

# TWIN BRIDGES SUBSTATION TRANSFORMER ADDITION

CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

## DRAWING LIST

TBTA-01	Site Plan
TBTA-01A	Partial Site Surfacing Plan
TBTA-02	Partial One-Line Diagram
TBTA-03	Partial Structure Plan
TBTA-03A	Structure Elevations
TBTA-03B	Structure Elevations
TBTA-03C	Miscellaneous Details
TBTA-04	Overall Grounding Plan
TBTA-04A	Partial Grounding Plan
TBTA-04B	Grounding Details
TBTA-05	Partial Foundation Plan
TBTA-05A	Transformer Foundation Plan & Details
TBTA-05B	Foundation Details
TBTA-05C	Foundation Details
TBTA-05D	Control Building Foundation Plan & Details
TBTA-05E	Oil Containment Pit Plan & Details
TBTA-06	Partial Conduit Plan
TBTA-06A	Conduit & Wiring Schedules
TBTA-06B	Conduit, Wiring & Pull Box Details
TBTA-06C	Pull Box Details
TBTA-06D	AC & DC Panels
TBTA-06E	230kV 3Ø Rapides Line PT Junction Box
TBTA-07	New Control Building Layout
TBTA-07A	New Control Building Interior Elevations
TBTA-07B	Existing Control Building Layout

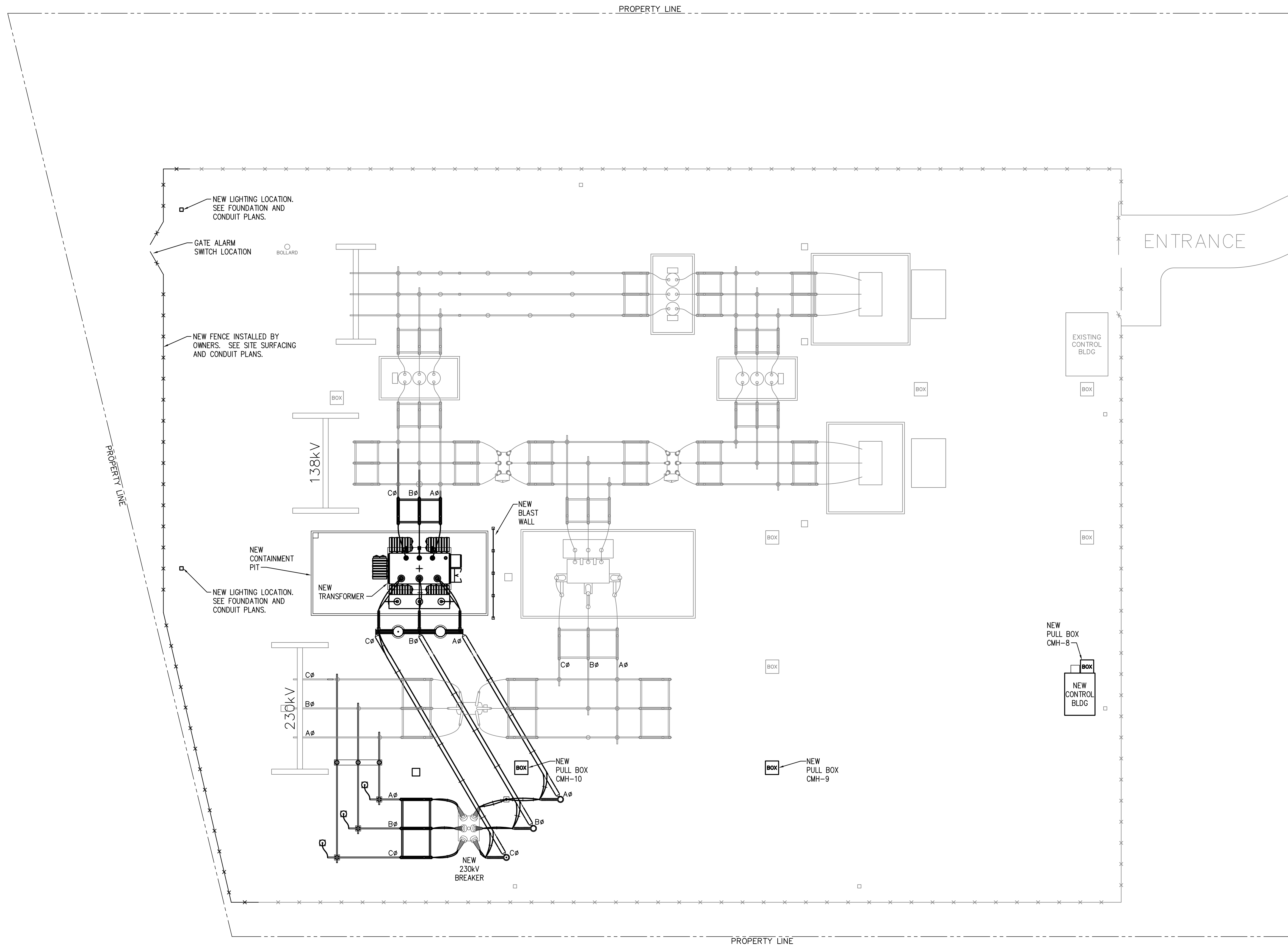
**BHA, INC.**

9342 LINDALE AVENUE  
BATON ROUGE, LOUISIANA

CONSTRUCTION

FOR BIDDING  
PURPOSES ONLY

BHA File No: 2019-E-16A  
March 2019



NEW LIGHTING LOCATION. SEE FOUNDATION AND CONDUIT PLANS.

GATE ALARM SWITCH LOCATION

NEW FENCE INSTALLED BY OWNERS. SEE SITE SURFACING AND CONDUIT PLANS.

NEW LIGHTING LOCATION. SEE FOUNDATION AND CONDUIT PLANS.

ENTRANCE

EXISTING CONTROL BLDG

NEW PULL BOX CMH-8  
NEW CONTROL BLDG

NEW PULL BOX CMH-9

NEW PULL BOX CMH-10

**SITE PLAN**

SCALE: 1"=20.0'

**LEGEND:**  
 — EXISTING  
 — PROPOSED

**FOR BIDDING PURPOSES ONLY**

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

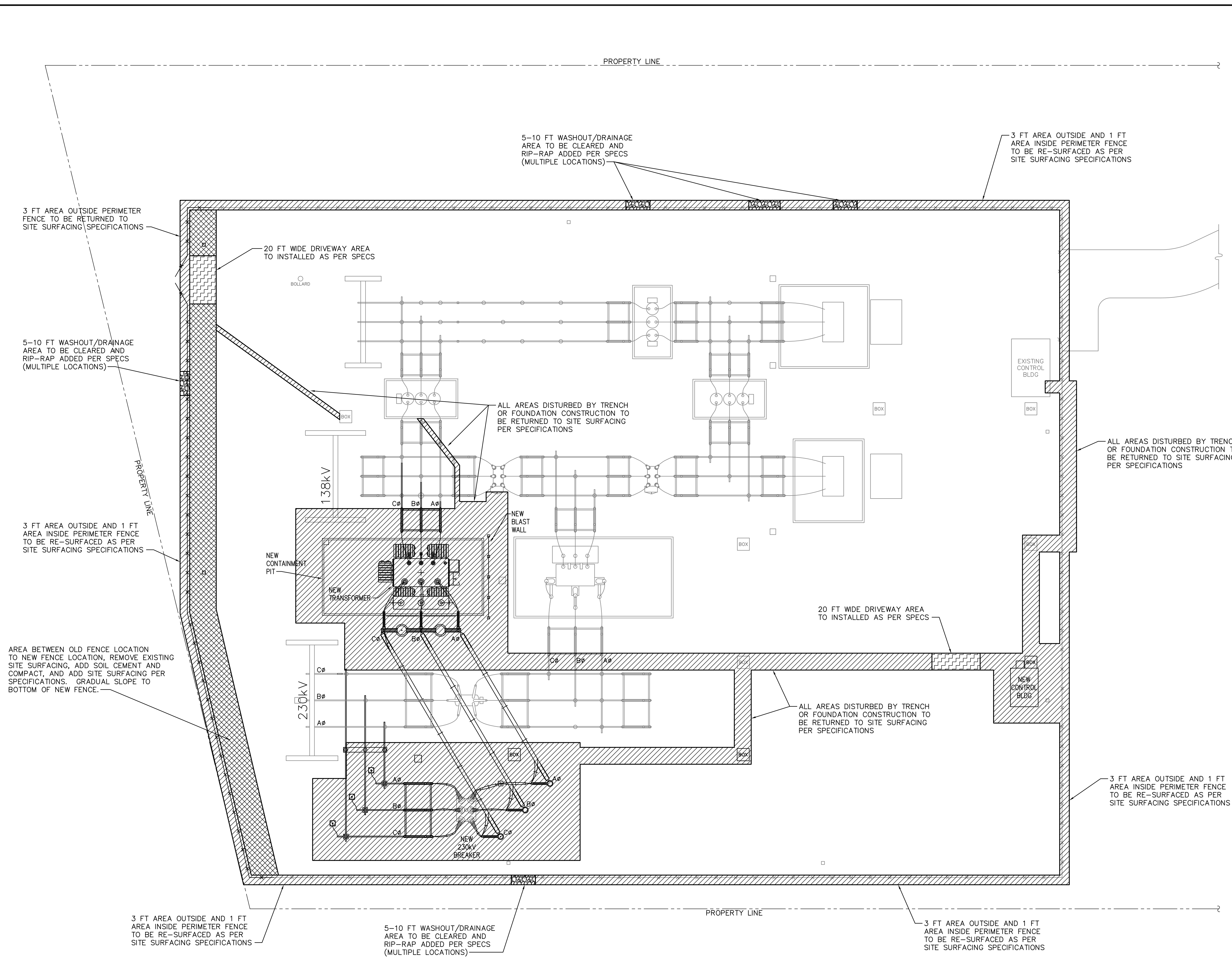
**TWIN BRIDGES TRANSFORMER ADDITION  
SITE PLAN**  
 CITY OF ALEXANDRIA  
 ALEXANDRIA, LOUISIANA

SCALE: 1"=20.0'    DATE: 10/18/17    DRAWN BY: JHD    APPROVED BY: JJC    PROJECT NO.: 2019-E-16A

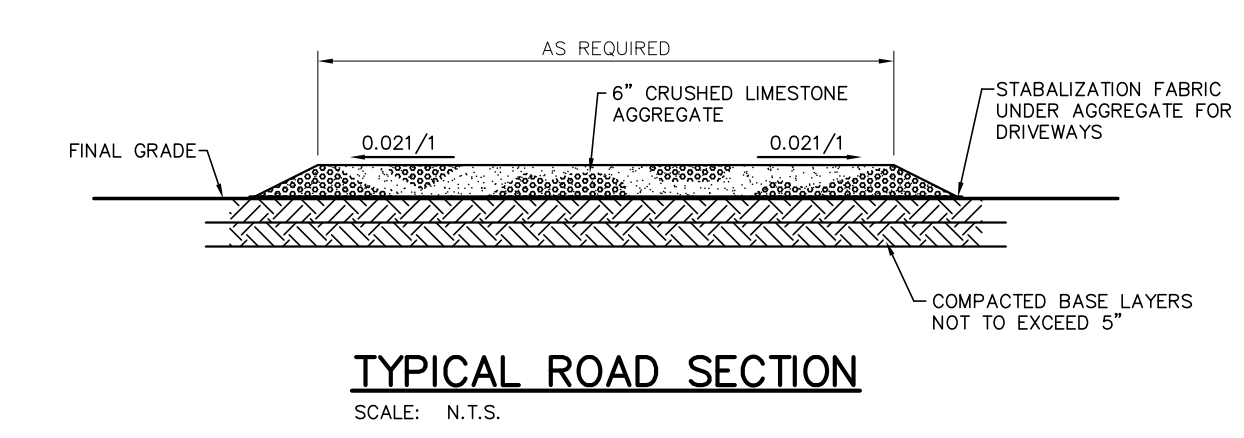
**BHA, INC.**  
 BATON ROUGE, LOUISIANA

DRAWING NO.: **TBTA-01**    REV.: **A**

BHA\24\DWG 03/01/2019



- LEGEND**
- SITE SURFACING**  
AREA TO BE RETURNED TO SITE SURFACING PER SPECIFICATIONS  
6" LIMESTONE AGGREGATE (GRADE 57)
  - SOIL CEMENT & SITE SURFACING**  
AREA TO BE CLEARED OF SITE SURFACING, ADD SOIL CEMENT, GRADUAL SLOPE TO NEW FENCE BOTTOM, AND RETURNED TO SITE SURFACING PER SPECIFICATIONS.  
6" LIMESTONE AGGREGATE (GRADE 57)
  - DRIVE-WAY**  
DRIVE-WAY AREA TO BE COMPACTED TO SPECIFICATIONS, COVERED WITH STABILIZATION FABRIC AND 6" LIMESTONE AGGREGATE (1/2 GRADE 610, 1/2 GRADE 57)
  - WASH OUT AREA/DRAINAGE**  
AT PERIMETER FENCE, ANY EXISTING WASHOUT AREAS TO BE COMPACTED PER SPECIFICATIONS, COVERED WITH STABILIZATION FABRIC AND 12" OF RIPRAP, (4"-5" ROCK)



**SITE PLAN**  
SCALE: 1"=20.0'

**LEGEND:**  
— EXISTING  
— PROPOSED

**FOR BIDDING PURPOSES ONLY**

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

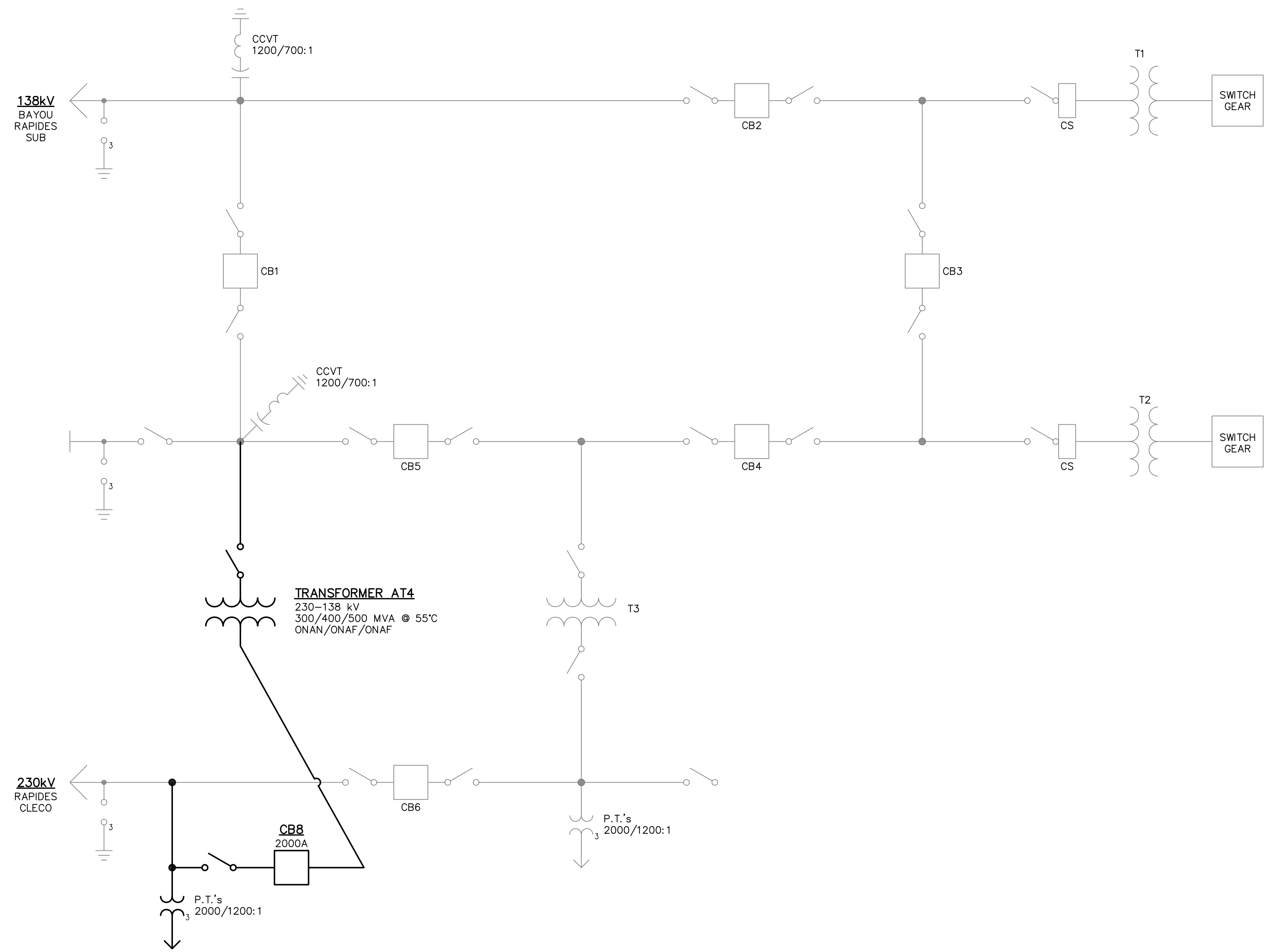
**TWIN BRIDGES TRANSFORMER ADDITION**  
**SITE SURFACING PLAN**  
CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

SCALE: 1"=20.0'    DATE: 10/18/17    DRAWN BY: JHD    APPROVED BY: JJC    PROJECT NO.: 2019-E-16A

**BHA, INC.**  
BATON ROUGE, LOUISIANA

DRAWING NO.: **TBTA-01A**    REV.: **A**

BHA-245.DWG 10/01/2019



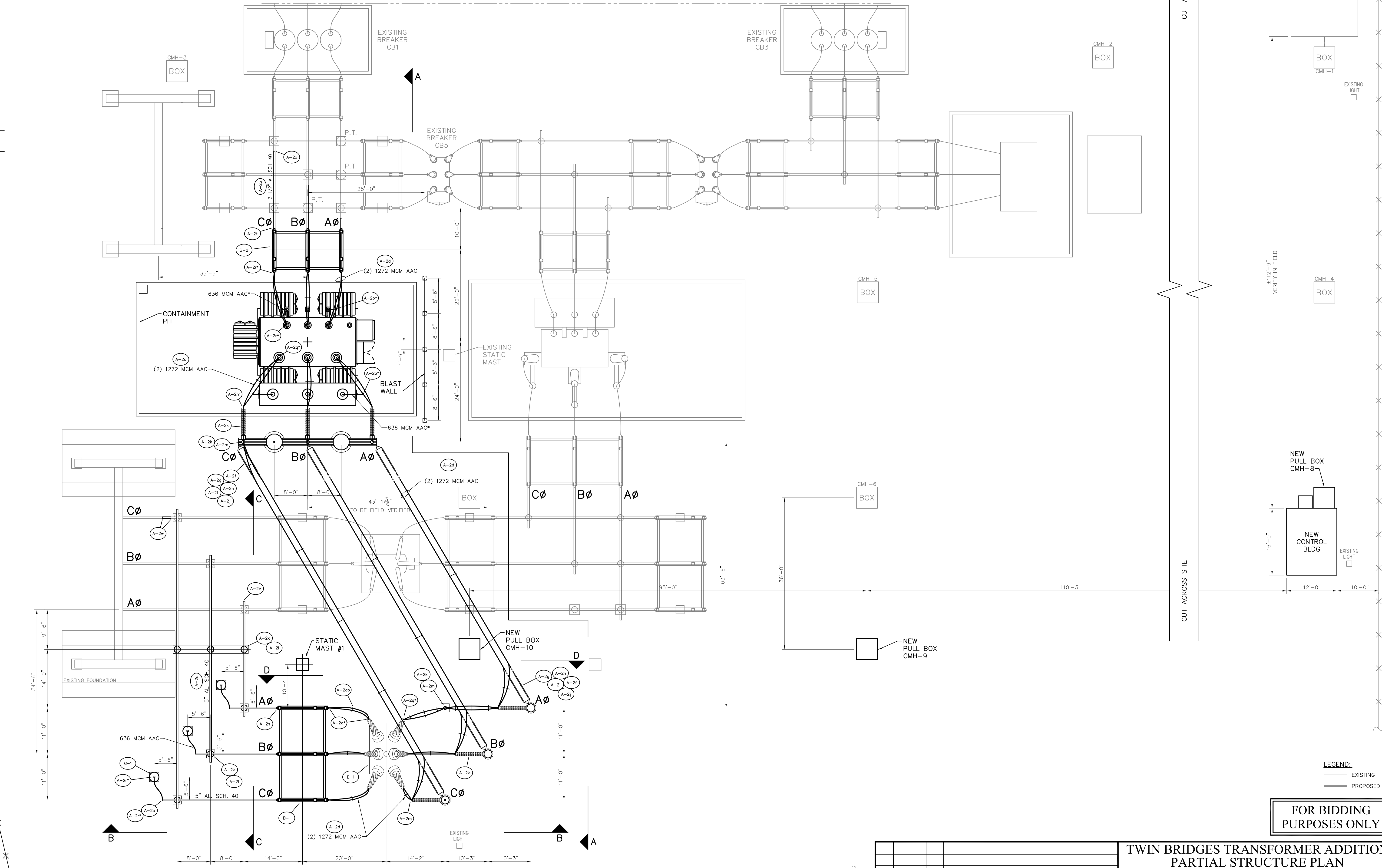
**PARTIAL ONE-LINE DIAGRAM**  
N.T.S.

**LEGEND:**  
— EXISTING  
— PROPOSED

**FOR BIDDING PURPOSES ONLY**

				<b>TWIN BRIDGES TRANSFORMER ADDITION PARTIAL ONE-LINE DIAGRAM</b>	
				CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA	
SCALE	DATE	DRAWN BY	APPROVED BY	PROJECT NO.:	
N.T.S.	10/18/17	JHD	JJC	2019-E-16A	
				<b>BHA, INC.</b> BATON ROUGE, LOUISIANA	
				DRAWING NO.:	REV.:
				TBTA-02	A
NO.	DATE	BY	REVISIONS		
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION		

EXISTING STATION CONTINUES



**STRUCTURE PLAN**  
SCALE: 3/32"=1'-0"  
\* - CONNECTOR AND/OR WIRE FURNISHED BY OWNER

**LEGEND:**  
— EXISTING  
— PROPOSED

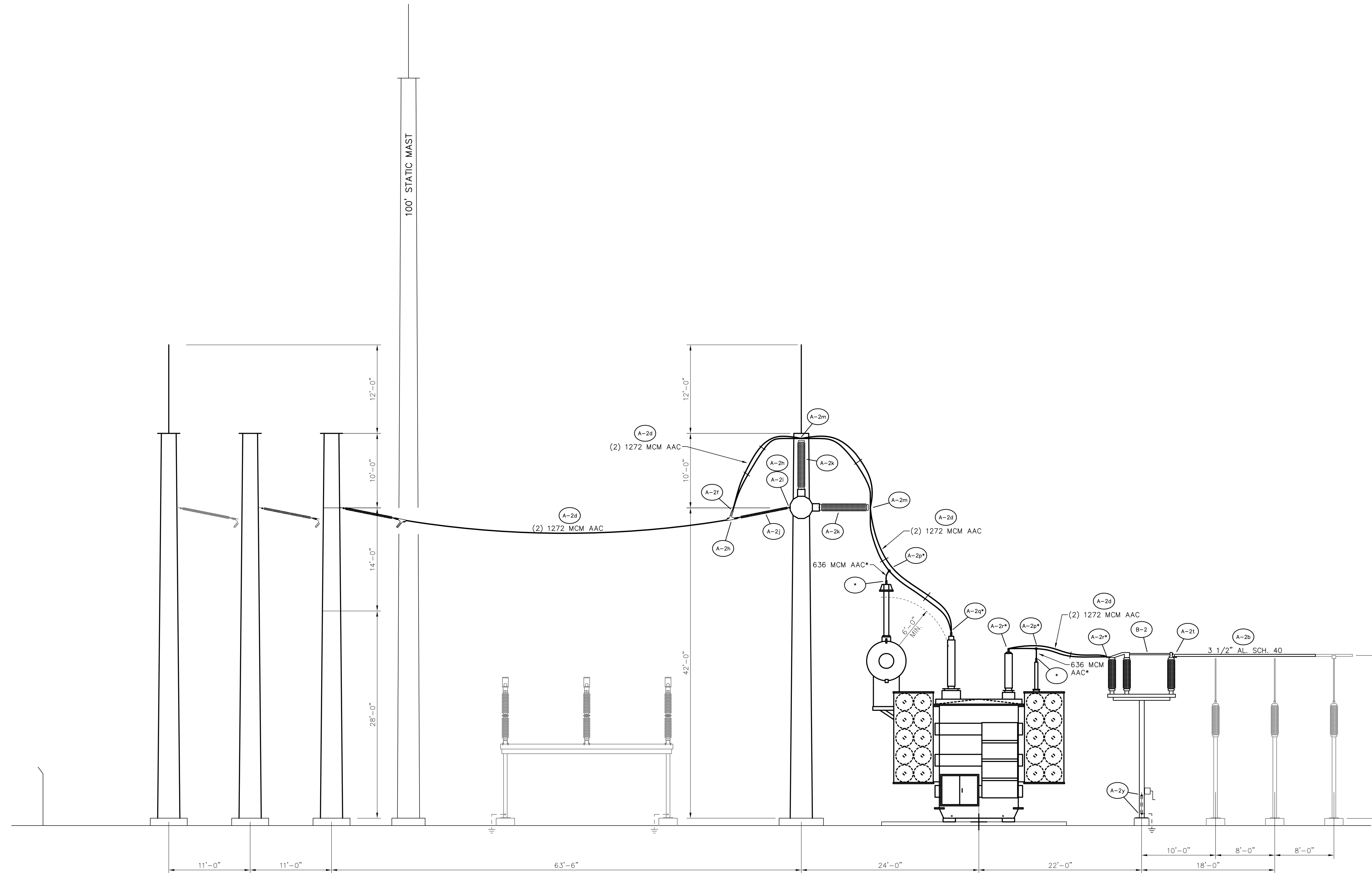
**FOR BIDDING PURPOSES ONLY**

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

**TWIN BRIDGES TRANSFORMER ADDITION  
PARTIAL STRUCTURE PLAN**  
CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

SCALE: 3/32"=1'-0"	DATE: 10/18/17	DRAWN BY: JHD	APPROVED BY: JJC	PROJECT NO.: 2019-E-16A
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA				DRAWING NO.: TBTA-03 REV.: A

Prepared by BHA, Inc. BHA245.DWG 10/01/2019



STRUCTURE ELEVATION A-A

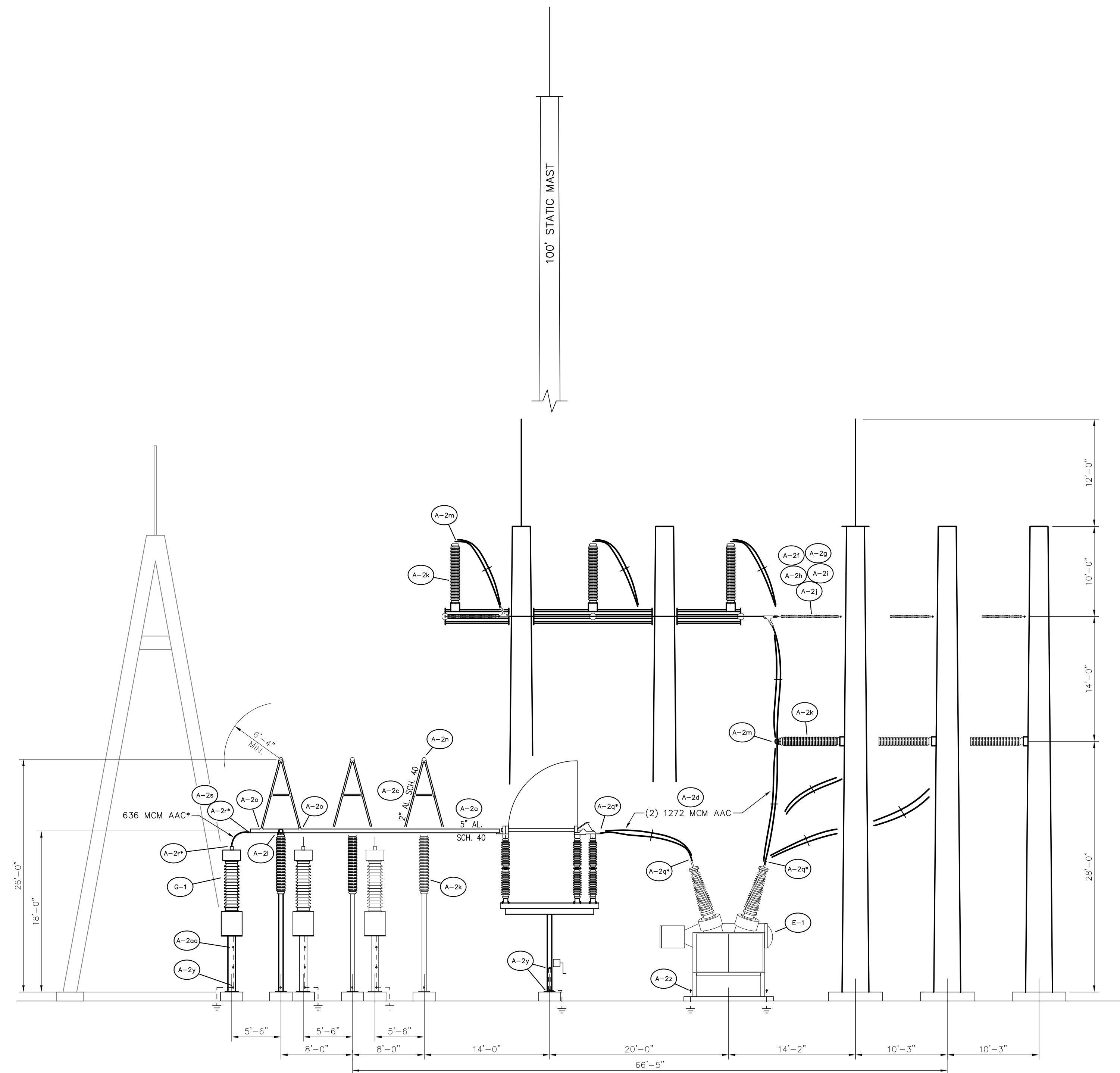
SCALE: 1/8"=1'-0"  
\* - CONNECTOR AND/OR WIRE FURNISHED BY OWNER

LEGEND:  
— EXISTING  
— PROPOSED

FOR BIDDING  
PURPOSES ONLY

				<b>TWIN BRIDGES TRANSFORMER ADDITION STRUCTURE ELEVATIONS</b>			
				CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA			
SCALE: 1/8"=1'-0"		DATE: 10/18/17		DRAWN BY: JHD		APPROVED BY: JJC	
						PROJECT NO.: <b>2019-E-16A</b>	
A		3/4/19		BHA		FOR BIDDING PURPOSES ONLY - CONSTRUCTION	
						DRAWING NO.: <b>TBTA-03A</b>	
						REV.: <b>A</b>	
						REVISIONS	

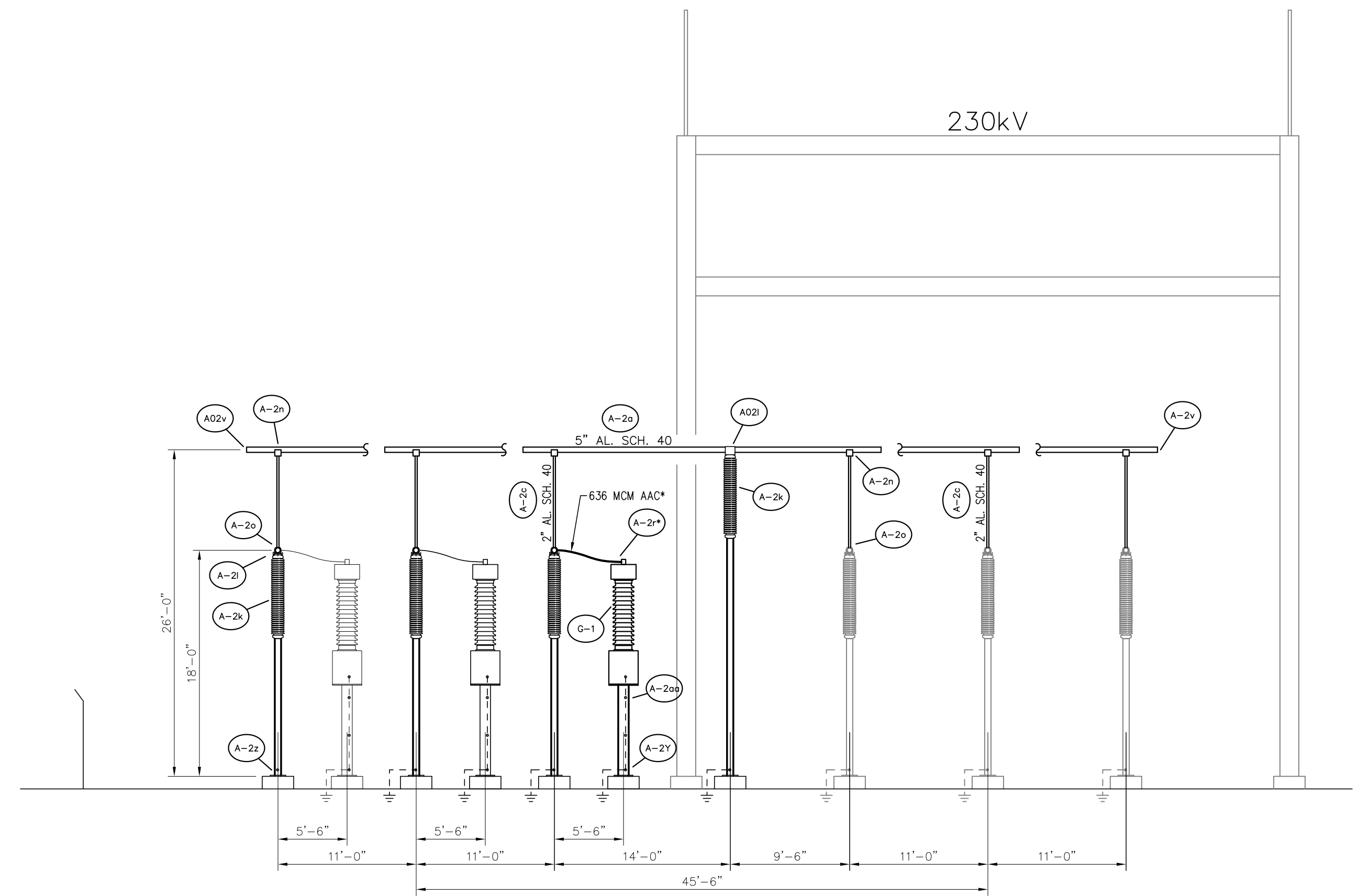
**BHA, INC.**  
BATON ROUGE, LOUISIANA



**STRUCTURE ELEVATION B-B**

SCALE: 1/8"=1'-0"

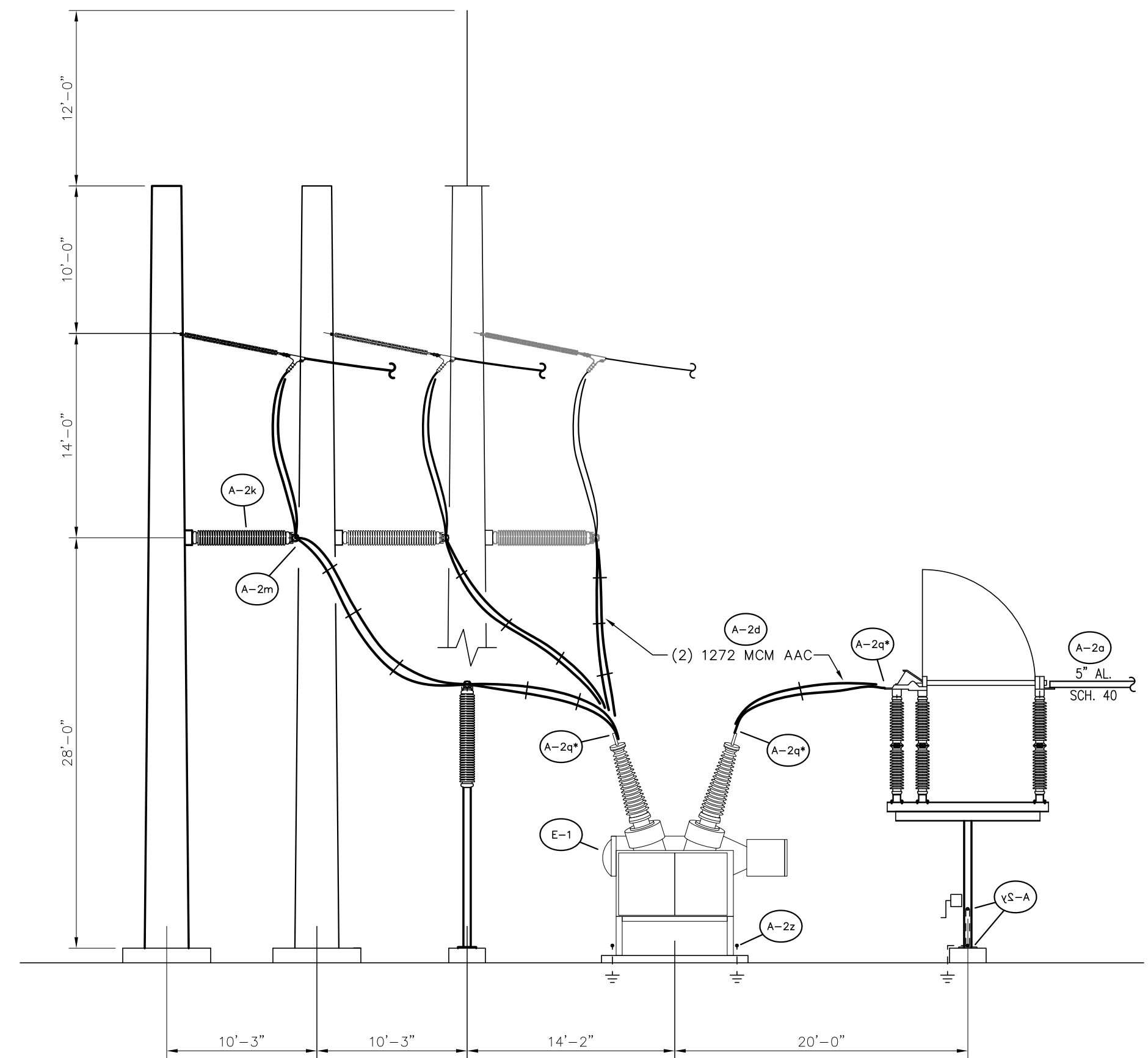
\* - CONNECTOR AND/OR WIRE FURNISHED BY OWNER



**STRUCTURE ELEVATION C-C**

SCALE: 1/8"=1'-0"

\* - CONNECTOR AND/OR WIRE FURNISHED BY OWNER



**STRUCTURE ELEVATION D-D**

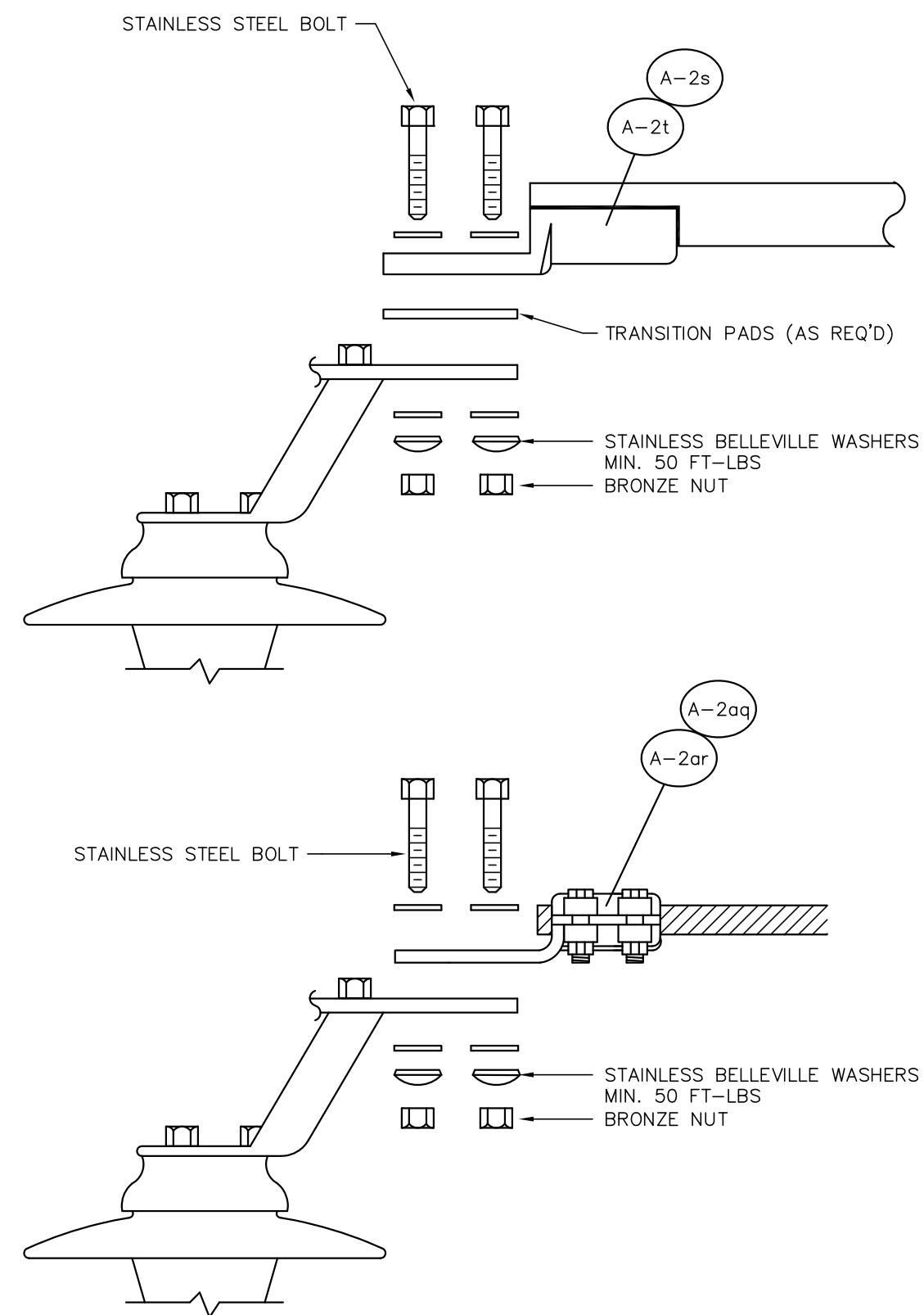
SCALE: 1/8"=1'-0"

\* - CONNECTOR AND/OR WIRE FURNISHED BY OWNER

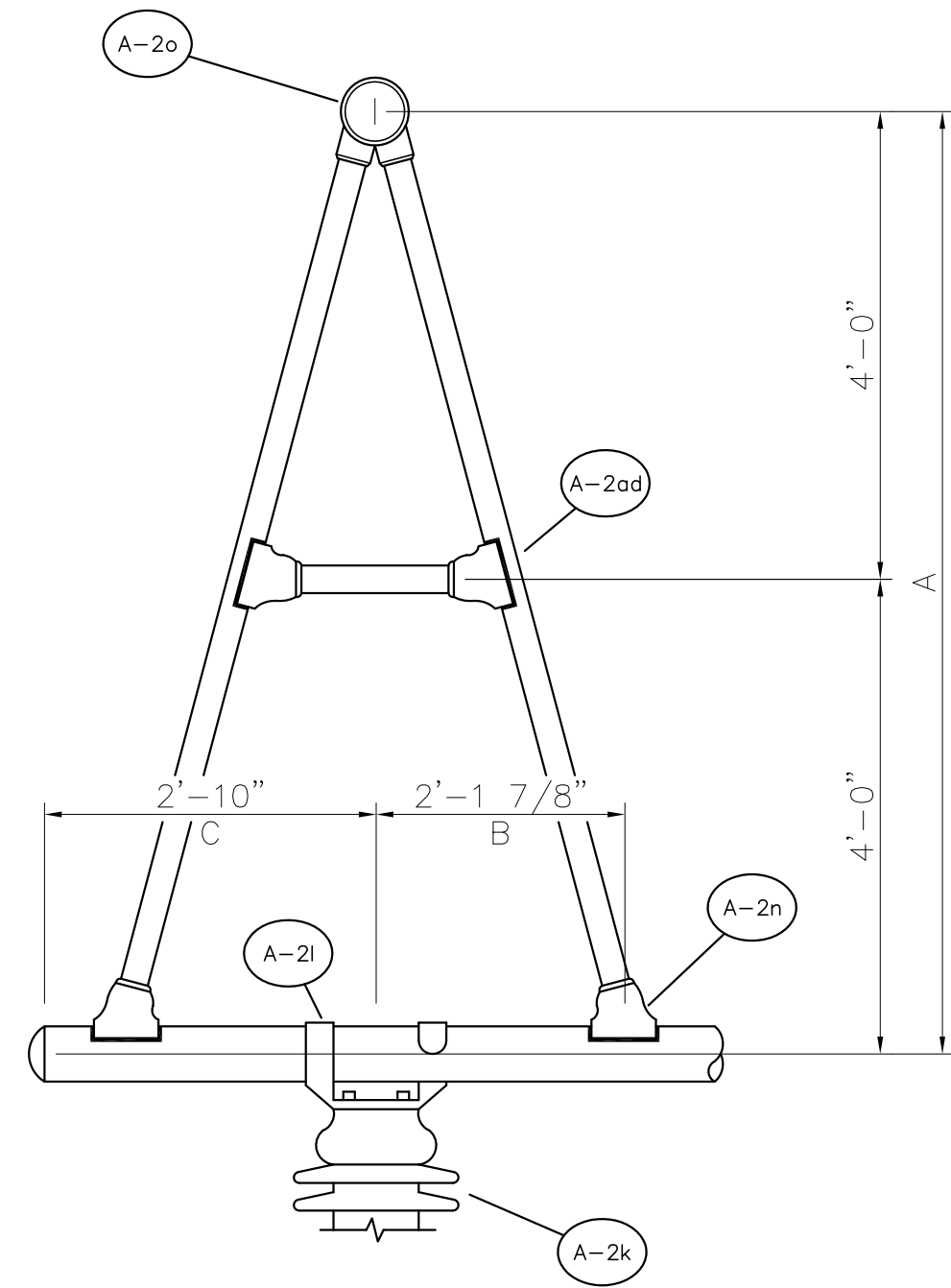
**LEGEND:**  
 — EXISTING  
 — PROPOSED

**FOR BIDDING PURPOSES ONLY**

				<b>TWIN BRIDGES TRANSFORMER ADDITION STRUCTURE ELEVATIONS</b>											
				CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA											
SCALE: 1/8"=1'-0"		DATE: 10/18/17		DRAWN BY: JHD		APPROVED BY: JJC									
						PROJECT NO.: <b>2019-E-16A</b>									
<b>BHA, INC.</b>						DRAWING NO.: <b>TBTA-03B</b>									
BATON ROUGE, LOUISIANA						REV.: <b>A</b>									
<table border="1"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>REVISIONS</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>3/4/19</td> <td>BHA</td> <td>FOR BIDDING PURPOSES ONLY - CONSTRUCTION</td> </tr> </tbody> </table>				NO.	DATE	BY	REVISIONS	A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION				
NO.	DATE	BY	REVISIONS												
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION												

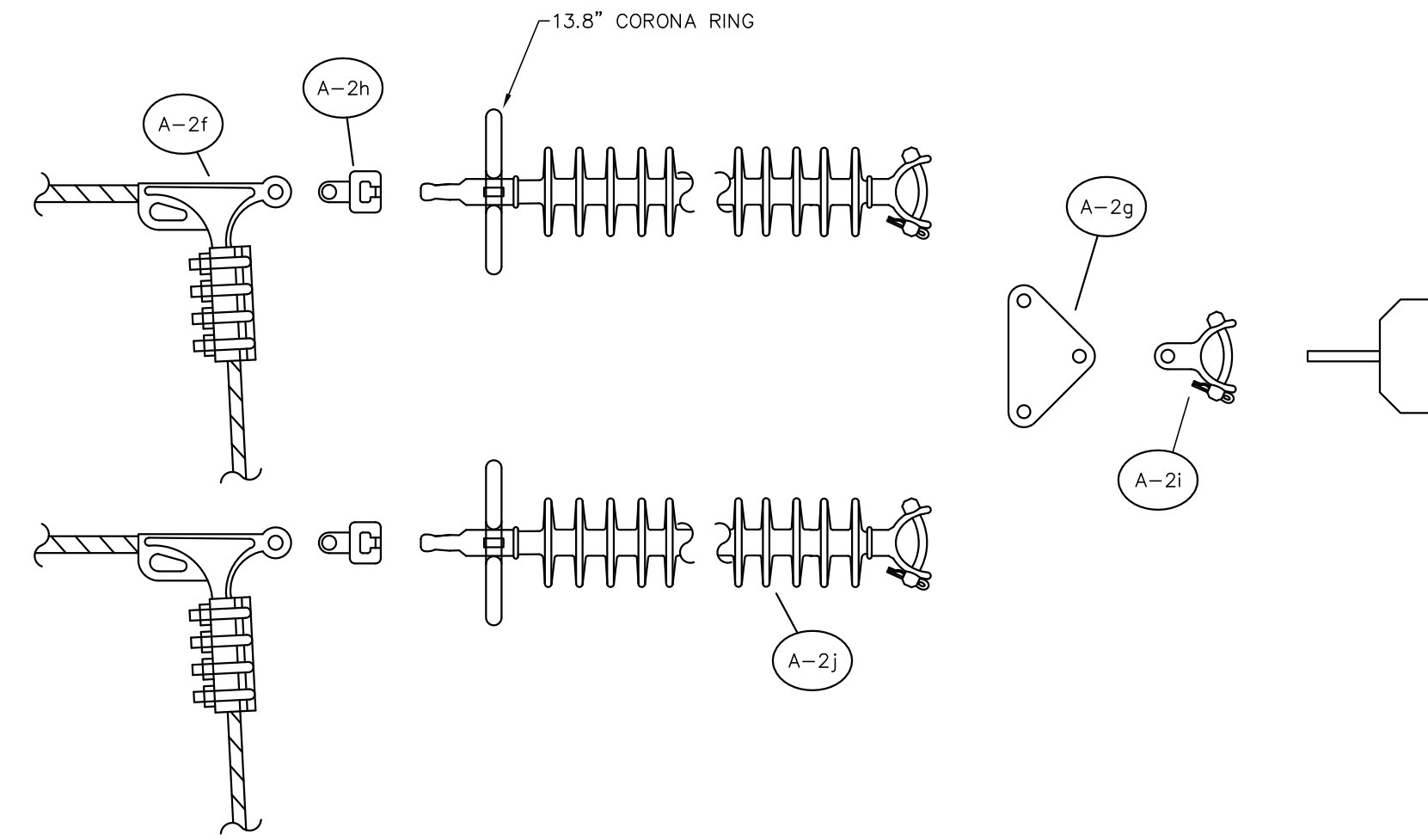


① SWITCH TERMINAL CONNECTION DETAIL



KV	A	B	C
230	8'-0"	2'-1 7/8"	2'-10"

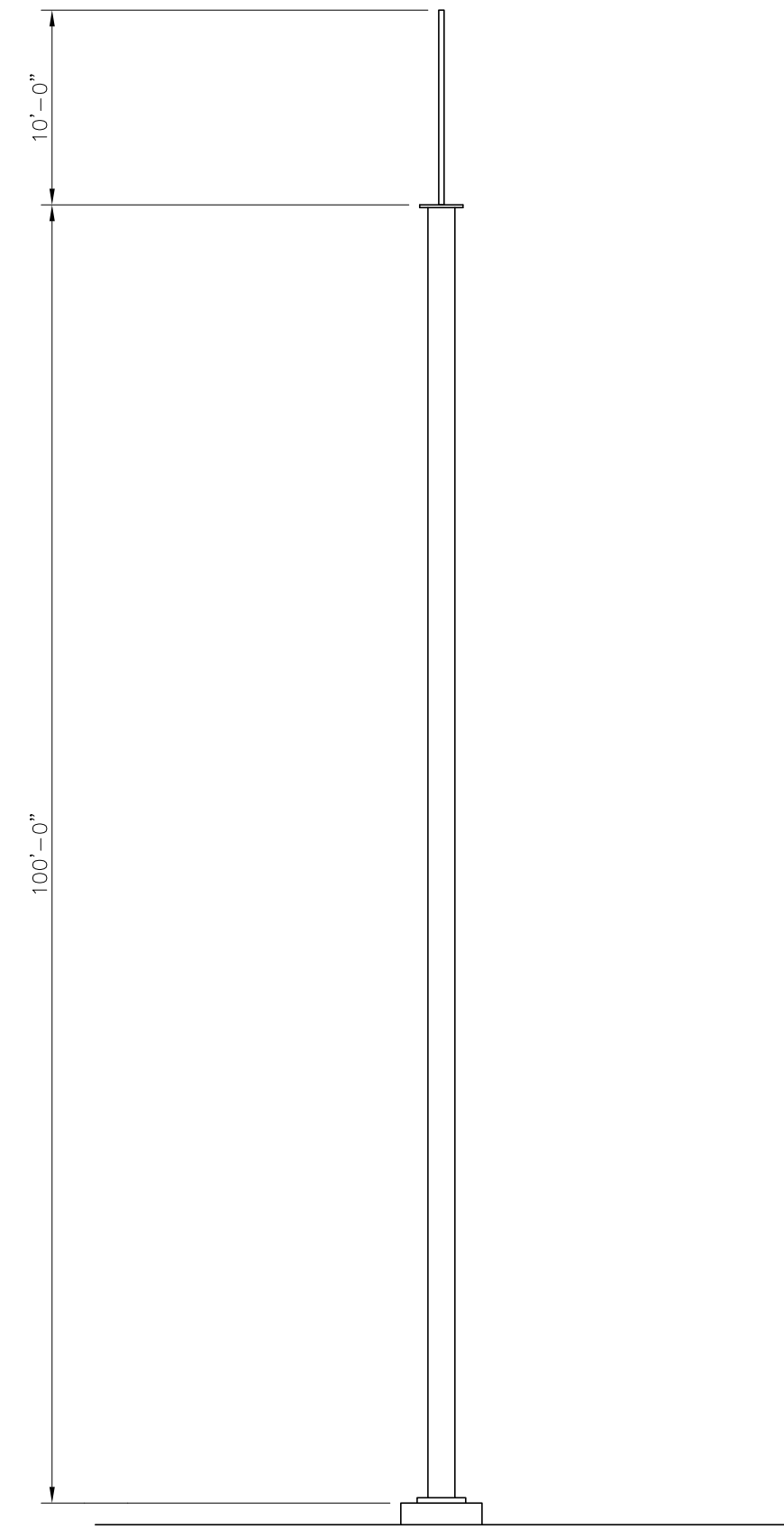
② BUS SUPPORT DETAIL



③ INSULATOR STRING DETAIL

**NOTES :**

- FABRICATOR SHALL FURNISH STAINLESS STEEL BOLTS, FOR ALL BOLTED ALUMINUM CONNECTORS. ALL BOLTS SHALL BE FURNISHED WITH TWO (2) STAINLESS STEEL FLAT WASHERS AND ONE (1) STAINLESS STEEL BELLEVILLE WASHER.
- THE CONTRACTOR SHALL FURNISH NO-OX-ID GRADE A FOR ALL ELECTRICAL CONNECTIONS.
- ALL 1/2" S.S. BOLTS SHALL BE TORQUED TO 40 FT-LBS.



④ STATIC MAST DETAIL

FOR BIDDING  
PURPOSES ONLY

TWIN BRIDGES TRANSFORMER ADDITION  
MISCELLANEOUS DETAILS

CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

SCALE	DATE	DRAWN BY	APPROVED BY	PROJECT NO. :
N.T.S.	03/12/18	JHD	JJC	2019-E-16A

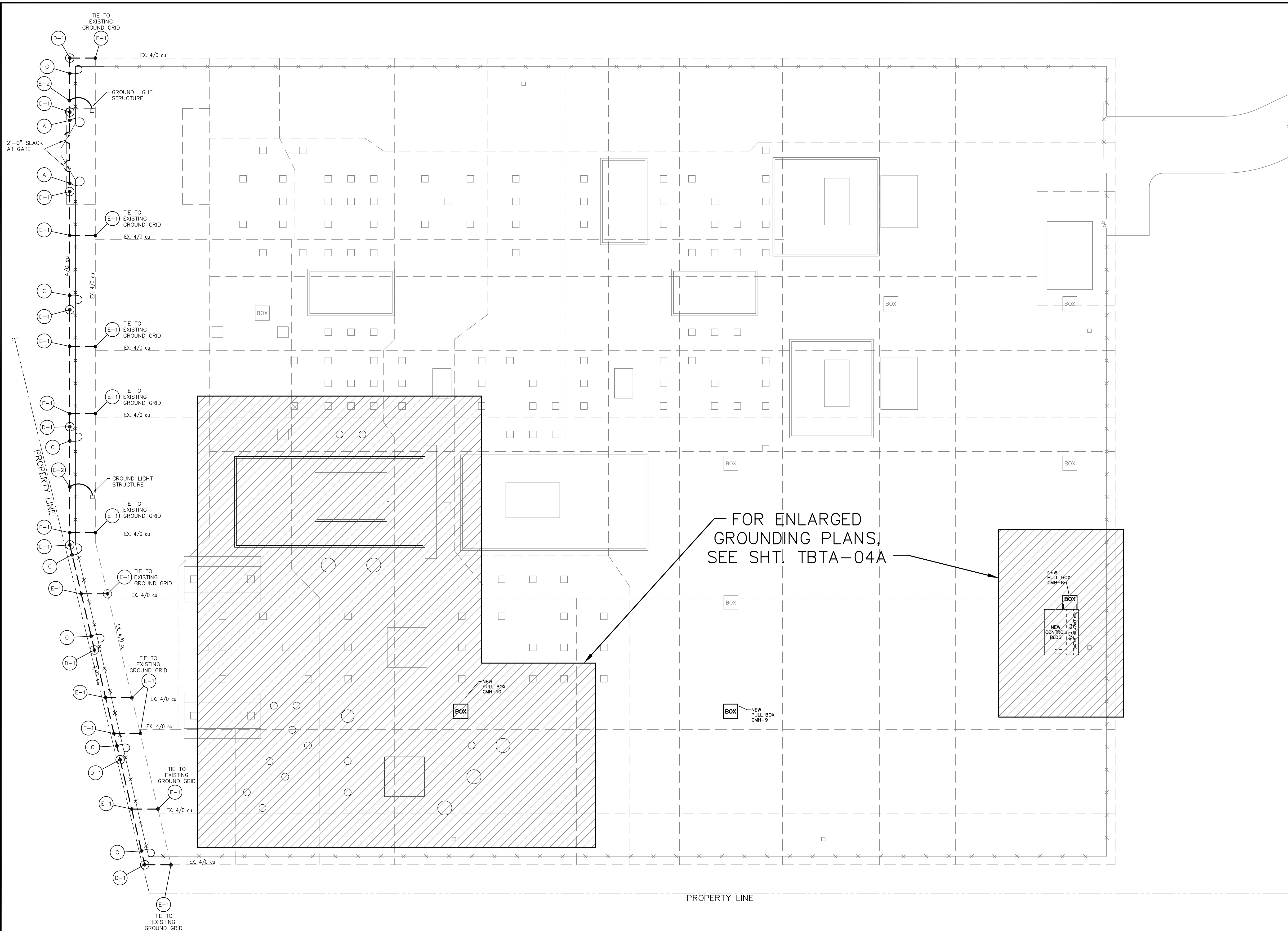
**BHA, INC.**  
BATON ROUGE, LOUISIANA

DRAWING NO. :	REV. :
TBTA-03C	A

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION



BHA 2/25/19 DWG 14.0010219



- NOTES:**
1. ALL GROUNDING CONDUCTORS, TAPS AND GROUND RODS TO BE A MINIMUM OF 1'-6" BELOW GRADE.
  2. BUBBLES REFERENCE DETAILS ON SHT. TBTA-04B.
  3. CONTRACTOR TO VERIFY ALL SWITCH HANDLE LOCATIONS PRIOR TO INSTALLING GROUND SYSTEM.
  4. WHEN NEW FOUNDATIONS AND PULLBOXES INTERFERE WITH EXISTING GROUND GRID, THE CONTRACTOR SHALL RELOCATE GROUND WIRE, IF POSSIBLE, OR MODIFY GROUND GRID TO EXCEPT NEW FOUNDATIONS AND PULLBOXES.
  5. ALL ABOVE AND BELOW GRADE GROUND WIRE SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.

FOR ENLARGED GROUNDING PLANS, SEE SHT. TBTA-04A

**LEGEND:**  
 - - - - - EXISTING  
 ———— PROPOSED

**FOR BIDDING PURPOSES ONLY**

**OVERALL GROUNDING PLAN**

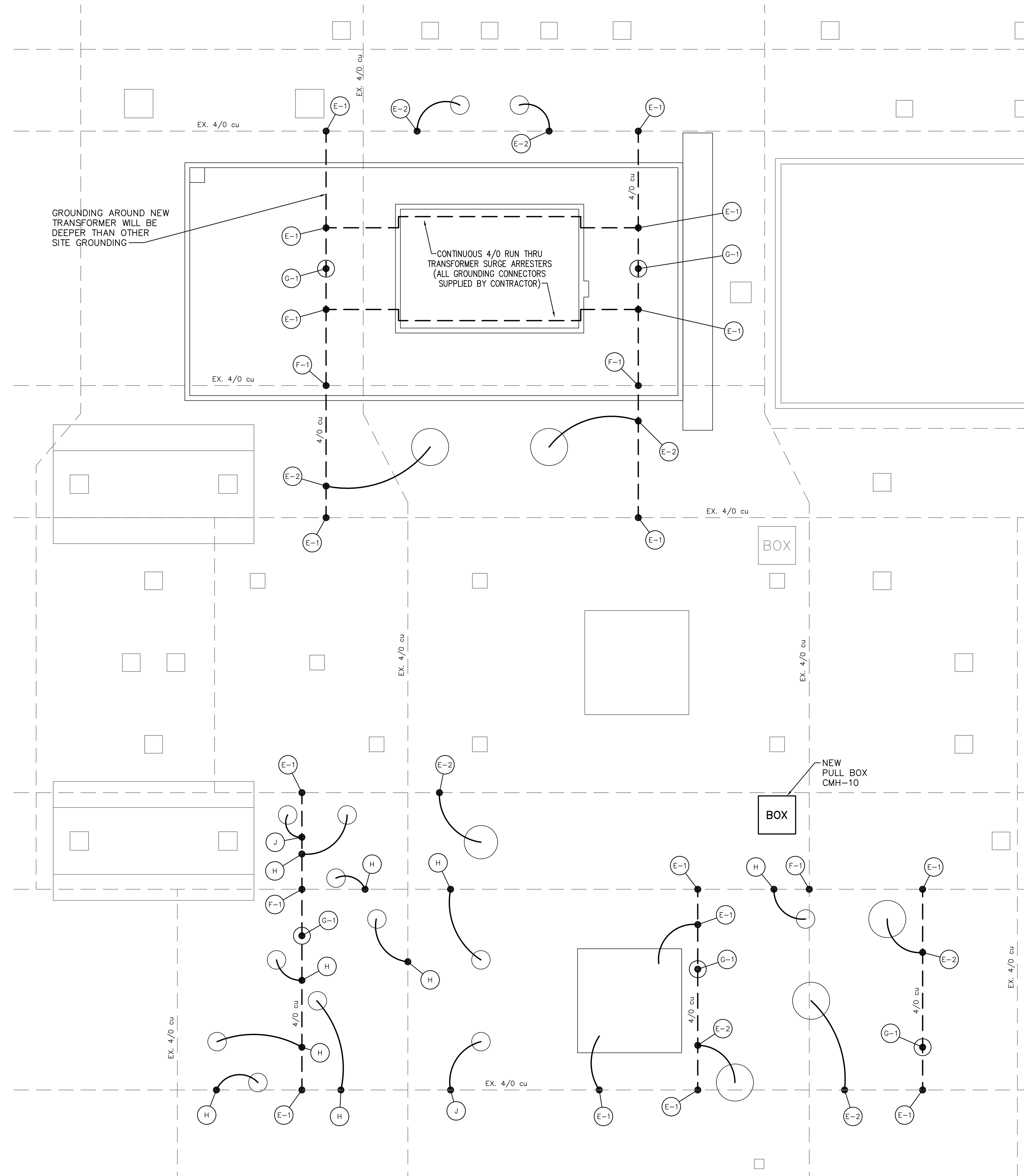
SCALE: 1/16"=1'-0"

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

**TWIN BRIDGES TRANSFORMER ADDITION  
 OVERALL GROUNDING PLAN**  
 CITY OF ALEXANDRIA  
 ALEXANDRIA, LOUISIANA

SCALE: 1/16"=1'-0"	DATE: 2/28/19	DRAWN BY: JHD	APPROVED BY: JJC	PROJECT NO.: 2019-E-16A
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA			DRAWING NO.: TBTA-04	REV.: A

BHA-245.DWG 03/01/2019

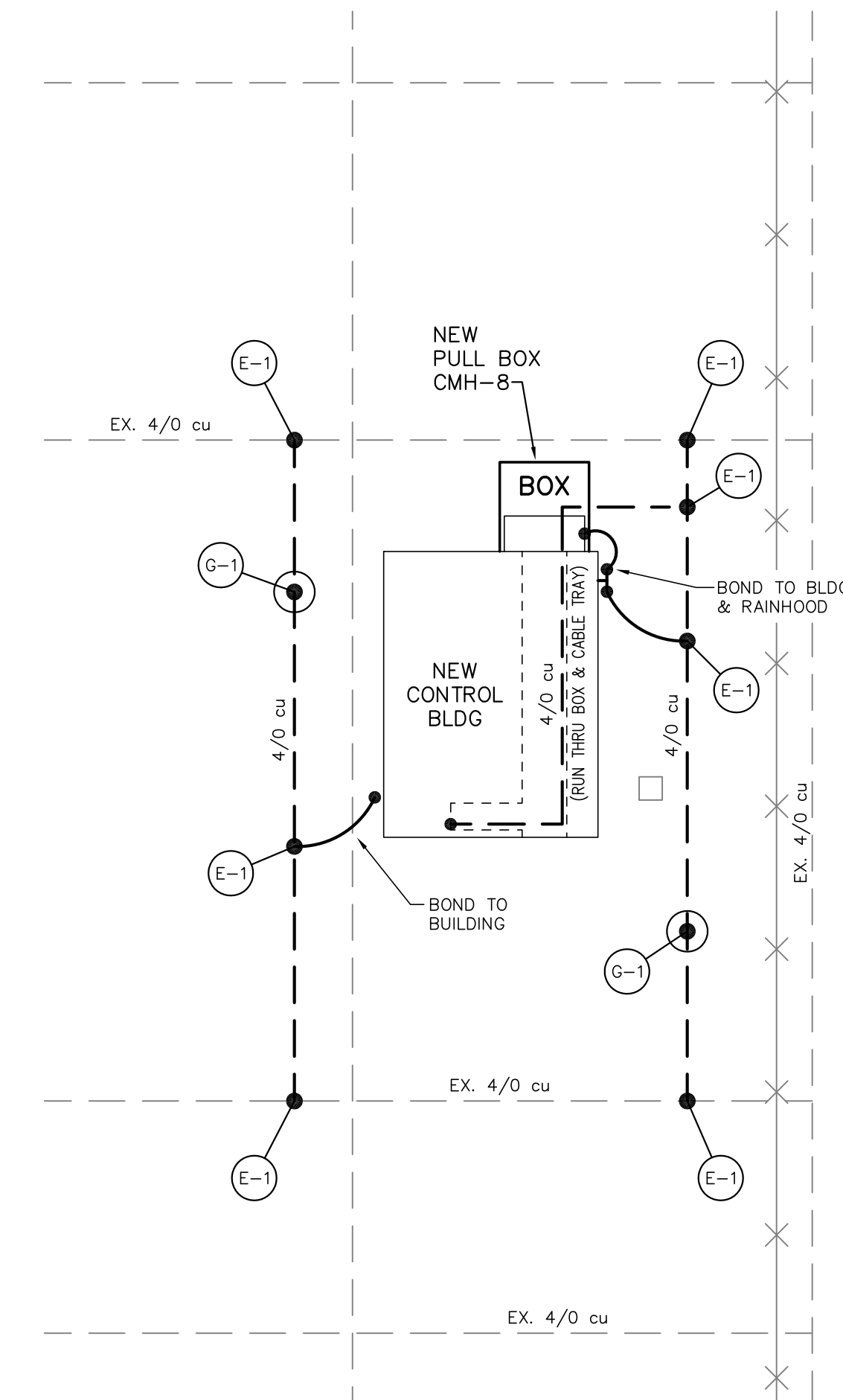


**ENLARGED GROUNDING PLANS**

SCALE: 1/8"=1'-0"

**NOTES:**

1. ALL GROUNDING CONDUCTORS, TAPS AND GROUND RODS TO BE A MINIMUM OF 1'-6" BELOW GRADE.
2. BUBBLES REFERENCE DETAILS ON SHT. TBTA-04B.
3. CONTRACTOR TO VERIFY ALL SWITCH HANDLE LOCATIONS PRIOR TO INSTALLING GROUND SYSTEM.
4. WHEN NEW FOUNDATIONS AND PULLBOXES INTERFERE WITH EXISTING GROUND GRID, THE CONTRACTOR SHALL RELOCATE GROUND WIRE, IF POSSIBLE, OR MODIFY GROUND GRID TO EXCEPT NEW FOUNDATIONS AND PULLBOXES.
5. ALL ABOVE AND BELOW GRADE GROUND WIRE SHALL BE FURNISHED AND INSTALLED BY CONTRACTOR.

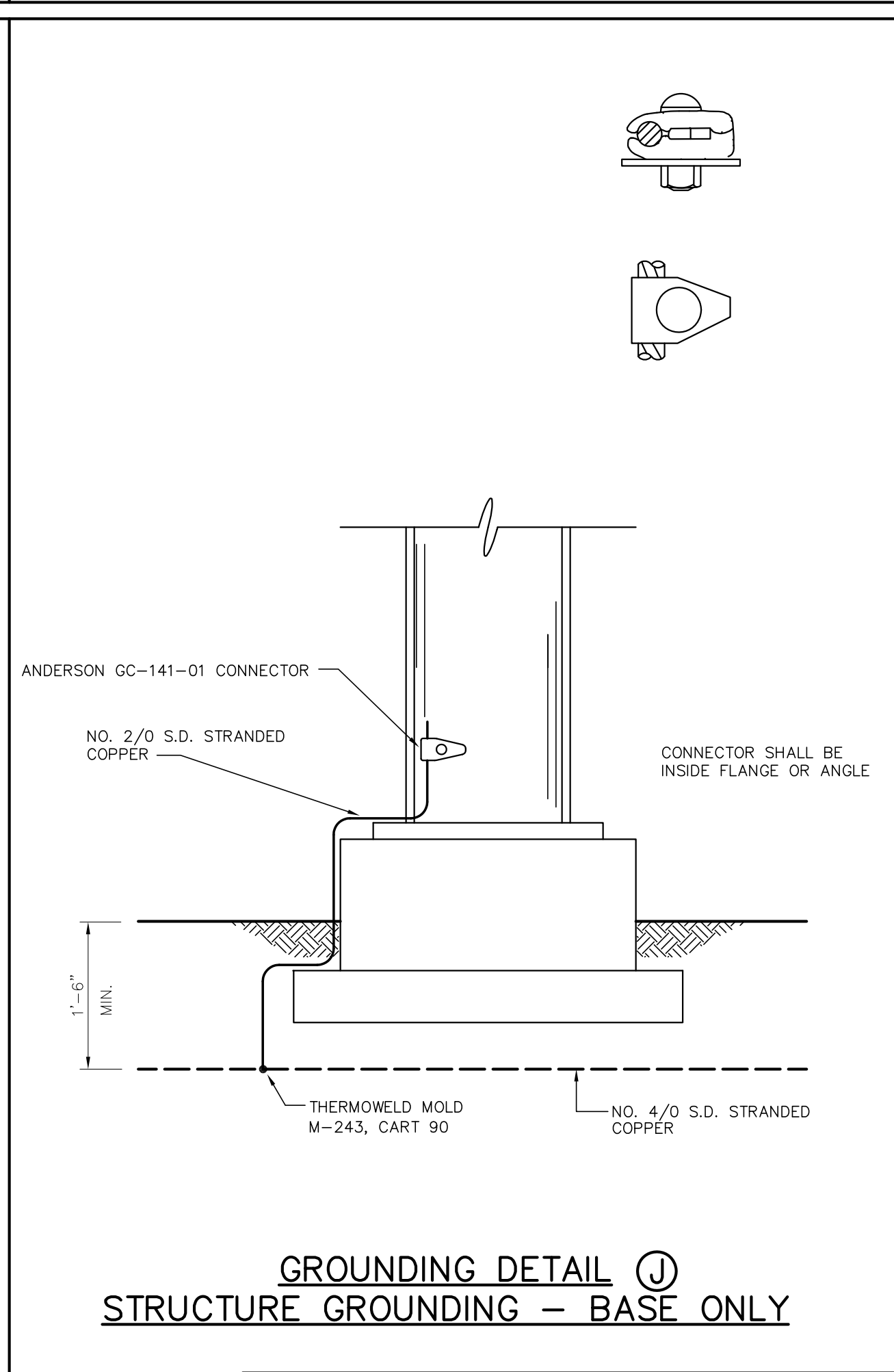
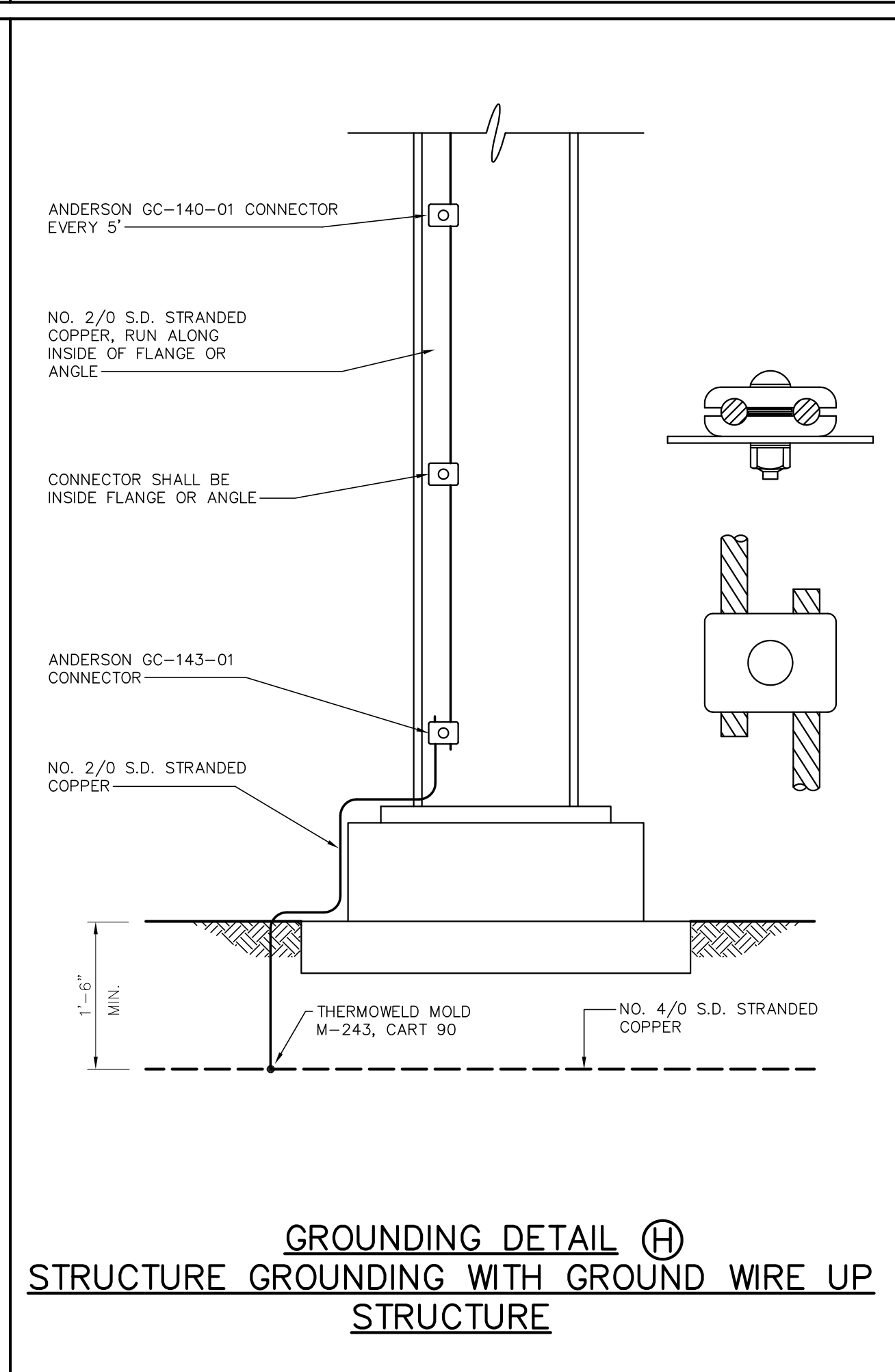
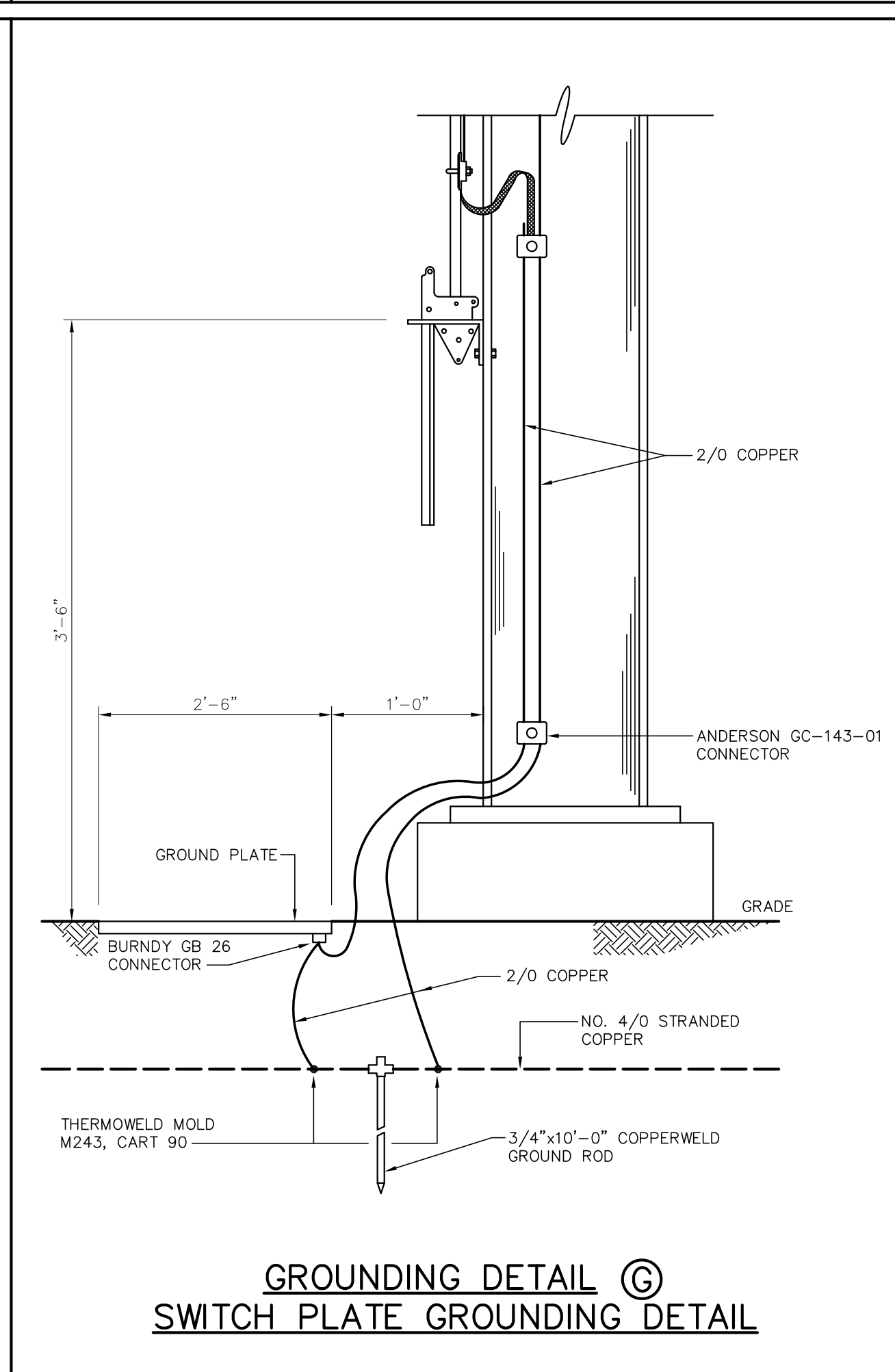
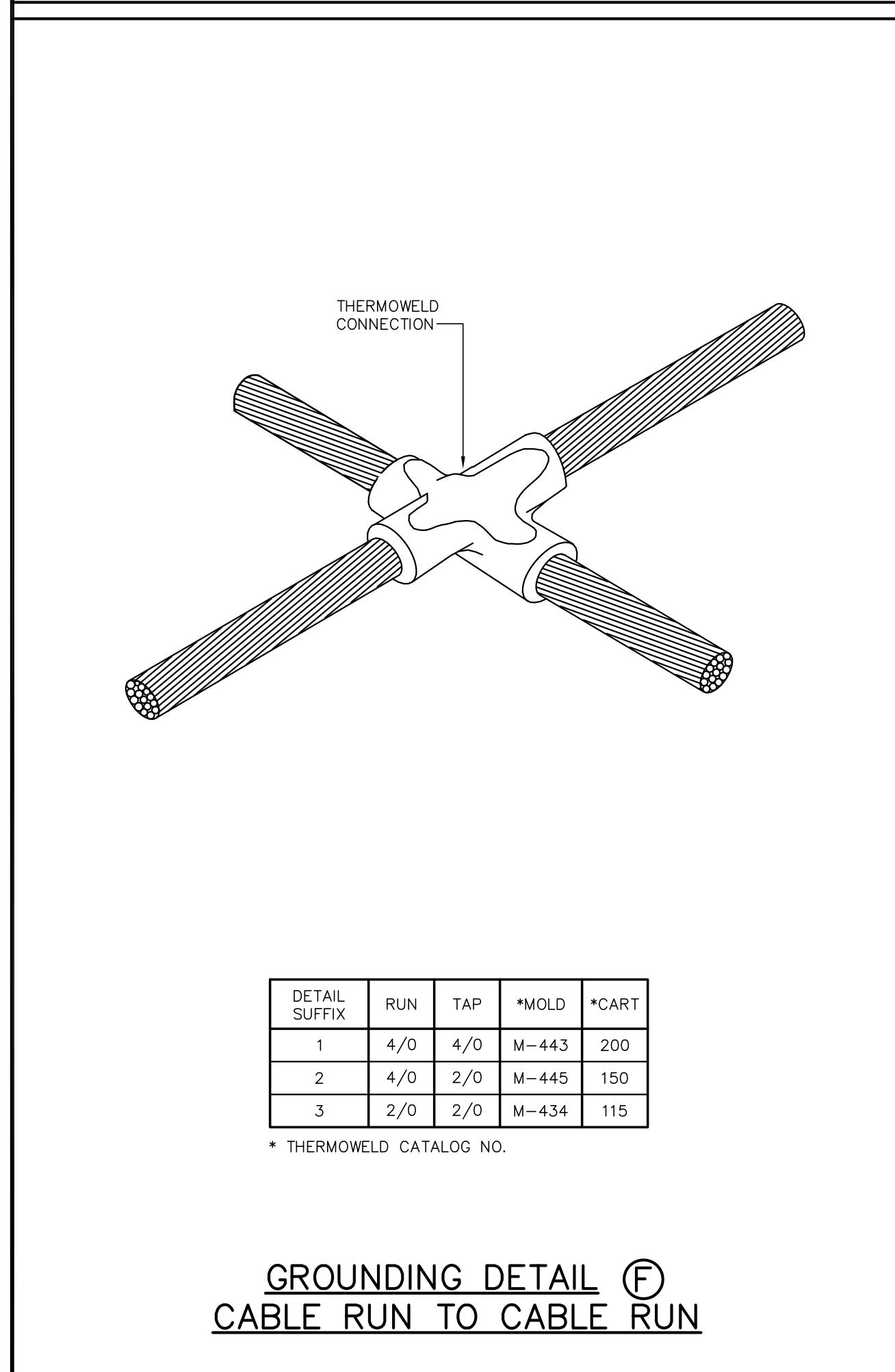
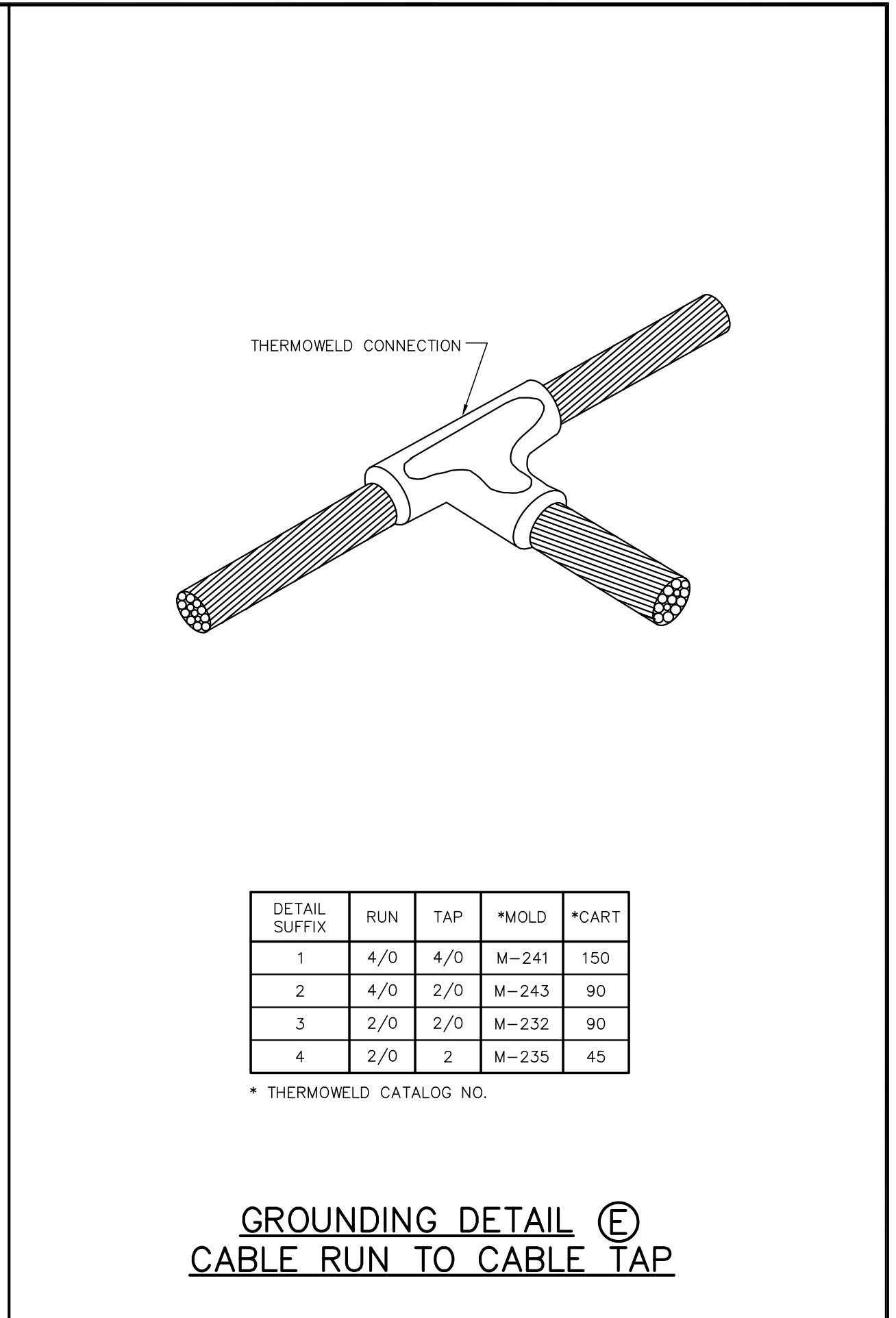
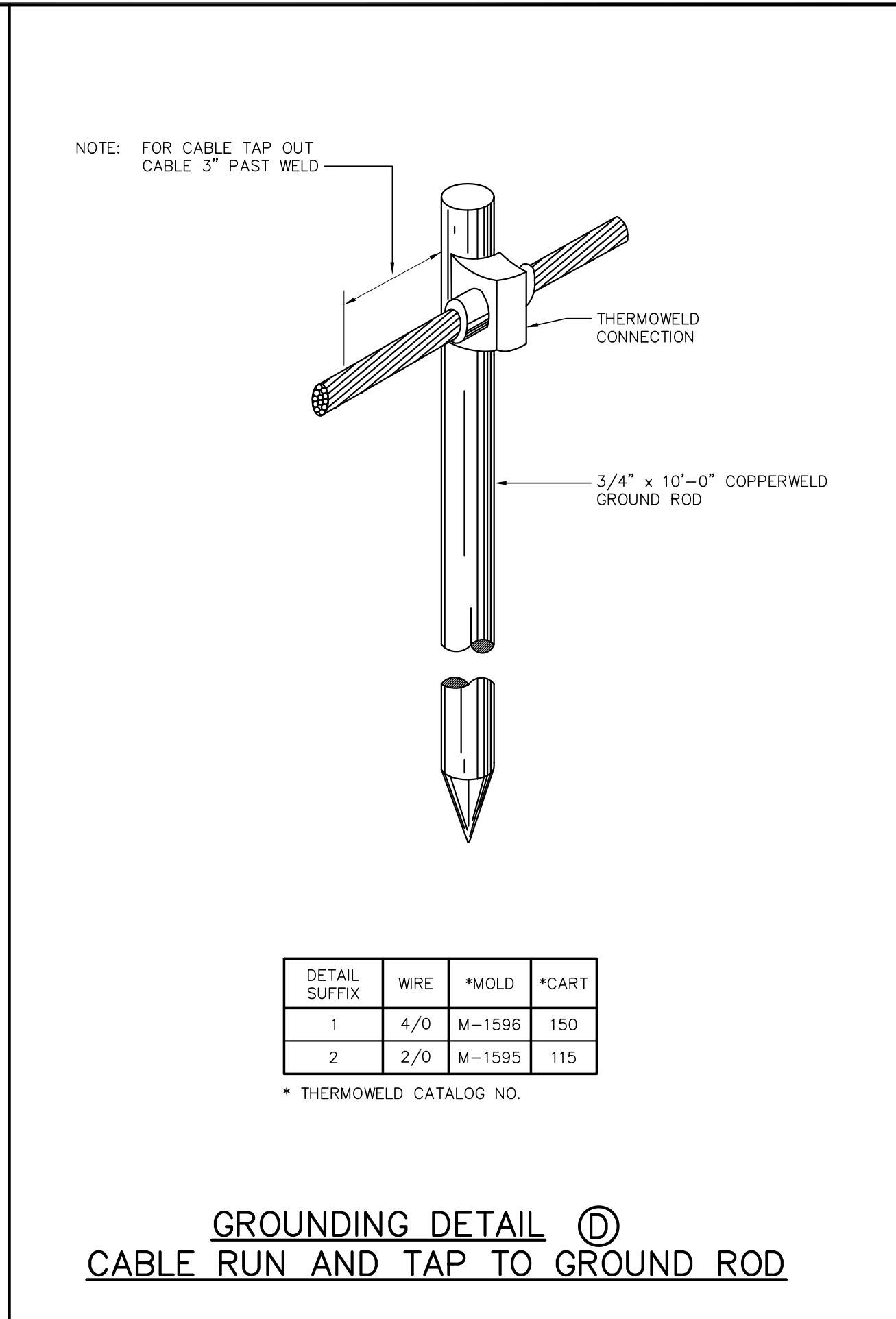
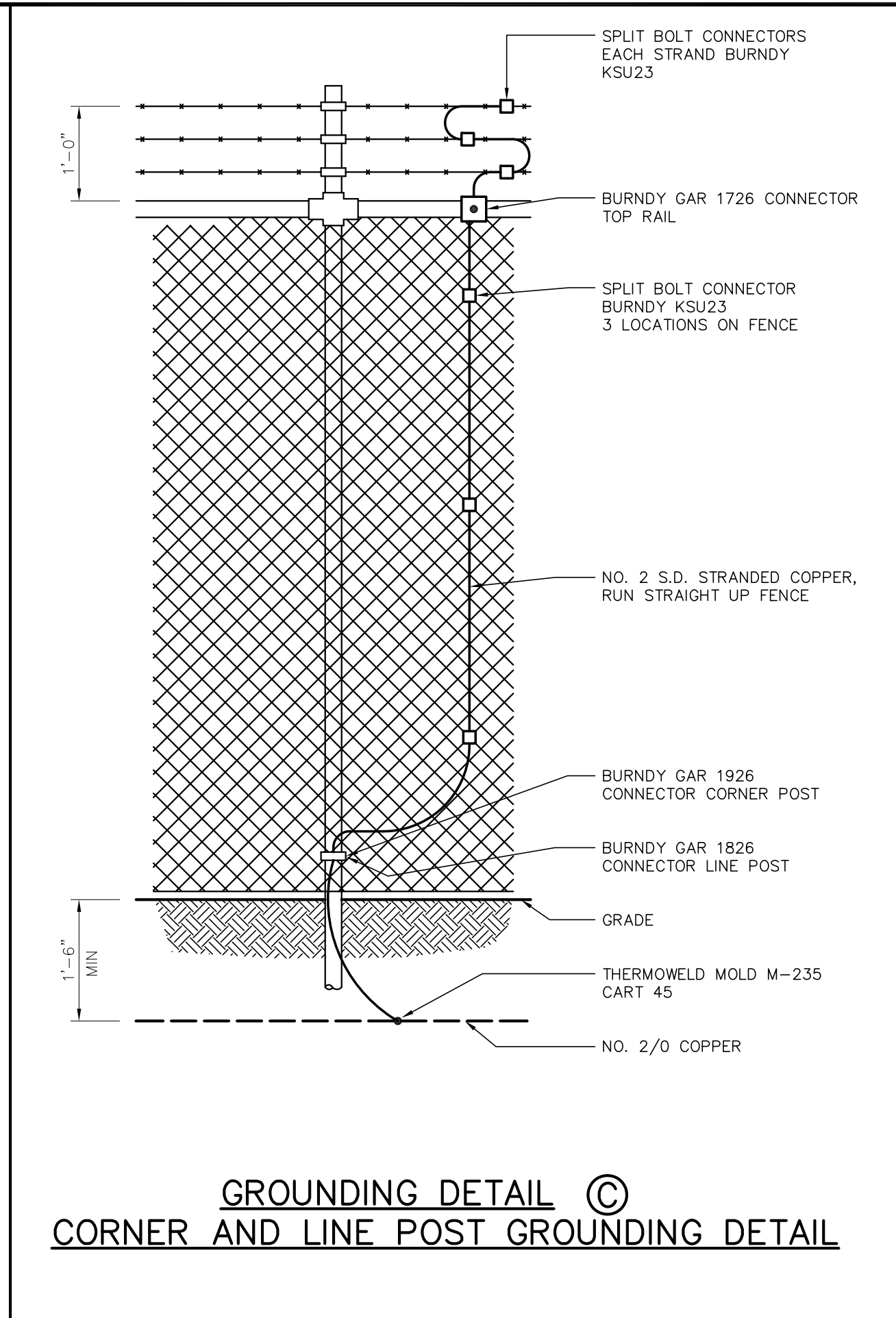
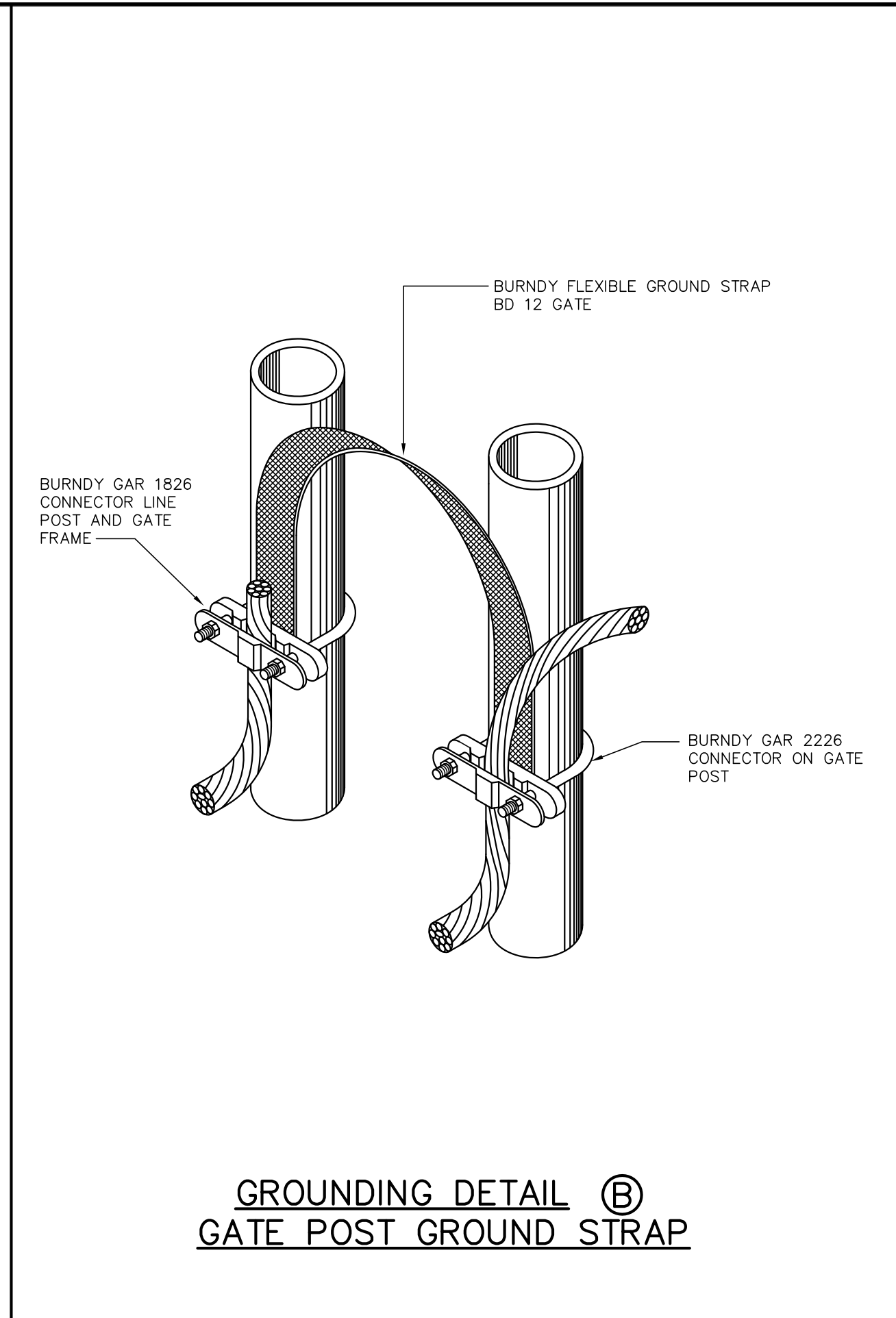
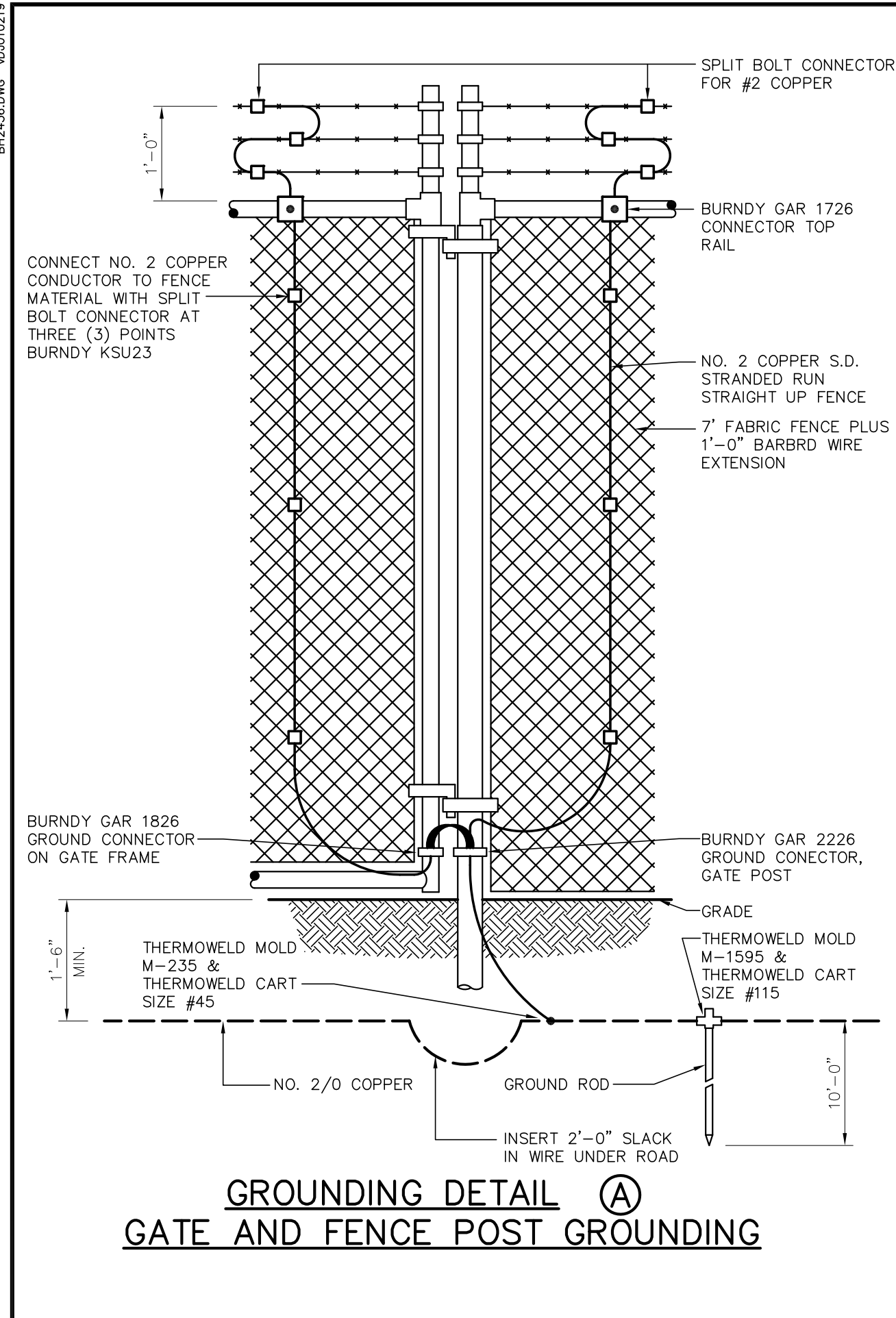


**LEGEND:**

- EXISTING
- PROPOSED

**FOR BIDDING PURPOSES ONLY**

<b>TWIN BRIDGES TRANSFORMER ADDITION ENLARGED GROUNDING PLANS</b>			
CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA			
SCALE: 1/8"=1'-0"	DATE: 01/02/18	DRAWN BY: JHD	APPROVED BY: JJC
			PROJECT NO.: <b>2019-E-16A</b>
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA			DRAWING NO.: <b>TBTA-04A</b>
NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION
			REV.: <b>A</b>



**FOR BIDDING PURPOSES ONLY**

- NOTES:**
- ALL GROUNDING CONDUCTORS, TAPS AND GROUND RODS TO BE A MINIMUM OF 1'-6" BELOW GRADE.
  - CONTRACTOR TO VERIFY ALL SWITCH HANDLE LOCATIONS PRIOR TO INSTALLING GROUND SYSTEM.
  - ALL ABOVE AND BELOW GRADE GROUND WIRE SHALL FURNISHED AND INSTALLED BY CONTRACTOR.

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

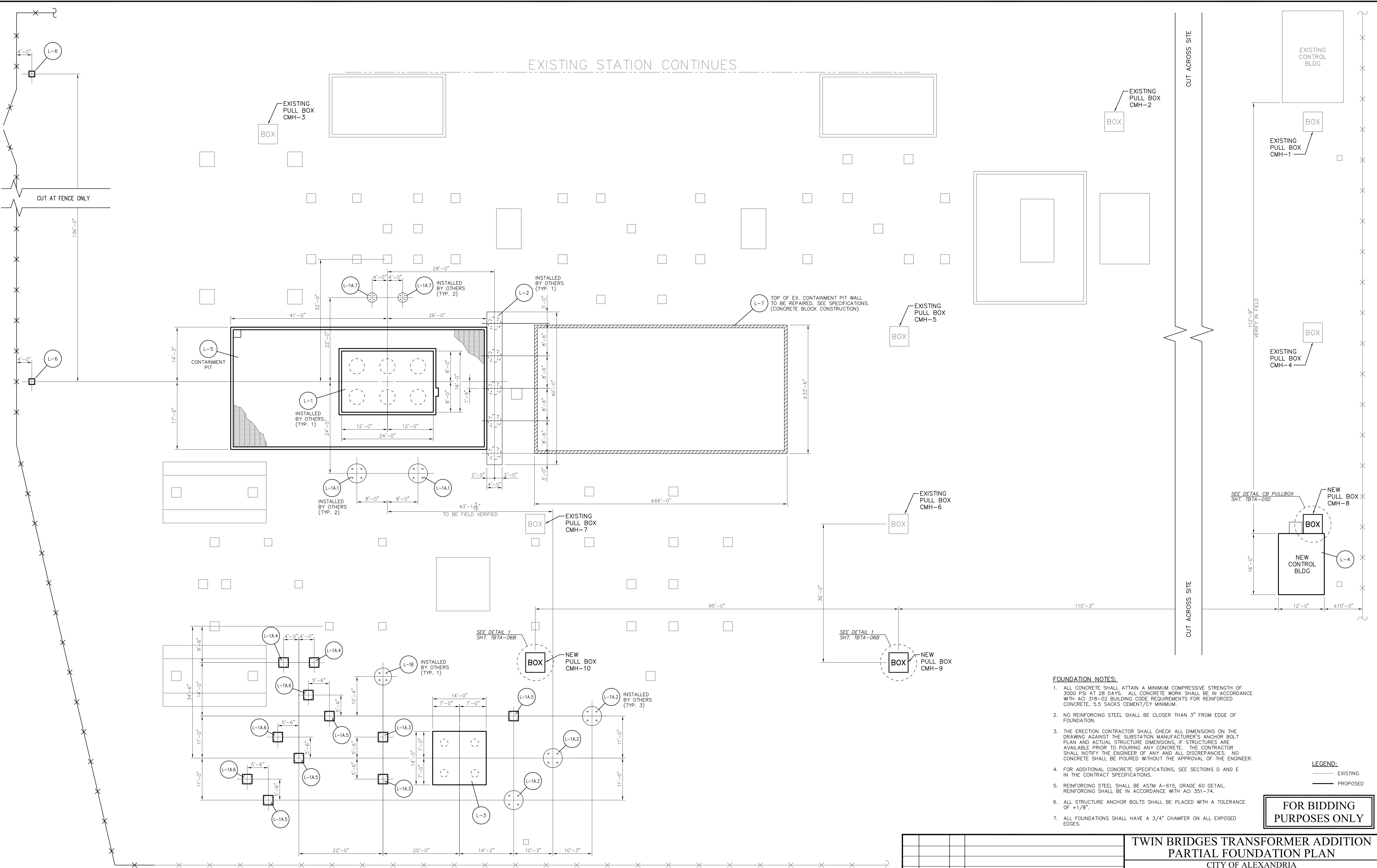
**TWIN BRIDGES TRANSFORMER ADDITION  
GROUNDING DETAILS**

CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

SCALE: N.T.S.	DATE: 2/18/19	DRAWN BY: JHD	APPROVED BY: JJC	PROJECT NO.: 2019-E-16A
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA			DRAWING NO.: TBTA-04A	REV.: A

BHA: COATBTAD48.dwg USF-1 03/07/19 10:18AM BY #27

BHA\2405.DWG 03/01/2019

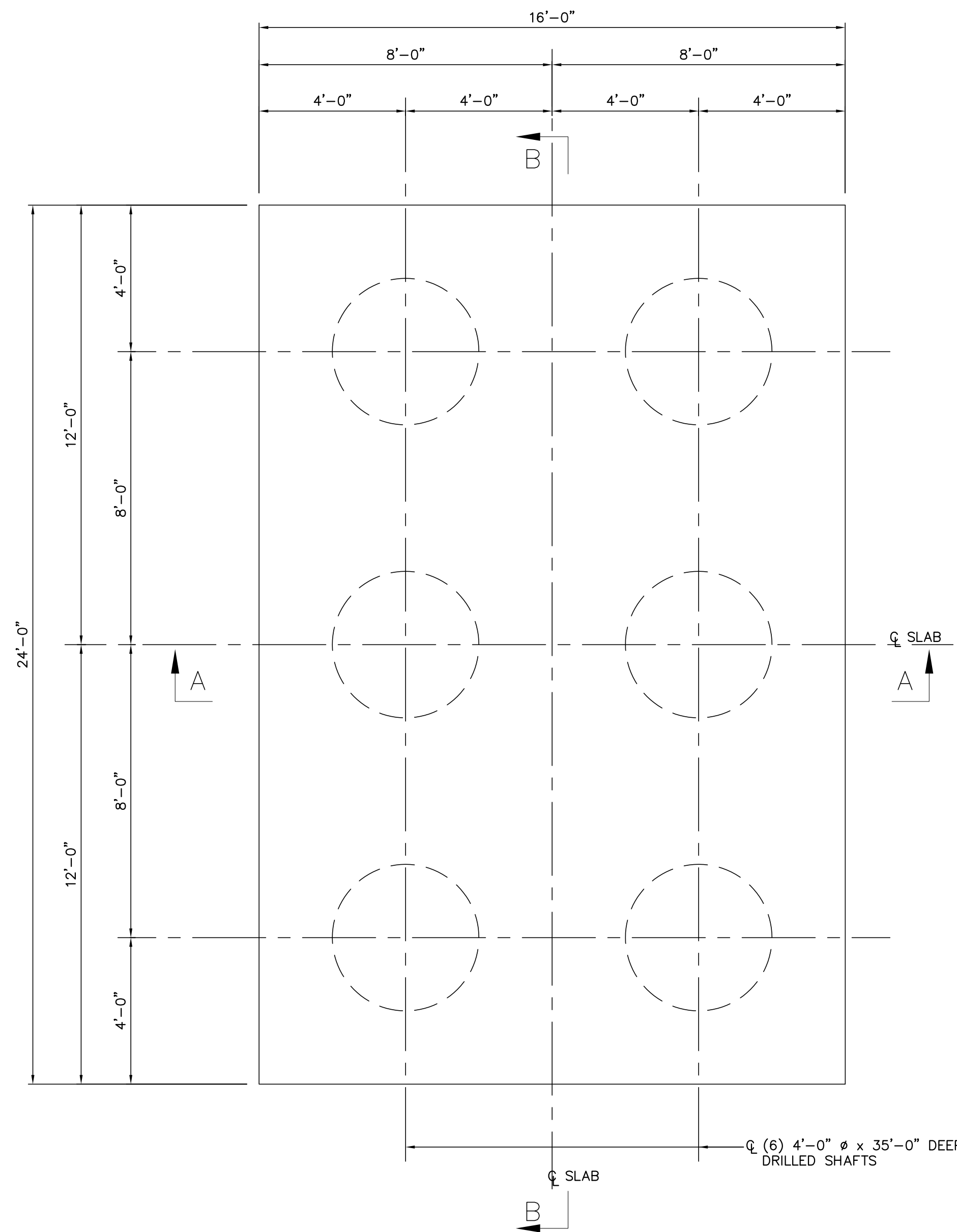


**PARTIAL FOUNDATION PLAN**  
SCALE: 3/32"=1'-0"

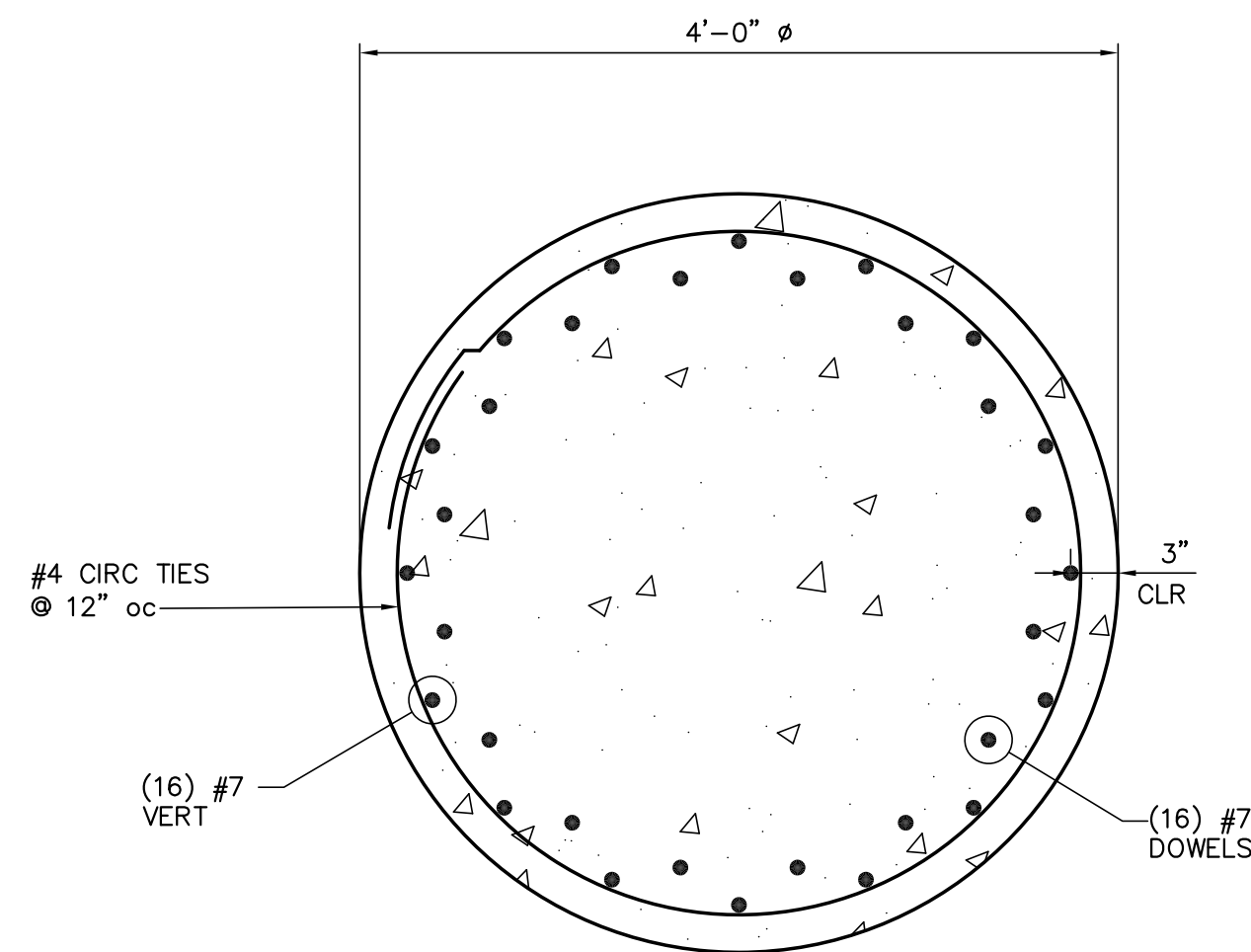
- FOUNDATION NOTES:**
1. ALL CONCRETE SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ACI 318-02 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, 5.5 SACKS CEMENT/CY MINIMUM.
  2. NO REINFORCING STEEL SHALL BE CLOSER THAN 3" FROM EDGE OF FOUNDATION.
  3. THE ERECTION CONTRACTOR SHALL CHECK ALL DIMENSIONS ON THE DRAWING AGAINST THE SUBSTATION MANUFACTURER'S ANCHOR BOLT PLAN AND ACTUAL STRUCTURE DIMENSIONS, IF STRUCTURES ARE AVAILABLE PRIOR TO POURING ANY CONCRETE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY AND ALL DISCREPANCIES. NO CONCRETE SHALL BE POURED WITHOUT THE APPROVAL OF THE ENGINEER.
  4. FOR ADDITIONAL CONCRETE SPECIFICATIONS, SEE SECTIONS D AND E IN THE CONTRACT SPECIFICATIONS.
  5. REINFORCING STEEL SHALL BE ASTM A-615, GRADE 60 DETAIL. REINFORCING SHALL BE IN ACCORDANCE WITH ACI 351-74.
  6. ALL STRUCTURE ANCHOR BOLTS SHALL BE PLACED WITH A TOLERANCE OF +1/8".
  7. ALL FOUNDATIONS SHALL HAVE A 3/4" CHAMFER ON ALL EXPOSED EDGES.
- LEGEND:**  
 - - - - - EXISTING  
 \_\_\_\_\_ PROPOSED

**FOR BIDDING PURPOSES ONLY**

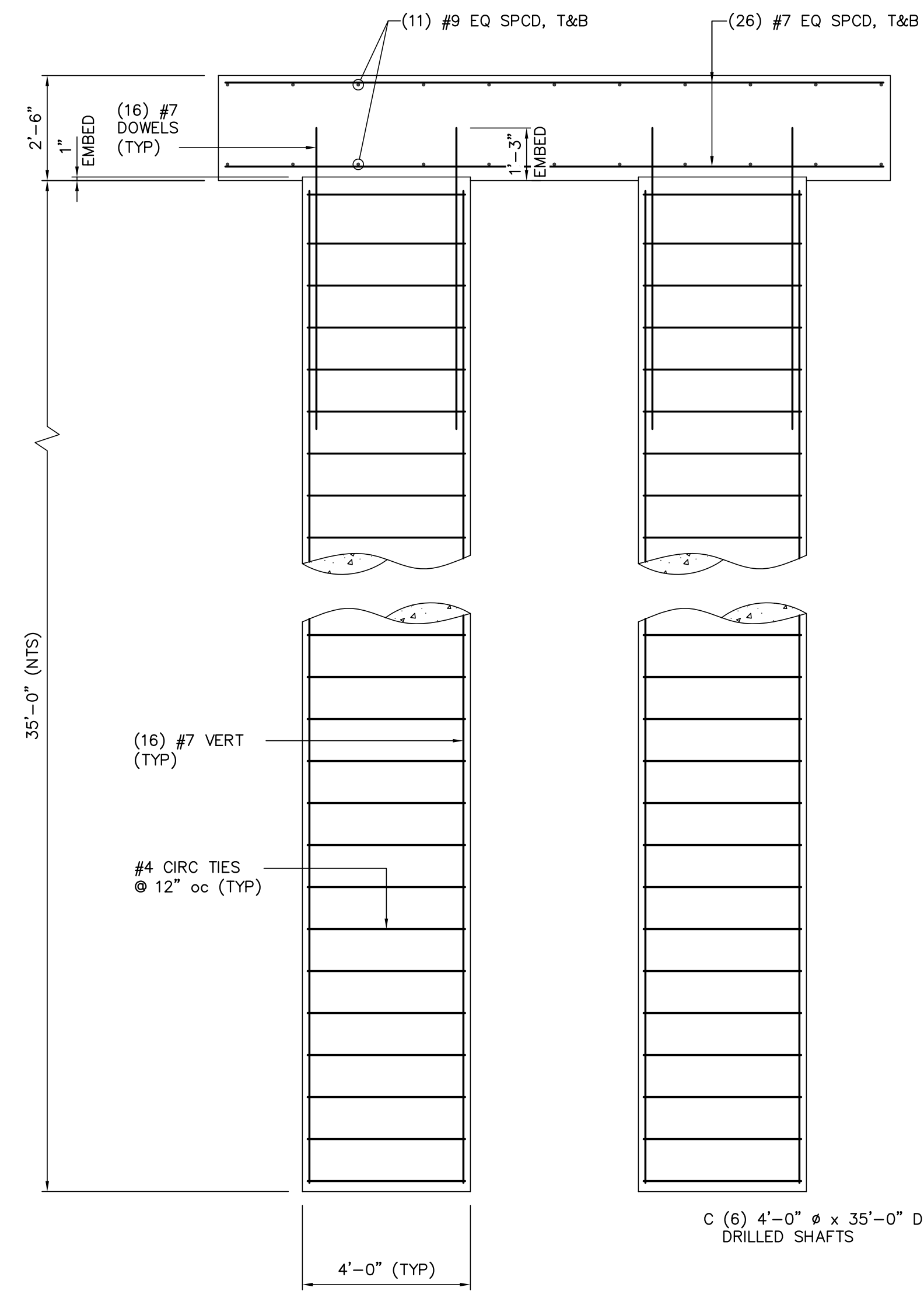
				<b>TWIN BRIDGES TRANSFORMER ADDITION PARTIAL FOUNDATION PLAN</b>			
				CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA			
SCALE: 3/32"=1'-0"	DATE: 8/15/18	DRAWN BY: JHD	APPROVED BY: JJC	PROJECT NO.:			2019-E-16A
				<b>BHA, INC.</b> BATON ROUGE, LOUISIANA		DRAWING NO.:	
				FOR BIDDING PURPOSES ONLY - CONSTRUCTION		TBTA-05	
NO.	DATE	BY	REVISIONS				



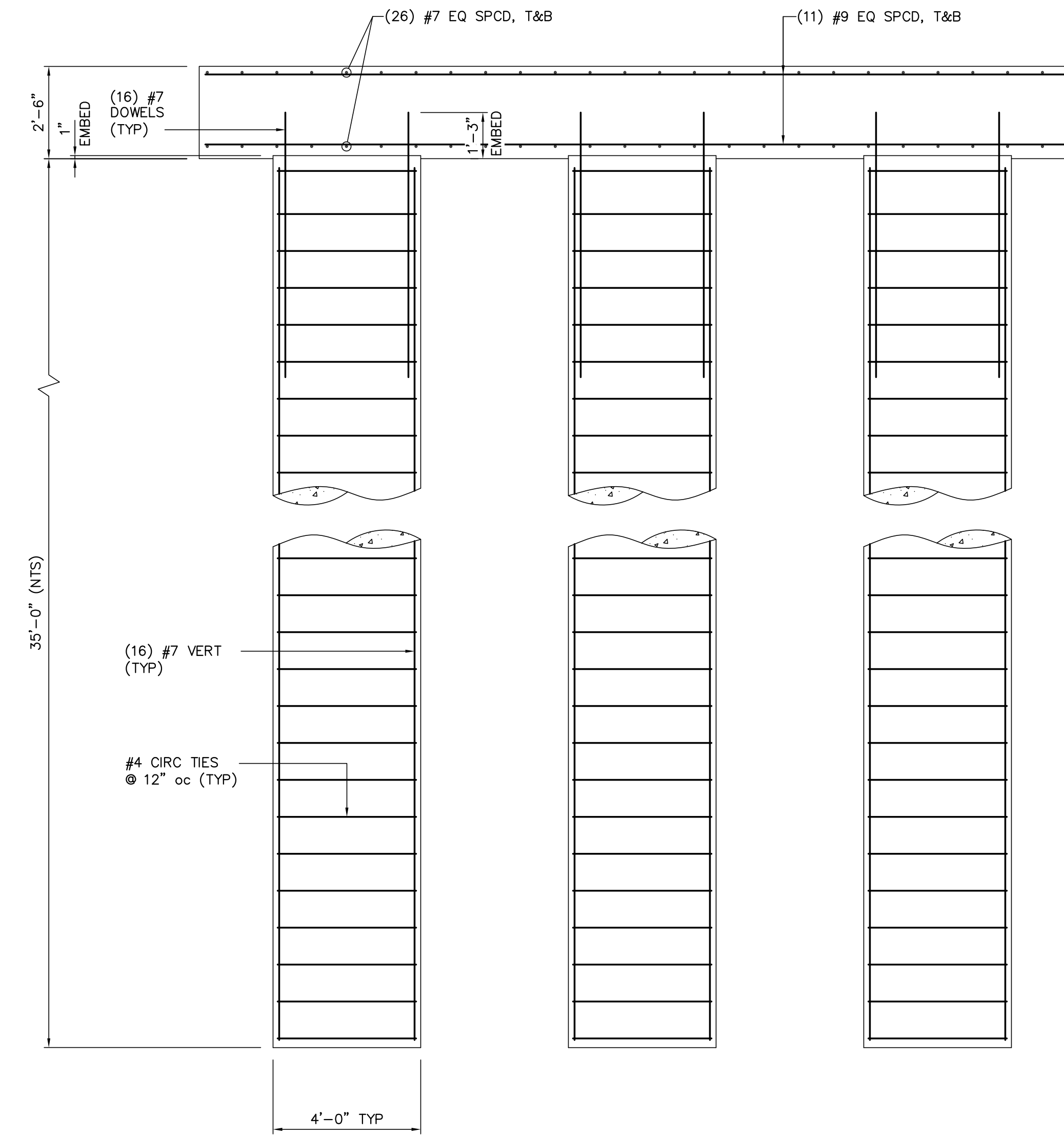
FOUNDATION PLAN L-1  
3/8"=1'-0"  
[INSTALLED BY OTHERS]



TYPICAL DRILLED SHAFT  
SECTION  
1"=1'-0"



SECTION A-A  
3/8"=1'-0"



SECTION B-B  
3/8"=1'-0"

GENERAL NOTES: SLAB ON GRADE

- THESE PLANS ARE TO BE ONLY FOR THE LOCATION BELOW:  
TWIN BRIDGE ROAD
- THE CONCRETE MIX SHOULD YIELD A MINIMUM COMPRESSIVE STRENGTH OF 3500 psi AT 28 DAYS. CONCRETE DESIGN MIX SHALL BE IN ACCORDANCE WITH ACI-318 (LATEST VERSION). NO CHLORIDES SHALL BE ALLOWED.
- ALL CONVENTIONAL REINFORCING STEEL SHALL MEET ASTM-A613 (GRADE 60). REINFORCING STEEL SHALL BE DETAILED, AND ACCESSORIES PROVIDED IN ACCORDANCE WITH THE LATEST "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES".
- REINFORCEMENT SHALL HAVE 3" COVER IN THE GRADE BEAM BOTTOMS, 2" COVER IN THE BEAM SIDES AND TOP, 1 1/2" COVER IN THE SLAB TOP AND BOTTOMS, UNLESS NOTED OTHERWISE.
- 1 LAYER(S) POLYETHYLENE VAPOR BARRIER SHALL BE PLACED UNDER ALL CONCRETE.
- BARs SHALL BE SECURELY SUPPORTED TO PREVENT BOTH VERTICAL AND HORIZONTAL MOVEMENT DURING CONCRETE PLACING.
- CONCRETE SHALL BE WELL CONSOLIDATED.
- THE CONTRACTOR SHALL VERIFY ALL DROPS, OFF-SETS, BRICK LEDGES, AND BLOCK OUTS ON ARCHITECTURAL PLANS, AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES THAT MAY EXIST.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF THE STRUCTURAL DRAWINGS WITH ALL OTHER DRAWINGS.
- GRADE BEAM SIZES MAY VARY BY -10%, +20%
- ALTERATION TO, OR DEVIATION FROM, THE INFORMATION SHOWN ON THIS SHEET WITHOUT THE WRITTEN ADVANCE APPROVAL FROM LANGLOIS ENGINEERING, INC., WILL VOID DESIGNER'S RESPONSIBILITY.
- THIS PLAN IS FOR GRADE BEAM LOCATION ONLY.
- ALL SUBGRADE FILL SHALL BE SELECT GRANULAR MATERIAL COMPACTED TO 90% STANDARD PROCTOR DENSITY IN A MAXIMUM OF 6" LIFTS.
- A MINIMUM OF 4" OF CONCRETE WILL BE MAINTAINED THROUGHOUT THE ENTIRE SLAB.
- ALL RUNOFF WATER MUST BE CARRIED AWAY FROM THE SLAB TO PREVENT MATURATION OF THE SUB-BASE.
- ALL TREES WITHIN CLOSE PROXIMITY SHALL BE REMOVED TO PREVENT THE ROOTS FROM EXTENDING UNDER THE SLAB.
- REMOVE A MINIMUM OF 12" OF EXISTING SOIL AND ALL UNSTABLE SILT PRIOR TO PLACING ANY FILL.
- MAXIMUM OF 1 FEET OF FILL MAY BE PLACED ON THE SITE. MAXIMUM DIFFERENTIAL FILL SHALL NOT EXCEED 20%.
- NO FIELD SUPERVISION PROVIDED UNDER THIS SEAL UNLESS OTHERWISE NOTED. 29. EXTERIOR FOOTINGS WILL HAVE A MINIMUM OF 12" WIDTH.

FOR REFERENCE ONLY

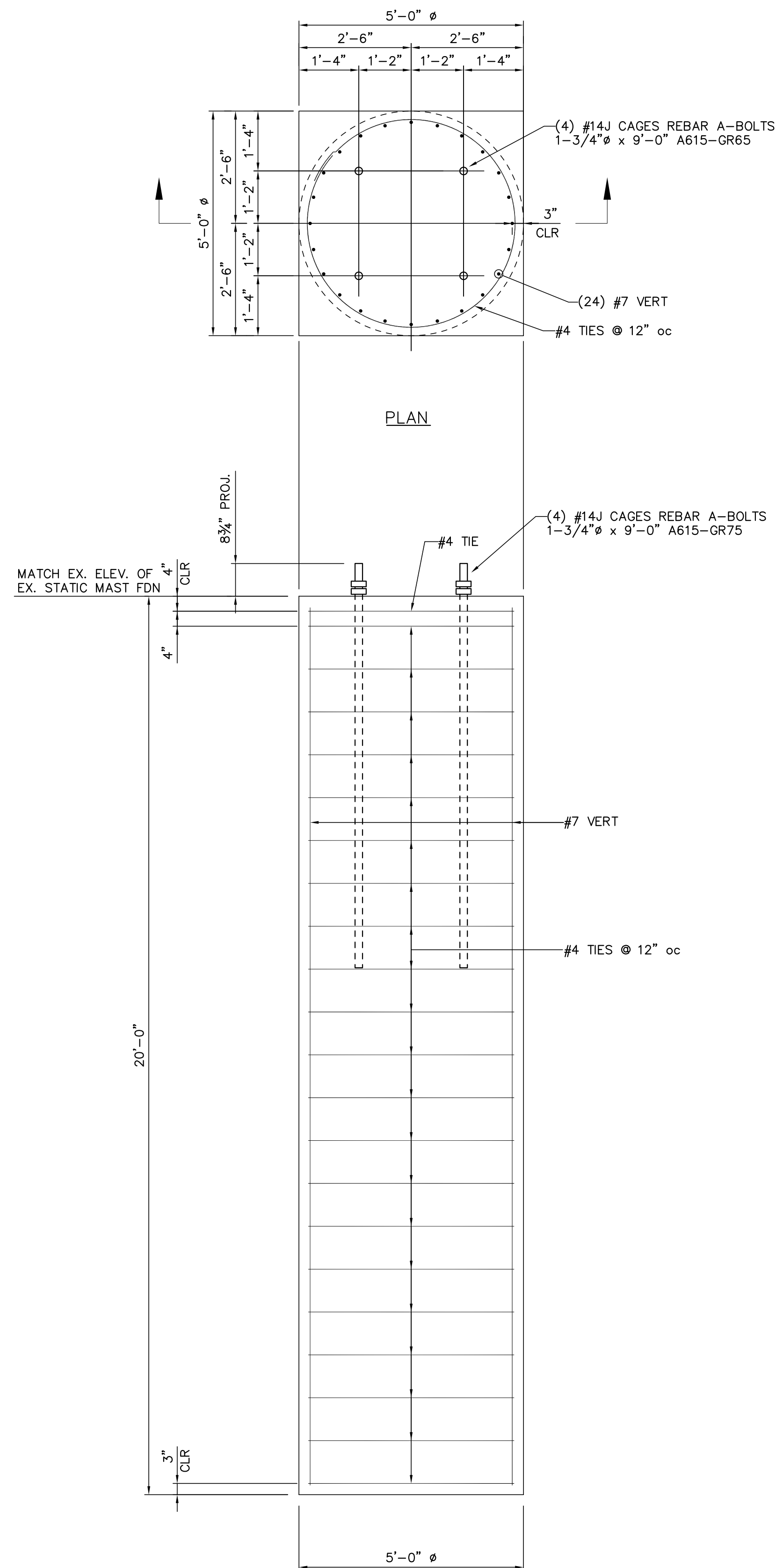
A				3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION	
NO.	DATE	BY	REVISIONS				
<b>TWIN BRIDGES TRANSFORMER ADDITION</b> <b>TRANSFORMER FOUNDATION PLAN &amp; DETAILS</b> CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA							
SCALE:	DATE:	DRAWN BY:	APPROVED BY:	PROJECT NO.:			
NOTED	7/11/18	JHD	JJC	2019-E-16A			
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA				DRAWING NO. : <b>TBTA-05A</b>			
REV. :				A			

BUILDING PLANS FOR:  
BHA, INC. - BATON ROUGE, LA  
TWIN BRIDGES SUBSTATION

LANGLOIS ENGINEERING, INC.  
GERARD W. LANGLOIS, P.E.  
11328 PENNYWOOD AVENUE  
BATON ROUGE, LOUISIANA 70809  
PH 225-293-8730 FAX 225-293-8718  
WWW.LANGLOISENGINEERING.COM



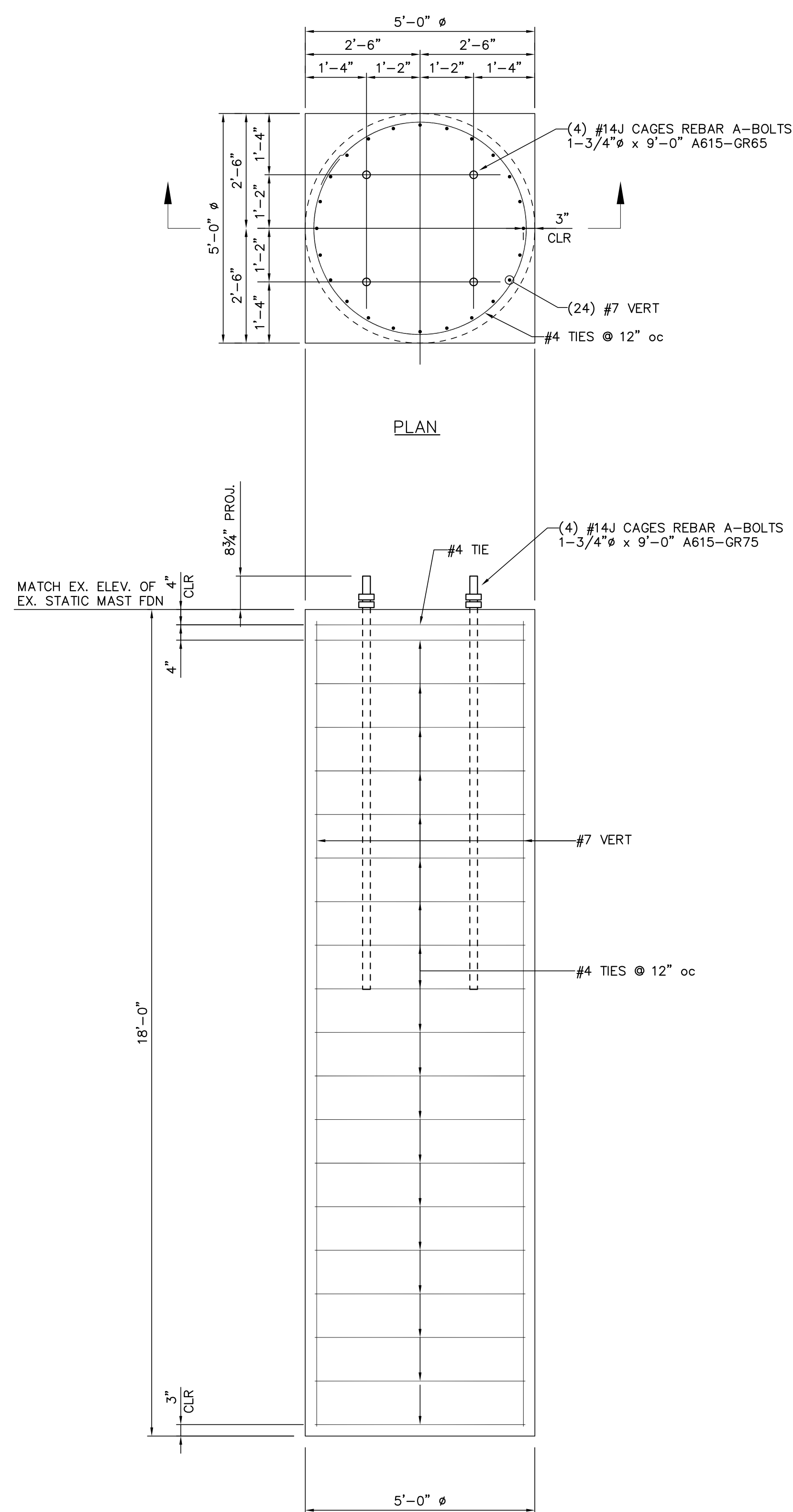
DATE:	JUN '18
DRAWN BY:	GWL, JR.
CHECKED BY:	GWL, SR.
REVISIONS:	
SHEET NO.:	
PROJECT NO.:	



DRILLED SHAFT L-1A.1  
1/2"=1'-0"

(QUANTITY: 2)

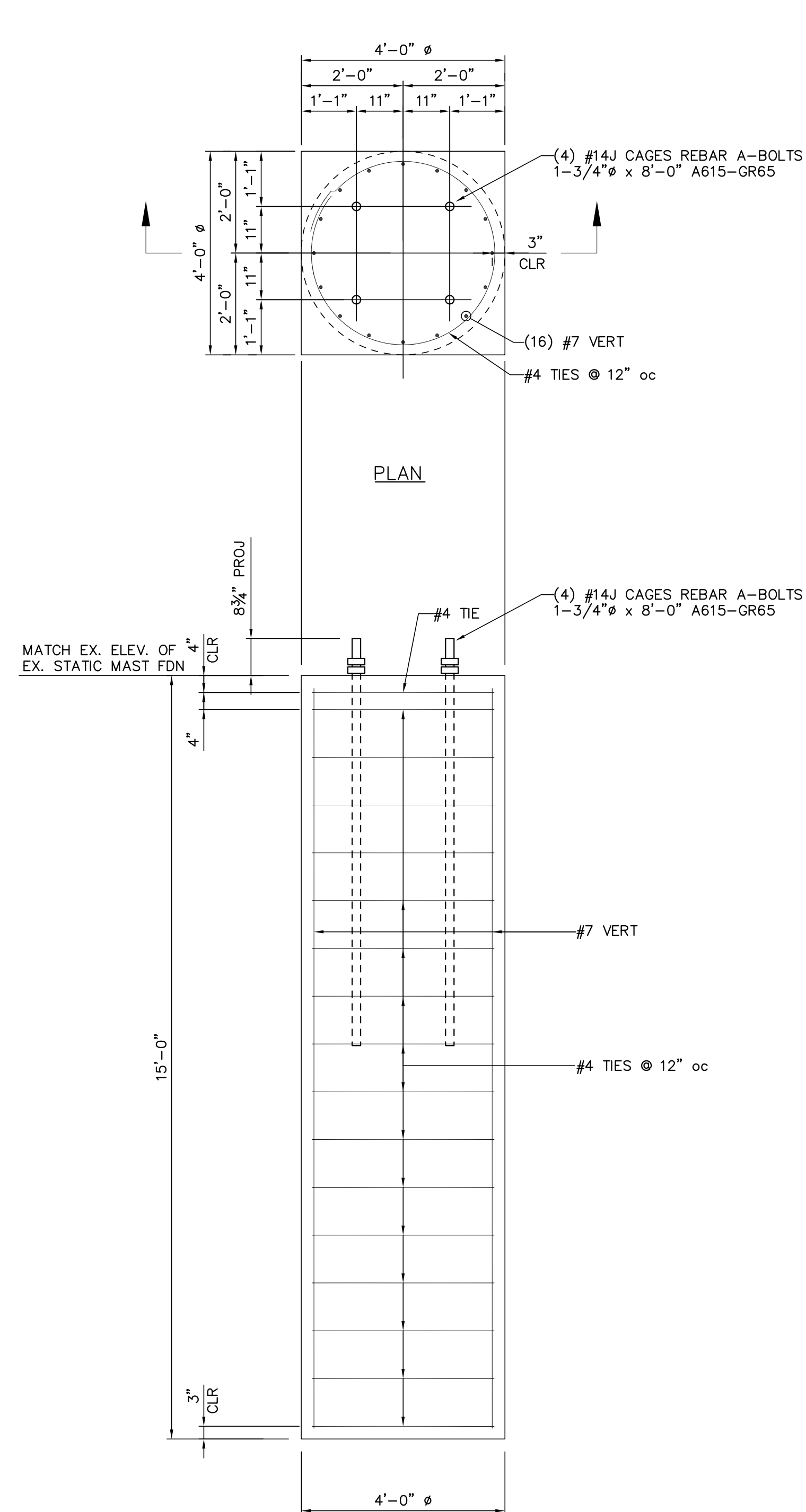
[INSTALLED BY OTHERS]



DRILLED SHAFT L-1A.2  
1/2"=1'-0"

(QUANTITY: 3)

[INSTALLED BY OTHERS]



DRILLED SHAFT L-1B  
1/2"=1'-0"

(QUANTITY: 1)

[INSTALLED BY OTHERS]

FOR REFERENCE ONLY

NO.				DATE				BY				REVISIONS			
A				3/4/19				BHA				FOR BIDDING PURPOSES ONLY			
TWIN BRIDGES TRANSFORMER ADDITION FOUNDATION DETAILS															
CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA															
SCALE: NOTED				DATE: 12/19/18				DRAWN BY: JHD				APPROVED BY: JJC			
BHA, INC. BATON ROUGE, LOUISIANA												PROJECT NO.: 2019-E-16A			
DRAWING NO.: TBTA-05B												REV.: A			

BUILDING PLANS FOR:

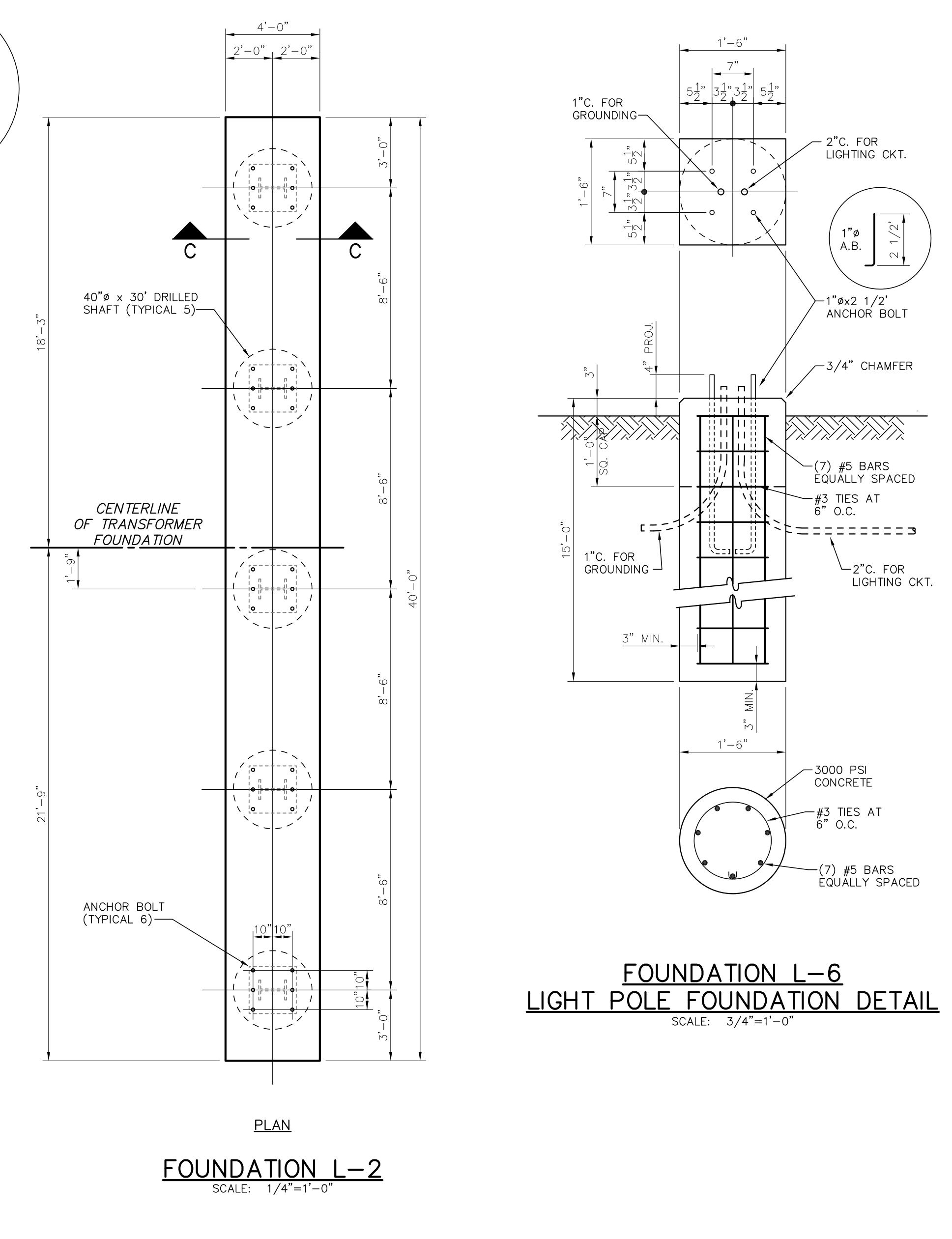
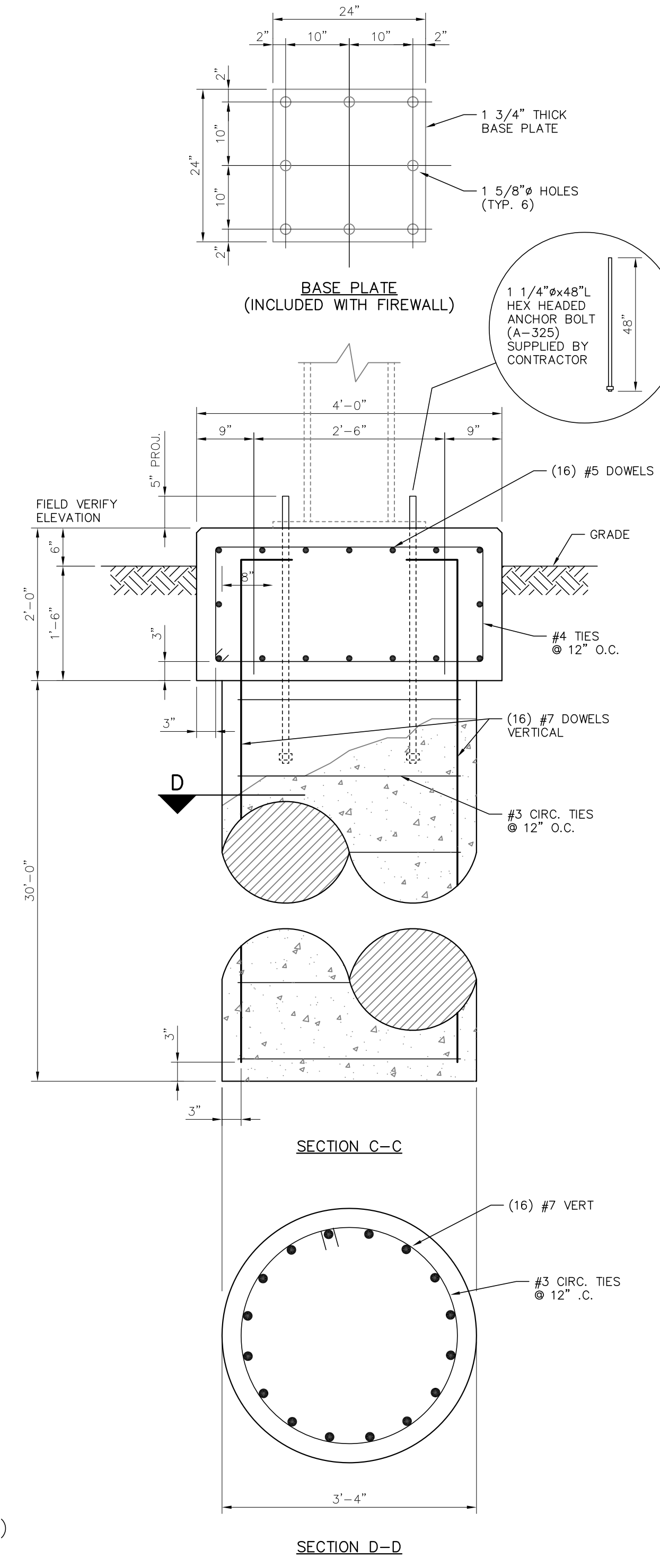
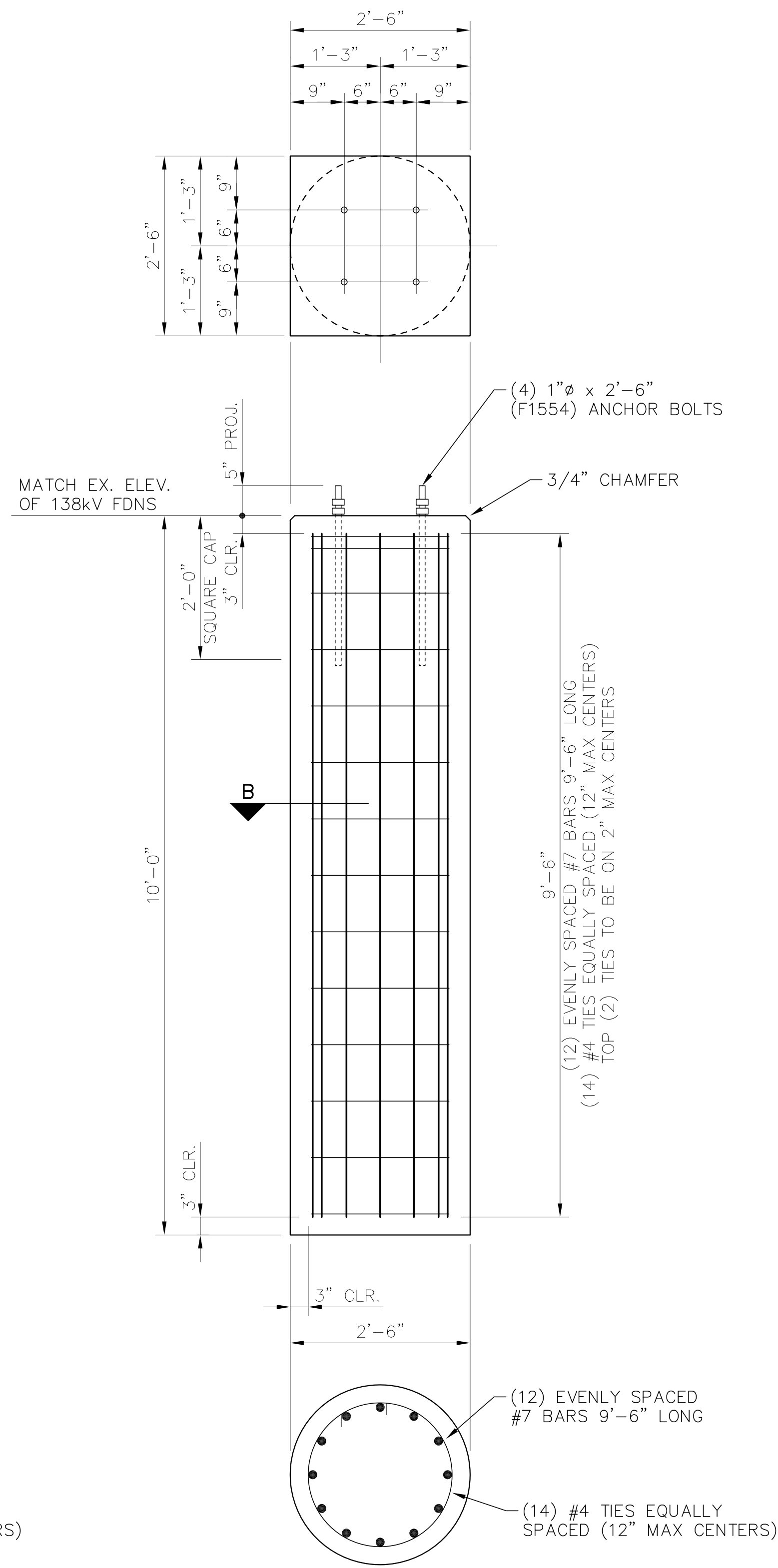
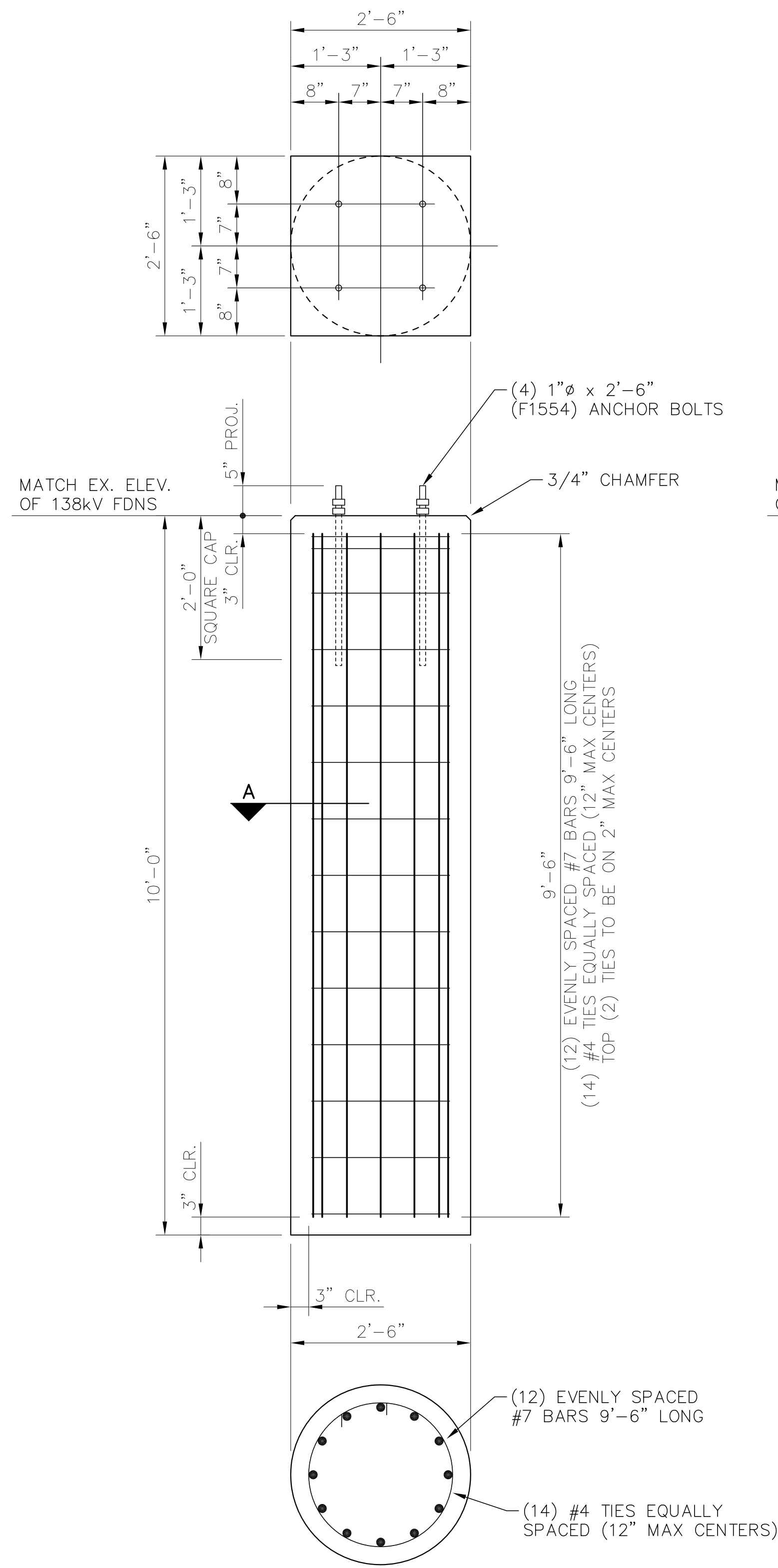
**BHA, INC. — BATON ROUGE, LA**  
TWIN BRIDGES SUBSTATION

**LANGLOIS ENGINEERING, INC.**  
GERARD W. LANGLOIS, P.E.  
11328 PENNYWOOD AVENUE  
BATON ROUGE, LOUISIANA 70809  
PH: 225-293-8730 FAX: 225-293-8718  
WWW.LANGLOISENGINEERING.COM

STATE OF LOUISIANA  
REGISTERED PROFESSIONAL ENGINEER  
EX. XXXX 2018  
CIVIL ENGINEERING

DATE: JUN '18  
DRAWN BY: GWL, JR.  
CHECKED BY: GWL, SR.  
REVISIONS:  
SHEET NO.  
PROJECT NO.

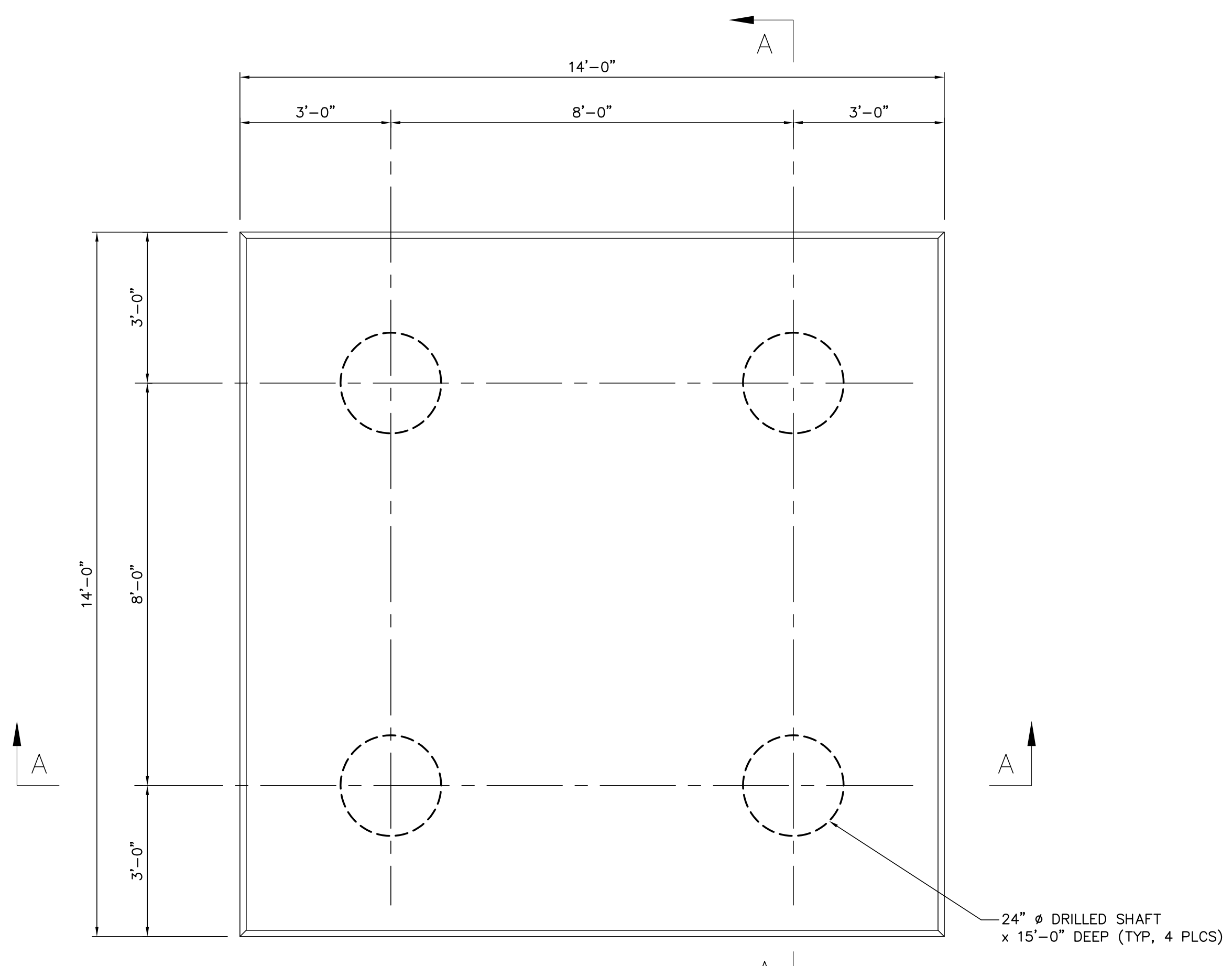
BHA245.DWG 04/01/2019



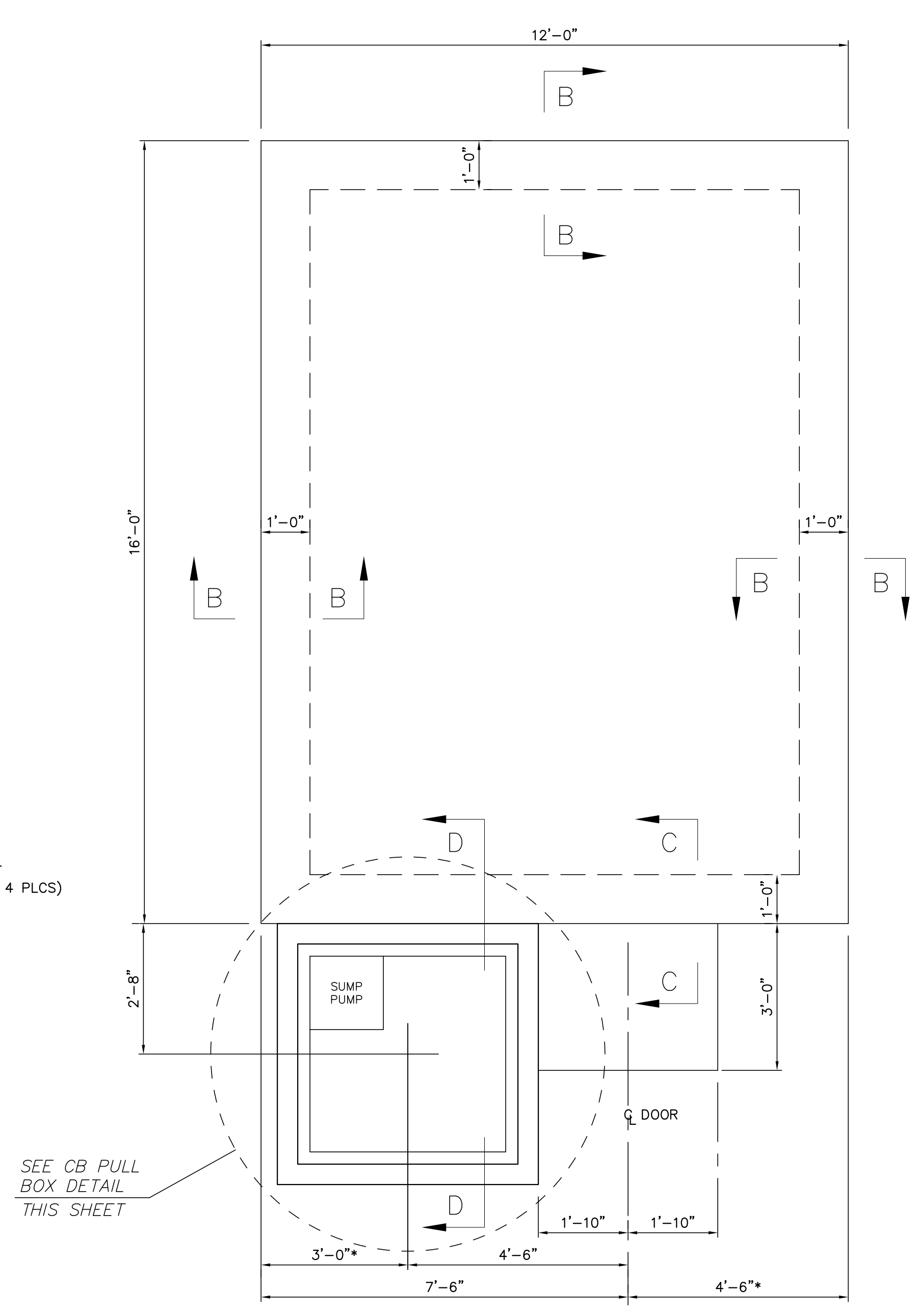
**FOR BIDDING  
 PURPOSES ONLY**

TWIN BRIDGES TRANSFORMER ADDITION FOUNDATION DETAILS			
CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA			
SCALE: NOTED	DATE: 8/15/18	DRAWN BY: JHD	APPROVED BY: JJC
PROJECT NO.: 2019-E-16A			REV.: A
DRAWING NO.: TBTA-05C			REV.: A
BHA, INC. BATON ROUGE, LOUISIANA			

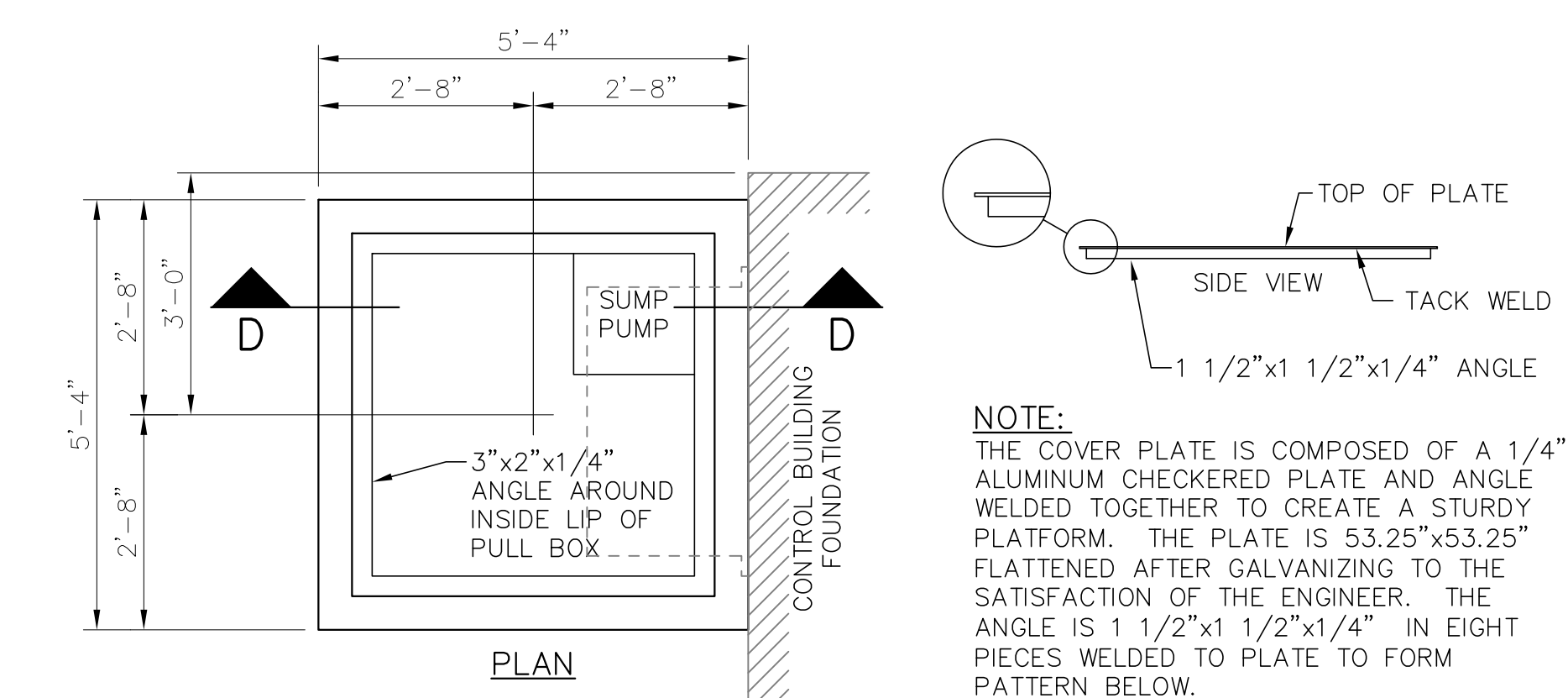
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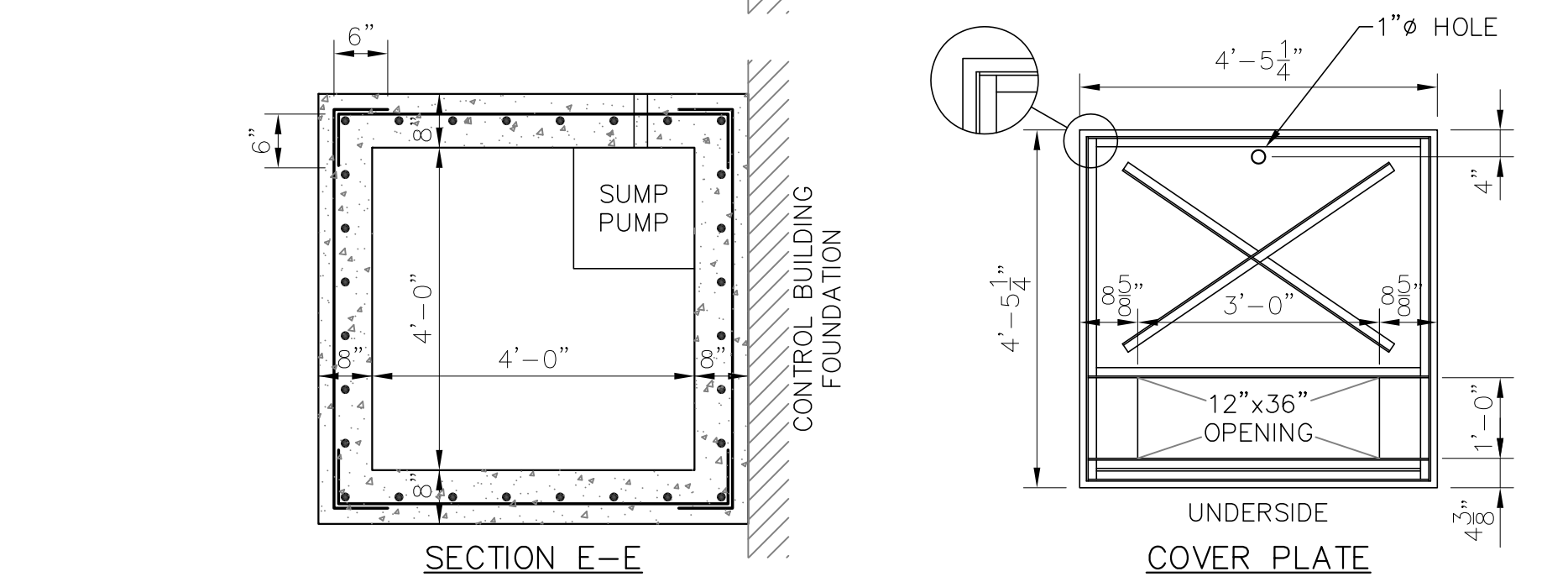
FOUNDATION L-3 PLAN  
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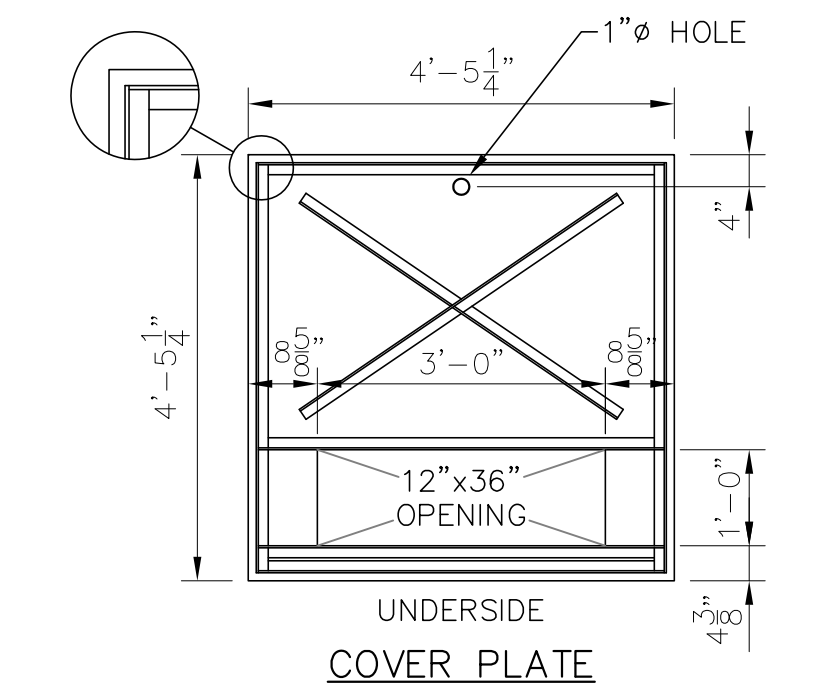
FOUNDATION L-4 PLAN  
1/2"=1'-0"  
\* - CONFIRM WITH CONTROL BUILDING DRAWINGS



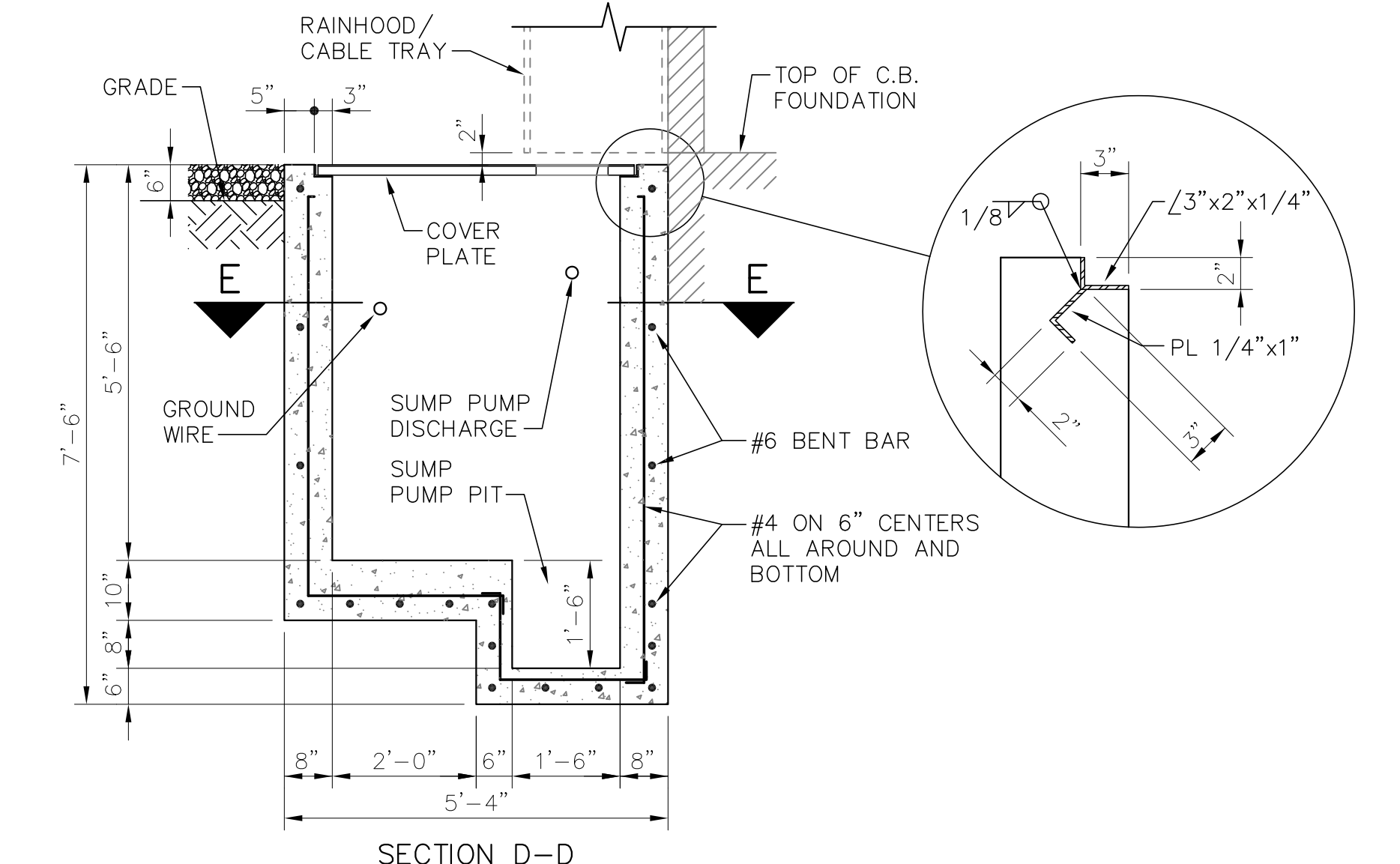
PLAN



SECTION E-E

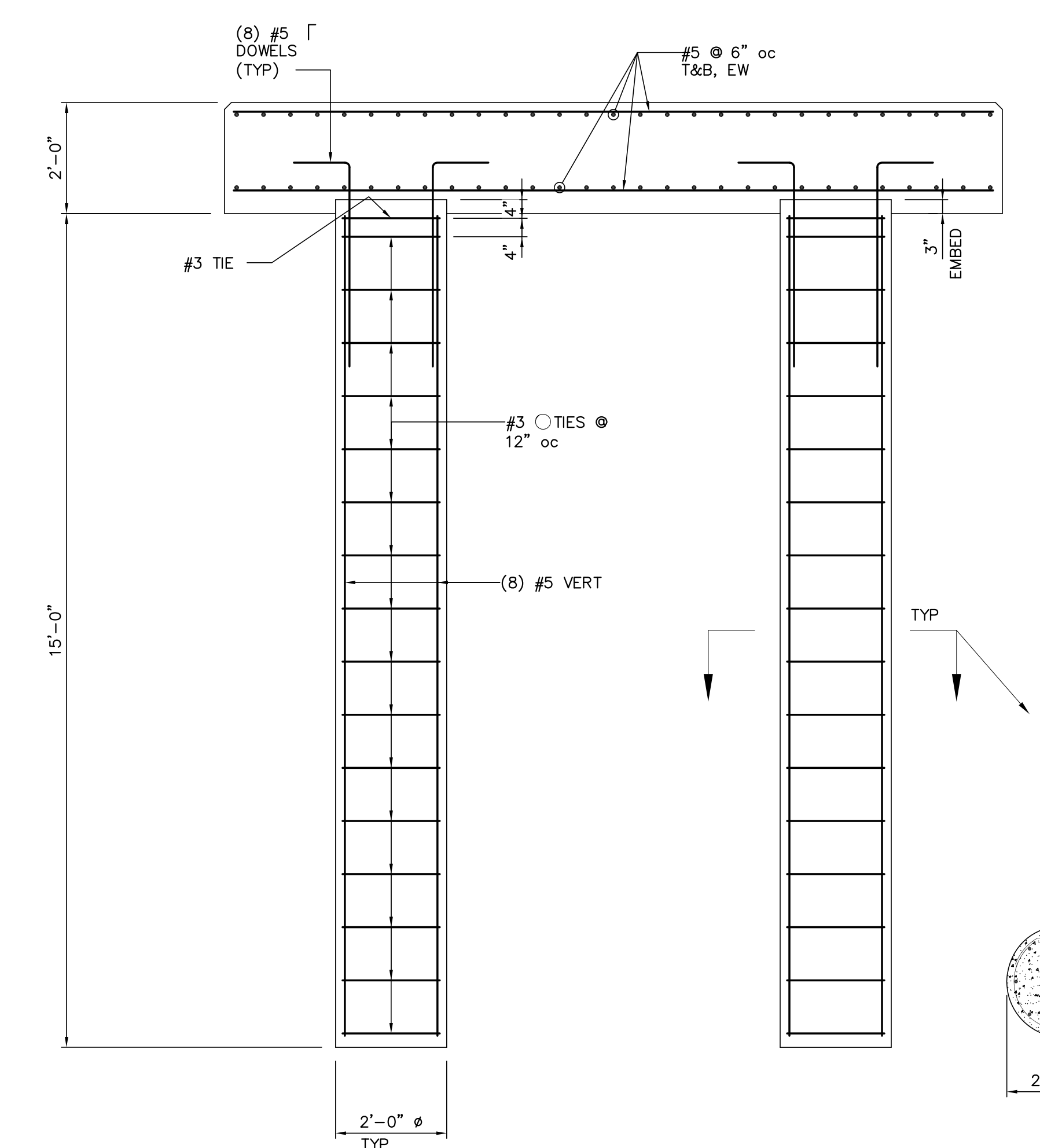


COVER PLATE

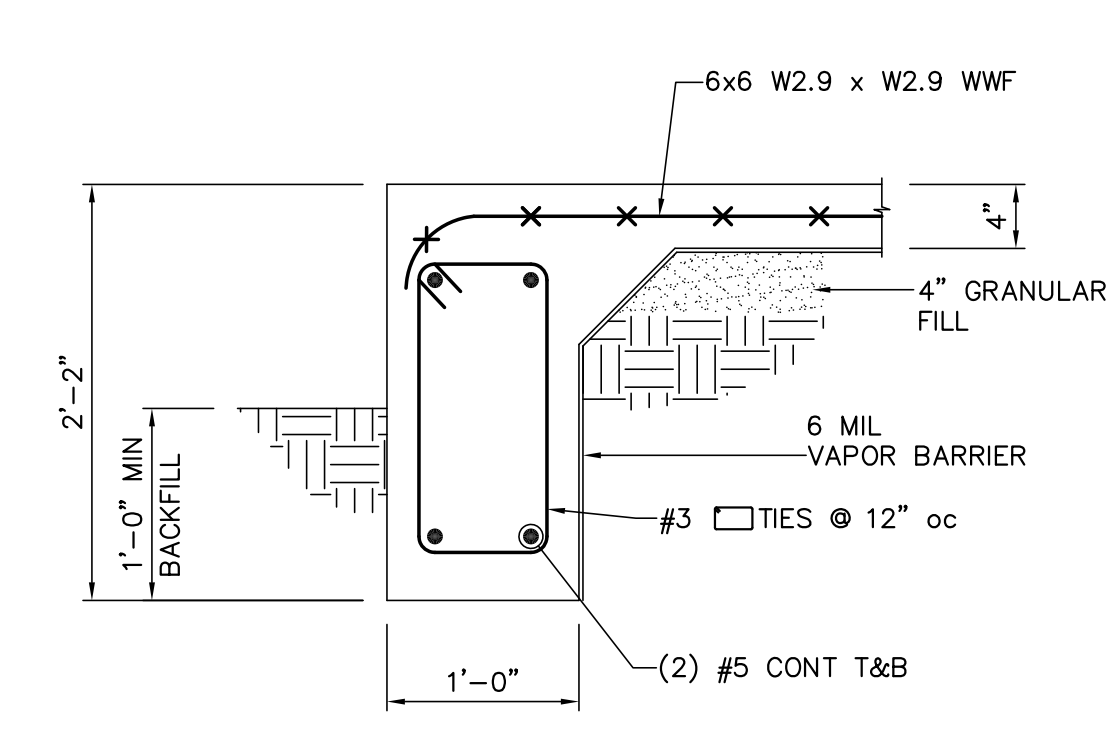


SECTION D-D

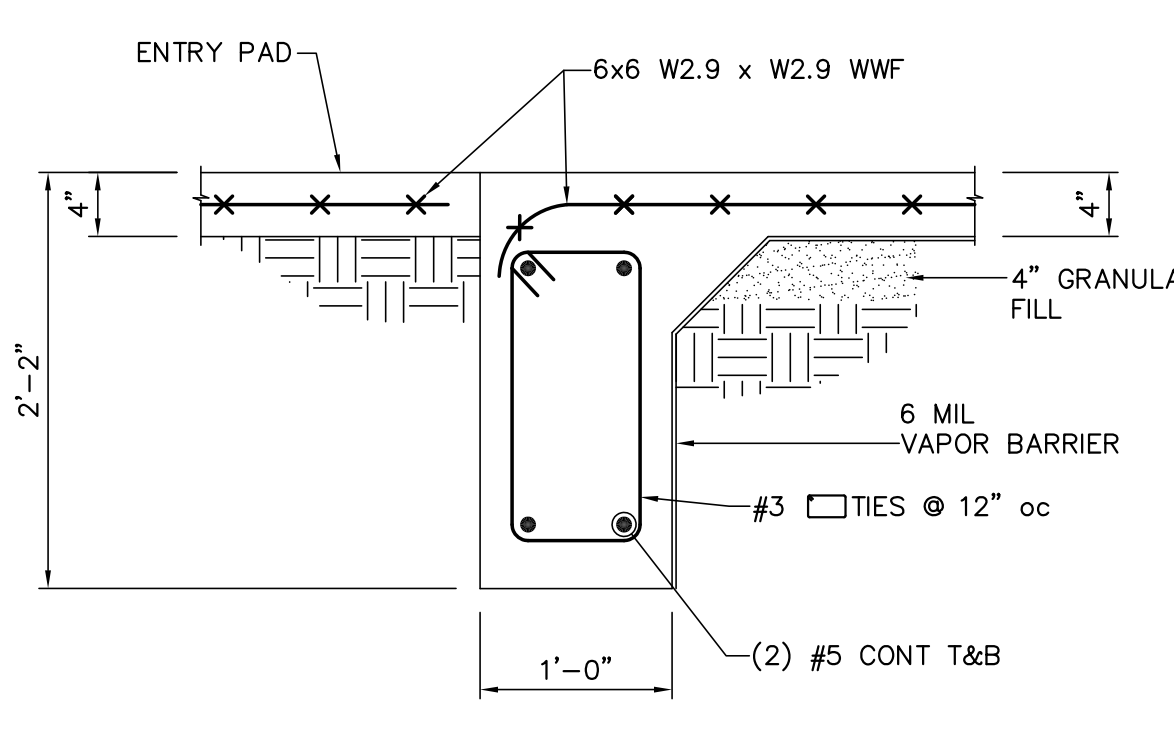
CB PULL BOX DETAIL  
1/2"=1'-0"



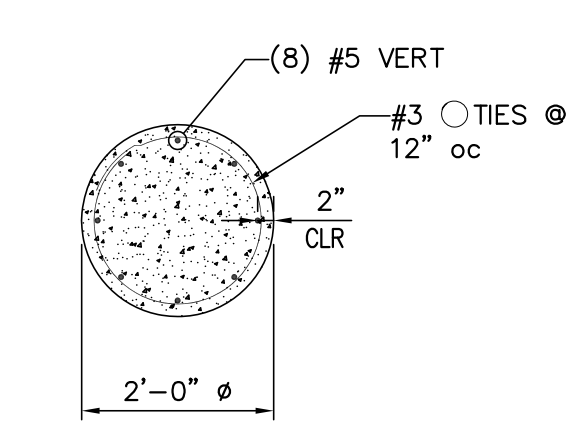
SECTION A-A  
1/2"=1'-0"



SECTION B-B  
1"=1'-0"

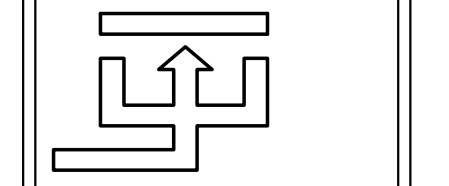


SECTION C-C  
1"=1'-0"



BUILDING PLANS FOR:  
**BHA, INC. - BATON ROUGE, LA**  
TWIN BRIDGES SUBSTATION

**LANGLOIS ENGINEERING, INC.**  
GERARD W. LANGLOIS, P.E.  
11328 PENNYWOOD AVENUE  
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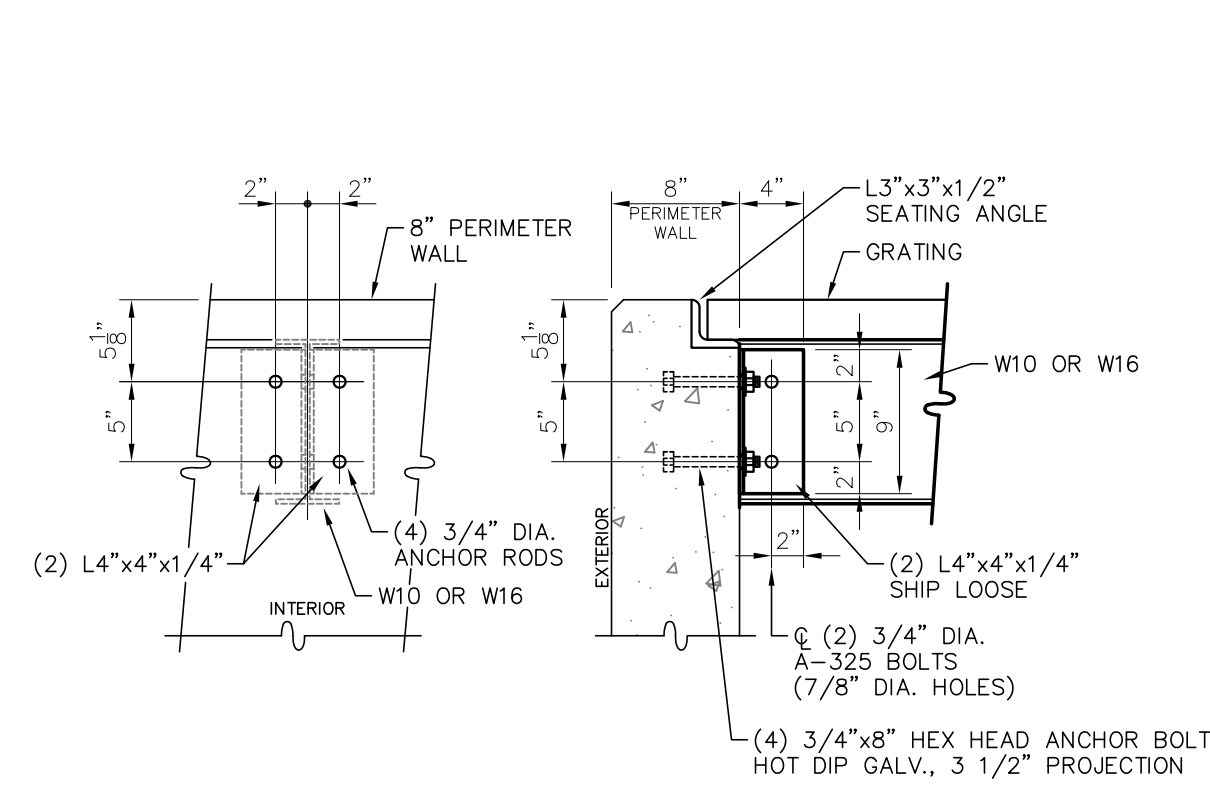
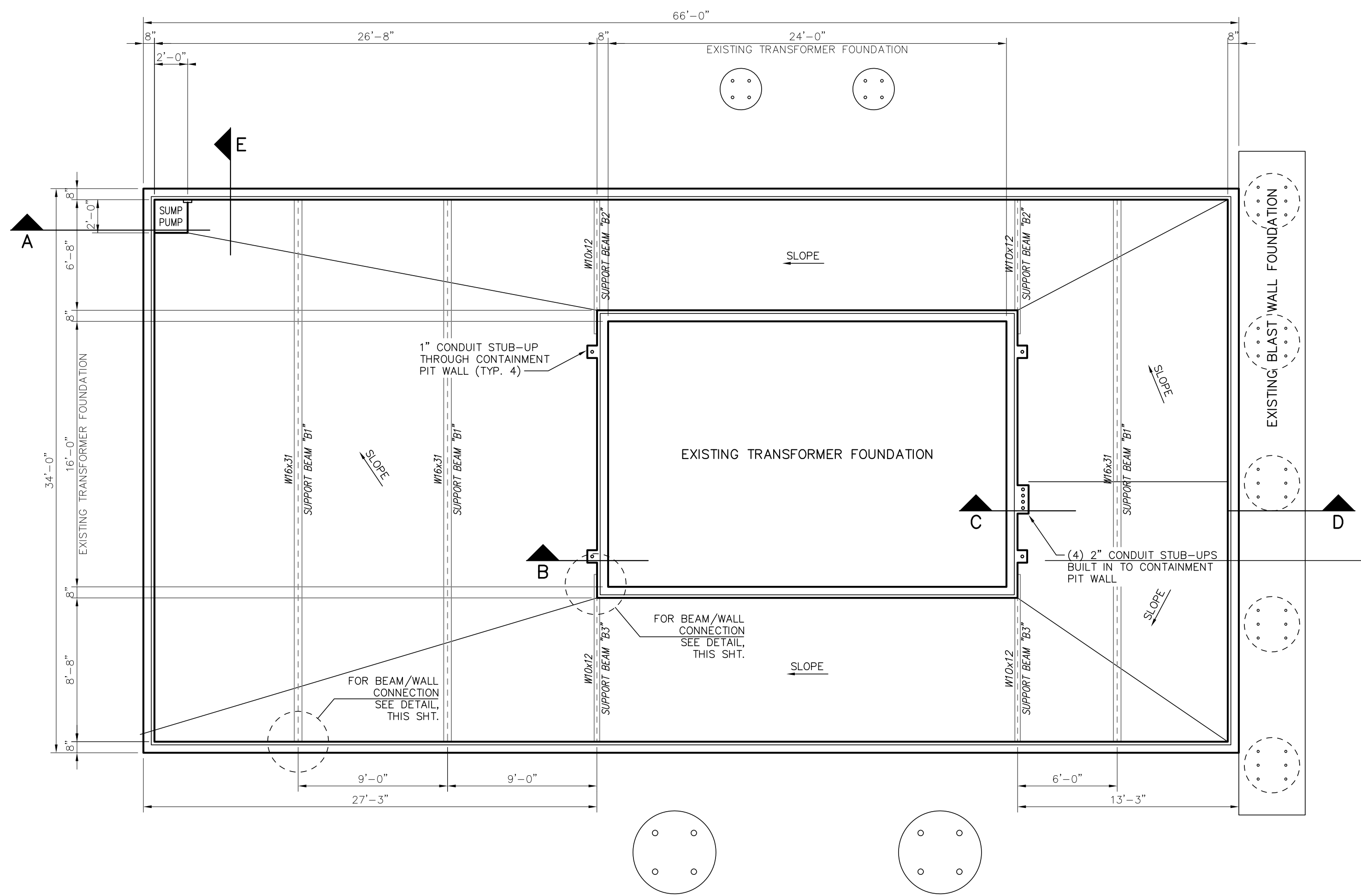
FOR BIDDING PURPOSES ONLY

DATE: DEC '18											
DRAWN BY: GWL, JR.											
CHECKED BY: GWL, SR.											
REVISIONS:											
SHEET NO.:											
PROJECT NO.:											
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NO.	DATE	BY	REVISIONS								
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY								
<b>TWIN BRIDGES TRANSFORMER ADDITION</b>											
<b>FOUNDATION DETAILS</b>											
CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA											
SCALE: NOTED	DATE: 12/31/18	DRAWN BY: JHD	APPROVED BY: JJC								
DRAWING NO.: <b>BHA, INC.</b> BATON ROUGE, LOUISIANA			PROJECT NO.: <b>2019-E-16A</b>								
DRAWING NO.: <b>TBTA-05D</b>			REV.: <b>A</b>								

BHA: COATBTA05D.dwg DSW=1 03/05/19 10:08AM BY J27

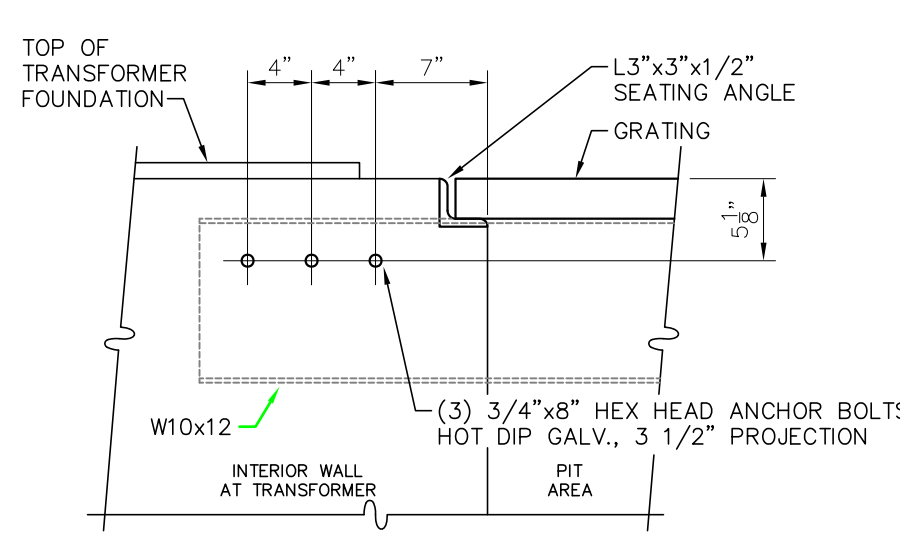
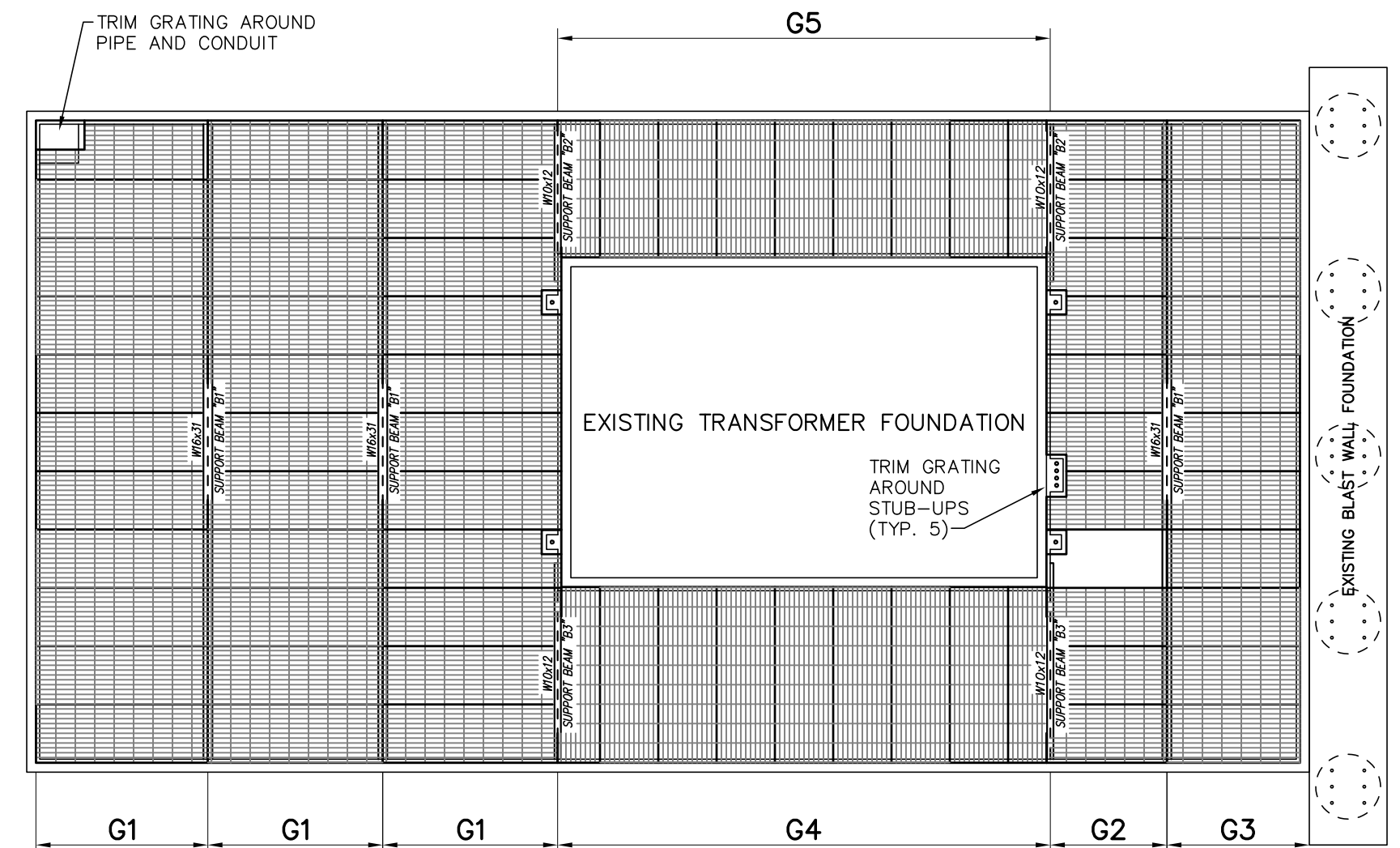


BHA-245.DWG 04/01/2019



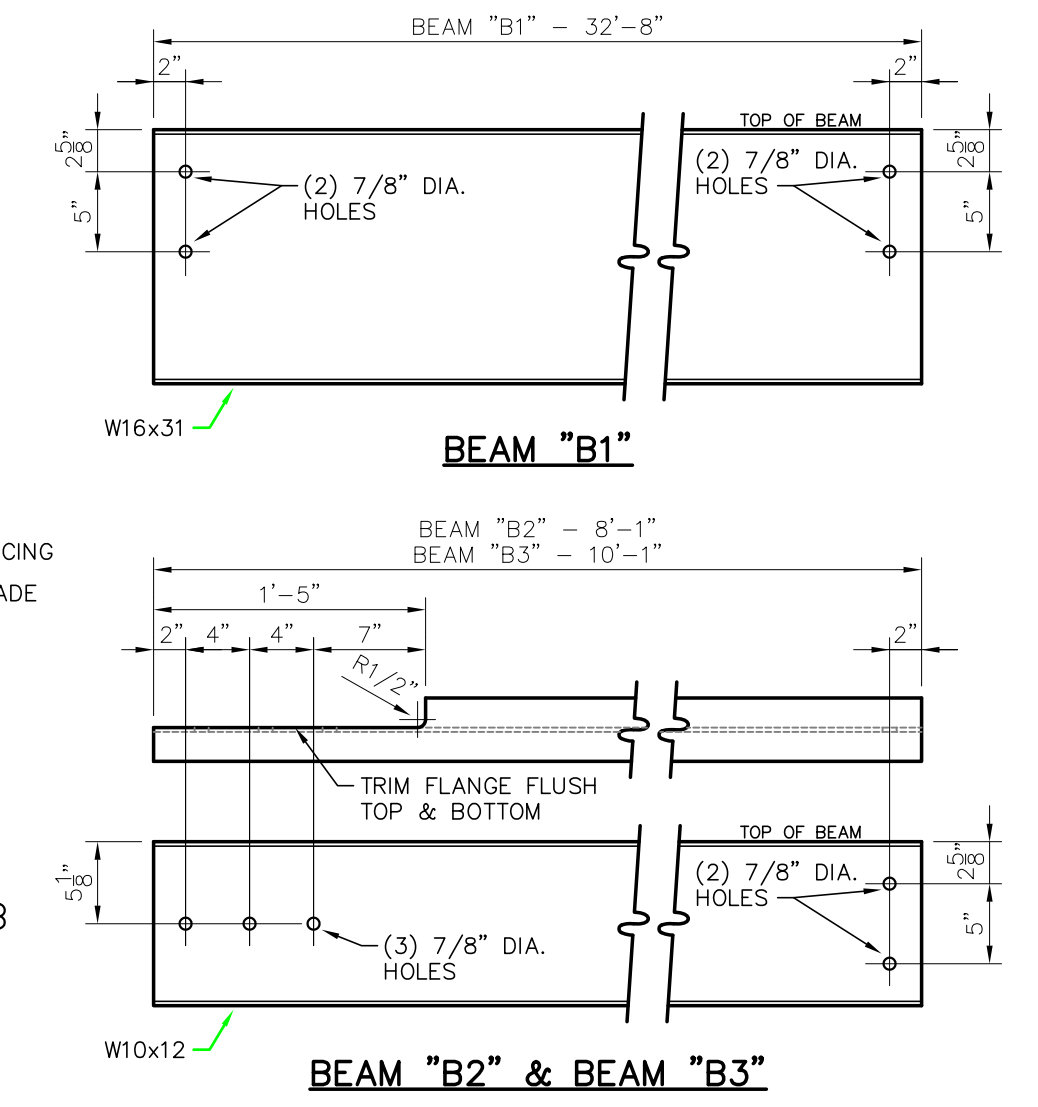
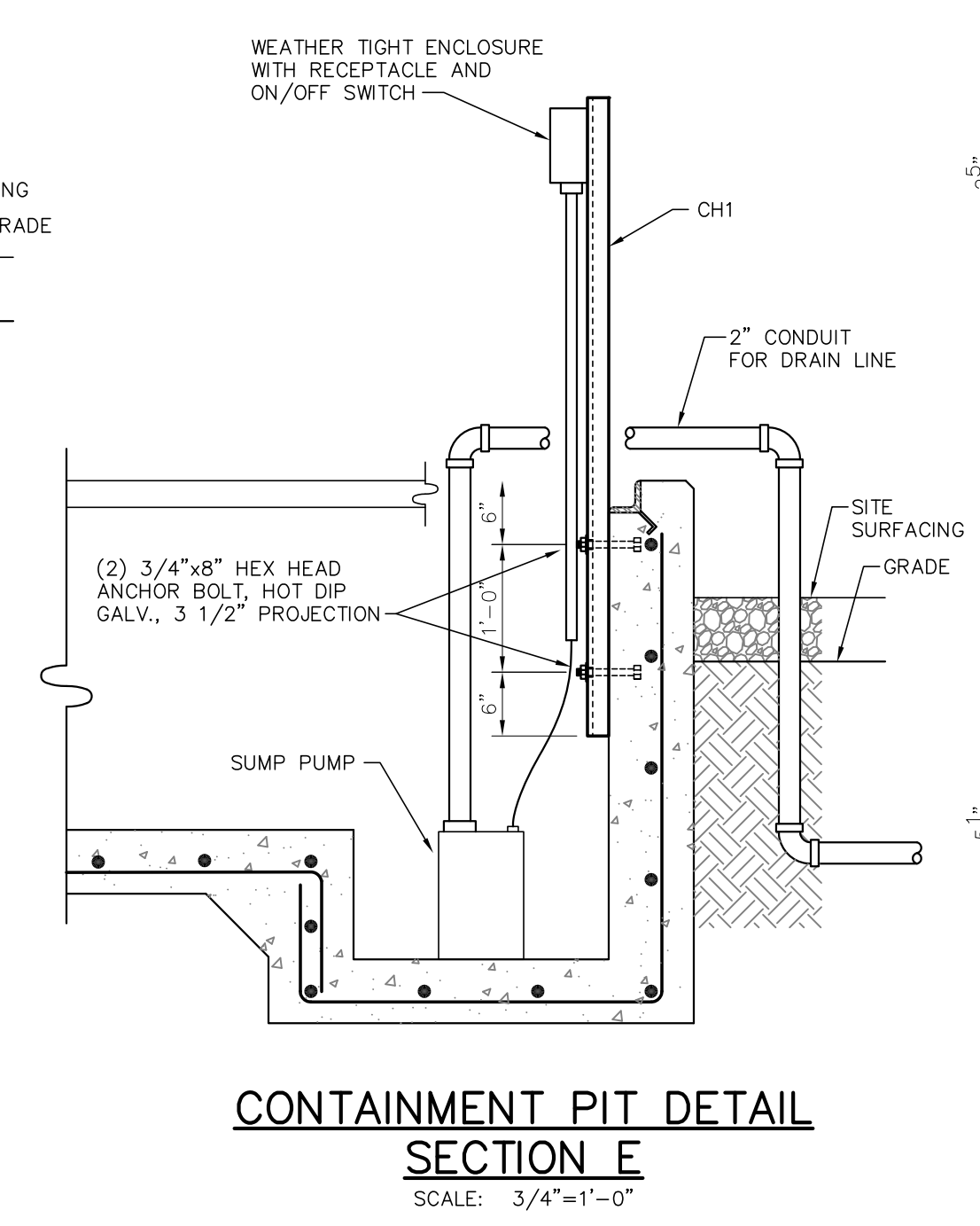
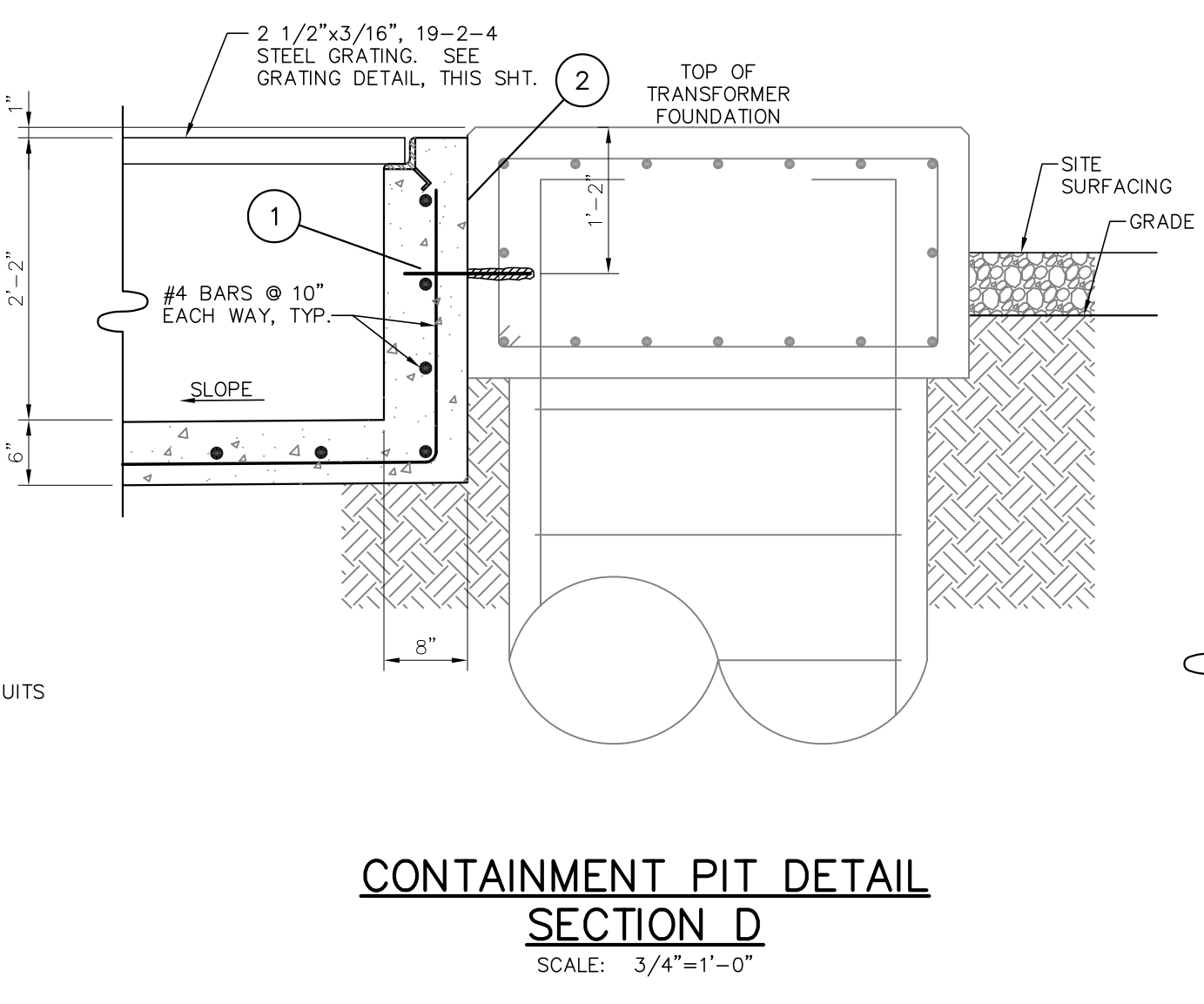
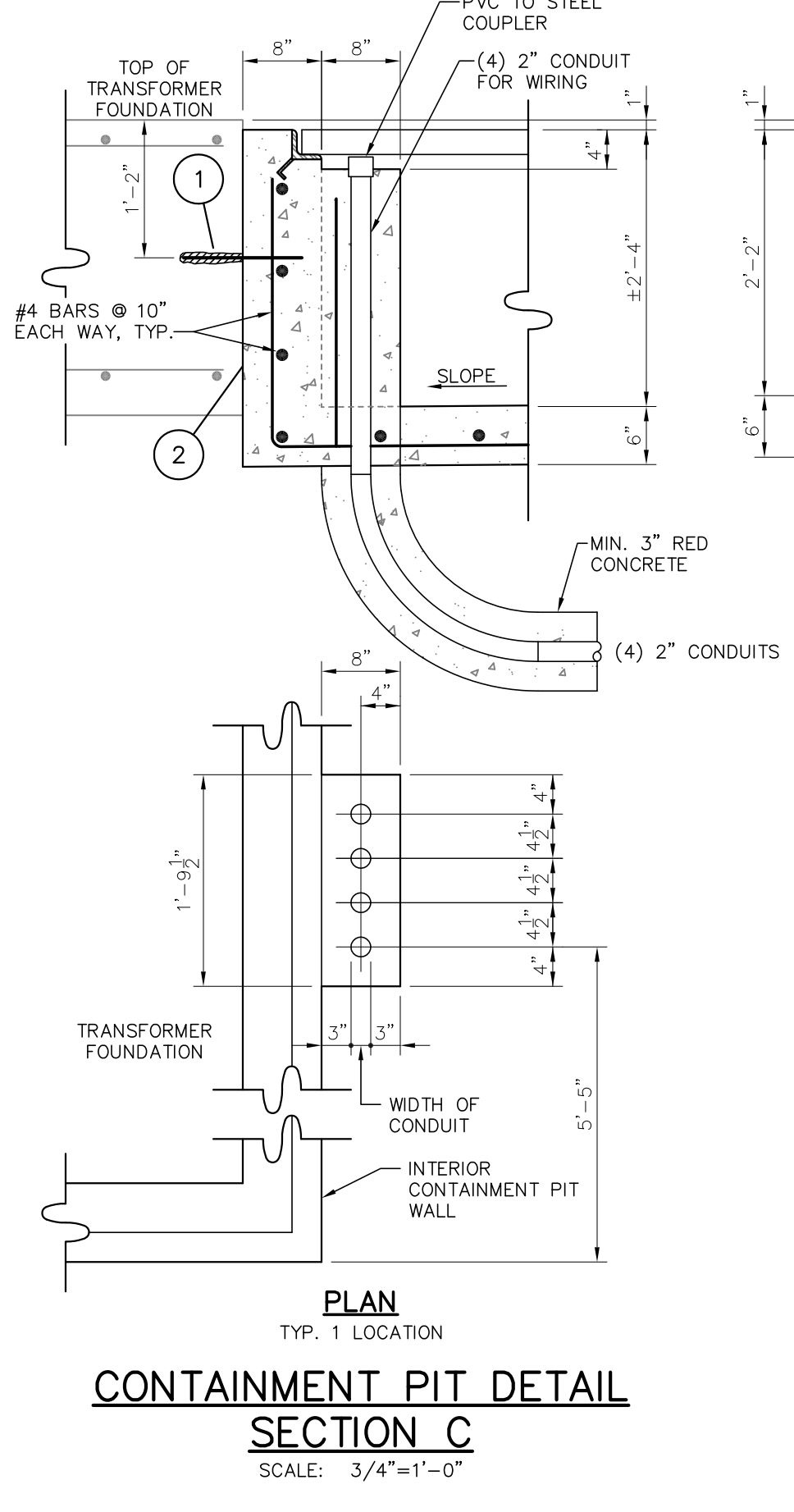
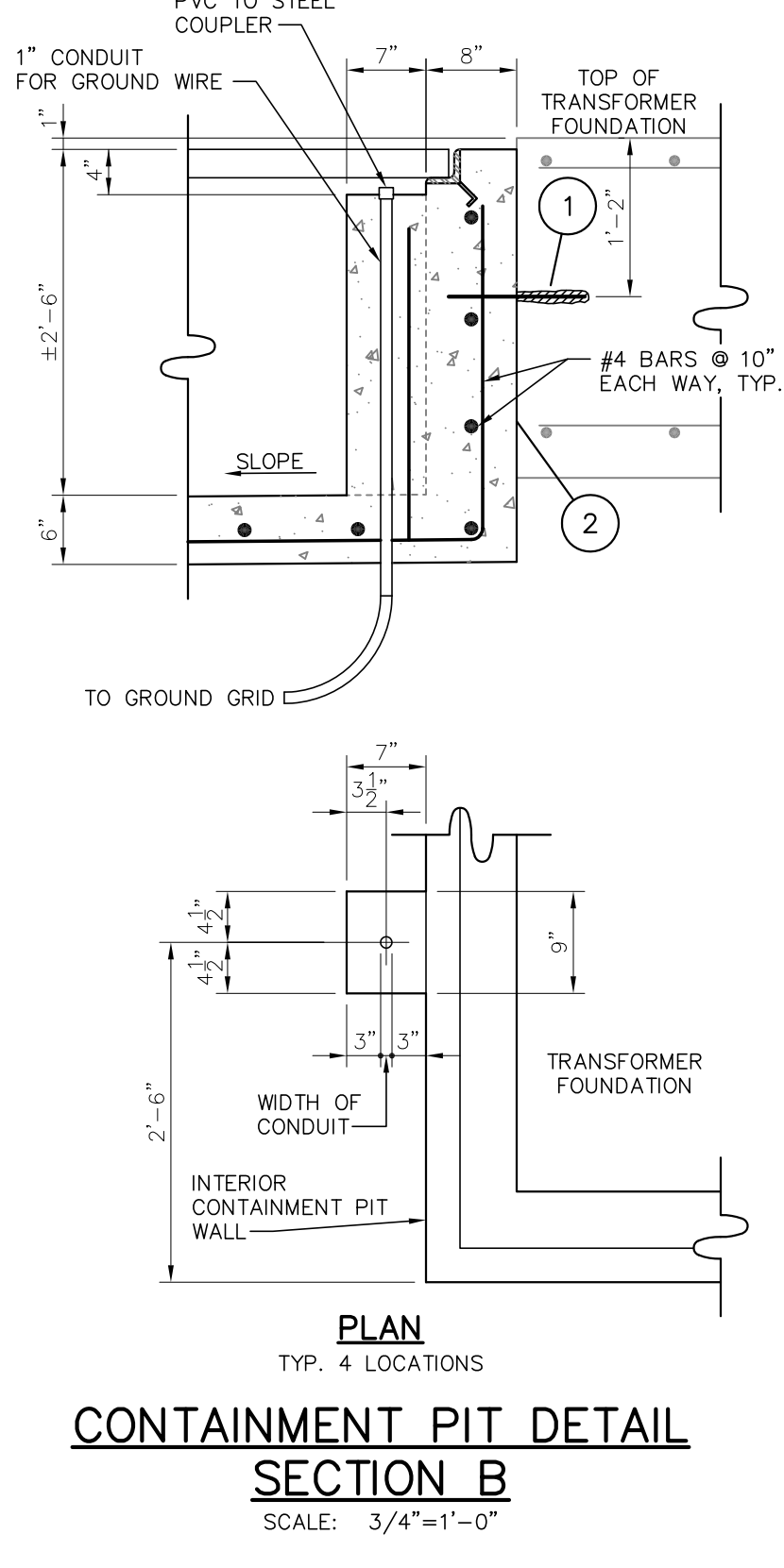
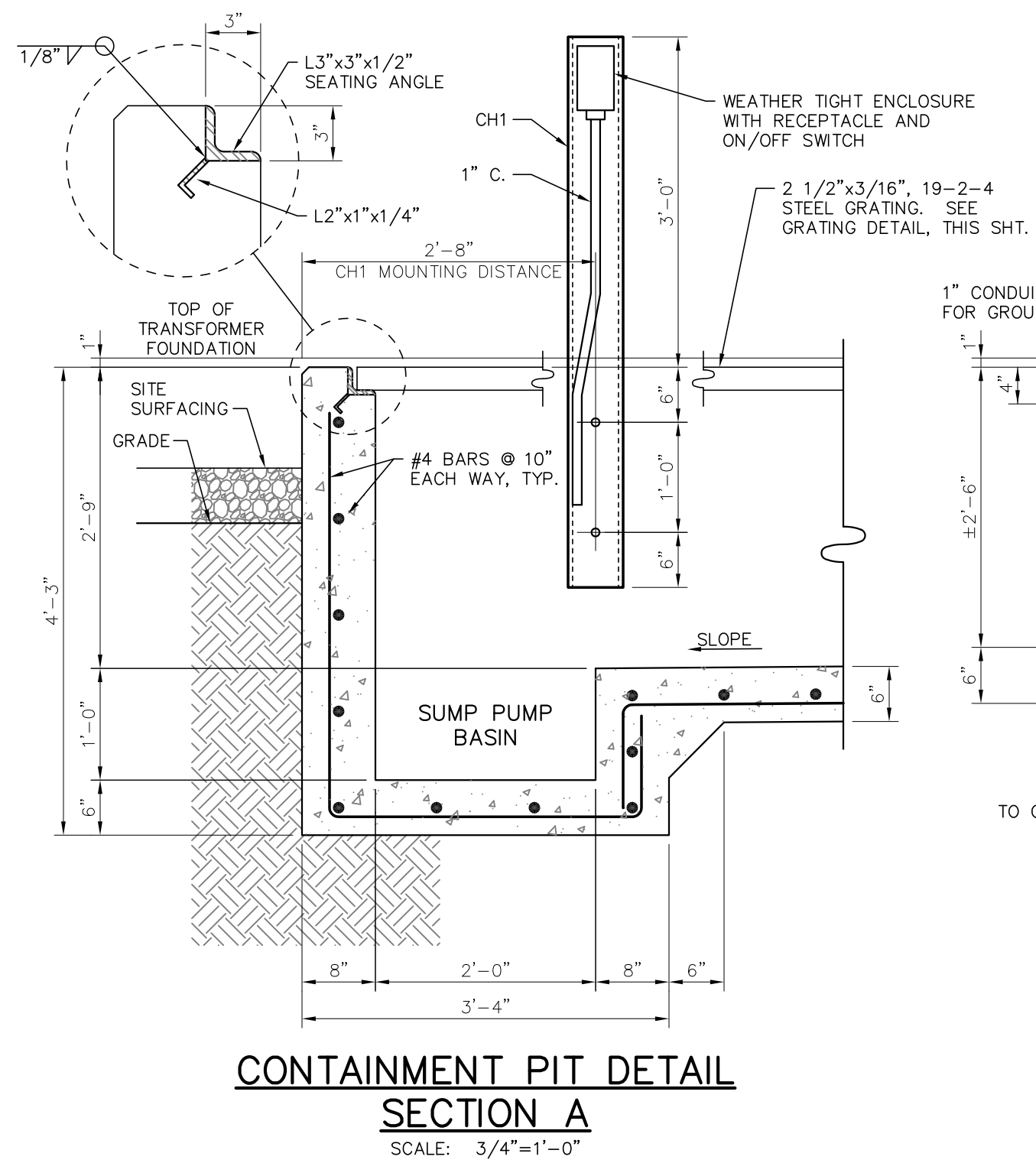
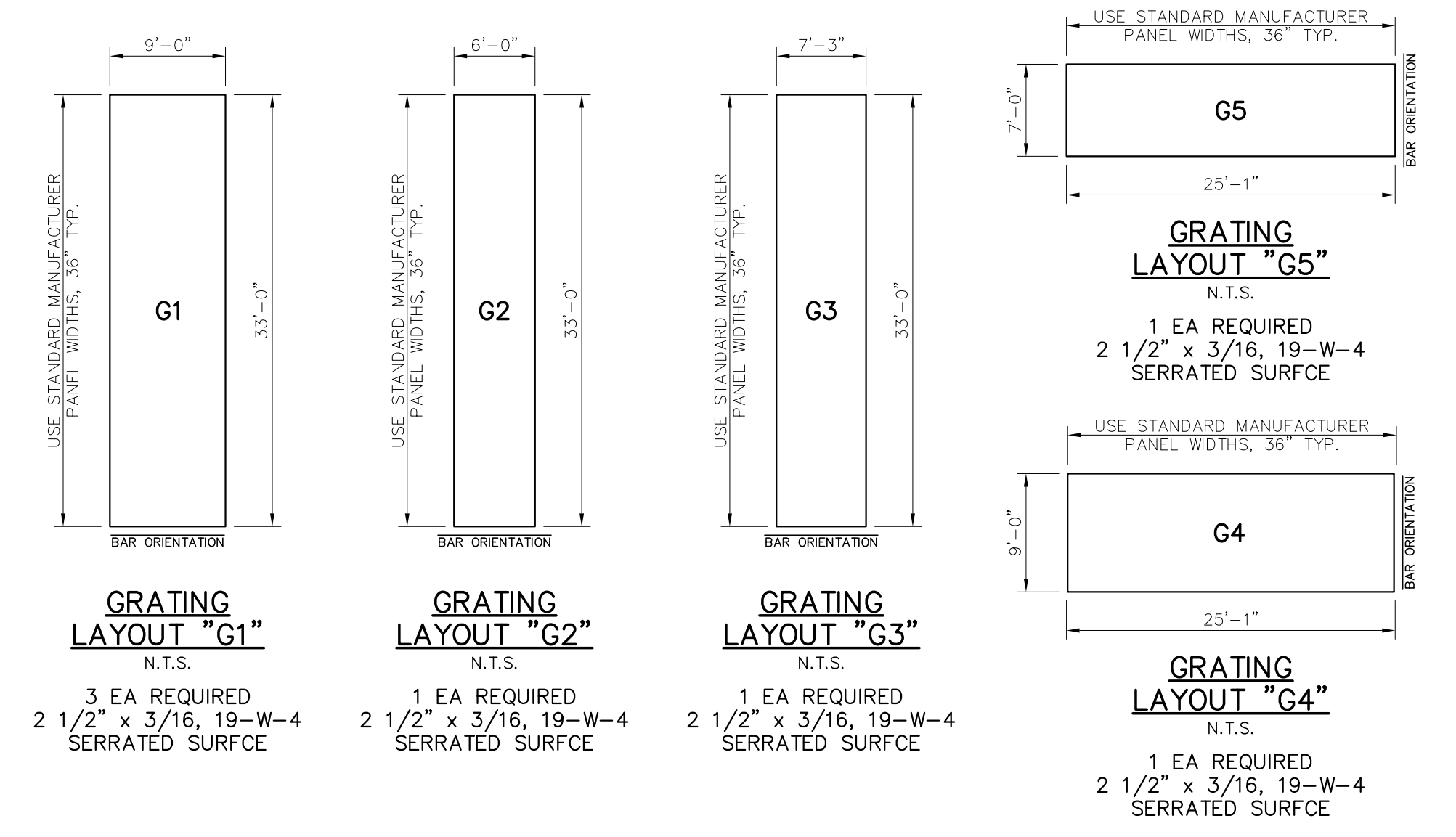
**EXTERIOR WALL CONNECTION DETAIL**  
SCALE: 1"=1'-0"

- (6) LOCATIONS FOR W16x31
- (4) LOCATIONS FOR W10x12



**INTERIOR WALL CONNECTION DETAIL**  
SCALE: 1"=1'-0"

- (4) LOCATIONS FOR W10x12



**FOR BIDDING PURPOSES ONLY**

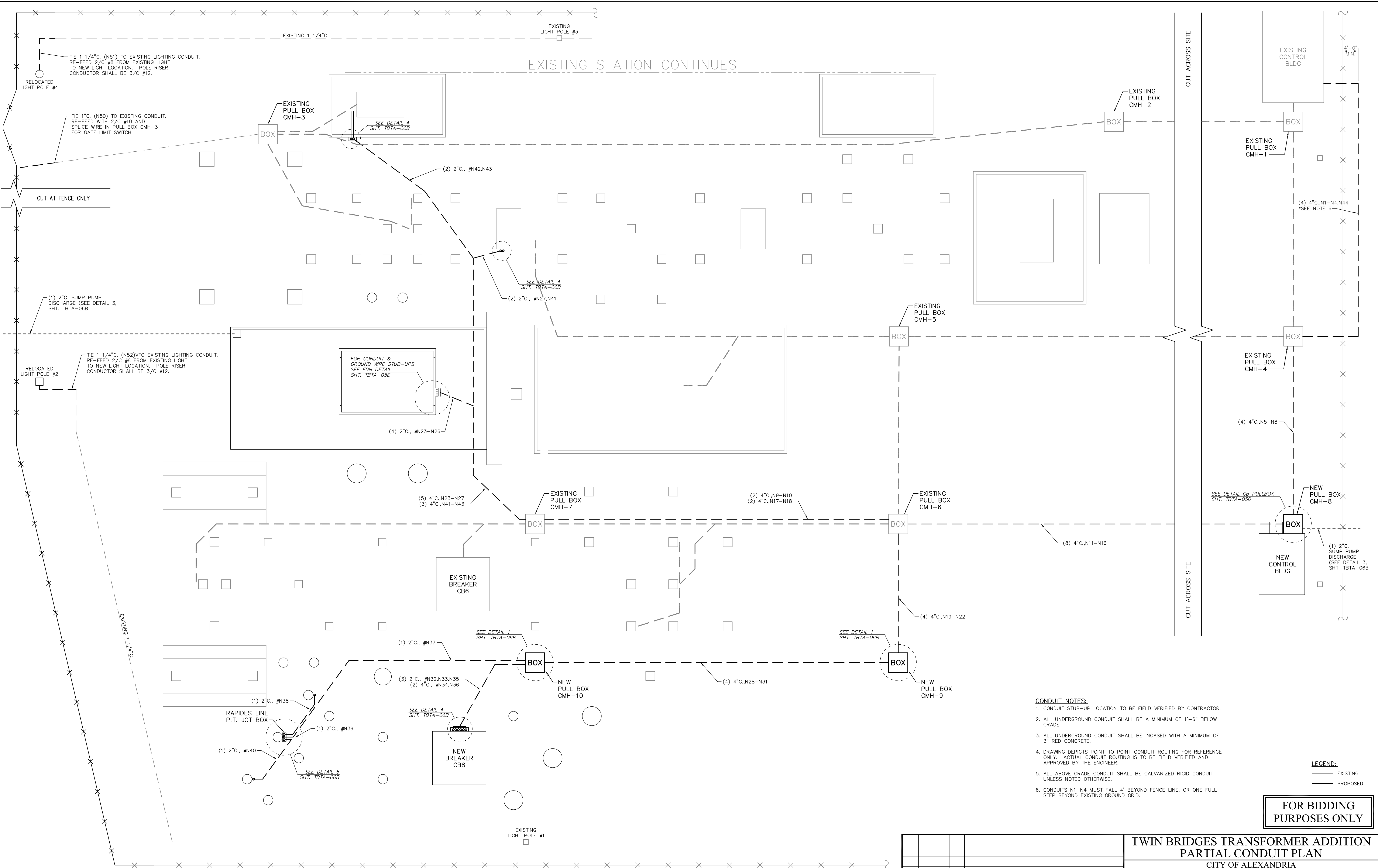
- 1 FIELD DRILL 1-1/4" x 10" DEEP HOLE @ 12" O.C. INTO EXISTING FOUNDATION. SECURE A 12" LONG NO. 4 REBAR WITH SIKADUR 31, HI-MOD GEL EPOXY PASTE ADHESIVE.
- 2 COAT SURFACE OF EXISTING CONCRETE WITH SIKADUR 31, HI-MOD GEL EPOXY PASTE ADHESIVE PRIOR TO POURING NEW CONCRETE.

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

**TWIN BRIDGES TRANSFORMER ADDITION OIL CONTAINMENT PIT PLAN & DETAILS**  
CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

SCALE: NOTED	DATE: 2/20/19	DRAWN BY: JHD	APPROVED BY: JJC	PROJECT NO.: 2019-E-16A
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA				DRAWING NO.: TBTA-05E REV.: A

BHA2426.DWG 10/01/2019  
Prepared by BHA, Inc.



**PARTIAL CONDUIT PLAN**  
SCALE: 3/32"=1'-0"

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

**TWIN BRIDGES TRANSFORMER ADDITION  
PARTIAL CONDUIT PLAN**

CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

SCALE: 3/32"=1'-0"    DATE: 8/15/18    DRAWN BY: JHD    APPROVED BY: JJC    PROJECT NO.: 2019-E-16A

**BHA, INC.**  
BATON ROUGE, LOUISIANA

DRAWING NO.: **TBTA-06**    REV.: **A**

BTA-06A.DWG 03/05/19

CONDUIT & WIRE SCHEDULE

Table with 8 columns: CABLE NO., CONDUCTOR SIZE, WIRE COLOR, FROM, TO, ROUTE, USE, NOTES. Contains wiring schedule entries for cables 1301S through 4405R.

CONDUIT & WIRE SCHEDULE

Table with 8 columns: CABLE NO., CONDUCTOR SIZE, WIRE COLOR, FROM, TO, ROUTE, USE, NOTES. Contains wiring schedule entries for cables 4406R through 103P.

FOR BIDDING PURPOSES ONLY

TWIN BRIDGES TRANSFORMER ADDITION CONDUIT & WIRE SCHEDULES

CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA

SCALE: NONE DATE: 2/2019 DRAWN BY: TJW APPROVED BY: JJC PROJECT NO.:

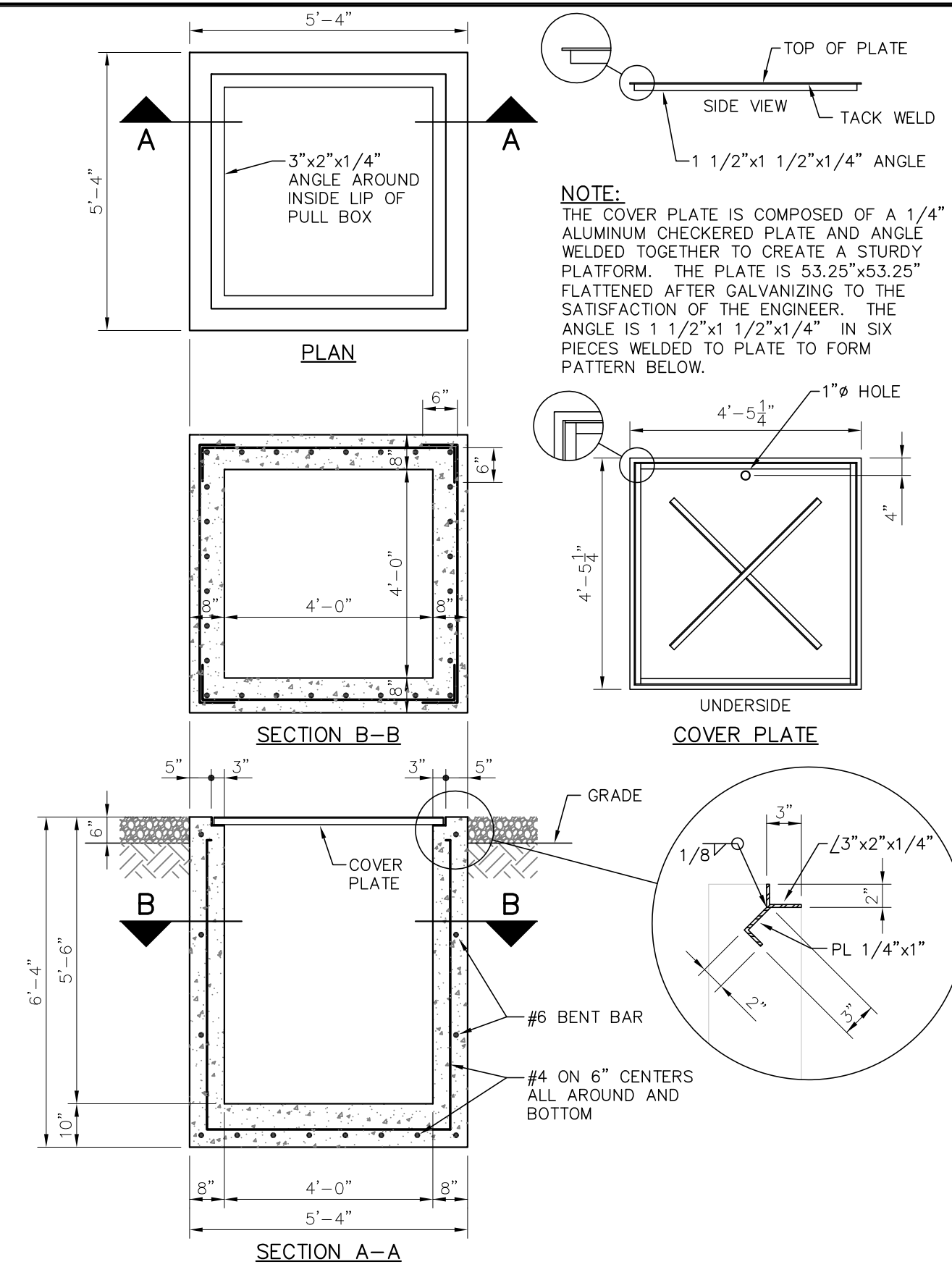
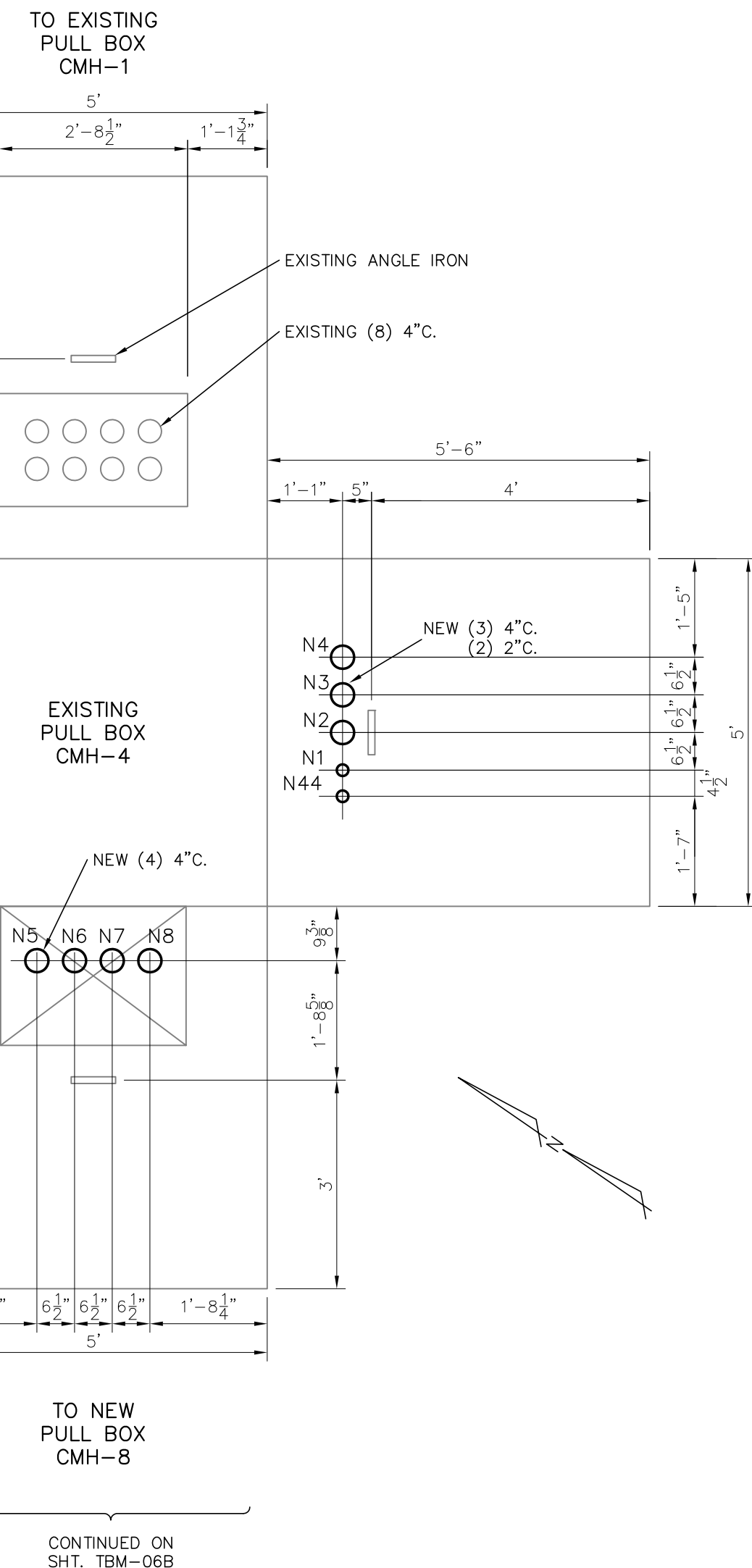
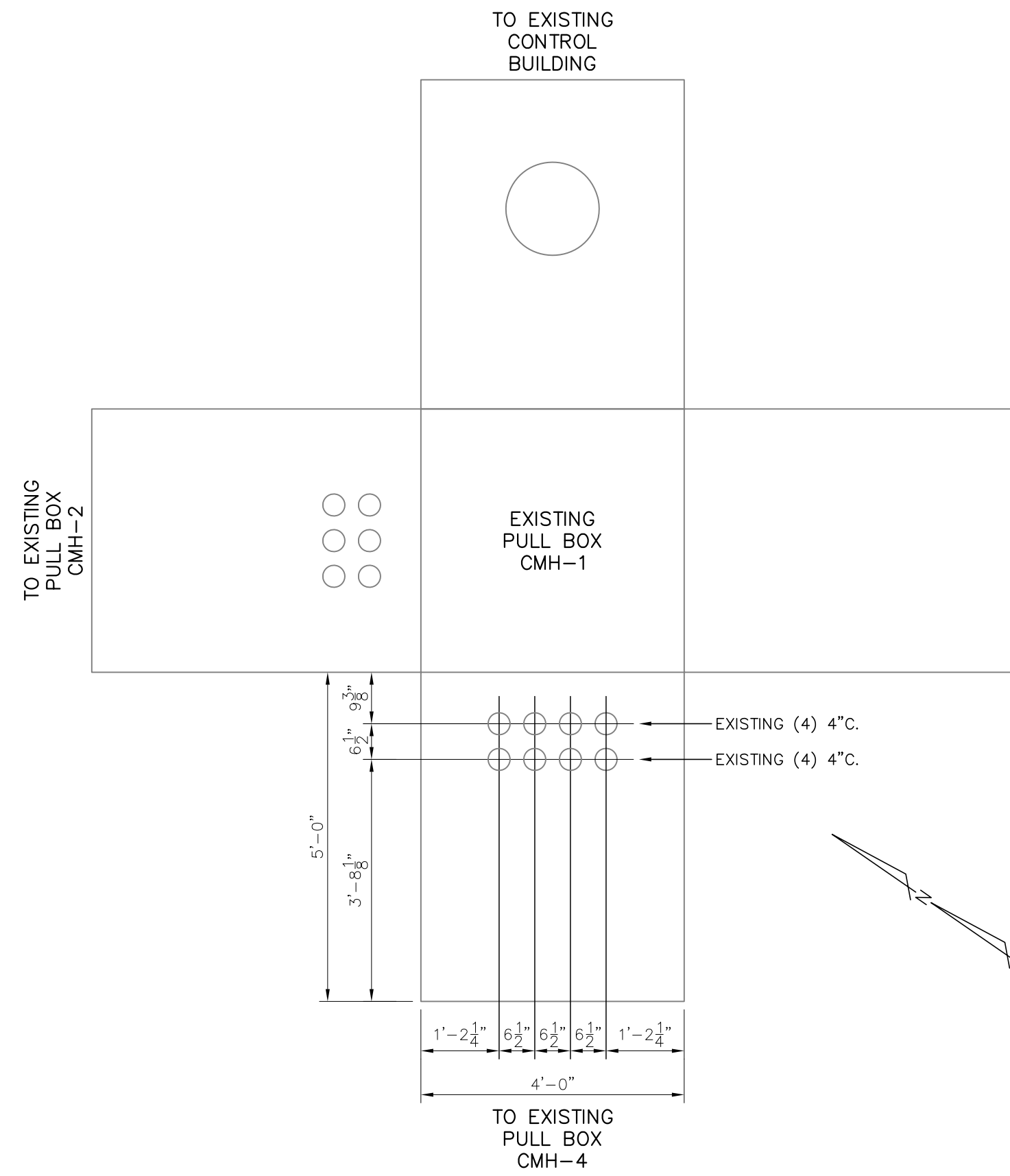
2019-E-16A

BHA, INC. BATON ROUGE, LOUISIANA

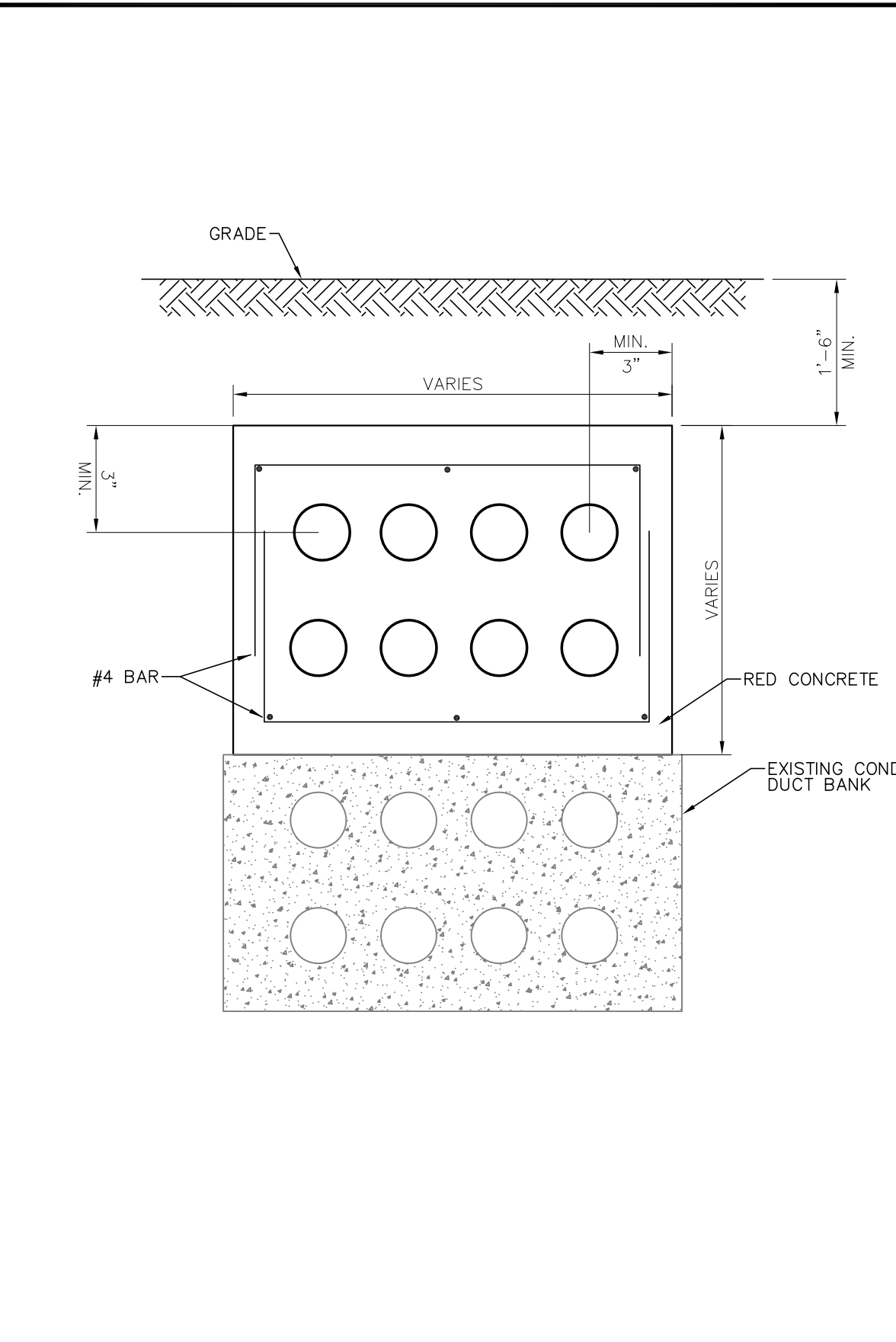
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Table with 3 columns: NO., DATE, BY. Includes revision information for the drawing.

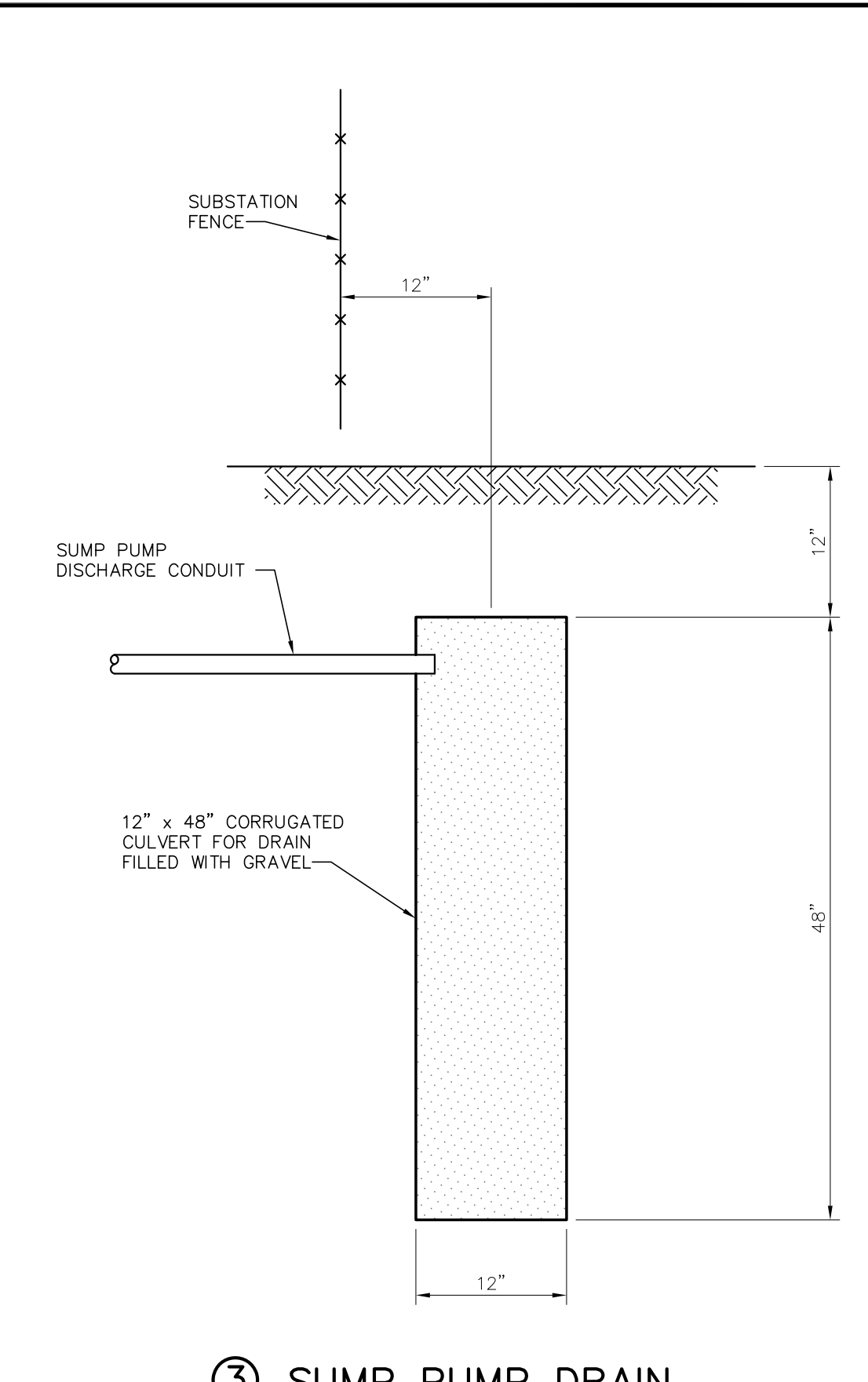
Prepared by BHA, Inc.



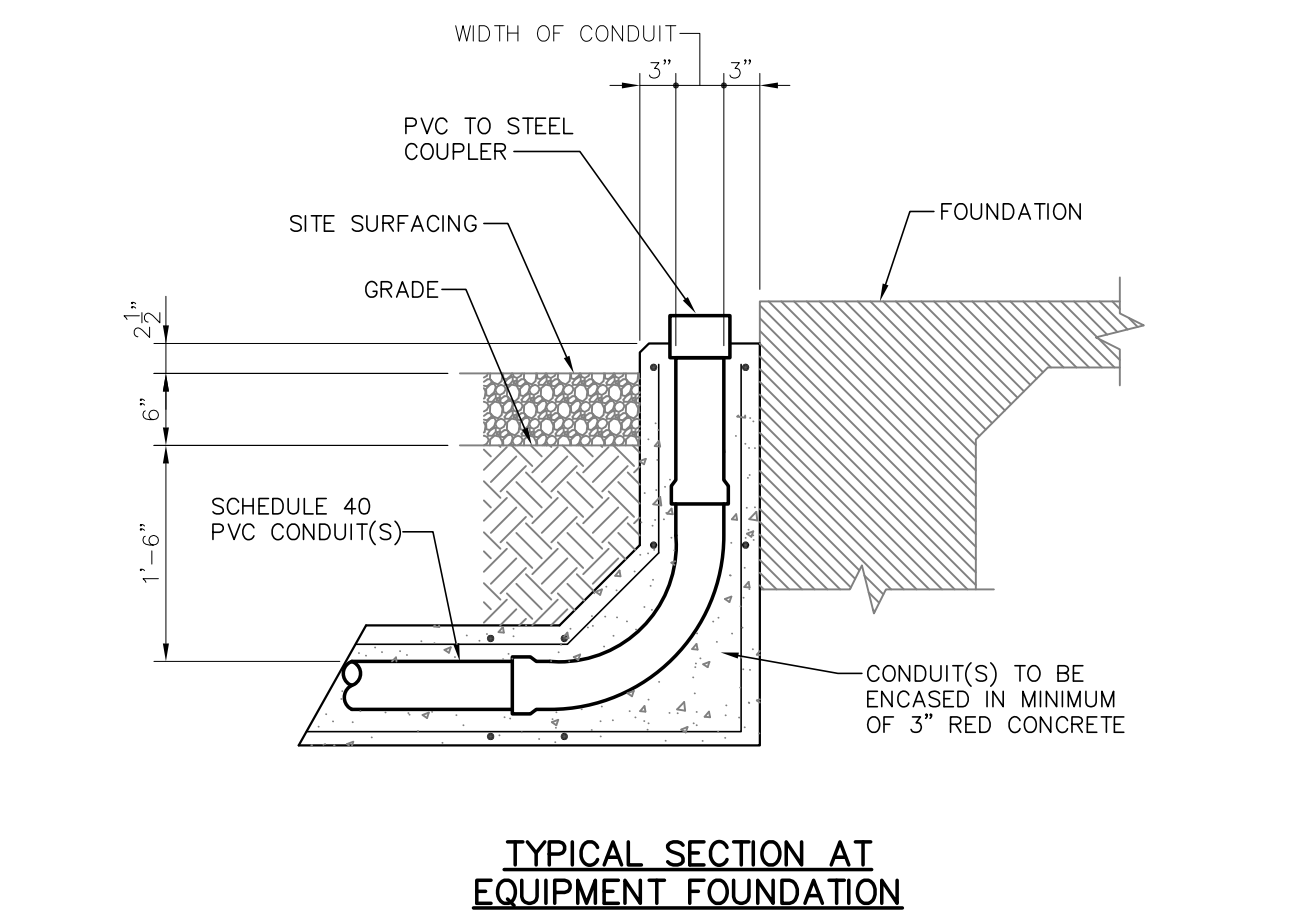
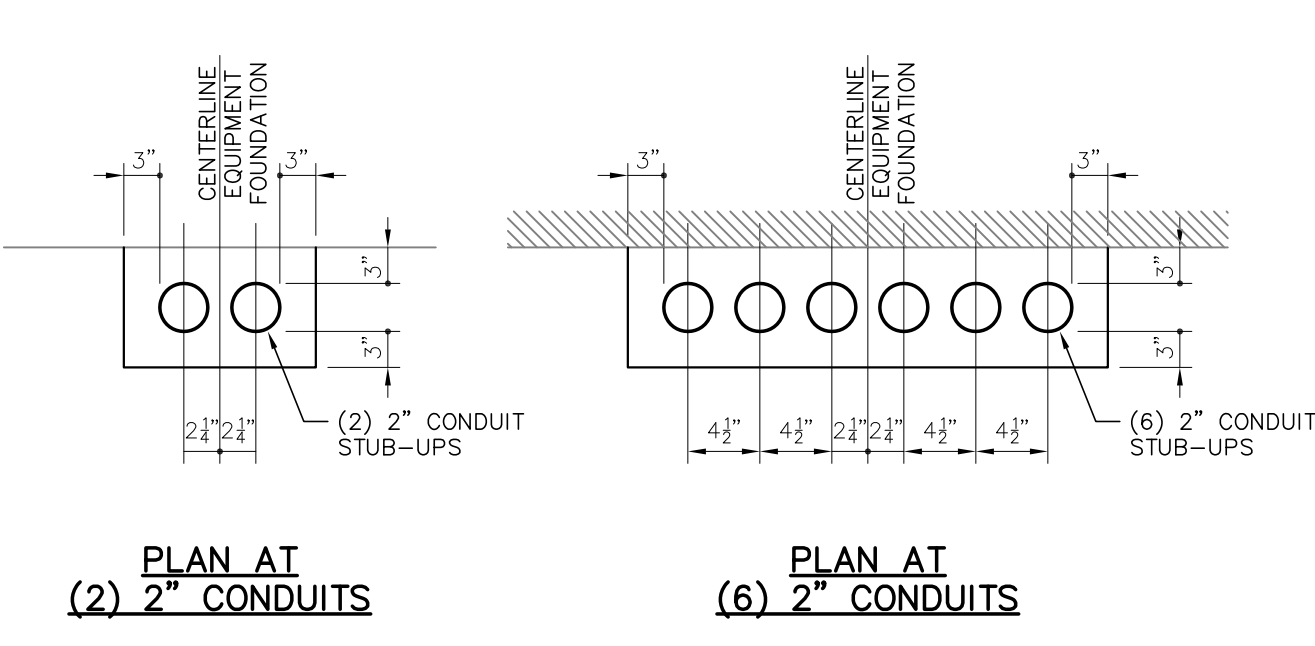
① PULL BOX DETAIL



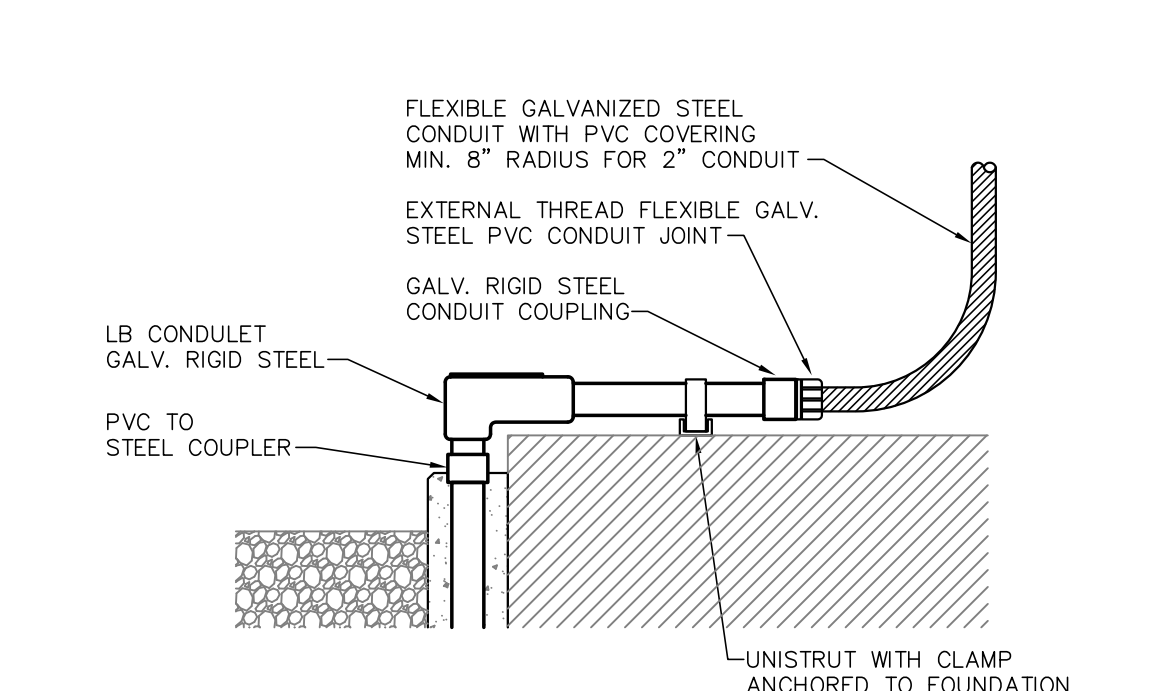
② CONDUIT DUCT BANK DETAIL  
HORIZONTAL #4 BAR @ 3'-0" INTERVALS



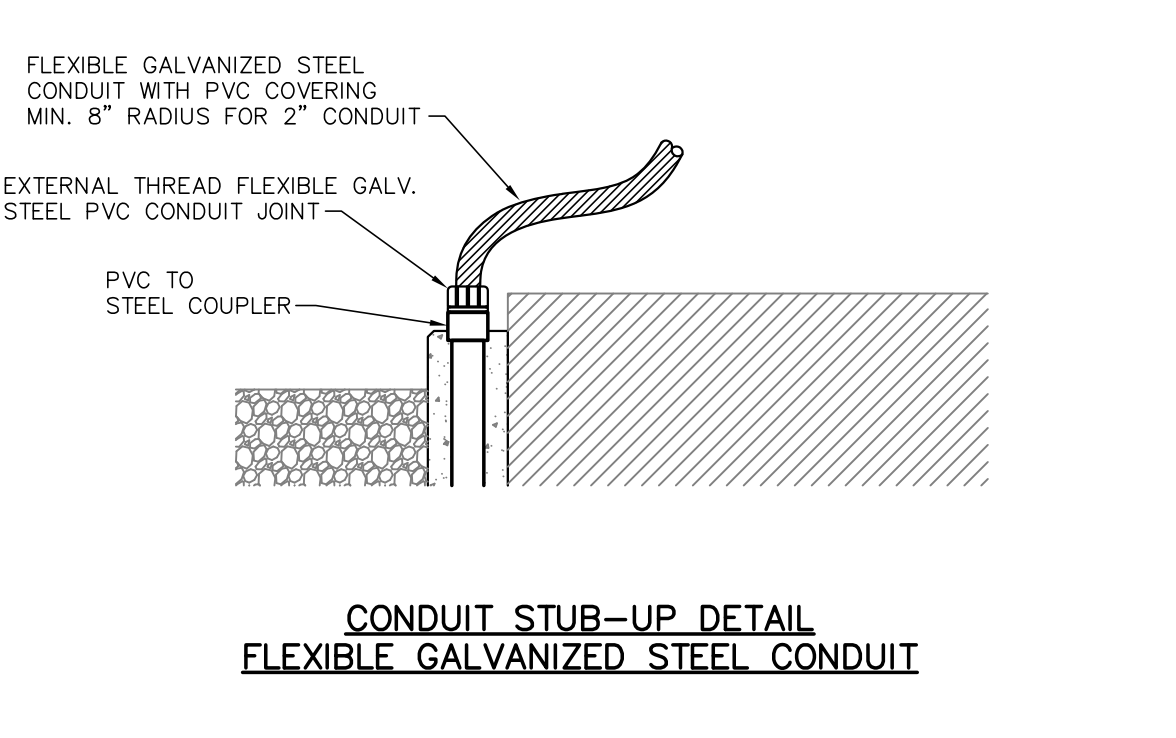
③ SUMP PUMP DRAIN  
AT FENCE DETAIL  
TYPICAL 2 LOCATIONS



④ CONDUIT STUB-UP DETAIL  
STUB-UPS AT EQUIPMENT

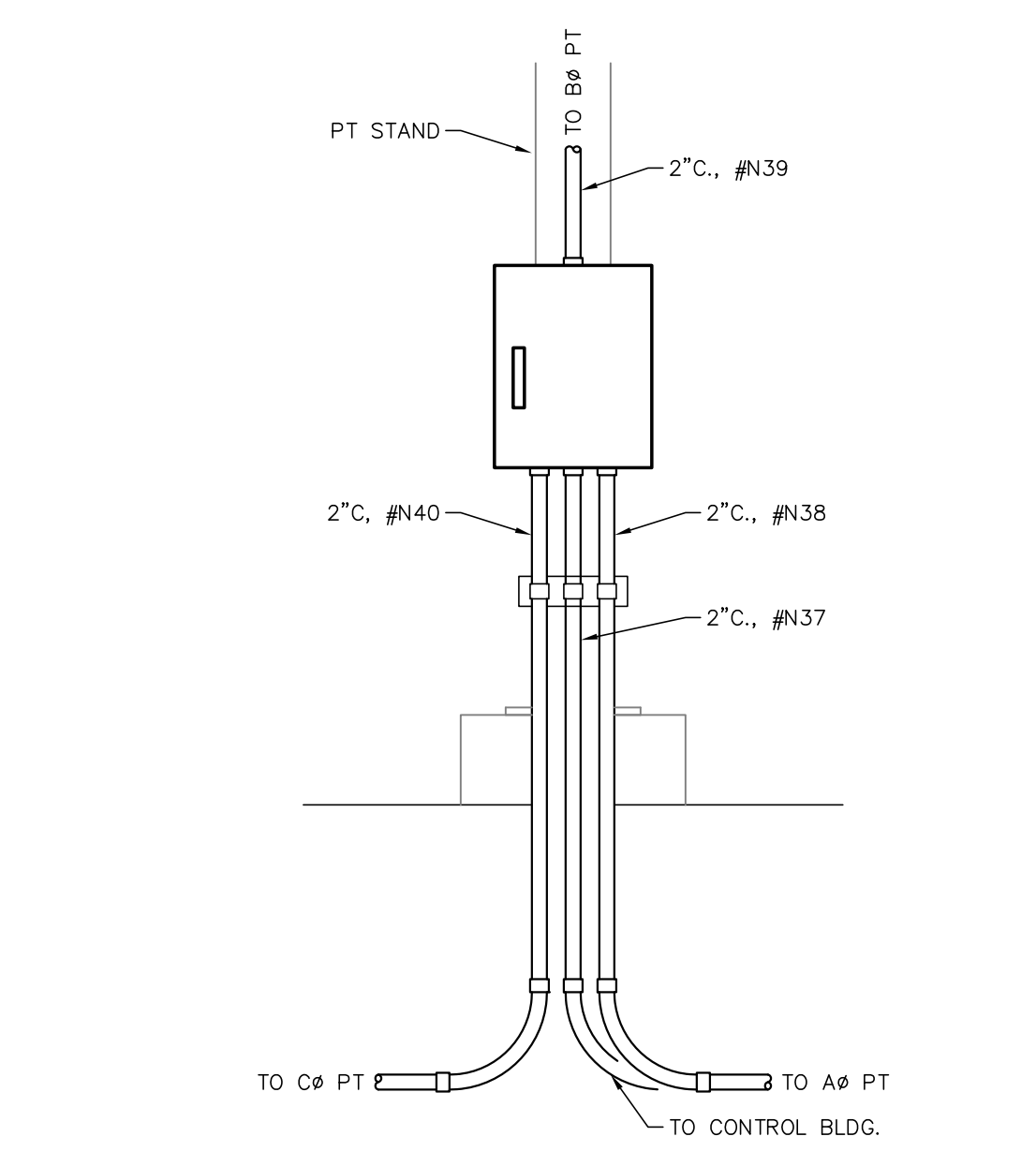


CONDUIT STUB-UP DETAIL  
PVC LB CONDUIT



CONDUIT STUB-UP DETAIL  
FLEXIBLE GALVANIZED STEEL CONDUIT

⑤ CONDUIT STUB-UP TRANSITIONS DETAIL  
STUB-UPS AT EQUIPMENT



⑥ CONDUIT STUB-UP AT P.T. JUNCTION BOX

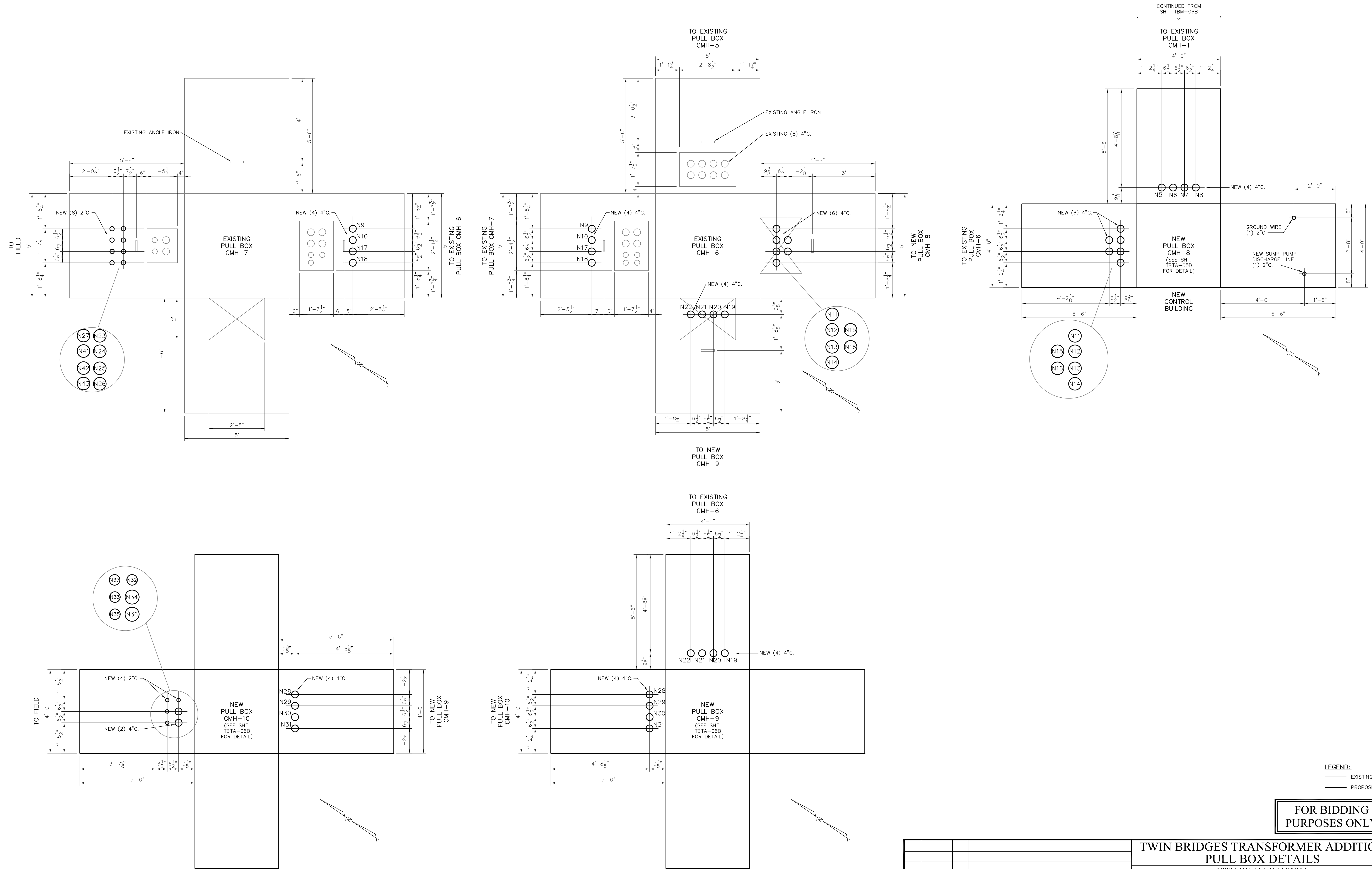
LEGEND:  
— EXISTING  
— PROPOSED

FOR BIDDING  
PURPOSES ONLY

TWIN BRIDGES TRANSFORMER ADDITION  
CONDUIT, WIRING, & PULL BOX DETAILS  
CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

SCALE N.T.S.	DATE 10/31/18	DRAWN BY JHD	APPROVED BY JJC	PROJECT NO. 2019-E-16A
BHA, INC. BATON ROUGE, LOUISIANA			DRAWING NO. TBTA-06B	REV. A

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION



**LEGEND:**  
 — EXISTING  
 — PROPOSED

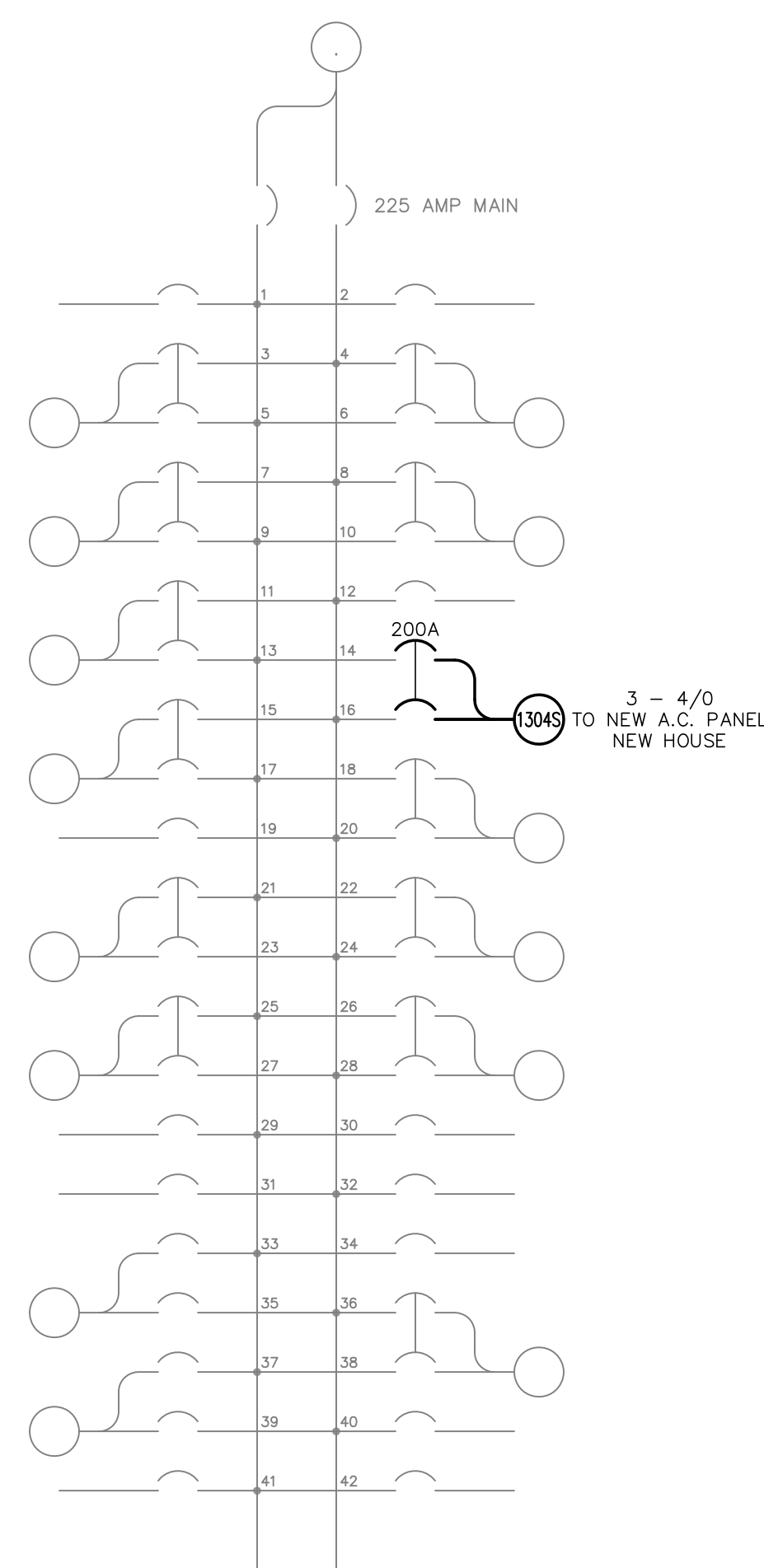
**FOR BIDDING PURPOSES ONLY**

<b>TWIN BRIDGES TRANSFORMER ADDITION PULL BOX DETAILS</b>			
CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA			
SCALE: NONE	DATE: 10/31/19	DRAWN BY: JHD	APPROVED BY: JJC
PROJECT NO.: 2019-E-16A			REV.: A
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA			DRAWING NO.: TBTA-06C

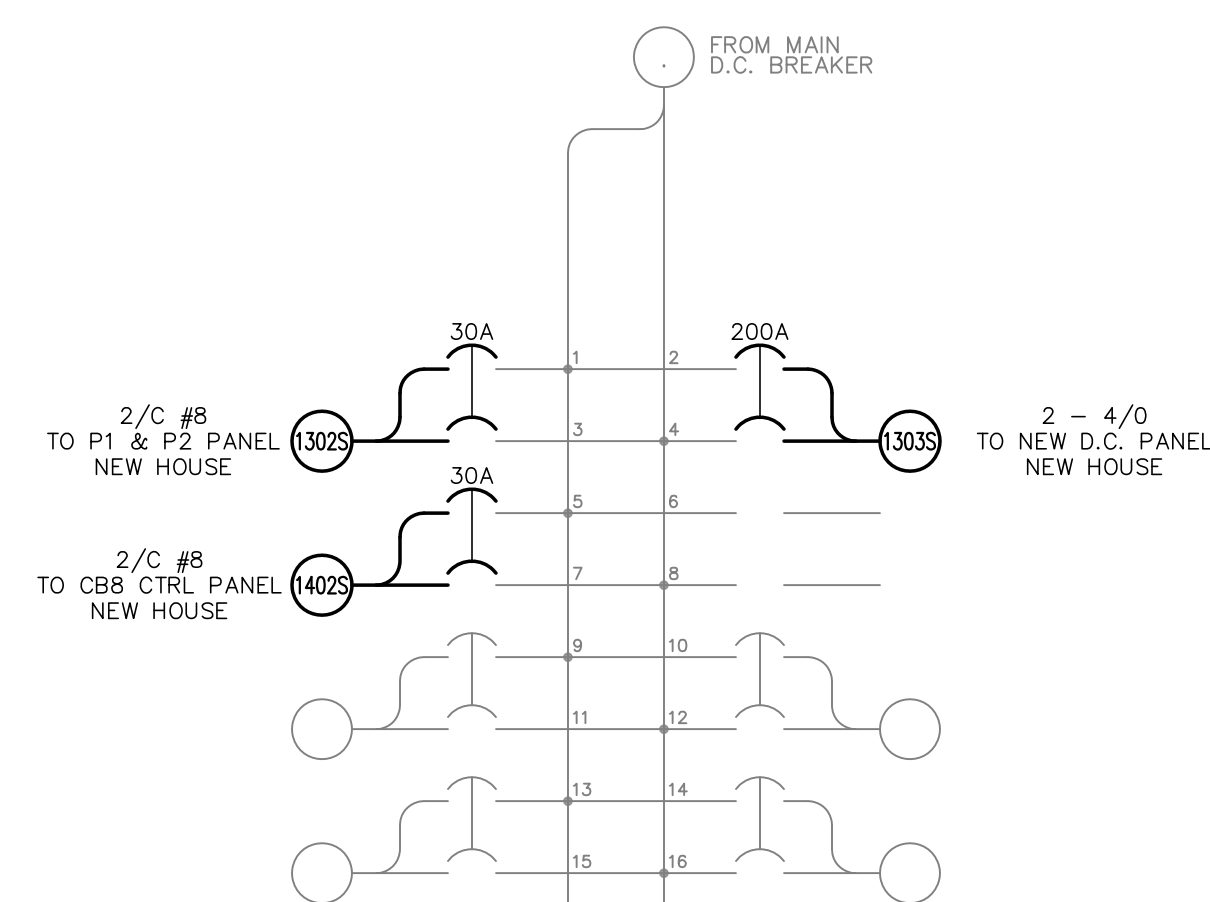
NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

### OLD HOUSE A.C. & D.C. PANELS

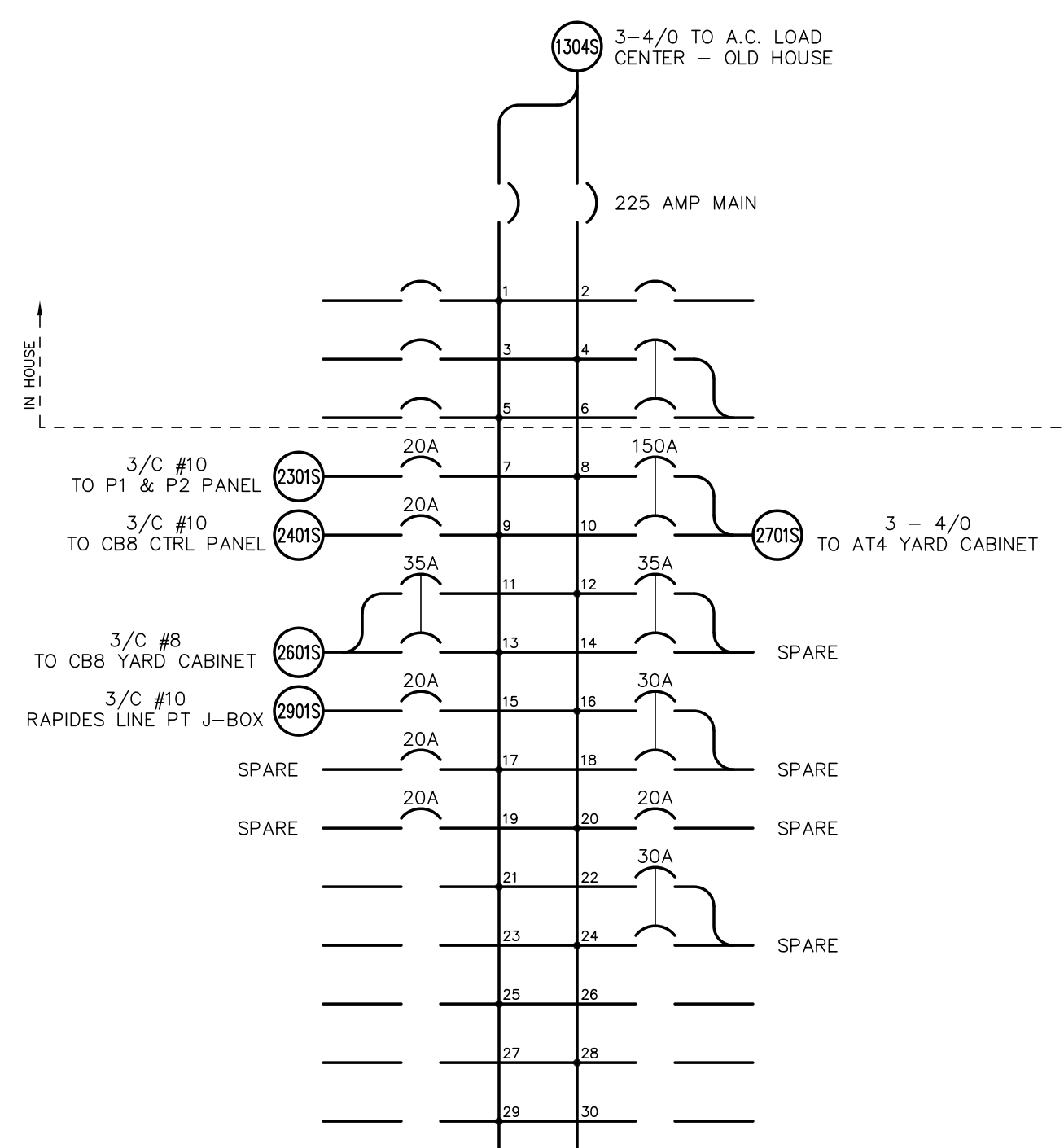
### NEW HOUSE A.C. & D.C. PANELS



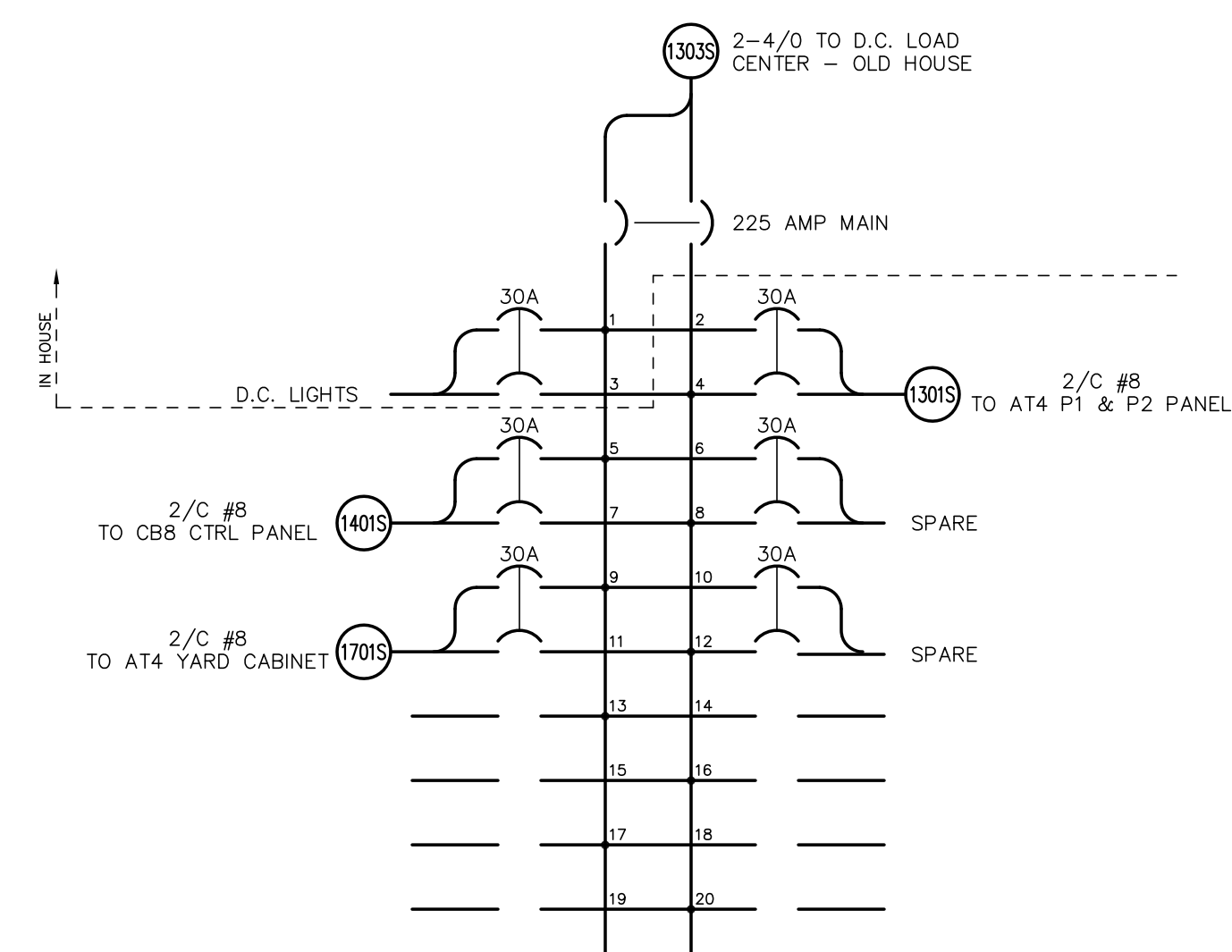
① A.C. LOAD CENTER  
OLD HOUSE



② D.C. SUB LOAD CENTER  
OLD HOUSE



③ A.C. LOAD CENTER  
NEW HOUSE



④ D.C. LOAD CENTER  
NEW HOUSE

FOR BIDDING  
PURPOSES ONLY

TWIN BRIDGES TRANSFORMER ADDITION  
AC & DC PANELS  
CITY OF ALEXANDRIA  
ALEXANDRIA, LOUISIANA

SCALE: N.T.S.	DATE: 2/18/19	DRAWN BY: JHD	APPROVED BY: JJC	PROJECT NO.: 2019-E-16A
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA				DRAWING NO.: TBTA-06D REV.: A

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION

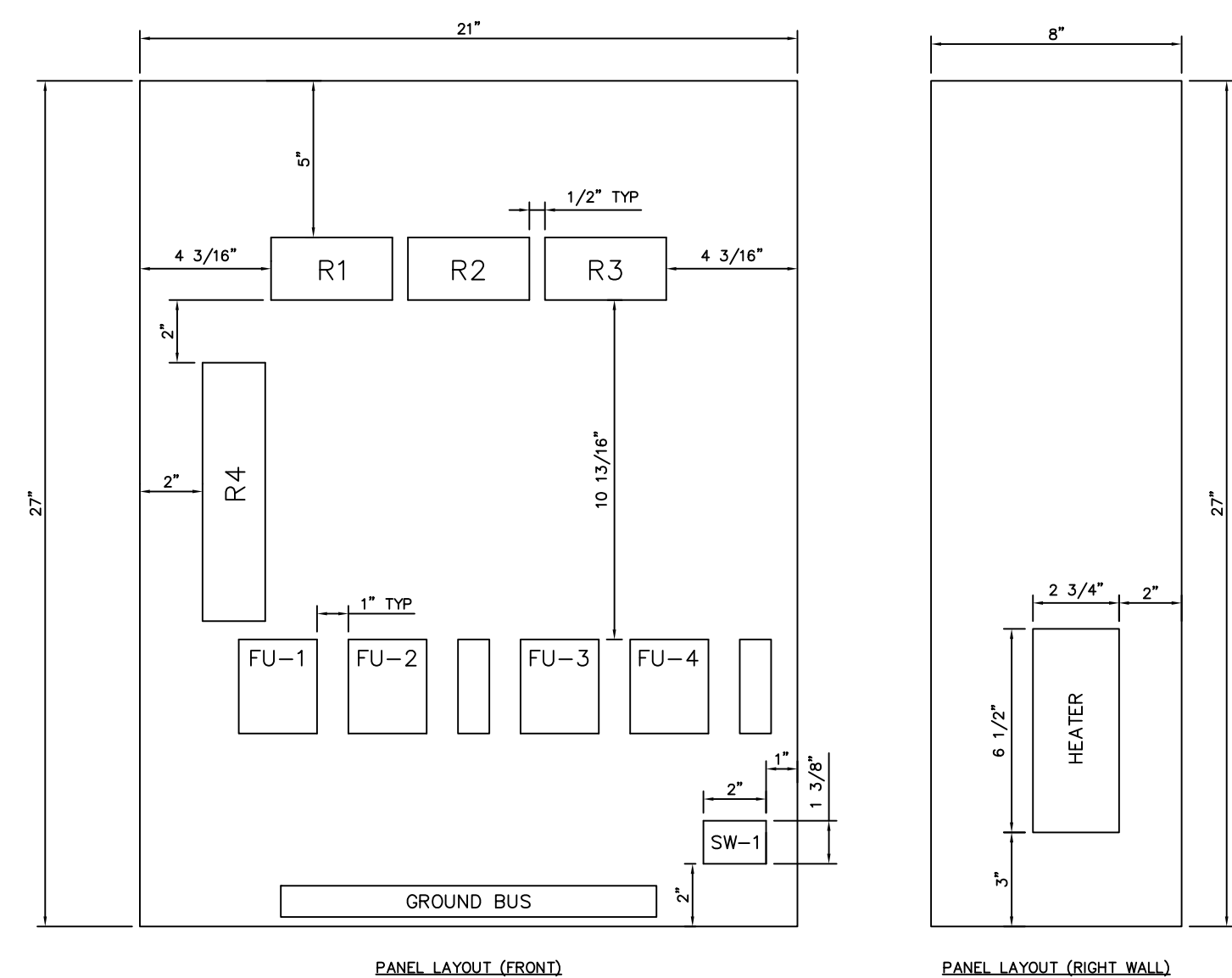
BILL OF MATERIALS				
LOCATION	QTY	ITEM	DESCRIPTION	
ENCLOSURE	1 EA	CABINET	HOFFMAN, ENCLOSURE, NEMA TYPE 4X, STAINLESS STEEL TYPE 316SS, 3-POINT LATCH, 30"(H)x24"(W)x6"(D), CAT.# A-30H2408SLP3PT	
PANEL	1 EA	CABINET	HOFFMAN, PANEL, STAINLESS STEEL TYPE 316L, 27"(H)x21"(W), W/ MOUNTING HARDWARE, CAT.# A-30P24556	
R4	1 EA	TERMINAL BLOCK	MARATHON, TERMINAL BLOCK, 12 POSITION, W/ MARKING STRIP, CAT.# 1512STD	
R1-R3	3 EA	TERMINAL BLOCK	MARATHON, TERMINAL BLOCK, 6 POSITION, W/ MARKING STRIP, CAT.# 1506STD	
SW-1	1 EA	SWITCH	STATES, KNIFE SWITCH, TYPE SMH SINGLE POLE POTENTIAL, CAT.# 401-A	
FU-1,2,3,4	16 EA	FUSE	BUSSMANN, FUSE, KTN-R(250V) LUMITRON FAST ACTING, CLASS RK1, 30A, CAT.# KTN-R-30	
ENCLOSURE	2 EA	FUSE	BUSSMANN, DUMMY FUSE, FUSE NEUTRALS, 250V, 30A, CAT.# NTN-R-30	
FU-1,2,3,4	4 EA	FUSE BLOCK	FERRAZ SHAWMUT, FUSE BLOCK, TRIPLE POLE, CAT.# 2031B	
ENCLOSURE	2 EA	FUSE BLOCK	FERRAZ SHAWMUT, FUSE BLOCK, SINGLE POLE, CAT.# 2031E	
ENCLOSURE	1 EA	HEATER	HOFFMAN, HEATER, 60 WATT, 120 VOLT, CAT.# DAH601	
GROUND BUS	1 EA	GND	PANEL VENDOR, GROUND BAR, MOUNTED, COPPER BUS, 1/4"x1"x12"	
ENCLOSURE	57 EA	RING TERMINAL	BURNDY, 8-10 STUD, 12-10 AWG RING TERMINAL, CAT.# YAEV10	
ENCLOSURE	1 EA	GROUND LUG	BURNDY, GROUND LUG 3/8" BRASS, 8-2 AWG STRANDED, 10-1 AWG SOLID	

NAMEPLATE ENGRAVING LIST						
NP#	QTY.	FIRST LINE	SECOND LINE	THIRD LINE	PLATE SIZE	LETTER SIZE
1	1 EA	230KV RAPIDES LINE NODE	3Ø POTENTIAL	JUNCTION BOX	4" x 12"	3/4"
N1	1 EA	R1-R3			3/4" x 2"	1/8"
N2	1 EA	R4			3/4" x 2"	1/8"
N3	1 EA	FU-1 (30A)	115VAC L-N	PRI 1 X-WINDING	3/4" x 2"	1/8"
N4	1 EA	FU-2 (30A)	67VAC L-N	PRI 1 X-WINDING	3/4" x 2"	1/8"
N5	1 EA	SLUG	NEUTRAL	PRI 1 RELAY X-WINDING	3/4" x 2"	1/8"
N6	1 EA	FU-3 (30A)	115VAC L-N	PRI 2 Y-WINDING	3/4" x 2"	1/8"
N7	1 EA	FU-4 (30A)	67VAC L-N	PRI 2 Y-WINDING	3/4" x 2"	1/8"
N8	1 EA	SLUG	NEUTRAL	PRI 2 RELAY Y-WINDING	3/4" x 2"	1/8"
N9	1 EA	SW-1			3/4" x 2"	1/8"
N10	1 EA	HEATER	120VAC	60W	3/4" x 2"	1/8"

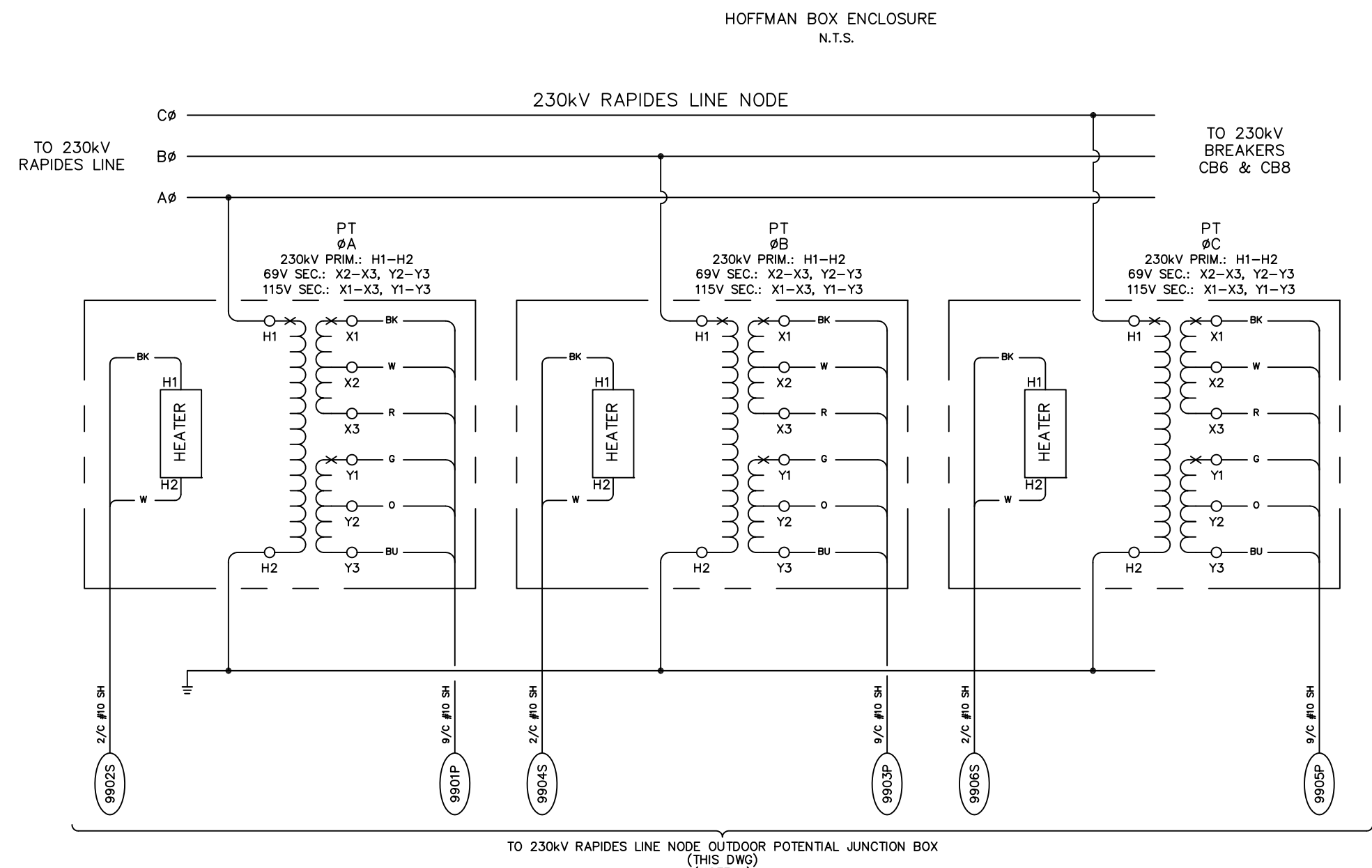
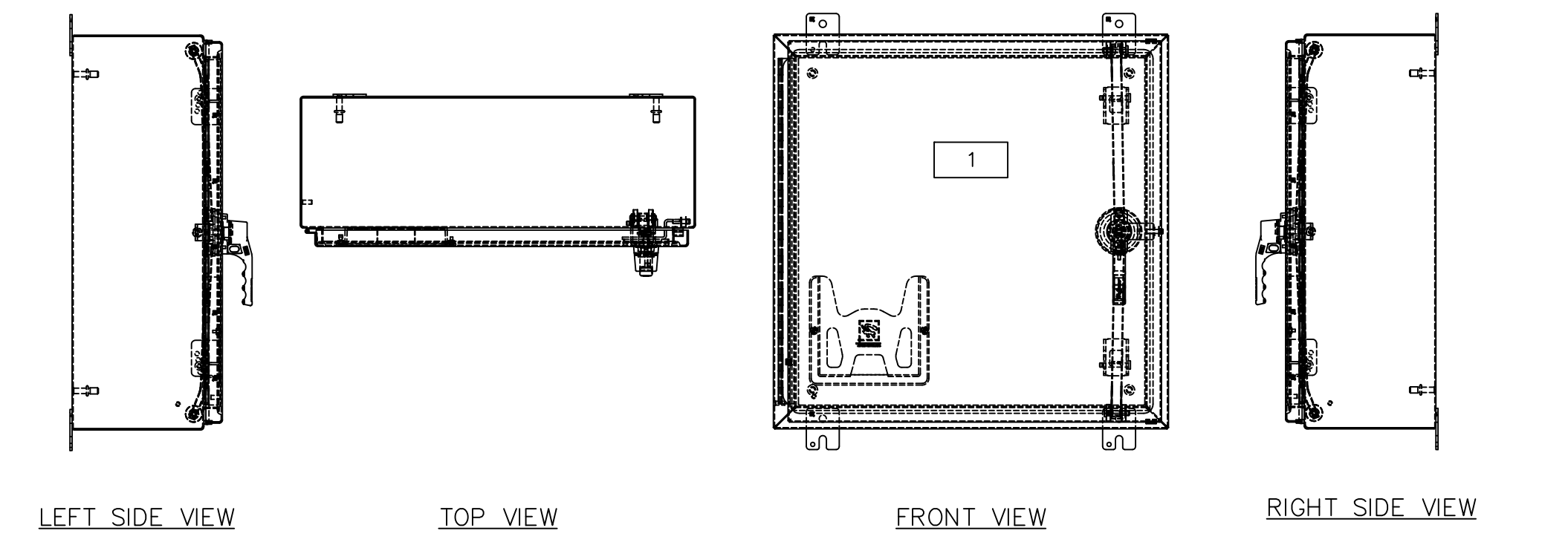
\* ALL NAMEPLATES ARE 1/16" (.062) BLACK MATERIAL AND INSTALLED WITH DOUBLE SIDED ADHESIVE TYPE REFER TO THE APPLICABLE SUBSTATION PANEL LAYOUT DRAWING DETAILS FOR EACH JOB.  
 \*\* JUNCTION BOX TITLE NAMEPLATES TO BE CENTERED ON OUTSIDE OF DOOR. OTHER NAMEPLATES ARE MOUNTED INSIDE THE BOX ADJACENT TO THE APPROPRIATE DEVICES.

STANDARD CVT/PT RATIOS AND SECONDARY VOLTAGES ARE SHOWN FOR REFERENCE PURPOSES. ALWAYS REFER TO CVT/PT NAMEPLATE VENDOR DRAWING TO CONFIRM ACTUAL RATIOS AND CONNECTIONS.

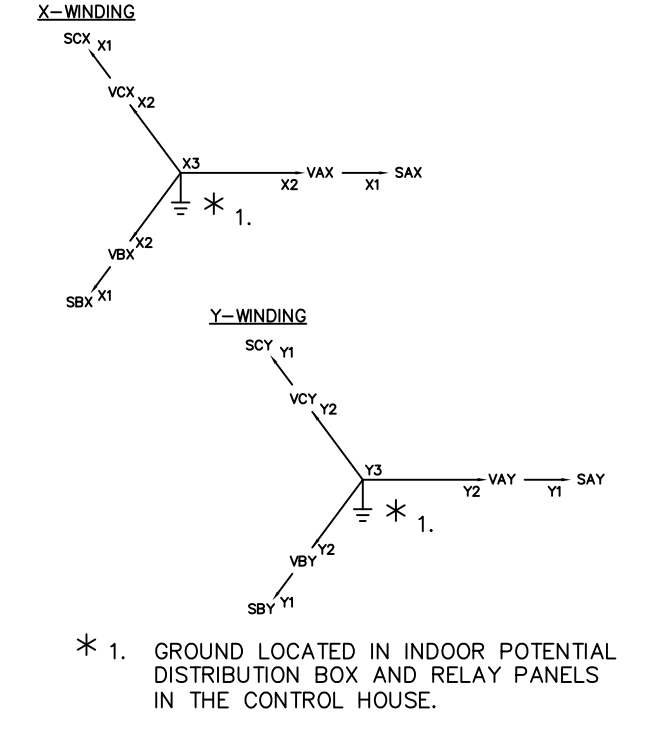
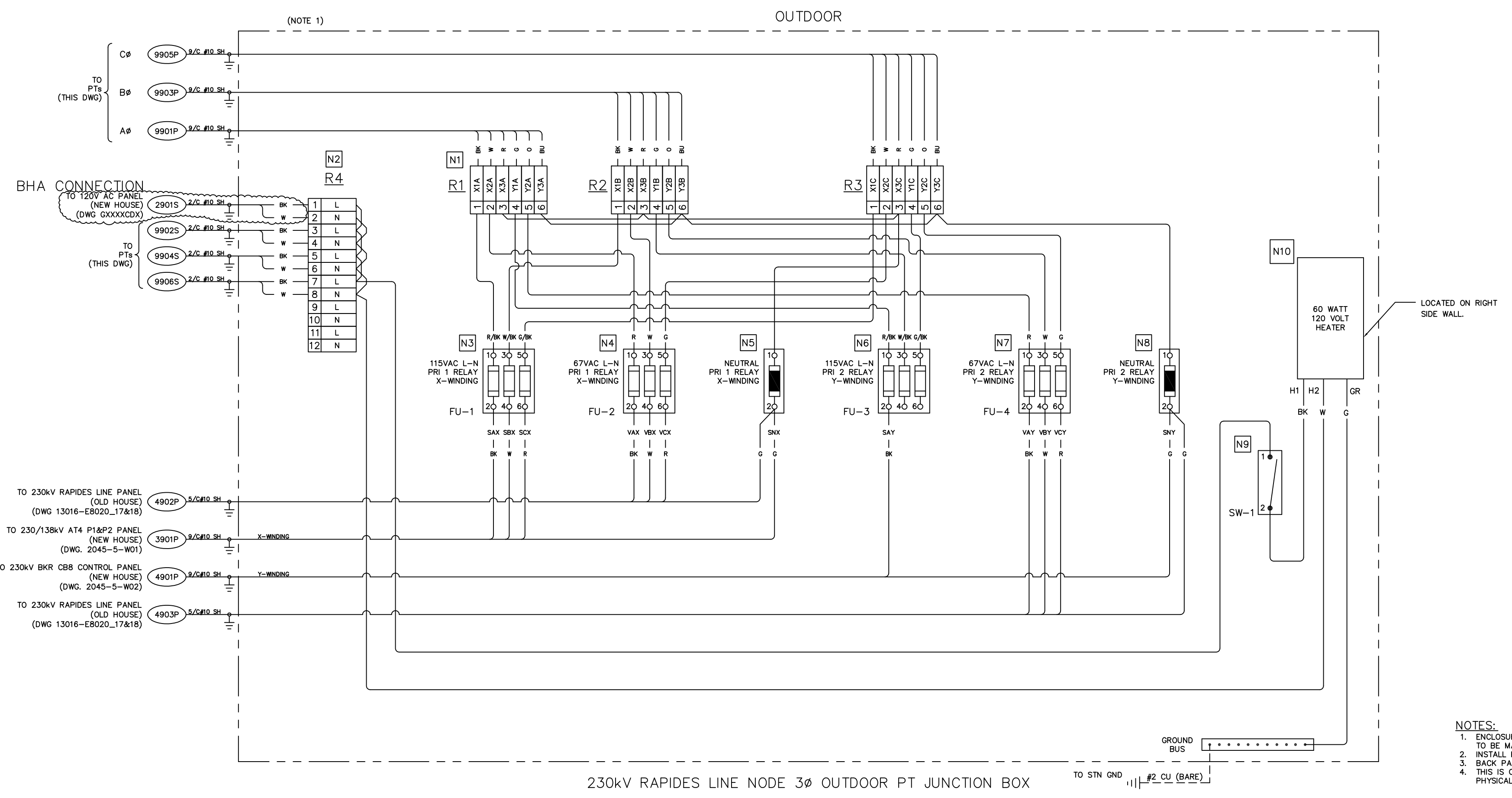
NOMINAL SYSTEM VOLTAGE	PERFORMANCE REF. VOLTAGE	PERFORMANCE RATIO	NAMEPLATE SEC. VOLTAGE
69kV	40.25kV	350/600:1	115/67.1 VOLTS
115kV	69kV	600/1000:1	115/69 VOLTS
138kV	80.5kV	700/1200:1	115/67.1 VOLTS
161kV	92kV	800/1400:1	115/65.7 VOLTS
230kV	138kV	1200/2000:1	115/69 VOLTS
345kV	209kV	1800/3000:1	115/69 VOLTS
500kV	287.5kV	2500/4500:1	115/63.8 VOLTS



OUTDOOR 230KV RAPIDES LINE NODE 3Ø POTENTIAL JUNCTION BOX SCALE 3"=1'-0"



TO 230KV RAPIDES LINE NODE OUTDOOR POTENTIAL JUNCTION BOX (THIS DWG) (NOTE 4)



\* 1. GROUND LOCATED IN INDOOR POTENTIAL DISTRIBUTION BOX AND RELAY PANELS IN THE CONTROL HOUSE.

FOR REFERENCE ONLY

NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY

TWIN BRIDGES TRANSFORMER ADDITION  
 230kV 3Ø RAPIDES LINE PT JUNCTION BOX  
 CITY OF ALEXANDRIA  
 ALEXANDRIA, LOUISIANA

SCALE: NOTED DATE: 7/11/18 DRAWN BY: JHD APPROVED BY: JJC PROJECT NO.: 2019-E-16A DRAWING NO.: TBTA-06E REV: A

BHA, INC. BATON ROUGE, LOUISIANA

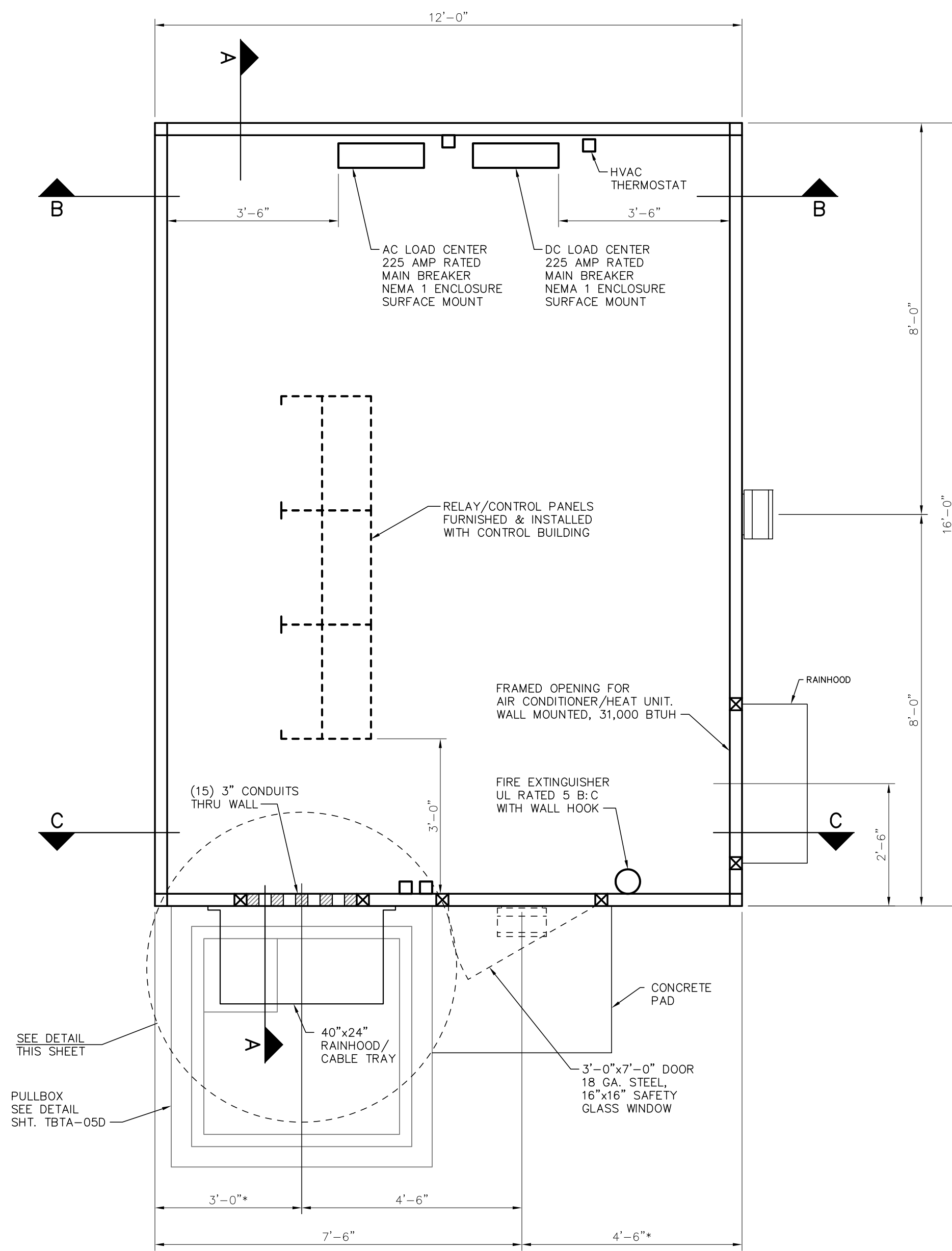
NOTES:  
 1. ENCLOSURE TO BE MADE OF NON-CORROSIVE MATERIAL.  
 2. INSTALL FUSE FOR ALL APPLICATIONS.  
 3. BACK PANEL SHALL BE CONNECTED TO STATION GROUND.  
 4. THIS IS ONLY THE ELECTRICAL LAYOUT AND NOT THE PHYSICAL LAYOUT.

REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE	REV	DESCRIPTION	DRN BY	CHK BY	APP BY	DATE	REFERENCE DRAWINGS	CAD NOTES
0	INSTALL 230KV TRANSFORMER AT4 & BKR CBB	MB	AK	DG	1-31-19								

CITY OF ALEXANDRIA, LA  
 TWIN BRIDGES SUBSTATION  
 230kV 3Ø RAPIDES LINE NODE  
 OUTDOOR POTENTIAL JUNCTION BOX

SCALE: NONE DATE: 11-7-18 DWG No: 2045-5-J01

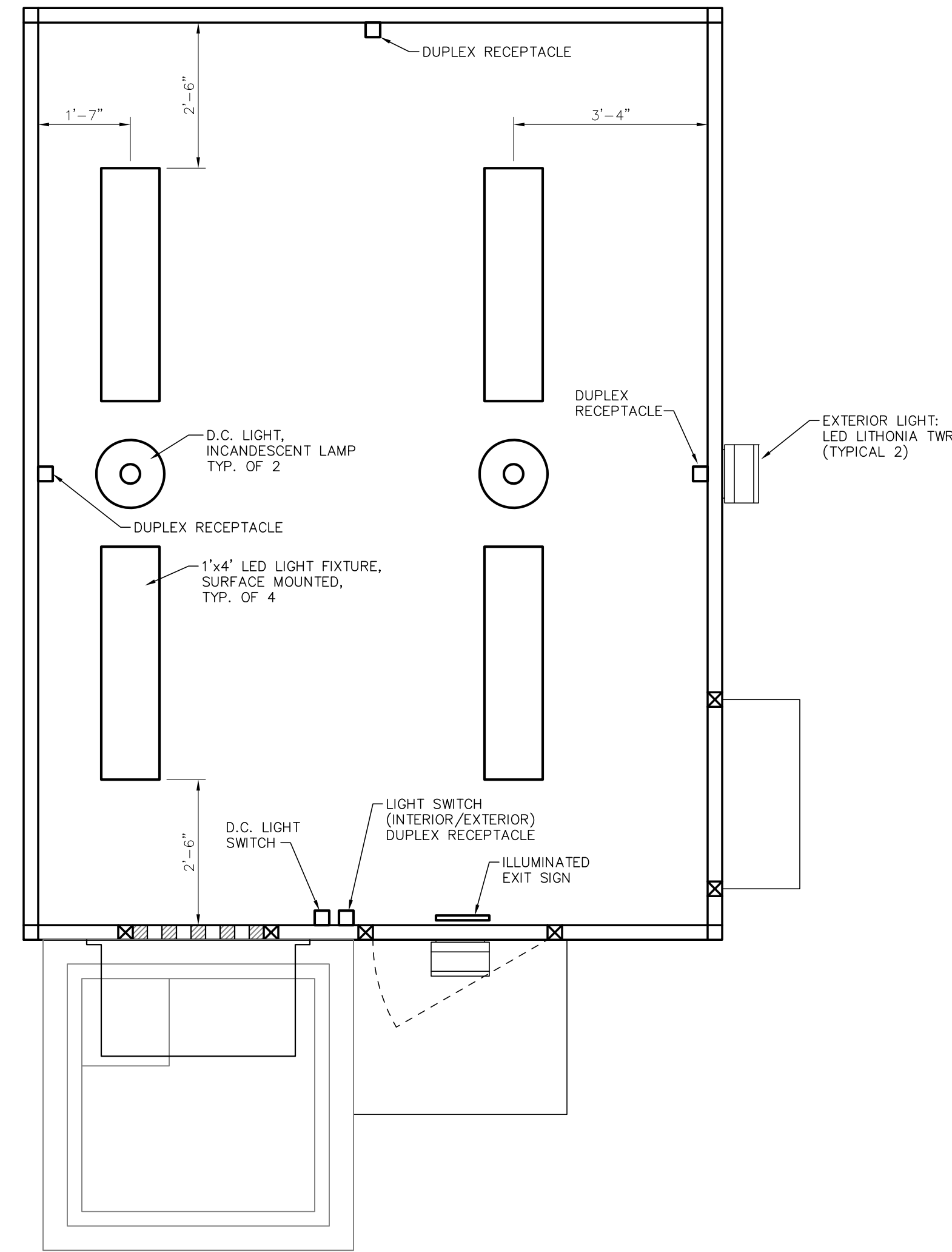
BHA245.DWG 10/01/2019



**CONTROL BUILDING  
EQUIPMENT LAYOUT**

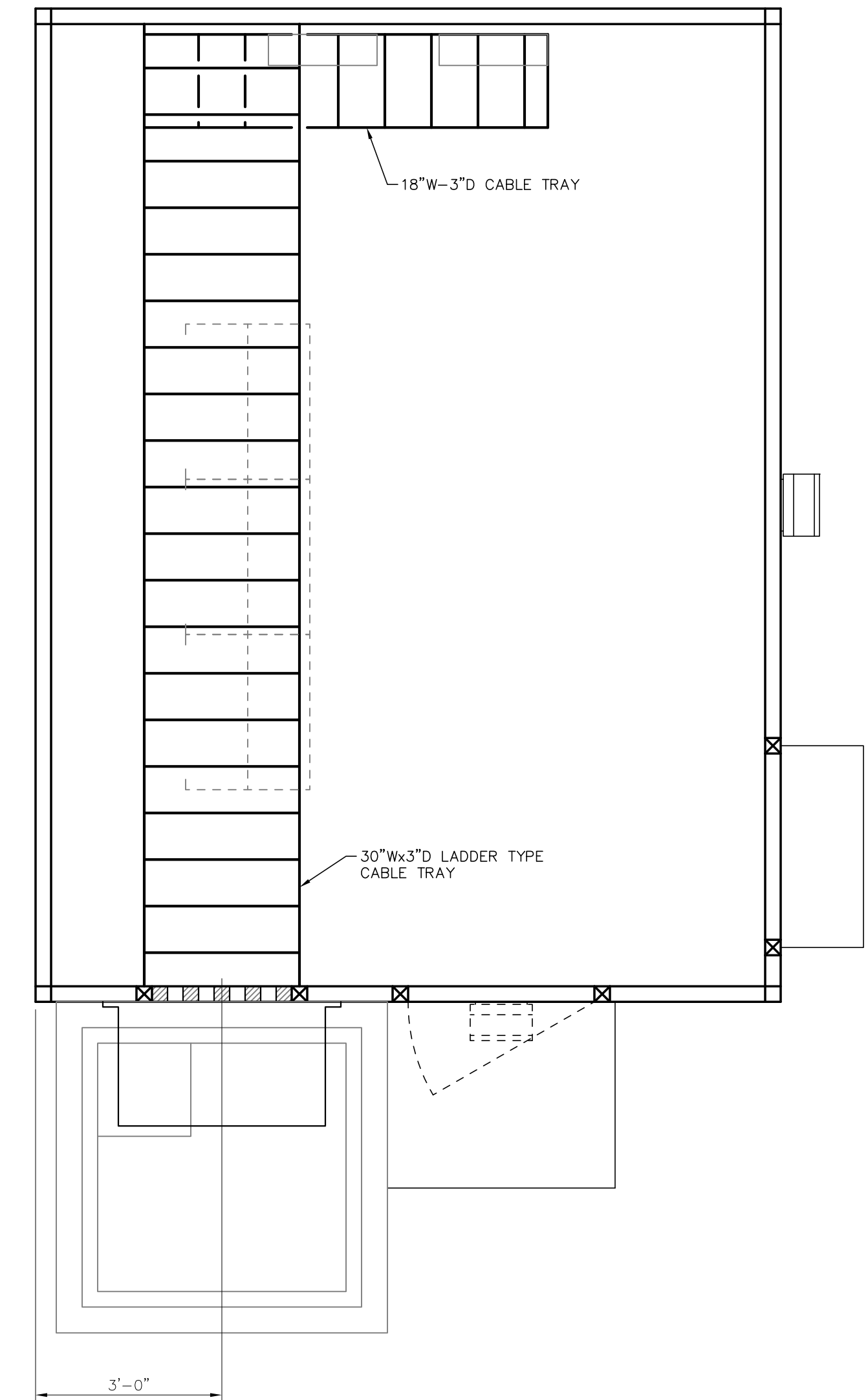
SCALE: 1/2"=1'-0"

\* - CONFIRM WITH CONTROL BUILDING DRAWING



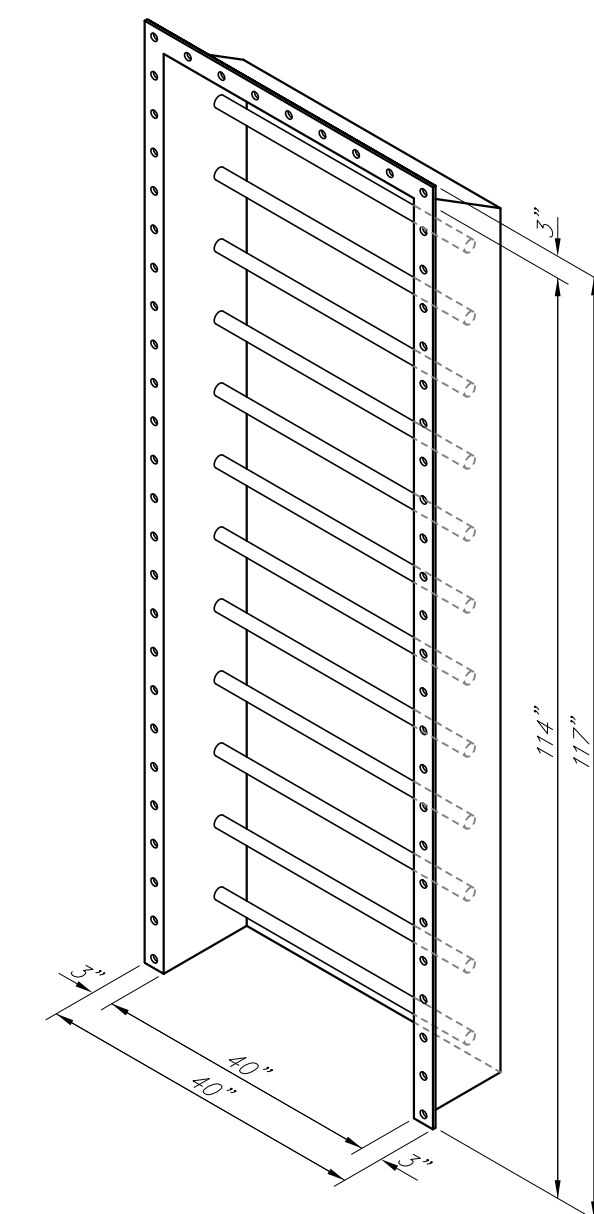
**CONTROL BUILDING  
LIGHTING & POWER LAYOUT**

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



**CONTROL BUILDING  
CABLE TRAY LAYOUT**

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



**CONTROL BUILDING  
RAINHOOD/CABLE TRAY**

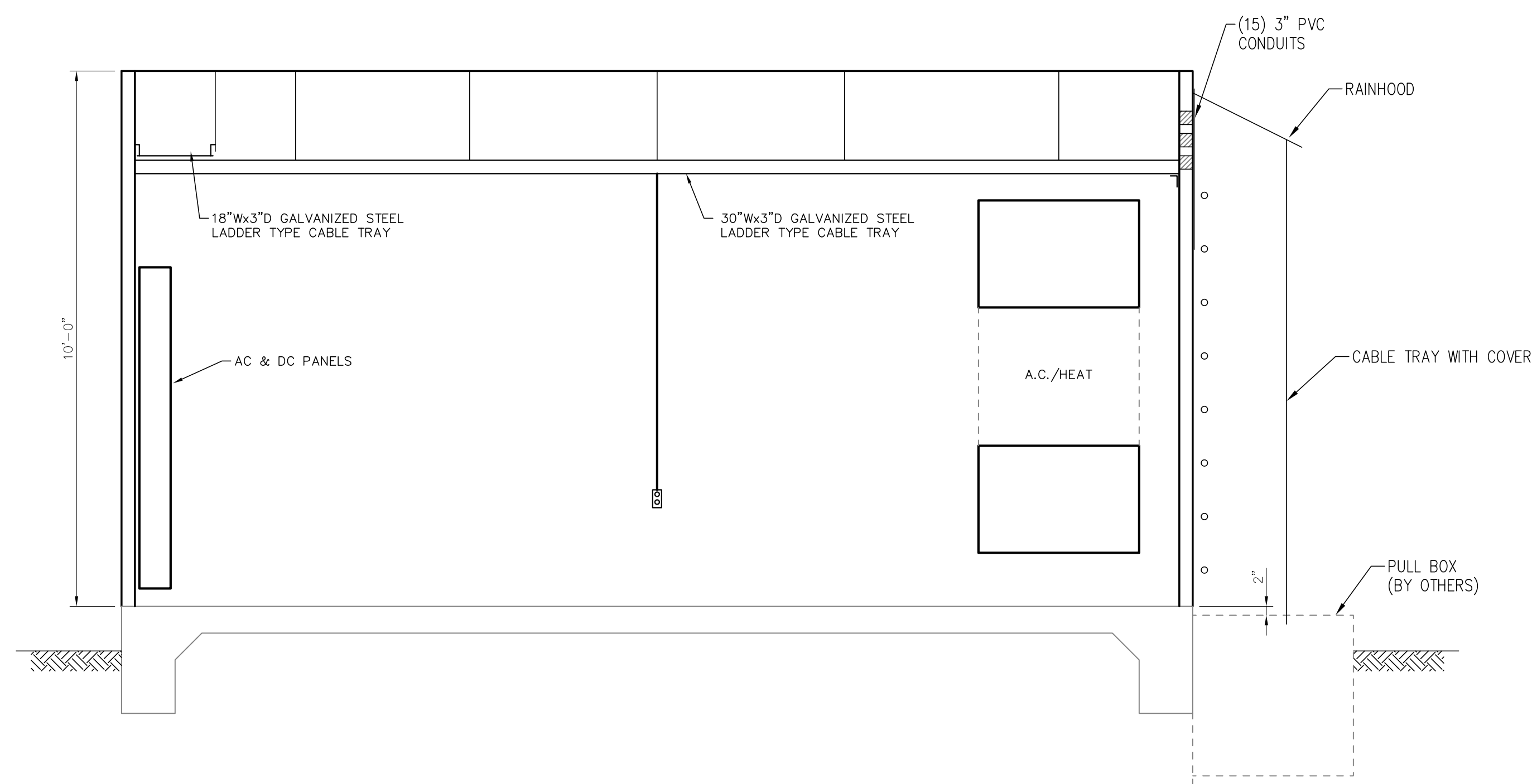
SCALE: N.T.S.

FOR REFERENCE  
ONLY

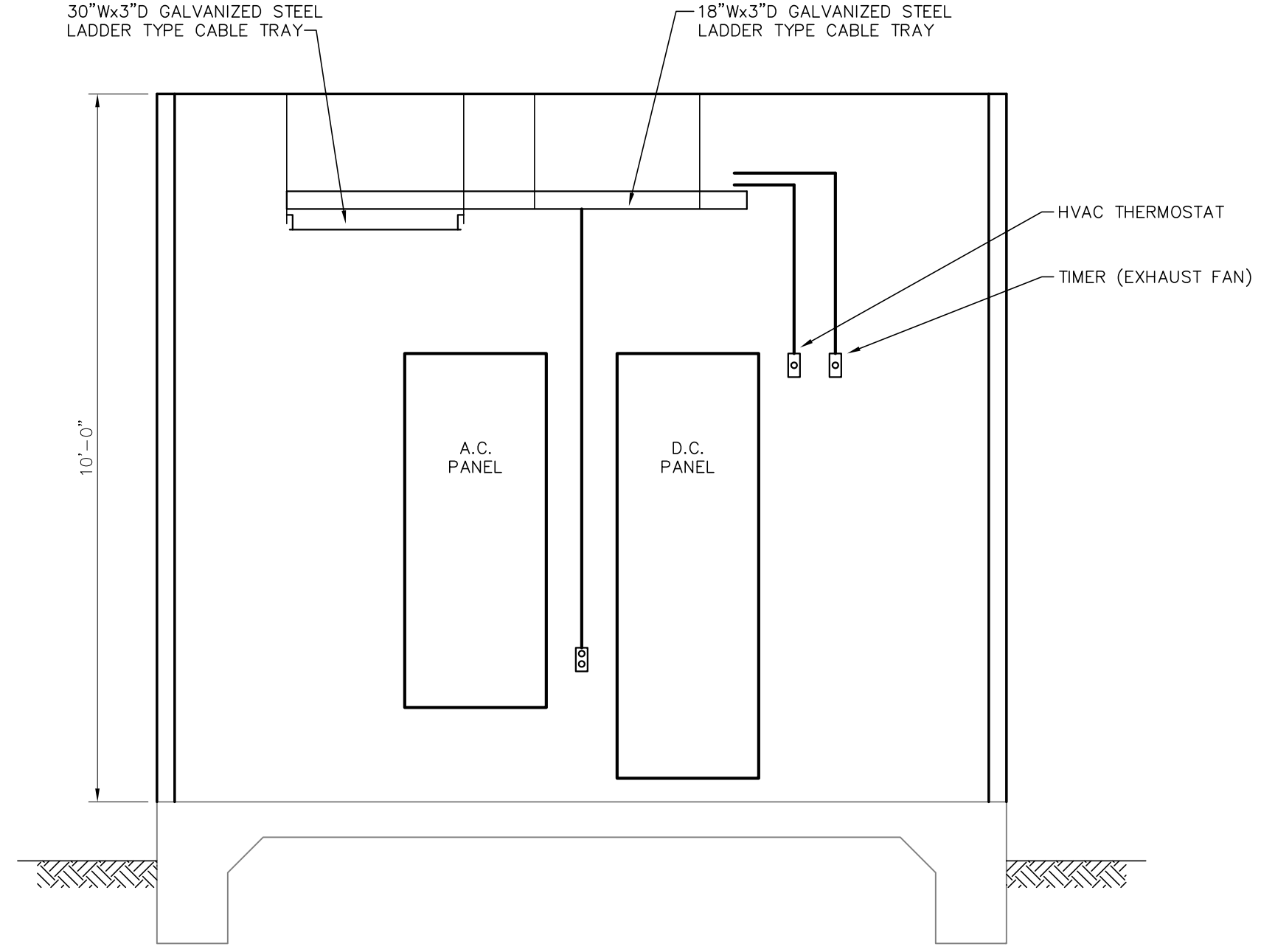
TWIN BRIDGES TRANSFORMER ADDITION CONTROL BUILDING LAYOUT			
CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA			
SCALE	DATE	DRAWN BY	APPROVED BY
1/2"=1'-0"	10/2/18	JHD	JJC
PROJECT NO. : 2019-E-16A			REV. : A
DRAWING NO. : TBTA-07			REV. : A
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA			
NO.	DATE	BY	REVISIONS
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION



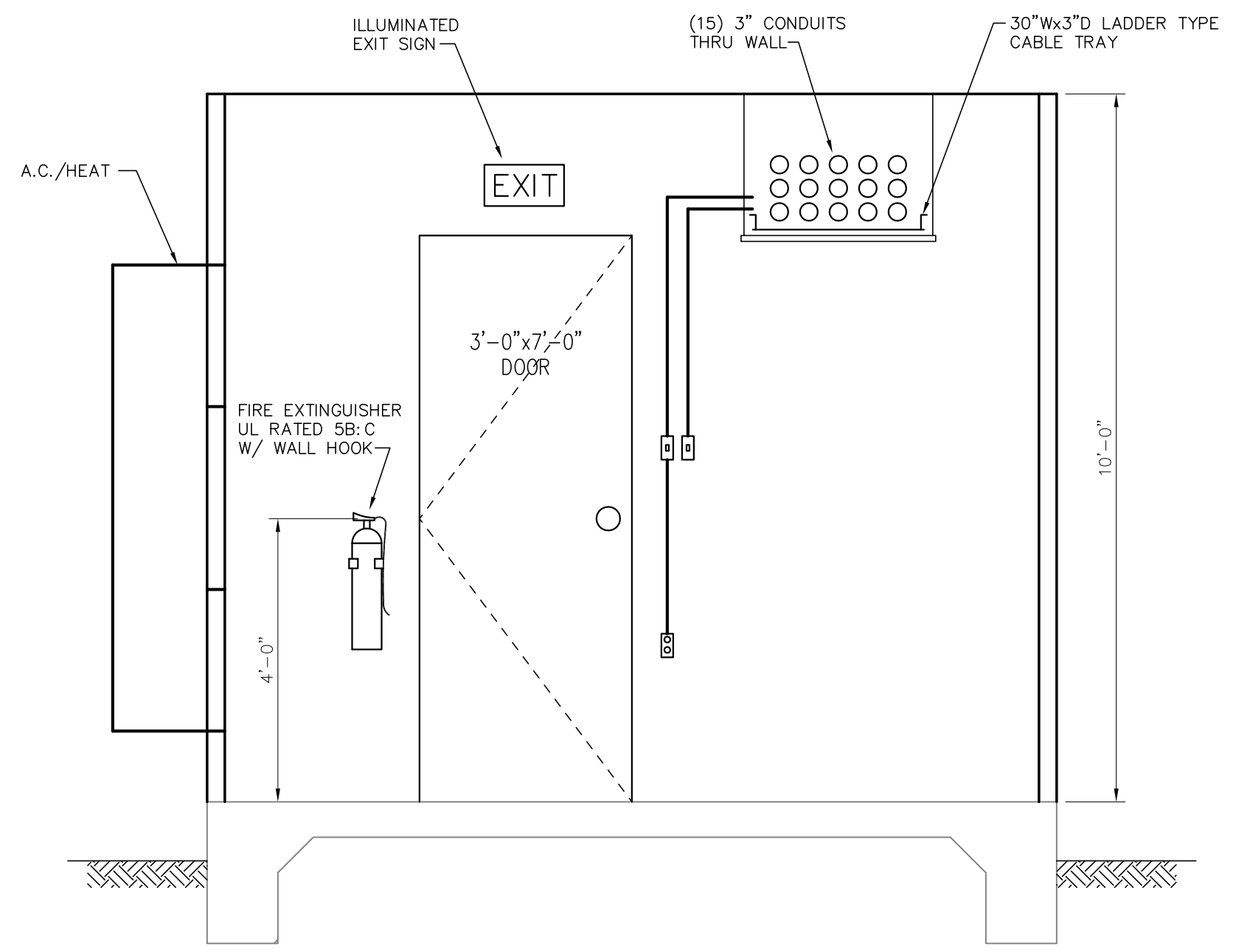
BHA-24-07A.dwg 10/01/2019



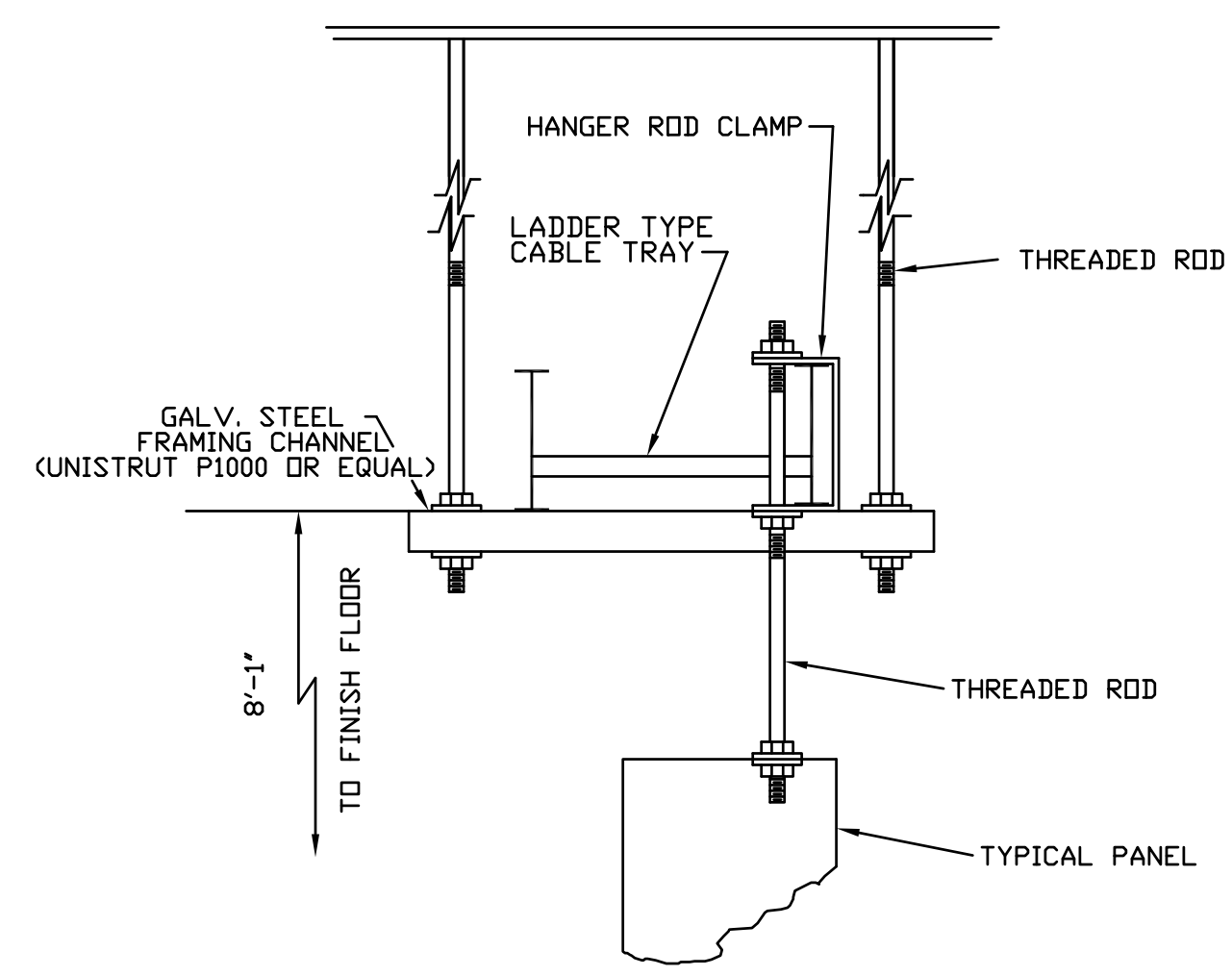
**ELEVATION A-A**  
SCALE: 1/2"=1'-0"



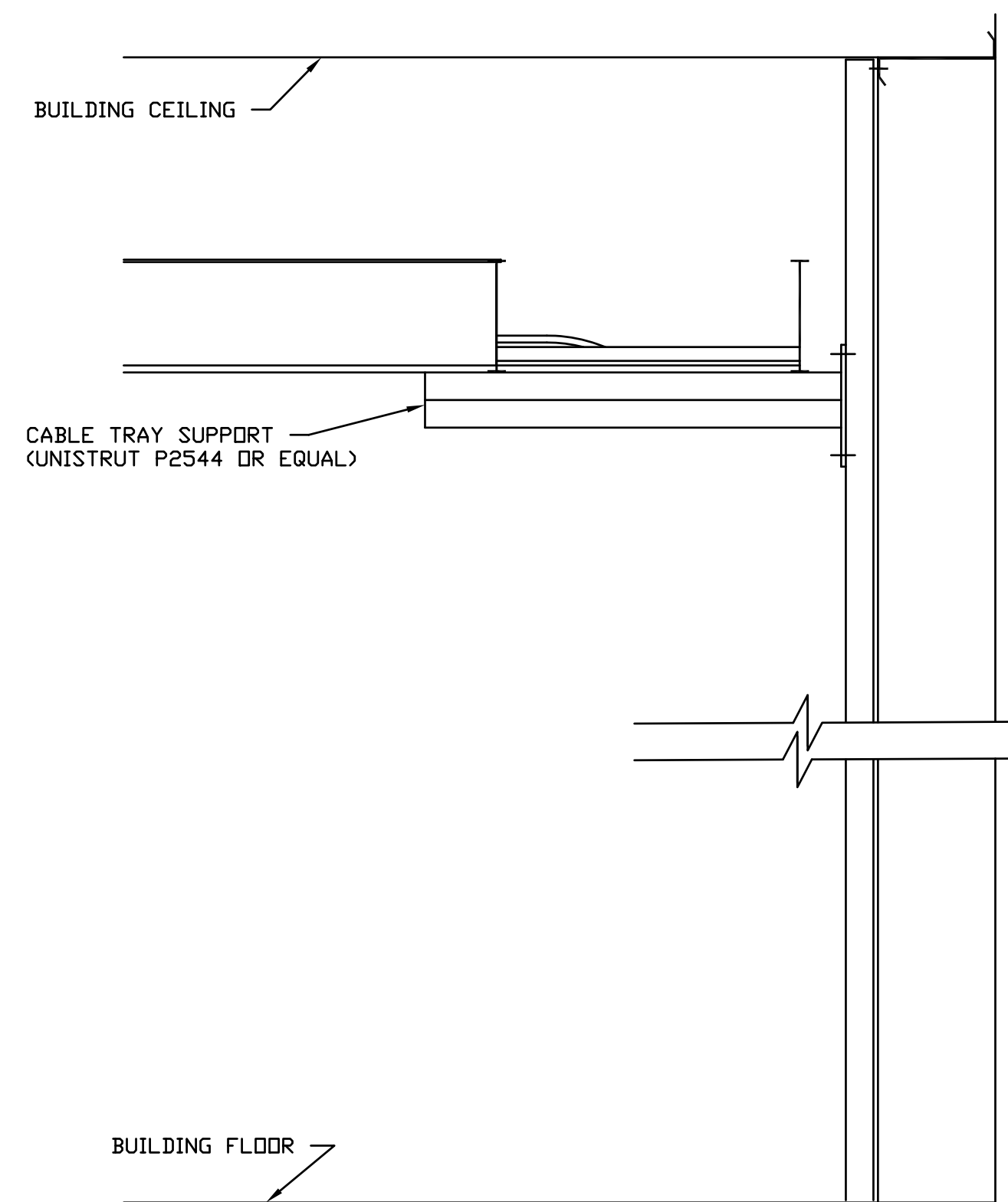
**ELEVATION B-B**  
SCALE: 1/2"=1'-0"



**ELEVATION C-C**  
SCALE: 1/2"=1'-0"



**CABLE TRAY SUPPORT DETAIL NO. 1**  
N.T.S.

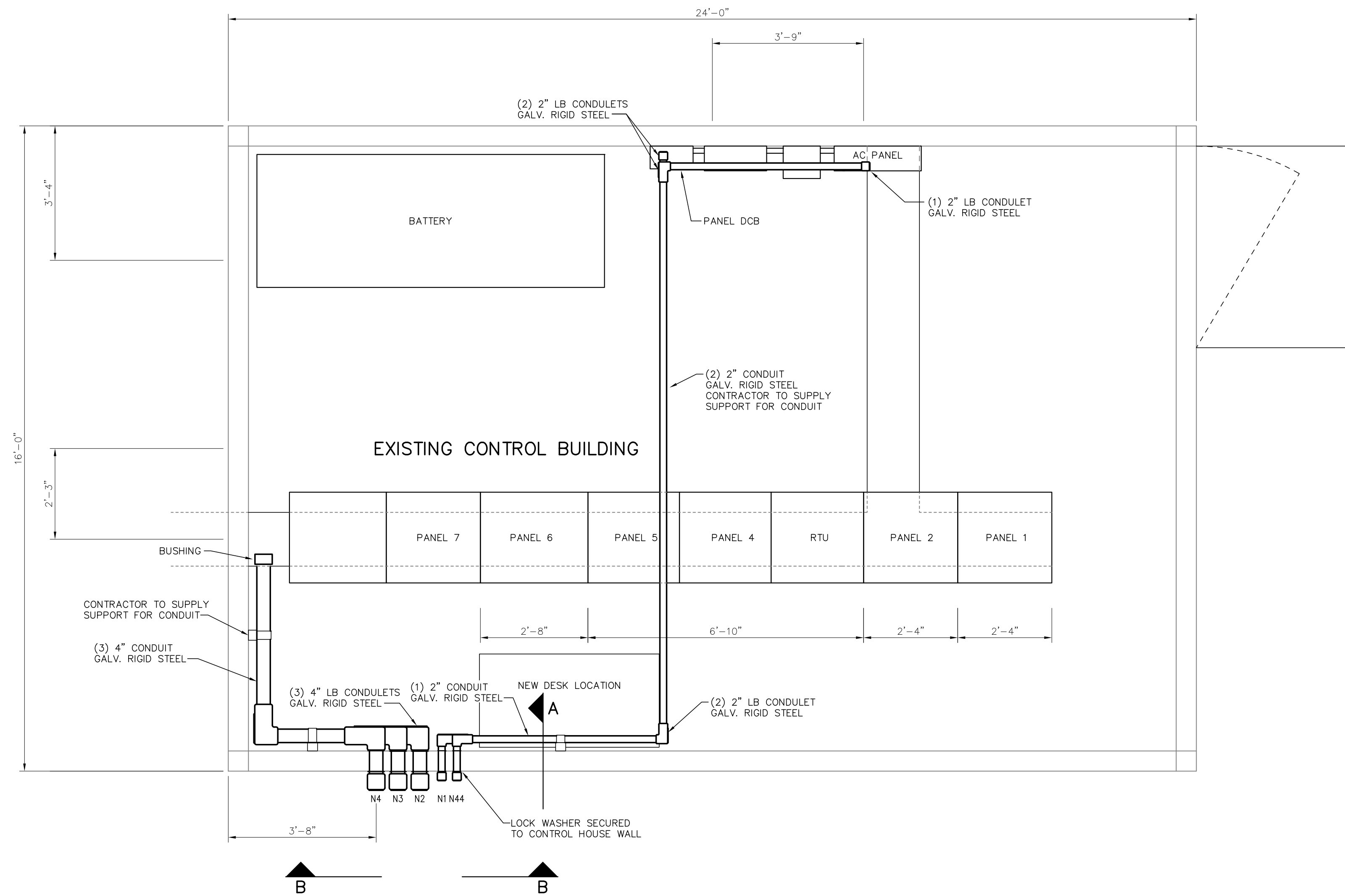


**CABLE TRAY SUPPORT DETAIL NO. 2**  
N.T.S.

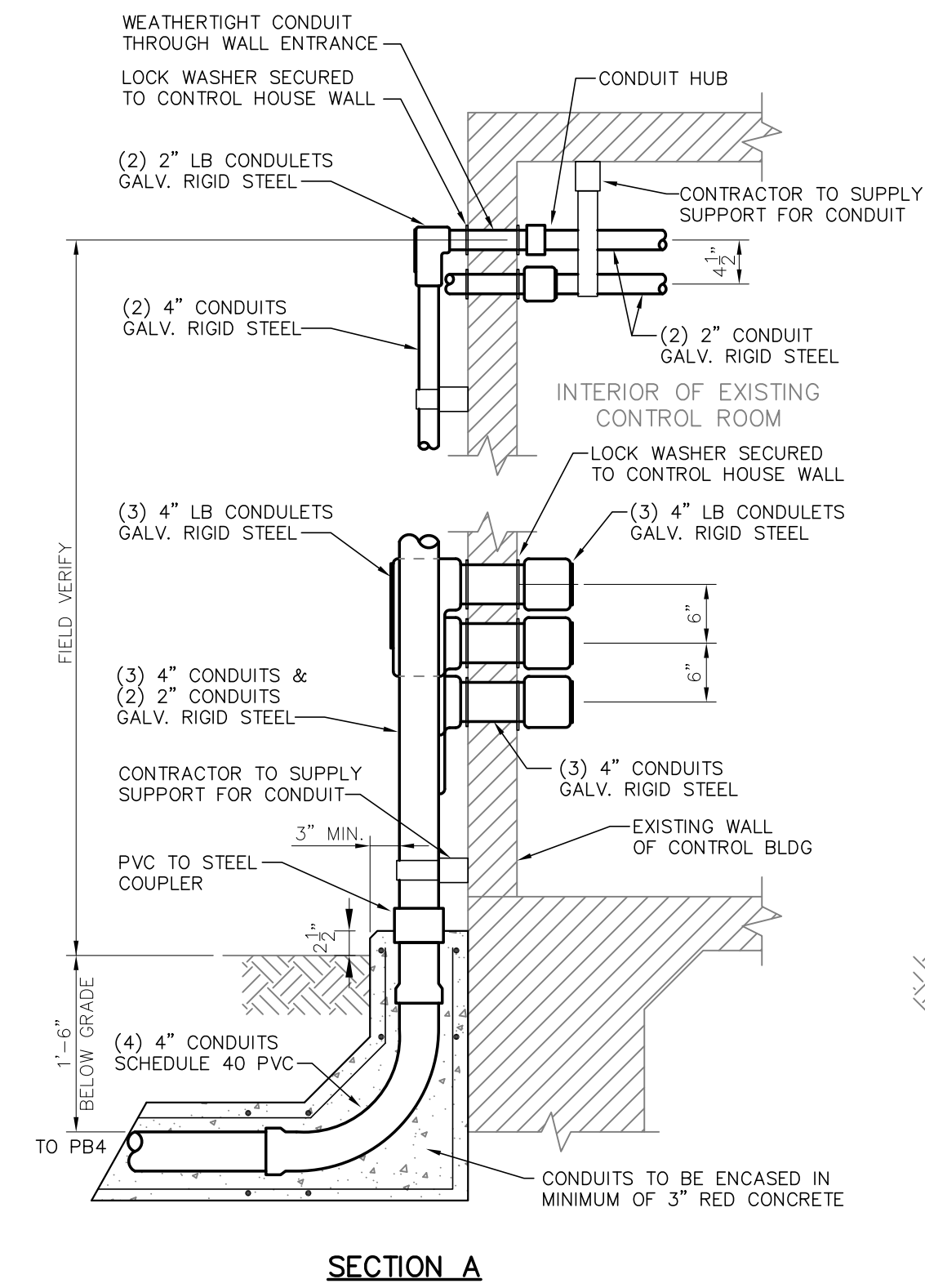
**FOR BIDDING PURPOSES ONLY**

TWIN BRIDGES TRANSFORMER ADDITION CONTROL BUILDING DETAILS			
CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA			
SCALE: NOTED	DATE: 10/2/18	DRAWN BY: JHD	APPROVED BY: JJC
PROJECT NO.: 2019-E-16A			REV.: A
DRAWING NO.: TBTA-07A			REV.: A
<b>BHA, INC.</b> BATON ROUGE, LOUISIANA			

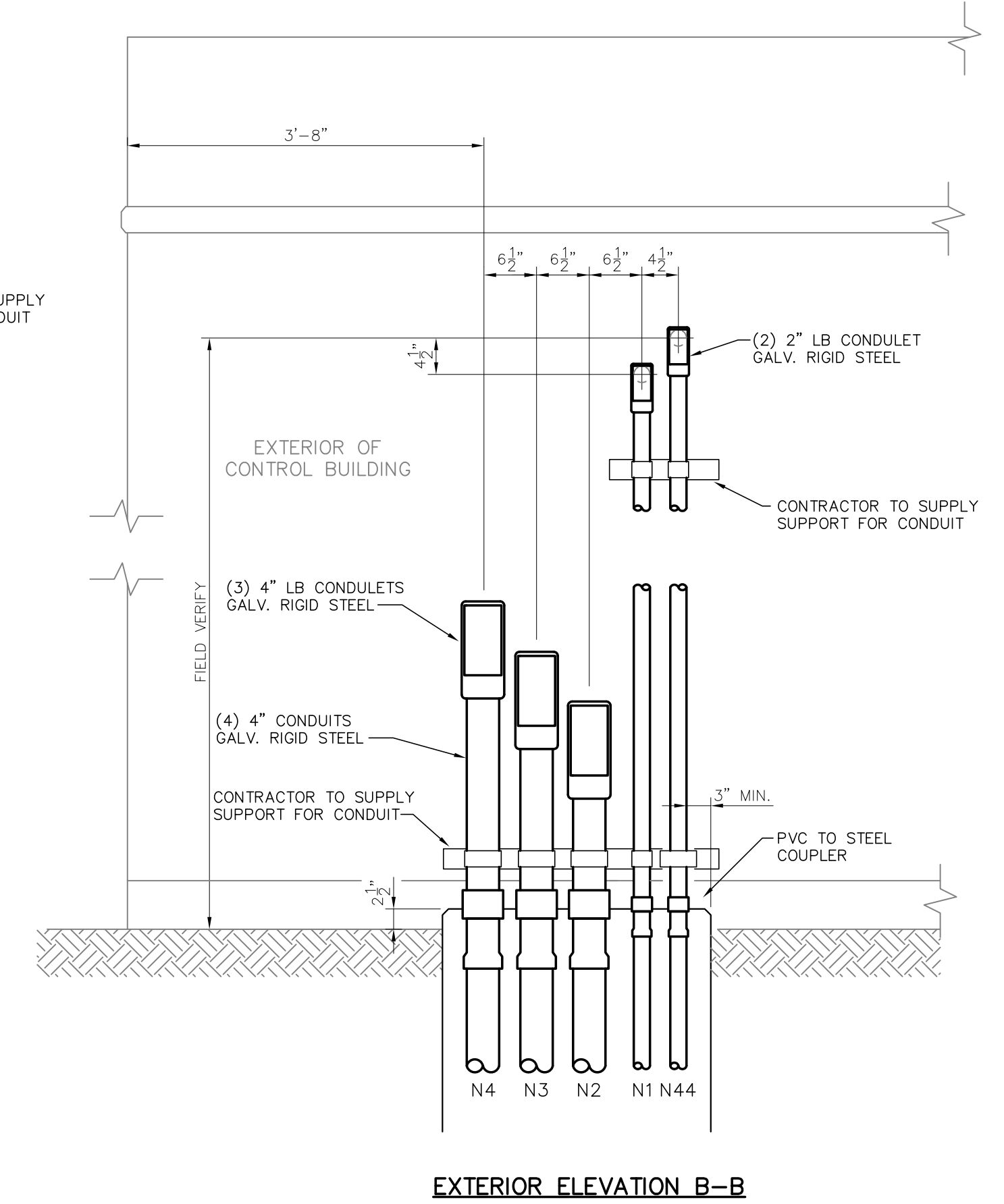
BHA\24\DWG 03/01/2019



**EXISTING CONTROL BUILDING  
CONDUIT ROUTING LAYOUT**  
SCALE: 1/2"=1'-0"



**SECTION A**



**EXTERIOR ELEVATION B-B**

**EXISTING CONTROL BUILDING  
CONDUIT AT EXTERIOR WALL DETAIL**  
SCALE: 3/4"=1'-0"

**FOR BIDDING  
PURPOSES ONLY**

				<b>TWIN BRIDGES TRANSFORMER ADDITION EXISTING CONTROL BUILDING LAYOUT</b>			
				CITY OF ALEXANDRIA ALEXANDRIA, LOUISIANA			
SCALE	DATE	DRAWN BY	APPROVED BY	PROJECT NO.			
NOTED	2/5/19	TJW	JJC	2019-E-16A			
				<b>BHA, INC.</b> BATON ROUGE, LOUISIANA			
				DRAWING NO.: <b>TBTA-07B</b>		REV.: <b>A</b>	
A	3/4/19	BHA	FOR BIDDING PURPOSES ONLY - CONSTRUCTION				
NO.	DATE	BY	REVISIONS				