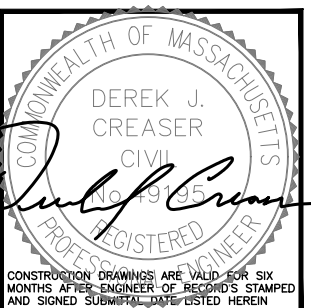
**verizon**

118 FLANDERS ROAD  
WESTBOROUGH, MA 01581

**HG**  
**HUDSON**  
**Design Group LLC**

45 BEECHWOOD DRIVE  
N. ANDOVER, MA 01845

TEL: (978) 557-5553  
FAX: (978) 336-5586



CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
7	05/09/19	ADDED WETLAND	HH
6	03/12/19	REVISED ANTENNA MOUNT	HH
5	09/07/18	CHANGED TO 15kW DC GENSET	JH
4	08/10/18	RF & STRUCT. MODIFICATIONS	JH
3	03/14/18	REVISED PER COMMENTS	HH
2	02/08/18	REVISED PER COMMENTS	MR
1	05/05/17	REVISED PER LATEST RFDS	JH
0	09/23/15	ISSUED FOR CONSTRUCTION	JV

SITE NAME:  
NEW BEDFORD 5 MA  
CROWN SITE # 875083

SITE ADDRESS:  
3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

SHEET TITLE  
EQUIPMENT DETAILS

SHEET NUMBER  
**A-6**

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D.I.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-70 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS <sup>1</sup>
N/A	MATERIAL SPECIFICATIONS REPORT <sup>2</sup>
N/A	FABRICATOR NDE INSPECTION
N/A	PACKING SLIPS <sup>3</sup>
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS <sup>4</sup>
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION <sup>5</sup>
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS <sup>6</sup>
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"Ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

**GENERAL:** WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

REQUIRED INSPECTIONS AND SITE REVIEW DOCUMENT AS A CONDITION OF THE BUILDING PERMIT THE FOLLOWING INSPECTIONS AND SITE REVIEWS IDENTIFIED BY THE BUILDING OFFICIAL ARE REQUIRED FOR WORK PER THE 9TH EDITION OF THE MASSACHUSETTS STATE BUILDING CODE, 780 CMR, SECTION 110 AND CHAPTER 17

REQUIRED SITE REVIEW AND DOCUMENTATION FOR PORTIONS OR PHASES CONSTRUCTION<sup>1&7</sup>

(TO BE PERFORMED BY THE APPROPRIATE REGISTERED DESIGN PROFESSIONAL OR HIS/HER DESIGNEE OR M.G.L.C 112 §81R CONTRACTOR)

SITE REVIEW AND DOCUMENTATION	X	SITE REVIEW AND DOCUMENTATION	X
SOIL CONDITION/ANALYSIS/REPORT		ENERGY EFFICIENCY REQUIREMENTS	
FOOTING AND FOUNDATION (INCLUDING REINFORCEMENT AND FOUNDATION ATTACHMENT)		FIRE ALARM INSTALLATION <sup>2</sup>	
CONCRETE FLOOR AND UNDER FLOOR		FIRE SUPPRESSION INSTALLATION <sup>3</sup>	
LOWEST FLOOR FLOOD ELEVATION		FIELD REPORTS <sup>5</sup>	
STRUCTURAL FRAME - WALL/FLOOR/ROOF	X	CARBON MONOXIDE DETECTION SYSTEM <sup>4</sup>	
LATH AND PLASTER/GYPSUM		SEISMIC REINFORCEMENT	
FIRE RESISTANT WALL/PARTITIONS FRAMING		SMOKE CONTROL SYSTEMS	
FIRE RESISTANT WALL/PARTITIONS FINISH ATTACHMENTS		SMOKE AND HEAT VENTS	
ABOVE CEILING INSPECTION		ACCESSIBILITY (521 CMR)	
FIRE BLOCKING/STOPPING SYSTEM		OTHER:	
EMERGENCY LIGHTING/EXIT SIGNAGE			
MEANS OF EGRESS COMPONENTS		SPECIAL INSPECTIONS (SECTION 1704):	X
ROOFING, COPING/SYSTEM			
VENTING SYSTEMS (KITCHEN, CHEMICAL, FUME)			
MECHANICAL SYSTEMS			

1. IT IS THE RESPONSIBILITY OF THE PERMIT APPLICANT TO NOTIFY THE BUILDING OFFICIAL OF REQUIRED INSPECTIONS (X). INSPECTION OF 780 CMR FIRE PROTECTION SYSTEMS MAY BE WITNESSED BY THE FIRE OFFICIAL AND INSTALLATION PERMITS ARE REQUIRED FROM THE FIRE DEPARTMENT PER 527 CMR.

2. INCLUDE NFPA 72 TEST AND ACCEPTANCE DOCUMENTATION

3. INCLUDE APPLICABLE NFPA 13, 13R, 13D, 14, 15, 17, 20, 241, ETC. -- TEST AND ACCEPTANCE DOCUMENTATION

4. INCLUDE NFPA 720 RECORD OF COMPLETION AND INSPECTION AND TEST FORM

5. INCLUDE FIELD REPORTS AND RELATED DOCUMENTATION

6. WORK SHALL NOT PROCEED, OR BE CONCEALED, UNTIL THE REQUIRED INSPECTION HAS BEEN APPROVED BY THE BUILDING OFFICIAL, AND NOTHING WITHIN CONSTRUCTION CONTROL SHALL HAVE THE EFFECT OF WAIVING OR LIMITING THE BUILDING OFFICIAL'S AUTHORITY TO ENFORCE THIS CODE WITH RESPECT TO EXAMINATION OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, COMPUTATIONS AND SPECIFICATIONS, AND FIELD INSPECTIONS.

7. ROUGH AND/OR FINISH INSPECTIONS OF ELECTRICAL, PLUMBING, OR SHEET METAL SHALL BE INSPECTED PRIOR TO ROUGH AND FINISH INSPECTIONS BY THE BUILDING OFFICIAL.

MASSACHUSETTS AMENDMENTS TO THE IBC (REFERENCE 780 CMR):

**107.6 CONSTRUCTION CONTROL.**  
**107.6.1 GENERAL.** THIS SECTION SHALL APPLY TO THE CONSTRUCTION CONTROLS, PROFESSIONAL SERVICES AND CONTRACTOR SERVICES REQUIRED FOR BUILDINGS AND STRUCTURES NEEDING REGISTERED DESIGN PROFESSIONAL SERVICES.

**107.6.1.1 SPECIALIZED STRUCTURES.** TELECOMMUNICATION TOWERS, WIND TURBINE TOWERS, AND SIMILAR STRUCTURES ARE ENGINEERED STRUCTURES AND SHALL BE SUBJECT TO THE REQUIREMENTS OF SECTION 107.6.

**107.6.2.2 CONSTRUCTION.** THE REGISTERED DESIGN PROFESSIONALS WHO ARE RESPONSIBLE FOR THE DESIGN, PLANS, CALCULATIONS, AND SPECIFICATIONS, THEIR DESIGNEE OR THE REGISTERED DESIGN PROFESSIONALS WHO HAVE BEEN RETAINED FOR CONSTRUCTION PHASE SERVICES, SHALL PERFORM THE FOLLOWING TASKS:

1. REVIEW, FOR CONFORMANCE TO 780 CMR AND THE DESIGN CONCEPT, SHOP DRAWINGS, SAMPLES AND OTHER SUBMITTALS BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS.

2. PERFORM THE DUTIES FOR REGISTERED DESIGN PROFESSIONALS IN 780 CMR 17.00 SPECIAL INSPECTIONS AND TESTS.

3. BE PRESENT AT INTERVALS APPROPRIATE TO THE STAGE OF CONSTRUCTION TO BECOME GENERALLY FAMILIAR WITH THE PROGRESS AND QUALITY OF THE WORK AND TO DETERMINE IF THE WORK IS BEING PERFORMED IN A MANNER CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND 780 CMR.

THE PERMIT APPLICATION SHALL NOT BE DEEMED COMPLETED UNTIL ALL OF THE CONSTRUCTION DOCUMENTS REQUIRED BY 780 CMR HAVE BEEN SUBMITTED. DOCUMENTATION INDICATING THAT WORK COMPLIES WITH THE PLANS AND SPECIFICATIONS SHALL BE PROVIDED AT THE COMPLETION OF EACH PHASE WHEN REQUIRED BY THE BUILDING OFFICIAL. UPON COMPLETION OF THE WORK, THE REGISTERED DESIGN PROFESSIONAL SHALL FILE A FINAL DOCUMENT TO THE BUILDING OFFICIAL INDICATING THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THW APPROVED PLANS AND 780 CMR. FORMS FOR CONSTRUCTION CONTROL WHEN REQUIRED BY THE BUILDING OFFICIAL SHALL BE THOSE FOUND AT <http://www.mass.gov/ocabr/government/oca-agencies/dpl-lp/opsi/>.

**107.6.2.3 SPECIAL INSPECTIONS AND TESTS.** SPECIAL INSPECTIONS AND TESTS SHALL BE PROVIDED IN ACCORDANCE WITH 780 CMR 17.00 SPECIAL INSPECTIONS AND TESTS.

**170.6.2.4 NON STRUCTURAL SYSTEM TEST AND INSPECTION.** TESTS AND INSPECTIONS OF NON-STRUCTURAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE ENGINEERING PRACTICE STANDARDS, REFERENCED STANDARDS LISTED IN 780 CMR 35.00: REFERENCED STANDARDS, OR AS OTHERWISE SPECIFIED IN 780 CMR.

**107.6.3 CONSTRUCTION CONTRACTOR SERVICES.** THE ACTUAL CONSTRUCTION OF THE WORK SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR AS IDENTIFIED ON THE APPROVED PERMIT AND SHALL INVOLVE THE FOLLOWING:

1. EXECUTION OF ALL WORK IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

2. EXECUTION AND CONTROL OF ALL METHODS OF CONSTRUCTION IN A SAFE AND SATISFACTORY MANNER IN ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL STATUTES AND REGULATIONS.

3. UPON COMPLETION OF THE CONSTRUCTION, CERTIFICATION IN WRITING TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE THAT, TO THE BEST OF THE CONTRACTOR'S KNOWLEDGE AND BELIEF, CONSTRUCTION HAS BEEN DONE IN SUBSTANTIAL ACCORD WITH SECTION 107.6 AND WITH ALL PERTINENT DEVIATIONS SPECIFICALLY NOTED. THE BUILDING OFFICIAL MAY REQUIRE A COPY OF THIS CERTIFICATION.

**107.6.4 PROJECT REPRESENTATION.** A PROJECT REPRESENTATIVE MAY BE REQUIRED BY THE BUILDING OFFICIAL. THIS REPRESENTATIVE SHALL KEEP DAILY RECORDS AND SUBMIT REPORTS AS MAY BE REQUIRED BY THE BUILDING OFFICIAL. THIS PROJECT REPRESENTATION REQUIREMENT SHALL BE DETERMINED PRIOR TO THE ISSUANCE OF THE PERMIT AND MAY BE A PREREQUISITE FOR PERMIT ISSUANCE. REFUSAL BY THE APPLICANT TO PROVIDE SUCH SERVICE IF REQUIRED BY THE BUILDING OFFICIAL SHALL RESULT IN THE DENIAL OF THE PERMIT. ALL FEES AND COSTS RELATED TO THE PERFORMANCE OF PROJECT REPRESENTATION SHALL BE BORNE BY THE OWNER. WHEN APPLICATIONS FOR UNUSUAL DESIGNS OR MAGNITUDE OF CONSTRUCTION ARE FILED, OR WHERE REFERENCE STANDARDS REQUIRE SPECIAL ARCHITECTURAL OR ENGINEERING INSPECTIONS, THE BUILDING OFFICIAL MAY REQUIRE THAT THE PROJECT REPRESENTATIVE BE A REGISTERED DESIGN PROFESSIONAL IN ADDITION TO THOSE REGISTERED DESIGN PROFESSIONALS REQUIRED ELSEWHERE IN ACCORDANCE WITH SECTION 107.6.

**107.6.5 BUILDING OFFICIAL RESPONSIBILITY.** NOTHING CONTAINED IN SECTION 107.6 SHALL HAVE THE EFFECT OF WAIVING OR LIMITING THE BUILDING OFFICIAL'S AUTHORITY TO ENFORCE 780 CMR WITH RESPECT TO EXAMINATION OF THE CONTRACT DOCUMENTS, INCLUDING PLANS, COMPUTATIONS AND SPECIFICATIONS, AND FIELD INSPECTIONS.

FOR CONSTRUCTION

PREPARED FOR:

verizon

118 FLANDERS ROAD  
WESTBOROUGH, MA 01581

HG

HUDSON

Design Group LLC

45 BEECHWOOD DRIVE  
N. ANDOVER, MA 01845

TEL: (978) 557-5553  
FAX: (978) 336-5586

COMMONWEALTH OF MASSACHUSETTS

DEREK J. CREASER

CIVIL

No. 19195

PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
7	05/09/19	ADDED WETLAND	JH
6	03/12/19	REVISED ANTENNA MOUNT	JH
5	09/07/18	CHANGED TO 15KW DC GENSET	JH
4	08/10/18	RF & STRUCT. MODIFICATIONS	JH
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2	02/08/18	REVISED PER COMMENTS	MR
1	05/05/17	REVISED PER LATEST RFDS	JH
0	09/23/15	ISSUED FOR CONSTRUCTION	JV

SITE NAME:

NEW BEDFORD 5 MA  
CROWN SITE # 875083

SITE ADDRESS:

3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

SHEET TITLE

STRUCTURAL NOTES  
&  
SPECIAL INSPECTIONS

SHEET NUMBER

S-1

FOR CONSTRUCTION

PREPARED FOR:

verizon

118 FLANDERS ROAD  
WESTBOROUGH, MA 01581

HG

HUDSON  
Design Group LLC

45 BEECHWOOD DRIVE  
N. ANDOVER, MA 01845

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COMMONWEALTH OF MASSACHUSETTS

DEREK J. CREASER  
CIVIL  
No. 79195  
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: JX

APPROVED BY: DPH

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REV.	DATE	DESCRIPTION	BY
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1	05/05/17	REVISED PER LATEST RFDS	JH
0	09/23/15	ISSUED FOR CONSTRUCTION	JV

SITE NAME:  
NEW BEDFORD 5 MA  
CROWN SITE # 875083

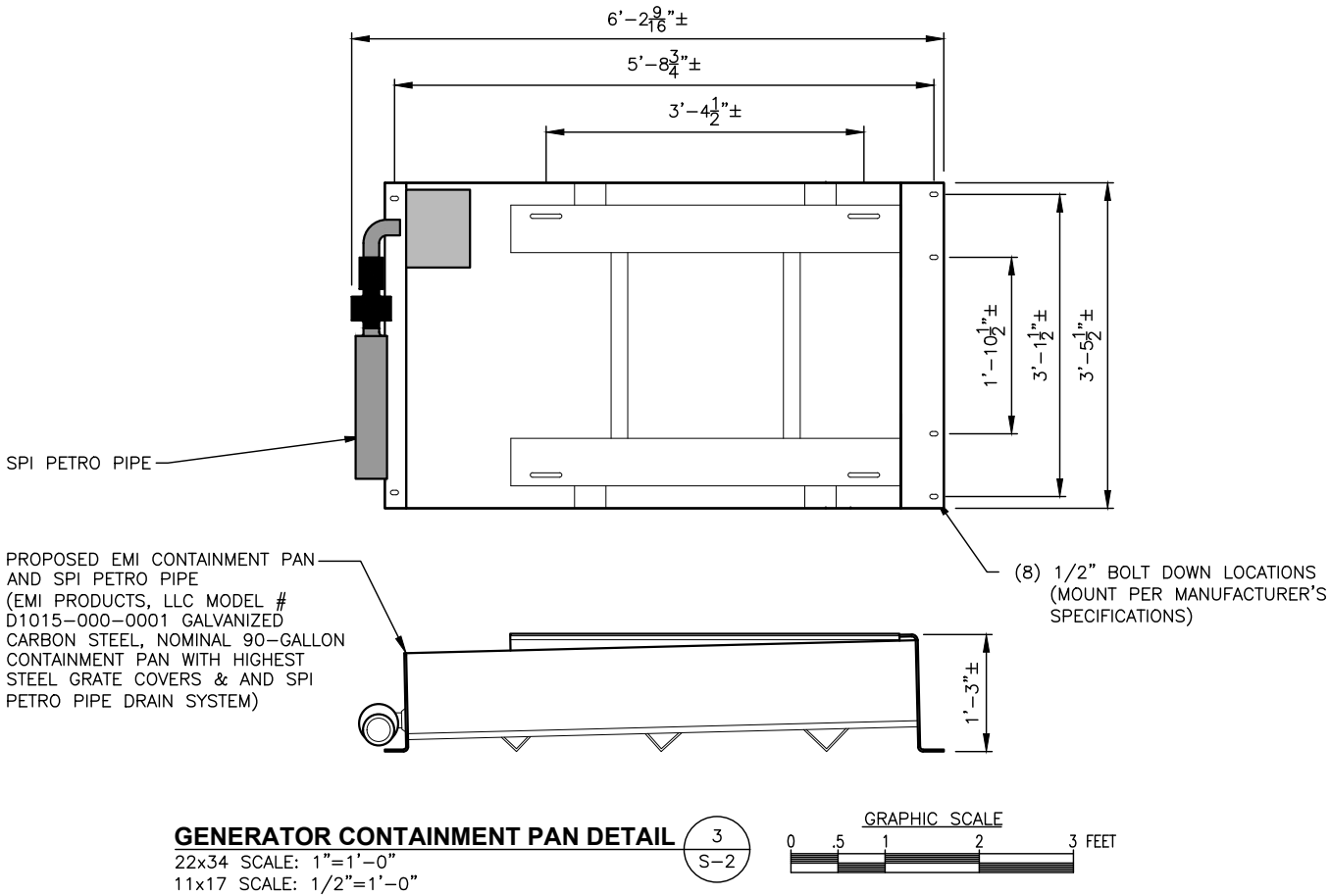
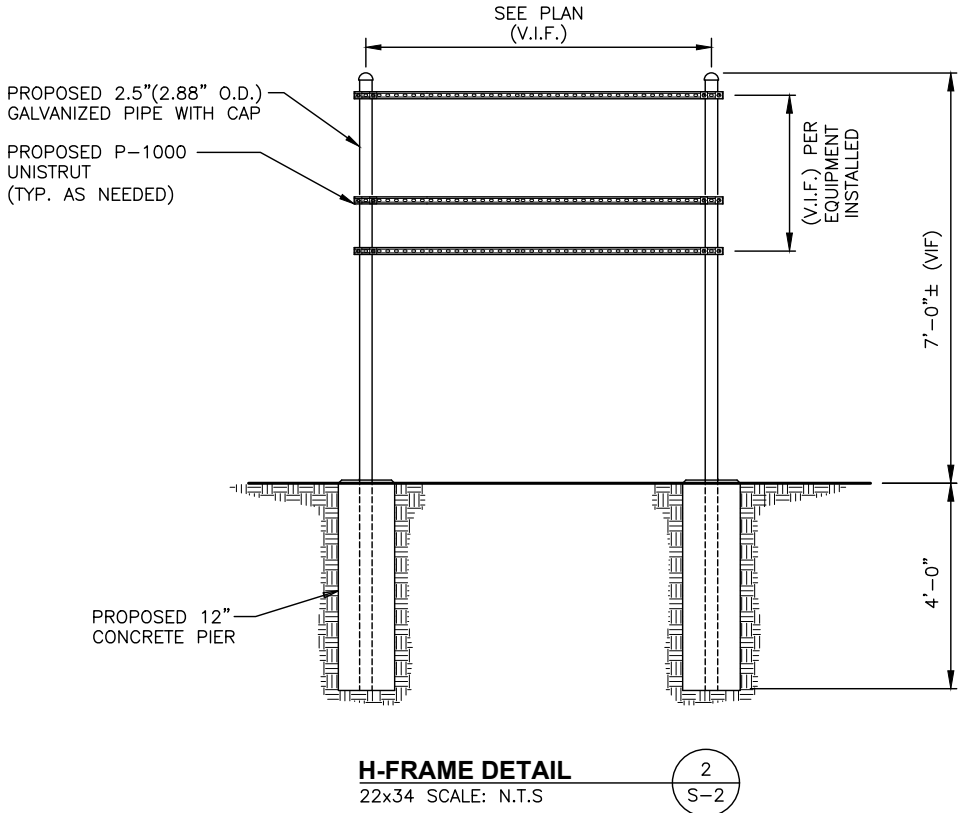
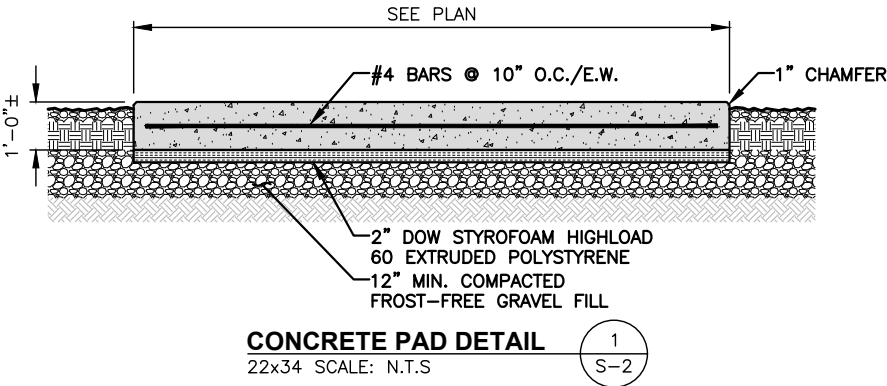
SITE ADDRESS:  
3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

SHEET TITLE  
STRUCTURAL DETAILS

SHEET NUMBER  
S-2

FOUNDATION NOTES & CONCRETE SPECIFICATIONS:

- FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
- UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
- CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=4000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%)
- REINFORCING BAR TO BE ASTM A615 GRADE 60.
- WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.
- COORDINATE WITH MANUFACTURER OF PREFABRICATED SHELTER FOR LOCATION OF ATTACHMENTS TO BASE SLAB.
- ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
- ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 AND APPLICABLE STATE BUILDING CODE.





GENERAL NOTES

ELECTRICAL

1. ALL CONDUCTORS SHALL BE COPPER.
2. ALL WIRING DEVICES AND EQUIPMENT SHALL BE SPECIFICATION GRADE AND UL LISTED.
3. ALL UNDERGROUND LINES ON SITE SHALL BE LOCATED PRIOR TO CONSTRUCTION (IF APPLICABLE).
4. THE INSTALLATION OF ALL MATERIALS SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE,1999 EDITION OR LATEST.
5. ALL MATERIALS SHALL BE NEW.
6. OUTLETS AND JUNCTION BOXES SHALL BE ZINC-COATED OR CADMIUM PLATED SHEET STEEL BOXES NOT LESS THAN FOUR INCHES SQUARE AND SUITABLE FOR THE TYPE OF SERVICE OUTLET. ALL OUTLET AND JUNCTION BOXES SHALL BE SECURELY SURFACE MOUNTED.
7. THE ENTIRE SYSTEM SHALL BE SOLIDLY GROUNDED USING COMPRESSION-TYPE CONDUIT FITTINGS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTORS. CRIMP-TYPE AND SET SCREW-TYPE CONDUIT FITTINGS ARE NOT ALLOWED. ALL RECEPTACLES AND EQUIPMENT CIRCUITS SHALL BE GROUNDED USING A FULL-SIZE EQUIPMENT GROUNDING CONDUCTOR RUN WITH THE CURRENT CONDUCTORS.
8. ALL WALL PENETRATIONS FOR TELCO, POWER, AND GROUNDING SHALL REQUIRE RIGID STEEL SLEEVES.
9. ALL SWITCHES SHALL BE 48 INCHES A.F.F.
10. ALL RECEPTACLES SHALL BE 18 INCHES A.F.F.
11. ALL T-STATS SHALL BE 60 INCHES A.F.F.

CABLE TRAY

1. BOTTOM OF CABLE TRAY SHALL BE 7'-6" A.F.F.
2. CABLE TRAY ANCHORS SHALL BE MOUNTED TO STRUCTURAL CEILING.
3. AFTER FINAL LEVELING OF CABLE TRAY, CUT THREADED RODS 1/2" BELOW NUT AND CAP OFF.

ALARM AND SIGNAL

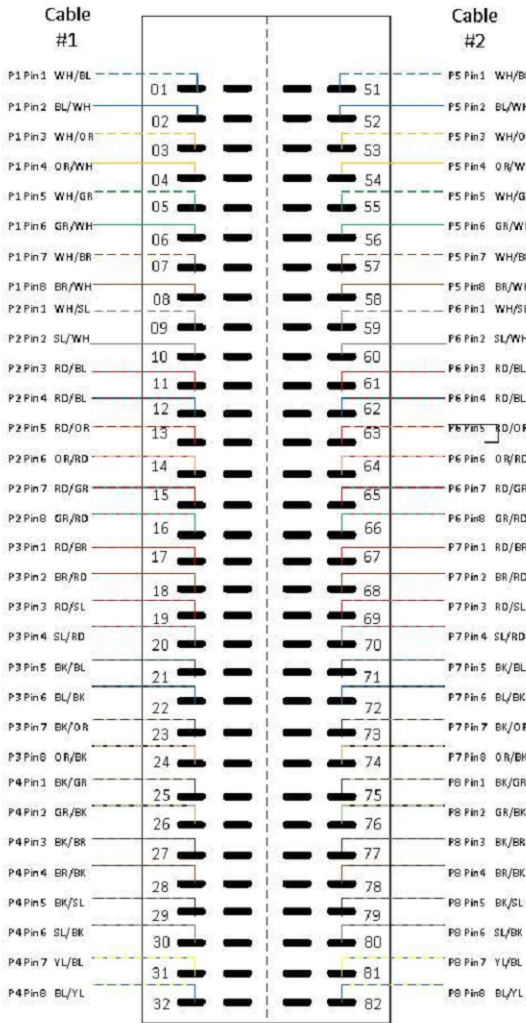
1. ALL ALARM WIRES SHALL BE RUN FROM EACH OF THE COMPONENTS TERMINAL STRIP. LEAVE ADDITIONAL ALARM WIRE COILED WITH SUFFICIENT LENGTH TO REACH THE FLOOR.
2. ALL ALARM WIRES SHALL BE TAGGED AND LABELED WITH THE APPROPRIATE ALARM ITEM. ALL CONTRACTORS WILL BE NORMALLY CLOSED, DRY, AND ISOLATED FROM GROUND, U.O.N.
3. ALL ALARM WIRING SHALL BE 1/2"C., 2 #22, UNLESS OTHERWISE NOTED.
4. ELECTRICAL CONTRACTOR TO CARRY POWER FEED OF LESSEE'S MOD CELL EQUIPMENT.
5. ALL ENCLOSURES TO BE NEMA.
6. INTEGRATED LOAD CENTER ASSEMBLY AND THE GENERATOR SUPPLIED BY LESSEE.

ELECTRICAL NOTES

1. UTILITY SERVICES SHOWN ARE PROPOSED, THE ELECTRIC CONTRACTOR SHALL COORDINATE EXACT TELEPHONE AND ELECTRIC SERVICE CONNECTION POINTS, PULL BOXES, ROUTING AND ASSOCIATED REQUIREMENTS WITH OWNER AND LOCAL UTILITY CO.
2. VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED. REPORT ADVERSE CONDITIONS IN WRITING TO LICENSEE. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS INCLUDING PREPARATORY WORK DONE BY OTHERS.
3. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION.
4. PERFORM WORK AS REQUIRED BY BOCA AND PER LOCAL LAWS.
5. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT ROUTING WITH OWNER AND FIELD CONSTRUCTION MANAGER.
6. ALL EXTERIOR WALL PENETRATIONS SHALL BE SILICONE SEALED.
7. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CBM APPROVED FOR INTENDED SERVICE. INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODE.
8. ALL ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THEN THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C..
9. ALL NEW WIRING SHALL BE TYPE THWN RATED 75°C., 600 VOLT. WET OR DRY LOCATIONS. MINIMUM BRANCH CIRCUIT WIRING SHALL BE #12 AWG SOLID COPPER.
10. ALL METALLIC CONDUITS SHALL BE PROVIDED WITH BONDING BUSHINGS.
11. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO THE LICENSEE PROJECT MANAGER AT JOB COMPLETION.
12. PROVIDE THE OWNER WITH ONE SET OF COMPLETE ELECTRICAL "AS BUILT" DRAWINGS AT THE COMPLETION OF THE JOB.
13. GUARANTEE WORK IN WRITING FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.
14. CONTRACTOR SHALL CONTACT "DIG SAFE" (1-888-DIG-SAFE) PRIOR TO COMMENCEMENT OF WORK.

ABBREVIATIONS

AGB	COPPER ANTENNA GROUND BAR
AWG	AMERICAN WIRE GAUGE
BCW	BARE COPPER WIRE
BTS	BASE TRANSMISSION SYSTEM
CIGBE	COAX INSULATED GROUND BAR EXTERNAL
DWG	DRAWING
EMT	ELECTRICAL METALLIC TUBING
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GR	GROWTH
IGR	INTERNAL GROUND RING (HALO)
LAGB	LOWER ANTENNA COPPER GROUND BAR
MIGB	MASTER ISOLATED GROUND BAR
PCS	PERSONAL COMMUNICATION SYSTEM
PPC	POWER PROTECTION CABINET
PRC	PRIMARY RADIO CABINET
RGS	RIGID GALVANIZED STEEL
RWY	RACEWAY
TYP	TYPICAL
UAGB	UPPER ANTENNA COPPER GROUND

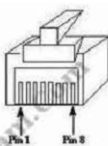


PANEL NAME: PROPOSED AC PANEL											
1ø, 3W 120/240V, 200A						MOUNTING: SUREFACE MANUFACTURER: INTERSECT					
CKT No.	BREAKER AMPS	POLES	LOAD DESCRIPTION	LOAD kVA	BRANCH CKT	BRANCH CKT	LOAD kVA	LOAD DESCRIPTION	BREAKER AMPS	POLES	CKT No.
1	40	2	SURGE	0	2#8, 1#8G, 3/4"C	2#8, 1#8G, 3/4"C	0	RECTIFIER #5	40	2	2
3											4
5											6
7	40	2	RECTIFIER #1	0	2#8, 1#8G, 3/4"C	2#8, 1#8G, 3/4"C	0	RECTIFIER #6	40	2	8
9											10
11											12
13	40	2	RECTIFIER #2	0	2#8, 1#8G, 3/4"C	2#8, 1#8G, 3/4"C	0	RECTIFIER #7	40	2	14
15											16
17											18
19	40	2	RECTIFIER #3	0	2#8, 1#8G, 3/4"C	2#8, 1#8G, 3/4"C	0	EQUIPMENT CABINET	20	1	20
21											22
23											24

Wiring Diagram for  
Porta Systems Block Model 899A  
Fuses

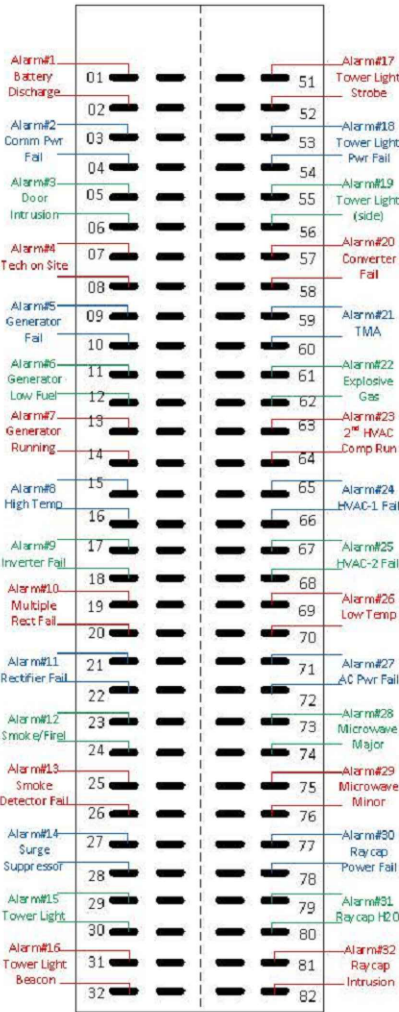
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Alarm 11	Alarm 11	Alarm 12	Alarm 12	Alarm 13	Alarm 13	Alarm 14	Alarm 14	Alarm 15	Alarm 15
Alarm 16	Alarm 16	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare
Alarm 17	Alarm 17	Alarm 18	Alarm 18	Alarm 19	Alarm 19	Alarm 20	Alarm 20	Alarm 21	Alarm 21
Alarm 22	Alarm 22	Alarm 23	Alarm 23	Alarm 24	Alarm 24	Alarm 25	Alarm 25	Alarm 26	Alarm 26
Alarm 27	Alarm 27	Alarm 28	Alarm 28	Alarm 29	Alarm 29	Alarm 30	Alarm 30	Alarm 31	Alarm 31
Alarm 32	Alarm 32	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare
Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare	Spare

8 - RJ45s  
P1 - P8



BBU

P1 P2 P3 P4 P5 P6 P7 P8 BATT



FOR CONSTRUCTION

PREPARED FOR:

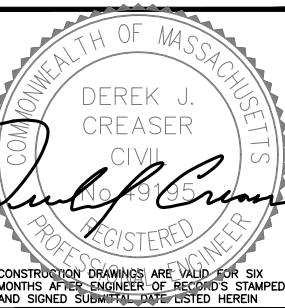
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HUDSON  
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FAX: (978) 336-5586



CHECKED BY: JX

APPROVED BY: DPH

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SITE NAME:  
NEW BEDFORD 5 MA  
CROWN SITE # 875083

SITE ADDRESS:  
3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

SHEET TITLE  
ELECTRICAL NOTES  
& WIRING DIAGRAM

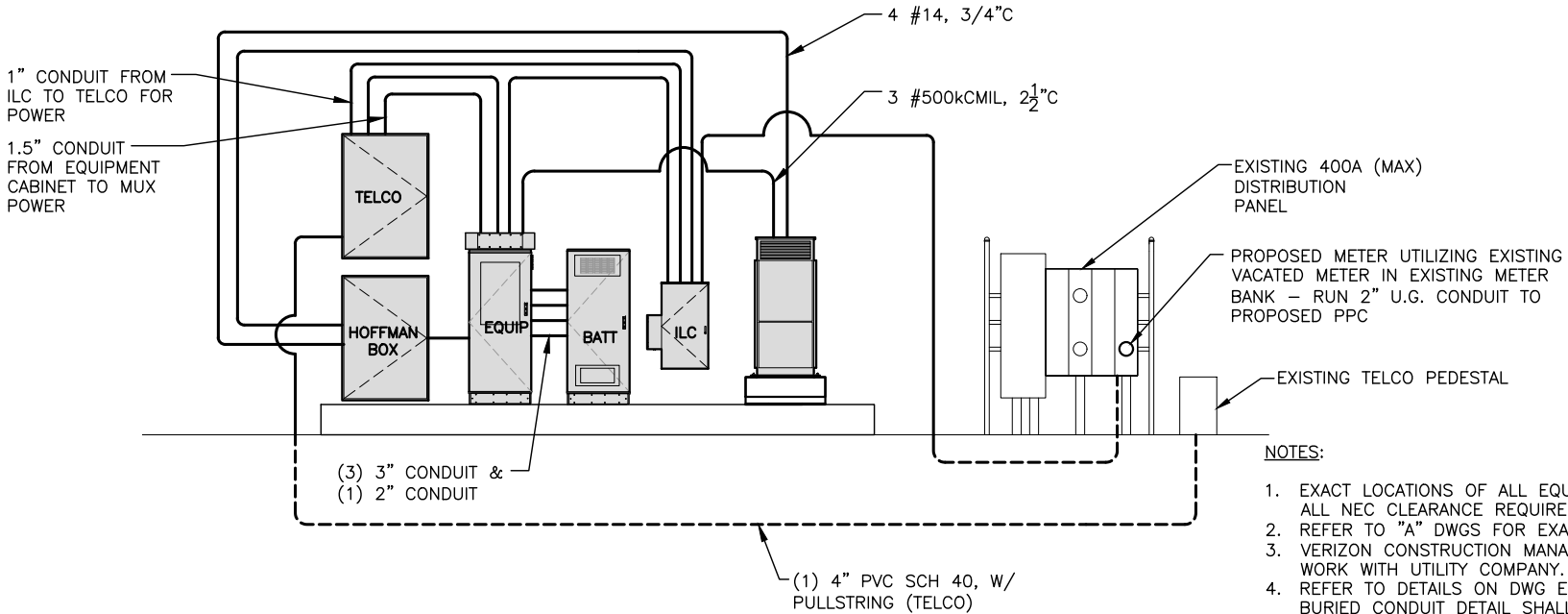
SHEET NUMBER  
E-1

GROUNDING NOTES

1. ALL GROUND WIRE SHALL BE BARE COPPER #2 AWG UNLESS OTHERWISE NOTED.
2. ALL GROUND WIRES SHALL PROVIDE A STRAIGHT, DOWNWARD PATH TO GROUND WITH GRADUAL BENDS AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.
3. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF GROUND RODS AND GROUND RING WITH FOUNDATION AND UNDERGROUND CONDUIT.
4. EACH EQUIPMENT CABINET SHALL BE CONNECTED TO THE MASTER ISOLATION GROUND BAR (MIGB) WITH #2 AWG INSULATED STRANDED COPPER WIRE. EQUIPMENT CABINETS SHALL EACH HAVE (2) CONNECTIONS.
5. PROVIDE DEDICATED #2 AWG COPPER GROUND WIRE FROM EACH ANTENNA MOUNTING PIPE TO ASSOCIATED CIGBE (TYPICAL FOR FOUR MOUNTING PIPES PER SECTOR).
6. ANTENNA GROUND KITS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
7. COORDINATE NEW LICENSEE GROUND SYSTEM WITH EXISTING SITE GROUND SYSTEM.
8. EACH SECTION OF CABLE TRAY, ICE BRIDGE AND ICE SHIELD SHALL BE CONNECTED IN A FASHION TO PROVIDE A CONTINUOUS GROUND.
9. AT ALL TERMINATIONS AT EQUIPMENT ENCLOSURES, PANELS AND FRAMES OF EQUIPMENT, AND WHERE EXPOSED FOR GROUNDING, CONDUCTOR TERMINATION SHALL BE PERFORMED UTILIZING TWO HOLE BOLTED TONGUE COMPRESSION TYPE WITH STAINLESS STEEL SELF-TAPPING SCREWS.
10. ALL CLAMPS AND SUPPORTS USED TO SUPPORT THE GROUNDING SYSTEM CONDUCTORS AND PVC CONDUITS SHALL BE PVC TYPE (NON CONDUCTIVE). DO NOT USE METAL BRACKETS OR SUPPORTS WHICH WOULD FORM A COMPLETE RING AROUND ANY GROUNDING CONDUCTOR.
11. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH A COPPER SHIELD ANTI-CORROSIVE AGENT SUCH AS T&B KOPR SHIELD. VERIFY PRODUCT WITH LICENSEE PROJECT MANAGER.
12. ALL BOLTS, WASHERS, AND NUTS USED ON GROUNDING CONNECTIONS SHALL BE STAINLESS STEEL.
13. INSTALL GROUND BUSHINGS ON ALL METALLIC CONDUITS AND BOND TO THE EQUIPMENT GROUND BUS IN THE PANELBOARD.
14. GROUND ANTENNA BASES, FRAMES, CABLE RACKS AND OTHER METALLIC COMPONENTS WITH #2 GROUNDING CONDUCTORS AND CONNECT TO INSULATED SURFACE MOUNTED GROUND BARS. CONNECTION DETAILS SHALL FOLLOW MANUFACTURER'S SPECIFICATIONS FOR GROUNDING.
15. GROUND COAXIAL SHIELD AT BOTH ENDS USING MANUFACTURER'S GUIDELINES.
16. REINFORCEMENT IN EQUIPMENT SLAB TO BE WELDED AND REINFORCEMENT TO BE BONDED TO GROUNDING RING.
17. CONCRETE-ENCASED ELECTRODES GREATER THAN 20 S.F. OF SURFACE AREA & 1/2" OR GREATER REINFORCING STEEL MUST BE BONDED TO THE GROUNDING RING PER NEC 250.50.
18. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

GROUNDING LEGEND

- EXOTHERMIC TYPE CONNECTION
- COMPRESSION TYPE CONNECTION
- #2 SOLID TINNED COPER WIRE UNLESS OTHERWISE NOTED
- ⊗ 5/8" x 10'-0" COPPER CLAD GROUND ROD
- ⊠ GROUND WELL



ELECTRICAL/TELCO ONE-LINE DIAGRAM

SCALE: N.T.S

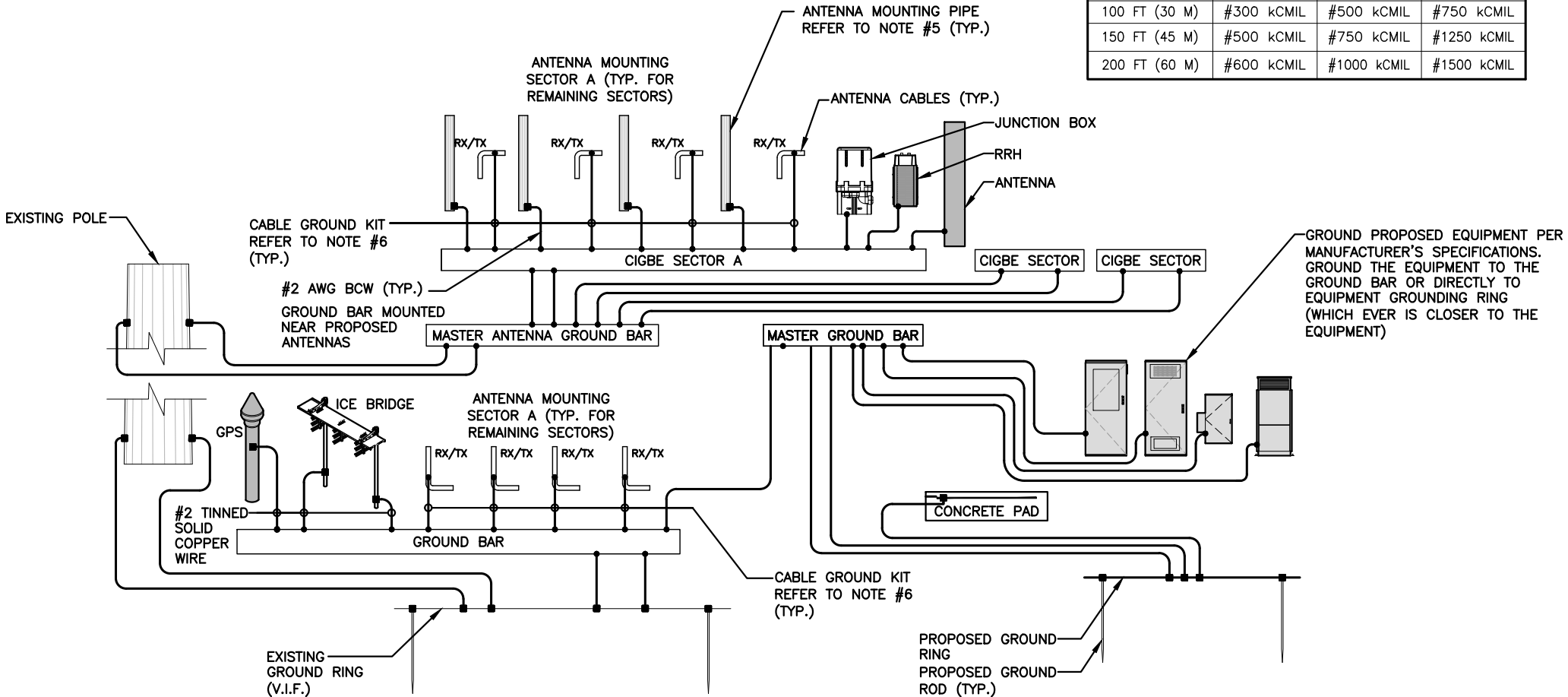
1  
E-2

NOTES:

1. EXACT LOCATIONS OF ALL EQUIPMENT SHALL BE DETERMINED IN FIELD. ALL NEC CLEARANCE REQUIREMENTS SHALL BE MET.
2. REFER TO "A" DWGS FOR EXACT ROUTING OF ALL CONDUITS.
3. VERIZON CONSTRUCTION MANAGER SHALL COORDINATE ALL ELECTRICAL WORK WITH UTILITY COMPANY.
4. REFER TO DETAILS ON DWG E-4 FOR ADDITIONAL INFORMATION. TYPICAL BURIED CONDUIT DETAIL SHALL APPLY TO ALL UNDERGROUND CONDUIT.
5. LOCATION OF GENERATOR ASSUMED TO BE WITHIN 20'-0" OF PROPOSED LOAD CENTER. IF LOCATION OF GENERATOR IS CHANGED, CONDUCTOR SIZE SHALL BE RESIZED BASED ON DC CABLE TYPE AND SIZING TABLE ON E-2.
6. PROVIDE SERVICE GROUNDING IN ACCORDANCE WITH NEC ARTICLE 250.

DC CABLE TYPE AND SIZING (2% DROP)

	6KW	10KW	15KW
10 FT (3 M)	#4	#3	#1
20 FT (6 M)	#2	#1/0	#3/0
50 FT (15 M)	#3/0	#250 kCMIL	#400 kCMIL
100 FT (30 M)	#300 kCMIL	#500 kCMIL	#750 kCMIL
150 FT (45 M)	#500 kCMIL	#750 kCMIL	#1250 kCMIL
200 FT (60 M)	#600 kCMIL	#1000 kCMIL	#1500 kCMIL



GROUNDING DIAGRAM

SCALE: N.T.S

2  
E-2

FOR CONSTRUCTION

PREPARED FOR:

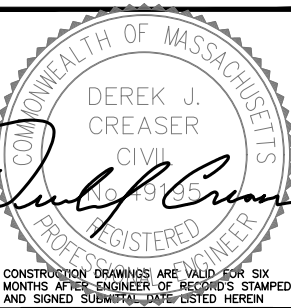
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CHECKED BY: JX

APPROVED BY: DPH

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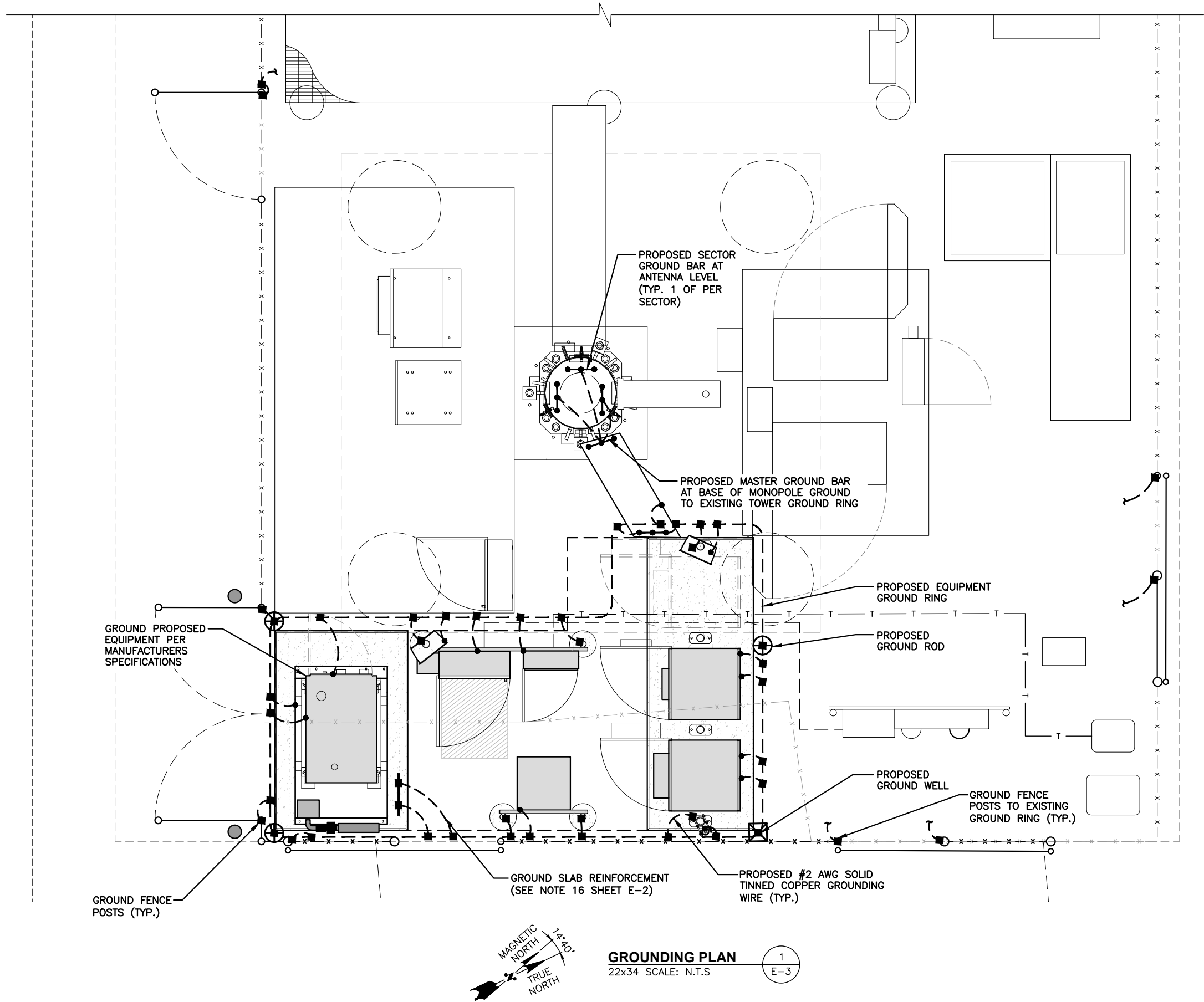
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NEW BEDFORD 5 MA  
CROWN SITE # 875083

SITE ADDRESS:  
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NEW BEDFORD, MA 02745

SHEET TITLE  
ELECTRICAL DETAILS  
& NOTES

SHEET NUMBER

E-2



FOR CONSTRUCTION

PREPARED FOR:

**verizon**

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WESTBOROUGH, MA 01581

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COMMONWEALTH OF MASSACHUSETTS

DEREK J. CREASER  
CIVIL  
No. 79195  
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN

CHECKED BY: JX

APPROVED BY: DPH

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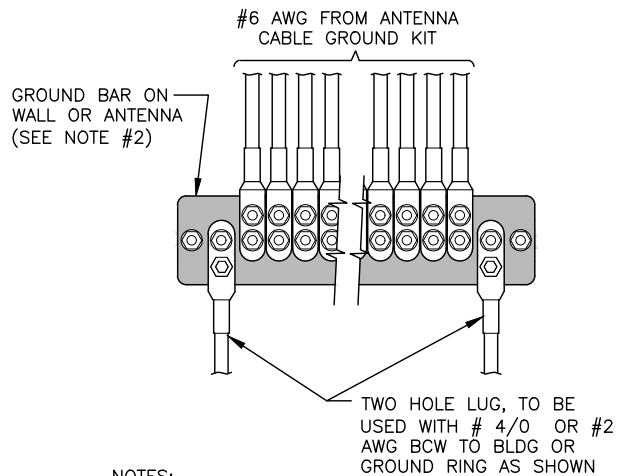
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CROWN SITE # 875083

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SHEET TITLE  
GROUNDING PLAN

SHEET NUMBER  
E-3





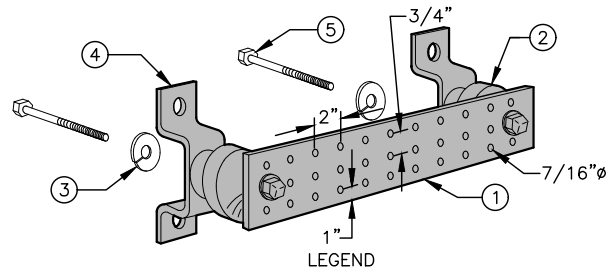
NOTES:

1. CONTRACTOR TO UTILIZE KOPR-SHIELD (THOMAS & BETTS) ON ALL LUG CONNECTIONS.
2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

**GROUNDING - STANDARD  
DETAIL INSTALLATION OF  
GROUNDWIRE TO GROUND BAR**

SCALE: N.T.S

1  
E-4



- 1 GALVANIZED STEEL GROUND BAR, 1/4"x4"x20", OR OTHER LENGTH AS REQUIRED, HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
- 2 INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4 OR EQUAL.
- 3 5/8" LOCKWASHERS OR EQUAL.
- 4 WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-8056 OR EQUAL.
- 5 5/8-11 x 1" H.H.C.S. BOLTS

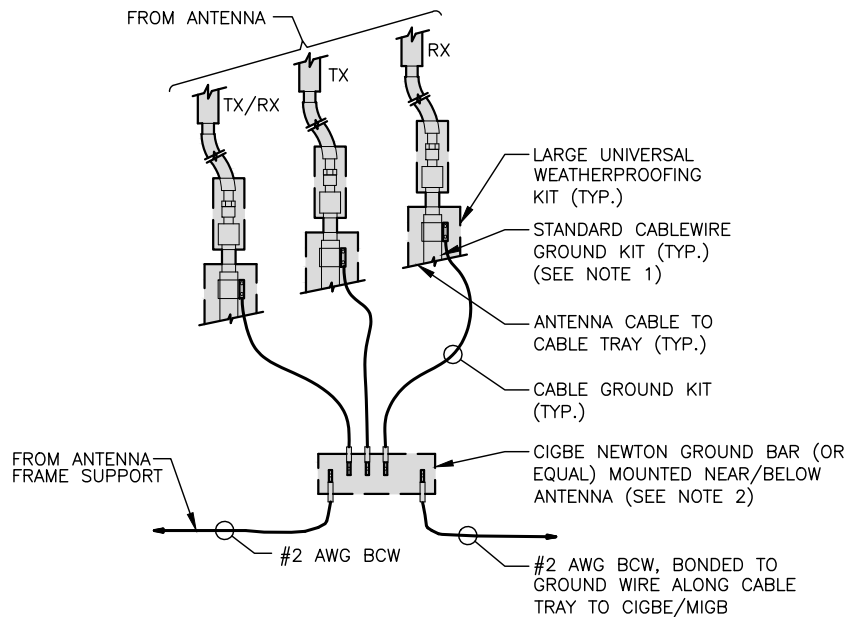
NOTES:

1. ALL BOLTS, NUTS, WASHERS, AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL.
2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

**GROUNDING - STANDARD  
DETAIL GROUND BAR**

SCALE: N.T.S

2  
E-4



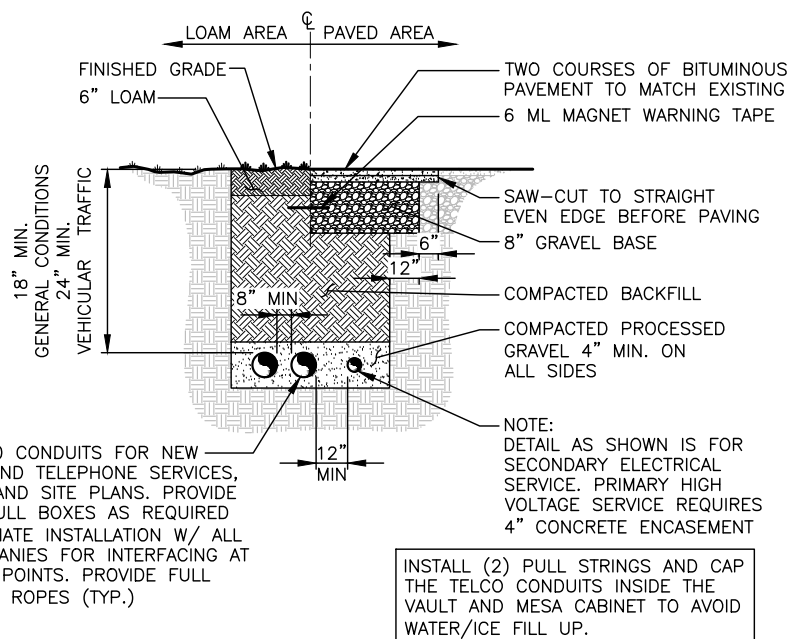
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.
2. ALL GROUND BARS SHALL BE GALVANIZED WITH ANTI-THEFT HARDWARE.

**GROUNDING - STANDARD DETAIL  
CONNECTION OF GROUND WIRES  
TO GROUND BAR (CIGBE)**

SCALE: N.T.S

3  
E-4



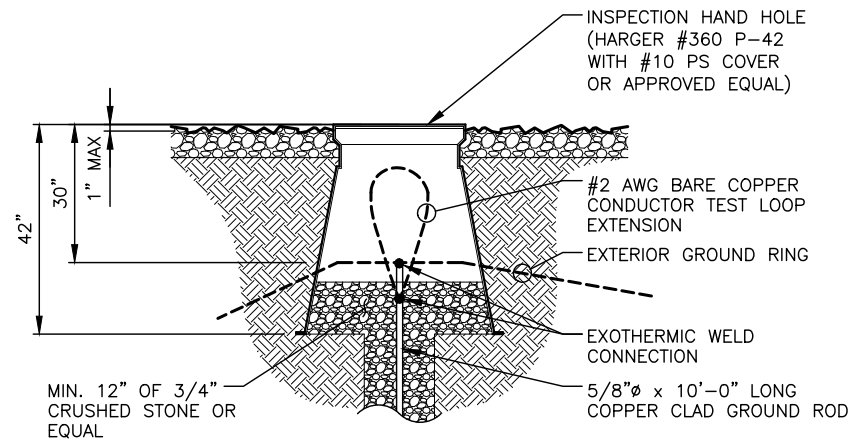
SCHEDULE 40 CONDUITS FOR NEW ELECTRICAL AND TELEPHONE SERVICES, SEE UTILITY AND SITE PLANS. PROVIDE APPROVED PULL BOXES AS REQUIRED AND COORDINATE INSTALLATION W/ ALL UTILITY COMPANIES FOR INTERFACING AT TERMINATION POINTS. PROVIDE FULL LENGTH PULL ROPES (TYP.)

INSTALL (2) PULL STRINGS AND CAP THE TELCO CONDUITS INSIDE THE VAULT AND MESA CABINET TO AVOID WATER/ICE FILL UP.

**BURIED CONDUIT DETAIL**

SCALE: N.T.S

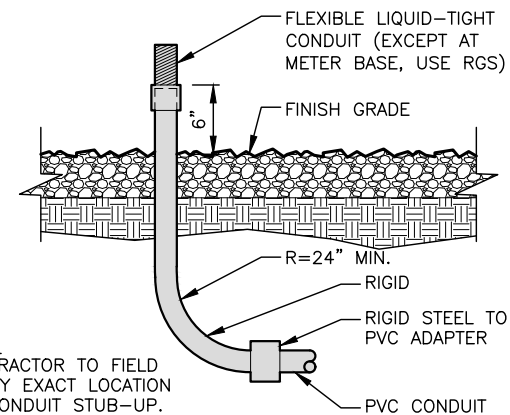
4  
E-4



**GROUNDING WELL DETAIL**

SCALE: N.T.S

5  
E-4

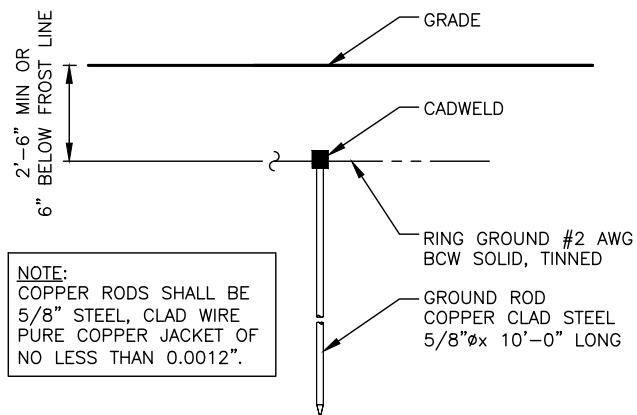


NOTE:  
CONTRACTOR TO FIELD  
VERIFY EXACT LOCATION  
OF CONDUIT STUB-UP.

**CONDUIT STUB-UP**

SCALE: N.T.S

6  
E-4



NOTE:  
COPPER RODS SHALL BE  
5/8" STEEL, CLAD WIRE.  
PURE COPPER JACKET OF  
NO LESS THAN 0.0012".

**TYPICAL GROUND ROD DETAIL**

SCALE: N.T.S

7  
E-4

FOR CONSTRUCTION

PREPARED FOR:

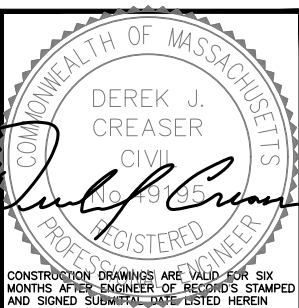
**verizon**

118 FLANDERS ROAD  
WESTBOROUGH, MA 01581

**HG**  
**HUDSON**  
**Design Group LLC**

45 BEECHWOOD DRIVE  
N. ANDOVER, MA 01845

TEL: (978) 557-5553  
FAX: (978) 336-5586



CHECKED BY: JX

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
7	05/09/19	ADDED WETLAND	HH
6	03/12/19	REVISED ANTENNA MOUNT	HH
5	09/07/18	CHANGED TO 15KW DC GENSET	JH
4	08/10/18	RF & STRUCT. MODIFICATIONS	JH
3	03/14/18	REVISED PER COMMENTS	HH
2	02/08/18	REVISED PER COMMENTS	MR
1	05/05/17	REVISED PER LATEST RFDS	JH
0	09/23/15	ISSUED FOR CONSTRUCTION	JV

SITE NAME:  
**NEW BEDFORD 5 MA  
CROWN SITE # 875083**

SITE ADDRESS:  
3057 ACUSHNET AVENUE  
NEW BEDFORD, MA 02745

SHEET TITLE  
**GROUNDING DETAILS**

SHEET NUMBER  
**E-4**

MODIFICATION OF AN EXISTING 89'-6" MONOPOLE

BU #875083; SHOPPING CENTER N.B.

3123 ACUSHNET AVE.  
NEW BEDFORD, MASSACHUSETTS 02746  
BRISTOL COUNTY  
LAT: 41° 42' 17.5"; LONG: -70° 56' 7.62"  
APP: 253741 REV. 11; WO: 1224869

PROJECT CONTACTS

STRUCTURE OWNER:  
CROWN CASTLE  
MOD PM: DAN VADNEY AT DAN.VADNEY@CROWNCastle.COM  
PH: (518) 373-3510  
MOD CM: MICHAEL RULEY AT MICHAEL.RULEY@CROWNCastle.COM  
PH: (508) 789-7023  
  
ENGINEER OF RECORD:  
PJF MOD@PJFWEB.COM

THIS PROJECT INCLUDES THE FOLLOWING ITEMS

SHAFT REINFORCING
BRACKET EXTENSION
FIELD WELDED MICROPILE BRACKETS
FOUNDATION CONCRETE AUGMENTATION
FOUNDATION AUGMENTATION: MICROPILES

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WIND DESIGN DATA

REFERENCE STANDARD	ANSI/TIA-222-G-2-2009
LOCAL CODE	2010 MASSACHUSETTS STATE BUILDING CODE
NOMINAL WIND SPEED (3-SECOND GUST)	115 MPH
ICE THICKNESS	0.75 IN
ICE WIND SPEED	40 MPH
SERVICE WIND SPEED	60 MPH
RISK CATEGORY	II
EXPOSURE CATEGORY	C
Kzt	1.0

THE ASSOCIATED FAILING SA WO NUMBER FOR THIS PROJECT IS 1206641

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE  
FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND  
DEPARTURE, DAILY AT (800) 788-7011.

MODIFICATION OF AN EXISTING  
89'-6" MONOPOLE  
BU #875083; SHOPPING CENTER N.B.  
NEW BEDFORD, MASSACHUSETTS

PROJECT No: 37516-1020.002.7700 R1  
DRAWN BY: B.M.S.  
DESIGNED BY: J.W.S.  
CHECKED BY:  
DATE: 4-27-2016

TITLE SHEET

T-1



1. GENERAL NOTES

- 1.1. THE MONOPOLE STRUCTURE IN ITS EXISTING CONDITION DOES NOT HAVE THE STRUCTURAL CAPACITY TO CARRY ALL OF THE PROPOSED AND EXISTING LOADS FROM THE ATTACHED STRUCTURAL MODIFICATION REPORT AT THE REQUIRED MINIMUM WIND SPEEDS. DO NOT INSTALL ANY NEW LOADS UNTIL THE MONOPOLE REINFORCING SYSTEM IS COMPLETELY AND SUCCESSFULLY INSTALLED.
- 1.2. THESE DRAWINGS WERE PREPARED FROM INFORMATION PROVIDED BY CROWN CASTLE. THE INFORMATION PROVIDED HAS NOT BEEN FIELD VERIFIED BY THE ENGINEER OF RECORD (EOR) FOR ACCURACY AND THEREFORE DISCREPANCIES BETWEEN THESE DRAWINGS AND ACTUAL SITE CONDITIONS SHOULD BE ANTICIPATED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS. THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT DRAWINGS AND THEIR FIELD VERIFIED CONDITIONS AND DIMENSIONS BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL IMMEDIATELY REPORT ANY AND ALL DISCREPANCIES TO THE EOR AND CROWN CASTLE BEFORE PROCEEDING WITH THE WORK.
- 1.3. IF MATERIALS, QUANTITIES, STRENGTHS OR SIZES INDICATED BY THE DRAWINGS OR SPECIFICATIONS ARE NOT IN AGREEMENT WITH THESE NOTES, THE BETTER QUALITY AND/OR GREATER QUANTITY, STRENGTH OR SIZE INDICATED, SPECIFIED OR NOTED SHALL BE PROVIDED.
- 1.4. THIS STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE INSTALLATION OF THE REINFORCING REPAIR SYSTEM HAS BEEN SUCCESSFULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO ENSURE THE SAFETY AND STABILITY OF THE MONOPOLE AND ITS COMPONENT PARTS DURING FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
- 1.5. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN AND SHALL MEET ANSI/TIA-1019 (LATEST EDITION), OSHA AND GENERAL INDUSTRY STANDARDS. ALL RIGGING PLANS SHALL ADHERE TO ANSI/TIA-1019 (LATEST EDITION) INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION.
- 1.6. OBSERVATION VISITS TO THE SITE BY CROWN CASTLE AND/OR THE EOR SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES. ANY SUPPORT SERVICES PERFORMED BY THE EOR DURING CONSTRUCTION ARE SOLELY FOR THE PURPOSE OF ACHIEVING GENERAL CONFORMANCE WITH THE CONTRACT DOCUMENTS. THEY DO NOT GUARANTEE THE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
- 1.7. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY CROWN CASTLE AND EOR PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
- 1.8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK AS WELL AS CROWN CASTLE SAFETY GUIDELINES.
- 1.9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING AND NEW COAXIAL CABLES AND OTHER EQUIPMENT DURING CONSTRUCTION.
- 1.10. ANY EXISTING ATTACHMENTS AND/OR PROJECTIONS ON THE POLE THAT MAY INTERFERE WITH THE INSTALLATION OF THE REINFORCING SYSTEM WILL HAVE TO BE REMOVED AND RELOCATED, REPLACED, OR RE-INSTALLED AS REQUIRED AFTER THE REINFORCING IS SUCCESSFULLY COMPLETED. THE CONTRACTOR SHALL IDENTIFY AND COORDINATE THESE ITEMS PRIOR TO CONSTRUCTION WITH CROWN CASTLE, TESTING AGENCY, AND EOR.
- 1.11. ANY AND ALL EXISTING PLATFORMS THAT ARE LOCATED IN AREAS OF THE POLE SHAFT WHERE SHAFT REINFORCING MUST BE APPLIED SHALL BE TEMPORARILY REMOVED OR OTHERWISE SUPPORTED TO PERMIT NEW CONTINUOUS REINFORCEMENT TO BE ATTACHED. AFTER THE CONTRACTOR HAS SUCCESSFULLY INSTALLED THE MONOPOLE REINFORCEMENT SYSTEM, THE CONTRACTOR SHALL RE-INSTALL THE PLATFORMS.
- 1.12. THE CLIMBING FACILITIES, SAFETY CLIMB AND ALL PARTS THEREOF SHALL NOT BE IMPEDED, MODIFIED OR ALTERED WITHOUT THE EXPRESS APPROVAL OF THE EOR.
- 1.13. FOR STANDARD CROWN PARTS SEE THE MOST RECENT VERSION OF THE "CCI APPROVED REINFORCEMENT COMPONENTS" CATALOG.
- 1.14. ALL SOLUTIONS FOR THE REPLACEMENT, RELOCATION OR MODIFICATION OF THE SAFETY CLIMB AND/OR ANY OF THE MONOPOLE CLIMBING FACILITIES SHALL BE COORDINATED WITH TUF-TUG PRODUCTS. CONTACT DETAILS:  
3434 ENCRETE LANE, MORAIN, OHIO 45439  
PHONE: 937-299-1213 EMAIL: TUFTUG@AOL.COM

2. STRUCTURAL STEEL

- 2.1. STRUCTURAL STEEL MATERIALS, FABRICATION, DETAILING, AND WORKMANSHIP SHALL CONFORM TO THE LATEST EDITION OF THE FOLLOWING REFERENCE STANDARDS:
- 2.1.1. BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC):
- 2.1.1.1. "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS."
- 2.1.1.2. "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS," AS APPROVED BY THE RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS.
- 2.1.1.3. "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES"
- 2.1.2. BY THE AMERICAN WELDING SOCIETY (AWS):
- 2.1.2.1. "STRUCTURAL WELDING CODE - STEEL D1.1."
- 2.1.2.2. "STANDARD SYMBOLS FOR WELDING, BRAZING, AND NONDESTRUCTIVE EXAMINATION"
- 2.2. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS', DEC. 31, 2009.
- 2.3. ANY MATERIAL OR WORKMANSHIP WHICH IS OBSERVED TO BE DEFECTIVE OR INCONSISTENT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED, MODIFIED, OR REPLACED AT THE CONTRACTOR'S EXPENSE.
- 2.4. WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE OF THE AMERICAN WELDING SOCIETY, AWS D1.1. ALL WELD ELECTRODES SHALL BE E80XX UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- 2.5. ALL WELDED CONNECTIONS SHALL BE MADE BY WELDERS CERTIFIED BY AWS. CONTRACTOR SHALL SUBMIT WELDERS' CERTIFICATION AND QUALIFICATION DOCUMENTATION TO CROWN CASTLE'S TESTING AGENCY FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- 2.6. STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A572 GRADE 65(FY = 65 KSI MIN.) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- 2.7. SURFACES OF EXISTING STEEL SHALL BE PREPARED AS REQUIRED FOR FIELD WELDING PER AWS. SEE SECTION I NOTES REGARDING TOUCH UP OF GALVANIZED SURFACES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS FIELD WELDING.
- 2.8. NO WELDING SHALL BE DONE TO THE EXISTING STRUCTURE WITHOUT THE PRIOR APPROVAL AND SUPERVISION OF THE TESTING AGENCY.
- 2.9. FIELD CUTTING OF STEEL:
- 2.9.1. IMPORTANT CUTTING AND WELDING SAFETY GUIDELINES: THE CONTRACTOR SHALL FOLLOW ALL CROWN CASTLE CUTTING, WELDING, FIRE PREVENTION AND SAFETY GUIDELINES. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A COPY OF THE CURRENT CROWN CASTLE GUIDELINES. PER THE 12-01-2005 CROWN CASTLE DIRECTIVE: "ALL CUTTING AND WELDING ACTIVITIES SHALL BE CONDUCTED IN ACCORDANCE WITH CROWN CASTLE POLICY 'CUTTING AND WELDING SAFETY PLAN' (DOC # ENG-PLN-10015) ON AN ONGOING BASIS THROUGHOUT THE ENTIRE LIFE OF THE PROJECT". ANY DAMAGE TO THE COAX CABLES, AND/OR OTHER EQUIPMENT AND/OR THE STRUCTURE, RESULTING FROM THE CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. THE INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.
- 2.9.2. ALL REQUIRED CUTS SHALL BE CUT WITHIN THE DIMENSIONS SHOWN ON THE DRAWINGS. NO CUTS SHALL EXTEND BEYOND THE OUTLINE OF THE DIMENSIONS SHOWN ON THE DRAWINGS. ALL CUT EDGES SHALL BE GROUND SMOOTH AND DE-BURRED. CUT EDGES THAT ARE TO BE FIELD WELDED SHALL BE PREPARED FOR FIELD WELDING PER AWS D1.1 AND AS SHOWN ON THE DRAWINGS. CONTRACTOR TO AVOID 90 DEGREE CORNERS. IT MAY BE NECESSARY TO DRILL STARTER HOLES AS REQUIRED TO MAKE THE CUTS.

3. BASE PLATE GROUT - (NOT REQUIRED)

4. FOUNDATION WORK

- 4.1. THE CONTRACTOR SHALL PROTECT THE EXISTING MONOPOLE STRUCTURE, AS WELL AS ANY OTHER NEARBY EXISTING FOUNDATIONS FOR OTHER STRUCTURES OR EQUIPMENT, FROM LOSS OF SOIL AROUND AND/OR BENEATH FOOTINGS DURING ANY EXCAVATION. THE CONTRACTOR SHALL BRACE THE SITES OF THE OPEN EXCAVATION AS REQUIRED.
- 4.2. THE EFFECT OF ADDITIONAL EXCAVATION FOR FOUNDATION AUGMENTATION AND REINFORCING, WHERE REQUIRED, MAY HAVE IMPACT ON EXISTING EQUIPMENT AND/OR OTHER EXISTING STRUCTURES NEAR THE EXCAVATION. THE EOR HAS NOT BEEN PROVIDED WITH ANY SPECIFIC INFORMATION OR DETAILS REGARDING EXISTING EQUIPMENT OR OTHER EXISTING STRUCTURES ON THE SITE. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EFFECT THAT ANY EXCAVATION WORK HAS ON EXISTING NEARBY EQUIPMENT AND/OR STRUCTURES. CONTRACTOR SHALL COORDINATE THIS SITE-SPECIFIC INFORMATION WITH CROWN CASTLE AND THE TESTING AGENCY PRIOR TO CONSTRUCTION AND FOUNDATION WORK. AFTER OBTAINING THE PRIOR WRITTEN PERMISSION OF CROWN CASTLE, THE CONTRACTOR SHALL ADEQUATELY BRACE, SHORE, AND/OR RELOCATE THE INTERFERING EXISTING NEARBY EQUIPMENT AND/OR STRUCTURES AS NECESSARY.

5. CAST-IN-PLACE CONCRETE

- 5.1. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
- 5.2. CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED (6% +/- 1.5%).
- 5.3. WATER CEMENT RATIO = 0.45 (MAXIMUM).
- 5.4. ALL REINFORCING STEEL SHALL BE NEW DOMESTIC DEFORMED BILLET STEEL CONFORMING TO ASTM A615 GRADE 60.
- 5.5. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH "THE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" ACI 318, LATEST EDITION. CONTRACTOR SHALL FOLLOW ALL APPLICABLE ACI PROCEDURES FOR COLD WEATHER AND HOT WEATHER CONCRETE PLACEMENT.
- 5.6. ALL REINFORCING DETAILS SHALL CONFORM TO "DETAILS AND DETAILING OF CONCRETE REINFORCING" ACI 315, LATEST EDITION, UNLESS DETAILED OTHERWISE ON THE DRAWINGS.
- 5.7. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL OPENINGS, SLEEVES, ANCHOR RODS, INSERTS, ETC., AS REQUIRED BEFORE CONCRETE IS PLACED.
- 5.8. WHERE BAR LENGTHS ARE GIVEN ON THE DRAWINGS, THE LENGTH OF ANY HOOK, IF REQUIRED, IS NOT INCLUDED.
- 5.9. CONTRACTOR SHALL PROVIDE SPACERS, CHAIRS, BOLSTERS, ETC., NECESSARY TO SUPPORT REINFORCING STEEL. CHAIRS WHICH BEAR ON EXPOSED CONCRETE SURFACES SHALL HAVE ENDS WHICH ARE PLASTIC TIPPED OR STAINLESS STEEL.
- 5.10. ALL STRUCTURAL MEMBERS SHALL BE POURED MONOLITHICALLY, EXCEPT FOR REQUIRED CONSTRUCTION JOINTS. CONTRACTOR SHALL SUBMIT PROPOSED CONSTRUCTION JOINT LOCATIONS AND DETAILS TO THE EOR FOR REVIEW.
- 5.11. CONTRACTOR SHALL PROVIDE 3/4-INCH CHAMFER ON ALL EXPOSED CORNERS UNLESS OTHERWISE INDICATED ON THE DRAWINGS. MINIMUM CLEARANCES FOR REINFORCING STEEL SHALL BE MAINTAINED AS SPECIFIED BY ACI.
- 5.12. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
- 3"..... CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.
- 2"..... CONCRETE EXPOSED TO EARTH OR WEATHER, #6 THROUGH #18 BARS.
- 1-1/2".... CONCRETE EXPOSED TO EARTH OR WEATHER, #5 BAR AND SMALLER.
- 5.13. FOOTING BARS SHALL BE BENT 1'-6" AROUND CORNERS, OR PROVIDE CORNER BARS WITH A 2'-0" LAP ON EACH LEG.
- 5.14. TESTING LABORATORY SHALL SUBMIT ONE COPY OF ALL CONCRETE TEST REPORTS DIRECTLY TO THE EOR.
- 5.15. CONTRACTOR SHALL KEEP A COPY OF "FIELD REFERENCE MANUAL" (ACI PUBLICATION SP-15, LATEST EDITION) AT THE PROJECT FIELD OFFICE.
- 5.16. FLY ASH SHALL BE PERMITTED. FLY ASH CONTENT SHALL BE A MAXIMUM OF 25% OF CEMENT WEIGHT.

6. EPOXY GROUTED REINFORCING ANCHOR RODS - (NOT REQUIRED)

7. TOUCH UP OF GALVANIZING

- 7.1. THE CONTRACTOR SHALL TOUCH UP ANY AND ALL AREAS OF GALVANIZING ON THE EXISTING STRUCTURE OR NEW COMPONENTS THAT ARE DAMAGED OR ABRADED DURING CONSTRUCTION. GALVANIZED SURFACES DAMAGED DURING TRANSPORTATION OR ERECTION AND ASSEMBLY AS WELL AS ANY AND ALL ABRASIONS, CUTS, FIELD DRILLING, AND ALL FIELD WELDING SHALL BE TOUCHED UP WITH TWO (2) COATS OF ZRC COLD GALVANIZING COMPOUND. FILM THICKNESS PER COAT SHALL BE: WET 3.0 MILS; DRY 1.5 MILS. APPLY PER ZRC (MANUFACTURER) RECOMMENDED PROCEDURES. CONTACT ZRC AT 1-800-831-3275 FOR PRODUCT INFORMATION.
- 7.2. CONTRACTOR SHALL CLEAN AND PREPARE ALL FIELD WELDS ON GALVANIZED AND PRIME PAINTED SURFACES FOR TOUCH-UP COATING IN ACCORDANCE WITH AWS D1.1. CROWN CASTLE'S TESTING AGENCY SHALL VERIFY THE PREPARED SURFACE PRIOR TO APPLICATION OF THE TOUCH-UP COATING.
- 7.3. CROWN CASTLE'S TESTING AGENCY SHALL TEST AND VERIFY THE COATING THICKNESS AFTER THE CONTRACTOR HAS APPLIED THE ZRC COLD GALVANIZING COMPOUND AND IT HAS SUFFICIENTLY DRIED. AREAS FOUND TO BE ADEQUATELY COATED, SHALL BE RE-COATED BY THE CONTRACTOR AND RE-TESTED BY THE TESTING AGENCY.

8. HOT-DIP GALVANIZING

- 8.1. HOT-DIP GALVANIZE ALL STRUCTURAL STEEL MEMBERS AND ALL STEEL ACCESSORIES, BOLTS, WASHERS, ETC. PER ASTM A123 OR PER ASTM A153, AS APPROPRIATE.
- 8.2. PROPERLY PREPARE STEEL ITEMS FOR GALVANIZING. DRILL OR PUNCH WEEP AND/OR DRAINAGE HOLES WITH EOR APPROVAL OF LOCATIONS.
- 8.3. ALL GALVANIZING SHALL BE DONE AFTER FABRICATION IS COMPLETED AND PRIOR TO FIELD INSTALLATION.

9. PERPETUAL INSPECTION AND MAINTENANCE BY THE OWNER

- 9.1. AFTER THE CONTRACTOR HAS SUCCESSFULLY COMPLETED THE INSTALLATION OF THE MONOPOLE REINFORCING SYSTEM AND THE WORK HAS BEEN ACCEPTED BY CROWN CASTLE, CROWN CASTLE WILL BE RESPONSIBLE FOR THE LONG TERM AND PERPETUAL INSPECTION AND MAINTENANCE OF THE POLE AND REINFORCING SYSTEM. ANY FIELD WELDED CONNECTIONS ARE SUBJECT TO CORROSION DAMAGE AND DETERIORATION IF THEY ARE NOT PROPERLY MAINTAINED AND COVERED WITH CORROSION PREVENTIVE COATING SUCH AS THE ZRC GALVANIZING COMPOUND SPECIFIED PREVIOUSLY. THE STRUCTURAL LOAD CARRYING CAPACITY OF THE REINFORCED POLE SYSTEM IS DEPENDENT UPON THE INSTALLED SIZE AND QUALITY, MAINTAINED SOUND CONDITION AND STRENGTH OF THESE FIELD WELDED CONNECTIONS. ANY CORROSION OF, DAMAGE TO, FATIGUE, FRACTURE, AND/OR DETERIORATION OF THESE WELDS AND/OR THE EXISTING GALVANIZED STEEL POLE STRUCTURE AND THE WELDED COMPONENTS WILL RESULT IN THE LOSS OF STRUCTURAL LOAD CARRYING CAPACITY AND MAY LEAD TO FAILURE OF THE STRUCTURAL SYSTEM. THEREFORE, IT IS IMPERATIVE THAT CROWN CASTLE REGULARLY INSPECTS, MAINTAINS, AND REPAIRS AS NECESSARY, ALL OF THESE WELDS, CONNECTIONS, AND COMPONENTS FOR THE LIFE OF THE STRUCTURE.
- 9.3. CROWN CASTLE SHALL REFER TO ANSI/TIA-222-G-2-2009, SECTION 14 AND ANNEX J FOR RECOMMENDATIONS FOR MAINTENANCE AND INSPECTION. THE FREQUENCY OF THE INSPECTION AND MAINTENANCE INTERVALS IS TO BE DETERMINED BY CROWN CASTLE BASED UPON ACTUAL SITE AND ENVIRONMENTAL CONDITIONS. THE EOR RECOMMENDS THAT A COMPLETE AND THOROUGH INSPECTION OF THE ENTIRE REINFORCED MONOPOLE STRUCTURAL SYSTEM BE PERFORMED YEARLY AND/OR AS FREQUENTLY AS CONDITIONS WARRANT, ACCORDING TO ANSI/TIA-222-G-2-2009 SECTION 14.2: "IT IS RECOMMENDED THAT THE STRUCTURE BE INSPECTED AFTER SEVERE WIND AND/OR ICE STORMS OR OTHER EXTREME LOADING CONDITIONS".

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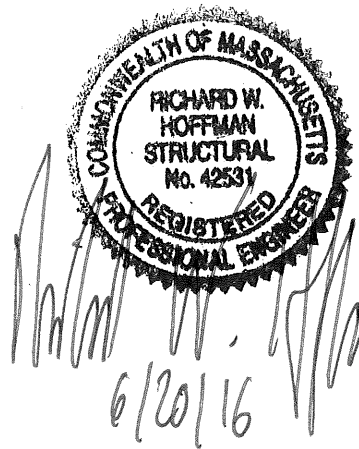
**CROWN CASTLE**

3 CORPORATE PARK DRIVE, SUITE 101, CLIFTON PARK, NY 12065  
PH: (518) 370-4766

MODIFICATION OF AN EXISTING

89'-6" MONOPOLE

BU #875083; SHOPPING CENTER N.B.  
NEW BEDFORD, MASSACHUSETTS

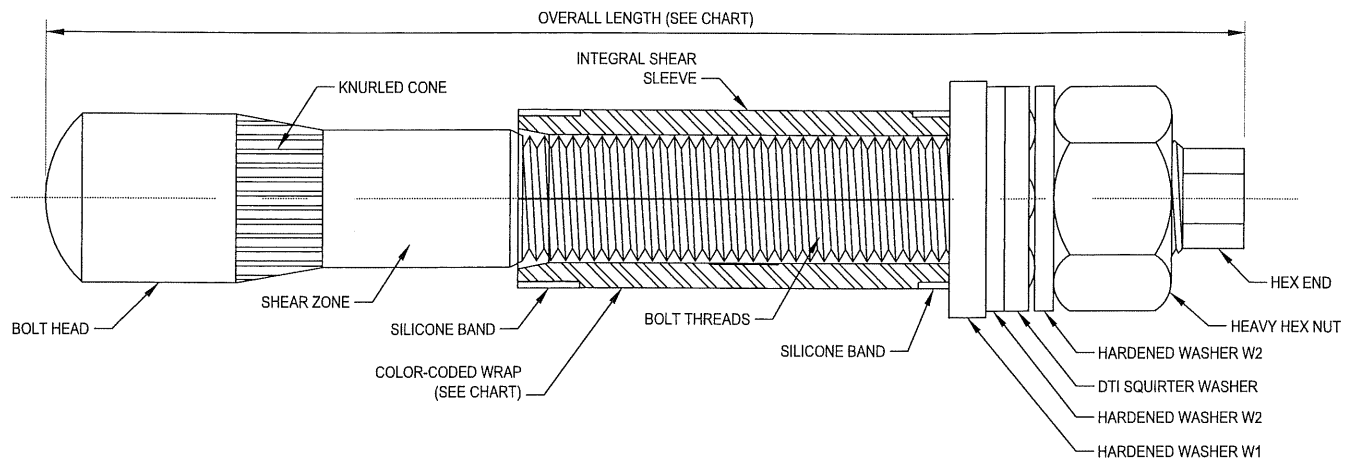


PROJECT No:	37516-1020.002.7700 R1
DRAWN BY:	B.M.S.
DESIGNED BY:	J.W.S.
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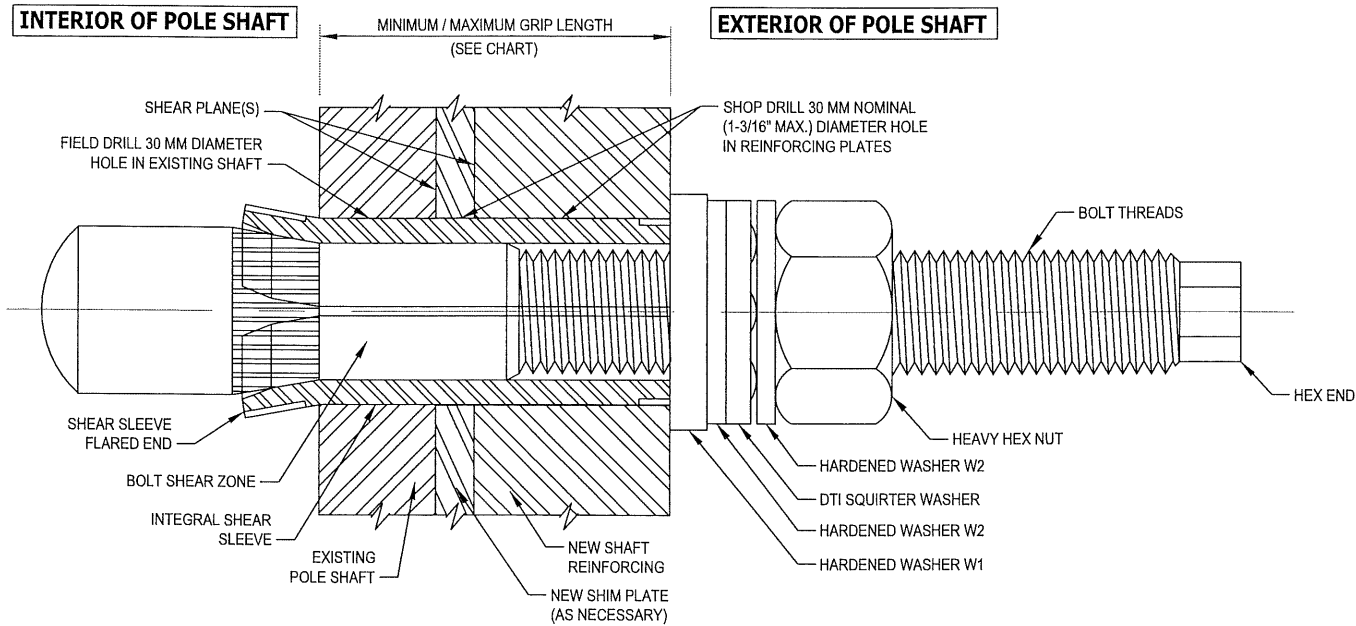
GENERAL NOTES

S-1





PRE-INSTALLED FORGBolt™ ASSEMBLY DETAIL 1 S-2A



INSTALLED FORGBolt™ ASSEMBLY DETAIL 2 S-2A

FORGBolt™		AISC Group A Material: ASTM A325 and PC8.8 (Tensile Stress, Fu = 120 ksi minimum)				
GROUP A		FORGBolt™ Size (mm)	Overall Length (inches)	Estimated Weight Each (lbs)	Grip Range (inch)	Comment
FORGBolt™ A325 - PC8.8	1	135	5.31	1.3	3/8" to 1"	--
	2	160	6.30	1.6	3/4" to 1-1/2"	--
	3	195	7.68	1.9	1-1/4" to 2-1/4"	--
	4	260	10.24	2.6	2" to 3-1/2"	Splice Bolt
	5	365	14.37	3.6	3-1/2" to 5-1/2"	Flange Jump Bolt
	6	440	17.32	4.3	5-1/2" to 8-1/2"	Flange Jump Bolt
DTI Note	Each Group A (A325/PC8.8) FORGBolt™ assembly shall have a 'Squirer' DTI that is compatible with a M20-PC8.8 bolt.					

FOLLOW ALL MANUFACTURER / DISTRIBUTOR RECOMMENDATIONS FOR INSTALLATION, TIGHTENING, AND INSPECTION

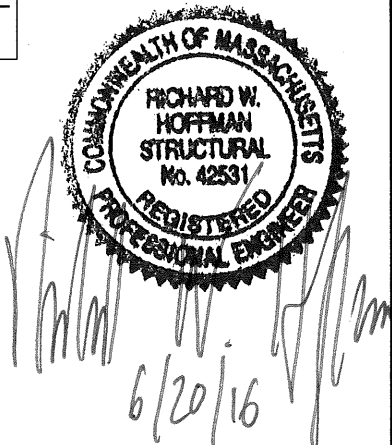
- INSTALLATION NOTES:
1. FIELD DRILL HOLES TO 30 MM DIAMETER.
  2. SELECT CORRECT BOLT SIZE FOR INSTALLATION GRIP (REFER TO PLANS).
  3. INSERT BOLT ASSEMBLY THROUGH HOLES IN SHAFT REINFORCING PLATES AND SEAT THE HARDENED WASHER W1 FLUSH AGAINST OUTSIDE OF PLATE.
  4. HAND TIGHTEN NUT TO FINGER TIGHT.
  5. TIGHTEN NUT TO PRETENSIONED CONDITION AND UNTIL DTI SHOWS PROPER INDICATION.
  6. PROPERLY DOCUMENT AND INSPECT BOLT TIGHTENING PER PLAN REQUIREMENTS.
- BOLT HOLE NOTES:
1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
  2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.
- BOLT TIGHTENING AND INSPECTION NOTES:
1. ALL STRUCTURAL BOLTS SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.
  2. ALL STRUCTURAL BOLTS SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

AISC GROUP A MATERIAL: ASTM A325 AND PC8.8  
(Fu = 120 KSI MIN. TENSILE STRESS)

CONTAINS PROPRIETARY INFORMATION PATENT PENDING

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DISTRIBUTOR CONTACT:  
PRECISION TOWER PRODUCTS  
PHONE: 888-926-4857  
EMAIL: info@precisiontowerproducts.com  
WEB: www.precisiontowerproducts.com



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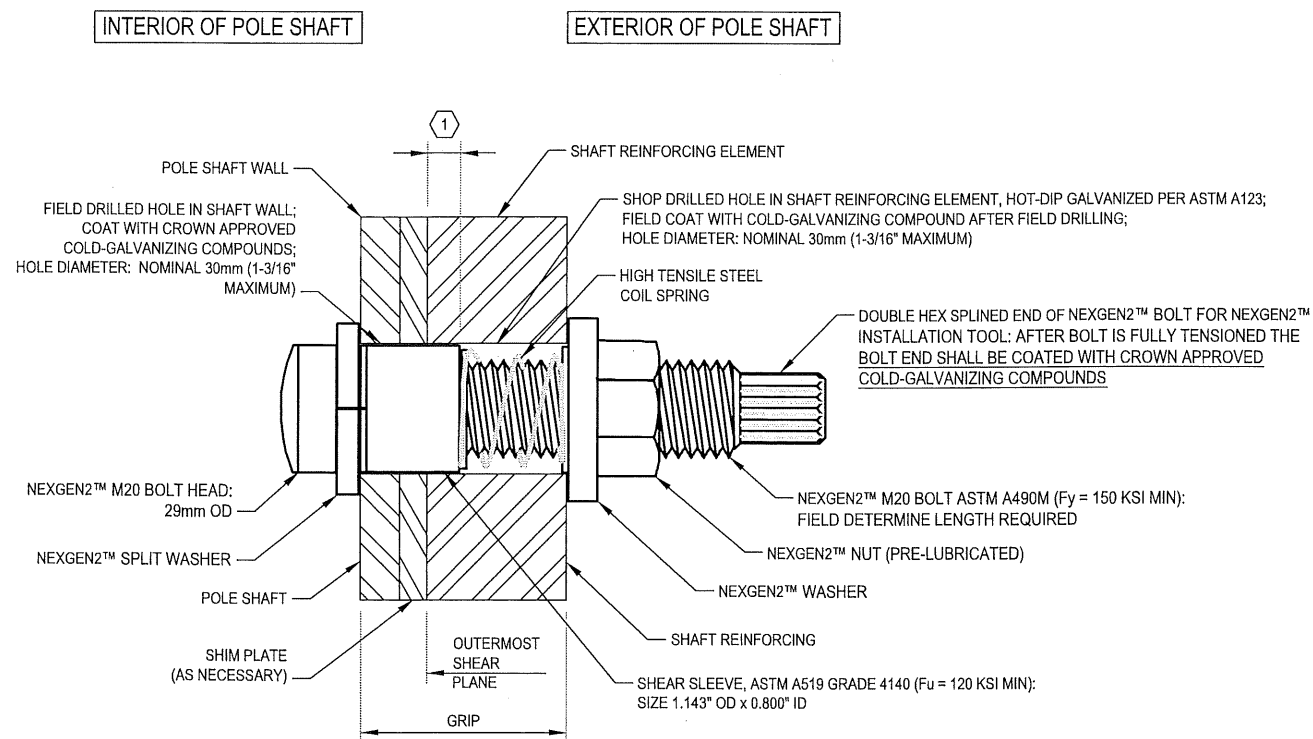
MODIFICATION OF AN EXISTING  
89'-6" MONOPOLE  
BU #875083; SHOPPING CENTER N.B.  
NEW BEDFORD, MASSACHUSETTS

PROJECT No: 37516-1020.002.7700 R1  
DRAWN BY: B.M.S.  
DESIGNED BY: J.W.S.  
CHECKED BY:  
DATE: 4-27-2016

FORGBolt™  
DETAILS

S-2A

1 NOTE: SHEAR SLEEVE LENGTH: THE SHEAR SLEEVE SHALL PROJECT A MINIMUM OF 3/8" BEYOND THE OUTERMOST SHEAR PLANE. THE CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS SHOWING NEXGEN2™ BOLT LENGTHS AND SHEAR SLEEVE LENGTHS TO THE EOR FOR REVIEW AND APPROVAL.



TYPICAL NEXGEN2™ BOLT DETAIL 1 S-2B

FOLLOW ALL MANUFACTURER / DISTRIBUTOR RECOMMENDATIONS FOR INSTALLATION, TIGHTENING, AND INSPECTION

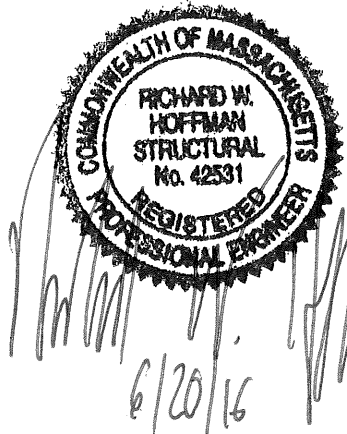
- BOLT HOLE NOTES:**
1. ALL SHOP-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM SHOP-DRILLED HOLE DIAMETER PERMITTED IS 1-3/16".
  2. ALL FIELD-DRILLED HOLES SHALL BE NOMINAL 30 MM DIAMETER. THE MAXIMUM FIELD-DRILLED HOLE DIAMETER PERMITTED IS 30 MM.
- BOLT TIGHTENING AND INSPECTION NOTES:**
1. ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSTALLED AND TIGHTENED TO THE PRETENSIONED CONDITION ACCORDING TO THE REQUIREMENTS OF SECTION 8.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. PER SECTION 8.2.3: ALL FASTENER ASSEMBLIES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS IN AISC SECTION 8.1 WITHOUT SEVERING THE SPLINED END AND WITH WASHERS POSITIONED AS REQUIRED IN AISC SECTION 6.2. PER REQUIREMENTS IN SECTION 8.1: PRIOR TO BOLT PRETENSIONING, THE JOINT SHALL FIRST BE COMPACTED TO THE SNUG-TIGHT CONDITION. SNUG TIGHT IS THE CONDITION THAT EXISTS WHEN ALL OF THE PLIES IN THE CONNECTION HAVE BEEN PULLED INTO FIRM CONTACT BY THE BOLTS AND THE BOLTS HAVE BEEN TIGHTENED SUFFICIENTLY TO PREVENT THE REMOVAL OF THE NUTS WITHOUT THE USE OF A WRENCH. ONCE THE SNUG TIGHT CONDITION IS ACHIEVED, THEN THE BOLT ASSEMBLY CAN BE TIGHTENED TO THE PRETENSIONED CONDITION.
  2. ALL NEXGEN2™ BOLT ASSEMBLIES SHALL BE INSPECTED ACCORDING TO THE REQUIREMENTS OF SECTION 9.2.3 OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009. NOTE THAT COMPLETE INSPECTION OF ALL NEXGEN2™ BOLT ASSEMBLIES IS REQUIRED IN ADDITION TO ROUTINE OBSERVATION.
  3. ALL NEXGEN2™ BOLTS SHALL BE INSPECTED BY A QUALIFIED BOLT INSPECTOR PER NOTES 1 AND 2, ABOVE. DURING INSTALLATION, THE BOLT INSPECTOR SHALL VERIFY AND DOCUMENT: THE SHOP-DRILLED AND FIELD-DRILLED HOLE SIZES; THE INSTALLATION OF THE NEXGEN2™ BOLT ASSEMBLY, INCLUDING THE SHEAR SLEEVE PLACEMENT AND NUT LUBRICATION; AND THE CONTRACTOR'S TENSIONING PROCEDURE. THE BOLT INSPECTOR SHALL PROVIDE COMPLETE DOCUMENTATION OF ALL BOLTS AFTER TIGHTENING CLEARLY SHOWING THAT THE DOUBLE HEX SPLINED END OF THE BOLTS HAVE BEEN TWISTED OFF AND COATED WITH CROWN APPROVED COLD-GALVANIZING COMPOUND..

PART NUMBER	BOLT LENGTH	SLEEVE LENGTH	MIN GRIP RANGE	MAX GRIP RANGE
M20x36	M20x95	11/16"	15/16"	1 7/16"
M20x48	M20x95	1 3/16"	1 7/16"	1 7/8"
M20x57	M20x95	1 5/8"	1 7/8"	2 1/4"
M20x68	M20x135	2"	2 1/4"	2 11/16"
M20x96	M20x135	2 7/16"	2 11/16"	3 3/4"
M20x127	M20x165	3"	3 3/4"	5"
M20x212	M20x250	4"	5"	8 5/16"

NOTE: NEXGEN2™ BOLT ASSEMBLY SHALL BE MAGNI 565 COATED PER ASTM F2833 AND MANUFACTURER SPECIFICATIONS.

NOTE: INSTALL NEXGEN2™ BOLT ASSEMBLY PER MANUFACTURER'S INSTRUCTIONS.

DISTRIBUTOR CONTACT DETAILS:  
ALLFASTENERS  
15401 COMMERCE PARK DR.  
BROOKPARK, OHIO 44142  
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E-MAIL: SALES@ALLFASTENERS.COM



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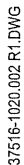
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MODIFICATION OF AN EXISTING  
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NEW BEDFORD, MASSACHUSETTS

PROJECT No: 37516-1020.002.7700 R1  
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NEXGEN2™ BOLT  
DETAIL

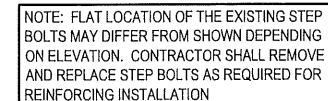
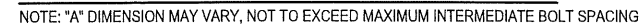
S-2B



NOTES:

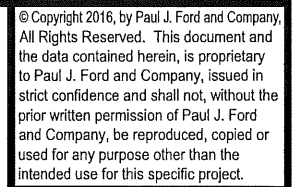
- \* BOLTS INCLUDED IN THE TOTAL QUANTITY LISTED IN THE FLAT PLATE INSTALLATION CHART.

SHIMS ARE FOR BIDDING PURPOSES ONLY, FINAL SHIM REQUIREMENTS TO BE DETERMINED BY CONTRACTOR DURING FABRICATION.



MODIFICATIONS:

- DETAIL 2  
SCALE: NTS S-3



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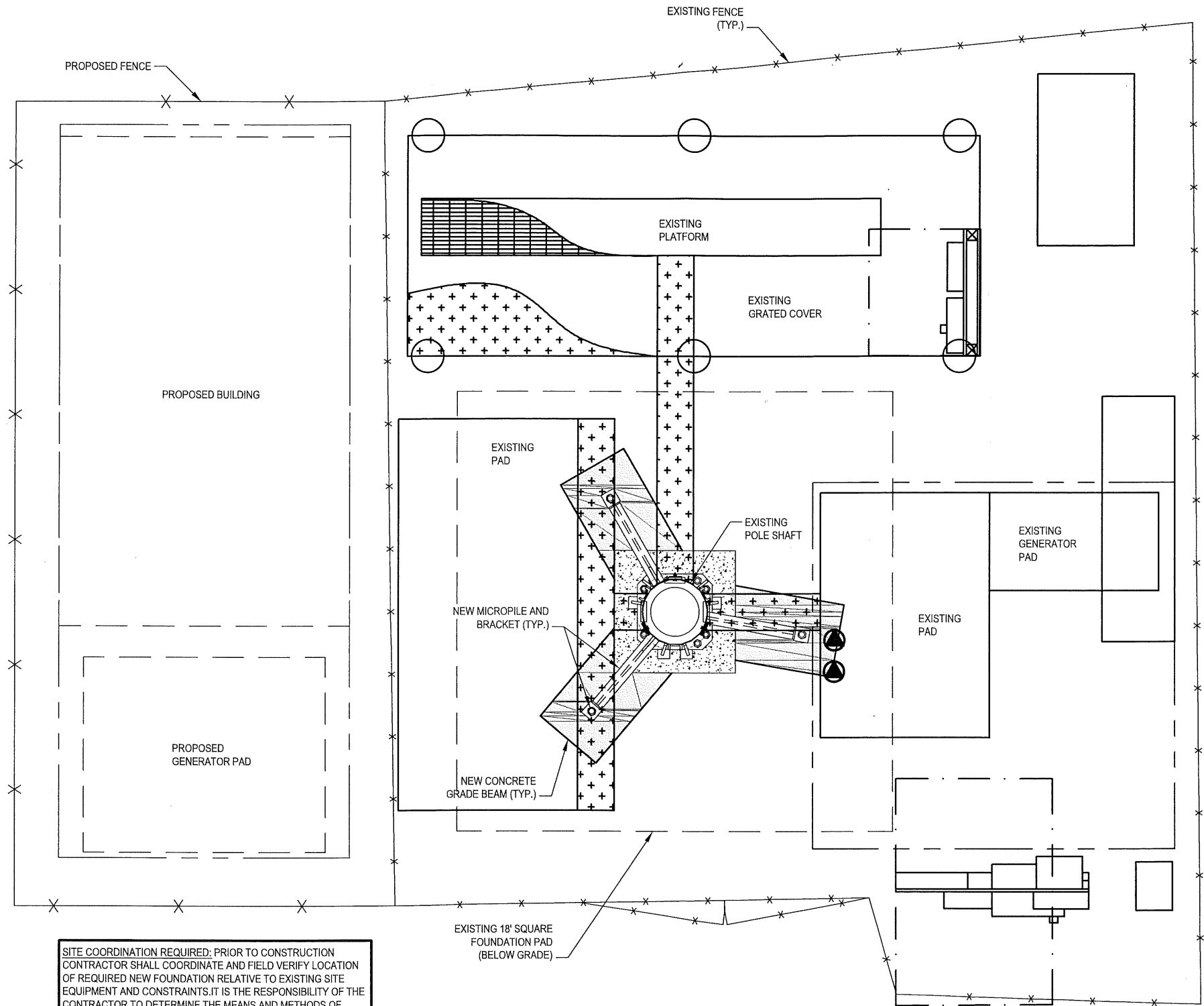
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## MONOPOLE PROFILE

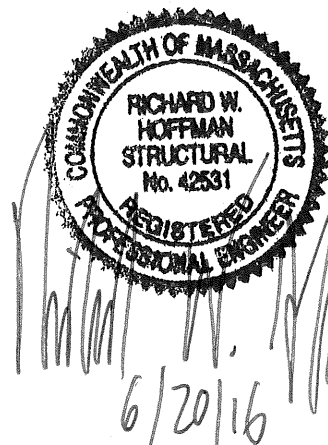
S-3





SITE COORDINATION REQUIRED: PRIOR TO CONSTRUCTION CONTRACTOR SHALL COORDINATE AND FIELD VERIFY LOCATION OF REQUIRED NEW FOUNDATION RELATIVE TO EXISTING SITE EQUIPMENT AND CONSTRAINTS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE MEANS AND METHODS OF SHORING AND/OR RELOCATION OF GROUND BASED EQUIPMENT THAT WILL BE AFFECTED BY THE PROPOSED ENVELOPE OF THE CURRENT FOUNDATION MOD DESIGN. PLEASE CONTACT THE EOR IF DESIGN INPUT OR NECESSARY CHANGES TO THE DESIGN ARE NEEDED. IF THE DESIGN IS FEASIBLE, BUT THE CONTRACTOR HAS A PREFERENCE TO INSTALL A DIFFERENT OPTION TO ACCOMMODATE ALTERNATE TECHNIQUES OR SUBCONTRACTOR LIMITATIONS - IT IS EXPECTED THAT THESE ISSUES WILL BE ADDRESSED AT THE TIME OF BIDDING. ANY CHANGES TO ORIGINAL DESIGN WILL REQUIRE FURTHER ENGINEERING - CONTRACTOR IS EXPECTED TO BUDGET ACCORDINGLY.

SITE PLAN 1  
S-4



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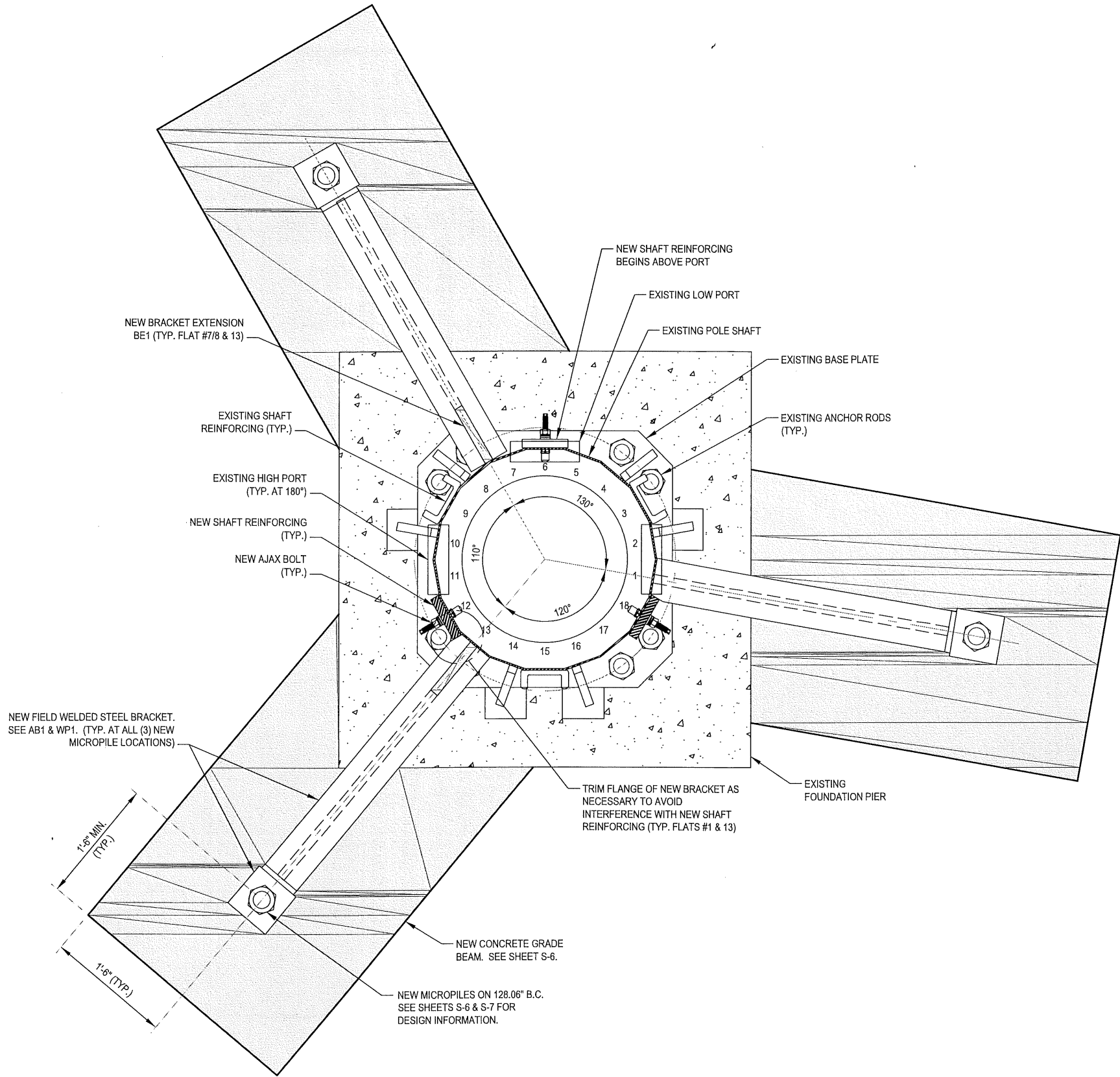
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CHECKED BY:  
DATE: 4-27-2016

SITE PLAN

S-4

BASE SPECIFICATIONS	
BASE PLATE:	37" SQUARE; 2" THK.; Fy=55 KSI
ANCHOR RODS:	(8) 2 1/4"Ø; A615 GRADE 75; 38" B.C.



BASE PLATE 1  
S-5

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COMMONWEALTH OF MASSACHUSETTS

RICHARD W. HOFFMAN

STRUCTURAL

No. 42831

REGISTERED

PROFESSIONAL ENGINEER

6/20/16

PROJECT No:

37516-1020.002.7700 R1

DRAWN BY:

B.M.S.

DESIGNED BY:

J.W.S.

CHECKED BY:

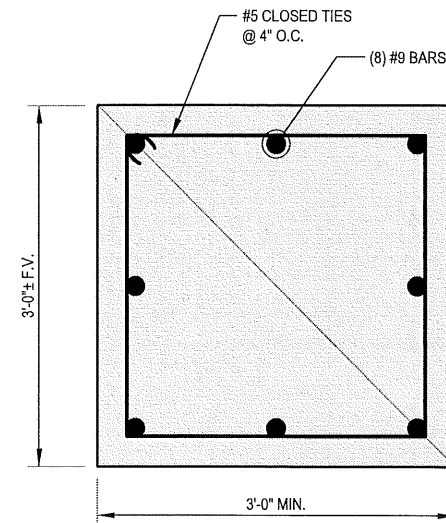
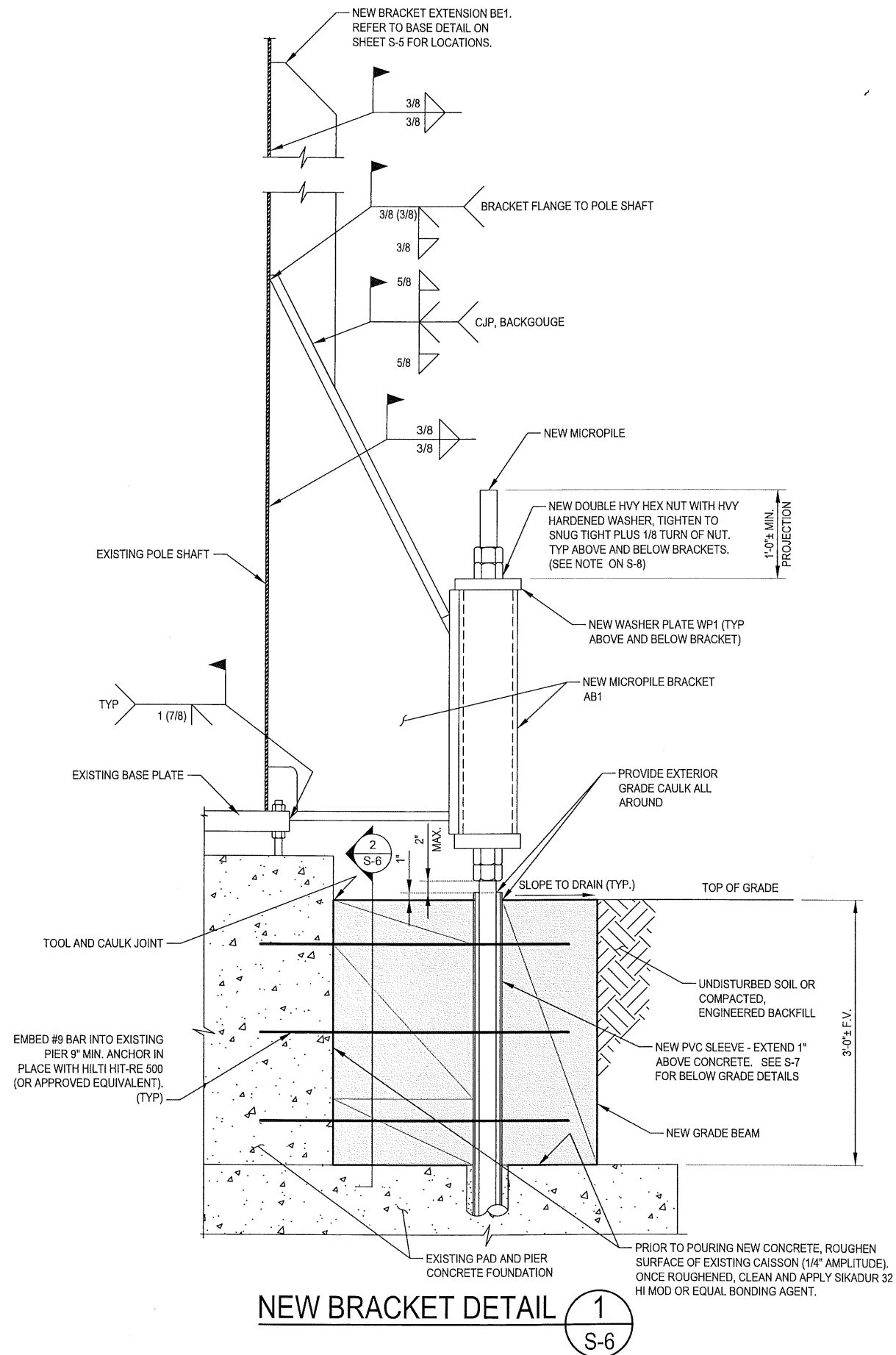
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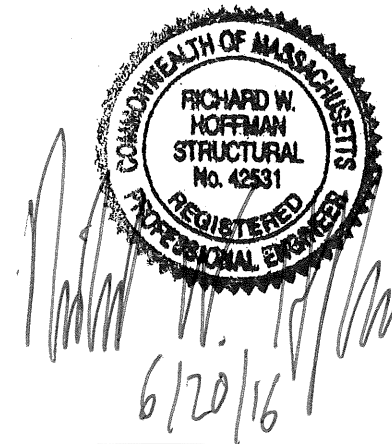
BASE PLATE  
DETAILS

S-5

37516-1020.002 R1.DWG



## SECTION 2

NOTE: NEW DOWEL BARS  
NOT SHOWN FOR CLARITY2  
S-6

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BRACKET DETAILS

S-6



\* THE DESIGN REQUIRES MICROPILES FOR THE LISTED CAPACITY IN TENSION AND COMPRESSION AS LAID OUT PER PLAN. THE CONTRACTOR/MICROPILE INSTALLER IS RESPONSIBLE FOR THE MEANS AND METHODS TO ENSURE THE NECESSARY CAPACITY AND WILL DEMONSTRATE THE INSTALLED CAPACITY PER THE SPECIFIED TESTING. THE EMBEDMENT DEPTH AND GROUT DIAMETER ARE LISTED AS A PRELIMINARY BASIS FOR BIDDING. THE INTENT IS FOR THE INSTALLER TO REVIEW THE CURRENT SOIL INFORMATION AND DESIGN REQUIREMENTS TO ENSURE THAT THE CONTRACTOR'S SPECIFIC EQUIPMENT OR INSTALLATION TECHNIQUE IS APPROPRIATE. IF THE CONTRACTOR BELIEVES THE SCOPE SHOULD CHANGE UPON REVIEW, PLEASE ADDRESS PRIOR TO BIDDING. PLEASE COORDINATE WITH ENGINEER OF RECORD PRIOR TO INSTALLATION.

MICROPILE NOTES:

- ALL BAR STEEL AND ASSOCIATED HARDWARE SHALL BE SUPPLIED BY CONTECH SYSTEMS OR OWNER/EOR APPROVED EQUIVALENT.
- ALL BAR, NUTS AND BEARING PLATES SHALL BE HOT-DIP GALVANIZED PER ASTM A123 OR A153, AS APPROPRIATE.
- CONTACT CONTECH SYSTEMS (OR MANUFACTURER OF APPROVED ALTERNATE) FOR MATERIALS AND INSTALLATION PROCEDURES AND RECOMMENDATIONS.
- SPECIAL INSPECTION OF THE MICROPILES IS REQUIRED AS FOLLOWS: (1) VERIFY THAT MICROPILE AND PIPE MATERIAL, SIZE AND LENGTH COMPLY WITH THE INFORMATION SHOWN ON THIS DRAWING, (2) VERIFY PLACEMENT OF EACH MICROPILE, (3) OBSERVE DRILLING, GROUTING AND TESTING (AS APPROPRIATE) OPERATIONS FOR EACH MICROPILE AND MAINTAIN COMPLETE AND ACCURATE RECORDS FOR EACH MICROPILE.
- CONTACT CONTECH SYSTEMS (OR MANUFACTURER OF APPROVED ALTERNATE) TO VERIFY NUT & WASHER CONNECTION ARE COMPATIBLE WITH MICROPILE THREADS.
- CONTRACTOR SHALL PERFORM TESTING PRIOR TO POURING CONCRETE GRADE BEAM.

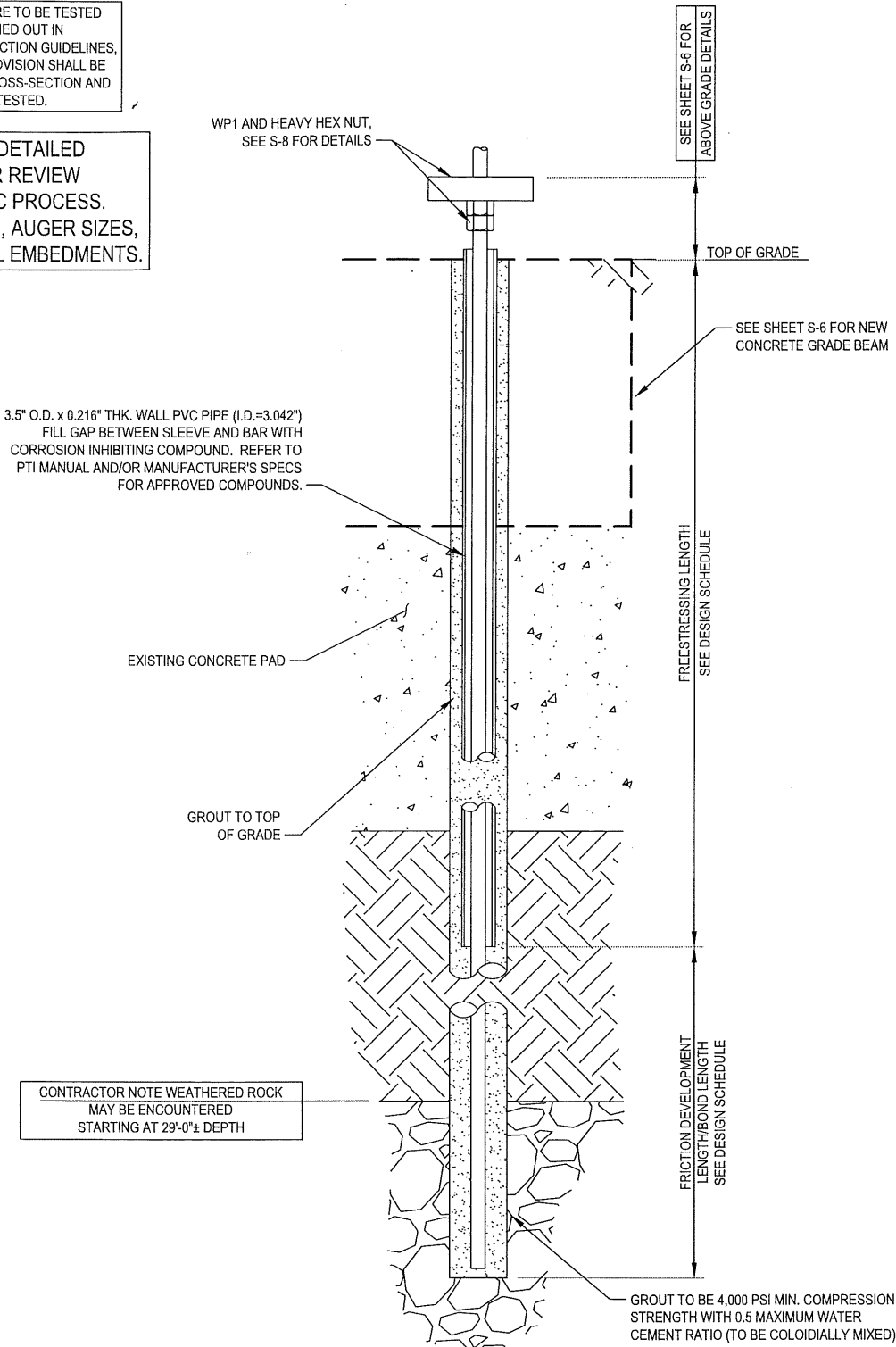
DRILLER/INSTALLER SOIL DESIGN PARAMETERS				
LAYER THICKNESS	LAYER DEPTH	SOIL TYPE	ULTIMATE GROUT BOND VALUES	AUGER/CORE HOLE DESIGN SIZE
3'-0"	3'-0"	FILL	IGNORE / SLEEVE	175 mm / N/A
4'-0"	7'-0"	FOUNDATION	IGNORE / SLEEVE	N/A / 7"
1'-0"	8'-0"	VERY DENSE SAND GRAVEL	10 PSI	175 mm / 8.858"
21'-0"	29'-0"	VERY DENSE SAND GRAVEL	27 PSI	175 mm / 8.858"
21'-0"	50'-0"	GRANITE & BASALT (ROCK)	32 PSI	175 mm / 7.283"

SOIL VALUES WERE PROVIDED FROM FDH, #146E2W1600 DATED NOVEMBER 10, 2014

MICROPILE TESTING REQUIREMENTS

PROOF TESTING: ALL IN-PLACE PRODUCTION MICROPILE ARE TO BE TESTED TO 260 KIPS IN TENSION. ALL PILE TESTING SHALL BE CARRIED OUT IN ACCORDANCE TO FHWA MICROPILE DESIGN AND CONSTRUCTION GUIDELINES, SECTION 7.4.2 PROOF TESTS, WHERE 260 KIPS = 1.6DL. PROVISION SHALL BE MADE TO ALLOW FOR MOVEMENT BETWEEN MICROPILE CROSS-SECTION AND SOIL SO THAT GROUT-TO-SOIL BOND LINE IS ADEQUATELY TESTED.

MICROPILE INSTALLER IS TO MAINTAIN DETAILED DRILLING AND INSTALLATION LOGS FOR REVIEW BEFORE TESTING AS A PART OF A QA/QC PROCESS. LOGS SHOULD SHOW SOIL CONDITIONS, AUGER SIZES, GROUT USED PER LOCATION AND FINAL EMBEDMENTS.



PROPOSED ANCHOR DESIGN PARAMETERS 1  
(TYPICAL) S-7

PILE DESIGN PARAMETER SCHEDULE							PILE TESTING PARAMETERS		
PARAMETER	MICROPILE	* PILE FACTORED CAPACITY @Pn (kips)	EXTENSION ABOVE GRADE	FREESTRESSING LENGTH	DEVELOPMENT LENGTH / BOND LENGTH	TOTAL LENGTH	TARGET TENSION (PROOF) LOAD (KIPS)	ALIGNMENT LOAD (KIPS)	** DESIGN LOAD (KIPS)
OPTIONS									
MICROPILE	73/45 *	290	6' MIN.	5' MIN.	51' MIN.	62' MIN.	260	17	163

\* DESIGN BASED ON A CONTECH 73/45 MICROPILE W/ A 175 mm AUGER BIT W/ A 103 mm ADAPTOR THAT WILL PROVIDE A MINIMUM AVERAGE GROUT DIAMETER OF 8.1"

\*\* DESIGN LOAD SHOWN IS TO BE USED FOR MICROPILE TESTING PURPOSES ONLY.

1 6-16-2016: REVISED PILE TESTING PARAMETERS

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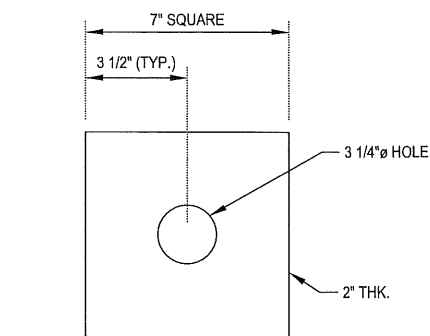
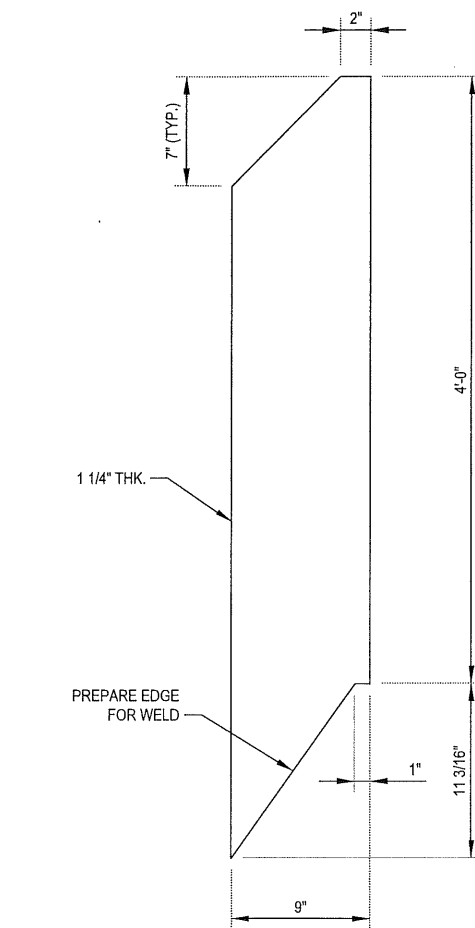
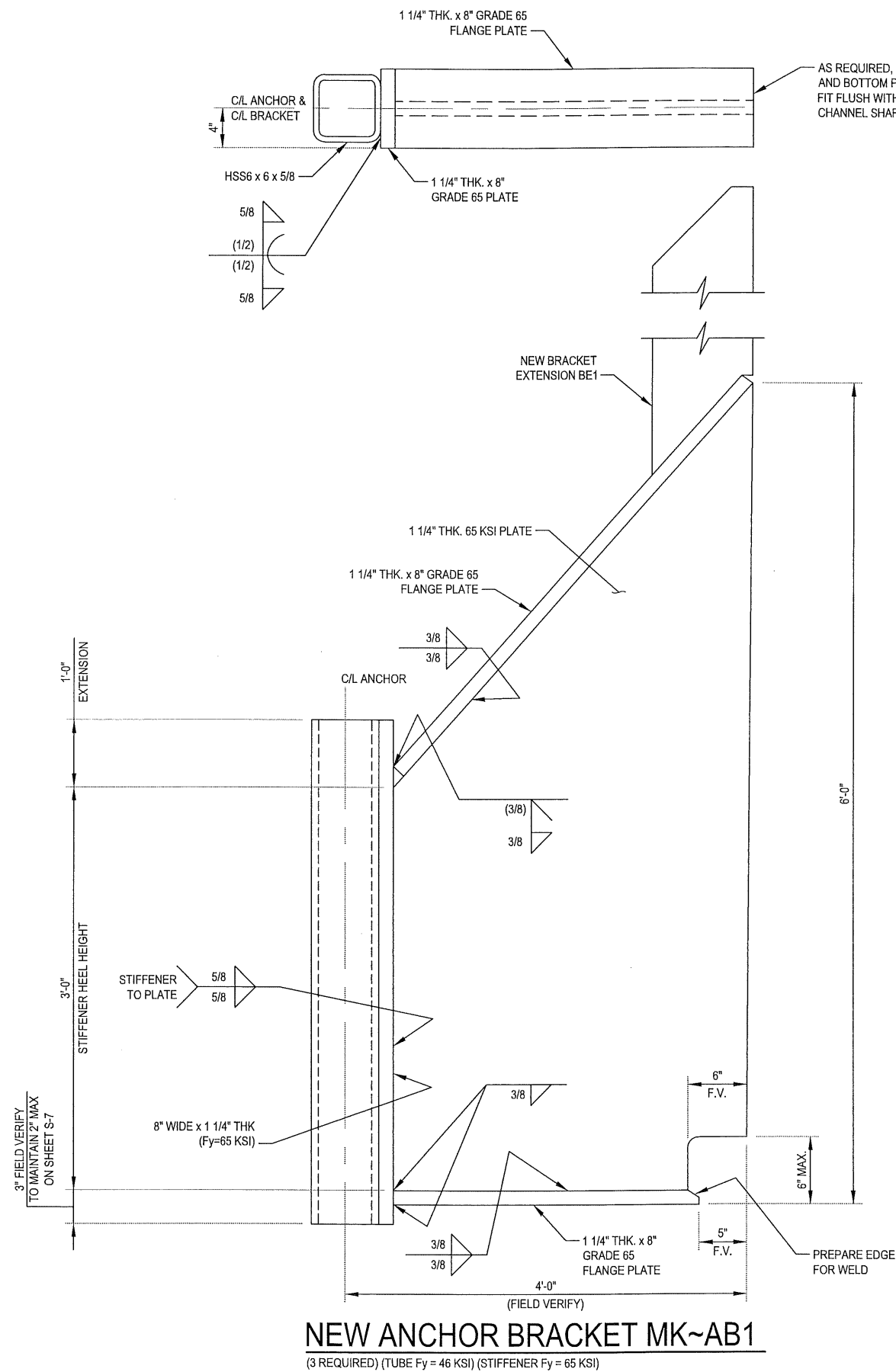
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MICROPILE  
DETAILS

S-7





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MISC DETAILS

S-8

MODIFICATION INSPECTION NOTES:

1. GENERAL

1.1. THE MODIFICATION INSPECTION (MI) IS A VISUAL INSPECTION OF TOWER MODIFICATIONS AND A REVIEW OF CONSTRUCTION INSPECTIONS AND OTHER REPORTS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS, AS DESIGNED BY THE EOR.

1.2. THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF, NOR DOES THE MI INSPECTOR TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES.

1.3. ALL MI'S SHALL BE CONDUCTED BY A CROWN CASTLE ENGINEERING VENDOR (AEV) OR ENGINEERING SERVICE VENDOR (AESV) THAT IS APPROVED TO PERFORM ELEVATED WORK FOR CROWN CASTLE.

1.4. TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR CROWN CASTLE POINT OF CONTACT (POC).

1.5. REFER TO ENG-SOW-10007: MODIFICATION INSPECTION SOW FOR FURTHER DETAILS AND REQUIREMENTS.
2. MI INSPECTOR

2.1. THE MI INSPECTOR IS REQUIRED TO CONTACT THE GC AS SOON AS RECEIVING A PO FOR THE MI TO, AT A MINIMUM:

2.1.1. REVIEW THE REQUIREMENTS OF THE MI CHECKLIST.

2.1.2. WORK WITH THE GC TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.

2.1.3. THE MI INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GC INSPECTION AND TEST REPORTS, REVIEWING THE DOCUMENTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE MI REPORT TO CROWN CASTLE.
3. GENERAL CONTRACTOR

3.1. THE GC IS REQUIRED TO CONTACT THE MI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

3.1.1. REVIEW THE REQUIREMENTS OF THE MI CHECKLIST.

3.1.2. WORK WITH THE MI INSPECTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.

3.1.3. BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.

3.1.4. THE GC SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MI CHECKLIST AND ENG-SOW-10007.
4. RECOMMENDATIONS

4.1. THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:

4.1.1. IT IS SUGGESTED THAT THE GC PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLE 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.

4.1.2. THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.

4.1.3. WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.

4.1.4. IT MAY BE BENEFICIAL TO INSTALL ALL TOWER MODIFICATIONS PRIOR TO CONDUCTING THE FOUNDATION INSPECTIONS TO ALLOW FOUNDATION AND MI INSPECTION(S) TO COMMENCE WITH ONE SITE VISIT.

4.1.5. WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.
5. CANCELLATION OR DELAYS IN SCHEDULED MI

5.1. IF THE GC AND MI INSPECTOR AGREE TO A DATE ON WHICH THE MI WILL BE CONDUCTED, AND EITHER PARTY CANCELS OR DELAYS, CROWN CASTLE SHALL NOT BE RESPONSIBLE FOR ANY COSTS, FEES, LOSS OF DEPOSITS AND/OR OTHER PENALTIES RELATED TO THE CANCELLATION OR DELAY INCURRED BY EITHER PARTY FOR ANY TIME (E.G. TRAVEL AND LODGING, COSTS OF KEEPING EQUIPMENT ON-SITE, ETC.). IF CROWN CASTLE CONTRACTS DIRECTLY FOR A THIRD PARTY MI, EXCEPTIONS MAY BE MADE IN THE EVENT THAT THE DELAY/CANCELLATION IS CAUSED BY WEATHER OR OTHER CONDITIONS THAT MAY COMPROMISE THE SAFETY OF THE PARTIES INVOLVED.
6. CORRECTION OF FAILING MI'S

6.1. IF THE MODIFICATION INSTALLATION WOULD FAIL THE MI ("FAILED MI"), THE GC SHALL WORK WITH CROWN CASTLE TO COORDINATE A REMEDIATION PLAN IN ONE OF TWO WAYS:

6.1.1. CORRECT FAILING ISSUES TO COMPLY WITH THE SPECIFICATIONS CONTAINED IN THE ORIGINAL CONTRACT DOCUMENTS AND COORDINATE A SUPPLEMENT MI.

6.1.2. OR, WITH CROWN CASTLE'S APPROVAL, THE GC MAY WORK WITH THE EOR TO RE-ANALYZE THE MODIFICATION/REINFORCEMENT USING THE AS-BUILT CONDITION.
7. MI VERIFICATION INSPECTIONS

7.1. CROWN CASTLE RESERVES THE RIGHT TO CONDUCT A MI VERIFICATION INSPECTION TO VERIFY THE ACCURACY AND COMPLETENESS OF PREVIOUSLY COMPLETED MI INSPECTION(S) ON TOWER MODIFICATION PROJECTS.

7.2. ALL VERIFICATION INSPECTIONS SHALL BE HELD TO THE SAME SPECIFICATIONS AND REQUIREMENTS IN THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH ENG-SOW-10007.

7.3. VERIFICATION INSPECTION MAY BE CONDUCTED BY AN INDEPENDENT AEV/AESV FIRM AFTER A MODIFICATION PROJECT IS COMPLETED, AS MARKED BY THE DATE OF AN ACCEPTED "PASSING MI" OR "PASS AS NOTED MI" REPORT FOR THE ORIGINAL PROJECT.
8. PHOTOGRAPHS

8.1. BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

8.1.1. PRECONSTRUCTION GENERAL SITE CONDITION

8.1.2. PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION/ERECTION AND INSPECTION

8.1.3. RAW MATERIALS

8.1.4. PHOTOS OF ALL CRITICAL DETAILS

8.1.5. FOUNDATION MODIFICATIONS

8.1.6. WELD PREPARATION

8.1.7. BOLT INSTALLATION AND TORQUE

8.1.8. FINAL INSTALLED CONDITION

8.1.9. SURFACE COATING REPAIR

8.1.10. POST CONSTRUCTION PHOTOGRAPHS

8.1.11. FINAL INFIELD CONDITION

8.1.12. PHOTOS OF ELEVATED MODIFICATIONS TAKEN FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

8.1.13. THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO ENG-SOW-10007.

9. INSPECTION AND TESTING

9.1. ALL WORK SHALL BE SUBJECT TO REVIEW AND OBSERVATION BY CROWN CASTLE'S REPRESENTATIVE AND CROWN CASTLE'S AUTHORIZED INDEPENDENT INSPECTION AND TESTING AGENCY.

9.2. INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS ARE STILL REQUIRED WHEN THE EOR PERFORMS SUPPORT SERVICES DURING CONSTRUCTION.

9.3. OBSERVED DISCREPANCIES BETWEEN THE WORK AND THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST.

9.4. AN INDEPENDENT QUALIFIED INSPECTION/TESTING AGENCY SHALL BE SELECTED, RETAINED AND PAID FOR BY CROWN CASTLE FOR THE SOLE PURPOSE OF INSPECTING, TESTING, DOCUMENTING, AND APPROVING ALL WELDING AND FIELD WORK PERFORMED BY THE CONTRACTOR.

9.4.1. ACCESS TO ANY PLACE WHERE WORK IS BEING DONE SHALL BE PERMITTED AT ALL TIMES.

9.4.2. THE INSPECTION AGENCY SHALL SO SCHEDULE THIS WORK AS TO CAUSE A MINIMUM OF INTERRUPTION TO, AND COORDINATE WITH, THE WORK IN PROGRESS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE THE WORK SCHEDULE WITH THE TESTING AGENCY. THE CONTRACTOR SHALL ALLOW FOR ADEQUATE TIME AND ACCESS FOR THE TESTING AGENCY TO PERFORM THEIR DUTIES.

9.5. THE INSPECTION AND TESTING AGENCY SHALL BE RESPONSIBLE TO PERFORM THE FOLLOWING SERVICES AND INSPECT THE FOLLOWING ITEMS IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS. THE TESTING AGENCY SHALL INSPECT ITEMS ON THIS LIST AND OTHER ITEMS AS NECESSARY TO FULFILL THEIR RESPONSIBILITY. THE TESTING AGENCY SHALL UTILIZE EXPERIENCED, TRAINED INSPECTORS INCLUDING AWS CERTIFIED WELDING INSPECTORS (CWI). INSPECTORS SHALL HAVE THE TRAINING, CREDENTIALS, AND EXPERIENCE APPROPRIATE FOR AND COMMENSURATE WITH THE SCOPE AND TYPE OF INSPECTION WORK TO BE PERFORMED.

9.6. GENERAL

9.6.1. PERFORM PERIODIC ON-SITE OBSERVATION, INSPECTION, VERIFICATION, AND TESTING DURING THE TIME THE CONTRACTOR IS WORKING ON-SITE. AGENCY SHALL NOTIFY CROWN CASTLE AND THE EOR IMMEDIATELY WHEN FIELD PROBLEMS OR DISCREPANCIES OCCUR.

9.7. FOUNDATIONS AND SOIL PREPARATION

9.7.1. VERIFY MATERIALS AT BOTTOM OF EXCAVATION ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.

9.7.2. VERIFY THAT EXCAVATIONS HAVE EXTENDED TO PROPER DEPTH AND ARE FOUNDED ON PROPER MATERIAL.

9.7.3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS AS SPECIFIED.

9.7.4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESS DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.

9.7.5. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY SITE HAS BEEN PREPARED PROPERLY.

9.8. CONCRETE TESTING PER ACI

9.8.1. INSPECT PLACEMENT OF REINFORCING STEEL.

9.8.2. INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO AND DURING PLACEMENT OF CONCRETE.

9.8.3. VERIFY USE OF REQUIRED MIX DESIGN.

9.8.4. AT THE TIME FRESH CONCRETE IS SAMPLED FABRICATE SPECIMENS FOR STRENGTH TEST, PERFORM SLUMP AND AIR CONTENT TEST AND DETERMINE TEMPERATURE OF THE CONCRETE.

9.8.5. INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUE.

9.8.6. INSPECT SPECIFIED CURING AND TEMPERATURE TECHNIQUES.

9.9. STRUCTURAL STEEL

9.9.1. CHECK STEEL ON THE JOB WITH THE PLANS.

9.9.2. CHECK MILL CERTIFICATIONS. CALL FOR LABORATORY TEST REPORTS WHEN MILL CERTIFICATION IS IN QUESTION.

9.9.3. CHECK GRADE OF STEEL MEMBERS, AND BOLTS FOR CONFORMANCE WITH DRAWINGS.

9.9.4. INSPECT ALL STRUCTURAL BOLTS SHALL BE FIELD INSPECTED ACCORDING TO THE REQUIREMENTS OF THE AISC 'SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS', DEC. 31, 2009.

9.9.5. INSPECT STEEL MEMBERS FOR DISTORTION, EXCESSIVE RUST, FLAWS AND BURNED HOLES.

9.9.6. CHECK STEEL MEMBERS FOR SIZES, SWEEP AND DIMENSIONAL TOLERANCES.

9.9.7. CHECK FOR SURFACE FINISH SPECIFIED, GALVANIZED.

9.9.8. CHECK THAT BOLTS HAVE BEEN TIGHTENED PROPERLY.

9.9.9. PRIOR TO ANY FIELD CUTTING THE CONTRACTOR SHALL MARK THE CUTOUT LINES ON THE STEEL AND THE INSPECTION/TESTING AGENCY SHALL VERIFY PROPOSED LAYOUT, LOCATION, AND DIMENSIONS. THE INSPECTION/TESTING AGENCY SHALL CLOSELY AND CONTINUOUSLY MONITOR THIS ACTIVITY.

9.10. WELDING:

9.10.1. VERIFY FIELD WELDING PROCEDURES, WELDERS, AND WELDING OPERATORS, NOT DEEMED PREQUALIFIED, IN ACCORDANCE WITH AWS D1.1.

9.10.2. INSPECT FIELD WELDED CONNECTIONS IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED AND WITH AWS D1.1.

9.10.3. APPROVE FIELD WELDING SEQUENCE.

9.10.4. A PROGRAM OF THE APPROVED SEQUENCES SHALL BE SUBMITTED TO CROWN CASTLE BEFORE WELDING BEGINS. NO CHANGE IN APPROVED SEQUENCES MAY BE MADE WITHOUT PERMISSION FROM CROWN CASTLE.

9.10.5. INSPECT WELDED CONNECTIONS AS FOLLOWS AND IN ACCORDANCE WITH AWS D1.1:

9.10.5.1. INSPECT WELDING EQUIPMENT FOR CAPACITY, MAINTENANCE, AND WORKING CONDITIONS.

9.10.5.2. VERIFY SPECIFIED ELECTRODES AND HANDLING AND STORAGE OF ELECTRODES FOR CONFORMANCE TO SPECIFICATIONS.

9.10.5.3. INSPECT PREHEATING AND INTERPASS TEMPERATURES FOR CONFORMANCE WITH AWS D1.1.

9.10.5.4. VISUALLY INSPECT ALL WELDS AND VERIFY THAT QUALITY OF WELDS MEETS THE REQUIREMENTS OF AWS D1.1. OTHER TESTS MAY ALSO BE PERFORMED ON THE WELDS BY THE TESTING AGENCY IN ORDER FOR THEM TO PERFORM THEIR DUTIES FOR THIS PROJECT.

9.10.5.5. SPOT TEST AT LEAST ONE FILLET WELD OF EACH MEMBER USING MAGNETIC PARTICLE.

9.10.5.6. INSPECT FOR SIZE, SPACING, TYPE AND LOCATION AS PER APPROVED DRAWINGS.

9.10.5.7. VERIFY THAT THE BASE METAL CONFORMS TO THE DRAWINGS.

9.10.5.8. REVIEW THE REPORTS BY TESTING LABS.

9.10.5.9. CHECK TO SEE THAT WELDS ARE CLEAN AND FREE FROM SLAG.

9.10.5.10. INSPECT RUST PROTECTION OF WELDS AS PER SPECIFICATIONS.

9.10.5.11. CHECK THAT DEFECTIVE WELDS ARE CLEARLY MARKED AND HAVE BEEN ADEQUATELY REPAIRED.

9.10.5.12. FIELD NDE MINIMUM REQUIREMENTS

9.10.5.12.1. ALL NDE SHALL BE IN ACCORDANCE WITH AWS D1.1.

9.10.5.12.2. FOR NEW BASE STIFFENERS (INCLUSIVE OF TRANSITION STIFFENERS) AND ANCHOR ROD BRACKETS, COMPLETE JOINT PENETRATION WELDS SHALL BE 100% INSPECTED BY UT. ALL PARTIAL JOINT PENETRATION AND FILLET WELDS SHALL BE 100% INSPECTED BY MT.

9.10.5.12.3. FOR NEW FLAT PLATE REINFORCEMENT AT THE BASE OF THE TOWER, COMPLETE JOINT PENETRATION WELDS SHALL BE 100% INSPECTED BY UT. ALL PARTIAL JOINT PENETRATION AND FILLET WELDS SHALL BE 100% INSPECTED BY MT, BUT MAY BE LIMITED TO A HEIGHT OF 10'-0".

9.10.5.12.4. FOR NDE OF THE EXISTING BASE PLATE CIRCUMFERENTIAL WELD, GC SHALL REFERENCE THE MI CHECKLIST FOR APPLICABILITY. PLEASE SEE ENG-SOW-10033: 'TOWER BASE PLATE NDE, AND ENG-BUL-10051: 'NDE REQUIREMENTS FOR MONOPOLE BASE PLATE TO PREVENT CONNECTION FAILURE'. NOTIFY THE EOR AND CROWN ENGINEERING IMMEDIATELY IF ANY CRACKS ARE SUSPECTED OR HAVE BEEN IDENTIFIED. THE NDE SHALL INCLUDE ALL EXISTING MODIFICATIONS THAT HAVE BEEN WELDED TO THE BASE PLATE.

9.10.5.12.5. ALL TESTING LIMITATIONS SHALL BE DETAILED IN THE NDE REPORT.

- 9.11. REPORTS:

9.11.1. COMPILE AND PERIODICALLY SUBMIT DAILY INSPECTION REPORTS TO CROWN CASTLE.

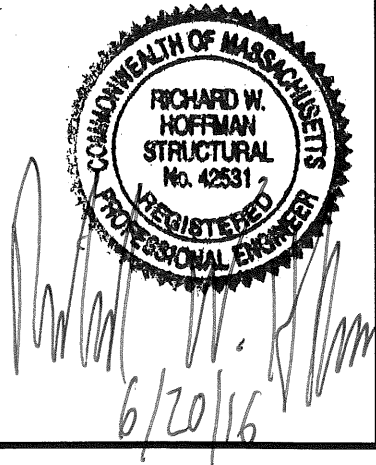
9.11.2. THE INSPECTION PLAN OUTLINED HEREIN IS INTENDED AS A DESCRIPTION OF GENERAL AND SPECIFIC ITEMS OF CONCERN. IT IS NOT INTENDED TO BE ALL-INCLUSIVE. IT DOES NOT LIMIT THE TESTING AND INSPECTION AGENCY TO THE ITEMS LISTED. ADDITIONAL TESTING, INSPECTION, AND CHECKING MAY BE REQUIRED AND SHOULD BE ANTICIPATED. THE TESTING AGENCY SHALL USE THEIR PROFESSIONAL JUDGMENT AND KNOWLEDGE OF THE JOB SITE CONDITIONS AND THE CONTRACTOR'S PERFORMANCE TO DECIDE WHAT OTHER ITEMS REQUIRE ADDITIONAL ATTENTION. THE TESTING AGENCY'S JUDGMENT MUST PREVAIL ON ITEMS NOT SPECIFICALLY COVERED. ANY DISCREPANCIES OR PROBLEMS SHALL BE BROUGHT IMMEDIATELY TO CROWN CASTLE'S ATTENTION. RESOLUTIONS ARE NOT TO BE MADE WITHOUT CROWN CASTLE'S REVIEW AND SPECIFIC WRITTEN CONSENT. CROWN CASTLE RESERVES THE RIGHT TO DETERMINE WHETHER OR NOT A RESOLUTION IS ACCEPTABLE.

9.11.3. AFTER EACH INSPECTION, THE TESTING AGENCY WILL PREPARE A WRITTEN ACCEPTANCE OR REJECTION WHICH WILL BE GIVEN TO THE CONTRACTOR AND FILED AS DAILY REPORTS TO CROWN CASTLE. THIS WRITTEN ACTION WILL GIVE THE CONTRACTOR A LIST OF ITEMS TO BE CORRECTED, PRIOR TO CONTINUING CONSTRUCTION, AND/OR LOADING OF STRUCTURAL ITEMS.

9.11.4. THE TESTING AGENCY DOES NOT RELIEVE THE CONTRACTOR'S CONTRACTUAL OR STATUTORY OBLIGATIONS. THE CONTRACTOR HAS THE SOLE RESPONSIBILITY FOR ANY DEVIATIONS FROM THE OFFICIAL CONTRACT DOCUMENTS. THE TESTING AGENCY WILL NOT REPLACE THE CONTRACTOR'S QUALITY CONTROL PERSONNEL.

MI CHECKLIST	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY EOR)	REPORT ITEM
PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWINGS
X	EOB REVIEW
X	FABRICATION INSPECTION
X	FABRICATOR CERTIFIED WELD INSPECTION
X	MATERIAL TEST REPORT (MTR)
X	FABRICATOR NDE INSPECTION
NA	NDE REPORT OF MONOPOLE BASE PLATE (AS REQUIRED)
X	PACKING SLIPS
ADDITIONAL TESTING AND INSPECTIONS: _____	
CONSTRUCTION	
X	CONSTRUCTION INSPECTIONS
X	FOUNDATION INSPECTIONS
X	CONCRETE COMP. STRENGTH AND SLUMP TESTS
NA	POST INSTALLED ANCHOR ROD VERIFICATION
NA	BASE PLATE GROUT VERIFICATION
X	CONTRACTOR'S CERTIFIED WELD INSPECTION
NA	EARTHWORK: PROVIDE PHOTO DOCUMENTATION OF EXCAVATION QUALITY AND COMPACTION
X	ON SITE COLD GALVANIZING VERIFICATION
NA	GUY WIRE TENSION REPORT
X	GC AS-BUILT DOCUMENTS
X	MICROPILE/ROCK ANCHOR INSTALLER'S DRILLING AND INSTALLATION LOGS AND QA/QC DOCUMENTS
ADDITIONAL TESTING AND INSPECTIONS: _____	
POST-CONSTRUCTION	
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)
NA	POST INSTALLED ANCHOR ROD TARGET TENSION LOAD TESTING
X	REFER TO MICROPILE/ROCK ANCHOR NOTES FOR SPECIAL INSPECTION AND TESTING REQUIREMENTS.
X	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS: _____	

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT  
NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT



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MODIFICATION OF AN EXISTING  
89'-6" MONOPOLE  
BU #875083; SHOPPING CENTER N.B.  
NEW BEDFORD, MASSACHUSETTS

PROJECT No: 37516-1020.002.7700 R1  
DRAWN BY: B.M.S.  
DESIGNED BY: J.W.S.  
CHECKED BY:  
DATE: 4-27-2016

MI CHECKLIST

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