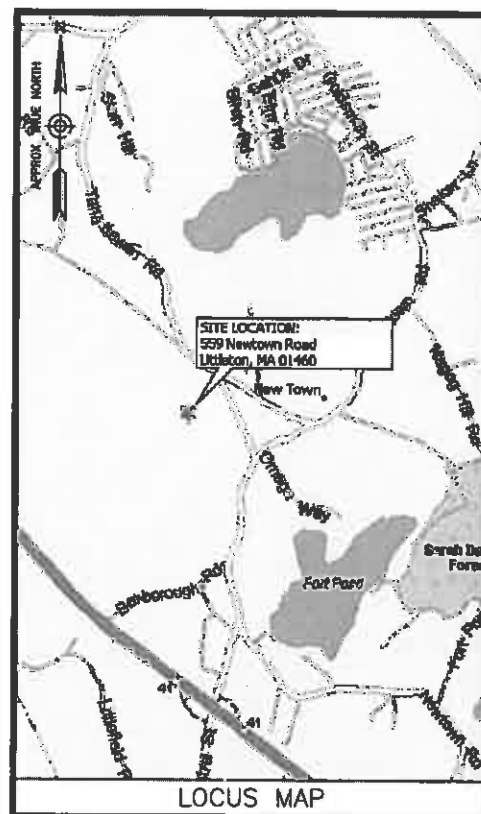




at&t  
Mobility

CROWN NEWTOWN ROAD LITTLETON  
SITE NO.: MA3570A  
559A NEWTOWN ROAD  
LITTLETON, MA 01460



LOCUS MAP

FROM FRAMINGHAM, MA: TAKE MA-9 W/ WORCESTER ROAD. MERGE ONTO I-495 N TOWARD LOWELL. TAKE EXIT 29A TO MERGE ONTO MA-2 E TOWARD BOSTON. TAKE EXIT 41 TOWARD LITTLETON. TURN LEFT ONTO CENTRAL STREET. CONTINUE ONTO NEWTOWN ROAD. THE SITE WILL BE ON THE LEFT.

**ENGINEER**  
DEWBERRY ENGINEERS INC.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE # (617) 885-3400  
FAX # (617) 885-3310  
CONTACT: BENJAMIN REVETTE, P.E.

**SITE ACQUISITION**  
N.P.M.I.  
328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945  
PHONE # (781) 727-8516  
CONTACT: JOHN NESTOR

**CONSTRUCTION**  
N.P.M.I.  
328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945  
PHONE # (781) 727-8516  
CONTACT: JOHN NESTOR

CONSULTANT TEAM

**SITE NAME:**  
NEWTOWN ROAD LITTLETON

**SITE NUMBER:**  
MA3570A

**TOWER OWNER:**  
CROWN CASTLE USA, INC.  
200 CORPORATE DRIVE  
CANONSBURG, PA 15317  
CROWN CASTLE ID: 875050

**APPLICANT/DEVELOPER:**  
AT&T MOBILITY  
550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701

**ELECTRIC UTILITY:**  
NSTAR  
(800) 592-2000

**TELEPHONE UTILITY:**  
VERIZON  
(800) 837-4968

**COORDINATES\***  
LATITUDE: 42° 31' 0.8" N (NAD83)  
LONGITUDE: 71° 28' 38.0" W (NAD83)  
\*PER HANDHELD GPS

PROJECT SUMMARY

**SITE ADDRESS:**  
559A NEWTOWN ROAD  
LITTLETON, MA 01460

**ZONING DISTRICT:**  
RESIDENTIAL

PROJECT DIRECTORY

NPMI CM \_\_\_\_\_ DATE \_\_\_\_\_  
AT&T CM \_\_\_\_\_ DATE \_\_\_\_\_  
NPMI RF \_\_\_\_\_ DATE \_\_\_\_\_  
AT&T RF \_\_\_\_\_ DATE \_\_\_\_\_

APPROVALS

AN EXISTING 100' TALL A.G.L. LATTICE TOWER WILL BE EXTENDED TO 115' TALL A.G.L. TWELVE (12) PANEL ANTENNAS (4/SECTOR) AND ASSOCIATED EQUIPMENT WILL BE INSTALLED AT 108' A.G.L. AN EQUIPMENT SHELTER WITH AN EXTERNAL DIESEL GENERATOR WILL BE INSTALLED AT GRADE. POWER AND TELCO WILL COME FROM EXISTING SOURCES LOCATED ON SITE.

PROJECT DESCRIPTION

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.

A.D.A. COMPLIANCE:  
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.

SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
G-1	GENERAL NOTES
Z-1	ABUTTERS PLAN
Z-2	KEY PLAN
Z-3	PROFILES 1, 2, & 3
Z-4	PROFILES 4, 5, & 6
Z-5	PROFILES 7 & 8
C-1	PROPOSED SITE PLAN & ELEVATION
C-2	CONSTRUCTION DETAILS
C-3	ANTENNA MOUNTING DETAILS & RF SCHEDULE
E-1	ELECTRICAL RISER DIAGRAM
E-2	SCHEMATIC GROUNDING PLAN
E-3	GROUNDING DETAILS

SHEET INDEX

**at&t**  
Mobility  
550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701

**npmi**  
NANEPASHEMET  
Project Management Services  
781-727-6516

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

CONSTRUCTION DRAWINGS		
2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT

**Dewberry**

Dewberry Engineers Inc.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.875.3400  
FAX: 617.885.3310



DRAWN BY: SCA

REVIEWED BY: GMT

CHECKED BY: BBR

PROJECT NUMBER: 50037672

JOB NUMBER: 50061274

SITE ADDRESS

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

**GENERAL CONSTRUCTION NOTES:**

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH AT&T MOBILITY SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT "DIG SAFE 1888 DIG SAFE" (888-344-7233) FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE ILL-FITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE AT&T MOBILITY CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR WILL NOTIFY ENGINEER, AT&T MOBILITY PROJECT CONSTRUCTION MANAGER, AND LANDLORD IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH AT&T MOBILITY WITH THREE AS-BUILT SETS OF DRAWINGS UPON COMPLETION OF WORK.
19. ANTENNAS AND CABLES ARE TYPICALLY PROVIDED BY AT&T MOBILITY. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T MOBILITY PROJECT MANAGER TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED BY AT&T MOBILITY WIRELESS. ALL ITEMS NOT PROVIDED BY AT&T MOBILITY SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED BY AT&T MOBILITY.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR WILL COORDINATE WITH AT&T MOBILITY PROJECT MANAGER TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY AT&T MOBILITY. ALL REQUIRED PERMITS NOT OBTAINED BY AT&T MOBILITY MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL START UP HVAC UNITS AND SYNCHRONIZE THE THERMOSTATS.
22. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH AT&T MOBILITY SPECIFICATIONS AND REQUIREMENTS.
23. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
24. UNLESS OTHERWISE NOTED AT&T MOBILITY SHALL PROVIDE ALL REQUIRED RF MATERIAL FOR CONTRACTOR TO INSTALL, INCLUDING ANTENNAS, TMA'S, BIAS-T'S, COMBINERS, PDU, DC BLOCKS, SURGE ARRESTORS, GPS ANTENNA, GPS SURGE ARRESTOR, COAXIAL CABLE.
25. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL VERIFY ALL EQUIPMENT TO BE PROVIDED BY AT&T MOBILITY FOR INSTALLATION BY CONTRACTOR.
26. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO AT&T MOBILITY SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
27. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
28. EQUIPMENT SHELTER SHALL HAVE ONE (1) EXTERIOR MOTION DETECTOR OPERATED BY A 100-WATT LIGHT WITH DOWNWARD REFLECTOR SHIELD.
29. CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
30. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

**GENERAL FOUNDATION NOTES:**

(APPLICABLE FOR EQUIPMENT SHELTER ONLY)

1. THOROUGHLY COMPACT BOTTOM OF EXCAVATIONS PRIOR TO PLACING RIGID INSULATION BARRIER. BACKFILL AND COMPACTION PROCEDURES SHALL BE DONE PER INDUSTRY STANDARDS.
2. ALL REINFORCING STEEL SHALL BE ASTM A615 - GRADE 60. SECURE REINFORCING IN PLACE TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT.
3. PROVIDE A CLEAR COVER OF 3" FOR ALL REINFORCING STEEL. THIS REQUIREMENT SHALL BE CONSIDERED ACTUAL AND SHOULD NOT BE ADJUSTED IN THE FIELD.
4. VERIFY DETAILS AND DIMENSIONS WITH SHELTER DRAWINGS. NOTIFY AT&T MOBILITY OF ANY DISCREPANCIES.
5. ALL WORK SHALL COMPLY WITH THE LOCAL AND THE MASSACHUSETTS STATE BUILDING CODES.
6. INSULATION BARRIER PROVIDED IS FOR FROST PROTECTION IN LIEU OF STANDARD FOUNDATIONS WITH BEARING AT CODE REQUIRED FROST DEPTH.
7. SHELTER MUST BE ANCHORED TO ITS FOUNDATION. ANCHOR IN ACCORDANCE WITH SHELTER MANUFACTURER'S SPECIFICATIONS.

**CONCRETE AND REINFORCING STEEL NOTES:**

1. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF ALL APPLICABLE CODES INCLUDING: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", AND ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
2. MIX DESIGN SHALL BE APPROVED BY OWNER'S REPRESENTATIVE AND SUBMITTED TO ENGINEER PRIOR TO PLACING CONCRETE.
3. CONCRETE SHALL BE NORMAL WEIGHT, 6 % AIR ENTRAINED (+/- 1.5%) WITH A MAXIMUM 4" SLUMP AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI UNLESS OTHERWISE NOTED.
4. THE FOLLOWING MATERIALS SHALL BE USED:  
PORTLAND CEMENT: ASTM C-150, TYPE 1 OR 2  
REINFORCEMENT: ASTM A-185, PLAIN STEEL WELDED WIRE FABRIC  
REINFORCEMENT BARS: ASTM A615, GRADE 60, DEFORMED  
NORMAL WEIGHT AGGREGATE: ASTM C-33  
WATER: DRINKABLE  
ADMIXTURES: NON-CHLORIDE CONTAINING
5. MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE AS FOLLOWS (UNLESS OTHERWISE NOTED):  
A. CONCRETE CAST AGAINST EARTH: 3"  
B. ALL OTHER CONCRETE: 2"
6. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE IN ACCORDANCE WITH ACI 301 SECTION 4.2.4, UNLESS NOTED OTHERWISE.
7. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL, OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR ENGINEERING APPROVAL WHEN DRILLING HOLES IN CONCRETE.
8. ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN ACI 301.
9. DO NOT WELD OR TACK WELD REINFORCING STEEL.
10. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
11. REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
12. DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
13. DO NOT ALLOW REINFORCEMENT, CONCRETE OR SUBBASE TO FREEZE DURING CONCRETE CURING AND SETTING PERIOD, OR FOR A MINIMUM OF 3 DAYS AFTER PLACEMENT.
14. FOR COLD-WEATHER AND HOT-WEATHER CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS, MINIMUM.
15. CONCRETE SHALL BE RUBBED TO A ROUGH GROUT FINISH. PADS SHALL BE SEALED BY STEEL TROWEL.
16. UNLESS OTHERWISE NOTED:  
A. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60.  
B. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
17. SPLICING OF REINFORCEMENT IS PERMITTED ONLY AT LOCATIONS SHOWN IN THE CONTRACT DRAWINGS OR AS ACCEPTED BY THE ENGINEER. UNLESS OTHERWISE SHOWN OR NOTED REINFORCING STEEL SHALL BE SPLICED TO DEVELOP ITS FULL TENSILE CAPACITY (CLASS A) IN ACCORDANCE WITH ACI 318.
18. REINFORCING BAR DEVELOPMENT LENGTHS, AS COMPUTED IN ACCORDANCE WITH ACI 318, FORM THE BASIS FOR BAR EMBEDMENT LENGTHS AND BAR SPLICED LENGTHS SHOWN IN THE DRAWINGS. APPLY APPROPRIATE MODIFICATION FACTORS FOR TOP STEEL, BAR SPACING, COVER AND THE LIKE.
19. DETAILING OF REINFORCING STEEL SHALL CONFORM TO "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315).
20. ALL SLAB CONSTRUCTION SHALL BE CAST MONOLITHICALLY WITHOUT HORIZONTAL CONSTRUCTION JOINTS, UNLESS SHOWN IN THE CONTRACT DRAWINGS.
21. LOCATION OF ALL CONSTRUCTION JOINTS ARE SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONFORMANCE WITH ACI 318, AND ACCEPTANCE OF THE ENGINEER. DRAWINGS SHOWING LOCATION OF DETAILS OF THE PROPOSED CONSTRUCTION JOINTS SHALL BE SUBMITTED WITH REINFORCING STEEL PLACEMENT DRAWINGS.
22. SPLICES OF WWF, AT ALL SPLICED EDGES, SHALL BE SUCH THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRE PLUS 2 INCHES, NOR LESS THAN 8".
23. BAR SUPPORTS SHALL BE ALL-GALVANIZED METAL WITH PLASTIC TIPS.
24. ALL REINFORCEMENT SHALL BE SECURELY TIED IN PLACE TO PREVENT DISPLACEMENT BY CONSTRUCTION TRAFFIC OR CONCRETE. THE WIRE SHALL BE 16 GAUGE CONFORMING TO ASTM A62
25. SLAB ON GROUND  
A. COMPACT STRUCTURAL FILL TO 95% DENSITY AND THEN PLACE 6" GRAVEL BENEATH SLAB.  
B. PROVIDE VAPOR BARRIER BENEATH SLAB ON GROUND.

**STRUCTURAL NOTES:**

1. AS REQUIRED UNDER THE STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNA, ANSI/TIA-222-G, AT&T MOBILITY SHALL PROVIDE A STRUCTURAL ANALYSIS OF THE TOWER PREPARED BY A LICENSED MASSACHUSETTS STRUCTURAL ENGINEER CERTIFYING THAT THE EXISTING TOWER AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, SUPPORTS AND APPURTENANCES AND COMPLIES WITH THE CURRENT MASSACHUSETTS STATE BUILDING CODE AND EIA/TIA CRITERIA. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.
2. FOR STRUCTURAL MODIFICATIONS REQUIRING FIELD WELDING; THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AND IMPLEMENTING ALL INDUSTRY STANDARDS FOR PROTECTION OF ALL EXISTING PROPERTY AND PERSONNEL FOR DAMAGE OR HARM. ALL PROPERTY DAMAGED DURING CONSTRUCTION OF THIS PROJECT SHALL BE REPLACED OR REPAIRED TO THE SATISFACTION OF THE OWNER.



**at&t**  
Mobility

550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701

**npmi**  
NANEPASHEMET

Project Management Services  
781-727-0516

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

**CONSTRUCTION DRAWINGS**

2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT

**Dewberry**

Dewberry Engineers Inc.

280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.696.3400  
FAX: 617.635.3310



DRAWN BY: SCA

REVIEWED BY: GMT

CHECKED BY: BBR

PROJECT NUMBER: 50037672

JOB NUMBER: 50061274

SITE ADDRESS

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

GENERAL NOTES

SHEET NUMBER



LEGEND	
	LOCUS PROPERTY
	300' PROPERTY LINE OFFSET
	500' PROPERTY LINE OFFSET
	ZONING DISTRICT BOUNDARY
	PARCEL ID
	Right of Way

ABUTTERS LIST (N/F)		
MAP/LOT PROPERTY ADDRESS	RECORD OWNER	MAILING ADDRESS
R05 21 0 559 NEWTOWN ROAD	TOWN OF LITTLETON	PO BOX 1305 LITTLETON, MA 01460
U30 3 0 567 NEWTOWN ROAD	HENRY H. WHITCOMB	567 NEWTOWN ROAD LITTLETON, MA 01460
U30 4 0 563 NEWTOWN ROAD	1.MOTHY H. WHITCOMB	563-565 NEWTOWN ROAD LITTLETON, MA 01460
U30 5 0 561 NEWTOWN ROAD	KATHLEEN A. & RONALD J. RAFFI, TRUSTEES	170 KING STREET LITTLETON, MA 01460
U30 5 A 559A NEWTOWN ROAD	TOWN OF LITTLETON WATER DEPARTMENT	P.O. BOX 2406 LITTLETON, MA 01460
U30 8 0 NEWTOWN HILL TERRACE	NEWTOWN ROAD PROJECT, LLC.	5 LAUREL DRIVE WENHAM, MA 01984

U30 6 1 559 NEWTOWN ROAD	DAVID W. ROBERTS	559 NEWTOWN ROAD LITTLETON, MA 01460
U30 7 0 557 NEWTOWN ROAD	ROBERT BRADFORD	557 NEWTOWN ROAD LITTLETON, MA 01460
U30 10 0 550 NEWTOWN ROAD	G B DEVELOPMENT, LLC.	550 NEWTOWN ROAD LITTLETON, MA 01460
U30 11 0 564 NEWTOWN ROAD	CHARLES A. HOWE	564 NEWTOWN ROAD LITTLETON, MA 01460
U31 7 1 TAHATTAWAN ROAD	LITTLETON CONSERVATION TRUST	PO BOX 594 LITTLETON, MA 01460
U31 69 0 NEWTOWN HILL TERRACE	NEWTOWN ROAD PROJECT, LLC.	5 LAUREL DRIVE WENHAM, MA 01984
U31 70 0 NEWTOWN HILL TERRACE	NEWTOWN ROAD PROJECT, LLC.	5 LAUREL DRIVE WENHAM, MA 01984
U31 71 0 NEWTOWN HILL TERRACE	NEWTOWN ROAD PROJECT, LLC.	5 LAUREL DRIVE WENHAM, MA 01984
U31 72 0 NEWTOWN HILL TERRACE	NEWTOWN ROAD PROJECT, LLC.	5 LAUREL DRIVE WENHAM, MA 01984

\*ABUTTER INFORMATION LISTED AS NOW OR FORMERLY AS OF 02/03/15.  
INFORMATION OBTAINED FROM TOWN OF LITTLETON ONLINE GIS DATABASE.

HISTORIC INVENTORY POINTS	
①	LIT. 40: E.B. PARKER/R. ABBOT HOUSE
②	LT. 3: JOSIAH WHITNEY/BENJAMIN HOAR/CALVIN BLANCHARD JR./ISAAC POWERS JR. HOUSE

HISTORIC INVENTORY POINTS BASED ON INFORMATION FROM THE ONLINE MASSACHUSETTS HISTORICAL COMMISSION GIS DATABASE OBTAINED 02/03/15.

550 COCHITUATE ROAD  
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A	09/04/14 FOR COMMENT

Dewberry Engineers Inc.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.638.3400  
FAX: 617.638.3310



DRAWN BY:	SCA
REVIEWED BY:	GMT
CHECKED BY:	EJR
PROJECT NUMBER:	50037672
JOB NUMBER:	50031274
SITE ADDRESS	

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

ABUTTERS PLAN

SHEET NUMBER

Z-1

ZONING DISTRICT: RESIDENTIAL		
	REQUIRED	PROPOSED
M.N. LOT AREA:	40,000 SQ. FT.	NO CHANGE
MIN. FRONTAGE:	150 FT.	NO CHANGE
MIN. STREET SETBACK:	30 FT.	1657± FT.*
MIN. SIDE YARD DEPTH:	15 FT.	66± FT.*
MIN. REAR YARD DEPTH:	15 FT.	65± FT.*
MAX. BUILDING HEIGHT:	32 FT.	10 FT. (EQPT. SHELTER)
MAX. % BUILDING COVERAGE:	N/A	<0.001% TO BE ADDED

\*SETBACKS TAKEN FROM PROPOSED EQUIPMENT SHELTER TO PROPERTY LINES

NOTES:

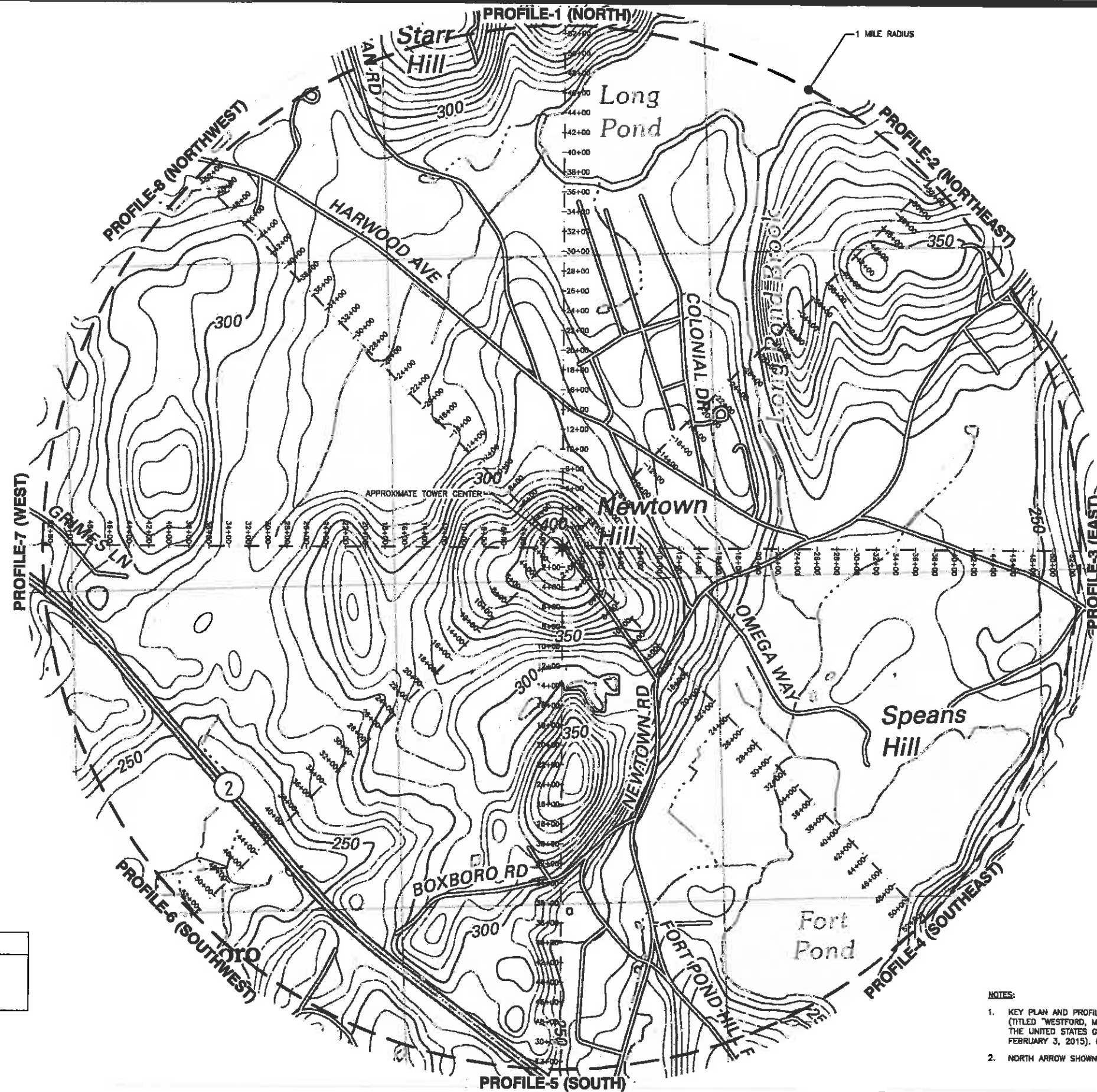
- SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
- PROPERTY LINES, ROADS, AND BUILDINGS SHOWN AS APPROXIMATE AND HAVE NOT BEEN VERIFIED THROUGH A FIELD SURVEY.
- PLAN BASED ON ONLINE GIS MAPS FOR THE TOWN OF LITTLETON OBTAINED 02/03/15 AND MASSACHUSETTS ONLINE GIS DATABASE INFORMATION OBTAINED 02/03/15.
- BASED ON THE MASSACHUSETTS ONLINE GIS DATABASE AS OF 02/03/15, THERE ARE NO HABITATS FOR ENDANGERED SPECIES OR BODIES OF WATER WITHIN 200' OF THE LOCUS PARCEL.

ABUTTERS PLAN

SCALE: 1"=200' FOR 11"x17"  
1"=100' FOR 22"x34"

0' 100' 200'

1



NOTES:

1. KEY PLAN AND PROFILES BASED ON TOPOGRAPHICAL MAPS (TITLED "WESTFORD, MA", DATED 2012) MADE AVAILABLE BY THE UNITED STATES GEOLOGICAL SURVEY (OBTAINED FEBRUARY 3, 2015). CONTOUR INTERVAL IS 10 FEET.
2. NORTH ARROW SHOWN AS APPROXIMATE.

KEY PLAN  
SCALE: N.T.S.

1

**at&t**  
Mobility  
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1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT

**Dewberry**  
Dewberry Engineers Inc.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.638.3400  
FAX: 617.638.3810



DRAWN BY: SK  
REVIEWED BY: MFT  
CHECKED BY: BBR  
PROJECT NUMBER: 50037672  
JOB NUMBER: 50061274  
SITE ADDRESS:

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

KEY PLAN

SHEET NUMBER

Z-2



**at&t**  
Mobility  
550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701

**npmi**  
NANEPASHEMET  
Project Management Services  
781-727-6516

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

**CONSTRUCTION DRAWINGS**

2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT

**Dewberry**

Dewberry Engineers Inc.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.635.3400  
FAX: 617.635.3310



DRAWN BY: SK  
REVIEWED BY: MFT  
CHECKED BY: BBR  
PROJECT NUMBER: 50037672  
JOB NUMBER: 50061274  
SITE ADDRESS:

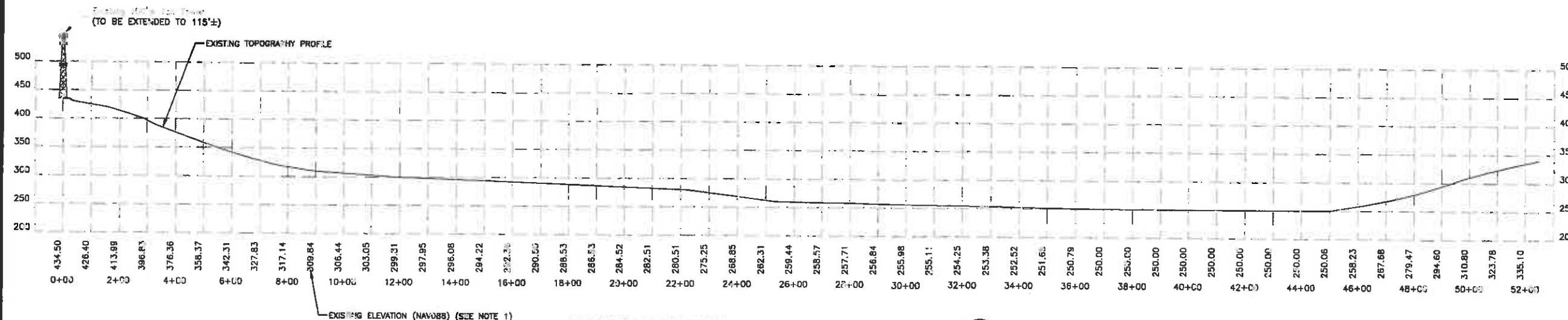
559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

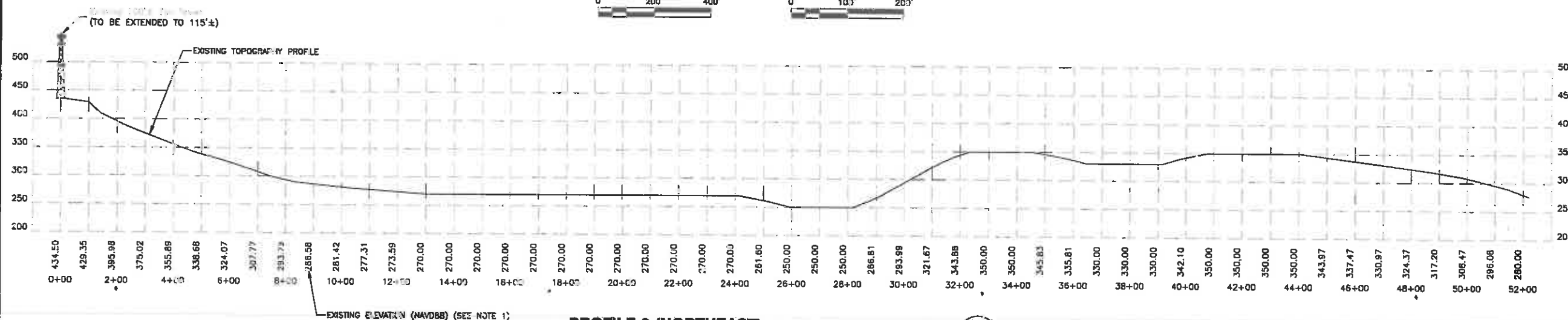
PROFILES 1, 2 & 3

SHEET NUMBER

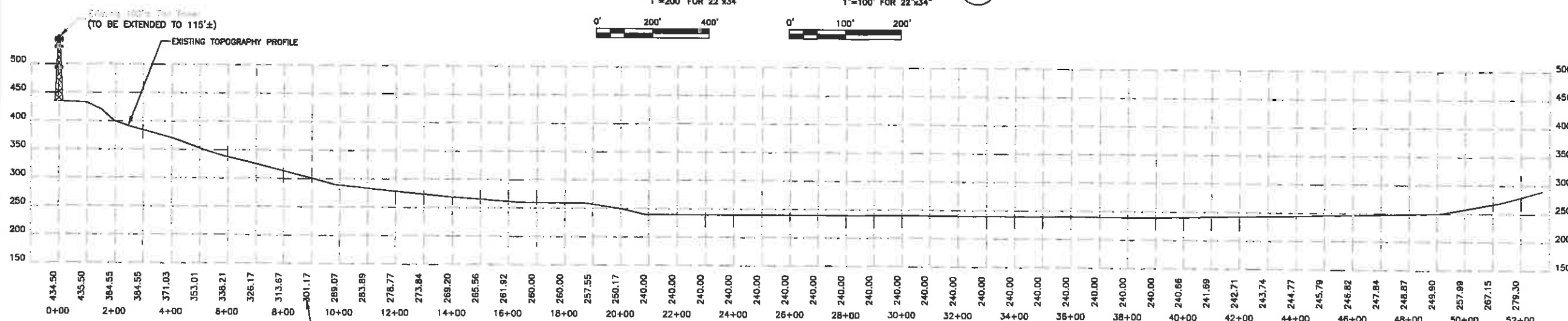
Z-3



**PROFILE-1 (NORTH)**  
HORIZONTAL SCALE: 1"=400' FOR 11"x17"  
1"=200' FOR 22"x34"  
VERTICAL SCALE: 1"=200' FOR 11"x17"  
1"=100' FOR 22"x34"



**PROFILE-2 (NORTHEAST)**  
HORIZONTAL SCALE: 1"=400' FOR 11"x17"  
1"=200' FOR 22"x34"  
VERTICAL SCALE: 1"=200' FOR 11"x17"  
1"=100' FOR 22"x34"

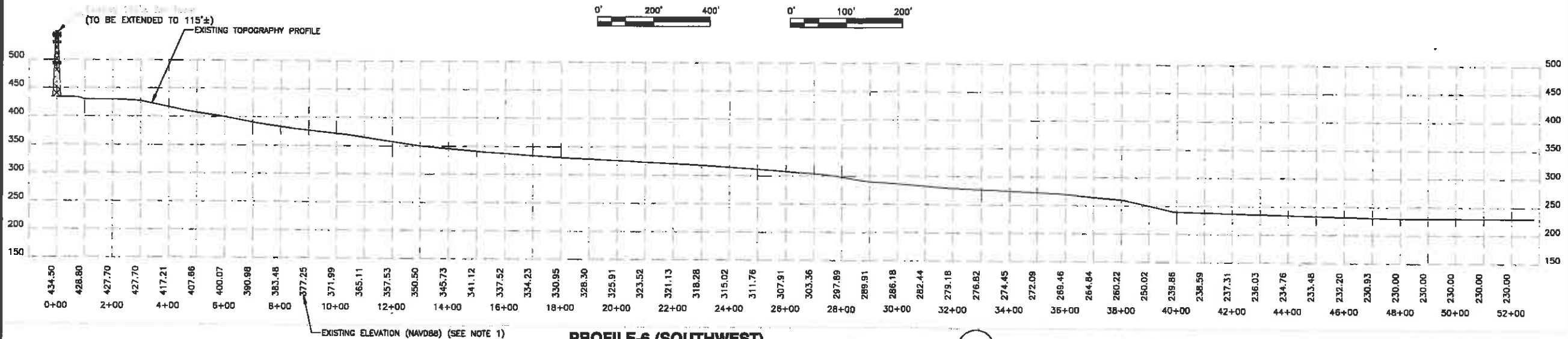
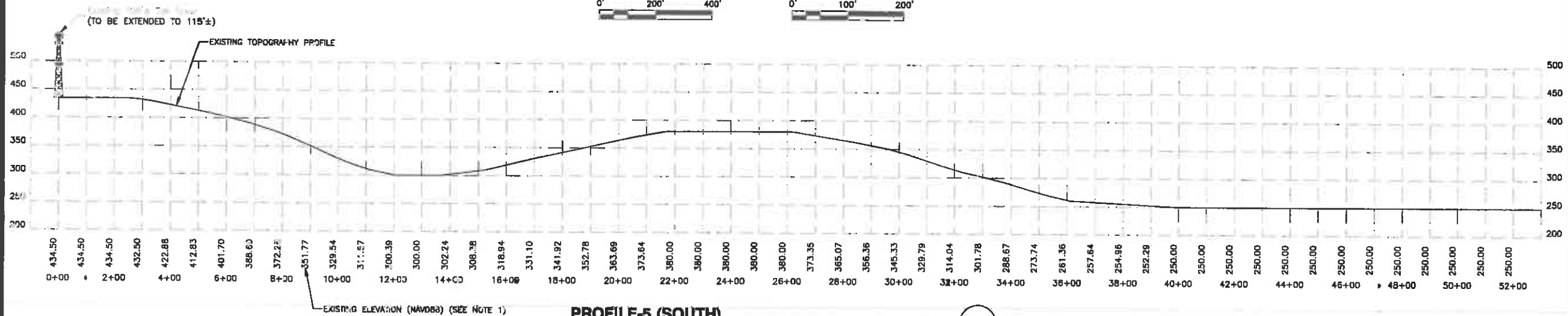
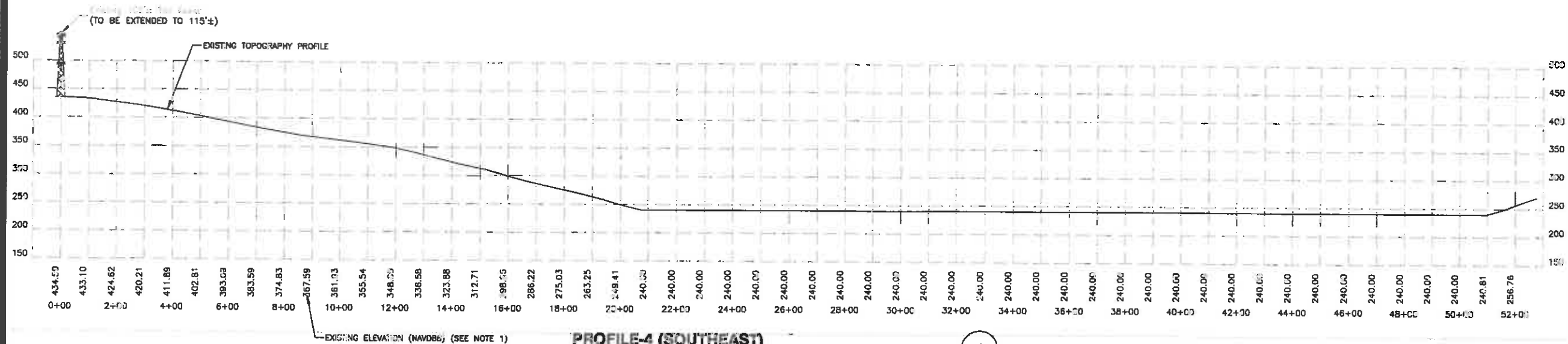


**PROFILE-3 (EAST)**  
HORIZONTAL SCALE: 1"=400' FOR 11"x17"  
1"=200' FOR 22"x34"  
VERTICAL SCALE: 1"=200' FOR 11"x17"  
1"=100' FOR 22"x34"



**NOTE:**

1. PROFILE BASED ON TOPOGRAPHICAL MAPS (TITLED "WESTFORD, MA", DATED 2012) MADE AVAILABLE BY THE UNITED STATES GEOLOGICAL SURVEY (OBTAINED FEBRUARY 3, 2015). CONTOUR INTERVAL IS 10 FEET.



NOTE:

1. PROFILE BASED ON TOPOGRAPHICAL MAPS (TITLED "WESTFORD, MA", DATED 2012) MADE AVAILABLE BY THE UNITED STATES GEOLOGICAL SURVEY (OBTAINED FEBRUARY 3, 2015). CONTOUR INTERVAL IS 10 FEET.

**at&t**  
Mobility  
550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701

**npmi**  
NANEPASHEMET  
Project Management Services  
781-727-6516

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

CONSTRUCTION DRAWINGS

2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT

**Dewberry**

Dewberry Engineers Inc.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.238.3400  
FAX: 617.238.3310



DRAWN BY: SK

REVIEWED BY: MFT

CHECKED BY: BBR

PROJECT NUMBER: 50037672

JOB NUMBER: 50061274

SITE ADDRESS

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

PROFILES 4, 5 & 6

SHEET NUMBER

Z-4

**CONSTRUCTION DRAWINGS**

2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT



DRAWN BY: SK

REVIEWED BY: MFT

CHECKED BY: BBR

PROJECT NUMBER: 50037672

JOB NUMBER: 50081274

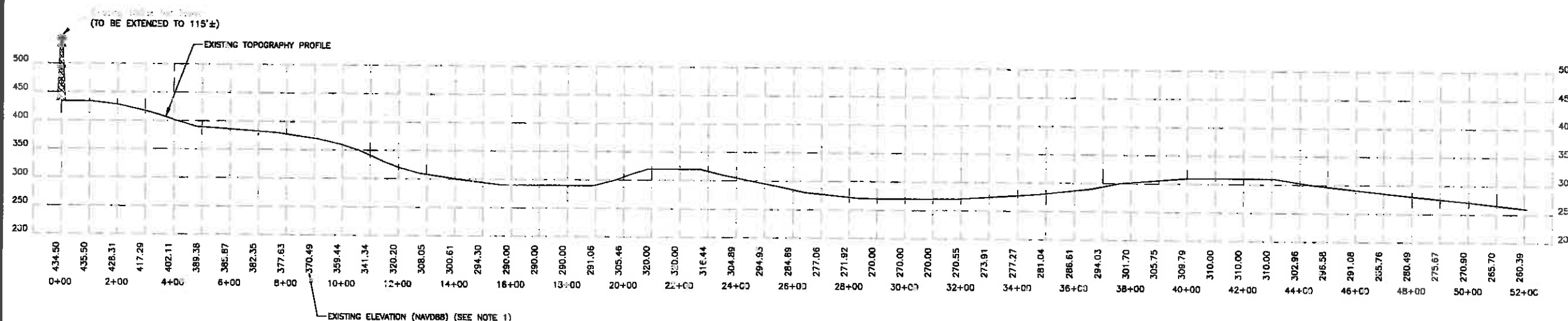
SITE ADDRESS

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

PROFILES 7 & 8

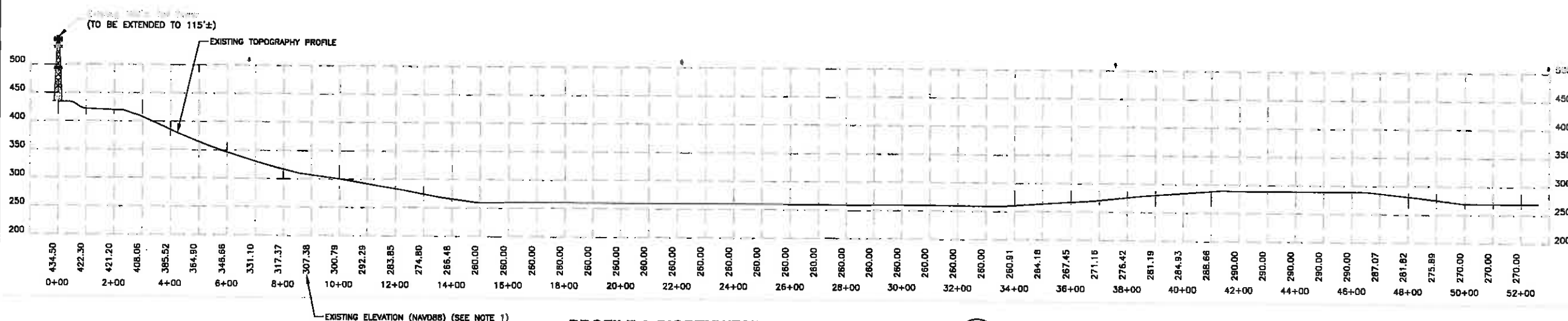
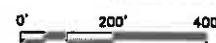
SHEET NUMBER



**PROFILE-7 (WEST)**

HORIZONTAL SCALE: 1"=400' FOR 11"x17"  
1"=200' FOR 22"x34"

VERTICAL SCALE: 1"=200' FOR 11"x17"  
1"=100' FOR 22"x34"



**PROFILE-8 (NORTHWEST)**

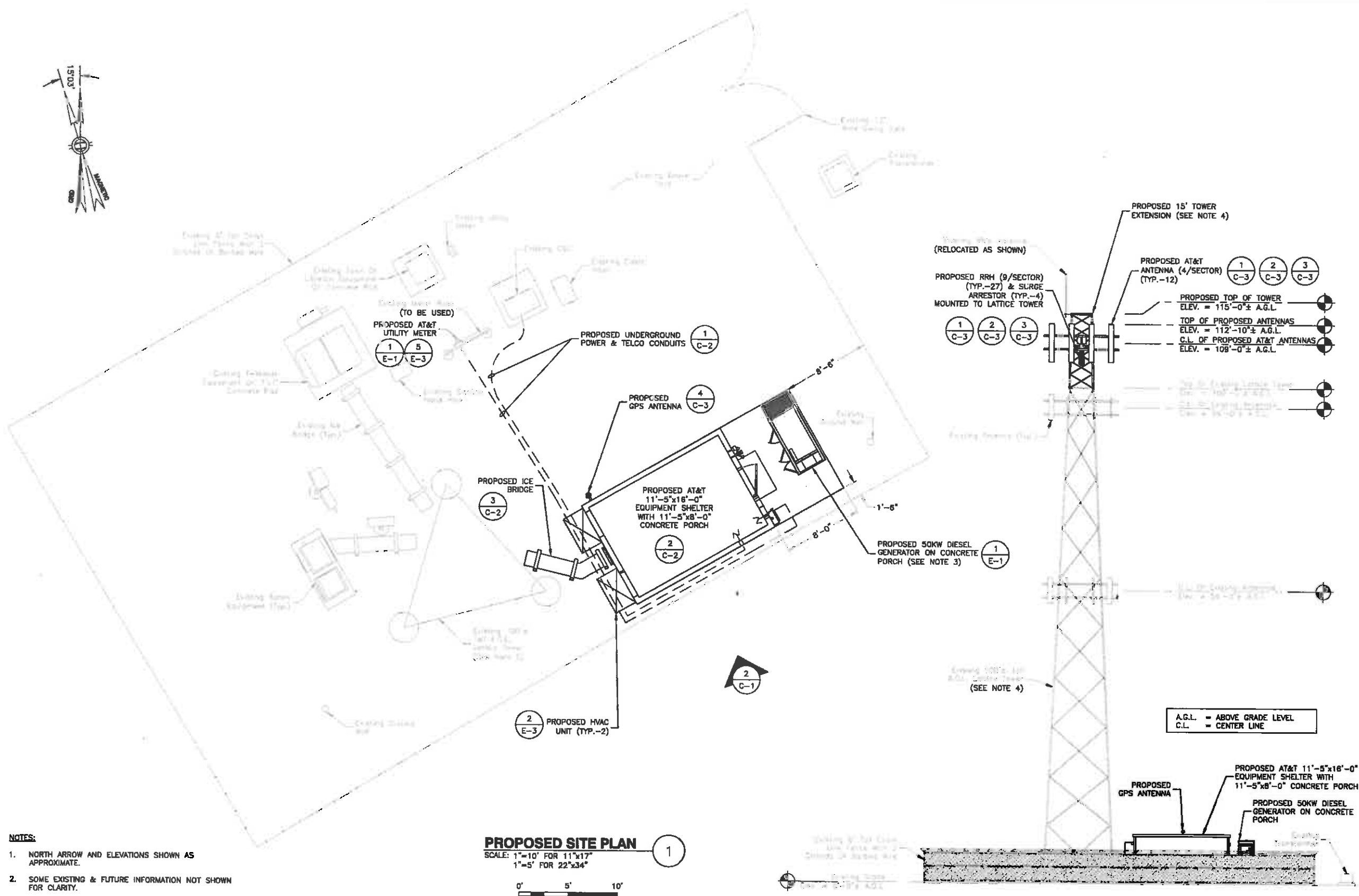
HORIZONTAL SCALE: 1"=400' FOR 11"x17"  
1"=200' FOR 22"x34"

VERTICAL SCALE: 1"=200' FOR 11"x17"  
1"=100' FOR 22"x34"



**NOTE:**

1. PROFILE BASED ON TOPOGRAPHICAL MAPS (TITLED "WESTFORD, MA", DATED 2012) MADE AVAILABLE BY THE UNITED STATES GEOLOGICAL SURVEY (OBTAINED FEBRUARY 3, 2015). CONTOUR INTERVAL IS 10 FEET.



- NOTES:**
1. NORTH ARROW AND ELEVATIONS SHOWN AS APPROXIMATE.
  2. SOME EXISTING & FUTURE INFORMATION NOT SHOWN FOR CLARITY.
  3. GENERATOR TO HAVE SELF CONTAINED DIESEL FUEL SOURCE.
  4. INSTALL ANTENNAS, FEEDERS, MOUNTS, ETC PER TOWER STRUCTURAL ANALYSIS BY FDH ENGINEERING, INC., DATED 03/25/14, AND TOWER MANUFACTURER'S DESIGN AND RECOMMENDATIONS. ALL TOWER MODIFICATIONS SHALL BE DONE IN STRICT CONFORMANCE WITH REV. D STRUCTURAL MODIFICATION DRAWINGS, DATED 03/25/14, PREPARED BY FDH ENGINEERING, INC. FOR CROWN CASTLE.

**PROPOSED SITE PLAN**  
SCALE: 1"=10' FOR 11"x17"  
1"=5' FOR 22"x34"  
1

**ELEVATION**  
SCALE: 1"=20' FOR 11"x17"  
1"=10' FOR 22"x34"  
2

**at&t**  
Mobility  
550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701

**npmi**  
NANEPASHEMET  
Project Management Services  
781-727-6516

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

CONSTRUCTION DRAWINGS		
2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT

**Dewberry**  
Dewberry Engineers Inc.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.695.3400  
FAX: 617.695.3310



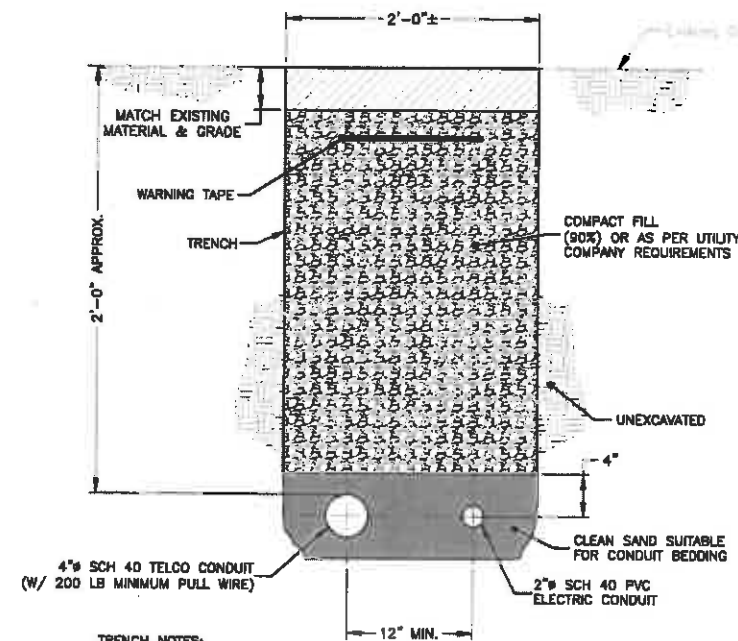
DRAWN BY:	SCA
REVIEWED BY:	GMT
CHECKED BY:	BBR
PROJECT NUMBER:	50037672
JOB NUMBER:	50061274
SITE ADDRESS	

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE	
PROPOSED SITE PLAN & ELEVATION	
SHEET NUMBER	

C-1





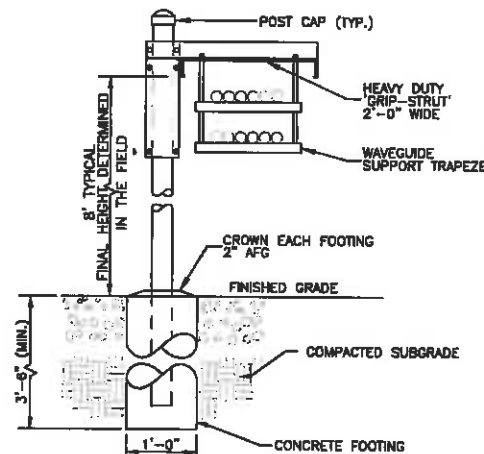
#### TRENCH NOTES:

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL.
2. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. CONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
3. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE, CONTRACTOR SHALL HAND DIG U/G TRENCHING.

#### JOINT SERVICE TRENCH BURIED CONDUIT (ELECTRIC/TELEPHONE)

SCALE: N.T.S.

1



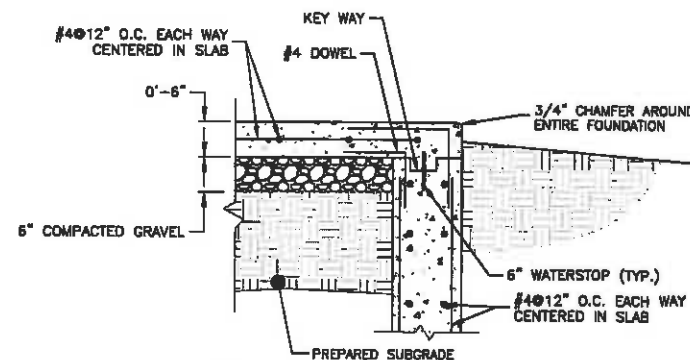
#### ICE BRIDGE NOTES:

1. ICE BRIDGE SHALL BE SITE PRO GRIP STRUT TRANSMISSION LINE BRIDGE KIT (P/N: B2734) OR APPROVED EQUAL.
2. CABLE SUPPORT SHALL BE SITE PRO DOUBLE LEVEL CHANNEL (P/N: B02284) OR APPROVED EQUAL.
3. ALL COMPONENTS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
4. CONTRACTOR SHALL DETERMINE REQUIRED QUANTITY OF ALL ICE BRIDGE COMPONENTS.
5. SNAP-IN HANGERS, SPLICE KITS, HINGE KITS, EXTENSION KITS, STIFFENERS, AND OTHER MISCELLANEOUS HARDWARE SHALL BE PROVIDED BY THE CONTRACTOR AS REQUIRED.
6. ICE BRIDGE SHALL BE ROUTED TO ACCOMMODATE THE MINIMUM BENDING RADIUS OF THE COAXIAL CABLE.
7. ICE BRIDGE COMPONENTS SHOWN ARE SCHEMATIC, CONSULT MANUFACTURER FOR EXACT AND CURRENT SPECIFICATIONS.

#### ICE BRIDGE DETAIL

SCALE: N.T.S.

3



#### NOTES:

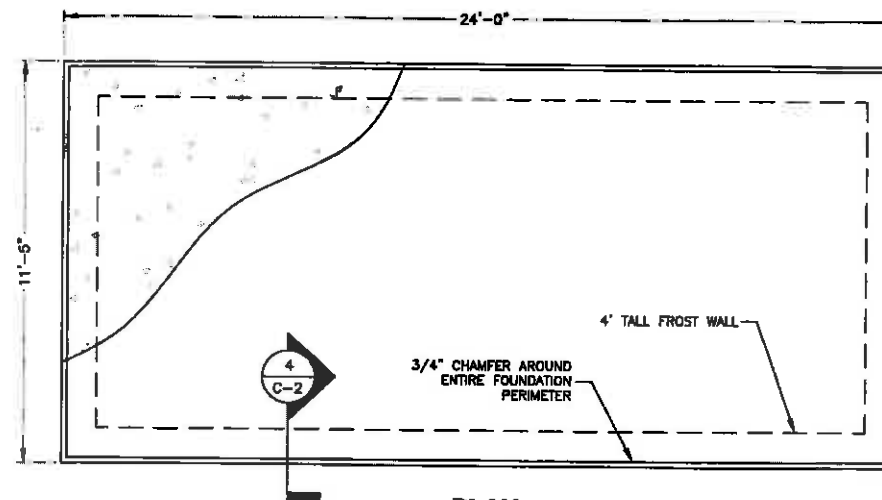
1. BEARING STRATA MEDIUM TO DENSE INSET GRANULAR MATERIAL OR COMPACTED GRAVEL FILL 95% COMPACTION.
2. MAINTAIN 3" MINIMUM COVER ON ALL STEEL REINFORCEMENT.
3. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
4. ANCHOR SHELTER IN ACCORDANCE WITH SHELTER DRAWINGS.

#### FOUNDATION WALL & SLAB DETAIL

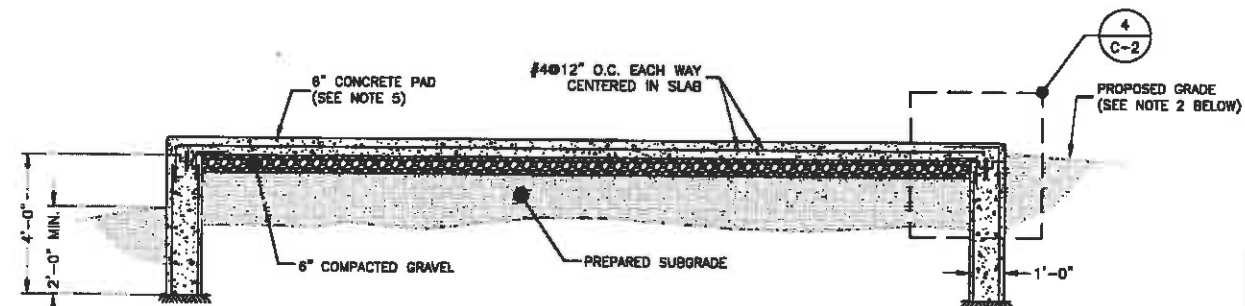
SCALE: 3/8"=1'-0" FOR 11"x17"  
3/4"=1'-0" FOR 22"x34"

0' 1' 2' 3'

4



#### PLAN



#### SECTION

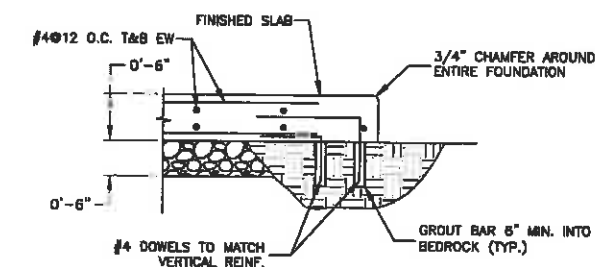
#### NOTES:

1. FOUNDATION TO BE PLACED IN SUITABLE SOIL WITH A MINIMUM ALLOWABLE DESIGN BEARING CAPACITY OF 3000 P.S.F. IF SITE CONDITIONS VARY FROM THOSE STATED ABOVE CONTRACTOR TO NOTIFY THE CONSTRUCTION MANAGER AND THE ENGINEER.
2. GRADE SHALL SLOPE AWAY FROM THE CONCRETE PAD TO ALLOW FOR PROPER WATER RUN OFF.
3. BEARING STRATA MEDIUM TO DENSE INSET GRANULAR MATERIAL OR COMPACTED GRAVEL FILL 95% COMPACTION.
4. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL NO DELETERIOUS MATERIALS OR ORGANICS TO BE USED.
5. IF BEDROCK IS ENCOUNTERED AT A SHALLOW DEPTH, SEE DETAIL 5 THIS SHEET.
6. COLD WEATHER/HOT WEATHER CONCRETE PLACEMENT SHALL BE IN ACCORDANCE WITH ACI 305 AND 308.
7. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.
8. REINFORCING BARS SHALL CONFORM TO ASTM-A615 GRADE 60 SPECIFICATIONS AND BE DETAILED IN ACCORDANCE WITH ACI-318.
9. REMOVE ALL ORGANIC MATERIAL PRIOR TO PLACEMENT OF STONE. IF FILLING IS REQUIRED, BACKFILL AND COMPACT WITH WELL-DRAINING GRAVEL.
10. SEE CONCRETE FOUNDATION & SHELTER NOTES ON SHEET C-1.

#### CONCRETE PAD FOUNDATION

SCALE: 3/16"=1'-0" FOR 11"x17"  
3/8"=1'-0" FOR 22"x34"

0' 2' 4' 6'



#### FOUNDATION SLAB DETAIL @ BEDROCK

SCALE: 3/8"=1'-0" FOR 11"x17"  
3/4"=1'-0" FOR 22"x34"

0' 1' 2' 3'

5

**at&t**  
Mobility  
550 COCHITUATE ROAD  
SUITE 13 & 14  
FRAMINGHAM, MA 01701

**npmi**  
NANEPASHEMET  
Project Management Services  
781-727-6516

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN**  
**ROAD LITTLETON**  
**SITE NO.: MA357CA**  
**CROWN ID: 875050**

#### CONSTRUCTION DRAWINGS

NO.	DATE	DESCRIPTION
2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT

**Dewberry**

Dewberry Engineers Inc.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02110  
PHONE: 617.655.3400  
FAX: 617.655.3310



DRAWN BY: SCA

REVIEWED BY: GMT

CHECKED BY: BBR

PROJECT NUMBER: 50037672

JOB NUMBER: 50061274

SITE ADDRESS

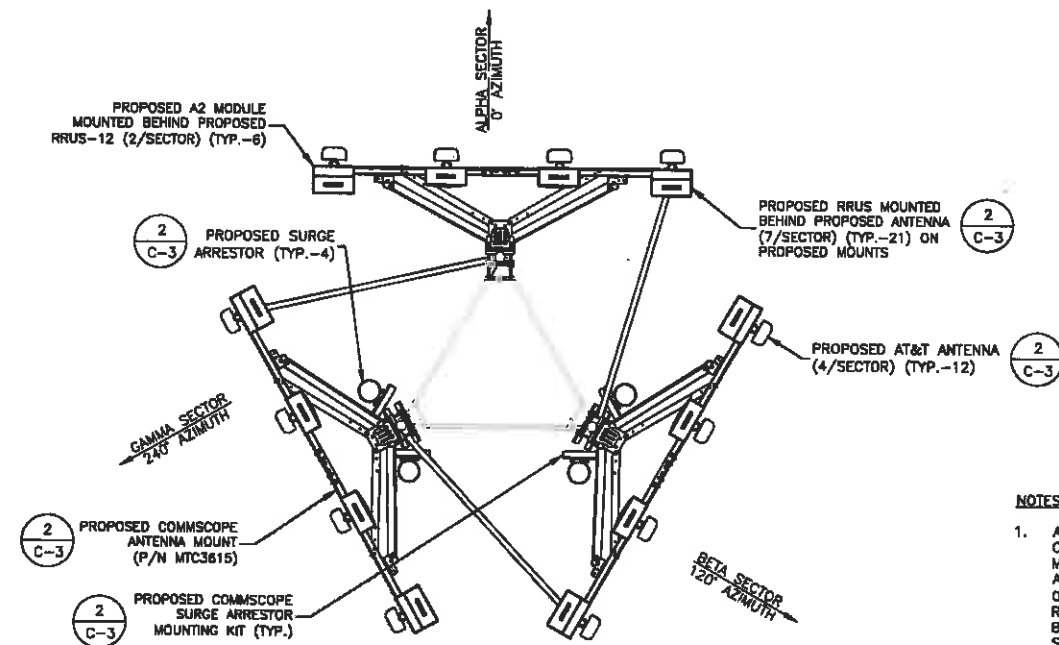
559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

CONSTRUCTION DETAILS

SHEET NUMBER

C-2



**ANTENNA ORIENTATION PLAN**  
SCALE: N.T.S.

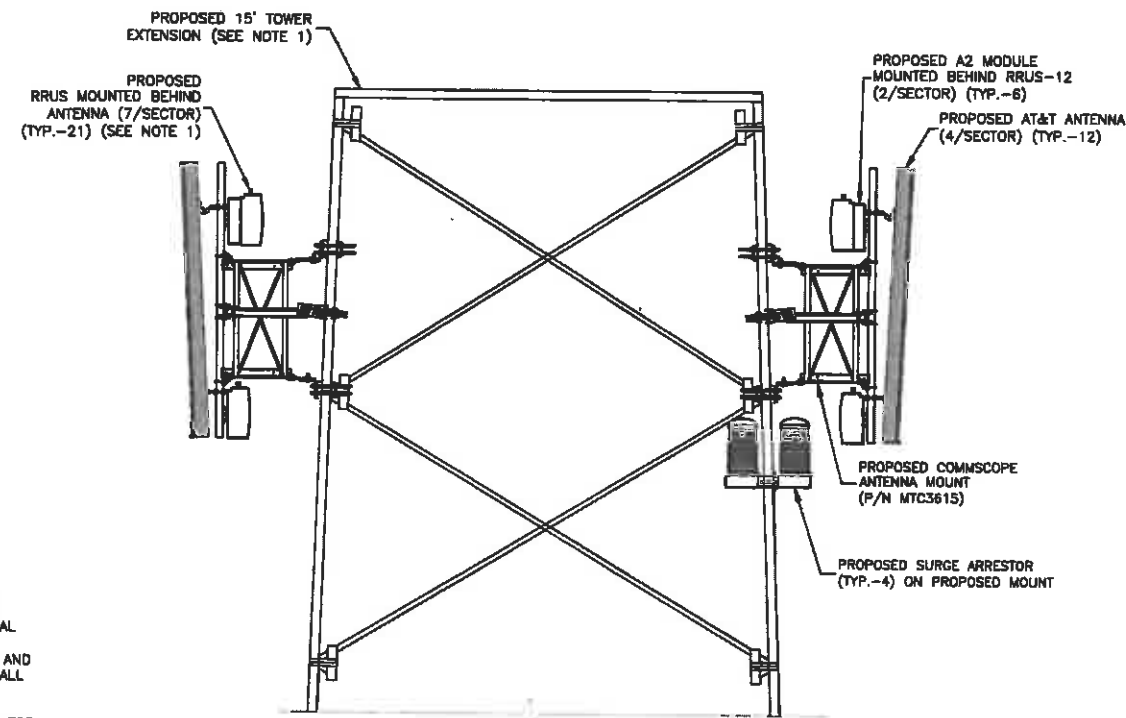
**NOTES:**

1. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, SURGE ARRESTORS, RRUS, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH TOWER STRUCTURAL ANALYSIS BY FDH ENGINEERING, INC., DATED 03/25/14, AND TOWER MANUFACTURER'S DESIGN AND RECOMMENDATIONS. ALL TOWER MODIFICATIONS SHALL BE DONE IN STRICT CONFORMANCE WITH REV. 0 STRUCTURAL MODIFICATION DRAWINGS, DATED 03/25/14, PREPARED BY FDH ENGINEERING, INC. FOR CROWN CASTLE.
2. ALL SPACING REQUIREMENTS FOR PROPOSED RRUS MOUNTS SHALL BE CONFIRMED AND SHALL NOT IMPEDE TOWER CLIMBING PEGS, TIE OFF LINES, OR OTHER EXISTING SAFETY FEATURES. ALL MOUNTS SHALL MAINTAIN EXISTING/PROPOSED MANUFACTURER SPACING REQUIREMENTS.
3. PLEASE SEE LATEST RFDS FOR RRUS MODEL NUMBER & FREQUENCY. INSTALL ACCORDING TO CORRESPONDING MANUFACTURER SPECIFICATIONS AND MAINTAIN ALL REQUIRED CLEARANCES.

RF SCHEDULE & B.O.M.*											
SECTOR	ANTENNA	AZIMUTH (TRUE NORTH)	RAD CENTER	MECHANICAL DOWNTILT	ELECTRICAL DOWNTILT	RRUS	ADDITIONAL COMPONENTS	RET CABLES	FIBER	DC LINES	SURGE
IA	CCI HPA-65R-BUU-H8	0°	109°	0°	6°/6°	(1) RRUS-11 (1) RRUS-12	(1) A2 MODULE	(3) LINES (142'±)	(2) TRUNK LINES (142'±)	(8) DC CABLES (142'±)	(4) RAYCAP DC6-48-60-18-8F
IIA	CCI HPA-65R-BUU-H8	0°	109°	2°	6°/6°	(1) RRUS-E2 (1) RRUS-32	-				
IIIA	CCI HPA-65R-BUU-H8	0°	109°	2°	6°/6°	(1) RRUS 11	-				
IVA	CCI HPA-65R-BUU-H8	0°	109°	2°	6°/6°	(1) RRUS-11 (1) RRUS-12	(1) A2 MODULE				
IB	CCI HPA-65R-BUU-H8	120°	109°	0°	6°/6°	(1) RRUS-11 (1) RRUS-12	(1) A2 MODULE				
IIB	CCI HPA-65R-BUU-H8	120°	109°	2°	6°/6°	(1) RRUS-E2 (1) RRUS-32	-				
IIIB	CCI HPA-65R-BUU-H8	120°	109°	2°	6°/6°	(1) RRUS 11	-				
IVB	CCI HPA-65R-BUU-H8	120°	109°	2°	6°/6°	(1) RRUS-11 (1) RRUS-12	(1) A2 MODULE				
IG	CCI HPA-65R-BUU-H8	240°	109°	0°	6°/6°	(1) RRUS-11 (1) RRUS-12	(1) A2 MODULE				
IIG	CCI HPA-65R-BUU-H8	240°	109°	0°	6°/6°	(1) RRUS-E2 (1) RRUS-32	-				
IIIG	CCI HPA-65R-BUU-H8	240°	109°	0°	6°/6°	(1) RRUS 11	-				
IVG	CCI HPA-65R-BUU-H8	240°	109°	0°	6°/6°	(1) RRUS-11 (1) RRUS-12	(1) A2 MODULE				

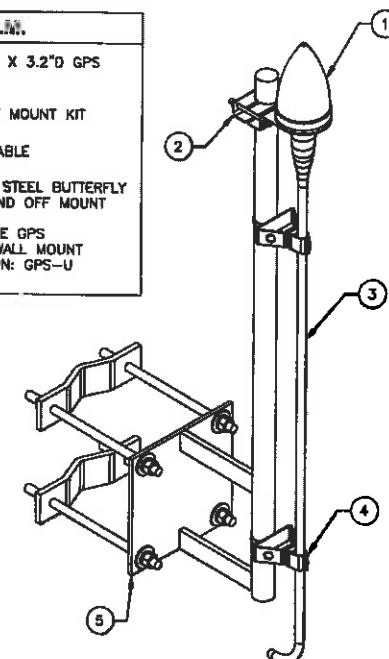
\*RF SCHEDULE BASED ON V05 RFDS MA3570S DATED 9/30/14. CONTRACTOR TO VERIFY FINAL RFDS AND CABLE LENGTHS PRIOR TO CONSTRUCTION.

**ANTENNA AND FEEDER B.O.M.**  
SCALE: N.T.S.



**PROPOSED RRUS/SURGE/ANTENNA MOUNTING ELEVATION**  
SCALE: N.T.S.

B.O.M.	
①	PCTEL 5'H X 3.2"D GPS ANTENNA
②	L BRACKET MOUNT KIT
③	COAXIAL CABLE
④	STAINLESS STEEL BUTTERFLY KIT & STAND OFF MOUNT
⑤	COMMSCOPE GPS ANTENNA WALL MOUNT BRACKET PN: GPS-U



**NOTES:**

1. GPS TO BE THROUGH BOLTED TO EQUIPMENT SHELTER WALL. DO NOT ATTACH TO ROOF UP OF SHELTER. FINAL MOUNT LOCATION TO BE VERIFIED WITH AT&T CM.
2. WEATHER SEAL AROUND MOUNT WITH SILICONE SEALANT.
3. INSTALL GPS, COAX & MOUNT PER MANUFACTURER'S RECOMMENDATIONS.
4. TIE MOUNT INTO GROUNDING SYSTEM.
5. WEATHER SEAL CONNECTORS PER AT&T STANDARDS.

**SHELTER MOUNTED GPS DETAIL**  
SCALE: N.T.S.

**at&t**  
Mobility  
550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701

**npmi**  
NANEPASHEMET  
Project Management Services  
781-727-6516

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

CONSTRUCTION DRAWINGS			
2	03/11/15	FOR CONSTRUCTION	
1	02/11/15	FOR CONSTRUCTION	
0	10/02/14	FOR CONSTRUCTION	
A	09/04/14	FOR COMMENT	

**Dewberry**  
Dewberry Engineers Inc.

280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.636.3400  
FAX: 617.636.3910

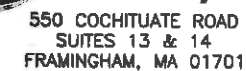


DRAWN BY: SCA  
REVIEWED BY: GMT  
CHECKED BY: BBR  
PROJECT NUMBER: 50037672  
JOB NUMBER: 50061274  
SITE ADDRESS:

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE  
**ANTENNA MOUNTING  
DETAILS & RF  
SCHEDULE**  
SHEET NUMBER

C-3



**Project Management Services**  
**781-727-6516**

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

## CONSTRUCTION DRAWINGS

2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT



**Dewberry Engineers Inc.**  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.635.3401  
FAX: 617.635.3310



DRAWN BY: SCA

REVIEWED BY: GMT

CHECKED BY: BBR

PROJECT NUMBER:	50037672
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**JOB NUMBER:** 50061274

SITE ADDRESS

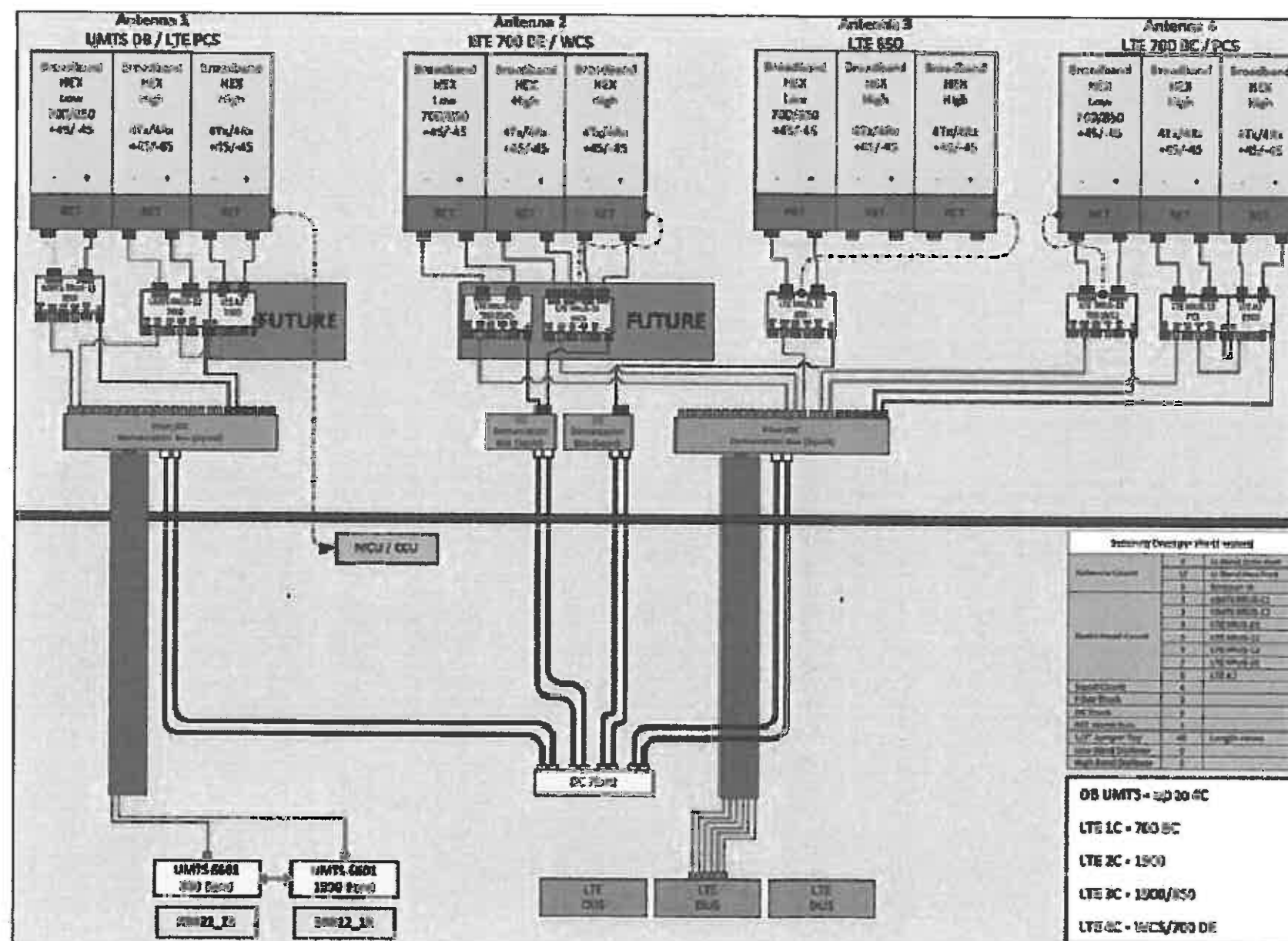
559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

### PLUMBING DIAGRAM

SHEET NUMBER

C-4



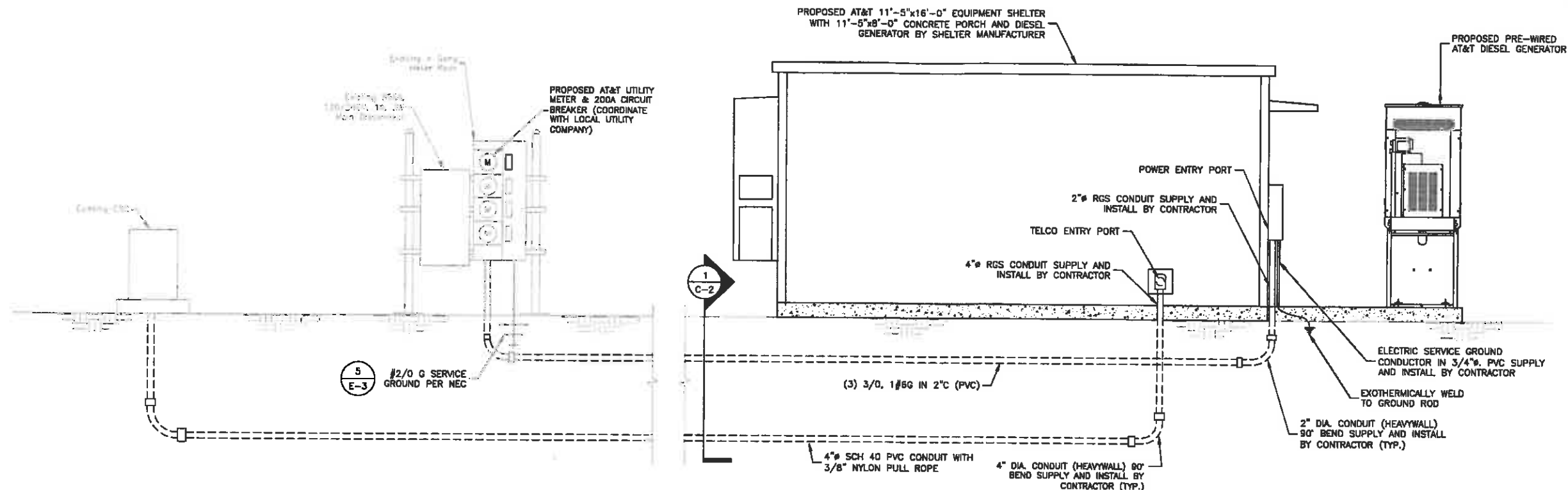
**NOTE:**

1. BASED ON V05 RFDS MA3570S DATED 9/30/14. CONTRACTOR TO VERIFY FINAL RFDS PRIOR TO CONSTRUCTION.

### PLUMBING DIAGRAM

SCALE: N.T.S.

1



## ELECTRICAL RISER DIAGRAM & SERVICE ENTRANCES

SCALE: N.T.S.

1

### ELECTRICAL AND TELEPHONE CONTACTS

POWER COMPANY: NSTAR  
PHONE NUMBER: (800) 592-2000

TELEPHONE COMPANY: VERIZON  
PHONE NUMBER: (800) 837-4966

### GENERAL ELECTRICAL NOTES

- ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES, O.S.H.A., NEC, AT&T MOBILITY SPECIFICATIONS, AND THE SPECIFICATIONS DETAILED IN THESE PLANS.
- SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATION, OBSERVATION, TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT, AND DISCREPANCIES.
- THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE. CONTRACTOR SHALL ENSURE THAT ACCESS TO EQUIPMENT IS MAINTAINED IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS AND ALL APPLICABLE CODES.
- EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, J-BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM, ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, IEEE, AND NFPA.
- ALL CONDUIT INSTALLED MAY BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.
- COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- ALL "CONDUIT ONLY" (C.O.) INSTALLATIONS SHALL HAVE A 1/4" PULL WIRE OR ROPE.
- CONTRACTOR SHALL PROVIDE AT&T MOBILITY PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
- ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.
- POWER WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID.
- ALL CONDUCTORS LARGER THAN #10 AWG SHALL BE STRANDED COPPER WITH THWN 600V INSULATION, UNLESS NOTED OTHERWISE.
- ALL MATING SURFACES OF GROUND CONNECTIONS SHALL BE CLEANED SMOOTH AND COATED WITH ANTIOXIDANT PRIOR TO ATTACHMENT.
- ALL GROUND CONNECTIONS BELOW GRADE MUST BE EXOTHERMICALLY WELDED (CAD WELD OR APPROVED EQUAL)
- ALL EXTERIOR GROUNDING CONDUCTORS SHALL BE # 2 AWG SOLID TINNED BARE COPPER WIRE UNLESS NOTED OTHERWISE.
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C. COORDINATE SHORT CIRCUIT REQUIREMENTS WITH UTILITY COMPANY.
- CONTRACTOR SHALL PATCH, REPAIR, AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.

- IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND/OR REINFORCING STEEL WILL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES.
- LOCATION OF TENDONS AND/OR REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND, THEREFORE, MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X-RAY OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING AND/OR STEEL TENDONS.
- PENETRATIONS IN FIRE RATED WALLS SHALL BE SEALED IN ACCORDANCE WITH ALL APPLICABLE CODES.
- ALL MATERIALS SHALL BE U.L. LISTED.
- CONDUIT?
  - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
  - ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL. FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
  - FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT SHALL HAVE FULL SIZE GROUND WIRE.
  - CONDUIT RUNS MAY BE SURFACE MOUNTED IN CEILINGS OR WALLS UNLESS INDICATED OTHERWISE. CONDUIT SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH ENGINEER PRIOR TO INSTALLING.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
- CONTRACTOR SHALL COORDINATE THE ELECTRICAL SERVICE WITH LANDLORD AND LOCAL UTILITY.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY NEC AND ALL APPLICABLE CODES.
- GROUNDED SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE OWNER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE. CONTRACTOR SHALL SUBMIT TO THE PROJECT MANAGER ALL TEST REPORTS AND ONE COMPLETE SET OF PRINTS SHOWING "INSTALLED WORK".
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
- ALL EXPOSED GROUND WIRES ROUTED ALONG THE SIDE OF EQUIPMENT SHELTERS OR ROUTED OVER CONCRETE FOUNDATIONS OR OTHER EXISTING STRUCTURES SHALL BE INSTALLED IN PROPERLY ANCHORED 3/4" (MIN.) PVC CONDUIT.
- CONTRACTOR SHALL NOT DISTURB EXISTING GROUNDING SYSTEM. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY AT NO ADDITIONAL COST.
- ALL ELEMENTS OF ICE BRIDGE AND AT&T MOBILITY UTILITY BACKBOARD MUST BE BONDED AND JUMPERED TO GROUNDED COMPONENTS OF THESE SYSTEMS.
- ALL INTERIOR CABLES AND WIRING SHALL BE NEATLY ROUTED IN OVERHEAD LADDER RACK AND FASTENED TO LADDER RACK WITH PLASTIC CABLE TIES.
- ALL GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARDS FROM POINT OF ORIGIN TO TERMINATION POINT (GROUND BAR, GROUND RING, ETC).
- GROUNDED CONDUCTORS SHALL NOT REVERSE DIRECTION (EXCEPT HALO & BURIED GROUND RINGS). OTHER EXCEPTIONS NEED TO BE APPROVED BY AT&T MOBILITY CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
- GROUNDED CONDUCTORS SHALL HAVE A MINIMUM BENDING RADIUS OF 8".
- ALL CONNECTIONS TO GROUND PLATES SHALL BE CAD WELDED TO THE CENTER OF THE PLATE. ALL DETAILS SHOWING CONNECTIONS TO GROUND RODS ARE ALSO VALID FOR SIMILAR CONNECTIONS TO GROUND PLATES.

### ELECTRICAL AND TELEPHONE GENERAL NOTES:

- FOLLOWING COMPLETION OF WORK, PROVIDE OWNER WITH AS-BUILT DRAWINGS SHOWING TELEPHONE AND ELECTRIC LOCATIONS.
- WORK SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE, NEC 2014.
- COORDINATE WITH UTILITY AND LOCAL ELECTRICAL INSPECTOR FOR FINAL POWER CONNECTION.
- UTILITY WILL SUPPLY METER. COORDINATE WITH UTILITY FOR METER TYPE AND INTERCONNECTION.
- ALL EXISTING UNDERGROUND LINES ON SITE TO BE LOCATED PRIOR TO CONSTRUCTION. CALL 1-888-DIG-SAFE PRIOR TO CONSTRUCTION.
- SEAL ALL SERVICE ENTRANCES INTO SHELTER FOLLOWING INSTALLATION.
- SEE PAGE E-2 FOR GENERAL GROUNDING NOTES.
- COORDINATE WITH LOCAL TELEPHONE COMPANY FOR ALL ROUTING AND DESIGN.
- CONTRACTOR TO VERIFY CONTROL WIRING SIZE WITH GENERATOR MANUFACTURER PRIOR TO CONSTRUCTION.

**at&t**  
Mobility  
550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701

**npmi**  
NANEPASHEMET  
Project Management Services  
781-727-6516

328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

### CONSTRUCTION DRAWINGS

2	03/11/15	FOR CONSTRUCTION
1	02/11/15	FOR CONSTRUCTION
0	10/02/14	FOR CONSTRUCTION
A	09/04/14	FOR COMMENT

**Dewberry**

Dewberry Engineers Inc.  
280 SUMMER STREET  
10TH FLOOR  
BOSTON, MA 02210  
PHONE: 617.692.3400  
FAX: 617.635.3310



DRAWN BY: SCA

REVIEWED BY: GMT

CHECKED BY: BBR

PROJECT NUMBER: 50037672

JOB NUMBER: 50061274

SITE ADDRESS

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

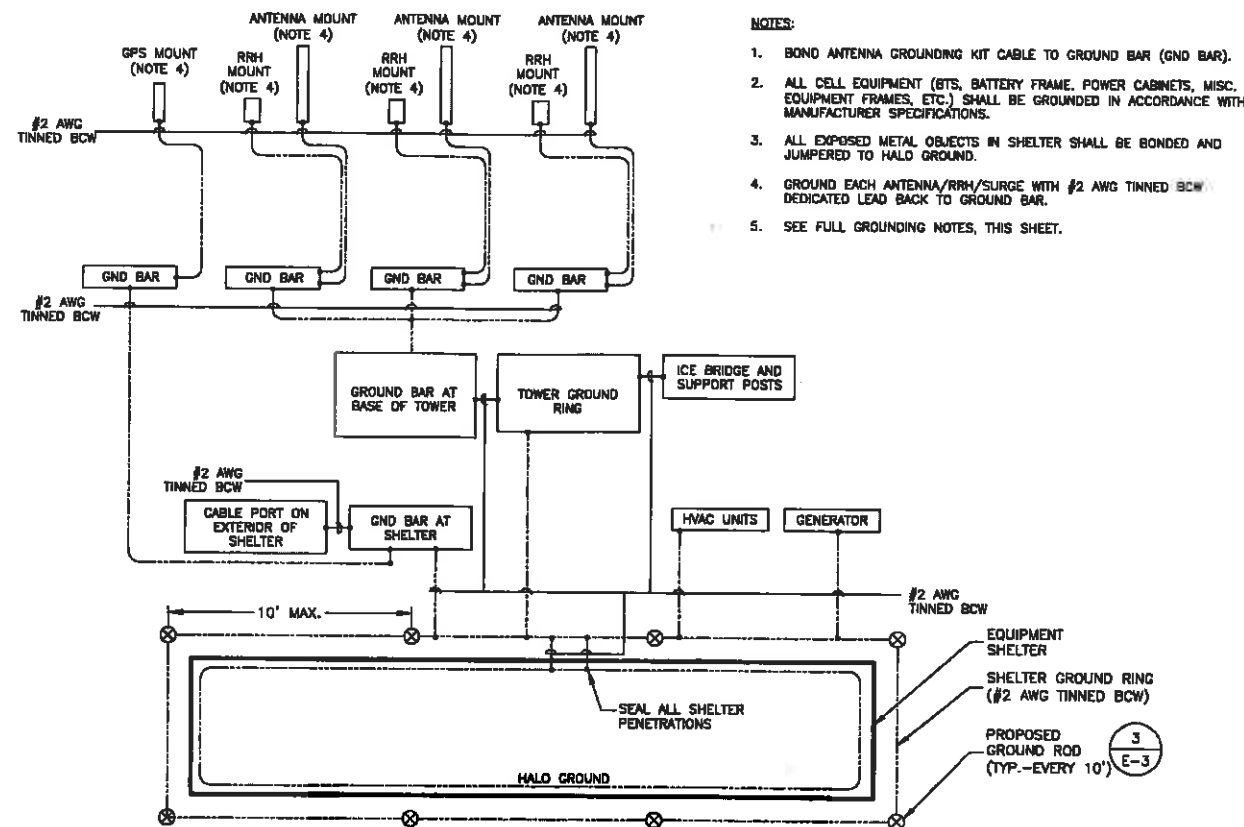
ELECTRICAL RISER  
DIAGRAM

SHEET NUMBER

E-1

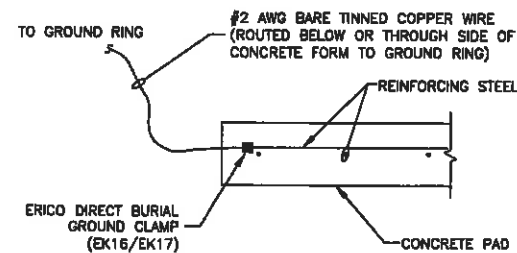
## GROUNDING GENERAL NOTES

1. ALL DOWN CONDUCTORS AND THE GROUND RING CONDUCTOR SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNLESS OTHERWISE NOTED. ALL CONNECTIONS TO GROUND RING SHALL BE EXOTHERMICALLY WELDED. CONDUCTOR SHALL BE AT A MINIMUM DEPTH BELOW GRADE OF 18 INCHES OR TO LEDGE. MINIMUM BEND RADIUS SHALL BE 8 INCHES. CONDUCTOR SHALL BE AT LEAST 24 INCHES FROM ANY FOUNDATION, UNLESS OTHERWISE NOTED.
2. GROUND RODS SHALL BE 5/8" DIAMETER COPPER CLAD, HARGER, T&B, ERICO, OR EQUIVALENT. TOP OF ROD SHALL BE A MINIMUM OF 18" BELOW GRADE. IF LEDGE IS ENCOUNTERED, INSTALL GROUND ROD AT AN ANGLE. ELECTRICAL METER GROUND ROD EXCEPTED.
3. WHERE MECHANICAL CONNECTIONS ARE SPECIFIED, BOLTED, COMPRESSION-TYPE, CLAMPS OR SPLIT-BOLT TYPE CONNECTORS SHALL BE USED.
4. GRIND OFF GALVANIZING IN AFFECTED AREA. EXOTHERMICALLY WELD #2 CONDUCTOR AT 6" ABOVE GRADE OR FOUNDATION, WHICHEVER IS HIGHER. COLD-GALV AFTER. EXOTHERMICALLY WELD OTHER END TO GROUND RING.
5. INSTALL GROUNDING KITS AT ANTENNA CENTERLINE, AND TOWER EXIT POINTS. GROUND COAX LINES. EXOTHERMICALLY WELD #2 DOWN CONDUCTOR TO PLATES, RUN DOWN TOWER, AND TIE INTO GROUNDING SYSTEM.
6. ALL GROUNDING WORK SHALL COMPLY WITH AT&T CONSTRUCTION CONTRACT STANDARDS. FOLLOWING COMPLETION OF WORK, GROUND SYSTEM MUST BE TESTED AND SHALL HAVE A RESISTANCE OF 5 OHMS OR LESS. SUBMIT AN INDEPENDENT "FALL POTENTIAL" TESTING REPORT.
7. ALL GROUNDING CONDUCTORS ON EXTERIOR WALL OF SHELTER SHALL BE INSTALLED IN 3/4" SCH 40 PVC CONDUIT TO 12" BELOW GRADE. ATTACH PVC WITH GALVANIZED "C" CLAMPS.
8. CONTRACTOR SHALL HAND-DIG IN AREAS AROUND EXISTING UTILITIES.
9. NOTIFY CONSTRUCTION ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
10. GROUNDING RING IS SHOWN AS SCHEMATIC ONLY. IT IS DESIGNED WITHOUT BENEFIT OF RESISTIVITY TESTING AND DOES NOT NECESSARILY REPRESENT A GROUNDING SYSTEM TO MEET ANY SPECIFIC GROUND RESISTANCE.
11. PRIOR TO POURING CONCRETE, ALL REBAR LOCATED NEAR THE BOTTOM OF THE FOUNDATION SHALL BE BONDED TOGETHER TO FORM A SINGLE GROUNDING ELECTRODE, BY STEEL TIES OF OTHER EFFECTIVE MEANS APPROVED BY NEC 2011 AND STRUCTURAL ENGINEER, AND BONDED TO THE GROUND RING AS DETAILED IN THESE PLANS. (INSPECTION MAY BE REQUIRED PRIOR TO POURING CONCRETE AND MUST BE COORDINATED BY CONTRACTOR.)
12. IN ACCORDANCE WITH NEC 2011 REQUIREMENTS, ALL GROUNDING ELECTRODES PRESENT ON SITE SHALL BE BONDED TOGETHER (REFERENCE 2011 NEC ARTICLE 250.50).
13. CAULK AND SEAL ALL NON-FACTORY SHELTER PENETRATIONS.



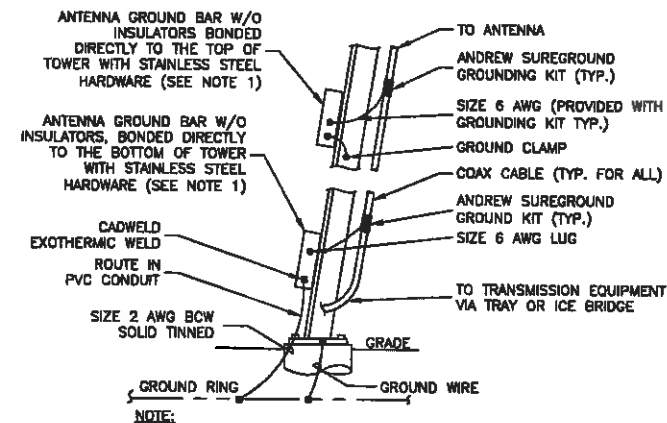
**SCHEMATIC GROUNDING DIAGRAM**

SCALE: N.T.S.



**REBAR GROUNDING DETAIL**

SCALE: N.T.S.



**TOWER - ANTENNA CABLE GROUNDING DETAIL**

SCALE: N.T.S.



550 COCHITUATE ROAD  
SUITES 13 & 14  
FRAMINGHAM, MA 01701



328 WEST SHORE DRIVE  
SUITE 1-A  
MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
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**Dewberry Engineers Inc.**  
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DRAWN BY:	SCA
REVIEWED BY:	GMT
CHECKED BY:	BBR
PROJECT NUMBER:	50037672
JOB NUMBER:	50061274
SITE ADDRESS:	

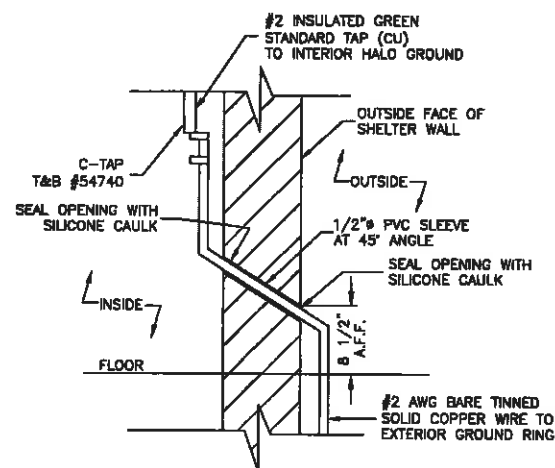
559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

SCHEMATIC GROUNDING  
PLAN

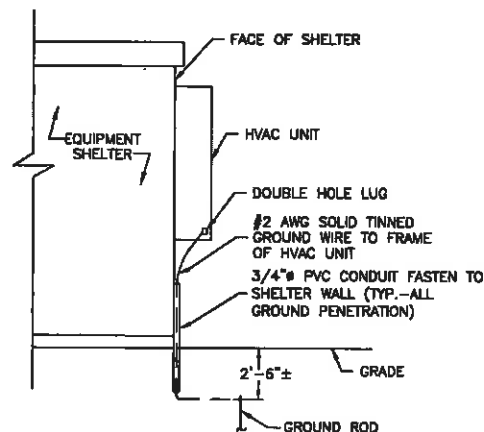
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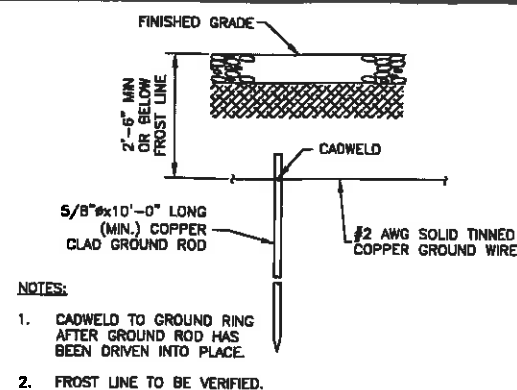
**WALL GROUND PENETRATION**

SCALE: N.T.S.



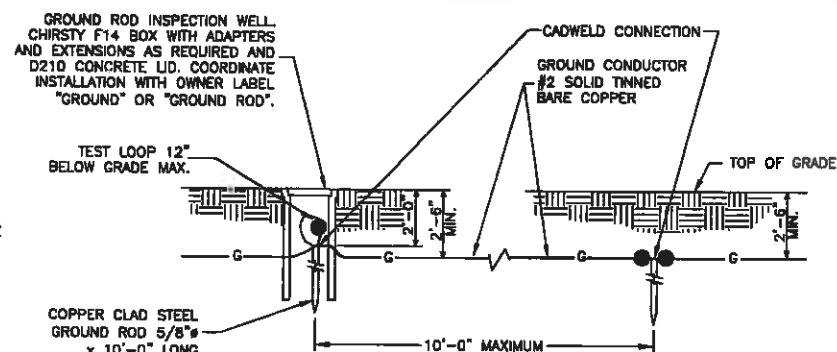
**HVAC UNIT GROUND**

SCALE: N.T.S.



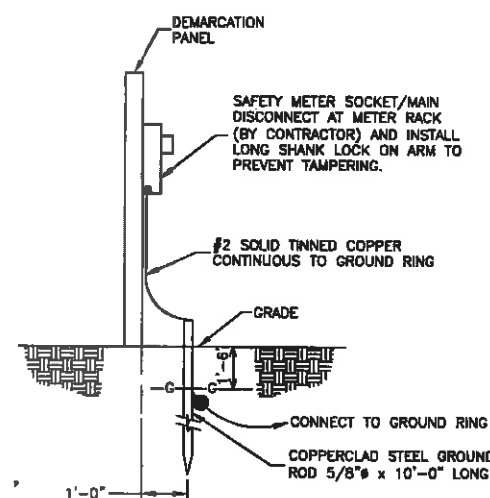
**GROUND ROD**

SCALE: N.T.S.



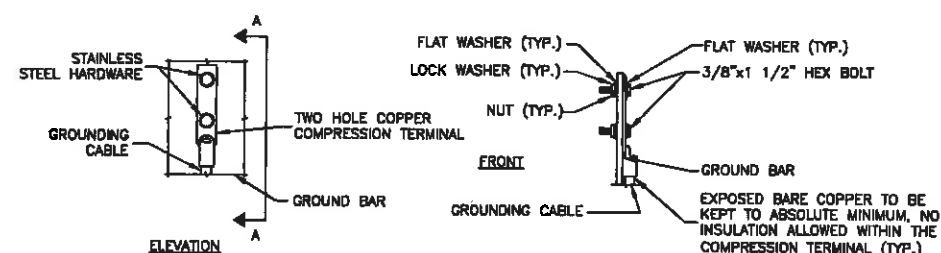
**GROUND BOX DETAIL**

SCALE: N.T.S.



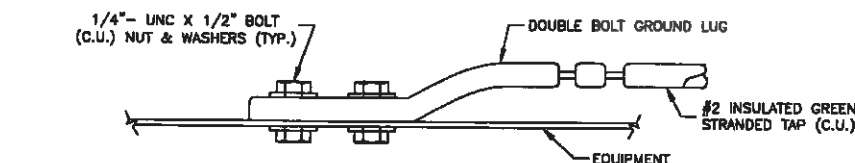
**METER SOCKET GROUNDING**

SCALE: N.T.S.



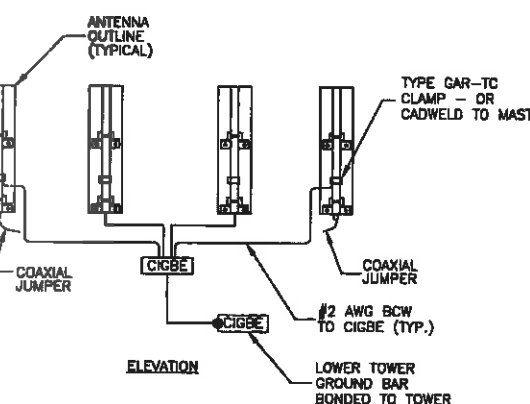
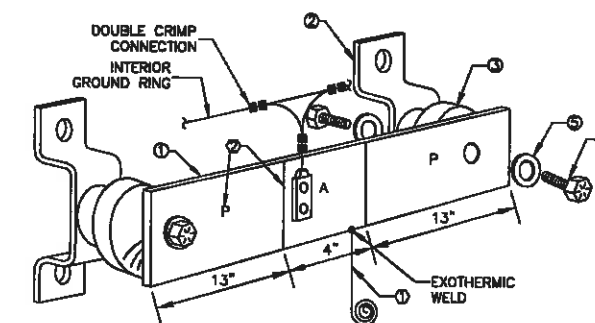
**TYPICAL GROUND BAR MECHANICAL CONNECTION DETAIL**

SCALE: N.T.S.



**CONNECTION TO EQUIPMENT DETAIL**

SCALE: N.T.S.



**TYPICAL ANTENNA GROUNDING DETAIL**

SCALE: N.T.S.

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PROTECTORS**

CABLE ENTRY PORTS (HATCH PLATES) (2 AWG)  
GENERATOR FRAMEWORK (IF AVAILABLE) (2 AWG)  
TELCO GROUND BAR (2 AWG)  
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (2 AWG)  
+24V POWER SUPPLY RETURN BAR (2 AWG)  
-48V POWER SUPPLY RETURN BAR (2 AWG)  
RECTIFIER FRAMES.  
COAX SUPPRESSION

**SECTION "A" - SURGE ABSORBERS**

INTERIOR GROUND RING (2 AWG)  
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (2 AWG)  
METALLIC COLD WATER PIPE (IF AVAILABLE) (2 AWG)  
BUILDING STEEL (IF AVAILABLE) (2 AWG)

**SECTION "I" - ISOLATED GROUND ZONE**

ALL COMMUNICATIONS EQUIPMENT FRAMES.  
ISOLATED GROUND BAR - IGB (2 AWG)

**DETAIL NOTES:**

- EXOTHERMICALLY WELD 2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
- USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.

**GROUND BAR PLATE (TYP.)**

SCALE: N.T.S.

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C. OR APPROVED EQUAL			
NO.	REQ.	PART NO.	DESCRIPTION
1	1	1/4" x 4" x 30"	SOLID GND. BAR
2	2	A-6056	WALL MTG. BRKT.
3	2	3061-4	INSULATORS
4	4	3012-1	5/8"-11x1" H.H.C.S.
5	4	3015-8	5/8" LOCKWASHER



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MARBLEHEAD, MA 01945

**CROWN NEWTOWN  
ROAD LITTLETON  
SITE NO.: MA3570A  
CROWN ID: 875050**

**CONSTRUCTION DRAWINGS**

NO.	DATE	DESCRIPTION
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DRAWN BY: SCA

REVIEWED BY: GMT

CHECKED BY: BBR

PROJECT NUMBER: 50037872

JOB NUMBER: 50061274

SITE ADDRESS

559A NEWTOWN ROAD  
LITTLETON, MA 01460

SHEET TITLE

GROUNDING DETAILS

SHEET NUMBER