

ENVIRONMENTAL REQUIREMENTS
☒ NOTICE TO CONTRACTOR
☐ NO ENVIRONMENTAL RESTRICTIONS

verizonwireless

SITE NAME:
MASSILLON DT II
SITE NUMBER:
CNTN-056

Approved by the Massillon City Engineer
this _____ Day of _____, 20____.

Keith A. Dylewski, P.E., P.S.

Only approved signed plans
by the City Engineer are to
be used for construction.

NEW PAR dba

verizonwireless

HARPER
ENGINEERING, INC.

TELECOM GROUP

815 Superior Ave. Suite 1514
Cleveland, OH 44114

Phone: (216) 344-3855
Fax: (216) 344-3856

RAW LAND MONOPOLE SITE

PROJECT TEAM

ENGINEER:

HARPER ENGINEERING, INC.
815 SUPERIOR AVE. SUITE 1514
CLEVELAND, OH 44114
(216) 344-3855

CONTACT PERSON:

DAVID W. HARPER
(216) 344-3855

SITE INFORMATION

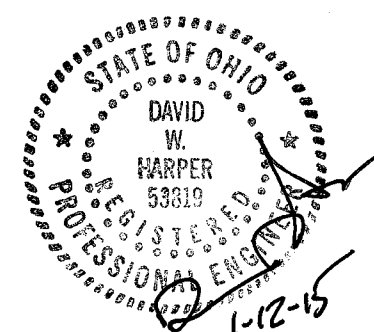
LAND SPACE: 125'-0" X 75'-0" ±
EQUIPMENT ENCLOSURE: PREFABRICATED CONCRETE
26'-0" ± X 11'-6" ± EQUIPMENT SHELTER
CONSTRUCTION TYPE: VB / USE GROUP "92"
GOVERNING CODE: OBC 2011 / IBC 2009
SITE ADDRESS: FINEFROCK ROAD SW
MASSILLON, OH 44647
COUNTY: STARK COUNTY
PROPERTY OWNER: EBBROS, LLC.
2481 MANCHESTER AVENUE NW
NORTH LAWRENCE, OH 44666
PROPERTY OWNER CONTACT: MAURICE "MO" EBERHARDT
(330) 495-5365
ZONING JURISDICTION: CITY OF MASSILLON
TAX ID NUMBER: 617852
APPLICANT: NEW PAR dba
VERIZON WIRELESS
7575 COMMERCE COURT
LEWIS CENTER, OH 43035
OFFICE (614) 307-1056
POWER PROVIDER: FIRST ENERGY (OHIO EDISON)
WORK ORDER #56765812
NOTIFICATION #732984752
CONTACT NAME: KEVIN MCGLOUSKY
CONTACT NUMBER (330) 830-7083
FIBER PROVIDER: TBD
ACCOUNT NUMBER:
CONTACT NAME:
CONTACT NUMBER (XXX) XXX-XXXX

SHEET INDEX

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NTC	NOTICE TO CONTRACTOR		

DRAWING REVISIONS

Rev.	Description:	Date:	Mgr.
A	For Approval	04/25/14	DWH
B	For Approval	07/28/14	DWH
O	For Construction	08/12/14	DWH
1	Rev'd Per City	01/12/15	DWH



Engineer's Seal

SITE NAME:
MASSILLON DT II
SITE NUMBER:
CNTN-056
FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

TITLE
SHEET

SHEET No./Rev.:

T-1/1

SCALE: AS NOTED

DRWN. BY: MEP

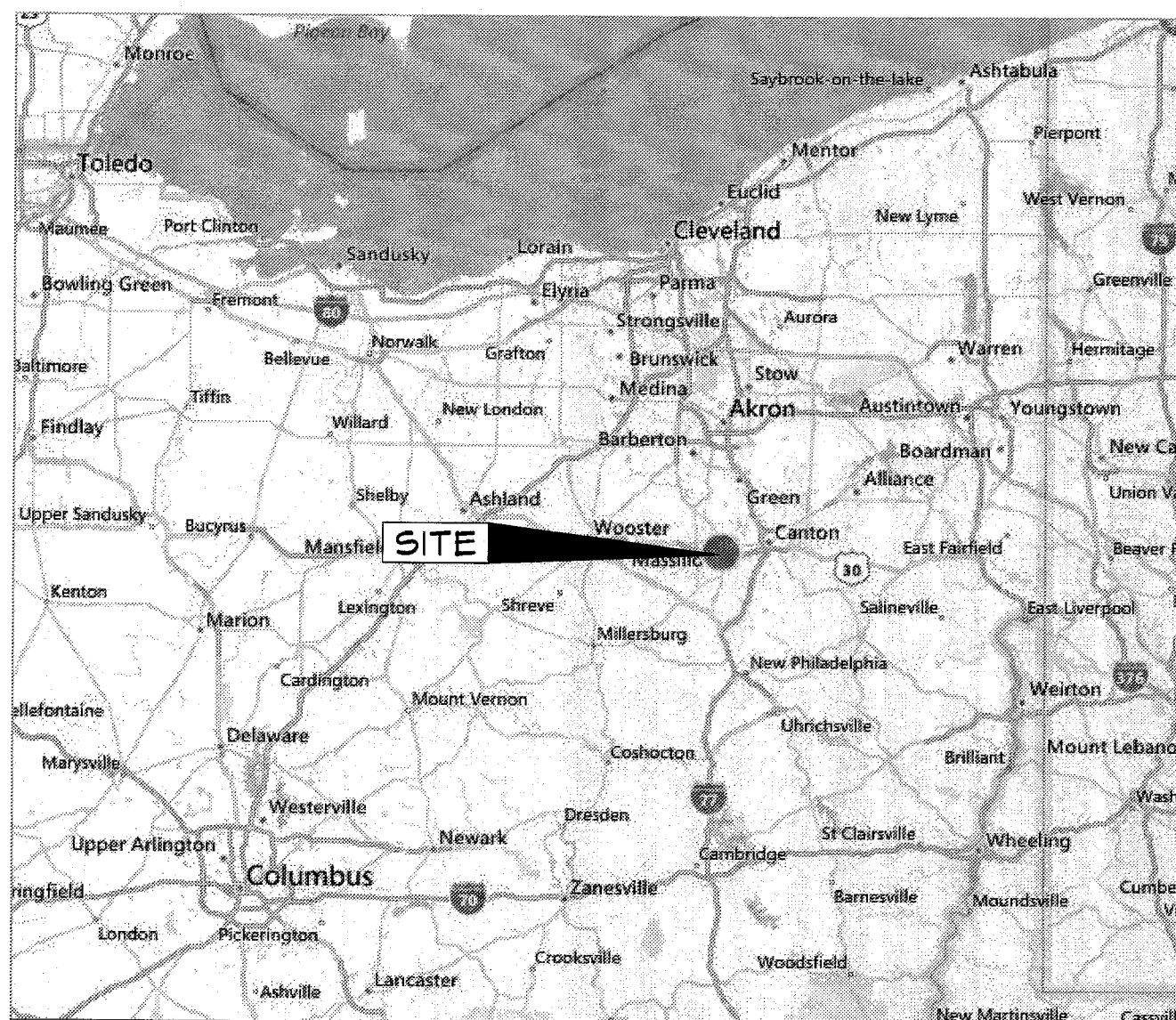
CHKD. BY: GJB

DATE: 11/15/13

FILE: 9-149-078

AREA MAP

NO SCALE



VICINITY MAP

NO SCALE

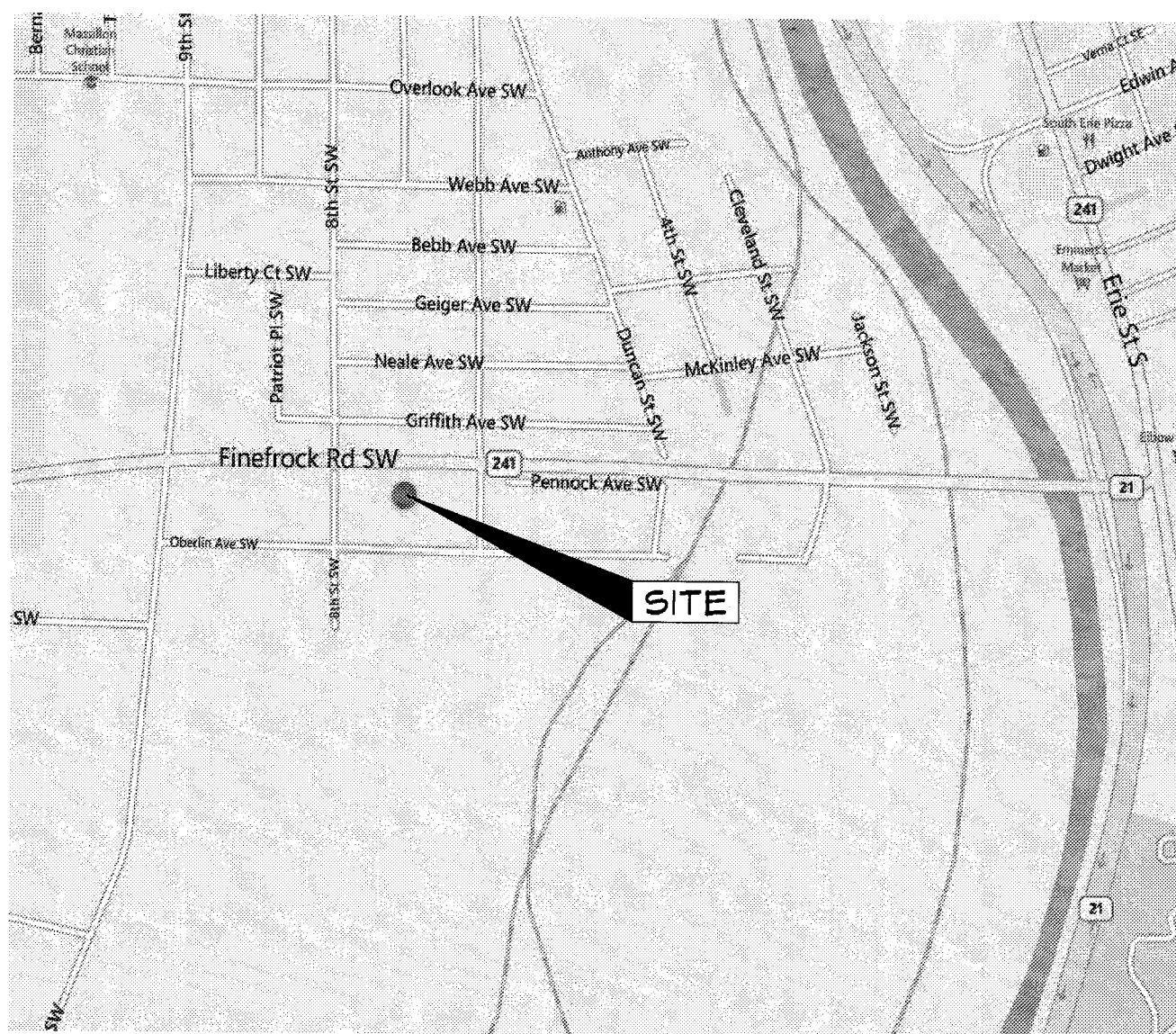


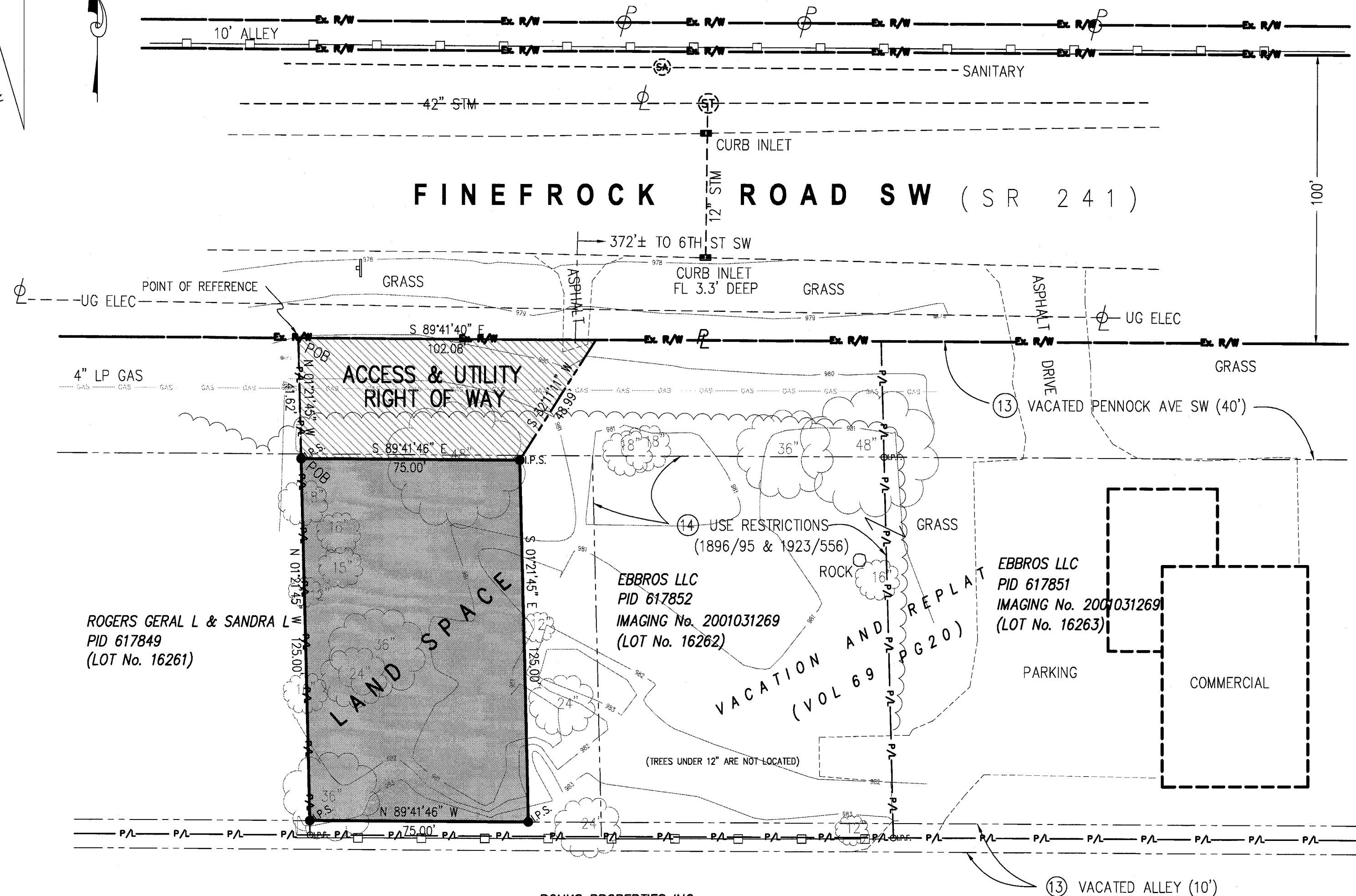
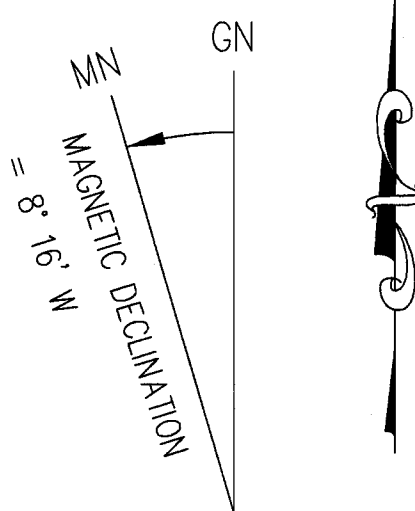
DRIVING DIRECTIONS FROM
VERIZON WIRELESS
7575 COMMERCE COURT
LEWIS CENTER, OH 43035

Turn left onto Orangepoint Dr. Turn left onto US-23.
Turn left onto OH-750 / E. Powell Rd. Bear right onto
OH-750 E. / Polaris Pkwy. Turn left onto Gemini Pl. Take
ramp left for I-71 North toward Cleveland. At exit 176,
take ramp right for US-30 toward Wooster. Turn right
onto US-30 E. Keep straight on US-30 E. Take ramp
right for OH-241 toward Brewster/Massillon. Turn left
onto OH-241 / Millersburg Rd. SW. Road name changes
to Finefrock Rd. SW. Site is located on the right.

TOWER COORDINATES

LATITUDE: N. 40° 46' 52.07"
N. 40.781131°
LONGITUDE: N. 81° 31' 44.91"
N. 81.529142°





BONKS PROPERTIES INC
PID 617846
(OUT LOT 789)

COMMITMENT No. 13-47480
Schedule B - Section 2

12. Plat Volume 65, Page 29 includes the parent parcel and more. The right of way of Finefrock Road affects the Access and Utility Right of Way. It does not affect the Land Space.

13. Plat Book 69, Page 20 includes the parent parcel and more. The vacated Pennock Ave SW (40') affects the Access and Utility Right of Way. It does not affect the Land Space. The vacated 10' alley does not affect the Land Space or the Access and utility right of Way.

14. Use restrictions, covenants and conditions in Volume 1896, Page 95, and Amendment to Restrictions in Volume 1923, Page 556 describe the east one-half of former Lot No. 15646. It does not affect the Land Space or the Access and utility right of Way

15. Oil and Gas Lease in Volume 1529, Page 345 includes the parent parcel and more. It affects the Land Space and the Access and Utility right of Way. However, there is no field evidence of any oil and gas features in or adjacent to the site.

16. Warranty Deed in Imaging No. 98085204 includes the parent parcel and more. It affects the Land Space and the Access and Utility Right of Way.



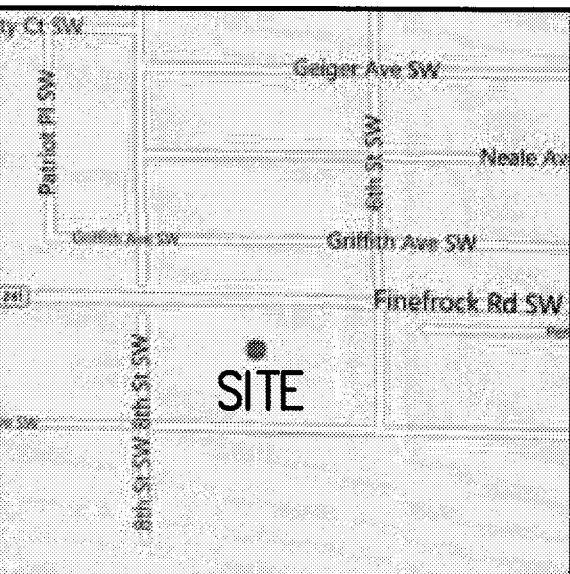
UTILITY NOTE:
UTILITIES SHOWN IN THIS MAP ARE BASED ON VISIBLE FIELD EVIDENCE, OUPS PHYSICAL MARKINGS, OR AVAILABLE INFORMATION FROM UTILITY OWNERS. THE LOCATIONS OF ANY UNDERGROUND UTILITIES ARE ONLY APPROXIMATE. UTILITIES CONTAINED IN THIS MAP MAY NOT REPRESENT ALL THE UTILITIES IN THIS AREA.

THE LAND SPACE, AS SHOWN IN THE COORDINATES BELOW, HAVE A HORIZONTAL ACCURACY WITHIN +/- 50 FEET AND A VERTICAL ACCURACY WITHIN +/- 20 FEET.

LATITUDE: 40° 46' 52.25" N
LONGITUDE: 81° 31' 45.07" W

GROUND ELEVATION: 981 FT (NAVD 88)

From 7575 Commerce Ct, head north and turn left on Orange Point Dr. Turn left onto US-23 Columbus Pike for 1.7 miles. Turn left onto OH-750/E Powell Rd for 1.8 miles. Turn left onto Gemini Pl for 1.2 miles. Turn left to merge onto I-71 N toward Cleveland for 54.8 miles. Take exit 176 to merge onto US 30 toward Wooster for 45.7 miles. Take OH-241 exist toward Massillon. Turn left onto OH-241 N/Millersburg Rd for 3 miles. Arrive at site next to 651 Finefrock Rd on right.



TOWER COORDINATES

DIRECTIONS

LOCATION MAP
(NOT TO SCALE)

LAND SPACE (0.215 ACRE TRACT)

Situated in the State of Ohio, County of Stark, and City of Massillon, and being part of Lot No. 16262 (formerly Lot No. 15646), conveyed to EBBROS, LLC (the Grantor), as recorded in Imaging No. 2001031269, the same as shown and numbered in Vacation and Replat recorded in Volume 69, Page 20, Stark County Recorder's Office, Ohio, and being more particularly described as follows:

Beginning for reference at a point in the southerly right-of-way line of Finefrock Road SW (SR 241), said point being the northwest corner of said Lot No. 16262, thence S 01°21'45" E, along the west line of said Lot No. 16262 and the Grantor's west line, a distance of 41.62 feet to an iron pin set, said iron pin set being the TRUE POINT OF BEGINNING;

Thence S 89°41'46" E, a distance of 75.00 feet to an iron pin set;

Thence S 01°21'45" E, a distance of 125.00 feet to an iron pin set in the north line of a 10' vacated alley;

Thence N 89°41'46" W, along the north line of said 10' vacated alley, a distance of 75.00 feet to an iron pin set in the west line of said Lot No. 16262 and the Grantor's west line;

Thence N 01°21'45" W, along the west line of said Lot No. 16262 and the Grantor's west line, a distance of 125.00 feet to the TRUE POINT OF BEGINNING, having an area of 9371.03 Square Feet or 0.215 Acres, more or less, subject to all right-of-ways, easements and restrictions of record.

ACCESS & UTILITY RIGHT OF WAY (0.085 ACRE TRACT)

Situated in the State of Ohio, County of Stark, and City of Massillon, and being part of Lot No. 16262 (formerly Lot No. 15646), conveyed to EBBROS, LLC (the Grantor), as recorded in Imaging No. 2001031269, the same as shown and numbered in Vacation and Replat recorded in Volume 69, Page 20, Stark County Recorder's Office, Ohio, and being more particularly described as follows:

Beginning at a point in the southerly right-of-way line of Finefrock Road SW (SR 241), said point being the northwest corner of said Lot No. 16262, thence S 89°41'40" E, along the southerly right-of-way line of Finefrock Road SW, the north line of said Lot No. 16262, and the Grantor's north line, a distance of 102.08 feet to a point;

Thence S 32°11'11" W, a distance of 48.99 feet to a point, said point being the northeast corner of the Land Space;

Thence N 89°41'46" W, along the north line of the Land Space, a distance of 75.00 feet to a point in the west line of said Lot No. 16262 and the Grantor's west line;

Thence N 01°21'45" W, along the west line of said Lot No. 16262 and the Grantor's west line, a distance of 41.62 feet to the POINT OF BEGINNING, having an area of 3683.28 Square Feet or 0.085 Acres, more or less, subject to all right-of-ways, easements and restrictions of record.

LEGEND

- POWER POLE
- LIGHT POLE
- TELEPHONE POLE
- TELEPHONE BOX
- ELECTRIC BOX
- IRON PIN FOUND
- IRON PIN SET
- PK NAIL SET
- MAG NAIL SET
- MONU - MONUMENT
- IP - IRON PIN
- POB - POINT OF BEGINNING
- CENTERLINE
- RIGHT OF WAY LINE
- PROPERTY LINE
- LAND SPACE
- PROPOSED RIGHTS OF WAY
- EXISTING EASEMENT
- FENCE

EASEMENTS AND RECORDING INFORMATION SHOWN HEREON ARE BASED ON TITLE REPORT (COMMENT No. 13-47480), PROVIDED TO PS SURVEYING & MAPPING GROUP, LLC BY AGENTS OF NEW PAR, d.b.a. VERIZON WIRELESS. ALL VISIBLE EVIDENCE OF UTILITIES OR OTHER DATA OBSERVED IN THE FIELD IS DELINEATED HEREON.

TO NEW PAR, d.b.a. VERIZON WIRELESS:
THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT WAS MADE IS IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ASCM LAND TITLE SURVEYS", JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND ASCM IN 1992. HOWEVER, THE FOCUS OF THIS SURVEY IS THE LAND SPACE AND RIGHTS OF WAY PERTINENT THEREUNTO. INFORMATION REGARDING PARTS OF THE SUBJECT TRACT NOT CONCERNED WITH SAID LAND SPACE AND THE SPECIFIED RIGHTS OF WAY MAY NOT BE INCLUDED HEREON.

Phil Y Shih

1/5/2015

REGISTERED SURVEYOR

DATE



MASSILLON DT II (CNTN-056)
EBBROS LLC

STATE OF OHIO, COUNTY OF STARK, CITY OF MASSILLON
FINEFROCK ROAD SW, MASSILLON, OH 44647

PREPARED FOR

NEW PAR dba VERIZON WIRELESS

PREPARED BY

PS SURVEYING & MAPPING GROUP, LLC
1425 PENTLAND PLACE, COLUMBUS, OH 43235 TEL: (614) 436-2949

FINAL SITE SURVEY

PS PROJECT No.
13-101-30

DRAWN BY
ALC

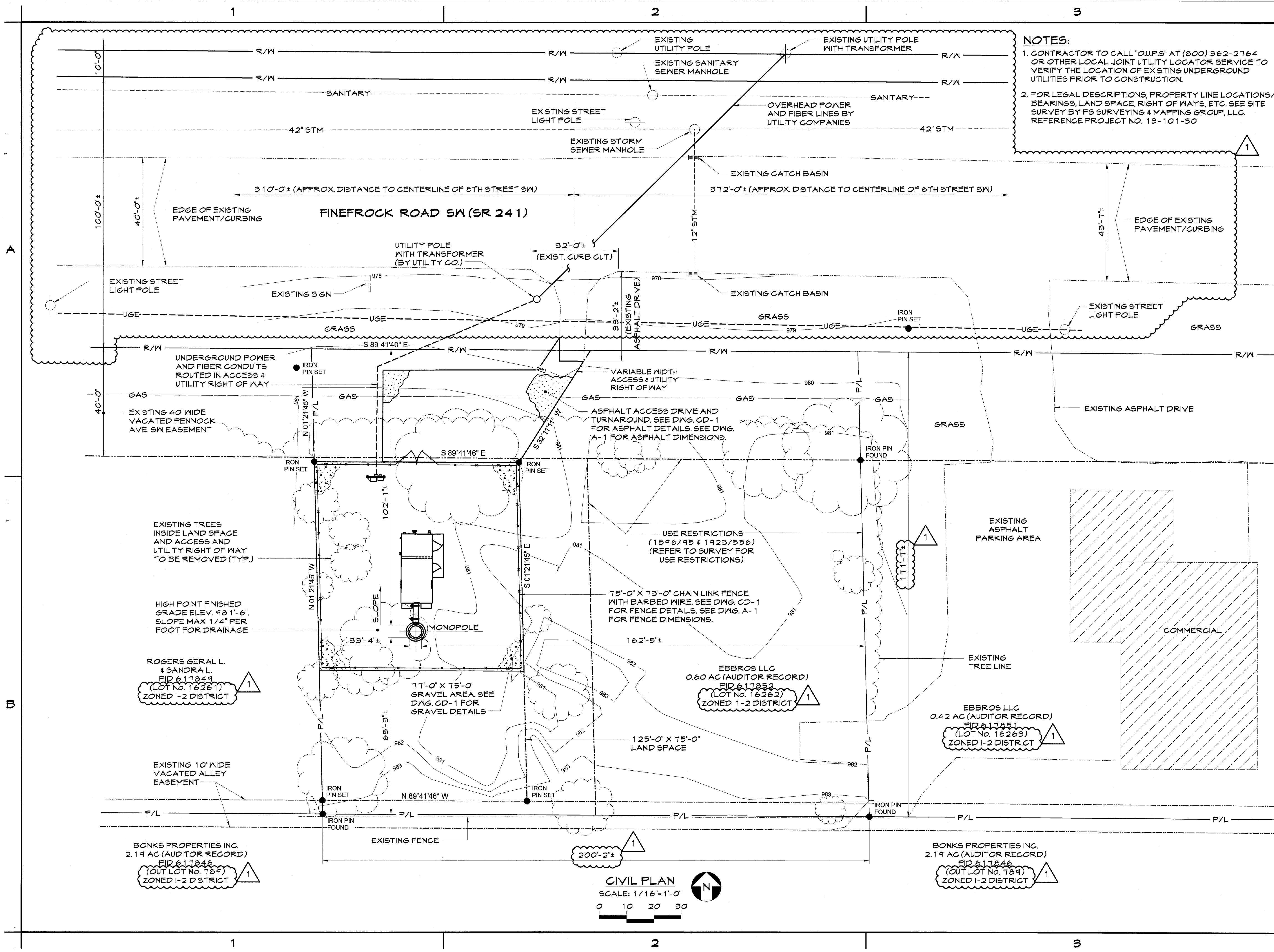
DATE
11-19-2013

SHEET
1
OF
1

9	1/5/15	ADDRESSED CITY'S COMMENTS
8	7/15/14	FINAL SURVEY
7	7/13/14	PRELIM SURVEY WITH TITLE
6	7/10/14	CHANGED LAND SPACE
5	3/6/14	FINAL SURVEY
4	2/25/14	REDUCED LAND SPACE TO 100' X 95'
3	1/19/14	PRELIM SURVEY WITH TITLE
2	12/24/13	MOVED LAND SPACE TO SW CORNER
1	11/19/13	PRELIMINARY SURVEY
NO.	DATE	DESCRIPTION
		REVISIONS

SURVEYOR'S NOTE:

THERE ARE NO COUNTY DITCH EASEMENTS UNDER ORC 6137.12 WHICH WOULD AFFECT THE SUBJECT LAND SPACE, AND THE SUBJECT ACCESS AND UTILITY RIGHT OF WAY. NO DITCH PLOTTED HEREON IS INVOLVED IN A COUNTY DITCH MAINTENANCE PROGRAM.



NOTES:
1. CONTRACTOR TO CALL "O.U.P.S." AT (800) 362-2164 OR OTHER LOCAL JOINT UTILITY LOCATOR SERVICE TO VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
2. FOR LEGAL DESCRIPTIONS, PROPERTY LINE LOCATIONS/ BEARINGS, LAND SPACE, RIGHT OF WAYS, ETC. SEE SITE SURVEY BY PS SURVEYING & MAPPING GROUP, LLC. REFERENCE PROJECT NO. 13-101-30

NEW PAR dba

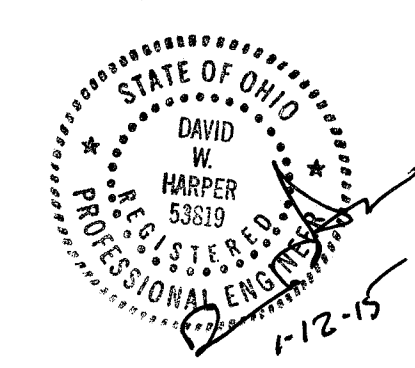
verizonwireless

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Cleveland, OH 44114

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DRAWING REVISIONS			
Rev.	Description:	Date:	Mgr.
A	For Approval	04/25/14	DWH
B	For Approval	07/28/14	DWH
C	For Construction	08/12/14	DWH
1	Rev'd. Per City	01/12/15	DWH



SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

CIVIL PLAN

SHEET No./Rev.: **C-1/1**

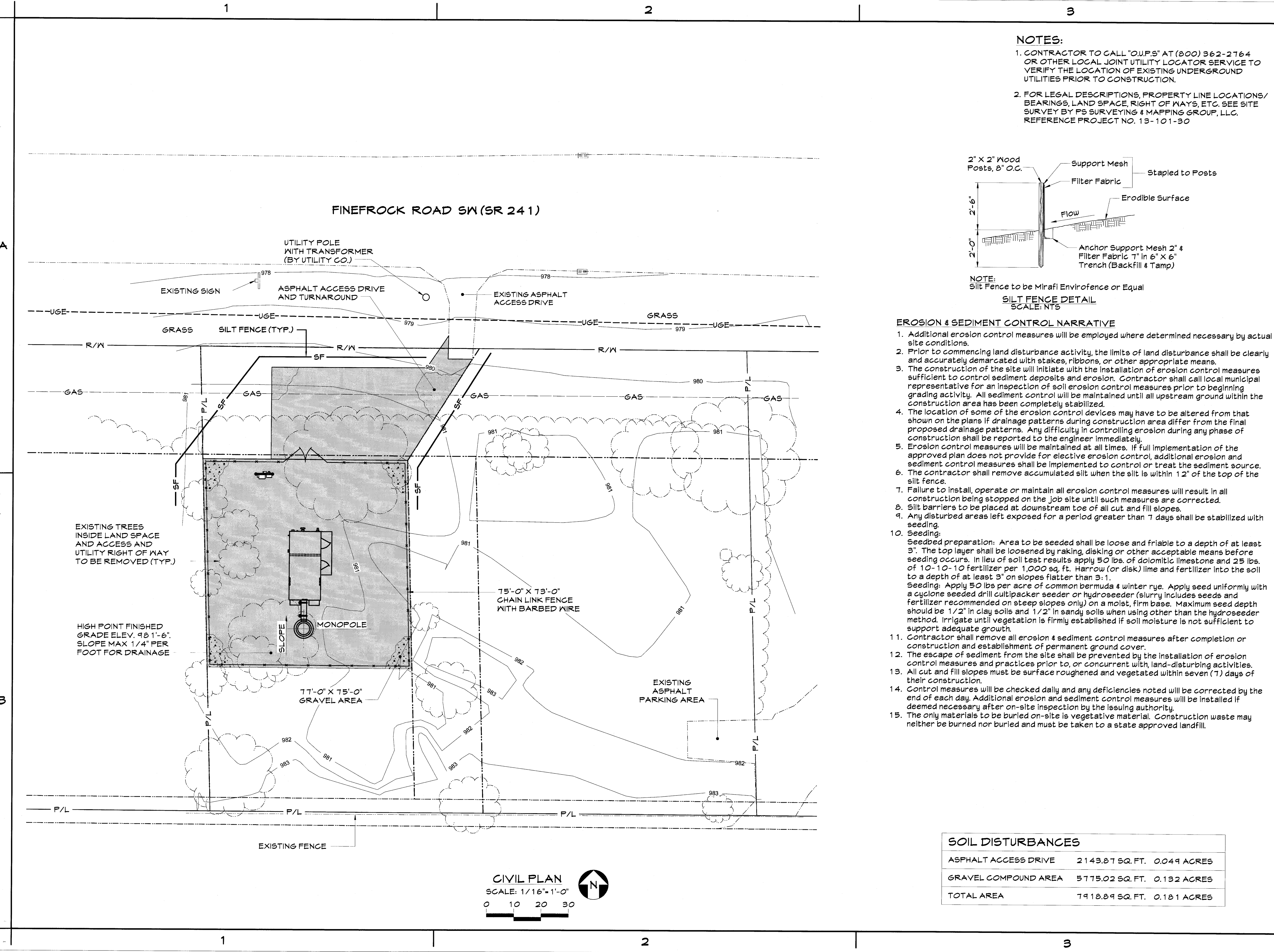
SCALE: AS NOTED

DRAWN BY: MEP

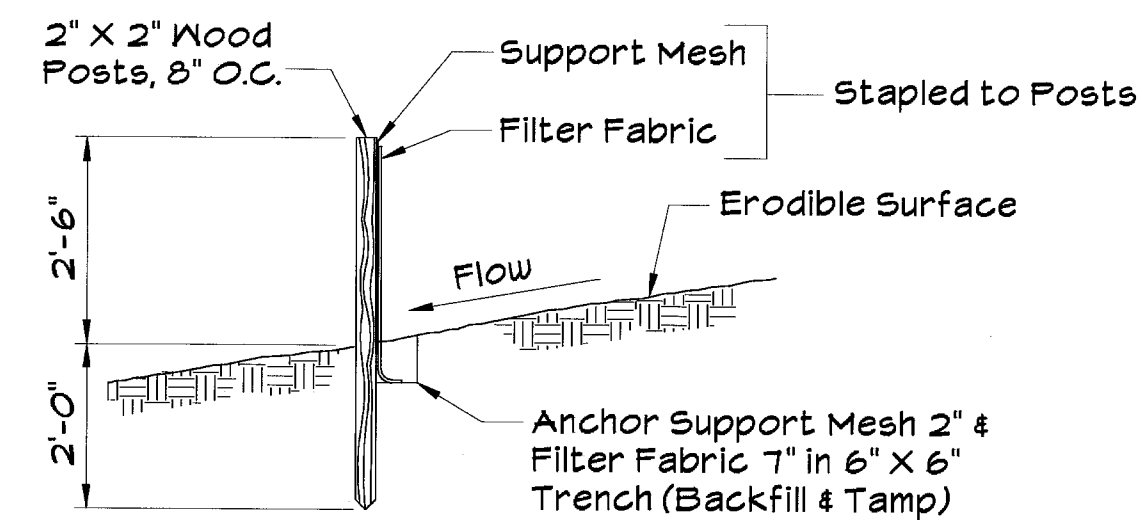
CHKD. BY: GJB

DATE: 11/15/13

FILE: 9-144-078



- NOTES:**
1. CONTRACTOR TO CALL "O.U.P.S." AT (800) 362-2764 OR OTHER LOCAL JOINT UTILITY LOCATOR SERVICE TO VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
 2. FOR LEGAL DESCRIPTIONS, PROPERTY LINE LOCATIONS/ BEARINGS, LAND SPACE, RIGHT OF WAYS, ETC. SEE SITE SURVEY BY PS SURVEYING & MAPPING GROUP, LLC. REFERENCE PROJECT NO. 13-101-30



NOTE:
Silt Fence to be Mirafi Envirofence or Equal

SILT FENCE DETAIL
SCALE: NTS

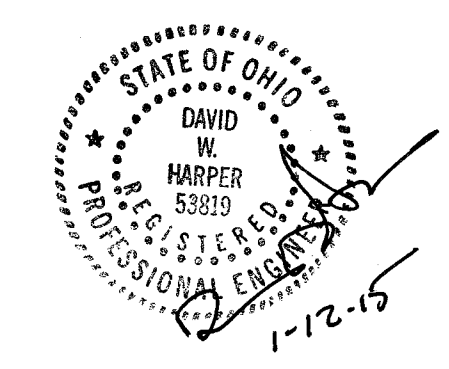
- EROSION & SEDIMENT CONTROL NARRATIVE**
1. Additional erosion control measures will be employed where determined necessary by actual site conditions.
 2. Prior to commencing land disturbance activity, the limits of land disturbance shall be clearly and accurately demarcated with stakes, ribbons, or other appropriate means.
 3. The construction of the site will initiate with the installation of erosion control measures sufficient to control sediment deposits and erosion. Contractor shall call local municipal representative for an inspection of soil erosion control measures prior to beginning grading activity. All sediment control will be maintained until all upstream ground within the construction area has been completely stabilized.
 4. The location of some of the erosion control devices may have to be altered from that shown on the plans if drainage patterns during construction area differ from the final proposed drainage patterns. Any difficulty in controlling erosion during any phase of construction shall be reported to the engineer immediately.
 5. Erosion control measures will be maintained at all times. If full implementation of the approved plan does not provide for elective erosion control, additional erosion and sediment control measures shall be implemented to control or treat the sediment source.
 6. The contractor shall remove accumulated silt when the silt is within 12" of the top of the silt fence.
 7. Failure to install, operate or maintain all erosion control measures will result in all construction being stopped on the job site until such measures are corrected.
 8. Silt barriers to be placed at downstream toe of all cut and fill slopes.
 9. Any disturbed areas left exposed for a period greater than 7 days shall be stabilized with seeding.
 10. Seeding:
Seedbed preparation: Area to be seeded shall be loose and friable to a depth of at least 3". The top layer shall be loosened by raking, disking or other acceptable means before seeding occurs. In lieu of soil test results apply 50 lbs. of dolomitic limestone and 25 lbs. of 10-10-10 fertilizer per 1,000 sq. ft. Harrow (or disk) lime and fertilizer into the soil to a depth of at least 3" on slopes flatter than 3:1.
Seeding: Apply 50 lbs per acre of common bermuda & winter rye. Apply seed uniformly with a cyclone seeded drill cultipacker seeder or hydroseeder (slurry includes seeds and fertilizer recommended on steep slopes only) on a moist, firm base. Maximum seed depth should be 1/2" in clay soils and 1/2" in sandy soils when using other than the hydroseeder method. Irrigate until vegetation is firmly established if soil moisture is not sufficient to support adequate growth.
 11. Contractor shall remove all erosion & sediment control measures after completion or construction and establishment of permanent ground cover.
 12. The escape of sediment from the site shall be prevented by the installation of erosion control measures and practices prior to, or concurrent with, land-disturbing activities.
 13. All cut and fill slopes must be surface roughened and vegetated within seven (7) days of their construction.
 14. Control measures will be checked daily and any deficiencies noted will be corrected by the end of each day. Additional erosion and sediment control measures will be installed if deemed necessary after on-site inspection by the issuing authority.
 15. The only materials to be buried on-site is vegetative material. Construction waste may neither be burned nor buried and must be taken to a state approved landfill.

SOIL DISTURBANCES	
ASPHALT ACCESS DRIVE	2143.87 SQ. FT. 0.049 ACRES
GRAVEL COMPOUND AREA	5775.02 SQ. FT. 0.132 ACRES
TOTAL AREA	7918.89 SQ. FT. 0.181 ACRES



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DRAWING REVISIONS			
Rev.	Description:	Date:	Mgr.
0	For Construction	01/12/15	DNH



Engineer's Seal

SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

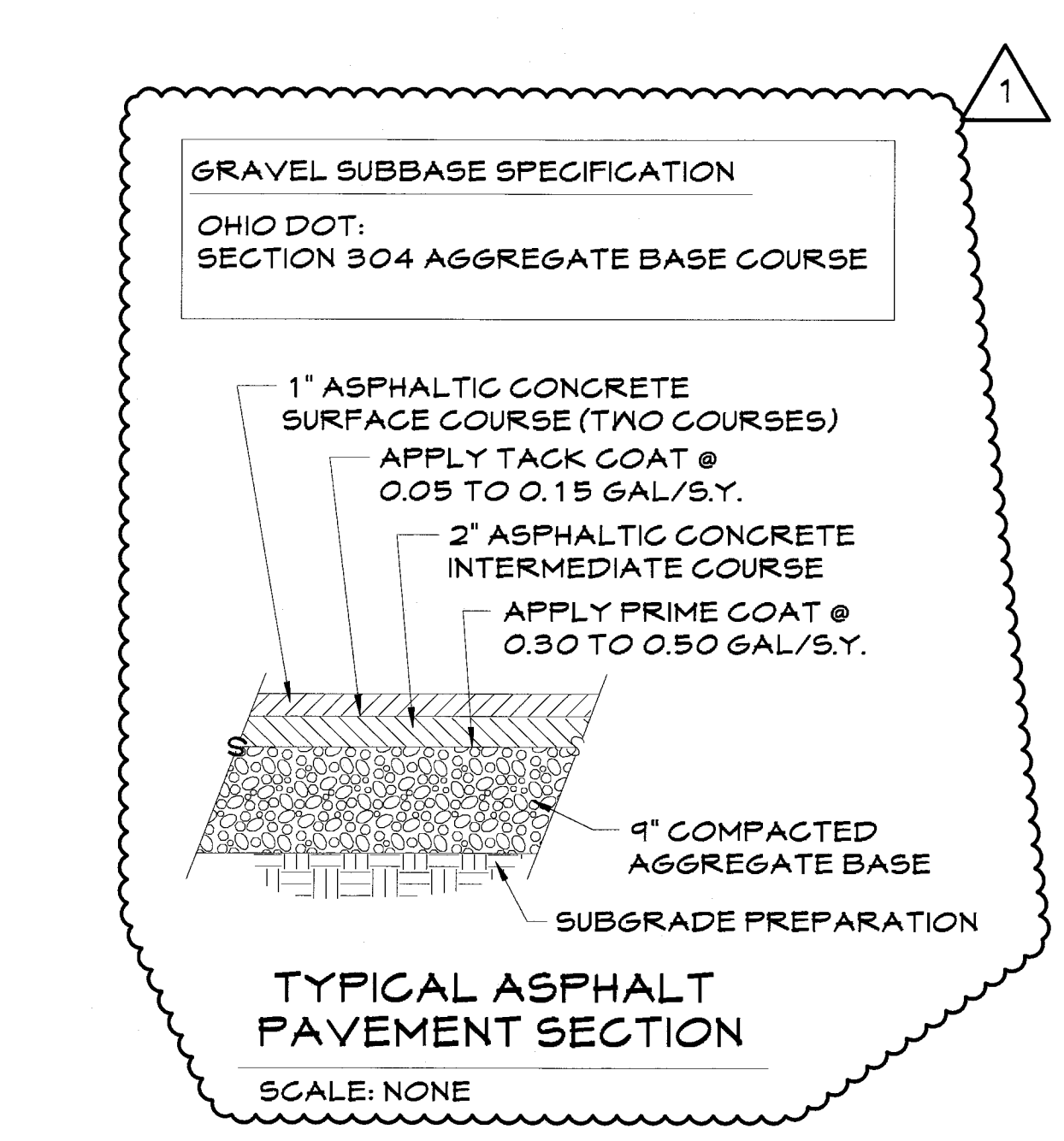
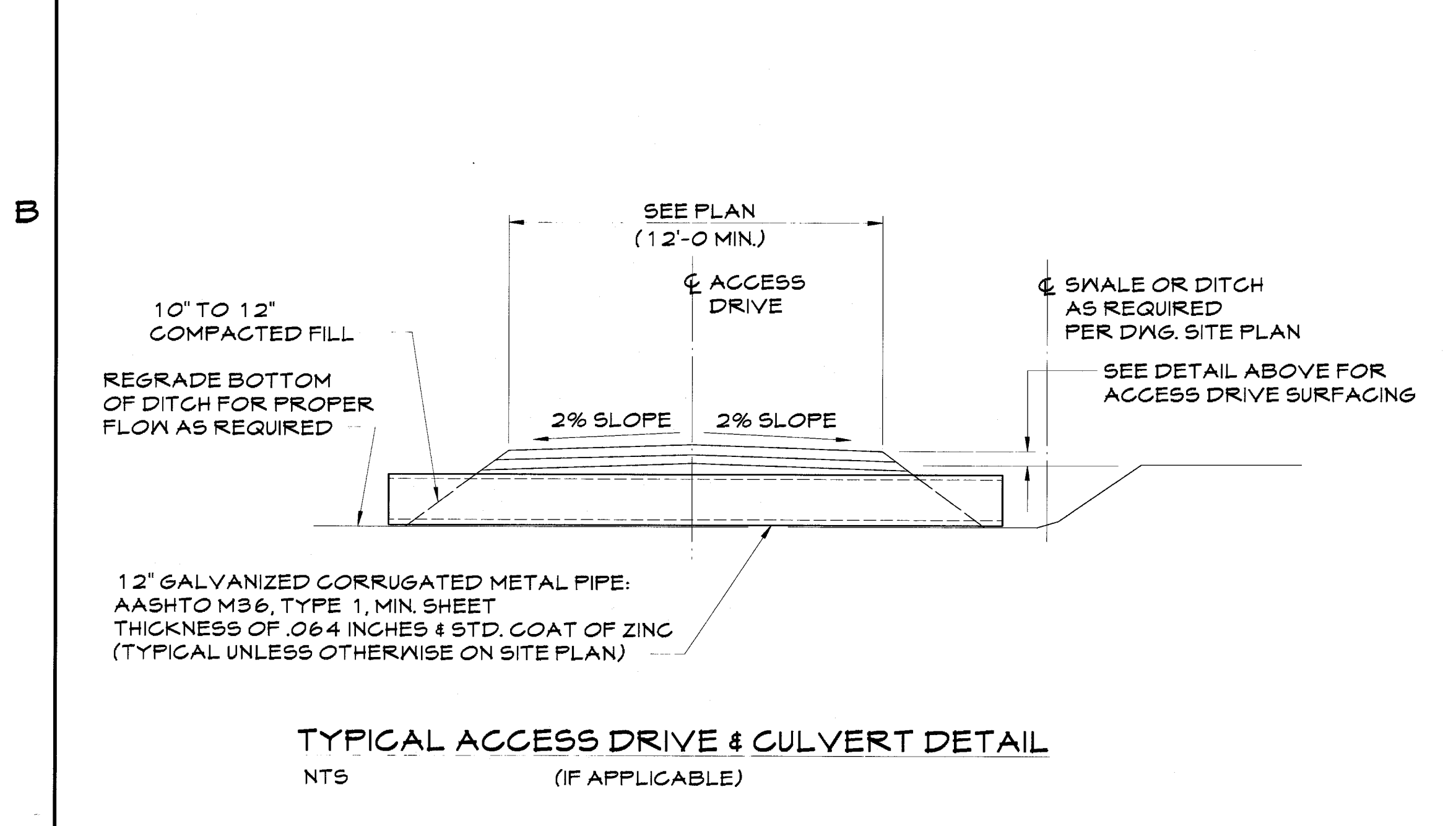
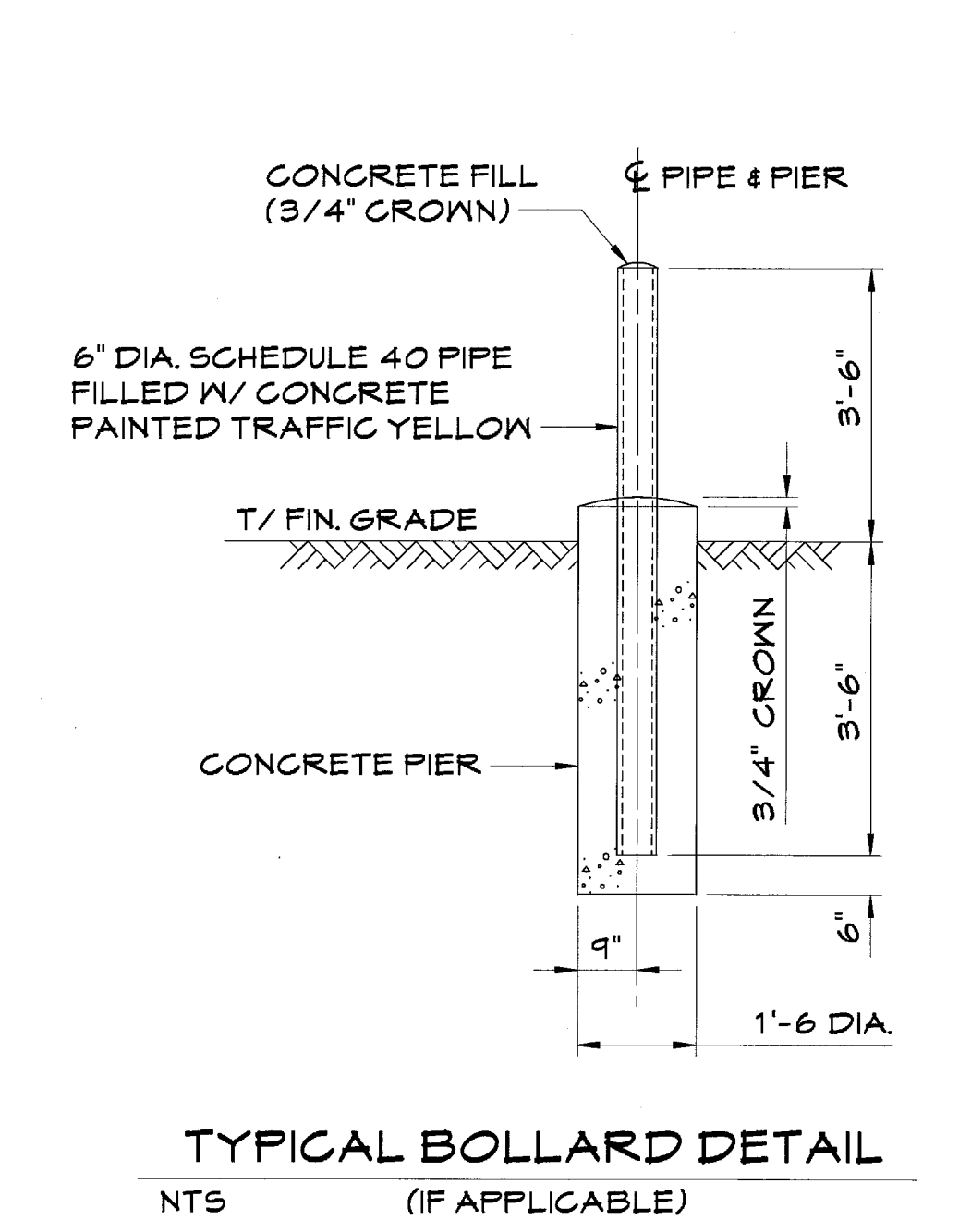
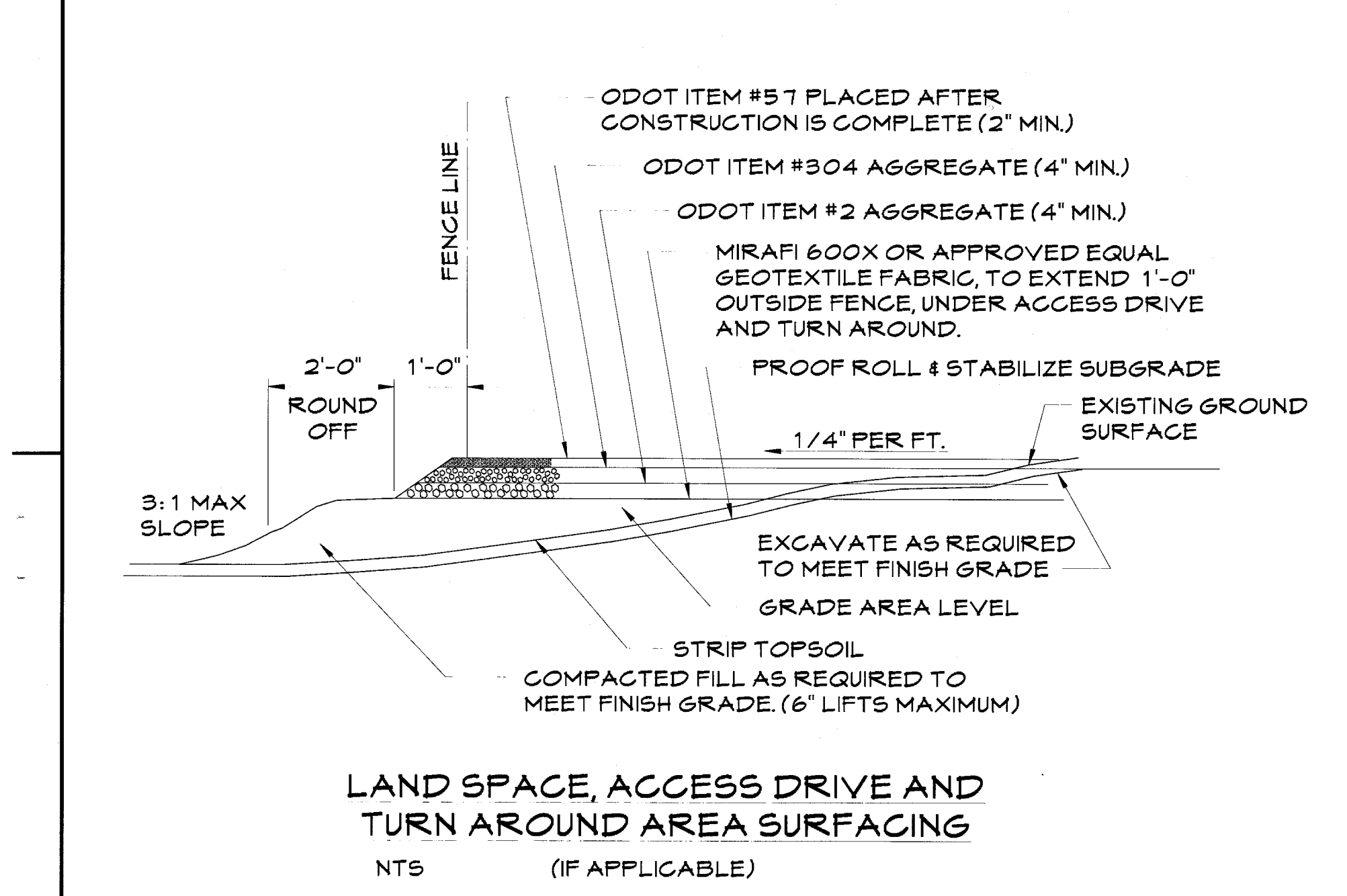
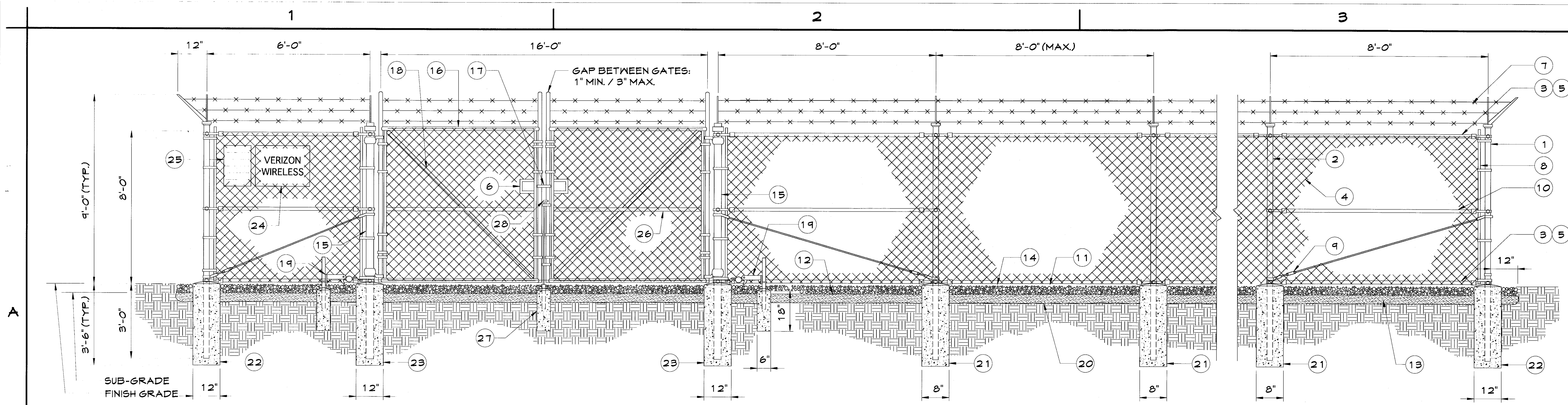
FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

SILT FENCE PLAN AND DETAILS

SHEET No./Rev.:
C-2/0

SCALE: AS NOTED
DRWN. BY: MEP
CHKD. BY: GJB
DATE: 11/15/13
FILE: 9-149-078



- ITEM NUMBER:
- 1 CORNER, END OR PULL POST 4" SCHEDULE 40 PIPE.
 - 2 LINE POST: 2 1/2" SCHEDULE 40 PIPE, PER ASTM-F 1083. LINE POSTS SHALL BE EQUALLY SPACED AT MAXIMUM 8'-0" O.C.
 - 3 TOP RAIL & BOTTOM RAIL: 1 1/2" PIPE, PER ASTM-F 1083.
 - 4 FABRIC: 9 GA CORE WIRE SIZE 2" MESH, CONFORMING TO ASTM-A392.
 - 5 TIE WIRE: MINIMUM 11 GA GALVANIZED STEEL AT POSTS AND RAILS A SINGLE WRAP OF FABRIC TIE HOG RINGS SPACED MAX. 24" INTERVALS.
 - 6 CUT OUT IN FENCE FOR CHAIN LOCK
 - 7 BARBED WIRE: DOUBLE STRAND 12-1/2" O.D. TWISTED WIRE TO MATCH WITH FABRIC 14 GA, 4 PT. BARBS SPACED ON APPROXIMATELY 5" CENTERS.
 - 8 STRETCHER BAR.
 - 9 3/8" DIAGONAL ROD WITH GALVANIZED STEEL TURNBUCKLE OR DIAGONAL THREADED ROD.
 - 10 FENCE CORNER POST BRACE: 1 5/8" DIA. EACH CORNER EACH WAY.
 - 11 1 1/2" MAXIMUM CLEARANCE FROM GRADE.
 - 12 2" FINISH OR AS DETERMINED BY CONSTRUCTION MANAGER DURING BID WALK.
 - 13 SEE LAND SPACE, ACCESS DRIVE AND TURN AROUND AREA SURFACING DETAIL ON THIS DRAWING.
 - 14 FINISH GRADE SHALL BE UNIFORM AND LEVEL.
 - 15 GATE POST 4" SCHEDULE 40 PIPE, FOR GATE WIDTHS UP THRU 10 FEET OR 20 FEET FOR DOUBLE SWING GATE, PER ASTM-F 1083.
 - 16 GATE FRAME: 1 1/2" PIPE SCH. 40, PER ASTM-F 1083.
 - 17 HEAVY DUTY GALVANIZED, LOCKABLE DOUBLE GATE LATCH
 - 18 GATE DIAGONAL GALVANIZED STEEL 1 1/2" PIPE.
 - 19 DUCK BILL OPEN GATE HOLDER. VERIFY LOCATION IN FIELD PRIOR TO INSTALLATION.
 - 20 GEOTEXTILE FABRIC.
 - 21 LINE POST: CONCRETE FOUNDATION (3000 PSI).
 - 22 CORNER POST: CONCRETE FOUNDATION (3000 PSI).
 - 23 GATE POST: CONCRETE FOUNDATION (3000 PSI).
 - 24 18" x 24" VERIZON WIRELESS TOWER SIGN.
 - 25 12" x 18" YELLOW CAUTION SIGN.
 - 26 GATE FRAME BRACE: 1 5/8" DIAMETER.
 - 27 6" DIAMETER x 18" DEEP CONCRETE FOOTING WITH 1 1/4" PIPE SLEEVE 6" LONG
 - 28 5/8" DIAMETER LATCH ROD

- GENERAL NOTES:
1. INSTALL FENCING PER ASTM F-567
 2. INSTALL SWING GATES PER ASTM F- 900
 3. LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENT SHALL BE COMPILED IF REQUIRED.
 4. POST & GATE PIPE SIZES ARE INDUSTRY STANDARDS. ALL PIPE TO BE GALVANIZED HOT DIPPED, ASTM A 120 GRADE "A" STEEL. ALL GATE FRAMES SHALL BE WELDED. ALL WELDING SHALL BE COATED WITH (3) COATS OF GOLD GALV. (OR EQUAL).
 5. ALL OPEN POSTS SHALL HAVE END-CAPS.
 6. USE GALVANIZED HOG-RING WIRE TO MOUNT ALL SIGNS.
 7. ALL SIGNS MUST BE MOUNTED ON INSIDE OF FENCE FABRIC.

TYPICAL CHAIN LINK FENCE DETAILS
NTS (IF APPLICABLE)

NEW PAR dba

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1	Added Asphalt	01/12/15	DNH

Engineer's Seal

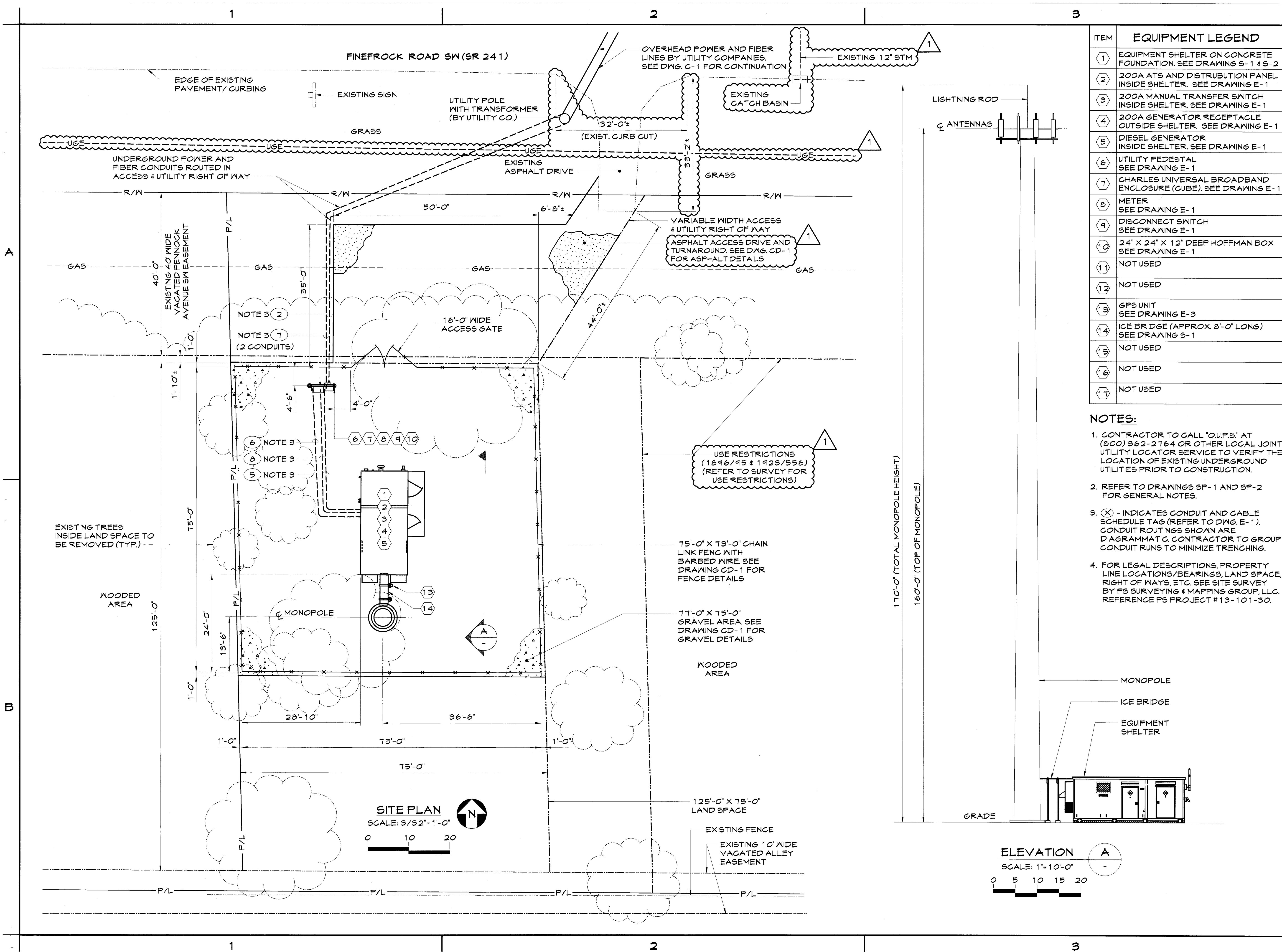
SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

CIVIL
DETAILS

SHEET No./Rev.:	SCALE: AS NOTED
CD-1/1	DRWN. BY: MEP
	CHKD. BY: GJB
	DATE: 11/15/13
	FILE: 9-149-078



ITEM	EQUIPMENT LEGEND
①	EQUIPMENT SHELTER ON CONCRETE FOUNDATION. SEE DRAWING S-1 & S-2
②	200A ATS AND DISTRIBUTION PANEL INSIDE SHELTER. SEE DRAWING E-1
③	200A MANUAL TRANSFER SWITCH INSIDE SHELTER. SEE DRAWING E-1
④	200A GENERATOR RECEPTACLE OUTSIDE SHELTER. SEE DRAWING E-1
⑤	DIESEL GENERATOR INSIDE SHELTER. SEE DRAWING E-1
⑥	UTILITY PEDESTAL SEE DRAWING E-1
⑦	CHARLES UNIVERSAL BROADBAND ENCLOSURE (CUBE). SEE DRAWING E-1
⑧	METER SEE DRAWING E-1
⑨	DISCONNECT SWITCH SEE DRAWING E-1
⑩	24" X 24" X 12" DEEP HOFFMAN BOX SEE DRAWING E-1
⑪	NOT USED
⑫	NOT USED
⑬	GPS UNIT SEE DRAWING E-3
⑭	ICE BRIDGE (APPROX. 8'-0" LONG) SEE DRAWING S-1
⑮	NOT USED
⑯	NOT USED
⑰	NOT USED

- NOTES:**
- CONTRACTOR TO CALL "O.U.P.S." AT (800) 362-2164 OR OTHER LOCAL JOINT UTILITY LOCATOR SERVICE TO VERIFY THE LOCATION OF EXISTING UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION.
 - REFER TO DRAWINGS SP-1 AND SP-2 FOR GENERAL NOTES.
 - (X) - INDICATES CONDUIT AND CABLE SCHEDULE TAG (REFER TO DWG. E-1). CONDUIT ROUTINGS SHOWN ARE DIAGNOSTIC. CONTRACTOR TO GROUP CONDUIT RUNS TO MINIMIZE TRENCHING.
 - FOR LEGAL DESCRIPTIONS, PROPERTY LINE LOCATIONS/BEARINGS, LAND SPACE, RIGHT OF WAYS, ETC. SEE SITE SURVEY BY PS SURVEYING & MAPPING GROUP, LLC. REFERENCE PS PROJECT #13-101-30.

NEW PAR dba

HARPER ENGINEERING, INC.
TELECOM GROUP
815 Superior Ave. Suite 1514
Cleveland, OH 44114
Phone: (216) 344-3855
Fax: (216) 344-3856

DRAWING REVISIONS

Rev.	Description:	Date:	Mgr.
A	For Approval	04/25/14	DWH
B	For Approval	07/28/14	DWH
O	For Construction	08/12/14	DWH
1	Rev'd. Per City	01/12/15	DWH

Engineer's Seal

SITE NAME:
MASSILLON DT II

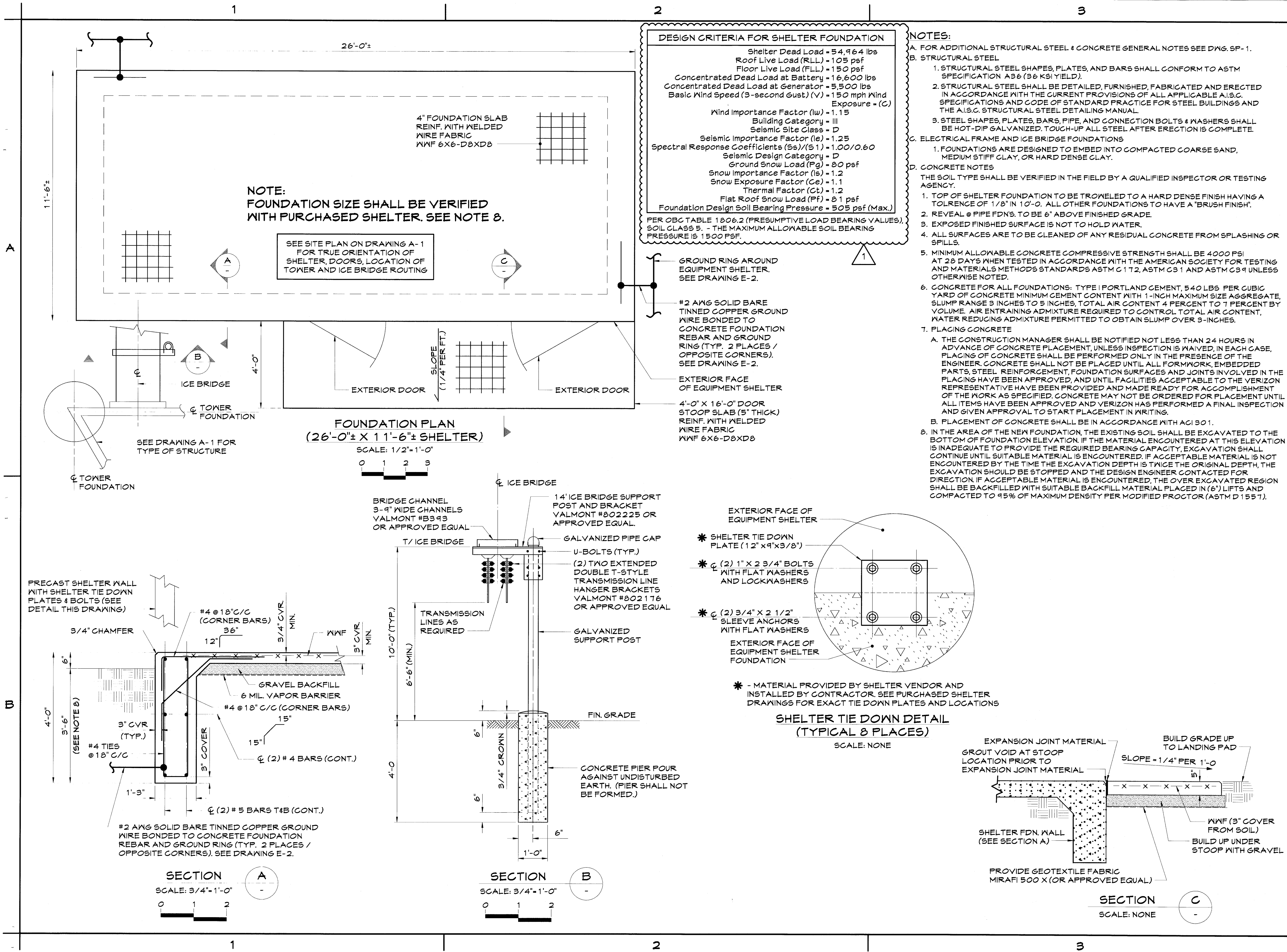
SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

SITE PLAN & ELEVATION

SHEET No./Rev.:	SCALE: AS NOTED
A-1/1	DRAWN BY: MEP
	CHK'D BY: GJB
	DATE: 11/15/13
	FILE: 9-149-078



NEW PAR dba

HARPER ENGINEERING, INC.
TELECOM GROUP
815 Superior Ave. Suite 1514
Cleveland, OH 44114
Phone: (216)344-3855
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DRAWING REVISIONS			
Rev.	Description	Date	Mgr.
A	For Approval	04/25/14	DWH
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1	Added Table	01/12/15	DWH

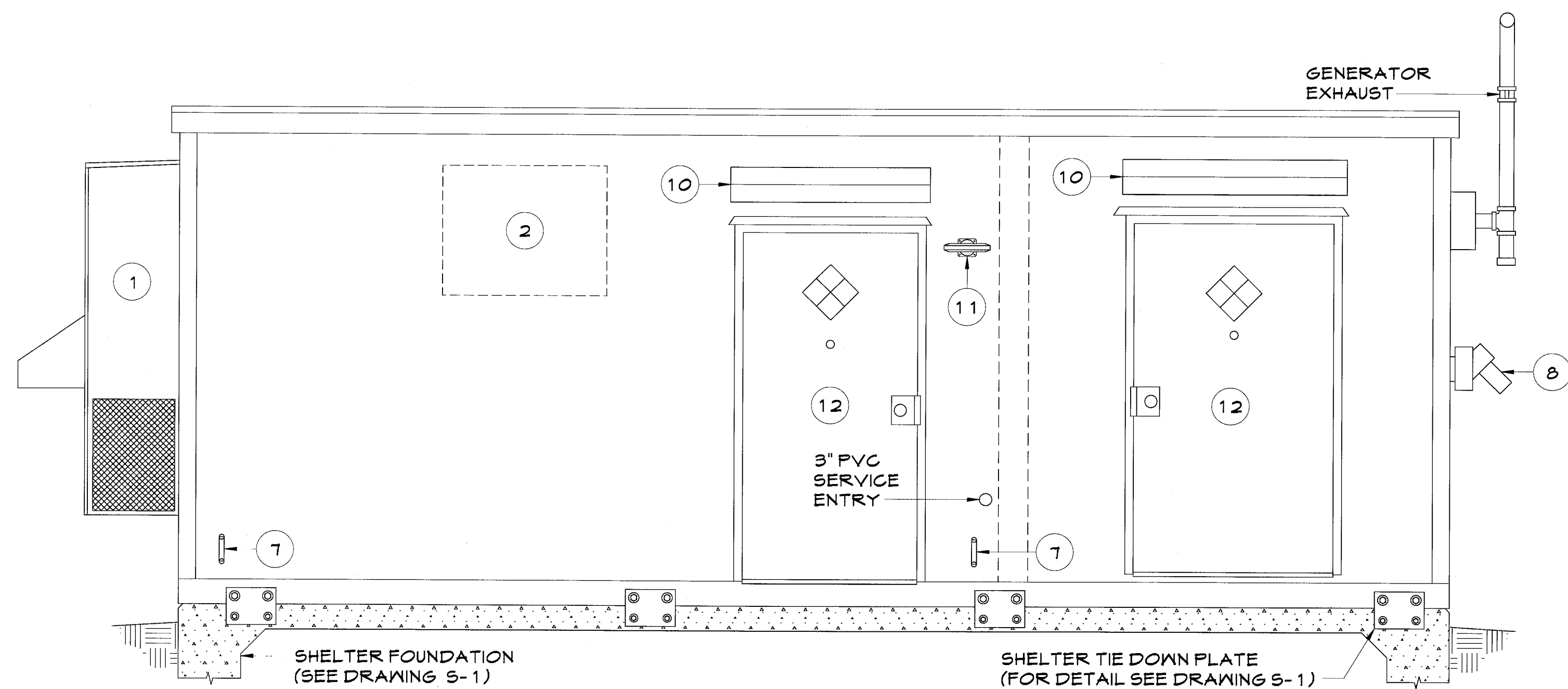
SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056
FINEFROCK ROAD SW
MASSILLON, OH 44647

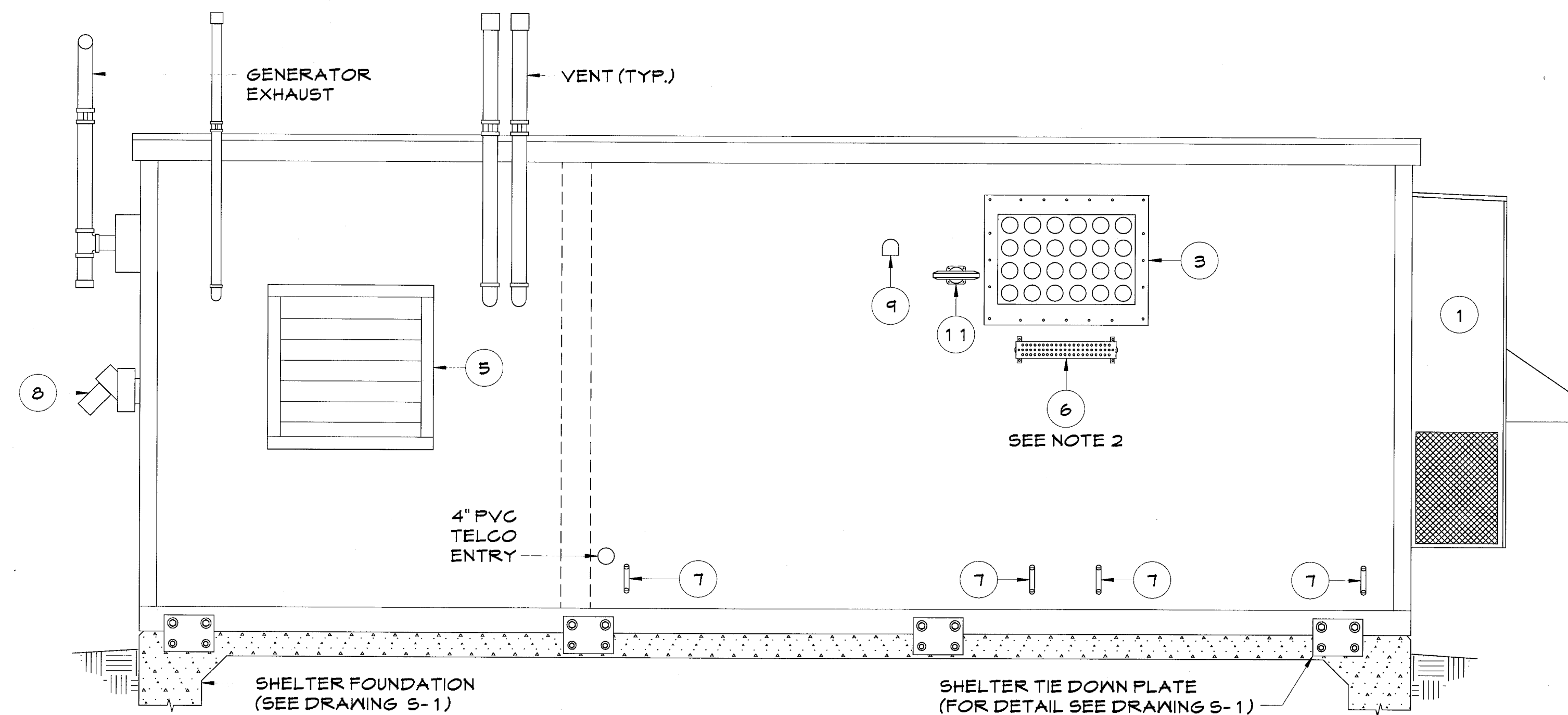
SHEET NAME:

FOUNDATION DETAILS

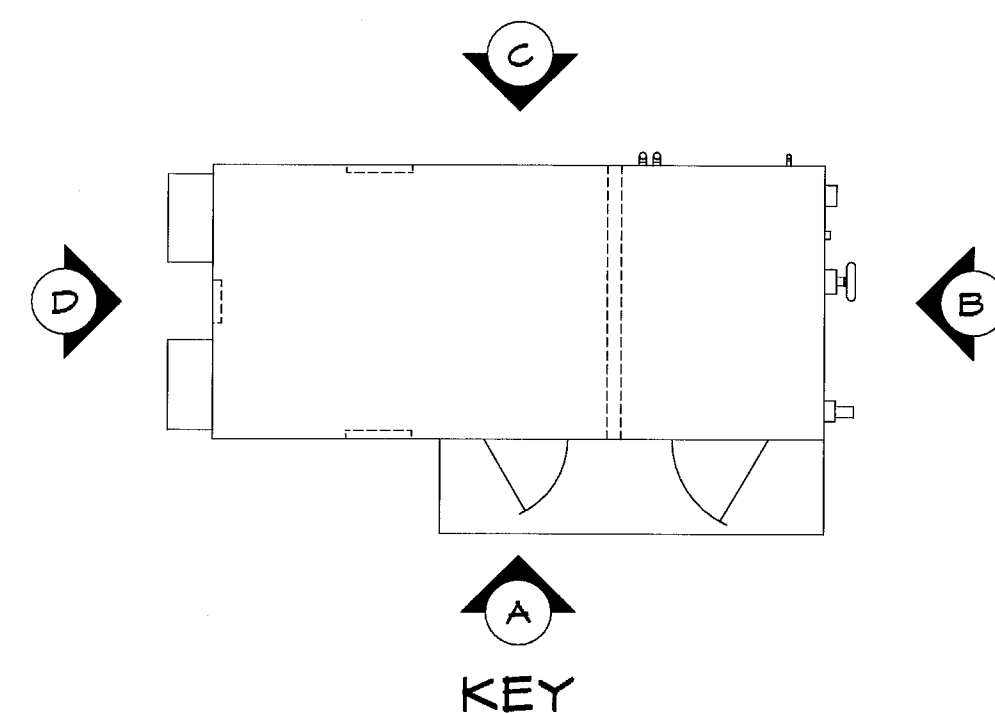
SHEET No./Rev.:	SCALE: AS NOTED
S-1/1	DRWN. BY: MEP
	CHK'D. BY: GJB
	DATE: 11/15/13
	FILE: 9-149-078



A EXTERIOR ELEVATION "A"
SCALE: NONE

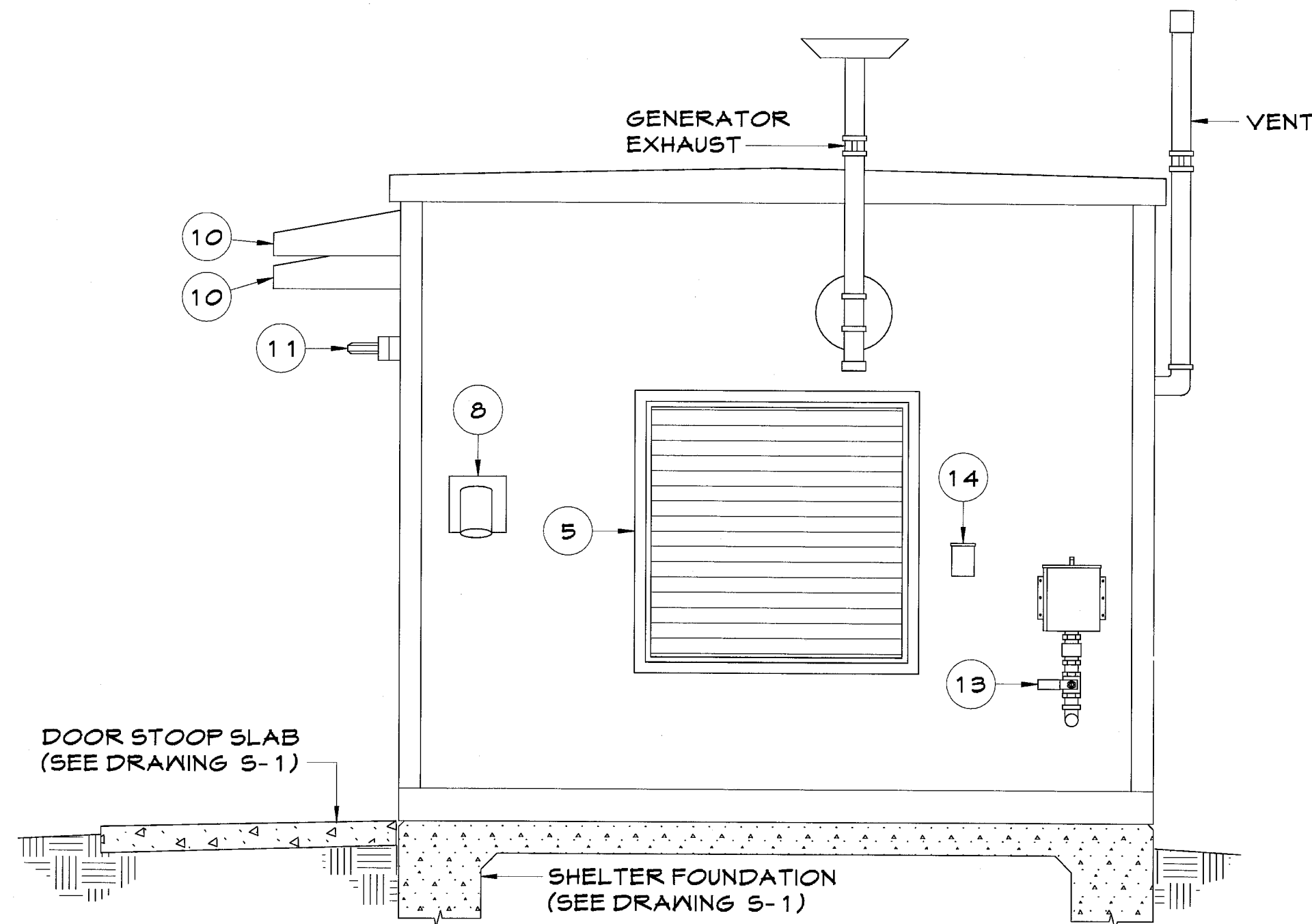


C EXTERIOR ELEVATION "C"
SCALE: NONE

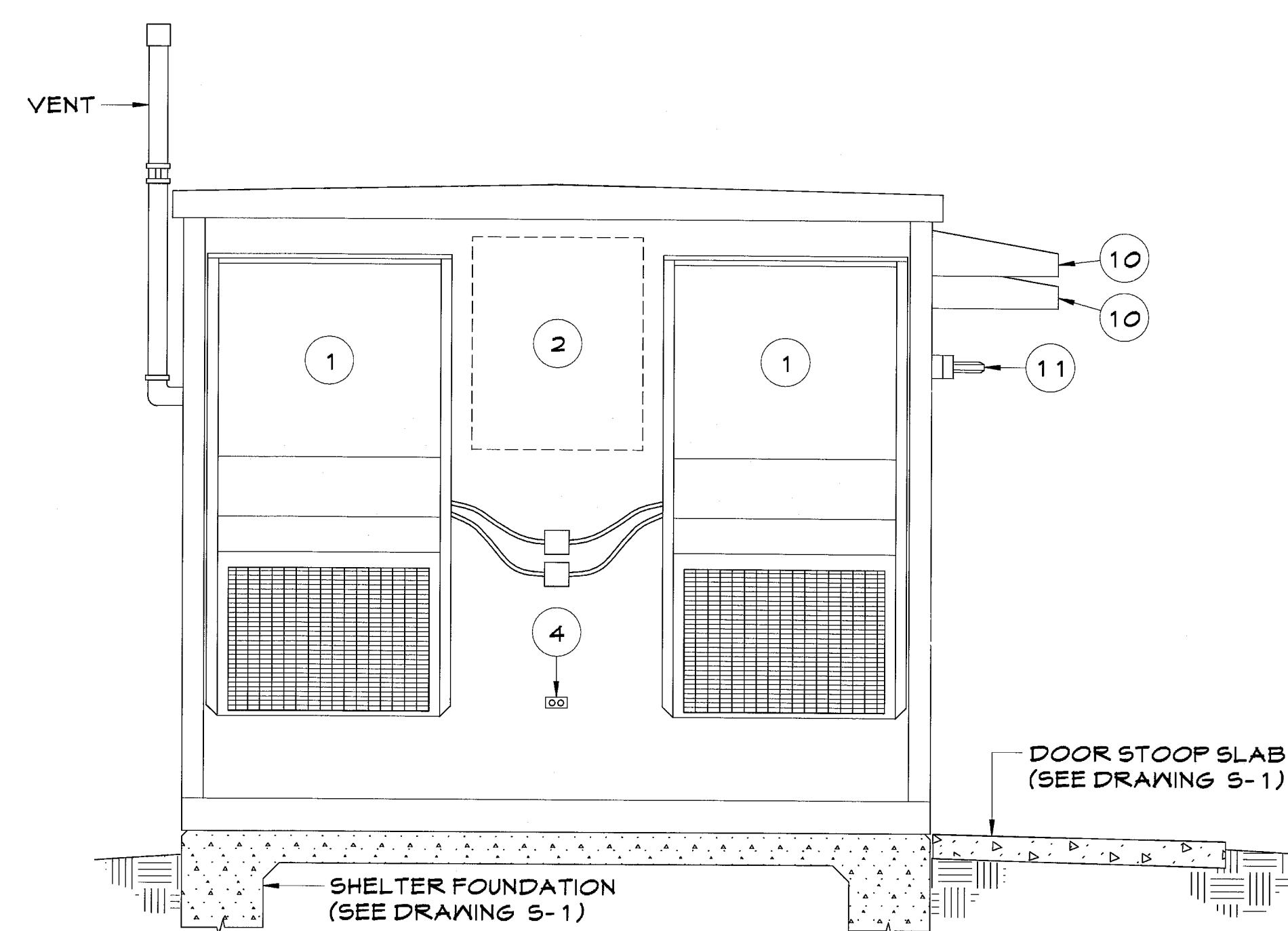


NOTES:

1. FOR GENERAL NOTES SEE DRAWING S-1.
2. IF EXTERNAL GROUND BAR IS PRESENT, CONTRACTOR SHALL REMOVE GROUND BAR AND STORE INSIDE SHELTER. CONTRACTOR SHALL CAULK/SEAL HOLES TO ENSURE WATER-TIGHTNESS.



B EXTERIOR ELEVATION "B"
SCALE: NONE



D EXTERIOR ELEVATION "D"
SCALE: NONE

ITEM #	SHELTER LEGEND			
1	HVAC UNIT	8	200A GENERATOR RECEPTACLE	
2	OPTIONAL LOCATION FOR WAVE GUIDE ENTRY 4", 24 PORT	9	HYDROGEN DETECTOR BLOWER VENT	
3	WAVE GUIDE ENTRY 4", 24 PORT	10	DOOR CANOPY	
4	EXTERIOR 20A, 120V GFCI DUPLEX RECEPTACLE	11	LIGHT W/ PHOTOCELL	
5	DAMPENER LOUVER	12	DOOR W/ CONTINUOUS ALUMINUM PIANO HINGE	
6	GALV. STEEL GROUND BAR ASSY, 1/4" X 4" X 24" (SEE NOTE 2)	13	DIESEL FUEL INLET	
7	3/4" SCHEDULE 40 PVC CAST @45° FOR GROUND WIRE	14	REMOTE OVERFILL ALARM BOX	

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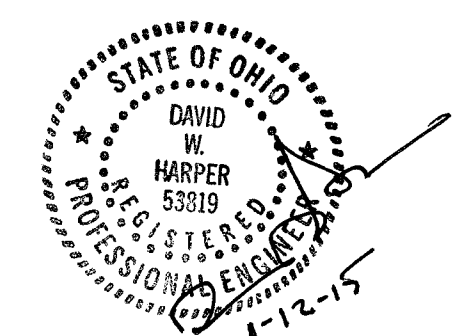
HARPER ENGINEERING, INC.
TELECOM GROUP

815 Superior Ave. Suite 1514
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Phone: (216)344-3855
Fax: (216)344-3856

DRAWING REVISIONS

Rev.	Description:	Date:	Mgr.
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0	For Construction	08/12/14	DWH
1	For Construction	01/12/15	DWH



Engineer's Seal

SITE NAME:
MASSILLON DT II

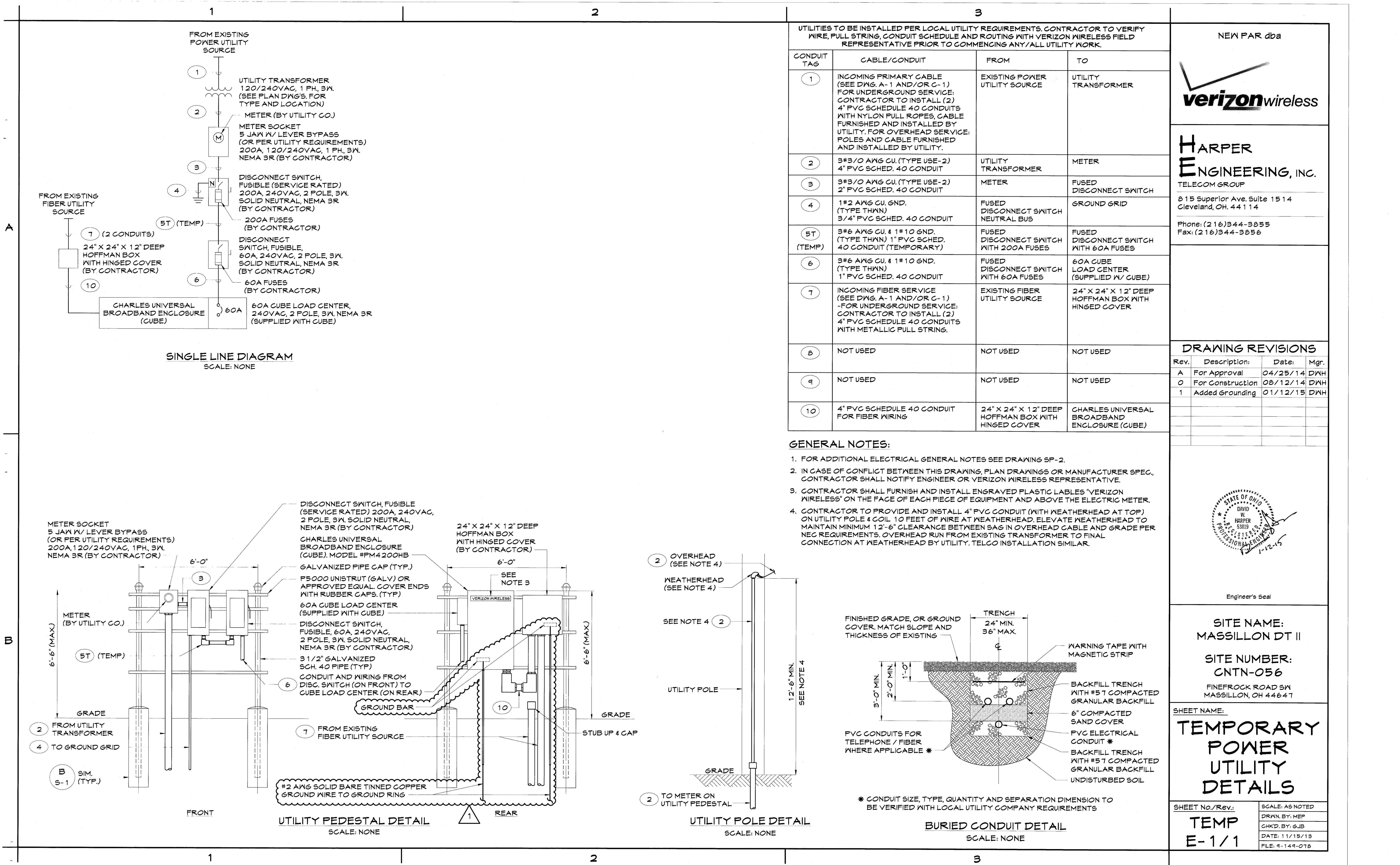
SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

SHELTER DETAILS

SHEET No./Rev.:	SCALE: AS NOTED
S-2/1	DRAWN BY: MEP
	CHK'D BY: GJB
	DATE: 11/15/13
	FILE: 9-149-078



UTILITIES TO BE INSTALLED PER LOCAL UTILITY REQUIREMENTS. CONTRACTOR TO VERIFY WIRE, PULL STRING, CONDUIT SCHEDULE AND ROUTING WITH VERIZON WIRELESS FIELD REPRESENTATIVE PRIOR TO COMMENCING ANY/ALL UTILITY WORK.			
CONDUIT TAG	CABLE/CONDUIT	FROM	TO
1	INCOMING PRIMARY CABLE (SEE DWG. A-1 AND/OR C-1) FOR UNDERGROUND SERVICE. CONTRACTOR TO INSTALL (2) 4" PVC SCHEDULE 40 CONDUITS WITH NYLON PULL ROPES. CABLE FURNISHED AND INSTALLED BY UTILITY. FOR OVERHEAD SERVICE: POLES AND CABLE FURNISHED AND INSTALLED BY UTILITY.	EXISTING POWER UTILITY SOURCE	UTILITY TRANSFORMER
2	3#3/0 AWG CU. (TYPE USE-2) 4" PVC SCHED. 40 CONDUIT	UTILITY TRANSFORMER	METER
3	3#3/0 AWG CU. (TYPE USE-2) 2" PVC SCHED. 40 CONDUIT	METER	FUSED DISCONNECT SWITCH
4	1#2 AWG CU. GND. (TYPE THWN) 3/4" PVC SCHED. 40 CONDUIT	FUSED DISCONNECT SWITCH NEUTRAL BUS	GROUND GRID
5T (TEMP)	3#6 AWG CU. & 1#10 GND. (TYPE THWN) 1" PVC SCHED. 40 CONDUIT (TEMPORARY)	FUSED DISCONNECT SWITCH WITH 200A FUSES	FUSED DISCONNECT SWITCH WITH 60A FUSES
6	3#6 AWG CU. & 1#10 GND. (TYPE THWN) 1" PVC SCHED. 40 CONDUIT	FUSED DISCONNECT SWITCH WITH 60A FUSES	60A CUBE LOAD CENTER (SUPPLIED W/ CUBE)
7	INCOMING FIBER SERVICE (SEE DWG. A-1 AND/OR C-1) -FOR UNDERGROUND SERVICE: CONTRACTOR TO INSTALL (2) 4" PVC SCHEDULE 40 CONDUITS WITH METALLIC PULL STRING.	EXISTING FIBER UTILITY SOURCE	24" X 24" X 12" DEEP HOFFMAN BOX WITH HINGED COVER
8	NOT USED	NOT USED	NOT USED
9	NOT USED	NOT USED	NOT USED
10	4" PVC SCHEDULE 40 CONDUIT FOR FIBER WIRING	24" X 24" X 12" DEEP HOFFMAN BOX WITH HINGED COVER	CHARLES UNIVERSAL BROADBAND ENCLOSURE (CUBE)

NEW PAR dba

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A	For Approval	04/25/14	DWH
0	For Construction	08/12/14	DWH
1	Added Grounding	01/12/15	DWH

Engineer's Seal

SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

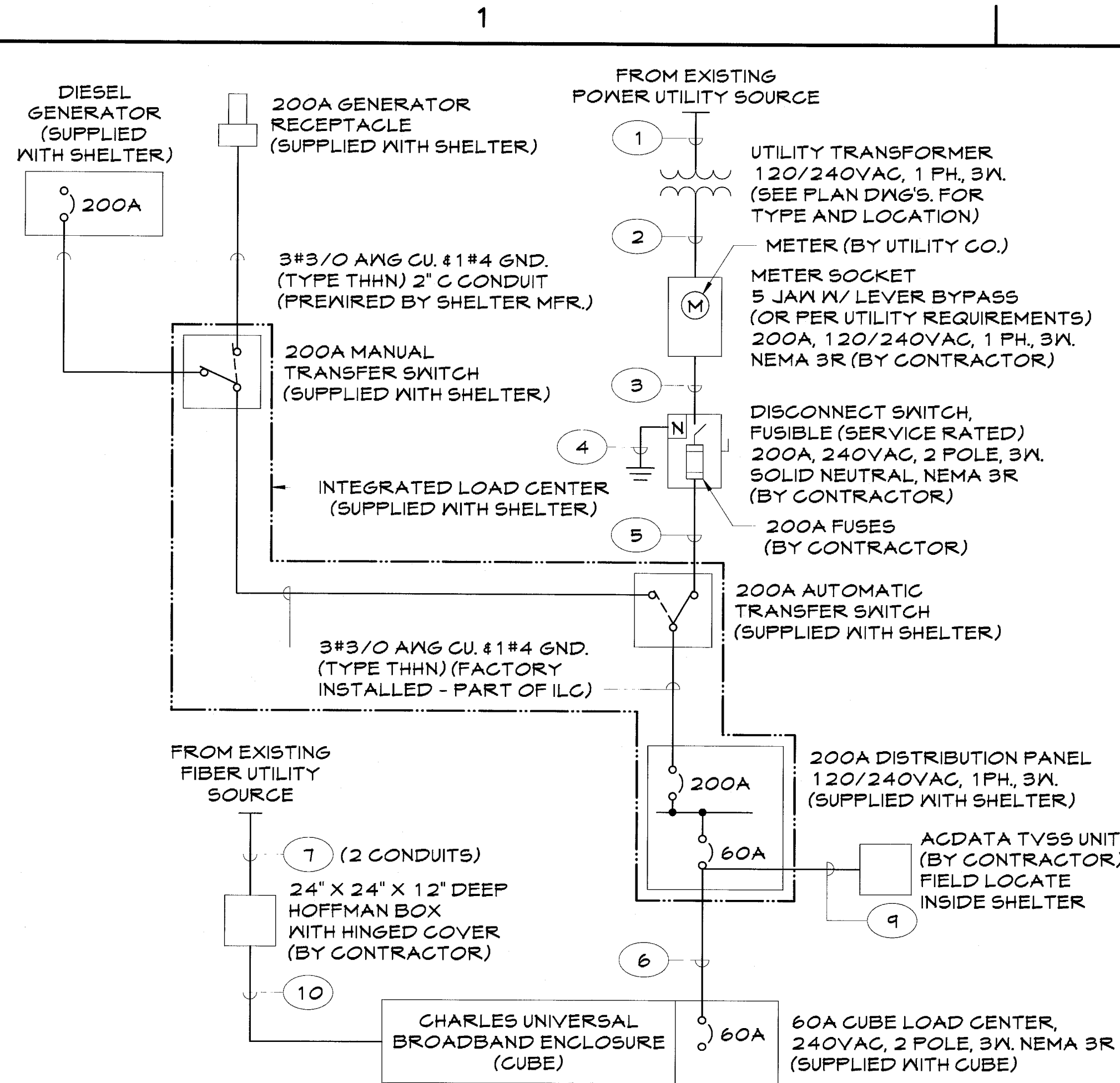
FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:
**TEMPORARY
POWER
UTILITY
DETAILS**

SHEET No./Rev.:	SCALE: AS NOTED
TEMP E-1/1	DRAWN BY: MEP
	CHK'D BY: GJB
	DATE: 11/15/13
	FILE: 9-149-078

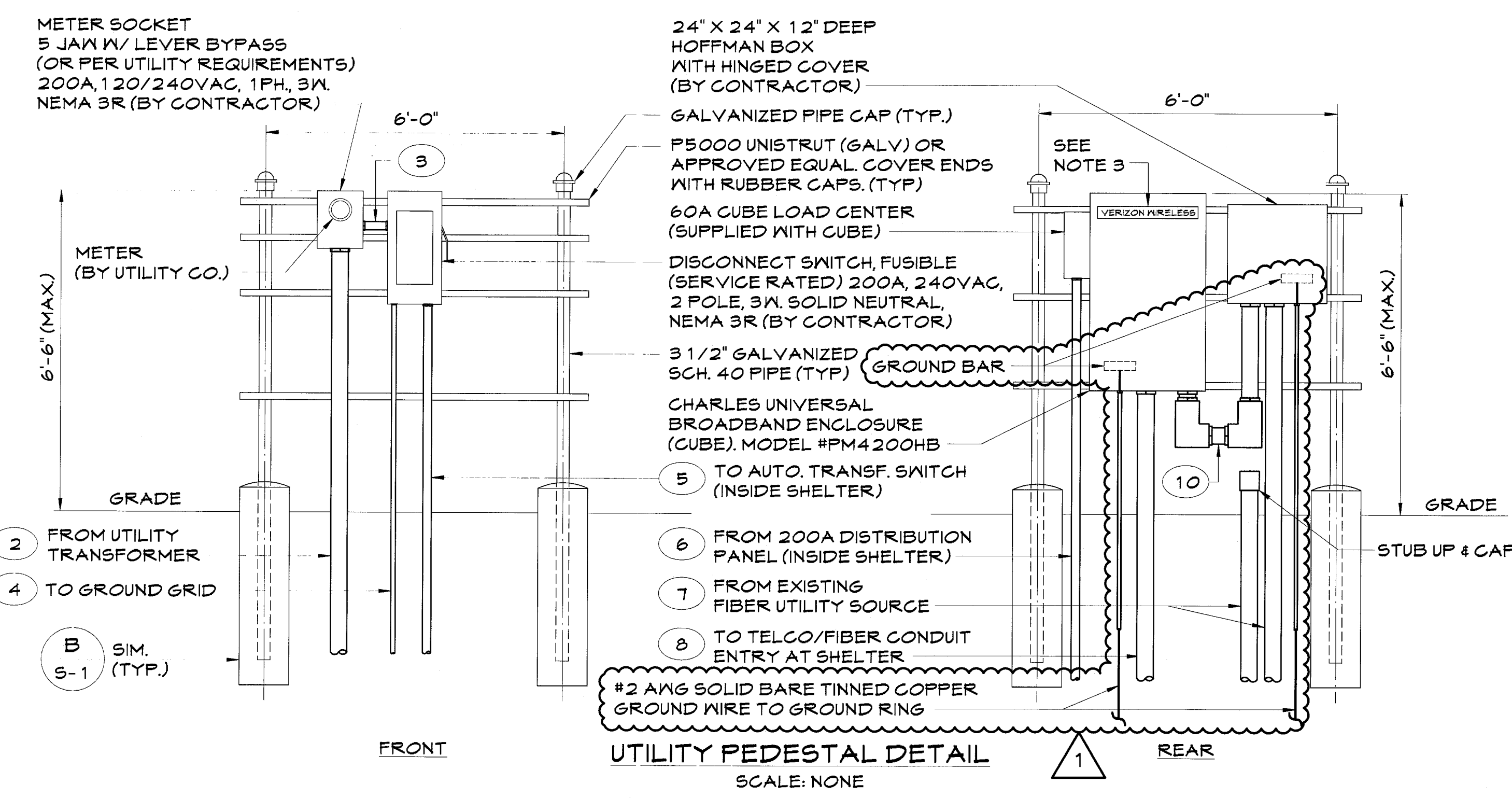
A

B

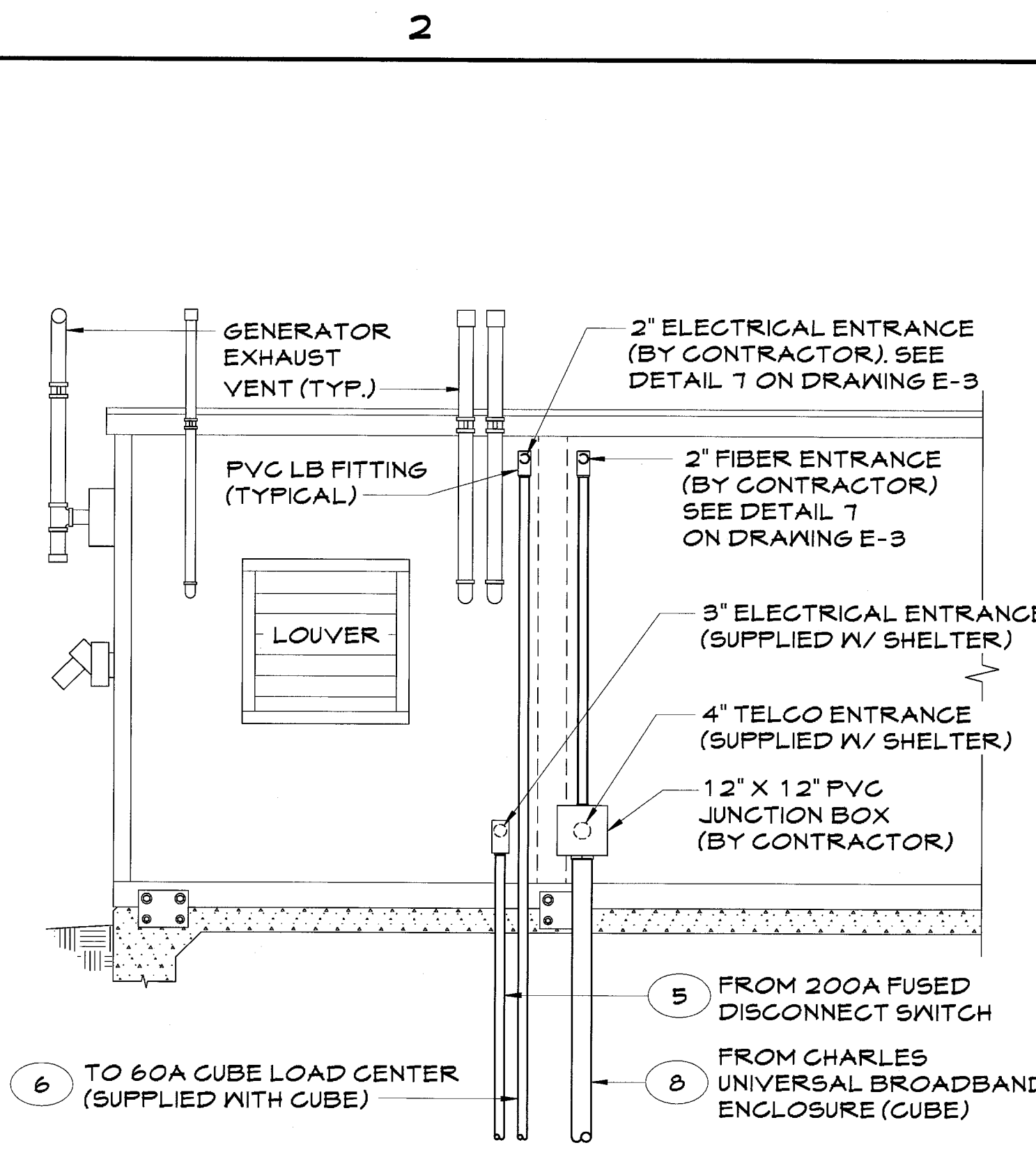


ARC FLASH INFORMATION
DATE 01/12/2015 BASED ON
UTILITY TRANSFORMER OF 50 KVA
MAX. AVAILABLE FAULT CURRENT
AT SERVICE DISCONNECT <10,000A
PPE CATEGORY 1
AT MAIN PANELBOARD <10,000A
PPE CATEGORY 1

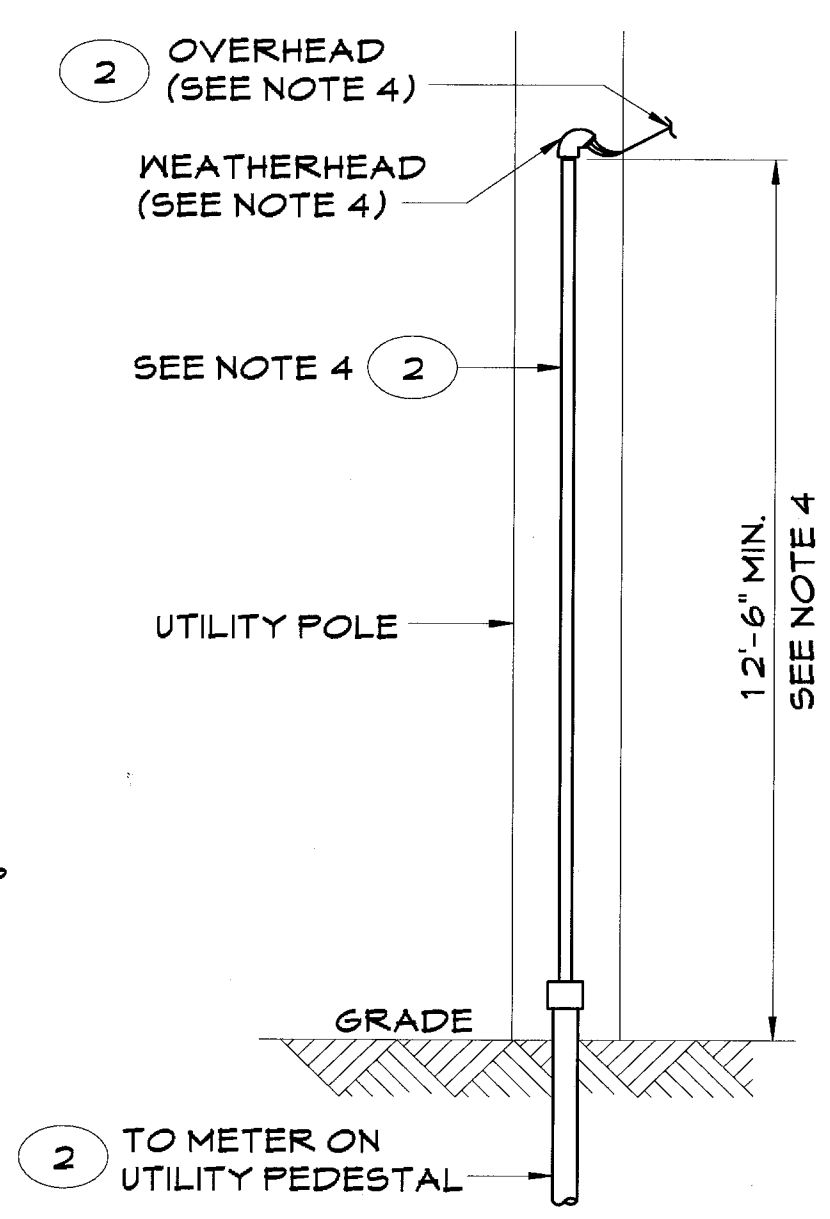
SINGLE LINE DIAGRAM
SCALE: NONE



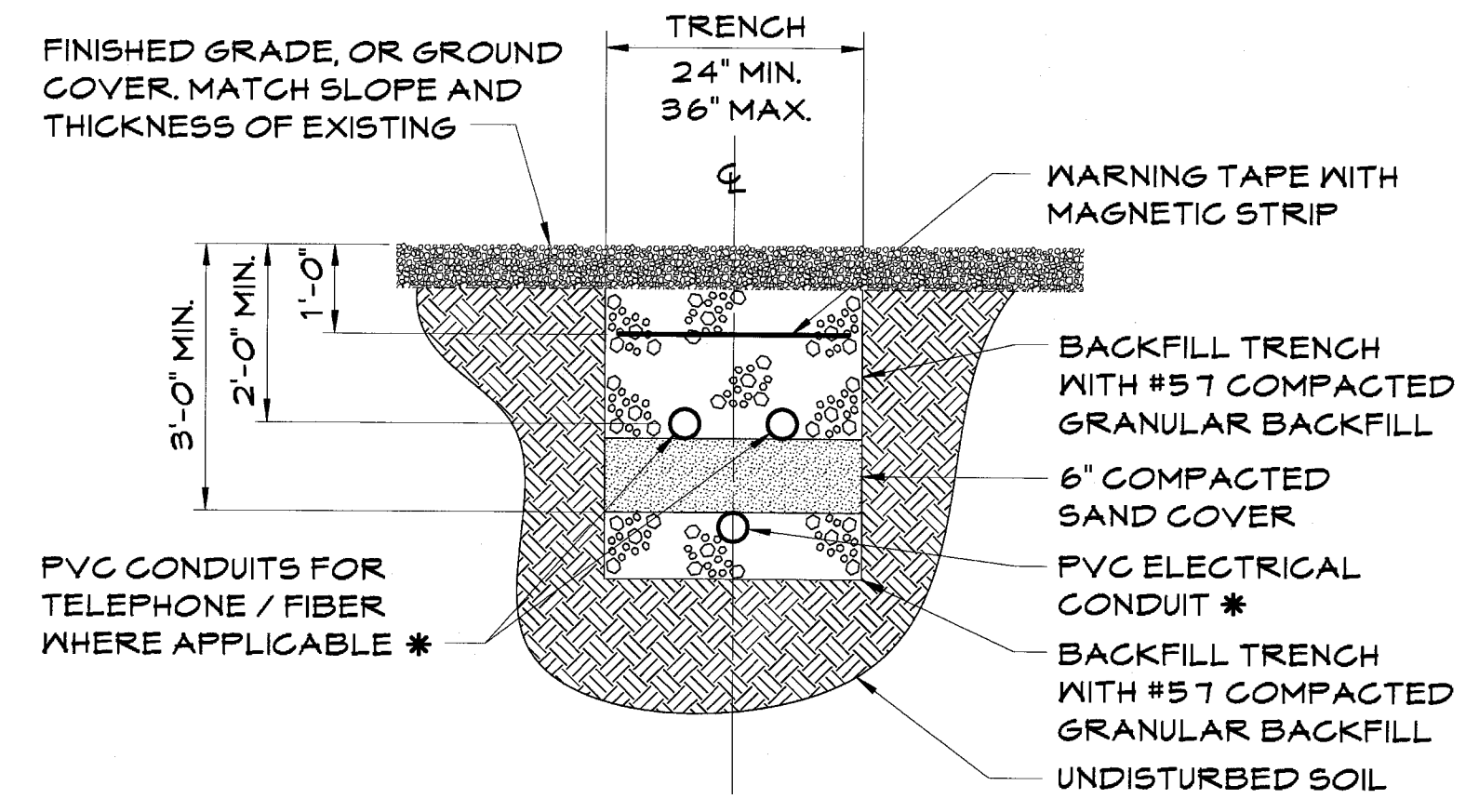
UTILITY PEDESTAL DETAIL
SCALE: NONE



SHELTER CONDUIT ENTRY DETAIL (BACK)
SCALE: NONE



UTILITY POLE DETAIL
SCALE: NONE



* CONDUIT SIZE, TYPE, QUANTITY AND SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS

BURIED CONDUIT DETAIL
SCALE: NONE

UTILITIES TO BE INSTALLED PER LOCAL UTILITY REQUIREMENTS. CONTRACTOR TO VERIFY WIRE, PULL STRING, CONDUIT SCHEDULE AND ROUTING WITH VERIZON WIRELESS FIELD REPRESENTATIVE PRIOR TO COMMENCING ANY/ALL UTILITY WORK.			
CONDUIT TAG	CABLE/CONDUIT	FROM	TO
1	INCOMING PRIMARY CABLE (SEE DWG. A-1 AND/OR C-1) FOR UNDERGROUND SERVICE: CONTRACTOR TO INSTALL (2) 4\"/>	EXISTING POWER UTILITY SOURCE	UTILITY TRANSFORMER
2	3#3/0 AWG CU. (TYPE USE-2) 4\"/>	UTILITY TRANSFORMER	METER
3	3#3/0 AWG CU. (TYPE USE-2) 2\"/>	METER	200A FUSED DISCONNECT SWITCH
4	1#2 AWG CU. GND. (TYPE THHN) 3/4\"/>	200A FUSED DISCONNECT SWITCH NEUTRAL BUS	GROUND GRID
5	3#3/0 AWG CU. & 1#2 GND. (TYPE THHN) 2\"/>	200A FUSED DISCONNECT SWITCH	200A AUTOMATIC TRANSFER SWITCH (SUPPLIED W/ SHELTER)
6	3#6 AWG CU. & 1#10 GND. (TYPE THHN) 1\"/>	200A DISTRIBUTION PANEL (SUPPLIED WITH SHELTER)	60A CUBE LOAD CENTER (SUPPLIED W/ CUBE)
7	INCOMING FIBER SERVICE (SEE DWG. A-1 AND/OR C-1) -FOR UNDERGROUND SERVICE: CONTRACTOR TO INSTALL (2) 4\"/>	EXISTING FIBER UTILITY SOURCE	24\"/>
8	(1) 12 PR. 15W. CAT 3 CABLE 4\"/>	CHARLES UNIVERSAL BROADBAND ENCLOSURE (CUBE)	FIBER/TELCO CONDUIT ENTRY (SUPPLIED W/ SHELTER)
9	CONDUIT AND WIRING PER MANUFACTURERS SPECIFICATIONS	200A DISTRIBUTION PANEL (SUPPLIED WITH SHELTER)	ACDATA TVSS UNIT (INSIDE SHELTER BY CONTRACTOR)
10	4\"/>	24\"/>	CHARLES UNIVERSAL BROADBAND ENCLOSURE (CUBE)

GENERAL NOTES:

- FOR ADDITIONAL ELECTRICAL GENERAL NOTES SEE DRAWING SP-2.
- IN CASE OF CONFLICT BETWEEN THIS DRAWING, PLAN DRAWINGS OR MANUFACTURER SPEC, CONTRACTOR SHALL NOTIFY ENGINEER OR VERIZON WIRELESS REPRESENTATIVE.
- CONTRACTOR SHALL FURNISH AND INSTALL ENGRAVED PLASTIC LABELS "VERIZON WIRELESS" ON THE FACE OF EACH PIECE OF EQUIPMENT AND ABOVE THE ELECTRIC METER.
- CONTRACTOR TO PROVIDE AND INSTALL 4\"/>

NEW PAR dba

HARPER ENGINEERING, INC.
TELECOM GROUP
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Phone: (216)344-3855
Fax: (216)344-3856

DRAWING REVISIONS

Rev.	Description:	Date:	Mgr.
A	For Approval	04/25/14	DWH
B	For Approval	07/28/14	DWH
O	For Construction	08/12/14	DWH
1	Added Grounding	01/12/15	DWH

Engineer's Seal

SITE NAME:
MASSILLON DT II

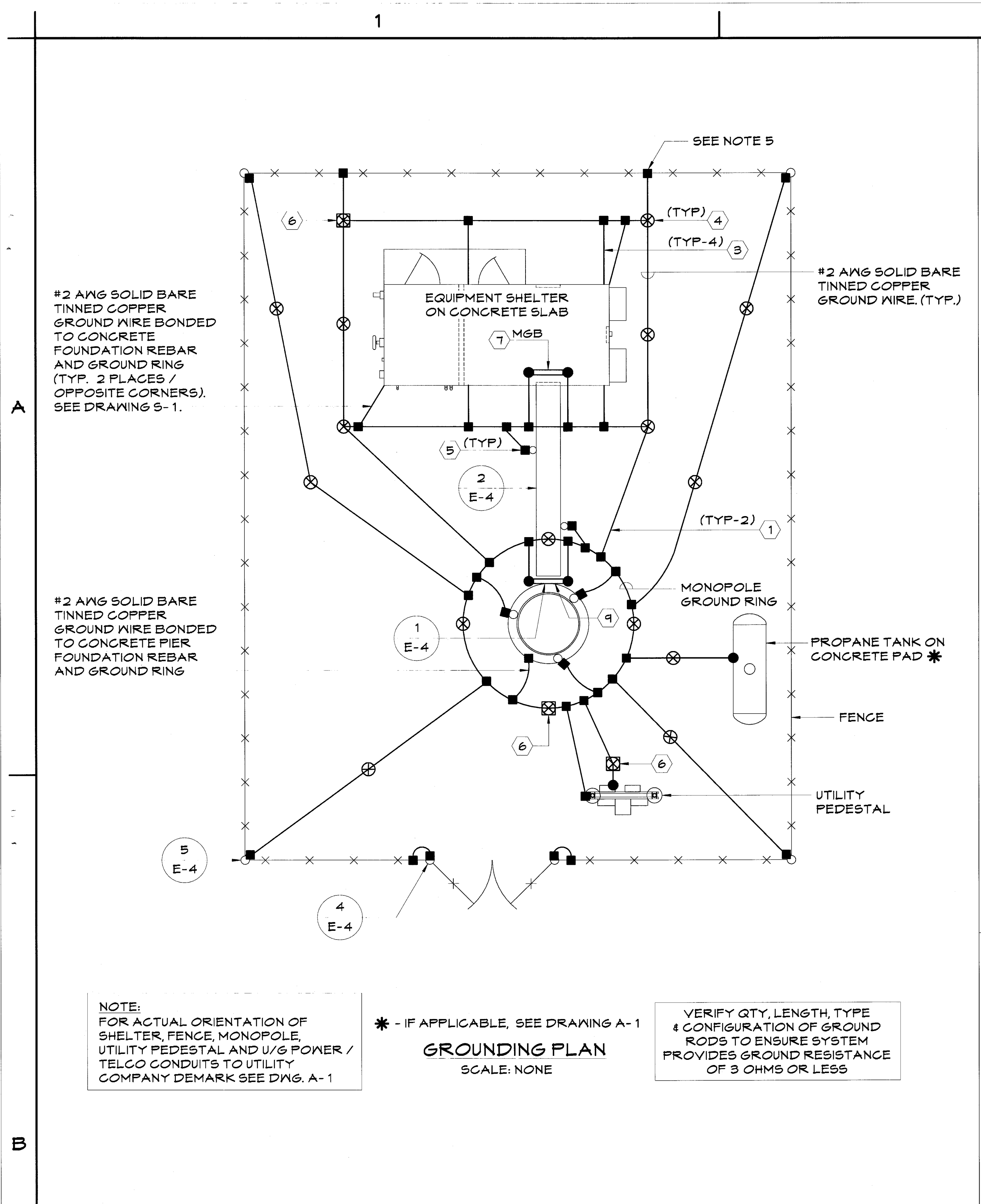
SITE NUMBER:
CNTN-056
FINE ROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

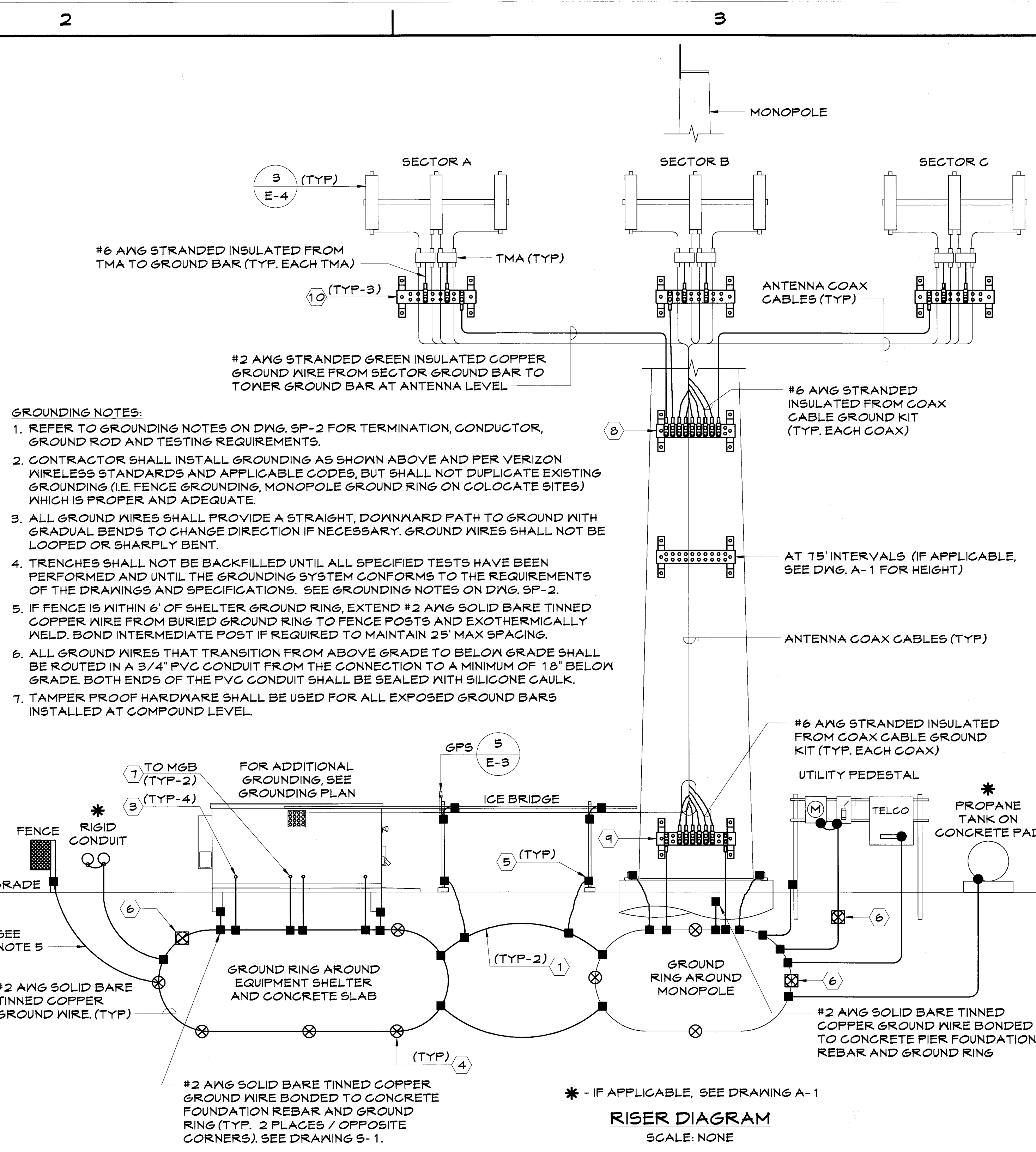
UTILITY DETAILS

SHEET No./Rev.:
E-1/1

SCALE: AS NOTED
DRWN. BY: MEP
CHKD. BY: GJB
DATE: 11/15/13
FILE: 9-149-078



- GROUNDING LEGEND: FOR DETAILS 1 THRU 7 SEE DRAWING E-5**
- (1) TIE-IN GROUNDING: EXTEND (2) #2 AWG SOLID BARE TINNED COPPER WIRES FROM SHELTER BURIED GROUND RING TO MONOPOLE BURIED GROUND RING AND MAKE EXOTHERMIC CONNECTIONS.
 - (2) NOT USED
 - (3) GROUNDING OF SHELTER GROUND HALO: EXTEND (4) #2 AWG SOLID BARE TINNED COPPER WIRES FROM (4) SHELTER CORNERS (GROUND HALO) TO BURIED GROUND RING THROUGH EXISTING 3/4" DIA. PVC SLEEVE IN SHELTER TO BURIED GROUND RING AND MAKE EXOTHERMIC CONNECTIONS.
 - (4) GROUND ROD: COPPERCLAD STEEL, 5/8" DIA. TEN (10) FEET LONG.
 - (5) ICE BRIDGE SUPPORT POST GROUNDING: EXTEND #2 AWG SOLID BARE TINNED COPPER WIRE FROM BURIED GROUND RING TO ALL ICE BRIDGE SUPPORT POSTS AND EXOTHERMICALLY WELD.
 - (6) GROUND ROD W/ACCESS: COPPERCLAD STEEL, 5/8" DIA. TEN (10) FEET LONG WITH TEST ACCESS WELL. (1) REQUIRED AT FURTHEST CORNER OF SHELTER AWAY FROM MONOPOLE AND (1) REQUIRED AT FURTHEST CORNER OF MONOPOLE AWAY FROM SHELTER.
 - (7) MASTER GROUND BAR: EXTEND (2) #2 AWG SOLID BARE TINNED COPPER WIRES FROM THE MASTER GROUND BAR (INSIDE SHELTER) THROUGH EXISTING 3/4" DIA. PVC SLEEVES IN SHELTER TO BURIED GROUND RING AND MAKE EXOTHERMIC CONNECTIONS.



- GROUNDING LEGEND: FOR DETAILS 8 THRU 10 SEE DRAWING E-4**
- (8) MONOPOLE GROUND BAR (TOP): MOUNT GROUND BAR DIRECTLY TO MONOPOLE AT TOP OF COAX RUNS. SECURE TO MONOPOLE WITH STAINLESS STEEL MOUNTING MATERIAL. SIMILAR TO DETAIL 6A ON DWG. E-3 EXCEPT WITHOUT ISOLATORS
 - (9) MONOPOLE GROUND BAR (BOTTOM): EXTEND #2 AWG SOLID BARE TINNED COPPER WIRE FROM BURIED GROUND RING UP TO THE MONOPOLE GROUND BAR AND MAKE APPROVED CONNECTIONS AT EACH END. SECURE GROUND BAR DIRECTLY TO MONOPOLE WITH STAINLESS STEEL MOUNTING MATERIAL. SEE DETAIL 6A ON DWG. E-3 EXCEPT WITHOUT ISOLATORS.
 - (10) SECTOR GROUND BAR: MOUNT SECTOR GROUND BAR NEAR ANTENNAS. SECURE TO ANTENNA SUPPORT WITH STAINLESS STEEL MOUNTING MATERIAL. SIMILAR TO DETAIL 6B ON DWG. E-3 EXCEPT WITHOUT ISOLATORS
- ELECTRICAL SYMBOLS LEGEND**
- ⊗ GROUND ROD WITH ACCESS (TEST WELL)
 - ⊙ GROUND ROD
 - CADWELD TYPE CONNECTION
 - COMPRESSION TYPE CONNECTION
 - (X) REPRESENTS DETAIL NUMBER
 - (X-X) REFERENCE DRAWING NUMBER
 - NEW GROUNDING

NEW PAR dba

verizonwireless

HARPER ENGINEERING, INC.
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STATE OF OHIO
DAVID W. HARPER
53819
PROFESSIONAL ENGINEER
1-12-15

Engineer's Seal

SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

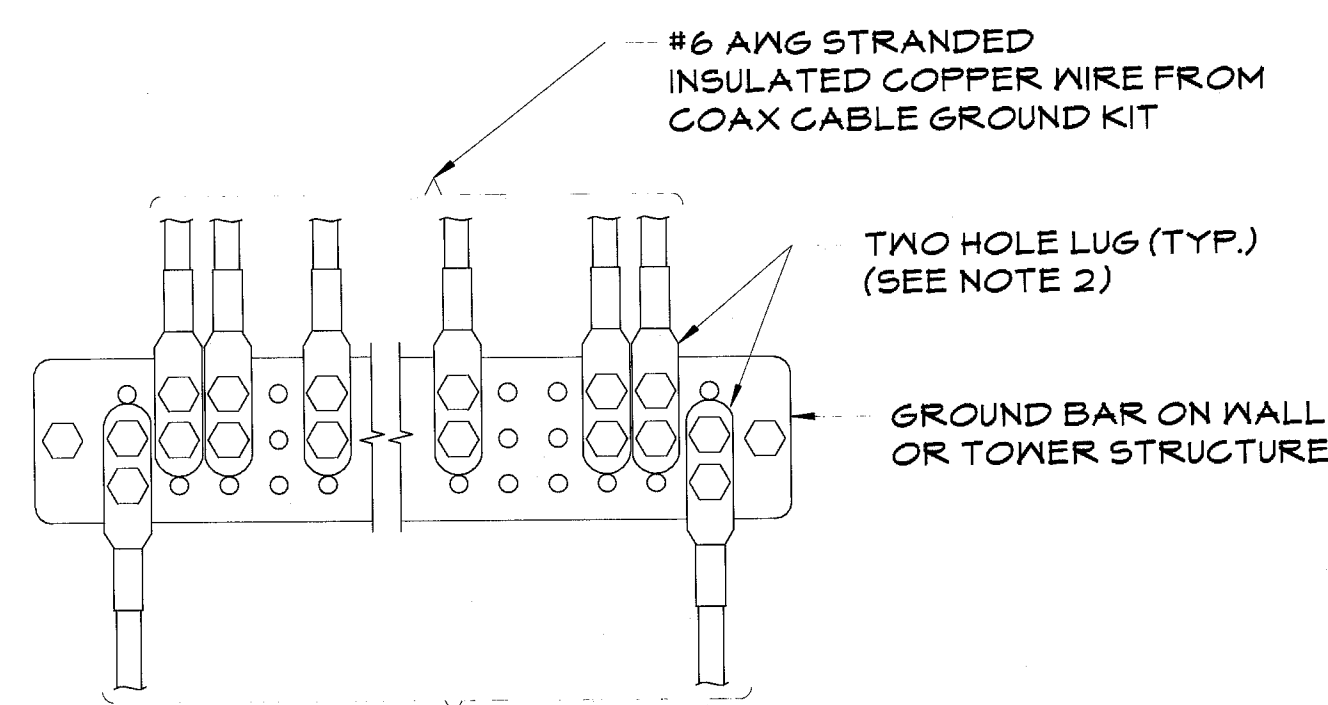
SHEET NAME:

GROUNDING PLAN & RISER DIAGRAM

SHEET No./Rev.:
E-2/1

SCALE: AS NOTED

DRAWN BY: MEP
CHKD. BY: GJB
DATE: 11/15/13
FILE: 9-149-078

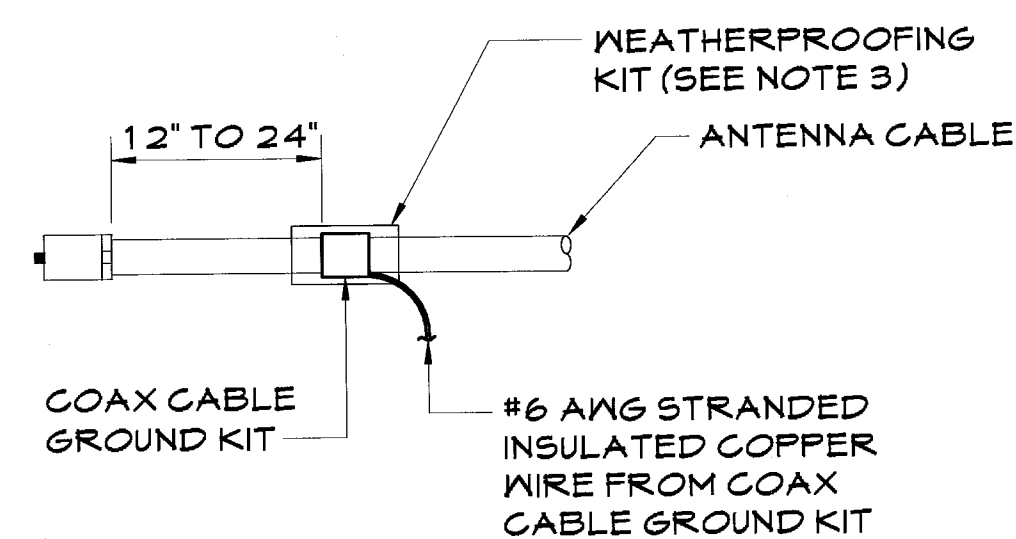


(2) #2 AWG SOLID BARE TINNED COPPER GROUND WIRES FROM GROUND BAR TO GROUND RING (SEE NOTE 1)

- NOTES:
1. REFER TO RISER DIAGRAM ON DWG E-2 FOR CONNECTIONS. DOWN LEADS TO THE GROUND RING SHALL BE SLEEVED TO 18" BELOW THE SURFACE.
 2. CONTRACTOR SHALL COAT ALL LUGS WITH AN ANTI-OXIDATION COMPOUND BEFORE ATTACHING TO GROUND BAR.

INSTALLATION OF GROUND WIRE TO GROUND BAR

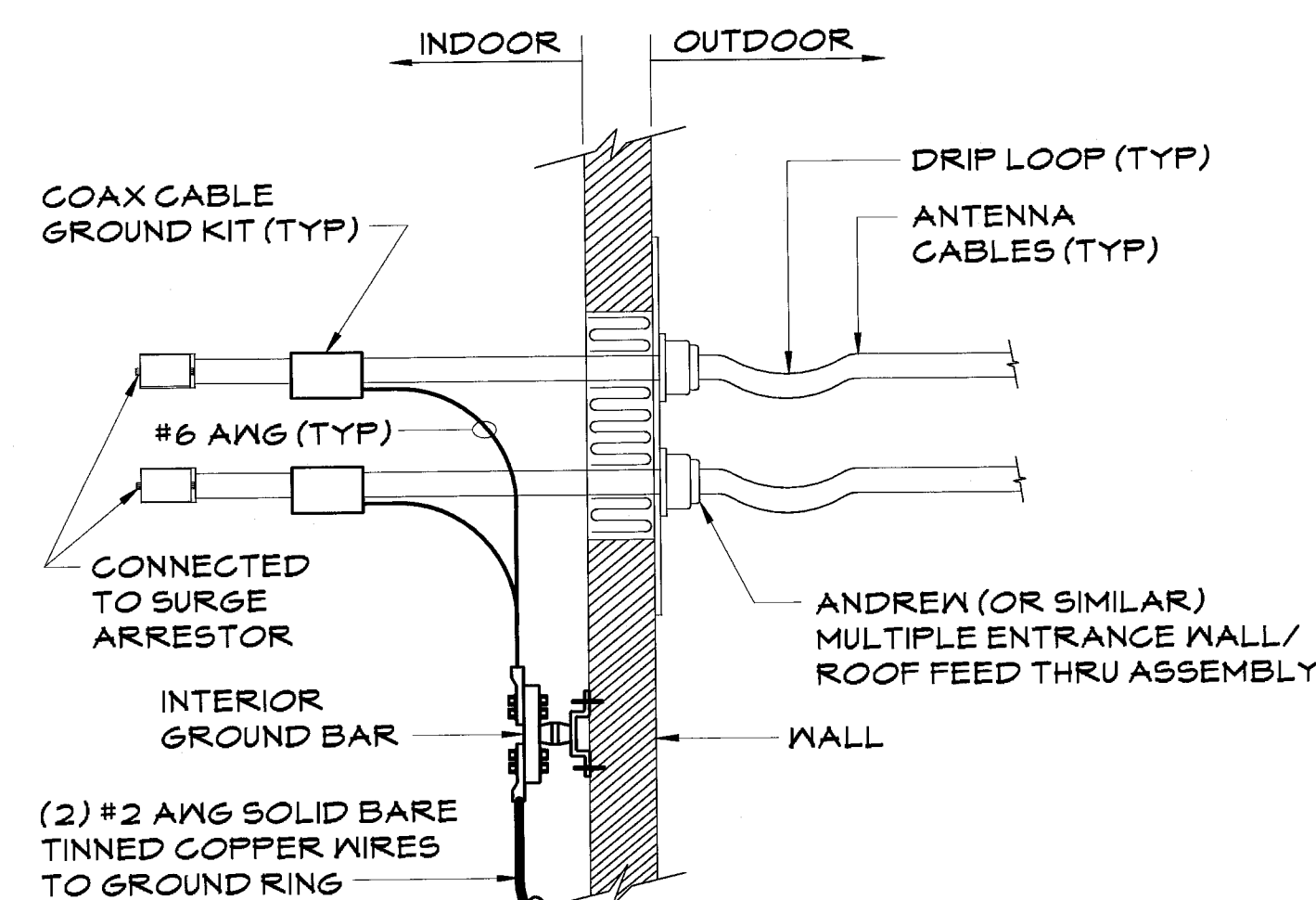
DETAIL 1
SCALE: NONE



- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. GROUNDING KIT SHALL BE (TYPE AND PART NUMBER) AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 3. WEATHER PROOFING SHALL BE (TYPE AND PART NUMBER) AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.

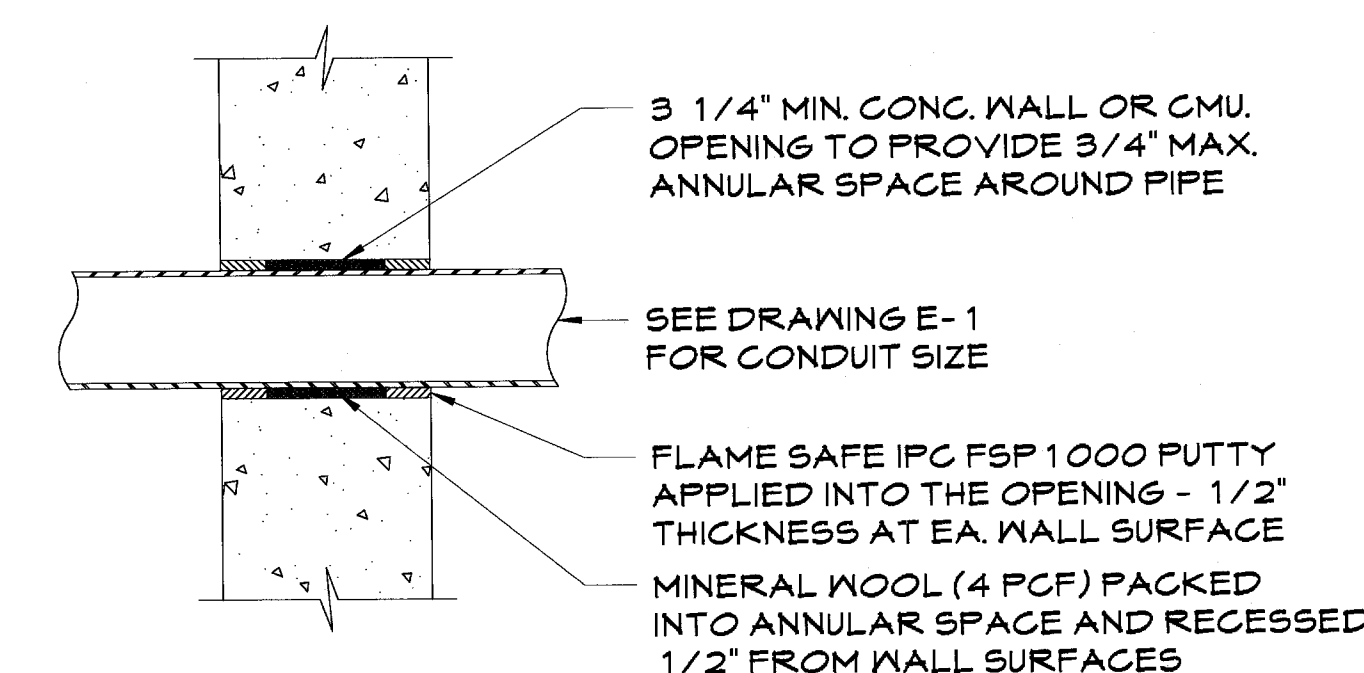
CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE

DETAIL 2
SCALE: NONE



DETAIL 3
SCALE: NONE

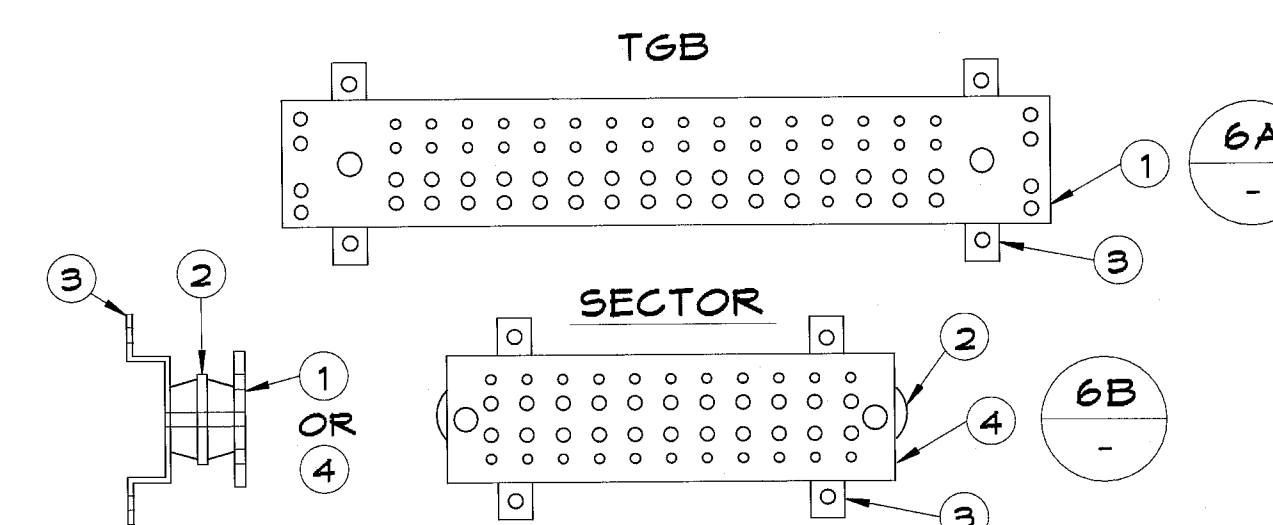
NOTE:
ALL GROUND WIRES THAT TRANSITION FROM ABOVE GRADE TO BELOW GRADE SHALL BE ROUTED IN A 3/4" PVC CONDUIT (NOT SHOWN FOR CLARITY) FROM THE CONNECTION TO A MINIMUM OF 18" BELOW GRADE. BOTH ENDS OF THE PVC CONDUIT SHALL BE SEALED WITH SILICONE CAULK.



NOTE:
CONTRACTOR TO INSURE WATER-TIGHTNESS AT ALL WALL PENETRATIONS.

CONCRETE WALL FIRE STOPPING PENETRATION

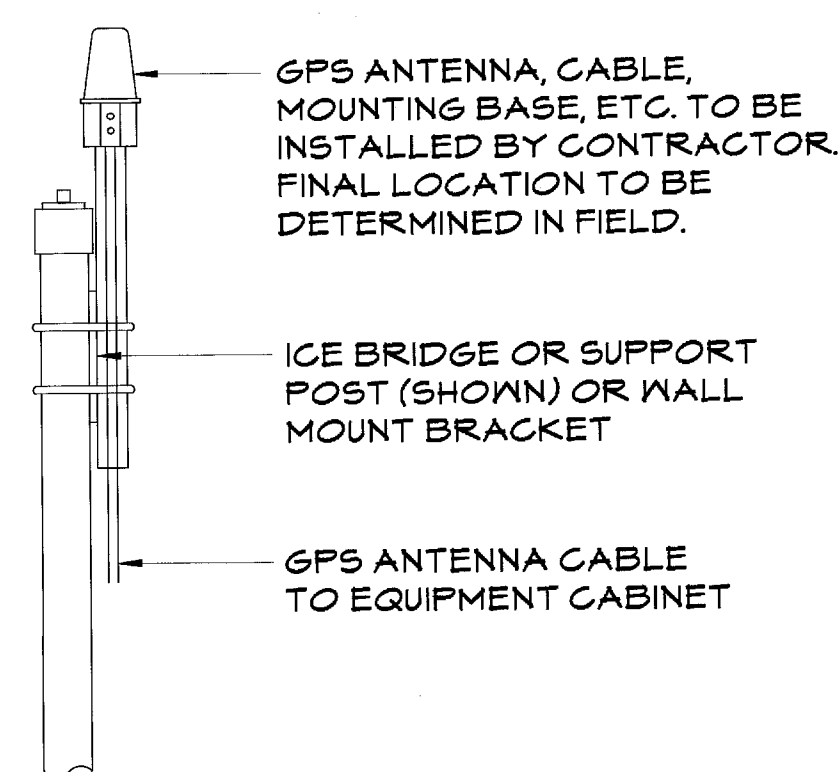
DETAIL 7
SCALE: NONE



- MATERIAL LIST
1. TINNED COPPER GROUND BAR, 1/4"X 4"X 24" TESSCO CAT. NO. 482415 WITH THEFT DETERRENT HARDWARE WALL MOUNTING KIT CAT. NO. 390980 OR APPROVED EQUAL.
 2. INSULATORS, TESSCO (PROVIDED WITH MOUNTING KIT) OR APPROVED EQUAL.
 3. WALL MOUNTING BRACKET, TESSCO (PROVIDED WITH MOUNTINGKIT) OR APPROVED EQUAL.
 4. TINNED COPPER GROUND BAR, 1/4"X 4"X 12" TESSCO CAT. NO. 422409 WITH THEFT DETERRENT HARDWARE WALL MOUNTING KIT CAT. NO. 390980 OR APPROVED EQUAL.

TOWER GROUND BAR (TGB) OR SECTOR GROUND BAR DETAIL

DETAIL 6A 6B
SCALE: NONE



NOTE:
GPS SHOULD HAVE CLEAR VIEW OF THE SOUTHERN HORIZON AND GROUNDED PER MANUFACTURER'S SPECIFICATIONS

GPS ANTENNA INSTALLATION

DETAIL 5
SCALE: NONE

CONNECTION OF GROUND WIRE TO GROUNDING BAR (CIGBE) TOWER/MONOPOLE/ROOFTOP

DETAIL 4
SCALE: NONE

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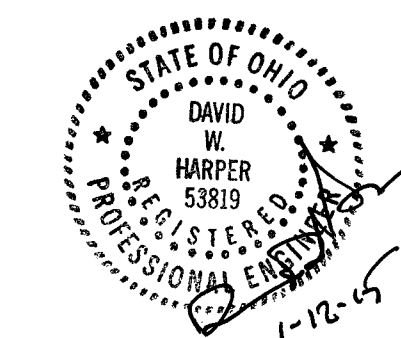
HARPER ENGINEERING, INC.
TELECOM GROUP

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MASSILLON DT II

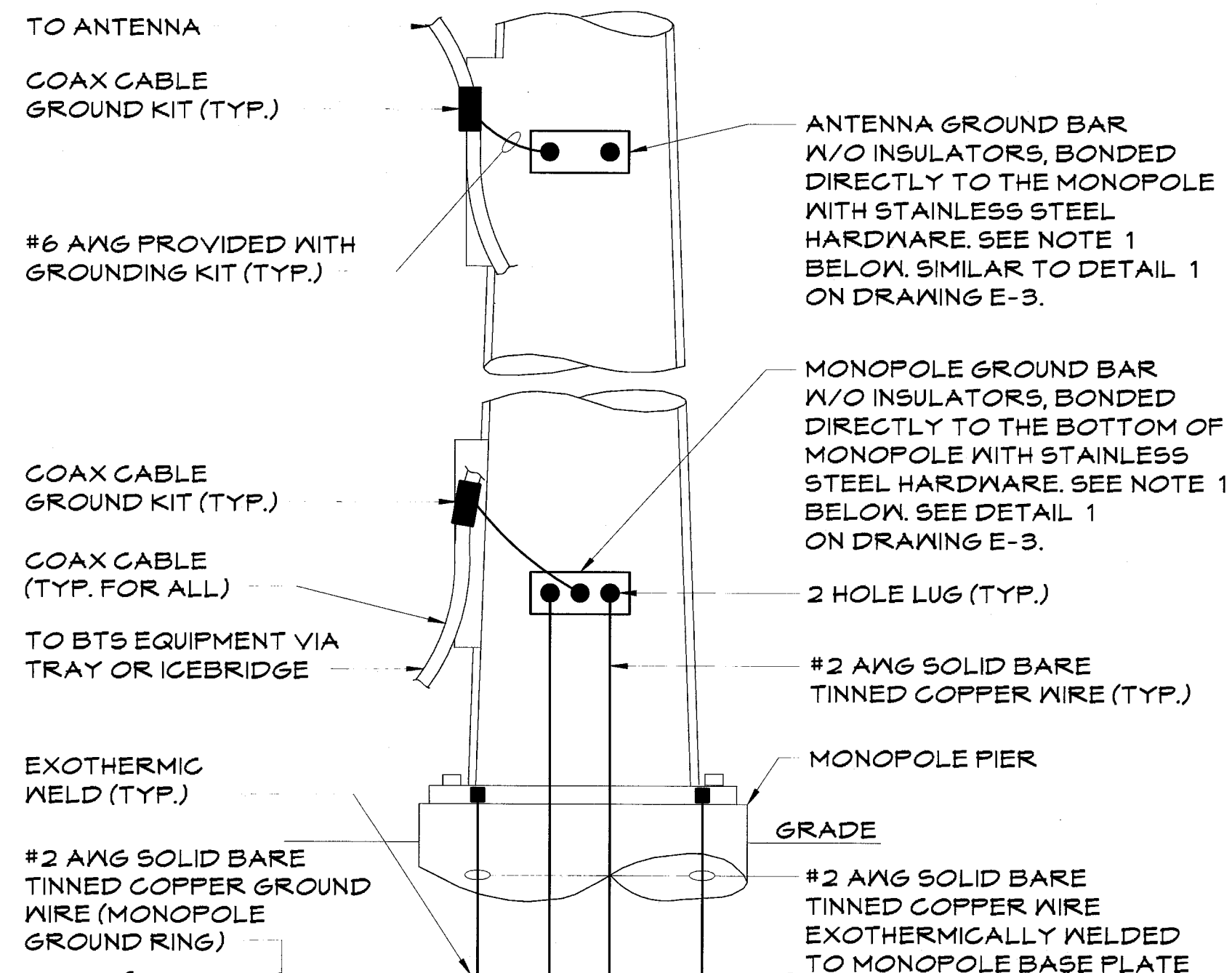
SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

GROUNDING DETAILS

SHEET No./Rev.:	SCALE: AS NOTED
E-3/1	DRAWN BY: MEP
	CHKD. BY: GJB
	DATE: 11/15/13
	FILE: 4-149-078

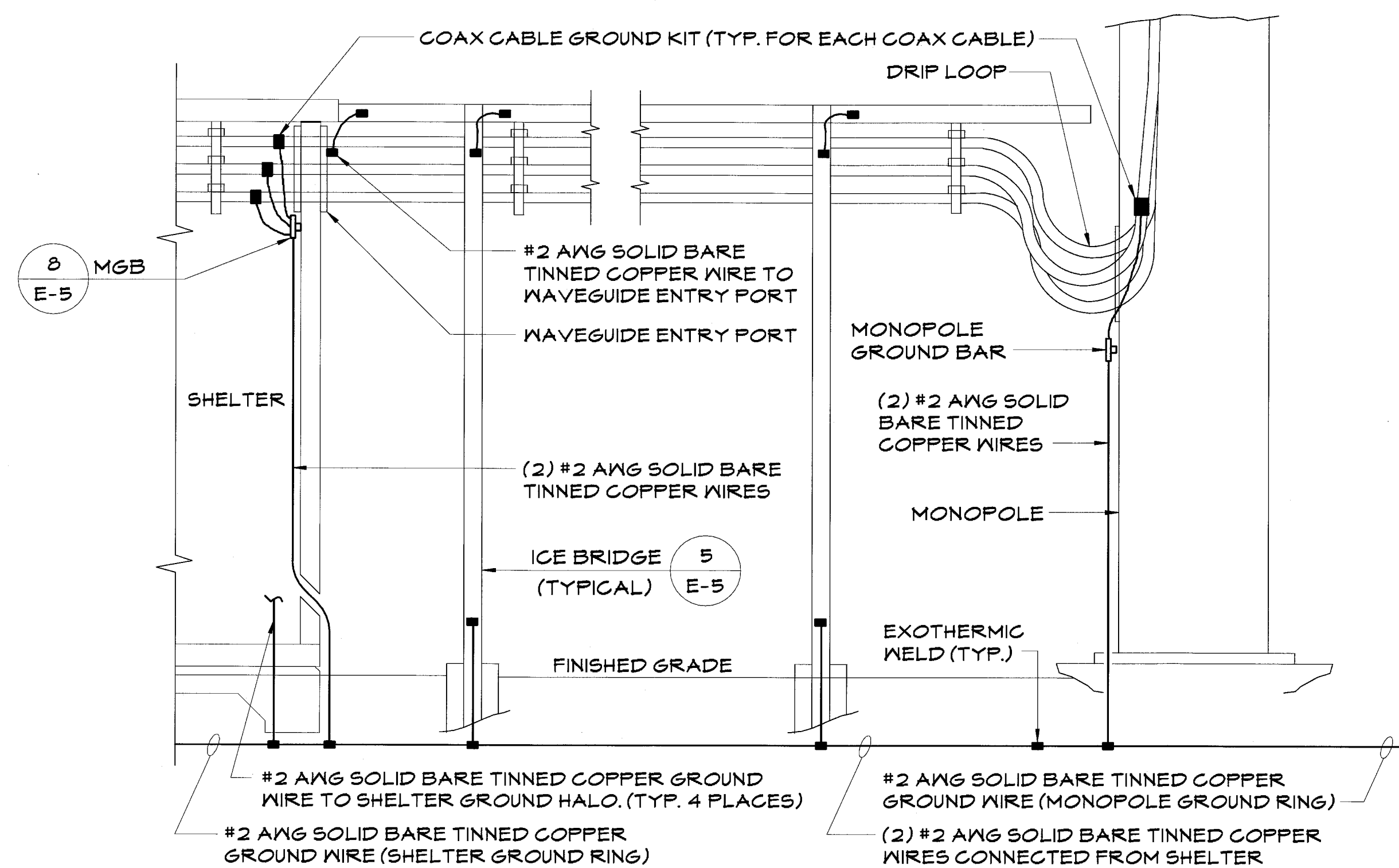


- NOTE:
1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF MONOPOLE, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
 2. EXOTHERMIC WELDS ON MONOPOLE PERMITTED ONLY WITH EXPRESS APPROVAL OF MONOPOLE MANUFACTURER OR CONTRACTORS STRUCTURAL ENGINEER. USE LUGS PROVIDED FOR THIS PURPOSE.

ANTENNA CABLE GROUNDING
FOR A MONOPOLE

DETAIL
SCALE: NONE

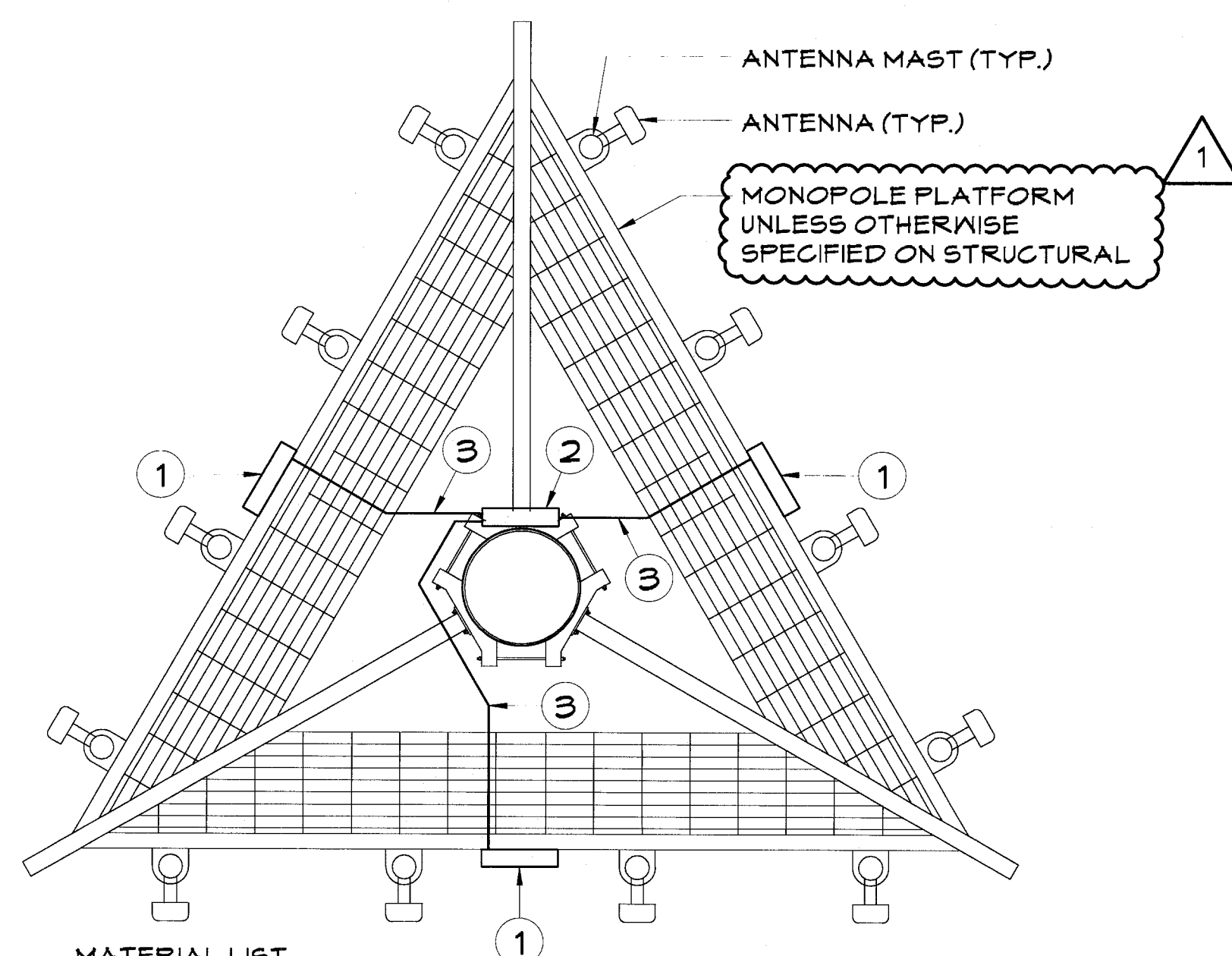
1



GROUNDING @ BOTTOM OF MONOPOLE

DETAIL
SCALE: NONE

2



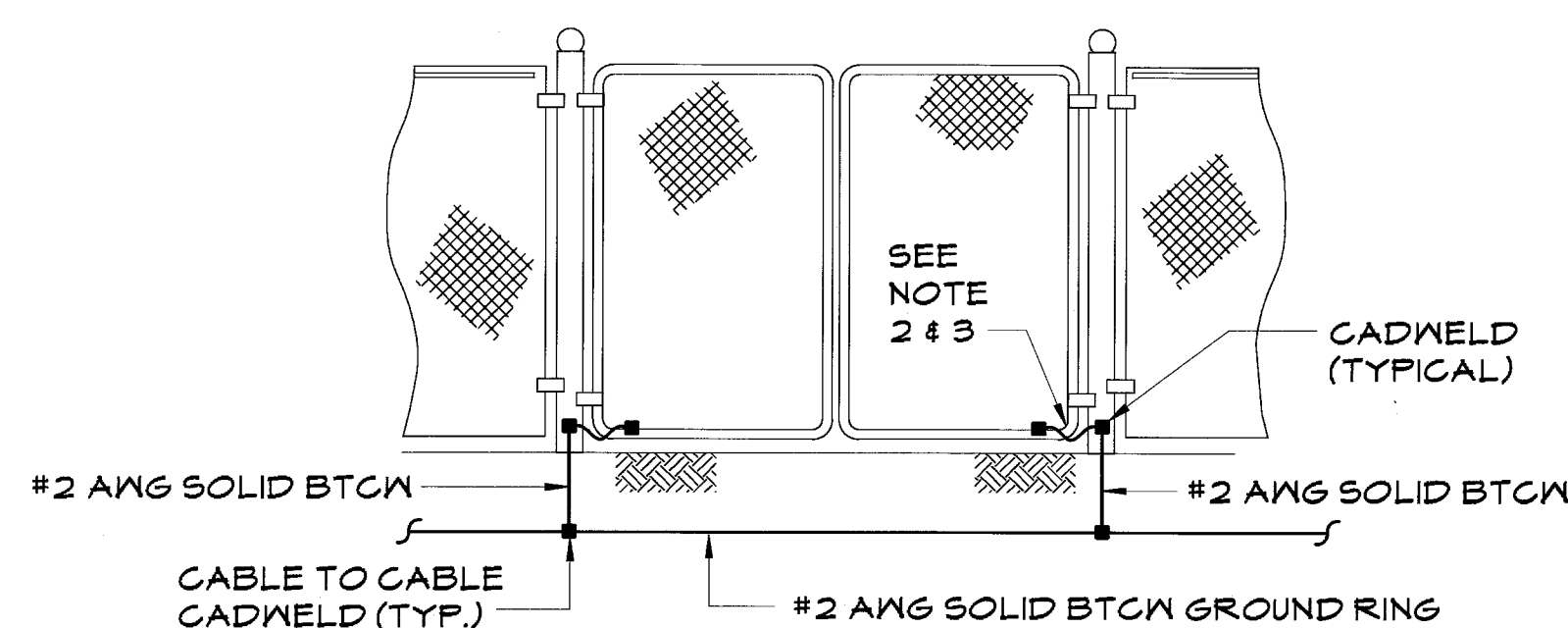
MATERIAL LIST

1. ANTENNA SECTOR GROUND BAR FOR GROUNDING OF TMA'S. (TMA'S NOT SHOWN FOR CLARITY - SEE DRAWING E-2). MOUNT GROUND BAR WITH STAINLESS STEEL HARDWARE.
2. MONOPOLE GROUND BAR AT ANTENNA LEVEL FOR GROUNDING OF COAX CABLES. (COAX CABLES NOT SHOWN FOR CLARITY - SEE DRAWING E-2). MOUNT GROUND BAR WITH STAINLESS STEEL HARDWARE.
3. #2 AWG STRANDED GREEN INSULATED COPPER GROUND WIRE FROM SECTOR GROUND BAR TO MONOPOLE GROUND BAR.

GROUNDING @ ANTENNA LEVEL

DETAIL
SCALE: NONE

3



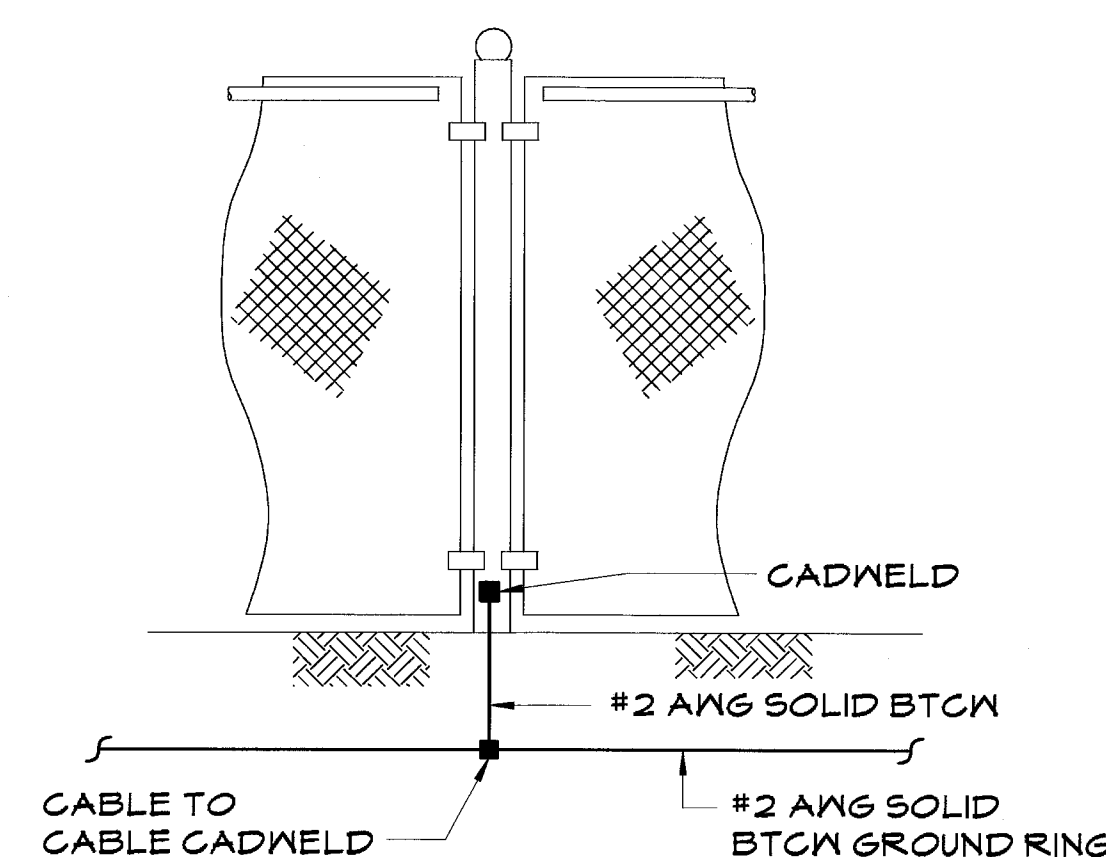
NOTES:

1. THE #2 AWG SOLID BTCW FROM THE GROUND RING SHALL BE CADWELDED TO THE POST ABOVE GRADE.
2. GATE JUMPER SHALL BE #4/0 AWG WELDING CABLE OR FLEXIBLE COPPER BRAID BURNDY TYPE B WITH SLEEVES ON EACH END DESIGNED FOR EXOTHERMIC WELDING.
3. GATE JUMPER SHALL BE INSTALLED SO THAT IT WILL NOT BE SUBJECTED TO DAMAGING STRAIN WHEN GATE IS FULLY OPEN IN EITHER DIRECTION.

FENCE GATE GROUNDING

DETAIL
SCALE: NONE

4



NOTES:

1. VERTICAL POSTS SHALL BE BONDED TO THE RING AT EACH CORNER AND AT EACH GATE POST. AS A MINIMUM ONE VERTICAL POST SHALL BE BONDED TO THE GROUND RING IN EVERY 100 FOOT STRAIGHT RUN OF FENCE.
2. METAL FENCE POSTS WITHIN 6 FEET OF THE BURIED GROUND RING SHALL BE BONDED DIRECTLY TO THE GROUND RING.

FENCE GROUNDING

DETAIL
SCALE: NONE

5

NOTE:

ALL GROUND WIRES THAT TRANSITION FROM ABOVE GRADE TO BELOW GRADE SHALL BE ROUTED IN A 3/4" PVC CONDUIT (NOT SHOWN FOR CLARITY) FROM THE CONNECTION TO A MINIMUM OF 18" BELOW GRADE. BOTH ENDS OF THE PVC CONDUIT SHALL BE SEALED WITH SILICONE CAULK.

NEW PAR dba



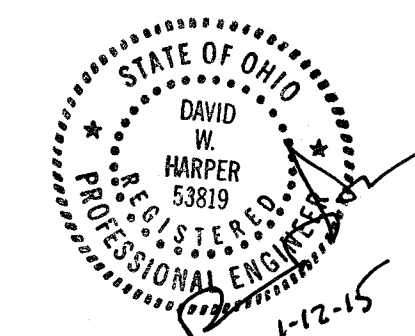
**HARPER
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TELECOM GROUP

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Cleveland, OH 44114

Phone: (216) 344-3855
Fax: (216) 344-3856

DRAWING REVISIONS

Rev.	Description:	Date:	Mgr.
A	For Approval	04/25/14	DWH
O	For Construction	08/12/14	DWH
1	Added MP Platform	01/12/15	DWH



Engineer's Seal

SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

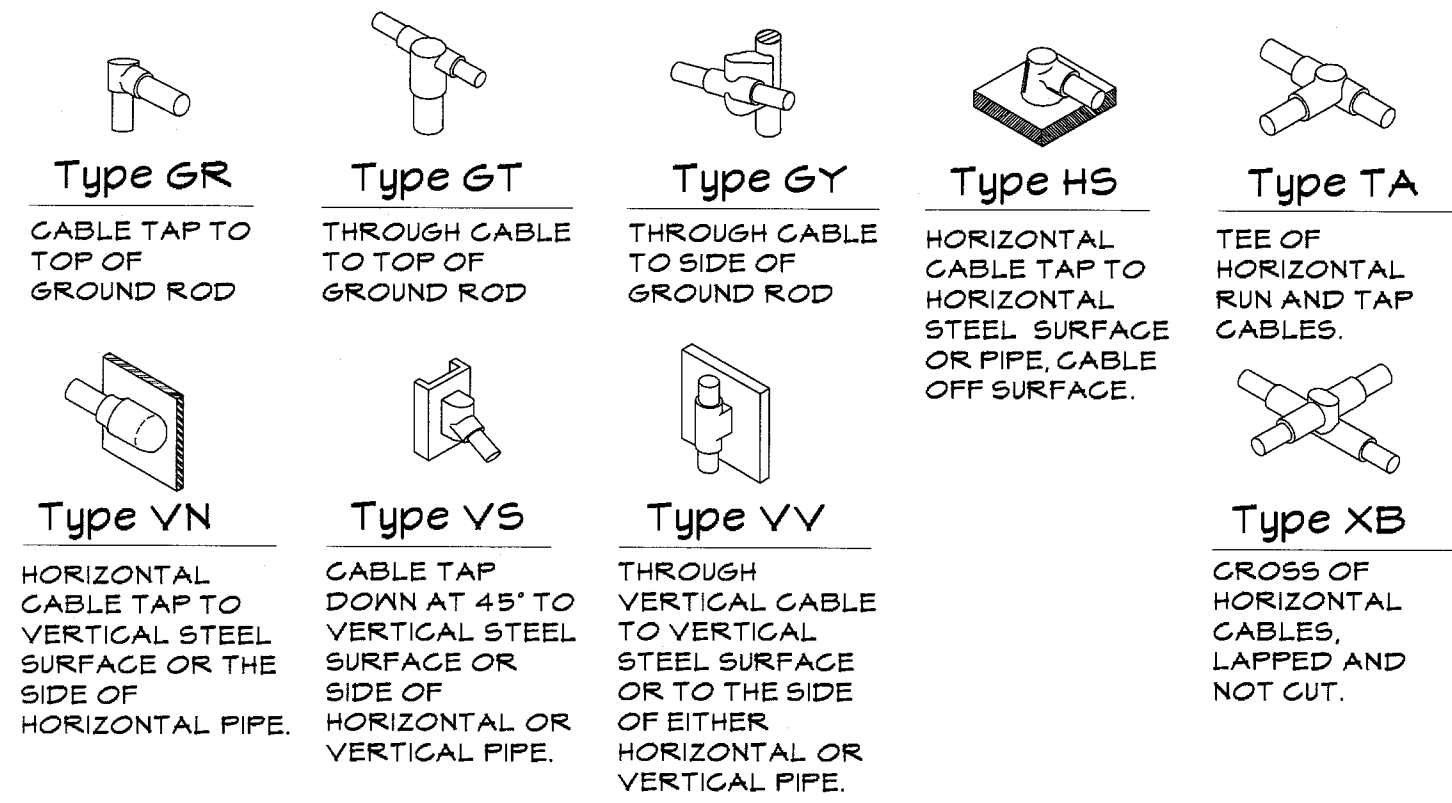
SHEET NAME:

**GROUNDING
DETAILS**

SHEET No./Rev.:

E-4/1

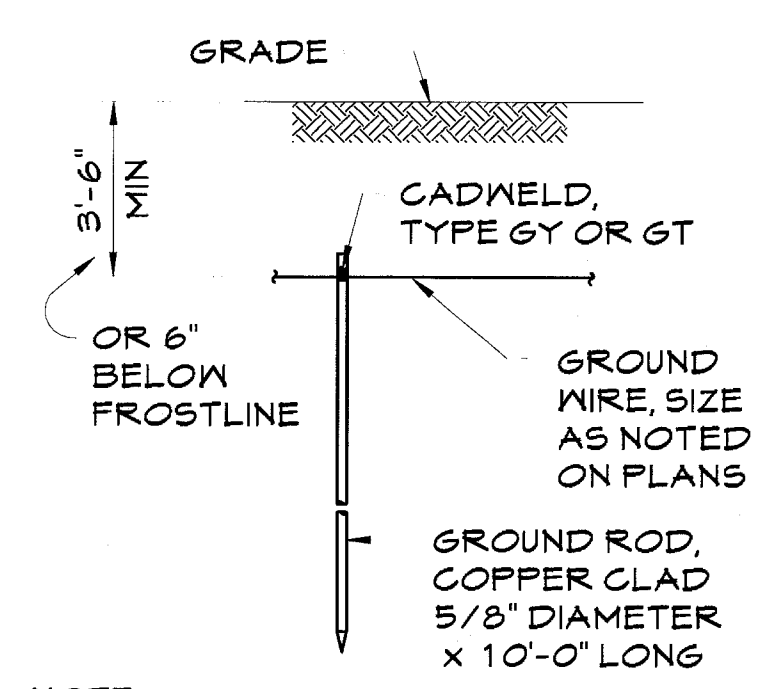
SCALE: AS NOTED
DRAWN BY: MEP
CHKD. BY: GJB
DATE: 11/15/13
FILE: 9-149-078



CADWELD DETAILS

DETAIL
SCALE: NONE

1

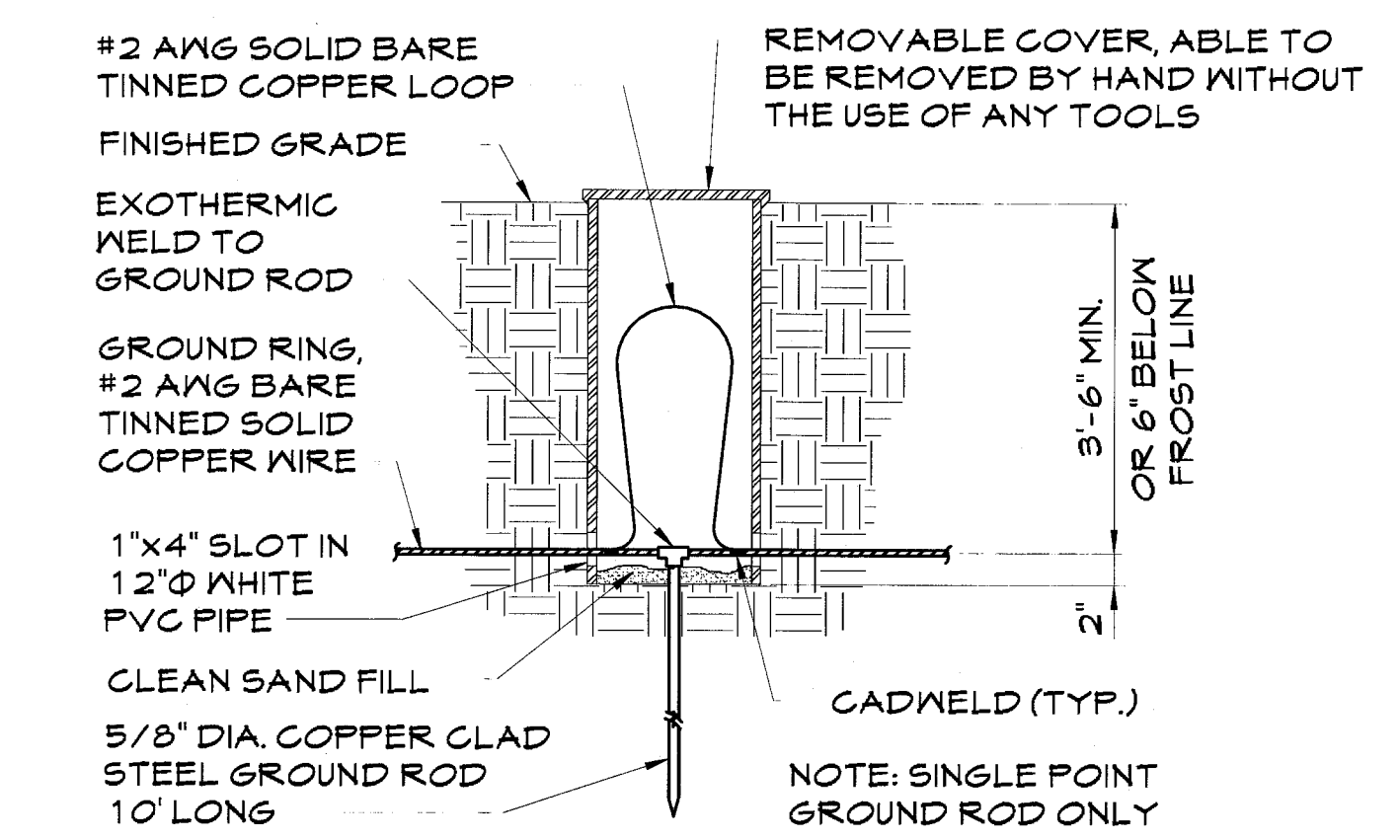


NOTE: GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.

GROUND ROD

DETAIL
SCALE: NONE

4

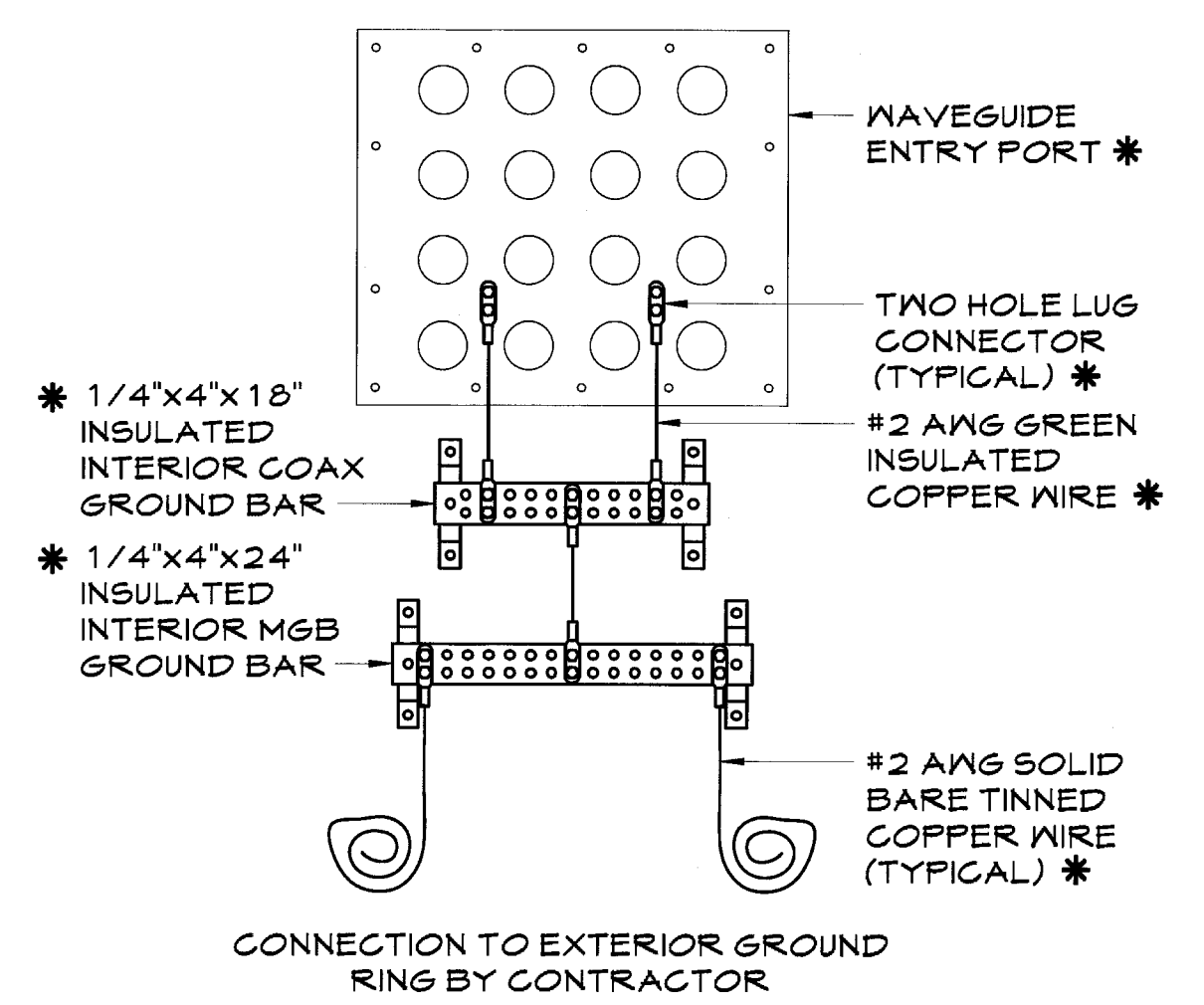


NOTE: TO IMPROVE SYSTEM RESISTANCE, ERICO GEM MAY BE USED AS A BACKFILL MATERIAL IN AN AUGURED HOLE. PROVIDE RODS TO ACHIEVE MAXIMUM 10 OHMS RESISTANCE. VERIZON REPRESENTATIVE MUST BE PRESENT PRIOR TO BACKFILL OF GROUND RING. NOTIFY 24 HOURS IN ADVANCE OF COMPLETION AND/OR BACKFILL.

GROUND ROD TEST WELL

DETAIL
SCALE: NONE

6

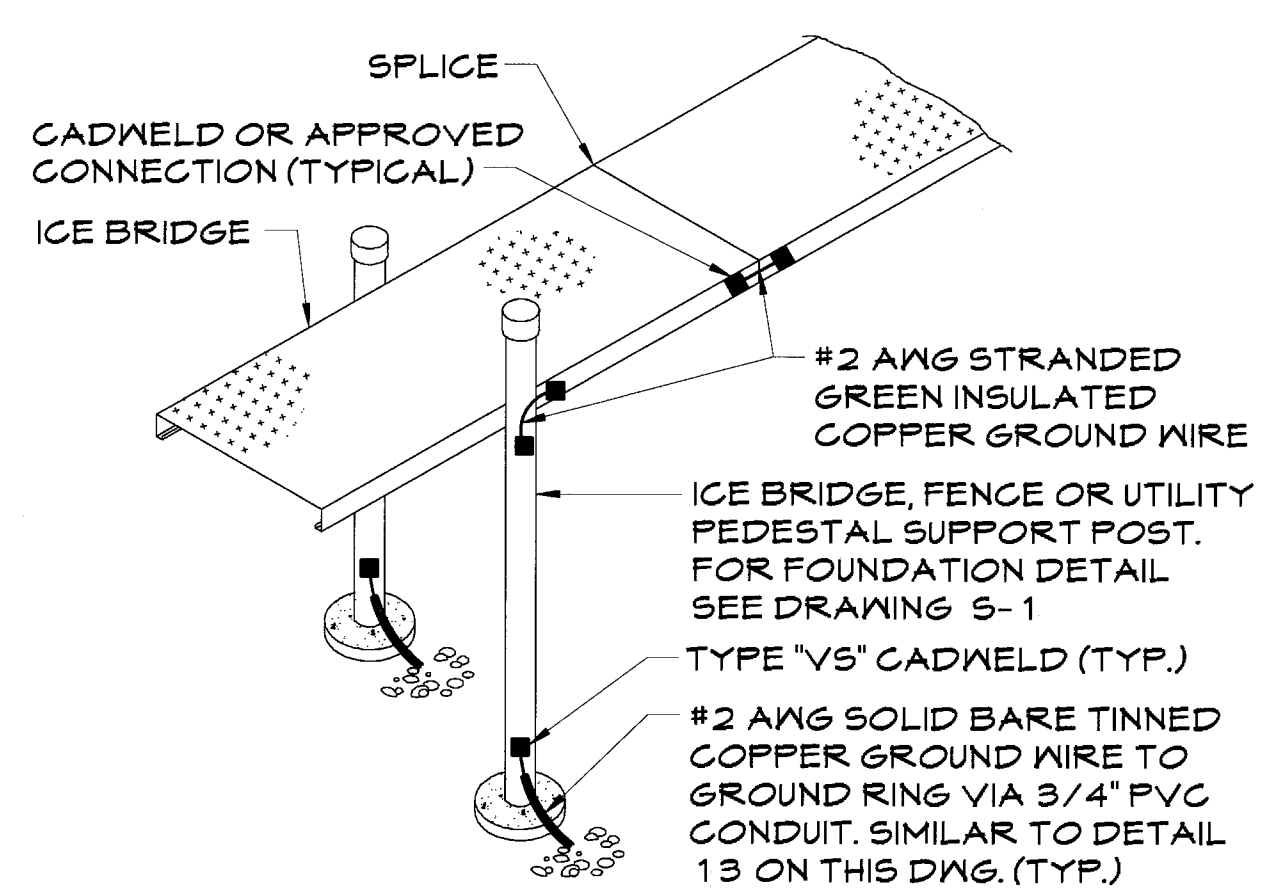


* SUPPLIED BY SHELTER MFR.

WAVEGUIDE ENTRY PORT GROUND DETAIL

DETAIL
SCALE: NONE

2

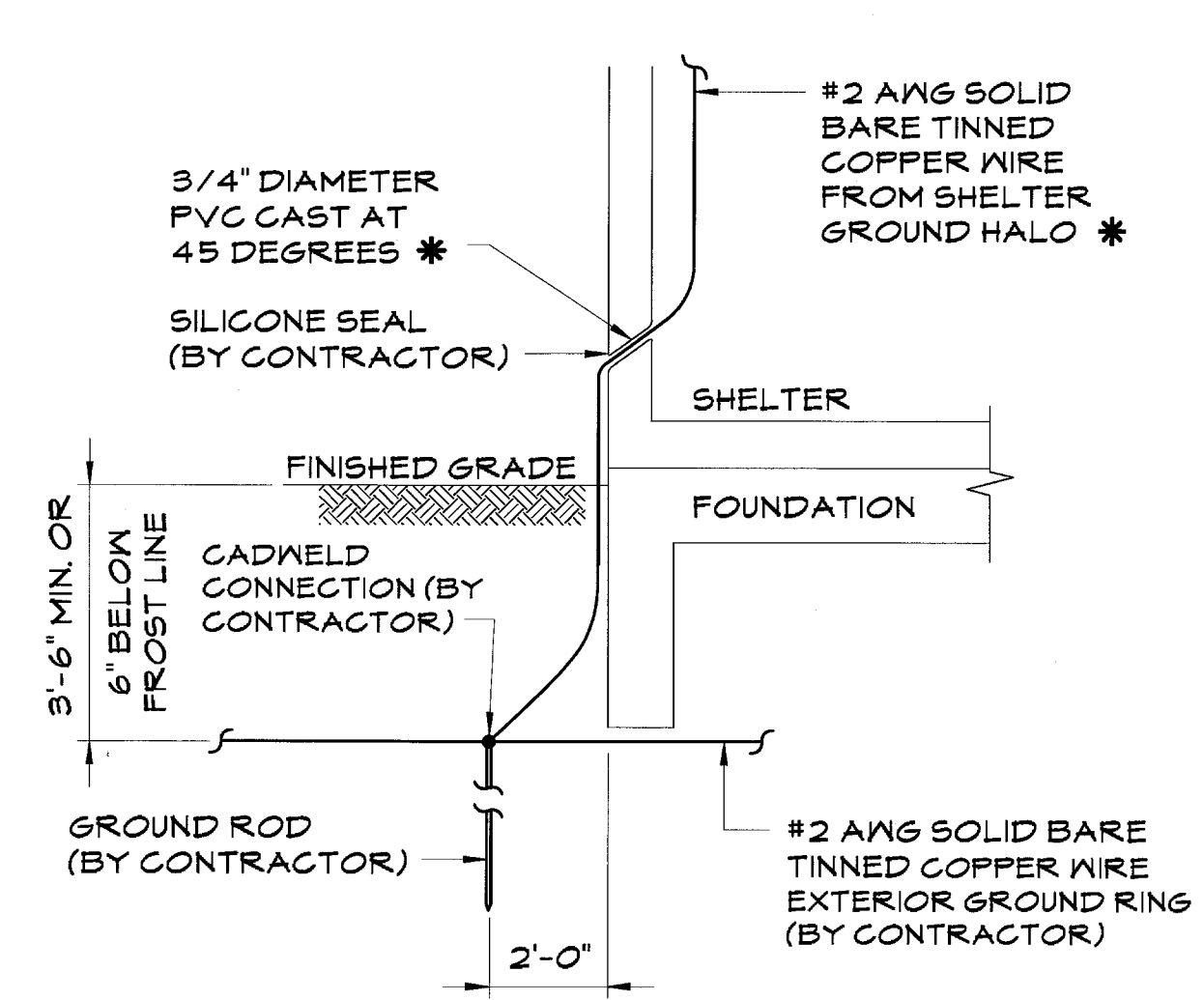


GROUNDING - STANDARD DETAIL

ICEBRIDGE & POSTS

DETAIL
SCALE: NONE

5

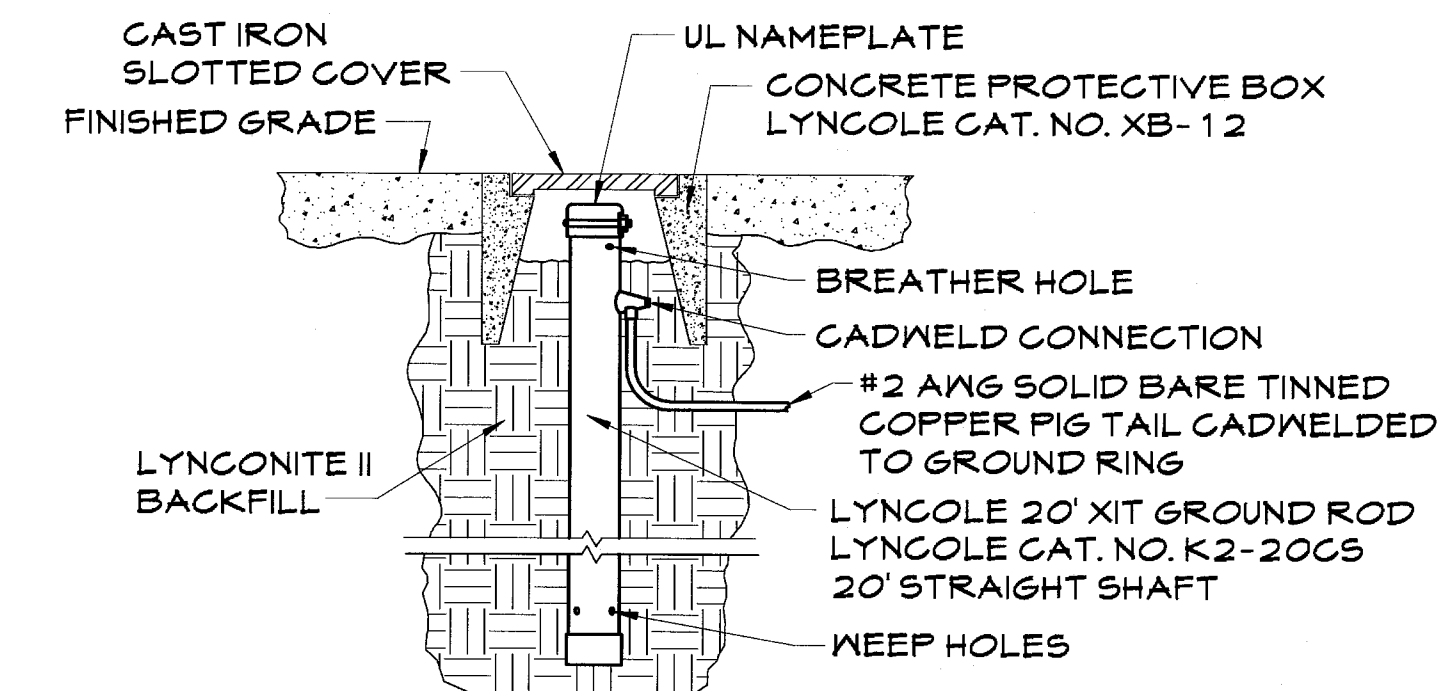


* SUPPLIED BY SHELTER MFR. (TYPICAL FOR (4) CORNERS)

SHELTER HALO GROUND DETAIL

DETAIL
SCALE: NONE

3

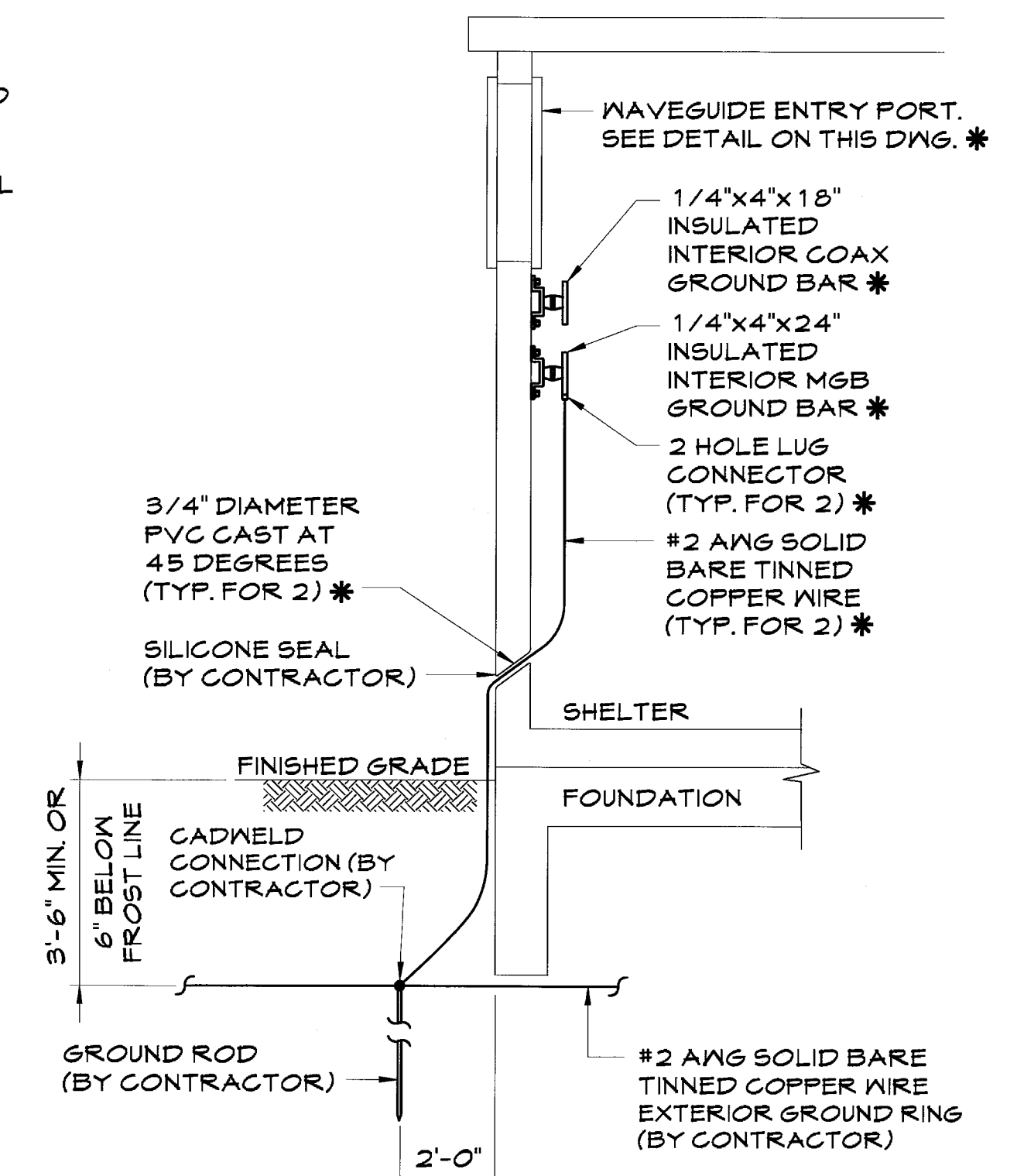


NOTE: CONTRACTOR TO PURCHASE & INSTALL IF SOILS RESISTIVITY TEST INDICATES AVG. SOIL RESISTIVITY > 15000. XIT GROUND SYSTEM IS TO BE DESIGNED BY AND PURCHASED FROM LYNCOLE (1-800-962-2610). INSTALL PER MANUFACTURER'S INSTRUCTIONS.

XIT GROUND ROD STRAIGHT MODEL

DETAIL
SCALE: NONE

10



* SUPPLIED BY SHELTER MFR.

MASTER GROUND BAR DETAIL

DETAIL
SCALE: NONE

7

NOTE:

ALL GROUND WIRES THAT TRANSITION FROM ABOVE GRADE TO BELOW GRADE SHALL BE ROUTED IN A 3/4" PVC CONDUIT (NOT SHOWN FOR CLARITY) FROM THE CONNECTION TO A MINIMUM OF 18" BELOW GRADE. BOTH ENDS OF THE PVC CONDUIT SHALL BE SEALED WITH SILICONE CAULK.

NEW PAR dba



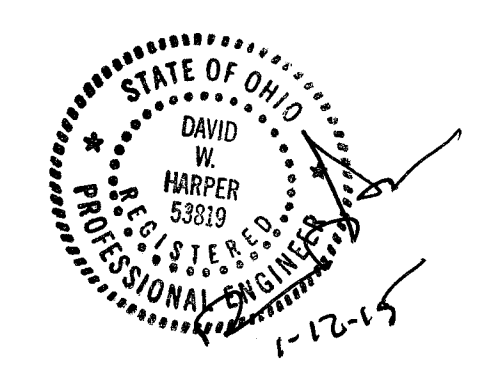
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Engineer's Seal

SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

GROUNDING DETAILS

SHEET No./Rev.:	SCALE: AS NOTED
	DRAWN BY: MEP
	CHK'D BY: GJB
	DATE: 11/13/13
	FILE: 9-149-078

E-5/1

DIVISION 1 - GENERAL REQUIREMENTS:

1. ALL WORK, MATERIAL, AND EQUIPMENT SHALL COMPLY WITH VERIZON WIRELESS STANDARD CONSTRUCTION SPECIFICATIONS, ALL REQUIREMENTS OF THE LATEST EDITIONS AND INTERIM AMENDMENTS OF THE NATIONAL ELECTRICAL CODE (N.E.C.), NATIONAL ELECTRICAL SAFETY CODE, OSHA, AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES. ALL ELECTRICAL EQUIPMENT PROVIDED UNDER THIS CONTRACT SHALL BE NEW (EXCEPT WHERE OTHERWISE NOTED) AND SHALL COMPLY WITH THE REQUIREMENTS OF THE UNDERWRITERS' LABORATORIES (U.L.) AND BEAR THE U.L. LABEL.
2. THE OWNER OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO THE OWNER OR HIS ARCHITECT/ENGINEER.
3. THE CONTRACTOR SHALL SUPPORT, BRACE AND SECURE EXISTING STRUCTURES AS REQUIRED. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING STRUCTURES DURING CONSTRUCTION. FIELD VERIFY ALL EXISTING DIMENSIONS WHICH AFFECT THE NEW CONSTRUCTION.
4. THE CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF THE WORK TO BE COVERED UP OR ENCLOSED UNTIL IT HAS BEEN INSPECTED BY THE GOVERNING AUTHORITIES. ANY WORK THAT IS ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION AND TEST SHALL BE UNCOVERED AT THE CONTRACTOR'S EXPENSE; AFTER IT HAS BEEN INSPECTED, THE CONTRACTOR SHALL RESTORE THE WORK TO ITS ORIGINAL CONDITION AT HIS OWN EXPENSE.
5. ALL EXISTING UTILITIES, FACILITIES, CONDITIONS, AND THEIR DIMENSIONS SHOWN ON PLANS HAVE BEEN PLOTTED FROM AVAILABLE RECORDS. THE ARCHITECT/ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATEVER AS TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS OR THE MANNER OF THEIR REMOVAL OR ADJUSTMENT. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL SAID UTILITIES AND FACILITIES PRIOR TO START OF CONSTRUCTION. CONTRACTOR SHALL ALSO OBTAIN FROM EACH UTILITY COMPANY DETAILED INFORMATION RELATIVE TO WORKING SCHEDULES AND METHODS OF REMOVING OR ADJUSTING AFFECTED UTILITIES.
6. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UTILITIES BOTH HORIZONTALLY AND VERTICALLY PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES OR DOUBTS AS TO THE INTERPRETATION OF PLANS SHOULD BE IMMEDIATELY REPORTED TO THE PROJECT MANAGER FOR RESOLUTION AND INSTRUCTION, AND NO FURTHER WORK SHALL BE PERFORMED UNTIL DISCREPANCY IS CHECKED AND CORRECTED BY THE ARCHITECT/ENGINEER. FAILURE TO SECURE SUCH INSTRUCTION MEANS CONTRACTOR WILL HAVE WORKED AT HIS OWN RISK AND EXPENSE. CONTRACTOR SHALL CALL O.U.P.S. AT (800) 362-2764 24 HRS PRIOR TO START OF CONSTRUCTION TO HAVE UNDERGROUND UTILITIES LOCATED AND MARKED.
7. CONTRACTORS SHALL CLEAN ENTIRE SITE AFTER CONSTRUCTION SUCH THAT NO PAPERS, TRASH, DEBRIS, WEEDS, BRUSH, OR ANY OTHER DEPOSITS REMAIN. ALL MATERIALS COLLECTED DURING CLEANING OPERATIONS SHALL BE PROPERLY DISPOSED OF OFF-SITE BY THE CONTRACTOR.
8. ALL SITE WORK SHALL BE CAREFULLY COORDINATED BY THE CONTRACTOR WITH LOCAL GAS, ELECTRIC, TELEPHONE, AND ANY OTHER UTILITY COMPANIES HAVING JURISDICTION OVER THIS LOCATION.
9. DURING CONSTRUCTION, THE CONTRACTOR SHALL AT ALL TIMES MAINTAIN THE UTILITIES OF THE BUILDING/SITE WITHOUT INTERRUPTION. SHOULD IT BE NECESSARY TO INTERRUPT ANY SERVICE OR UTILITY, THE CONTRACTOR SHALL SECURE PERMISSION IN WRITING FROM THE BUILDING/PROPERTY OWNER FOR SUCH INTERRUPTION, AT LEAST 72 HOURS IN ADVANCE. ANY INTERRUPTION SHALL BE MADE WITH A MINIMUM AMOUNT OF INCONVENIENCE TO THE BUILDING/PROPERTY OWNER AND ANY SUCH SHUTDOWN TIME SHALL BE COORDINATED WITH THE BUILDING/PROPERTY OWNER.
10. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE OHIO STANDARDS FOR EROSION AND SEDIMENT CONTROL.
11. CONTRACTOR SHALL SUBMIT AT THE END OF THE PROJECT A COMPLETE SET OF AS BUILT DRAWINGS TO THE OWNER AND/OR PROJECT MANAGER.

DIVISION 2 - SITE WORK:

1. THE CONTRACTOR SHALL CALL UTILITIES PRIOR TO THE START OF CONSTRUCTION. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES (WHERE ENCOUNTERED IN THE WORK) SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE PROJECT MANAGER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT LIMITED TO:
- A. FALL PROTECTION
B. CONFINED SPACE
C. ELECTRICAL SAFETY
D. TRENCHING AND EXCAVATION
2. REMOVE FROM SITE/OWNER'S PROPERTY ALL WASTE MATERIALS, UNUSED EXCAVATED MATERIAL INCLUDING MATERIAL CLASSIFIED UNSATISFACTORY, CONTAMINATED OR DANGEROUS TRASH AND DEBRIS, AND DISPOSE OF IN A LEGAL MANNER.
3. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF ENGINEERING AND DOCUMENTED ON THE AS-BUILT DRAWINGS.
4. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE BUILDING OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, FERTILIZED, SEEDDED, AND COVERED WITH MULCH AS SPECIFIED IN THE SPECIFICATION LANDSCAPE WORK.
5. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL AND OBC 2011/IBC 2009 STANDARD GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
6. CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND CONSTRUCTION STAKING. CONTRACTOR SHALL ESTABLISH GRADE AND LINE STAKES PRIOR TO CONSTRUCTION.
7. IF DEVIATION FROM THE SUBSURFACE CONDITIONS NOTED IN THE GEOTECH REPORT ARE ENCOUNTERED, DURING CONSTRUCTION, THE OWNER'S REPRESENTATIVE IS TO BE CONTACTED IMMEDIATELY TO DETERMINE IF CHANGES IN THE FOUNDATION DESIGN ARE REQUIRED.

DIVISION 3 - CONCRETE:

1. MINIMUM ALLOWABLE CONCRETE COMPRESSIVE STRENGTH SHALL BE 4000 PSI AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH THE AMERICAN SOCIETY FOR TESTING AND MATERIALS METHODS STANDARDS ASTM C 172, ASTM C 31 AND ASTM C 39 UNLESS OTHERWISE NOTED.
2. CONCRETE FOR ALL FOUNDATIONS: TYPE I PORTLAND CEMENT, 540 LBS PER CUBIC YARD OF CONCRETE MINIMUM CEMENT CONTENT WITH 1-INCH MAXIMUM SIZE AGGREGATE, SLUMP RANGE 3 INCHES TO 5 INCHES, TOTAL AIR CONTENT 4 PERCENT TO 7 PERCENT BY VOLUME. AIR ENTRAINING ADMIXTURE REQUIRED TO CONTROL TOTAL AIR CONTENT, WATER REDUCING ADMIXTURE PERMITTED TO OBTAIN SLUMP OVER 3-INCHES.
3. ALL CONCRETE CONSTRUCTION SHALL MEET THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE (ACI 318) BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND (ACI 301) STANDARD SPECIFICATION FOR STRUCTURAL CONCRETE.
4. REBARS SHALL BE ASTM A-615 DEFORMED TYPE WITH MINIMUM YIELD STRENGTH OF 60,000 PSI (40,000 PSI GRADE MAY BE USED FOR TIES & STIRRUPS). WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185.
5. DETAILING SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE OF DETAILING REINFORCED CONCRETE STRUCTURES (ACI STD-315-99).
6. CHAMFER ALL EXPOSED EDGES OF CONCRETE 3/4".
7. REINFORCING STEEL SHALL BE ACCURATELY PLACED AND ADEQUATELY SECURED IN POSITION. LOCATION OF REINFORCEMENT SHALL BE INDICATED ON THE DRAWINGS. THE FOLLOWING MINIMUM COVER (INCHES) FOR REINFORCEMENT SHALL BE PROVIDED, EXCEPT AS NOTED ON DRAWINGS.
- MINIMUM COVER (INCHES)
CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH ... 3"
EXPOSED TO EARTH OR WEATHER:
#6 THROUGH #18 ... 2"
#5 BAR AND SMALLER ... 1-1/2"
8. TESTS
CONCRETE MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED BY THE CONSTRUCTION MANAGER AS THE WORK PROGRESSES. FAILURE TO DETECT ANY DEFECTIVE WORK OR MATERIAL SHALL NOT IN ANY WAY PREVENT LATER REJECTION WHEN SUCH DEFECT IS DISCOVERED NOR SHALL IT OBLIGATE THE ENGINEER FOR FINAL ACCEPTANCE.
- A. FIVE CONCRETE TEST CYLINDERS SHALL BE TAKEN OF THE TOWER AND/OR SHELTER FOUNDATION, TWO SHALL BE TESTED @ THREE DAYS, TWO @ TWENTY-EIGHT DAYS. THE FIFTH CYLINDER SHALL BE KEPT SEPARATELY, IF REQUIRED TO BE USED IN THE FUTURE.
- B. ONE ADDITIONAL TEST CYLINDER SHALL BE TAKEN DURING COLD WEATHER AND CURED ON SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
- C. ONE SLUMP TEST SHALL BE TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.

9. PLACING CONCRETE

- A. THE CONSTRUCTION MANAGER SHALL BE NOTIFIED NOT LESS THAN 24 HOURS IN ADVANCE OF CONCRETE PLACEMENT, UNLESS INSPECTION IS WAIVED IN EACH CASE. PLACING OF CONCRETE SHALL BE PERFORMED ONLY IN THE PRESENCE OF THE ENGINEER. CONCRETE SHALL NOT BE PLACED UNTIL ALL FORMWORK, EMBEDDED PARTS, STEEL REINFORCEMENT, FOUNDATION SURFACES AND JOINTS INVOLVED IN THE PLACING HAVE BEEN APPROVED, AND UNTIL FACILITIES ACCEPTABLE TO THE OWNER'S REPRESENTATIVE HAVE BEEN PROVIDED AND MADE READY FOR ACCOMPLISHMENT OF THE WORK AS SPECIFIED. CONCRETE MAY NOT BE ORDERED FOR PLACEMENT UNTIL ALL ITEMS HAVE BEEN APPROVED AND THE OWNER'S REPRESENTATIVE HAS PERFORMED A FINAL INSPECTION AND GIVEN APPROVAL TO START PLACEMENT IN WRITING.

- B. PLACEMENT OF CONCRETE SHALL BE IN ACCORDANCE WITH ACI 301.

10. PROTECTION

- A. IMMEDIATELY AFTER PLACEMENT, THE CONTRACTOR SHALL PROTECT THE CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND DAMAGE TO EXPOSED SURFACES (PER ACI 305/306). FINISHED WORK SHALL BE PROTECTED.

- B. CONCRETE SHALL BE MAINTAINED WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

11. ALL CONCRETE SHALL BE CONSOLIDATED BY INTERNAL VIBRATION IN ACCORDANCE WITH ACI 309-12 RECOMMENDED PRACTICE FOR CONSOLIDATION OF CONCRETE.

DIVISION 5 - STRUCTURAL STEEL:

1. DETAIL, FABRICATE AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH THE 9TH EDITION AISC "MANUAL OF STEEL CONSTRUCTION" (ASD), AWS D 1.1 AND OBC 2011/IBC 2009. STRUCTURAL STEEL SHALL COMPLY WITH THE FOLLOWING:
- A. ASTM A992, GRADE 50, W SECTIONS.
B. ASTM A36, GRADE 36, CHANNELS, ANGLES, PLATES, RODS, U-BOLTS AND ANCHOR BOLTS.
C. ALL STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED PER ASTM A 123.
D. STRUCTURAL BOLTED CONNECTIONS SHALL BE MADE WITH ASTM A325 BOLTS IN BEARING TYPE CONNECTIONS.

2. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE REQUIRED DURING CONSTRUCTION UNTIL ALL CONNECTIONS ARE COMPLETE.

3. ANY FIELD CHANGES OR SUBSTITUTIONS SHALL HAVE PRIOR APPROVAL FROM THE CONSTRUCTION MANAGER.

4. TIGHTEN HIGH STRENGTH BOLTS TO A SNUG TIGHT CONDITION WHERE ALL PLIES IN A JOINT ARE IN FIRM CONTACT BY EITHER
- A. A FEW IMPACTS OF A IMPACT WRENCH
B. THE FULL EFFORT OF A PERSON USING A SPUD WRENCH.

5. WELDING

- A. ALL WELDING SHALL BE DONE BY CERTIFIED WELDERS. CERTIFICATION DOCUMENTS SHALL BE MADE AVAILABLE FOR ENGINEER'S AND/OR OWNER'S REVIEW IF REQUESTED.
- B. WELDING ELECTRODES FOR MANUAL SHIELDED METAL ARC WELDING SHALL CONFORM TO ASTM A-233, E70 SERIES. BARE ELECTRODES AND GRANULAR FLUX USED IN THE SUBMERGED ARC PROCESS SHALL CONFORM TO AISC SPECIFICATIONS.
- C. FIELD WELDING SHALL BE DONE AS PER AWS D 1.1 REQUIREMENTS. VISUAL INSPECTION IS ACCEPTABLE.

6. PROTECTION

- A. UPON COMPLETION OF ERECTION, INSPECT ALL GALVANIZED STEEL AND PAINT ANY FIELD CUTS, WELDS, OR GALVANIZED BREAKS WITH ZINC BASED PAINT. COLOR TO MATCH THE GALVANIZING PROCESS.

NEW PAR dba



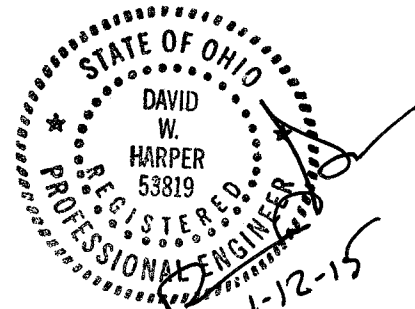
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Engineer's Seal

SITE NAME:
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SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

**GENERAL
NOTES**

SHEET No./Rev.:

SP-1/1

SCALE: AS NOTED
DRAWN BY: MEP
CHKD BY: GJB
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DIVISION 16 - ELECTRICAL

QUALITY ASSURANCE:

1. ALL CONTRACTOR FURNISHED MATERIALS AND EQUIPMENT SPECIFIED ON THE DRAWINGS SHALL BE NEW AND UNUSED, OF CURRENT MANUFACTURE AND OF THE HIGHEST GRADE.
2. ALL EQUIPMENT, MATERIALS AND INSTALLATION METHODS SPECIFIED ON THE PROJECT DRAWINGS SHALL BE DESIGNED AND FABRICATED IN COMPLIANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND REGULATIONS, AND APPROPRIATE INDUSTRIAL CONSENSUS STANDARDS AND CODES INCLUDING ANSI, IEEE, NEMA, NFPA AND UL, ALL AS REVISED AS OF THE DATE OF THIS WORK PACKAGE.
3. ALL ELECTRICAL ITEMS BOTH CONTRACTOR AND OWNER FURNISHED SHALL BE CHECKED FOR AGREEMENT WITH THE PROJECT DRAWINGS AND SPECIFICATIONS AND SHALL BE VISUALLY INSPECTED TO ENSURE THAT EQUIPMENT IS UNDAMAGED AND IS IN PROPER ALIGNMENT, INSTALLED PER MANUFACTURER'S INSTRUCTIONS, ELECTRICAL CONNECTIONS ARE TIGHT AND PROPERLY INSULATED WHERE REQUIRED, FUSES ARE OF THE PROPER TYPE AND SIZE, AND ELECTRICAL ENCLOSURES ARE OF THE PROPER NEMA TYPE.
4. NOTIFY OWNER IN WRITING OF ALL DISCREPANCIES BETWEEN DRAWINGS/SPECIFICATIONS AND FIELD INSTALLATIONS, OR IF THE VISUAL INSPECTIONS SHOW DAMAGE OR IMPROPER INSTALLATION.

GENERAL:

1. THE EQUIPMENT AND MATERIAL SHALL BE FURNISHED AND INSTALLED TO OPERATE SAFELY AND CONTINUOUSLY OUTDOORS WITH NO PROTECTION FROM THE WEATHER.
2. ELECTRICAL WORK REPRESENTED ON THE PROJECT DRAWINGS IS SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS AND ELEVATIONS OF ELECTRICAL EQUIPMENT SHALL BE DETERMINED IN THE FIELD AND VERIFIED WITH THE OWNER'S REPRESENTATIVE.
3. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF TEMPORARY, IF REQUIRED, AND PERMANENT POWER WITH THE LOCAL UTILITY COMPANY. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
4. PROVIDE MOLDED CASE, BOLT-ON, THERMAL MAGNETIC TRIP, SINGLE, TWO OR THREE POLE CIRCUIT BREAKERS. MULTIPLE POLE CIRCUIT BREAKERS SHALL BE SINGLE HANDLE COMMON TRIP. SHORT CIRCUIT INTERRUPTING RATING SHALL BE AS REQUIRED FOR AVAILABLE FAULT CURRENTS. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE A SHORT CIRCUIT INTERRUPTING RATING EQUAL TO OR GREATER THAN THAT SHOWN ON PROJECT DRAWINGS.
5. CONTRACTOR SHALL PERFORM ALL EXCAVATION, TRENCHING, BACKFILLING, AND REMOVAL OF DEBRIS IN CONNECTION WITH THE ELECTRICAL WORK IN ACCORDANCE WITH THE PROJECT DRAWINGS. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF UNDERGROUND UTILITIES AND GROUNDING WITH THE FOUNDATION INSTALLATION.
6. CONTRACTOR SHALL PROVIDE ALL NECESSARY SUPPORTS FOR EQUIPMENT INSTALLED AS PART OF THIS PROJECT. SUPPORTS SHALL CONSIST OF GALVANIZED STEEL FRAMES, PLATES, BRACKETS, RACKS AND OTHER SHAPES OF ADEQUATE SIZE AND FASTENED WITH BOLTS, SCREWS OR BY WELDING TO PROVIDE RIGID SUPPORT.
7. CONTRACTOR SHALL CALL THE APPROPRIATE UTILITIES PROTECTION SERVICE BEFORE ANY UNDERGROUND WORK IS PERFORMED, SUCH AS TRENCHING, EXCAVATING, AND DRIVING GROUND RODS.
8. CONTRACTOR SHALL SEAL AROUND ELECTRICAL PENETRATIONS THROUGH FIRE-RATED WALLS/FLOORS USING APPROVED FIRE STOP MATERIALS TO MAINTAIN THE FIRE RESISTANCE RATING.
9. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENTLY ENGRAVED LAMINATED PHENOLIC NAMEPLATES WITH WHITE ON BLUE BACKGROUND (MINIMUM LETTER HEIGHT SHALL BE 1/2 - INCH). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS.

RACEWAYS:

1. CONDUIT AND CONDUIT FITTINGS SHALL MEET ANSI AND NEC STANDARDS FOR MATERIAL AND WORKMANSHIP AND SHALL BE UL LISTED.
 - A. RIGID STEEL CONDUIT (FOR ALL ABOVE GRADE WORK) SHALL CONFORM TO ANSI C80.1 AND THE REQUIREMENTS OF NEC, PARAGRAPH 344 AND BE STANDARD WEIGHT, MILD RIGID STEEL, HOT DIP GALVANIZED WITH INSIDE AND OUTSIDE FINISHED WITH A PROTECTIVE ZINC COATING. COUPLING, ELBOWS AND BENDS SHALL MEET THESE SAME REQUIREMENTS. FITTINGS SHALL BE OF THE GALVANIZED IRON OR STEEL THREADED TYPE.
 - B. PVC CONDUIT (FOR ABOVE GROUND OR UNDERGROUND WORK) SHALL CONFORM TO UL STANDARD 651 AND THE REQUIREMENTS OF NEC, PARAGRAPH 352. CONDUIT SHALL BE HEAVY WALL TYPE, SCHEDULE 40 OR 80, AND SUNLIGHT RESISTANT. FITTINGS SHALL BE OF THE UNTHREADED SOLVENT CEMENT TYPE.
 - C. EMT CONDUIT (FOR EXPOSED AND CONCEALED WORK): ELECTRIC METALLIC TUBING SHALL CONFORM TO ANSI C80.3 AND THE REQUIREMENTS OF NEC, PARAGRAPH 358 AND BE PROTECTED FROM CORROSION SUITABLE FOR THE ENVIORMENT IN WHICH THEY ARE TO BE INSTALLED. COUPLINGS AND CONNECTORS SHALL BE MADE UP TIGHT AND WHERE INSTALLED IN WET LOCATIONS SHALL COMPLY WITH NEC PARAGRAPH 314.15.
2. MINIMUM CONDUIT SIZE SHALL BE 3/4-INCH, SIZES NOT SHOWN ON DRAWINGS SHALL BE PER THE LATEST EDITION OF THE NEC.
3. ALL SPARE CONDUITS SHALL HAVE A METALLIC PULL WIRE.
4. CONDUIT SUPPORTS SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AND IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC.
5. UNDERGROUND CONDUITS:
 - A. INSTALL WARNING TAPE TWELVE INCHES ABOVE EACH CONDUIT OR SET OF CONDUITS.
 - B. IDENTIFY EACH CONDUIT AT BOTH ENDS.
 - C. INSTALL A MINIMUM OF 36 INCHES BELOW THE FINISHED GRADE, OR DEEPER IF NOTED ON PLAN DRAWINGS.
 - D. SLOPE A MINIMUM OF 4 INCHES PER 100 FEET TO DRAIN AWAY FROM BUILDINGS AND EQUIPMENT.
 - E. USE MANUFACTURED ELECTRICAL PVC ELBOWS AND FITTINGS FOR BELOW GRADE BENDS.
 - F. MAKE JOINTS AND FITTINGS WATERTIGHT ACCORDING TO MANUFACTURER'S INSTRUCTIONS.
 - G. INSTALL A COUPLING BEFORE EACH WALL PENETRATION.
 - H. RESTORE SURFACE FEATURES DISTURBED BY EXCAVATION (AND TRENCHING) IN ALL AREAS.

CABLE TRAYS:

1. ALL CABLE TRAYS AND FITTINGS SHALL BE DESIGNED, MANUFACTURED, INSTALLED AND TESTED IN CONFORMANCE WITH NEMA VE 1 AND VE 2.
2. CABLE TRAYS SHALL BE LADDER TYPE WITH 9-INCH SPACING.
3. CABLE TRAYS SHALL BE CAPABLE OF SUPPORTING 75 LBS./LINEAR FOOT.
4. CABLE TRAYS AND FITTINGS SHALL BE MANUFACTURED OF GALVANIZED STEEL.
5. CABLE TRAYS SHALL BE FURNISHED WITH COVERS WHERE SHOWN ON THE PROJECT DWG'S.
6. ALL DISCONTINUOUS SECTIONS OF CABLE TRAY SHALL BE BONDED ACROSS JOINTS.

CONDUCTORS:

1. ALL POWER, CONTROL AND COMMUNICATION WIRING SHALL MEET NEMA WC, ASTM, UL, AND NEC STANDARDS FOR MATERIAL AND WORKMANSHIP UNLESS OTHERWISE SPECIFIED.
 - A. SERVICE ENTRANCE CONDUCTORS SHALL BE COPPER, 600 VOLT, SUNLIGHT RESISTANT, SUITABLE FOR WET LOCATIONS, TYPE USE-2. THE GROUNDED NEUTRAL CONDUCTOR SHALL BE IDENTIFIED WITH A WHITE MARKING AT EACH TERMINATION.
 - B. CONDUCTORS FOR FEEDER AND BRANCH CIRCUITS SHALL BE COPPER, 600VOLT, TYPE THHN/THWN WITH A MINIMUM SIZE OF # 12 AWG.
2. ALL CONDUCTOR ACCESSORIES INCLUDING CONNECTORS, TERMINATIONS, INSULATING MATERIALS, SUPPORT GRIPS, MARKER AND CABLE TIES SHALL BE FURNISHED AND INSTALLED. SUPPLIER'S INSTALLATION INSTRUCTIONS SHALL BE OBTAINED FOR CABLE ACCESSORIES. THESE INSTRUCTIONS SHALL BE IN THE POSSESSION OF THE CRAFTSMAN WHILE INSTALLING THE ACCESSORIES AND SHALL BE AVAILABLE TO THE COMPANY FOR REFERENCE.
3. WHERE POSSIBLE, #6 AWG AND SMALLER WIRE SHALL BE COLOR CODED BY THE COLOR OF THE INSULATION COVERING. COLOR CODING OF WIRE LARGER THAN #6 AWG MAY BE BY MEANS OF SELF-ADHESIVE WRAP-AROUND TYPE MARKERS, PER NEC.
4. TERMINAL CONNECTORS FOR CONDUCTORS SMALLER THAN #8 AWG SHALL BE COMPRESSION TYPE CONNECTORS SIZED FOR THE CONDUCTOR AND THE TERMINAL. THE CONNECTORS SHALL BE CONSTRUCTED OF FINE GRADE HIGH CONDUCTIVITY COPPER IN ACCORDANCE WITH FEDERAL SPECIFICATION QQ-C-576 AND SHALL BE TIN-PLATED IN ACCORDANCE WITH MILITARY PLATING SPECIFICATION MIL-T-10727. THE INTERIOR SURFACE OF THE CONNECTOR WIRE BARREL SHALL BE SERRATED AND THE EXTERIOR SURFACE OF THE CONNECTOR WIRE BARREL SHALL BE PROVIDED WITH CRIMP GUIDES.
5. TERMINAL CONNECTORS FOR CONDUCTORS #8 AWG AND LARGER SHALL BE PRESSURE OR BOLTED CLAMP, TYPE BURNDY, QUICKLUG, VARILUG OR ACCEPTABLE EQUAL, OR COMPRESSION, TYPE BURNDY TYPE YAV OR YA (LONG BARREL), PANDUIT TYPE LCA OR LCC, OR ACCEPTABLE EQUAL. ACCEPTABLE CONNECTORS INCLUDED WITH COMPANY FURNISHED EQUIPMENT MAY BE USED.
6. TERMINATION PROVISIONS OF EQUIPMENT FOR CIRCUITS RATED 100 AMPERES OR LESS, OR MARKED FOR NOS. 14 THROUGH 1 CONDUCTORS, SHALL BE USED ONLY FOR CONDUCTORS RATED 60°C (140°F). CONDUCTORS WITH HIGHER TEMPERATURE RATINGS SHALL BE PERMITTED, PROVIDED THE AMPACITY OF EACH CONDUCTOR IS DETERMINED BASED ON THE 60°C (140°F) AMPACITY OF THE CONDUCTOR SIZE USED.
7. TERMINATION PROVISIONS OF EQUIPMENT FOR CIRCUITS RATED OVER 100 AMPERES, OR MARKED FOR CONDUCTORS LARGER THAN NO. 1, SHALL BE USED ONLY FOR CONDUCTORS RATED 75°C (167°F). CONDUCTORS WITH HIGHER TEMPERATURE RATINGS SHALL BE PERMITTED, PROVIDED THE AMPACITY OF EACH CONDUCTOR IS DETERMINED BASED ON THE 75°C (167°F) AMPACITY OF THE CONDUCTOR SIZE USED.
8. ALL 600 VOLT OR LESS WIRING, WHERE COMPRESSION TYPE CONNECTORS ARE USED, SHALL BE INSULATED WITH AT LEAST ONE TURN OF "SCOTCHFILL" ELECTRICAL INSULATING PUTTY AND THEN COVERED WITH TWO HALF TURNS OF TAPE SIMILAR TO 3M COMPANY'S "33 PLUS" (33+) PLASTIC TAPE OR 88 OUTDOOR.

GROUNDING:

1. ALL BASE TRANSCEIVER SITE EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), THE LATEST EDITION OF LIGHTNING PROTECTION CODE NFPA 780 AND MANUFACTURERS SPECIFICATIONS.
2. THE ELECTRICAL SERVICE TO THE SITE SHALL BE GROUNDED AT THE SERVICE DISCONNECTING MEANS REQUIRED IN ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, AND IN ACCORDANCE WITH ANY LOCAL CODE.
3. ALL UNDERGROUND (BELOW GRADE) GROUNDING CONNECTIONS SHALL BE MADE BY THE CADWELD PROCESS (MECHANICAL LUG ATTACHMENTS BELOW GRADE ARE NOT ACCEPTABLE). CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE SPLICES (TEES, Xs, ETC.), ALL CABLE CONNECTIONS TO GROUND RODS, GROUND ROD SPLICES, AND LIGHTNING PROTECTION SYSTEM AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY CADWELD AND INSTALLED PER MANUFACTURER'S RECOMMENDATION AND PROCEDURES.
4. ALL GROUNDING AND BONDING CONDUCTORS THAT ARE CONNECTED ABOVE GRADE OR INTERIOR TO A BUILDING SHALL BE CONNECTED USING TWO HOLED CRIMP TYPE (COMPRESSION) CONNECTIONS FOR #2 & #6 AWG INSULATED COPPER CONDUCTORS.
5. ALL GROUNDING CONNECTIONS, INTERIOR AND EXTERIOR, MADE THROUGHOUT THIS DOCUMENT SHALL BE MADE USING AN ANTI-OXIDATION COMPOUND. THE ANTI-OXIDATION COMPOUND SHALL BE THOMAS AND BETTS KOPR-SHIELD (TM OF JET LUBE INC.), OR BURNDY PENETROX -E, NO SUBSTITUTIONS. COAT ALL WIRES BEFORE LUGGING. COAT ALL SURFACES BEFORE CONNECTING.
6. ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. PRIOR TO CADWELD, GALVANIZING SHALL BE REMOVED BY GRINDING SURFACE TO BARE METAL. "SLAG" FROM CADWELD MUST BE REMOVED AND WELD SHALL BE SPRAYED WITH COLD GALVANIZE AFTER COMPLETION.
7. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED. CLIPS OF THE FOLLOWING MATERIALS AND TYPES MAY BE USED TO SUPPORT GROUNDING CONDUCTORS.
 - PLASTIC CLIPS
 - STAINLESS STEEL CLIPS WHICH DO NOT COMPLETELY SURROUND THE GROUNDING CONDUCTOR
 - FERROUS METAL CLIPS WHICH DO NOT COMPLETELY SURROUND THE GROUNDING CONDUCTOR

8. ALL BELOW GRADE GROUNDING CONDUCTORS SHALL BE BARE TINNED SOLID COPPER WIRE. ABOVE-GRADE GROUNDING CONDUCTORS MAY BE EITHER:
 - BARE TINNED SOLID COPPER WIRE
 - THWN-INSULATED, CONTINUOUS GREEN COLOR, SOLID COPPER WIRE
 - THWN-INSULATED, CONTINUOUS GREEN COLOR, STRANDED COPPER WIREAS SPECIFIED ON THE GROUNDING DRAWINGS.
- A. UNDERGROUND GROUND RING SHALL BE A #2 AWG BARE TINNED SOLID COPPER WIRE
- B. #2 AWG WIRE SHALL BE STRANDED COPPER WITH GREEN THWN INSULATION SUITABLE FOR WET INSTALLATION (SOME ABOVE GROUND APPLICATIONS, I.E. INDOOR GROUND RING).
- C. #4/0 AWG WIRE SHALL BE STRANDED COPPER WITH GREEN THWN INSULATION SUITABLE FOR WET LOCATIONS (I.E. TO MAIN GROUND, BUILDING STEEL, BETWEEN GROUND BARS, LIGHTNING PROTECTION, MAIN WATER LINE OF THE BUILDING OR EXISTING GROUND ROD).
- D. #2 AWG WIRE SHALL BE BARE TINNED SOLID COPPER. ALL BURIED WIRE SHALL MEET THIS CRITERIA, INCLUDING CABLE TRAY GROUNDING WIRES AND OTHER WIRES AS INDICATED ON THE DRAWINGS.
- E. FENCE GATE BONDING JUMPER SHALL BE 4/0 WELDING CABLE THAT HAS BEEN CRIMPED ON EACH END WITH A CAP FOR THE CADWELD PROCESS.
- F. THE MINIMUM BEND RADIUS IS 8 INCHES FOR #6 AWG AND SMALLER; 12 INCHES FOR WIRE LARGER THAN #6 AWG.
9. ALL HARDWARE, BOLTS, NUTS, WASHERS AND LOCK WASHERS SHALL BE 18-8 STAINLESS STEEL. EVERY CONNECTION SHALL BE BOLT-FLAT WASHER-BUSS-LUG-FLAT WASHER-LOCK WASHER-NUT IN THAT EXACT ORDER, WITH NUT FACING OUTWARD. BACK-TO-BACK LUGGING, BOLT-FLAT WASHER-LUG-FLAT WASHER-BUSS-LUG-LOCK WASHER-NUT, IN THAT EXACT ORDER IS ACCEPTED WHERE NECESSARY TO CONNECT MANY LUGS TO A BUSS BAR. STACKING OF LUGS, BUSS-LUG-LUG, IS NOT ACCEPTABLE.
10. COMPRESSION GROUND LUGS FOR GROUNDING CONDUCTORS SHALL BE BURNDY TYPE YAXX-2TC38 OR APPROVED EQUAL.
11. THE DEPTH OF THE GROUND RING, WHEN SPECIFIED, SHALL BE EITHER 3'-6" BELOW FINAL GRADE OR IT SHALL BE INSTALLED TO THE MINIMUM DEPTH REQUIRED BY LOCALLY ENFORCED CODES, REGULATIONS AND ORDINANCES, WHICHEVER IS DEEPER.
12. THE GROUND RING, WHEN SPECIFIED, SHALL BE A MINIMUM OF 24 INCHES FROM THE EQUIPMENT SHELTER FOUNDATION, PLATFORM OR CONCRETE PAD.
13. GROUND RODS, WHEN SPECIFIED, SHALL BE 5/8 INCH STEEL, CLAD WITH A PURE COPPER JACKET OF NOT LESS THAN 0.0012 INCHES THICK, 8 FEET LONG (MIN.). GROUND RODS SHALL BE DRIVEN TO THE FULL VERTICAL LENGTH IN UNDISTURBED EARTH.
14. SPACING BETWEEN GROUND RODS, WHEN SPECIFIED, SHALL BE A MINIMUM OF 6 FEET PER THE NATIONAL ELECTRICAL CODE.
15. XIT RODS, WHEN SPECIFIED, SHALL BE MIN. 2" ID TYPE "K" COPPER TUBE WITH A MINIMUM WALL THICKNESS OF 0.083" AND SHALL BE A MINIMUM OF 8 FEET IN LENGTH. THE XIT COPPER PIPE/ROD SHALL BE FILLED WITH NON-HAZARDOUS METALLIC SALTS. THE BACKFILL MATERIAL SHALL BE NATURAL CLAY LYNCONITE II. THE COVER SHALL BE FIBERLYTE CAST IRON, LYNCOLE MODEL XB-12F, FOR LIGHT TRAFFIC AREAS, XB-12 FOR MEDIUM TRAFFIC AREAS AND XB-22, FOR HEAVY TRAFFIC OR PAVED AREAS.
16. PFC BONDING. PFC UNITS ARE SHIPPED WITH A NEUTRAL-GROUND BONDING JUMPER INSTALLED (SERVICE ENTRANCE RATED). AT SITES WHERE THE PFC IS NOT SERVICE ENTRANCE RATED EQUIPMENT (AS DEFINED BY THE NEC), THIS BONDING JUMPER SHALL BE REMOVED. NOTE: AT SITES WHERE THE PFC IS NOT SERVICE ENTRANCE RATED EQUIPMENT, THE CONTRACTOR SHALL VERIFY THAT THE SERVICE ENTRANCE NEUTRAL IS GROUNDED PRIOR TO REMOVAL OF THE BONDING JUMPER IN THE PFC.
17. THE ANTENNA CABLES SHALL BE GROUNDED AT THE TOP AND BOTTOM OF THE VERTICAL RUN. THE ANTENNA CABLE SHIELD SHALL BE BONDED TO A COPPER GROUND BUS AT THE LOWEST POINT OF VERTICAL RUN. THE ANTENNA CABLE SHIELD SHALL BE GROUNDED JUST BEFORE ENTERING THE BTS CABINET. GROUNDING KITS ON COAX CABLE SHALL HAVE A MINIMUM BEND OF 6" AND SHALL BE KEPT AS CLOSE TO VERTICAL AS POSSIBLE. FLAT WASHER SENT WITH GROUND KITS MUST BE REPLACED WITH SMALLER STAINLESS FLAT WASHERS. WASHERS MUST REMAIN FLAT AGAINST GROUND BAR. ALL FASTENERS MUST BE STAINLESS STEEL AND KOPR-SHIELD MUST BE USED ON BOTH SIDES OF GROUND BAR.

LIGHTNING PROTECTION:

1. LIGHTNING PROTECTION MATERIALS SHALL BE FURNISHED BY THE OWNER AND INSTALLED BY CONTRACTOR.

GROUND SYSTEM TESTING:

1. A RESISTANCE-TO-GROUND OF 3 OHMS OR LESS IS THE OBJECTIVE OF THE EXTERNAL GROUND SYSTEM. THE CONTRACTOR SHALL PERFORM TESTS AS SPECIFIED IN THE OWNERS STANDARDS - SITE RESISTANCE TO EARTH TESTING TO DETERMINE RESISTANCE-TO-GROUND OF THE COMPLETED EXTERNAL GROUND SYSTEM. TEST SHALL BE PERFORMED PRIOR TO BACKFILLING TRENCHES. THE CONTRACTOR SHALL EMPLOY THE SERVICES OF AN EXPERIENCED TESTING LABORATORY OR ENGINEERING FIRM FAMILIAR WITH THE SPECIFIED TEST METHOD. IF RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 10 OHMS, NOTIFY THE OWNER'S REPRESENTATIVE FOR FURTHER DIRECTION.
2. GROUND RESISTANCE SHALL BE MEASURED FOR EACH PIECE OF EQUIPMENT TO THE GROUND ELECTRODE.
3. GROUNDING RESISTANCE TEST REPORT: A GROUNDING RESISTANCE TEST REPORT SHALL BE PREPARED UPON COMPLETION OF THE TESTING FOR EACH SITE. THE TEST REPORT SHALL CONTAIN THE COMPLETED OWNERS FORMS AND SHOW THE RESISTANCE IN OHMS AT 62% SPACING AND WITH AUXILIARY POTENTIAL ELECTRODES AND READINGS AT 10% INTERVALS WITH A TOTAL DISTANCE OF AT LEAST 500 FEET OR UNTIL THE AVERAGE RESISTANCE STARTS INCREASING. IT SHALL CONTAIN 10 TO 15 PHOTOGRAPHS TAKEN DURING CONSTRUCTION TO PROVIDE PROOF THAT THE ENTIRE EXTERNAL GROUND RING SYSTEM WAS COMPLETE BEFORE BACKFILLING. THE CONTRACTOR SHALL ALSO NOTIFY THE OWNER NO LESS THAN 48 HOURS IN ADVANCE OF BACKFILL TESTING SHALL BE COMPLETED BY THE CONTRACTOR AND TWO (2) COPIES OF THE GROUNDING RESISTANCE TEST REPORT ARE TO BE BOUND AND SUBMITTED WITHIN 2 DAYS OF TEST COMPLETION FOR EACH SITE.

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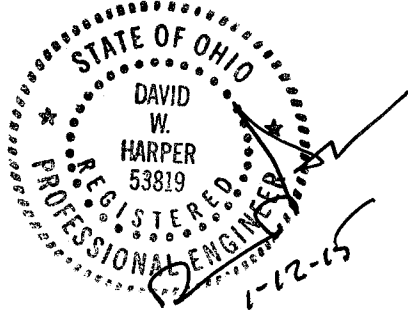
HARPER
ENGINEERING, INC.
TELECOM GROUP

815 Superior Ave, Suite 1514
Cleveland, OH 44114

Phone: (216)344-3855
Fax: (216)344-3856

DRAWING REVISIONS

Rev.	Description:	Date:	Mgr.
A	For Approval	04/25/14	DWH
0	For Construction	08/12/14	DWH
1	For Construction	01/12/15	DWH



Engineer's Seal

SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

GENERAL
NOTES

SHEET No./Rev.:	SCALE: AS NOTED
SP-2/1	DRAWN BY: MEP
	CHECKED BY: GJB
	DATE: 11/15/13
	FILE: 9-149-078

Attachment A

NOTICE TO CONTRACTOR – ENVIRONMENTAL CONDITIONS/RESTRICTIONS AT
MASSILLON DT II / EBBROS LLC (CNTN-056)-OH

Note: Verizon Wireless makes no representation or warranty as to the accuracy or completeness of the information below. Company is fully responsible for its own compliance with all applicable laws and regulations. To the extent that Company becomes aware of any additional environmental conditions, it agrees to immediately inform Verizon Wireless.

The Company's response to this construction bid shall constitute the Company's acknowledgement and acceptance of the stated conditions and restrictions at the site.

The following environmental conditions have been identified at the project site:

Environmental Condition	Description and Location of Contaminant
<input checked="" type="checkbox"/> Check All That Apply	
X Contaminated soil	Soils on site contain elevated levels of lead ranging from 654 ppm to 774 ppm (compared to Ohio EPA-VAP residential standard of 400 ppm). Soils with elevated levels of lead were encountered in EB-2 and EB-6 (see attached map for boring locations).
Contaminated groundwater	
Presence of asbestos	
Presence of lead-based paint	
Other:	

Applicable legal requirements or Verizon Wireless policies and procedures may require that these conditions be communicated to all parties involved in the construction activities at the project site. To the extent that the scope of the project work includes measures to address these conditions, details of the work to be performed shall be as specified in the project documents and/or the Authorization Letter.

Environmental conditions affecting scope of work:
(see project documents for detailed specifications)

All contractors and workers conducting work on this project must be notified of the possible presence of elevated levels of lead in the soils on site. All contractors and site workers should undertake all necessary and proper OSHA precautions while working in and around the soils and groundwater on site.

A **Soil Management Plan**, dated August 26, 2014 has been developed by VZW's environmental oversight consultant, CTL, for the site to address the potential for impacted soils. The **Soil Management Plan** shall be implemented and consulted for specific details as to plan implementation. CTL, the environmental oversight consultant, shall be notified at least two weeks in advance of excavation and construction so that the consultant can be mobilized to conduct the required work.

Environmental Oversight Consultant

Bipender Jindal
CTL Engineering, Inc.
2860 Fisher Road
Columbus, Ohio 43204
(614) 276-8123
jindalb@ctleng.com

Company is required to comply fully with all applicable environmental, industrial hygiene, and worker health and safety laws and regulations; Verizon Wireless' directions and/or instructions contained in this Notice To Contractors. Company shall retain qualified, appropriately specialized (and/or licensed,

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as required) and adequately insured environmental firms for the completion of specialized work as applicable. Company shall evaluate whether a Health and Safety Plan (HASP) is warranted. Verizon Wireless shall have the final authority to approve the selection of such environmental firms performing services on its behalf.

The construction bid package shall include qualifications of proposed firms with respect to the following required services:

Environmental Services Required
<input checked="" type="checkbox"/> Check All That Apply
Asbestos abatement
Lead based paint abatement
Hazardous or special waste transportation and disposal.
<input checked="" type="checkbox"/> Excavation, drilling, or advancement through and staging/stockpiling of lead contaminated soils. <ul style="list-style-type: none">All excavated soils must be handled and disposed of in accordance with CTL's Soil Management Plan, dated August 26, 2014.Pursuant to CTL's Soil Management Plan, all soils excavated as part of the development and construction of the proposed tower site and access path shall be segregated and stockpiled for waste characterization prior to their reuse on-site or disposal off-site. If the total lead concentration of analyzed soils from the stockpiled soils is below Ohio EPA's Voluntary Action Program (VAP) residential land use scenario of 400 ppm, the soil may be reused on-site. If any soil samples exhibit lead concentrations above 400 ppm, the stockpiled soils must be disposed off-site at a licensed solid waste landfill.CTL, the environmental oversight consultant, must be notified at least two (2) weeks in advance of excavation and construction work so that the consultant can be mobilized to conduct the required work.
<input checked="" type="checkbox"/> Other: All contractors and workers conducting work on this project must be notified of the possible presence of elevated levels of lead in the soils on site, and that they should undertake all necessary and proper OSHA precautions while working in and around the soils on site.

Company shall ensure at all times that only appropriately trained qualified, and licensed workers perform the required environmental services. It is the responsibility of Company to adhere to the following restrictions in response to the above environmental conditions:

An outside environmental "oversight" consultant is required if transportation and disposal of wastes is carried out in accordance with applicable laws, regulations and the Verizon Wireless Environmental Compliance Program. THE USE OF SUCH CONSULTANT IS MANDATORY.

Site Restrictions
<input checked="" type="checkbox"/> Check All That Apply
<input checked="" type="checkbox"/> Restrictions on excavations/construction methods. Description: In accordance with the Soil Management Plan, all soils with total lead levels of 400 ppm or above must be taken offsite and disposed of in a licensed solid waste landfill.
Diesel fuel is prohibited at the construction site, except in the fuel tank of the vehicle.
Gasoline is prohibited at the construction site, except in the fuel tank of the vehicle.
Other:

Contractor's Signature: _____

Print Name: _____

Witness: _____

Site Name: Massillon DT II / Ebbros LLC (CNTN-056)

Site Address: Finefrock Road SW

City: Massillon State: Ohio

NOTE: This signed original is to be returned to Area Compliance along with the EES Closeout Report.

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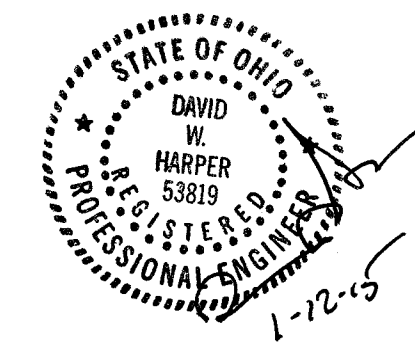
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Engineer's Seal

SITE NAME:
MASSILLON DT II

SITE NUMBER:
CNTN-056

FINEFROCK ROAD SW
MASSILLON, OH 44647

SHEET NAME:

NOTICE TO
CONTRACTOR

SHEET No./Rev.:

NTC

SCALE: AS NOTED

DRAWN BY: MEP

CHK'D BY: GJB

DATE: 11/15/13

FILE: 1-149-078