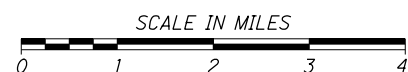


LOCATION MAP

LATITUDE: 41°29'08" LONGITUDE: 81°37'22"



PORTION TO BE IMPROVED.....	_____
INTERSTATE HIGHWAY.....	_____
FEDERAL ROUTES.....	_____
STATE ROUTES.....	_____
COUNTY & TOWNSHIP ROADS.....	_____
OTHER ROADS.....	_____

DESIGN DESIGNATION

CURRENT ADT (2017)	35,820
DESIGN YEAR ADT (2020)	48,230
DESIGN HOURLY VOLUME (2020)	3,580
DIRECTIONAL DISTRIBUTION	58%
TRUCKS (24 HOUR B&C)	6%
DESIGN SPEED	40 MPH
LEGAL SPEED	35 MPH
DESIGN FUNCTIONAL CLASSIFICATION	URBAN PRINCIPAL ARTERIAL
NHS PROJECT	NO

DESIGN EXCEPTIONS

NONE

<h1 style="text-align: center;">UNDERGROUND UTILITIES</h1> <p style="text-align: center;">CONTACT BOTH SERVICES TWO WORKING DAYS BEFORE YOU DIG.</p>	
 <p>OHIO Utilities Protection SERVICE</p> <p>(Non-members must be called directly)</p>	<p><i>Call Before You Dig</i></p> <p>1-800-362-2764</p>
<p style="text-align: center;">OIL & GAS PRODUCERS UNDERGROUND PROTECTION SERVICE</p> <p style="text-align: center;">1-800-925-0988</p>	



STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
**CUY-IR490/ SR010-
2.09 / 19.28**
CITY OF CLEVELAND
CUYAHOGA COUNTY

INDEX OF SHEETS:

SEE SHEET 2

BU-15A
ROADWAY AND PAVEMENT:
GCRTA PARKING LOT

PLAN PREPARED BY:

Michael Baker

1111 SUPERIOR AVENUE EAST, SUITE 2300
CLEVELAND, OHIO 44114

[illegible]

PROJECT DESCRIPTION





THIS PROJECT CONSISTS OF THE CONSTRUCTION OF 2.09 MILES OF A NEW TWO- TO THREE-LANE BOULEVARD FROM E. 55TH ST. TO E. 93RD ST. WORK INCLUDES PAVEMENT, RAILROAD, STRUCTURES, DRAINAGE, WATERWORK, LIGHTING, POWER DISTRIBUTION, TRAFFIC CONTROL, LANDSCAPING, AND ADJUSTMENT OF EXISTING UTILITIES.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA: 87.2 ACRES
ESTIMATED CONTRACTOR EARTH DISTURBED AREA: 0 ACRES
NOTICE OF INTENT EARTH DISTURBED AREA: 87.2 ACRES
(AREA SERVICED BY COMBINED SEWER)

2016 SPECIFICATIONS

THE STANDARD SPECIFICATIONS OF THE STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, INCLUDING CHANGES AND SUPPLEMENTAL SPECIFICATIONS LISTED IN THE PROPOSAL SHALL GOVERN THIS IMPROVEMENT.

SIGNALS		ROADWAY	
ENGINEERS SEAL:		ENGINEERS SEAL:	
			
SIGNED: <u>Angela Coates</u> DATE: <u>03/30/2020</u>		SIGNED: <u>Greg Hertler</u> DATE: <u>03/30/2020</u>	
STRUCTURES		LIGHTING	
ENGINEERS SEAL:		ENGINEERS SEAL:	
			
SIGNED: <u>Lawrence Ciborek</u> DATE: <u>03/30/2020</u>		SIGNED: <u>Mark J. Hunter</u> DATE: <u>03/30/2020</u>	
0		2020-04-16 RFC	
NO.	DATE	DESCRIPTION	
		ISSUE RECORD	

BU-15A - ROADWAY & PAVEMENT: GCRTA PARKING LOT

...\\Sheets\\BU-15A\\96833_CB002.dgn 9/26/2024 1:46:29 PM Gregory.Hertler

CURVE 2
P.I. STA. 129+43.71
 $\Delta = 25^{\circ}55'38''$
 $D_c = 4^{\circ}00'00''$
 $R = 1432.39'$
 $T = 329.73'$
 $L = 648.18'$
 $E = 37.46'$

CURVE 3
P.I. STA. 134+73.16
 $\Delta = 19^{\circ}50'40''$
 $D_c = 4^{\circ}45'00''$
 $R = 1206.23'$
 $T = 211.00'$
 $L = 417.78'$
 $E = 18.32'$

CURVE 4
P.I. STA. 141+58.93
 $\Delta = 38^{\circ}32'00''$
 $D_c = 4^{\circ}45'00''$
 $R = 1206.23'$
 $T = 421.63'$
 $L = 811.23'$
 $E = 71.56'$

CURVE 5
P.I. STA. 154+96.35
 $\Delta = 46^{\circ}36'56''$
 $D_c = 2^{\circ}36'16''$
 $R = 2200.00'$
 $T = 947.83'$
 $L = 1789.91'$
 $E = 195.49'$

STA. 154+86.85 @ CONST. O.C. BLVD. =
STA. 10+93.13 @ EX. R/W COLFAX RD.

STA. 153+13.33 @ CONST. O.C. BLVD. =
STA. 12+35.67 @ EX. R/W E. 68TH ST. @ EX. R/W
E. 68TH ST. =

STA. 150+49.11 @ CONST. O.C. BLVD. =
STA. 34+46.33 @ EX. R/W KINSMAN RD.

STA. 150+45.93 @ CONST. O.C. BLVD. =
STA. 12+45.11 @ PR. R/W & CONST. KINSMAN RD.

STA. 153+13.33 @ CONST. O.C. BLVD. =
STA. 12+35.67 @ EX. R/W E. 68TH ST.
150+49.11 @ CONST. O.C. BLVD. =
34+46.33 @ EX. R/W KINSMAN RD. —

Q EX. R/W
E. 68TH ST.

C EX. R/W &
 CONST.
 E. 69TH ST.

STA. 1

STA. 39+40.89 @ EX. R/W KINSMAN RD. =
STA. 10+00.00 @ EX. R/W E. 69TH ST.

STA. 40+69.87 @ EX. R/W KINSMAN RD. =
STA. 18+70.00 @ PR. R/W & CONST. KINSMAN RD.

CURVE QUADRANT
P.I. STA. 104+75.50
 $\Delta = 90^{\circ}13'17''$
 $D_c = 29^{\circ}00'00''$
 $R = 197.57'$
 $T = 198.34'$
 $L = 311.11'$
 $E = 82.38'$

CURVE SUP 1
P.I. STA. 25+41.90
 $\Delta = 90^{\circ}06'30''$
 $D_c = 95^{\circ}29'35''$
 $R = 60.00'$
 $T = 60.11'$
 $L = 94.36'$
 $E = 24.93'$

CURVE SUP 2
P.I. STA. 29+26.44
 $\Delta = 61^{\circ}56'37''$
 $D_c = 150^{\circ}46'42''$
 $R = 38.00'$
 $T = 22.81'$
 $L = 41.08'$
 $E = 6.32'$

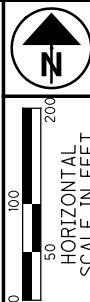
CURVE SUP 3
P.I. STA. 32+15.44
 $\Delta = 21^{\circ}03'48''$
 $D_c = 8^{\circ}11'06''$
 $R = 700.00'$
 $T = 130.14'$
 $L = 257.34'$
 $E = 11.99'$

CURVE SUP 4
P.I. STA. 37+35.22
 $\Delta = 30^{\circ}57'45''$
 $D_c = 14^{\circ}19'26''$
 $R = 400.00'$
 $T = 110.79'$
 $L = 216.16'$
 $E = 15.06'$

CURVE SUP 5
P.I. STA. 38+95.59
 $\Delta = 8^{\circ}59'04''$
 $D_c = 8^{\circ}11'06''$
 $R = 700.00'$
 $T = 55.00'$
 $L = 109.77'$
 $E = 2.16'$

CURVE E. 59TH
P.I. STA. 14+25.44
 $\Delta = 90^{\circ}00'43''$
 $D_c = 318^{\circ}18'36''$
 $R = 18.00'$
 $T = 18.00'$
 $L = 28.28'$
 $E = 7.46'$

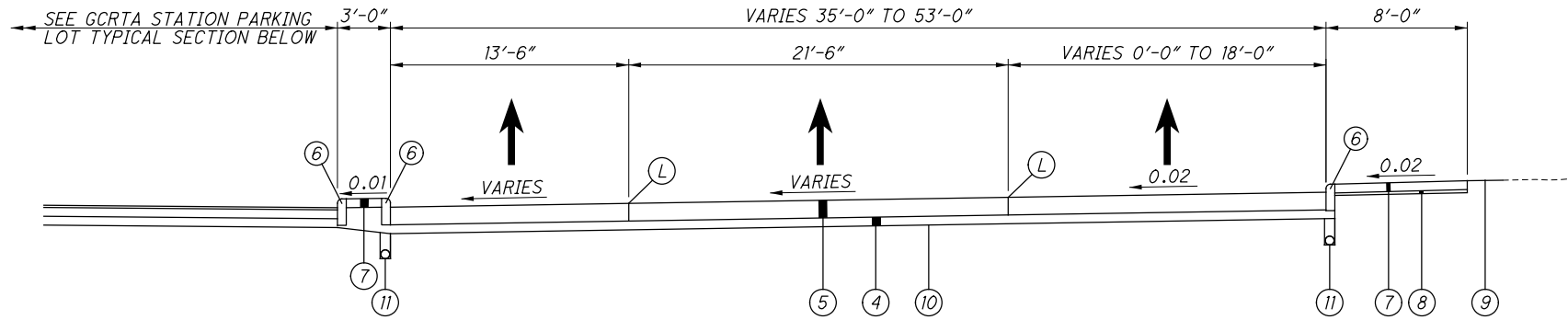
1	2024-09-26	RECORD DRAWINGS
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		



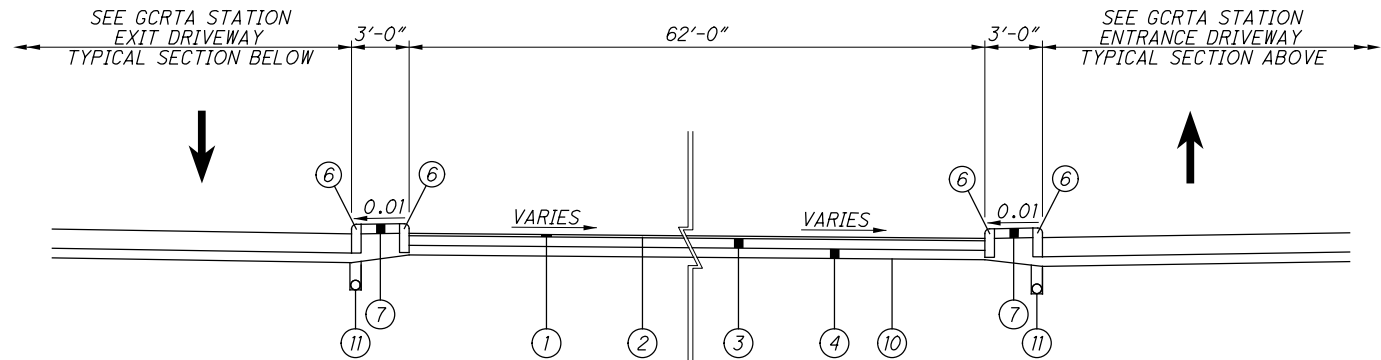
- LEGEND
- ① ITEM 448 - 1½" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG 64-22
 - ② ITEM 407 - NON-TRACKING TACK COAT
 - ③ ITEM 301 - 6" ASPHALT CONCRETE BASE
 - ④ ITEM 304 - 6" AGGREGATE BASE
 - ⑤ ITEM 451 - 12" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
 - ⑥ ITEM 609 - CURB, TYPE 6, AS PER PLAN
 - ⑦ ITEM 608 - 6" CONCRETE WALK, AS PER PLAN
 - ⑧ ITEM 703 - 2" CRUSHED STONE COMPACTED SCREENINGS BED
 - ⑨ ITEM 659 - SEEDING AND MULCHING, AS PER PLAN
 - ⑩ ITEM 204 - SUBGRADE COMPACTION
 - ⑪ ITEM 605 - 6" BASE PIPE UNDERDRAINS, WITH GEOTEXTILE FABRIC
 - Ⓛ LONGITUDINAL JOINT

NOTES

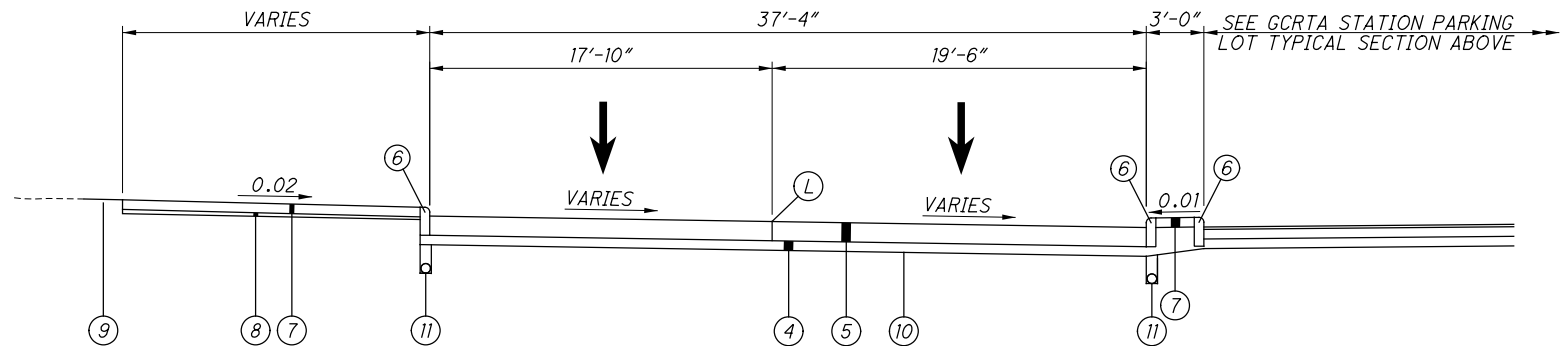
WHERE THE TYPICAL SECTIONS INDICATE "VARIES", SEE PARKING LOT DETAIL SHEET 10 AND GRADING PLAN SHEET 11



GCRTA STATION ENTRANCE DRIVEWAY
RIGID PAVEMENT
(FACING EAST, THEN NORTH)

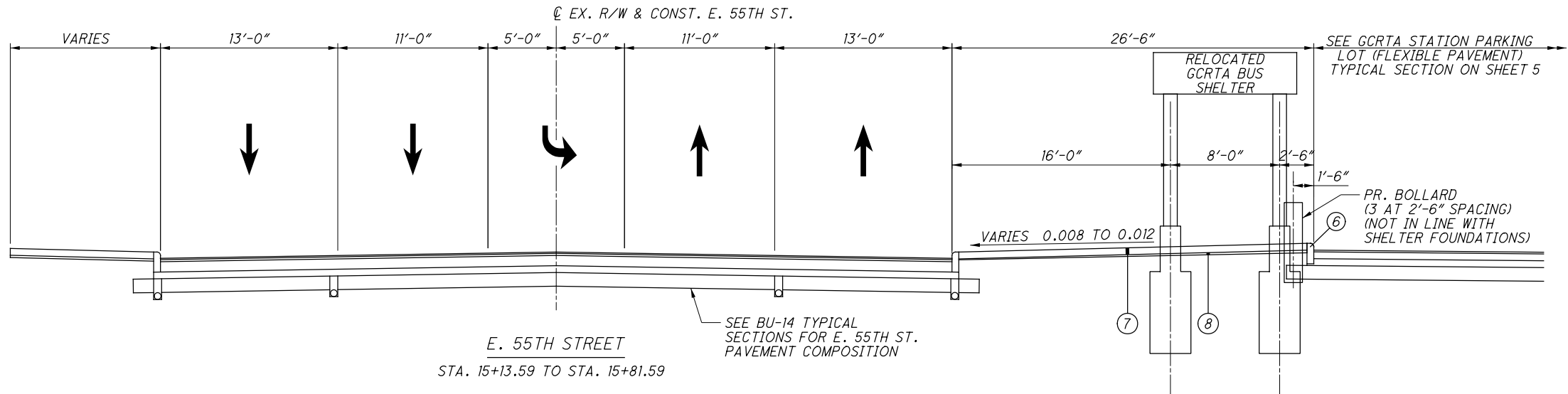


GCRTA STATION PARKING LOT
FLEXIBLE PAVEMENT
(FACING EAST)



GCRTA STATION EXIT DRIVEWAY
RIGID PAVEMENT
(FACING EAST)

0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		



NOTES
SEE SHEET 5 FOR LEGEND

0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

PROPOSED TYPICAL SECTIONS

CUY-IR490/ SR010-
2.09 / 19.28

UTILITIES

LISTED BELOW ARE ALL UTILITIES LOCATED WITHIN THE PROJECT CONSTRUCTION LIMITS TOGETHER WITH THEIR RESPECTIVE OWNERS:

ELECTRIC
CLEVELAND PUBLIC POWER (CPP)
ATTN: CHRIS HIRZEL
1300 LAKESIDE AVENUE
CLEVELAND, OH 44114
216-664-3922 (CHRIS)
CHIRZEL@CPP.ORG

CLEVELAND ELECTRIC ILLUMINATING
COMPANY (CEI)
ATTN: DEAN CHATFIELD
6896 MILLER ROAD
BRECKSVILLE, OH 44141
440-546-8740
DMCHATFIELD@FIRSTENERGYCORP.COM

NATURAL GAS
DOMINION EAST OHIO GAS
COMPANY (DEOG)
ATTN: AARON CONANT
320 SPRINGSIDE DRIVE, SUITE 320
AKRON, OH 44333
330-664-2451
k.aaron.conant@dominionenergy.com

WATER
CITY OF CLEVELAND,
DIVISION OF WATER (CWDP)
ATTN: FRED ROBERTS
1201 LAKESIDE AVENUE
CLEVELAND, OH 44114
216-664-2444 x5590
FRED_ROBERTS@CLEVELANDWATER.COM

CATV
CHARTER COMMUNICATION
ATTN: PAT SANTOITEMMO
8179 EAST DOW CIRCLE
STRONGSVILLE, OH 44136
216-575-8016 CELL 216-854-0717
Pat.Santoiemmo@charter.com

SEWER
NORTHEAST OHIO REGIONAL
SEWER DISTRICT (NEORS)
ATTN: ROBERT STOERKEL
4747 EAST 49TH STREET
CUYAHOGA HEIGHTS, OHIO 44125
216-881-6600
stoerkelr@neorsd.org

CITY OF CLEVELAND,
DIVISION OF WATER
POLLUTION CONTROL (CDWPC)
ATTN: ELIE RAMY, ALAN SCHIELY
12302 KIRBY AVE.
CLEVELAND, OH 44108
216-644-3783/ 216-664-2756
ERAMY@CLEVELANDWPC.COM
ASCHIELY@CLEVELANDWPC.COM

SIGNALS
CITY OF CLEVELAND,
DIVISION OF TRAFFIC ENGINEERING
ATTN: RICH TUTIE
4150 EAST 49TH STREET
CLEVELAND, OHIO 44106
216-420-8270
Rtutie@city.cleveland.oh.us

ODOT DISTRICT-12
(PUBLIC UTILITY)
ATTN: TONY TOH
5500 TRANSPORTATION BLVD.
GARFIELD HEIGHTS, OH 44125
216-584-2220
Anthony.Toth@dot.ohio.gov

UTILITIES (CONTINUED)

LIGHTING
CLEVELAND PUBLIC POWER (CPP)
ATTN: BRIAN SHEPARD
1300 LAKESIDE AVENUE
CLEVELAND, OH 44114
216-664-3922 EXT. 173 (BEAU)
bshepherd@cpp.org

TELEPHONE
XO COMMUNICATIONS
ATTN: DALE FERGUSON
3 SUMMIT DRIVE, SUITE 750
INDEPENDENCE, OH 44131
216-619-3492
DALE.FERGUSON@XO.COM

AT&T
ATTN: ERIC JOHNSTON
13630 LORAIN AVE
CLEVELAND, OH 44111
216-476-6141
EJ1265@ATT.COM

AT&T CORP.
ATTN: GREG BELEW
5980-G WILCOX PLACE
DUBLIN, OHIO 43016
614-760-8320
gbelew@hlengineering.com

VERIZON
ATTN: AL GUEST
120 RAVINE STREET
AKRON, OH 44303
O. 330-253-8267/ M. 330-329-5495
ALLAN.GUEST@VERIZON.COM

CENTURYLINK (LEVEL 3)
ATTN: TOM TROMBLEY OR
DOUG HOLLOWAY
4000 CHESTER AVE
CLEVELAND, OH 44103
734-777-1910
216-906-6284
TOM.TROMBLEY@CENTURYLINK.COM
DOUG.HOLLOWAY@CENTURYLINK.COM

ZAYO
ATTN: JOHN BRUCE
CORTLAND, OHIO 44410
JOHN.BRUCE@ZAYO.COM

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNERS AS REQUIRED BY SECTION 153.64 O.R.C.

ROADWAY
PAVEMENT
UTILITIES

SEE BUILDABLE UNIT BU14 FOR ROADWAY, PAVEMENT, AND UTILITIES GENERAL NOTES.

ITEM 204 - GRANULAR MATERIAL, AS PER PLAN

ALL GRANULAR MATERIAL SHALL BE CRUSHED CARBONATE STONE, CRUSHED AIR-COOLED BLAST FURNACE SLAG (ACBFS) OR CRUSHED GRAVEL. FURNISH ACBFS ACCORDING TO SUPPLEMENT 1027.

ITEM 451, 608 AND 609 - CONSTRUCTION OF CONCRETE BASE PAVEMENT, DRIVEWAYS, SIDEWALKS AND CURB, AS PER PLAN

CONSTRUCT CAST-IN-PLACE CONCRETE ITEMS IN ACCORDANCE WITH THE ODOT CMS, EXCEPT AS MODIFIED BY GENERAL NOTES "CONCRETE DESIGN MIX (CLEVELAND 650)" AND OTHER GENERAL NOTES WITHIN THE PLAN SET.

ITEM 607 - FENCE, TYPE CL, AS PER PLAN

INSTALL FENCE IN ACCORDANCE WITH CMS 607 AND ODOT STANDARD CONSTRUCTION DRAWING F-1.1 WTH THE FOLLWING EXCEPTIONS: FENCE HEIGHT SHALL BE 6 FEET. FENCE SHALL INCLUDE TOP RAIL.

ITEM 608 - CONCRETE WALK, AS PER PLAN

ALL SIDEWALKS SHALL CONFORM TO THE FOLLOWING: PER 608.03(C), IT IS REQUIRED THAT 1/2 INCH THICK EXPANSION JOINT MATERIAL (C&MS 703.05) IS INSTALLED BETWEEN THE WALK AND THE BACK OF CURB AND INCH THICK FOR ANY OTHER FIXED OBJECT. IN ADDITION TO THE LOCATIONS SPECIFIED UNDER C&MS 608.03(C), TRANSVERSE EXPANSION JOINTS SHALL BE CONSTRUCTED AT INTERVALS OF NOT MORE THAN 25 TO 30 FEET UNLESS OTHERWISE DIRECTED. THE EXPANSION JOINT FILLER C&MS 705.03 SHALL BE PLACED AT THE TRANSVERSE EXPANSION JOINTS FOR THE FULL DEPTH/WIDTH OF THE CONCRETE WALK AND SHALL BE TRULY NORMAL TO GRADE. THE TOP 1/2 INCH OF THE EXPANSION JOINT PLACED BETWEEN THE WALK AND BACK OF CURB SHALL BE SEALED WITH C&MS 705.04 JOINT SEALER.

FINAL SURFACE FINISH OF WALKS SHALL BE IN ACCORDANCE WITH APPLICABLE MUNICIPAL STANDARDS/ORDINANCES. IN ADDITION, A 2 INCH COMPACTED SCREENINGS BED THAT MEETS THE REQUIREMENTS OF C&MS 703.10 (LIMITED TO CRUSHED STONE) SHALL BE FURNISHED AND PLACED BENEATH ALL SIDEWALK AREAS.

ITEM 659 - SEEDING AND MULCHING, AS PER PLAN

THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS THAT ARE NOT PAVED OR OTHERWISE COVERED IN NON-ERODIBLE SURFACE, IN ACCORDANCE WITH C&MS ITEM 659, AND AS SPECIFIED BELOW, EXCEPT FOR AREAS IDENTIFIED FOR SPECIFIC AESTHETIC TREATMENTS BELOW. FOR SLOPES 3:1 OR STEEPER (H:V), THE CONTRACTOR SHALL PROVIDE SLOPE EROSION PROTECTION IN ACCORDANCE WITH C&MS 670.

THE CONTRACTOR SHALL PLACE A MINIMUM OF 4 INCHES OF TOPSOIL PRIOR TO SEEDING OPERATIONS. CLASS I SEED SHALL BE USED EXCEPT IN LOCATIONS WHERE SIDE SLOPES ARE 3:1 OR STEEPER, WHERE CLASS 3B SHALL BE USED. SOIL ANALYSIS TESTING, WATER, LIME, COMMERCIAL FERTILIZER, REPAIR SEEDING AND MULCHING, INTER-SEEDING, AND MOWING SHALL BE PROVIDED TO PROMOTE THE GROWTH AND CARE OF PERMANENT SEEDED AREAS.

ITEM 608 - CURB RAMPS, AS PER PLAN

ALL CURB RAMPS PROVIDED BY THE CONTRACTOR SHALL MEET ALL ADA REQUIREMENTS AND THE FOLLOWING: TRUNCATED DOME TILES TINTED RED AS MANUFACTURED BY ENGINEERED PLASTICS, INC., TRUNCATED DOME TACTILE SYSTEMS AS MANUFACTURED BY ADA SOLUTIONS INC., OR APPROVED EQUAL SHALL BE INSTALLED AT ALL CURB RAMPS.

CURB RAMPS SHALL CONFORM TO THE CITY OF CLEVELAND CURB RAMPS STANDARD DRAWINGS.

THICKNESS OF THE CURB RAMP WALK AND CONCRETE BASE BENEATH THE TRUNCATED DOMES SHALL BE A MINIMUM OF 8 INCHES. IN ADDITION, (A 2 INCH COMPACTED SCREENINGS BED THAT MEETS THE REQUIREMENTS OF C&MS 703.10 (LIMITED TO CRUSHED STONE) SHALL BE FURNISHED AND PLACED BENEATH ALL CURB RAMP AREAS).

DRAINAGE
SANITARY

SEE BUILDABLE UNITS BU05, BU09, BU13, BU21, AND BU24 FOR DRAINAGE AND SANITARY GENERAL NOTES.

SEE BU07 AND BU14 FOR ADDITIONAL INFORMATION.

0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

GCRTA BUS SHELTER RELOCATION

GENERAL

THE CONTRACTOR SHALL RELOCATE THE EXISTING EAST BUS KIOSK (THE "KIOSK") FROM ITS PRESENT LOCATION AT THE NORTHWEST CORNER OF THE EXISTING GCRTA E. 55TH STREET STATION TO ITS NEW LOCATION BETWEEN THE PROPOSED LOOP ROAD ACCESS DRIVES AS SHOWN IN THE PLANS.

THE RELOCATED KIOSK SHALL BE RESTORED TO PROVIDE A SIMILAR FUNCTION. IT SHALL BE PROVIDED WITH SIMILAR INTERIOR FURNISHINGS, UTILITIES, ETC. AS NOTED IN THE ORIGINAL CONSTRUCTION PLANS. THE EXISTING CANOPY ABUTTING THE KIOSK TO THE EAST SHALL ALSO BE RESTORED TO A STABLE, FUNCTIONAL CONDITION. IT IS THE INTENT OF THESE PLANS THAT EXISTING MATERIALS, FURNISHINGS, APPURTENANCES, ETC. BE RE-USED TO THE FULLEST EXTENT POSSIBLE IN THE EXECUTION OF THE PROPOSED RELOCATION.

EXISTING PLANS

COMPLETE DETAILS OF THE KIOSK ARE PROVIDED IN THE PLAN SET FOR GCRTA PROJECT NO. 24-O, BID PACKAGE 1, THE EAST 55TH STREET TRANSIT STATION. THESE DETAILS INCLUDE FOUNDATION, STRUCTURAL STEEL, ARCHITECTURAL, UTILITY, FURNISHINGS AND MISCELLANEOUS RELATED WORK. THIS PLAN SET, THE ORIGINAL BID PACKAGE, SPECIFICATIONS, AS-BUILT INFORMATION (PARTIAL) AND SHOP DRAWINGS (PARTIAL) HAVE BEEN MADE AVAILABLE BY THE GCRTA FOR THE CONTRACTOR'S USE IN REMOVING, RELOCATING AND RESTORING THE KIOSK.

SUGGESTED SEQUENCE OF OPERATIONS

1. REMOVE EXISTING INTERIOR FURNISHINGS FROM KIOSK FOR REUSE.
2. ELECTRICAL POWER SERVICE IS PROVIDED TO THE KIOSK AND CANOPY LIGHTING VIA CONDUIT LOCATED ON COLUMN J5. REMOVE ELECTRICAL POWER SERVICE TO KIOSK AND PROVIDE UNINTERRUPTED TEMPORARY SERVICE TO THE CANOPY FOR THE DURATION OF THE PROPOSED CONSTRUCTION. CAREFULLY REMOVE (IF NECESSARY) AND STORE KIOSK LIGHT FIXTURES FOR REUSE.
3. REMOVE / DISCONNECT THE EXISTING DOWNSPOUT LOCATED ON COLUMN J6.
4. CAREFULLY REMOVE ALL GLAZING AND FRAMING FROM THE KIOSK AND STORE FOR REUSE.
5. CAREFULLY REMOVE EMERGENCY CALL BOX LOCATED ADJACENT TO THE KIOSK AND STORE FOR REUSE.
6. INSTALL TEMPORARY HORIZONTAL AND DIAGONAL BRACING ON ALL FOUR (4) SIDES OF THE KIOSK TO STABILIZE THE STRUCTURE FOR THE DURATION OF THE REMOVAL, STORAGE AND RE-LOCATION OPERATIONS. TEMPORARY BRACING MAY BE OMITTED AT THE CONTRACTOR'S DISCRETION.
- ANY DAMAGE TO THE KIOSK DURING REMOVAL, STORAGE AND RE-LOCATION SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE GCRTA AT NO ADDITIONAL COST TO THE PROJECT.
7. PROVIDE TEMPORARY STRUCTURAL SUPPORT FOR THE CANOPY BY INSTALLING TEMPORARY COLUMNS ADJACENT TO COLUMN J5 AND UNDER THE SUSPENDEND END OF THE CANOPY. REFER TO SHEET 29 FOR FRAMING DETAILS.
8. REMOVE THE EXISTING TIE ROD AND TURNBUCKLE ASSEMBLY SUPPORTING THE CANOPY AT COLUMN J5. REMOVE EXISTING WELDS CONNECTING THE CANOPY FRAMING TO COLUMN J5 BY GRINDING OR OTHER APPROVED METHOD. WELD REMOVAL SHALL BE PERFORMED IN SUCH A MANNER AS TO MINIMIZE DAMAGE TO COLUMN J5 AND THE CANOPY FRAMING. REFER TO SHEET 29 FOR FRAMING DETAILS.

SUGGESTED SEQUENCE OF OPERATIONS, CONTINUED

9. DISCONNECT KIOSK FRAMING FROM FOUNDATIONS BY REMOVING ANCHOR ROD NUTS AT COLUMN BASES. FOUNDATION FOR COLUMN J5 IS TO REMAIN FOR REUSE. DO NOT CUT ANCHOR RODS AT COLUMN J5.
10. REMOVE KIOSK FOR TEMPORARY STORAGE AND/OR RELOCATION.
11. REMOVE FOUNDATIONS FOR COLUMNS H6 AND J6 TO LIMITS NECESSARY TO PERMIT CONSTRUCTION OF PROPOSED STATION IMPROVEMENTS. THE FOUNDATION FOR COLUMN H5 AND J5, INCLUDING GRADE BEAM ARE TO REMAIN FOR REUSE.
12. FABRICATE, FURNISH AND INSTALL REPLACEMENT COLUMN J5 INCLUDING CANTILEVER BEAMS, TIE ROD AND APPURTENANCES. RECONNECT CANOPY FRAMING TO REPLACEMENT COLUMN J5. CONNECTION DETAILS SHALL MATCH EXISTING PLAN DETAILS. CLEAN AND FIELD PAINT CONNECTION SURFACES AND REPLACEMENT COLUMN AS NECESSARY. REFER TO SHEET 27 FOR FRAMING DETAILS.
13. REMOVE TEMPORARY CANOPY SUPPORT MEMBERS INSTALLED IN STEP 7.
14. CONSTRUCT NEW FOUNDATIONS FOR RELOCATED KIOSK AS DETAILED IN THE PLANS.
15. RELOCATE EXISTING KIOSK TO NEW FOUNDATION LOCATION AS DETAILED IN THE PLANS.
16. RESTORE KIOSK INTERIOR LIGHTING SERVICE, EMERGENCY CALL BOX AND DOWNSPOUT AS DETAILED IN THE PLANS.
17. REPLACE/REINSTALL GLAZING REMOVED IN STEP 4 AS DETAILED IN THE PLANS. THE GCRTA HAS REQUESTED A NEW GLAZING ARRANGEMENT REQUIRING THE FURNISHING, FABRICATION AND INSTALLATION OF ADDITIONAL PANELS. DETAILS AND MATERIAL SPECIFICATIONS FOR NEW GLAZING PANELS SHALL MATCH THOSE SHOWN ON SHEET 27.
18. REINSTALL THE KIOSK INTERIOR FURNISHING REMOVED AND STORED IN STEP 1.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE REQUIREMENTS OF AISC SPECIFICATIONS (ASD) AND CODES OF STANDARD PRACTICE, AWS D1.1 (STRUCTURAL WELDING CODE - STEEL) AND THE CONTRACT DOCUMENTS. WORK IS PRIMARILY LIMITED TO THE FABRICATION, ERECTION, RECONNECTION AND FINISH OF REPLACEMENT COLUMN J5.
2. THE LOCATION, SIZE AND CONDITION OF EXISTING STRUCTURES, EQUIPMENT, UTILITIES, SERVICES AND OTHER RELEVANT ENGINEERING FEATURES SHALL BE VERIFIED PRIOR TO FABRICATION OR ERECTION TO DETERMINE CLEARANCES, DIMENSIONS AND FABRICATION OR ERECTION PROCEDURES. ADEQUATE BRACING AND TEMPORARY SUPPORTS FOR THE STABILITY OF ALL EXISTING RELEVANT FEATURES SHALL BE PROVIDED BY THE CONTRACTOR.
3. STRUCTURAL STEEL:

ASTM A36: PLATES, BARS, AND ROD

ASTM A992: GRADE 50, ALL WIDE FLANGE SHAPES

ASTM A500: GRADE B (FY=46KSI), STEEL TUBING

ASTM A53: TYPE E OR S, GRADE B, STEEL PIPE
4. BOLTS:

3/4" DIAMETER MINIMUM, UNLESS NOTED OTHERWISE

ASTM A325, TYPE 1, FOR ALL BEAMS AND COLUMN CONNECTIONS. CONNECTIONS DESIGNED AS BEARING TYPE UNLESS NOTED OTHERWISE WITH THREADS INCLUDED IN THE SHEAR PLANE.

ASTM F1554, GRADE 36, FOR ALL ANCHOR RODS.
- ~~5. HEADED SHEAR CONNECTORS SHALL BE MADE FROM STEEL CONFORMING TO ASTM A108, TYPE B, GRADE 1010 THROUGH 1020.~~
6. ADHESIVE ANCHOR SYSTEM SHALL CONSIST OF ALL-THREAD ANCHOR ROD, NUT, WASHER, AND ADHESIVE CAPSULE(S). THE ADHESIVE CAPSULES SHALL CONTAIN A VINYLESTER RESIN. ANCHOR RODS SHALL CONFORM WITH THE FOLLOWING REQUIREMENTS.

A. ASTM A36

B. AIST 4140, 4142, 4145, 4140H, OR 4145H MEETING REQUIREMENTS OF ASTM A193, GRADE B7.

C. ASTM F593, GROUP 1, ALLOY 304 STAINLESS STEEL.
- ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
7. STUD TYPE EXPANSION ANCHORS SHALL CONSIST OF STUD, WEDGE, NUT AND WASHER. THE BOLTS SHALL BE (CARBON STEEL) (STAINLESS STEEL) CONFORMING TO THE REQUIREMENTS OF THE MANUFACTURER'S SPECIFICATION AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. WELDING SHALL CONFORM WITH AWS E070 ELECTRODES, MINIMUM.
9. CONNECTIONS: WELD OR BOLT CONNECTIONS, AS INDICATED

A. CONNECTIONS NOT DETAILED ON THE DRAWINGS SHALL CONFORM TO THE REQUIREMENTS OF THE CITED AISC SPECIFICATIONS.

B. STRUCTURAL STEEL CONNECTIONS SHALL BE WELDED OR BOLTED AS REQUIRED. EXCEPT WHERE REACTIONS ARE INDICATED ON DRAWINGS, BEAM CONNECTIONS MUST BE CAPABLE OF DEVELOPING 50% OF THE TOTAL BEAM ALLOWABLE UNIFORM LOAD CAPACITY AS GIVEN IN THE AISC TABLES (THIRTEENTH EDITION BASED ON SIZE, SPAN & YIELD STRENGTH)

C. THE MINIMUM LENGTH OF CONNECTION ANGLES SHALL BE EQUAL TO ONE-HALF THE DEPTH OF THE MEMBER TO BE SUPPORTED

D. ONE-SIDED CONNECTIONS WILL NOT BE PERMITTED, UNLESS SPECIFICALLY DETAILED ON THE DRAWINGS.

E. THE MINIMUM NUMBER OF BOLTS IN BOLTED CONNECTIONS SHALL BE 2.

F. DO NOT FINAL WELD OR BOLT UNTIL MEMBERS ARE IN PROPER ALIGNMENT.

STRUCTURAL STEEL, CONTINUED

10. COLUMNS AND BEAMS WITH BASE, CAP OR END PLATES SHALL HAVE SQUARE CUT OR MILLED ENDS.
11. THE FRAMING SHALL BE ERECTED TRUE AND PLUMB. TEMPORARY BRACING SHALL BE PROVIDED AND SHALL REMAIN IN PLACE UNTIL THE LATERAL BRACING SYSTEM IS IN PLACE AND CONNECTIONS OF ALL MEMBERS ARE FINAL AND ALL DECK IS COMPLETELY ERECTED, WELDED AND SCREWED IN PLACE.
12. NON-METALLIC, NON-SHRINK, NON-STAINING GROUT UNDER ALL COLUMN BASE PLATES AND BEAM BEARING PLATES SHALL CONSIST OF A PREMIXED PRODUCT COMPLYING WITH ALL REQUIREMENTS OF CRD-C621M, ASTM C827, AND C109.
13. PAINTING:

A. PREPARE SURFACES IN ACCORDANCE WITH SSPC-SP3

B. PRIMER PAINT

1. FABRICATOR'S STANDARD RUST INHIBITIVE PAINT.

2. ONE COAT - 2 MILS DRY FILM THICKNESS

C. ALL BARE STEEL (BOLTS AND WELDS INCLUDED) FOUND IN THE FIELD AFTER ERECTION SHALL BE PREPARED AND PAINTED IN ACCORDANCE WITH SPECIFICATION 09912. A COPY OF THE SPECIFICATION IS AVAILABLE FOR REFERENCE.

D. PAINT SHALL BE SHERWIN WILLIAMS DTM ACRYLIC SEMI-GLOSS OR APPROVED EQUAL.

E. PAINT COLOR SHALL BE METALLIC SILVER 2132-60.
14. DO NOT PAINT:

~~A. SURFACES OF CONNECTIONS INDICATED AS SLIP CRITICAL.~~

~~B. SURFACES OF CONNECTIONS TO BE FIELD WELDED.~~

~~C. SURFACES TO RECEIVE HEADED SHEAR CONNECTORS.~~

~~D. MEMBERS TO BE EMBEDDED IN CONCRETE OR MASONRY.~~

~~E. SURFACES TO RECEIVE SPRAYED ON INSULATION.~~

~~F. MEMBERS TO BE GALVANIZED.~~
15. TESTING:

A. WELDING: SHOP AND FIELD

1. CONDUCT INSPECTIONS AND TESTS NECESSARY TO CERTIFY WELDERS.

2. INSPECT AND TEST DURING FABRICATION AND ERECTION OF STRUCTURAL STEEL ASSEMBLIES IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 6 OF AWS D1.1. THE ACCEPTANCE CRITERIA (AWS D1.1 SECTION 8 FOR STATICALLY LOADED STRUCTURES AND SECTION 9 FOR DYNAMICALLY LOADED STRUCTURES).

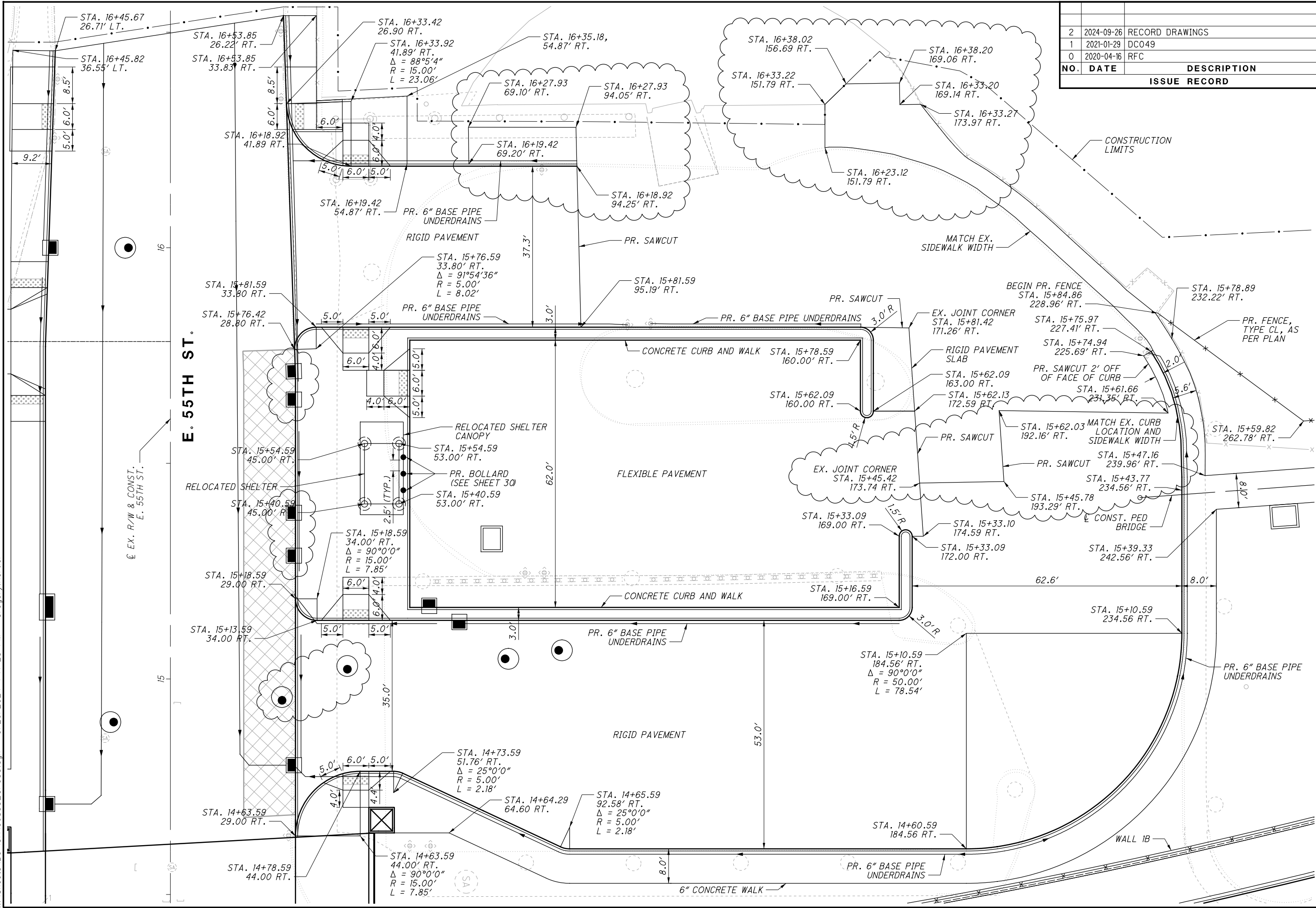
3. ALL WELDS SHALL BE 100% VISUALLY INSPECTED. CLEAN AND VISUALLY EXAMINE EACH PASS FOR SLAG, CRACKS OR OTHER INJURIOUS DEFECTS PRIOR TO THE DEPOSITION OF ANY SUCCEEDING WELD PASSES. WELDS SHALL BE INSPECTED AT A SUITABLE MAGNIFICATION AND UNDER ADEQUATE LIGHTING CONDITIONS FOR DEFECTS AND COMPLIANCE WITH THE APPLICABLE WORKMANSHIP REQUIREMENTS.

0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

	
HORIZONTAL SCALE IN FEET	

CONSTRUCTION LIMITS

	CUY-IR490 / SR010- 2.09 / 19.28
---	--



NO.		DATE	DESCRIPTION
2	2024-09-26	RECORD DRAWINGS	
1	2021-01-29	DC049	
0	2020-04-16	RFC	
ISSUE RECORD			

10
30

CUY-IR490/ SR010-
2.09/ 19.28

RECORD PLANS

10
20

PARKING LOT DETAIL
GCRTA E. 55TH ST. STATION

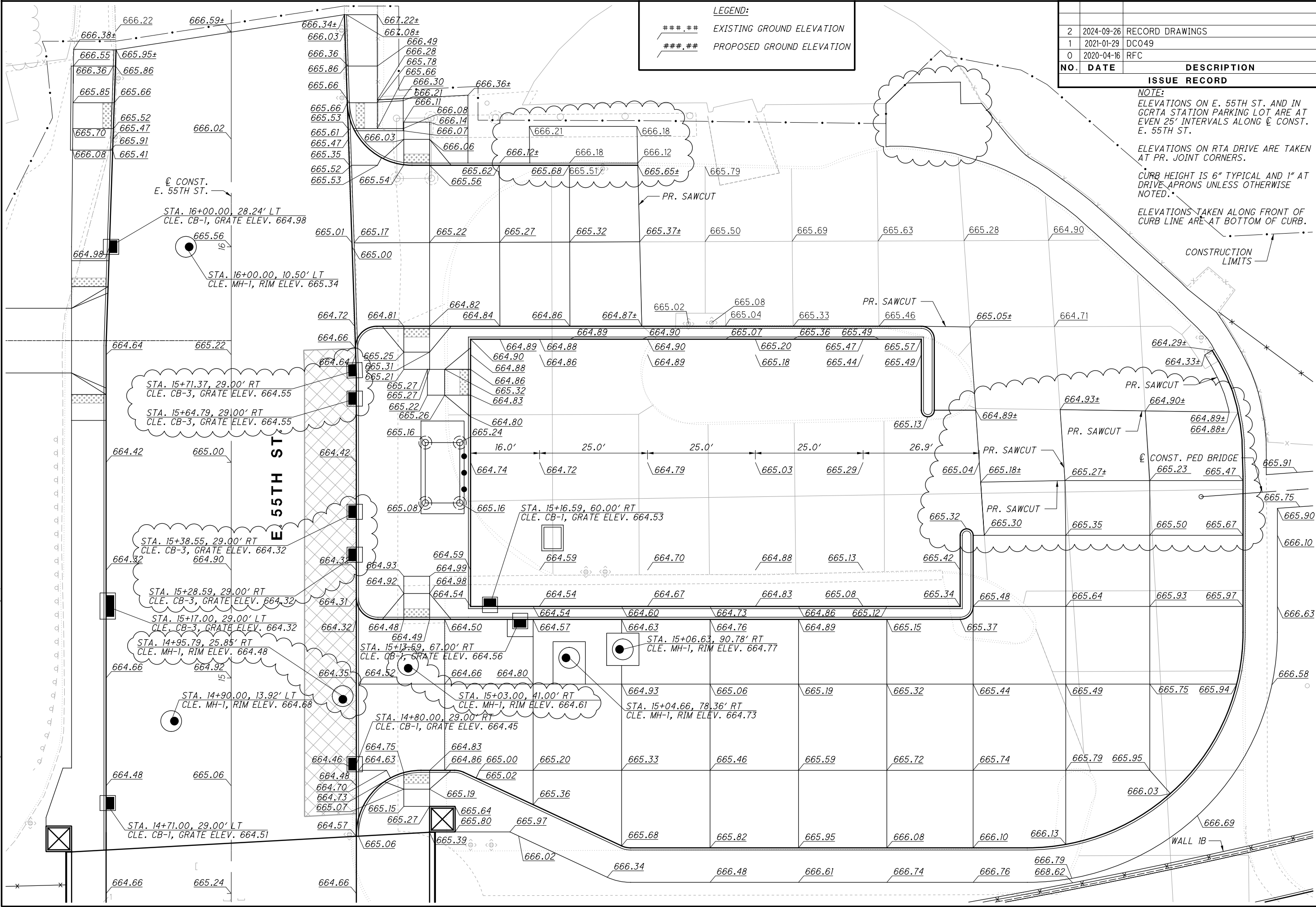
RECORD PLANS

0
5
10
20

CALCULATED
GSH
CHECKED
SM

20
HORIZONTAL
SCALE IN FEET

RECORD PLANS



NO.	DATE	DESCRIPTION
2	2024-09-26	RECORD DRAWINGS
1	2021-01-29	DCO49
0	2020-04-16	RFC

NO.	DATE	DESCRIPTION
ISSUE RECORD		

2	2024-09-26	RECORD DRAWINGS
1	2021-01-29	DC049
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

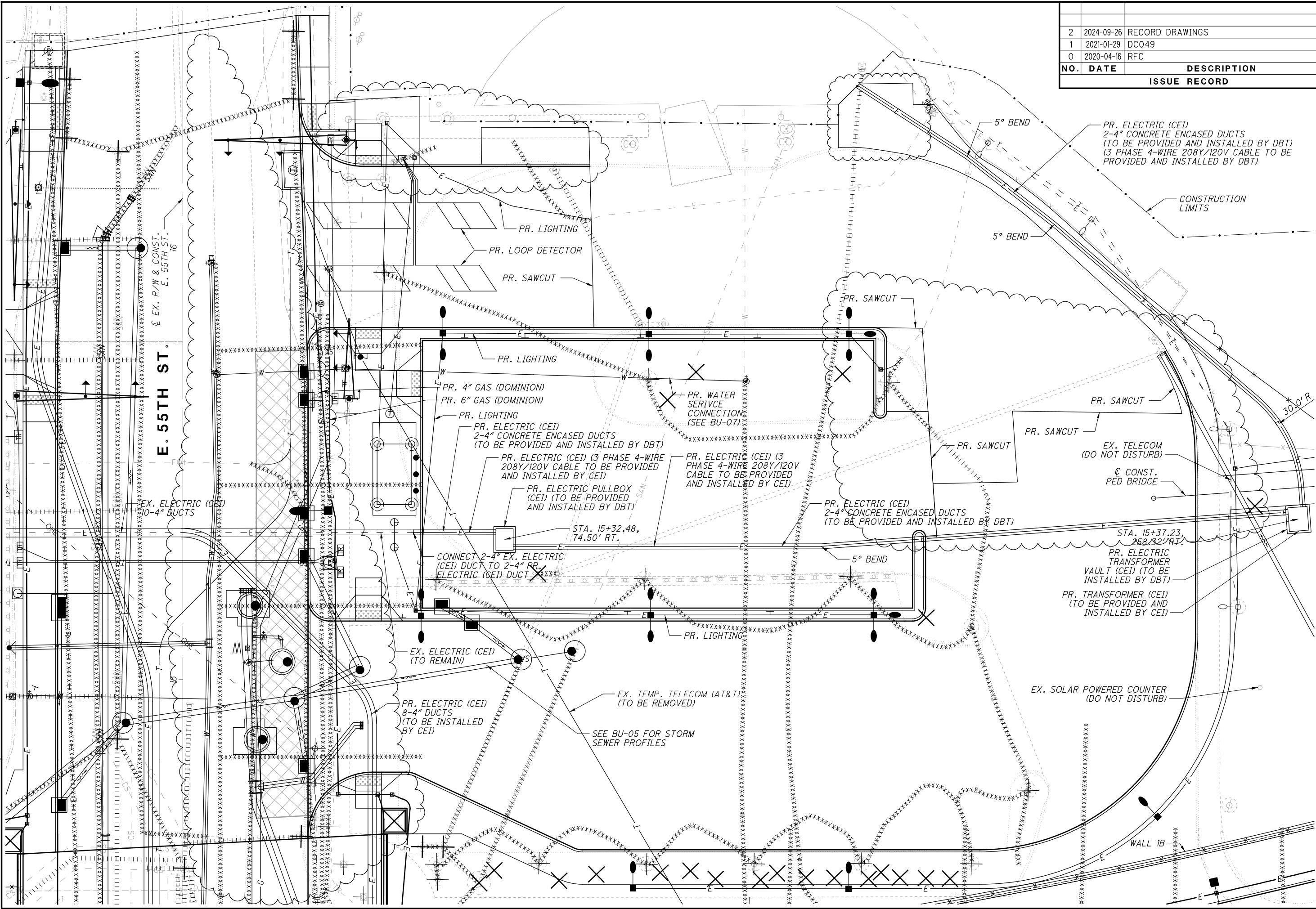
LEGEND:

- (L) LONGITUDINAL JOINT PER ODOT
STANDARD CONSTRUCTION
DRAWING BP-2.1
- (C) CONTRACTION JOINT PER ODOT
STANDARD CONSTRUCTION
DRAWING BP-2.2
- (E) EXPANSION JOINT PER ODOT
STANDARD CONSTRUCTION
DRAWING BP-2.2
- (Y) BUTT JOINT BETWEEN EXISTING
PAVEMENT AND PROPOSED
PAVEMENT, DOWELED TYPE Y
JOINT AS PER BP-2.5 SHALL BE
PROVIDED



JOINT LAYOUT PLAN
GCRTA E. 55TH ST. STATION

**CUY-IR490/ SR010-
2.09 / 19.28**



NO.	DATE	DESCRIPTION
2	2024-09-26	RECORD DRAWINGS
1	2021-01-29	DCO49
0	2020-04-16	RFC
		ISSUE RECORD

CALCULATED

GSH

CHECKED

SM

0

10

20

HORIZONTAL SCALE IN FEET

UTILITY PLAN

GCRTA E. 55TH ST. STATION

RECORD PLANS

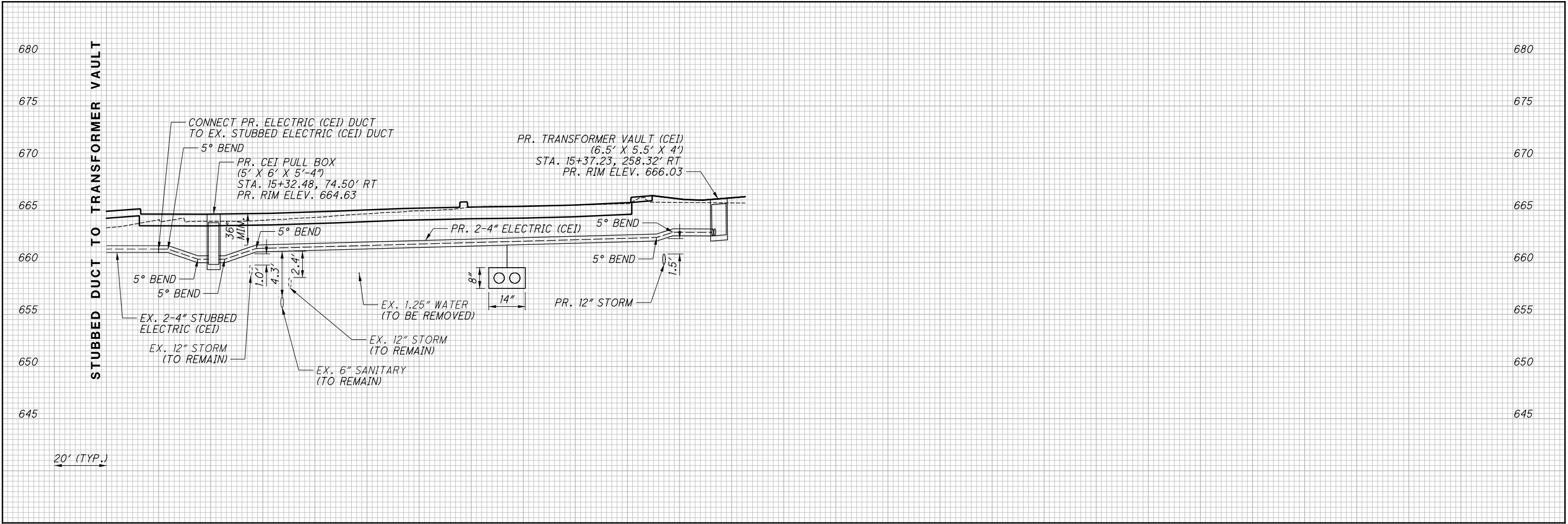
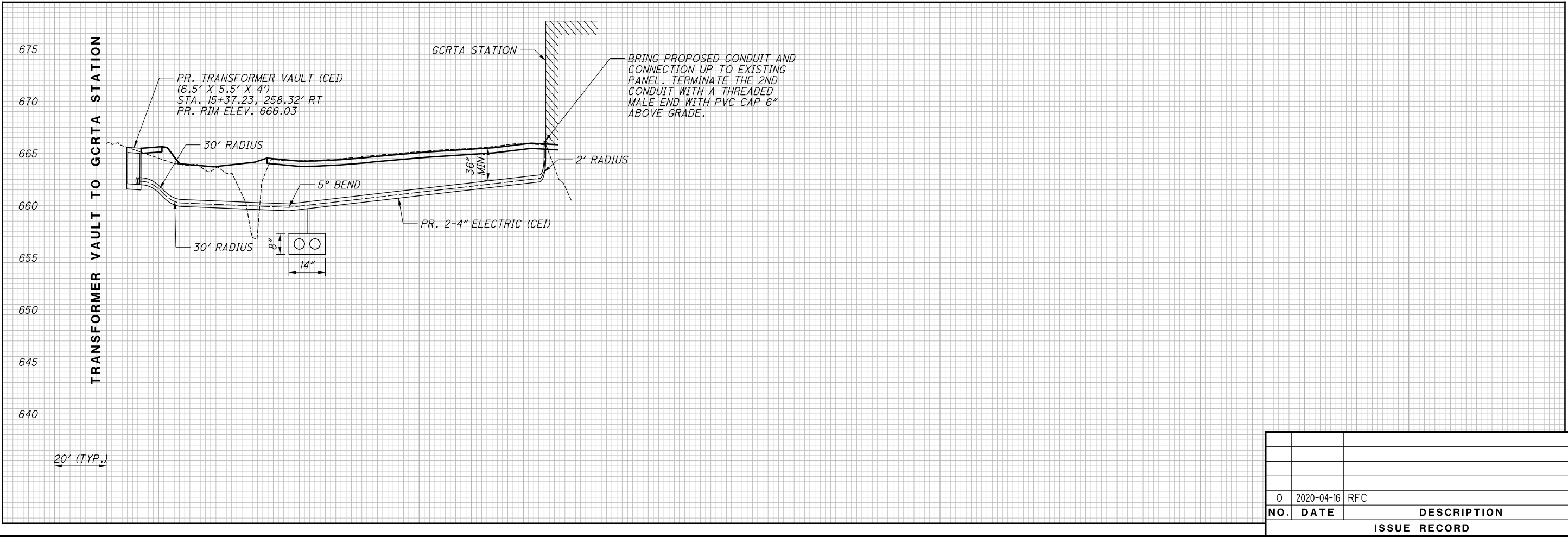
CUY-IR490/ SR010-

2.09 / 19.28

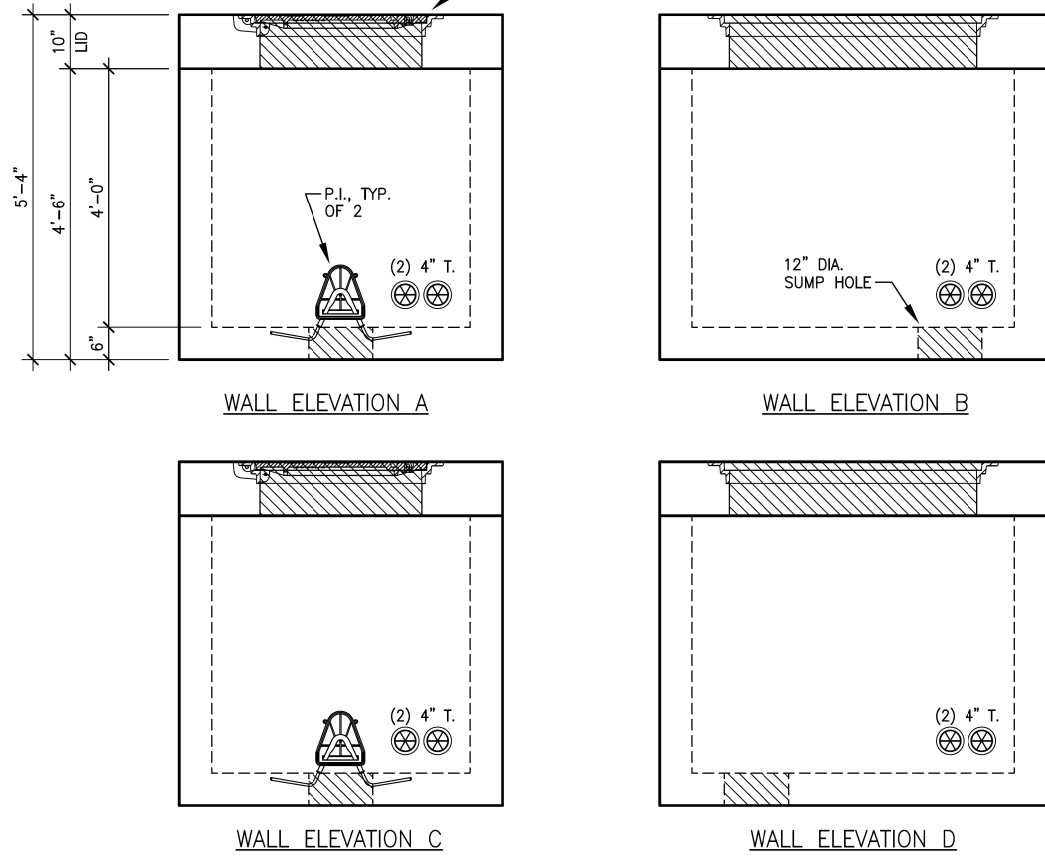
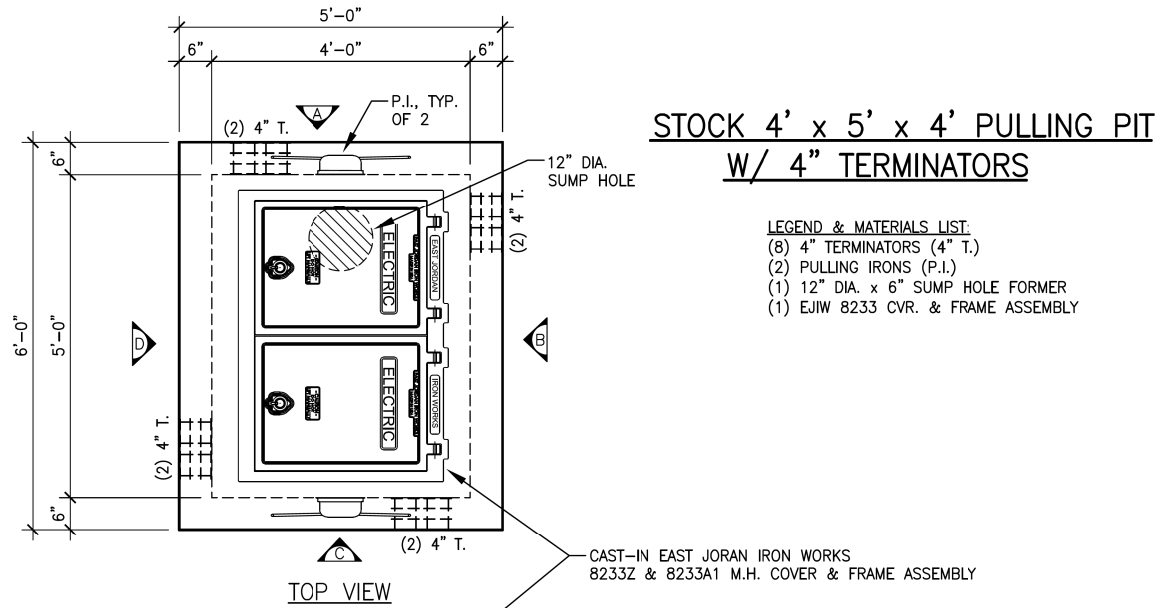
RECORD PLANS

13

30



NO.			DATE	DESCRIPTION
0			2020-04-16	RFC
				ISSUE RECORD



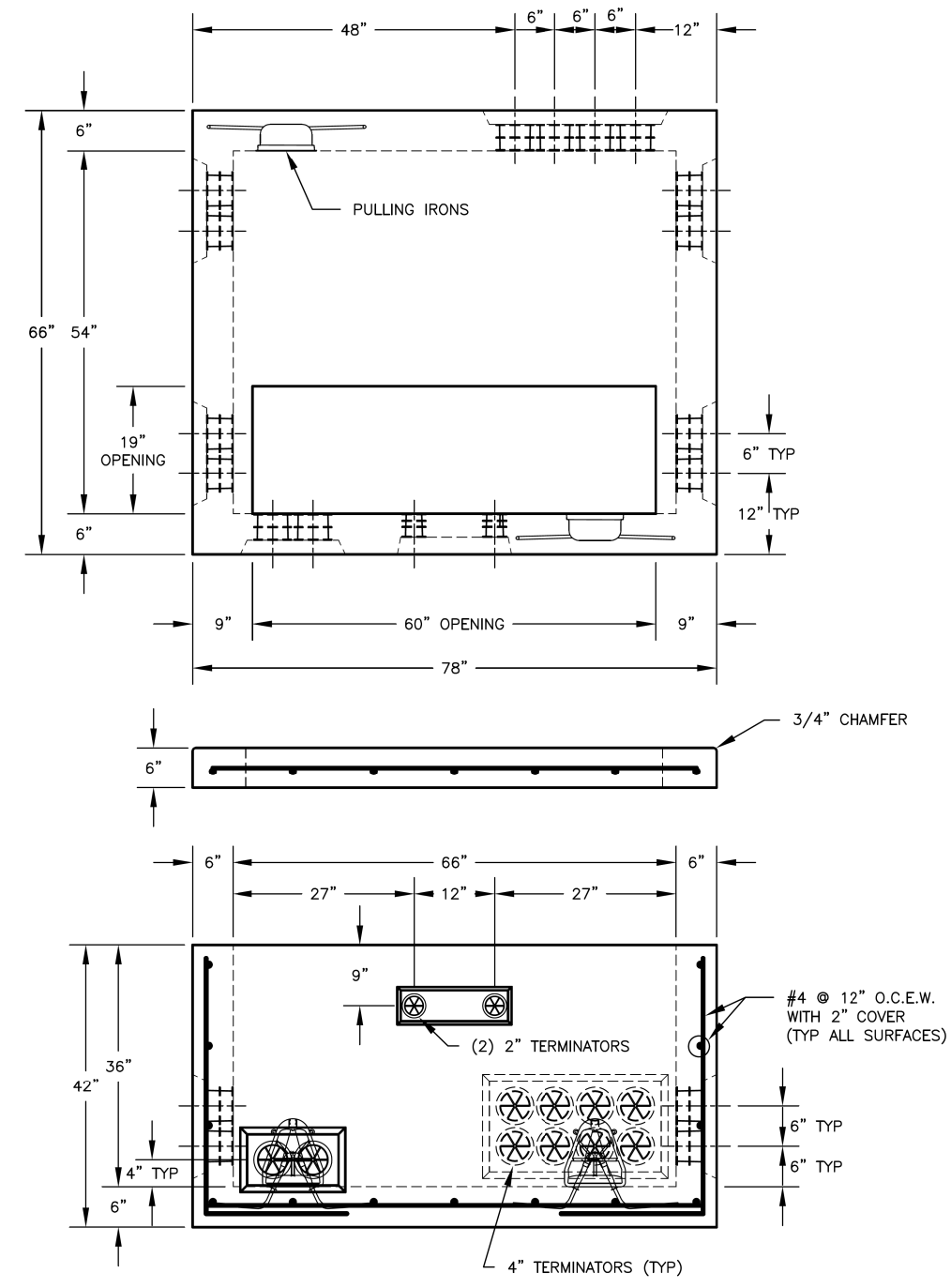
NOTES:
1. CONCRETE MIN. 5,000 PSI @ 28 DAYS
2. REINFORCING GRADE 60 ASTM A615-A617
60,000 PSI YIELD STRENGTH
3. HS-20 LOADING
4. ALL WALL ELEVATION VIEWS ARE OUTSIDE LOOKING IN.

REVISIONS							
NO.	DESCRIPTION	DATE	BY	NO.	DESCRIPTION	DATE	BY
1.				5.			
2.				6.			
3.				7.			
4.							

LP Lindsay
PRECAST

THIS DRAWING IS THE PROPRIETARY PROPERTY OF LINDSAY PRECAST. REPRODUCTION, DISCLOSURE OR USE OF ANY PART OF THIS DRAWING OR ANY INFORMATION THEREIN IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF LINDSAY PRECAST.

CUSTOMER:
JCB: 48" x 60" x 48" PULLING PIT W/ 4" TERMINATORS
DRAWN BY: DJF
CHECKED BY: CK
SCALE: 3/8"=1'-0"
DATE: 1/15/19
JOB NO.:
DWG NO.:
LPS



NOTES:
1. CONCRETE MIN. 5,000 PSI @ 28 DAYS
2. REINFORCING GRADE 60 ASTM A615-A617
60,000 PSI YIELD STRENGTH
3. HS-20 LOADING

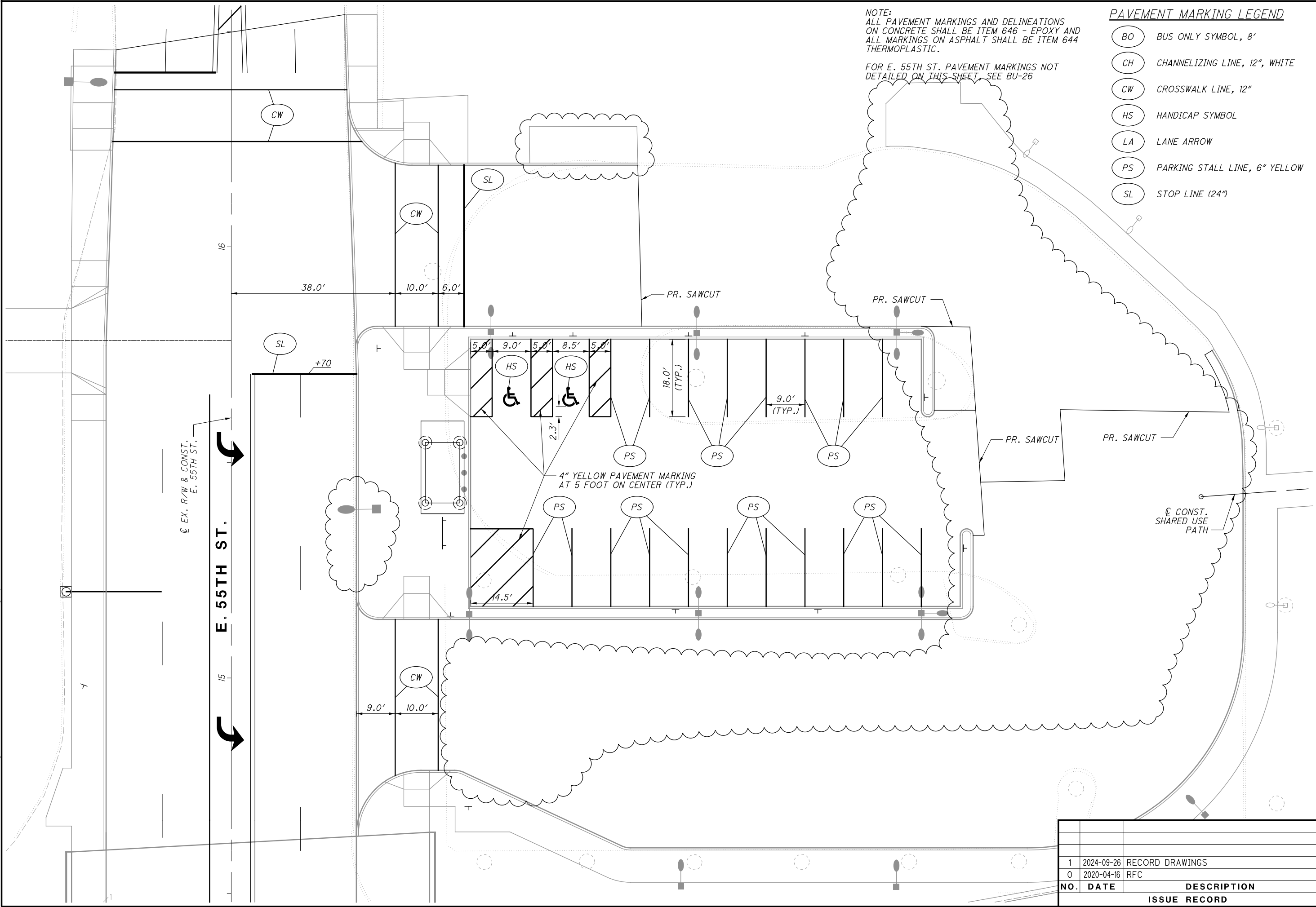
REVISIONS							
NO.	DESCRIPTION	DATE	BY	NO.	DESCRIPTION	DATE	BY
1.				5.			
2.				6.			
3.				7.			
4.							

LP Lindsay
PRECAST

THIS DRAWING IS THE PROPRIETARY PROPERTY OF LINDSAY PRECAST. REPRODUCTION, DISCLOSURE OR USE OF ANY PART OF THIS DRAWING OR ANY INFORMATION THEREIN IS EXPRESSLY PROHIBITED WITHOUT PRIOR WRITTEN CONSENT OF LINDSAY PRECAST.

CUSTOMER:
JCB: 225-1,000 KVA TRANSFORMER VAULT
DRAWN BY: NTS
CHECKED BY: NTS
SCALE: NTS
DATE: 2020-04-16
JOB NO.: RFC
DWG NO.: LP-001
LPS

NO.	DATE	DESCRIPTION
0	2020-04-16	RFC
ISSUE RECORD		



NOTE:
ALL PAVEMENT MARKINGS AND DELINEATIONS
ON CONCRETE SHALL BE ITEM 646 - EPOXY AND
ALL MARKINGS ON ASPHALT SHALL BE ITEM 644
THERMOPLASTIC.

FOR E. 55TH ST. PAVEMENT MARKINGS NOT
DETAILED ON THIS SHEET, SEE BU-26

PAVEMENT MARKING LEGEND

- BO BUS ONLY SYMBOL, 8'
- CH CHANNELIZING LINE, 12", WHITE
- CW CROSSWALK LINE, 12"
- HS HANDICAP SYMBOL
- LA LANE ARROW
- PS PARKING STALL LINE, 6" YELLOW
- SL STOP LINE (24")

16
30

CUY-IR490/ SR010-
2.09 / 19.28

RECORD PLANS

PAVEMENT MARKING PLAN
GCRTA E. 55TH ST. STATION

RECORD PLANS

CALCULATED
GSH

CHECKED
SM

0 5 10 20
HORIZONTAL
SCALE IN FEET

20
N

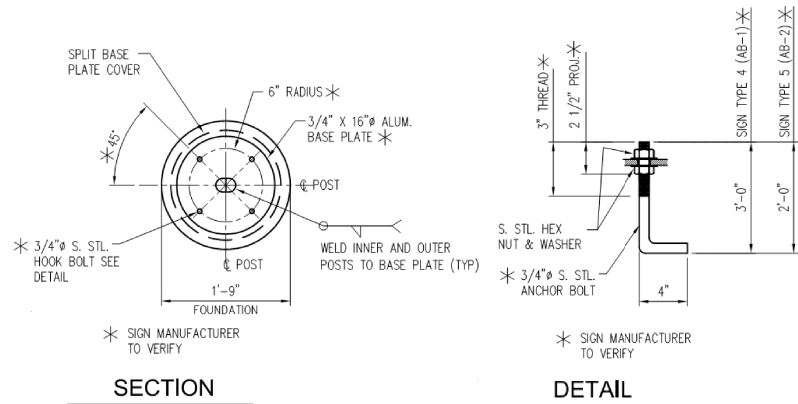
RECORD PLANS



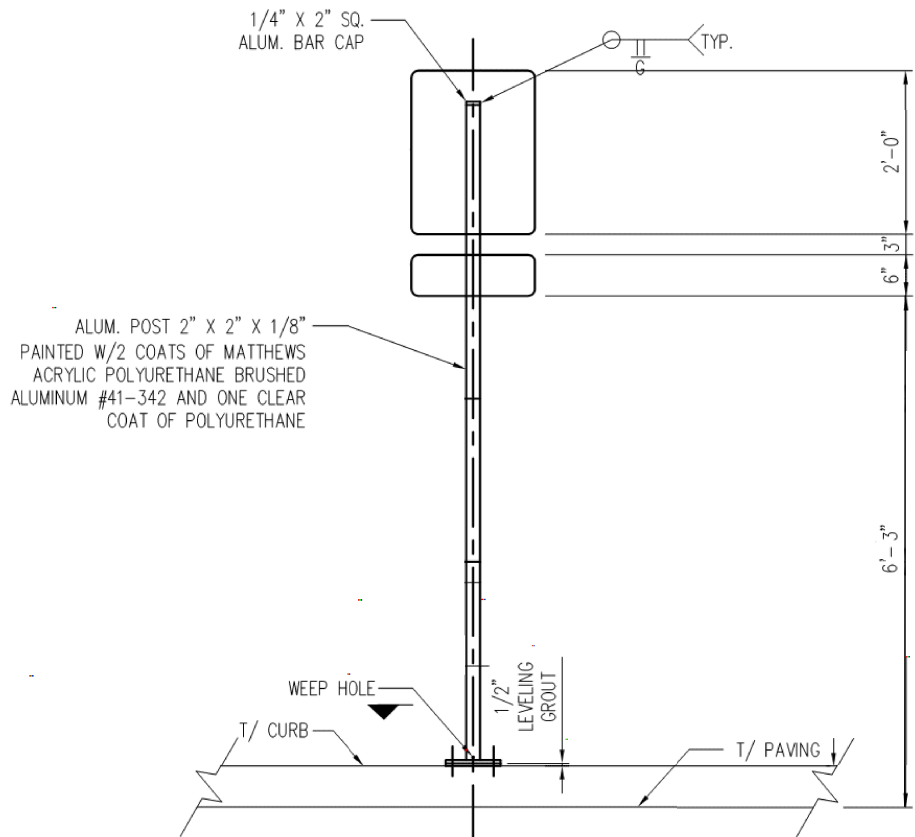
○ ○

○ ○



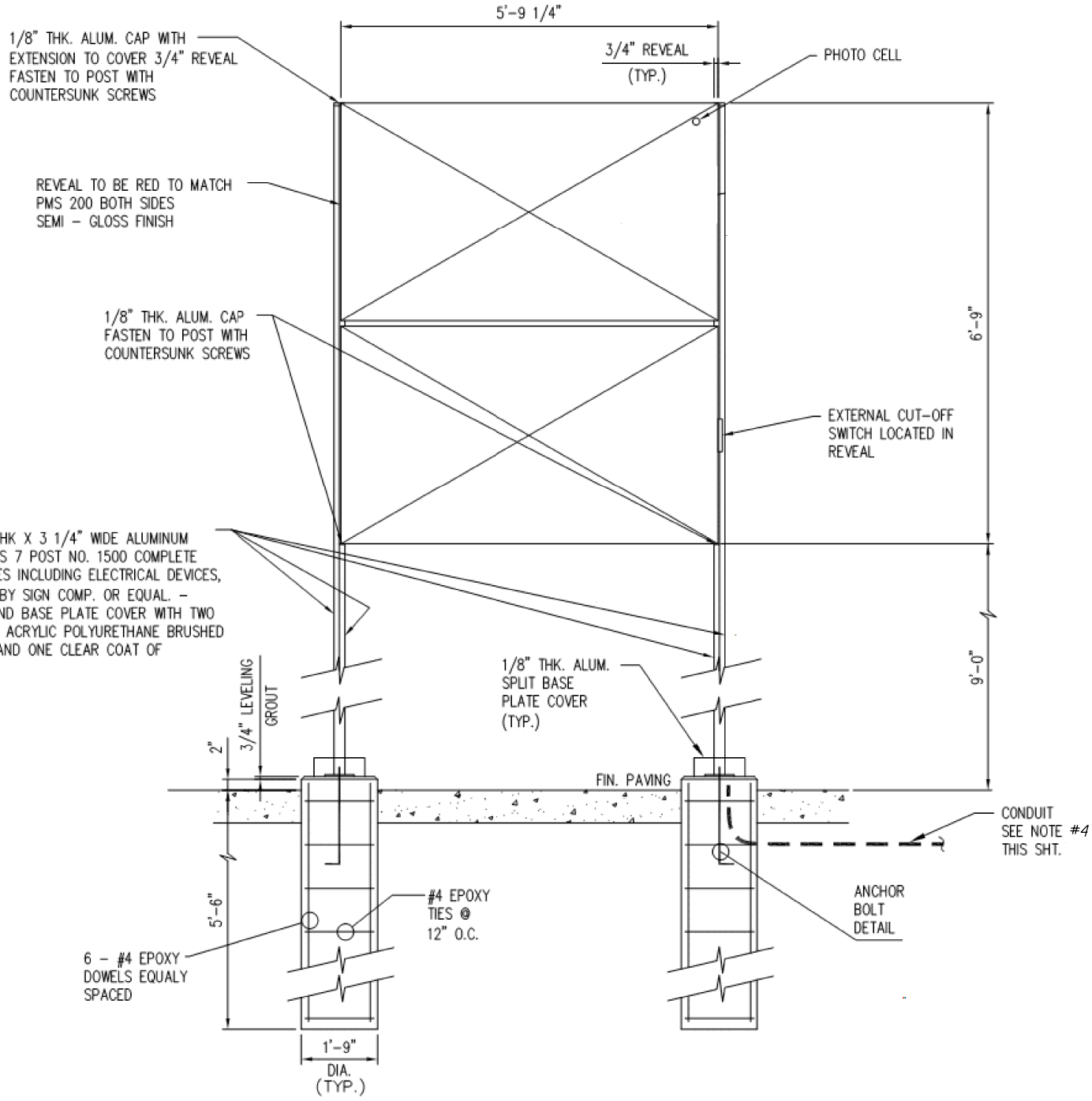


ANCHOR BOLT DETAIL



SIGN MOUNTING TYPE 1

1/8" THK. X 1 7/8" THK X 3 1/4" WIDE ALUMINUM RADIUS POSTS. SERIES 7 POST NO. 1500 COMPLETE WITH ALL ACCESSORIES INCLUDING ELECTRICAL DEVICES, AS REQ'D. SUPPLIED BY SIGN COMP. OR EQUAL. - PAINT POST, CAPS AND BASE PLATE COVER WITH TWO COATS OF MATTHEWS ACRYLIC POLYURETHANE BRUSHED ALUMINUM #41-342 AND ONE CLEAR COAT OF POLYURETHANE.



SIGN MOUNTING TYPE 2

- NOTES:
- COORDINATE SIGN MOUNTING LOCATION WITH SHEET 17 AND RTA REPRESENTATIVE.
 - ALL SIGN POST FOUNDATIONS SHALL BE 4000 PSI CONCRETE AND EPOXY COATED REBAR.
 - ALL ALUMINUM SHAPES SHALL BE 6063 T.
 - COORDINATE WITH ELECTRICAL CONTRACTOR FOR LOCATION OF ELECTRICAL CONDUIT PRIOR TO CASTING FOUNDATIONS.

NO.	DATE	DESCRIPTION
0	2020-04-16	RFC
ISSUE RECORD		

LEGEND

TRAFFIC SIGNAL,
3 UNIT HEAD, 12"

SIGNAL SUPPORT POLE

PEDESTRIAN SIGNAL

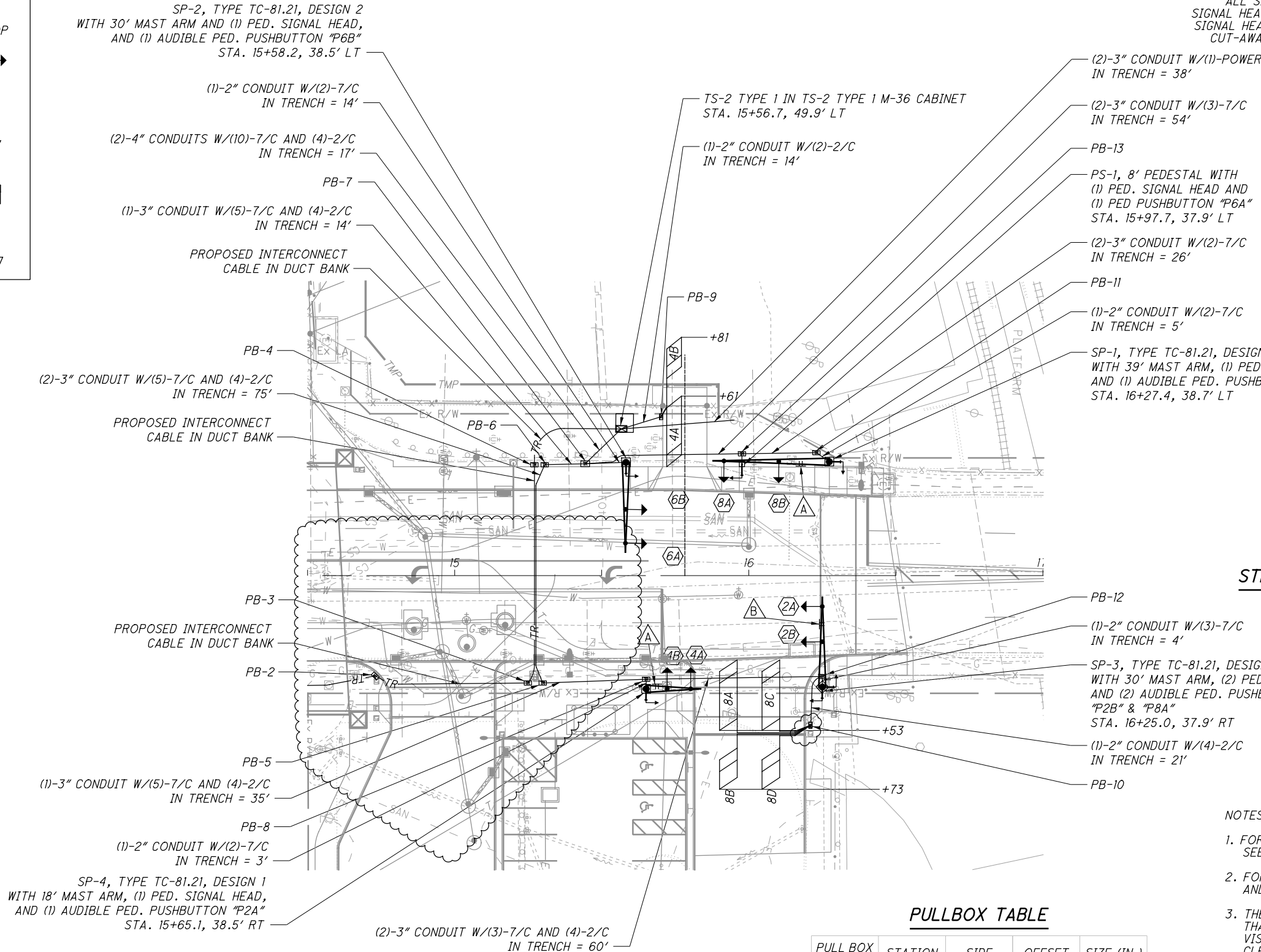
PEDESTRIAN PUSHBUTTON

CONTROLLER CABINET
AND WORK PAD (TS-2)

TRAFFIC PULL BOX

DETECTION ZONE

PROP

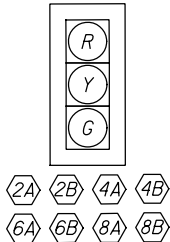


PULLBOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB-2	14+73.0	RT	34.1'	17 x 30
PB-3	15+24.9	RT	36.5'	17 x 30
PB-4	15+27.1	LT	37.7'	17 x 30
PB-5	15+30.0	RT	36.5'	17 x 30
PB-6	15+30.6	LT	37.7'	17 x 30
PB-7	15+44.4	LT	38.0'	24 x 36
PB-8	15+65.1	RT	35.2'	17 x 30
PB-9	15+70.2	LT	54.0'	13 x 24
PB-10	16+21.0	RT	50.9'	13 x 24
PB-11	16+23.0	LT	41.8'	17 x 30
PB-12	16+25.0	RT	34.3'	17 x 30
PB-13	15+97.7	LT	41.4'	17 x 30

SIGNAL TYPES

ALL SIGNAL HEADS SHALL HAVE 12" LED LENSES. SIGNAL HEADS SHALL BE YELLOW WITH BLACK BACKPLATES. SIGNAL HEAD VISORS SHALL BE POLYCARBONATE PLASTIC, CUT-AWAY TYPE AND BE FLAT BLACK ON THE INSIDE.



PEDESTRIAN SIGNS



3 - LEFT ARROW (SP-1, SP-3, PS-1)
3 - RIGHT ARROWS (SP-2, SP-3, SP-4)

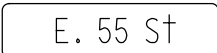


R9-3-18 (SP-2, SP-4)



R9-3BP-18 RIGHT ARROW (SP-2)
LEFT ARROW (SP-4)

STREET NAME AND MAST ARM SIGNS



NOTES:

- FOR STREET NAME SIGN DETAILS, SEE BU-26.
- FOR TRAFFIC SIGNAL GENERAL NOTES AND INTERCONNECT DETAILS, SEE BU-12.
- THE CONTRACTOR SHALL ENSURE THAT ALL SIGNAL FACES ARE CLEARLY VISIBLE TO ALL ON-COMING VEHICLES; CLEAR OF ANY OBSTRUCTIONS ONCE MOUNTED TO THE MAST ARMS.
- CONDUIT DEPTH SHALL BE 36" MINIMUM.
- FOR INTERCONNECT BETWEEN GCRTA STATION & QUADRANT RD., SEE SHEET 22.
- PROVIDE AUDIBLE PEDESTRIAN PUSHBUTTONS.

NO.	DATE	DESCRIPTION
2	2024-09-26	RECORD DRAWINGS
1	2021-01-29	DC049
0	2020-04-16	RFC
ISSUE RECORD		

SIGNAL TIMING CHART

INTERSECTION: E. 55TH ST. / GCRTA STATION			CITY OF CLEVELAND							
MAINTAINING AGENCY:			DUAL ENTRY: YES		PHASES:		2, 6			
START UP			REST IN RED:		RING 1 -		RING 2 -			
START IN:	ALL RED	5	OVERLAP			A	B	C	D	
TIME FOR FLASH OR ALL RED:										
FIRST PHASE(S):	2 + 6									
COLOR DISPLAYED:	GREEN		PHASES			-	-	-	-	
INTERVAL OR FEATURE			CONTROLLER MOVEMENT NO.							
INTERSECTION MOVEMENT (PHASE)			1	2	3	4	5	6	7	8
DIRECTION			-	NB	-	EB	-	SB	-	WB
MINIMUM GREEN (INITIAL) (SEC.)			-	20	-	7	-	20	-	7
ADDED INITIAL *(SEC./ACTUATION)			-	-	-	-	-	-	-	-
MAXIMUM INITIAL (SEC.)			-	-	-	-	-	-	-	-
PASSAGE TIME (PRESET GAP) (SEC.)			-	-	-	3	-	-	-	3
TIME BEFORE REDUCTION *(SEC.)			-	-	-	-	-	-	-	-
MINIMUM GAP *(SEC.)			-	-	-	-	-	-	-	-
TIME TO REDUCE *(SEC.)			-	-	-	-	-	-	-	-
MAXIMUM GREEN I (SEC.)			-	60	-	20	-	60	-	20
MAXIMUM GREEN II (SEC.)			-	-	-	-	-	-	-	-
YELLOW CHANGE (SEC.)			-	4.1	-	3	-	4.1	-	3
ALL RED CLEARANCE (SEC.)			-	1	-	1.9	-	1	-	1.9
WALK (SEC.)			-	7	-	-	-	7	-	7
PEDESTRIAN CLEARANCE (SEC.)			-	7	-	-	-	7	-	14
RECALL	MAXIMUM (ON/OFF)		-	ON	-	-	-	ON	-	-
	MINIMUM (ON/OFF)		-	-	-	-	-	-	-	-
	PEDESTRIAN (ON/OFF)		-	-	-	-	-	-	-	-
MEMORY (ON/OFF)			-	-	-	-	-	-	-	-
*VOLUME DENSITY CONTROLS										

NOTES:

- COUNTDOWN PEDESTRIAN SIGNALS SHALL GO TO ZERO ON YELLOW PER OMUTCD FIGURE 4E-2.
- ALL DETECTOR DELAYS SHALL BE PLACED IN THE CONTROLLER.

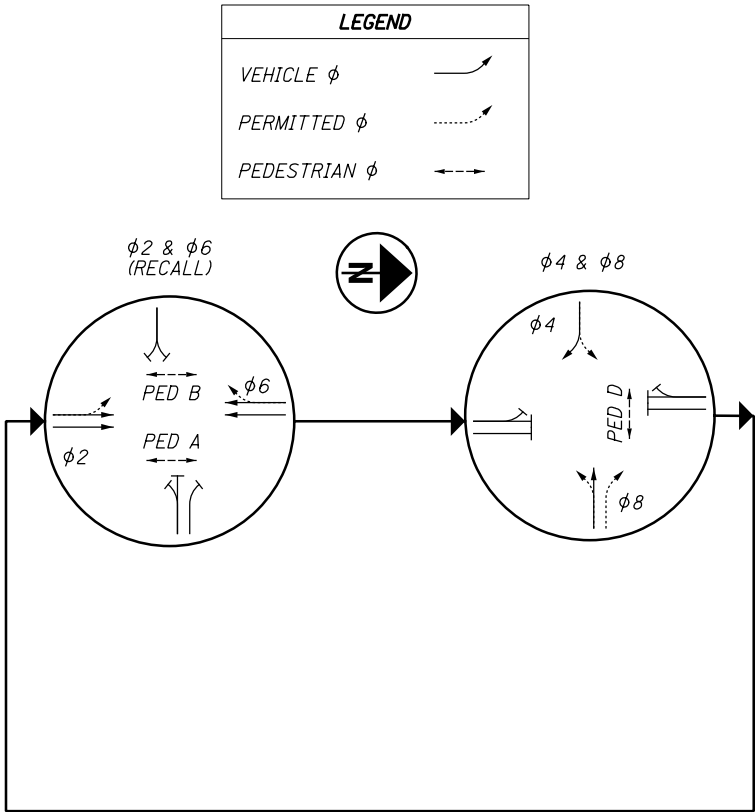
COORDINATION TIMING CHART

	SPLITS (G+Y+AR) IN SECONDS								CYCLE LENGTH (SEC)	OFFSET 1 (SEC)	OFFSET 2 (SEC)
PHASE	1	2	3	4	5	6	7	8			
DIRECTION	-	NB	-	EB	-	SB	-	WB			
PLAN NO.	E. 55TH ST./GCRTA STATION										
1	-	73	-	27	-	73	-	27	100	71	-
2	-	92	-	28	-	92	-	28	120	37	-
3	-	74	-	26	-	74	-	26	100	16	-

COORDINATION TIMING PLANS

DAY(S) OF WEEK	PLAN NAME	HOURS	CYCLE/SPLIT/OFFSET	CYCLE LENGTH (SEC)
1	AVERAGE	0:00 - 24:00	1/1/1	100
2-6	AVERAGE	0:00 - 6:00	1/1/1	100
2-6	AM PEAK	6:00 - 9:00	2/2/2	120
2-6	AVERAGE	9:00 - 15:00	1/1/1	100
2-6	PM PEAK	15:00 - 18:00	3/3/3	100
2-6	AVERAGE	18:00 - 24:00	1/1/1	100
7	AVERAGE	0:00 - 24:00	1/1/1	100

PHASING DIAGRAM

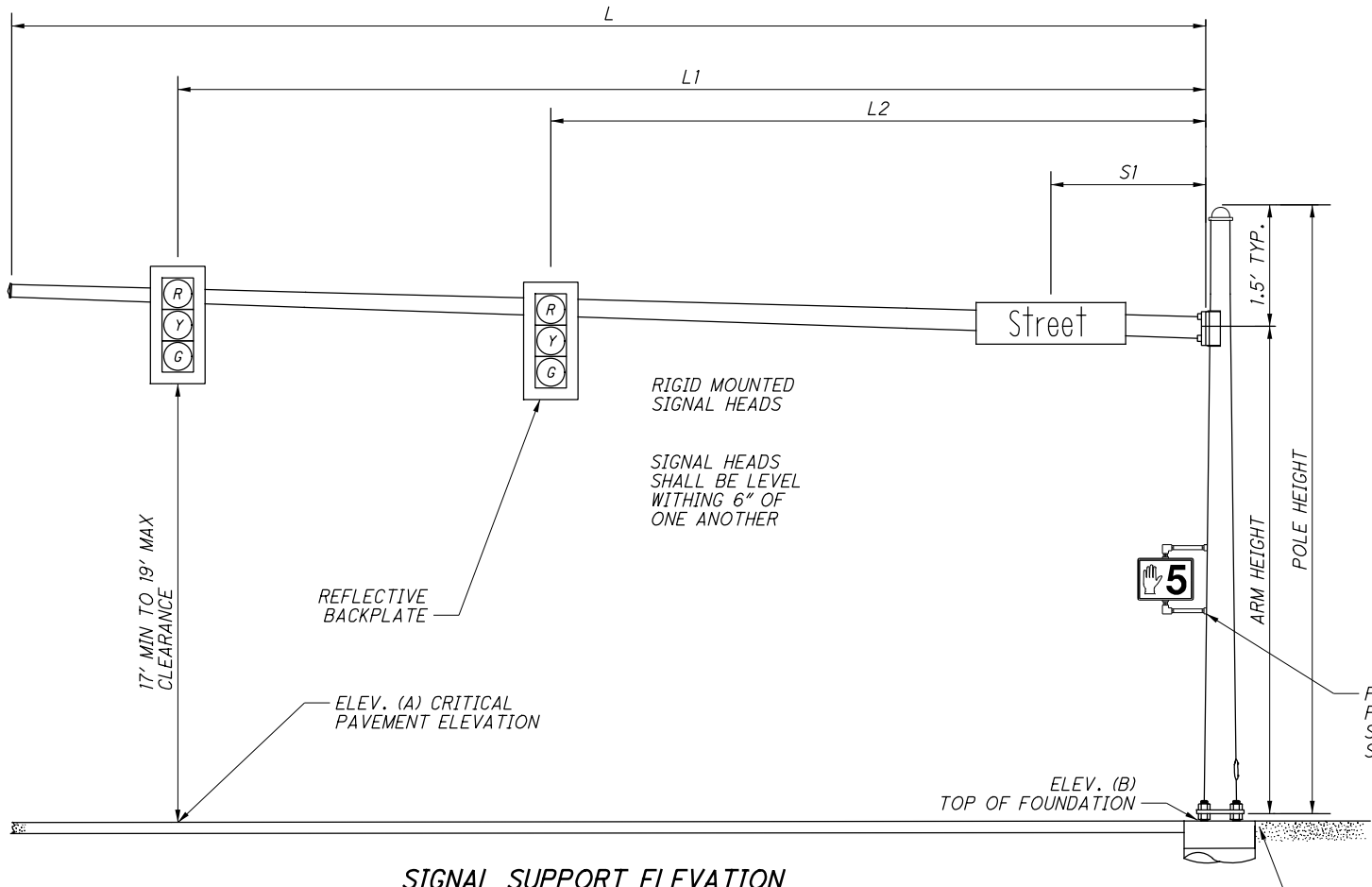


TRAFFIC SIGNAL DETECTOR CHART

LOOP DESIGNATION	LOOP CONFIGURATION**	SIZE (FT.)	PULSE OR PRESENCE	DELAY PROGRAMMED IN CONTROLLER (SEC.)	EXTENSION PROGRAMMED IN CONTROLLER (SEC.)	CONNECT TO DETECTOR UNIT (UNIT-CHANNEL)	ASSOCIATED CONTROLLER PHASE
L4A	P	5 x 20	PRESENCE	8	-	1-1	4
L4B	P	5 x 10	PRESENCE	0	-	2-1	4
L8A	P	6 x 20	PRESENCE	0	-	3-1	8
L8B	P	6 x 10	PRESENCE	0	-	4-1	8
L8C	P	6 x 20	PRESENCE	8	-	5-1	8
L8D	P	6 x 10	PRESENCE	0	-	6-1	8

** CONFIGURATION: POWERHEAD (P); PER TC-82.10

0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		



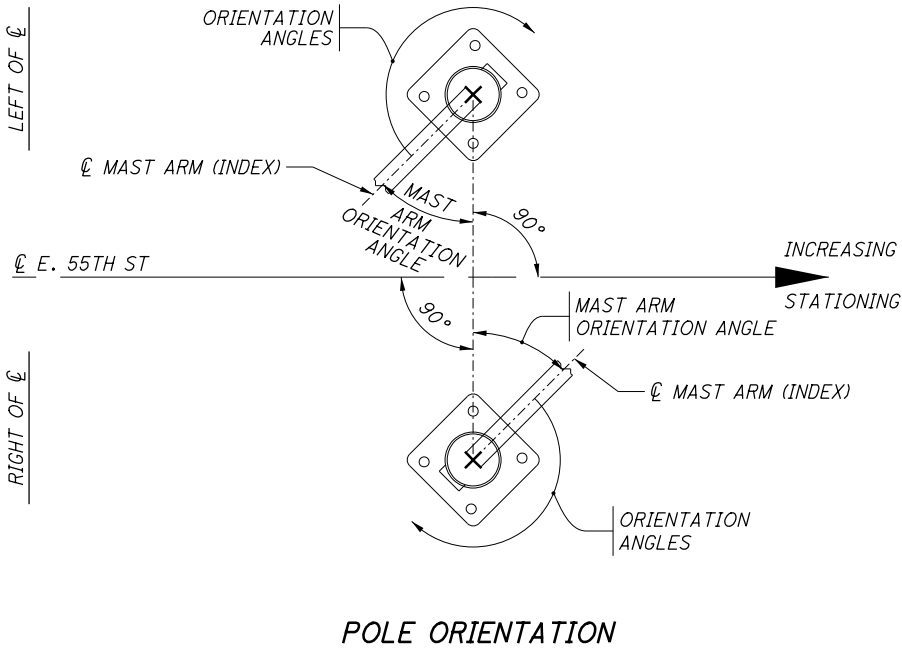
SIGNAL SUPPORT ELEVATION
(TYPICAL)

THIS DIAGRAM IS A TYPICAL LAYOUT FOR PLACEMENT OF ITEMS ON MAST ARM. CONTRACTOR SHALL REFER TO TABLE BELOW WITH DISTANCES ALONG MAST ARM FOR SPECIFIC PLACEMENT, EACH VARY BY APPROACH.

MAST ARM TABLE

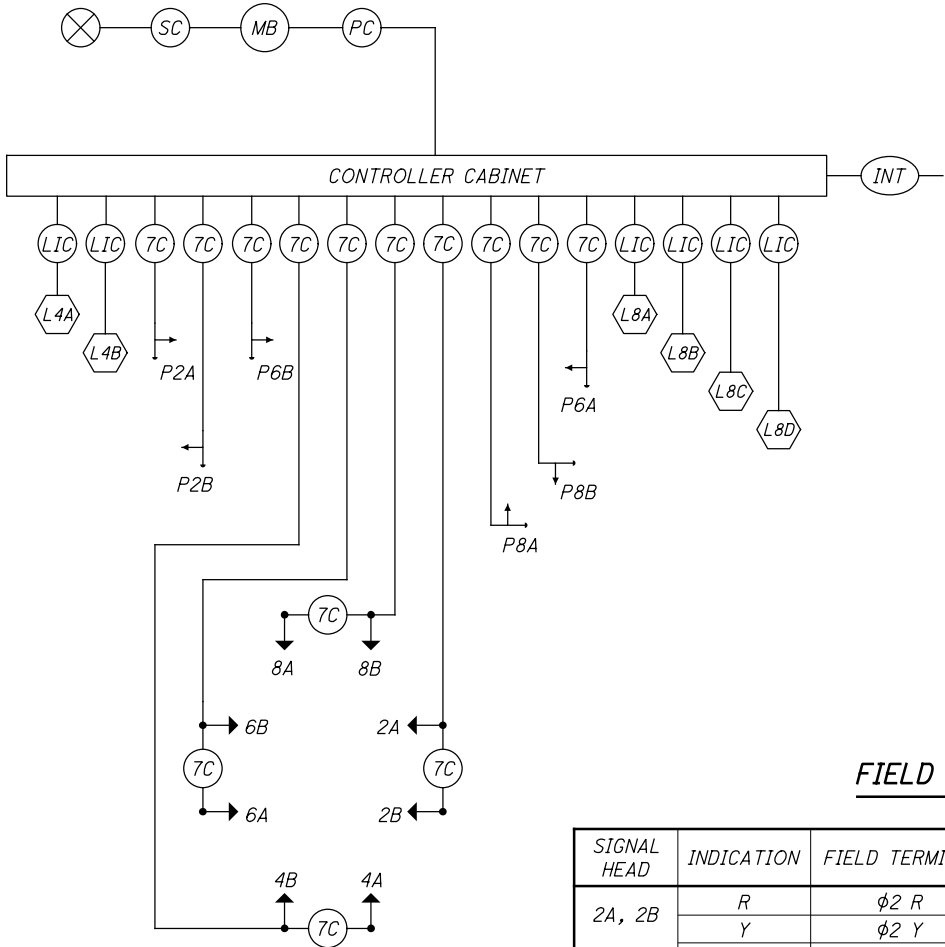
SUPPORT NO.	STATION	OFFSET	ELEVATION		SIGNAL SUPPORT DETAILS								ORIENTATION ANGLES FROM MAST ARM					
			A (Pavt. Elev.)	B (Top of Found.)	DESIGN TYPE	DESIGN NO.	POLE HEIGHT	ARM HEIGHT	L	L1	L2	S1	MAST ARM A ANGLE	PEDESTRIAN SIGNAL	PEDESTRIAN SIGNAL	PEDESTRIAN PUSHBUTTON	PEDESTRIAN PUSHBUTTON	HANDHOLE
SP-1	16+27.4	38.7' LT	665.71	666.07	TC-81.21	11	22.5	21	39	35.3	16.65	8	90	180	-	180	-	180
SP-2	15+58.2	38.5' LT	664.9	665.1	TC-81.21	2	22.5	21	30	27	15.5	-	0	0	-	0	-	180
SP-3	16+25.0	37.9' RT	665.81	666.14	TC-81.21	2	22.5	21	30	26.9	14.9	-	0	90	180	90	180	180
SP-4	15+65.1	38.5' RT	665.39	665.21	TC-81.21	1	22.5	21	18	14.6	6.6	3	90	90	-	90	-	180
PS-1	15+97.7	37.9' LT	-	-	-	-	-	-	-	-	-	-	-	0	-	0	-	180

*FIELD VERIFY ACTUAL ELEVATIONS PRIOR TO ORDERING SIGNAL SUPPORTS.



1	2021-01-29	DC049
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

WIRING DIAGRAM

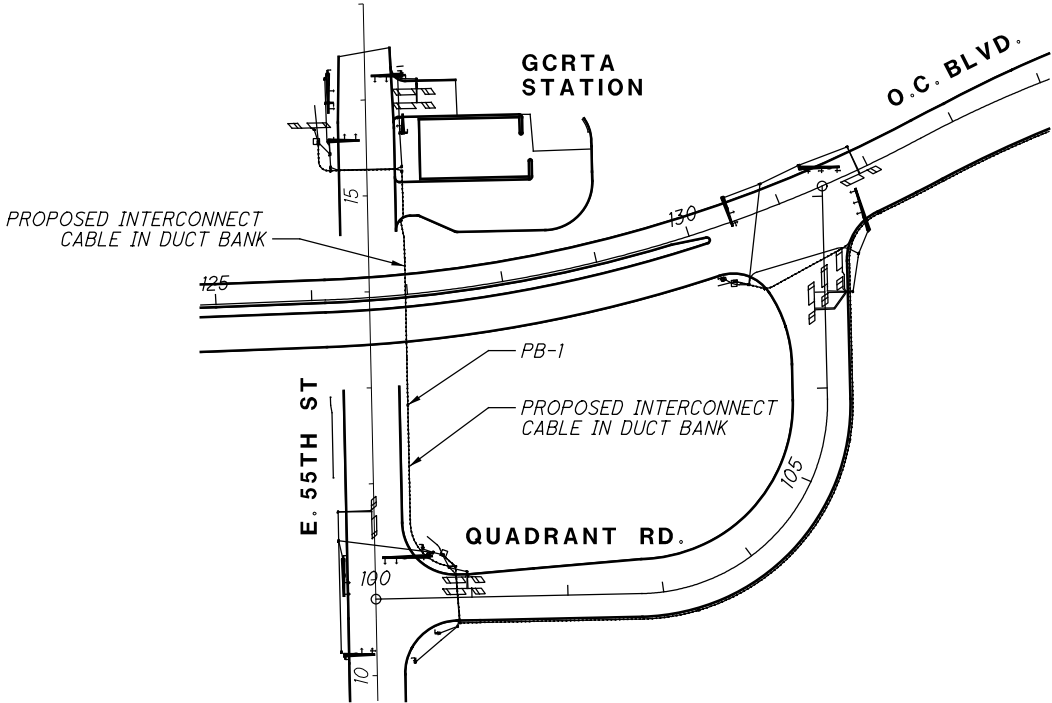


FIELD WIRING HOOK-UP CHART

SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH	SIGNAL HEAD	INDICATION	FIELD TERMINAL	FLASH
2A, 2B (NB)	R	φ2 R	Y	PEDESTRIAN MOVEMENTS			
	Y	φ2 Y		EAST	W	φ2 PED / LS 5 G	OUT
	G	φ2 G			DW	φ2 PED / LS 5 R	
4A, 4B (EB)	R	φ4 R	R	NORTH	W	φ8 PED / LS 6 G	OUT
	Y	φ4 Y			DW	φ8 PED / LS 6 R	
	G	φ4 G		WEST	W	φ6 PED / LS 7 G	OUT
6A, 6B (SB)	R	φ6 R	Y		DW	φ6 PED / LS 7 R	
	Y	φ6 Y					
	G	φ6 G					
8A, 8B (WB)	R	φ8 R	R				
	Y	φ8 Y					
	G	φ8 G					
LS = LOAD SWITCH							

LEGEND

	3 SECTION VEHICULAR SIGNAL HEAD, 1-WAY		2 CONDUCTOR, NO. 14 AWG (LEAD-IN CABLE)
	PEDESTRIAN SIGNAL HEAD		POWER SOURCE
	PEDESTRIAN PUSH BUTTON		SERVICE CABLE, 3 CONDUCTOR, NO. 6 AWG
	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG		POWER CABLE, 2 CONDUCTOR, NO. 6 AWG
	INTERCONNECT CABLE		METER BASE



PULLBOX TABLE

PULL BOX #	STATION	SIDE	OFFSET	SIZE (IN.)
PB-1	12+81.3	RT	37.5'	17 x 30

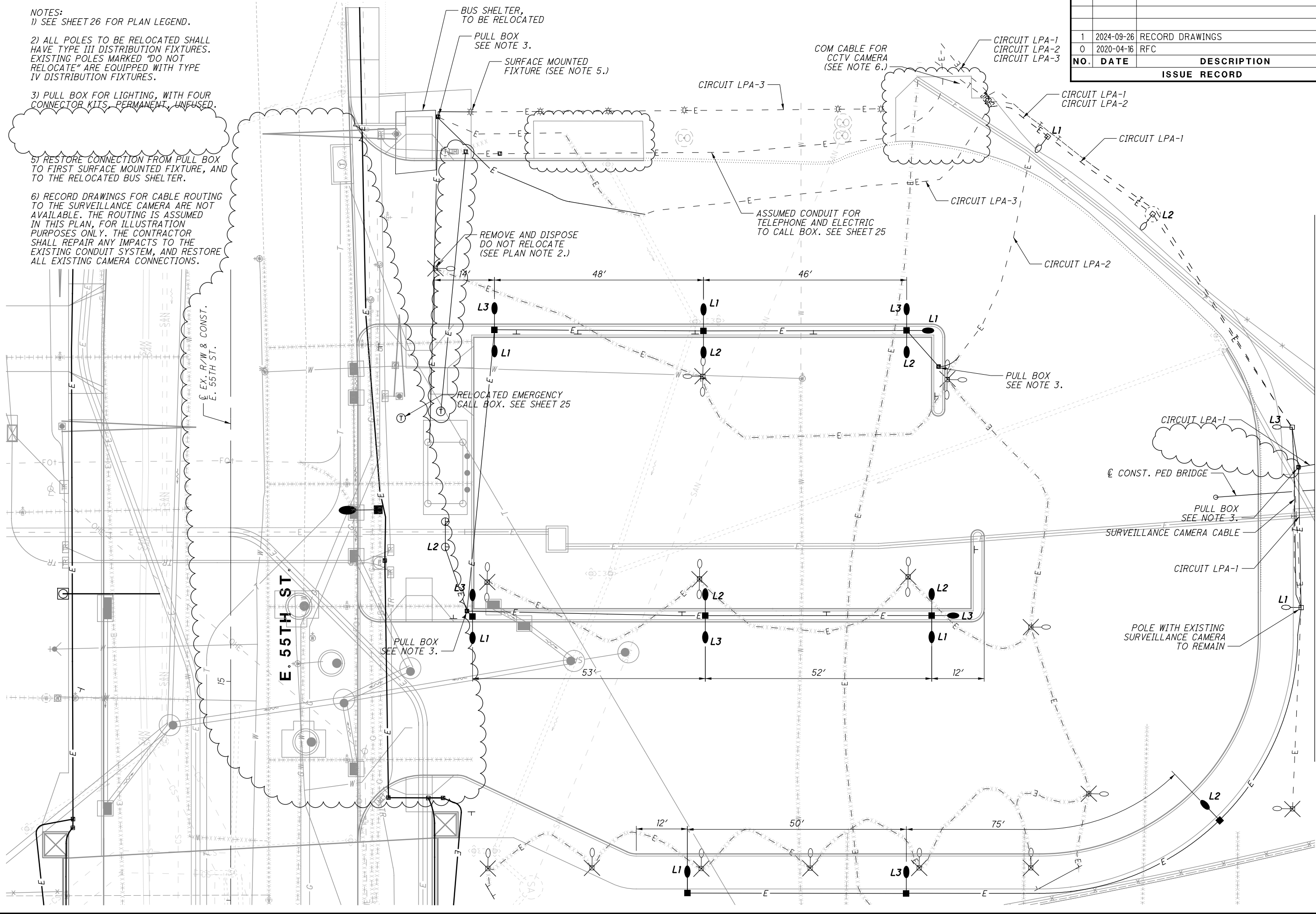
NOTE:
1. FOR ADDITIONAL INTERCONNECT ROUTING AND DETAILS, SEE BU-12.

1	2021-01-29	DC049
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

- NOTES:
- 1) SEE SHEET 26 FOR PLAN LEGEND.
 - 2) ALL POLES TO BE RELOCATED SHALL HAVE TYPE III DISTRIBUTION FIXTURES. EXISTING POLES MARKED "DO NOT RELOCATE" ARE EQUIPPED WITH TYPE IV DISTRIBUTION FIXTURES.
 - 3) PULL BOX FOR LIGHTING, WITH FOUR CONNECTOR KITS, PERMANENT, UNFUSED.

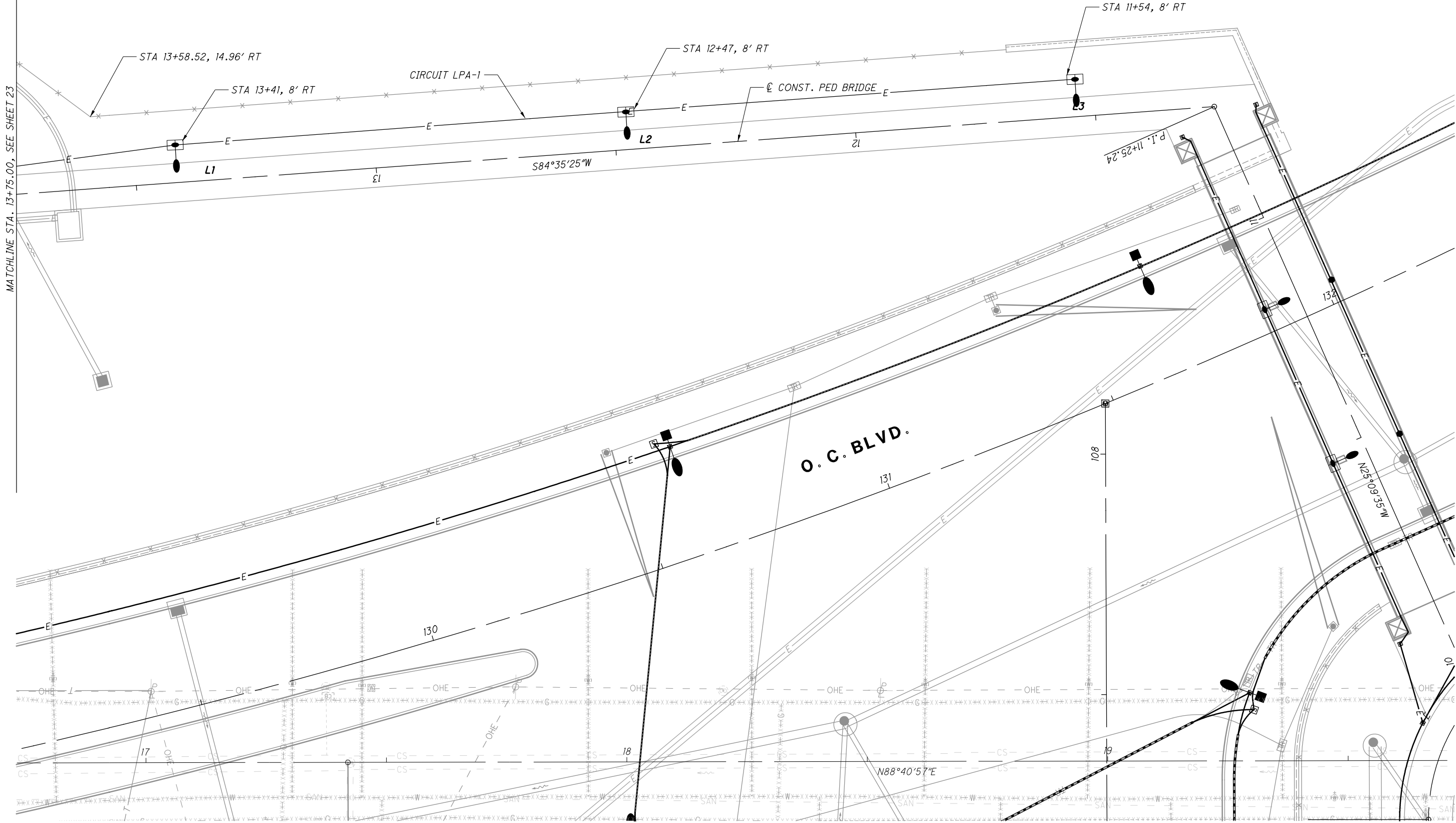
5) RESTORE CONNECTION FROM PULL BOX TO FIRST SURFACE MOUNTED FIXTURE, AND TO THE RELOCATED BUS SHELTER.

6) RECORD DRAWINGS FOR CABLE ROUTING TO THE SURVEILLANCE CAMERA ARE NOT AVAILABLE. THE ROUTING IS ASSUMED IN THIS PLAN, FOR ILLUSTRATION PURPOSES ONLY. THE CONTRACTOR SHALL REPAIR ANY IMPACTS TO THE EXISTING CONDUIT SYSTEM, AND RESTORE ALL EXISTING CAMERA CONNECTIONS.



NO.		DATE	DESCRIPTION
1	2024-09-26	RECORD DRAWINGS	
0	2020-04-16	RFC	
			ISSUE RECORD

NOTES:
1) SEE SHEET 26 FOR PLAN LEGEND.



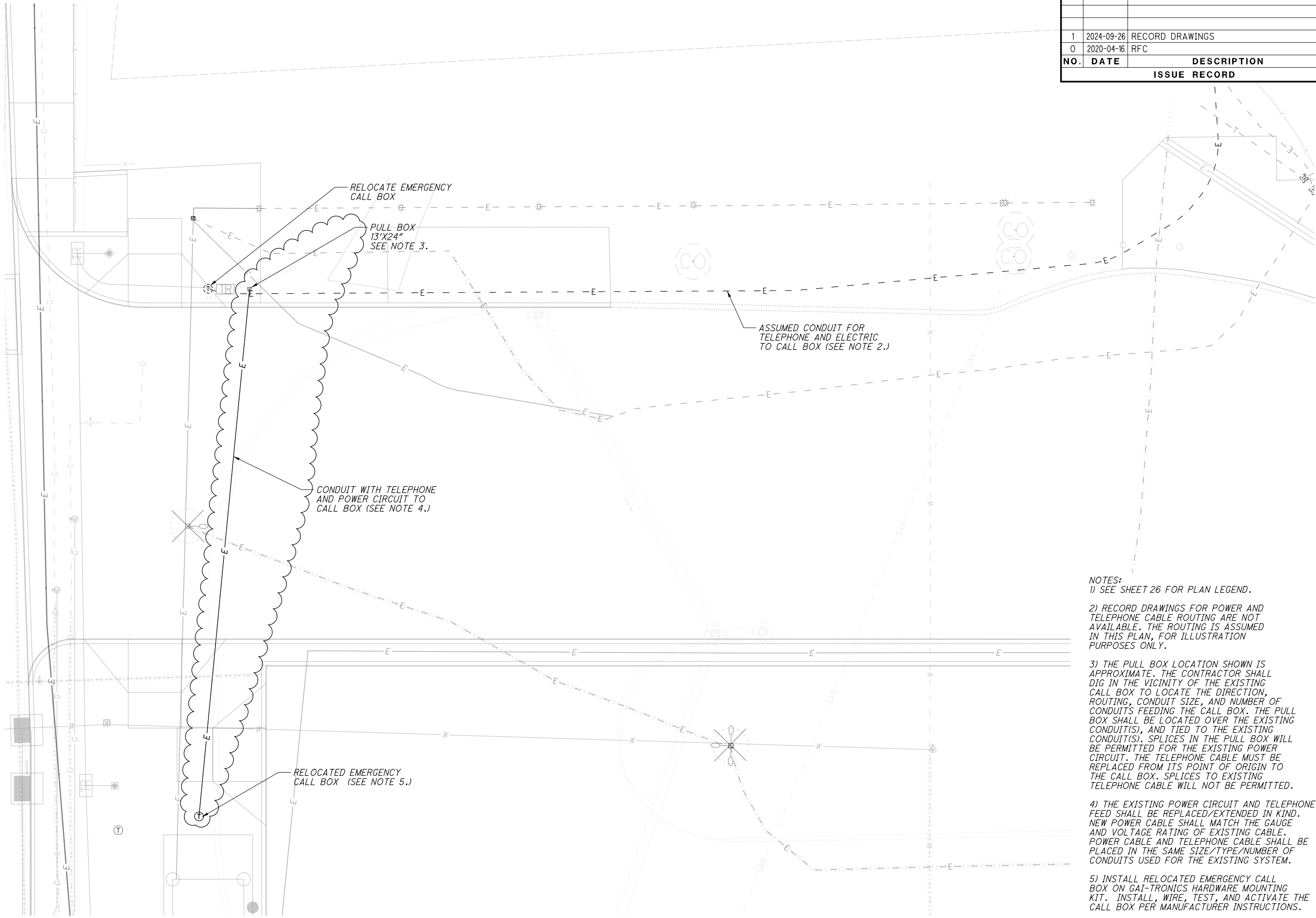
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

CALCULATED
MJH

CHECKED
KAE

0 10 20
HORIZONTAL
SCALE IN FEET

LIGHTING PLAN
WALK FROM E. 59TH ST. BRIDGE TO GCRTA



- NOTES:
- 1) SEE SHEET 26 FOR PLAN LEGEND.
- 2) RECORD DRAWINGS FOR POWER AND TELEPHONE CABLE ROUTING ARE NOT AVAILABLE. THE ROUTING IS ASSUMED IN THIS PLAN, FOR ILLUSTRATION PURPOSES ONLY.
- 3) THE PULL BOX LOCATION SHOWN IS APPROXIMATE. THE CONTRACTOR SHALL DIG IN THE VICINITY OF THE EXISTING CALL BOX TO LOCATE THE DIRECTION, ROUTING, CONDUIT SIZE, AND NUMBER OF CONDUITS FEEDING THE CALL BOX. THE PULL BOX SHALL BE LOCATED OVER THE EXISTING CONDUIT(S), AND TIED TO THE EXISTING CONDUIT(S). SPLICES IN THE PULL BOX WILL BE PERMITTED FOR THE EXISTING POWER CIRCUIT. THE TELEPHONE CABLE MUST BE REPLACED FROM ITS POINT OF ORIGIN TO THE CALL BOX. SPLICES TO EXISTING TELEPHONE CABLE WILL NOT BE PERMITTED.
- 4) THE EXISTING POWER CIRCUIT AND TELEPHONE FEED SHALL BE REPLACED/EXTENDED IN KIND. NEW POWER CABLE SHALL MATCH THE GAUGE AND VOLTAGE RATING OF EXISTING CABLE. POWER CABLE AND TELEPHONE CABLE SHALL BE PLACED IN THE SAME SIZE/TYPER/NUMBER OF CONDUITS USED FOR THE EXISTING SYSTEM.
- 5) INSTALL RELOCATED EMERGENCY CALL BOX ON GAI-TRONICS HARDWARE MOUNTING KIT. INSTALL, WIRE, TEST, AND ACTIVATE THE CALL BOX PER MANUFACTURER INSTRUCTIONS.

1	2024-09-26	RECORD DRAWINGS
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
		ISSUE RECORD



CALL BOX RELOCATION PLAN
GCRTA E. 55TH ST. STATION

CUY-IR490/ SR010-
2.09 / 19.28

PLAN LEGEND NOTES:

A) THE CONTRACTOR SHALL MOUNT RELOCATED LIGHT POLES ON NEW FOUNDATIONS. THE NEW FOUNDATION DESIGN SHALL MATCH EXISTING FOUNDATION DESIGN, FOR DEPTH, DIAMETER, AND REINFORCING. CONCRETE FOR FOUNDATIONS SHALL COMPLY WITH MATERIAL REQUIREMENTS USED FOR BU-27. THE FOUNDATION SHALL BE PROPERLY GROUNDED.












B) SEE BU-27 FOR LIGHT POLE AND FOUNDATION SPECIFICATIONS. PROPOSED PEDESTRIAN FIXTURES SHALL BE EATON LIGHTING, STREETWORKS, GALLEON GAP-AF-02-LED-U-T2-MA-800.

C) ALL PROPOSED LIGHTING CABLES FOR PARKING LOT LIGHTING SHALL MATCH EXISTING CABLE SIZE OF THE LIGHTING CABLE. ACCORDING TO RECORD DRAWINGS, #8 AWG IS PROVIDED FOR LIGHTING CABLES AND #12 AWG CABLE IS PROVIDED FOR GROUNDING CABLES. THE PROPOSED CIRCUIT SHALL PROVIDE LIGHTING CABLE AND GROUND CONDUCTOR WHICH MATCHES THE GAUGE OF THE EXISTING LIGHTING CONDUCTOR. THEREFORE, IF EXISTING LIGHTING CONDUCTOR IS #8 AWG, THE PROPOSED LIGHTING AND GROUND CABLE SHALL BE #8 AWG.

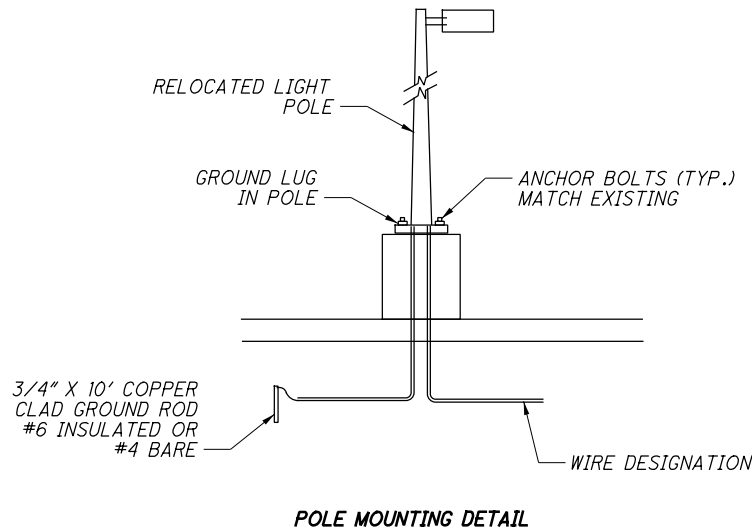
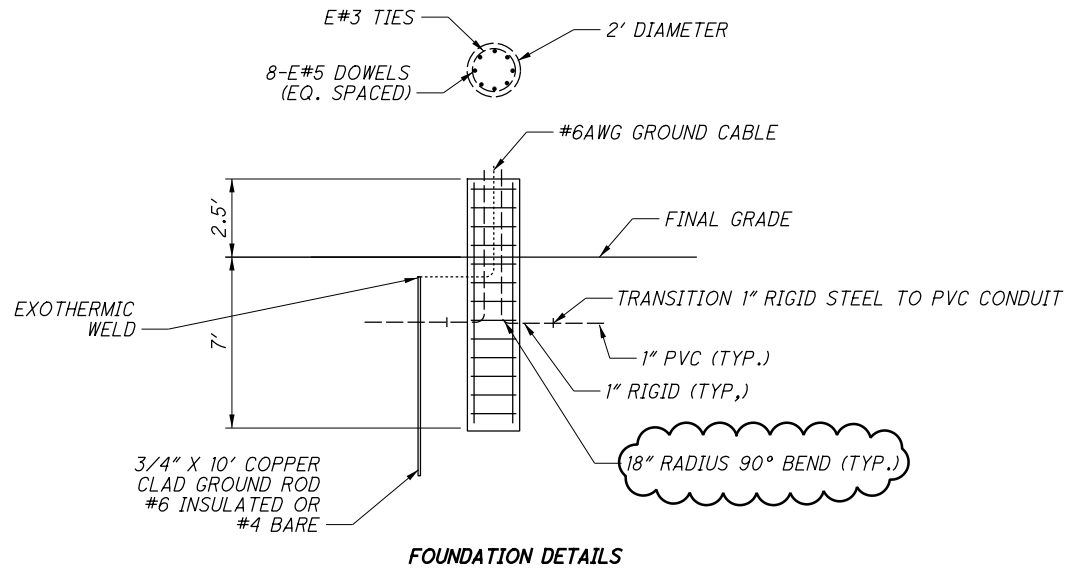
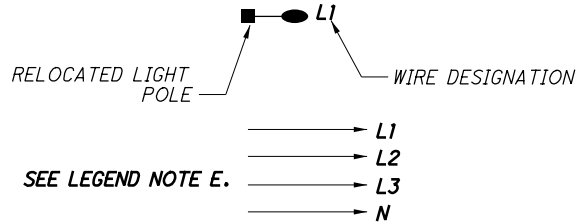
D) THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL MATERIAL WHICH IS REMOVED, BUT NOT REUSED.

E) CONNECT LINE AND NEUTRAL TO EACH FIXTURE, SIMILAR TO STANDARD DRAWING HL-60.11. THE CONNECTION WILL BE 277 VOLTS.

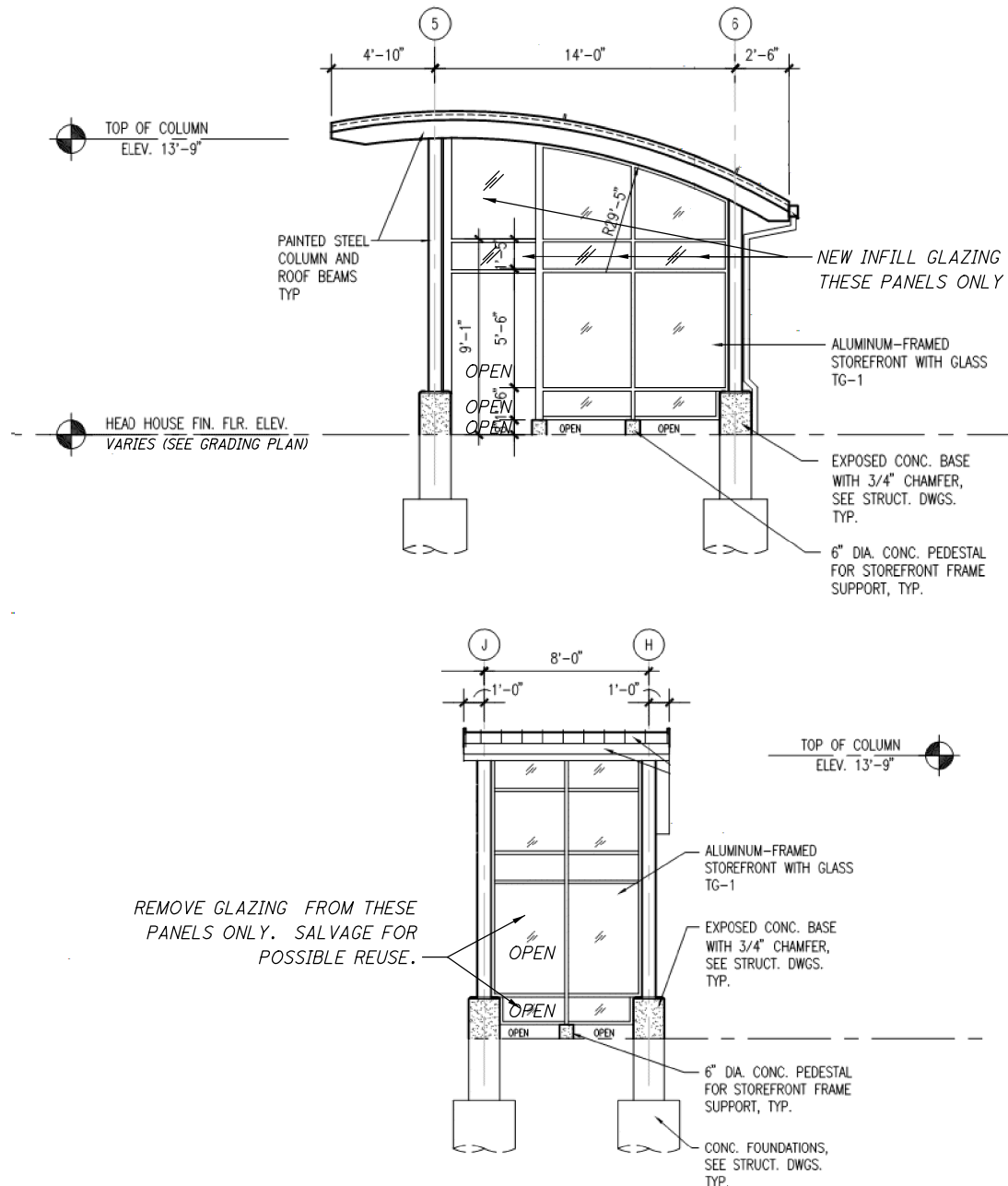
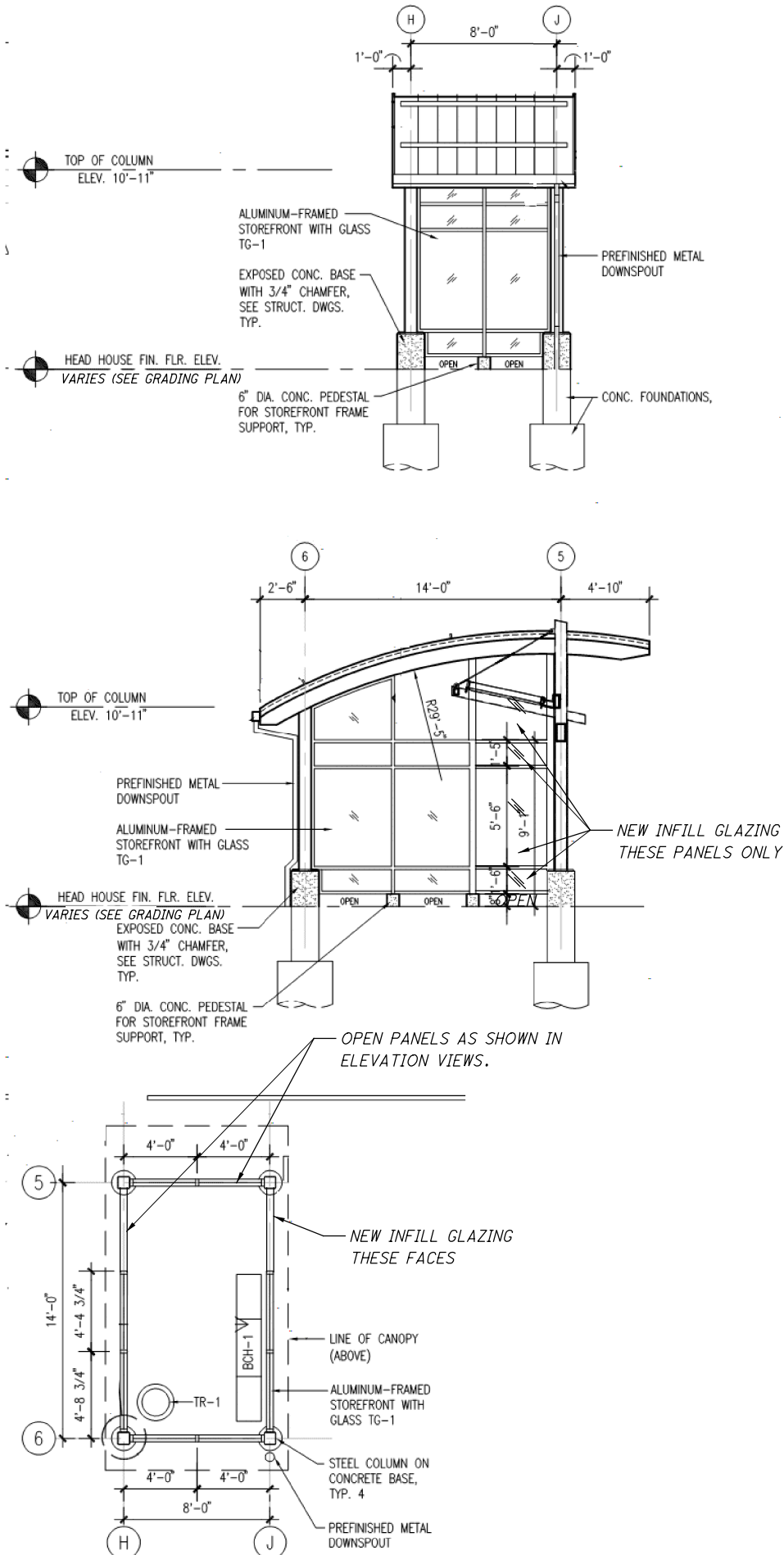
PLAN LEGEND

	RELOCATED PARKING LOT LIGHT POLE ON PROPOSED FOUNDATION (SEE LEGEND NOTE A.)		EXISTING LIGHT POLE TO REMAIN
	PULL BOX, 11"x18"		EXISTING LIGHT POLE TO BE RELOCATED
	RELOCATED EMERGENCY CALL BOX		EXISTING SURFACE MOUNTED FIXTURE
	PROPOSED 1" SCHEDULE 40 PVC CONDUIT, FOR LIGHTING CIRCUITS (SEE LEGEND NOTE C.)		EXISTING CONDUIT FOR LIGHTING CIRCUITS
	PROPOSED 1" SCHEDULE 40 PVC CONDUIT		EXISTING EMPTY CONDUIT FOR FUTURE CCTV
	PROPOSED PEDESTRIAN LIGHT POLE, 15', ON PROPOSED FOUNDATION (SEE LEGEND NOTE B.)		

RELOCATED POLE LEGEND



1	2024-09-26	RECORD DRAWINGS
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		

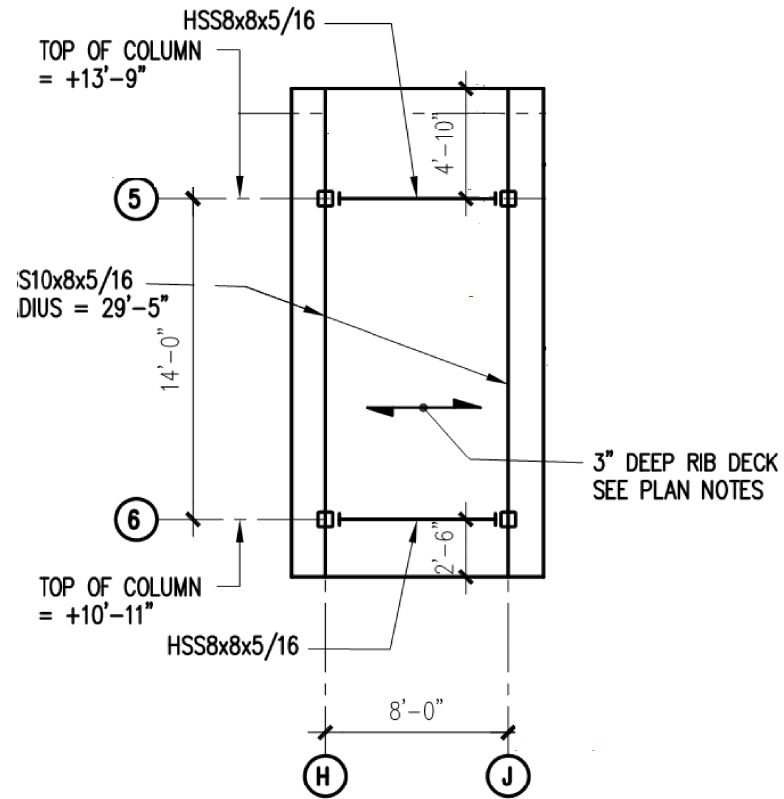


NOTES:

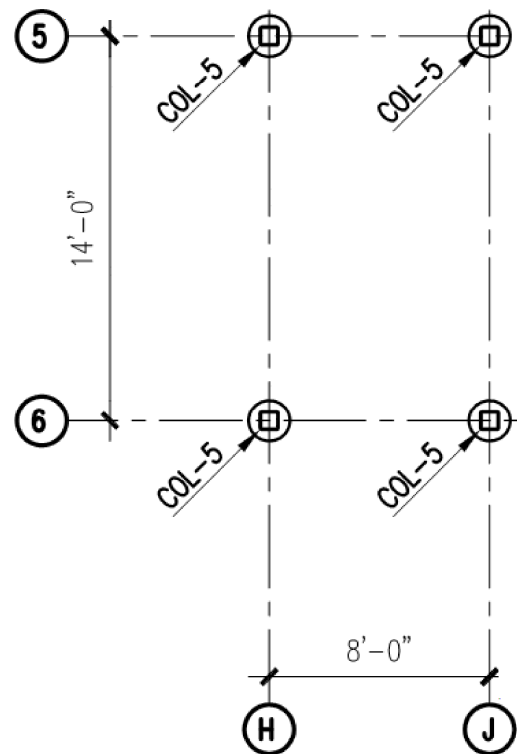
PROVIDE AND INSTALL NEW GLAZING AS SHOWN FOLLOWING SHELTER RELOCATION.

ALIGN BUS SHELTER DOWNSPOUT TO DRAIN
INTO SOUTHWEST CORNER OF PARKING LOT.

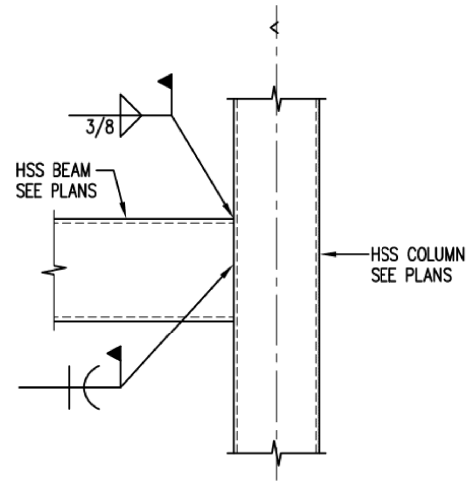
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		



EXISTING FRAMING PLAN

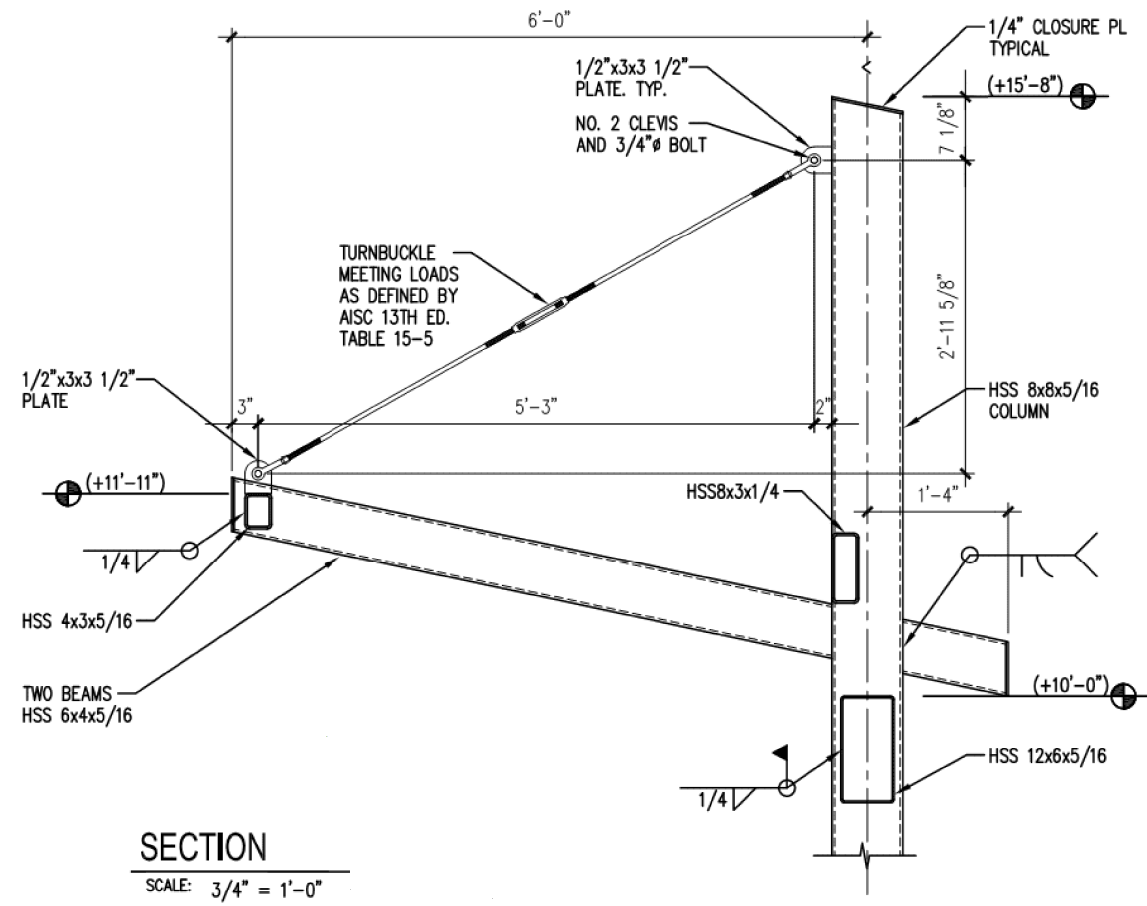


PROPOSED PLAN



TYPICAL MOMENT CONNECTION AT HSS BEAMS & COLUMNS

SCALE: $3/4" = 1'-0"$

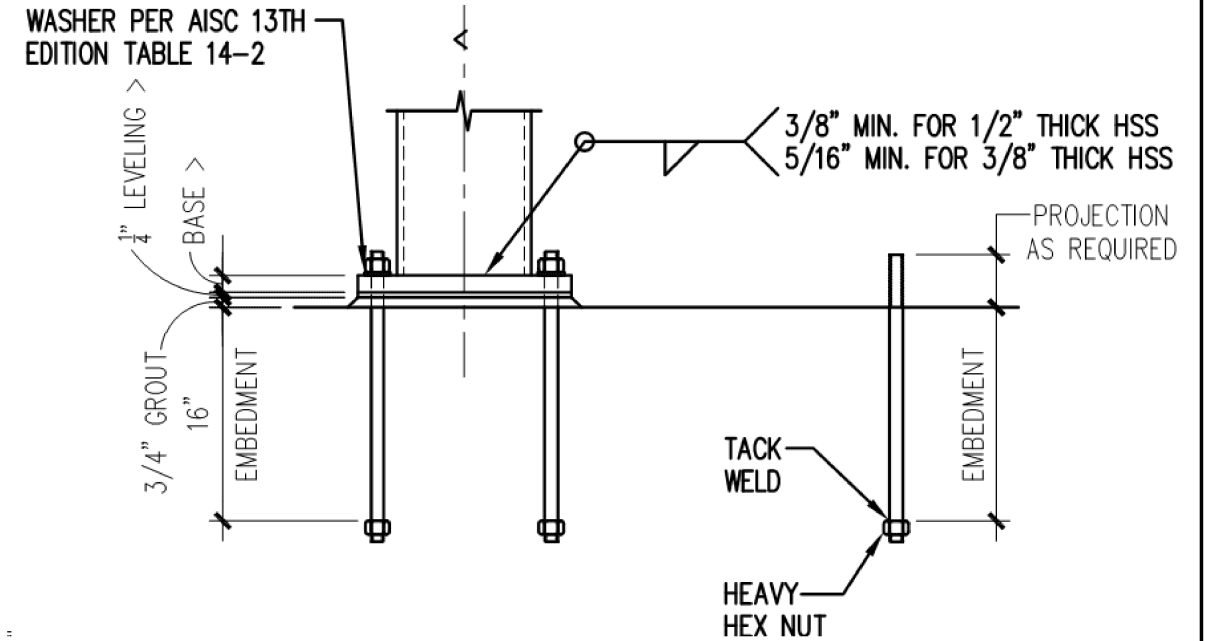


SECTION

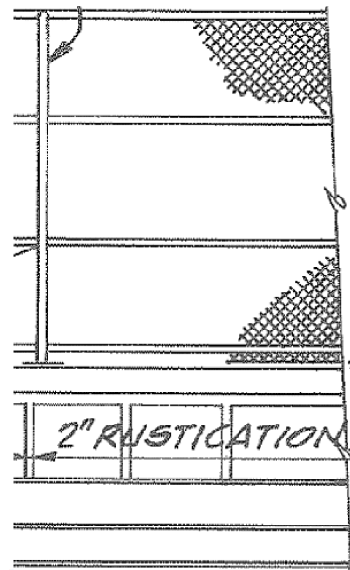
SCALE: $3/4" = 1'-0"$

REPLACEMENT COLUMN J5 FOR CANOPY

COLUMN SCHEDULE			
MARK	SIZE	BASE PLATE	ANCHOR BOLTS
COL-5	HSS8x8x5/16	3/4" x 14" x 1'-2"	(4)-3/4" F1554 w/ HEAVY HEX NUTS



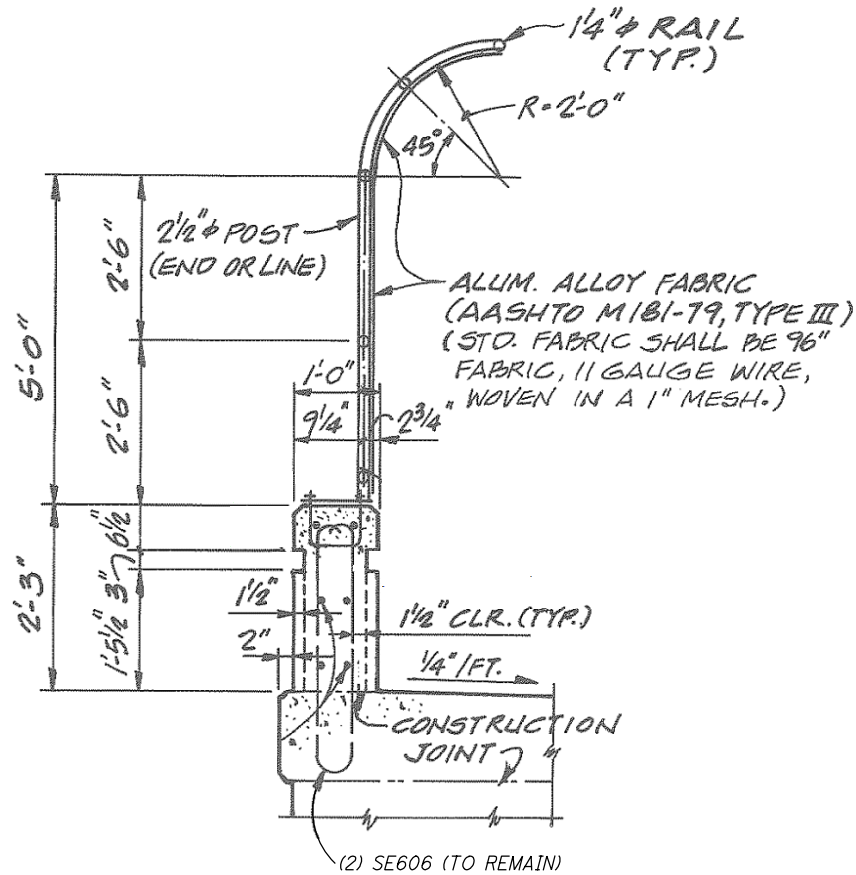
0	2020-04-16	RFC
NO.	DATE	DESCRIPTION
ISSUE RECORD		



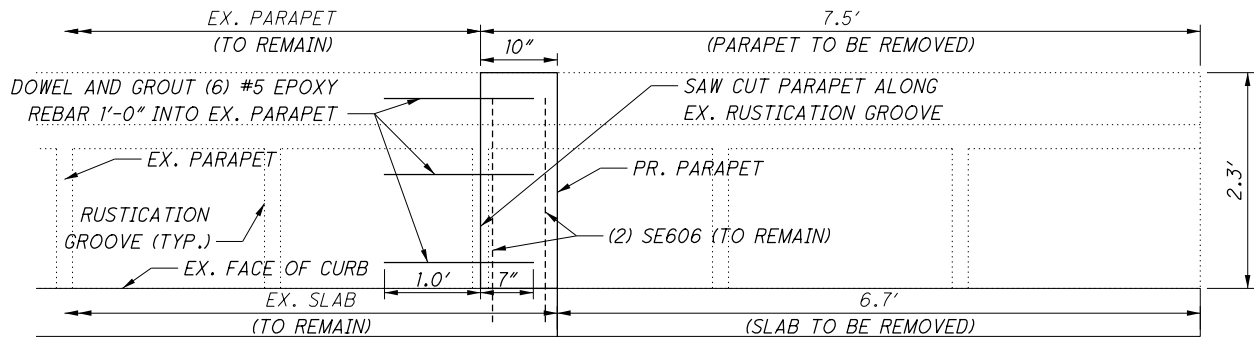
REMOVE 7'-6"± (TO NEAREST RUSTICATION GROOVE) EXISTING CONCRETE. DOWEL (6) 1'-7" (L) #5 EPOXY REBAR 1'-0" INTO EXISTING CONCRETE. FORM AND POUR CONCRETE TO MATCH EXISTING PARAPET (0'-10" LENGTH).

RELOCATE EXISTING FENCE END POST TO NEW END BARRIER LOCATION. DRILL AND GROUT ANCHORS FOR RELOCATED END POST. TRIM AND TIE FENCE FABRIC AS NECESSARY.

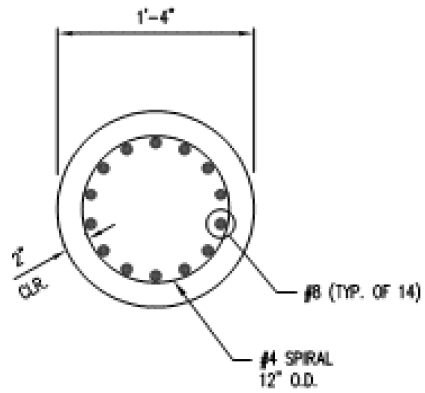
1/2" CLR. (MAX.)
2" RUSTICATION GROOVE
@ 2'-6" SPACING



PARAPET SECTION



PARAPET ELEVATION



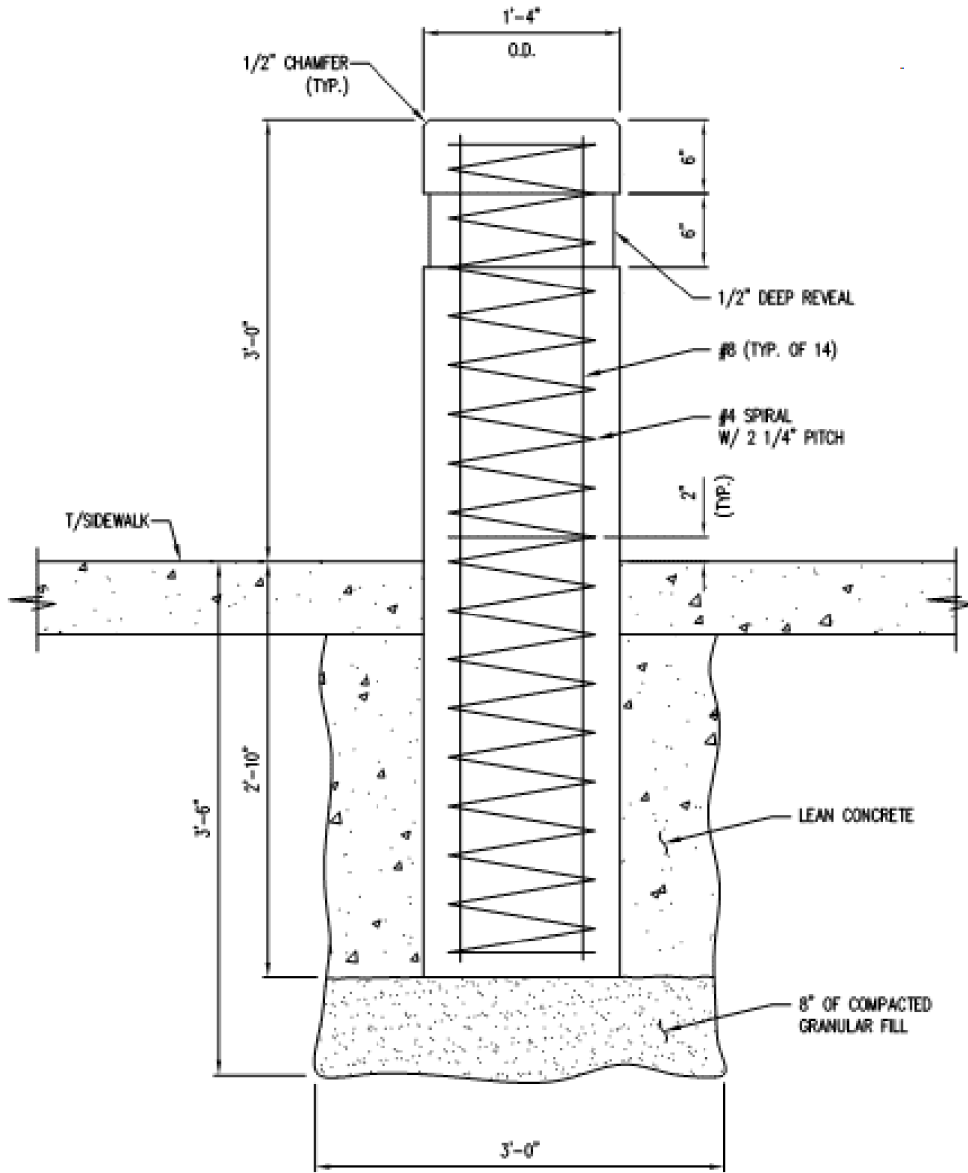
SECTION A-A
SCALE: 1 1/2" = 1'-0"

NOTES:

1. CONCRETE: CLASS C - COMPRESSIVE STRENGTH 4000 PSI
2. REINFORCING STEEL, EPOXY COATED (CMS 509): ASTM A015 OR A996 GRADE 60 - YIELD STRENGTH 60,000 PSI
3. REINFORCING STEEL SHALL BE EPOXY COATED PER CMS 709.
4. SPIRALS: AN ADDITIONAL 1 1/2 COILS SHALL BE INCLUDED AT EACH END OF SPIRAL REINFORCEMENT.

LEGEND:

CLR. - CLEAR
I.D. - INSIDE DIAMETER
O.D. - OUTSIDE DIAMETER
TYP. - TYPICAL
W/ - WITH



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

NO.	DATE	DESCRIPTION
0	2020-04-16	RFC
ISSUE RECORD		

CUY-IR490/ SR010-
2.09 / 19.28

MISCELLANEOUS DETAILS

CALCULATED
GSH
CHECKED
LPC

RECORD PLANS

RECORD PLANS

30
30

Submittal: 114

Revision: 1

Date Submitted: 2/18/2021

Response Due By: 3/4/2021



Project: 16051 - ODOT 173000 CUY IR 490/SR010 (OC3)

Description: GCRTA - Signal Support

To: Andrew Cross, PE
Traffic Engineer – City of Cleveland

Email: across@city.cleveland.oh.us

From: Jacob Hasselbach
Kokosing Construction Company, Inc.

Email: jhasselbach@kokosing.biz

Submittal Type:	Submitted For:
<input type="checkbox"/> Engineered Drawings	<input checked="" type="checkbox"/> Approval
<input checked="" type="checkbox"/> Shop Drawings	<input type="checkbox"/> Record
<input type="checkbox"/> Working Drawings	<input type="checkbox"/> Other
<input type="checkbox"/> CPM Schedule	
<input type="checkbox"/> Material Certifications / Test Results	Sent Via:
<input type="checkbox"/> Reports	<input checked="" type="checkbox"/> Attached (Electronic)
<input type="checkbox"/> Product Data/Samples	<input type="checkbox"/> Attached (Hard Copy)
<input type="checkbox"/> Other:	

Submittal #	Copies	Spec #	Rev. #	Description	Status
114	1	632	1	114 – GCRTA - Signal Support	For Approval

Comments:

Please see the attached revision of the submittal from US Utility Contractor Co. for the E. 55th GCRTA Signal Supports. Let me know if you have any questions or concerns.

Signed: 

U.S. UTILITY CONTRACTOR CO., INC.

3592 Genoa Road

Perrysburg, OH 43551

419/ 837-9358 or 419/ 837-2017

419/ 837-2015 Fax

TRANSMITTAL #1.1

PROJECT: OC3 GCRTA SIGNAL

OWNER'S PROJECT NO.

COMPANY: Kokosing

DATE: 2/17/21

ATTN: Mike Luyster

IF CHECKED BELOW, PLEASE:

() Acknowledge receipt of enclosures

() Return enclosures to us

() Drawings

(☒) Shop Drawings

() Product Literature

() Specifications

(☒) Catalog Cuts / Submittals

() Cert test report

() Change Order No.

() Samples

() Other

DATE	Ref No.	DESCRIPTION	QTY	PAGES	ATTACHMENT
2/17/21		REVISED Signal Supports	4	1	

(☒) For approval

() For your information/file

(☒) Review & comment

()

MEMO: Please review and comment. Order on hold until review is complete by owner.

REVISED



Brian Supplee



FINISH SPECIFICATION

NUMBER **F-283** REV 511
 DATE REVISED: 4/2/18
 PAGE 1 OF 11
 PREPARED BY: C. Cox
 Approved By: C. Cox
 Approved By: S. Krohn
 Approved By: T. Gregory

BASE COAT: HOT DIP GALVANIZE TO ASTM A123
FINISH COAT: TGIC OR URETHANE POLYESTER POWDER

OUTSIDE SURFACES

1. Surface Preparation

- a. Galvanize in accordance with Specification F-1.
 - b. Remove detrimental weld flux slag deposits mechanically.
 - c. Protect cleaned assemblies from moisture and other foreign materials prior to painting.
- Keep indoors.
- d. Parts which are coated with zinc, aluminum, or galvanized do not require F-1.
 - e. Brushblast to a uniform dull appearance free of any shine and and preheat for 60 minutes at 400F, prior to painting.
 - f. Mechanically galvanized parts do not require brush blasting.

2. Powder Coat

- a. Valmont part number: See list below.
- b. Color: See list below. Add identification (ID) letter to number for complete designation of paint system.
- c. Manufacturer and #: See List Below.
- d. Total Thickness (dry): See List Below.
- e. **THIS IS A 3 MIL AVERAGE WITH NO READINGS BELOW 2 MILS**

3. Application

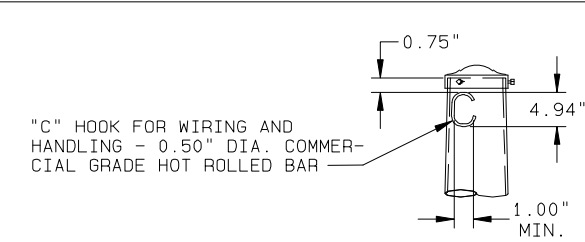
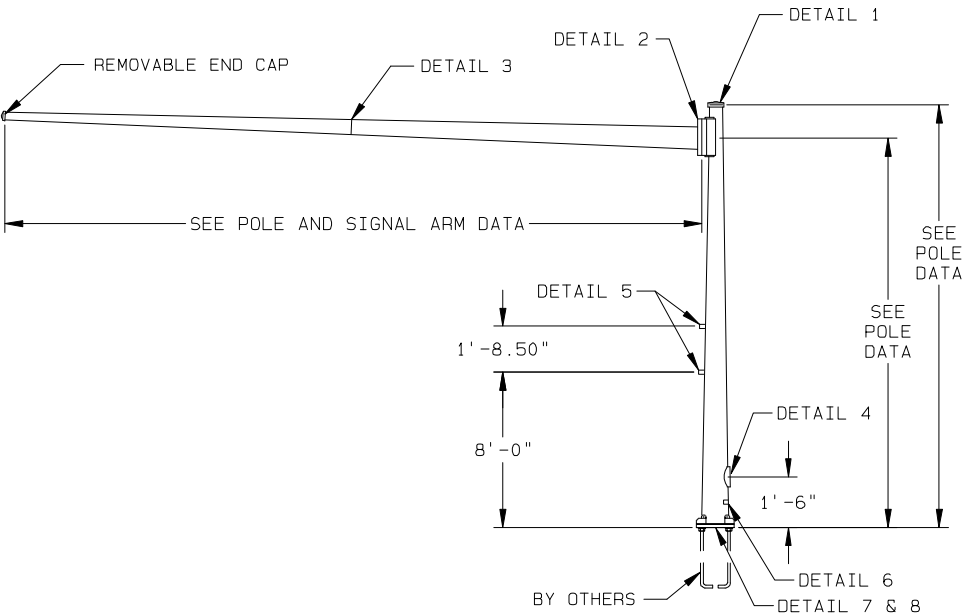
- a. Remove moisture, oil, grease, loose paint or other foreign material prior to painting using a clean rag saturated with thinner or solvent.
- b. Apply powder with electrostatic spray equipment.

*Lower cure temperature to (360° for 60 minutes oven time.)

POWDER COAT COLORS

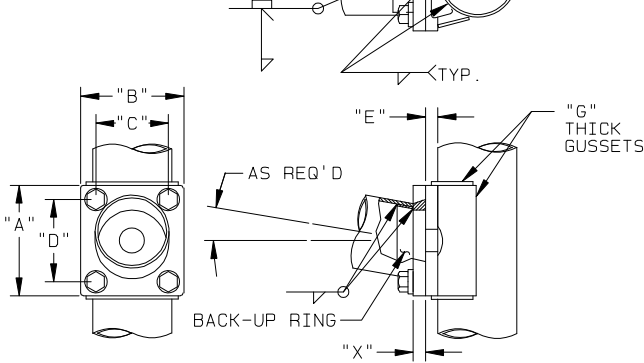
I.D.	FINISH MILS	NO. OF COATS	BASIC COLOR	DESCRIPTOR	I.D. NUMBER		F395/ F643
					VENDOR NO.	VALMONT NO.	
A	3.0	1	Black (Std.)	TGIC	IVC 87070T55K	347334	BX
B	3.0	1	Bronze (Std.)	Dark TGIC	IVC 86592T50K	347333	T
C	3.0	1	White (Std.)	Spartan TGIC	IVC 87072T85K	347652	E
D	3.0	1	Brown	Cocoa	TCI 9910-8036	347486	AV
E	3.0	1	Bronze (Std.)	Med. F108BZ TGIC	IVC 87076T50K	347432	CN
F	3.0	1	Bronze		MT 20-8029	347393	
H	3.0	1	Silver		MT 33-9110	347429	
I	3.0	1	Gray	Randolph	PT US12TS10	347461	KH
J	3.0	1	White (Std.)	Spartan TGIC	IVC 87072T85K	347652	E
K	3.0	1	Gray	F73, F/S 26314	IVC 87069T45K	347379	
L	3.0	1	White (Std.)	Spartan TGIC	IVC 87072T85K	347652	E
M	3.0	1	Green	Fed. Spec. 14036	IVC 86600T70K	347810	
N	3.0	1	Orange	Pumpkin Int'l.	IVCB14308TQ80K	347477	
O	3.0	1	Green	Olive	MT 20-6018	347481	
P	3.0	1	Yellow	Buttercup	PTTS93-YS03	347476	HZ
Q	3.0	1	Gray	Utility	MT 20-7025HY	347483	G
R	3.0	1	Green	Evergreen	TCI 9810-6046	347482	

1" I.D. GROMMETS WILL BE SUPPLIED FOR EACH SIGNAL HOLE LOCATION.
HOLES IN POLES AND ARMS TO BE FIELD DRILLED.



DETAIL 1 POLE TOP

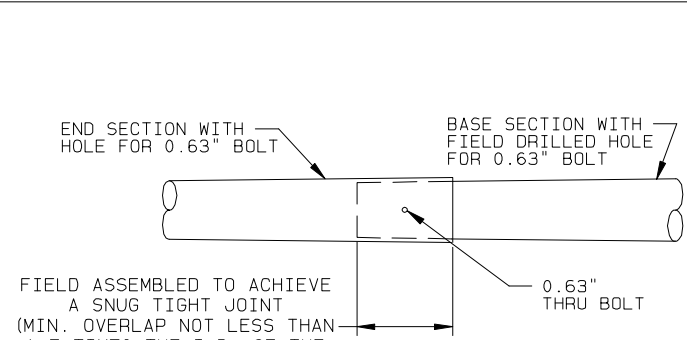
(4) -SIZE "F" HEX HEAD BOLTS
ARM DESIGNS 1-12 INCLUDE
(1) FLAT WASHER PER BOLT.
ARM DESIGNS 13 & 14 INCLUDE
(1) D.T.I. WASHER & (1) FLAT
WASHER PER BOLT.



TC-81.21 POLE DES. NO.	"G" (IN)
1 THRU 4	0.25
11 THRU 13	0.31
14	0.38

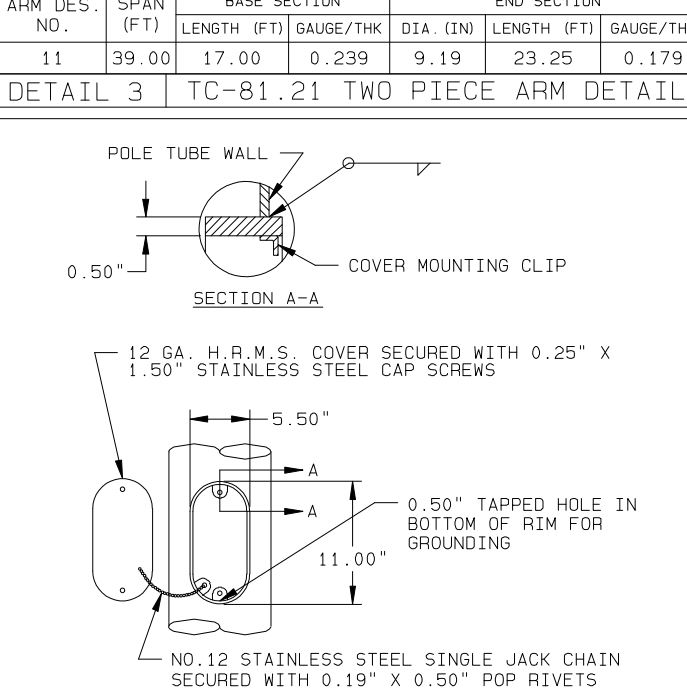
DETAIL 2 ARM ATTACHMENT - TAPPED

OHIO SIGNAL ARM ATTACHMENT DATA							
POLE DES. NO.	"A" (IN)	"B" (IN)	"C" (IN)	"D" (IN)	"E" (IN)	"X" (IN)	"F"
1	14.50	12.00	8.00	10.50	1.25	1.25	1.25" X 3.25"
2	14.50	12.00	8.00	10.50	1.25	1.50	1.25" X 3.50"
11	16.50	14.50	9.50	12.50	1.50	2.00	1.25" X 4.00"

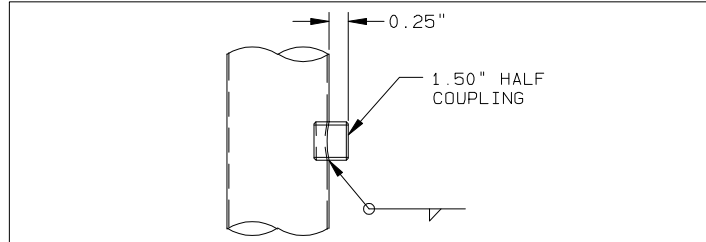


ARM SECTION DATA						
ARM DES. NO.	SPAN (FT)	BASE SECTION		END SECTION		
		LENGTH (FT)	GAUGE/THK	DIA. (IN)	LENGTH (FT)	GAUGE/THK
11	39.00	17.00	0.239	9.19	23.25	0.179

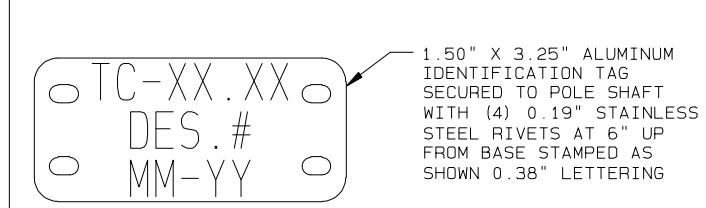
DETAIL 3 TC-81.21 TWO PIECE ARM DETAIL



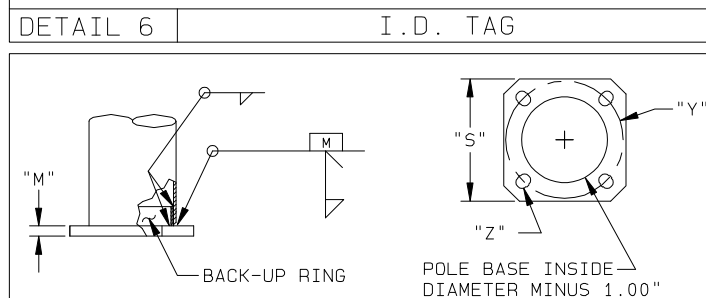
DETAIL 4 HANDHOLE



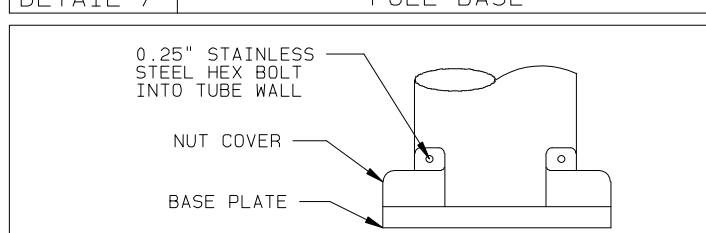
DETAIL 5 PEDESTRIAN SIGNAL COUPLING



DETAIL 6 I.D. TAG

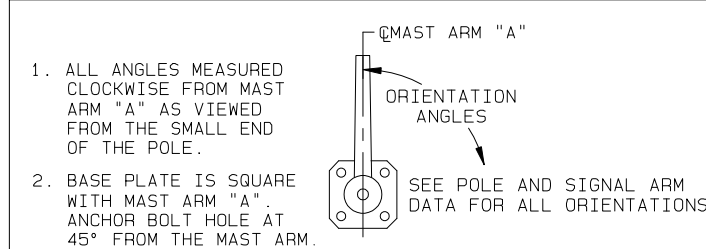


DETAIL 7 POLE BASE



DETAIL 8 NUT COVER

POLE AND SIGNAL ARM DATA																						
POLE NO.	REF NO.	TC 81.21 DES. NO.	QTY.	POLE TUBE				POLE BASE				ANCHOR BOLT				SIGNAL ARM TUBE					ORIENTATIONS	
				BASE DIA. (IN)	TOP DIA. (IN)	LENGTH (FT)	GAUGE OR THK. (IN)	SQUARE "S" (IN)	BOLT CIRCLE "Y" (IN)	THK. "M" (IN)	HOLE "Z" (IN)	DIA. "K" (IN)	LENGTH "J" (IN)	HOOK "H" (IN)	THREAD LENGTH "U" (IN)	ARM ATTACH HEIGHT (FT)	TC 81.21 DES. NO.	FIXED END DIA. (IN)	GAUGE OR THICK (IN)	SPAN (FT)	HAND HOLE	PEDESTRIAN SIGNAL COUPLINGS
SP-1		11	1	14.00	10.85	22.50	0.250	20.50	20.00	2.00	2.13	1.75	SUPPLIED BY OTHERS		21.00	11	11.00	DET.3	39.00	180°	180°	
SP-2		2	1	11.00	7.85	22.50	0.179	15.63	15.00	1.50	1.75	1.50	SUPPLIED BY OTHERS		21.00	2	8.00	0.179	30.00	180°	0°	
SP-3		2	1	11.00	7.85	22.50	0.179	15.63	15.00	1.50	1.75	1.50	SUPPLIED BY OTHERS		21.00	2	8.00	0.179	30.00	180°	90°/180°	
SP-4		1	1	10.00	6.85	22.50	0.179	14.13	13.50	1.50	1.75	1.50	SUPPLIED BY OTHERS		21.00	1	7.00	0.179	18.00	180°	90°	



RADIAL INDEX

NOTE:

- IF ANY COUPLINGS ARE REQUIRED AND NOT SHOWN HERE, PLEASE SPECIFY SIZE, LOCATION AND ORIENTATION OF EACH WITH RELEASE FOR MANUFACTURING.

				SOLD TO: SIGNAL SERVICE, INC	JOB	IR 490 E 55TH ST GCRTA STATION	VALMONT INDUSTRIES, INC. RESERVES THE RIGHT TO INSTALL VARIOUS. ENGINEER APPROVED, MATERIAL HANGING ACCOMMODATIONS TO FACILITATE THE MANUFACTURING PROCESS.	ORDER NUMBER: 491307-P1
A	JDF1 02/16/21	JDF1 02/16/21	REVISED PER CUSTOMER REQUIREMENTS	SHIP TO: TBD		KEY CABLE CLEVELAND		PAGE NUMBER: 1 OF 1
TS8 11/17/20	JDF1 11/18/20			P.O. #: 17049-00				DRAWING NUMBER
REV	DRAWN BY-DATE	CHECK BY-DATE	DESCRIPTION	AGENT: SIGNAL SERVICE, INC	TITLE	TRAFFIC SIGNAL STRUCTURES		OH491307P1
								REV
								A

Submittal: 117

Revision: 1

Date Submitted: 12/15/2020

Response Due By: 1/8/2021



Project: 16051 - ODOT 173000 CUY IR 490/SR010 (OC3)

Description: E. 55th / RTA - Traffic Signal Equipment

To: Andrew Cross, PE
Traffic Engineer – City of Cleveland

Email: Across@city.cleveland.oh.us

From: Oliver Bluestone
Kokosing Construction Company, Inc.

Email: obluestone@kokosing.biz

Submittal Type:	Submitted For:
<input type="checkbox"/> Engineered Drawings	<input checked="" type="checkbox"/> Approval
<input type="checkbox"/> Shop Drawings	<input type="checkbox"/> Record
<input type="checkbox"/> Working Drawings	<input type="checkbox"/> Other
<input type="checkbox"/> CPM Schedule	
<input type="checkbox"/> Material Certifications / Test Results	Sent Via:
<input type="checkbox"/> Reports	<input checked="" type="checkbox"/> Attached (Electronic)
<input checked="" type="checkbox"/> Product Data/Samples	<input type="checkbox"/> Attached (Hard Copy)
<input type="checkbox"/> Other:	

Submittal #	Copies	Spec #	Rev. #	Description	Status
117	1	632 / 633	1	117 – E. 55 th / RTA - Traffic Signal Equipment	For Approval

Comments:

Please see the attached submittal from US Utility Contractor Co. for the traffic signals at the GCRTA E. 55th Station. The following is included in this submittal:

- Detector Unit
- Vehicular Signal Heads
- Pedestrian Signal Heads
- Pedestrian Push Buttons - revised
- Controller Cabinets

Let me know if you have any questions or concerns.

Signed: 

TRANSMITTAL #6

419/ 837-2015 Fax

() Drawings (X) Shop Drawings () Product Literature
 () Specifications (X) Catalog Cuts / Submittals () Cert test report
 () Change Order No. _____ () Samples () Other

DATE	Ref No.	DESCRIPTION	QTY	PAGES	ATTACHMENT
12/14/20		DETECTOR UNIT	3	2	

(☒) For approval () For your information/file
(☒) Review & comment () _____

MEMO: _____



Brian Supplee

Qty 3 3 x 2 channel required



DEFLECTOMETER™

LMD622

DEFLECTOMETER™ SERIES

TWO CHANNEL NEMA TS-2 TYPE A LOOP MONITOR™

Built-in DEFLECTOMETER™ Technology Provides Users With:

- ✓ Call Strength Indicator for Optimum Sensitivity Programming
- ✓ One step / One vehicle dynamic Sensitivity programming
- ✓ Frequency Meter for immediate analysis of loop frequency, avoiding loop cross-talk problems
- ✓ Push Button Programming

Why guess when you can know your detector is optimally programmed and performing for all vehicle classes!

ENHANCED FEATURES

- DEFLECTOMETER Call Strength Indicator:** The *Call Strength Indicator* provides the technician with a simple one-step method for accurately setting the optimum level of sensitivity that ensures accurate vehicle detection of all vehicles, including motorcycles and high-bed trucks. *NO MORE GUESSING!*
- When a medium size vehicle is over the roadway loop, a DEFLECTOMETER™ Call Strength value of "5" assures that the optimum sensitivity has been achieved. You can adjust the DEFLECTOMETER™ reading *DYNAMICALLY* without moving the vehicle by using the front panel UP or DOWN sensitivity buttons. *IT DOES NOT GET ANY EASIER THAN THIS!*
- Frequency Meter:** The built-in *Frequency Meter* reports the operating frequency of the loop network. Ensuring that adjacent loops are separated by at least 5 KHz will avoid crosstalk problems and future service calls.
- Output CALL Test Mode:** The Output Call Test Mode provides a straight forward way to test that the Controller Unit is receiving an active output from the detector. This eliminates the need for cabinet test switches and associated wiring. A huge time saving feature during system set-up and trouble-shooting.
- Rugged Handle Assembly:** The rugged handle assembly is made of GE LEXAN™, which is a super durable polycarbonate resin. The design of this assembly strengthens and protects the whole PCB assembly much better than conventional face plates. The temperature stability of critical components is improved with the more encompassing enclosure. Quick reference instructions are conveniently attached directly on the side of the unit, eliminating the need for cards.
- Advanced Loop Diagnostics:** The Fault (FLT) indicator displays the type of fault: Short, Open or 25% change of inductance. The Fault Monitor will report and store three types of loop faults; Open Loops, Shorted Loops, and 25% sudden changes in inductance. Each type of fault is indicated by a unique sequence of flashes allowing the user to diagnose loop failures at a glance.
- Options:** Relay Outputs, Model LMD622R

STANDARD FEATURES

- ✓ Automatic Tuning
- ✓ Lightning & Surge Protection
- ✓ Four (4) Frequency Levels
- ✓ Fail Safe Output Configuration
- ✓ Separate Color-Coded LED indicators
- ✓ Wide Loop Inductance Range: 20 to 2500 microHenries.

EBERLE DESIGN INC.

3819 East La Salle Street
Phoenix, AZ 85040 USA
www.EDltraffic.com

Tel (480) 968-6407
Fax (602) 437-1996



LMD622 DEFLECTOMETER™ SERIES TWO CHANNEL INDUCTIVE LOOP VEHICLE DETECTOR SPECIFICATIONS

General Characteristics

Controls: Front panel push buttons allow the user to set the Sensitivity Level, Operational mode, and nominal Frequency independently on each channel.

Setting Sensitivity - Front Panel Push Buttons

The DEFLECTOMETER™ (front panel 7-segment LED) aids in setting the DETECTOR quickly and easily to the most optimum sensitivity level to ensure the trouble-free detection of all vehicles, including motorcycles and high bed vehicles. For typical vehicles (mid-size vehicle / small pick up) utilizing properly installed roadway loops, a Call Strength of 5 displayed on the DEFLECTOMETER™ during the DETECT output period indicates an optimum sensitivity setting. For high profile vehicles (commercial trucks, 4x4's, etc...), a Call Strength value of 4 will be optimum. For low profile vehicles (sports cars, etc...), a Call Strength value of 6 will be optimum.

Adjusting sensitivity using the DEFLECTOMETER™ (recommended):

The DEFLECTOMETER™ should read zero (0) with no vehicle over the roadway loop. When a typical mid-sized vehicle is completely in the detection zone (DET indicator On), the Call Strength value should be adjusted up or down until the DEFLECTOMETER™ displays the desired optimum value of 5 (or 4 or 6 as described above).

If a typical vehicle located over the roadway loop causes the Call Strength "7" to be displayed on the DEFLECTOMETER™, the sensitivity should be decreased two levels. This can be done by pressing the front panel SENS ⬇ button two times to achieve the Call Strength value of 5.

If a typical vehicle located over the roadway loop causes the number "2" to be displayed on the DEFLECTOMETER™, the sensitivity should be increased three levels. This can be done by pressing the front panel SENS ⬆ button three times to achieve the Call Strength value of 5.

NOTE: THE DEFLECTOMETER™ CALL STRENGTH DYNAMICALLY UPDATES AFTER EACH SENSITIVITY LEVEL CHANGE, ALLOWING YOU TO CHANGE SENSITIVITY SETTINGS WHILE A VEHICLE REMAINS IN THE LOOP DETECTION ZONE.

Adjusting sensitivity without using the DEFLECTOMETER™ (manually setting sensitivity):

The DETECTOR offers 9 levels of sensitivity (1 to 9). Level 9 is the highest sensitivity. Sensitivity Level can be manually set to any desired value by pressing the front panel SENS buttons (⬆ or ⬇) when a vehicle is NOT over the roadway loop (DET indicator Off). The first time a SENS button (⬆ or ⬇) is pressed, the current Sensitivity Level is displayed on the DEFLECTOMETER™ for 3 seconds. If either SENS button (⬆ or ⬇) is pressed again before the 3 second period ends, the Sensitivity Level will increase (SENS ⬆) or decrease (SENS ⬇). The new Sensitivity Level value will be displayed on the DEFLECTOMETER™ display for 3 seconds. The factory default Sensitivity setting is level 6.

Sensitivity	ΔL / L	Sensitivity	ΔL / L
9	0.01%	4	0.32%
8	0.02%	3	0.64%
7	0.04%	2	1.28%
6	0.08%	1	2.56%
5	0.16%	-	-

Loop Frequency / Loop Frequency Display: One of four frequency settings may be selected via the front panel FREQ push button to alleviate interference which may occur when loops connected to different detectors are located adjacent to one another. To help prevent or diagnose crosstalk problems, the loop frequency is displayed on the front panel DEFLECTOMETER™. The current loop frequency is displayed after pressing the FREQ button to display the current Frequency Level. The frequency is shown in KHz with a "-" symbol displayed both before and after the numeric digits shown on the DEFLECTOMETER™.

For example, after pressing the FREQ button once the display sequence might show:

"3" ⇒ "-" ⇒ "2" ⇒ "7" ⇒ "-"

This sequence would indicate Frequency Level "3" and a loop reference frequency of 27 KHz. Detectors on adjacent loops should all be separated by at least 5 KHz.

Loop Fault Monitoring: The Detector continuously checks the integrity of the loop. The system is able to detect shorted or open circuit loops, or sudden changes in inductance exceeding 25% of the nominal inductance. If a fault is detected, the OUT and FLT indicators continuously emit a sequence of flashes. Additionally, the DEFLECTOMETER™ displays the letter "F" indicating a current loop fault. Each type of fault is identified by a unique flash sequence:

Flash Sequence	Fault
1 flash	Open Circuit Loop.
2 flashes	Shorted Circuit Loop.
3 flashes	25% excessive change in inductance.

If the Open or Shorted fault condition self heals, the DET indicator and DEFLECTOMETER™ will return to normal operation. The FLT indicator will continue to flash with the sequence signifying the type of fault that was last detected. In the case of the excessive inductance change fault, the unit will return to the new inductance after a period of two seconds and continue operation. The fault condition will be indicated by the flash sequence of the FLT indicator.

Operational Modes

Presence: For each channel, a Presence output mode may be selected from the front panel MODE push button. If presence mode is selected then a choice of short (S) or long (L) can be selected. Short Presence is defined as 30 minutes and Long Presence is defined as 120 minutes.

Pulse: For each channel, a Pulse output mode (P) may be selected from the front panel MODE push button. In Pulse mode, a 125 ms ± 25ms width pulse will be output for each vehicle entering the loop.

Call: For each channel, a continuous CALL output (C) may be selected from the front panel MODE push button which will simulate the presence of a vehicle. This mode is used for testing the CALL output of a channel.

Channel Off: For each channel, the Channel Off (-) may be selected from the front panel Mode push button. This option turns OFF the channel and disables the oscillator. An additional option allows the Status Output to be turned ON while the channel is OFF.

Status Outputs:

Each channel includes a separate output which is used to transmit operational status information to a Bus Interface Unit (BIU). Fault information is transmitted by means of pulse-width modulation. Pulse widths shown are +10ms.

Status	Status Output Condition
Normal operation / No fault	Continuous ON (low)
Watchdog fail / Power Supply fail	Continuous OFF (high)
Open circuit loop	50ms OFF, 50ms ON
Short circuit loop	100ms OFF, 50ms ON
25% change in inductance	150ms OFF, 50ms ON

Specifications:

DC Supply Voltage: Minimum 10.8 Vdc
Maximum 28.8 Vdc

DC Supply Current: Maximum 100 mA

Optically Isolated Outputs: True (low, 50 mA) Less than 1.5 Vdc
Maximum Current 100 mA

Outputs are fail-safe such that a Detector with no power will provide the True (low) Call state.

Relay Outputs: AC Contact Rating 5A @ 120 Vac
DC Contact Rating 5A @ 30 Vdc

Environmental: Operating Temperature Range: -30°F to 165°F (-34°C to 74°C)

Mechanical: International Card 4.500"H (114.30mm) x 6.875"D (174.63mm) x 1.14"W (28.96mm), excluding handle, with 44 pin double sided edge connector.

Pin Assignment:

PIN	FUNCTION	PIN	FUNCTION
A	Logic Ground	1	Reserved
B	DC Supply	2	Reserved
C	External Reset	3	Reserved
D	Ch 1 Loop Input	4	Ch 1 Redundant Loop Input
E	Ch 1 Loop Input	5	Ch 1 Redundant Loop Input
F	Ch 1 Output (+)	6	Reserved
H	Ch 1 Output (-)	7	Ch 1 Status Output
J	Ch 2 Loop Input	8	Ch 2 Redundant Loop Input
K	Ch 2 Loop Input	9	Ch 2 Redundant Loop Input
L	Chassis Ground	10	Reserved
M	Reserved	11	Reserved
N	Reserved	12	Reserved
P	Reserved	13	Reserved
R	Reserved	14	Reserved
S	Reserved	15	Reserved
T	Reserved	16	Reserved
U	Reserved	17	Reserved
V	Reserved	18	Reserved
W	Ch 2 Output (+)	19	Reserved
X	Ch 2 Output (-)	20	Ch 2 Status Output
Y	Reserved	21	Reserved
Z	Reserved	22	Reserved

TRANSMITTAL #2

Perrysburg, OH 43551

419/ 837-2015 Fax

OWNER'S PROJECT NO. _

DATE: 12/14/2020

IF CHECKED BELOW, PLEASE:

☐ Return enclosures to us

() Product Liturature

() Cert test report

() Other

() _____

MEMO:



Brian Supplee

SA Polycarbonate Vehicle Traffic Signal



Signal Head, standard, (LED), 3-Section, 12" Lens, polycarbonate YELLOW with reflective Backplate rigid mount Astrobrac natural. Eagle SA City of Cleveland. Consistent with previous Opportunity Corridor Project. Configurations enclosed

Description

The standard signal is composed of three polycarbonate LED-ready body sections containing the door and visor. The basic construction design provides minimum weight but maximum rigidity and strength. The housing, door and visor are injection molded of ultraviolet stabilized, pre-colored opaque polycarbonate. It meets or exceeds ITE specifications.

Features

Housing – One piece unit with serrations in 5° increments at each end. Each housing has provisions for mounting two terminal blocks and attaching backplates. Housings may be fastened together to make multi-section signals. The 8" and 12" housings can be intermixed to form combination signals.

Door – One piece polycarbonate unit equipped with stainless steel hinge pins. Stainless steel thumbscrews are used to hold the door against the housing.

Visor – The removable twist-on visor is secured to the door with stainless steel hardware. Cap, tunnel, and full circle visors are available.

Positive Positioning – Positive positioning and locking is achieved through the use of serrated brackets, mast arm, or span wire fittings.

Terminal Block – All terminal blocks are composed of a sturdy polycarbonate weather resistant casing and stainless steel hardware. Terminal block is standardly installed in the yellow section of signal (second from top).

Hardware – Stainless steel material inside and outside.



Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

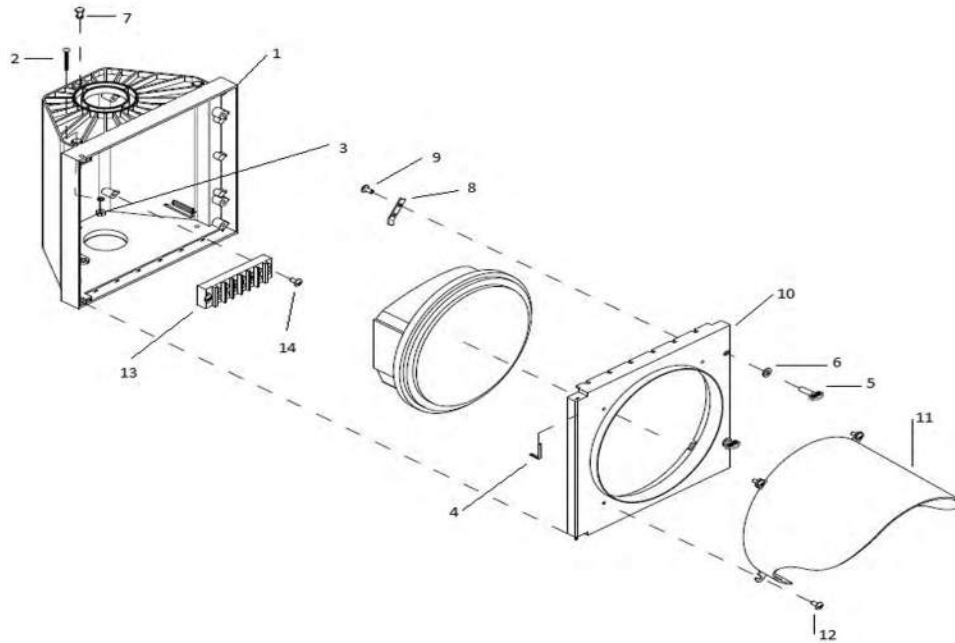
mobotrex™
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

SA Polycarbonate Vehicle Traffic Signal



EAGLE[®]
Traffic Control Systems

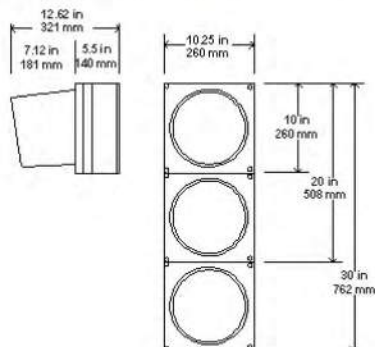
Diagram



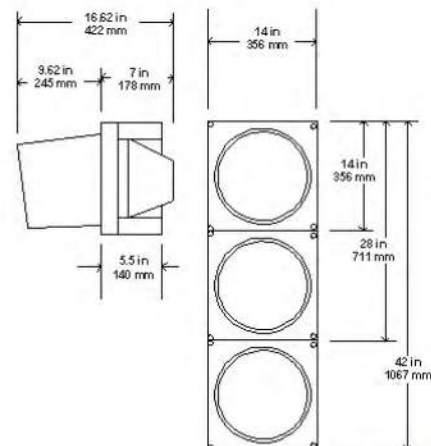
8" (200 mm) &
12" (300 mm)
traffic signals

Weights	8" (200 mm)	12" (300 mm)
Single section with visor (approx.)	4 lbs. (1.81 kg)	7 lbs. (3.18 kg)
Housing Only	1 lbs. 6.4 oz. (.64 kg)	2 lbs. 5.2 oz. (1.05 kg)
Door Only	7.5 oz. (.21 kg)	15.1 oz. (.43 kg)
Ring	3.5 oz. (.10 kg)	6.6 oz. (.19 kg)

8" (200 mm) Signal Dimensions



12" (300 mm) Signal Dimensions



Eagle Traffic Control Systems is a division of:

mobotrex[™]
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

SA Polycarbonate Vehicle Traffic Signal



EAGLE[®]
Traffic Control Systems

Replacement Parts

8" (200mm) &

12" (300mm)

Signals

Signal Replacement Parts

Ref No.	Description	Part # 8"(200 mm)	Part # 12"(300 mm)
1	Signal Housing Green	KB19113	KB4818
	Signal Housing Yellow	KB19111	KB8416
	Signal Housing Black	KB19112	KB4817
2	Screw (10-24 hex screw)	0141716	0141716
3	Flange nut	0150715	0150715
4	Door hinge pin	K1196	K1196
5	Thumbscrew, SS	0141212	0141212
6	Thumbscrew washer, SS	0155924	0155924
7	Hole plug	PHP16	PHP16
8	Lens clip, generic	A84436155	A84436155
9	Lens clip screw	0133029	0133029
10	Signal door, green	PDM2029	PDM2032
	Signal door, yellow	PDM2028	PDM2031
	Signal door, black	PDM2027	PDM2030
11	Visor - tunnel	A700119 XX	A700120 XX
	Visor - cutaway	A700468 XX	A700469 XX
12	Visor Screw (10-32 x 3/8")	135021	135021
13	Terminal block, 6 pos. spade type	PCT100TX	PCT100TX
14	Terminal block screw, SS	A702121	A702121

Eagle Traffic Control Systems is a division of:

mobotrex[™]
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

GE
Lighting

GTX™ City VLA Model LED Signal Modules

8 and 12 inch

Incandescent look (120V)



Robust Features

- Optimal thermal management for longer life.
- Provides performance under extreme field temperature conditions.

Innovative Design

- Low profile module permits efficient installation into existing traffic housings.
- Power consumption levels allow compatibility with most controllers.
- Mask compatible to fit your unique signaling needs.*

Outstanding Performance

- High-brightness central light source and custom optical lensing distribute light uniformly and efficiently.
- Rigorously tested for long life design and low maintenance costs.
- Excellent color uniformity.

Meets Rigorous Certification & Testing Standards

- Intertek ETL Verified compliant.
- Compliant with ITE VTCSH LED Circular Signal Supplement dated June 27th 2005.
- CSA approved version available.

* Sold separately. Refer to masks datasheet TRAF208.



imagination at work



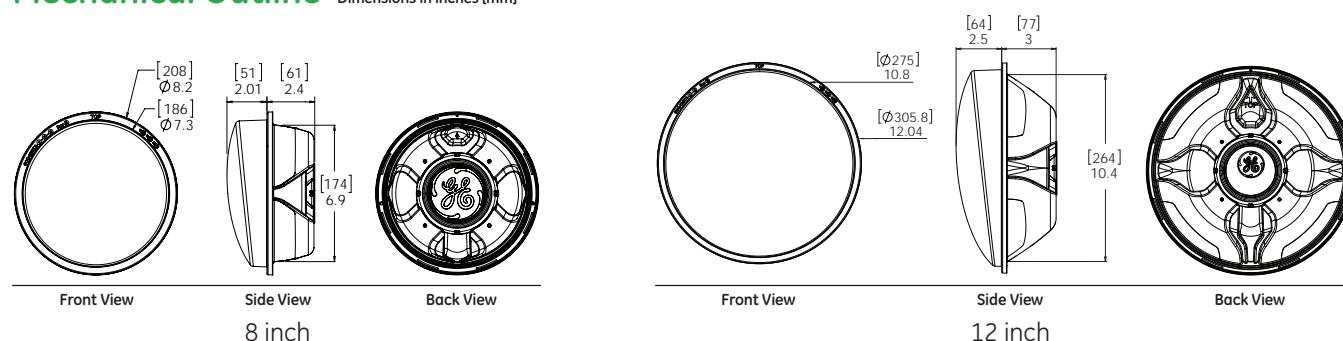
The Greatest Signals Stand the Test of Time.™

GTX™ City LED Signal Modules

• 8 and 12 inch

Mechanical Outline

Dimensions in inches [mm]



Design Compliance

Test type	Compliance
Luminous Intensity	ITE VTCSH-LED Circular Signal Supplement -June 2005
Chromaticity	ITE VTCSH-LED Circular -June 2005
Moisture Resistance	Blown Wind Rain MIL-STD-810F method 506.4
Mechanical Vibration	MIL-STD-883 Method 2007
Electronic Noise	FCC Title 47 Sub. B Sec 15 ¹
Transient Voltage Protection	Sec. 2.1.6 NEMA TS2-2003, 300V, 2500W Sec. 2.1.6 NEMA TS2-2003, 600V, 10µF Sec. 2.1.8 NEMA TS2-2003, 1kV, 2Ω
Controller Compatibility	ITE VTCSH-LED Circular Signal Supplement -June 2005
Wiring	NFPA 70, National Electric Code
Transient Suppression	Sec. 8.2 IEC 61000-4-5 & Sec. 6.1.2 ANSI/IEEE C62.41.2 - 2002, 3KV, 2 Ω Sec. 8.0 IEC 61000-4-12 & Sec. 6.1.1 ANSI/IEEE C62.41.2 - 2002, 6KV, 30 Ω

Operating Specifications

Parameter	Rating
Operating Temperature Range*	-40 to +74°C (-40 to +165°F)
Operating Voltage Range	80 to 135 V (60Hz AC)
Power Factor (PF)	> 90%
Total Harmonic Distortion (THD)	< 20%
Minimum Voltage Turn-Off (VTO)	35 V
Turn-On / Turn-Off Time	< 75 ms
Lens & Shell Material	UV Stabilized Polycarbonate
Wiring	8 in lamp: 40in, 20 AWG, Color Coded with Strain Relief ** 12 in lamp: 40in, 20 AWG, Color Coded with Strain Relief **

* Operating Temperature Range per ITE 2005, Section 3.3.2

** For CSA approved version : 40in, 18AWG, Color Coded with Strain Relief

Product Information

Model Number	Front Shell	Size (in)	AC Voltage Nominal	Power (W) Nominal	Wavelength (nm) nominal	Maintained Intensity (Cd) Minimum ²
● DR4-RTFB-VLA	Tinted	8	120V - 60Hz	6.7	628	165
○ DR4-RCFB-VLA	Clear					
● DR4-YZFB-VLA	Tinted					
○ DR4-YTFB-VLA	Clear					
● DR4-YCFB-VLA	Tinted	8	120V - 60Hz	7.9	589	410
○ DR4-YCFB-VLA	Clear					
● DR4-GTFB-VLA	Tinted					
○ DR4-GCFB-VLA	Clear					
● DR6-RTFB-VLA	Tinted	12	120V - 60Hz	6.7	625	365
○ DR6-RCFB-VLA	Clear					
● DR6-YZFB-VLA	Tinted					
○ DR6-YTFB-VLA	Clear					
● DR6-YCFB-VLA	Tinted	12	120V - 60Hz	9.9	589	910
○ DR6-YCFB-VLA	Clear					
● DR6-GTFB-VLA	Tinted					
○ DR6-GCFB-VLA	Clear					

Standard product equipped with universal connectors (insulated spade-quick disconnect).

All colors available in tinted or clear lens.

¹ Class A

² Measured at vertical angle of -2.5° and at horizontal angle of 0°.

Distributed by:



GE Lighting • 1-888-MY-GE-LED • www.gelighting.com

1 - 8 8 8 - 6 9 - 4 3 - 5 3 3 for North America · or · + 1 . 2 1 6 . 2 6 6 . 2 4 1 9

GE Lighting Solutions, LLC is a subsidiary of the General Electric Company. "The Greatest Signals Stand the Test of Time" are trademarks of GE Lighting, LLC. The GE brand and logo are trademarks of the General Electric Company. © 2014 GE Lighting, LLC. Information provided is subject to change without notice. All values are design or typical values when measured under laboratory conditions.

TRAF282-R120314

current
powered by GE

GTX™ City VLA Model LED Arrow Signals

12 inch

Incandescent look (120V)

Excellent Appearance & Visibility

- Efficient optical design allows omnidirectional arrow placement with maximum light output
- Excellent color uniformity creates an incandescent look for easy readability
- New or retrofit use

Outstanding Reliability & Robust Operation

- High efficiency and high-brightness LED light source
- Failed state impedance protection detects the loss of LED load
- Optimized thermal management for longer life
- Provides performance under extreme field temperature conditions

Meets Rigorous Certification & Testing Standards

- Intertek ETL Verified compliant
- DOE compliant
- CSA approved model available
- Using MIL-STD-810F and MIL-STD-883 for environmental robustness, passed reliability and qualification testing, including high temperature, high humidity cycling
- Compliant with ITE VTCSH LED Vehicle Arrow Traffic Signal Supplement dated July 1, 2007



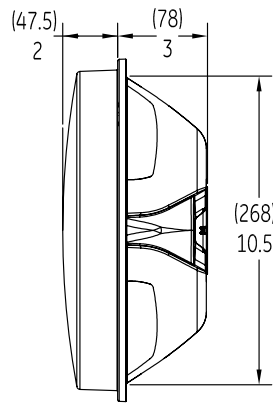
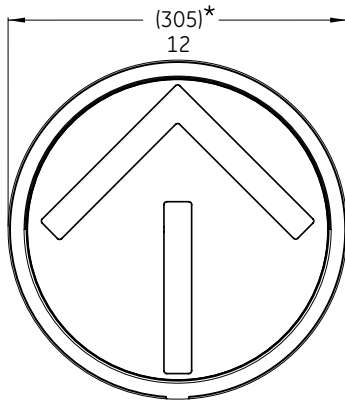
The Greatest Signals Stand the Test of Time.™

GTX™ City LED Arrow Signal Modules

- 12 inch module

Mechanical Outline

Dimensions in inches. (mm) indicates metric equivalent



Operating Specifications

Parameter	Rating
Operating Temperature Range*	-40 to +74°C (-40 to +165°F)
Operating Voltage Range	80 to 135 V (60Hz AC)
Power Factor (PF)	> 90 %
Total Harmonic Distortion (THD)	< 20 %
Voltage Turn-Off (VTO)	35 V
Turn-On / Turn-Off Time	< 75msec
Lens & Shell Material	UV Stabilized Polycarbonate
Wiring	40in, 20 AWG, Color Coded with Strain Relief

* Operating Temperature Range per ITE 2005 section 3.3.2

Design Compliance

Test type	Compliance
Luminous Intensity	ITE VTCSH-LED Vehicle Arrow Traffic Signal Supplement, July 2007
Chromaticity	ITE VTCSH-LED Vehicle Arrow Traffic Signal Supplement, July 2007
Moisture Resistance	NEMA STD 250 Type 4 – 1991 Blown Wind Rain MIL-STD-810F method 506.4
Mechanical Vibration	MIL-STD-883 Method 2007
Electronic Noise	FCC Title 47 Sub. B Sec.15 ¹
Transient Voltage Protection	Sec. 2.1.6 NEMA TS2-2003, 300V, 2500W Sec. 2.1.6 NEMA TS2-2003, 600V, 10μF Sec. 2.1.8 NEMA TS2-2003
Controller Compatibility	ITE VTCSH-LED Vehicle Arrow Traffic Signal Supplement, July 2007
Wiring	NFPA 70, National Electric Code
Transient Suppression	Sec. 8.2 IEC 1000-4-5 & Sec. 6.1.2 ANSI/IEEE C62.41.2 - 2002, 3KV, 2Ω Sec. 8.0 IEC 1000-4-12 & Sec. 6.1.1 ANSI/IEEE C62.41.2 - 2002, 6KV, 30Ω

Product Information

Model Number	Size (in)	AC Voltage Nominal	Power* (W) Nominal	Wavelength* (nm) Dominant	Maintained Intensity (Cd) Minimum
DR6-RTAAN-VLA	12	120V – 60Hz	6.5	625	58
DR6-RCAAN-VLA	12	120V – 60Hz	6.5	625	58
DR6-YTAAN-VLA	12	120V – 60Hz	6.5	589	146
DR6-YCAAN-VLA	12	120V – 60Hz	6.5	589	146
DR6-GTAAN-VLA	12	120V – 60Hz	6.5	500	76
DR6-GCAAN-VLA	12	120V – 60Hz	6.5	500	76

All lamps available in tinted or clear lens.

¹ Class A

* Data shown is target specification undergoing validation testing

Distributed by:



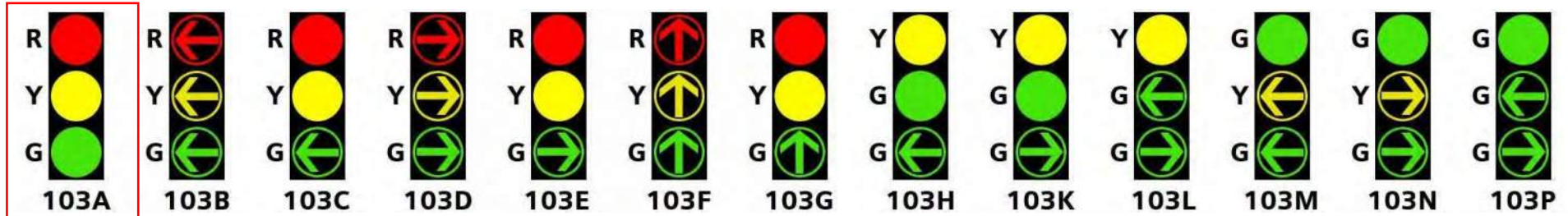
www.currentbyge.com

All trademarks are the property of their respective owners. Information provided is subject to change without notice. All values are design or typical values when measured under laboratory conditions. Current, powered by GE is a business of the General Electric Company.
© 2016 GE.

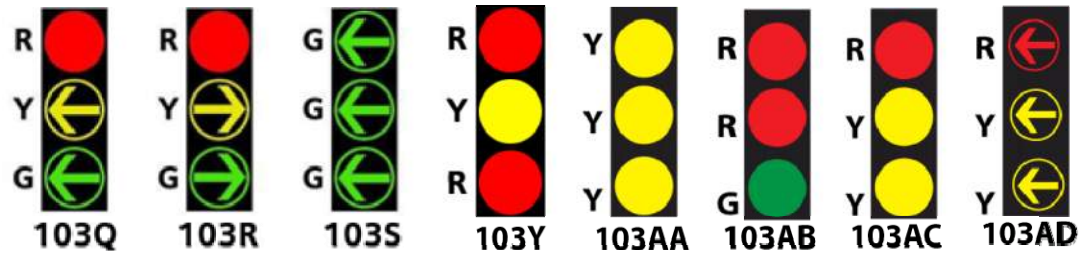
TRAF309 (Rev 05/27/16)

SIGNAL HEAD ASSEMBLY & ORDERING INFORMATION

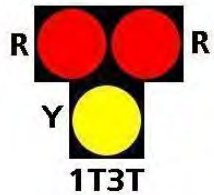
10 SECTION VERTICAL



Qty 8

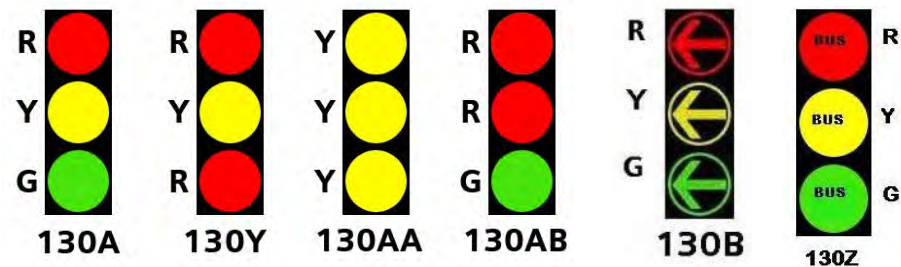


3 SECTION CLUSTER 12"



3 SECTION VERTICAL 8"

AVAILABLE IN POLYCARBONATE ONLY



Signal Backplates

Refs 0040 0041 0042



EAGLE[®]
Traffic Control Systems

Description

Traffic signal backplates are designed to properly shield a traffic signal from background obstructions. The backplate provides a dark silhouette that isolates the signal face from store lights, signs, sunlight and other environmental conditions that tend to reduce the brilliance of the light indications. A study found that backplating can cut the number of vehicle accident claims at intersections by nearly 15%.



Features

- Cored holes and stainless steel thread forming screws are provided in the die cast aluminum and polycarbonate traffic signals for quick, easy installation of backplates.
- **Aluminum backplates** are fabricated from .063" 5052-H32 aluminum and are standardly primed and painted flat black on both sides. Aluminum backplating provides the strongest strength-weight ratio and is very resistant to weather and corrosion in harsh environments.
- Poly backplates are fabricated from .125" high density polyethylene (HDPE) and are standardly dull black on one side and semi-gloss black on the other side. Polyethylene backplating is very resistant to impacts and abrasions. It will also keep its strength and shape in extreme temperatures and severe weather conditions. If reflective tape is required, the backplates will be fabricated from ABS material.
- Available with 1", **2"** and 3" wide **reflective tape** installed in center or flush with **outside edge**.



Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

mobotrex[™]
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

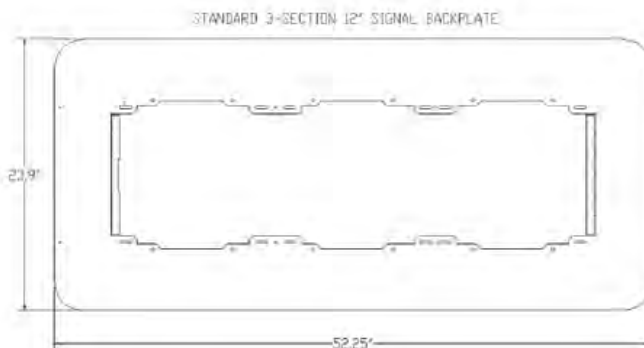
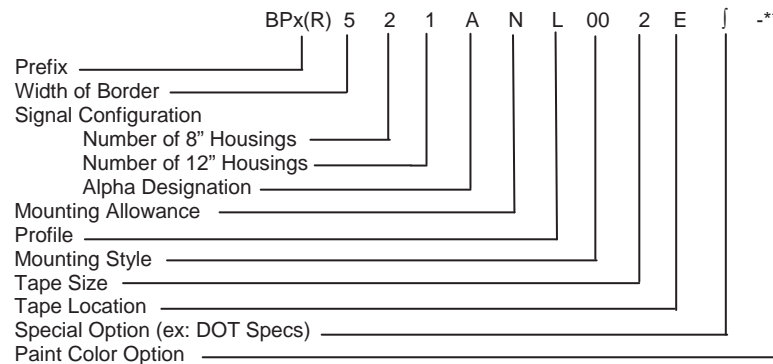
Signal Backplates



Backplate Number Construction Code

Prefix	Width of Border	Signal Configuration			Plumbizer Mounting Allowance	Profile	Hanger Style	Width of Reflective Tape	Tape Location	Special Options J	Paint Option -**
		Number of 8" (203mm) Housings	Number of 12" (300mm) Housings	Face Arrangement*							
BPA = Alum - SG BPB = Poly - SG BPAR = Alum-SG W/Reflect Tape BPBR = Poly - SG W/Reflect Tape BPC = Alum - SA BPD = Poly - SA BPCR = Alum-SA W/Reflect Tape BPDR = Poly -SA W/Reflect Tape	5 = 5" 8 = 8"	0 1 2 3 4 5 6	0 1 2 3 4 5 6	A - Z	N = None E = Eagle R = Ryall (Frey)	F = Flat L = Louver	00 = None 01 = Span Wire 02 = Astro Bracket 03 = Other	0 = None 1 = 1" 2 = 2" 3 = 3"	N = None E = Edge C = Center	0 = None 1 = Multi 2 = Tape 3 = Louver Size or direction 4 = Hardware 5 = Other 6 = Louver centered	-00 = Flat Black -12 = Yellow (Contact Brown for other paint options)

* Use the lowest signal alpha designation for the wanted signal arrangement. Reference VFA (Vehicle Face Arrangement) Chart.



Eagle Traffic Control Systems is a division of:

mobotrexTM
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

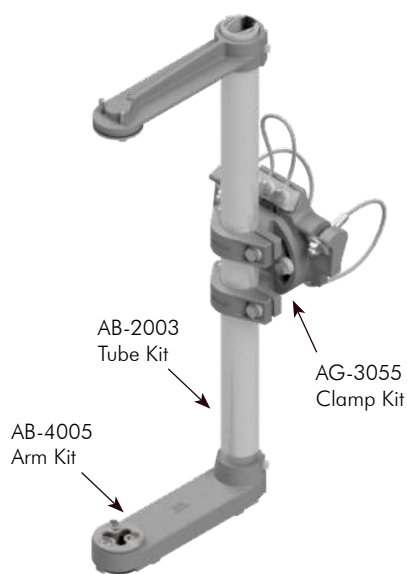
1-Way Assemblies

Designed to accommodate all traffic signals, with the exception of optically programmed (see pages T1-18 through T1-21). The Galaxy and Stellar Astro-Brac series feature all-axis adjustability and are designed to facilitate the mounting of any size signal to any shape mast arm or pole.

Qty 8 AG-0125-3-84-SS-PNC



Astro-Brac Galaxy Assy, 1-Way Cable Mount

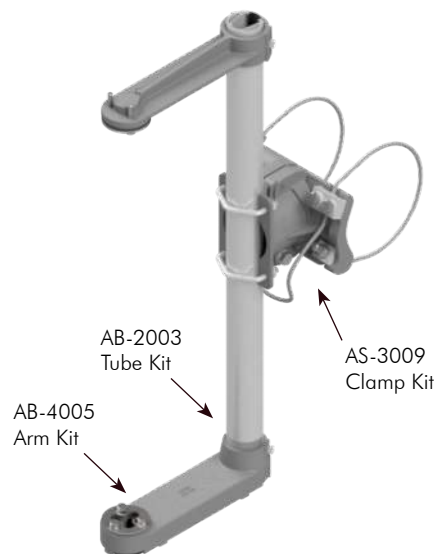


Signal Section	Cable Length	Cable	Coating
AG-0125	See Note	Blank=Galv SS=Stainless	PNC=Process No Color P__=Paint
1=1 Sec 2=2 Sec 3=3 Sec 4=4 Sec 5=5 Sec			



Note:
Cable Length: 62", 84", 96", 110", 120", 132", 144", 220", or 280".

Astro-Brac Stellar Assy, 1-Way Cable Mount



Signal Section	Cable Length	Cable	Coating
AS-0125	See Note	Blank=Galv SS=Stainless	PNC=Process No Color P__=Paint
1=1 Sec 2=2 Sec 3=3 Sec 4=4 Sec 5=5 Sec			



Note:
Cable Length: 62", 84", 96", 110", 120", 132", 144", 220", or 280".

- Note: 1. All assemblies are supplied standard with stainless steel slotted washers and fasteners.
2. See Reference Section page iv for cable and band clamp kit pole diameters.
3. See Reference Section for available paint colors.

TRANSMITTAL #3

Perrysburg, OH 43551

419/ 837-2015 Fax

OWNER'S PROJECT NO. _

DATE: 12/14/2020

IF CHECKED BELOW, PLEASE:

☐ Return enclosures to us

() Product Liturature

() Cert test report

() Other

() _____

MEMO:



Brian Supplee

16-inch Pedestrian Signal



Features

- Meets or exceeds ITE specifications.
- Design provides minimum weight but maximum rigidity and strength.
- The housing is designed to work with a gasket supplied by LED manufacturer.
- Mounting is completely compatible with all standard signal hardware.
- The housing is designed to accommodate 16-inch LEDs.
- Heavy duty .250" thick material.

Aluminum Signal

The 16 inch Aluminum Pedestrian Signal LED housing is one piece die-cast aluminum alloy, with two integrally-cast hinge lugs, screw slots, and openings at each end. The swing-down door is a single piece die-cast aluminum alloy, with two hinge lugs cast on the top of the door and two latch points on the bottom. The door is attached to the bottom of the housing using two hinge pins. Two eye bolts and wing nuts on the top allow the door to be opened and closed without the need for special tools.

Polycarbonate Signal

The Polycarbonate 16-inch Pedestrian Signal is available in three different colors, yellow, black and green. The LED housing is one-piece injection-molded with hinge lugs, screw slots, and openings at each end. The swing-down door is a single piece injection-molded polycarbonate, with two hinge lugs molded on the bottom of the door and two latch points on the bottom. The door is attached to the bottom of the housing using two cotterless locking pins. Two eye bolts and wing nuts on the top allow the door to be opened and closed without special tools.

Qty 6

Pedestrian Signal D2 Black Poly with GE LED countdown.

6 1-way side of pole (20.5 inches c t c for BHC's)

****NOTE:** There are 6 pedestrian signal for 3 crosswalk. The Pushbutton (Audible type) quantity is 4. Please review and and confirm.



Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

mobotrexTM
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

16-inch Pedestrian Signal



Signal Housing

The openings will accommodate standard 1.5" pipe brackets. The bottom opening of the housing has an integrally-cast locking boss. The radial angular grooves of the locking boss provide 5 degree incremental positioning of the signal to eliminate rotation or misalignment of the signal. The housing is available with a knock-out plug at the top and bottom. This plug eliminates the need for additional hardware to close these openings when using a clamshell or post-top mounting bracket.

Visor Options

The egg crate visor option is designed to eliminate sun phantom and minimize damage to the LED. The **egg crate visor** is inserted through the back side of the door and it overlaps by 1/2 inch. It is sealed when the door is closed, which prevents light from escaping between the visor and the door. The egg crate visor is available only in black. A tunnel visor is also available to be included either with or without the egg crate visor.

Aluminum Signals Only

- Clamshell installation reference is facing the front of the signal. Clamshell holes drilled on one side only, if requested on S housing.
- M housing has the top and bottom holes plugged and holes drilled on both sides for clamshell mounting.
- M housing has 5 holes on right and left with knock-outs in place.
- Peds are shipped without a door gasket or LED locking device.
- Serration located on bottom. Adapter ring M20466 required for serrations on top.

Polycarbonate Signals Only

- M housing has the top and bottom holes plugged and 5 knockouts on left and right side to accommodate clamshell mounting (L or R designations are not needed).
- Serrations located on top and bottom.
- Peds are shipped without a door gasket or LED locking device.
- **When ordering black housings or doors, use color designator B.**

Visor Notes:

- **When ordering egg crate visor, use Visor color designator F.**
- When ordering assembly without Visor, use Visor type 0 and visor color designator F.

Eagle Traffic Control Systems is a division of:

mobotrexTM
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

16-inch Pedestrian Signal



Poly designation is BBF

Signal Head Ordering – 16” Pedestrian											
Aluminum and Polycarbonate											
Signal Shape 16” PED	Housing Type ¹	Lens Config [*]	Housing Material	Clamshell Install	LED Supplied By	Visor Type	Housing Color	DoorColor	Visor Color	LED CT	Options
SG7	S = STD M=MAINT B = Both	A = H/M B = W/DW C = SM/WM/CD D = Canada E = Canada F = Canada G = Hand/CD H = H/M+CD Z = Customer Supplied 0 = None	1 = Poly 2 = Alum	0 = None 1 = Right 2 = Left	1 = Siemens C = Customer A = Dialight F = Dialight USA 0 = None GE per enclosed catalog.	0 = None 1 = Egg 3 = Tunnel	0 = No CaseHousing A = AluminumGray B = Gloss Black C = Berkley Brown D = MDCGray E = BattleshipGray F = Flat Black G = West CoastGreen H = MinneapolisYellow J = Texas Brown L = OceanStateGreen M = East Coast Green N = Bare P = QuebecBrown Q = Bronze (Retardo) R = Wine Red S = Star Dust Silver T = TorontoGray V = VStanley– NY Grn W = White(Navajo) Y = Yellow Z* = Special X# = Non-Std forPoly-minimums apply	0 = No DoorHousing A = AluminumGray B = Gloss Black C = Berkley Brown D = MDCGray E = BattleshipGray F = Flat Black G = West CoastGreen H = MinneapolisYellow J = Texas Brown L = OceanStateGreen M = East Coast Green N = Bare P = QuebecBrown Q = Bronze R = Wine Red S = Star Dust Silver T = TorontoGray V = VStanley– NY Grn W = White Y = Yellow Z* = Special X# = Non-Std forPoly-minimums apply	0 = No Visor A = AluminumGray B = Gloss Black C = Berkley Brown D = MDCGray E = BattleshipGray F = Flat Black G = West CoastGreen H = MinneapolisYellow J = Texas Brown L = OceanStateGreen M = East Coast Green N = Bare P = QuebecBrown Q = Bronze (Retardo) R = Wine Red S = Star Dust Silver T = TorontoGray V = VStanley– NY Grn W = White(Navajo) Y = Yellow Z* = Special X# = Non-Std forPoly-minimums apply	10	Contact Your Sales Rep for Optional Configurations

STD – Standard

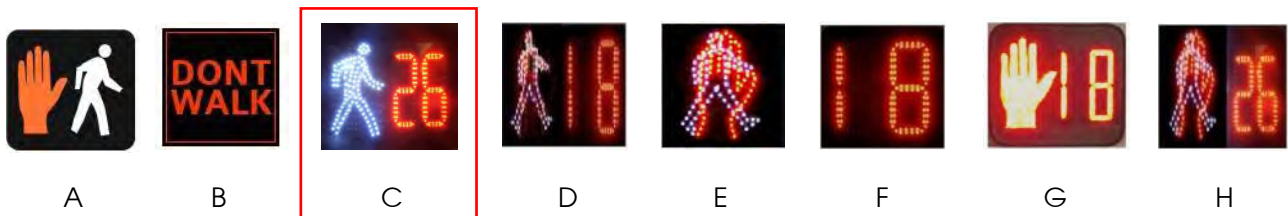
MAINT – Maintenance

LED CT – LED count

*CS - Customer Supplied

A - Hand / Man
B - Walk / Don't Walk
C - Standing Man / Walking Man / Count Down
D - Canadian Standing Man / Walking Man / Count Down
E - Canadian Walking Man / Hand
F - Count Down
G - Hand / Count Down
H - Hand / Man + Count Down
Z - Customer Supplied ^ - Can use F or 0 to reflect no visor and always use for Egg Crate

All renderings are for reference only.



Eagle Traffic Control Systems is a division of:

mobotrexTM
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

GE
Lighting

GTX™ City LED Countdown Pedestrian Signals 16 x 18 inch



Excellent Appearance & Visibility

- Robust LED system design enables high luminous intensity over product life cycle
- Efficient optical system minimizes power consumption while providing excellent uniformity and viewing angles
- Single piece transparent front window with internal masking to prevent:
 - countdown and icons display from being readily visible when not in operation
 - scratches and abrasions compared with external silk screen technology
- Bright and clear icons
- Fully uniform look
- Lower profile*
- Improved luminous intensity uniformity

Outstanding Reliability & Robust Operation

- Internal conflict monitor preventing walk and don't walk indications to light up at the same time
- Individual power supply drives each display to ensure proper indication
- Reduced overall power consumption*

* Compared to PS7-CFF1-27A

Meets Rigorous Certification & Testing Standards

- Intertek ETL Verified compliant
- DOE compliant
- Using MIL-STD-810F and NEMA 250-1991 Type 4 for environmental robustness, passed reliability and qualification testing including high temperature, high humidity cycling (HTHH for 1,000 hours)
- Compliant (for Full Hand/Full Person) with the ITE PTCSI LED Signal Modules
 - version dated August 2010



imagination at work



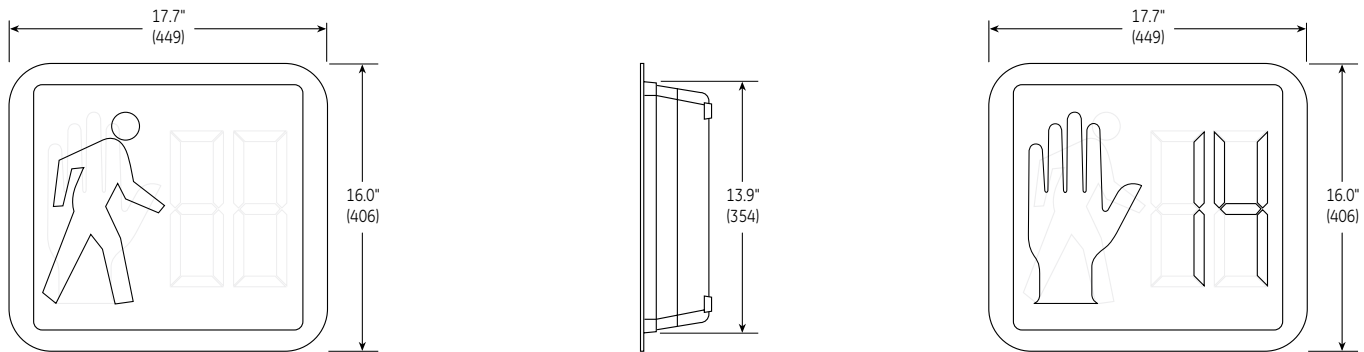
The Greatest Signals Stand the Test of Time.™

GTX™ City LED Countdown Pedestrian Signals

- 16 x 18 inch module

Mechanical Outline

Dimensions in inches. (mm) indicates metric equivalent



Design Compliance

Test type	Compliance
Luminous intensity, Uniformity & Viewing Angles	ITE PTCSI LED Signal Modules version of August 2010
Chromaticity	ITE PTCSI LED Signal Modules version of August 2010
Moisture Resistance	MIL-STD-810F Procedure 1, Rain & Blowing Rain
Mechanical Vibration	MIL-STD-883 Test Method 2007
Electronic Noise	FCC Title 47 Sec 15 Sub. B ¹
Transient Voltage Protection	Sec. 2.1.6 NEMA TS 2-2003 Sec. 2.1.8 NEMA TS 2-2003
Controller Compatibility	NEMA TS-2-2003
Transient Suppression	Sec. 8.2 IEC 1000-4-5 & Sec. 6.1.2 ANSI/IEEE C62.41.2 - 2002, 3KV, 2 Ω Sec. 8.0 IEC 1000-4-12 & Sec. 6.1.1 ANSI/IEEE C62.41.2 - 2002, 6KV, 30 Ω
Wiring	NFPA 70, National Electric Code
Digits	MUTCD 2003, Section 4E.07, Countdown Numbers Minimum 9" Height & 7" Width

¹ Class A

Operating Specifications

Parameter	Rating
Operating Temperature Range*	-40 to +74°C (-40 to +165°F)
Operating Voltage Range	80 to 135 V (60Hz AC)
Power Factor (PF)	> 90 %
Total Harmonic Distortion (THD)	< 20 %
Voltage Turn-Off (VTO)	35 V
Start-up Time	< 75msec
Lens & Shell Material	UV Stabilized Polycarbonate
Wiring	16 AWG, Color Coded with Strain Relief
LED Color	Hand: Portland Orange Person: Lunar White Countdown: Portland Orange
Default Mode	Hand only

* Performed in compliance with ITE test method described in the technical notes

Product Information

Model Number	Dimensions		Symbol		AC Voltage Nominal	Power (W)			Minimum Luminous Intensity Cd/m ²	
	Dimensions	Layout	Hand	Person		Hand	Person	Countdown	Hand/Digit	Person
PS7-CFF1-VLA	16 x 18 in	Overlay Countdown	Full	Full	120V - 60Hz	6	6	8	1400	2200

¹ Class A.

² Full MUTCD Compliance

Test Condition : T_a = 25°C. All values are design or typical values when measured under laboratory conditions.



GE Lighting • 1-888-MY-GE-LED • www.gelighting.com

1 - 8 8 8 - 6 9 - 4 3 - 5 3 3 for North America · or · + 1 . 2 1 6 . 2 6 6 . 2 4 1 9

GE Lighting Solutions, LLC is a subsidiary of the General Electric Company. "The Greatest Signals Stand the Test of Time" are trademarks of GE Lighting, LLC. The GE brand and logo are trademarks of the General Electric Company. © 2014 GE Lighting, LLC. Information provided is subject to change without notice. All values are design or typical values when measured under laboratory conditions.

TRAF289-R012615

Aluminum 1-Way Side-of-Pole ICC Ped Head with Cast Nipples

Pelco's Side-of-Pole assemblies are designed to mount traffic and pedestrian signals on the side of traffic signal poles with an upper and lower arm. Available in aluminum or iron, and 1-1/2" NPS, tri-bolt, or tri-stud, and a vast array of hubs to accommodate both 1-way or 2-way signal configurations.



SE-3144
Upper Arm Assy

1-Way Upper & Lower ICC Ped Arm Assy, 12" Nipples

SE-3146 -

Coating

PNC=Process No Color

P__=Paint



SE-3145
Lower Arm Assy

Note:
See Components Section for choice of hub plates.



SE-3214
Upper & Lower
Arm Assy

1-Way Upper & Lower ICC Ped Arm Assy, 12" Nipples, Universal Hub Plates

SE-3214 -

Coating

PNC=Process No Color

P__=Paint



SE-3146
Upper & Lower
Arm Assy

1-Way Upper & Lower ICC Ped Arm Assy, 12" Nipples, Large Pole Hub Plates

SE-3308 -

Coating

PNC=Process No Color

P__=Paint

Qty 6 1-way SOP for Pedestrian Signals P33
Black Includes Hubs 20.5" C to C

Note: 1. All assemblies are supplied standard with stainless steel fasteners.
2. See Reference Section for available paint colors.

side-of-pole



U.S. UTILITY CONTRACTOR CO., INC.

3592 Genoa Road

Perrysburg, OH 43551

419/ 837-9358 or 419/ 837-2017

419/ 837-2015 Fax

TRANSMITTAL #4.1

REVISION

PROJECT: OC3 GCRTA SIGNAL

OWNER'S PROJECT NO.

COMPANY: Kokosing

DATE: 12/16/2020

ATTN: Mike Luyster

IF CHECKED BELOW, PLEASE:

☐ Acknowledge receipt of enclosures

☐ Return enclosures to us

☐ Drawings

☒ Shop Drawings

☐ Product Literature

☐ Specifications

☒ Catalog Cuts / Submittals

☐ Cert test report

☐ Change Order No.

☐ Samples

☐ Other

DATE	Ref No.	DESCRIPTION	QTY	PAGES	ATTACHMENT
12/16/20		PEDESTRIAN PUSH BUTTON	4	6	

☒ For approval

☐ For your information/file

☒ Review & comment

☐

MEMO: Revised Polara INS from Central Control to Ped head Control.

Brian Supplee



Leader in APS Solutions

Connectivity | Accessibility | Durability

*Polara is the
trusted industry
leader in Accessible
Pedestrian Signals.*

Qty 4 Pedestrian pushbutton Audible Accessible. Polara iNavigator includes Pedestrian Head Control units and Pushbutton Pole units.

****NOTE** There are 6 pedestrian signals for 3 crosswalks, PED A, PED B and PED D shown on the plans. The Pushbutton (Audible type) quantity is 4. Audible Pushbuttons are shown for crosswalks PED A and PED D only on plan pages 19 and 20. Please review and confirm that Qty 4 is correct.



5.0

iNS



ICCU-S2

iNS Next Generation of iNavigator

SIGNIFICANT upgrade to iNavigator that is backwards compatible with existing iN2 and iN3 installations.

PEDAPP™

Agency controlled pedestrian smartphone ADA intersection crossing supplement.



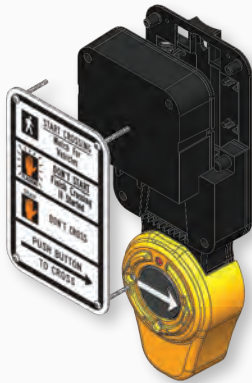
PEDAPP

Call your dealer for
more information or
visit--

POLARA.COM



Now One Button Choose Your Configuration



5.0
iNS



iNS iNAVIGATOR PED STATION

- **NEW** Single unit works with both iN2 (2-wire) and iN3 (3-wire) installations (Ped Head or Central Comm System)
- **NEW** Both systems can now Wireless Sync each other via Bluetooth to extend call range
- **NEW** Bluetooth 5.0 — More speed, range and app capabilities
- **NEW** Modular speaker design with front and rear sound
- Same iNavigator firmware and backwards compatible



iCCU-S2



CHOOSE 2- OR 3-WIRE SYSTEM

2-Wire Central Communication Control Unit:

- **NEW** Improved transient protection
- **NEW** Separate cables – Only buy what you need
- **NEW** TS1, TS2 & SDLC, TS2 Full BIU, 300 series cabinet (170/2070) card (iCCU-C2)

3-Wire Ped Head Control Unit:

- 3 wires to control unit in Ped Head (power, ground, data)



5.0



WIRELESS PROGRAMMING

- Industry-leading wireless accessibility and control (iOS®, Android™, Windows PC)
- Easily load/extract voice messages to/from PBS
- Free customized voice recording/online database for easy email/share/upload to buttons
- Quiet Time Control (modify sound via time of day in 3 steps)
- Save, share, and upload configuration settings/firmware
- Button diagnostics, firmware upgrades and more

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Polara is under license. iOS is a registered trademark owned by Cisco Systems, Inc. licensed to Apple Inc. Android is a trademark owned by Google LLC. Windows is a trademark owned by Microsoft Corporation.



APS Connectivity, Accessibility and Confidence with Independent Lab Testing:
NEMA TS2 | Temperature | Humidity | Mechanical-Shock-Vibration | Transient Surge



Qty 4 Pedestrian pushbutton Audible Accessible. Polara iNavigator includes Pedestrian Head Control Unit. to control Pushbutton Pole units.

iNS3: "iNS" iNavigator 3-Wire Push Button Station

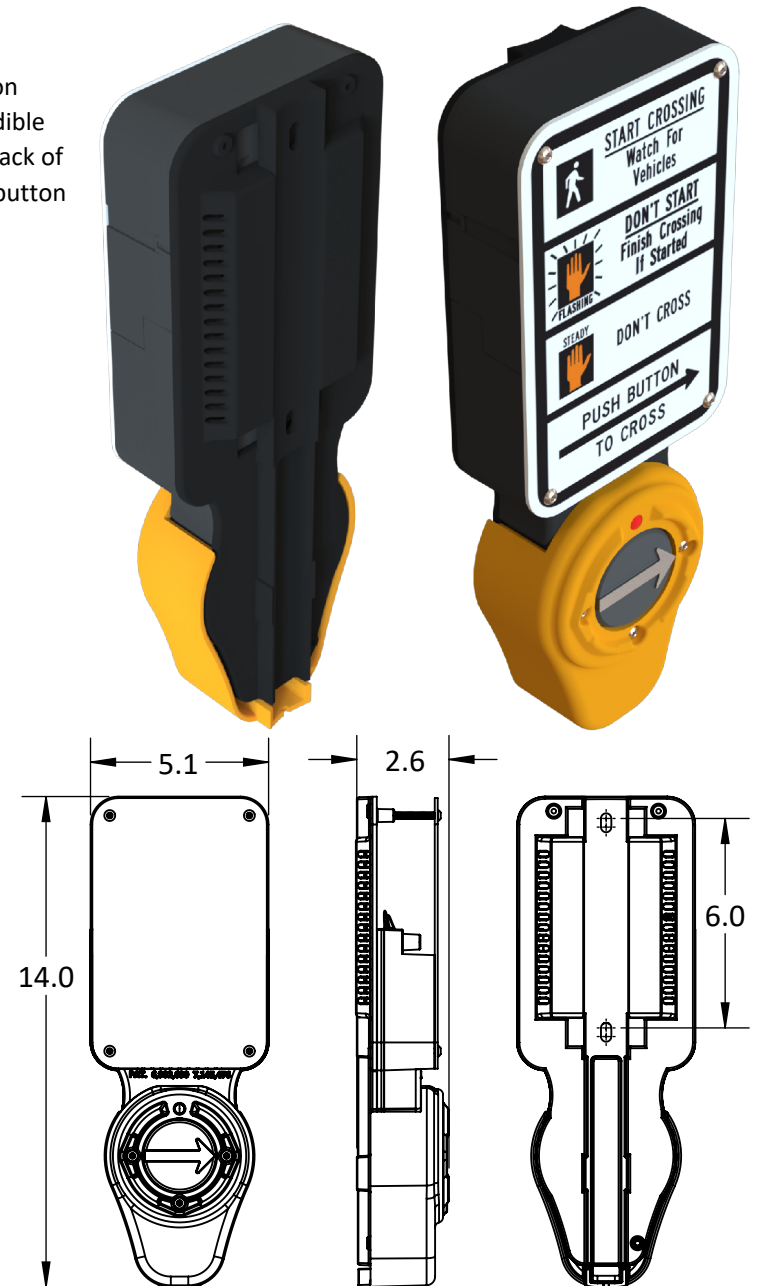
The "iNS" iNavigator 3-Wire Push Button Station (iNS3 PBS) is the pedestrian interface to the iNavigator Accessible Pedestrian System. A system consists of a Ped Head Control Unit (iPHCU3S) and a Push Button Station. The iNS3 PBS provides valuable information and cues via both a vibrating arrow button and audible sounds, making the intersection accessible for all pedestrians. All sounds emanate from the front and back of the unit. A sunlight-visible red LED latches "ON" along with a tactile feedback "bounce" to confirm the button has been pushed. The vandal-resistant design of the iNS3 PBS includes the body, which houses the ADA compliant push button (shown), a faceplate (5X7 sign shown), and mounting hardware.

By interfacing with the iPHCU3S that installs in the Ped Head, the iNS3 PBS can provide the following standard features:

- 3 Wires (Data, PWR, GND) connect iPHCU3S to iNS3. Two wires to traffic cabinet are needed to place calls for actuated intersections.
- Cuckoo, Chirp, Rapid Tick, Verbal, or other user-customized voice messages during walk. A total of 10 walk sound options are included with an additional 3 locations for custom sounds.
- Standard locating tone during Don't Walk (and Clearance if desired)
- Choice of 4 locating tones, Canadian Melody, or verbal countdown during PED clearance
- Walk, Clearance, and Don't Walk sounds automatically adjust to ambient
- Separate ambient response settings for Locate Tone (for quiet ambient conditions)
- Independently set maximum and minimum volume on most sounds
- Button vibrates during Walk
- Button push confirmed by latching LED, tactile bounce, and audible "wait" sound
- Extended button push can boost volume for next Walk and Clearance
- Direction of travel message with extended button push, capable
- Extended Push activation settings: 0-6 second range, 0.5 second increments
- Extended Push can turn on and boost volumes on the activated crosswalk
- Beaconsing and Ping Pong features available
- Custom audio messages, configuration settings, and firmware updates can be easily uploaded wirelessly via Bluetooth using Windows or iOS
- Select audio messages, change settings, and perform firmware updates wirelessly using iOS (9.0+) or Android (5.0+) devices, or a Windows PC with Polara's Bluetooth Dongle (PN iN-DGL, purchased separately)
- Built in health/event logging feature, up to 1000 events
- External speaker option at time of order
- External button input for bike lanes, horses, etc.
- Warranty: 3 year limited

*The iNS3 replaces the iN3 and is backward compatible with the iPHCU3W.

Dimensions are in inches. iNS35BN0-Y unit shown.





Operating Specifications	
Parameter	Rating
Operating Temp. Range	-34°C to +74°C (-30°F to +165°F)
Storage Temp. Range	-45°C to +85°C (-50°F to +185°F)
Operating Force	3.0 lbs max, option of 3 adjustable programmed forces
Switch Operating Life	Greater than 20 million operations
Max. Volume	100 dB @ 1 meter

Design Compliance	
Functionality Test Type	Compliance
Temperature and Humidity	MUTCD 2009-4E
Transient Voltage Protection	NEMA TS2
Transient Suppression	NEMA TS2
Mechanical Shock and Vibration	NEMA TS2
iNS3 PBS Enclosure	NEMA 250 Type 4X
Electrical Reliability	NEMA TS2

Notes:

1. Lab tested to applicable sections of referenced standards
2. All specifications are subject to change without notice
3. All specifications are typical unless otherwise specified

A 3 Wire Cable (General Cable: C2831A or equivalent) must be routed between each iNS3 PBS and Ped Head Control Unit (iPHCU3S). This cable is not supplied with the iNS3 PBS, but is available separately in pre-cut 12 ft, 25 ft, and 50 ft lengths.

iNS3 PBS Cables	
Part No.	Length
iN3-CABLE-12	12 ft
iN3-CABLE-25	25 ft
iN3-CABLE-50	50 ft

Terminal screws on each iNS3 PBS include washer (clamping plates) intended for bare wire. Crimp terminals are not recommended.

Dimensions are in inches.

iNS3 5 A N 0 - B - BD-ES

Additional Options

Button Options

~~NA - No Arrow~~

BD - Bi-Directional Arrow

Other Options

~~WPC - With pole cap~~

ES - External Speaker option

Button Cover Color

Back plate is always black.

B - Black

G - Green

Y - Yellow

Audio Message Option

0 - Standard messages

1 - Custom Messages

Braille

N - No braille on faceplate

B - Braille on faceplate

Faceplate

MUTCD Compliant

V - 9x12 R10-3

U - 9X12 R10-3b

T - 9x15 R10-3e

Non-MUTCD Compliant

A - 5x7- International

B - 5x7- International

C - 9X12- Countdown

D - 5X7 or 9x12- International

O - No Faceplate

Size of Front Plate Adapter

5 - 5" x 7"

9 - 9" x 12"

3 - 9" x 15"

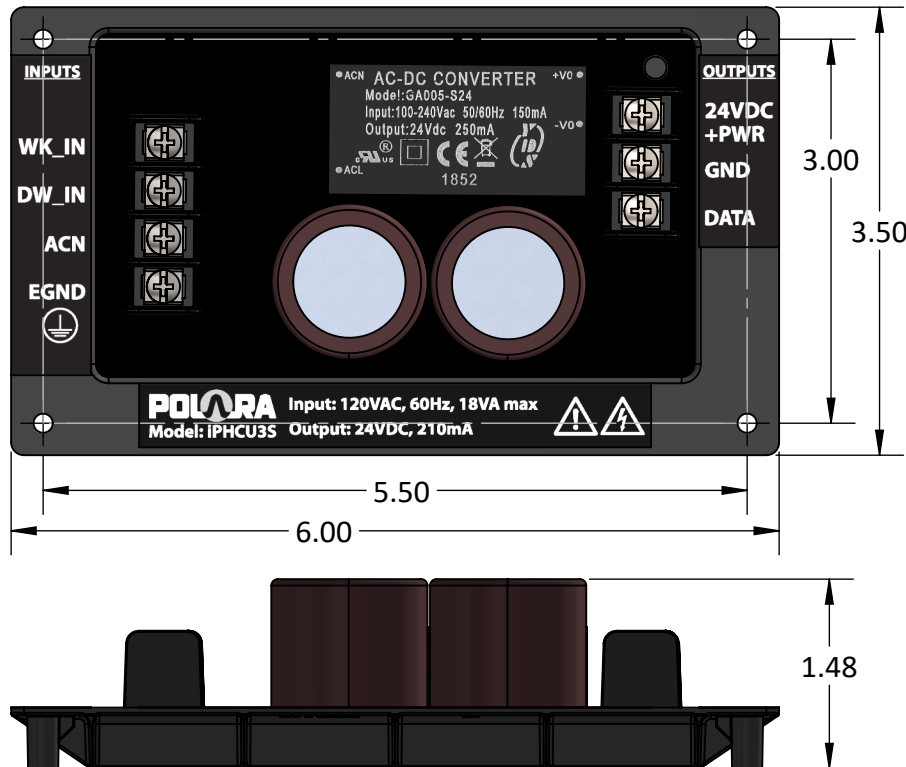
Navigator Family

iNS3 - iNavigator S 3-Wire Push Button



iPHCU3S: PED HEAD CONTROL UNIT FOR iNAVIGATOR 3-WIRE

Polara's iNavigator 3-Wire Push Button Stations require this control unit in the pedestrian signal head to convert the 120VAC WALK and DON'T WALK signals to isolated low voltage DC signals and DC power. Terminal screws include washers (clamping plates) intended for bare wire. Crimp terminals are not recommended.



Functionality Test Type	Compliance
Temperature and Humidity	NEMA TS2
Transient Voltage Protection	NEMA TS2
Mechanical Shock and Vibration	NEMA TS2
Electrical Reliability	NEMA TS2

Note: Lab tested to applicable sections of referenced standards

INPUT CONNECTIONS:

120VAC at 18VA Max, Walk, Don't Walk, AC Common, and Protective Ground to the wiring inside a pedestrian signal head (ped head)

OUTPUT CONNECTIONS:

Three wires - power (+24VDC), Ground, and Data connect from the iPHCU3S to an iNS3 Push Button Station. One iPHCU3S can operate one Push Button Station. The Data signal conveys both Walk and Don't Walk information as well as incoming voltage level information. The iNS3 is able to report a fault in the event of an improper Data signal.

A hardware kit is included with the iPHCU3S which is designed to provide easy mounting inside most common types of ped heads.

The iPHCU3S has built-in surge protection and is protected from moisture. There are no adjustments or replaceable parts.

An iNS2 button will automatically function as an iNS3 button when connected to an iPHCU3S.

*The iPHCU3S replaces the iPHCU3W and is backwards compatible with the iN3 PBS.

Product Ordering Information

iPHCU3S: 3 Wire Ped Head Control Unit (Shown)

iPHCU3S-M: 3-Wire Ped Head Control Unit with Mute Input

Dimensions are in inches. Polara reserves the right to change specifications without notice.

Figure 2B-26. Pedestrian Signs and Plaques (Sheet 1 of 2)



R9-1



R9-2



R9-3



R9-3a



R9-3bP



R9-4



R9-4a



R10-1



R10-2



R10-3



R10-3a



R10-3b



R10-3c



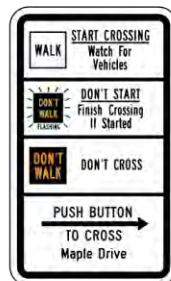
R10-3d



R10-3e



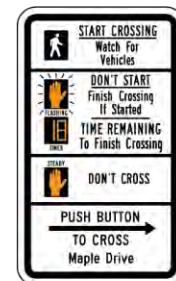
R10-3f



R10-3g



R10-3h



R10-3i

Pedestrian pushbutton Audible 2L; 2R

TRANSMITTAL #5

Perrysburg, OH 43551

419/ 837-2015 Fax

OWNER'S PROJECT NO. _

DATE: 12/14/2020

IF CHECKED BELOW, PLEASE:

☐ Return enclosures to us

() Product Liturature

() Cert test report

() Other

() _____

MEMO:



Brian Supplee

SIEMENS

Qty 1 Controller Siemens TS2 Type 2 M60 with wired Eagle Traffic Cabinet assembly M36 TS2 16 position eight phase Base mount with communications - exterior painted standard Cleveland Dark Bronze. Includes detector rack and interconnect isolation panel. Controller includes Ethernet and FSK communications for twisted pair hardwire interconnect. E 55th & GCRTA Station. Consistent with previous Opportunity Corridor Project.

usa.siemens.com/mobility

m60 Series

The Advanced Traffic Controller for NEMA-style cabinets



Description

The Siemens m60 series complies with the industry's latest Advanced Traffic Controller (ATC) standard 5.2b. Built on the proven m50 hardware architecture, combined with powerful industry-leading SEPAC software, the Linux-based m60 series provides a host of functions to meet the needs of traffic

agencies of all sizes. The m60 series provides multiple Ethernet, USB and other industry-specific interfaces, facilitating both backwards and forwards compatibility. The m60 series also enables easy hosting of third-party applications. In addition, the m60 series exceeds industry standards by providing usability features that include the new Siemens Multiview Display concept (SMD) with real-time active status, context-sensitive HELP screens and user-programmable favorite buttons. The m60 series is truly a nerve center for the connected intersection of the future.

Features

- Exceeds ATC standard 5.2b compliance
- Active TFT backlit LCD display with Siemens Multiview Display Technology
- Modular ATC Communications hub
- Convenient field upgrade packages
 - Linux upgrade package
 - m50 USB upgrade package
 - m60 ATC upgrade package
 - m60 NEMA upgrade package

usa.siemens.com/mobility

Benefits

The Siemens m60 series provides a vast array of benefits compared to other similar products in the industry.

At the heart of the m60 series is the Siemens Multiview Display (SMD) concept. The SMD provides the user with multiple time-saving mechanisms to operate and program traffic controllers. For ease of operation, the 16 line display is split into an active programming view at the top and a dynamically updated active status view – or the context-sensitive HELP – at the bottom. This dual view enables users to dynamically visualize the impact of their programming changes on the overall efficiency of the intersection.

In addition, the ability to program customized function buttons to a specific menu item ensures quick navigation, making the operation of an m60 series fast and efficient.

Having built upon the proven Siemens m50 hardware platform, the m60 series offers a range of possibilities to address financial and technological constraints faced by traffic agencies.

Controllers by Siemens

Central Processor Unit (CPU)

- Open architecture platform with standard Linux operating system
- MPC 8270 266MHz processor
- 512MB FLASH, 64MB DRAM and 2MB SRAM
- TOD Clock with automatic daylight savings time adjustment
- Power supply will power the SRAM during power failures
 - Supports SEPAC controller software
 - SD memory card
 - Operating System: Linux 2.6.39

Keyboard and Display

- Siemens Multiview Display with dual view screens
 - 5 1/8 inch active TFT display
 - Easily removable display and keypad
 - Easily identifiable, discrete HELP button
 - Real-time context sensitive HELP screens
 - User programmable function buttons F1 to F5
- Removable LED backlit LCD with 16 lines of 40 characters with adjustable contrast
- Emulation of terminal per Joint NEMA/AASHTO/ITE Standard
- Key quantity and function per Joint NEMA/AASHTO/ITE Standard

m60 Communications Module

- 10 Base-T Ethernet with built-in switch and 4 front panel RJ-45 connectors
 - ENET1 and ENET2 network switches
 - 5 10/100 TCP/IP ports
- 4 USB 2.0 Ports and a Datakey Port
- Dedicated GPS - SP8 Port (9pin EIA-574)
- Unique MAC address assigned by the Institute of Electrical and Electronic Engineers (IEEE)

- EIA-232 port for uploading/downloading applications software and OS updating
- Single and multi-mode fiber optic options
- 1200 bps Frequency Shift Keying (FSK) modem (optional)
 - Datakey



Communication

- SDLC
- Serial Port
- FSK Modem

Hardware Specifications

- Dimensions
- Power Supply
- Temperature

Controller Housing

- 7 slots with card guides for standard size Versa Modules
- 2 slots with card guides for standard Joint NEMA/AASHTO/ITE ATC modems (optional) or ATC Communication Module or USB Plate
- Polycarbonate construction (excluding back panel), rear mounting tabs and aluminum power supply mounting plate for electrical grounding
- Carrying handle

All Siemens controllers and accessories are built with the highest standards in quality and manufacturing. With a long standing history of technological innovations, well renowned customer service, and high quality products and services, Siemens is the leader in traffic technology products and solutions. For more information on our product line see our website at www.usa.siemens.com/mobility.

Material	Description
m60 Series Controllers	
8133-0004-sss ³	m62 ATC - Siemens Multiview Display (16x40) - ATC Communications Module - ATC Backplane - m60 Linux Engine Board - m60 Power Supply - m62 Field I/O Board
8133-0000-sss ³	m62 ATC Lite - Siemens Multiview Display (16x40) - ATC Backplane - m60 Linux Engine Board - m60 Power Supply - m62 Field I/O Board - USB Plate
8132-xx ¹ yy ² -sss ³	m62 NEMA - Siemens Multiview Display (16x40) - m60 Linux Engine Board - m60 Power Supply - m62 Field I/O Board - USB Plate
1 - Communication Options 2 - Options 3 - Software version code number	
m60 Series Optional Modules	
AAD17048-001	ATC Communications Module
FFS15127-002	Single USB Plate for m60 ATC Lite and m60 NEMA
Software Options	
MBU15805-456	SEPAC NTCIP Linux version 4.56
MBU16037-356	SEPAC ECOM Linux version 3.56
m60 Series Upgrade Kits	
MBV17084-001	m50 OS-9 to m50 Linux Upgrade Kit - m60 Linux Engine Board - m62 Field I/O Board - USB Plate
MBV17085-001	m50 OS-9 to m62 NEMA Upgrade Kit - Siemens Multiview Display (16x40) - m60 Linux Engine Board - m62 Field I/O Board - USB Plate
MBV17086-001	m62 NEMA to m62 ATC Upgrade Kit - ATC Communications Module - ATC Backplane - m60 Power Supply
m60 Series Modules and Spare Parts	
AAD17047-001	Siemens Multiview Display (16x40)
AAD14877-006	m60 Power Supply
AAD17048-001	ATC Communications Module
PXX07659-001	m60 Linux Engine Board
ACP17049-001	ATC Backplane

Siemens Industry, Inc.
9225 Bee Cave Road
Building B, Suite 101
Austin, TX 78733

1.512.837.8300

Subject to change without prior notice
Printed in USA
Order No.: DAT-ATC-0515
© 2015 Siemens Industry, Inc.

The information provided in this flyer contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.

usa.siemens.com/mobility

The Siemens logo is displayed in a white rectangular box. It consists of the word "SIEMENS" in a bold, teal, sans-serif typeface.

Qty 1 Controller Siemens TS2 Type 2 M60

The background of the entire page is a long-exposure photograph of a multi-lane highway at night. The image captures the movement of vehicles as continuous streaks of light. White light trails from headlights and taillights curve through the lanes, while red light trails from taillights are visible in the adjacent lanes. Streetlights and overhead highway signs are visible, adding to the urban scene. The overall effect is one of dynamic motion and modern infrastructure.

SEPAC Local Controller Software

Effective traffic controller software

usa.siemens.com/intelligenttraffic

At a glance

SEPAC offers exciting state-of-the-art traffic control features, including support for connected vehicles, priority for multimodal transportation and the latest peer-to-peer communications technology

The software is user-friendly, accommodating a large variety of traffic control requirements by providing extensive configuration flexibility and full compatibility with Siemens m60 and CalTrans 2070 style traffic controllers.



User-friendly, 16-line menu-driven software with parameters viewable from menu screens.

Support for Vehicle-to-Infrastructure (V2I) Signal Phase and Timing (SPaT) data for DSRC-enabled connected vehicles.

Peer-to-peer communications, linking multiple intersections to create a local adaptive green wave that enhances traffic flow.

Logically laid out keysets with simple setup and startup using standard traffic nomenclature throughout the system.

Rich sets of logging, diagnostics and reporting capabilities available for troubleshooting and data analysis.

Ability to export/import intersection configuration and remotely upload software using the Siemens TACTICS™ 5 Advanced Traffic Management System.



The latest peer-to-peer traffic communications technology

Engineers can use the peer-to-peer communications module of SEPAC and existing on-street detection to identify platoons of vehicles traveling through a network of interconnected signalized intersections. Combine this with the industry-leading priority routines within SEPAC and the identified platoon can be prioritized by applying phase reductions or green time extensions to generate a green wave for the platoon to traverse multiple intersections.

Using the powerful tools available within SEPAC the engineer can improve traffic flow, increase efficiency by removing unnecessary vehicle braking or acceleration and reduce congestion that improves air quality.

Traffic priority to encourage multimodal transportation

Giving high priority to public transportation without interrupting the general traffic flow has been a major challenge for conventional traffic control software in the past. The Siemens SEPAC software has a powerful traffic signal priority mechanism that enables mobility, safety and a better environment to improve the quality of life in cities by enhancing performance of traffic signal control for a number of transportation channels such as Light Rail Transit (LRT) and Bus Rapid Transit (BRT) with minimal impact on pedestrian and vehicle traffic.

Modes of operation

SEPAC’s traffic capabilities include five modes of operation that allow for Time of Day (TOD) operations, week plans, time of year or holiday plans which include coordination, free and flash functions. Available SEPAC modes include:

Standalone	SEPAC can be controlled manually to run specific coordination routines when set to manual, including free operation With time updates available through GPS syncs to keep its internal TOD clock accurate
Master	In conjunction with a Marc master controller, SEPAC can work within a closed loop system SEPAC was developed to be used in combination with SEMARC, in the same controller, without the need for extra cabinets
System	SEPAC has the ability to communicate with the Siemens TACTICS™ system for central management and control of intersections
Adaptive	SEPAC can be integrated to SCOOT adaptive traffic control systems, helping to manage unforeseen traffic condition and incidents with truly adaptive solutions. It also supports powerful peer-to-peer functions for local adaptive solutions.

Phases

- 16 vehicle phases
- 8 pedestrian phases
- 4 phase timing banks
- 4 timing rings
- 15 alternate sequences
- 16 overlaps

Coordination

- 6 modes of coordination
- Locally based traffic responsive routines
- 253 unique signal timing patterns
- 255 actions for mapping patterns (including FREE and FLASH)
- 255 actions to day plans maps
- 255 day plan to schedules maps
- 8 special function maps
- 16 phase function maps
- 3 diagnostic auxiliary functions

Detection

- 64 vehicle detectors
- 8 pedestrian detectors¹⁾
- 8 system detectors¹⁾
- Interface for Sensys Network’s Ethernet Access Points for magnetometers
- Interface to Iteris Vantage Vector™ video and radar detectors
- Interface to traffic priority detectors such as Opticom’s GTT, EMTRAC and E-Views

Communications and Interfaces

- Supports Siemens SCOOT Communication Server interface via Ethernet
- IP, serial and FSK communications to TACTICS™
- IP standard on “m60” and 2070 series controllers
1-B, 1-C and 1-E cards (2009 TEES)
- Peer-to-peer communications
- Dual support of ECOM and NTCIP communications within a single software instance
- USB memory sticks and DataKey interfaces

Peer-to-Peer

- 16 IP configured peer addresses
- 34 source functions from connected peers
- 18 input functions for storing peer information

Pre-emption

- 12 pre-empts
- Return to coordination after pre-empt
- Safe flashing yellow arrow operation with pre-empt eliminating yellow trap conditions

Priority

- 6 priority routines for buses and light rail
- 4 priority banks with unique timing
- Allows for:
 - 19 vehicles tracked simultaneously
 - Tracks vehicles at any distance from intersection using up to 6 inbound detectors and one exit detector

- Allows for seamless operation between transit and vehicle traffic coordination
- Adjusts splits, skips phases when necessary, and adjusts lead/lag in order to make the transitions between normal operation and priority service more fluid

Miscellaneous

- 4 system data banks for traffic responsive data
- Bicycle minimum green and passage timing
- Advanced and delayed WALK operations
- Advance warning flasher functions
- 16 SPaT IP addresses for Vehicle-to-Infrastructure operations
- Logging and diagnostics, including cycling, coordination, pre-emption, detection, outputs, alarms and communications information
- Anti-backup (yellow trap avoidance)
- Password protection
- Collision avoidance routines (Red Protect)
- External back-up facilities using USB or DataKey for use with TACTICS™ 5
- Help screens
- Illinois Rail Road security available
- International timing
- Extensive reporting capabilities

Hardware

- Linux operating system
- Meets NEMA or CalTrans specifications
- Meets NTCIP specifications for traffic signal control
- Supported cabinet types include ATC, TS-1, TS-2 Type 1, TS-2 Type 2, CalTrans 332 style, ITS and CBD



1) = 80 total detectors defaulted to listed configuration, but can be programmed as different types if necessary.



Siemens Mobility, Inc.

9225 Bee Cave Road
Building B, Suite 101
Austin, TX 78733

1.512.837.8300

Subject to change without prior notice

Printed in USA

© 2018 Siemens Mobility, Inc.

The technical data presented in this document is based on an actual case or on as-designed parameters, and therefore should not be relied upon for any specific application and does not constitute a performance guarantee for any projects. Actual results are dependent on variable conditions. Accordingly, Siemens does not make representations, warranties, or assurances as to the accuracy, currency or completeness of the content contained herein. If requested, we will provide specific technical data or specifications with respect to any customer's particular applications. Our company is constantly involved in engineering and development. For that reason, we reserve the right to modify, at any time, the technology and product specifications contained herein.

EL704, Size M36 NEMA Cabinet



Description

The Eagle Size M36 Cabinet protects electronic components including controllers and other equipment. It features an aluminum enclosure for protection from all forms of outdoor natural elements including rain, sleet, and snow, as well as seepage and splash.

Optional Configurations

- Outward-rotating door handle.
- Double-flanged door frame to provide a better splash shield.
- Continuously welded enclosure for maximum protection from contaminants.
- Unique lock/keying combinations.
- Custom finish per customer requirements.
- Lifting ears.

Qty 1 Controller Cabinet Assembly NEMA
Size 5 + M36 (EL704) with TF5016 TS2
terminal facility with 16 channel detector
rack

** We are proposing to furnish the same Dark Bronze powder coat finish that has been supplied with all previous Eagle cabinet assemblies for the City of Cleveland. The Cabinet exterior paint proposed is a Dark Bronze Powder Coat Equivalent to Dark Valley Bronze by Sherwin Williams # PDS4-70030-C50.

Eagle EL704 Cabinet

Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

mobotrexTM
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

EL704, Size M36 NEMA Cabinet



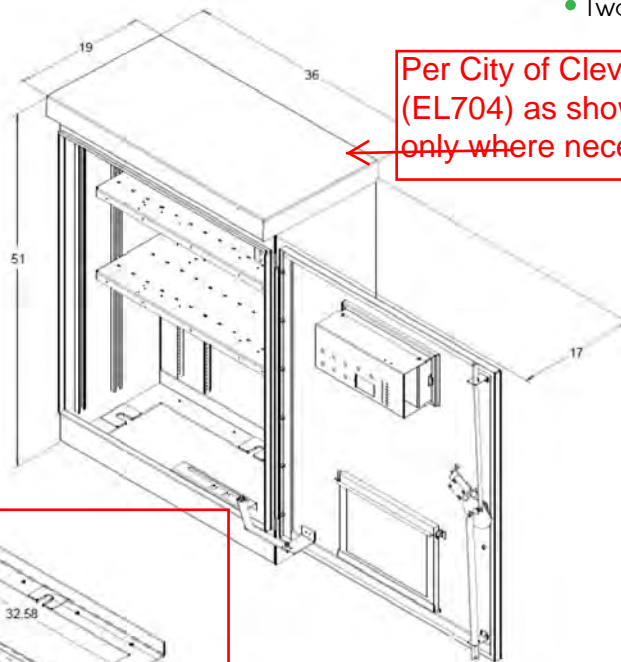
EAGLE[®]
Traffic Control Systems

Standard Door Specifications

- Provided with three-point locking mechanism with nylon rollers at the top and bottom.
- 3/4" diameter stainless steel outward turning handle with provisions for padlocking.
- Main door lock - industrial standard pin tumbler lock with #2 key.
- Louvered inlet with filter to prevent dirt from entering with air flow.
- Closed cell PVC door gasket with polyester film to prevent sticking.
- Heavy gauge stainless steel continuous hinge utilizing a 1/4" diameter stainless steel hinge pin for door support, carriage bolted in place for ease of door removal.
- A 2" deep fabricated switch compartment is included with a standard police lock and a stainless steel continuous hinge with a 1/8" diameter hinge pin riveted in place. Compartment is mounted flush to the door.

Standard Enclosure Specifications

- Completely fabricated from .125" -thick type 5052-H32 mill-finished aluminum, utilizing intermittently welded construction, subsequently weather proofed with silicone sealant.
- Internal attaching components include four (4) "C" mounting channels (2 per side) and four (4) slotted rails on rear wall for attaching equipment panels.
- The door opening is double-flanged on top to prevent water drops when the door is open. The opening also includes a mount for two door-operated switches.
- Thermoconvection air ventilation system utilized with provisions for mounting fan for forced-air cooling.
- Exhaust outlet openings are provided under the roof over-hang.
- All internal and external hardware is fabricated from non-corrosive material.
- Automatic door stop to hold main door open at 90 , 120 , and 135
- Two (2) shelves included.



Per City of Cleveland request please use size M36 (EL704) as shown here. Use larger "P44" (EL712) only where necessary.

Ordering Information

EL704 Base Mount
EL704 62-Pole Mount

Order 1 (set of 2) anchor bolts, UA242, if required

Order 2 pole mount brackets, UL26, if required

Eagle Traffic Control Systems is a division of:

mobotrex[™]
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

Cabinet Riser Bases



EAGLE
Traffic Control Systems

Qty 1 NEMA TS2 Cabinet Terminal Facility.
Base Riser for Cleveland Dark Bronze to match M36 signal cabinet assembly. AQC11268P003-02 Painted to match companion controller cabinet.

Eagle Part No.	Description	Construction	Height	Length	Width	Typical Cabinet	Pad Mounting Center to Center
AQC11186P001	P-Riser Base	two-pieces, bolted	12"	44"	25.5"	P-cab, EL712	L =40.75" W=18.5"
AQC11186P002	P-Riser Base	two-pieces, bolted	15"	44"	25.5"	P-cab, EL712	L =40.75" W=18.5"
AQC11186P003	P-Riser Base	two-pieces, bolted	18"	44"	25.5"	P-cab, EL712	L =40.75" W=18.5"
AQC11186P005	P-Riser Base	two-pieces, bolted	8"	44"	25.5"	P-cab, EL712	L =40.75" W=18.5"
AQC12242P001	P-Riser Base	one-piece, cont. weld	12"	44.25"	26"	P-cab, EL712	L =40.75" W=18.5"
AQC14943P001	M-Riser Base	two-pieces, bolted	6"	30"	17"	M-cab, EL702	L=15.0" W=12.75"
AQC17090-001	M-Riser Base	one-piece, cont. weld	12"	30"	17"	M-cab, EL702	L=15.0" W=12.75"
AQC11498P001	M-Riser Base	two-pieces, bolted	15"	30"	17"	M-cab, EL702	L=15.0" W=12.75"
							(only 2 anchor bolts)
AQC11268P002	M-36 Riser Base	two-pieces, bolted	15"	36"	17"	M36-cab, EL704	L=26.0" W=12.75"
AQC11268P003	M-36 Riser Base	two-pieces, bolted	12"	36"	17"	M36-cab, EL704	L=26.0" W=12.75"
AQC14281P001	#4 Riser Base	two-pieces, bolted	24"	24"	16"	#4-Cab, EL760	L=16.0" W=13.0"
AQC11186P004	Base Adapter	one-piece, cont. weld	8"	47"	26.5"	332 Cab, P Foundation	L=40.75" W=18.50"
AQC16324-001	332/336 Base Adapter	one-piece, cont. weld	8"	44"	25.5"	332/336 Cab, P Foundation	L=40.75" W=18.50"
AQC14844P001	332-Riser Base	two-pieces, bolted	8"	30"	24"	332 cab	L=25" W=15"
AQC14844P002	332-Riser Base	two-pieces, bolted	12"	30"	24"	332 cab	L=25" W=15"
AQC14844P003	332-Riser Base	two-pieces, bolted	18"	30"	24"	332 cab	L=25" W=15"
AQC16459-002	332-Riser Base	one-piece, cont. weld	8"	30"	24"	332 cab	L=25" W=15"
AQC16459-001	332-Riser Base	one-piece, cont. weld	12"	30"	24"	332 cab	L=25" W=15"
AQC17105-001	336-Riser Base	two-pieces, bolted	8"	24"	20"	336 cab	L=15" W=6"
AQC16195P001	336-Riser Base	two-pieces, bolted	12"	24"	20"	336 cab	L=15" W=6"
AQC17102-001	336-Riser Base	two-pieces, bolted	18"	24"	20"	336 cab	L=15" W=6"
AQC16505-001	332D-Riser Base	one-piece, cont. weld	12"	48"	30"	332D cab	L=39" W=25"
AQC16505-002	332D-Riser Base	one-piece, cont. weld	8"	48"	30"	332D cab	L=39" W=25"
AQC16287P001	Super P Riser Base	one-piece, cont. weld	8"	56.63"	26.5"	Super P cab, ELS1014	L=40.75" W=18.50"
AQC16470-001	Super P Riser Base	two-pieces, bolted	12"	56.63"	26.5"	Super P cab, ELS1014	L=40.75" W=18.50"



Not Pictured

Not Pictured



Not Pictured

Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

mobotrex
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

TF5000 Series Load Bay

NEMA TS-2, Type 1



Description

Ref 0066 Qty 1 Base Mount PUPS Cabinet includes a TF5016 TS2 terminal facility and a 16 channel TS2 detector rack.

Eagle load bays are available in dedicated four, eight, twelve, and sixteen load switch configurations.

The TF5000 series load bays are hardwired for ease of maintenance and economical modification.

The flash indication colors can be programmed from the front panel, using only a screwdriver.

The load bays will fit into most existing Eagle cabinets and can be installed in less than four (4) hours.

Note: The TF5016 and TF5116 loadbays will only fit in size 6 or larger cabinets.



Eagle TF5115 Load bay

Base Mount

PartNumber	TF5004	TF5008	TF5012/TF5112**	TF5016/TF5116**
Controller	NEMA TS2, Type1	NEMA TS2, Type1	NEMA TS2, Type1	NEMA TS2, Type1
Monitor	MMU	MMU	MMU	MMU
Load Switch Positions	4	8	12	16
Flash Realy Positions	2	4	6	8
NEMA-2 Circuit Flasher	1	1	1	1
Dimensions	18.5"H x 19.25"W	18.5"H x 19.25"W	18.5"H x 19.25"W	18.5"H x 28.25"W

* The TF5112 and TF5116 use 10-32 screw connector field terminal connections.

Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

mobotrexTM
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

Cabinet Detector Racks



EAGLE[®]
Traffic Control Systems

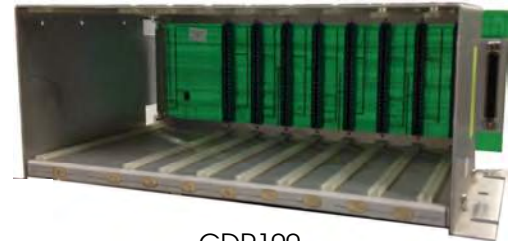
Ref 0066

Description

The Cabinet Detector Rack (CDR) provides housing and circuitry for one (1) BIU and up to 16 channels of detection (eight (8) two-channel or four (4) four-channel detector cards).

The CDR is programmable for any of the four (4) TS2 defined detector rack addresses. A 37-pin connector is attached to the printed circuit board for designated inputs/outputs.

Other models are available with 4 channels of optical detection and external vehicle detector inputs.



CDR100

CDR100 - 16 channel, 8 position rack.

Requires ABW12062P008 (8ft) or ABW12062P010 (10ft) cable.

Dimensions: 14.6"W x 5.4"H x 7.5"D

CDR101 - 8 channel, 4 position rack.

Requires ABW12303P006 (6ft) or ABW12303P001 (7.5ft).

Dimensions: 9.8"W x 5.9"H x 7.1"D



AAD12047P001

AAD12047P001 - 16 channel, 10 position rack.

Requires ABW12062P008 (8ft) or ABW12062P010 (10ft) cable.

Optional ABW12047P002 allows for 4 additional channels of preempt detection (and Opticom compatibility). Optional **ABW12047P001** allows for momentary push button detector call capability (Opticom, Tomar, or standard preempt compatible).

Dimensions: 17"W x 7.1"D x 5.9"H

Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

mobotrex[™]
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

Cabinet Detector Racks



EAGLE
Traffic Control Systems

CDR Connector Pin Assignment

CDR100

Pin	Function
1	Detector 1/2, Loop 1 - A
2	Detector 1/2, Loop 1 - B
3	Detector 1/2, Loop 2 - A
4	Detector 1/2, Loop 2 - B
5	Detector 1/2, Loop 3 - A
6	Detector 1/2, Loop 3 - B
7	Detector 1/2, Loop 4 - A
8	Detector 1/2, Loop 4 - B
9	Detector 3/4, Loop 1 - A
10	Detector 3/4, Loop 1 - B
11	Detector 3/4, Loop 2 - A
12	Detector 3/4, Loop 2 - B
13	Detector 3/4, Loop 3 - A
14	Detector 3/4, Loop 3 - B
15	Detector 3/4, Loop 4 - A
16	Detector 3/4, Loop 4 - B
17	Detector 5/6, Loop 1 - A
18	Detector 5/6, Loop 1 - B
19	Detector 5/6, Loop 2 - A
20	Detector 5/6, Loop 2 - B
21	Detector 5/6, Loop 3 - A
22	Detector 5/6, Loop 3 - B
23	Detector 5/6, Loop 4 - A
24	Detector 5/6, Loop 4 - B
25	Detector 7/8, Loop 1 - A
26	Detector 7/8, Loop 1 - B
27	Detector 7/8, Loop 2 - A
28	Detector 7/8, Loop 2 - B
29	Detector 7/8, Loop 3 - A
30	Detector 7/8, Loop 3 - B
31	Detector 7/8, Loop 4 - A
32	Detector 7/8, Loop 4 - B
33	+ 12 volts D.C.
34	Logic Common
35	+ 24 volts D.C.
36	Line Frequency Reference
37	Equipment Ground

* Only channels 1-16 and 33-34 are available for use with the CDR101 rack.

ABW12047P001

Pin	Function
1	Channel 1 Call
2	Channel 2 Call
3	Channel 3 Call
4	Channel 4 Call
5	Channel 5 Call
6	Channel 6 Call
7	Channel 7 Call
8	Channel 8 Call
9	Channel 9 Call
10	Channel 10 Call
11	Channel 11 Call
12	Channel 12 Call
13	Channel 13 Call
14	Channel 14 Call
15	Channel 15 Call
16	Channel 16 Call

ABW12047P002

Pin	Function
1	**
2	**
3	**
4	1A Detector
5	+24 #1
6	1A Out (C)
7	1B Detector
8	DC- #1
9	**
10	2A Detector
11	+24 #2
12	2A Out (C)
13	2B Detector
14	DC- #2
15	1B Out (C)
16	2B Out (C)
17	1A Out (E)
18	1B Out (E)
19	2A Out (E)
20	2B Out €

** Not Used

Detector Loop Hook-Up Panel (PC Board)

AAD14972P001	16 Channel Hook-Up Panel
ABW14503P0XX*	16 Channel Loop Harness
ABW14665P0XX*	Opticom Harness

Note: Other special Loop Hook-Up Panels are available.
Please contact your representative.

*XX = Length in feet of cable

SDLC Cable/Hook-Up Panel (PC. Board)

ABW14652P0XX*	SDLC Harness
AAD14753P003	6 Position
AAD14753P001	8 Position

*XX = Length in feet of cable

Eagle Traffic Control Systems is a division of:

mobotrex[™]
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

Cabinet Power Supply (P/N) CPS105



EAGLE[®]
Traffic Control Systems

Ref 0066

Description

The Cabinet Power Supply (CPS) provides regulated DC power, unregulated AC power and a line frequency reference for the BIUs, load switches, detector racks and other auxiliary equipment within the cabinet. The Cabinet Power Supply is shelf mounted. The CPS meets the specifications of NEMA TS2-1998, Section 5, and exceeds the TXDOT TS-2 2003 addendum.

Specifications

Dimensions:

9"W x 4.0"H x 6.75"L
(229 mm W x 102 mm H x 171 mm L)

Power Requirements:

89 VAC to 135 VAC
Interface: MS3106-18-IPW

Outputs:

+12 VDC @ 5.0 Amps
+24 VDC @ 3.0 Amps
12 VAC @ 0.25 Amps
Line Frequency Reference
Test jacks for 24 VDC

Indicators:

24 VDC
12 VDC
12 VAC
Line Frequency



Cabinet Power Supply Unit

Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

mobotrex[™]
MOBILITY & TRAFFIC EXPERTS
MANUFACTURING

Cabinet Riser Bases



Riser for base mount locations Please specify
 AQC16470-001 -02 / Base Riser for PUPS" ELS1014 Cabinet, exterior painted Dark Bronze
 A base riser is included

Eagle Part No.	Description	Construction	Height	Length	Width	Typical Cabinet	Pad Mounting Center to Center
AQC11186P001	P-Riser Base	two-pieces, bolted	12"	44"	25.5"	P-cab, EL712	L=40.75" W=18.5"
AQC11186P002	P-Riser Base	two-pieces, bolted	15"	44"	25.5"	P-cab, EL712	L=40.75" W=18.5"
AQC11186P003	P-Riser Base	two-pieces, bolted	18"	44"	25.5"	P-cab, EL712	L=40.75" W=18.5"
AQC11186P005	P-Riser Base	two-pieces, bolted	8"	44"	25.5"	P-cab, EL712	L=40.75" W=18.5"
AQC12242P001	P-Riser Base	one-piece, cont. weld	12"	44.25"	26"	P-cab, EL712	L=40.75" W=18.5"
AQC14943P001	M-Riser Base	two-pieces, bolted	6"	30"	17"	M-cab, EL702	L=15.0" W=12.75"
AQC17090-001	M-Riser Base	one-piece, cont. weld	12"	30"	17"	M-cab, EL702	L=15.0" W=12.75"
AQC11498P001	M-Riser Base	two-pieces, bolted	15"	30"	17"	M-cab, EL702	L=15.0" W=12.75"
							(only 2 anchor bolts)
AQC11268P002	M-36 Riser Base	two-pieces, bolted	15"	36"	17"	M36-cab, EL704	L=26.0" W=12.75"
AQC11268P003	M-36 Riser Base	two-pieces, bolted	12"	36"	17"	M36-cab, EL704	L=26.0" W=12.75"
AQC14281P001	#4 Riser Base	two-pieces, bolted	24"	24"	16"	#4-Cab, EL760	L=16.0" W=13.0"
AQC11186P004	Base Adapter	one-piece, cont. weld	8"	47"	26.5"	332 Cab, P Foundation	L=40.75" W=18.50"
AQC16324-001	332/336 Base Adapter	one-piece, cont. weld	8"	44"	25.5"	332/336 Cab, P Foundation	L=40.75" W=18.50"
AQC14844P001	332-Riser Base	two-pieces, bolted	8"	30"	24"	332 cab	L=25" W=15"
AQC14844P002	332-Riser Base	two-pieces, bolted	12"	30"	24"	332 cab	L=25" W=15"
AQC14844P003	332-Riser Base	two-pieces, bolted	18"	30"	24"	332 cab	L=25" W=15"
AQC16459-002	332-Riser Base	one-piece, cont. weld	8"	30"	24"	332 cab	L=25" W=15"
AQC16459-001	332-Riser Base	one-piece, cont. weld	12"	30"	24"	332 cab	L=25" W=15"
AQC17105-001	336-Riser Base	two-pieces, bolted	8"	24"	20"	336 cab	L=15" W=6"
AQC16195P001	336-Riser Base	two-pieces, bolted	12"	24"	20"	336 cab	L=15" W=6"
AQC17102-001	336-Riser Base	two-pieces, bolted	18"	24"	20"	336 cab	L=15" W=6"
AQC16505-001	332D-Riser Base	one-piece, cont. weld	12"	48"	30"	332D cab	L=39" W=25"
AQC16505-002	332D-Riser Base	one-piece, cont. weld	8"	48"	30"	332D cab	L=39" W=25"
AQC16287P001	Super P Riser Base	one-piece, cont. weld	8"	56.63"	26.5"	Super P cab, ELS1014	L=40.75" W=18.50"
AQC16470-001	Super P Riser Base	two-pieces, bolted	12"	56.63"	26.5"	Super P cab, ELS1014	L=40.75" W=18.50"



Not Pictured

Not Pictured



Not Pictured

Eagle Traffic Control Systems continues our 80+ year history of providing excellence in the ever evolving traffic industry. All of Eagle's products are developed with the highest standards of engineering and manufacturing. Eagle maintains a superior level of integrity in interactions with all of our business partners and customers. We also take tremendous pride in being model corporate citizens.

Eagle Traffic Control Systems is a division of:

mobotrexTM
 MOBILITY & TRAFFIC EXPERTS
 MANUFACTURING

**Complies With The New
NEMA MMU2 Standard and
MUTCD Requirements**



SmartMonitor

MMU2-16LE SERIES

NEMA LCD MALFUNCTION MANAGEMENT UNIT

- **MMU2-16LEip** with Ethernet Port
- **MMU2-16LE** with EIA-232 Port

Whether you're a **NOVICE** or **EXPERT** Signal Technician, wouldn't it be great if you could:

- ☐ Use a built-in SETUP WIZARD to **quickly and accurately configure** the Signal Monitor to the exact requirements of the cabinet and intersection?
- ☐ Use a MENU DRIVEN LCD interface to **view** vital cabinet operational details such as field signal voltages, historical event logs, and monitor configuration data?
- ☐ Use a built-in DIAGNOSTIC WIZARD to **automatically diagnose** cabinet malfunctions and **pinpoint** faulty signals?

If your answer is Yes, the **MMU2-16LE SmartMonitor®** is for YOU!

NEW MMU2-16LE SmartMonitor® ENHANCED FEATURES

NEMA TS2-2003 (R2008) Standard Including Amendment #4:	The MMU2-16LE <i>SmartMonitor®</i> meets all specifications of the NEMA Standard TS2-2003 (R2008) for the MMU2 configuration while maintaining compatibility with NEMA TS1-1989 Assemblies.
NEMA Standard Flashing Yellow Arrow PPLT:	The MMU2-16LE <i>SmartMonitor®</i> supports MUTCD Flashing Yellow Arrow PPLT operation and meets / exceeds the NEMA Standard MMU2 requirements of TS-2 Amendment #4-2012, providing modes for both TS-2 or TS-1 cabinet configurations.
Standardized Communications:	Real-time SDLC communications with the Controller Unit exchanges field input status, Controller Unit output status, fault status, MMU programming, and time and date.
Full Intersection & Status Display:	Two high contrast, large area Liquid Crystal Displays (LCD) continuously show full RYG(W) intersection status. A separate graphic LCD provides a menu driven user interface to status, signal voltages, configuration, event logs, and the Help system.
Event Logging:	A time-stamped nonvolatile event log records the complete intersection status as well as AC Line events, configuration changes, monitor resets, temperature and true RMS voltages.
Setup Wizard:	Use the built-in Setup Wizard to configure the Nema Enhanced settings of the <i>SmartMonitor®</i> by answering a short series of questions regarding intersection design and operation.
Diagnostic Wizard: and Help System	The Diagnostic Wizard <i>automatically pinpoints</i> faulty signals and offers trouble-shooting guidance. The integrated Help System provides context sensitive operational assistance.
TS-1 Type 12 with SDLC Mode:	The MMU2-16LE <i>SmartMonitor®</i> can be configured to operate with the Port 1 SDLC function and Diagnostic Wizard enabled in a TS-1 twelve channel cabinet with no cabinet wiring changes.
Program Card Memory:	Enhanced settings of the MMU2-16LE <i>SmartMonitor®</i> are stored in nonvolatile memory on the EDI Program Card. Moving the Program Card to another MMU2-16LE automatically transfers all settings.
Signal Sequence History Log:	The five Signal Sequence History logs stored in nonvolatile memory graphically display up to 30 seconds of signal status prior to each fault event.
LEDguard®:	This EDI innovative signal threshold technique can be used to increase the level of monitoring protection when using LED based signal heads.
EDI RMS-Engine:	A DSP coprocessor converts AC input measurements to True RMS voltages, virtually eliminating false sensing due to changes in frequency, phase, or sine wave distortion.
ECcom PC Software:	Access to the MMU2-16LE data is provided by the industry standard EDI ECcom Windows based software for status, event log retrieval, configuration, and data archival.

Qty 3 3 x 2 channel required



DEFLECTOMETER™

LMD622

DEFLECTOMETER™ SERIES

TWO CHANNEL NEMA TS-2 TYPE A LOOP MONITOR™

Built-in DEFLECTOMETER™ Technology Provides Users With:

- ✓ Call Strength Indicator for Optimum Sensitivity Programming
- ✓ One step / One vehicle dynamic Sensitivity programming
- ✓ Frequency Meter for immediate analysis of loop frequency, avoiding loop cross-talk problems
- ✓ Push Button Programming

Why guess when you can know your detector is optimally programmed and performing for all vehicle classes!

ENHANCED FEATURES

- DEFLECTOMETER Call Strength Indicator:** The *Call Strength Indicator* provides the technician with a simple one-step method for accurately setting the optimum level of sensitivity that ensures accurate vehicle detection of all vehicles, including motorcycles and high-bed trucks. *NO MORE GUESSING!*
- When a medium size vehicle is over the roadway loop, a DEFLECTOMETER™ Call Strength value of "5" assures that the optimum sensitivity has been achieved. You can adjust the DEFLECTOMETER™ reading *DYNAMICALLY* without moving the vehicle by using the front panel UP or DOWN sensitivity buttons. *IT DOES NOT GET ANY EASIER THAN THIS!*
- Frequency Meter:** The built-in *Frequency Meter* reports the operating frequency of the loop network. Ensuring that adjacent loops are separated by at least 5 KHz will avoid crosstalk problems and future service calls.
- Output CALL Test Mode:** The Output Call Test Mode provides a straight forward way to test that the Controller Unit is receiving an active output from the detector. This eliminates the need for cabinet test switches and associated wiring. A huge time saving feature during system set-up and trouble-shooting.
- Rugged Handle Assembly:** The rugged handle assembly is made of GE LEXAN™, which is a super durable polycarbonate resin. The design of this assembly strengthens and protects the whole PCB assembly much better than conventional face plates. The temperature stability of critical components is improved with the more encompassing enclosure. Quick reference instructions are conveniently attached directly on the side of the unit, eliminating the need for cards.
- Advanced Loop Diagnostics:** The Fault (FLT) indicator displays the type of fault: Short, Open or 25% change of inductance. The Fault Monitor will report and store three types of loop faults; Open Loops, Shorted Loops, and 25% sudden changes in inductance. Each type of fault is indicated by a unique sequence of flashes allowing the user to diagnose loop failures at a glance.
- Options:** Relay Outputs, Model LMD622R

STANDARD FEATURES

- ✓ Automatic Tuning
- ✓ Lightning & Surge Protection
- ✓ Four (4) Frequency Levels
- ✓ Fail Safe Output Configuration
- ✓ Separate Color-Coded LED indicators
- ✓ Wide Loop Inductance Range: 20 to 2500 microHenries.

EBERLE DESIGN INC.

3819 East La Salle Street
Phoenix, AZ 85040 USA
www.EDltraffic.com

Tel (480) 968-6407
Fax (602) 437-1996



LMD622 DEFLECTOMETER™ SERIES TWO CHANNEL INDUCTIVE LOOP VEHICLE DETECTOR SPECIFICATIONS

General Characteristics

Controls: Front panel push buttons allow the user to set the Sensitivity Level, Operational mode, and nominal Frequency independently on each channel.

Setting Sensitivity - Front Panel Push Buttons

The DEFLECTOMETER™ (front panel 7-segment LED) aids in setting the DETECTOR quickly and easily to the most optimum sensitivity level to ensure the trouble-free detection of all vehicles, including motorcycles and high bed vehicles. For typical vehicles (mid-size vehicle / small pick up) utilizing properly installed roadway loops, a Call Strength of 5 displayed on the DEFLECTOMETER™ during the DETECT output period indicates an optimum sensitivity setting. For high profile vehicles (commercial trucks, 4x4's, etc...), a Call Strength value of 4 will be optimum. For low profile vehicles (sports cars, etc...), a Call Strength value of 6 will be optimum.

Adjusting sensitivity using the DEFLECTOMETER™ (recommended):

The DEFLECTOMETER™ should read zero (0) with no vehicle over the roadway loop. When a typical mid-sized vehicle is completely in the detection zone (DET indicator On), the Call Strength value should be adjusted up or down until the DEFLECTOMETER™ displays the desired optimum value of 5 (or 4 or 6 as described above).

If a typical vehicle located over the roadway loop causes the Call Strength "7" to be displayed on the DEFLECTOMETER™, the sensitivity should be decreased two levels. This can be done by pressing the front panel SENS ⬇ button two times to achieve the Call Strength value of 5.

If a typical vehicle located over the roadway loop causes the number "2" to be displayed on the DEFLECTOMETER™, the sensitivity should be increased three levels. This can be done by pressing the front panel SENS ⬆ button three times to achieve the Call Strength value of 5.

NOTE: THE DEFLECTOMETER™ CALL STRENGTH DYNAMICALLY UPDATES AFTER EACH SENSITIVITY LEVEL CHANGE, ALLOWING YOU TO CHANGE SENSITIVITY SETTINGS WHILE A VEHICLE REMAINS IN THE LOOP DETECTION ZONE.

Adjusting sensitivity without using the DEFLECTOMETER™ (manually setting sensitivity):

The DETECTOR offers 9 levels of sensitivity (1 to 9). Level 9 is the highest sensitivity. Sensitivity Level can be manually set to any desired value by pressing the front panel SENS buttons (⬆ or ⬇) when a vehicle is NOT over the roadway loop (DET indicator Off). The first time a SENS button (⬆ or ⬇) is pressed, the current Sensitivity Level is displayed on the DEFLECTOMETER™ for 3 seconds. If either SENS button (⬆ or ⬇) is pressed again before the 3 second period ends, the Sensitivity Level will increase (SENS ⬆) or decrease (SENS ⬇). The new Sensitivity Level value will be displayed on the DEFLECTOMETER™ display for 3 seconds. The factory default Sensitivity setting is level 6.

Sensitivity	ΔL / L	Sensitivity	ΔL / L
9	0.01%	4	0.32%
8	0.02%	3	0.64%
7	0.04%	2	1.28%
6	0.08%	1	2.56%
5	0.16%	-	-

Loop Frequency / Loop Frequency Display: One of four frequency settings may be selected via the front panel FREQ push button to alleviate interference which may occur when loops connected to different detectors are located adjacent to one another. To help prevent or diagnose crosstalk problems, the loop frequency is displayed on the front panel DEFLECTOMETER™. The current loop frequency is displayed after pressing the FREQ button to display the current Frequency Level. The frequency is shown in KHz with a "-" symbol displayed both before and after the numeric digits shown on the DEFLECTOMETER™.

For example, after pressing the FREQ button once the display sequence might show:

"3" ⇒ "-" ⇒ "2" ⇒ "7" ⇒ "-"

This sequence would indicate Frequency Level "3" and a loop reference frequency of 27 KHz. Detectors on adjacent loops should all be separated by at least 5 KHz.

Loop Fault Monitoring: The Detector continuously checks the integrity of the loop. The system is able to detect shorted or open circuit loops, or sudden changes in inductance exceeding 25% of the nominal inductance. If a fault is detected, the OUT and FLT indicators continuously emit a sequence of flashes. Additionally, the DEFLECTOMETER™ displays the letter "F" indicating a current loop fault. Each type of fault is identified by a unique flash sequence:

Flash Sequence	Fault
1 flash	Open Circuit Loop.
2 flashes	Shorted Circuit Loop.
3 flashes	25% excessive change in inductance.

If the Open or Shorted fault condition self heals, the DET indicator and DEFLECTOMETER™ will return to normal operation. The FLT indicator will continue to flash with the sequence signifying the type of fault that was last detected. In the case of the excessive inductance change fault, the unit will return to the new inductance after a period of two seconds and continue operation. The fault condition will be indicated by the flash sequence of the FLT indicator.

Operational Modes

Presence: For each channel, a Presence output mode may be selected from the front panel MODE push button. If presence mode is selected then a choice of short (S) or long (L) can be selected. Short Presence is defined as 30 minutes and Long Presence is defined as 120 minutes.

Pulse: For each channel, a Pulse output mode (P) may be selected from the front panel MODE push button. In Pulse mode, a 125 ms ± 25ms width pulse will be output for each vehicle entering the loop.

Call: For each channel, a continuous CALL output (C) may be selected from the front panel MODE push button which will simulate the presence of a vehicle. This mode is used for testing the CALL output of a channel.

Channel Off: For each channel, the Channel Off (-) may be selected from the front panel Mode push button. This option turns OFF the channel and disables the oscillator. An additional option allows the Status Output to be turned ON while the channel is OFF.

Status Outputs:

Each channel includes a separate output which is used to transmit operational status information to a Bus Interface Unit (BIU). Fault information is transmitted by means of pulse-width modulation. Pulse widths shown are +10ms.

Status	Status Output Condition
Normal operation / No fault	Continuous ON (low)
Watchdog fail / Power Supply fail	Continuous OFF (high)
Open circuit loop	50ms OFF, 50ms ON
Short circuit loop	100ms OFF, 50ms ON
25% change in inductance	150ms OFF, 50ms ON

Specifications:

DC Supply Voltage: Minimum 10.8 Vdc
Maximum 28.8 Vdc

DC Supply Current: Maximum 100 mA

Optically Isolated Outputs: True (low, 50 mA) Less than 1.5 Vdc
Maximum Current 100 mA

Outputs are fail-safe such that a Detector with no power will provide the True (low) Call state.

Relay Outputs: AC Contact Rating 5A @ 120 Vac
DC Contact Rating 5A @ 30 Vdc

Environmental: Operating Temperature Range: -30°F to 165°F (-34°C to 74°C)

Mechanical: International Card 4.500"H (114.30mm) x 6.875"D (174.63mm) x 1.14"W (28.96mm), excluding handle, with 44 pin double sided edge connector.

Pin Assignment:

PIN	FUNCTION	PIN	FUNCTION
A	Logic Ground	1	Reserved
B	DC Supply	2	Reserved
C	External Reset	3	Reserved
D	Ch 1 Loop Input	4	Ch 1 Redundant Loop Input
E	Ch 1 Loop Input	5	Ch 1 Redundant Loop Input
F	Ch 1 Output (+)	6	Reserved
H	Ch 1 Output (-)	7	Ch 1 Status Output
J	Ch 2 Loop Input	8	Ch 2 Redundant Loop Input
K	Ch 2 Loop Input	9	Ch 2 Redundant Loop Input
L	Chassis Ground	10	Reserved
M	Reserved	11	Reserved
N	Reserved	12	Reserved
P	Reserved	13	Reserved
R	Reserved	14	Reserved
S	Reserved	15	Reserved
T	Reserved	16	Reserved
U	Reserved	17	Reserved
V	Reserved	18	Reserved
W	Ch 2 Output (+)	19	Reserved
X	Ch 2 Output (-)	20	Ch 2 Status Output
Y	Reserved	21	Reserved
Z	Reserved	22	Reserved