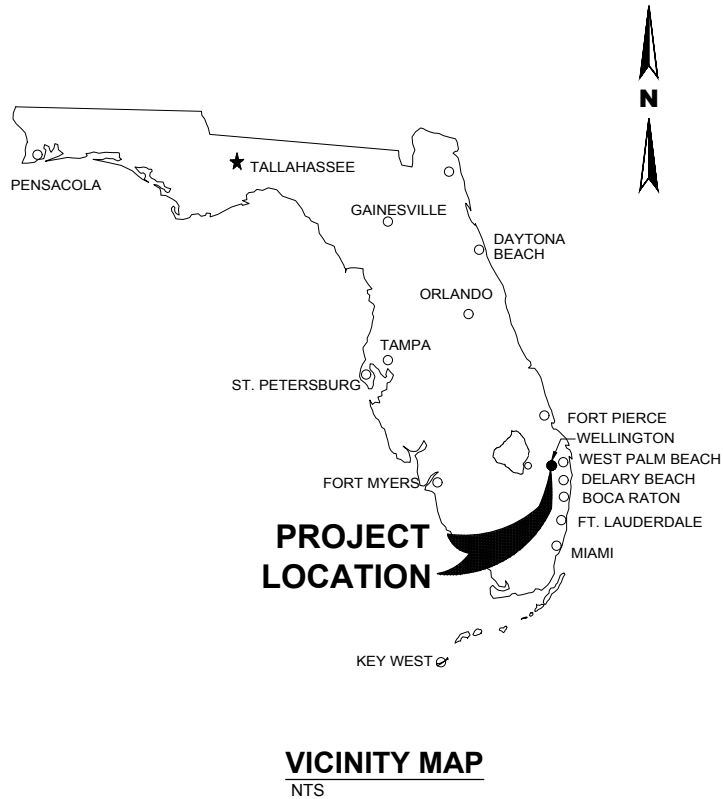




VILLAGE OF WELLINGTON UTILITIES TELEMETRY BACKHAUL SYSTEM UPGRADE

VILLAGE PROJECT No. 201709



VILLAGE COUNCIL & ADMINISTRATORS

- | | |
|------------------------|----------------------|
| ANNE GERWIG | MAYOR |
| JOHN T. McGOVERN | VICE MAYOR |
| MICHAEL J. NAPOLEONE | COUNCILMAN |
| MICHAEL DRAHOS | COUNCILMAN |
| TANYA SISKIND | COUNCILWOMAN |
| PAUL SCHOFIELD | VILLAGE MANAGER |
| JAMES BARNES | ASST. VILLAGE MANGER |
| SHANNON LaROCQUE, P.E. | UTILITY DIRECTOR |

Sheet List Table	
Sheet Number	Sheet Title
GENERAL	
G-01	COVER PAGE
ELECTRICAL	
E-01	ELECTRICAL LEGENDS, SYMBOLS, AND GENERAL NOTES
E-02	LOCATION MAP
E-03	WATER PLANT ELECTRICAL SITE PLAN
E-04	PHOTOGRAPHS – SHEET 1
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E-06	PHOTOGRAPHS, SCHEDULES AND RISER DIAGRAMS
E-07	INSTALLATION DETAILS



ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE TO BE CONSIDERED APPROXIMATE & SHOULD BE VERIFIED BY THE CONTRACTOR PRIOR TO THE START OF WORK OPERATIONS

REPRODUCTION:
ATTENTION IS DIRECTED TO THE FACT THAT THESE
PLANS MAY HAVE BEEN REDUCED IN SIZE BY
REPRODUCTION. THIS MUST BE CONSIDERED WHEN
OBTAINING SCALED DATA.

HILLERS ELECTRICAL
ENGINEERING, INC.
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(561) 451-9165
(561) 451-4886 FAX
LICENSE NO: EB 0006877

MARK E. LUTHER, PE
No. 48801

PROJECT No. KH97

JULY 2017

PLOT DATE: 2017/06/28 10:53:07 AM BY: BHAA
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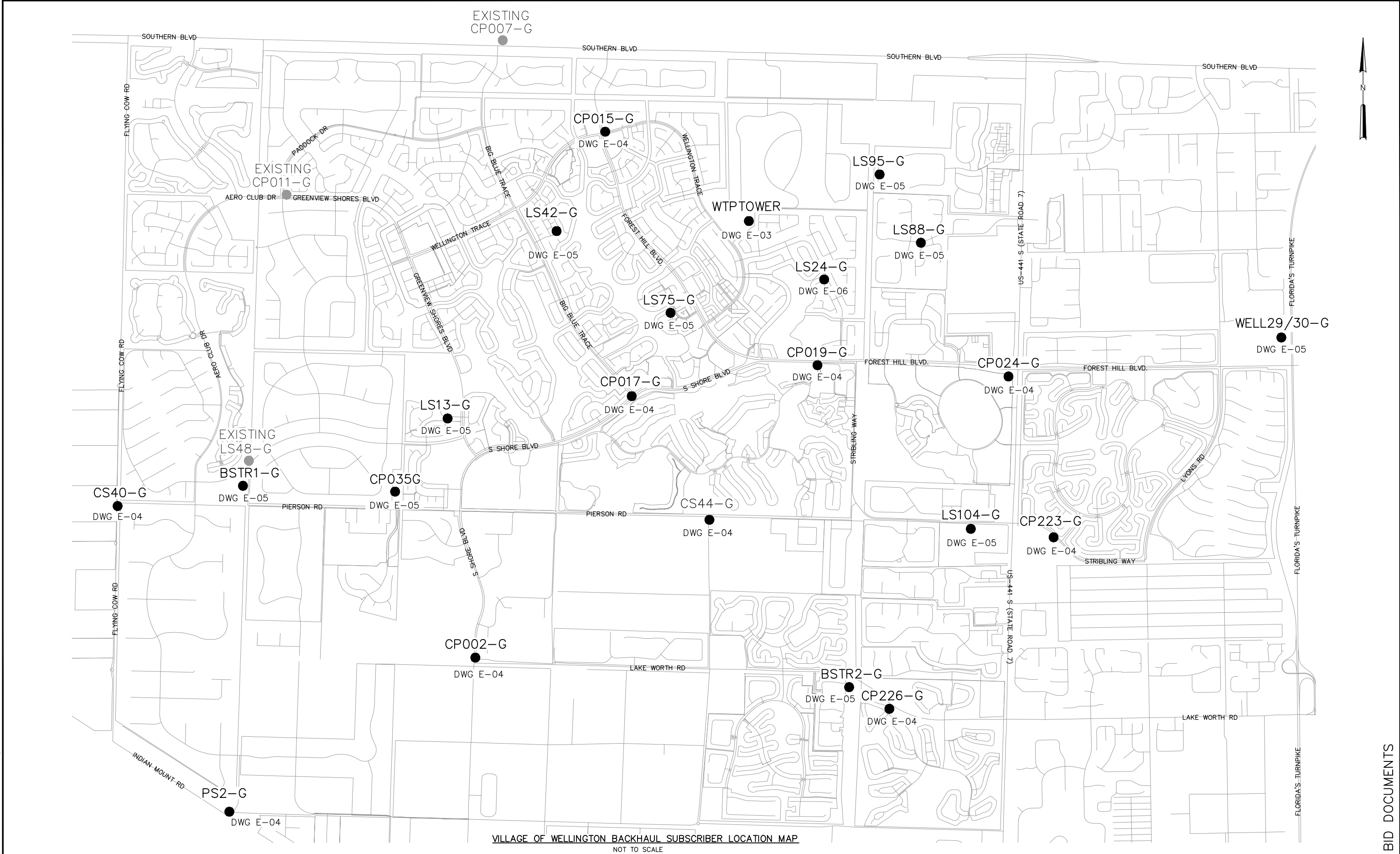
VILLAGE OF WELLINGTON
TELEMETRY BACKHAUL
RADIO SYSTEM UPGRADE

VERIFY SCALES
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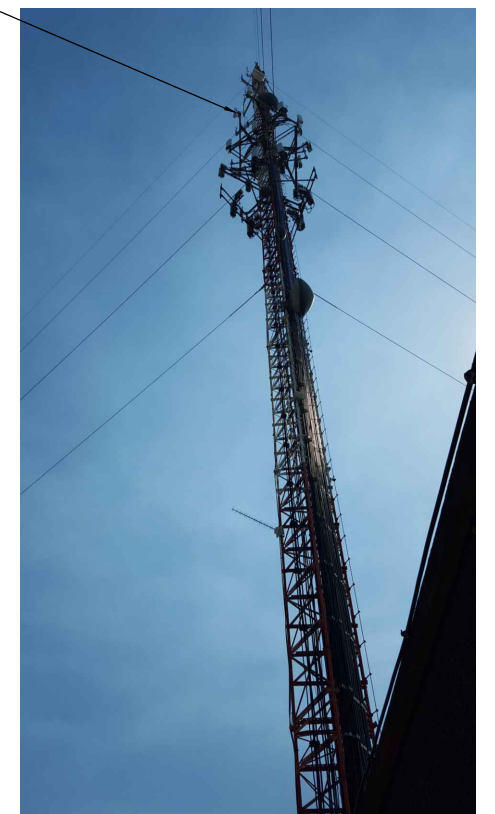
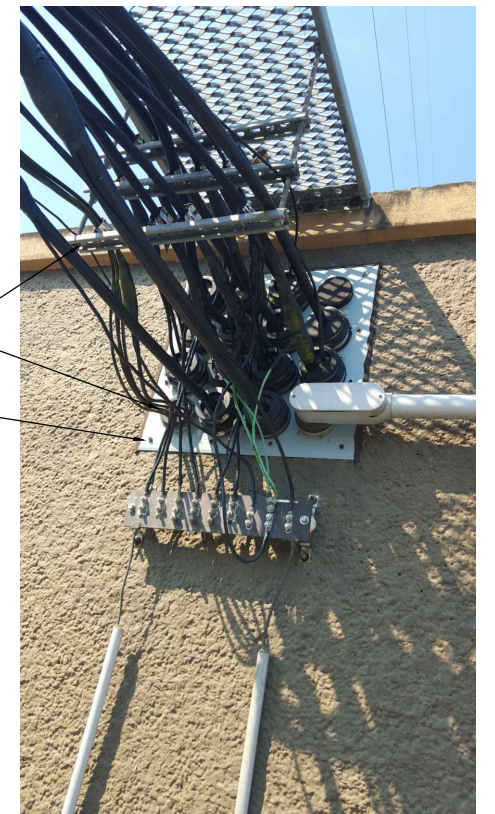
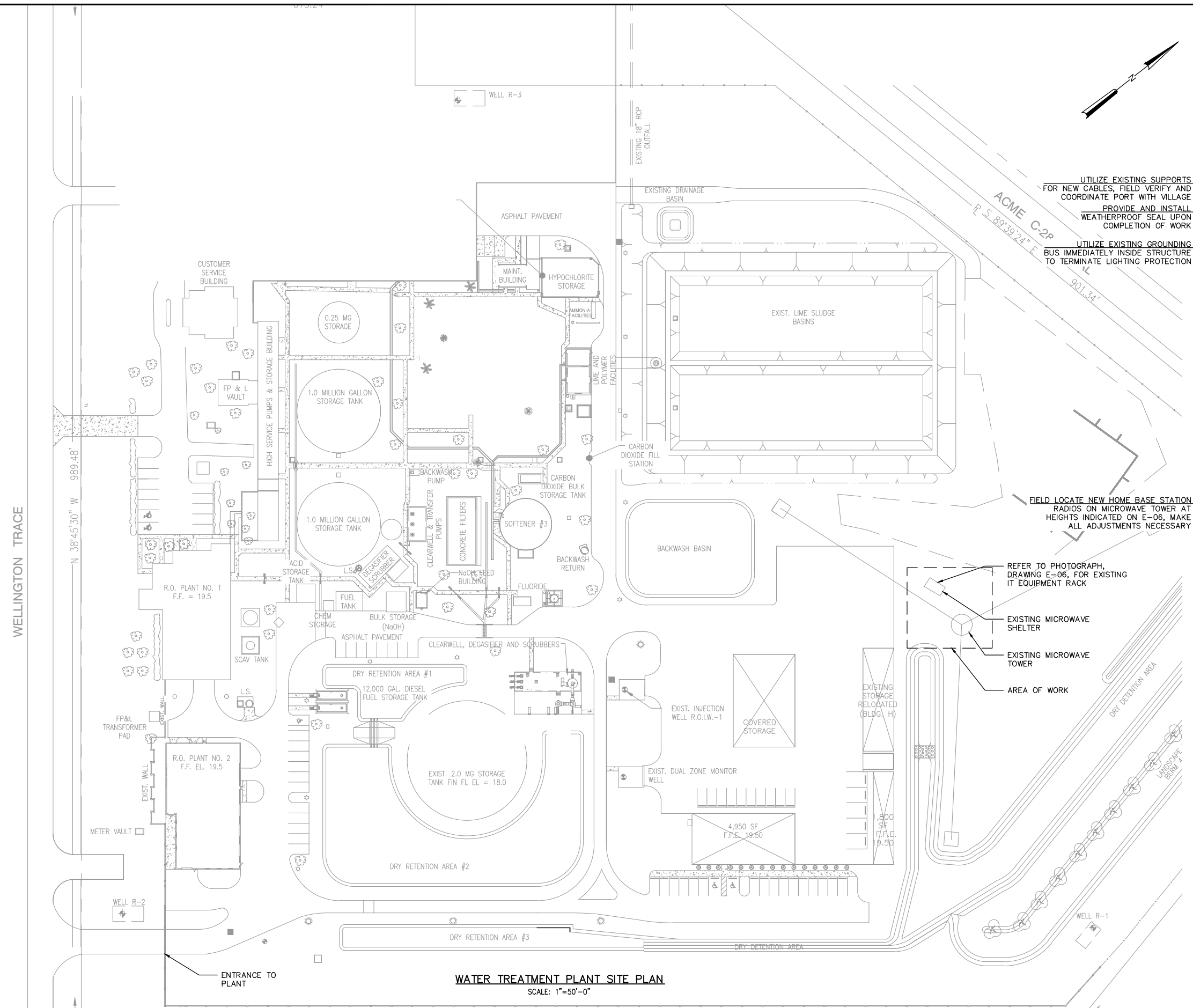
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DESIGNED: MEL
CHECKED: MEL
SCALE: AS NOTED

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LOCATION MAP		DATE:	JULY 2017
		HEE NO.:	KH97
		PROJECT NO.:	201709
DRAWING:		E-02	
SHEET		3	OF 8




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WATER PLANT ELECTRICAL SITE PLAN

DATE:	JULY 2017
HEE NO.:	KH97
PROJECT NO.:	201709
DRAWING:	E-03
SHEET 4	OF 8

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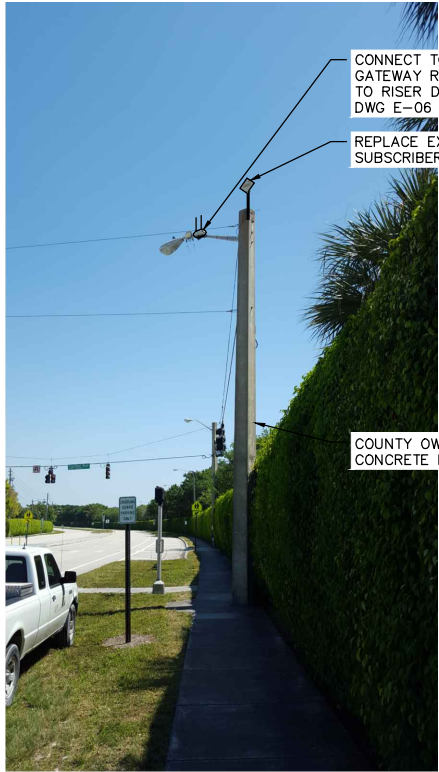
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CP017-G PHOTOGRAPH
NOT TO SCALE



CP002-G PHOTOGRAPH
NOT TO SCALE



CP226-G PHOTOGRAPH
NOT TO SCALE



CP024-G PHOTOGRAPH
NOT TO SCALE



CP019-G PHOTOGRAPH
NOT TO SCALE



CP223-G PHOTOGRAPH
NOT TO SCALE



CS40-G PHOTOGRAPH
NOT TO SCALE



CS44-G PHOTOGRAPH
NOT TO SCALE



PS2-G PHOTOGRAPH
NOT TO SCALE

- NOTES:**
1. REFER TO DRAWING E-02 FOR LOCATION MAP.
 2. REFER TO TABLE ON DRAWING E-06 FOR EQUIPMENT SPECIFICATIONS AND MOUNTING DETAILS.

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PHOTOGRAPHS – SHEET 1

DATE: JULY 2017
HEE NO.: KH97
PROJECT NO.: 201709
DRAWING: E-04
SHEET 5 OF 8



LS42-G PHOTOGRAPH
NOT TO SCALE



LS13-G PHOTOGRAPH
NOT TO SCALE



LS75-G PHOTOGRAPH
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LS88-G PHOTOGRAPH
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LS95-G PHOTOGRAPH
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LS104-G PHOTOGRAPH
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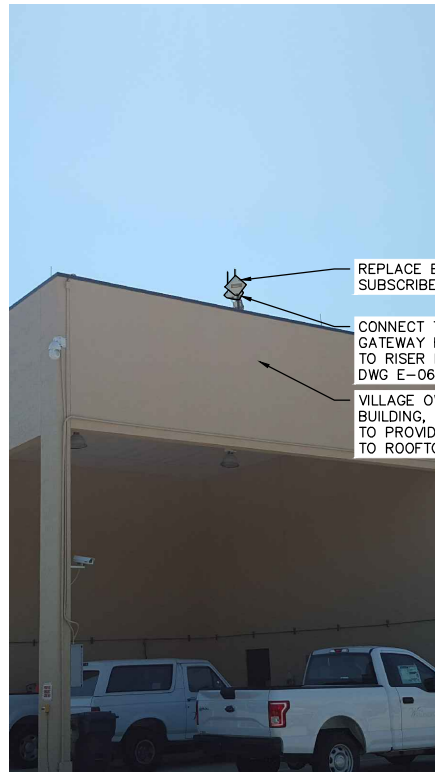
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BSTR2-G PHOTOGRAPH
NOT TO SCALE



WELL 29/30-G PHOTOGRAPH
NOT TO SCALE



CP035-G PHOTOGRAPH
NOT TO SCALE

- NOTES:**
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 2. REFER TO TABLE ON DRAWING E-06 FOR EQUIPMENT SPECIFICATIONS AND MOUNTING DETAILS.

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TELEMETRY BACKHAUL
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SCALE: AS NOTED

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PHOTOGRAPHS – SHEET 2

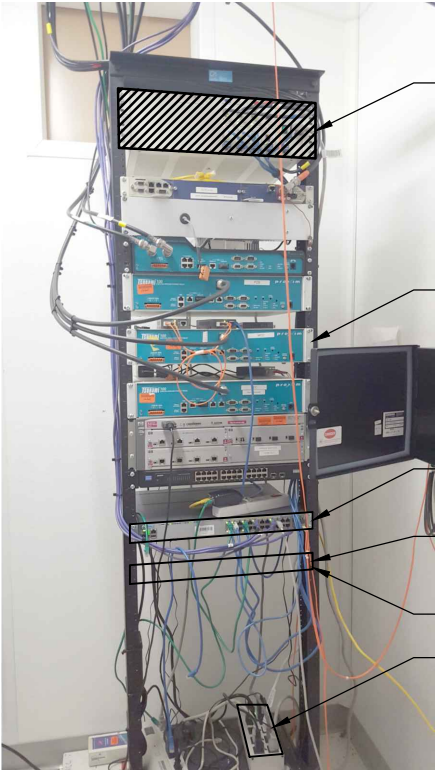
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PROJECT NO.: 201709
DRAWING: E-05
SHEET 6 OF 8

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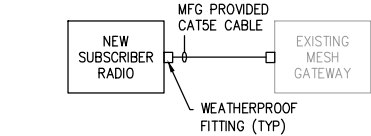
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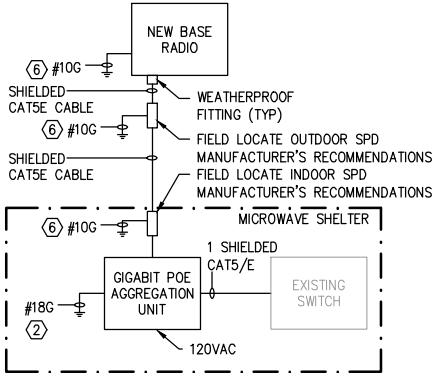
LS24-G PHOTOGRAPH
 NOT TO SCALE



PHOTOGRAPH – EXISTING IT EQUIPMENT RACK
 NOT TO SCALE



TYPICAL SUBSCRIBER RADIO RISER DIAGRAM
 NOT TO SCALE



TYPICAL BASE RADIO RISER DIAGRAM
 NOT TO SCALE

CONSTRUCTION SEQUENCING NOTES:

- THE EXISTING TELEMETRY BACKHAUL BASE STATION RADIOS SHALL REMAIN IN SERVICE TO THE GREATEST EXTENT POSSIBLE DURING REPLACEMENT OF SUBSCRIBER RADIOS.
- THE NEW BACKHAUL BASE STATION RADIOS SHALL FIRST BE PLACED INTO SERVICE SO THAT NEW SUBSCRIBER UNITS ARE ABLE TO COMMUNICATE UPON INSTALLATION.
- PRIOR TO DECOMMISSIONING THE CONTRACTOR SHALL FIELD VERIFY EXISTING FREQUENCY SETTINGS FOR EACH SUBSCRIBER RADIO, DOCUMENT THE THE RESULTS AND PROVIDE THEM TO THE OWNER. ADJUST NEW RADIOS TO MATCH FREQUENCY FOR EACH SITE TO THE GREATEST EXTENT POSSIBLE.
- PRIOR TO DECOMMISSIONING THE CONTRACTOR SHALL UTILIZE OWNER'S EXISTING SOFTWARE TO PERFORM THROUGHPUT TEST FOR EACH EXISTING SUBSCRIBER RADIO, DOCUMENT THE RESULTS AND PROVIDE THEM TO THE OWNER. THE RESULTS WILL ESTABLISH BASELINE PERFORMANCE REQUIREMENTS FOR NEW SUBSCRIBER UNITS.
- THE CONTRACTOR SHALL COORDINATE EXISTING SUBSCRIBER RADIO DECOMMISSIONING WITH THE OWNER. FOR EACH SHUTDOWN, SUBMIT A SHUTDOWN NOTICE TO THE ENGINEER AND VILLAGE FOR APPROVAL. NOTICE SHALL INCLUDE DATE, NAME/LOCATION OF SUBSCRIBER RADIO, AND TIME LENGTH OF THE OUTAGE. MULTIPLE SUBSCRIBER RADIOS MAY BE SCHEDULED TO BE REPLACED IN A SINGLE DAY PROVIDED EACH NEW RADIO IS FULLY FUNCTIONAL TO THE VILLAGE'S SATISFACTION PRIOR TO ADVANCING TO THE NEXT.
- ONCE ALL SUBSCRIBER RADIOS HAVE BEEN REPLACED, THE EXISTING BASE STATIONS MAY BE REMOVED FROM SERVICE.

NOTES:

- THE CONTRACTOR SHALL PROVIDE ALL LABOR, RENTALS, MATERIALS, PROGRAMMING AND CONFIGURATION SERVICES NECESSARY TO ACCESS AND REPLACE THE EXISTING ALVARION BREEZEACCESS TELEMETRY BACKHAUL SYSTEM AND PLACE INTO RELIABLE SERVICE A NEW RADWIN BASED SYSTEM COMPLETE IN PLACE AND AS DESCRIBED IN THE DRAWINGS AND SPECIFICATIONS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO ADJUSTMENT OF ANTENNA AZIMUTH/HEIGHT, RADIO OUTPUT POWER LEVELS AND BASE/SUBSCRIBER CONFIGURATION PARAMETERS.
- A RADWIN 5000 JET BASE RADIO WITH THREE SUBSCRIBER RADIOS IS CURRENTLY OPERATIONAL. THE NEW TELEMETRY BACKHAUL EQUIPMENT SHALL BE INTEGRATED WITH THE EXISTING RADWIN SYSTEM. VERIFY BASE AND SUBSCRIBER SOFTWARE AND FIRMWARE COMPATIBILITY WITH EXISTING, AND PROVIDE EQUIPMENT WITH COMPATIBLE VERSIONS OF THE SAME.
- THE CONTRACTOR SHALL COORDINATE INSTALLATION REQUIREMENTS WITH THE RADIO MANUFACTURER AND MAKE ALL NECESSARY ADJUSTMENTS WITHOUT ADDITIONAL COST TO THE VILLAGE.
- INSTALL SURGE PROTECTIVE DEVICES IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- INSTALL GROUNDING IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- ALL OUTDOOR CONNECTIONS TO NEW AND EXISTING EQUIPMENT SHALL BE WEATHER PROTECTED USING MANUFACTURER'S RECOMMENDED MATERIALS AND METHODS. NEW AND EXISTING HARDWARE SHALL BE PROTECTED FROM WATER INGRESS.
- THE CONTRACTOR SHALL PROVIDE ALL LABOR AND MATERIALS NECESSARY FOR RIGID SUPPORT OF NEW BASE STATION AND SUBSCRIBER RADIOS TO EXISTING POLES/MASTS. ALL MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL UNLESS SPECIFICALLY NOTED OTHERWISE.
- THE CONTRACTOR SHALL COORDINATE ALL REQUIRED MOVEMENT OF TRAFFIC ACTIVITIES WITH THE OWNER AT NO ADDITIONAL COST.

KEYED NOTES

- BOND TO EXISTING GROUND BUS LOCATED ON MICROWAVE SHELTER EXTERIOR. REFER TO PHOTOGRAPH ON DRAWING E-03.
- BOND TO EXISTING IT EQUIPMENT RACK LOCATED INSIDE MICROWAVE SHELTER. REFER TO PHOTOGRAPH THIS DRAWING.
- REFER TO MOUNTING DETAIL.
- CONTRACTOR SHALL PROVIDE MAINTENANCE OF TRAFFIC PLAN AS REQUIRED BY LOCAL GOVERNMENTAL AGENCIES.
- SITE IS LOCATED WITHIN A PRIVATE HOME OWNER'S ASSOCIATION. COORDINATE ACCESS WITH THE VILLAGE OF WELLINGTON.
- CONNECT TO INTERIOR SIDE GROUND BAR LOCATED AT MICROWAVE SHELTER CABLE PENETRATION FLANGE. REFER TO PHOTOGRAPH ON DRAWING E-03 FOR ADDITIONAL DETAILS.

VILLAGE OF WELLINGTON TELEMETRY BACKHAUL SYSTEM									
SITE	LATITUDE	LONGITUDE	ADDRESS/INTERSECTION/LOCATION	MOUNTING LOCATION	HEIGHT AFG	UNIT TYPE	RADWIN MODEL	BASE	NOTES/REMARKS
WTP TOWER	26.665342	-80.232450	VILLAGE OF WELLING WATER TREATMENT PLANT WEST BASE STATION ANTENNA	MICROWAVE TOWER	180'	HBU	RW-5BG5-0649	-	EXISTING
WTP TOWER	26.665342	-80.232450	VILLAGE OF WELLING WATER TREATMENT PLANT SOUTH-EAST BASE STATION ANTENNA	MICROWAVE TOWER	180'	HBU	RW-5BG5-0649	-	PROVIDE AND INSTALL LIGHTNING PROTECTION PER MANUFACTURER'S RECOMMENDATIONS. MOUNT TO EXISTING MICROWAVE TOWER. REFER TO HBS MOUNTING DETAIL FOR MICROWAVE TOWER, SHEET E-07.
WTP TOWER	26.665342	-80.232450	VILLAGE OF WELLING WATER TREATMENT PLANT SOUTH-WEST BASE STATION ANTENNA	MICROWAVE TOWER	180'	HBU	RW-5BG5-0649	-	PROVIDE AND INSTALL LIGHTNING PROTECTION PER MANUFACTURER'S RECOMMENDATIONS. MOUNT TO EXISTING MICROWAVE TOWER. REFER TO HBS MOUNTING DETAIL FOR MICROWAVE TOWER, SHEET E-07.
WTP TOWER	26.665342	-80.232450	VILLAGE OF WELLING WATER TREATMENT PLANT EAST BASE STATION ANTENNA	MICROWAVE TOWER	180'	HBU	RW-5BG5-0649	-	PROVIDE AND INSTALL LIGHTNING PROTECTION PER MANUFACTURER'S RECOMMENDATIONS. MOUNT TO EXISTING MICROWAVE TOWER. REFER TO HBS MOUNTING DETAIL FOR MICROWAVE TOWER, SHEET E-07.
4 CP015-G	26.673732	-80.247943	FOREST HILL BLVD / WELLINGTON TRACE (NORTH)	CONCRETE LIGHT POLE	45'	HSU	RW-55A0-0150	WEST	REUSE EXISTING MOUNTING BRACKET ON LIGHT POLE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
4 CP017-G	26.648170	-80.244540	SOUTH SHORE BLVD / BIG BLUE TRACE	CONCRETE LIGHT POLE	45'	HSU	RW-55A0-0150	SOUTH	REUSE EXISTING MOUNTING BRACKET ON LIGHT POLE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
4 CP002-G	26.622980	-80.261566	SOUTH SHORE BLVD / LAKE WORTH RD	STEEL LIGHT POLE	45'	HSU	RW-55A0-0150	SOUTH	REUSE EXISTING MOUNTING BRACKET ON LIGHT POLE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
4 CP226-G	26.618338	-80.216954	LAKE WORTH RD / PANTHER RUN ELEMENTARY	CONCRETE LIGHT POLE	45'	HSU	RW-55A0-0150	SOUTH	REUSE EXISTING MOUNTING BRACKET ON LIGHT POLE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
4 CP024-G	26.650646	-80.203790	FOREST HILL BLVD / STATE RD 7	CONCRETE LIGHT POLE	45'	HSU	RW-55A0-0150	EAST	REUSE EXISTING MOUNTING BRACKET ON LIGHT POLE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
4 CP019-G	26.651480	-80.225020	FOREST HILL BLVD / POLO CLUB RD	CONCRETE LIGHT POLE	45'	HSU	RW-55A0-0150	EAST	REUSE EXISTING MOUNTING BRACKET ON LIGHT POLE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
CS40-G	26.638328	-80.299544	CS40 - 2750 FLYING COW RANCH RD	ANTENNA MAST	40'	HSU	RW-55A0-0150	WEST	MOUNT TO EXISTING 1" POLE MOUNTED ON ANTENNA MAST. REFER TO HSU MOUNTING DETAIL FOR ANTENNA MASTS, SHEET E-07.
CS44-G	26.636404	-80.236384	CS44 - 11990 PIERSON RD	ANTENNA MAST	40'	HSU	RW-55A0-0150	SOUTH	MOUNT TO CORNER OF ANTENNA MAST. REFER TO HSU MOUNTING DETAIL FOR ANTENNA MASTS, SHEET E-07.
PS2-G	26.593562	-80.271351	PS2 - 6090 140TH AVE S	CONCRETE LIGHT POLE	35'	HSU	RW-55A0-0150	SOUTH	REUSE EXISTING MOUNTING BRACKET ON LIGHT POLE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
LS42-G	26.664480	-80.252580	LS42 - 1160 EMERALD FOREST DR	CONCRETE POLE	35'	HSU	RW-55A0-0150	WEST	REUSE EXISTING MOUNTING BRACKET ON LIGHT POLE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
LS13-G	26.646056	-80.264523	LS13 - 13972 FOLKSTONE CIR	STEEL POLE	30'	HSU	RW-55A0-0150	WEST	MOUNT TO 3" POLE WITH STAINLESS STEEL PIPE STRAPS. REFER TO HSU MOUNTING DETAIL FOR STEEL POLES, SHEET E-07.
LS75-G	26.656290	-80.240360	LS75 -12060 SUNSET POINT CT	STEEL POLE	30'	HSU	RW-55A0-0150	SOUTH	MOUNT TO 3" POLE WITH STAINLESS STEEL PIPE STRAPS. REFER TO HSU MOUNTING DETAIL FOR STEEL POLES, SHEET E-07.
5 LS88-G	26.662860	-80.213694	LS88 - 10560 OLD HAMMOCK WAY	STEEL POLE	25'	HSU	RW-55A0-0150	EAST	MOUNT TO 3" POLE WITH STAINLESS STEEL PIPE STRAPS. REFER TO HSU MOUNTING DETAIL FOR STEEL POLES, SHEET E-07.
5 LS95-G	26.669690	-80.218310	LS95 - 249 BERENGER WALK	STEEL POLE	25'	HSU	RW-55A0-0150	EAST	MOUNT TO 3" POLE WITH STAINLESS STEEL PIPE STRAPS. REFER TO HSU MOUNTING DETAIL FOR STEEL POLES, SHEET E-07.
LS104-G	26.633803	-80.209980	LS104 - 10298 STRIBLING WAY	ANTENNA MAST	20'	HSU	RW-55A0-0150	SOUTH	MOUNT TO EXISTING 1" POLE MOUNTED ON ANTENNA MAST. REFER TO HSU MOUNTING DETAIL FOR ANTENNA MASTS, SHEET E-07.
BSTR1-G	26.639355	-80.286035	BOOSTER STA 1 - 2901 OUSLEY FARM RD	ANTENNA MAST	35'	HSU	RW-55A0-0150	SOUTH	MOUNT TO CORNER OF ANTENNA MAST. REFER TO HSU MOUNTING DETAIL FOR ANTENNA MASTS, SHEET E-07.
BSTR2-G	26.620251	-80.221181	BOOSTER STA 2 - 11011 LAKE WORTH RD	ANTENNA MAST	50'	HSU	RW-55A0-0150	SOUTH	MOUNT TO CORNER OF ANTENNA MAST. REFER TO HSU MOUNTING DETAIL FOR ANTENNA MASTS, SHEET E-07.
WELL29/30-G	26.652850	-80.175464	BEHIND PALM BEACH CENTRAL HS, FOREST HILL BLVD/TURNPIKE	ANTENNA MAST	35'	HSU	RW-55A0-0150	EAST	MOUNT TO CORNER OF ANTENNA MAST. REFER TO HSU MOUNTING DETAIL FOR ANTENNA MASTS, SHEET E-07.
CP035-G	26.639557	-80.269718	FLEET MAINTENANCE BUILDING	ROOF MOUNTED POLE	35'	HSU	RW-55A0-0150	SOUTH	MOUNT TO EXISTING 1" POLE. REUSE EXISTING MOUNTING HARDWARE. REFER TO HSU MOUNTING DETAIL FOR 1" POLES, SHEET E-07.
LS24-G	26.660185	-80.224271	LS24 - 1415 BIRKDALE DR	STEEL POLE	30'	HSU	RW-55A0-0150	WEST	MOUNT TO 3" POLE WITH STAINLESS STEEL PIPE STRAPS. REFER TO HSU MOUNTING DETAIL FOR STEEL POLES, SHEET E-07.

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 RADIO SYSTEM UPGRADE

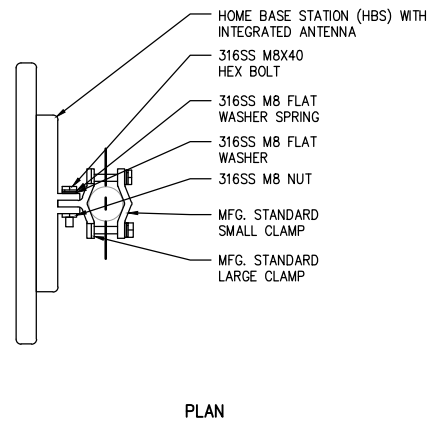
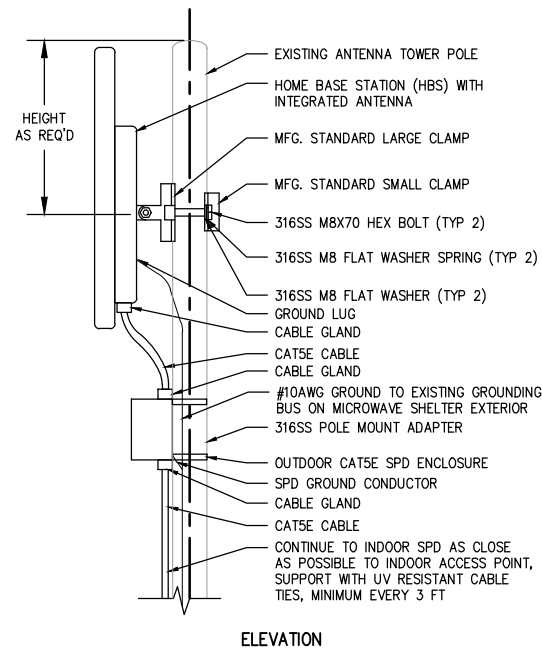
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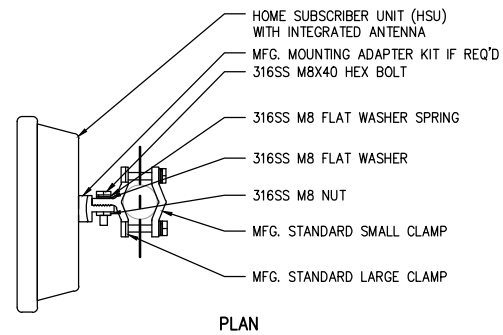
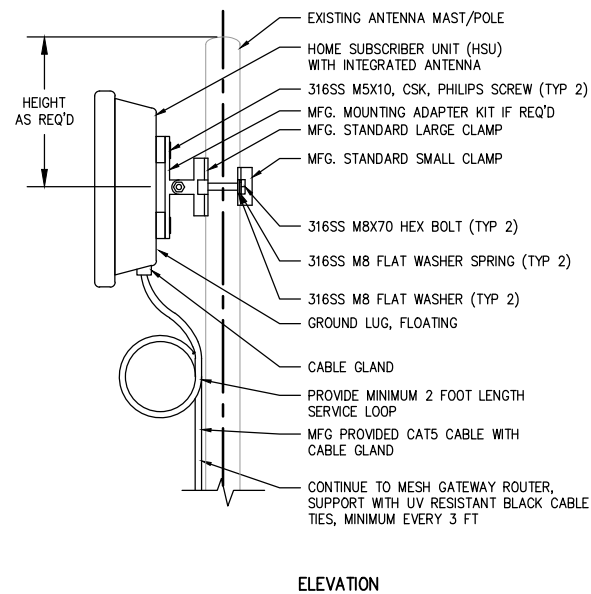
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PHOTOGRAPHS, SCHEDULES AND RISER
 DIAGRAMS

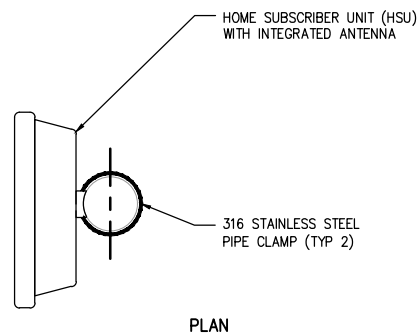
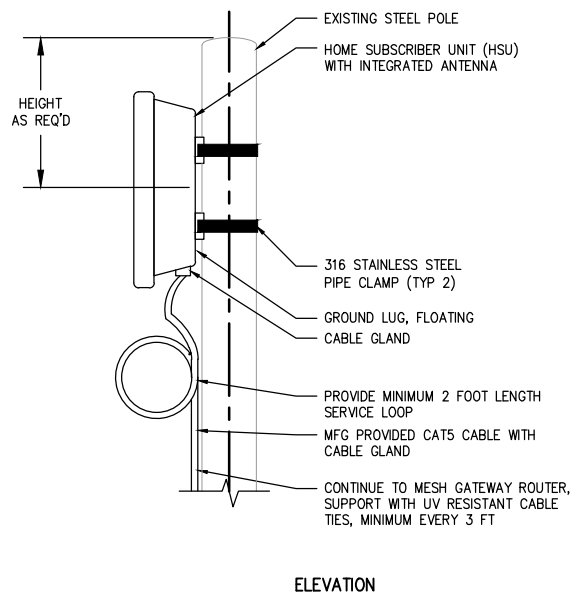
DATE: JULY 2017
 HEE NO.: KH97
 PROJECT NO.: 201709
 DRAWING: E-06
 SHEET 7 OF 8



MOUNTING DETAIL 1
HOME BASE UNIT (HBU) RADIO MOUNTING DETAIL
MICROWAVE TOWER
NOT TO SCALE



MOUNTING DETAIL 2
HOME SUBSCRIBER UNIT (HSU) RADIO MOUNTING DETAIL
ANTENNA MAST AND 1" POLE
NOT TO SCALE



MOUNTING DETAIL 3
HOME SUBSCRIBER UNIT (HSU) RADIO MOUNTING DETAIL
STEEL POLE
NOT TO SCALE

PLOT DATE: 2017/06/28 10:53:32 AM BY: BHAA5
File: E:\PROJECTS\VAH\VAH97\DRAWINGS\ELECTRICAL\VAH97-ED7 Saved By MARK Save Date: 2017/06/03 1:31 PM

NO.	DATE	BY	REVISION

**HILLERS ELECTRICAL
ENGINEERING, INC.**
23257 STATE ROAD 7, SUITE 100
BOCA RATON, FL 33428
(561) 451-9165
(561) 451-4886 FAX
LICENSE NO: EB 0006877

**THE VILLAGE OF
WELLINGTON**
UTILITIES DEPARTMENT
12300 FOREST HILL BLVD,
WELLINGTON, FL 33414
(561) 791-4000

VILLAGE OF WELLINGTON
TELEMETRY BACKHAUL
RADIO SYSTEM UPGRADE

VERIFY SCALES
BAR IS ONE INCH ON
ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON
THIS SHEET, ADJUST
SCALES ACCORDINGLY.

ENGINEER: MEL
DRAWN: BKH
DESIGNED: MEL
CHECKED: MEL
SCALE: AS NOTED

MARK E. LUTHER, PE NO. 48801

INSTALLATION DETAILS

DATE: JULY 2017
HEE NO.: KH97
PROJECT NO.: 201709
DRAWING: E-07
SHEET 8 OF 8

BID DOCUMENTS