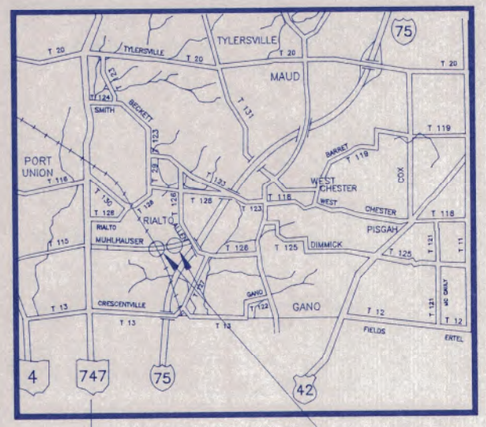
BUTLER COUNTY
TRANSPORTATION IMPROVEMENT DISTRICT
MUHLHAUSER ROAD
R-115-1.294
UNION TOWNSHIP, BUTLER COUNTY



PROJECT LOCATIONS
MUHLHAUSER ROAD
BRIDGE NO. R-115-2.429 AND
R-115-2.621

LOCATION MAP

0 1 2 3 4
SCALE IN MILES

State & Federal Routes
Other Roads
Detour Route

DESIGN DESIGNATION

CURRENT A.D.T. (1995)	6250
DESIGN YEAR A.D.T. (2015)	16,261
DESIGN HOURLY VOLUME (2015)	1626
DIRECTIONAL DISTRUBUTION	50%
TRUCKS (24 HOUR B&C)	4%
DESIGN SPEED	45 MPH
LEGAL SPEED	45 MPH
DESIGN FUNCTIONAL CLASSIFICATION	MAJOR COLLECTOR-URBAN

DESIGN EXCEPTIONS
NONE REQUIRED

UNDERGROUND UTILITIES
2 WORKING DAYS
BEFORE YOU DIG
Call 1-800-362-2764
UNITED UTILITY
PROTECTION SERVICE
NON MEMBERS
MUST BE CALLED DIRECTLY

PLANS PREPARED BY
BAYER BECKER ENGINEERS
CIVIL ENGINEERS ~ SURVEYORS ~ LAND PLANNERS

INDEX OF SHEETS

1 TITLE SHEET
2 SCHEMATIC PLAN
3 ESTIMATED QUANTITIES AND NOTES
4 SITE PLAN (BRIDGE NO. R-115-2.429)
5 REAR ABUTMENT PILE / FOOTER PLAN
6 PIER PILE / FOOTER PLANS
7 FORWARD ABUTMENT PILE / FOOTER PLAN
8 SITE PLAN (BRIDGE NO. R-115-2.621)
9 REAR ABUTMENT PILE / FOOTER PLAN
10 PIER PILE PLAN
11 FORWARD ABUTMENT PILE / FOOTER PLAN

PROJECT DESCRIPTION

THIS PROJECT INVOLVES DRIVING PILES AND CONSTRUCTING THE FOOTERS FOR THE PROPOSED/FUTURE BRIDGE STRUCTURES OVER THE NORFOLK SOUTHERN RAILROAD AND THE MILL CREEK.

1995 SPECIFICATIONS

The standard specifications of the State of Ohio, Department of Transportation, including changes and supplemental specifications listed in the proposal shall govern this improvement.

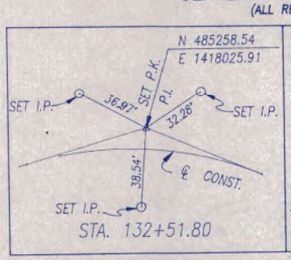
I hereby approve these plans and declare the making of this improvement will not require the closing to traffic of the highway and that provisions for the maintenance and safety of traffic will be as set forth on the plans and estimates.

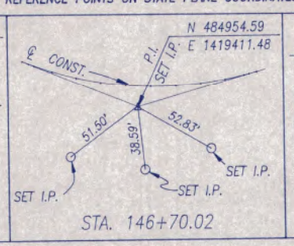
Wherever the word "State" occurs, it is to mean Butler County T.I.D.. Wherever the word "Engineer" occurs, it is to mean Butler County Engineer, limited to the particular duties entrusted in them.

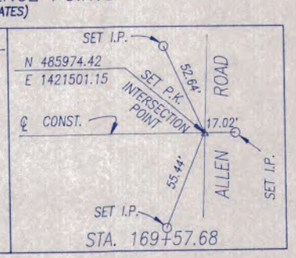
Approved _____
Butler County Engineer

Approved _____
Butler County T.I.D., Darrell Barger, Director

CENTERLINE OF CONSTRUCTION REFERENCE POINTS
(ALL REFERENCE POINTS ON STATE PLANE COORDINATES)

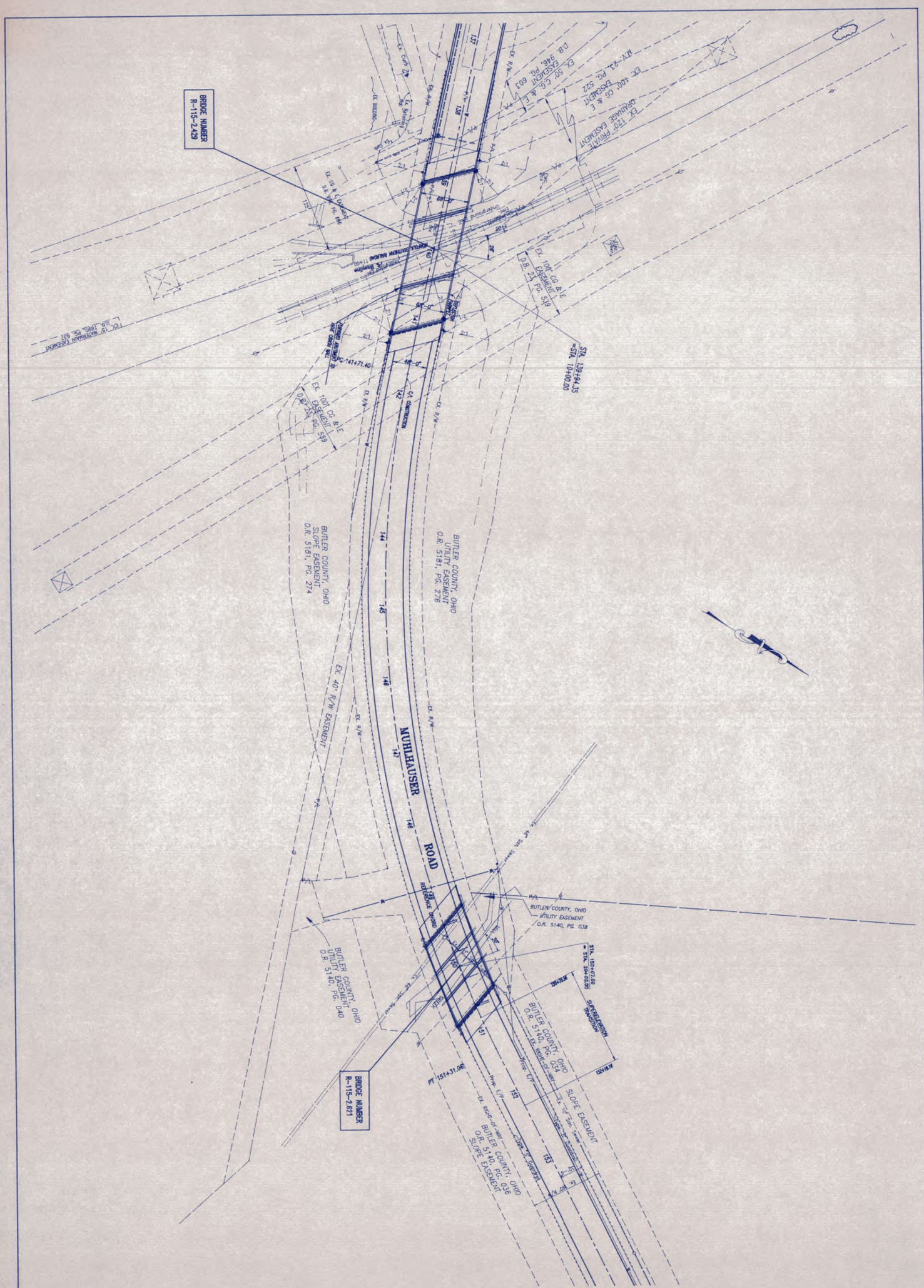






STANDARD CONSTRUCTION DRAWINGS				BUTLER COUNTY STANDARD CONST. DWGS.	SUPPLEMENTAL SPECIFICATIONS
MC-11 8-1-70					

FEDERAL PROJECT NUMBER — NON-FEDERAL
P.I.D. NUMBER —
CONSTRUCTION PROJECT NUMBER —
RAILROAD INVOLVEMENT
NORFOLK SOUTHERN RAILROAD
R-115-1.294
1/11


BRIDGE NUMBER R-115-2.429
MUHLHAUSER ROAD
BUTLER COUNTY, OHIO UTILITY EASEMENT O.R. 5140, PG. 038
BUTLER COUNTY, OHIO UTILITY EASEMENT O.R. 5140, PG. 040
BUTLER COUNTY, OHIO SLOPE EASEMENT O.R. 5181, PG. 274
BUTLER COUNTY, OHIO UTILITY EASEMENT O.R. 5181, PG. 276
BUTLER COUNTY, OHIO O.R. 5140, PG. 034 SLOPE EASEMENT
BUTLER COUNTY, OHIO O.R. 5140, PG. 016 SLOPE EASEMENT
SLOPE EASEMENT
Ex. 40' R/W EASEMENT
Ex. 10M C& E EASEMENT D.B. 234, PG. 549
Ex. 10M C& E EASEMENT D.B. 234, PG. 539
Ex. 50' C.S.O. & E. EASEMENT D.B. 946, PG. 603
Ex. 40M CG & E EASEMENT M.V. 21, PG. 522
Ex. 120' PRIVATE DRAINAGE EASEMENT
Ex. 15' SANITARY EASEMENT D.B. 1865, PG. 62
Ex. CL & E EASEMENT D.B. 946, PG. 846
PT 1514+37.06
BRIDGE NUMBER R-115-2.671
STA 1514+07.50 = STA 304+30.00
SUPERELEVATION TRANSITION
Ex. Edge of Pavement
Ex. Right-of-Way
Ex. Curb
Ex. Building
Ex. Guardrail
Ex. Sidewalk
Ex. Fence
Ex. Gas Line
Ex. Overhead Wires
Ex. Storm Sewer
Ex. Sanitary Sewer
Ex. Water Line
Ex. Gas Valve
Ex. Gas Meter
Ex. Telephone Pedestal
Ex. Utility Pole
Ex. Light Pole
Ex. Mailbox
Ex. Sign
Ex. Manhole
Ex. Inlet
Ex. Catch Basin
Ex. Tree
Ex. Shrub
Ex. Contour
Ex. Ground
Ex. Spot Elevation
Ex. Drainage Flow
Ex. Culvert
Ex. Headwall
Ex. Wingwall
Ex. Pipe
Ex. Ditch
Ex. Swale
Ex. Retaining Wall
Ex. Concrete Pavement
Ex. Asphalt Pavement
Ex. Gravel
Ex. Grass
Ex. Woods
Ex. Water
Ex. Pond
Ex. Stream
Ex. Bridge
Ex. Culvert
Ex. Railroad
Ex. Railroad Signal
Ex. Railroad Gate
Ex. Railroad Crossing
Ex. Railroad Track
Ex. Railroad Ballast
Ex. Railroad Tie
Ex. Railroad Rail
Ex. Railroad Switch
Ex. Railroad Signal Box
Ex. Railroad Signal Light
Ex. Railroad Signal Bell
Ex. Railroad Signal Gate
Ex. Railroad Signal Crossing
Ex. Railroad Signal Track
Ex. Railroad Signal Ballast
Ex. Railroad Signal Tie
Ex. Railroad Signal Rail
Ex. Railroad Signal

GENERAL NOTES

THE INTENTIONS FOR THESE NOTES, SPECIFICATIONS, AND SEQUENCING OF CONSTRUCTION ACTIVITIES IS TO PROVIDE FOR AN ORDERLY MANNER OF CONSTRUCTION THAT WILL PROVIDE THE LEAST INCONVENIENCE TO AND THE MAXIMUM SAFETY OF THE CONTRACTOR. ANY VARIANCE FROM THIS PLAN MUST BE APPROVED IN ADVANCE BY THE BUTLER COUNTY ENGINEER AND THE CINCINNATI GAS AND ELECTRIC COMPANY.

CONTACTS:

DEAN FOSTER
BUTLER COUNTY ENGINEER
1921 FAIRGROVE AVENUE
HAMILTON, OHIO 45011
(513) 867-5744

JIM CONRAD
CINCINNATI GAS AND ELECTRIC
139 EAST FORTH STREET
CINCINNATI, OHIO 45202
(513) 287-2734

DUE TO THE CLOSE PROXIMITY OF HIGH VOLTAGE POWER LINES LOCATED AT EACH STRUCTURE, MAXIMUM SAFETY MEASURES SHALL BE PARAMOUNT. ALL OSHA CLEARANCE REGULATIONS, CONSTRUCTION METHODS AND ANY C.G.&E. REGULATIONS SHALL BE STRICTLY ADHERED TO.

THE MAXIMUM HEIGHT FOR PILE DRIVING SHALL BE AS FOLLOWS:

15 FOOT PILE SECTIONS SHALL BE USED WITH SLIP-TYPE COUPLINGS
PLUS
10 FEET FOR THE PILE HAMMER
PLUS
5 FEET FOR THE BOOM TIP
30 FEET MAXIMUM ALLOWABLE HEIGHT

THE DESIGN LOAD IS 40 TONS PER PILE FOR ALL PILES ON THIS PROJECT.

EXAMINATION OF SITE

THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE OF THE PROPOSED WORK, THE PLANS, AND THESE NOTES BEFORE SUBMITTING A PROPOSAL. THE SUBMISSION OF A BID SHALL BE CONSIDERED EVIDENCE THAT THE CONTRACTOR HAS MADE SUCH AN EXAMINATION AND IS SATISFIED AS TO THE CONDITIONS TO BE ENCOUNTERED IN PERFORMING THE WORK AND AS TO THE REQUIREMENTS OF THE PLANS AND THESE NOTES.

SPECIFICATIONS

ALL WORK ON THIS PROJECT SHALL CONFORM TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION'S "CONSTRUCTION AND MATERIAL SPECIFICATIONS," DATED JANUARY 1, 1995, WITH SUPPLEMENTS OR CHANGES THERETO AND/OR AS NOTED. ALL RECOMMENDATIONS IN THE ATEC GEOTECHNICAL INVESTIGATION REPORT DATED AUGUST 1, 1995 SHALL BE FOLLOWED. REFERENCE SHALL BE MADE TO STANDARD DRAWINGS:

A-1-69 DATED 6-12-69
CPP-2-94 DATED 12-19-94

DESIGN SPECIFICATIONS:

THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS 1992, THE 1993,1994, AND 1995 INTERIM AASHTO SPECIFICATIONS, AND TO THE ODOT BRIDGE DESIGN MANUAL DATED JANUARY 1995.

UNDERGROUND UTILITIES:

THE LOCATION OF THE UNDERGROUND UTILIES SHOWN ON THE PLAN HAVE BEEN OBTAINED BY DILIGENT FIELD CHECKS AND SEARCHES OF AVAILABLE RECORDS. IT IS BELIVED THAT THEY ARE ESSENTIALLY CORRECT, BUT THIS DOES NOT GUARANTEE THEIR ACCURACY OR COMPLETENESS.

OHIO UTILITIES PROTECTION SERVICE
1-800-363-2764

WATER MAIN WORK

EXACT LOCATION OF THE EXISTING WATER LINE IS TO BE DETERMINED IN THE FIELD PRIOR TO INSTALLING NEW LINE.

ALL WORK IS TO BE PERFORMED AS PER BUTLER COUNTY WATER AND SEWER DEPARTMENT STANDARDS. BEFORE CLOSING EXISTING LINE THE CONTRACTOR SHALL NOTIFY BUTLER COUNTY WATER AND SEWER 7 WORKING DAYS IN ADVANCE.

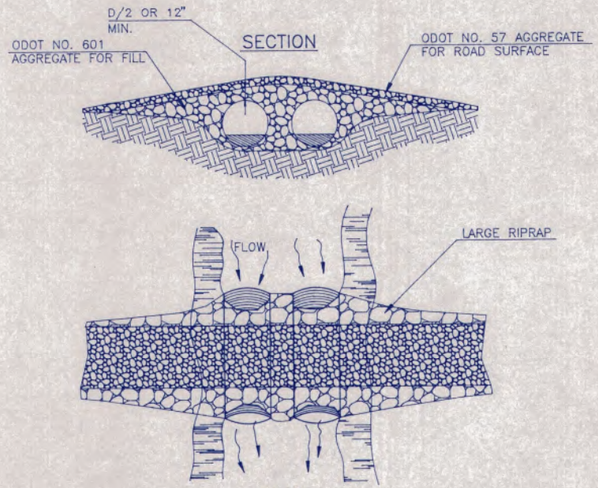
ALL BENDS, FITTINGS, CONCRETE ECT... NECESSARY FOR THE CONSTRUCTION OF THIS NEW WATER LINE ARE TO BE INCLUDED IN THE PRICE PER LINEAR FOOT OF PIPE.

TEMPORARY RAILROAD CONSTRUCTION CROSSING

A TEMPORARY CONSTRUCTION CROSSING IS PRESENT OVER THE NORFOLK SOUTHERN RAILROAD AS DEPICTED WITH EXISTING ASPHALT AND BARRICADES. THE CONTRACTOR SHALL USE THIS CROSSING AT A MINIMUM AND SHALL FOLLOW ANY CLEARANCE REGULATIONS.

STREAM CROSSINGS AND CONSTRUCTION MAINTENANCE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARE TAKEN TO PREVENT ANY EXCAVATION AND/OR DISPLACEMENT OF SOIL INTO THE MILL CREEK. ALSO, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER PLACEMENT AND MOVEMENT OF ANY TEMPORARY STREAM CROSSING OR CONSTRUCTION MATERIALS AND EQUIPMENT WITHIN THE CREEK AREA. THIS SHALL BE STRICKLY ADHERED TO AND IS SUBJECTED TO FINAL ACCEPTANCE BY THE ENGINEER.



TEMPORARY STREAM CROSSING

THE CROSSING SHALL CONSIST OF CLEAN NON-TOXIC GRANULAR OR ROCK MATERIAL, PROPERLY MAINTAINED TO PREVENT EROSION, WITH PROVISIONS FOR CONVEYANCE OF ANTICIPATED HIGH FLOWS, AND SHALL NOT IMPEDE THE MOVEMENT OF AQUATIC LIFE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH PART 330, APPENDIX A, SPECIFIC CATEGORIES OF DISCHARGES-NATIONALLY PERMITTED, PARAGRAPH (A14), MINOR ROAD CROSSING FILLS - THE FEDERAL REGISTER - CORPS OF ENGINEERS FINAL REGULATIONS, CURRENT EDITION.

BRIDGE NO. R-115-2.429 ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
201	LUMP	SUM	CLEARING AND GRUBBING
503	LUMP	SUM	COFFERDAMS, CRIB AND SHEETING
503	LUMP	SUM	UNCLASSIFIED EXCAVATION
505	LUMP	SUM	PILE DRIVING EQUIPMENT MOBILIZATION
507	14,146	LIN. FT.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES
507	14,146	LIN. FT.	PREBORED HOLES
509	50,476	POUND	EPOXY COATED REINFORCING STEEL
511	363	CU. YD.	CLASS C CONCRETE
523	9	HOURS	DYNAMIC LOAD TEST
623	LUMP	SUM	CONSTRUCTION LAYOUT STAKES
624	LUMP	SUM	MOBILIZATION
814	153	LIN. FT.	24" DUCTILE IRON PIPE WATER LINE

DESIGN DATA:

DESIGN LOAD - HS-20-44 AND ALTERNATE MILITARY LOADING
CONCRETE CLASS C - COMPRESSIVE STRENGTH - 4000 P.S.I.
REINFORCEING STEEL - ASTM A615,A616,A617 - GRADE 60, MINIMUM YIELD STRENGTH 60,000 P.S.I.

PILE AND FOOTING CONSTRUCTION SEQUENCE

NOTE: SEQUENCING FOR CONSTRUCTION OF THE WORK OUTLINED WILL BE DEPENDENT ON A TIMING PROCESS WITH THE CINCINNATI GAS AND ELECTRIC. DUE TO THIS RESTRAINT THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH C.G.&E. AS TO WHEN CONSTRUCTION OF THE PILES AND FOOTERS IS PERMISSABLE WITH THE MOVEMENT OF ELECTRIC FACILITIES.

PHASE ONE (SPRING CONSTRUCTION)

DRIVING OF THE ABUTMENT 1 PILES FOR THE RAILROAD BRIDGE SHALL COMMENCE ON APRIL 15, 1996 OR WHEN CINCINNATI, GAS, AND ELECTRIC TEMPORALLY TERMINATES POWER. (COMMUNICATION WITH C.G.&E. SHALL BE MAINTAINED) THIS WORK SHALL BE COMPLETED FIRST.

UPON COMPLETION OF THE ABUTMENT 1 PILES FOR THE RAILROAD BRIDGE, THE CONTRACTOR SHALL DRIVE THE RAILROAD PIER(S) PILES NEXT AND THEN ALL OF THE MILL CREEK BRIDGE PILES. THE CONTRACTOR SHALL CONSTRUCT THE FOOTINGS AS PER PLAN FOR BOTH BRIDGES.

PHASE TWO (FALL CONSTRUCTION)

DRIVING OF ABUTMENT 2 PILES AND CONSTRUCTION OF THE FOOTING FOR THE RAILROAD BRIDGE SHALL BE COMPLETED.
NOTE: A SEPARATE CONTRACT BY OTHERS WILL BE LET TO COMPLETE THE NECESSARY EMBANKMENT FOR ABUTMENT 2 ON THE RAILROAD BRIDGE.

ITEM SPECIAL-PILE ENCASEMENT

ALL PILES FOR THE CAPPED PILE PIERS SHALL BE ENCASED IN CLASS S CONCRETE (499.03) AND SHALL BE IN ACCORDANCE WITH 511, EXCEPT AS MODIFIED AND SUPPLEMENTED HEREIN. THE REQUIRED SLUMP IS 6 (SIX) INCHES, PLUS OR MINUS ONE-HALF INCH. THE MAXIMUM WATER TO CEMENT RATIO SHALL BE 0.50. IF CONCRETE IS PLACED UNDER WATER, THE REQUIREMENTS OF ADDING 10 PERCENT MORE CEMENT TO THE CONCRETE SHALL BE WAIVED. THE CONCRETE SHALL BE PLACED WITHIN A FORM THAT CONSISTS OF POLYETHYLENE PIPE (707.16 OR SS 944), OR PVC PIPE (SS 942). THE ENCASEMENT SHALL EXTEND FROM 3 FEET BELOW THE FINSHED GROUND SURFACE UP TO THE CONCRETE PIER CAP AND SHALL BE POSITIONED SO THAT AT LEAST 3 INCHES OF CONCRETE COVER IS PROVIDED AROUND THE EXTERIOR OF THE PILE.

THE LENGTH OF PILE ENCASEMENT SHALL BE MEASURED IN FEET ALONG THE LENGTH OF THE PILE. THIS ITEM INCLUDES ALL WORK AND MATERIALS NECESSARY TO FURNISH THE REQUIRED ENCASEMENT. PAYMENT WILL BE MADE AT THE CONTRACT UNIT PRICE PER LINEAR FOOT OF PILE ENCASEMENT APPROVED IN PLACE.

SANITARY SEWER WORK

ALL WORK IS TO BE PERFORMED AS PER BUTLER COUNTY WATER AND SEWER DEPARTMENT STANDARDS. ALL APPURTENANCES NECESSARY FOR THE CONSTRUCTION OF THE NEW SEWER LINE SHALL BE INCLUDED IN THE SPECIAL-10" SANITARY SEWER.

BRIDGE NO. R-115-2.621 ESTIMATED QUANTITIES

ITEM	TOTAL	UNIT	DESCRIPTION
201	LUMP	SUM	CLEARING AND GRUBBING
503	LUMP	SUM	COFFERDAMS, CRIBS AND SHEETING
503	LUMP	SUM	UNCLASSIFIED EXCAVATION
505	LUMP	SUM	PILE DRIVING EQUIPMENT MOBILIZATION
507	5840	LIN. FT.	12" CAST-IN-PLACE REINFORCED CONCRETE PILES
507	5840	LIN. FT.	PREBORED HOLES
509	13262	POUND	EPOXY COATED REINFORCING STEEL
511	140	CU. YD.	CLASS C CONCRETE
523	6	HOURS	DYNAMIC LOAD TEST
623	LUMP	SUM	CONSTRUCTION LAYOUT STAKES
624	LUMP	SUM	MOBILIZATION
SPECIAL	830	LIN. FT.	PILE ENCASEMENT
SPECIAL	3	EACH	SANITARY MANHOLES
SPECIAL	202	LIN. FT.	10" SANITARY SEWER

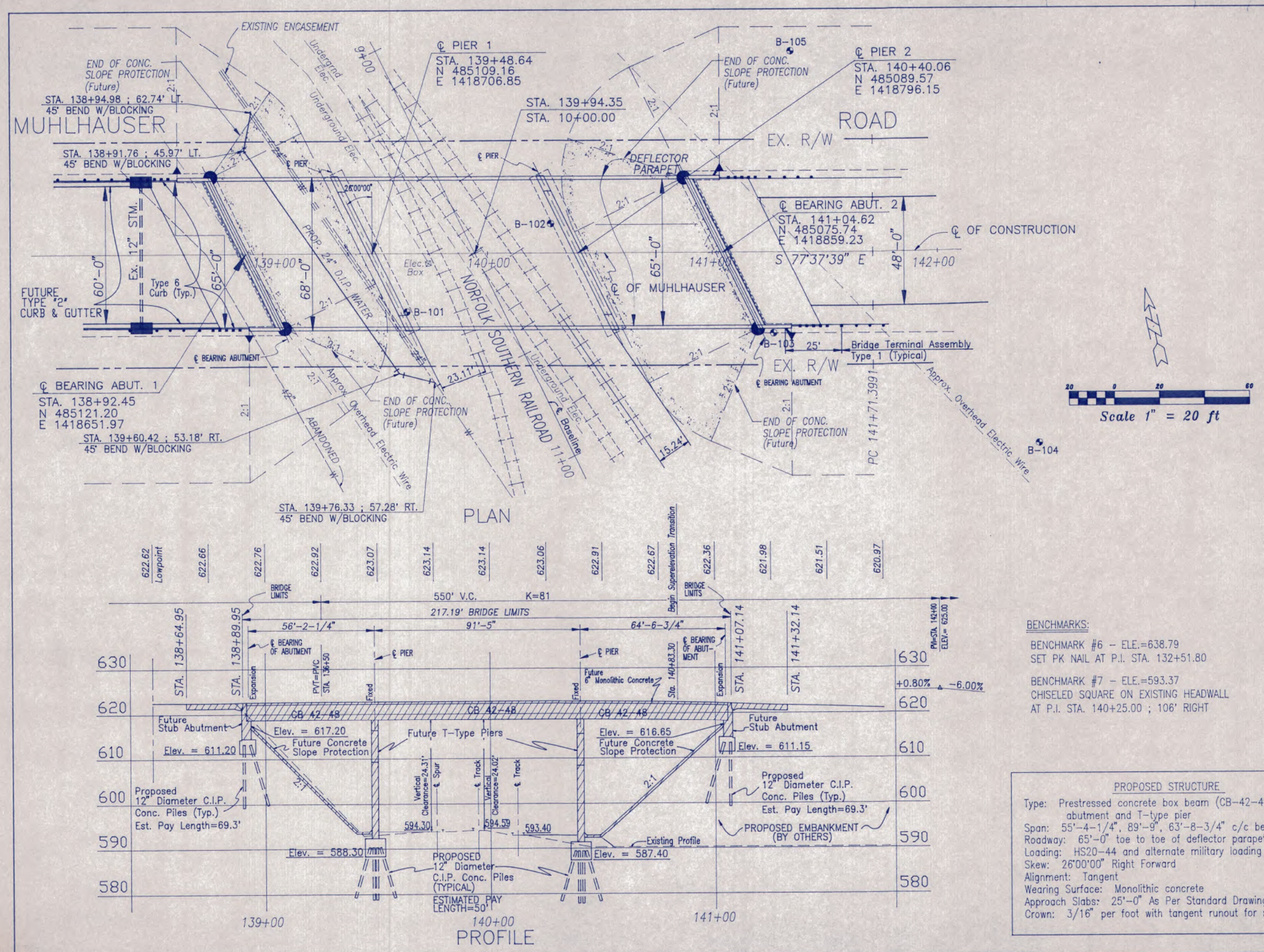
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CHECKED | REVISED | FILE NUMBER

BUTLER COUNTY

ESTIMATED QUANTITIES AND NOTES

R-115-1.294

3/11



BENCHMARKS:

BENCHMARK #6 – ELE.=638.79
SET PK NAIL AT P.I. STA. 132+51.80

BENCHMARK #7 – ELE.=593.37
CHISELED SQUARE ON EXISTING HEADWALL
AT P.I. STA. 140+25.00 ; 106' RIGHT

PROPOSED STRUCTURE

Type: Prestressed concrete box beam (CB-42-48) stub abutment and T-type pier
Span: 55'-4-1/4", 89'-9", 63'-8-3/4" c/c bearings
Roadway: 65'-0" toe to toe of deflector parapet
Loading: HS20-44 and alternate military loading
Skew: 26°00'00" Right Forward
Alignment: Tangent
Wearing Surface: Monolithic concrete
Approach Slabs: 25'-0" As Per Standard Drawing AS-1-81
Crown: 3/16" per foot with tangent runout for superelevation

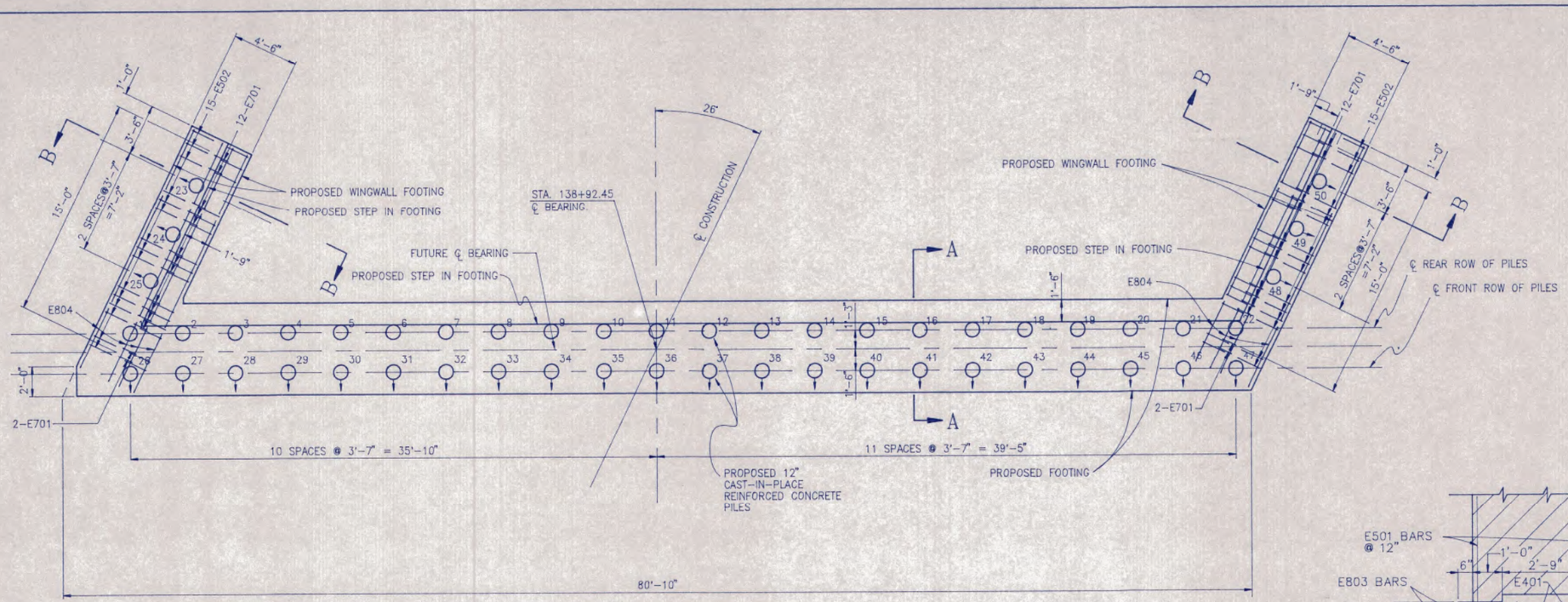
DESIGN AGENCY
DATE
REVIEWED
STRUCTURE FILE NUMBER
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REVISED
DESIGNED CAR/MAR
CHECKED

BUTLER COUNTY
STA. 138+89.95
STA. 141+07.14

SITE PLAN
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-2.429

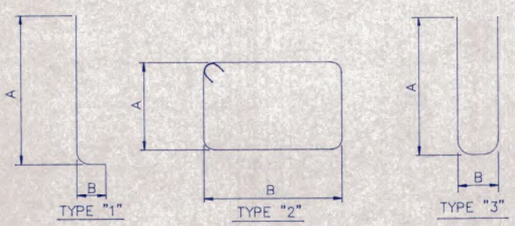
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11



FOOTING PLAN

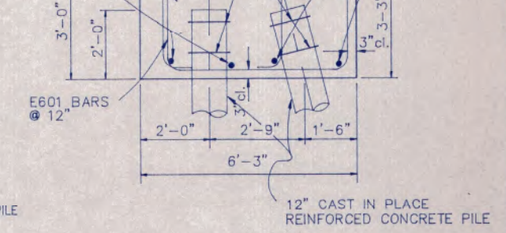
REAR ABUTMENT REINFORCING STEEL LIST

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E
E401	100	5'-7 1/2"	376	2	1'-6"	1'-6"			
E501	126	6'-9"	887	1	6'-2"	8 1/2"	–	–	–
E502	30	12'-5 1/2"	390	2	2'-6"	4'-0"	–	–	–
E601	63	15'-10 1/2"	1502	2	2'-6"	5'-9"	–	–	–
E602	4	8'-4 1/2"	50	2	2'-6"	2'-0"	–	–	–
E701	28	13'-11 1/2"	799	3	6'-8"	1'-0"	–	–	–
E801	7	43'-7"	815	STRAIGHT	–	–	–	–	–
E802	4	42'-3"	451	STRAIGHT	–	–	–	–	–
E803	3	40'-7"	325	STRAIGHT	–	–	–	–	–
E804	14	17'-9"	663	STRAIGHT	–	–	–	–	–

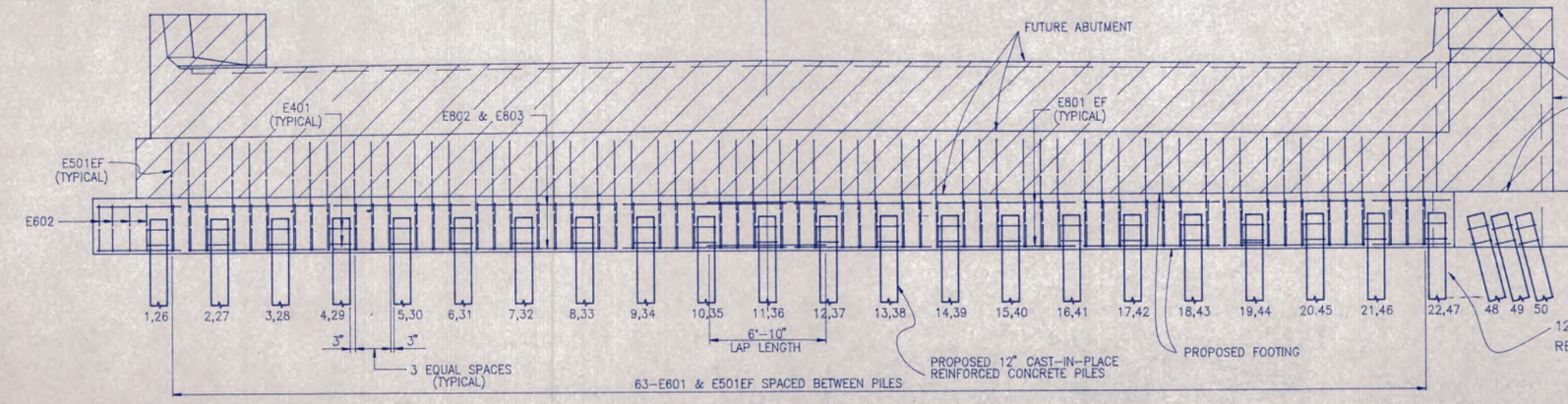


BEND DIAGRAMS

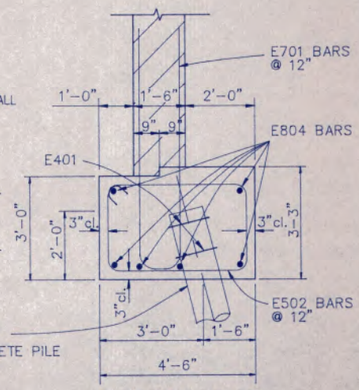
LEGEND
= 1 ON 4 BATTERED PILE
EF = EACH FACE



SECTION A–A



ELEVATION



SECTION B–B

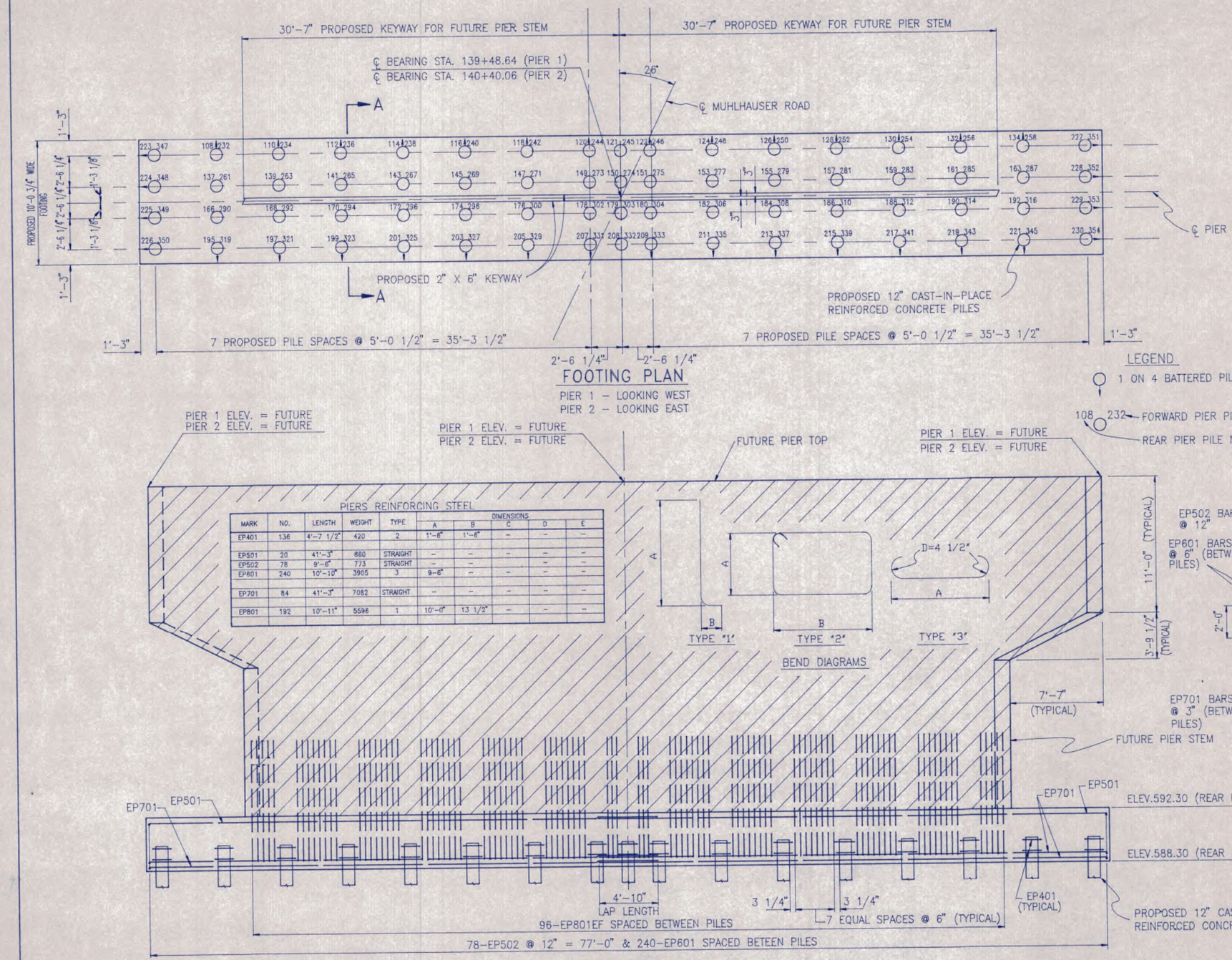
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BUTLER COUNTY
STA.138+89.95
STA.141+07.14

ABUTMENT 1 PILE AND FOOTER PLAN
BRIDGE NO. R-115-2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R-115-1.294

5/11



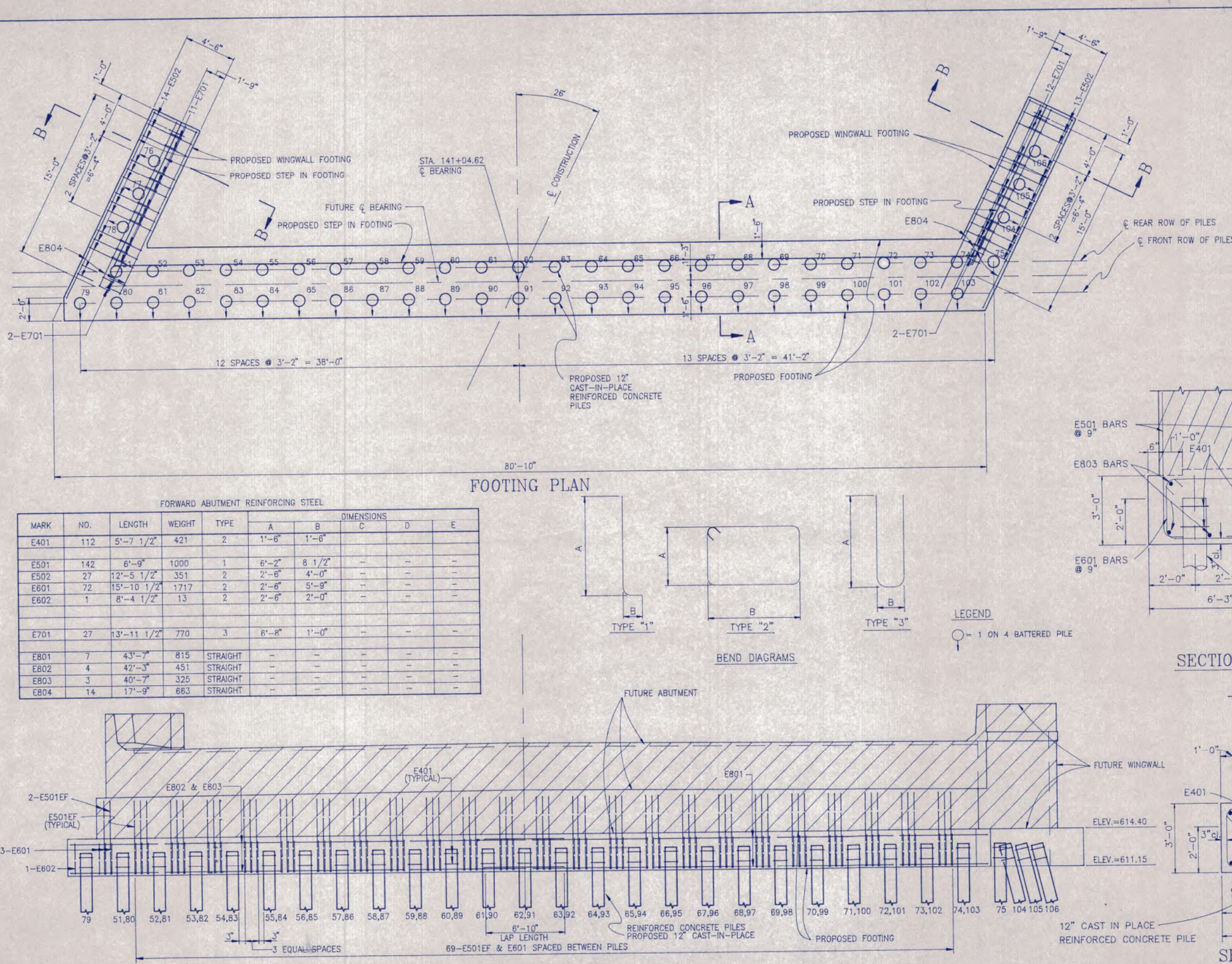
BUTLER COUNTY
STA.138+89.95
STA.141+07.14

DESIGNED	DRAWN	REVIEWED	DATE
CAR	MWN		
CHECKED	REVISED		STRUCTURE FILE NUMBER

PIER PILE AND FOOTER PLAN
BRIDGE NO.R-115-2.429
OVER THE NORFOLK SOUTHERN RAIROAD

R-115-1.294

6
11



FOOTING PLAN

FORWARD ABUTMENT REINFORCING STEEL

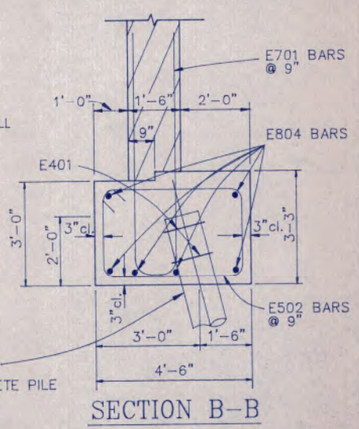
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E
E401	112	5'–7 1/2"	421	2	1'–6"	1'–6"			
E501	142	6'–9"	1000	1	6'–2"	8 1/2"	–	–	–
E502	27	12'–5 1/2"	351	2	2'–6"	4'–0"	–	–	–
E601	72	15'–10 1/2"	1717	2	2'–6"	5'–9"	–	–	–
E602	1	8'–4 1/2"	13	2	2'–6"	2'–0"	–	–	–
E701	27	13'–11 1/2"	770	3	6'–8"	1'–0"	–	–	–
E801	7	43'–7"	815	STRAIGHT	–	–	–	–	–
E802	4	42'–3"	451	STRAIGHT	–	–	–	–	–
E803	3	40'–7"	325	STRAIGHT	–	–	–	–	–
E804	14	17'–9"	663	STRAIGHT	–	–	–	–	–

BEND DIAGRAMS

LEGEND
○ = 1 ON 4 BATTERED PILE

SECTION A–A

ELEVATION



SECTION B–B

BUTLER COUNTY
STA.138+89.95
STA.141+07.14

DESIGNED CAR | DRAWN MWN | REVIEWED | DATE
CHECKED | REVISED | STRUCTURE FILE NUMBER

ABUTMENT 2 PILE AND FOOTER PLAN
BRIDGE NO. R–115–2.429
OVER THE NORFOLK SOUTHERN RAILROAD

R–115–1.294

7/11

℄ CURVE DATA

R=1432.40'
△=38°23'11"
D_c = 4°00'00"
L=959.66'
T=498.62'

℄ BEARING
STA. 149+47.74
N 485103.6294
E 1419690.1469

LIMITS OF ROCK CHANNEL PROTECTION TYPE C, WITH FABRIC FILTER, 2'-0" THICK

STA. 150+07.00
= STA. 20+00.00

℄ PIER 2
STA. 150+25.80,
1.06' LT.
N 485131.6192
E 1419762.9856

℄ BEARING
STA. 150+64.87,
N 485145.6376
E 1419799.4476

EX. SAN. M.H.
T/RIM = 591.20
INV. = 574.43
(TO BE REMOVED)

PROP. SAN. M.H.
T/RIM = 589.21
EX. INV. = 574.71
PROP.INV. = 574.21

Ex. 16" Waterline

Ex. 4" San. Sewer

EXIST.

2:1

19+00 MILL

30°00'00"

℄ BASELINE MILL CREEK

EXIST.

℄ PIER

℄ PIER

EX. R/W

Ex. 16" Waterline

REFERENCE CHORD

Ex. 15" San. Sewer TO BE REMOVED

65'-0"

MUHLHAUSER ROAD

149+00

150+00

N68°58'35"E 117.13'

℄ MUHLHAUSER ROAD

151+00

N63°59'10"E

82'-10" SAN. @ 1.20%

68'

48'-0"

E/P

Ex. 48" San.

T/S

T/S

TYPE 5 GUARDRAIL

BRIDGE TERMINAL ASSEMBLY TYPE "1"

25'

DEFLECTOR PARAPET

℄ BEARING OF ABUTMENT 2

EX. R/W

℄ BEARING OF ABUTMENT 1

℄ PIER 1
STA. 149+86.77,
1.06' LT.
N 485117.6284
E 1419726.5816

LIMITS OF ROCK CHANNEL PROTECTION TYPE C, WITH FABRIC, FILTER 2'-0" THICK

CREEK

120'-10" SAN. @ 0.60%

21+00

LIMITS OF ROCK CHANNEL PROTECTION TYPE C, WITH FABRIC, FILTER 2'-0" THICK

PT 151+31.0589

PROP. SAN. M.H.
T/RIM = 598.20
INV. = 573.22

SLOPE EASEMENT

SITE PLAN

PROP. SAN. M.H.
T/RIM=587.00
EX. INV.=570.50±
PROP. INV.=572.50

0 20 40 60
SCALE 1" = 20'

597.96 597.71 597.46 597.21 596.96 596.71 596.47 596.22

122.32' BRIDGE LIMITS

BRIDGE LIMITS BRIDGE LIMITS

℄ BEARING OF ABUTMENT 1

39'-0 3/8" 39'-0" 39'-0 3/8"

STA. 149+45.14, 0.11' RT

STA. 150+67.46, 0.11' RT.

EXPANSION FIXED FIXED EXPANSION

℄ PIER 1 ℄ PIER 2 ℄ CREEK

6" MONOLITHIC CONCRETE

610 600 590 580 570

−0.50%

CB17-48 CB17-48 CB17-48

HW_{100}=592.2 HW_{25}=591.00

ELEV. = 585.50 ELEV. = 591.00 ELEV. = 591.00 ELEV. = 585.50

PROPOSED 1.0' WIDE X 1.5' DEEP KEYWAY

12"C.I.P. REINFORCED CONCRETE PILES

12" C.I.P. REINFORCED CONCRETE PILE

2'-0" ROCK CHANNEL PROTECTION

12" C.I.P. REINFORCED CONCRETE PILES

CHANNEL BOTTOM ELEVATION=578.00 NORMAL WATER ELEVATION

149+00 150+00 151+00

EX. SAN. M.H.
EX. INV. = 570.58 48"
EX. INV. = 573.75 10"
PROP. TOP = 587.00

PROFILE

BENCHMARKS:

BENCHMARK #7 – ELE.=593.37
CHISELED SQUARE ON EXISTING HEADWALL
AT P.I. STA. 140+25.00 ; 106' RIGHT

BENCHMARK #8 – ELE.=590.23
SET SPIKE IN TREE AT
APPROXIMATELY STA. 150+00 ±; 100' RIGHT

BENCHMARK #9 – ELE.=601.42
SET P.K. NAIL ON ALLEN ROAD AT
STA. 169+57.68.

DRAINAGE AREA =18.1 SQUARE MILES

HYDRAULIC DATA
Q_{100} = 6500 cfs
HW_{100} = 592.2
V_{100} = 6.0 fps

PROPOSED STRUCTURE

Type: Prestressed composite concrete box beam (CB-17-48)
Span: 38'-2 1/2", 37'-4 1/4", 38'-2 1/2" c/c bearings
Roadway: 65'-0" toe to toe of deflector parapet
Loading: HS20-44 and alternate military loading
Skew: 30°00'00"
Alignment: As shown
Wearing Surface: Monolithic concrete
Approach Slabs: 25'-0" As Per Standard Drawing AS-1-81
Crown: Superelevated 0.046 ft/ft max.

DESIGN AGENCY

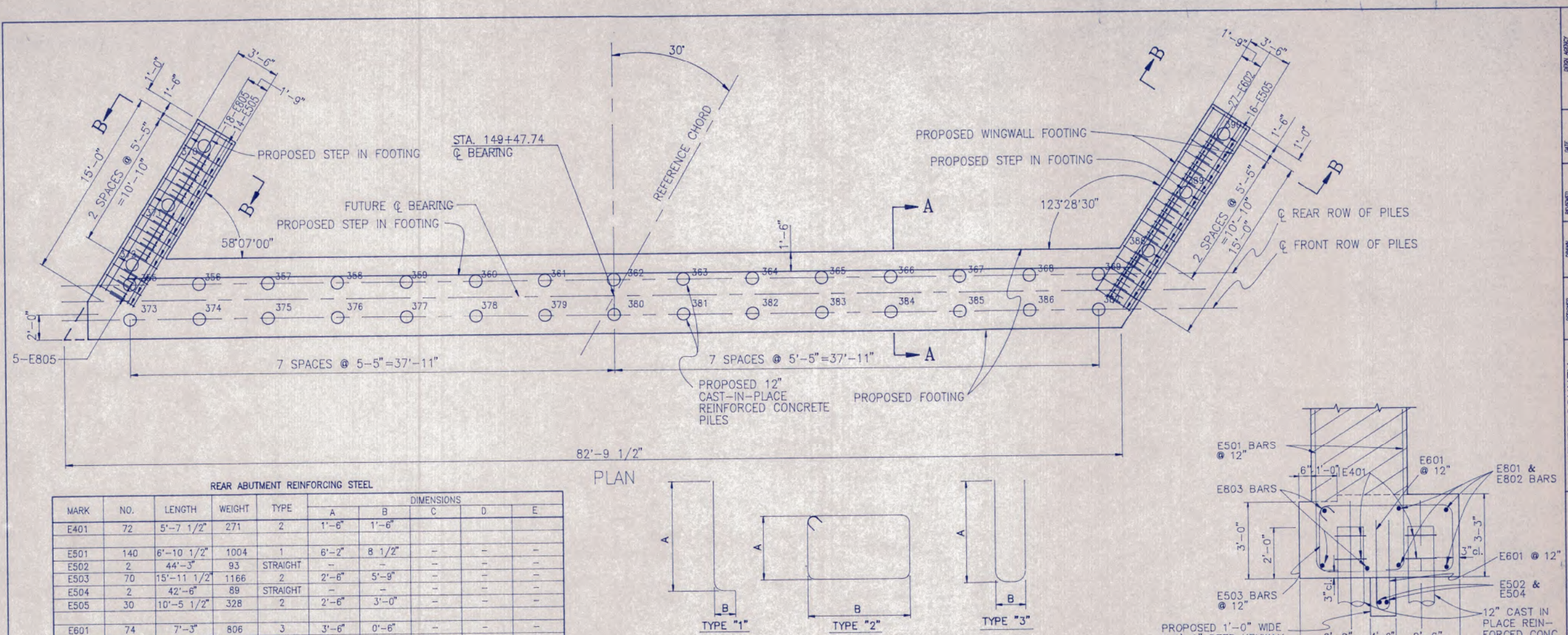
DESIGNED MAR
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CHECKED
REVIEWED
DATE
STRUCTURE FILE NUMBER
REVISED

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

SITE PLAN
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-2.621

8
11



REAR ABUTMENT REINFORCING STEEL

MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E
E401	72	5'-7 1/2"	271	2	1'-6"	1'-6"			
E501	140	6'-10 1/2"	1004	1	6'-2"	8 1/2"	–	–	–
E502	2	44'-3"	93	STRAIGHT	–	–	–	–	–
E503	70	15'-11 1/2"	1166	2	2'-6"	5'-9"	–	–	–
E504	2	42'-6"	89	STRAIGHT	–	–	–	–	–
E505	30	10'-5 1/2"	328	2	2'-6"	3'-0"	–	–	–
E601	74	7'-3"	806	3	3'-6"	0'-6"	–	–	–
E602	27	14'-6 1/2"	590	3	6'-10"	1'-2"	–	–	–
					–		–	–	–
E801	7	42'-6"	795	STRAIGHT	–	–	–	–	–
E802	4	44'-3"	473	STRAIGHT	–	–	–	–	–
E803	3	42'-0"	337	STRAIGHT	–	–	–	–	–
E804	12	16'-0"	513	STRAIGHT	–	–	–	–	–
E805	23	16'-5"	1009	3	7'-10"	1'-2"	–	–	–

BEND DIAGRAMS

NOTE: ON ALL BEND DIAGRAMS FOR THIS PROJECT ALL DIMENSIONS ARE OUT-SIDE EDGE OF BAR TO OUTSIDE EDGE OF BAR(OUT-TO-OUT)

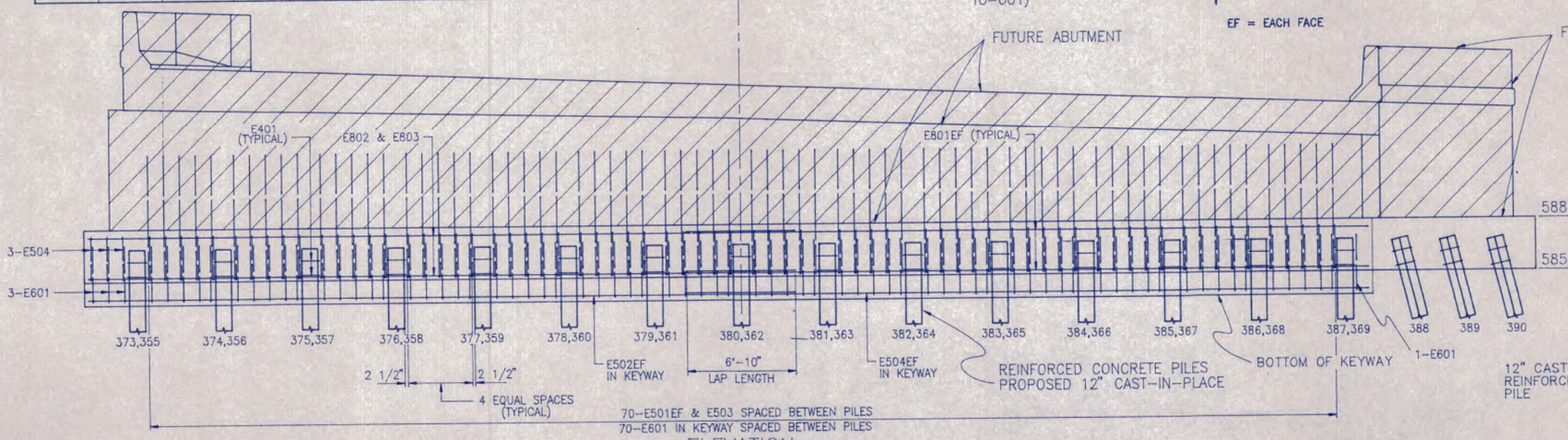
LEGEND

○ = 1 ON 4 BATTERED PILE

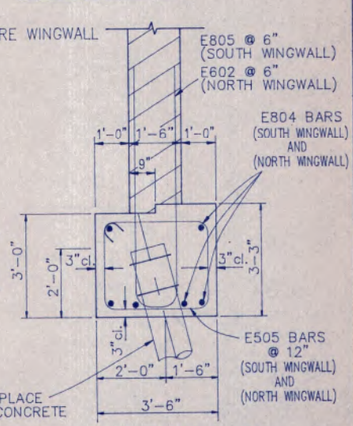
EF = EACH FACE

NOTE: CLEARANCE ON KEY-WAY REINFORCING IS 3"

SECTION A-A



ELEVATION



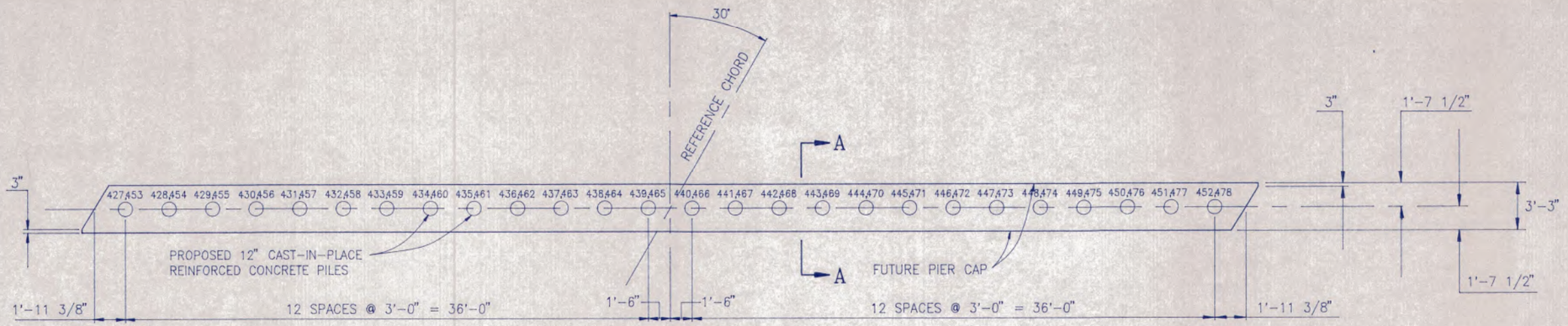
SECTION B-B

ABUTMENT 1 PILE AND FOOTER PLAN
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

R-115-2.621

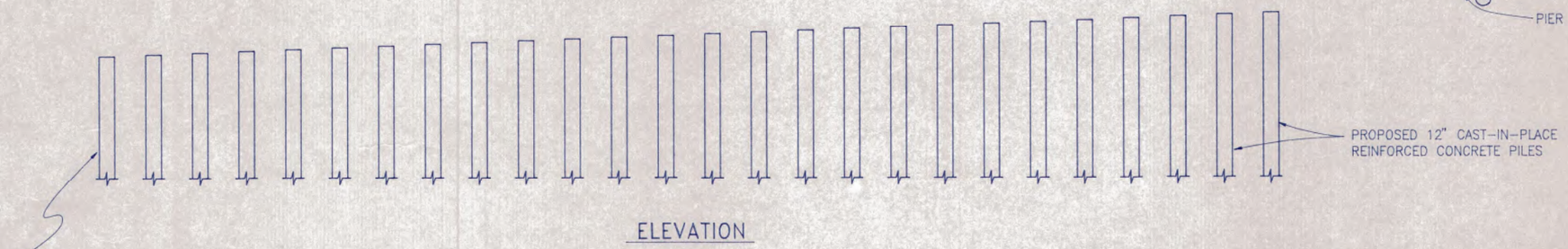
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11



PLAN

LEGEND

427 453 — PIER 1 PILE NUMBER
PIER 2 PILE NUMBER



ELEVATION

NOTE: THE MINIMUM WALL THICKNESS OF THIS UPSTREAM PILE (PILE NO. 427 AND PILE NO. 453) SHALL BE 0.30 INCHES.

PIER 1 PILE NO.	PIER 1 TOP OF PILE NO. ELEV.	PIER 2 PILE NO.	PIER 2 TOP OF PILE NO. ELEV.
427	591.77	453	591.54
428	591.88	454	591.65
429	591.99	455	591.77
430	592.10	456	591.88
431	592.21	457	591.99
432	592.32	458	592.10
433	592.43	459	592.22
434	592.54	460	592.33
435	592.65	461	592.44
436	592.76	462	592.55
437	592.87	463	592.67
438	592.98	464	592.78
439	593.09	465	592.89
440	593.21	466	593.01
441	593.32	467	593.12
442	593.43	468	593.24
443	593.55	469	593.35
444	593.66	470	593.47
445	593.77	471	593.58
446	593.88	472	593.70
447	593.99	473	593.81
448	594.10	474	593.92
449	594.22	475	594.04
450	594.33	476	594.15
451	594.44	477	594.27
452	594.55	478	594.38

DESIGN AGENCY

REVISED | DATE | STRUCTURE FILE NUMBER

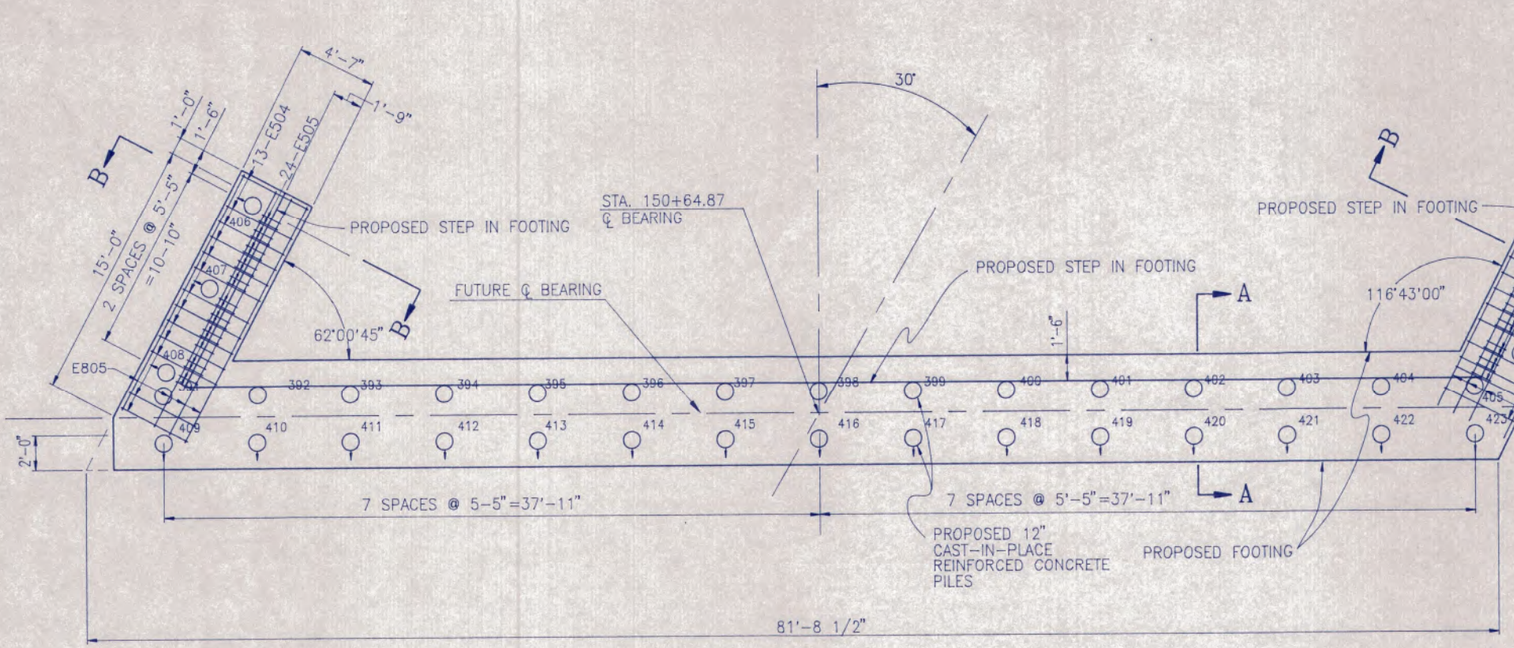
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CHECKED CAR

BUTLER COUNTY
STA. 149+45.14
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PIER PILE PLAN
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-2.621

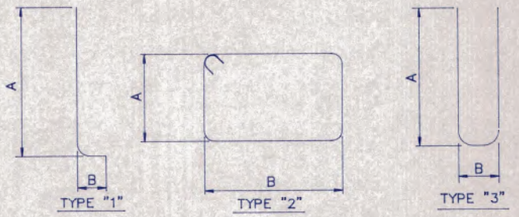
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11



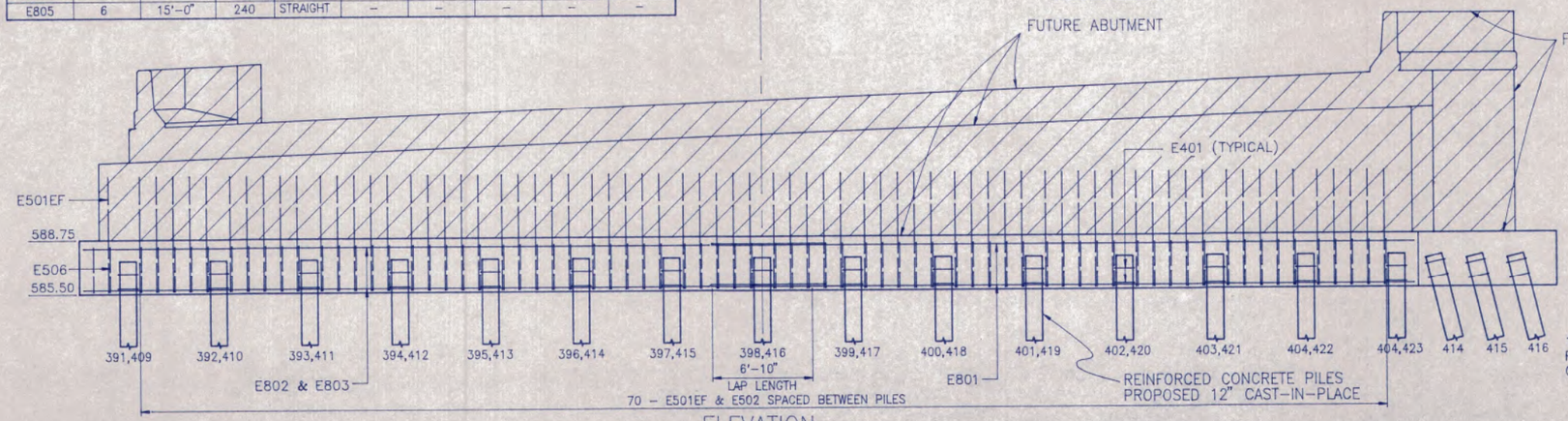
PLAN

FORWARD ABUTMENT REINFORCING STEEL

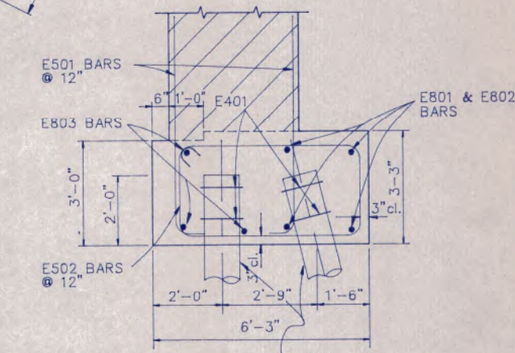
MARK	NO.	LENGTH	WEIGHT	TYPE	DIMENSIONS A	B	C	D	E
E401	72	5'-7 1/2"	271	2	1'-6"	1'-6"			
E501	142	7'-7"	1123	1	6'-11"	8 1/2"	–	–	–
E502	70	15'-10 1/2"	1159	2	2'-6"	5'-9"	–	–	–
E503	15	12'-11 1/2"	203	2	2'-6"	4'-3"	–	–	–
E504	13	12'-7 1/2"	171	2	2'-6"	4'-1"	–	–	–
E505	24	12'-8 1/2"	318	3	6'-0"	1'-0"	–	–	–
E506	2	8'-11 1/2"	19	2	2'-6"	2'-3"	–	–	–
E601	28	14'-4 1/2"	605	3	6'-10"	1'-0"	–	–	–
E801	7	43'-11"	821	STRAIGHT	–	–	–	–	–
E802	4	44'-0"	234	STRAIGHT	–	–	–	–	–
E803	3	42'-6"	340	STRAIGHT	–	–	–	–	–
E804	6	17'-9"	284	STRAIGHT	–	–	–	–	–
E805	6	15'-0"	240	STRAIGHT	–	–	–	–	–



BEND DIAGRAMS



ELEVATION



SECTION A–A

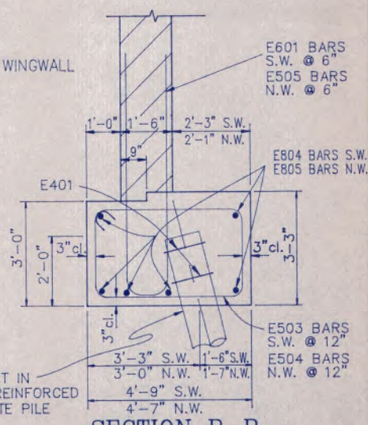
LEGEND

○ = 1 ON 4 BATTERED PILE

EF = EACH FACE

S.W. = SOUTH WINGWALL

N.W. = NORTH WINGWALL



SECTION B–B

DESIGN AGENCY

DESIGNED	DRAWN	REVIEWED	DATE
CAR	MWN		
CHECKED			STRUCTURE FILE NUMBER

BUTLER COUNTY
STA. 149+45.14
STA. 150+67.46

ABUTMENT 2 PILE AND FOOTER PLAN
BRIDGE NO. R-115-2.621
OVER THE MILL CREEK

R-115-2.621

11
11