MINNESOTA DEPARTMENT OF TRANSPORTATION
MOWER COUNTY

CONSTRUCTION PLAN FOR BRIDGE NO. 50584

LOCATED 0.5 MI. SOUTH OF JCT. CSAH 4 ON TWP. RD. 93
OVER ROSE CREEK, 4 MI. W. OF THE TOWN ROSE CREEK
(Geographical Description)

SEC. 31 TWP. 102 N R 17 W (Legal Description)

MN. PROJ. NO.

STATE PROJ. NO.

GROSS LENGTH	FEET	MILES
BRIDGES-LENGTH	FEET	MILES
EXCEPTIONS-LENGTH	FEET	MILES
NET. LENGTH	FEET	MILES

COUNTY PROJ. NO. 50-01-11

GROSS LENGTH	100.77 FEET	0.019 MILES
BRIDGES-LENGTH	100.77 FEET	0.019 MILES
EXCEPTIONS-LENGTH	FEET	MILES
NET. LENGTH	100.77 FEET	0.019 MILES

GOVERNING SPECIFICATIONS

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

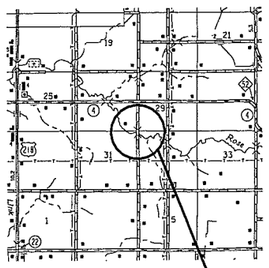
LIST OF SHEETS

NO.	TITLE
1	TITLE SHEET
2	GENERAL PLAN & ELEVATION
3	BRIDGE LAYOUT
4-5	ABUTMENT DETAILS
6	PIER DETAILS
7-8	SUPERSTRUCTURE DETAILS
9	CONCRETE RAIL DETAILS (TYPE F)
10-12	DETAILS
13	BRIDGE SURVEY
14	BRIDGE SURVEY - PLAN & PROFILE

THIS PLAN CONTAINS 14 SHEETS.

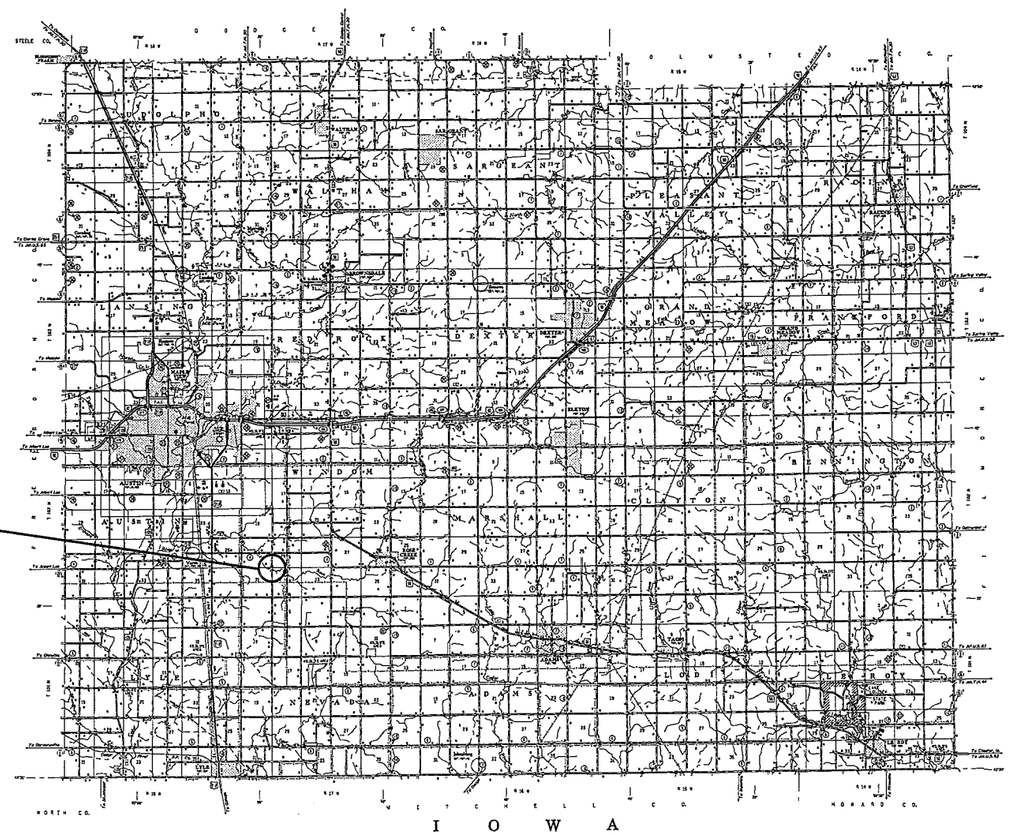
PLAN SYMBOLS

COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
EXISTING R/W
NEW R/W
TEMP EASE
RAILROAD R/W
UNSURFACED RD. OR SHLD.
EDGE OF LAKE
SWAMP BOUNDARY
MISCELLANEOUS BOUNDARY
CORPORATE OR CITY LIMITS
VACATED PLATTED PROPERTY
RECREATIONAL TRAIL
ALIGNMENT STATIONS (110, 112)
ALIGNMENT POINTS
RIVER OR CREEK
DRAINAGE DITCH (SIZE)
BRIDGE
RAILROAD (SINGLE TRACK)
RR CROSSING PAVEMENT MARKING
RR CROSSING GATE
RR CROSSBUCK SIGN
RR CROSSBUCK SIGN W/LIGHTS
BARBED WIRE FENCE
CHAIN LINK FENCE (XC)
WOVEN WIRE, COMBINATION WOVEN AND BARB (XW)
WOOD FENCE
BILLBOARD
RETAINING WALL
GUARDRAIL (CABLE)
GUARDRAIL (PLATE BEAM) (P)
DRAIN TILE
CULVERT
CULVERT WITH APRONS
WOODS OR BRUSH, NURSERY
DECIDUOUS TREES
CONIFER (EVERGREEN) TREES
HEDGE
BUSH OR SHRUB
STUMP
SWAMP OR MARSH
MONUMENT (CI.,ACT.,ACP.,BCP.,...)
CONCRETE OR STONE MONUMENT
IRON PIPE
IRON PIN OR REBAR
IRON PIN WITH BRASS DISK
NAIL, PK NAIL, SPIKE, SFP, T-BAR, ...
VERTICAL CONTROL (B.M.)
HORIZONTAL CONTROL
POWER POLE
LIGHT POLE
LIGHT AND TELEPHONE POLE
LIGHT, TELEPHONE AND POWER POLE
GUY POLE (GP)
POLE ANCHOR
TELEPHONE POLE
TELEPHONE AND POWER POLE
UNDERGROUND CABLE PEDESTAL (PED)
TELEPHONE MANHOLE (VAULT) (MH)
ELECTRIC CABLE IN CONDUIT (P)
TELEPHONE CABLE IN CONDUIT (T)
BURIED ELECTRIC CABLE (P-BUR)
BURIED TELEPHONE CABLE (T-BUR)
GAS LINE (G)
WATER LINE
VALVE
FIRE HYDRANT
WATER MANHOLE
WELL (WELL)
LAWN SPRINKLER HEAD
MANHOLE (MH)
CATCH BASIN (CB)
SEPTIC TANK (SEPTIC TANK)
FORCE MAIN LIFT STA. (LIFT)
SEWER LINE
PERMANENT BARRICADE
TRAFFIC SIGNAL LIGHT
HAND HOLE
ENTRANCE
BUILDING (NUMBER, 1-S-F)
SATELLITE DISH
STEEL TOWER (TOWER)
FLAG POLE (F.P.)

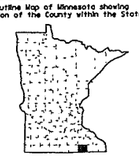


PROP. BRIDGE NO.50584
C.P. 50-01-11
BEG. PROJ. 2+49.62
END PROJ. 3+50.38

EXIST. BRIDGE 2528
CONC. THRU GIRDER
TOTAL LENGTH 53.4'
DECK WIDTH 17.0'



PROJECT LOCATION
Outline Map of Minnesota showing location of the County within the State.



MOWER COUNTY

DESIGN DESIGNATION

$\leq N18_{20}$
R VALUE
ADT (Current) = <50 (2002)
PROJ. HCADT
SOIL FACTOR
TON DESIGN

Design Speed 55 MPH
Based on 550' Stopping Sight Distance
Height of eye 3.5'
Height of object 0.5'
Design Speed not achieved at:

STA.	TO STA.	MPH
STA.	TO STA.	MPH
STA.	TO STA.	MPH

Ronald Benson RONALD BENSON

DESIGN ENGINEER: I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 2/6/02 LICENSE NUMBER 22737

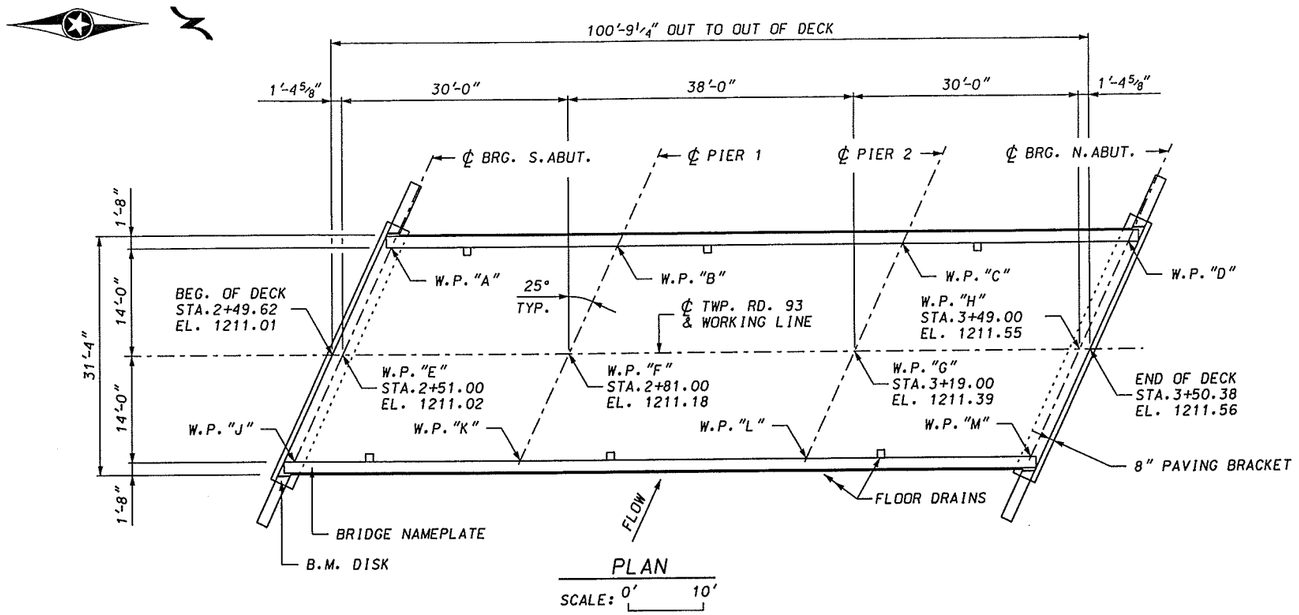
DATE

APPROVED: COUNTY ENGINEER

ERICKSON ENGINEERING
Consulting Engineers

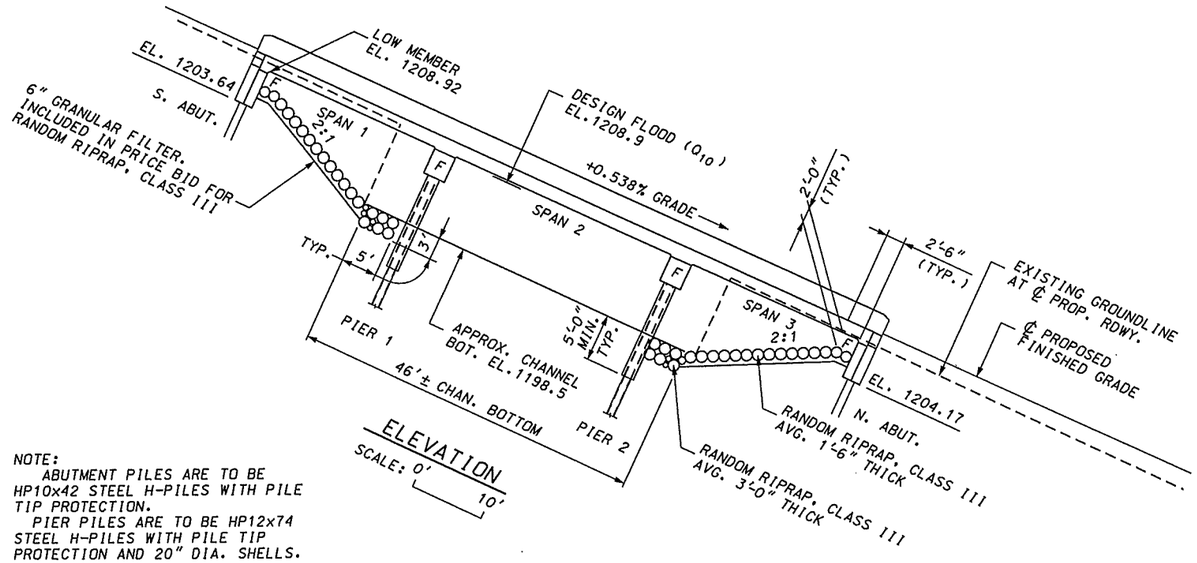
COUNTY PROJ. NO. 50-01-11

SHEET NO. 1 OF 14 SHEETS



PLAN

SCALE: 0' 10'



ELEVATION

SCALE: 0' 10'

NOTE:
ABUTMENT PILES ARE TO BE HP10x42 STEEL H-PILES WITH PILE TIP PROTECTION.
PIER PILES ARE TO BE HP12x74 STEEL H-PILES WITH PILE TIP PROTECTION AND 20" DIA. SHELLS.

CONSTRUCTION NOTES

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE IN MILLIMETERS. BARS MARKED WITH THE SUFFIX " E" SHALL BE EPOXY COATED.

ENGINEER IN THE FIELD SHALL VERIFY PROPER POSITIONING OF THE BRIDGE PRIOR TO COMMENCEMENT OF CONSTRUCTION. IF THE BRIDGE POSITIONING IS NOT COMPATIBLE WITH THE STREAM WHEN STAKING IS COMPLETED, THE SEALING ENGINEER SHALL BE NOTIFIED.

IF STATIONING IS CHANGED, THE REVISED PLANS SHALL BE SUBMITTED TO THE OWNER.

SEE SHEET 13 FOR BENCH MARK.

DESIGN DATA

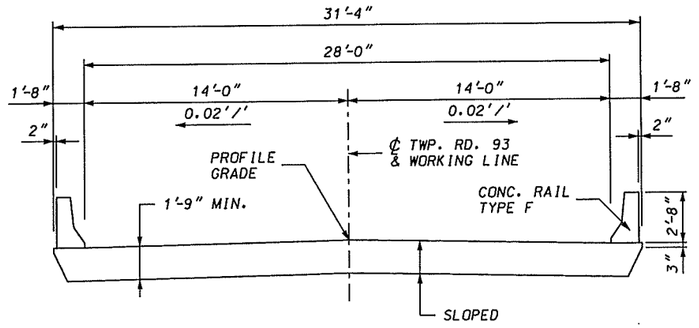
1996 & INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS
LOAD FACTOR DESIGN METHOD - HS25 LOADING
INCLUDES 17 PSF DEAD LOAD ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.

MAXIMUM ALLOWABLE DESIGN STRESSES:
REINFORCED CONCRETE:
f'c = 4000 PSI n = 8
fy = 60000 PSI REINFORCEMENT
STRUCTURAL STEEL:
fy = 36000 PSI SPEC. 3306

DECK AREA = 3157 S.F.
A.D.T. = <50 (2002)
OPERATING RATING = HS 50
DESIGN SPEED = 55 M.P.H.

LIST OF SHEETS

NO.	TITLE
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14	BRIDGE SURVEY - PLAN & PROFILE



TRANSVERSE SECTION THRU DECK

SCALE: 0' 4'

① STA. 3+00 - NON-PARTICIPATING

② SEE SHEET 5 FOR REQUIREMENTS.

③ SEE SHEET 6 FOR REQUIREMENTS.

SCHEDULE OF QUANTITIES FOR THE ENTIRE BRIDGE

ITEM NO.	2021.501	2401.501	2401.512	2401.513	2401.541	2401.601	2401.601	2402.521
ITEM	MOBILIZATION	STRUCTURAL CONCRETE (3Y43)	BRIDGE SLAB CONCRETE (3Y33A)	TYPE F RAILING CONCRETE (3Y46A)	REIN-FORCEMENT BARS (EPOXY COATED)	SLOPE PREPARATION	STRUCTURE EXCAVATION ②	STRUCTURAL STEEL (3306)
QUANTITY	1	76 (P)	3157 (P)	200 (P)	43745 (P)	1	1	520 (P)
UNIT	LUMP SUM	CU.YD.	SQ.FT.	LIN.FT.	POUND	LUMP SUM	LUMP SUM	POUND

ITEM NO.	2402.546	2442.501	2452.510	2452.510	2452.511	2452.511	2452.520	2452.520	2452.520	2452.602	2452.602	2452.602	2452.603	2511.501	
ITEM	FLOOR DRAINS TYPE B702 (MODIFIED)	REMOVE OLD BRIDGE ①	STEEL H-PILING DRIVEN 10X42	STEEL H-PILING DRIVEN 12X74	STEEL H-PILING DELIVERED 10X42	STEEL H-PILING DELIVERED 12X74	STEEL H-TEST PILES, 40 FT. LONG 10X42	STEEL H-TEST PILES, 50 FT. LONG 10X42	STEEL H-TEST PILES, 50 FT. LONG 12X74	PILE TIP PROTECTION 10"	PILE TIP PROTECTION 12"	ROCK SOCKET ③	20" STEEL PILE SHELLS	RANDOM RIPRAP, CLASS III	
QUANTITY	6	1	210	320	210	320	1	1	2	8	10	10	150	235	
UNIT	EACH	LUMP SUM	LIN.FT.	LIN.FT.	LIN.FT.	LIN.FT.	EACH	EACH	EACH	EACH	EACH	EACH	LIN. FT.	CU.YD.	

APPROVED:

COUNTY ENGINEER
MOWER COUNTY

DATE: _____

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Ronald Benson RONALD BENSON

DATE: 2/6/02 LIC.NO. 22737

PLANS PREPARED BY:
ERICKSON ENGINEERING
3340 REPUBLIC AVENUE
ST.LOUIS PARK, MN 55426

TWP. RD. 93 MOWER COUNTY
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 50584

LOCATED 0.5 MILES SOUTH OF JCT. C.S.A.H. 4 OVER ROSE CREEK

30'-38'-30' CONTINUOUS CONCRETE SLAB
SPANS - 28 FT. ROADWAY, 25° SKEW
SPAN IDENTIFICATION NO. 209

GENERAL PLAN & ELEVATION

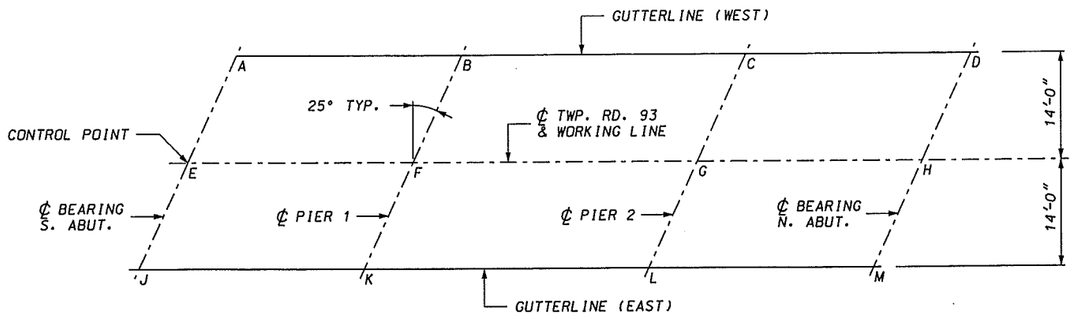
SEC. 31 TWP. 102 N R 17 W

TOWNSHIP: WINDOM
COUNTY: MOWER

C.P. 50-01-11

SHEET NO. 2 OF 14 SHEETS

DES.:	CGD	DRN.:	BDM	50584
CHK.:	RAB	CHK.:	CGD	

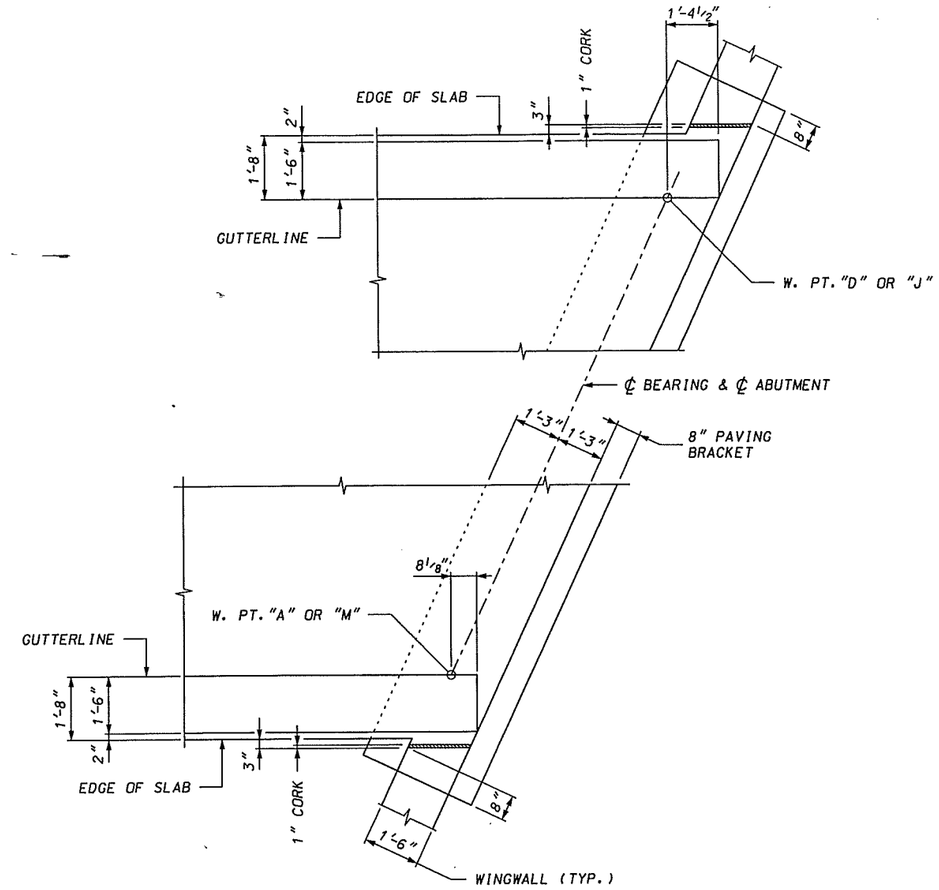


LAYOUT SHOWING WORKING POINTS

SCALE: 0' 10'

TYPICAL NW & SE CORNER DETAIL

SCALE: 0' 2'



TYPICAL NE & SW CORNER DETAIL

SCALE: 0' 2'

DIMENSIONS BETWEEN WORKING POINTS														ELEVATIONS			
POINT	STATION	A	B	C	D	E	F	G	H	J	K	L	M	TOP OF SLAB	SLAB TO BRIDGE SEAT	BRIDGE SEAT	POINT
A	2+57.53		30.00			15.45	27.33				32.73	61.67		1210.78	2.00	1208.78	A
B	2+87.53			38.00			15.45	34.45		51.36		37.50	61.67	1210.94	1.90	1209.04	B
C	3+25.53				30.00			15.45	27.33	85.76	58.23		32.73	1211.14	1.90	1209.24	C
D	3+55.53								15.45		85.76	51.36		1211.30	2.00	1209.30	D
E	2+51.00						30.00			15.45	27.33			1211.02	2.00	1209.02	E
F	2+81.00							38.00			15.45	34.45		1211.18	1.90	1209.28	F
G	3+19.00								30.00			15.45	27.33	1211.39	1.90	1209.49	G
H	3+49.00												15.45	1211.55	2.00	1209.55	H
J	2+44.47										30.00			1210.71	2.00	1208.71	J
K	2+74.47											38.00		1210.87	1.90	1208.97	K
L	3+12.47												30.00	1211.07	1.90	1209.17	L
M	3+42.47													1211.23	2.00	1209.23	M

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 50584

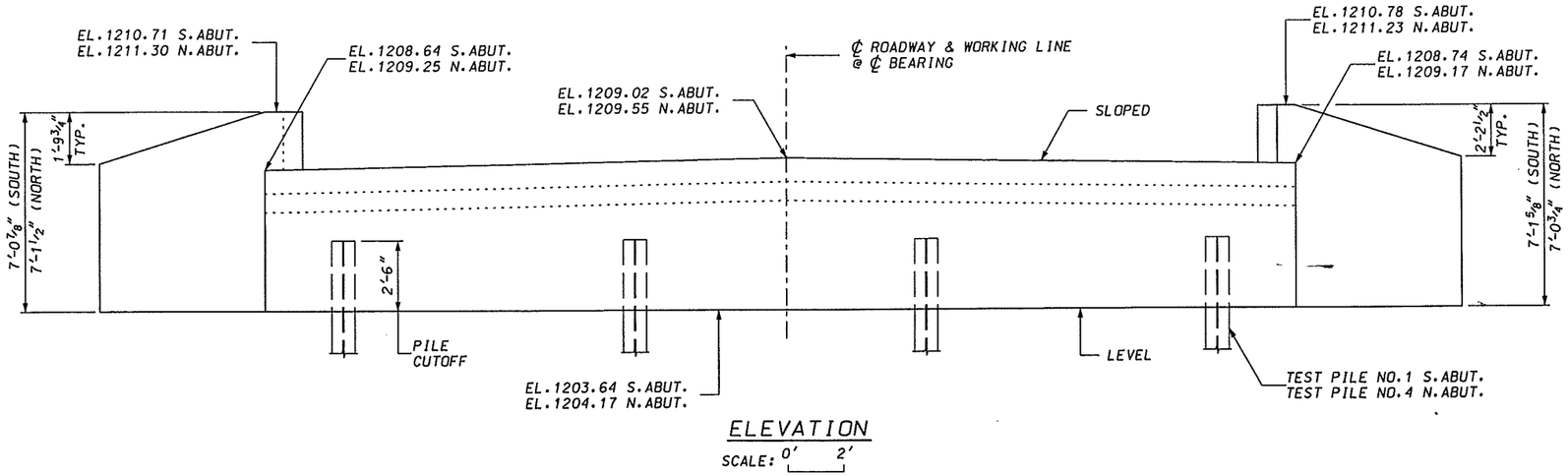
BRIDGE LAYOUT

APPROVED:

C.P. 50-01-11

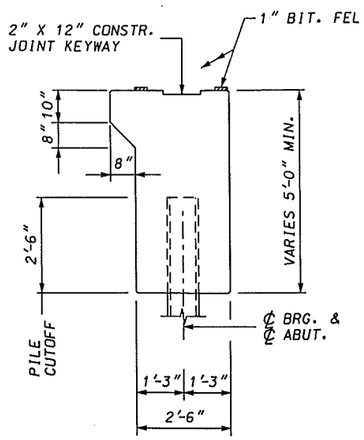
SHEET 3 OF 14 SHEETS

DES.	CGD	DRN.	BDM	50584
CHK.	RAB	CHK.	CGD	



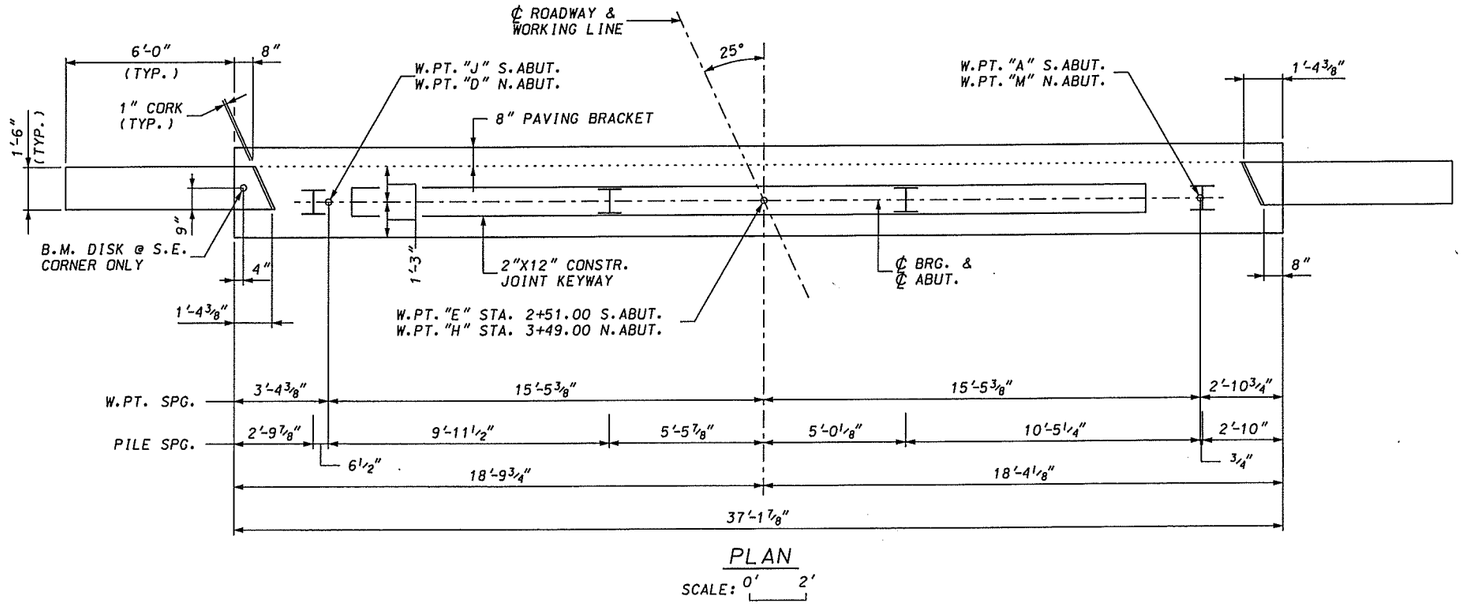
ELEVATION

SCALE: 0' 2'



SECTION THRU ABUTMENT

SCALE: 0' 2'



PLAN

SCALE: 0' 2'

COMPUTED PILE LOADS TONS PER PILE FOR ABUTMENTS	
DEAD LOAD	34.2
LIVE LOAD	18.2
TOTAL	52.4

PILE NOTES

3 - STEEL H-PILES, 30' EST. LENGTH
1 - STEEL H-TEST PILE, 40' LONG
4 - STEEL H-PILES REQ'D FOR SOUTH ABUT.

3 - STEEL H-PILES, 40' EST. LENGTH
1 - STEEL H-TEST PILE, 50' LONG
4 - STEEL H-PILES REQ'D FOR NORTH ABUT.

ALL PILES ARE TO HP10X42, STEEL H-PILES.

SEE DETAIL B202 FOR SPLICES.

ALL PILES TO HAVE PILE TIP PROTECTION. SEE SPECIAL PROVISIONS.

SEE SURVEY SHEET FOR TEST PILE LOCATIONS.

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

MINNESOTA DEPARTMENT OF TRANSPORTATION

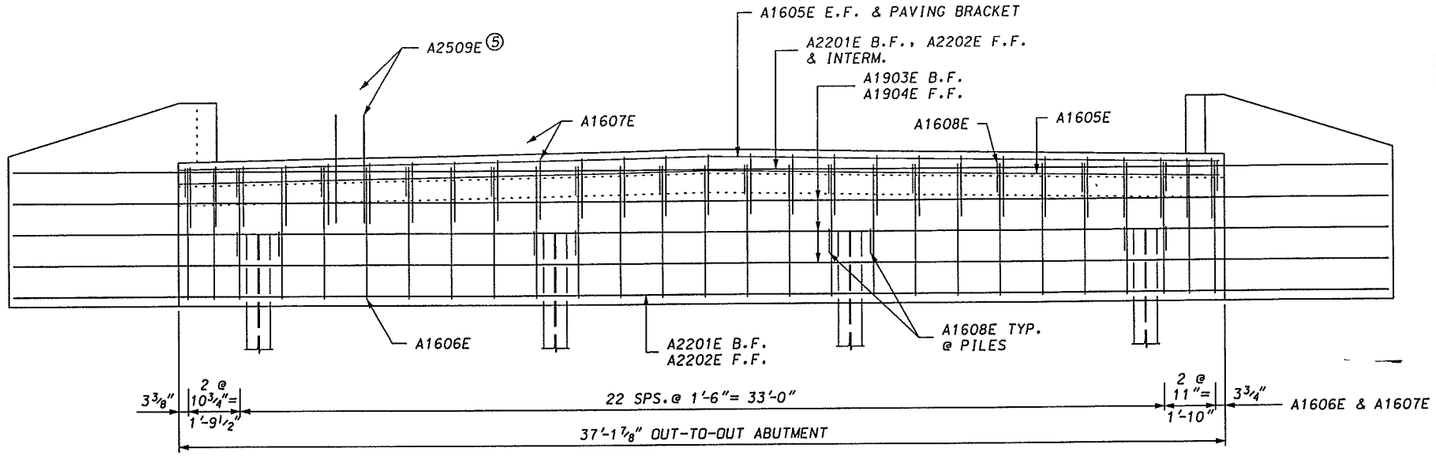
BRIDGE NO. 50584
ABUTMENT DETAILS

APPROVED:

C.P. 50-01-11

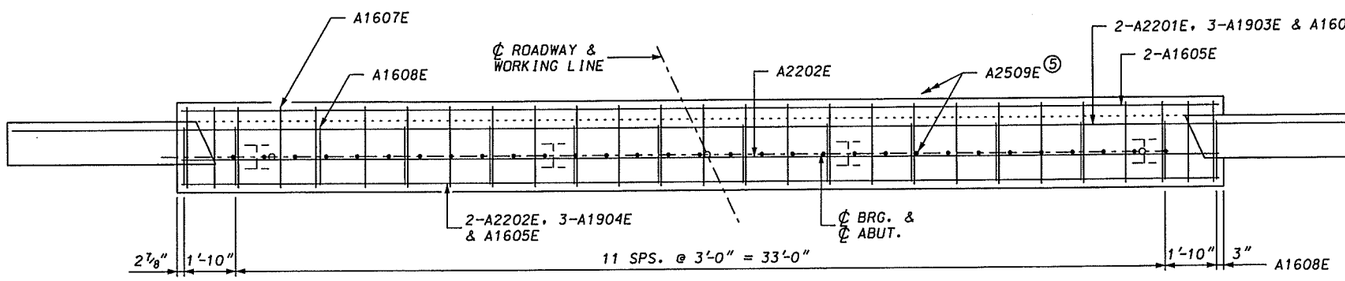
SHEET 4 OF 14 SHEETS

DES.	CGD	DRN.	BDM	50584
CHK.	RAB	CHK.	CGD	



ELEVATION

SCALE: 0' 2'

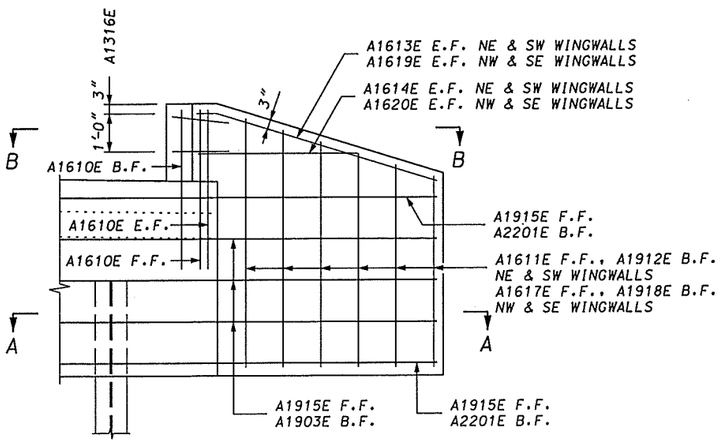


PLAN

SCALE: 0' 2'

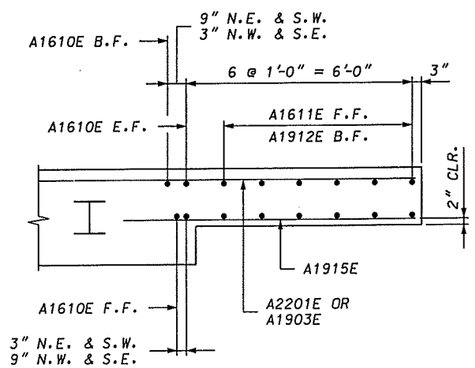
NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

⑤ PLACE A2509E W/S1613E SEE SHEET NO. 7. PLACE PARALLEL TO ℄ ROAD.



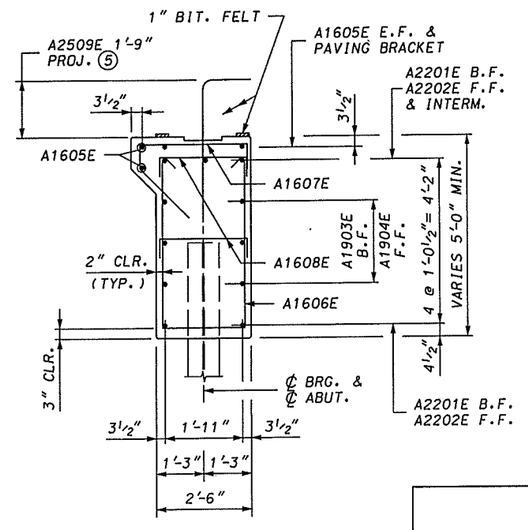
WINGWALL ELEVATION

SCALE: 0' 2'



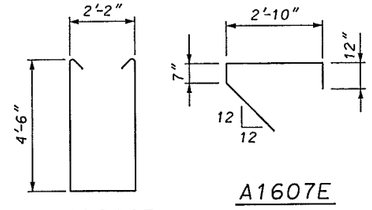
SECTION A-A

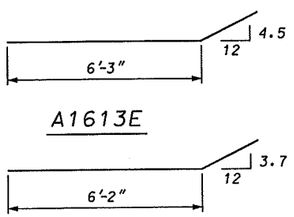
SCALE: 0' 2'

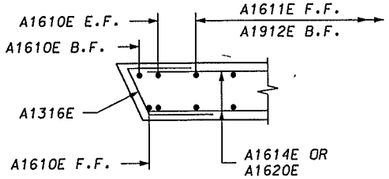


SECTION THRU ABUTMENT

SCALE: 0' 2'







SECTION B-B

SCALE: 0' 2'

BILL OF REINFORCEMENT - 2 ABUTMENTS

BAR	NO.	LENGTH	SHAPE	LOCATION
A2201E	4	48'-8"	STRT.	CAP - HORIZONTAL
A2202E	6	36'-8"	STRT.	CAP - HORIZONTAL
A1903E	6	48'-8"	STRT.	CAP - HORIZONTAL
A1904E	6	36'-8"	STRT.	CAP - HORIZONTAL
A1605E	8	36'-8"	STRT.	CAP - HORIZONTAL
A1606E	54	12'-1"	BENT	CAP - STIRRUP
A1607E	54	6'-6"	BENT	CAP - TIE
A1608E	28	3'-10"	BENT	CAP - TIE
A2509E	62	5'-5"	BENT	CAP - TIE @ SLAB
A1610E	16	3'-7"	STRT.	WINGWALL - VERTICAL
A1611E	2 SER. OF 6	4'-6" TO 6'-4"	STRT.	WINGWALL - VERTICAL
A1912E	2 SER. OF 6	4'-6" TO 6'-4"	STRT.	WINGWALL - VERTICAL
A1613E	4	6'-9"	BENT	WINGWALL - HORIZONTAL
A1614E	4	3'-5"	STRT.	WINGWALL - HORIZONTAL
A1915E	20	7'-7"	STRT.	WINGWALL - HORIZONTAL
A1316E	8	5'-2"	BENT	WINGWALL - TIE
A1617E	2 SER. OF 6	4'-11" TO 6'-5"	STRT.	WINGWALL - VERTICAL
A1918E	2 SER. OF 6	4'-11" TO 6'-5"	STRT.	WINGWALL - VERTICAL
A1619E	4	6'-8"	BENT	WINGWALL - HORIZONTAL
A1620E	4	4'-1"	STRT.	WINGWALL - HORIZONTAL

SUMMARY OF QUANTITIES - 2 ABUTMENTS

	STRUCTURAL CONCRETE (3Y43)	47 CU. YD.
	REINFORCEMENT BARS (EPOXY COATED)	4720 POUND
②④	STRUCTURE EXCAVATION	1 LUMP SUM
③	B.M. DISK	1 EACH
①	STEEL H-PILING DELIVERED, 10x42	210 LIN. FT.
①	STEEL H-PILING DRIVEN, 10x42	210 LIN. FT.
	STEEL H-TEST PILES, 40' LONG, 10x42	1 EACH
	STEEL H-TEST PILES, 50' LONG, 10x42	1 EACH
	PILE TIP PROTECTION, 10"	8 EACH

① DOES NOT INCLUDE TEST PILES

② SEE SPECIAL PROVISIONS

③ COUNTY WILL FURNISH DISK. PAYMENT FOR PLACING IS TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. BEND PRONGS OUTWARD TO ANCHOR DISK IN CONCRETE. BOTTOM OF DISK TOP TO BE PLACED FLUSH WITH CONCRETE.

④ BACKFILL BEHIND ABUTMENTS SHALL BE SELECT GRANULAR BORROW. INCLUDED IN PRICE BID FOR STRUCTURE EXCAVATION. COMPACTION SHALL BE ATTAINED BY THE QUALITY COMPACTION METHOD IN ACCORDANCE WITH THE REQUIREMENTS OF 2105.3F2. SEE BRIDGE SURVEY SHEET FOR PLACEMENT LIMITS. ESTIMATED QUANTITY IS 280 CU. YDS.

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

MINNESOTA DEPARTMENT OF TRANSPORTATION

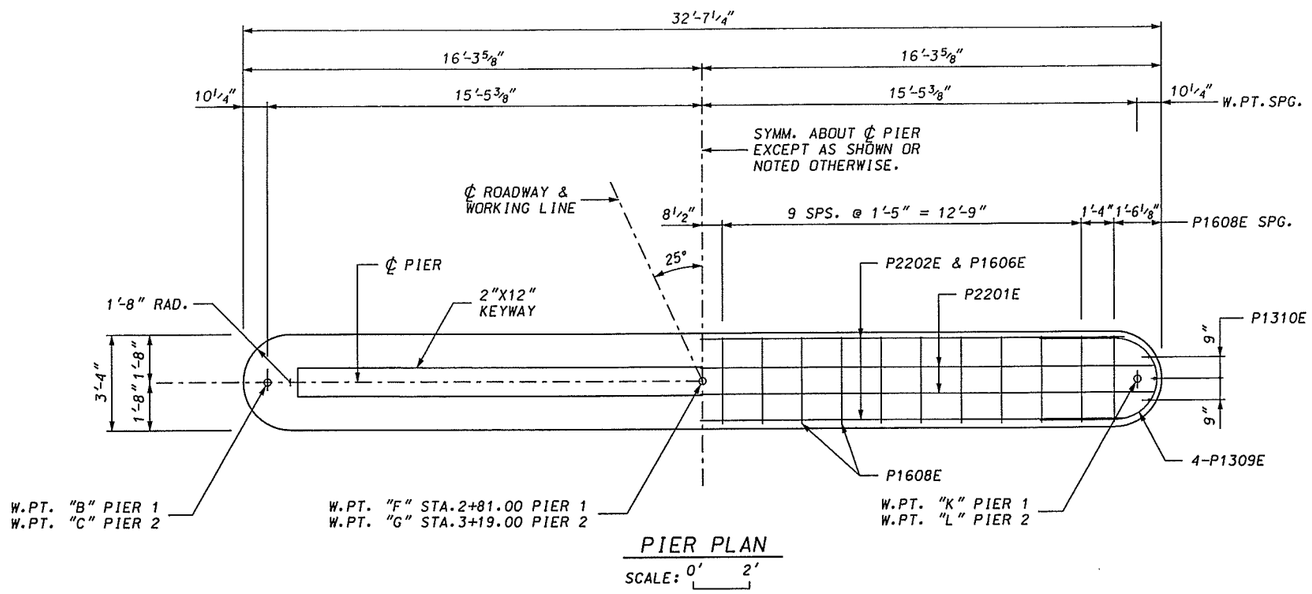
BRIDGE NO. 50584
ABUTMENT DETAILS

APPROVED:

C.P. 50-01-11

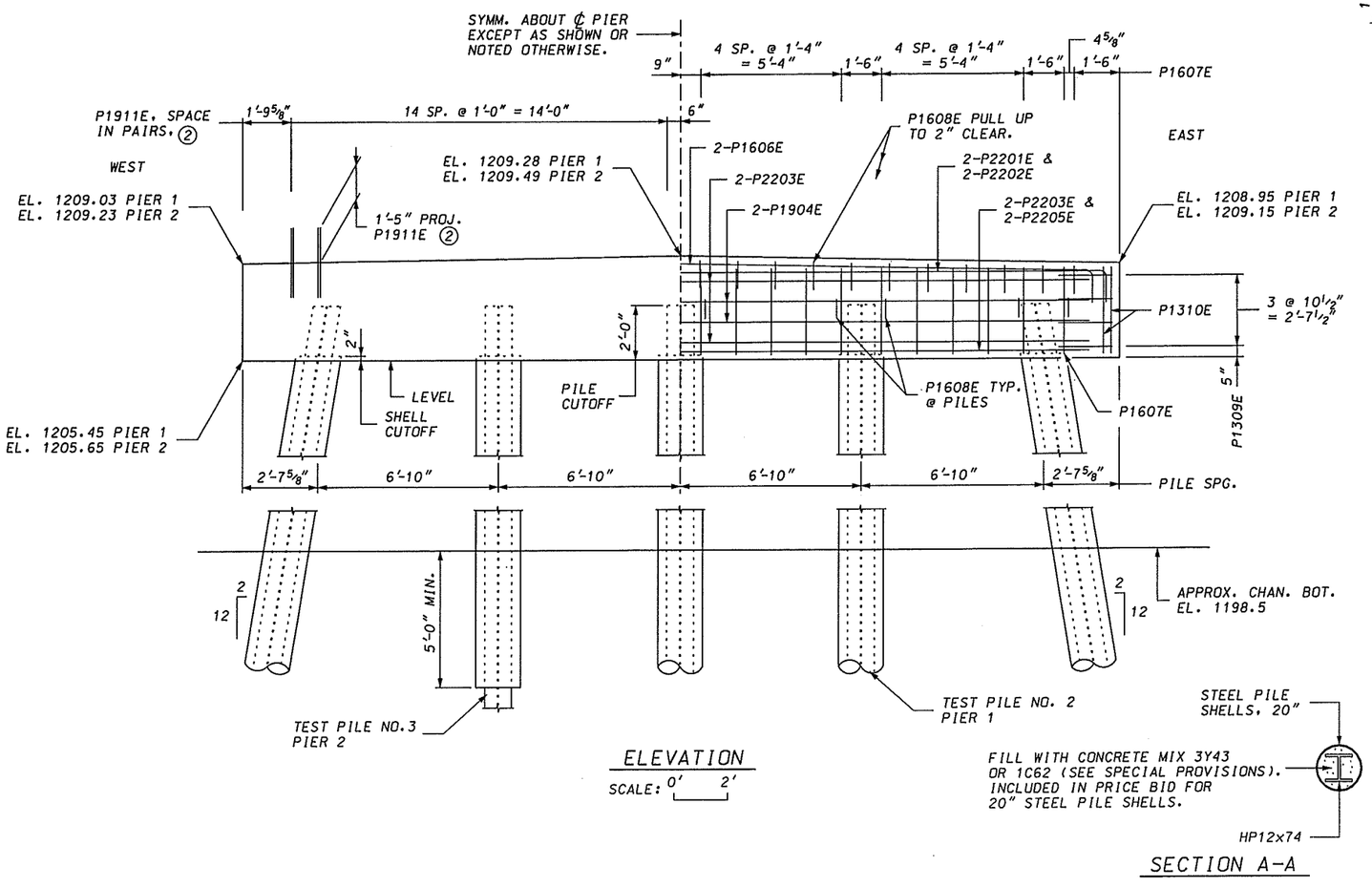
SHEET 5 OF 14 SHEETS

DES.	CGD	DRN.	BDM	50584
CHK.	RAB	CHK.	CGD	



PIER PLAN

SCALE: 0' 2'

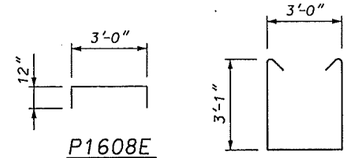


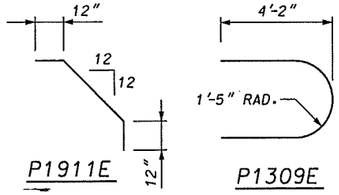
ELEVATION

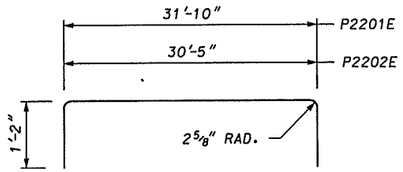
SCALE: 0' 2'

FILL WITH CONCRETE MIX 3Y43 OR 1C62 (SEE SPECIAL PROVISIONS). INCLUDED IN PRICE BID FOR 20" STEEL PILE SHELLS.

SECTION A-A







P2201E & P2202E

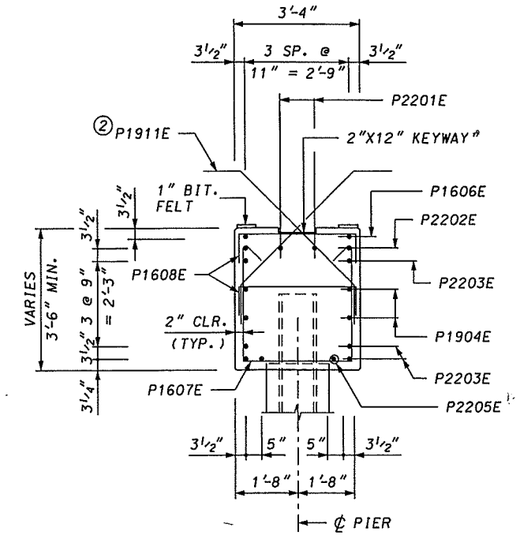
BILL OF REINFORCEMENT - 2 PIERS				
SHAPE	NO.	LENGTH	SHAPE	LOCATION
P2201E	4	34'-2"	BENT	CAP - LONGITUDINAL
P2202E	4	32'-9"	BENT	CAP - LONGITUDINAL
P2203E	12	30'-3"	STRT.	CAP - LONGITUDINAL
P1904E	8	30'-3"	STRT.	CAP - LONGITUDINAL
P2205E	4	31'-6"	STRT.	CAP - LONGITUDINAL
P1606E	4	30'-5"	STRT.	CAP - LONGITUDINAL
P1607E	48	10'-1"	STRT.	CAP - STIRRUP
P1608E	64	5'-0"	BENT	CAP - TIE
P1309E	16	10'-0"	BENT	CAP - TIE AT ENDS
P1310E	12	3'-2"	STRT.	CAP - VERT. @ ENDS
P1911E	124	6'-2"	BENT	CAP - DOWEL

SUMMARY OF QUANTITIES - 2 PIERS	
STRUCTURAL CONCRETE (3Y43)	29 CU. YD.
REINFORCEMENT BARS, EPOXY COATED	4160 POUND
① STEEL H-PILING DELIVERED, 12x74	320 LIN. FT.
① STEEL H-PILING DRIVEN, 12x74	320 LIN. FT.
STEEL H-TEST PILES, 50' LONG, 12x74	2 EACH
PILE TIP PROTECTION, 12"	10 EACH
20" STEEL PILE SHELLS	150 LIN. FT.
③④ ROCK SOCKETS	10 EACH

① DOES NOT INCLUDE TEST PILES

② PLACE P1911E PARALLEL TO ℄ OF ROAD

③ SEE SPECIAL PROVISIONS.



SECTION THRU CAP

SCALE: 0' 2'

COMPUTED PILE LOADS TONS PER PILE FOR PIERS	
DEAD LOAD	42.0
LIVE LOAD	15.9
TOTAL	57.9

PILE NOTES

8 - STEEL H-PILES, 40' EST. LENGTH
2 - STEEL H-TEST PILES, 50' LONG
10 - STEEL H-PILES REQ.D FOR 2 PIERS

10 - STEEL PILE SHELLS (20" DIA.) 15' LONG.

ALL PIER PILES ARE TO BE HP12x74, STEEL H-PILES, WITH PILE TIP PROTECTION. SEE SPECIAL PROVISIONS.

PILE SPACING SHOWN IS AT BOTTOM OF CAP.

END PILES ARE TO BE BATTERED 2" PER FOOT IN DIRECTION SHOWN

SEE DETAIL B202 FOR SPLICES.

SEE SURVEY SHEET FOR TEST PILE LOCATIONS.

ALL PIER PILES SHALL BE DRIVEN TO ELEVATION 1181.3 OR BELOW, OR TO A MINIMUM PENETRATION OF 5 FEET INTO BEDROCK, (SEE SPECIAL PROVISIONS).

④ DRIVE TEST PILES AT PIERS PRIOR TO CONSTRUCTING ROCK SOCKETS. IF ALL PILES ARE DRIVEN TO MINIMUM ELEVATION, DELETE BID ITEM "ROCK SOCKET".

AT LOCATIONS WHERE PILES CANNOT BE DRIVEN TO MINIMUM ELEVATION, ROCK SOCKETS SHALL BE CONSTRUCTED.

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

MINNESOTA DEPARTMENT OF TRANSPORTATION

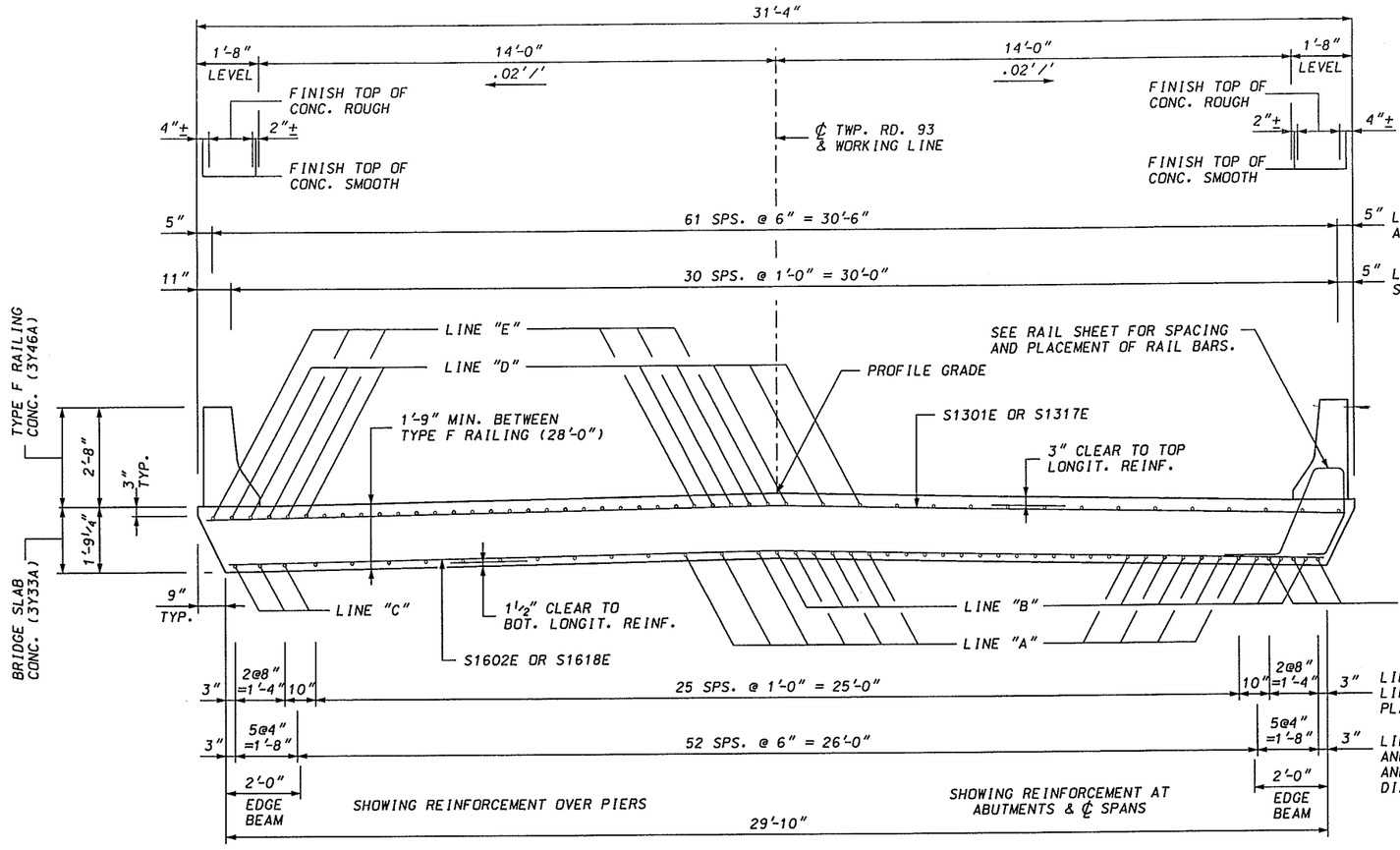
BRIDGE NO. 50584
PIER DETAILS

APPROVED:

C.P. 50-01-11

SHEET 6 OF 14 SHEETS

DES.	CGD	DRN.	BDM	50584
CHK.	RAB	CHK.	CGD	



LINE "D" & "E" TOP LONGIT. REINF. SPACING OVER PIERS. ALTERNATE LINE "D" WITH LINE "E". SEE PLACEMENT DIAGRAM BELOW.

LINE "D" TOP LONGIT. REINF. SPACING ENTIRE LENGTH. SEE PLACEMENT DIAGRAM BELOW.

LINE "A" REINF. AT INTERIOR PORTION CONSISTS OF: 2-S2203E & 1-S2204E ALTERNATING WITH 2-S2205E & 1-S2206E.

LINE "B" REINF. AT INTERIOR PORTION & AT EDGE BEAM CONSISTS OF: 2-S2507E & 1-S2508E.

LINE "C" REINF. AT EDGE BEAM CONSISTS OF: 2-S2909E & 1-S2910E. ALTERNATING WITH 2-S2911E & 1-S2912E

LINE "D" REINF. CONSISTS OF: 2-S1613E, 2-S2514E, & 1-S1615E.

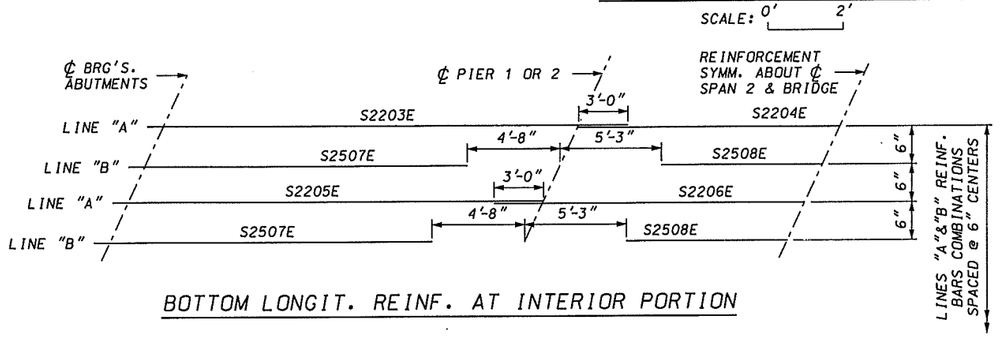
LINE "E" REINF. CONSISTS OF: 1-S2516E OVER EACH PIER.

LINE "A" & "C" BTM. LONGIT. REINF. SPACING ENTIRE LENGTH. LINE "A" (INTERIOR PORTION) AND "C" (IN EDGE BEAM). SEE PLACEMENT DIAGRAMS BELOW.

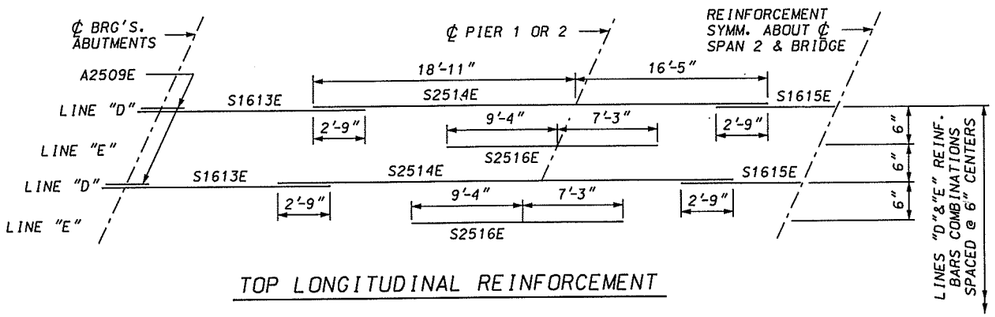
LINE "A", "B", & "C" BTM. LONGIT. REINF. SPACING AT ℄ SPANS AND ABUT'S. ALTERNATE LINE "A" WITH LINE "B" (IN INTERIOR PORTION) AND ALTERNATE LINE "B" WITH LINE "C" (IN EDGE BEAM). SEE PLACEMENT DIAGRAM BELOW

TRANSV. SECTION THRU DECK

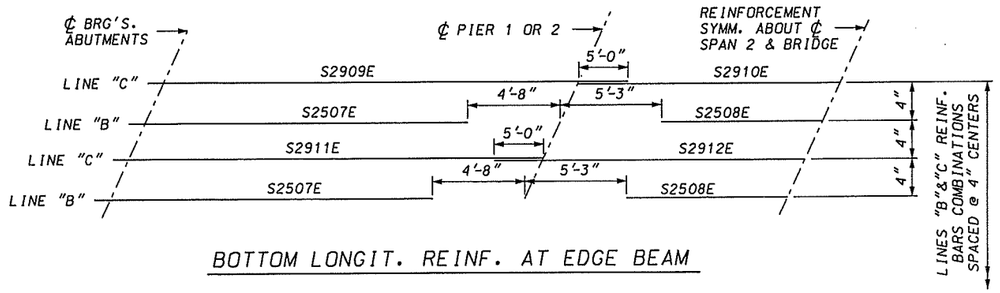
SCALE: 0' 2'



BOTTOM LONGIT. REINF. AT INTERIOR PORTION



TOP LONGITUDINAL REINFORCEMENT



BOTTOM LONGIT. REINF. AT EDGE BEAM

PLACEMENT DIAGRAM FOR TOP & BOTTOM LONGITUDINAL REINFORCEMENT

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 50584

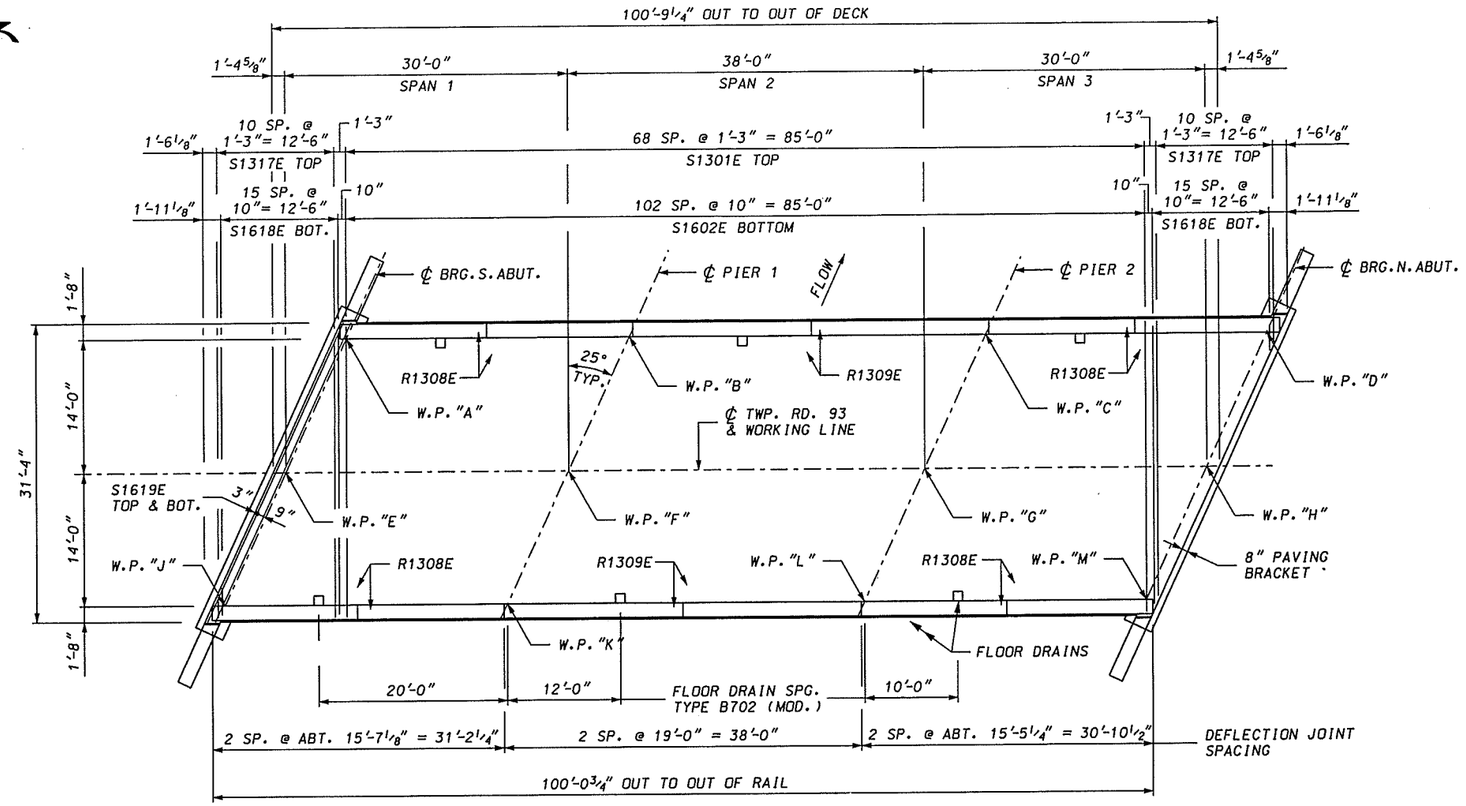
SUPERSTRUCTURE DETAILS

APPROVED:

C.P. 50-01-11

SHEET 7 OF 14 SHEETS

DES.	CGD	DRN.	BDM	50584
CHK.	RAB	CHK.	CGD	



PLAN

SCALE: 0' 8'

BILL OF REINFORCEMENT - SUPERSTRUCTURE				
BAR	NO.	LENGTH	SHAPE	LOCATION
S1301E	69	30'-10"	STRT.	SLAB - TRANSV. TOP
S1602E	103	29'-6"	STRT.	SLAB - TRANSV. BOTTOM
S2203E	26	34'-2"	STRT.	SLAB - LONGITUDINAL
S2204E	13	38'-0"	STRT.	SLAB - LONGITUDINAL
S2205E	26	31'-2"	STRT.	SLAB - LONGITUDINAL
S2206E	13	44'-0"	STRT.	SLAB - LONGITUDINAL
S2507E	62	26'-6"	STRT.	SLAB - LONGITUDINAL
S2508E	31	27'-6"	STRT.	SLAB - LONGITUDINAL
S2909E	6	36'-2"	STRT.	SLAB - LONGITUDINAL
S2910E	3	38'-0"	STRT.	SLAB - LONGITUDINAL
S2911E	6	31'-2"	STRT.	SLAB - LONGITUDINAL
S2912E	3	48'-0"	STRT.	SLAB - LONGITUDINAL
S1613E	62	15'-1"	STRT.	SLAB - LONGITUDINAL
S2514E	62	35'-4"	STRT.	SLAB - LONGITUDINAL
S1615E	31	10'-8"	STRT.	SLAB - LONGITUDINAL
S2516E	62	16'-7"	STRT.	SLAB - LONGITUDINAL
S1317E	2 SER. OF 11	2'-2" TO 29'-0"	STRT.	SLAB - TRANSV. TOP
S1618E	2 SER. OF 16	2'-7" TO 29'-5"	STRT.	SLAB - TRANSV. BOTTOM
S1619E	8	34'-6"	STRT.	SLAB - LONGITUDINAL

LIST OF PREFORMED JOINT FILLERS			
TYPE	LENGTH	SIZE	LOCATION
CORK	19'	1"X13"	RAIL DEFLECTION JOINT
CORK	9'	1"X20"	ABUTMENT RECESS
BIT. FELT.	140'	1"X4"	PIER
BIT. FELT	140'	1"X4"	ABUTMENT

	SUMMARY OF QUANTITIES - SUPERSTRUCTURE	
(2)	BRIDGE SLAB CONCRETE (3Y33A)	3157 SQ. FT.
(3)	TYPE F RAILING CONCRETE (3Y46A)	200 LIN. FT.
(1)	REINFORCEMENT BARS (EPOXY COATED)	34865 POUND
	STRUCTURL STEEL (3306)	520 POUND
(4)	PROTECTION PLATES (DETAIL B553)	
(6)	BRIDGE NAMEPLATE (DETAIL B101)	1 EACH
(6)	3-PLY JOINT WATERPROOFING	85 LIN. FT.
(5)(6)	PREFORMED JOINT FILLER (SEE LIST)	
	FLOOR DRAINS, TYPE B702 (MODIFIED)	6 EACH

(1) INCLUDES RAIL QUANTITIES

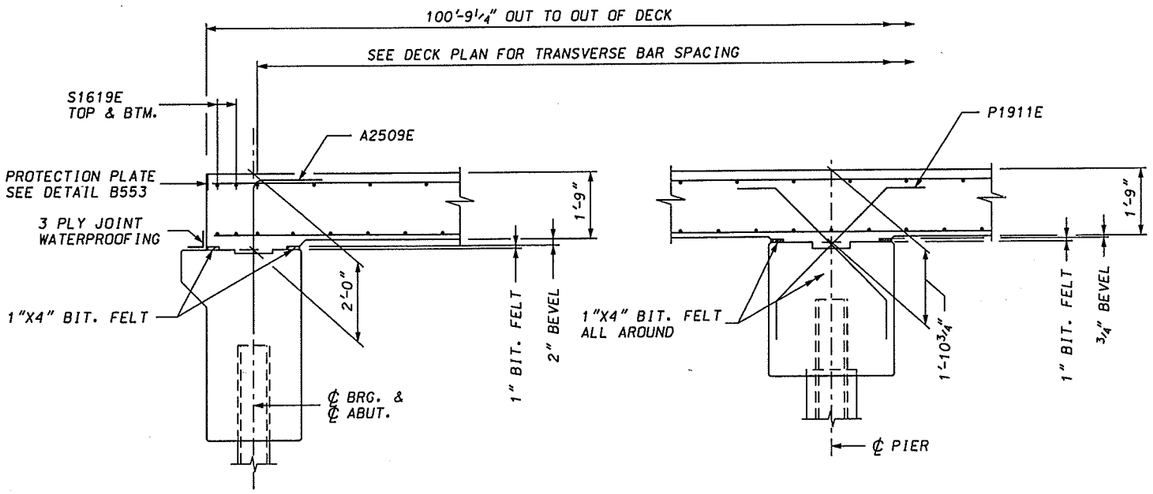
(2) APPROXIMATE VOLUME = 205 CU. YDS.

(3) APPROXIMATE VOLUME = 22 CU. YDS.

(4) INCLUDED IN STRUCTURAL STEEL (3306).

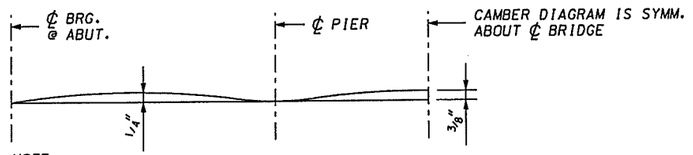
(5) SEE SPECIAL PROVISIONS

(6) INCLUDED IN PRICE BID FOR OTHER ITEMS.



ABUTMENTS PART LONGITUDINAL SECTION PIERS

SCALE: 0' 2'



NOTE:
THE ABOVE DIAGRAM SHOWS THE CAMBER REQUIRED FOR THE ANTICIPATED ULTIMATE DEAD LOAD DEFLECTION, AND DOES NOT ACCOUNT FOR SETTLEMENT OF FORMS.

CAMBER DIAGRAM

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 2/6/2002

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 50584

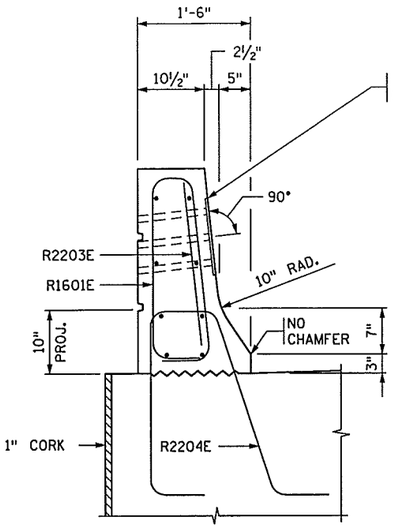
SUPERSTRUCTURE DETAILS

APPROVED:

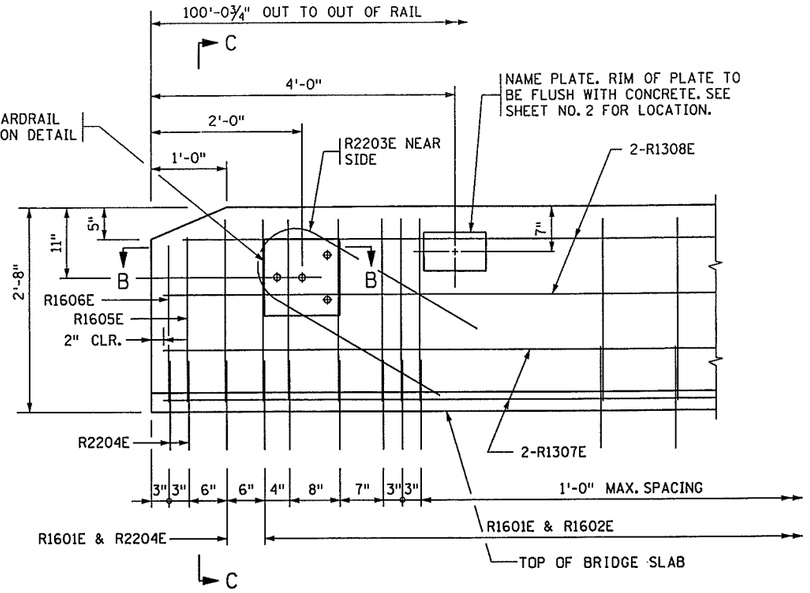
C.P. 50-01-11

SHEET 8 OF 14 SHEETS

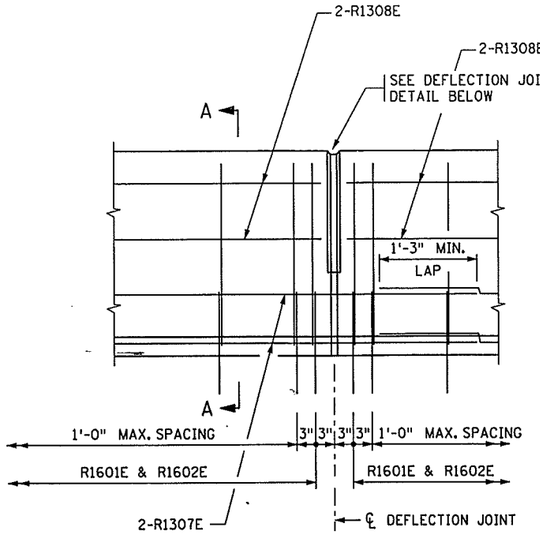
DES.	CGD	DRN.	BDM	50584
CHK.	RAB	CHK.	CSK	



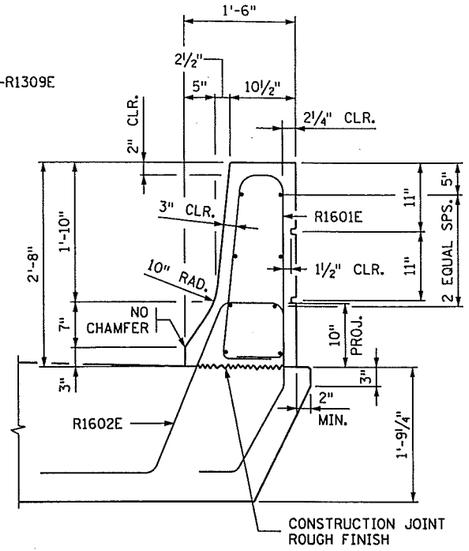
SECTION C-C



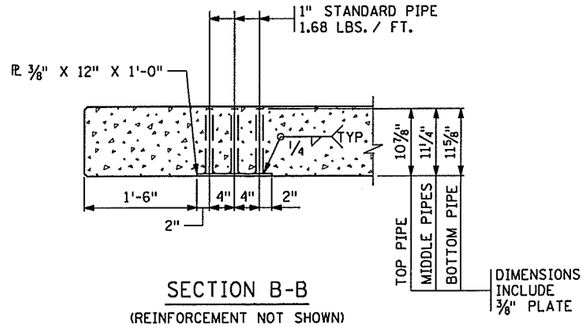
INSIDE ELEVATION OF RAILING



DEFLECTION JOINT

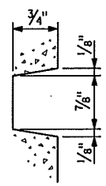


SECTION A-A

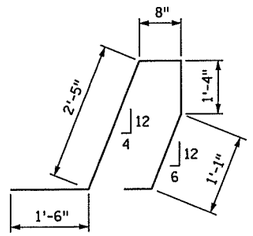


SECTION B-B

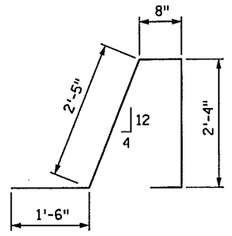
(REINFORCEMENT NOT SHOWN)



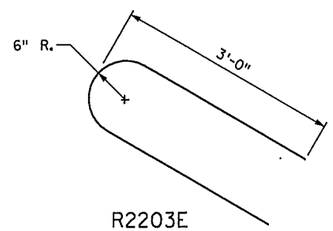
RAIL RUSTICATION



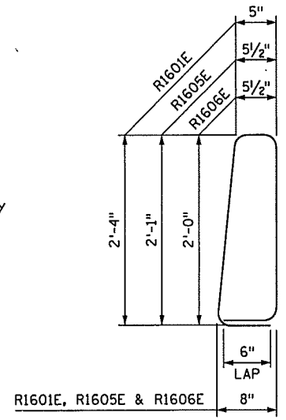
R1602E



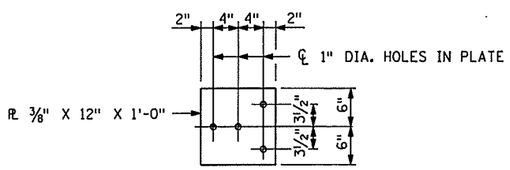
R2204E



R2203E

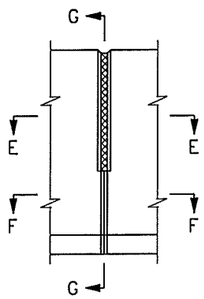


R1601E, R1605E & R1606E

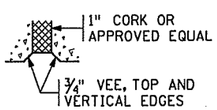


GUARDRAIL CONNECTION DETAIL

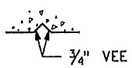
GALVANIZE AFTER FABRICATION PER SPEC. 3394
ESTIMATED WEIGHT = 22 LBS.



ELEVATION

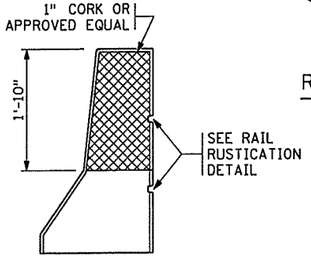


SECTION E-E



SECTION F-F

DEFLECTION JOINT



SECTION G-G

BILL OF REINFORCEMENT FOR RAILING

	BAR	NO.	LENGTH	SHAPE	LOCATION
	R1601E	236	6'-4"		RAIL VERTICAL
	R1602E	232	7'-7"		RAIL VERTICAL
	R2203E	4	6'-7"		RAIL VERTICAL
	R2204E	12	7'-6"		RAIL VERTICAL
	R1605E	4	5'-10"		RAIL VERTICAL
	R1606E	4	5'-8"		RAIL VERTICAL
①	R1307E	24	34'-1"		RAIL LONGITUDINAL
	R1308E	32	15'-0"		RAIL LONGITUDINAL
	R1309E	16	18'-7"		RAIL LONGITUDINAL

① 3 LINES WITH 1'-3" MIN. LAP

GENERAL NOTES

CONCRETE RAILING = 439 LBS./FT. (.108 CU. YDS./FT.)

GUARDRAIL CONNECTION TO BE STRUCTURAL STEEL, SPEC. 3306.

FINISH ALL EDGES OF RAIL WITH ½" VEE, EXCEPT WHERE OTHERWISE NOTED.

SEE SUPERSTRUCTURE SHEET FOR JOINT SPACING.

GUARDRAIL CONNECTION TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS.

RAIL QUANTITIES ARE INCLUDED IN SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE.

MAXIMUM SPACING OF CONCRETE DEFLECTION JOINTS SHALL BE 20'-0".

RAIL TO BE CONCRETE MIX NO. 3Y46A.

MODIFIED

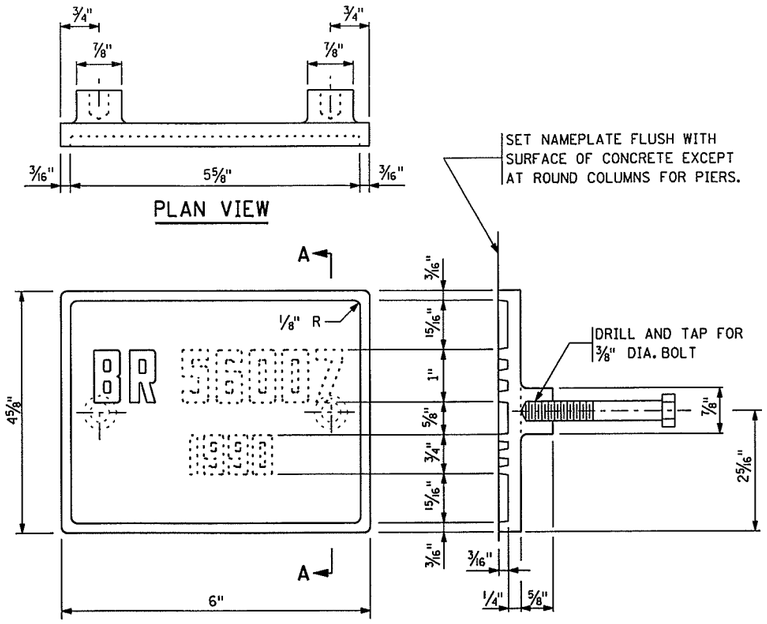
APPROVED: MODIFIED | FIG. 5-397.115

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 2/6/2002

TITLE: CONCRETE RAILING (TYPE F) WITH INTEGRAL END POST (WITHOUT WEARING COURSE)

DES. CGD	DRN. BDM	APPROVED:
CHK. RAB	CHK. CGD	
C.P. 50-01-11		
SHEET 9 OF 14 SHEETS		

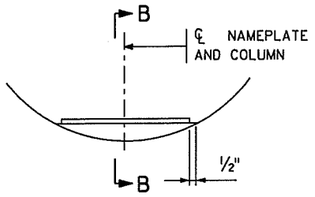
BRIDGE NO. 50584



THE DASHED NUMBERS SHOWN ABOVE ARE FOR ILLUSTRATION.
DATA TO BE SHOWN ON NAMEPLATE IS AS FOLLOWS:

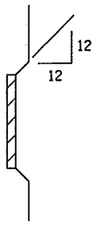
BRIDGE 50584

YEAR 2002



NAMEPLATE PLACEMENT

(ROUND CONCRETE PIER COLUMNS)



SECTION B-B



NUMBERS FOR NAMEPLATE

NOTES:

NO SHOP DRAWING REQUIRED.

MATERIAL SHALL COMPLY WITH Mn/DOT SPEC. 3327.

LETTERS AND NUMBERS SHALL CONFORM TO THOSE SHOWN.

DRAFT ON LETTERS AND NUMBERS SHALL NOT BE MORE THAN 3" IN 12".

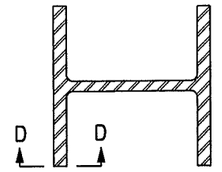
HORIZONTAL SPACING OF LETTERS AND NUMBERS SHALL PRODUCE A BALANCED LAYOUT IN PROPORTION TO SPACING SHOWN.

TOP SURFACE OF LETTERS, NUMBERS AND FRAMES SHALL BE BURNISHED.

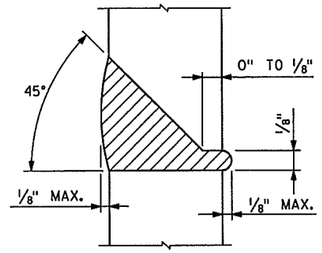
FURNISH 2 STEEL BOLTS 3/8" DIA. x 3" LONG WITH EACH PLATE.

ALL DIMENSIONS FOR 3/4" HIGH LETTERS AND NUMBERS SHALL BE IN DIRECT PROPORTION TO THOSE SHOWN FOR THE 1" HIGH LETTERS AND NUMBERS.

APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Donald J. Flemming STATE BRIDGE ENGINEER	BRIDGE NAMEPLATE (FOR NEW BRIDGES)		B101



SECTION AT JOINT



SECTION D-D

100% BUTT WELDED
PILE SPLICE

NOTES:

A.W.S. TYPE E7016 OR E7018 (LOW-HYDROGEN) ELECTRODES SHALL BE USED FOR 100% BUTT WELDED SPLICES.

LOW-HYDROGEN ELECTRODES SHALL BE SUPPLIED IN HERMETICALLY (AIR-TIGHT) SEALED CONTAINERS.

LOW-HYDROGEN ELECTRODES SHALL BE STORED IN HOLDING OVENS AT A TEMPERATURE OF NOT LESS THAN 250°F.

LOW-HYDROGEN ELECTRODES SHALL BE PLACED IN A HOLDING OVEN FOR AT LEAST 8 HOURS IF THEY HAVE BEEN EXPOSED TO THE ATMOSPHERE FOR MORE THAN 2 HOURS.

ELECTRODES WHICH HAVE BECOME WET, SOILED OR DAMAGED SHALL NOT BE USED.

WELDING SHALL NOT BE DONE WHEN THE AMBIENT TEMPERATURE IS LOWER THAN 0°F. OR WHEN THE PILE IS WET OR EXPOSED TO FALLING RAIN OR SNOW. WHEN THE PILE METAL TEMPERATURE IS BELOW 32°F., THE PILE METAL IN THE AREA OF THE WELD SHALL BE HEATED TO A MINIMUM TEMPERATURE OF 70°F. AND MAINTAINED AT THIS TEMPERATURE DURING WELDING.

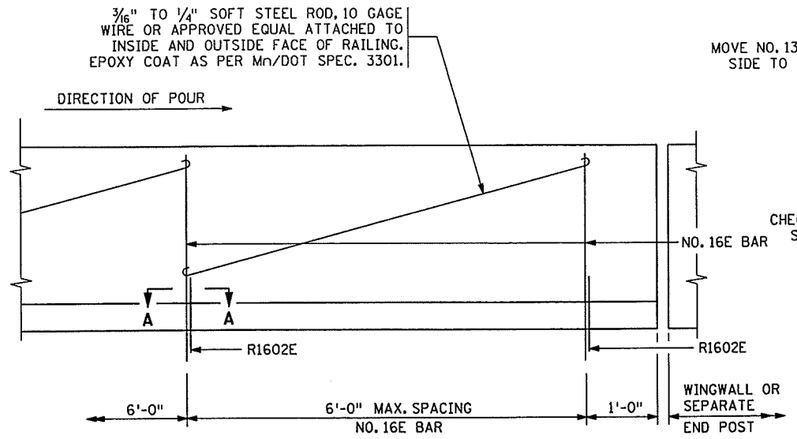
APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Donald J. Flemming STATE BRIDGE ENGINEER	PILE SPLICE (STEEL H BEARING PILES 10" TO 14")		B202

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

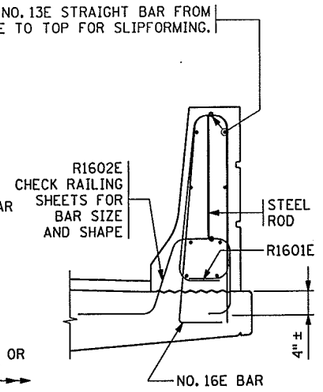
TITLE: STANDARD DETAILS

DES. CGD	DRN. BDM	APPROVED:
CHK. RAB	CHK. CGD	
C.P. 50-01-11		
SHEET 10 OF 14 SHEETS		

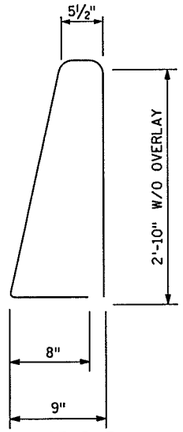
BRIDGE NO. 50584



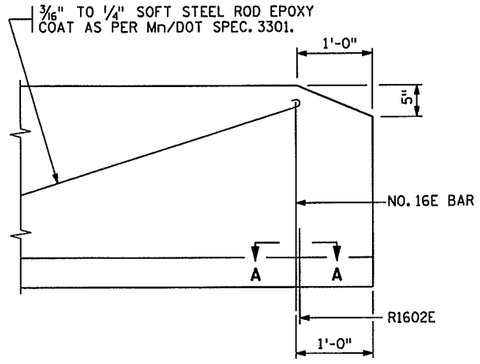
INSIDE ELEVATION OF RAILING



RAILING SECTION



NO. 16E BAR



INSIDE ELEVATION OF RAILING

AT END OF WINGWALL

NOTES:

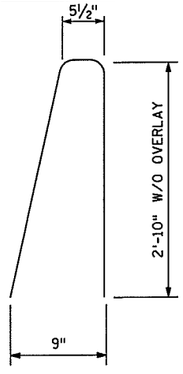
CONTRACTOR WILL TOOL V-GROOVE AT DEFLECTION JOINTS AT TIME RAIL IS CAST AND SHALL EXTEND V-GROOVE AROUND ENTIRE PERIMETER OF RAIL.

FOR ADDITIONAL DIMENSIONS, DETAILS, REINFORCEMENT AND NOTES SEE RAILING SHEET.

FORM RAIL FOR A MINIMUM OF 4' ON EACH SIDE OF EXPANSION DEVICES, LIGHT STANDARDS AND DECK DRAIN BOX OUTS.

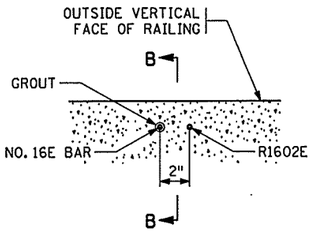
PAY QUANTITIES WILL NOT BE ADJUSTED AS A RESULT OF SELECTING THIS ALTERNATE.

USE A SIMILAR METHOD FOR TALLER RAILINGS OR MODIFIED VERSIONS OF THIS RAILING.

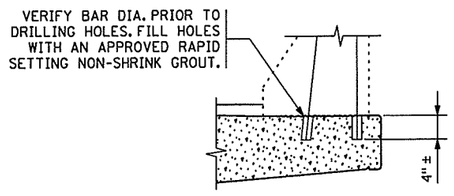


NO. 16E BAR

DRILLED IN ALTERNATE



SECTION A-A

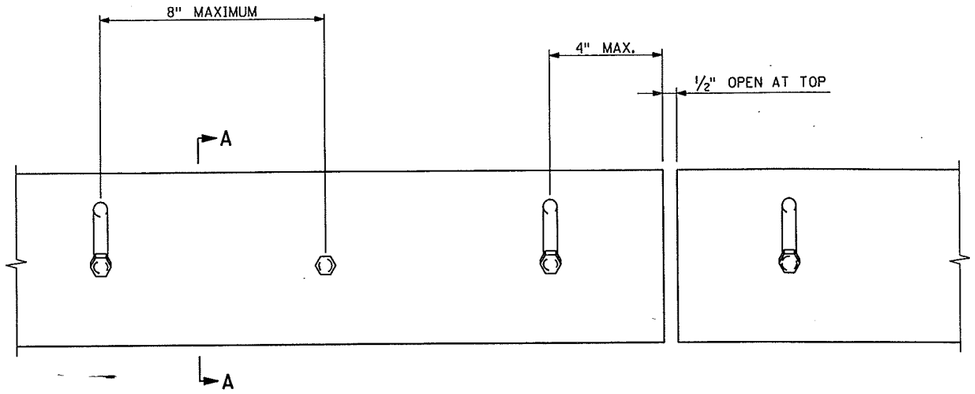


SECTION B-B

INSTALLATION DETAILS
FOR NO. 16E (DRILLED IN ALTERNATE)

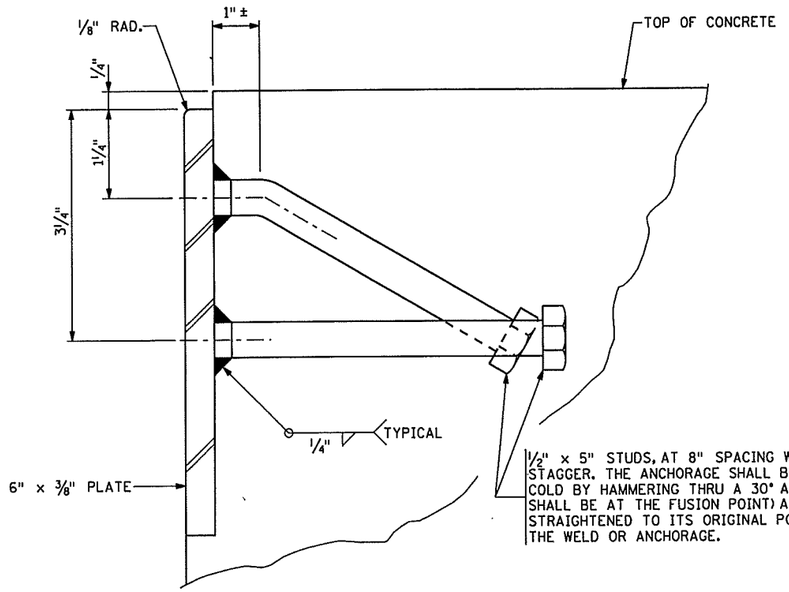
MODIFIED

APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Donald J. Flemming STATE BRIDGE ENGINEER	CONCRETE RAILING (TYPE F) (SLIPFORM ALTERNATE)		B830



ELEVATION

(CONCRETE NOT SHOWN)



½" x 5" STUDS, AT 8" SPACING WITH ALTERNATE STAGGER. THE ANCHORAGE SHALL BE CAPABLE OF BEING BENT COLD BY HAMMERING THRU A 30° ANGLE (THE APEX OF WHICH SHALL BE AT THE FUSION POINT) AFTER WELDING AND SUBSEQUENTLY STRAIGHTENED TO ITS ORIGINAL POSITION WITHOUT FRACTURE OF THE WELD OR ANCHORAGE.

SECTION A-A

NOTES:

PLATES SHALL EXTEND FULL WIDTH OF ROADWAY BETWEEN GUTTER LINES WITH A ½" OPEN JOINT AT EACH BREAK IN CROWN PROFILE. MAXIMUM LENGTH 22 FEET.

MATERIALS: STRUCTURAL STEEL PER Mn/DOT SPEC. 3306. GALVANIZE AFTER FABRICATION PER Mn/DOT SPEC. 3394

SET PLATE TO PROPER GRADE AND CROWN.

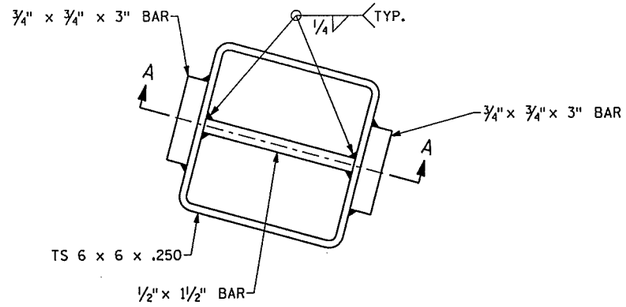
APPROVED: JULY 30, 1999	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Donald J. Flemming STATE BRIDGE ENGINEER	PROTECTION PLATE (FOR END OF SLAB)		B553

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

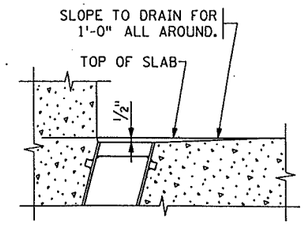
TITLE: STANDARD DETAILS

DES. CGD	DRN. BDM	APPROVED:
CHK. RAB	CHK. CGD	
C.P. 50-01-11		
SHEET 11 OF 14 SHEETS		

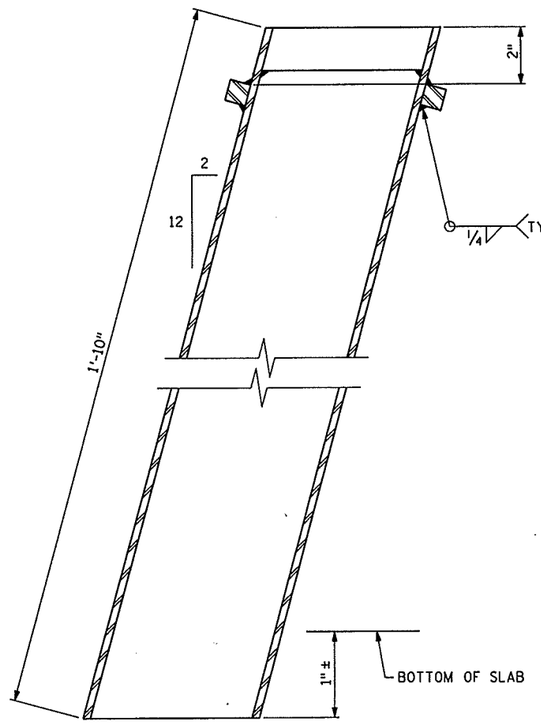
BRIDGE NO. 50584



PLAN VIEW



PLACEMENT DIAGRAM



SECTION A-A

NOTES:

MATERIAL TO BE STRUCTURAL STEEL PER SPEC. 3306.

GALVANIZE OTHER MATERIALS PER SPEC. 3394 AFTER FABRICATION.

PAYMENT FOR FLOOR DRAIN TYPE B702 SHALL INCLUDE ALL MATERIAL SHOWN ON THIS DETAIL.

MODIFIED

APPROVED: JULY 30, 1999 OFFICE of BRIDGES and STRUCTURES	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE FLOOR DRAIN (STRUCTURAL TUBING)	REVISION	DETAIL NO. B702

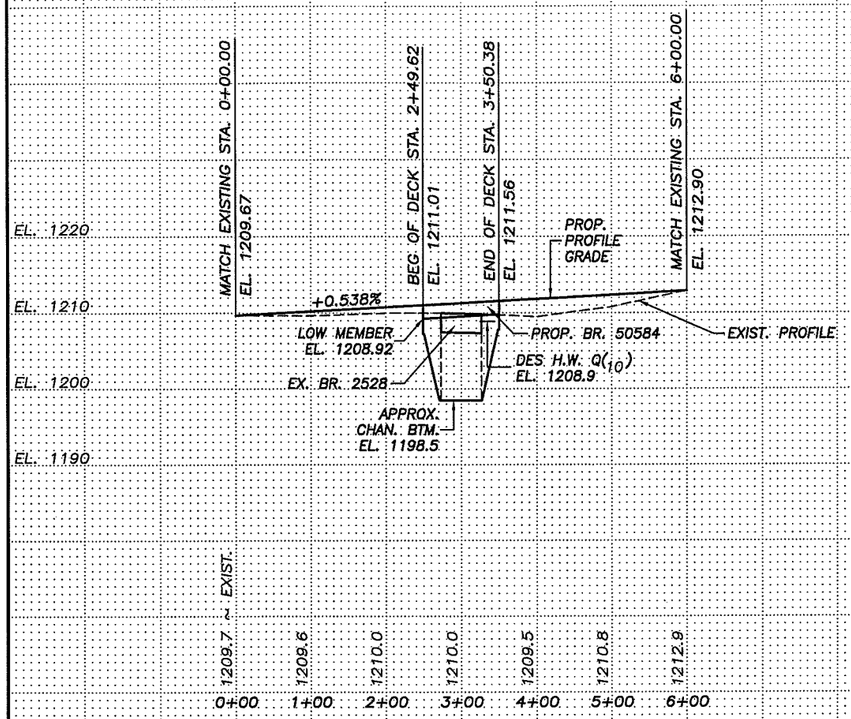
CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

TITLE: STANDARD DETAILS

DES. CGD	DRN. BDM	APPROVED:	BRIDGE NO. 50584
CHK. RAB	CHK. CGD		
C.P. 50-01-11			
SHEET 12 OF 14 SHEETS			

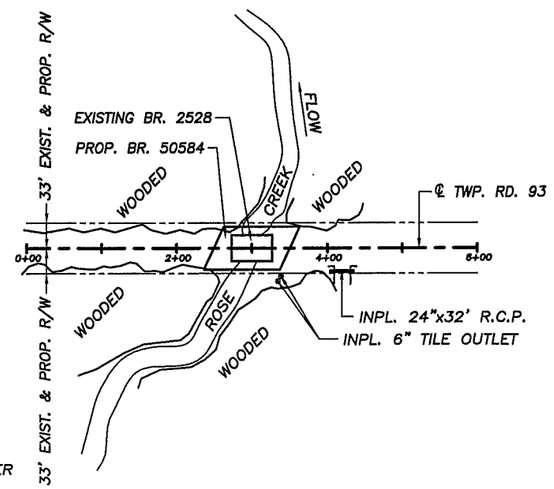
CONTRACTED PROFILE

SCALE: HOR. 0' 50' 100' VER. 0' 5' 10'



PLAT

SCALE: 0' 50' 100'



UTILITY INFORMATION

WARNING:
DIAL GOPHER STATE ONE CALL AT 1-800-252-1166 48 HOURS IN ADVANCE OF CONSTRUCTION OPERATIONS TO OBTAIN COMPLETE UTILITY PROPERTY OWNERSHIP AND LOCATION INFORMATION.

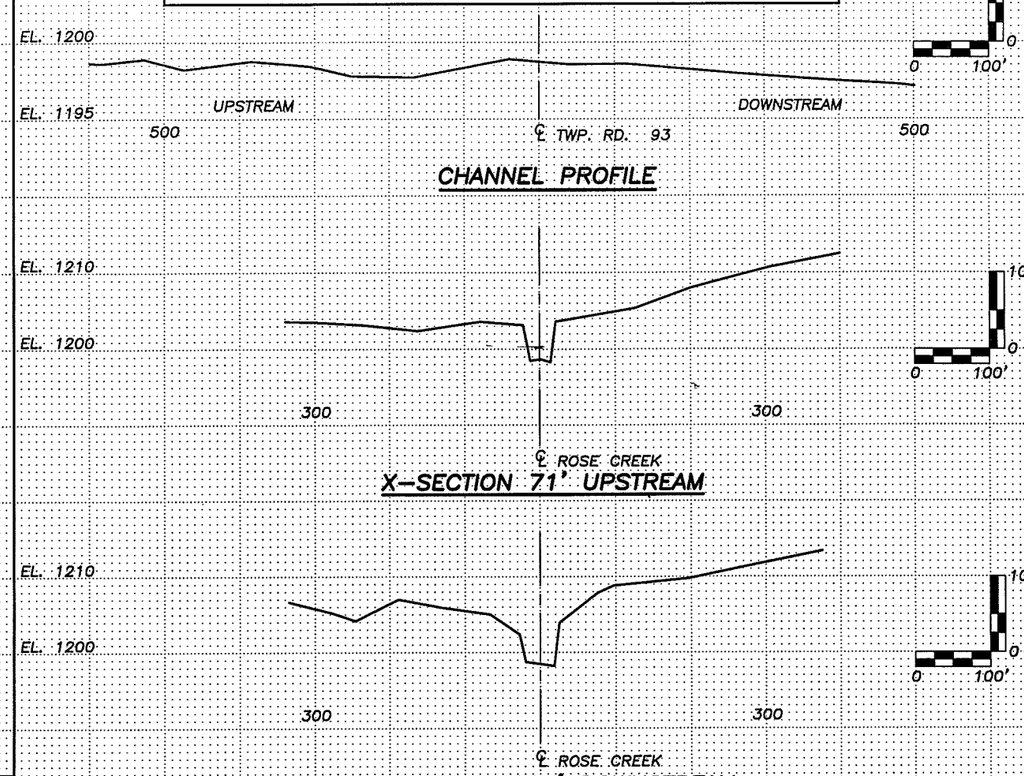
UTILITY INFO AVAILABLE FOR PLAN PREPARATION:
NONE

NOTE:
FIELD VERIFY ALL UTILITIES.

EXIST. BRIDGE 2528
CONCRETE THRU GIRDER
LENGTH 53.4'
RDWY. WIDTH 17.0'
YEAR BUILT 1917

TYPICAL SECTIONS & PERTINENT DATA

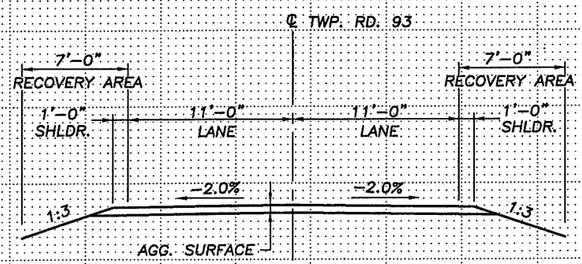
SCALES AS SHOWN



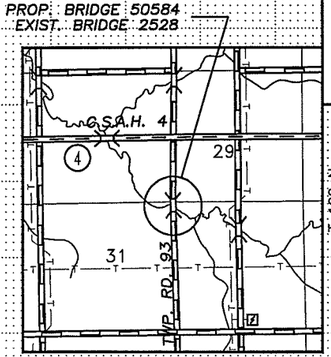
CHANNEL PROFILE

X-SECTION 71' UPSTREAM

X-SECTION 119' DOWNSTREAM



TYPICAL SECTION THRU PROPOSED ROADWAY



Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATION AT BRIDGE SITE

DATE .....

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, rec. boats.

2. Other bridges or culverts over the same stream (particularly structures which carry high water without overflow of roadway) :Given location, type, length, height above high water, cross-sectional area, etc.
BR. # 50573 ~ UPSTREAM
106.1 FT. LONG ~ CONC. SLAB SPAN
BR. # 50528 ~ UPSTREAM
93.3 FT. LONG ~ CONC. SLAB SPAN

3. Apparent highwater elevation..... Obtained from.....

4. Other data: Approx. velocity of water at time of survey .....

HYDRAULIC ENGINEER'S RECOMMENDATION

DATE 12-19-01

Stream or ditch designation ROSE CREEK
Drainage area 48 SQ. MI.
Max. flood on record UNKN. Design flood (10 yr. freq.) 4200 C.F.S.
Max. observed highwater elev. UNKN. Design highwater elev. 1208.9
Design mean velocity through structure 8.2 F.P.S.
Low superstructure at or above elevation 1208.9
Flowline elevation 1198.5 Skew angle 25°
Waterway area req'd. below elev. 1208.9 = 677 Sq. Ft. @ Rt. angles to channel
In the interest of flood plain zoning the regional flood (100 yr. freq.) is 7200 C.F.S. at stage 1210.6 and mean velocity of 5.5 F.P.S. with 0.6 Ft. swellhead. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of Natural Resources.
ESTIMATED PIER SCOUR EL. 1191.3

ENGINEER'S RECOMMENDATION

DATE 12-20-01

30'-38'-30' SPANS, CONTINUOUS CONCRETE SLAB SPAN BRIDGE.
25° SKEW, 28' ROADWAY WIDTH

Bridge survey sheets made from: SURVEY NOTES FROM MOWER COUNTY ENGINEERING DEPARTMENT

Benchmark elevation 1210.49 (N.G.V.D.)
Location: DISK ON CURB ON SE CORNER EX. BR. 2528

STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

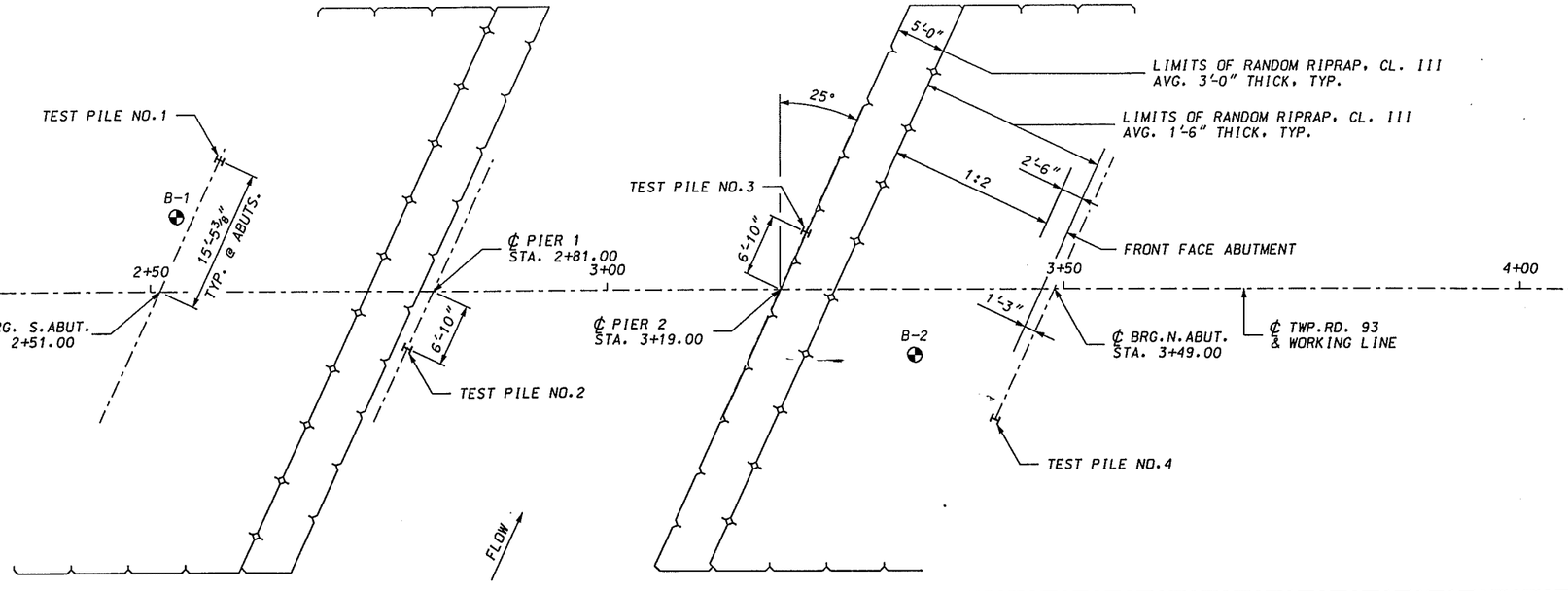
AT MILE POINT ..... ON TWP. RD. 93
PROPOSED BRIDGE LOCATED 0.5 MILES SOUTH OF JCT. C.S.A.H. 4 OVER ROSE CREEK
SEC. 31 TWP. 102 N R. 17 W
TOWNSHIP WINDOM COUNTY MOWER
EXIST. BRIDGE NO. 2528
PROP. BRIDGE NO. 50584

CERTIFIED BY Ronald Benson LIC. NO. 22737 2/6/2002

County Proj. No. 50-01-11

Sheet No. 13 of 14 Sheets





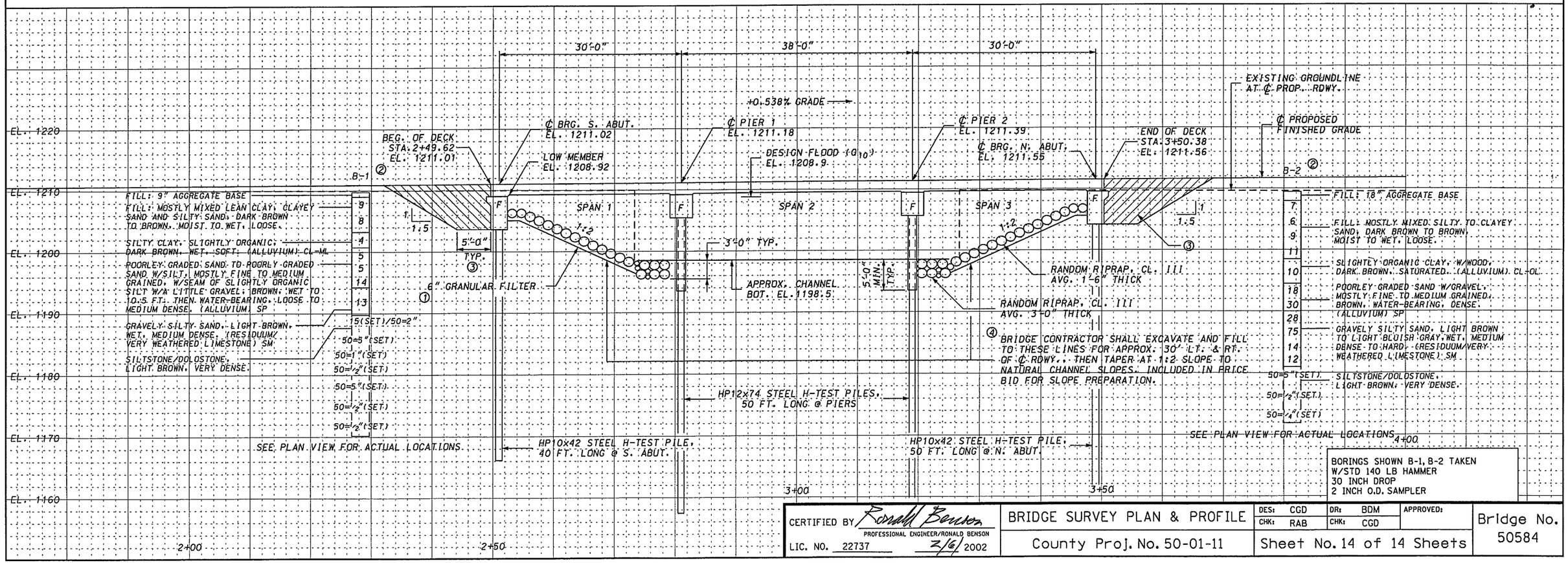
① GRANULAR FILTER IS INCLUDED IN PRICE BID FOR RANDOM RIPRAP, CLASS III. APPROX. QUANTITY = 55 CU. YDS.

LIMITS OF RANDOM RIPRAP AS SHOWN ARE APPROX. ONLY. EXACT LIMITS SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

APPROACH GRADING UNDER SEPERATE CONTRACT.

② A SHORTENED VERSION OF THE BORING LOG DESCRIPTION IS GIVEN IN THE PLANS. THE COMPLETE GEOTECHNICAL EXPLORATION REPORT AND BORING LOGS ARE AVAILABLE FOR INSPECTION IN THE COUNTY ENGINEER'S OFFICE.

③ BACKFILL BEHIND ABUTMENTS SHALL BE SELECT GRANULAR BORROW. PLACED BETWEEN WINGWALL ENDS WITH 1:1.5 SLOPE. SEE ABUTMENT SHEET 5 FOR REQUIREMENTS. DIMENSIONS AND SLOPES ARE MEASURED PERPENDICULAR TO BACK FACE OF ABUTMENT.



BORINGS SHOWN B-1, B-2 TAKEN W/STD 140 LB HAMMER 30 INCH DROP 2 INCH O.D. SAMPLER

CERTIFIED BY Ronald Benson
PROFESSIONAL ENGINEER/RONALD BENSON
LIC. NO. 22737 3/6/2002

BRIDGE SURVEY PLAN & PROFILE

County Proj. No. 50-01-11

DES: CGD	DR: BDM	APPROVED:
CHK: RAB	CHK: CGD	

Sheet No. 14 of 14 Sheets

Bridge No. 50584