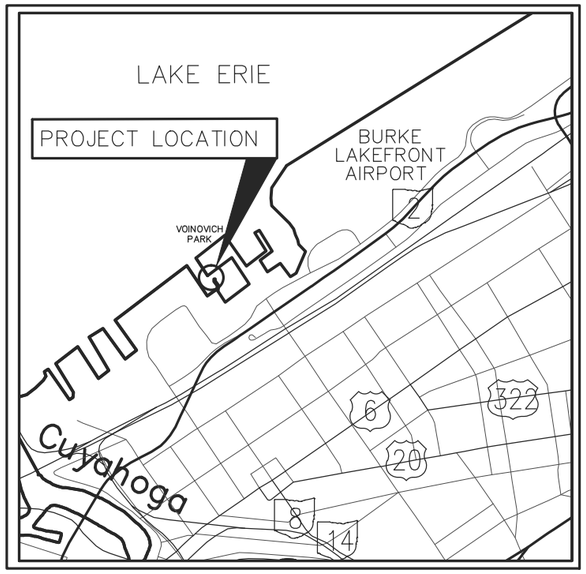

LOCATION MAP

LATITUDE: 41°30'34" LONGITUDE: 81°41'50"

SCALE IN MILES

0 0.5 1

N

INTERSTATE & DIVIDED HIGHWAY
UNDIVIDED STATE & FEDERAL ROUTES
OTHER ROADS

DESIGN DESIGNATIONS & EXCEPTIONS

NONE REQUIRED

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
TWO (2) WORKING DAYS
BEFORE YOU DIG

CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON MEMBERS
MUST BE CALLED DIRECTLY
– AND –
CALL 1-800-925-0988 (TOLL FREE)
OHIO OIL & GAS PRODUCERS
UNDERGROUND PROTECTION SERVICE

PLAN PREPARED BY:

CDM Smith
1468 W. 9TH STREET
SUITE 750
CLEVELAND, OH 44113

schlaich bergermann and partner lp
Structural Consulting Engineers
555 8th Avenue, Suite 2402
New York, NY 10018

ROSALES + PARTNERS
ARCHITECTS ENGINEERS
37 Newbury Street, 6th Floor Boston, MA 02116

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE
CITY OF CLEVELAND
CUYAHOGA COUNTY

INDEX OF SHEETS:

PROJECT DESCRIPTION

CONSTRUCTION OF A MOVEABLE DOUBLE LEAF BASCULE PEDESTRIAN BRIDGE SPANNING APPROXIMATELY 150' BETWEEN THE SOUTHWEST CORNER OF VOINOVICH PARK AND FINGER PIER. EACH BRIDGE HALF IS COMPOSED OF A HOLLOW STEEL BOX DECK AND A MAST FIXED IN THE DECK WITH THREE CABLES ON ONE SIDE OF THE DECK. THE BRIDGE IS SYMMETRIC TO THE CHANNEL CENTERLINE.

EARTH DISTURBED AREAS

PROJECT EARTH DISTURBED AREA:	0.26 AC
ESTIMATED CONTRACTOR EARTH DISTURBED AREA:	0.13 AC
NOTICE OF INTENT EARTH DISTURBED AREA:	N/A (NOI NOT REQUIRED)

2013 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 EXCEPT WHEN MODIFIED BY THE PLANS, SPECIAL PROVISIONS, SUPPLEMENTAL SPECIFICATIONS OR PROPOSAL NOTES.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL NOT REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT PROVISIONS FOR THE MAINTENANCE AND SAFETY OF TRAFFIC WILL BE AS SET FORTH ON THE PLANS AND ESTIMATE.

APPROVED _____ Date
Director
Mayor's Office of Capital Projects
City of Cleveland

APPROVED _____ Date
Administrative Bureau Manager
Engineering and Construction, City of Cleveland

APPROVED _____ Date
District Deputy Director
Ohio Department of Transportation

APPROVED _____ Date
Director
Ohio Department of Transportation

STAGE 3 SUBMITTAL
AUGUST 22, 2014

ENGINEERS SEAL: MECHANICAL	ENGINEERS SEAL: ELECTRICAL
SIGNED: _____ DATE: _____	SIGNED: _____ DATE: _____

ENGINEERS SEAL: SUPERSTRUCTURE	ENGINEERS SEAL: SUBSTRUCTURE	ENGINEERS SEAL: CIVIL/SITE
SIGNED: _____ DATE: _____	SIGNED: _____ DATE: _____	SIGNED: _____ DATE: _____

OHIO DEPARTMENT OF TRANSPORATION STANDARD CONSTRUCTION DRAWINGS				CITY OF CLEVELAND STANDARD CONSTRUCTION DRAWINGS		SUPPLEMENTAL SPECIFICATIONS	
NUMBER	DATE	NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
BP-1.1	7-28-00	TC-22.20	1-17-14	CONC 1	7-8-08	800	7-18-14
BP-2.1	7-19-13	TC-41.20	10-18-13	CB 1	7-8-08	804	4-18-14
BP-2.2	7-18-08	TC-42.20	10-18-13	PR 1	8-14-08	832	1-17-14
BP-2.5	7-19-13	TC-52.20	7-18-14			902	12-31-12
BP-3.1	7-18-14						
		MT-101.60	7-19-13				
DM-1.4	1-18-13	MT-110.10	7-19-13				
		A-1-69	7-19-02				
HL-20.11	1-19-07					SPECIAL PROVISIONS	
HL-30.11	1-18-13						
HL-30.22	1-18-13					MECHANICAL WORK	
HL-40.20	1-19-07					ELECTRICAL WORK	
HL-50.11	1-19-07					ARCHITECTURAL WORK	
HL-50.21	7-20-12					STRUCTURAL WORK	
HL-60.11	10-21-11					PROJECT DVD RECORDING	
HL-60.12	10-21-11						
HL-60.31	1-18-03						

FEDERAL PROJECT NO. E060(276)
PID NO. 80966
CONSTRUCTION PROJECT NO.
RAILROAD INVOLVEMENT NONE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

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CALCULATED CLG | CHECKED YRY

SHEET INDEX

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

2
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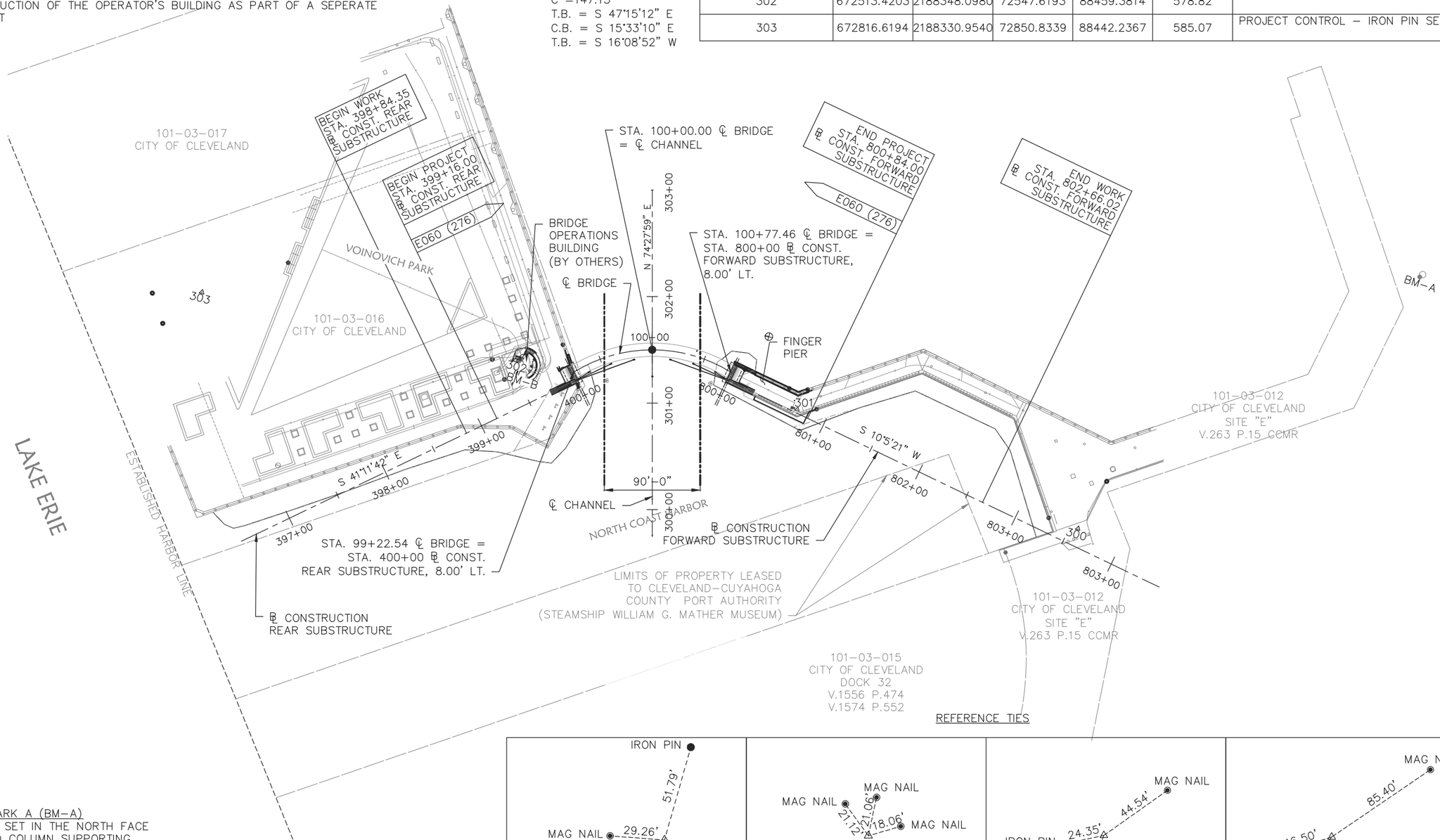
NOTES:
1. TO CONVERT PROJECT (SCALED) COORDINATES TO STATE PLANE (GRID) COORDINATES ADD 600,000 TO THE NORTHINGS AND 2,100,000 TO THE EASTINGS, THEN MULTIPLY EACH BY THE PROJECT COMBINED SCALE FACTOR (0.999949150).
2. TO CONVERT STATE PLANE COORDINATES (GRID) TO PROJECT (SCALED) COODRINATES DIVIDE THE NORTHINGS AND EASTINGS BY THE PROJECT COMBINED SCALE FACTOR (0.999949150) AND SUBTRACT 600,000 FROM THE NORTHINGS AND 2,100,000 FROM THE EASTINGS.
3. BENCHMARK B AND CONTROL POINT 302 MAY BE DISTURBED DURING CONSTRUCTION OF THE OPERATOR'S BUILDING AS PART OF A SEPERATE PROJECT

CURVE DATA
℄ BRIDGE
P.I. STA. 100+09.01
Δ = 63°24'04" (RT)
Dc = 40°55'32"
R = 140.00'
T = 86.47'
L = 154.92'
E = 24.55'
C =147.13'
T.B. = S 47°15'12" E
C.B. = S 15°33'10" E
T.B. = S 16°08'52" W

PRIMARY PROJECT CONTROL INFORMATION

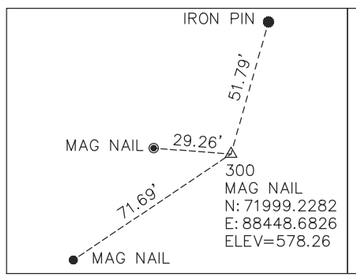
POINT NUMBER	GRID COORDINATES U.S. SURVEY FEET		SCALED COORDINATES U.S. SURVEY FEET		ORTHOMETRIC HEIGHT (ELEVATION)	DESCRIPTION
	NORTHING	EASTING	NORTHING	EASTING		
300	671965.0570	2188337.4000	71999.2282	88448.6826	578.26	PROJECT CONTROL – MAG NAIL SET
301	672248.8051	2188374.3840	72282.9907	88485.6684	576.84	PROJECT CONTROL – MAG NAIL SET
302	672513.4203	2188348.0980	72547.6193	88459.3814	578.82	PROJECT CONTROL – IRON PIN SET
303	672816.6194	2188330.9540	72850.8339	88442.2367	585.07	PROJECT CONTROL – IRON PIN SET



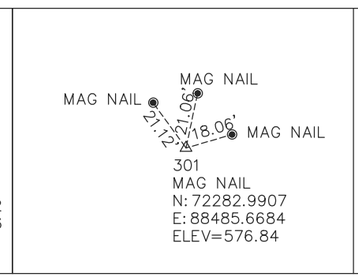
BENCH MARK A (BM–A)
MAG NAIL SET IN THE NORTH FACE OF ROUND COLUMN SUPPORTING THE GREAT LAKES SCIENCE CENTER
ELEV = 581.85

BENCH MARK B (BM–B)
MAG NAIL SET ON THE TOP SW CORNER OF RETAINING WALL AROUND TRANSFORMER
ELEV = 580.245

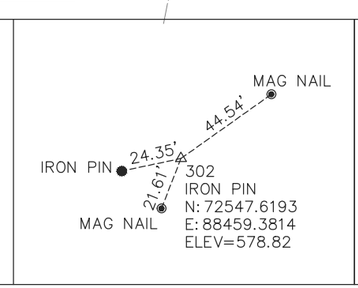
REFERENCE TIES



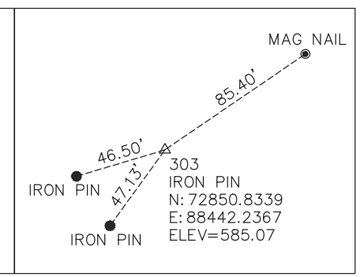
STA. 803+57.51, 16.61' LT.
℄ CONSTRUCTION
FORWARD SUBSTRUCTURE



STA. 800+71.53, 16.18' LT.
℄ CONSTRUCTION
FORWARD SUBSTRUCTURE



STA. 399+57.36, 40.00' LT.
℄ CONSTRUCTION
REAR SUBSTRUCTURE



STA. 397+17.91, 226.80' LT.
℄ CONSTRUCTION
REAR SUBSTRUCTURE

CALCULATED CLG
CHECKED SMS

HORIZONTAL SCALE IN FEET
0 50 100

SCHEMATIC PLAN

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

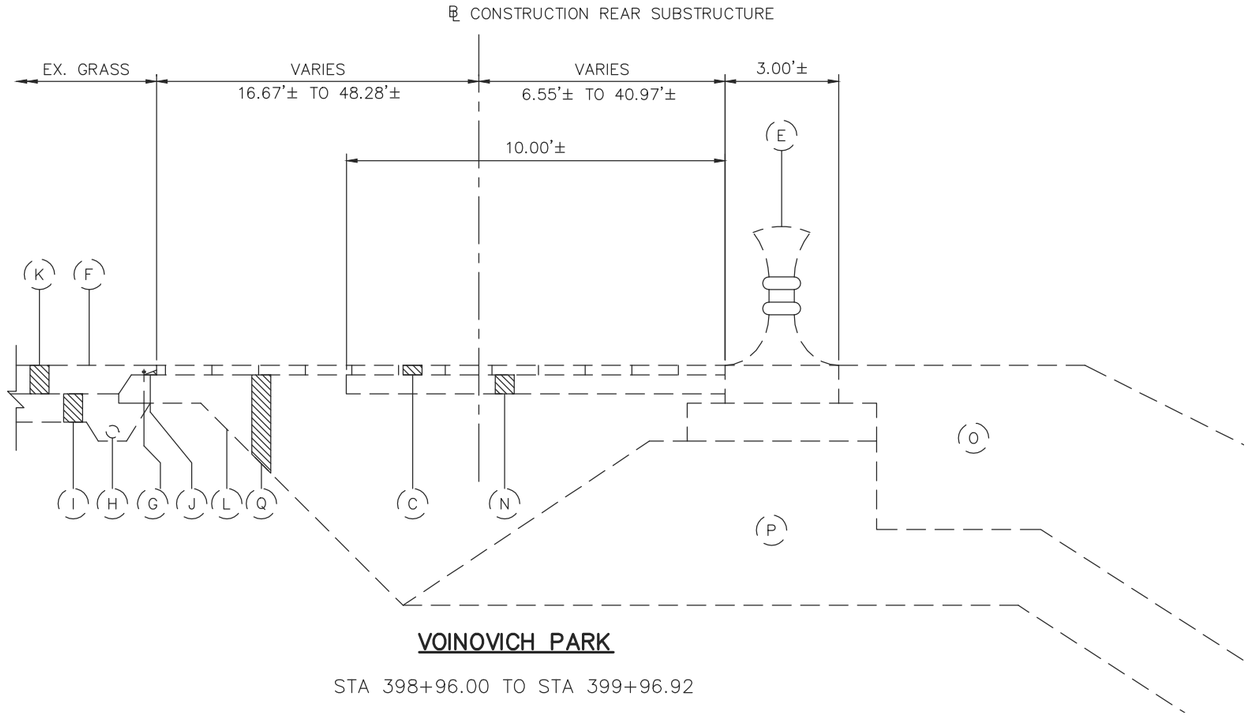
3
165

Q:\86693 - Voinovich Pedestrian Bridge Final Design\CUY\80966\CAD\sheets\80966GB001.dwg, GB001, 8/22/2014 10:59:54 AM

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
S6	EXISTING STRUCTURE REMOVAL PLAN

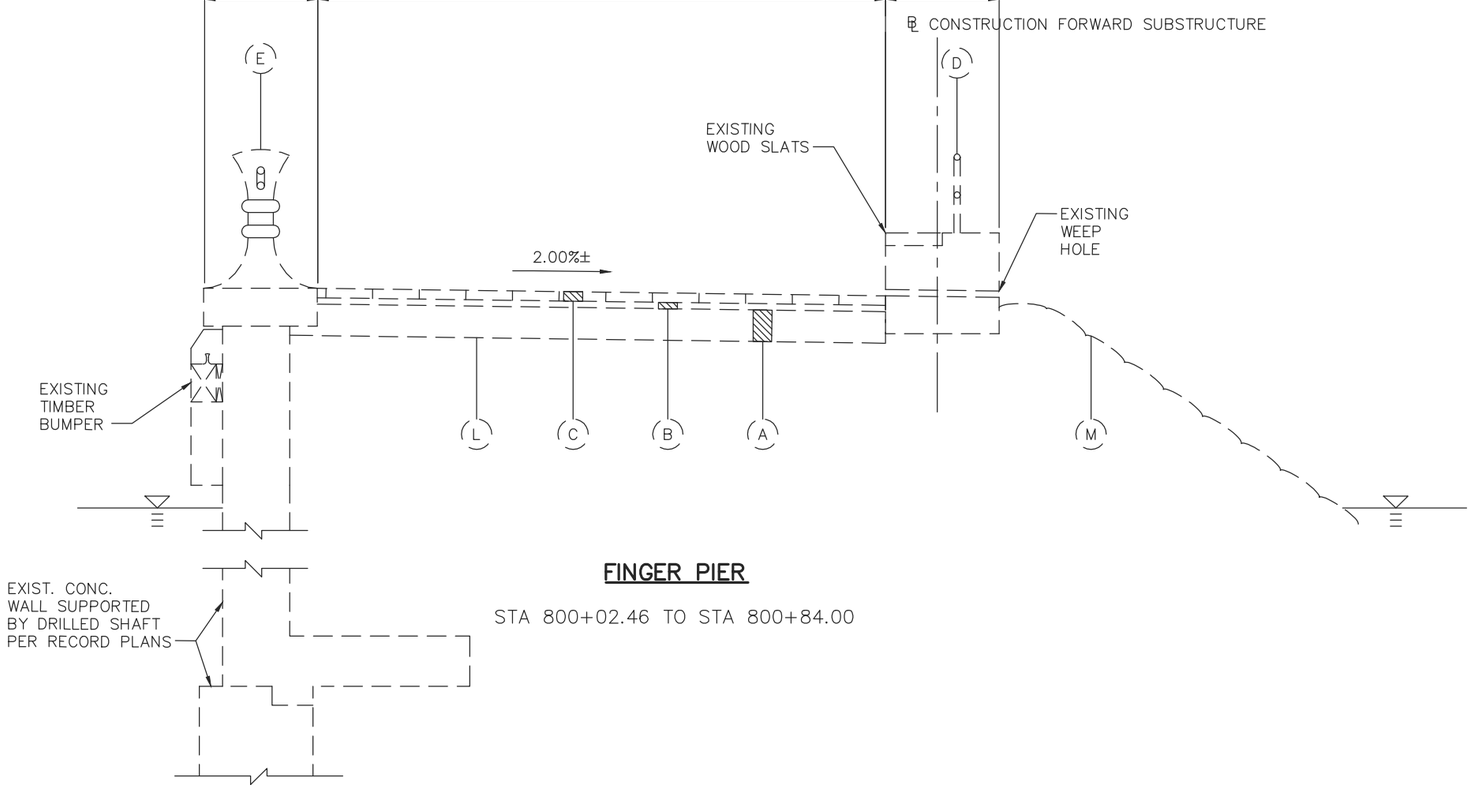
LEGEND

- (A) 10"± REINFORCED CONCRETE PAVEMENT
- (B) 2"± PAVER BASE
- (C) 3"± BRICK PAVER
- (D) BENCH AND RAILING
- (E) BOLLARD
- (F) GRASS
- (G) ANCHOR
- (H) 4" UNDERDRAIN
- (I) STONE BASE
- (J) PAVER EDGE
- (K) 12"± TOPSOIL
- (L) COMPACTED SUBGRADE
- (M) RIP–RAP
- (N) 6" REINFORCED CONCRETE
- (O) ARMOR STONE
- (P) UNDERLAYER STONE
- (Q) AGGREGATE BASE



VOINOVICH PARK

STA 398+96.00 TO STA 399+96.92



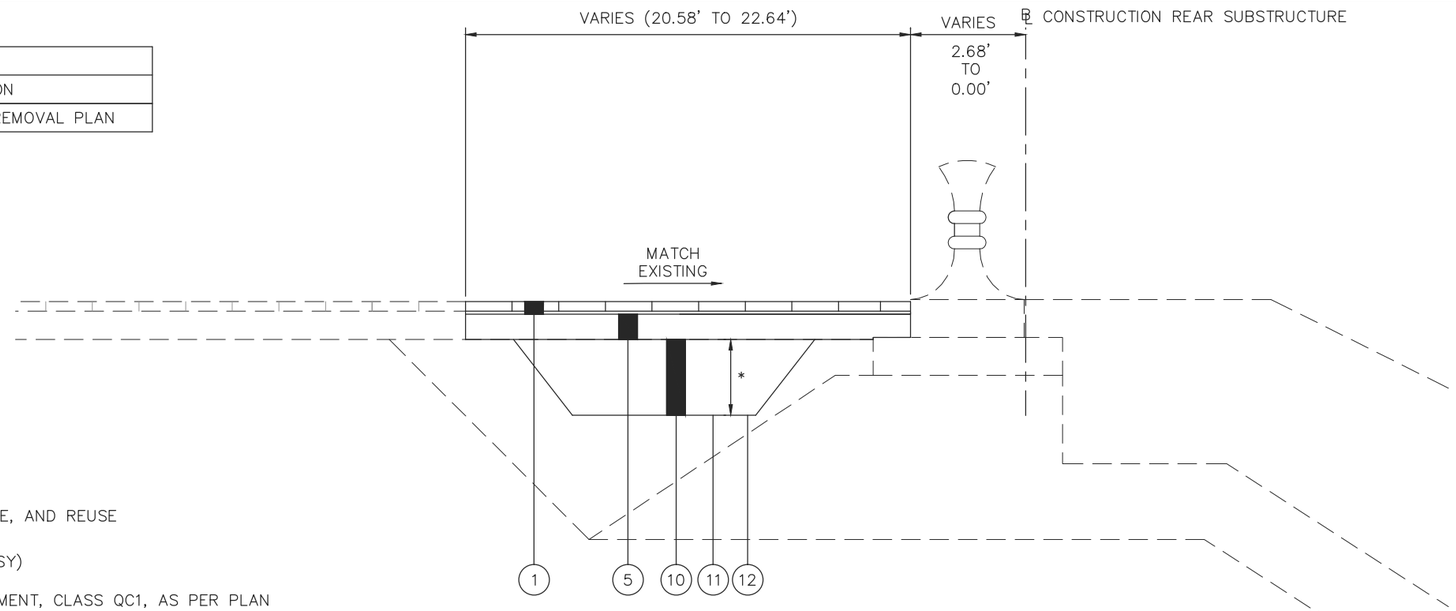
FINGER PIER

STA 800+02.46 TO STA 800+84.00

TYPICAL SECTIONS – EXISTING
VOINOVICH PARK & FINGER PIER

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
S6	EXISTING STRUCTURE REMOVAL PLAN



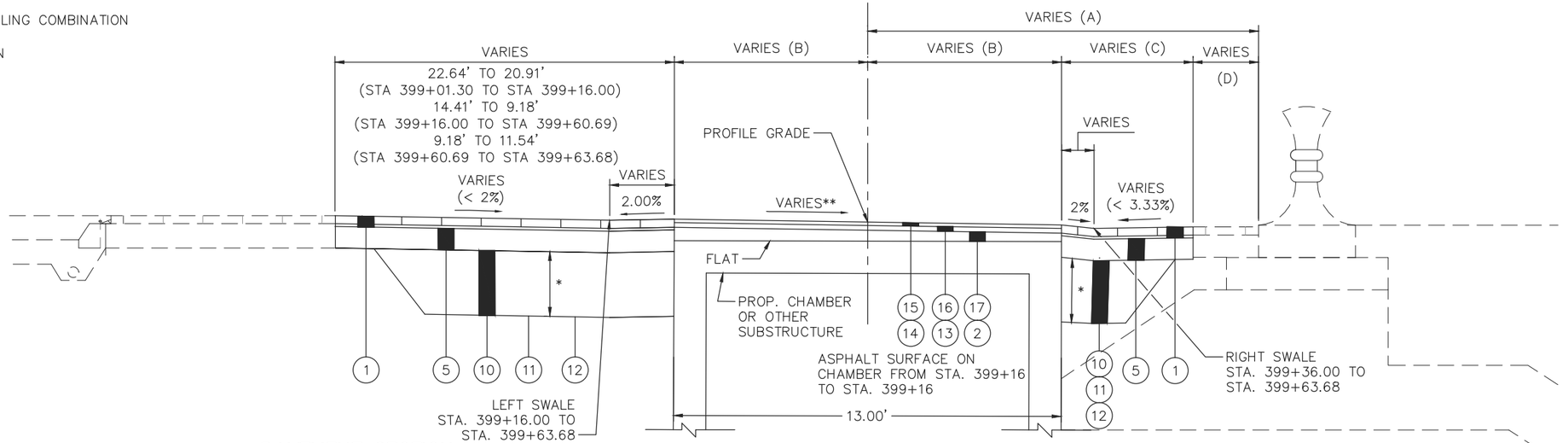
PAVEMENT SECTION VOINOVICH PARK

STA 398+96.00 TO STA 399+01.30

LEGEND

1. ITEM 608 – WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS
2. ITEM 407 – TACK COAT, 702.13 (0.04 GAL/SY)
3. ITEM 451 – 8" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
4. ITEM 304 – 6" AGGREGATE BASE
5. ITEM 304 – 8" AGGREGATE BASE
6. ITEM 451 – 10" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
7. ITEM 517 – RAILING MISC., APPROACH RAILINGS
8. ITEM 202 – REMOVAL, MISC.: BENCH AND RAILING COMBINATION
9. ITEM 601 – DUMPED ROCK FILL, AS PER PLAN
10. ITEM 203 – GRANULAR EMBANKMENT *
11. ITEM 204 – GEOTEXTILE FABRIC
12. ITEM 204 – SUBGRADE COMPACTION
13. ITEM 407 – TACK COAT (0.075 GAL/SY
14. ITEM 407 – TACK COAT FOR INTERMEDIATE COURSE (0.04 GAL/SY)
15. ITEM 448 – 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22
16. ITEM 448 – 1¾"ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22
17. ITEM 448 – VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22

*REPLACE TOP 24" OF EXCAVATION REQUIRED FOR SUBSTRUCTURE WITH GRANULAR EMBANKMENT



PAVEMENT SECTION VOINOVICH PARK

STA 399+01.30 TO STA 399+63.68

** CROSS SLOPE VARIES AS FOLLOWS:

STA. 399+16.00 TO STA. 399+26.00	0.75%
STA. 399+26.00 TO STA. 399+36.00	0.75% TO FLAT
STA. 399+36.00 TO STA. 399+63.68	FLAT

NOTE: CROSS SLOPE BEFORE START OF CHAMBER (399+16) TO MATCH EXISTING. SEE SHEET 23 FOR FINISHED GRADE ELEVATIONS DETAIL.

STA 399+01.30 TO STA 399+16.00	STA 399+29.20 TO STA 399+47.68
A: 0.00' TO 7.32'	A: 16.50' TO 41.97'
B: 0.00'	B: 6.50'
C: 0.00' TO 7.32'	C: 10.00'
D: 0.00'	D: 0.00' TO 25.48'
STA 399+16.00 TO STA 399+29.20	STA 399+47.68 TO STA 399+63.68
A: 7.32' TO 16.50'	A: 41.97' TO 30.18'
B: 6.50'	B: 6.50'
C: 0.82' TO 10.00'	C: 10.00'
D: 0.00"	D: 25.48' TO 13.68'

TYPICAL SECTIONS – PROPOSED VOINOVICH PARK

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

LEGEND

1. ITEM 608 – WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS
2. ITEM 407 – TACK COAT, 702.13 (0.04 GAL/SY)
3. ITEM 451 – 8" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
4. ITEM 304 – 6" AGGREGATE BASE
5. ITEM 304 – 8" AGGREGATE BASE
6. ITEM 451 – 10" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
7. ITEM 517 – RAILING MISC., APPROACH RAILINGS
8. ITEM 202 – REMOVAL, MISC.: BENCH AND RAILING COMBINATION
9. ITEM 601 – DUMPED ROCK FILL, AS PER PLAN
10. ITEM 203 – GRANULAR EMBANKMENT *
11. ITEM 204 – GEOTEXTILE FABRIC
12. ITEM 204 – SUBGRADE COMPACTION
13. ITEM 407 – TACK COAT (0.075 GAL/SY
14. ITEM 407 – TACK COAT FOR INTERMEDIATE COURSE (0.04 GAL/SY)
15. ITEM 448 – 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22
16. ITEM 448 – 1¾"ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22
17. ITEM 448 – VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22

*REPLACE TOP 24" OF EXCAVATION REQUIRED FOR SUBSTRUCTURE WITH GRANULAR EMBANKMENT

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
S6	EXISTING STRUCTURE REMOVAL PLAN

STA 399+78.67 TO STA 399+79.25

A:	19.16' TO 18.73'	E:	29.85' TO 30.31'
B:	6.50'	F:	13.10' TO 13.56'
C:	10.00'	G:	10.25'
D:	2.67' TO 2.24'		

STA 399+79.25 TO STA 399+82.30

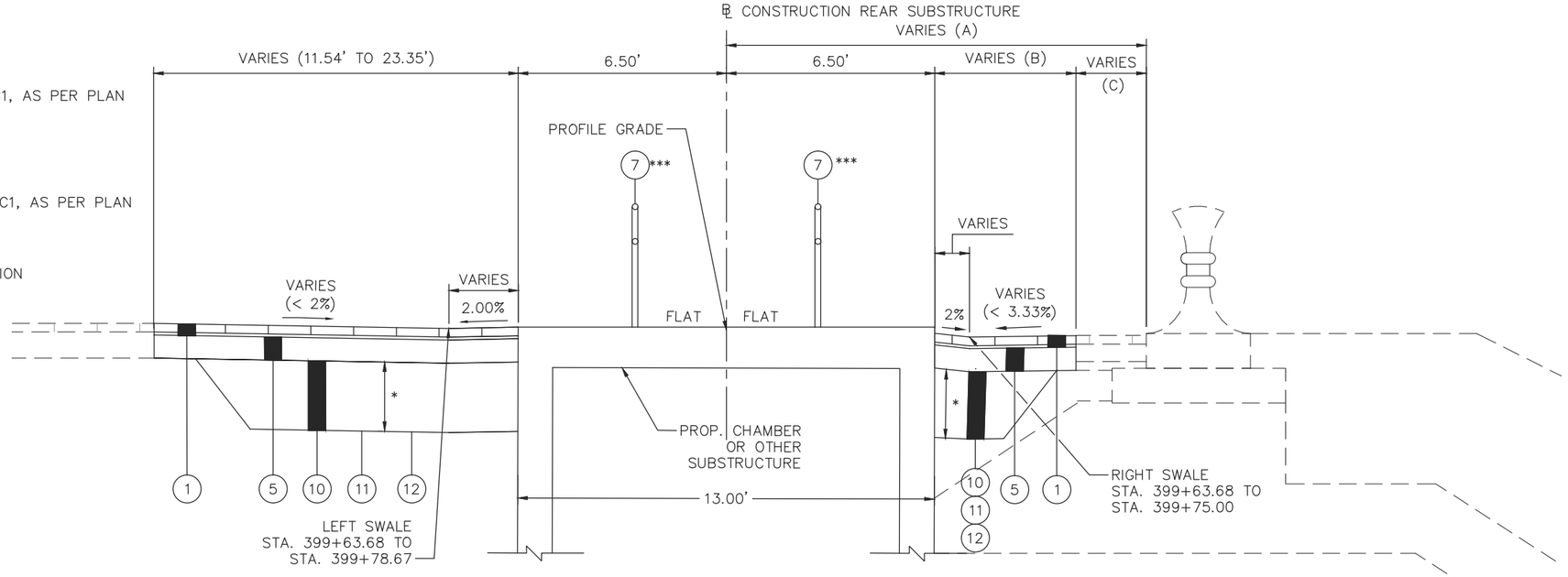
A:	18.73' TO 16.50'	E:	30.31' TO 35.28'
B:	6.50' TO 3.44'	F:	13.56' TO 18.51'
C:	10.00' TO 13.04'	G:	10.25' TO 13.31'
D:	2.24' TO 0.00'		

STA 399+82.30 TO STA 399+82.42

A:	16.50' TO 16.41'	E:	35.28' TO 35.24'
B:	3.44' TO 3.33'	F:	18.51' TO 18.49'
C:	13.04' TO 13.08'	G:	13.31' TO 13.42'
D:	0.00'		

STA 399+82.42 TO STA 399+93.67

A:	16.41' TO 8.52'	E:	35.24' TO 33.89'
B:	3.33'	F:	18.49' TO 17.14'
C:	13.08' TO 5.19'	G:	13.42'
D:	0.00'		



PAVEMENT SECTION VOINOVICH PARK

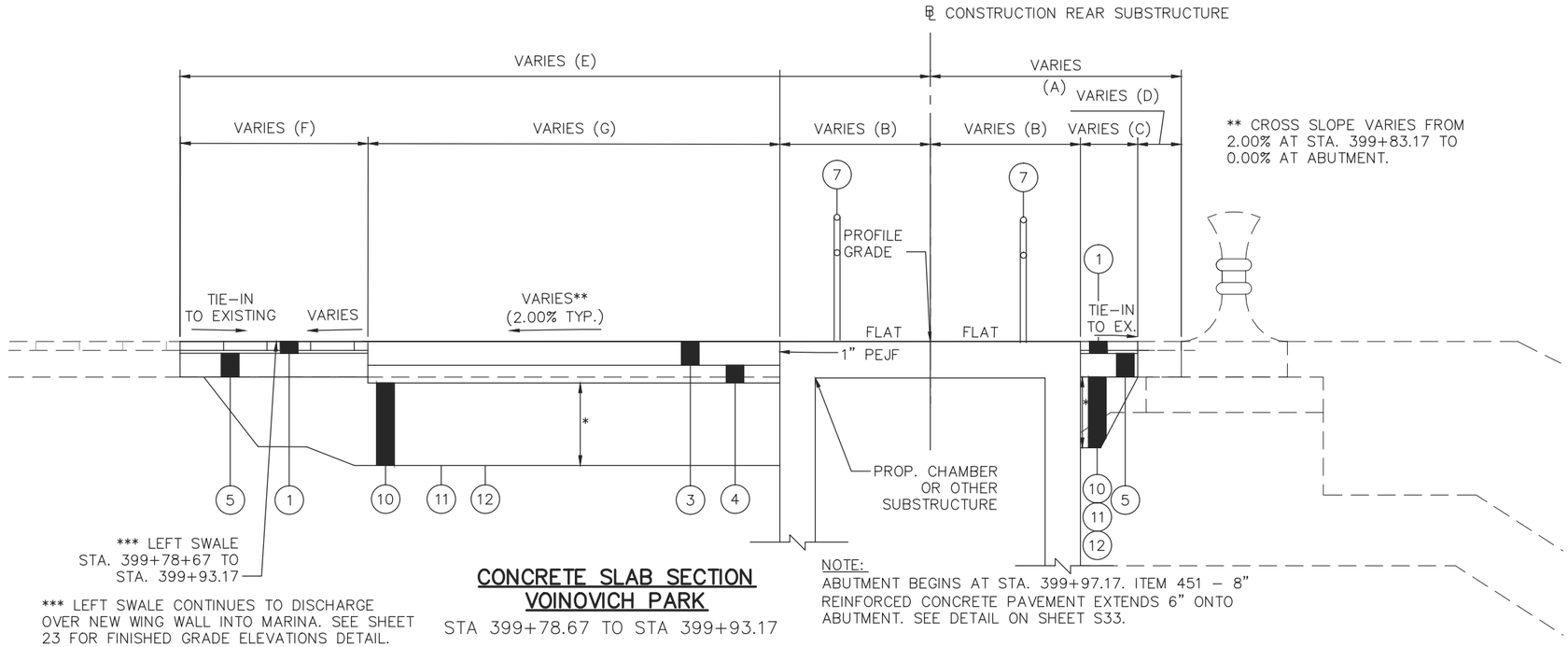
STA 399+63.68 TO STA 399+78.67

NOTE: SEE SHEET 23 FOR ADDITIONAL SWALE INFORMATION.

STA 399+63.68 TO STA 399+78.67

A:	30.18' TO 19.16'
B:	10.00'
C:	13.68' TO 2.67'

*** RAILING BEGINS AT CHAMBER ROPE ENTRANCE (STA. 399+72.14) SEE RAILING DETAIL ON SHEET 28.



*** LEFT SWALE CONTINUES TO DISCHARGE OVER NEW WING WALL INTO MARINA. SEE SHEET 23 FOR FINISHED GRADE ELEVATIONS DETAIL.

CONCRETE SLAB SECTION VOINOVICH PARK

STA 399+78.67 TO STA 399+93.17

NOTE:
ABUTMENT BEGINS AT STA. 399+97.17. ITEM 451 – 8" REINFORCED CONCRETE PAVEMENT EXTENDS 6" ONTO ABUTMENT. SEE DETAIL ON SHEET S33.

TYPICAL SECTIONS – PROPOSED VOINOVICH PARK

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

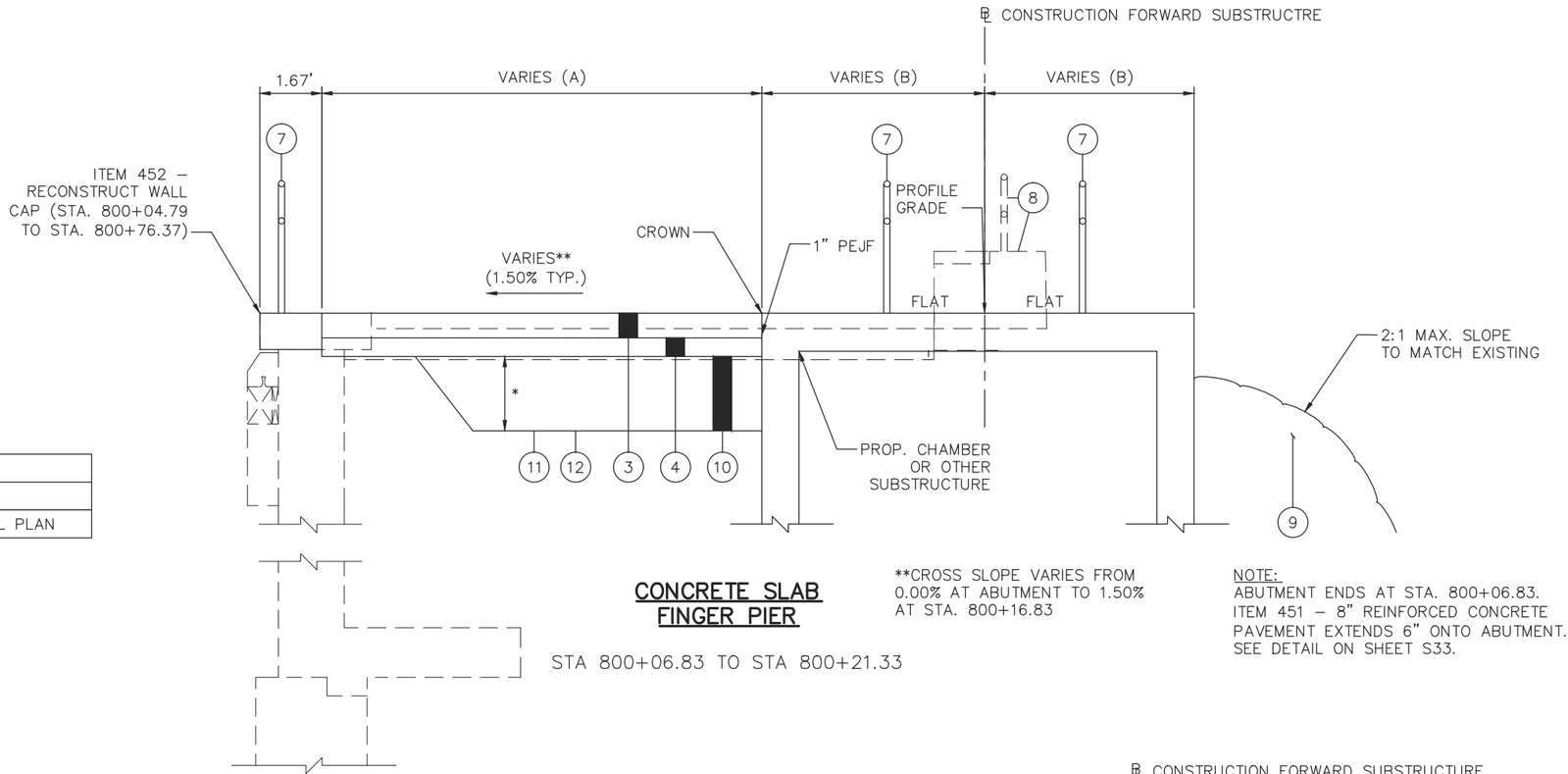
STA 800+06.33 TO STA 800+17.58
A: 13.42'
B: 3.33'

STA 800+17.58 TO STA 800+20.75
A: 13.42' TO 10.25'
B: 3.33' TO 6.50'

STA 800+20.75 TO STA 800+21.33
A: 10.25'
B: 6.50'

CROSS REFERENCES	
SHEET NO.	DESCRIPTION
S6	EXISTING STRUCTURE REMOVAL PLAN

*REPLACE TOP 24" OF EXCAVATION REQUIRED FOR SUBSTRUCTURE WITH GRANULAR EMBANKMENT



CONCRETE SLAB FINGER PIER

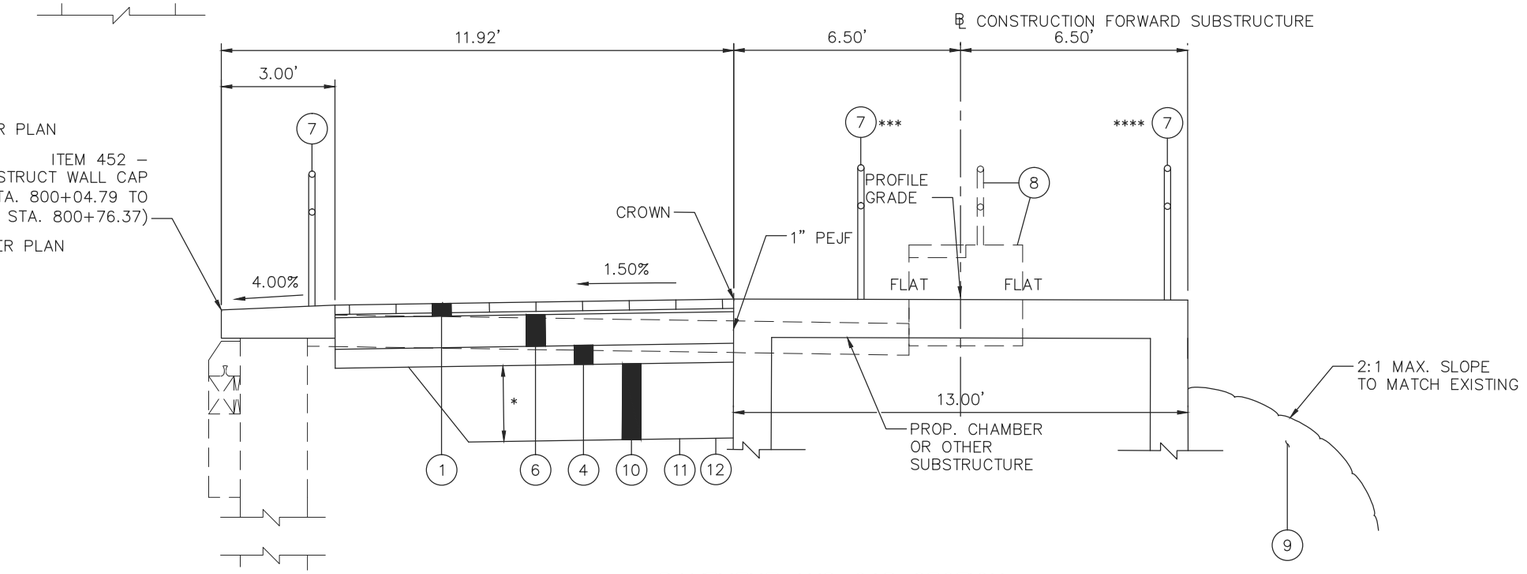
STA 800+06.83 TO STA 800+21.33

**CROSS SLOPE VARIES FROM 0.00% AT ABUTMENT TO 1.50% AT STA. 800+16.83

NOTE:
ABUTMENT ENDS AT STA. 800+06.83.
ITEM 451 – 8" REINFORCED CONCRETE PAVEMENT EXTENDS 6" ONTO ABUTMENT.
SEE DETAIL ON SHEET S33.

LEGEND

1. ITEM 608 – WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS
2. ITEM 407 – TACK COAT, 702.13 (0.04 GAL/SY)
3. ITEM 451 – 8" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
4. ITEM 304 – 6" AGGREGATE BASE
5. ITEM 304 – 8" AGGREGATE BASE
6. ITEM 451 – 10" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
7. ITEM 517 – RAILING MISC., APPROACH RAILINGS
8. ITEM 202 – REMOVAL, MISC.: BENCH AND RAILING COMBINATION
9. ITEM 601 – DUMPED ROCK FILL, AS PER PLAN
10. ITEM 203 – GRANULAR EMBANKMENT *
11. ITEM 204 – GEOTEXTILE FABRIC
12. ITEM 204 – SUBGRADE COMPACTION
13. ITEM 407 – TACK COAT (0.075 GAL/SY
14. ITEM 407 – TACK COAT FOR INTERMEDIATE COURSE (0.04 GAL/SY)
15. ITEM 448 – 1¼" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64–22
16. ITEM 448 – 1¾"ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22
17. ITEM 448 – VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22



PAVEMENT AND CAP SECTION FINGER PIER

STA 800+21.33 TO STA 800+59.27

*** RAILING ENDS AT CHAMBER ROPE ENTRANCE (STA. 800+27.86) SEE RAILING DETAIL ON SHEET 21.

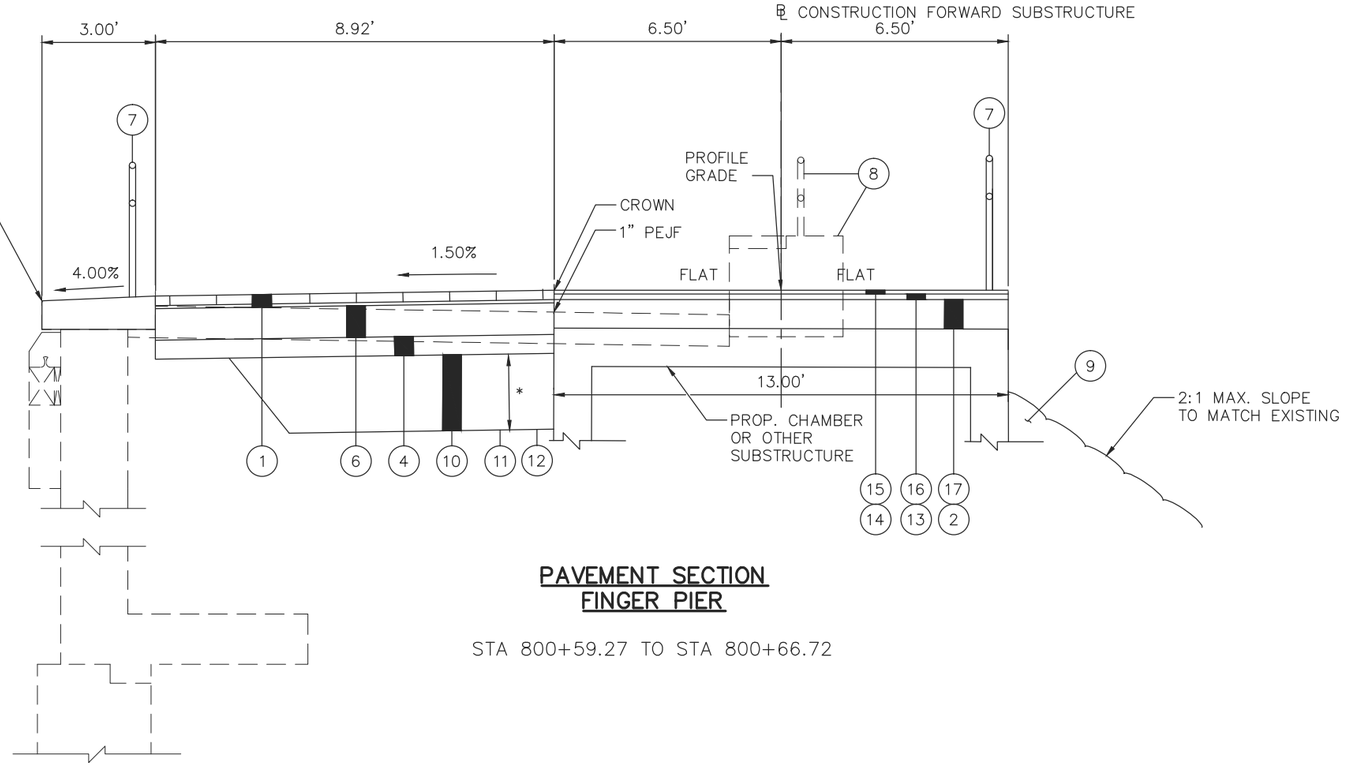
**** RAILING BEGINS AT CHAMBER ROPE ENTRANCE. SEE RAILING DETAIL ON SHEET 29.

TYPICAL SECTIONS – PROPOSED FINGER PIER

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

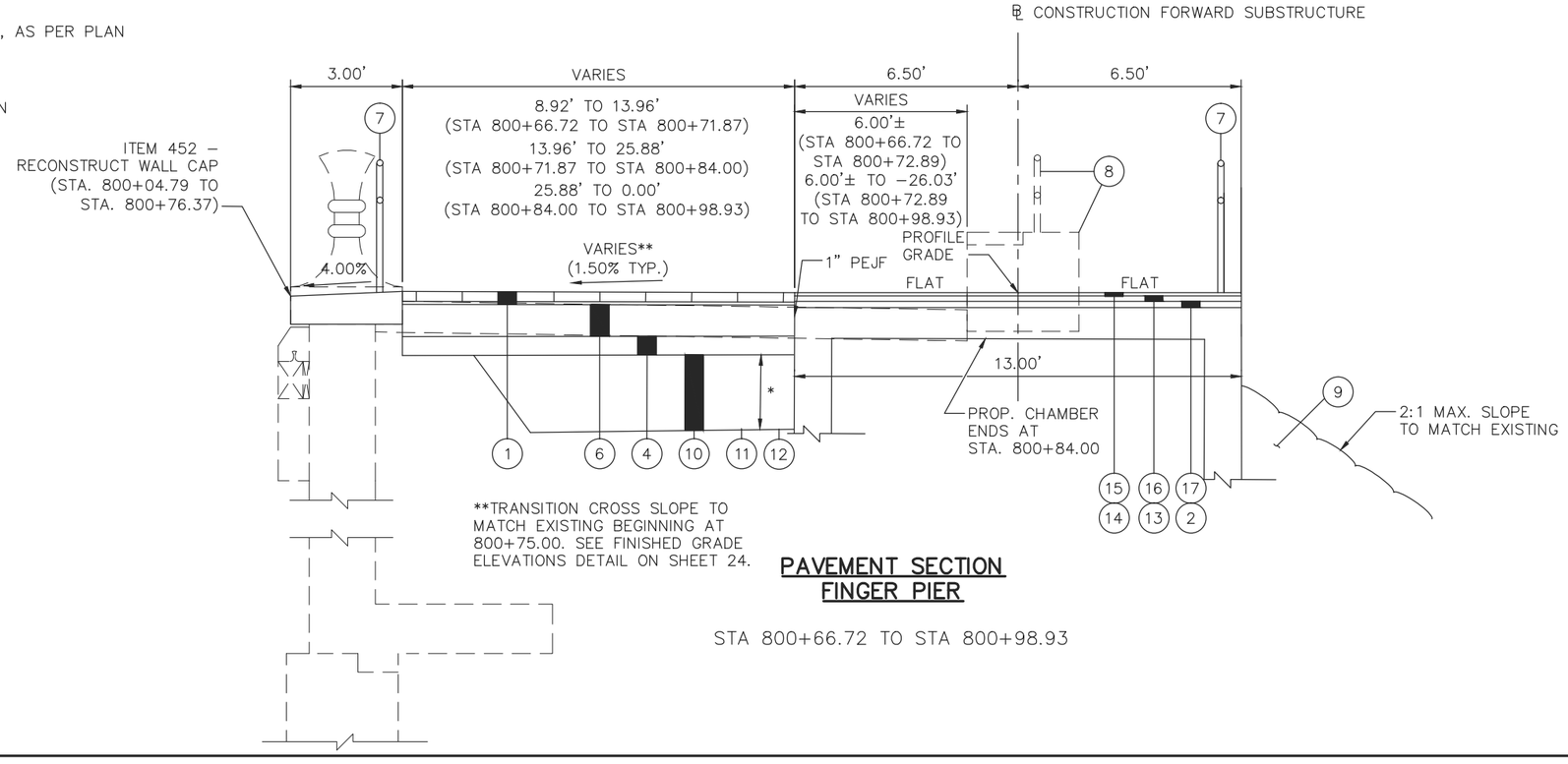
CROSS REFERENCES	
SHEET NO.	DESCRIPTION
S6	EXISTING STRUCTURE REMOVAL PLAN

*REPLACE TOP 24" OF EXCAVATION REQUIRED FOR SUBSTRUCTURE WITH GRANULAR EMBANKMENT



PAVEMENT SECTION
FINGER PIER

STA 800+59.27 TO STA 800+66.72



**TRANSITION CROSS SLOPE TO MATCH EXISTING BEGINNING AT 800+75.00. SEE FINISHED GRADE ELEVATIONS DETAIL ON SHEET 24.

PAVEMENT SECTION
FINGER PIER

STA 800+66.72 TO STA 800+98.93

LEGEND

1. ITEM 608 – WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS
2. ITEM 407 – TACK COAT, 702.13 (0.04 GAL/SY)
3. ITEM 451 – 8" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
4. ITEM 304 – 6" AGGREGATE BASE
5. ITEM 304 – 8" AGGREGATE BASE
6. ITEM 451 – 10" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN
7. ITEM 517 – RAILING, MISC.: APPROACH RAILINGS
8. ITEM 202 – REMOVAL, MISC.: BENCH AND RAILING COMBINATION
9. ITEM 601 – DUMPED ROCK FILL, AS PER PLAN
10. ITEM 203 – GRANULAR EMBANKMENT *
11. ITEM 204 – GEOTEXTILE FABRIC
12. ITEM 204 – SUBGRADE COMPACTION
13. ITEM 407 – TACK COAT (0.075 GAL/SY
14. ITEM 407 – TACK COAT FOR INTERMEDIATE COURSE (0.04 GAL/SY)
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17. ITEM 448 – VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64–22

TYPICAL SECTIONS – PROPOSED
FINGER PIER

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

UTILITIES

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

ELECTRIC:
DIVISION OF CLEVELAND PUBLIC POWER
1300 LAKESIDE AVENUE, ROOM 152
CLEVELAND, OH 44114
ATTN: CHRISTOPHER M. HIRZEL
PHONE: (216) 664–3922 X115
FAX: (216) 664–2972
E–MAIL: chirzel@cpp.org
JIM FERGUSON (216) 857–6906
RICH BARTON (216) 857–1059

GAS:
DOMINION EAST OHIO
320 SPRINGSIDE DRIVE, SUITE 320
AKRON, OH 44333
ATTN: MARY LONG
PHONE: (330) 664–2409
E–MAIL: mary.j.long@dom.com

TELEPHONE:
VERIZON BUSINESS
(FORMERLY MCI)
120 RAVINE STREET
AKRON, OH 44303
ATTN: AL GUEST
PHONE: (330) 253–8267
FAX: (918) 562–7014

XO COMMUNICATIONS
3 SUMMIT DRIVE, SUITE 750
INDEPENDENCE, OH 44131
ATTN: ENG. & CONSTR. MANAGER
PHONE: (216) 619–3200
FAX: (216) 619–3684

CABLE:
TIME WARNER CABLE
14300 INDUSTRIAL PARKWAY
MAPLE HEIGHTS, OHIO 44137
ATTN: PAUL SILVESTRO
PHONE: (216) 575–8016 x5034
FAX: (440) 826–2940
E–MAIL: paul.sylvestro@twcable.com

QWEST COMMUNICATIONS
130 WEST 2ND STREET, SUITE 1538
DAYTON, OH 45402
ATTN: LEON MCCOY
PHONE: (937) 228–5476
FAX: (614) 215–6079
E–MAIL: leon.mccoy@qwest.com

SANITARY, STORM:
CITY OF CLEVELAND DIVISION OF WATER
POLLUTION CONTROL
12302 KIRBY AVENUE
CLEVELAND, OH 44108
ATTN: RACHID ZOGHAIB, DEP. COMMISSIONER
PHONE: (216) 664–3785
FAX: (216) 664–3477

NORTHEAST OHIO REGIONAL SEWER DISTRICT
3900 EUCLID AVENUE
CLEVELAND, OHIO 44115
ATTN: GARY HOFFMAN
PHONE: (216) 881–6600
FAX: (216) 881–2738

WATER:
CITY OF CLEVELAND DIVISION OF WATER
1201 LAKESIDE AVENUE
CLEVELAND, OH 44114
ATTN: TINA GOSHA, CONSULTING ENGINEER
PHONE: (216) 664–2444, x5555
FAX: (216) 664–2838

THE LOCATION OF THE UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE AS OBTAINED FROM THE OWNER AS REQUIRED BY SECTION 153.64 O.R.C., OR BY FIELD SURVEY.

ABBREVIATIONS

℄ – BASELINE
℄ – CENTERLINE
EX. – EXISTING
LT. – LEFT
MIN. – MINIMUM
PROP. – PROPOSED
SF. – SQUARE FOOT/FEET
TEMP. – TEMPERATURE
BRG. – BEARING
CONST. – CONSTRUCTION
EL./ELEV. – ELEVATION
MAX. – MAXIMUM
MISC. – MISCELLANEOUS
RT, – RIGHT
STA. – STATION
TYP. – TYPICAL

PERMITS

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING PRIOR TO CONSTRUCTION ANY AND ALL PERMITS REQUIRED TO COMPLETE THE PROJECT. EXISTING PERMITS CAN BE OBTAINED FROM THE CITY OF CLEVELAND.

EXISTING TYPICAL SECTIONS

EXISTING TYPICAL SECTIONS HAVE BEEN DEVELOPED FROM PAVEMENT CORES AND RECORD PLANS AND ARE BELIEVED TO REPRESENT THE WIDTH AND COMPOSITION OF THE EXISTING PAVEMENT, BUT THE CITY OF CLEVELAND DOES NOT GUARANTEE THE ACCURACY OF SAME.

WORK LIMITS

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. PROVIDE THE INSTALLATION AND OPERATION OF ALL WORK ZONE TRAFFIC CONTROL AND WORK ZONE TRAFFIC CONTROL DEVICES REQUIRED BY THESE PLANS FOR PEDESTRIAN, BOAT, OR VEHICULAR CONTROL, WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

SURVEYING PARAMETERS

PRIMARY PROJECT CONTROL MONUMENTS GOVERN ALL POSITIONING ON ODOT PROJECTS. SEE SHEET 3 OF THE PLANS FOR A TABLE CONTAINING PROJECT CONTROL INFORMATION.

USE THE FOLLOWING PROJECT CONTROL, VERTICAL POSITIONING, AND HORIZONTAL POSITIONING PARAMETERS FOR ALL SURVEYING:

PROJECT CONTROL

POSITIONING METHOD: ODOT VRS RTK GPS / CONVENTIONAL
MONUMENT TYPE: MAG NAILS / IRON PINS

VERTICAL POSITIONING

ORTHOMETRIC HEIGHT DATUM: NAVD1988
GEOID: GEOID03

HORIZONTAL POSITIONING

REFERENCE FRAME: NAD83(2007)
ELLIPSOID: GRS80
MAP PROJECTION: LAMBERT CONFORMAL CONIC
COORDINATE SYSTEM: OHIO STATE PLANE, NORTH ZONE (3401)
COMBINED SCALE FACTOR: 0.999949150
ORIGIN OF COORDINATE SYSTEM: (0,0)

USE THE POSITIONING METHODS AND MONUMENT TYPE USED IN THE ORIGINAL SURVEY TO RESTORE ALL MONUMENTS RELATED TO PRIMARY PROJECT CONTROL THAT ARE DAMAGED OR DESTROYED BY CONSTRUCTION ACTIVITIES. RESTORE THE DAMAGED OR DESTROYED MONUMENTS IN ACCORDANCE WITH SUPPLEMENTAL SPECIFICATION 823.

UNITS ARE IN SURVEY FEET. USE THE FOLLOWING CONVERSION FACTOR: 1 METER = 3.280833333 U.S. SURVEY FEET.

AIRWAY/HIGHWAY CLEARANCE FOR AIRPORTS AND HELIPORTS

THIS PROJECT HAS BEEN IDENTIFIED AS BEING WITHIN THE INFLUENCE AREA OF A PUBLIC USE AIRPORT OR HELIPORT. NO TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT AT MAXIMUM OPERATING HEIGHT SHALL EXCEED A HEIGHT OF 150 FT. IF ANY TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT WILL EXCEED THIS HEIGHT, FURTHER COORDINATION WITH THE FEDERAL AVIATION ADMINISTRATION (FAA), AND ODOT OFFICE OF AVIATION WILL BE NECESSARY PRIOR TO ERECTING SUCH TEMPORARY STRUCTURES OR OPERATING SUCH EQUIPMENT ON THE PROJECT. THE CONTRACTOR WILL BE REQUIRED TO FILE A NEW FAA FORM 7460–1, ADVISING THE FAA THAT AERONAUTICAL STUDY NO. 2012–AGL–4978–OE IS BEING RESUBMITTED AND THAT AN ALTERATION TO THE ORIGINAL SUBMISSION IS REQUESTED.

COPIES OF THE LATERATION AND FORM 7460–1 SHALL BE FORWARDED TO THE ODOT OFFICE OF AVIATION. NO TEMPORARY STRUCTURES OR CONSTRUCTION EQUIPMENT SHALL EXCEED THE PERMISSIBLE HEIGHT UNTIL A COPY OF THE FAA APPROVAL AND ODOT OFFICE OF AVIATION PERMIT HAS BEEN FURNISHED TO THE ENGINEER. FAA APPROVAL MAY TAKE UP TO 45 DAYS. ALL SUBMISSIONS SHALL BE DIRECTED TO THESE OFFICES:

EXPRESS PROCESSING CENTER
THE FEDERAL AVIATION ADMINISTRATION
SOUTHWEST REGIONAL OFFICE
AIR TRAFFIC AIRSPACE BRANCH ASW–520
2601 MEACHAN BLVD.
FORT WORK, TX 76137–4298

OHIO DEPARTMENT OF TRANSPORTATION
OFFICE OF AVIATION
2829 WEST DUBLIN–GRANVILLE ROAD
COLUMBUS, OHIO 43235
614–387–2346

WORK HOURS AND NOISE CONTROL

THE CONTRACTOR SHALL RESTRICT HIS WORKING HOURS TO THOSE PERMITTED BY LOCAL ORDINANCES OR ANY OTHER APPLICABLE ORDINANCES, LAWS OR REGULATIONS EXCEPT AS HE MAY OBTAIN WRITTEN VARIANCES FROM SUCH ORDINANCES, LAWS, OR REGULATIONS FROM THE APPROPRIATE GOVERNING AUTHORITIES. THE NOISE LEVEL RESULTING FROM THE CONSTRUCTION SHALL BE WITHIN THE LIMITS SPECIFIED IN OSHA REGULATIONS AND ALL LOCAL ORDINANCES.

BRIDGE SUPERVISOR OPERATION ROOM – NOT IN THIS CONTRACT

THE BRIDGE OPERATION ROOM SHALL BE LOCATED IN A NEW STRUCTURE, TO BE CONSTRUCTED BY OTHERS, NEAR THE PROPOSED PEDESTRIAN BRIDGE IN VOINOVICH PARK. THE 30% DESIGN LOCATION AND CALL–OUT IS SHOWN ON THESE PLANS AND IS SUBJECT TO CHANGE.

SEE ELECTRICAL PLANS FOR CONTROL PANEL.

COORDINATION BETWEEN THE OPERATION ROOM AND PEDESTRIAN BRIDGE CONTRACTORS IS IMPORTANT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF THE OPERATOR HOUSE DURING CONSTRUCTION OF THIS CONTRACT.

ITEM 202 – PAVEMENT REMOVED, AS PER PLAN

PAVEMENT SAW CUTTING REQUIRED TO REMOVE EXISTING PAVEMENT AS NOTED IN THE PLANS SHALL BE INCLUDED IN ITEM 202 – PAVEMENT REMOVED, AS PER PLAN.

CLEARING AND GRUBBING

ALTHOUGH THERE ARE NO TREES OR STUMPS SPECIFICALLY MARKED FOR REMOVAL WITHIN THE LIMITS OF THE PROJECT, A LUMP SUM QUANTITY IS INCLUDED IN THE GENERAL SUMMARY FOR ITEM 201, CLEARING AND GRUBBING. ALL PROVISIONS AS SET FORTH IN THE SPECIFICATIONS UNDER THIS ITEM ARE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 201, CLEARING AND GRUBBING.

ITEM SPECIAL – MISC.: PEDESTRIAN GATE

THE CONTRACTOR SHALL FURNISH AND INSTALL B&B ROADWAY WARNING GATE, MODEL VW–2 PEDESTRIAN VERTICAL LIFT GATES AT THE LOCATIONS SHOWN ON THE PLANS. THE GATE SHALL HAVE A HANGING FENCE BELOW A RED AND WHITE HORIZONTAL BAR WITH ONE RED FLASHING LIGHT.

CONSTRUCT FOUNDATION AS SHOWN ON SHEET 28.

ALL COSTS FOR EQUIPMENT, MATERIALS, LABOR, AND INCIDENTALS TO CONSTRUCT PEDESTRIAN GATES AND FOUNDATIONS AS DESCRIBED ABOVE SHALL BE PAID FOR BY THE UNIT COST FOR ITEM SPECIAL – MISC.: PEDESTRIAN GATE.

CALCULATED SMS
CHECKED CS

GENERAL NOTES

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

CONTINGENCY QUANTITIES

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK LISTED IN THE GENERAL SUMMARY FOR ITEMS DESIGNATED BY PLAN NOTE TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER. THE ACTUAL WORK LOCATIONS AND QUANTITIES USED AT THE ENGINEER'S DISCRETION SHALL BE MADE A MATTER OF RECORD BY INCORPORATION INTO THE FINAL CHANGE ORDER GOVERNING COMPLETION OF THIS PROJECT.

TEMPORARY SOIL EROSION AND SEDIMENT CONTROL MEASURES

ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS SPECIFIED HEREIN OR DIRECTED BY THE ENGINEER SHALL BE IN PLACE PRIOR TO ANY EXCAVATION, GRADING OR FILLING OPERATIONS AND INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES. THESE CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE AREA IS STABILIZED AS ACCEPTED BY THE ENGINEER.

THE FOLLOWING ESTIMATED QUANTITIES ARE TO BE USED AS PLACED BY THE CONTRACTOR WITH ENGINEERS' CONCURRENCE FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES:

ITEM 832 – EROSION CONTROL	1,000 EACH
ITEM 832 – SWPPP, AS PER PLAN	LUMP

ITEM 832 – STORM WATER POLLUTION PREVENTION PLAN, AS PER PLAN

A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE PREPARED AND IMPLEMENTED ACCORDING TO ODOT SPECIFICATION 832, OEPA REQUIREMENTS, AND THE FOLLOWING ADDITIONAL CONDITIONS:

1. IF TRENCH OR GROUND WATER CONTAINS SEDIMENT, IT SHALL PASS THROUGH AN EFFECTIVE, ENGINEER APPROVED SEDIMENT CONTROL DEVICE PRIOR TO BEING DISCHARGED FROM THE CONSTRUCTION SITE TO THE NEAREST SEWER MANHOLE. DRAINAGE DISCHARGE SHALL NOT BE RELEASED INTO LAKE ERIE UNLESS AUTHORIZED BY THE OEPA.
2. CONTRACTOR SHALL COMPLETE THE SWPPP BY FOLLOWING OEPA'S SWPPP GUIDE.
3. CONTRACTOR SHALL COMPLETE, SUBMIT, AND GET APPROVAL FROM OEPA, FOR A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR DISCHARGES FROM CONSTRUCTION ACTIVITIES. APPROVAL MUST BE OBTAINED PRIOR TO THE START OF ANY CONSTRUCTION WORK.
4. CONTRACTOR SHALL SEND 2 (TWO) COPIES OF OEPA APPROVED SWPPP TO ENGINEER PRIOR TO CONSTRUCTION.

WATER SUPPLY

WATER WILL BE SUPPLIED TO THE CONTRACTOR AT THE NEAREST HYDRANT. THE COST OF THE WATER SUPPLY SHALL BE BORNE BY THE CONTRACTOR. THE CONTRACTOR SHALL OBTAIN THE NECESSARY PERMIT FROM THE CITY OF CLEVELAND WATER DEPARTMENT.

THE CONTRACTOR WILL BE REQUIRED TO PROVIDE APPROVED STANDARD TIGHT HOSE AND FITTINGS WITH WHICH TO MAKE CONNECTIONS TO HYDRANTS AND OUTLETS. NO IMPROPER, WASTEFUL OR UNDUE USE OF WATER WILL BE PERMITTED.

GOODTIME III RELOCATION

THE CITY OF CLEVELAND TO RELOCATE THE GOODTIME III TO A SUMMER BERTHING LOCATION ALONG THE EAST SIDE OF E 9TH STREET.

ENVIRONMENTAL COMMITMENTS

AN EMERGENCY SPILL CONTAINMENT SYSTEM SHALL BE PROVIDED BY THE CONTRACTOR TO CONTROL TOXIC SUBSTANCES FROM ENTERING THE NORTH COAST HARBOR IN THE EVENT OF RELEASE DURING PROJECT CONSTRUCTION.

THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT EPOXY–URETHANE SEALER, PAINT, OR OTHER MATERIALS USED TO REPAIR, CLEAN, SEAL, OR TREAT ANY BRIDGE STRUCTURE FROM ENTERING ANY WATERS OF THE UNITED STATES AND TAKE THE APPROPRIATE ACTIONS IN THE EVENT OF A RELEASE.

THE CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID AND/OR LIMIT CONSTRUCTION AND/OR DEMOLITION DEBRIS FROM ENTERING THE HARBOR. ANY DEBRIS MATERIAL THAT DOES FALL INTO THE HARBOR SHALL BE REMOVED AS SOON AS POSSIBLE.

THE MECHANICAL EQUIPMENT USED TO EXECUTE THE WORK AUTHORIZED HEREIN SHALL BE OPERATED IN SUCH A WAY AS TO MINIMIZE TURBIDITY THAT COULD DEGRADE WATER QUALITY AND ADVERSELY AFFECT AQUATIC PLANT AND ANIMAL LIFE IN THE HARBOR.

THE REMOVAL OF MATERIALS FROM THE HARBOR CHANNEL AREAS IDENTIFIED IN THE PLANS SHALL BE LIMITED TO THE EXTENT NECESSARY TO CONSTRUCT THE BRIDGE SUBSTRUCTURE. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT ANY INCIDENTAL DISCHARGES ASSOCIATED WITH THE EXCAVATION AND HAULING OF MATERIAL FROM THE STREAM CHANNEL. THIS PERTAINS TO ANY EXCAVATION OPERATIONS SUCH AS FOUNDATION ABUTMENT OR CHAMBER EXCAVATION AND REMOVAL OF ANY TEMPORARY FILL ASSOCIATED WITH CONSTRUCTION OPERATIONS.

ALL MATERIALS REMOVED DURING CONSTRUCTION MUST BE IMMEDIATELY REMOVED TO AN UPLAND SITE AND STABILIZED (I.E., SEEDED) TO PREVENT REDISTRIBUTION INTO ANY WATERS OF THE UNITED STATES. IMMEDIATE REMOVAL IS DEFINED BY THE UNITED STATES ARMY CORPS OF ENGINEERS AS DEPOSITING THE REMOVED MATERIALS DIRECTLY INTO A TRUCK AND REMOVING THE MATERIAL FORM THE SITE; PLACEMENT OF REMOVED MATERIALS INTO A WETLAND OR ON THE BANKS OF AS STREAM EVEN TEMPORARILY IS CONSIDERED A FILL AND REQUIRES A PERMIT ACTION. ANY AREAS DISTURBED BY EQUIPMENT ACTIVITIES MUST BE SEEDED WITH NATIVE PLANT SPECIES TO PREVENT EROSION OF SEDIMENTS INTO WATERS OF THE UNITED STATES.

WATER COLUMN AND SEDIMENTATION IMPACTS SHALL BE KEPT TO A MINIMUM THROUGH THE USE OF BEST MANAGEMENT PRACTICES FOR SOIL EROSION AND SEDIMENTATION CONTROL. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE IN PLACE PRIOR TO ANY CONSTRUCTION OPERATIONS AND INSTALLATION OF PROPOSED STRUCTURES OR UTILITIES. THEY SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE AND THE AREA IS STABILIZED AS ACCEPTED BY THE ENGINEER.

BEST MANAGEMENT PRACTICES FOR CONTROL OF SEDIMENT AND SOIL EROSION WILL BE INCORPORATED INTO THE PROJECT PLANS. THE PROJECT PLANS WILL SPECIFY THAT THE CONTRACTOR IS RESPONSIBLE FOR THE FULL IMPLEMENTATION AND DAILY MAINTENANCE OF THESE CONTROL MEASURES. THE CONTROL MEASURES WILL BE INSTALLED AND FUNCTIONAL PRIOR TO BRIDGE CONSTRUCTION AND WILL BE MAINTAINED THROUGHOUT THE PROJECT.

COORDINATION WITH THE LOCAL FEMA FLOODPLAIN COORDINATOR WILL BE COMPLETED AND A FLOODPLAIN PERMIT FILED, IF NECESSARY.

THE WATERWAY PERMIT(S) FOR THE PROJECT SHALL BE INCORPORATED INTO THE PROJECT CONSTRUCTION PLANS AS SPECIAL PROVISIONS FOR WATERWAY PERMITS. THE CONTRACTOR SHALL NOT PERFORM ANY WORK IN AND/OR PLACE ANY FILL IN JURISDICTIONAL WATERS UNTIL THE FINAL 404/401 PERMITS ARE AUTHORIZED BY THE U.S. ARMY CORPS OF ENGINEERS AND THE OHIO ENVIRONMENTAL PROTECTION AGENCY. ALL CONDITIONS OF THE WATERWAY PERMIT(S), INCLUDING MITIGATION SHALL BE ADHERED TO THROUGHOUT CONSTRUCTION.

DEWATERING

DEWATERING OF TEMPORARY COFFERDAMS SHALL BE IN ACCORDANCE WITH ODOT SPECIFICATIONS 832 AND 107, AND WITH THE FOLLOWING ADDITIONAL CONDITIONS:

1. THERE SHALL BE NO TURBID DISCHARGES TO SURFACE WATERS RESULTING FROM DEWATERING ACTIVITIES.
2. WHEN DISCHARGING CLEAN GROUND WATER CARE SHALL BE TAKEN TO ENSURE THAT IT DOES NOT BECOME POLLUTANT LADEN BY CROSSING OVER DISTURBED SOILS OR OTHER POLLUTANT SOURCES.
3. THE CONTRACTOR SHALL DEWATER, CONTAINERIZE, TEST, AND SUBSEQUENTLY DISPOSE OF WATERS BY METHODS IN ACCORDANCE WITH OEPA REQUIREMENTS AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS AND/OR AUTHORIZATIONS NEEDED TO STORE, TEST, TRANSPORT AND DISPOSE OF THE WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.
4. THE CONTRACTOR IS REQUIRED TO FURNISH WATER HANDLING CONTROLS THAT PREVENT SEDIMENT–LADEN WATER FROM BEING DISCHARGED FROM THE SITE.
5. CONTRACTOR SHALL DISPOSE OF REMOVED SEDIMENT PER ODOT AND EPA REGULATIONS AND MUST BE APPROVED BY ENGINEER.

ALL COSTS NECESSARY TO MEET THE ABOVE REQUIREMENTS TO THE SATISFACTION OF THE ENGINEER SHALL BE INCLUDED FOR PAYMENT PER LUMP SUM ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

ITEM 601 – DUMPED ROCK FILL, AS PER PLAN

THE CONTRACTOR SHALL SALVAGE EXISTING ARMOR STONE FOR THE CONSTRUCTION OF PROPOSED SUBSTRUCTURE. SALVAGED ARMOR STONE SHALL BE PLACED ADJACENT TO THE SUBSTRUCTURE AS SHOWN IN THE PLANS IN A MANNER SO AS TO NOT DAMAGE THE NEW STRUCTURE. THE COST FOR ALL MATERIAL, LABOR, SHOP DRAWINGS, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 601 – DUMPED ROCK FILL, AS PER PLAN.

EXISTING PLANS

EXISTING PLANS MAY BE INSPECTED IN THE ODOT DISTRICT 12 OFFICE IN GARFIELD HEIGHTS, OH AND ON THE ODOT FTP SITE.

WORK IN AND OVER LAKE ERIE

THE CONTRACTOR SHALL SEND A NOTICE OF NAVIGABILITY FORM TO THE US ARMY CORPS OF ENGINEERS (USACE) PRIOR TO CONSTRUCTION. THE USACE CONTACT NAME AND ADDRESS ARE: ROBERT W. REMMERS, P.E., PMP, CHIEF, OPERATIONS AND TECHNICAL SUPPORT SECTION, U.S. ARMY CORPS OF ENGINEERS, BUFFALO DISTRICT, 1776 NIAGARA ST., BUFFALO, NY 14207 TELE:(716) 879–4277 EMAIL: ROBERT.W.REMMERS@USACE.ARMY.MIL.

ALL CONSTRUCTION OPERATIONS IN AND OVER THE LAKE SHALL CONFORM TO THE REQUIREMENTS OF THE UNITED STATES COAST GUARD. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN NAVIGATION LIGHTS AND OTHER NAVIGATION SIGNALS, BUOYS, OR FACILITIES WHICH MAY BE REQUIRED BY THE U.S. COAST GUARD ON CONSTRUCTION EQUIPMENT, ON VESSELS, OR FOR DIRECTING BOAT TRAFFIC NECESSARY TO MEET, BUT NOT LIMITED TO 107.08. A COPY OF THE U.S. COAST GUARD APPROVED DOCUMENTS SHALL BE PROVIDED TO THE ENGINEER BEFORE WORK CAN COMMENCE IN AND OVER LAKE ERIE.

THE CONTRACTOR SHALL NOTIFY THE COMMANDING OFFICER, U.S. COAST GUARD, MARINE SAFETY OFFICE THIRTY (30) DAYS IN ADVANCE OF COMMENCEMENT OF WORK IN AND ABOVE THE RIVER SO THAT THE NAVIGATION INTERESTS MAY BE NOTIFIED OF THE PRESENCE OF CONSTRUCTION EQUIPMENT. THE CONTRACTOR SHALL ALSO NOTIFY THEM WHEN WORK IS COMPLETE. THE ADDRESS AND PHONE NUMBER ARE: COMMANDING OFFICER, USCG–MSO–CLEVELAND, 1055 EAST 9TH ST., CLEVELAND, OH 44114 TELE: (216) 937–0111.

PUBLIC RELATIONS: THE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION OF THE STARTING DATE OF THIS PROJECT TO EACH OF THE BOATING FACILITIES WHOSE CUSTOMERS MAY TRAVEL UNDER THE BRIDGE.

THE CONTRACTOR SHALL PROVIDE COPIES OF CORRESPONDENCE WITH THE U.S. COAST GUARD, USACE, AND BOATING FACILITIES TO THE ENGINEER.

ALL COSTS NECESSARY TO MEET THE ABOVE REQUIREMENTS, INCLUDING PERMITS SHALL BE INCLUDED FOR PAYMENT PER LUMP SUM ITEM 614, MAINTAINING TRAFFIC, MISC.: BOAT TRAFFIC.

COOPERATION BETWEEN CONTRACTORS AND COORDINATION

THE CONTRACTOR SHALL COOPERATE AND COORDINATE HIS OPERATION WITH THE CONTRACTORS ON OTHER PROJECTS THAT MAY BE IN FORCE DURING THE LIFE OF THIS CONTRACT. NO WAIVER OF ANY PROVISIONS OF 105.08 OF THE CONSTRUCTION AND MATERIAL SPECIFICATION IS INTENDED.

NOTIFICATION

THE CONTRACTOR SHALL NOTIFY IN WRITING THE FOLLOWING AGENCIES AT LEAST ONE WEEK PRIOR TO THE START OF CONSTRUCTION, AND AT LEAST 72 HOURS BEFORE IMPLEMENTING ANY SUBSTANTIAL CHANGE IN TRAFFIC PATTERN OR CLOSING ANY STREET TO TRAFFIC:

THE CITY OF CLEVELAND POLICE TRAFFIC SAFETY DEPARTMENT
THE CITY OF CLEVELAND FIRE DEPARTMENT
THE CITY OF CLEVELAND EMS
THE CUYAHOGA COUNTY BOARD OF MENTAL RETARDATION
THE CLEVELAND BOARD OF EDUCATION
THE CITY OF CLEVELAND COMMISSIONER OF TRAFFIC ENGINEERING
THE CITY OF CLEVELAND COMMISSIONER OF ENGINEERING AND CONSTRUCTION

SEPARATE CONTRACTORS AND THIRD PARTIES MAY BE INVOLVED IN CONSTRUCTION AND OTHER ACTIVITIES IN PORTIONS OF THE PROJECT AREA AND WITHIN THE SAME SITE OF THIS BID PACKAGE. SUCH WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING

1. TRANSIENT MARINA AMENITIES BUILDING
2. TRANSIENT MARINA OPERATION
3. DREDGING OF THE NORTH COAST HARBOR

COORDINATE SPACE, SCHEDULING, SUBMITTALS, AND REQUIREMENTS OF SPECIFICATION SECTIONS TO ASSURE EFFICIENT AND ORDERLY SEQUENCE OF INSTALLATION OF INTERDEPENDENT CONSTRUCTION ELEMENTS. THIS INCLUDES COORDINATING ALL PROJECT–RELATED MEETINGS REQUIRED BY THE CONTRACT DOCUMENTS.

PRE–INSTALLATION MEETINGS: PRIOR TO THE START OF A MAJOR CONSTRUCTION PHASE OR WHEN SPECIFIED, CONVENE PRE–INSTALLATION MEETING OR CONFERENCE AT PROJECT SITE BEFORE STARTING WORK OR THAT PORTION OF WORK. INSTALLING ENTITIES SHALL MODIFY INSTALLATIONS TO ELIMINATE CONFLICTS AND ACHIEVE EFFECTIVE COORDINATION OF SYSTEMS AND WORK.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SECURITY OF THE NEW STRUCTURE AND BRIDGE OPERATION ROOM BUILT BY OTHERS.

NO SEPARATE MEASUREMENT OR PAYMENT WILL BE MADE FOR THE WORK UNDER THIS ITEM, THE COST OF WHICH SHALL HAVE BEEN INCLUDED UNDER OTHER ITEMS OF WORK.

CALCULATED CLG | CHECKED CS

GENERAL NOTES

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

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165

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DRAINAGE CONNECTIONS

EXISTING ROOF DRAINS, FOOTER DRAINS OR YARD DRAINS, DISTURBED BY THE PROPOSED WORK, SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS BY CONNECTING TO A STORM SEWER, MANHOLE OR CATCH BASIN OR THROUGH THE CURB. THE LOCATION, TYPE, SIZE AND GRADE OF REQUIRED REPLACEMENTS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.
THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 202 – PIPE REMOVED 24" AND UNDER	50 FT
ITEM 611 – 4" CONDUIT, TYPE E	50 FT
ITEM 611 – 6" CONDUIT, TYPE E	50 FT
ITEM 611 – 6" CONDUIT, TYPE F, AS PER PLAN	50 FT

NECESSARY BENDS, BRANCHES, COLLARS, FITTINGS, ETC. SHALL BE INCLUDED FOR PAYMENT WITH THE PERTINENT CONDUIT ITEM.

NONE OF THE ABOVE MATERIALS SHALL BE ORDERED BY THE CONTRACTOR UNTIL AUTHORIZED BY THE ENGINEER.

ITEM 611 – 6" CONDUIT, TYPE F, AS PER PLAN

THIS ITEM SHALL CONSIST OF MATERIAL 707.41 NON–PERFORATED, 707.42, 707.33, OR 707.45.

CROSSING AND CONNECTION TO EXISTING PIPE AND UTLITIES

A. WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO, OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

B. IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT, OR EXISTING APPURTENANCE TO BE CONNECTED, DIFFERS FROM THE PLAN ELEAVTION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOP, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

C. IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

D. PAYMENT FOR ALL OF THE OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT 611 CONDUIT ITEM.

CONTRACTION AND/OR EXPANSION JOINTS

ALTHOUGH SPECIFIC LOCATIONS OF CERTAIN CONTRACTION AND EXPANSION JOINTS HAVE NOT BEEN DETAILED ON THIS PLAN, NO WAIVER OF THE SPECIFICATIONS IS INTENDED. PROVISION OF EXPANSION JOINTS AT ALL MAJOR STRUCTURES AND THE MAXIMUM SPACING BETWEEN CONTRACTION JOINTS SHALL BE 15 FEET AND IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP–2.2 AND THE SPECIFICATIONS. EXPANSION JOINTS SHALL HAVE SPACING OF APPROXIMATELY 300' AND PRIOR TO EACH INTERSECTION.

CONTRACTION JOINTS IN CONCRETE PAVEMENT OR BASE WIDENING WHERE NEW CONCRETE IS PLACED ADJACENT TO EXISTING CONCRETE, CONTRACTION JOINTS SHALL BE PROVIDED IN THE NEW CONCRETE SO AS TO FORM CONTINUOUS JOINTS WITH THOSE IN THE EXISTING CONCRETE.

THE MAXIMUM DISTANCE BETWEEN THE JOINTS IN THE NEW CONCRETE SHALL BE 15 FEET AND IN ACCORDANCE WITH STANDARD CONSTRUCTION DRAWING BP–2.2. IF NECESSARY, ADDITIONAL JOINTS SHALL BE PROVIDED IN THE NEW CONCRETE AT APPROXIMATELY EQUAL INTERVALS BETWEEN EXISTING JOINTS THAT EXCEED THE MAXIMUM SPACING.

ITEM SPECIAL – CONCRETE MIX DESIGN

ALL APPLICABLE WORK ROADWAY ITEMS SHALL BE BID USING THE CONCRETE MIX DESIGN SPECIFIED IN THIS SECTION. UNDER THIS SECTION OF THESE SPECIFICATIONS THE CONTRACTOR IS REQUIRED TO SUBMIT A SEPARATE MIX DESIGN FOR EACH COMBINATION OF CEMENT TYPE, AGGREGATE TYPE AND CONCRETE SUPPLIER THEY WILL USE UNDER THIS CONTRACT. EACH MIX SHALL BE DESIGNED IN ACCORDANCE WITH ASTM–C94–04 OPTION C AND AS HEREIN MODIFIED.

1. MINIMUM COMPRESSIVE STRENGTH
   4,000 PSI STRENGTH FOR 28–DAY TEST. FOUR CYLINDERS WILL BE TAKEN AND TESTED AS PER ASTM C–39–07. ONE TO BE TESTED AT SEVEN DAYS AND THE REMAINING THREE WILL BE TESTED AT TWENTY–EIGHT DAYS. ACCEPTANCE WILL BE BASED ON THE AVERAGE RESULTS OF THE THREE CYLINDERS.

2. MINIMUM CEMENT CONTENT
   650 LBS. PER CUBIC YARD. THE CEMENT SHALL CONFORM TO ASTM C–150–04 OR C–595–04. THE USE OF LIMESTONE MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER UPON REVIEW OF THE SUBMITTLAL.

3. WATER CEMENT RATIO
   0.45 MAXIMUM.

4. SLUMP
   NOMINAL THREE INCHES (3") AS PER ASTM C–94–04 (2"–4" ACTUAL). THE USE OF CHEMICAL ADMIXTURES MEETING ASTM C–494, TO INCREASE THE SLUMP TO A MAXIMUM OF 7", MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER UPON REVIEW OF THE ADMIXTURE AND RESULTANT MAXIMUM SLUMP.

5. AIR CONTENT
   FOUR PERCENT (4%) TO SEVEN AND ONE HALF PERCENT (7–1/2%) ASTM C–173–04 OR C–231–04.

6. AGGREGATE
   AGGREGATE SIZE NO. 57 FOR COURSE AGGREGATE SHALL BE LIMESTONE, GRAVEL OR CRUSHED AIR–COOLED BLAST FURNACE SLAG. BOTH COURSE & FINE AGGREGATE AS PER ASTM C–33–04.

IF CRUSHED AIR–COOLED BLAST FURNACE SLAG IS USED IT SHALL MEET ALL OF THE REQUIREMENTS OF ODOT 703.01 AND 703.02. COPIES OF ALL TESTS AND CERTIFICATIONS FOR THE CRUSHED AIR–COOLED BLAST FURNACE SLAG, IF USED, SHALL BE SUBMITTED AS A PART OF THE CONCRETE MIX DESIGN.

STEEL SLAG AGGREGATE (703.01E) IS NOT PERMITTED FOR USE IN CLEVELAND 650 CONCRETE MIX.

WHEN HIGH EARLY STRENGTH IS REQUIRED, ASTM C–150–04 TYPE III A CEMENTS OR ADMIXTURES IN ACCORDANCE WITH ASTM C–494–04 SHALL BE USED.

THE CONTRACTOR IS REQUIRED TO FURNISH A SIGNED AFFIDAVIT, IN TRIPLICATE, FROM EACH CONCRETE SUPPLIER TO THE ENGINEER GIVING DRY WEIGHT AND TYPE OF CEMENT, SATURATED SURFACE–DRY WEIGHT AND THE TYPE OF FINE AND COURSE AGGREGATE, QUANTITY, TYPE AND NAME OF EACH ADMIXTURE AND WEIGHT OF WATER PER CUBIC YARD OF CONCRETE. THE CONTRACTOR SHALL ALSO FURNISH TWENTY–EIGHT (28) DAY CYLINDER TESTS (PER TESTING SECTION) AS VERIFICATION THAT THE MATERIALS USED AND THE PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF THE EQUALITY SPECIFIED.

HOT AND COLD WEATHER PROTECTION (BLANKETS, HEATERS, ICE, ETC.) SHALL BE INCLUDED IN THE UNIT BID PRICE.

THE CONTRACTOR IS REQUIRED TO COMPLY WITH ALL THE ABOVE REQUIREMENTS. THE CONTRACTOR SHALL REQUIRE THAT ALL OF THE SUB–CONTRACTORS PLACING CONCRETE UNDER THIS CONTRACT ALSO COMPLY WITH ALL OF THE ABOVE REQUIREMENTS.

ITEM 202 – REMOVAL MISC.: SALVAGE FLAG POLE

THE CONTRACTOR SHALL REMOVE EXISTING FLAG POLES IN VOINOVICH PARK AS SHOWN ON THE PLANS. CONTRACTOR SHALL REMOVE THE FOUNDATION TO 18 INCHES BELOW FINISHED GRADE. CONTRACTOR SHALL REMOVE AND SALVAGE THE FLAG POLES BELOW EXISTING GRADE AS MUCH AS POSSIBLE WITHOUT CAUSING ANY DAMAGE TO THE FLAG POLES. BRICK PAVERS SALVAGED FROM THE CHAMBER AREAS SHALL BE USED TO REPAIR THE AREA AROUND THE FLAG POLE REMOVAL SITE. THE SALVAGED FLAG POLES SHALL BE PROPERTY OF THE CITY. CONTRACTOR SHALL SCHEDULE DELIVERY OF FLAG POLES WITH ROMAS PLIODZINSKAS AT (216) 857–7520 AND DELIVER TO THE CITY OF CLEVELAND YARD FOR BRIDGES AND DOCKS, 2300 E. 67TH STREET, CLEVELAND, OH 44104.

ITEM 202 – REMOVAL MISC.: BENCH AND RAILING COMBINATION

THE CONTRACTOR SHALL REMOVE THE EXISTING BENCH AND RAILING COMBINATION ON THE WEST SIDE OF THE FINGER PIER AS SHOWN IN THE PLANS TO THE DEPTH REQUIRED TO BUILD THE FORWARD CHAMBER MUD SLAB AND BASE. THE QUANTITY TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF FEET OF BENCH AND RAILING COMBINATION REMOVED, IN ACCORDANCE WITH CMS 202. THE COST FOR ALL LABOR, MATERIAL, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 – REMOVAL MISC.: BENCH AND RAILING COMBINATION.

ITEM 204 – EXCAVATION OF SUBGRADE, AS PER PLAN

WHERE SOFT SUBGRADE IS ENCOUNTERED, DUE TO NO FAULT OR NEGLECT OF THE CONTRACTOR, THE UNSTABLE MATERIAL SHALL BE EXCAVATED TO THE DEPTH APPROVED BY THE ENGINEER, AND DISPOSED OF IN ACCORDANCE WITH 203.05. THE CONTRACTOR SHALL PROVIDE SUFFICIENT SITE DRAINAGE TO ENSURE THAT THE SUBGRADE DOES NOT BECOME SATURATED. THIS MAY INCLUDE THE NEED TO PROVIDE SUMP AND PUMPS IF SUFFICIENT OUTLETS ARE NOT AVAILABLE FOR STORMWATER DRAINAGE. THE UNDERCUT SUBGRADE SHALL BE REPLACED WITH NO. 1's AND NO. 2's, CHOKED WITH ITEM 304, AND PLACED AND COMPACTED IN ACCORDANCE WITH ITEM 304. THE AREA SHALL BE PROOF ROLLED TO DETERMINE IF ADEQUATE STABILIZATION WAS ACHIEVED.

GEOTEXTILE FABRIC 712.09, TYPE ,D AS PER CMS 204.02, SHALL BE REQUIRED AT THE UNDERCUT DEPTHS BEFORE PLACING THE ABOVE STONE. PAYMENT FOR GEOTEXTILE FABRIC, 712.09, TYPE D SHALL BE PER SQ. YD. AND SHALL BE ITEMIZED SEPARATELY.

WHERE SOFT SUBGRADE IS DUE TO THE FAILURE, NEGLECT OR ANY OTHER FAULT OF THE CONTRACTOR, THE UNSTABLE CONDITION SHALL BE CORRECTED AS OUTLINED ABOVE AT NO ADDITIONAL EXPENSE TO THE PROJECT.

PAYMENT FOR THIS ITEM SHALL INCLUDE ALL EXCAVATION, AGGREGATE AND ADDITIONAL PROOF ROLLING, AND SHALL BE PAID FOR AT THE BID UNIT PRICE PER CUBIC YARD, ITEM 204 – EXCAVATION OF SUBGRADE, AS PER PLAN THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY TO BE USED AS DIRECTED BY THE ENGINEER.

ITEM 204 – EXCAVATION OF SUBGRADE, AS PER PLAN	2,000 CU. YD.
ITEM 204 – GEOTEXTILE FABRIC	2,000 SQ. YD.

PROTECTION OF EXISTING FACILITIES AND LANDSCAPING

PRIOR TO BEGINNING WORK, THE CONTRACTOR, THE PROJECT ENGINEER, AND A REPRESENTATIVE OF THE MAINTAINING AGENCY WILL REVIEW AND RECORD ALL LANDSCAPING ITEMS WITHIN THE RIGHT OF WAY (BOTH WITHIN AND OUTSIDE THE CONSTRUCTION LIMITS). A RECORD OF THIS REVIEW WILL BE KEPT IN THE PROJECT ENGINEER'S FILES. PRIOR TO FINAL ACCEPTANCE, A FINAL REVIEW OF LANDSCAPING ITEMS WILL BE MADE.

CONSTRICT ALL ACTIVITIES, EQUIPMENT STORAGE, AND STAGING TO WITHIN THE LIMITS SHOWN ON THE MAINTENANCE OF TRAFFIC SCHEMATIC PLAN.

SUBMIT A WRITTEN REQUEST TO THE PROJECT ENGINEER TO USE AN AREA OUTSIDE THESE LIMITS. THE DOCUMENT SUBMITTED MUST CLEARLY IDENTIFY THE AREA AND EXPLAIN THE PROPOSED USE AND RESTORATION OF THE AREA. USE OF THESE AREAS FOR DISPOSAL OF WASTE MATERIAL AND CONSTRUCTION DEBRIS, EXCAVATION OF BORROW MATERIAL AND PLACEMENT OF PORTABLE PLANTS IS PROHIBITED. THE REQUEST MUST BE APPROVED, IN WRITING, BEFORE THE CONTRACTOR HAS PERMISSION TO USE THE AREA.

ANY ITEMS DAMAGED BEYOND THE CONSTRUCTION LIMITS AS DEFINED ABOVE WILL BE REPLACED IN KIND OR AS APPROVED BY THE PROJECT ENGINEER.

DUST CONTROL

THE CONTRACTOR SHALL FURNISH AND APPLY WATER AND CALCIUM CHLORIDE FOR DUST CONTROL AS DIRECTED BY THE ENGINEER. THE FOLLOWING CONTINGENCY QUANTITIES HAVE BEEN INCLUDED FOR DUST CONTROL PURPOSES:

ITEM 616 – WATER	20 M–GAL.
ITEM 616 – CALCIUM CHLORIDE	5 TONS

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GENERAL NOTES

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

ITEM 623 – CONSTRUCTION LAYOUT STAKES, AS PER PLAN

THIS ITEM OF WORK SHALL BE PERFORMED AS PER ODOT ITEM 623 AND AS MODIFIED BELOW:

A) CONTRACTOR SHALL FURNISH DIMENSIONS, MEASUREMENT, SKETCHES, ETC. NECESSARY TO DETERMINE PAY QUANTITIES. THIS WILL MAINLY APPLY TO CHANGE ORDERS, QUANTITIES TO BE USED AS DIRECTED AND DISPUTED PAYMENT QUANTITIES OR CALCULATIONS.

B) THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY SURVEYING, CALCULATIONS AND/ OR LAYOUT NOT FURNISHED IN THE BID DOCUMENTS TO COMPLY WITH THE ENGINEER'S DIRECTION. CONTRACTOR SHALL PROVIDE CUT SHEETS, TEMPORARY BENCHMARKS, AND LAYOUT (INCLUDING STATIONING AND HUBS) AS DIRECTED BY THE ENGINEER OR HIS REPRESENTATIVE. ALL STATIONING AND REFERENCE MARKS SHALL BE MAINTAINED AS DIRECTED BY THE ENGINEER OR HIS REPRESENTATIVE.

C) THE CONTRACTOR SHALL USE COMPETENT PERSONNEL AND SUITABLE EQUIPMENT FOR THE LAYOUT WORK REQUIRED AND SHALL PROVIDE THAT IT BE DONE UNDER THE SUPERVISION OF A REGISTERED SURVEYOR, LICENSED TO PRACTICE IN THE STATE OF OHIO.

D) THE CONTRACTOR IS TO PROVIDE "AS–BUILT" DRAWINGS SHOWING ALL ELEVATIONS AND INVERTS, LOCATIONS OF ROADWAYS BOTH HORIZONTAL AND VERTICAL. THESE DRAWINGS AND/OR CAD DRAWINGS SHALL BE DRAWN ON MYLARS AND CAD FILES (IF AVAILABLE) PROVIDED BY THE CITY. THE INSPECTOR SHALL SIGN THE SHEETS VERIFYING THAT ALL CHANGES HAVE BEEN SHOWN ON THE "AS–BUILT" DRAWINGS. THE INSPECTOR IS NOT RESPONSIBLE FOR THE ACCURACY OF THE LOCATIONS OR ELEVATIONS. ALL ELEVATIONS AND LOCATIONS ARE TO BE CERTIFIED BY THE REGISTERED SURVEYOR, LICENSED TO PRACTICE IN THE STATE OF OHIO.

E) PAYMENT FOR THE ABOVE WORK SHALL BE INCLUDED IN THE LUMP SUM BID PRICE OF ITEM 623 – CONSTRUCTION LAYOUT STAKES, AS PER PLAN.

ITEM 202 – REMOVAL MISC.: DOLPHIN STRUCTURE

THE EXISTING DOLPHIN STRUCTURES SHALL REMAIN IN PLACE UNTIL THE NEW DOLPHIN STRUCTURES ARE COMPLETE AND OPERATIONAL. THE EXISTING DOLPHIN STRUCTURES SHALL BE EXTRACTED IN THEIR ENTIRETY OR CUTOFF FLUSH WITH THE HARBOR BOTTOM. THE CONTRACTOR SHALL SCHEDULE ALL WORK EFFORTS TO AVOID CONFLICTS WITH ANY NECESSARY BOAT MOVEMENTS IN THE NORTH COAST HARBOR TRANSIENT MARINA. THE CONTRACTOR SHALL TAKE CARE NOT TO DAMAGE IN ANY WAY THE PEDESTRIAN BRIDGE SUPERSTRUCTURE AND SUBSTRUCTURE, INSPECTION PAD, ARMOR STONE REVETMENT, RETAINING WALL, OR OTHER NEARBY STRUCTURE OR BUILT OBJECT WHETHER EXISTING OR PROPOSED AS PART OF THIS CONTRACT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO THE AFOREMENTIONED ITEMS. THE REMOVED DOLPHIN STRUCTURE, INCLUDING BUT NOT LIMITED TO TIMBER PILES AND CONNECTION MATERIALS, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF IN A MANNER ACCEPTABLE TO FEDERAL, STATE, AND LOCAL REGULATIONS.

ALL MATERIALS, EQUIPMENT, LABOR, AND INCIDENTALS REQUIRED FOR THIS OPERATION SHALL BE INCLUDED IN UNIT PRICE BID FOR ITEM 202 – REMOVAL, MISC.: DOLPHIN STRUCTURE.

ITEM 608 – 6" CONCRETE WALK, AS PER PLAN

THE CONTRACTOR SHALL CONSTRUCT A 4' WIDE SIDEWALK INSPECTION PAD ALONG THE ENTIRE FRONT FACE OF EACH ABUTMENT AS SHOWN IN THE PLANS AND IN THE DETAIL ON SHEET 26.

THE ELEVATION OF THE TOP OF THE PAD SHALL BE 574.00'. THE CONTRACTOR SHALL LEVEL THE AREAS BETWEEN THE ARMOR STONE USING NO. 57 COARSE AGGREGATE TO ENSURE A FLAT SURFACE TO POUR THE INSPECTION PAD.

THIS WORK SHALL INCLUDE THE 6" CONCRETE WALK REINFORCED AS SHOWN IN THE DETAIL, ½" PREFORMED JOINT FILLER AS PER 705.03, AND NO. 57 COARSE AGGREGATE AS PER 703.13 AND TABLE 703.01–1.

ALL MATERIALS, EQUIPMENT, LABOR, AND INCIDENTALS TO COMPLETE THE WORK DESCRIBED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID FOR ITEM 608 – 6" CONCRETE WALK, AS PER PLAN. THE FOLLOWING QUANTITY IS CARRIED TO THE GENERAL SUMMARY FOR ITEM 608 – 6" CONCRETE WALK, AS PER PLAN.

216 SF

ITEM 625 – LIGHTING, MISC.: REMOVE NAVIGATION LIGHT

THE CONTRACTOR SHALL REMOVE THE NAVIGATION LIGHT ON THE FINGER PIER AS SHOWN IN THE PLANS, INCLUDING BUT NOT LIMITED TO THE FOUNDATION, POLE, WIRING, "NO WAKE" SIGN, AND LIGHT FIXTURE. CONTRACTOR SHALL SALVAGE THE NAVIGATION LIGHT ASSEMBLY AND SCHEDULE DELIVERY WITH ROMAS PLIODZINSKAS AT (216) 432–6040 AND DELIVER TO THE CITY OF CLEVELAND YARD FOR BRIDGES AND DOCKS, 2300 E. 67TH STREET, CLEVELAND, OH 44104.

THE COST FOR ALL LABOR, MATERIAL, SALVAGING, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 625 – LIGHTING, MISC.: REMOVE NAVIGATION LIGHT.

ITEM 608 – WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS

THE CONTRACTOR SHALL TAKE CARE TO REMOVE, STORE, AND REUSE BRICK PAVERS, ESPECIALLY THOSE WITH EXISTING ENGRAVINGS, IN LOCATIONS SHOWN IN THE PLANS. A WRITTEN LOG, INCLUDING PHOTOGRAPHIC EVIDENCE, SHALL BE KEPT OF APPROXIMATE LOCATION OF EXISTING ENGRAVED PAVERS AND THE CONTRACTOR SHALL MAKE EVERY EFFORT TO RE–PLACE THE BRICK PAVER IN ITS EXISTING LOCATION OR NEAR ITS EXISTING LOCATION AT THE END OF THE JOB. THE PAVERS SHALL BE STORED IN A SECURE LOCATION ONSITE WHERE DAMAGE CAN BE AVOIDED.

IF AN ENGRAVED PAVER IS DAMAGED DURING REMOVAL, STORAGE, OR REPLACEMENT, THE CONTRACTOR SHALL HAVE A NEW PAVER ENGRAVED WITH THE APPROPRIATE NAMES AND REPLACED IN ITS ORIGINAL LOCATION AT NO COST TO THE PROJECT.

THE QUANTITY TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF SQUARE FEET OF BRICK PAVERS REMOVED, STORED, AND REUSED, IN ACCORDANCE WITH THIS SPECIFICATION. THE CONTRACTOR SHALL ALSO REMOVE THE EXISTING SAND COURSE BELOW THE PAVERS AS PART OF THIS WORK AND FURNISH AND INSTALL A PROPOSED 1" SAND COURSE BELOW THE PAVERS TO BE REUSED OR REPLACED. THE COST FOR ALL LABOR, MATERIAL, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 608 – WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS.

ITEM 452 – NON–REINFORCED CONCRETE PAVEMENT, MISC.: RECONSTRUCT WALL CAP

THE CONTRACTOR SHALL RECONSTRUCT THE CONCRETE WALL CAP ON THE EAST SIDE OF THE FINGER PIER AS SHOWN IN THE PLANS. THE ELEVATION SHALL MATCH PROPOSED GRADE OF REINFORCED CONCRETE PAVEMENT AND BRICK PAVERS ON FINGER PIER WITH A SLIGHT SLOPE OF LESS THAN 2% TOWARDS THE EAST. INSTALL HANDRAIL ON TOP OF THE CONSTRUCTED CONCRETE CAP WITH ITEM 517 – RAILING, PIPE, AS PER PLAN. THE CONCRETE USED SHALL BE THE CONCRETE DESIGN MIX AS PER "ITEM SPECIAL – CONCRETE MIX DESIGN".

THE QUANTITY TO BE PAID FOR SHALL BE THE ACTUAL NUMBER OF SQUARE FEET OF NON–REINFORCED CONCRETE PAVEMENT USED TO RECONSTRUCT THE CAP, IN ACCORDANCE WITH THIS SPECIFICATION. THE COST FOR ALL LABOR, MATERIAL, EQUIPMENT, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 452 – NON–REINFORCED CONCRETE PAVEMENT, MISC.: RECONSTRUCT WALL CAP.

ITEMS 451 – 8" AND 10" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN

WHEN THE ABOVE ITEMS ARE CALLED FOR ON THE PLANS OR IN THE PROPOSAL, ALL APPLICABLE PROVISIONS OF ITEM 451, AS SET FORTH IN THE CONSTRUCTION AND MATERIALS SPECIFICATIONS, SHALL APPLY EXCEPT AS MODIFIED HEREIN:

451.02 – MATERIAL.
CONTRACTOR SHALL USE CITY OF CLEVELAND CONCRETE DESIGN MIX, SEE SHEET __. CURING MATERIAL SHALL BE 705.07 (TYPE 2) APPLIED AT THE RATE SPECIFIED IN 305.02. THE REINFORCING MESH FABRIC SHALL BE 6" X 12" (W8.5 X W4), CONFORMING TO 709.10 AND BP–1.1.

451.09 – JOINTS.
(A) LONGITUDINAL JOINT. A $\frac{5}{16} \pm \frac{1}{16}$ INCH JOINT WIDTH SHALL BE PROVIDED IN ALL CASES.

LONGITUDINAL BUTT (CONSTRUCTION) JOINTS SHALL BE TIED AS FOLLOWS:

(1) FOR FORMED CONSTRUCTION, SECURELY FASTEN HOOK BOLTS (OR WIGGLE BOLT ALTERNATES) WITH COUPLINGS TO THE FORMA T THE LONGITUDINAL CONSTRUCTION JOINT AS SHOWN ON STANDARD CONSTRUCTION DRAWING BP–2.1.

(2) FOR SLIP FORMED CONSTRUCTION, THE METHODS DETAILED/DESCRIBED ON BP–2.1 (TYPE D JOINT) SHALL BE USED, UNLESS OTHERWISE DIRECTED/APPROVED BY THE ENGINEER.

(B) IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE DOWEL BASKET ASSEMBLIES ARE STABLE AND HELD FIRMLY IN PLACE.

(D) CONTRACTION JOINT. UNLESS OTHERWISE SHOWN ON THE PLANS, CONTRACTION JOINT SHALL BE TYPICALLY SPACED AT 20'–0" CENTERS. MINOR ADJUSTMENTS IN JOINT SPACING MAY BE REQUIRED TO MEET PAVEMENT BLOCKOUTS, ETC. HOWEVER, IN NO CASE SHALL THE SPACING EXCEED 21'–0" OR TYPICALLY BE LESS THAN 15'–0" (10'–0" MINIMUM). A $\frac{5}{16} \pm \frac{1}{16}$ INCH JOINT WIDTH SHALL BE PROVIDED IN ALL CASES.

(E) CONSTRUCTION JOINT. PROVIDE A $\frac{5}{16} \pm \frac{1}{16}$ WIDTH BY $1\frac{5}{8}$ INCH DEEP KERFED JOINT OPENING FOR ALL CONSTRUCTION JOINTS.

451.10 – FINISHING.
THE SURFACE SHALL BE CONTINUALLY CHECKED FOR TRUENESS WITH LONG–HANDLED TEN (10) FOOT STRAIGHTEDGES TO ENSURE A SMOOTH RIDING SURFACE. THE STRAIGHTEDGE SHALL BE OPERATED PARALLEL TO THE BASELINE OF CONSTRUCTION AND SHALL BE MOVED FORWARD NO MORE THAN ONE–HALF ITS LENGTH AFTER EACH PASS. IRREGULARITIES SHALL BE CORRECTED BY USING THE STRAIGHTEDGE WITH A SCRAPING MOTION TO REMOVE BUMPS AND EXCESS MORTAR FROM TEH SURFACE WHILE THE CONCRETE IS PLASTIC. ALL DISTURBED AREAS SHALL BE STRAIGHTEDGES AGAIN. IF NOT SUITABLY CORRECTED AT THIS TIME 9WHTIE THE CONCRETE IS PLASTIC), THE CONTRACTOR WILL BE REQUIRED TO SUBSEQUENTLY CORRECT ALL REMAINING SURFACE VARIATIONS FOUND TO BE OUT OF TOLERANCE PER 451.12 AND 451.13, AS DIRECTED BY THE ENGINEER.

THE FINAL SURFACE TEXTURE SHALL BE IN ACCORDANCE WITH 305.02.

IMPRESSING STATION NUMBERS INTO THE PLASTIC CONCRETE AS SPECIFIED IN 451.09 IS NOT REQUIRED.

451.11 – PROTECTION AGAINST RAIN.
IN ORDER THAT THE CONCRETE MAY BE PROPERLY PROTECTED AGAINST THE EFFECTS OF RAIN BEFORE THE CONCRETE IS SUFFICIENTLY HARDENED, THE CONTRACTOR WILL BE REQUIRED TO HAVE AVAILABLE AT ALL TIMES MATERIALS FOR THE PROTECTION OF THE UNHARDENED CONCRETE SURFACE. SUCH PROTECTIVE MATERIALS SHALL CONSIST OF STANDARD COVERING MATERIAL SUCH AS BURLAP OR COTTON MATS, CURING PAPER OR PLASTIC SHEETING FOR THE PROTECTION OF THE PAVEMENT SURFACE. WHEN RAIN APPEARS IMMINENT, ALL PAVING OPERATIONS SHALL STOP, AND ALL AVAILABLE PERSONNEL SHALL BEGIN COVERING THE SURFACE OF UNHARDENED CONCRETE WITH THE PROTECTIVE COVERING.

451.13 – SURFACE SMOOTHNESS
PAVEMENT SURFACE VARIATIONS SHALL NOT EXCEED ¼ INCH IN TEN (10) FEET.

451.16 – SEALING CONTRACTION, CONSTRUCTION, AND LONGITUDINAL JOINTS.
AS SOON AS FEASIBLE AFTER COMPLETING SAWING, BUT BEFORE THE PAVEMENT IS OPEN TO CONSTRUCTION EQUIPMENT AND TRAFFIC, SEAL ALL CONTRACTION, CONSTRUCTION AND LONGITUDINAL JOINTS. JUST BEFORE SEALING, THOROUGHLY CLEAN EACH JOINT OF FOREIGN MATERIAL, USING APPROVED EQUIPMENT. ENSURE THE JOINT FACES ARE CLEAN AND DRY WHEN THE SEAL IS INSTALLED.

(A) CONTRACTION JOINTS AND CONSTRUCTION JOINTS. CONTRACTION AND CONSTRUCTION JOINTS SHALL BE SEALED WITH 705.04 JOINT SEALER IN AN ACCEPTABLY NEAT MANNER TO APPROXIMATELY ⅛" TO ¼" BELOW THE PAVEMENT SURFACE.

(B) LONGITUDINAL JOINTS. LONGITUDINAL JOINTS SHALL BE NEATLY FILLED FLUSH TO THE SURFACE WITHOUT EXCESS USING 705.04 JOINT SEALER.

CALCULATED CLG | CHECKED CS

GENERAL NOTES

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

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ITEM 613 – LOW STRENGTH MORTAR BACKFILL, AS PER PLAN

THE USE OF ITEM 613 – LOW STRENGTH MORTAR BACKFILL, AS PER PLAN AS SPECIFIED HEREIN IS REQUIRED FOR ALL BACKFILL OPERATIONS IN THE RIGHT–OF–WAY, UNLESS OTHERWISE NOTED.

PART I: CERTIFICATE OF COMPLIANCE

MATERIAL MUST COME FROM A PLANT WITH A CURRENT CERTIFICATE OF COMPLIANCE DEMONSTRATING THE ABILITY OF THE MIX DESIGN TO MEET THE SPECIFIED REQUIREMENTS. CERTIFICATES IN EXCESS OF ONE YEAR WILL NOT BE ACCEPTED. CERTIFICATES MUST CONTAIN THE NAME OF SUPPLIER, DATE, CONTRACT NUMBER AND MIX DESIGN DATA ON EACH DELIVERY TICKET.

PART II: MATERIALS
ALL MATERIALS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS STATED HEREIN.

1. CEMENT SHALL BE ASTM C–150 TYPE I.
2. THE USE OF FLY ASH IS STRICTLY PROHIBITED.
3. FINE AGGREGATE SHALL CONFORM TO ODOT SPECIFICATION 703.03 FINE AGGREGATE FOR MORTAR OR GROUT. (ODOT CONSTRUCTION AND MATERIALS SPECIFICATIONS MOST CURRENT EDITION). THE USE OF SPENT FOUNDRY SAND OR CORE SAND IS STRICTLY PROHIBITED.

PART III: PERFORMANCE ENHANCING ADMIXTURE
AN AIR–ENHANCING ADMIXTURE SHALL BE INCORPORATED IN THE MIX THAT WILL HAVE THE EFFECT OF LOWERING THE WATER/CEMENT RATIO TO BETWEEN 95 AND 105 LBS/CUBIC FOOT. THE AIR ENTRAINED CONTENT FOR THE MIX SHALL BE 30% TO ELIMINATE/MINIMIZE THE EXCESSIVE WATER AND SEGREGATION. COMPRESSIVE STRENGTHS SHALL HAVE A RANGE OF 50 PSI TO 80 PSI AT 28 DAYS WILL BE REQUIRED IF ADDITIONAL EXCAVATION BY MACHINE OR HAND IS REQUIRED.

APPROVED ADMIXTURES

MANUFACTURER	PRODUCT NAME
A. MASTER BUILDERS	RHEOFILL
B. AXIM	FLOW AIR
C. W.R. GRACE	DARAFILL
D. OR APPROVED	EQUAL

PART IV: FLOWABLE FILL MIX DESIGN
THE MIX DESIGN SHALL BE PROPORTIONED AS FOLLOWS:

CEMENT (TYPE I)	50LBS/CUBIC YARD
SAND (SSD)	2475 LBS/CUBIC YARD
WATER	25 GALLONS/CUBIC YARD
ADMIXTURE (AIR)	3 OZ/CUBIC YARD

PART V: APPLICATION
1. FLOWABLE FILL SHALL BEGIN 12 INCHES ABOVE THE TOP OF PIPE AND CONTINUE IN THE TRENCH TO THE CONCRETE BASE.

2. MATERIAL FOR PIPE BEDDING AND PIPE ZONE TO A MAXIMUM DEPTH OF 12 INCHES OVER THE TOP OF PIPE SHALL BE AS SPECIFIED BY THE UTILITY.

3. EXPOSED BOLTS AND VALVES EXPOSED IN THE TRENCH SHOULD BE WRAPPED WITH POLYETHYLENE MATERIAL CONFORMING TO ODOT 748.07 (8 MIL THICK).

4. COVER ALL JOINTS IN CLAY PIPE IN THE TRENCH AREA WITH POLYETHYLENE MATERIAL BEFORE POURING FLOWABLE FILL. REPAIR ALL OBSERVED OPENINGS IN ANY PIPE OR MANHOLE IN THE TRENCH AREA PRIOR TO BACKFILLING WITH FLOWABLE FILL. REPAIR TECHNIQUES SHALL BE IN ACCORDANCE WITH THE UTILITY COMPANY'S STANDARD REPAIR PROCEDURES.

5. CONTACT THE RESPECTIVE UTILITY OWNER FOR REPAIR PROCEDURES.

703.11 SPECIAL BACK FILL MATERIAL (OUTSIDE OF PAVEMENT AREA)

MATERIAL USED FOR BACKFILLING TRENCHES (OUTSIDE OF PAVEMENT AREA) AND FOR SUCH SIMILAR PURPOSES AS MAY BE SPECIFIED SHALL CONSIST OF HARD, DURABLE PARTICLES OF A NATURAL OR ARTIFICIAL AGGREGATE, SUCH AS GRAVEL, SAND, CRUSHED AIR–COOLED SLAG. AT LEAST EIGHTY–SEVEN PERCENT (87%) BY WEIGHT OF THE GRAINS OR PARTICLES SHALL BE RETAINED ON A NO.200 SIEVE.

IT SHALL BE OF SUCH CHARACTER THAT IT CAN BE PLACED IN FOUR (4) INCH LAYERS, LOOSE DEPTH.

IT SHALL BE SUBSTANTIALLY FREE FROM VEGETABLE OR ORGANIC MATTER AND SHALL NOT CONTAIN MORE THAT TEN PERCENT (10%) OF LOAM OR CLAY AS DETERMINED BY DECANTING OVER NO. 200 SIEVE.

EXCEPT IN THE CASE OF SLAG, BACKFILL MATERIAL SHALL WEIGH NOT LESS THAN NINETY (90) POUNDS PER CUBIC FOOT, DRY COMPACTED WEIGHT.

ITEM SPECIAL – MISC.: RECORD DRAWINGS

IN ADDITION TO THE ODOT REQUIREMENTS FOR "AS–BUILT" OR RECORD DRAWINGS, THE FOLLOWING SHALL APPLY AND BE PAID FOR UNDER THIS PAY ITEM.

CONTRACTOR SHALL MAINTAIN AND PROVIDE ODOT WITH RECORD DRAWINGS AS SPECIFIED HEREIN. RECORD DRAWINGS SHALL INCLUDE COMPLETE DOCUMENTATION OF FIELD REVISIONS TO THE CONTRACT DOCUMENTS.

FILING
1. THE CONTRACTOR SHALL MAINTAIN IN HIS FIELD OFFICE IN A CLEAN, DRY, LEGIBLE CONDITION THE FOLLOWING: CONTRACT DRAWINGS, SPECIFICATIONS, ADDENDA, CONFORMING SHOP DRAWINGS, CHANGE ORDERS, OTHER MODIFICATIONS TO THE CONTRACT, TEST RECORDS, SURVEY DATA AND ALL OTHER DOCUMENTS PERTINENT TO THE CONTRACTOR'S WORK.
2. THE CONTRACTOR SHALL PROVIDE FILES AND RACKS FOR PROPER STORAGE AND EASY ACCESS. FILING SHALL BE ESTABLISHED IN A FORMAT ACCEPTABLE TO ODOT.
3. THE CONTRACTOR SHALL MAKE DOCUMENTS AVAILABLE AT ALL TIMES FOR INSPECTION BY ODOT OR THEIR REPRESENTATIVES.
4. RECORD DRAWINGS SHALL NOT BE USED FOR ANY OTHER PURPOSE AND SHALL NOT BE REMOVED FROM THEIR LOCATIONS WITHOUT ODOT APPROVAL.

RECORDING
1. THE CONTRACTOR SHALL KEEP ALL RECORDS CURRENT.
2. THE CONTRACTOR SHALL NOT PERMANENTLY CONCEAL ANY WORK UNTIL REQUIRED INFORMATION HAS BEEN RECORDED.
3. CONTRACT DRAWINGS SHALL BE LEGIBLY MARKED TO RECORD ACTUAL CONSTRUCTION INCLUDING:
 A. DEPTHS OF VARIOUS ELEMENTS OF FOUNDATION IN RELATION TO DATUM.
 B. HORIZONTAL AND VERTICAL LOCATIONS OF UNDERGROUND UTILITIES AND APPURTENANCES REFERENCED TO PERMANENT SURFACE IMPROVEMENTS.
 C. FIELD CHANGES OF DIMENSION AND DETAIL.
 D. CHANGES MADE BY CHANGE ORDER OR FIELD ORDER.
 E. DETAILS NOT ON ORIGINAL CONTRACT DOCUMENTS.
4. SPECIFICATIONS AND ADDENDA: LEGIBLY MARK EACH SECTION TO RECORD:
 A. MANUFACTURER, TRADE NAME, CATALOG NUMBER AND SUPPLIER OF EACH PRODUCT AND ITEM OF EQUIPMENT ACTUALLY INSTALLED.
 B. CHANGES MADE BY CHANGE ORDER OR FIELD ORDER.
 C. OTHER MATTERS NOT ORIGINALLY SPECIFIED.

MAINTENANCE
1. THE CONTRACTOR SHALL MAINTAIN THE PROJECT DURING THE COURSE OF CONSTRUCTION INCLUDING THE PERIOD OF THE AS–BUILT CERTIFICATION AND SHALL NOTIFY THE ENGINEER A MINIMUM OF TWO (2) WEEKS PRIOR TO COMPLETION.
2. THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THE PROJECT UNTIL THE FINAL ACCEPTANCE OF THE RECORD DRAWINGS AND A DETERMINATION BY THE ENGINEER THAT NO ERRORS OR OMISSIONS HAVE BEEN MADE BY THE CONTRACTOR DURING THE COURSE OF CONSTRUCTION. THE ENGINEER SHALL NOTIFY THE CONTRACTOR AS TO THE ACCEPTABILITY OR REJECTION OF THE CONSTRUCTION OF THE PROJECT. THE CONTRACTOR SHALL CORRECT ANY ERRORS/OMISSIONS PRIOR TO FINAL ACCEPTANCE OF THE RECORD DRAWINGS OF THE PROJECT.
3. THE CONTRACTOR SHALL MAINTAIN SHOP DRAWINGS AND LEGIBLY ANNOTATE CHANGES MADE AFTER THE REVIEW.

RECORD RETENTION
AS ODOT MAY LEGITIMATELY REQUEST FROM TIME TO TIME, THE CONTRACTOR AGREES TO MAKE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION BY THE LPA OR ODOT, ALL RECORDS, BOOKS, AND DOCUMENTS OF ANY KIND AND DESCRIPTION THAT RELATE TO THIS CONTRACT.

SUBMITTALS
A. THE CONTRACTOR SHALL ANNOTATE ALL RECORD DRAWING REVISIONS ONTO ELECTRONIC COPIES OF PLAN DRAWINGS PROVIDED BY THE ENGINEER USING AUTOCAD 2007 OR LATER SOFTWARE, AS APPROVED BY THE ENGINEER. AT THE COMPLETION OF THE PROJECT, DELIVER ONE COMPLETE (1) MYLAR COPY 22"X34" HOLE PUNCHED AND BOUND, ONE (1) COMPLETE PAPER COPY, AND ONE (1) COMPLETE ELECTRONIC COPY IN AUTOCAD AND TIFF FORMAT OF RECORD DRAWING ORIGINAL DOCUMENTS TO THE ENGINEER FOR DELIVERY TO THE CITY. HIGHLIGHT CHANGES WITH CLOUDS AND SHOW CHANGES ON A SEPARATE AUTOCAD LAYER.
B. PROVIDE TRANSMITTAL LETTER CONTAINING THE FOLLOWING INFORMATION:
 1. DATE
 2. PROJECT TITLE AND PROJECT NUMBER
 3. CONTRACTOR'S NAME AND ADDRESS
 4. TITLE AND NUMBER OF EACH DRAWING
 5. CERTIFICATION OF LICENSED PROFESSIONAL ENGINEER IN THE STATE OF OHIO AND LEVEL II PREQUALIFIED BY ODOT FOR BRIDGE PROJECTS.
 6. SIGNATURE OF CONTRACTOR OR HIS AUTHORIZED REPRESENTATIVE.

PAYMENT
PAYMENT FOR ALL OF THE ABOVE SHALL BE LUMP SUM UPON PROPER EXECUTION OF ALL WORK OF THIS ITEM AS DETERMINED BY THE ENGINEER.

ITEM 630 – SIGN, FLAT SHEET, AS PER PLAN

THE CONTRACTOR SHALL FURNISH AND INSTALL SIGNS FOR THE PROJECT AS DESCRIBED BELOW.
SLOW NO WAKE SIGN
THIS SIGN SHALL BE A MINIMUM OF 18" WIDE BY 24" TALL AND INCLUDE THE WORDS "SLOW NO WAKE", EACH WORD SHALL BE ON A DIFFERENT LINE WITH AN ORANGE CIRCLE SURROUNDING THE WORD "NO". ALL ADDITIONAL REQUIREMENTS OF THE UNITED STATES COAST GUARD, OHIO DEPARTMENT OF TRANSPORTATION, AND CITY OF CLEVELAND DIVISION OF PORT CONTROL SHALL APPLY TO THIS SIGN. THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS OF SIGN FOR APPROVAL BY ENGINEER. LOCATE AND INSTALL SIGN IN LOCATION EASILY VISIBLE TO BOATERS IN THE CHANNEL MOVING INTO THE MARINA. MOUNT ON NEW POST OR EXISTING OR PROPOSED STRUCTURE AS APPROVED BY THE ENGINEER.
WALK YOUR BIKE SIGN
THIS SIGN SHALL BE A MINIMUM OF 12" WIDE BY 18" TALL AND INCLUDE THE WORDS "WALK YOUR BIKE" EACH ON A DIFFERENT LINE WITH AN IMAGE OF A BICYCLIST STANDING NEXT TO THEIR BICYCLE. THE CONTRACTOR SHALL PREPARE SHOP DRAWINGS OF SIGN FOR APPROVAL BY THE ENGINEER. LOCATE AND INSTALL SIGN IN LOCATION EASILY VISIBLE TO BICYCLISTS AT EACH ENTRANCE TO THE BRIDGE AS APPROVED BY THE ENGINEER.

PAYMENT FOR ALL MATERIALS, EQUIPMENT, LABOR, AND INCIDENTALS TO PERFORM THE WORK AS DESCRIBED ABOVE SHALL BE AS PER UNIT PRICE BID FOR ITEM 630 – SIGN, FLAT SHEET, AS PER PLAN. THE FOLLOWING ESTIMATED QUANTITY SHALL BE CARRIED TO THE GENERAL SUMMARY.

ITEM 630 – SIGN, FLAT SHEET, AS PER PLAN 6 SF

ITEM 202 – REMOVAL, MISC.: SALVAGE BENCH

THE CONTRACTOR SHALL SALVAGE EXISTING BENCHES AND RELOCATE WITHIN VOINOVICH PARK IN A LOCATION DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL TAKE CARE TO NOT DAMAGE THE BENCH WHILE REMOVING FROM EXISTING LOCATIONS.

THE COST FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 202 – REMOVAL, MISC.: SALVAGE BENCH.

ITEM 512 – SEALING OF CONCRETE SURFACES (NON–EPOXY), AS PER PLAN

UNDER THIS PAY ITEM, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING THE MATERIALS, LABOR AND EQUIPMENT REQUIRED TO APPLY PORTLAND CEMENT CONCRETE SEALER TO ALL NEWLY CONSTRUCTED CONCRETE SURFACES INSTALLED AS PART OF THIS PROJECT. THE CONCRETE SURFACES REQUIRING SEALING SHALL INCLUDE, BUT NOT BE LIMITED TO, ALL PAVEMENT AND EXPOSED CHAMBER AND ABUTMENT STEM CONCRETE, AS DEPICTED IN THE CONTRACT DRAWINGS.

THE QUANTITY TO BE PAID FOR WILL BE THE ACTUAL NUMBER OF SQUARE YARDS OF ACCEPTED PAVEMENT SEALED WITH CONCRETE SEALANT, IN ACCORDANCE WITH THESE SPECIFICATIONS. THE ITEMS MEETING THIS SPECIFICATION SHALL BE PAID FOR UNDER ITEM 512 – SEALING OF CONCRETE SURFACES (NON–EPOXY), AS PER PLAN. THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 512 – SEALING OF CONCRETE SURFACES (NON–EPOXY), AS PER PLAN
200 S. Y.

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GENERAL NOTES

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

ITEM 611 – DRAINAGE STRUCTURE, MISC.: SUMP PUMP SYSTEM AND ASSEMBLY

PROVIDE AND INSTALL A COMPLETE AND OPERABLE SUMP PUMP SYSTEM INCLUDING, BUT NOT LIMITED TO, THE ITEMS DESCRIBED BELOW. SEE SUMP PUMP DETAIL ON SHEET 26.

EACH SUMP LOCATED IN THE FLOOR OF THE CHAMBERS, AS SHOWN IN THE SUBSTRUCTURE PLANS, SHALL CONTAIN A POLYETHYLENE BASIN SIZED AT 18" X 22". THE BASIN SHALL BE ZOELLER 31–0444, OR APPROVED EQUAL. SUMP BASIN SHALL BE INSTALLED WHERE THE BASIN RIM ELEVATION IS BELOW THE INVERT ELEVATION OF THE DRAIN CHANNEL AS SHOWN ON STRUCTURAL DRAWINGS.

THE SUMP PUMP SHALL BE SUBMERSIBLE AND HERMETICALLY SEALED AND ZOELLER MODEL 72, WEIL EQUIVALENT, OR APPROVED EQUAL WITH THE FOLLOWING CHARACTERISTICS:

1. MINIMUM FLOW AT MINIMUM HEAD: 10 GPM AT 15 FT HEAD.
2. ELECTRICAL: 115V SINGLE PHASE, 60 Hz, ⅓ HP, 3.1 AMPs
3. THERMAL OVERLOAD PROTECTION
4. NON–CORROSIVE ENGINEER PLASTIC MOTOR HOUSING, PUMP HOUSING, AND BASE
5. NO STEEL SHEET METAL PARTS SUSCEPTIBLE TO RUST OR CORROSION
6. ALL SCREWS, SWITCH ARM, AND LOWER MOTOR HOUSING TO BE STAINLESS STEEL
7. POWER CORD SHALL BE UL LISTED WITH 3–PRONG PLUG
8. 1½" NPT DISCHARGE
9. NON–CLOGGING VORTEX IMPELLER
10. CAST IRON AND BRONZE HOUSINGS AND IMPELLERS ARE ACCEPTABLE ALTERNATES.

THE CONTROLLER SHALL BE ZOELLER MODEL 10–1036 OR APPROVED EQUAL WITH THE FOLLOWING CHARACTERISTICS:

1. 115 V
2. HOA SWITCH
3. COMPLETE WITH 3 FLOAT SWITCHES
4. MOTOR CONTACTOR
5. NEMA 4X LOCKABLE ENCLOSURE
6. ALARM LIGHT AND ALARM TEST TOGGLE SWITCHES
7. PUMP RUN INDICATOR LIGHT
8. DRY AUXILIARY CONTACT
9. CONTROLLER SHALL SEND SUMP HIGH LEVEL ALARM TO CONTROL HOUSE

THE SUMP PUMP SYSTEM SHALL INCLUDE A HYDROCARBON SENSOR. THE HYDROCARBON SENSOR SHALL BE OMEGA LVLK300, OR APPROVED EQUAL WITH THE FOLLOWING CHARACTERISTICS:

1. THE HYDROCARBON SENSOR SHALL BE UL LISTED AND PROVIDE ACCURATE MONITORING OF THE CONTAINMENT SUMP AND SHALL BE ABLE TO SENSE HYDROCARBONS ANYWHERE ALONG THE LENGTH OF THE SENSOR.
2. THE SENSOR SHALL CONTAIN A POLYMER STRIP THAT CONTINUOUSLY CONDUCTS ELECTRICITY WHEN VOLTAGE IS APPLIED.
3. THE SENSOR SHALL BE REUSABLE AFTER EXPOSURE TO HYDROCARBONS.
4. WETTED MATERIALS: POLYESTER, NITRILE, EPOXY, SILICONE, AND 18–8 SS
5. OPERATING TEMPERATURE: –40°F TO 150°F
6. SWITCH RATING: 20VA, 120 VAC
7. POLYMER BASE RESISTANCE: 0.8 TO 3.0 KΩ/FT
8. CABLE SHALL BE PVC JACKETED WITH MATING BRAD HARRISON CONNECTOR.
9. HYDROCARBON ALARM SHALL BE SENT TO CONTROL HOUSE.

THE SUMP PUMP SYSTEM SHALL INCLUDE AN OIL WATER SEPARATOR. THE OIL WATER SEPARATOR SHALL BE MERCER INTERNATIONAL MI–B30–PE, OR APPROVED EQUAL WITH THE FOLLOWING CHARACTERISTICS:

1. OIL WATER SEPARATOR SHALL BE A BELOW GROUND TANK TYPE.
2. TANK SHALL BE CONSTRUCTED OF POLYETHYLENE.
3. TANK SHALL BE LOCATED BELOW GROUND AND SUITABLY ANCHORED.
4. CAPACITY: 25 GPM
5. OIL WATER SEPARATOR SHALL CONTAIN COALESCENT FILTER MEDIA. COALESCENT SHALL BE REMOVABLE, CLEANABLE, AND REUSABLE. PROVIDE COLLAR AND MANHOLE COVER MATCHING OTHER COVERS SPECIFIED.

THE WATER PUMPED FROM THE CHAMBER SHALL NOT FLOW DIRECTLY INTO LAKE ERIE. THE WATER SHALL BE CARRIED BY POSITIVE DRAINAGE IN A MINIMUM 1½" CONDUIT SUITABLE FOR THE CHAMBER DISCHARGE FROM THE TIME IT EXITS THE CHAMBER TO ENTRY INTO THE SANITARY SEWER SYSTEM. ON THE PIER SIDE, THE CONDUIT SHALL OUTLET TO THE NEAREST SANITARY MANHOLE OFF THE PIER. ON THE PARK SIDE, THE CONDUIT SHALL CONNECT TO THE OPERATOR'S BUILDING SANITARY SEWER. THE CONTRACTOR SHALL PREPARE NECESSARY INSPECTIONS, SURVEYS, AND PLANS TO PERFORM THE WORK TO DISCHARGE WATER FROM THE CHAMBERS INTO THE SANITARY SEWER SYSTEM ALL APPROVED BY THE AUTHORITY HAVING JURISDICTION.

WHEN THE INSTALLATION OF THE COMPLETE SYSTEM AS DESCRIBED ABOVE IS COMPLETE, THE CONTRACTOR SHALL FILL THE SUMP WITH WATER TO DEMONSTRATE THE PUMP SYSTEM OPERATES AT A SUFFICIENT FLOW RATE AND WHEN THE PUMP POWER IS REMOVED, THE ALARM SYSTEM FUNCTIONS AS DESIRED. THIS TEST SHALL BE PERFORMED SEPARATELY IN EACH CHAMBER.

DEHUMIDIFIER, AS PER PLAN

1. GENERAL – THE DEHUMIDIFIER SHALL BE EBAC PD120 110 PINT COMMERCIAL DEHUMIDIFIER OR APPROVED EQUAL. CAPABLE OF STAND ALONE OPERATION AND SUITED FOR MARINE ENVIRONMENTS.

2. FEATURES
   - A. ADJUSTABLE CONTROL HUMIDISTAT TO MAINTAIN A SET LEVEL OF DRYNESS.
   - B. SINGLE DRAIN POINT FOR CONDENSATE COLLECTION AND PIPED DIRECTLY TO THE SUMP.
   - C. REVERSE CYCLE DEFROSTING TO AUTOMATICALLY MELT AWAY FROST BUILDUP AT LOW AMBIENT TEMPERATURES.;
   - D. CONSTRUCTION TOTALLY ENCLOSED COILS IN AN EPOXY–COATED, HEAVY GAUGE STEEL CASE.
   - E. PRODUCT DIMENSIONS: L: 26.00" X W: 27.00" X H: 17.50"
   - F. ELECTRICAL REQUIREMENTS: 110 VOLTS, 1000 WATTS, 9.2 AMPS, 60 HZ
   - G. NOISE LEVEL: 69 dB
   - H. DEHUMIDIFICATION CAPACITY: 110 PINTS PER PAY
   - I. DEHUMIDIFICATION TECHNOLOGY: COMPRESSOR
   - J. REFRIGERANT TYPE: R407C
   - K. OPERATING TEMPERATURE: 33°–95° F
   - L. FLOOR MOUNTED ON HOUSEKEEPING PAD

3. WORK INCLUDES COMPLETE FURNISHING AND INSTALLING THE EQUIPMENT COMPLETE WITH ELECTRICAL AND DRAIN CONNECTIONS AND CONCRETE OR STAINLESS STEEL HOUSEKEEPING PAD.

PAYMENT FOR DEHUMIDIFIER, AS PER PLAN AS DESCRIBED ABOVE SHALL BE INCLUDED IN ITEM 611 – DRAINAGE STRUCTURE, MISC.: SUMP PUMP SYSTEM AND ASSEMBLY.

TRENCHLESS SUBMERGED CONDUIT

CONDUIT FOR POWER AND COMMUNICATION IS REQUIRED BETWEEN THE PROPOSED BRIDGE CHAMBERS TO CONTROL AND POWER THE BASCULE LEAVES. AS SHOWN IN THE DETAIL ON SHEET 25, THE CONTRACTOR SHALL SELECT ONLY ONE INSTALLATION METHOD OPTION FOR CONSTRUCTION OF THE TRENCHLESS SUBMERGED CONDUIT. THE ALTERNATES INCLUDE JACK AND BORE OR DIRECTIONAL DRILLING.

THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF THE OPTION CHOSEN IN WRITING BEFORE BEGINNING WORK. IF THE CONTRACTOR ELECTS TO CHANGE OPTIONS AFTER NOTIFYING THE ENGINEER, PAYMENT WILL ONLY BE MADE FOR INITIAL BID AND ANY ADDITIONAL COST SHALL BE BORNE BY THE CONTRACTOR. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR FAILED INSTALLATION ATTEMPTS. ALL APPLICABLE ODOT, CITY OF CLEVELAND, U.S. COAST GUARD, AND U.S. ARMY CORPS OF ENGINEERS STANDARDS SHALL APPLY TO THE CHOSEN OPTION.

THE CONTRACTOR SHALL PROVIDE AS–BUILT DRAWINGS TO REFLECT THE METHOD, LOCATION, AND MATERIALS USED FOR THE CONDUIT INSTALLATION. THE AS–BUILT DRAWINGS SHALL HAVE SUFFICIENT DETAIL TO BE READILY INCORPORATED INTO THE ENGINEER'S RECORD DRAWINGS.

THE CONTRACTOR SHALL MANIPULATE ANY EXISTING SHEET PILING/SHORING THAT IS IN CONFLICT WITH THE SELECTED OPTION. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING AND REMOVING ANY TEMPORARY ITEMS REQUIRED TO ACCOMPLISH THE SELECTED OPTION.

NO ADDITIONAL PAYMENT SHALL BE MADE FOR THE ABOVE ITEMS. PAYMENT IS INCLUDED IN THE CONTRACTOR'S ORIGINAL BID. THE FULL COST FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO PERFORM THE SELECTED OPTION SHALL BE INCLUDED IN PAYMENT FOR ITEM 625 – CONDUIT, MISC.: DIRECTIONAL DRILLING OR JACK AND BORE UNDER CHANNEL.

ITEM 517 – RAILING, MISC.: APPROACH RAILINGS

THE CONTRACTOR SHALL INSTALL CUSTOM RAILINGS ON BOTH APPROACHES AS SHOWN IN THE PLANS. THE FULL COST FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS REQUIRED TO PERFORM THIS ITEM SHALL BE INCLUDED IN PAYMENT FOR ITEM 517 – RAILING, MISC.: APPROACH RAILINGS.

ITEM 625 – PULL BOX, MISC.: COMMUNICATION TO OPERATOR ROOM

THE CONTRACTOR SHALL INSTALL PULL BOXES IN EACH CHAMBER LARGE ENOUGH TO STORE EQUIPMENT REQUIRED FOR COMMUNICATION WITH OPERATOR ROOM. THE COST FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 625 – PULL BOX, MISC.: COMMUNICATION TO OPERATOR ROOM. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 625 – PULL BOX, MISC.: COMMUNICATION TO OPERATOR ROOM 2 EACH

ITEM 625 – POWER SERVICE, AS PER PLAN

THE CONTRACTOR SHALL PROVIDE POWER SERVICE TO THE BRIDGE FROM THE EXISTING TRANSFORMER IN VOINOVICH PARK AND COORDINATE ALL ACTIVITIES WITH CLEVELAND PUBLIC POWER. POWER WILL INCLUDE BOTH THE VOINOVICH PARK SIDE AND THE FINGER PIER SIDE. A TRANSFER SWITCH MUST BE PROVIDED TO USE THE CITY'S 53–56 KW PORTABLE GENERATOR. THE POWER SERVICE CABINET SHALL BE INCLUDED WITH THIS ITEM. THE COST FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 625 – POWER SERVICE, AS PER PLAN, INCLUDING CABINET. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 625 – POWER SERVICE, AS PER PLAN 1 EACH

ITEM 625 – LIGHTING, MISC.: NAVIGATION LIGHTING

NAVIGATION LIGHTS FULFILLING THE REQUIREMENTS OF THE UNITED STATES COAST GUARD AND FEDERAL AVIATION ADMINISTRATION SHALL BE INSTALLED ON THE BRIDGE AS SHOWN IN THE PLANS AND IN ACCORDANCE WITH ALL REQUIREMENTS OF THE OHIO DEPARTMENT OF TRANSPORTATION AND CITY OF CLEVELAND DIVISION OF PORT CONTROL. SEE SHEETS E101–E108 FOR DETAILS. THE COST FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 625 – LIGHTING, MISC.: NAVIGATION LIGHTING. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 625 – LIGHTING, MISC.: NAVIGATION LIGHTING LUMP

ITEM 625 – REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN

LIGHT POLES ON THE FINGER PIER SHALL BE RELOCATED TO NEW FOUNDATIONS IN CUT OUT REGIONS OF THE EXISTING BENCH ON THE WEST SIDE OF THE PIER, AS SHOWN ON SHEET 30. THE EXISTING FOUNDATION SHALL BE REMOVED TO A DEPTH OF 12" BELOW GRADE. THE CONTRACTOR SHALL RESTORE THE EXISTING SURFACE WITH EXISTING PAVERS FROM OTHER AREAS AND PER THE TYPICAL SECTIONS. CONTRACTOR SHALL CONTACT RICH BARTON AT CPP (216) 857–1059 TO DEENERGIZE. REMOVE FINGER PIER POLES WITH LIGHT FIXTURE AND DELIVER TO CPP FOR STORAGE. REMOVE AND DISPOSE OF PARK POLES. PROVIDE CONDUIT, WIRE, AND FOUNDATION AS REQUIRED BY CPP FOR RELOCATED LIGHT POLES. EXISTING CONDUIT SHALL BE REUSED AND EXTENDED WITH NEW CONDUIT TO NEW LIGHT POLE LOCATIONS. PROVIDE 24" RADIUS BEND TO NEW FOUNDATION. REMOVAL OF EXISTING CONCRETE BENCH FOR NEW LIGHT POLE FOUNDATIONS SHALL BE INCLUDED FOR PAYMENT WITH THIS ITEM. SEE SHEET 30 FOR ADDITIONAL NOTES AND DETAILS.

COORDINATION MAY ALSO BE REQUIRED WITH THE FOLLOWING:

MELISSA BRKICH
HARBOR MANAGER
PHONE: (216) 265–6131

MARK LAMMON
DOWNTOWN CLEVELAND ALLIANCE
PHONE: (216) 325–0943

THE COST FOR ALL LABOR, MATERIALS, EQUIPMENT, SHOP DRAWINGS, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN UNIT PRICE BID OF ITEM 625 – REMOVE AND REERECT LIGHT POLE, AS PER PLAN.

ITEM 625 – LIGHTING, MISC.: AESTHETIC

AESTHETIC LIGHTING SHALL BE INSTALLED ON AND AROUND THE BRIDGE AS SHOWN IN THE PLANS. SEE SHEETS E101–E108 FOR DETAILS. THE COST FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM 625 – LIGHTING, MISC.: AESTHETIC. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 625 – LIGHTING, MISC.: AESTHETIC LUMP

ITEM SPECIAL – MISC.: FURNISH AND INSTALL NEW CCTV SYSTEM

A NEW CCTV SYSTEM SHALL BE INSTALLED AROUND THE BRIDGE AS SHOWN IN THE PLANS. SEE SHEETS E101–E108 FOR DETAILS. THE COST FOR ALL LABOR, MATERIALS, EQUIPMENT, AND INCIDENTALS FOR THIS WORK SHALL BE INCLUDED IN ITEM SPECIAL – MISC.: FURNISH AND INSTALL NEW CCTV SYSTEM. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM SPECIAL – MISC.: FURNISH AND INSTALL NEW CCTV SYSTEM LUMP

CALCULATED CLG | CHECKED CS

GENERAL NOTES

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

ITEM 614, MAINTAINING TRAFFIC, AS PER PLAN

THE CONSTRUCTION OF THE NORTH COAST HARBOR PEDESTRIAN BRIDGE SHALL NOT INVOLVE ANY CLOSURES TO TRAFFIC ON THE EAST 9TH STREET PIER. IF NEEDED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 48 HOURS IN ADVANCE (EXCLUSIVE OF SATURDAY, SUNDAY, OR HOLIDAYS) OF HIS INTENT TO DIVERT OR MAINTAIN TRAFFIC RELATING TO CONSTRUCTION STAGING OR MATERIAL AND EQUIPMENT TRANSPORTATION.

NO CHANGE IN TRAFFIC PATTERNS SHALL TAKE PLACE DURING PEAK HOURS, 6:00 A.M. TO 9:00 A.M. AND 3:00 P.M. TO 6:00 P.M. MONDAY THROUGH FRIDAY.

VEHICLE AND PEDESTRIAN ACCESS TO THE E. 9TH STREET PIER, VOINOVICH PARK, GREAT LAKES SCIENCE CENTER, AND ROCK AND ROLL HALL OF FAME SHALL BE MAINTAINED AT ALL TIMES. DOWNTOWN CLEVELAND ALLIANCE SHALL HAVE ACCESS TO ELECTRICAL PANELS AND WATER HOOKUPS WITHIN THE STAGING AREA FOR EVENTS AND DAILY PARK OPERATIONS. THE CONTRACTOR SHALL MAINTAIN PEDESTRIAN TRAFFIC IN VOINOVICH PARK AND AT FINGER PIER BY REDIRECTING PEDESTRIANS AS DESCRIBED IN THESE PLANS OR WITH ANOTHER APPROVED PLAN.

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH CMS 614 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS, AS WELL AS THE OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

THE CONTRACTOR SHALL PRESENT HIS ACCESS AND STAGING AREA PLANS IN WRITING TO THE CITY OF CLEVELAND, 30 CALENDAR DAYS BEFORE OPERATIONS BEGIN. THE CONTRACTOR MUST RECEIVE WRITTEN APPROVAL FROM THE CITY BEFORE OPERATIONS BEGIN. THE CONTACT PERSON IS:

MELISSA BRKICH
MBRKICH@CLEVELANDAIRPORT.COM
(216) 265–6131

SEEDING AND MULCHING

THE CONTRACTOR SHALL SEED AND MULCH PER CMS 659 ALL DISTURBED GRASS AREAS. ALL AREAS SHALL BE SEEDED IN ACCORDANCE WITH ODOT ITEM 659, CLASS 1, HIGH QUALITY SEED MIXTURE.

THERE SHALL BE RESTORATION OF ALL EXISTING GRASS AREAS DISTURBED BY THE CONTRACTOR; THE COST FOR THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR ODOT ITEM 614 – MAINTAINING TRAFFIC, AS PER PLAN. MOWING SHALL BE DONE AT THE DIRECTION OF THE ENGINEER. THE FIRST MOWING SHALL BE AS SOON AS GRASS TOP GROWTH REACHES A 3" HEIGHT AND IS TO BE CUT BACK TO 2" IN HEIGHT. AFTER THE SECOND MOWING AND TWO DAYS LATER THE CONTRACTOR SHALL APPLY TRIAMINIC PLUS OR APPROVED EQUAL TO ELIMINATE WEEDS IN THE SEEDED AND RESTORED AREAS. THE THIRD CUTTING, AS DIRECTED BY THE ENGINEER, IS THE FINAL MOWING REQUIRED.

CONTRACTOR IS RESPONSIBLE FOR REPAIRING SEEDED AND RESTORED AREAS UNTIL FINAL CUTTING AT NO ADDITIONAL COST TO THE OWNER.

THE PREPARATION OF SEEDED AND MULCHED AREAS SHALL INCLUDE FOUR (4) INCHES OF TOPSOIL FURNISHED AND PLACED BENEATH THE SEED IN ACCORDANCE WITH ITEM 659, EXCEPT THAT IGNITION TEST SAMPLING WILL NOT BE REQUIRED.

PAYMENT FOR PREPARING AND PLACING SEEDED AREAS, INCLUDING THE ITEM LISTED BELOW WILL BE MADE AT THE CONTRACT PRICE BID FOR ITEM 614 – MAINTAINING TRAFFIC, AS PER PLAN TO PROMOTE GROWTH AND CARE OF PERMANENT SEEDED AREAS:

ITEM 659 – TOPSOIL	600 CY
ITEM 659 – SOIL ANALYSIS TEST	2 EACH
ITEM 659 – LIME	2.3 TONS
ITEM 659 – COMMERCIAL FERTILIZER	0.7 TONS
ITEM 659 – WATER	30 MGAL
ITEM 659 – MOWING	13 M SQ. FT.

WORK ZONES, LAYDOWN AREA, AND PROJECT OFFICE LOCATION

WORK ZONES, LAYDOWN AREAS, AND PROJECT OFFICES SHALL BE LOCATED SO AS TO MINIMIZE IMPACT TO VOINOVICH PARK, ROCK AND ROLL HALL OF FAME, AND GREAT LAKES SCIENCE CENTER. USE OF THESE AREAS SHALL BE APPROVED BY THE CITY OF CLEVELAND PRIOR TO BEGINNING ANY WORK. STAGING AREA SHALL BE PROVIDED BY THE CITY ON THE WEST SIDE OF DOCK 32 AND ALONG THE NORTH BULKHEAD. ACCESS TO ALL LAYDOWN AREAS MUST BE CLEARLY MARKED ON THE PLANS WHICH INCLUDE DOCK 32 AND THE NORTH BULKHEAD. SEE MAINTENANCE OF TRAFFIC SCHEMATIC PLAN.

CONSTRUCTION TRAFFIC

ALL CONSTRUCTION TRAFFIC SHALL USE ACCEPTABLE TRUCK ROUTES TO ACCESS THE CONSTRUCTION AREA. NO CONSTRUCTION VEHICLES SHALL ENTER OR EXIT THE EAST 9TH STREET PIER DURING THE FOLLOWING HOLIDAYS OR EVENTS IN THE YEAR OF 2015 OR ADDITIONAL EVENTS AS COMMUNICATED BY THE CITY OF CLEVELAND:

MONTH	EVENT	LOCATION
MARCH	ST. MALACHI WALK	NORTH COAST HARBOR
APRIL	RUN OR DYE	NORTH COAST HARBOR
	MS WALK	GREAT LAKES SCIENCE CENTER
	INDUCTION CEREMONY (APRIL 18, 2015)	ROCK & ROLL HALL OF FAME
MAY	WALK RUN ROCK	ROCK & ROLL HALL OF FAME
	WALK FOR HUNGER	BURKE & VOINOVICH PARK
	ROCK YOUR WORLD WITH STEAM	ROCK & ROLL HALL OF FAME
	FIREFIGHTERS MEMORIAL	NORTH COAST HARBOR
	UMOJI FEST	VOINOVICH PARK
	MEMORIAL DAY	
JUNE	SUICIDE WALK	VOINOVICH PARK
	KIDNEY WALK	GREAT LAKES SCIENCE CENTER
	BROWNS PLAY 60	VOINOVICH PARK
	PANCREATIC CANCER WALK	VOINOVICH PARK
	PRIDE	VOINOVICH PARK
JULY	FOURTH OF JULY	
	SOUL FOOD FESTIVAL	VOINOVICH PARK
	DANNY MCELROY	VOINOVICH PARK
	TRIATHALON	VOINOVICH PARK
AUGUST	COOK OUT	VOINOVICH PARK
	MINI COOPER RALLY	VOINOVICH PARK
	AIR SHOW EVENT	NORTH COAST HARBOR
	LABOR DAY	
SEPTEMBER		
	AUTISM SPEAKS	VOINOVICH PARK
	POP UP PARTY IN THE PARK	VOINOVICH PARK
	NAIMI WALK	VOINOVICH PARK
	HEART WALK	VOINOVICH PARK
OCTOBER	RR MARATHON	ROCK & ROLL HALL OF FAME
	BERNIE SHUFFEL	VOINOVICH PARK
RECURRING EVENTS		
	YOGA (EVERY TUESDAY JUNE –SEPT)	VOINOVICH PARK
	LUNCH ON THE LAKE (EVERY THURSDAY JUNE –SEPT)	VOINOVICH PARK
	BROWNS GAMES	

THE PERIOD OF TIME THAT ALL LANES ARE TO BE OPEN DEPENDS ON THE DAY OF THE WEEK ON WHICH THE HOLIDAY OR EVENTS FALLS. THE FOLLOWING SCHEDULE SHALL BE USED TO DETERMINE THIS PERIOD:

DAY OF HOLIDAY OR EVENT	TIME ALL LANES MUST BE OPEN TO TRAFFIC
SUNDAY	12:00N FRIDAY THROUGH 12:00N MONDAY
MONDAY	12:00N FRIDAY THROUGH 6:00 AM TUESDAY
TUESDAY	12:00N MONDAY THROUGH 6:00 AM WEDNESDAY
WEDNESDAY	12:00N TUESDAY THROUGH 6:00 AM THURSDAY
THURSDAY	12:00N WEDNESDAY THROUGH 6:00 AM FRIDAY
THURSDAY (THANKSGIVING ONLY)	12:00N WEDNESDAY THROUGH 6:00 AM MONDAY
FRIDAY	12:00N THURSDAY THROUGH 6:00 AM MONDAY
SATURDAY	12:00N FRIDAY THROUGH 6:00 AM MONDAY

NO EXTENSIONS OF TIME SHALL BE GRANTED FOR DELAYS IN MATERIAL DELIVERIES, UNLESS SUCH DELAYS ARE INDUSTRY–WIDE, OR FOR LABOR STRIKES, UNLESS SUCH STRIKES ARE AREA–WIDE.

CONTRACTOR SHALL COORDINATE ACTIVITIES IN THE NORTH COAST HARBOR, INCLUDING DOCK 32 WITH:
MELISSA BRKICH
HARBOR MANAGER
216–265–6131

EQUIPMENT AND MATERIAL STORAGE

IN ORDER TO PROVIDE FOR THE SAFETY OF THE TRAVELING PUBLIC, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ITEM 614.03. IN ADDITION, THE FOLLOWING PROVISIONS SHALL APPLY:

1. ANY REMOVED ITEMS SHALL NOT BE STORED ON THE RIGHT OF WAY OR ON CITY PROPERTY FOR MORE THAN THIRTY DAYS.
2. ALL DISTURBED AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE CITY OF CLEVELAND.

CONTACT CITY OF CLEVELAND DEPT OF PORT CONTROL FOR RESTRICTIONS PARTICULARLY REGARDING BROWNS FOOTBALL PARKING:

MELISSA BRKICH
MBRKICH@CLEVELANDAIRPORT.COM
(216) 265–6131

PEDESTRIAN CONTROLS

THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY BARRIERS, SIGNAGE AND NECESSARY DEVICES TO ENSURE THAT PEDESTRIANS ARE PROTECTED FROM THE CONSTRUCTION AREAS. PEDESTRIAN CONTROL BARRIERS SHALL CONSIST OF METAL FENCING AND SECURELY POSITIONED SUPPORTS, AND PORTABLE CONCRETE BARRIERS AT THE DISCRETION OF THE ENGINEER, AND AS DESCRIBED HEREIN.

1. GALVANIZED CHAIN LINK FENCING – 4 FOOT HIGH MINIMUM SECURELY AFFIXED TO POSTS OR STAKES. STAKES FOR FENCING SHALL BE 2 INCH X 8 FOOT HIGH GALVANIZED STEEL. POSTS, DRIVEN INTO FIXED PLACEMENTS. POSTS SHALL BE PLACED 6 FOOT O.C. MINIMUM.
2. TEMPORARY CONCRETE BARRIER SHALL MEET APPROPRIATE ODOT SPECIFICATIONS.
3. SIGNS SHALL MEET APPROPRIATE ODOT SPECIFICATIONS.

SHOP DRAWINGS:
30 DAYS PRIOR TO COMMENCING THE WORK, THE CONTRACTOR SHALL SUBMIT A PEDESTRIAN CONTROL PLAN FOR APPROVAL BY THE ENGINEER. THIS SHALL INCLUDE SIGNAGE, PEDESTRIAN DETOUR ROUTES, BARRIER LOCATIONS AND DETAILS MEETING OSHA AND ODOT REQUIREMENTS.

CONTRACTOR HAS FULL RESPONSIBILITY FOR SECURITY OF THE SITE DURING CONSTRUCTION, INCLUDING PREVENTING VANDALISM. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH REPAIRING OR REPLACING DAMAGED OR VANDALIZED ITEMS OR AREAS WITHIN THE WORK AREA CONTAINED BY PEDESTRIAN CONTROL BARRIERS OR USED BY THE CONTRACTOR.

ITEM 614, MAINTAINING TRAFFIC, MISC: BOAT TRAFFIC

BOAT TRAFFIC SHALL BE MAINTAINED AT ALL TIMES AS ALLOWED BY THE UNITED STATES COAST GUARD AND THE CITY OF CLEVELAND, DIVISION OF PORT CONTROL. HEAVY BOATING SEASON IS MEMORIAL DAY TO LABOR DAY. CONTRACTOR SHALL PROVIDE HARBOR POLICE OFFICER WITH CHANNEL SAFETY BOAT AS REQUIRED BY THE CITY OF CLEVELAND, DIVISION OF PORT CONTROL DURING ANY WORK THAT IMPACTS MORE THAN 50' OF THE 90' WIDE NAVIGABLE SHOWN IN THE PLANS FOR THE DURATION UNTIL THE BRIDGE IS OPERATIONAL. HARBOR POLICE OFFICER SHALL BE REQUIRED AS DETERMINED BY THE ENGINEER.

CONTRACTOR SHALL PROVIDE ALL NECESSARY SIGNS, BEACONS, LIGHTS, ETC. FOR MAINTENANCE OF BOAT TRAFFIC ON CONSTRUCTION EQUIPMENT AND EXISTING FACILITIES AS REQUIRED BY THE UNITED STATES COAST GUARD AND THE CITY OF CLEVELAND, DIVISION OF PORT CONTROL. CONTRACTOR SHALL FURNISH AND INSTALL "NO DOCKING" SIGNS ON FINGER PIER DURING CONSTRUCTION.

PAYMENT FOR HARBOR POLICE OFFICER WITH CHANNEL SAFETY BOAT DURING CONSTRUCTION OPERATIONS WITHIN CHANNEL AND ALL NECESARY BOAT TRAFFIC CONTROL DEVICES AND NAVIGATION AIDS SHALL BE INCLUDED IN LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, MISC: BOAT TRAFFIC.

TRANSIENT MARINA COORDINATION

COORDINATE ALL CONSTRUCTION OPERATIONS IMPACTING THE TRANSIENT MARINA AT NORTH COAST HARBOR WITH THE FOLLOWING:

HUGH HOLLEY
CITY OF CLEVELAND
DIVISION OF PORT CONTROL
(216) 265–6598
HHOLLEY@CLEVELANDAIRPORT.COM

MAINTAINING CONDITION OF PROPERTY

THE CONTRACTOR SHALL ENSURE THAT ALL CITY PROPERTY SUBJECT TO CONSTRUCTION TRAFFIC IS IN EQUAL OR BETTER CONDITION THAN AT THE BEGINNING OF CONSTRUCTION. PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS THAT ARE REQUIRED TO PREVENT OR REPAIR DAMAGE SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC, UNLESS OTHERWISE ITEMIZED IN THE PLAN.

CALCULATED CLG
CHECKED SMS

MAINTENANCE OF TRAFFIC GENERAL NOTES

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

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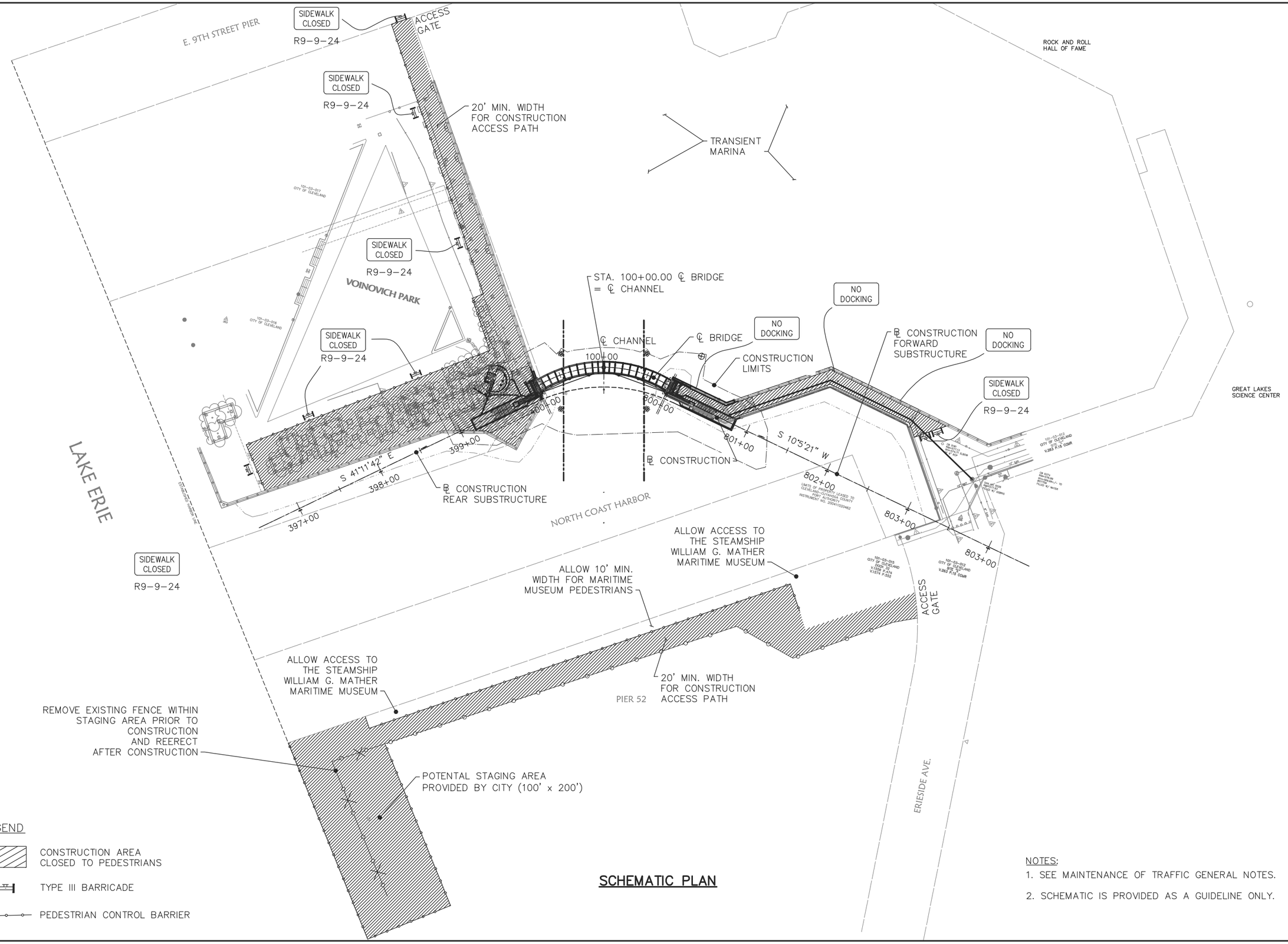

SCHEMATIC PLAN

NOTES:

1. SEE MAINTENANCE OF TRAFFIC GENERAL NOTES.
2. SCHEMATIC IS PROVIDED AS A GUIDELINE ONLY.

HORIZONTAL SCALE IN FEET
0 50 100

CALCULATED CLG
CHECKED SMS

MAINTENANCE OF TRAFFIC SCHEMATIC PLAN

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

SHEET NUMBER												PLAN SPLIT		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	9	10	11	12	13	14		19				01/ERD /BR							
																		ROADWAY	
	LUMP											LUMP		201	11000	LUMP		CLEARING AND GRUBBING	9
								266				266		202	23001	266	SQ YD	PAVEMENT REMOVED, AS PER PLAN	9
			50									50		202	35100	50	FT	PIPE REMOVED, 24" AND UNDER	
								2				2		202	98100	2	EACH	REMOVAL MISC.: DOLPHIN STRUCTURE	12
								4				4		202	98100	4	EACH	REMOVAL MISC.: SALVAGE FLAG POLE	11
								2				2		202	98100	2	EACH	REMOVAL MISC.: SALVAGE BENCH	13
								88				88		202	98200	88	FT	REMOVAL MISC.: BENCH AND RAILING COMBINATION	11
								134				134		203	10000	134	CU YD	EXCAVATION	
								20				20		203	20000	20	CU YD	EMBANKMENT	
								269				269		203	35000	269	CU YD	GRANULAR EMBANKMENT	
								403				403		204	10000	403	SQ YD	SUBGRADE COMPACTION	
			2000									2000		204	13001	2000	CU YD	EXCAVATION OF SUBGRADE, AS PER PLAN	11
			2000					403				2403		204	50000	2403	SQ YD	GEOTEXTILE FABRIC	
					200							200		512	10051	200	SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY), AS PER PLAN	13
								274				274		517	76300	274	FT	RAILING, MISC.: APPROACH RAILINGS	14
				216								216		608	13001	216	SQ FT	6" CONCRETE WALK, AS PER PLAN	12
								3630				3630		608	98000	3630	SQ FT	WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS	12
					6							6		630	80101	6	SQ FT	SIGN, FLAT SHEET, AS PER PLAN	13
								2				2		690	98000	2	EACH	SPECIAL - MISC.: PEDESTRIAN GATE	9
																		EROSION CONTROL	
								304				304		601	28101	304	CU YD	DUMPED ROCK FILL, AS PER PLAN	10
		LUMP										LUMP		832	15001	LUMP		STORM WATER POLLUTION PREVENTION PLAN, AS PER PLAN	10
		1000										1000		832	30000	1000	EACH	EROSION CONTROL	
																		DRAINAGE	
			50									50		611	00400	50	FT	4" CONDUIT, TYPE E	
			50									50		611	01400	50	FT	6" CONDUIT, TYPE E	
			50									50		611	01501	50	FT	6" CONDUIT, TYPE F, AS PER PLAN	11
						2						2		611	99900	2	EACH	DRAINAGE STRUCTURE, MISC.: SUMP PUMP SYSTEM AND ASSEMBLY	14
								1079				1079		613	41201	1079	CU YD	LOW STRENGTH MORTAR BACKFILL, AS PER PLAN	13
																		PAVEMENT	
								80				80		304	20000	80	CU YD	AGGREGATE BASE	
								3				3		407	10000	3	GAL	TACK COAT	
								3				3		407	13900	3	GAL	TACK COAT, 702.13	
								5				5		407	14000	5	GAL	TACK COAT FOR INTERMEDIATE COURSE	
								16				16		448	46050	16	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22	
								2				2		448	47020	2	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22	
								43				43		451	13011	43	SQ YD	8" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN	12
								100				100		451	15011	100	SQ YD	10" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN	12
								215				215		452	19250	215	SQ FT	NON-REINFORCED CONCRETE PAVEMENT, MISC.: RECONSTRUCT WALL CAP	12
																		LIGHTING	
								1				1		625	25900	1	EACH	CONDUIT, MISC.: DIRECTIONAL DRILLING OR JACK AND BORE UNDER CHANNEL	14
						2						2		625	31600	2	EACH	PULL BOX, MISC.: COMMUNICATION TO OPERATOR ROOM	14
						1						1		625	34001	1	EACH	POWER SERVICE, AS PER PLAN	14
								5				5		625	35011	5	EACH	REMOVE AND REERECT EXISTING LIGHT POLE, AS PER PLAN	14
								2				2		625	75400	2	EACH	LIGHT POLE REMOVED	
								2				2		625	75500	2	EACH	LIGHT POLE FOUNDATION REMOVED	
								1				1		625	98000	1	EACH	LIGHTING, MISC.: REMOVE NAVIGATION LIGHT	12
						LUMP						LUMP		625	98200	LUMP		LIGHTING, MISC.: NAVIGATION LIGHTING	14
						LUMP						LUMP		625	98200	LUMP		LIGHTING, MISC.: AESTHETIC	14
						LUMP						LUMP		690	98400	LUMP		SPECIAL - MISC.: FURNISH AND INSTALL CCTV SYSTEM	14

CALCULATED SMS
CHECKED CS

GENERAL SUMMARY

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

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SHEET NUMBER												PLAN SPLIT		ITEM	ITEM EXT	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
			11				15					01/ERD /BR							
							LUMP					LUMP		614	18002	LUMP		MAINTAINING TRAFFIC, MISC.: BOAT TRAFFIC	15
			20									20		616	10000	20	M GAL	WATER	
			5									5		616	20000	5	TON	CALCIUM CHLORIDE	
																		STRUCTURES OVER 20' SPAN	
																		FOR SUBSTRUCTURE ESTIMATED QUANTITIES	34
																		FOR SUPERSTRUCTURE ESTIMATED QUANTITIES	35
																		FOR MECHANICAL ESTIMATED QUANTITIES	67
																		FOR ELECTRICAL ESTIMATED QUANTITIES	95
																		MISCELLANEOUS	
												LUMP		103	05000	LUMP		PREMIUM FOR CONTRACT PERFORMANCE BOND AND FOR PAYMENT BOND	
							LUMP					LUMP		614	11001	LUMP		MAINTAINING TRAFFIC, AS PER PLAN (PEDESTRIAN)	15
												10		619	16010	10	MONTH	FIELD OFFICE, TYPE B	
												LUMP		623	10001	LUMP		CONSTRUCTION LAYOUT STAKES, AS PER PLAN	12
												LUMP		624	10000	LUMP		MOBILIZATION	
												LUMP		690	12160	LUMP		SPECIAL - TESTING	
												LUMP		690	20230	LUMP		SPECIAL - ENHANCEMENT WORK, OPERATIONS ROOM	
												LUMP		690	98400	LUMP		SPECIAL - MISC.: PROJECT DVD RECORDING	SP
												LUMP		690	98400	LUMP		SPECIAL - MISC.: RECORD DRAWINGS	13
												40		690	98600	40	HOUR	SPECIAL - MISC.: TECHNICAL ASSISTANCE	

CALCULATED SMS
CHECKED CS

GENERAL SUMMARY

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

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REF. NO.	SHEET. NO.	STATION TO STATION		SIDE	202 REMOVAL MISC.: SALVAGE FLAG POLE	202 REMOVAL MISC.: DOLPHIN STRUCTURE	202 REMOVAL MISC.: BENCH AND RAILING COMBINATION	202 REMOVAL, MISC.: SALVAGE BENCH	202 PAVEMENT REMOVED, AS PER PLAN	203 EXCAVATION	203 EMBANKMENT	203 GRANULAR EMBANKMENT	204 SUBGRADE COMPACTION	204 GEOTEXTILE FABRIC	304 AGGREGATE BASE	517 RAILING MISC., APPROACH RAILINGS	601 DUMPED ROCK FILL, AS PER PLAN		608 WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS	613 LOW STRENGTH MORTAR BACKFILL, AS PER PLAN	625 REMOVE AND RE-ERECT EXISTING LIGHT POLE	625 LIGHTING, MISC.: REMOVE NAVIGATION LIGHT	625 LIGHT POLE REMOVED	625 LIGHT POLE FOUNDATION REMOVED	625 CONDUIT, MISC.: DIRECTIONAL DRILLING OR JACK AND BORE UNDER CHANNEL	SPECIAL PEDESTRIAN GATE
		FROM	TO		EA	EA	FT	EA	SQ YD	CU YD	CU YD	CU YD	SQ YD	SQ YD	CU YD	FT	CU YD		SQ FT	CU YD	EA	EA	EA	EA	EA	EA
R-1	20	800+08.98	800+08.98	LT.																		1				
R-2	20	398+96.00	399+96.92	LT. & RT.					106	95	15	191	286	286	64				2573	809						
R-3	20	800+06.83	800+82.41	LT.					160	39	5	78	117	117					1057	270						
R-4	20			RT.			88																			
R-5	20																304									
R-6	20					2																				
R-7	20	399+71.31	399+71.31	LT.				2																		
R-8	20	399+58.24	399+58.24	LT.																			1	1		
R-9	20			RT.	4																					
R-10	20	399+81.69	399+81.69	LT.																			1	1		
R-11		NOT USED																								
R-12	30	800+69.67	800+69.67	LT.																	1					
R-13	30	801+03.20	801+03.20	LT.																	1					
R-14	30	801+46.01	801+46.01	LT.																	1					
R-15	30	801+98.82	801+98.82	LT.																	1					
R-16	30	802+59.28	802+59.28	LT.																	1					
RA-1	28	399+77.65	399+88.08	LT.												10										
RA-2	28	399+77.65	399+98.06	RT.												31										
RA-3	28	399+89.98	400+01.41	LT.												24										
RA-4	28	399+88.08	399+97.45	RT.												9										
RA-5	29	800+02.55	800+11.92	LT.												9										
RA-6	29	800+00.67	800+27.61	RT.												27										
RA-7	29	800+11.92	800+27.61	LT.												16										
RA-8	29	800+30.73	800+86.50	LT. & RT.												71										
RA-9	29	800+00.67	800+10.02	LT.												9										
RA-10	29	800+12.60	800+76.28	LT.												68										
B-1	20	399+77.25	800+22.75	RT.																					1	
PG-1	28	399+88.69	399+88.69	LT.																						1
PG-2	29	800+11.31	800+11.31	LT.																						1
TOTALS CARRIED TO GENERAL SUMMARY					4	2	88	2	266	134	20	269	403	403	64	274	304		3630	1079	5	1	2	2	1	2

STATION TO STATION		SIDE	LENGTH (FT)	WIDTH (FT)	AREA (SF)	CADD AREA	304 4" AGGREGATE BASE		407 TACK COAT (0.04 GAL/SY)	407 TACK COAT, 702.13 (0.04 GAL/SY)	407 TACK COAT FOR INTERMEDIAT COURSE (0.075 GAL/SY)		448 1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22	448 1.75" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE PG64-22	448 VARIABLE DEPTH ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, PG64-22		451 8" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN	451 10" REINFORCED CONCRETE PAVEMENT, CLASS QC1, AS PER PLAN		452 NON-REINFORCED CONCRETE PAVEMENT, MISC.: RECONSTRUCT WALL CAP
FROM	TO						CU YD		GAL	GAL	GAL		CU YD	CU YD	CU YD		SQ YD	SQ YD		SQ FT
399+16.00	399+36.00	LT & RT	20.00	13.00	260.00				1.2	1.2	2.2		1.00	1.40	5.62					
800+59.27	800+84.00	LT & RT	24.73	13.00	321.49				1.4	1.4	2.7		1.24	1.74	6.95					
399+78.67	399+93.67	LT	15.00	VAR	194.39	*	2.40										21.60			
800+06.33	800+21.33	LT	15.00	VAR	194.39	*	2.40										21.60			
800+21.33	800+59.27	LT	37.94	8.92	338.42		4.18											37.60		
800+59.27	800+66.72	LT	7.45	8.92	66.45		0.82											7.38		
800+66.72	800+71.87	LT	5.15	11.44	58.92		0.73											6.55		
800+71.87	800+84.00	LT	12.13	19.92	241.63		2.98											26.85		
800+84.00	800+98.93	LT	14.93	12.94	193.19		2.39											21.47		
800+04.79	800+76.37	LT	71.58	3.00	214.74															214.74
TOTALS THIS SHEET							15.9		2.6	2.6	4.9		2.24	3.14	12.57		43.20	99.85		214.74
TOTALS CARRIED TO GENERAL SUMMARY							16		3	3	5		2	3	13		43	100		215

CALCULATED CLG
CHECKED SMS

ESTIMATED QUANTITIES

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

COMMUNICATION WIRING AND CONDUIT TO OPERATION ROOM.

PROTECT BRIDGE OPERATIONS BUILDING CONSTRUCTED BY OTHERS) (SEE SHEET A1/A1)

EX. 10" RCP

POWER SERVICE FROM EXISTING TRANSFORMER (COORDINATE WITH CPP)

POWER METER

℄ BRG REAR ABUTMENT STA. 399+98.17 ℞ CONST. REAR SUBSTRUCTRE

RELOCATE EXISTING BENCHES (R-7)

℄ TRANSVERSE GIRDER STA. 99+22.54 ℄ BRIDGE STA. 400+00 ℞ CONST. REAR SUBSTRUCTURE

STA. 100+00.00 ℄ BRIDGE = ℄ CHANNEL

℄ BRIDGE

℄ CHANNEL

D1

D2

D3

D4

6'-0"

6'-0"

100+00

399+00

801+00

S 41°11'42" E

S 10°5'21" W

REMOVE EXISTING DOLPHIN PILES (R-6) (B-1)

TRENCHLESS SUBMERGED CONDUIT (SEE SHEET 25)

REMOVE LIGHT (R-10)

EXISTING REVETMENT PROTECTION TO BE REUSED (R-5)

REMOVE LIGHT (R-8)

10" DIP OUTFALL

PROP. APPROACH RAILING (SEE SHEET 28 & 29)

SALVAGE FLAG POLES, AS PER PLAN (R-9)

90' HORIZ. CHANNEL REQ'D & PROVIDED

℞ CONSTRUCTION REAR SUBSTRUCTURE

3" PIPE FROM SUMP PUMP WITH CLEANOUTS AND BACK-FLOW PREVENTOR TO OUTLET IN REVETMENT

LIMIT OF UNIT PAVERS REMOVE, STORE, & REUSE (R-2)

LIMITS OF EXISTING VISIBLE ARMOR STONE

PROPOSED DOLPHIN PILES (TYP.) (SEE SHEET 46)

℄ TRANSVERSE GIRDER STA. 100+77.46 ℄ BRIDGE STA. 800+00 ℞ CONST. FORWARD SUBSTRUCTURE

℄ BRG FORWARD ABUTMENT STA. 800+01.83 ℞ CONST. FORWARD SUBSTRUCTURE

R-1 REMOVE NAVIGATION LIGHT

R-3 LIMIT OF UNIT PAVERS REMOVE, STORE, & REUSE

RELOCATE TRASH RECEPTACLES ON PIER (SEE SHEET 30)

SEE NOTE 3

℞ CONSTRUCTION FORWARD SUBSTRUCTURE

PROP. APPROACH RAILING (SEE SHEET 28 & 29)

3" PIPE FROM SUMP PUMP AND BACK FLOW PREVENTOR TO OUTLET IN REVETMENT

R-4 REMOVE BENCH AND RAILING

LEGEND

ITEM 601 – DUMPED ROCK FILL, AS PER PLAN

ITEM 608 – WALKWAY, MISC.: REMOVE, STORE, AND REUSE BRICK PAVERS

CURVE DATA
℄ BRIDGE
P.I. STA. 100+09.01
Δ = 63°24'04" (RT)
Dc = 40°55'32"
R = 140.00'
T = 86.47'
L = 154.92'
E = 24.55'
C = 147.13'
T.B. = S 47°15'12" E
C.B. = S 15°33'10" E
T.B. = S 16°08'52" W

PLAN

DOLPHIN STRUCTURE COORDINATES		
POINT	NORTHING	EASTING
D1	72479.81	88505.54
D2	72463.04	88445.29
D3	72386.87	88530.78
D4	72370.27	88471.11

EL 577.56 | EL 578.49 | EL 578.00 | EL 578.00 | EL 578.42 EL 578.57 | EL 579.45 | EL 580.32 | EL 580.89 | EL 580.32 | EL 579.45 | EL 578.57 EL 578.42 | EL 578.00 | EL 578.00 | EL 577.58

FAR PART 77 SURFACE PER JULY 6, 2009 ANALYSIS – ELEV. 667.00

℄CHANNEL

D1

BEGIN WORK STA 398+84.35 ℞ CONSTRUCTION

BEGIN PROJECT STA 399+16 ℞ CONSTRUCTION

℄ TRANSVERSE GIRDER

BEGIN BRIDGE ℄ BRG REAR ABUTMENT STA. 399+98.17 ℞ CONST. REAR SUBSTRUCTURE

655

34.99' VC
R = 500.00'
PVI STA. 100+00.00
ELEV = 580.89

END BRIDGE ℄ BRG FORWARD ABUTMENT STA. 800+01.83 ℞ CONST. FORWARD SUBSTRUCTURE

END WORK STA 802+66.02 ℞ CONSTRUCTION

END PROJECT STA 800+84 ℞ CONSTRUCTION

E060 (276)

EXIST. EL 577.56

PROP. EL 578.86

STA 399+36 EL 578.00 NO CURVE

STA 399+86.15 EL 578.00 NO CURVE

STA 800+13.85 EL 578.00 NO CURVE

STA 800+59.27 EL 578.00 NO CURVE

PROP. EL 577.34

EXIST. EL SUBMERGED

4' WIDE CONCRETE INSPECTION PAD (TYP.)

ORDINARY HIGH WATER LEVEL=571.9'

4.05% | 0.00% | 3.50% | 3.50% | 0.00% | 2.67%

EL. 574.13

MEAN WATER LEVEL=571.3'

EL. 573.15'

MATCH EXISTING EL 578.91'

TRENCHLESS SUBMERGED CONDUIT

EL 578.68 | EL 578.13 | EL 561.49 | EL 559.93 | EL 561.28 | EL 577.66 | EL 567.75

APPROX CHANNEL BOTTOM (EL. 560'±)

LOW WATER LEVEL =570.8'

℄ BRIDGE ℞ CONSTR. REAR SUBSTRUCTURE | 399+75 | 99+22.54 400+00 | 100+00 | 100+77.46 800+00 | 800+25 | ℄ BRIDGE ℞ CONSTR. FORWARD SUBSTRUCTURE

PROFILE

* INSPECTION PLATFORM, AS PER ITEM 608 – 6" CONCRETE WALK, AS PER PLAN

NOTE:
1. PROFILES SHOWN BETWEEN ℄ BEARINGS ALONG ℄ BRIDGE ALIGNMENT. PROFILES SHOWN OUTSIDE OF ℄ BEARINGS ALONG ℞ CONSTRUCTION.
2. SEE DRAWING E103 FOR LIGHTING.
3. SEE SHEET 30 FOR PIER SIDE LIGHTING RELOCATION PLAN AND FOR LIGHT POLE FOUNDATION DETAIL.

HORIZONTAL SCALE IN FEET 0 20 40

CALCULATED SMS CHECKED CS

PLAN AND PROFILE

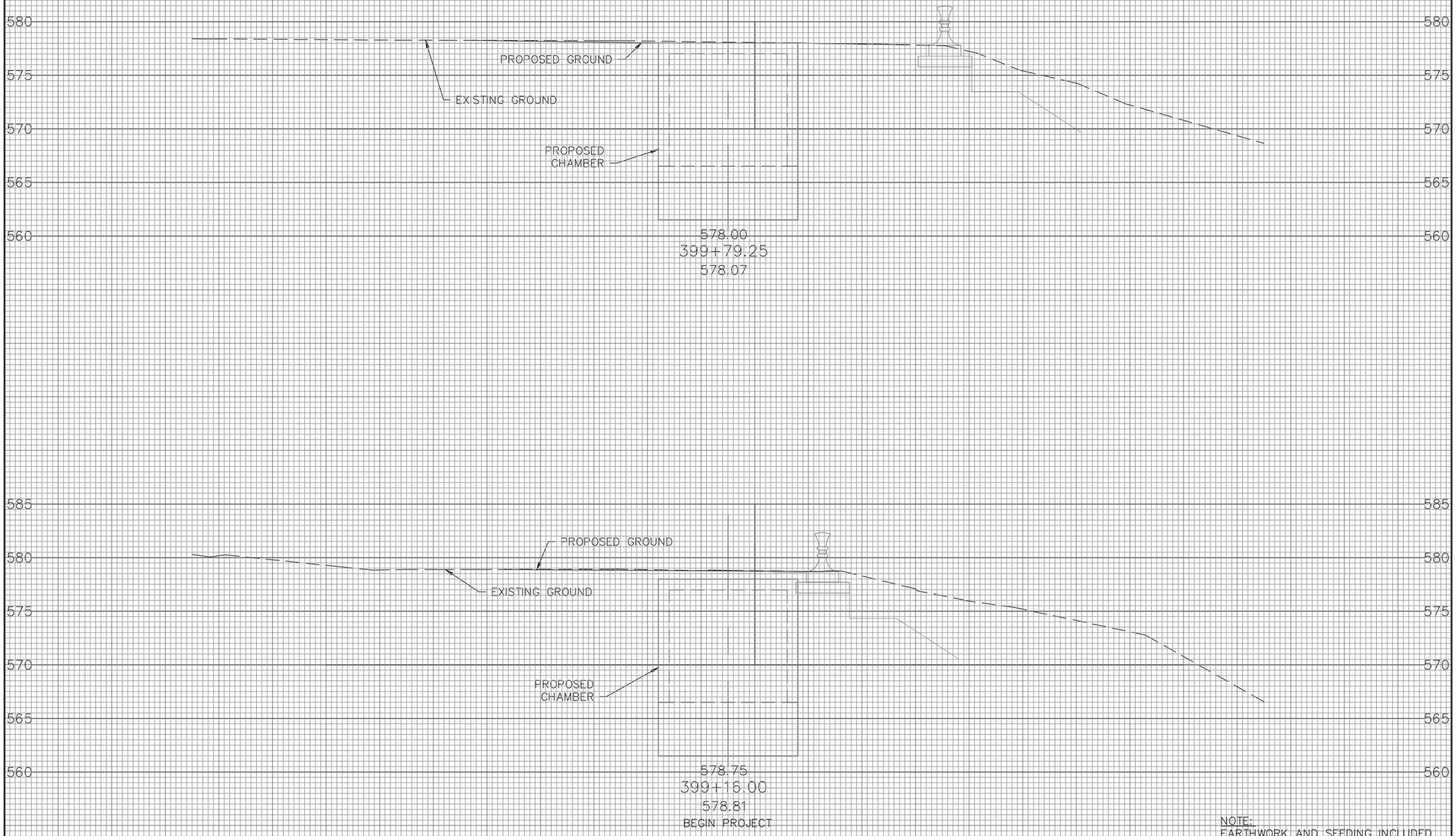
CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

CALCULATED SMS
CHECKED CS

400+00
END B CONSTRUCTION
REAR SUBSTRUCTURE



NOTE:
EARTHWORK AND SEEDING INCLUDED AS PART OF STRUCTURAL EXCAVATION AND MAINTENANCE OF TRAFFIC, RESPECTIVELY. NO CALCULATION PERFORMED AS PART OF CROSS SECTIONS.

CROSS SECTIONS – STA 399+16.00 AND STA 399+79.25

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

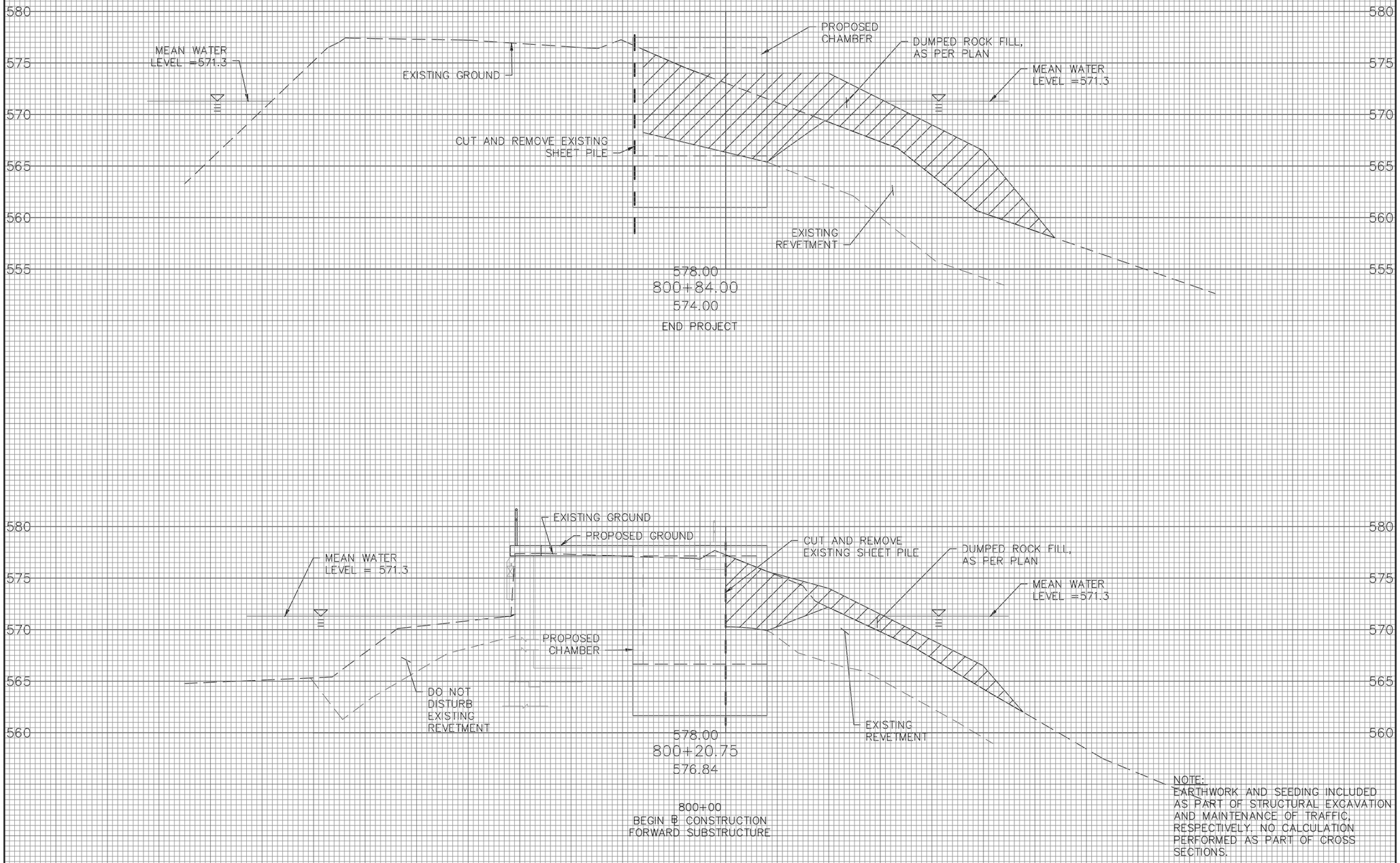
21
165

SEEDING	
END WIDTH	SQ. YDS.

END AREA	
CUT	FILL

VOLUME	
CUT	FILL

CALCULATED SMS
CHECKED CS

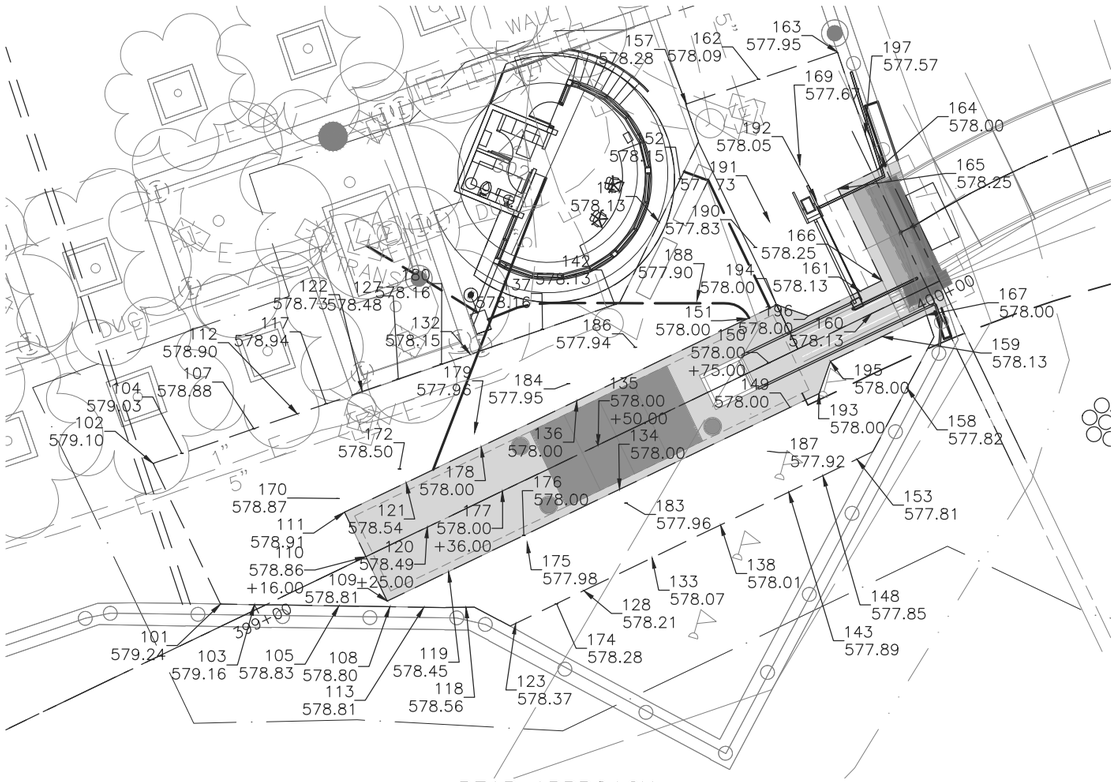


NOTE:
EARTHWORK AND SEEDING INCLUDED AS PART OF STRUCTURAL EXCAVATION AND MAINTENANCE OF TRAFFIC, RESPECTIVELY. NO CALCULATION PERFORMED AS PART OF CROSS SECTIONS.

CROSS SECTIONS – STA 800+20.75 AND STA 800+84.00

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

22
165



REAR APPROACH

NOTES:
1. ADDITIONAL POINTS PROVIDED IN TABLES TO FURTHER DELINEATE GRADING AS NECESSARY.
2. SMALL SWALES SHOWN TO AID IN DRAINING WATER AWAY FROM THE TOP OF THE CHAMBER. MAXIMUM SLOPE AWAY FROM THE CHAMBER IS 2.00% FOR A MINIMUM OF 1'. POSITIVE DRAINAGE IN THE SWALES FOLLOWS THE CHAMBER TOWARD THE SOUTH.
3. LEFT SWALE BEGINS AT STA. 399+16.00, 2.00' LT. AND ENDS AT THE PROPOSED WING WALL EAST OF THE REAR ABUTMENT (18.42' LT.).
4. RIGHT SWALE BEGINS AT STA. 399+36.00, 1.00' RT. AND ENDS AT STA. 399+70.00, 4.00' RT.
5. SEE TYPICAL SECTIONS FOR SECTION VIEW OF SWALES.

LEGEND

POINT # / ELEV — DETAILED GRADE POINT

FINISHED GRADE ELEVATIONS - VOINOVICH PARK

POINT NO.	STATION	OFFSET (FT)	SIDE*	ELEV (FT)	NORTHING	EASTING	REMARKS
101	398+96.00	2.68	LT	579.24	72569.2141	88390.8892	MATCH EXISTING
102	398+96.00	23.26	LT	579.10	72582.7668	88406.3730	MATCH EXISTING
103	399+00.00	0.65	LT	579.16	72564.8699	88391.9993	MATCH EXISTING
104	399+00.00	22.79	LT	579.03	72579.4481	88408.6548	MATCH EXISTING
105	399+10.00	4.32	RT	578.83	72554.0706	88394.8444	MATCH EXISTING
106	399+10.00	0.00	BL	578.84	72556.9140	88398.0929	BL OF CONSTRUCTION REAR SUBSTRUCTURE
107	399+10.00	21.62	LT	578.88	72571.1517	88414.3594	MATCH EXISTING
108	399+16.00	7.32	RT	578.80	72547.5760	88396.5340	MATCH EXISTING
109	399+16.00	6.50	RT	578.81	72548.1182	88397.1535	EDGE OF CHAMBER
110	399+16.00	0.00	BL	578.86	72552.4002	88402.0437	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
111	399+16.00	6.50	LT	578.91	72556.6803	88406.9357	EDGE OF CHAMBER
170	399+16.00	8.50	LT	578.87	72557.9975	88408.4406	LEFT SWALE
112	399+16.00	20.91	LT	578.90	72566.1739	88417.7821	MATCH EXISTING
113	399+20.00	9.34	RT	578.81	72543.2407	88397.6544	MATCH EXISTING
114	399+20.00	6.50	RT	578.65	72545.1088	88399.7887	EDGE OF CHAMBER
115	399+20.00	0.00	BL	578.70	72549.3893	88404.6792	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
116	399+20.00	6.50	LT	578.75	72553.6703	88409.5702	EDGE OF CHAMBER
171	399+20.00	8.50	LT	578.71	72554.9876	88411.0752	LEFT SWALE
117	399+20.00	20.45	LT	578.94	72562.8552	88420.0639	MATCH EXISTING
118	399+25.00	11.73	RT	578.56	72537.8928	88399.1360	MATCH EXISTING
119	399+25.00	6.50	RT	578.45	72541.3459	88403.0812	EDGE OF CHAMBER
120	399+25.00	0.00	BL	578.49	72545.6269	88407.9722	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
121	399+25.00	6.50	LT	578.54	72549.9080	88412.8633	EDGE OF CHAMBER
172	399+25.00	8.50	LT	578.50	72551.2252	88414.3683	LEFT SWALE
122	399+25.00	19.86	LT	578.73	72558.7042	88422.9130	LOWER TIE-IN ON WALL
123	399+30.00	16.50	RT	578.37	72530.9984	88398.8509	MATCH EXISTING
124	399+30.00	6.50	RT	578.24	72537.5869	88406.3751	EDGE OF CHAMBER
125	399+30.00	0.00	BL	578.27	72541.8661	88411.2640	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
126	399+30.00	6.50	LT	578.30	72546.1471	88416.1551	EDGE OF CHAMBER
173	399+30.00	8.50	LT	578.26	72547.4628	88417.6614	LEFT SWALE
127	399+30.00	19.20	LT	578.48	72554.5588	88425.7685	LOWER TIE-IN ON WALL

FINISHED GRADE ELEVATIONS - VOINOVICH PARK

POINT NO.	STATION	OFFSET (FT)	SIDE*	ELEV (FT)	NORTHING	EASTING	REMARKS
174	399+36.00	16.50	RT	578.28	72526.4845	88402.8036	MATCH EXISTING
175	399+36.00	7.50	RT	577.98	72532.4100	88409.5736	RIGHT SWALE
176	399+36.00	6.50	RT	578.00	72533.0687	88410.3260	EDGE OF CHAMBER
177	399+36.00	0.00	BL	578.00	72537.3497	88415.2171	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
178	399+36.00	6.50	LT	578.00	72541.6308	88420.1082	EDGE OF CHAMBER
179	399+36.00	8.50	LT	577.96	72542.9480	88421.6131	LEFT SWALE
180	399+36.00	18.57	LT	578.16	72549.5809	88429.1912	MATCH EXISTING
128	399+40.00	16.50	RT	578.21	72523.4752	88405.4388	MATCH EXISTING
181	399+40.00	8.00	RT	577.97	72529.0708	88411.8318	RIGHT SWALE
129	399+40.00	6.50	RT	578.00	72530.0620	88412.9642	EDGE OF CHAMBER
130	399+40.00	0.00	BL	578.00	72534.3398	88417.8516	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
131	399+40.00	6.50	LT	578.00	72538.6209	88422.7427	EDGE OF CHAMBER
182	399+40.00	8.50	LT	577.96	72539.9381	88424.2476	LEFT SWALE
132	399+40.00	18.10	LT	578.15	72546.2623	88431.4730	LOWER TIE-IN ON WALL
133	399+50.00	16.50	RT	578.07	72515.9520	88412.0268	MATCH EXISTING
183	399+50.00	8.50	RT	577.96	72521.2167	88418.0418	RIGHT SWALE
134	399+50.00	6.50	RT	578.00	72522.5340	88419.5467	EDGE OF CHAMBER
135	399+50.00	0.00	BL	578.00	72526.8151	88424.4378	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
136	399+50.00	6.50	LT	578.00	72531.0961	88429.3289	EDGE OF CHAMBER
184	399+50.00	9.00	LT	577.95	72532.7427	88431.2101	LEFT SWALE
137	399+50.00	16.89	LT	578.16	72537.9659	88437.1775	LOWER TIE-IN ON WALL
138	399+60.00	16.50	RT	578.01	72508.4287	88418.6147	MATCH EXISTING
185	399+60.00	9.50	RT	577.94	72513.0334	88423.8755	RIGHT SWALE
139	399+60.00	6.50	RT	578.00	72515.0152	88426.1398	EDGE OF CHAMBER
140	399+60.00	0.00	BL	578.00	72519.2903	88431.0240	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
141	399+60.00	6.50	LT	578.00	72523.5714	88435.9151	EDGE OF CHAMBER
186	399+60.00	9.50	LT	577.94	72525.5473	88438.1725	LEFT SWALE
142	399+60.00	15.76	LT	578.13	72529.6679	88442.8803	LOWER TIE-IN ON WALL
143	399+70.00	16.50	RT	577.89	72500.9055	88425.2027	MATCH EXISTING
187	399+70.00	10.50	RT	577.92	72504.8501	88429.7093	RIGHT SWALE
144	399+70.00	6.50	RT	578.00	72507.4845	88432.7192	EDGE OF CHAMBER
145	399+70.00	0.00	BL	578.00	72511.7656	88437.6102	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
146	399+70.00	6.50	LT	578.00	72516.0466	88442.5013	EDGE OF CHAMBER
188	399+70.00	12.50	LT	577.90	72519.3398	88446.2637	LEFT SWALE
147	399+70.00	23.00	LT	578.13	72526.9245	88454.9293	LOWER TIE-IN
148	399+75.00	16.50	RT	577.85	72497.1439	88428.4966	MATCH EXISTING
189	NOT USED						
149	399+75.00	6.50	RT	578.00	72503.7302	88436.0214	EDGE OF CHAMBER
150	399+75.00	0.00	BL	578.00	72508.0032	88440.9034	BL OF CONSTR. REAR SUBST. / CL OF CHAMBER
151	399+75.00	6.50	LT	578.00	72512.2843	88445.7944	EDGE OF CHAMBER
190	399+75.00	13.00	LT	577.87	72513.7909	88455.1073	LEFT SWALE
152	399+75.00	26.96	LT	578.15	72525.7574	88461.1874	LOWER TIE-IN
193	399+79.25	6.50	RT	578.00	72500.5242	88438.8114	EDGE OF CHAMBER
194	399+79.25	6.50	LT	578.00	72509.0863	88448.5935	EDGE OF CHAMBER
153	399+80.00	16.50	RT	577.81	72493.3823	88431.7906	MATCH EXISTING
154	399+80.00	5.75	RT	578.00	72500.4538	88439.8698	EDGE OF ABUTMENT STEM
155	399+80.00	0.00	BL	578.00	72504.2409	88444.1965	BL OF CONSTR. REAR SUBST. / CL OF ABUTMENT STEM
156	399+80.00	5.75	LT	578.00	72508.0279	88448.5231	EDGE OF ABUTMENT STEM
191	399+80.00	14.50	LT	577.83	72512.8896	88458.8907	LEFT SWALE
157	399+80.00	35.53	LT	578.28	72527.6445	88470.9350	MATCH EXISTING
195	399+82.42	3.33	RT	578.00	72500.2270	88443.2798	EDGE OF ABUTMENT STEM
196	399+82.42	3.33	LT	578.00	72504.6178	88448.2963	EDGE OF ABUTMENT STEM
158	399+90.00	10.85	RT	577.82	72489.5734	88442.6222	MATCH EXISTING
159	399+90.00	3.33	RT	578.13	72494.5207	88448.2744	EDGE OF ABUTMENT STEM
160	399+90.00	0.00	BL	578.13	72496.7161	88450.7827	BL OF CONSTR. REAR SUBST. / CL OF ABUTMENT STEM
161	399+90.00	3.33	LT	578.13	72498.9115	88453.2909	EDGE OF ABUTMENT STEM
192	399+90.00	16.75	LT	578.07	72507.7502	88463.3891	LEFT SWALE
162	399+90.00	34.33	LT	578.09	72519.3295	88476.6184	MATCH EXISTING
163	400+00.92	33.02	LT	577.95	72510.2459	88482.8272	MATCH EXISTING
197	399+99.64	21.76	LT	577.57	72503.8471	88473.4502	LOW POINT ON PROPOSED WALL
164	399+98.96	16.75	LT	578.00	72501.0080	88469.2860	ABUTMENT WING WALL CORNER
165	399+93.17	16.75	LT	578.25	72505.3653	88465.4722	ABUTMENT CORNER
166	399+93.17	3.33	LT	578.25	72496.5287	88455.3765	ABUTMENT CORNER
167	399+96.52	3.33	RT	578.00	72489.6151	88452.5682	ABUTMENT WING WALL CORNER
168	NOT USED						
169	399+90.00	21.75	LT	577.67	72511.0434	88467.1515	LEFT SWALE

* BL = BASELINE OF CONSTRUCTION REAR SUBSTRUCTURE

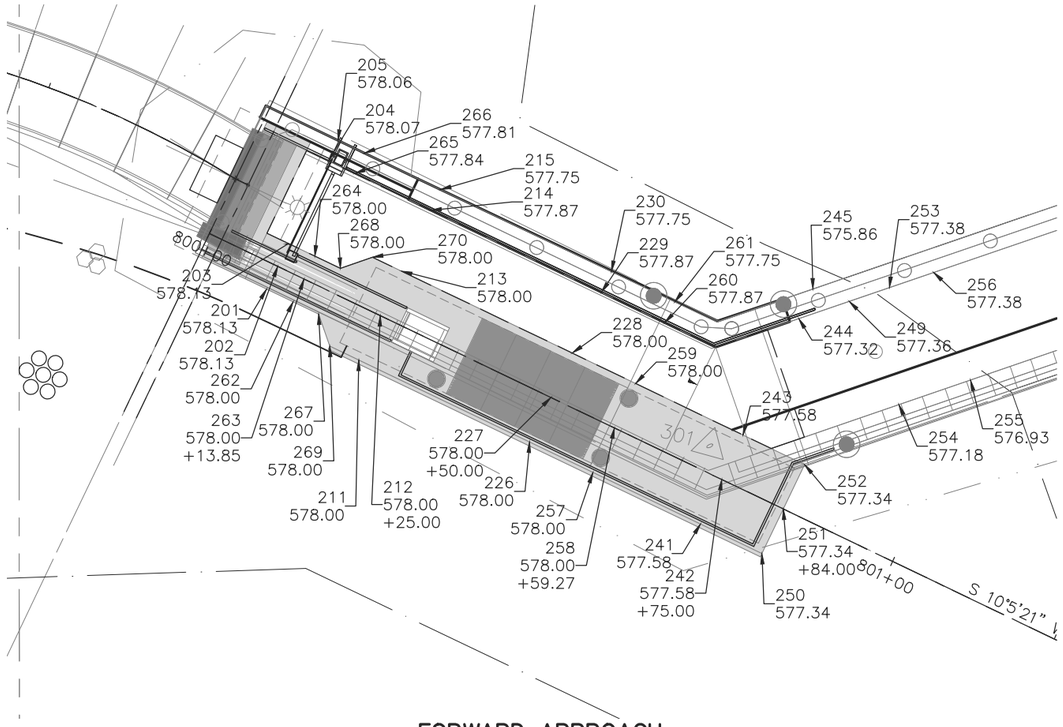
HORIZONTAL SCALE IN FEET: 0, 10, 20

CALCULATED SMS | CHECKED YRY

FINISHED GRADE ELEVATIONS
REAR APPROACH

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

23
165



FORWARD APPROACH

FINISHED GRADE ELEVATIONS - FINGER PIER							
POINT NO.	STATION	OFFSET (FT)	SIDE*	ELEV (FT)	NORTHING	EASTING	REMARKS
201	800+10.00	3.33	RT	578.13	72344.8535	88489.9292	EDGE OF ABUTMENT STEM
202	800+10.00	0.00	BL	578.13	72344.2695	88493.2112	BL OF CONSTR. FORWARD SUBST. / CL OF ABUTMENT STEM
203	800+10.00	3.33	LT	578.13	72343.6856	88496.4928	EDGE OF ABUTMENT STEM
204	800+10.00	15.42	LT	578.07	72341.5676	88508.3962	RT EDGE OF PROPOSED CAP
205	800+10.00	18.42	LT	578.06	72341.0413	88511.3541	LT EDGE OF PROPOSED CAP
262	800+13.85	3.33	RT	578.00	72341.0630	88489.2548	EDGE OF ABUTMENT STEM
263	800+13.85	0.00	BL	578.00	72340.4790	88492.5368	BL OF CONSTR. FORWARD SUBST. / CL OF ABUTMENT STEM
264	800+13.85	3.33	LT	578.00	72339.8951	88495.8183	EDGE OF ABUTMENT STEM
265	800+13.85	15.42	LT	577.84	72337.7779	88507.7174	RT EDGE OF PROPOSED CAP
266	800+13.85	18.42	LT	577.81	72337.2514	88510.6764	LT EDGE OF PROPOSED CAP
267	800+17.58	3.33	RT	578.00	72337.3874	88488.6007	EDGE OF ABUTMENT STEM
268	800+17.58	3.33	LT	578.00	72336.2195	88495.1643	EDGE OF ABUTMENT STEM
206	800+20.00	5.75	RT	578.00	72335.4315	88485.7981	EDGE OF ABUTMENT STEM
207	800+20.00	0.00	BL	578.00	72334.4241	88491.4594	BL OF CONSTR. FORWARD SUBST. / CL OF ABUTMENT STEM
208	800+20.00	5.75	LT	578.00	72333.4169	88497.1203	EDGE OF ABUTMENT STEM
209	800+20.00	15.42	LT	577.85	72331.7232	88506.6385	RT EDGE OF PROPOSED CAP
210	800+20.00	18.42	LT	577.81	72331.1973	88509.5944	LT EDGE OF PROPOSED CAP
269	800+20.75	6.50	RT	578.00	72334.8245	88484.9283	EDGE OF CHAMBER
270	800+20.75	6.50	LT	578.00	72332.5471	88497.7273	EDGE OF CHAMBER
211	800+25.00	6.50	RT	578.00	72330.6402	88484.1838	EDGE OF CHAMBER
212	800+25.00	0.00	BL	578.00	72329.5015	88490.5832	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
213	800+25.00	6.50	LT	578.00	72328.3628	88496.9827	EDGE OF CHAMBER
214	800+25.00	15.42	LT	577.77	72326.8013	88505.7584	RT EDGE OF PROPOSED CAP
215	800+25.00	18.42	LT	577.73	72326.2753	88508.7146	LT EDGE OF PROPOSED CAP
216	800+30.00	6.50	RT	578.00	72325.7175	88483.3078	EDGE OF CHAMBER
217	800+30.00	0.00	BL	578.00	72324.5788	88489.7073	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
218	800+30.00	6.50	LT	578.00	72323.4401	88496.1068	EDGE OF CHAMBER
219	800+30.00	15.42	LT	577.87	72321.8794	88504.8784	RT EDGE OF PROPOSED CAP
220	800+30.00	18.42	LT	577.75	72321.3533	88507.8347	LT EDGE OF PROPOSED CAP
221	800+40.00	6.50	RT	578.00	72315.8721	88481.5560	EDGE OF CHAMBER
222	800+40.00	0.00	BL	578.00	72314.7334	88487.9558	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
223	800+40.00	6.50	LT	578.00	72313.5948	88494.3550	EDGE OF CHAMBER
224	800+40.00	15.42	LT	577.87	72312.0365	88503.1123	RT EDGE OF PROPOSED CAP
225	800+40.00	18.42	LT	577.75	72311.5067	88506.0897	LT EDGE OF PROPOSED CAP

LEGEND

POINT # / ELEV — DETAILED GRADE POINT

NOTE: ADDITIONAL POINTS PROVIDED IN TABLES TO FURTHER DELINEATE GRADING AS NECESSARY.

FINISHED GRADE ELEVATIONS - FINGER PIER							
POINT NO.	STATION	OFFSET (FT)	SIDE*	ELEV (FT)	NORTHING	EASTING	REMARKS
226	800+50.00	6.50	RT	578.00	72306.0268	88479.8042	EDGE OF CHAMBER
227	800+50.00	0.00	BL	578.00	72304.8880	88486.2039	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
228	800+50.00	6.50	LT	578.00	72303.7473	88492.6148	EDGE OF CHAMBER
229	800+50.00	15.42	LT	577.87	72302.1923	88501.3544	RT EDGE OF PROPOSED CAP
230	800+50.00	18.42	LT	577.75	72301.6622	88504.3455	LT EDGE OF PROPOSED CAP
257	800+59.27	6.50	RT	578.00	72296.9001	88478.1802	EDGE OF CHAMBER
258	800+59.27	0.00	BL	578.00	72295.7614	88484.5797	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
259	800+59.27	6.50	LT	578.00	72294.6228	88490.9792	EDGE OF CHAMBER
260	800+59.27	15.42	LT	577.87	72293.0663	88499.7265	RT EDGE OF PROPOSED CAP
261	800+59.27	18.42	LT	577.75	72292.5323	88502.7274	LT EDGE OF PROPOSED CAP
231	800+60.00	6.50	RT	577.98	72296.1814	88478.0523	EDGE OF CHAMBER
232	800+60.00	0.00	BL	577.98	72295.0427	88484.4521	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
233	800+60.00	6.50	LT	577.98	72293.9040	88490.8513	EDGE OF CHAMBER
234	800+60.00	15.42	LT	577.85	72292.3477	88499.5980	RT EDGE OF PROPOSED CAP
235	800+60.00	18.42	LT	577.73	72291.8156	88502.6006	LT EDGE OF PROPOSED CAP
236	800+70.00	6.50	RT	577.71	72286.3361	88476.3005	EDGE OF CHAMBER
237	800+70.00	0.00	BL	577.71	72285.1973	88482.7003	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
238	800+70.00	6.50	LT	577.71	72284.0587	88489.0995	EDGE OF CHAMBER
239	800+70.00	18.62	LT	577.53	72281.9362	88501.0282	RT EDGE OF PROPOSED CAP
240	800+70.00	22.90	LT	577.24	72281.1853	88505.2479	LT EDGE OF PROPOSED CAP
241	800+75.00	6.50	RT	577.58	72281.4134	88475.4246	EDGE OF CHAMBER
242	800+75.00	0.00	BL	577.58	72280.2746	88481.8244	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
243	800+75.00	6.50	LT	577.58	72279.1360	88488.2235	EDGE OF CHAMBER
244	800+75.00	23.17	LT	577.32	72276.1518	88504.9949	RT EDGE OF PROPOSED CAP
245	800+75.00	27.88	LT	575.86	72275.3963	88509.2407	MATCH EXISTING
246	800+80.00	6.50	RT	577.45	72276.4907	88474.5487	EDGE OF CHAMBER
247	800+80.00	0.00	BL	577.45	72275.3520	88480.9481	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
248	800+80.00	6.50	LT	577.45	72274.2133	88487.3476	EDGE OF CHAMBER
249	800+80.00	28.45	LT	577.36	72270.3674	88508.9621	MATCH EXISTING
250	800+84.00	6.50	RT	577.34	72272.5526	88473.8477	EDGE OF CHAMBER
251	800+84.00	0.00	BL	577.34	72271.4138	88480.2477	BL OF CONSTR. FORWARD SUBSTR. / CL OF CHAMBER
252	800+84.00	6.50	LT	577.34	72270.2752	88486.6469	EDGE OF CHAMBER
253	800+84.00	32.39	LT	577.38	72265.7402	88512.1337	MATCH EXISTING
254	800+91.80	19.01	LT	577.18	72260.3999	88497.5972	TIE IN AT BENCH (HIGHER THAN EXIST.)
255	800+98.93	26.03	LT	576.93	72252.1541	88503.2547	MATCH EXISTING
256	800+88.41	36.72	LT	577.38	72260.6378	88515.6252	MATCH EXISTING

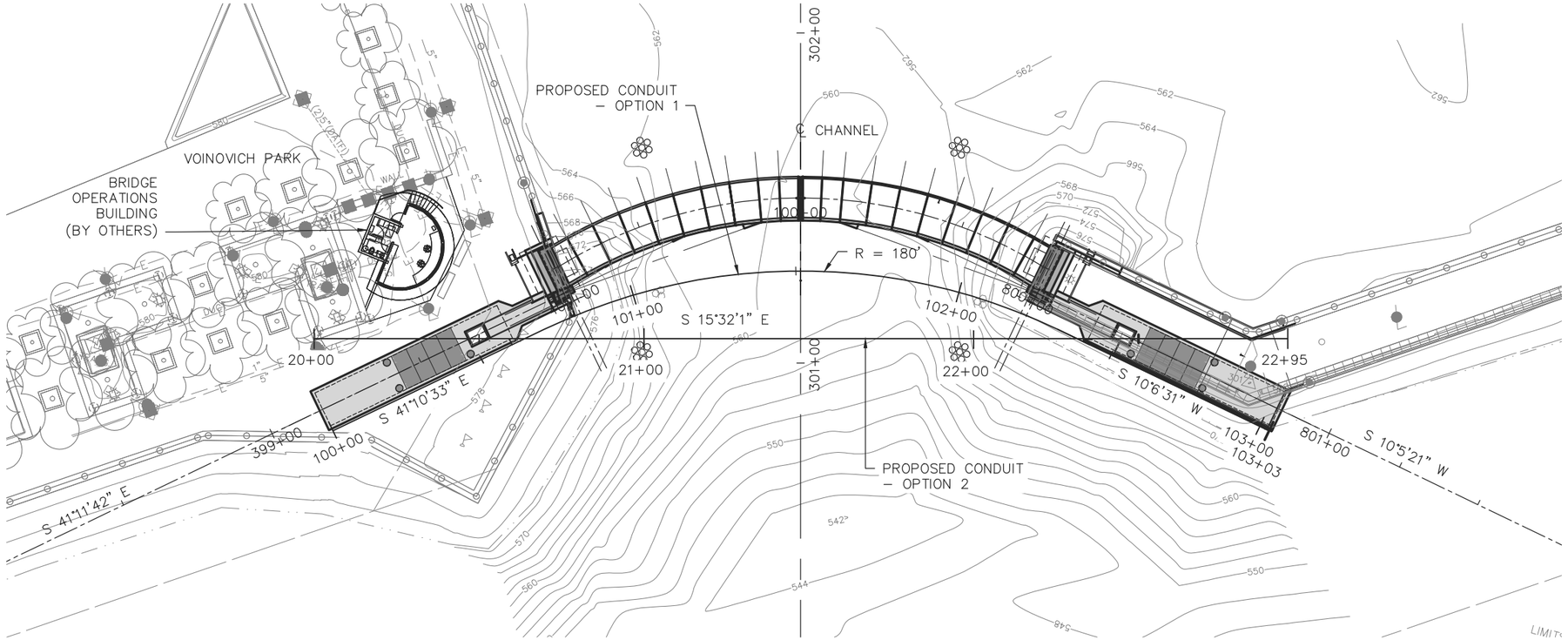
* BL = BASELINE OF CONSTRUCTION FORWARD SUBSTRUCTURE

HORIZONTAL SCALE IN FEET: 0, 10, 20

CALCULATED SMS CHECKED YRY

FINISHED GRADE ELEVATIONS FORWARD APPROACH

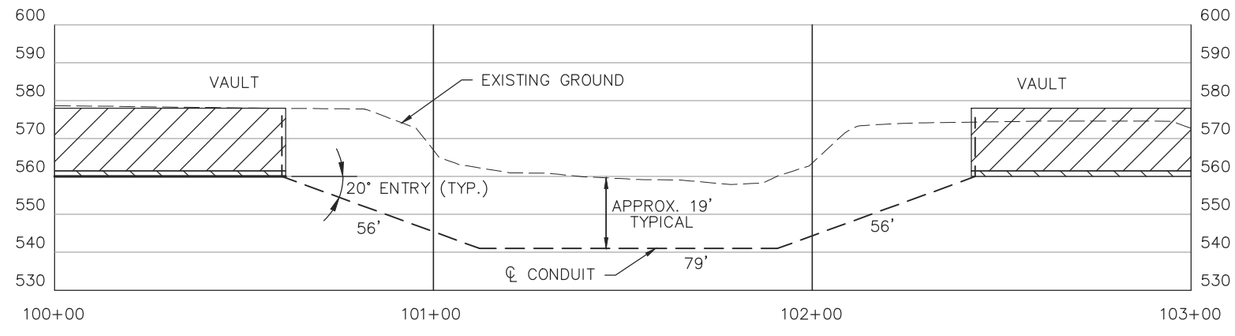
CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE



PLAN

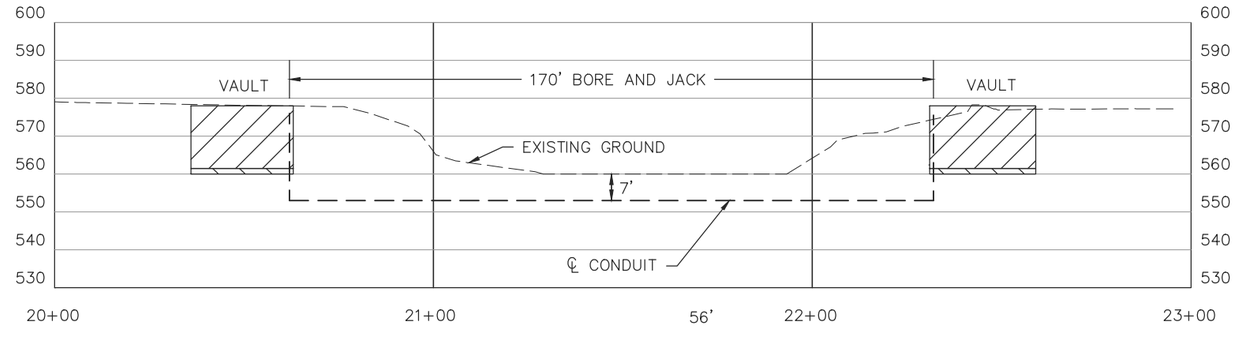
OPTION 1
DIRECTIONAL DRILLED
PROFILE

○ 1 – 10" NOMINAL SIZE I.D.CONDUIT



OPTION 2
JACK AND BORE
PROFILE

○ 1 – 10" NOMINAL SIZE I.D.CONDUIT



PROFILE

NOTES:
1. SEE GENERAL NOTES FOR ADDITIONAL DETAILS REGARDING CONSTRUCTION METHOD OPTIONS FOR TRENCHLESS SUBMERGED CONDUIT.
2. SEE SHEET S9 AND S12 FOR ENTRY DETAILS.

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED GJC
CHECKED SMS

SUBMERGED TRENCHLESS CONDUIT DETAILS
DIRECTIONAL DRILLING AND JACK AND BORE OPTIONS

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

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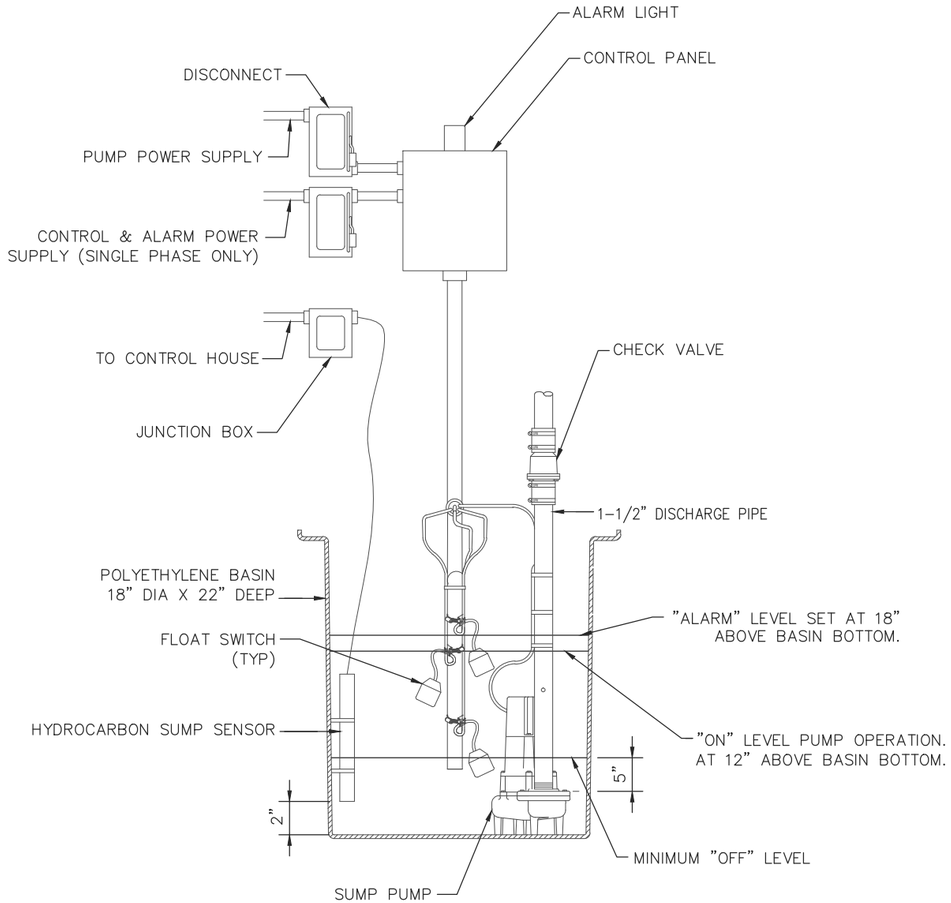
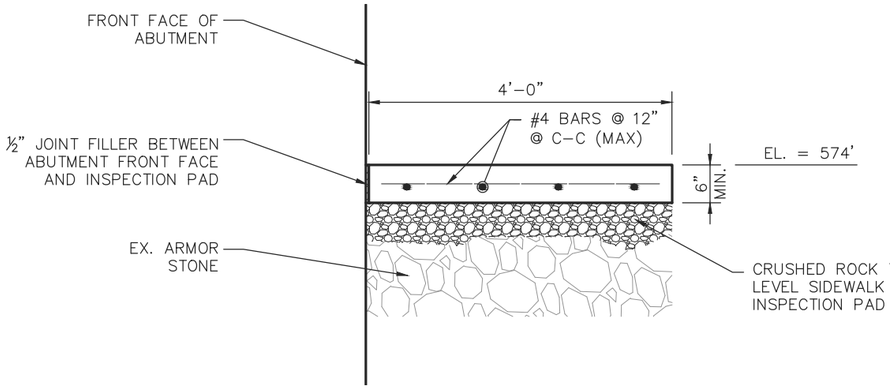


SUMP PUMP SYSTEM
(NOT TO SCALE)

NOTES:

1. SEE GENERAL NOTES FOR ADDITIONAL ITEM 611 – DRAINAGE STRUCTURE, MISC.: SUMP PUMP SYSTEM AND ASSEMBLY REQUIREMENTS.



SIDEWALK INSPECTION PAD
(NOT TO SCALE)

NOTES:

1. SIDEWALK INSPECTION PAD TO BE SAME LENGTH AS ABUTMENT WIDTH.
2. #4 BARS TO BE PLACED IN THE CENTER OF 6" (MIN.) THICK SIDEWALK.
3. SEE ADDITIONAL INFORMATION IN GENERAL NOTES FOR ITEM 608 – 6" CONCRETE WALK, AS PER PLAN.

CALCULATED CLG | CHECKED SMS

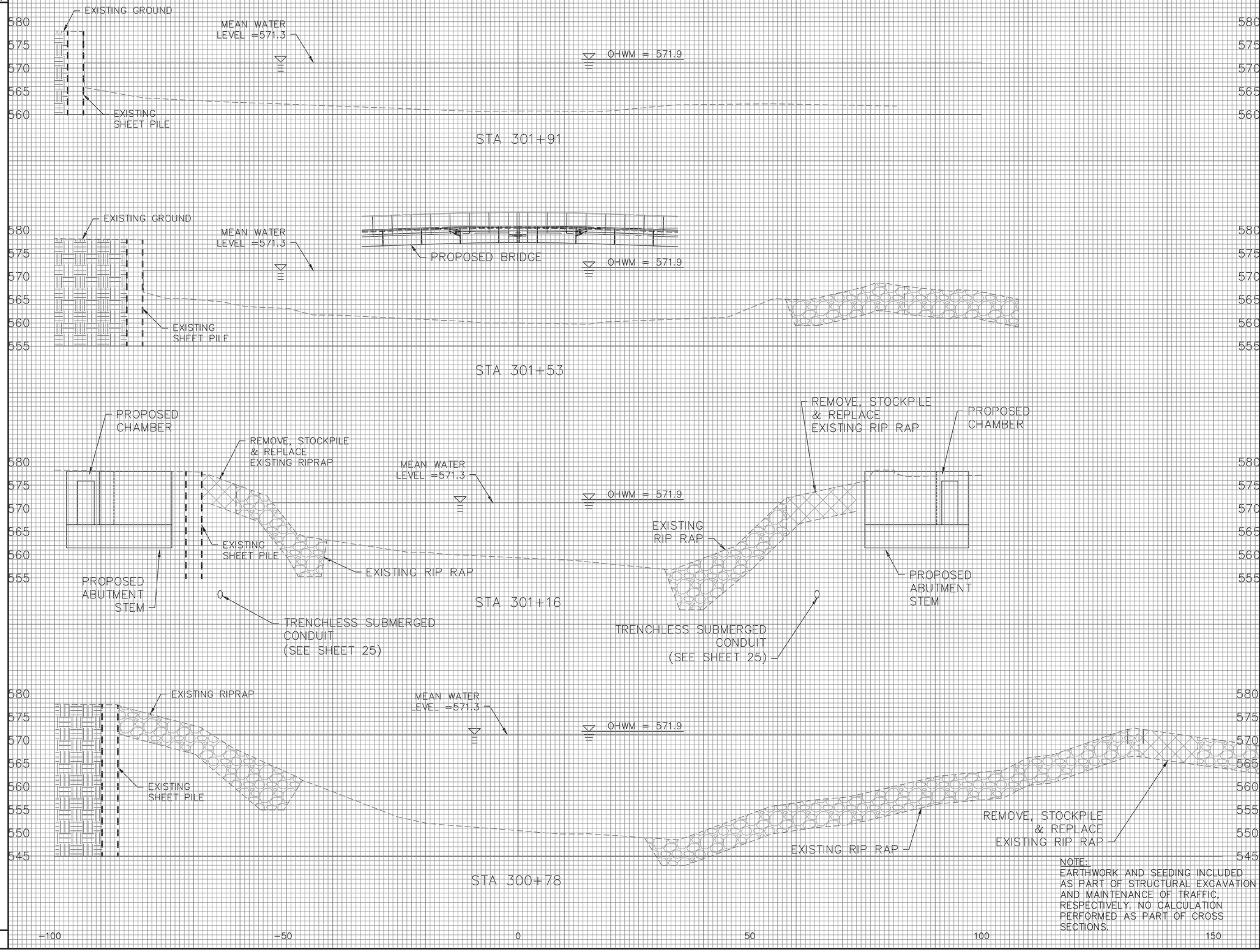
MISCELLANEOUS DETAILS
SUMP PUMP SYSTEM & SIDEWALK INSPECTION PAD

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

SEEDING	
END WIDTH	SQ. YDS.

END AREA		VOLUME	
CUT	FILL	CUT	FILL

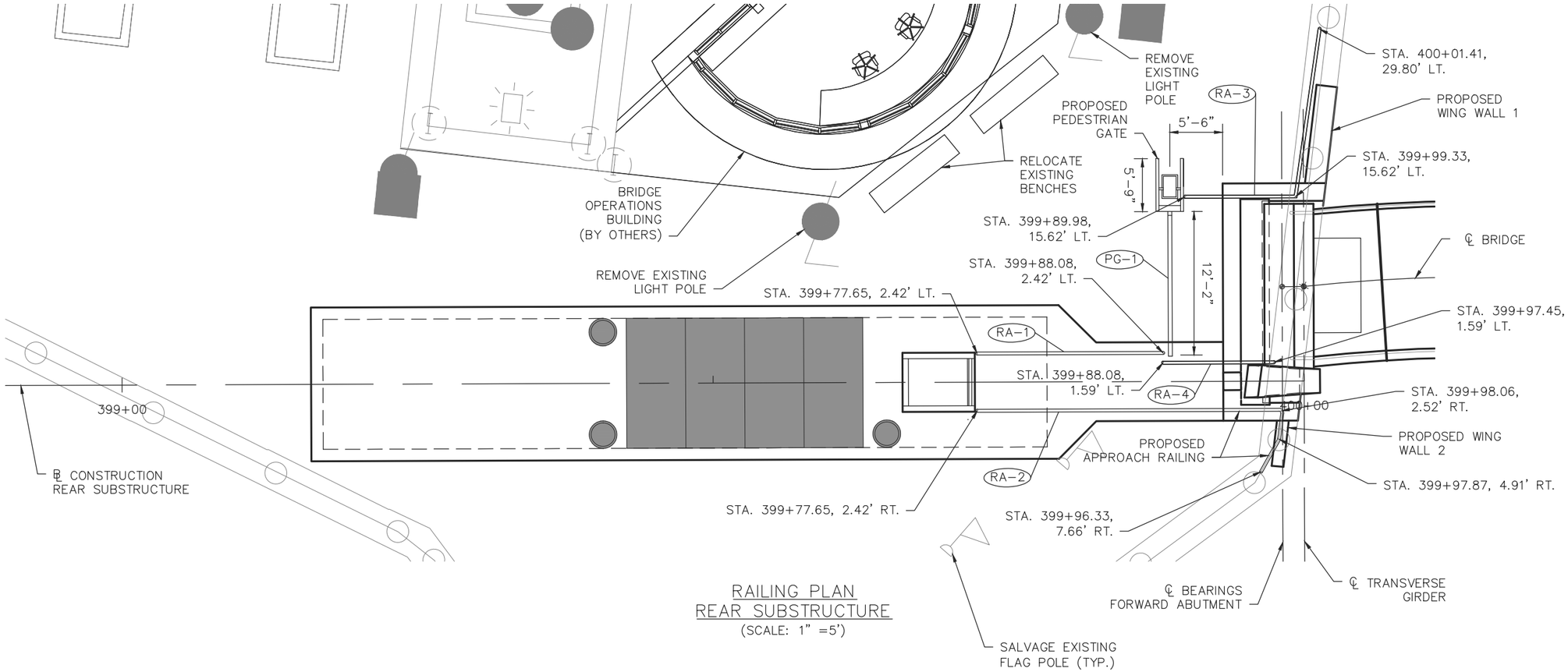
CALCULATED MRT
CHECKED WJC



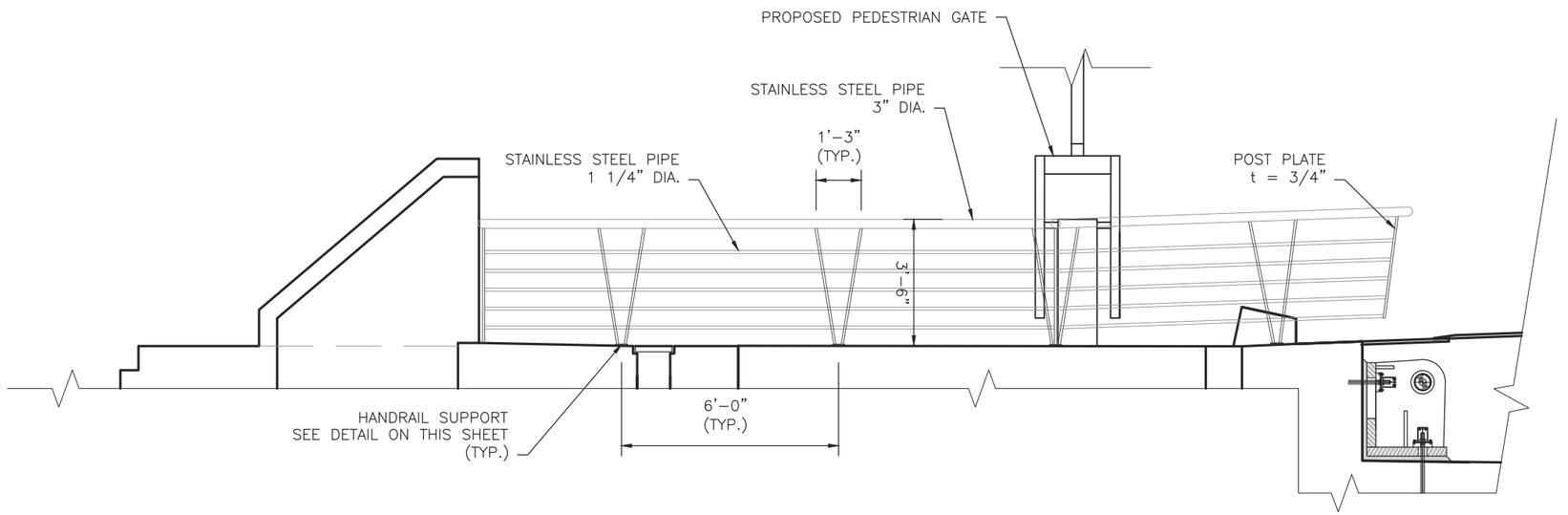
NOTE:
EARTHWORK AND SEEDING INCLUDED AS PART OF STRUCTURAL EXCAVATION AND MAINTENANCE OF TRAFFIC, RESPECTIVELY. NO CALCULATION PERFORMED AS PART OF CROSS SECTIONS.

CHANNEL SECTIONS – STA 300+78 TO STA 301+91

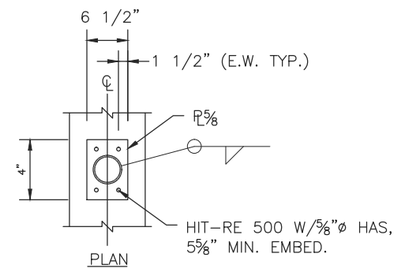
CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE



RAILING PLAN
REAR SUBSTRUCTURE
(SCALE: 1" =5')



RAILING ELEVATION
REAR SUBSTRUCTURE
(NOT TO SCALE)



DETAIL – HANDRAIL SUPPORT
(NOT TO SCALE)

NOTES:

1. SEE THE NEXT SHEET FOR PEDESTRIAN GATE FOUNDATION DETAIL.
2. SEE SHEET S30 FOR ADDITIONAL RAILING DETAILS.
3. STATIONS AND OFFSETS ARE SHOWN TO CENTER OF RAILING.

HORIZONTAL SCALE IN FEET
0 5 10

CALCULATED CLG
CHECKED SMS

APPROACH RAILING DETAILS
VOINOVICH PARK SIDE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

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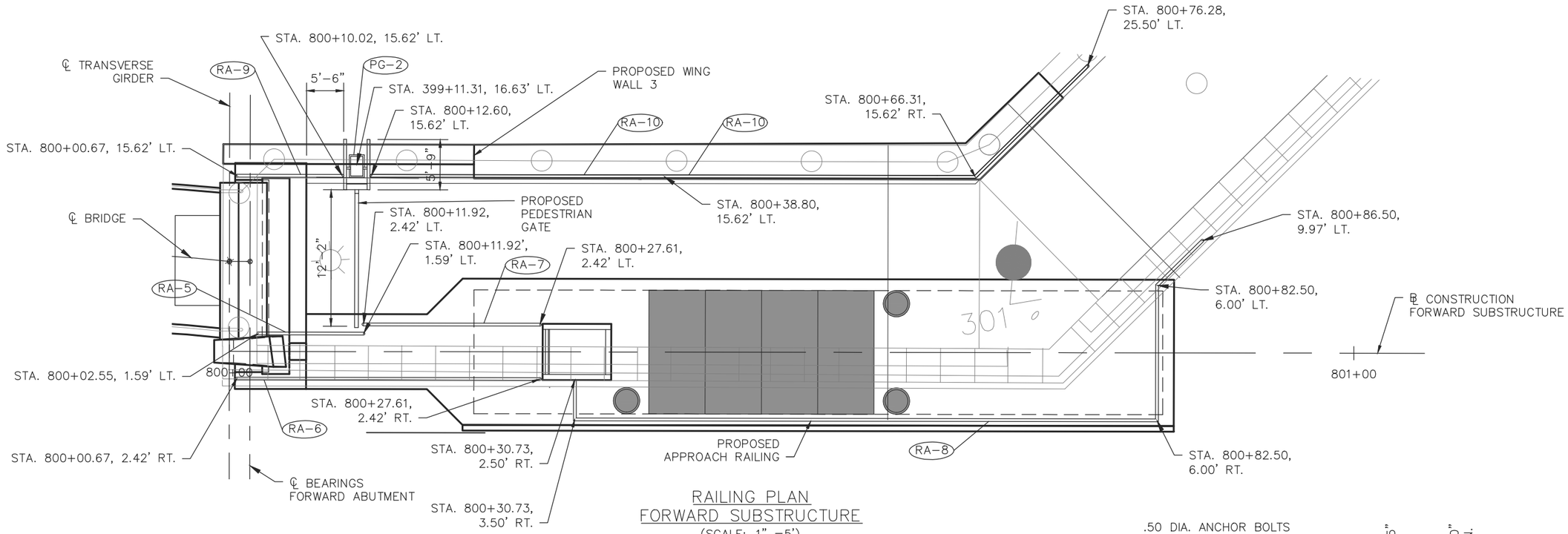
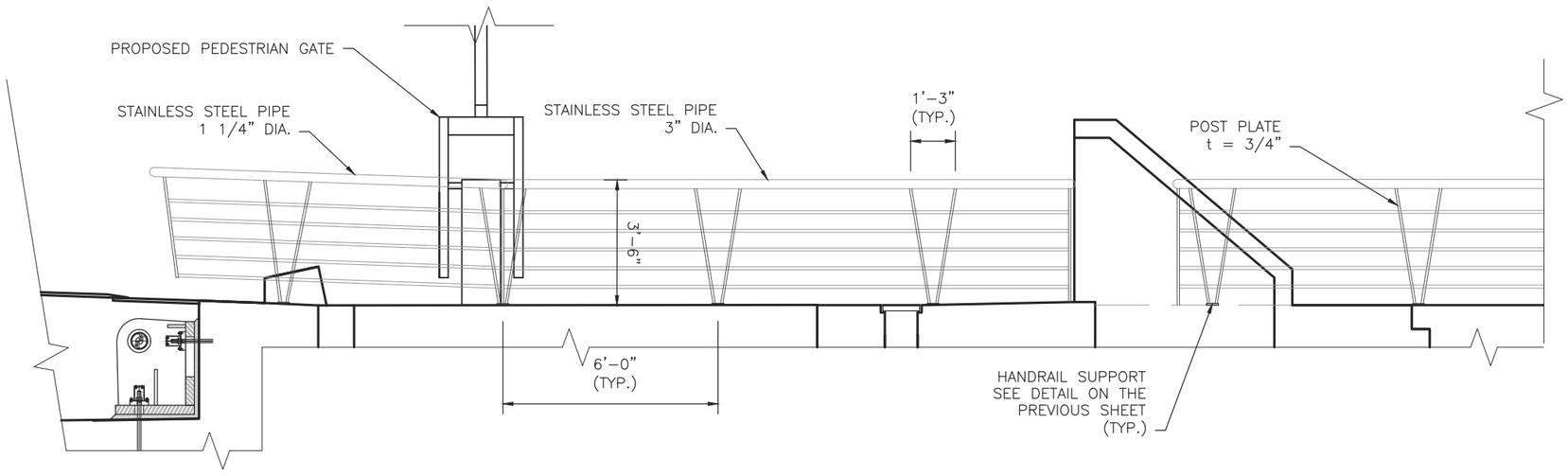
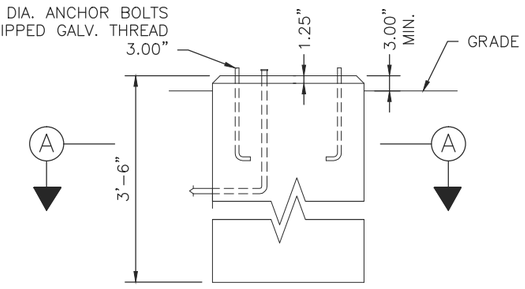


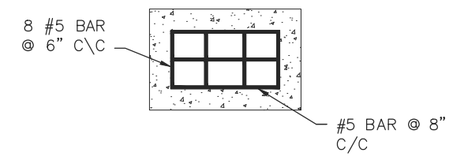
RAILING PLAN
FORWARD SUBSTRUCTURE
(SCALE: 1" =5')



RAILING ELEVATION
FORWARD SUBSTRUCTURE
(NOT TO SCALE)



PEDESTRIAN GATE FOUNDATION
(NOT TO SCALE)



SECTION A–A
(NOT TO SCALE)

NOTES:

1. SEE PREVIOUS SHEET FOR RAILING HANDRAIL SUPPORT DETAIL.
2. SEE SHEET S30 FOR ADDITIONAL RAILING DETAILS.
3. STATIONS AND OFFSETS ARE SHOWN TO CENTER OF RAILING.

HORIZONTAL SCALE IN FEET
0 5 10

CALCULATED CLG
CHECKED SMS

APPROACH RAILING DETAILS
FINGER PIER SIDE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

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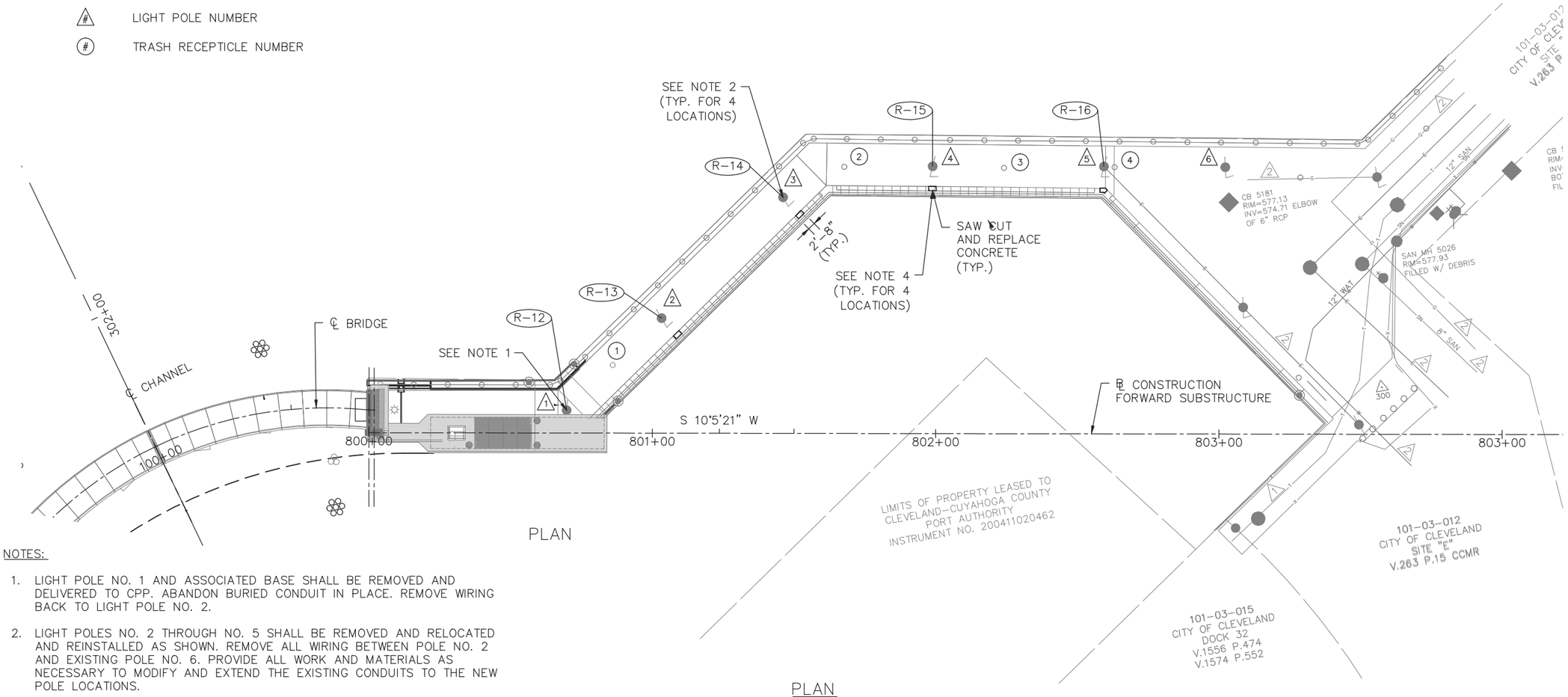
LEGEND

(#) LIGHT POLE NUMBER

(#) TRASH RECEPTICLE NUMBER

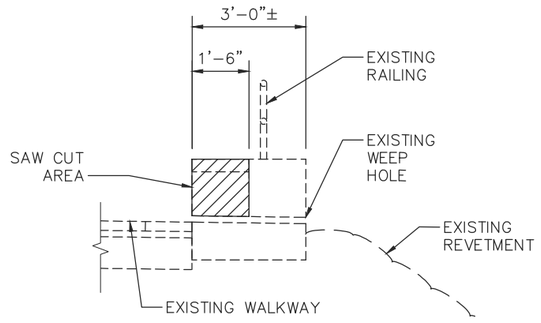


PLAN

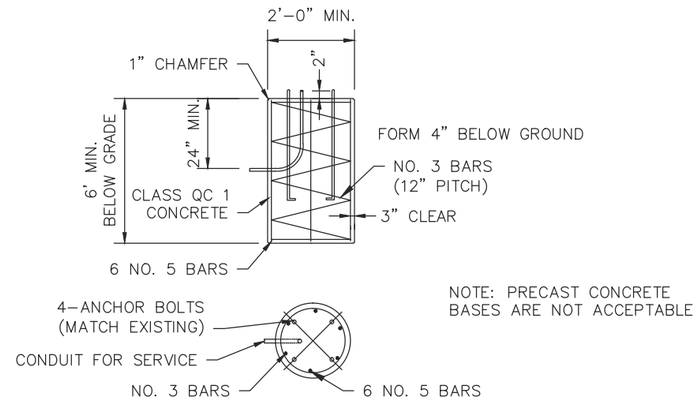
NOTES:

1. LIGHT POLE NO. 1 AND ASSOCIATED BASE SHALL BE REMOVED AND DELIVERED TO CPP. ABANDON BURIED CONDUIT IN PLACE. REMOVE WIRING BACK TO LIGHT POLE NO. 2.
2. LIGHT POLES NO. 2 THROUGH NO. 5 SHALL BE REMOVED AND RELOCATED AND REINSTALLED AS SHOWN. REMOVE ALL WIRING BETWEEN POLE NO. 2 AND EXISTING POLE NO. 6. PROVIDE ALL WORK AND MATERIALS AS NECESSARY TO MODIFY AND EXTEND THE EXISTING CONDUITS TO THE NEW POLE LOCATIONS.
3. THE CONTRACTOR SHALL SAW CUT THE EXISTING CONCRETE BENCH AT EACH LOCATION PERPENDICULAR TO THE LIGHT POLES. THE CUTOUT SPACE SHALL BE 2'-8" IN WIDTH TO ACCOMMODATE EACH LIGHT POLE.
4. THE LIGHT POLES WITH NEW FIXTURES SHALL BE RE-ERECTED ON NEW FOUNDATIONS AS SHOWN IN THE PLANS AND THE FOUNDATIONS SHALL BE SLOPED TO DRAIN. PROVIDE NEW WIRING BETWEEN POLE NO. 2 AND EXISTING POLE NO. 6. CONNECT TO EXISTING WIRING.
5. THE EXPOSED SURFACES OF THE BENCHES THAT WERE SAW CUT SHALL BE FINISHED WITH WATERPROOFING MATERIALS SUCH AS AQUAFIN MORTOR OR PERMA-MORTAR OR EQUIVALENT TO MATCH THE EXISTING CONCRETE.
6. SLATS FROM THE BENCHES THAT WERE SAW CUT SHALL BE REUSED AND CUT TO FIT. SHIMS SHALL BE PROVIDED FOR SUPPORT TO MATCH THE EXISTING BENCHES.
7. TRASH RECEPTACLES (1,2,3,4) ON THE FINGER PIER SHALL BE RELOCATED TO THE AREA BEFORE THE FINGER PIER AS DIRECTED BY THE DOWNTOWN CLEVELAND ALLIANCE. POLE MOUNTED TRASH RECEPTACLES SHALL BE PROVIDED ON THE FOUR RE-ERECTED LIGHT POLES.
8. NEW FIXTURES WILL BE PROVIDED FOR EACH LIGHT POLE THAT IS RE-ERECTED. AS DIRECTED BY THE CITY OF CLEVELAND AND THE DOWNTOWN CLEVELAND ALLIANCE, THE FIXTURES SHALL BE GE EVOLVE LED AVERY STREETDREAMS (EPAS) OR EQUIVALENT. POD "A" WITH A COLONY TOP WITH A "SPIKE" FINIAL AND MEDALIAN CROWN AND RIBS SHALL BE USED. THE COLOR SHALL BE BLACK. THE CONTRACTOR SHALL VERIFY THAT THIS FIXTURE IS COMPATIBLE WITH THE EXISTING LIGHT POLES.
9. ALL ITEMS LISTED ABOVE SHALL BE INCLUDED IN THE UNIT PRICE BID OF ITEM 625, REMOVE AND RE-ERECT LIGHT POLE.

PLAN



SAWCUT SECTION



NOTE: PRECAST CONCRETE BASES ARE NOT ACCEPTABLE

FOUNDATION DETAIL

HORIZONTAL SCALE IN FEET 0 20 40

CALCULATED CLG CHECKED SMS

LIGHTING PLAN AND DETAILS
FINGER PIER

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

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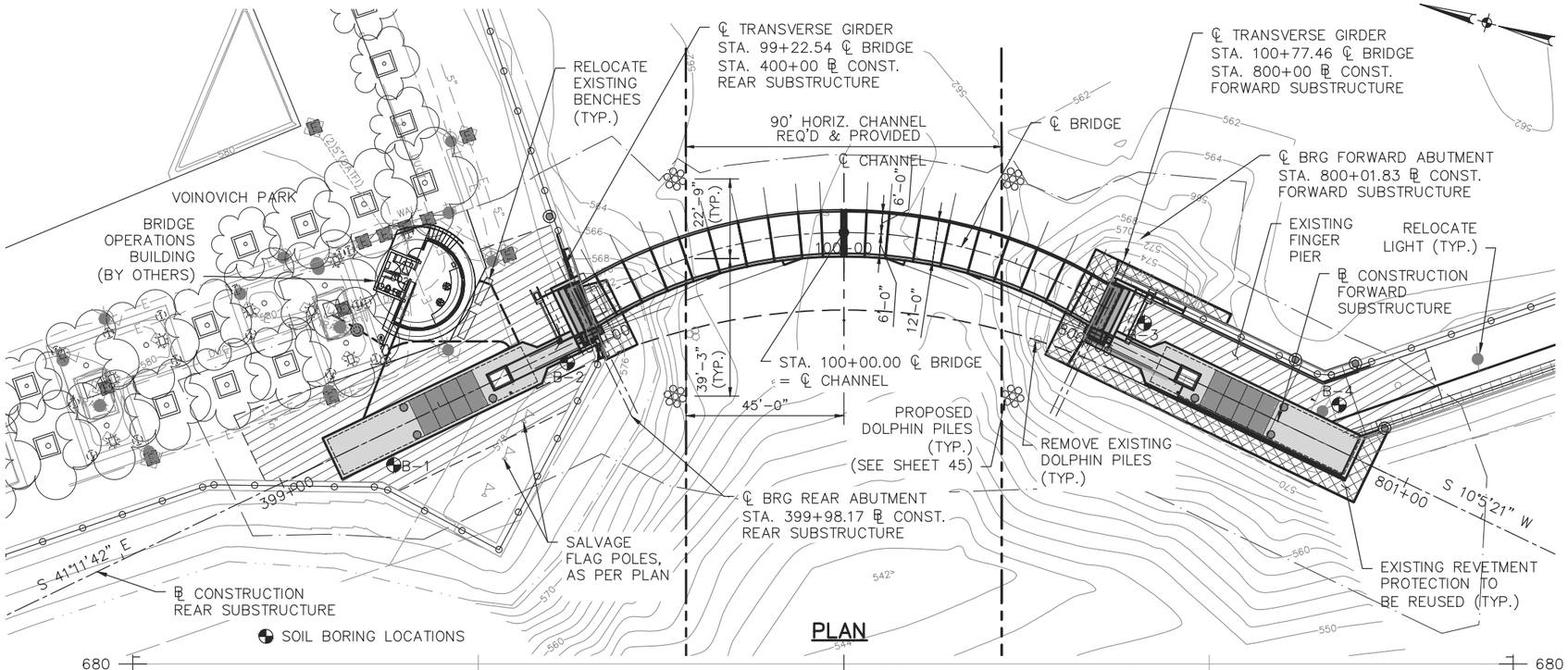
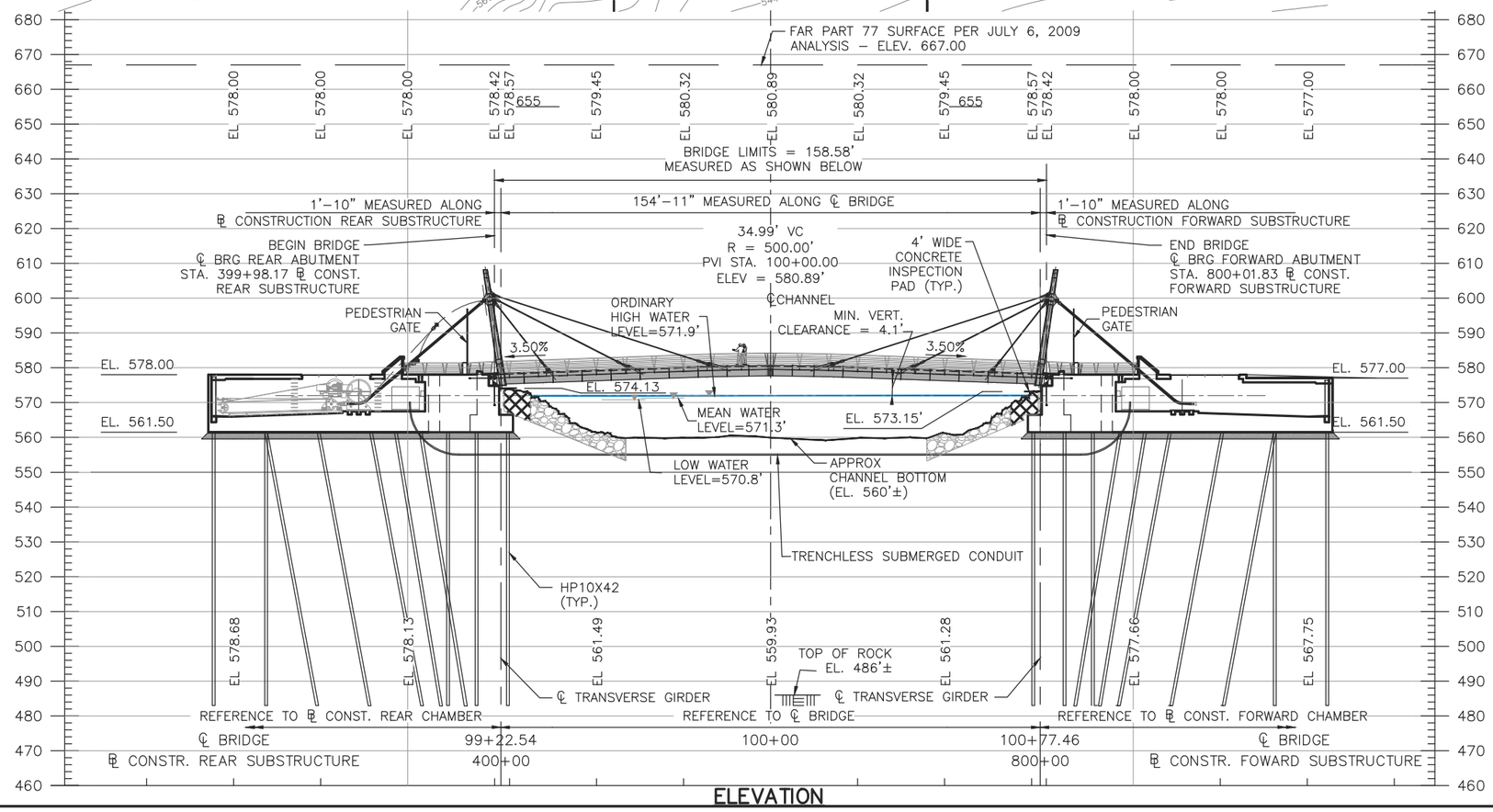




TEMPORARY BENCH MARK

BENCH MARK A:
MAG NAIL SET IN THE NORTH FACE OF ROUND COLUMN SUPPORTING THE GREAT LAKES SCIENCE CENTER.
ELEV = 581.85

BENCH MARK B:
MAG NAIL SET ON THE TOP SW CORNER OF RETAINING WALL AROUND TRANSFORMER.
ELEV = 580.245

CURVE DATA
℄ BRIDGE
P.I. STA. 100+09.01
Δ = 63°24'04" (RT)
Dc = 40°55'32"
R = 140.00'
T = 86.47'
L = 154.92'
E = 24.55'
C =147.13'
T.B. = S 47°15'12" E
C.B. = S 15°33'10" E
T.B. = S 16°08'52" W

EARTHWORK
EARTHWORK LIMITS SHOWN ARE APPROXIMATE. ACTUAL SLOPES SHALL CONFORM TO PLAN CROSS SECTIONS.

NOTE:

1. SEE STRUCTURE LAYOUT PLAN FOR LAYOUT DIMENSIONS

PROPOSED STRUCTURE

TYPE: DOUBLE LEAF CABLE STAY BASCULE BRIDGE WITH CURVED STEEL BOX GIRDER ON REINFORCED CONCRETE SUBSTRUCTURES ON H-PILES
SPANS: 154'-11" C/C TRANSVERSE GIRDER ALONG ℄ BRIDGE
ROADWAY: 12'-0" FACE TO FACE RAILINGS
SKEW: 6°00'00" ℞ CONSTRUCTION TO ℄ BRIDGE TANGENT
CROWN: 1.5% CROSS SLOPE TO EAST
LOADING: PEDESTRIAN AND H15 MAINTENANCE TRUCK
ALIGNMENT: CURVED, R=140'-0"
WEARING SURFACE: REINF. CONCRETE W/SHEAR STUDS & COATING
LATITUDE: 41°-30'-34" N
LONGITUDE: 81°-41'-50" W

20 0 20 40
SCALE IN FEET

DESIGN AGENCY
cpm smith
1468 W. 9TH STREET SUITE 750
CLEVELAND, OHIO 44113

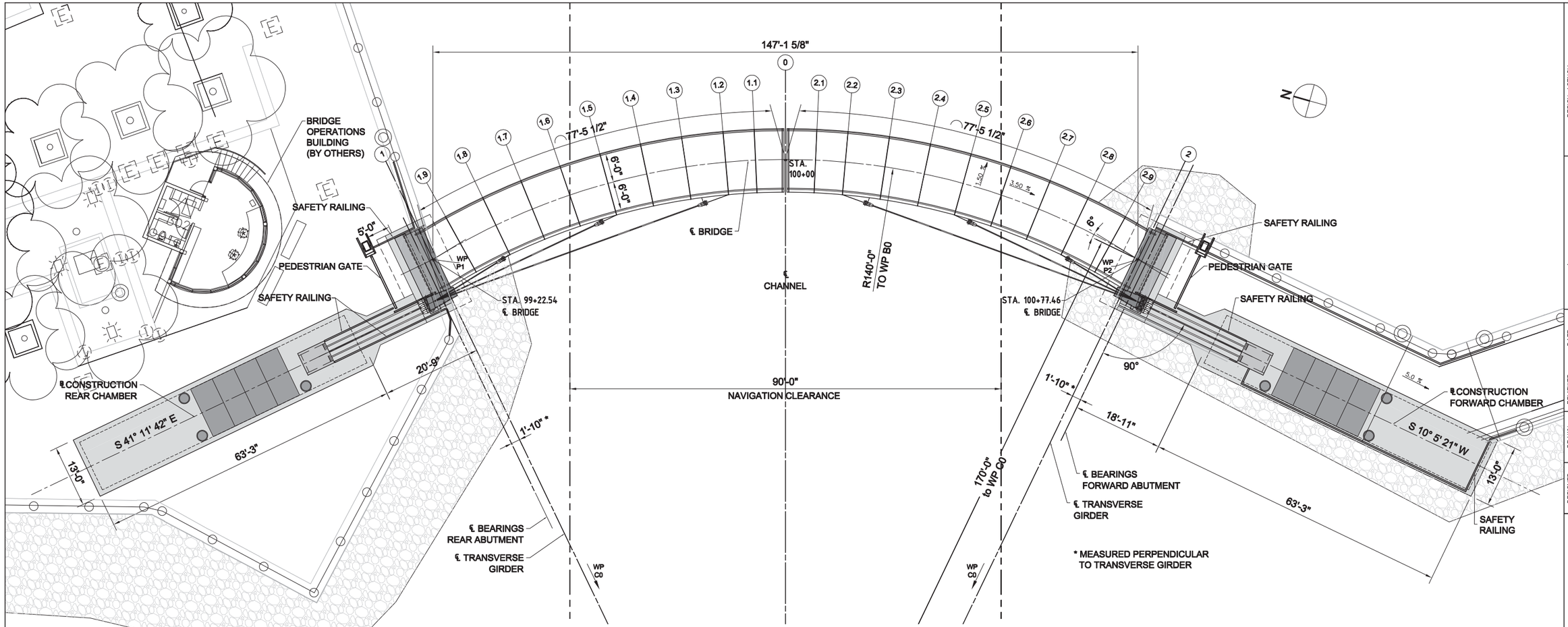
DESIGNED YRY | DRAWN SMS | CHECKED WJC | REVIEWED FGB | DATE 04/11/14 | STRUCTURE FILE NUMBER | REVISED

SITE PLAN

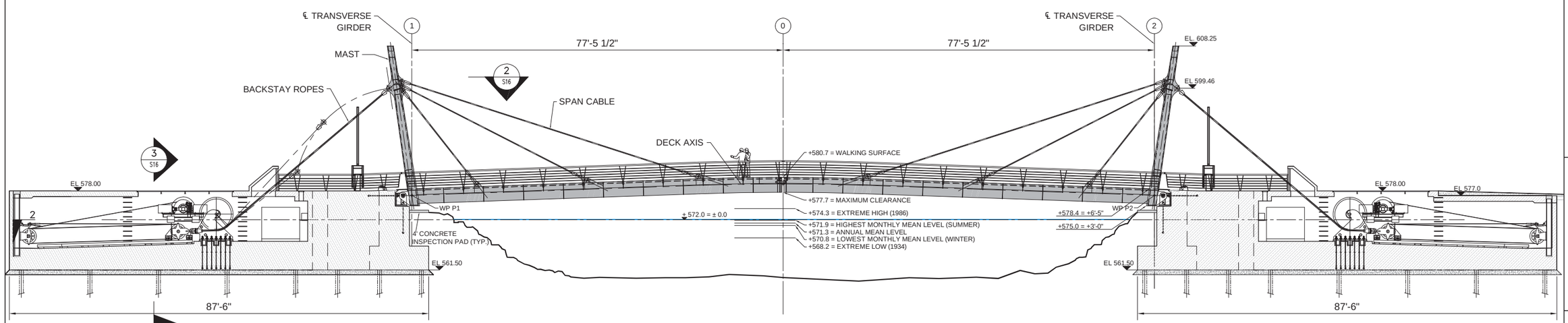
CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

S1 / S-

31
165



1 S2 PLAN VIEW
SCALE: 3/32"=1'0"



2 S2 DEVELOPED ELEVATION
SCALE: 3/32"=1'0"

DESIGN AGENCY
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1468 W. 9TH STREET SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann and partner lp
Structural Consulting Engineers
Los Angeles, California 9402
New York, NY 10038

DESIGNED	DRAWN	REVIEWED	DATE
NDR	SSCHO	SDG	08/22/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MSt	3		

GENERAL PLAN VIEW AND ELEVATION
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S2 / S35

REFERENCE SHALL BE MADE TO THE FOLLOWING STANDARD DRAWINGS:

A–1–69 REVISED 7–19–02

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO "LRFD BRIDGE DESIGN SPECIFICATIONS, 5TH EDITION, WITH 2010 INTERIM REVISIONS" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND 2007 ODOT BRIDGE DESIGN MANUAL, UPDATED 1–17–2014, EXCEPT WHEN MODIFIED BY THE PLANS, SPECIAL PROVISIONS, SUPPLEMENTAL SPECIFICATIONS OR PROPOSAL NOTES.

DESIGN LOADING: HS15–44 LOADING.

DESIGN STRESSES:
CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING
COMPRESSIVE STRENGTH 4000 P.S.I.

CLASS QC1 CONCRETE WITH QC/QA, SUBSTRUCTURE
COMPRESSIVE STRENGTH 4000 P.S.I.

CONCRETE, MISC.: MUD SLAB, CONCRETE TOPPING AND CONCRETE FILL
COMPRESSIVE STRENGTH 3000 P.S.I.

REINFORCING STEEL ASTM A615 GRADE 60 MINIMUM YIELD STRENGTH 60,000 P.S.I.

EXISTING STRUCTURE VERIFICATION

DETAILS AND DIMENSIONS SHOWN ON THESE PLANS PERTAINING TO THE EXISTING STRUCTURE HAVE BEEN OBTAINED FROM PLANS OF THE EXISTING STRUCTURE AND FROM FIELD OBSERVATIONS AND MEASUREMENTS. ALL EXISTING PLANS ARE AVAILABLE TO THE CONTRACTOR VIA ODOT FTP. CONSEQUENTLY, THEY ARE INDICATIVE OF THE EXISTING STRUCTURE AND THE PROPOSED WORK BUT THEY SHALL BE CONSIDERED TENTATIVE AND APPROXIMATE. THE CONTRACTOR IS REFERRED TO CMS SECTIONS 102.05, 105.02 AND 513.04.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, AS PER PLAN

ALL REMOVAL OF EXISTING WALLS AND EXISTING SHEET PILING IS TO BE PERFORMED IN ACCORDANCE WITH ODOT CMS 202 EXCEPT THAT THE WORK WILL NOT BE MEASURED FOR PAYMENT BUT PAID FOR ON A LUMP SUM BASIS. THIS WORK INCLUDES ALL REMOVAL AND DISPOSITION AND PROTECTION OF THE PORTIONS OF THE STRUCTURE THAT ARE INTENDED TO REMAIN.

ITEM 503, UNCLASSIFIED EXCAVATION, AS PER PLAN

THE BACKFILL MATERIAL BEHIND THE ABUTMENTS AND CHAMBERS SHALL BE TYPE B GRANULAR MATERIAL, 703.16.C, PLACED AND COMPACTED IN 6 INCH LIFTS.

ITEM 503, COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN

EXISTING SHEET PILING AND RETAINING WALLS EXIST ON SITE AND MUST BE PROTECTED WHEN NOT IDENTIFIED FOR REMOVAL IN THE PLANS. EXISTING SHEET PILING AND RETAINING WALLS MAY BE USED AS PART OF TEMPORARY SHORING FOR CONSTRUCTION AT THE CONTRACTOR'S CHOICE. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING DESIGN AND PLAN STAMPED BY A PROFESSIONAL ENGINEER, WHICH SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION. THE CONTRACTOR SHALL CONSIDER USING SHEET PILING LEFT IN PLACE, SACRIFICIAL BRACING, SOLDIER PILES AND LAGGING. IF OBSTRUCTIONS ARE IDENTIFIED THAT PROHIBIT THE APPROVED PLAN, THE CONTRACTOR MAY EITHER PROPOSE A REVISED PLAN, OR PRE–EXCAVATE TO REMOVE OBSTRUCTIONS.

ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO MEET THE ABOVE REQUIREMENTS SHALL BE IN ACCORDANCE WITH CMS 503, 504, AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS. PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE BID FOR ITEM 503 COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN.

ITEM 507, STEEL PILES HP10X42, DRIVEN, AS PER PLAN

THE GEOTECHNICAL REPORT FOR THIS PROJECT HAS INDICATED THAT NATURAL GAS POCKETS ARE PRESENT IN THE IMMEDIATE AREA. THE CONTRACTOR'S PILE INSTALLATION PLAN SHALL INCLUDE PRECAUTIONS NECESSARY FOR PILE DRIVING IN THESE CONDITIONS. DURING PILE DRIVING ACTIVITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MONITORING FOR THE PRESENCE OF NATURAL GAS USING A COMBUSTIBLE GAS METER (CGI). SHOULD NATURAL GAS BE ENCOUNTERED AND COMBUSTIBLE GASES ESCAPE TO THE SURFACE ALONG THE PILE SIDES, ALL PILE DRIVING ACTIVITIES SHALL BE HALTED UNTIL THE GAS DISSIPATES AND CONDITIONS ARE DETERMINED TO BE SAFE TO CONTINUE.

THE GEOTECHNICAL REPORT DATED OCT. 1, 2012 AND SUPPLEMENTAL ENGINEERING DISCUSSION LETTER DATED NOV. 5, 2012 SHALL BE MADE AVAILABLE TO THE CONTRACTOR. IN ADDITION TO THE ABOVE GEOTECHNICAL DOCUMENTS, THE GEOTECHNICAL TEAM HAS THE FOLLOWING OBSERVATIONS:

1. SOIL BORINGS ON THE FINGER PIER (B–3 AND B–4) ENCOUNTERED MISCELLANEOUS MATERIAL AND DEBRIS DOWN TO APPROXIMATELY 27 TO 33 FEET BELOW THE PIER SURFACE BRICKS. THE COMPOSITION OF THE DEBRIS VARIED SIGNIFICANTLY IN BOTH TYPE OF MATERIAL AND SIZE. VARIOUS TYPES OF MATERIALS AND OBSTRUCTIONS ARE POSSIBLE TO BE ENCOUNTERED IN THIS AREA, SOME OF WHICH THE CONTRACTOR IS UNLIKELY TO BE ABLE TO DRIVE PILES THROUGH.

2. SOIL BORINGS ON THE VOINOVICH PARK SIDE (B–1 AND B–2) ENCOUNTERED FILL SOILS TO APPROXIMATELY 27 TO 32 FEET, BUT DID NOT APPEAR TO ENCOUNTER THE LARGER SIZE DEBRIS ENCOUNTERED AT THE FINGER PIER THAT WOULD BE MORE POTENTIALLY DIFFICULT TO DRIVE PILES THROUGH. HOWEVER, ANY PILE DRIVING CLOSER TO AND/OR WITHIN THE SURROUNDING RIP–RAP SLOPES MAY ENCOUNTER LARGER DEBRIS NOT ENCOUNTERED WITHIN THE SOIL BORINGS.

3. IF DIFFICULTY ARISES DURING PILE DRIVING AT EITHER ABUTMENT DUE TO THE EXISTING DEBRIS NOTED IN OUR REPORT, CDM SMITH HAS SUGGESTED THE USE OF TEST HOLES OR PREBORED HOLES TO LOCATE ALTERNATIVE LOCATIONS FOR PILES TO BE DRIVEN, FOLLOWING APPROVAL FROM THE PROJECT ENGINEER.

4. AS THE CITY OF CLEVELAND DOES NOT WISH TO PRE–EXCAVATE THE AREAS PLANNED FOR PILE DRIVING, PREBORING MAY BE CONSIDERED A FEASIBLE ALTERNATIVE TO FINDING LOCATIONS DEVOID OF DEBRIS THAT WOULD BE DETRIMENTAL TO PILE DRIVING. PREBORED HOLES WOULD BE POSSIBLE TO BE DRILLED BY A CAISSON RIG WITH A CORE BARREL, WITH THE HOLES BACKFILLED WITH SAND. THE PILES MAY THEN BE DRIVEN THROUGH THE SAND.

5. IT SHOULD BE UNDERSTOOD THAT IT IS POSSIBLE THAT THE CONTRACTOR MAY ENCOUNTER SIZEABLE DEBRIS THAT MAY REQUIRE SHIFTING THE LOCATION OF PILES BY MORE THAN ONE FOOT IN ANY DIRECTION. THIS MAY OR MAY NOT CAUSE CONCERN AS TO THE SUPPORT OF THE STRUCTURE, WHICH SHALL BE DETERMINED BY THE PROJECT ENGINEER.

6. ANY PILES DRIVEN THROUGH PREBORED HOLES SHOULD BE BACKFILLED AND/OR STABILIZED FROM THE PREBORE DEPTH UP TO THE BASE OF THE FOOTING SO AS TO NOT DETRIMENTALLY AFFECT THE LATERAL SUPPORT OF THE PILES. THE SAND PREVIOUSLY MENTIONED MAY NEED TO BE SUPPLEMENTED BY OTHER MATERIALS AFTER THE PILE HAS BEEN INSTALLED.

ITEM 507, PILING, MISC.: TIMBER DOLPHIN STRUCTURE

TIMBER DOLPHIN STRUCTURES SHALL BE INSTALLED AS PER DETAILS AND NOTES SPECIFIED IN THE PLANS.

TIMBER PILES SHALL BE DRIVEN TO A DEPTH OF NOT LESS THAN 10' INTO THE LAKE BED.

ITEM 511 CLASS QC1 CONCRETE WITH QC/QA, SUBSTRUCTURE, AS PER PLAN

THIS ITEM OF WORK INCLUDES THE BACKSTAY VAULTS (CONCRETE CHAMBERS), THE CONCRETE VAULT TUNNELS, THE ACCESS FRAMES AND COVERS, STEPS, AND ALL OTHER APPURTENANCES SHOWN IN THE PLANS.

ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO MEET THE ABOVE REQUIREMENTS SHALL BE IN ACCORDANCE WITH CMS 511 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS. PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 511, CLASS QC1 CONCRETE WITH QC/QA, SUBSTRUCTURE, AS PER PLAN; UNLESS OTHERWISE ITEMIZED IN THE PLAN.

ITEM 511 CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN.

THIS ITEM OF WORK INCLUDES THE BRIDGE DECK SURFACE.

ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO MEET THE ABOVE REQUIREMENTS SHALL BE IN ACCORDANCE WITH CMS 511 AND OTHER APPLICABLE PORTIONS OF THE SPECIFICATIONS. PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE PRICE BID FOR ITEM 511, CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN, 3–1/8" TREATED WEARING SURFACE; UNLESS OTHERWISE ITEMIZED IN THE PLAN.

ITEM 512, SEALING OF CONCRETE SURFACES (EPOXY–URETHANE), AS PER PLAN

THE COLOR OF THE EPOXY–URETHANE SEALER SHALL BE FEDERAL STANDARD COLOR NO. 595 37875 INSIGNIA WHITE MATT. CONTRACTOR SHALL OBTAIN APPROVAL OF COLOR FROM THE ENGINEER PRIOR TO PURCHASE OF MATERIAL.

ITEM 530, SPECIAL – STRUCTURE, MISC.: FIBERGLASS FLOOR PANELS

PROVIDE AND INSTALL FIBERGLASS FLOOR PANELS ON THE FLOORS OF BOTH CHAMBERS. FIBERGLASS FLOOR PANELS SHALL BE MOLDED FIBERGLASS GRATING THAT COMBINES FIBERGLASS ROVINGS WITH THERMOSETTING RESIN TO FORM A STRONG, ONE–PIECE MOLDED PANEL. THE PANELS SHALL BE FIBERGLASS–REINFORCED PLASTIC (FRP) WITH A 65%/35% RESIN TO GLASS WEIGHT RATIO.

THE PANELS SHALL BE CUT AS NECESSARY TO FIT PROPERLY IN THE CHAMBER WITHOUT AFFECTING THE OPERATION OF THE BRIDGE, INCLUDING THE SUMP PUMP, AND ANY MECHANICAL OR ELECTRICAL ITEMS IN THE CHAMBERS. ENSURE PLACEMENT OF THE PANELS DOES NOT AFFECT ACCESS TO ANY CABINETS OR BOXES IN THE CHAMBER OR PRODUCES A TRIPPING HAZARD.

FIBERGLASS FLOOR PANELS SHALL BE A MOLDED GRATING RESIN SYSTEM FOR USE IN CONFINED AREAS AND INDUSTRIAL APPLICATIONS SUCH AS THE BRIDGE CHAMBERS. SUGGESTED SIZE IS 1½" THICK 1½" X 1½" SQUARE MESH. PROVIDE PANEL SIZES CONSISTENT WITH ALLOWABLE SPACE INSIDE THE CHAMBER AND AS APPROVED BY THE ENGINEER.

COST FOR ALL LABOR, EQUIPMENT, MATERIALS, AND INCIDENTALS NECESSARY TO PROVIDE AND INSTALL FIBERGLASS FLOOR PANELS TO MEET THE ABOVE REQUIREMENTS IS INCLUDED IN THE UNIT PRICE BID FOR ITEM 530, SPECIAL – STRUCTURE, MISC.: FIBERGLASS FLOOR PANELS.

CHAMBER WATERPROOFING/DAMP PROOFING

THE CONTRACTOR SHALL WATERPROOF THE EXTERIOR CHAMBER USING A COMBINATION OF ITEM SPECIAL – BUTYL RUBBER MEMBRANE WATERPROOFING BETWEEN THE MUD SLAB AND CHAMBER BASE, AND A DUAL WATERPROOFING SYSTEM ON THE EXTERIOR. ALL INTERIOR CONCRETE SURFACES SHALL BE DAMP PROOFED WITHIN THE CHAMBER'S INTERIOR. THE LIMITS OF WATERPROOFING ARE SHOWN IN THE PLANS. THE CONTRACTOR SHALL NOT MIX OR COMBINE DIFFERENT MANUFACTURER'S PRODUCTS. THE COATINGS SHALL NOT BE APPLIED UNTIL THE CONCRETE SURFACES ARE CURED AND PREPARED TO MEET PRODUCT'S REQUIREMENTS. THESE EXTERIOR WATERPROOFING AND INTERIOR DAMP PROOFING SYSTEMS ARE ITEMIZED AS FOLLOWS:

ITEM SPECIAL – WATERPROOFING, MISC.: DUAL SYSTEM WATERPROOFING

THIS WORK INCLUDES FURNISHING AND APPLICATION OF AQUAFIN 2K–M, CEM–KOTE FLEX ST, OR APPROVED EQUAL. APPLY WATERPROOFING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.

ITEM SPECIAL – WATERPROOFING, MISC.: DAMP PROOFING

THIS WORK INCLUDES FURNISHING AND APPLICATION OF AQUAFIN 1K, CEM–KOTE FLEX ST, OR APPROVED EQUAL. APPLY DAMP PROOFING ACCORDING TO MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS.

ADDITIONALLY, THE EXPOSED EXTERIOR WALLS OF THE CHAMBER ON THE FINGER PIER SHALL HAVE A CONCRETE TOPPING TO PROTECT THE WATERPROOFING DURING THE PLACEMENT OF ROCK PROTECTION. PLACEMENT OF ROCK PROTECTION SHALL BE PERFORMED IN A MANNER TO MINIMIZE DAMAGE TO THE 4" CONCRETE TOPPING. SEE DETAIL ON SHEET S14. THIS WORK SHALL BE PERFORMED UNDER ITEM 511 – CONCRETE, MISC.: CONCRETE TOPPING – WATERPROOFING.

THE FOLLOWING ABBREVIATIONS ARE USED:

B = BOTTOM
BRG = BEARING
C.J. = CONSTRUCTION JOINT
DIA. = DIAMETER
E.F. = EACH FACE
EXP. = EXPANSION
F.A. = FORWARD ABUTMENT
FT. = FEET
MAX. = MAXIMUM
MIN. = MINIMUM
MID. = MIDDLE
R.A. = REAR ABUTMENT
SPA. = SPACES
STR. = STRAIGHT
EQ. = EQUAL
T = TOP

DESIGN AGENCY
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DESIGNED YRY | DRAWN SMS | REVIEWED FGB | DATE 04/11/14
CHECKED CS | REVISED | STRUCTURE FILE NUMBER

GENERAL NOTES – SUBSTRUCTURE

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S3 / S–

SUBSTRUCTURES ESTIMATED QUANTITIES

ITEM	EXTENSION	TOTAL	UNIT	DESCRIPTION	ABUT. *	PIERS	SUPER.	GEN.	SHEET #
202	11201	LUMP		PORTIONS OF STRUCTURE REMOVED, AS PER PLAN				LUMP	37
503	11101	LUMP		COFFERDAMS AND EXCAVATION BRACING, AS PER PLAN				LUMP	37
503	21301	LUMP		UNCLASSIFIED EXCAVATION, AS PER PLAN				LUMP	37
505	11100	LUMP		PILE DRIVING EQUIPMENT MOBILIZATION				LUMP	
507	00100	3,940	FT	STEEL PILES HP10X42, FURNISHED	3,940				
507	00151	3,710	FT	STEEL PILES HP10X42, DRIVEN, AS PER PLAN	3,710				37
507	98010	12	EA	PILING, MISC.: TIMBER DOLPHIN PILE	12				
509	10000	112,818	LB	EPOXY COATED REINFORCING STEEL	112,818				
511	43512	207	CY	CLASS QC1 CONCRETE WITH QC/QA, ABUTMENT INCLUDING FOOTING	207				
511	50213	502	CY	CLASS QC1 CONCRETE WITH QC/QA, SUBSTRUCTURE, AS PER PLAN	502				
511	71100	42	CY	CONCRETE, MISC.: MUD SLAB	42				
511	71100	13	CY	CONCRETE, MISC.: CONCRETE TOPPING - WATERPROOFING	13				
511	71100	85	CY	CONCRETE, MISC.: CONCRETE FILL BETWEEN CHAMBER AND ABUTMENT	85				
512	10101	55	SY	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE), AS PER PLAN	55				39 & 41
512	33000	16	SY	TYPE 2 WATERPROOFING	16				
512	56100	202	SY	SPECIAL - BUTYL RUBBER MEMBRANE WATERPROOFING	202				
512	67200	540	SY	SPECIAL - WATERPROOFING, MISC.: DUAL SYSTEM WATERPROOFING	540				
512	67200	362	SY	SPECIAL - WATERPROOFING, MISC.: DAMP PROOFING	362				
516	13600	77	SF	1" PERFORMED EXPANSION JOINT FILLER	77				
516	10000	200	FT	PREFORMED ELASTOMERIC COMPRESSION JOINT SEAL	200				
530	00600	600	SF	SPECIAL - STRUCTURE, MISC.: FIBERGLASS FLOOR PANELS	600				
530	00600	480	SF	SPECIAL - STRUCTURE, MISC.: HALF-FILLED GRID DECK REMOVABLE PANELS	480				
530	14000	LUMP		SPECIAL - STRUCTURAL SURVEY AND MONITORING VIBRATION				LUMP	

* INCLUDE QUANTITIES FOR THE CONCRETE CHAMBERS.

NOTES:

1. FOR SUPERSTRUCTURE ESTIMATED QUANTITIES, SEE SHEET S4A.

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DESIGNED YRY | DRAWN CLG | REVIEWED FGB | DATE 04/11/14
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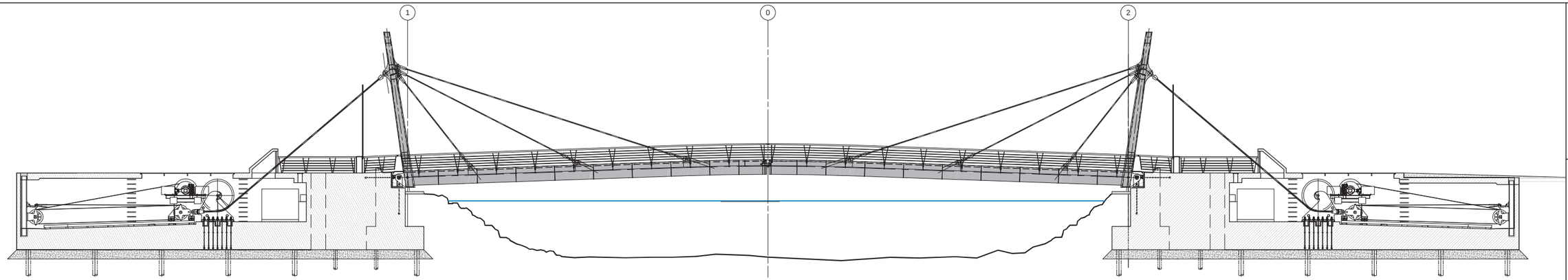
ESTIMATED QUANTITIES – SUBSTRUCTURES
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S4 / S–

34
165



NOTES:

1. (*) Reference to sheets and specifications sections only point at specific items. The Contractor shall account for the requirements of the complete Contract documents and referenced codes.
2. Steel weights for items 101 to 103:
- estimated quantity for final geometry as shown on drawing (does not include waste material)
- estimated quantity include a 10% margin for all connections and welds
- estimated quantity does not include weight of corrosion protection

SUPERSTRUCTURES ESTIMATED QUANTITIES

Ref. No.	ITEM	ODOT ITEM NO	ODOT ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	ADDITIONAL DESCRIPTION (SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION)	SHEET (*)	SUPERSTRUCTURES SPECIFICATIONS SECTION (*)
101		51390000	STRUCTURAL STEEL, MISC.: DECK STEEL BOX	LB	162,400	including all diaphragms, stiffeners, lug plates (cables, railings), internal chambers, connection plates of mid-span elements, and all related connections	S18 to S22	
102		51390000	STRUCTURAL STEEL, MISC.: STEEL MASTS	LB	30,000	including all stiffeners, lug plates and related connections	S23 to S25	
103		51390000	STRUCTURAL STEEL, MISC.: TRANSVERSE BEAMS AND ABUTMENT SUPPORTS STEEL PLATES	LB	29,000	including all stiffeners, lug plates and related connections	S26 to S28	
104		51390000	STRUCTURAL STEEL, MISC.: ABUTMENTS PRESTRESSED ANCHOR BARS	LB	490	including all connections, installation, prestressing, grouting as per detail	S27-S28	
105	SPECIAL	53000200	STRUCTURE, MISC.: ABUTMENTS SPHERICAL BEARINGS AND PINS	LUMP		including plain bearings, mounting elements on structure, seals, pins, keeper plates and all related connection and installation	S27-S28	3, 4.1.1
106	SPECIAL	53000200	STRUCTURE, MISC.: ABUTMENTS LATERAL SUPPORTS	LUMP		including chamfered rods, locking plates, PTFE sheets and machined plates, stainless steel plates, and all related connections	S28	4.1.3
107	SPECIAL	53000200	STRUCTURE, MISC.: CONNECTION OF ROPES SOCKETS AT TOP OF MASTS	LUMP		including plain bushings, thrust washers, pins, keys and keeper plates, and all related connections	S24	3, 4.1.2
108	SPECIAL	53001300	STRUCTURE, MISC.: BACKSTAY ROPES	FT	330	including sockets, pins on chamber side		4.4
109	SPECIAL	53001300	STRUCTURE, MISC.: SPAN CABLES	FT	310	including sockets, pins		4.3
110		51776300	RAILING, MISC.: DECK RAILINGS	FT	450		S30	5
	STEEL COATINGS AND WEARING SURFACE:							
111	SPECIAL	51480020	SHOP PAINTING AND FIELD TOUCH-UP OF STRUCTURAL STEEL	SF	4,425	external 3-coat paint system		2
112	SPECIAL	51480100	SHOP PAINTING OF STRUCTURAL STEEL	SF	6,250	primer for inside of air-tight welded sections		2
113		51134447	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK, AS PER PLAN	CY	20		S19	6.1
114		50910001	EPOXY COATED REINFORCING STEEL, AS PER PLAN	LB	2,800	reinforcement of concrete wearing surface	S19	6.1
115	SPECIAL	51275010	SEALING, MISC.: WEARING SURFACE TRAFFIC COATING	SF	2,050		S19	6.2
	MISC. ITEMS:							
116	SPECIAL	53000400	STRUCTURE, MISC.: ADDITIONAL TENSION RODS FOR MAINTENANCE IN OPEN POSITION	EA	4	including end fittings, pins and all related connections	S25	4.5
117	SPECIAL	53000400	STRUCTURE, MISC.: EMBEDDED ANCHORAGES FOR TENSION RODS	EA	4	including removable covers	S25	
118		51646900	BEARING DEVICE, MISC.: ELASTOMERIC BEARINGS FOR MAST SUPPORTS	EA	2	including support plates and anchorage elements	S25	4.2
119	SPECIAL	53000400	STRUCTURE, MISC.: COVER PLATES ON DECK INTERNAL CHAMBERS	EA	6		S21-S22	6.3
120	SPECIAL	53000200	STRUCTURE, MISC.: DECK MID-SPAN JOINT PLATES	LUMP			S21	6.4.2
121	SPECIAL	53000400	STRUCTURE, MISC.: ABUTMENT JOINTS	EA	2	including fixed plate and anchorage, moving plates, hinges, wheels, and all related connections	S29	6.4.1
122	SPECIAL	53000200	STRUCTURE, MISC.: TUNED MASS DAMPERS	LUMP			S22	Annex A
123	SPECIAL	53000400	STRUCTURE, MISC.: CHAMBERS ROPE ENTRANCE DETAIL	EA	2	including brush seals, steel supports, and all related connections	S33	4.6

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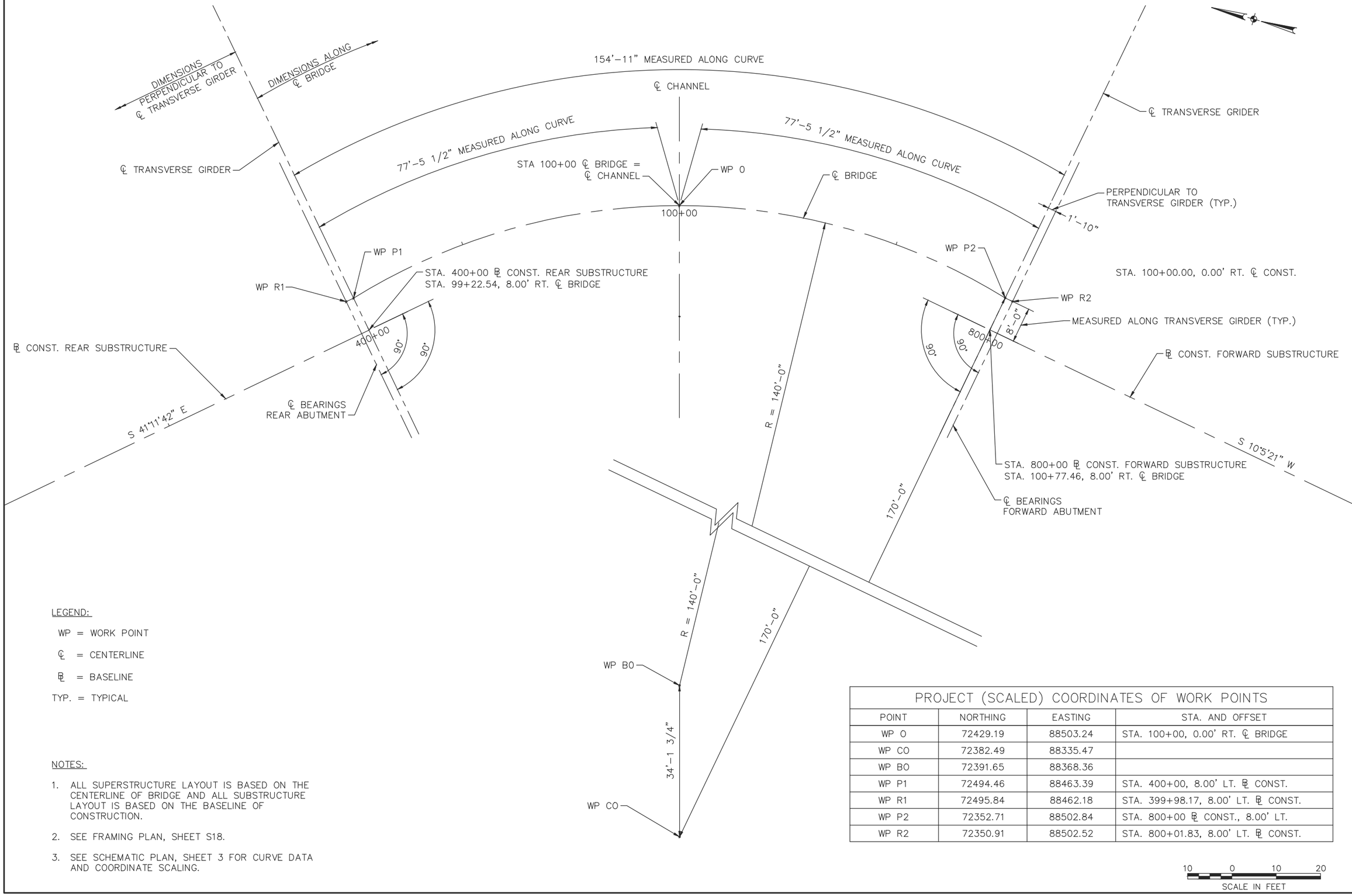
REVIEWED SDG | DATE 08/22/14 | STRUCTURE FILE NUMBER
DRAWN NDR | REVISED –
DESIGNED NDR | CHECKED MSt

ESTIMATED QUANTITIES – SUPERSTRUCTURES
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S4A/S35



LEGEND:

WP = WORK POINT

℄ = CENTERLINE

℄ = BASELINE

TYP. = TYPICAL

NOTES:

1. ALL SUPERSTRUCTURE LAYOUT IS BASED ON THE CENTERLINE OF BRIDGE AND ALL SUBSTRUCTURE LAYOUT IS BASED ON THE BASELINE OF CONSTRUCTION.
2. SEE FRAMING PLAN, SHEET S18.
3. SEE SCHEMATIC PLAN, SHEET 3 FOR CURVE DATA AND COORDINATE SCALING.

PROJECT (SCALED) COORDINATES OF WORK POINTS

POINT	NORTHING	EASTING	STA. AND OFFSET
WP 0	72429.19	88503.24	STA. 100+00, 0.00' RT. ℄ BRIDGE
WP CO	72382.49	88335.47	
WP BO	72391.65	88368.36	
WP P1	72494.46	88463.39	STA. 400+00, 8.00' LT. ℄ CONST.
WP R1	72495.84	88462.18	STA. 399+98.17, 8.00' LT. ℄ CONST.
WP P2	72352.71	88502.84	STA. 800+00 ℄ CONST., 8.00' LT.
WP R2	72350.91	88502.52	STA. 800+01.83, 8.00' LT. ℄ CONST.

10 0 10 20
SCALE IN FEET

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DESIGNED	DRAWN	REVIEWED	DATE
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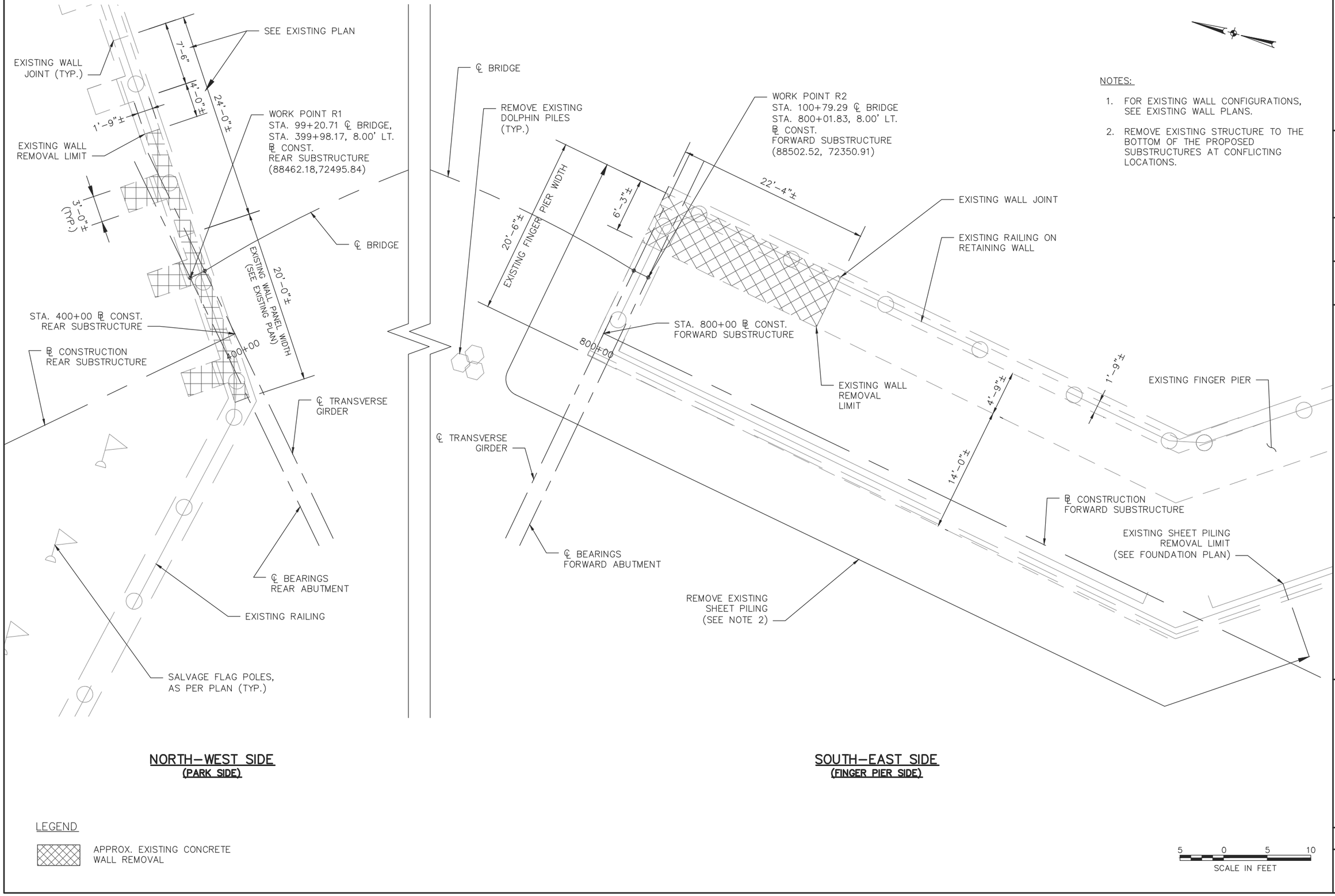
RBP			

STRUCTURE LAYOUT PLAN

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

S5 / S–

36
165



NOTES:

1. FOR EXISTING WALL CONFIGURATIONS, SEE EXISTING WALL PLANS.
2. REMOVE EXISTING STRUCTURE TO THE BOTTOM OF THE PROPOSED SUBSTRUCTURES AT CONFLICTING LOCATIONS.

NORTH–WEST SIDE
(PARK SIDE)

SOUTH–EAST SIDE
(FINGER PIER SIDE)

LEGEND

APPROX. EXISTING CONCRETE WALL REMOVAL

5 0 5 10
SCALE IN FEET

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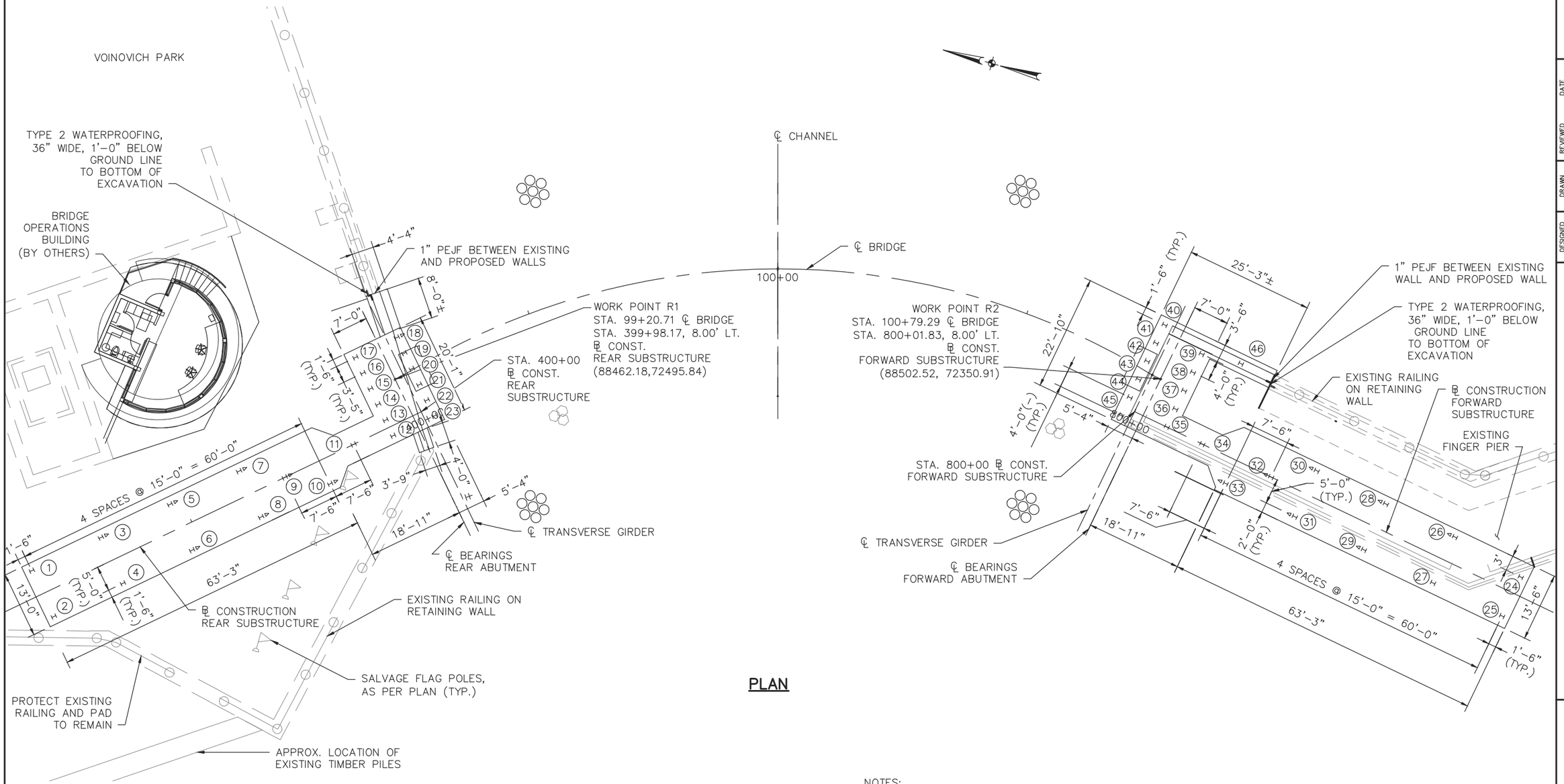
RBP			

EXISTING STRUCTURE REMOVAL PLAN

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S6 / S–

37
165



PLAN

LEGEND

H (1)	HP10X42 PILE
H▷ (3)	H10X42 PILES BATTERED 1:4

NOTES:

1. EXISTING SHEET PILING AND RETAINING WALL MAY BE USED AS PART OF TEMPORARY SHORING FOR CONSTRUCTION AT THE CONTRACTOR'S CHOICE. CONTRACTOR SHALL PROVIDE TEMPORARY SHORING DESIGN AND PLAN STAMPED BY A PROFESSIONAL ENGINEER, WHICH SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.
2. SEE EXISTING PLANS FOR LOCATION OF EXISTING STRUCTURES.
3. IF OBSTRUCTIONS ARE IDENTIFIED PRIOR TO PILE DRIVING, THE CONTRACTOR SHALL PROVIDE NEW LOCATIONS TO BE APPROVED BY THE ENGINEER.

10 0 10 20
SCALE IN FEET

DESIGN AGENCY
CDM Smith
1468 W. 9TH STREET SUITE 750
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
YRY	SMS	FGB	04/11/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RBP	.		

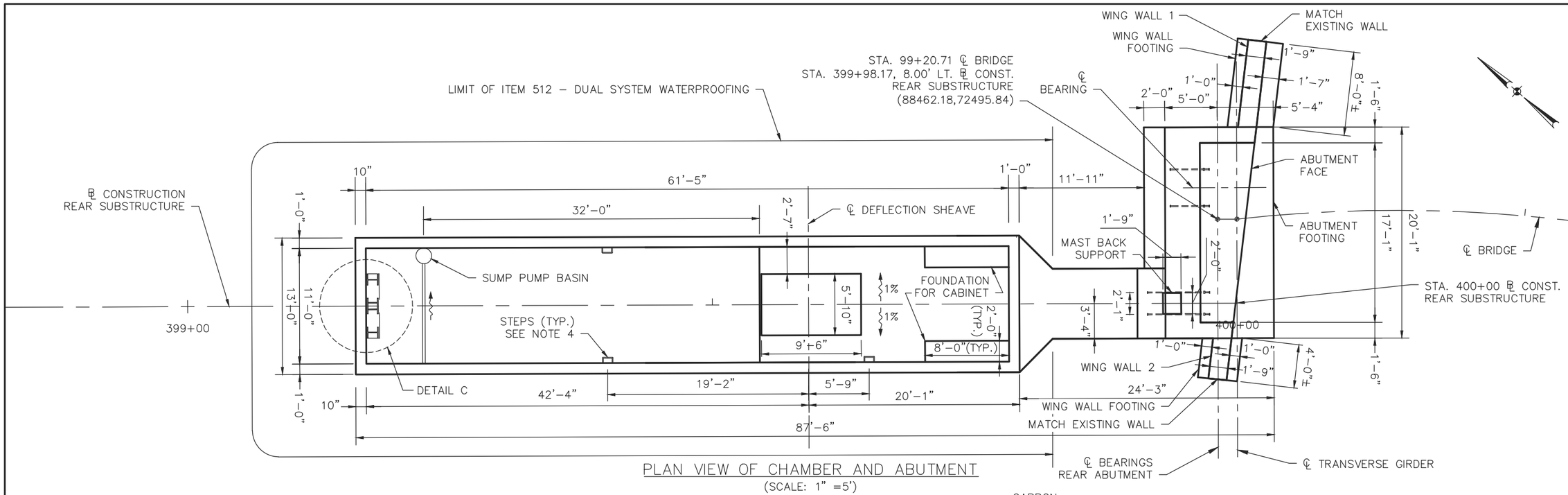
BRIDGE AND CHAMBER FOUNDATION PLAN

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S7 / S–

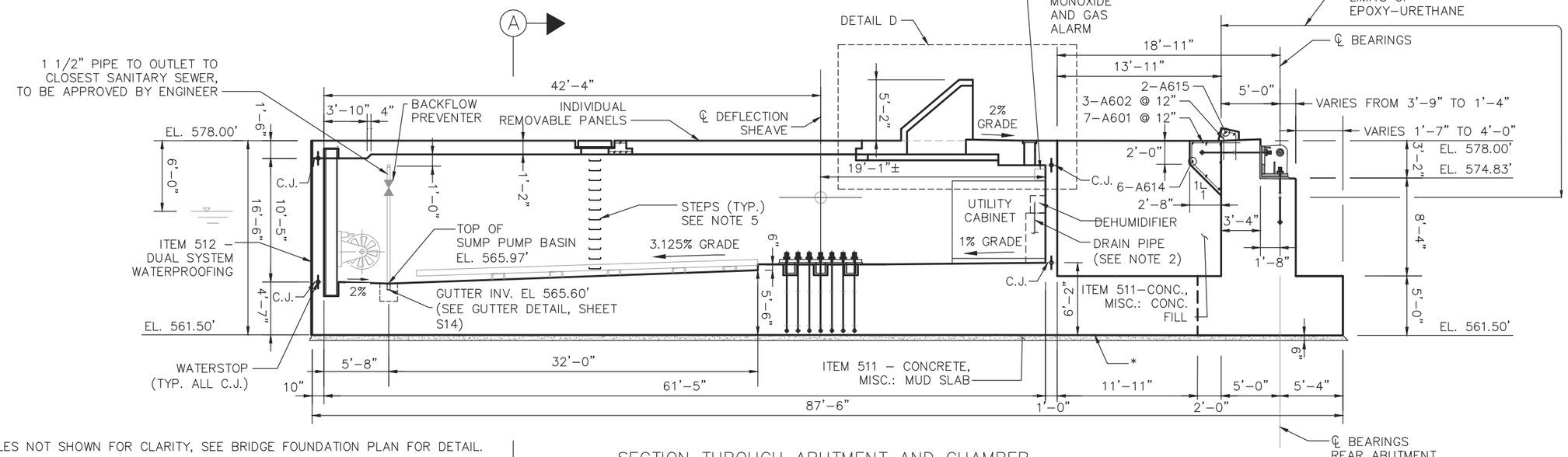
38
165

Q:\86693 - Voinovich Pedestrian Bridge Final Design\CUY\80966\CAD\sheets\80966FP001.dwg, Layout1, 8/22/2014 11:04:45 AM



PLAN VIEW OF CHAMBER AND ABUTMENT

(SCALE: 1" =5')



SECTION THROUGH ABUTMENT AND CHAMBER

(PARK SIDE)

* ITEM 512 – BUTYL RUBBER MEMBRANE WATERPROOFING

NOTES:

1. PILES NOT SHOWN FOR CLARITY, SEE BRIDGE FOUNDATION PLAN FOR DETAIL.
2. CONTRACTOR SHALL INSTALL A WALL MOUNTED 1" PVC PIPE @ 1.0% MIN. SLOPE FROM THE DEHUMIDIFIER TO THE GUTTER AT THE SUMP PUMP PIT.
3. SEE SHEET S13 FOR DETAIL C.
4. SEE SHEET S14 FOR SECTION A–A AND DETAIL D.
5. FOR STEP DETAILS AND NOTES, SEE ODOT STANDARD DRAWING MH–1.1 (SHEET 2 OF 2). THE COST OF MATERIAL AND INSTALLATION SHALL BE INCLUDED IN ITEM 51, CLASS QC1 CONCRETE WITH QC/QA, SUBSTRUCTURE, AS PER PLAN
6. FOR ABUTMENT REINFORCEMENT DETAILS, SEE SHEETS S13 AND S14.
7. FOR ABUTMENT REINFORCEMENT DETAILS, SEE SHEETS S13 AND S14.
8. WATERSTOP WILL BE INSTALLED AT ALL CONSTRUCTION JOINTS.
9. SEE SHEET S3 FOR OIL WATER SEPARATOR, AS PER PLAN NOTES
10. SEE SHEET 19 FOR SUMP PUMP SYSTEM DETAIL.

DESIGN AGENCY
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1468 W. 9TH STREET SUITE 750
CLEVELAND, OHIO 44113

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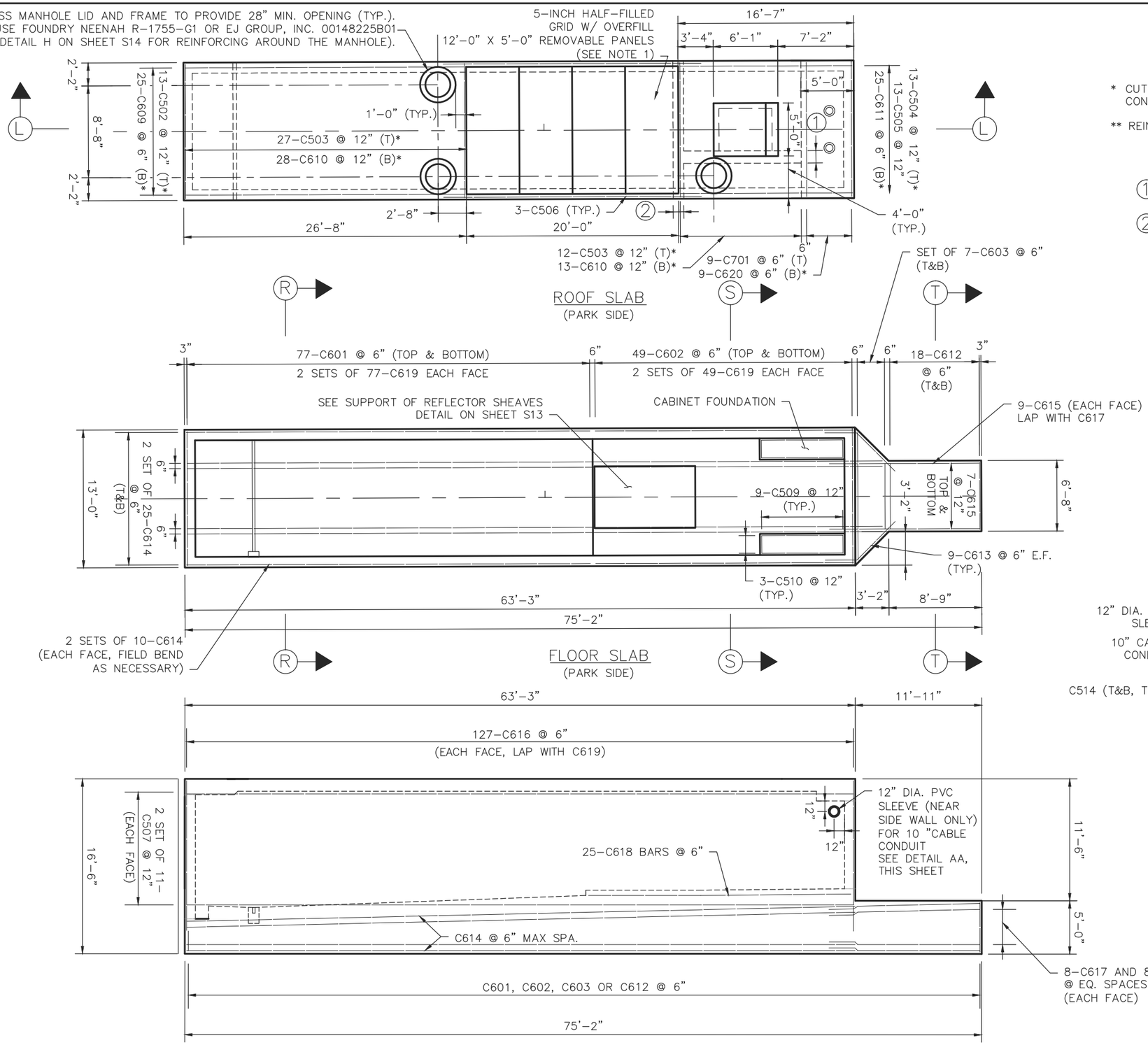
SUBSTRUCTURE DETAILS
REAR ABUTMENT AND CHAMBER

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S8 / S–

39 / 165



* CUT REINFORCING BARS AT HOLES WITH 2" CONCRETE COVER AT ENDS.

** REINFORCING STEEL TO BE CUT IN FIELD TO FIT.

① 1'-2" WIDE X 1'-8" DEEP BUILD DOWN

② 1'-0" WIDE X 1'-8" DEEP BUILD DOWN

MINIMUM LAP LENGTH
#5 BAR = 2'-9"
#6 BAR = 2'-11"

NOTES:

1. FOR REMOVABLE PANEL DETAILS, SEE SHEET S15.

DESIGN AGENCY
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1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

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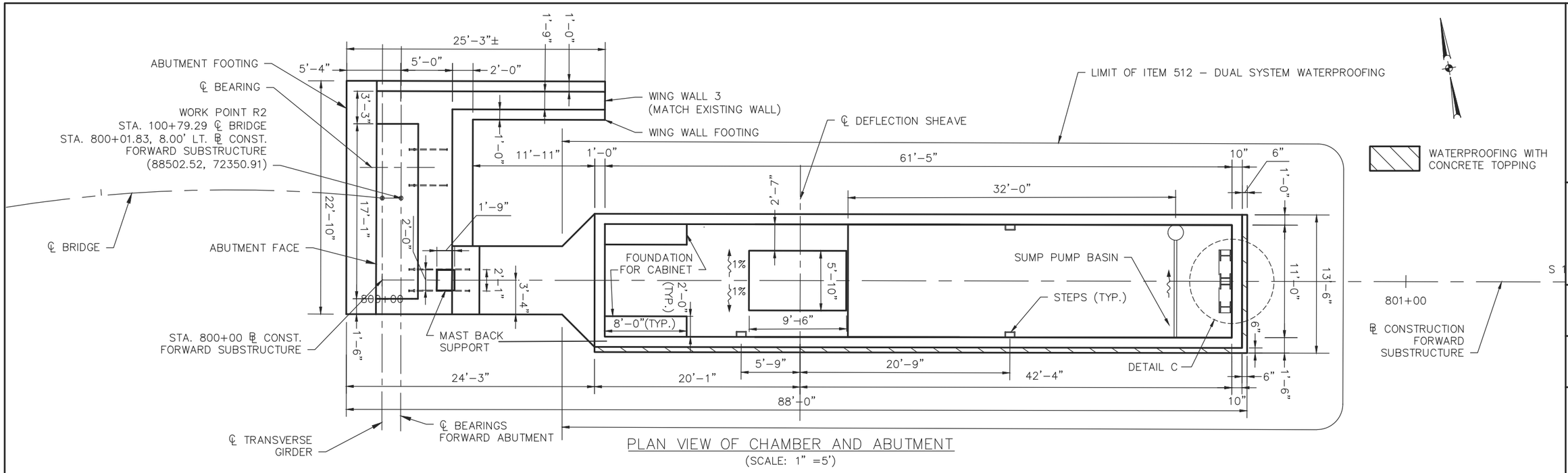
SUBSTRUCTURE DETAILS
REAR ABUTMENT AND CHAMBER

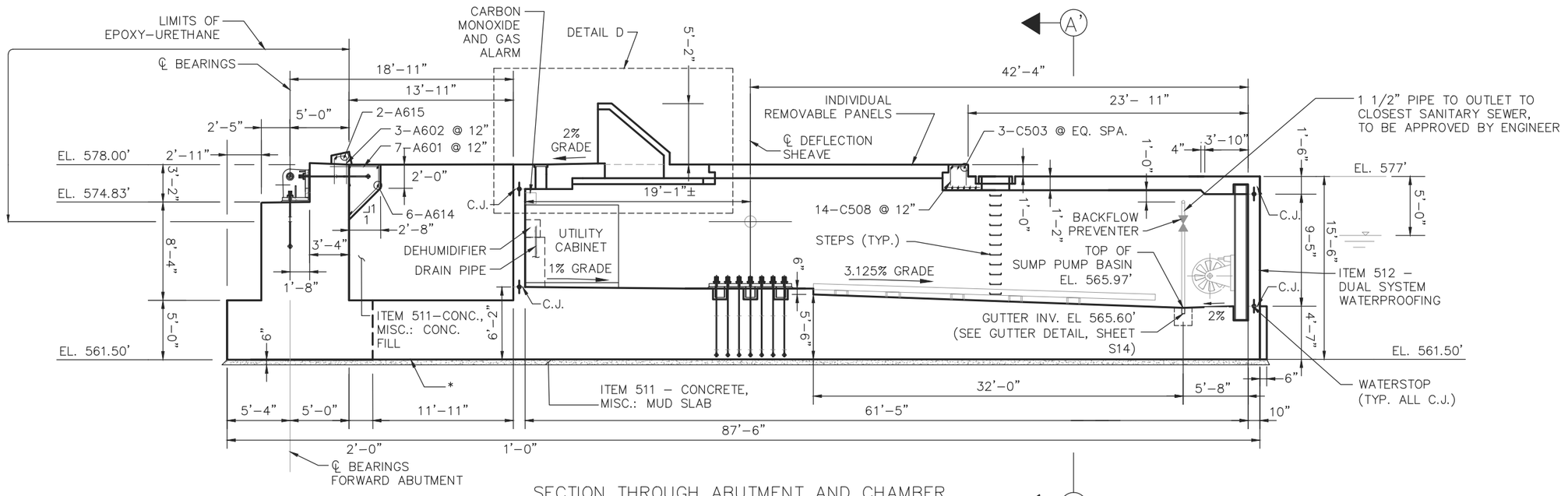
CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S9 / S-

40
165



PLAN VIEW OF CHAMBER AND ABUTMENT
(SCALE: 1" =5')



SECTION THROUGH ABUTMENT AND CHAMBER
(FINGER PIER SIDE)

NOTES:

1. SEE SHEET S14 FOR SECTION A–A AND DETAIL D.
2. SEE S13 FOR DETAIL C.
3. FOR ADDITIONAL NOTES, SEE SHEET S8.

* ITEM 512 – BUTYL RUBBER MEMBRANE WATERPROOFING

DESIGN AGENCY
CDM Smith
1468 W. 9TH STREET SUITE 750
CLEVELAND, OHIO 44113

DESIGNED YRY | DRAWN CLG | REVIEWED FGB | DATE 04/11/14
CHECKED RBP | REVISED | STRUCTURE FILE NUMBER

SUBSTRUCTURE DETAILS
FORWARD ABUTMENT AND CHAMBER

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S10 / S–

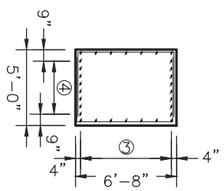
41
165

WATER PROOFING WITH CONCRETE TOPPING

① 1'-2" WIDE X 1'-8" DEEP BUILD DOWN

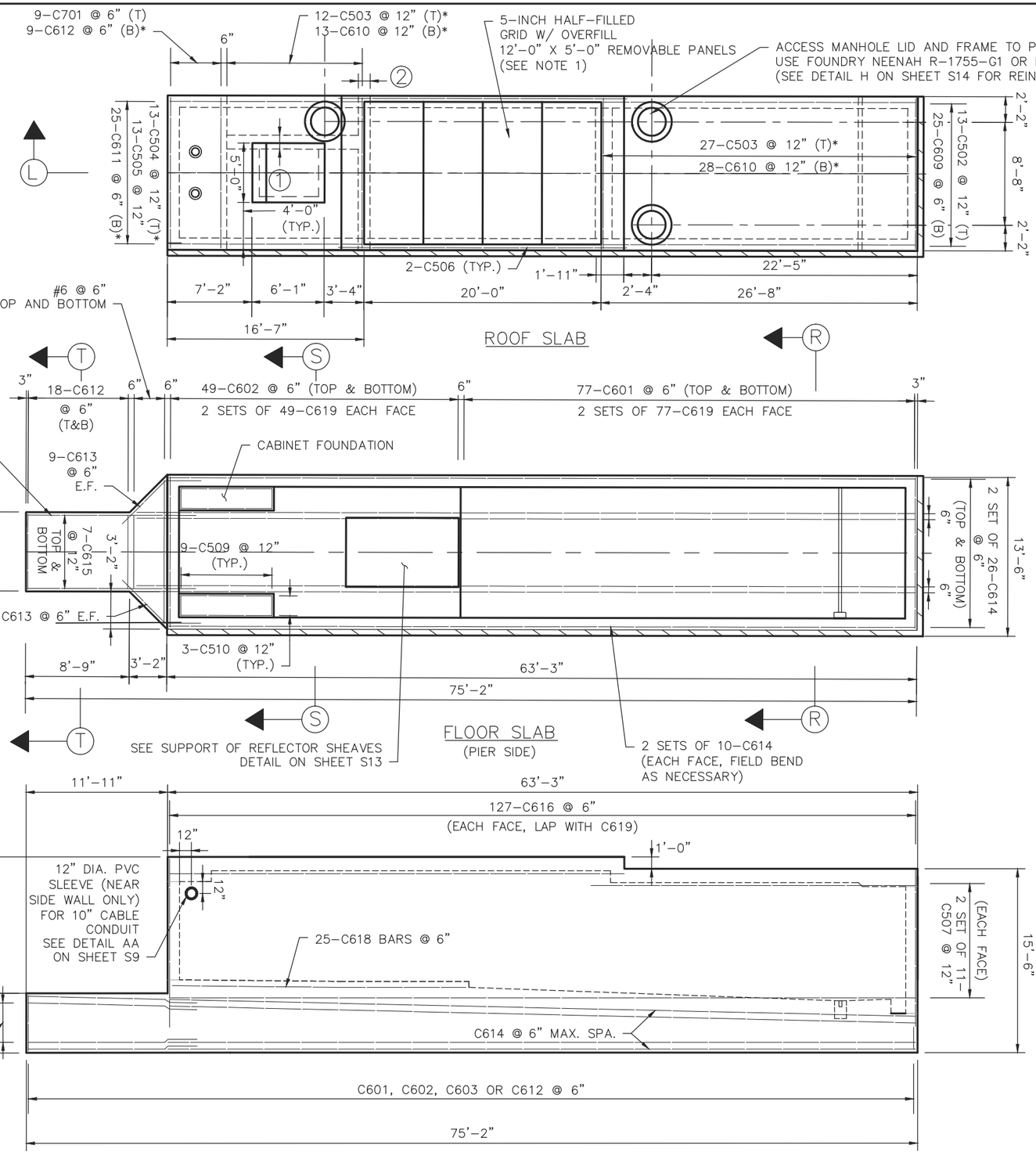
② 1'-0" WIDE X 1'-8" DEEP BUILD DOWN

* CUT REINFORCING BARS AT HOLES WITH 2" CONCRETE COVER AT ENDS.

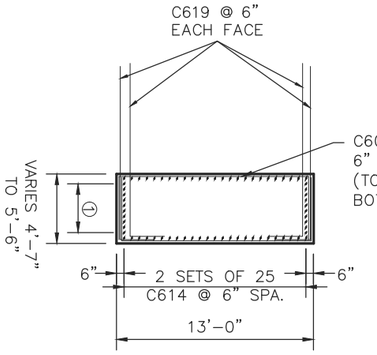


③ 7-C615 AT 12" SPACING TOP AND BOTTOM
④ 8-C615 AT EQUAL SPACING EACH FACE

SECTION T
(NOT TO SCALE)

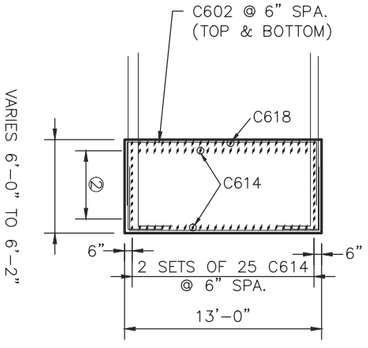


WALL ELEVATION VIEW
(PIER SIDE)



① 9-C614 AT EQUAL SPACING EACH FACE

SECTION R
(NOT TO SCALE)



② 9-C614 AT EQUAL SPACING EACHFACE, 6" MAX. FIELD BEND AS NECESSARY

SECTION S
(NOT TO SCALE)

MINIMUM LAP LENGTH
#5 BAR = 2'-9"
#6 BAR = 2'-11"

NOTES:

1. FOR REMOVABLE PANEL DETAILS, SEE SHEET S15.

DESIGN AGENCY
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CLEVELAND, OHIO 44113

DESIGNED YRY | DRAWN CLG | CHECKED RBP | REVIEWED FGB | DATE 04/11/14 | REVISED | STRUCTURE FILE NUMBER

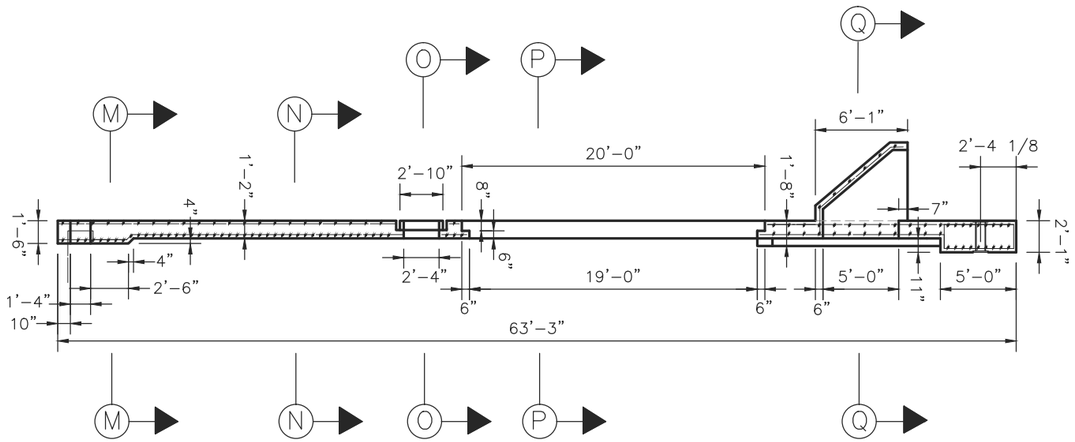
SUBSTRUCTURE DETAILS
FORWARD ABUTMENT AND CHAMBER

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

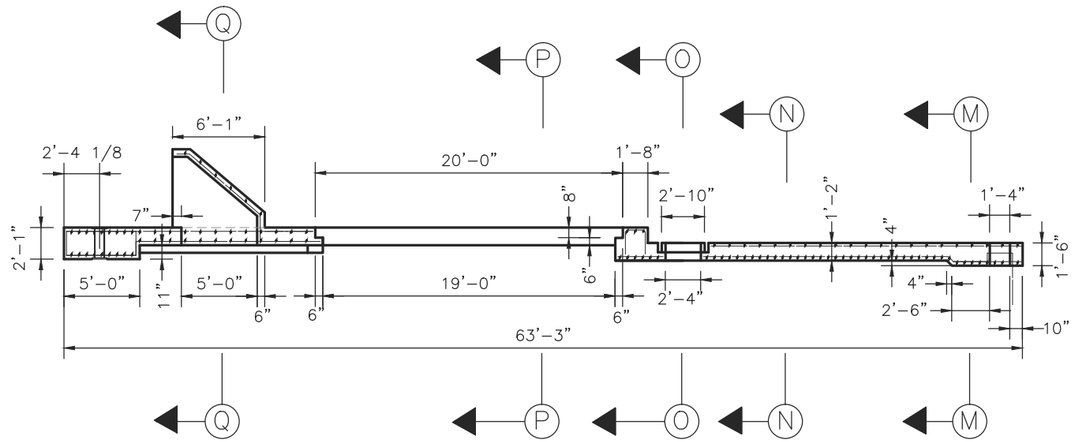
S11 / S-

42
165

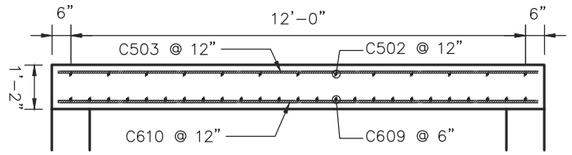
* CUT REINFORCING BARS AT HOLES WITH 2" CONCRETE COVER AT ENDS.



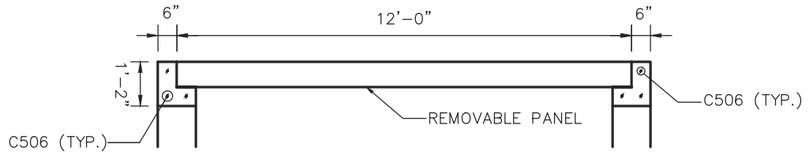
SECTION L–L
(REAR CHAMBER)
(NOT TO SCALE)



SECTION L–L
(FORWARD CHAMBER)
(NOT TO SCALE)



SECTION N–N
(NOT TO SCALE)



SECTION P–P
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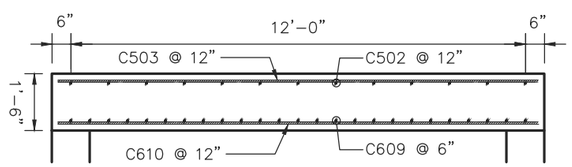
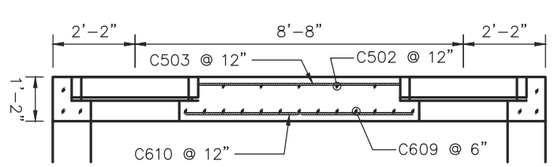
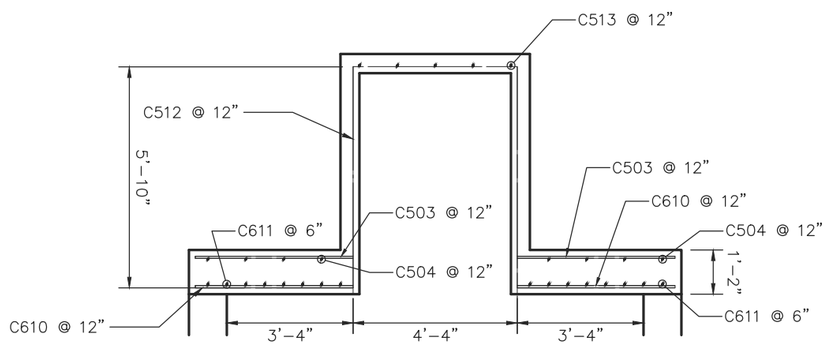


SECTION M–M
(NOT TO SCALE)



SECTION O–O
(NOT TO SCALE)



SECTION Q–Q
(NOT TO SCALE)

NOTES:

1. FOR REMOVABLE PANEL DETAILS, SEE SHEET S15.

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET SUITE 750
CLEVELAND, OHIO 44113

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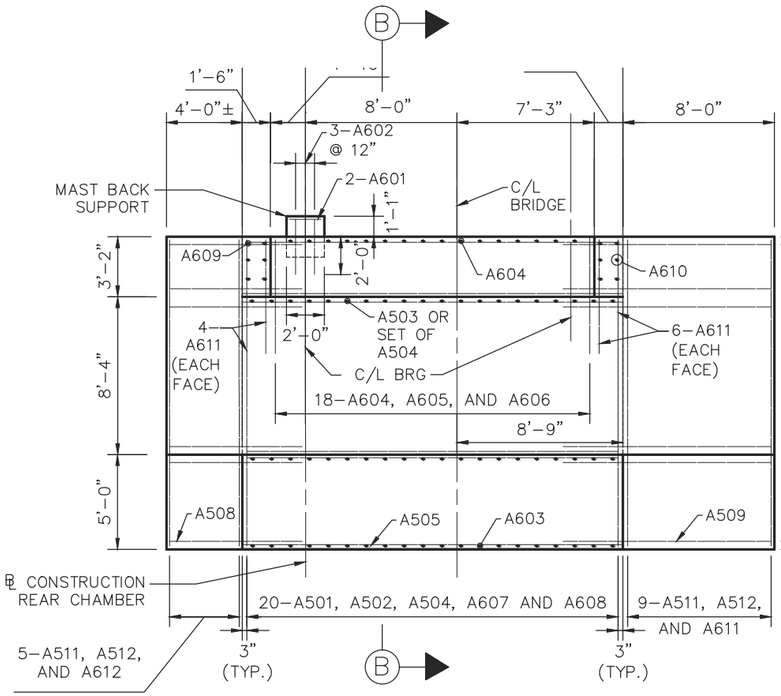
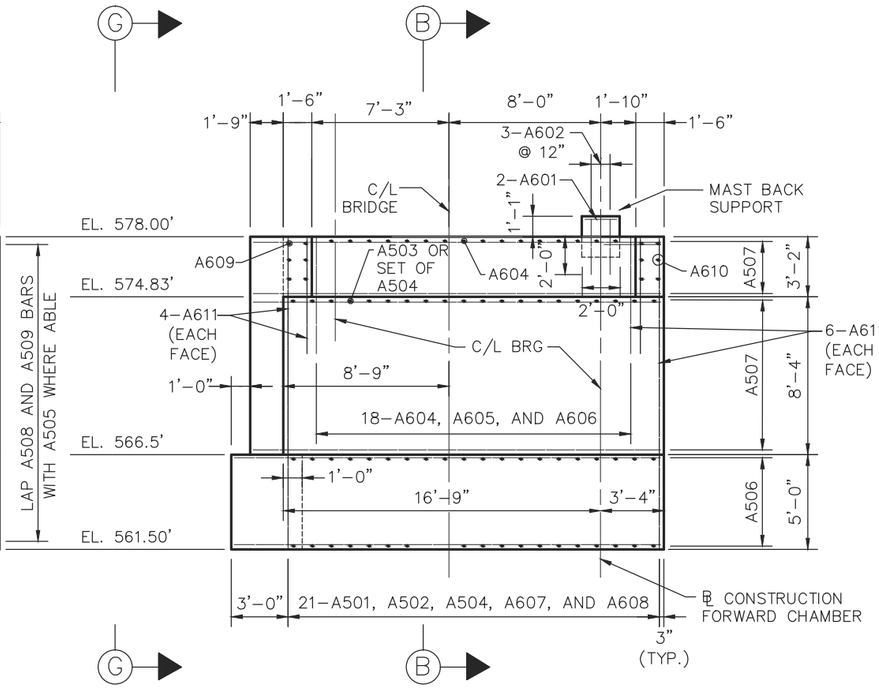
SUBSTRUCTURE DETAILS
REAR ABUTMENT AND CHAMBER

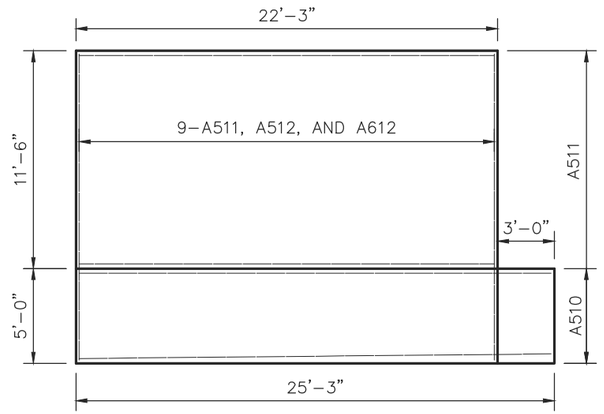
CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

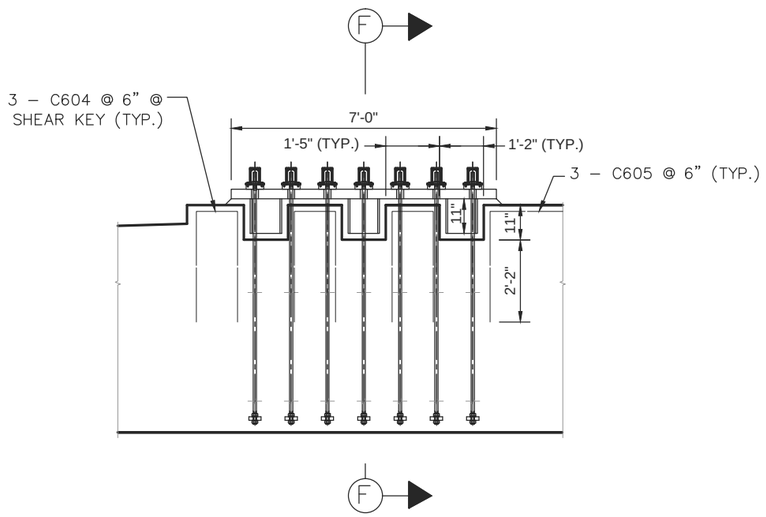
S12/S–

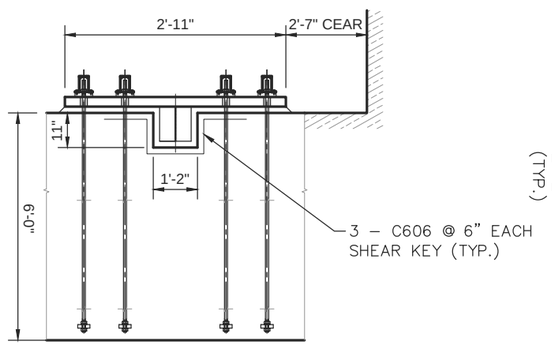
43
165

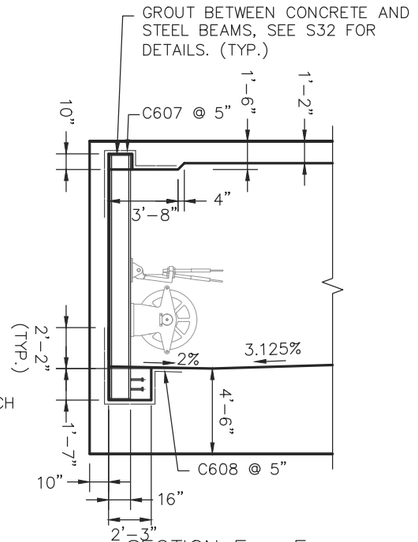


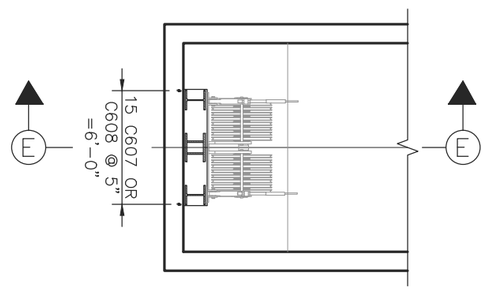












NOTES:

1. SEE SHEET S14 FOR SECTION B–B.

DESIGN AGENCY
CDM Smith
1468 W. 9TH STREET SUITE 750
CLEVELAND, OHIO 44113

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
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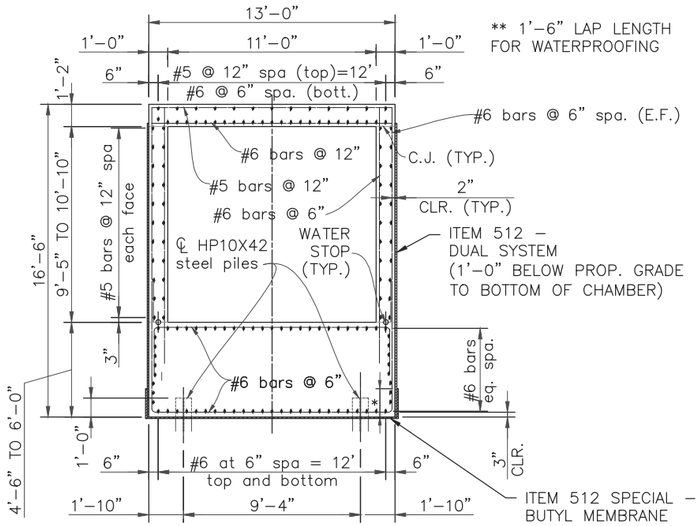
SUBSTRUCTURE DETAILS
CURVED SYMMETRICAL BASCULE

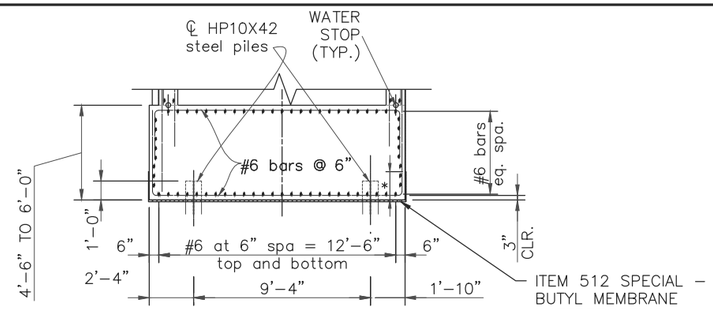
CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S13 / S–

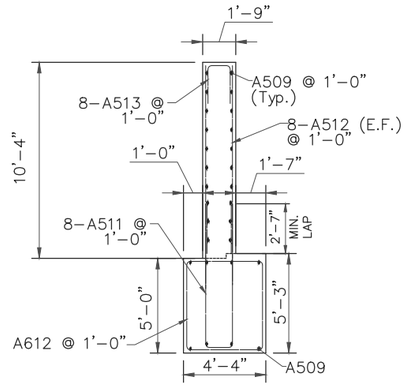


** 1'–6" LAP LENGTH FOR WATERPROOFING

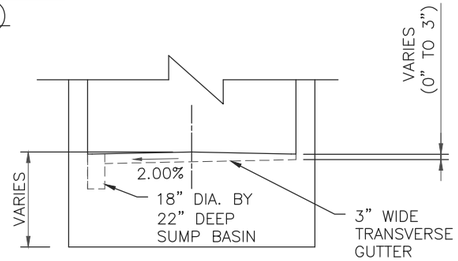
SECTION A–A – REAR SUBSTRUCTURE
(NOT TO SCALE)



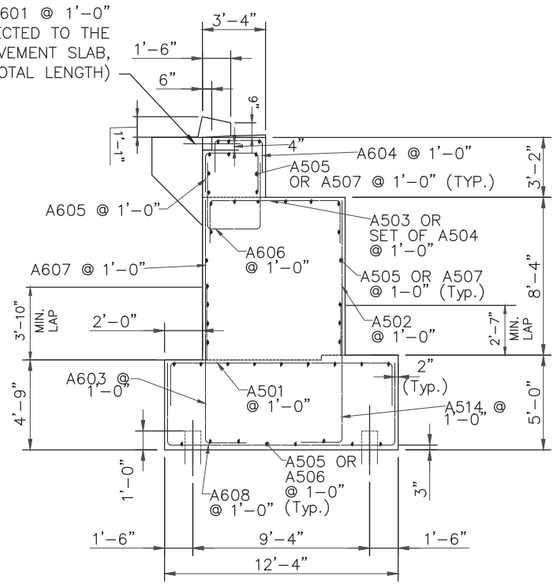
SECTION A'–A' – FORWARD SUBSTRUCTURE (FOOTING ONLY)
(NOT TO SCALE)



WING WALL 1 – SECTION
(NOT TO SCALE)

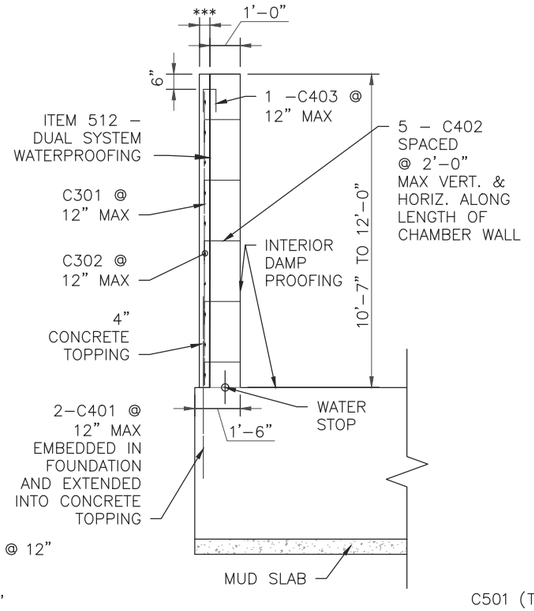


GUTTER DETAIL
(NOT TO SCALE)



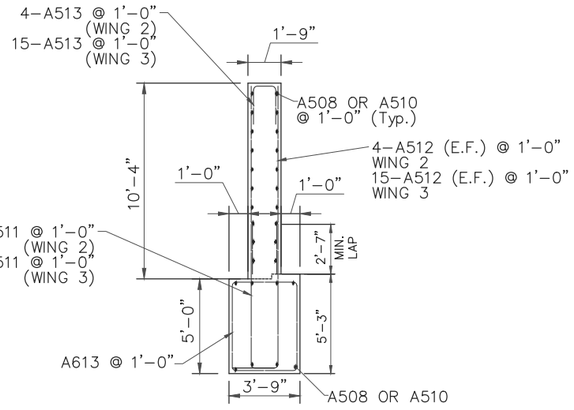
ABUTMENT SECTION B–B
(NOT TO SCALE)

** *4" (PLUS 1/8" OF ITEM 512 – WATERPROOFING)

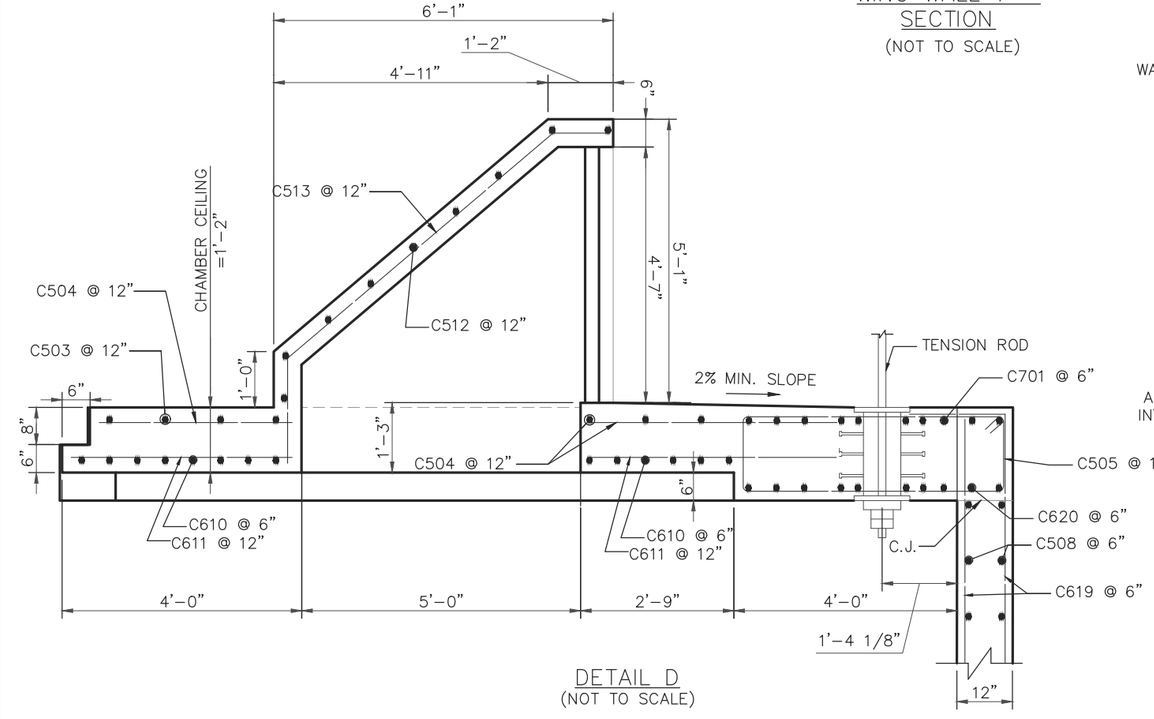


NOTE: FINGER PIER EXPOSED CHAMBER WALL ONLY. ALL OTHER SURFACES USE THE DUAL WATERPROOFING SYSTEM ONLY

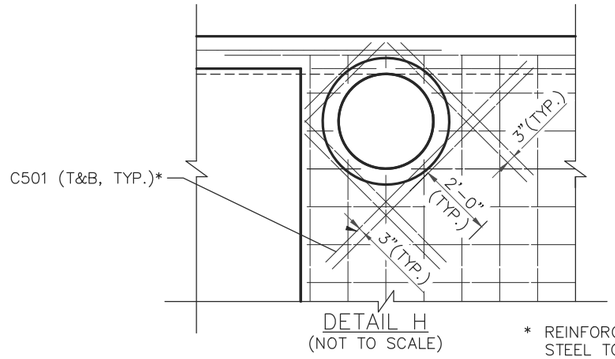
EXPOSED CHAMBER WALL DETAIL – FORWARD SUBSTRUCTURE
(NOT TO SCALE)



WING WALLS 2 & 3 – SECTION
(NOT TO SCALE)



DETAIL D
(NOT TO SCALE)



DETAIL H
(NOT TO SCALE)

* REINFORCING STEEL TO BE CUT IN FIELD TO FIT.

DESIGN AGENCY
CDM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
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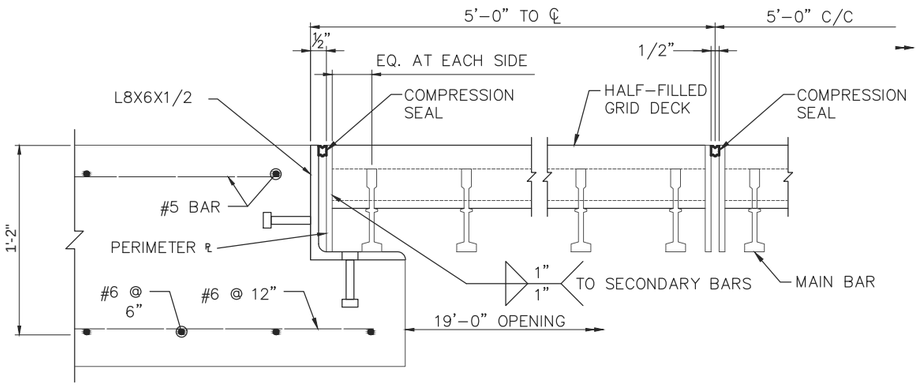
CHECKED	REVISED	STRUCTURE FILE NUMBER	
RBP	–		

SUBSTRUCTURE DETAILS
CURVED SYMMETRICAL BASCULE BRIDGE

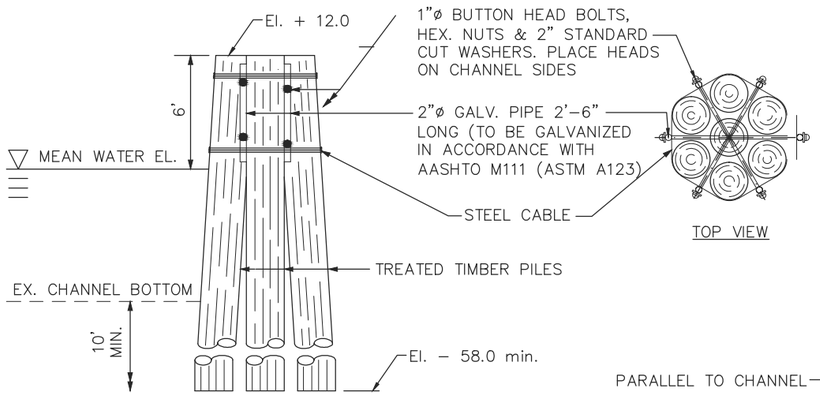
CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S14 / S–

45
165



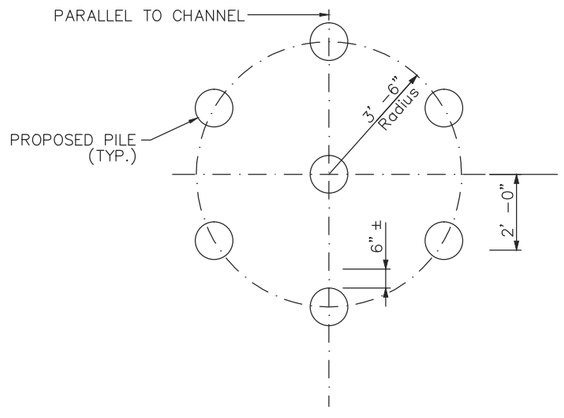
SECTION – AT SIDES OF GRID DECK PANELS
OTHER REINFORCEMENT
NOT SHOWN FOR CLARITY



ELEVATION

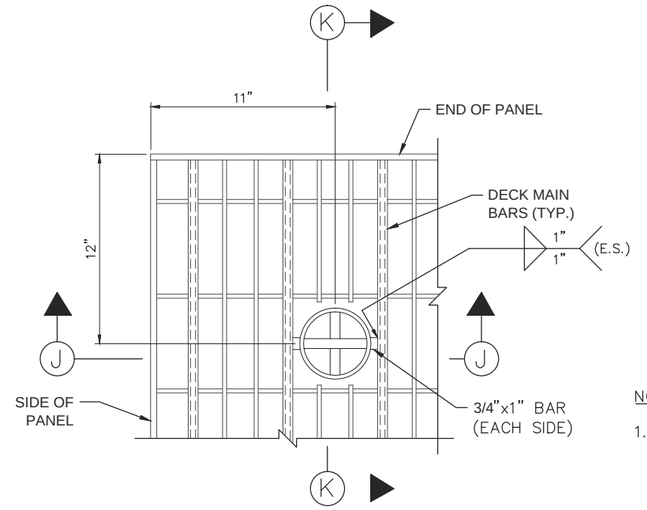
NOTES:

1. PILES TO BE DRIVEN PLUMB AND THEN PULLED TOGETHER AS SHOWN IN DETAIL.
2. 7 PILE CLUSTERS TO BE SEIZED WITH TWO BANDS OF 4 TURNS EACH, 3/4" GALV. PLOW STEEL CABLE PULLED TIGHT TO HOLD PILES SNUG AGAINST EACH OTHER. END OF CABLE TO BE SECURELY FASTENED WITH THREE CABLE CLIPS.
3. DRIVE ONE STAPLE IN EACH TURN OF CABLE IN EACH PILE. ALL FASTENERS AND THEIR COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153).
4. ALL COSTS ASSOCIATED WITH FASTENERS, CABLE, PIPE, AND STAPLES SHALL BE INCLUDED IN THE PRICE BID FOR THE DOLPHIN STRUCTURE.
5. SEE COORDINATE TABLE FOR LOCATION OF DOLPHIN PILE STRUCTURES ON SHEET 20.



PLAN AT BASE

PROPOSED DOLPHIN



PLAN – LIFTING LUG & CORNER DETAIL

DESIGN:
HL–93 TRUCK (HS20)
11' SIMPLE SPAN

DECK:
L.B. FOSTER
5–INCH RB 6.2 CONCRETE
HALF–FILLED GRID W/OVERFILL, A572
OR EQUIVALENT PRODUCTS FROM
BAILEY BRIDGES, INC.

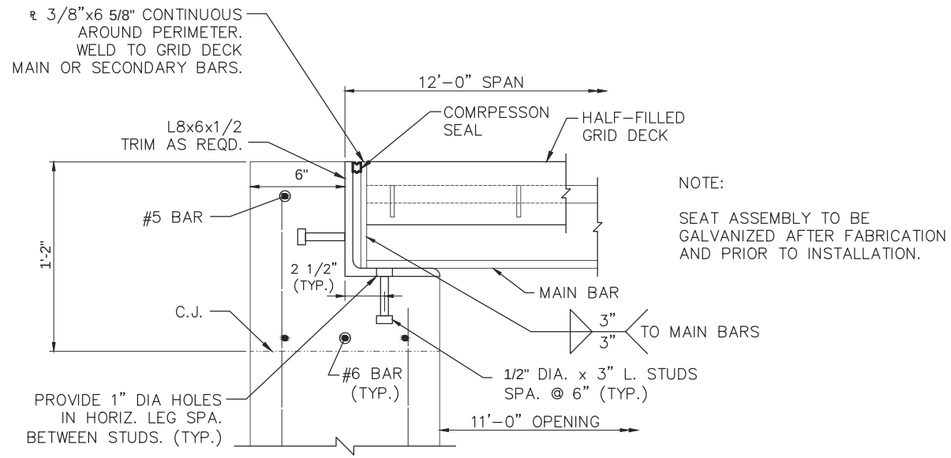
PANEL SIZE: 12'X5'

PANEL WEIGHT: 4,000 LBS

PREFORMED PAVEMENT SEAL:
DS BROWN E–816 OR WATSON BOWMAN WB–812
OR EQUIVALENT. INSTALL ACCORDING TO
MANUFACTURER'S RECOMMENDATIONS.

NOTES:

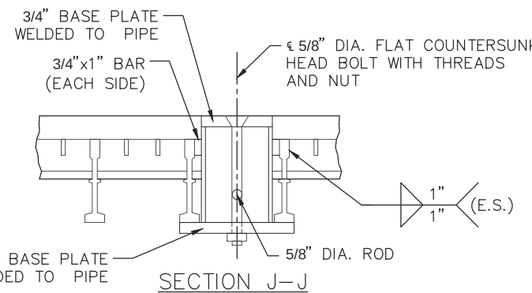
1. DETAILER TO LOCATE LIFTING LUG SUCH THAT AT LEAST TWO MAIN BARS AND TWO SECONDARY BARS ARE BETWEEN THE LUG AND THE PERIMETER PLATES.
2. GALVANIZE THE STEEL COMPONENTS AFTER INSTALLING THE LIFTING LUGS.



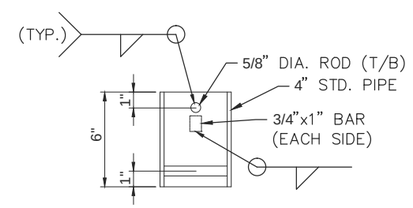
NOTE:

SEAT ASSEMBLY TO BE GALVANIZED AFTER FABRICATION AND PRIOR TO INSTALLATION.

SECTION – AT END OF GRID DECK PANEL
OTHER REINFORCEMENT
NOT SHOWN FOR CLARITY



SECTION J–J



SECTION K–K
WELDMENT SHOWN ONLY

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DESIGNED	DRAWN	REVIEWED	DATE
YRY	CLG	FGB	04/11/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	–		

SUBSTRUCTURE DETAILS
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

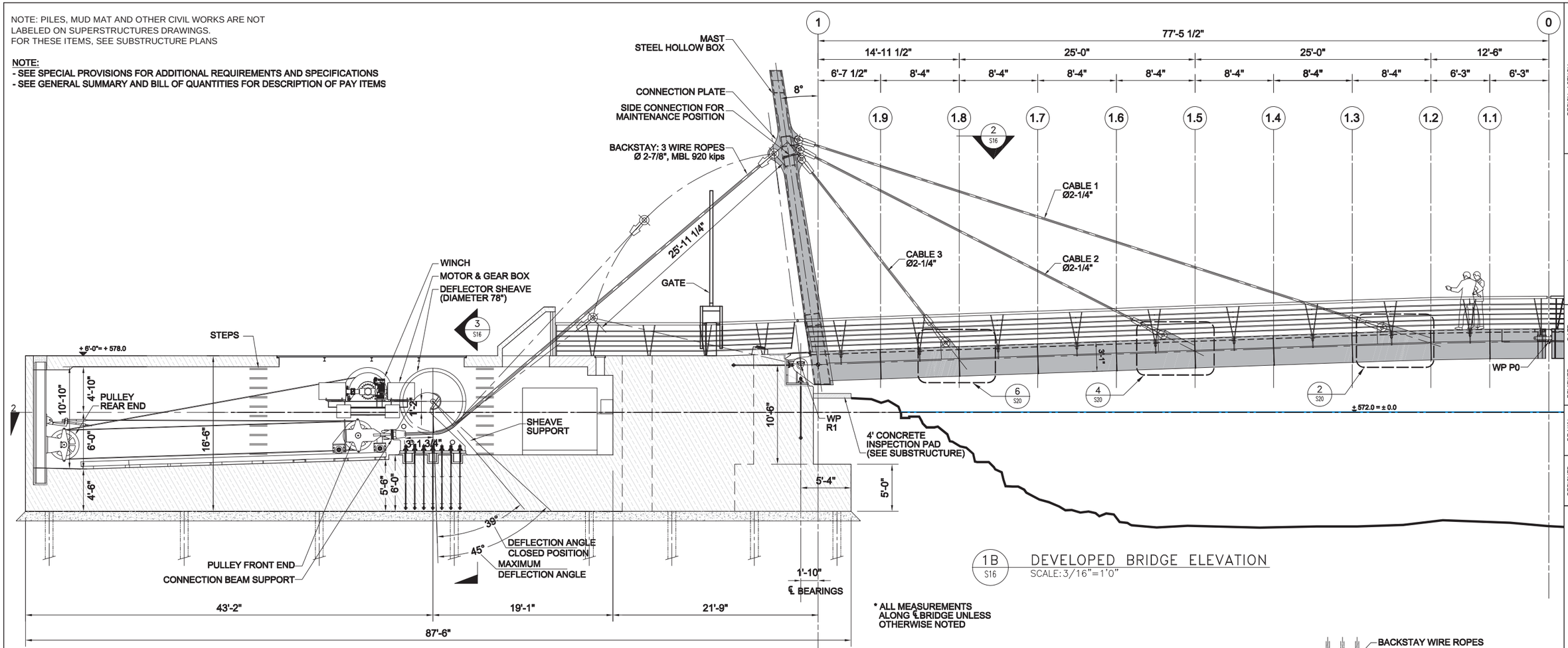
S15/S–

46
165

Q:\86693 - Voinovich Pedestrian Bridge Final Design\CUY\180966\CAD\sheets\80966MD004.dwg, 1, 8/22/2014 11:05:04 AM

NOTE: PILES, MUD MAT AND OTHER CIVIL WORKS ARE NOT LABELED ON SUPERSTRUCTURES DRAWINGS.
FOR THESE ITEMS, SEE SUBSTRUCTURE PLANS

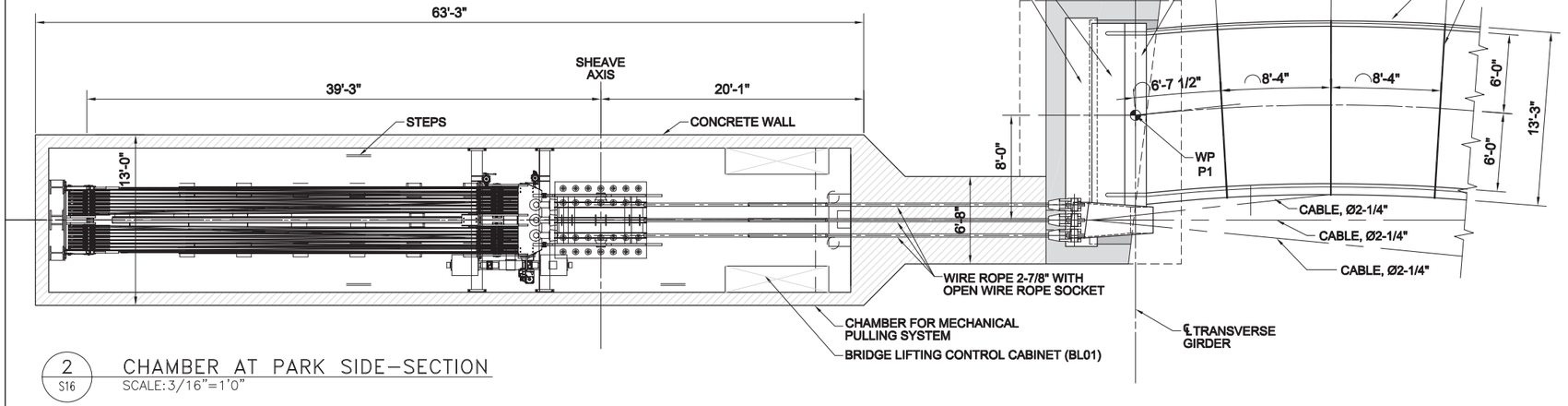
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS



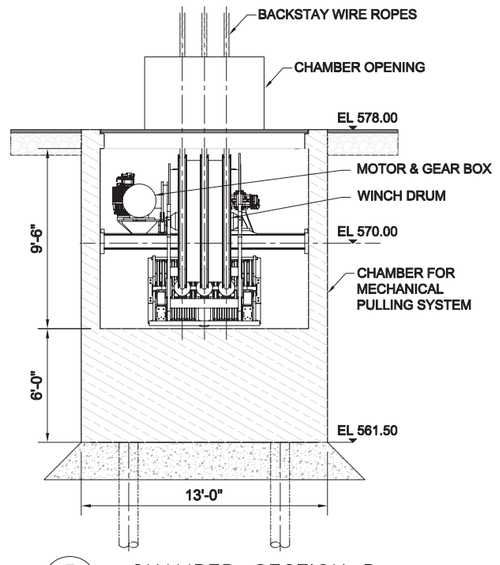
1B / S16 DEVELOPED BRIDGE ELEVATION
SCALE: 3/16"=1'0"

* ALL MEASUREMENTS ALONG ℄ BRIDGE UNLESS OTHERWISE NOTED

1A / S16 CHAMBER–LONGITUDINAL CROSS–SECTION
SCALE: 3/16"=1'0"



2 / S16 CHAMBER AT PARK SIDE–SECTION
SCALE: 3/16"=1'0"



3 / S16 CHAMBER–SECTION B
SCALE: 1/4"=1'0"

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REVIEWED SDG DATE 08/22/14 STRUCTURE FILE NUMBER
DRAWN SSCHO REVISED 3
DESIGNED NDR CHECKED MSt

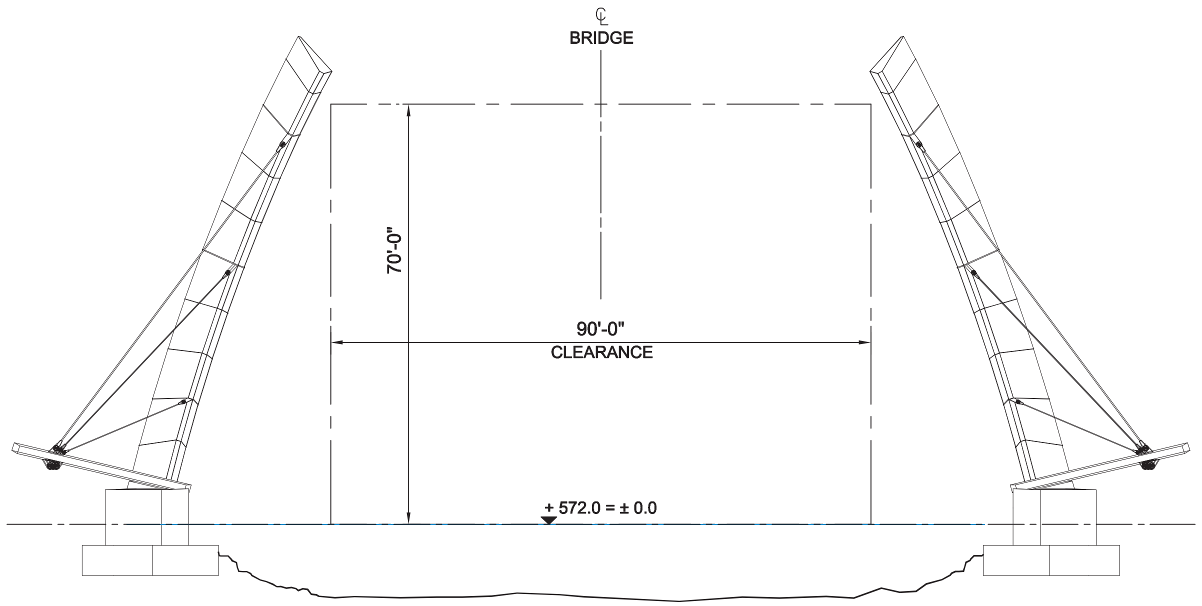
HALF BRIDGE ELEVATION – CLOSED POSITION
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

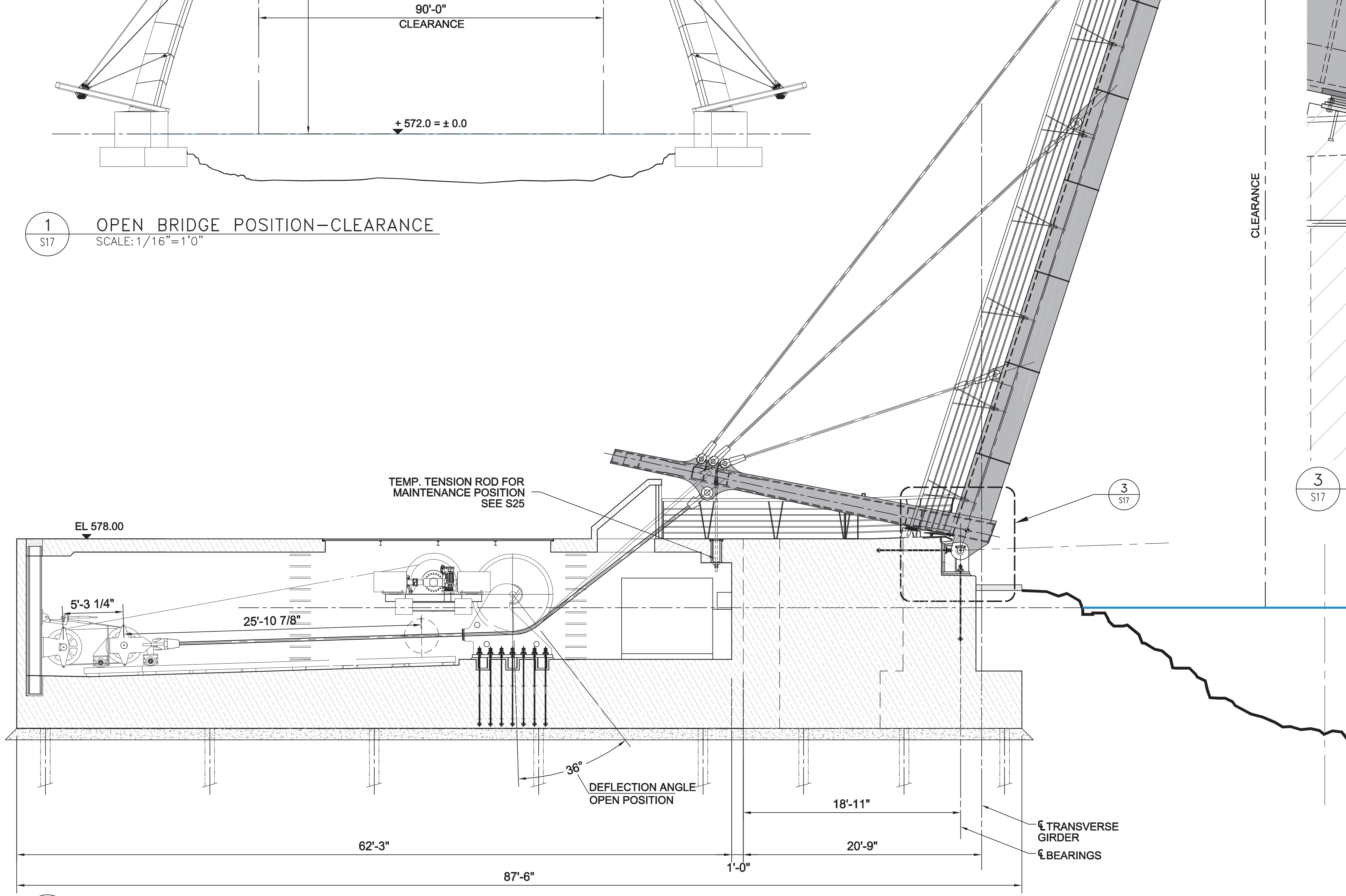
S16/S35

NOTE: PILES, MUD MAT AND OTHER CIVIL WORKS ARE NOT LABELED ON SUPERSTRUCTURES DRAWINGS.
FOR THESE ITEMS, SEE SUBSTRUCTURE PLANS

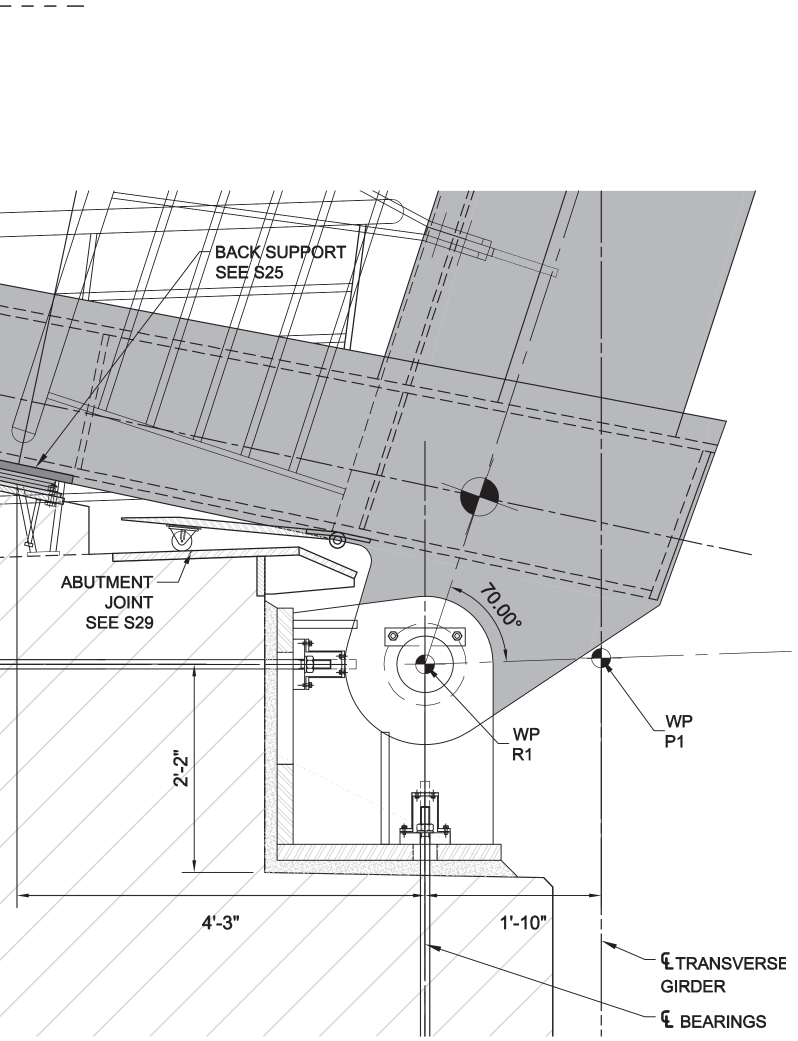
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS



1 / S17 OPEN BRIDGE POSITION–CLEARANCE
SCALE: 1/16"=1'0"



2 / S17 ELEVATION –OPEN BRIDGE POSITION (PARK SIDE)
SCALE: 3/16"=1'0"



3 / S17 DETAIL: MAST BACK SUPPORT IN OPEN POSITION
SCALE: 1"=1'0"

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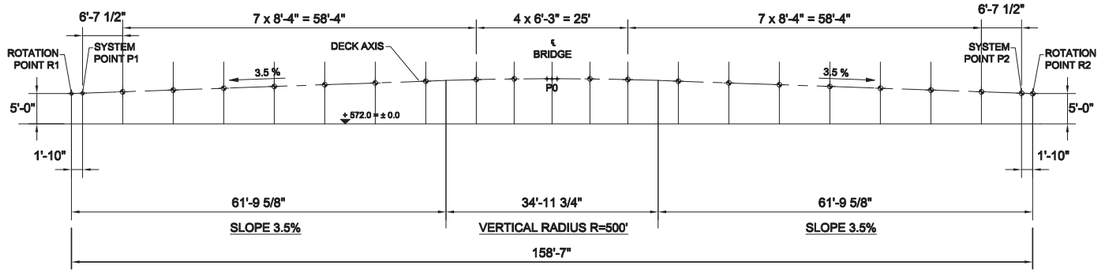
NDR	SSCHO	SDG	08/22/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MSt	3		

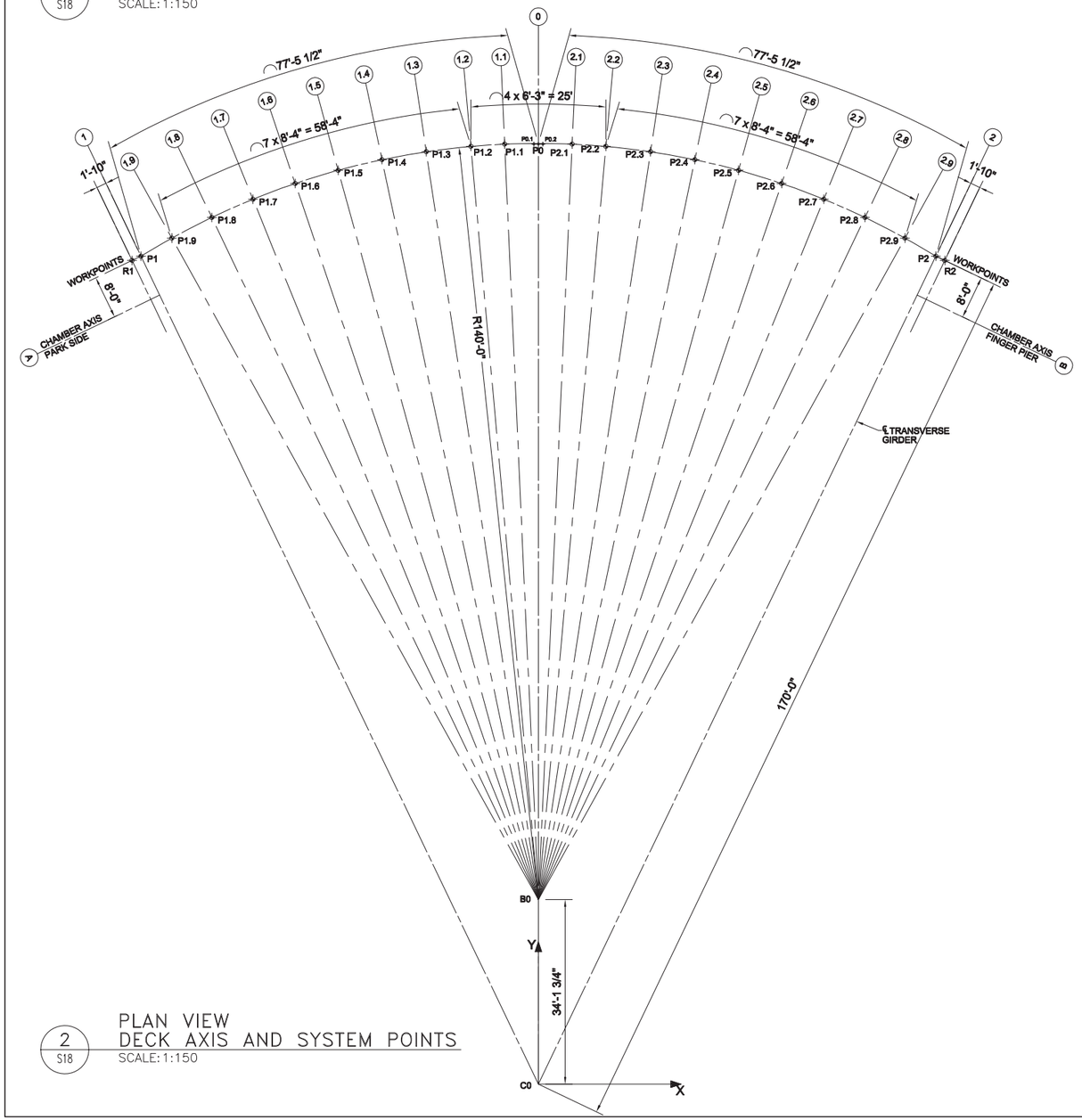
HALF BRIDGE ELEVATION – OPEN POSITION
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

S17/S35



1 / S18 DEVELOPED ELEVATION
DECK AXIS AND SYSTEM POINTS
SCALE: 1:150



2 / S18 PLAN VIEW
DECK AXIS AND SYSTEM POINTS
SCALE: 1:150

COORDINATES OF GLOBAL POINTS IN US FEET SURVEY

WORKPOINT	COORDINATES (ft)	
#	NORTHING	EASTING
C0	72382.49	88335.47
P1	72494.46	88463.39
P2	72352.71	88502.84
B0	72391.65	88368.36
R1	72495.84	88462.18
R2	72350.91	88502.52

COORDINATES OF SYSTEM POINTS IN BRIDGE COORDINATE SYSTEM, CENTERED ON C0

Table 1 : FINAL GEOMETRY

WORKPOINT	COORDINATES (ft)		
#	x	y	z
R1	-75.220	152.464	5.000
P1	-73.567	153.258	5.064
P1.9	-67.850	156.605	5.296
P1.8	-60.445	160.424	5.588
P1.7	-52.825	163.796	5.879
P1.6	-45.019	166.709	6.171
P1.5	-37.053	169.152	6.463
P1.4	-28.956	171.117	6.754
P1.3	-20.757	172.597	7.046
P1.2	-12.483	173.587	7.313
P1.1	-6.248	174.005	7.430
P0.1	-0.833	174.005	7.430
P0	0.000	174.005	7.430

(OTHER SIDE SYMMETRICAL RELATIVE TO AXIS 0)
(EL 572.00 = ±0.00)

Table 2 : FABRICATION GEOMETRY

WORKPOINT	COORDINATES (ft)			ADDITIONAL ROTATION Θ (mrad)
#	x	y	z	
R1	-75.220	152.464	5.000	N/A
P1	-73.567	153.258	5.064	N/A
P1.9	-67.850	156.605	5.296	1
P1.8	-60.445	160.426	5.588	2
P1.7	-52.827	163.801	5.879	2
P1.6	-45.022	166.717	6.171	3
P1.5	-37.057	169.166	6.463	3
P1.4	-28.960	171.138	6.754	4
P1.3	-20.761	172.625	7.046	4
P1.2	-12.487	173.624	7.313	5
P1.1	-6.250	174.050	7.430	5
P0.1	-0.833	174.057	7.430	5
P0	0.000	174.058	7.430	N/A

(OTHER SIDE SYMMETRICAL RELATIVE TO AXIS 0)
(EL 572.00 = ±0.00)

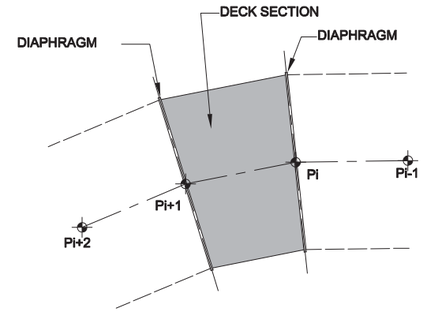
DECK GEOMETRY:

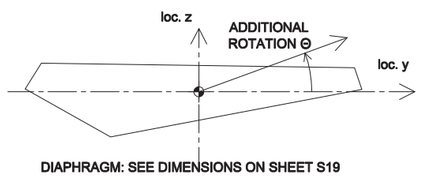
- DECK AXIS IS DISCRETIZED INTO STRAIGHT LINES BETWEEN SYSTEM POINTS.

- DIAPHRAGM ON AXIS i LIES IN PLANE PASSING THROUGH POINT Pi AND PERPENDICULAR TO LINE Pi-1/Pi+1. LOCAL AXIS Y IS HORIZONTAL IN FINAL GEOMETRY (ANGLE Θ=0).

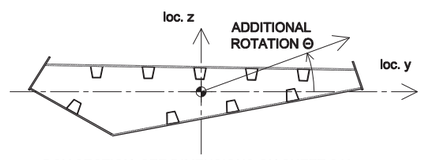
NOTE: DIAPHRAGMS AT MID-SPAN ON AXIS 0.1 AND 0.2 ARE DEFINED ON THE SAME PRINCIPLE, BUT ARE INSIDE THE DECK SECTION. SEE SHEET S21 FOR DETAILS.

- DECK SECTION BETWEEN POINTS Pi AND Pi+1 IS DEFINED BY STRAIGHT EXTRUSION OF GENERAL CROSS SECTION ALONG LINE Pi/Pi+1. LOCAL AXIS Y IS HORIZONTAL IN FINAL GEOMETRY (ANGLE Θ=0).





DIAPHRAGM: SEE DIMENSIONS ON SHEET S19



BOX SECTION: SEE DIMENSIONS ON SHEET S19

PRECAMBER / FABRICATION GEOMETRY:

- THE VERTICAL POSITION OF THE DECK IS MANAGED BY THE TENSIONS IN CABLES AND ROPES. NO VERTICAL PRECAMBER IS NEEDED.
TARGET CABLES TENSIONS UNDER FULL DEAD LOAD AND PRESTRESS:
CABLE 1: 100 KIPS
CABLE 2: 101 KIPS
CABLE 3: 83 KIPS
ONCE TENSIONS ADJUSTED, DECK MID-SPAN LEVEL IS ADJUSTED BY SHIMMING BACKSTAY ROPES SUPPORT IN CHAMBERS. SEE MECHANICAL SPECIFICATIONS. FOR DETAILS.
EXPECTED BACKSTAY ROPES TENSIONS UNDER FULL DEAD LOAD: 85 KIPS PER ROPE (255 KIPS PER BACKSTAY).

- THE TWO OTHER PERMANENT DEFORMATIONS ARE PRECAMBERED BY USING FABRICATION GEOMETRY FROM TABLE 2:

1) LATERAL PRECAMBER
SYSTEM POINTS ARE DISPLACED LATERALLY BETWEEN TABLE 1 AND 2 TO ACHIEVE A LATERAL PRECAMBER VARYING FROM 0 AT THE ABUTMENTS TO 5/8" (TOWARDS THE OUTER EDGE) AT MID-SPAN.

2) TORSION PRECAMBER
INCLUDE IN THE FABRICATION GEOMETRY THE ADDITIONAL ROTATION Θ OF DIAPHRAGMS AND BOX SECTIONS AROUND THE DECK AXIS AS SHOWN ABOVE. THE MAXIMUM VALUE OF 5mrad AT MID-SPAN CORRESPONDS TO RASING THE OUTER EDGE OF THE DECK BY 3/8", AND LOWERING THE INNER EDGE OF THE DECK BY 3/8"

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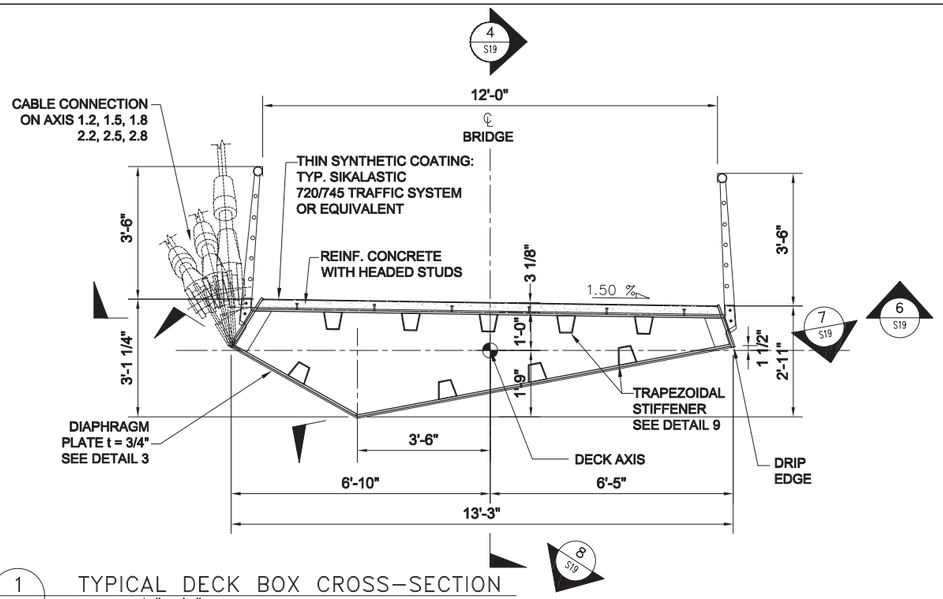
DESIGNED NDR | DRAWN SSCHO | REVIEWED SDG | DATE 08/22/14 | CHECKED MSt | REVISED 3 | STRUCTURE FILE NUMBER

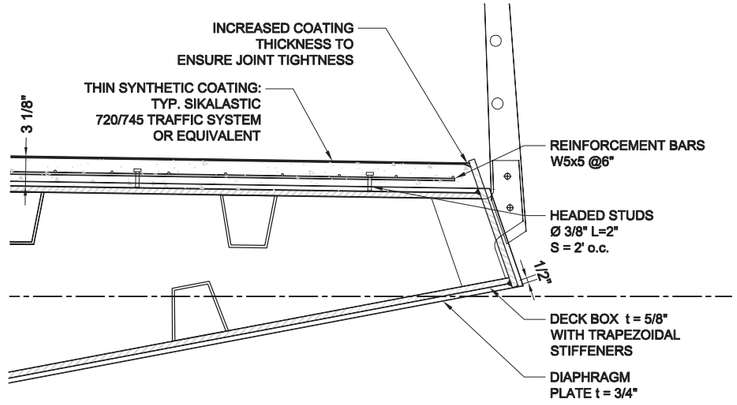
GEOMETRY–GENERAL AXIS AND SYSTEM PTS.
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S18/S35

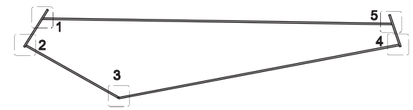


1 S19 TYPICAL DECK BOX CROSS–SECTION
SCALE: 1/2"=1'0"

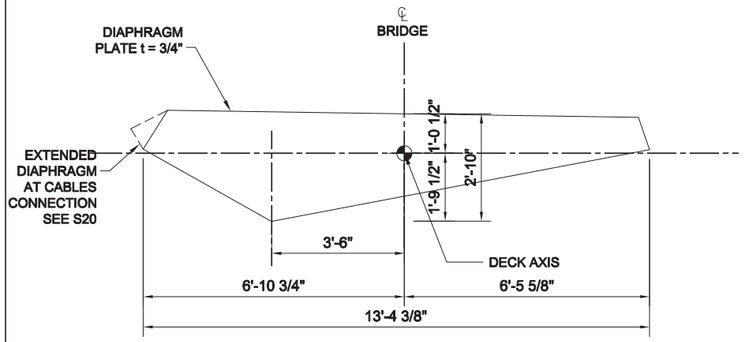


2 S19 TYPICAL DECK BOX DETAIL
SCALE: 1–1/2"=1'0"

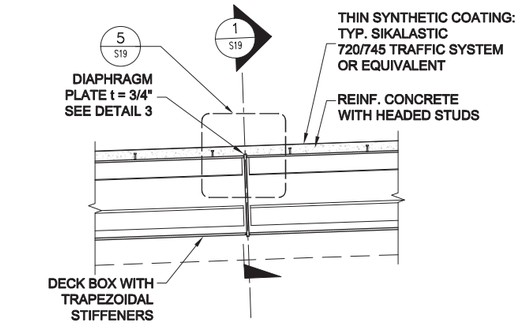
NOTE:
ALL BOX CORNER WELDS: MINIMUM EFFECTIVE THROAT 1/4"



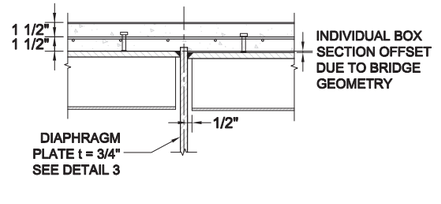
10 S19 BOX CORNERS
SCALE: 3"=1'0"



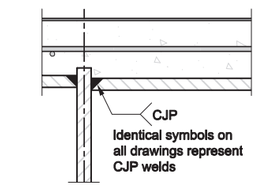
3 S19 DIAPHRAGM ELEVATION
SCALE: 1/2"=1'0"



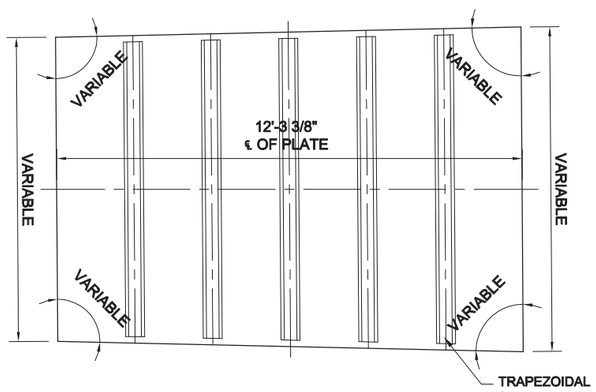
4 S19 TYP. DECK BOX – LONG. SECTION
SCALE: 1/2"=1'0"



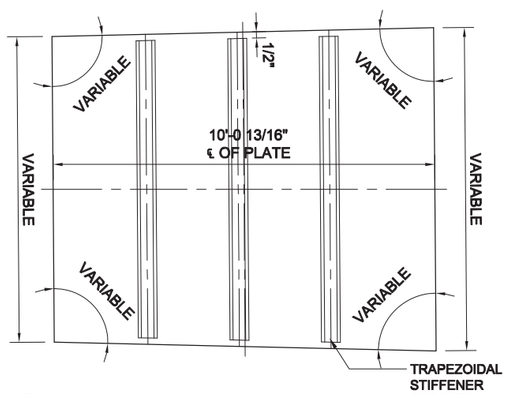
5 S19 SECTION DETAIL
SCALE: 1–1/2"=1'0"



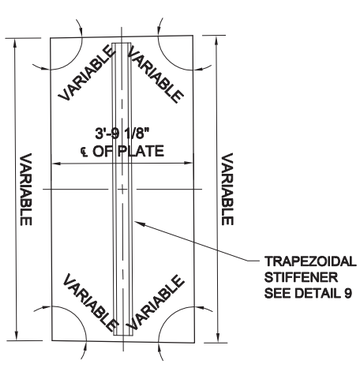
11 S19 CJP WELD, TYP.
SCALE: 3"=1'0"



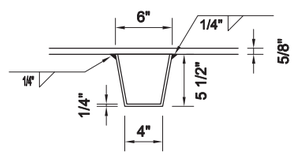
6 S19 DECK BOX PLATE SEGMENT
SCALE: 1/2"=1'0"



7 S19 DECK BOX PLATE SEGMENT
SCALE: 1/2"=1'0"



8 S19 DECK BOX PLATE SEGMENT
SCALE: 1/2"=1'0"



9 S19 STIFFENER DETAIL
SCALE: 1–1/2"=1'0"

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

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DRAWN SSCHO
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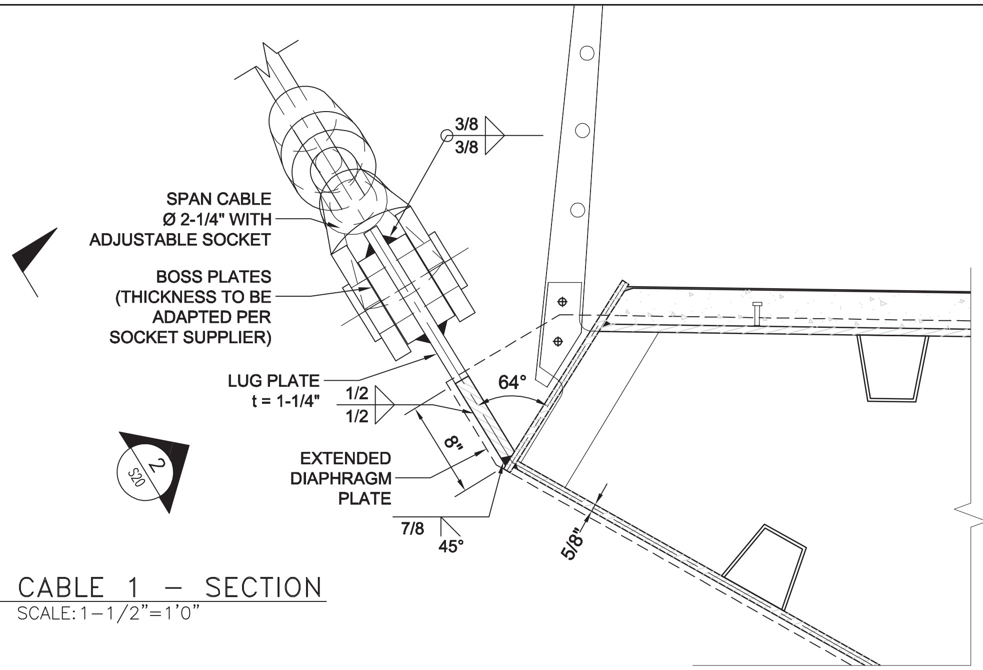
DESIGNED NDR
CHECKED MSt

DECK – CROSS–SECTION AND DETAILS
CURVED SYMMETRICAL BASCULE BRIDGE

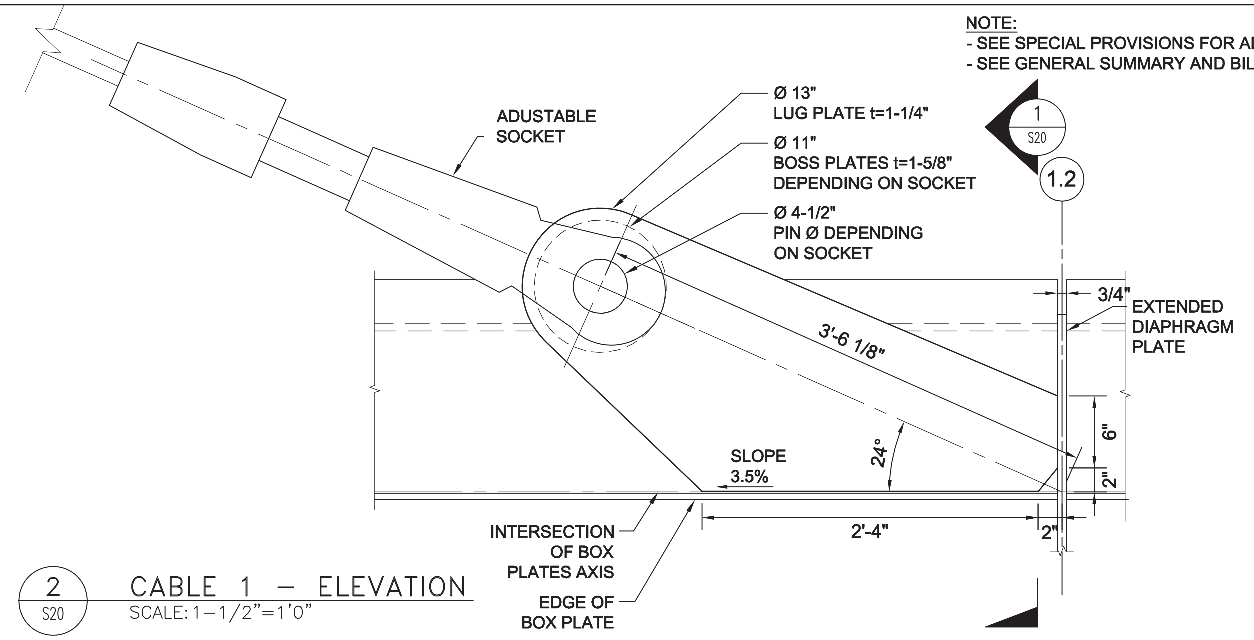
CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S19/S35

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

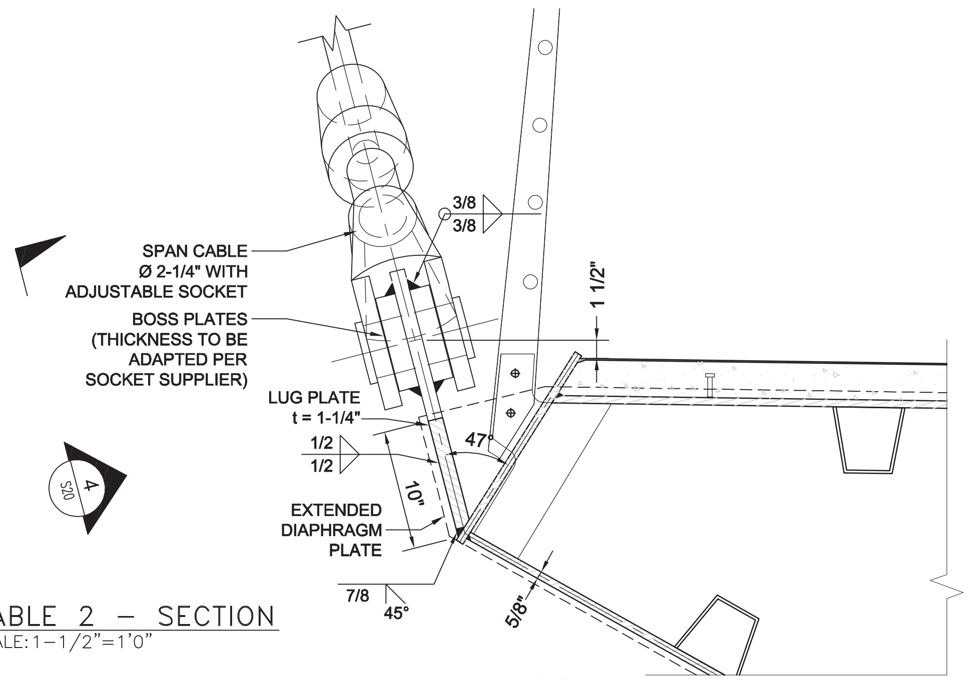


1 S20 CABLE 1 – SECTION
SCALE: 1–1/2"=1'0"

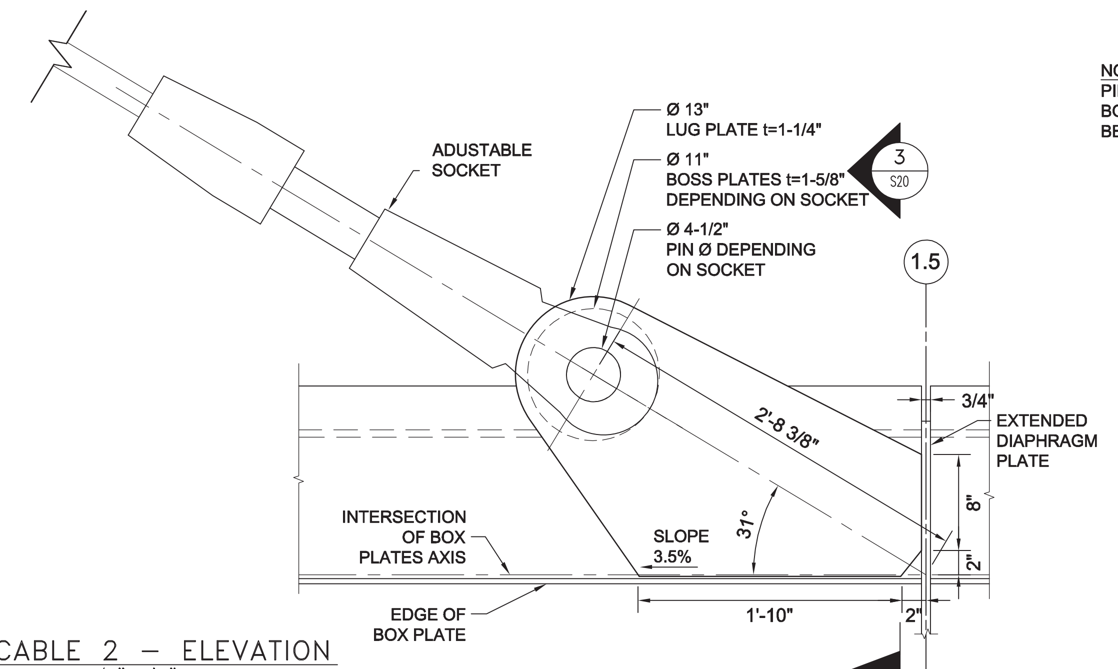


2 S20 CABLE 1 – ELEVATION
SCALE: 1–1/2"=1'0"

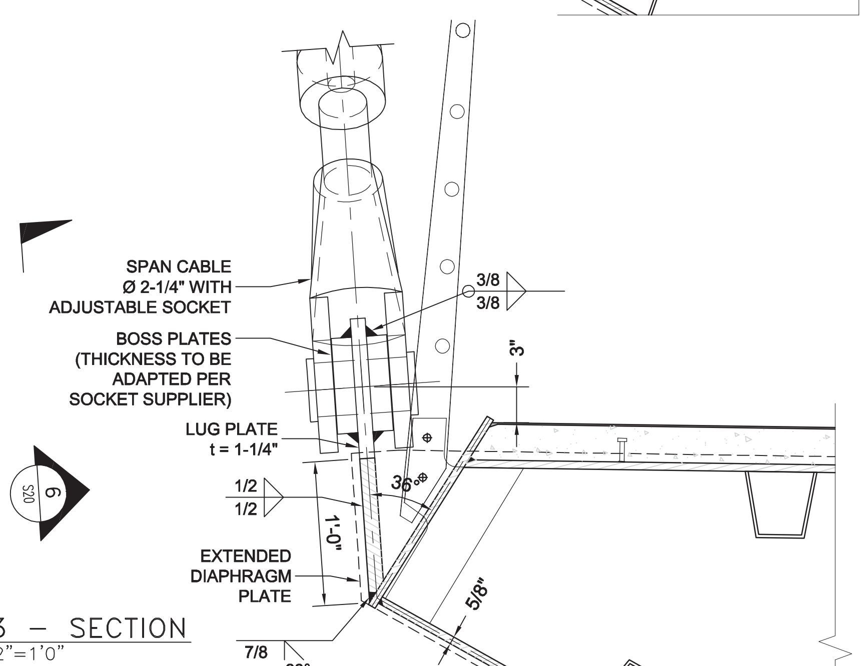
NOTE:
PIN HOLES TO BE MILLED AFTER WELDING
BOSS PLATES IN ORDER TO ENSURE SMOOTH
BEARING SURFACE FOR PINS



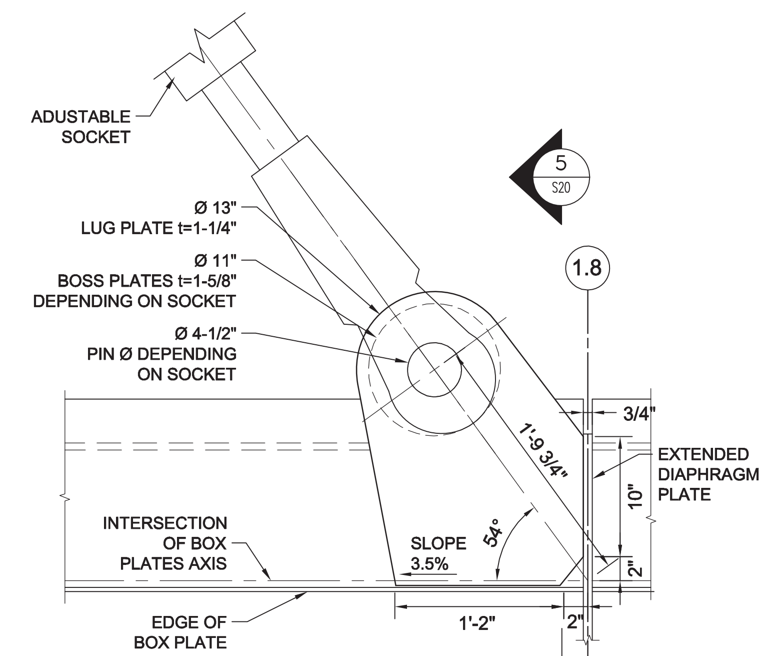
3 S20 CABLE 2 – SECTION
SCALE: 1–1/2"=1'0"



4 S20 CABLE 2 – ELEVATION
SCALE: 1–1/2"=1'0"



5 S20 CABLE 3 – SECTION
SCALE: 1–1/2"=1'0"



6 S20 CABLE 3 – ELEVATION
SCALE: 1–1/2"=1'0"

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STRUCTURE FILE NUMBER

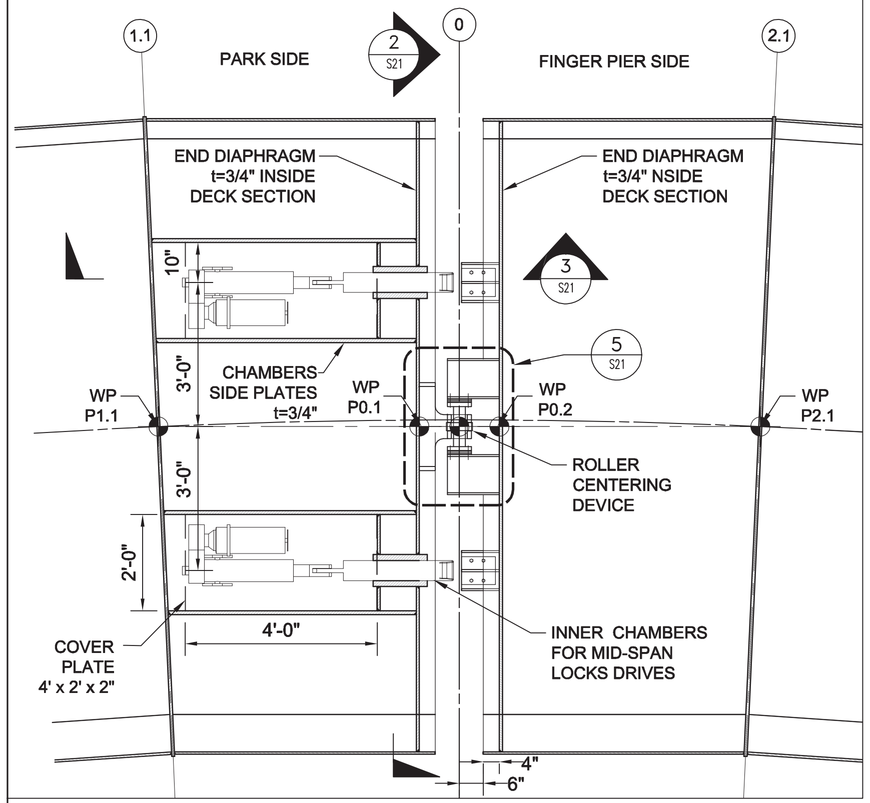
DECK – CABLE CONNECTION DETAILS
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

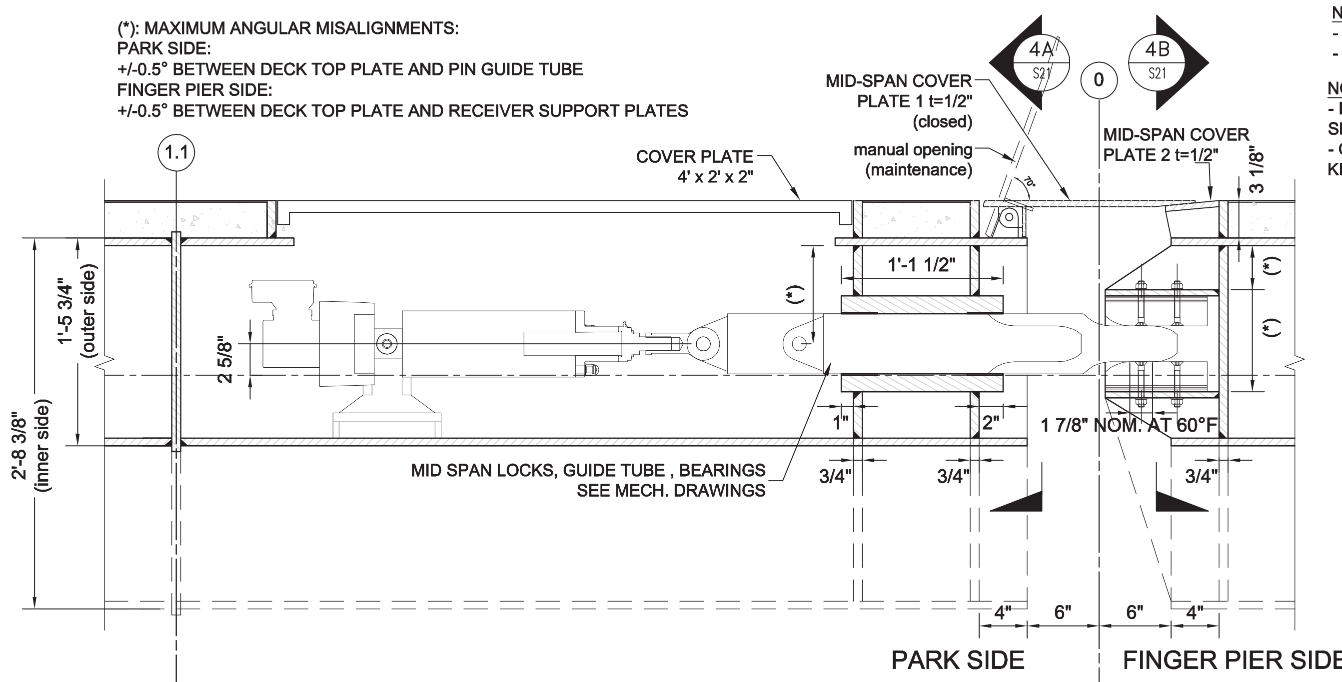
S20/S35

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

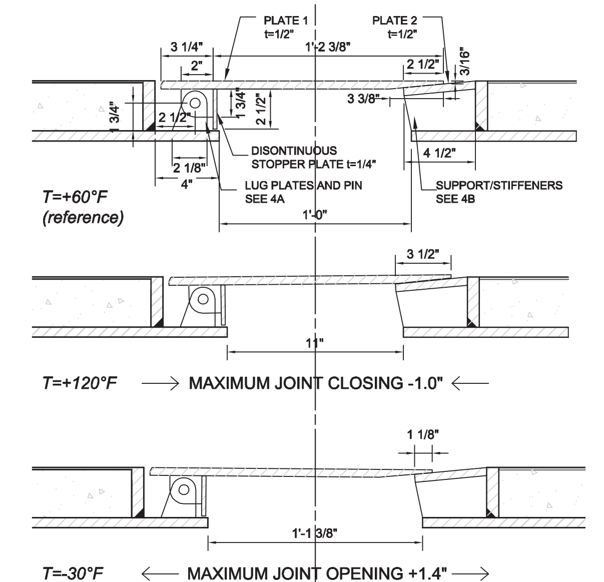
NOTE:
- INSIDE SPACE OF CHAMBERS WITHIN DECK BOX TO BE PAINTED ACCORDING TO SPECIFICATIONS.
- CHAMBERS CLOSED WITH REMOVABLE COVERS SUITABLE FOR TRAFFIC (H15-44, 12 KIPS WHEEL LOAD)



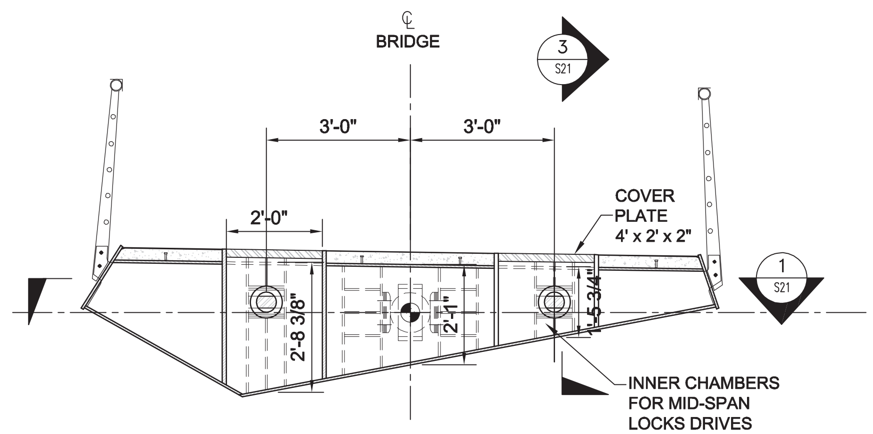
1 S21 MID-SPAN ELEMENTS-PLAN
SCALE: 1/2"=1'0"



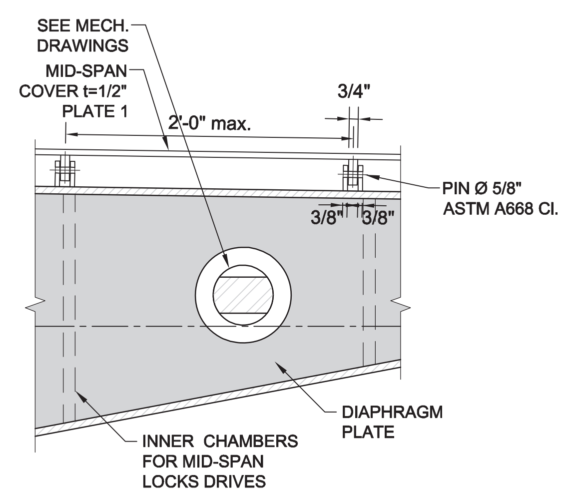
3 S21 MID-SPAN LOCKS DETAIL-SECTION
SCALE: 1-1/2"=1'0"



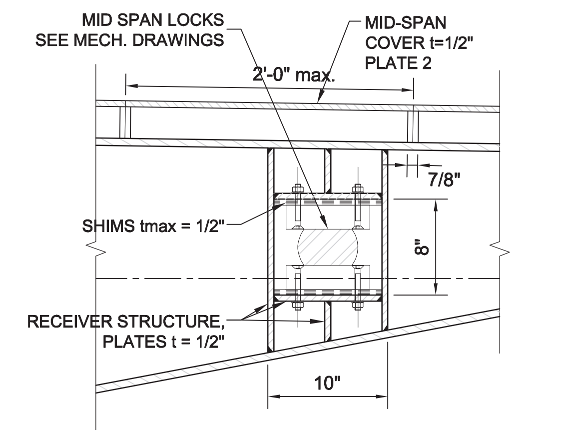
3A S21 DECK JOINT DETAIL
SCALE: 2"=1'0"



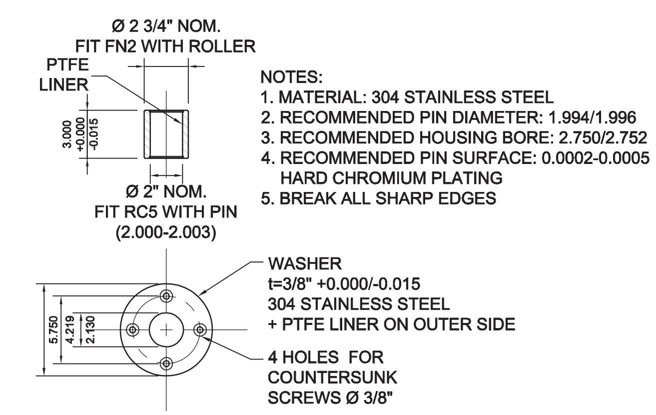
2 S21 MID-SPAN ELEMENTS-SECTION
SCALE: 1/2"=1'0"



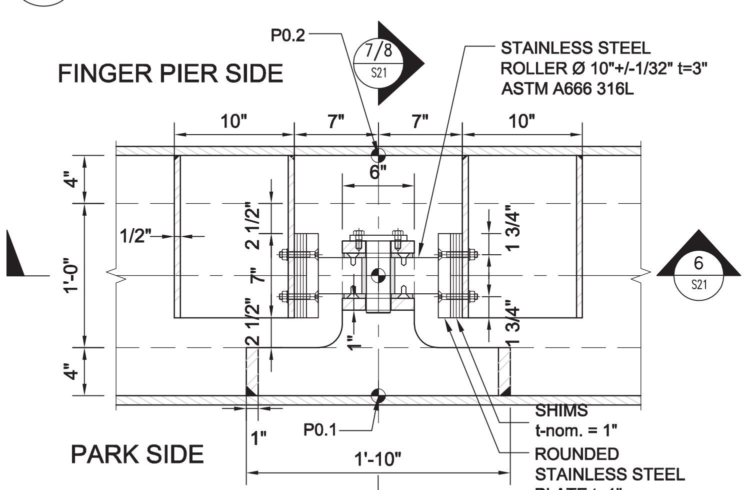
4A S21 MID-SPAN LOCKS DETAIL-PIN SIDE
SCALE: 1-1/2"=1'0"



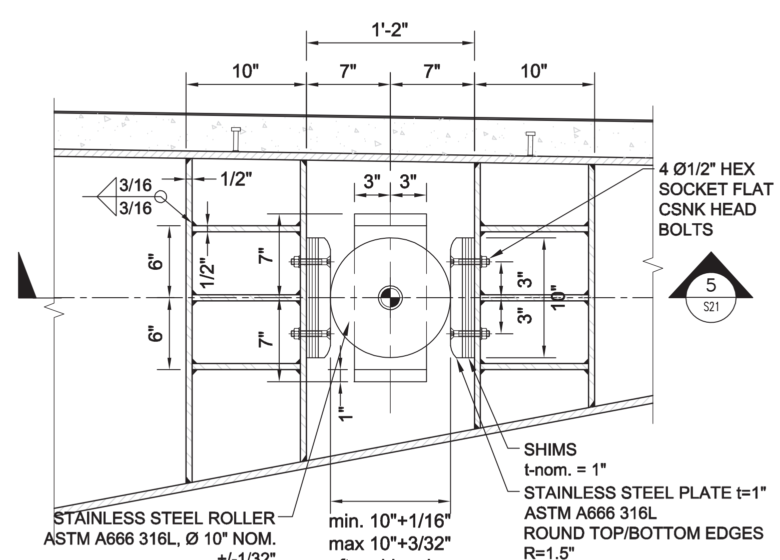
4B S21 MID-SPAN LOCKS DETAIL-PIN RECEIVER SIDE
SCALE: 1-1/2"=1'0"



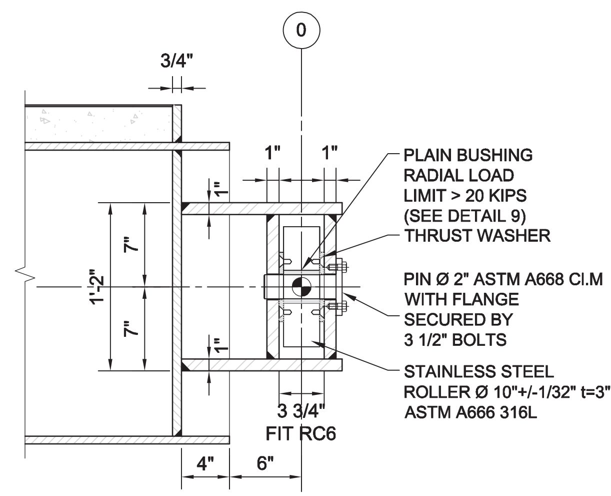
9 S21 ROLLER BUSHING AND WASHERS
SCALE: 2"=1'0"



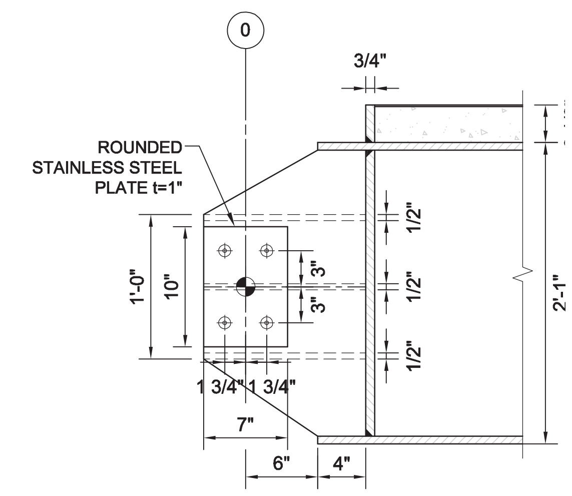
5 S21 ROLLER DETAIL - PLAN
SCALE: 1-1/2"=1'0"



6 S21 ROLLER DETAIL - VERTIC. SECTION
SCALE: 1-1/2"=1'0"



7 S21 ROLLER DETAIL-PARK SIDE
SCALE: 1-1/2"=1'0"



8 S21 ROLLER DETAIL-PIER SIDE
SCALE: 1/2"=1'0"

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DRAWN	SSCHO
REVISED	3
DESIGNED	NDR
CHECKED	MSt

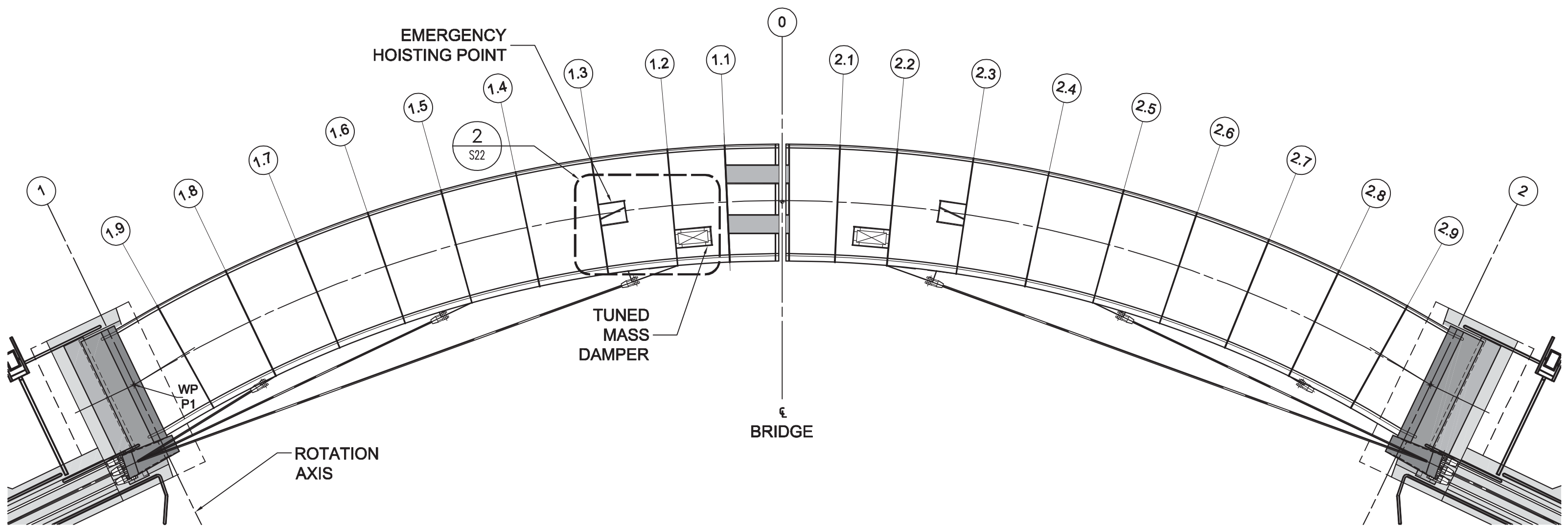
DECK: MID-SPAN DETAILS
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

S21/S35

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

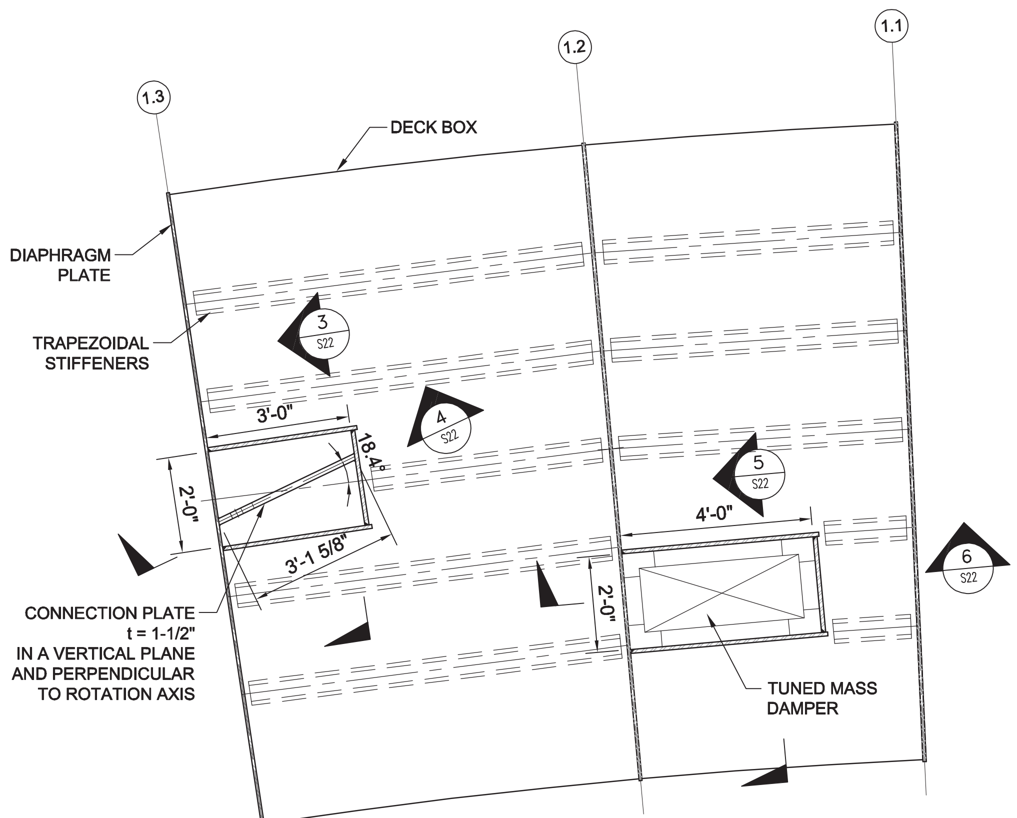
NOTE:
- INSIDE SPACE OF CHAMBERS WITHIN DECK BOX TO BE PAINTED ACCORDING TO SPECIFICATIONS.
- CHAMBERS CLOSED WITH REMOVABLE COVERS SUITABLE FOR TRAFFIC (H15-44, 12 KIPS WHEEL LOAD)



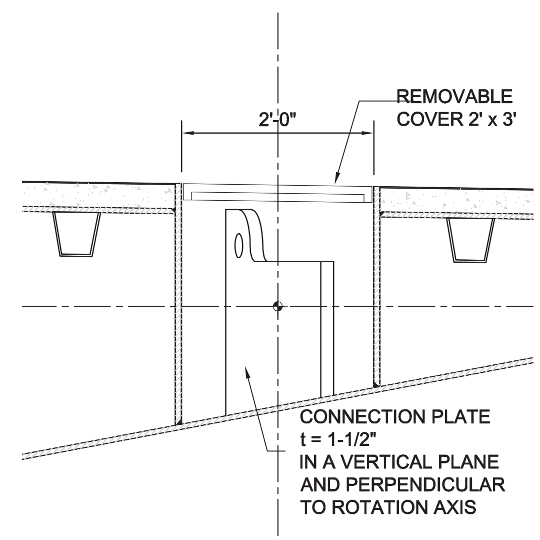
1 S22 PLAN VIEW
SCALE: 3/32"=1'–0"

NOTE:

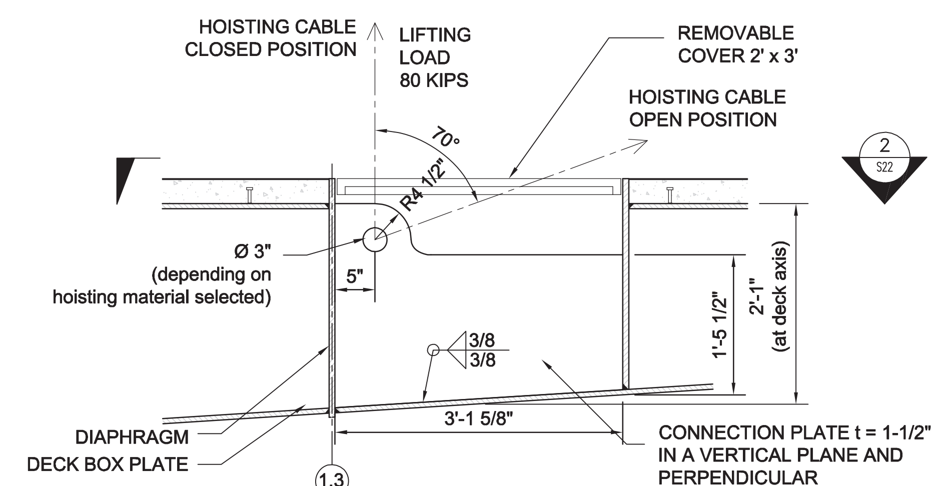
- EMERGENCY HOISTING POINT ON EACH BRIDGE HALF PROVIDED IN CASE OF COMPLETE FAILURE OF MAIN DRIVE SYSTEM.
- CONNECT HOISTING EQUIPMENT (TYP. BARGE CRANE) WITH MINIMUM LIFTING CAPACITY OF 80 KIPS (NON-FACTORED)
- INITIATE LIFTING TO DELOAD BACKSTAY ROPES
- DISCONNECT BACKSTAY ROPES OR OTHER MEASURE TO AVOID DAMAGE ON THE ROPES OR PULLEYS
- RESUME LIFTING FROM HOISTING POINT
- TIE DOWN BRIDGE LEAF WITH PROVIDED TENSION RODS (SEE S25)



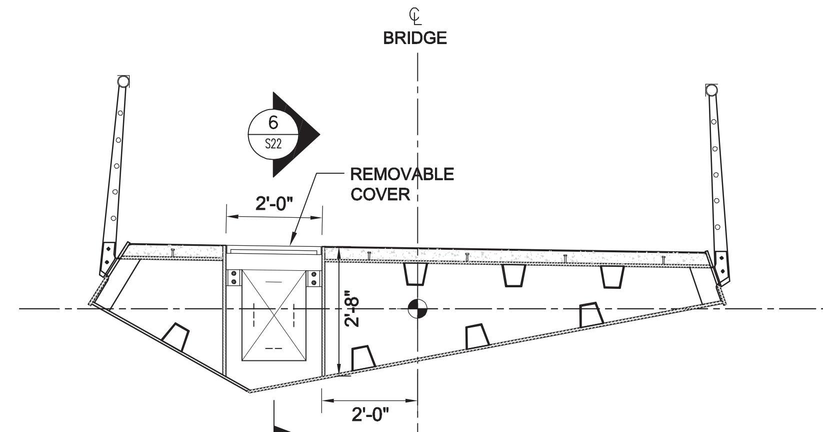
2 S22 DETAIL–PLAN: PARK SIDE
SCALE: 1/2"=1'0"
NOTE: FINGER PIER SIDE SYMMETRICAL RELATIVE TO BRIDGE CENTER LINE (AXIS 0)



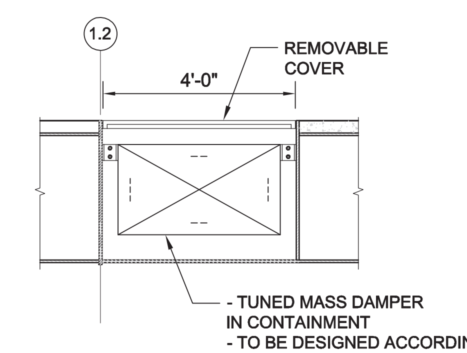
3 S22 HOISTING DETAIL TRANSV. SECTION
SCALE: 1"=1'0"



4 S22 HOISTING DETAIL – SECTION IN PLANE OF PLATE
SCALE: 1"=1'0"



5 S22 TUNED MASS DAMPER–SECTION
SCALE: 1/2"=1'0"



6 S22 TUNED MASS DAMPER–SECTION
SCALE: 1/2"=1'0"

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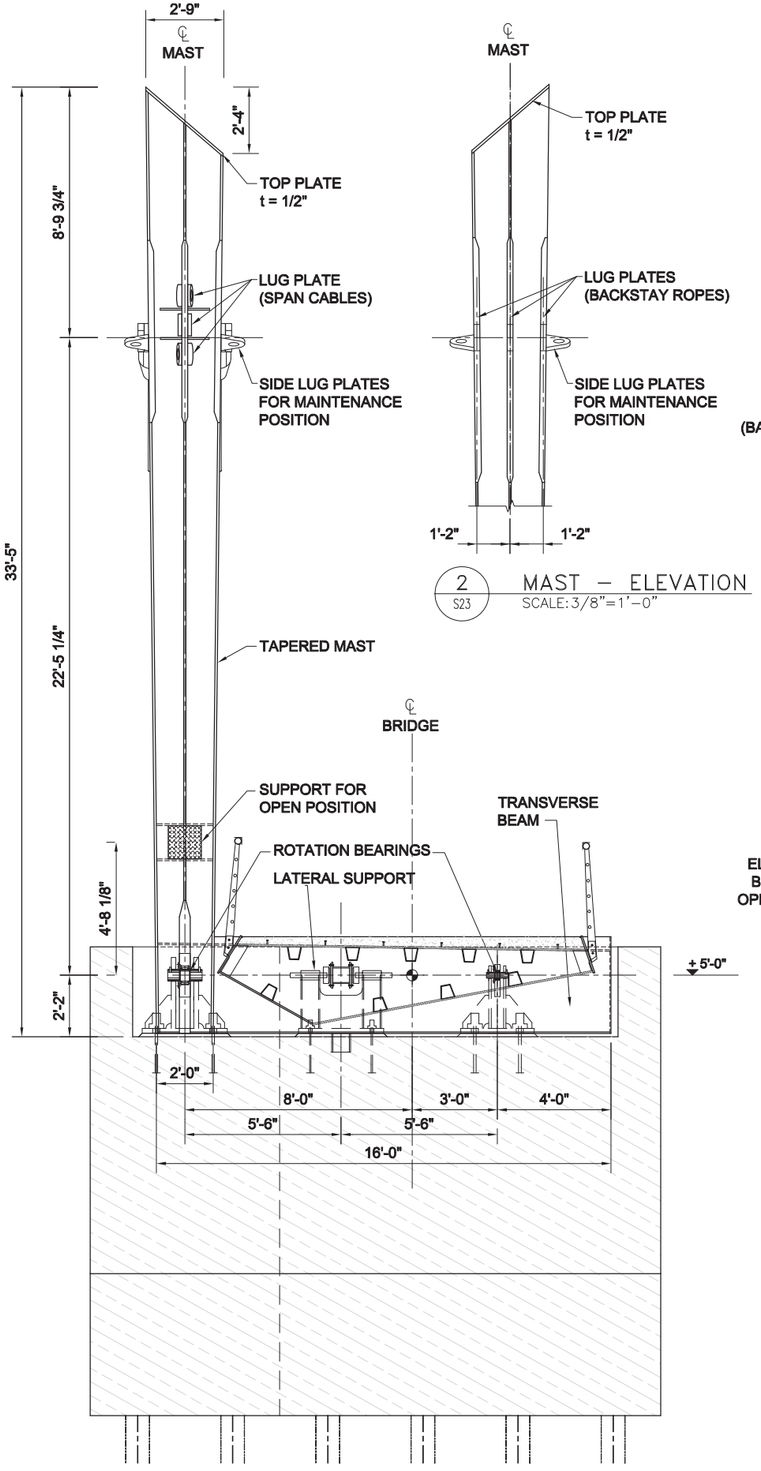
MSt	1		

DECK: OTHER DETAILS
CURVED SYMMETRICAL BASCULE BRIDGE

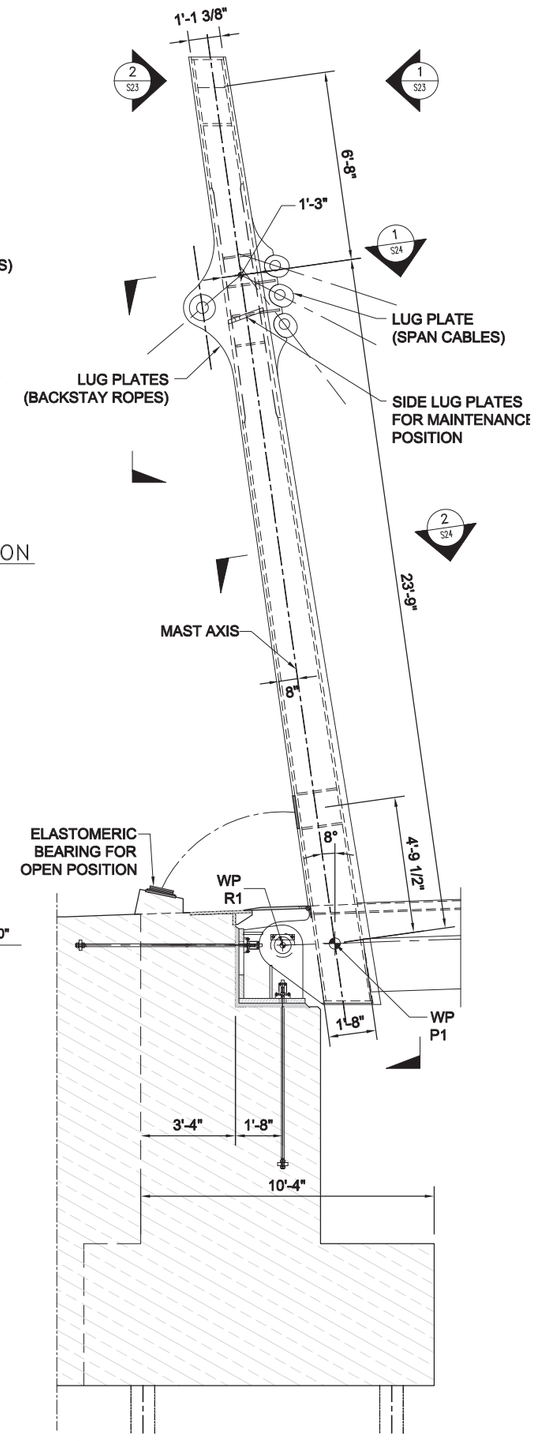
CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S22/S35

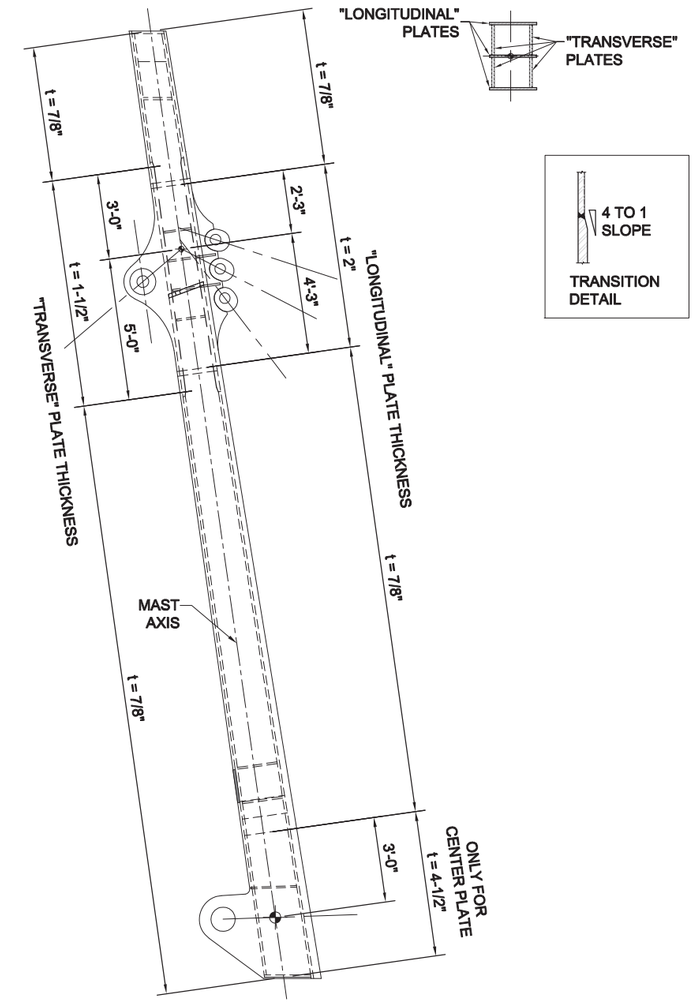


1 S23 MAST – SECTION
SCALE: 3/8"=1'–0"

2 S23 MAST – ELEVATION
SCALE: 3/8"=1'–0"



3 S23 MAST – ELEVATION
SCALE: 3/8"=1'–0"



4 S23 MAST – ELEVATION – PLATE THICKNESSES
SCALE: 3/8"=1'–0"

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
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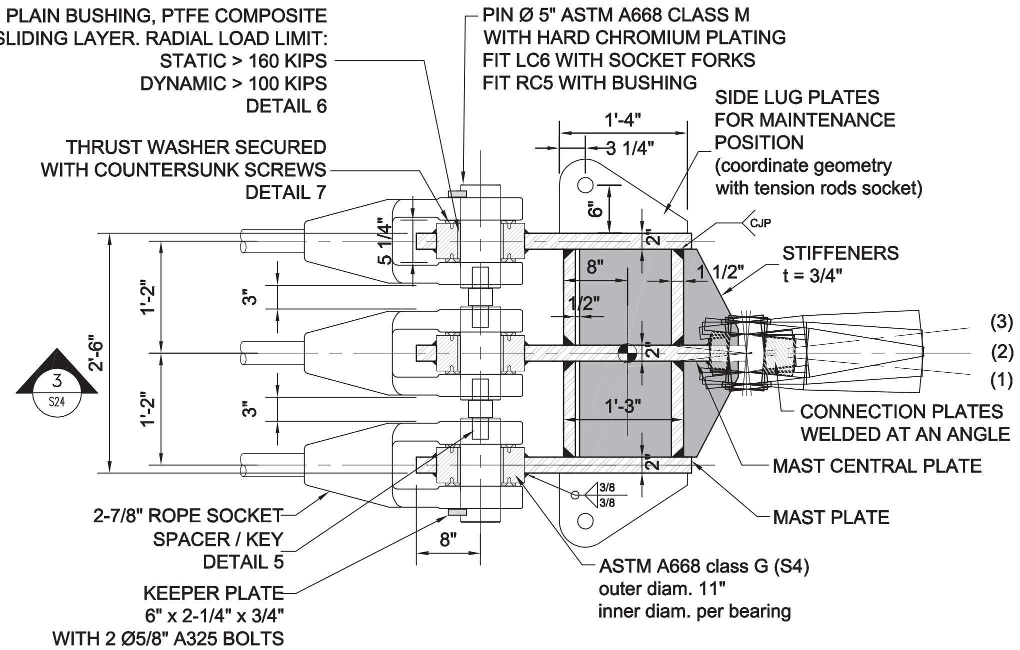
MSt	3		

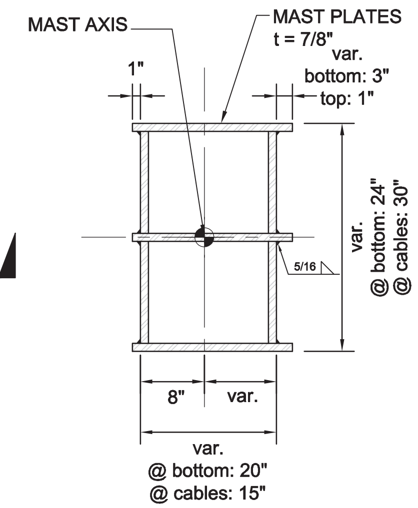
MAST – GEOMETRY, ELEVATIONS
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

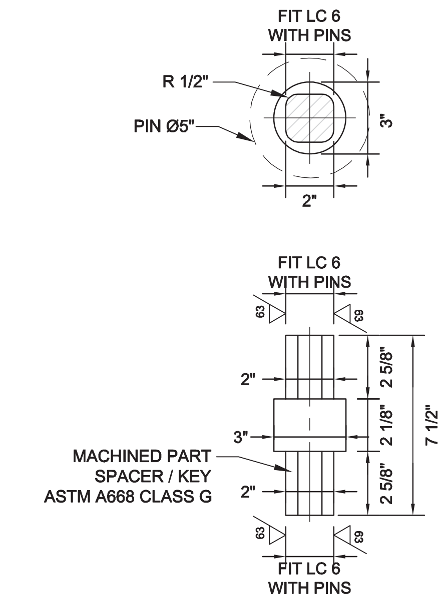
S23/S35



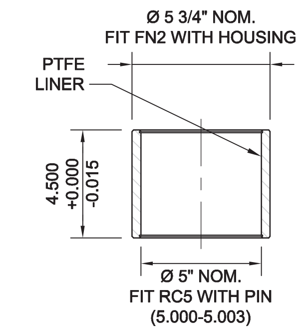
1 CABLE CONNECTION @ MAST – DETAIL
S24
SCALE: 1"=1'-0"



2 MAST SECTION
S24
SCALE: 1"=1'-0"

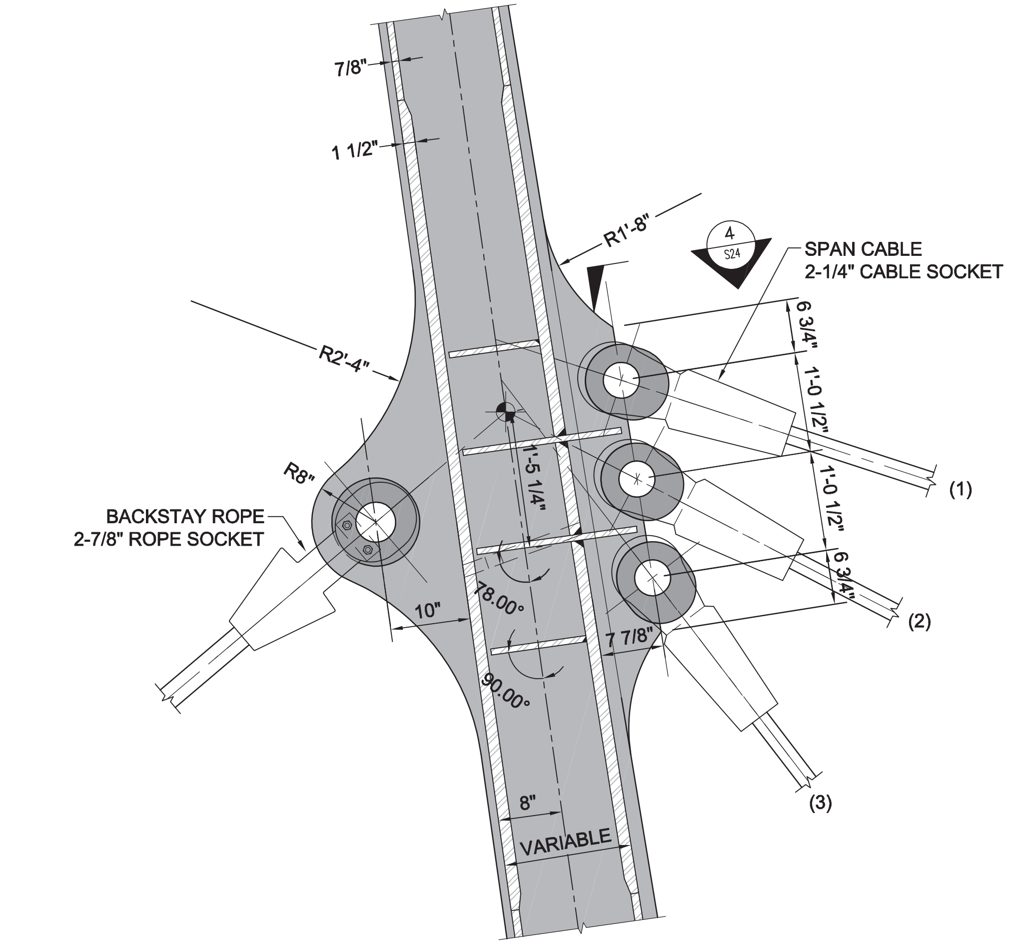


5 DETAIL – SPACER/KEY
S24
SCALE: 3"=1'-0"

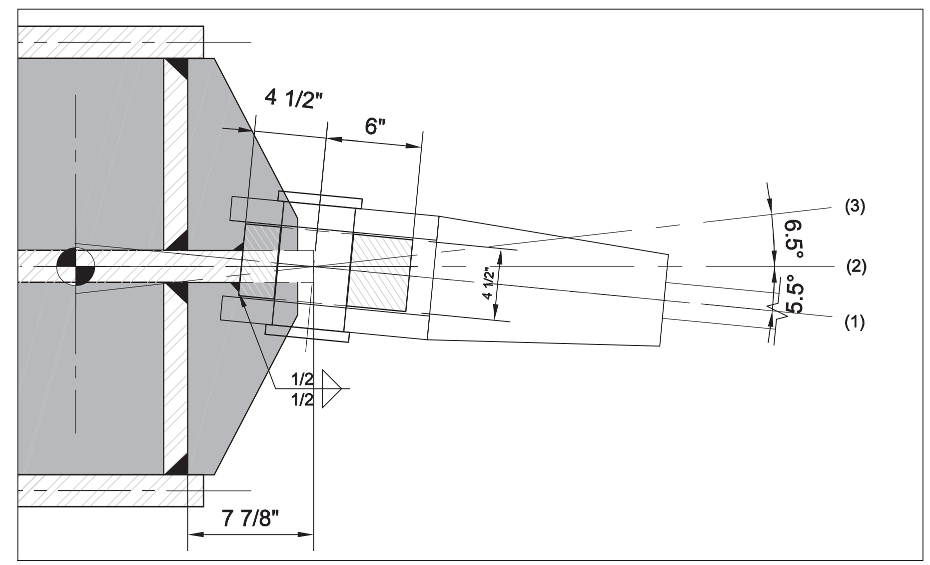


NOTES:
1. MATERIAL: 304 STAINLESS STEEL
2. RECOMMENDED PIN DIAMETER: 4.994/4.996
3. RECOMMENDED HOUSING BORE: 5.750/5.752
4. RECOMMENDED PIN SURFACE: 0.0002-0.0005 HARD CHROMIUM PLATING
5. BREAK ALL SHARP EDGES

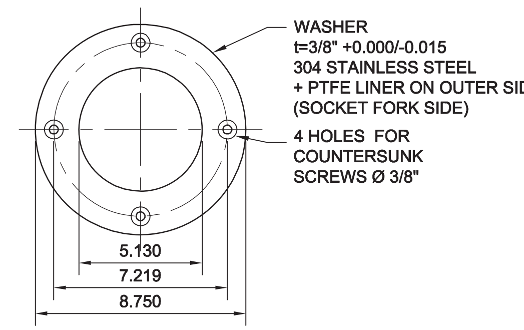
6 DETAIL: BUSHING
S24
SCALE: 3"=1'-0"



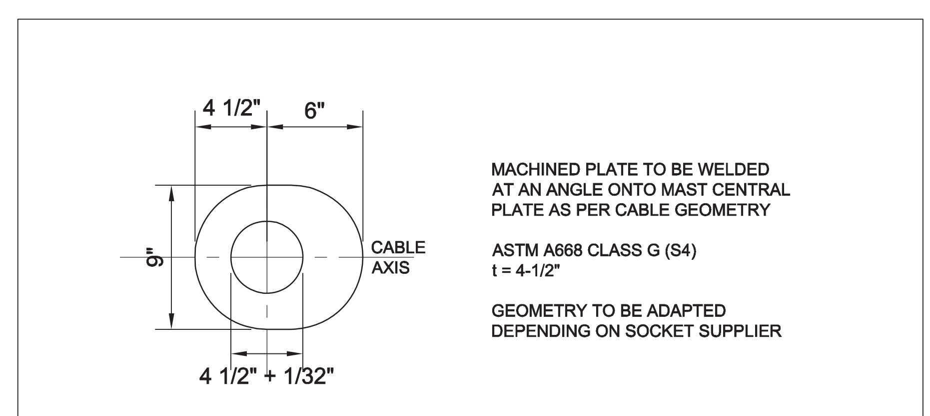
3 CABLE CONNECTION @ MAST – ELEVATION
S24
SCALE: 1"=1'-0"



4 SPAN CABLE CONNECTION DETAIL
S24
SCALE: 2"=1'-0"



7 DETAIL: THRUST WASHER
S24
SCALE: 3"=1'-0"



MACHINED PLATE TO BE WELDED AT AN ANGLE ONTO MAST CENTRAL PLATE AS PER CABLE GEOMETRY

ASTM A668 CLASS G (S4)
t = 4-1/2"

GEOMETRY TO BE ADAPTED DEPENDING ON SOCKET SUPPLIER

4a SPAN CABLE CONNECTION PLATE
S24
SCALE: 2"=1'-0"

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

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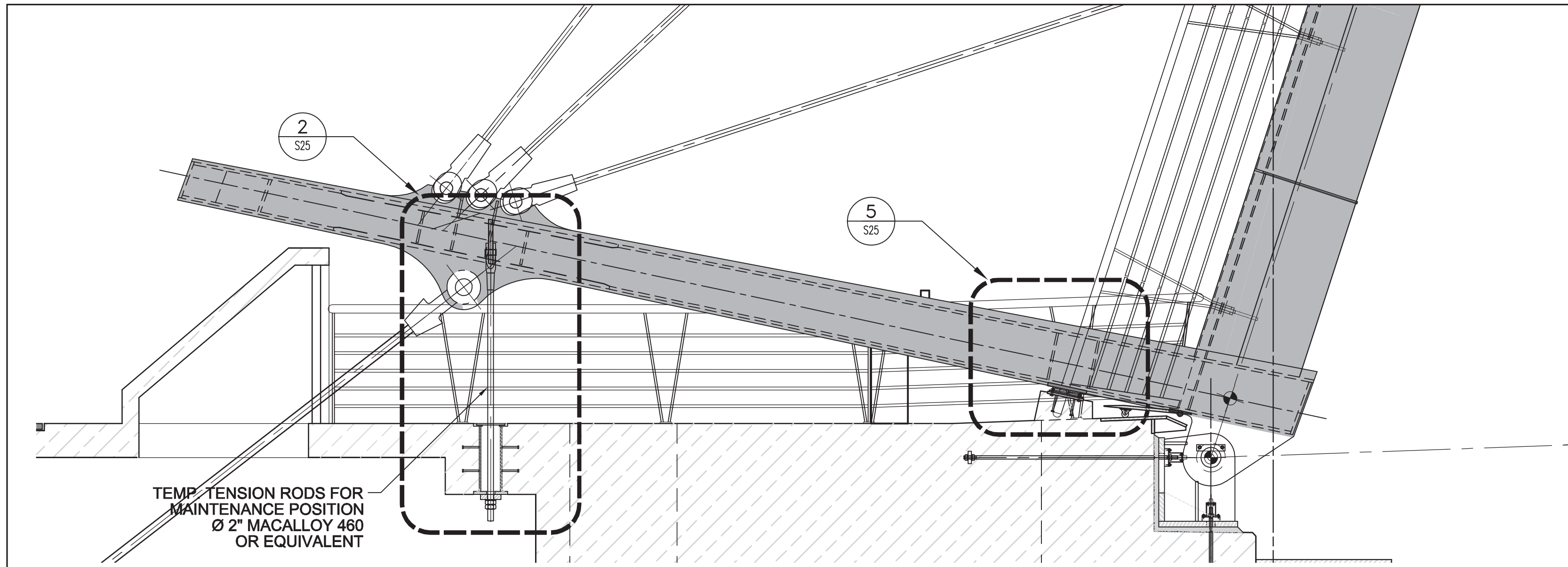
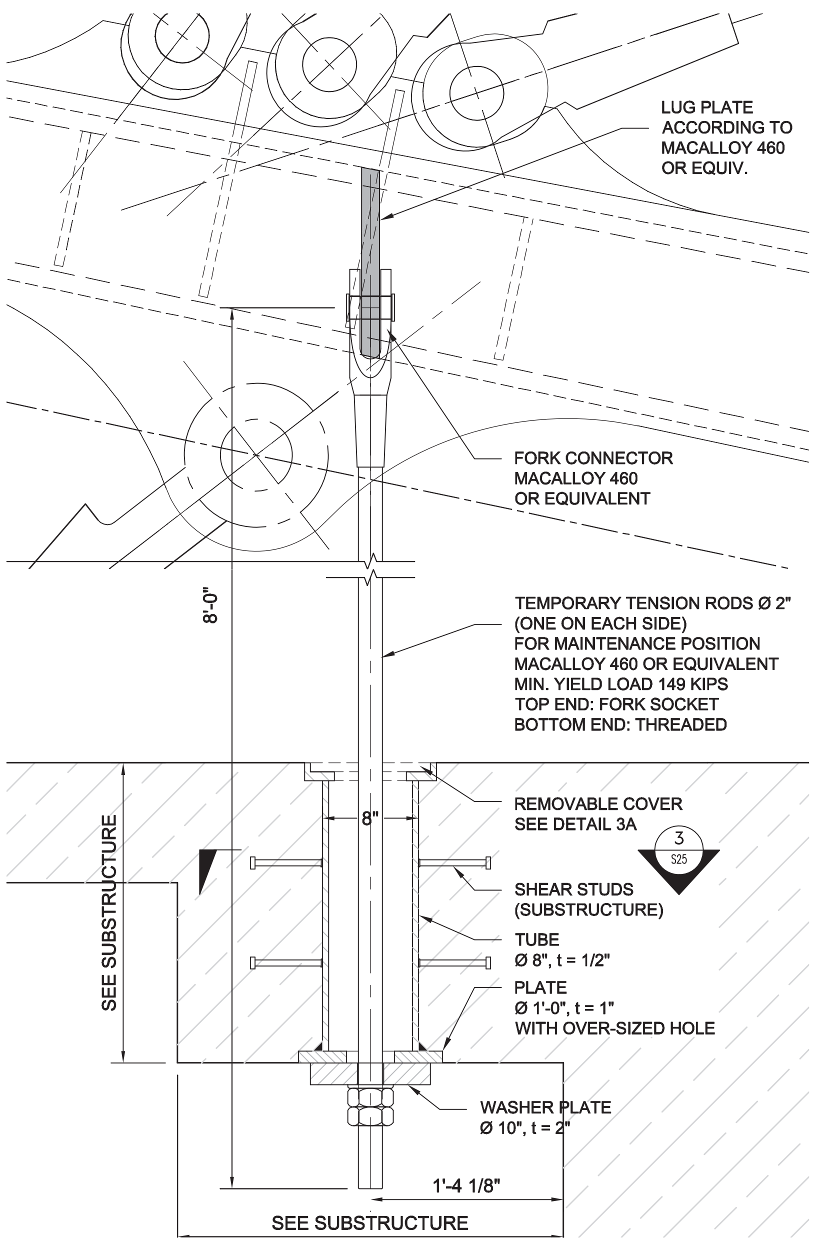
MAST – DETAILS
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

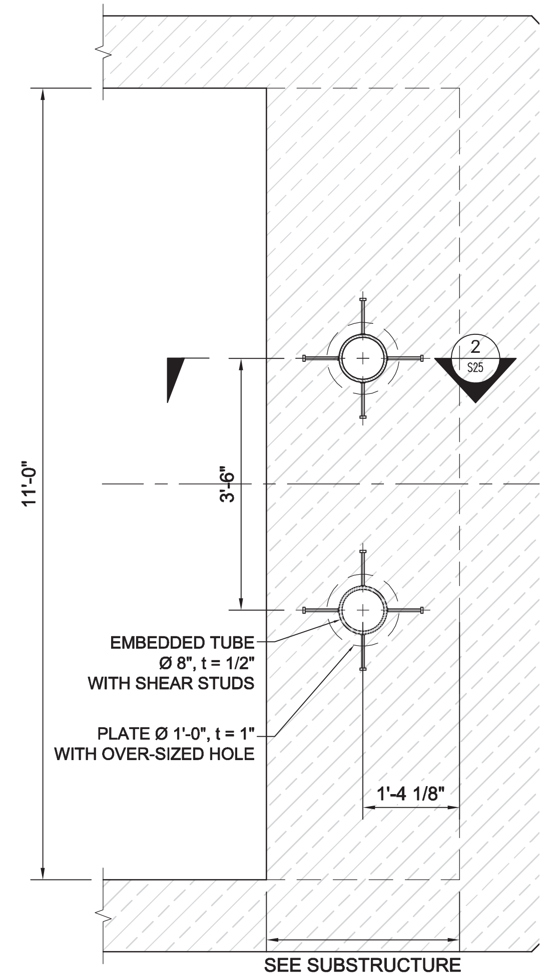
S24/S35



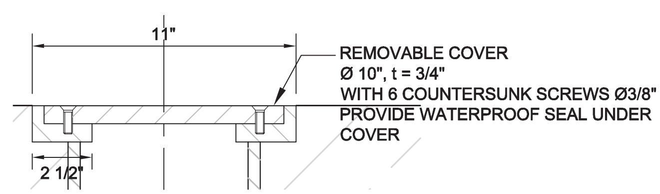
1 S25 MAINTENANCE POSITION SUPPORT – SECTION
SCALE: 3/8"=1'–0"



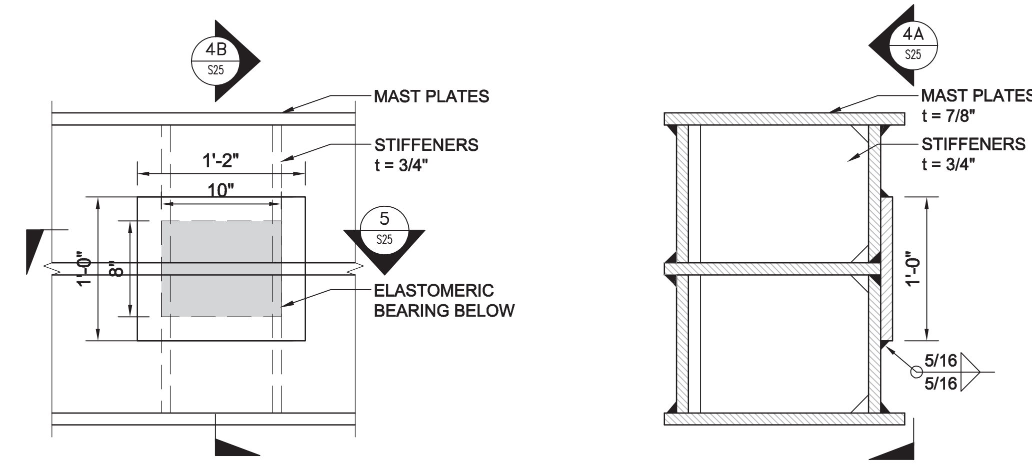
2 S25 TEMPORARY TENSION ROD CONNECTION
SCALE: 1–1/2"=1'0"



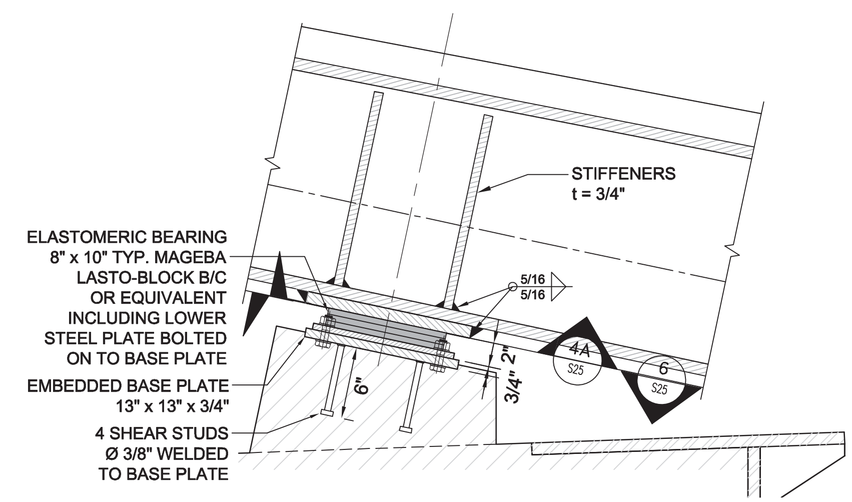
3 S25 TEMP. TENSION ROD CONNECTION
SCALE: 3/4"=1'0"



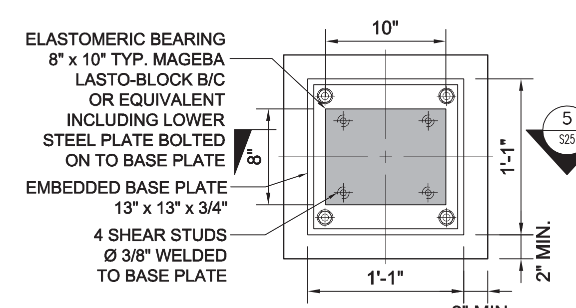
3A S25 REMOVABLE COVER DETAIL
SCALE: 3"=1'0"



4 S25 MAST BACK SUPPORT – A: PLAN B: SECTION
SCALE: 1–1/2"=1'0"



5 S25 MAST BACK SUPPORT – SECTION
SCALE: 1–1/2"=1'0"



6 S25 MAST BACK SUPPORT – PLAN
SCALE: 1–1/2"=1'0"

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
MSt	1		

MAST – MAINTENANCE POSITION
CURVED SYMMETRICAL BASCULE BRIDGE

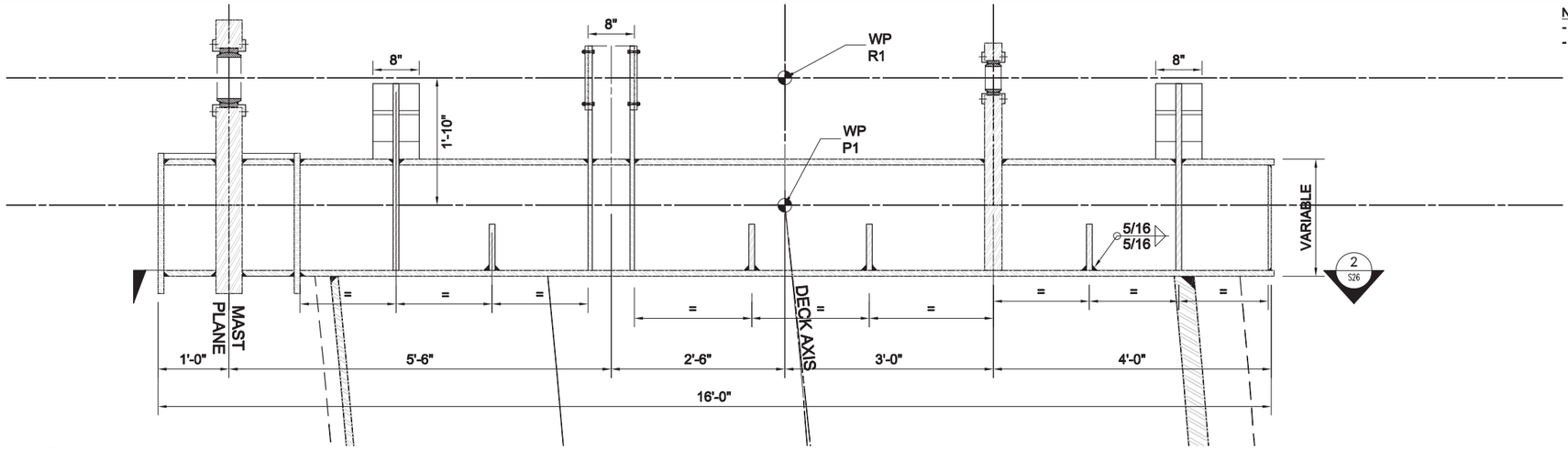
CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S25/S35

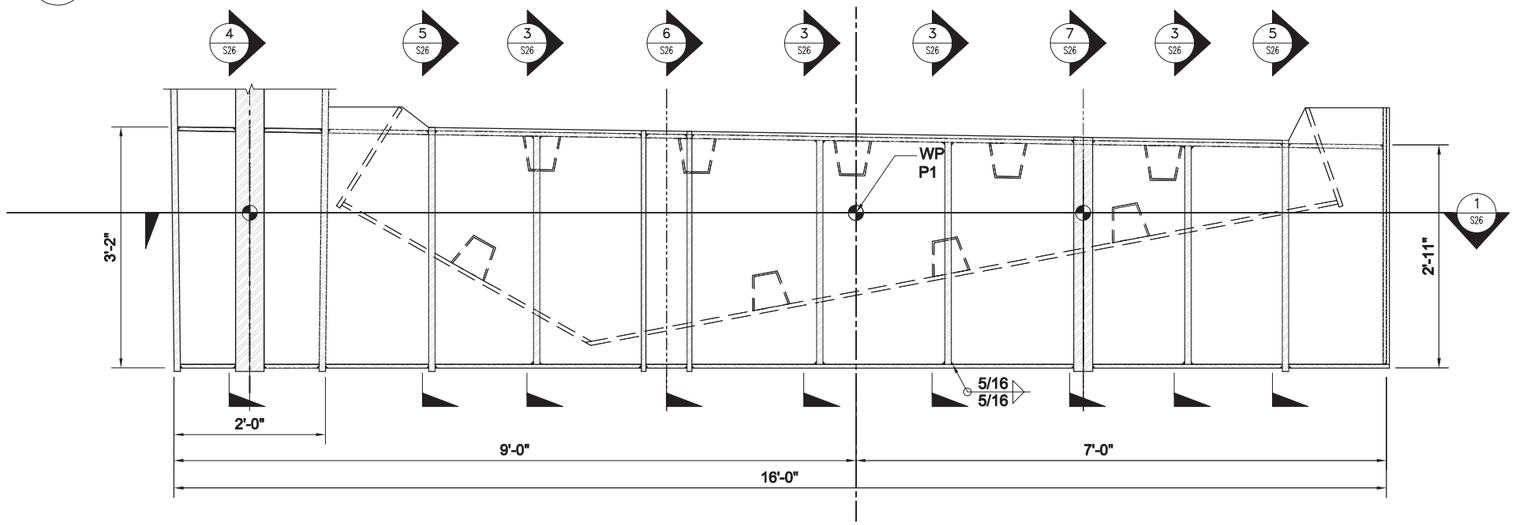
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

NOTE ON BRIDGE JACKING:

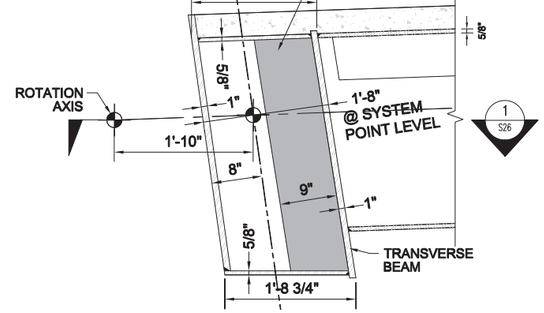
- BRIDGE LIFTING SUPPORTS ON ABUTMENTS PROVIDED IN CASE OF MAJOR NECESSARY WORK ON ROTATION BEARINGS OR THEIR REPLACMENT.
- SUCH AN OPERATION REQUIRES:
  - SUPPORT END OF BRIDGE HALF ON EMERGENCY HOISITING POINT (SEE S22) TO DELOAD BACKSTAY ROPES
  - DISCONNECT BACKSTAY ROPES AT TOP OF MAST
  - USE 2 JACKS AS SHOWN UNDER TRANSVERSE BEAM LIFTING SUPPORTS TO RELEASE VERTICAL FORCE ON BEARINGS
  - REMOVE PINS, AND JACK TRANSVERSE BEAM UP TO ACCESS SPHERICAL BEARINGS



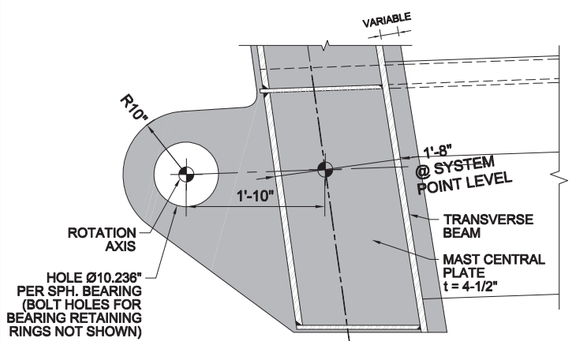
1 S26 TRANSVERSE BEAM – PLAN VIEW
SCALE: 1"=1'-0"



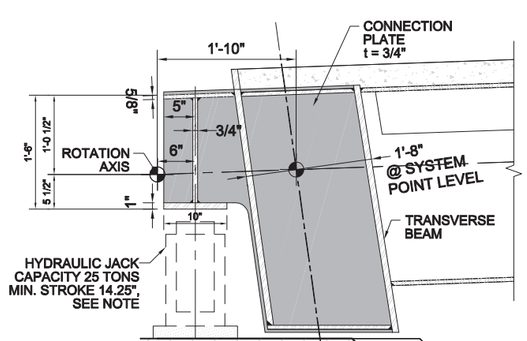
2 S26 TRANSVERSE BEAM – SECTION
SCALE: 1"=1'-0"



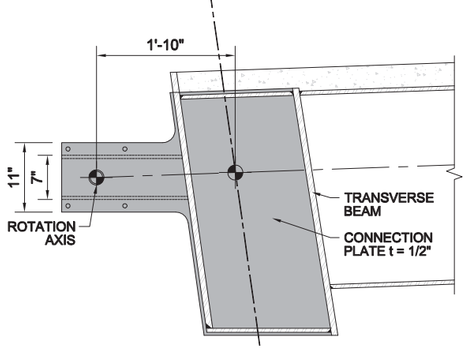
3 S26 SECTION–STIFFENER
SCALE: 1"=1'-0"



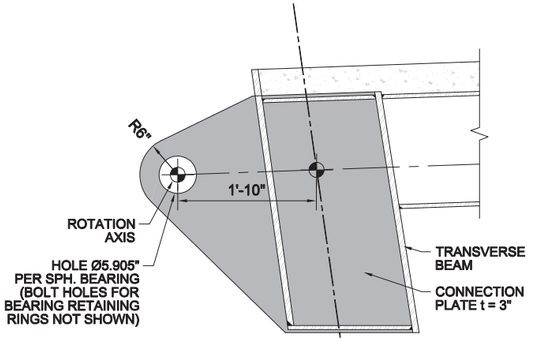
4 S26 SECTION–PIN @ MAST SIDE
SCALE: 1"=1'-0"



5 S26 SECTION–BRIDGE LIFTING SUPPORT
SCALE: 1"=1'-0"



6 S26 SECTION–LATERAL SUPPORT
SCALE: 1"=1'-0"



7 S26 SECTION–PIN @ OUTER SIDE
SCALE: 1"=1'-0"

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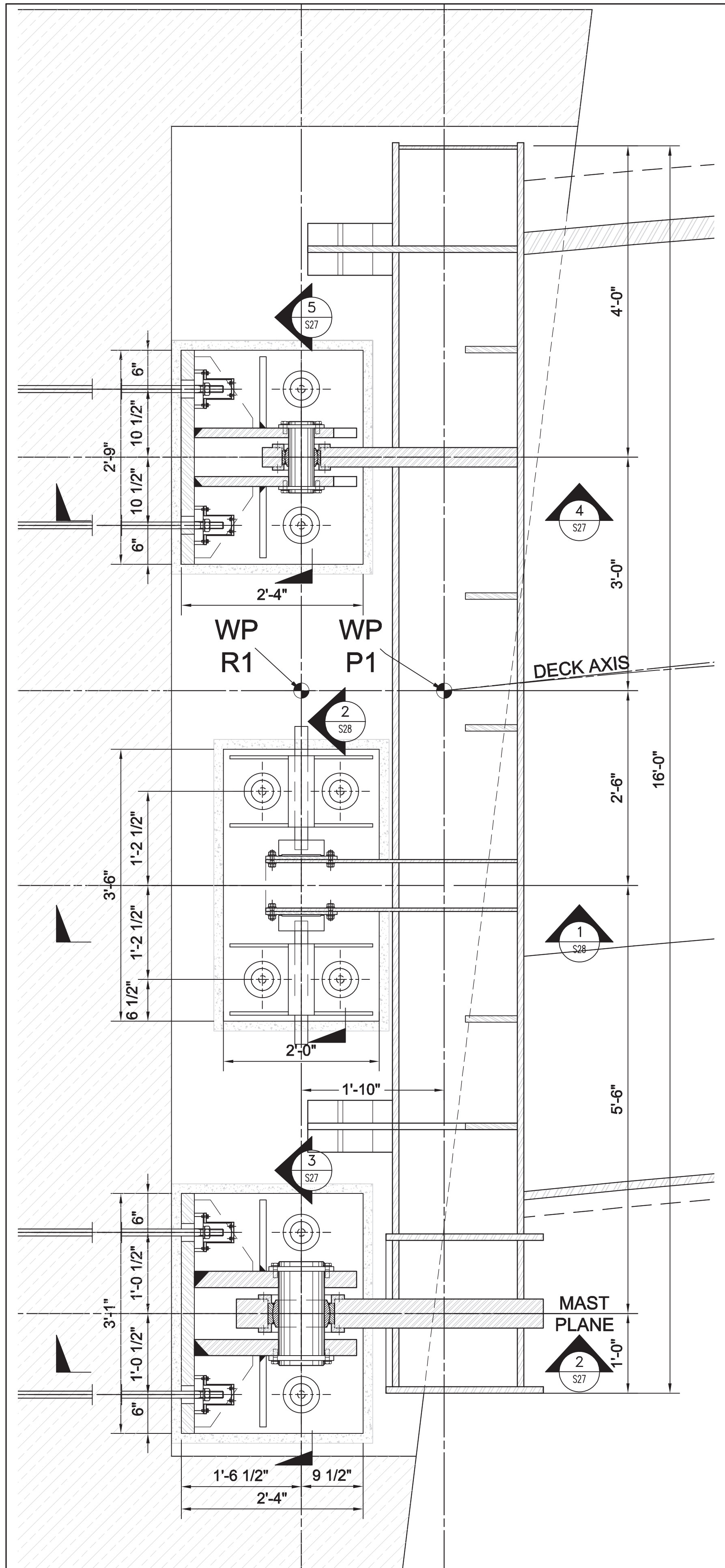
MSt	3		

TRANSVERSE BEAM
CURVED SYMMETRICAL BASCULE BRIDGE

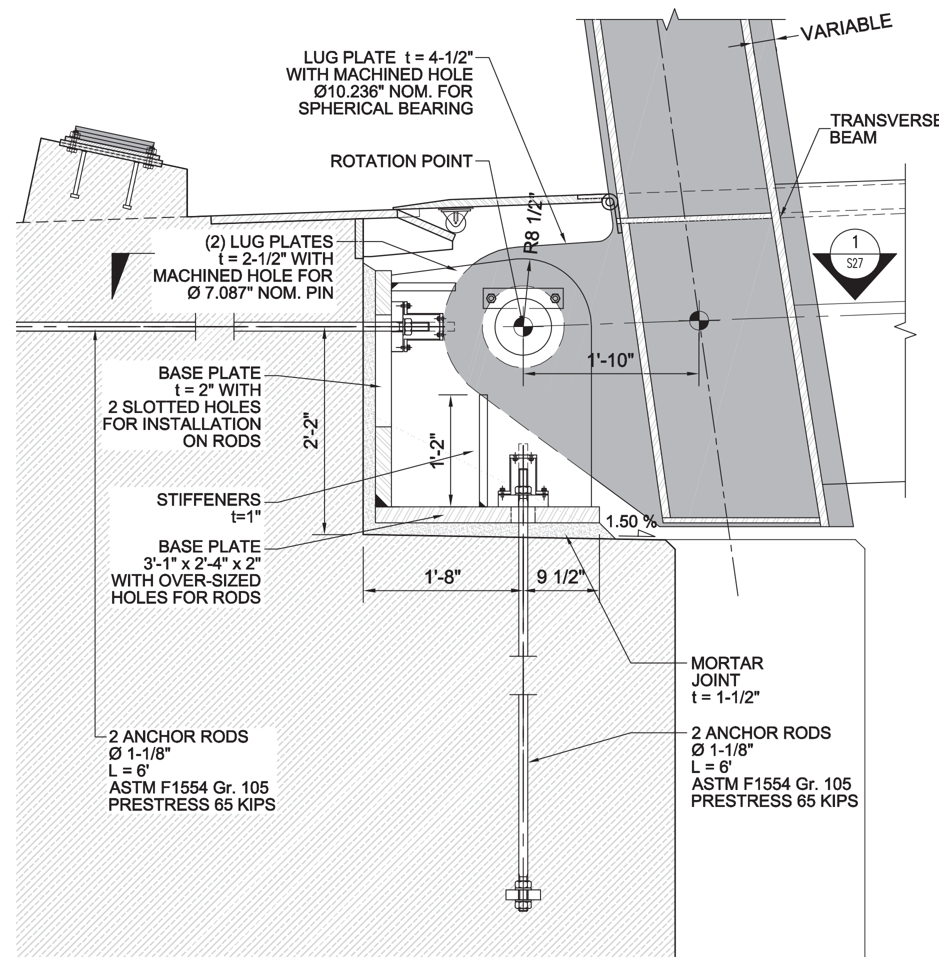
CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S26/S35

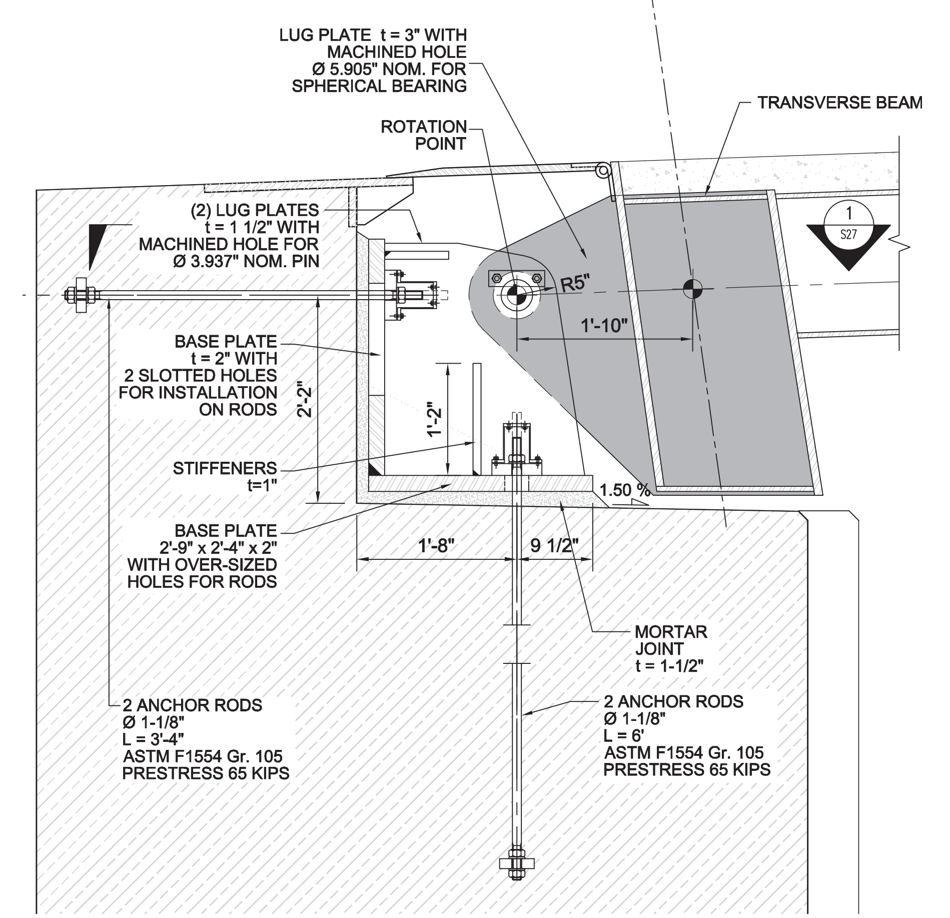
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS



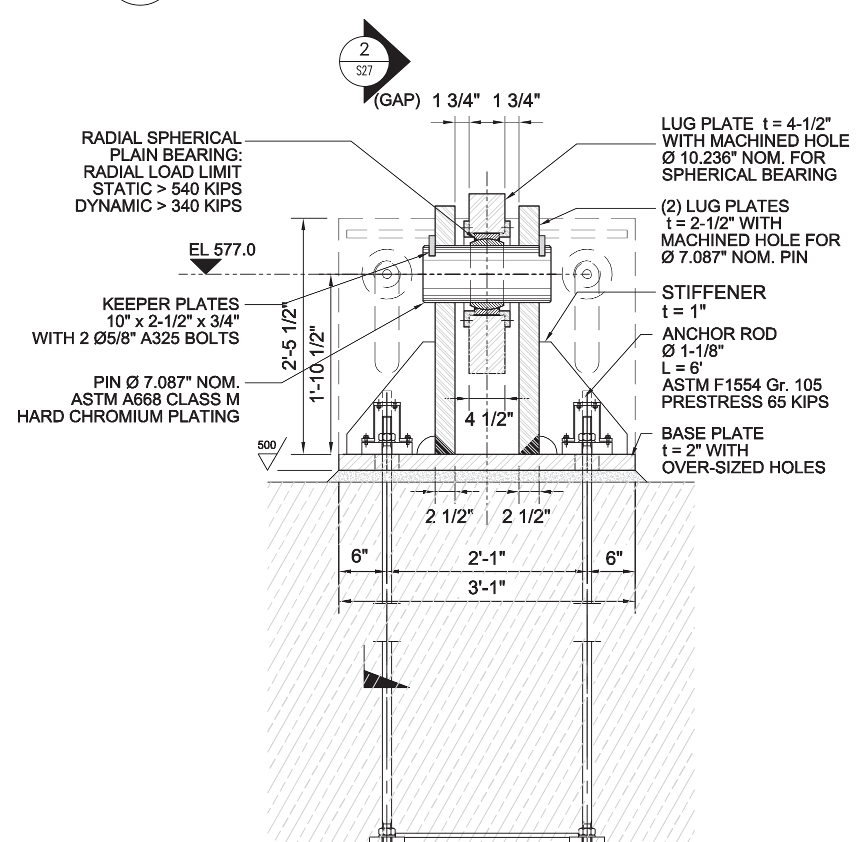
1 S27 SECTION/TOP VIEW @ PIN LEVEL
SCALE: 1"=1'-0"



2 S27 PIN CONNECTION MAST SIDE – SECTION
SCALE: 1"=1'-0"



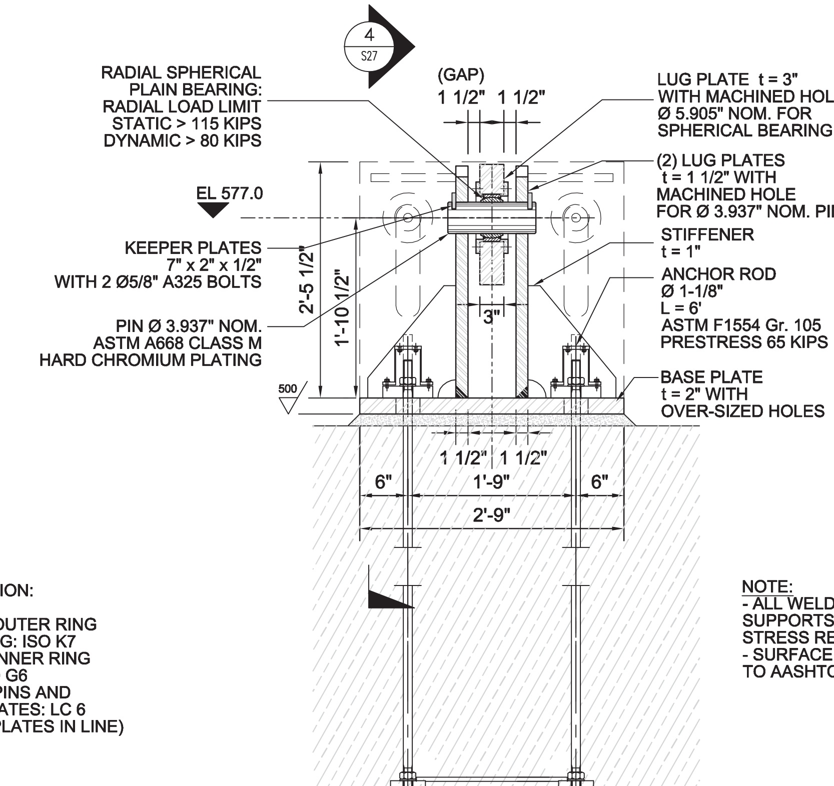
4 S27 PIN CONNECTION OUTER SIDE – SECTION
SCALE: 1"=1'-0"



3 S27 PIN CONNECTION MAST SIDE – SECTION
SCALE: 1"=1'-0"

FITS DEFINITION:

- BETWEEN OUTER RING AND HOUSING: ISO K7
- BETWEEN INNER RING AND PIN: ISO G6
- BETWEEN PINS AND SIDE LUG PLATES: LC 6 (BORE LUG PLATES IN LINE)



5 S27 PIN CONNECTION OUTER SIDE – SECTION
SCALE: 1"=1'-0"

NOTE:
- ALL WELDS OF ABUTMENT SUPPORTS WELDMENTS TO BE STRESS RELIEVED
- SURFACE FINISHES ACCORDING TO AASHTO SPECIFICATIONS

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DATE	08/22/14
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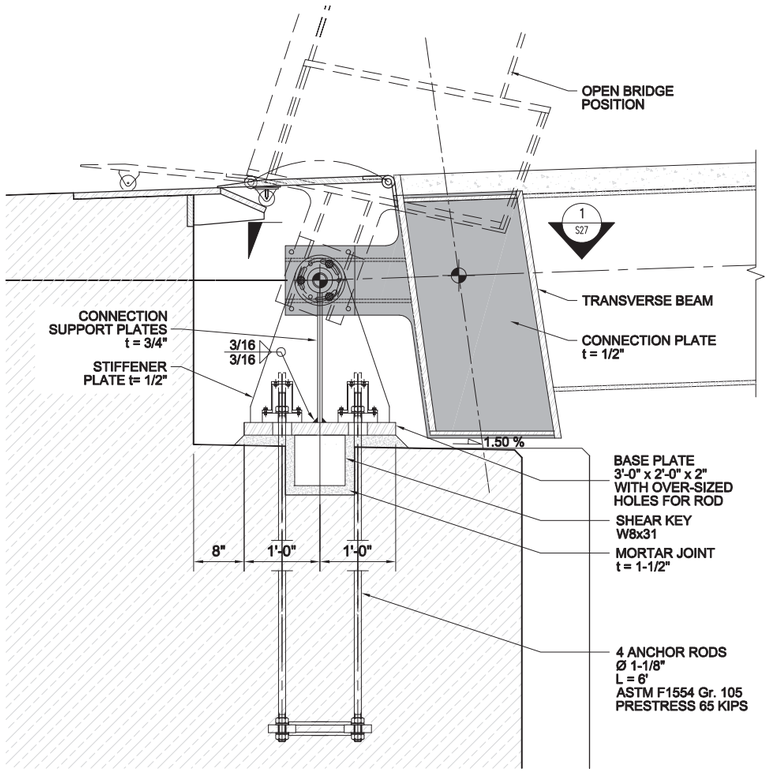
REVISED	3
DESIGNED	NDR
CHECKED	MSt

ABUTMENTS BEARINGS 1/2
CURVED SYMMETRICAL BASCULE BRIDGE

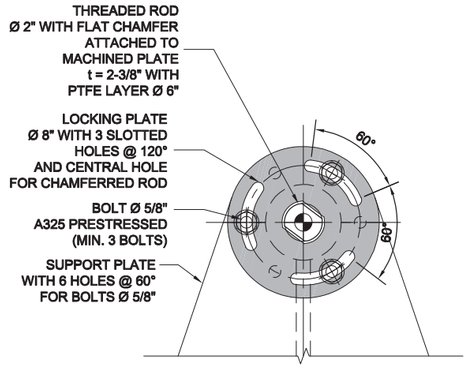
CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S27/S35

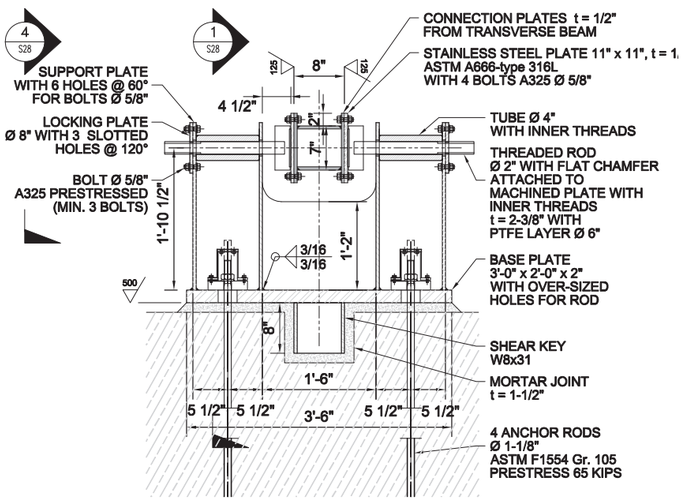


1 S28 LATERAL SUPPORT: SECTION ELEVATION
SCALE: 1"=1'-0"

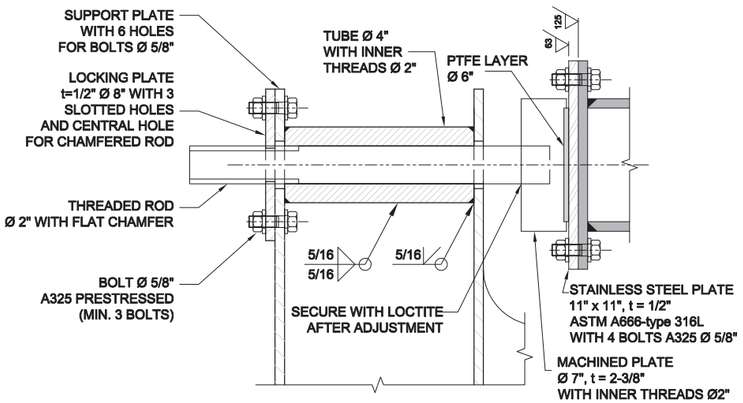
NOTE:
- ALL WELDS OF ABUTMENT SUPPORTS WELDMENTS TO BE STRESS RELIEVED
- SURFACE FINISHES ACCORDING TO AASHTO SPECIFICATIONS



4 S28 DETAIL–LOCKING PLATE
SCALE: 3"=1'-0"



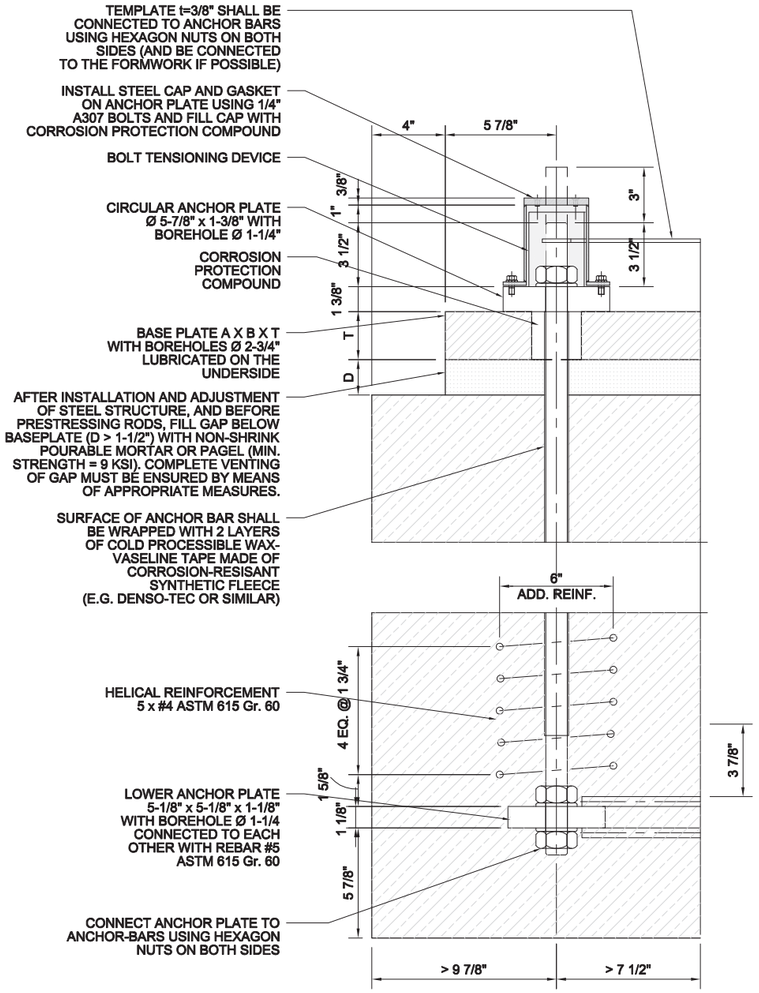
2 S28 LATERAL SUPPORT – SECTION
SCALE: 1"=1'-0"



3 S28 DETAIL–LATERAL SUPPORT
SCALE: 3"=1'-0"

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

THREADED BAR Ø 1-1/8"
ASTM F1554 GR.105
WITH HEXAGON NUT ASTM A563
AND WASHER ASTM F436
PRE-STRESSING FORCE P = 65 KIPS
HOT-DIP GALVANIZED
CONCRETE GRADE MIN. f'c = 4000 PSI



NOTES:
- THREADED BARS, HEXAGON NUTS AND WASHERS MUST BE FROM ONE SET OF THE SAME MANUFACTURER !
- MAXIMIZE LENGTH OF ANCHOR BAR BETWEEN UPPER AND LOWER ANCHOR PLATE. WHENEVER POSSIBLE L > 6 FEET
- INCLINED OR HORIZONTAL ANCHOR BARS HAVE TO BE PROTECTED FROM TRANSVERSE LOADS WITH APPROPRIATE MEASURES (CALIBERS AND INTERMEDIATE SUPPORTS)

5 S28 PRESTRESSED ANCHOR ROD DETAIL
SCALE: 3"=1'-0"

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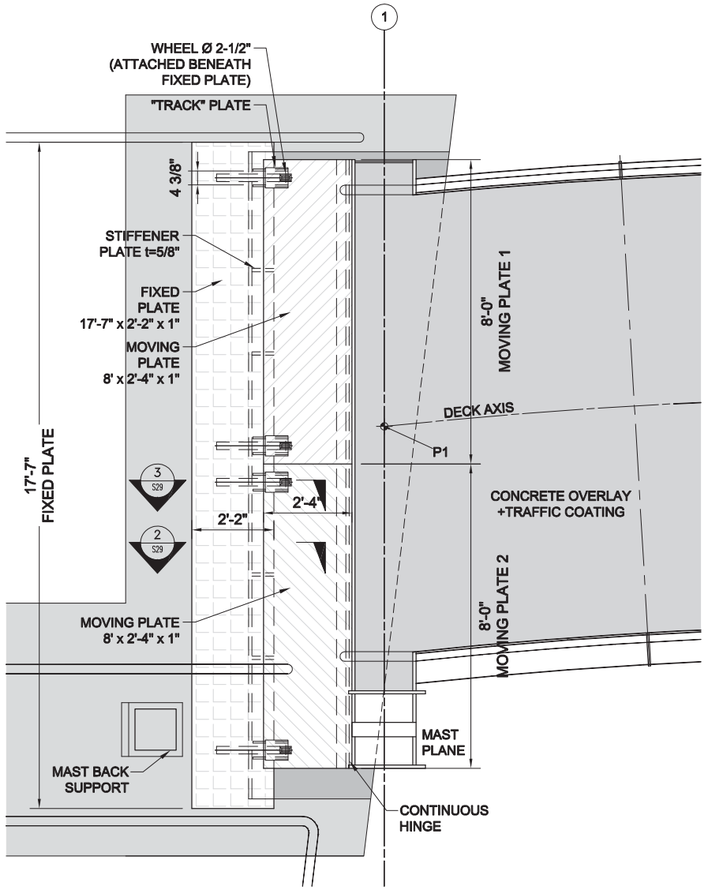
DESIGNED NDR | DRAWN SSCHO | REVIEWED SDG | DATE 08/22/14
CHECKED MSt | REVISED 3 | STRUCTURE FILE NUMBER

ABUTMENTS BEARINGS 2/2
CURVED SYMMETRICAL BASCULE BRIDGE

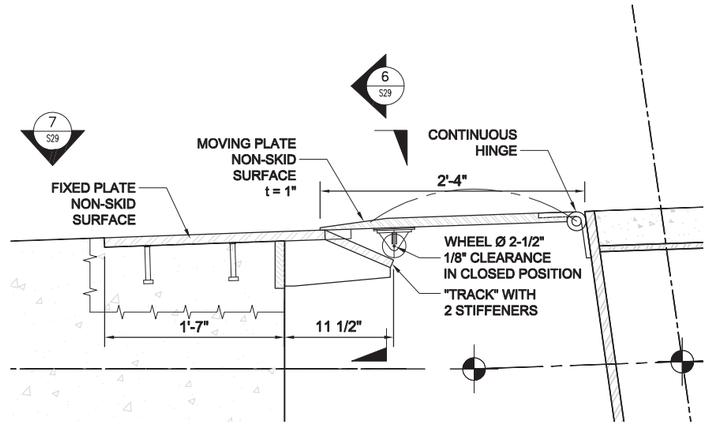
CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S28/S35

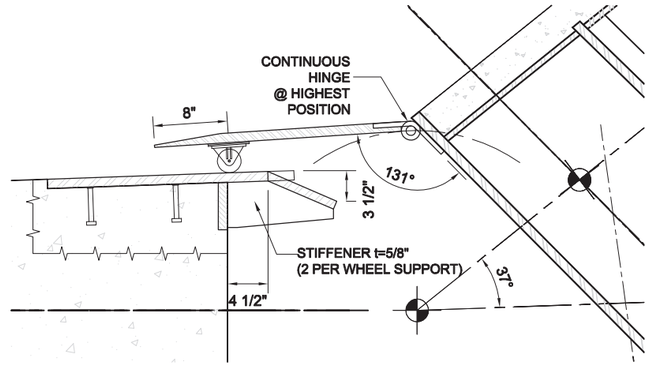
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS



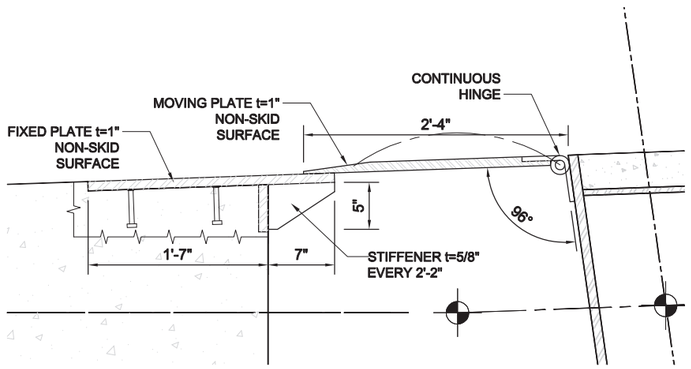
1 S29 ABUTMENT JOINT DETAIL–PLAN VIEW
SCALE: 1/2"=1'0"



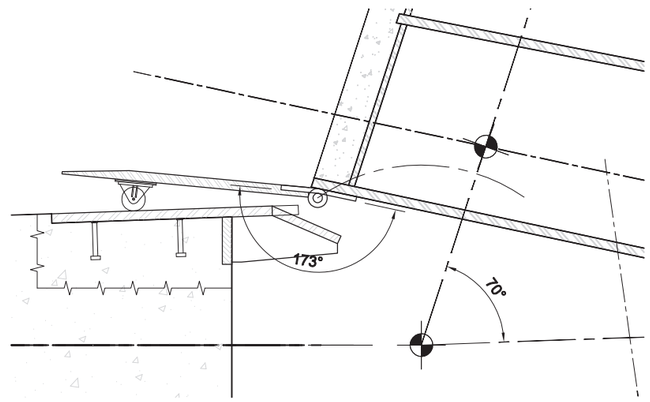
3 S29 JOINT DETAIL–CLOSED
SCALE: 1–1/2"=1'–0"



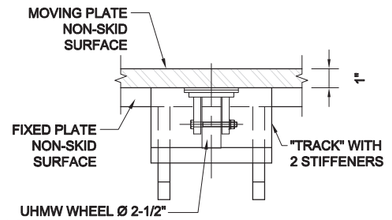
4 S29 JOINT DETAIL–PARTIALLY OPEN
SCALE: 1–1/2"=1'–0"



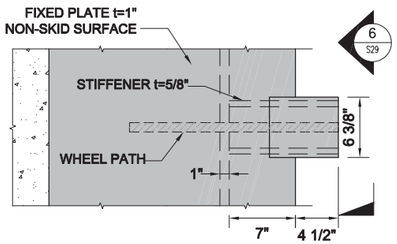
2 S29 JOINT DETAIL–TYPICAL
SCALE: 1–1/2"=1'–0"



5 S29 JOINT DETAIL–OPEN
SCALE: 1–1/2"=1'–0"



6 S29 DETAIL–WHEEL
SCALE: 3"=1'–0"



7 S29 DETAIL–FIXED PLATE – PLAN VIEW
SCALE: 1–1/2"=1'–0"

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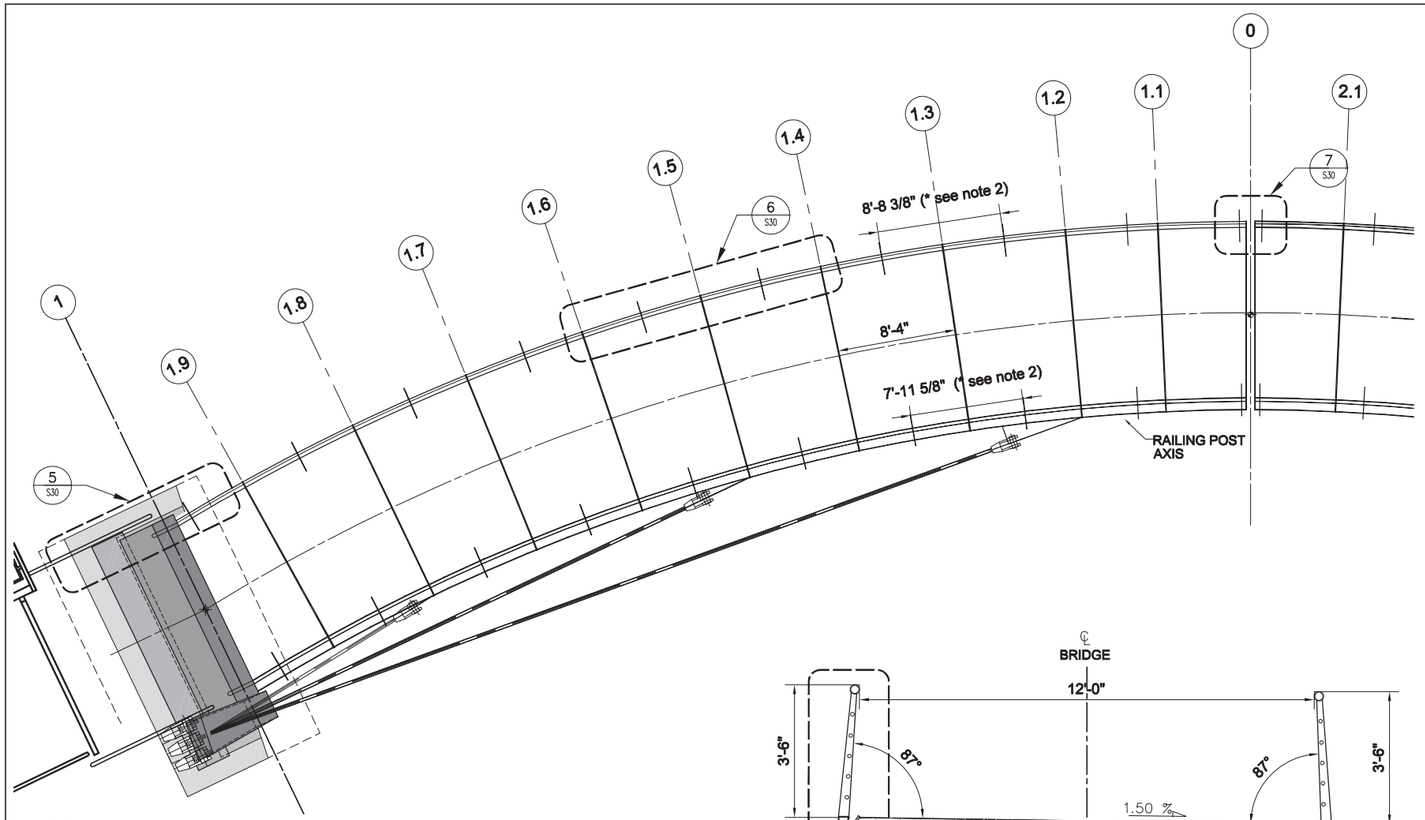
NDR	SSCHO	SDG	08/22/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MSt	1		

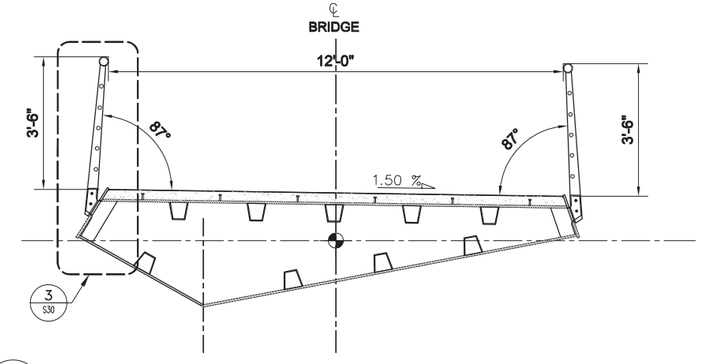
ABUTMENT JOINT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

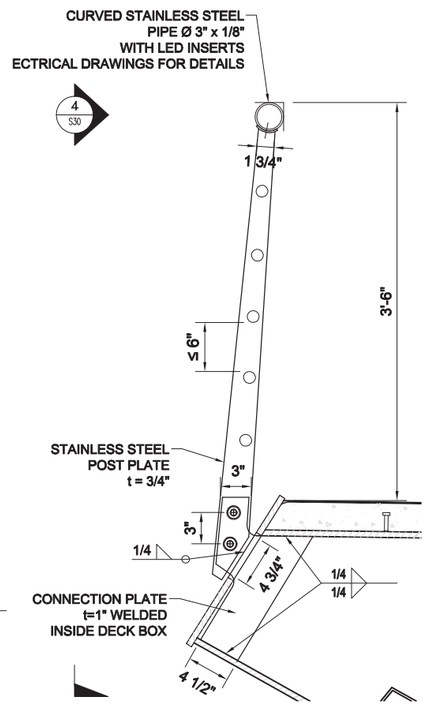
S29/S35



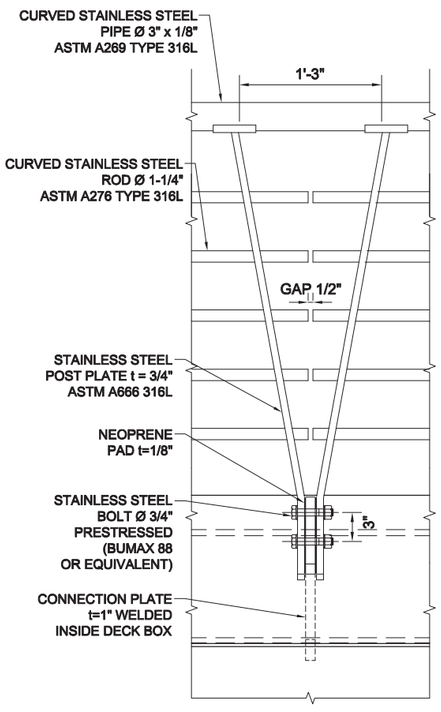
1 S30 RAILING AXIS OVERVIEW – PLAN
SCALE: 3/16"=1'-0"



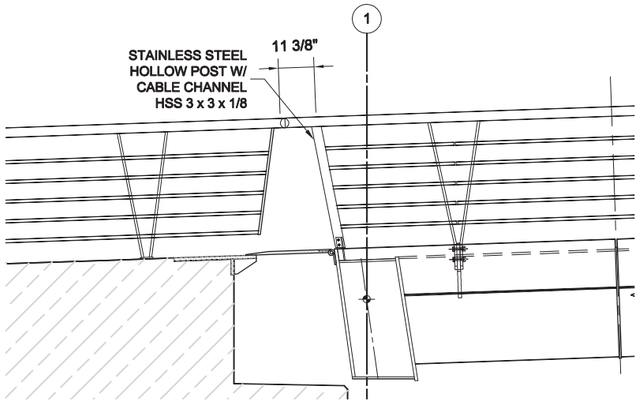
2 S30 RAILING GEOMETRY – SECTION
SCALE: 1/2"=1'-0"



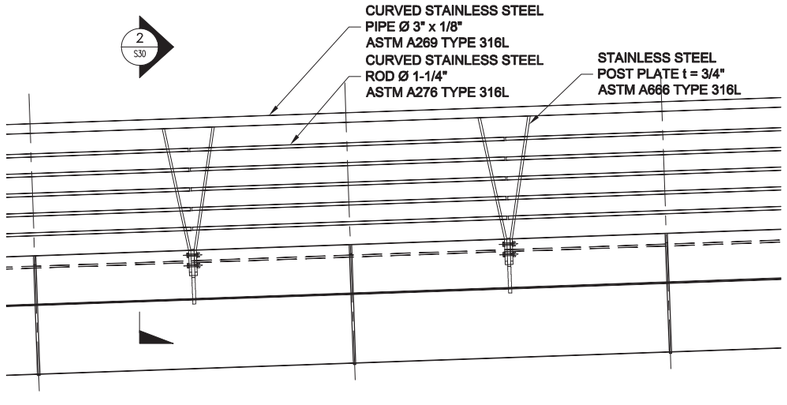
3 S30 RAILING DETAIL – SECTION
SCALE: 1–1/2"=1'-0"



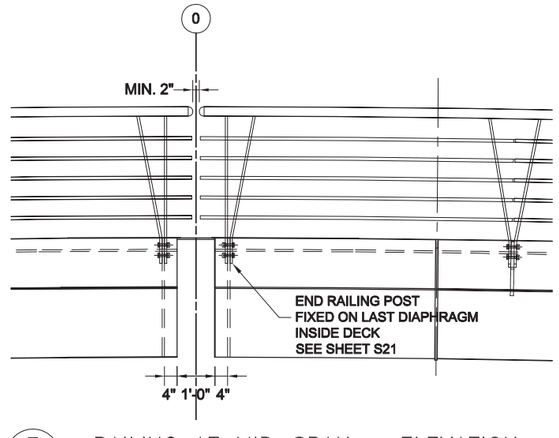
4 S30 RAILING DETAIL – ELEVATION
SCALE: 1–1/2"=1'-0"



5 S30 RAILING AT ABUMENT – ELEVATION
SCALE: 1/2"=1'-0"



6 S30 RAILING TYP. – ELEVATION
SCALE: 1/2"=1'-0"



7 S30 RAILING AT MID–SPAN – ELEVATION
SCALE: 1/2"=1'-0"

NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS

NOTE 2:
- SPACINGS (*) ARE GIVEN BETWEEN PLAN PROJECTIONS OF TYPICAL POST AXIS
- WORKSHOP DESIGN TO ACCOUNT FOR FULL 3D GEOMETRY OF DECK
- END POSTS ON ABUTMENTS AND AT MID-SPAN NON TYPICAL:
  * ABUTMENT END POST ON BACK ON TRANSVERSE BEAM
  * MID-SPAN END POST ON END DIAPHRAGM

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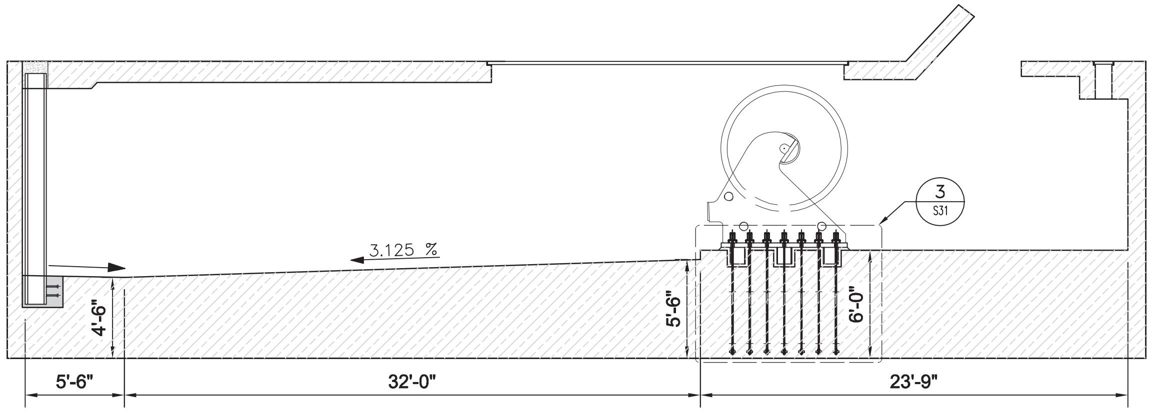
DRAWN SSCHO | REVISED 3
REVIEWED SDG | DATE 08/22/14
STRUCTURE FILE NUMBER

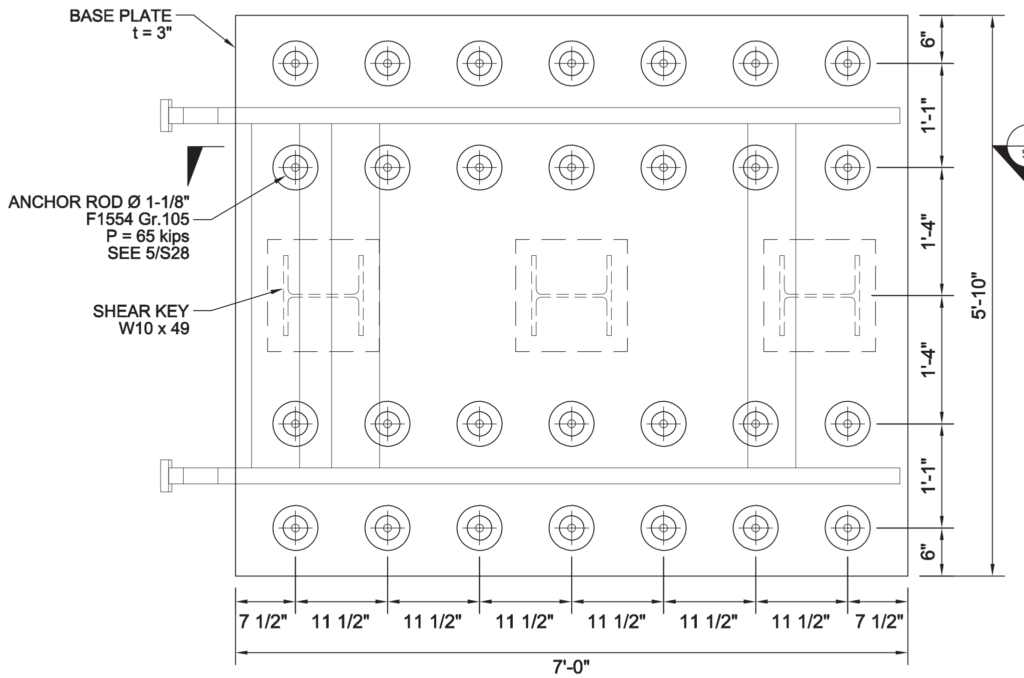
RAILINGS
CURVED SYMMETRICAL BASCULE BRIDGE
CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S30/S35

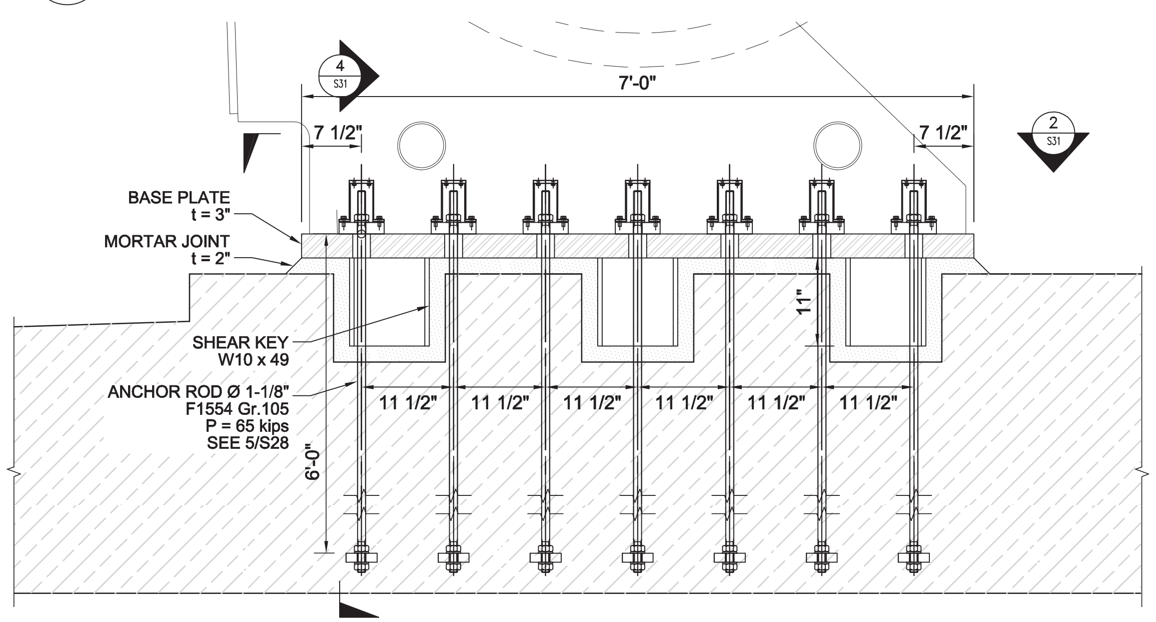
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS



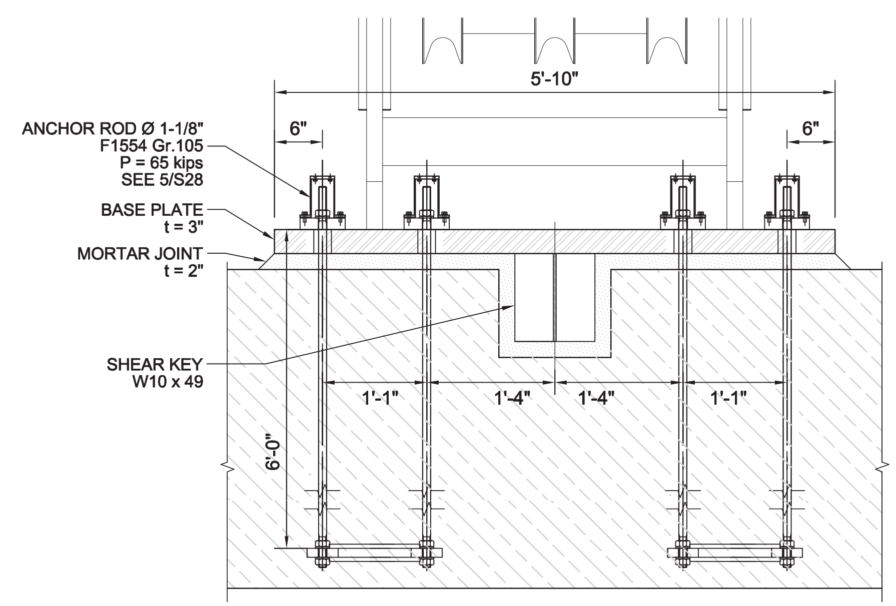
1 S31 CHAMBER–ELEVATION
SCALE: 3/16"=1'0"



2 S31 SUPPORT OF DEFLECTOR SHEAVES–PLAN
SCALE: 1"=1'0"

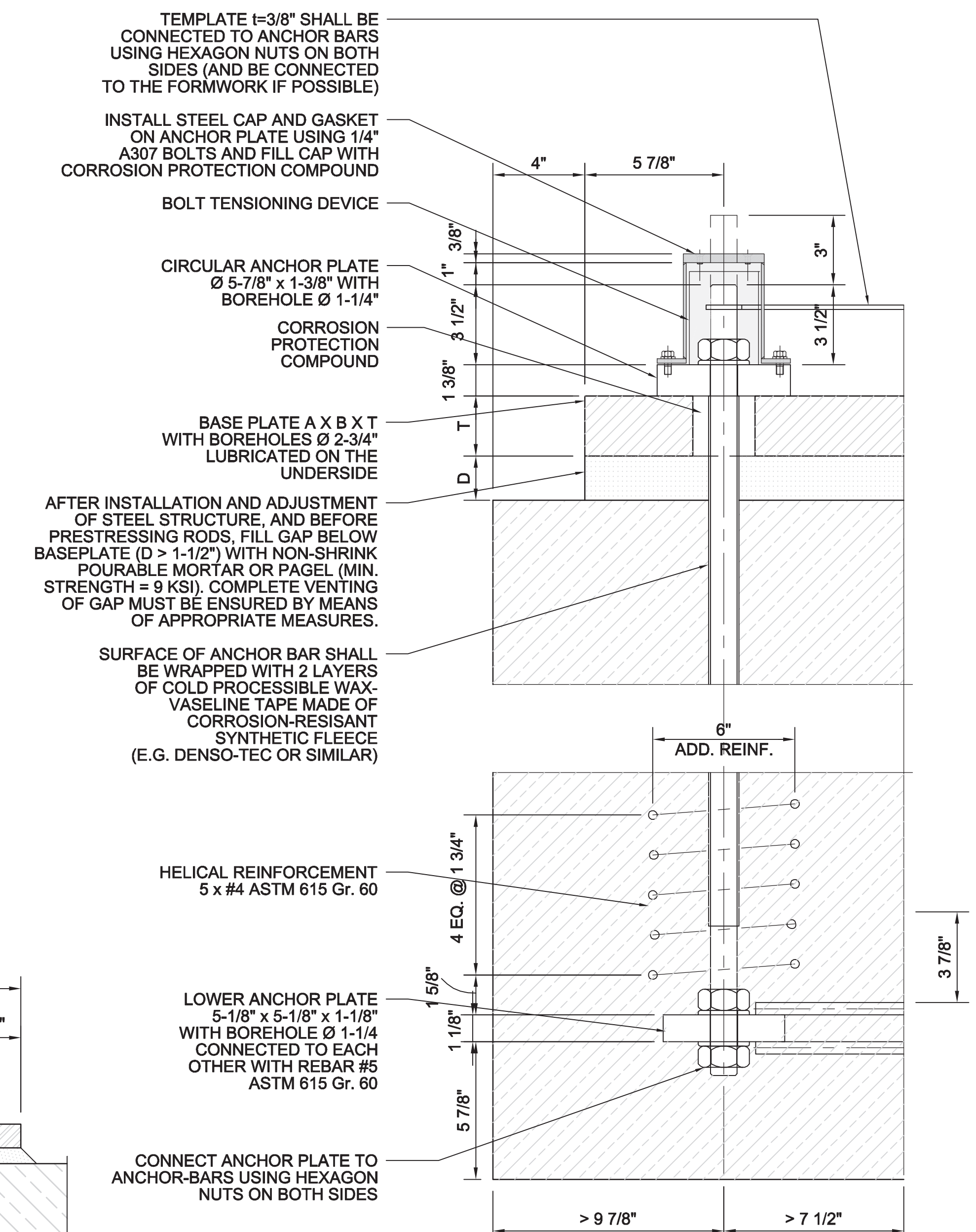


3 S31 SUPPORT OF DEFLECTOR SHEAVES–ELEVATION
SCALE: 1"=1'0"



4 S31 SUPPORT OF DEFLECTOR SHEAVES–CROSS SECTION
SCALE: 1"=1'0"

THREADED BAR Ø 1-1/8"
ASTM F1554 GR.105
WITH HEXAGON NUT ASTM A563
AND WASHER ASTM F436
PRE-STRESSING FORCE P = 65 KIPS
HOT-DIP GALVANIZED
CONCRETE GRADE MIN. f'c = 4000 PSI



NOTES:
- THREADED BARS, HEXAGON NUTS AND WASHERS MUST BE FROM ONE SET OF THE SAME MANUFACTURER !
- MAXIMIZE LENGTH OF ANCHOR BAR BETWEEN UPPER AND LOWER ANCHOR PLATE. WHENEVER POSSIBLE L > 6 FEET
- INCLINED OR HORIZONTAL ANCHOR BARS HAVE TO BE PROTECTED FROM TRANSVERSE LOADS WITH APPROPRIATE MEASURES (CALIBERS AND INTERMEDIATE SUPPORTS)

5 S31 PRESTRESSED ANCHOR ROD DETAIL
SCALE: 3"=1'–0"

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New York, NY 10018

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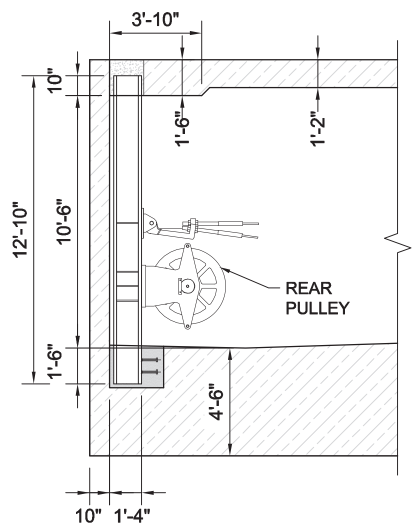
DESIGNED NDR	CHECKED MSt	

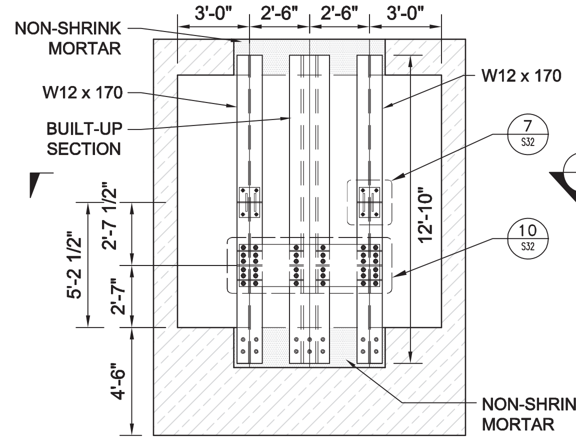
DEFLECTOR SHEAVES SUPPORT STRUCTURE
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

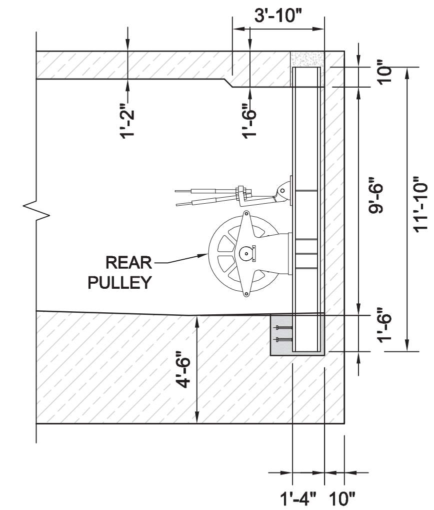
S31/S35



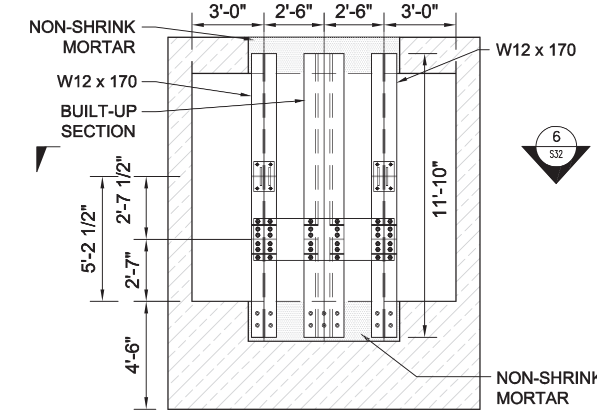
1 S32 PARK SIDE–ELEVATION
SCALE: 1/4"=1'0"



2 S32 PARK SIDE–CROSS SECTION
SCALE: 1/4"=1'0"

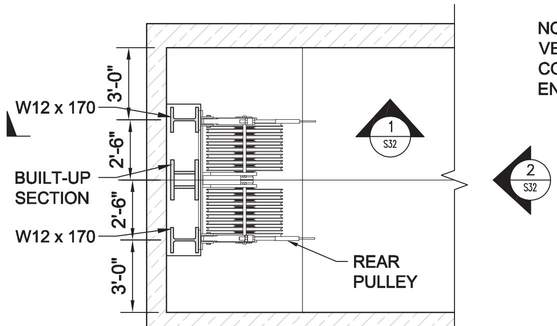


4 S32 PIER SIDE–ELEVATION
SCALE: 1/4"=1'0"

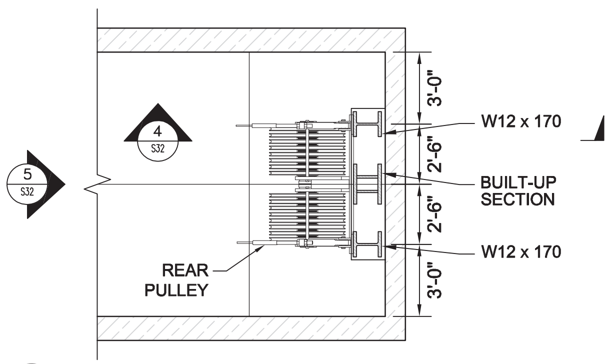


5 S32 PIER SIDE–CROSS SECTION
SCALE: 1/4"=1'0"

NOTE:
VERTICAL PROFILES TO BE CONNECTED BY TEMPLATES TO ENSURE BOLT HOLES ALIGNMENT.

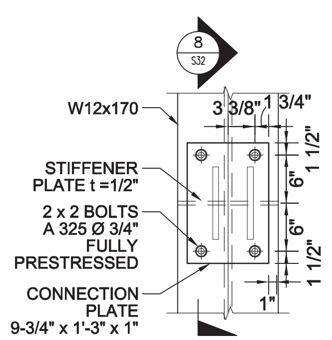


3 S32 PARK SIDE–PLAN VIEW
SCALE: 1/4"=1'0"

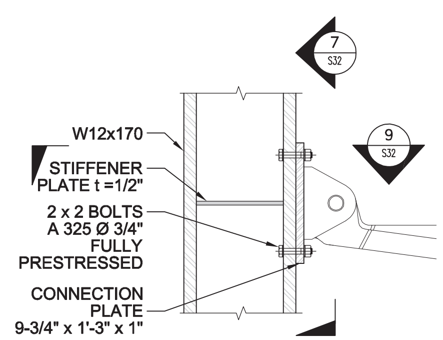


6 S32 PIER SIDE–PLAN VIEW
SCALE: 1/4"=1'0"

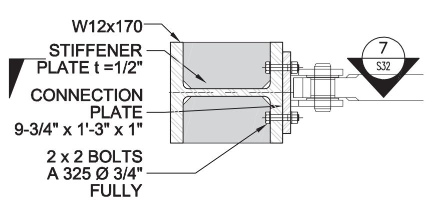
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS



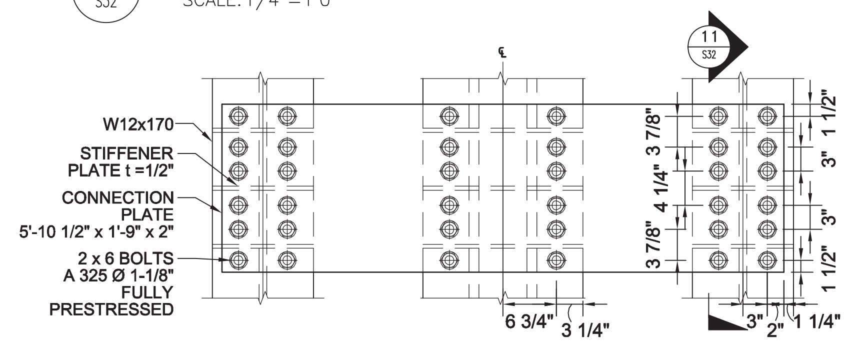
7 S32 DETAIL–ELEVATION
SCALE: 1"=1'0"



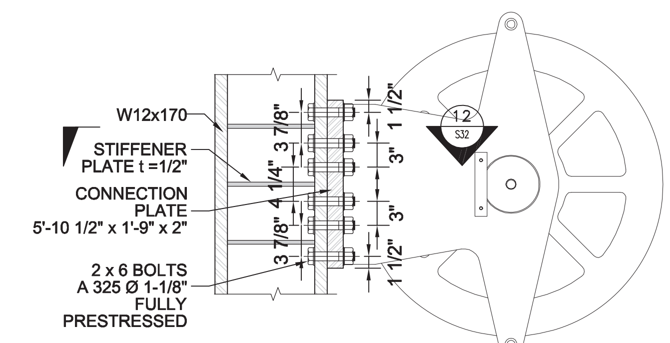
8 S32 DETAIL–SECTION
SCALE: 1"=1'0"



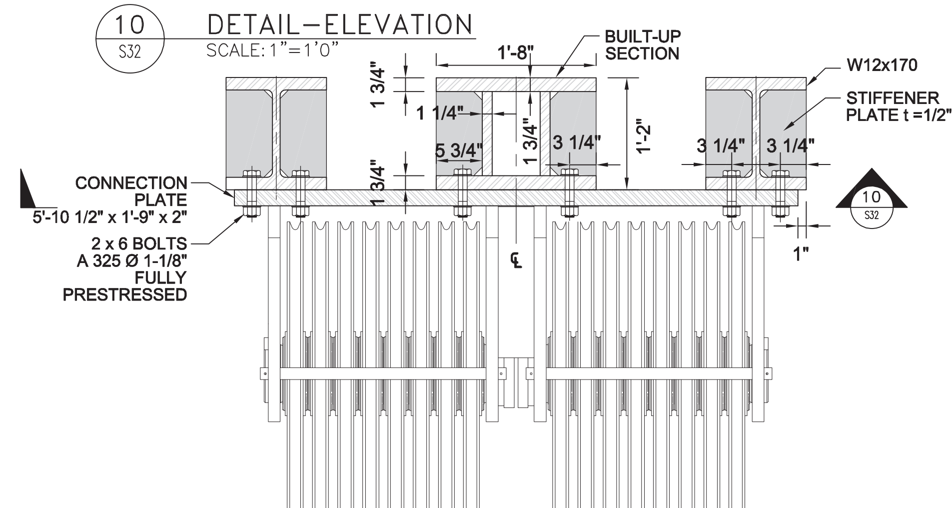
9 S32 DETAIL–CROSS SECTION
SCALE: 1"=1'0"



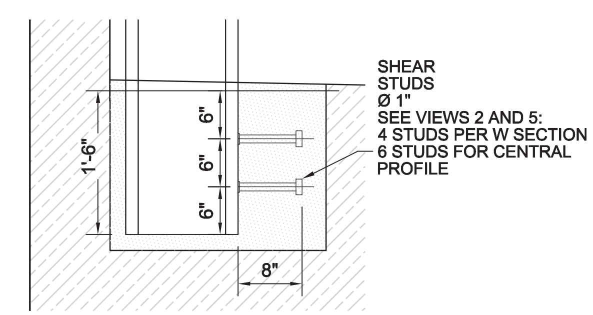
10 S32 DETAIL–ELEVATION
SCALE: 1"=1'0"



11 S32 DETAIL–SECTION
SCALE: 1"=1'0"



12 S32 DETAIL–PLAN VIEW
SCALE: 1"=1'0"



13 S32 DETAIL–SHEAR STUDS
SCALE: 1"=1'0"

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DESIGNED	DRAWN	REVIEWED	DATE
NDR	SSCHO	SDG	08/22/14
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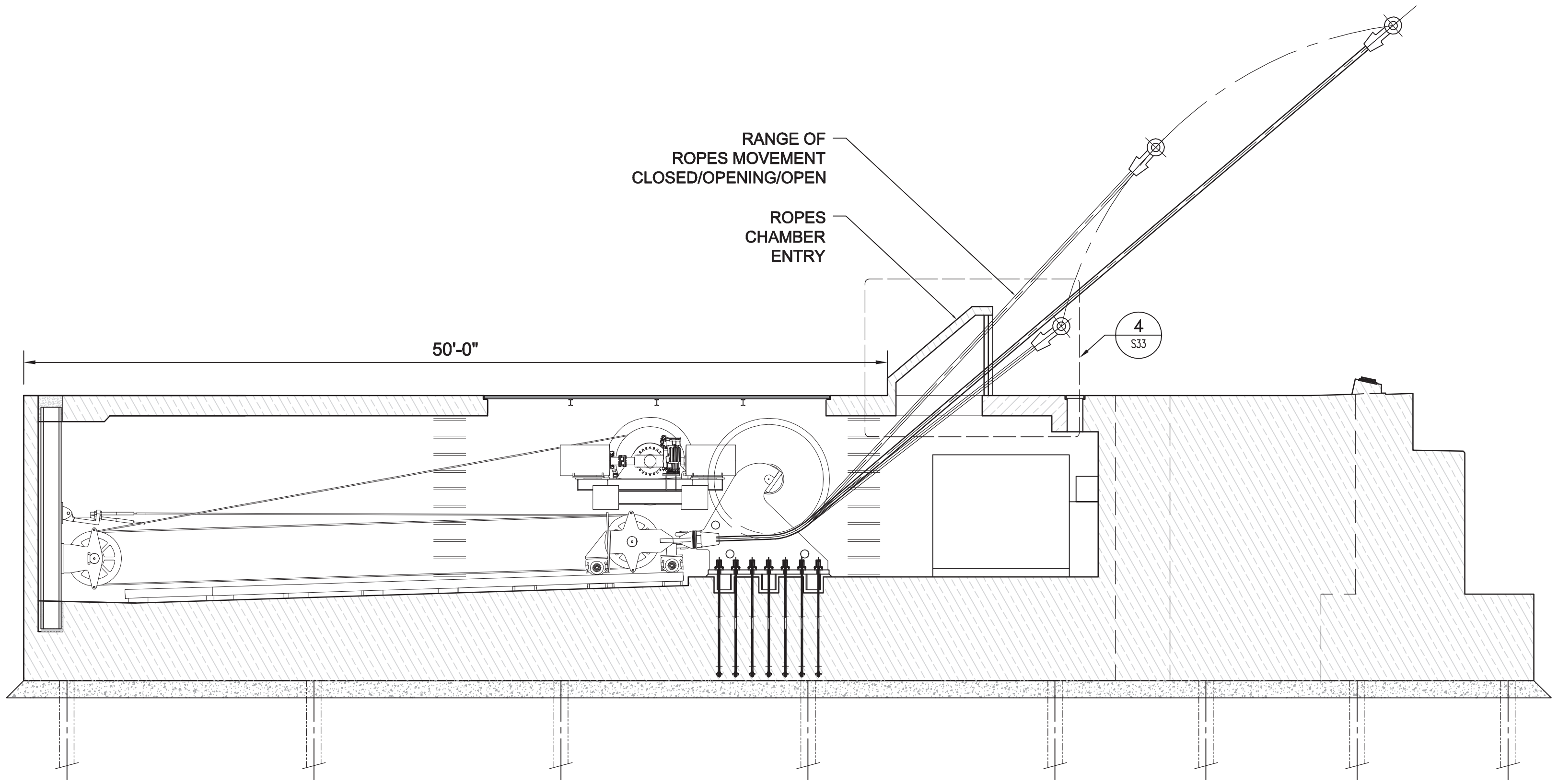
REAR PULLEY SUPPORT STRUCTURE
CURVED SYMMETRICAL BASCULE BRIDGE

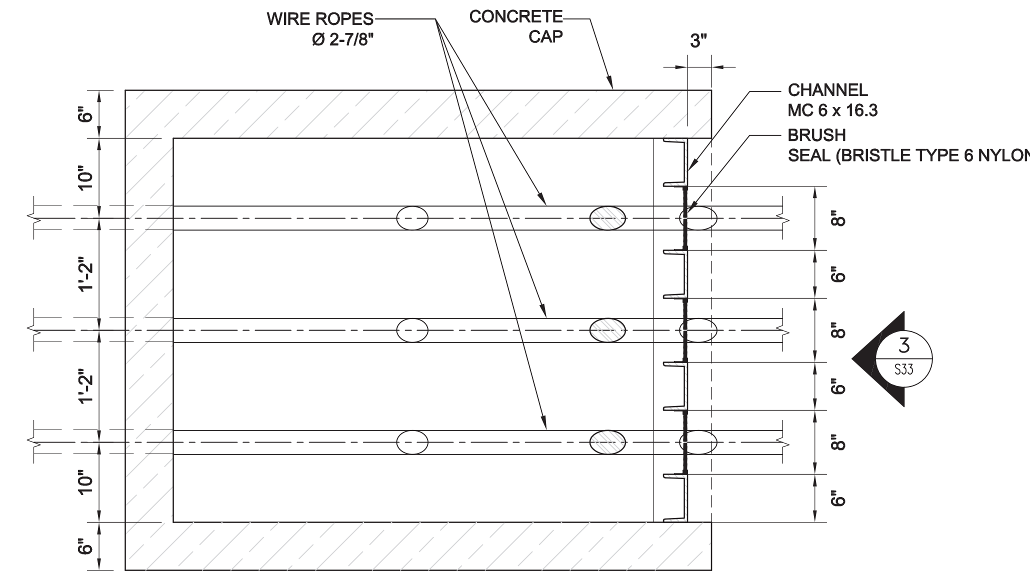
CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S32/S35

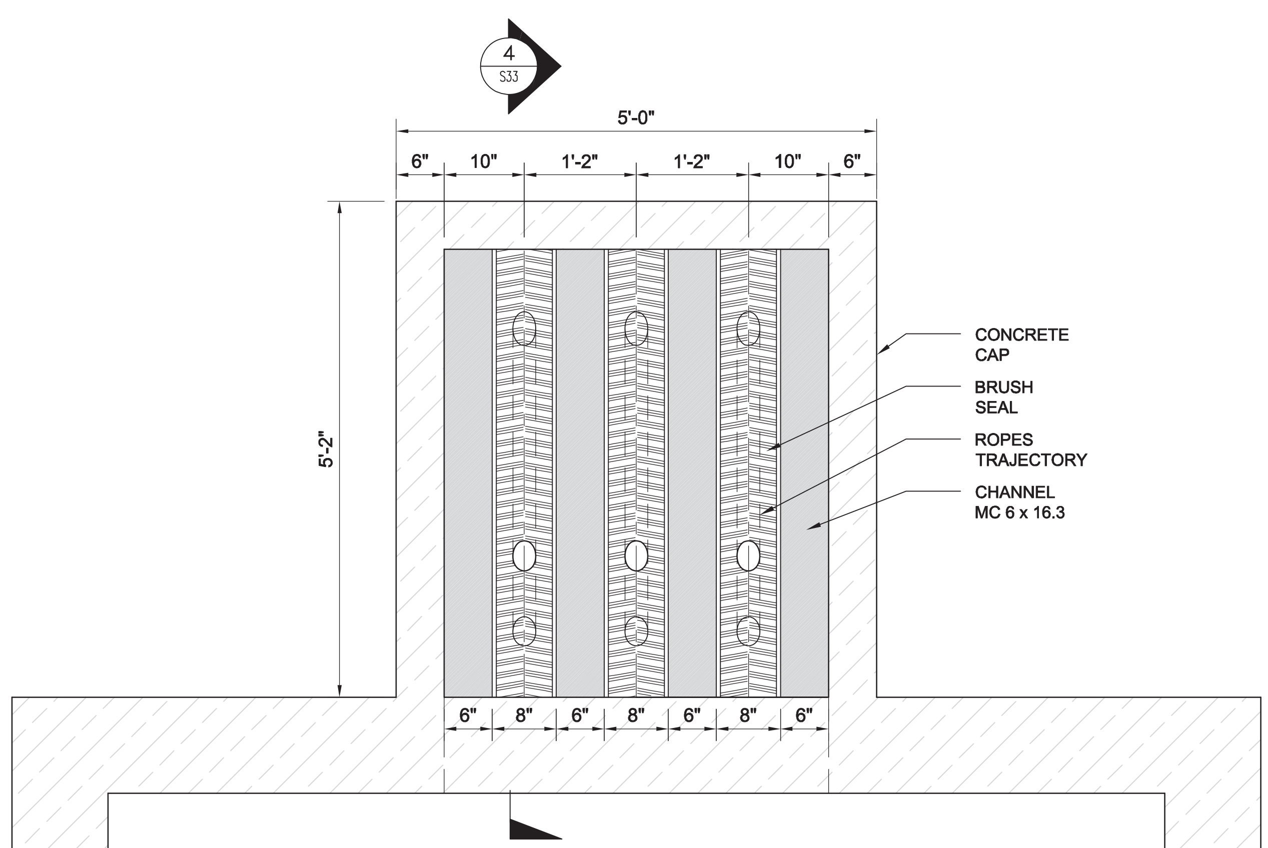
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS



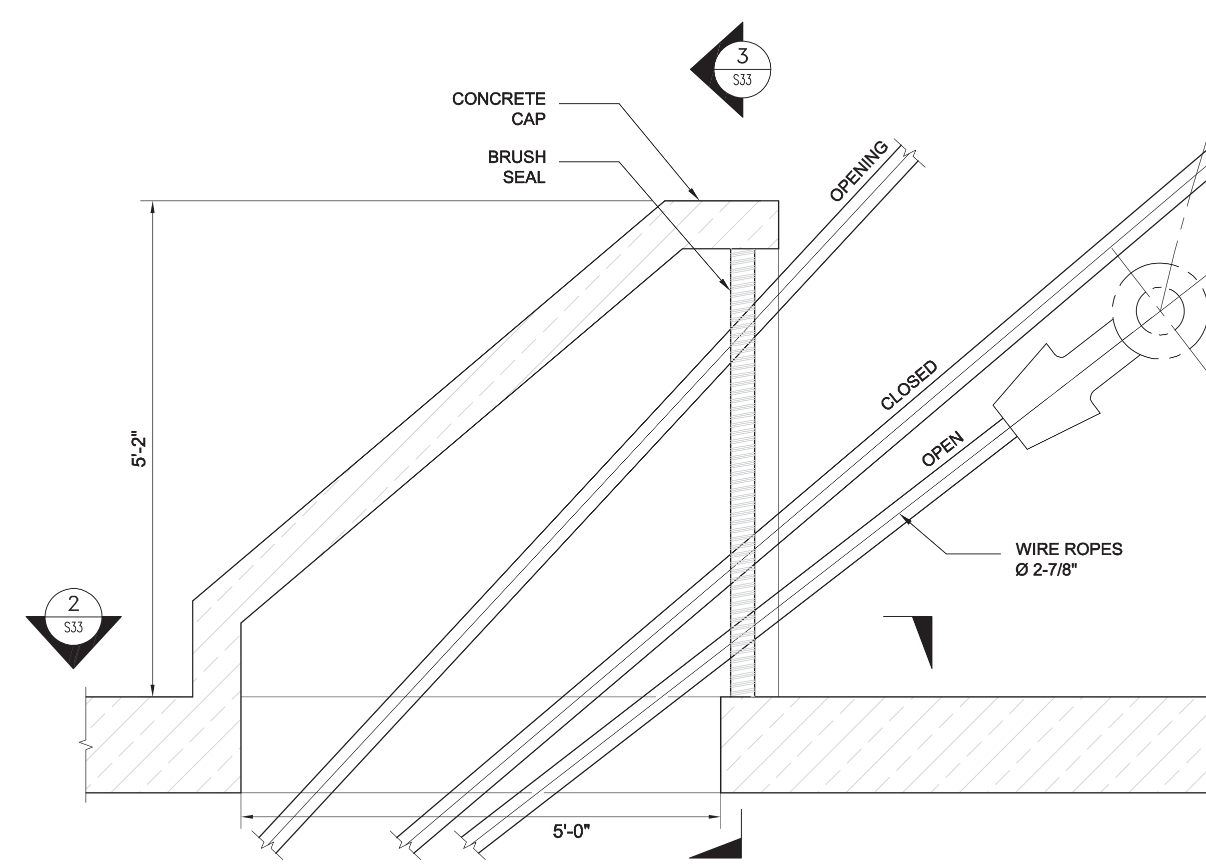
1 / S33 CHAMBER–ELEVATION
SCALE: 3/16"=1'0"



2 / S33 ROPES ENTRY–PLAN VIEW
SCALE: 1"=1'0"



3 / S33 ROPES ENTRY–ELEVATION
SCALE: 1"=1'0"



4 / S33 DETAIL–ROPES ENTRY
SCALE: 1"=1'0"

DESIGN AGENCY
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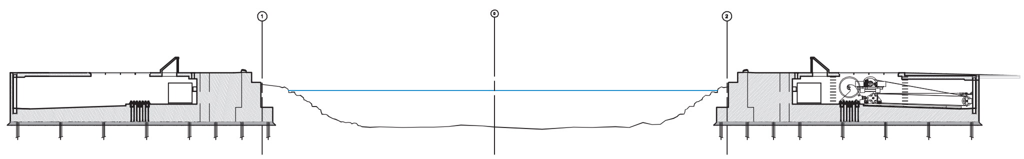
DESIGNED	DRAWN	REVIEWED	DATE
NDR	SSCHO	SDG	08/22/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
MSt	1		

ROPES CHAMBER ENTRANCE DETAIL
CURVED SYMMETRICAL BASCULE BRIDGE

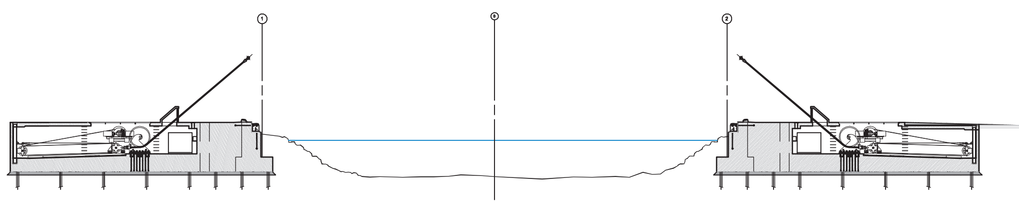
CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

S33/S35

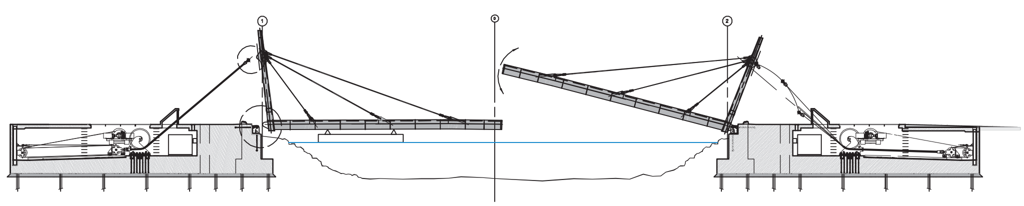
NOTE:
- SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS AND SPECIFICATIONS
- SEE GENERAL SUMMARY AND BILL OF QUANTITIES FOR DESCRIPTION OF PAY ITEMS



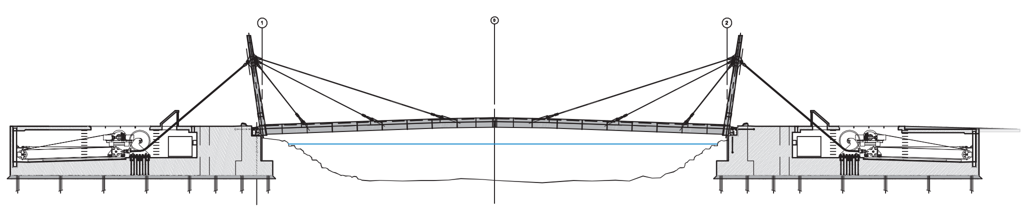
- CONSTRUCTION OF CHAMBERS
- INSTALLATION AND ANCHORAGE OF MECHANICAL SYSTEM



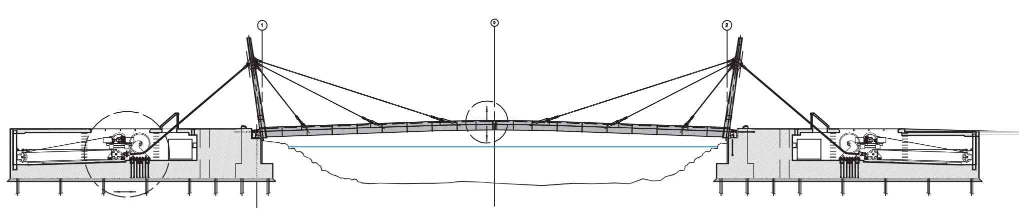
- INSTALLATION OF BACKSTAY ROPES
- INSTALLATION / PRESTRESS OF ABUTMENT BEARINGS BASE PLATES



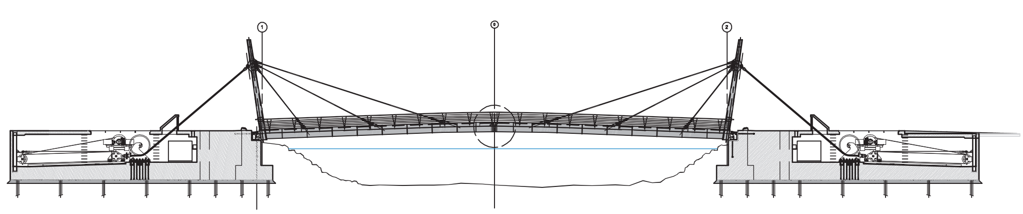
- INSTALLATION OF PREFABRICATED BRIDGE HALVES (BARGE / CRANE)
- CONNECT ABUTMENT BEARINGS
- CONNECTION TO BACKSTAY ROPES
- FIRST TEST OF DRIVE SYSTEM



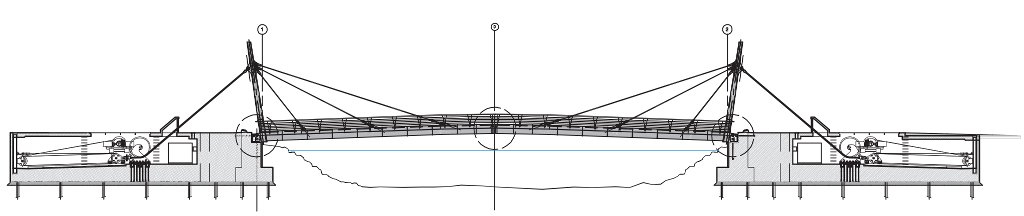
- INSTALLATION OF CONCRETE DECK



- ADJUST SPAN CABLES TENSIONS (SEE SHEET S18)
- SHIM BACKSTAY SUPPORT TO LEVEL DECK (SEE MECHANICAL SPECIFICATIONS)



- INSTALLATION OF MID-SPAN LOCKS
- FINALIZE COMMISSIONING OF MECHANICAL SYSTEM
- INSTALLATION OF RAILINGS



- ABUTMENT JOINT
- MID-SPAN JOINT
- FINISHES
- VIBRATION TESTS / TMD

1 / S34 CONSTRUCTION SEQUENCE
SCALE: 1/32"=1'0"

DESIGN AGENCY
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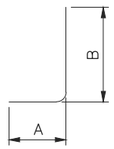
DESIGNED	DRAWN	REVIEWED	DATE
NDR	SSCHO	SDG	08/22/14
CHECKED MSt	REVISED 1	STRUCTURE FILE NUMBER	

CONSTRUCTION SEQUENCE
CURVED SYMMETRICAL BASCULE BRIDGE

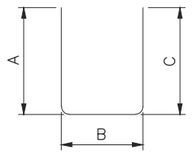
CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

S34/S35

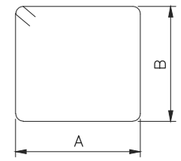
MARK	NUMBER			LENGTH	WEIGHT	TYPE	DIMENSIONS						
	REAR	FWD	TOTAL				A	B	C	D	E	R	INC
ABUTMENTS													
A501	20	23	43	16'-2"	725	2	2'-1"	12'-0"	2'-1"				
A502	20	22	42	8'-2"	358	STR							
A503		17	17	8'-9"	155	2	10"	7'-1"	10"				
A504	1 SER. OF 16		1 SER. OF 16	7'-11" TO 9'-9"	147	2	10"	6'-3" TO 8'-1"	10"				+/- 1 1/2"
A505	59		59	19'-9"	1215	STR							
A506		24	24	22'-6"	563	STR							
A507		35	35	21'-6"	785	STR							
A508	32		32	6'-5"	214	STR							
A509	32		32	10'-5"	348	STR							
A510		32	32	16'-10"	562	STR							
A511	12	15	27	16'-7"	467	2	7'-7"	1'-5"	7'-7"				
A512	24	34	58	11'-1"	670	STR							
A513	12	15	27	7'-1"	199	2	2'-10"	1'-5"	2'-10"				
A514	20	22	42	8'-3"	361	1	10"	7'-5"					
A601	7	7	14	7'-6"	158	2	2'-11"	1'-8"	2'-11"				
A602	3	3	6	6'-6"	59	35	2'-10"	1'-2"	5 1/2"	2'-5"			
A603	20	22	42	10'-3"	647	1	1'-6"	8'-9"					
A604	18	17	35	8'-2"	429	2	2'-10"	2'-6"	2'-10"				
A605	18	17	35	8'-0"	421	2	2'-6"	3'-0"	2'-6"				
A606	18	17	35	11'-8"	613	2	4'-4"	3'-0"	4'-4"				
A607	20	22	42	11'-3"	710	STR							
A608	20	23	43	20'-8"	1335	2	4'-4"	12'-0"	4'-4"				
A609	6		6	6'-0"	54	STR							
A610	6		6	8'-1"	73	STR							
A611	20	16	36	5'-7"	302	STR							
A612	8		8	16'-10"	202	3	4'-0"	4'-5"					
A613	4	13	17	15'-8"	400	3	3'-5"	4'-5"					
D601	12	12	24	3'-0"	108	STR							
SUB-TOTAL					12280								
CHAMBERS													
C301		63	63	9'-7" TO 11'-0"	261	STR							
C302		24	24	32'-0"	289	STR							
C401		63	63	3'-0"	126	STR							
C402		132	132	1'-11"	169	1	9"	1'-2"					
C403		63	63	1'-11"	81	2	9"	5"	9"				
C501	48	48	96	7'-4"	734	STR							
C502	13	13	26	26'-4"	714	STR							
C503	39	39	78	12'-8"	1030	STR							
C504	13	13	26	16'-3"	441	STR							
C505	13	13	26	12'-10"	348	3	4'-8"	1'-9"					
C506	6	6	12	29'-3"	366	STR							
C507	88	88	176	33'-3"	6104	STR							
C508	44	44	88	12'-8"	1163	STR							
C509	18	18	36	1'-8"	63	STR							
C510	6	6	12	7'-8"	96	STR							
C511	88	88	176	7'-2"	1316	1	3'-7"	3'-7"					
C512	1 SER. OF 6	1 SER. OF 6	2	13'-2" TO 15'-5"	135	6	4'-4"	1'-10" TO 5'-11"	2'-7"				+/- 9 3/4"
C513	5	5	10	8'-10"	92	13	1'-10"	4'-0"	4'-8"	10"			
C514	16	16	32	3'-0"	100	STR							
C601	154	154	308	20'-8"	9561	2	4'-0"	12'-8"	4'-0"				
C602	98	98	196	22'-4"	6575	2	4'-10"	12'-8"	4'-10"				
C603	2 SER. OF 6	2 SER. OF 6	4	21'-0" TO 16'-0"	667	2	4'-3"	12'-6" TO 7'-6"	4'-3"				+/- 1'-0"
C604	9	9	18	7'-3"	196	2	3'-1"	1'-1"	3'-1"				
C605	3	3	6	6'-2"	56	1	3'-1"	3'-1"					
C606	9	9	18	8'-6"	230	6	1'-6"	11"	2'-7"				
C607	15	15	30	7'-11"	357	36	3'-5"	1'-8"	8"	2'-2"			
C608	15	15	30	9'-2"	431	36	3'-11"	1'-8"	1'-5"	2'-2"			
C609	25	25	50	26'-10"	2015	25	4'-4"	4"	22'-1"	4"	0"		
C610	41	41	82	12'-8"	1560	STR							
C611	25	25	50	17'-8"	1327	34	12'-1"	11"	4'-8"				
C612	36	36	72	14'-10"	1604	2	4'-3"	6'-4"	4'-3"				
C613	18	18	36	12'-4"	667	13	4'-0"	3'-1"	3'-1"	4'-0"			
C614	136	136	272	35'-1"	14333	STR							
C615	30	30	60	12'-7"	1134	STR							
C616	600	600	1200	10'-2"	18324	STR							
C617	10	10	20	20'-4"	611	2	3'-10"	12'-8"	3'-10"				
C618	25	25	50	24'-3"	1821	STR							
C619	600	600	1200	13'-8"	24633	1	2'-3"	11'-5"					
C620	9	9	18	12'-8"	342	STR							
C701	9	9	18	12'-8"	466	STR							
SUB-TOTAL					100538								



TYPE–1



TYPE–2



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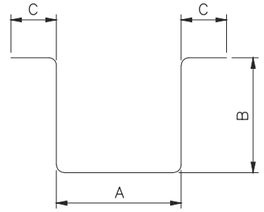

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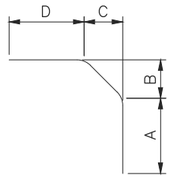

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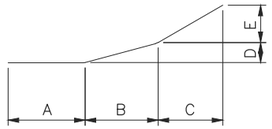

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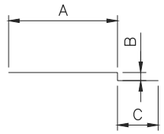

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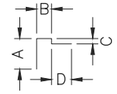

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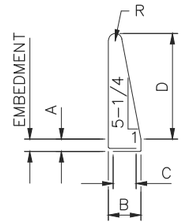

TYPE–35

NOTES:

1. THE BAR SIZE NUMBER IS SPECIFIED ON THE PLANS IN THE BAR MARK COLUMN. THE FIRST DIGIT WHERE THREE DIGITS ARE USED, AND THE FIRST TWO DIGITS WHERE FOUR DIGITS ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, A601 IS A NO. 6 BAR. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. STD." WRITTEN IN PLACE OF A DIMENSION INDICATES A STANDARD BEND AT THE END OF THE BAR.
2. ALL REINFORCING STEEL TO BE EPOXY COATED.
3. REINFORCING STEEL WEIGHTS ARE GIVEN FOR INFORMATION ONLY.

DESIGN AGENCY
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CLEVELAND, OHIO 44113

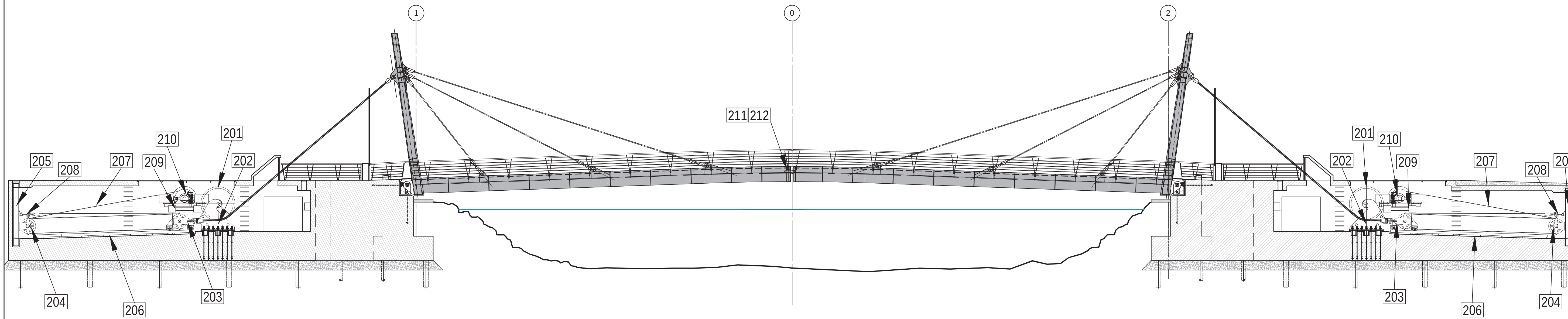
DESIGNED YRY | DRAWN CLG | REVIEWED FGB | DATE 04/11/14
CHECKED YRY | REVISED | STRUCTURE FILE NUMBER

REINFORCING STEEL LIST

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

S35 / S–

66
165



NOTES:
(*) Reference to sheets and specifications sections only point at specific items. The Contractor shall account for the requirements of the complete Contract documents and referenced codes.

MECHANICAL ESTIMATED QUANTITIES									
Ref. / Mark No	ITEM	ODOT ITEM NO	ODOT ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	ADDITIONAL DESCRIPTION (SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION)	SHEET (*)	SUPERSTRUCTURES SPECIFICATIONS SECTION (*)	MECHANICAL SPECIFICATIONS SECTION (*)
201	SPECIAL	69098400	MISC.: MECHANICAL WORK - DEFLECTOR DRUM ASSEMBLY	EA	2	including drums weldments, roller bearings, shafts, and all realted connections	M02 to M06		6.1.1, 6.3
202	SPECIAL	69098400	MISC.: MECHANICAL WORK - DEFLECTOR DRUMS SUPPORT ASSEMBLY	EA	2	including all weldments, shaft fixation elements, prestressed anchor rods and all related details and installation	M07+S31		
203	SPECIAL	69098400	MISC.: MECHANICAL WORK - CONNECTION BEAM AND FRONT PULLEY	EA	2	including steel frame, wheel blocks, front plate, pulley sheaves, roller bearings, shafts (incl. keeper plates and pull rods), and all related details	M08 to M13		6.1.2, 6.4.1
204	SPECIAL	69098400	MISC.: MECHANICAL WORK - FIXED REAR PULLEY	EA	2	including steel frame and base plate, pulley sheaves, roller bearings, shafts (incl. keeper plates and pull rods), and all related details	M14+M15 M10+M11		6.1.2
205	SPECIAL	69098400	MISC.: MECHANICAL WORK - FIXED REAR PULLEY ANCHORAGE STRUCTURE	EA	2	including steel profiles, anchorage in concrete, stiffeners, bolted connections	S32		
206	SPECIAL	69098400	MISC.: MECHANICAL WORK - CONNECTION BEAM GUIDING RAILS	FT	215	including supports and anchorages	M27		6.4.2
207	SPECIAL	69098400	MISC.: MECHANICAL WORK - OPERATING ROPES	FT	2,890	including end fittings, clamps on winch drum total 4 ropes	M26,M16		5
208	SPECIAL	69098400	MISC.: MECHANICAL WORK - OPERATING ROPES FIXED END ASSEMBLY	EA	4	including fixation bow, spherical bearing and pin, lug plates and base plate	M26		6.2.2
209	SPECIAL	69098400	MISC.: MECHANICAL WORK - MACHINERY STEEL SUPPORT FRAME	EA	2	including steel frame, lug plates and supports elements for machinery parts, embeds for connection to concrete	M17+M22		10
210	SPECIAL	69098400	MISC.: MECHANICAL WORK - WINCH AND DRIVE SYSTEM	EA	2	including drum weldment, planetary and bevel gear, shafts and couplings, machinery brakes, motor brake, pillow block and bearing, torque support and bearing	M16 M18 to M21		8, 9, 6.1.3, 6.2.3
211	SPECIAL	69098400	MISC.: MECHANICAL WORK - MID-SPAN LOCKING SYSTEM	EA	2	including locking pin, plain bearings and support tube, receiver plates and connection to superstructure, linear drive with gear and motor, bevel gear and support for manual operation	M23 to M25 +S21		11
212	SPECIAL	69098400	MISC.: MECHANICAL WORK - CENTERING DEVICE ROLLER AND RECEIVER	EA	1	including centering roller, bearing, receiver plates and connection to superstructure	S21	4.1.4	

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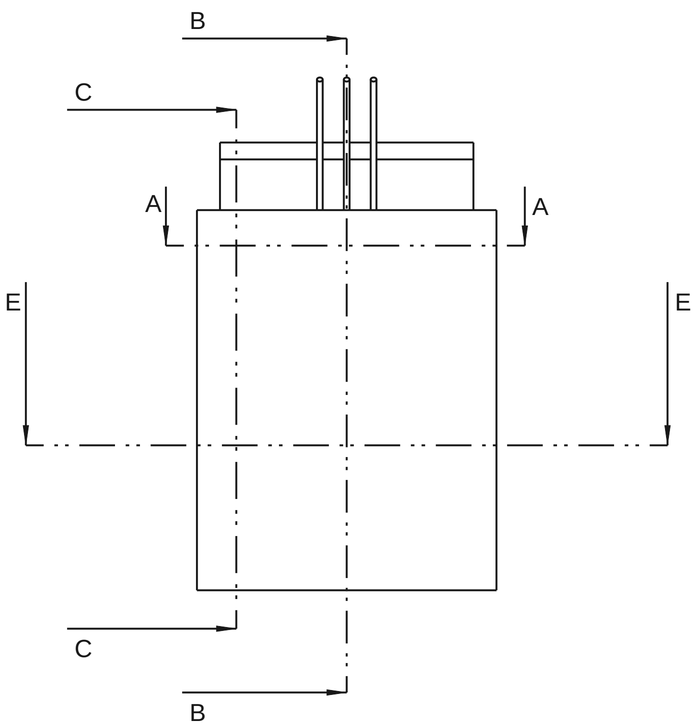
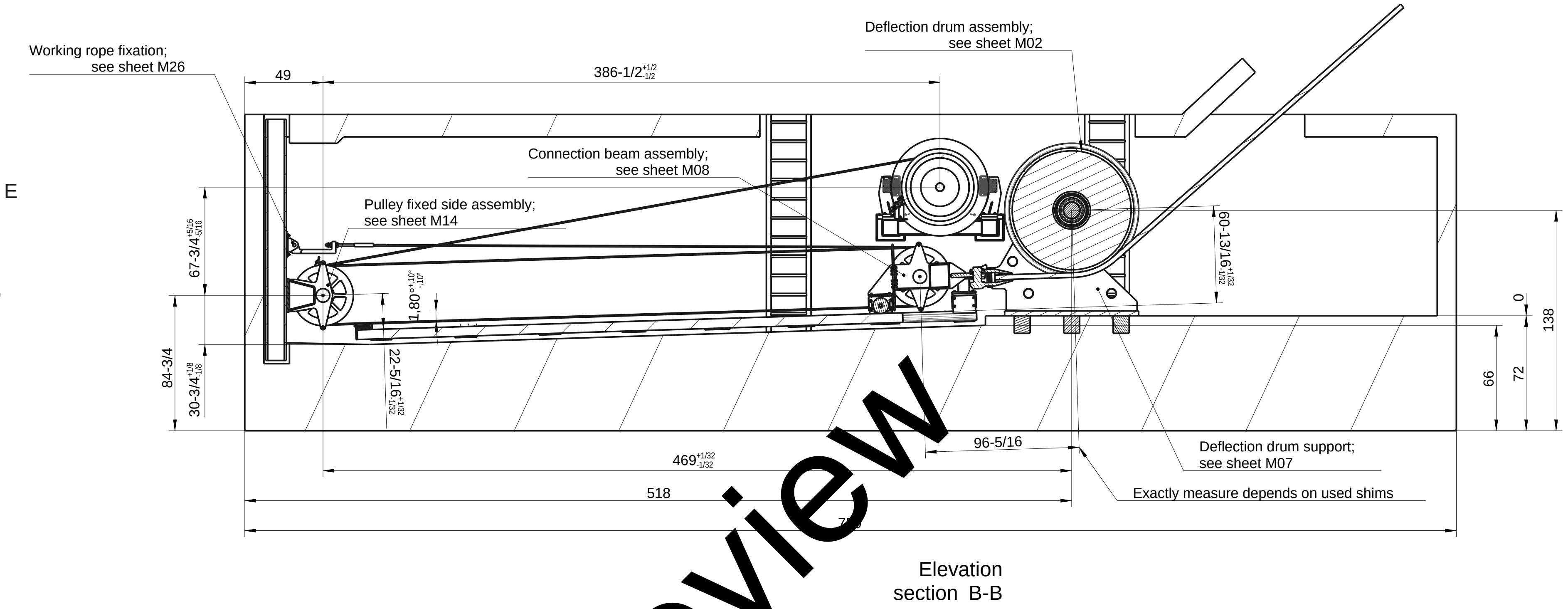
REVIEWED SDG | DATE 08/22/14 | STRUCTURE FILE NUMBER
DRAWN NDR | REVISED –
DESIGNED NDR | CHECKED MSt

ESTIMATED QUANTITIES – MECHANICAL
CURVED SYMMETRICAL BASCULE BRIDGE

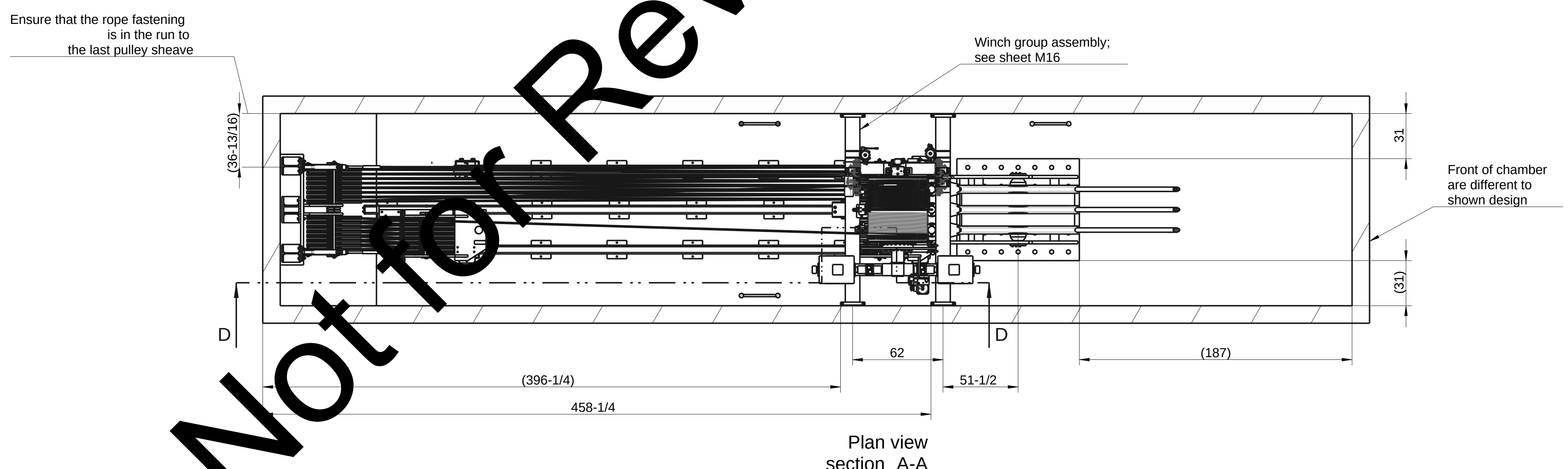
CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

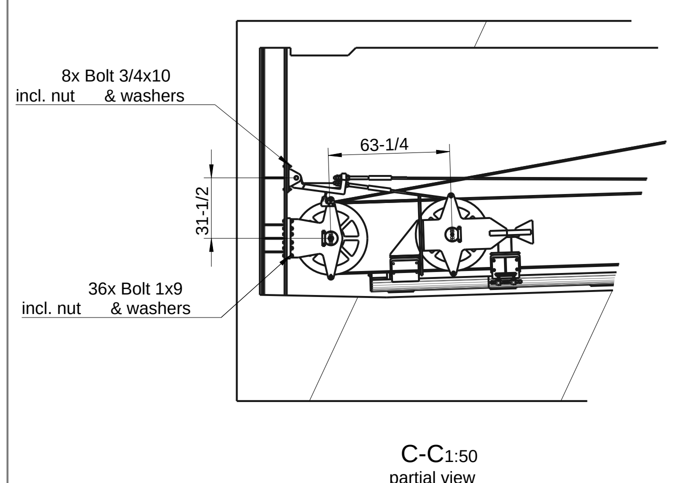
MO/ .

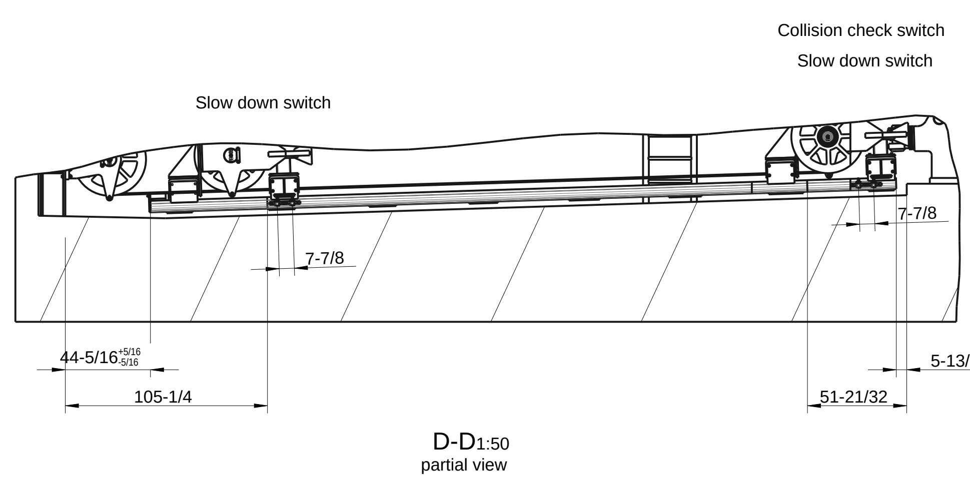


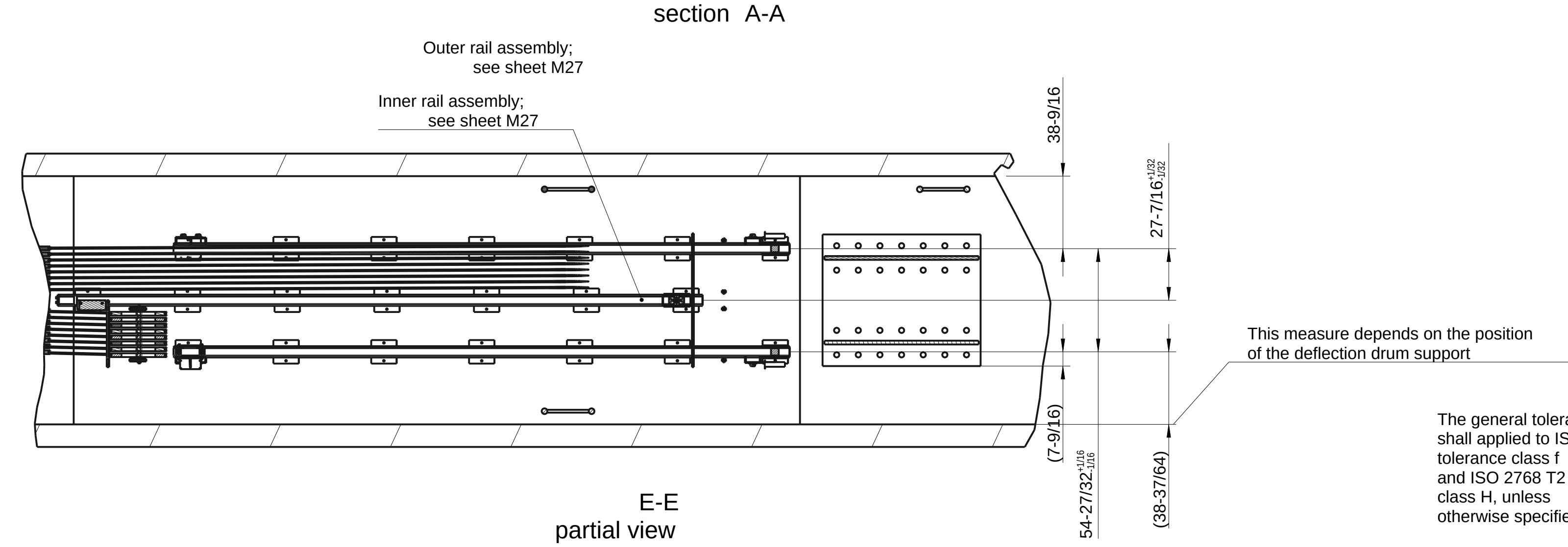


Note:
the arrangement in the 2 chambers
is identical. Finger pier side
chamber obtained by simple rotation
of park side chamber.









The general tolerances
shall applied to ISO 2768 T1,
tolerance class f
and ISO 2768 T2 tolerance
class H, unless
otherwise specified

Not for Review

DESIGN AGENCY
CDM Smith
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New York, NY 10018

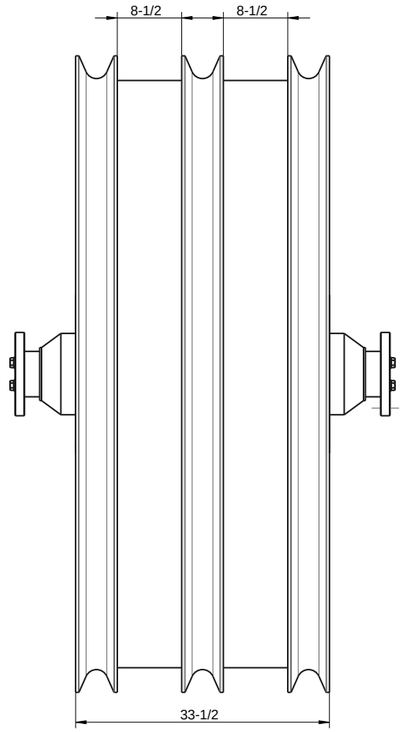
DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-31-2014
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WCJ	01		

Chamber

CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

M01 / M27



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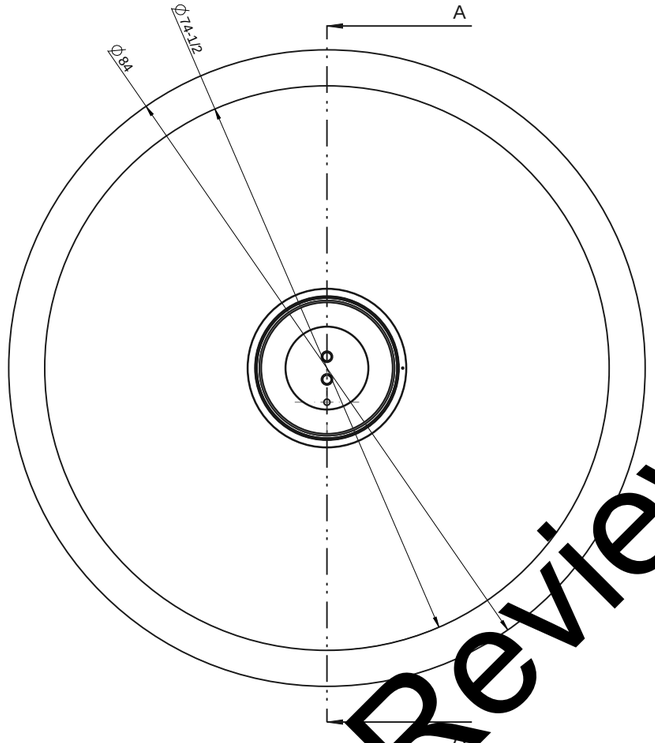
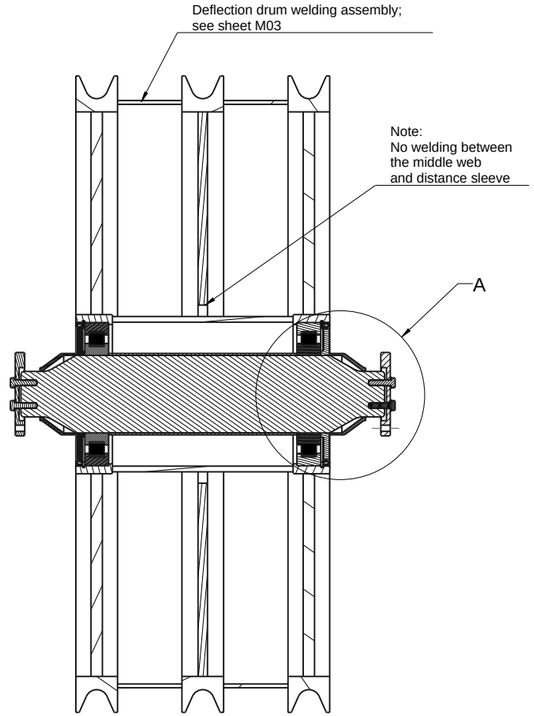
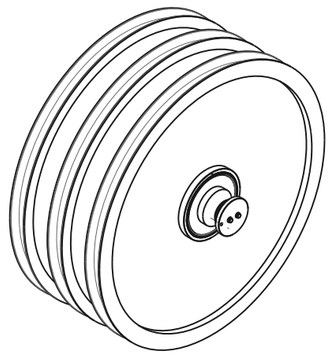
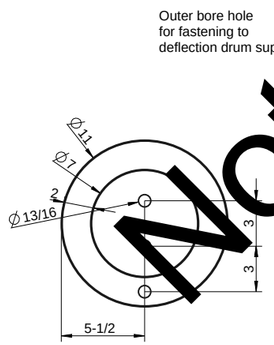


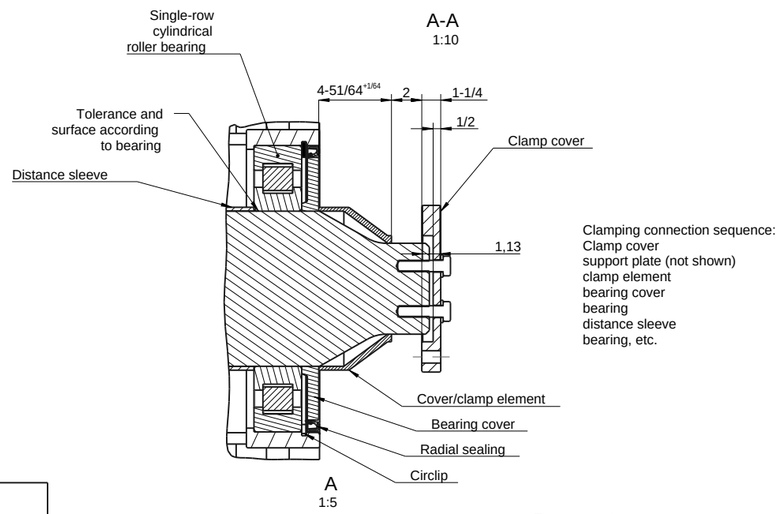




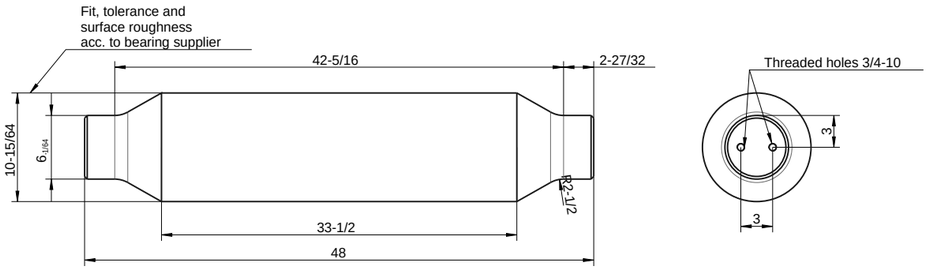
1:20



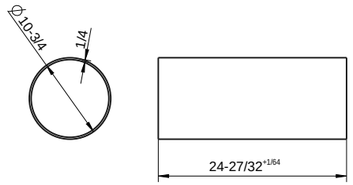
Clamp cover
1:5



Clamping connection sequence:
Clamp cover
support plate (not shown)
clamp element
bearing cover
bearing
distance sleeve
bearing, etc.



Shaft



Distance sleeve
1:10

The general tolerances
shall applied to ISO 2768 T1,
tolerance class f
and ISO 2768 T2 tolerance
class H, unless
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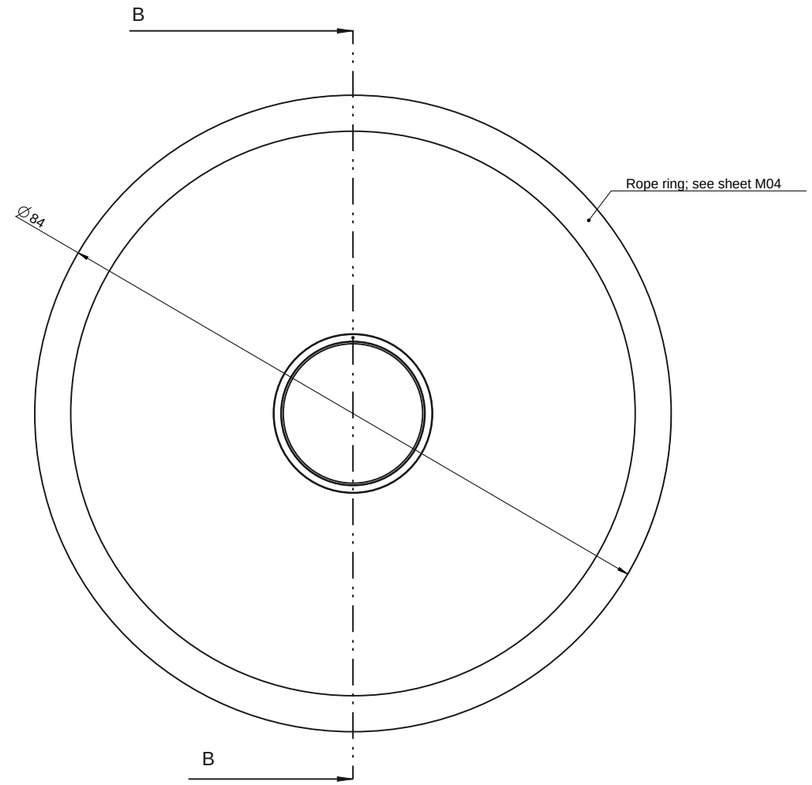
DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE
UJ	WCJ	UJ	00	TK	Mar-28-2014

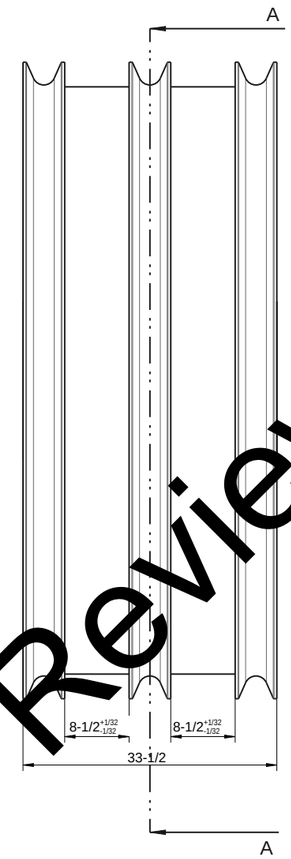
STRUCTURE FILE NUMBER

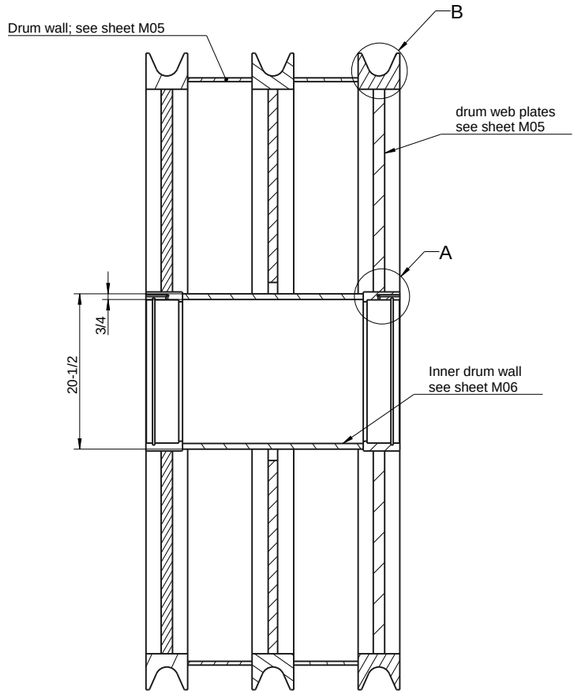
Deflection drum assembly

CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M02 / M27







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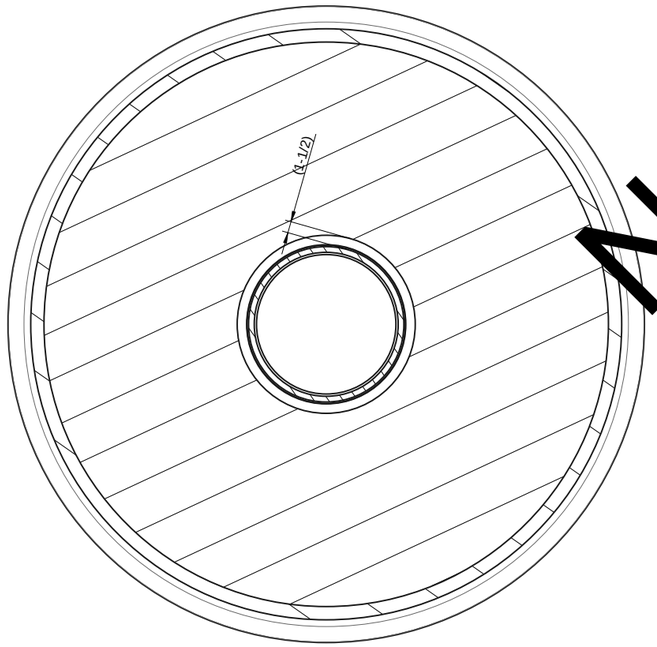

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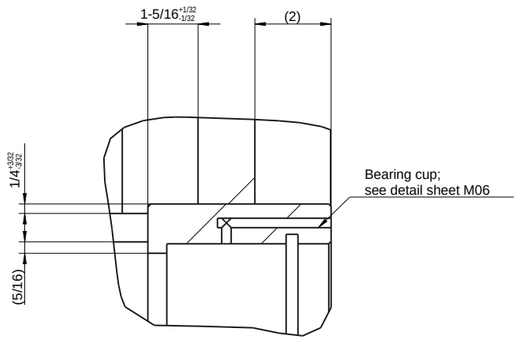

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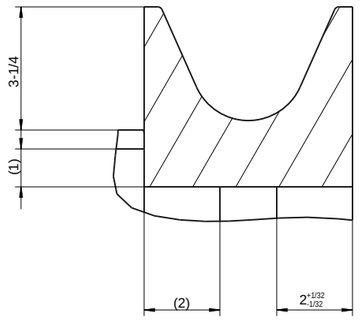

B
1:2

The general tolerances shall applied to ISO 2768 T1, tolerance class f and ISO 2768 T2 tolerance class H, unless otherwise specified

DESIGN AGENCY
CPM Smith
1468 W. 9TH ST., SUITE 750
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Structural Consulting Engineers
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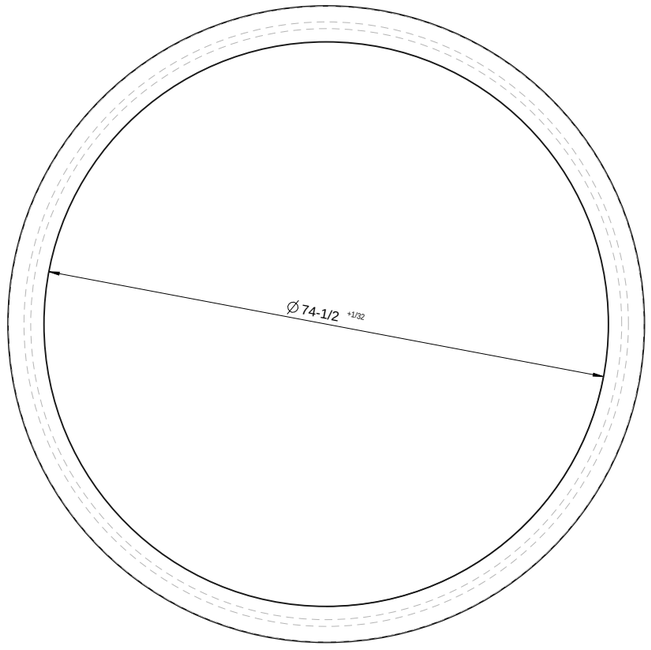
New York, NY 10018

DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-28-2014
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WCJ	00		

Deflection drum welding assembly

CUYAHOGA-NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M03 / M27



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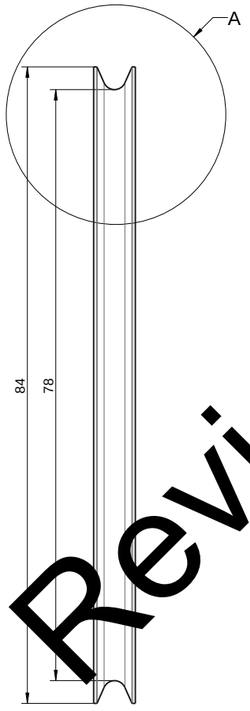

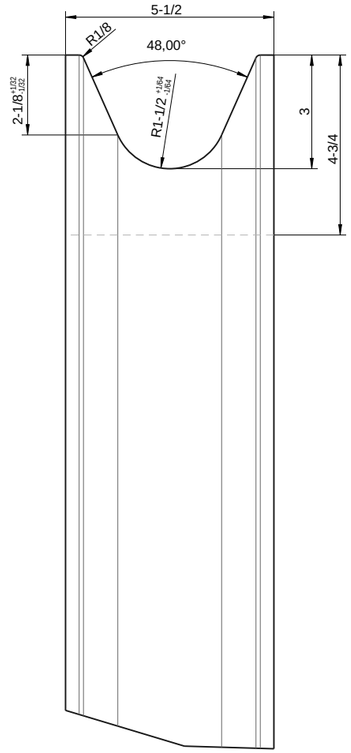

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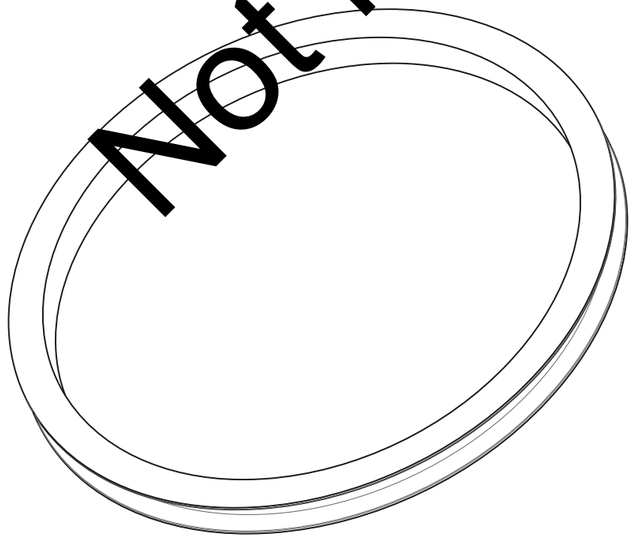

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class H, unless
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UJ	UJ	TK	Mar-28-2014
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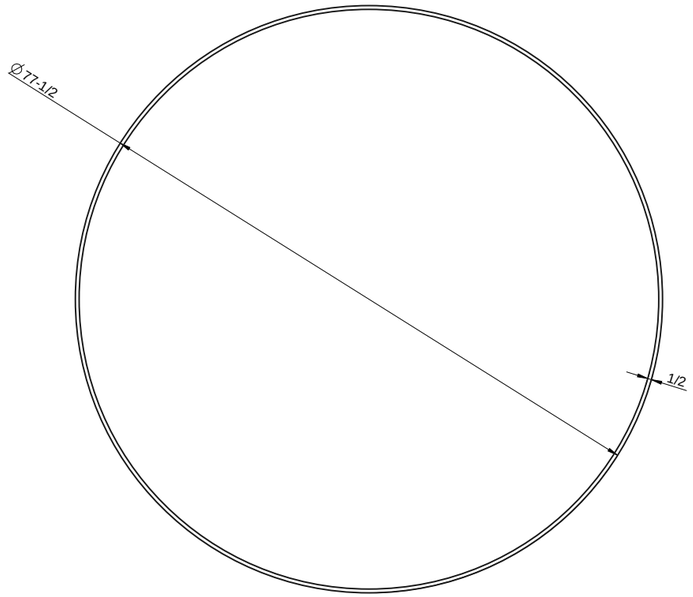
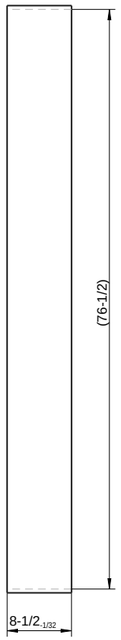
Deflection sheave rope groove

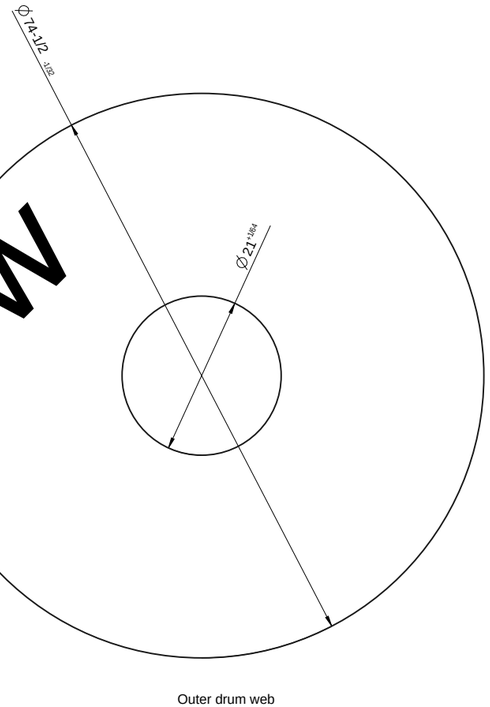
CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M04 / M27

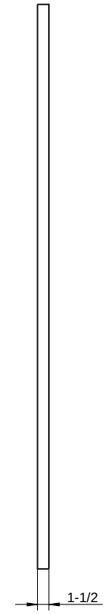


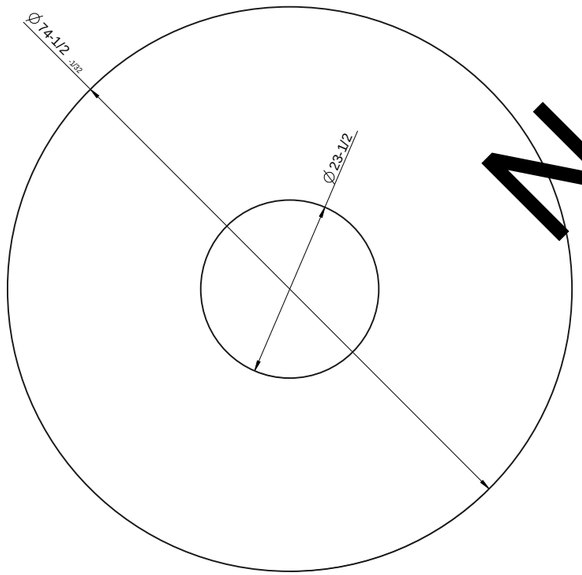
Outer drum wall
1:10



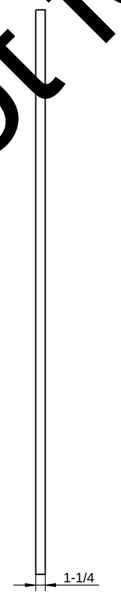


Outer drum web
1:10





Inner drum web
1:10



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DESIGN AGENCY
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UJ	UJ	TK	Mar-28-2014
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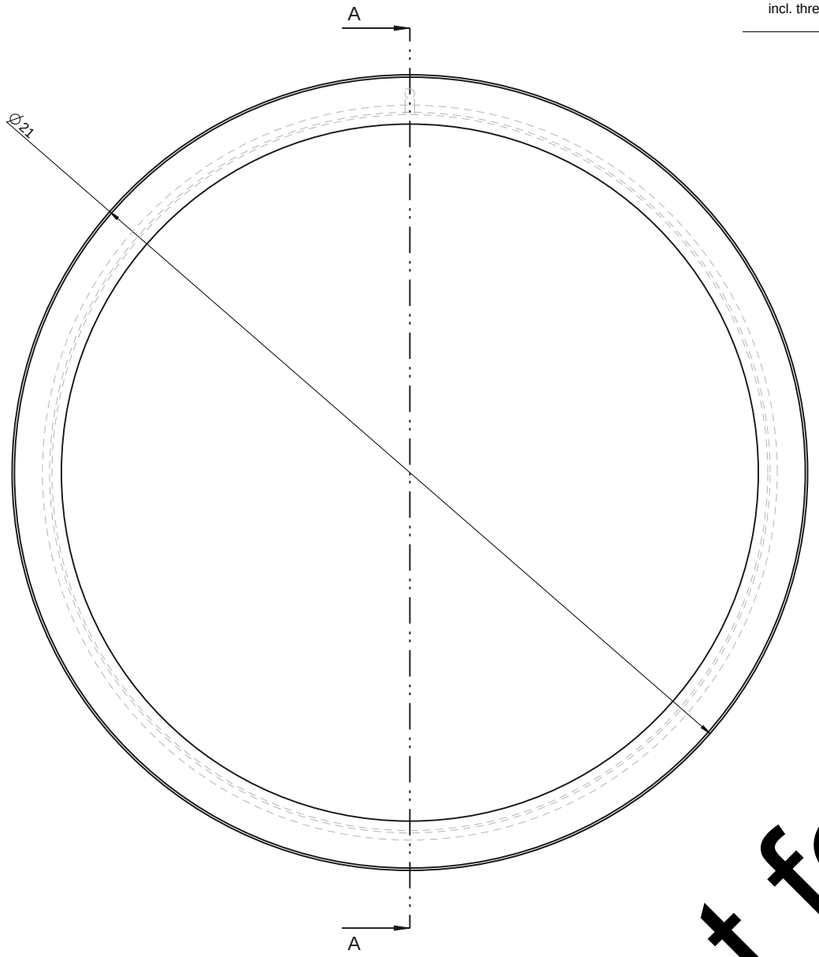
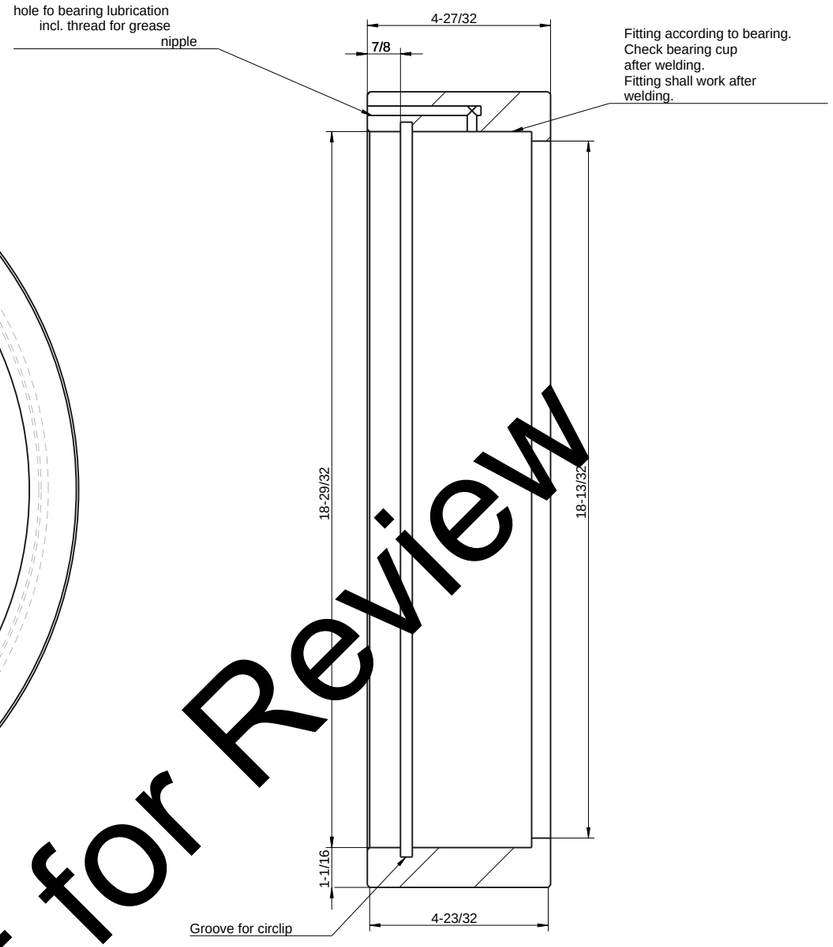
Deflection drum cylinder

CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M05 / M27



Outer bearing cup
1:2



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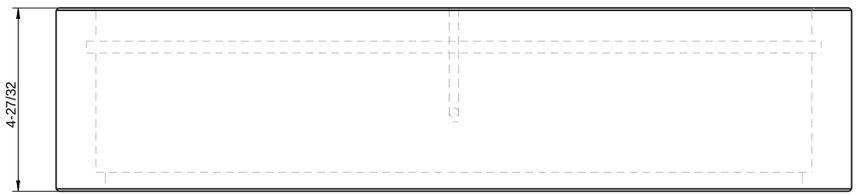
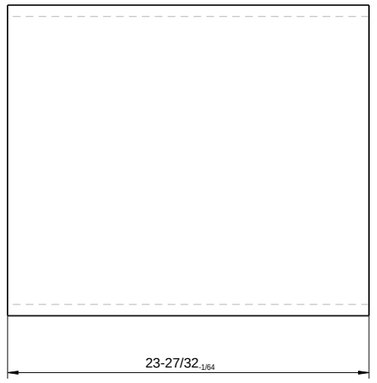
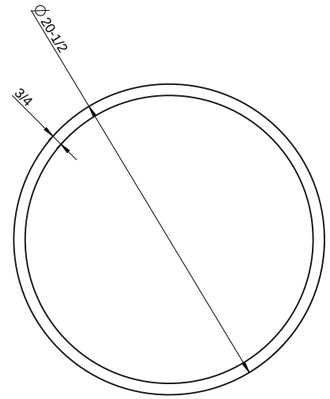




Inner Cylinder wall



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and ISO 2768 T2 tolerance
class H, unless
otherwise specified

DESIGN AGENCY
CDM Smith
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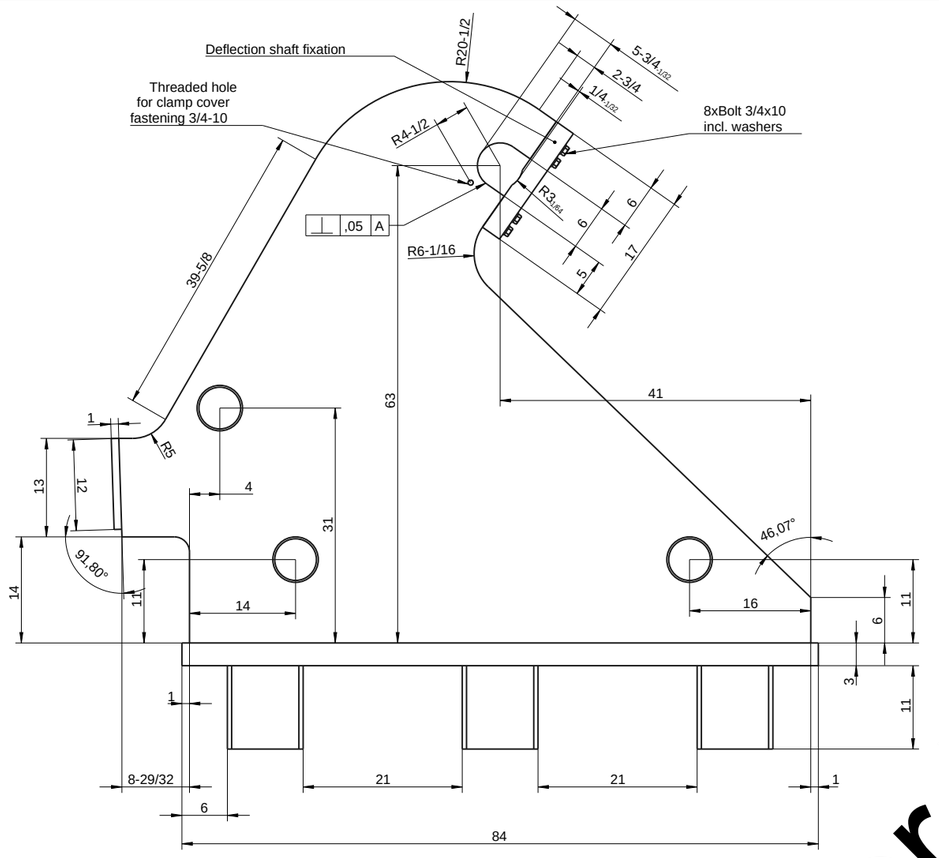
Deflector outer bearing cup

CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M06 / M27



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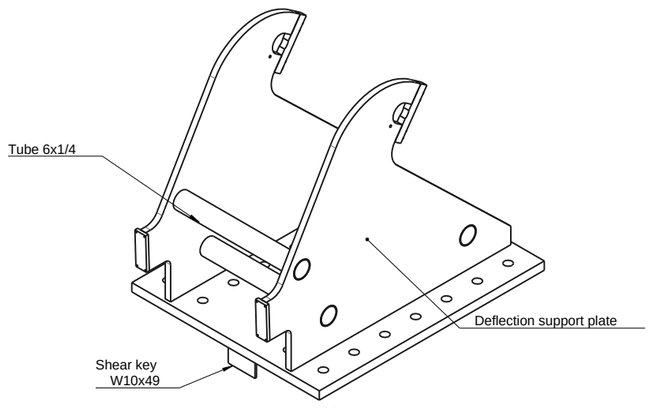

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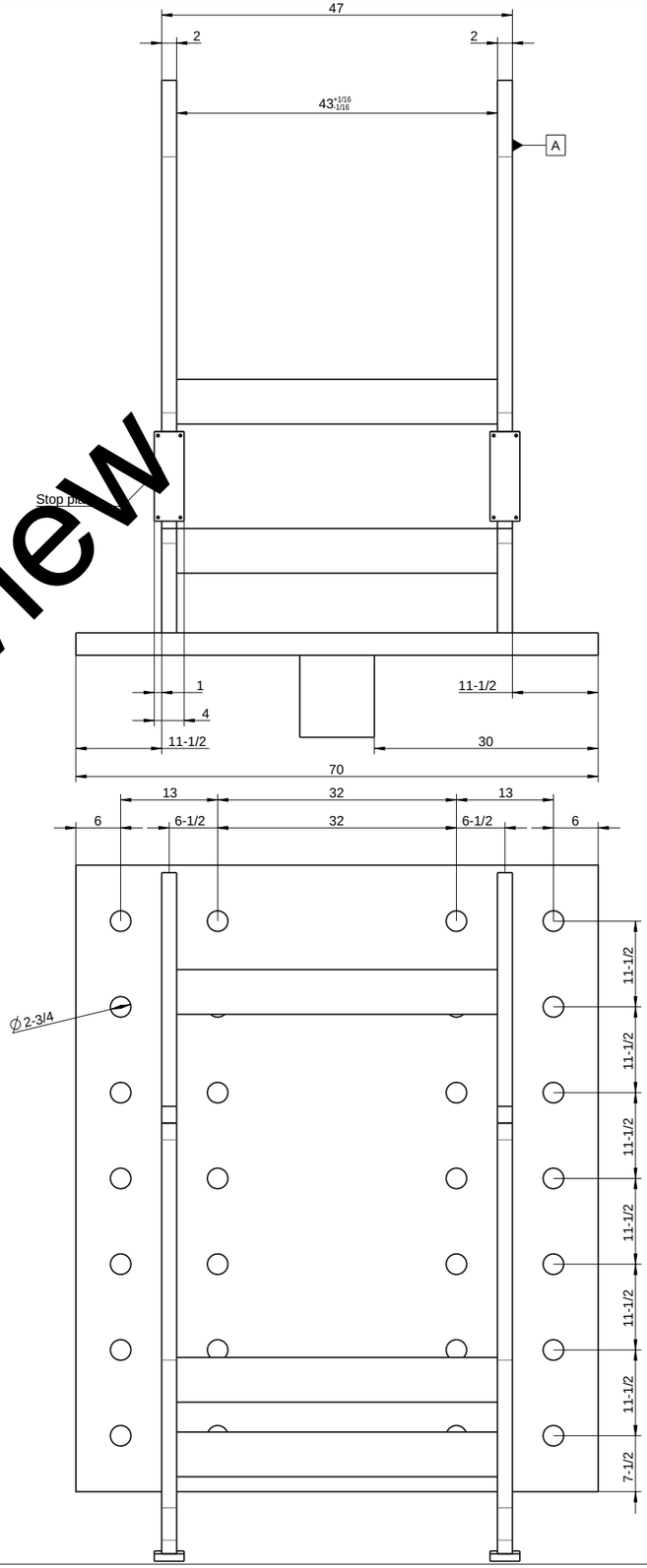

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UJ	UJ	TK	Feb-28-2014
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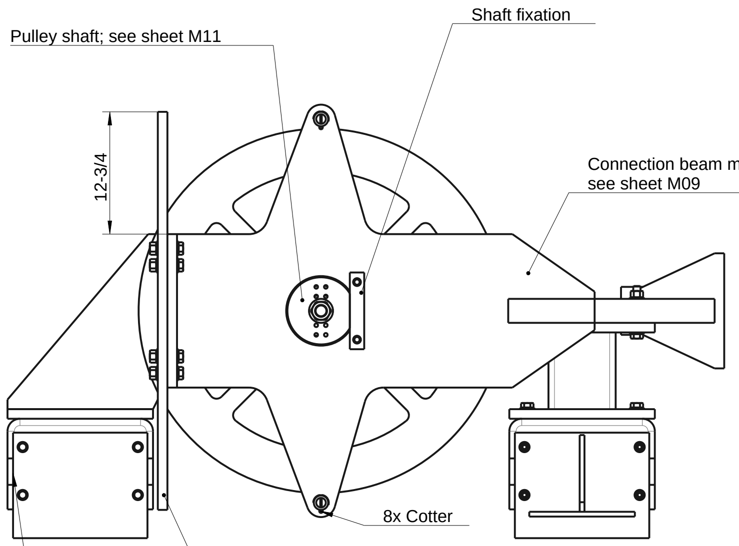
Deflection drum support

CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M07 / M27



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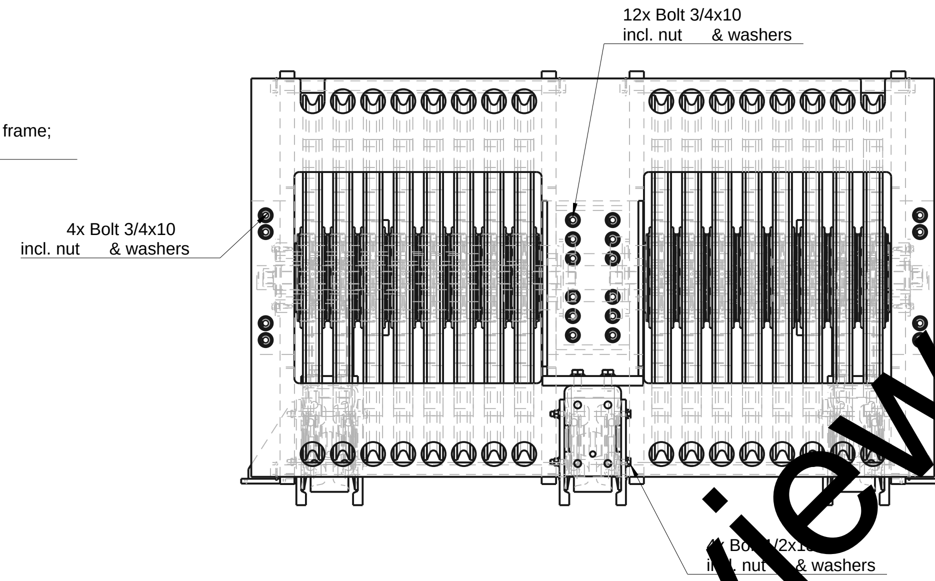

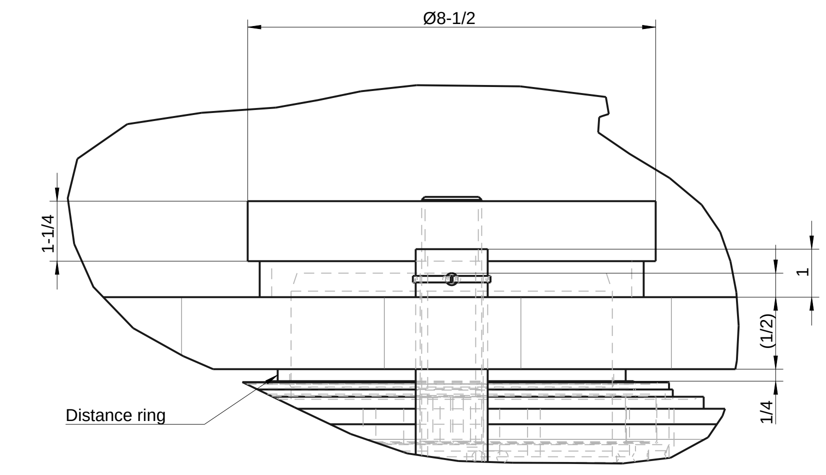

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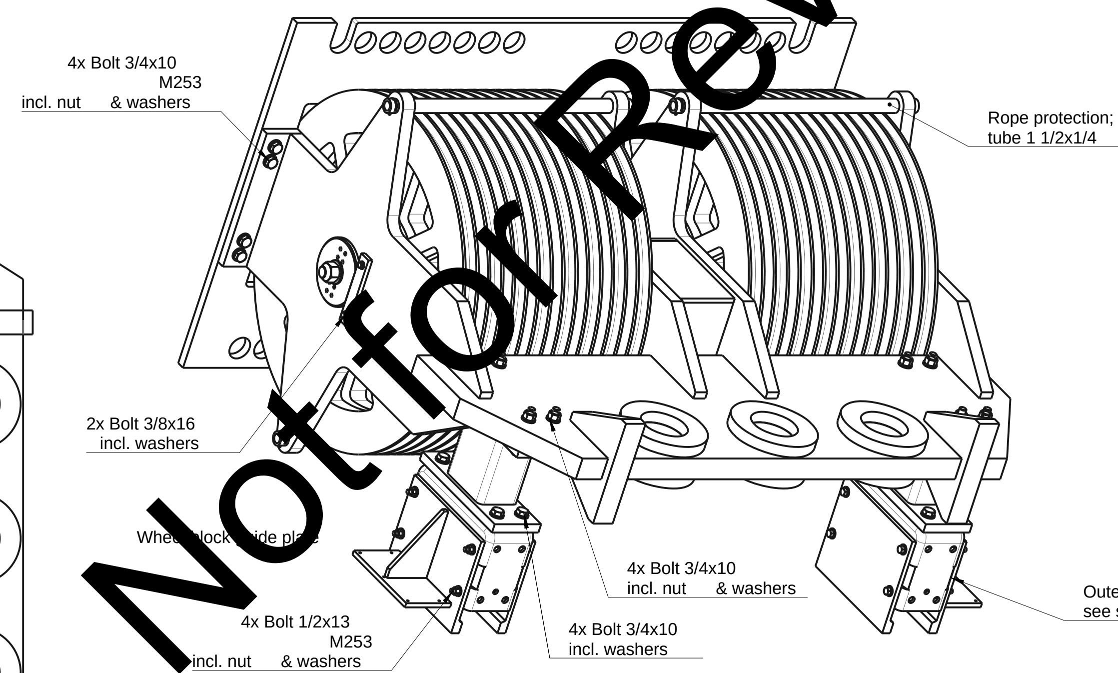

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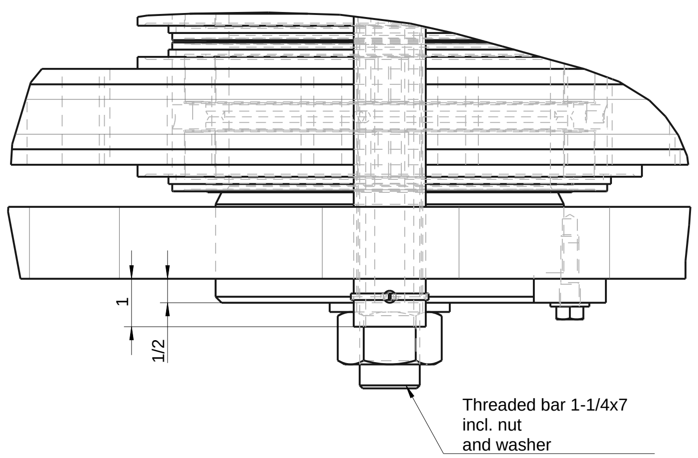

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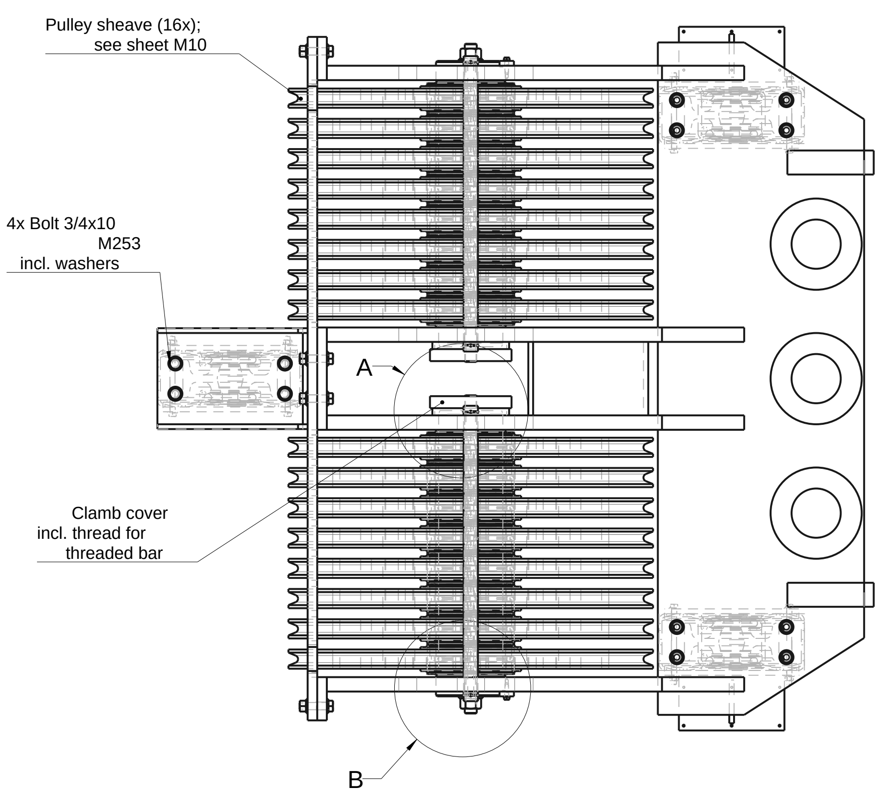
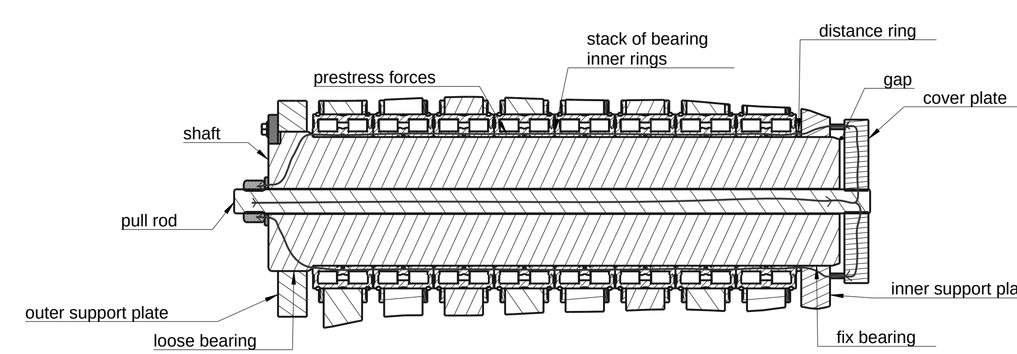


Principle of prestressing shaft
and bearings of pulley sheaves:

- The shaft and the bearing inner rings have a loose fit to simplify assembly and also to enable disassembly after long operation (perhaps rust development).
- To prevent movement of inner rings on the shaft due to this loose fit, the whole stack of 8 inner rings is axially prestressed.
- This is done with a pull rod inside the shaft, see sketch right.
- The inner support plate for the shaft forms a fixed bearing, the outer support plate a loose bearings; thus avoiding any axial load between the support plates.



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CDM Smith
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UJ	UJ	TK	Mar-28-2014
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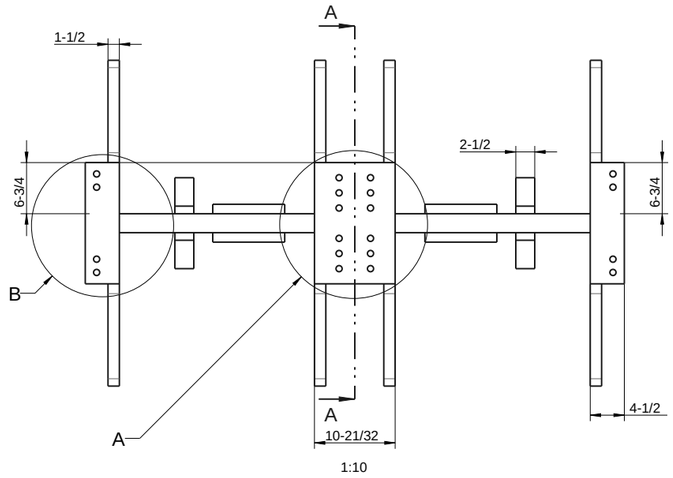
WCJ	00		

Connection beam - pulley assembly

CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

M08/M27



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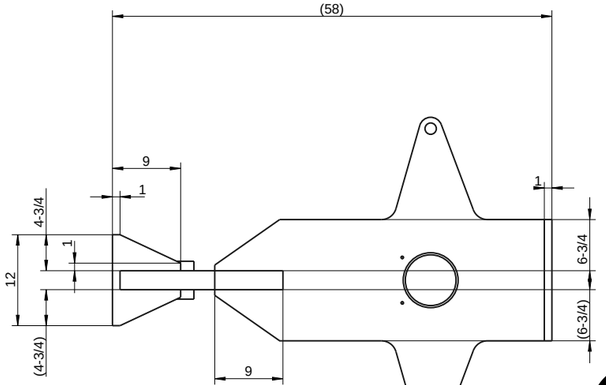

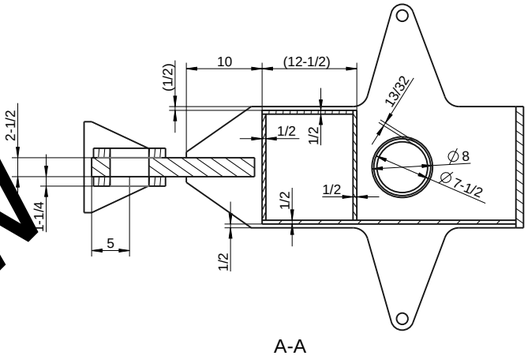

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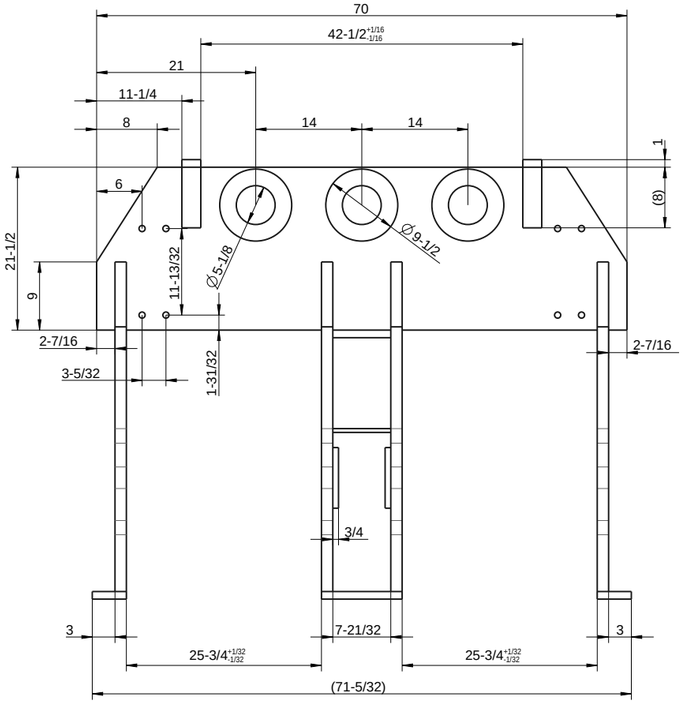

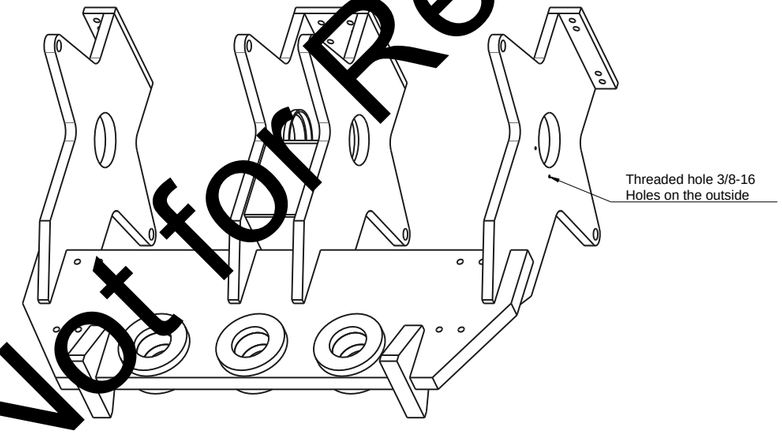

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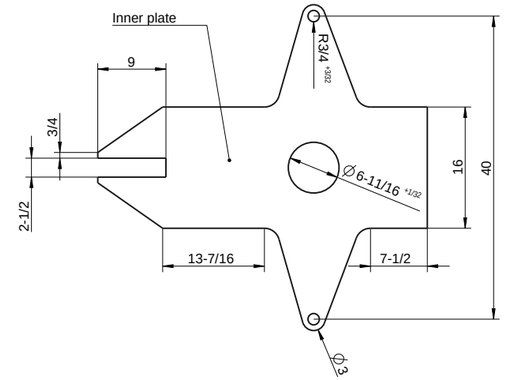

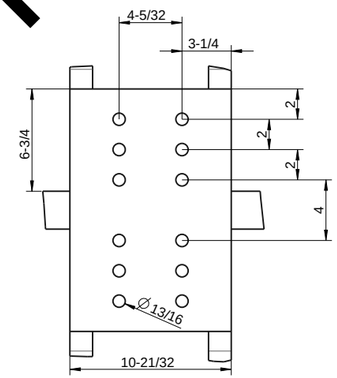

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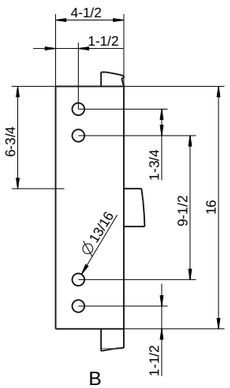
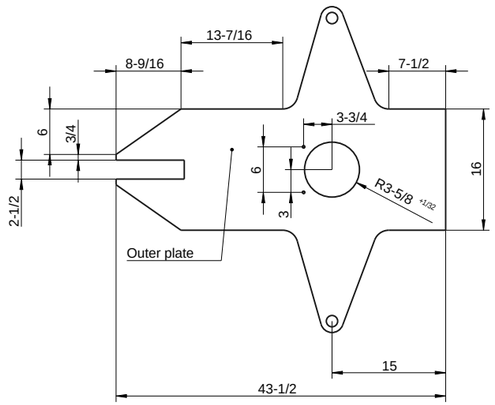


B
1:5



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CPM Smith
1468 W. 9TH ST. SUITE 750
CLEVELAND, OHIO 44113

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New York, NY 10018

DESIGNED	CHECKED	DRAWN	REVISED	REVIEWED	DATE
UJ	WCJ	UJ	00	TK	Mar-28-2014

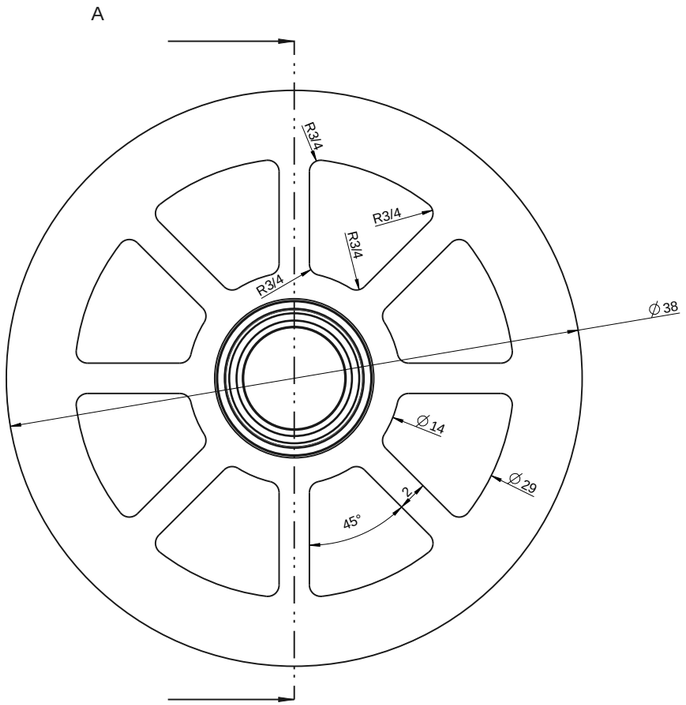
STRUCTURE FILE NUMBER

Connection beam main frame

CURVED SYMMETRICAL BASCULE BRIDGE

GUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

M09 / M27



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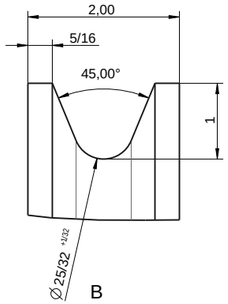

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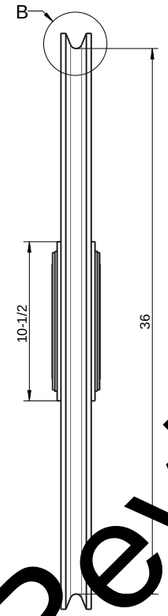
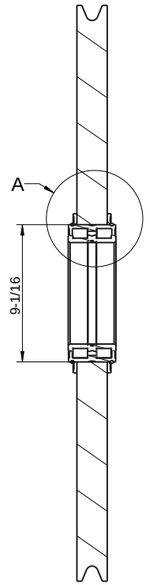


Fit, tolerance and surface roughness according to bearing supplier



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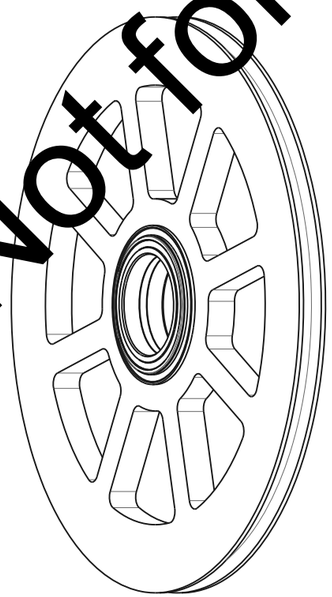

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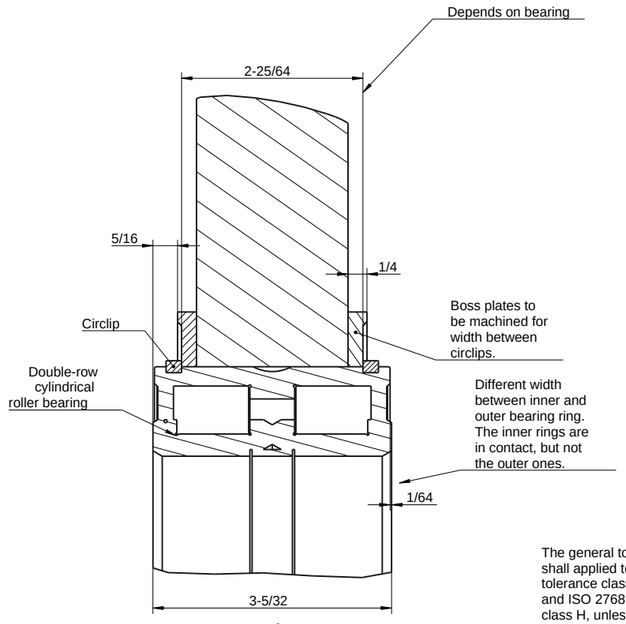

A
1:1

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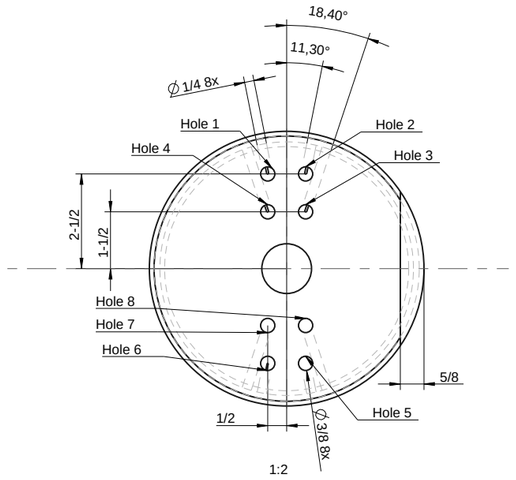
WCJ	00		

Pulley sheave assembly

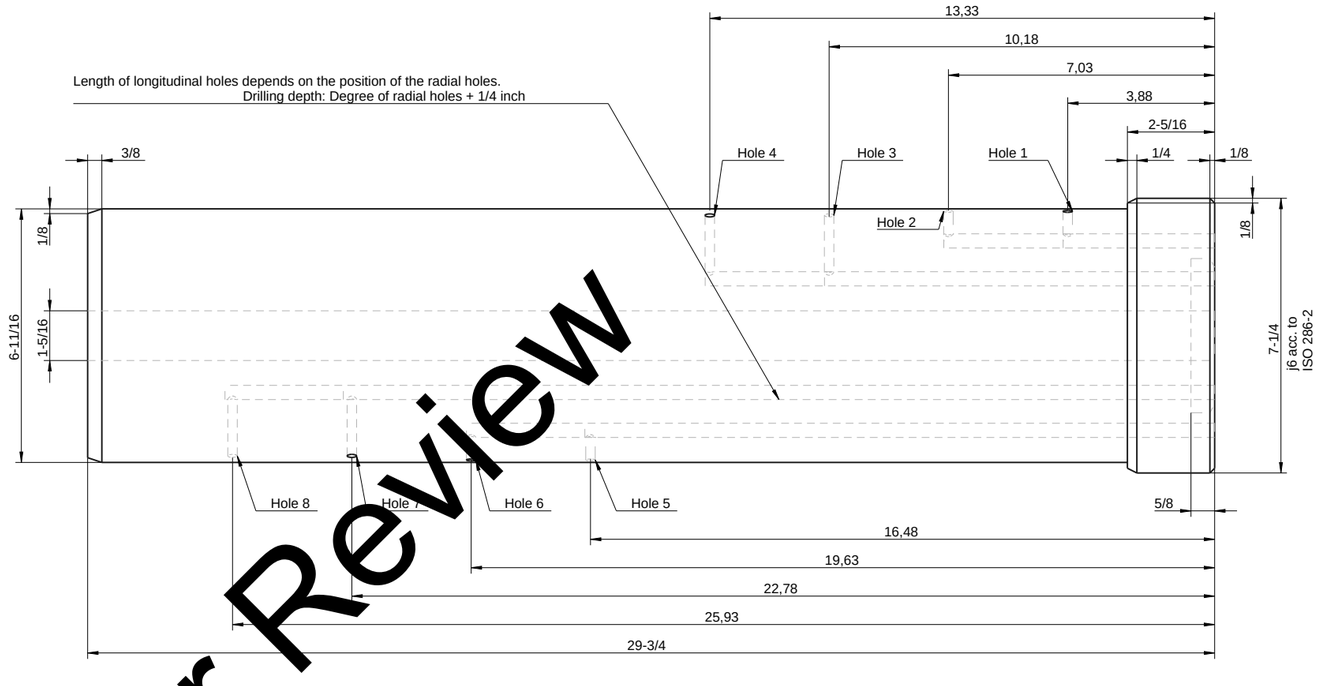
CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

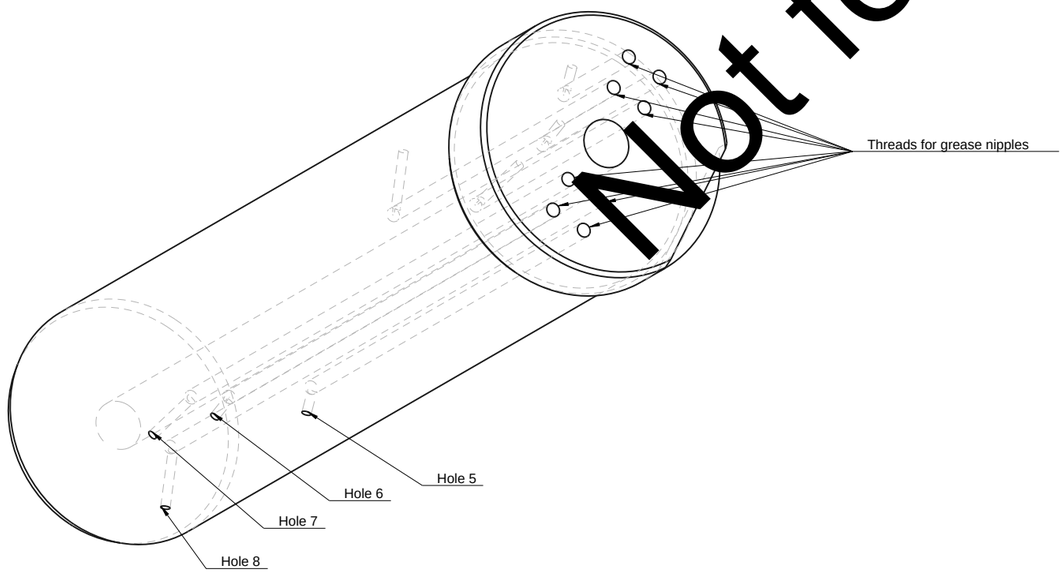
M10 / M27



1:2

Fit, tolerance and surface roughness according to bearing supplier





1:2

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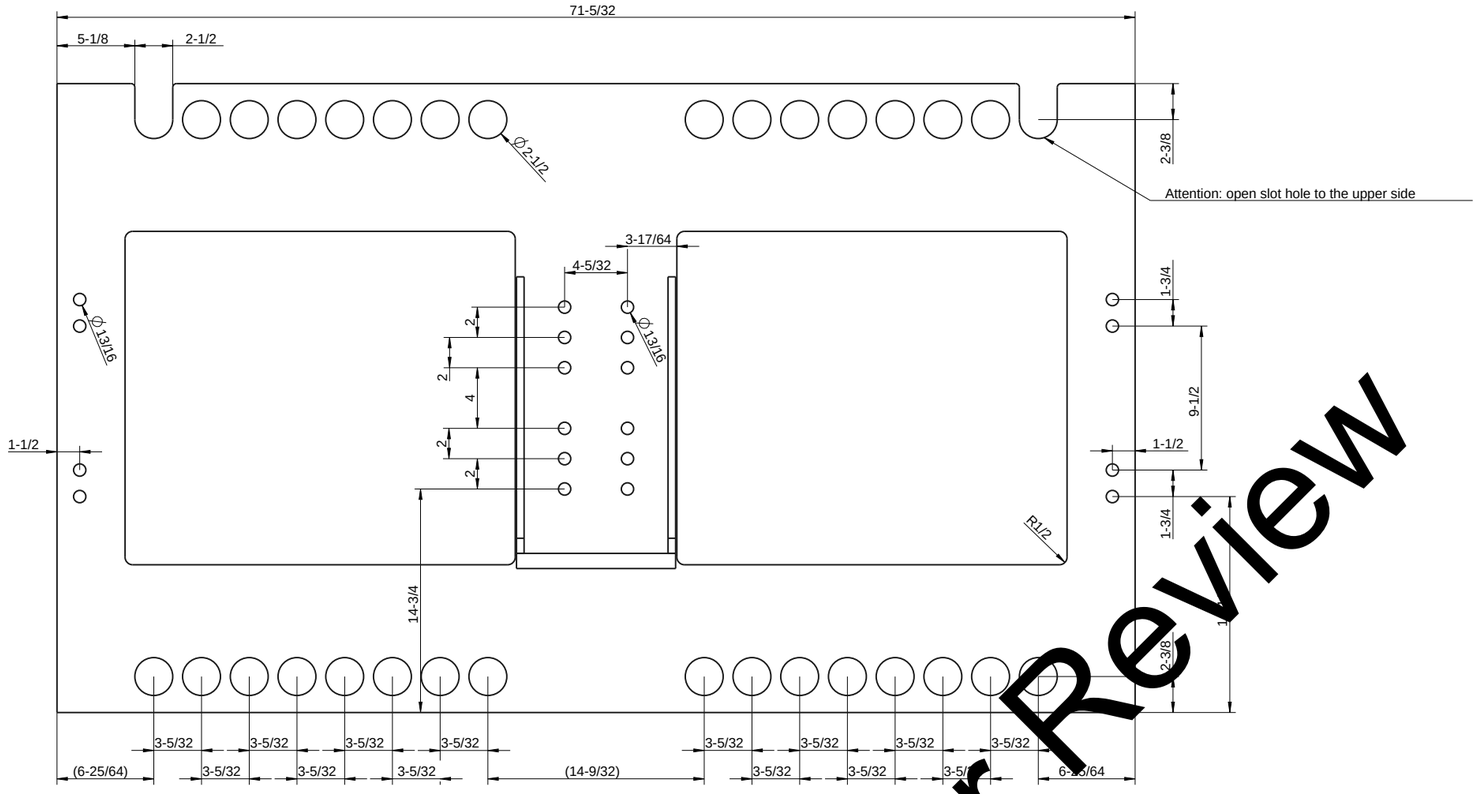
DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-28-2014
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WCJ	00		

Pulley shaft

CUYAHOGA RIVER CURVED SYMMETRICAL BASCULE BRIDGE
CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

M11 / M27

78
165



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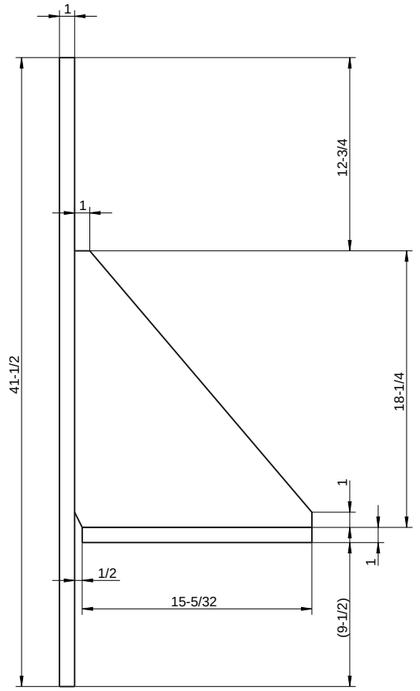

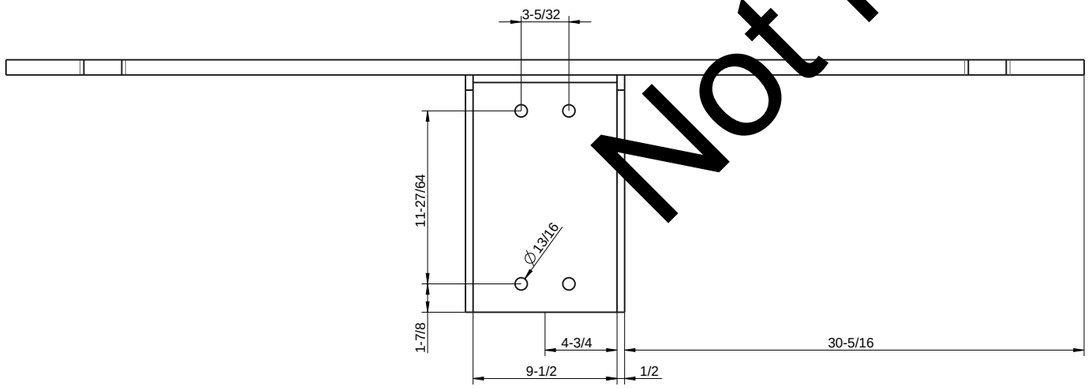

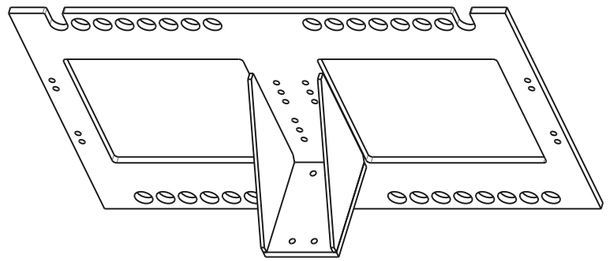

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The general tolerances shall applied to ISO 2768 T1, tolerance class f and ISO 2768 T2 tolerance class H, unless otherwise specified

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CDM Smith
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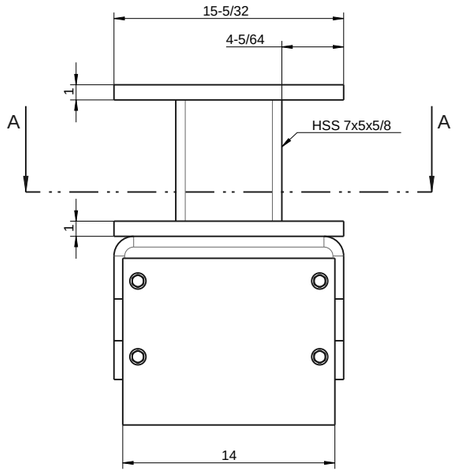
DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-28-2014
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WCJ	00		

Front plate assembly

CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M12 / M27

Outer wheel block



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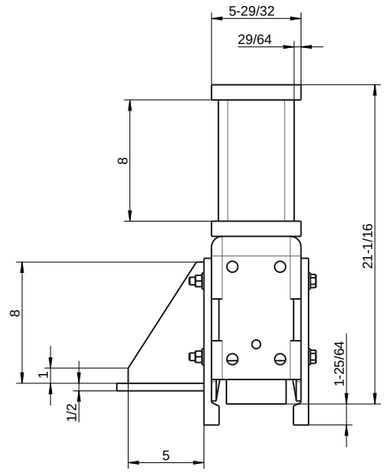
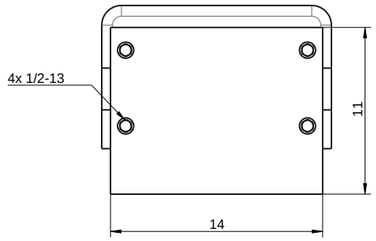


Inner wheel block



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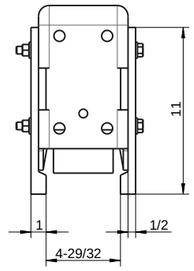
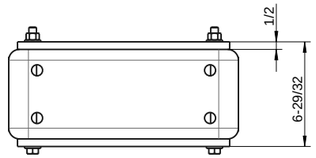
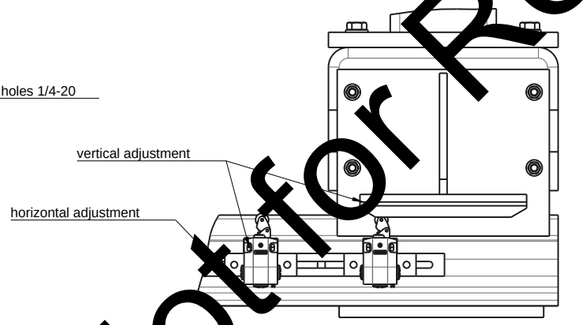
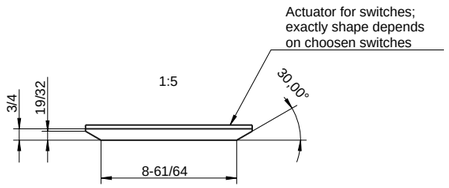
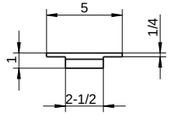


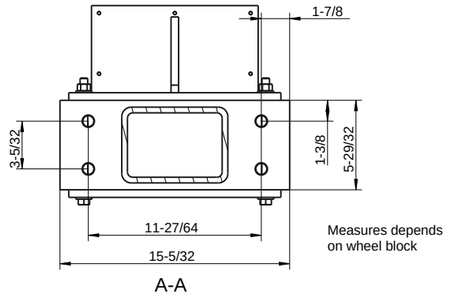




Partial view
longitudinal
outer wheel block
and rail with switches

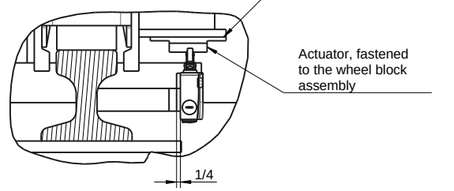




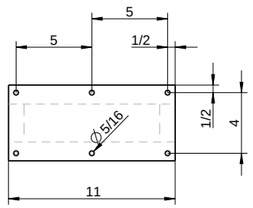


Measures depends
on wheel block

A-A



Partial view
crosssection
outer wheel block
with switches



The general tolerances
shall applied to ISO 2768 T1,
tolerance class f
and ISO 2768 T2 tolerance
class H, unless
otherwise specified

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New York, NY 10018

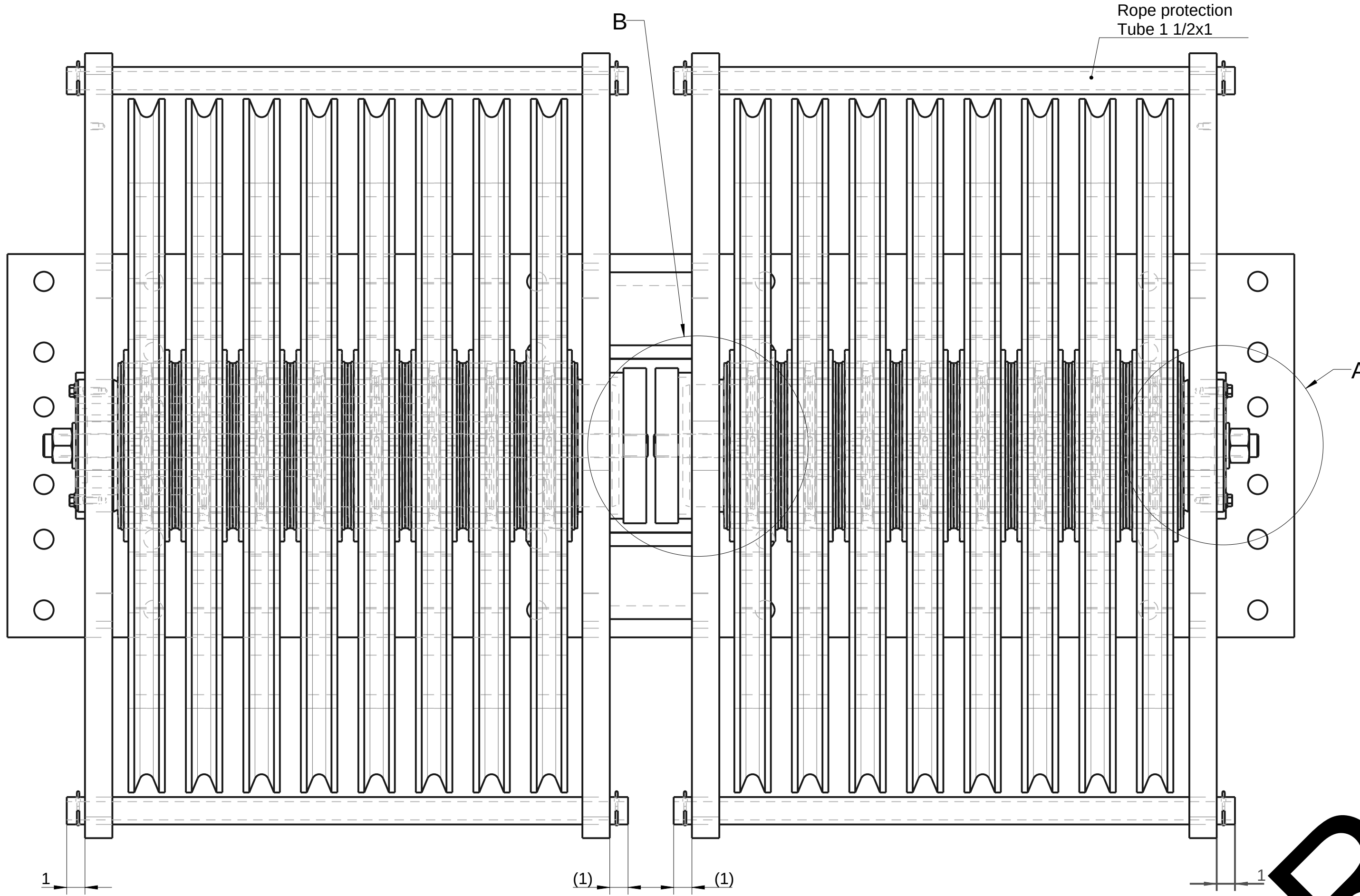
DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-25-2014
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WCJ	00		

Wheel block assemblies

CURVED SYMMETRICAL BASCULE BRIDGE

GUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

M13 / M27



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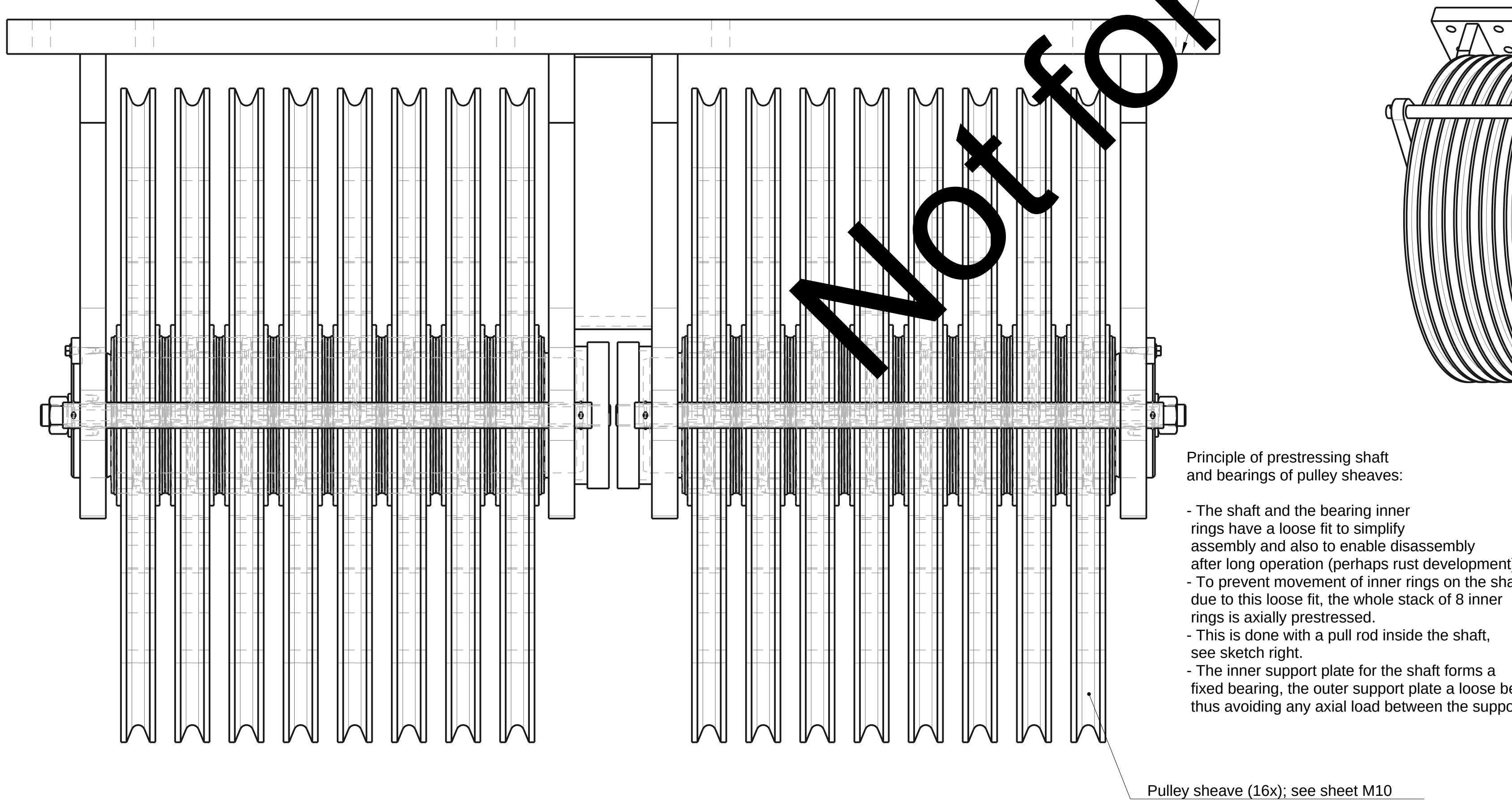

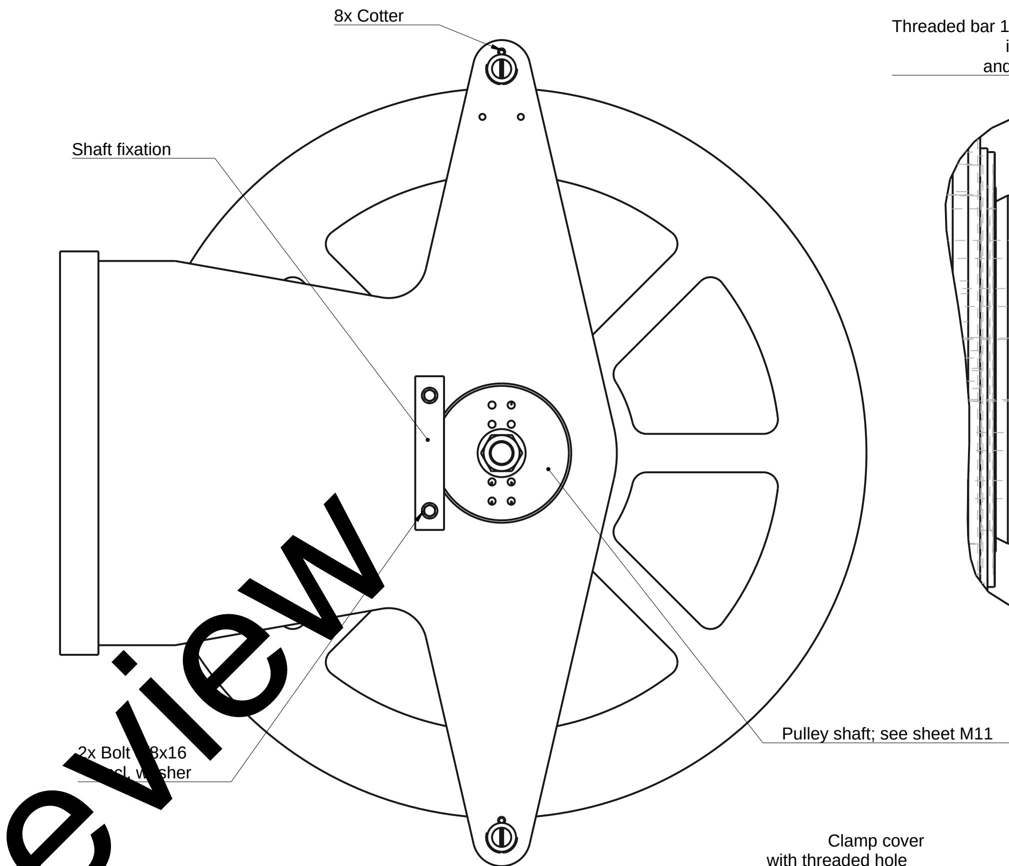

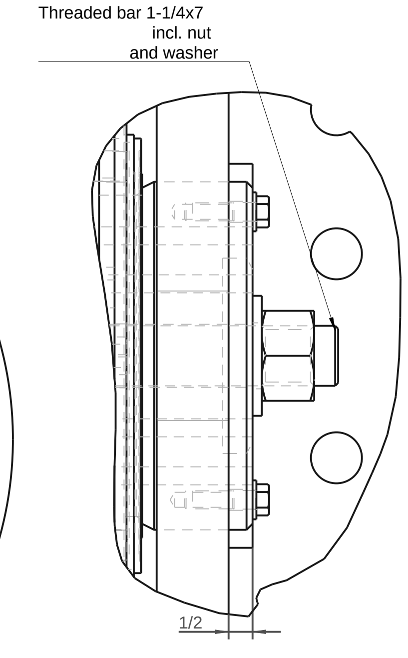

A
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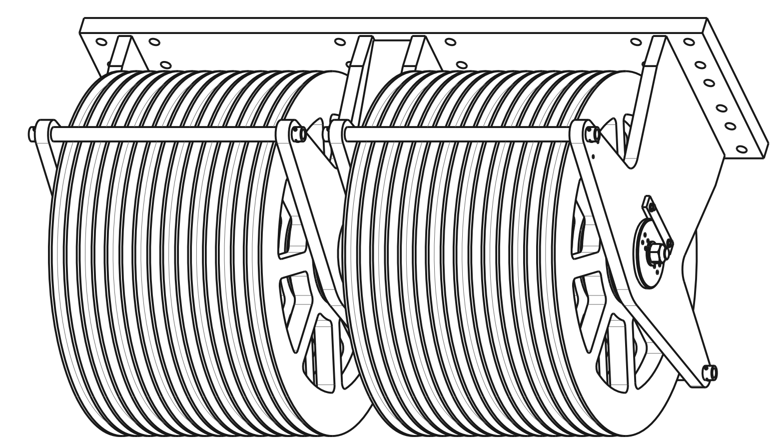
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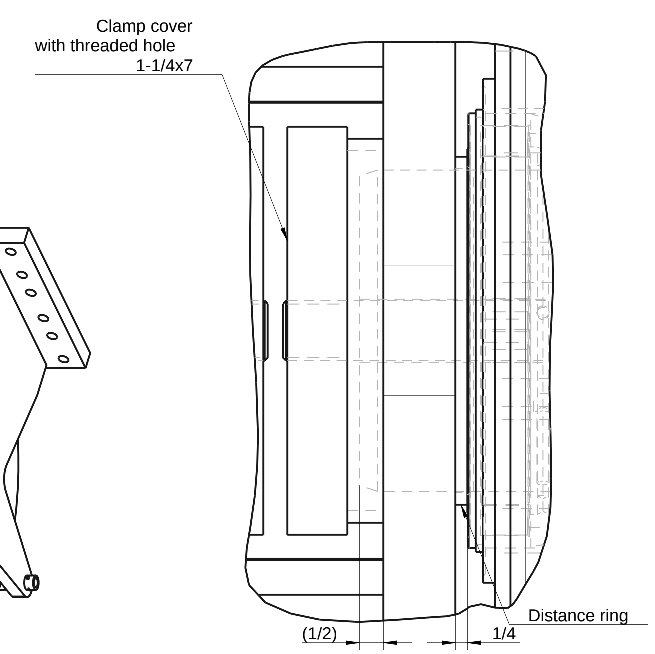
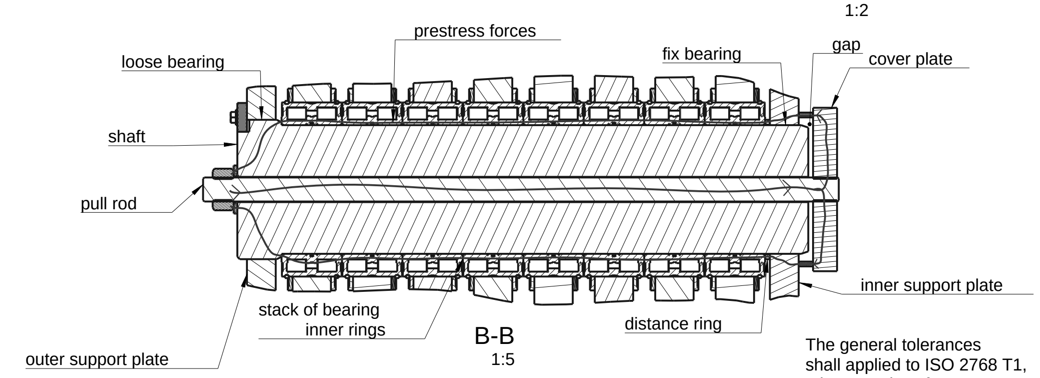


B
1:2

Principle of prestressing shaft
and bearings of pulley sheaves:

- The shaft and the bearing inner rings have a loose fit to simplify assembly and also to enable disassembly after long operation (perhaps rust development).
- To prevent movement of inner rings on the shaft due to this loose fit, the whole stack of 8 inner rings is axially prestressed.
- This is done with a pull rod inside the shaft, see sketch right.
- The inner support plate for the shaft forms a fixed bearing, the outer support plate a loose bearings; thus avoiding any axial load between the support plates.



B-B
1:5

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New York, NY 10018

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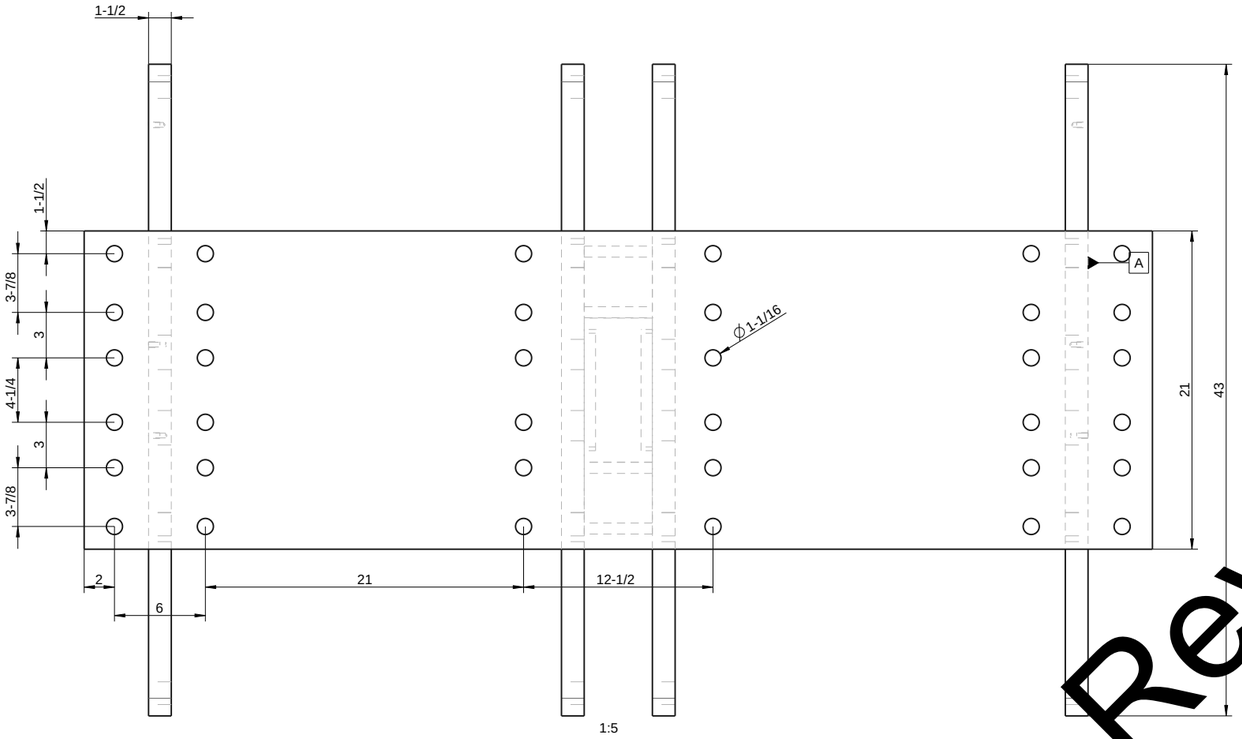
UJ	WCJ	UJ	01	TK		Mar-28-2014

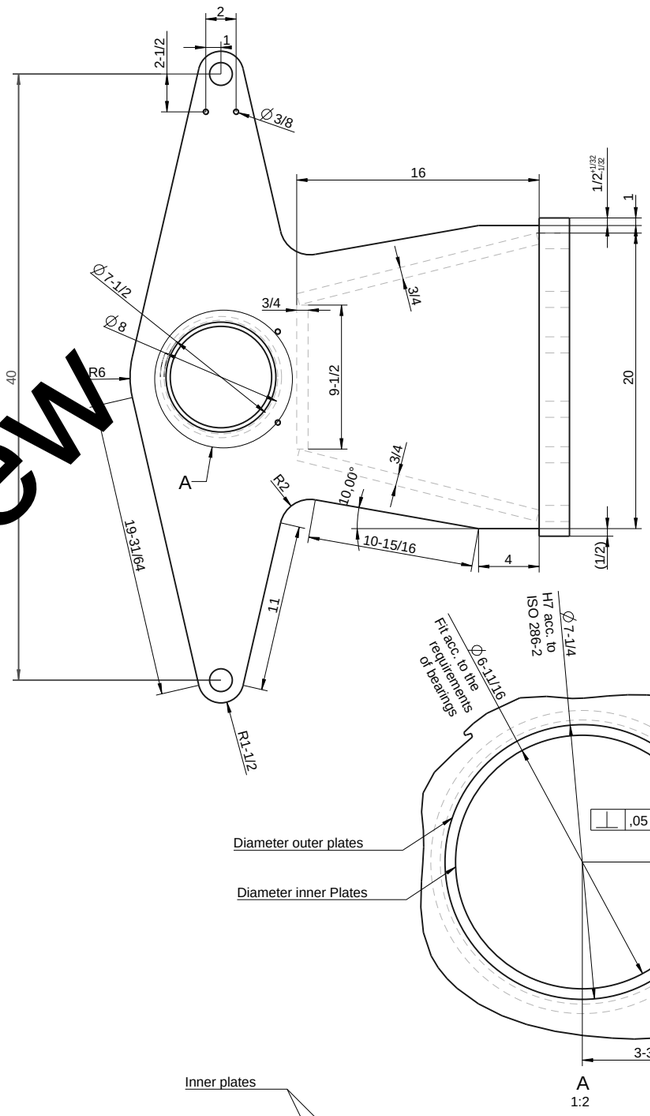
Fix pulley assembly

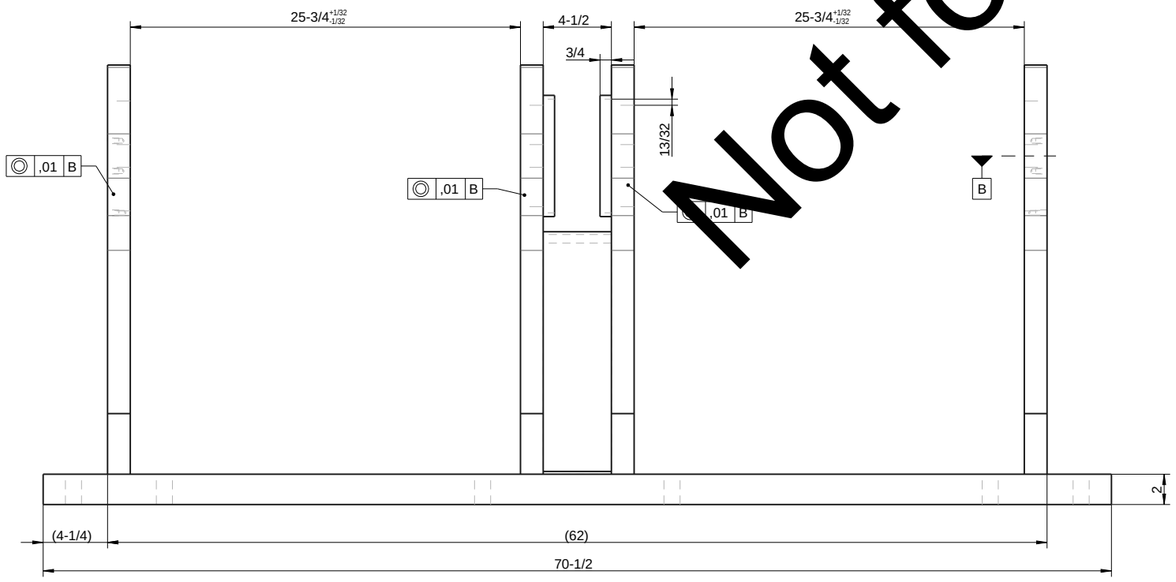
CURVED SYMMETRICAL BASCULE BRIDGE

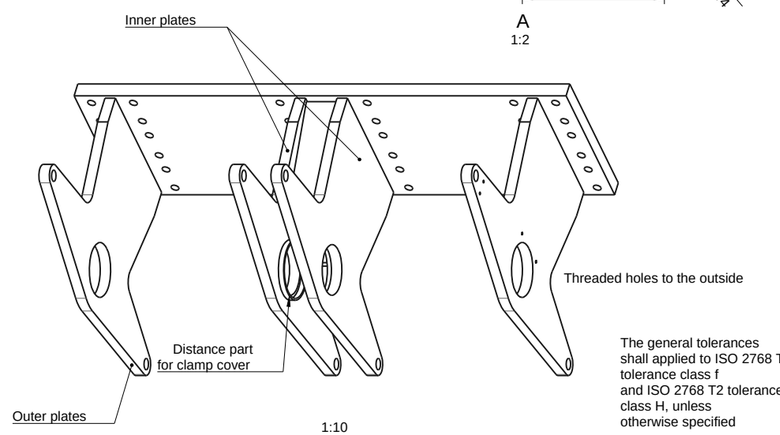
CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

M14 | M27









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UJ	UJ	TK	Mar-28-2014
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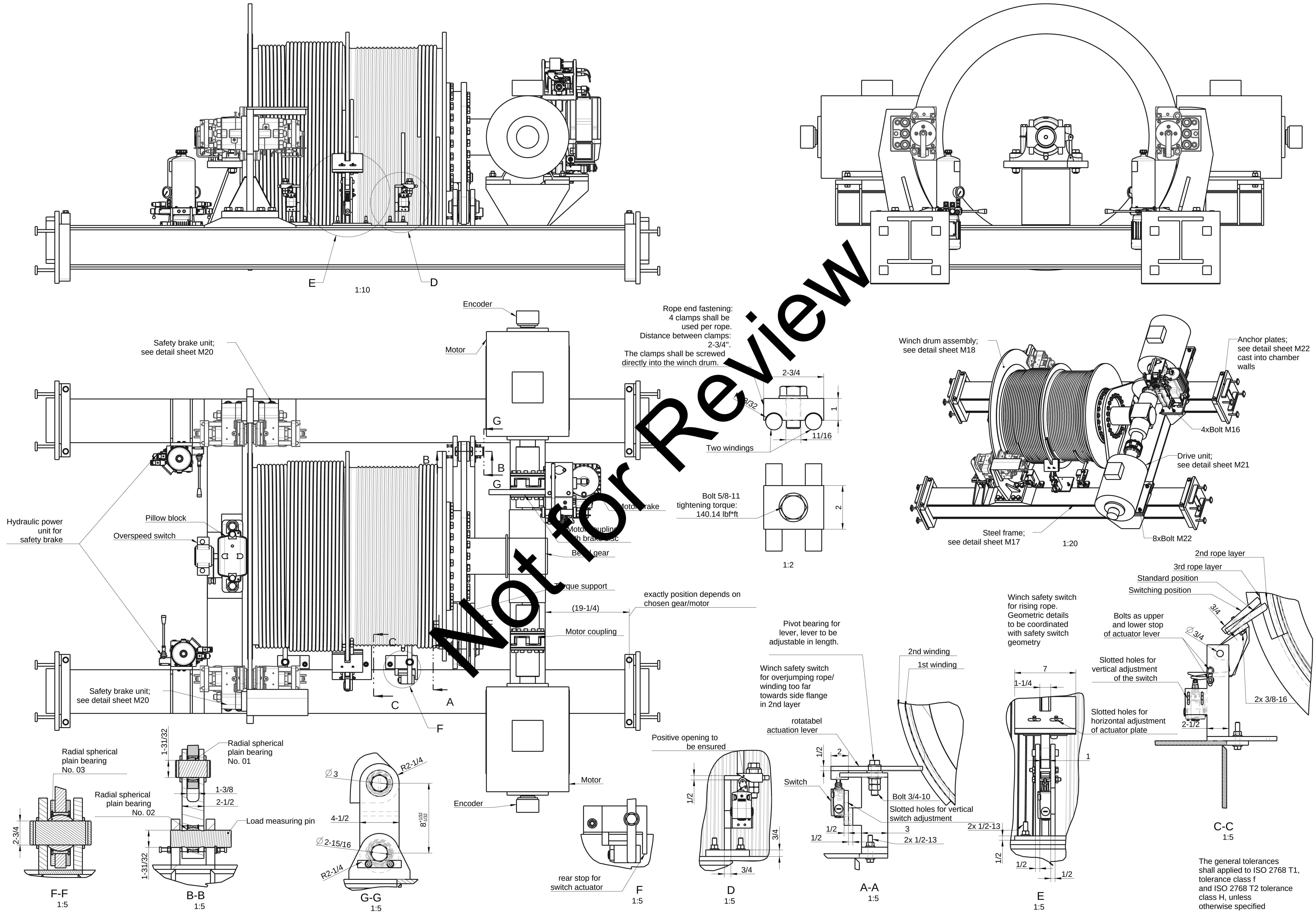
WCJ	01		

Fix pulley welding assembly

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE
CURVED SYMMETRICAL BASCULE BRIDGE

M15 / M27



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New York, NY 10018

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UJ	UJ	TK	Mar-14-2014
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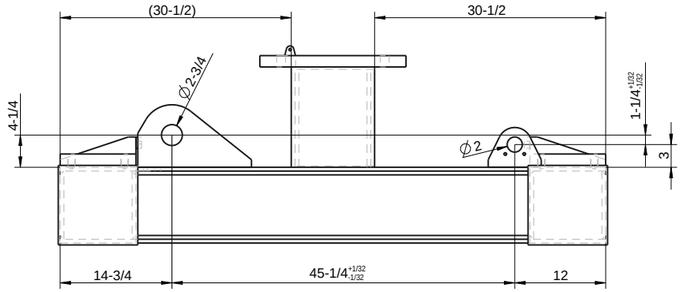
WCJ	00		

Winch group assembly

CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

M16 / M27



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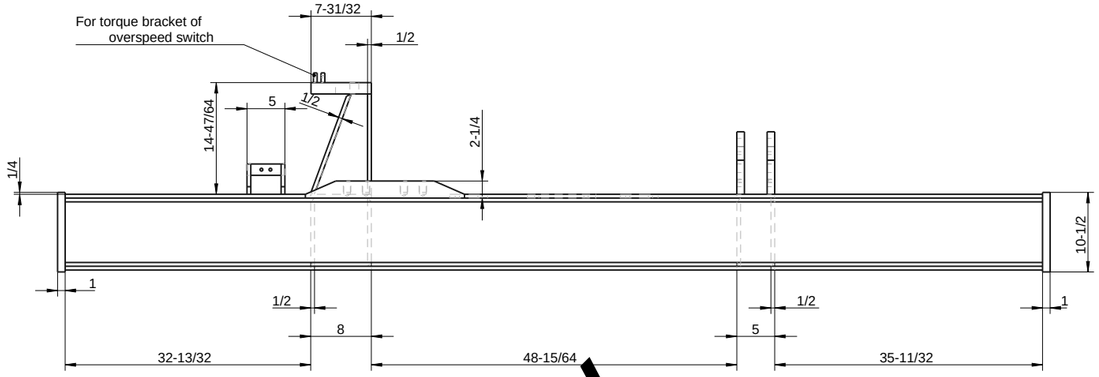
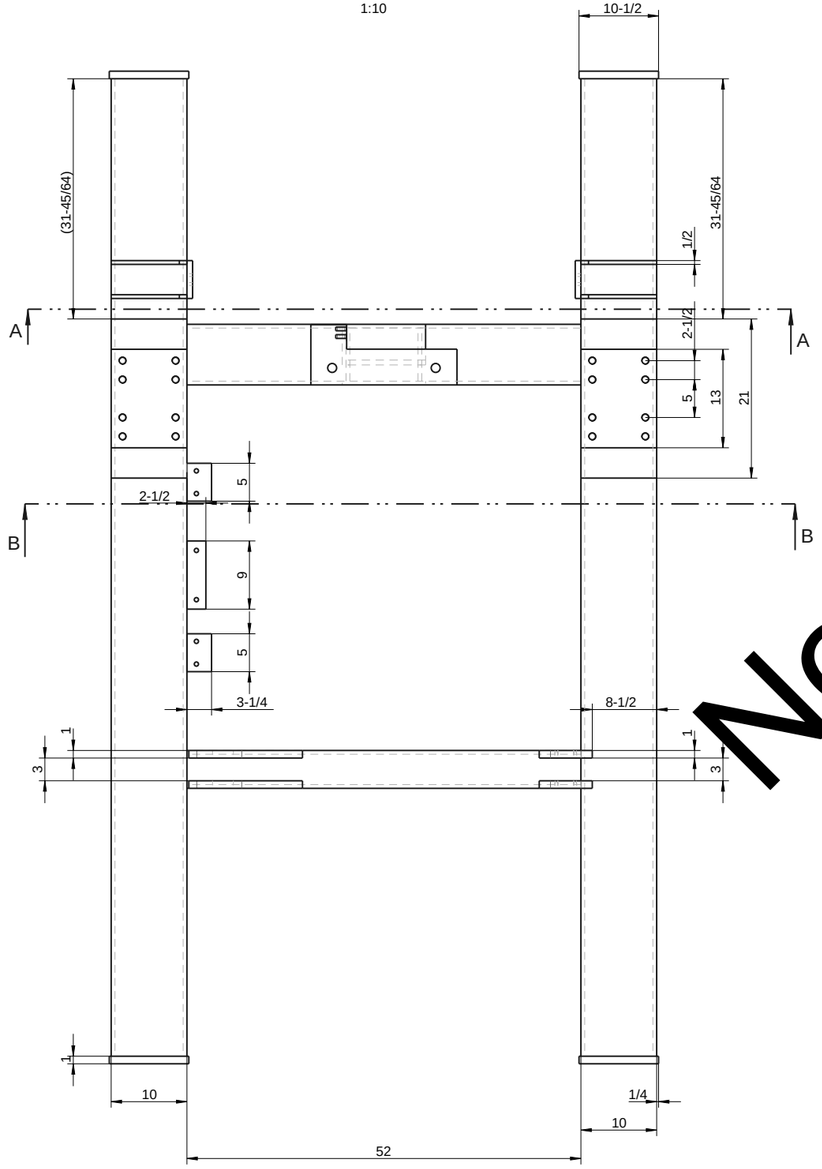
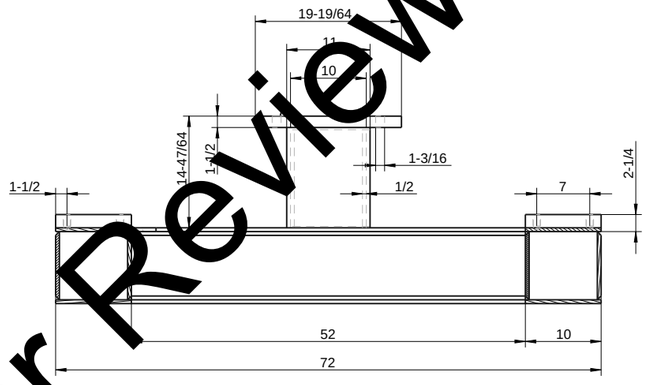
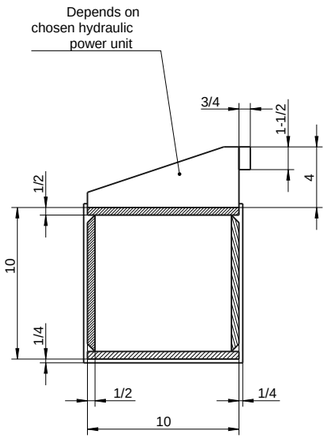






B-B
1:10



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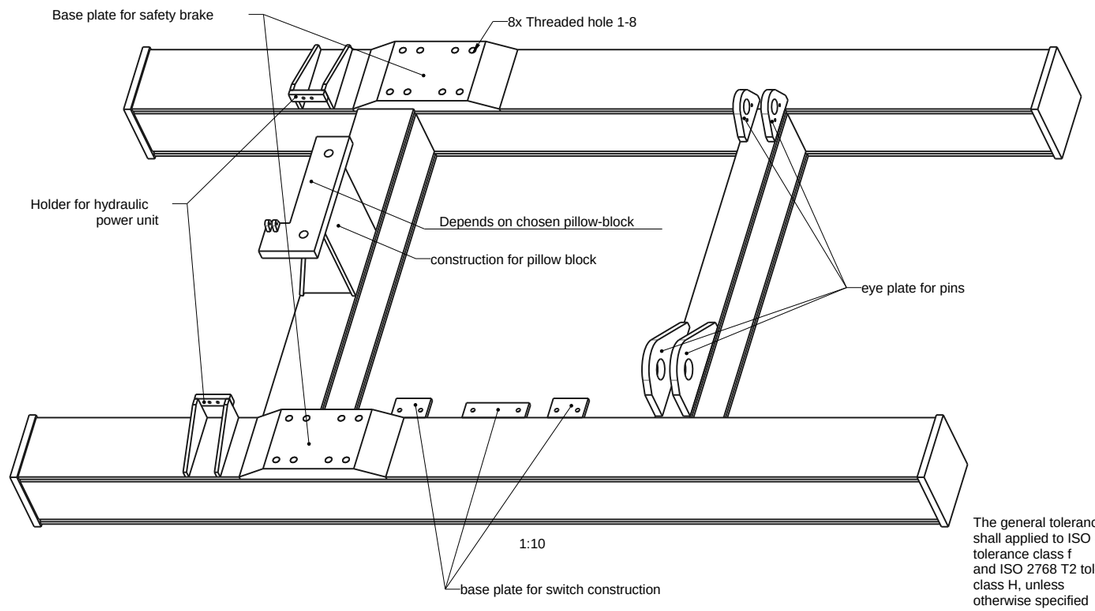

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UJ	UJ	TK	Mar-14-2014
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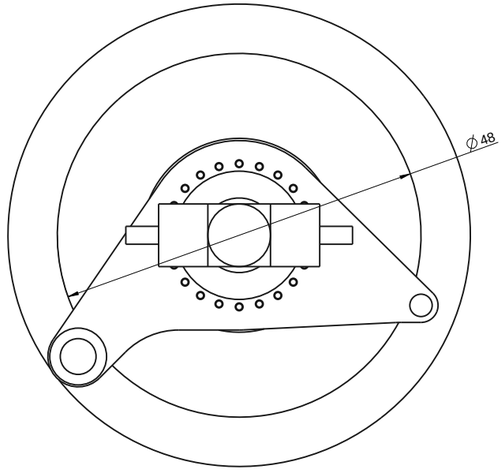
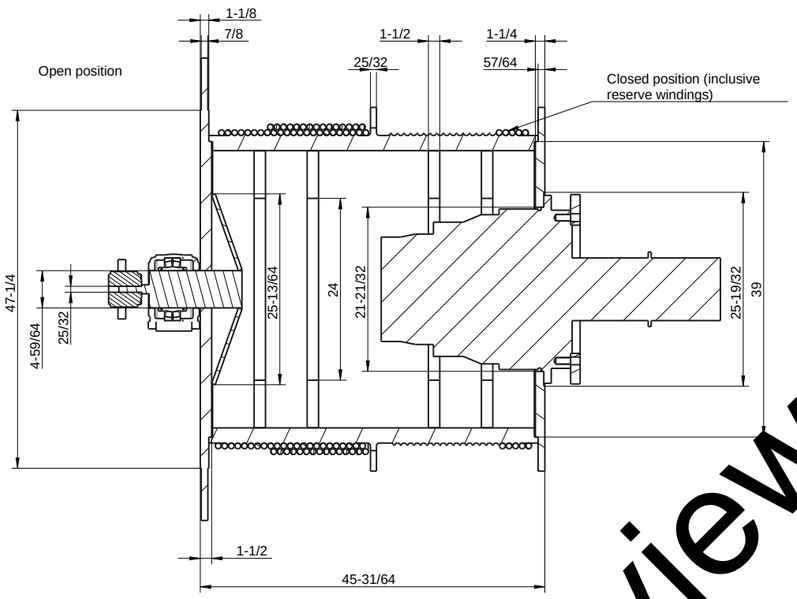
WCJ	00		

Winch steel frame

CUYAHOGA RIVER CURVED SYMMETRICAL BASCULE BRIDGE
CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

M17 / M27





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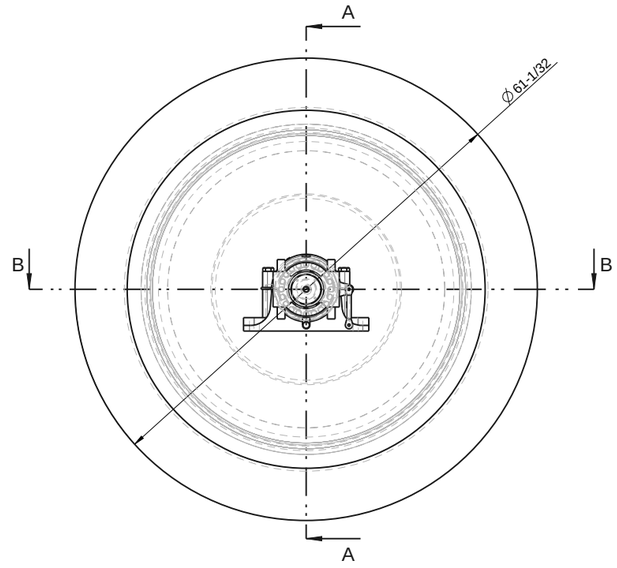

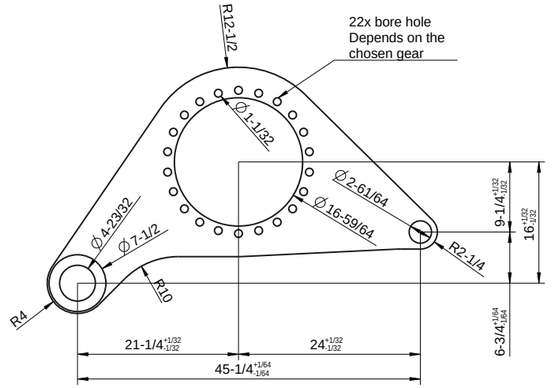

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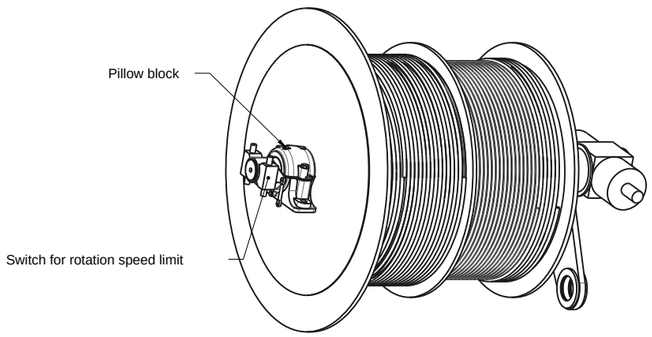
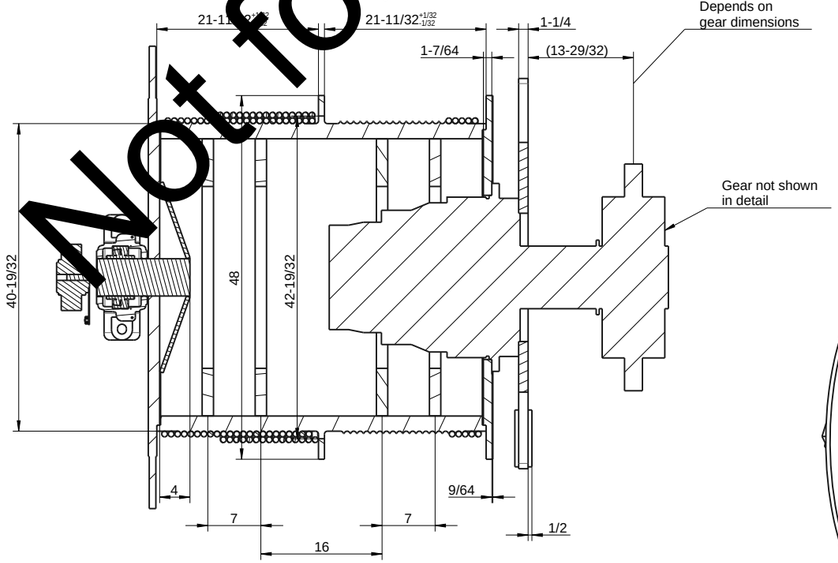
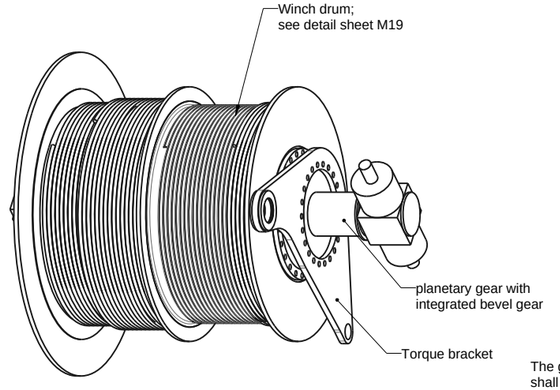




B-B



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New York, NY 10018

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UJ	UJ	TK	Mar-14-2014
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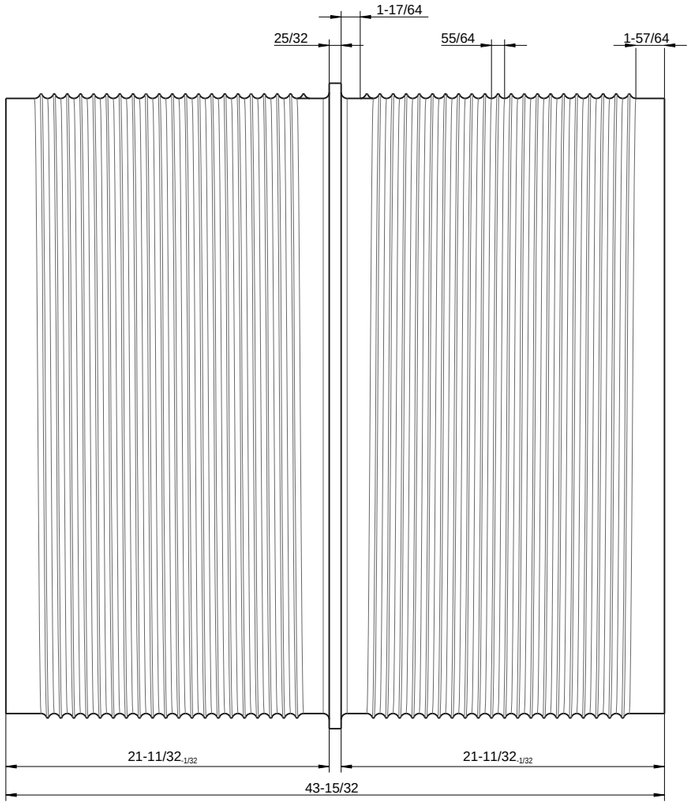
WCJ	00		

Winch drum assembly

CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M18 / M27



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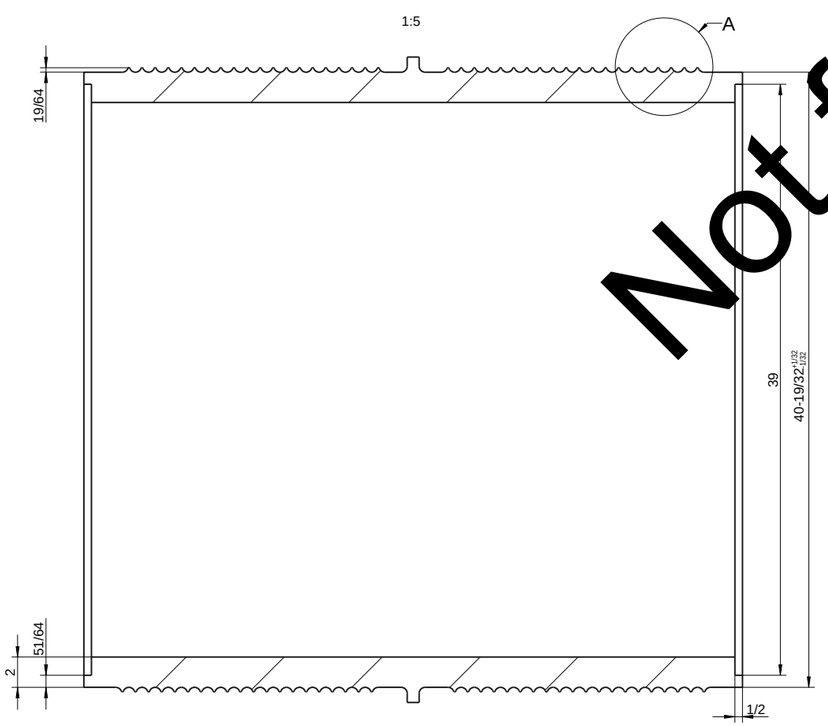

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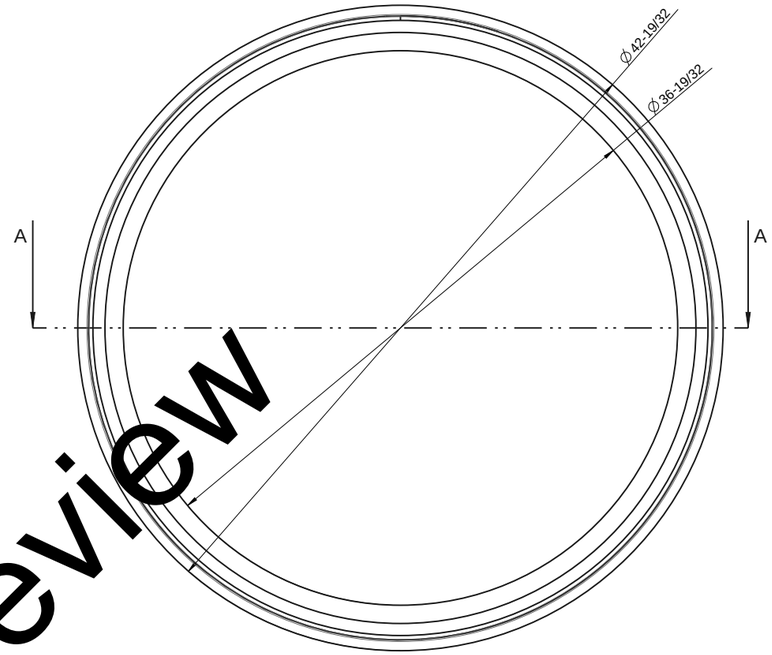

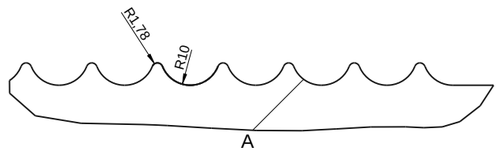

1:1

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UJ	UJ	TK	Mar-14-2014
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WCJ	00		

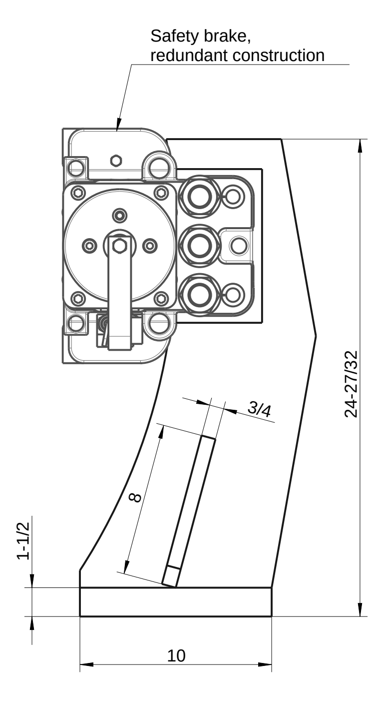
Winch drum

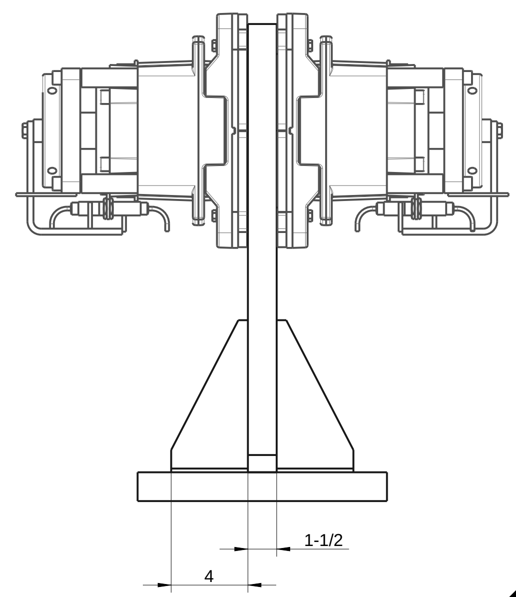
CURVED SYMMETRICAL BASCULE BRIDGE

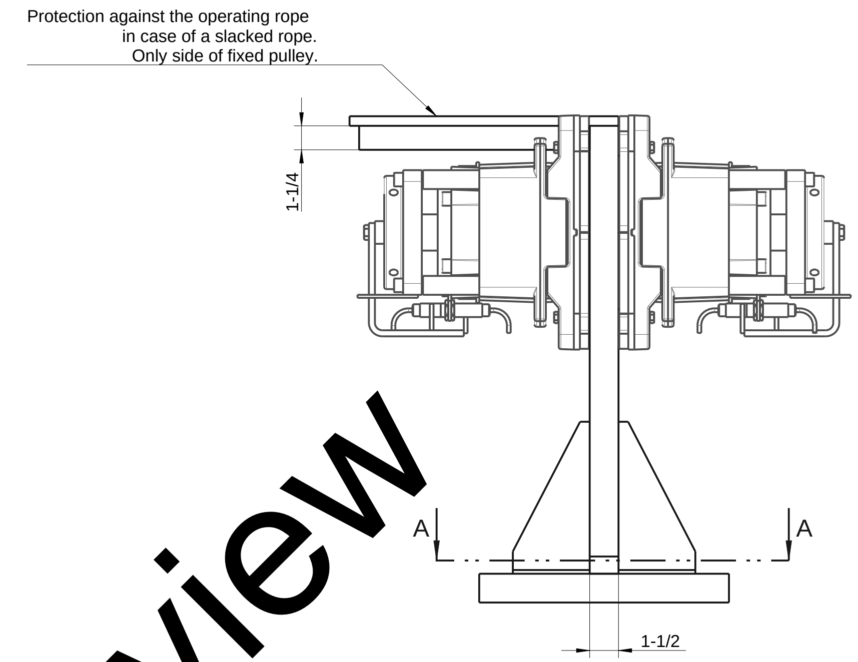
BUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

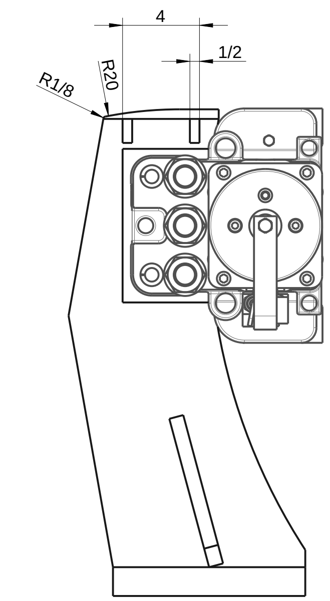
M19 / M27

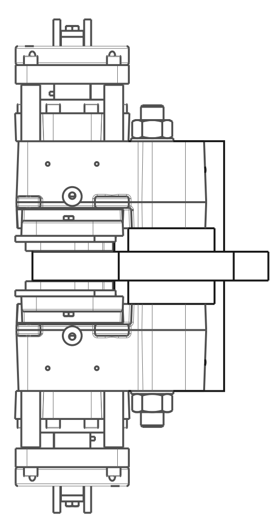
86
165

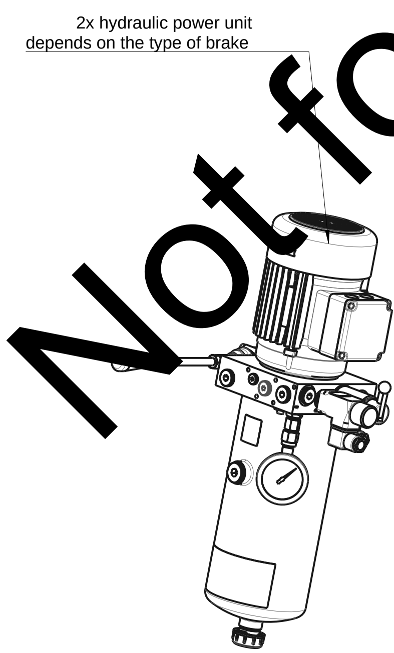












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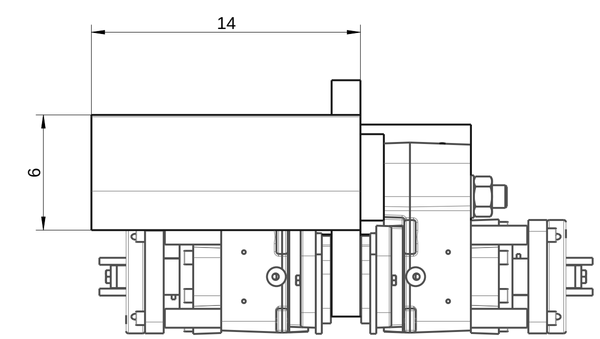

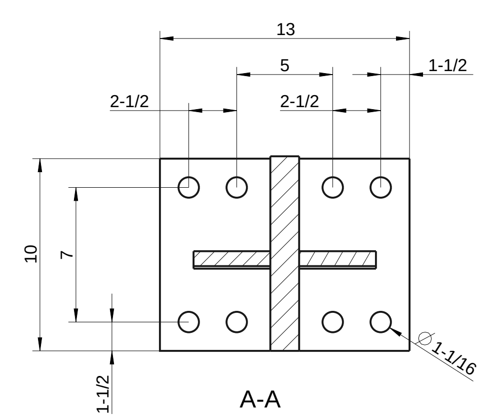

A-A

Note: safety brakes shall be arranged
directly to the winch drum
Also see sheet M16

The general tolerances
shall applied to ISO 2768 T1,
tolerance class f
and ISO 2768 T2 tolerance
class H, unless
otherwise specified

DESIGN AGENCY
CDM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann
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555 8th Avenue, Suite 2402
New York, NY 10018

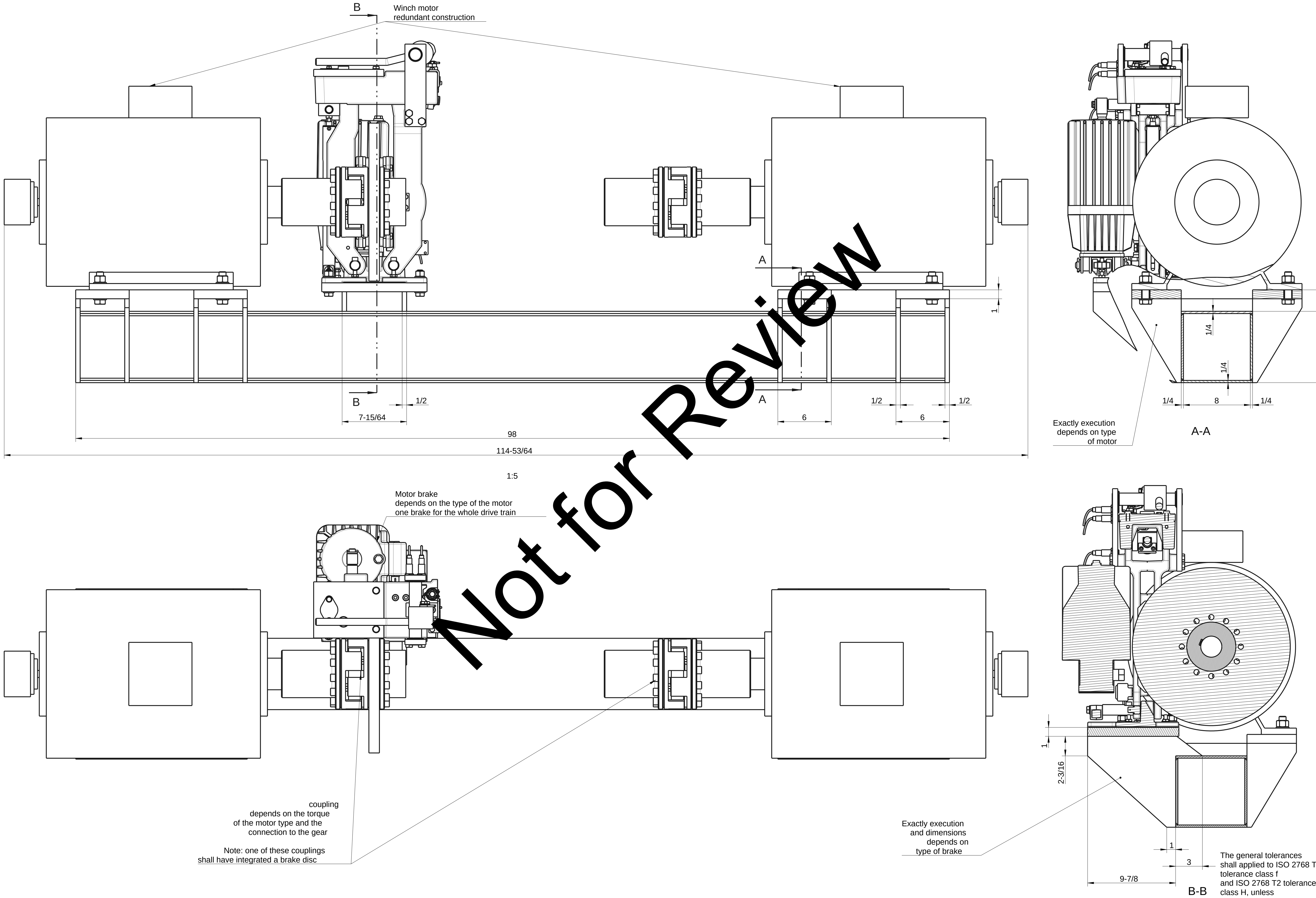
DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-22-2014
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WCJ	00		

Safety brake

CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

M20/M27



The general tolerances
shall applied to ISO 2768 T1,
tolerance class f
and ISO 2768 T2 tolerance
class H, unless
otherwise specified

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UJ	UJ	TK	Mar-22-2014
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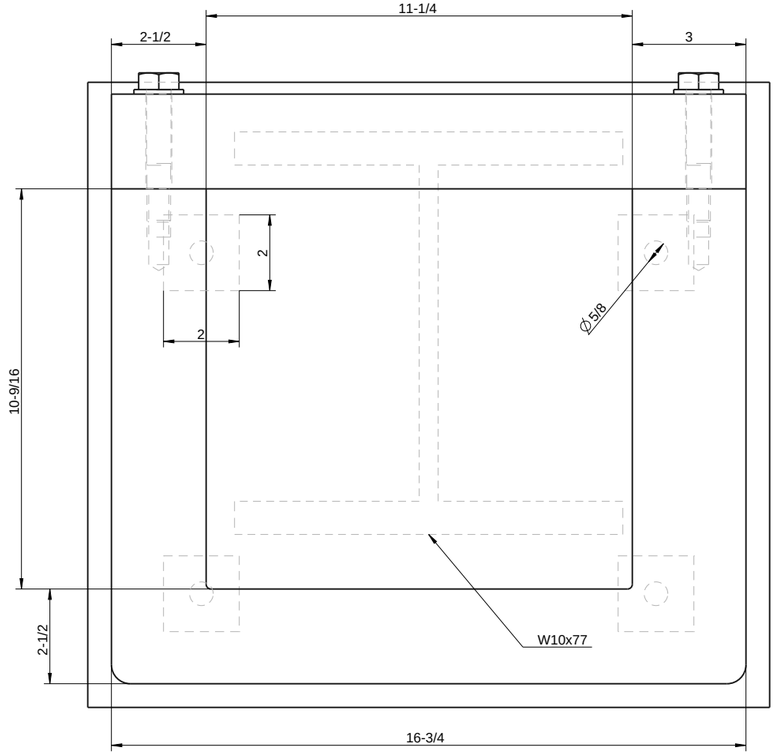
WCJ	00		

Winch drive unit

CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

M21 / M27



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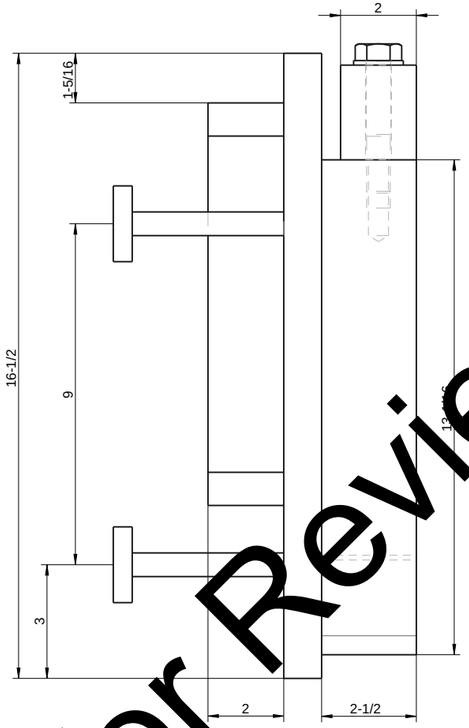
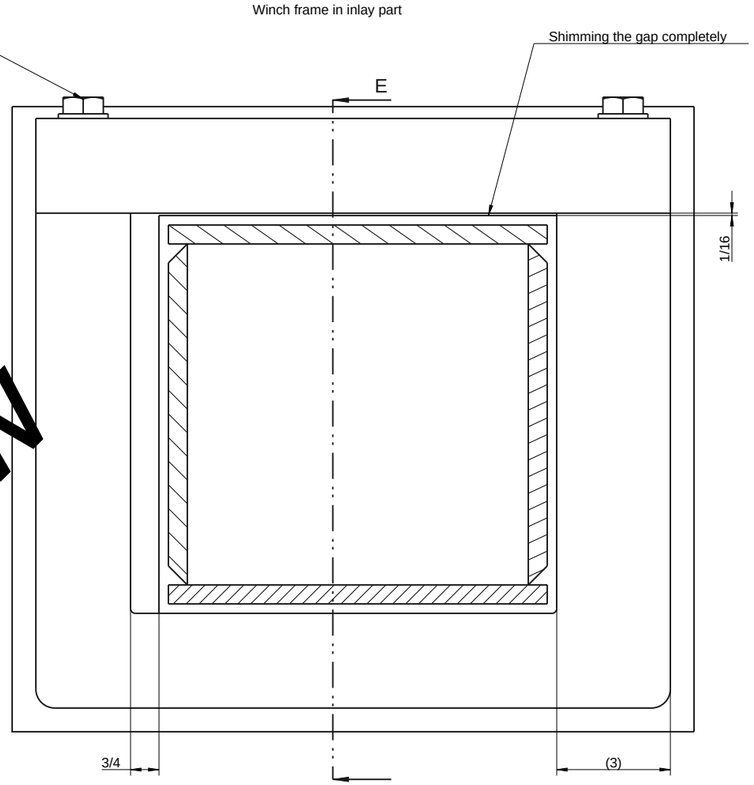
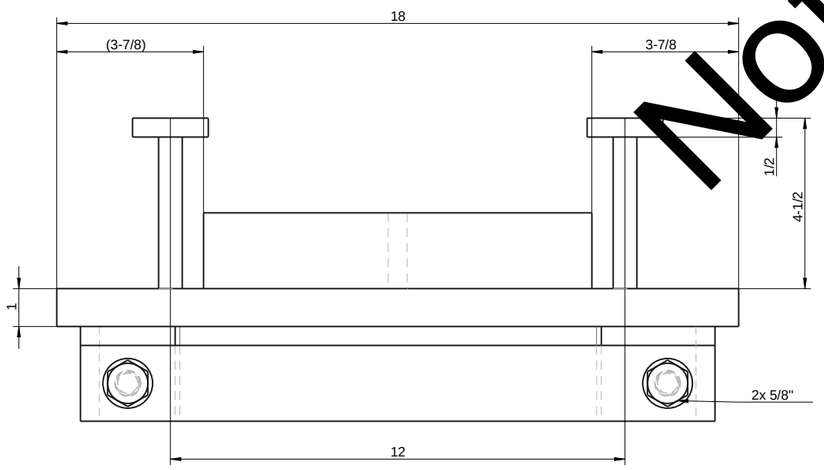
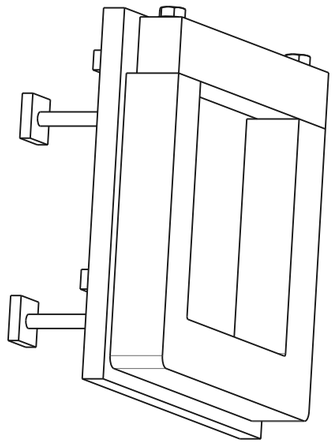


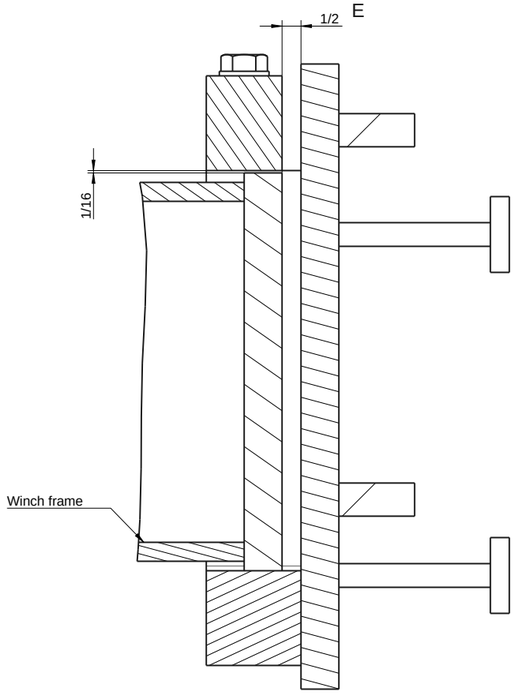
Note:
Main steps for installation:

1. Base plates are cast into concrete of chamber walls
2. The U.-shaped plate assemblies are aligned exactly and welded to the base plates
3. The winch frame is installed, lateral gaps between frame end plates and base plates are filled with shims
4. The cover block are bolted to the Us









E-E
1:2

The general tolerances shall applied to ISO 2768 T1, tolerance class f and ISO 2768 T2 tolerance class H, unless otherwise specified

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UJ	UJ	TK	Mar-22-2014
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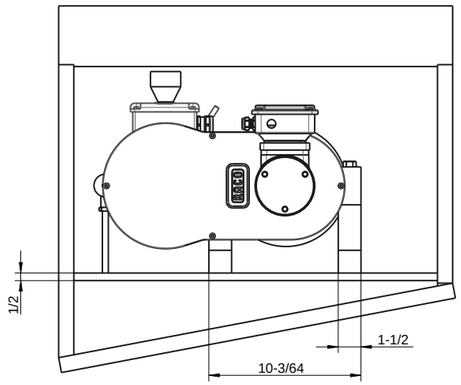
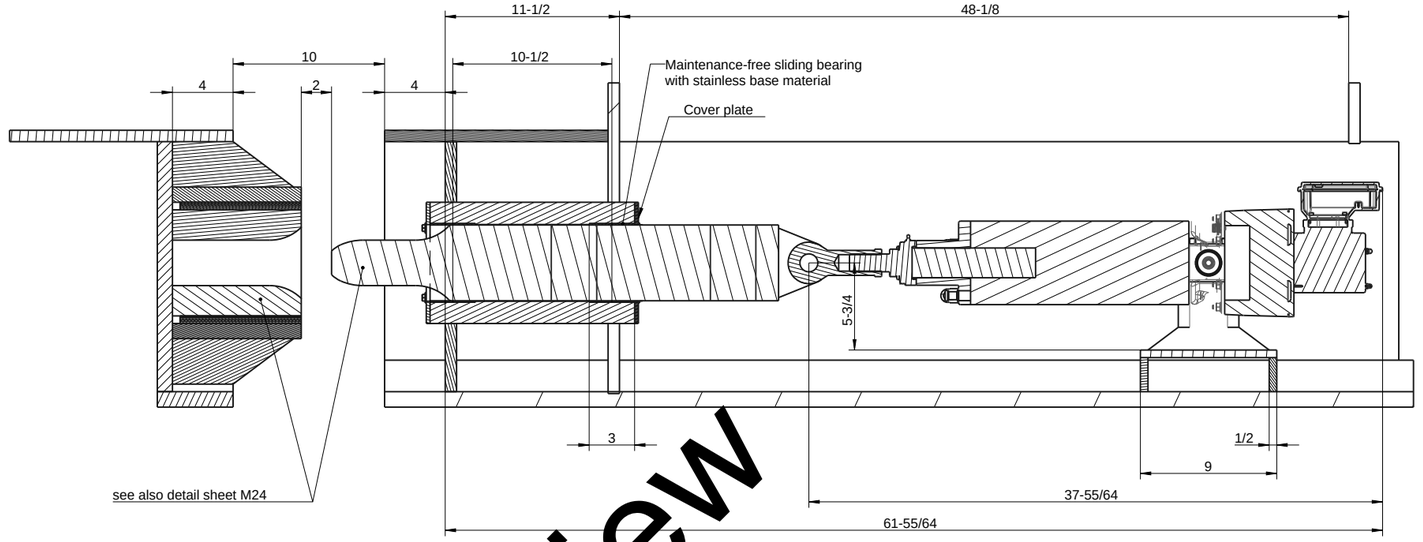
WCJ	00		

Winch holder inlay part

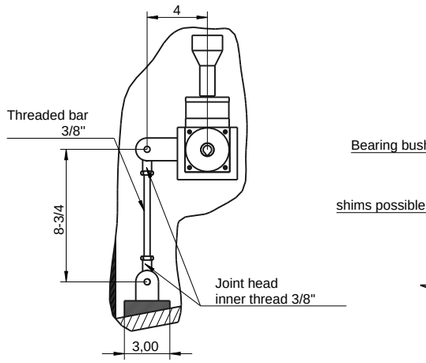
CUYAHOGA RIVER - NORTH COAST HARBOR
CURVED SYMMETRICAL BASCULE BRIDGE
PEDESTRIAN BRIDGE

M22 / M27

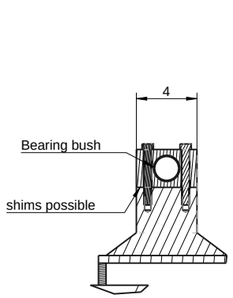




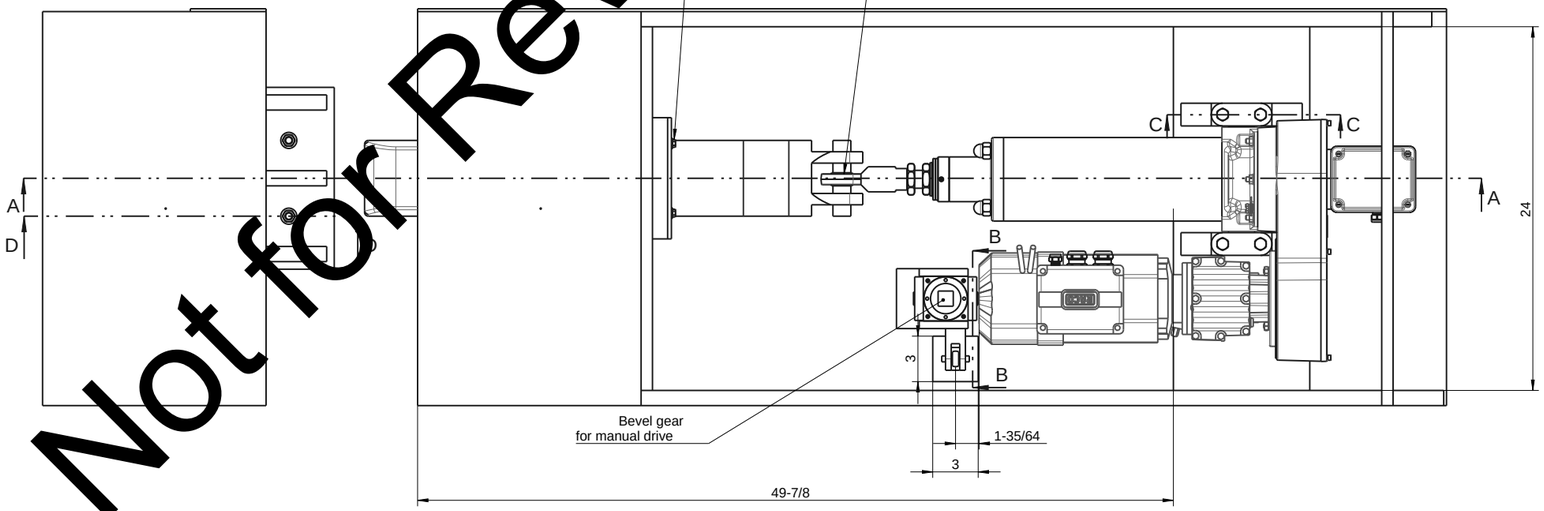
A-A
1:5

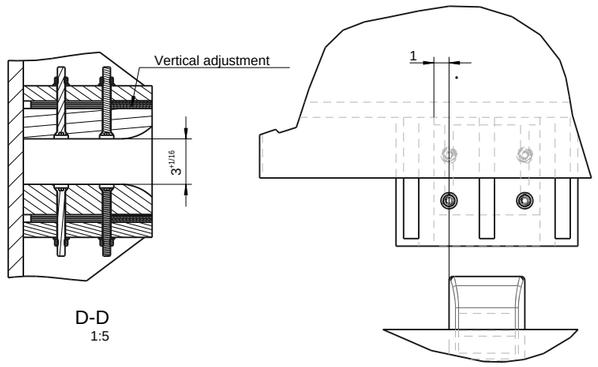


B-B
1:5



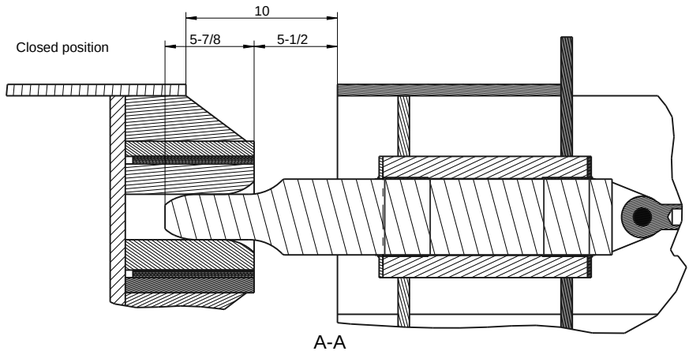
C-C
1:5





D-D
1:5

1:5



A-A
partial section
closed position
1:5

Not for Review

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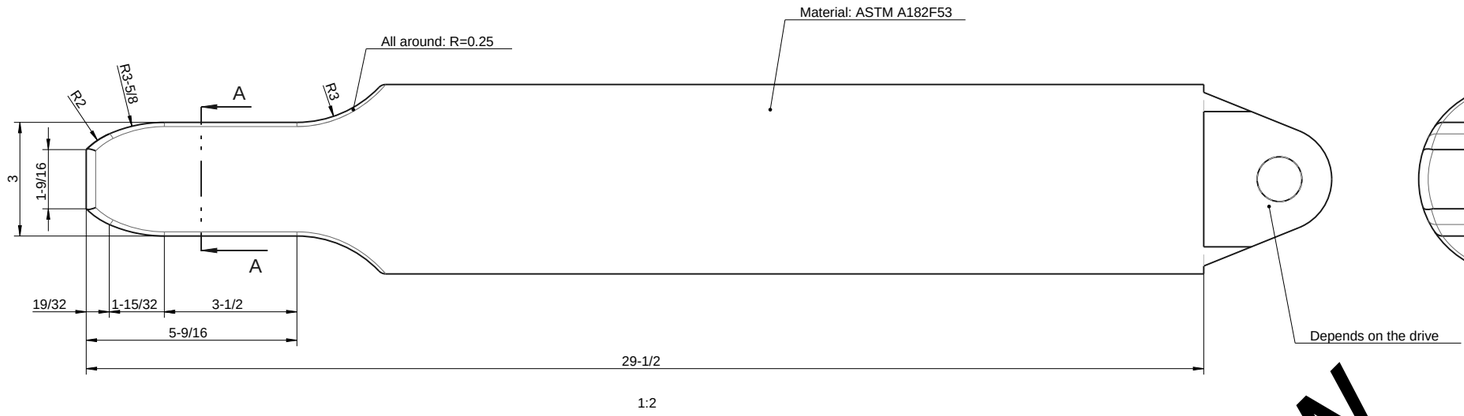
UJ	WCJ	UJ	00	TK	Mar-20-2014

STRUCTURE FILE NUMBER

Mid-span lock assembly
CURVED SYMMETRICAL BASCULE BRIDGE

GUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

M23 / M27



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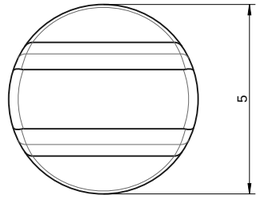
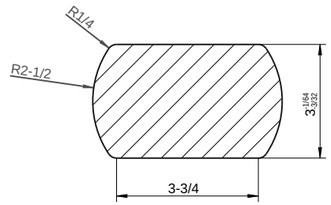
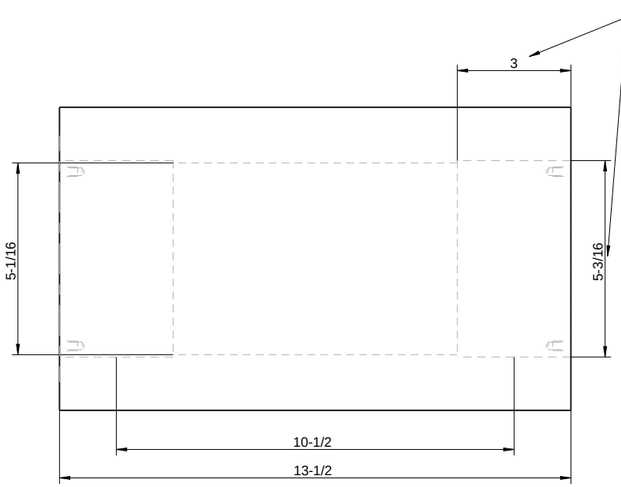
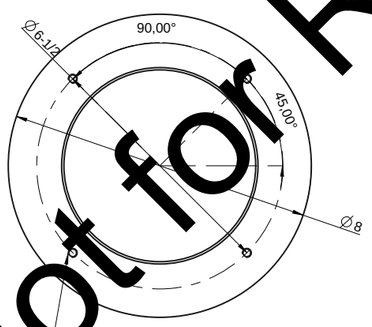




A-A
1:2





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New York, NY 10018

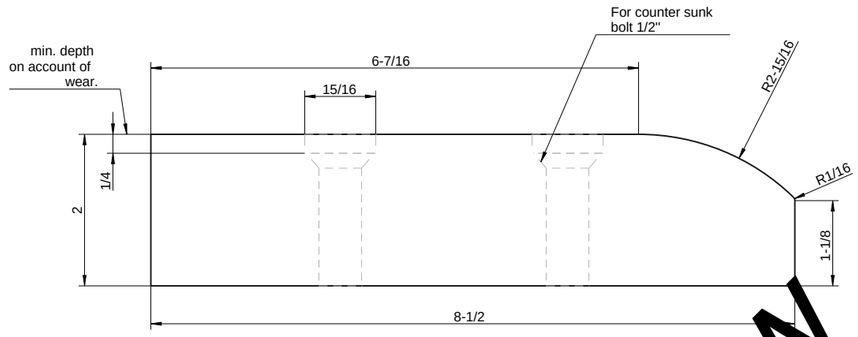
DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-20-2014
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WCJ	00		

Mid-span pin

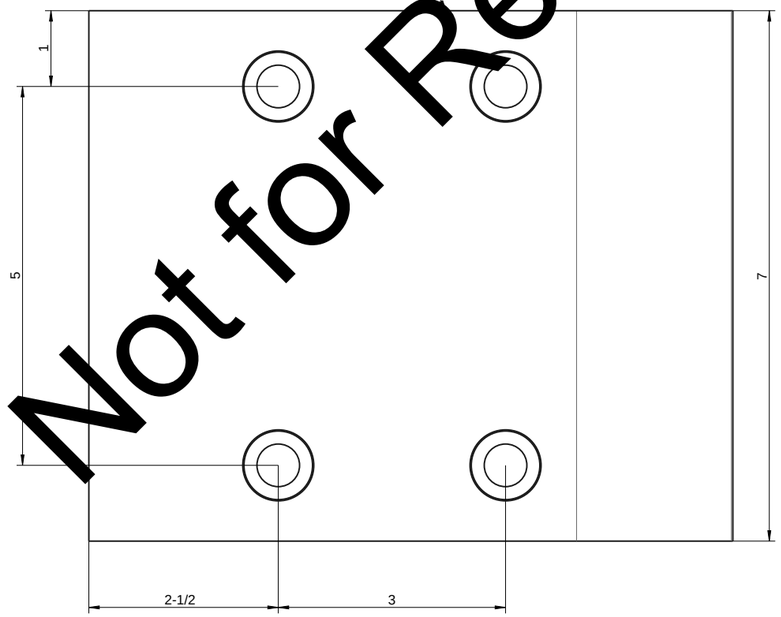
CURVED SYMMETRICAL BASCULE BRIDGE

GUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

M24 / M27



The receiver blocks shall be made of
a cast bronze alloy
within solid lubricant plugs.
The marterial of solid lubricant
shall be graphite.
This material shall ensure a
maintenance-free operation
for a lifetime of 20 years.



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CLEVELAND, OHIO 44113

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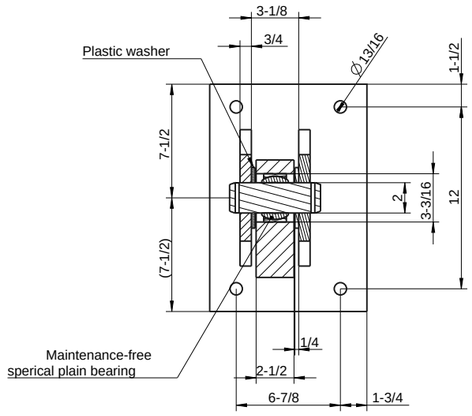
Structural Consulting Engineers
235 2nd Avenue Suite 2402
New York, NY 10003

DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-28-2014
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WCJ	00		

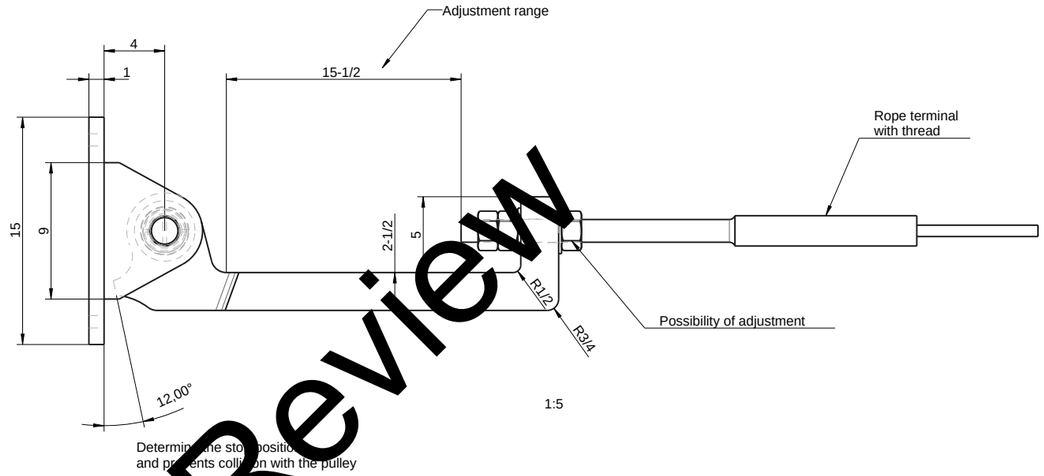
Pin receiver

CUYAHOGA RIVER CURVED SYMMETRICAL BASCULE BRIDGE
CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

M25 / M27



A-A



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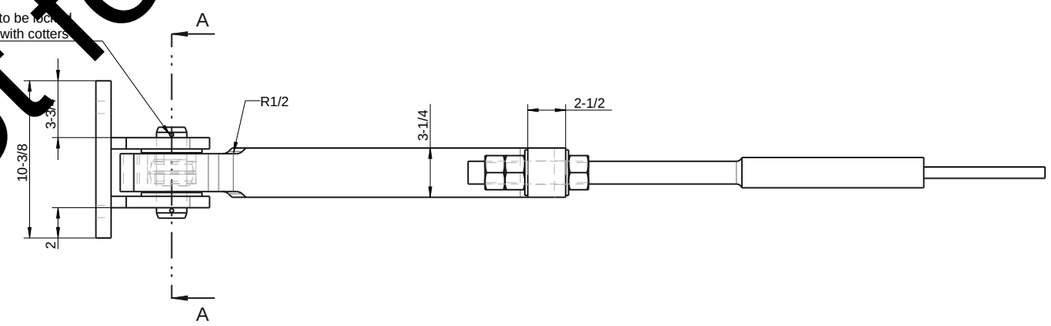

Note:
Both rope fastenings are
in each case mirrored
welded on the base plate

The general tolerances
shall applied to ISO 2768 T1,
tolerance class f
and ISO 2768 T2 tolerance
class H, unless
otherwise specified

DESIGN AGENCY
CPM Smith
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DESIGNED	DRAWN	REVIEWED	DATE
UJ	UJ	TK	Mar-22-2014

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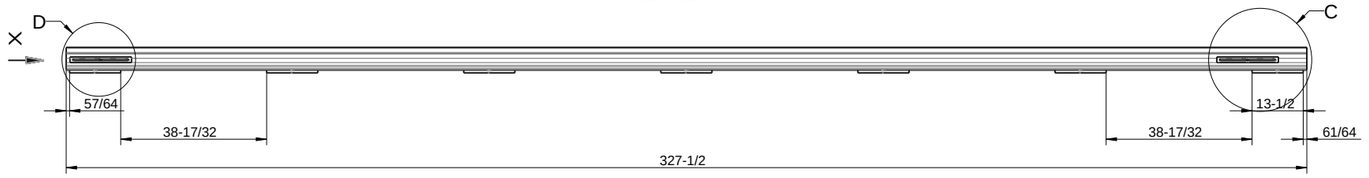
Rope fixation assembly

CURVED SYMMETRICAL BASCULE BRIDGE
GUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

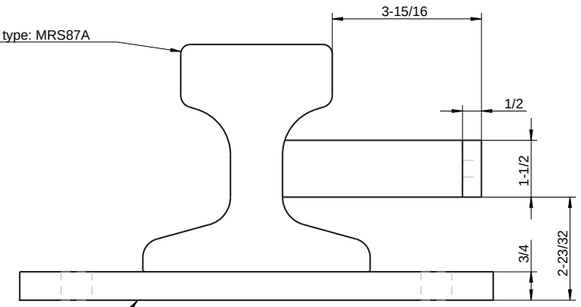
M26 / M27

Outer rail



1:20

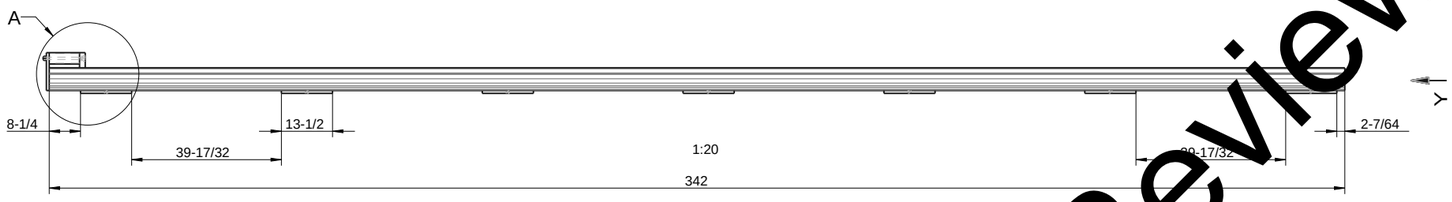
Rail type: MRS87A



Plates for rail chairs shown exemplarily; use appropriate fastening system with clamps and anchors

X
1:2

Inner rail



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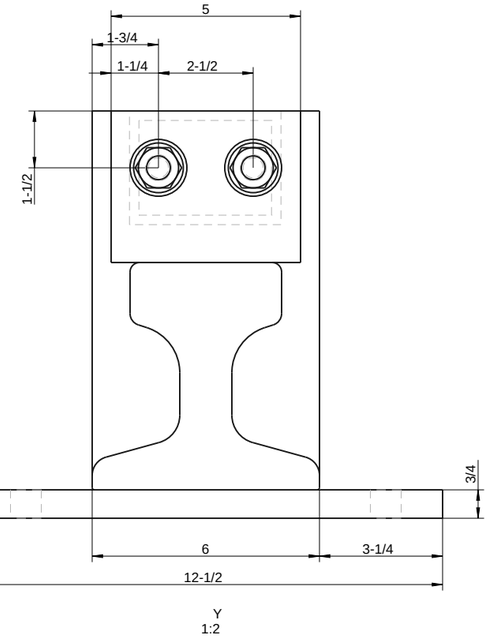
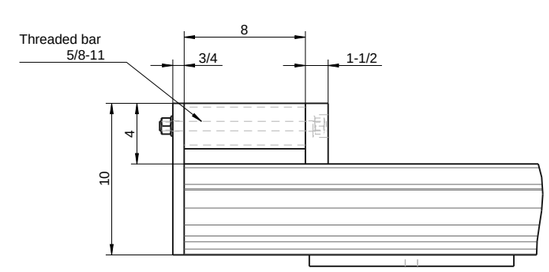
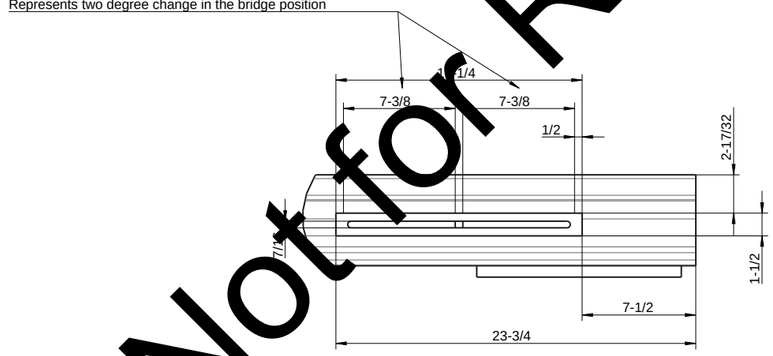


Y
1:2

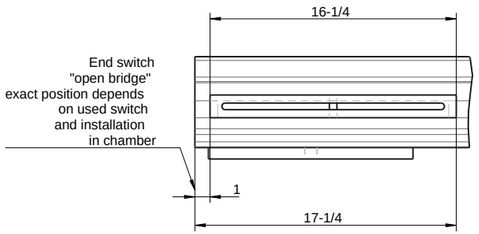
Represents two degree change in the bridge position



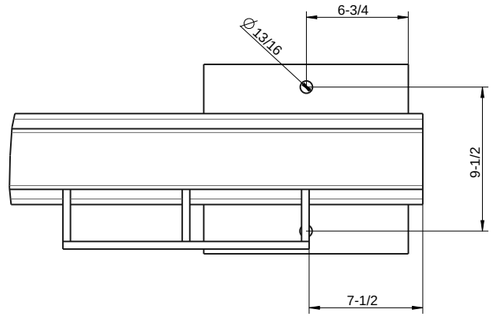
A
1:5

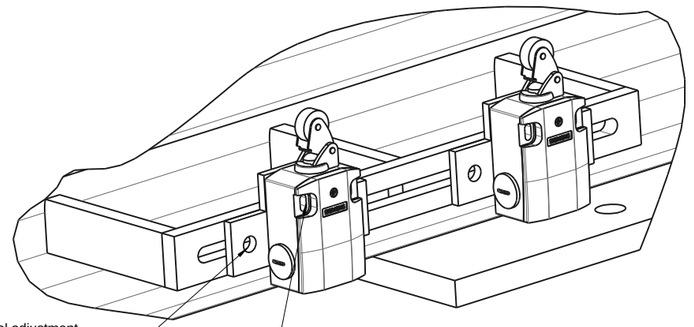


C
1:5



D
1:5





1:2

The general tolerances shall applied to ISO 2768 T1, tolerance class f and ISO 2768 T2 tolerance class H, unless otherwise specified

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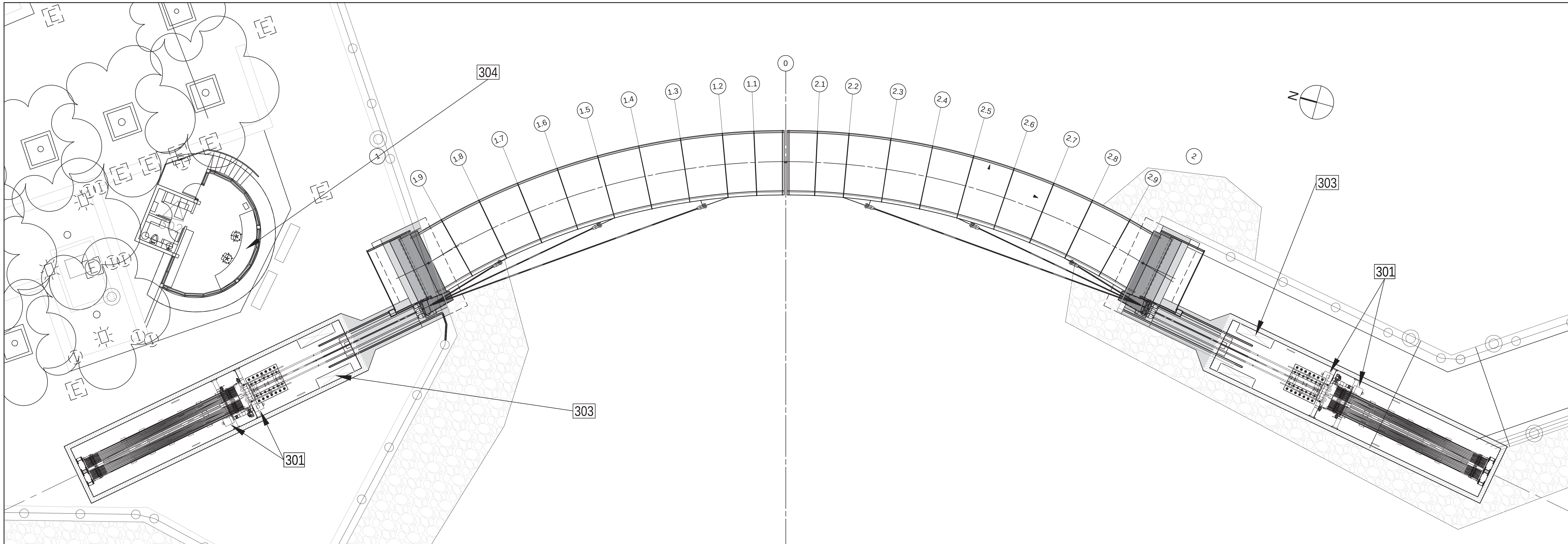
DESIGNED UJ
DRAWN UJ
CHECKED WCJ
REVIEWED TK
DATE Mar-25-2014
REVISED 00
STRUCTURE FILE NUMBER

Connection beam rails

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE
CURVED SYMMETRICAL BASCULE BRIDGE

M27 / M27



NOTES:
- This electrical scope covers only components directly related to bridge lifting controls. For other electrical components (power distribution, access control, lighting...), refer to corresponding drawings.
- (*) Reference to sheets and specifications sections only point at specific items. The Contractor shall account for the requirements of the complete Contract documents and referenced codes.

ELECTRICAL ESTIMATED QUANTITIES

Ref. / Mark No	ITEM	ODOT ITEM NO	ODOT ITEM DESCRIPTION	UNIT	ADDITIONAL DESCRIPTION (SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION)	SHEET (*)	ELECTRICAL SPECIFICATIONS SECTION (*)	MECHANICAL SPECIFICATIONS SECTION (*)
301	SPECIAL	69098400	MISC.: FURNISH, INSTALL, SHOP TEST, AND START-UP WINCH MOTORS AND ENCODERS	LUMP		M16, M21	1.5.1, 3.3.1	
302	SPECIAL	69098400	MISC.: FURNISH AND INSTALL SENSORS AND LIMIT SWITCHES	LUMP	including all connections and supports		1.6, 3.3.6	7
303	SPECIAL	69098400	MISC.: FURNISH AND INSTALL BRIDGE LIFTING CONTROL CABINETS	LUMP	BL01 on Park Side, BL02 on Finger Pier Side including VFDs, PLC, HMI	E12 to E40 E42 to E70	1.11, 3.2	
304	SPECIAL	69098400	MISC.: FURNISH, INSTALL, SHOP TEST, AND START-UP CONTROL DESK	LUMP	CD00 in Operator Room	E72 to E80	1.11, 3.2	
305	SPECIAL	69098400	MISC.: FURNISH AND INSTALL CABLES AND FIELD WIRING	LUMP		E84 to E90		
306	SPECIAL	69098400	MISC.: FURNISH AND INSTALL PLC PROGRAMMING	LUMP			4	

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New York, NY 10018

DATE 08/22/14
REVIEWED SDG
STRUCTURE FILE NUMBER
DRAWN NDR
REVISED –
DESIGNED NDR
CHECKED MSt

ESTIMATED QUANTITIES – ELECTRICAL
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E0/.

DRAWINGS	
DWG NO	DESCRIPTION
E01	DRAWING INDEX SHEET
E02	ELECTRICAL SYMBOL LEGEND
E03	
E04	BRIDGE LOGIC DIAGRAM
E05	
E06	ONE LINE DIAGRAM , SHT 1 OF 2
E07	ONE LINE DIAGRAM, SHT 2 OF 2
E08	ELECTRICAL LOAD LIST
E09	PLC - HMI NETWORK ARCHITECTURE
E10	
E11	
E12	BL01 480 VOLT SCHEMATIC DIAGRAM
E13	BL01 480 VOLT SCHEMATIC DIAGRAM
E14	BL01 480 VOLT SCHEMATIC DIAGRAM
E15	BLO1 480 VOLT SCHEMATIC DIAGRAM
E16	BL01 PANEL DC POWER DISTRIBUTION
E17	
E18	
E19	BL01 PANEL SAFETY CIRCUIT
E20	BL01 PANEL SAFETY CIRCUIT
E21	BL01 PANEL SAFETY CIRCUIT
E22	
E23	BL01 CONTROL SCHEMATIC DIAGRAM
E24	BL01 CONTROL SCHEMATIC DIAGRAM
E25	
E26	
E27	
E28	
E29	BL01 PLC'S AND ETHERNET SWITCH
E30	BL01 I/O SCHEMATIC DIAGRAM, SHT 1 OF 6
E31	BL01 I/O SCHEMATIC DIAGRAM, SHT 2 OF 6
E32	BL01 I/O SCHEMATIC DIAGRAM, SHT 3 OF 6
E33	BL01 I/O SCHEMATIC DIAGRAM, SHT 4 OF 6
E34	BL01 I/O SCHEMATIC DIAGRAM, SHT 5 OF 6
E35	BL01 I/O SCHEMATIC DIAGRAM. SHT 6 OF 6
E36	
E37	BL01 - ENCLOSURE BACKPANEL LAYOUT
E38	BL01 - ENCLOSURE LAYOUT
E39	BL01 - ENCLOSURE OPERATOR LAYOUT
E40	BL01 - ENCLOSURE BILL OF MATERIAL
E41	
E42	BL02 480 VOLT SCHEMATIC DIAGRAM
E43	BL02 480 VOLT SCHEMATIC DIAGRAM
E44	BL02 480 VOLT SCHEMATIC DIAGRAM
E45	BL02 480 VOLT SCHEMATIC DIAGRAM
E46	BL02 PANEL DC POWER DISTRIBUTION
E47	
E48	
E49	BL02 PANEL SAFETY CIRCUIT
E50	BL02 PANEL SAFETY CIRCUIT

DRAWINGS	
DWG NO	DESCRIPTION
E51	BL02 PANEL SAFETY CIRCUIT
E52	
E53	BL02 CONTROL SCHEMATIC DIAGRAM
E54	BL02 CONTROL SCHEMATIC DIAGRAM
E55	
E56	
E57	
E58	
E59	BL02 PLC'S AND ETHERNET SWITCH
E60	BL02 I/O SCHEMATIC DIAGRAM, SHT 1 OF 6
E61	BL02 I/O SCHEMATIC DIAGRAM, SHT 2 OF 6
E62	BL02 I/O SCHEMATIC DIAGRAM, SHT 3 OF 6
E63	BL02 I/O SCHEMATIC DIAGRAM, SHT 4 OF 6
E64	BL02 I/O SCHEMATIC DIAGRAM, SHT 5 OF 6
E65	BL02 I/O SCHEMATIC DIAGRAM. SHT 6 OF 6
E66	
E67	BL02 - ENCLOSURE BACKPANEL LAYOUT
E68	BL02 - ENCLOSURE LAYOUT
E69	BL02 - ENCLOSURE OPERATOR LAYOUT
E70	BL02 - ENCLOSURE BILL OF MATERIAL
E71	
E72	CD00 480 VOLT AND DC DIST. SCHEMATIC
E73	CD00 HMI PC AND ETHERNET SW. SCHEMATIC
E74	CD00 I/O SCHEMATIC DIIAGRAM, SHT 1 OF 4
E75	CD00 I/O SCHEMATIC DIAGRAM, SHT 2 OF 4
E76	CD00 I/O SCHEMATIC DIAGRAM, SHT 3 OF 4
E77	CD00 I/O SCHEMATIC DIAGRAM, SHT 4 OF 4
E78	CD00 ENCLOSURE LAYOUT
E79	CD00 ENCLOSURE OPERATOR LAYOUT
E80	CD00 ENCLOSURE BILL OF MATERIAL
E81	
E82	
E83	
E84	DEVICE LOCATION DRAWING
E85	
E86	
E87	
E88	FIELD WIRING SCHEDULE
E89	FIELD WIRING SCHEDULE
E90	FIELD WIRING SCHEDULE
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E93	
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E98	
E99	
E100	

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DRAWING INDEX SHEET
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E01

ONE-LINE DIAGRAM

- CIRCUIT BREAKER
- MOTOR CONTACTOR, NON-REVERSING, FVNR
- MOTOR CONTACTOR, REVERSING, FVR (F R)
- OVERLOAD RELAY
- MOTOR (#) — # = HORSEPOWER
- DISCONNECT SWITCH, FUSED (F)
- DISCONNECT SWITCH, NON-FUSED
- BRAKE (B, B)
- MOTOR DRIVE (VSD) — VSD = VARIABLE SPEED DRIVE
- FUSE
- TRANSFORMER (TX)
- SELECTOR SWITCH (VS) — AS = AMMETER SWITCH; VS = VOLTMETER SWITCH
- VOLTMETER (V)
- AMMETER (A)
- WATTMETER (W)
- POWER MONITOR (PM)
- ENCODER (ENC)
- TACH (T)
- SPEED SWITCH (SP SW)
- CURRENT TRANSFORMER
- TRANSFORMER
- CONNECTED
- NOT CONNECTED
- CONDUCTOR
- POWER SUPPLY (PWS)
- UNINTERRUPTIBLE POWER SUPPLY (UPS)
- BATTERY MODULE (BAT)

DEVICES

- JB — JUNCTION BOX
- PB — PULL BOX
- TC — TERMINATION CABINET
- LS — LIMIT SWITCH, PLUNGER TYPE
- CAM — LIMIT SWITCH, ROTARY CAM TYPE
- LS — LIMIT SWITCH, LEVER OR PROXIMITY TYPE
- CONDUIT CONCEALED IN WALL OR ABOVE CEILING
- CONDUIT INSTALLED EXPOSED
- UG — UNDERGROUND CONDUIT BURIED CONDUIT PER NEC DEPTHS
- EXISTING DEVICE

SCHEMATIC DIAGRAM

- LIMIT SWITCH NORMALLY OPEN
- LIMIT SWITCH NORMALLY CLOSED
- PUSHBUTTON NORMALLY OPEN; NORMALLY OPEN SECONDARY CONTACT
- PUSHBUTTON NORMALLY CLOSED; NORMALLY CLOSED SECONDARY CONTACT
- RELAY CONTACT NORMALLY OPEN
- RELAY CONTACT NORMALLY CLOSED
- SOLENOID
- PILOT LIGHT - X = COLOR (G - GREEN; R - RED; Y - YELLOW OR AMBER)
- SELECTOR SWITCH - XOO — CAM CODE; CLOSED IN FIRST POSITION; OPEN IN 2ND POSITION; OPEN IN 3RD POSITION
- SELECTOR SWITCH - 2 POSITION — CAM CODE; CLOSED IN FIRST POSITION; OPEN IN 2ND POSITION
- DIODE TERMINAL DOUBLE
- DIODE TERMINAL SINGLE

ABBREVIATIONS

A, AMP	AMPERES
AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AF	AMP FRAME
AL	AXIS LIGHT
AT	AMP TRIP
BP	BYPASS
C	CONDUIT
CAM	ROTARY CAM LIMIT SWITCH
CB	CIRCUIT BREAKER
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
DS/DISC	DISCONNECT SWITCH
EG	EARTH GROUND
EMERG	EMERGENCY POWER
EOT	END OF TRAVEL
ESTOP	EMERGENCY STOP
EX	EXISTING
FC	(SPAN) FULLY CLOSED
FO	(SPAN) FULLY OPEN
FO	FAR OPPOSITE
FL	FLASHING LIGHT
FPS	FINGER PIER SIDE
FU	FUSE
FVR	FULL VOLTAGE REVERSING (STARTER)
FVNR	FULL VOLTAGE NON-REVERSING (STARTER)
G, GND	GROUND
GEN	GENERATOR
	GUIDE LIGHT
H-O-A	HAND -OFF-AUTOMATIC
HP	HORSE POWER
	INDICATING LIGHT
	CURRENT RELAY
JB	JUNCTION BOX
KW	KILOWATTS
LA	LIGHTING ARRESTOR
LGT	LIGHT
LP	LIGHTING PANEL
LS	LIMIT SWITCH
M	MOTOR CONTACTOR
MACB	MACHINERY BRAKE
MD	MAIN DISCONNECT SWITCH
MOT	MOTOR
MTRB	MOTOR BRAKE
NC	NORMALLY CLOSED CONTACT
NC	(SPAN) NEARLY CLOSED
N-MTR	NEAR MOTOR
NO	NORMALLY OPEN CONTACT
NO	(SPAN) NEARLY OPEN
NO	NEAR OPPOSITE
PB	PUSHBUTTON, PULL BOX
PE	PHOTOELECTRIC SWITCH
PERM	PERMISSIVE
PERM	PERMANENT
PLC	PROGRAMMABLE LOGIC CONTROLLER
PM	POWER METER
PP	POWER PANEL
PRS	PROXIMITY SWITCH
PS	PARK SIDE
RECPT	RECEPTACLE
REL	RELEASED
RES	RESISTOR BANK
RGS	RIGID GALVANIZED STEEL
SOL	SOLENOID
SL	SPAN LOCK
SW	SWITCH
TC	TERMINATION CABINET
THERMO	THERMOSTAT
TS	TERMINAL STRIP
TS	THERMOSTAT SWITCH
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
W	WATTS
XDUCER	TRANSDUCER
XFMR	TRANSFORMER
ZI	POSITION INDICATOR
ZT	POSITION TRANSMITTER

CONTROL LEGEND

1 OR BL01	PARK SIDE BRIDGE CONTROL PANEL, BL01
2 OR BL02	FINGER PIER SIDE BRIDGE CONTROL PANEL, BL02
3 OR CD00	PARK SIDE CONTROL DESK, CD00
F OR FIELD	FIELD MOUNTED COMPOMENT, FIELD
D0 OR DP00	PARK SIDE CONTROL ROOM DISTRIBUTION PANEL, DP00
D1 OR DP01	PARK SIDE BRIDGE DISTRIBUTION PANEL, DP01
D2 OR DP02	FINGER SIDE BRIDGE DISTRIBUTION PANEL, DP02
AC01	ACCESS CONTROL PANEL, PARK SIDE

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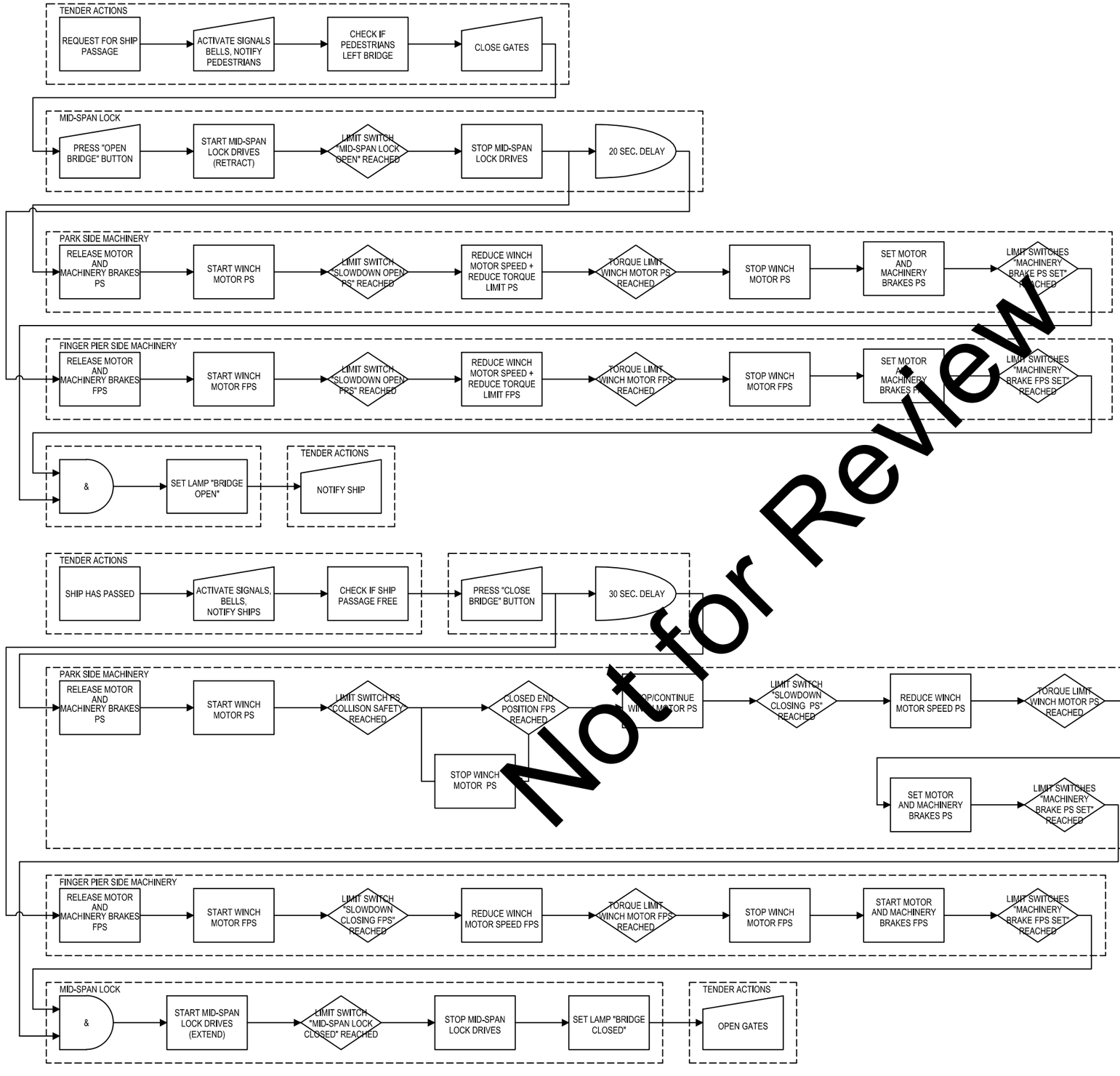
ELECTRICAL SYMBOL LEGEND
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E02



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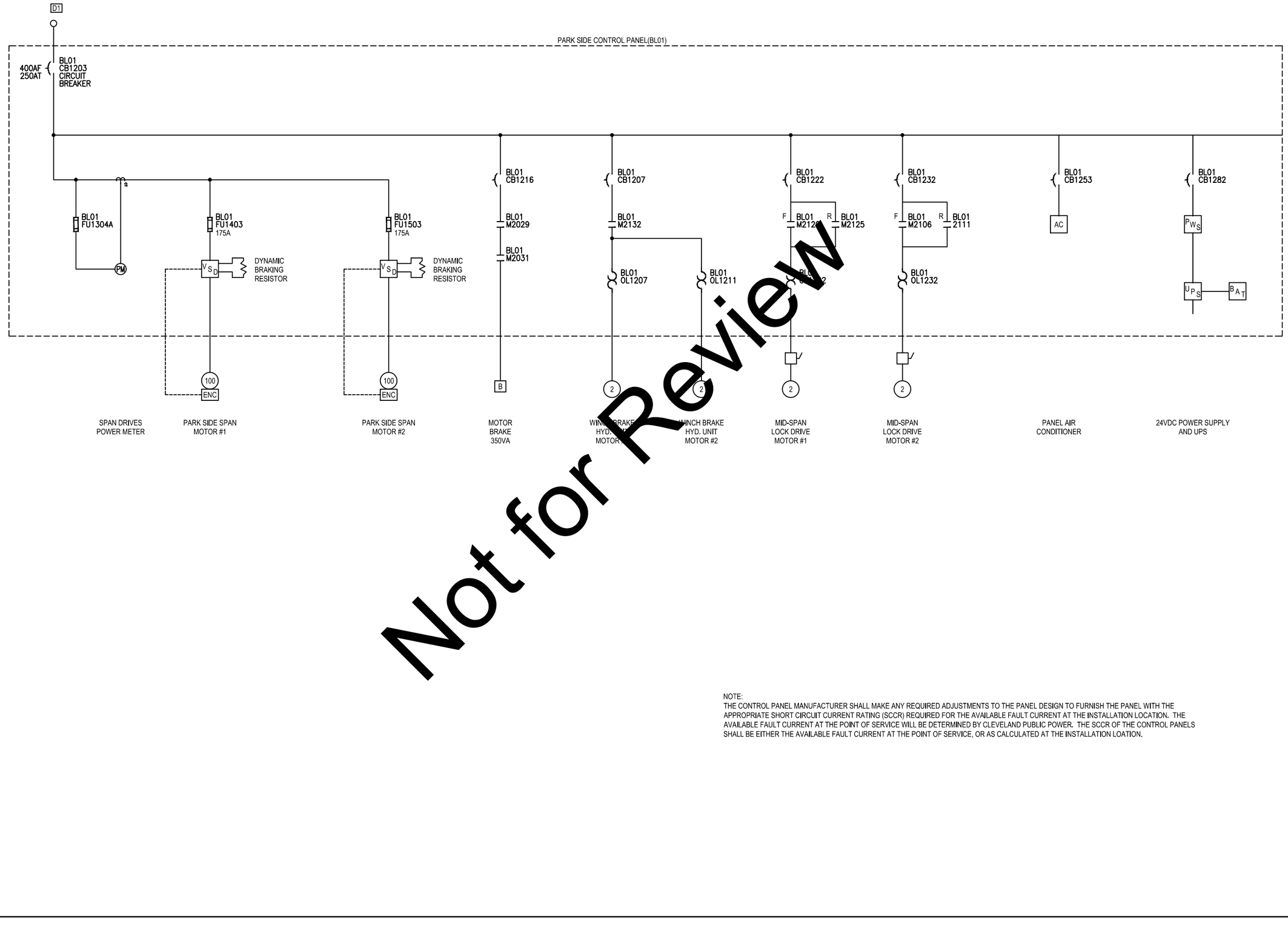
BRIDGE LOGIC DIAGRAM
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

E04



NOTE:
THE CONTROL PANEL MANUFACTURER SHALL MAKE ANY REQUIRED ADJUSTMENTS TO THE PANEL DESIGN TO FURNISH THE PANEL WITH THE APPROPRIATE SHORT CIRCUIT CURRENT RATING (SCCR) REQUIRED FOR THE AVAILABLE FAULT CURRENT AT THE INSTALLATION LOCATION. THE AVAILABLE FAULT CURRENT AT THE POINT OF SERVICE WILL BE DETERMINED BY CLEVELAND PUBLIC POWER. THE SCCR OF THE CONTROL PANELS SHALL BE EITHER THE AVAILABLE FAULT CURRENT AT THE POINT OF SERVICE, OR AS CALCULATED AT THE INSTALLATION LOATION.

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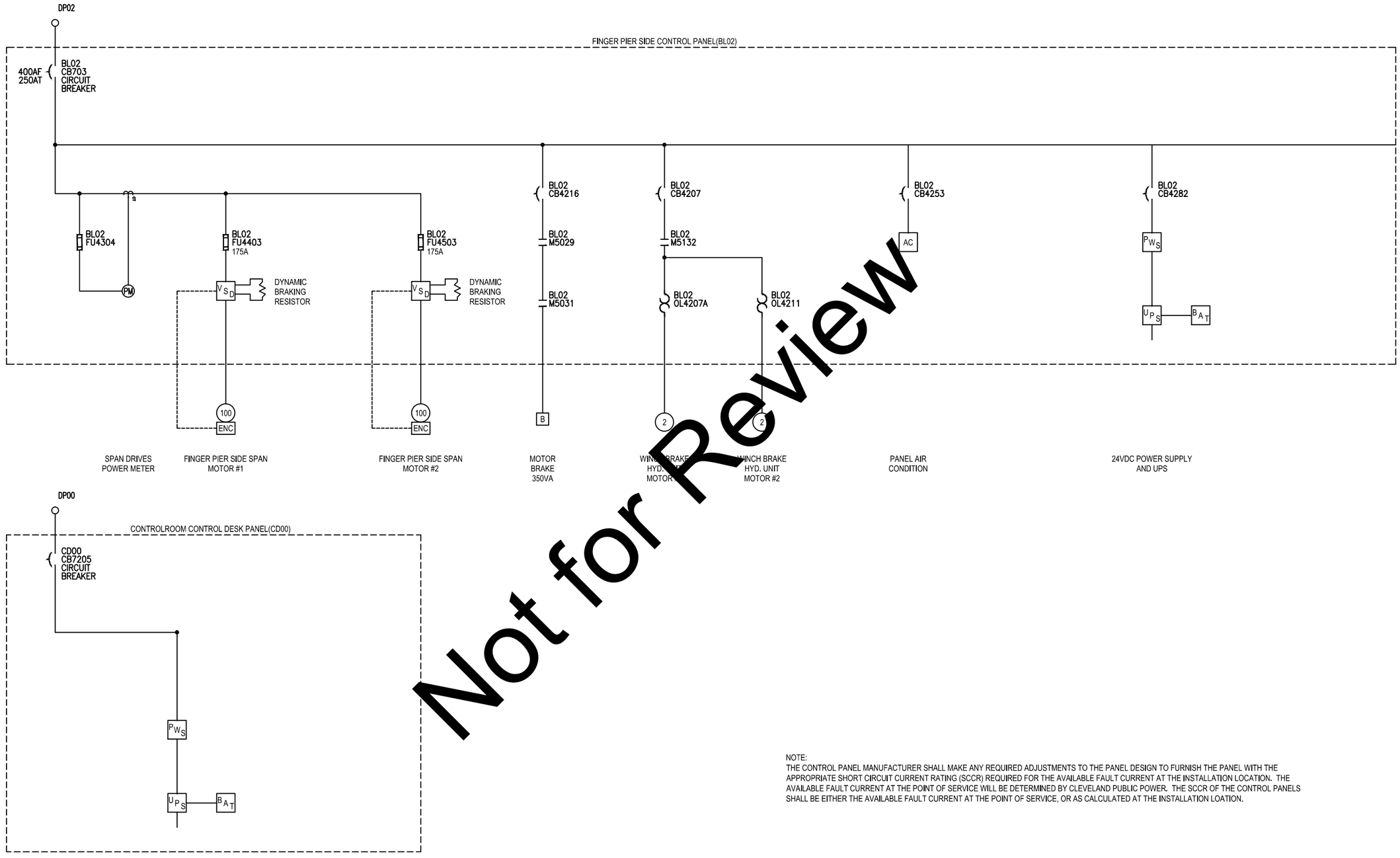
ONE LINE DIAGRAM, SHT 1 OF 2
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E06



NOTE:
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ONE LINE DIAGRAM, SHT 2 OF 2
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E07

Park Side Control Panel (BL01)

Load Description	Rated Load	Controller Type	FLC @480V 3PH
Park Side Span Motor #1 *	100 HP	VFD	124
Park Side Span Motor #2 *	100 HP	VFD	124
Motor Brake	0.35 KVA	contactor	0.5
Winch Brake Hydraulic #1	2 HP	FVNR	3.4
Winch Brake Hydraulic #2	2 HP	FVNR	3.4
24VDC Power Supply & UPS	1 KVA		1
Mid-Span Lock #1	2 HP	FVR	3.4
Mid-Span Lock #2	2 HP	FVR	3.4
Air Conditioner	3.2 KW		3.8
Total			142.9
* only one operates at a time			

Finger Pier Side Control Panel (BL02)

Load Description	Rated Load	Controller Type	FLC @480V 3PH
Park Side Span Motor #1 *	100 HP	VFD	124
Park Side Span Motor #2 *	100 HP	VFD	124
Motor Brake	0.35 KVA	contactor	0.5
Winch Brake Hydraulic #1	2 HP	FVNR	3.4
Winch Brake Hydraulic #2	2 HP	FVNR	3.4
24VDC Power Supply & UPS	1 KVA		1
Air Conditioner	3.2 KW		3.8
Total			136.1
* only one operates at a time			

Control Room Control Desk (CD00)

Load Description	Rated Load	Controller Type	FLC @480V 3PH
24VDC Power Supply & UPS	1 KVA		1
Total			1

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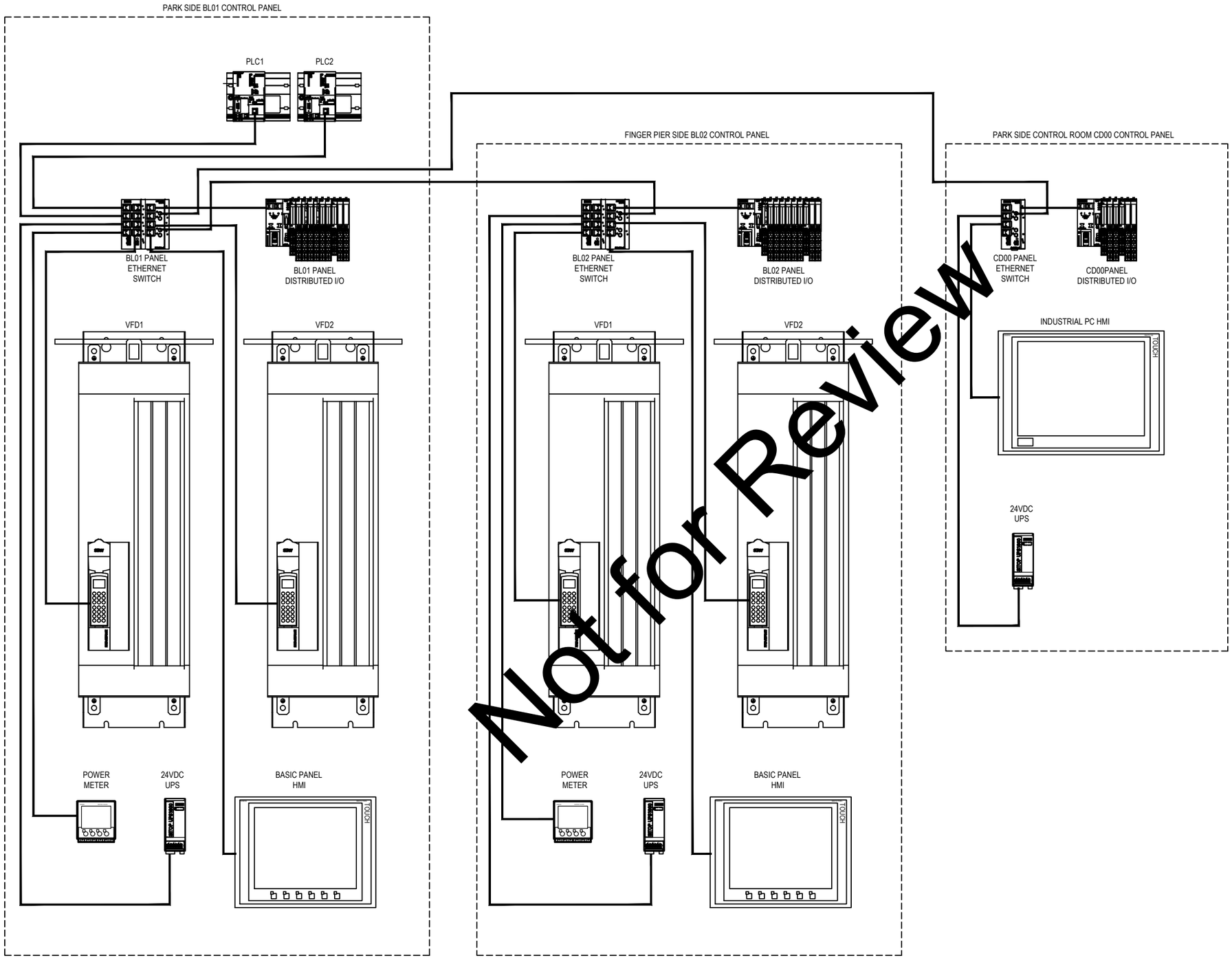
ELECTICAL LOAD LIST
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E08



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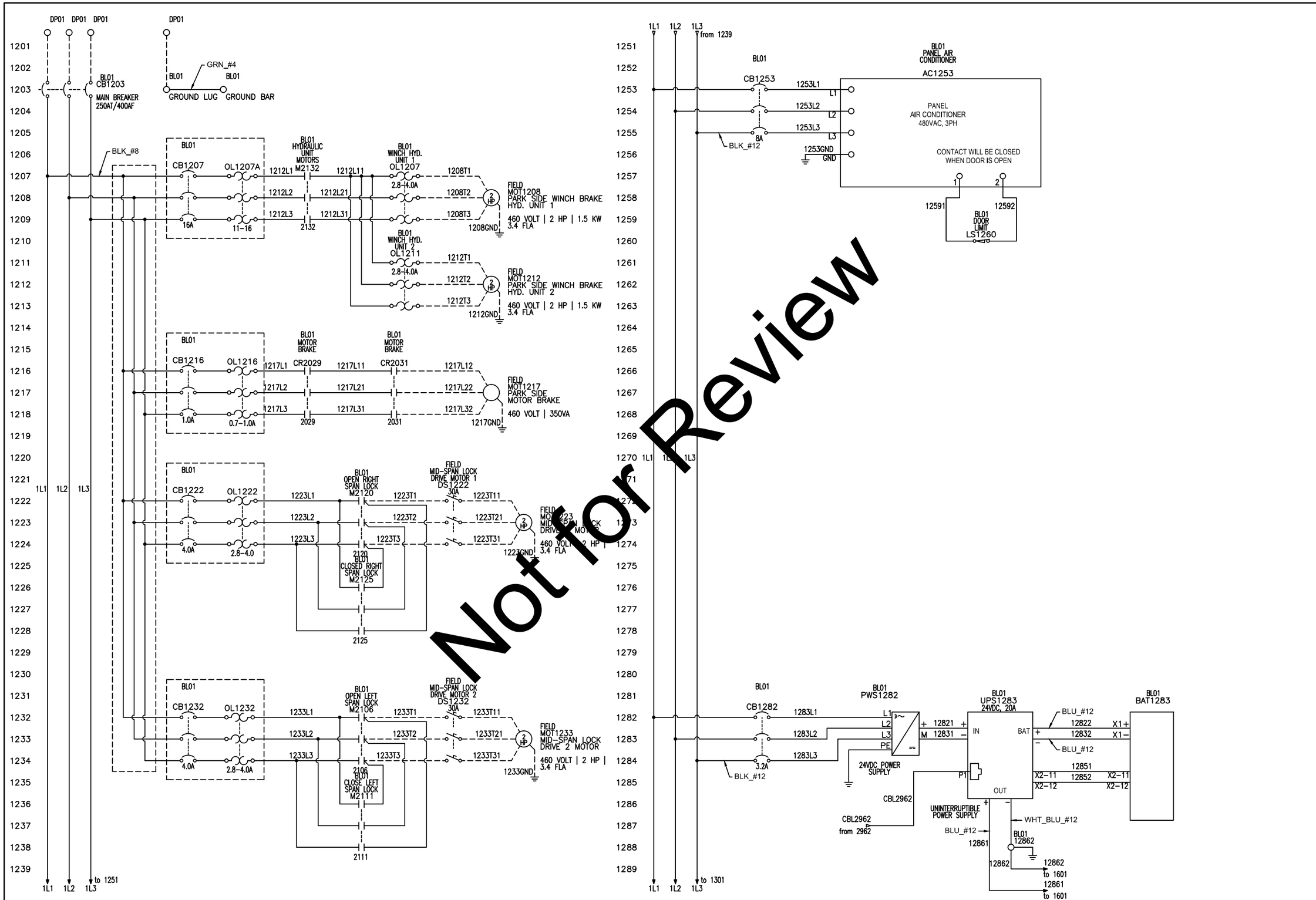
PLC – HMI NETWORK ARCHITECTURE
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

E09



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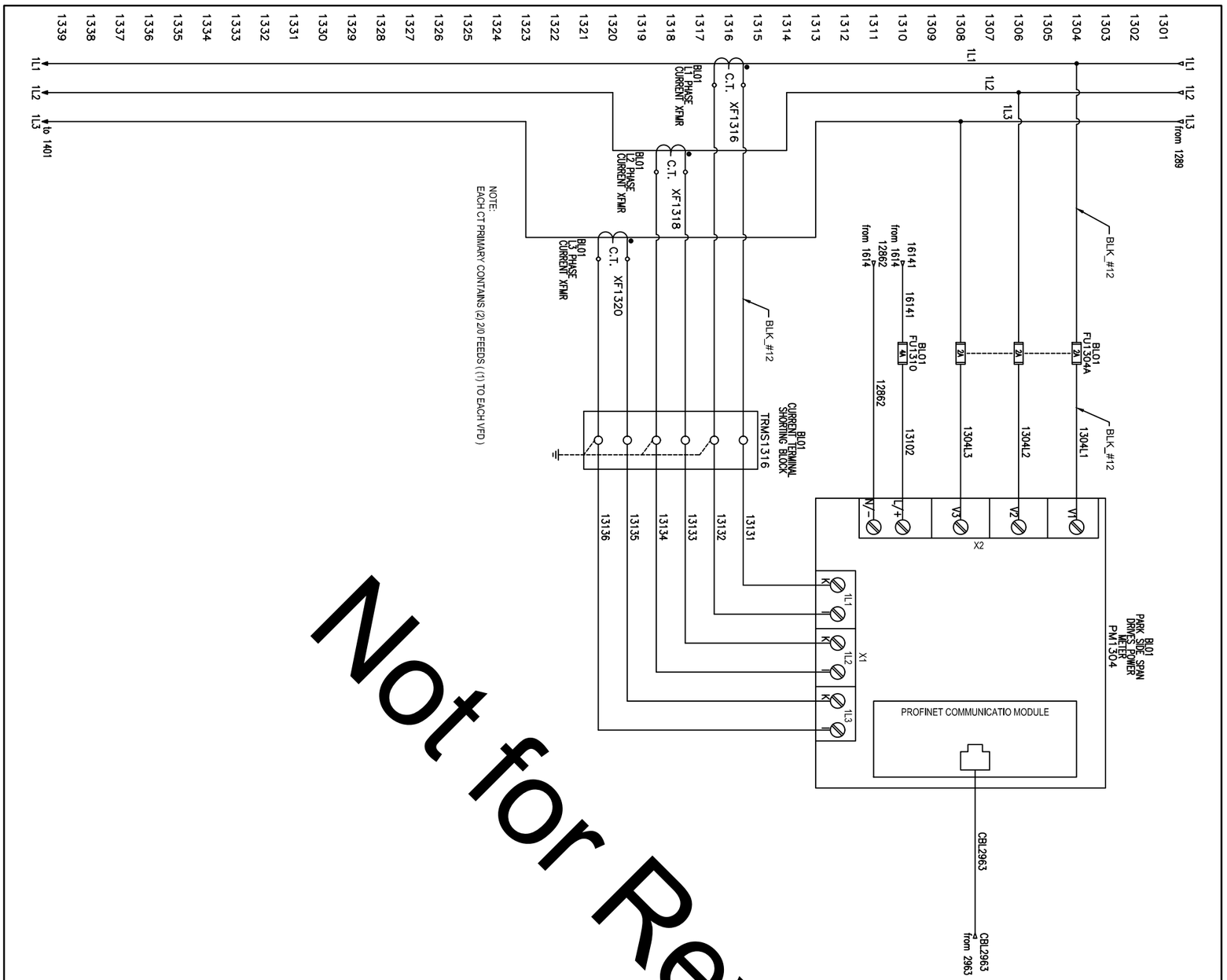
BL01 480 VOLT SCHEMATIC
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E12



104 / 165	E13	CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE	BL01 480 VOLT SCHEMATIC CURVED SYMMETRICAL BASCULE BRIDGE	DESIGNED DN	DRAWN BR	REVIEWED TK	DATE 03/31/14	schlaich bergermann and partner lp Structural Consulting Engineers 555 8th Avenue, Suite 2402 New York, NY 10018	DESIGN AGENCY CPM Smith 1468 W. 9TH STREET, SUITE 750 CLEVELAND, OHIO 44113
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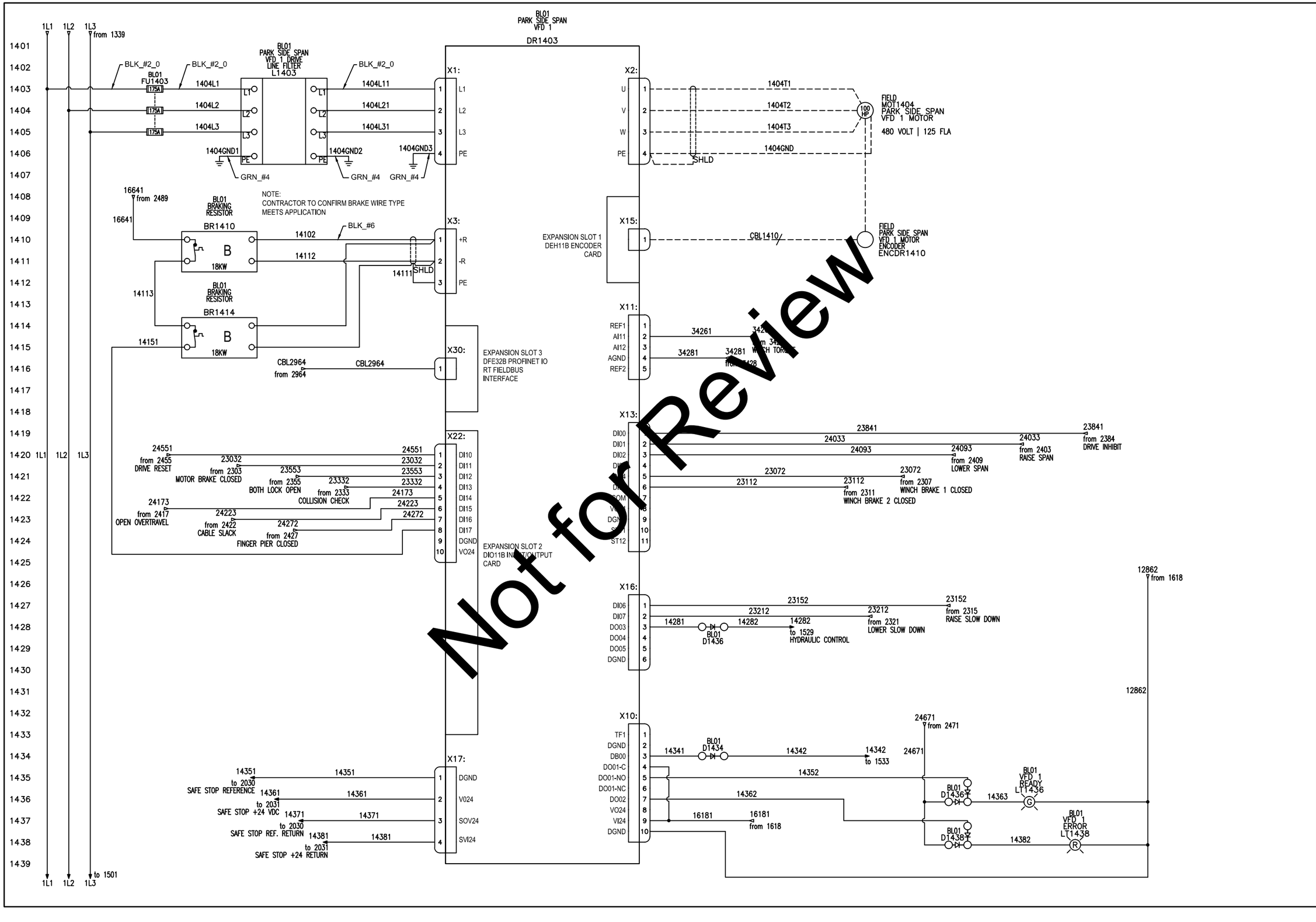

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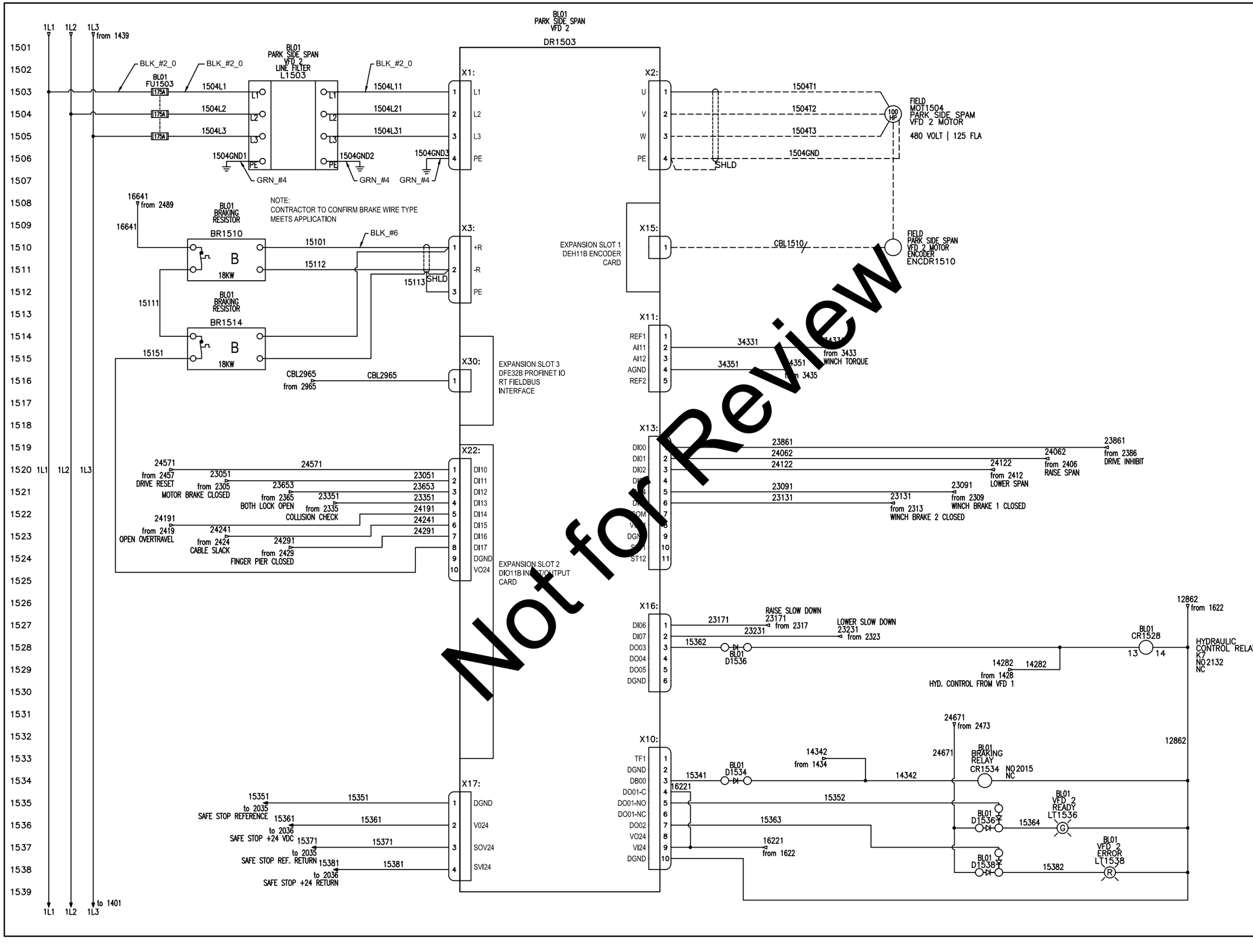
BL01 480 VOLT SCHEMATIC
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E14

105
165



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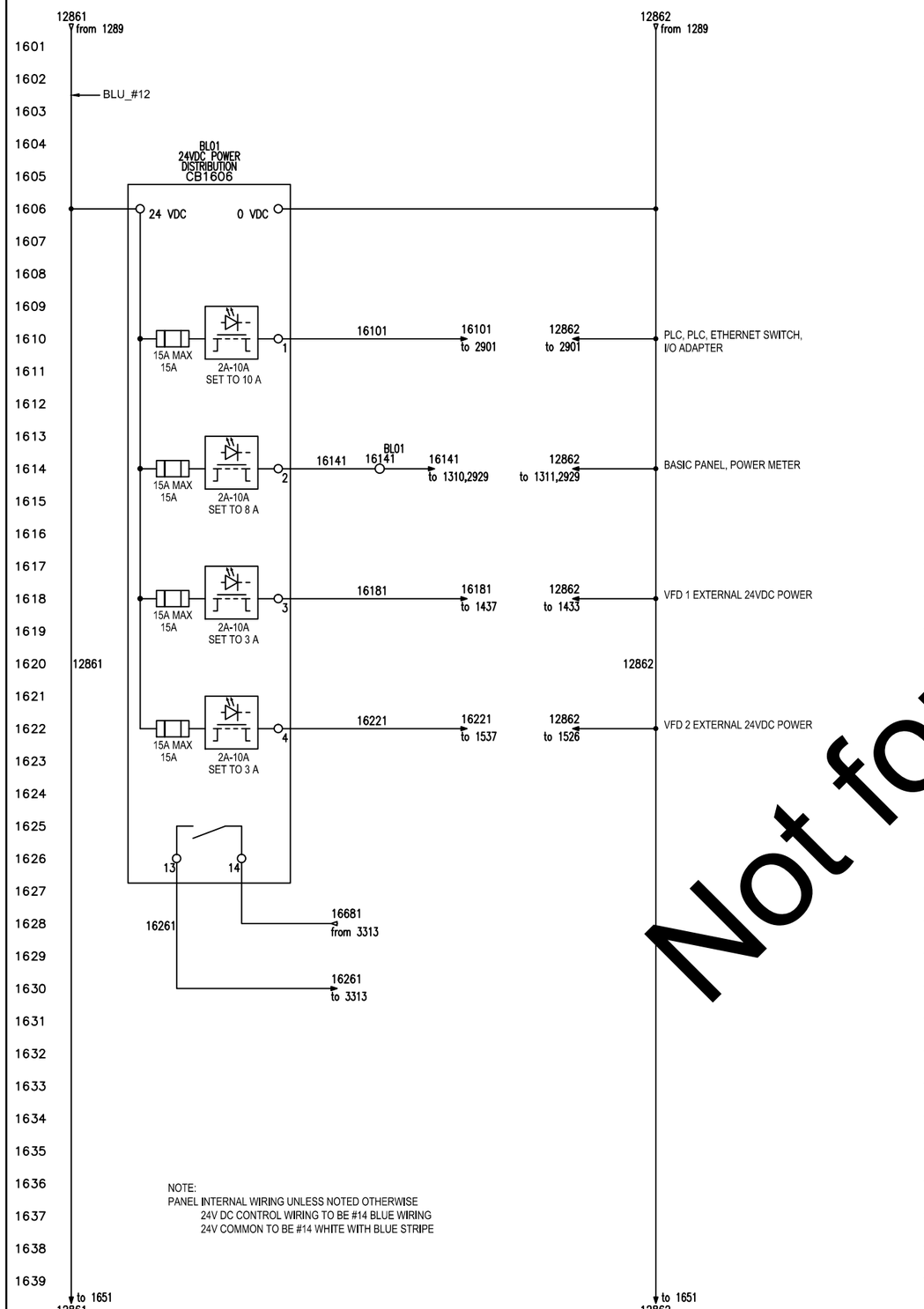
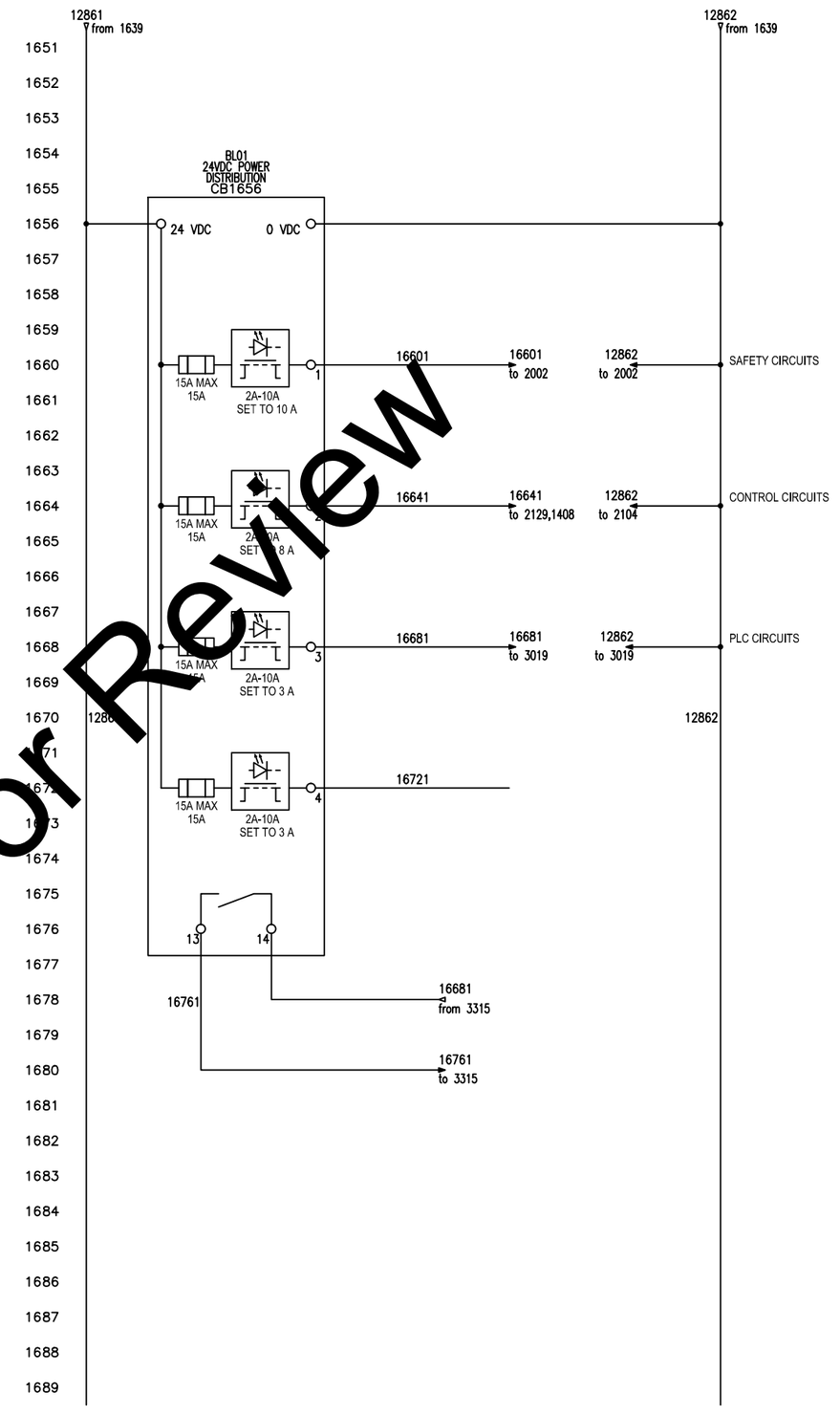
BL01 480 VOLT SCHEMATIC
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E15

106
165





NOTE:
PANEL INTERNAL WIRING UNLESS NOTED OTHERWISE
24V DC CONTROL WIRING TO BE #14 BLUE WIRING
24V COMMON TO BE #14 WHITE WITH BLUE STRIPE

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BL01 PANEL DC POWER DISTRIBUTION
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E16

107
165

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BL01 PANEL SAFETY CIRCUIT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E19

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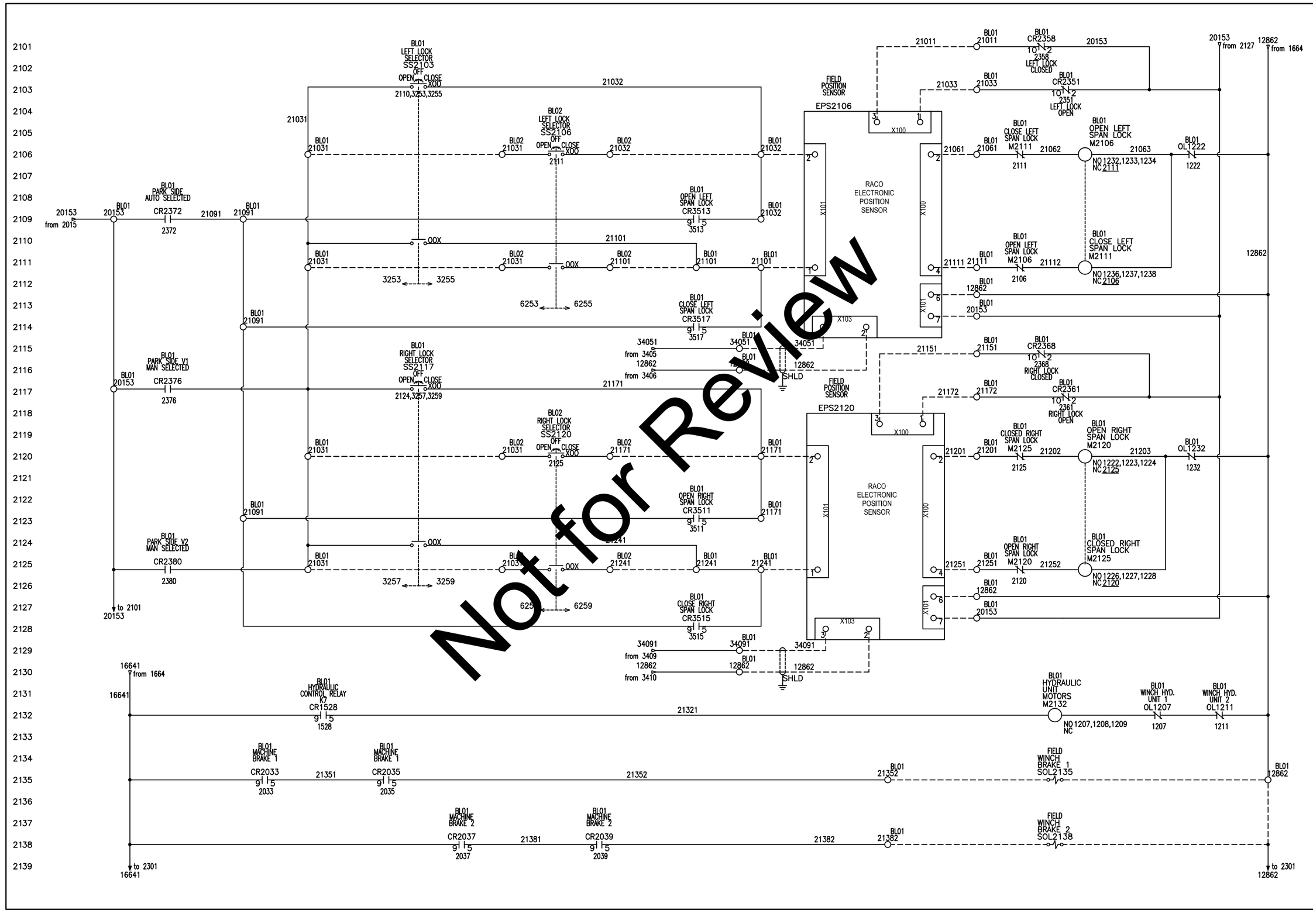
BL01 PANEL SAFETY CIRCUIT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E20

109
165



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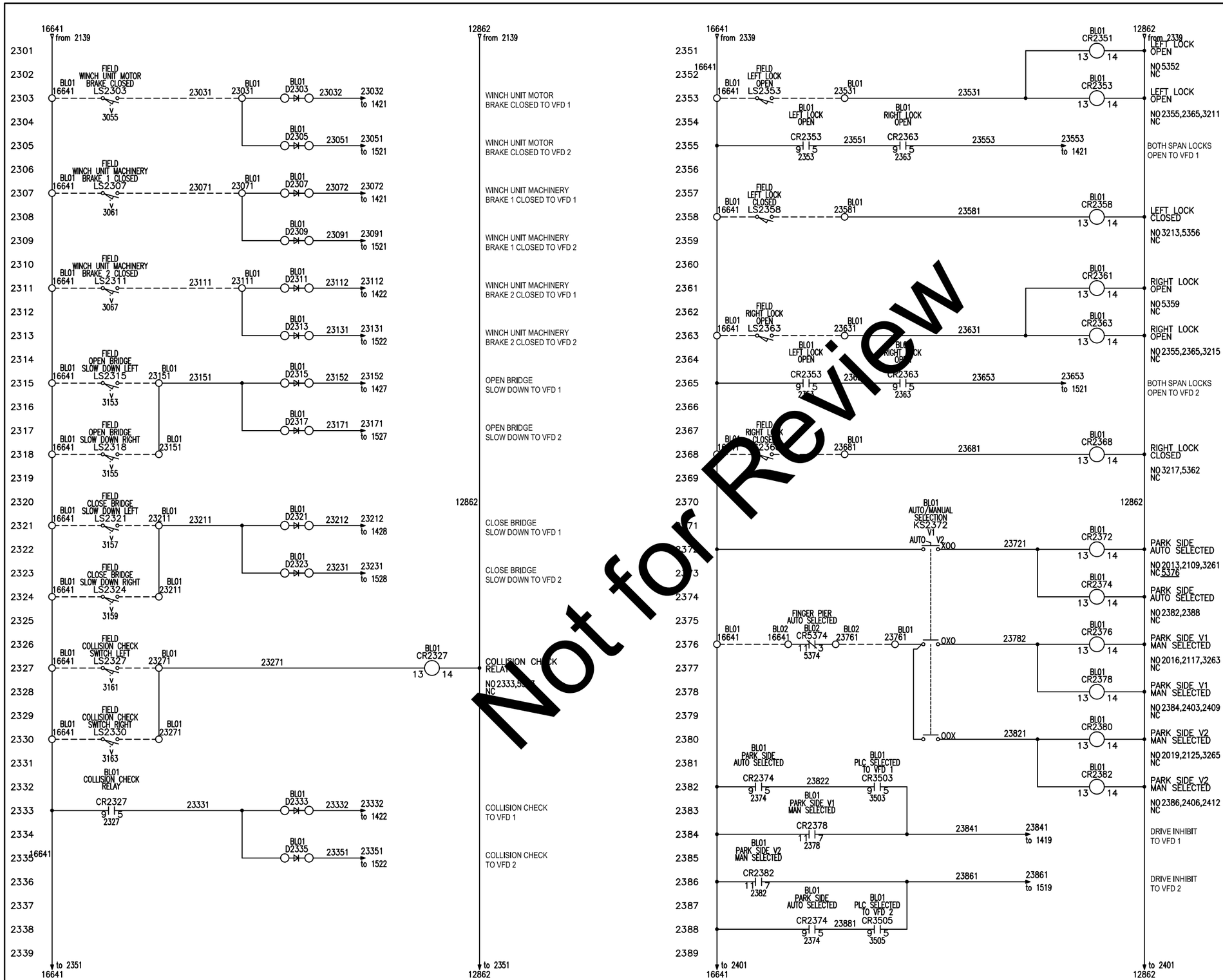
BL01 PANEL SAFETY CIRCUIT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E21



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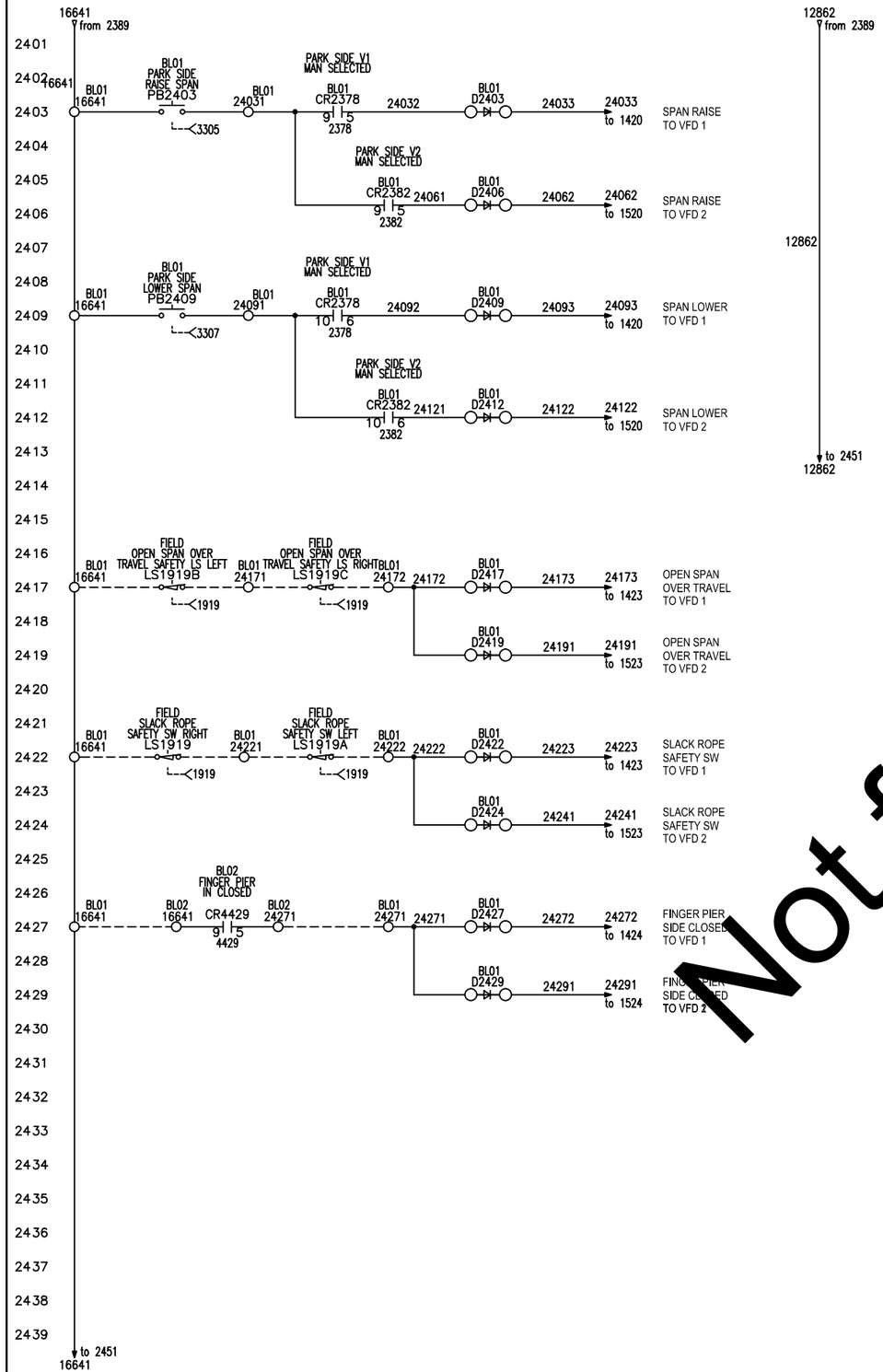
BL01 CONTROL SCHEMATIC DIAGRAM
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E23



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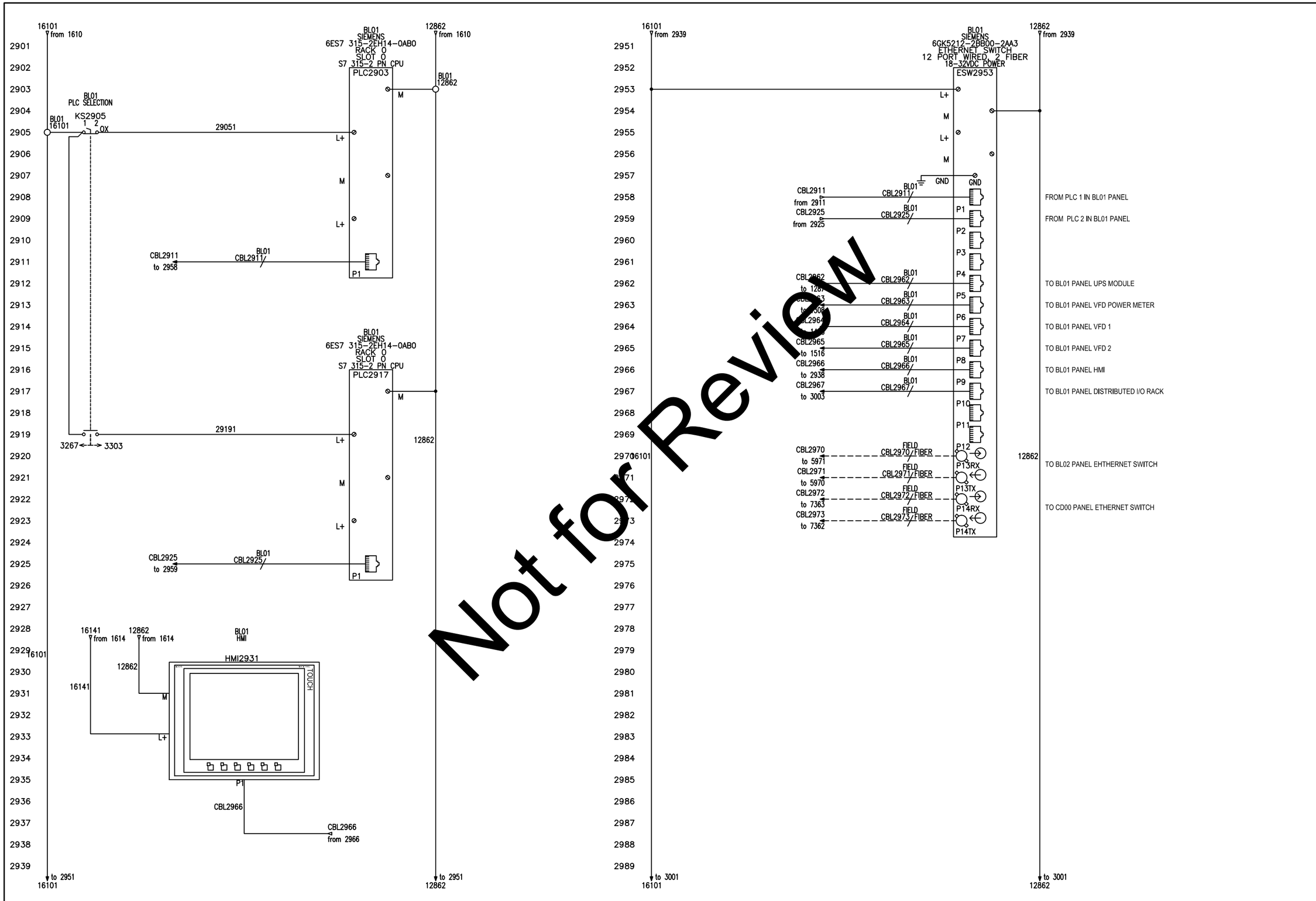
BL01 CONTROL SCHEMATIC DIAGRAM
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E24



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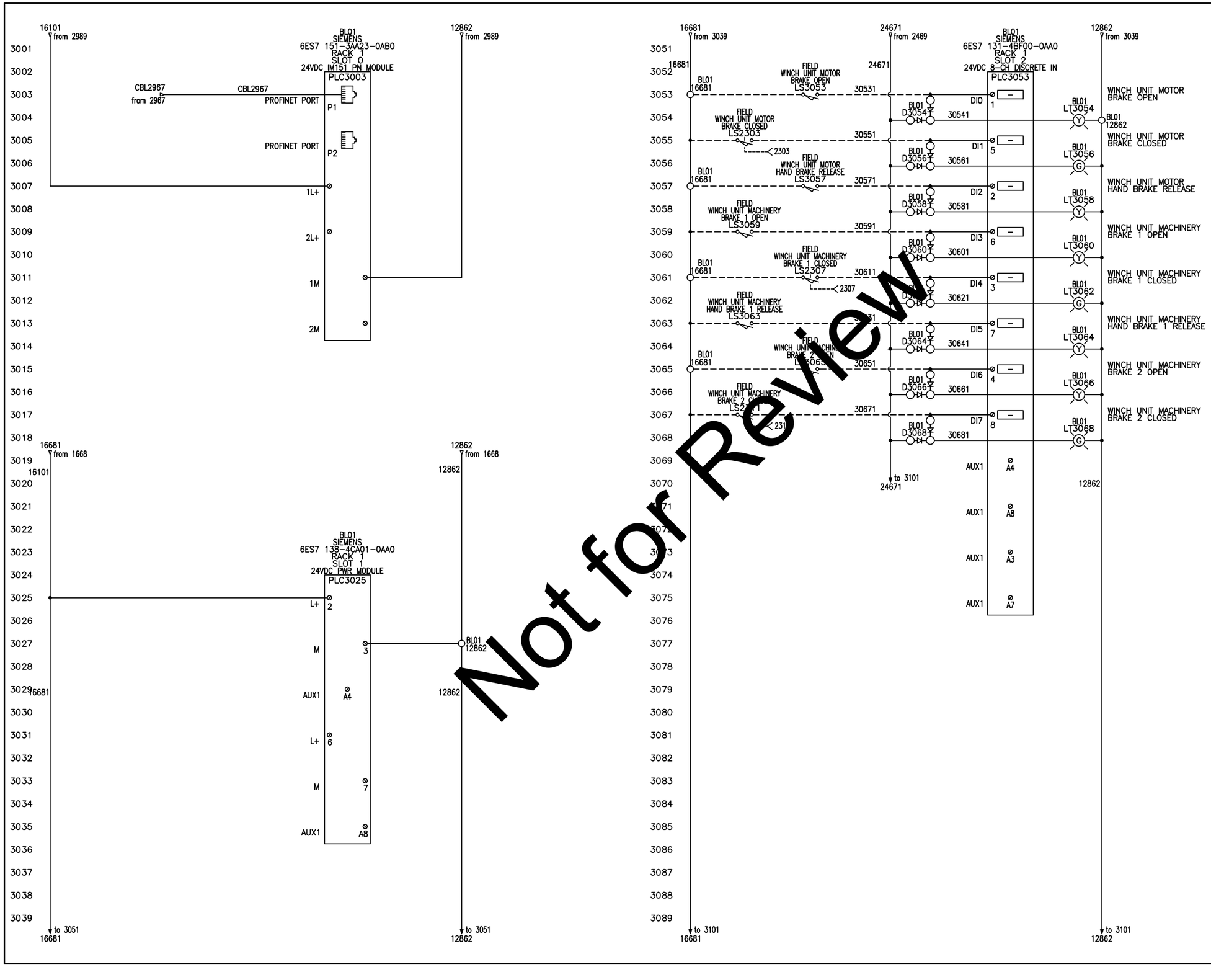
BL01 PLC'S AND ETHERNET SWITCHES
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E29



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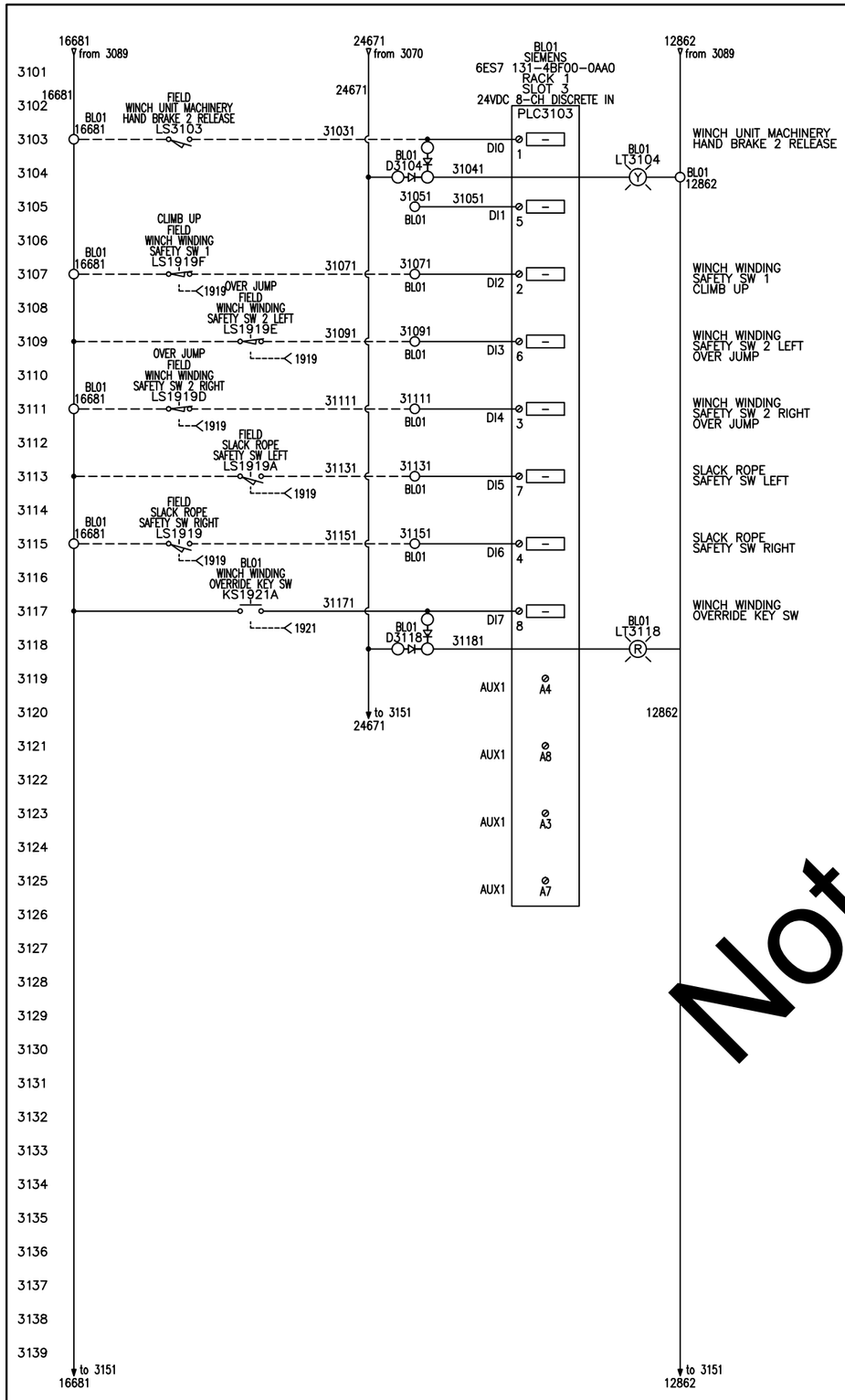
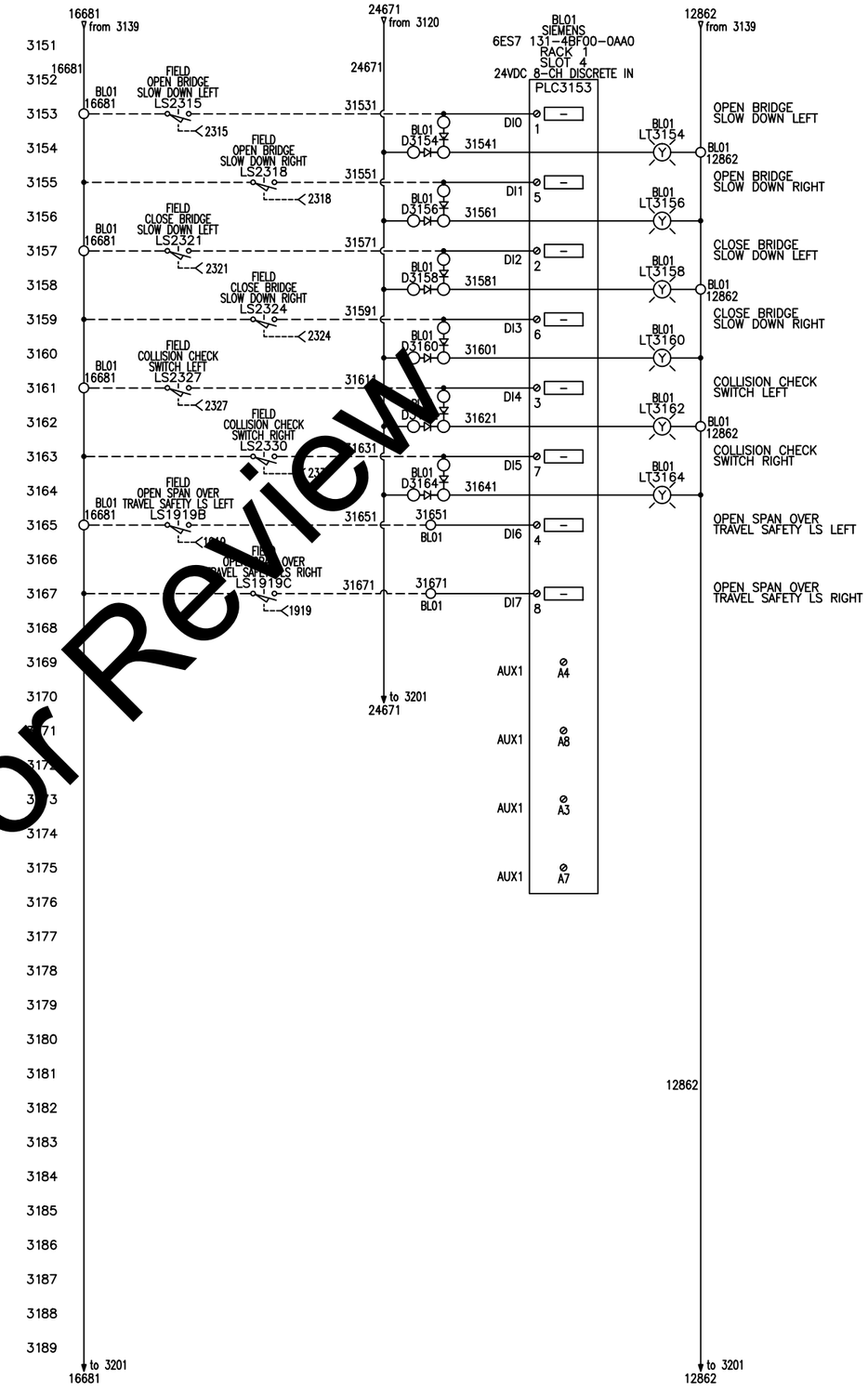
BL01 I/O SCHEMATIC, SHT 1 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E30





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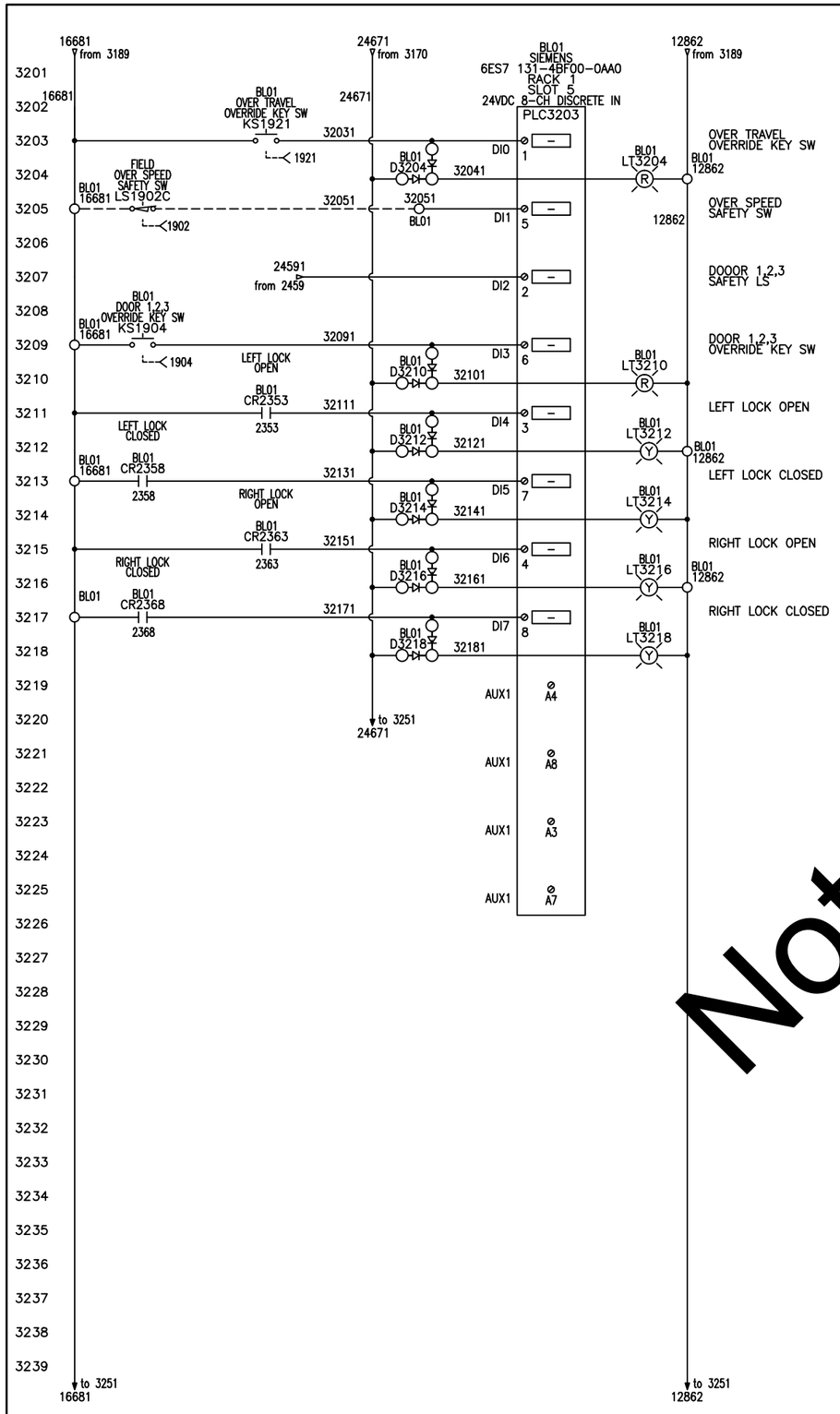
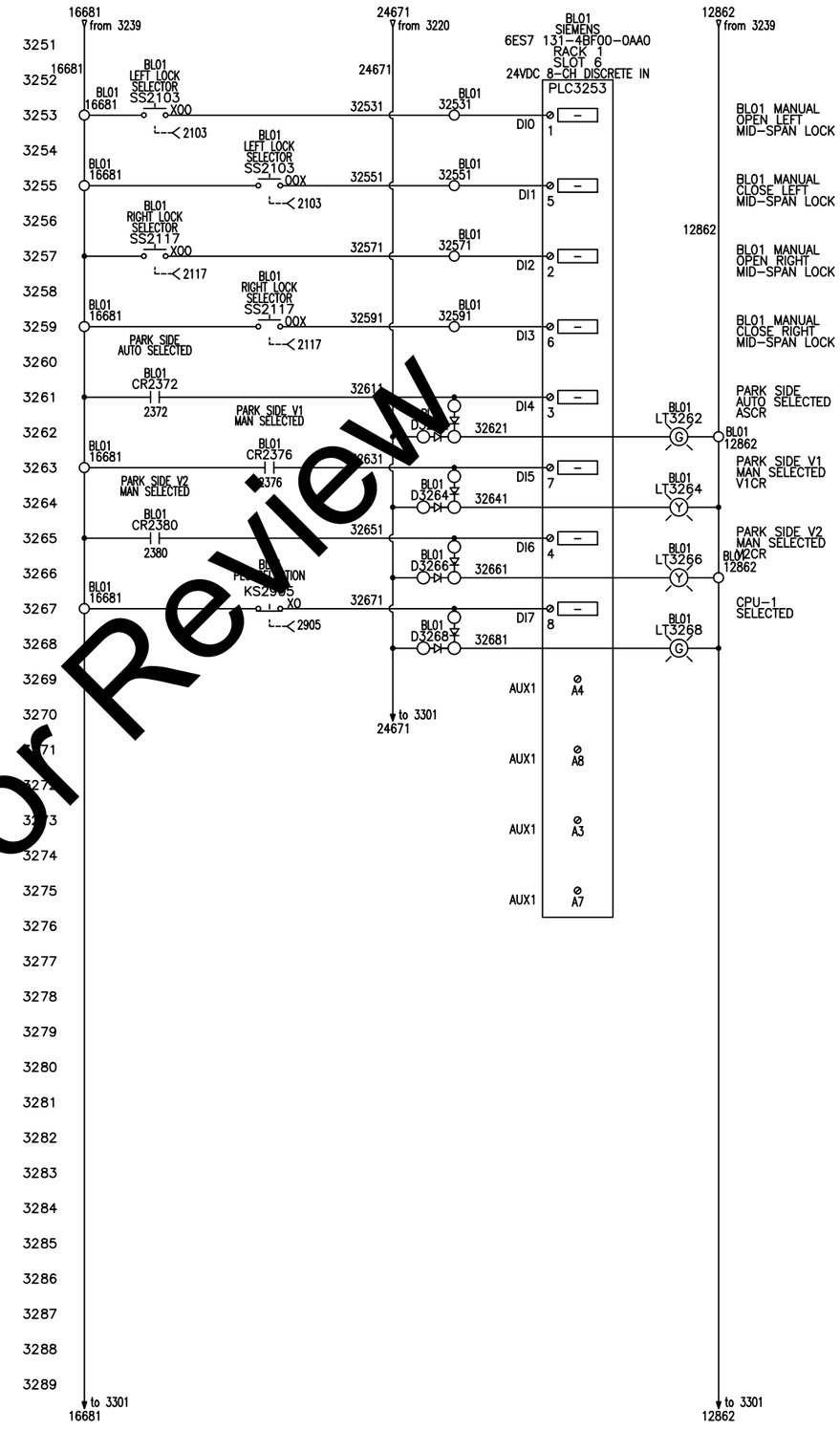
WJC	-	-	

BL01 I/O SCHEMATIC, SHT 2 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E31





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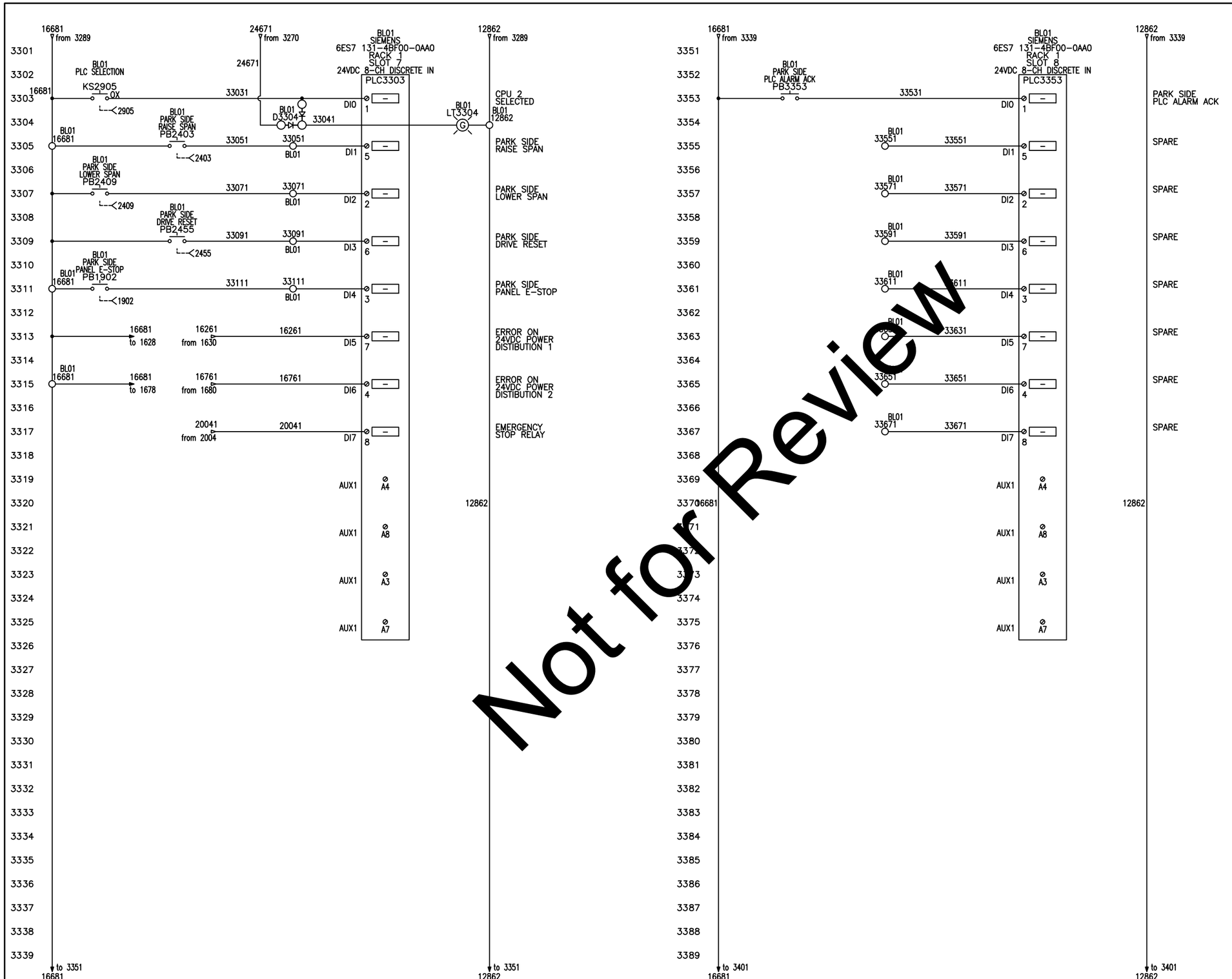
BL01 I/O SCHEMATIC, SHT 3 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E32



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BL01 I/O SCHEMATIC, SHT 4 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E33

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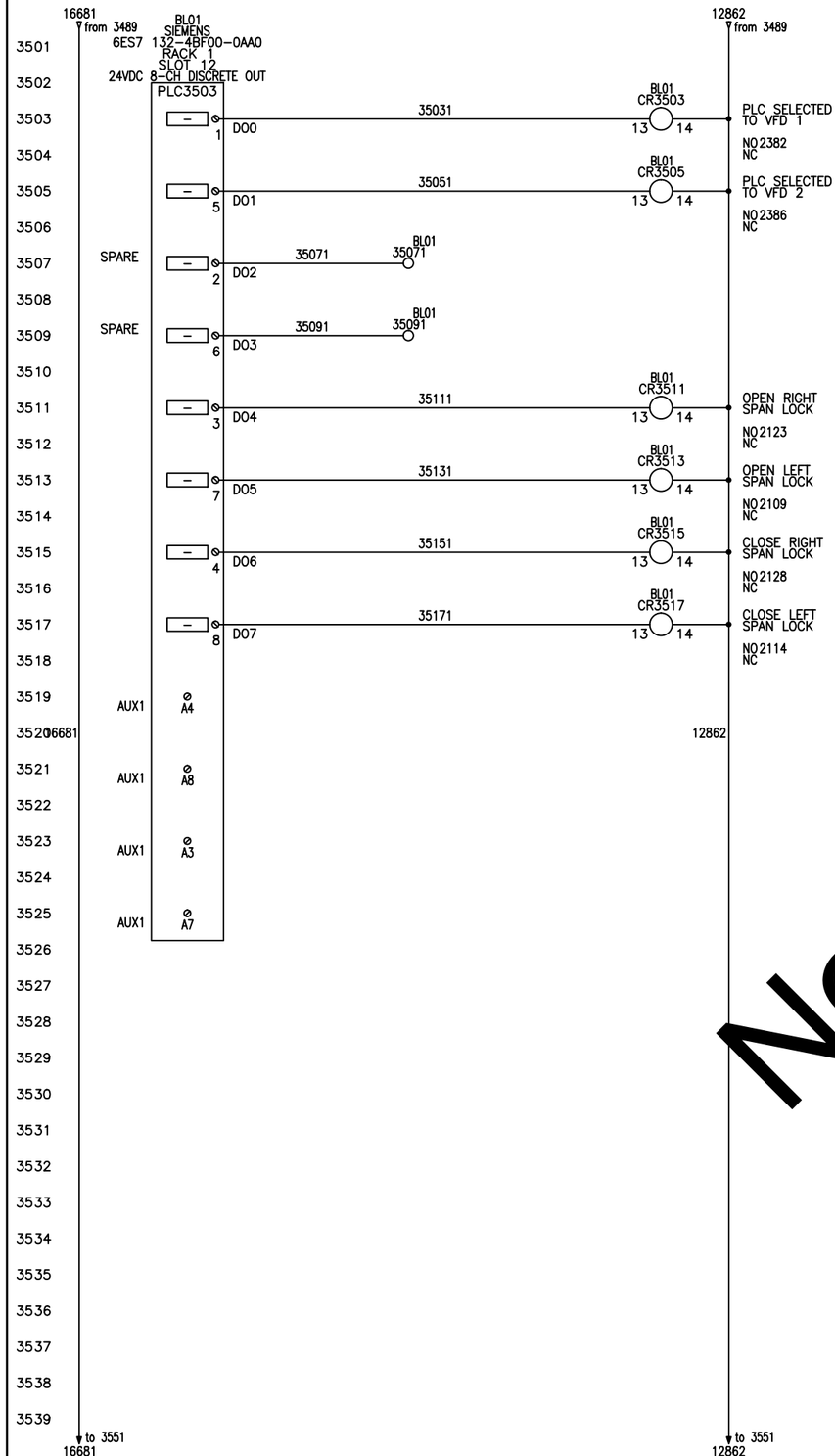
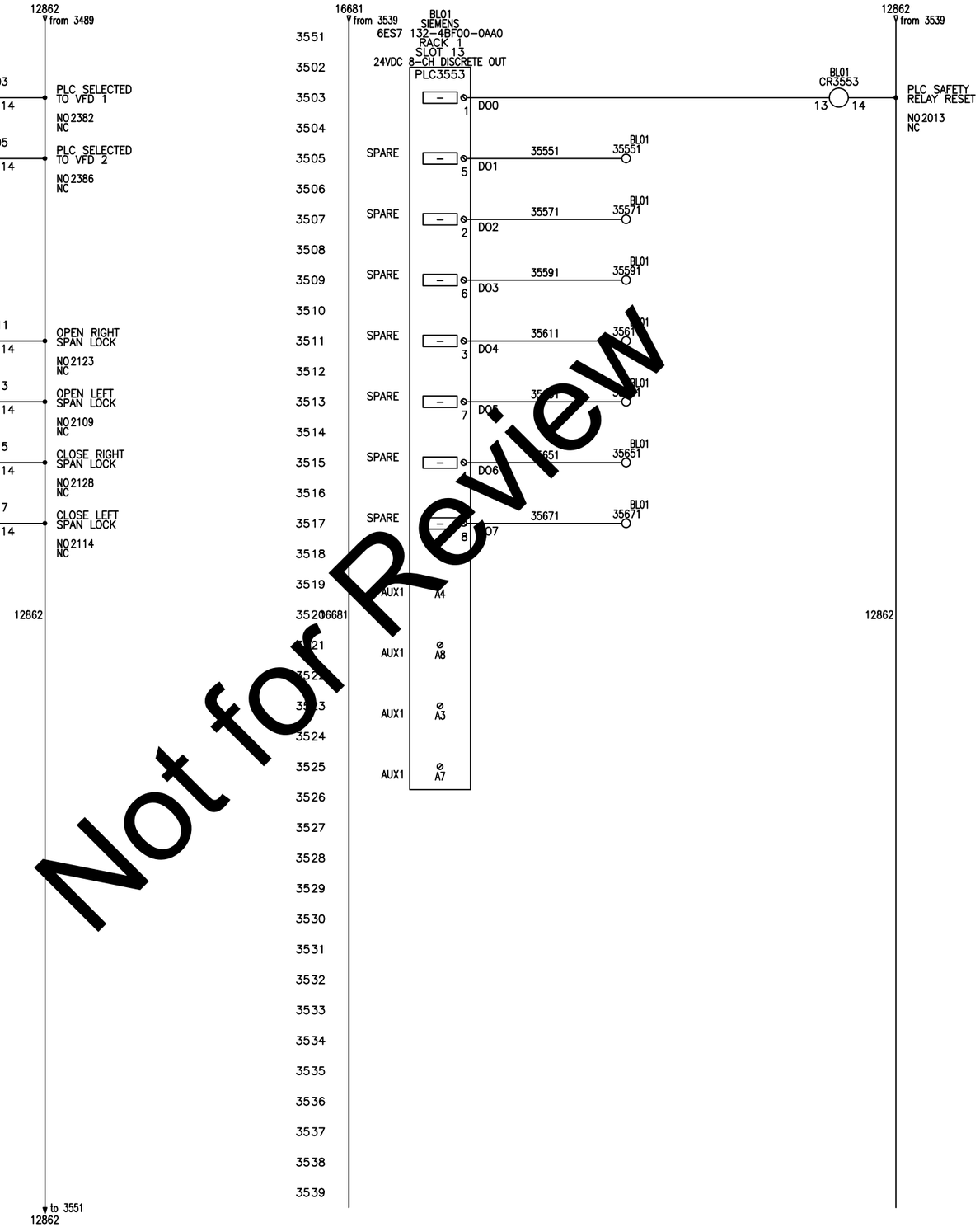
BL01 I/O SCHEMATIC, SHT 5 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E34





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BL01 I/O SCHEMATIC, SHT 6 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E35

TS LISTING

12682	16681	19226	32051
12682	16681	19227	32531
12682	16681	19227	32551
12682	16681	19228	32571
12682	16681	19228	32591
12682	16681	19228	33051
12682	16681	19229	33071
12682	16681	19229	33091
12682	16681	19229	33111
12682	16681	19229	33551
12682	16681	20131	33571
12682	16681	20132	33591
SP	16681	20152	33611
SP	16681	20152	33631
SP	16681	20152	33651
16101	16681	20153	33671
16141	16681	20153	SP
SP	16681	20153	SP
SP	16681	20153	34051
16641	16681	20161	12862
16641	16681	21011	SHLD
16641	16681	21031	34091
16641	16681	21031	12862
16641	16681	21031	SHLD
16641	16681	21031	16681
16641	16681	21032	12862
16641	16681	21032	34131
16641	16681	21033	34132
16641	16681	21061	SHLD
16641	16681	21091	SP
16641	16681	21091	SP
16641	16681	21091	35071
16641	SP	21101	35091
16641	SP	21101	35551
16641	19021	21111	35571
16641	19021	21151	35591
16641	19021	21171	35611
16641	19021	21171	35631
16641	19021	21172	35651
SP	19022	21201	35671
SP	19023	21241	SP
SP	19024	21251	SP
SP	19024	21352	SP
SP	19025	21382	SP
	19026	SP	49025
	19026	SP	49026
	19027	23031	49027
	19028	23071	49055
	19051	23111	49056
	19051	23151	49057
	19051	23211	49198
	19051	23211	49199
	19052	23271	49228
	19053	23271	49229
	19054	23531	46641
	19054	23531	53331
	19055	23581	46641
	19056	23631	53521
	19057	23681	53561
	19058	23761	53591
	19191	24031	53621
	19192	24091	53762
	19193	24171	
	19194	24172	
	19194	24221	
	19195	24222	
	19196	24271	
	19197	24591	
	19197	24591	
	19198	24591	
	19198	SP	
	19198	SP	
	19199	31051	
	19199	31071	
	19221	31091	
	19222	31111	
	19223	31131	
	19224	31151	
	19224	31651	
	19225	31671	

SINGLE DIODE TS LISTING

IN	OUT
14281	14282
14341	14342
15362	14282
15341	14342
23031	23032
23031	23051
23071	23072
23071	23091
23111	23112
23111	23131
23151	23152
23151	23171
23211	23212
23211	23231
23331	23332
23331	23351
24032	24033
24061	24062
24092	24093
24121	24122
24172	24173
24172	24191
24222	24223
24222	24241
24271	24272
24271	24291
24552	24551
24552	24571

2-TIER DIODE TS LISTING

TOP IN	BOTTOM IN	BOTTOM OUT
14352	24671	14363
14362	24671	14382
15352	24671	15364
15363	24671	15382
20181	24671	20182
30531	24671	30541
30551	24671	30561
30571	24671	30581
30591	24671	30601
30611	24671	30621
30631	24671	30641
30651	24671	30661
30671	24671	30681
31031	24671	31041
31171	24671	31181
31531	24671	31541
31551	24671	31561
31571	24671	31581
31591	24671	31601
31611	24671	31621
31631	24671	31641
32031	24671	32041
32091	24671	32101
32111	24671	32121
32131	24671	32141
32151	24671	32161
32171	24671	32181
32611	24671	32621
32631	24671	32641
32651	24671	32661
32671	24671	32681
33031	24671	33041

TRMS1316 LISTING

13131
13132
13133
13134
13135
13136

NOTE:
1. LEGENDS ARE TO BE WHITE LETTERING ON BLACK BACKGROUND.
2. LEGENDS ARE TO BE SCREWED DOWN EXCEPT FOR OPERATOR RING LEGENDS.
3. E-STOP LEGENDS TO BE BLACK LETTERING ON YELLOW BACKGROUND.

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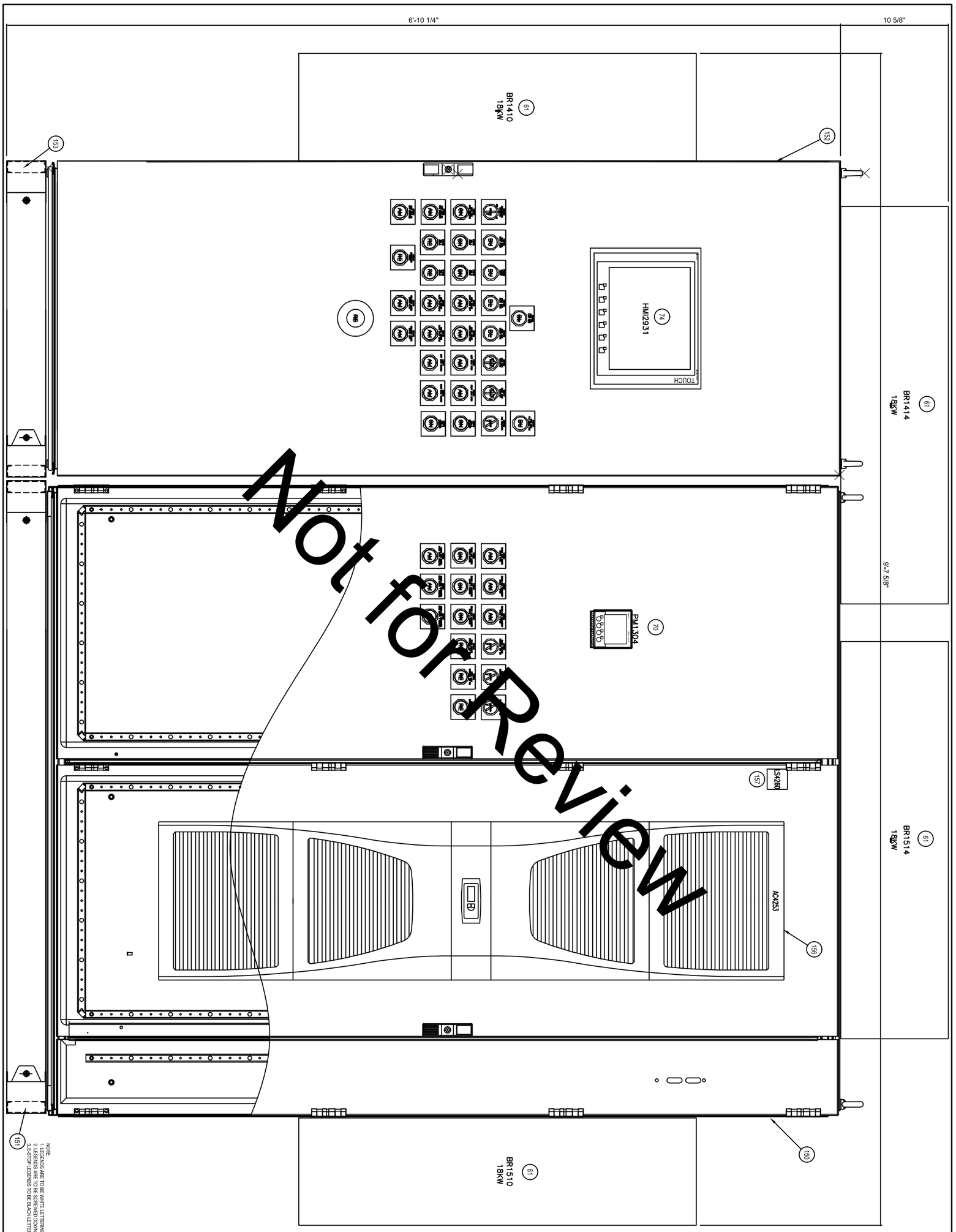
BL01 – ENCLOSURE BACKPANEL LAYOUT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE



NOTE:
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3. E-STOP LEGENDS TO BE BLACK LETTERING ON YELLOW BACKGROUND.

421/165	E39	CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE	BL01 – ENCLOSURE LAYOUT CURVED SYMMETRICAL BASCULE BRIDGE	DESIGNED DN	DRAWN BR	REVIEWED TK	DATE 03/31/14
				CHECKED WJC	REVISED –	STRUCTURE FILE NUMBER –	

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NOTE:
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2. LEGENDS ARE TO BE SCREWED DOWN EXCEPT FOR OPERATOR RING LEGENDS.
3. E-STOP LEGENDS TO BE BLACK LETTERING ON YELLOW BACKGROUND.

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BL01 – ENCLOSURE OPERATOR LAYOUT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E139

ITEM	TAGS	QTY	SUB	CATALOG	MFG	DESCRIPTION
3		1		LAMA2	PANDUIT	GROUND LUG
4		1		PK23GTA	SQD	GROUND BUS
5	CB1203	1	*1	HJG3B250L	SIEMENS	MOLDED CASE CIRCUIT BREAKER JG 400A FRAME/VL, UP TO 65kA/480V
			*1	3TA6JG20	SIEMENS	CIRCUIT BREAKER ACCESSARY – DISTRIBUTION LUGS
			*1	MFHM3RS	SIEMENS	FLANGE MOUNTED DISCONNECT HANDLE, STEEL, NEMA 1, 3R,12
			*1	MFML	SIEMENS	MOLDED CASE CIRCUIT BREAKER OPERATOR MECHANISM
			*1	MFCM060	SIEMENS	MOLDED CASE CIRCUIT BREAKER MAX-FLEX OPERATOR CABLE, 60"
6	FU1403 FU1503	2	*1	JM60200-3CR	BUSSMANN	3 POLE FUSE BLOCK – CLASS J, 400A
			*3	DFJ-175	BUSSMANN	FUSE – CLASS J
			*3	CVRI-J-60200	BUSSMANN	FUSE BLOCK COVER, 200A, W INDICATION
7	L1403 L1503	2		NF-210-503	SEW	LINE FILTER: 210A, 400/500VAC
8	XF1316 XF1318 XF1320	3		PDS-CTRC-022	SIEMENS	CURRENT TRANSFORMER, 200:5
9	FU1310	1	*1	8WA2 000-1KG38	SIEMENS	
			*1	GMD-R-4	BUSSMANN	
10	FU1304A	1	*1	CHCC3DIU	BUSSMANN	3 POLE FUSE BLOCK – CLASS CC, W/INDICATOR
			*1	LP-CC-2	BUSSMANN	FUSE – CLASS CC
11	CB1207	1		3RV2011-4AA15	SIEMENS	MOTOR STARTER PROTECTOR
12	CB1216	1		3RV2011-0JA15	SIEMENS	CIRCUIT BREAKER – 3 POLE, 0.7-1.0A
13	CB1222 CB1232	2		3RV2011-1EA15	SIEMENS	CIRCUIT BREAKER – 3 POLE, 2.8-4.0A
14		1		3RV1915-1CB	SIEMENS	CIRCUIT BREAKER – THREE PHASE BUSBAR
15		1		3RV2925-5AB	SIEMENS	CIRCUIT BREAKER – 3 PHASE FEEDER TERMINALS
17	M2132	1		3RT2016-1FB41-0UA0	SIEMENS	IEC – NEMA LABEL CONTACTOR – SIRIUS 3RA2
18	OL1207 OL1211	2		3RU21 16-1EB1	SIEMENS	OVERLOAD RELAY, CLASS 10
19	TRMS1316	1		IKU6SC	SIEMENS	SHORTING BLOCK
20	CR2029 CR2031	2		3RT2015-1BB44-3MA0-0UA0	SIEMENS	RELAY – CONTROL
21	M2106 M2120	2		3RA2315-8XB30-1BB4-0UA0	SIEMENS	SIRIUS 2 IEC NEMA LABELED REVERSING CONTACTOR FIXED AUX CONTACTS
22	CB1282	1		3RV2711-1DD10	SIEMENS	SIRIUS 3RV2 MOTOR STARTER PROTECTOR / CIRCUIT BREAKER, UL489, 3.2A
23	CB1253	1		3RV2811-1HD10	SIEMENS	SIRIUS 3RV2 MOTOR STARTER PROTECTOR / CIRCUIT BREAKER, UL489, 8A
25	UPS1283	1		6EP4 136-3AB00-2AY0	SIEMENS	UNINTERRUPTIBLE POWER SUPPLY, 24VDC, 20A, W/PROFINET COMMUNICATIONS
26	BAT1283	1		6EP4 134-0GB00-0AY0	SIEMENS	24VDC BATTERY MODULE – 20A, 24VDC OUTPUT,
27	PWS1282	1		6EP1436-3BA10	SIEMENS	POWER SUPPLY, THREE-PHASE w/20A OUTPUT CURRENT, TYPE 6EP1436-3BA10
28	CB1606 CB1656	2		6EP1961-2BA00	SIEMENS	SITOP SELECT DIAGNOSTIC MODULE, 4 CIRCUIT, 2-10A RANGE
30	CR1534 CR2033 CR2035 CR2037 CR2039	5		3RH2131-1MB40-0KT0	SIEMENS	COUPLING CONTACTOR RELAY
31	CR1528 CR2327 CR2353 CR2358 CR2363 CR2368 CR2372 CR2374 CR2376 CR2378 CR2380 CR2382	12	*1	3TX7111-3PC03	SIEMENS	PLUG-IN RELAY TYPE PREMIUM LINE, MINIATURE
			*1	3TX7144-4E5	SIEMENS	PLUG-IN RELAY SOCKET
32	CR3503 CR3505 CR3511 CR3513 CR3515 CR3517 CR3553	7	*1	3TX7111-3LC03	SIEMENS	PLUG-IN RELAY TYPE PREMIUM LINE, MINIATURE
			*1	3TX7144-4E5	SIEMENS	PLUG-IN RELAY SOCKET
35	FR3427 FR3434	2		3RS1703-1DE00	SIEMANS	INTERFACE CONVERTER, 4-20MA TO 4-20MA, 3-WAY ISOLATION, ACTIVE
36	SMR2002	1	*1	750 104	PILZ	POSITIVE-GUIDED RELAY OUTPUTS: 3 SAFETY CONTACTS (N/O), INSTANTA
			*1	750 111	PILZ	POSITIVE-GUIDED RELAY OUTPUTS: 8 SAFETY CONTACTS (N/O), INSTANTA
41	PLC2903 PLC2917	2	*1	6ES7 315-2EH14-0AB0	SIEMENS	SIMATIC S7, 315 CPU
			*1	6ES7 953-8LL31-0AA0	SIEMENS	SIMATIC S7, MICRO MEMORY CARD, 2MBYTES
42	PLC3003	1		6ES7 151-3AA23-0AB0	SIEMENS	IM 151 PN FOR ET200S TO PROFINET
46	PLC3053 PLC3103 PLC3153 PLC3203 PLC3253 PLC3303 PLC3353	7	*1	6ES7 131-4BF00-0AA0	SIEMENS	SIMATIC ET 200S 8DI 24 VDC/SRC STANDARD DIGITAL ELECTRONIC MODULE w/SCREW-TYPE TERMINAL BLOCK TYPE 15S26-A1
			*1	6ES7 193-4CA40-0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM-E15S26-A1 (SCREW-TYPE TERMINAL)
47	PLC3503 PLC3553	2	*1	6ES7 132-4BF00-0AA0	SIEMENS	SIMATIC ET 200S 8DO 24 VDC/SRC STANDARD DIGITAL ELECTRONIC MODULE w/SCREW-TYPE TERMINAL BLOCK TYPE 15S26-A1
			*1	6ES7 193-4CA40-0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM-E15S26-A1 (SCREW-TYPE TERMINAL)
48	ESW2953	1		6GK5212-2BB00-2AA3	SIEMENS	SCALANCE ETHERNET SWITCH, 12 PORT, MANAGED, 24VDC
49	PLC3478	1		6ES7 138-4CA01-0AA0	SIEMENS	SIMATIC ET 200S POWER MODULE, TYPE PM-E 24 VDC w/SCREW-TYPE TERMINAL BLOCK TYPE 15S23-A0
49	PLC3025	1	*1	6ES7 138-4CA01-0AA0	SIEMENS	SIMATIC ET 200S POWER MODULE, TYPE PM-E 24 VDC w/SCREW-TYPE TERMINAL BLOCK TYPE 15S23-A0
			*1	6ES7 193-4CC20-0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR POWER MODULE
50	PLC3403	1	*1	6ES7 134-4GD00-0AB0	SIEMENS	SIMATIC ET 200S 4AI I 2WIRE STANDARD ANALOG ELECTRONIC MODULE w/SCREW-TYPE TERMINAL BLOCK TYPE 15S24-01
			*1	6ES7 193-4CB20-0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM-E15S24-01 (SCREW-TYPE TERMINAL)
60	DR1403 DR1503	2	*1	MDX61B0900-503-4-0T/DEH11B/DFE32B/DIO11B	SEW	MOVIDRIVE, 90KW
			*1	DFE32B	SEW	MOVIDRIVE PROFINET IO RT FIELDBUS INTERFACE MODULE
			*1	DIO11B	SEW	MOVIDRIVE INPUT OUTPUT MODULE
			*1	DBG60B-01	SEW	MOVIDRIVE OPERATOR TERMINAL
			*1	USB11A	SEW	MOVIDRIVE INTERFACE ADAPTER
			*1	DEH11B	SEW	MOVIDRIVE HYPERFACE ENCODER CARD OPTION MODULE
61	BR1410 BR1414 BR1510 BR1514	4		BW206-T	SEW	BRAKING RESISTOR – ENCLOSED – NEMA 1 – 18KW
70	PM1304	1	*1	7KM4 211-1BA00-3AA0	SIEMENS	POWER METER, TRUE RMS VOLTAGE AND PHASE CURRENT METER
			*1	7KM9 300-0AE01-0AA0	SIEMENS	POWER METER, PROFINET COMMUNICATION MODULE
74	HMI2931	1		6AV2123-2JB03-0AX0	SIEMENS	BASIC PANEL 900, 2ND GEN, OPERATOR TERMINAL, PN COMMUNICATIONS
77		2		8WH9020-6CT10	SIEMENS	JUMPER BAR
78		10		8WH9020-6CC10	SIEMENS	JUMPER BAR
79		1		8WH9020-6BT10	SIEMENS	JUMPER BAR
80		14		8WH9150-0CA00	SIEMENS	QUICK FIT END RETAINERS
81		30		8WH1 000-6KG00	SIEMENS	8WH1 SINGLE TERMINAL – SIZE 2.5
82		1		8WH9 000-2PA00	SIEMENS	BARRIER

ITEM	TAGS	QTY	SUB	CATALOG	MFG	DESCRIPTION
83		35		8WH1 020-5FF00	SIEMENS	8WH1 SINGLE TERMINAL – SIZE 2.5
84		1		8WH9 000-1QA00	SIEMENS	BARRIER
86		4		8WH9 000-1PA00	SIEMENS	BARRIER
87		284		8WH1 000-0AG00	SIEMENS	8WH1 SINGLE TERMINAL – SIZE 4
89		11		199-DR1	AB	SYMMETRICAL RAIL 35MM X 7.5MM 1M LONG
90		3		G4X4WH6	PANDUIT	WIDE FINGER, SLOTTED WIRING DUCT
91		8		G2X4WH6	PANDUIT	WIDE FINGER, SLOTTED WIRING DUCT
92		6		G3X4WH6	PANDUIT	WIDE FINGER, SLOTTED WIRING DUCT
100	PB1902	1		52PP2W2D	SIEMENS	2 POS PUSH PULL MUSHROOM HEAD DEVICE – NON-ILLUMINATED
101	PB1902	1		52AAR	SIEMENS	NAME PLATE
102	KS1904 KS1921 KS1921A KS2372 KS2905 LT1436 LT1438 LT1536 LT1538 LT2018 LT3054 LT3056 LT3058 LT3060 LT3062 LT3064 LT3066 LT3068 LT3104 LT3118 LT3154 LT3156 LT3158 LT3160 LT3162 LT3164 LT3204 LT3210 LT3212 LT3214 LT3216 LT3218 LT3282 LT3284 LT3286 PB2019 PB2403 PB2409 PB2455 PB2469 PB3353 SS2103 SS2117	45		52NA02B	SIEMENS	NAME PLATE
103	LT1438 LT1538 LT2018 LT3118 LT3204 LT3210	6		52PL4D2XB	SIEMENS	INDICATOR LIGHT, RED, LED, 24V AC/DC
104	KS2[illegible]	1	*1	52SC6AE	SIEMENS	KEYED SELECTOR SW – 2 POS MAINT, IP66 NEMA 4/4X/13
			*2	52BAK	SIEMENS	1 NO CONTACT BLOCK
			*2	52BAJ	SIEMENS	1 NC CONTACT BLOCK
	PB2019 PB3353	3		52PM8A5F	SIEMENS	2 POS MOMENTARY PUSH – BUTTON DEVICE – NON-ILLUMINATED
106	PB2403 PB2409 PB2469	3		52PM8A1C	SIEMENS	2 POS MOMENTARY PUSH – BUTTON DEVICE – NON-ILLUMINATED
	KS1904 KS1921 KS1921A	3	*1	52SC6AX	SIEMENS	KEY-OPERATED SWITCH UNIT, SWITCHING SEQUENCE O-I, KEY REMOVAL POSITION O
			*3	52BAK	SIEMENS	1 NO CONTACT BLOCK
108	KS2372	1	*1	52SC6BF	SIEMENS	KEY-OPERATED SWITCH UNIT, SWITCHING SEQUENCE I-II-III, KEY REMOVAL POSITION I
			*3	52BAK	SIEMENS	1 NO CONTACT BLOCK
			*1	52BAJ	SIEMENS	1 NC CONTACT BLOCK
109	SS2103 SS2117	2	*1	52SX2BDB	SIEMENS	SELECTOR SWITCH UNIT, SWITCHING SEQUENCE
			*2	52BAK	SIEMENS	1 NO CONTACT BLOCK
110	LT1436 LT1536 LT3056 LT3062 LT3068 LT3282 LT3268 LT3304	8		52PL4D3XB	SIEMENS	INDICATOR LIGHT, GREEN, LED, 24V AC/DC
111	LT3054 LT3058 LT3060 LT3064 LT3066 LT3104 LT3154 LT3156 LT3158 LT3160 LT3162 LT3164 LT3212 LT3214 LT3216 LT3218 LT3264 LT3266	18		52PL4D9XB	SIEMENS	INDICATOR LIGHT, AMBER, LED, 24V AC/DC
120	CBL2911 CBL2925 CBL2962 CBL2963 CBL2964 CBL2965 CBL2966 CBL2967	8	*5	6XV1840-2AH10	SIEMENS	IE FC TP STANDARD CABLE GP2X2
			*2	6GK1901-1BB10-2AA0	SIEMENS	PROFINET CONNECTOR, RJ-45, 180 DEGREE
150		1	*1	8901.660	RITTAL	TS8 DISCONNECT ENCLOSURE
			*1	8106.235	RITTAL	TS8 ENCLOSURE SIDE WALL
			*1	8609.060	RITTAL	TS8 ENCLOSURE DIVIDER PANEL
151		1	*1	8601.920	RITTAL	TS8 DISCONNECT ENCLOSURE BASE FRONT/REAR PLINTH
			*1	8601.060	RITTAL	TS8 ENCLOSURE BASE SIDE PLINTH
152		1	*1	8806.500	RITTAL	TS8 ENCLOSURE
			*1	8106.235	RITTAL	TS8 ENCLOSURE SIDE WALL
153		1	*1	8601.800	RITTAL	TS8 ENCLOSURE BASE FRONT/REAR PLINTH
			*1	8601.060	RITTAL	TS8 ENCLOSURE BASE SIDE PLINTH
156	AC4253	1		3329.540	RITTAL	WALL MOUNTED AIR CONDITIONER
157	LS4260	1		4127.010	RITTAL	LIMIT SWITCH – DOOR

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann and partner lp
Structural Consulting Engineers
205 8th Avenue, Suite 2402
New York, NY 10003

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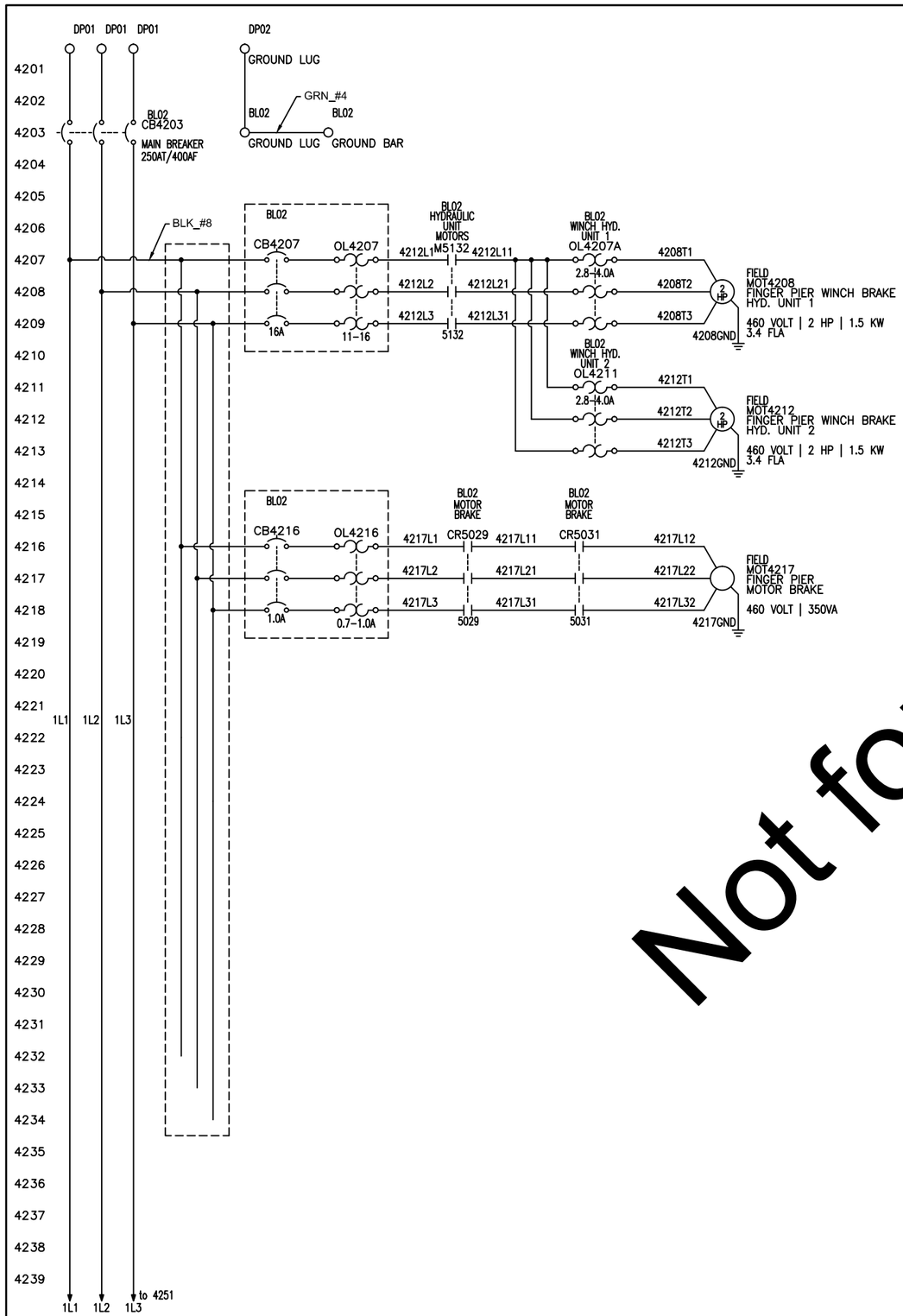
BL01 – ENCLOSURE BILL OF MATERIAL
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE



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1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann and partner lp
Structural Consulting Engineers
505 8th Avenue, Suite 2402
New York, NY 10018

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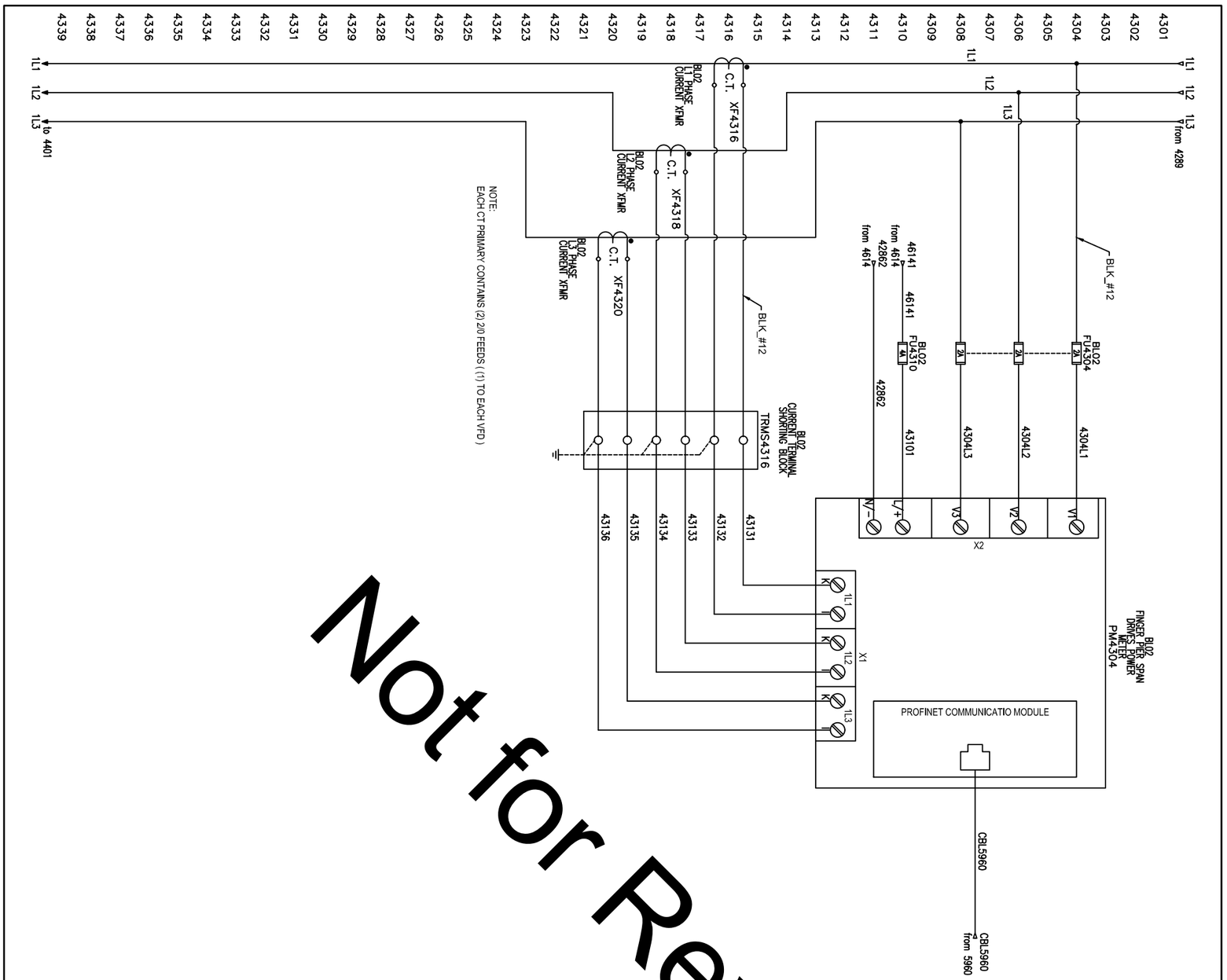
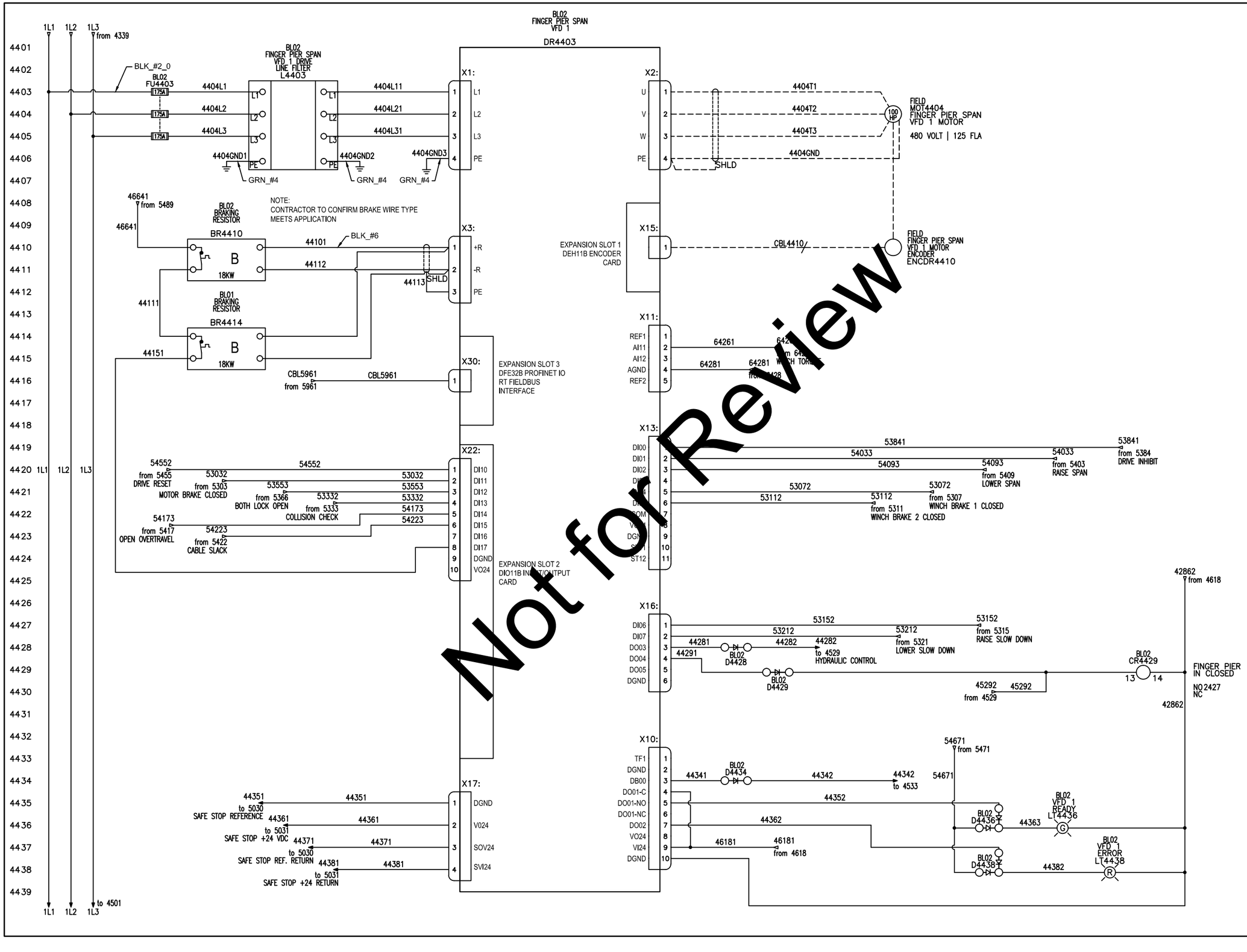
BL02 480 VOLT SCHEMATIC DIAGRAM
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E42



425/165	E43	CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE	BL02 480 VOLT SCHEMATIC DIAGRAM CURVED SYMMETRICAL BASCULE BRIDGE	DESIGNED DN	DRAWN BR	REVIEWED TK	DATE 03/31/14	schlaich bergermann and partner lp Structural Consulting Engineers 555 8th Avenue, Suite 2402 New York, NY 10018
				CHECKED WJC	REVISED –	STRUCTURE FILE NUMBER –		DESIGN AGENCY CPM Smith 1468 W. 9TH STREET, SUITE 750 CLEVELAND, OHIO 44113



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CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann und partner lp
Structural Consulting Engineers
353 8th Avenue, Suite 2402
New York, NY 10001

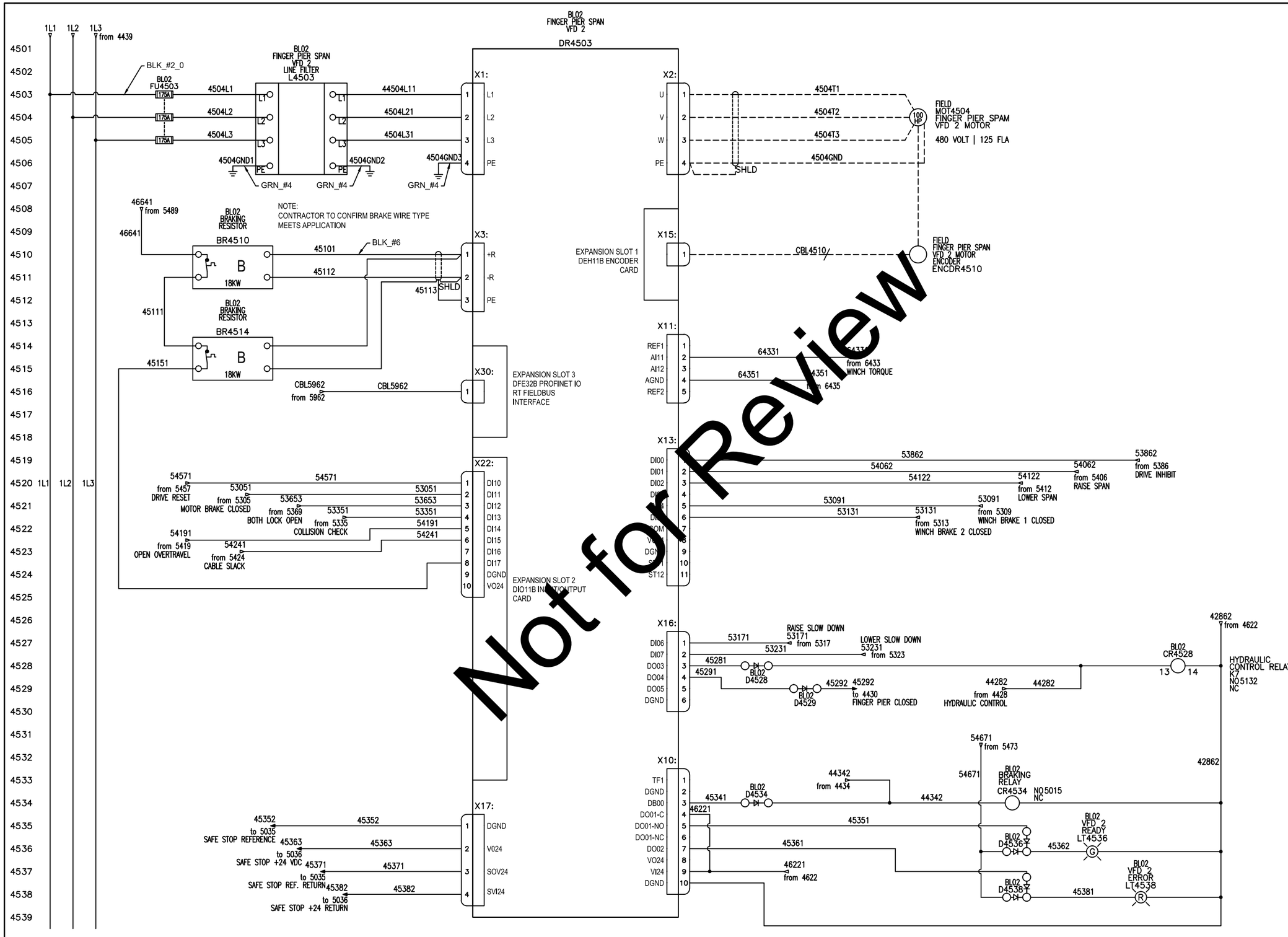
DATE 03/31/14
REVIEWED TK
STRUCTURE FILE NUMBER –
DRAWN BR
REVISED –
DESIGNED DN
CHECKED WJC

BL02 480 VOLT SCHEMATIC DIAGRAM
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E44

126
165



DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann und partner lp
Structural Consulting Engineers
505 8th Avenue, Suite 2402
New York, NY 10018

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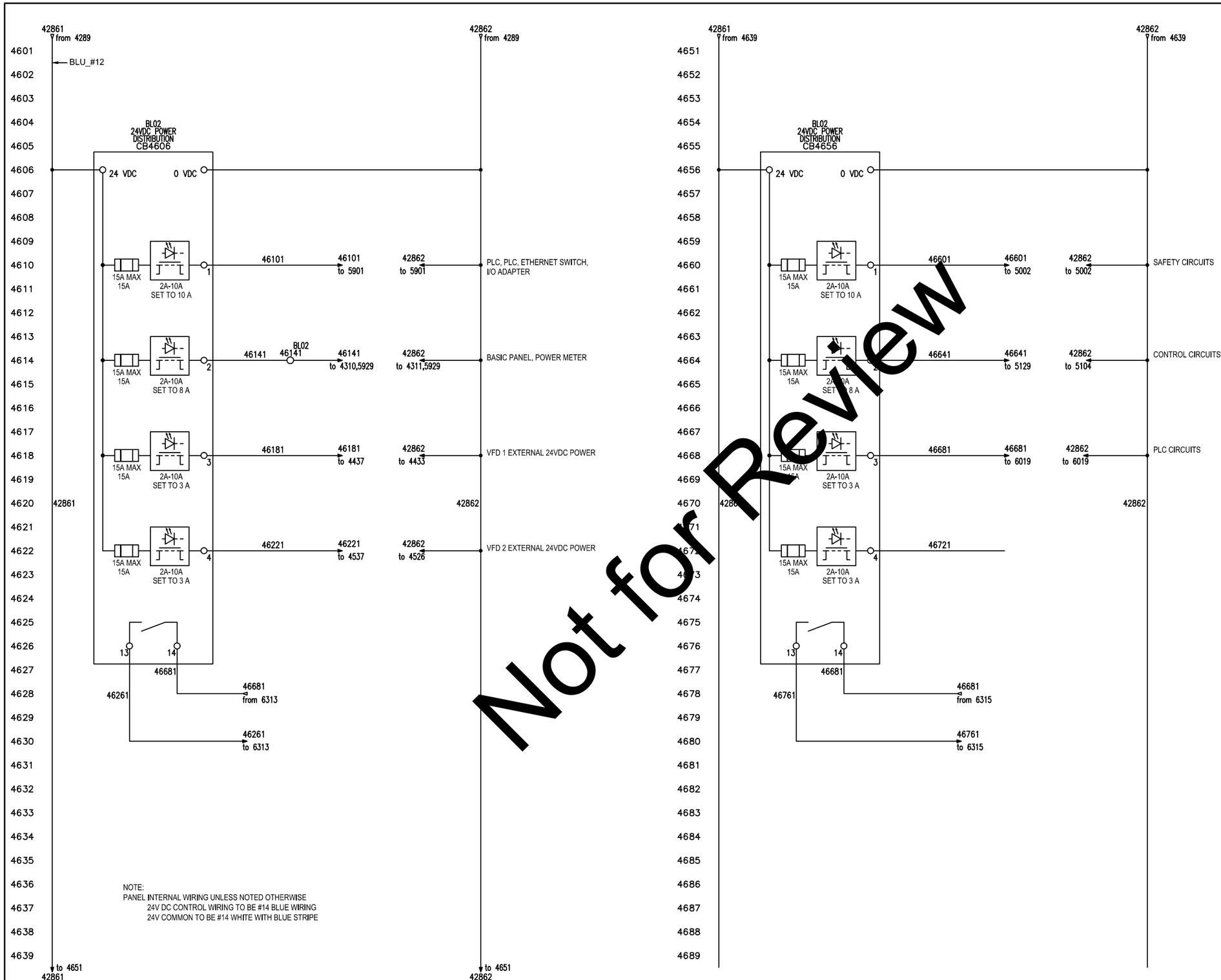
BL02 480 VOLT SCHEMATIC DIAGRAM
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E45

127
165



NOTE:
PANEL INTERNAL WIRING UNLESS NOTED OTHERWISE
24V DC CONTROL WIRING TO BE #14 BLUE WIRING
24V COMMON TO BE #14 WHITE WITH BLUE STRIPE

DESIGN AGENCY
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New York, NY 10018

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BL02 PANEL DC POWER DISTRIBUTION
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E46

128
165

DESIGN AGENCY
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CLEVELAND, OHIO 44113

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WJC	–	–	

BL02 PANEL SAFETY CIRCUIT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E49

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann und partner lp
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909 8th Avenue, Suite 2402
New York, NY 10019

DESIGNED DN | DRAWN BR | REVIEWED TK | DATE 03/31/14
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BL02 PANEL SAFETY CIRCUIT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E50

130
165

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann and partner lp
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505 8th Avenue, Suite 2402
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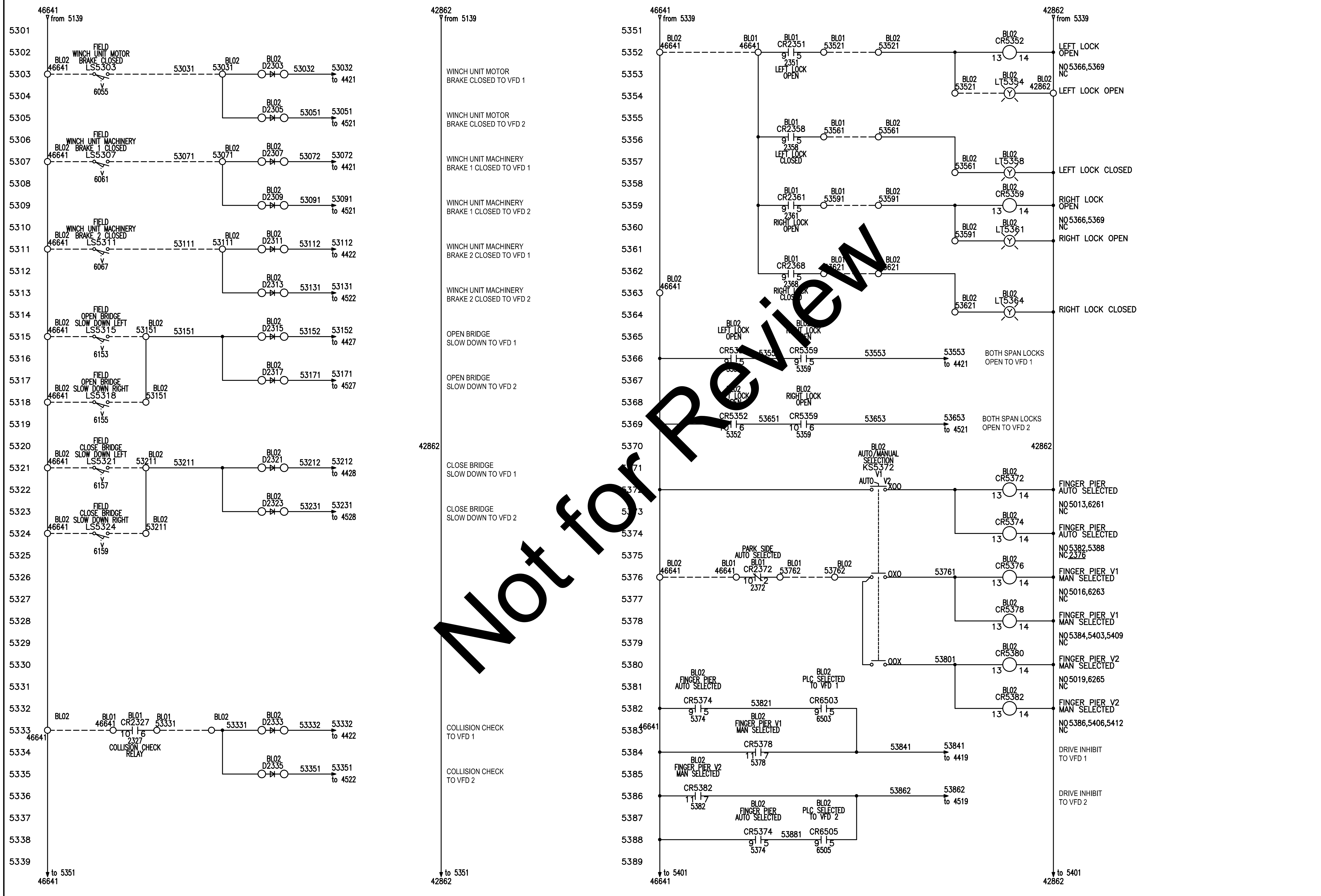
CHECKED WJC | REVISED – | STRUCTURE FILE NUMBER –

BL02 PANEL SAFETY CIRCUIT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E51



DESIGN AGENCY CDM Smith 1468 W. 9TH STREET, SUITE 750 CLEVELAND, OHIO 44113

schlaich bergermann and partner lp Structural Consulting Engineers 555 8th Avenue, Suite 2402 New York, NY 10018

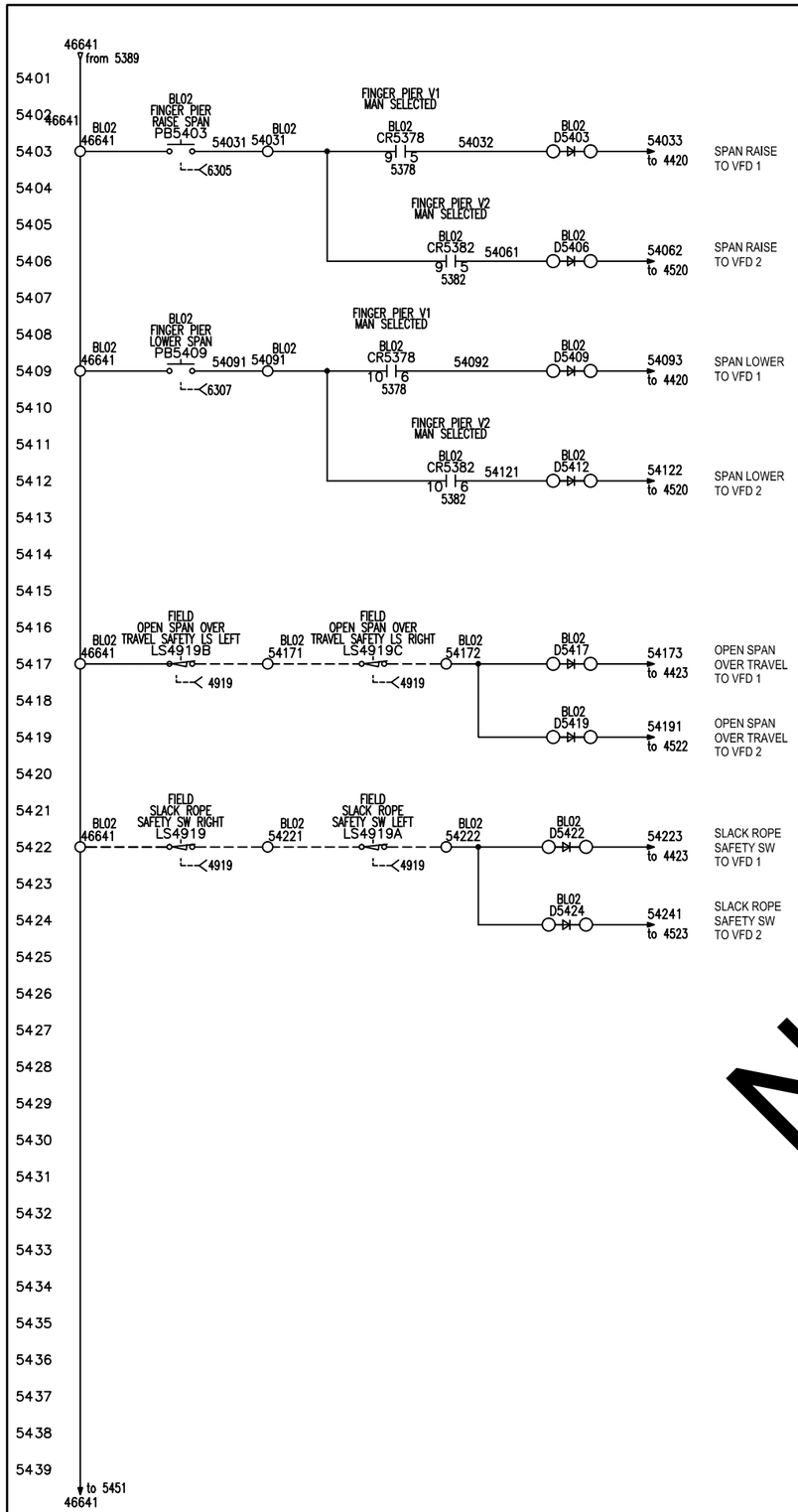
DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14

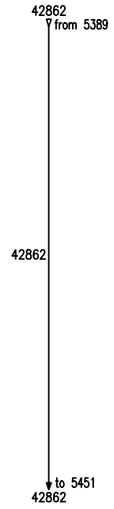
CHECKED	REVISED	STRUCTURE FILE NUMBER
WJC	–	–

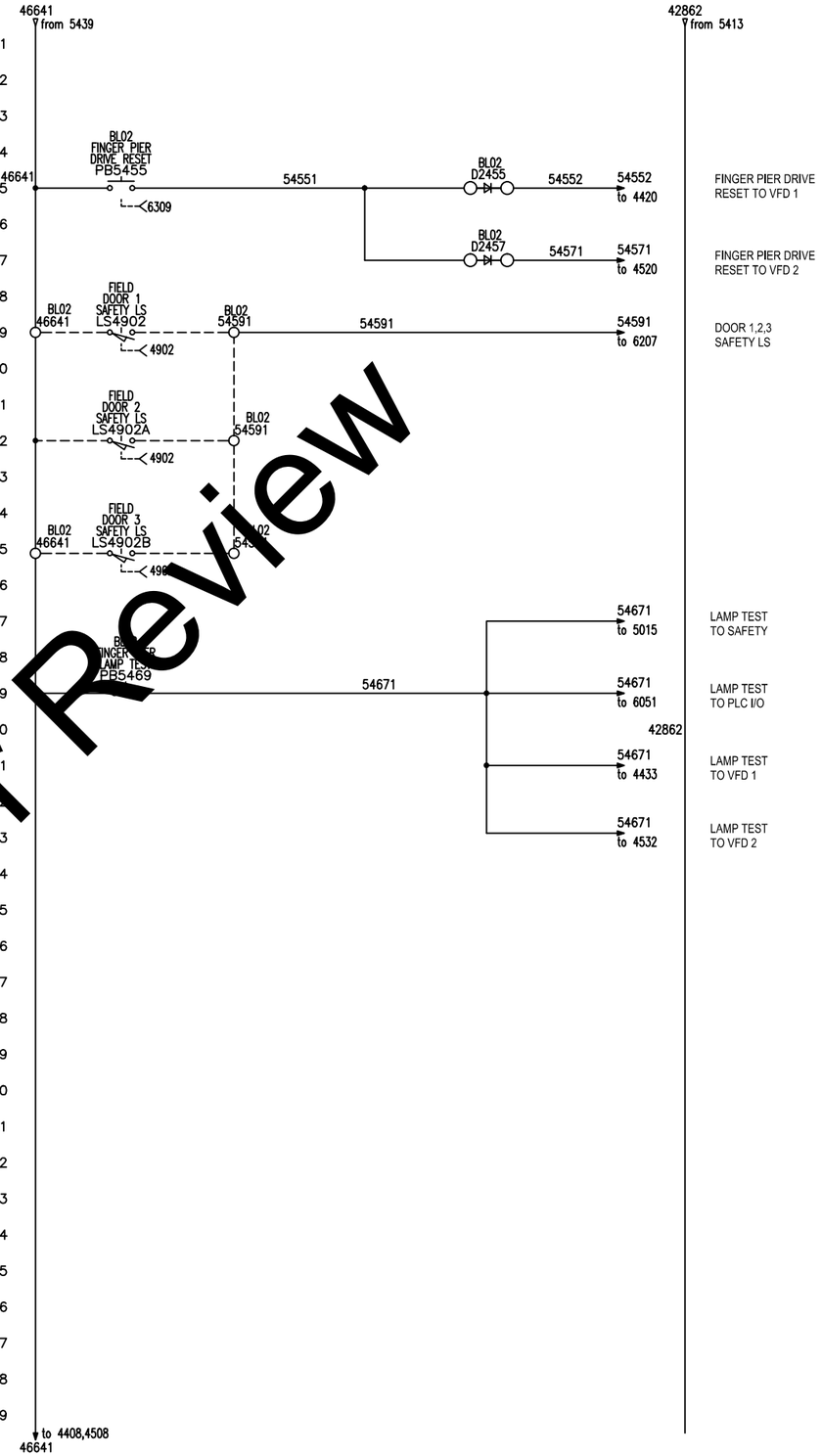
BL02 CONTROL SCHEMATIC DIAGRAM
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E53







DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann and partner lp
Structural Consulting Engineers
205 8th Avenue, Suite 2402
New York, NY 10003

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STRUCTURE FILE NUMBER –
DRAWN BR
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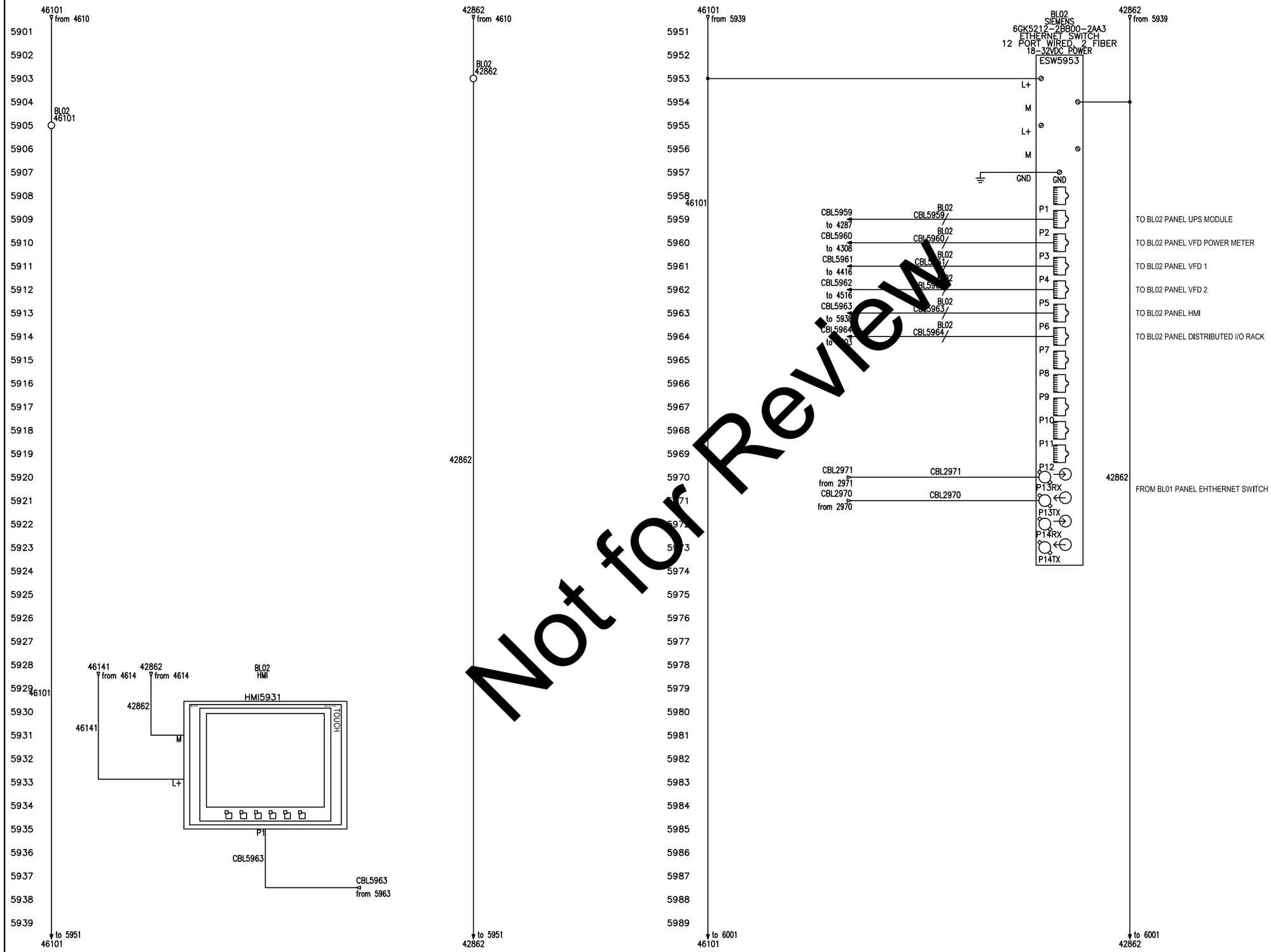
BL02 CONTROL SCHEMATIC DIAGRAM
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E54

133
165



DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

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Structural Consulting Engineers
505 8th Avenue, Suite 2402
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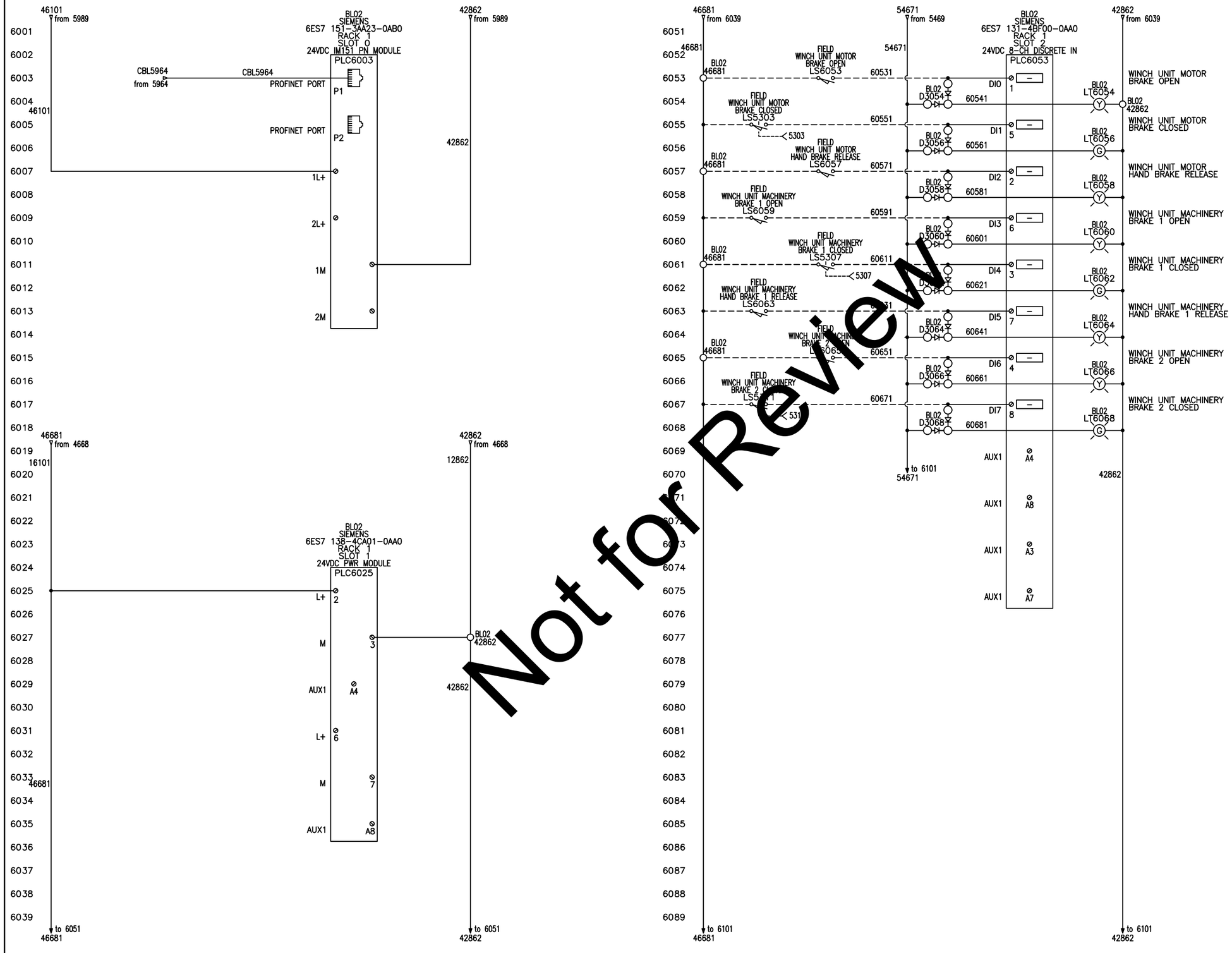
BL02 PLC'S AND ETHERNET SWITCHES
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E59

134
165



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CPM Smith
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CLEVELAND, OHIO 44113

schlaich bergermann und partner lp
Structural Consulting Engineers
205 8th Avenue, Suite 2402
New York, NY 10003

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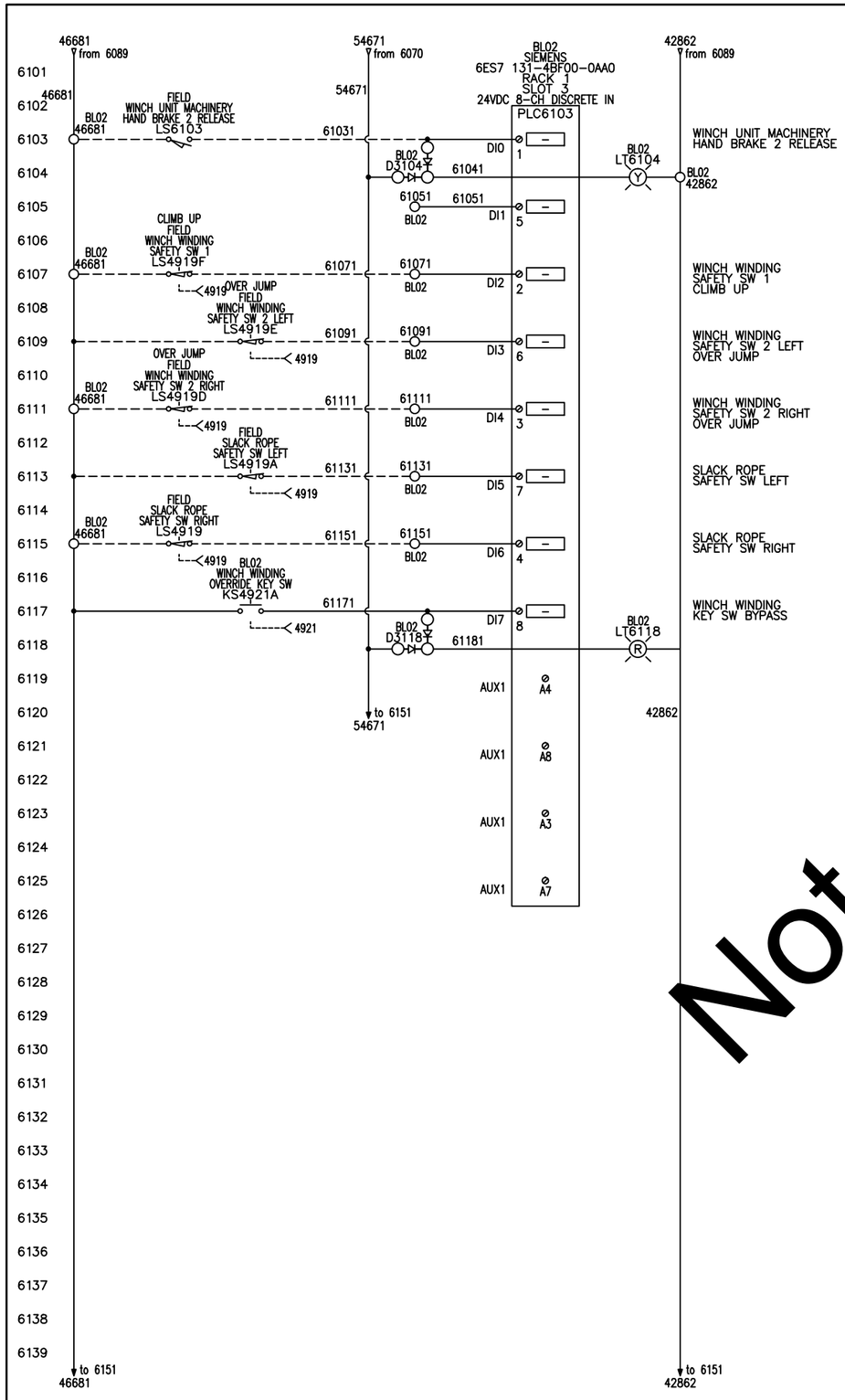
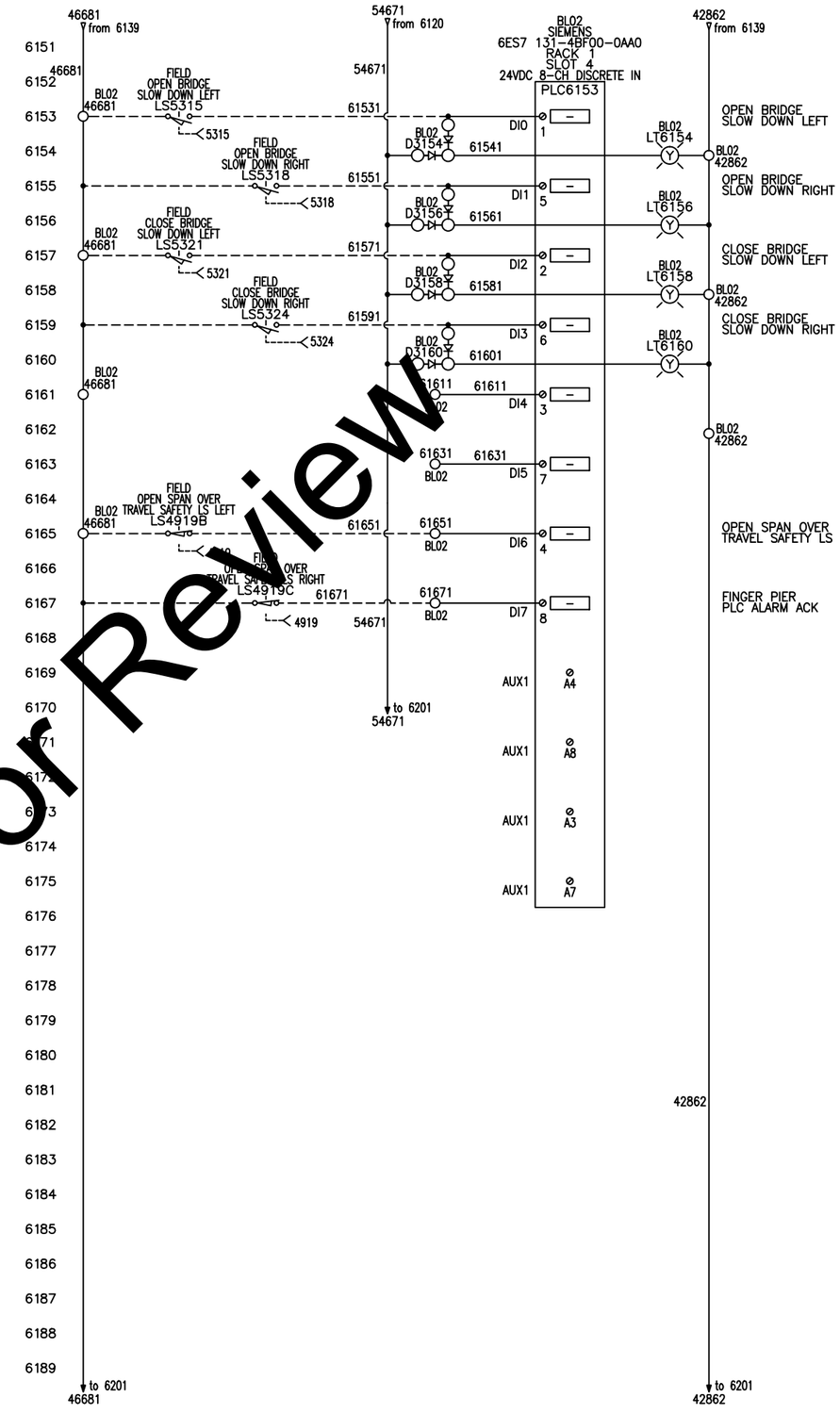
DRAWN BR
CHECKED WJC
REVIEWED TK
DATE 03/31/14
REVISED -
STRUCTURE FILE NUMBER -

BL02 I/O SCHEMATIC, SHT 1 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E60





DESIGN AGENCY
CPM Smith
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CLEVELAND, OHIO 44113

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Structural Consulting Engineers
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New York, NY 10003

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WJC	-	-	

BL02 I/O SCHEMATIC, SHT 2 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E61

136
165

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann and partner lp
Structural Consulting Engineers
333 8th Avenue, Suite 4402
New York, NY 10001

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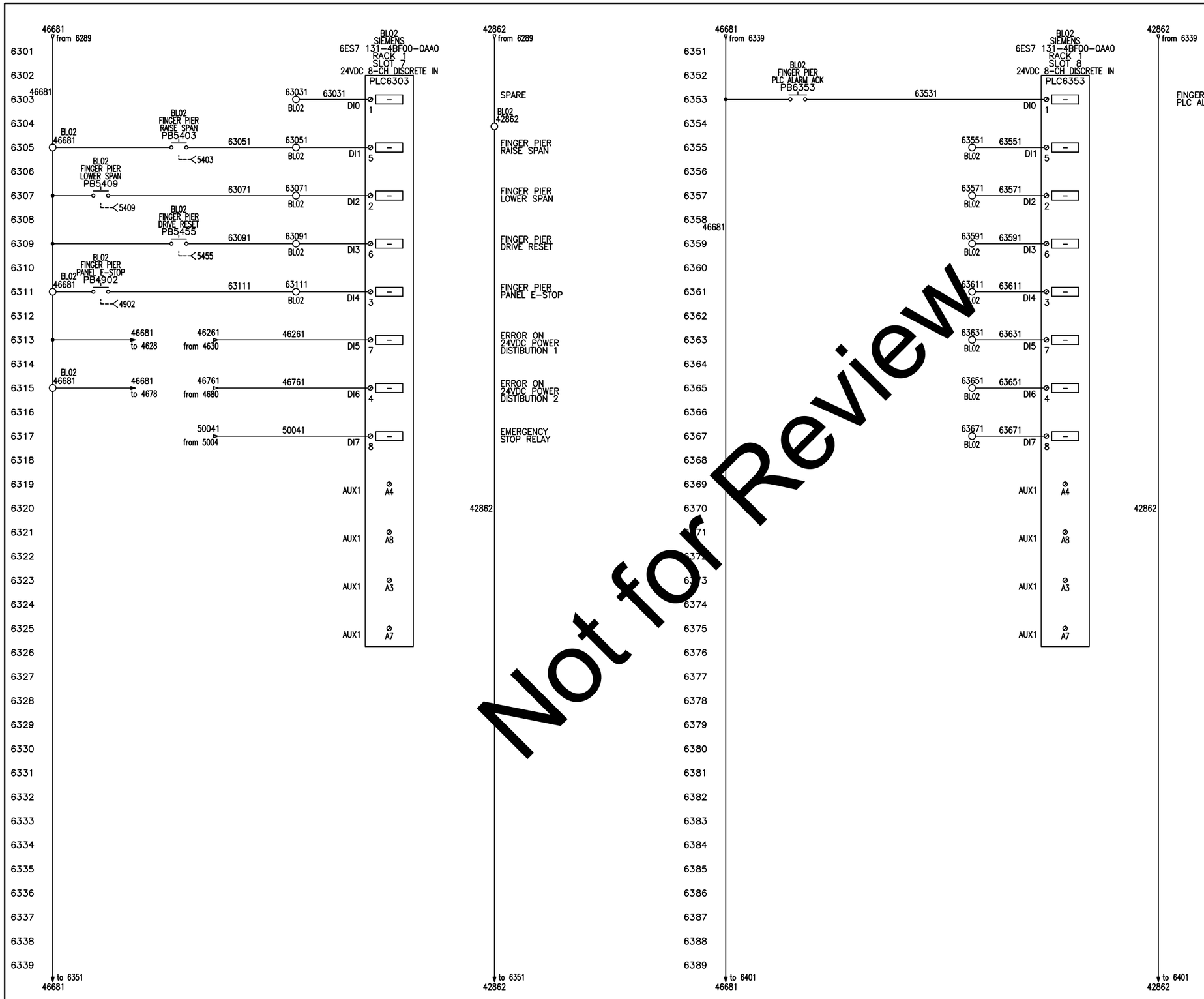
WJC	-	-	

BL02 I/O SCHEMATIC, SHT 3 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E62

137
165



DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113
schlaich bergermann and partner lp
Structural Consulting Engineers
333 8th Avenue, Suite 2402
New York, NY 10001

DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14
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WJC	-	-	

BL02 I/O SCHEMATIC, SHT 4 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E63

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann und partner lp
Structural Consulting Engineers
505 8th Avenue, Suite 2402
New York, NY 10018

DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14
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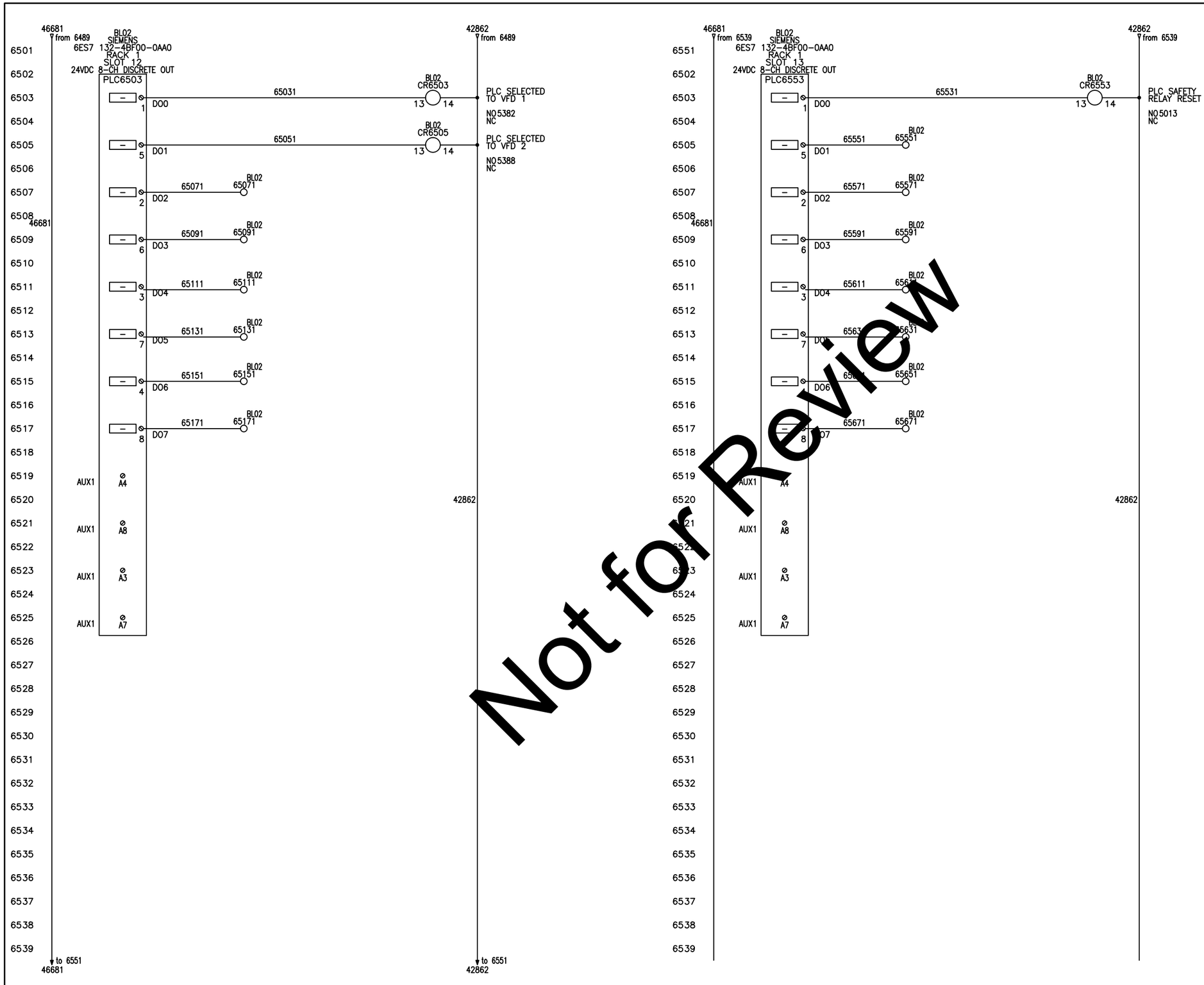
WJC	-	-	

BL02 I/O SCHEMATIC, SHT 5 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E64



DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann and partner lp
Structural Consulting Engineers
205 8th Avenue, Suite 2402
New York, NY 10011

DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14
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WJC	-	-	

BL02 I/O SCHEMATIC, SHT 6 OF 6
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E65

NOTE:
1. LEGENDS ARE TO BE WHITE LETTERING ON BLACK BACKGROUND.
2. LEGENDS ARE TO BE SCREWED DOWN EXCEPT FOR OPERATOR RING LEGENDS.
3. E-STOP LEGENDS TO BE BLACK LETTERING ON YELLOW BACKGROUND.

TS LISTING

42682	46681	49228	SP
42682	46681	49229	SP
42682	46681	49229	SP
42682	46681	49229	65071
42682	46681	49229	65091
42682	46681	50131	65111
42682	46681	50132	65131
42682	46681	50152	65151
42682	46681	50152	65171
42682	46681	50152	65551
42682	46681	50161	65571
42682	46681	51352	65591
SP	46681	51382	65611
SP	46681	SP	65631
SP	46681	SP	65651
46101	46681	53031	65671
46141	46681	53071	SP
SP	46681	53111	SP
SP	46681	53151	SP
46641	46681	53211	SP
46641	46681	53211	19025
46641	46681	53331	19026
46641	46681	53531	19055
46641	46681	53521	19056
46641	46681	53561	21031
46641	46681	53591	21032
46641	46681	53621	21031
46641	46681	53762	21101
46641	46681	54031	21031
46641	46681	54091	21171
46641	46681	54171	21031
46641	46681	54172	21241
46641	SP	54221	SP
46641	SP	54222	SP
46641	49021	54591	SP
46641	49021	54591	
46641	49021	54591	
46641	49021	SP	
46641	49021	SP	
SP	49022	61051	
SP	49023	61071	
SP	49024	61091	
SP	49024	61111	
SP	49025	61131	
	49027	61151	
	49028	61611	
	49051	61631	
	49051	61651	
	49051	61671	
	49051	62051	
	49051	62111	
	49052	62131	
	49053	62151	
	49054	62531	
	49054	62551	
	49055	62571	
	49057	62591	
	49058	62671	
	49191	63031	
	49192	63051	
	49193	63071	
	49194	63091	
	49194	63111	
	49195	63551	
	49196	63571	
	49197	63591	
	49197	63611	
	49198	63631	
	49198	63651	
	49199	63671	
	49221	SP	
	49222	SP	
	49223	42862	
	49224	46681	
	49224	64031	
	49225	64032	
	49226	SHLD	
	49227	SP	
	49227	SP	
	49228	SP	

SINGLE DIODE TS LISTING

IN	OUT
44281	44282
44291	45292
44341	44342
45281	44282
45291	45292
45341	44342
53031	53032
53031	53051
53071	53072
53071	53091
53111	53112
53111	53131
53151	53152
53151	53171
53211	53212
53211	53231
53331	53332
53331	53351
54032	54033
54061	54062
54092	54093
54121	54122
54172	54173
54172	54191
54222	54223
54222	54241
54552	54551
54552	54571

2-TIER DIODE TS LISTING

TOP IN	BOTTOM IN	BOTTOM OUT
44352	54671	44363
44362	54671	44382
45351	54671	45362
45361	54671	45381
50181	54671	50182
60531	54671	60541
60551	54671	60561
60571	54671	60581
60591	54671	60601
60611	54671	60621
60631	54671	60641
60651	54671	60661
60671	54671	60681
61031	54671	61041
61171	54671	61181
61531	54671	61541
61551	54671	61561
61571	54671	61581
61591	54671	61601
62031	54671	62041
62091	54671	62101
62611	54671	62621
62631	54671	62641
62651	54671	62661

TRMS4316 LISTING

43131
43132
43133
43134
43135
43136

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann and partner lp
Structural Consulting Engineers
505 8th Avenue, Suite 2402
New York, NY 10018

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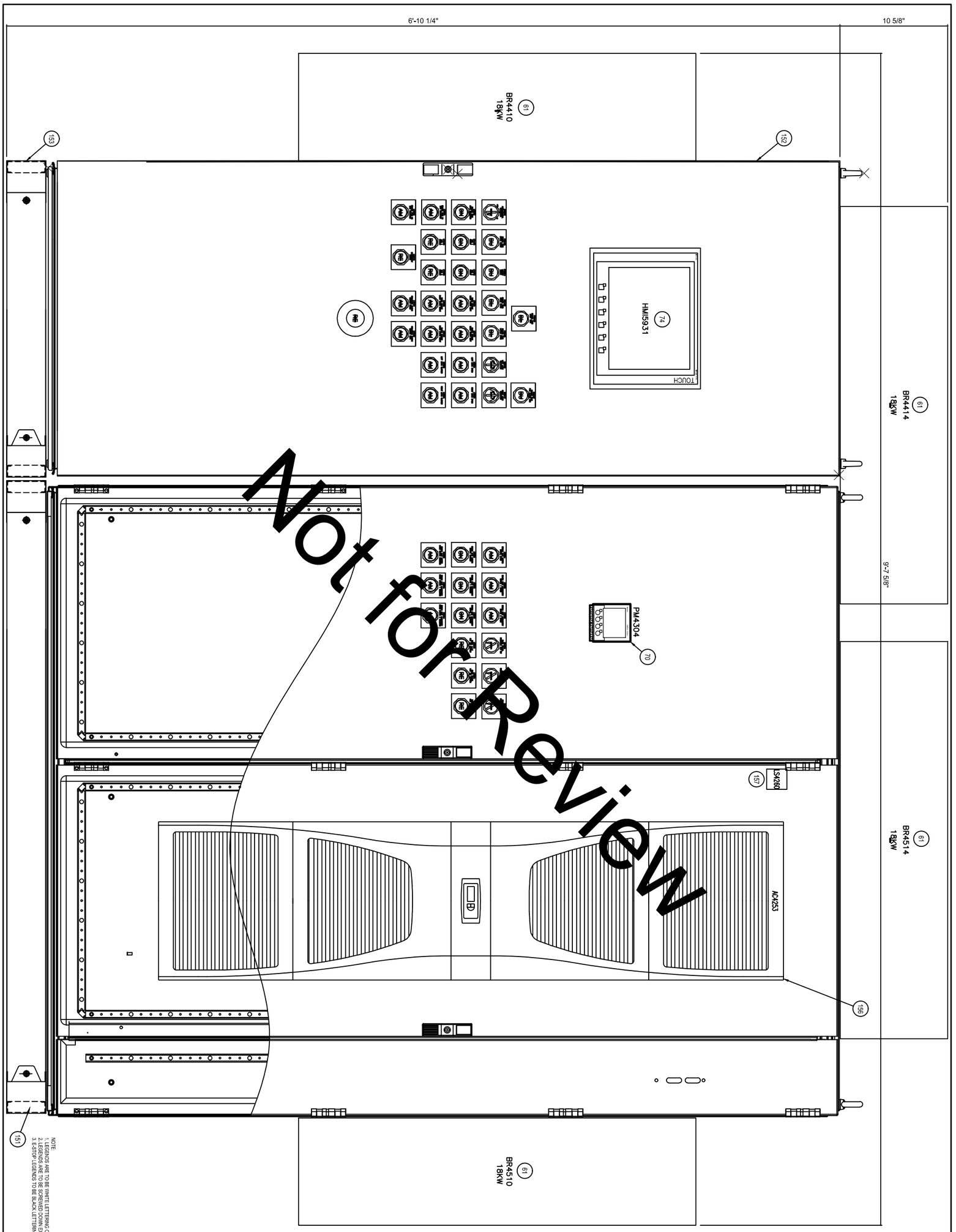
WJC	–	–	

BL02 – ENCLOSURE BACKPANEL LAYOUT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

E67



NOTE:
1. LEGENDS ARE TO BE WHITE LETTERING ON BLACK BACKGROUND.
2. LEGENDS ARE TO BE RED LETTERING ON YELLOW BACKGROUND.
3. ESTOP LABELS TO BE BLACK LETTERING ON YELLOW BACKGROUND.

142/165	E68	CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE	BL02 – ENCLOSURE LAYOUT CURVED SYMMETRICAL BASCULE BRIDGE	DESIGNED DN	DRAWN BR	REVIEWED TK	DATE 3/31/14	schlaich bergermann and partner lp Structural Consulting Engineers 555 8th Avenue, Suite 2402 New York, NY 10018	DESIGN AGENCY CPM Smith 1468 W. 9TH STREET, SUITE 750 CLEVELAND, OHIO 44113
				CHECKED WJC	REVISED –	STRUCTURE FILE NUMBER –			

NOTE:
1. LEGENDS ARE TO BE WHITE LETTERING ON BLACK BACKGROUND.
2. LEGENDS ARE TO BE SCREWED DOWN EXCEPT FOR OPERATOR RING LEGENDS.
3. E-STOP LEGENDS TO BE BLACK LETTERING ON YELLOW BACKGROUND.

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

schlaich bergermann und partner lp
Structural Consulting Engineers
205 8th Avenue, Suite 2402
New York, NY 10003

DESIGNED DN | DRAWN BR | REVIEWED TK | DATE 03/31/14
CHECKED WJC | REVISED – | STRUCTURE FILE NUMBER –

BL02 – ENCLOSURE OPERATOR LAYOUT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E69

ITEM	TAGS	QTY	SUB	CATALOG	MFG	DESCRIPTION
3		1		LAMA2	PANDUIT	GROUND LUG
4		1		PK23GTA	SQD	GROUND BUS
5	CB4203	1	*1	HJG3B250L	SIEMENS	MOLDED CASE CIRCUIT BREAKER JG 400A FRAME/VL, UP TO 65kA/480V
			*1	3TA6JG20	SIEMENS	CIRCUIT BREAKER ACCESSARY – DISTRIBUTION LUGS
			*1	MFHM3RS	SIEMENS	FLANGE MOUNTED DISCONNECT HANDLE, STEEL, NEMA 1, 3R,12
			*1	MFML	SIEMENS	MOLDED CASE CIRCUIT BREAKER OPERATOR MECHANISM
			*1	MFCM060	SIEMENS	MOLDED CASE CIRCUIT BREAKER MAX–FLEX OPERATOR CABLE, 60"
6	FU4403 FU4503	2	*1	JM60200–3CR	BUSSMANN	3 POLE FUSE BLOCK – CLASS J, 400A
			*3	DFJ–175	BUSSMANN	FUSE – CLASS J
			*3	CVRI–J–60200	BUSSMANN	FUSE BLOCK COVER, 200A, W INDICATION
7	L4403 L4503	2		NF–210–503	SEW	LINE FILTER: 210A, 400/500VAC
8	XF4318 XF4318 XF4320	3		PDS–CTRC–022	SIEMENS	CURRENT TRANSFORMER, 200:5
9	FU4310	1	*1	GMD–4–R	BUSSMANN	FUSE – 4A, 250V, TIME DELAY
			*1	8WA2 000–1KG38	SIEMENS	8WA2 SINGLE TERMINAL – SIZE 2.5
10	FU4304	1	*1	CHCC3DIU	BUSSMANN	3 POLE FUSE BLOCK – CLASS CC, W/INDICATOR
			*1	LP–CC–2	BUSSMANN	FUSE – CLASS CC
11	CB4207	1		3RV2011–4AA15	SIEMENS	MOTOR STARTER PROTECTOR
12	CB4216	1		3RV2011–0JA15	SIEMENS	CIRCUIT BREAKER – 3 POLE, 0.7–1.0A
15		1		3RV2925–5AB	SIEMENS	CIRCUIT BREAKER – 3 PHASE FEEDER TERMINALS
16		1		3RV1915–1AB	SIEMENS	CIRCUIT BREAKER – THREE PHASE BUSBAR
17	M5132	1		3RT2016–1FB41–0UA0	SIEMENS	IEC – NEMA LABEL CONTACTOR – SIRIUS 3RA2
18	OL4207A OL4211	2		3RU21 16–1EB1	SIEMENS	OVERLOAD RELAY, CLASS 10
19	TRMS4316	1		IKU6SC	SIEMENS	SHORTING BLOCK
20	CR5029 CR5031	2		3RT2015–1BB44–3MA0–0UA0	SIEMENS	RELAY – CONTROL
22	CB4282	1		3RV2711–1DD10	SIEMENS	SIRIUS 3RV2 MOTOR STARTER PROTECTOR / CIRCUIT BREAKER, UL489, 3.2A
23	CB4253	1		3RV2811–1HD10	SIEMENS	SIRIUS 3RV2 MOTOR STARTER PROTECTOR / CIRCUIT BREAKER, UL489, 8A
25	UPS4283	1		6EP4 136–3AB00–2AY0	SIEMENS	UNINTERRUPTIBLE POWER SUPPLY, 24VDC, 20A, W/PROFINET COMMUNICATIONS
26	BAT4283	1		6EP4 134–0GB00–0AY0	SIEMENS	24VDC BATTERY MODULE – 20A, 24VDC OUTPUT,
27	PWS4282	1		6EP1436–3BA10	SIEMENS	POWER SUPPLY, THREE–PHASE w/20A OUTPUT CURRENT, TYPE 6EP1436–3BA10
28	CB4606 CB4656	2		6EP1961–2BA00	SIEMENS	SITOP SELECT DIAGNOSTIC MODULE, 4 CIRCUIT, 2–10A RANGE
30	CR4534 CR5033 CR5035 CR5037 CR5039	5		3RH2131–1MB40–0KT0	SIEMENS	COUPLING CONTACTOR RELAY
31	CR4528 CR5352 CR5359 CR5372 CR5374 CR5376 CR5378 CR5380 CR5382	9	*1	3TX7111–3PC03	SIEMENS	PLUG–IN RELAY TYPE PREMIUM LINE, MINIATURE
			*1	3TX7144–4E5	SIEMENS	PLUG–IN RELAY SOCKET
32	CR6503 CR6505 CR6553	3	*1	3TX7111–3LC03	SIEMENS	PLUG–IN RELAY TYPE PREMIUM LINE, MINIATURE
			*1	3TX7144–4E5	SIEMENS	PLUG–IN RELAY SOCKET
35	FR6427 FR6434	2		3RS1703–1DE00	SIEMANS	INTERFACE CONVERTER, 4–20MA TO 4–20MA, 3–WAY ISOLATION, ACTIVE
36	SMR5002	1	*1	750 104	PILZ	POSITIVE–GUIDED RELAY OUTPUTS: 3 SAFETY CONTACTS (N/O), INSTANTA
			*1	750 111	PILZ	POSITIVE–GUIDED RELAY OUTPUTS: 8 SAFETY CONTACTS (N/O), INSTANTA
42	PLC6003	1		6ES7 151–3AA23–0AB0	SIEMENS	IM 151 PN FOR ET200S TO PROFINET
46	PLC6053 PLC6103 PLC6153 PLC6203 PLC6253 PLC6303 PLC6353	7	*1	6ES7 131–4BF00–0AA0	SIEMENS	SIMATIC ET 200S 8DI 24 VDC/SRC STANDARD DIGITAL ELECTRONIC MODULE w/SCREW–TYPE TERMINAL BLOCK TYPE 15S26–A1
			*1	6ES7 193–4CA40–0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM–E15S26–A1 (SCREW–TYPE TERMINAL)
47	PLC6503 PLC6553	2	*1	6ES7 132–4BF00–0AA0	SIEMENS	SIMATIC ET 200S 8DO 24 VDC/SRC STANDARD DIGITAL ELECTRONIC MODULE w/SCREW–TYPE TERMINAL BLOCK TYPE 15S26–A1
			*1	6ES7 193–4CA40–0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM–E15S26–A1 (SCREW–TYPE TERMINAL)
48	ESW5953	1		6GK5212–2BB00–2AA3	SIEMENS	SCALANCE ETHERNET SWITCH, 12 PORT, MANAGED, 24VDC
49	PLC6025 PLC6478	2		6ES7 138–4CA01–0AA0	SIEMENS	SIMATIC ET 200S POWER MODULE, TYPE PM–E 24 VDC w/SCREW–TYPE TERMINAL BLOCK TYPE 15S23–A0
50	PLC6403	1	*1	6ES7 134–4GB01–0AB0	SIEMENS	SIMATIC ET 200S 2AI I 2WIRE STANDARD ANALOG ELECTRONIC MODULE w/SCREW–TYPE TERMINAL BLOCK TYPE 15S26–A1
			*1	6ES7 193–4CA40–0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM–E15S26–A1 (SCREW–TYPE TERMINAL)
60	DR4403 DR4503	2	*1	MDX61B0900–503–4–0T/DEH11B/DFE32B/DIO11B	SEW	MOVIDRIVE, 90KW
			*1	DFE32B	SEW	MOVIDRIVE PROFINET IO RT FIELDBUS INTERFACE MODULE
			*1	DIO11B	SEW	MOVIDRIVE INPUT OUTPUT MODULE
			*1	DBG60B–01	SEW	MOVIDRIVE OPERATOR TERMINAL
			*1	USB11A	SEW	MOVIDRIVE INTERFACE ADAPTER
			*1	DEH11B	SEW	MOVIDRIVE HYPERFACE ENCODER CARD OPTION MODULE
61	BR4410 BR4414 BR4510 BR4514	4		BW206–T	SEW	BRAKING RESISTOR – ENCLOSED – NEMA 1 – 18KW
70	PM4304	1	*1	7KM4 211–1BA00–3AA0	SIEMENS	POWER METER, TRUE RMS VOLTAGE AND PHASE CURRENT METER
			*1	7KM9 300–0AE01–0AA0	SIEMENS	POWER METER, PROFINET COMMUNICATION MODULE
74	HMI5931	1		6AV2123–2JB03–0AX0	SIEMENS	BASIC PANEL 900, 2ND GEN, OPERATOR TERMINAL, PN COMMUNICATIONS
77		2		8WH9020–6CT10	SIEMENS	JUMPER BAR
78		10		8WH9020–6CC10	SIEMENS	JUMPER BAR
79		1		8WH9020–6BT10	SIEMENS	JUMPER BAR
80		14		8WH9150–0CA00	SIEMENS	QUICK FIT END RETAINERS
81		30		8WH1 000–6KG00	SIEMENS	8WH1 SINGLE TERMINAL – SIZE 2.5
82		1		8WH9 000–2PA00	SIEMENS	BARRIER
83		30		8WH1 020–5FF00	SIEMENS	8WH1 SINGLE TERMINAL – SIZE 2.5
84		1		8WH9 000–1QA00	SIEMENS	BARRIER
86		4		8WH9 000–1PA00	SIEMENS	BARRIER
87		268		8WH1 000–0AG00	SIEMENS	8WH1 SINGLE TERMINAL – SIZE 4
89		11		199–DR1	AB	SYMMETRICAL RAIL 35MM X 7.5MM 1M LONG
90		3		G4X4WH6	PANDUIT	WIDE FINGER, SLOTTED WIRING DUCT
91		8		G2X4WH6	PANDUIT	WIDE FINGER, SLOTTED WIRING DUCT
92		6		G3X4WH6	PANDUIT	WIDE FINGER, SLOTTED WIRING DUCT

ITEM	TAGS	QTY	SUB	CATALOG	MFG	DESCRIPTION
100	PB4902	1		52PP2W2D	SIEMENS	2 POS PUSH PULL MUSHROOM HEAD DEVICE – NON–ILLUMINATED
101	PB4902	1		52AAR	SIEMENS	NAME PLATE
102	KS4904 KS4921 KS4921A KS5372 LT4436 LT4438 LT4536 LT4538 LT5018 LT5354 LT5358 LT5361 LT5364 LT6054 LT6056 LT6058 LT6060 LT6062 LT6064 LT6066 LT6068 LT6104 LT6118 LT6154 LT6156 LT6158 LT6160 LT6204 LT6210 LT6262 LT6264 LT6266 PB5019 PB5403 PB5409 PB5455 PB5469 PB6353 SS5103 SS5117	40		52NA02B	SIEMENS	NAME PLATE
103	LT4438 LT4538 LT5018 LT6118 LT6204 LT6210	6		52PL4D2XB	SIEMENS	INDICATOR LIGHT, RED, LED, 24V AC/DC
105	PB5019 PB5455 PB6353	3		52PM8A5	SIEMENS	2 POS MOMENTARY PUSH – BUTTON DEVICE – NON–ILLUMINATED
106	PB5403 PB5409 PB5469	3		52PM2A5	SIEMENS	2 POS MOMENTARY PUSH – BUTTON DEVICE – NON–ILLUMINATED
107	KS4904 KS4921 KS4921A	3		52SC8BX	SIEMENS	KEY–OPERATED SWITCH UNIT, SWITCHING SEQUENCE O–I, KEY REMOVAL POSITION O
				52BAK	SIEMENS	1 NO CONTACT BLOCK
108	KS5372		*1	52SC8BF	SIEMENS	KEY–OPERATED SWITCH UNIT, SWITCHING SEQUENCE I–II–III, KEY REMOVAL POSITION I
			*3	52BAK	SIEMENS	1 NO CONTACT BLOCK
			*1	52BAJ	SIEMENS	1 NC CONTACT BLOCK
	SS5103 SS5117		*1	52SX2BDB	SIEMENS	SELECTOR SWITCH UNIT, SWITCHING SEQUENCE
			*2	52BAK	SIEMENS	1 NO CONTACT BLOCK
110	LT4536 LT6056 LT6062 LT6068 LT6262	6		52PL4D3XB	SIEMENS	INDICATOR LIGHT, GREEN, LED, 24V AC/DC
111	LT5354 LT5358 LT5361 LT5364 LT6054 LT6058 LT6060 LT6064 LT6066 LT6104 LT6154 LT6156 LT6158 LT6160 LT6264 LT6266	16		52PL4D9XB	SIEMENS	INDICATOR LIGHT, AMBER, LED, 24V AC/DC
120	CBL5959 CBL5960 CBL5961 CBL5962 CBL5963 CBL5964	6	*5	6XV1840–2AH10	SIEMENS	IE FC TP STANDARD CABLE GP2X2
			*2	6GK1901–1BB10–2AA0	SIEMENS	PROFINET CONNECTOR, RJ–45, 180 DEGREE
150		1	*1	8901.660	RITTAL	TS8 DISCONNECT ENCLOSURE
			*1	8106.235	RITTAL	TS8 ENCLOSURE SIDE WALL
			*1	8609.060	RITTAL	TS8 ENCLOSURE DIVIDER PANEL
151		1	*1	8601.920	RITTAL	TS8 DISCONNECT ENCLOSURE BASE FRONT/REAR PLINTH
			*1	8601.060	RITTAL	TS8 ENCLOSURE BASE SIDE PLINTH
152		1	*1	8806.500	RITTAL	TS8 ENCLOSURE
			*1	8106.235	RITTAL	TS8 ENCLOSURE SIDE WALL
153		1	*1	8601.800	RITTAL	TS8 ENCLOSURE BASE FRONT/REAR PLINTH
			*1	8601.060	RITTAL	TS8 ENCLOSURE BASE SIDE PLINTH
156	AC4253	1		3329.540	RITTAL	WALL MOUNTED AIR CONDITIONER
157	LS4260	1		4127.010	RITTAL	LIMIT SWITCH – DOOR

DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

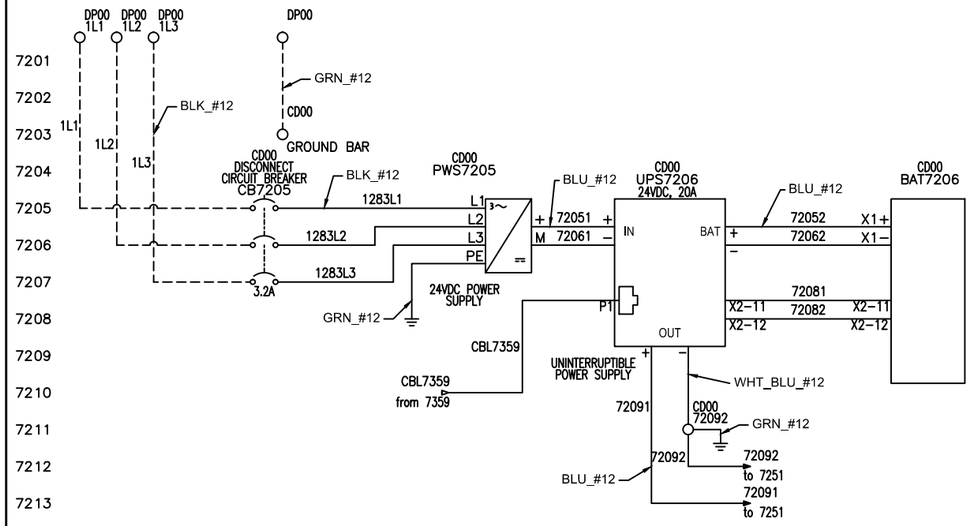
schlaich bergermann und partner lp
Structural Consulting Engineers
505 9th Avenue, Suite 2402
New York, NY 10018

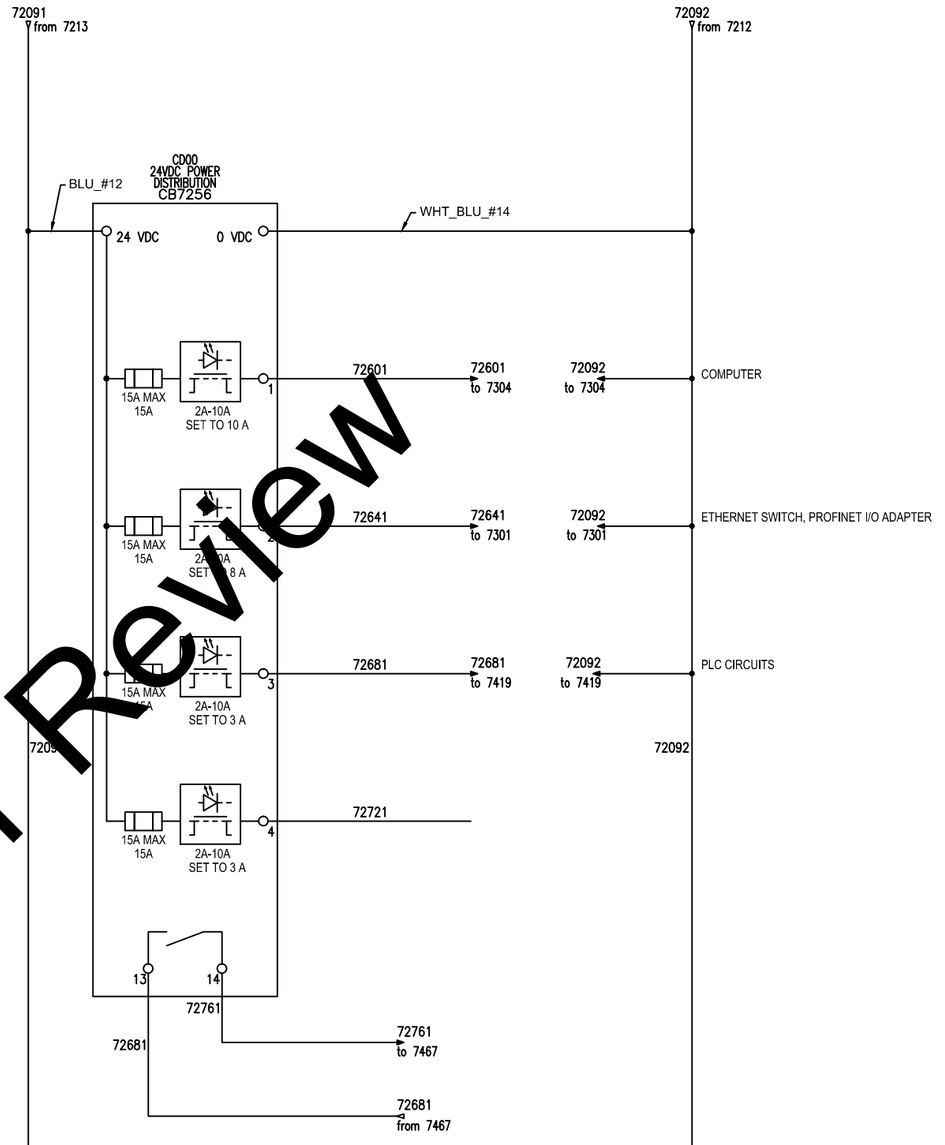
DATE 3/31/14
REVIEWED TK
DRAWN BR
DESIGNED DN
CHECKED WJC
REVISED –
STRUCTURE FILE NUMBER –

BL02 – ENCLOSURE BILL OF MATERIAL
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E70





NOTE:
PANEL INTERNAL WIRING UNLESS NOTED OTHERWISE
24V DC CONTROL WIRING TO BE #14 BLUE WIRING
24V COMMON TO BE #14 WHITE WITH BLUE STRIPE

DESIGN AGENCY
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205 8th Avenue, Suite 2402
New York, NY 10011

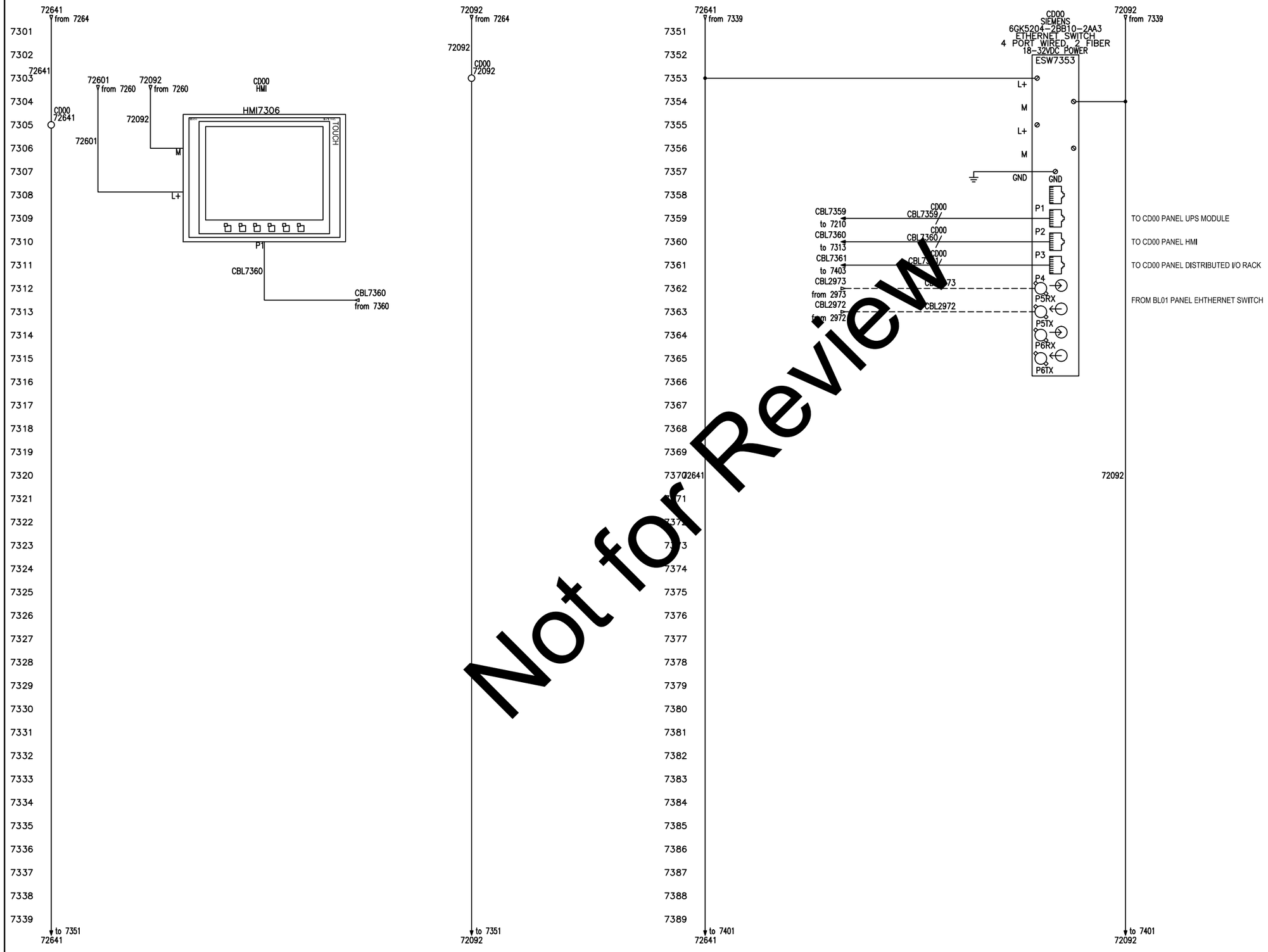
DESIGNED DN | DRAWN BR | CHECKED WJC | REVIEWED TK | DATE 03/31/14 | REVISED – | STRUCTURE FILE NUMBER –

CD00 480 VOLT AND DC DIST. SCHEMATIC
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

E72

145
165



DESIGN AGENCY
CPM Smith
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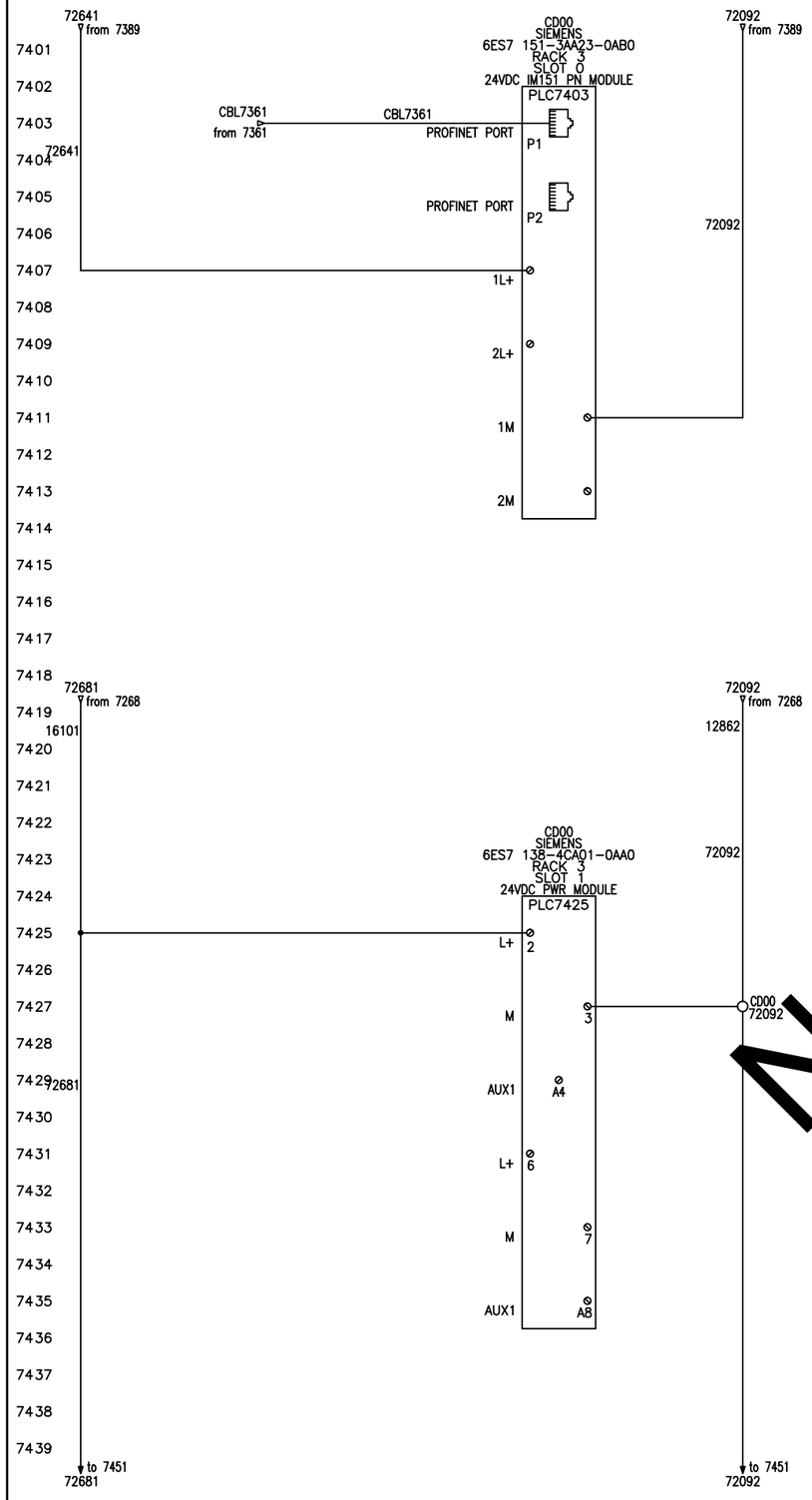
Structural Consulting Engineers
333 8th Avenue, Suite 2402
New York, NY 10001

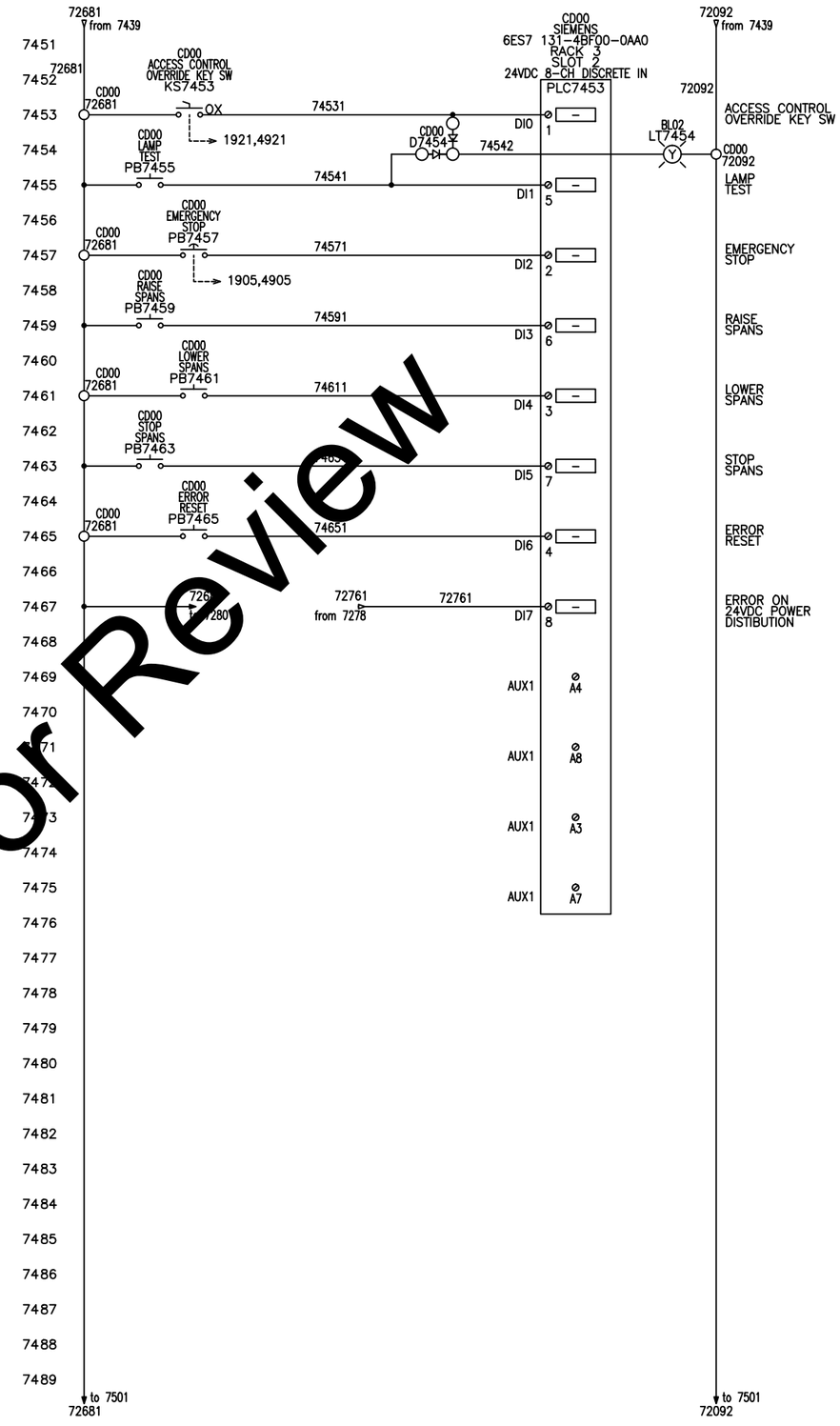
DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	-	-	

CD00 HMI PC AND ETHERNET SW. SCHEMATIC
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E73





DESIGN AGENCY
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559 8th Avenue, Suite 2402
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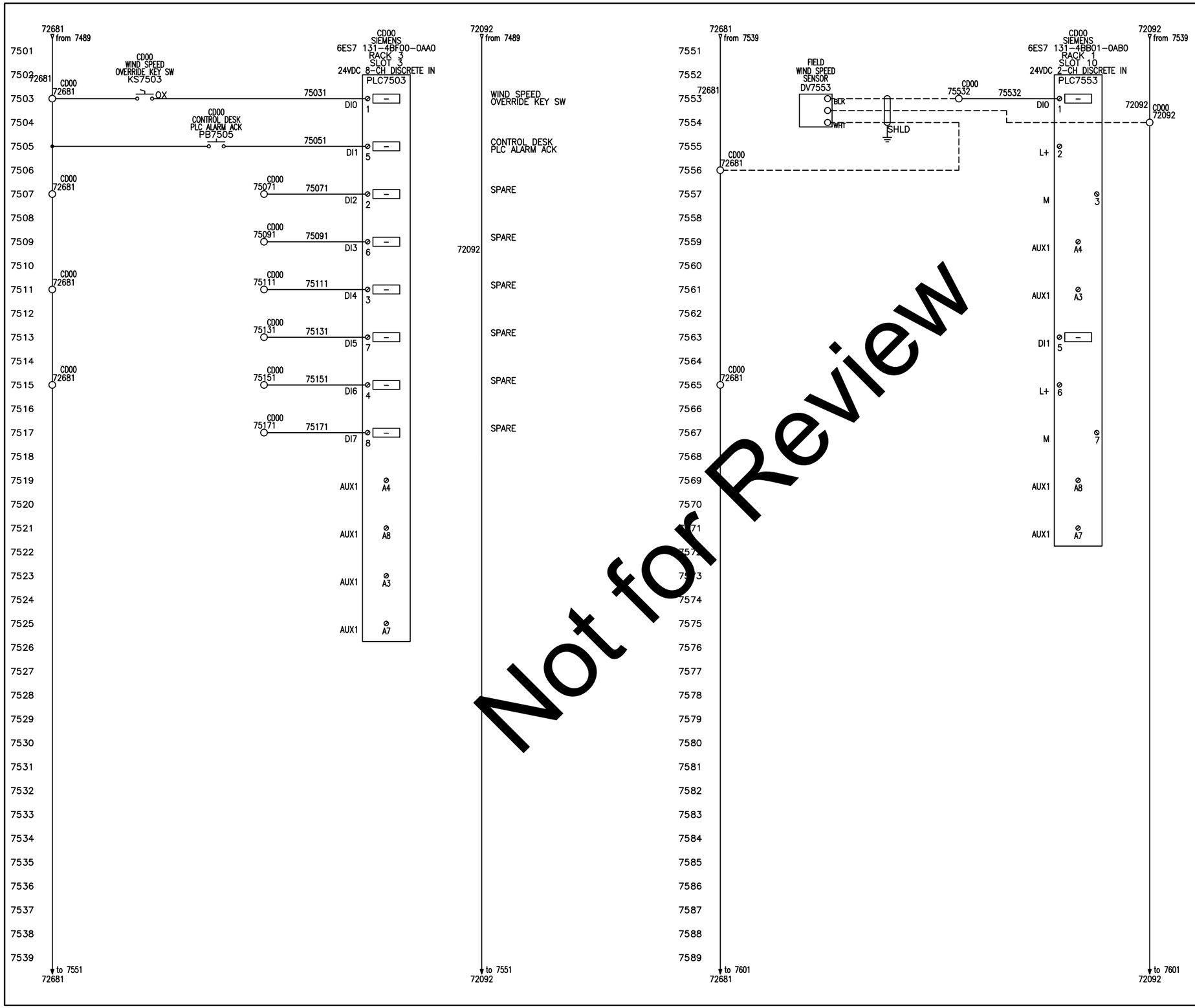
DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	-	-	

CD00 I/O SCHEMATIC, SHT 1 OF 4
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E74



DESIGN AGENCY
CPM Smith
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

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Structural Consulting Engineers
205 8th Avenue, Suite 2402
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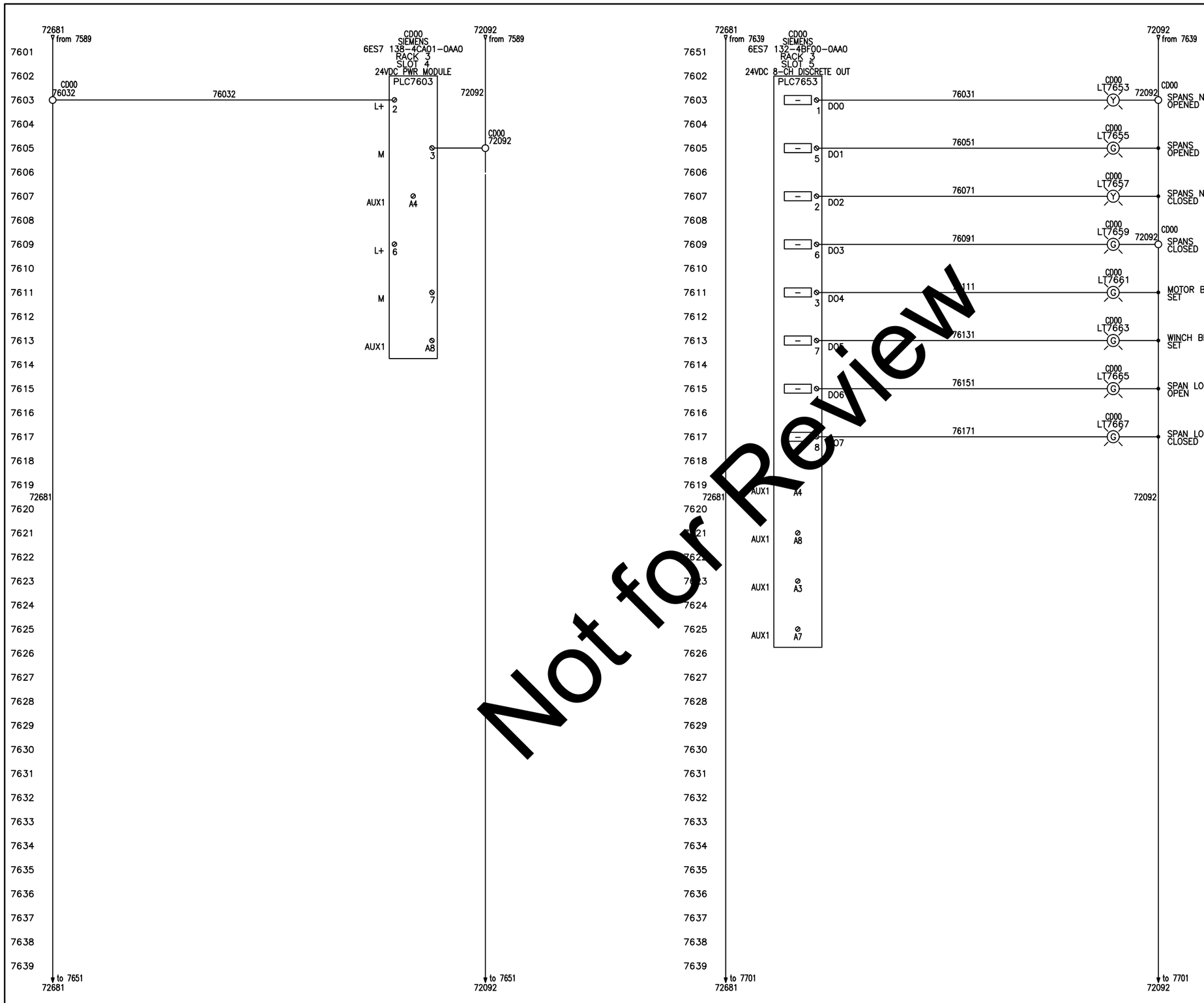
DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	-	-	

CD00 I/O SCHEMATIC, SHT 2 OF 4
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E75



DESIGN AGENCY
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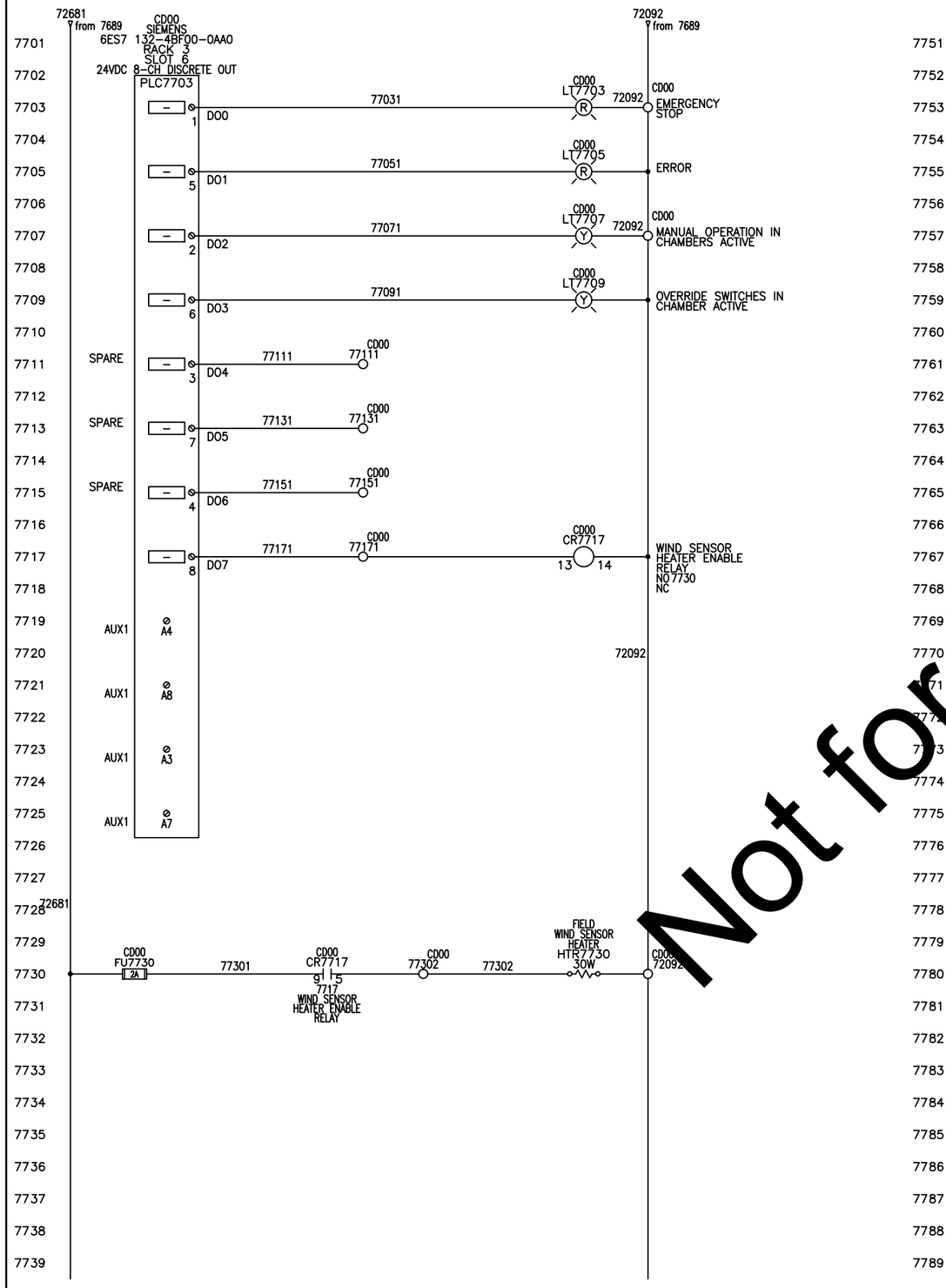
DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	-	-	

CD00 I/O SCHEMATIC, SHT 3 OF 4
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E76



DESIGN AGENCY
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505 8th Avenue, Suite 2402
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DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	03/31/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	–	–	

CD00 I/O SCHEMATIC, SHT 4 OF 4
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E77

150
165

NOTE:
1. LEGENDS ARE TO BE WHITE LETTERING ON BLACK BACKGROUND.
2. LEGENDS ARE TO BE SCREWED DOWN EXCEPT FOR OPERATOR RING LEGENDS.
3. E-STOP LEGENDS TO BE BLACK LETTERING ON YELLOW BACKGROUND.

2-TIER DIODE TS LISTING

TOP	BOTTOM	BOTTOM
IN	IN	OUT
74531	74541	74542
SP	SP	SP

TS LISTING

72682	77131
72682	77151
72682	77171
72682	77302
72682	SP
72682	SP
72682	SP
72682	SP
72682	SP
SP	SP
SP	SP
SP	SP
72601	SP
72641	SP
SP	19026
SP	19027
72681	19056
72681	19057
72681	19198
72681	19199
72681	19228
72681	19229
72681	49025
72681	49026
72681	49055
72681	49056
SP	49198
SP	49199
SP	49228
SP	49229
75071	SP
75091	SP
75111	SP
75131	SP
75151	SP
75171	
SP	
SP	
75532	
75531	
SP	
SP	
SP	
SP	
77111	

DESIGN AGENCY
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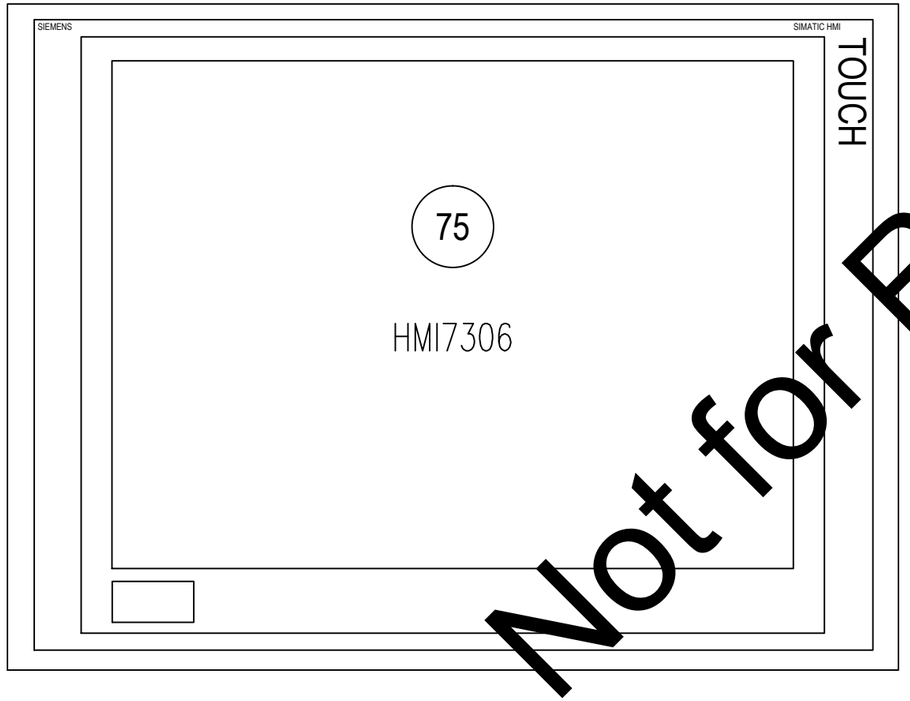
New York, NY 10011

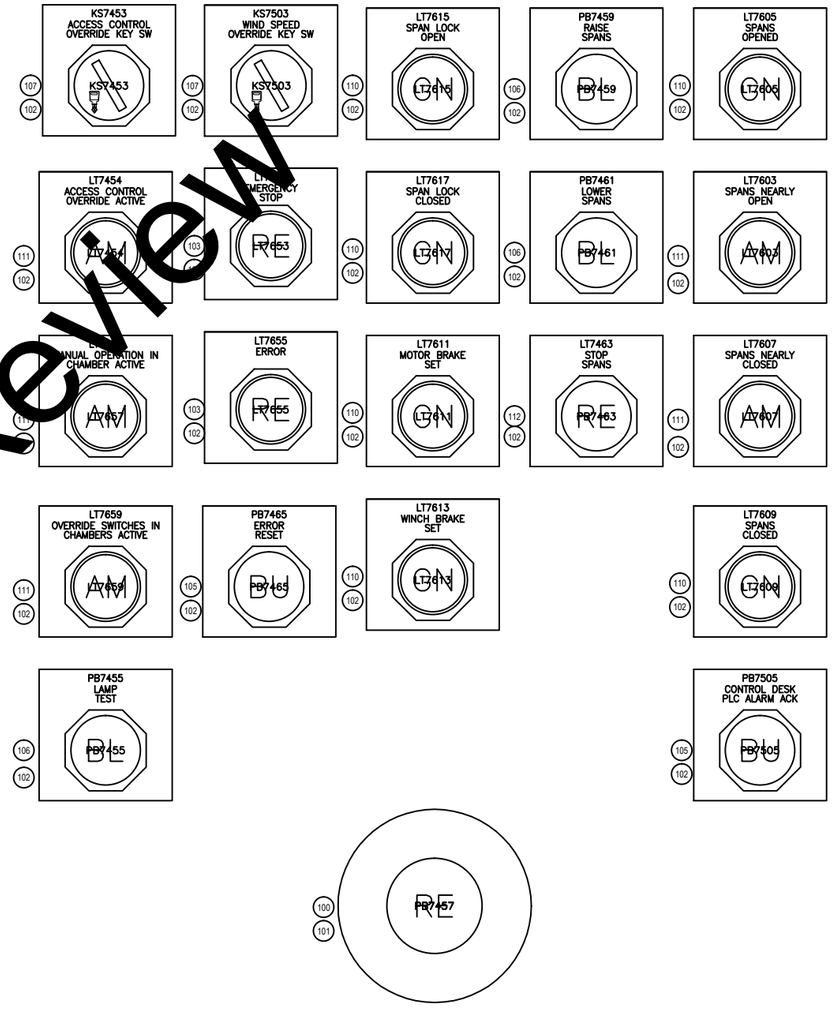
DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	3/31/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	–	–	

CD00 – ENCLOSURE LAYOUT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E78





NOTE:
1. LEGENDS ARE TO BE WHITE LETTERING ON BLACK BACKGROUND.
2. LEGENDS ARE TO BE SCREWED DOWN EXCEPT FOR OPERATOR RING LEGENDS.
3. E-STOP LEGENDS TO BE BLACK LETTERING ON YELLOW BACKGROUND.

DESIGN AGENCY
GPM Smith
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New York, NY 10018

DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	3/31/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	–	–	

CD00 ENCLOSURE OPERATOR LAYOUT
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E79

152
165

ITEM	TAGS	QTY	SUB	CATALOG	MFG	DESCRIPTION
2		1		PK9GTA	SQD	GROUND BUS
22	CB7205	1	*1	3RV2711-1DD10	SIEMENS	SIRIUS 3RV2 MOTOR STARTER PROTECTOR / CIRCUIT BREAKER, UL489, 3.2A
			*1	3RV2928-0K	SIEMENS	MOLDED CASE CIRCUIT BREAKER DISCONNECT ASSEMBLY
26	BAT7206	1		6EP4 134-0GB00-0AY0	SIEMENS	24VDC BATTERY MODULE - 20A, 24VDC OUTPUT,
27	PWS7205	1		6EP1436-3BA10	SIEMENS	POWER SUPPLY, THREE-PHASE w/20A OUTPUT CURRENT, TYPE 6EP1436-3BA10
28	CB7256	1		6EP1961-2BA00	SIEMENS	SITOP SELECT DIAGNOSTIC MODULE, 4 CIRCUIT, 2-10A RANGE
31	CR7717	1	*1	3TX7111-3PC03	SIEMENS	PLUG-IN RELAY TYPE PREMIUM LINE, MINIATURE
			*1	3TX7144-4E5	SIEMENS	PLUG-IN RELAY SOCKET
39	PLC7553	1	*1	6ES7 131-4BB01-0AB0	SIEMENS	SIMATIC ET 200S 2DI 24 VDC HIGH FEATURE DIGITAL ELECTRONIC MODULE w/SCREW-TYPE TERMINAL BLOCK TYPE 15S26-A1
			*1	6ES7 193-4CA40-0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM-E15S26-A1 (SCREW-TYPE TERMINAL)
42	PLC7403	1		6ES7 151-3AA23-0AB0	SIEMENS	IM 151 PN FOR ET200S TO PROFINET
46	PLC7453 PLC7503	2	*1	6ES7 131-4BF00-0AA0	SIEMENS	SIMATIC ET 200S 8DI 24 VDC/SRC STANDARD DIGITAL ELECTRONIC MODULE w/SCREW-TYPE TERMINAL BLOCK TYPE 15S26-A1
			*1	6ES7 193-4CA40-0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM-E15S26-A1 (SCREW-TYPE TERMINAL)
47	PLC7653 PLC7703	2	*1	6ES7 132-4BF00-0AA0	SIEMENS	SIMATIC ET 200S 8DO 24 VDC/SRC STANDARD DIGITAL ELECTRONIC MODULE w/SCREW-TYPE TERMINAL BLOCK TYPE 15S26-A1
			*1	6ES7 193-4CA40-0AA0	SIEMENS	SIMATIC ET 200S TERMINAL MODULE FOR ELECTRONIC MODULES, TYPE TM-E15S26-A1 (SCREW-TYPE TERMINAL)
49	PLC7425 PLC7603	2		6ES7 138-4CA01-0AA0	SIEMENS	SIMATIC ET 200S POWER MODULE, TYPE PM-E 24 VDC w/SCREW-TYPE TERMINAL BLOCK TYPE 15S23-A0
55	ESW7353	1		6GK5204-2BB10-2AA3	SIEMENS	SCALANCE ETHERNET SWITCH, 4 PORT WIRED, 2 PORT FIBER, MANAGED, 24VDC
73	UPS7206	1		6EP4 136-3AB00-2AY0	SIEMENS	UNINTERRUPTIBLE POWER SUPPLY, 24VDC, 20A, W/PROFINET COMMUNICATIONS
75	HMI7306	1		6AV7881-4AE00-8DH0	SIEMENS	PANEL PC, 15" TFT COLOR, 1280X800, 80GB SSD, 2GB RAM, WES 7 SP1, WINCC RT 2048 PT HMI SOFTWARE
76	FU7730	1	*1	GMD-2-R	BUSSMANN	FUSE - 2A, 250V, TIME DELAY
76			*1	8WA2 000-1KG38	SIEMENS	8WA2 SINGLE TERMINAL - SIZE 2.5
77		1		8WH9020-6CT10	SIEMENS	JUMPER BAR
80		8		8WH9150-0CA00	SIEMENS	QUICK FIT END RETAINERS
83		2		8WH1 020-5FF00	SIEMENS	8WH1 SINGLE TERMINAL - SIZE 2.5
84		1		8WH9 000-1QA00	SIEMENS	BARRIER
86		2		8WH9 000-1PA00	SIEMENS	BARRIER
87		75		8WH1 000-0AG00	SIEMENS	8WH1 SINGLE TERMINAL - SIZE 4
89		5		199-DR1	AB	SYMMETRICAL RAIL 35MM X 7.5MM 1M LONG
91		8		G2X4WH6	PANDUIT	WIDE FINGER, SLOTTED WIRING DUCT
100	PB7457	1		52PP2W2D	SIEMENS	2 POS PUSH PULL MUSHROOM HEAD DEVICE - NON-ILLUMINATED
101	PB7457	1		52AAR	SIEMENS	NAME PLATE
102	KS7453 KS7503 LT7454 LT7463 LT7653 LT7655 LT7657 LT7659 LT7661 LT7663 LT7665 LT7667 LT7703 LT7705 LT7707 LT7709 PB7455 PB7459 PB7461 PB7465 PB7505	21		52NA02B	SIEMENS	NAME PLATE
103	LT7703 LT7705	2		52PL4D2XB	SIEMENS	INDICATOR LIGHT, RED, LED, 24V AC/DC
105	PB7465 PB7505	2		52PM8A5F	SIEMENS	2 POS MOMENTARY PUSH - BUTTON DEVICE - NON-ILLUMINATED
106	PB7455 PB7459 PB7461	3		52PM8A1C	SIEMENS	2 POS MOMENTARY PUSH - BUTTON DEVICE - NON-ILLUMINATED
107	KS7453 KS7503	2	*1	52SC6AX	SIEMENS	KEY-OPERATED SWITCH UNIT, SWITCHING SEQUENCE 0-I, KEY REMOVAL POSITION 0
			*6	52BAK	SIEMENS	1 NO CONTACT BLOCK
110	LT7655 LT7659 LT7661 LT7663 LT7665 LT7667	6		52PL4D3XB	SIEMENS	INDICATOR LIGHT, GREEN, LED, 24V AC/DC
111	LT7454 LT7653 LT7657 LT7707 LT7709	5		52PL4D9XB	SIEMENS	INDICATOR LIGHT, AMBER, LED, 24V AC/DC
112	PB7463	1		52PM8A2A	SIEMENS	2 POS MOMENTARY PUSH - BUTTON DEVICE - NON-ILLUMINATED , RED, FLUSH
120	CBL7360	1	*3	6XV1840-2AH10	SIEMENS	IE FC TP STANDARD CABLE GP2X2
			*2	6GK1901-1BB10-2AA0	SIEMENS	PROFINET CONNECTOR, RJ-45, 180 DEGREE
120	CBL7359 CBL7361	2	*2	6XV1840-2AH10	SIEMENS	IE FC TP STANDARD CABLE GP2X2
			*2	6GK1901-1BB10-2AA0	SIEMENS	PROFINET CONNECTOR, RJ-45, 180 DEGREE
154		1	*1	6740.500	RITTAL	ONE PEICE TOP CONSOLE, 38"H X39"W X 16/20"
			*1	8601.040	RITTAL	CONSOLE ENCLOSURE SIDE PLINTH
155		1		8601.000	RITTAL	CONSOLE ENCLOSURE FRONT / REAR PLINTH

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DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	3/31/14
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJC	-	-	

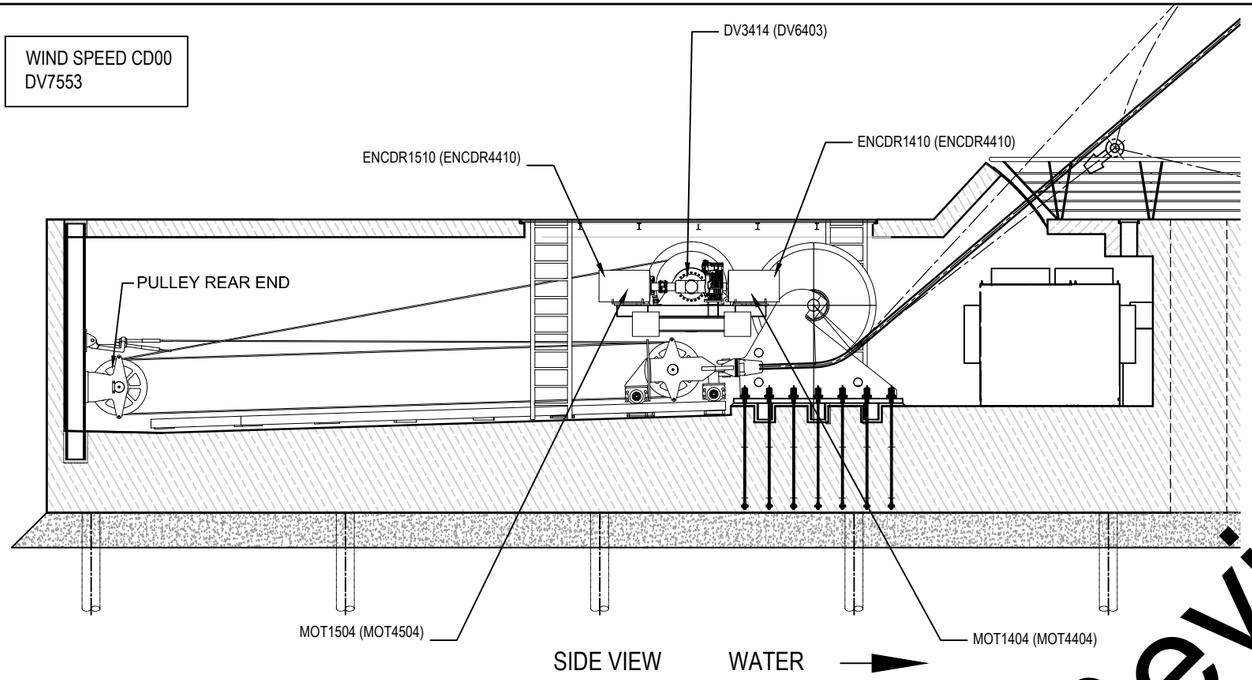
CD00 ENCLOSURE BILL OF MATERIAL
CURVED SYMMETRICAL BASCULE BRIDGE

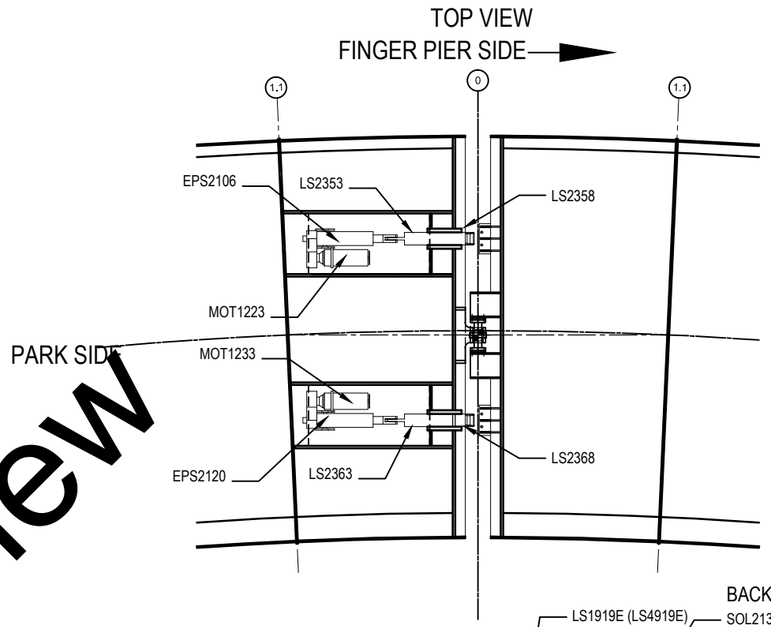
CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E80

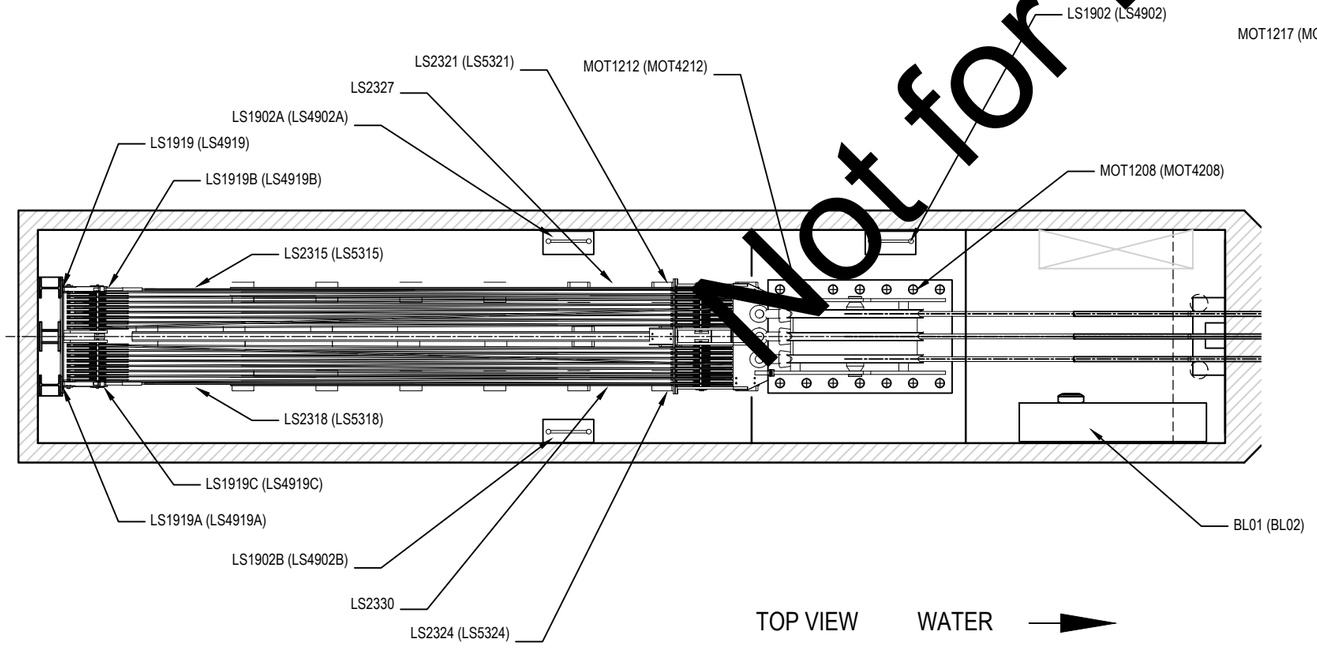
153
165

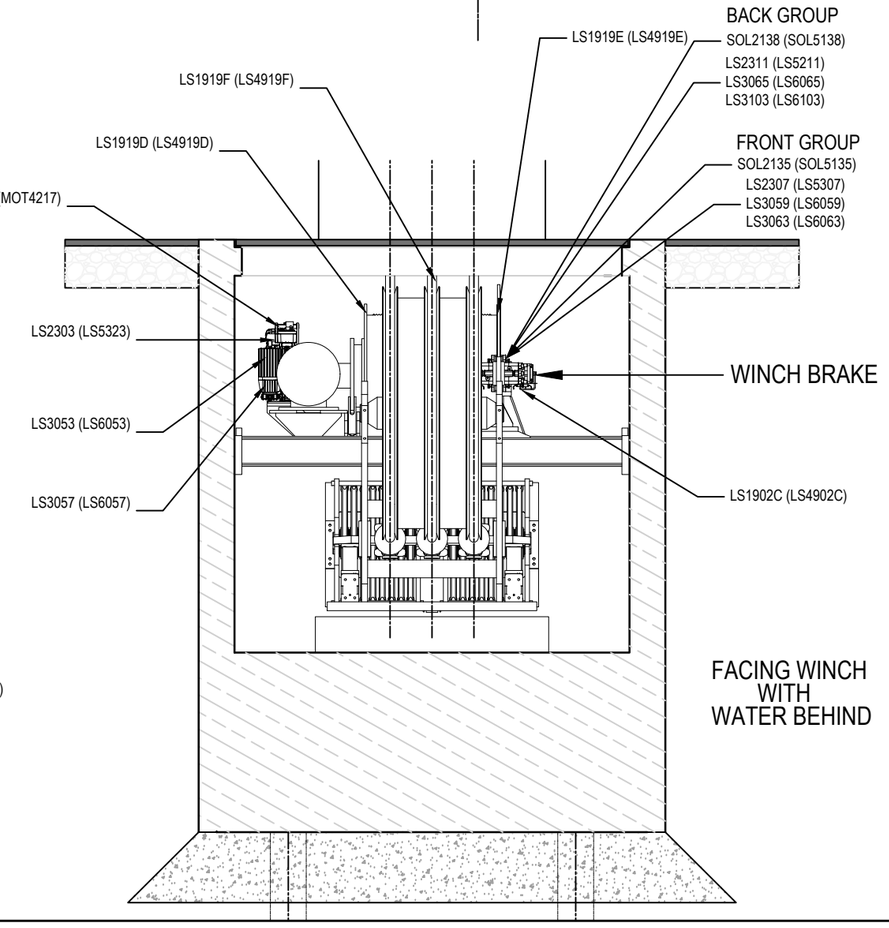
WIND SPEED CD00
DV7553





THE COMPONENTS ARE SHOWN FOR PARK SIDE AND (FINGER PIER SIDE)





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DESIGNED	DRAWN	REVIEWED	DATE
DN	BR	TK	3/31/14
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WJC	–	–	

DEVICE LOCATION DRAWING
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E84

FROM	TO							
DEVICE	DEVICE	DESCRIPTION	WIRE QTY	WIRE TYPE	WIRE SIZE (CU)	INSULATION COLOR	CONDUIT SIZE (RGS)	WIRE NUMBERS
BL01	MOT1208	HYDRAULIC UNIT 1 MOTOR	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	1208T1, 1208T2, 1208T3 / 1208GND
BL01	MOT1212	HYDRAULIC UNIT 2 MOTOR	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	1212T1, 1212T2, 1212T3 / 1212GND
BL01	MOT1217	MOTOR BRAKE	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	1217L12, 1217L22, 1217L32 / 1217GND
BL01	DS1222	MID SPAN LOCK DRIVE 1 MOTOR DISCONNECT	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	1223T1, 1223T2, 1223T3 / 1223GND
BL01	DS1233	MID SPAN LOCK DRIVE 2 MOTOR DISCONNECT	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	1233T1, 1233T2, 1233T3 / 1233GND
BL01	MOT1404	VFD 1 MOTOR	1	BELDEN 29530 or EQUAL	#00		2"	1404T1, 1404T2, 1404T3, 1404GND
BL01	MOT1504	VFD 2 MOTOR	1	BELDEN 29530 or EQUAL	#00		2"	1504T1, 1504T2, 1504T3, 1504GND
BL02	MOT4208	HYDRAULIC UNIT 1 MOTOR	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	4208T1, 4208T2, 4208T3 / 4208GND
BL02	MOT4212	HYDRAULIC UNIT 2 MOTOR	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	4212T1, 4212T2, 4212T3 / 4212GND
BL02	MOT4217	MOTOR BRAKE	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	4217L12, 4217L22, 4217L32 / 4217GND
BL02	MOT4404	VFD 1 MOTOR	1	BELDEN 29530 or EQUAL	#00		2"	4404T1, 4404T2, 4404T3, 4404GND
BL02	MOT4504	VFD 2 MOTOR	1	BELDEN 29530 or EQUAL	#00		2"	4504T1, 4504T2, 4504T3, 4504GND
DS1222	MOT1223	MID SPAN LOCK DRIVE 1 MOTOR	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	1223T11, 1223T21, 1223T31 / 1223GND
DS1233	MOT1233	MID SPAN LOCK DRIVE 2 MOTOR	3 / 1	XHHW-2	#12	BLK / GRN	3/4"	1233T11, 1233T21, 1233T31 / 1233GND

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WJC	–	–	

FIELD WIRING SCHEDULE
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

FED ID

FROM	TO							
DEVICE	DEVICE	DESCRIPTION	WIRE QTY	WIRE TYPE	WIRE SIZE (CU)	INSULATION COLOR	CONDUIT SIZE (RGS)	WIRE NUMBERS
BL01	EPS2106	MID SPAN LOCK DRIVE 1 POSITION SENSOR	7/1/1	XHHW-2	#12	BLU / WHT-BLU / GRN	3/4"	20153, 21011, 21033, 21032, 21061, 21101, 21111 / 12862 / GND
BL01	EPS2120	MID SPAN LOCK DRIVE 2 POSITION SENSOR	7/1/1	XHHW-2	#12	BLU / WHT-BLU / GRN	3/4"	20153, 21151, 21172, 21171, 21201, 21241, 21251 / 12862 / GND
BL01	LS1902	DOOR 1 SAFETY LS	6/1	XHHW-2	#14	BLU / GRN	3/4"	19021, 19022, 19051, 19052, 16641, 24591 / GND
BL01	LS1902A	DOOR 2 SAFETY LS	6/1	XHHW-2	#14	BLU / GRN	3/4"	19022, 19023, 19052, 19053, 16641, 24591 GND
BL01	LS1902B	DOOR 3 SAFETY LS	6/1	XHHW-2	#14	BLU / GRN	3/4"	19023, 19024, 19053, 19054, 16641, 24591 / GND
BL01	LS1902C	OVER SPEED SAFETY SW	6/1	XHHW-2	#14	BLU / GRN	3/4"	19024, 19025, 19054, 19055, 16681, 32051 / GND
BL01	LS1919	SLACK ROPE SAFETY SW RIGHT	8/1	XHHW-2	#14	BLU / GRN	3/4"	19021, 19051, 19191, 19221, 16641, 24221, 16681, 31151 / GND
BL01	LS1919A	SLACK ROPE SAFETY SW LEFT	8/1	XHHW-2	#14	BLU / GRN	3/4"	19191, 19192, 19221, 19222, 24221, 24222, 16681, 31131 / GND
BL01	LS1919B	OPEN SPAN OVERTRAVEL SAFETY LS LEFT	8/1	XHHW-2	#14	BLU / GRN	3/4"	19192, 19193, 19222, 19223, 16641, 24171, 16681, 31651 /GND
BL01	LS1919C	OPEN SPAN OVERTRAVEL SAFETY LS RIGHT	8/1	XHHW-2	#14	BLU / GRN	3/4"	19193, 19194, 19223, 19224, 24171, 24172, 16681, 31671 / GND
BL01	LS1919D	WINCH WINDING SAFETY SW 2 RIGHT	6/1	XHHW-2	#14	BLU / GRN	3/4"	19194, 19195, 19224, 19225, 16681, 31111 / GND
BL01	LS1919E	WINCH WINDING SAFETY SW 2 LEFT	6/1	XHHW-2	#14	BLU / GRN	3/4"	19195, 19196, 19225, 19226, 16681, 31091 / GND
BL01	LS1919F	WINCH WINDING SAFETY SW 1	6/1	XHHW-2	#14	BLU / GRN	3/4"	19196, 19197, 19226, 19227, 16681, 31071 / GND
BL01	LS2303	WINCH UNIT MOTOR BRAKE CLOSED	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23031, 16681, 30551 / GND
BL01	LS2307	WINCH UNIT MACHINERY BRAKE 1 CLOSED	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23071, 16681, 30611 / GND
BL01	LS2311	WINCH UNIT MACHINERY BRAKE 2 CLOSED	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23111, 16681, 30671 / GND
BL01	LS2315	OPEN BRIDGE SLOW DOWN LEFT	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23151, 16681, 31531 / GND
BL01	LS2318	OPEN BRIDGE SLOW DOWN RIGHT	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23151, 16681, 31551 / GND
BL01	LS2321	CLOSE BRIDGE SLOW DOWN LEFT	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23211, 16681, 31571 / GND
BL01	LS2324	CLOSE BRIDGE SLOW DOWN RIGHT	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23211, 16681, 31591 / GND
BL01	LS2327	COLLISION CHECK SWITCH LEFT	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23271, 16681, 31611 / GND
BL01	LS2330	COLLISION CHECK SWITCH RIGHT	4/1	XHHW-2	#14	BLU / GRN	3/4"	16641, 23271, 16681, 31631 / GND
BL01	LS2353	MID SPAN LEFT LOCK OPEN	2/1	XHHW-2	#12	BLU / GRN	3/4"	16641, 23531 / GND
BL01	LS2358	MID SPAN LEFT LOCK CLOSED	2/1	XHHW-2	#12	BLU / GRN	3/4"	16641, 23581 / GND
BL01	LS2363	MID SPAN RIGHT LOCK OPEN	2/1	XHHW-2	#12	BLU / GRN	3/4"	16641, 23631 / GND
BL01	LS2368	MID SPAN RIGHT LOCK CLOSED	2/1	XHHW-2	#12	BLU / GRN	3/4"	16641, 23681 / GND
BL01	LS3053	WINCH UNIT MOTOR BRAKE OPEN	2/1	XHHW-2	#14	BLU / GRN	3/4"	16681, 30531 / GND
BL01	LS3057	WINCH UNIT MOTOR HAND BRAKE RELEASE	2/1	XHHW-2	#14	BLU / GRN	3/4"	16681, 30571 / GND
BL01	LS3059	WINCH UNIT MACHINERY BRAKE 1 OPEN	2/1	XHHW-2	#14	BLU / GRN	3/4"	16881, 30591 / GND
BL01	LS3063	WINCH UNIT MACHINERY HAND BRAKE 1 RELEASE	2/1	XHHW-2	#14	BLU / GRN	3/4"	16681, 30631 / GND
BL01	LS3065	WINCH UNIT MACHINERY BRAKE 2 OPEN	2/1	XHHW-2	#14	BLU / GRN	3/4"	16681, 30651 / GND
BL01	LS3103	WINCH UNIT MACHINERY HAND BRAKE 2 RELEASE	2/1	XHHW-2	#14	BLU / GRN	3/4"	16681, 31031 / GND
BL01	SOL2135	WINCH BRAKE 1 SOLENOID	1/1/1	XHHW-2	#14	BLU / WHT-BLU / GRN	3/4"	21352 / 12862 / GND
BL01	SOL2138	WINCH BRAKE 2 SOLENOID	1/1/1	XHHW-2	#14	BLU / WHT-BLU / GRN	3/4"	21382 / 12862 / GND
BL01	EPS2106	MID SPAN LOCK DRIVE 1 POSITION SENSOR	1	BELDEN 8760	#18	BLK / CLR / BARE	3/4"	34051 / 12862 / SHLD
BL01	EPS2120	MID SPAN LOCK DRIVE 2 POSITION SENSOR	1	BELDEN 8760	#18	BLK / CLR / BARE	3/4"	34051 / 12862
BL01	DV3134	WINCH TORQUE SENSOR	1	BELDEN 9365	#18	BLK/RED/WHT/BARE	3/4"	16881 / [illegible] / 12862 / SHLD
BL01	ENCDR1410	PARK SIDE SPAN VFD 1 MOTOR ENCODER	1	ENCODER CABLE			3/4" OR AS NEEDED	CBL1410
BL01	ENCDR1510	PARK SIDE SPAN VFD 2 MOTOR ENCODER	1	ENCODER CABLE			3/4" OR AS NEEDED	CBL1510
BL01	BL02	FINGER PIER SPAN CONTROL PANEL	40	SUBMARINE CABLE (XHHW-2)	#14			19025, 19026, 19055, 19056, 21031, 21032, 21031, 21101, 21031, 21171, 21031, 21241, 16641, 23761, 24591, 49025, 49027, 49055, 49057, 49198, 49199, 49228, 49229, 46641, 53331, 53521, 53561, 53591, 53621, 53762, 02 SP0, 02 SP1, 02 SP2, 02 SP3, 02 SP4, 02 SP5, 02 SP6, 02 SP7, 02 SP8, 02 SP9
BL01	BL02	FINGER PIER SPAN CONTROL PANEL	6 PAIR	SUBMARINE CABLE (MULTIMODE FIBER)				(CBL2970, CBL2971), (5 SPARE PAIRS)
BL01	CD00	CONTROL DESK	26/1/1	XHHW-2	#14	BLU /WHT-BLU / GRN	1 1/4"	19026, 19027, 19056, 19057, 19198, 19199, 19228, 19229, 49025, 49026, 49055, 49056, 49198, 49199, 49228, 49229, CD SP0, CD SP1, CD SP2, CD SP3, CD SP4, CD SP5, CD SP6, CD SP7, CD SP8, CD SP9 / CD SP10 / GND
BL01	CD00	CONTROL DESK	6 PAIR	MULTIMODE FIBER			1 1/4"	(CBL2973, CBL2972), (5 SPARE PAIRS)
BL01	AC01	ACCESS CONTROL PANEL 01	12	XHHW-2	#14	BLU	3/5"	19198, 19199, 19228, 19229, 49198, 49199, 49228, 49229, AC SP0, AC SP1, AC SP2, AC SP3

NOTE: SPARE CONDUCTORS TO BE INCLUDED AS FOLLOWS (UNLESS NOTED OTHERWISE).

- CONDUITS WITH INDIVIDUAL WIRES TO HAVE A MINIMUM OF (2) SPARE WIRES

- CONDUITS WITH CABLES TO HAVE MINIMUM OF 1 SPARE CABLE

DESIGN AGENCY
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DESIGNED DN | DRAWN BR | REVIEWED TK | DATE 3/31/14
CHECKED WJC | REVISED – | STRUCTURE FILE NUMBER –

FIELD WIRING SCHEDULE
CURVED SYMMETRICAL BASCULE BRIDGE

CUY-NORTH COAST HARBOR
PEDESTRIAN BRIDGE

FE 89

FROM	TO							
DEVICE	DEVICE	DESCRIPTION	WIRE QTY	WIRE TYPE	WIRE SIZE (CU)	INSULATION COLOR	CONDUIT SIZE (RGS)	WIRE NUMBERS
BL02	LS4902	DOOR 1 SAFETY LS	6/1	XHHW-2	#14	BLU / GRN	3/4"	49021, 49022, 49051, 49052, 46641, 54591 / GND
BL02	LS4902A	DOOR 2 SAFETY LS	6/1	XHHW-2	#14	BLU / GRN	3/4"	49022, 49023, 49052, 49053, 46641, 54591 GND
BL02	LS4902B	DOOR 3 SAFETY LS	6/1	XHHW-2	#14	BLU / GRN	3/4"	49023, 49024, 49053, 49054, 46641, 54591 / GND
BL02	LS4902C	OVER SPEED SAFETY SW	6/1	XHHW-2	#14	BLU / GRN	3/4"	49024, 49025, 49054, 49055, 46681, 62051 / GND
BL02	LS4919	SLACK ROPE SAFETY SW RIGHT	8/1	XHHW-2	#14	BLU / GRN	3/4"	49021, 49051, 49191, 49221, 46641, 54221, 46681, 61151 / GND
BL02	LS4919A	SLACK ROPE SAFETY SW LEFT	8/1	XHHW-2	#14	BLU / GRN	3/4"	49191, 49192, 49221, 49222, 54221, 54222, 46681, 61131 / GND
BL02	LS4919B	OPEN SPAN OVERTRAVEL SAFETY LS LEFT	8/1	XHHW-2	#14	BLU / GRN	3/4"	49192, 49193, 49222, 49223, 46641, 54171, 46681, 61651 /GND
BL02	LS4919C	OPEN SPAN OVERTRAVEL SAFETY LS RIGHT	8/1	XHHW-2	#14	BLU / GRN	3/4"	49193, 49194, 49223, 49224, 54171, 54172, 46681, 61671 / GND
BL02	LS4919D	WINCH WINDING SAFETY SW 2 RIGHT	6/1	XHHW-2	#14	BLU / GRN	3/4"	49194, 49195, 49224, 49225, 46681, 61111 / GND
BL02	LS4919E	WINCH WINDING SAFETY SW 2 LEFT	6/1	XHHW-2	#14	BLU / GRN	3/4"	49195, 49196, 49225, 49226, 46681, 61091 / GND
BL02	LS4919F	WINCH WINDING SAFETY SW 1	6/1	XHHW-2	#14	BLU / GRN	3/4"	49196, 49197, 49226, 49227, 46681, 61071 / GND
BL02	LS5303	WINCH UNIT MOTOR BRAKE CLOSED	4/1	XHHW-2	#14	BLU / GRN	3/4"	46641, 53031, 46681, 60551 / GND
BL02	LS5307	WINCH UNIT MACHINERY BRAKE 1 CLOSED	4/1	XHHW-2	#14	BLU / GRN	3/4"	46641, 53071, 46681, 60611 / GND
BL02	LS5311	WINCH UNIT MACHINERY BRAKE 2 CLOSED	4/1	XHHW-2	#14	BLU / GRN	3/4"	46641, 53111, 46681, 60671 / GND
BL02	LS5315	OPEN BRIDGE SLOW DOWN LEFT	4/1	XHHW-2	#14	BLU / GRN	3/4"	46641, 53151, 46681, 61531 / GND
BL02	LS5318	OPEN BRIDGE SLOW DOWN RIGHT	4/1	XHHW-2	#14	BLU / GRN	3/4"	46641, 53151, 46681, 61551 / GND
BL02	LS5321	CLOSE BRIDGE SLOW DOWN LEFT	4/1	XHHW-2	#14	BLU / GRN	3/4"	46641, 53211, 46681, 61571 / GND
BL02	LS5324	CLOSE BRIDGE SLOW DOWN RIGHT	4/1	XHHW-2	#14	BLU / GRN	3/4"	46641, 53211, 46681, 61591 / GND
BL02	LS6053	WINCH UNIT MOTOR BRAKE OPEN	2/1	XHHW-2	#14	BLU / GRN	3/4"	46681, 60531 / GND
BL02	LS6057	WINCH UNIT MOTOR HAND BRAKE RELEASE	2/1	XHHW-2	#14	BLU / GRN	3/4"	46681, 60571 / GND
BL02	LS6059	WINCH UNIT MACHINERY BRAKE 1 OPEN	2/1	XHHW-2	#14	BLU / GRN	3/4"	46881, 60591 / GND
BL02	LS6063	WINCH UNIT MACHINERY HAND BRAKE 1 RELEASE	2/1	XHHW-2	#14	BLU / GRN	3/4"	46681, 60631 / GND
BL02	LS6065	WINCH UNIT MACHINERY BRAKE 2 OPEN	2/1	XHHW-2	#14	BLU / GRN	3/4"	46681, 60651 / GND
BL02	LS6103	WINCH UNIT MACHINERY HAND BRAKE 2 RELEASE	2/1	XHHW-2	#14	BLU / GRN	3/4"	46681, 61031 / GND
BL02	SOL5135	WINCH BRAKE 1 SOLENOID	1/1/1	XHHW-2	#14	BLU / WHT-BLU / GRN	3/4"	51352 / 42862 / GND
BL02	SOL5138	WINCH BRAKE 2 SOLENOID	1/1/1	XHHW-2	#14	BLU / WHT-BLU / GRN	3/4"	51382 / 42862 / GND
BL02	DV6403	WINCH TORQUE SENSOR	1	BELDEN 9365	#18	BLK/RED/WHT/BARE	3/4"	46681 / 64031 / 42862 / SHLD
BL02	ENCDR5410	FINGER PIER SPAN VFD 1 MOTOR ENCODER	1	ENCODER CABLE			3/4" OR AS NEEDED	CBL4410
BL02	ENCDR4510	FINGER PIER SPAN VFD 2 MOTOR ENCODER	1	ENCODER CABLE			3/4" OR AS NEEDED	CBL4510
CD00	DV7553	WIND SPEED SENSOR	1	BELDEN 9365	#18	BLK/RED/WHT/BARE	3/4"	75532 / [illegible] / 72681 / SHLD
CD00	HTR7730	WIND SPEED SENSOR HEATER	1/1/1	XHHW-2	#14	BLU / WHT-BLU / GRN	3/4"	77302 / 79[illegible] / GND

NOTE: SPARE CONDUCTORS TO BE INCLUDED AS FOLLOWS (UNLESS NOTED OTHERWISE).

- CONDUITS WITH INDIVIDUAL WIRES TO HAVE A MINIMUM OF (2) SPARE WIRES

- CONDUITS WITH CABLES TO HAVE MINIMUM OF 1 SPARE CABLE

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FIELD WIRING SCHEDULE
CURVED SYMMETRICAL BASCULE BRIDGE

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E90

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
52 CS	——	MEDIUM VOLTAGE DRAWOUT TYPE POWER CIRCUIT BREAKER CS=CONTROL SWITCH
FRAME TRIP	CB	LOW VOLTAGE AIR OR MOLDED CASE CIRCUIT BREAKER, 3 POLE UNLESS OTHERWISE NOTED.
*		COMBINATION MOTOR CIRCUIT PROTECTOR AND MAGNETIC MOTOR STARTER, FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE NOTED: * FVR – FULL VOLTAGE REVERSING RVNR – REDUCED VOLTAGE NON-REVERSING RVAT – REDUCED VOLTAGE AUTOTRANSFORMER RVSS – REDUCED VOLTAGE SOLID STATE 2S1W – TWO SPEED, ONE WINDING RS2W – TWO SPEED, TWO WINDING (DIAGRAMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
*		NON-FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE * AMPERE RATING NOTED IF OTHER THAN 30A (DIAGRAMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
* *	F	FUSIBLE DISCONNECT SWITCH, 600 VOLT, 3 POLE, * AMPERE RATING AND FUSE SIZE AS NOTED * AMPERE RATING NOTED IF OTHER THAN 30A FUSE RATING (DIAGRAMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
	P 2	MANUAL MOTOR STARTER WITH THERMAL OVERLOAD HEATER, 1 POLE UNLESS OTHERWISE NOTED "P" INDICATES WITH PILOT LIGHT "2" INDICATES TWO POLE (DIAGRAMATICALLY SHOWN, CONTRACTOR SHALL FIELD LOCATE)
	——	DRAWOUT TYPE EQUIPMENT OR DEVICE
	——	MEDIUM VOLTAGE CABLE TERMINATION
	——	MEDIUM VOLTAGE AIR INTERRUPTER SWITCH
*	——	MEDIUM VOLTAGE FUSED AIR INTERRUPTER SWITCH * FUSE RATING
	——	MEDIUM VOLTAGE FUSED MOTOR CONTROLLER
VOLTS_PRI XX_KVA VOLTS_SEC 3P/4W	T	TRANSFORMER, RATINGS AND CONNECTIONS AS NOTED. UNLESS OTHERWISE NOTED ON THE SINGLE LINE DIAGRAMS, ALL DRY TYPE TRANSFORMERS SERVICING ADMINISTRATIVE AND LABORATORY SPACES SHALL HAVE A K FACTOR OF 4. ISOLATION TRANSFORMERS SHALL HAVE A K-20 RATING
* A TO 5	——	CURRENT TRANSFORMER * QUANTITY A = PRIMARY AMPERES
* V TO 120	——	POTENTIAL TRANSFORMER * QUANTITY V = PRIMARY VOLTAGE
	G	GENERATOR, RATINGS AND CONNECTIONS AS NOTED
ATS N S 100A	——	AUTOMATIC OR MANUAL TRANSFER SWITCH NO.1 (ATS-1), (MTS-1) "N" INDICATES NORMAL OR PREFERRED SOURCE "S" INDICATES STANDBY OR ALTERNATE SOURCE 100A INDICATES CONTINUOUS CURRENT RATING
*	*	VARIABLE SPEED DRIVE CONTROLLER * D.C. = D.C. DRIVE CONTROLLER SCR = SILICON CONTROLLED RECTIFIER VFD = VARIABLE FREQUENCY DRIVE
#KW	E	UNIT HEATER – ELECTRIC HEATING COIL AND FAN # – RATING
——	U	UNIT HEATER – GAS FIRED, STEAM OR WATER HEATING COIL AND FAN
5	M	MOTOR, NUMERAL INDICATES HORSEPOWER
VS VM *	——	VOLTMETER WITH SWITCH, 3 PHASE
AS AM *	——	AMMETER WITH SWITCH, 3 PHASE

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
*	——	METER * WM – WATTMETER WHM – WATTHOUR METER WHDM – WATTHOUR DEMAND METER WHDR – WATTHOUR DEMAND RECORDER PF – POWER FACTOR METER ETM – ELAPSED TIME METER TRANSDUCER AX – CURRENT TRANSDUCER WX – WATT TRANSDUCER WHX – WATTHOUR TRANSDUCER
*	*	RELAY, NO. AS INDICATED 25 – SYNCHRONISM CHECK RELAY 27 – UNDERVOLTAGE RELAY 32 – DIRECTIONAL POWER RELAY 38 – BEARING PROTECTIVE DEVICE 40 – LOSS OF EXCITATION RELAY 42 – RUNNING CONTACTOR/PILOT RELAY 46 – REVERSE PHASE/PHASE BALANCE/CURRENT RELAY 47 – PHASE SEQUENCE VOLTAGE RELAY 49 – MACHINE OR TRANSFORMER THERMAL RELAY 50/51 – INSTANTANEOUS/TIME OVERCURRENT RELAY 50G – INSTANTANEOUS GROUND 51 – TIME OVERCURRENT RELAY 51G – TIME OVERCURRENT RELAY, GROUNDING RESISTOR TYPE 51N – TIME OVERCURRENT RELAY, RESIDUAL TYPE 51V – TIME OVERCURRENT RELAY WITH VOLTAGE RESTRAINT 51X – AUXILIARY RELAY (TRIPS CB AND ALARMS) 59 – OVERVOLTAGE RELAY 60 – NEGATIVE SEQUENCE VOLTAGE RELAY 62 – TIME DELAY RELAY 63 – OVERPRESSURE RELAY 64 – GENERATOR FIELD GROUND RELAY 67 – AC DIRECTIONAL OVERCURRENT RELAY 74 – ALARM LATCHING RELAY 83 – AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY 86 – LOCKING-OUT RELAY 87 – DIFFERENTIAL PROTECTIVE RELAY B – SUFFIX INDICATES "BUS" G – SUFFIX INDICATES "GENERATOR" GF – GROUND FAULT ST – SHUNT TRIP T – SUFFIX INDICATES "TRANSFORMER" X – SUFFIX INDICATES "AUXILIARY"
*	——	SPECIAL CAPACITOR * SC – SURGE CAPACITOR PF – POWER FACTOR CORRECTION CAPACITOR
*	——	TUNED POWER FACTOR CORRECTION CAPACITOR
	——	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY CLOSED
	——	PUSHBUTTON, MOMENTARY CONTACT, SPRING RETURN, NORMALLY OPEN
	ES	EMERGENCY STOP PUSHBUTTON WITH RED MUSHROOM HEAD OPERATOR (MAINTAINED CONTACT)
STOP START	PBL	START-STOP PUSHBUTTON CONTROL STATION (MOMENTARY CONTACT) WITH LOCKOUT DEVICE ON STOP
	PBM	START-STOP PUSHBUTTON CONTROL STATION, MAINTAINED CONTACT WITH LOCKOUT DEVICE ON STOP
OFF ON	S/S	OFF/ON SELECTOR SWITCH
L R (XO) (OX)	LR	LOCAL/REMOTE SELECTOR SWITCH
A B C* (XOO) (OXO) (OOX)	*	3 POSITION SELECTOR SWITCH, MAINTAINED CONTACT O–OPEN X–CLOSED POSITION | TOP CONTACT | MIDDLE CONTACT | BOTTOM CONTACT A | X | O | O B | O | X | O C | O | O | X NAMEPLATE (A/B/C) HOA – HAND/OFF/AUTO HOR – HAND/OFF/REMOTE LOR – LOCAL/OFF/REMOTE RSL – RAISE/STOP/LOWER TOA – TEST/OFF/AUTO

GD/VF #	GD/VF #	GAS DETECTOR / VENTILATION FAILURE ALARM
		# INDICATES TYPE OF UNIT
		1=MASTER, 2=REMOTE

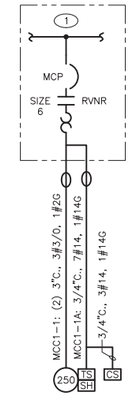
42 #	——	MOTOR STARTER COIL, NUMBER AS INDICATED TO DENOTE INTERLOCKING ONLY
CR #	——	CONTROL RELAY COIL, NUMBER AS INDICATED

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
*	——	PILOT LIGHT, COLOR AS NOTED * R – RED G – GREEN B – BLUE W – WHITE A – AMBER
*	——	PILOT LIGHT, PUSH-TO-TEST TYPE, COLOR AS NOTED ABOVE.
* # RANGE SETPOINT		TIME DELAY RELAY RANGE AS NOTED SETPOINT AS NOTED # NUMBER AS INDICATED * TDE – TIME DELAY AFTER ENERGIZATION ON DELAY TDD – TIME DELAY AFTER DE-ENERGIZATION OFF DELAY NOTC – NORMALLY OPEN, TIMED CLOSING WHEN ENERGIZED NCTO – NORMALLY CLOSED, TIMED OPENING WHEN ENERGIZED NOTO – NORMALLY OPEN, TIMED OPENING WHEN DE-ENERGIZED NCTC – NORMALLY CLOSED, TIMED CLOSING WHEN DE-ENERGIZED
* NOTC		
NCTO		
* NOTO		
NCTC		
——	* – ##	FIELD INSTRUMENT, TAG NO. AS INDICATED * INDICATES INSTRUMENT TYPE DEFINED ON LOOP SHEETS OR P & ID ## INDICATES LOOP NO.
	LS OR ■	LIQUID LEVEL (FLOAT) SWITCH NORMALLY OPEN, CLOSES ON RISING LEVEL NORMALLY CLOSED, OPENS ON RISING LEVEL
	PS OR ■	PRESSURE OR VACUUM SWITCH NORMALLY OPEN, CLOSES ON RISING PRESSURE NORMALLY OPEN, CLOSES ON DROPPING PRESSURE NORMALLY CLOSED, OPENS ON RISING PRESSURE NORMALLY CLOSED, OPENS ON DROPPING PRESSURE
	TS OR T OR ■	TEMPERATURE SWITCH OR THERMOSTAT NORMALLY OPEN, CLOSES ON RISING TEMPERATURE NORMALLY OPEN, CLOSES ON DROPPING TEMPERATURE NORMALLY CLOSED, OPENS ON RISING TEMPERATURE NORMALLY CLOSED, OPENS ON DROPPING TEMPERATURE
	FS OR ■	FLOW SWITCH (AIR, WATER, ETC.) NORMALLY OPEN, CLOSES ON INCREASED FLOW NORMALLY CLOSED, OPENS ON INCREASED FLOW
	ZS OR ■	POSITION (LIMIT) SWITCH NORMALLY OPEN NORMALLY OPEN – HELD CLOSED NORMALLY CLOSED NORMALLY CLOSED – HELD OPEN
	WS OR ■	TORQUE SWITCH NORMALLY OPEN, CLOSES ON HIGH TORQUE NORMALLY CLOSED, OPENS ON HIGH TORQUE
#	——	UTILIZED IN CONJUNCTION WITH OTHER CONTROL SCHEMATIC SYMBOLS TO DEPICT THE PHYSICAL LOCATION OF THE DEVICE # REPRESENTS LOCATION SEE LOCATION LEGEND ON DRAWING
	——	CONDUCTORS OR CONDUITS CROSSING PATHS BUT NOT CONNECTED
	——	CONDUCTORS ELECTRICALLY CONNECTED
	S	SOLENOID VALVE

ONE LINE OR CONTROL DIAGRAM	PLAN	DESCRIPTION
LA	——	LIGHTNING ARRESTER
		GROUND OR GROUND ROD
30A	——	FUSE, AMPERE RATING AS NOTED
	HTR	STRIP HEATER OR HEATING ELEMENT
	——	INDUCTOR
TG	TG	TACHOMETER GENERATOR
	——	CONTACT, NORMALLY OPEN (NO)
	——	CONTACT, NORMALLY CLOSED (NC)
	——	OVERLOAD RELAY HEATER
K	——	KEY INTERLOCK
TB	——	TERMINAL OR TEST BLOCK
RTD	——	RESISTANCE TEMPERATURE DETECTOR
VE OR VE	——	VIBRATION DETECTOR
DM	DM	DAMPER MOTOR
ETM	——	ELAPSED TIME METER
M	M	MOTOR OPERATED VALVE OR GATE
	——	INDICATES LIMITS OF ELECTRICAL EQUIPMENT OR WIRING ENCLOSURE

EXISTING WORK | NEW WORK | FUTURE EXPANSION

EXISTING, NEW OR FUTURE CONDITION DESIGNATION



INDICATES CONDUIT IS ALL OR PARTIALLY LOCATED UNDERGROUND. CONDUIT SIZE SHOWN INDICATES THE SIZE WITHIN STRUCTURE. UNDERGROUND CONDUIT SIZE IS SHOWN ON DUCT BANK SECTIONS.

MCC1-1: (2) 3"C., 3#3/0, 1#2G DENOTES A QUANTITY OF TWO (2) 3-INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR, FROM NEMA SIZE 6 STARTER IN MCC-1 TO 250HP MOTOR LOAD.

MCC1-1A: 3/4"C., 7#14, 1#14G DENOTES ONE 3/4-INCH CONDUIT CONTAINING SEVEN NO. 14 AWG CONTROL CONDUCTORS AND 1 NO. 14 AWG GROUND CONDUCTOR.

MCC1-1 AND MCC1-1A: DENOTES CONDUIT IDENTIFICATION (ID) (TYPICAL)

NOTES:
1. PROTECTIVE/CONTROL DEVICE AS SHOWN.
2. CONTROL/AUXILIARY DEVICES AT OR NEAR EQUIPMENT. EQUIPMENT SHALL BE INSTALLED AND WIRED AS REQUIRED BY EQUIPMENT FURNISHED AND/OR CONTROL DIAGRAM.

TYPICAL ONE LINE BLOCK SHOWING POWER AND CONTROL TO EQUIPMENT

NOTES:
1. IN GENERAL CONDUIT ROUTING FOR EQUIPMENT AND DEVICES IS NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS WHICH SHALL INCLUDE CONDUITS SHOWN ON ONE-LINE AND RISER DIAGRAMS AND HOME-RUNS SHOWN ON PLAN DRAWINGS. REFER TO SPECIFICATIONS FOR MATERIALS AND INSTALLATION REQUIREMENTS.
2. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
3. SWITCHGEAR AND MOTOR CONTROL CENTER COMPARTMENT DESIGNATIONS AS INDICTED BELOW:
   BLANK: NOT INTENDED FOR USE. PLATE ONLY
   SPACE: EQUIPPED WITH REQUIRED BUS AND HARDWARE FOR THE FUTURE ADDITION OF BREAKERS AND/OR STARTERS WITHIN THE SIZE AND RANGE SHOWN
   SPARE: CONTAINS A COMPLETELY INSTALLED BREAKER AND/OR STARTER OF SIZE AND TYPE INDICATED FOR FUTURE USE.
4. INTERPRETATION OF ELECTRICAL DRAWINGS: CIRCUIT IDENTIFICATION, ROUTING, AND SIZES OF CONDUITS AND WIRES ARE SHOWN ON THE FOLLOWING DRAWINGS:

A. POWER ONE LINE DIAGRAMS: POWER, CONTROL AND SIGNAL WIRING REQUIREMENTS FOR ELECTRICAL DISTRIBUTION EQUIPMENT AND UTILIZATION EQUIPMENT POWERED FROM SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS AND MAJOR POWER DISTRIBUTION PANELBOARDS ARE TYPICALLY SHOWN ON THE ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE AND QUANTITY FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT, AND SIZE OF THE GROUNDING ELECTRODE CONDUCTORS.

B. INSTRUMENTATION AND CONTROL RISER DIAGRAMS: POWER, CONTROL, SIGNAL AND DATA HIGHWAY WIRING REQUIREMENTS FOR INSTRUMENTS AND CONTROL DEVICES CONTROLLED/MONITORED FROM INSTRUMENTATION AND CONTROL PANELS SUCH AS RTUS, PLCS, TERMINAL CABINETS, AND REMOTE I/O PANELS ARE TYPICALLY SHOWN ON THE INSTRUMENTATION AND CONTROL ONE LINE DIAGRAMS. THE PARAMETERS IDENTIFIED ON THE ONE LINE DIAGRAMS ARE: CIRCUIT IDENTIFICATION, CIRCUIT ORIGIN AND DESTINATION, CONDUIT SIZE, WIRE SIZE, QUANTITY AND TYPE FOR COMPLETE CIRCUIT LENGTH, AND AUXILIARY DEVICES ASSOCIATED WITH THE CONTROL/PROTECTION OF THE POWERED EQUIPMENT.

C. FLOOR PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS LOCATED WITHIN STRUCTURES, FLOOR PLANS SHOW THE LOCATION OF ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, UTILIZATION EQUIPMENT, INSTRUMENTS, ANCILLARY EQUIPMENT AND DEVICES AND THE ANTICIPATED PENETRATION LOCATIONS WHERE CONDUITS EXIT/ENTER THE STRUCTURE. HOMERUNS MAY ALSO BE SHOWN FROM MISCELLANEOUS EQUIPMENT NOT SHOWN ON A ONE LINE OR RISER DIAGRAM.

D. SITE PLANS: FOR DETERMINING THE LENGTH OF CIRCUITS EXTERIOR TO STRUCTURES AND TO IDENTIFY THE SPECIFIC REQUIREMENTS OF THE UNDERGROUND CONDUITS OR DUCT BANKS, SITE PLANS SHOW THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS WITH SECTIONS INDICATING THE CONDUIT SIZE, ARRANGEMENT AND CIRCUIT ROUTING.

E. NOTE THAT CONDUIT SIZE WITHIN STRUCTURE IS INDICATED ON ONE-LINE DIAGRAM AND UNDERGROUND SIZE IS INDICATED ON DUCT BANK SECTIONS.

GENERAL NOTE

THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.

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DESIGNED	DRAWN	REVIEWED	DATE	STRUCTURE FILE NUMBER
TMK	RMM			
CHECKED	REVISED			

ELECTRICAL LEGEND

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

SYMBOL	DESCRIPTION
A 3 b	INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. TYPE LIGHTING FIXTURE "A" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "b" – CONTROLLED BY SWITCH "b" "3" – CIRCUIT NUMBER
A 3 b	FLUORESCENT TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A 3 b	WALL MOUNTED INCANDESCENT, COMPACT FLUORESCENT OR H.I.D. TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A 3 OR A 3	CROSS HATCH INDICATES LIGHTING FIXTURE THAT IS UNSWITCHED AND SHALL REMAIN ON AT ALL TIMES. NOTATIONS SAME AS ABOVE.
A 3 b OR A 3 b	SHADED AREA INDICATES LIGHTING FIXTURE THAT IS EQUIPPED WITH EMERGENCY BACKUP POWER SOURCE. NOTATIONS SAME AS ABOVE.
A 3	POLE MOUNTED AREA H.I.D. TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
A 3	POLE MOUNTED ROADWAY H.I.D. TYPE LIGHTING FIXTURE, NOTATIONS SAME AS ABOVE
EM 3 (*)	EMERGENCY LIGHTING BATTERY UNIT WITH TWO LAMP HEADS "EM" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" – SUPERVISORY CIRCUIT * – FIXTURE TAG #
R–2 BU–1(*)	REMOTE EMERGENCY ADJUSTABLE WALL LIGHTING FIXTURE WITH TWO LAMP HEADS "R–2" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) * – HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN (2) NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND (1) NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
A 3	COMBINATION BATTERY UNIT AND EXIT SIGN. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN.
A 3	CEILING MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN. (DOUBLE FACE DOUBLE CHEVRONS SHOWN)
A 3	WALL MOUNTED EXIT SIGN, NOTATIONS SAME AS ABOVE. WHEN USED, ARROW INDICATES DIRECTION OF EGRESS. FILLED QUADRANT REPRESENTS FACE SIDE OF SIGN.
RH–3 E 3 BU–1(*)	REMOTE EMERGENCY CEILING LIGHTING FIXTURE. "RH–3" – FIXTURE TYPE (SEE LIGHTING FIXTURE SCHEDULE) "3" – SUPERVISORY CIRCUIT * – HOME RUN TO BATTERY UNIT INDICATED. CONDUIT SHALL BE 3/4" AND CONTAIN 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE INDICATED.
	HOME RUN TO DESIGNATED EQUIPMENT. BRANCH CIRCUIT CONDUIT WITH 2 NO. 12 AWG BRANCH CIRCUIT CONDUCTORS AND 1 NO. 12 AWG GROUND CONDUCTOR UNLESS OTHERWISE NOTED. NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS. FOR MINIMUM SIZE CONDUIT PERMITTED REFER TO THE SPECIFICATIONS.
	CONDUIT CONCEALED IN WALL, IN SLAB ABOVE, OR ABOVE CEILING.
	CONDUIT CONCEALED IN OR BELOW FLOOR OR UNDERGROUND.
	CONDUIT RUN EXPOSED. RUN PARALLEL OR PERPENDICULAR TO STRUCTURE OR WALL.
	'X' INDICATES EXPLOSION PROOF CONDUIT SEAL FITTING.
	CONCRETE ENCASED DUCTBANK. WIDTH VARIES, SEE DUCTBANK SECTION/DETAILS FOR REQUIREMENTS AND WIDTH
	CONDUIT STUBBED OUT AND CAPPED
(2) 3"C., 3#3/0, 1#2G	DENOTES A QUANTITY OF TWO (2) 3–INCH CONDUITS EACH CONTAINING THREE NO. 3/0 AWG CONDUCTORS AND 1 NO. 2 AWG GROUND CONDUCTOR.
2–2/C#16 SH	DENOTES A QUANTITY OF TWO INSTRUMENT CABLES. EACH CABLE TO CONSIST OF TWO NO. 16 AWG CONDUCTORS TWISTED TOGETHER AND COVERED WITH A METALLIC SHIELD AND AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
2–3/C#16 SH	SAME AS ABOVE EXCEPT CABLE TO CONSIST OF THREE NO. 16 AWG CONDUCTORS TWISTED, SHIELDED AND COVERED WITH AN OVERALL PROTECTIVE JACKET. REFER TO THE SPECIFICATIONS FOR THE EXACT CABLE TO BE PROVIDED.
(3) 4"C.	THREE 4–INCH CONDUITS
	FLEXIBLE METAL CONDUIT "WHIP" (3/4"C., 2#12, 1#12G UNLESS OTHERWISE NOTED) FOR LIQUID TIGHT MOTOR CONNECTIONS
	'X' INDICATES CONDUIT SEAL FITTING IN OTHER THAN CODE REQUIRED LOCATIONS.
⊠	INDICATES MOTOR STARTER AND/OR MOTOR CONTROL EQUIPMENT WITHIN THE ENCLOSURE.

SYMBOL	DESCRIPTION
$a	SINGLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
$a 2	DOUBLE POLE SWITCH "a" INDICATES FIXTURES CONTROLLED.
$c 3	THREE WAY SWITCH "c" INDICATES FIXTURES CONTROLLED.
$a 4	FOUR WAY SWITCH "a" INDICATES FIXTURES CONTROLLED.
$a D	DIMMER SWITCH "a" INDICATES FIXTURES CONTROLLED
$OS	SINGLE POLE SWITCH "OS" INDICATES A PASSIVE INFRARED OCCUPANCY SENSOR
$OS 2	DOUBLE POLE SWITCH "OS" INDICATES PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF INBOARD/OUTBOARD SWITCHING
$DT	SINGLE POLE SWITCH "DT" INDICATES DUAL TECHNOLOGY PROGRAMMABLE OCCUPANCY SENSOR CAPABLE OF SENSING MOTION AND SOUND
C 3	LIGHTING CONTACTOR WITH NUMBER OF POLES AS INDICATED
TM	TIME SWITCH
	PUSH BUTTON STATION
TYPE A	INDICATES ALL LIGHTING FIXTURES WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE TYPE "A" UNLESS OTHERWISE NOTED. SEE LIGHTING FIXTURE SCHEDULE FOR TYPES
	LIGHTING PANELBOARD (LP–#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	POWER PANELBOARD (PP–#) OR DISTRIBUTION PANELBOARD (DP–#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
	LIGHTING CONTACTOR PANELBOARD (LCP–#) SHOWN ON PLAN PER ACTUAL PANEL DIMENSIONS
* 4	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W * GFCI – GROUND FAULT CIRCUIT INTERRUPTER TYPE WP – WEATHERPROOF T – TRANSIENT VOLTAGE SURGE SUPPRESSOR IC – ISOLATED GROUND 4 – CIRCUIT NUMBER
* 4	DUPLEX RECEPTACLE, 20A, 120V, 2P, 3W MOUNTED ABOVE COUNTER–TOP OR 42" AFF * NOTATIONS SAME AS ABOVE
* 60 3 4W	SPECIAL PURPOSE RECEPTACLE * – VOLT RATING "3" – NUMBER OF POLES "60" – AMPERE RATING "4W" – 4 WIRES IN ADDITION TO GROUND
	MULTI–OUTLET ASSEMBLY, SYMBOL DENOTES RECEPTACLE TYPE
	FLUSH FLOOR OUTLET BOX WITH TYPE OUTLET INDICATED
	UNDER FLOOR DUCT SYSTEM WITH TYPE OUTLETS INDICATED
	THREE CELL UNDER FLOOR DUCT SYSTEM JUNCTION BOX
J OR J	JUNCTION BOX
P	PULL BOX
TC	TERMINAL CABINET
OS	OCCUPANCY SENSOR
PC	PHOTOCELL
ESA	EMERGENCY EYEWASH/SHOWER ALARM STATION WITH FLOW SWITCH(ES)
	INDICATED EQUIPMENT AND MATERIALS TO BE DEMOLISHED
DUST	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 12 CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
DAMP OR WET	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR GASKETED AND SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
CORROSIVE	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL BE OF NEMA 4X CONSTRUCTION (OR CORROSION RESISTANT CONSTRUCTION SUITABLE FOR USE IN A WET LOCATION WHERE NEMA STANDARDS DO NOT APPLY) UNLESS OTHERWISE NOTED.
CLASS I, DIV. 1 GROUP D	INDICATES THAT ALL ELECTRICAL EQUIPMENT AND MATERIALS INSTALLED WITHIN THE ROOM OR AREA IN WHICH THIS NOTATION APPEARS SHALL CONFORM TO N.E.C. REQUIREMENTS FOR THE HAZARDOUS AREA CLASSIFICATION SHOWN.

SYMBOL	DESCRIPTION
	GROUND SYSTEM GRID OR LOOP, 36" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED.
	EXOTHERMIC WELD CONNECTION
	3/4" x 10'–0" GROUND ROD. UNLESS SPECIFIED OTHERWISE.
	GROUND ROD TEST WELL STATION (SEE DETAIL SHEET FOR REQUIREMENTS)
	COMMUNICATION SYSTEMS
K	TELEPHONE OUTLET FOR DESK TYPE HANDSET K = KEY SYSTEM
K	TELEPHONE OUTLET FOR WALL TYPE HANDSET (MOUNT UP 4'–6") K = KEY SYSTEM
	PAGE/PARTY TELEPHONE OUTLET FOR DESK TYPE HANDSET
	PAGE/PARTY TELEPHONE OUTLET FOR WALL TYPE HANDSET, MOUNT UP 4'–6"
S H W	PAGING SPEAKER, WALL MOUNTED H = HORN TYPE W = WIDE ANGLE TYPE
S H W	PAGING SPEAKER, WALL MOUNTED, BI–DIRECTIONAL, HORN TYPE W = WIDE ANGLE TYPE
S	PAGING SPEAKER, FLUSH MOUNTED CEILING TYPE
S	PAGING SPEAKER, SURFACE MOUNTED CEILING TYPE
VC	REMOTE WALL MOUNTED VOLUME CONTROL FOR CEILING SPEAKER, MOUNT UP 5'–0"
A	PAGING SPEAKER AMPLIFIER ASSEMBLY
TM	TELEPHONE CABINET OR BACKBOARD AS NOTED
P OR C	"C" – DATA INPUT/OUTPUT CABLE OUTLET "P" – PROCESS COMPUTER SYSTEM (CAT6 RJ–45 JACK)

GD/VF #	GAS DETECTOR/VENTILATION FAILURE ALARM,
	# INDICATES TYPE OF UNIT.
	1 = MASTER, 2 = REMOTE

GB	GAS DETECTION/VENTILATION FAILURE WEATHERPROOF DUAL–LITE BEACON MOUNT TOP OF DEVICE UP 6'–8" A.F.F.
15 S	GAS DETECTION/VENTILATION FAILURE HORN/STROBE MOUNT TOP OF DEVICE UP 6'–8" A.F.F.
S	GAS DETECTION/VENTILATION FAILURE HORN, MOUNT TOP OF DEVICE UP 6'–8" A.F.F.
G	GAS DETECTION/VENTILATION FAILURE STROBE, MOUNT TOP OF DEVICE UP 6'–8" A.F.F.
	SECURITY SYSTEMS
SACP	SECURITY ALARM CONTROL PANEL
DS	SECURITY ALARM DOOR SWITCH
K	SECURITY ALARM KEY PAD
R	SECURITY SYSTEM CARD ACCESS READER
WS	SECURITY ALARM WINDOW SWITCH
	SECURITY ALARM MOTION DETECTOR
CCTV	CLOSED CIRCUIT TV CAMERA
PTZ	PAN, TILT, ZOOM CAMERA LENS CONTROLS
GB	GLASS BREAK DETECTOR
	FIRE ALARM SYSTEMS
H 200 R	FIRE ALARM HEAT DETECTOR 135 FIXED TEMPERATURE UNLESS OTHERWISE NOTED. "200" – 200 FIXED TEMPERATURE "R" – FIXED TEMPERATURE RATE–OF–RISE TYPE
I	FIRE ALARM SMOKE DETECTOR PHOTOELECTRIC TYPE UNLESS OTHERWISE NOTED. "I" – IONIZATION TYPE.
D	FIRE ALARM DUCT SMOKE DETECTOR
FACP	FIRE ALARM CONTROL PANEL
FV	FIRE ALARM VENTILATION PANEL WITH GRAPHIC PANEL
FA	REMOTE FIRE ALARM ANNUNCIATOR PANEL

SYMBOL	DESCRIPTION
F	FIRE ALARM MASTER BOX
F	FIRE ALARM HORN, MOUNT UP 7'–6"
15 F	FIRE ALARM STROBE, MOUNT UP 6'–8" 15 = CANDELA RATING
15 F	FIRE ALARM HORN AND STROBE LIGHT COMBINATION, MOUNT UP 6'–8" 15 = CANDELA RATING
F	FIRE ALARM MANUAL PULL STATION, MOUNT UP 4'–0"
VSS	SPRINKLER VALVE SUPERVISORY SWITCH
SFS	SPRINKLER FLOW ALARM SWITCH
F	FIRE ALARM BELL
FB	WEATHERPROOF HI–INTENSITY FIRE ALARM STROBE LIGHT WITH HORN
PIR	PASSIVE INFRARED DETECTOR
R	SMOKE BEAM DETECTOR (RECEIVER)
T	SMOKE BEAM DETECTOR (TRANSMITTER)
	FIRE ALARM SMOKE DETECTOR REMOTE INDICATOR AND TEST SWITCH

ABBREVIATIONS	
A	AMPS
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AL	ALUMINUM
AIC	AMPERE INTERRUPTING CAPACITY
AMP	AMPERE
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BKR	BREAKER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CGD	COMBUSTIBLE GAS DETECTOR
CKT	CIRCUIT
CLB	CURRENT LIMITING BREAKER
CLF	CURRENT LIMITING FUSE
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CS	CONTROL SWITCH/CONTROL STATION
CT	CURRENT TRANSFORMER
CU	COPPER
CWS	CONDUIT WALL SEAL
DC	DIRECT CURRENT
DIA	DIAMETER
DMU	DIGITAL METERING UNIT
DN	DOWN
EC	EMPTY CONDUIT
ELEC	ELECTRICAL

A / E–4 — SHEET NO. WHERE DETAIL IS DRAWN

SYMBOL WHERE THERE IS A DETAIL

DETAIL A — 1/4" = 1'–0" — E–3 — SHEET NO. WHERE THERE IS A DETAIL

SYMBOL WHERE DETAIL IS DRAWN

DETAIL SYMBOL

1 / E–4 — SHEET NO. WHERE SECTION IS DRAWN

SYMBOL WHERE THERE IS A SECTION

SECTION 1 — 1/4" = 1'–0" — E–3 — SHEET NO. WHERE SECTION IS TAKEN

SYMBOL WHERE SECTION IS DRAWN

SECTION SYMBOL

GENERAL NOTE

THIS IS A STANDARD LEGEND. SOME SYMBOLS MAY NOT APPEAR ON THE DRAWINGS.

ABBREVIATIONS (CONTINUED)	
ELEV	ELEVATION
EM	EMERGENCY
ENCL	ENCLOSURE OR ENCLOSED
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING
FO	FIBER OPTIC
FU	FUSE
GCP	GENERATOR CONTROL PANEL
GEN	GENERATOR
G, GND	GROUND
GFI	GROUND FAULT INTERRUPTER
GRS	GALVANIZED RIGID STEEL
HACR	HEATING & AIR CONDITIONING RATED
HH	HANDHOLE
HT	HEIGHT
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HZ	HERTZ
ID	IDENTIFICATION
INSTR	INSTRUMENT
K	KILO (PREFIX)
kcmil	1000 CIRCULAR MILS
KVA	KILOVOLT AMPERES
KW	KILOWATTS
LA	LIGHTING ARRESTER
LTG	LIGHTING
LP	LIGHTING PANEL
LV	LOW VOLTAGE
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOAD
PB	PULL BOX
PCP	PUMP CONTROL PANEL
PH	PHASE
PMH	POWER MANHOLE
PNL	PANEL OR PANELBOARD
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RECPT	RECEPTACLE
REQD	REQUIRED
QTY	QUANTITY
SA	SURGE ARRESTER
SEC	SECONDS OR SECONDARY
SH	SHIELDED OR SPACE HEATER
SHH	SIGNAL HANDHOLE
SPD	SURGE PROTECTIVE DEVICE
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TIME TO CLOSE OR TRAY CABLE
TEL	TELEPHONE
TO	TIME TO OPEN
TVSS	TRANSIENT VOLTAGE SURGE SUPRESSOR
TS	TWISTED SHIELDED OR THERMAL SWITCH
TYP	TYPICAL
UG	UNDERGROUND
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VA	VOLT AMPS
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS, WIDTH, WITH, WIRE
WP	WEATHERPROOF
XP	EXPLOSION PROOF
XFMR	TRANSFORMER

DESIGN AGENCY
GPD Group
1468 W. 9TH STREET, SUITE 750
CLEVELAND, OHIO 44113

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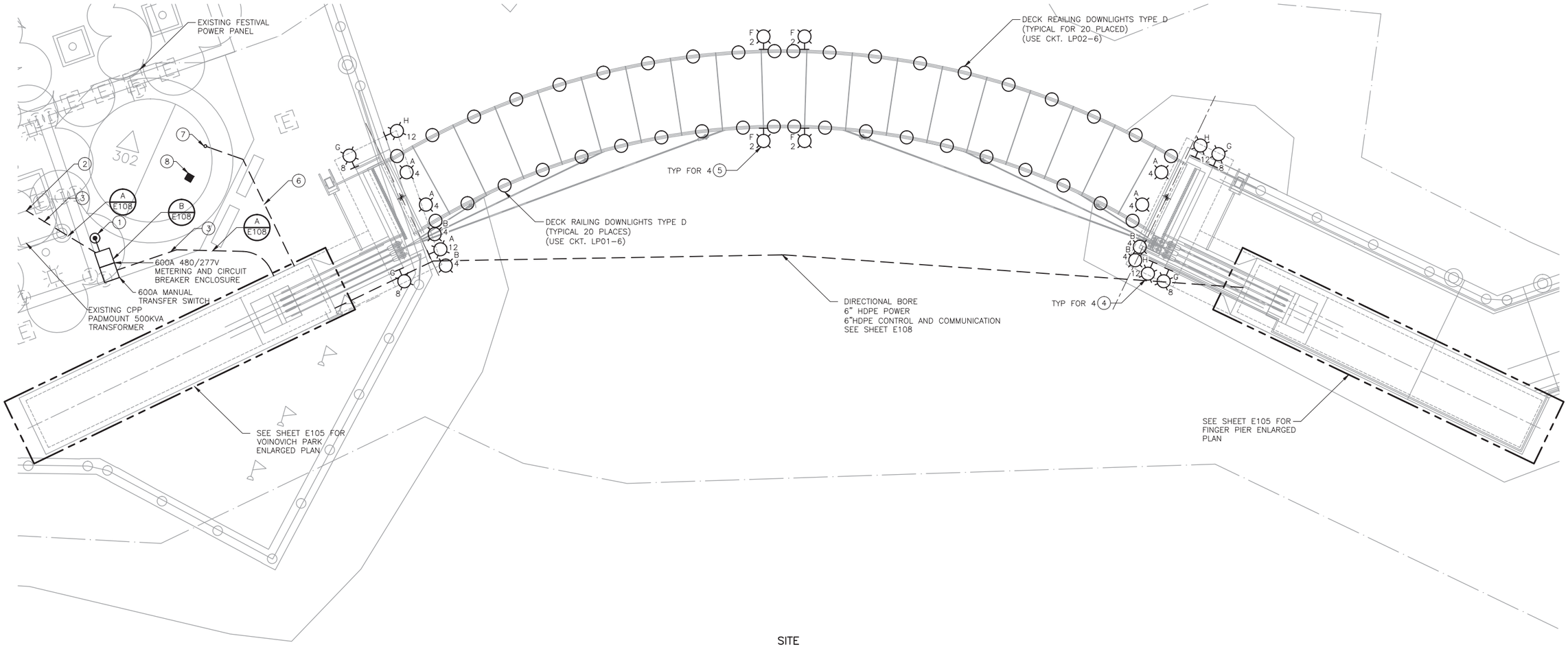
DESIGNED TMK | CHECKED

SUBSTRUCTURE DETAILS
REAR ABUTMENT AND CHAMBER

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

E102 / E–



SITE

PLAN

1" = 10'

GENERAL NOTES:

1. LIGHTING ON PARK SIDE SPAN SHALL BE CONNECTED TO PANEL LP01.
2. LIGHTING ON PIER SIDE SPAN SHALL BE CONNECTED TO PANEL LP02.
3. REFER TO PANELBOARD SCHEDULES, DRAWING E106 FOR 120 VOLT POWER CIRCUIT REQUIREMENTS.
4. REFER TO LIGHTING FIXTURE SCHEDULE, DRAWING E108 FOR LIGHTING FIXTURE SPECIFICATION
5. REFER TO ONE-LINE DIAGRAM E104 FOR CONDUIT AND WIRE REQUIREMENTS.
6. CONTRACTOR SHALL FIELD ROUTE WIRING AND CONDUIT FOR LIGHTING. CONDUITS SHALL ACCOMMODATE AND NOT INTERFERE WITH OPERATION OF THE BRIDGE. EMBED CONDUITS AS NECESSARY.

KEY NOTES:

(1) SERVICE GROUND ROD.

(2) TERMINATE AT EXISTING CPP TRANSFORMER SECONDARY COMPARTMENT.

(3) FIELD ROUTE CONDUITS. RESTORE SURFACES AFTER INSTALLATION OF UNDERGROUND CONDUIT.

(4) FIELD COORDINATE THE MOUNTING HEIGHT AND LOCATION OF PIER OBSTRUCTION LIGHT PER USCG REQUIREMENTS. FIELD ROUTE CONDUIT AND WIRING.

(5) FIELD COORDINATE MOUNTING LOCATION NEAR THE END OF BASCULE SPAN PER USCG REQUIREMENTS. FIELD ROUTE CONDUIT AND WIRING.

(6) 2" COMMUNICATION CONDUIT FOR CCTV SYSTEM FIBER OPTIC CABLING AND BRIDGE OPERATION CONTROL FIBER OPTIC CABLING.

(7) STUB UP CONDUIT AS BRIDGE CONTROL ROOM PANEL CD00. PROVIDE REMOVABLE CONDUIT GAP/SEAL.

(8) BRIDGE CONTROL ROOM PANEL CD00. 120V POWER FROM OPERATORS BUILDING PANELBOARD, (BY OTHERS). COORDINATE FINAL LOCATION OF PANEL WITH OPERATORS BUILDING CONTRACT.

DESIGN AGENCY
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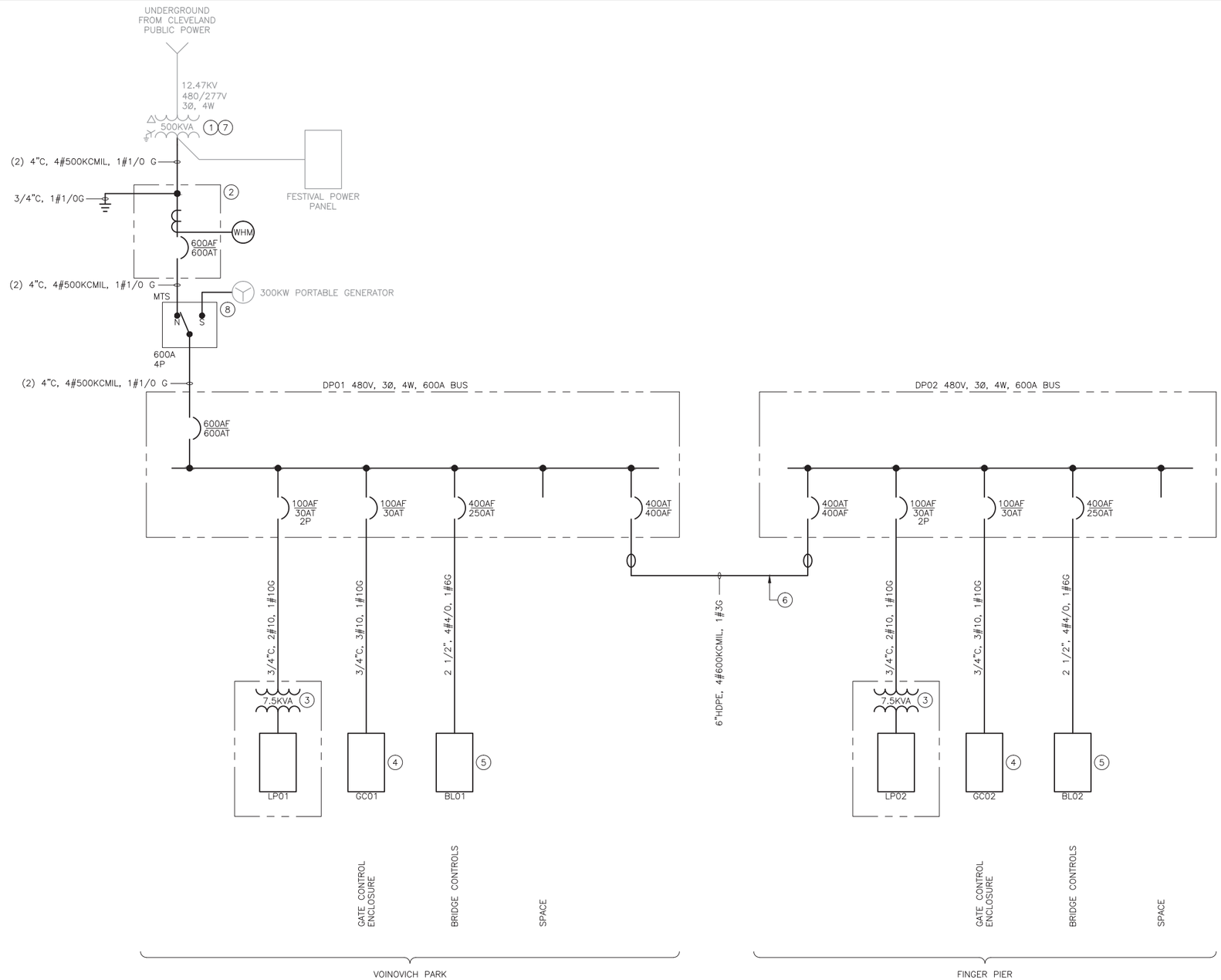
ELECTRICAL POWER AND LIGHTING PLAN

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E103 / E-

160
165



GENERAL NOTES:

1. ALL PANELBOARDS SHALL BE CIRCUIT BOLT-ON CIRCUIT BREAKER TYPE WITH NEMA 4 ENCLOSURE.
2. REFER TO PANELBOARD SCHEDULES, DRAWING E106 FOR 120 VOLT PANELBOARD DESCRIPTIONS.

KEY NOTES:

(1) PADMOUNT TRANSFORMER OWNED BY CLEVELAND PUBLIC POWER (C.P.P.)

(2) PADMOUNT METERING AND CIRCUIT BREAKER ENCLOSURE.

(3) TRANSFORMER PANEL ASSEMBLY

(4) SEE RISER DIAGRAM DRAWING E108 FOR PEDESTRIAN GATES.

(5) SEE SCHLAICH BERGMAN & PARTNER DRAWINGS FOR BRIDGE LIFTING CABINETS BL01 AND BL02.

(6) DIRECTIONAL BORE FOR POWER AND CONTROL WIRING.

(7) COORDINATE WITH CPP FOR TERMINATION OF NEW LOAD CABLES ON SECONDARY BUSHING.

(8) MANUAL TRANSFER SWITCH: 600A, 480V, 3Ø, 4 POLE, NEMA 4X STAINLESS STEEL ENCLOSURE.

DESIGN AGENCY
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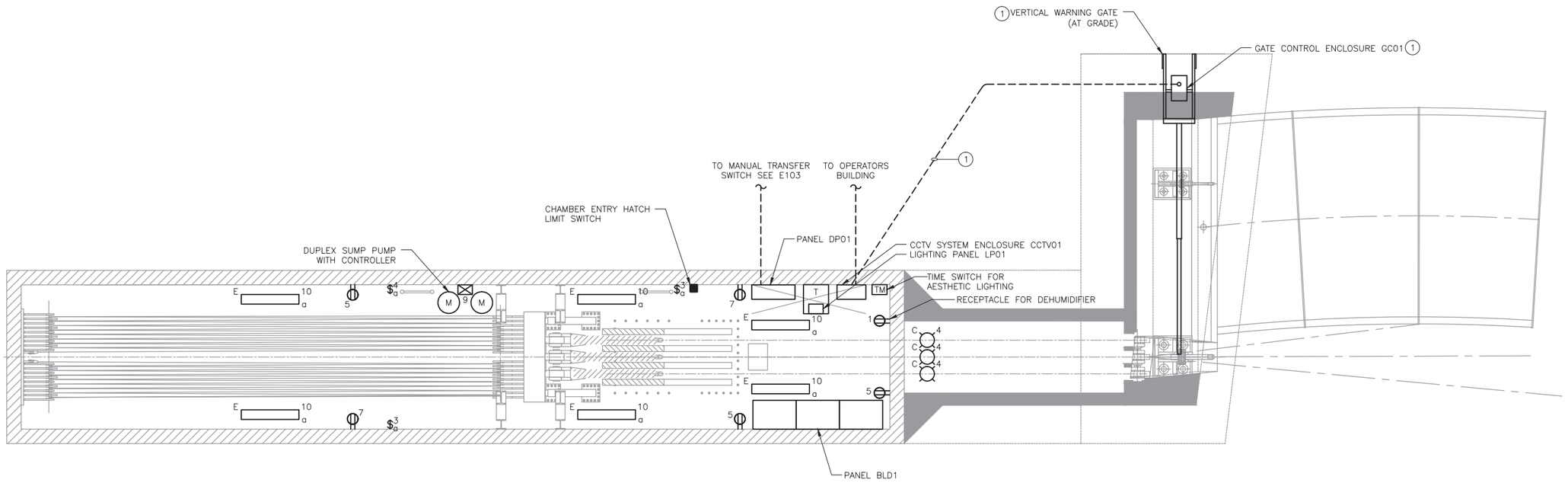
ELECTRICAL ONE LINE DIAGRAM

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

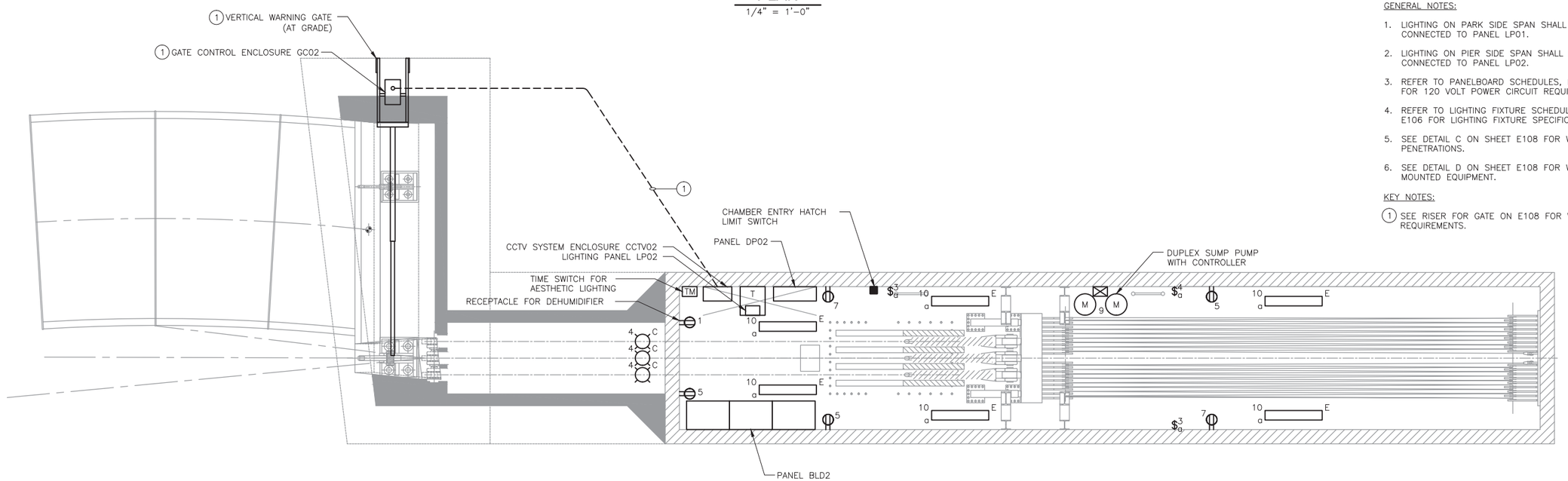
E104 E-



VOINOVICH PARK BRIDGE CHAMBER ENLARGED

PLAN

1/4" = 1'-0"



FINGER PEIR BRIDGE CHAMBER ENLARGED

PLAN

1/4" = 1'-0"

GENERAL NOTES:

1. LIGHTING ON PARK SIDE SPAN SHALL BE CONNECTED TO PANEL LP01.
2. LIGHTING ON PIER SIDE SPAN SHALL BE CONNECTED TO PANEL LP02.
3. REFER TO PANELBOARD SCHEDULES, DRAWING E106 FOR 120 VOLT POWER CIRCUIT REQUIREMENTS.
4. REFER TO LIGHTING FIXTURE SCHEDULE, DRAWING E106 FOR LIGHTING FIXTURE SPECIFICATION.
5. SEE DETAIL C ON SHEET E108 FOR WALL PENETRATIONS.
6. SEE DETAIL D ON SHEET E108 FOR WALL MOUNTED EQUIPMENT.

KEY NOTES:

(1) SEE RISER FOR GATE ON E108 FOR WIRING REQUIREMENTS.

DESIGN AGENCY
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CLEVELAND, OHIO 44113

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ELECTRICAL
ENLARGED POWER PLANS

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E105 / E-

TRANSFORMER-PANEL ASSEMBLY LP01

7.5 KVA 1-PHASE TRANSFORMER — **480** VOLT PRIMARY — 30 **AMP 2 POLE PRIMARY MAIN BREAKER** — 42 KA
40 AMP 2 POLE SECONDARY MAIN BREAKER — LOCATION: **PARK SIDE CHAMBER**
40 AMP BUS RATING — 12 POLES — 10 KA SHORT CIRCUIT RATING — ENCLOSURE RATING: **NEMA 4**
120/240 VOLTS SECONDARY — 1 PHASE — 3 WIRE — **60 Hz.** — ELECTRONIC GRADE: **NO** — MOUNTING: **SURFACE**

CIRCUIT NO.	DESCRIPTION	LOAD KVA LINE 1	LOAD KVA LINE 2	BREAKER AMPS/ POLES	NOTES	CIRCUIT NO.	DESCRIPTION	LOAD KVA LINE 1	LOAD KVA LINE 2	BREAKER AMPS/ POLES	NOTES
1	DEHUMIDIFIER RECEPTACLE	1.4		15 /1	2, 5	2	BASCULE SPAN LIGHT	0.4		15 /1	5
3	GC01 GATE CONTROL POWER		0.5	15 /1	5	4	ABUTMENT / CABLE / DECK / TOWER UPLIGHTS		0.2	15 /1	5, 6
5	CHAMBER SERVICE RECEPTACLES	0.6		20 /1	5	6	DECK RAILING DOWNLIGHTS	0.1		15 /1	5, 6
7	CHAMBER SERVICE RECEPTACLES		0.4	20 /1	5	8	FAA OBSTRUCTION LIGHT		0.1	15 /1	5
9	SUMP PUMP	0.8		20 /1	5	10	CHAMBER LIGHTING	0.5		15 /1	5
11	CCTV		0.5	20 /1	5	12	PIER OBSTRUCTION LIGHTS		0.4	15 /1	5
	TOTAL LINE KVA THIS SIDE	2.8	1.4				TOTAL LINE KVA THIS SIDE	1	0.7		
							TOTAL KVA PER LINE	3.8	2.1		
							TOTAL KVA	5.9			

NOTES:
1. PROVIDE LOCKING HARDWARE
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
5. BRANCH CIRCUIT WIRING: 3/4"C, 2#12 & 1#12G

NOTES CONT.:
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)
6. LIGHTING CONTROLLED BY TIME SWITCH IN CHAMBER

TRANSFORMER-PANEL ASSEMBLY LP02

7.5 KVA 1-PHASE TRANSFORMER — **480** VOLT PRIMARY — 30 **AMP 2 POLE PRIMARY MAIN BREAKER** — 42 KA
40 AMP 2 POLE SECONDARY MAIN BREAKER — LOCATION: **PARK SIDE CHAMBER**
40 AMP BUS RATING — 12 POLES — 10 KA SHORT CIRCUIT RATING — ENCLOSURE RATING: **NEMA 4**
120/240 VOLTS SECONDARY — 1 PHASE — 3 WIRE — **60 Hz.** — ELECTRONIC GRADE: **NO** — MOUNTING: **SURFACE**

CIRCUIT NO.	DESCRIPTION	LOAD KVA LINE 1	LOAD KVA LINE 2	BREAKER AMPS/ POLES	NOTES	CIRCUIT NO.	DESCRIPTION	LOAD KVA LINE 1	LOAD KVA LINE 2	BREAKER AMPS/ POLES	NOTES
1	DEHUMIDIFIER RECEPTACLE	1.4		15 /1	2, 5	2	BASCULE SPAN LIGHT	0.4		15 /1	5
3	GC02 GATE CONTROL POWER		0.5	15 /1	5	4	ABUTMENT / CABLE / DECK / TOWER UPLIGHTS		0.2	15 /1	5, 6
5	CHAMBER SERVICE RECEPTACLES	0.6		20 /1	5	6	DECK RAILING DOWNLIGHTS	0.1		15 /1	5, 6
7	CHAMBER SERVICE RECEPTACLES		0.4	20 /1	5	8	FAA OBSTRUCTION LIGHT		0.1	15 /1	5
9	SUMP PUMP	0.8		20 /1	5	10	CHAMBER LIGHTING	0.5		15 /1	5
11	CCTV		0.5	20 /1		12	PIER OBSTRUCTION LIGHTS		0.4	15 /1	
	TOTAL LINE KVA THIS SIDE	2.8	1.4				TOTAL LINE KVA THIS SIDE	1	0.7		
							TOTAL KVA PER LINE	3.8	2.1		
							TOTAL KVA	5.9			

NOTES:
1. PROVIDE LOCKING HARDWARE
3. 30 ma GFI CIRCUIT BREAKER FOR EQUIPMENT PROTECTION ONLY (HEAT TRACE)
5. BRANCH CIRCUIT WIRING: 3/4"C, 2#12 & 1#12G

NOTES CONT.:
2. 5 ma GROUND FAULT INTERRUPTER (GFI) CIRCUIT BREAKER
4. PROVIDE LOCKING HARDWARE & PAINT BREAKER HANDLE RED (FACP)
6. LIGHTING CONTROLLED BY TIME SWITCH IN CHAMBER

LIGHTING FIXTURE SCHEDULE

TYPE CODE	TYPE DESCRIPTION	MOUNTING TYPE	MOUNTING LOCATION	LAMPS	FIXTURE VOLTAGE	FIXTURE WATTAGE	FIXTURE DESCRIPTION	MANUFACTURER	CATALOG NUMBER	REMARKS
A	DECK FASCIA UPLIGHT	KNUCKLE	PIER	LED	120	28	MEDIUM COLOR CHANGING WIDE FLOOD WITH 60° BEAM SPREAD.	LUMENPULSE	LBM-120-RGB-WFL-BK-KN-CRC LBM-VS-BKM-BK	MOUNT TO 1'-5" DIAMETER CONCRETE PIER WITH 1" CHAMFER AT TOP EDGE. INSTALL WITH TOP OF CONCRETE PIER AT 2'-6" ABOVE MEAN WATER LEVEL (+572'). PROVIDE MATTE BLACK VISOR OPTION. PROVIDE CORROSION RESISTANT COATING.
B	TOWER UPLIGHT	KNUCKLE	PIER	LED	120	14	SMALL COLOR CHANGING NARROW SPOT WITH 10° BEAM SPREAD	LUMENPULSE	LBS-120-RGB-NS-BK-KN-CRC LBS-VS-BKM-BK	MOUNT TO 1'-5" DIAMETER CONCRETE PIER WITH 1" CHAMFER AT TOP EDGE. INSTALL WITH TOP OF CONCRETE PIER AT 2'-6" ABOVE MEAN WATER LEVEL (+572'). PROVIDE MATTE BLACK VISOR OPTION. PROVIDE CORROSION RESISTANT COATING.
C	CABLE UPLIGHT	YOKE	ABUTMENT	LED	120	14	SMALL COLOR CHANGING NARROW SPOT WITH 10° BEAM SPREAD	LUMENPULSE	LBS-120-RGB-NS-BK-CRC LBS-VS-BKM-BK	PROVIDE MATTE BLACK VISOR OPTION. PROVIDE CORROSION RESISTANT COATING.
D	DECK RAILING	RECESSED	HANDRAIL	LED	24	1.5	RECESSED DOWNLIGHT FOR RECESSED MOUNTING IN TUBULAR HANDRAIL.	WAGNER LUMENRAIL	LULP-50-50K-A-40	PROVIDE CLASS 2 DRIVER LOCATED WITHIN BRIDGE CHAMBER IN NEMA 4 ENCLOSURE
E	CHAMBER	SURFACE	CEILING	(2) F32T8	120	61	WET LOCATION LISTED VAPORTIGHT FLUORESCENT WITH LOW TEMPERATURE ELECTRONIC BALLAST	COOPER FAIL-SAFE	VRVT2-2-32-DR-UNV-EB82-EL8-WL	PROVIDE EMERGENCY BALLAST WHERE INDICATED ON PLAN
F	BASCULE SPAN NAVIGATION MARKER	SURFACE, SWIVEL	BASCULE SPAN FASCIA	LED	120	16	CAST ALUMINUM RAINTIGHT MARINE BASCULE SPAN SIGNAL	B&B ROADWAY	BS	PROVIDE AUTOMATIC SWITCHING OPTION WITH ROTATION SENSOR
G	OBSTRUCTION MARKER	SURFACE, SIDE	TOWER	LED	120	5.5	SINGLE LIGHT RED/INFRARED FAA-APPROVED OBSTRUCTION SIDE LIGHT	DIALIGHT	860-1R01-001	MOUNT TO CAST JUNCTION BOX ON STRUCTURE SURFACE. PROVIDE ANTI-SWING BRAKE OPTION.
H	PIER LIGHT	SURFACE, SIDE	PIER	LED	120	5.5	SINGLE RED PIER OBSTRUCTION LIGHT	B&B ROADWAY	PL-BM	PROVIDE JUNCTION BOX OPTION. PROVIDE PRIMARY LAMP FAILURE INDICATOR OPTION

DESIGN AGENCY
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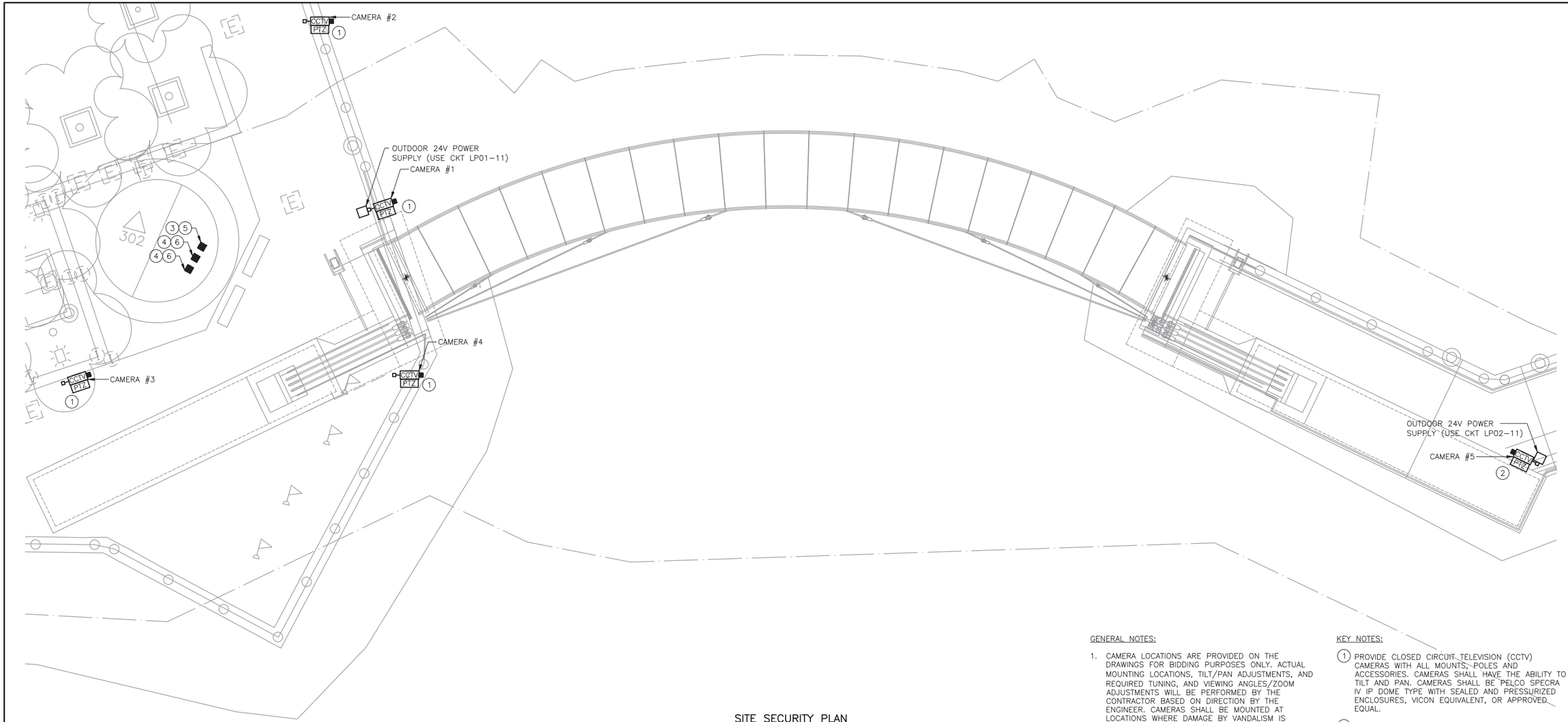
LIGHTING SCHEDULE AND PANELBOARD SCHEDULE

CUY–NORTH COAST HARBOR PEDESTRIAN BRIDGE

E106 E–

163
165



SITE SECURITY PLAN

PLAN

1" = 10'

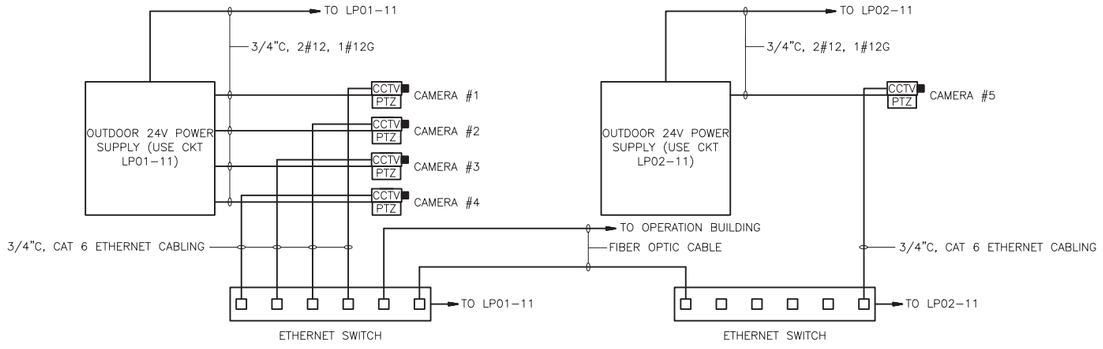


DIAGRAM 1

NTS

GENERAL NOTES:

1. CAMERA LOCATIONS ARE PROVIDED ON THE DRAWINGS FOR BIDDING PURPOSES ONLY. ACTUAL MOUNTING LOCATIONS, TILT/PAN ADJUSTMENTS, AND REQUIRED TUNING, AND VIEWING ANGLES/ZOOM ADJUSTMENTS WILL BE PERFORMED BY THE CONTRACTOR BASED ON DIRECTION BY THE ENGINEER. CAMERAS SHALL BE MOUNTED AT LOCATIONS WHERE DAMAGE BY VANDALISM IS MINIMIZED (OUT OF EASY ACCESS BY PEDESTRIANS).
2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR THE CCTV EQUIPMENT. SHOP DRAWINGS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
   A. CAMERA EQUIPMENT.
   B. MOUNTING HARDWARE INCLUDING DEDICATED POLES.
   C. PROPOSED LOCATIONS FOR CAMERAS, SIGNAL PROCESSOR/CONTROLLER, AND MONITOR BASED ON FIELD SURVEY.
3. CAMERAS SHALL BE MOUNTED ON DEDICATED POLES (10' MINIMUM). ALL BRACKETS, SUPPORTS, HARDWARE, ETC. FOR CAMERA MOUNTING SHALL BE 300 SERIES STAINLESS STEEL.

KEY NOTES:

(1) PROVIDE CLOSED CIRCUIT TELEVISION (CCTV) CAMERAS WITH ALL MOUNTS, POLES AND ACCESSORIES. CAMERAS SHALL HAVE THE ABILITY TO TILT AND PAN. CAMERAS SHALL BE PELCO SPECRA IV IP DOME TYPE WITH SEALED AND PRESSURIZED ENCLOSURES, VICON EQUIVALENT, OR APPROVED EQUAL.

(2) PROVIDE 24V AC POWER SUPPLIES. THE POWER SUPPLIES SHALL BE POLE MOUNTED AS SHOWN. POWER SUPPLIES SHALL BE CAPABLE OF PROVIDING FOUR 24V AC OUTPUTS WITH NEMA 4X ENCLOSURES. POWER SUPPLIES SHALL BE PELCO MODEL WCS4–20, VICON EQUIVALENT, OR APPROVED EQUAL.

(3) PROVIDE ONE VIDEO SIGNAL PROCESSOR/CONTROLLER. THIS DEVICE SHALL BE CAPABLE OF ACCEPTING A MINIMUM OF 8 ANALOG AND 8 IP CAMERA INPUTS AND PROVIDE TWO OUTPUTS TO MONITORS. PROCESSOR/CONTROLLER SHALL HAVE THE ABILITY TO ALTERNATE BETWEEN CAMERAS WITH FULL–SCREEN DISPLAY OR PROVIDE SPLIT–SCREEN VIEWING OF ALL CAMERA INPUTS. PROCESSOR/CONTROLLER SHALL HAVE THE ABILITY TO BE REMOTELY ACCESSED FROM THE INTERNET. VIDEO PROCESSOR SHALL BE MODEL DX8108 MANUFACTURED BY PELCO, VICON EQUIVALENT, OR APPROVED EQUAL.

(4) PROVIDE TWO VIDEO MONITORS. MONITOR SHALL BE MOUNTED ON SWIVEL IN OPERATORS BUILDING PER DIRECTION OF THE ENGINEER. MONITORS SHALL BE MODEL PMCL524F MANUFACTURED BY PELCO, ORION EQUIVALENT, OR APPROVED EQUAL. MONITORS SHALL BE 24 INCH (DIAGONALLY MEASURED) WITH A MAXIMUM RESOLUTION OF 1920 X 1080 AND MINIMUM CONTRAST RATIO OF 800:1 MONITORS SHALL BE EQUIPPED WITH A VCA INPUT. MONITORS SHALL BE COMPATIBLE WITH CCTV SYSTEM.

(5) LOCATE IN BRIDGE CONTROL ROOM PANEL CD00, SEE E103. 120V POWER FROM OPERATOR'S BUILDING PANELBOARD (BY OTHERS).

(6) LOCATE ADJACENT TO BRIDGE CONTROL ROOM PANEL CD00. 120V POWER FROM OPERATORS BUILDING PANELBOARD (BY OTHERS). PROVIDE HDMI VIDEO SIGNAL CABLING TO VIDEO SIGNAL PROCESSOR/CONTROLLER.

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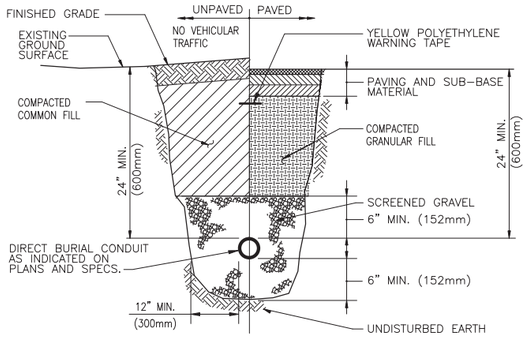
DESIGNED TMK | CHECKED

ELECTRICAL
CCTV PLAN

CUY–NORTH COAST HARBOR
PEDESTRIAN BRIDGE

E107 / E–

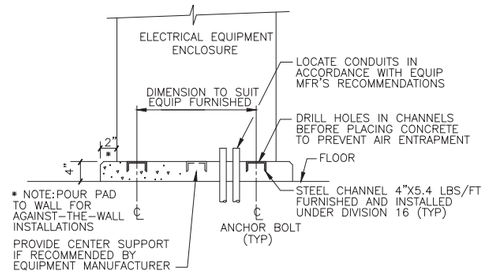
164
165



TYPICAL DIRECT BURIAL CONDUIT INSTALLATION

DETAIL A

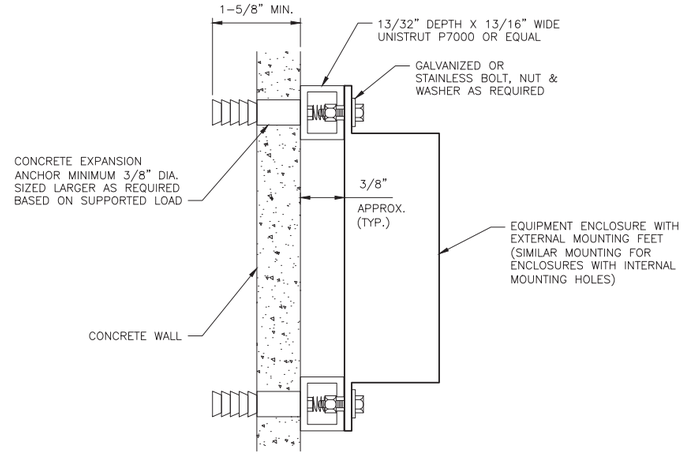
NTS



ELECTRICAL EQUIPMENT PAD

DETAIL B

NTS



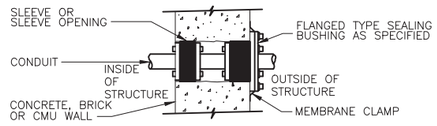
NOTE:

1. APPLICABLE FOR ALL NON CAST-IRON ENCLOSURES OR BOXES

EQUIPMENT ENCLOSURE MOUNTED ON CONCRETE WALL

DETAIL C

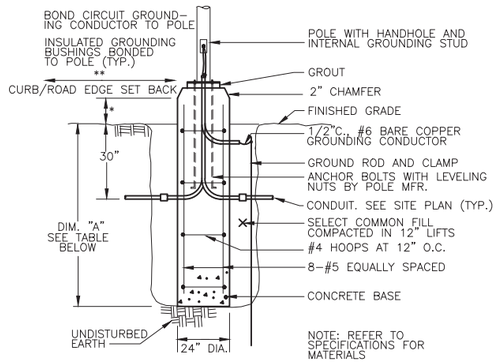
NTS



CONDUIT PENETRATION THROUGH EXISTING WALL

DETAIL D

NTS



POLE HEIGHT	DIMENSION "A"
10'-0"	4'-6"
20'-0"	4'-6"
30'-0"	6'-6"
40'-0"	6'-6"

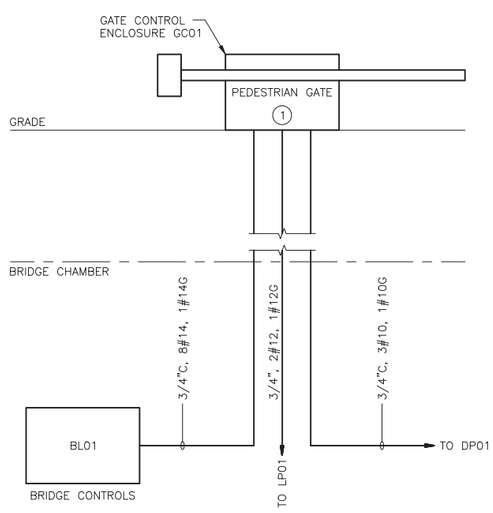
* =2" AT WALKWAYS; 18" AT ROADWAYS & PARKING AREAS

** =48" AT WALKWAYS; 24" AT ROADWAYS

STANDARD POLE BASE

DETAIL E

NTS



PEDESTRIAN GATE RISER

DIAGRAM 1

NTS

TYPICAL FOR TWO (SHOWN FOR VOINOVICH PARK)

KEY NOTES:

(1) GATE CONTROL COMPONENTS ARE INTEGRAL TO ENCLOSURE.

DESIGN AGENCY
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DESIGNED	DRAWN	REVIEWED	DATE
TMK	RMM	CHECKED	REVISED

STRUCTURE FILE NUMBER

ELECTRICAL DETAILS

CUY-NORTH COAST HARBOR PEDESTRIAN BRIDGE

E108 / E-