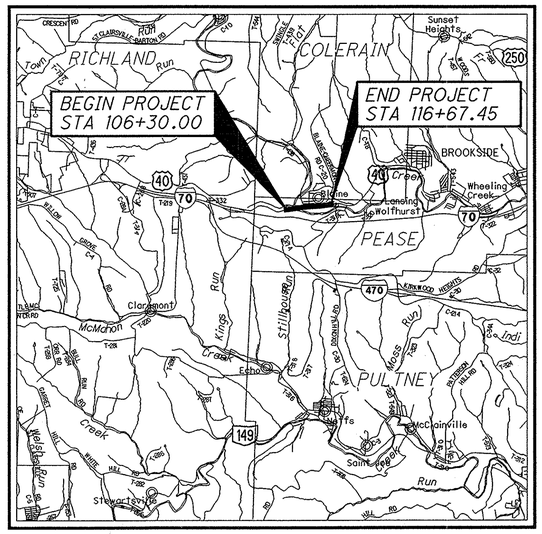

LOCATION MAP

LATITUDE: 40°04'00" LONGITUDE: 80°49'15"

SCALE IN MILES

0 1 2 3 4

N

PORTION TO BE IMPROVED

INTERSTATE HIGHWAY

STATE & FEDERAL ROUTES

COUNTY & TOWNSHIP ROADS

OTHER ROADS

DESIGN DESIGNATION

CURRENT ADT (2010)	6200
DESIGN YEAR ADT (2030)	7400
DESIGN HOURLY VOLUME (2030)	740
DIRECTIONAL DISTRIBUTION	55%
TRUCKS (24 HOUR B&C)	4%
DESIGN SPEED	3R PROJECT
LEGAL SPEED	40 MPH

DESIGN FUNCTIONAL CLASSIFICATION:
URBAN MINOR ARTERIAL

NHS PROJECT ---------- NO

DESIGN EXCEPTIONS

NONE

UNDERGROUND UTILITIES

CONTACT BOTH SERVICES
CALL TWO WORKING DAYS
BEFORE YOU DIG

CALL
1-800-362-2764
(TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON-MEMBERS
MUST BE CALLED DIRECTLY

OIL & GAS PRODUCERS PROTECTIVE
SERVICE CALL: **1-800-925-0988**

PLAN PREPARED BY:

TranSystems

55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

STATE OF OHIO

DEPARTMENT OF TRANSPORTATION

BEL-40-23.38

PEASE TOWNSHIP
BELMONT COUNTY

INDEX OF SHEETS:

PROJECT DESCRIPTION

0.20 MILES OF WORK THAT INCLUDES THE REHABILITATION OF THE EXISTING 11-SPAN OPEN SPANDREL CONCRETE ARCH BRIDGE WITH APPROACHES AND RETAINING WALLS, OVER THE WHEELING CREEK, BARTON-BLAINE ROAD, AND ABANDONED RAILROAD. REHABILITATION WORK INCLUDES NEW CONCRETE OVERLAY, REPAIR AND RESURFACING OF ALL CONCRETE ELEMENTS AS NEEDED, SEALING OF ALL CONCRETE SURFACES, AND REPAIR OF EXPANSION JOINT DEVICES.

PROJECT EARTH DISTURBED AREA:	N/A *
ESTIMATED CONTRACTOR EARTH DISTRUBED AREA:	N/A *
NOTICE OF INTENT EARTH DISTURBED AREA:	N/A *

*MAINTENANCE PROJECT

2008 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.

I HEREBY APPROVE THESE PLANS AND DECLARE THAT THE MAKING OF THIS IMPROVEMENT WILL REQUIRE THE CLOSING TO TRAFFIC OF THE HIGHWAY AND THAT DETOURS WILL BE PROVIDED AS INDICATED ON SHEET 10 .

ENGINEERS SEAL:

STATE OF OHIO
JONATHAN DAVID HREN
69952
REGISTERED PROFESSIONAL ENGINEER

SIGNED: _____
DATE: 1-13-2010

STANDARD CONSTRUCTION DRAWINGS

BP-2.4	7/16/04	TC-52.10	1/19/07								
BP-3.1	10/19/07	TC-52.20	1/19/07								
		TC-65.10	1/21/05								
DM-4.3	4/17/09	TC-65.11	1/21/05								
DM-4.4	4/17/09	TC-73.10	1/19/01								
EXJ-3-82	7/19/02										
MT-97.10	4/17/09										
MT-101.60	4/17/09										
MT-105.10	1/16/09										
RM-4.2	10/19/07										
TC-41.20	1/19/01										
TC-42.20	7/16/04										

SUPPLEMENTAL SPECIFICATIONS

800	1/15/10
832	5/5/09
843	4/18/03
847	10/16/09

SPECIAL PROVISIONS

DATE 2/12/10 _____ DISTRICT DEPUTY DIRECTOR

APPROVED _____
DATE 2-18-10 DIRECTOR, DEPARTMENT OF TRANSPORTATION

FEDERAL PROJECT NO. E034(567)

PID NO. 22815

CONSTRUCTION PROJECT NO.

RAILROAD INVOLVEMENT NONE

BEL-40-23.38

1/73

BEL - US-40-23.38
100248 PID - 22815
Dist 11 5/6/2010

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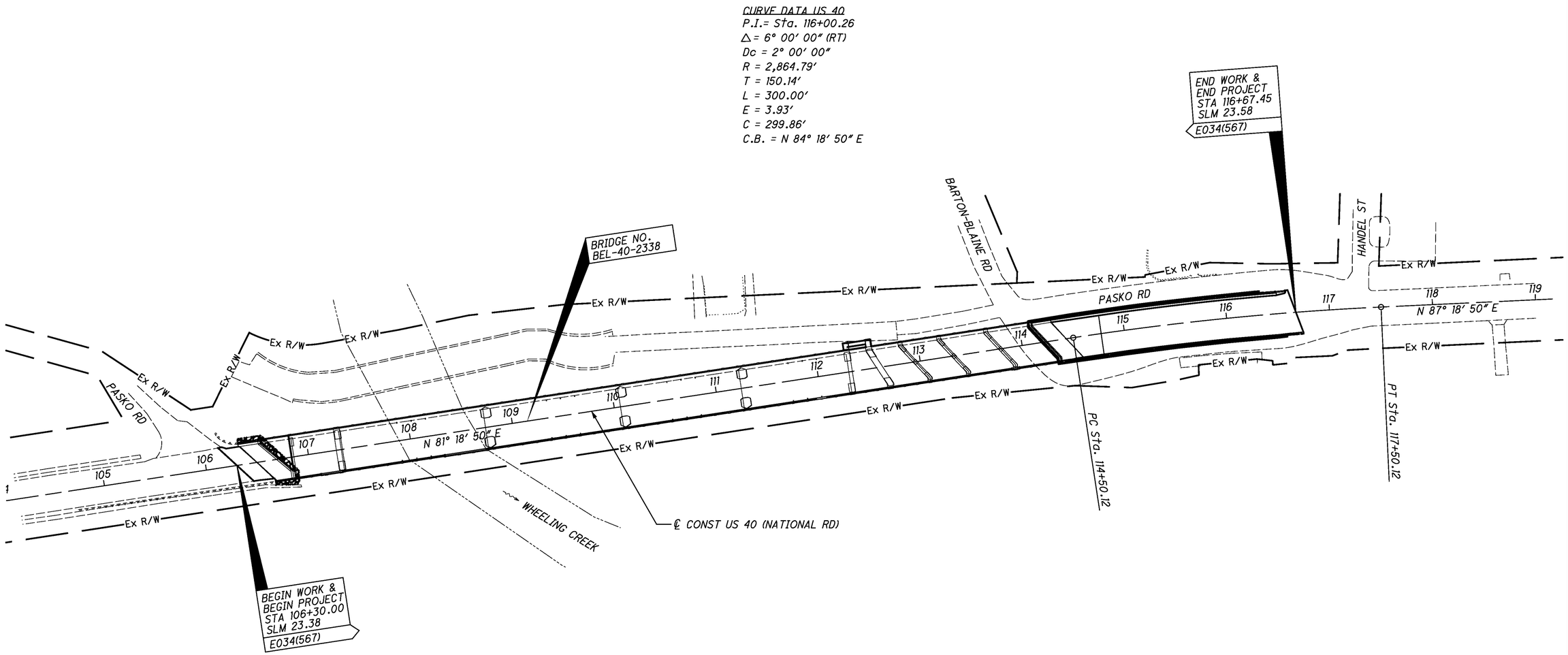

HORIZONTAL SCALE IN FEET
0 25 50 100

SCHEMATIC PLAN

BEL-40-23.38

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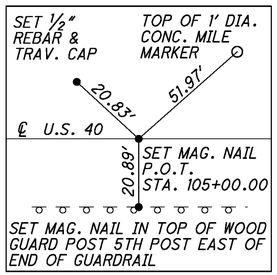
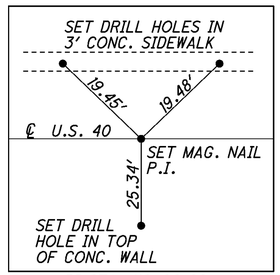
CALCULATED HB | CHECKED DJW

REFERENCE TIES

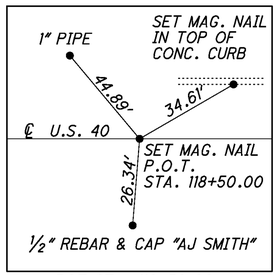
CENTERLINE REFERENCES (NOT TO SCALE)



POT STA. 105+00.00



PI STA. 116+00.26



POT STA. 118+50.00

COORDINATES OF REFERENCE POINTS

STATION	NORTHING	EASTING
POT 105+00.00	757083.391	2438210.438
PC 114+50.12	757226.879	2439149.660
PI 116+00.26	757249.553	2439298.076
PT 117+50.12	757256.589	2439448.048
POT 118+00.00	757261.270	2439547.818

BEL-40-23.38

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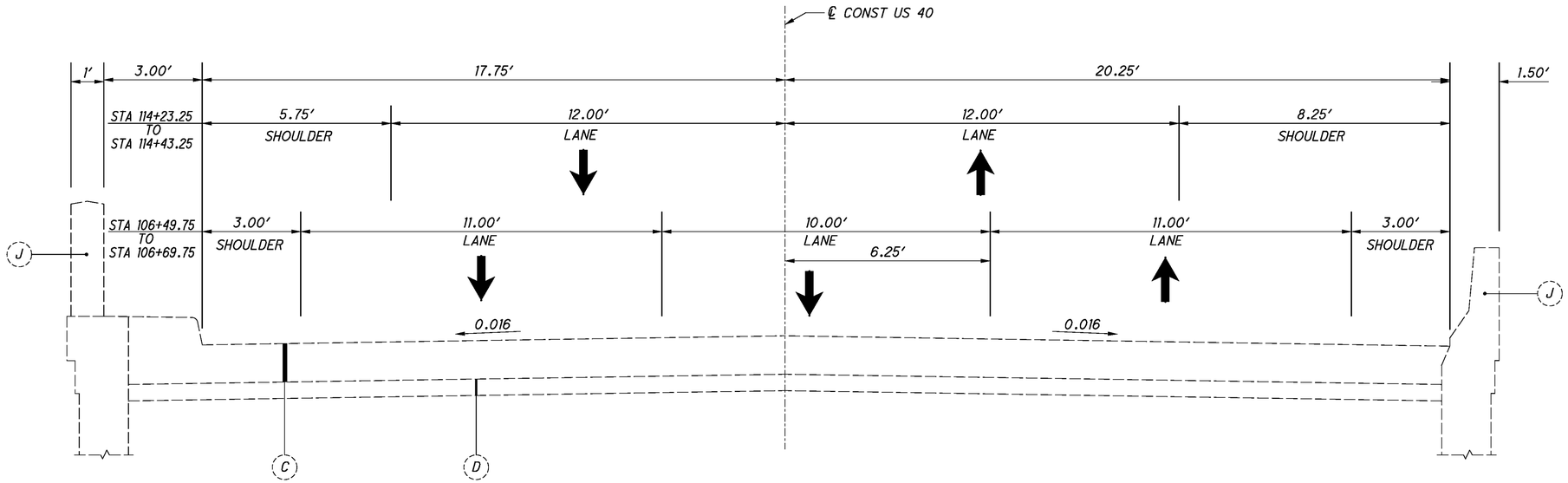
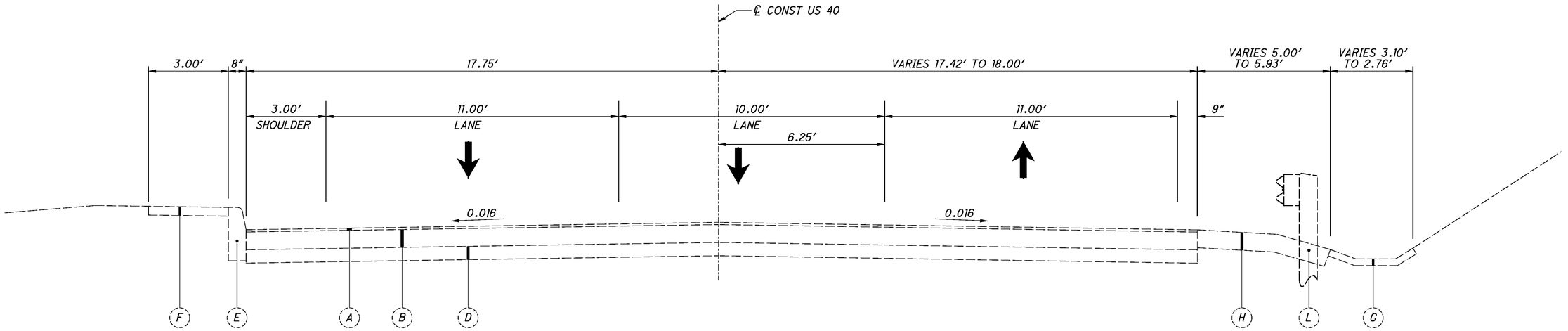


LEGEND:

- (A) 1" ASPHALT
- (B) 8" CONCRETE
- (C) 14" CONCRETE APPROACH SLAB
- (D) 6" SUBBASE
- (E) 8" CONCRETE CURB
- (F) 4" CONCRETE SIDEWALK
- (G) CONCRETE GUTTER
- (H) ASPHALT SHOULDER
- (J) PARAPET
- (K) RETAINING WALL
- (L) GUARDRAIL
- (M) 6" CONCRETE CURB
- (N) 4" ASPHALT

TYPICAL SECTION APPROACH SLAB - US 40

STA 106+49.75 TO STA 106+69.75 = 20.00 LF
STA 114+23.25 TO STA 114+43.25 = 20.00 LF
40.00 LF

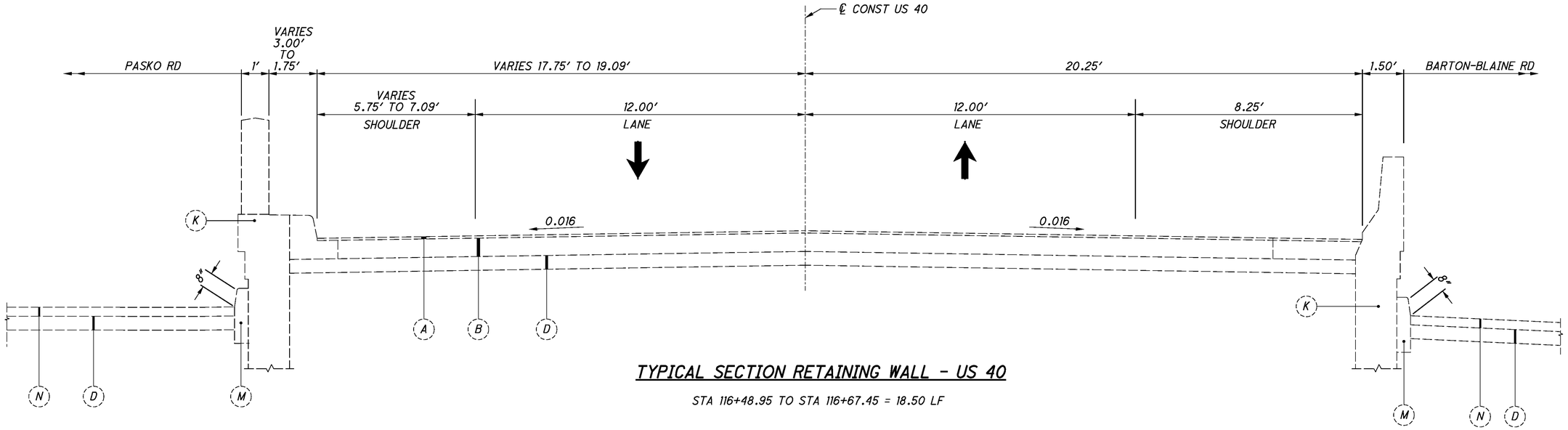


TYPICAL SECTION - US 40

STA 104+71.62 TO STA 106+49.75 = 178.13 LF

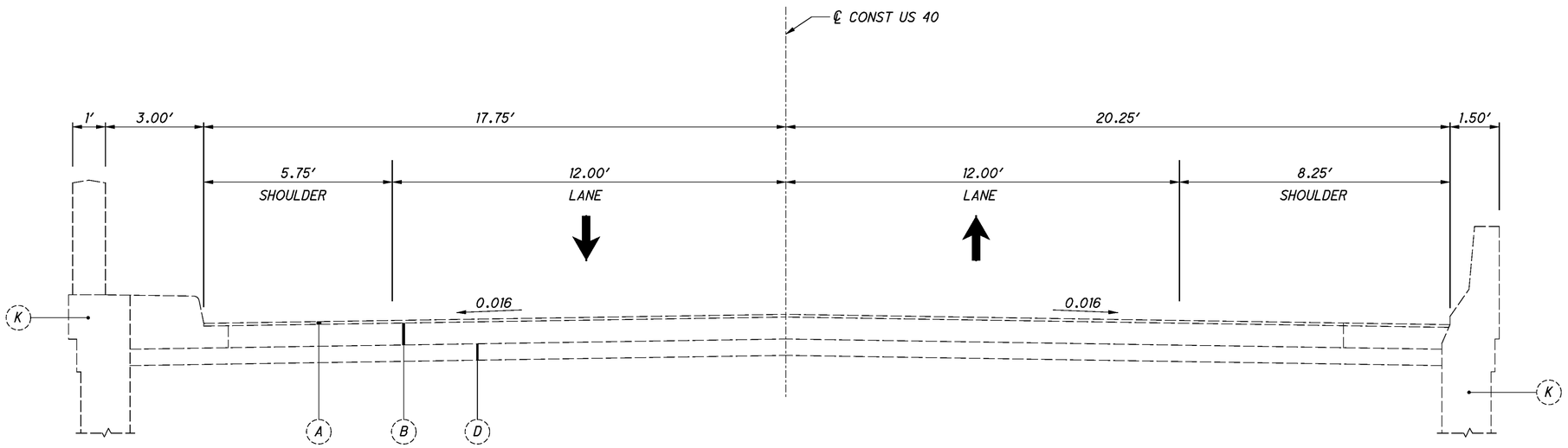
EXISTING TYPICAL SECTIONS

BEL-40-23.38



TYPICAL SECTION RETAINING WALL - US 40

STA 116+48.95 TO STA 116+67.45 = 18.50 LF

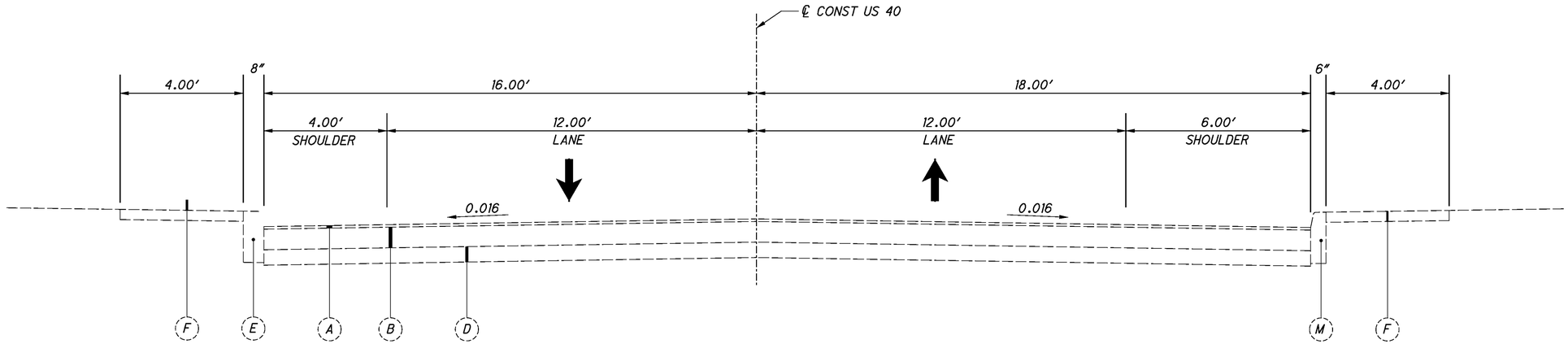


TYPICAL SECTION RETAINING WALL - US 40

STA 114+43.25 TO STA 116+48.95 = 205.70 LF

FOR EXISTING LEGEND, SEE SHEET 4

EXISTING TYPICAL SECTIONS

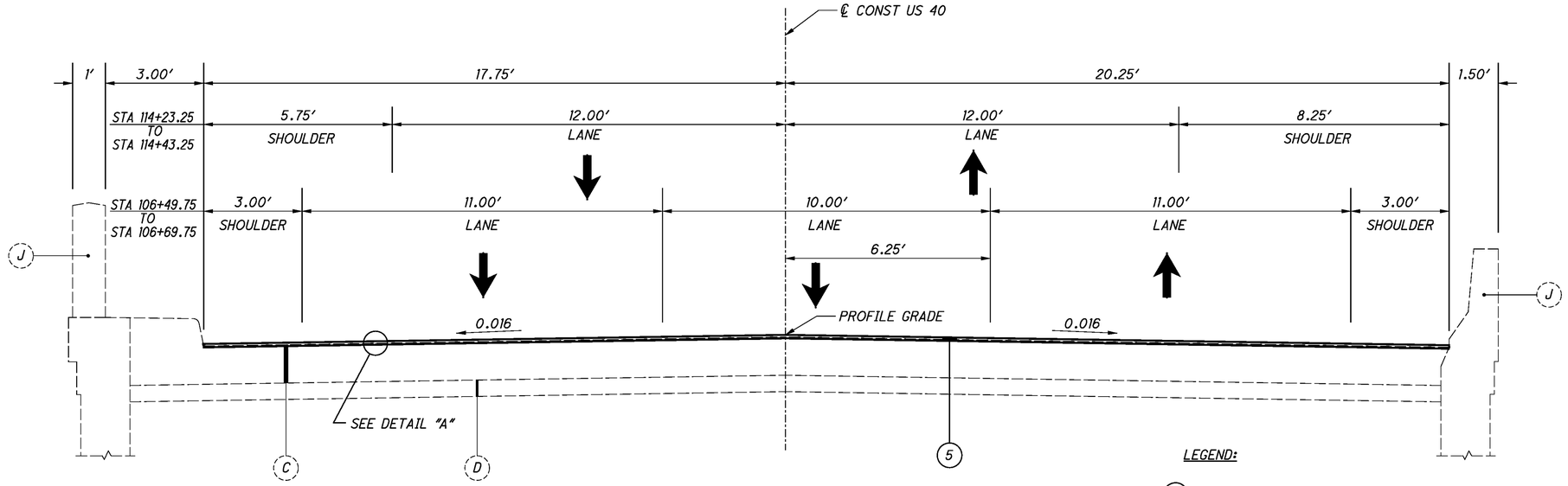


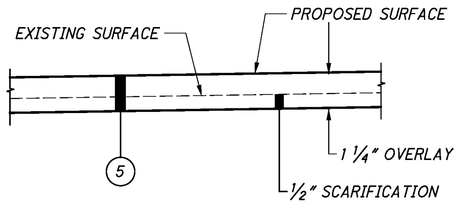
TYPICAL SECTION - US 40

STA 116+67.45 TO STA 118+00.00 = 132.55 LF

FOR EXISTING LEGEND, SEE SHEET 4

BEL-40-23.38





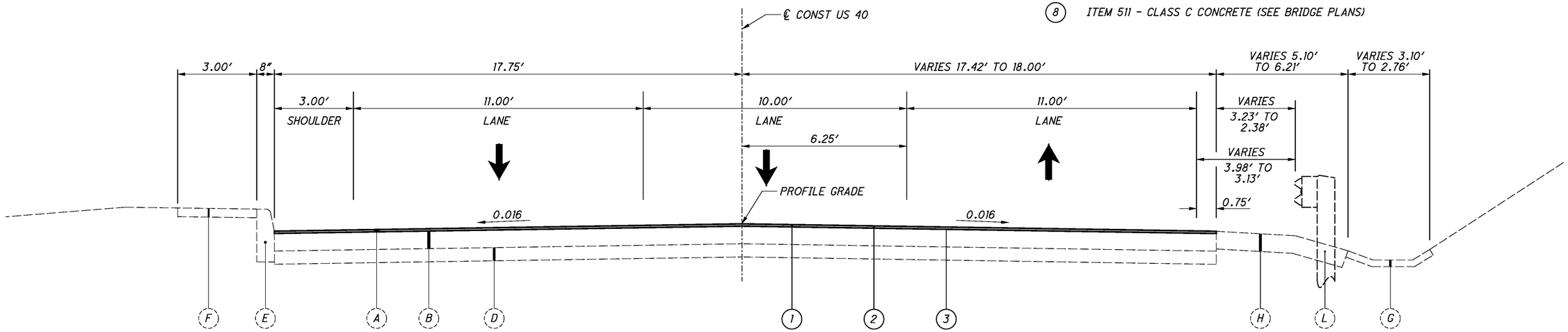
DETAIL "A"

TYPICAL SECTION APPROACH SLAB - US 40

STA 106+49.75 TO STA 106+69.75 = 20.00 LF
STA 114+23.25 TO STA 114+43.25 = 20.00 LF
40.00 LF

LEGEND:

1. ITEM 254 - 1" PAVEMENT PLANING, ASPHALT CONCRETE
2. ITEM 448 - 1" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN
3. ITEM 407 - TACK COAT
4. ITEM 448 - 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22
5. ITEM 847 - 1 1/4" MICRO-SILICA MODIFIED CONCRETE OVERLAY, AS PER PLAN (SEE BRIDGE PLANS)
6. ITEM 847 - WEARING COURSE REMOVED, ASPHALT
7. ITEM 202 - CURB REMOVED, AS PER PLAN
8. ITEM 511 - CLASS C CONCRETE (SEE BRIDGE PLANS)



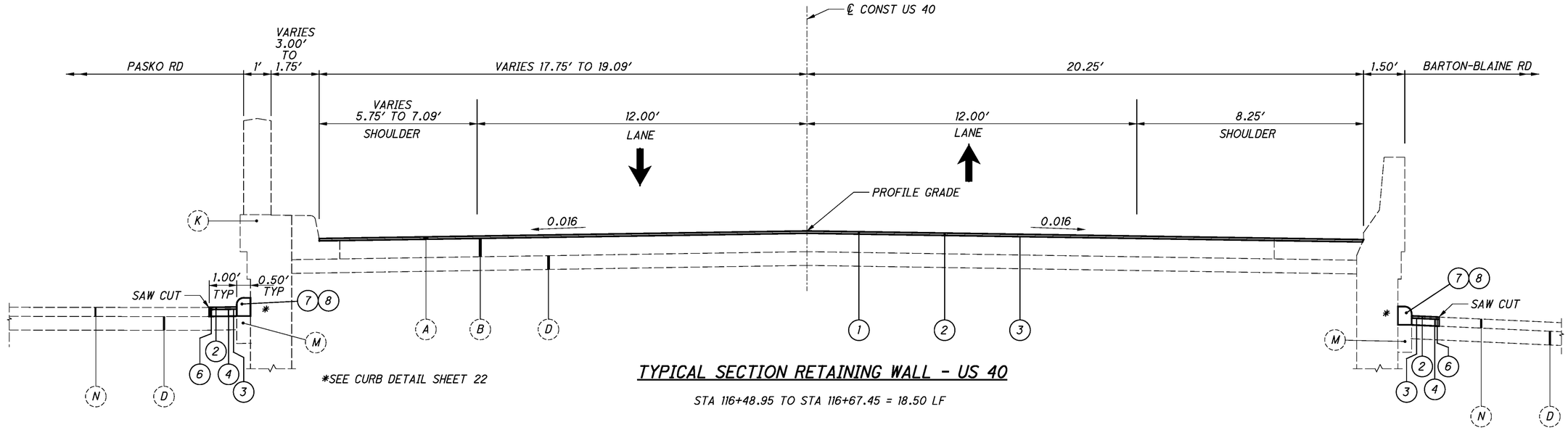
TYPICAL SECTION - US 40

STA 106+30.00 TO STA 106+49.75 = 19.75 LF

FOR EXISTING LEGEND, SEE SHEET 4

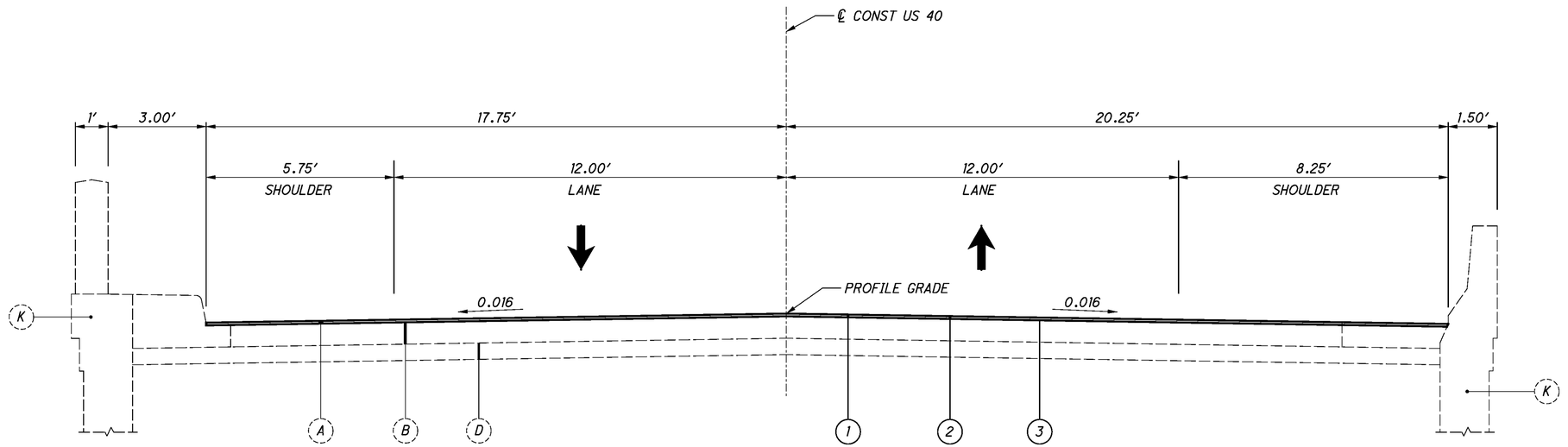
PROPOSED TYPICAL SECTIONS

BEL-40-23.38



TYPICAL SECTION RETAINING WALL - US 40

STA 116+48.95 TO STA 116+67.45 = 18.50 LF



TYPICAL SECTION RETAINING WALL - US 40

STA 114+43.25 TO STA 116+48.95 = 205.70 LF

FOR EXISTING LEGEND, SEE SHEET 4
FOR PROPOSED LEGEND, SEE SHEET 7

PROPOSED TYPICAL SECTIONS

BEL-40-23.38

GENERAL

UTILITIES

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

AEP OHIO POWER COMPANY
P.O. BOX 99
47687 NATIONAL ROAD
ST CLAIRSVILLE, OHIO 43950
ATTN: JEFF TURNER
PHONE: (740) 699-7845

AT&T OHIO
3935 NORTHPOINTE ROAD
ZANESVILLE, OHIO 43701
ATTN: SANDI RANDOLPH
PHONE: (740) 454-3455

BELMONT COUNTY SANITARY SEWER
PO BOX 457
ST. CLAIRESVILLE, OHIO 43950
ATTN: MARK ESPOSITO
PHONE: (740) 695-3144

BELMONT COUNTY ENGINEERS OFFICE
ST. CLAIRSVILLE, OHIO 43950
ATTN: FRED BENNETT
PHONE: (740) 699-2160

COLUMBIA GAS OF OHIO
300 LURAY DRIVE
WINTERSVILLE, OHIO 43953
ATTN: TIM SEECH
PHONE: (740) 266-4282

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

EXISTING PLANS

EXISTING PLANS ENTITLED BEL-40-23.38 MAY BE INSPECTED IN THE ODOT DISTRICT 11 OFFICE AT THE FOLLOWING LOCATION:

OHIO DEPARTMENT OF TRANSPORTATION
2201 REISER AVE, S.E.
NEW PHILADELPHIA, OHIO 44663

ELEVATION DATUM

ALL ELEVATIONS ARE ORTHOMETRIC HEIGHTS USING THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AND THE GEOID03 GEOID. HORIZONTAL POSITIONS ARE BASED ON THE OHIO STATE PLANE SOUTH ZONE, A LAMBERT CONFORMAL CONIC MAP PROJECTION, THE NORTH AMERICAN DATUM OF 1983 ADJUSTED TO THE NATIONAL SPATIAL REFERENCE SYSTEM OF 2007 (NAD 83 (NSRS 2007), AND THE GRS80 ELLIPSOID.

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 WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.

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.

PAVEMENT

ITEM 448, ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN

MATERIALS FURNISHED FOR FINE AND COARSE AGGREGATES USED IN THIS ITEM SHALL EXCLUDE ALL STONE AND CRUSHED CARBONATE STONE.

MAINTENANCE OF TRAFFIC:

ITEM 614, MAINTAINING TRAFFIC, AS PER PLAN

A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION SHALL BE MAINTAINED AT ALL TIMES, EXCEPT FOR A PERIOD NOT TO EXCEED 40 CONSECUTIVE CALENDAR DAYS, BETWEEN JUNE 15 TO AUGUST 20 WHEN THROUGH TRAFFIC MAY BE DETOURED AS SHOWN ON SHEET NO 10 LIQUIDATED DAMAGES SHALL BE ASSESSED ACCORDING TO SECTION 108.07 FOR EACH CALENDAR DAY THE ROADWAY REMAINS CLOSED TO TRAFFIC BEYOND THE SPECIFIED LIMIT.

NOTICE OF CLOSURE SIGNS, AS DETAILED IN THESE PLANS, SHALL BE ERECTED BY THE CONTRACTOR AT LEAST ONE WEEK IN ADVANCE OF THE SCHEDULED ROAD CLOSURE. THE SIGNS SHALL BE ERECTED ON THE RIGHT HAND SIDE OF THE ROAD FACING TRAFFIC. THEY SHALL BE PLACED SO AS NOT TO INTERFERE WITH THE VISIBILITY OF ANY OTHER TRAFFIC CONTROL SIGNS. ON ROADWAYS, THEY SHOULD BE ERECTED AT THE POINT OF CLOSURE.

ROAD WILL BE
CLOSED JUNE 15
FOR 45 DAYS
INFO: 555-555-1212

W20-H13-60

THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL SIGNS, AND BARRICADES INCLUDING THE ADVANCE SIGNING SHOWN ON SCD MT-101.60 AT THE PROJECT SITE ON US 40. ODOT WILL FURNISH AND INSTALL DETOUR SIGNING.

THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN STANDARD 48 X 30 INCH ROAD CLOSED SIGNS, SIGN SUPPORTS, BARRICADES AND LIGHTS, AS DETAILED IN SCD MT-101.60 AT THE FOLLOWING LOCATIONS DURING PERIODS IN WHICH THE AFFECTED ROAD IS CLOSED TO TRAFFIC:

AT THE POINT OF CLOSURE FOR US 40

BEFORE REOPENING US 40 THE CONTRACTOR SHALL HAVE THE FOLLOWING ITEMS COMPLETED: (THIS IS NOT INTENDED TO BE ALL INCLUSIVE)

BRIDGE, APPROACH SLABS, APPROACH RESURFACING UP THROUGH THE FINAL SURFACE COURSE, GUARDRAIL, SIGNS, PERMANENT PAVEMENT MARKINGS AND RPM'S.

THE ENGINEER SHALL ENSURE ALL WORK IS COMPLETED BEFORE OPENING THE BRIDGE TO TRAFFIC.

PAYMENT:

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, MATERIALS, PORTABLE CONCRETE BARRIER, BARRIER REFLECTORS, OBJECT MARKERS, WORK ZONE IMPACT ATTENUATORS, WORK ZONE RAISED PAVEMENT MARKERS AND WORK ZONE PAVEMENT MARKINGS SHALL BE INCLUDED IN THE LUMP SUM CONTRACT PRICE FOR ITEM 614, MAINTAINING TRAFFIC, AS PER PLAN UNLESS SEPARATELY ITEMIZED IN THE PLAN.

DETOUR NOTIFICATION

THE CONTRACTOR SHALL ADVISE THE DISTRICT ROADWAY SERVICES MANGER EIGHTEEN (18) DAYS IN ADVANCE OF WHEN THE DETOUR ROUTE SHOULD BE IN EFFECT. ODOT SHALL PROVIDE SIGNS, SUPPORTS AND HARDWARE REQUIRED FOR THE OFFICIAL DETOUR FOR US 40. ODOT SHALL THEN INSTALL, MAINTAIN, REMOVE AND SALVAGE SIGNS THROUGHOUT THE DURATION OF THE OFFICIAL DETOUR.

NOTIFICATION OF WORK ZONE LANE RESTRICTIONS

THE CONTRACTOR WILL NOTIFY THE ENGINEER AT LEAST EIGHTEEN (18) DAYS PRIOR TO INPLEMENTING ANY WORK ZONE RESTRICTIONS WHICH WILL REDUCE THE WIDTH OR VERTICAL CLEARANCE OF ANY LANE ON WHICH TRAFFIC WILL BE MAINTAINED DURING CONSTRUCTION.

THE ENGINEER WILL IMMEDIATELY NOTIFY THE DISTRICT ROADWAY SERVICES MANAGER TO ADVISE THE OFFICE OF HIGHWAY MANAGEMENT OF THE RESTRICTIONS.

DESIGNATED LOCAL DETOUR ROUTE

IN ADDITION TO THE OFFICIAL, SIGNED DETOUR ROUTE, A LOCAL ROUTE HAS BEEN DETERMINED TO BE THE SECONDARY, UNSIGNED ROUTE OR "DESIGNATED LOCAL DETOUR ROUTE." THIS ROUTE IS SHOWN ON SHEET NO. 10. DURING THE TIME THAT TRAFFIC IS DETOURED, THE CONTRACTOR SHALL MAINTAIN THIS ROUTE IN A CONDITION WHICH IS RESONABLY SMOOTH AND FREE FROM HOLES, RIDGES, BUMPS, DUST AND STANDING WATER. ONCE THE DETOUR IS REMOVED AND TRAFFIC RETURNED TO ITS NORMAL PATTERN, THE DESIGNATED LOCAL DETOUR ROUTE SHALL BE RESTORED TO A CONDITION THAT IS EQUIVALENT TO THAT WHICH EXISTED PRIOR TO ITS USE FOR THIS PURPOSE. ALL SUCH WORK SHALL BE PERFORMED WHEN AND AS DIRECTED BY THE ENGINEER. THE FOLLOWING ESTIMATED QUANTITIES ARE PROVIDED FOR USE AS DIRECTED BY THE ENGINEER TO MAINTAIN AND SUBSEQUENTLY RESTORE THE DESIGNATED LOCAL DETOUR ROUTE, AND HAVE BEEN CARRIED TO THE GENERAL SUMMARY.

ITEM 410, TRAFFIC COMPACTED SURFACE, TYPE C	5 CU YD
ITEM 614, ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	15 CU YD

STAIR CASE

THE STAIR CASE IS TO BE CLOSED TO PEDESTRIAN TRAFFIC IN CONJUNCTION WITH WORK OPERATIONS THAT REQUIRE CLOSING OF THE BRIDGE TO TRAFFIC.

SEQUENCE OF CONSTRUCTION OPERATIONS

THE FOLLOWING WORK OPERATIONS MAY BE PERFORMED BY THE CONTRACTOR WITHOUT THE CLOSING OF THE BRIDGE AND DETOURING TRAFFIC:

1 - PATCHING PIERS, ARCHES AND SPANDREL COLUMNS
2 - REMOVAL OF LOOSE CONCRETE FROM BOX BEAM SOFFITS
3 - PATCHING FORWARD APPROACH RETAINING WALLS
4 - PLACEMENT OF SLOPE PROTECTION ALONG THE WEST ABUTMENT AND WINGWALLS
5 - SEAL CONCRETE SURFACES AT LOCATIONS LISTED ABOVE

THE FOLLOWING WORK OPERATIONS PERFORMED BY THE CONTRACTOR REQUIRE THE CLOSING OF THE BRIDGE AND DETOURING TRAFFIC:

1 - SCARIFY DECK
2 - SEAL CRACKS IN SLAB SPAN 1
3 - SIDEWALK AND PARAPET REPAIRS
4 - SCUPPER MODIFICATION (PLACE WELDED STUDS PRIOR TO PLACING OVERLAY)
5 - PLACE WELDED PLATE ON TOP OF EXISTING EXPANSION JOINT ARMOUR
6 - PLACE OVERLAY
7 - COMPLETE EXPANSION JOINT REPAIRS

THE ABOVE IS A SUGGESTED SEQUENCE OF CONSTRUCTION FOR THE CONTRACTOR'S CONSIDERATION. THE CONTRACTOR SHALL SCHEDULE HIS ACTUAL WORK OPERATIONS TO MEET THESE REQUIREMENTS, SUBJECT TO APPROVAL OF THE ENGINEER. ALL WORK OPERATIONS WHICH REQUIRE CLOSING OF THE BRIDGE AND DETOURING TRAFFIC SHALL BE SCHEDULED TO BE PERFORMED CONCURRENTLY AND/OR CONSECUTIVELY SUCH THAT THE BRIDGE IS CLOSED TO TRAFFIC FOR ONE OCCURENCE ONLY. THE BRIDGE SHALL NOT BE INTERMITTENTLY CLOSED TO TRAFFIC FOR INDIVIDUAL WORK OPERATIONS AND THEN REOPENED.

ENVIRONMENTAL

STREAM AVOIDANCE NOTE:

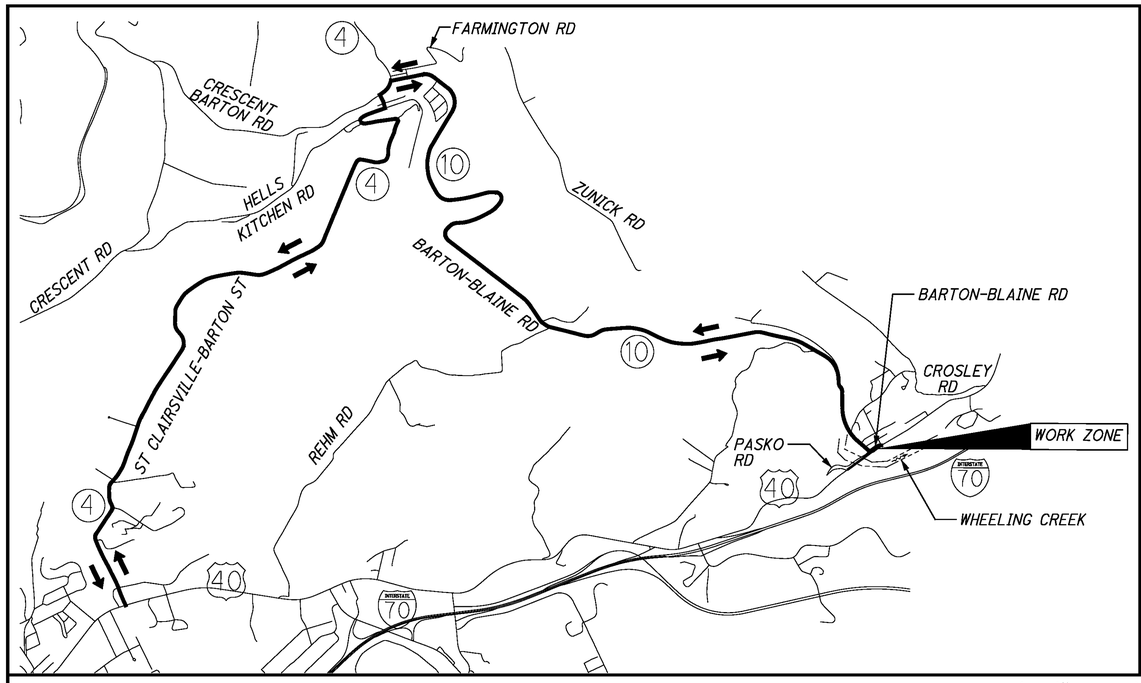
WHEELING CREEK IS LOCATED UNDER THE EXISTING BRIDGE TO BE REHABILITATED. THE CONTRACTOR SHALL EXERCISE CAUTION TO ASSURE THAT NO IMPACTS OCCUR TO THIS JURISDICTIONAL WATERWAY. NO FILL (RCP OR ANY OTHER TYPE) WILL BE PLACED BELOW THE ORDINARY HIGH WATER MARK OF WHEELING CREEK. ANY ACTIVITIES OCCURRING IN THIS STREAM BEYOND WADING BY CONSTRUCTION PERSONNEL TO WORK ON THE PIERS WOULD REQUIRE PERMITS FROM THE US ARMY CORP OF ENGINEERS AND/OR THE OHIO EPA. OBTAINING SUCH PERMITS WOULD BE THE RESPONSIBILITY OF THE CONTRACTOR.

THIS DOES NOT SET A PRECEDENCE THAT THE DEPARTMENT WILL ALWAYS PUT THIS NOTICE IN ALL ENVIRONMENTALLY SENSITIVE PROJECTS. ENVIRONMENTAL DOCUMENTATION IS ALWAYS AVAILABLE UPON REQUEST.

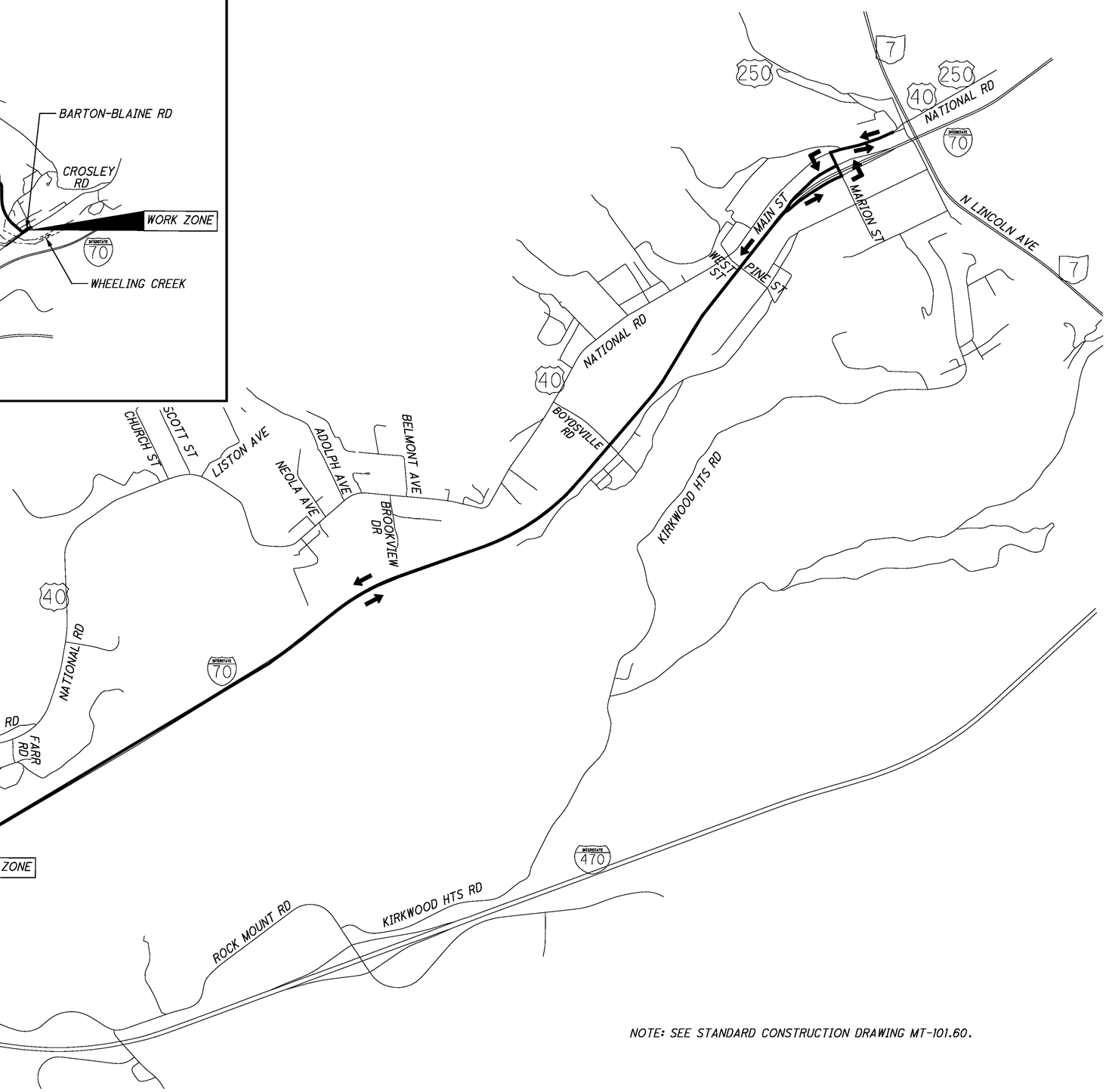
CALCULATED HB
CHECKED DJW

GENERAL NOTES

BEL-40-23.38



LOCAL DETOUR
SCALE: 1"=2000'



NOTE: SEE STANDARD CONSTRUCTION DRAWING MT-101.60.

HORIZONTAL SCALE IN FEET
0 500 1000 2000

CALCULATED HB
CHECKED DJW

DETOUR MAP

BEL-40-23.38

10
73

SHEET NUMBER												PARTICIPATION		ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	SEE SHEET NO.
	9		12	19															
																		ROADWAY	
	LUMP													201	11000	LUMP		CLEARING AND GRUBBING	
			499											202	32001	499	FT	CURB REMOVED, AS PER PLAN	22
			55											847	30300	55	SQ YD	WEARING COURSE REMOVED, ASPHALT	
																		PAVEMENT	
			1026											254	01000	1026	SQ YD	PAVEMENT PLANING, ASPHALT CONCRETE	
			81											407	10000	81	GALLON	TACK COAT	
			5											448	46020	5	CU YD	ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I, PG64-22	
			29											448	47021	29	CU YD	ASPHALT CONCRETE SURFACE COURSE, TYPE I, PG64-22, AS PER PLAN	9
			85											451	33000	85	FT	PRESSURE RELIEF JOINT, TYPE D	
																		EROSION CONTROL	
														832	30000	1000	EACH	EROSION CONTROL	
																		FOR STRUCTURE ESTIMATED QUANTITIES SEE SHEET 28	
																		TRAFFIC CONTROL	
				14										621	00100	14	EACH	RPM	
				14										621	54000	14	EACH	RAISED PAVEMENT MARKER REMOVED	
				19										630	02100	19	FT	GROUND MOUNTED SUPPORT, NO. 2 POST	
				6										630	80100	6	SQ FT	SIGN, FLAT SHEET	
				2										630	97700	2	EACH	SIGNING, MISC.: BRIDGE MOUNTED SIGN	
				1										630	97700	1	EACH	SIGNING, MISC.: RETAINING WALL SIGN BRACKET	22
				2										630	97700	2	EACH	SIGNING, MISC.: REMOVAL OF BRIDGE MOUNTED SIGN AND DISPOSAL	
				0.12										642	00200	0.12	MILE	LANE LINE, TYPE I	
				0.19										642	00300	0.19	MILE	CENTER LINE, TYPE I	
																		MAINTENANCE OF TRAFFIC	
	5													410	13000	5	CU YD	TRAFFIC COMPACTED SURFACE, TYPE C	
	15													614	13000	15	CU YD	ASPHALT CONCRETE FOR MAINTAINING TRAFFIC	
	LUMP													614	11001	LUMP		MAINTAINING TRAFFIC, AS PER PLAN	9
														619	16010	6	MONTH	FIELD OFFICE, TYPE B	
														623	10000	LUMP		CONSTRUCTION LAYOUT STAKES	
														624	10000	LUMP		MOBILIZATION	

CALCULATED HB
CHECKED DJW

GENERAL SUMMARY

BEL-40-23.38

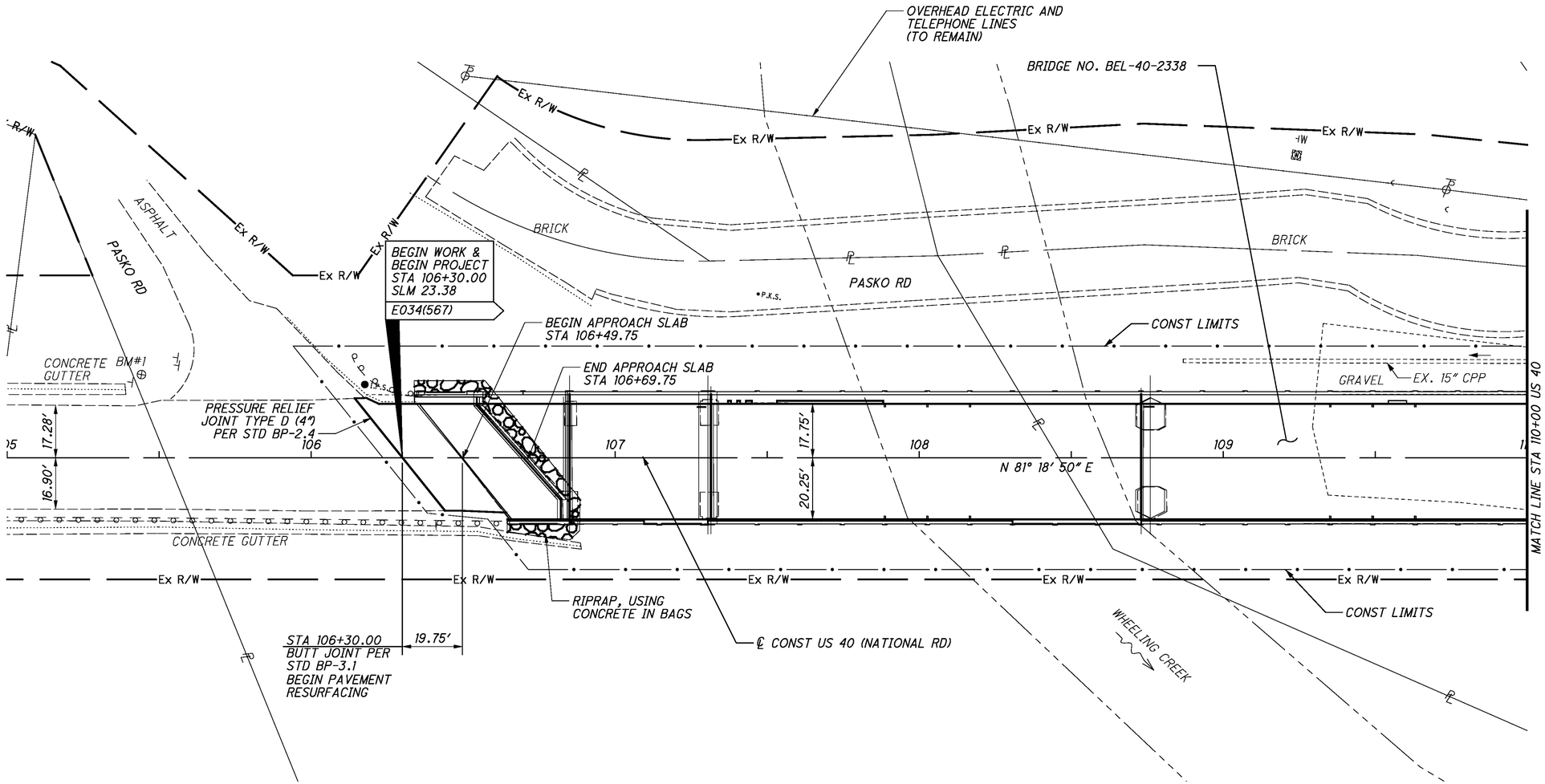
SHEET NO.	REFERENCE NO.	STATION TO STATION		SIDE	LENGTH L	AVERAGE WIDTH W	SURFACE AREA A A=LxW	PLANIMETERED AREAS	847 WEARING COURSE REMOVED, ASPHALT SQ YD	202 CURB REMOVED, AS PER PLAN FT	254 1" PAVEMENT PLANING, ASPHALT CONCRETE SQ YD	407 TACK COAT (0.075 GAL/SQ YD) GAL	448 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1, PG64-22 CU YD	448 1" ASPHALT CONCRETE SURFACE COURSE, TYPE 1, PG64-22, AS PER PLAN CU YD	451 PRESSURE RELIEF JOINT, TYPE D FT			
13		106+14.31	106+44.24	LT&RT											47.42			
13		106+30.00	106+49.75	LT&RT	19.75	35.46	700.34				77.82	5.84		2.08				
15	R 1	114+08.07	114+32.15	LT&RT	46.23	1.00	46.23		5.14	46.23		0.39	0.43	0.14				
15	R 2	114+08.07	115+00.00	LT	95.64	1.00	95.64		10.63	95.64		0.80	0.89	0.28				
15	R 3	114+32.15	115+00.00	RT	66.55	1.00	66.55		7.39	66.55		0.55	0.62	0.20				
15		114+43.25	115+00.00	LT&RT	56.75	38.00	2156.50				239.61	17.97		6.39				
15		114+77.48													38.00			
17	R 1	115+00.00	116+33.58	LT	133.58	1.00	133.58		14.84	133.58		1.11	1.24	0.40				
17	R 2	115+00.00	116+57.33	RT	157.33	1.00	157.33		17.48	157.33		1.31	1.46	0.47				
17		115+00.00	116+48.95	LT&RT	148.95	38.00	5660.10				628.90	47.17		16.77				
17		116+67.45	116+67.45	LT&RT	18.50	38.67	715.40				79.49	5.96		2.12				
				TOTALS CARRIED TO GENERAL SUMMARY					55	499	1026	81	5	29	85			

CALCULATED HB
CHECKED DJW

PAVEMENT SUBSUMMARY

BEL-40-23.38

BM#1
TOP OF 1' DIAMETER CONC. MILE MARKER, 2' HIGH
AT NW CORNER OF US 40 AND PASCO ROAD
STA. 105+44.2, 27.4' LT.
ELEV. 819.17



HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED HB
CHECKED DJW

PLAN - US 40
STA 105+00.00 TO STA 110+00.00

BEL-40-23.38

13
73

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808.82 807.04 805.28 803.52 801.76 800.00 798.24 796.48 794.72 792.96 791.21 789.46 787.71 785.96 784.21

840 830 820 810 800 790 780 770 760 750 740 730 720 710 700 690 680

BUTT JOINT PER STD BP-3.1

19.75'

MATCH EXISTING STA 106+30.00 ELEV=810.41

STA 106+49.75 ELEV=808.85

EX -7.0%±

EX PROFILE

EX PROFILE ALONG LEFT CURB (17.5'L)

PROP -7.04%

PROP PROFILE

790.0±

RIPRAP, USING CONCRETE IN BAGS

783.0±

℄ PIER NO. 1
STA 106+85.00

729.0±

℄ PIER NO. 2
STA 107+30.50

WHEELING CREEK

WATER NORMAL ELEV=714.0

EX -7.0%±

GRADE BREAK STA 108+75.00

PROP -7.0%

15" CPP STM

108+86.87, 31.91' LT
℄ 15"=718.04

694.0±

℄ PIER NO. 3
STA 108+76.00

320.43 316.71 312.89 308.77 305.22 301.75 298.18 294.68 291.17 287.61 284.12

105+00 106+00 107+00 108+00 109+00 110+00

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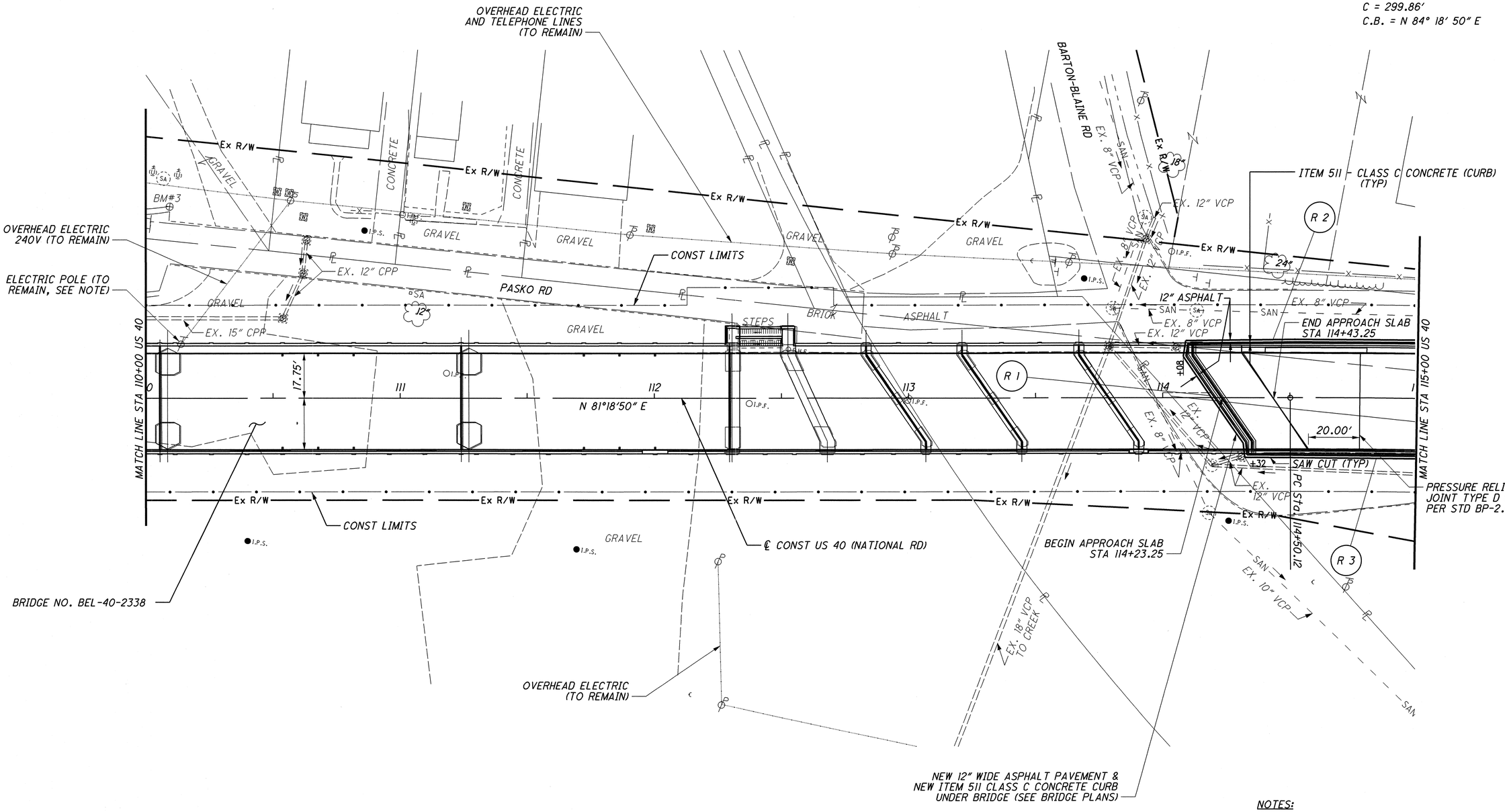
CALCULATED HB CHECKED DJW

PROFILE - US 40
STA 105+00.00 TO STA 110+00.00

BEL-40-23.38

BM#3
CHISELED SQUARE FOUND ON THE NORTHEAST CORNER OF STONE WALL ON OLD US 40 BRIDGE OVER WHEELING CREEK
STA. 110+09.3, 75.4' LT.
ELEV. 727.40

CURVE DATA US 40
P.I.= Sta. 116+00.26
Δ= 6° 00' 00" (RT)
Dc = 2° 00' 00"
R = 2,864.79'
T = 150.14'
L = 300.00'
E = 3.93'
C = 299.86'
C.B. = N 84° 18' 50" E



NOTES:

EXISTING ELECTRIC POLE WITH 240 V SERVICE TO REMAIN DURING CONSTRUCTION. CONTRACTOR SHALL FOLLOW ALL APPLICABLE OSHA REGULATIONS WHEN WORKING IN THE VICINITY OF THIS UTILITY.

FOR QUANTITIES, SEE SHEET 12.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED HB
CHECKED DJW

PLAN - US 40
STA 110+00.00 TO STA 115+00.00

BEL-40-23.38

15
73

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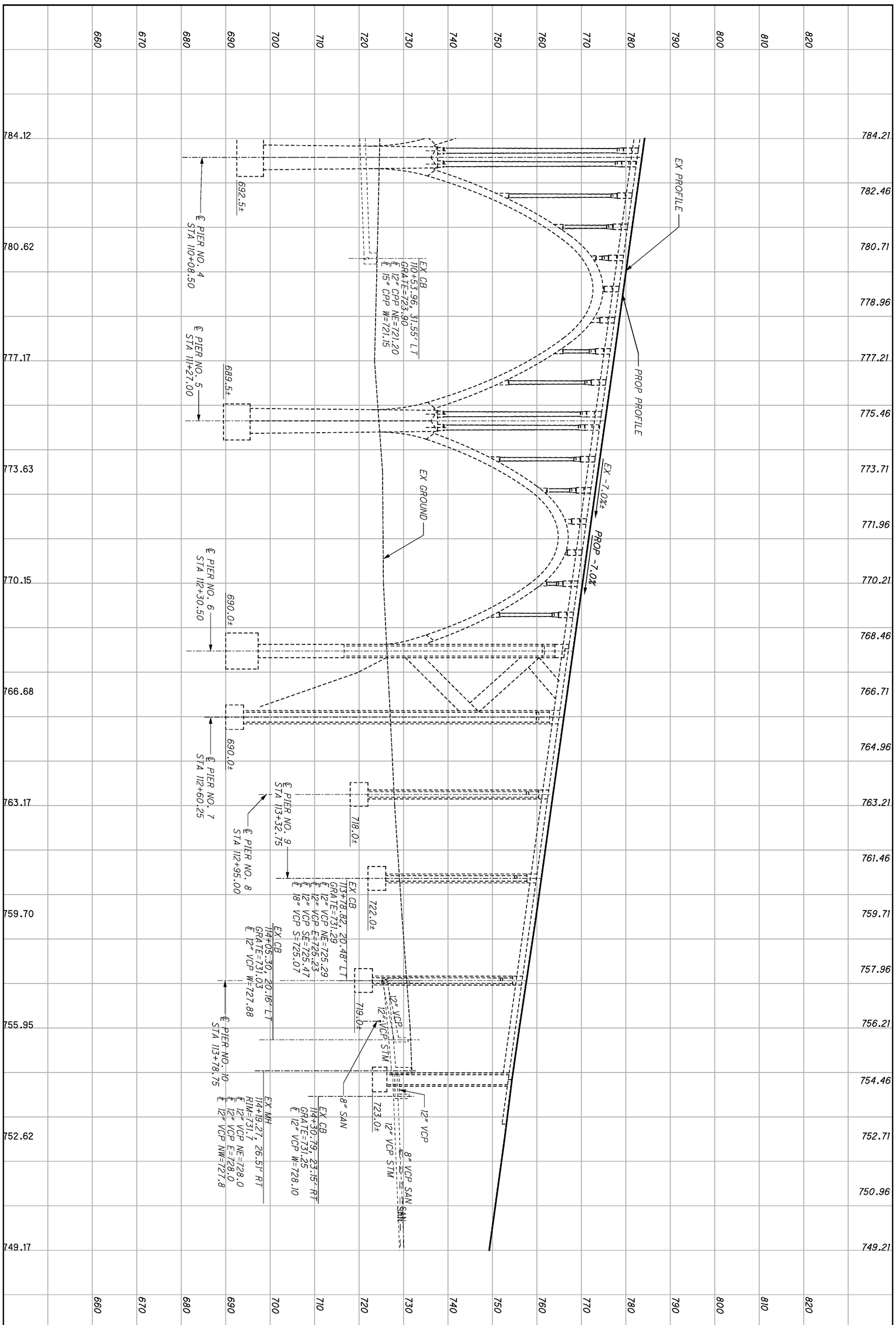
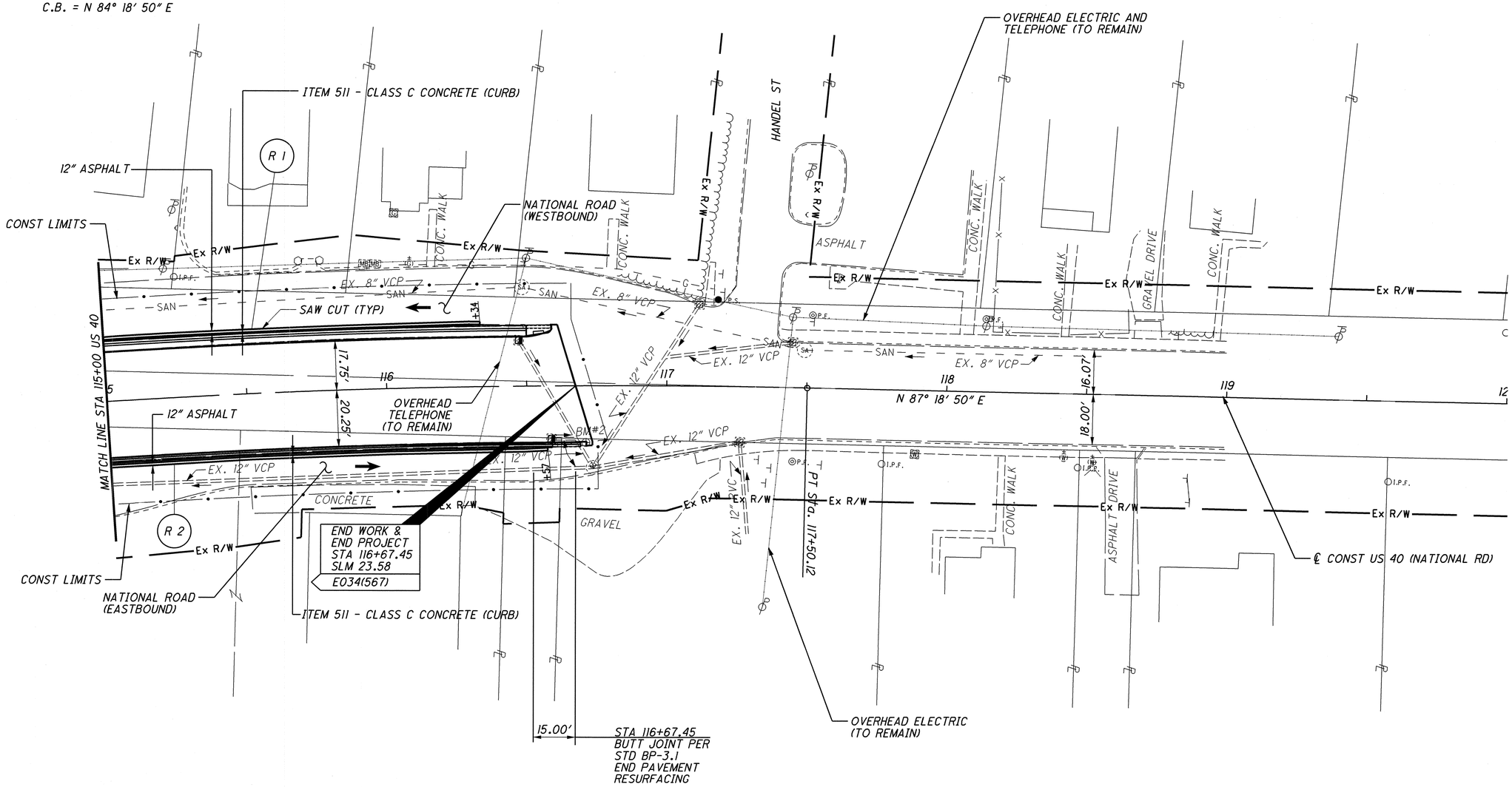


16 / 73	BEL-40-23.38	PROFILE - US 40 STA 110+00.00 TO STA 115+00.00	CALCULATED HB CHECKED DJW

CURVE DATA US 40
P.I.= Sta. 116+00.26
△= 6° 00′ 00″ (RT)
Dc = 2° 00′ 00″
R = 2,864.79′
T = 150.14′
L = 300.00′
E = 3.93′
C = 299.86′
C.B. = N 84° 18′ 50″ E

BM#2
CHISELED SQUARE FOUND AT THE BOTTOM OF THE EAST END OF THE CONC. WALL, SOUTH SIDE OF US 40 BRIDGE OVER WHEELING CREEK STA. 116+71.0, 20.3′ RT.
ELEV. 739.40



FOR QUANTITIES, SEE SHEET 12.

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED HB
CHECKED DJW

PLAN - US 40
STA 115+00.00 TO STA 119+00.00

BEL-40-23.38

17/73

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749.21 747.46 745.71 744.16 742.55 741.13 740.30

820 810 800 790 780 770 760 750 740 730 720 710 700 690 680 670 660

PVC STA 115+67
ELEV=744.74

200' V.C.
PI STA 116+67 ELEV=737.52

PTC STA 117+67
ELEV=739.20

OVERHEAD ELECTRIC LINE
(TO REMAIN) (ELEV UNKNOWN)

BUTT JOINT PER
STD BP-3.1

15.00'

EX MH
116+73.52, 29.10' RT
RIM=738.6
℄ 12" VCP NE & NW=732.7
℄ 12" VCP W=732.5
℄ 12" VCP E=738.1

OVERHEAD TELEPHONE
LINE (TO REMAIN)
(ELEV UNKNOWN)

EX CB
117+26.31, 19.83' RT
GRATE=738.44
℄ 12" VCP W=735.89
℄ 12" PVC S=735.89

STA 116+52.45
ELEV=740.24

MATCH EXISTING
STA 116+67.45
ELEV=739.83

EX -7.0%±

PROP PROFILE

PROP -7.0%

EX CB
117+44.61, 16.23' LT
GRATE=738.42
℄ 12" VCP W=736.12

EX 0.01%±

EX GAS

G

EX PROFILE

12" VCP

12" VCP STM

12" VCP

SAN

8" VCP SAN

EX CB **ATG**
116+47.32, 16.49' LT
GRATE=739.97
℄ 12" VCP SE=736.00

EX SAN MH
116+48.58, 35.45' LT
RIM=739.77
℄ 8" VCP W&E=730.17

EX CB
117+11.43, 29.34' LT
GRATE=738.11
℄ 12" VCP SW=735.03

EX CB **ATG**
116+58.63, 18.90' RT
GRATE=739.60
℄ 12" VCP E=734.48

EX SAN MH
117+48.96, 13.58' LT
RIM=738.68
℄ 8" VCP W&E=731.24

749.17 745.71 742.49 740.24 739.07 739.02 739.56 740.00

115+00 116+00 117+00 118+00 119+00 120+00

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CALCULATED HB
CHECKED DJW

PROFILE - US 40
115+00.00 TO STA 119+00.00

STA

BEL-40-23.38

18
73

SHEET NO.	REFERENCE NO.	LOCATION	STATION	SIDE	CODE	SIZE (INCHES)	630 GROUND MOUNTED SUPPORT, NO. 2 POST (FT)	630 SIGN, FLAT SHEET (SQ FT)	630 SIGNING, MISC.: BRIDGE MOUNTED SIGN (EACH)	630 SIGNING, MISC.: RETAINING WALL SIGN BRACKET (EACH)	630 SIGNING, MISC.: REMOVAL OF BRIDGE MOUNTED SIGN AND DISPOSAL (EACH)		642 CENTER LINE, TYPE I (MILE)	642 LANE LINE, TYPE I (MILE)			621 RAISED PAVEMENT MARKER REMOVED (EACH)	621 RPM (EACH)			
20	CL 1	US 40	106+30 TO 107+50	RT									0.02				2	2			
20	LL 1	US 40	106+30 TO 107+50	LT										0.02							
20	S-1	US 40	106+65	RT	OM-H3R-12	12 x 36	13.5	3													
20	S-2	US 40	106+68	RT	I-H25A-10	10 x 10		1.7	1		1										
20	CL 2	US 40	107+50 TO 112+50	RT									0.09				7	7			
20	LL 2	US 40	107+50 TO 112+50	LT										0.09							
21	CL 1	US 40	112+50 TO 116+67	RT&CL									0.08				5	5			
21	LL 1	US 40	112+50 TO 113+10	LT										0.01							
21	S-1	US 40	114+27	LT	I-H25A-10	10 x 10		1.7	1		1										
21		US 40	116+48	LT	OM-H3L-12	12 x 36	5.5			1											
TOTALS CARRIED TO GENERAL SUMMARY							19	6	2	1	2		0.19	0.12			14	14			

CALCULATED HB
CHECKED DJW

TRAFFIC CONTROL SUBSUMMARY

BEL-40-23.38

19
73

LEGEND

CL 1 — DOUBLE YELLOW CENTERLINE WITH RPM

LL 1 — LANE LINE

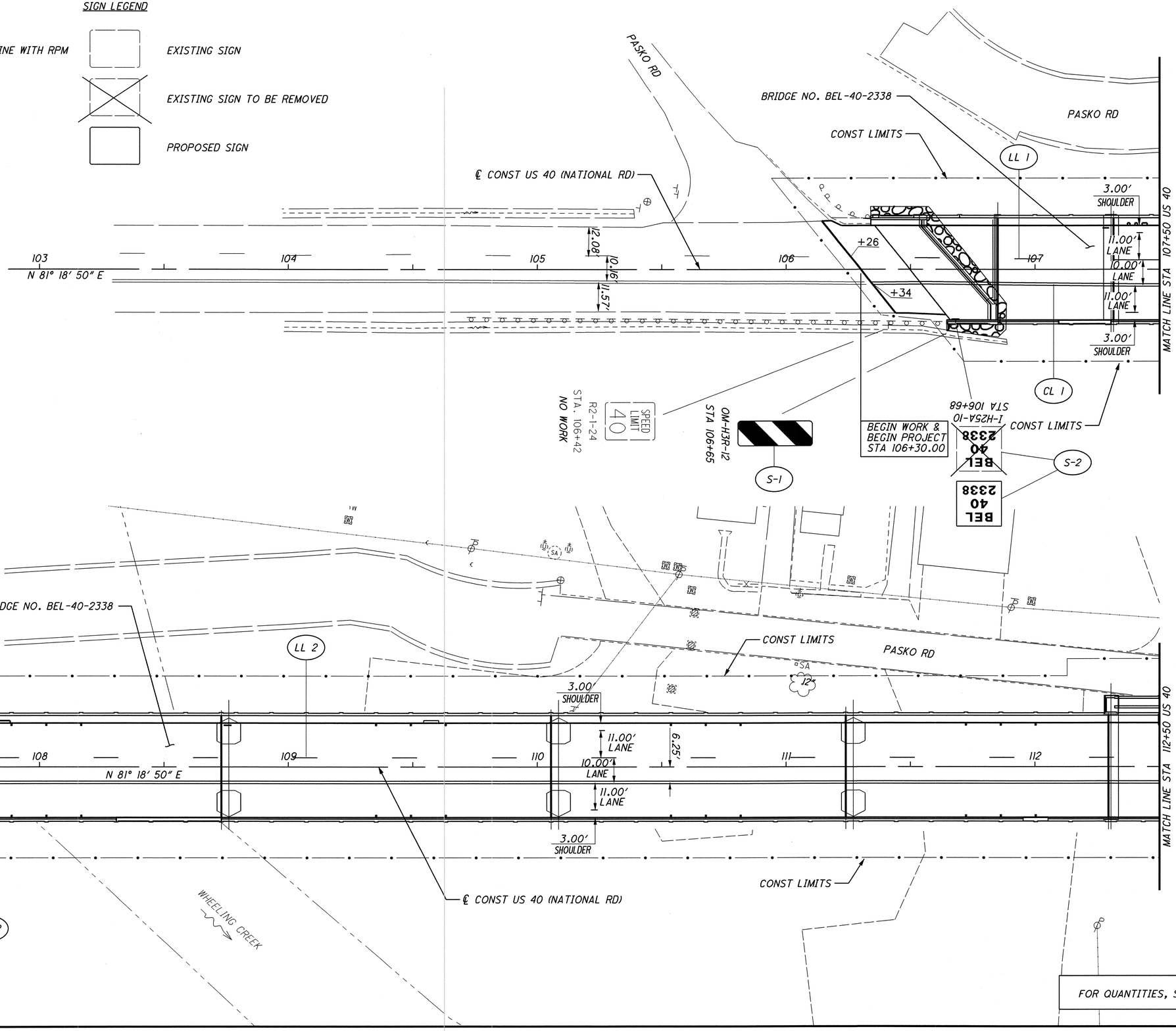
S-1 — SIGN

SIGN LEGEND

EXISTING SIGN

EXISTING SIGN TO BE REMOVED

PROPOSED SIGN



FOR QUANTITIES, SEE SHEET 19.

HORIZONTAL SCALE IN FEET
0 10 20 40

CALCULATED HB
CHECKED DJW

SIGNING AND PAVEMENT MARKING - US 40
STA 103+00 TO STA 112+50

BEL-40-23.38

20
73

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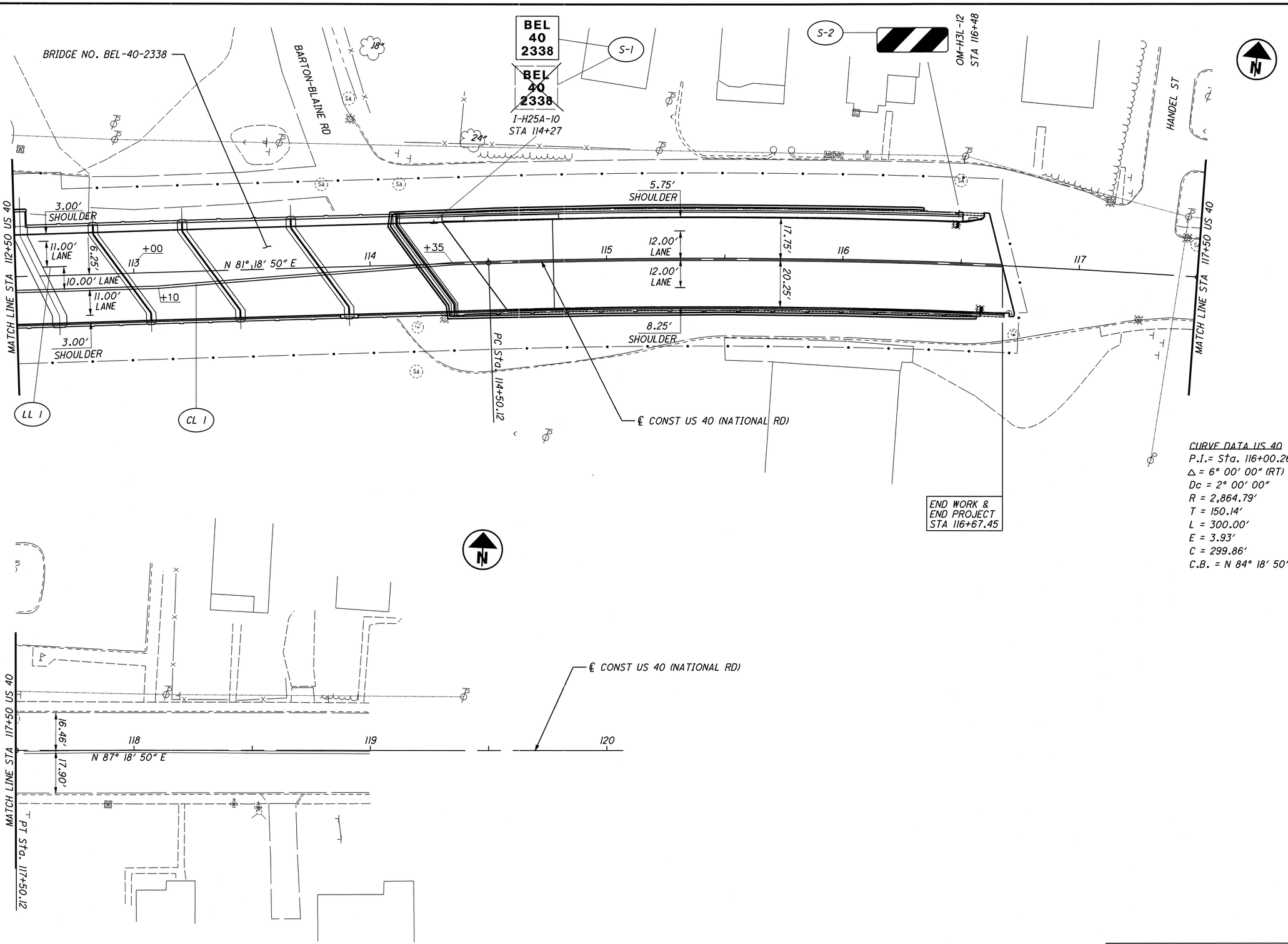

CURVE DATA US 40
P.I.= Sta. 116+00.26
△ = 6° 00' 00" (RT)
Dc = 2° 00' 00"
R = 2,864.79'
T = 150.14'
L = 300.00'
E = 3.93'
C = 299.86'
C.B. = N 84° 18' 50" E

FOR QUANTITIES, SEE SHEET 19.
FOR LEGEND, SEE SHEET 20.

HORIZONTAL SCALE IN FEET
0 10 20 40
CALCULATED HB
CHECKED DJW

SIGNING AND PAVEMENT MARKING - US 40
STA 112+50 TO STA 120+00

BEL-40-23.38

21
73

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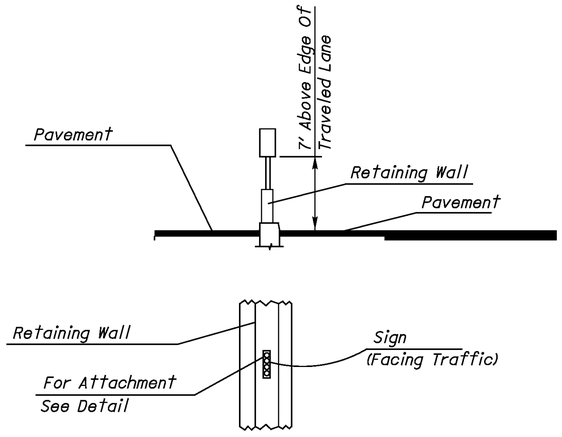
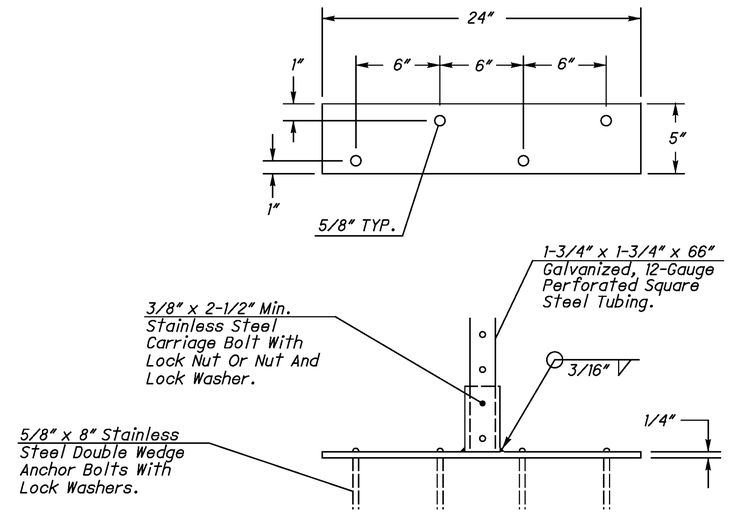


PLAN VIEW

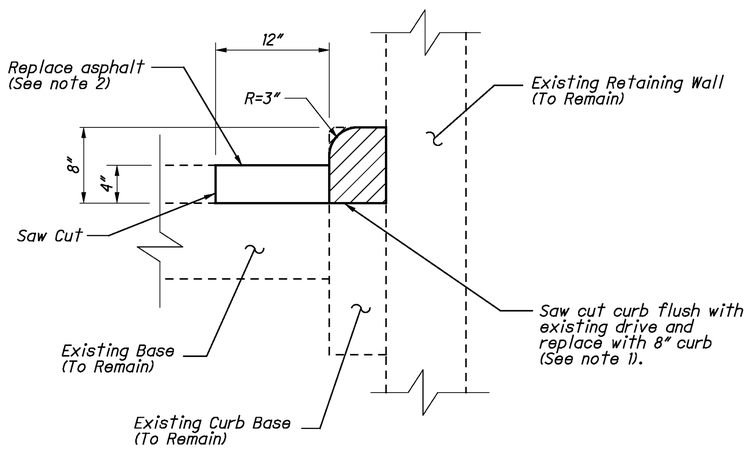


BRACKET DETAIL

Note:

1. All Hardware Shall Be Galvanized Steel Or Stainless Steel As Specified.
2. All Work And Materials Shall Be In Accordance With Standard Specification.

RETAINING WALL SIGN BRACKET DETAIL



CURB DETAIL

ITEM 202 - CURB REMOVED, AS PER PLAN

ITEM 202 - CURB REMOVED, AS PER PLAN SHALL PROVIDE FOR THE REMOVAL OF A PORTION OF THE EXISTING CONCRETE CURB AND THE REMOVAL OF THE EXISTING ASPHALT PAVEMENT AS SHOWN. PAYMENT SHALL INCLUDE ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS FOR THE UNIT PRICE BID FOR THIS ITEM.

LEGEND:

Remove concrete curb per Item 202-curb removed, as per plan. Replace concrete curb to the limits shown with ITEM 511 - CONCRETE, CLASS C.

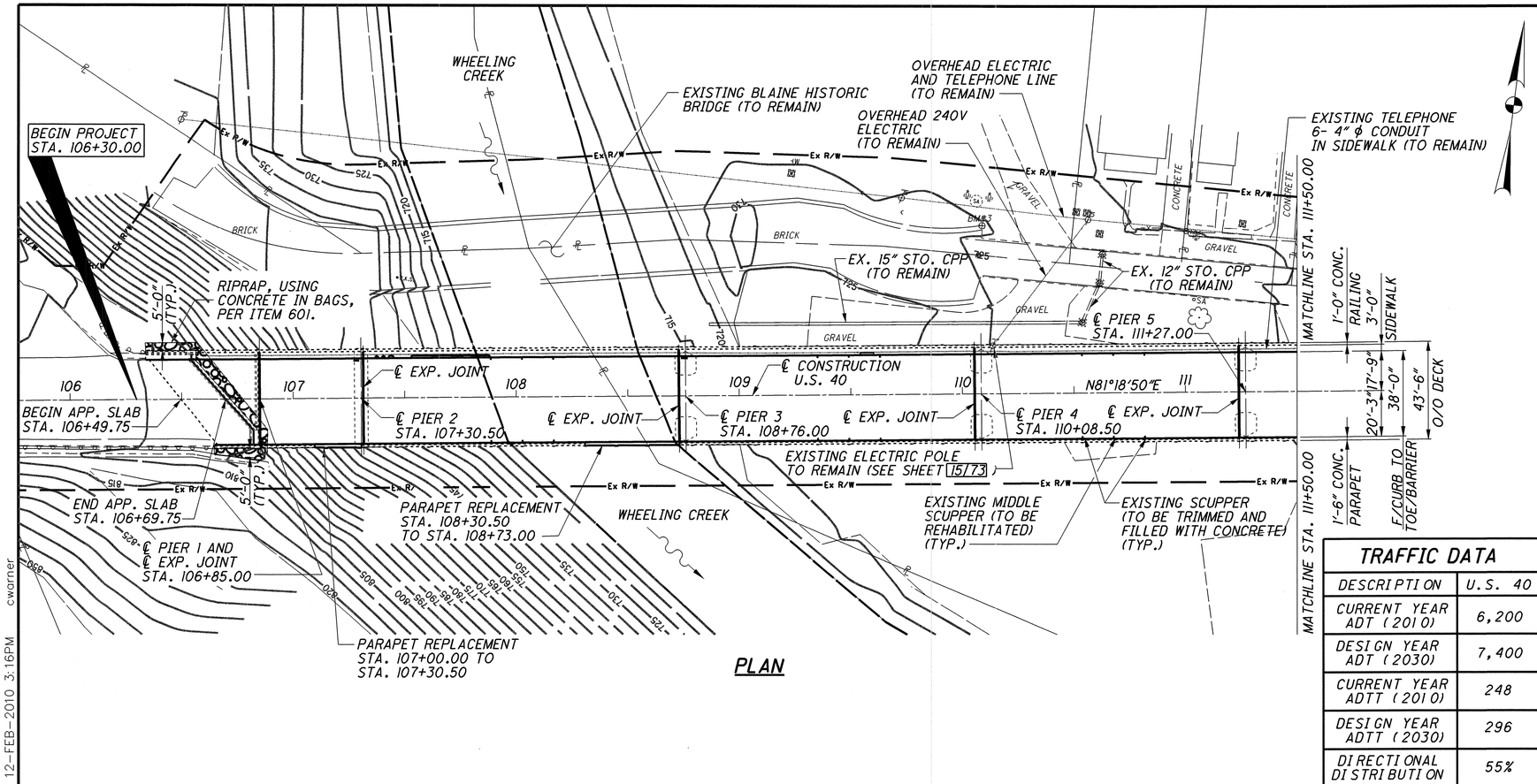
NOTES:

1. Contractor shall maintain size and location of architectural recess in retaining walls.
2. Remove asphalt to the limits shown and replace with new asphalt. See roadway plans for payment.

CALCULATED HB CHECKED DJW

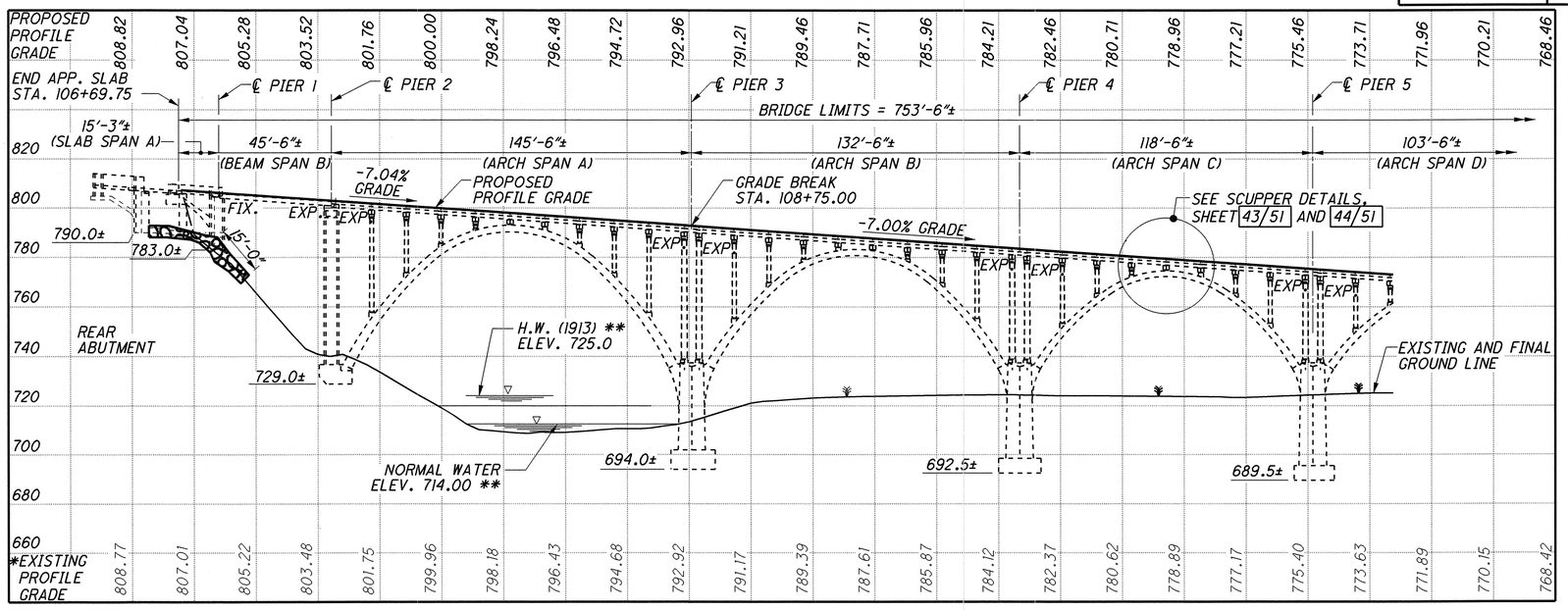
MISCELLANEOUS DETAIL

BEL-40-23.38



PLAN

TRAFFIC DATA	
DESCRIPTION	U.S. 40
CURRENT YEAR ADT (2010)	6,200
DESIGN YEAR ADT (2030)	7,400
CURRENT YEAR ADTT (2010)	248
DESIGN YEAR ADTT (2030)	296
DIRECTIONAL DISTRIBUTION	55%



*FROM 4-28-08 FIELD SURVEY
** FROM 1980 REHABILITATION PLANS

ELEVATION

(PROFILE ALONG ℄ CONSTRUCTION U.S. 40)

BENCHMARK DATA

BM#1 TOP OF 1' DIAMETER CONCRETE MILE MARKER, 2' HIGH AT NW CORNER OF U.S. 40 AND PASKO DRIVE STA. 105+44.2, 27.4' LT. ELEV. 819.17	BM#2 CHISELED SQUARE FOUND AT THE BOTTOM OF THE EAST END OF THE CONCRETE WALL, SOUTH SIDE OF U.S. 40 BRIDGE OVER WHEELING CREEK STA. 116+71.0, 20.3' RT. ELEV. 739.40
BM#3 CHISELED SQUARE FOUND ON THE NORTHEAST CORNER OF THE STONE WALL ON OLD U.S. 40 BRIDGE OVER WHEELING CREEK STA. 110+09.30, 75.4' LT. ELEV. 727.40	

EXISTING STRUCTURE

TYPE: REINFORCED CONCRETE BRIDGE CONSISTING OF FOUR OPEN SPANDREL REINFORCED CONCRETE ARCH SPANS WITH PRESTRESSED CONCRETE BEAM FLOOR SYSTEM, SIX PRESTRESSED CONCRETE BEAM SPANS, AND ONE REINFORCED CONCRETE SLAB SPAN

SPANS: ARCH SPANS = 145'-6"±; 132'-6"±; 118'-6"±; 103'-6"±
BEAM SPANS = 45'-6"±; 29'-9"±; 34'-9"±; 37'-9"±; 46'-0"±; 44'-6"±
SLAB SPAN = 15'-3"±
TOTAL = 753'-6"±

ROADWAY: 38'-0"± F/F CURBS; 3'-0"± SIDEWALK LEFT
DEFLECTOR PARAPET RIGHT

LOADING: HS-20-44 AND THE ALTERNATE MILITARY LOADING

SKEW: VARIES FROM 0°00'00" TO 34° 39'00"± R.F.

APPROACH SLABS: AS-1-72; MODIFIED (20'-0"± LONG)

WEARING SURFACE: MONOLITHIC CONCRETE

ALIGNMENT: TANGENT

CROWN: 3/16"± PER FT.

STRUCTURAL FILE NUMBER: 0701599

DATE BUILT: 1932 (REHABILITATED IN 1982)

PROPOSED STRUCTURE

PROPOSED WORK: REPAIR DECK INCLUDING BRIDGE RAILING, SIDEWALK AND PARAPET. REPAIR EXPANSION JOINTS. PROVIDE NEW DECK OVERLAY. PROVIDE NEW APPROACH SLAB OVERLAYS. REPAIR DETERIORATED CONCRETE ON SUPER-STRUCTURE ARCHES, SPANDREL COLUMNS AND FLOOR BEAMS INCLUDING STAIRS. REPAIR DETERIORATED PORTIONS OF SUBSTRUCTURE AND RETAINING WALLS. SEAL EXPOSED CONCRETE SURFACES.

SPANS: ARCH SPANS = 145'-6"±; 132'-6"±; 118'-6"±; 103'-6"±
BEAM SPANS = 45'-6"±; 29'-9"±; 34'-9"±; 37'-9"±; 46'-0"±; 44'-6"±
SLAB SPAN = 15'-3"±
TOTAL = 753'-6"±

ROADWAY: 38'-0"± F/F CURBS; 3'-0"± SIDEWALK AND BARRIER LEFT; DEFLECTOR PARAPET RIGHT

LOADING: HS20-44 AND THE ALTERNATE MILITARY LOADING; FWS=0

SKEW: VARIES FROM 0°00'00" TO 34° 39'00"± R.F.

WEARING SURFACE: 1 1/4" MICRO-SILICA CONCRETE

ALIGNMENT: TANGENT

CROWN: 3/16" PER FT.

COORDINATES: LATITUDE N 40°04'00"
LONGITUDE W 80°49'15"

DESIGN AGENCY
Trans Systems
55 PUBLIC SQUARE, SUITE 1800
CLEVELAND, OHIO 44113

DATE 10/16/09
REVIEWED HVH
STRUCTURE FILE NUMBER 0701599
DRAWN RCK
REVISED
DESIGNED JDH
CHECKED WJV

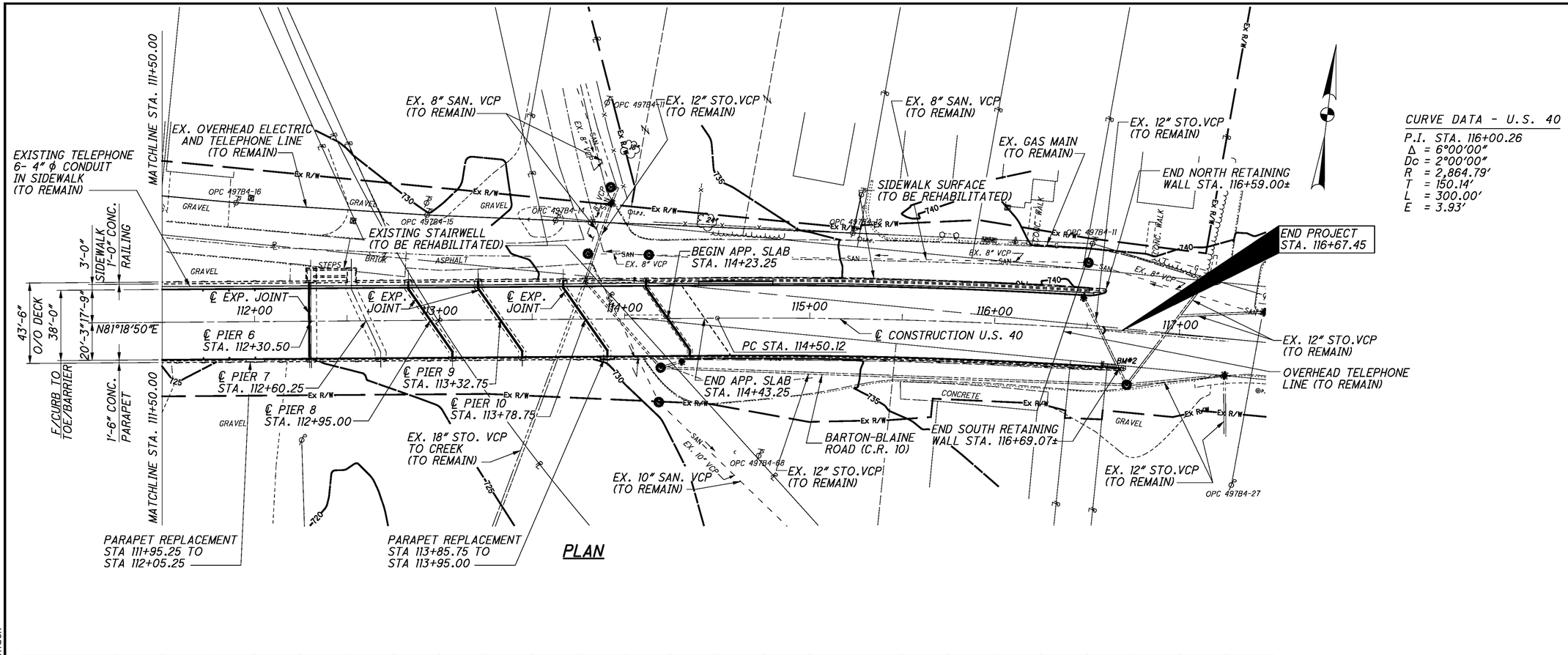
BELMONT COUNTY
STA. 106+69.75
STA. 114+23.25

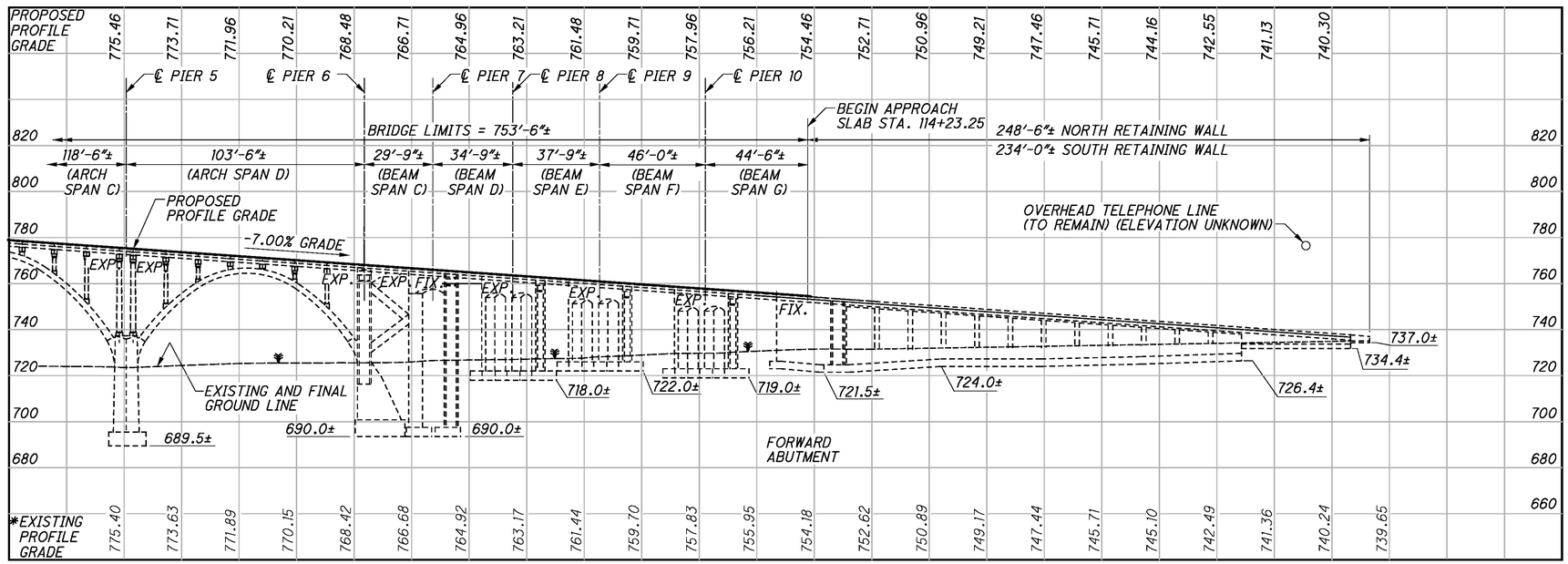
SITE PLAN
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

1 / 51

23
73





*FROM 4-28-08 FIELD SURVEY

ELEVATION

(PROFILE ALONG ℄ CONSTRUCTION U.S. 40)

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DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
JDH	RCK	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJV		0701599	

BELMONT COUNTY
STA. 106+69.75
STA. 114+23.25

SITE PLAN
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R

BEL-40-23.38
PID No. 22815

2 / 51

24
73

STANDARD DRAWINGS AND SUPPLEMENTAL SPECIFICATIONS

REFER TO THE FOLLOWING ODOT STANDARD BRIDGE DRAWINGS:
EXJ-3-82 (REVISED) 07-19-2002

AND THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:
843 DATED 4-18-2003
847 DATED 10-16-2009

DESIGN SPECIFICATIONS

THIS STRUCTURE CONFORMS TO THE "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS 2002, AND THE 2004 ODOT BRIDGE DESIGN MANUAL.

DESIGN LOADING

HS20-44, CASE II AND THE ALTERNATE MILITARY LOADING; FWS=0.

DESIGN DATA

CONCRETE CLASS C - COMPRESSIVE STRENGTH 4,000 PSI
CONCRETE CLASS S - COMPRESSIVE STRENGTH 4,500 PSI

REINFORCING STEEL - ASTM A615 OR A996 GRADE 60, MINIMUM YIELD STRENGTH
- 60,000 PSI, EPOXY COATED

STRUCTURAL STEEL - ASTM A501 GRADE B - YIELD STRENGTH 36,000 PSI (SCUPPER EXTENSIONS)
- ASTM A709 GRADE 50 - YIELD STRENGTH 50,000 PSI (EXPANSION JOINTS)

DECK PROTECTION METHODS

- GALVANIC ANODES (IF REQUIRED)
- MICRO-SILICA CONCRETE OVERLAY (PROPOSED MICRO-SILICA WEARING SURFACE IS TO BE 1 1/4" THICK.)

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. 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 AND 105.02.

BASE CONTRACT BID PRICES UPON A RECOGNITION OF THE UNCERTAINTIES DESCRIBED ABOVE AND UPON A PREBID EXAMINATION OF THE EXISTING STRUCTURE. HOWEVER, THE DEPARTMENT WILL PAY FOR ALL PROJECT WORK BASED UPON ACTUAL DETAILS AND DIMENSIONS WHICH HAVE BEEN VERIFIED IN THE FIELD.

PROPOSED WORK

THE WORK TO BE DONE UNDER THIS CONTRACT IS AS SHOWN ON THE CONSTRUCTION PLANS. THE SUGGESTED CONSTRUCTION SEQUENCE IS AS FOLLOWS:

DECK AND PAPAPET:
1. REMOVE 1/2" OF CONCRETE DECK WEARING SURFACE BY SCARIFICATION.
2. REMOVE AND PATCH ALL UNSOUND DECK CONCRETE.
3. WELD STEEL PLATE TO TOP OF HORIZONTAL LEG OF THE EXISTING EXPANSION JOINT ANGLES AS SHOWN.
4. EXTEND EIGHT (8) EXISTING SCUPPER DOWNSPOUTS AND ABANDON SIXTEEN (16) EXISTING SCUPPERS AS INDICATED.
5. REPLACE DETERIORATED SOUTH PARAPET SECTIONS.
6. PATCH DETERIORATED CONCRETE SURFACES TO NORTH SIDEWALK CURB, PARAPET, AND SIDEWALK.
7. PLACE 1 1/4" MICRO-SILICA WEARING SURFACE.
8. PLACE NEW COMPRESSION SEALS IN ALL EXPANSION JOINTS.

SUPERSTRUCTURE AND SUBSTRUCTURE:
1. REMOVE DETERIORATED CONCRETE AND PATCH CONCRETE SURFACES TO FLOOR BEAMS, SPANDREL COLUMNS, ARCH RIBS, PIERS, ABUTMENTS AND RETAINING WALLS.
2. SEAL CONCRETE SURFACES WITH EPOXY-URETHANE SEALER.
3. PLACE SLOPE PROTECTION ALONG WEST ABUTMENT AND WEST WINGWALLS.

MAINTENANCE OF TRAFFIC

SEE DETOUR PLANS FOR DETOUR ROUTE(S). TRAFFIC ON U.S. 40 WILL BE DETOURED FOR THE DURATION OF THE SUPERSTRUCTURE REHABILITATION, WHICH INCLUDES ALL WORK ON THE DECK, SIDEWALKS, PARAPETS AND APPROACH SLABS. TRAFFIC ON BARTON-BLAINE ROAD (C.R. 10) SHALL BE MAINTAINED AT ALL TIMES BUT MAY BE LIMITED TO ONE-LANE WITH FLAGGERS FOR THE ERECTION OF FALSE WORK OR CONSTRUCTION STAGING.

EXISTING STRUCTURE PLANS

PLANS MAY BE EXAMINED BY PROSPECTIVE BIDDERS AT THE OHIO DEPARTMENT OF TRANSPORTATION, DISTRICT 11, 2201 REISER AVENUE, NEW PHILADELPHIA, OHIO 44663, (330) 339-6633. AVAILABLE PLANS INCLUDE BLAINE HILL VIADUCT ORIGINAL CONSTRUCTION PLANS, DATED JULY 1932, AND THE BEL-40-23.38 BRIDGE REPAIR PLANS, REVISED MAY 1981.

UTILITY LINES

UTILITY RELOCATIONS ARE NOT REQUIRED FOR THIS PROJECT. HOWEVER THE CONTRACTOR SHALL NOTE THE CONDUITS WITHIN THE SIDEWALK THAT SHALL BE MAINTAINED DURING CONSTRUCTION.

ITEM 202, PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN

THIS ITEM SHALL INCLUDE THE ELEMENTS INDICATED IN THE PLANS AND GENERAL NOTES AND THAT ARE NOT SEPARATELY LISTED FOR PAYMENT, EXCEPT FOR WEARING COURSE REMOVAL. ITEMS TO BE REMOVED INCLUDE ALL EXISTING MATERIALS BEING REPLACED BY NEW CONSTRUCTION AND MISCELLANEOUS ITEMS THAT ARE NOT SHOWN TO BE INCORPORATED INTO THE FINAL CONSTRUCTION AND ARE DIRECTED TO BE REMOVED BY THE ENGINEER. THE USE OF EXPLOSIVES, HEADACHE BALLS AND/OR HOE-RAMS WILL NOT BE PERMITTED. THE METHOD OF REMOVAL AND THE WEIGHT OF HAMMER SHALL BE APPROVED BY THE ENGINEER. PERFORM ALL WORK IN A MANNER THAT WILL NOT CUT, ELONGATE OR DAMAGE THE EXISTING REINFORCING STEEL TO BE PRESERVED. CHIPPING HAMMERS SHALL NOT BE HEAVIER THAN THE NOMINAL 90-POUND CLASS. PNEUMATIC HAMMERS SHALL NOT BE PLACED IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE. SUBMIT CONSTRUCTION PLANS ACCORDING TO CMS 501.05.

CUT LINE CONSTRUCTION JOINT PREPARATION:
SAW CUT BOUNDARIES OF PROPOSED CONCRETE REMOVALS 1 INCH DEEP. REMOVE CONCRETE TO A ROUGH SURFACE. LEAVE THE EXISTING REINFORCING STEEL, IF REQUIRED IN THE PLANS, IN PLACE. INSTALL DOWEL BARS IF SPECIFIED. PRIOR TO CONCRETE PLACEMENT ABRASIVELY CLEAN JOINT SURFACES AND EXISTING EXPOSED REINFORCEMENT TO REMOVE LOOSE AND DISINTEGRATED CONCRETE AND LOOSE RUST. THOROUGHLY CLEAN THE JOINT SURFACE AND EXPOSED REINFORCEMENT OF ALL DIRT, DUST, RUST OR OTHER FOREIGN MATERIAL BY THE USE OF WATER, AIR UNDER PRESSURE, OR OTHER METHODS THAT PRODUCE SATISFACTORY RESULTS. EXISTING REINFORCING STEEL DOES NOT HAVE TO HAVE A BRIGHT STEEL FINISH, BUT REMOVE ALL PACK AND LOOSE RUST. THOROUGHLY DRENCH EXISTING CONCRETE SURFACES WITH CLEAN WATER AND ALLOW TO DRY TO A DAMP CONDITION BEFORE PLACING CONCRETE.

SUBSTRUCTURE CONCRETE REMOVAL:
REMOVE CONCRETE BY MEANS OF APPROVED PNEUMATIC HAMMERS EMPLOYING POINTED AND BLUNT CHISEL TOOLS. HYDRAULIC HOE-RAM TYPE HAMMERS WILL NOT BE PERMITTED. THE WEIGHT OF THE HAMMER SHALL NOT BE MORE THAN 35 POUNDS FOR REMOVAL WITHIN 18 INCHES OF PORTIONS TO BE PRESERVED. OUTSIDE THE 18 INCH LIMIT, THE CONTRACTOR MAY USE HAMMERS NOT EXCEEDING 90 POUNDS UPON THE APPROVAL OF THE ENGINEER. DO NOT PLACE PNEUMATIC HAMMERS IN DIRECT CONTACT WITH REINFORCING STEEL THAT IS TO BE RETAINED IN THE REBUILT STRUCTURE.

ITEM 509 - REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN

REPLACE ALL EXISTING REINFORCING BARS DEEMED BY THE ENGINEER TO BE UNUSABLE BECAUSE OF CORROSION. THE DEPARTMENT WILL MEASURE THE REPLACEMENT REINFORCING STEEL BY THE NUMBER OF POUNDS ACCEPTED IN PLACE.

REPLACE ALL EXISTING REINFORCING STEEL BARS WHICH ARE TO BE INCORPORATED INTO THE NEW WORK AND ARE DEEMED BY THE ENGINEER TO BE MADE UNUSABLE BY CONCRETE REMOVAL OPERATIONS WITH NEW EPOXY COATED REINFORCING STEEL OF THE SAME SIZE AT NO COST TO THE DEPARTMENT. A CONTINGENCY QUANTITY OF 500 LBS. HAS BEEN INCLUDED.

ITEM 511 - CONCRETE, MISC: EMBEDDED GALVANIC ANODE, TYPE A
ITEM 511 - CONCRETE, MISC: EMBEDDED GALVANIC ANODE, TYPE B

DESCRIPTION:
THE GALVANIC PROTECTION SYSTEM IS INTENDED TO EXTEND THE SERVICE LIFE OF THE STRUCTURE BY MITIGATING CHLORIDE-ION INDUCED CORROSION ACTIVITY OF THE EXTERIOR STEEL REINFORCING LAYER.

GENERAL DESCRIPTION
THE WORK UNDER THIS SECTION CONSISTS OF SUPPLYING AND INSTALLING A ZINC-BASED GALVANIC CORROSION PROTECTION SYSTEM FOR PATCHING APPLICATIONS OF THE DECK SLAB, SPANDREL COLUMNS, ARCHES, PIERS, ABUTMENTS AND RETAINING WALLS, INCLUDING REQUIRED ELECTRICAL CONNECTIONS, MATERIALS, TESTING AND ENSURING CONTINUITY OF THE REINFORCING STEEL IN THE STRUCTURAL DECK AS OUTLINED IN THE CONSTRUCTION DRAWINGS.

THE GALVANIC CORROSION PROTECTION SYSTEM SHALL CONSIST OF INTER-CONNECTED GALVANIC ANODES THAT ARE PLACED WITHIN THE CONCRETE PATCHES AND ARE ELECTRICALLY CONNECTED TO THE REINFORCING STEEL THROUGH A HEADER WIRE OR STRAP. THE HEADER CONNECTS ROWS OF ANODES TO THE REINFORCING STEEL AS SHOWN ON THE DRAWINGS. AFTER THE ANODES ARE INSTALLED AND ENCASED IN THE CONCRETE PATCH, THE ANODES WILL PROVIDE GALVANIC PROTECTION TO THE REINFORCING STEEL IN THE CONCRETE PATCH.

REFERENCES:
A. ACI 222R PROTECTION OF METALS IN CONCRETE AGAINST CORROSION
B. ASTM B6 STANDARD SPECIFICATIONS FOR ZINC
C. ASTM B69 STANDARD SPECIFICATION FOR ROLLED ZINC
D. ASTM B418 STANDARD SPECIFICATION FOR CAST AND WROUGHT GALVANIC ANODES
E. SSPC-10 NEAR-WHITE BLAST CLEANING

BID QUANTITY:
BASE BIDS ON THE QUANTITY, DIMENSION, LENGTH, WEIGHT AND INFORMATION IN THIS SPECIFICATION AND AS SHOWN ON THE CONSTRUCTION DRAWINGS.

SUBMITTALS:
BEFORE ORDERING, THE CONTRACTOR SHALL SUBMIT TYPICAL GALVANIC CORROSION PROTECTION SYSTEM INSTALLATION DETAILS, SUCH AS DISTRIBUTED ANODE DIMENSIONS, SACRIFICIAL ZINC MASS, ANODE TO HEADER CONNECTION DETAIL, HEADER TO REINFORCING CONNECTION DETAIL AND CEMENTIOUS GROUT DATA. SUBMITTAL SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED FOR APPROVAL BY THE ENGINEER PRIOR TO ANY FIELD INSTALLATIONS.

TYPE A GALVANIC ANODES:
TYPE A GALVANIC ANODES SHALL BE PUCK-SHAPED APPROXIMATELY 2 1/2" IN DIAMETER BY 1" HIGH, PRE-MANUFACTURED, CONTAINING MORE THAN 100 GRAMS OF ZINC METAL IN COMPLIANCE WITH ASTM B418-95a TYPE I AROUND A PAIR OF STEEL TIE WIRES IN COMPLIANCE WITH BRIGHT ANNEALED ASTM A82-97a AND ENCASED IN A HIGHLY ALKALINE/CEMENTITIOUS SHELL WITH A pH OF 14 OR GREATER. THE CEMENTITIOUS SHELL SHALL CONTAIN NO CHLORIDES OR OTHER CORROSIVE CONSTITUENTS AS PER ACI GUIDELINE NO. 222. ANODES SHALL BE SUPPLIED WITH INTEGRAL TIE WIRES FOR TYING TO THEREINFORCING STEEL. EMBEDDED GALVANIC ANODES SHALL BE GALVASHIELD XP+ AVAILABLE FROM VECTOR CORROSION TECHNOLOGIES, (813) 830-7566 (US), WWW.VECTOR-CORROSION.COM), OR APPROVED EQUAL AS STATED BELOW.

TYPE B GALVANIC ANODES:
TYPE B GALVANIC ANODE UNITS SHALL BE CYLINDRICAL PRISMS OF AKALI-ACTIVATED ZINC WITH A pH GREATER THAN 14 AND NOMINAL LENGTH AS INDICATED ON THE DRAWINGS. THE DISTRIBUTED ANODE UNITS SHALL CONTAIN AT LEAST 0.6 LB. OF HIGH-PURITY ZINC PER LINEAL FOOT OF ANODE AND SHALL CONTAIN NO CONSTITUENTS THAT ARE CORROSIVE TO REINFORCING STEEL AS PER ACI 222R SUCH AS CHLORIDES, BROMIDES OR OTHER HALIDES. THE ZINC ANODES SHALL CONTAIN A STEEL CORE AND SHALL BE MANUFACTURED IN COMPLIANCE WITH ASTM B418 TYPE II (Z1300I) AND ASTM B69 ROLLED SPECIAL HIGH GRADE ZINC (Z13004) USING ZINC IN COMPLIANCE WITH ASTM B6 SPECIAL HIGH GRADE (Z130I) WITH IRON CONTENT LESS THAN 15 PPM. EACH ANODE COMPONENT SHALL BE SUPPLIED WITH INTEGRAL ELECTRIC LEAD ATTACHMENTS FOR CONNECTING TO THE REINFORCING STEEL.

THE TYPE B GALVANIC PROTECTION SHALL BE GALVANODE DAS DISTRIBUTED ANODE SYSTEM SUPPLIED BY VECTOR CORROSION TECHNOLOGIES, (813) 830-7566 (US), WWW.VECTOR-CORROSION.COM), OR APPROVED EQUAL AS STATED BELOW.

APPLICATION FOR EQUALS TO INCLUDE:
1. A HIGHLY ALKALINE CEMENTITIOUS SHELL WITH A pH OF 14 OR GREATER.
2. PROVIDE A MINIMUM OF 10 YEARS SERVICE LIFE (IN SIMILAR ENVIRONMENT).
3. CONTAIN NO CORROSIVE CONSTITUENTS DETRIMENTAL TO REINFORCING STEEL, E.G. CHLORIDE, ETC.
4. PROVEN TRACK RECORD SHOWING A MINIMUM OF THREE YEARS SATISFACTORY FIELD PERFORMANCE.
5. A MINIMUM OF THREE PROJECTS OF SIMILAR SIZE AND APPLICATION.
6. ANODES SHALL BE SUPPLIED WITH INTEGRAL TIE WIRES FOR TYING TO THE REINFORCING STEEL.
7. THIRD PARTY PRODUCT EVALUATION, E.G. HITEC, CONCRETE INNOVATIONS APPRAISAL SERVICE, BRE, ETC.

MANUFACTURER TECHNICAL ASSISTANCE REQUIREMENTS:

A. THE CONTRACTOR WILL ENLIST AND PAY FOR THE SERVICES OF A NACE CERTIFIED CATHODIC PROTECTION TECHNICIAN WHO IS AN EMPLOYEE OF THE GALVANIC ANODE MANUFACTURER TO PROVIDE TRAINING AND ON-SITE TECHNICAL ASSISTANCE DURING THE INITIAL INSTALLATION OF THE GALVANIC PROTECTION SYSTEM. THE CATHODIC PROTECTION TECHNICIAN SHALL HAVE VERIFIABLE EXPERIENCE IN THE INSTALLATION AND TESTING OF EMBEDDED GALVANIC PROTECTION SYSTEMS FOR REINFORCED CONCRETE STRUCTURES.

B. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE DESIGNATED CATHODIC PROTECTION TECHNICIAN TO ALLOW FOR SITE SUPPORT DURING PROJECT STARTUP AND INITIAL ANODE INSTALLATION. THE TECHNICIAN SHALL PROVIDE THE CONTRACTOR TRAINING AND SUPPORT FOR DEVELOPMENT OF APPLICATION PROCEDURES, RELATED SUBMITTALS, ANODE INSTALLATION, REINFORCING STEEL CONNECTION PROCEDURES AND ELECTRICAL CONTINUITY OF EMBEDDED REINFORCING STEEL.

C. THE CATHODIC PROTECTION TECHNICIAN SHALL COORDINATE SYSTEM TESTING REQUIREMENTS WITH THE ENGINEER AND SHALL INSTALL SYSTEM INSTRUMENTATION WIRING, CONDUIT AND RELATED DEVICES AT LOCATIONS APPROVED BY THE ENGINEER.

SURFACE PREPARTATION FOR ANODE INSTALLATION:

A. PERFORM CONCRETE REMOVAL AND SURFACE PREPARATION FOR THE CONCRETE PATCH IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 AND TYPE 2 REPAIRS.

B. EXPOSED REINFORCING STEEL AND CONCRETE SHOULD BE CLEANED BY ABRASIVE BLASTING OR OTHER MEANS TO REMOVE CORROSION BY-PRODUCTS AND OTHER MATERIALS THAT MAY INHIBIT ELECTRICAL CONTINUITY.

C. DAMPEN THE CONCRETE SURFACE TO A SATURATED SURFACE DRY CONDITION PRIOR TO THE GROUTING OPERATION IN ACCORDANCE WITH GROUT MANUFACTURER'S INSTRUCTIONS. REMOVE ANY STANDING WATER PRIOR TO GROUTING.

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DESIGN AGENCY
Tran Systems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN CJM | REVIEWED HVH | DATE 10/16/09
CHECKED JDH | REVISED | STRUCTURE FILE NUMBER 0701599

STRUCTURE GENERAL NOTES

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

ITEM 511 - CONCRETE, MISC: EMBEDDED GALVANIC ANODE, TYPE A (CONT.)
ITEM 511 - CONCRETE, MISC: EMBEDDED GALVANIC ANODE, TYPE B (CONT.)

ELECTRICAL CONTINUITY:
THE REINFORCING STEEL IN THE STRUCTURAL CONCRETE COMPONENT SHALL BE TESTED FOR ELECTRICAL CONTINUITY AT REPAIR AREAS WHERE REINFORCING IS EXPOSED. CONTINUITY SHALL BE CHECKED BETWEEN BARS IN EACH LOCATION, IN THE LONGITUDINAL AND TRANSVERSE DIRECTIONS AND DIAGONALLY. USE A VOLTMETER WITH INTERNAL MEASURING IMPEDENCE OF AT LEAST 10 mOHM ON THE DC mV SCALE. CONNECT THE TEST LEADS TO CLEAN REINFORCING STEEL AT TWO SITES. A VOLTAGE DIFFERENCE BETWEEN THE TEST SITES LESS THAN 1.0 mV SHALL BE CONSIDERED CONFIRMATION OF ELECTRICAL CONTINUITY.

IN SITUATIONS WHERE CONTINUITY IS NOT CONFIRMED, RE-ESTABLISH CONTINUITY BY TYING REINFORCING TOGETHER WITH STEEL TIE WIRE OR BY OTHER APPROVED MEANS.

GALVANIC ANODE DISTRIBUTION:
GALVANIC ANODE UNITS SHALL BE DISTRIBUTED AS INDICATED ON THE DRAWINGS.

PROTECT ANODES AND ELECTRICAL CONNECTIONS FROM DAMAGE DURING INSTALLATION. PROVIDE AT LEAST 1.5 INCHES OF CONCRETE COVER OVER THE ANODES.

ELECTRICAL CONNECTIONS:
ELECTRICALLY CONNECT ANODES TO EXISTING OR PROPOSED REINFORCING. EXPOSED REINFORCING SHALL BE CLEANED BY ABRASIVE BLASTING OR OTHER MEANS TO REMOVE ALL CORROSION BY-PRODUCTS, EPOXY COATING AND OTHER MATERIALS THAT MAY INHIBIT ELECTRICAL CONNECTIVITY. TYPICAL CONNECTION IS A BRAZED CONNECTION OF A HEADER STRAP THAT IS WRAPPED AROUND THE REINFORCING. ALL ELECTRICAL CONNECTION DETAILS SHALL BE APPROVED BY THE ANODE MANUFACTURER. IDENTIFY ANODE MANUFACTURER APPROVED HEADER TO REINFORCING CONNECTION DETAIL IN THE GALVANIC PROTECTION SYSTEM SUBMITTAL.

ALL REINFORCING STEEL CONNECTIONS SHALL BE CLEANED AFTER BRAZING AND RECEIVE A COAT OF 100% SOLIDS, NON-CONDUCTIVE EPOXY SUCH THAT NO BRAZING MATERIALS ARE EXPOSED TO THE CONCRETE WHEN PATCHING IS COMPLETE. THE CONTRACTOR SHALL VERIFY CONTINUITY BETWEEN THE ANODES AND THE REINFORCING PRIOR TO COATING WITH EPOXY.

EACH ANODE PROVIDED AND INSTALLED, WITH ALL INCIDENTALS INCLUDED, SHALL BE PAID FOR AT THE UNIT BID PRICE BID FOR:

ITEM	UNIT
511E81300- CONCRETE, MISC: EMBEDDED GALVANIC ANODE, TYPE A	EACH
511E81100- CONCRETE, MISC: EMBEDDED GALVANIC ANODE, TYPE B	FEET

ITEM 511 - CONCRETE MISC,: SURFACE APPLIED CORROSION INHIBITOR

THIS ITEM OF WORK SHALL CONSIST OF APPLYING CORROSION INHIBITOR TO FLOOR BEAMS, THE ENDS OF ALL ACCESSIBLE PRESTRESSED BEAMS AT PIERS AND TO PRESTRESSED BEAMS SPALLED AREAS, AS SHOWN IN THE PLANS.

THE CORROSION INHIBITOR SHALL BE SIKA FERROGARD 903, BASF MASTERSEAL CP, OR APPROVED EQUAL. THE MANUFACTURER'S CONTACT INFORMATION IS:

SIKA CORPORATION	BASF
201 POLITO AVENUE	889 VALLEY PARK DRIVE
LYNDHURST, NJ 07071	SHAKOPEE, MN 55379
201-933-8800	800-433-9517

THE CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S REQUIREMENTS FOR INSTALLATION OF THE SEALER.

AFTER PERFORMING THE REPAIRS TO THE FLOOR BEAMS AS SHOWN IN THE PLANS, AND BEFORE THE APPLICATION OF THE EPOXY-URETHANE CONCRETE SEALER PER CMS 512, THE CONTRACTOR SHALL APPLY THE CORROSION INHIBITOR TO THE SIDES, ENDS AND BOTTOM OF FLOOR BEAMS AS SHOWN ON SHEET 29/51 .

AFTER REMOVING THE EXISTING JOINT SEALS AT PIERS 1 THROUGH 6 AND 8 THROUGH 10 AND BEFORE THE INSTALLATION OF THE NEW COMPRESSION SEALS, THE CONTRACTOR SHALL APPLY THE CORROSION INHIBITOR TO THE ENDS OF THE PRESTRESSED BEAMS AS SHOWN ON SHEET 46/51.

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE INSTALLATION OF THE CORROSION INHIBITOR AS SHOWN IN THE PLANS. PAYMENT FOR THIS WORK SHALL BE INCLUDED IN THE BID SQUARE FEET PRICE PER ITEM 511, CONCRETE MISC., SURFACE APPLIED CORROSION INHIBITOR.

ITEM 512 - SEALING OF CONCRETE SURFACES

ALL EXPOSED CONCRETE SURFACES OF THE BRIDGE AND RETAINING WALLS ARE TO BE SEALED, WITH THE EXCEPTION OF THE BRIDGE DECK AND SOFFIT OF SUPERSTRUCTURE, AS INDICATED IN THE PLANS.

PREPARE ALL SURFACES TO BE SEALED PER CMS 512.03F ENSURING THAT THE SURFACE FEELS AND LOOKS LIKE 100 GRIT SANDPAPER. WATER BLAST ONLY AT 7,000 PSI DOES NOT NECESSARILY ENSURE THE PROPER SURFACE HAS BEEN ACHIEVED.

SEAL THE CONCRETE SURFACES AS DETAILED ON THE PLAN SHEETS. THE COLOR OF THE NON-EPOXY SHALL BE CLEAR. THE FINISH COLOR OF THE EPOXY-URETHANE SHALL BE FEDERAL COLOR NUMBER 595B-23722 (SAND). A SAMPLE OF THE EPOXY-URETHANE SEALER SHALL BE APPLIED TO THE BRIDGE, AS DIRECTED BY THE ENGINEER, FOR APPROVAL PRIOR TO SEALING OF THE ENTIRE STRUCTURE.

ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN

THIS ITEM OF WORK SHALL INLCUDE THE RAILING FORMING AND DETAILS, AND THE CURB AND SIDEWALK REPAIRS.

ITEM 516 - ELASTOMERIC COMPRESSION SEAL, AS PER PLAN

THE STEEL PLATES REQUIRED FOR THE RETROFIT TO THE EXISTING JOINT ARMOR SHALL BE AS PER CMS 513, LEVEL UF. ALL REQUIREMENTS OF 513 APPLY TO SHOP FABRICATED MEMBERS. PERFORM WORK FOR FIELD FABRICATED MEMBERS ACCORDING TO ITEM 513, EXCEPT AS MODIFIED HEREIN. THE DEPARTMENT WILL NOT REQUIRE THE CONTRACTOR PERFORMING FIELD FABRICATION TO BE PRE-QUALIFIED AS SPECIFIED IN SUPPLEMENT 1078. SUBMIT A WRITTEN LETTER OF MATERIAL ACCEPTANCE, 501.06, TO THE ENGINEER. PROVIDE SHOP DRAWINGS ACCORDING TO 513.04 OR SUPPLY THE ENGINEER WITH "AS BUILT" DRAWINGS MEETING 513.04 AFTER COMPLETION OF FIELD FABRICATION. THE ENGINEER WILL REVIEW THE SUBMITTED DRAWINGS FOR CONCURRENCE WITH THE FINAL AS-BUILT CONDITION. IF NECESSARY, THE ENGINEER MAY CONTACT THE OFFICE OF STRUCTURAL ENGINEERING FOR TECHNICAL ASSISTANCE. IF THE ENGINEER IS SATISFIED WITH THE "AS-BUILT" DRAWINGS AND THE DELIVERED MATERIALS, SUPPLY A COPY OF THE DRAWINGS, STAMPED AND DATED, ALONG WITH MICROFILM, TO THE STRUCTURAL, WELDING AND METALS SECTION OF THE OFFICE OF MATERIAL MANAGEMENT FOR RECORD PURPOSES.

THE NOMINAL THICKNESS OF THE PLATES IS ¾"; THIS THICKNESS HAS BEEN USED TO ESTIMATE THE QUANTITY. HOWEVER, THE ACTUAL THICKNESS OF THE PLATE SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD, SUCH THAT THE TOP OF STEEL PLATE MATCHES THE PROPOSED DECK ELEVATIONS SHOWN ON SHEET 40/51.

THE COMPRESSION SEAL SHALL CONFORM TO CMS 705.11. THE SEAL CONFIGURATION SHALL BE SIMILAR TO EXJ-3-82, SHEET 4 OF 4 AND SHEET 45/51 AND 46/51. ACCEPTED MANUFACTURER'S ARE: D.S. BROWN, WATSON BOWMAN ACME, OR AN APPROVED EQUIVALENT. INSTALL THE SEAL ACCORDING TO THE MANUFACTURER'S SPECIFICATION AND UNDER THE SUPERVISION OF THE MANUFACTURER'S DESIGNATED REPRESENTATIVE. JOINTS SHALL BE FINISHED IN ONE CONTINUOUS PIECE AS SHOWN ON THE PLANS, EXCEPT THE SIDEWALK AND PARAPET PIECES SHALL BE SEPARATE.

THE SILICON JOINT SEALER PLACED ON TOP OF THE COMPRESSION SEAL SHALL BE DOW CORNING 902 RCS JOINT SEALER, OR APPROVED EQUAL.

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS, INCLUDING COMPRESSION SEAL, SILICON JOINT SEALER, AND STEEL PLATES, TO COMPLETE THE REPAIR OF EXPANSION JOINTS. PAYMENT OF THIS WORK SHALL BE INCLUDED IN THE BID PRICE PER LINEAR FOOT PER ITEM 516 - ELASTOMERIC COMPRESSION SEAL, AS PER PLAN.

ITEM 518 - SCUPPER, VERTICAL EXTENSION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF MODIFYING STEEL EXTENSIONS FOR EIGHT (8) OF THE EXISTING TWENTY FOUR (24) SCUPPERS, AS SHOWN ON THE SITE PLAN, AND AS SHOWN ON SHEET 43/51 .

THE VERTICAL EXTENSIONS SHALL BE PER ASTM A501, SHALL BE SHOP WELDED, AND HOT DIPPED GALVANIZED PER ASTM A123. AFTER FIELD WELDING THE EXTENSIONS TO THE EXISTING SCUPPER, THE WELDED AREAS SHALL BE TOUCHED UP PER ASTM A780. ALL EXPOSED SURFACES BELOW THE FLOORBEAM SHALL THEN BE PREPARED FOR PAINTING ACCORDING TO ASTM D6386. LASTLY, ALL EXPOSED SURFACES OF THE SCUPPER BELOW THE FLOOR BEAM SHALL BE PAINTED PER CMS 514.13 THRU 514.20, WITH THE TOP COAT TO MATCH THE PROPOSED CONCRETE SEALING COLOR (FEDERAL COLOR 595B-23722).

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE INSTALLATION AND PAINTING OF THE SCUPPER EXTENSIONS AS SHOWN IN THE PLANS. PAYMENT OF THIS WORK SHALL BE INCLUDED IN THE BID EACH PRICE PER ITEM 518 - SCUPPER, VERTICAL EXTENSION, AS PER PLAN

ITEM 518 - SCUPPER MODIFICATION, AS PER PLAN

THIS ITEM OF WORK SHALL CONSIST OF MODIFYING AND FILLING WITH CONCRETE SIXTEEN (16) OF THE EXISTING TWENTY FOUR (24) SCUPPERS, AS SHOWN ON THE SITE PLAN, AND AS SHOWN ON SHEET 44/51 .

THE CONTRACTOR SHALL REMOVE THE PORTION OF THE SCUPPER WHICH EXTENDS DOWNWARD FROM THE EXISTING FLOOR BEAM AS INDICATED IN THE PLANS. ALSO, AFTER THE CONTRACTOR SCARIFIES THE CONCRETE DECK PER ITEM 847, THE CONTRACTOR SHALL REMOVE THE PORTION OF THE SCUPPER WHICH EXTENDS FROM THE SCARIFICATION LINE. FLAME CUTTING IS PERMITTED. THE CONTRACTOR SHALL GRIND SMOOTH AND TOUCH UP THE EXPOSED ENDS OF THE SCUPPERS AT THE CUT LINE WITH GALVANIZATION PER ASTM A780.

AFTER REMOVAL OF THE SCUPPER EXTENSIONS ABOVE THE DECK AND BELOW THE FLOOR BEAMS, AND BEFORE SEALING OF ADJACENT CONCRETE SURFACES AND PLACEMENT OF THE PROPOSED MICRO-SILICA OVERLAY, THE CONTRACTOR SHALL INSTALL WELDED STUDS AND FILL THE REMAINING SCUPPER PORTION WITH CMS 511 - CLASS S CONCRETE.

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE REMOVAL OF PORTION OF THE SCUPPERS, INCLUDING THE INSTALLATION OF WELDED STUDS AND FILLING THE REMAINING SCUPPER PORTION WITH CLASS S CONCRETE, AS SHOWN IN THE PLANS. PAYMENT OF THIS WORK SHALL BE INCLUDED IN THE BID EACH PRICE PER ITEM 518 - SCUPPER MODIFICATION, AS PER PLAN.

ITEM 518 - STRUCTURE DRAINAGE, MISC.: STAIRCASE LANDING DRAIN

THIS ITEM OF WORK SHALL CONSIST OF INSTALLING DRAIN PIPES AND GRATES AT THE TWO (2) STAIRCASE LANDINGS. THE DRAINAGE PIPE AND GRATE SHALL BE PER NEENAH FOUNDRY, 2121 BROOKS AVENUE, NEEHAH, WI, 54956, MODEL R-4373-3, OR APPROVED EQUAL. SET TOP OF GRATE ¼" BELOW EXISTING LANDING SURFACE.

THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, AND MATERIALS NECESSARY TO COMPLETE THE INSTALLATION OF THE DRAIN PIPES AND GRATES, INCLUDING THE SETTING OF THE PIPE WITH CEMENT GROUT PER CMS 510.02, AS SHOWN IN THE PLANS. PAYMENT OF THIS WORK SHALL BE INCLUDED IN THE BID PRICE EACH PER ITEM 518 - STRUCTURE DRAINAGE, MISC.: STAIRCASE LANDING DRAIN.

ITEM SPECIAL - PATCHING CONCRETE STRUCTURES, MISC.: TYPE 1 REPAIR
ITEM SPECIAL - PATCHING CONCRETE STRUCTURES, MISC.: TYPE 2 REPAIR

TYPE 1 REPAIRS CONSIST OF CONCRETE PATCHING TO ALL VERTICAL AND HORIZONTAL TOP SURFACES. TYPE 2 REPAIRS CONSIST OF ALL CONCRETE PATCHING TO ALL HORIZONTAL BOTTOM SURFACES.

THIS ITEM OF WORK SHALL BE PER ITEM 519 WITH THE FOLLOWING MODIFICATIONS:

IN ADDITION TO THE PROVISIONS OF ITEM 509, FIELD BEND AND/OR FIELD CUT THE REINFORCING STEEL DESIGNATED IN THE PLANS, AS NECESSARY, IN ORDER TO MAINTAIN THE REQUIRED CLEARANCES AND BAR SPACINGS. REPAIR ALL DAMAGE TO THE EPOXY COATING, AS A RESULT OF THIS WORK, ACCORDING TO 709.00.

PRIOR TO THE SURFACE CLEANING SPECIFIED IN 519.04 AND WITHIN 24 HOURS OF PLACING PATCHING MATERIAL, BLAST CLEAN ALL SURFACES TO BE PATCHED INCLUDING THE EXPOSED REINFORCING STEEL. ACCEPTABLE METHODS INCLUDE HIGH-PRESSURE WATER BLASTING WITH OR WITHOUT ABRASIVES IN THE WATER, ABRASIVE BLASTING WITH CONTAINMENT, OR VACUUM ABRASIVE BLASTING.

ALL CONCRETE REPAIRS REQUIRE ¾" SAW CUTS ALONG THE LIMITS OF REMOVAL BEFORE CHIPPING. WELDED WIRE FABRIC SHALL BE USED ON HORIZONTAL SURFACES AS SHOWN IN THE DETAILS. CONCRETE PATCHING AREAS MUST BE INSPECTED AFTER SAW CUTTING AND AGAIN AFTER DETERIORATED CONCRETE IS REMOVED.

FOR TYPE 2 REPAIRS, SUBMIT CONCRETE PUMPING FOR APPROVAL PRIOR TO STARTING WORK AND ORDERING MATERIAL. SUBMIT ANY CHANGES IN CONCRETE MIX DESIGN WITH SMALL AGGREGATE FOR PUMPING PROCEDURE FOR APPROVAL PRIOR TO STARTING WORK.

SUBMIT FORM WORK AND PUMPING PRODECURE FOR CONCRETE PATCHING FOR APPROVAL PRIOR TO STARTING WORK. THIS SUBMISSION SHALL INCLUDE STEPS FOR INSTALLATION OF FORMS, PUMPING PATCHING MATERIAL, REMOVAL OF FORM WORK AND METHOD IN PREVENTING VOIDS WITHIN THE PATCHING AREAS. FINISHED PATCHING MUST BE INSPECTED FOR SURFACE PROFILE AND QUALITY OF PATCH WITHOUT VOIDS IN THE CONCRETE PATCHES.

ITEM SPECIAL - STRUCTURE, MISC.: TEST SLAB

THIS ITEM OF WORK SHALL BE PER ITEM 847.14 WITH THE FOLLOWING MODIFICATIONS:

THE TEST SLAB SHALL BE CONSTRUCTED ON A 7% SLOPE TO MIMIC THE PROPOSED CONSTRUCTION. ALSO, SIMILAR METHODS OF INSTALLATION THAT WILL BE USED WITH THE OVERLAY ON THE BRIDGE DECK SHALL BE USED ON THE TEST SLAB. THE ENGINEER MUST APPROVE THE TEST SLAB BEFORE THE PLACEMENT OF THE FINAL OVERLAY ON THE BRIDGE DECK.

ITEM 843 - PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR

FOR AREAS NOT DETAILED IN THE PLANS, TROWELABLE MORTAR SHALL BE USED TO PATCH SMALL VOIDS IN THE EXISTING CONCRETE SURFACES WHERE THE EXISTING REINFORCEMENT IS NOT EXPOSED. THESE AREAS INCLUDE, BUT ARE NOT LIMITED TO, EXISTING SHALLOW POPOUTS, LINEAR VOIDS ALONG CONCRETE COLD JOINTS AND AREAS OF HONEYCOMBING.

ITEM 847 - 1 ¼" MICRO-SILICA MODIFIED CONCRETE OVERLAY, AS PER PLAN

THIS ITEM OF WORK SHALL BE PER ITEM 847 WITH THE FOLLOWING MODIFICATIONS:

IN ADDITION TO BRIDGE LIMITS, THIS ITEM OF WORK SHALL ALSO INCLUDE THE REAR APPROACH SLAB AND FORWARD APPROACH SLAB.

THE EXISTING DECK REMOVAL SHALL BE ½".

AFTER THE MATERIAL HAS CURED, GROOVES IN THE DECK USING TRANSVERSE SAW CUTS SHALL BE MADE TO TEXTURE THE DECK. GROOVES SHALL BE PER CMS 511.20.

LONGITUDINAL JOINTS, IF REQUIRED, SHALL BE APPROVED OF BY THE ENGINEER BEFORE CONSTRUCTION.

THIS ITEM SHALL INCLUDE THE 1" SEAL JOINTS IN THE DECK AT THE ABUTMENTS AS SHOWN ON SHEETS 37/51 AND 38/51, AND SHALL BE INSTALLED PER CMS 705.04.

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	CJM	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JDH		07001599	

STRUCTURE GENERAL NOTES
BRIDGE NO. BEL-40-2338
S.R. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

ITEM SPECIAL - MISC.: WORK INVOLVING ASBESTOS CONTAINING MATERIALS

AN ASBESTOS INSPECTION OF THE EXISTING BEL-40-23.38 BRIDGE INDICATED THAT APPROXIMATELY 20 SQUARE FEET OF SHEET ASBESTOS IS PRESENT ON THE STAIRWELL ATTACHED TO STRUCTURE.

CONSTRUCTION WILL REQUIRE THE REMOVAL AND DISPOSAL OF THIS MATERIAL. THE CONTRACTOR SHALL ENSURE THAT ASBESTOS CONTAINING MATERIALS DO NOT BECOME FRIABLE (BROKEN-UP OR DISPERSED) AND THAT NO VISIBLE FIBER EMISSIONS WILL OCCUR. ADDITIONALLY, THE REMOVAL AND DISPOSAL OF THE ASBESTOS CONTAINING MATERIAL SHALL COMPLY WITH CHAPTER 3745-20 OF THE OHIO ADMINISTRATIVE CODE, THE NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAP) AND APPLICABLE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS (29 CFR 1926.1101).

BASIS OF PAYMENT

THE CONTRACTOR SHALL FURNISH ALL THE LABOR EQUIPMENT, AND MATERIALS NECESSARY TO PROPERLY REMOVE, ENCAPSULATE, HANDLE, TRANSPORT, AND DISPOSE OF ASBESTOS CONTAINING MATERIALS IN A LANDFILL LICENSED BY THE LOCAL HEALTH DEPARTMENT AND PERMITTED BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY - DIVISION OF AIR POLLUTION CONTROL TO ACCEPT ASBESTOS CONTAINING MATERIAL. PAYMENT FOR THIS WORK SHALL BE MADE AT THE CONTRACT PRICE BID OF LUMP SUM. THE FOLLOWING ESTIMATED QUANTITY HAS BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM SPECIAL- MISC.: WORK INVOLVING ASBESTOS CONTAINING MATERIALS	LUMP SUM

ABBREVIATIONS

ABUT	= ABUTMENT
APP	= APPROACH
BRG.	= BEARING
C.J.	= CONSTRUCTION JOINT
CLR.	= CLEARANCE
CONSTR	= CONSTRUCTION
CPP	= CORRUGATED POLYETHYLENE PIPE
CU YD	= CUBIC YARD
E.	= EAST
E.F.	= EACH FACE
EL/ELEV	= ELEVATION
EQ.	= EQUAL
EX.	= EXISTING
F.F.	= FAR FACE
FT	= FEET/FOOT
FWD.	= FORWARD
GALV.	= GALVANIZED
LF	= LINEAR FEET
MAX.	= MAXIMUM
MSC	= MICRO-SILICA CONCRETE
MIN.	= MINIMUM
N.	= NORTH
N.F.	= NEAR FACE
PEJF	= PREFORMED EXPANSION JOINT FILLER
REINF.	= REINFORCEMENT
S.	= SOUTH
SAN	= SANITARY SEWER
SF	= SQUARE FEET
STA	= STATION
STO	= STORM SEWER
UNO	= UNLESS NOTED OTHERWISE
VCP	= VITRIFIED CLAY PIPE
W.	= WEST
WWF	= WELDED WIRE FABRIC

INDEX OF SHEETS

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09

CHECKED	REVISED	STRUCTURE FILE NUMBER
JDH		07001599

STRUCTURE GENERAL NOTES

BRIDGE NO. BEL-40-2338
S.R. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

MADE BY: CJM DATE: 11/23/09
CHECKED BY: WJV DATE: 11/23/09

ESTIMATED QUANTITIES

STRUCTURE FILE NUMBER: 0701599

ITEM	EXTEN-SION	TOTAL	UNIT	DESCRIPTION	* REAR ABUTMENT	** FORWARD ABUTMENT	PIERS	ARCH RIBS & SPANDREL COLUMNS	FLOOR BEAMS AND BOX BEAMS	SUPER-STRUCTURE	*** GENERAL	SEE SHEET NUMBER
202	11203	LUMP		PORTIONS OF STRUCTURE REMOVED, OVER 20 FOOT SPAN, AS PER PLAN							LUMP	3/51, 7/51, 24/51
509	10000	5065	POUND	EPOXY COATED REINFORCING STEEL		3754				1281	30	
509	20001	500	POUND	REINFORCING STEEL, REPLACEMENT OF EXISTING REINFORCING STEEL, AS PER PLAN							500	3/51
510	10000	30	EACH	DOWEL HOLES WITH NONSHRINK, NONMETALLIC GROUT							30	
511	34401	13	CU YD	CLASS S CONCRETE, SUPERSTRUCTURE, AS PER PLAN						13		4/51
511	46000	8	CU YD	CLASS C CONCRETE		7					1	
511	71200	2601	SQ FT	CONCRETE, MISC.: SURFACE APPLIED CORROSION INHIBITOR					2601			4/51, 33/51
511	81100	618	FT	CONCRETE, MISC.: EMBEDDED GALVANIC ANODE, TYPE B		618						3/51, 4/51, 50/51
511	81300	5585	EACH	CONCRETE, MISC.: EMBEDDED GALVANIC ANODE, TYPE A	89	283	2661	1471		200	38	3/51, 4/51, 49/51
512	10050	560	SQ YD	SEALING OF CONCRETE SURFACES (NON-EPOXY)						518	42	4/51
512	10100	12246	SQ YD	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	87	797	2503	4324	2037	2265	233	4/51
512	10600	182	FT	CONCRETE REPAIR BY EPOXY INJECTION		83	32			67		
516	10901	450	FT	ELASTOMERIC COMPRESSION SEAL, AS PER PLAN						450		4/51
516	13600	50	SQ FT	1" PREFORMED EXPANSION JOINT FILLER						50		
518	12701	8	EACH	SCUPPER, VERTICAL EXTENSION, AS PER PLAN						8		4/51
518	12801	16	EACH	SCUPPER MODIFICATION, AS PER PLAN						16		4/51
518	62200	2	EACH	STRUCTURE DRAINAGE, MISC.: STAIRCASE LANDING DRAIN							2	4/51
SPECIAL	51911600	14061	SQ FT	PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR	264	2430	6997	3930	385		55	4/51
SPECIAL	51911600	1373	SQ FT	PATCHING CONCRETE STRUCTURE, MISC.: TYPE 2 REPAIR			521	670	111	71		4/51
SPECIAL	53000200	LUMP		STRUCTURE, MISC.: TEST SLAB							LUMP	4/51
SPECIAL	53000600	178	SQ FT	STRUCTURE, MISC.: REMOVAL OF LOOSE CONCRETE AT BOX BEAMS					178			33/51
601	12100	125	SQ YD	RIPRAP, USING CONCRETE IN BAGS	125							
SPECIAL	69098400	LUMP		MISC.: WORK INVOLVING ASBESTOS CONTAINING MATERIAL							LUMP	5/51
843	50000	500	SQ FT	PATCHING CONCRETE STRUCTURES WITH TROWELABLE MORTAR							500	4/51
847	10001	3350	SQ YD	1 1/4" MICRO-SILICA MODIFIED CONCRETE OVERLAY, AS PER PLAN						3350		4/51
847	20000	10	CU YD	MICRO-SILICA MODIFIED CONCRETE OVERLAY (VARIABLE THICKNESS)						10		
847	30200	10	CU YD	FULL DEPTH REPAIR						10		

* INCLUDES WINGWALLS

** INCLUDES RETAINING WALLS

*** INCLUDES STAIRCASE AND OTHER MISCELLANEOUS QUANTITIES

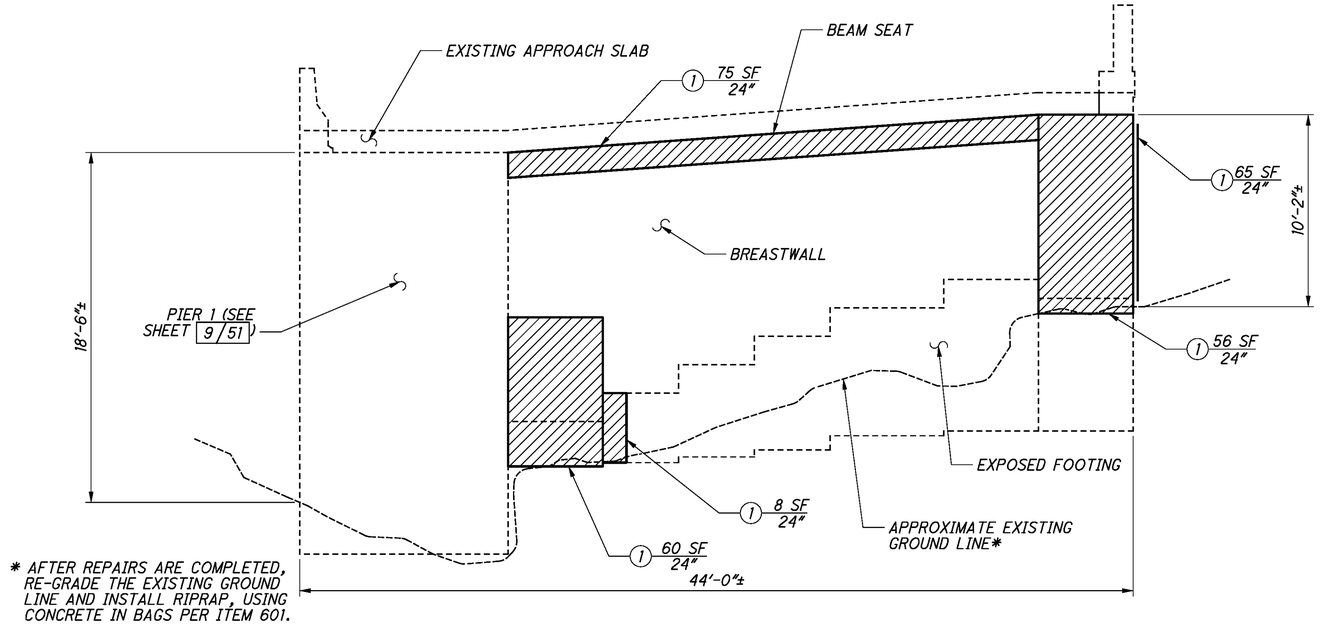
DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED JDH | DRAWN WJV | REVIEWED HVH | DATE 10/16/09
CHECKED CJM | REVISED | STRUCTURE FILE NUMBER 0701599

ESTIMATED QUANTITES

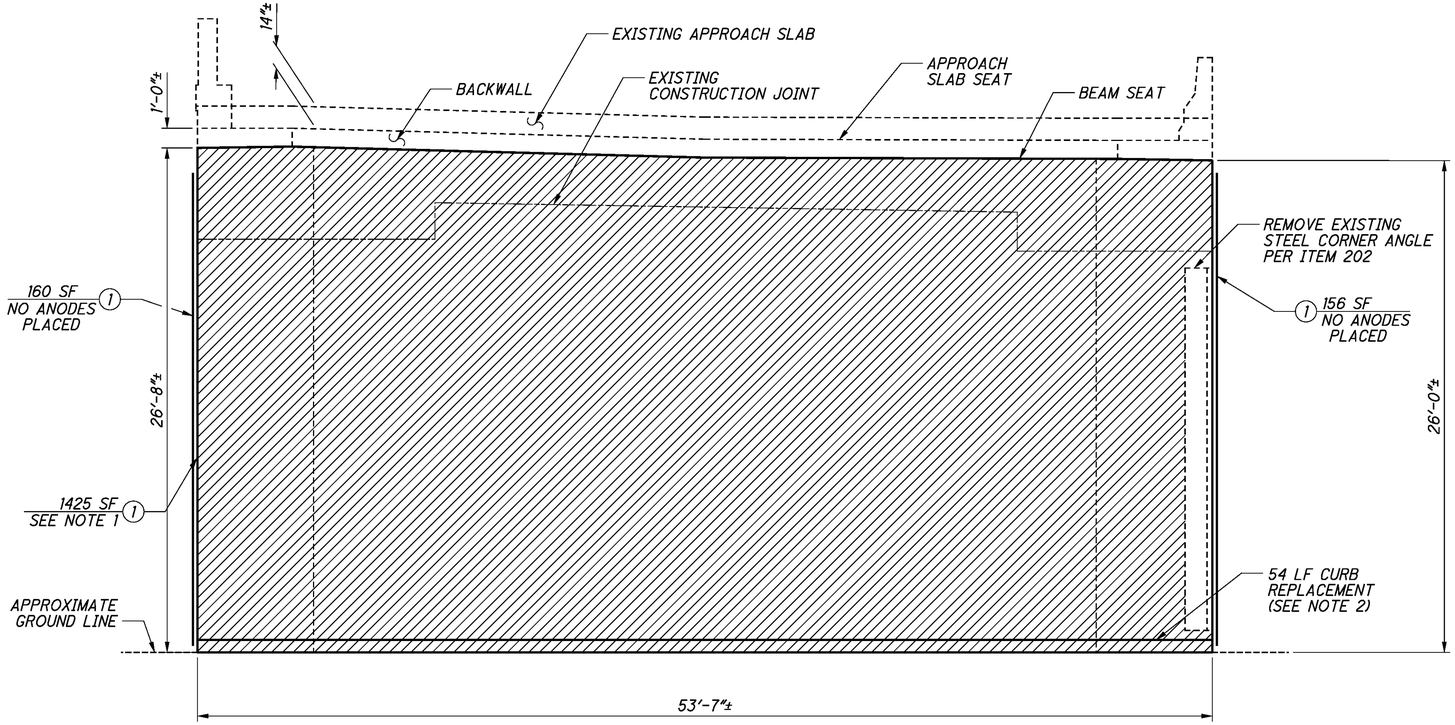
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815



* AFTER REPAIRS ARE COMPLETED, RE-GRADE THE EXISTING GROUND LINE AND INSTALL RIPRAP, USING CONCRETE IN BAGS PER ITEM 601.

REAR ABUTMENT ELEVATION



FORWARD ABUTMENT ELEVATION

NOTE: USE TYPE B ANODES FOR CATHODIC PROTECTION ON FORWARD ABUTMENT.

REAR ABUTMENT QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	264
TYPE A ANODE	EACH	89

FORWARD ABUTMENT QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	1741
TYPE B ANODE	FT	618

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.
2. FOR CURB REPLACEMENT DETAIL AND PAYMENT, SEE SHEET 48/51.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR

REPAIR TYPE 1 OR 2 (SEE SHEET 30/51)
ESTIMATED REPAIR AREA
X Y SF Z"
MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51)

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN WJV | CHECKED CJM | REVIEWED HVH | DATE 10/16/09 | REVISED | STRUCTURE FILE NUMBER 0701599

ABUTMENT REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

7 / 51

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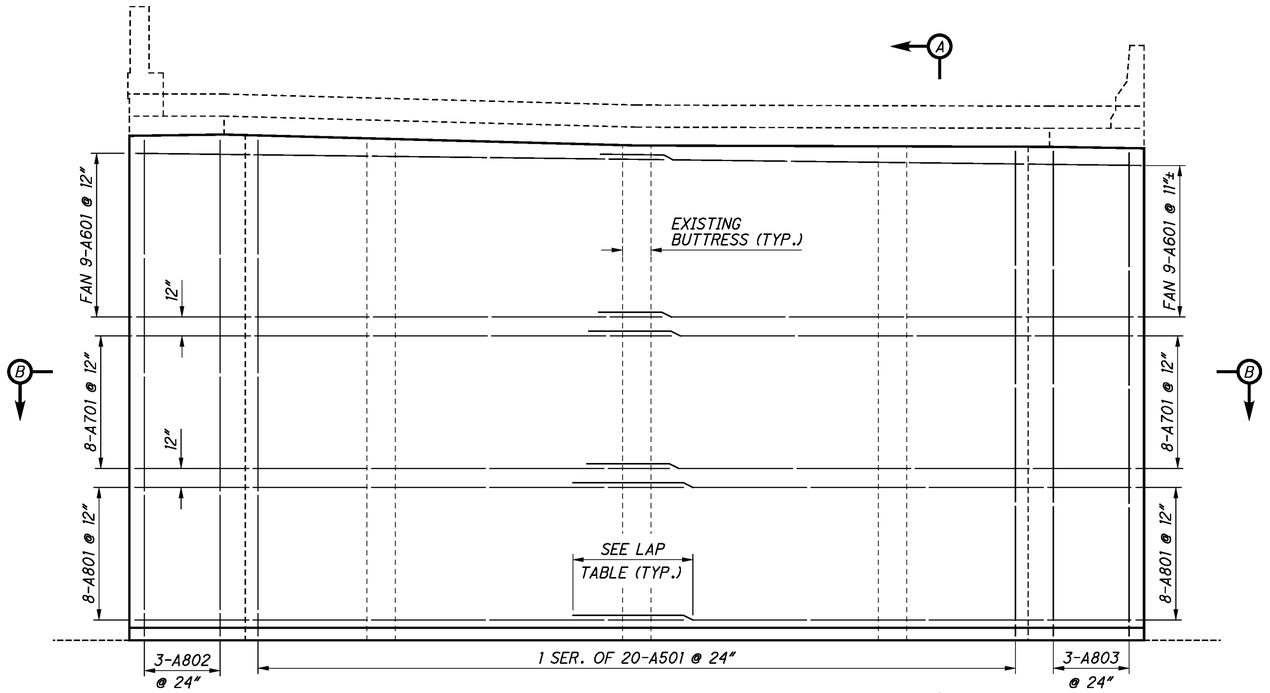
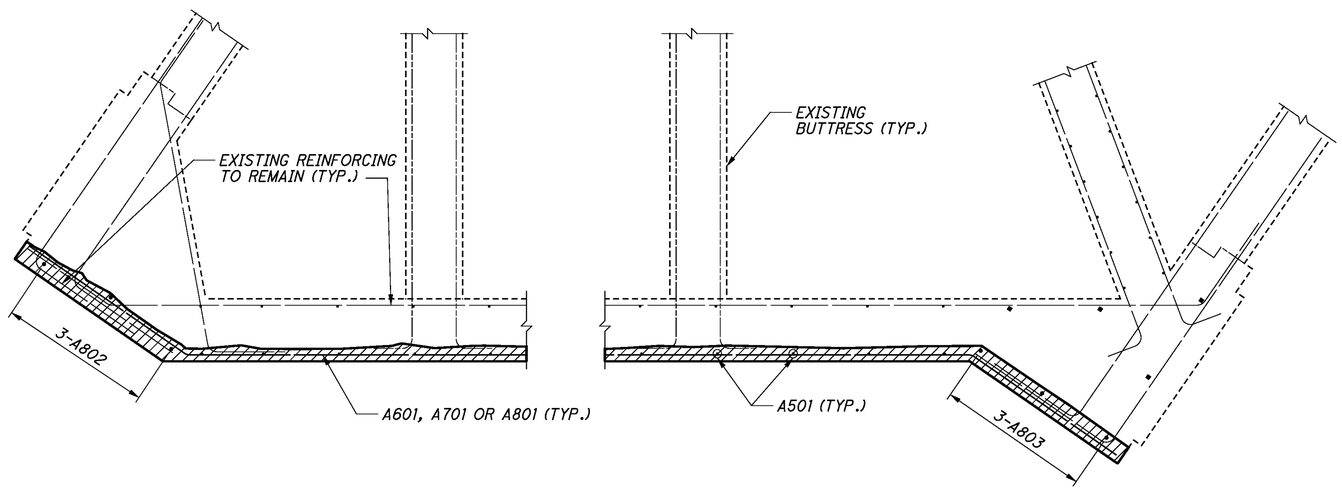
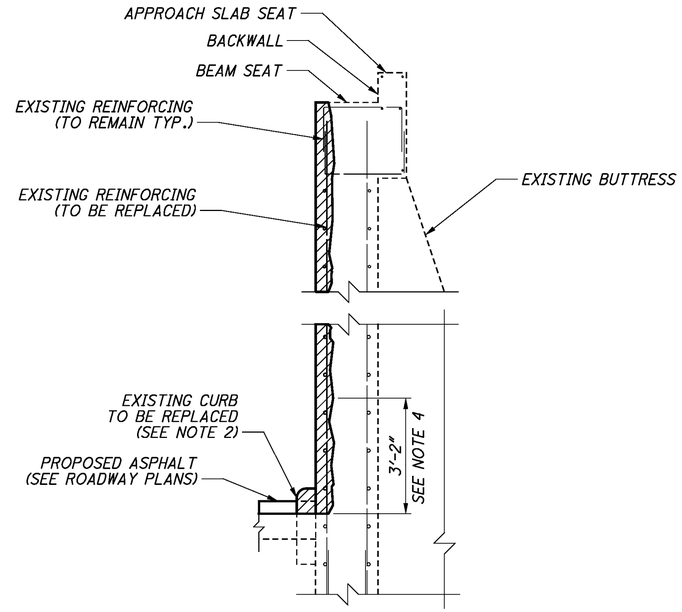


DEVELOPED FORWARD ABUTMENT ELEVATION

(ELEVATION SHOWN ALONG SKEW)
(EXISTING VERTICAL REINFORCING NOT SHOWN)



SECTION B-B



SECTION A-A

LAP LENGTH TABLE	
BAR	REQUIRED LAP LENGTH
#5 VERT.	3'-2"
#6 HORIZ.	3'-10"
#7 HORIZ.	4'-10"
#8 HORIZ.	6'-4"

NOTES:

1. FOR TYPE B SACRIFICIAL GALVANIC ANODE SPACING AND DETAILS, SEE SHEET 50/51.
2. FOR CURB REPLACEMENT DETAIL AND PAYMENT, SEE SHEET 48/51.
3. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.
4. RETAIN 3'-2" OF EXISTING VERTICAL REINFORCING TO LAP WITH PROPOSED A501, A802 AND A803 BARS. CLEAN AND APPLY EPOXY COATING ON ALL EXISTING REINFORCING TO BE INCORPORATED INTO THE REHABILITATED SECTION. PAYMENT FOR APPLYING EPOXY SHALL BE PAID FOR WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE I REPAIR.
5. FOR FORWARD ABUTMENT DIMENSIONS AND PATCHING QUANTITIES SEE SHEET 7/51.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
CJM	CJM	HVH	12/30/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
WJV		07001599	

FORWARD ABUTMENT REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

8 / 51

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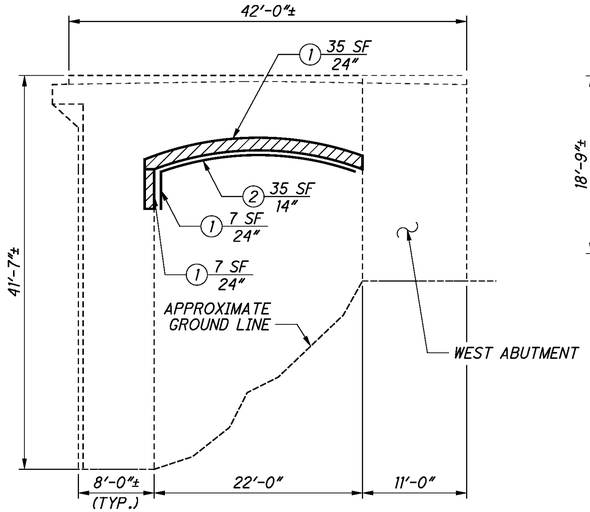
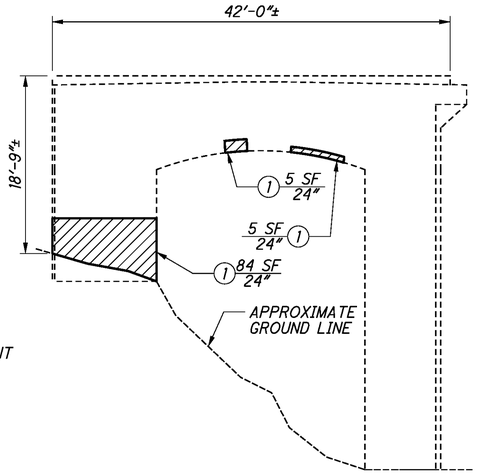


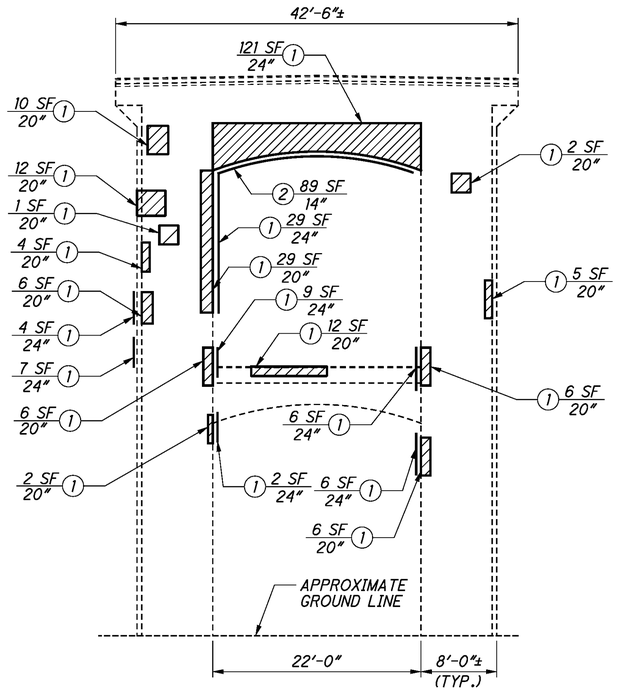
PIER 1 WEST ELEVATION



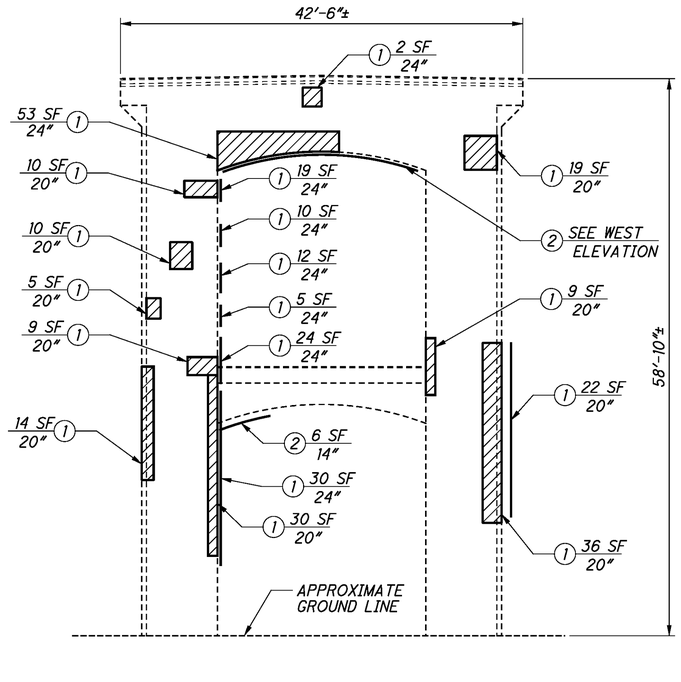
PIER 1 EAST ELEVATION

PIER 1 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	143
TYPE 2 REPAIR	SF	35
TYPE A ANODE	EACH	96

PIER 2 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	604
TYPE 2 REPAIR	SF	95
TYPE A ANODE	EACH	344



PIER 2 WEST ELEVATION



PIER 2 EAST ELEVATION

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM 519 - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

(X) Y SF / 2" — (X) REPAIR TYPE 1 OR 2 (SEE SHEET 30/51); Y SF ESTIMATED REPAIR AREA; 2" MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY: TranSystems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN WJV | CHECKED CJM | REVIEWED HVH | DATE 10/16/09 | REVISED | STRUCTURE FILE NUMBER 07001599

PIERS 1 AND 2 REPAIRS

BRIDGE NO. BEL-40-2338

U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38

PID No. 22815

9 / 51

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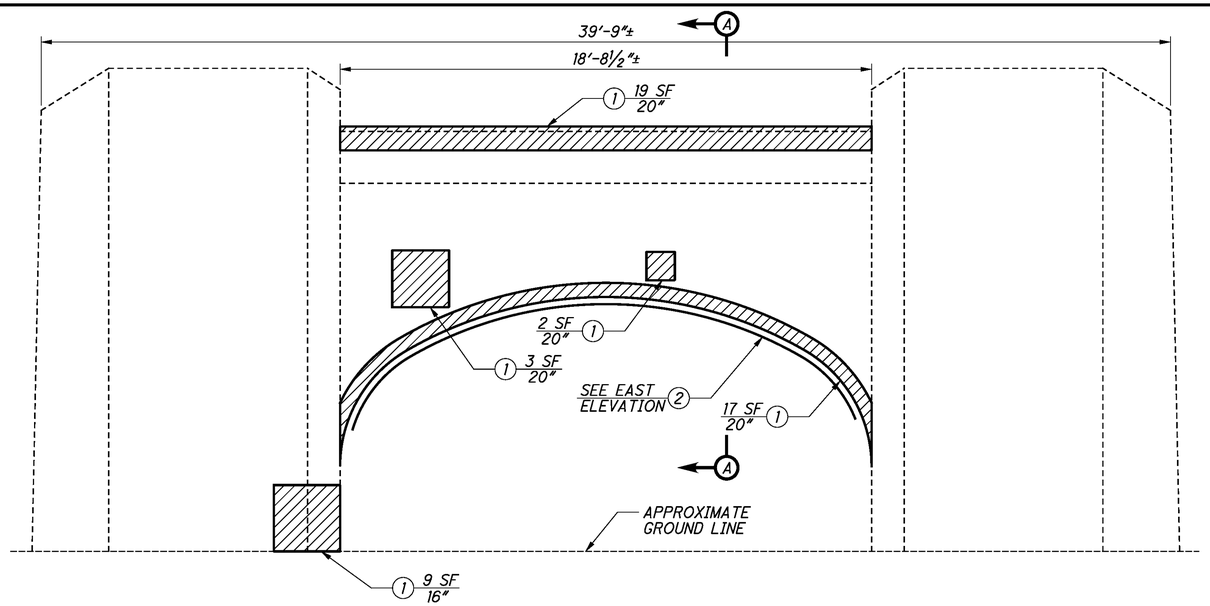
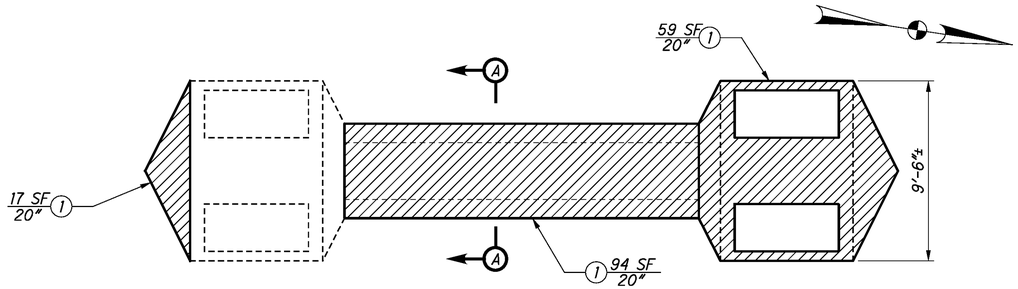
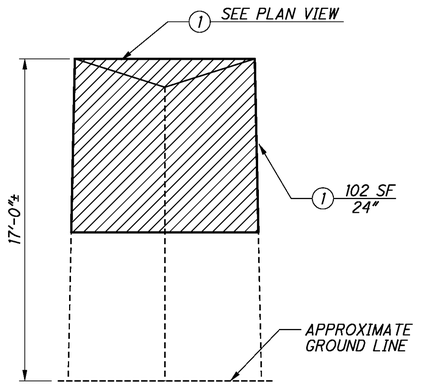
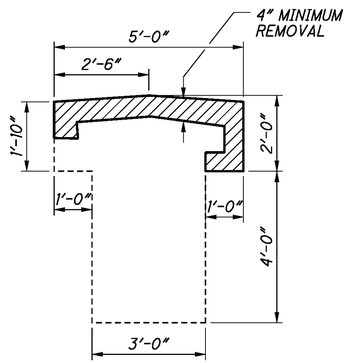


PIER 3
WEST ELEVATION

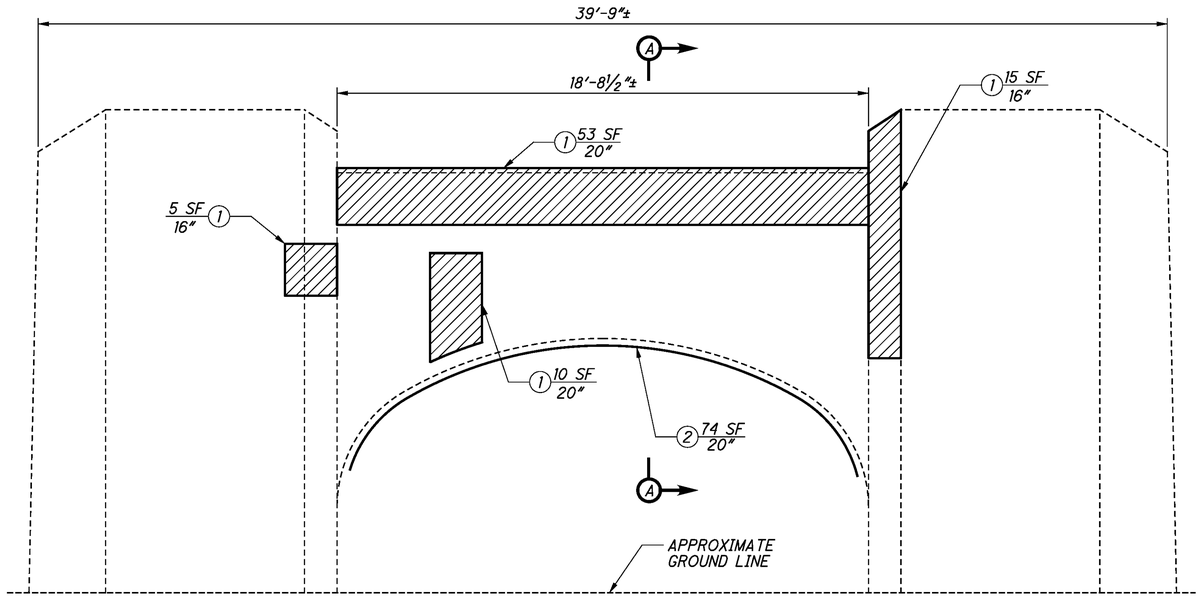


PIER 3
PLAN VIEW





SECTION A-A



PIER 3
EAST ELEVATION

PIER 3
SOUTH ELEVATION

PIER 3 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	405
TYPE 2 REPAIR	SF	74
TYPE A ANODE	EACH	202

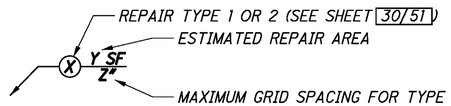
NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM 519 - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.



DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

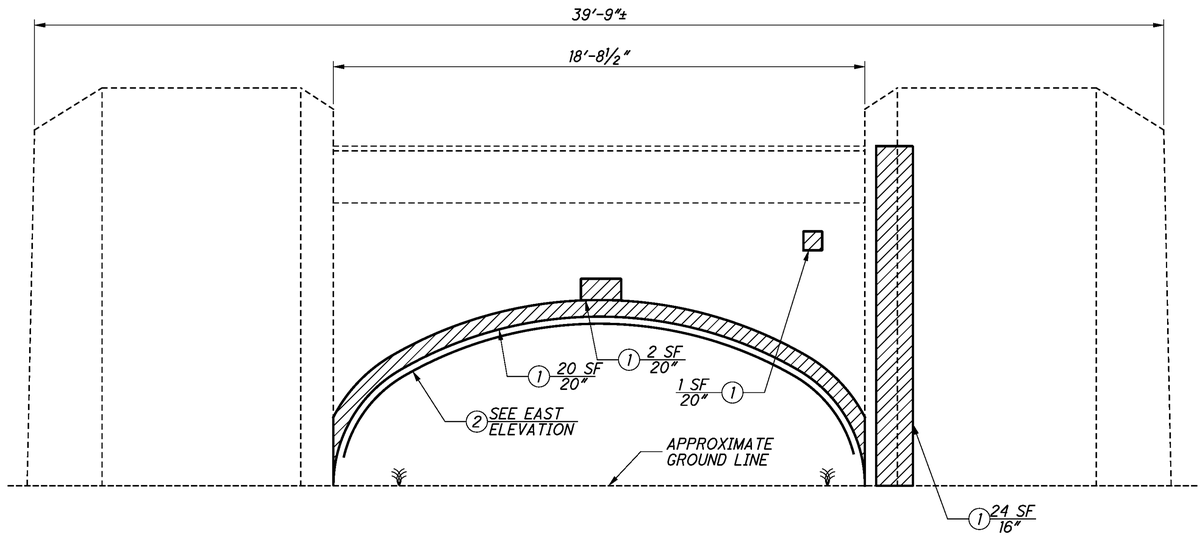
DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		07001599	

PIER 3 REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

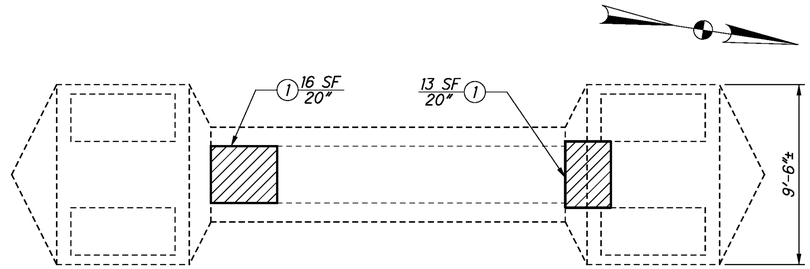
BEL-40-23.38
PID No. 22815

10 / 51

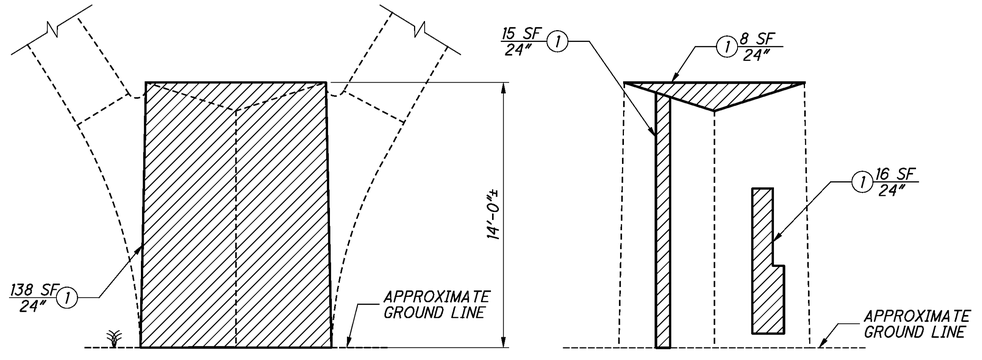
32 / 73



PIER 4
WEST ELEVATION
(SPANDREL COLUMNS NOT SHOWN)

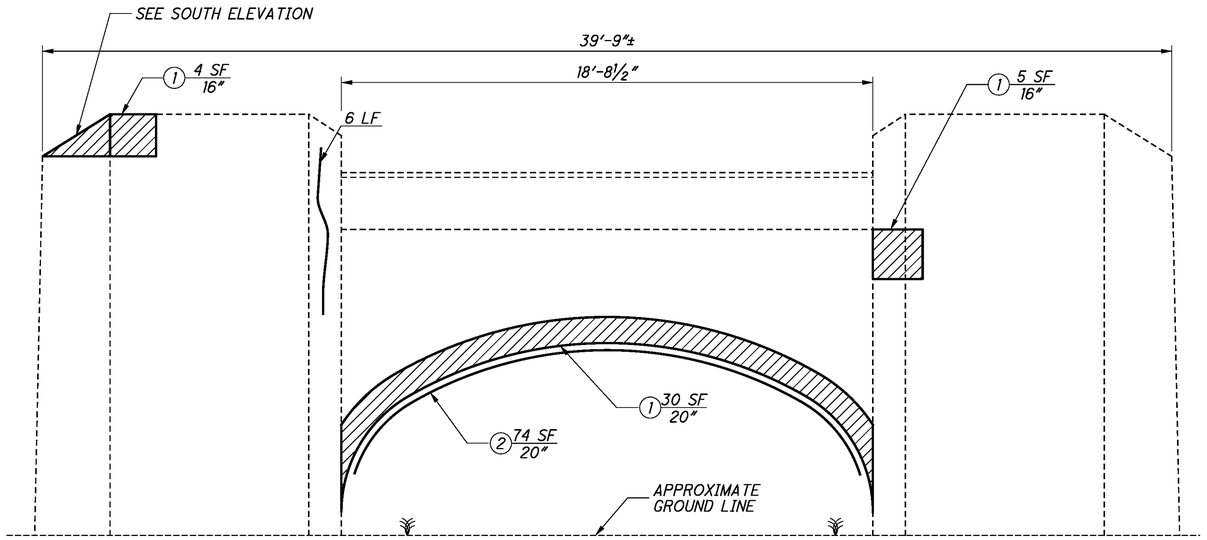


PIER 4
PLAN VIEW



PIER 4
NORTH ELEVATION

PIER 4
SOUTH ELEVATION



PIER 4
EAST ELEVATION
(SPANDREL COLUMNS NOT SHOWN)

PIER 4 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	292
TYPE 2 REPAIR	SF	74
TYPE A ANODE	EACH	170
ITEM 512 REPAIR	FT	6

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM 519 - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

CRACK REPAIR IN ACCORDANCE WITH ITEM 512 - CONCRETE REPAIR BY EPOXY INJECTION.

REPAIR TYPE 1 OR 2 (SEE SHEET 30/51)
ESTIMATED REPAIR AREA
X Y SF Z"
MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		0701599	

PIER 4 REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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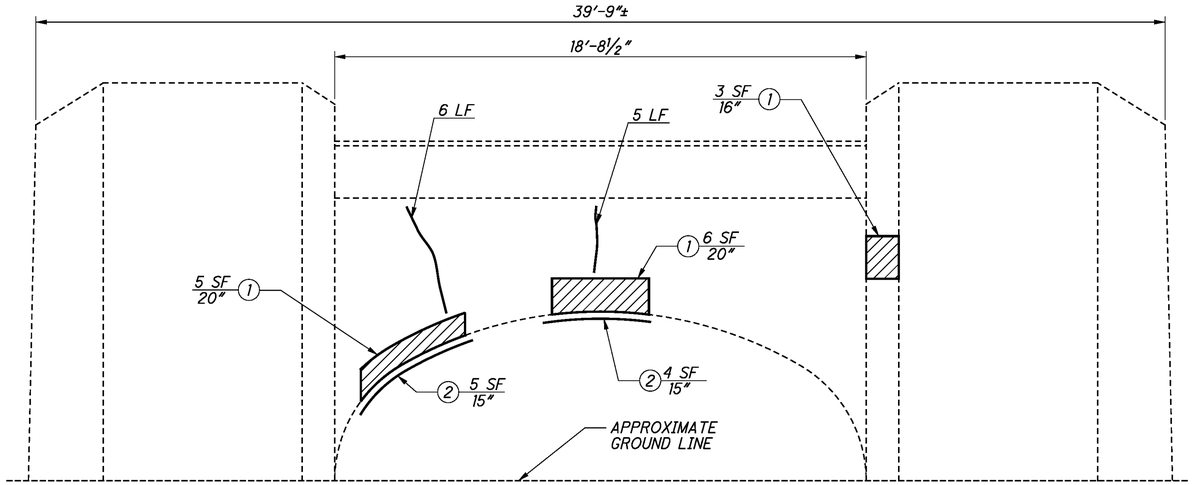
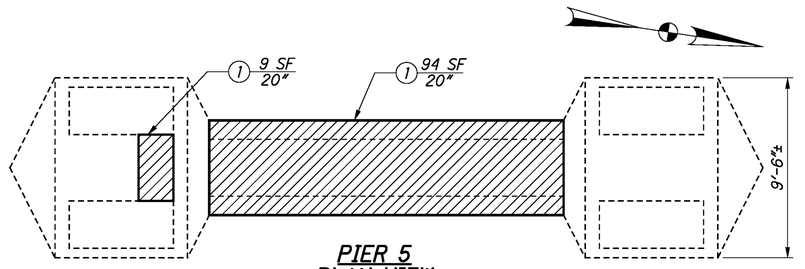
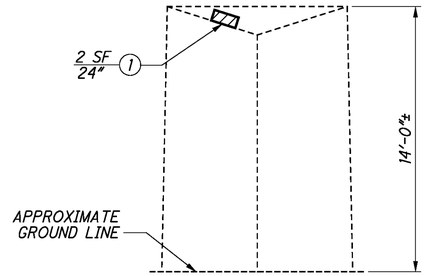


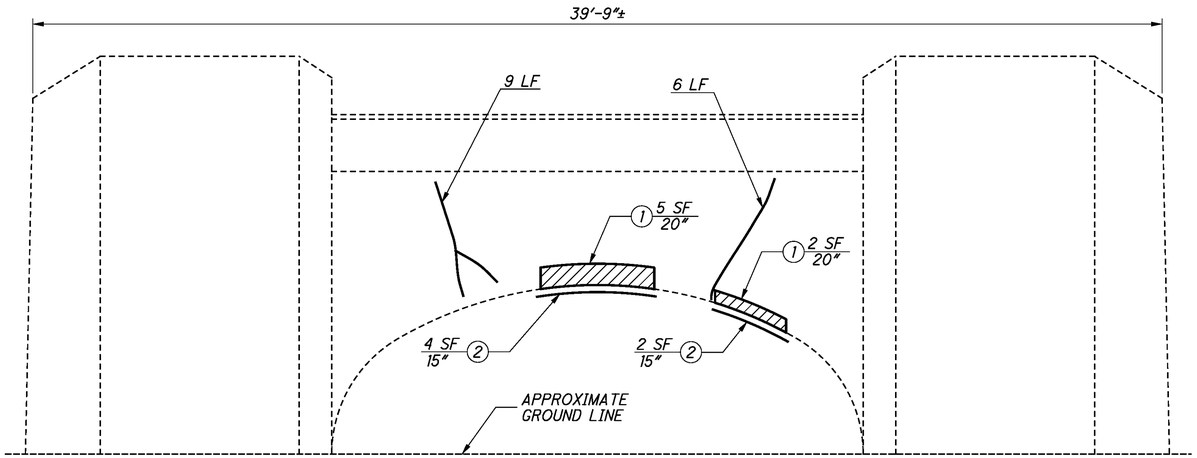
PIER 5
WEST ELEVATION



PIER 5
PLAN VIEW



PIER 5
SOUTH ELEVATION



PIER 5
EAST ELEVATION

PIER 5 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	126
TYPE 2 REPAIR	SF	15
TYPE A ANODE	EACH	86
ITEM 512 REPAIR	FT	26

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM 519 - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

CRACK REPAIR IN ACCORDANCE WITH ITEM 512 - CONCRETE REPAIR BY EPOXY INJECTION.

REPAIR TYPE 1 OR 2 (SEE SHEET 30/51)
ESTIMATED REPAIR AREA
(X) Y SF / Z"
MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN WJV | REVIEWED HVH | DATE 10/16/09
CHECKED CJM | REVISED | STRUCTURE FILE NUMBER 0701599

PIER 5 REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

12 / 51

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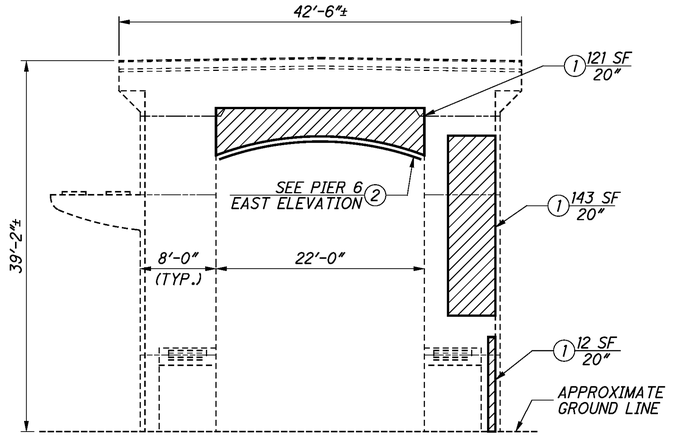
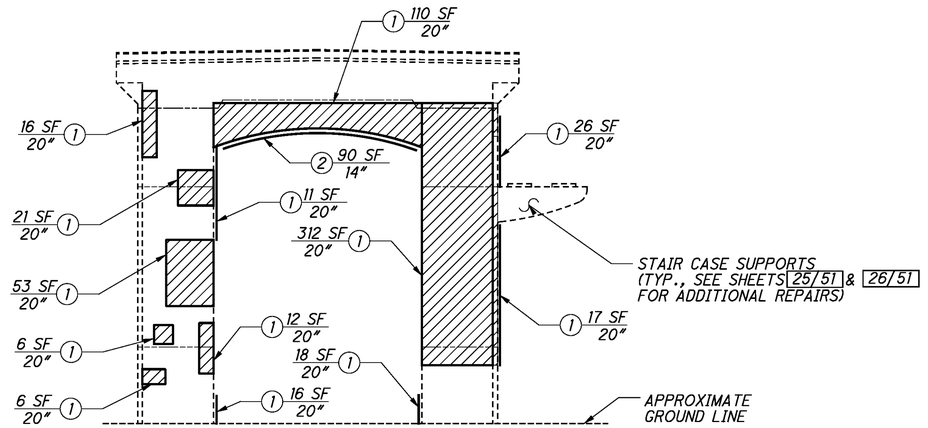
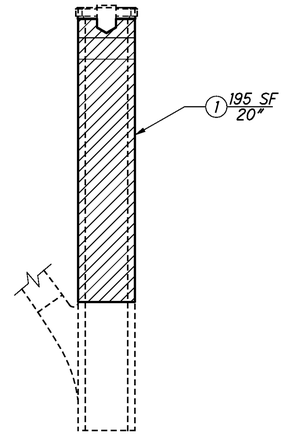


PIER 6 WEST ELEVATION



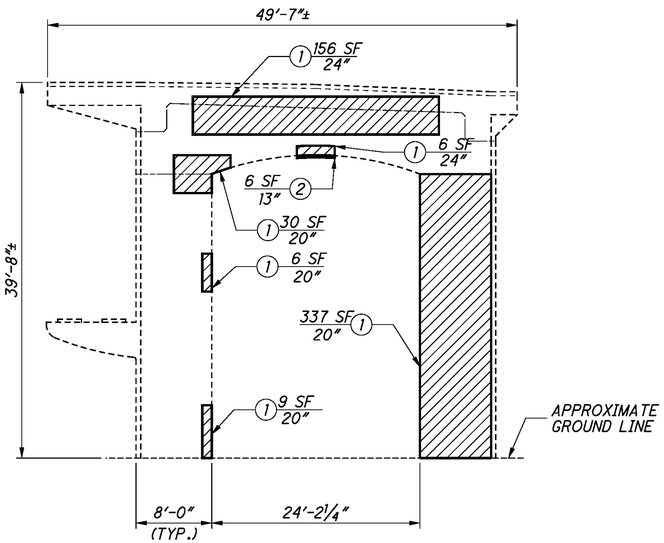
PIER 6 EAST ELEVATION



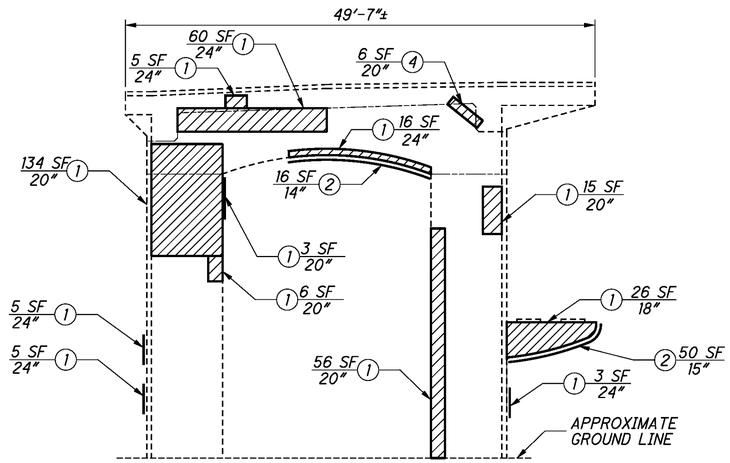
PIER 6 SOUTH ELEVATION

PIER 6 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	1096
TYPE 2 REPAIR	SF	90
TYPE A ANODE	EACH	342

PIER 7 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	884
TYPE 2 REPAIR	SF	72
TYPE A ANODE	EACH	317



PIER 7 WEST ELEVATION



PIER 7 EAST ELEVATION

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM 519 - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

REPAIR TYPE 1 OR 2 (SEE SHEET 30/51)
ESTIMATED REPAIR AREA
(X) Y SF Z"
MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		0701599	

PIERS 6 AND 7 REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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73

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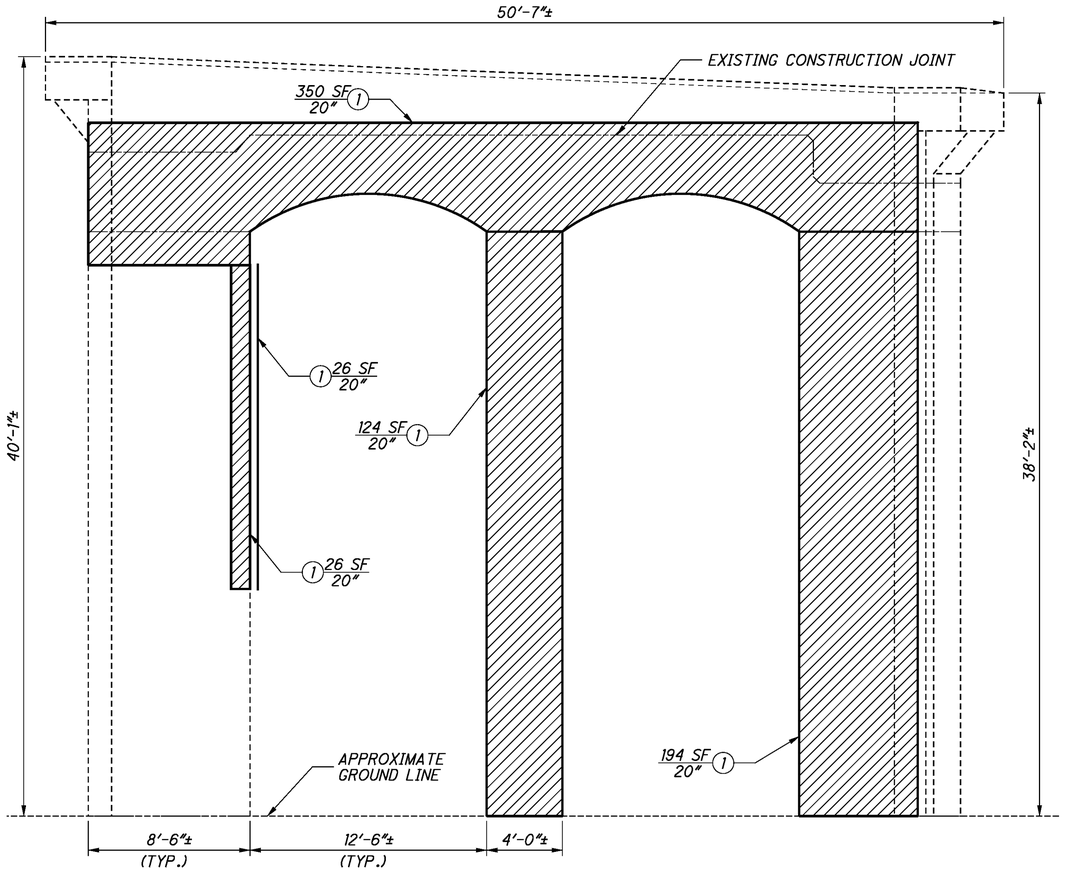
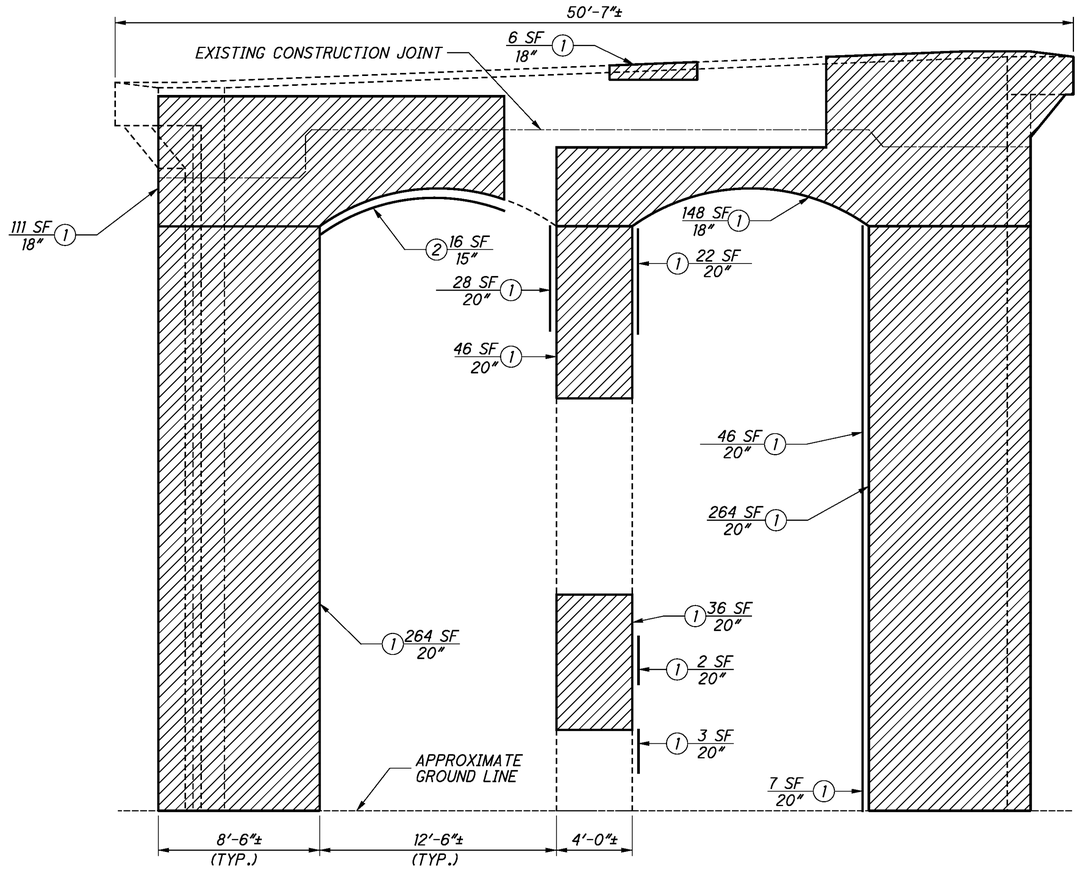


PIER 8 WEST ELEVATION



PIER 8 EAST ELEVATION

PIER 8 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	1703
TYPE 2 REPAIR	SF	16
TYPE A ANODE	EACH	453

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM 519 - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

REPAIR TYPE 1 OR 2 (SEE SHEET 30/51)
ESTIMATED REPAIR AREA
(X) Y SF Z"
MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
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PIER 8 REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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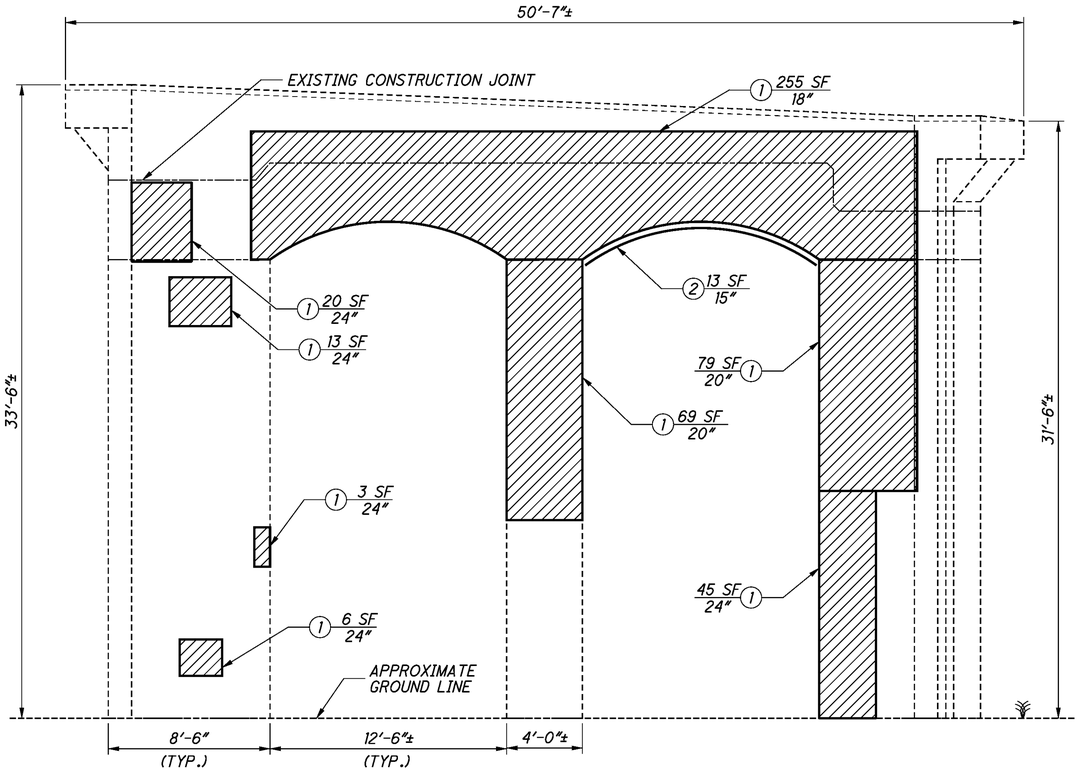
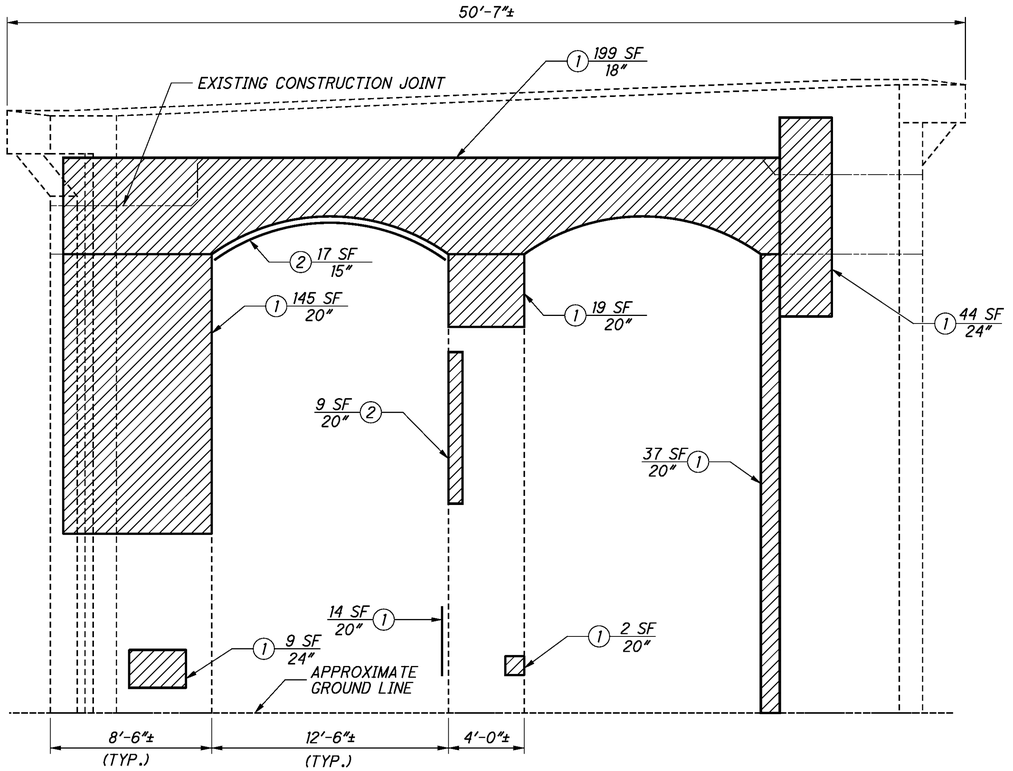


PIER 9 WEST ELEVATION



PIER 9 EAST ELEVATION

PIER 9 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	968
TYPE 2 REPAIR	SF	30
TYPE A ANODE	EACH	339

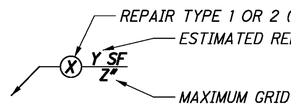
NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM 519 - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.



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DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		0701599	

PIER 9 REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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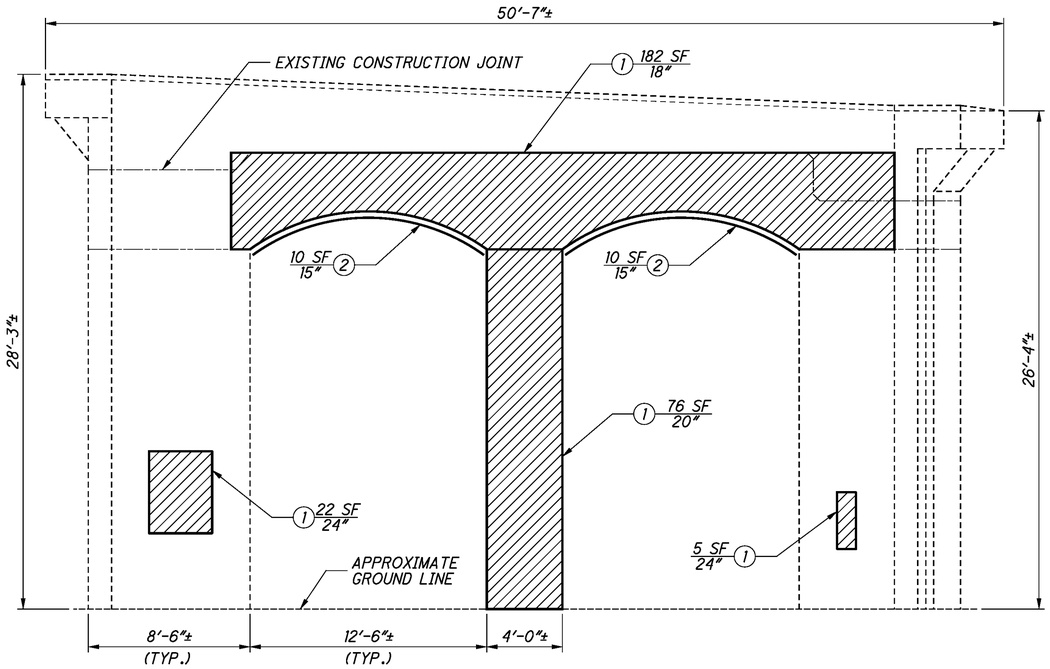
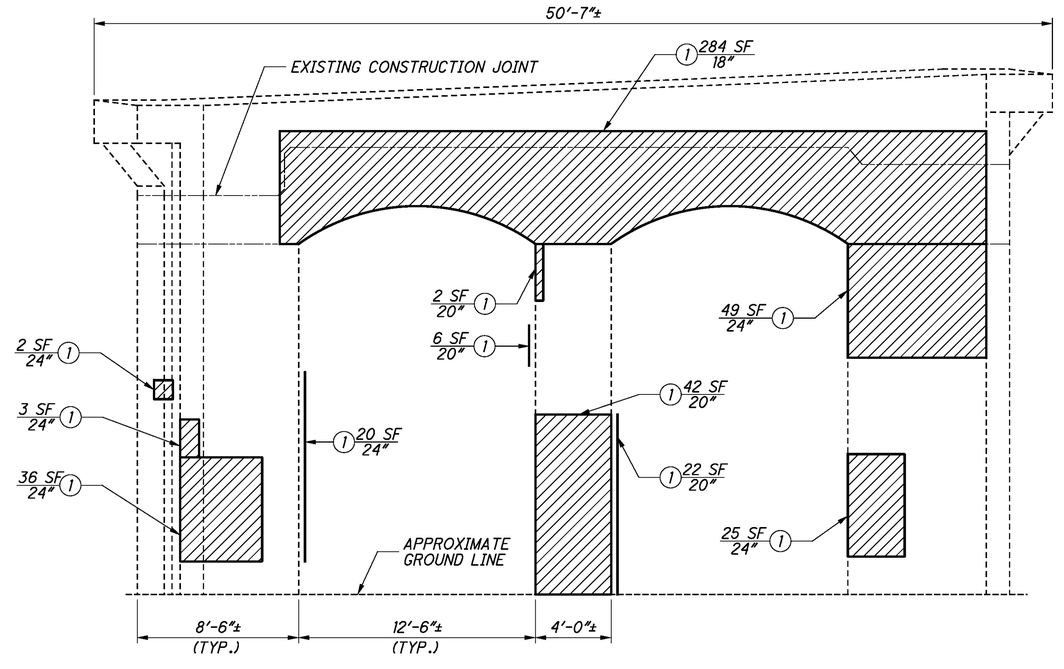


PIER 10 WEST ELEVATION



PIER 10 EAST ELEVATION

PIER 10 QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	776
TYPE 2 REPAIR	SF	20
TYPE A ANODE	EACH	312

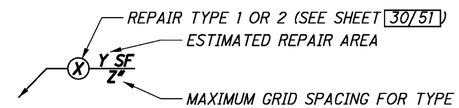
NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM 519 - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.



DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		0701599	

PIER 10 REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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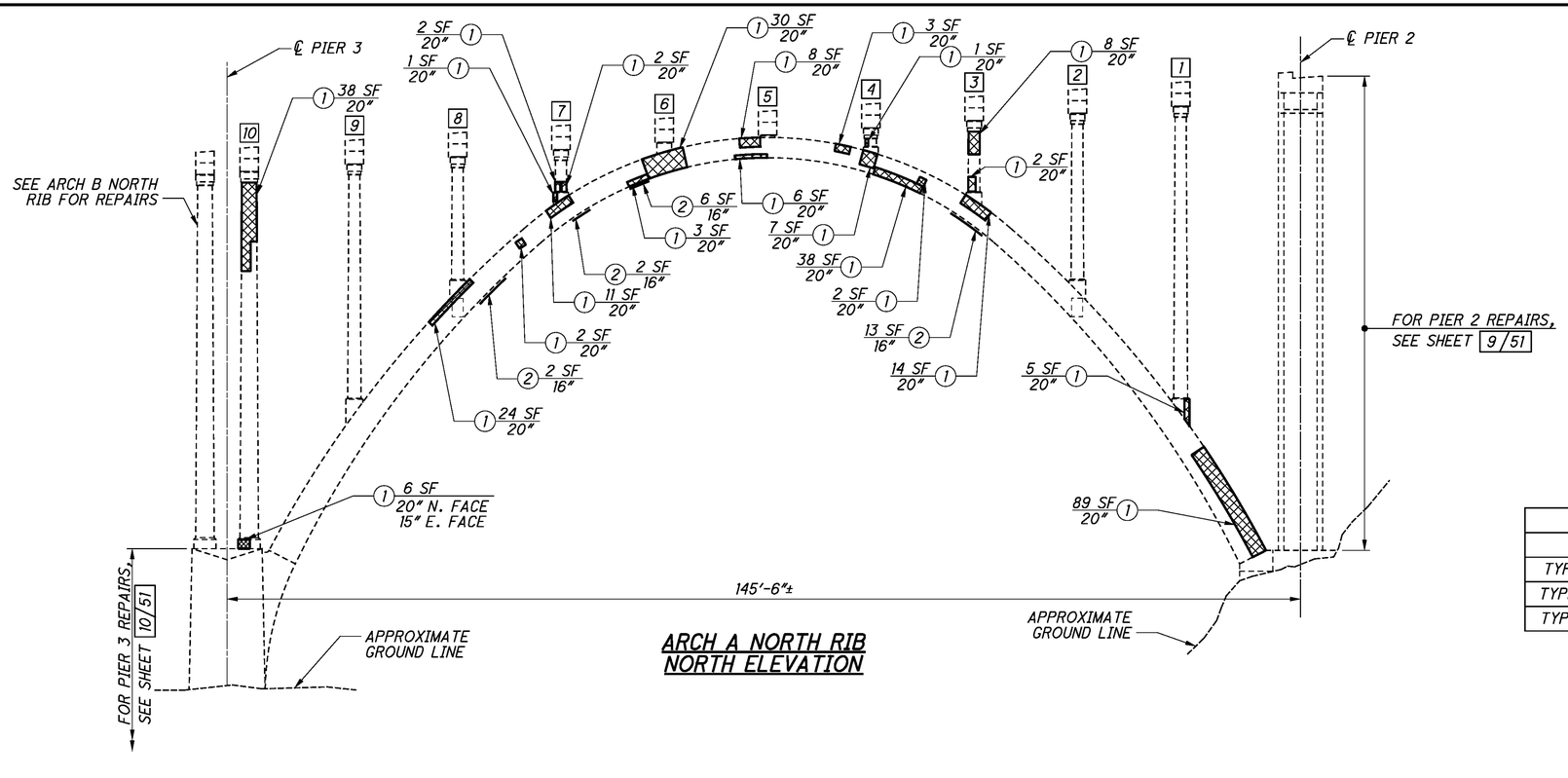
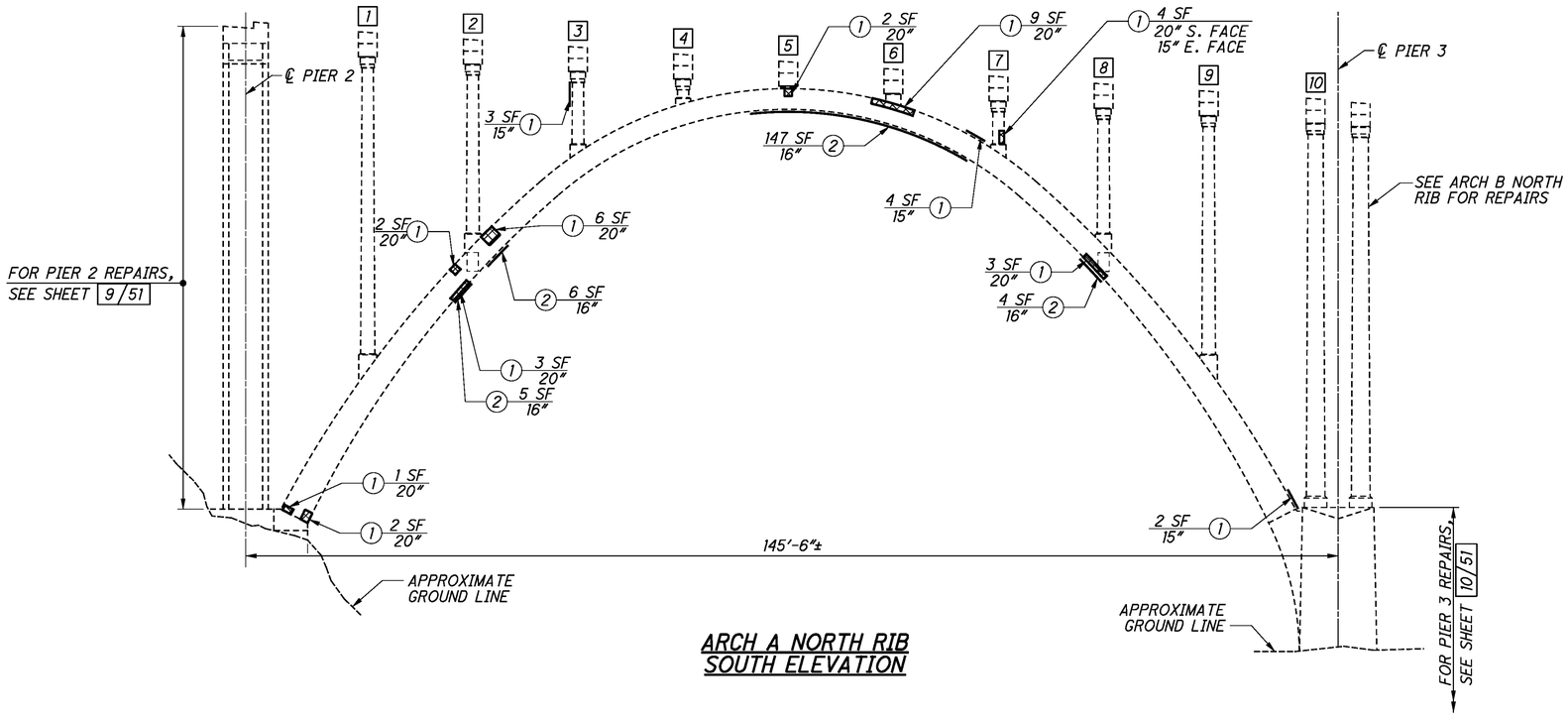


ARCH A NORTH RIB NORTH ELEVATION

ARCH A NORTH RIB QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	343
TYPE 2 REPAIR	SF	185
TYPE A ANODE	EACH	266



ARCH A NORTH RIB SOUTH ELEVATION

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

- [X] SPANDREL COLUMN NUMBER
- REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- (X) Y SF / Z″ — REPAIR TYPE 1 OR 2 (SEE SHEET 30/51); ESTIMATED REPAIR AREA; MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		0701599	

ARCH A NORTH RIB AND COLUMN REPAIRS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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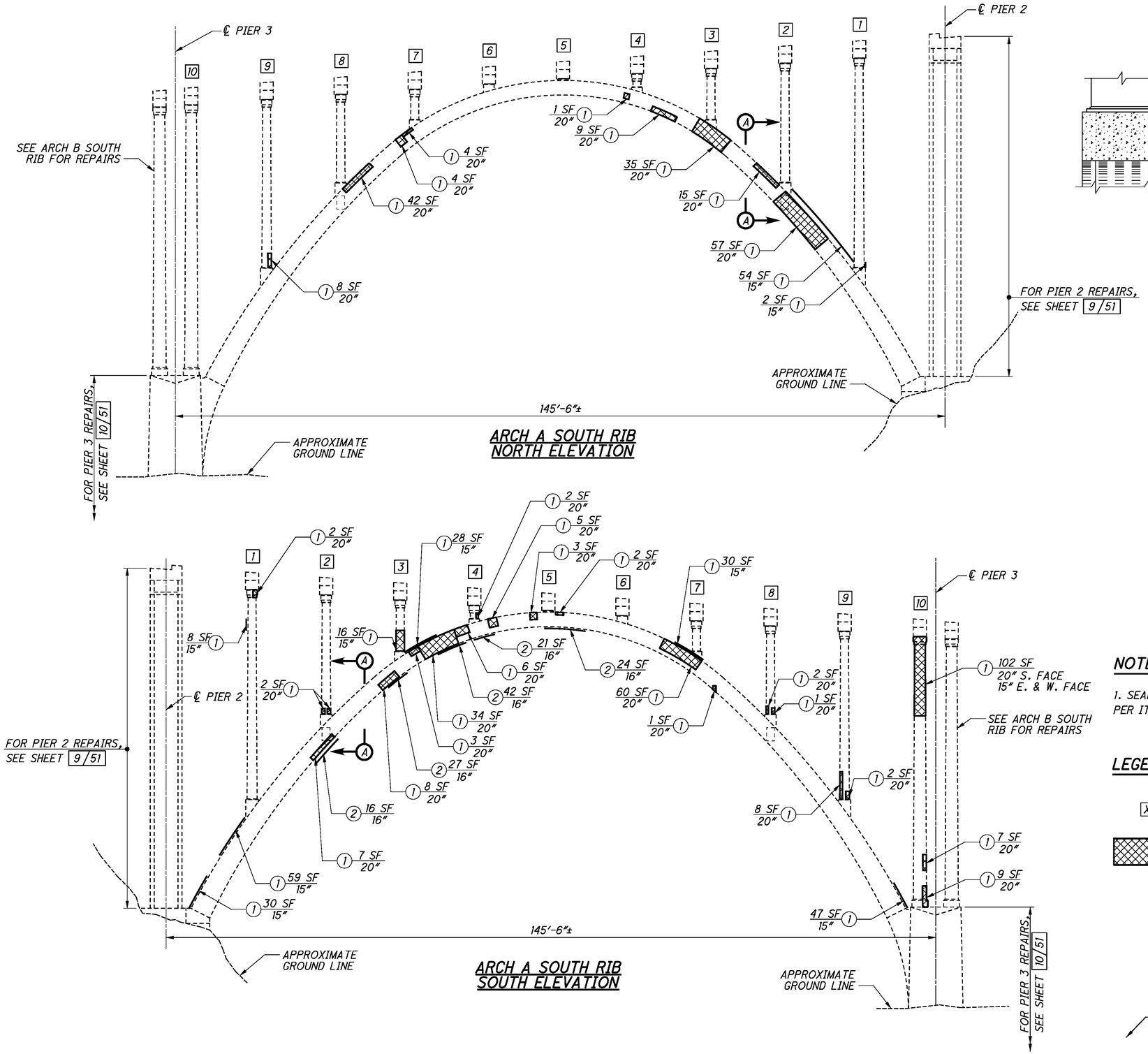
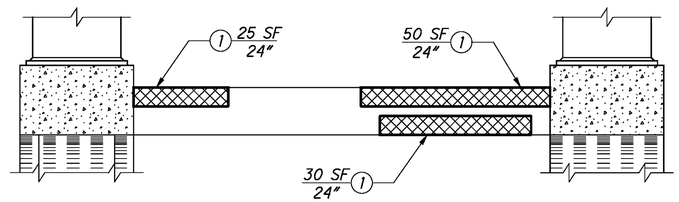


ARCH A SOUTH RIB NORTH ELEVATION

ARCH A SOUTH RIB SOUTH ELEVATION



SECTION A-A ELEVATION

ARCH A SOUTH RIB QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	822
TYPE 2 REPAIR	SF	130
TYPE A ANODE	EACH	441

NOTES:

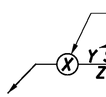
1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

[X] SPANDREL COLUMN NUMBER

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.



DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		07001599	

ARCH A SOUTH RIB AND COLUMN REPAIRS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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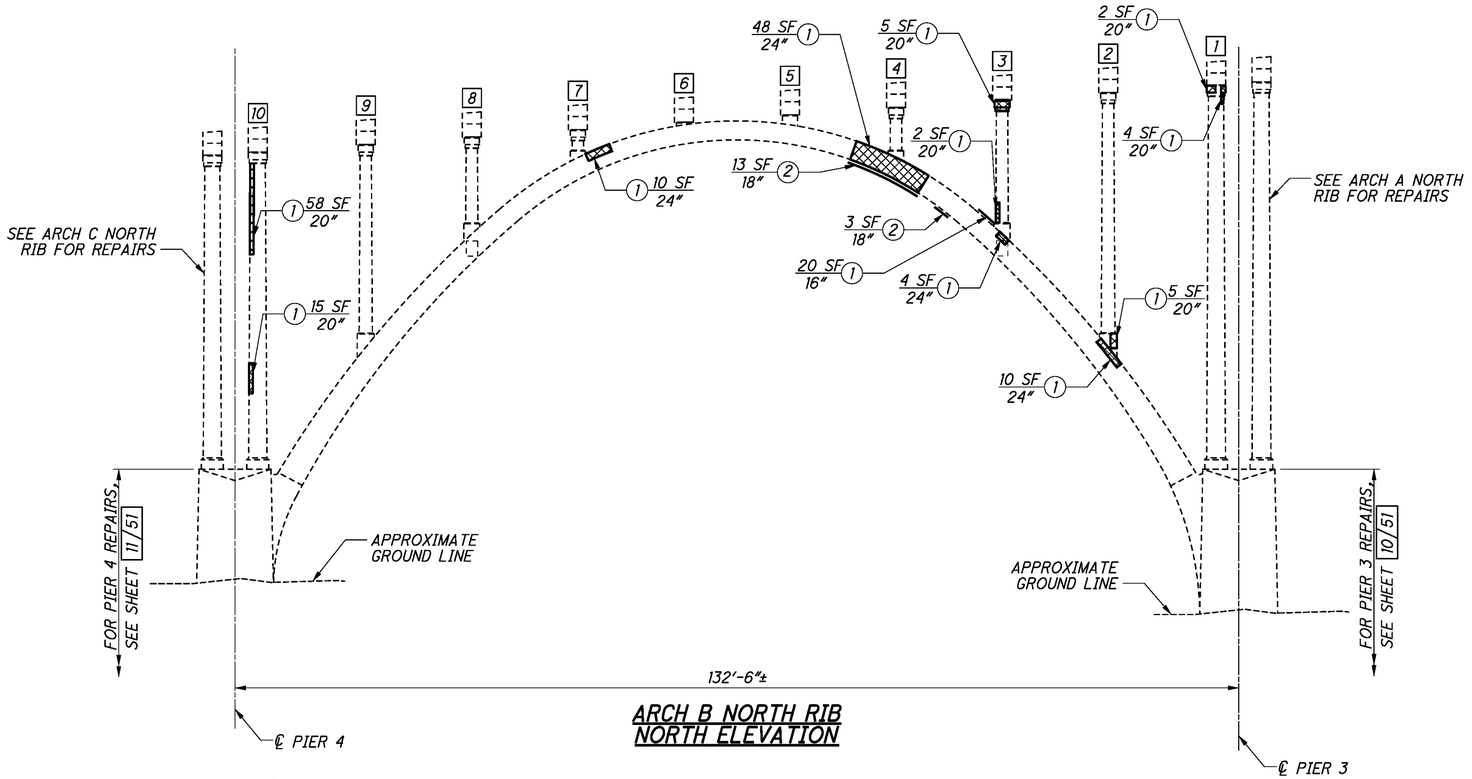
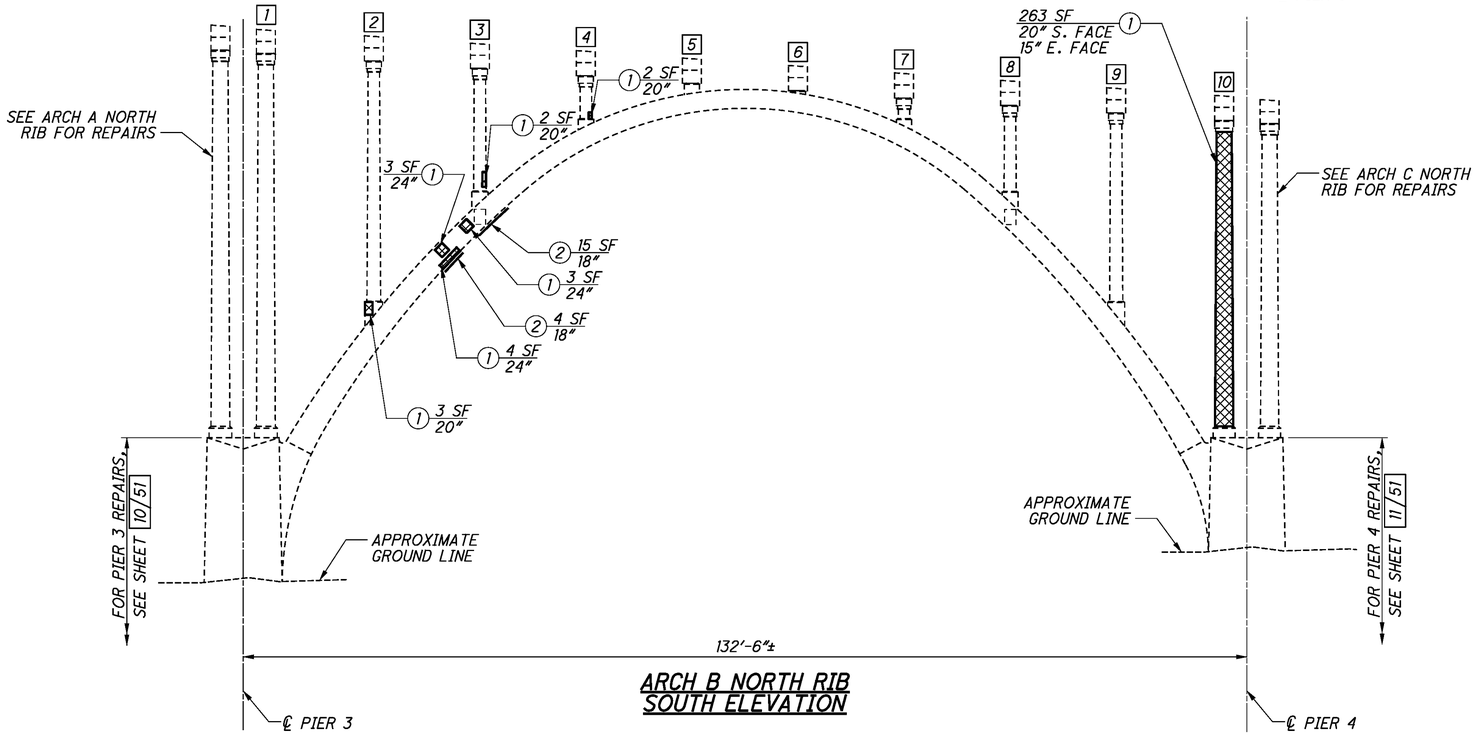


ARCH B NORTH RIB NORTH ELEVATION



ARCH B NORTH RIB SOUTH ELEVATION

ARCH B NORTH RIB QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	461
TYPE 2 REPAIR	SF	35
TYPE A ANODE	EACH	262

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

- [X] SPANDREL COLUMN NUMBER
- REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- (X) Y SF Z" — REPAIR TYPE 1 OR 2 (SEE SHEET 30/51); ESTIMATED REPAIR AREA; MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY: TranSystems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		0701599	

ARCH B NORTH RIB AND COLUMN REPAIRS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

19 / 51

41 / 73

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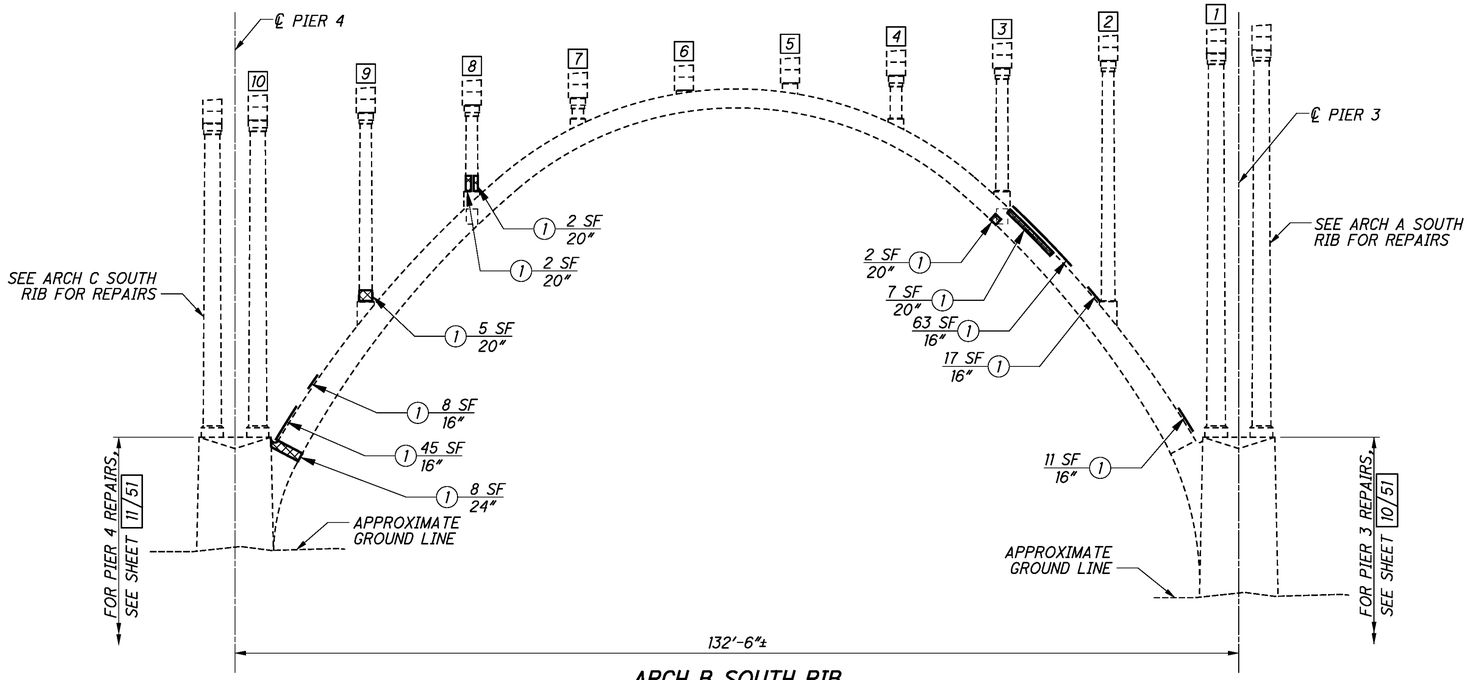
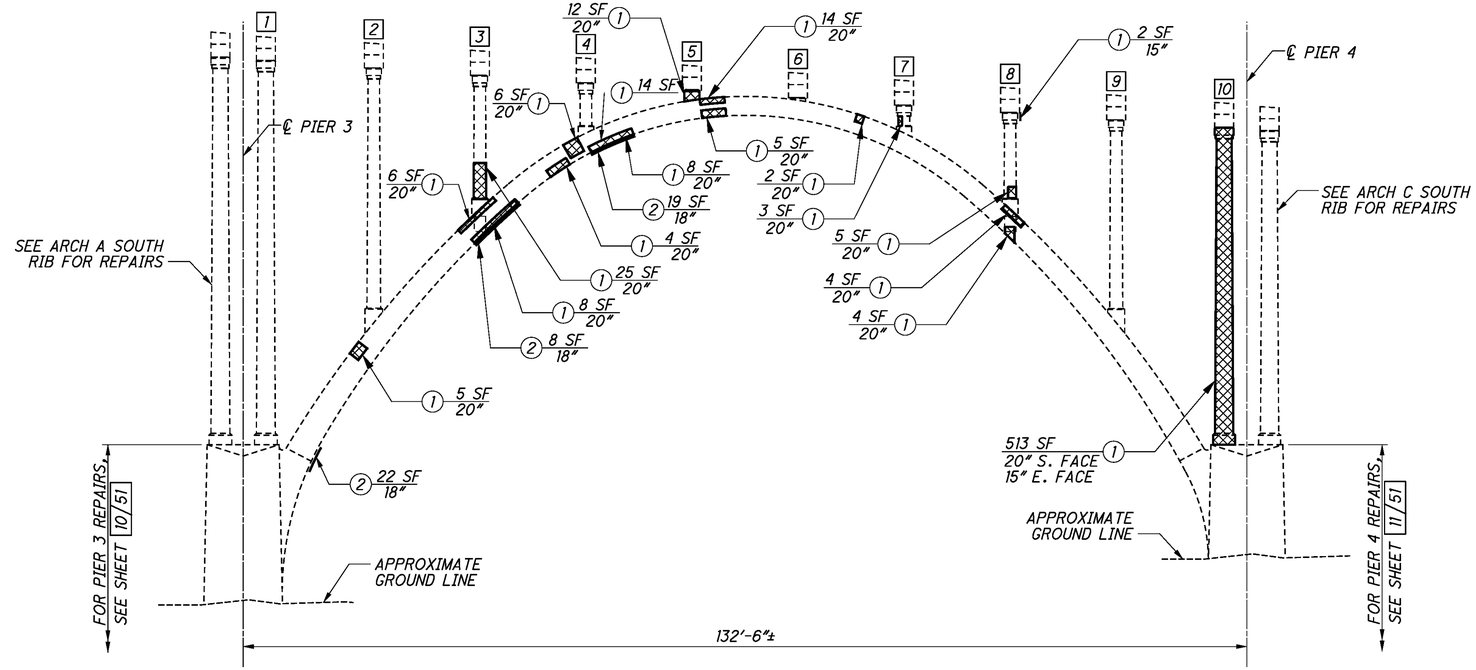


ARCH B SOUTH RIB NORTH ELEVATION



ARCH B SOUTH RIB SOUTH ELEVATION

ARCH B SOUTH RIB QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	796
TYPE 2 REPAIR	SF	49
TYPE A ANODE	EACH	336

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

- [X] SPANDREL COLUMN NUMBER
- REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- REPAIR TYPE 1 OR 2 (SEE SHEET 30/51)
- ESTIMATED REPAIR AREA
- MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

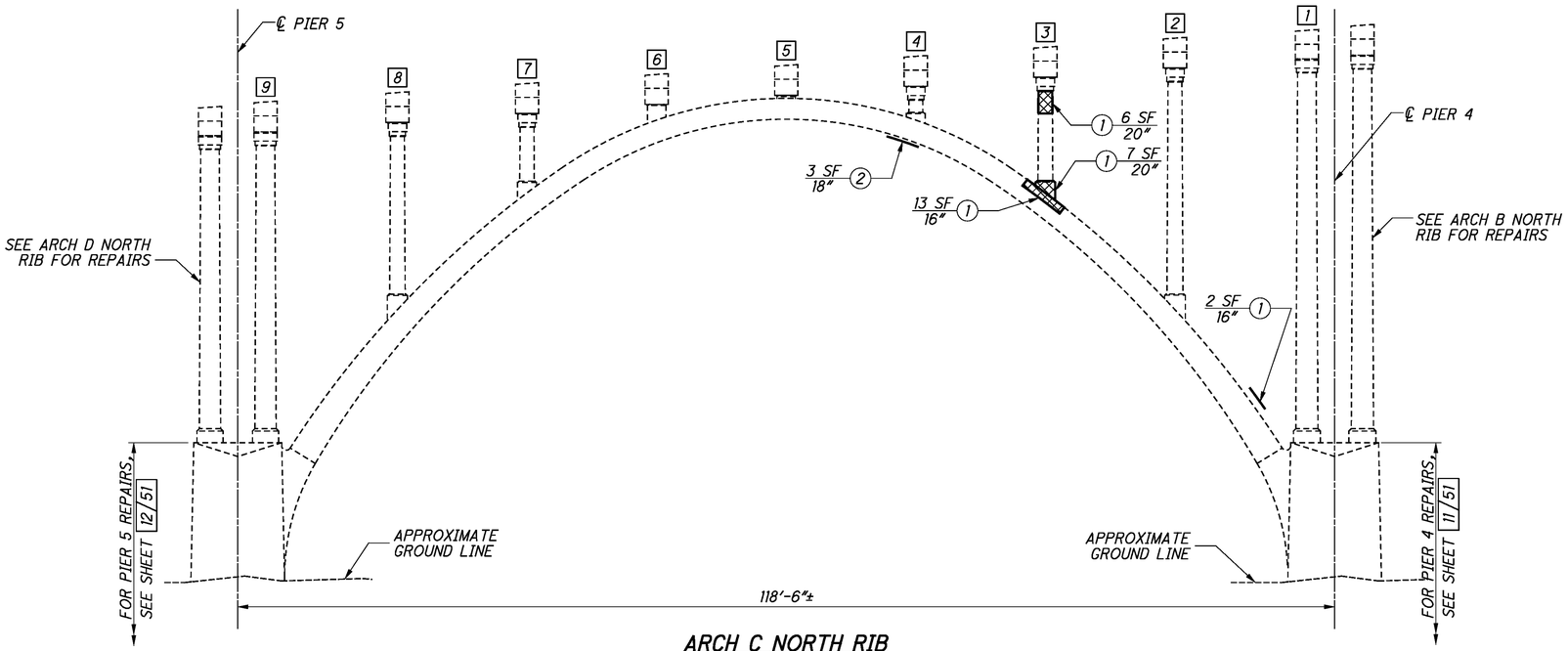
DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN WJV | REVIEWED HVH | DATE 10/16/09
CHECKED CJM | REVISED | STRUCTURE FILE NUMBER 07001599

ARCH B SOUTH RIB AND COLUMN REPAIRS

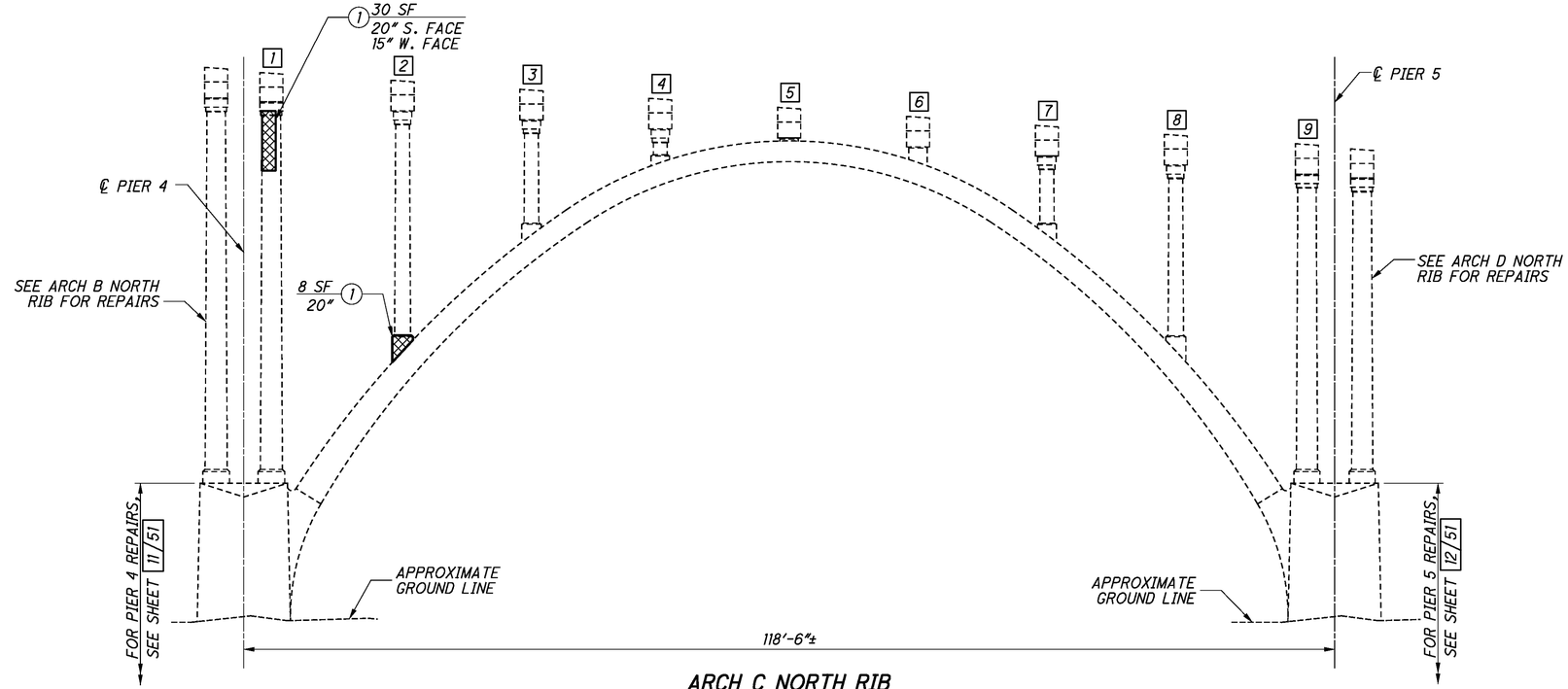
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815



ARCH C NORTH RIB NORTH ELEVATION

ARCH C NORTH RIB QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	66
TYPE 2 REPAIR	SF	3
TYPE A ANODE	EACH	42



ARCH C NORTH RIB SOUTH ELEVATION

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

- [X] SPANDREL COLUMN NUMBER
- REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- (X) Y SF Z″ — REPAIR TYPE 1 OR 2 (SEE SHEET 30/51); ESTIMATED REPAIR AREA; MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY: Tran Systems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
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CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		07001599	

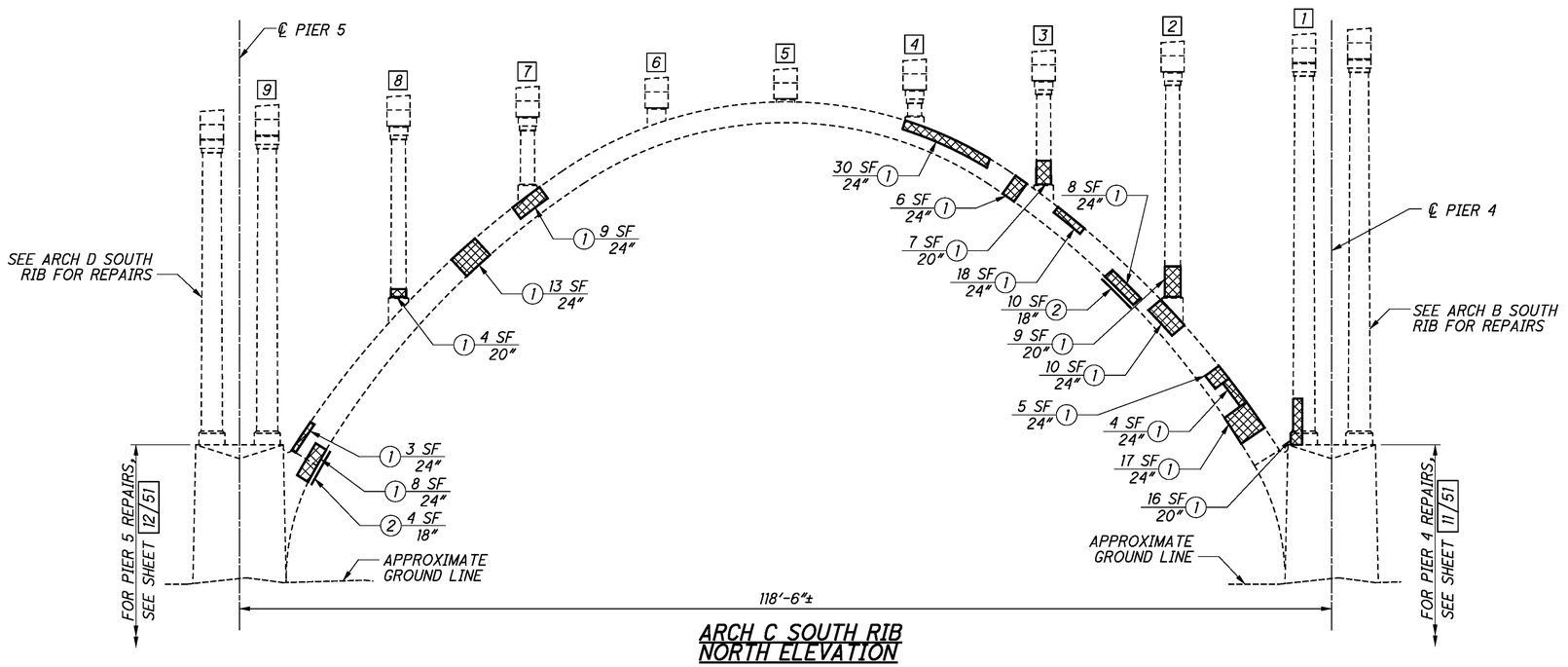
ARCH C NORTH RIB AND COLUMN REPAIRS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

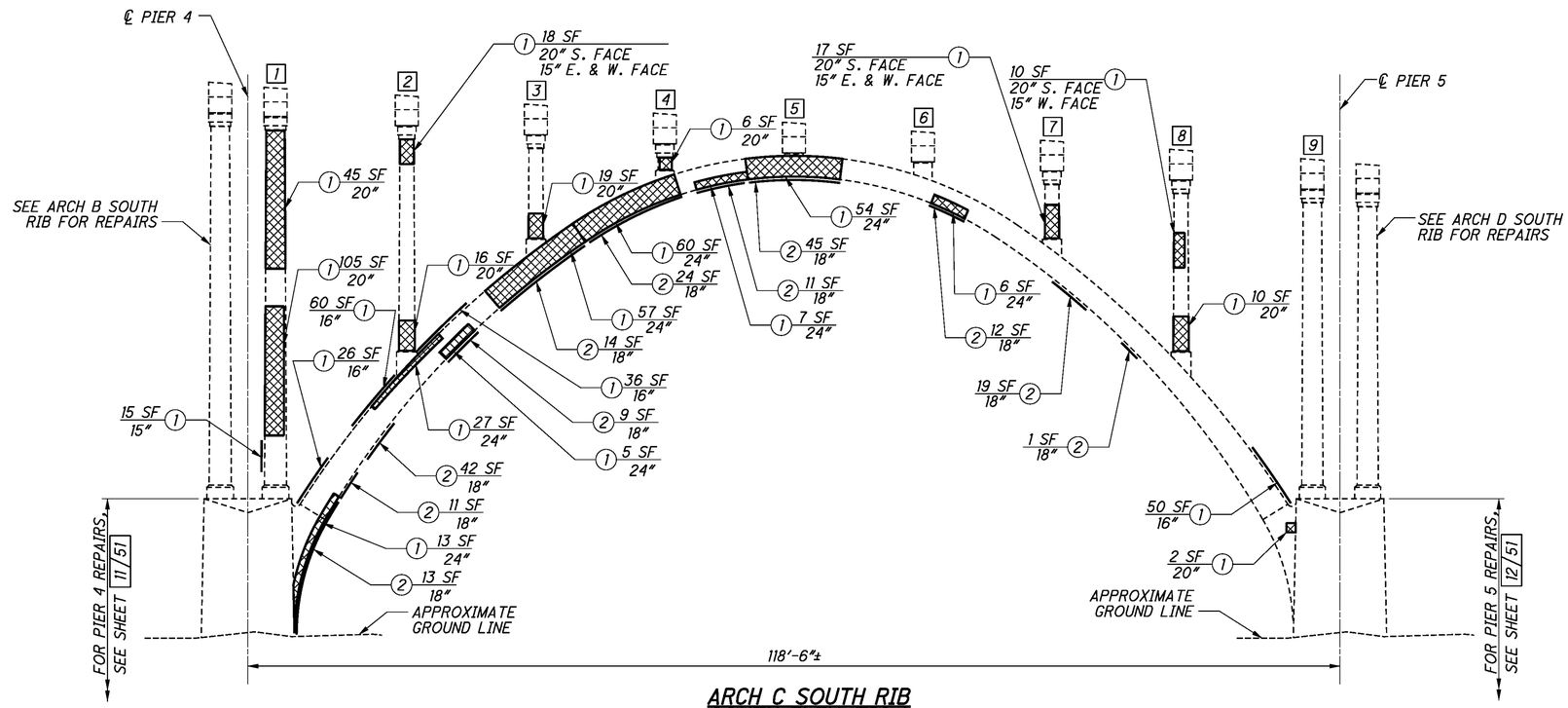
21 / 51

43 / 73



ARCH C SOUTH RIB NORTH ELEVATION

ARCH C SOUTH RIB QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	837
TYPE 2 REPAIR	SF	215
TYPE A ANODE	EACH	459



ARCH C SOUTH RIB SOUTH ELEVATION

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

- [X] SPANDREL COLUMN NUMBER
- REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.
- (X) Y SF Z″ — REPAIR TYPE 1 OR 2 (SEE SHEET 30/51); ESTIMATED REPAIR AREA; MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY: TranSystems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

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ARCH C SOUTH RIB AND COLUMN REPAIRS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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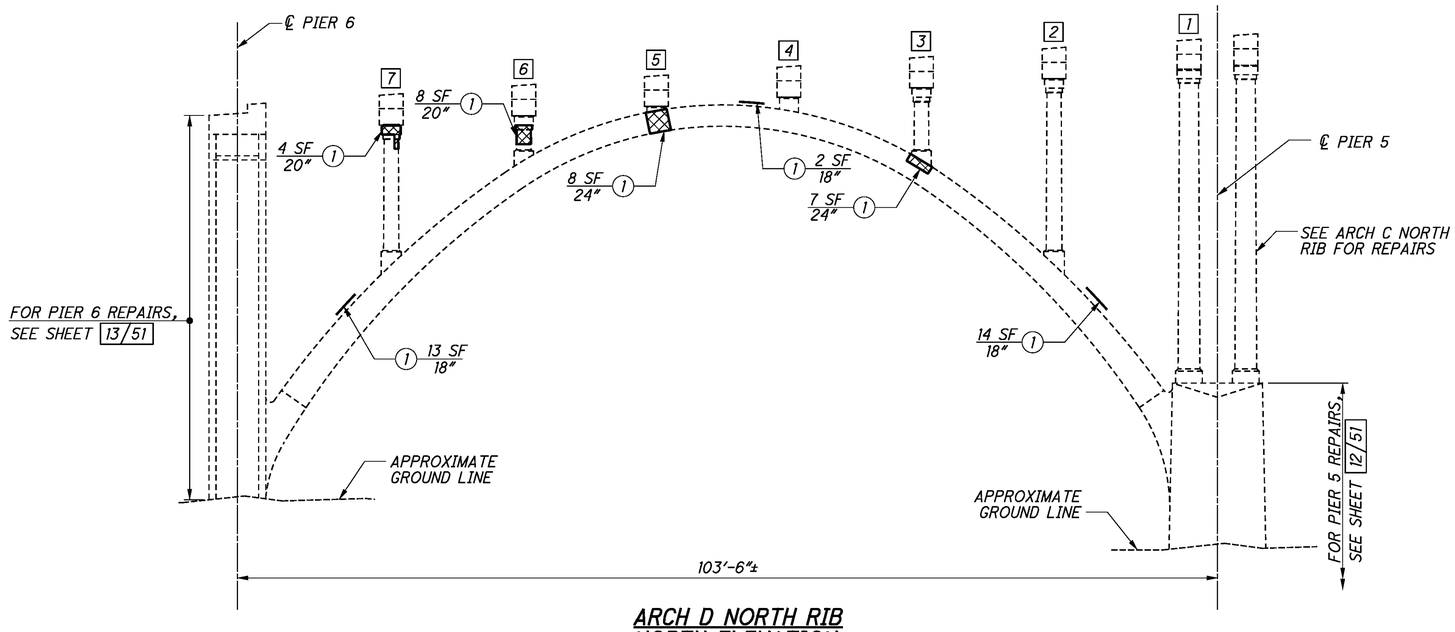
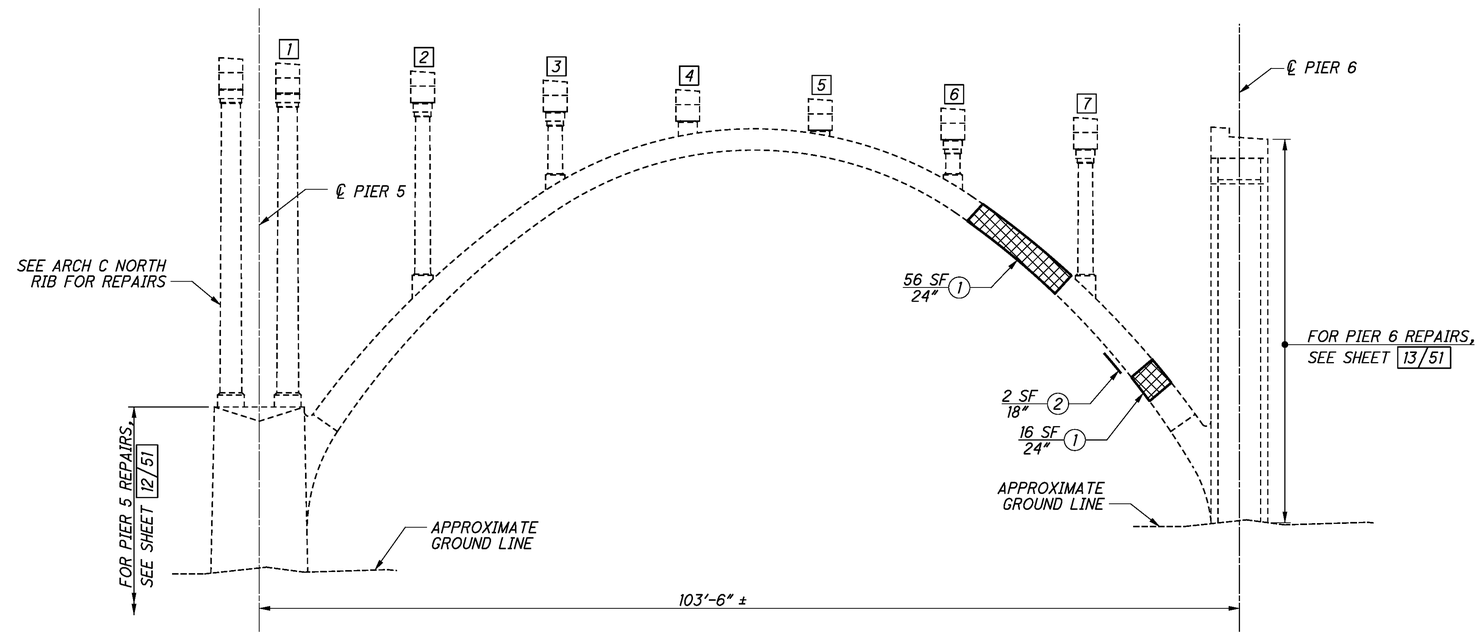


ARCH D NORTH RIB NORTH ELEVATION



ARCH D NORTH RIB SOUTH ELEVATION

ARCH D NORTH RIB QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	128
TYPE 2 REPAIR	SF	2
TYPE A ANODE	EACH	59

NOTES:

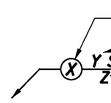
1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

[X] SPANDREL COLUMN NUMBER

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR 2 REPAIR.



DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
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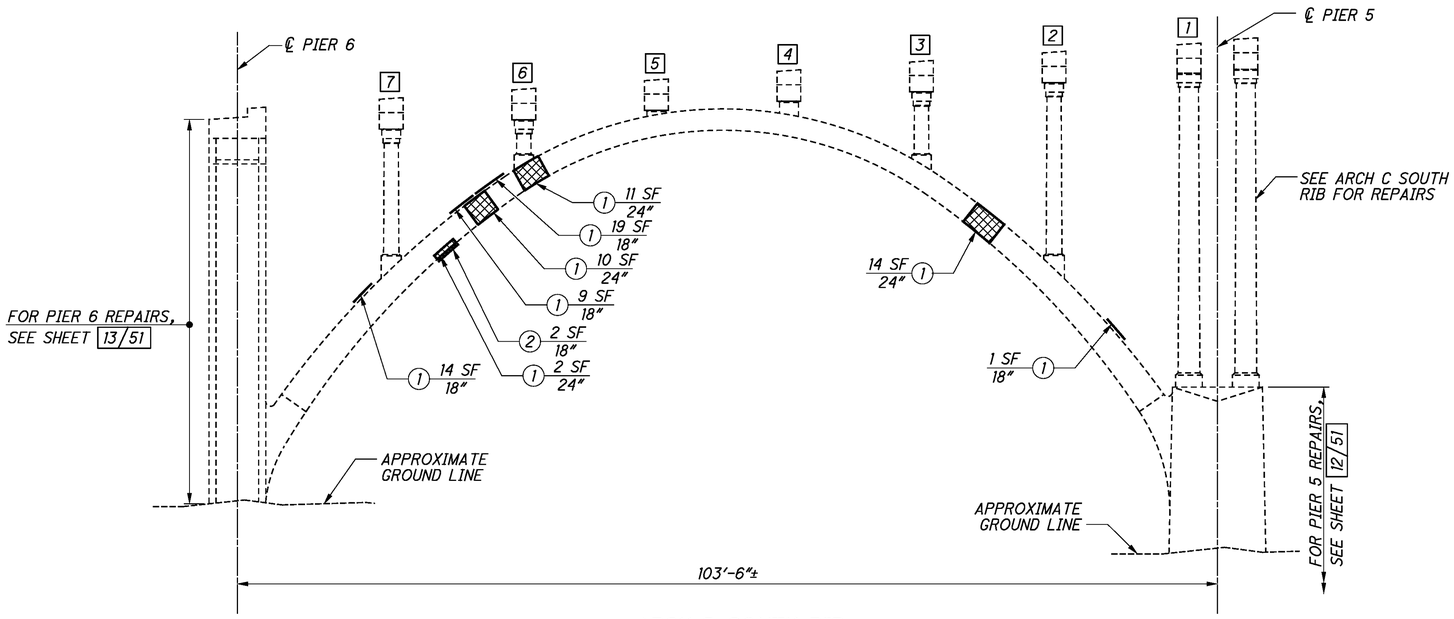
ARCH D NORTH RIB AND COLUMN REPAIRS

BRIDGE NO. BEL-40-23.38
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

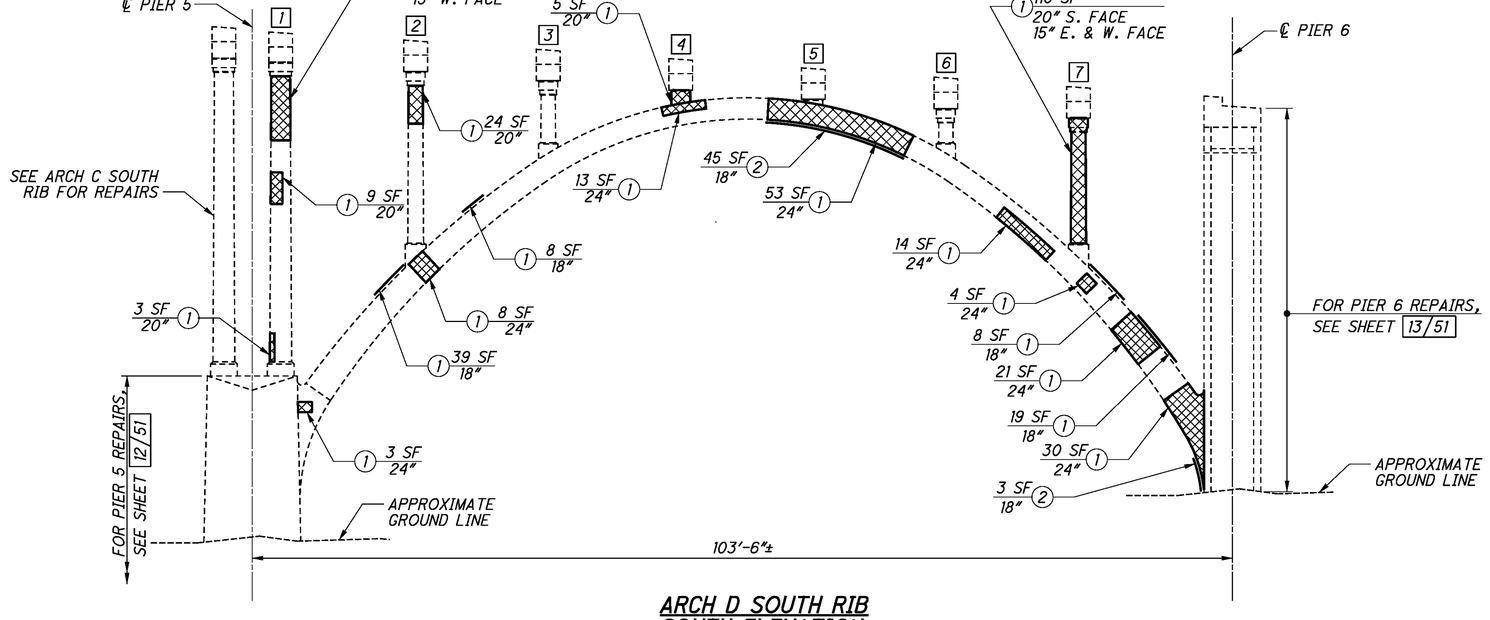
23 / 51

45
73



ARCH D SOUTH RIB NORTH ELEVATION

ARCH D SOUTH RIB QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	477
TYPE 2 REPAIR	SF	50
TYPE A ANODE	EACH	246



ARCH D SOUTH RIB SOUTH ELEVATION

NOTES:

1. SEAL ALL EXPOSED CONCRETE SURFACES WITH EPOXY-URETHANE PER ITEM 512.

LEGEND:

- [X] SPANDREL COLUMN NUMBER
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- REPAIR TYPE 1 OR 2 (SEE SHEET 30/51)
- ESTIMATED REPAIR AREA
- MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

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ARCH D SOUTH RIB AND COLUMN REPAIRS
BRIDGE NO. BEL-40-2338
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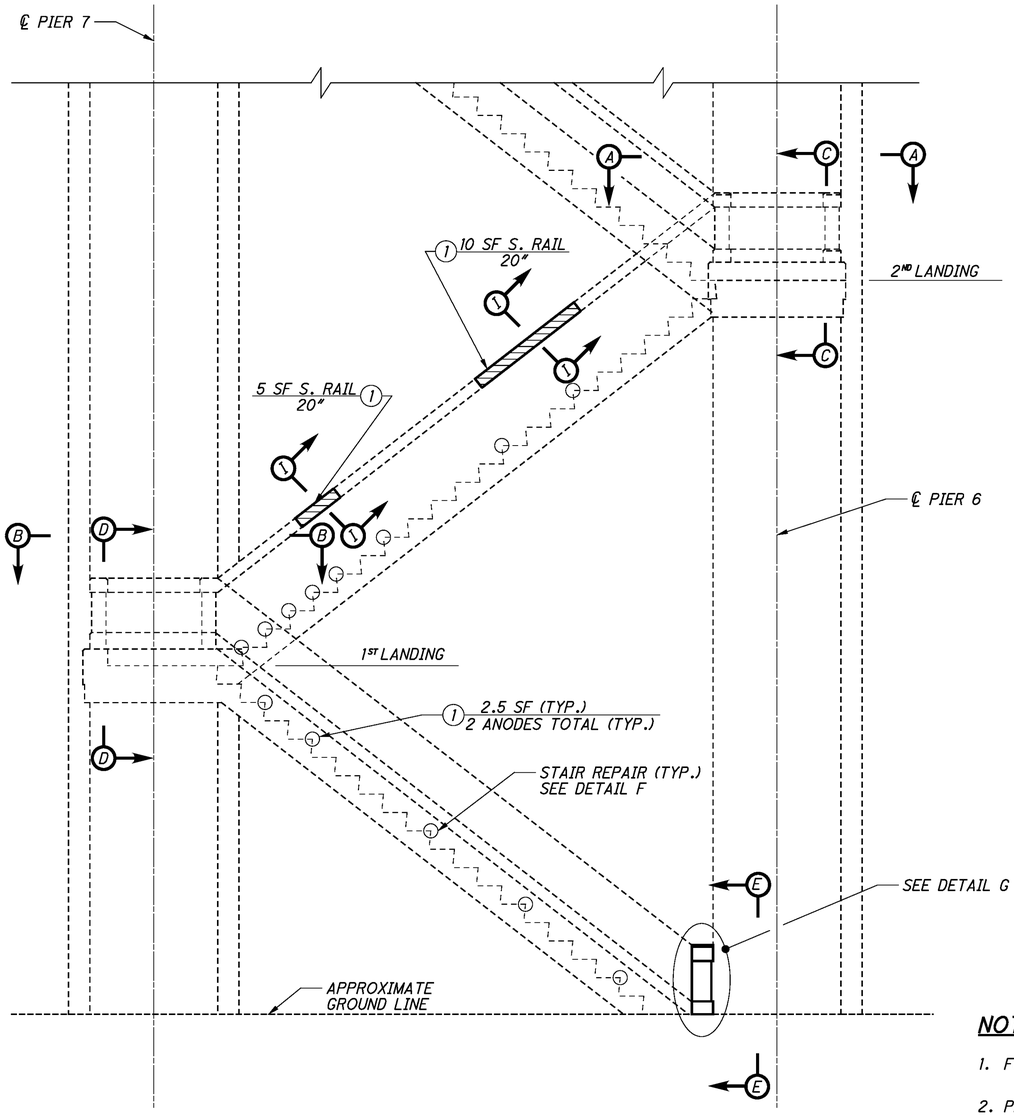
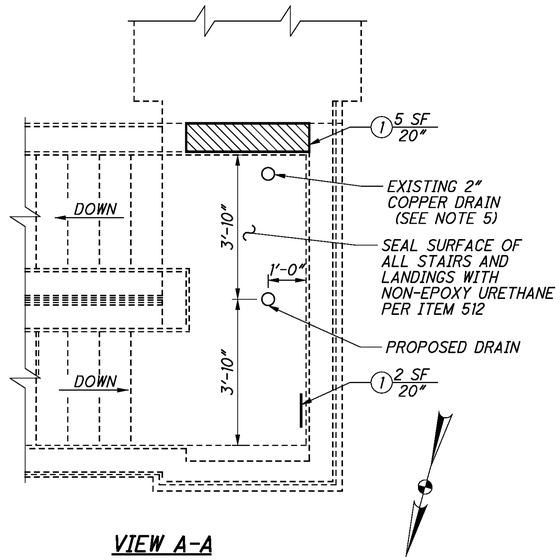
BEL-40-23.38
PID No. 22815

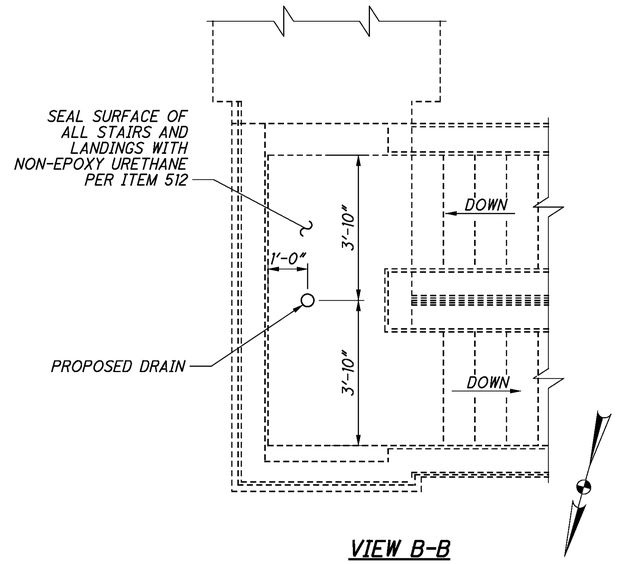


STAIRCASE ELEVATION

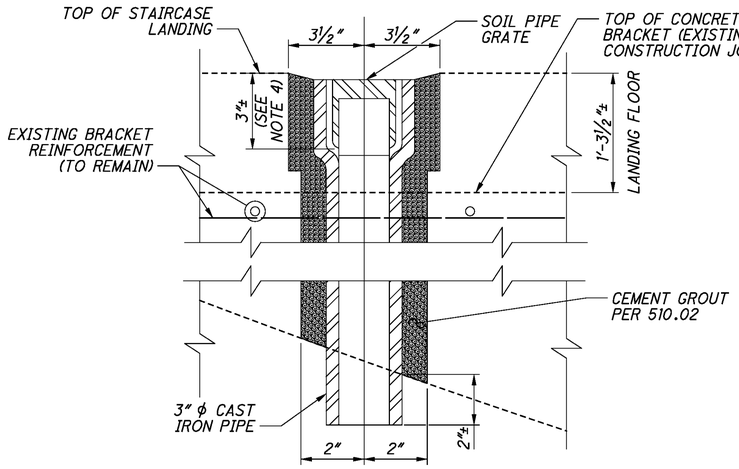
(LOOKING SOUTH)



VIEW A-A



VIEW B-B



PROPOSED DRAIN DETAIL

(SEE NOTE 4)

STAIRCASE QUANTITIES		
QUANTITY	UNIT	QUANTITY
TYPE 1 REPAIR	SF	55
TYPE A ANODE	EACH	38

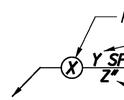
NOTES:

1. FOR ALL ADDITIONAL SECTIONS, VIEWS AND DETAILS, SEE SHEET 26/51.
2. PROVIDE EXPOSED AGGREGATE SURFACE FINISH TO CONCRETE REPAIR AREA TO MATCH EXISTING RAILING FINISH.
3. SEAL ALL SURFACES OF STAIRCASE ELEMENTS WITH EPOXY-URETHANE PER ITEM 512, UNLESS NOTED OTHERWISE.
4. REMOVAL OF CONCRETE FOR PROPOSED DRAIN SHALL BE PER ITEM 202. FOR INSTALLATION AND PAYMENT OF PROPOSED DRAIN, SEE ITEM 518 - STRUCTURE DRAINAGE, MISC.: STAIRCASE LANDING DRAIN.
5. PLUG EXISTING COPPER DRAIN PIPE WITH CEMENT GROUT CONFORMING TO CMS 510.02. REMOVE PORTION OF PIPE WHICH EXTENDS FROM PIER FACE (NOT SHOWN). PAYMENT FOR THESE ITEMS SHALL BE INCLUDED WITH ITEM 202.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR



DESIGN AGENCY
Transystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN MGO | REVIEWED HVH | DATE 10/16/09
CHECKED JDH | REVISED | STRUCTURE FILE NUMBER 07001599

STAIRCASE REPAIR DETAILS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

25 / 51

47 / 73

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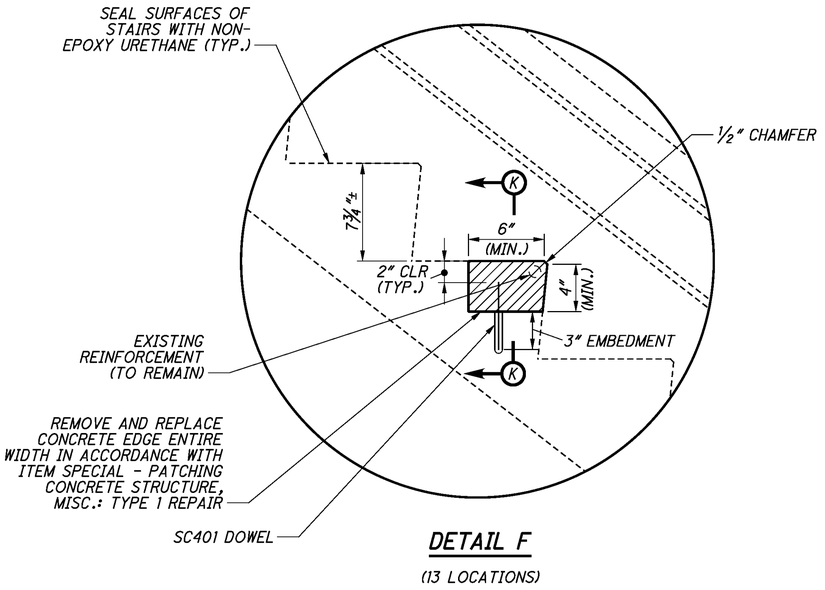
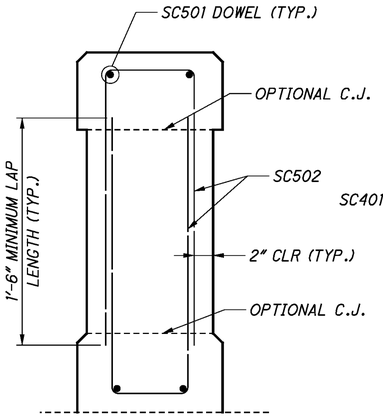


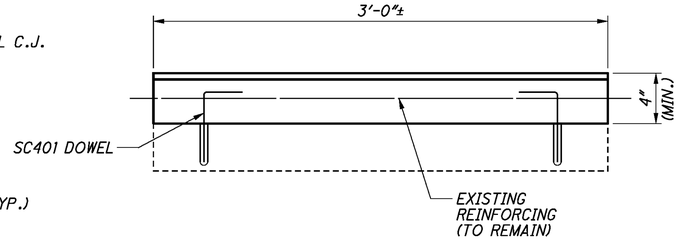
DETAIL F

(13 LOCATIONS)

SECTION I-I

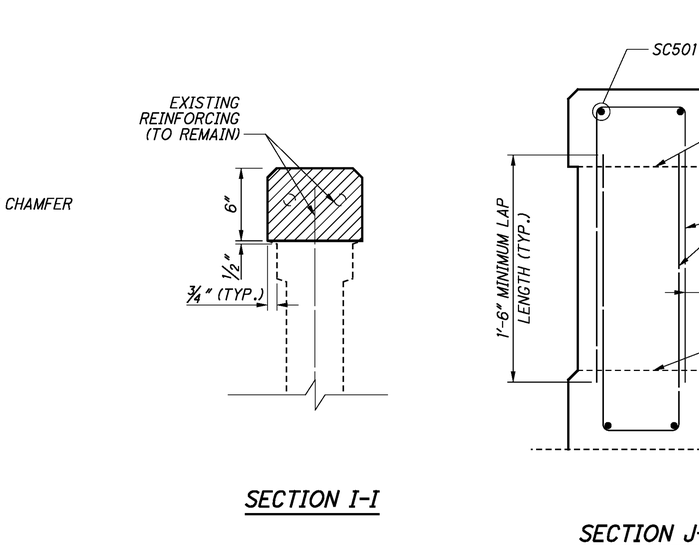


SECTION J-J



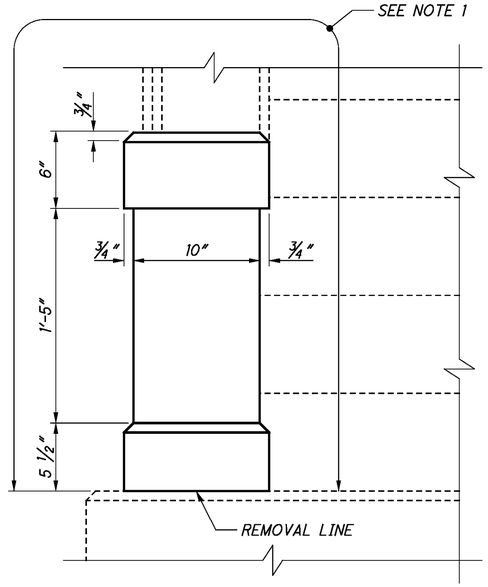
SECTION K-K

DETAIL G



SECTION C-C & D-D

(SECTION D-D OPPOSITE HAND)



VIEW E-E

NOTES:

1. SEAL ALL SURFACES OF STAIRCASE ELEMENTS WITH EPOXY-URETHANE, PER ITEM 512, EXCEPT NOTED OTHERWISE.
2. FOR LOCATION OF ALL SECTIONS, VIEWS AND DETAILS, SEE SHEET 25/51.
3. FOR NOTES AND LEGEND, SEE SHEET 25/51.

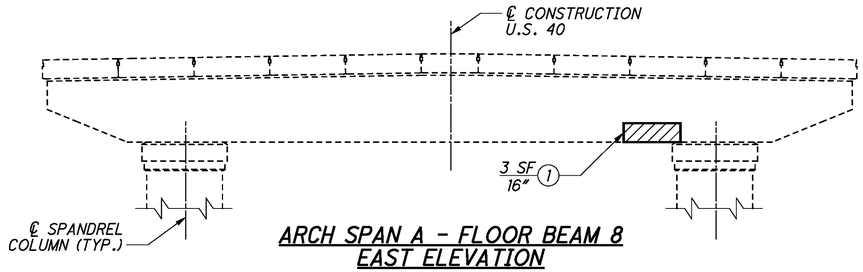
DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	MGO	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JDH		07001599	

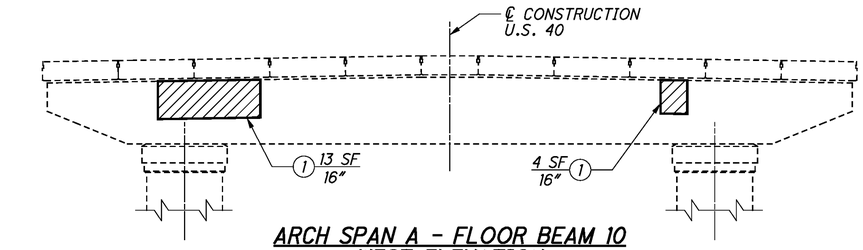
STAIRCASE REPAIR DETAILS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

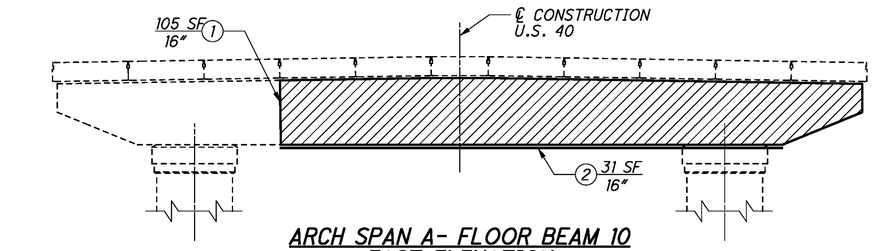
BEL-40-23.38
PID No. 22815



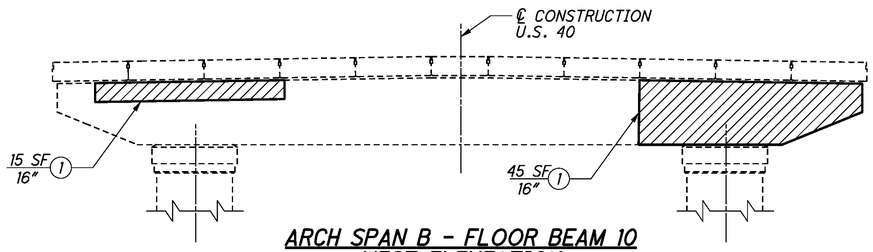
ARCH SPAN A - FLOOR BEAM 8
EAST ELEVATION



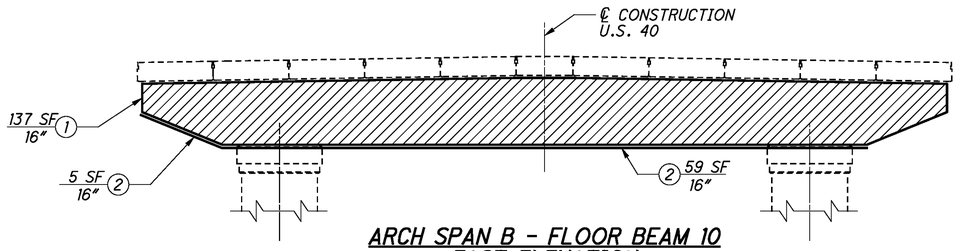
ARCH SPAN A - FLOOR BEAM 10
WEST ELEVATION



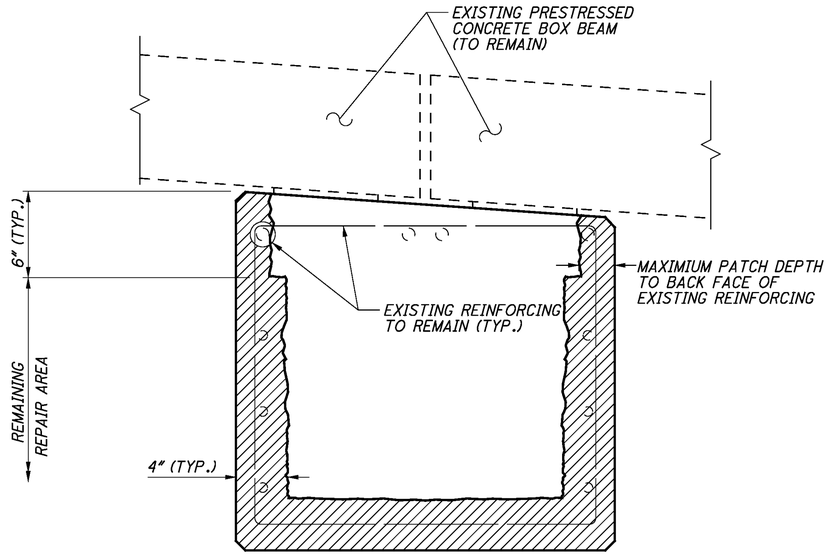
ARCH SPAN A- FLOOR BEAM 10
EAST ELEVATION



ARCH SPAN B - FLOOR BEAM 10
WEST ELEVEATION



ARCH SPAN B - FLOOR BEAM 10
EAST ELEVATION



TYPICAL FLOOR BEAM REPAIR LIMITS
TOP VERTICAL FACE

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 2 REPAIR.

REPAIR TYPE 1 OR 2 (SEE SHEET 30/51)
ESTIMATED REPAIR AREA
X Y SF
Z″
MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

NOTES:

1. FOR NOTES AND QUANTITIES, SEE SHEET 29/51.

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED CJM | DRAWN CJM | REVIEWED HVH | DATE 10/16/09
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FLOOR BEAM REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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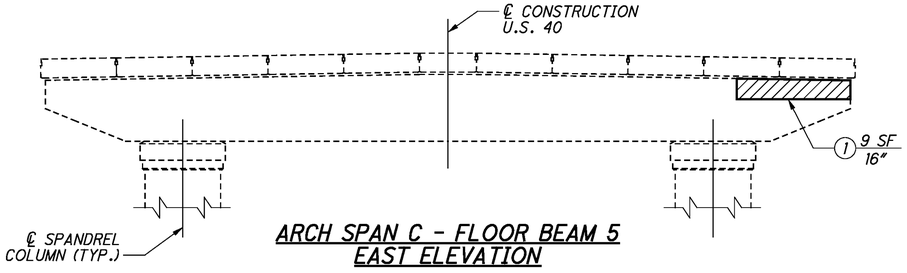
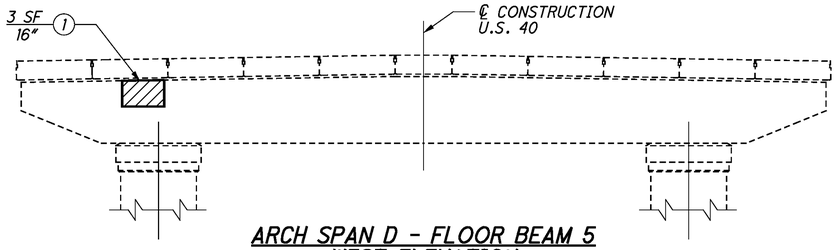
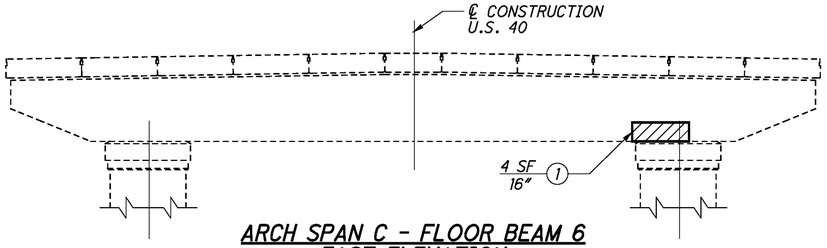


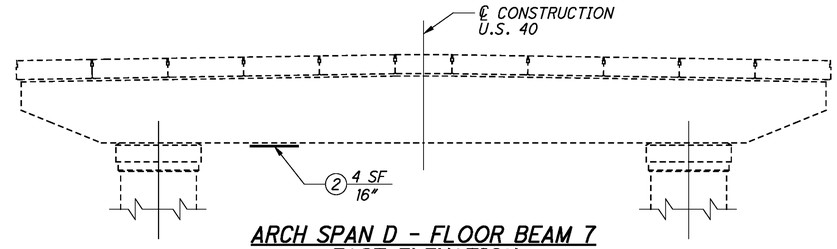
ARCH SPAN C - FLOOR BEAM 5
EAST ELEVATION



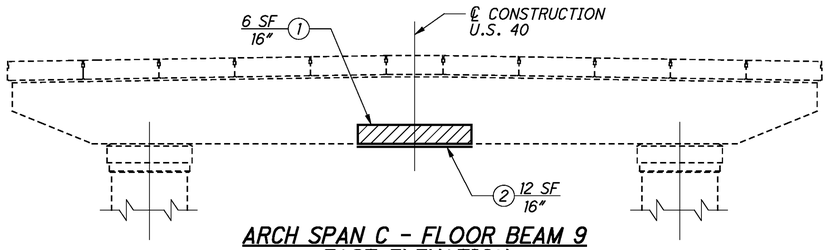
ARCH SPAN D - FLOOR BEAM 5
WEST ELEVATION



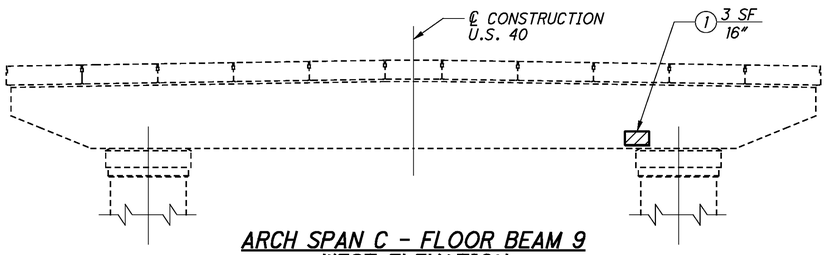
ARCH SPAN C - FLOOR BEAM 6
EAST ELEVATION



ARCH SPAN D - FLOOR BEAM 7
EAST ELEVATION



ARCH SPAN C - FLOOR BEAM 9
EAST ELEVATION



ARCH SPAN C - FLOOR BEAM 9
WEST ELEVATION

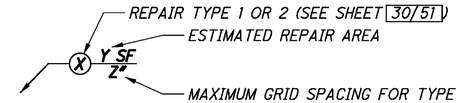
NOTES:

1. FOR NOTES AND QUANTITIES, SEE SHEET 29/51.
2. FOR REPAIR DETAIL AT TOP OF FLOOR BEAM SEE SHEET 27/51.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR.

PATCH CONCRETE ON PERPENDICULAR FACE (NOT VISIBLE IN ELEVATION VIEW) IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 2 REPAIR.



DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
CJM	CJM	HVH	10/16/09
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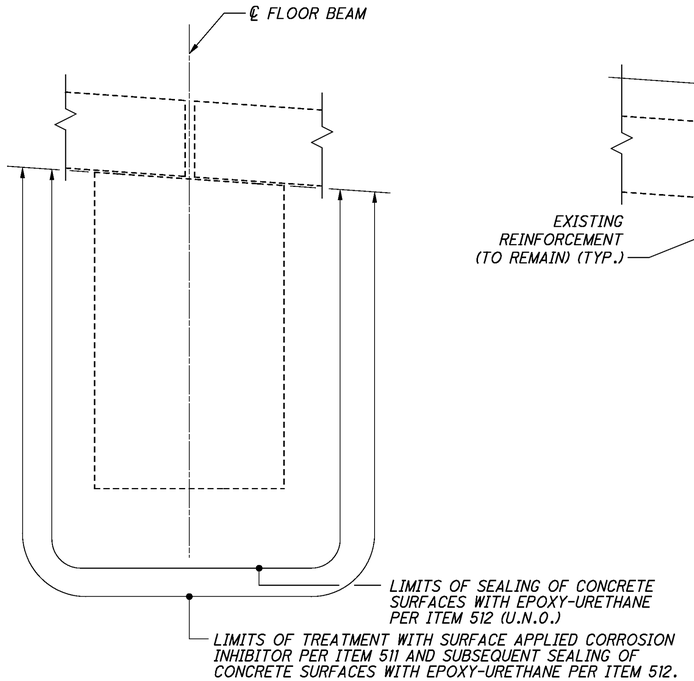
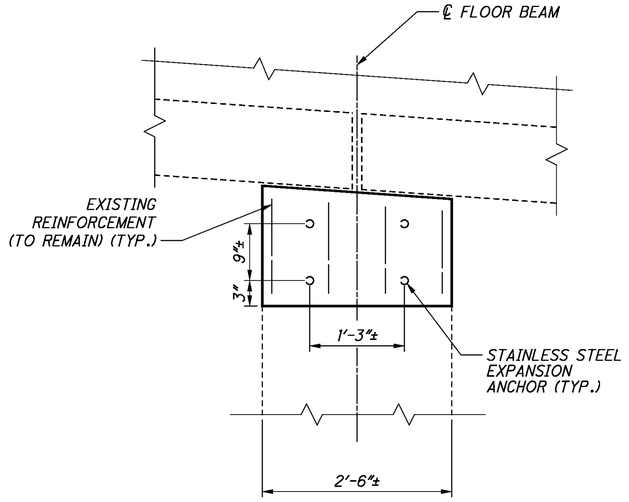
JDH		07001599	

FLOOR BEAM REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

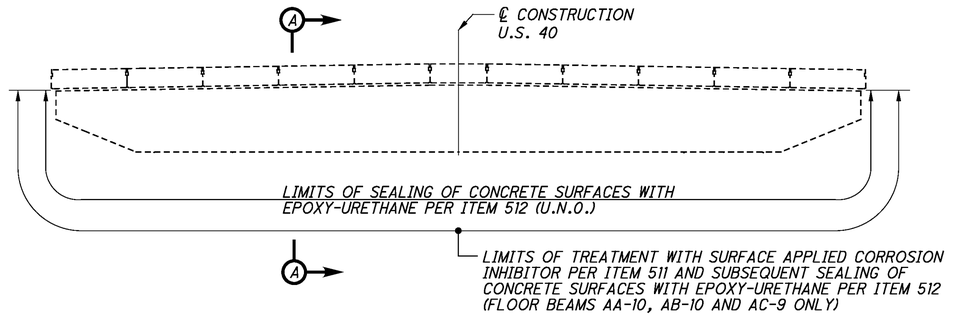


SECTION A-A



VIEW B-B

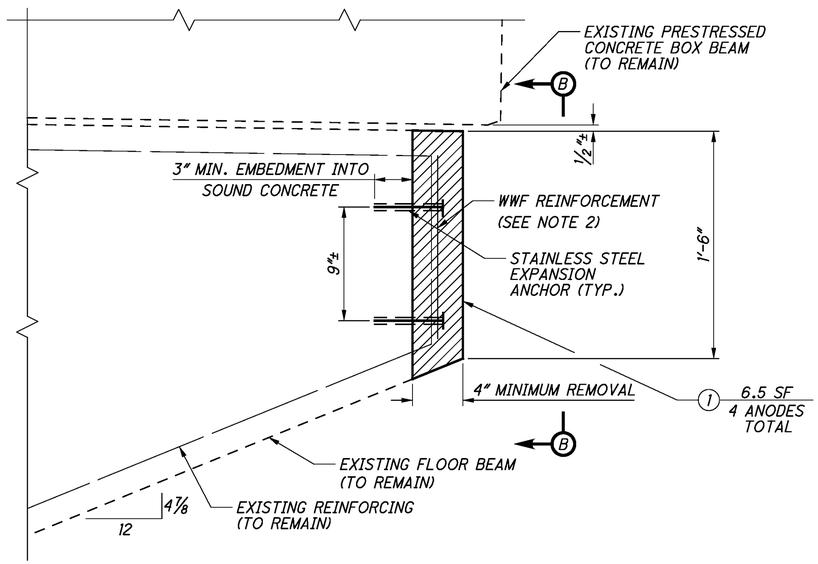
(TYPE A GALVANIC ANDOES AND WWF REINFORCEMENT NOT SHOWN)



TYPICAL FLOOR BEAM SEALING DETAIL

FLOOR BEAM END REPAIR QUANTITIES (SEE NOTE 3)				
FLOOR BEAM	REPAIR TYPE	AREA (SF)	END	ANODES
AA-6	1	6.5	SOUTH	4
AA-9	1	6.5	SOUTH	4
AB-5	1	6.5	SOUTH	4
AB-8	1	6.5	SOUTH	4
AC-2	1	6.5	NORTH	4

FLOOR BEAM QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 PATCHING	SF	379
TYPE 2 PATCHING	SF	111
TYPE A ANODE	EACH	20



FLOOR BEAM END REPAIR

(SEE TABLE)

NOTES:

1. FOR INSTALLATION DETAILS OF TYPE A GALVANIC ANODES, INCLUDING PAYMENT, SEE SHEETS 3/51 AND 49/51.
2. SEE SHEET 30/51 FOR TYPE 1 AND 2 REPAIR DETAILS AND ANCHOR/WIRE MESH DETAIL.
3. FOR FLOOR BEAM SEALING AND CORROSION INHIBITOR QUANTITIES, SEE ESTIMATED QUANTITES, SHEET 6/51.

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR.

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FLOOR BEAM REPAIR DETAILS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

29 / 51

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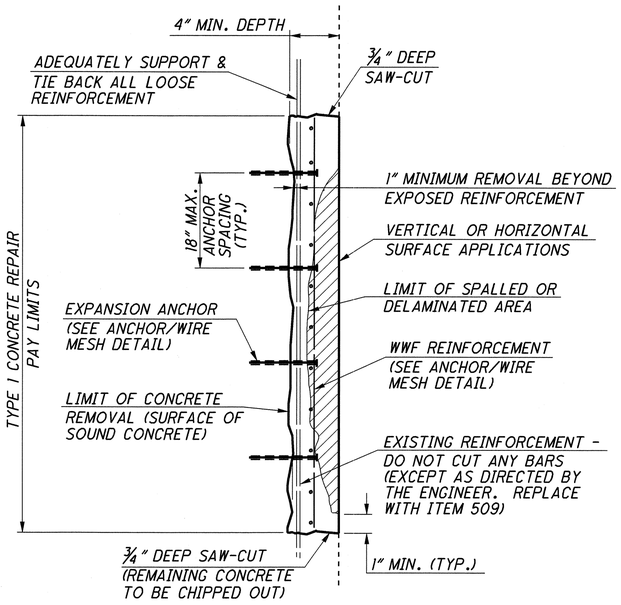
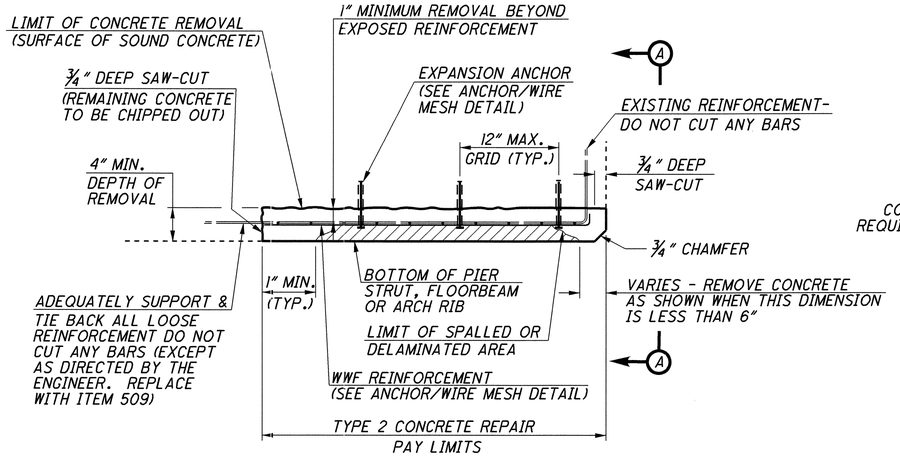


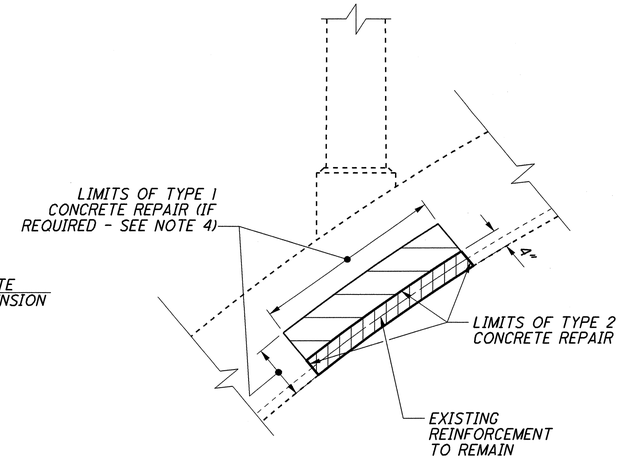
TYPE 1 CONCRETE REPAIR

(FOR VERTICAL AND HORIZONTAL TOP SURFACE REPAIRS - NOT TO SCALE)



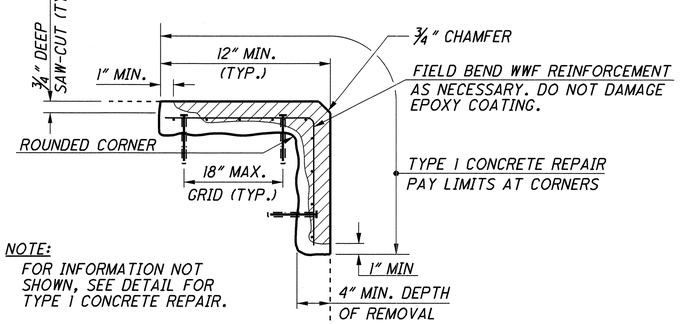
TYPE 2 CONCRETE REPAIR

(FOR VERTICAL AND SLOPING/VERTICAL OVERHEAD PATCHING APPLICATIONS - NOT TO SCALE)



VIEW A-A

(ARCH RIB APPLICATION SHOWN, OTHER TYPE 2 CONCRETE REPAIR APPLICATIONS SIMILAR - NOT TO SCALE)



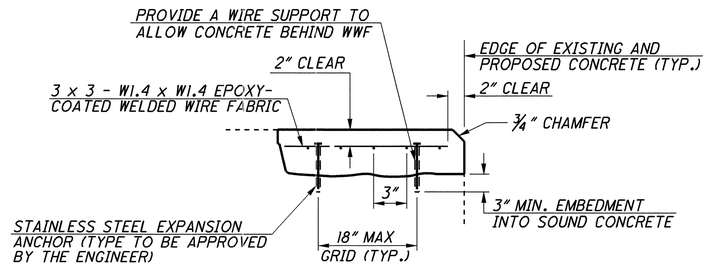
NOTE:
FOR INFORMATION NOT SHOWN, SEE DETAIL FOR TYPE 1 CONCRETE REPAIR.

TYPE 1 REPAIR AT CORNER

(NOT TO SCALE)
(EXISTING REINFORCEMENT NOT SHOWN)

LEGEND:

EXISTING CONCRETE SPALL AND/OR DELAMINATION (APPROXIMATE LIMITS OF UNSOUND CONCRETE)



ANCHOR/WIRE MESH DETAIL

(NOT TO SCALE)

GENERAL PROCEDURE FOR CONCRETE REPAIRS:

1. ALL AREAS FOR REPAIR ARE SUBJECT TO MODIFICATION IN THE FIELD BY THE ENGINEER.
2. SAW-CUT PERIPHERY OF EACH AREA TO BE REPAIRED AS SHOWN.
3. REMOVE DETERIORATED CONCRETE AS SHOWN TO SOUND CONCRETE, PLUS AN ADDITIONAL ¼" TO 1" (MAX.) OF SOUND CONCRETE.
4. SANDBLAST OR WATERBLAST EXPOSED SURFACES TO REMOVE LOOSE CONCRETE CHIPS AND SURFACE LAITANCE.
5. SANDBLAST OR WIRE BRUSH EXPOSED REINFORCEMENT AND COAT WITH EPOXY PRIMER.
6. SPLICE SAME SIZE NEW BARS TO EXISTING BARS WHERE EXISTING BARS ARE DAMAGED OR HEAVILY CORRODED, AS DIRECTED BY THE ENGINEER, PER ITEM SPECIAL.
7. INSTALL WELDED WIRE FABRIC (WWF) AS DIRECTED IN ITEM SPECIAL.
8. INSTALL GALVANIC ANODES AND CONNECT TO EXISTING REINFORCEMENT AS INDICATED ON SHEETS 3/51, 4/51, 49/51 AND 50/51.
9. USE FORMS TO ENSURE ADHERENCE OF REPAIR AND TO MATCH ORIGINAL SURFACE PROFILE PER ITEM SPECIAL. FLEXIBLE FORMS MAY BE NEEDED TO FOLLOW THE ARCH OR ORNAMENTAL DETAILS.
10. PATCH WITH CLASS S CONCRETE PER ITEM SPECIAL.
11. SUBMIT FOR APPROVAL METHODS FOR CONCRETE PLACEMENT TO LIMIT OR ELIMINATE VOIDS AND AIR POCKETS IN PATCHED AREAS. INCLUDE METHOD OF REPAIR IF THERE ARE VOIDS OR AIR POCKETS DISCOVERED UPON REMOVAL OF FORM WORK.

NOTES:

1. FOR GENERAL NOTES, SEE SHEETS 3/51 AND 4/51.
2. ALL WORK AND MATERIALS FOR THE REPAIR OF DETERIORATED CONCRETE AS PRESENTED IN THESE DETAILS ARE INCLUDED IN ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR TYPE 2 REPAIR (EXCEPTION: GALVANIC ANODES ARE NOT INCLUDED).
3. WWF DENOTES 3x3-W1.4xW1.4 EPOXY COATED WELDED WIRE FABRIC.
4. IF DETERIORATION EXTENDS MORE THAN 4" ONTO SIDE OF MEMBER, USE TYPE 1 REPAIR METHODS ON SIDES AND PAY AS TYPE 1 REPAIR, BEGINNING 4" FROM FACE.

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DESIGNED: WJV | DRAWN: WJV | CHECKED: CJM | REVIEWED: HVH | DATE: 10/16/09 | REVISED: | STRUCTURE FILE NUMBER: 0701599

CONCRETE REPAIR DETAILS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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52 / 73

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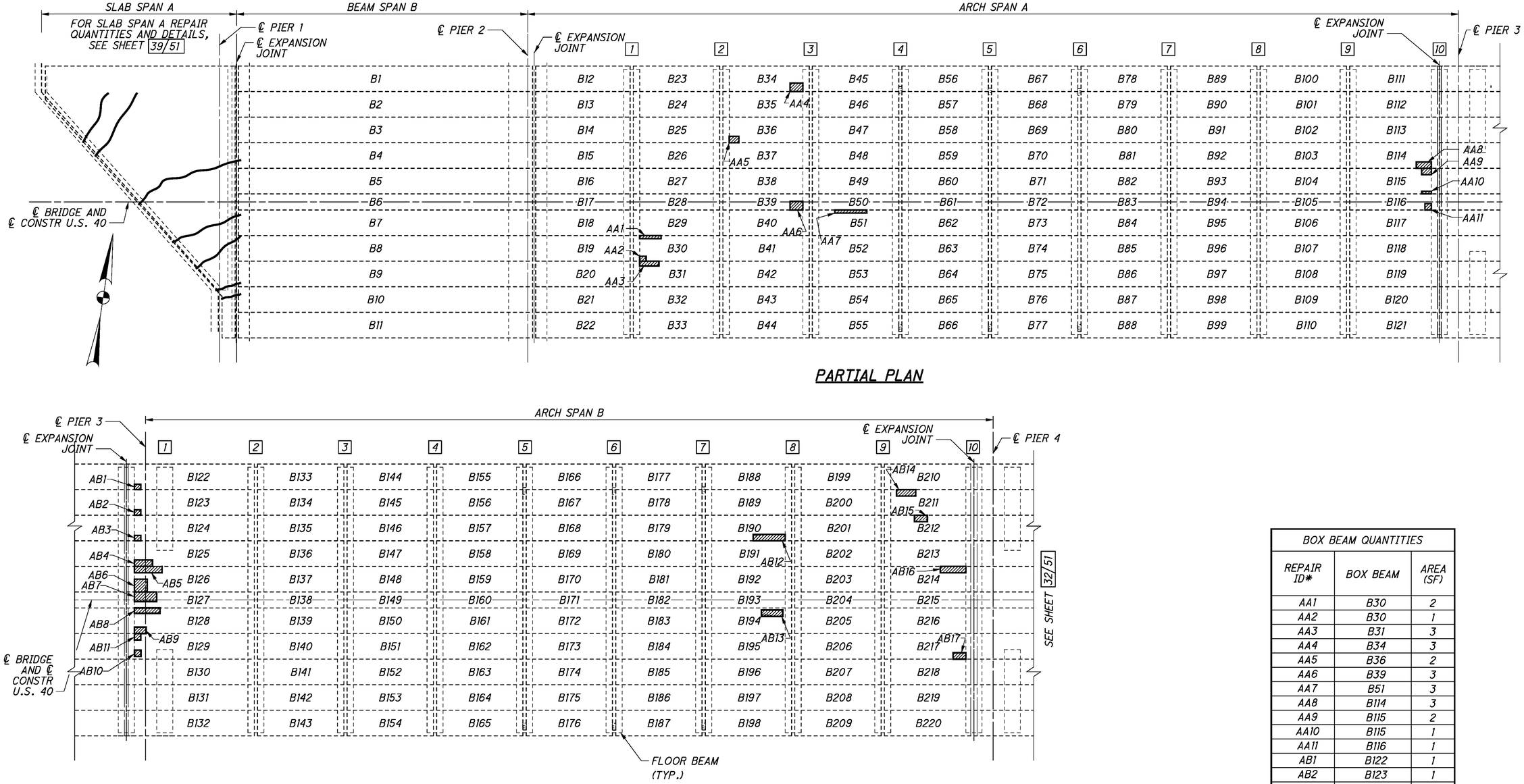

PARTIAL PLAN

PARTIAL PLAN

LEGEND:

X	FLOOR BEAM NUMBER
▨	PRESTRESSED BEAM SOFFIT REPAIR AREA
BXXX	PRESTRESSED BOX BEAM NO.

NOTES:

1. FOR NOTES, SEE SHEET 32/51.

SPAN DESIGNATION TABLE	
SLAB SPAN A	A
BEAM SPAN B	B
ARCH SPAN A	AA
ARCH SPAN B	AB
ARCH SPAN C	AC
ARCH SPAN D	AD
BEAM SPAN C	C
BEAM SPAN D	D
BEAM SPAN E	E
BEAM SPAN F	F
BEAM SPAN G	G

BOX BEAM QUANTITIES		
REPAIR ID*	BOX BEAM	AREA (SF)
AA1	B30	2
AA2	B30	1
AA3	B31	3
AA4	B34	3
AA5	B36	2
AA6	B39	3
AA7	B51	3
AA8	B114	3
AA9	B115	2
AA10	B115	1
AA11	B116	1
AB1	B122	1
AB2	B123	1
AB3	B124	1
AB4	B125	3
AB5	B126	5
AB6	B126	4
AB7	B127	6
AB8	B128	4
AB9	B128	2
AB10	B129	1
AB11	B129	1
AB12	B190	5
AB13	B194	4
AB14	B211	3
AB15	B212	2
AB16	B214	4
AB17	B217	2

* SEE TABLE FOR SPAN DESIGNATION.

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55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN MGO | REVIEWED HVH | DATE 10/16/09
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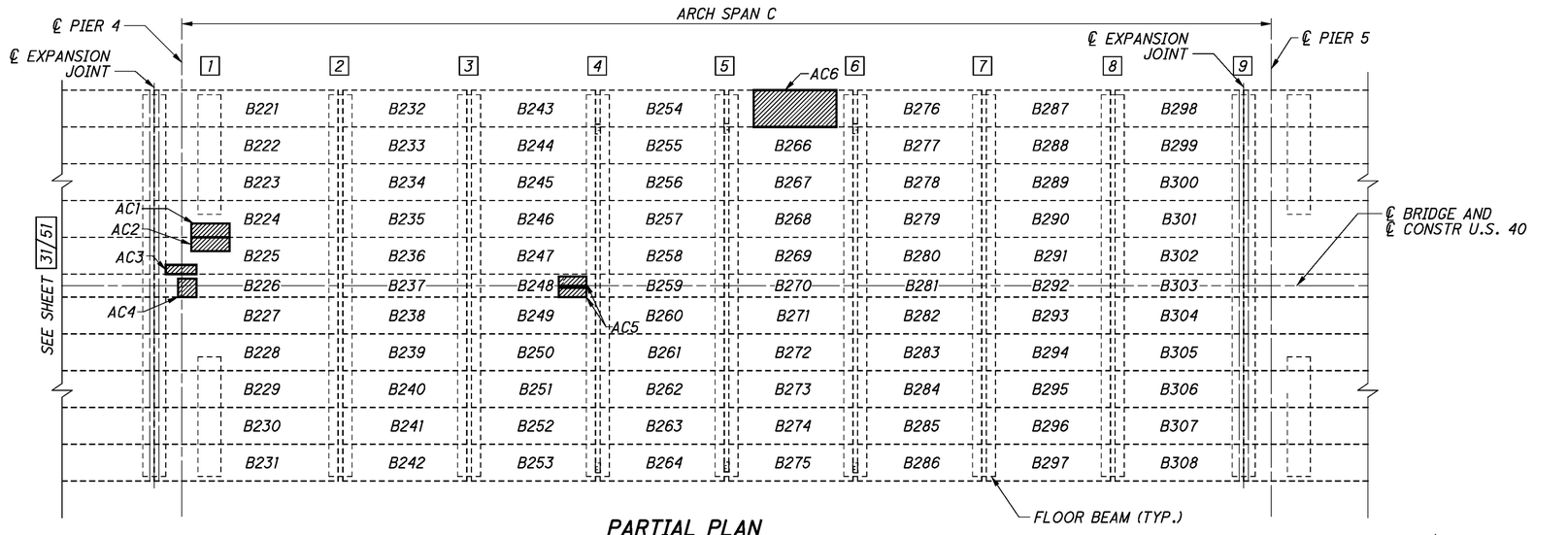
BOX BEAM REPAIR PLAN
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

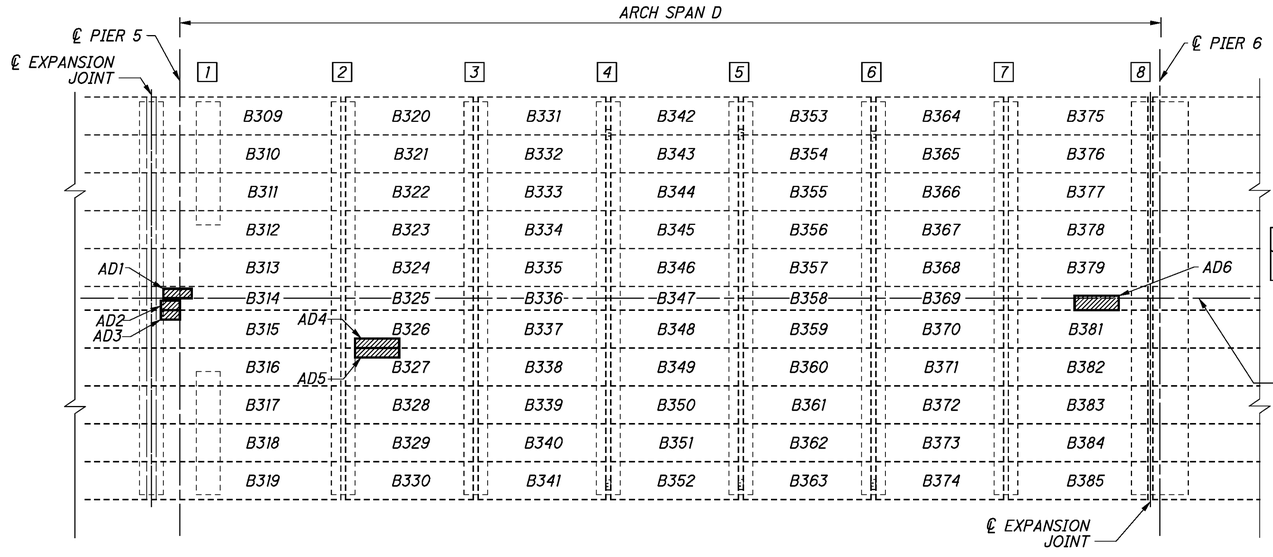
BEL-40-23.38
PID No. 22815



PARTIAL PLAN

BOX BEAM QUANTITIES		
REPAIR ID*	BOX BEAM	AREA (SF)
AC1	B224	7
AC2	B225	7
AC3	B225	4
AC4	B226	4
AC5	B248	6
AC6	B265	36
AD1	B314	3
AD2	B314	2
AD3	B315	2
AD4	B326	5
AD5	B327	5
AD6	B380	7

* SEE TABLE FOR SPAN DESIGNATION.



PARTIAL PLAN

SPAN DESIGNATION TABLE	
SLAB SPAN A	A
BEAM SPAN B	B
ARCH SPAN A	AA
ARCH SPAN B	AB
ARCH SPAN C	AC
ARCH SPAN D	AD
BEAM SPAN C	C
BEAM SPAN D	D
BEAM SPAN E	E
BEAM SPAN F	F
BEAM SPAN G	G

NOTES:

1. FOR FLOOR BEAM REPAIR DETAILS AND QUANTITIES, SEE SHEET 27/51 THRU 29/51.
2. FOR PRESTRESSED BOX BEAM REPAIR DETAILS, SEE SHEET 34/51.
3. FOR EXPANSION JOINT REPAIR DETAILS, SEE SHEET 45/51 AND 46/51.
4. FOR DECK REPAIRS, SEE SHEET 37/51 AND 38/51.

LEGEND:

X	FLOOR BEAM NUMBER
	PRESTRESSED BEAM SOFFIT REPAIR AREA (SEE NOTE 2)
BXXX	PRESTRESSED BOX BEAM NO.

DESIGN AGENCY
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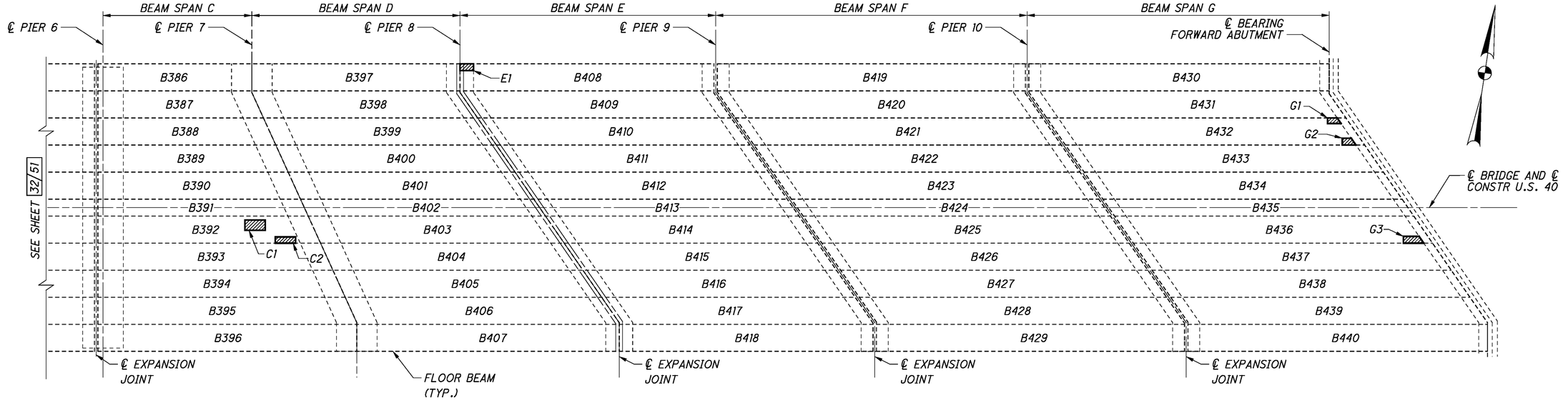
BOX BEAM REPAIR PLAN
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815



PARTIAL PLAN

LEGEND:

PRESTRESSED BEAM SOFFIT REPAIR AREA

BXXX PRESTRESSED BOX BEAM NO.

BOX BEAM QUANTITIES		
REPAIR ID*	BOX BEAM	AREA (SF)
C1	B392	5
C2	B392	3
E1	B408	2
G1	B432	2
G2	B432	2
G3	B436	3

* SEE TABLE FOR SPAN DESIGNATION.

SPAN DESIGNATION TABLE	
SLAB SPAN A	A
BEAM SPAN B	B
ARCH SPAN A	AA
ARCH SPAN B	AB
ARCH SPAN C	AC
ARCH SPAN D	AD
BEAM SPAN C	C
BEAM SPAN D	D
BEAM SPAN E	E
BEAM SPAN F	F
BEAM SPAN G	G

NOTES:

1. FOR NOTES, SEE SHEET 32/51.

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55 PUBLIC SQUARE, SUITE 1900
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WJV	MGO	HVH	10/16/09
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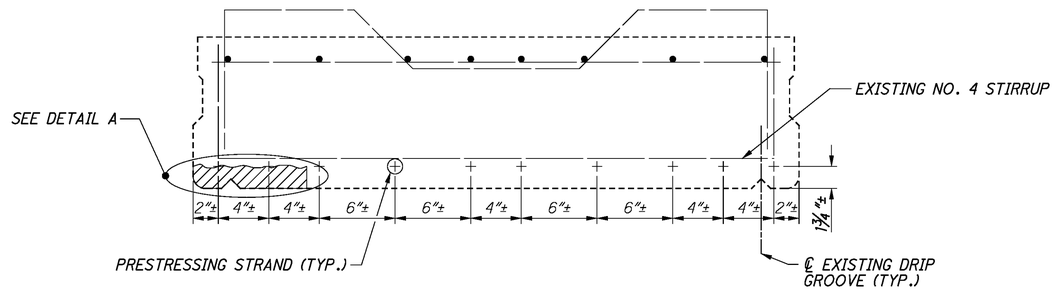
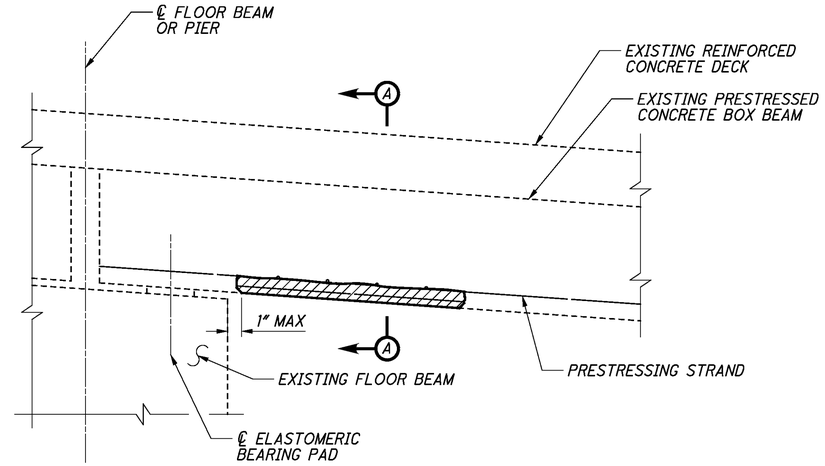
BOX BEAM REPAIR PLAN
BRIDGE NO. BEL-40-2338
U.S.40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

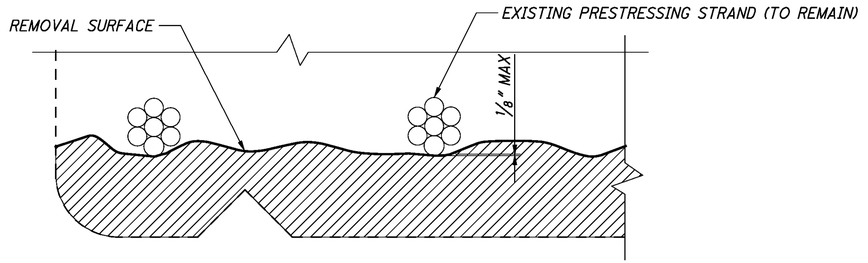


SECTION A-A



TYPICAL BOX BEAM REPAIR

CONTRACTOR TO USE EXTREME CAUTION WHILE REMOVING CONCRETE ADJACENT TO PRESTRESSING STRANDS. ONLY LOOSE CONCRETE SHOULD BE REMOVED USING HAND CHIPPING.



DETAIL A

LEGEND:

REMOVE UNSOUND CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - STRUCTURE, MISC.: REMOVAL OF LOOSE CONCRETE AT BOX BEAMS AND APPLY CORROSION INHIBITOR PER ITEM 511-CONCRETE MISC.: SURFACE APPLIED CORROSION INHIBITOR.

NOTES:

1. REMOVE ALL LOOSE CONCRETE AND APPLY THE CORROSION INHIBITOR TO THE REMOVAL AREA.

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BOX BEAM REPAIR DETAILS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

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PID No. 22815

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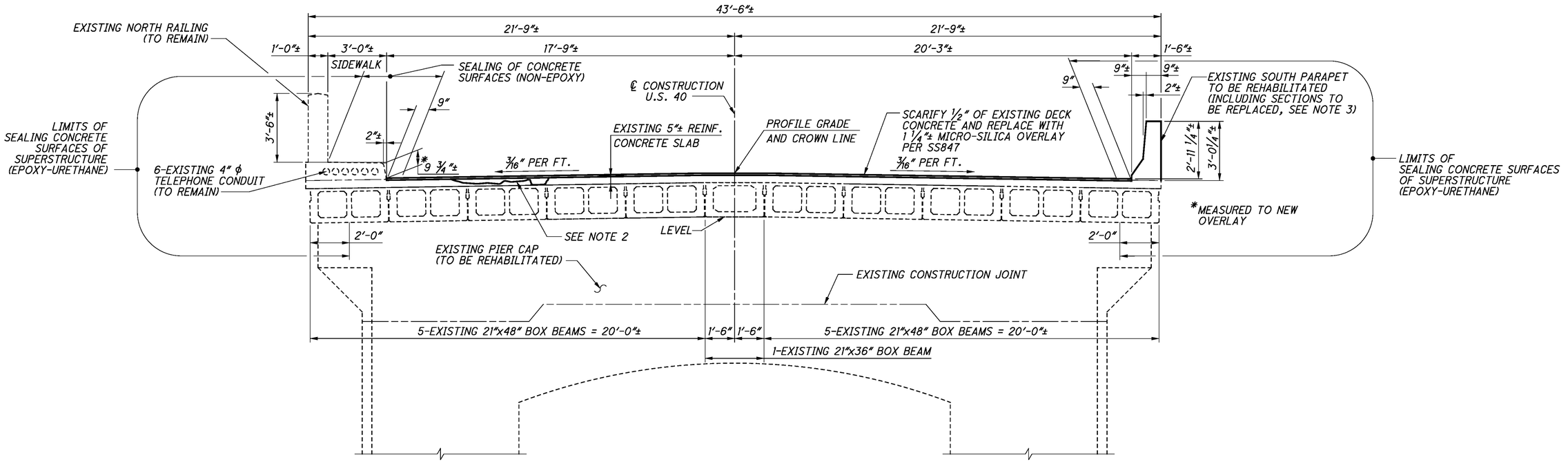
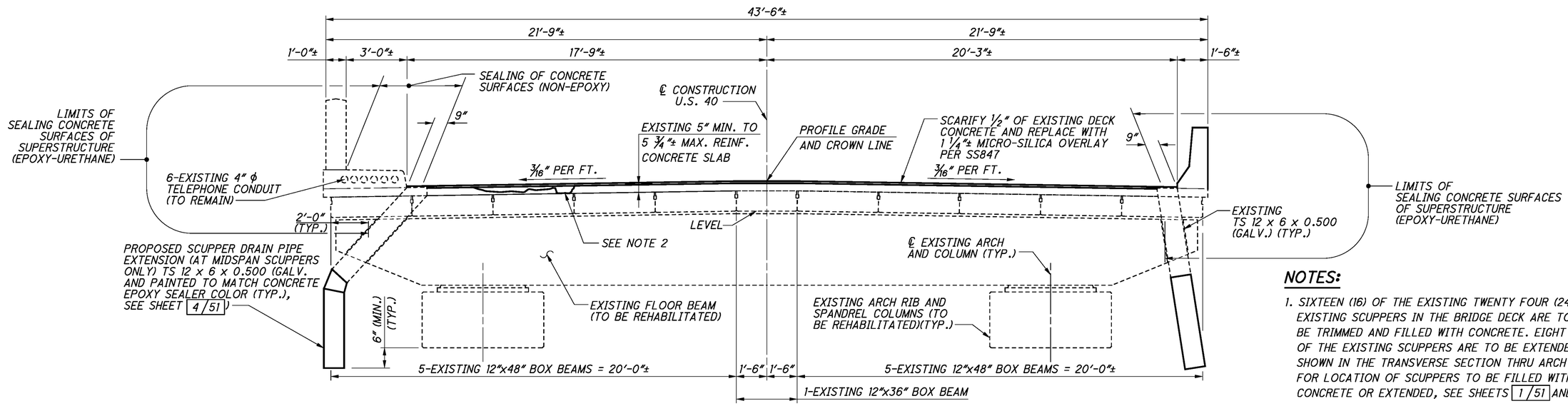


TRANSVERSE SECTION THRU BEAM SPANS



TRANSVERSE SECTION THRU ARCH SPANS

(FOR ADDITIONAL DETAILS, SEE TRANSVERSE SECTION THRU BEAM SPANS)

NOTES:

1. SIXTEEN (16) OF THE EXISTING TWENTY FOUR (24) EXISTING SCUPPERS IN THE BRIDGE DECK ARE TO BE TRIMMED AND FILLED WITH CONCRETE. EIGHT (8) OF THE EXISTING SCUPPERS ARE TO BE EXTENDED AS SHOWN IN THE TRANSVERSE SECTION THRU ARCH SPANS. FOR LOCATION OF SCUPPERS TO BE FILLED WITH CONCRETE OR EXTENDED, SEE SHEETS 1/51 AND 2/51.
2. FOR TYPICAL DECK OVERLAY AND REMOVAL DETAILS, SEE SHEET 36/51.
3. FOR LOCATIONS OF PARAPET REPLACEMENT, SEE SHEETS 1/51, 2/51, 37/51 AND 38/51.
4. FOR SCUPPER EXTENSION AND ABANDONMENT DETAILS, SEE SHEETS 43/51 AND 44/51.

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BEAM AND ARCH SPANS SECTIONS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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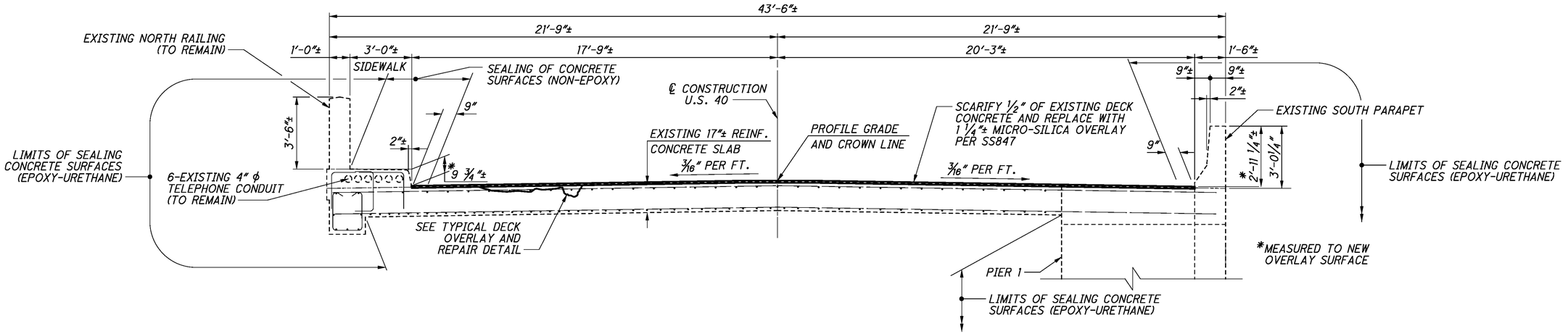
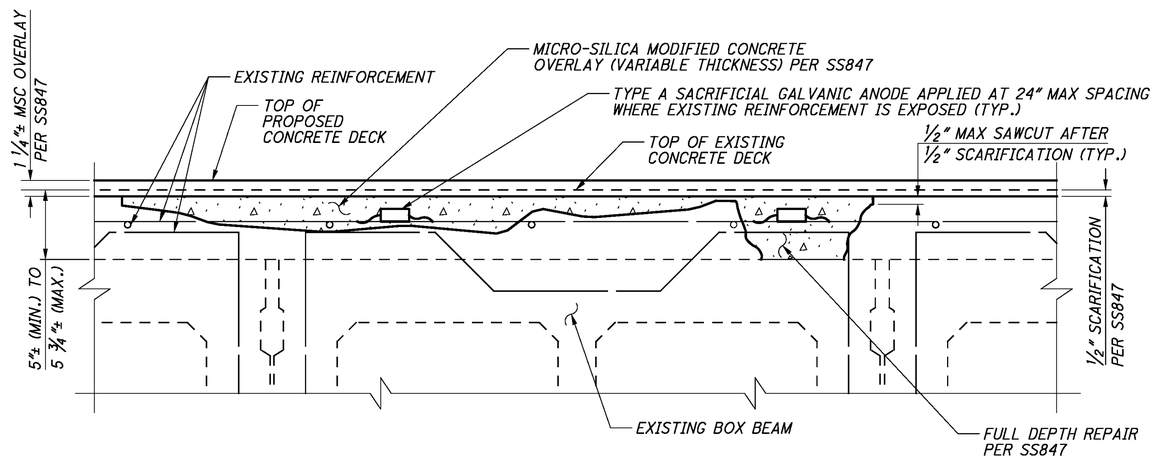


TRANSVERSE SECTION THRU SLAB SPAN A
(SEE NOTE 2)



TYPICAL DECK OVERLAY AND REPAIR DETAIL
(PRESTRESSED BEAM SPANS SHOWN. SLAB SPAN A SIMILAR EXCEPT FULL DEPTH REPAIR WILL NOT BE REQUIRED)

NOTES:

1. FOR TYPE A SACRIFICIAL ANODE DETAILS, SEE SHEET 49/51.
2. PATCHING THE UNDERSIDE OF DECK, AND EPOXY INJECTION OF CRACKS IS NOT SHOWN. SEE SHEET 39/51 FOR SLAB SPAN A REPAIR DETAILS.

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SLAB SPAN A SECTION AND TYPICAL DECK REPAIR DETAIL
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

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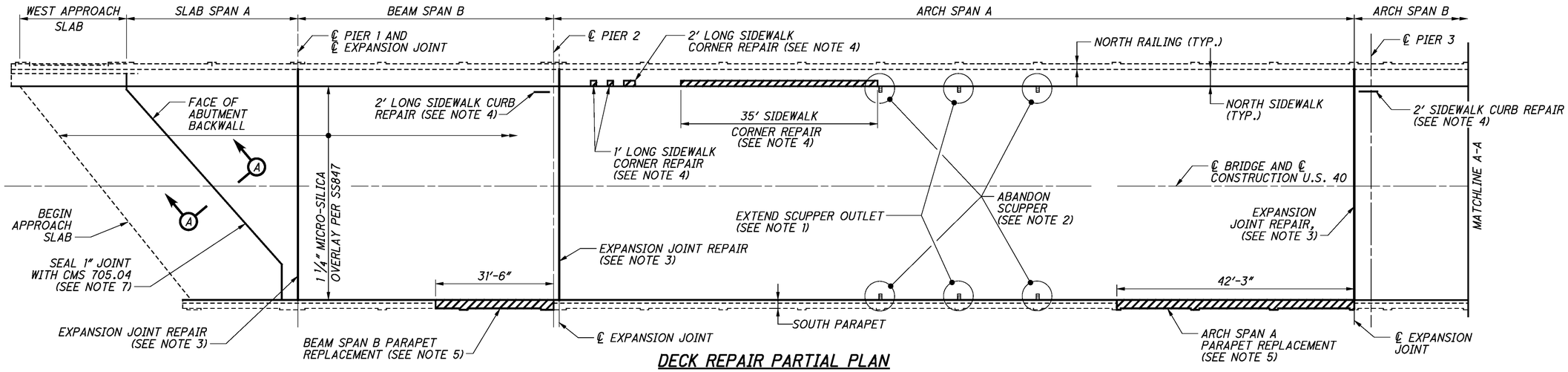
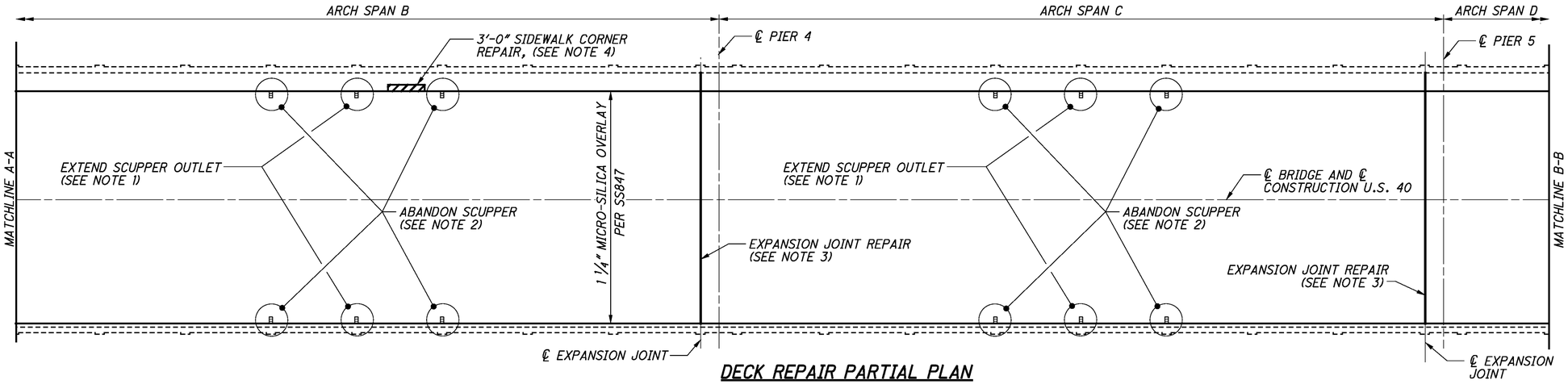
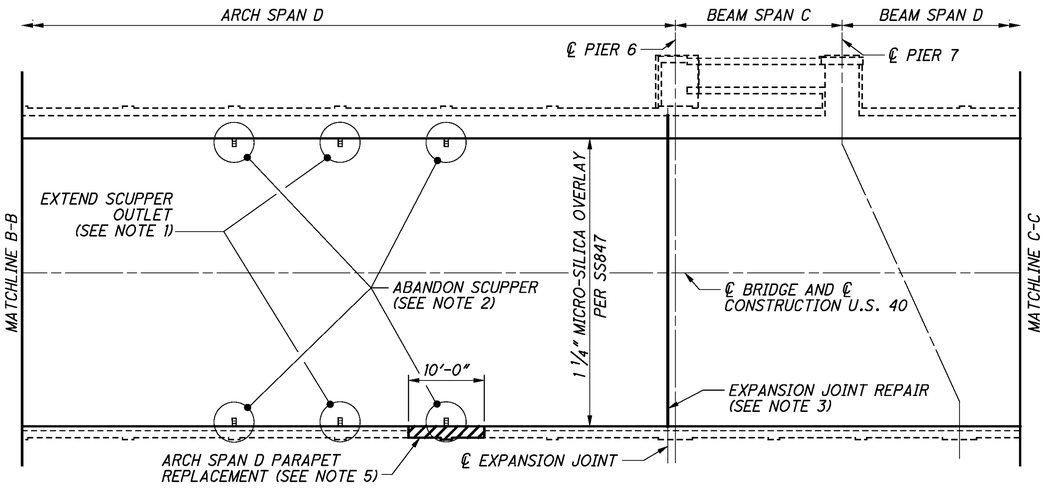


DECK REPAIR PARTIAL PLAN



DECK REPAIR PARTIAL PLAN



DECK REPAIR PARTIAL PLAN

NOTES:

1. FOR SCUPPER EXTENSION DETAILS, SEE SHEET 43/51 .
2. FOR SCUPPER ABANDONMENT DETAILS, SEE SHEET 44/51.
3. ALL EXISTING EXPANSION JOINTS SHALL BE REHABILITATED. FOR EXPANSION JOINT REPAIRS, SEE SHEETS 45/51 AND 46/51.
4. FOR SIDEWALK AND CURB REPAIR DETAILS, SEE SHEET 38/51.
5. FOR PARAPET REPLACEMENT DETAILS, SEE SHEETS 41/51 AND 42/51.
6. SEE SHEET 38/51 FOR SECTION A-A AND MATCHLINE C-C.
7. JOINT SEAL IN ABUTMENT TO BE INSTALLED AFTER INSTALLATION OF MSC OVERLAY, SEE ITEM 847 NOTES ON SHEET 4/51 FOR PAYMENT.
8. FOR SECTION A-A, SEE 38/51.

LEGEND:

REMOVE IN ACCORDANCE WITH ITEM 202, AND REPLACE CONCRETE IN ACCORDANCE WITH ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE.

REMOVE IN ACCORDANCE WITH ITEM 202, AND REPLACE CONCRETE IN ACCORDANCE WITH ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE.

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

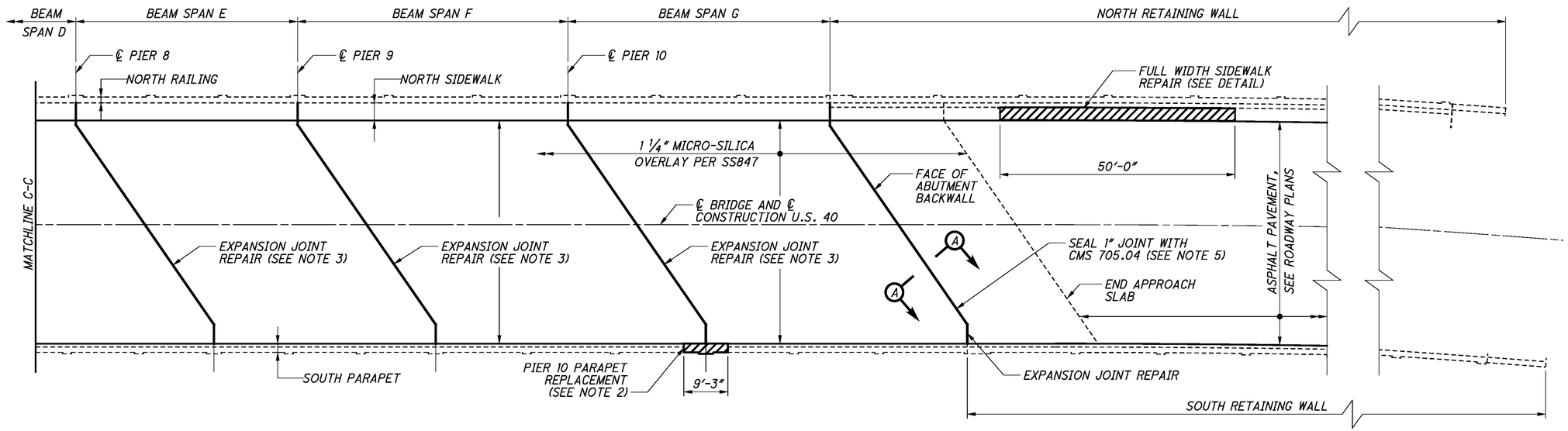
DESIGNED WJV | DRAWN MGO | REVIEWED HVH | DATE 10/16/09 | CHECKED JDH | REVISED | STRUCTURE FILE NUMBER 0701599

DECK REPAIR PLAN
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

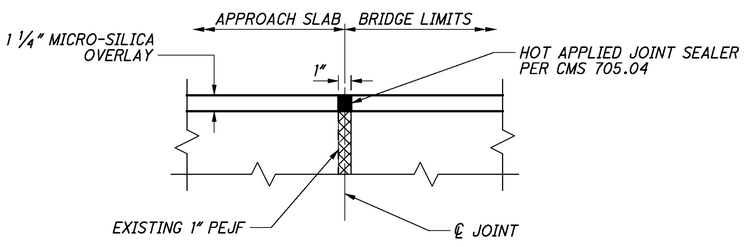
BEL-40-23.38
PID No. 22815

37 / 51

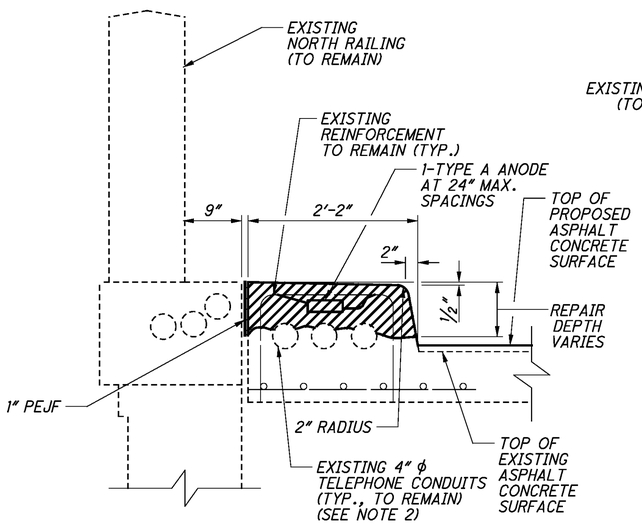
59 / 73



DECK REPAIR PARTIAL PLAN

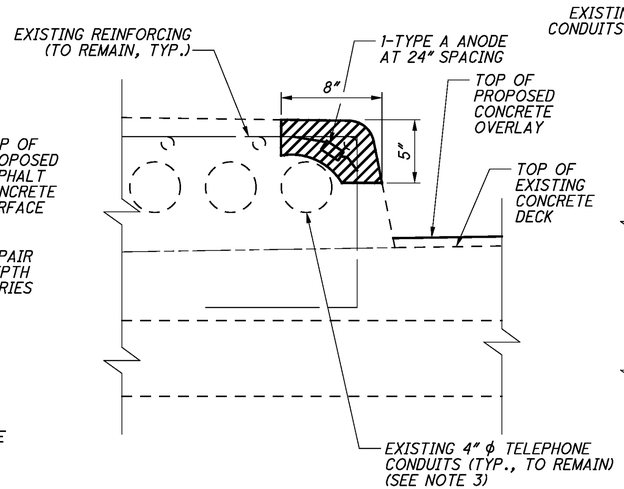


SECTION A-A



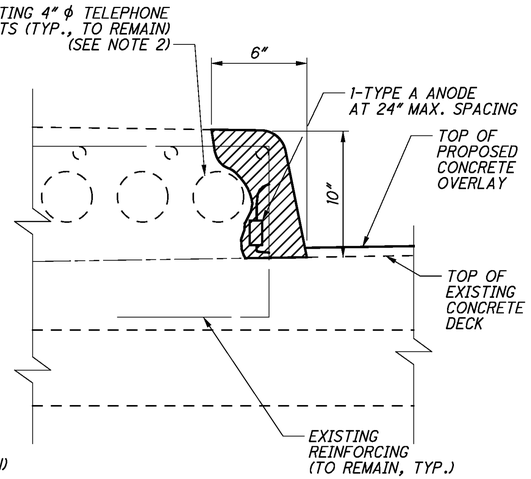
FULL WIDTH SIDEWALK REPAIR

(HAND CHIPPING IS REQUIRED)



SIDEWALK CORNER REPAIR

(HAND CHIPPING IS REQUIRED)



SIDEWALK CURB REPAIR

(HAND CHIPPING IS REQUIRED)

NOTES:

1. FOR LOCATION OF MATCHLINE C-C, SEE SHEET 37/51.
2. CARE SHALL BE TAKEN WHEN REMOVING CONCRETE ADJACENT TO THE EXISTING UTILITY CONDUIT. HAND CHIPPING IS REQUIRED. SEE ITEM 202 NOTES ON SHEET 3/51.
3. ALL EXISTING EXPANSION JOINTS SHALL BE REHABILITATED. FOR EXPANSION JOINT REPAIRS, SEE SHEETS 45/51 AND 46/51.
4. FOR PARAPET REPLACEMENT DETAILS, SEE SHEETS 41/51 AND 42/51.
5. JOINT SEAL IN ABUTMENT TO BE INSTALLED AFTER INSTALLATION OF MSC OVERLAY, SEE ITEM 847 NOTES ON SHEET 4/51 FOR PAYMENT.
6. ALL SIDEWALK REPAIRS SHALL BE COMPLETED PRIOR TO PLACEMENT OF CONCRETE AND ASPHALT CONCRETE OVERLAYS.

LEGEND:

REMOVE IN ACCORDANCE WITH ITEM 202 AND REPLACE CONCRETE IN ACCORDANCE WITH ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE.

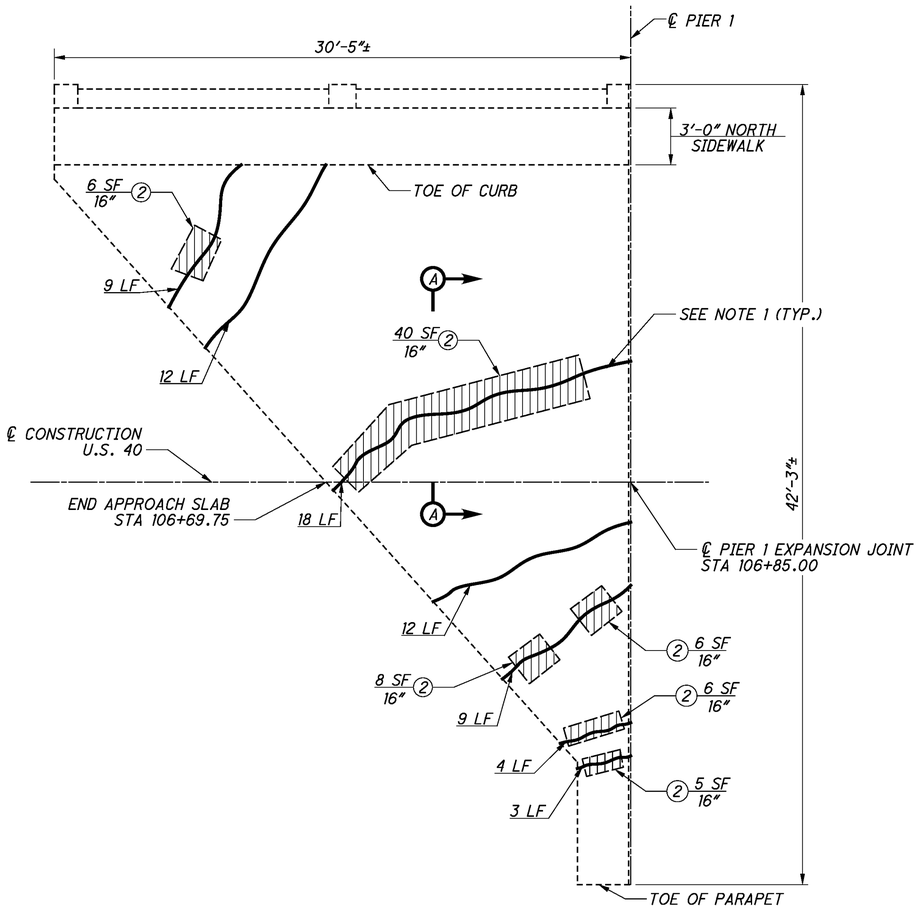
REMOVE IN ACCORDANCE WITH ITEM 202, AND REPLACE CONCRETE IN ACCORDANCE WITH ITEM 511 - CLASS S CONCRETE, SUPERSTRUCTURE.

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

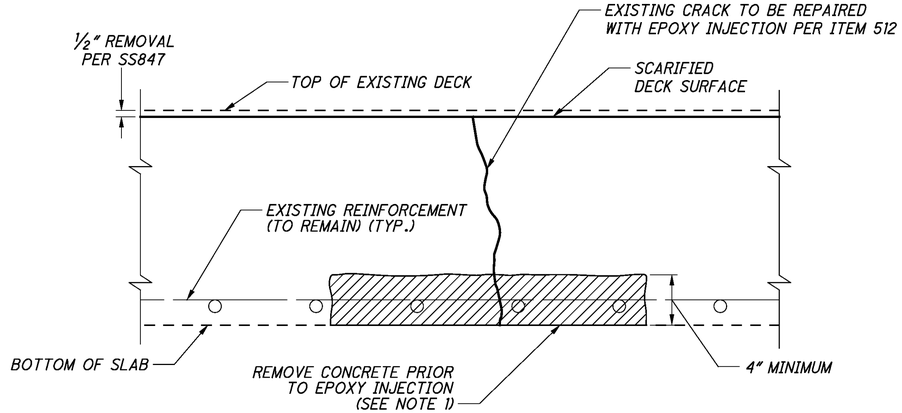
DESIGNED	DRAWN	REVIEWED	DATE
WJV	MGO	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JDH		07001599	

DECK REPAIR PLAN
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815



PLAN - SLAB SPAN A



SECTION A-A TYPICAL SLAB REPAIR

(WWF REINFORCEMENT NOT SHOWN)

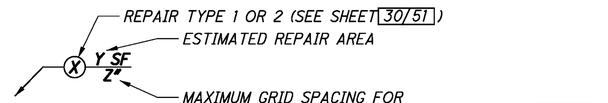
SLAB SPAN A QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 2 REPAIR	SF	71
ITEM 512 REPAIR	LF	67
TYPE A ANODES	EA	40

NOTES:

1. BEFORE EPOXY INJECTION OF CRACKS, REMOVE CONCRETE ON THE UNDERSIDE OF SLAB PER ITEM SPECIAL, IF APPLICABLE, AND SCARIFY DECK PER SS847. CRACKS SHALL THEN BE INJECTED WITH EPOXY PER ITEM 512, PRIOR TO PLACING PATCHES AND OVERLAY.
2. FOR SLAB SPAN A SECTION AND TYPICAL DECK REPAIR DETAILS, SEE SHEET 36/51.

LEGEND:

REMOVE AND PATCH CONCRETE TO SLAB UNDERSIDE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 2 REPAIR.



CRACK REPAIR IN ACCORDANCE WITH ITEM 512 - CONCRETE REPAIR BY EPOXY INJECTION.

DESIGN AGENCY
Tram Systems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN CJM | REVIEWED HVH | DATE 10/16/09
CHECKED JDH | REVISED | STRUCTURE FILE NUMBER 07001599

SLAB SPAN A REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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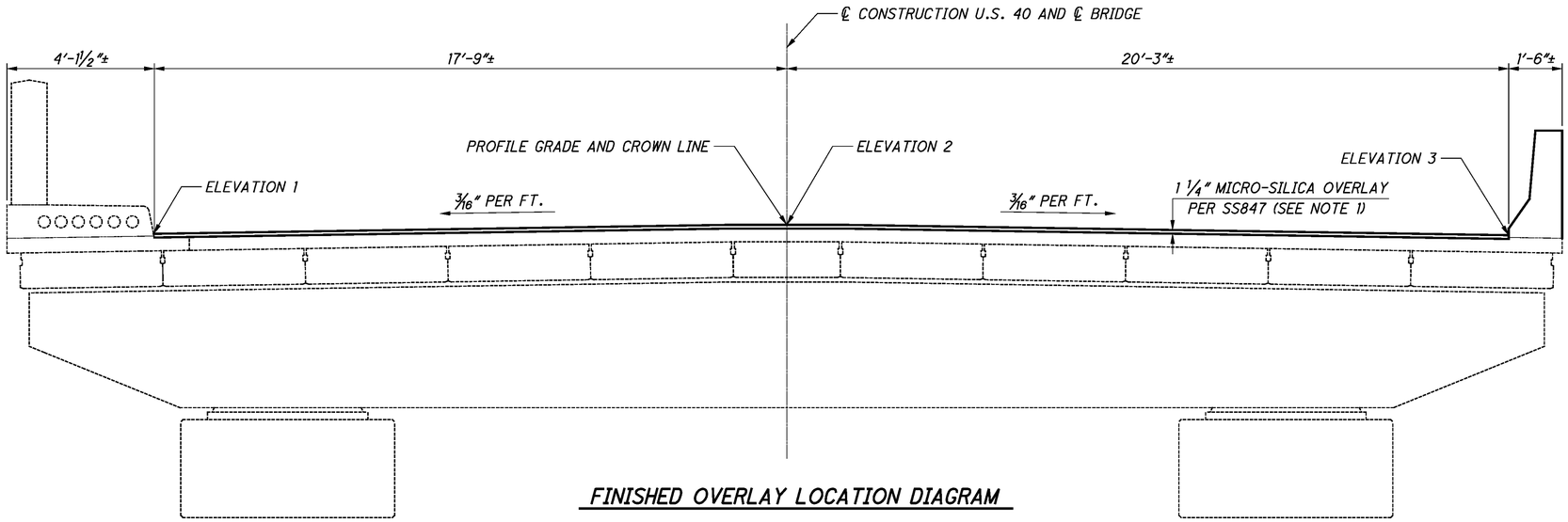


FINISHED OVERLAY LOCATION DIAGRAM

TABLE OF FINISHED OVERLAY ELEVATIONS

	ELEVATION 1 - LEFT GUTTER		ELEVATION 2 - ℄ BRIDGE & PGL		ELEVATION 3 - RIGHT GUTTER	
LOCATION	STATION	FINISHED ELEVATION	STATION	FINISHED ELEVATION	STATION	FINISHED ELEVATION
END APPROACH SLAB	106+53.82	808.25	106+69.75	807.41	NA	NA
℄ EXP. JT AT PIER 1	106+86.00	805.99	106+86.00	806.27	106+86.00	805.95
1/2 POINT	107+07.75	804.46	107+07.75	804.73	107+07.75	804.42
℄ EXP. JT AT PIER 2	107+29.50	802.93	107+29.50	803.20	107+29.50	802.89
1/6 POINT	107+53.42	801.24	107+53.42	801.52	107+53.42	801.20
2/6 POINT	107+77.33	799.56	107+77.33	799.84	107+77.33	799.52
3/6 POINT	108+01.25	797.87	108+01.25	798.15	108+01.25	797.84
4/6 POINT	108+25.17	796.19	108+25.17	796.47	108+25.17	796.15
5/6 POINT	108+49.08	794.51	108+49.08	794.78	108+49.08	794.47
℄ EXP. JT AT PIER 3	108+73.00	792.82	108+73.00	793.10	108+73.00	792.78
1/6 POINT	108+95.08	791.28	108+95.08	791.55	108+95.08	791.24
2/6 POINT	109+17.17	789.73	109+17.17	790.01	109+17.17	789.69
3/6 POINT	109+39.25	788.19	109+39.25	788.46	109+39.25	788.15
4/6 POINT	109+61.33	786.64	109+61.33	786.92	109+61.33	786.60
5/6 POINT	109+83.42	785.09	109+83.42	785.37	109+83.42	785.05
℄ EXP. JT AT PIER 4	110+05.50	783.55	110+05.50	783.83	110+05.50	783.51
1/6 POINT	110+22.17	782.38	110+22.17	782.66	110+22.17	782.34
2/6 POINT	110+38.83	781.21	110+38.83	781.49	110+38.83	781.18
3/6 POINT	110+55.50	780.05	110+55.50	780.33	110+55.50	780.01
4/6 POINT	110+72.17	778.88	110+72.17	779.16	110+72.17	778.84
5/6 POINT	110+88.83	777.71	110+88.83	777.99	110+88.83	777.68
℄ EXP. JT AT PIER 5	111+05.50	776.55	111+05.50	776.83	111+05.50	776.51
1/6 POINT	111+26.17	775.10	111+26.17	775.38	111+26.17	775.06
2/6 POINT	111+46.83	773.65	111+46.83	773.93	111+46.83	773.62
3/6 POINT	111+67.50	772.21	111+67.50	772.49	111+67.50	772.17
4/6 POINT	111+88.17	770.76	111+88.17	771.04	111+88.17	770.72
5/6 POINT	112+08.83	769.31	112+08.83	769.59	112+08.83	769.28
℄ EXP. JT AT PIER 6	112+29.50	767.87	112+29.50	768.15	112+29.50	767.83
1/2 POINT	112+41.02	767.06	112+44.88	767.07	112+49.27	766.44
℄ PIER 7	112+52.16	766.28	112+60.25	765.99	112+69.48	765.03
1/2 POINT	112+67.55	765.20	112+77.63	764.78	112+89.12	763.66
℄ PIER 8	112+82.73	764.14	112+95.00	763.56	113+09.00	762.26
1/2 POINT	113+01.61	762.82	113+13.88	762.24	113+27.87	760.94
℄ PIER 9	113+20.48	761.50	113+32.75	760.92	113+46.75	759.62
1/2 POINT	113+43.48	759.89	113+55.75	759.31	113+69.75	758.01
℄ PIER 10	113+66.48	758.28	113+78.75	757.70	113+92.75	756.40
1/2 POINT	113+88.73	756.72	114+01.00	756.14	114+15.00	754.84
BEGIN APPROACH SLAB	114+10.98	755.16	114+23.25	754.58	114+37.25	753.29

NOTES:

1. ACTUAL MICRO-SILICA OVERLAY THICKNESS WILL VARY TO PROVIDE THE FINISHED ELEVATIONS SHOWN, HOWEVER THE AVERAGE THICKNESS IS 1¼".

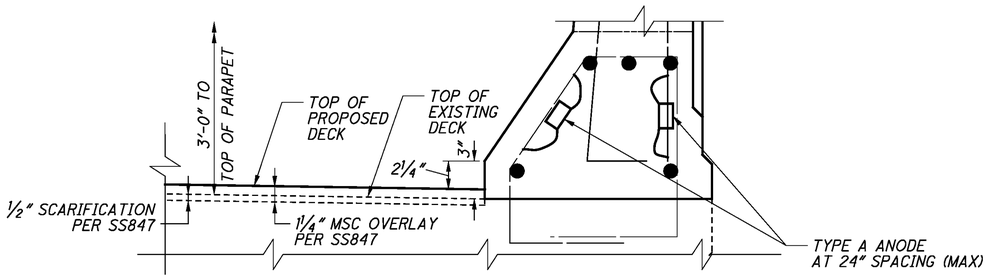
DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED JDH | DRAWN CJM | REVIEWED HVH | DATE 10/16/09
CHECKED WJV | REVISED | STRUCTURE FILE NUMBER 0701599

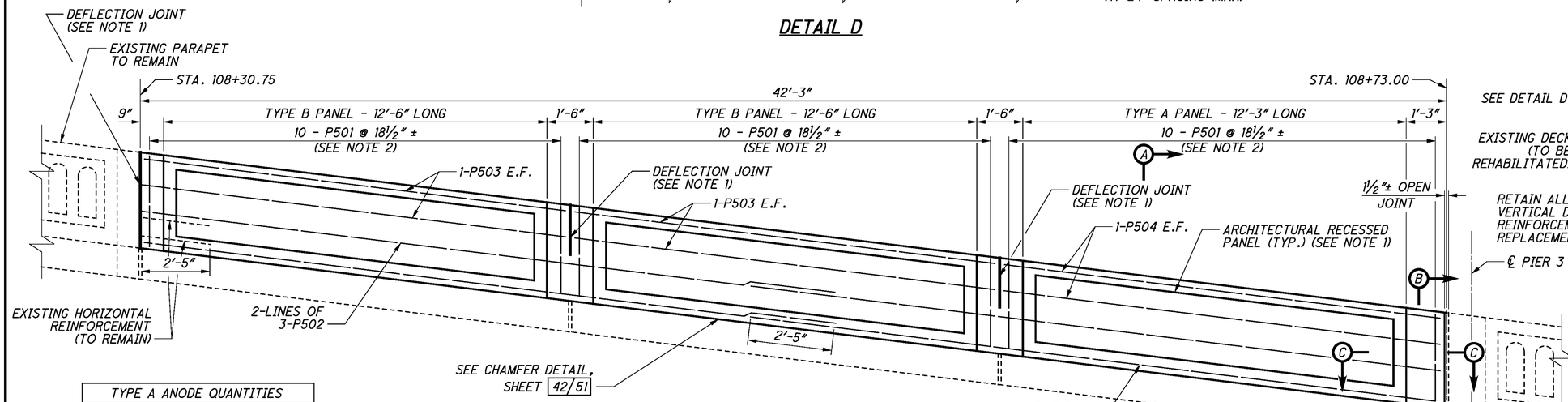
FINISHED OVERLAY ELEVATIONS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815



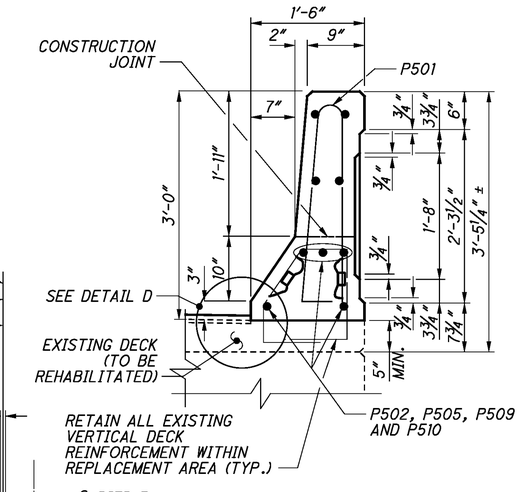
DETAIL D



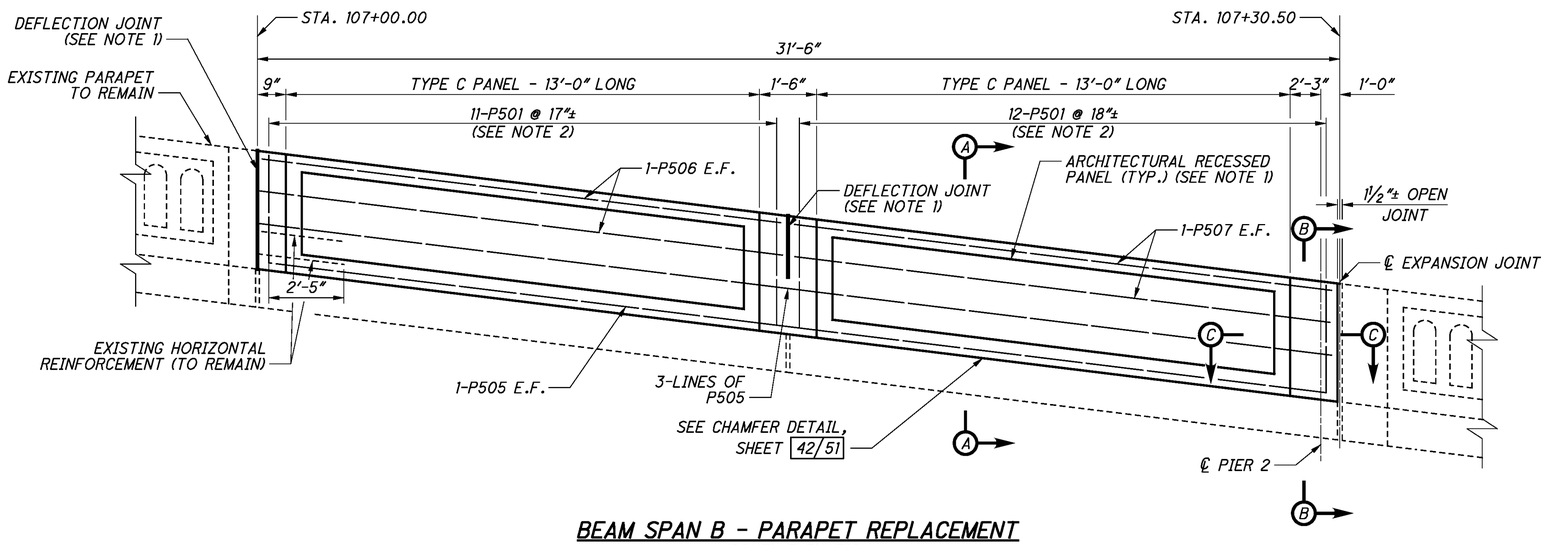
ARCH SPAN A PARAPET

(SOUTH ELEVATION)
(ARCHITECTURAL RECESS NOT SHOWN - SEE NOTE 1)

TYPE A ANODE QUANTITIES	
SPAN	QUANTITY
ARCH SPAN A	44
BEAM SPAN B	34

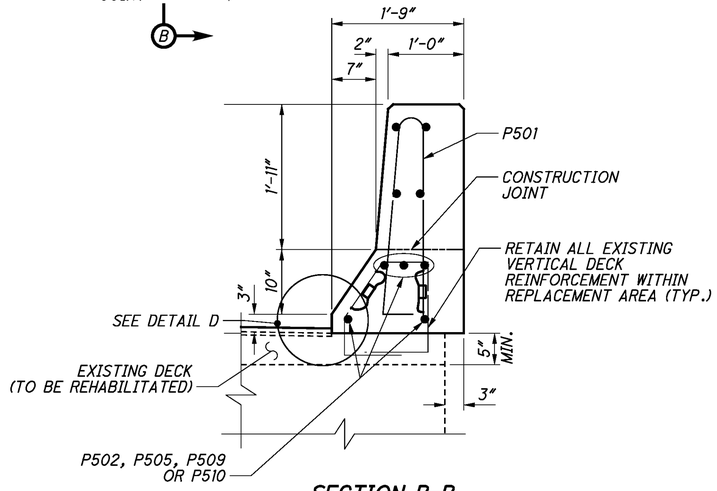


SECTION A-A



BEAM SPAN B - PARAPET REPLACEMENT

(SOUTH ELEVATION)
(ARCHITECTURAL RECESS DETAILS NOT SHOWN - SEE NOTE 1)
(NOT TO SCALE)



SECTION B-B

NOTES:

1. FOR ARCHITECTURAL RECESS ELEVATION, DEFLECTION JOINT DETAIL AND SECTION C-C, SEE SHEET 42/51.
2. MATCH EXISTING #5 BARS TO REMAIN.

DESIGN AGENCY: TranSystems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	MGO	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JDH		07001599	

SOUTH PARAPET PARTIAL REPLACEMENT
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

41 / 51

63 / 73

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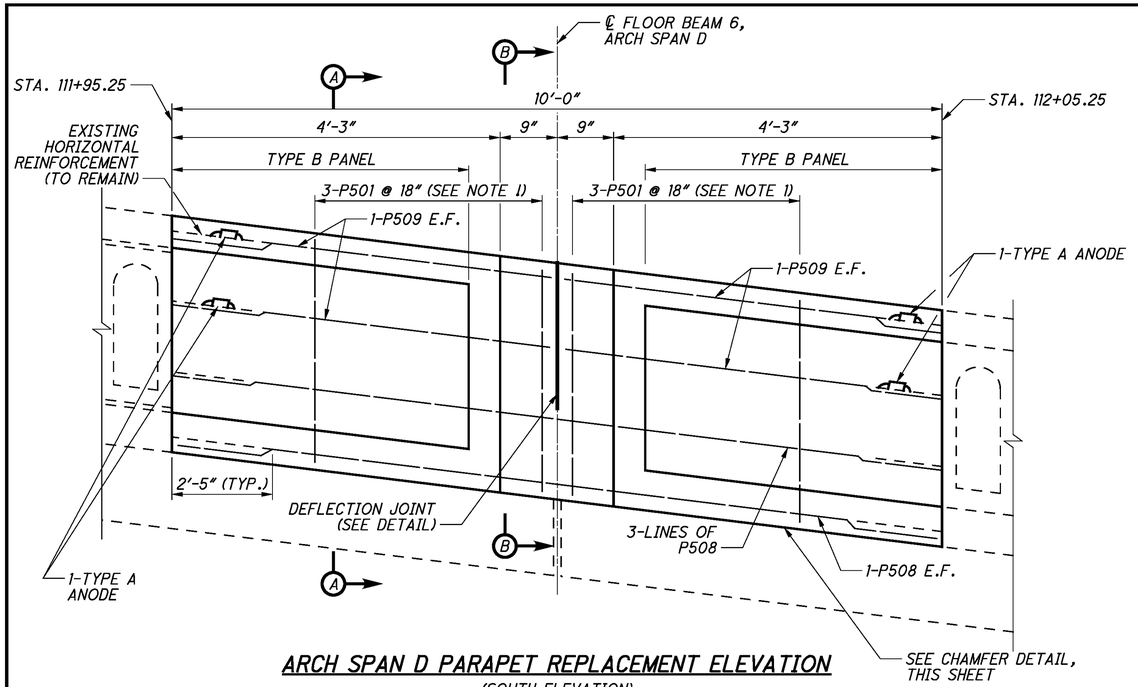
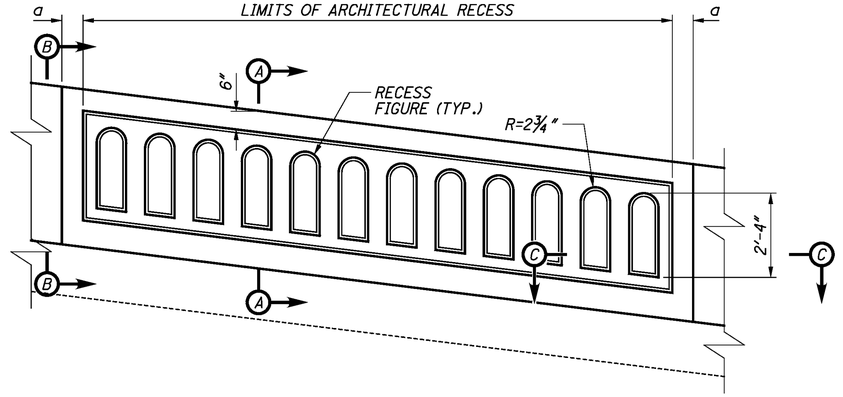


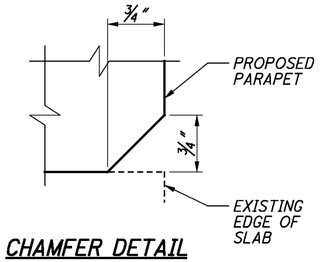
ARCH SPAN D PARAPET REPLACEMENT ELEVATION

(SOUTH ELEVATION)

(ARCHITECTURAL RECESS DETAILS NOT SHOWN, SEE ARCHITECTURAL RECESS ELEVATION)

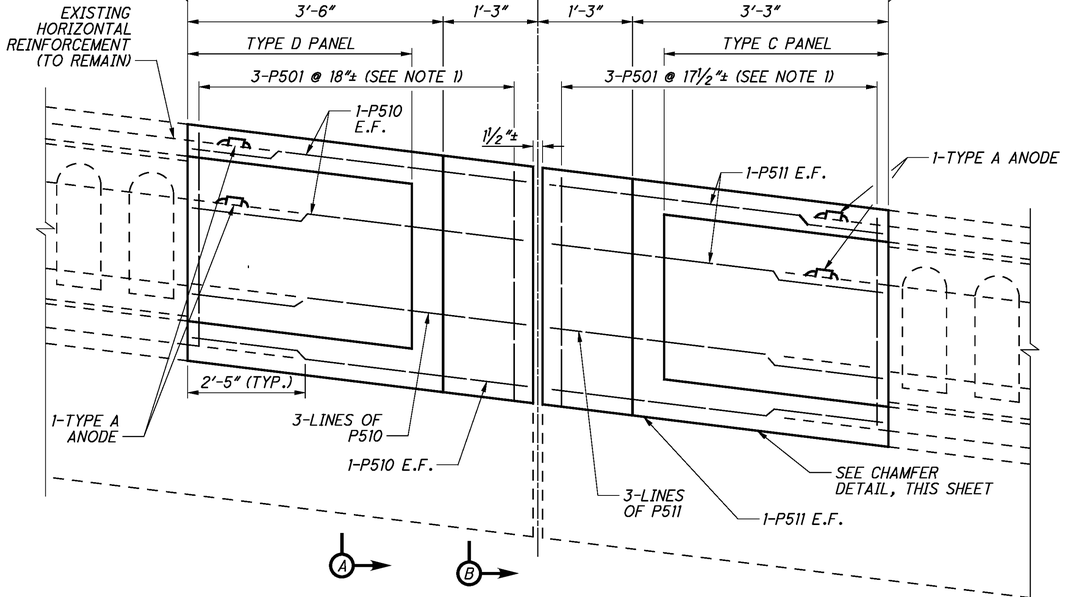


ARCHITECTURAL RECESS ELEVATION



CHAMFER DETAIL

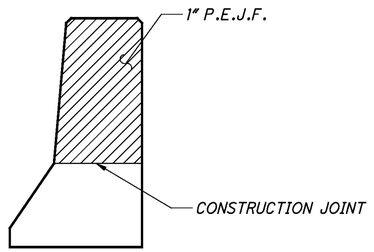
TYPE A ANODE QUANTITIES	
LOCATION	QUANTITY
ARCH SPAN D	16
PIER 10	16



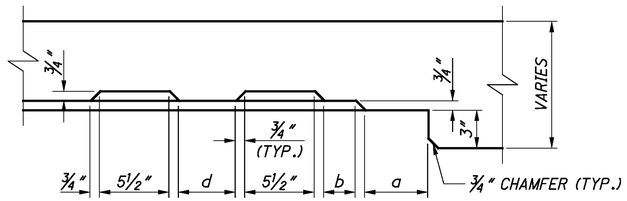
PIER 10 PARAPET REPLACEMENT ELEVATION

(SOUTH ELEVATION)

(ARCHITECTURAL RECESS DETAILS NOT SHOWN, SEE ARCHITECTURAL RECESS ELEVATION)



DEFLECTION JOINT DETAIL



SECTION C-C

NOTES:

1. MATCH EXISTING #5 BARS TO REMAIN.
2. FOR SECTIONS A-A AND B-B, SEE SHEET 41/51.

ARCHITECTURAL RECESS PANEL DETAILS						
PANEL TYPE	PANEL LOCATION	RECESS FIGURES PER PANEL	DIMENSIONS			
			a	b	c	d
A	ARCH SPAN A	11	5¾"	3½"	12"	5"
B	BEAM SPAN B	12	5"	2½"	11½"	4½"
	ARCH SPAN D	4				
C	ARCH SPAN B	12	5"	2¾"	12"	5"
	PIER 10	3				
D	PIER 10	3	5¾"	3⅝"	12¼"	5¼"

DESIGN AGENCY: TranSystems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

DESIGNED WJV | DRAWN MGO | CHECKED JDH | REVIEWED HVH | DATE 10/16/09 | REVISED | STRUCTURE FILE NUMBER 07001599

SOUTH PARAPET PARTIAL REPLACEMENT

BRIDGE NO. BEL-40-2338

U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38

PID No. 22815

42 / 51

64 / 73

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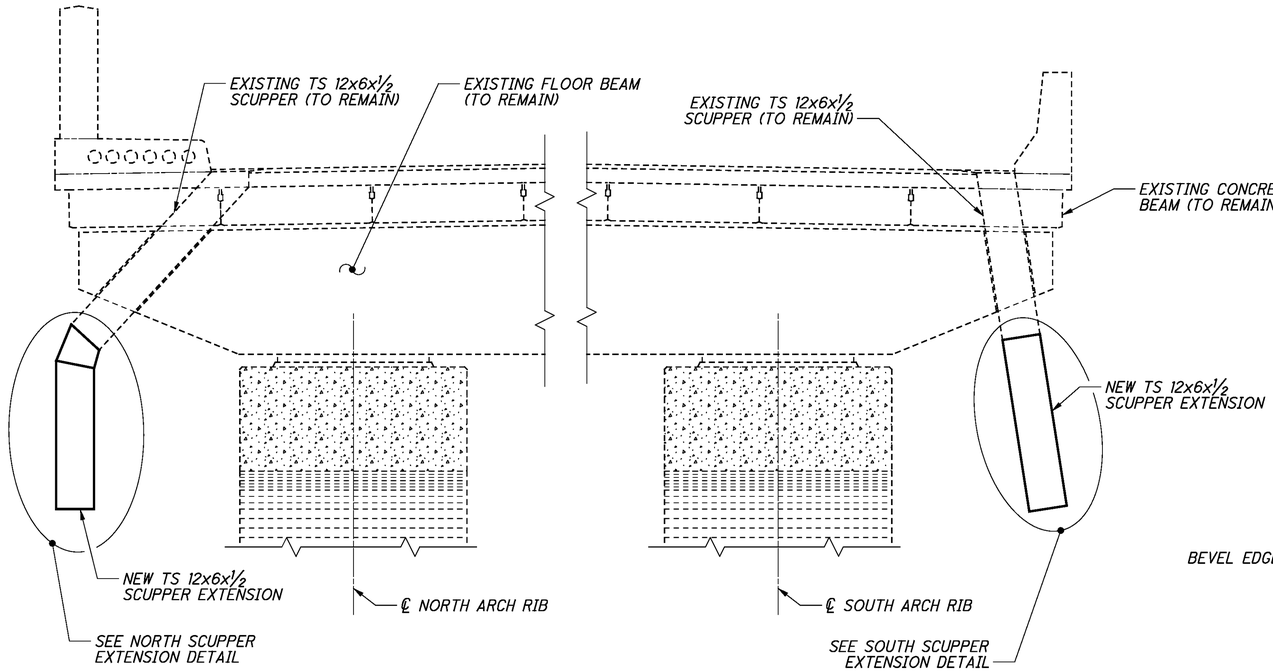
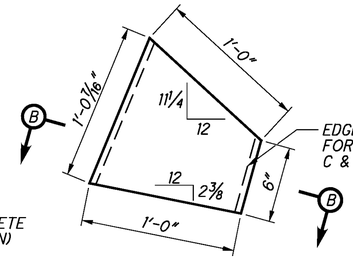
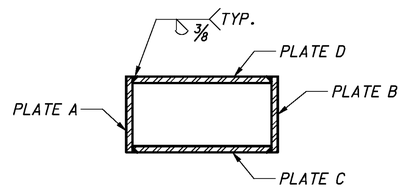


TRANSVERSE SECTION

ARCH SPAN A, FLOOR BEAM 5
ARCH SPAN B, FLOOR BEAM 6
ARCH SPAN C, FLOOR BEAM 5
ARCH SPAN D, FLOOR BEAM 5



DETAIL A



SECTION B-B

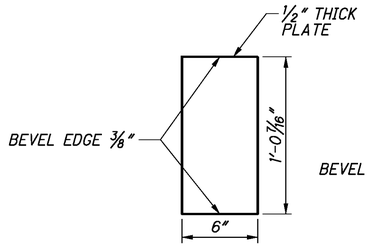


PLATE A

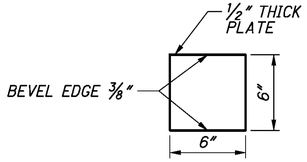


PLATE B

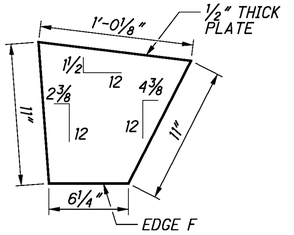
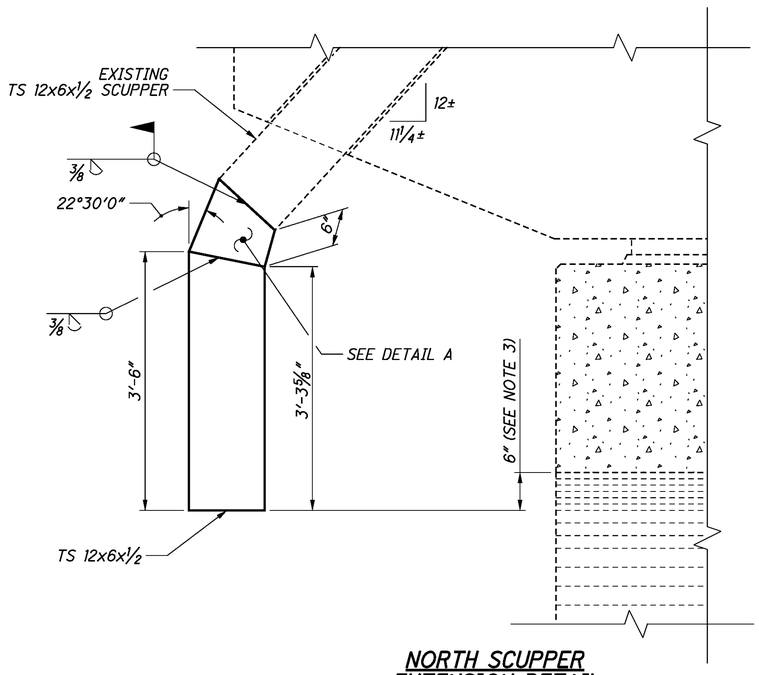
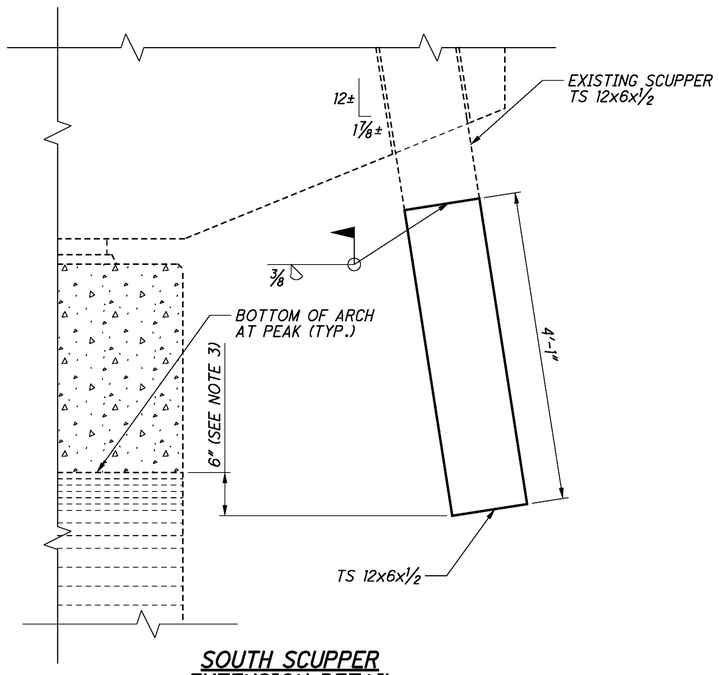


PLATE C

(BEVEL ALL EXTERIOR EDGES ⅜")
(PLATE D OPPOSITE HAND)



NORTH SCUPPER EXTENSION DETAIL



SOUTH SCUPPER EXTENSION DETAIL

NOTES:

1. STRUCTURAL STEEL FOR TS 12x6x½ SHALL BE ASTM A 501 GRADE B.
2. INSTALLATION AND PLACEMENT SHALL BE PER ITEM 518 - SCUPPER, VERTICAL EXTENSION, AS PER PLAN. SEE SHEET 4/51 FOR NOTES.
3. CONTRACTOR TO FIELD VERIFY THE PLATE DIMENSIONS AND TS LENGTHS PRIOR TO ORDERING, IN ORDER TO HAVE 6" EXTENSION BEYOND THE BOTTOM OF ARCH.
4. FOR LOCATIONS OF SCUPPERS TO BE EXTENDED, SEE SHEET 37/51.

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	CJM	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
CJM		0701599	

SCUPPER EXTENSION DETAILS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

43 / 51

65
73

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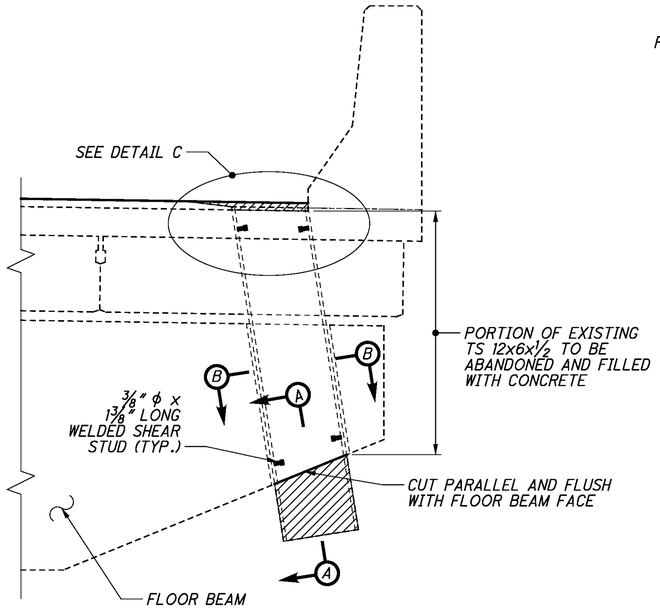
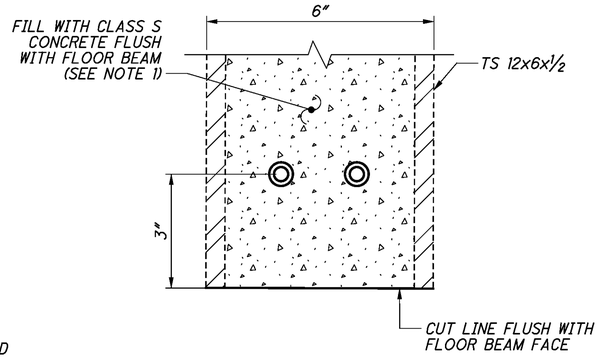
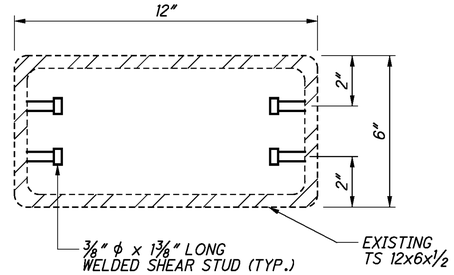


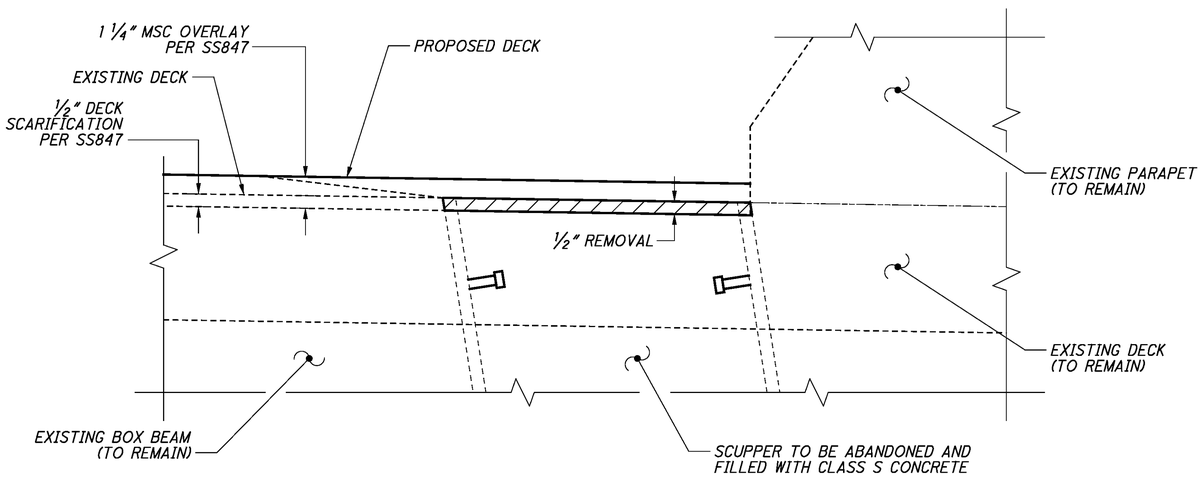
SCUPPER ABANDONMENT DETAIL



SECTION A-A



SECTION B-B



DETAIL C

LEGEND:

PORTION OF EXISTING SCUPPER TO BE REMOVED PER ITEM 518.

NOTES:

1. INSTALLATION, MODIFICATION AND PAYMENT OF SCUPPERS SHALL BE PER ITEM 518 - SCUPPER MODIFICATION, AS PER PLAN. SEE SHEET 4/51 FOR NOTES.
2. FOR LOCATIONS OF SCUPPERS TO BE ABANDONED, SEE SHEET 37/51 .
3. THERE ARE A TOTAL OF 8 SHEAR STUDS PER SCUPPER.

DESIGN AGENCY
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55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

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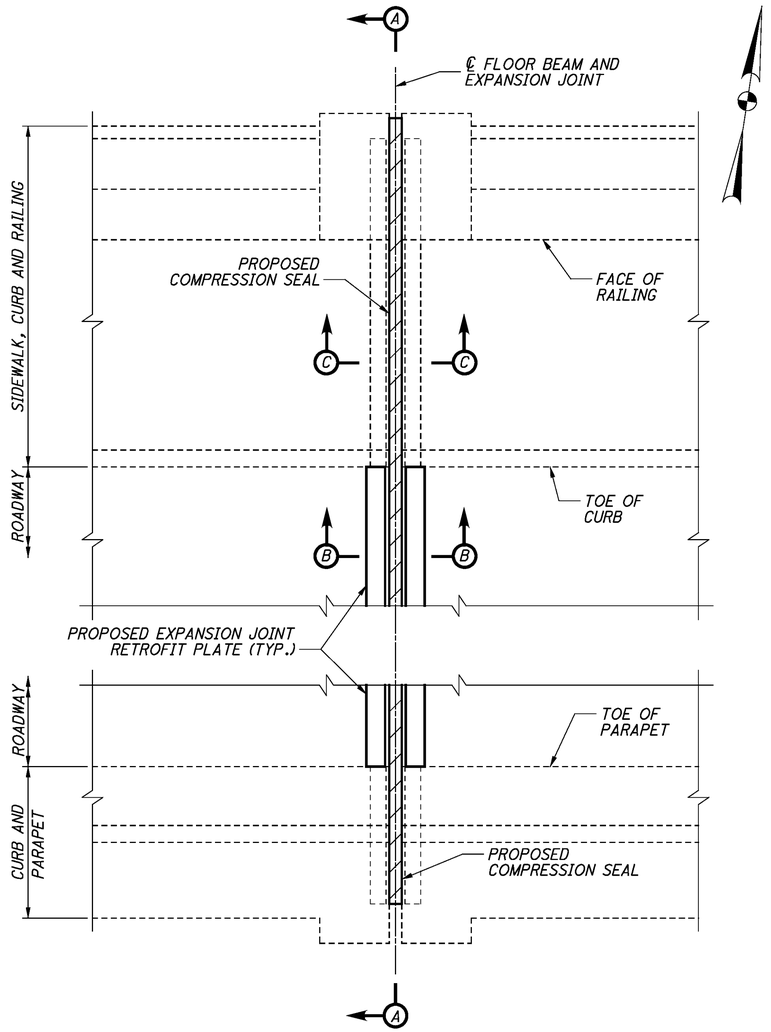
JDH		0701599	

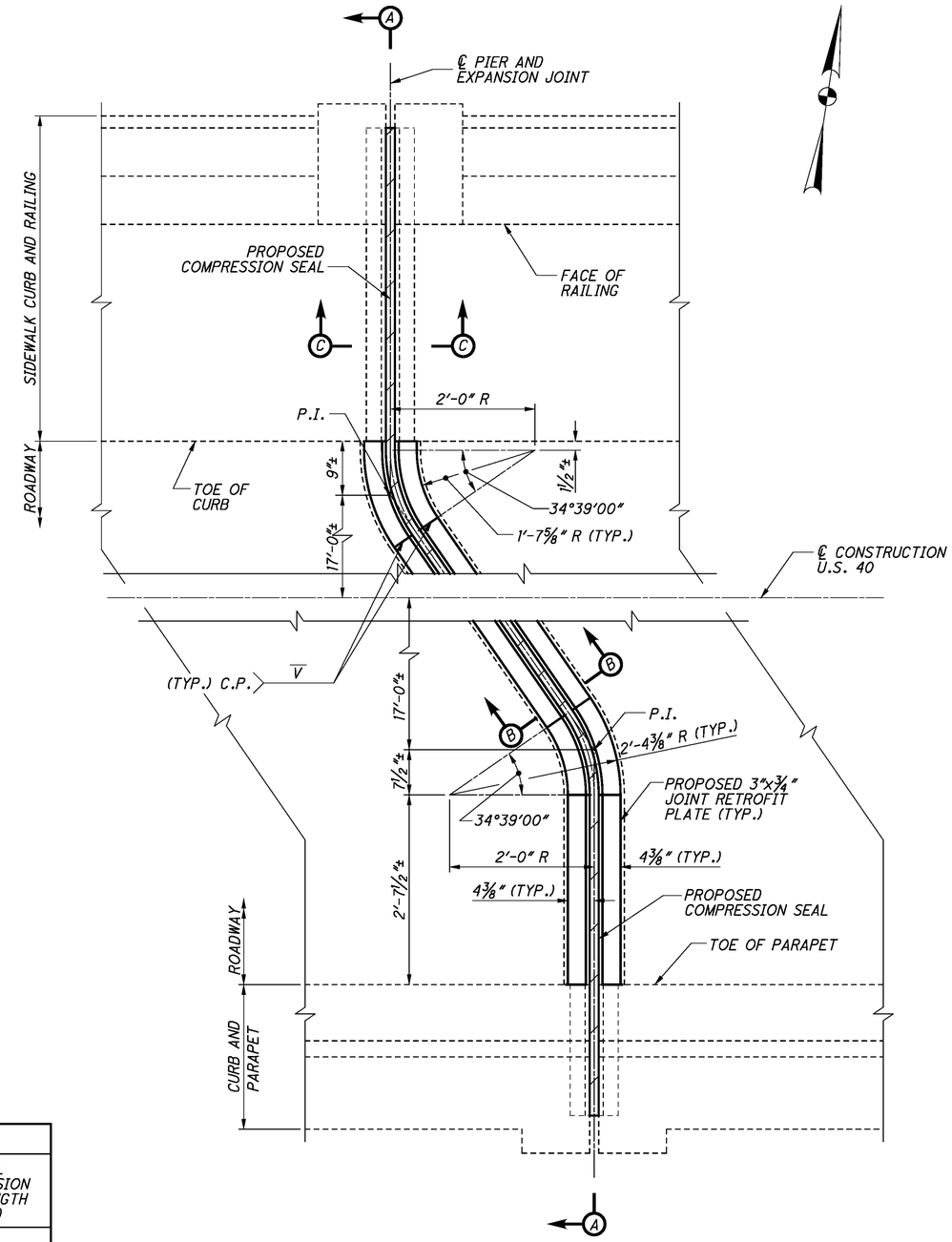
SCUPPER ABANDONMENT DETAILS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815



TYPICAL EXPANSION JOINT PLAN

(PIERS 1 THRU 6)



TYPICAL EXPANSION JOINT PLAN ALONG SKEW

(PIERS 8 THRU 10)

COMPRESSION SEAL TABLE

LOCATION	ADJUSTED OPENING TO 60°F*	ADJUSTED OPENING TO 95°F*	ADJUSTED OPENING TO 15°F*	DS BROWN COMPRESSION SEAL MODEL NUMBER	WATSON BOWMAN ACME COMPRESSION SEAL MODEL NUMBER	TOTAL COMPRESSION SEAL LENGTH (FEET)
PIER 1	1.50	1.50	1.50	CV-2502	WA-225	48
PIER 2	1.83	1.53	2.21	CV-3000	WA-300	48
PIER 3	1.87	1.52	2.33	CV-3000	WA-300	48
PIER 4	2.01	1.70	2.42	CV-3000	WA-300	48
PIER 5	1.65	1.37	2.01	CV-2502	WA-250	48
PIER 6	1.80	1.60	2.07	CV-3000	WA-250	48
PIER 7	NO EXPANSION JOINT					
PIER 8	1.93	1.75	2.17	CV-3000	WA-300	54
PIER 9	1.52	1.41	1.67	CV-2502	WA-225	54
PIER 10	1.83	1.72	1.98	CV-2502	WA-250	54

* BASED ON FIELD MEASUREMENTS. CONTRACTOR TO VERIFY EXPANSION JOINT OPENINGS AND CORRESPONDING COMPRESSION SEAL SIZING.

NOTES:

1. FOR SECTION A-A, B-B, AND C-C, SEE SHEET 46/51.
2. FOR NOTES, SEE SHEET 46/51.
3. THE CONTRACTOR SHALL VERIFY THE ALIGNMENT OF THE EXISTING EXPANSION JOINTS AND THE THICKNESS OF THE PROPOSED OVERLAY PRIOR TO FABRICATION OF RETROFIT PLATES.

DESIGN AGENCY
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55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

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CHECKED	REVISED	STRUCTURE FILE NUMBER	
JDH		0701599	

EXPANSION JOINT REPLACEMENT DETAILS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

45 / 51

67
73

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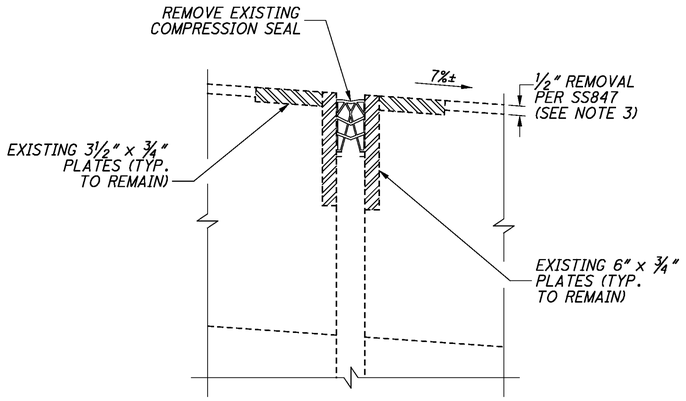
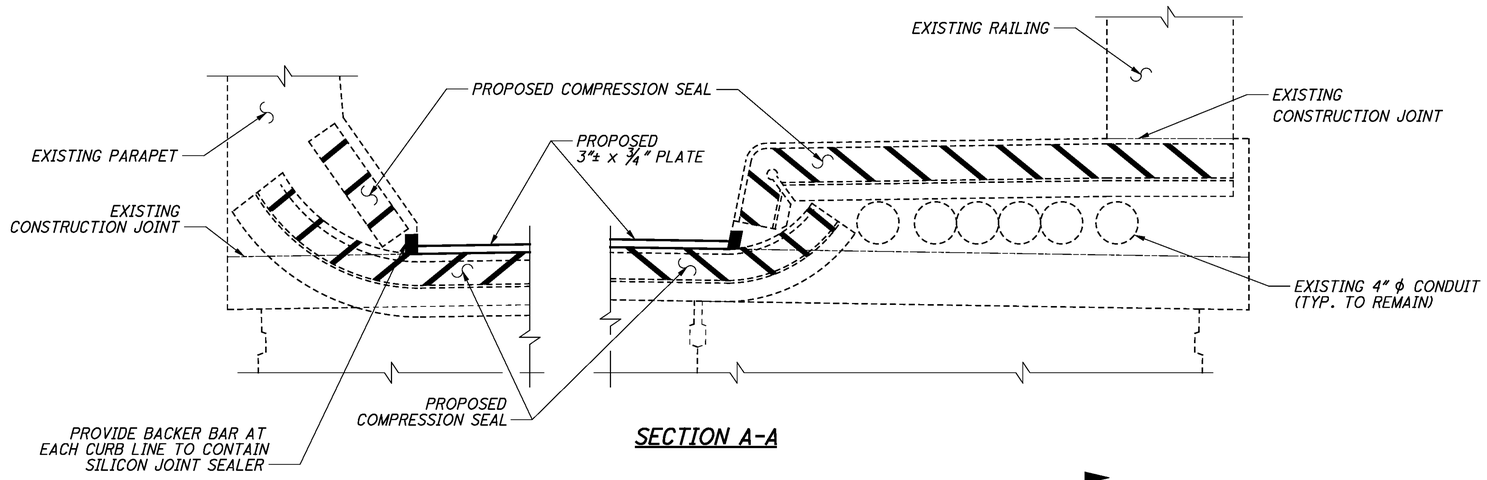
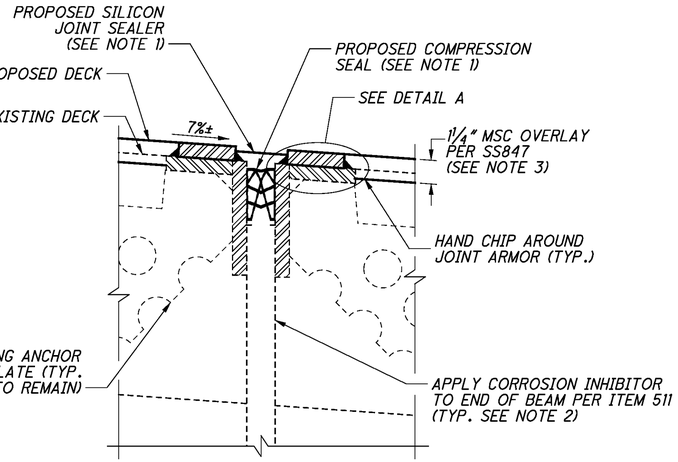


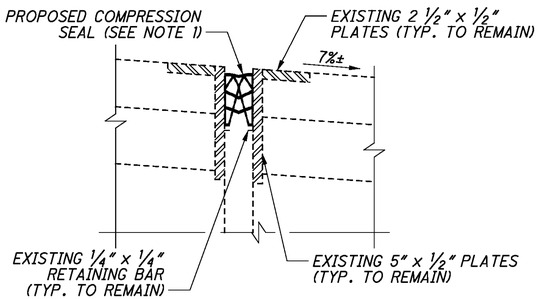
SECTION B-B - EXISTING CONDITION



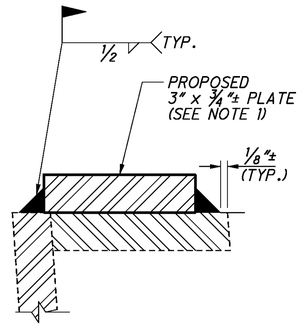
SECTION A-A



SECTION B-B - REHABILITATION



SECTION C-C



DETAIL A

NOTES:

1. INSTALL SILICON JOINT SEALER TO ¼"± BELOW TOP OF PLATE. FOR PAYMENT AND INSTALLATION OF COMPRESSION SEAL, INCLUDING PROPOSED STEEL PLATE AND JOINT SEALER, SEE GENERAL NOTES SHEET 4/51.
2. FOR PAYMENT AND INSTALLATION OF CORROSION INHIBITOR, SEE GENERAL NOTES SHEET 4/51.
3. FOR PAYMENT AND NOTES FOR DECK SCARIFICATION AND PROPOSED MICROSILICA OVERLAY, SEE GENERAL NOTES SHEET 4/51.
4. FOR LOCATION OF SECTIONS A-A, B-B AND C-C, SEE SHEET 45/51.

DESIGN AGENCY: Trans Systems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

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JDH		07001599	

EXPANSION JOINT REPLACEMENT DETAILS

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

46 / 51

68 / 73

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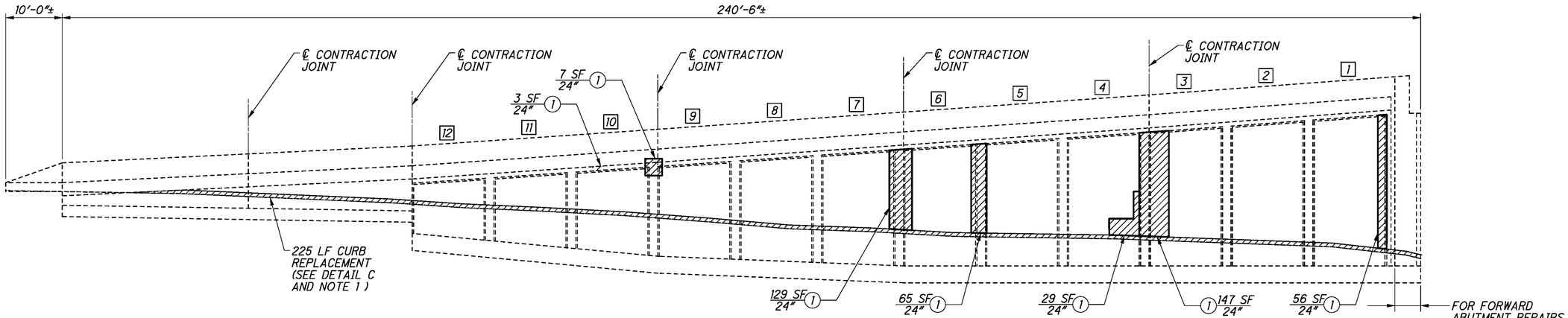
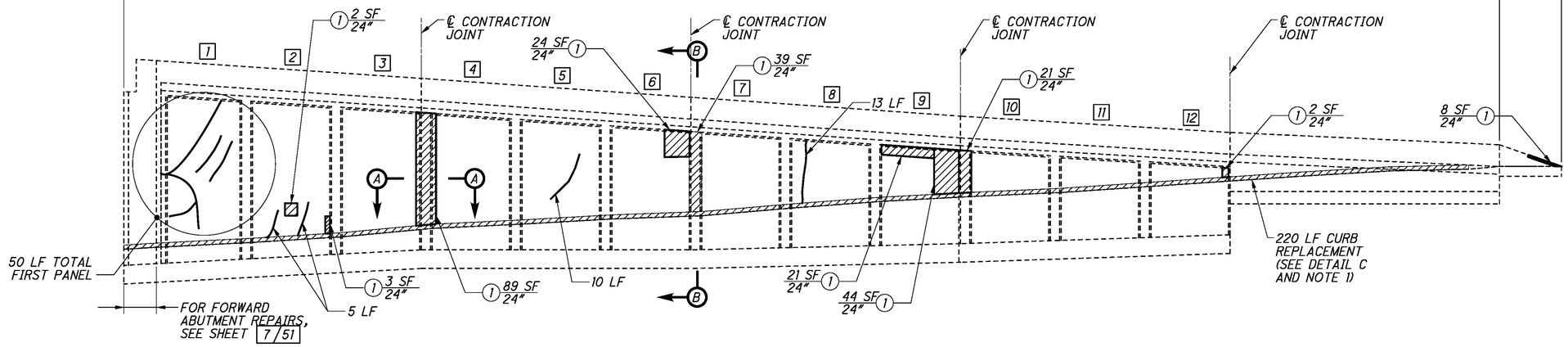


NORTH RETAINING WALL

(LOOKING SOUTH)



SOUTH RETAINING WALL

(LOOKING NORTH)

NORTH RETAINING WALL QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	436
TYPE A ANODES	EA	161

SOUTH RETAINING WALL QUANTITIES		
ITEM	UNIT	QUANTITY
TYPE 1 REPAIR	SF	253
ITEM 512 REPAIR	LF	83
TYPE A ANODES	EA	83

NOTES:

1. PAYMENT FOR UNREINFORCED CONCRETE CURB SHALL BE PER ITEM 511, CLASS C CONCRETE.
2. FOR SECTIONS A-A, B-B AND DETAIL C, SEE SHEET 48/51 .

LEGEND:

- [X] PANEL NUMBER
- REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC: TYPE 1 REPAIR.
- CRACK REPAIR IN ACCORDANCE WITH ITEM 512 - CONCRETE REPAIR BY EPOXY INJECTION.
- (X) Y SF Z" — REPAIR TYPE 1 OR 2 (SEE SHEET 30/51); ESTIMATED REPAIR AREA; MAXIMUM GRID SPACING FOR TYPE A CATHODIC PROTECTION ANODES (SEE SHEET 49/51).

DESIGN AGENCY: TranSystems, 55 PUBLIC SQUARE, SUITE 1900, CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
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RETAINING WALL REPAIRS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38 PID No. 22815

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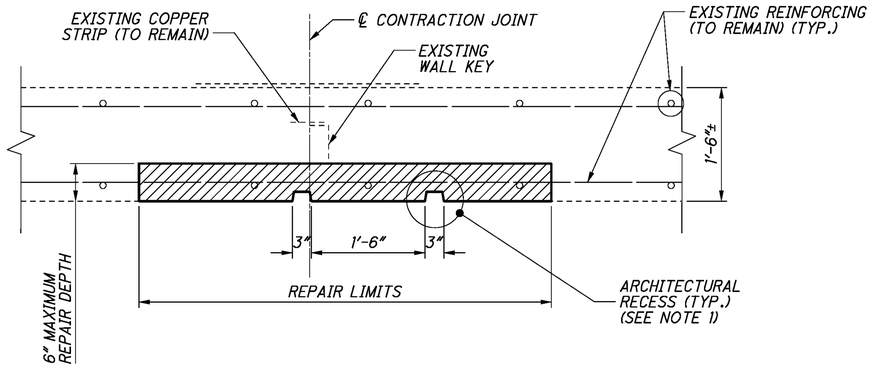
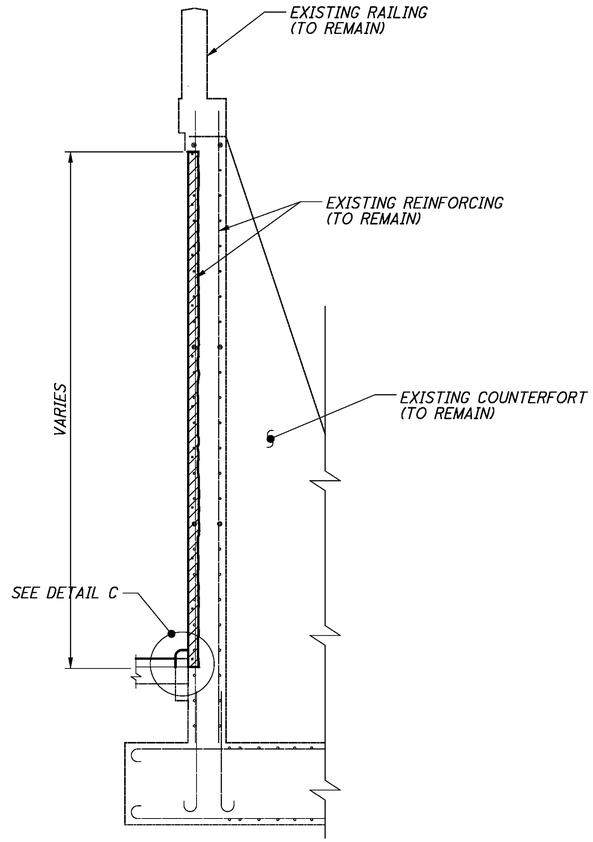
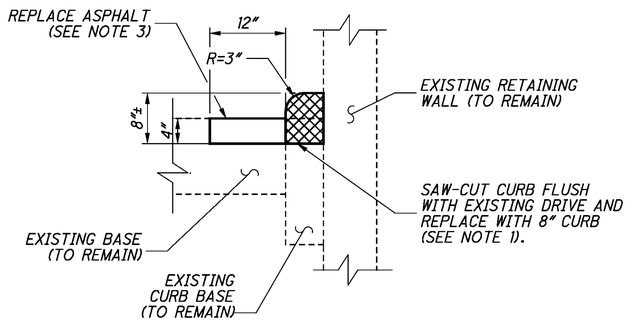


SECTION A-A



SECTION B-B



DETAIL C

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR.

REMOVE CONCRETE CURB PER ROADWAY PLANS. REPLACE CONCRETE CURB TO THE LIMITS SHOWN WITH ITEM 511 - CONCRETE, CLASS C

NOTES:

1. CONTRACTOR SHALL MAINTAIN SIZE AND LOCATION OF ARCHITECTURAL RECESS IN RETAINING WALLS.
2. FOR LOCATIONS OF SECTIONS A-A AND B-B, AND DETAIL C, SEE SHEET 47/51 .
3. REMOVE ASPHALT TO THE LIMITS SHOWN AND REPLACE WITH NEW ASPHALT. SEE ROADWAY PLANS FOR PAYMENT.

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	CJM	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JDH		0701599	

RETAINING WALL REPAIR DETAILS
BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

48 / 51

70
73

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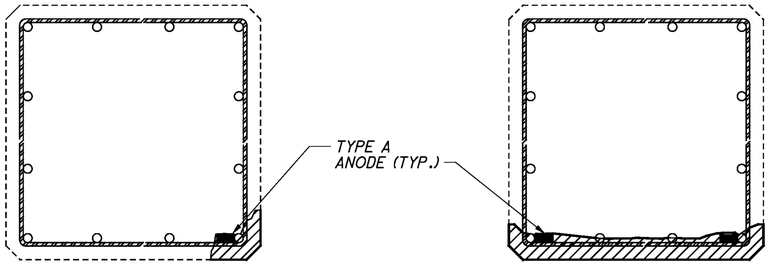
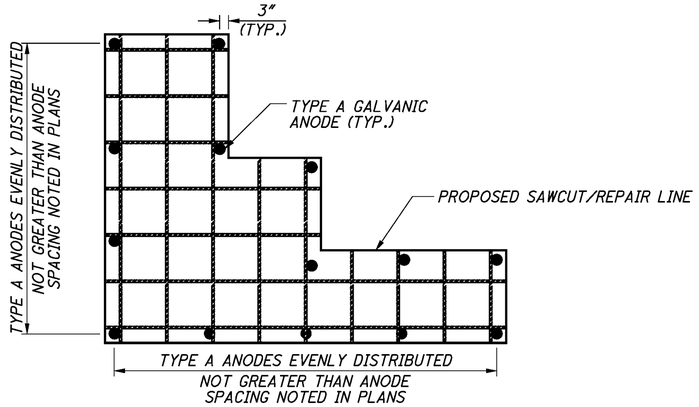


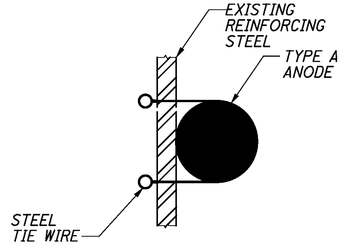
SECTION A-A

SECTION B-B



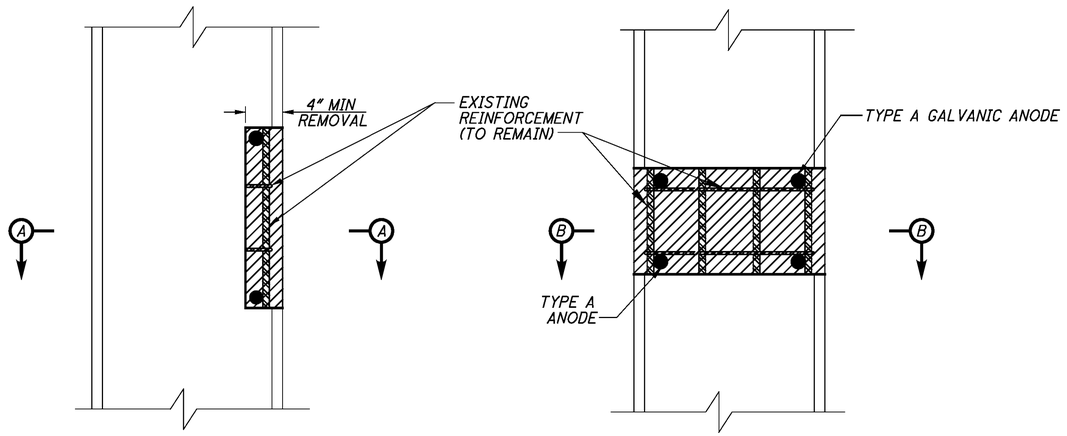
TYPICAL SURFACE REPAIR

(WWF NOT SHOWN)



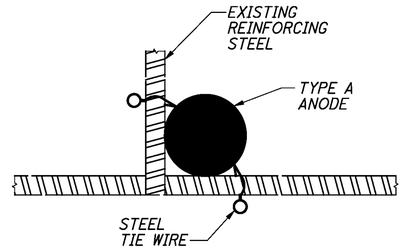
DETAIL 1 - ANODE BESIDE EXISTING REINFORCING BAR

(NOT TO SCALE)



TYPICAL CORNER REPAIR

TYPICAL SIDE/CORNER REPAIR

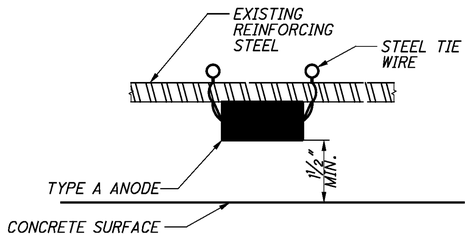


DETAIL 2 - ANODE AT REINFORCING BAR INTERSECTION

(NOT TO SCALE)

NOTES:

1. TYPE A ANODES SHALL BE LOCATED IN THE FOLLOWING TYPE 1 OR TYPE 2 BRIDGE ELEMENT PATCHES: PIERS, SPANDREL COLUMNS, ARCH RIBS, ARCH STRUTS, FLOOR BEAMS, REAR ABUTMENT VARIABLE THICKNESS AND FULL DEPTH DECK REPAIRS (IF NECESSARY), SLAB SPAN SOFFIT RETAINING WALLS, AND PARAPETS.
2. FOR INSTALLATION AND PAYMENT OF TYPE A GALVANIC ANODES, SEE ITEM 511, CONCRETE MISC.: EMBEDDED GALVANIC ANODES, TYPE A NOTES ON SHEETS 3/51 AND 4/51.
3. TYPE A ANODES TO BE PLACED AROUND PERIMETER OF PATCH, NOT TO EXCEED SPACING SHOWN IN THE PLANS.
4. FOR PIER REPAIRS, SEE SHEETS 9/51 THRU 16/51.
5. FOR ARCH RIB AND SPANDREL COLUMN REPAIRS, SEE SHEETS 17/51 THRU 24/51.
6. FOR TYPICAL SUBSTRUCTURE REPAIR DETAILS, SEE SHEET 30/51.
7. FOR FLOOR BEAM REPAIR DETAILS, SEE SHEETS 27/51 AND 29/51.
8. FOR DECK REPAIR DETAILS, SEE SHEETS 37/51 AND 38/51.
9. FOR SLAB SPAN A REPAIR DETAILS, SEE SHEET 39/51.
10. FOR CONCRETE REMOVAL AND PATCHING NOTES AND PAYMENT, SEE ITEM SPECIAL, PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 OR TYPE 2 REPAIR.



DETAIL 3 - ANODE PLACED BELOW/ ABOVE REINFORCING BAR

(NOT TO SCALE)

LEGEND:

REMOVE AND PATCH CONCRETE IN ACCORDANCE WITH ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC.: TYPE 1 REPAIR

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED	DRAWN	REVIEWED	DATE
WJV	WJV	HVH	10/16/09
CHECKED	REVISED	STRUCTURE FILE NUMBER	
JDH		0701599	

CATHODIC PROTECTION DETAILS - TYPE A ANODE

BRIDGE NO. BEL-40-2338

U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38

PID No. 22815

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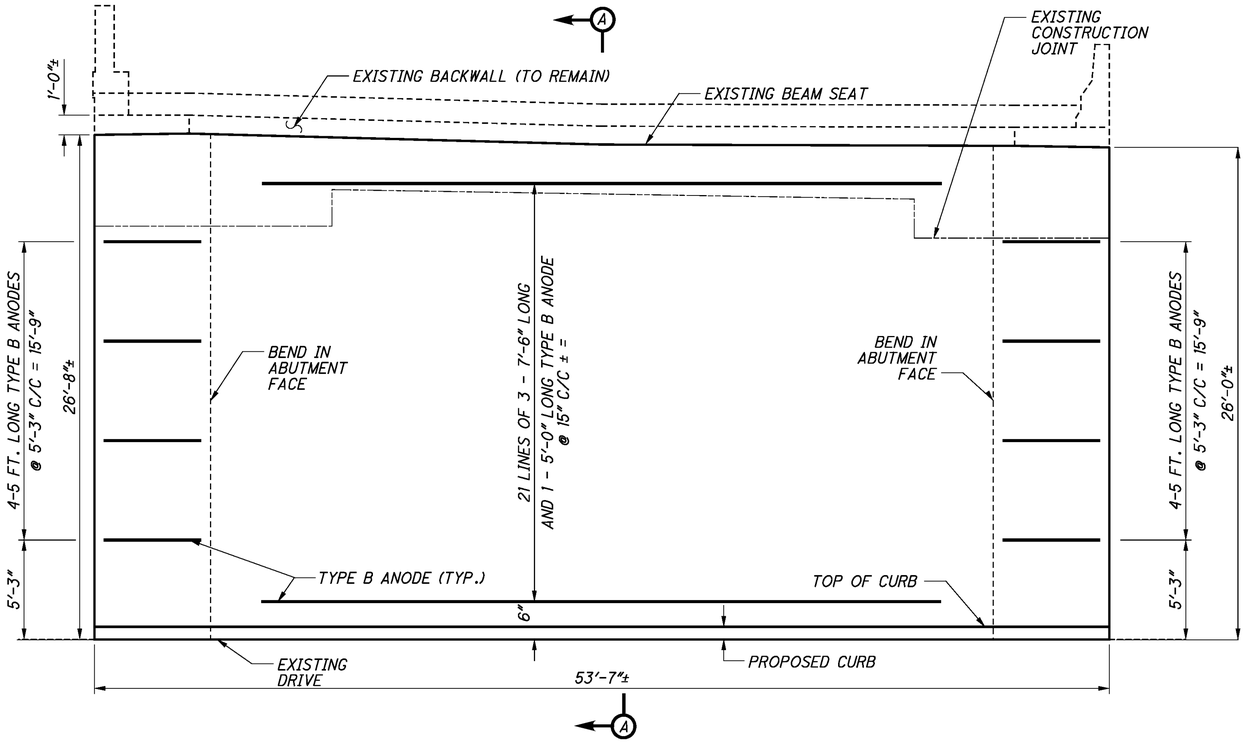
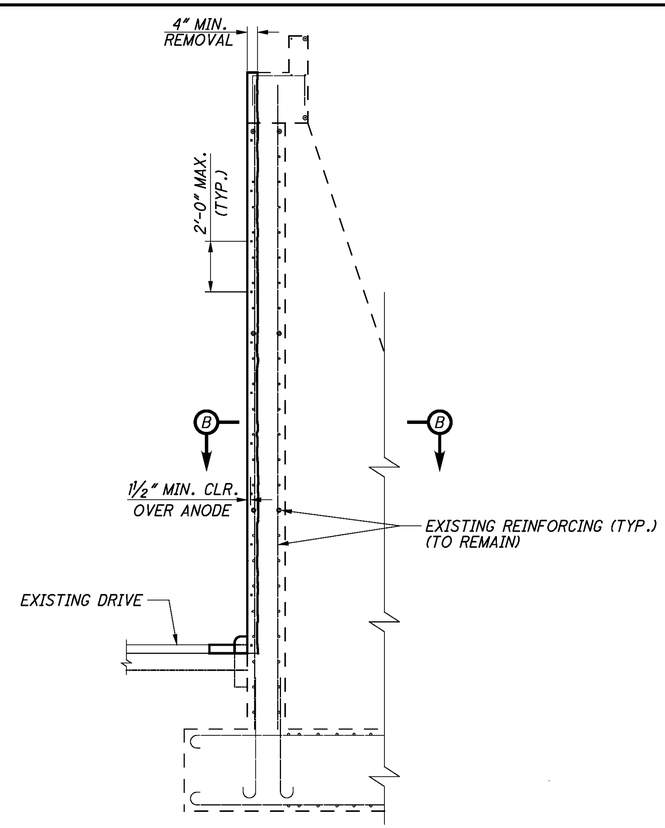
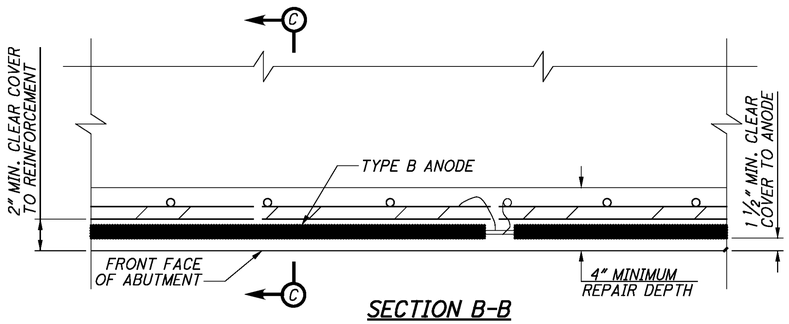


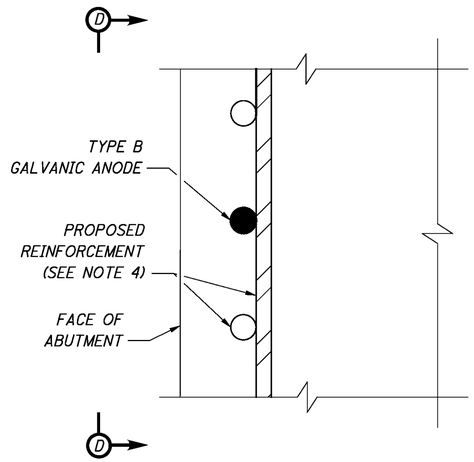
FORWARD ABUTMENT ELEVATION



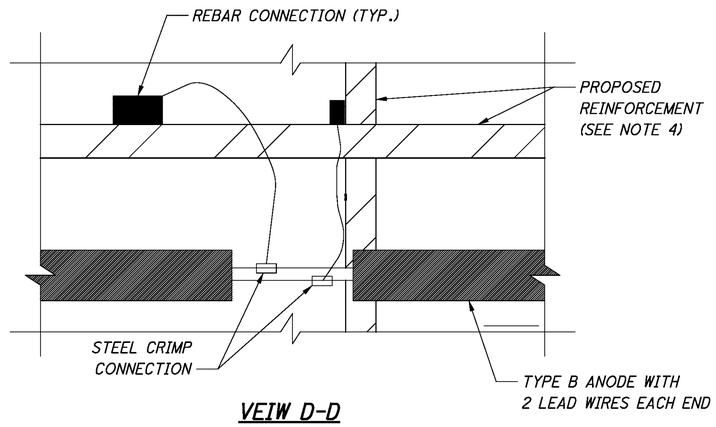
SECTION A-A



SECTION B-B



SECTION C-C



VEIW D-D

NOTES:

1. TYPE B ANODE SHALL BE PLACED IN SAME VERTICAL PLANE AS EXISTING HORIZONTAL REINFORCEMENT.
2. FOR GALVANIC ANODE NOTES AND PAYMENT, SEE ITEM 511, CONCRETE, MISC.: EMBEDDED GALVANIC ANODE TYPE B, ON SHEETS 3/51 AND 4/51.
3. FOR CONCRETE PATCHING NOTES AND PAYMENT, SEE ITEM SPECIAL - PATCHING CONCRETE STRUCTURE, MISC,: TYPE 1 REPAIR, ON SHEET 4/51.
4. FOR REINFORCING DETAILS, SEE FORWARD ABUTMENT REPAIRS, SHEET 8/51.

DESIGN AGENCY
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55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

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JDH		0701599	

CATHODIC PROTECTION DETAILS - TYPE B ANODE

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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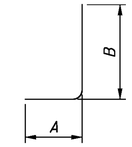
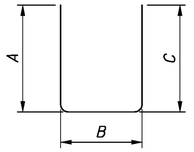
MARK	NUMBER	LENGTH	WEIGHT	TYPE	DIMENSIONS						
	TOTAL				A	B	C	D	E	R	INC.
SC401	26	0'-7"	10	101	0'-5"	0'-3"					
SC501	4	1'-0"	4	STR							
SC502	4	3'-11"	16	102	1'-10"	0'-6"	1'-10"				
STAIRCASE TOTAL WEIGHT =			30	LBS							
P501	65	6'-0"	407	103	0'-8"	2'-9"	2'-6"			1 1/2"	
P502	10	22'-3"	232	STR							
P503	8	13'-8"	114	STR							
P504	4	13'-11"	58	STR							
P505	5	31'-2"	163	STR							
P506	4	14'-2"	59	STR							
P507	4	16'-8"	70	STR							
P508	5	10'-0"	52	STR							
P509	8	4'-10"	40	STR							
P510	18	4'-7"	86	STR							
PARAPET TOTAL WEIGHT =			1281	LBS							
	1	23'-9"									
A501	SER. OF	TO	511	STR							15/16"
	20	25'-3"									
A601	18	27'-2"	734	104	22'-7"	3'-9"	2'-7"				
A701	16	27'-8"	905	104	23'-1"	3'-9"	2'-7"				
A801	16	28'-5"	1212	104	23'-10"	3'-9"	2'-7"				
A802	3	25'-3"	202	STR							
A803	3	23'-9"	190	STR							
ABUTMENT TOTAL WEIGHT =			3754	LBS							
TOTAL WEIGHT =			5065	LBS							

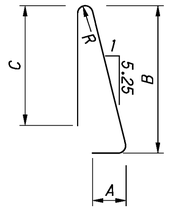
BAR BENDING DIAGRAMS



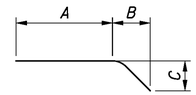
TYPE-101



TYPE-102



TYPE-103



TYPE-104

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 ARE USED, INDICATES THE BAR SIZE NUMBER. FOR EXAMPLE, P501 BAR:
   P: LOCATION OF THE BAR IN THE STRUCTURE (PARAPET)
   5: BAR SIZE DESIGNATION NO. 5
   01: SEQUENCE NUMBER

2. BAR DIMENSIONS SHOWN ARE OUT TO OUT UNLESS OTHERWISE NOTED. R INDICATES INSIDE RADIUS, UNLESS OTHERWISE NOTED. ALL REINFORCING STEEL IS TO BE EPOXY COATED. STRAIGHT BARS ARE INDICATED BY "STR".

DESIGN AGENCY
TranSystems
55 PUBLIC SQUARE, SUITE 1900
CLEVELAND, OHIO 44113

DESIGNED CJM | DRAWN CJM | REVIEWED HVH | DATE 10/16/09
CHECKED WJV | REVISED | STRUCTURE FILE NUMBER 0701599

REINFORCING STEEL LIST

BRIDGE NO. BEL-40-2338
U.S. 40 OVER WHEELING CREEK, C.R. 10 & ABANDONED R.R.

BEL-40-23.38
PID No. 22815

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