BRIDGE-PEDESTRIAN/BIKEWAY ADDITION
STP-E-150-3(50)--23-10

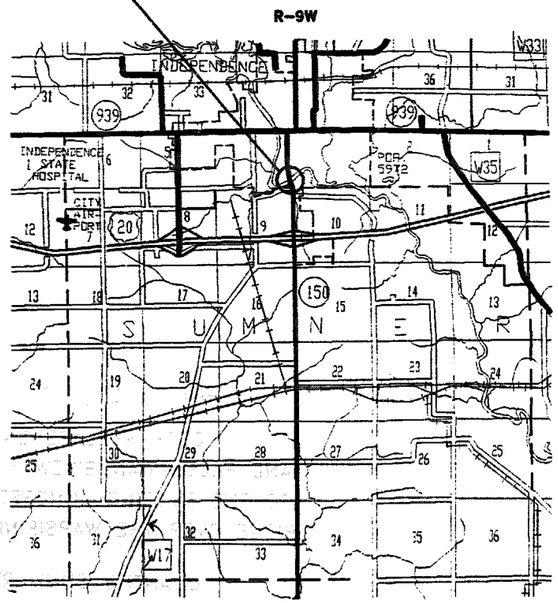
CITY OF INDEPENDENCE, IOWA

LETTING DATE : MAY 28, 1999

CONVENTIONAL SIGNS

- DIVIDED HIGHWAY
- PAVED ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTH ROAD
- INTERSTATE HIGHWAY
- UNITED STATES HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY
- RAIL ROAD
- PIPE LINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE LIMIT LINE
- TOWNSHIP LINE
- SECTION LINE

DESIGN NO. 5198
STATION 87+54.50
PROPOSED 32' ROADWAY WITH 8' PEDESTRIAN/BIKEWAY DECK REPLACEMENT ON EXISTING 341' x 29'-6 CONCRETE ARCH BRIDGE, 0° SKEW



PROJECT LOCATION
1 MI 0 1 MI 2 MI

IOWA
DEPARTMENT OF TRANSPORTATION
Project Development Division

PLANS OF PROPOSED FEDERAL-AID IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

CITY OF INDEPENDENCE, IOWA

DECK REPLACEMENT WITH PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER ON IOWA HIGHWAY 150

THE IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION, SERIES OF 1997, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT.

STANDARD ROAD PLANS

THE FOLLOWING STANDARD ROAD PLANS SHALL BE CONSIDERED APPLICABLE TO CONSTRUCTION WORK ON THIS PROJECT.

IDENT.	DATE	IDENT.	DATE	IDENT.	DATE
RE-2A	01-12-99	RF-19E	07-15-97	RM-37	04-27-99
RE-2B	10-22-93	RF-38(1)	04-27-99	RM-40	04-27-99
RE-7	10-28-97	RF-38(2)	04-27-99	RM-42	04-27-99
RE-12A	04-27-99				
RE-12B	04-27-99	RH-50	04-27-99	RS-2	10-27-98
RE-26B	09-23-86	RH-51	04-27-99	RS-20	08-20-96
RE-47	10-28-97	RH-52	08-20-96	RS-26B	10-28-97
RE-48A	12-08-95				
RE-65A	01-12-99	RL-1A	12-03-96		
RE-68	04-27-99	RL-1B	12-03-96		
RE-76	01-12-99	RL-14	01-12-99		

THIS PROJECT (COE #362410) IS COVERED BY THE CORPS OF ENGINEERS NATIONWIDE 404 PERMIT NO. 14 & 25.

MILEAGE SUMMARY		
LOCATION	LIN. FT.	MILES
STA. 84+20 TO STA. 90+50	630.00	0.1193

101-4

DESIGN DATA RURAL

1997	AADT	7,400	V.P.D.
2017	AADT	11,000	V.P.D.
2017	DHV	1,100	V.P.H.
TRUCKS		7	%

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA			1	38

PROJECT NUMBER
STP-E-150-3(50)--23-10
R.O.W. PROJECT NUMBER

FHWA NO. 015950

INDEX OF SHEETS

1. TITLE SHEET
2. QUANTITY SUMMARY
3. SITUATION PLAN
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6. RETAINING WALL DETAILS
7. SUPERSTRUCTURE DETAILS
8. SUPERSTRUCTURE DETAILS
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17. CONCRETE TRAFFIC BARRIER DETAILS
18. CONCRETE TRAFFIC BARRIER DETAILS
19. STEEL HANDRAIL DETAILS
20. STEEL HANDRAIL DETAILS
21. STEEL RAILING DETAILS
22. STEEL RAILING DETAILS
23. LIGHTING/BOLLARD DETAILS
24. LIGHTING/BOLLARD DETAILS
25. APPROACH PAVEMENT DETAILS
26. STAGE-I CONSTRUCTION DETAILS
27. STAGE-II CONSTRUCTION DETAILS
28. TRAFFIC CONTROL LAYOUT FOR ONE-WAY TRAFFIC
29. F-SHAPE TEMPORARY BARRIER RAIL-CONCRETE
30. F-SHAPE TAPER SECTION TEMPORARY BARRIER RAIL-CONCRETE
31. TEMPORARY BARRIER RAIL-STEEL
32. F-SHAPE TEMPORARY BARRIER RAIL-SPECIAL CONCRETE SECTION
33. TEMPORARY FLOODLIGHTING DETAILS
34. TABULATIONS
35. PLAN AND PROFILE
36. CROSS SECTIONS
37. CROSS SECTIONS
38. CROSS SECTIONS

As-Built Plans

ACCEPTED FOR LETTING
Thomas Polk 3-9-99
I.D.O.T. URBAN SYSTEM ENGR. DATE

APPROVED
Merle Hanson 2-11-99
MAYOR OF INDEPENDENCE DATE

REVISIONS

LICENSED PROFESSIONAL ENGINEER
ANTHONY C. PETERSON
13431
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.
Anthony C. Peterson DATE: 3/5/99
ANTHONY C. PETERSON, P.E.
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2000
PAGES OR SHEETS COVERED BY THIS SEAL:
1-38 OF 38

SHEET 1 OF 38

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178 DESIGNED BY : ACP DRAWN BY : TCH CHECKED BY : ACP
DESIGN NO. 5198 STATE CONTROL SECTION NO. BUCHANAN COUNTY PROJECT NO. STP-E-150-3(50)--23-10 FILE NO. 55711

TOTAL ESTIMATED QUANTITIES :
REHABILITATION TO EXISTING CONCRETE ARCH BRIDGE WITH 8' WALKWAY/BIKEWAY

REF. NO.	CODE NO.	ITEM	UNIT	TOTAL	As-Built
1	2101-0850002	CLEARING AND GRUBBING	UNIT	100	0
2	2102-0425070	SPECIAL BACKFILL	TON	720	870.23
3	2102-2710070	EXCAVATION, CLASS 10, ROADWAY AND BORROW	CU.YDS.	346	344
4	2104-2710020	EXCAVATION, CLASS 10, CHANNEL	CU.YDS.	230	355.6
5	2107-0875000	COMPACTION WITH MOISTURE AND DENSITY CONTROL	CU.YDS.	650	652.4
6	2301-0685010	BRIDGE APPROACH SECTION REINFORCED, AS PER PLAN	SQ.YDS.	161.2	157.2
7	2303-0235828	ASPHALT CEMENT, PG 58-28	TON	13.2	15.74
8	2303-0521754	ASPHALT CEMENT CONCRETE BASE, TYPE "B" CLASS 1, ¾ IN. MIX 45% CRUSHED PARTICLES	TON	148	164.18
9	2303-0525801	BASE, TYPE "B" CLASS 1 ASPHALT CEMENT CONCRETE, WEDGE, LEVELING OR STRENGTHENING	TON	72	103.3
10	2401-6750001	REMOVALS, AS PER PLAN	L.S.	1	1
11	2402-2720000	EXCAVATION, CLASS 20	CU.YDS.	129	129.5
12	2403-0100010	STRUCTURAL CONCRETE (BRIDGE)	CU.YDS.	697.3	697.3
13	2404-7775005	REINFORCING STEEL, EPOXY COATED	LBS.	137,069	137062.84
14	2408-7800000	STRUCTURAL STEEL	LBS.	572	572
15	2414-4150000	STEEL SIDEWALK HANDRAIL	LIN.FT.	377.5	377.5
16	~~2599-9999999~~	CONCRETE BARRIER RAILING, SPECIAL	LIN.FT.	778.9	778.8
17	2414-6675020	STRUCTURAL STEEL RAILING	LIN.FT.	382.7	382.7
18	2417-0225012	APRONS, METAL, 12 IN. DIA.	EACH	3	3
19	2499-0695038	BRIDGE END DRAIN, RF-38	EACH	3	3
20	2501-8400171	TEMPORARY SHEET PILE, RETAINING WALL	L.S.	1	1
21	2503-7100012	SEWER PIPE, CORRUGATED METAL STORM, 12 INCH DIA.	LIN.FT.	98	98
22	2505-4020227	GUARDRAIL, END ANCHORAGE, BEAM BRIDGE, RE-26B	EACH	4	4
23	2505-4020251	GUARDRAIL, FORMED STEEL THRIE BEAM	LIN.FT.	125	125
24	2505-4020400	GUARDRAIL, POSTS, BEAM	EACH	24	24
25	2505-4021760	GUARDRAIL, TERMINAL, BEAM, RE-76	EACH	4	4
26	2505-5111030	REMOVE AND REINSTALL OBJECT MARKERS	EACH	12	12
27	2505-6745740	REMOVAL OF GUARDRAIL END ANCHORAGE	EACH	4	4
28	2505-6745749	REMOVAL OF GUARDRAIL	LIN.FT.	500	508
29	2505-6745855	REMOVAL OF POSTS	EACH	81	80
30	2507-3250005	ENGINEERING FABRIC	SQ.YDS.	352	429.3
31	2507-6800060	REVETMENT, CLASS E, RIP-RAP	TON	340	374.84
32	2510-6745850	REMOVAL OF PAVEMENT	SQ.YDS.	1401.6	1401.38
33	2511-7526006	SIDEWALK, P.C. CONCRETE, 6 IN.	SQ.YDS.	44.5	44.4
34	2518-6910000	SAFETY CLOSURE	EACH	2	2
35	2523-0960100	CONDUIT, RIGID STEEL, 1 IN. DIA.	LIN.FT.	50	24.8
36	2523-0960200	CONDUIT, RIGID STEEL, 2 IN. DIA.	LIN.FT.	880	884
37	2523-8928000	LIGHTING, AS PER PLAN	L.S.	1	1
38	2527-9263110	PAINTED PAVEMENT MARKING	STA.	20.48	26.35
39	2528-8400047	TEMPORARY BARRIER RAIL	LIN.FT.	1,270	1272.5
40	2528-8400157	TEMPORARY FLOODLIGHTING LUMINAIRE	EACH	2	2
41	2528-8445110	TRAFFIC CONTROL	L.S.	1	1
42	2528-8445112	FLAGGERS	DAYS	10	6
43	2533-4980005	MOBILIZATION	L.S.	1	1
44	2601-2634100	MULCHING	ACRE	0.85	0.85
45	2601-2636044	SEEDING AND FERTILIZING (URBAN)	ACRE	0.85	0.85
46		Temporary Traffic Signal	Each	1	1
8001		Loop Detectors	L.S.	1	1
8002		Type A Signs, Gal Steel	Each	10	12
8003		Blackout Tape	Lin Ft.	490	490
8004		Temporary Paint	Sta.	20.65	20.65
8005		Removeable Tape Marking	Sta.	3.07	5.67
8006		Pavement Marking Removal	Sta.	3.55	4.85
8007		Structural Concrete Price Adjustment	L.S.		1
8008		Non-Complying Concrete Slump and Air Tests	L.S.		1
8998		Liquidated Damages	Days		3

REF. NO. ESTIMATE REFERENCE INFORMATION

1. SEE SHEET 3 FOR LOCATIONS. TREE BRANCHES AT S.W. CORNER TO BE TRIMMED TO R.O.W. LIMIT ONLY.
2. SEE SHEETS 7-9 FOR LIMITS.
3. INCLUDES MATERIAL REMOVED FOR PLACEMENT OF SPECIAL BACKFILL ON BRIDGE. EMBANKMENT AND GUARDRAIL CONSTRUCTION AT BOTH ENDS OF THE BRIDGE REQUIRES 500 CU. YDS. OF FILL. 346 CU. YDS. OF THIS WILL BE OBTAINED FROM EXCAVATIONS ON THE BRIDGE AND APPROACHES AND WILL BE PAID FOR AS "EXCAVATION, CLASS 10, ROADWAY AND BORROW". THE REMAINDER OF FILL REQUIRED WILL BE OBTAINED FROM CHANNEL EXCAVATION AND PAID FOR AS "EXCAVATION, CLASS 10, CHANNEL". SEE GENERAL NOTES.
4. INCLUDES SHAPING FOR PLACEMENT OF RIPRAP NEAR THE ABUTMENTS. APPROXIMATELY 154 CU. YDS. OF SUITIBLE EXCAVATION IS TO BE USED FOR CONSTRUCTION OF EMBANKMENTS AND GUARDRAIL BLISTERS AT BOTH ENDS OF THE BRIDGE. THE REMAINDER SHALL BE PLACED ON SITE AS DIRECTED BY THE ENGINEER.
5. INCLUDES VOLUME WITHIN THE EXISTING SPANDREL WALLS FROM END TO END OF PROPOSED BRIDGE DECK FROM BOTTOM OF DECK TO 6" BELOW THE LIMITS OF SPECIAL BACKFILL.
6. SEE SHEET 25. EXCAVATION MATERIAL SHALL BE PLACED ON SITE AS DIRECTED BY THE ENGINEER.
8. SEE SHEETS 26, 27, AND 35 FOR A.C.C. PAVEMENT WIDENING DETAILS.
9. INCLUDES MILLING OF EXISTING A.C.C. PAVEMENT FOR TERMINAL NOTCH AT BOTH TIE-IN POINTS. SEE SHEET 35.
10. INCLUDES REMOVAL OF EXISTING CONCRETE RAIL AND PORTION OF SPANDREL WALLS AS DETAILED ON SHEETS 7, 8, 26 & 27. DOES NOT INCLUDE REMOVAL OF PAVEMENT ON EXISTING BRIDGE.
11. INCLUDES EXCAVATION FOR ABUTMENT AND PIER TENSION TIES, AND RETAINING WALLS. EXCAVATION MATERIAL SHALL BE PLACED ON SITE AS DIRECTED BY THE ENGINEER.
12. INCLUDES COST OF COLOR ADDITIVE AND TEST PANELS AS DESCRIBED IN THE GENERAL NOTES. SHALL ALSO INCLUDE COST OF WATERSTOP FOR THE TRANSVERSE EXPANSION JOINTS, FOAM JOINT MATERIAL FOR THE 3" OPEN JOINT ON THE EXISTING SPANDREL WALLS, CLASS 3 SURFACE FINISH OF EDGES OF DECK AND PORTIONS OF RETAINING WALLS, TRANSVERSE JOINT MATERIALS, AND GRANULAR BACKFILL BEHIND RETAINING WALLS. ALSO INCLUDES COST OF FURNISHING AND INSTALLING 86 - 1¼ø x 18" GALVANIZED DOWELS WITH EXPANSION TUBE AT THE DECK EXPANSION JOINTS, AND INSTALLING INSERTS FOR GAS MAIN HANGERS ON UNDERSIDE OF DECK (INSERTS TO BE FURNISHED BY MID-AMERICAN ENERGY).
13. INCLUDES COST OF 63 MECHANICAL SPLICES FOR TENSION TIE REINFORCING BARS, AND GALVANIZED PAINT APPLIED TO EXISTING SPANDREL WALL REINFORCING BARS AFTER BEING CUT OFF.
14. INCLUDES WEIGHT OF DECK DRAINS. ALSO INCLUDES COST OF FIELD VERIFICATION OF DRAIN LENGTHS REQUIRED OR REGALVANIZING AND REPAINTING OF DRAIN ENDS AFTER BEING CUT TO LENGTH.
15. SEE SHEETS 19 & 20.
16. THE PROPOSED RAIL IS A DECORATIVE CONCRETE RAIL. INCLUDES CONCRETE COLOR ADDITIVES, A "CLASS 3" SPECIAL SURFACE FINISH, AND SEALER. SEE THE "GENERAL NOTES", SHEET 4 AND SHEETS 17 & 18 FOR ADDITIONAL INFORMATION.
17. SEE SHEETS 21 & 22.
18, 19 & 21. SEE SHEETS 3 & 16.
20. SEE SHEET 5. REQUIRED AT N.E. & S.E. CORNERS OF BRIDGE.
22. INCLUDES MATERIALS FOR RE-26B EXCEPT REINFORCING AND CONCRETE. SEE SHEETS 17, 18 & 34.
23, 24 & 25. SEE SHEET 34.
26. INCLUDES REMOVING AND REINSTALLING FOUR(4) TYPE 3 AND EIGHT(8) TYPE 2 OBJECT MARKERS. THE REMAINING TWELVE(12) TYPE 2 OBJECT MARKERS SHALL BE REMOVED AND BECOME THE PROPERTY OF THE CONTRACTOR.
30. & 31. REQUIRED AROUND ABUTMENTS, SEE "SITUATION PLAN" ON SHEET 3.
32. INCLUDES REMOVAL OF APPROXIMATELY 8" P.C.C. CONCRETE WITH 6" A.C.C. OVERLAY ACROSS EXISTING BRIDGE, AND REMOVAL OF 8" THICK A.C.C. PAVEMENT AT S.E. AND N.E. CORNERS OF BRIDGE AS REQUIRED DURING STAGE-II. SEE SHEETS 27 & 34.
33. SEE SHEETS 5, 6, AND 25 FOR DETAILS.
35. & 37. SEE SHEETS 23 & 24.
36. INCLUDES 440 FT. OF CONDUIT LOCATED BENEATH THE CONCRETE DECK ON THE WEST SIDE OF THE BRIDGE. INCLUDES REQUIRED EXPANSION FITTINGS. SEE SHEETS 7, 8, 23, 24, AND 26.
39. SEE SHEETS 4, AND 26.-32. INCLUDES INSTALLATION AND REMOVAL.
40. SEE SHEETS 28 AND 33.
41. SEE NOTES ON SHEET 4, AND SHEETS 26-33 FOR DETAILS AND ADDITIONAL INFORMATION. I.D.O.T. MAINTENANCE OFFICE SHALL BE RESPONSIBLE FOR FURNISHING, ERECTING AND MAINTAINING DETOUR SIGNING FOR COMPLETE "CLOSURE" PERIODS. INCLUDES APPLICATION AND REMOVAL OF ALL REQUIRED TEMPORARY PAVEMENT MARKINGS.

As-Built Plans

DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

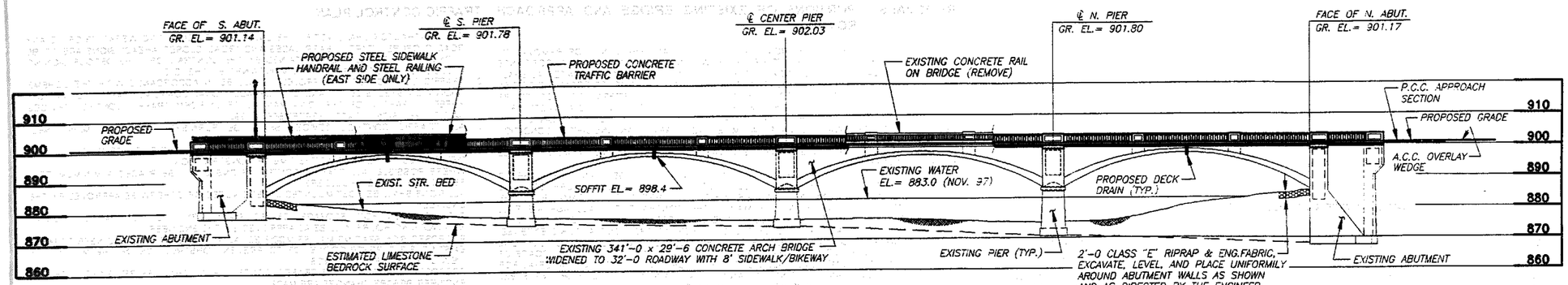
QUANTITY SUMMARY

STATION 87+54.50 — 0° SKEW
CITY OF INDEPENDENCE, — IOWA

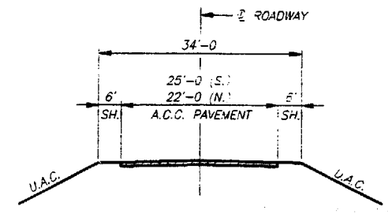
CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344

JOB NO. 97178 | DESIGNED BY : ACP | DRAWN BY : RA | CHECKED BY : RW | DESIGN NO. 5198 | BUCHANAN COUNTY | FILE NO. 55711

BENCH MARK : BRASS DISK AT S.E. CORNER OF BRIDGE. ELEV.= 900.645



LONGITUDINAL SECTION ALONG ℄ ROADWAY



TYPICAL APPROACH SECTION

TIE–IN
STA. 84+20.00
ELEV.= 900.29

V.P.I. STA. 87+54.50
ELEV.= 902.57
L.V.C.= 260'
M.O.= 0.5395'

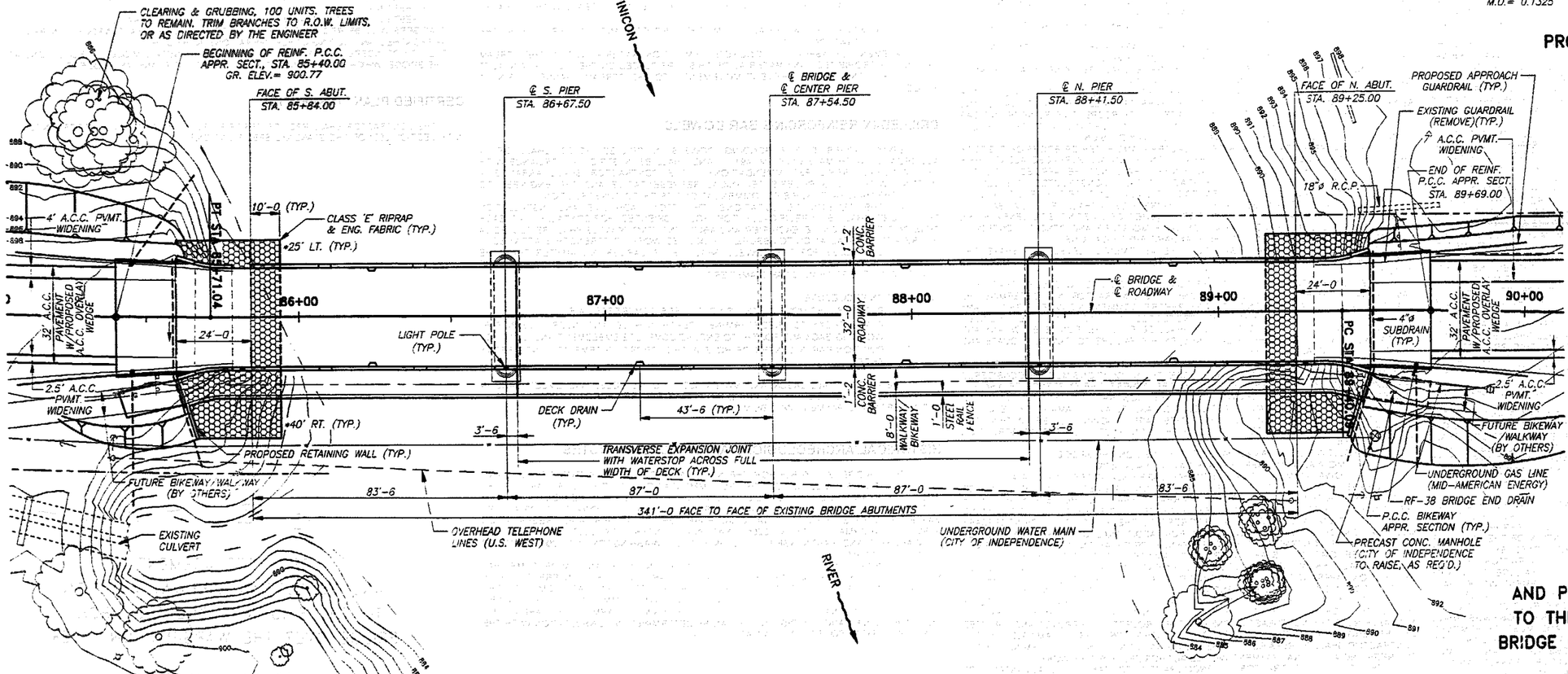
TIE–IN
STA. 90+50.00
ELEV.= 900.36

−0.22% +0.84% −0.82% −0.20%

V.P.I. STA. 84+70.00
ELEV.= 900.18
L.V.C.= 100'
M.O.= 0.1325'

V.P.I. STA. 90+15.00
ELEV.= 900.43
L.V.C.= 70'
M.O.= 0.0543'

PROPOSED GRADE



SITUATION PLAN

20 0 20 40

* DENOTES LIMITS OF CLASS 'E' REVETMENT AND ENGINEERING FABRIC.

LOCATION

BUCHANAN COUNTY
CITY OF INDEPENDENCE
T–88N, R–9W
SECTION 4
SUMNER TOWNSHIP
IOWA HIGHWAY 150
OVER WAPSIPINICON RIVER

HYDRAULIC DATA

DRAINAGE AREA = 1,054 SQ. MI.
MANNING SLOPE = 0.00038 FT./FT.
Q25 = 21,700 C.F.S.
Q50 = 25,400 C.F.S. STAGE EL. = 901.3
EXISTING WATER EL. = 883.0 (NOV. 97)
EXTREME H.W. EL. = 903.0 (1968)

DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

SITUATION PLAN

STA. 87+54.50 — 0° SKEW
CITY OF INDEPENDENCE, IOWA

SHEET 3 OF 38

CBA CALHOUN–BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224–4344

JOB NO. 97178 | DESIGNED BY : ACP | DRAWN BY : BJL | CHECKED BY : DJM | DESIGN NO. 5198 | BUCHANAN COUNTY | FILE NO. 55711

SPECIFICATIONS

DESIGN: AASHTO SERIES OF 1996
CONSTRUCTION: STANDARD SPECIFICATIONS OF THE IOWA DEPARTMENT OF TRANSPORTATION, PROJECT DEVELOPMENT DIVISION, SERIES OF 1997, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN STRESSES

DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1996;

CONCRETE,	SECTION 8, f'c = 3,500 PSI
REINFORCING STEEL,	SECTION 8, ASTM A615, GRADE 60
STRUCTURAL STEEL,	SECTION 10, ASTM A-709, GRADE 36,
	SECTION 10, ASTM A-500, GRADE B.

GENERAL NOTES

THIS DESIGN IS FOR A CONCRETE DECK REPLACEMENT/WIDENING ON THE EXISTING 341' x 29'-6 FOUR-SPAN EARTH-FILLED CONCRETE ARCH BRIDGE. THE BRIDGE IS LOCATED IN THE CITY OF INDEPENDENCE, IOWA, AND CARRIES STATE HIGHWAY NO. 150 OVER THE WAPSIPINICON RIVER.

THE SCOPE AND INTENT OF THIS PROJECT IS TO REMOVE THE EXISTING CONCRETE/ASPHALT ROADWAY WEARING SURFACE, CONCRETE BARRIERS, AND TOP PORTION OF THE CONCRETE SPANDREL WALLS. THE NEW CONSTRUCTION WILL THEN BE PERFORMED IN TWO STAGES. STAGE 1 INCLUDES CONSTRUCTION OF THE WEST HALF OF THE TENSION TIES AND DECK, AND THE WEST CONCRETE TRAFFIC BARRIER. STAGE 2 INCLUDES INSTALLATION OF THE EAST HALF OF THE TENSION TIES BETWEEN THE SPANDREL WALLS, CONSTRUCTION OF THE EAST HALF OF THE CONCRETE DECK, AND THE EAST CONCRETE TRAFFIC BARRIER, STEEL RAILINGS, AND LIGHTING. THE NEW CONCRETE DECK WILL PROVIDE A 32' FOOT WIDE ROADWAY AND A 8 FOOT WIDE BIKEWAY. ALSO INCLUDED IS APPROACH ROADWAY PAVING, APPROACH GUARDRAIL, AND RIPRAP INSTALLATION AT THE ABUTMENTS.

MOST WORK ON THIS PROJECT IS TO BE COMPLETED WHILE MAINTAINING ONE LANE OF TRAFFIC OPEN IN ACCORDANCE WITH THESE PLANS. PERIODS OF COMPLETE CLOSURE TO TRAFFIC WILL BE ALLOWED DURING STAGE 1 & 2 CONCRETE DECK POURS (2 DAYS OF CLOSURE ALLOWED FOR EACH DECK POUR), AND DURING THE INSTALLATION OF THE EAST HALF OF THE TENSION TIES (5 DAYS OF CLOSURE ALLOWED). THE INSTALLATION OF THE EAST HALF OF THE TENSION TIES MUST BE DONE IMMEDIATELY AFTER COMPLETION OF STAGE 1 CONSTRUCTION. ALL PERIODS OF COMPLETE CLOSURE REQUIRED MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL AT LEAST TWO WEEKS IN ADVANCE.

THE NEW BRIDGE ROADWAY DECK IS DESIGNED FOR HS20-44 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE. THE NEW WALKWAY/BIKEWAY PORTION OF THE NEW DECK IS DESIGNED FOR PEDESTRIAN/BICYLE LOADING ONLY. MOTORIZED VEHICLES ARE NOT ALLOWED TO BE ON THE WALKWAY/BIKEWAY PORTION OF THE NEW DECK AT ANY TIME. THE EXISTING PORTIONS OF THE BRIDGE TO REMAIN (ARCH RIB, SPANDREL WALLS AND SUBSTRUCTURES) WILL BE ADEQUATE FOR HS20-44 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE AT INVENTORY STRESS LEVELS.

THE EXISTING BRIDGE IS A 341'-0 x 29'-6 FOUR SPAN EARTH FILLED CONCRETE ARCH BRIDGE WITH A CONCRETE/ASPHALT ROADWAY WEARING SURFACE, DECORATIVE CONCRETE BARRIERS, AND CONCRETE PIERS WITH SPREAD FOOTINGS FOUNDED ON BEDROCK. PLANS OF THIS BRIDGE ARE AVAILABLE AT THE IOWA DEPARTMENT OF TRANSPORTATION, AMES, IOWA, DESIGN NO. 126, BUCHANAN COUNTY.

ALL NEW CONCRETE USED ON THIS PROJECT, EXCEPT FOR THE TENSION TIES AND RETAINING WALL FOOTINGS, SHALL MATCH THE COLOR AND TEXTURE OF THE CONCRETE ON THE EXISTING BRIDGE. ~~THE COLOR-MATCH CAN BE ACHIEVED WITH THE USE OF COLORED CONCRETE ADMIXTURES OR TINTS. THE COLOR ADMIXTURE OR TINT SHALL NOT REDUCE THE STRENGTH PROPERTIES OF THE CONCRETE.~~ A MINIMUM OF THREE CONCRETE TEST PANELS, APPROXIMATELY 3'-0 x 3'-0 x 6" IN SIZE, SHALL BE MADE TO ATTEMPT TO MATCH THE EXISTING CONCRETE. THESE TEST PANELS SHALL BE ALLOWED TO CURE FOR 2 DAYS, AND THEN MADE AVAILABLE AT THE PROJECT SITE TO THE ENGINEER FOR EVALUATION. THE ENGINEER SHALL THEN CHOOSE THE PANEL WHICH BEST MATCHES THE EXISTING CONCRETE. THE CLASS 3 SPECIAL FINISH SHALL THEN BE APPLIED TO THE TEST PANEL TO ASSURE ITS COLOR MATCHES WITH THE CONCRETE COLOR. UPON APPROVAL BY THE ENGINEER, THE CHOSEN CONCRETE MIX AND CLASS 3 SPECIAL FINISH CAN THEN BE USED FOR THE PROJECT. THE INGREDIENTS OF THE CHOSEN CONCRETE MIX SHALL NOT BE CHANGED WITHOUT APPROVAL OF THE ENGINEER. THE TEST PANELS SHALL BE MADE AND EVALUATED BEFORE ANY VISIBLE CONCRETE CAN BE PLACED ON THIS PROJECT. ALL COSTS FOR CONSTRUCTING THE CONCRETE TEST PANELS AND THEIR EVALUATION AS DESCRIBED ABOVE SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)".

CONCRETE CURING METHODS USED, SUCH AS CURING COMPOUND, SHALL NOT DIS-COLOR THE DESIRED FINISHED PRODUCT.

THE CONTRACTOR SHALL SUBMIT SIX COPIES OF FALSEWORK PLANS FOR THE CANTILEVERED DECK ON THE EAST SIDE OF THE BRIDGE IN ACCORDANCE WITH IOWA D.O.T. STANDARD SPECIFICATIONS. SUPPORT ATTACHMENTS TO THE EXISTING BRIDGE SHALL NOT MARR OR DAMAGE THE CONCRETE SURFACE. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE CAUSED, AND SHALL REPAIR ANY DAMAGED AREA TO ITS ORIGINAL CONDITION, AS DIRECTED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL VERIFY THE BENCHMARK NOTED ON THE PLANS BEFORE BEGINNING CONSTRUCTION OR REMOVALS.

THE CONTRACTOR SHALL VERIFY DIMENSIONS AND ELEVATIONS IN THE FIELD PRIOR TO BEGINNING WORK, AND AGAIN PRIOR TO EACH CRITICAL STEP THROUGHOUT THE PROJECT. ANY DIMENSIONS OR ELEVATIONS WHICH ARE FOUND TO DIFFER FROM THOSE SHOWN ON THESE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. THESE PLANS HAVE BEEN PREPARED AND DIMENSIONED BY USING THE ORIGINAL CONSTRUCTION PLANS FOR THE EXISTING BRIDGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR WORK INCORRECTLY INSTALLED DUE TO HIS FAILURE TO VERIFY DIMENSIONS AND ELEVATIONS IN THE FIELD. COST OF THIS MEASUREMENT WORK SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION. NO DIRECT PAYMENT WILL BE MADE.

THE CONTRACTOR IS ENCOURAGED TO CONDUCT CONSTRUCTION ACTIVITIES DURING A PERIOD OF LOW FLOW IN THE RIVER. ANY TEMPORARY CROSSINGS SHALL INCLUDE ENOUGH CULVERTS TO ACCOMMODATE LOW FLOWS AND MUST BE REMOVED AFTER COMPLETION OF WORK ON THIS PROJECT. THE CONTRACTOR IS REQUIRED TO REMOVE ALL FILL-MATERIAL USED AS A TEMPORARY CROSSING TO AN UPLAND, NON-WETLAND SITE, TO SEED ALL DISTURBED AREAS WITH NATIVE GRASSES, AND TO IMPLEMENT APPROPRIATE MEASURES TO INSURE SEDIMENTS ARE NOT INTRODUCED INTO WATERS OF THE UNITED STATES DURING CONSTRUCTION OF THIS PROJECT. IF CLEAN EARTH IS USED AS FILL IN A TEMPORARY CROSSING, THE UPSTREAM FACE SHALL BE ARMORED. THE COST OF INSTALLATION, MAINTENANCE, AND REMOVAL OF TEMPORARY CROSSINGS, INCLUDING CULVERTS, SHALL BE INCIDENTAL TO THE PROJECT. TEMPORARY CROSSINGS SHALL BE CONSTRUCTED AS SHOWN AND/OR NOTED ON THE "SITUATION PLAN" OR AS APPROVED BY THE ENGINEER.

GENERAL NOTES - CONTINUED

THE UNIT PRICE BID FOR "REVETMENT, CLASS E, RIP-RAP" SHALL INCLUDE COST OF LABOR, EQUIPMENT, AND MATERIALS REQUIRED TO PLACE CLASS E REVETMENT STONE AROUND EACH ABUTMENT TO THE EXTENT SHOWN ON SHEET 3 AND IN ACCORDANCE WITH SECTION 4130 OF THE STANDARD SPECIFICATIONS.

MATERIAL FROM "EXCAVATION, CLASS 20", "EXCAVATION. CLASS 10, ROADWAY AND BORROW", AND "EXCAVATION, CLASS 10, CHANNEL" SHALL BE USED FOR CONSTRUCTION OF GUARDRAIL BLISTERS AND EMBANKMENTS AT THE ENDS OF THE BRIDGE, OR PLACED ON SITE AS DIRECTED BY THE ENGINEER.

ALL REINFORCING SHALL BE GRADE 60.

ALL REINFORCING STEEL SHALL BE SECURELY WIRED IN PLACE BEFORE CONCRETE IS PLACED. ALL REINFORCING STEEL SHALL BE SUPPORTED BY INDIVIDUAL EPOXY COATED METAL (OR APPROVED PLASTIC) BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS IN EITHER DIRECTION, OR BY CONTINUOUS ROWS OF EPOXY COATED METAL (OR APPROVED PLASTIC) HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0 APART, IN ACCORDANCE WITH SECTION 2404 OF THE STANDARD SPECIFICATIONS.

ALL FORMWORK FOR NEW CONCRETE PLACEMENT SHALL HAVE WATER-TIGHT JOINTS AS BEST POSSIBLE TO AVOID SPILLAGE ONTO THE EXISTING STRUCTURE. ANY SPILLAGE SHALL BE CLEANED UP AND THE EXISTING STRUCTURE RETURNED TO ITS ORIGINAL CONDITION, AS DIRECTED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE

REINFORCING BAR MECHANICAL SPLICES SHALL BE APPROVED BY THE ENGINEER. THE MATERIAL AND INSTALLATION COST OF THE MECHANICAL SPLICES SHALL BE INCLUDED IN THE PRICE BID FOR "REINFORCING STEEL, EPOXY COATED".

CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

ALL EXPOSED CORNERS OF 90 DEGREES OR SHARPER ARE TO BE FORMED WITH A 3/4" DRESSED AND BEVELED STRIP, UNLESS NOTED OTHERWISE.

BONDING NEW CONCRETE TO OLD CONCRETE SHALL BE DONE IN ACCORDANCE WITH SECTION 2403.14 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT ALL OF THE REINFORCING BARS IN THE CONCRETE DECK, BARRIER RAILS, RETAINING WALLS, AND APPROACH SECTIONS ARE TO BE EPOXY COATED. SEE RESPECTIVE REINFORCING BAR LISTS ON DESIGN SHEETS. EPOXY COATING SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS OF THE IOWA DOT, HIGHWAY DIVISION.

THE CONCRETE TRAFFIC BARRIERS, PILASTERS, AND EXTERIOR EDGES OF THE DECK SHALL BE GIVEN A CLASS 3 SPECIAL SURFACE FINISH ON ALL SURFACES ALONG THEIR ENTIRE LENGTH. THE CLASS 3 SPECIAL FINISH SHALL NOT BE APPLIED UNTIL THE CONCRETE DECK, FOR EACH RESPECTIVE STAGE, IS FULLY CONSTRUCTED. THE CLASS 3 SPECIAL SURFACE FINISH SHALL CONFORM TO SECTION 2403.21(C) OF THE SPECIFICATIONS.

ALL SUBBASE MATERIAL BENEATH THE CONCRETE DECK SHALL BE SPECIAL BACKFILL AS SHOWN. ALL SPECIAL BACKFILL AND TOP 6 INCHES OF EXISTING SOIL BENEATH THE SPECIAL BACKFILL SHALL HAVE COMPACTION WITH MOISTURE AND DENSITY CONTROL IN ACCORDANCE WITH SECTION 2107 OF THE STANDARD SPECIFICATIONS.

THE CONTRACTOR SHALL BACKFILL THE ABUTMENTS, LEVEL AND SHAPE THE FORESLOPES AROUND THE ABUTMENT WINGS TO THE ELEVATIONS AND DIMENSIONS SHOWN.

THE CONTRACTOR SHALL VISIT THE CONSTRUCTION SITE TO ENSURE THAT HE IS FAMILIAR WITH THE EXISTING SITE CONDITIONS. THE CONTRACTOR WILL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. SHOULD ANY UTILITIES BE FOUND, THEY SHALL BE PROTECTED IN PLACE AND THE ENGINEER IMMEDIATELY NOTIFIED. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE, THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO.

UTILITY COMPANIES WHOSE FACILITIES ARE KNOWN TO BE WITHIN THE CONSTRUCTION LIMITS SHALL BE NOTIFIED BY THE CONTRACTOR OF THE CONSTRUCTION STARTING DATE.

THE FOLLOWING COMPANIES HAVE UTILITY LINES ON THE BRIDGE:
MID-AMERICAN ENERGY (MARK DAVIS, 319-291-4700)
IOWA COMMUNICATIONS NETWORK (LARRY KLAWITTER, 515-323-4741)

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF CONSTRUCTION. ACCESS SHALL BE AFFORDED TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR INTERFERENCE, OR DELAY CAUSED BY SUCH WORK.

IF IT BECOMES NECESSARY TO PREVENT DAMAGE TO THE END OF THE BRIDGE DECK OR BACKWALL FROM CONSTRUCTION EQUIPMENT, AN APPROPRIATE METHOD OF PROTECTION APPROVED BY THE ENGINEER SHALL BE PROVIDED BY THE BRIDGE CONTRACTOR. NO ADDITIONAL PAYMENT WILL BE AUTHORIZED FOR THIS WORK.

THE CONTRACTOR'S WORK AND MATERIAL STORAGE AREA SHALL BE DEFINED BY THE CONTRACTOR AND NOTED TO THE ENGINEER. AN AREA FOR EQUIPMENT STORAGE IS AVAILABLE NEAR THE NORTHEAST CORNER OF THE PROJECT, AS APPROVED AND DIRECTED BY THE ENGINEER. AREAS OUTSIDE THE CONTRACTOR'S AREA DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED TO THEIR ORIGINAL CONDITION, AS DETERMINED BY THE ENGINEER. NO ADDITIONAL PAYMENT WILL BE AUTHORIZED FOR THIS WORK.

THE BRIDGE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15 "VALUE ENGINEERING INCENTIVE PROPOSAL".

MOISTURE SHALL BE APPLIED, AS NECESSARY, TO THE CONSTRUCTION AREA TO PREVENT THE SPREAD OF DUST. REFER TO ARTICLE 1107.07 OF THE STANDARD SPECIFICATIONS FOR ADDITIONAL DETAILS.

STANDARD ROAD PLANS ARE AVAILABLE FROM THE IOWA DEPARTMENT OF TRANSPORTATION, HIGHWAY DIVISION, AMES, IOWA.

REMOVALS - PORTIONS OF EXISTING BRIDGE AND APPROACH ROADWAY

THE LUMP SUM BID FOR "REMOVALS, AS PER PLAN" SHALL INCLUDE REMOVAL OF PORTIONS OF THE EXISTING STRUCTURE AS SHOWN ON THESE PLANS AND IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ALL REMOVED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR. ALL MATERIAL REMOVED WHICH IS DETERMINED NOT TO BE SALVAGABLE, SHALL BE REMOVED FROM THE HIGHWAY RIGHT-OF-WAY TO A WASTE AREA PROVIDED BY THE CONTRACTOR, IN ACCORDANCE WITH CURRENT LAWS AND RESTRICTIONS. THE WASTED MATERIAL MUST NOT CREATE AN UNSIGHTLY CONDITION WHEN VIEWED FROM PUBLIC HIGHWAYS. THE COST OF WASTING THIS MATERIAL IS TO BE INCLUDED IN THE LUMP SUM BID FOR "REMOVALS, AS PER PLAN." NO PAYMENT WILL BE MADE FOR OVERHAUL.

ALL PARTIAL CONCRETE REMOVALS, AS SHOWN ON THESE PLANS, SHALL BE TO NEAT SAW CUTS WHICH PROVIDE A CLEAN, STRAIGHT, AND SMOOTH SURFACE. THE REMOVALS SHALL BE DONE IN A MANNER WHICH WILL PREVENT ANY DAMAGE TO THE EXISTING STRUCTURE WHICH WILL REMAIN. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ANY DAMAGE CAUSED, AND SHALL REPAIR ANY DAMAGED AREA TO ITS ORIGINAL CONDITION, AS DIRECTED BY THE ENGINEER, AT THE CONTRACTOR'S EXPENSE. ANY EXISTING REINFORCING STEEL WHICH IS EXPOSED DURING REMOVAL OPERATIONS SHALL BE CUT FLUSH WITH THE NEAT REMOVAL LINE AND PAINTED WITH TWO COATS OF COLD GALVANIZING COMPOUND. ALL COSTS OF LABOR, EQUIPMENT, AND MATERIAL FOR CONCRETE REMOVAL AND CUTTING, CLEANING, AND PAINTING OF REINFORCING STEEL SHALL BE INCLUDED IN THE PRICE BID FOR "REMOVALS, AS PER PLAN".

IN ORDER TO AVOID ANY UNNECESSARY SURFACE BREAKS OR PREMATURE SPALLING, THE CONTRACTOR IS CAUTIONED TO EXERCISE EXTREME CARE WHEN PERFORMING ANY OF THE NECESSARY SAW CUTTING OPERATIONS FOR THE PROPOSED A.C.C. PAVEMENT REMOVAL.

UNLESS OTHERWISE DIRECTED OR AUTHORIZED, ALL ASPHALTIC CEMENT CONCRETE AND OTHER BITUMINOUS MATERIALS WHICH ARE NOT SPECIFICALLY ADDRESSED OR DESCRIBED IN THE PLANS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

THE CONTRACTOR IN ACCORDANCE WITH CURRENT RULES AND REGULATIONS OF THE IOWA DEPARTMENT OF NATURAL RESOURCES MAY:

1. WITH THE APPROVAL OF THE ENGINEER, BLEND OR OTHERWISE PROCESS THE MATERIAL FOR USE WITH SHOULDER OR SPECIAL BACKFILL AGGREGATE FOR USE ON THE PROJECT.
2. WITH THE APPROVAL OF THE ENGINEER, PLACE WITH MATERIAL IN AREAS DESIGNATED BY THE ENGINEER AS SOIL AGGREGATE SUBBASE WITHOUT EXTRA CHARGE.
3. REMOVE THE MATERIAL FROM THE PROJECT AND STOCKPILE FOR THE CONTRACTOR'S FUTURE USE.

THE PLACEMENT OF ASPHALTIC CONCRETE DEMOLITION MATERIAL WITHIN THE STREAM CHANNEL IS PROHIBITED. ANY MATERIAL OF THIS TYPE PLACED ON THE FLOOD PLAIN MUST BE OF SUFFICIENT SIZE TO PREVENT MOVEMENT INTO THE STREAM CHANNEL DURING A FLOOD.

DRILLED-IN REINFORCING BAR DOWELS

EPOXY ADHESIVE FOR BONDING DOWELS IN DRILLED HOLES SHALL BE IN ACCORDANCE WITH MATERIALS I.M. 491.11, AND SHALL BE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL ARRANGE A MEETING WITH THE SUPPLIER'S TECHNICAL REPRESENTATIVE AND THE ENGINEER TO REVIEW THE MANUFACTURER'S RECOMMENDATIONS PRIOR TO CONSTRUCTION.

AT THE TENSION TIE LOCATIONS, THE EPOXY ADHESIVE AND INSTALLATION PROCEDURE SHALL BE SPECIFICALLY FOR HOLES ORIENTED HORIZONTALLY. AT EACH TENSION TIE LOCATION, I.E. EACH PIER AND ABUTMENT, TWO DOWELS SHALL BE TESTED 24 HOURS AFTER INSTALLATION TO ASSURE THE DESIRED WORKING STRENGTH IS ATTAINED.

DRILLED HOLES FOR THE DOWELS SHALL BE 1/8" LARGER IN DIAMETER THAN THE DIAMETER OF THE BAR. THE DOWEL EMBEDMENT DEPTH SHALL BE AS SHOWN ON THE PLANS, OR NOT LESS THAN 10 BAR DIAMETERS.

INSTALLATION PROCEDURE:

1. BLOW DRILLED HOLE CLEAN USING OIL-FREE COMPRESSED AIR.
2. PLACE EPOXY TO PREDETERMINED DEPTH IN HOLE, AND INSERT CLEAN BAR, WORKING BACK AND FORTH, TO ENSURE COMPLETE EMBEDMENT AND COATING.
3. POSITION BAR IN CENTER OF HOLE WITH SUPPORTING TEMPLATE UNTIL EPOXY SETS.

THE COST OF ALL LABOR AND MATERIALS TO DRILL HOLES AND EMBED BARS IN EPOXY SHALL BE INCLUDED IN THE PRICE BID FOR "STEEL, REINFORCING-EPOXY COATED", AND NO SEPARATE PAYMENT WILL BE MADE.

HISTORICAL/ARCHEOLOGICAL/ARCHITECTURAL NOTES

THIS BRIDGE IS ELIGIBLE FOR THE NATIONAL REGISTER OF HISTORIC PLACES AND ALL PROJECT WORK WILL FOLLOW THE RECOMMENDATIONS OF "THE SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION AND GUIDELINES FOR REHABILITATION". A COPY OF THIS PUBLICATION IS AVAILABLE FOR REVIEW THROUGH IOWA D.O.T. OR A COPY MAY BE REQUESTED FROM THE NATIONAL PARK SERVICE AT HERITAGE PRESERVATION SERVICES INFORMATION DESK (2255), NATIONAL CENTER FOR CULTURAL RESOURCE STEWARDSHIP AND PARTNERSHIPS, P.O. BOX 37127, WASHINGTON D.C., 20013-7127, OR PHONE: 202-343-9583.

IF DURING CONSTRUCTION, THE PROJECT WORK UNCOVERS AN ITEM OR ITEMS THAT MIGHT BE OF HISTORICAL, ARCHEOLOGICAL, OR ARCHITECTURAL INTEREST, OR IF IMPORTANT NEW ARCHEOLOGICAL, HISTORICAL, OR ARCHITECTURAL DATA COME TO LIGHT IN THE PROJECT AREA, NOTIFY THE ENGINEER AND OWNER IMMEDIATELY. THE OWNER SHALL MAKE REASONABLE EFFORTS TO AVOID OR MINIMIZE HARM TO THE AREA/ITEMS UNTIL THE SIGNIFICANCE OF DISCOVERY CAN BE DETERMINED IN CONSULTATION WITH THE STATE HISTORICAL SOCIETY OF IOWA AT 515-281-4358.

TRAFFIC CONTROL PLAN

1. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST TWO WEEKS PRIOR TO ANY ROAD CLOSURE. TYPE III BARRICADES AND "ROAD CLOSED AHEAD" SIGNS ARE TO BE FURNISHED, ERECTED AND MAINTAINED BY THE CONTRACTOR. THE DETOUR SIGNING WILL BE FURNISHED, ERECTED AND MAINTAINED BY THE I.D.O.T.
2. TRAFFIC CONTROL OF THIS PROJECT SHALL BE IN ACCORDANCE WITH THE SCHEME SHOWN ON SHEETS 26, 27, AND 28. FOR ADDITIONAL COMPLIMENTARY INFORMATION, REFER TO PART VI OF THE IOWA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) REVISION 3, DATED SEPTEMBER 3, 1993.
3. ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, RELOCATED AND REMOVED BY THE CONTRACTOR.
4. THE ACTUAL QUANTITY OF SIGNS REQUIRED AND THEIR PLACEMENT WILL BE DETERMINED IN THE FIELD AT THE TIME OF CONSTRUCTION.
5. WHERE POSSIBLE, ALL TRAFFIC CONTROL SIGNS SHALL BE PLACED A MINIMUM OF 2 FEET CLEAR OF THE SHOULDERS.
6. ALL SIGNS SHALL BE POST MOUNTED UNLESS NOTED OR OTHERWISE APPROVED BY THE ENGINEER.
7. THE LOCATION FOR STORAGE OF EQUIPMENT BY THE CONTRACTOR DURING NON-WORKING HOURS WILL BE AS APPROVED BY THE ENGINEER.
8. PROPOSED SIGN SPACING MAY BE MODIFIED, AS APPROVED BY THE ENGINEER TO MEET EXISTING FIELD RESTRICTIONS, OR TO PREVENT OBSTRUCTION OF THE MOTORIST'S VIEW OF PERMANENT SIGNINGS.
9. PROPOSED CHANGES IN THE TRAFFIC CONTROL PLAN SHALL BE REVIEWED WITH THE ENGINEER BEFORE CHANGES ARE MADE.
10. THE BID ITEM "TRAFFIC CONTROL" SHALL INCLUDE THE COST FOR ALL TRAFFIC CONTROL MEASURES REQUIRED OF THE CONTRACTOR, EXCEPT FOR THOSE WHICH ARE SEPARATE BID ITEMS OR ARE INCIDENTAL TO OTHER BID ITEMS.
11. EXISTING AND APPLIED PAVEMENT MARKINGS WHICH ARE IN CONFLICT WITH REQUIRED MARKINGS SHALL BE REMOVED BY THE CONTRACTOR. HE SHALL ALSO APPLY AND REMOVE THE TEMPORARY PAVEMENT MARKINGS SHOWN ON THE SPECIAL TRAFFIC CONTROL LAYOUTS. PERMANENT PAVEMENT MARKINGS SHALL BE IN PLACE PRIOR TO OPENING ROAD TO TWO-LANE OPERATION, UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
12. THE GUARDRAIL INSTALLATION FOR EACH STAGE MUST BE COMPLETED BEFORE THE NEXT STAGE IS OPENED TO TRAFFIC.
13. ALL CONTRACTOR FURNISHED TRAFFIC CONTROL SIGNS USED ON THIS PROJECT SHALL BE SHEETED WITH ENCAPSULATED LENS SHEETING.
14. TYPE C STEADY BURN WARNING LIGHTS ARE NOT REQUIRED FOR VERTICAL PANELS, BARRICADES AND DRUMS WHEN THESE DEVICES ARE SHEETED WITH ENCAPSULATED LENS SHEETING.
15. SEE SHEETS 26 AND 27 FOR LAYOUT OF TEMPORARY BARRIER RAILS.
16. FLAGGERS WILL BE REQUIRED DURING PLACEMENT OF ASPHALT WEDGES ON BRIDGE APPROACHES, AND DURING OTHER OPERATIONS AS REQUIRED.
17. THE CITY OF INDEPENDENCE SHALL REMOVE AND RE-INSTALL MISCELLANEOUS SIGNS AT THE BRIDGE, WHICH ARE NOT INCLUDED IN THIS SET OF PLANS, AS REQUIRED.

CERTIFIED PLANT INSPECTION

THE CONTRACTOR SHALL PROVIDE CERTIFIED PLANT INSPECTION IN ACCORDANCE WITH SECTION 2521 OF THE STANDARD SPECIFICATIONS.

As-Built Plans

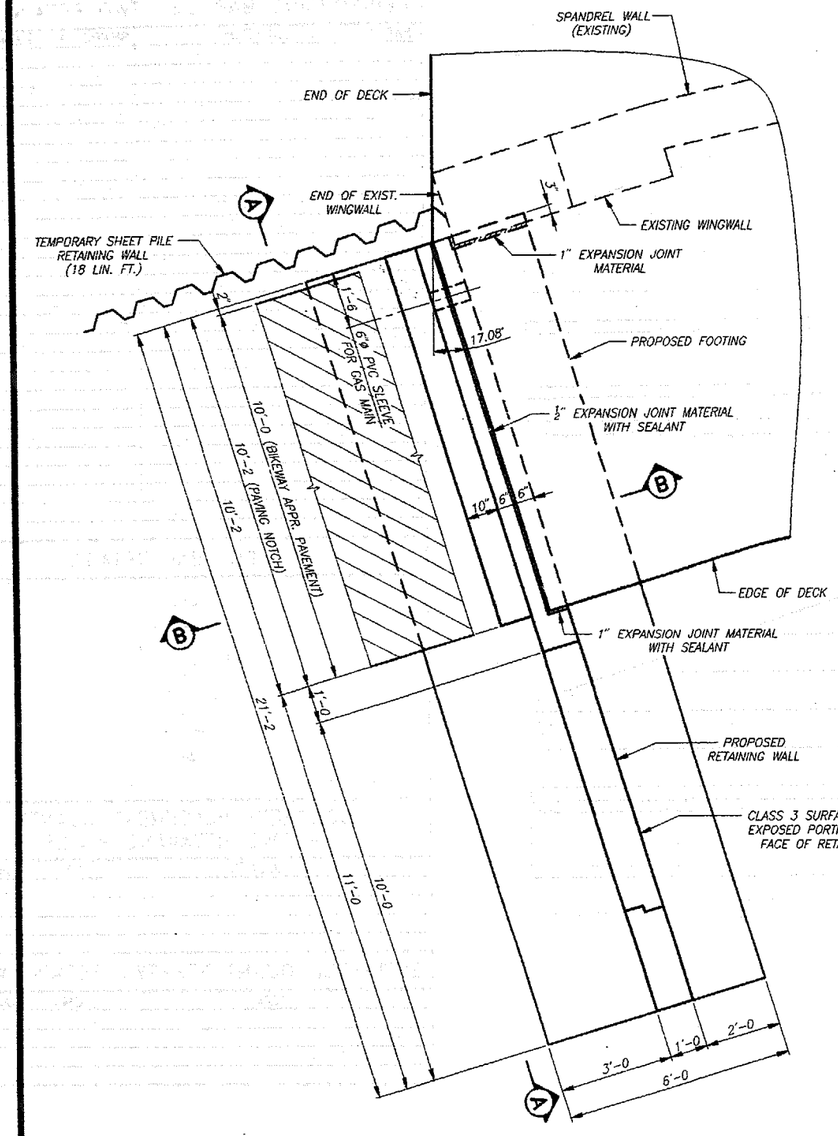
DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

GENERAL NOTES

STATION 87+54.50 — 0° SKEW
CITY OF INDEPENDENCE, — IOWA

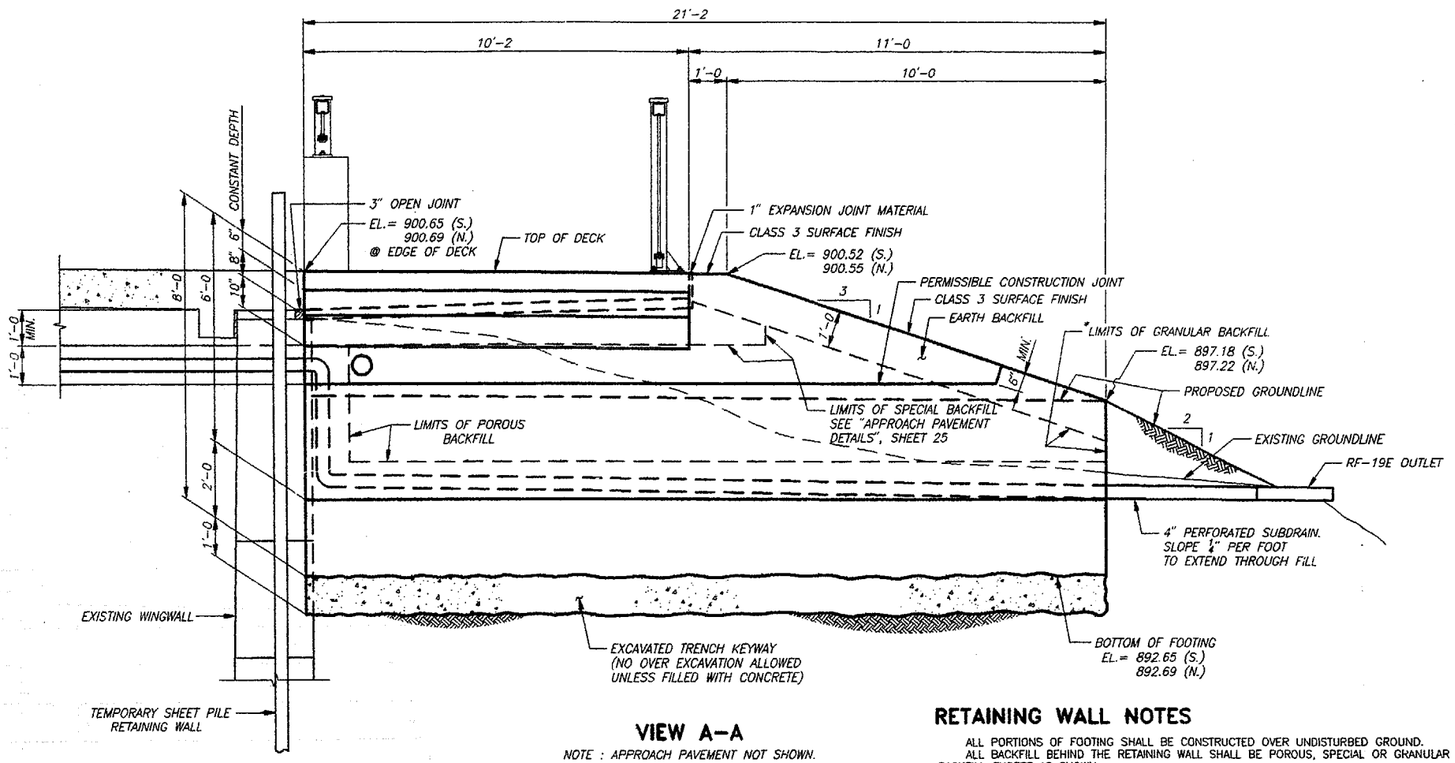
SHEET 4 OF 38

BENCH MARK : BRASS DISK AT S.E. CORNER OF BRIDGE, ELEV.= 900.645



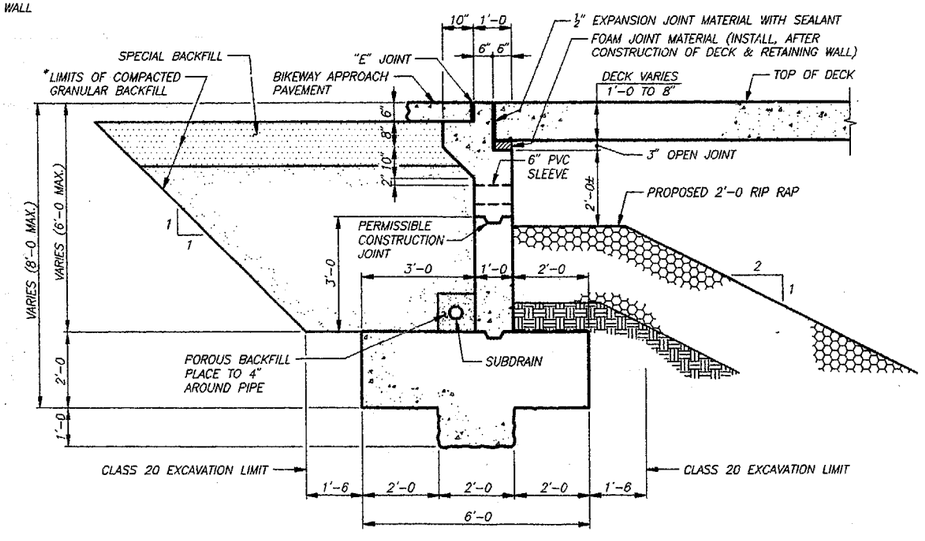
PART PLAN

NOTE : 1. S.E RETAINING WALL SHOWN, TYPICAL FOR N.E. CORNER RETAINING WALL.
2. SEE SHEET 6 FOR REINFORCING DETAILS.



VIEW A-A

NOTE : APPROACH PAVEMENT NOT SHOWN.
* INCLUDE IN COST OF "STRUCTURAL CONCRETE".



SECTION B-B

* INCLUDE IN COST OF "STRUCTURAL CONCRETE".

RETAINING WALL NOTES

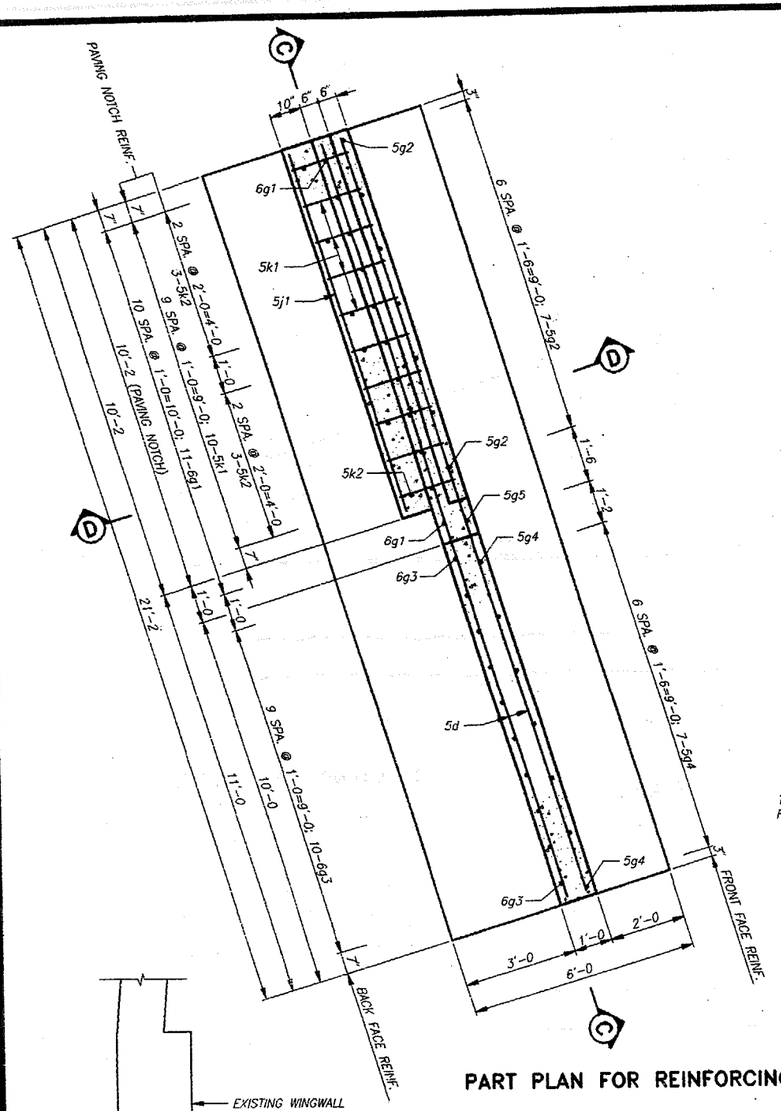
ALL PORTIONS OF FOOTING SHALL BE CONSTRUCTED OVER UNDISTURBED GROUND.
ALL BACKFILL BEHIND THE RETAINING WALL SHALL BE POROUS, SPECIAL OR GRANULAR BACKFILL EXCEPT AS SHOWN.
BRIDGE CONTRACTOR IS TO INSTALL SUBDRAINS BEHIND THE RETAINING WALLS AS DETAILED. THE SUBDRAINS SHALL MEET REQUIREMENTS FOR THE TYPES PERMITTED IN SECTION 4143.01C. THE SUBDRAIN ENDS SHALL CONSIST OF 6' LENGTHS OF CORRUGATED METAL PIPE (CMP) THAT PROTRUDE A MINIMUM THROUGH THE FORESLOPE. THE CONNECTIONS BETWEEN THE FLEXIBLE TUBING AND CMP MAY BE MADE WITH A REDUCER COUPLING OR BY EXTENDING THE FLEXIBLE TUBING INTO THE CMP A MINIMUM OF 6 INCHES AND PACKING THE OPEN SPACE BETWEEN THE PIPES WITH GROUT. A REMOVABLE ¼" MESH GALVANIZED SCREEN OR OTHER APPROVED RODENT GUARD IS TO BE FASTENED TO THE END OF EACH OUTLET PIPE. THE COST OF ALL MATERIAL, LABOR AND EXCAVATION NECESSARY FOR THE INSTALLATIONS IS TO BE INCLUDED IN THE UNIT PRICE BID FOR "BRIDGE APPROACH SECTION".
CONTRACTOR SHALL INSTALL 6"ø PVC SLEEVE THROUGH RETAINING WALL AS SHOWN. MID-AMERICAN ENERGY WILL INSTALL GAS MAIN THROUGH SLEEVE AND BEYOND THE LIMITS OF THE APPROACH BIKEWAY PAVEMENT LIMITS BEFORE THE BIKEWAY APPROACH PAVEMENT IS CONSTRUCTED. SLEEVE OPENING SHALL BE WATERPROOFED FROM THE BACKSIDE.
RETAINING WALLS, AS DETAILED ON SHEETS 5 & 6 ARE REQUIRED AT BOTH ENDS OF THE BRIDGE ON THE EAST SIDE OF THE BRIDGE.
THE TEMPORARY SHEET PILE RETAINING WALL SHALL BE INSTALLED BEFORE EXCAVATION IS BEGUN FOR THE CONCRETE RETAINING WALL FOOTING. THE CONTRACTOR SHALL SUBMIT DETAILED PLANS OF THE TEMPORARY SHEET PILE WALL TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION. THE SHEET PILE WALL SHALL BE REMOVED AFTER BACKFILLING THE CONCRETE RETAINING WALL.

DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

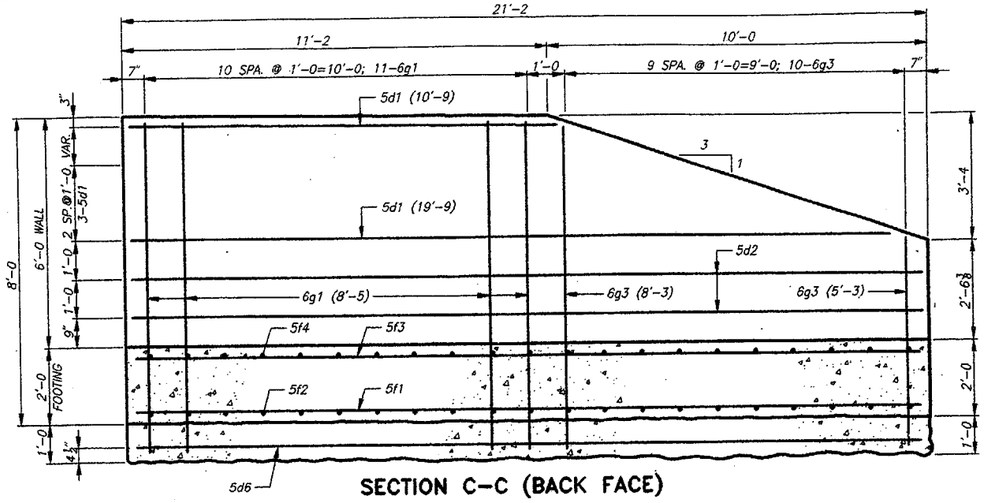
RETAINING WALL DETAILS

STATION 87+54.50 — 0° SKEW
CITY OF INDEPENDENCE, — IOWA

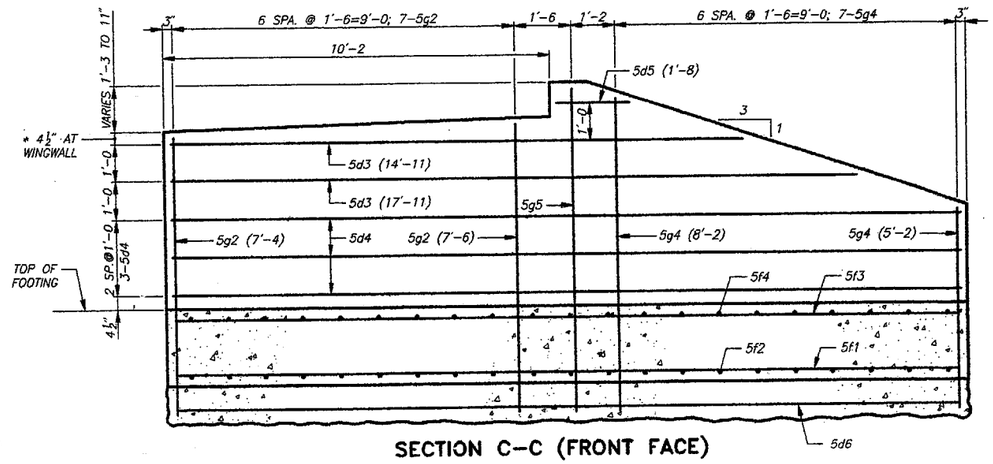
CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178
DESIGNED BY : RJV
DRAWN BY : TCK
CHECKED BY : ACP
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711



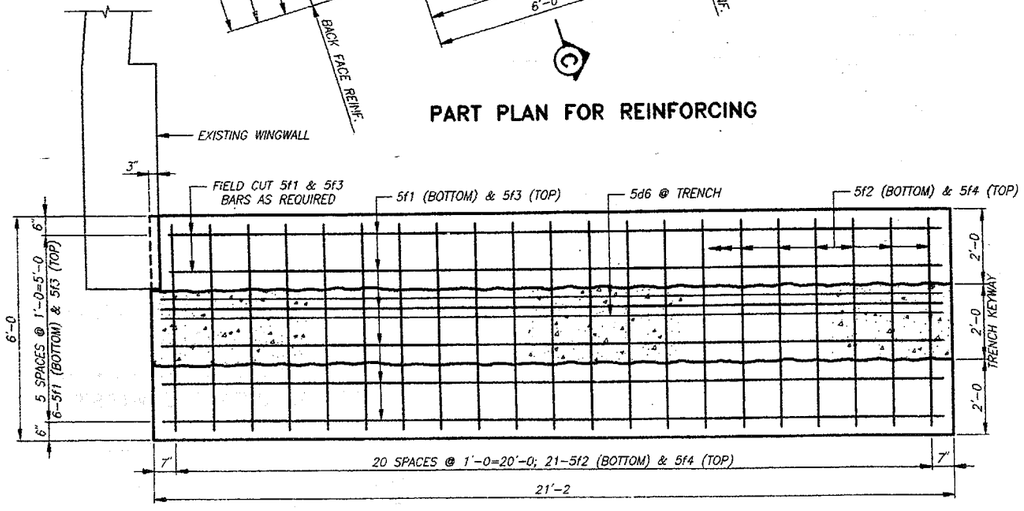
PART PLAN FOR REINFORCING



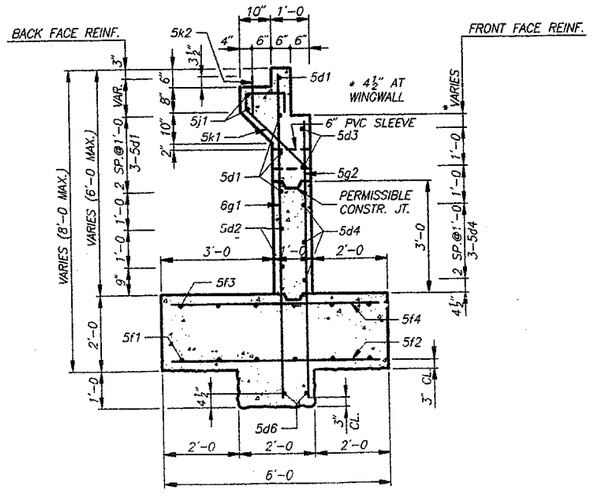
SECTION C–C (BACK FACE)



SECTION C–C (FRONT FACE)



FOOTING REINFORCING DETAIL

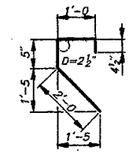


SECTION D–D

REINFORCING BAR LIST–TWO RETAIN. WALLS

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5d1	RETAIN. WALL, BACKFACE, HORIZ.	——	8	VARIES	127
5d2	RETAIN. WALL, BACKFACE, HORIZ.	——	4	20'–10	87
5d3	RETAIN. WALL, FRONT FACE, HORIZ.	——	4	VARIES	68
5d4	RETAIN. WALL, FRONT FACE, HORIZ.	——	6	20'–10	130
5d5	RETAIN. WALL, FRONT FACE, HORIZ.	——	2	1'–8	3
5d6	TRENCH FOOTING, LONGIT.	——	4	20'–10	87
5f1	FOOTING, LONGIT., BOTTOM	——	12	20'–10	261
5f2	FOOTING, TRANSV., BOTTOM	——	42	5'–8	248
5f3	FOOTING, LONGIT., TOP	——	12	20'–10	261
5f4	FOOTING, TRANSV., TOP	——	42	5'–8	248
5g1	RETAIN. WALL, BACK FACE, VERT.	——	22	8'–5	278
5g2	RETAIN. WALL, FRONT FACE, VERT.	——	14	VARIES	108
6g3	RETAIN. WALL, BACK FACE, VERT.	——	20	VARIES	203
5g4	RETAIN. WALL, FRONT FACE, VERT.	——	14	VARIES	97
5g5	RETAIN. WALL, FRONT FACE, VERT.	——	2	8'–5	18
5j1	PAVING NOTCH, LONGIT.	——	4	9'–10	41
5k1	PAVING NOTCH, TRANSV.	⌐	20	3'–10	80
5k2	PAVING NOTCH, DOWEL	——	12	1'–0	13
ALL REINFORCING EPOXY COATED					
				EPOXY COATED TOTAL (LBS.)	2,358

BENT BAR DETAILS



5k1

ALL DIMENSIONS ARE OUT TO OUT. D = DIAMETER OF PIN

CONCRETE PLACEMENT QUANTITY – TWO RETAINING WALLS

LOCATION		UNIT	QUANTITY
RETAINING WALLS	2 @ 4.15	CU.YDS.	8.3
FOOTINGS	2 @ 11.0	CU.YDS.	22.0
	TOTAL (CU.YDS.)		30.3

ESTIMATED QUANTITIES–TWO RETAIN. WALLS

ITEM	UNIT	QUANTITY
CONCRETE, STRUCTURAL	CU.YDS.	30.3
STEEL, REINFORCING, EPOXY COATED	LBS.	2,358
CLASS 20 EXCAVATION	CU.YDS.	76

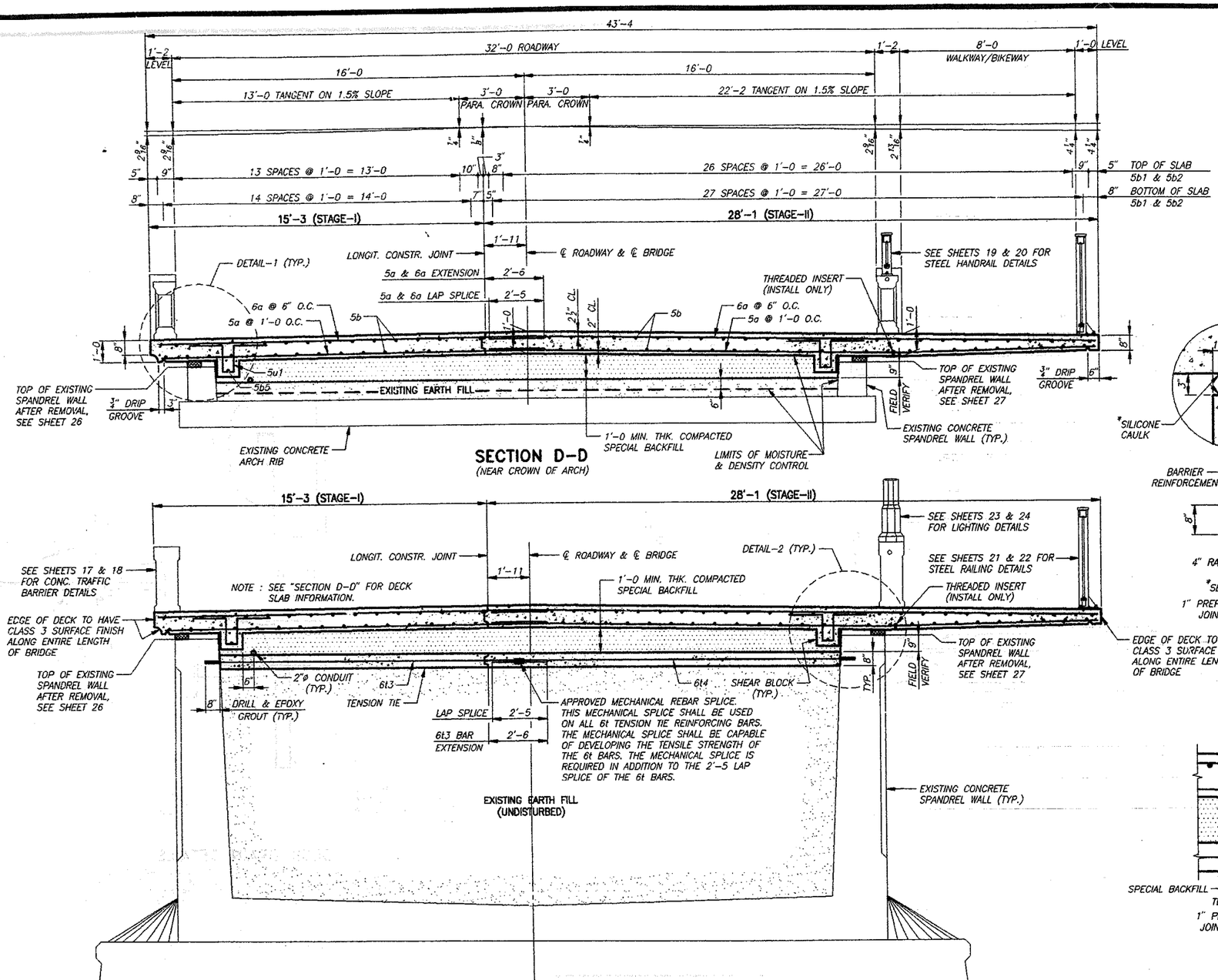
DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

RETAINING WALL DETAILS

STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

SHEET 6 OF 38



SECTION D-D
(NEAR CROWN OF ARCH)

SECTION E-E
(NEAR PIER)

NOTE : 1. SEE SHEETS 10 & 11 FOR LOCATION OF SECTIONS D-D AND E-E.

SUPERSTRUCTURE NOTES

THE NEW BRIDGE ROADWAY DECK IS DESIGNED FOR HS20-44 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE.

THE NEW WALKWAY/BIKEWAY PORTION OF THE NEW DECK IS DESIGNED FOR PEDESTRIAN /BICYLE LOADING ONLY. MOTORIZED VEHICLES ARE NOT ALLOWED TO BE ON THE WALKWAY /BIKEWAY PORTION OF THE NEW DECK AT ANY TIME.

THE EXISTING PORTIONS OF THE BRIDGE TO REMAIN (ARCH RIB, SPANDREL WALLS AND SUBSTRUCTURES) WILL BE ADEQUATE FOR HS20-44 LOADING PLUS 20 LBS. PER SQ. FT. OF ROADWAY FOR FUTURE WEARING SURFACE AT INVENTORY STRESS LEVELS.

SLAB THICKNESS INCLUDES ½" INTEGRAL WEARING SURFACE.

ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FORMED WITH ¾" DRESSED AND BEVELED STRIP. CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR SHALL BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

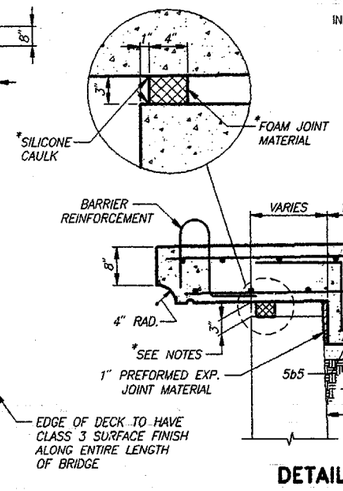
TOP TRANSVERSE SLAB REINFORCING STEEL IS TO BE PARALLEL TO AND 2½" CLEAR BELOW TOP OF SLAB. BOTTOM TRANSVERSE SLAB REINFORCING STEEL IS TO BE PARALLEL TO AND 2" CLEAR ABOVE BOTTOM OF SLAB. TOP AND BOTTOM REINFORCING STEEL IS TO BE SUPPORTED BY INDIVIDUAL EPOXY COATED METAL OR APPROVED PLASTIC BAR CHAIRS SPACED AT NOT MORE THAN 3'-0 CENTERS LONGITUDINALLY AND TRANSVERSELY, OR BY CONTINUOUS ROWS OF EPOXY COATED METAL OR APPROVED PLASTIC HIGH CHAIRS OR SLAB BOLSTERS SPACED 4'-0 APART. WIRED IN PLACE AND ADQUATELY SUPPORTED ON EPOXY COATED OR APPROVED PLASTIC BAR CHAIRS BEFORE CONCRETE IS PLACED.

ALL REINFORCING STEEL IS TO BE GRADE 60.

THE COST OF WATERSTOP AT THE TRANSVERSE EXPANSION JOINTS AND FOAM JOINT MATERIAL IN THE 3" OPEN JOINTS ALONG THE TOP OF THE EXISTING SPANDREL WALLS, SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE)".

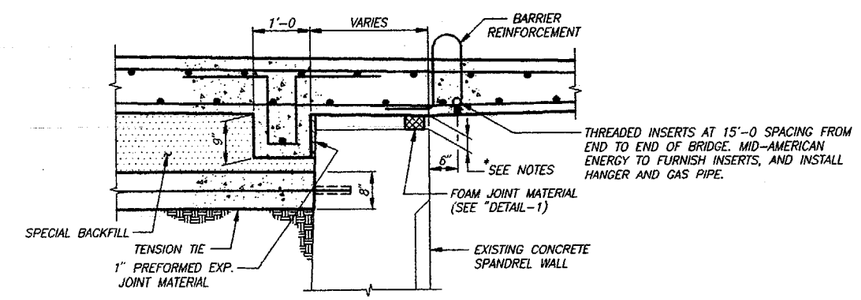
THE EPOXY COATING OF CERTAIN REINFORCING BARS, AS DESIGNATED ON THE PLANS, SHALL BE IN ACCORDANCE WITH ARTICLE 4151.03B OF THE STANDARD SPECIFICATIONS OF THE IOWA D.O.T.-HIGHWAY DIVISION.

THE BRIDGE SLAB AND TENSION TIES SHALL BE PLACED IN SECTIONS AND IN THE SEQUENCE INDICATED BY CIRCLED NUMBERS ON THE "CONCRETE PLACEMENT DIAGRAM", SHEET 16.



DETAIL-1

* NOTES :
3" NOMINAL OPEN JOINT ACROSS FULL WIDTH OF TOP OF EXISTING SPANDREL WALL. AFTER CONSTRUCTING CONCRETE DECK AND REMOVAL OF DECK BOTTOM FORM, INSTALL FOAM JOINT MATERIAL AS SHOWN. FOAM JOINT MATERIAL SHALL BE 1" THICKER THAN THE OPEN JOINT, AND BE COMPRESSED WHILE INSTALLING. CONTRACTOR SHALL FIELD VERIFY THICKNESS OF FOAM JOINT MATERIAL NEEDED, AND VARY ITS THICKNESS AS REQUIRED. FOAM JOINT MATERIAL AND SILICONE CAULK SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE INSTALLATION. COLOR OF FOAM JOINT MATERIAL AND CAULK SHALL BE CONCRETE GRAY.



DETAIL-2
SEE "DETAIL-1" FOR REINFORCING

DOWNWARD DEAD LOAD DEFLECTION OF THE CANTILEVERED EAST SIDE OF THE SLAB SHALL BE COMPENSATED FOR BY ADJUSTMENT OF THE FALSEWORK UPWARD ¼" AT THE OUTSIDE EDGE OF THE SLAB ALONG THE FULL LENGTH OF BRIDGE.

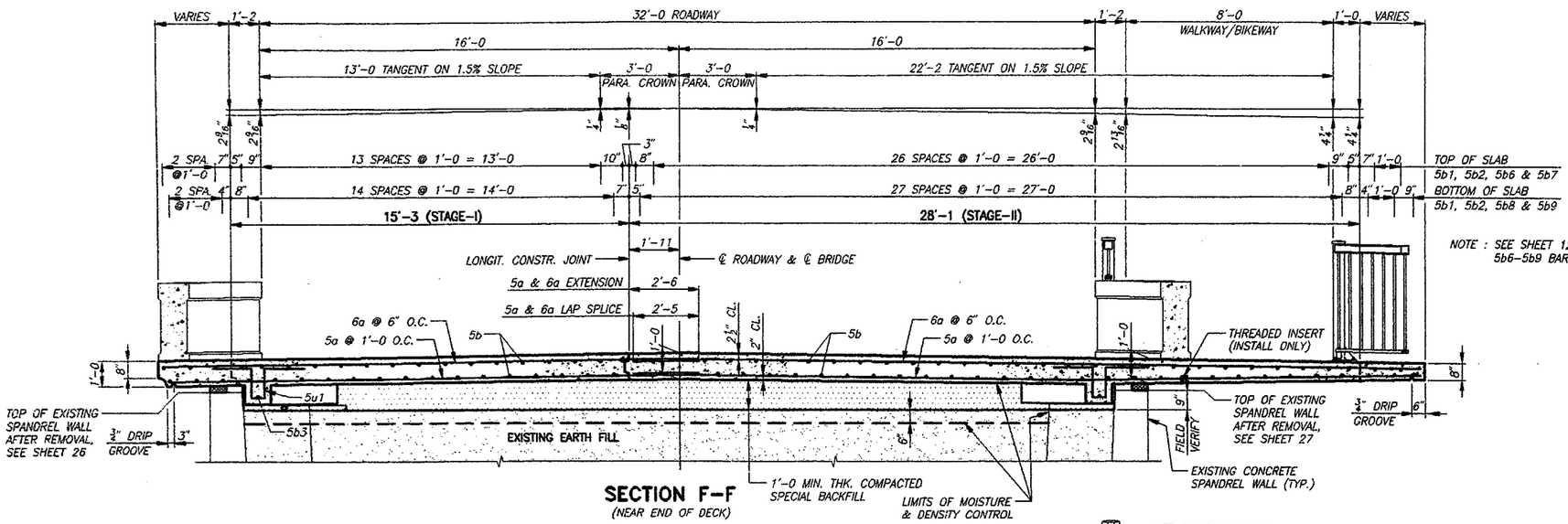
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

SUPERSTRUCTURE DETAILS

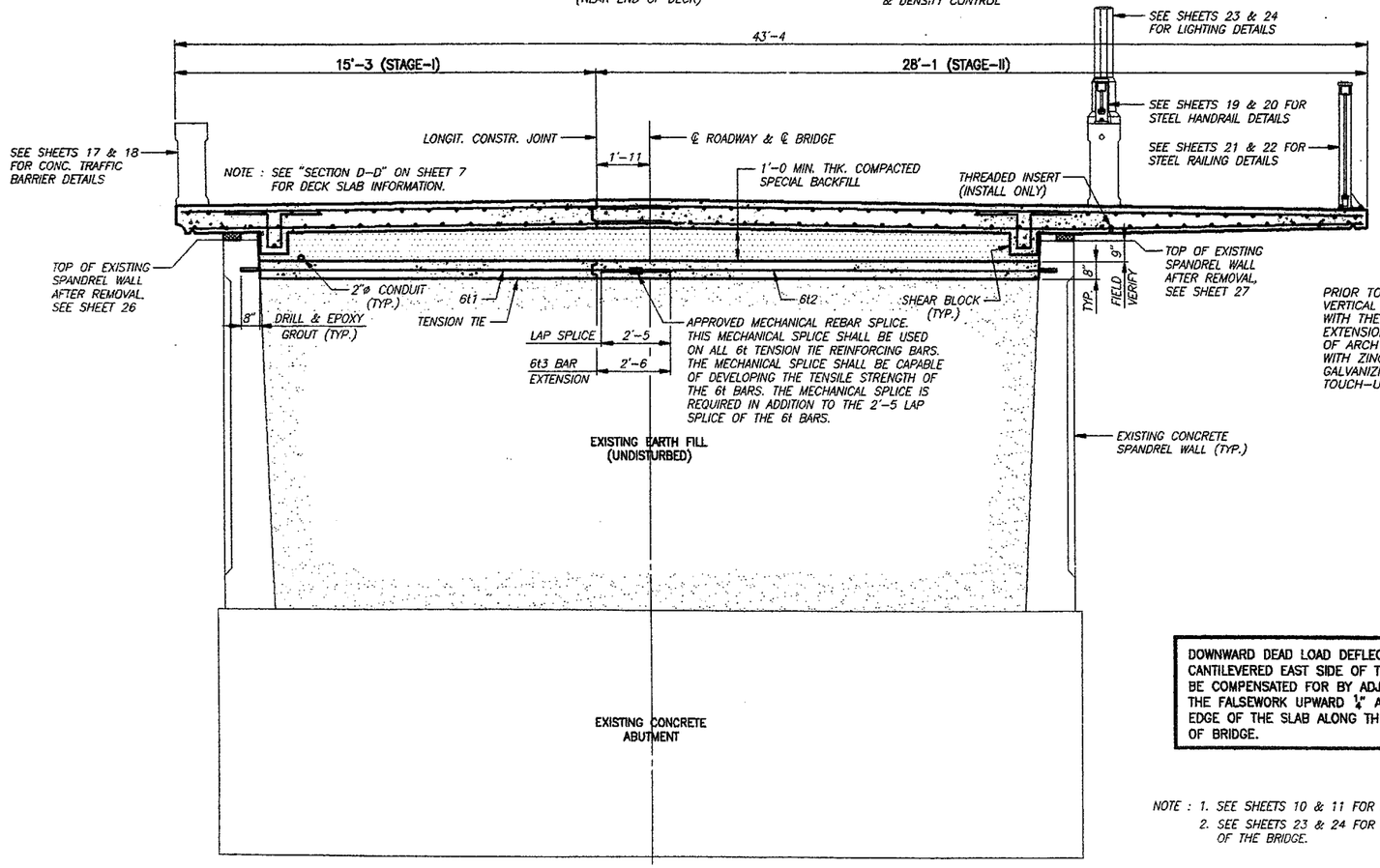
STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

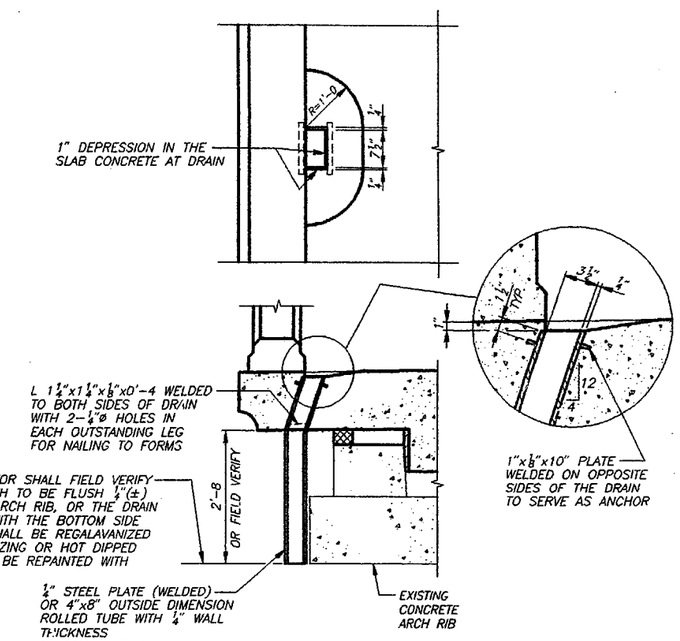
SHEET 7 OF 38



SECTION F-F
(NEAR END OF DECK)



SECTION G-G
(NEAR FACE OF SOUTH ABUTMENT)



DECK DRAIN DETAILS

DRAINS ARE TO BE GALVANIZED AFTER FABRICATION AND PAINTED WITH 2 COATS OF WATERBORNE ACRYLIC PAINT IN ACCORDANCE WITH I.D.O.T. SPECIFICATIONS. THE GALVANIZED SURFACE SHALL BE PREPARED FOR PAINTING AS REQUIRED BY THE PAINT MANUFACTURER. PAINT COLOR SHALL MATCH THE EXISTING CONCRETE COLOR.

8 DRAINS REQUIRED. SEE "SITUATION PLAN" FOR LOCATIONS.

WEIGHT=71.5 LBS. PER DRAIN, AND IS INCLUDED IN THE QUANTITY FOR "STRUCTURAL STEEL". WEIGHT IS BASED ON ROLLED TUBE.

DOWNWARD DEAD LOAD DEFLECTION OF THE CANTILEVERED EAST SIDE OF THE SLAB SHALL BE COMPENSATED FOR BY ADJUSTMENT OF THE FALSEWORK UPWARD 1/4" AT THE OUTSIDE EDGE OF THE SLAB ALONG THE FULL LENGTH OF BRIDGE.

NOTE : 1. SEE SHEETS 10 & 11 FOR LOCATION OF SECTIONS F-F AND G-G.
2. SEE SHEETS 23 & 24 FOR LOCATION OF BOLLARD AT BOTH ENDS OF THE BRIDGE.

DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

SUPERSTRUCTURE DETAILS

STATION 87+54.50 **0° SKEW**

CITY OF INDEPENDENCE, IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344

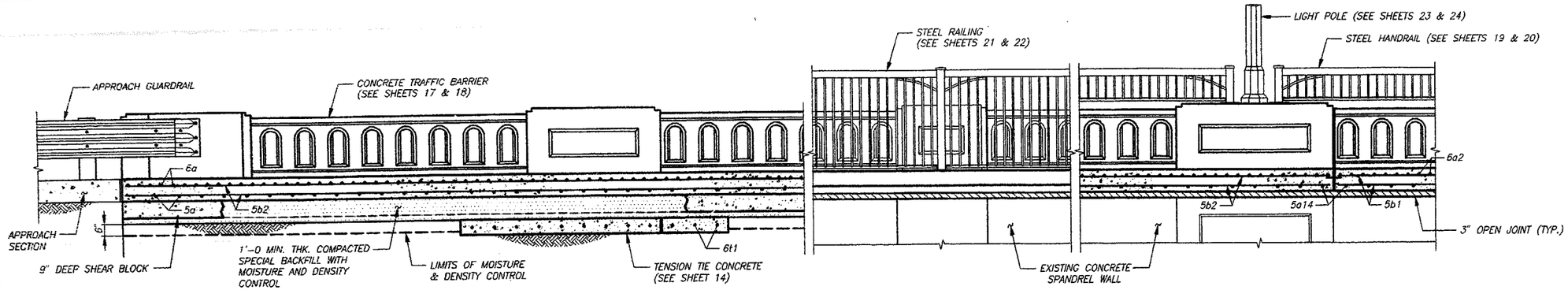
JOB NO. 97178

DESIGNED BY : BJV
DRAWN BY : YCK
CHECKED BY : ACP

DESIGN NO. 5198

BUCHANAN COUNTY

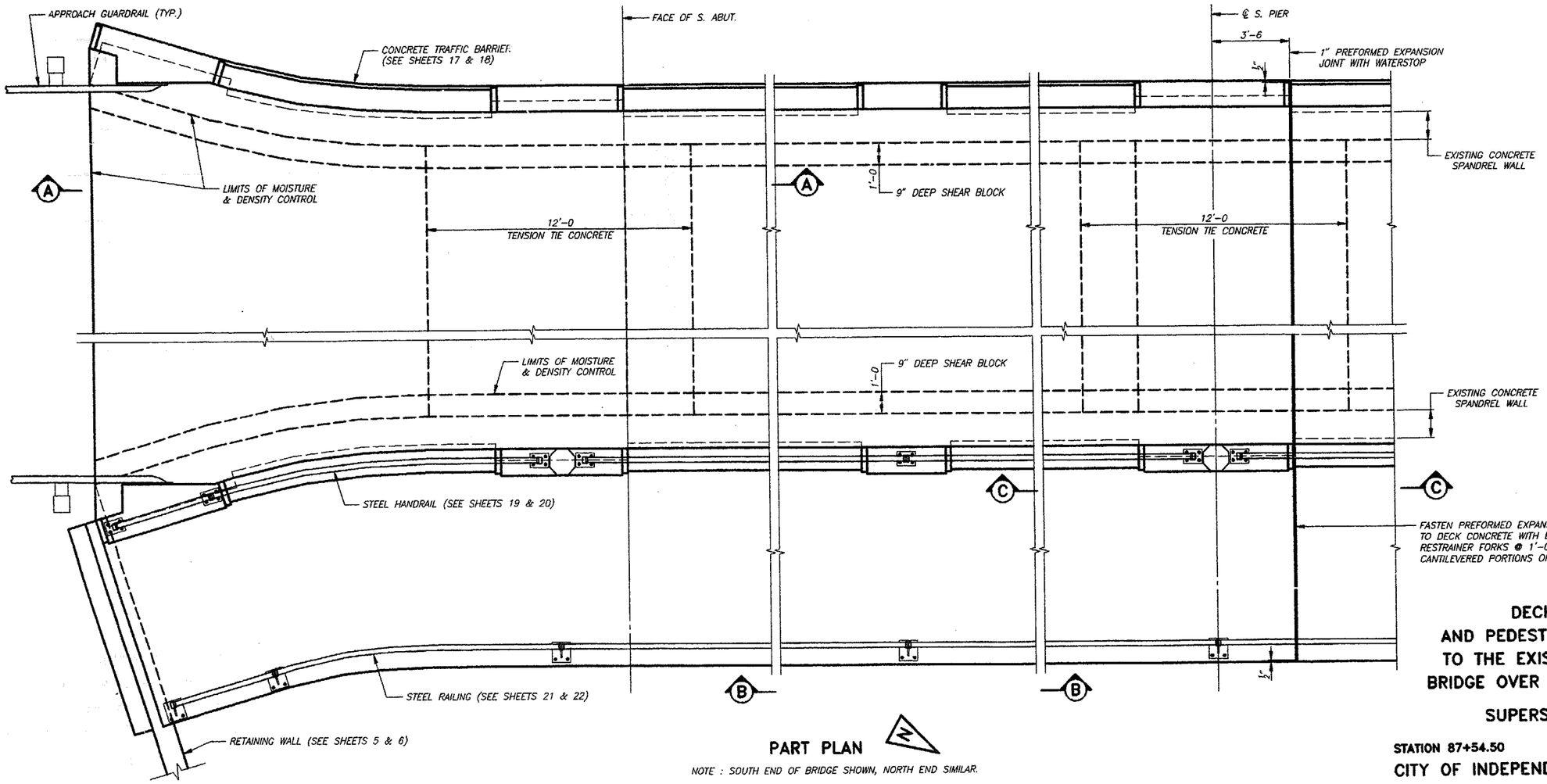
FILE NO. 55711



SECTION A-A

VIEW B-B

SECTION C-C



PART PLAN

NOTE : SOUTH END OF BRIDGE SHOWN, NORTH END SIMILAR.

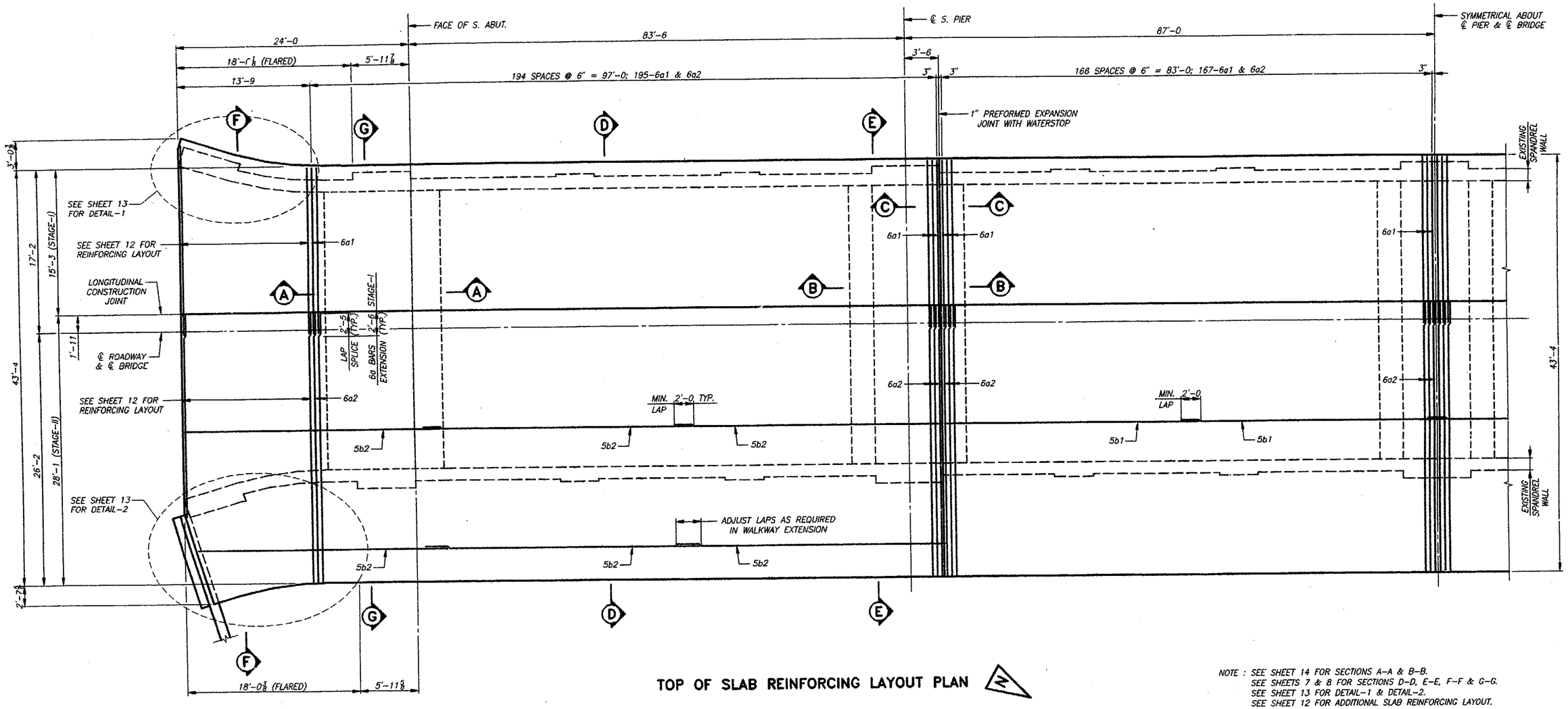
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

SUPERSTRUCTURE DETAILS

STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

SHEET 9 OF 38



TOP OF SLAB REINFORCING LAYOUT PLAN

NOTE : SEE SHEET 14 FOR SECTIONS A-A & B-B.
SEE SHEETS 7 & 8 FOR SECTIONS D-D, E-E, F-F & G-G.
SEE SHEET 13 FOR DETAIL-1 & DETAIL-2.
SEE SHEET 12 FOR ADDITIONAL SLAB REINFORCING LAYOUT.

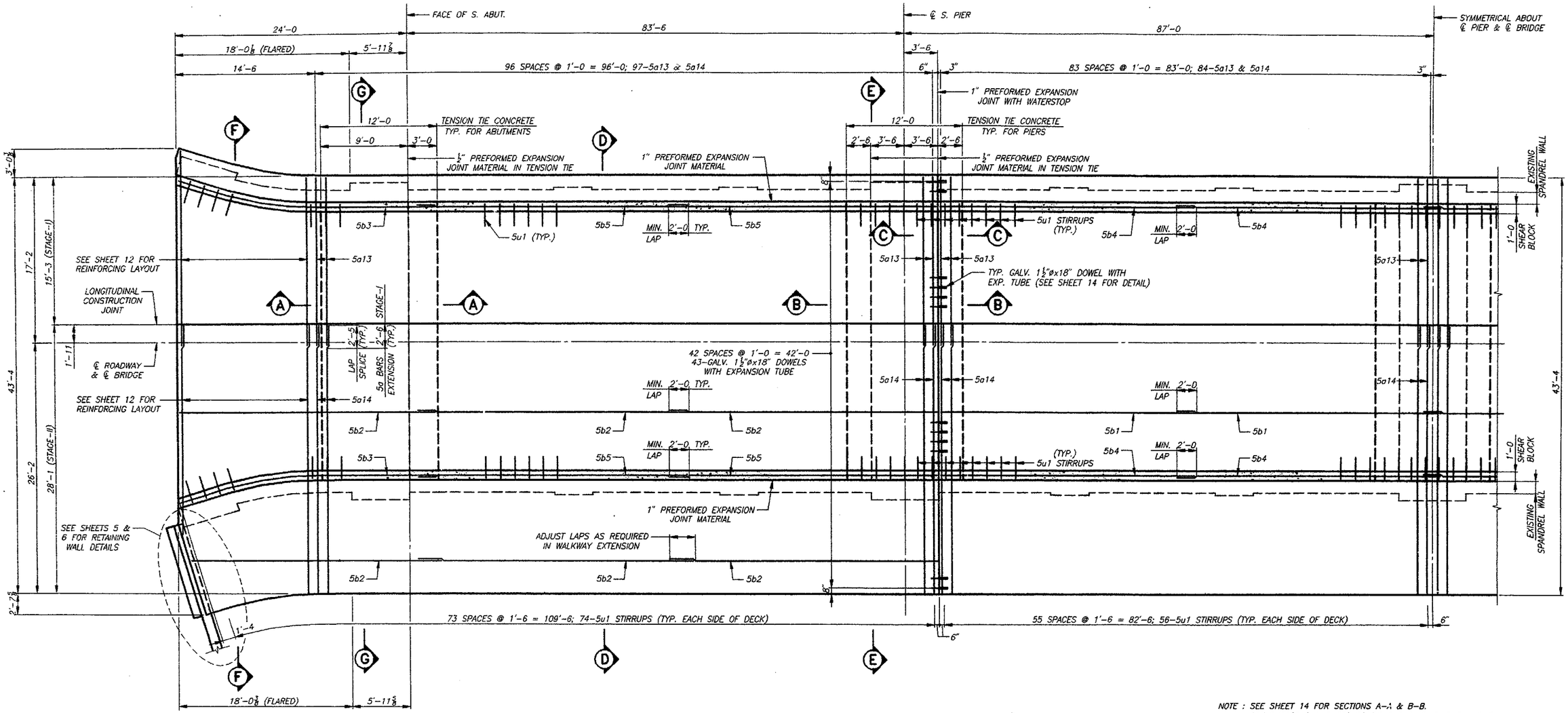
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

SUPERSTRUCTURE DETAILS

STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, IOWA

SHEET 10 OF 38



BOTTOM OF SLAB REINFORCING LAYOUT PLAN

NOTE : SEE SHEET 14 FOR SECTIONS A-A & B-B.
SEE SHEETS 7 & 8 FOR SECTIONS D-D, E-E, F-F & G-G.
SEE SHEET 14 FOR TENSION TIE CONCRETE DETAILS.
SEE SHEET 12 FOR ADDITIONAL SLAB REINFORCING LAYOUT.
SEE SHEETS 5 & 6 FOR RETAINING WALL DETAILS.

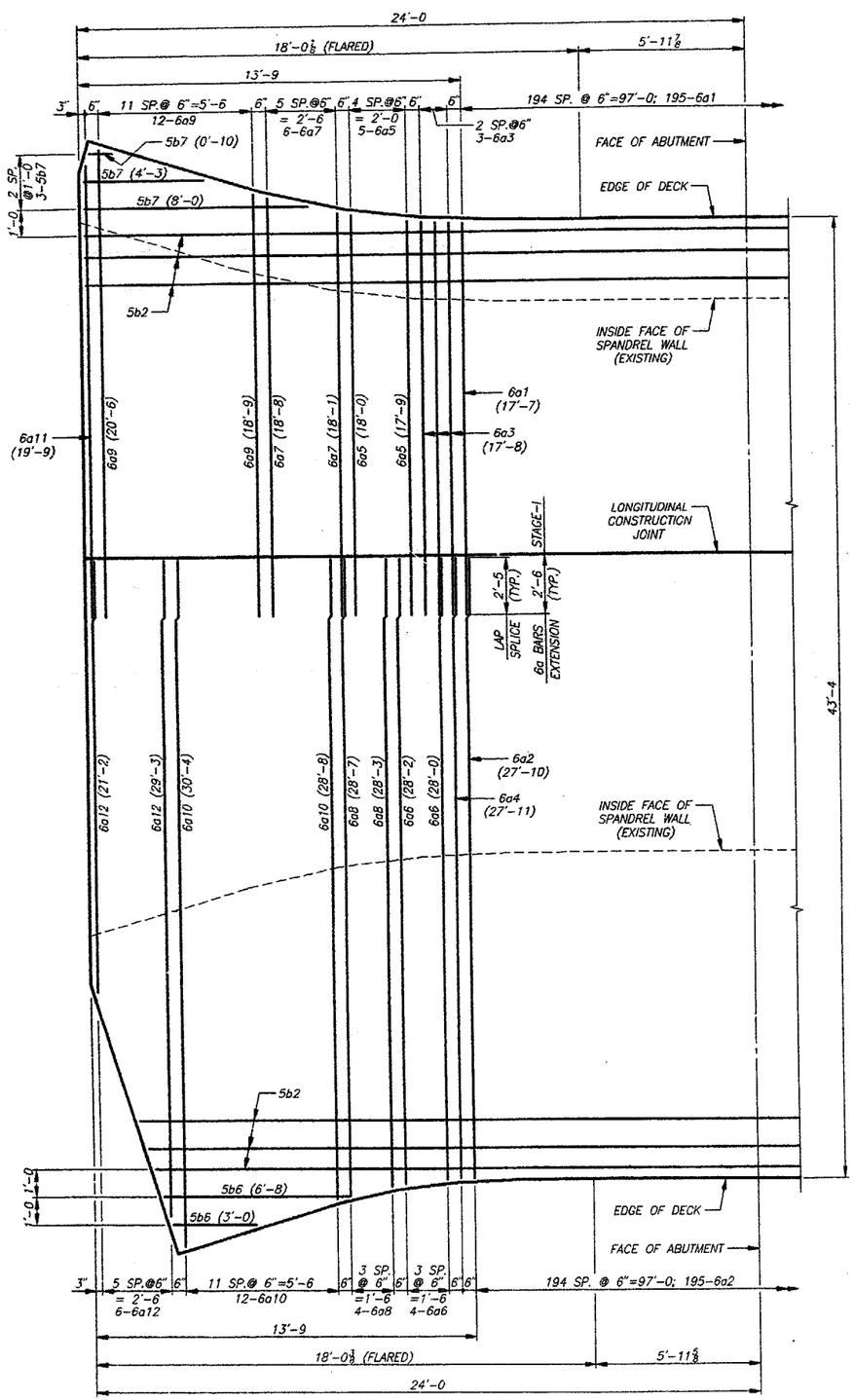
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

SUPERSTRUCTURE DETAILS

STATION 87+54.50 — 0° SKEW

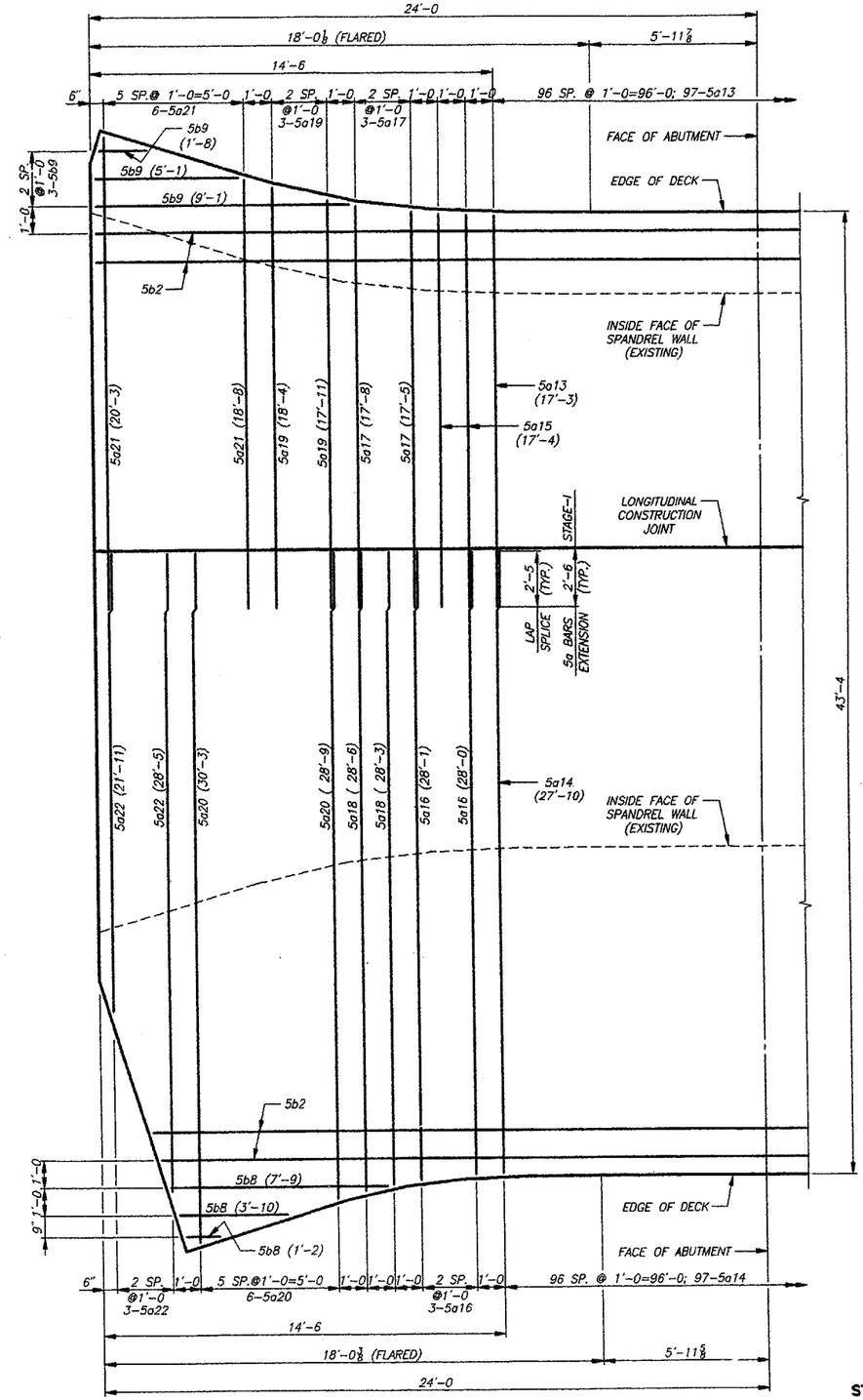
CITY OF INDEPENDENCE, — IOWA

SHEET 11 OF 38



TOP OF SLAB REINFORCING LAYOUT PLAN NEAR ABUTMENT

(RETAINING WALL NOT SHOWN)



BOTTOM OF SLAB REINFORCING LAYOUT PLAN NEAR ABUTMENT

(RETAINING WALL NOT SHOWN)

NOTE : SEE SHEETS 10 & 11 FOR SLAB REINFORCING LAYOUT.

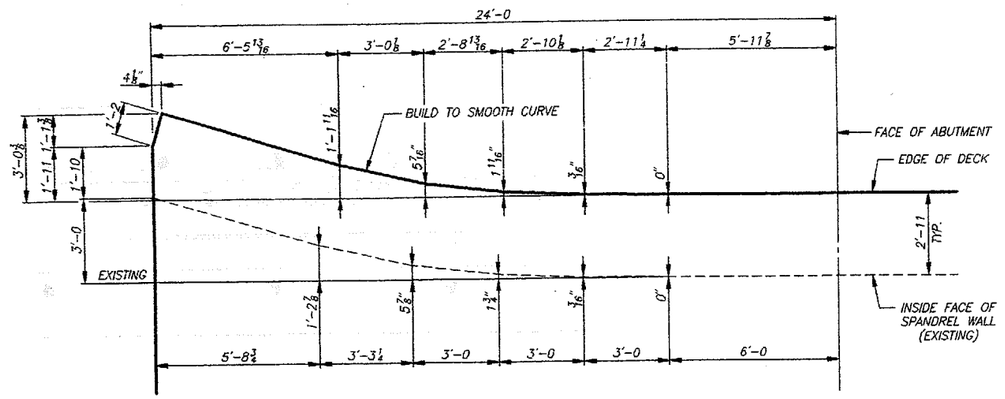
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

SUPERSTRUCTURE DETAILS

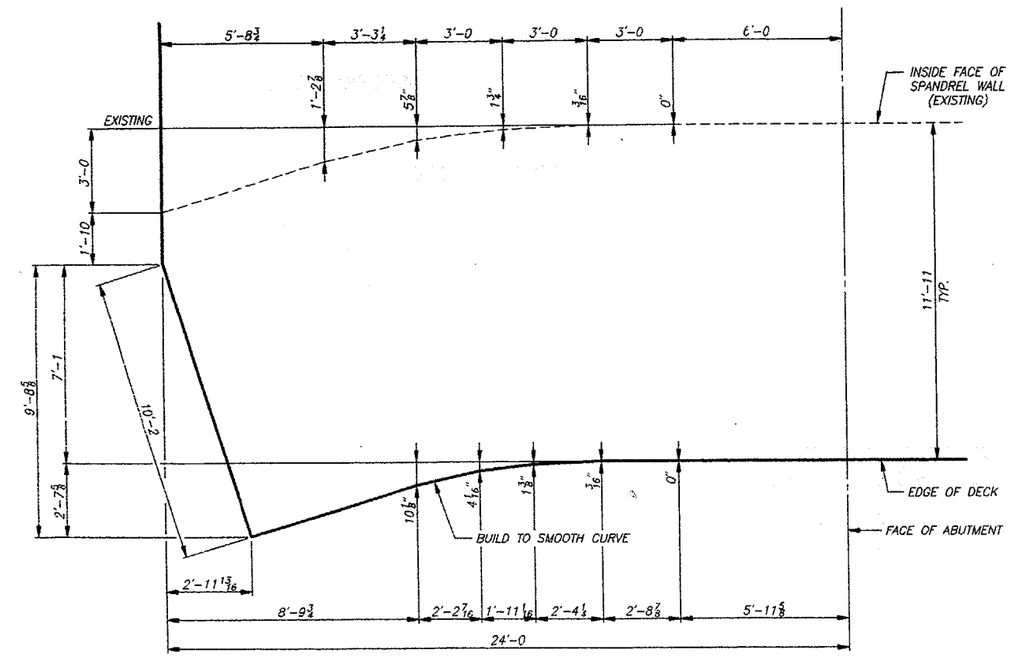
STATION 87+54.50 **0° SKEW**

CITY OF INDEPENDENCE, IOWA

SHEET 12 OF 38



DETAIL–1

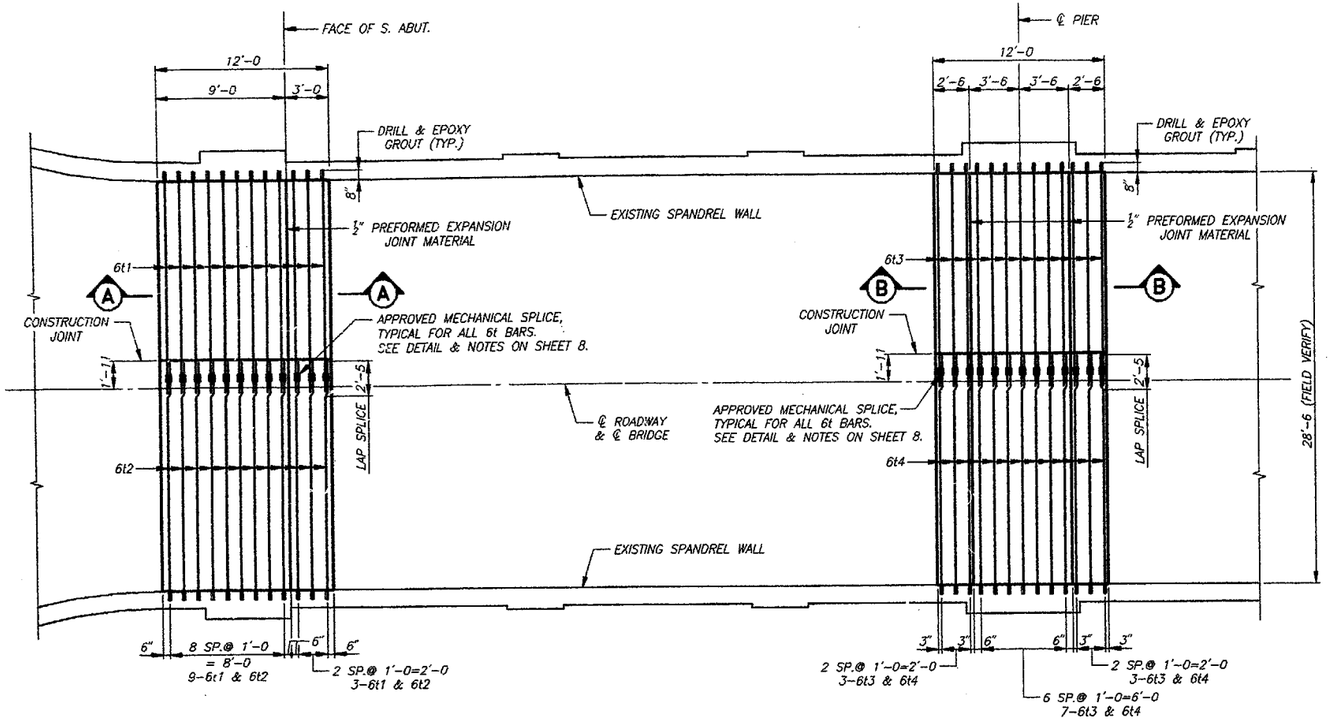


DETAIL–2
(RETAINING WALL NOT SHOWN)

DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

SUPERSTRUCTURE DETAILS

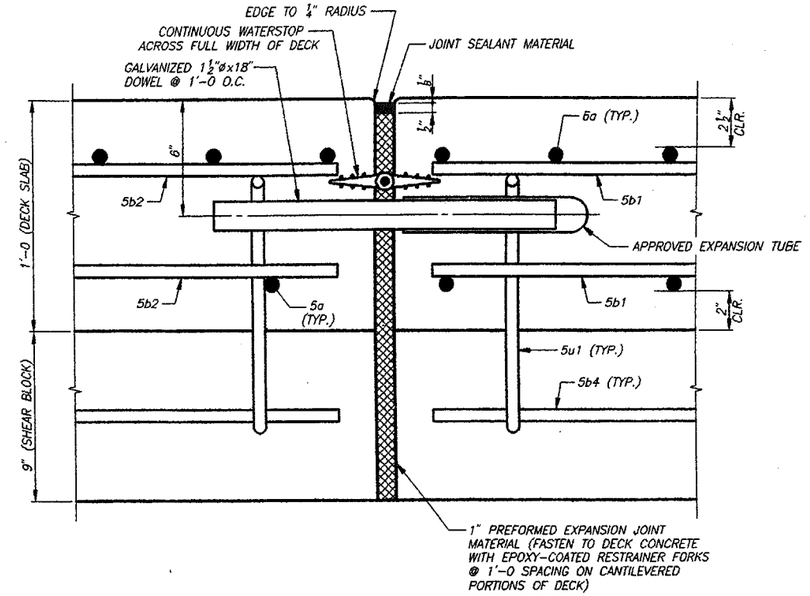
STATION 87+54.50 **0° SKEW**
CITY OF INDEPENDENCE, **IOWA**
SHEET 13 OF 38



TYP. AT BOTH ABUTMENTS

TYP. AT ALL PIERS

TENSION TIE CONCRETE DETAIL PLAN

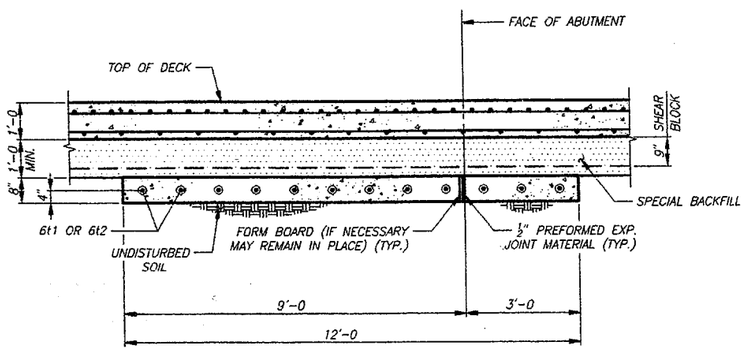


SECTION C-C

(DECK SLAB EXPANSION JOINT, TYP. AT S. PIER & N. PIER)

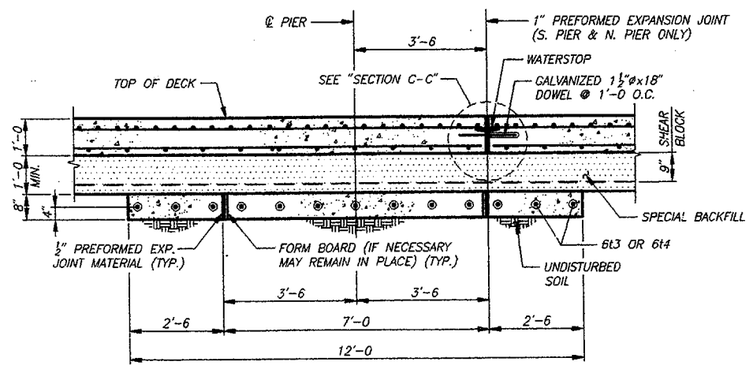
WATERSTOP NOTE

THE WATERSTOP AT S. PIER AND N. PIER SHALL BE AS MANUFACTURED BY "GREENSTREAK, STYLE NO. 705, 6"x⅜" RIBBED WITH CENTER BULB, PVC", "BOMETALS, INC., CAT NO. RCB-638, 6"x⅜" RIBBED WITH CENTER BULB, PVC" OR APPROVED EQUAL. THE CENTER BULB SHALL BE CENTERED IN THE 1" JOINT. THE WATERSTOP SHALL EXTEND ACROSS THE FULL WIDTH OF THE DECK, AND STOP ½" SHORT FROM EACH EDGE OF DECK. WATERSTOP SHALL BE CUT AND SEALED AT ENDS ONLY. NO OTHER SPLICES OR CUTS IN THE WATERSTOP ARE ALLOWED. INSTALL PER MANUFACTURES RECOMMENDATIONS. COMPLETE INSTALLED COST OF WATERSTOP SHALL BE INCLUDED IN THE PRICE BID FOR "STRUCTURAL CONCRETE (BRIDGE).



SECTION A-A

(TENSION TIE CONCRETE FOR ABUTMENT)



SECTION B-B

(TENSION TIE CONCRETE FOR PIER)

DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

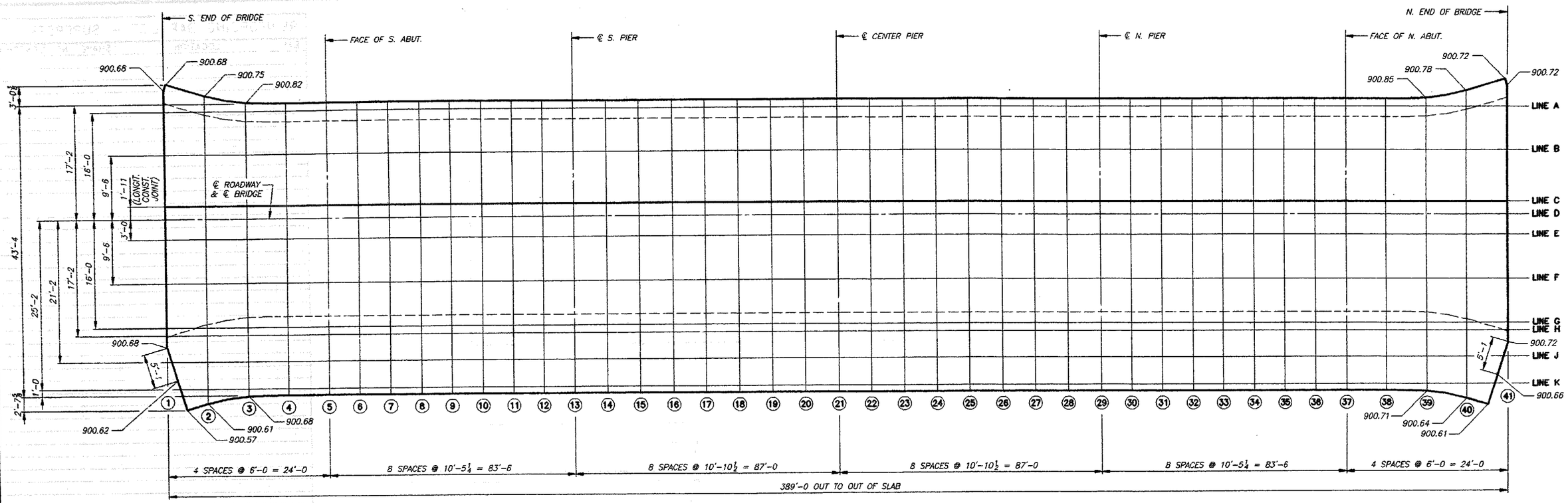
SUPERSTRUCTURE DETAILS

STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178
DESIGNED BY : RJV
DRAWN BY : YCK
CHECKED BY : AGP
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711

BENCH MARK : BRASS DISK AT S.E. CORNER OF BRIDGE, ELEV.= 900.645



TOP OF SLAB ELEVATIONS

LINE \ COL.	SOUTH END OF BRIDGE (1)	(2)	(3)	(4)	FACE OF SOUTH ABUT. (5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	℄ SOUTH PIER (13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	℄ CENTER PIER (21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	℄ NORTH PIER (29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	FACE OF NORTH ABUT. (37)	(38)	(39)	(40)	NORTH END OF BRIDGE (41)	LINE \ COL.
A	900.72	900.77	900.82	900.87	900.92	901.01	901.09	901.18	901.27	901.35	901.43	901.50	901.56	901.62	901.67	901.71	901.75	901.77	901.79	901.81	901.81	901.81	901.80	901.78	901.75	901.72	901.68	901.63	901.58	901.52	901.45	901.38	901.29	901.21	901.12	901.04	900.95	900.90	900.85	900.80	900.76	A
B	900.82	900.87	900.92	900.97	901.02	901.11	901.19	901.28	901.37	901.45	901.53	901.60	901.66	901.72	901.77	901.81	901.85	901.87	901.89	901.91	901.91	901.91	901.90	901.88	901.85	901.82	901.78	901.73	901.68	901.62	901.55	901.48	901.39	901.31	901.22	901.14	901.05	901.00	900.95	900.90	900.86	B
C	900.93	900.98	901.03	901.08	901.13	901.22	901.30	901.39	901.48	901.56	901.64	901.71	901.77	901.83	901.88	901.92	901.96	901.98	902.00	902.02	902.02	902.02	902.01	901.99	901.96	901.93	901.89	901.84	901.79	901.73	901.66	901.59	901.50	901.42	901.33	901.25	901.16	901.11	901.06	901.01	900.97	C
D	900.94	900.99	901.04	901.09	901.14	901.23	901.31	901.40	901.49	901.57	901.65	901.72	901.78	901.84	901.89	901.93	901.97	901.99	902.01	902.03	902.03	902.03	902.02	902.00	901.97	901.94	901.90	901.85	901.80	901.74	901.67	901.60	901.51	901.43	901.34	901.26	901.17	901.12	901.07	901.02	900.98	D
E	900.92	900.97	901.02	901.07	901.12	901.21	901.29	901.38	901.47	901.55	901.63	901.70	901.76	901.82	901.87	901.91	901.95	901.97	901.99	902.01	902.01	902.01	902.00	901.98	901.95	901.92	901.88	901.83	901.78	901.72	901.65	901.58	901.49	901.41	901.32	901.24	901.15	901.10	901.05	901.00	900.96	E
F	900.82	900.87	900.92	900.97	901.02	901.11	901.19	901.28	901.37	901.45	901.53	901.60	901.66	901.72	901.77	901.81	901.85	901.87	901.89	901.91	901.91	901.91	901.90	901.88	901.85	901.82	901.78	901.73	901.68	901.62	901.55	901.48	901.39	901.31	901.22	901.14	901.05	901.00	900.95	900.90	900.86	F
G	900.72	900.77	900.82	900.87	900.92	901.01	901.09	901.18	901.27	901.35	901.43	901.50	901.56	901.62	901.67	901.71	901.75	901.77	901.79	901.81	901.81	901.81	901.80	901.78	901.75	901.72	901.68	901.63	901.58	901.52	901.45	901.38	901.29	901.21	901.12	901.04	900.95	900.90	900.85	900.80	900.76	G
H	900.71	900.76	900.81	900.86	900.91	901.00	901.08	901.17	901.26	901.34	901.42	901.49	901.55	901.61	901.66	901.70	901.74	901.76	901.78	901.80	901.80	901.80	901.79	901.77	901.74	901.71	901.67	901.62	901.57	901.51	901.44	901.37	901.28	901.20	901.11	901.03	900.94	900.89	900.84	900.79	900.75	H
J	900.65	900.70	900.75	900.80	900.85	900.94	901.02	901.11	901.20	901.28	901.36	901.43	901.49	901.55	901.60	901.64	901.68	901.70	901.72	901.74	901.74	901.74	901.73	901.71	901.68	901.65	901.61	901.56	901.51	901.45	901.38	901.31	901.22	901.14	901.05	900.97	900.88	900.83	900.78	900.73	900.69	J
K	900.59	900.64	900.69	900.74	900.79	900.88	900.96	901.05	901.14	901.22	901.30	901.37	901.43	901.49	901.54	901.58	901.62	901.64	901.66	901.68	901.68	901.68	901.67	901.65	901.62	901.59	901.55	901.50	901.45	901.39	901.32	901.25	901.16	901.08	900.99	900.91	900.82	900.77	900.72	900.67	900.63	K

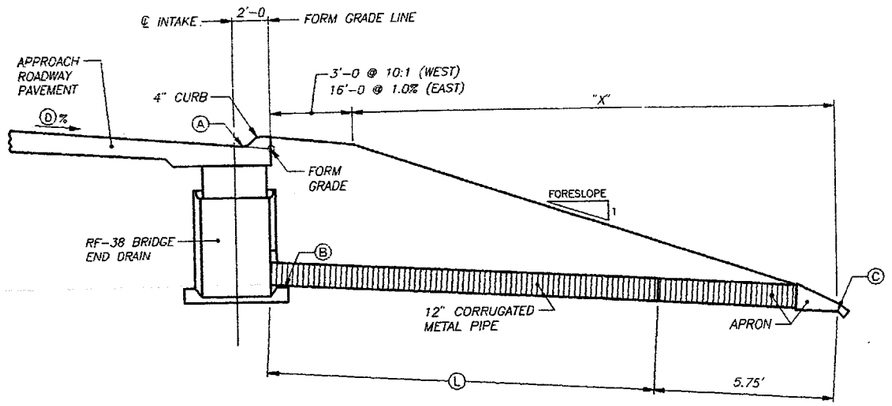
DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

SUPERSTRUCTURE DETAILS

STATION 87+54.50 — 0° SKEW
CITY OF INDEPENDENCE, — IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344

JOB NO. 97178 | DESIGNED BY : RJV | DRAWN BY : RR | CHECKED BY : JCZ | DESIGN NO. 5198 | BUCHANAN COUNTY | FILE NO. 55711

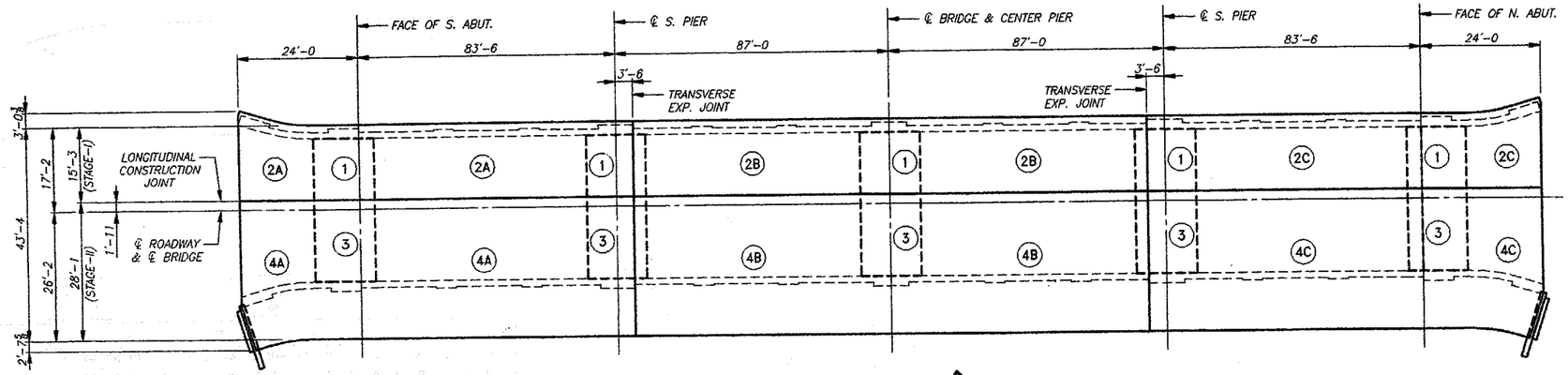


TYPICAL SECTION
RF-38 BRIDGE END DRAIN

LOCATION		ELEVATION				SLOPE	LENGTH		
STATION	SIDE	FORM GRADE	A	B	C	D	L	FORESLOPE	"X"
85+45.00	L	900.54	900.44	894.69	887.50	1.5	31'	EXISTING	32.5'
85+45.00	R	900.65	900.55	894.80	886.00	0.9	35'	EXISTING	23.3'
89+64.00	R	900.58	900.48	894.73	893.50	1.5	32'	3	21.2'

NOTES :
FLOW LINE Ⓐ ELEVATION IS 0.1' BELOW FROM GRADE ELEVATION.
FLOW LINE Ⓑ ELEVATION IS 5.75' BELOW FLOW LINE Ⓐ
FOR ACTUAL FLOW LINE ELEVATIONS OF Ⓐ, Ⓑ, Ⓒ AND DIMENSION Ⓛ SEE TABULATION ABOVE.
Ⓒ = 0' TO 0.5' ABOVE DITCH GRADE

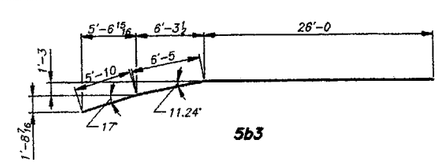
NOTES :
1. SEE STANDARD DRAWINGS RF-38(1) & RF-38(2) FOR ADDITIONAL DETAILS.
2. ALL JOINTS IN CORRUGATED METAL PIPE MADE WITH CONNECTING BANDS SHALL BE INSTALLED WITH APPROVED ASPHALTIC SEALER TO ENSURE A WATER-TIGHT JOINT.



CONCRETE PLACEMENT DIAGRAM

THE BRIDGE SLAB AND TENSION TIES SHALL BE PLACED IN SECTIONS AND IN THE SEQUENCE INDICATED BY CIRCLED NUMBERS. ALTERNATE PROCEDURES FOR PLACING CONCRETE MAY BE SUBMITTED FOR APPROVAL TOGETHER WITH A STATEMENT OF THE PROPOSED METHODS AND EVIDENCE THAT THE CONTRACTOR POSSESSES THE NECESSARY EQUIPMENT AND FACILITIES TO ACCOMPLISH THE REQUIRED RESULTS.

BENT BAR DETAILS



ALL DIMENSIONS ARE OUT TO OUT. D = DIAMETER OF PIN

REINFORCING BAR LIST - SUPERSTRUCTURE

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6a1	SLAB, TRANSVERSE, TOP, STAGE I	——	724	17'-7	19,121
6a2	SLAB, TRANSVERSE, TOP, STAGE II	——	724	27'-10	30,267
6a3	SLAB, TRANSVERSE, TOP, STAGE I	——	6	17'-8	159
6a4	SLAB, TRANSVERSE, TOP, STAGE II	——	2	27'-11	84
6a5	SLAB, TRANSVERSE, TOP, STAGE I	——	10	VARIES	268
6a6	SLAB, TRANSVERSE, TOP, STAGE II	——	8	VARIES	337
6a7	SLAB, TRANSVERSE, TOP, STAGE I	——	12	VARIES	331
6a8	SLAB, TRANSVERSE, TOP, STAGE II	——	8	VARIES	341
6a9	SLAB, TRANSVERSE, TOP, STAGE I	——	24	VARIES	707
6a10	SLAB, TRANSVERSE, TOP, STAGE II	——	24	VARIES	1,063
6a11	SLAB, TRANSVERSE, TOP, STAGE I	——	2	19'-9	59
6a12	SLAB, TRANSVERSE, TOP, STAGE II	——	12	VARIES	454
5a13	SLAB, TRANSVERSE, BOTT., STAGE I	——	362	17'-3	6,513
5a14	SLAB, TRANSVERSE, BOTT., STAGE II	——	362	27'-10	10,509
5a15	SLAB, TRANSVERSE, BOTT., STAGE I	——	4	17'-4	72
5a16	SLAB, TRANSVERSE, BOTT., STAGE II	——	6	VARIES	175
5a17	SLAB, TRANSVERSE, BOTT., STAGE I	——	6	VARIES	110
5a18	SLAB, TRANSVERSE, BOTT., STAGE II	——	4	VARIES	118
5a19	SLAB, TRANSVERSE, BOTT., STAGE I	——	6	VARIES	113
5a20	SLAB, TRANSVERSE, BOTT., STAGE II	——	12	VARIES	369
5a21	SLAB, TRANSVERSE, BOTT., STAGE I	——	12	VARIES	244
5a22	SLAB, TRANSVERSE, BOTT., STAGE II	——	6	VARIES	158
5b1	SLAB, LONGIT., TOP & BOTT.	——	352	43'-3	15,879
5b2	SLAB, LONGIT., TOP & BOTT.	——	528	38'-3	21,064
5b3	SLAB, LONGIT., SHEAR BLOCK	⌒	4	38'-3	160
5b4	SLAB, LONGIT., SHEAR BLOCK	——	8	43'-2	360
5b5	SLAB, LONGIT., SHEAR BLOCK	——	8	38'-5	321
5b6	SLAB, LONGIT., FLARE, TOP	——	4	SHOWN	20
5b7	SLAB, LONGIT., FLARE, TOP	——	6	SHOWN	27
5b8	SLAB, LONGIT., FLARE, BOTT.	——	6	SHOWN	27
5b9	SLAB, LONGIT., FLARE, BOTT.	——	6	SHOWN	33
6t1	ABUT., TENSION TIE, STAGE I	——	24	15'-6	559
6t2	ABUT., TENSION TIE, STAGE II	——	24	16'-9	604
6t3	PIER, TENSION TIE, STAGE I	——	39	15'-6	908
6t4	PIER, TENSION TIE, STAGE II	——	39	16'-9	981
5u1	SLAB, TRANSVERSE, STIRRUPS	⊓	520	5'-10	3,164
	CONCRETE TRAFFIC BARRIER, SEE SHEET 18				19,032
	EPOXY COATED TOTAL (LBS.)				134,711

CONCRETE PLACEMENT QUANT.-SUPERSTR.

LOCATION		QUANTITY
SLAB, SECTION (2A) & (2C)	2 @ 65.9	131.8
SLAB, SECTION (2B)		98.5
SLAB, SECTION (4A) & (4C)	2 @ 112.6	225.2
SLAB, SECTION (4B)		169.0
TENSION TIES (1)	5 @ 3.7	18.5
TENSION TIES (3)	5 @ 4.8	24.0
TOTAL (CU.YDS.)		667.0

ESTIMATED QUANTITIES - SUPERSTRUCTURE

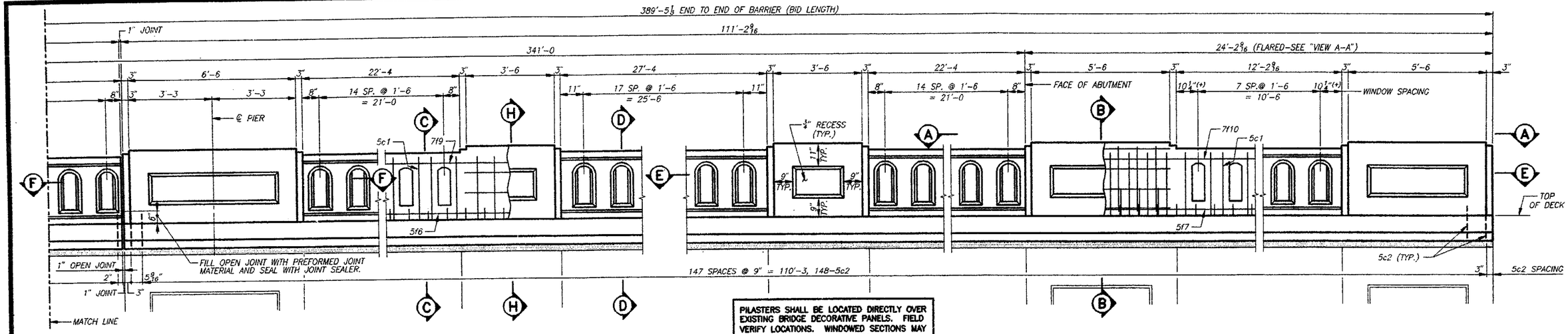
ITEM	UNIT	QUANTITY
CONCRETE, STRUCTURAL	CU.YDS.	667.0
STEEL, REINFORCING, EPOXY COATED	LBS.	134,711
STEEL, STRUCTURAL	LBS.	572

DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

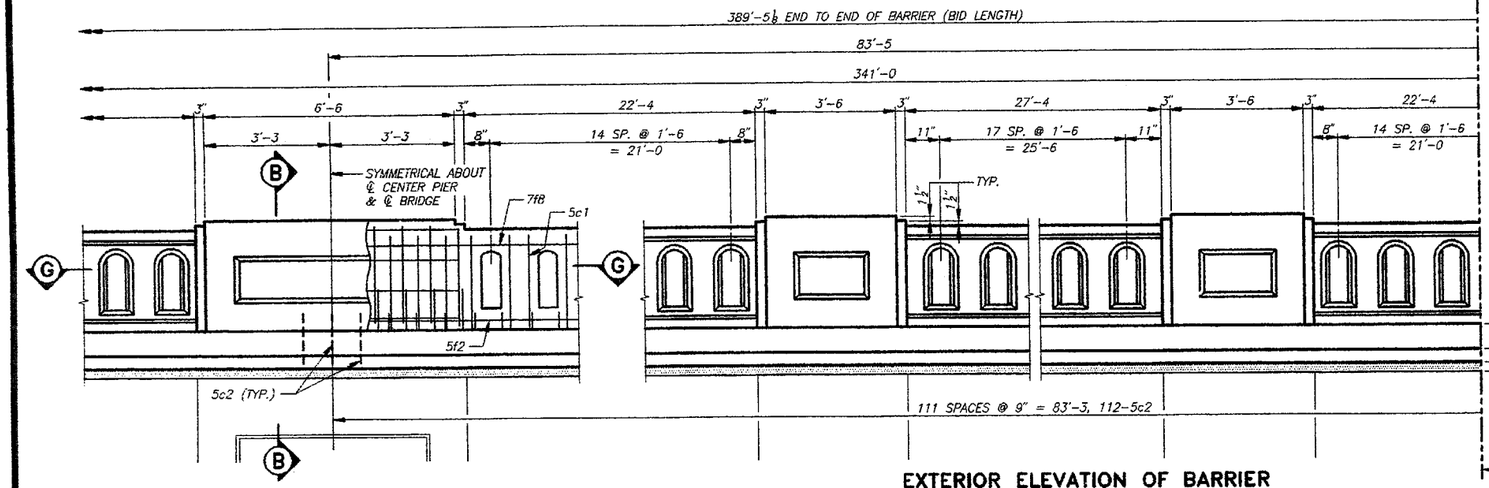
SUPERSTRUCTURE DETAILS

STATION 87+54.50 — 0° SKEW
CITY OF INDEPENDENCE, — IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178
DESIGNED BY : RJV
DRAWN BY : TCK
CHECKED BY : ACP
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711



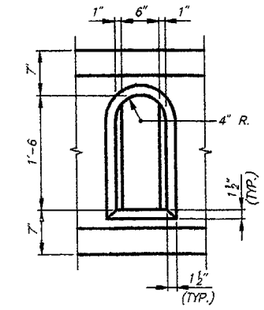
PILASTERS SHALL BE LOCATED DIRECTLY OVER EXISTING BRIDGE DECORATIVE PANELS. FIELD VERIFY LOCATIONS. WINDOWED SECTIONS MAY REQUIRE ADJUSTMENTS TO MATCH.



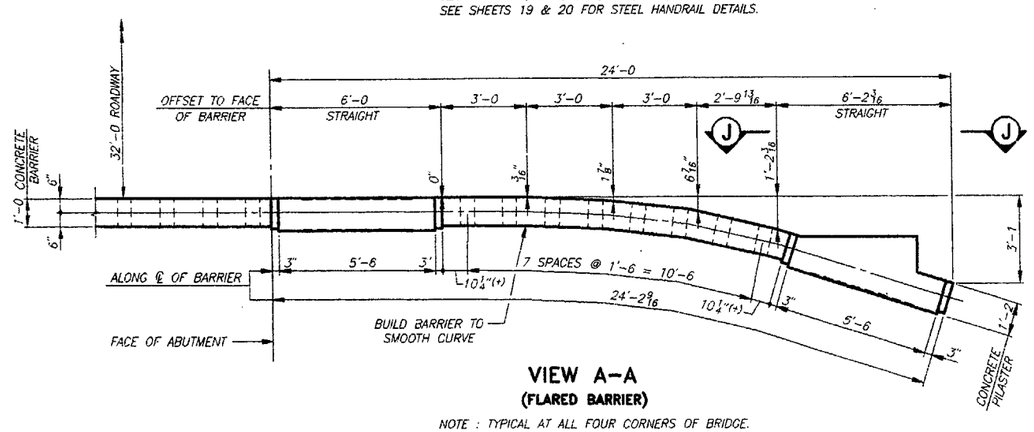
EXTERIOR ELEVATION OF BARRIER

(WEST BARRIER SHOWN LOOKING EAST)

NOTES : SEE SHEET 18 FOR QUANITIES AND SECTIONS B-B, C-C, D-D, E-E, F-F, G-G & H-H. SEE SHEETS 19 & 20 FOR STEEL HANDRAIL DETAILS.



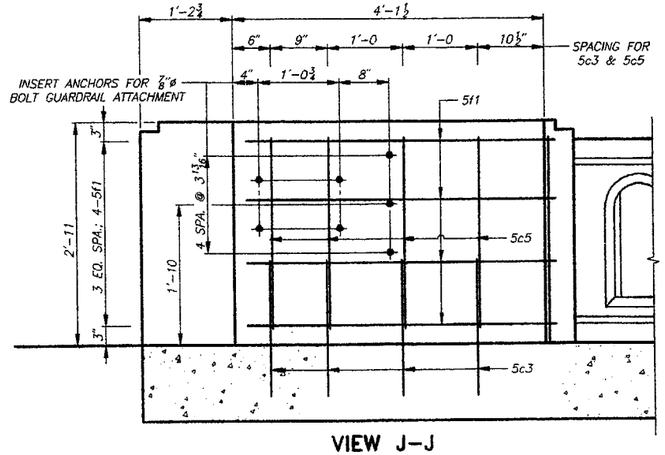
WINDOW DETAIL



VIEW A-A

(FLARED BARRIER)

NOTE : TYPICAL AT ALL FOUR CORNERS OF BRIDGE.



VIEW J-J

CONCRETE TRAFFIC BARRIER NOTES

THIS BARRIER HAS BEEN SUCCESSFULLY EVALUATED BY FULL-SCALE IMPACT TESTS CONDUCTED IN ACCORDANCE WITH NCHRP REPORT 230. TEST DOCUMENTATION MAY BE FOUND IN RESEARCH REPORT 1185-1, "AESTHETICALLY PLEASING CONCRETE BEAM AND POST BRIDGE RAIL-TEXAS TYPE T411", OF RESEARCH STUDY 2-5-88/89-1185-1, "AESTHETICALLY PLEASING BRIDGE RAILS", TEXAS TRANSPORTATION INSTITUTE MARCH 1989.

FACE OF BARRIER SHALL BE VERTICAL TRANSVERSELY UNLESS OTHERWISE APPROVED BY THE ENGINEER.

ALL CONCRETE FOR BARRIER AND PILASTERS SHALL BE CLASS "D". A CLASS 3 SPECIAL SURFACE FINISH SHALL BE APPLIED TO ALL BARRIER AND PILASTER SURFACES. SEE IDOT STANDARD SPECIFICATION 2403.21 C, AND IDOT MATERIAL I.M. 491.10.

IN ADDITION TO THE SPECIAL SURFACE FINISH, A PENETRATING SEALER SHALL BE APPLIED TO ALL BARRIER AND PILASTER SURFACES. THE SEALER SHALL COMPLY WITH MATERIALS I.M. 491.12. APPENDIX B, AND BE APPLIED BY SPRAY. THE SEALER SHALL BE SPOT TESTED, AS DIRECTED BY THE ENGINEER, TO ENSURE THE CONCRETE COLOR IS NOT ADVERSELY AFFECTED AND THAT THERE IS NOT A GLOSSY FINISH. BEFORE APPLICATION OF SEALER, NEW CONCRETE SURFACES MUST BE SOUND, CLEAN AND DRY. THE SEALER SHALL BE APPLIED ALONG EACH GUTTER LINE, EXTENDING 3 INCHES ONTO THE ROADWAY, AND ONTO ALL SURFACES OF THE CONCRETE BARRIERS AND PILASTERS. ALL COST OF LABOR, MATERIALS AND EQUIPMENT TO APPLY THE SEALER SHALL BE INCLUDED IN THE UNIT PRICE BID FOR "CONCRETE BARRIER RAILING".

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE CONCRETE TRAFFIC BARRIER IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF BARRIER. THE NUMBER OF LINEAL FEET OF TRAFFIC BARRIER INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT. PRICE BID FOR CONCRETE BARRIER RAILING SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, EXCLUDING REINFORCING STEEL, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE BARRIER IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.

ALL TRAFFIC BARRIER REINFORCING STEEL IS TO BE INCLUDED WITH THE SUPER-STRUCTURE REINFORCING STEEL.

ALL EXPOSED CORNERS OF 90° OR SHARPER ARE TO BE FILLETED WITH A 3/4" DRESSED AND BEVELED STRIP.

ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.

ALTERNATE METHODS FOR FORMING THE BARRIER RAIL WINDOWS, SUCH AS EPS OR URETHANE BLOCKOUTS, MAY BE USED WITH APPROVAL OF THE ENGINEER. THESE FORMS SHALL PROVIDE CRISP LINES AND CORNERS WITHOUT VOIDS.

THE JOINT SEALER SHALL CONFORM TO FEDERAL SPECIFICATION TT-S00230 OR TT-S00227 FOR TYPE II, CLASS A OR B. COST OF THE JOINT SEALER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.

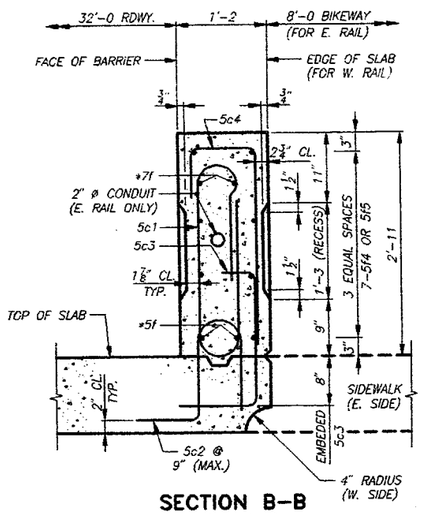
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

CONCRETE TRAFFIC BARRIER DETAILS

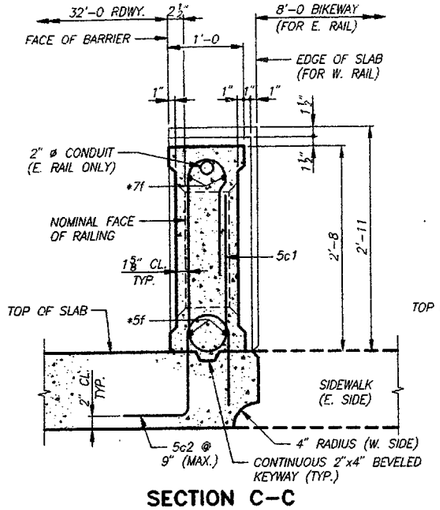
STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, IOWA

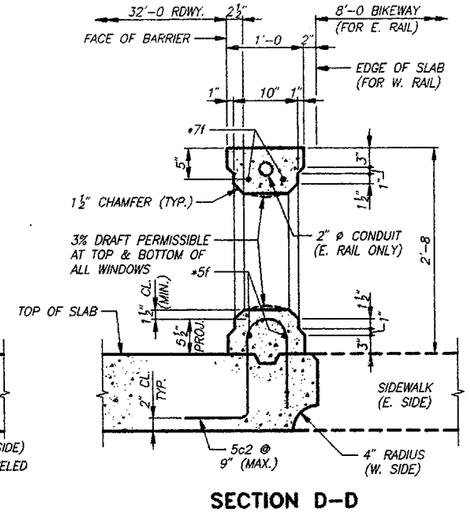
CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
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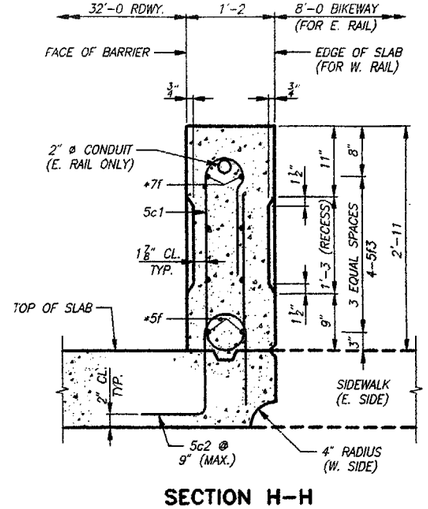
SECTION B–B
(PILASTER)



SECTION C–C
(POST)



SECTION D–D
(WINDOW)



SECTION H–H
(PILASTER)

* 5'-9 MINIMUM LAP SPLICE REQUIRED, INCLUDED IN REINFORCING BAR LIST.

REINFORCING BAR LIST – TWO RAILINGS

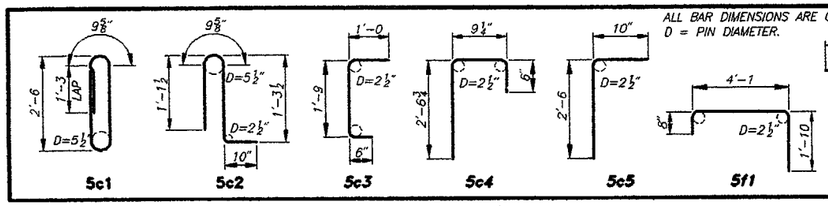
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5c1	VERTICAL		1,030	6'-9	7,251
5c2	RAIL TO SLAB		1,042	4'-1	4,437
5c3	PILASTER, VERTICAL TO SLAB		136	3'-3	461
5c4	PILASTER, VERTICAL		116	3'-10	464
5c5	END PILASTER, VERTICAL		20	3'-4	70
5f1	END PILASTER, HORIZONTAL		16	6'-7	110
5f2	LONGITUDINAL, BOTT., INTERIOR SPANS		20	38'-0	793
5f3	PILASTER (L=3'-6), LONGITUDINAL		64	3'-8	245
5f4	PILASTER (L=5'-6), LONGITUDINAL		56	5'-8	331
5f5	PILASTER (L=6'-6), LONGITUDINAL		42	6'-8	292
5f6	LONGITUDINAL, BOTT., END SPANS		16	40'-10	681
5f7	LONGITUDINAL, BOTT., ABUTMENTS		8	40'-10	341
7f8	LONGITUDINAL, TOP, INTERIOR SPANS		20	38'-0	1,553
7f9	LONGITUDINAL, TOP, END SPANS		16	40'-10	1,335
7f10	LONGITUDINAL, TOP, ABUTMENTS		8	40'-10	668
ALL REINFORCING IS TO BE EPOXY COATED.			TOTAL (LBS.)		19,032

CONCRETE PLACEMENT QUANTITY

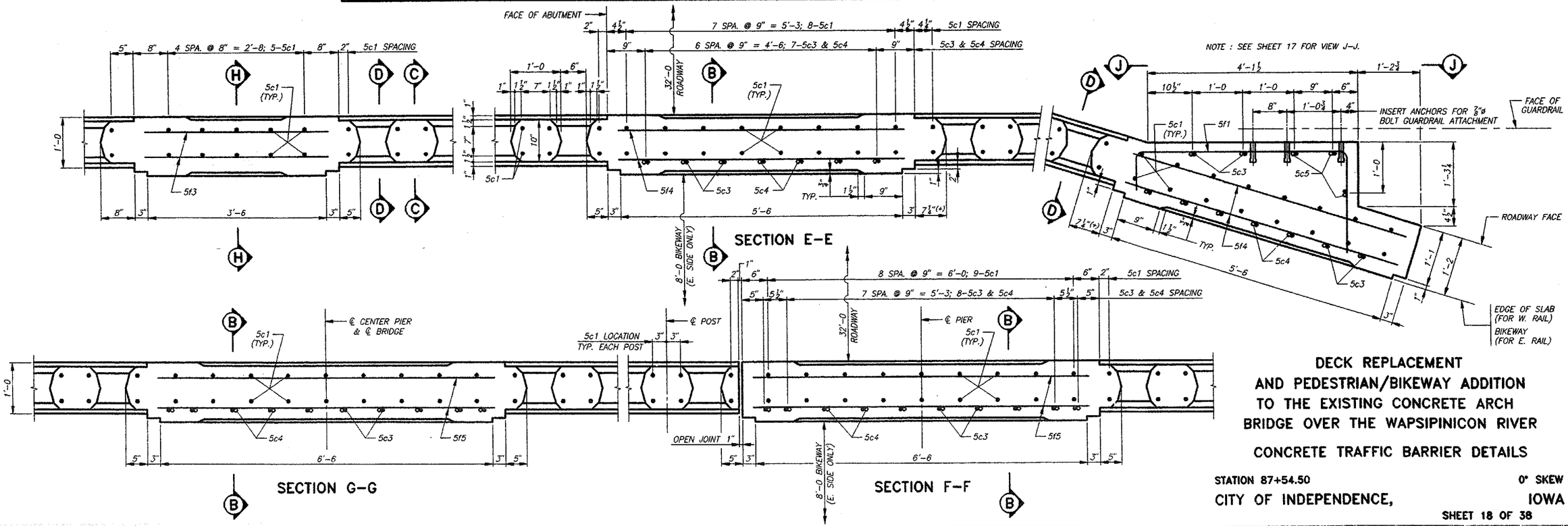
LOCATION		UNIT	QUANTITY
5'-6 END PILASTERS	4 @ 1.02	CU.YDS.	4.1
5'-6 PILASTERS	4 @ 0.73	CU.YDS.	2.9
3'-6 PILASTERS	16 @ 0.49	CU.YDS.	7.8
6'-6 PILASTERS	6 @ 0.85	CU.YDS.	5.1
12'-2 9/16 STANDARD SECTION	4 @ 0.83	CU.YDS.	3.3
22'-4 STANDARD SECTION	16 @ 1.50	CU.YDS.	24.0
27'-4 STANDARD SECTION	8 @ 1.85	CU.YDS.	14.8
	TOTAL	CU.YDS.	62.0

ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY
CONCRETE BARRIER RAILING	LIN.FT.	778.9



BENT BAR DETAILS



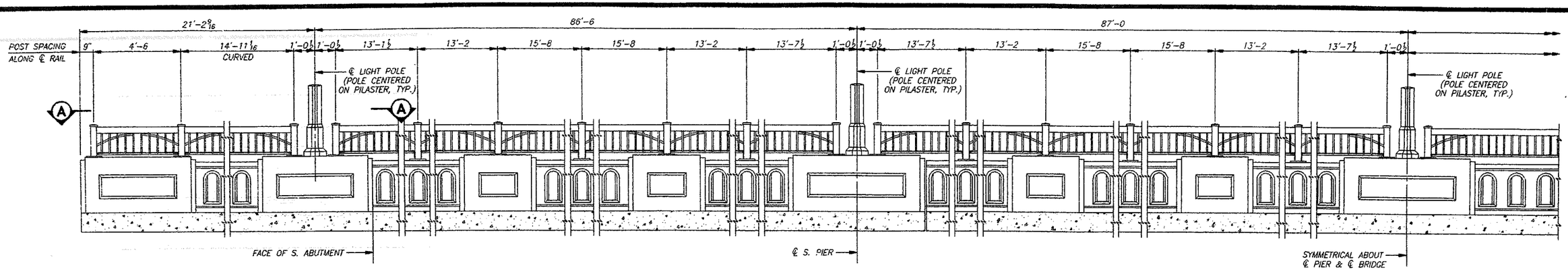
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

CONCRETE TRAFFIC BARRIER DETAILS

STATION 87+54.50 — 0° SKEW

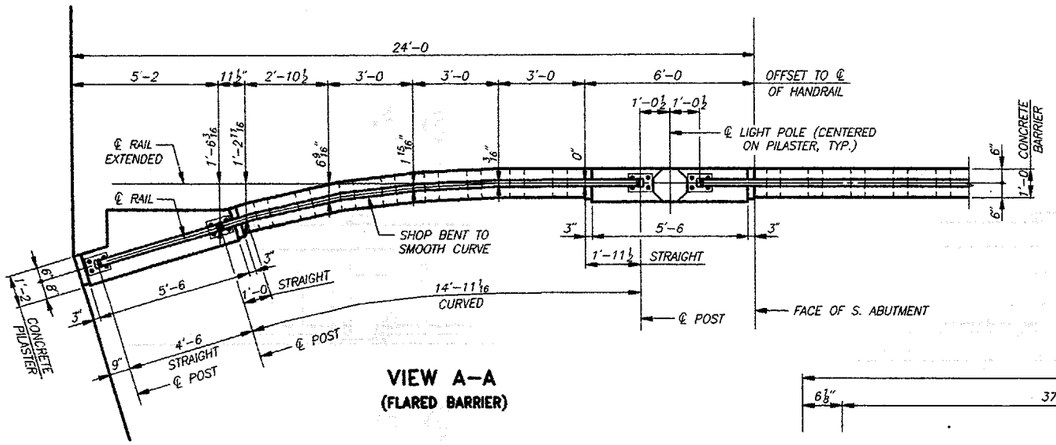
CITY OF INDEPENDENCE, IOWA

SHEET 18 OF 38

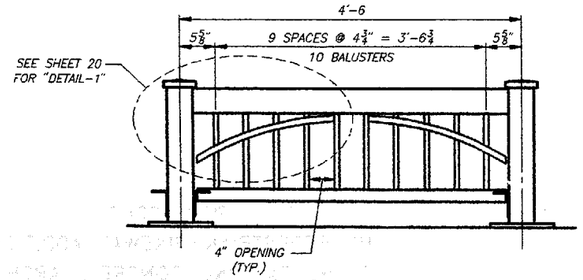


ELEVATION OF CONCRETE TRAFFIC BARRIER WITH STEEL HANDRAIL

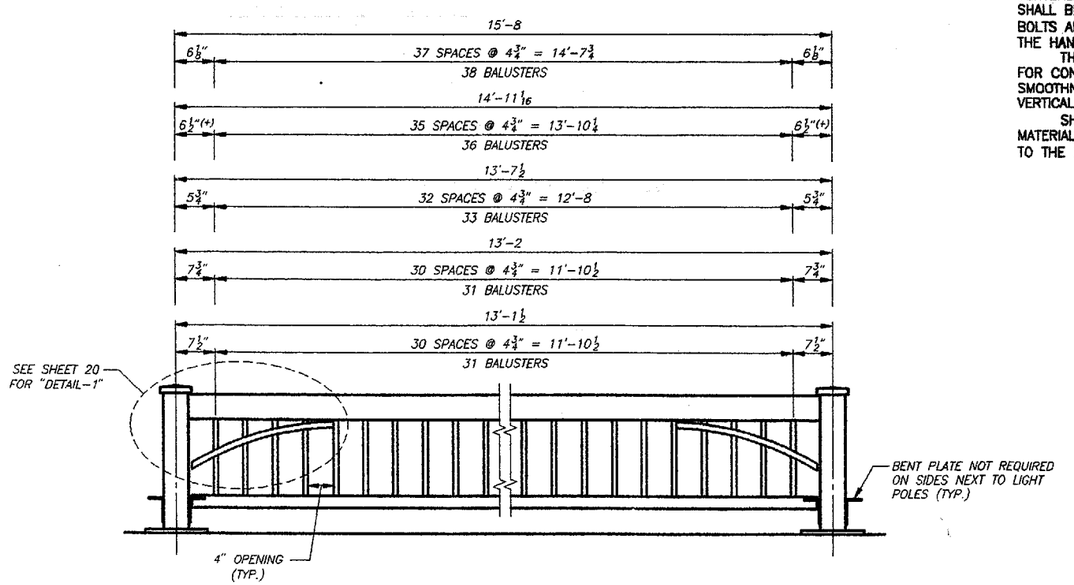
(HANDRAIL SHOWN LOOKING WEST)



VIEW A-A
(FLARED BARRIER)



4'-6 PANELS
(2 REQUIRED)



13'-1 1/2 , *(2 REQUIRED)* **13'-2 ,** *(8 REQUIRED)* **13'-7 1/2 ,** *(6 REQUIRED)* **14'-11 1/16 ,** *(2 REQUIRED)* **AND 15'-8 PANELS** *(8 REQUIRED)*

STEEL HANDRAIL PANEL LENGTHS - LOOKING WEST

STEEL HANDRAIL NOTES

MATERIAL FOR THE TUBE TOP RAIL AND POSTS SHALL MEET ASTM A500 GRADE B. MATERIAL FOR BOTTOM RAIL AND BALUSTERS SHALL MEET ASTM A36. MATERIAL FOR POST CAP SHALL MEET ASTM A36 OR MAY BE CAST IRON.

THE ENTIRE STEEL HANDRAIL AND POSTS, INCLUDING ALL CONNECTION HARDWARE, SHALL BE GALVANIZED AND GIVEN TWO SHOP APPLIED COATS OF WATERBORNE ACRYLIC FINISH PAINT IN ACCORDANCE WITH I.D.O.T. SPECIFICATIONS. PAINT COLOR SHALL BE FEDERAL COLOR STANDARD NO. 30045 (BROWN). TO ASSURE PROPER ADHESION OF THE PAINT TO THE GALVANIZED SURFACE, THE SURFACE PREPARATION AND PAINTING OF THE GALVANIZED STEEL SHALL BE IN ACCORDANCE WITH THE PAINT MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR SHALL TOUCH-UP ALL DAMAGED PAINT AREAS IN THE FIELD.

THE STUD CONCRETE ANCHORS SHALL BE GALVANIZED STEEL AND HAVE A MINIMUM PULLOUT STRENGTH OF 8000 POUNDS BASED ON 4000 PSI CONCRETE. ANCHORS SHALL BE PAINTED TO MATCH THE STEEL HANDRAIL COLOR.

THE STEEL HANDRAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM CENTERLINE TO CENTERLINE OF END POSTS. THE PRICE BID FOR "HANDRAIL, STEEL" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, INCLUDING ANCHOR BOLTS AND SHIMS, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE HANDRAIL IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.

THE HANDRAIL SHALL BE TRUE TO LINE AND COMPLY WITH THE BEST PRACTICE FOR CONSTRUCTION OF THIS TYPE. ALL MATERIAL FABRICATED SHALL EXHIBIT FLATNESS, SMOOTHNESS, AND FREEDOM FROM SURFACE BLEMISHES. ALL POSTS SHALL BE INSTALLED VERTICALLY.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER. STEEL HANDRAIL MATERIALS SHALL NOT BE ORDERED UNTIL APPROVED SHOP DRAWINGS ARE RETURNED TO THE CONTRACTOR.

ESTIMATED QUANTITIES

ITEM	UNITS	QUANTITY
STEEL SIDEWALK HANDRAIL	LIN. FT.	377.5

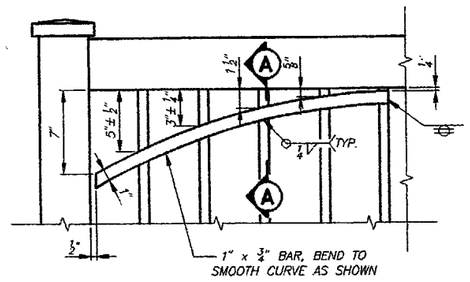
DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

STEEL HANDRAIL DETAILS

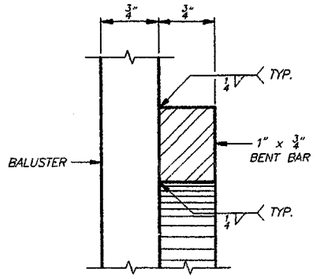
STATION 87+54.50 **0° SKEW**

CITY OF INDEPENDENCE, IOWA

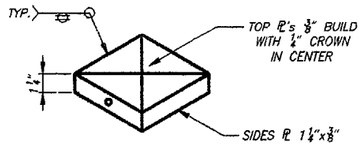
SHEET 19 OF 38



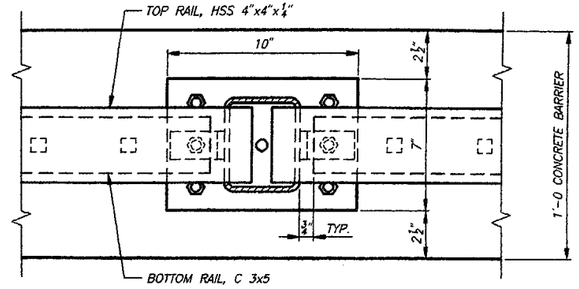
DETAIL-1



SECTION A-A

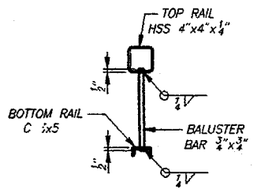


POST CAP DETAIL

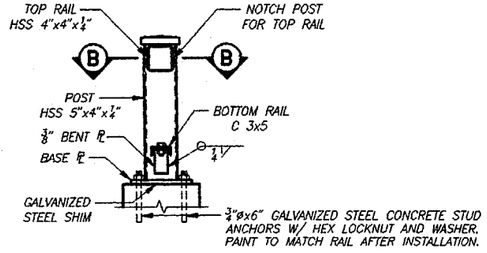


TYPICAL PLAN VIEW AT POST

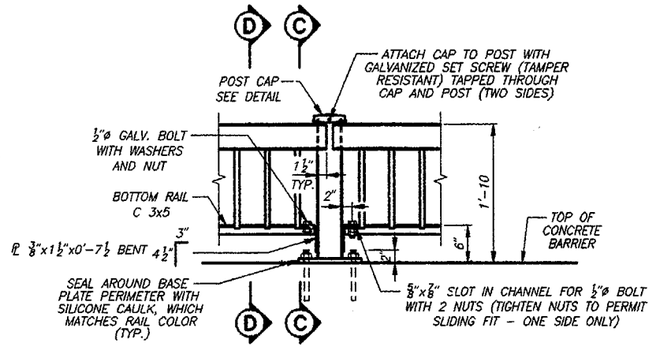
NOTE : POST CAP NOT SHOWN.



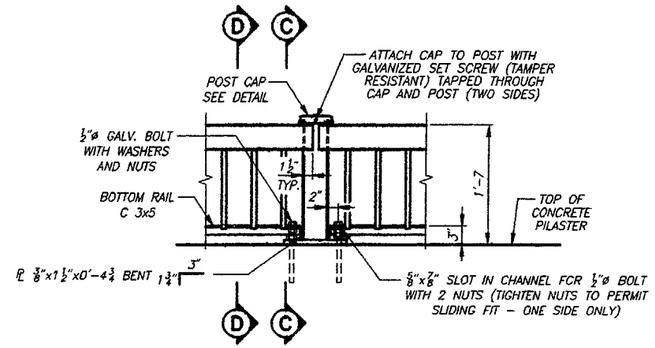
SECTION D-D



SECTION C-C

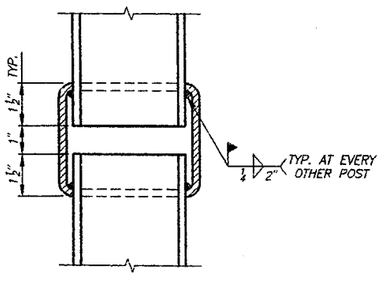


SIDE ELEVATION ON RAIL

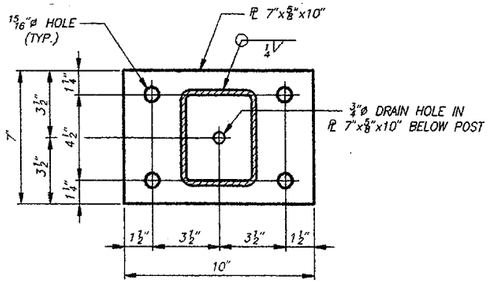


SIDE ELEVATION AT PILASTER

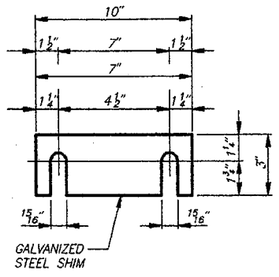
HANDRAIL/BALUSTER DETAILS



SECTION B-B

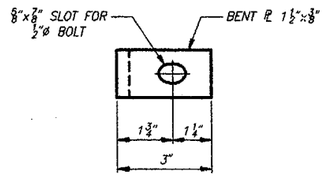


POST BASE DETAIL



NOTE : PROVIDE 2-10"x1/16" AND 2-7"x1/16" SHIMS FOR EACH HANDRAIL POST. USE AT LEAST ONE PAIR OF SHIMS.

RAIL POST SHIM DETAIL



BOTTOM RAIL CONNECTION PLATE

DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

STEEL HANDRAIL DETAILS

STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344

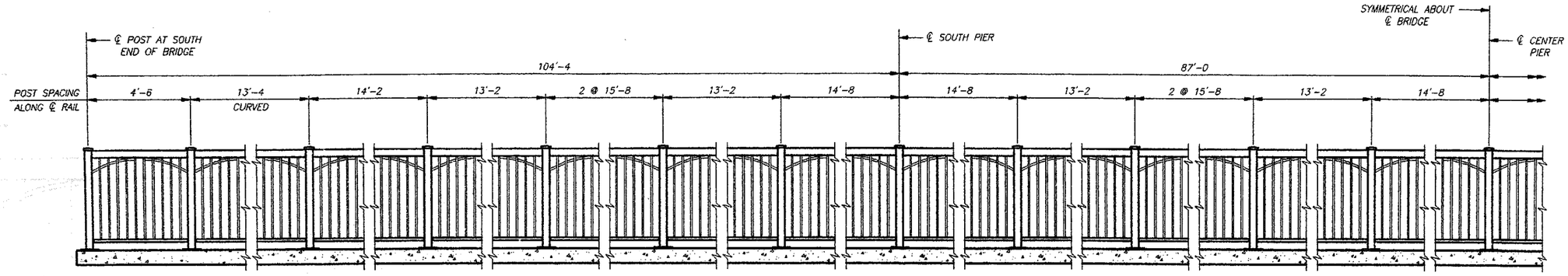
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DESIGNED BY : ACP
DRAWN BY : RJL
CHECKED BY : RJM

DESIGN NO. 5198

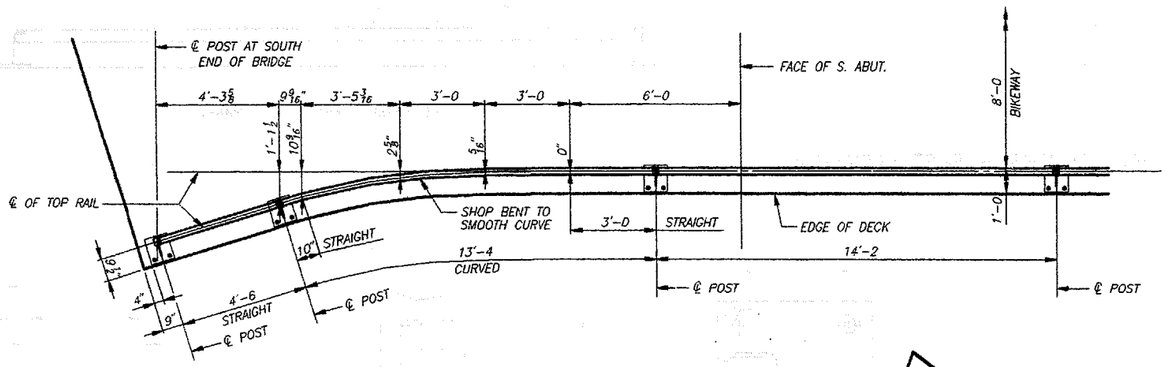
BUCHANAN COUNTY

FILE NO. 55711

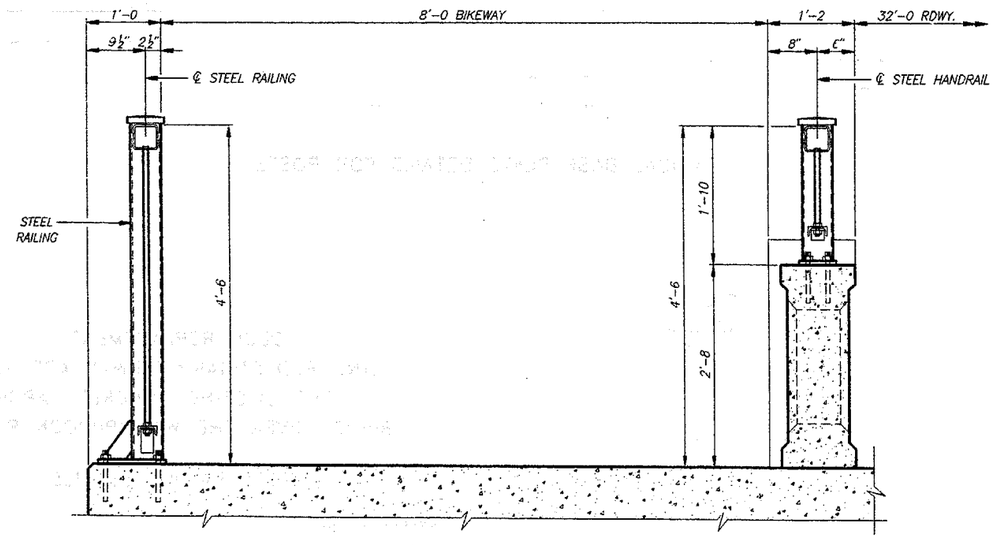


ELEVATION OF STRUCTURAL STEEL RAILING

(LOOKING WEST)



PART PLAN VIEW OF STRUCTURAL STEEL RAILING



TYPICAL SECTION

STEEL RAILING NOTES

MATERIAL FOR THE TUBE TOP RAIL AND POSTS SHALL MEET ASTM A500 GRADE B. MATERIAL FOR BOTTOM RAIL AND BALUSTERS SHALL MEET ASTM A36. MATERIAL FOR POST CAP SHALL MEET ASTM A36 OR MAY BE CAST IRON.

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THE STUD CONCRETE ANCHORS SHALL BE GALVANIZED STEEL AND HAVE A MINIMUM PULLOUT STRENGTH OF 8000 POUNDS BASED ON 4000 PSI CONCRETE. ANCHORS SHALL BE PAINTED TO MATCH THE STEEL RAILING COLOR.

THE STEEL RAILING IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM CENTERLINE TO CENTERLINE OF END POSTS. THE PRICE BID FOR "STRUCTURAL STEEL RAILING" SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, INCLUDING ANCHOR BOLTS AND SHIMS, AND ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE FENCE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS.

THE RAILING SHALL BE TRUE TO LINE AND COMPLY WITH THE BEST PRACTICE FOR CONSTRUCTION OF THIS TYPE. ALL MATERIAL FABRICATED SHALL EXHIBIT FLATNESS, SMOOTHNESS, AND FREEDOM FROM SURFACE BLEMISHES. ALL POSTS SHALL BE INSTALLED VERTICALLY.

SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE ENGINEER. STEEL RAILING MATERIALS SHALL NOT BE ORDERED UNTIL APPROVED SHOP DRAWINGS ARE RETURNED TO THE CONTRACTOR.

ESTIMATED QUANTITIES		
ITEM	UNITS	QUANTITY
STRUCTURAL STEEL RAILING	*LIN. FT.*	*382.7*

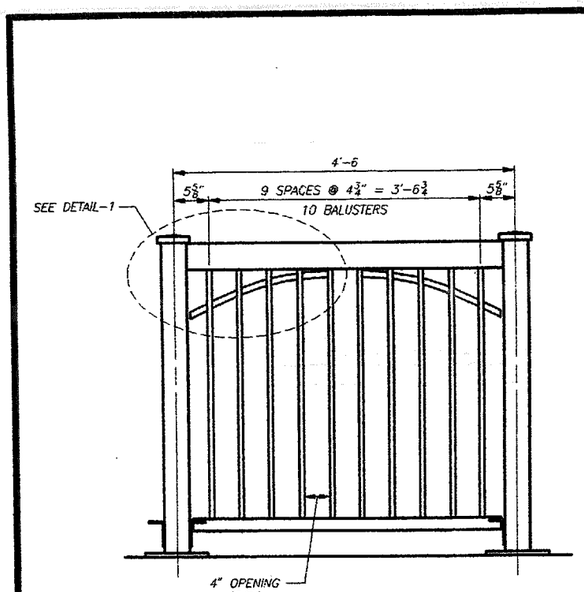
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

STEEL RAILING DETAILS

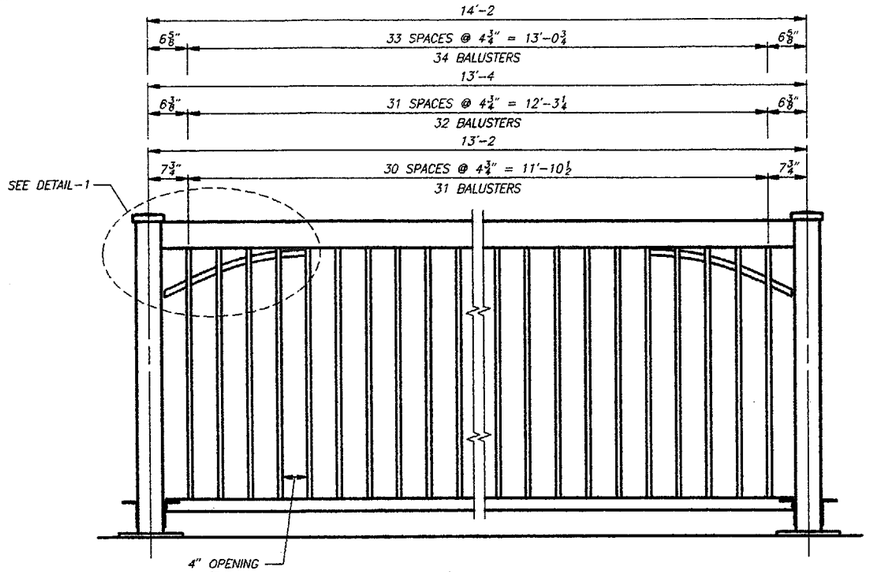
STATION 87+54.50 **0° SKEW**

CITY OF INDEPENDENCE, IOWA

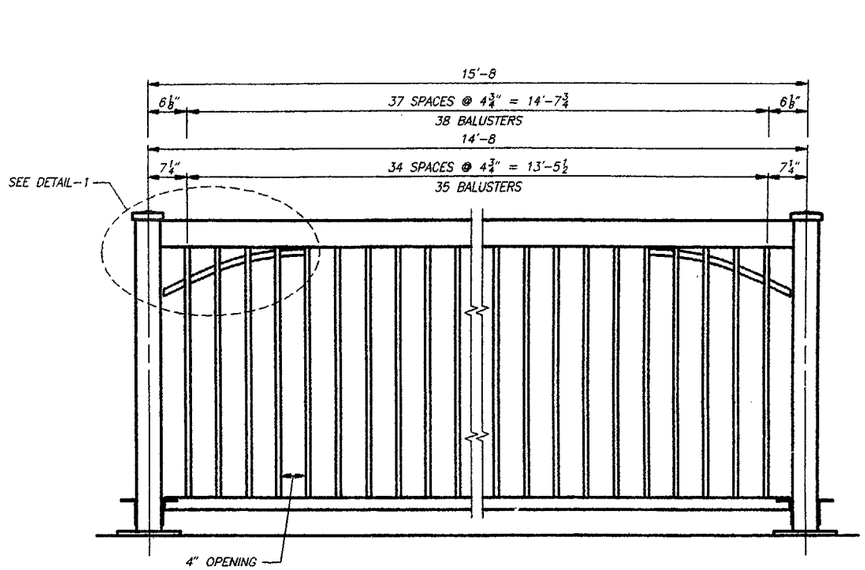
SHEET 21 OF 38



4'-6 PANELS
(2 REQUIRED)

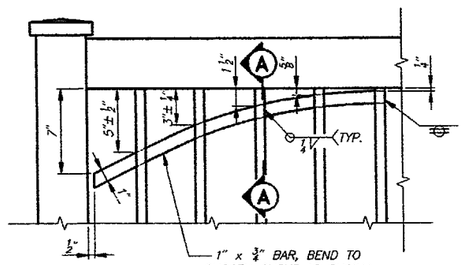


13'-2 PANELS, 13'-4 PANELS AND 14'-2 PANELS
(8 REQUIRED) (2 REQUIRED) (2 REQUIRED)

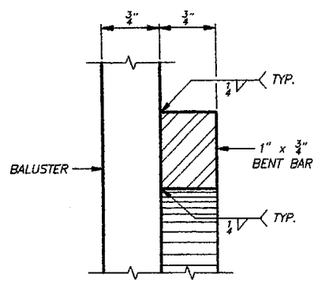


14'-8 PANELS AND 15'-8 PANELS
(6 REQUIRED) (8 REQUIRED)

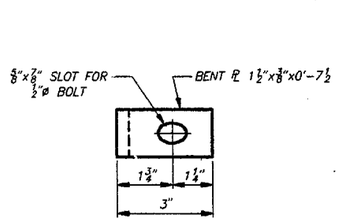
STEEL RAILING PANEL LENGTHS – EAST ELEVATION



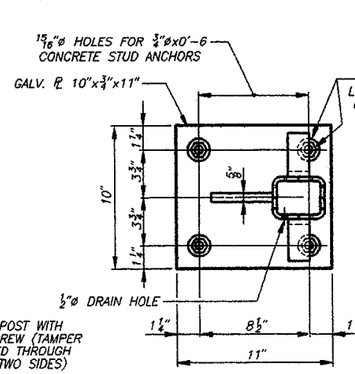
DETAIL-1

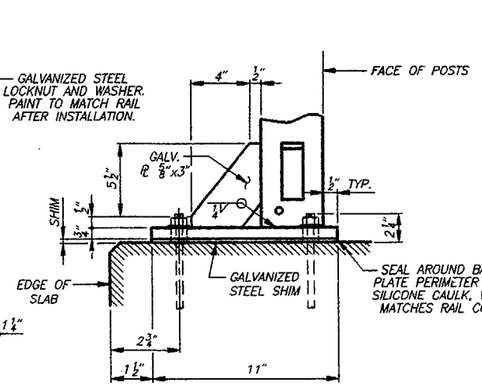


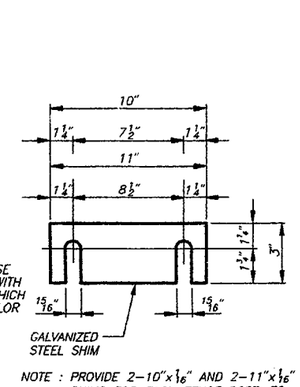
SECTION A-A



BOTTOM RAIL CONNECTION PLATE

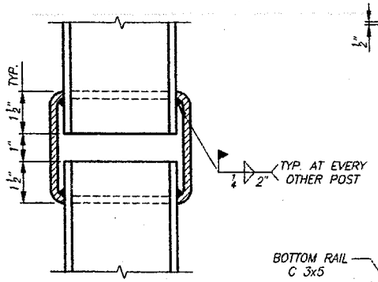




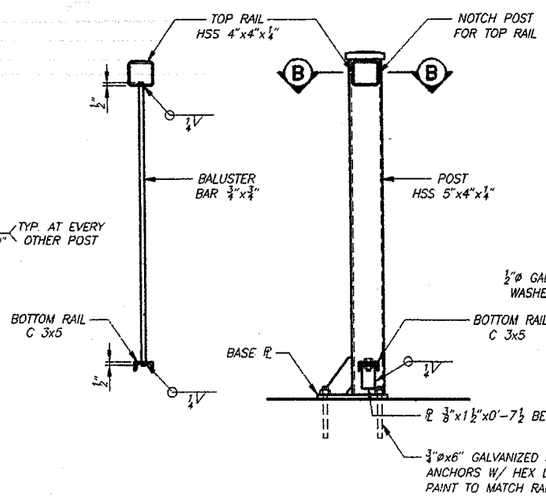


NOTE : PROVIDE 2-10"x1/16" AND 2-11"x1/16" SHIMS FOR EACH FENCE POST, TO BE USED AS REQUIRED.

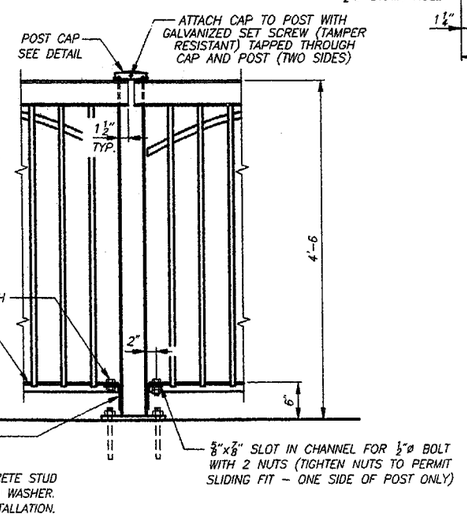
TYPICAL BASE PLATE DETAILS FOR POSTS



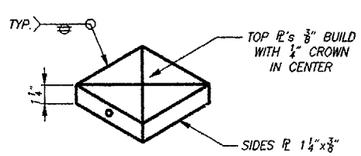
SECTION B-B



BALUSTER DETAIL



POST DETAILS



POST CAP DETAIL

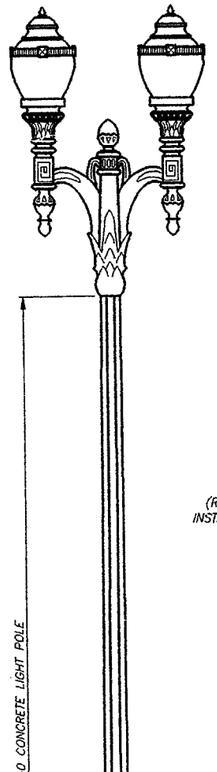
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

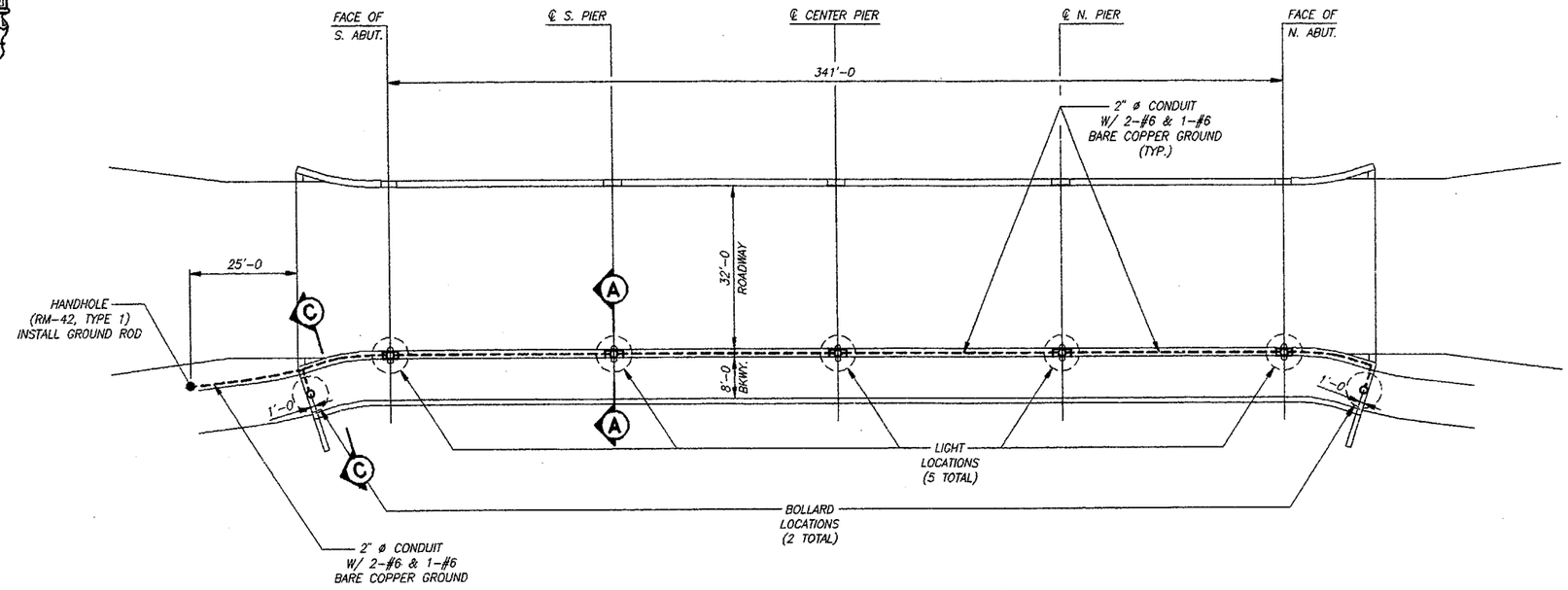
STEEL RAILING DETAILS

STATION 87+54.50 **0° SKEW**

CITY OF INDEPENDENCE, IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178
DESIGNED BY : ACP
DRAWN BY : RJS
CHECKED BY : RJV
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711

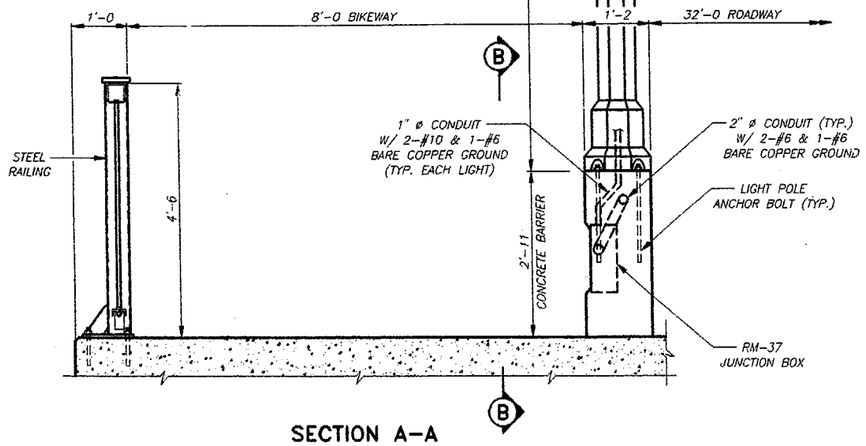




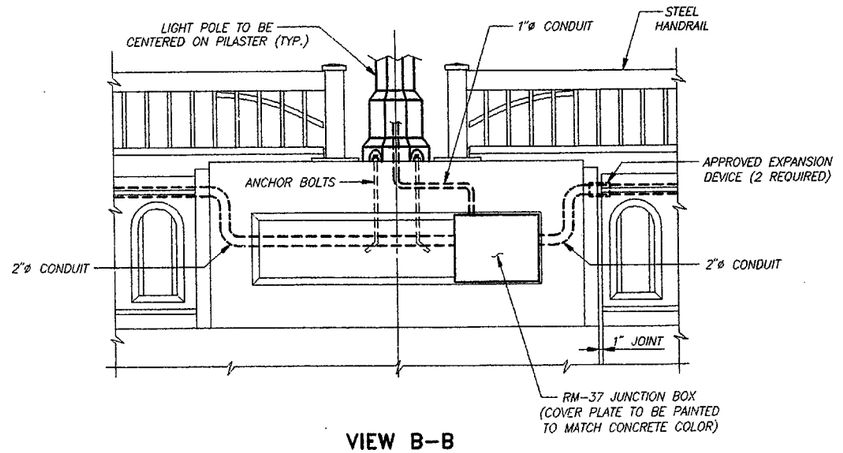
GENERAL LIGHTING PLAN

(NOT TO SCALE)

NOTE : SEE SHEET 24 FOR SECTION C-C.



SECTION A-A



VIEW B-B

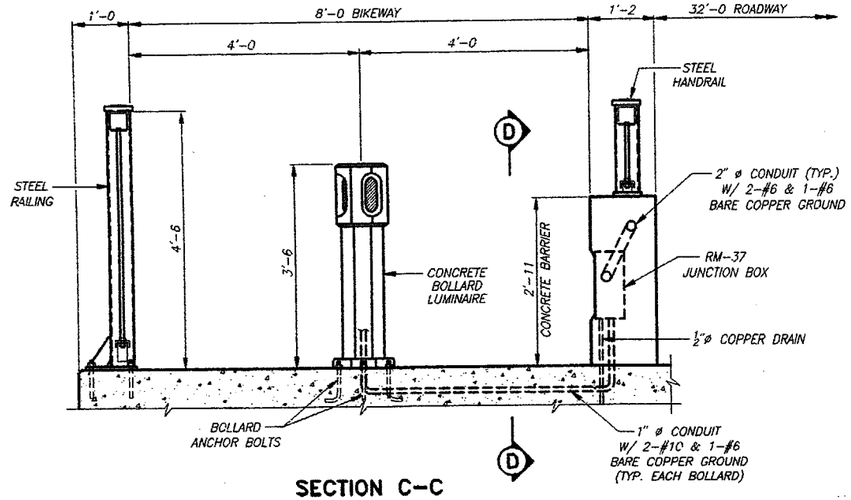
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

LIGHTING/BOLLARD DETAILS

STATION 87+54.50 — 0° SKEW

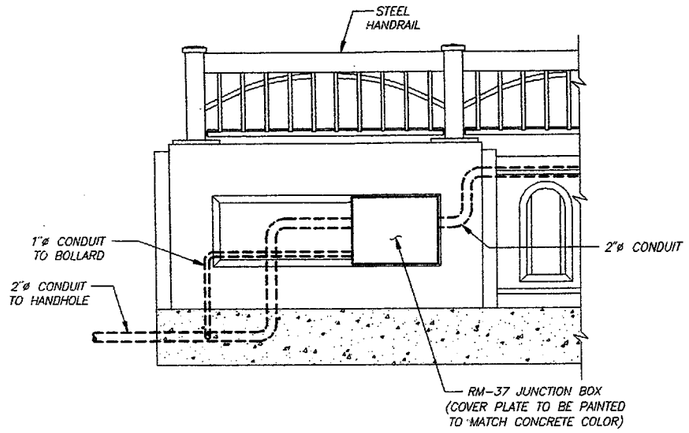
CITY OF INDEPENDENCE, — IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178
DESIGNED BY : ADP
DRAWN BY : RA
CHECKED BY : RJV
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711



SECTION C-C

(SEE SHEET 23 FOR SECTION LOCATION)



VIEW D-D

LIGHTING QUANTITIES

ITEM	UNITS	QUANTITY
LIGHTING, AS PER PLAN	L.S.	1
CONDUIT, RIGID STEEL, 1 INCH DIA.	LIN.FT.	50.0
CONDUIT, RIGID STEEL, 2 INCH DIA.	LIN.FT.	440.0

THE BID ITEM "LIGHTING, AS PER PLAN" SHALL INCLUDE THE COST FOR ALL NECESSARY ITEMS REQUIRED OF THE CONTRACTOR TO FURNISH AND INSTALL THE LIGHTING AS DETAILED ON THIS SHEET, AND AS SHOWN IN THE BILL OF MATERIALS, EXCEPT FOR THOSE WHICH ARE SEPARATE BID ITEMS OR ARE INCIDENTAL TO OTHER BID ITEMS. THE FOLLOWING BILL OF MATERIALS SHALL BE INCIDENTAL TO THE PRICE BID FOR "LIGHTING, AS PER PLAN". THE CONTRACTOR SHALL FORWARD A LIST OF UNIT PRICES FOR EACH ITEM LISTED TO THE ENGINEER AT THE PRE-CONSTRUCTION MEETING.

BILL OF MATERIALS

ITEM	UNITS	QUANTITY
JUNCTION BOX, RM-37, AS PER PLAN	ONLY	7
CABLE, 1/C NO. 6 AWG 600 V.	LIN.FT.	920
CABLE, 1/C NO. 10 AWG 600 V.	LIN.FT.	120
GROUND WIRE, BARE COPPER, 6 AWG	LIN.FT.	520
GROUND ROD, AS PER PLAN	ONLY	1
CONNECTOR, RM-40, AS PER PLAN	ONLY	38
HANDHOLE, RM-42, AS PER PLAN	ONLY	1
LIGHT POLES	EACH	5
ARMS	EACH	5
LUMINARES	EACH	10
BOLLARDS	EACH	2

LIGHTING NOTES

CONSTRUCTION SHALL CONFORM TO THE CURRENT IOWA D.O.T. STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS AND CURRENT SUPPLEMENTAL SPECIFICATIONS FOR HIGHWAY LIGHTING.

CONDUIT INSTALLATION SHALL COMPLY WITH THE ARTICLE "ELECTRICAL DUCTS", SECTION 2523.

ALL "C" ENTRANCE HOLES IN JUNCTION BOXES SHALL BE DRILLED AND TAPPED FOR THE SPECIFIED CONDUIT SIZE. ALL OTHER HOLES SHALL HAVE A CONCRETE - TIGHT SLIP FIT. CONDUIT END SHALL NOT PROTRUDE INTO JUNCTION BOX MORE THAN 1/4". JUNCTION BOX SHALL HAVE A 1/2" DIA. COPPER DRAIN. DRAIN PIPE END SHALL BE FLUSH WITH INSIDE SURFACE OF BOX AND SHALL EXTEND OUT THROUGH THE BOTTOM OF THE CONCRETE DECK APPROXIMATELY 1 INCH. GROUNDING BUTTONS SHALL BE LOCATED APPROXIMATELY 3" FROM THE INSIDE SURFACE OF THE BOX WALL, AND NOT CLOSER THAN 3" TO THE EDGE OF ANY HOLE IN THE BOX FLOOR. HOLES FOR DRAIN PIPE SHALL BE PLACED IN THE LOW CORNER OF THE BOX, WITH A MINIMUM CLEARANCE OF 1" BETWEEN THE EDGE OF THE HOLE AND THE INSIDE SURFACE OF THE BOX WALL.

THE CONTRACT UNIT PRICE PER LINEAL FOOT OF CONDUIT SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL, LABOR AND ANY WORK INCIDENTAL TO THE INSTALLATION.

THE LENGTH OF CONDUIT INSTALLED SHALL BE MEASURED IN FEET BY THE ENGINEER.

THE CONCRETE LIGHT POLES, CAST ALUMINUM ARMS, LUMINARES, AND LIGHTED CONCRETE BOLLARDS SHALL BE AS MANUFACTURED BY KING LUMINARE/STRESSCRETE INC., NORTHPORT, ALABAMA, 35476, 800-435-6563, OR APPROVED EQUAL.

LIGHT POLE: TYPE - CENTRIFUGALLY CAST PRESTRESSED AND/OR REINFORCED CONCRETE.
STYLE - THE CLASSIC COLLECTION, COACHMAN 15, OCTAGANOL CROSS-SECTION.
FINISH - VINTAGE BROWN, S-80.
BASE ANCHORAGE - STEEL BASE PLATE, ANCHOR BOLTS, AND NUT COVERS PER MANUFACTURERS RECOMMENDATIONS (PAINTED TO MATCH).

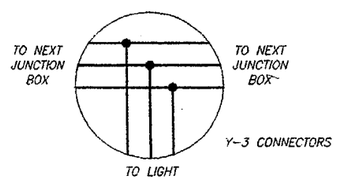
ARM: TYPE - TWIN ARM.
STYLE - KA63, COSHOCTON ARM.
FINISH - VINTAGE BROWN PAINT.
CONSTRUCTION - HEAVY CAST ALUMINUM WALL.

LUMINAIRE: K118 - WASHINGTON LUMINAIRE, #K118-IPR-IV-150-HPS-120-K12(S80)-K18R

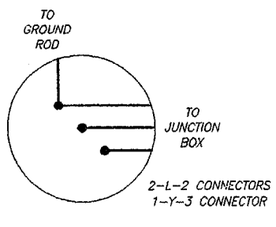
BOLLARD: THE MONITOR BOLLARD, #KL-C-M-IPC-III-100-HPS-120-S80-BPC. INCLUDES BASE PLATE PAINTED TO MATCH, AND ANCHOR BOLTS.

PHOTO ELECTRICAL CONTROL CELL FOR LIGHTS ON BRIDGE WILL NOT NEED TO BE INSTALLED. ALL LIGHTS ON BRIDGE WILL BE CONTROLLED BY A PHOTO CELL WHICH CONTROLS ALL STREET LIGHTING TO THE SOUTH OF THE BRIDGE.

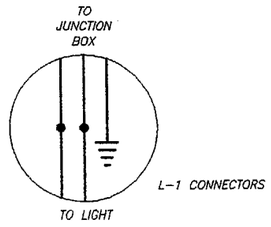
INSTALL LIGHTS AS RECOMMENDED BY MANUFACTURER.



JUNCTION BOX



HANDHOLE



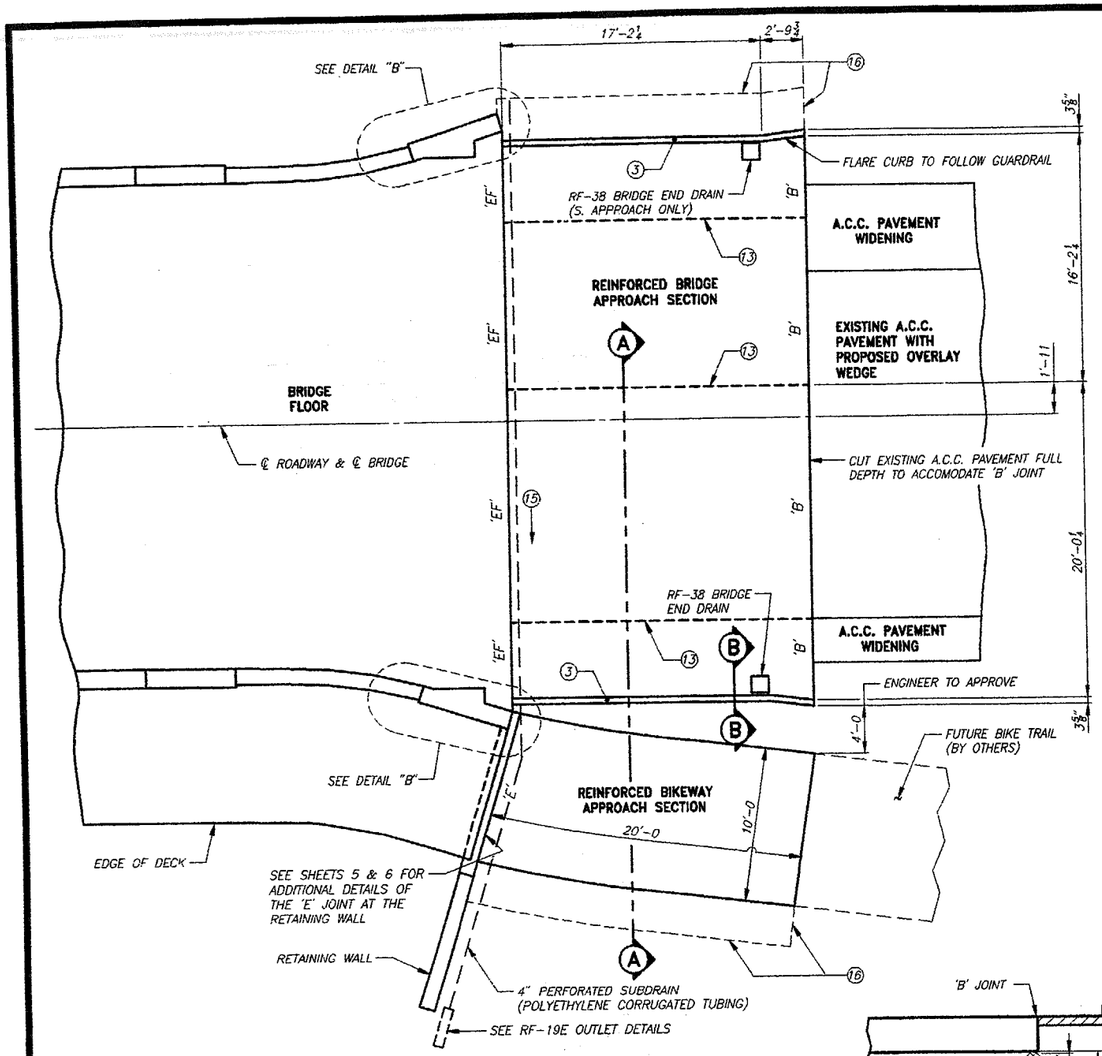
LIGHT CONNECTION

WIRING CONNECTIONS

DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

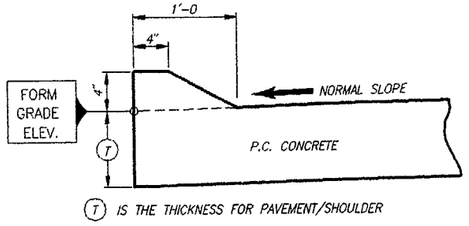
LIGHTING/BOLLARD DETAILS

STATION 87+54.50 **0° SKEW**
CITY OF INDEPENDENCE, IOWA
SHEET 24 OF 38



PLAN VIEW

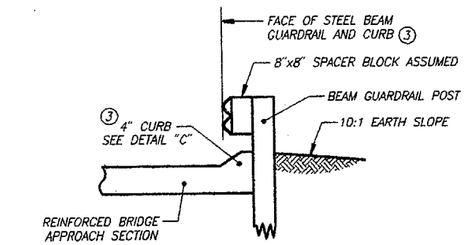
NOTE : NORTH END OF BRIDGE SHOWN, SIMILAR AT SOUTH END OF BRIDGE.



(T) IS THE THICKNESS FOR PAVEMENT/SHOULDER

DETAIL "C"

4" INTEGRAL CURB



SECTION B-B

CURB LOCATION DETAILS

GENERAL NOTES

THE INTENT OF THIS SHEET IS TO DETAIL THE CONSTRUCTION OF A PCC BRIDGE APPROACH SECTION ABUTTING ACC PAVEMENT, AND A PCC BIKEWAY APPROACH SECTION.

ALL GUARDRAIL POSTS ADJACENT TO THE NEW REINFORCED BRIDGE APPROACH SECTION SHALL BE LOCATED AND MARKED OR INSTALLED PRIOR TO PLACING ANY APPROACH SECTION CONCRETE.

THE SUBGRADE SHALL BE EXCAVATED TO THE LIMITS SHOWN. THE EXCAVATION SHALL BE BACKFILLED WITH THE SPECIFIED MATERIAL AND AN APPROVED POLYMER GRID, AS SPECIFIED IN SECTION 4196 OF THE CURRENT STANDARD SPECIFICATIONS, INSTALLED AS SHOWN. THE POLYMER GRID SHALL EXTEND AS SHOWN.

THE BRIDGE AND BIKEWAY APPROACH PAVEMENT SECTION SHALL BE CONSTRUCTED OF REINFORCED PCC WITH A 4" CURB AS SHOWN. CONCRETE USED FOR CONSTRUCTION SHALL BE CLASS 'C'. THE LENGTH AT THE CENTERLINE OF THE ROADWAY SHALL BE A MINIMUM OF 20'-0".

A CURB FILLET SHALL BE PLACED ON TOP OF THE BRIDGE DECK AND AGAINST THE BRIDGE END POST AS DETAILED HEREON. THE TOP OF THE DECK AND THE FACE OF THE LOWER FACE OF THE END POST SHALL BE PAINTED WITH A CEMENT/WATER GROUT IMMEDIATELY BEFORE THE FILLET IS PLACED. THERE SHALL BE NO TIES OR CONTACT BETWEEN THE CURB FILLET AND THE CURB OR PAVEMENT OF THE APPROACH SECTION.

HORIZONTAL AND VERTICAL ALIGNMENT OF THE GUARDRAIL IN THE AREA IMMEDIATELY ADJACENT TO THE BRIDGE OR THE CONCRETE BARRIER RAIL SHALL, WHERE NECESSARY, BE ADJUSTED TO A SMOOTHLY CURVED LINE WITH NO ABRUPT CHANGES. APPROPRIATE ADJUSTMENT IN METHOD OF INSTALLATION SHALL BE MADE FOR CURVED ROADWAYS, SKEWED BRIDGES, OR OTHER CONDITIONS NOT SHOWN. EXACT DETAILS OF THE INSTALLATION SHALL BE AS DIRECTED BY THE ENGINEER.

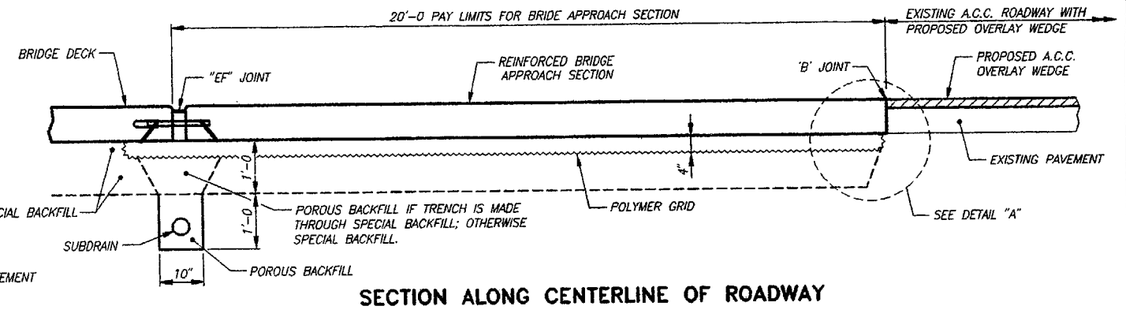
MATERIAL AND CONSTRUCTION METHODS USED SHALL BE IN ACCORDANCE WITH CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

"BRIDGE APPROACH SECTION" SHALL BE MEASURED AND PAID FOR AS SPECIFIED IN SECTIONS 2301.34F AND 2301.35F. THE FOLLOWING ITEMS SHALL BE CONSIDERED INCIDENTAL TO AND INCLUDED IN THE PRICE BID FOR "BRIDGE APPROACH SECTION".

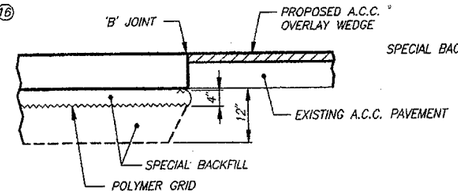
- FURNISHING AND INSTALLING REINFORCING STEEL, TIE BARS AND DOWEL ASSEMBLIES.
- PLACING, FINISHING, TEXTURING, TRANSVERSE GROOVING, CURING, ALL JOINT CONSTRUCTION AND ALL OTHER MATERIALS AND LABOR TO CONSTRUCT THE "BRIDGE SECTION" AS DETAILED ON THIS SHEET.
- FURNISHING AND INSTALLING POLYMER GRID.
- FURNISHING AND BACKFILLING WITH SPECIAL AND POROUS BACKFILL.
- EXCAVATION FOR SPECIAL BACKFILL.
- FURNISHING AND INSTALLING SUBDRAIN AND SUBDRAIN OUTLETS.

LEGEND

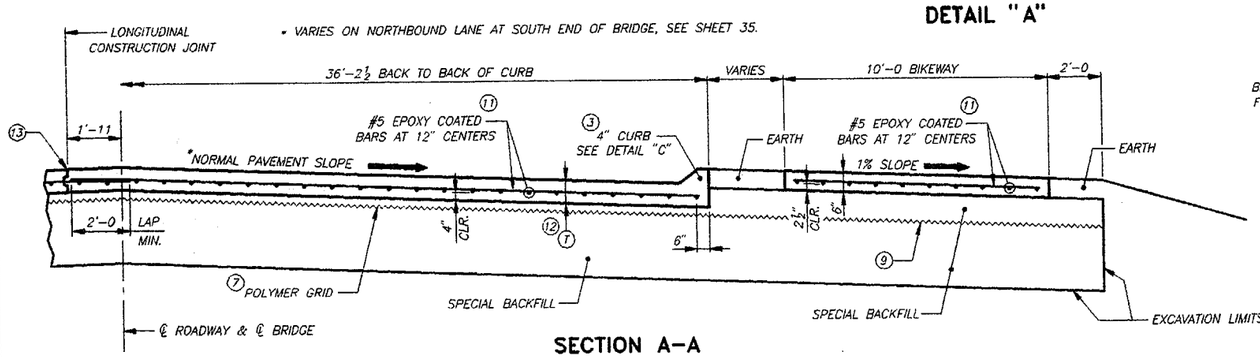
1. OMIT.
2. REINFORCED BRIDGE APPROACH SECTION.
3. BUILD 4 INCH CURB TO END OF REINFORCED BRIDGE APPROACH SECTION. THE LOCATION OF THE GUARDRAIL DETERMINES THE LOCATION OF THE CURB. THE BACK OF CURB IS LOCATED AGAINST THE FRONT OF THE GUARDRAIL POSTS.
4. OMIT.
5. OMIT.
6. OMIT.
7. POLYMER GRID.
8. OMIT.
9. EXTEND POLYMER GRID TO 2' OUTSIDE EDGE OF PAVEMENT.
10. TRIM FABRIC TO EDGE OF EXCAVATION.
11. REINFORCING BARS SHALL BE EPOXY COATED.
12. T= 1'-0
13. LONGITUDINAL JOINT: SINGLE POUR - NO JOINT. TWO POURS - USE 'KS' JOINT.
14. OMIT.
15. SLOPE SUBDRAIN TO DRAIN
16. EXCAVATION LIMITS 2 FEET OUTSIDE OF PAVEMENT EDGE.



SECTION ALONG CENTERLINE OF ROADWAY

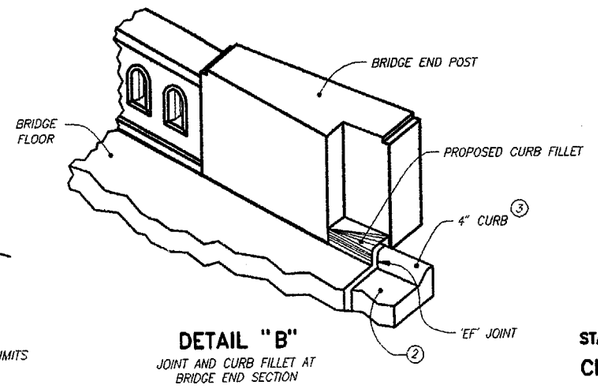


DETAIL "A"



SECTION A-A

NOTE : GUARDARIL NOT SHOWN.



DETAIL "B"

JOINT AND CURB FILLET AT BRIDGE END SECTION

FOR ADDITIONAL INFORMATION SEE STANDARD ROAD PLANS RH-50, RH-51 AND RH-52

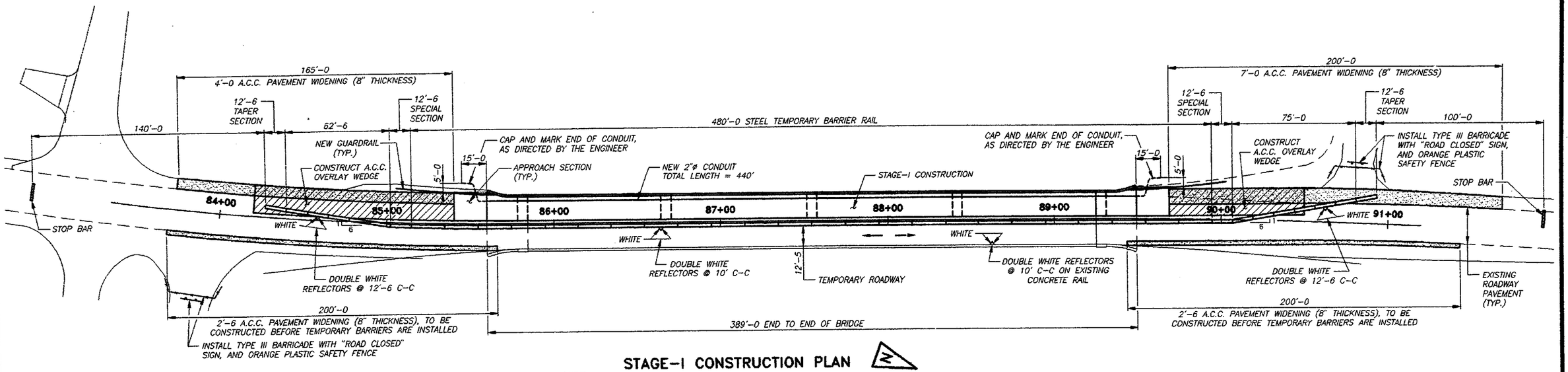
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

APPROACH PAVEMENT DETAILS

STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

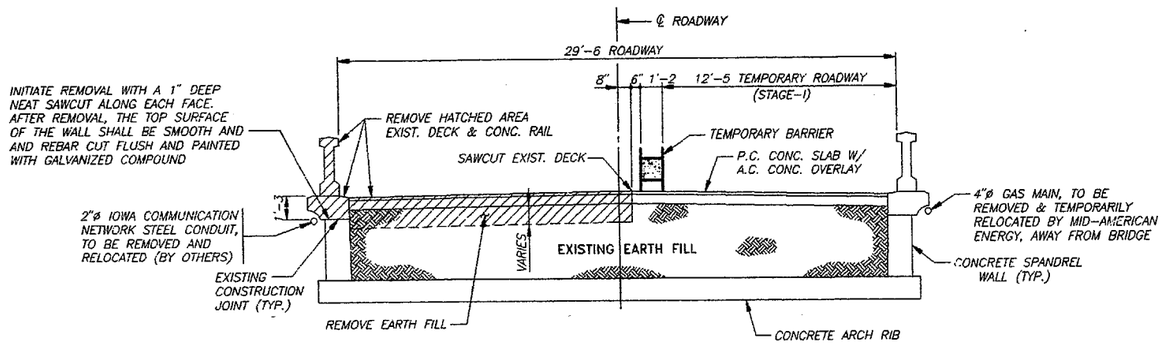
SHEET 25 OF 38



STAGE-I CONSTRUCTION PLAN

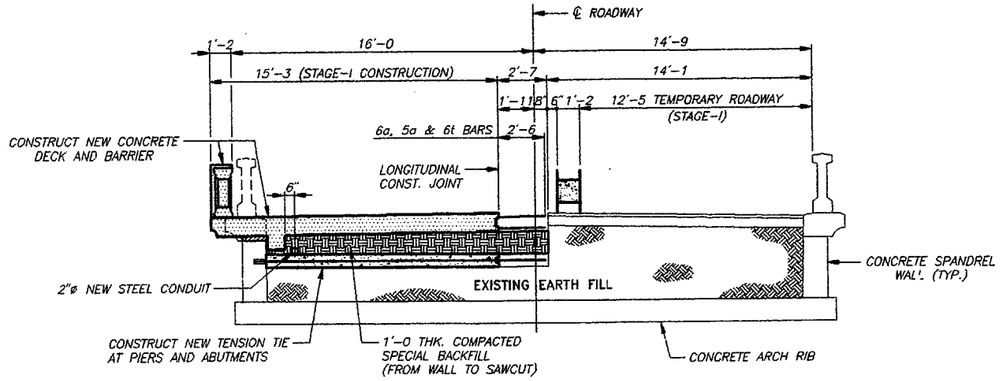
NOTES :

1. SEE SHEET 28 FOR TRAFFIC SIGNAL LAYOUT, PAVEMENT MARKINGS AND SIGNING.
2. DURING PLACEMENT OF A.C.C. ASPHALT WEDGES AND A.C.C. PAVEMENT WIDENINGS AT BRIDGE APPROACHES, THE TEMPORARY BARRIERS SHALL BE MOVED AND FLAGGERS USED TO CONTROL TRAFFIC AS REQUIRED, AND AS APPROVED BY THE ENGINEER.



STAGE-I REMOVAL DETAIL

(SHOWN NEAR PIER LOOKING NORTH)



STAGE-I CONSTRUCTION DETAIL

(SHOWN NEAR PIER LOOKING NORTH)

THE CONSTRUCTION SEQUENCE DETAILS SHOWN ON SHEETS 26 & 27 ARE TO BE USED AS A GENERAL GUIDELINE ONLY. THE CONTRACTOR SHALL SUBMIT A DETAILED WRITTEN CONSTRUCTION SEQUENCE OF OPERATIONS PLAN TO THE ENGINEER FOR REVIEW PRIOR TO BEGINNING WORK.

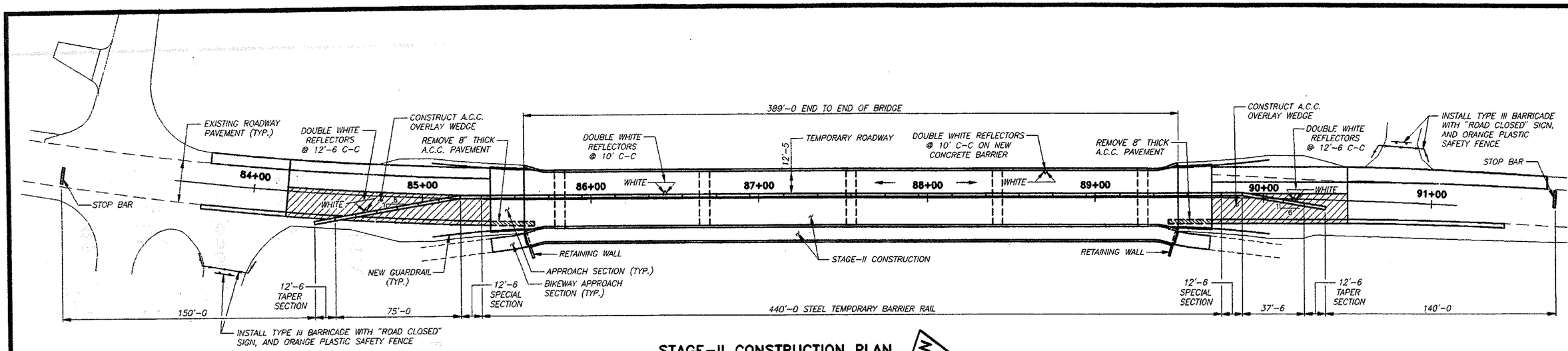
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

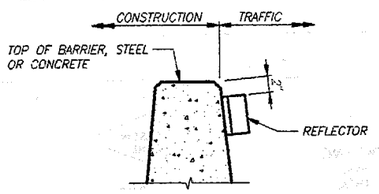
STAGE-I CONSTRUCTION DETAILS

STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

SHEET 26 OF 38





REFLECTOR DETAIL

STAGE-II CONSTRUCTION PLAN

NOTES :

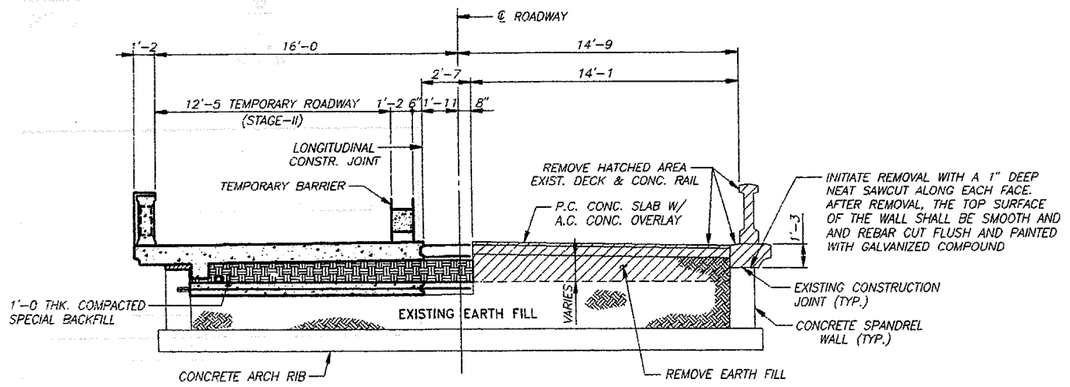
1. STAGE-I CONSTRUCTION SHALL BE FULLY COMPLETED, AS SHOWN ON SHEET 26, BEFORE STAGE-II REMOVALS CAN BEGIN.
2. UPON COMPLETING STAGE-I, THE CONTRACTOR SHALL CLOSE THE BRIDGE TO ALL TRAFFIC FOR A MAXIMUM OF 5 CONTINUOUS DAYS. DURING THE COMPLETE CLOSURE PERIOD, THE EAST HALF OF THE TENSION TIES SHALL BE FULLY COMPLETED AT ALL PIERS AND BOTH ABUTMENTS. THIS WORK SHALL BE COMPLETED AS QUICKLY AS POSSIBLE TO REDUCE THE TIME OF COMPLETE CLOSURE. TENSION TIE CONCRETE SHALL BE ALLOWED TO CURE FOR 48 HOURS MINIMUM BEFORE TRAFFIC IS ALLOWED ON THE BRIDGE. SEE GENERAL NOTES ON SHEET 4 FOR ADDITIONAL DETAILS.
3. SEE SHEET 28 FOR TRAFFIC SIGNAL LAYOUT, PAVEMENT MARKINGS AND SIGNING. USE SIGNALS AND SIGNING AS SETUP FOR STAGE-I.
4. DURING PLACEMENT OF A.C.C. ASPHALT WEDGES AND A.C.C. PAVEMENT WIDENINGS AT BRIDGE APPROACHES, THE TEMPORARY BARRIERS SHALL BE MOVED AND FLAGGERS USED TO CONTROL TRAFFIC AS REQUIRED, AND AS APPROVED BY THE ENGINEER.

ESTIMATED QUANTITIES

ITEM	AMOUNT
TEMPORARY BARRIER RAIL	1,270.0 L.F.

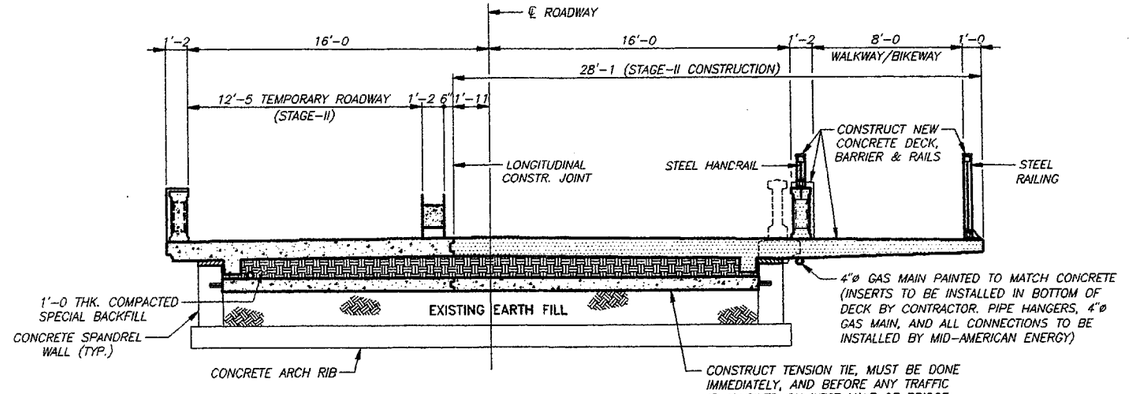
NOTES :

1. TEMPORARY BARRIER RAIL SHALL BE A COMBINATION OF NOMINAL 20' LONG STEEL UNITS AND NOMINAL 12'-6 LONG CONCRETE UNITS.
2. COST OF SPECIAL AND TAPER SECTIONS ALONG WITH ALL CONNECTION MATERIAL IS TO BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL".



STAGE-II REMOVAL DETAIL

(SHOWN NEAR PIER LOOKING NORTH)



STAGE-II CONSTRUCTION DETAIL

(SHOWN NEAR PIER LOOKING NORTH)

**THE CONSTRUCTION SEQUENCE DETAILS SHOWN ON SHEETS 26 & 27 ARE TO BE USED AS A GENERAL GUIDELINE ONLY.
THE CONTRACTOR SHALL SUBMIT A DETAILED WRITTEN CONSTRUCTION SEQUENCE OF OPERATIONS PLAN TO THE ENGINEER FOR REVIEW PRIOR TO BEGINNING WORK.**

DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

STAGE-II CONSTRUCTION DETAILS

STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, IOWA

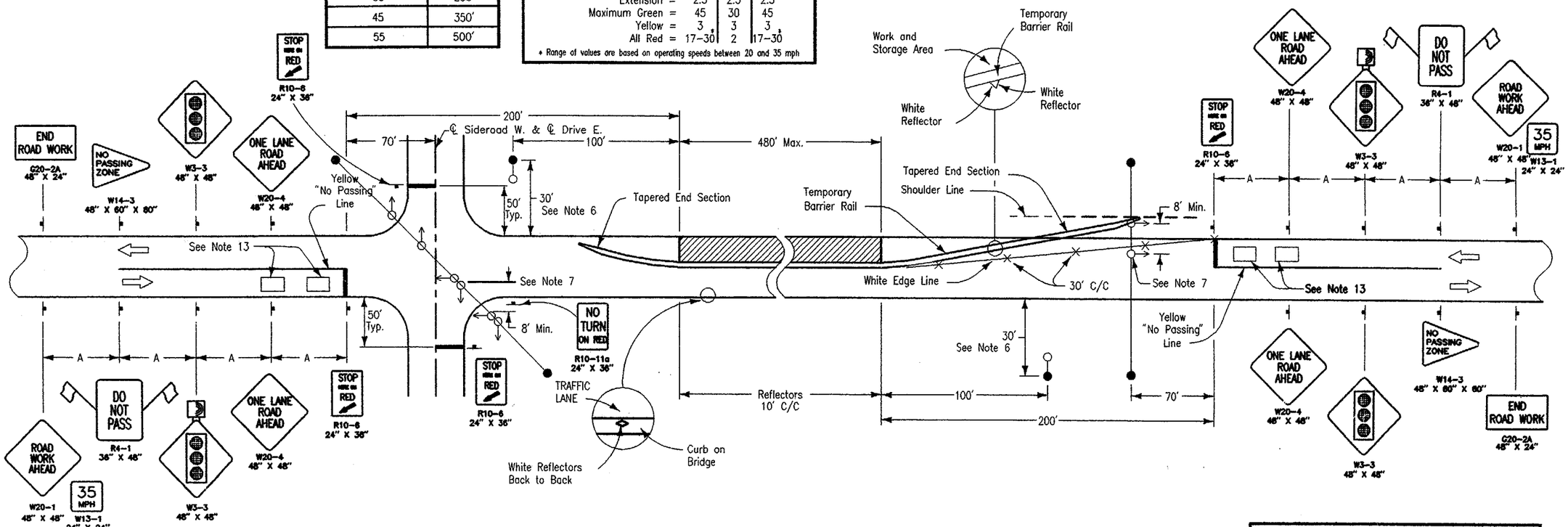
SHEET 27 OF 38

SPEED LIMIT (See Note 2)	Approximate Spacing 'A'
35	250'
45	350'
55	500'

TIMING FOR ACTUATED SIGNALS
(See notes 11, 12, and 13)

Recommended Settings, secs.	ø1	ø2	ø3
Initial =	10	10	10
Extension =	2.5	2.5	2.5
Maximum Green =	45	30	45
Yellow =	3	3	3
All Red =	17–30*	2	17–30*

* Range of values are based on operating speeds between 20 and 35 mph

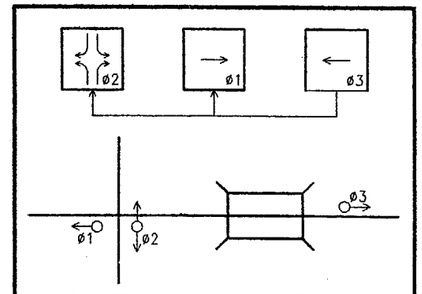


LEGEND

- Traffic Sign
- Drum
- Temporary Floodlighting
- Type "B" High Intensity Flashing Warning Light
- Work and Storage Area
- Traffic Signal

GENERAL NOTES

1. Engineer may reduce the advisory speed if deemed appropriate.
2. Speed Limit refers to the legally established speed limit before construction and not the advisory speed during construction.
3. Contractor shall be responsible for placement and removal of white edge lines, yellow "No Passing" lines and 24–inch wide stop lines. Dashed yellow centerline or yellow "No Passing" line between the stop lines shall be removed prior to the beginning of construction and replaced before opening to two–way traffic. Reflectors shall be removed before opening to two–way traffic.
4. Signal timing shall be set as approved by the Engineer.
5. For temporary floodlighting, see Detail Sheet 33.
6. Pole for temporary floodlighting and span wire, and poles used to furnish power to signals or floodlights shall be offset 30 feet from the traveled way unless there are right–of–way restrictions. Clearance on overhead wiring for signals and floodlighting shall be a minimum of 18 feet.
7. Left signal head to be centered over traffic lane.
8. Omit
9. Details for the Temporary Barrier Rail are included elsewhere in the plans.
10. Reflectors shall be mounted back–to–back on the Barrier Rail and on each section of Temporary Barrier Rail. Reflectors shall face oncoming traffic as indicated.
11. Signals shall rest in RED.
12. The traffic actuated controller shall comply with the latest NEMA and ITE standards for actuated signals.
13. A detection area shall be located near the stop line with the down–stream edge positioned 6' from the stop line. A second detection area shall be located 100 to 150 feet in advance of the stop line. The size of the detection areas shall be approximately 6' x 10'.



TRAFFIC SIGNAL SCHEMATIC

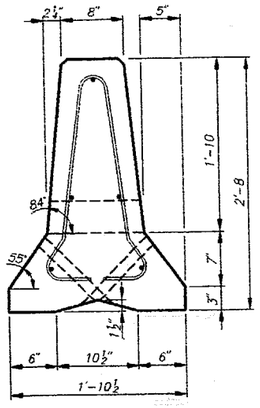
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

TRAFFIC CONTROL LAYOUT FOR ONE–WAY TRAFFIC

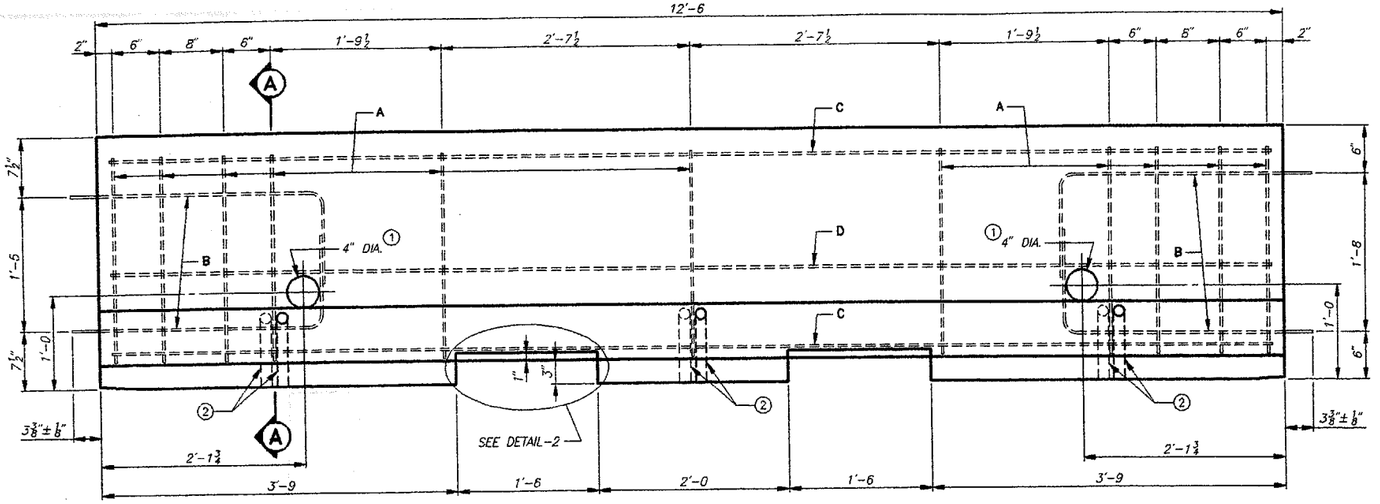
STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, IOWA

CALHOUN–BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224–4344
JOB NO. 97178
DESIGNED BY : RAV
DRAWN BY : YCK
CHECKED BY : ACP
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711



END VIEW



ELEVATION VIEW

GENERAL NOTES

THESE DETAILS ARE FOR THE FABRICATION AND INSTALLATION OF TEMPORARY CONCRETE BARRIER RAIL. DETAILS SHOWN ARE TYPICAL. BARRIER SHALL BE CONSTRUCTED AS SPECIFIED IN SECTION 2513 OF THE CURRENT SPECIFICATIONS. EACH RAIL SHALL BE STAMPED ACCORDING TO MATERIALS I.M. 571.

MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS. ALL REINFORCEMENT IS GRADE 60 ASTM A615.

THE CONTRACTOR SHALL PROVIDE FOR AN APPROVED MONITORING SCHEDULE WITH A PERSON ON CALL AND AVAILABLE 24 HOURS A DAY, EACH DAY OF THE WEEK, TO REALIGN BARRIER RAIL WHICH HAS BEEN STRUCK. INITIATION OF SERVICE SHALL BE WITHIN ONE HOUR OF NOTIFICATION OF NEED.

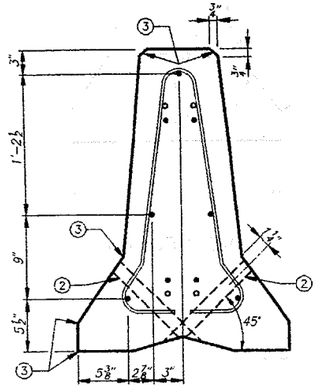
UNLESS STATED OTHERWISE IN THE PLANS, THE BARRIER RAIL SECTIONS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AND AT THE COMPLETION OF THE WORK SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

THE PRICE BID FOR "TEMPORARY BARRIER RAIL", IN LINEAR FEET, SHALL BE FULL COMPENSATION FOR TEMPORARY BARRIER RAIL AS DETAILED AND MEASURED IN THESE PLANS.

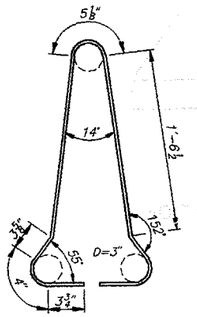
① 4 INCH DIAMETER 11 GAUGE STEEL ROUND MECHANICAL TUBING SLEEVE.

② SLEEVES FOR THE FUTURE TIE-DOWN SYSTEM ARE TO BE CONSTRUCTED OUT OF 1.25 INCH NOMINAL, (1.38 INCH ACTUAL INSIDE DIAMETER) EMT (ELECTRICAL METALLIC TUBING). EMT TO BE TIED TO STIRRUP FOR SUPPORT.

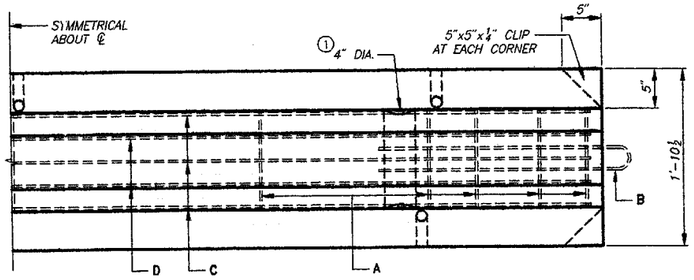
③ 1" RADIUS ALLOWED.



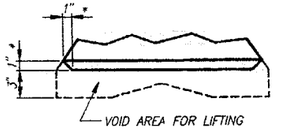
SECTION A-A
TYPICAL SECTION
(STIRRUP PLACEMENT)



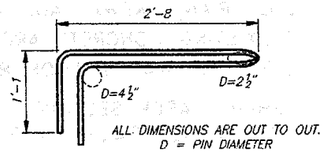
BAR 'A' DETAIL
D = PIN DIAMETER



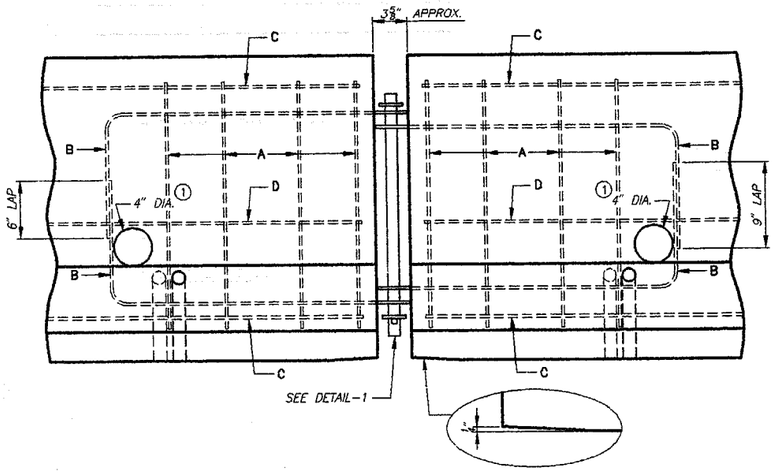
PLAN VIEW



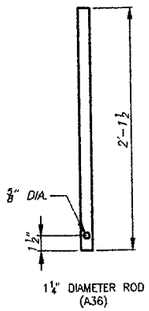
DETAIL-2
LIFTING SLOT DETAIL
(• 1" CHAMFER TO PREVENT SPALLING)



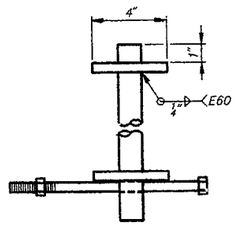
BAR 'B' DETAIL



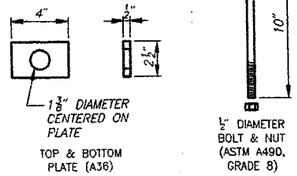
DETAILS OF BARRIER SECTION CONNECTION



1¼" DIAMETER ROD (A36)



ENLARGED PIN DETAIL



DETAIL-1

REINFORCING BARS
PER 12'-6 BARRIER SECTION

MARK	SIZE	NO.	SHAPE	LENGTH	WEIGHT
A	#4	11	SEE DETAIL	5'-5	40
B	#6	4	SEE DETAIL	7'-10	47
C	#5	3	———	12'-2	38
D	#4	2	———	12'-2	16

MINIMUM 2" CLEARANCE BETWEEN ALL BARS AND OUTSIDE SURFACE OF TEMPORARY BARRIER RAIL. APPROXIMATE WEIGHT = 5170 LBS.
CONCRETE VOLUME = 1.3 CU. YDS.

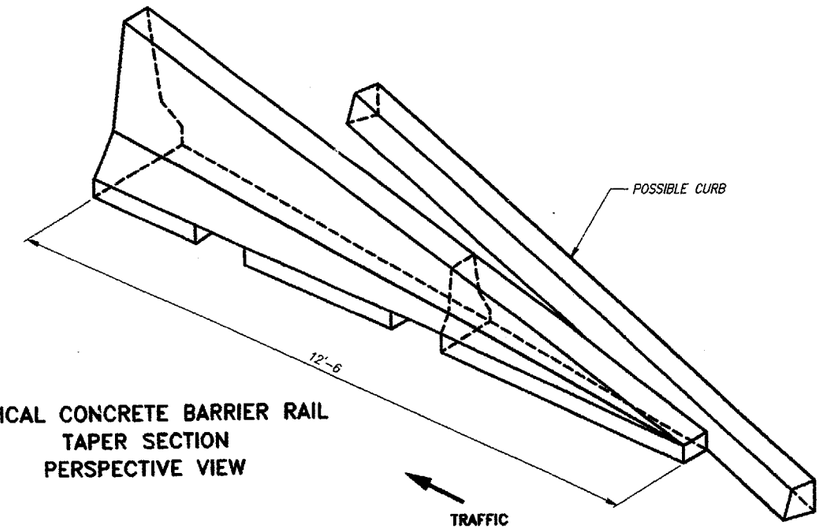
DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

F-SHAPE
TEMPORARY BARRIER RAIL-CONCRETE

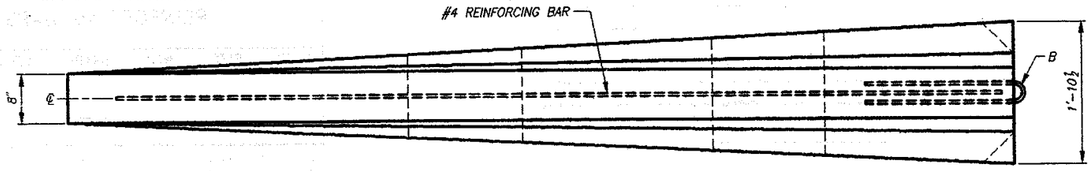
STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

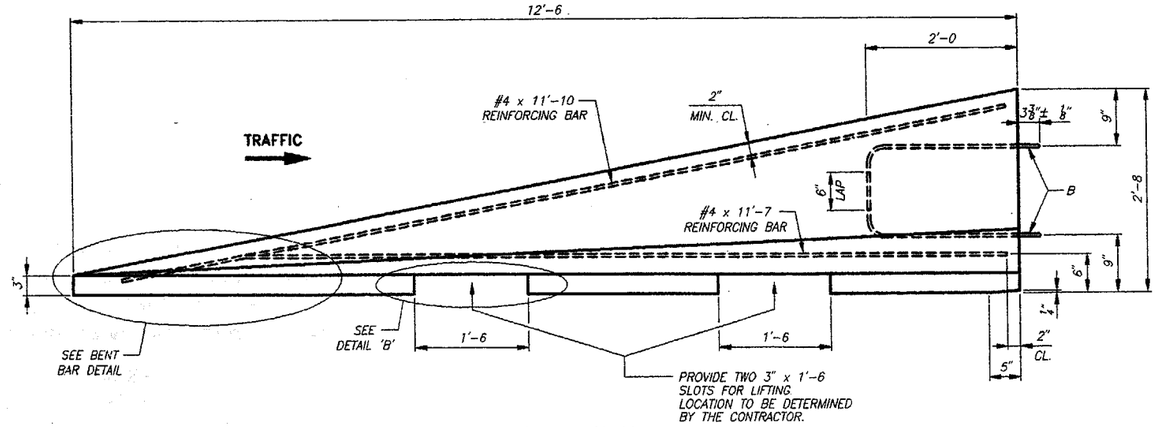
SHEET 29 OF 38



TYPICAL CONCRETE BARRIER RAIL
TAPER SECTION
PERSPECTIVE VIEW



PLAN VIEW



SIDE ELEVATION

GENERAL NOTES:

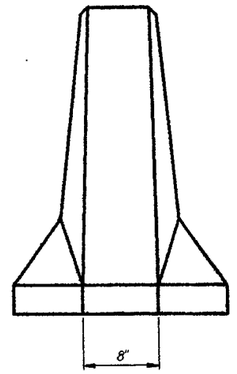
DETAILS SHOWN HEREON ARE FOR THE CONSTRUCTION OF A PRECAST CONCRETE BARRIER RAIL TAPER SECTION. ALTERNATE DESIGN DETAILS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

MATERIALS AND METHODS OF CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT STANDARD AND SUPPLEMENTAL SPECIFICATIONS.

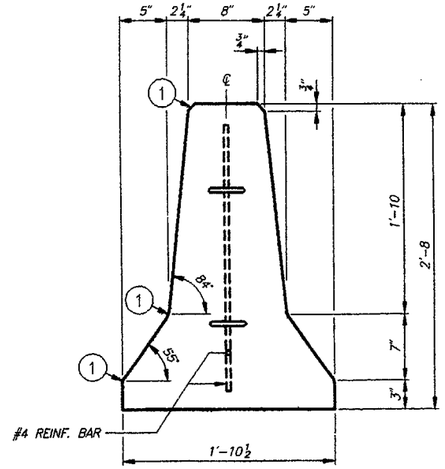
BARRIER SHALL BE CONSTRUCTED AS SPECIFIED IN SECTION 2513 OF THE CURRENT STANDARD SPECIFICATIONS.

ESTIMATED QUANTITY FOR ONE TAPER SECTION IS 0.7 CU.YDS OF CONCRETE.

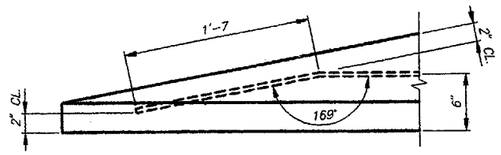
(1) 1" RADIUS ALLOWED.



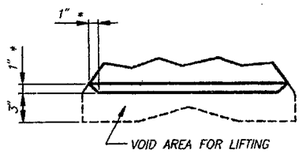
FRONT ELEVATION



END SECTION

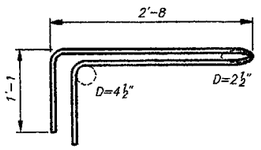


BENT BAR DETAIL



DETAIL 'B'
LIFTING SLOT DETAIL

* 1" CHAMFER TO PREVENT SPALLING



ALL DIMENSIONS ARE OUT TO OUT.
D = PIN DIAMETER

BAR 'B' DETAIL

#6 BAR - 7'-10 LENGTH
2 BARS PER SECTION

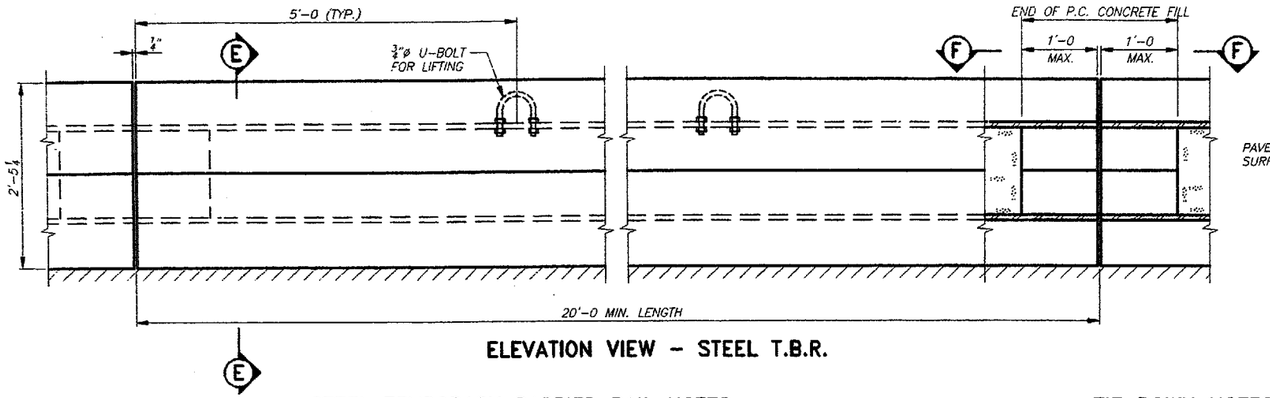
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

F-SHAPE TAPER SECTION TEMPORARY BARRIER RAIL-CONCRETE

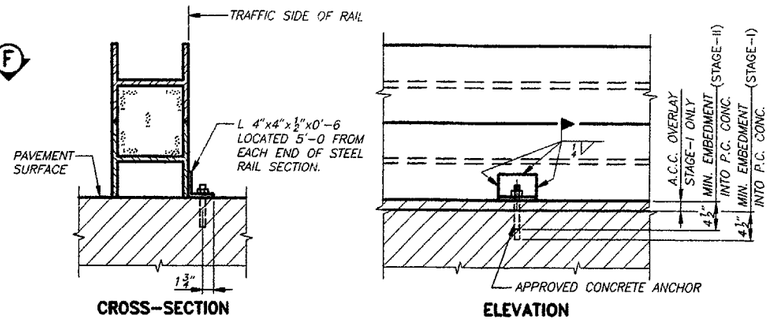
STATION 87+54.50 0° SKEW

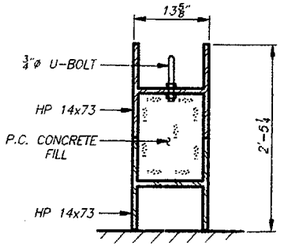
CITY OF INDEPENDENCE, IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178
DESIGNED BY : RJV
DRAWN BY : GLB
CHECKED BY : ACP
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711



ELEVATION VIEW – STEEL T.B.R.





SECTION E–E

TEMPORARY BARRIER RAIL TIE – DOWN DETAILS

STEEL TEMPORARY BARRIER RAIL NOTES:

HP 14x73 SECTIONS ARE TO BE JOINED BEFORE P.C. CONCRETE FILL IS PLACED. HP SECTIONS MAY BE JOINED BY BUTT WELDS ON BOTH EXTERIOR FACES AS DETAILED OR BY OTHER MEANS APPROVED BY THE ENGINEER. HP SECTIONS SHALL BE FREE FROM EXCESSIVE SWEEP AND CAMBER; STRAIGHTENING MAY BE REQUIRED BY THE ENGINEER IN ORDER TO PRODUCE A STABLE BARRIER.

CONCRETE MIX FOR THE P.C. FILL MAY BE ANY IOWA D.O.T. CONSTRUCTION SPECIFICATION MIX OR MAY BE A COMMERCIAL READY-MIX WITH A MINIMUM F'C = 2500 P.S.I. THE P.C. FILL MAY BE DEPOSITED BY A METHOD ACCEPTABLE TO THE ENGINEER. LIMITS OF FILL SHOWN ARE APPROXIMATE AND MAY BE ROUGH OR SLUMPED DEPENDING ON THE METHOD OF BULKHEADING.

CONNECTIONS BETWEEN STEEL TEMPORARY BARRIER RAIL SECTIONS MAY BE MADE WITH A WELDED JOINT CONNECTION OR A BOLTED JOINT CONNECTION.

WHEN USING THE BOLTED JOINT CONNECTION, USE THE FOLLOWING PROCEDURE :

DRILL $^{13}/_{16}$ø HOLES IN THE TWO (2) INSIDE 6"x½" PLATES, ONE (1) INSIDE 6"x1" PLATE, THE FLANGES AND WEB OF THE HP SECTIONS, AND $^{15}/_{16}$ø HOLES IN THE 17¾"x½" OUTSIDE PLATE AND THE 6"x6"x1" ANGLE. USE ¾"øx0'-2¾" H.S. BOLTS, PROVIDE ONE WASHER PLACED UNDER THE HEAD. BOLTS SHALL BE TIGHTENED TO SNUG TIGHT CONDITION SO THAT ALL STEEL FACES BEAR AGAINST EACH OTHER.

TACK WELD ALL NUTS TO INSIDE BOTTOM 6"x1" & 6"x½" PLATES AND TACK WELD INSIDE BOTTOM 6"x1" & 6"x½" PLATES TO INSIDE OF THE FLANGE OF THE HP 14x73 SECTION ON ONE END OF THE HP SECTION ONLY. TACK WELD NUTS TO THE INSIDE WEB OF THE TOP HP SECTION FOR THE 6"x6"x1" ANGLE CONNECTION.

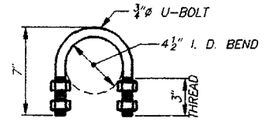
H.S. BOLTS MAY BE REUSED.

TIE DOWN NOTES:

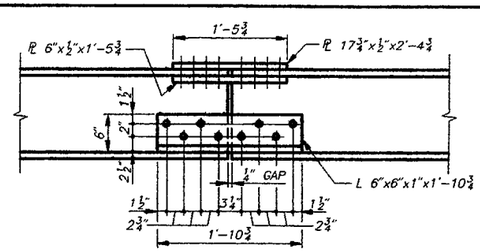
TIE-DOWNS SHALL BE USED FOR ALL STEEL TEMPORARY BARRIER ON THIS PROJECT. HOLES FOR CONCRETE ANCHORS MAY BE DRILLED AFTER POSITIONING TEMPORARY BARRIER RAIL. CONCRETE ANCHORS ARE TO BE SET SO THAT THE ANCHORS CAN BE REMOVED AT LEAST 1½" BELOW THE CONCRETE SURFACE AND THE REMAINING HOLE FILLED WITH A NEAT MIXTURE OF SAND-CEMENT GROUT. CONCRETE ANCHORS ARE TO BE REMOVED, WITHOUT DAMAGING THE SURROUNDING CONCRETE, ONLY AFTER THE TEMPORARY BARRIER RAIL IS NO LONGER NEEDED AT THE PARTICULAR LOCATION.

CONCRETE ANCHORS ARE TO BE A MINIMUM OF ¾"ø AND AS OTHERWISE SPECIFIED IN CURRENT OFFICE OF MATERIALS I.M. 453.09 WITH A PULL-OUT STRENGTH OF 16,000 LBS. BASED ON 4,000 P.S.I. CONCRETE.

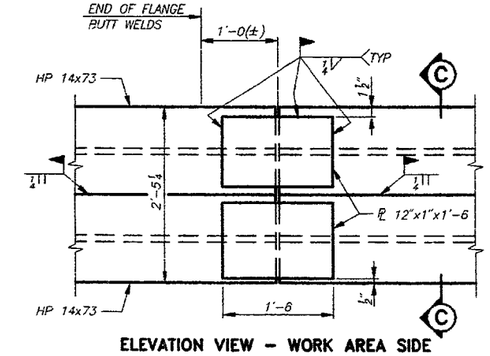
ALL COSTS FOR TIE DOWNS SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL".



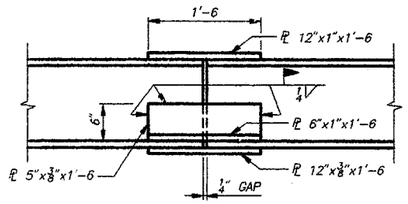
U-BOLT DETAIL
(FOR LIFTING)
NOTE : USE A36 GRADE 1020 FOR U-BOLT.



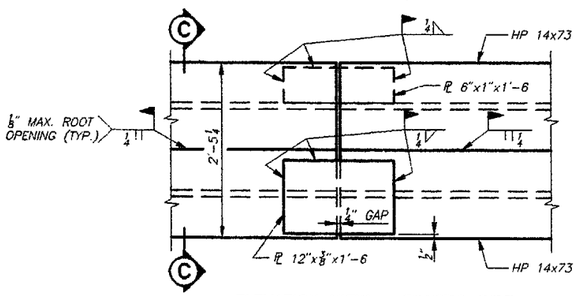
PART PLAN VIEW F–F



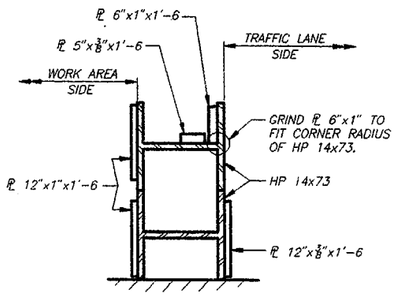
ELEVATION VIEW – WORK AREA SIDE



PART PLAN VIEW F–F

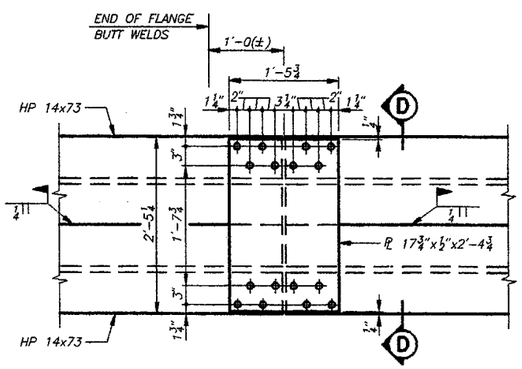


ELEVATION VIEW – TRAFFIC SIDE

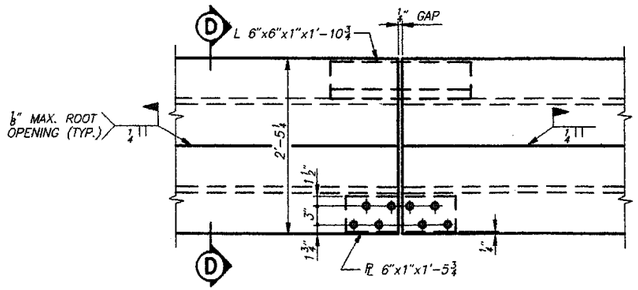


SECTION C–C

PERMISSIBLE WELDED JOINT CONNECTION

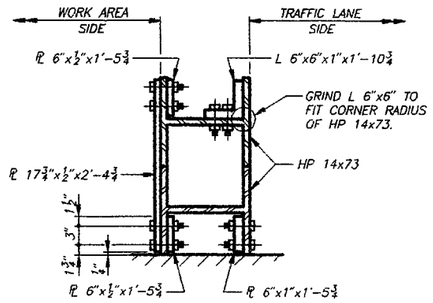


ELEVATION VIEW – WORK AREA SIDE



ELEVATION VIEW – TRAFFIC SIDE

PERMISSIBLE BOLTED JOINT CONNECTION



SECTION D–D

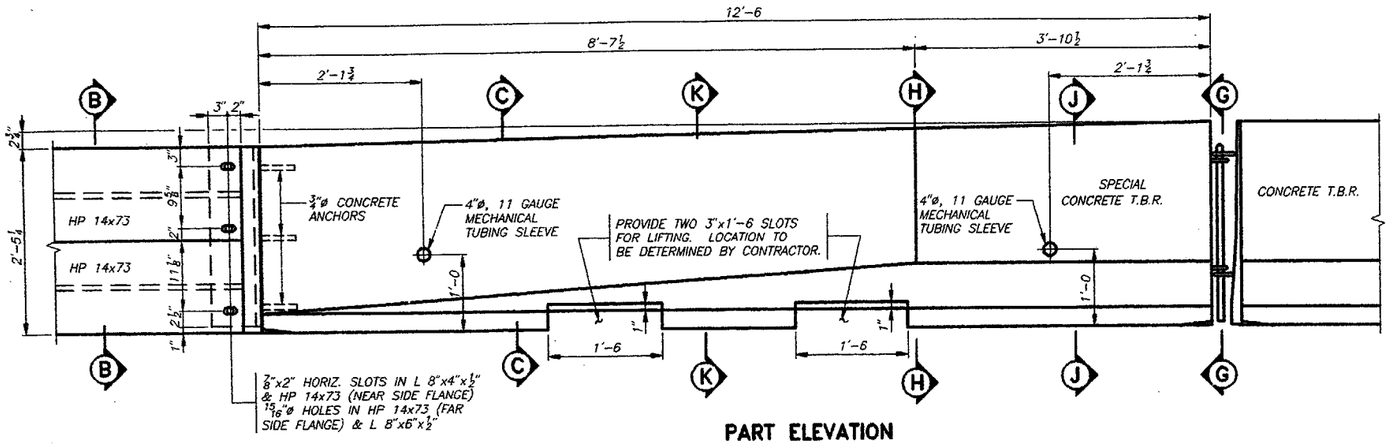
DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

TEMPORARY BARRIER RAIL–STEEL

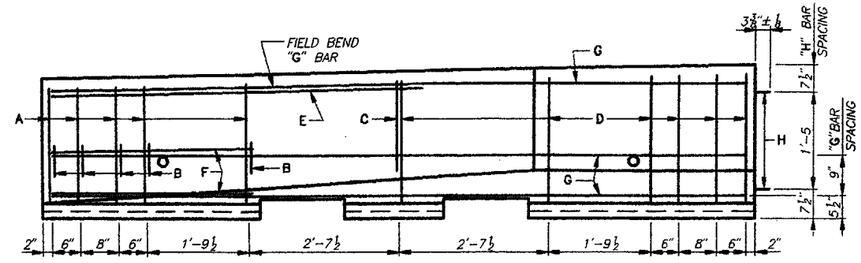
STATION 87+54.50 — 0° SKEW

CITY OF INDEPENDENCE, — IOWA

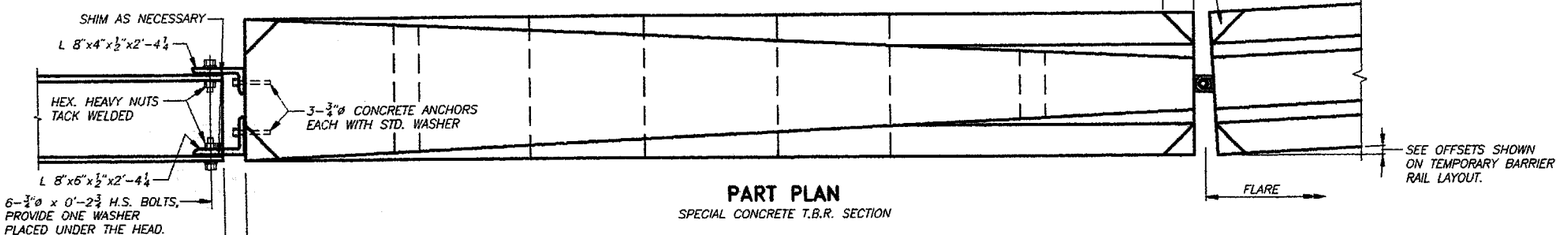
SHEET 31 OF 38



PART ELEVATION
SPECIAL CONCRETE T.B.R. SECTION

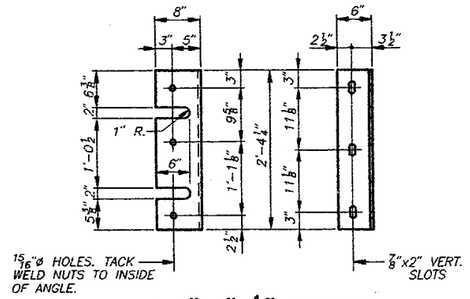


PART ELEVATION
SHOWING REINFORCING

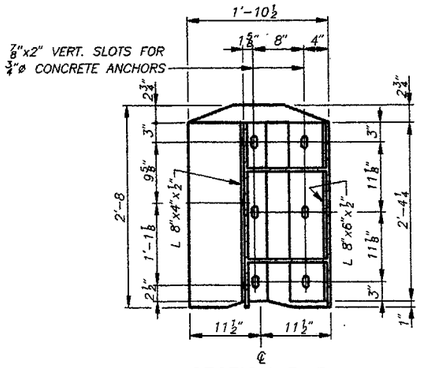


PART PLAN
SPECIAL CONCRETE T.B.R. SECTION

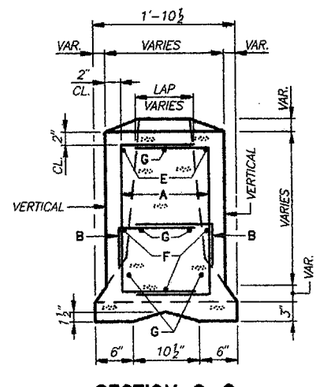
REINFORCING BARS					
BAR	SIZE	NO.	SHAPE	LENGTH	WEIGHT
A	5	10	SEE DETAIL	4'-0	42
B	5	10	SEE DETAIL	1'-6	16
C	5	1	SEE DETAIL	4'-0	4
D	4	6	SEE DETAIL	5'-3	21
E	5	2	———	6'-6	16
F	5	3	———	3'-6	11
G	6	5	———	12'-2	91
H	6	2	SEE DETAIL	7'-10	24



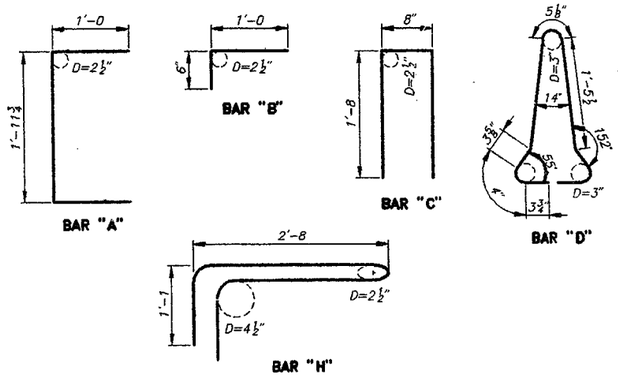
L 8"x6"x½" DETAILS

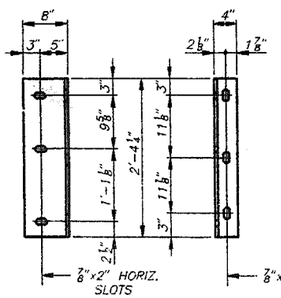


SECTION B-B

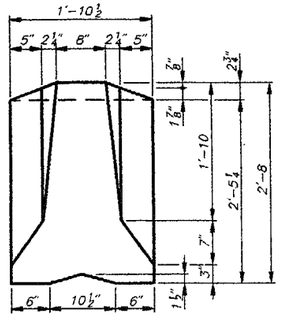


SECTION C-C

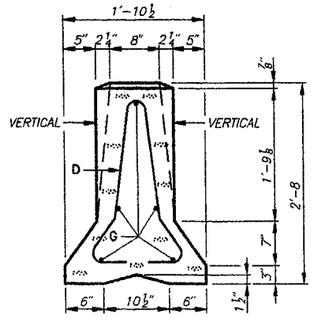




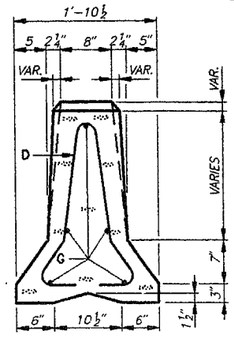
L 8"x4"x½" DETAILS



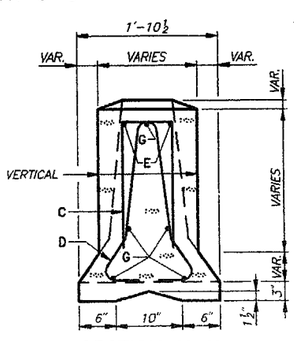
SECTION G-G



SECTION H-H



SECTION J-J



SECTION K-K

NOTES : ALL DIMENSIONS ARE OUT TO OUT. D=PIN DIAMETER.
MINIMUM 2" CLEARANCE BETWEEN ALL BARS AND OUTSIDE SURFACE OF TEMPORARY BARRIER RAIL.
CONCRETE VOLUME = 1.6 CU. YDS.

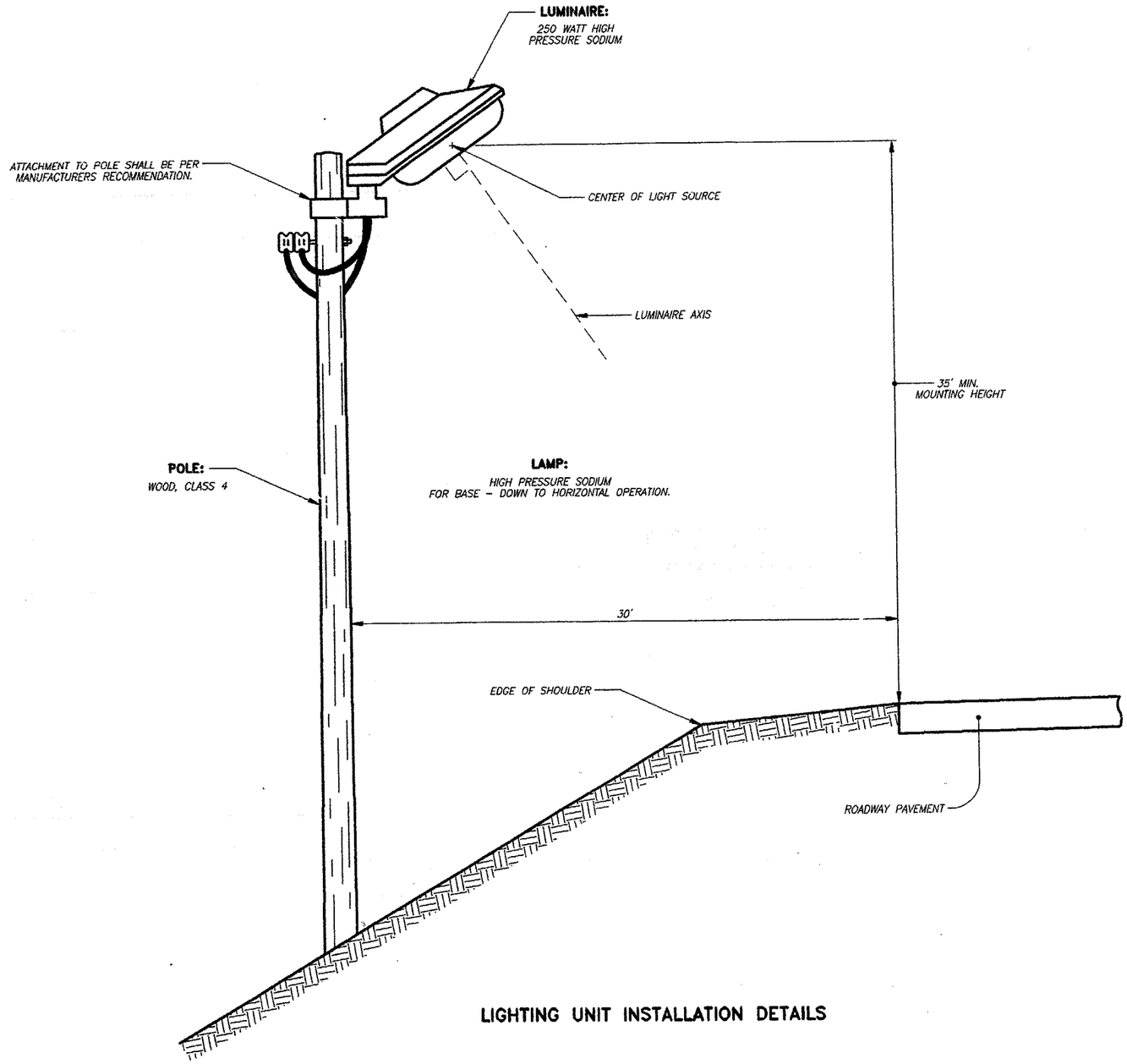
DECK REPLACEMENT AND PEDESTRIAN/BIKEWAY ADDITION TO THE EXISTING CONCRETE ARCH BRIDGE OVER THE WAPSIPINICON RIVER

F-SHAPE SPECIAL SECTION TEMPORARY BARRIER RAIL-CONCRETE

STATION 87+54.50 0° SKEW

CITY OF INDEPENDENCE, IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178
DESIGNED BY : RN
DRAWN BY : GB
CHECKED BY : ACB
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711



LIGHTING UNIT INSTALLATION DETAILS

GENERAL NOTES:

TEMPORARY FLOODLIGHTING WILL BE REQUIRED ON THIS PROJECT. THE LIGHTING SHALL CONFORM TO CURRENT STANDARD AND SUPPLIMENTAL SPECIFICATIONS FOR FLOODLIGHTING, ARTICLES 2528.08 AND 2528.12 PARAGRAPH A (5) EXCEPT AS MODIFIED HEREON.

TEMPORARY FLOODLIGHTING SHALL CONSIST OF EITHER A POLE MOUNTED LUMINAIRE AS ILLUSTRATED HEREON OR A LUMINAIRE MOUNTED ON PORTABLE TYPE EQUIPMENT. LOCATION OF THE TEMPORARY FLOODLIGHTING SHALL BE AS SHOWN IN THE TRAFFIC CONTROL PLAN OR AS DETERMINED BY THE ENGINEER. THE CONTRACTOR SHALL DETERMINE POLE LENGTH BY FIELD MEASUREMENT TO OBTAIN SPECIFIED MOUNTING HEIGHT. LUMINAIRE AXIS SHALL BE DIRECTED TO WITHIN THE LIMITS OF THE NEAR TRAFFIC LANE UNLESS SPECIFIED OTHERWISE.

PROPOSALS FOR ALTERNATIVES TO THE CLASS 4 WOOD POLE USED TO MOUNT LUMINAIRE MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

THE LUMINAIRE SHALL BE DESIGNED TO OPERATE WITHOUT A MASTARM. THE "VECTOR" AND "EXPRESSWAY" LUMINAIRE BY THE HOLOPHANE COMPANY, INC. OR THE "INTERSTATE" LUMINAIRE BY THE AMERICAN ELECTRIC DIVISION OF I.T.T. ARE THE APPROVED LUMINAIRES.

AERIAL LIGHTING CIRCUITS SHALL BE ALUMINUM OR A.C.S.R. TRIPLEX. UNDERGROUND LIGHTING CIRCUITS SHALL BE TYPE U.S.E. OR U.F. ALL CIRCUIT DESIGN AND MATERIALS SHALL BE APPROVED BY THE ENGINEER BEFORE INSTALLATION COMMENCES.

PRICE BID FOR "TEMPORARY FLOODLIGHTING LUMINAIRE" SHALL INCLUDE ALL COSTS FOR FURNISHING, INSTALLING, MAINTAINING AND SERVICING THE TEMPORARY FLOODLIGHTING UNITS, ALL COSTS FOR ELECTRICAL ENERGY, AND THE COST OF REMOVING ALL LIGHTING MATERIALS FROM THE CONSTRUCTION SITE.

DECK REPLACEMENT
AND PEDESTRIAN/BIKEWAY ADDITION
TO THE EXISTING CONCRETE ARCH
BRIDGE OVER THE WAPSIPINICON RIVER

TEMPORARY FLOODLIGHTING DETAILS

STATION 87+54.50 — 0° SKEW
CITY OF INDEPENDENCE, — IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344
JOB NO. 97178
DESIGNED BY : RJV
DRAWN BY : RJL
CHECKED BY : ACP
DESIGN NO. 5198
BUCHANAN COUNTY
FILE NO. 55711

① Lane(s) to which the obstacle is adjacent.
② Applies to Standard Road Plan RE-63 only.

TABULATION OF STEEL BEAM GUARDRAIL AT BRIDGE END POST, CONCRETE BARRIER AND RAILROAD SIGNALS

Refer to Standard Road Plan RE-63, RE-65A and RE-65B

③ Each STS includes 2-12.5' Thrie Beam Sections and 1-6.25' "W" to Thrie Beam Transition Section

108-8A
01-12-99

NO.	LOCATION: ① DIRECTION OF TRAFFIC	LOCATION: STATION	LOCATION: SIDE	STANDARD ROAD PLAN	② L2	CASE: Ⓐ	CASE: Ⓣ	LAYOUT LENGTHS: Approach Side Ⓐ: STS ③ (18.75')	Ⓥ	Ⓕ	Terminal (37.5')	Total	Trailing Side Ⓣ: STS ③ (18.75')	Ⓥ	Ⓕ	Terminal (37.5')	Total	BID ITEMS: Rail Elements: Ⓐ+Ⓣ- STS(s) - Terminal Section(s)	Rail Elements: Thrie Beam ③ (31.25' or 62.5') (STS)	Posts: with 8" x 8" Spacer Blocks 8"x8"x6'	Posts: with 8" x 8" Spacer Blocks 10"x10"x6'	Anchorage and Terminal Systems: RE-33B	RE-69	RE-76	REMARKS
					Feet	F or S	F or S	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	Lin.Ft.	No.	No.	No.	No.	No.	
1	N	87+54.50	RT.	RE-65A	–	S	–	18.75	–	–	37.5	56.25	–	–	–	–	–	–	31.25	3	3	–	1	1	SOUTH END, RT.
2	S	87+54.50	LT.	RE-65A	–	–	S	–	–	–	–	–	18.75	–	–	37.5	56.25	–	31.25	3	3	–	1	1	SOUTH END, LT.
3	N	87+54.50	RT.	RE-65A	–	–	S	–	–	–	–	–	18.75	–	–	37.5	56.25	–	31.25	3	3	–	1	1	NORTH END, RT.
4	S	87+54.50	LT.	RE-65A	–	S	–	18.75	–	–	37.5	56.25	–	–	–	–	–	–	31.25	3	3	–	1	1	NORTH END, LT.

• RE-26B MATERIALS EXCEPT REINFORCING AND STRUCTURAL CONCRETE.

① Lane(s) to which the installation is adjacent.
② Refer to Standard Road Plans RL-12, RL-14, and Typicals 4303 or 4306

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

107-23
01-12-99

No.	LOCATION POINT: ① DIRECTION OF TRAFFIC	LOCATION POINT: Station	TYPE	DIMENSIONS ②: Ⓐ/Ⓣ Lin.Ft.	DIMENSIONS ②: Ⓑ Ⓨ Lin.Ft.	DIMENSIONS ②: Ⓩ Lin.Ft.	CLASS 10 EXCAV.△ Cu.Yds.	EMBANK. IN PLACE Cu.Yds.	PIPE: Size Inches	PIPE: Type	PIPE: Length Lin.Ft.	REMARKS
1	S.	85+05.52	1	56.25	8.2	51	110	–	–	–	–	S. END LT.
2	S.	90+03.48	1	56.25	8.2	51	18	–	–	–	–	N. END LT.

△ INCLUDES 35% FOR SHRINKAGE

TABULATION OF DELINEATORS AND OBJECT MARKERS

Refer to Standard Road Plan RE-48A-B and RE-29C

108-17
04-28-98

STATION	TYPE	DELINEATOR: SINGLE WHITE D-1W Number	OBJECT MARKER: TYPE 2 OM2-3YV Number	OBJECT MARKER: TYPE 3 OM-3L Number	OBJECT MARKER: TYPE 3 OM-3R Number	REMARKS
87+54.50	2	–	4	1	1	SOUTH END
87+54.50	2	–	4	1	1	NORTH END

TABULATION OF PAVEMENT MARKINGS

	LINE TYPE *	STATION TO STATION	SIDE	LENGTH Sta.
(7)	EDGE LINE RIGHT	84+20 TO 90+50	LT.	6.30
(5)	NO PASSING ZONE	84+20 TO 90+50	LT.	7.88
(7)	EDGE LINE RIGHT	84+20 TO 90+50	RT.	6.30
		TOTAL (STA.)		20.48

* REFER TYP. DETAIL 9001
(5) INCLUDES SOLID LINE AND BROKEN LINE.

REMOVAL OF PAVEMENT

*Not a bid item.

110-1
04-30-96

STATION TO STATION		AREA Sq.Yds.	SAW CUT Lin.Ft.*	REMARKS
85+40	85+60	55.6	25	S. APPROACH (A)
85+60	89+49	1283.1	–	BRIDGE (B)
89+49	89+69	48.9	22	N. APPROACH (A)
85+40	85+65	7.0	2.5	S. APPR. STAGE-II (B)
89+44	89+69	7.0	2.5	N. APPR. STAGE-II (B)
	TOTAL	1401.6		

(A) THE EXISTING PAVEMENT CONSISTS OF APPROXIMATELY 8" P.C.C. W/ 6" A.C.C. OVERLAY.
(B) THE EXISTING PAVEMENT CONSISTS OF 8" A.C.C. PLACED DURING STAGE-I.

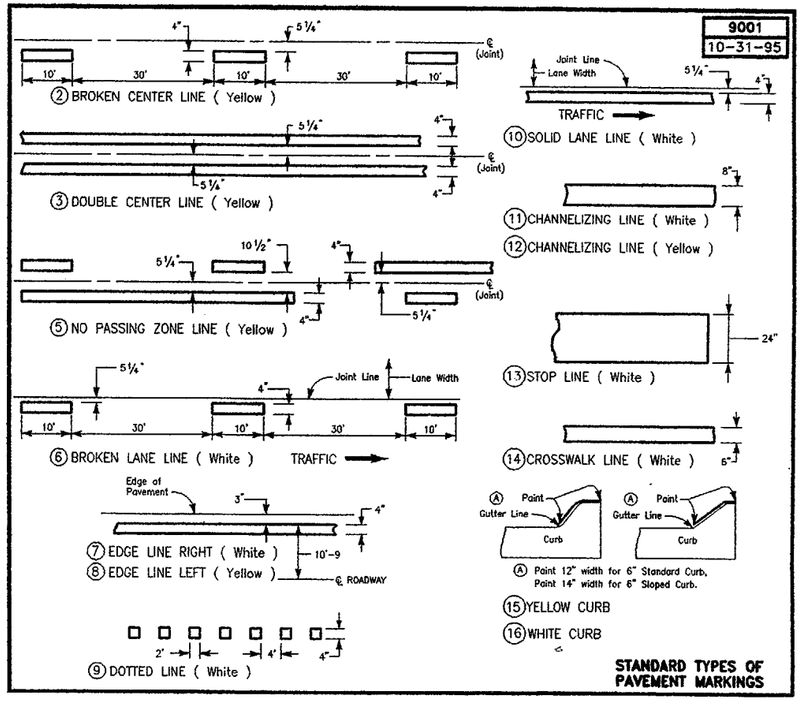
TABULATION OF SAFETY CLOSURES

108-13A
10-28-97

Refer to Section 2518 of the Standard Specifications

STATION	CLOSURE TYPE: Road Qty.	CLOSURE TYPE: Hazard Qty.	REMARKS
84+00		1	S. END
90+75		1	N. END

9001
10-31-95



STANDARD TYPES OF PAVEMENT MARKINGS

TABULATION OF BRIDGE ROADWAY APPROACH SECTION *

Refer to Standard Road Plan RF-19E, RK-16, RK-19A, RK-19B, RK-19C, RK-19D, RK-19E, RK-19F, RK-19G, RK-19H, or RK-19J.

① Not a bid item

112-6
10-27-98

BRIDGE STATION	END	APPROACH PAVEMENT: CASE	APPROACH PAVEMENT: (PN) FOR CASE "2"	APPROACH PAVEMENT: (T) THICKNESS Inches	APPROACH PAVEMENT: PAY LENGTH Feet	APPROACH PAVEMENT: NON-REINF. PAVE. AREA Sq.Yds.	APPROACH PAVEMENT: REINF. PAVE. AREA Sq.Yds.	FIXED OR MOVABLE ABUTMENT F or M	SUBDRAIN: ① PERFORATED SUBDRAIN 4" Lin.Ft.	SUBDRAIN: ① SUBDRAIN OUTLET STATION	SUBDRAIN: ① SUBDRAIN OUTLET SIDE	SUBDRAIN: ① POROUS BACKFILL Cu.Yds.	SUBDRAIN: ① CLASS 'A' CRUSHED STONE BACKFILL Cu.Yds.	APPROACH SUBGRADE: ① SPECIAL BACKFILL Tons	APPROACH SUBGRADE: ① POLYMER GRID Sq.Yds.	REMARKS
87+54.50	S	1	–	12	20.0	–	80.6	–	70	85+64	RT.	2	–	75	133	S. END
87+54.50	N	1	–	12	20.0	–	80.6	–	70	89+42	RT.	2	–	75	133	N. END

* SEE "BRIDGE APPROACH PAVEMENT" DETAILS, SHEET 25.

TABULATIONS

CITY OF INDEPENDENCE, IOWA

CALHOUN-BURNS & ASSOCIATES, INC. CONSULTING ENGINEERS
WEST DES MOINES, IOWA 50265 (515)224-4344

JOB NO. 97178

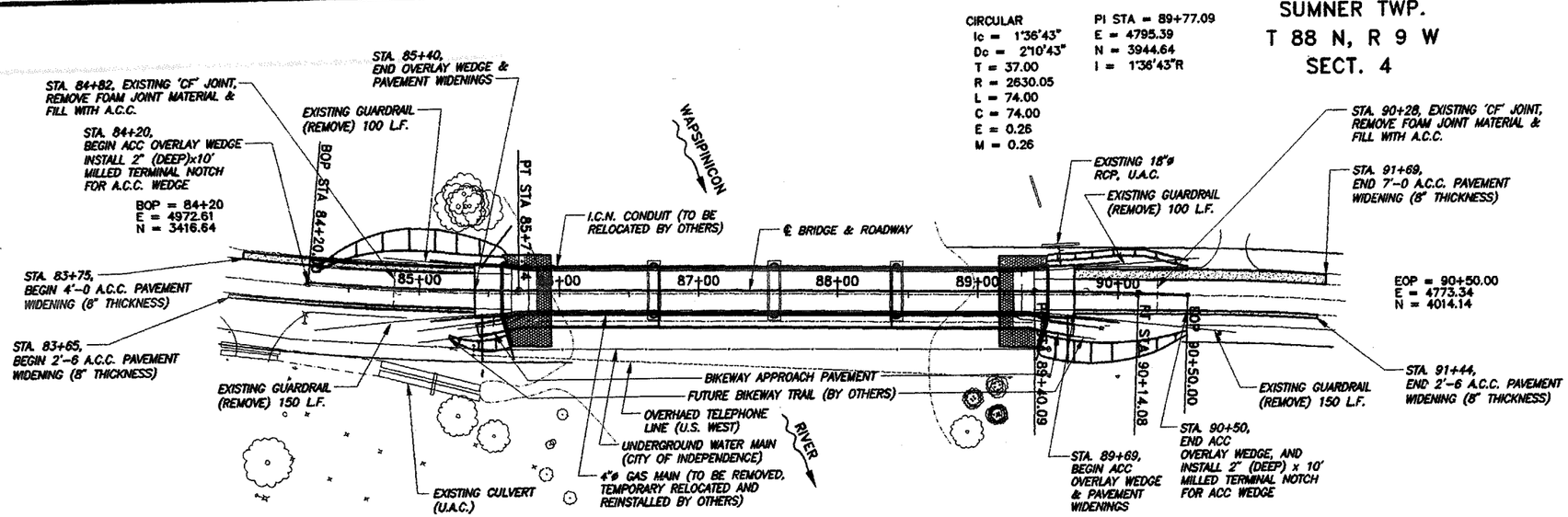
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DRAWN BY : JCK
CHECKED BY : ADC

DESIGN NO. 5198

BUCHANAN COUNTY

FILE NO. 55711

SUMNER TWP.
T 88 N, R 9 W
SECT. 4



CIRCULAR
Ic = 4°53'48"
Dc = 3°14'32"
T = 75.57
R = 1767.34
L = 151.04
C = 151.00
E = 1.61
M = 1.61

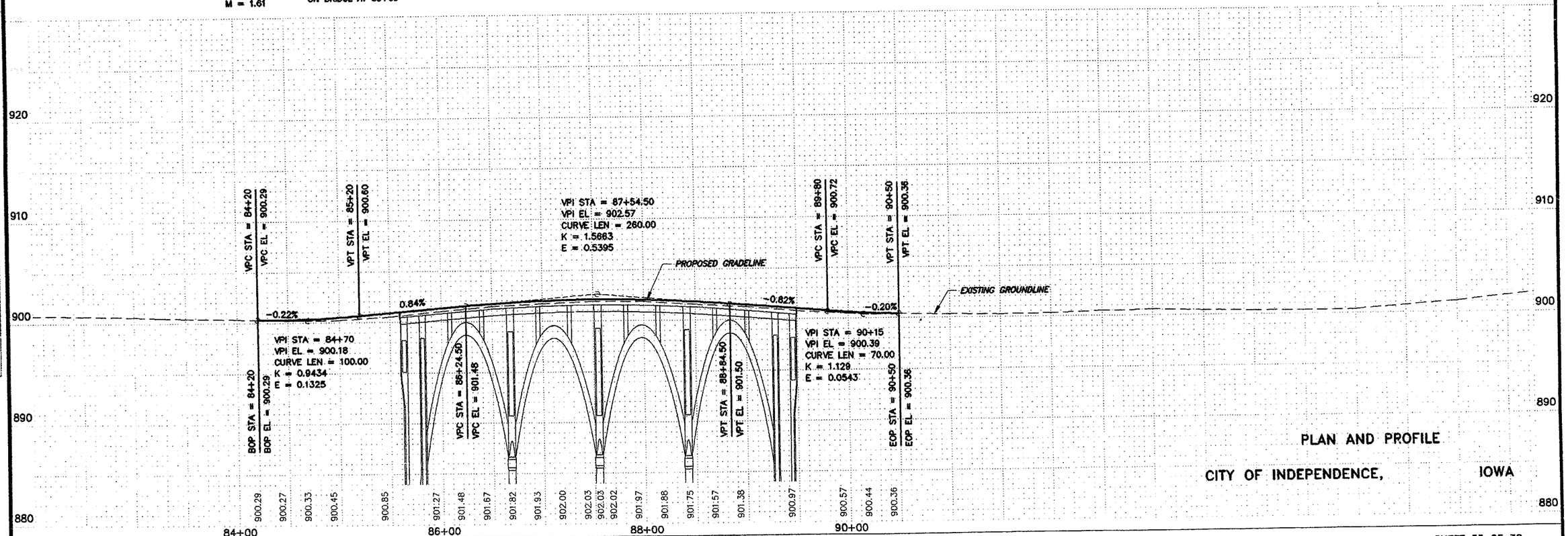
PI STA = 84+95.57
E = 4953.92
N = 3489.86
I = 4°53'48"L

TRANSITION SUPERELEVATION FROM EXISTING AT STATION 84+20 TO NORMAL CROWN ON BRIDGE AT 85+60

SEE SITUATION PLAN FOR ADDITIONAL INFORMATION

BENCH MARK : BRASS DISK AT S.E. CORNER OF BRIDGE, ELEV. = 900.845

PLAN
SURVEYED
PLOTTED
ALIGNMENT CHECKED
R.O.W. NOTED
NOTE BOOK
NO.
BY:
DATE:



PROFILE
SURVEYED
PLOTTED
CHECKED
R.O.W. NOTED
NOTE BOOK
BM. NOTED
NO.
STR. NOTATN. CHKD
BY:
DATE:

PLAN AND PROFILE

CITY OF INDEPENDENCE, IOWA

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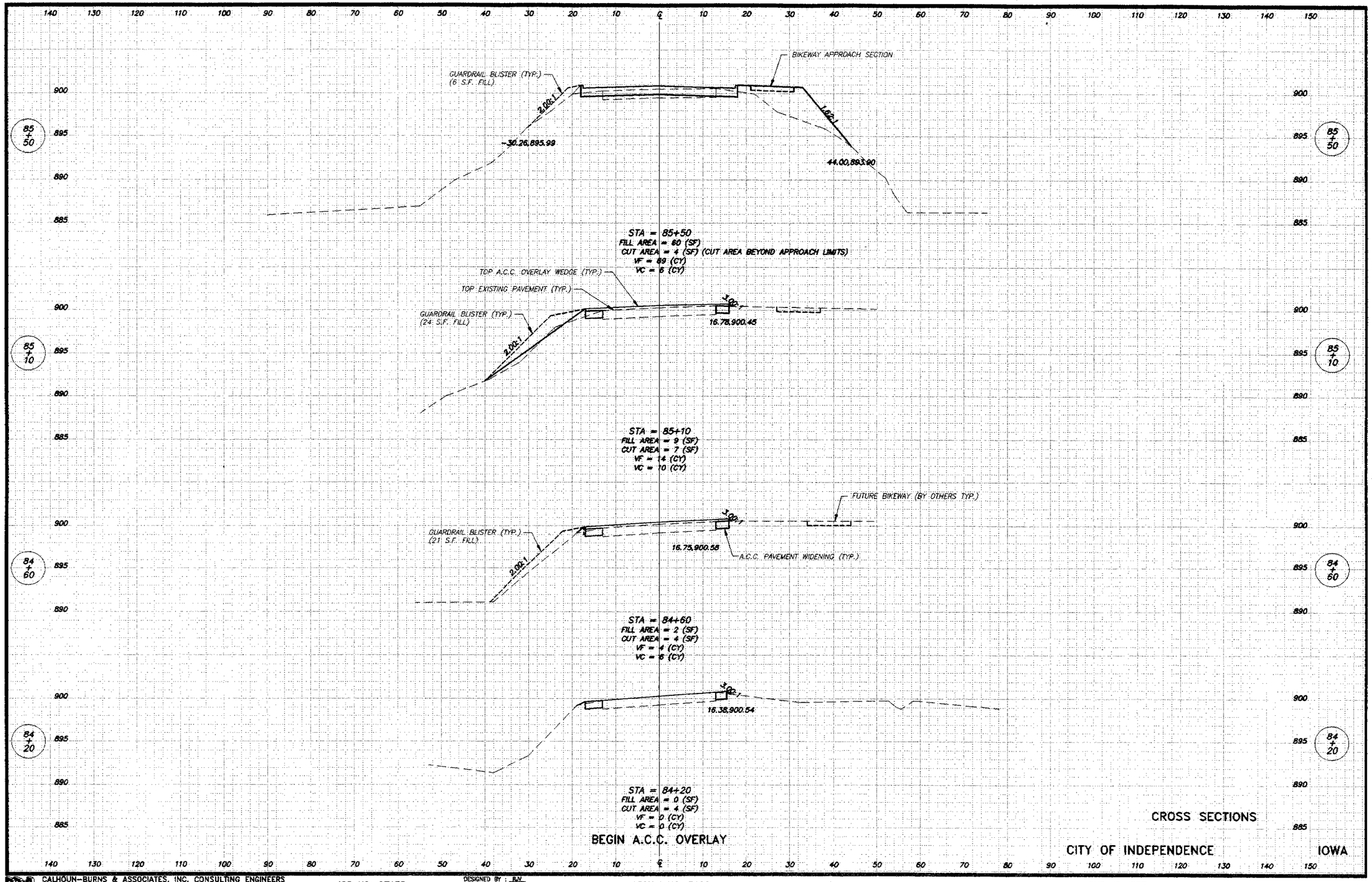
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DRAWN BY: MDL
CHECK BY: ACP

DESIGN NO. 5198

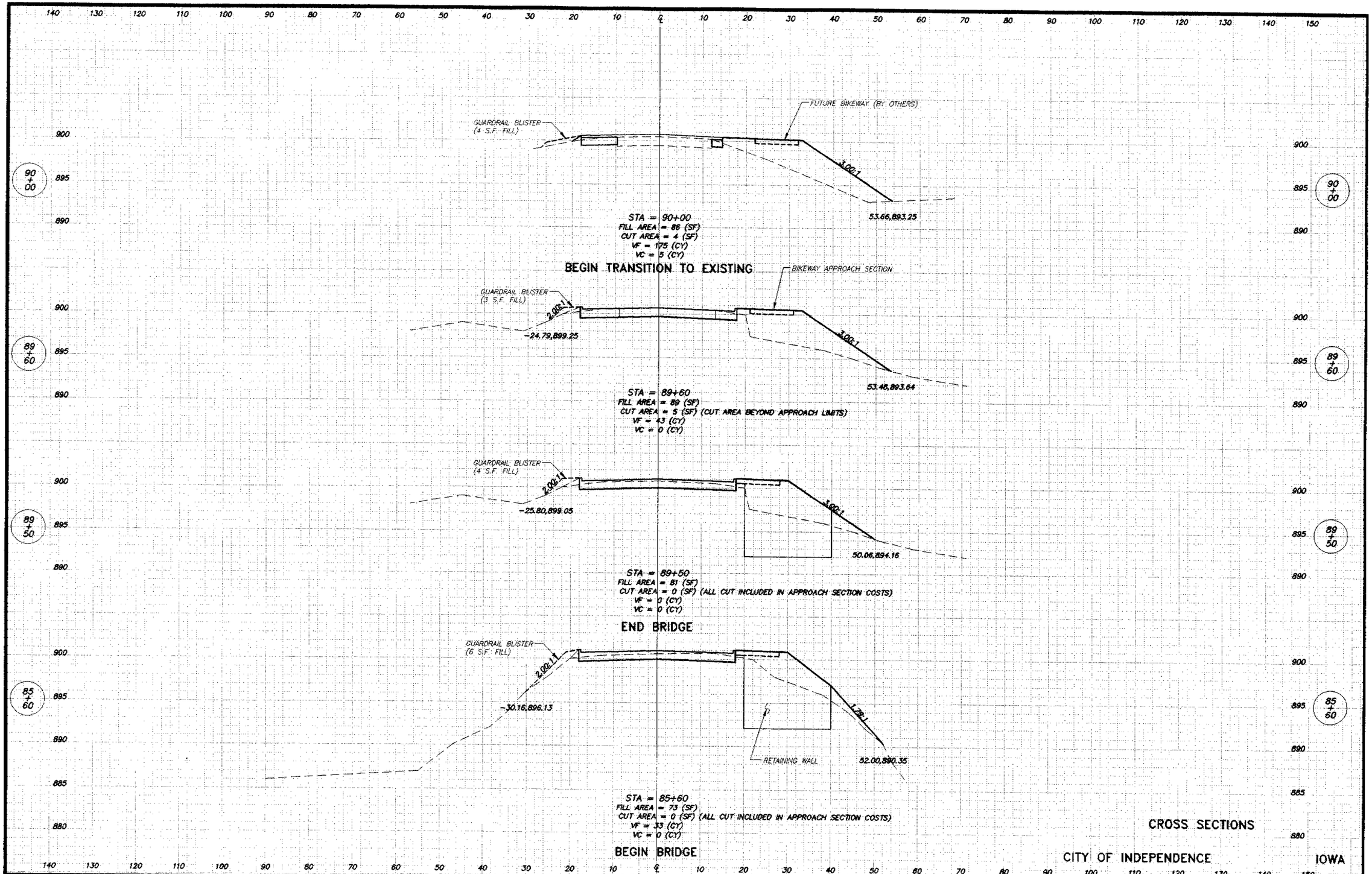
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CROSS SECTIONS

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CROSS SECTIONS

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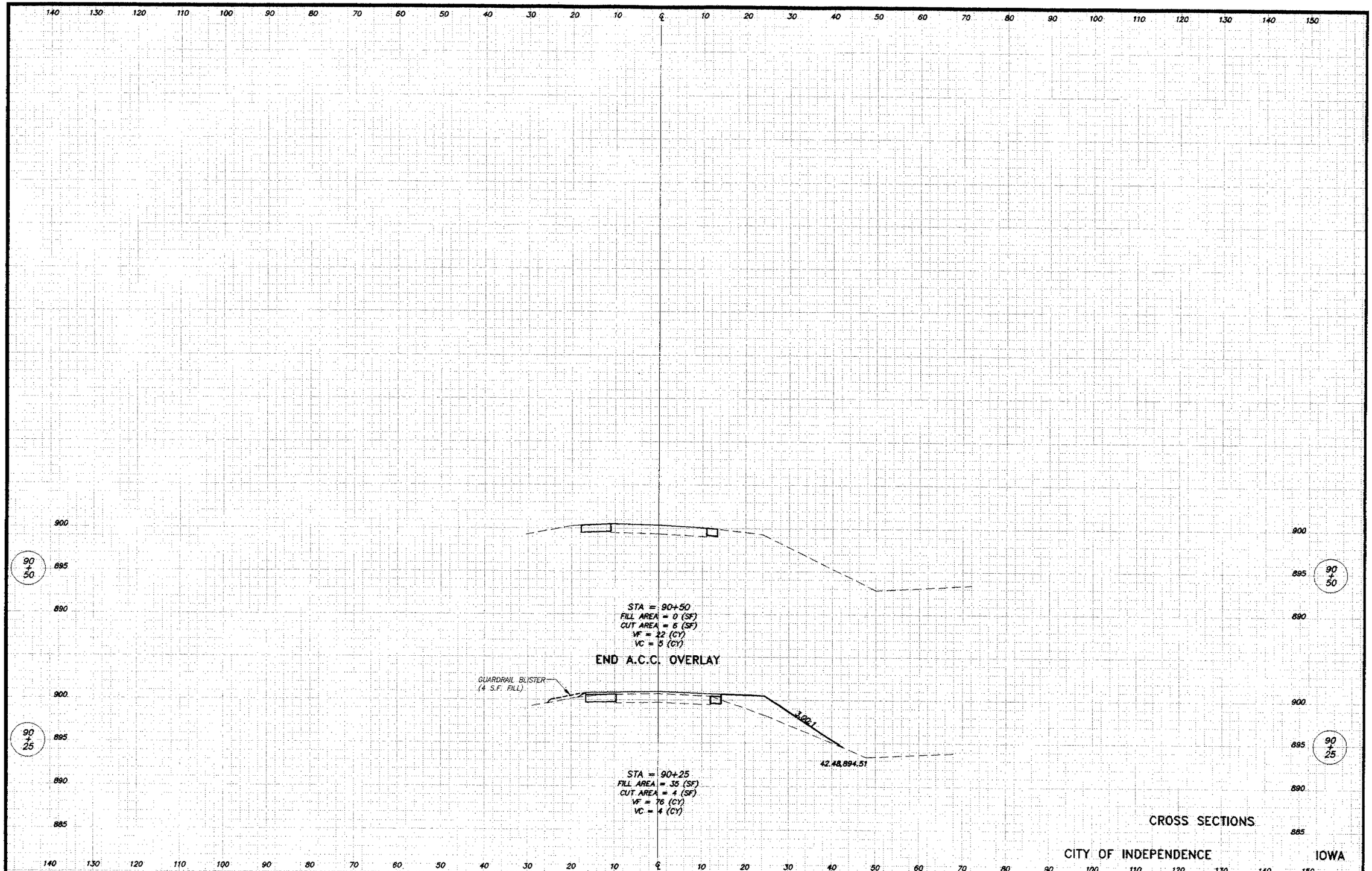
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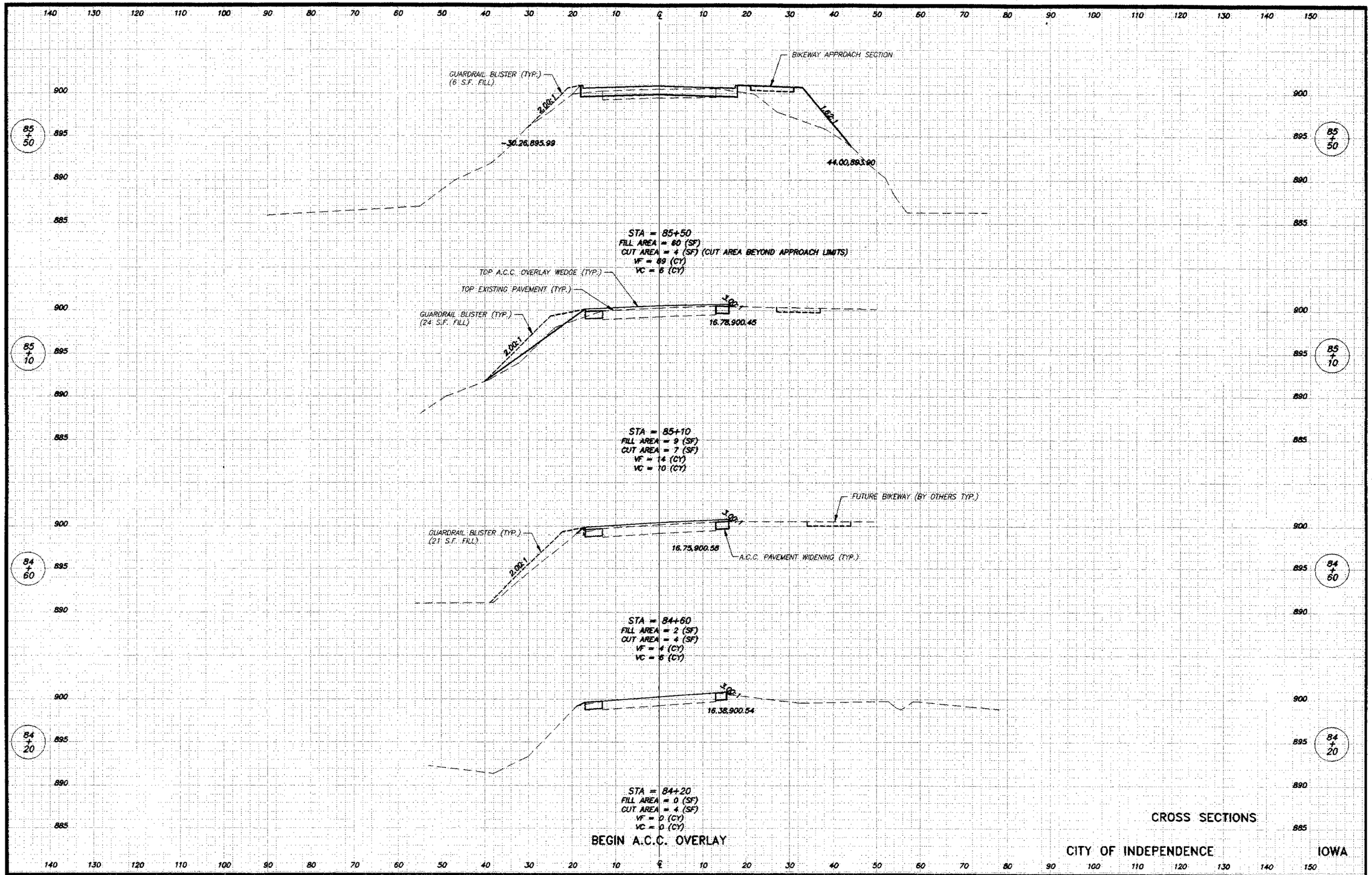
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CHECKED BY : ACP

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BUCHANAN COUNTY

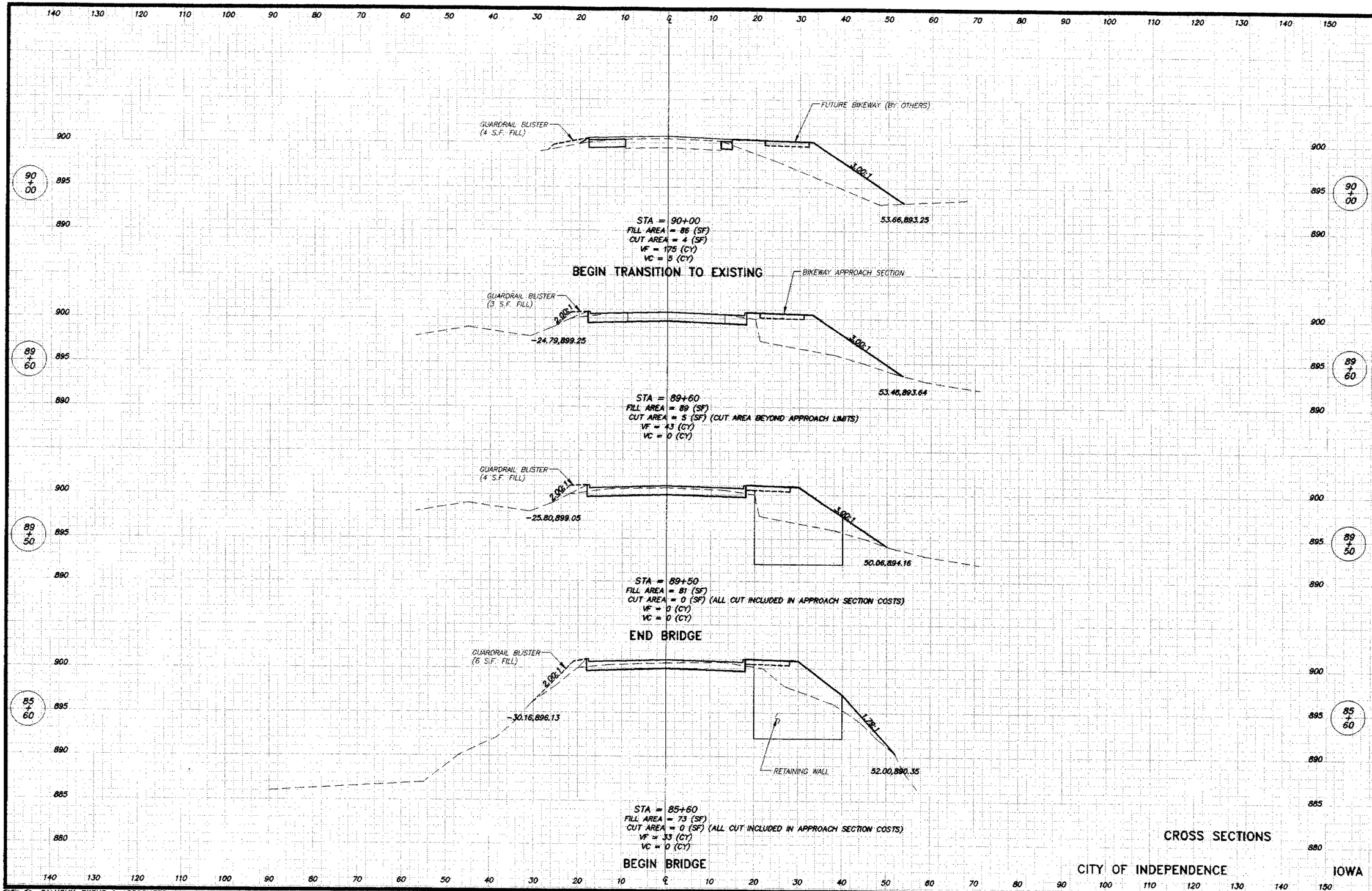
FILE NO. 55711


140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
900
895
890
885
90 + 50
90 + 25
STA = 90+50
FILL AREA = 0 (SF)
CUT AREA = 6 (SF)
VF = 22 (CY)
VC = 5 (CY)
END A.C.C. OVERLAY
GUARDRAIL BLISTER
(4 S.F. FILL)
3.00:1
42.48,894.51
STA = 90+25
FILL AREA = 35 (SF)
CUT AREA = 4 (SF)
VF = 76 (CY)
VC = 4 (CY)
CROSS SECTIONS
CITY OF INDEPENDENCE
IOWA



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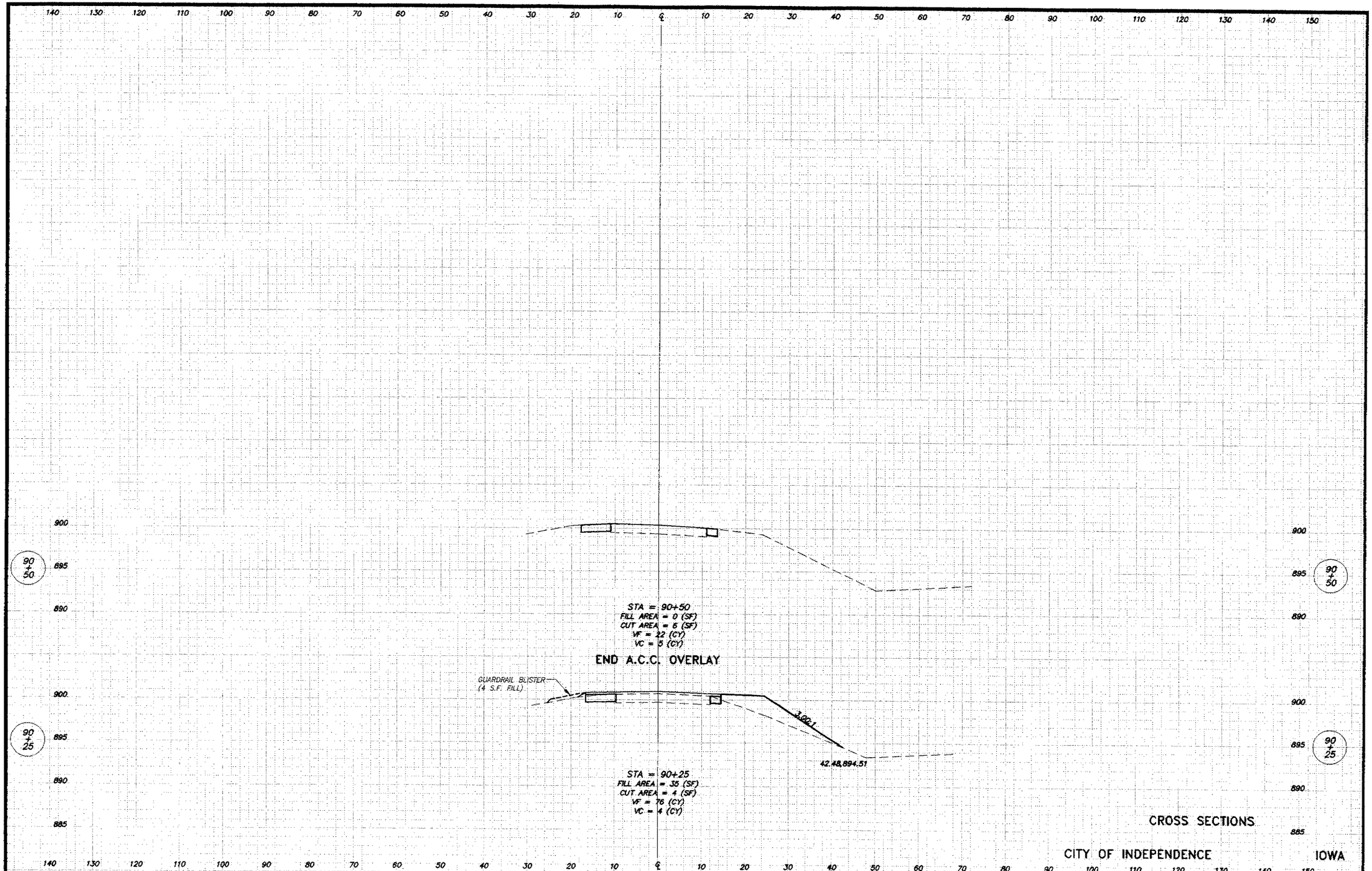
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BUCHANAN COUNTY

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SHEET 38 OF 38