PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
CATCH BASIN
FIRE HYDRANT
CATTLE GUARD
OVERPASS (HIGHWAY OVER)
UNDERPASS (HIGHWAY UNDER)
BRIDGE
BUILDING (ONE STORY FRAME)
F – FRAME C – CONCRETE
S – STONE T – TILE
B – BRICK ST – STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY
SLOPE EASEMENT

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLE
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRICAL CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRICAL MANHOLE
BURIED TELEPHONE CABLE
BURIED ELECTRICAL CABLE
AERIAL TELEPHONE CABLE
SEWER (SANITARY OR SEWER)
SEWER MANHOLE

EROSION CONTROL SYMBOLS

TEMPORARY SILT FENCE
RIP RAP DITCH CHECKS

SCALES

PLAN 0 20m
PROFILE 0 HOR. 10m 0 VER. 2m
INDEX MAP 0 1609.3m
CROSS SECTIONS 0 2m

MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

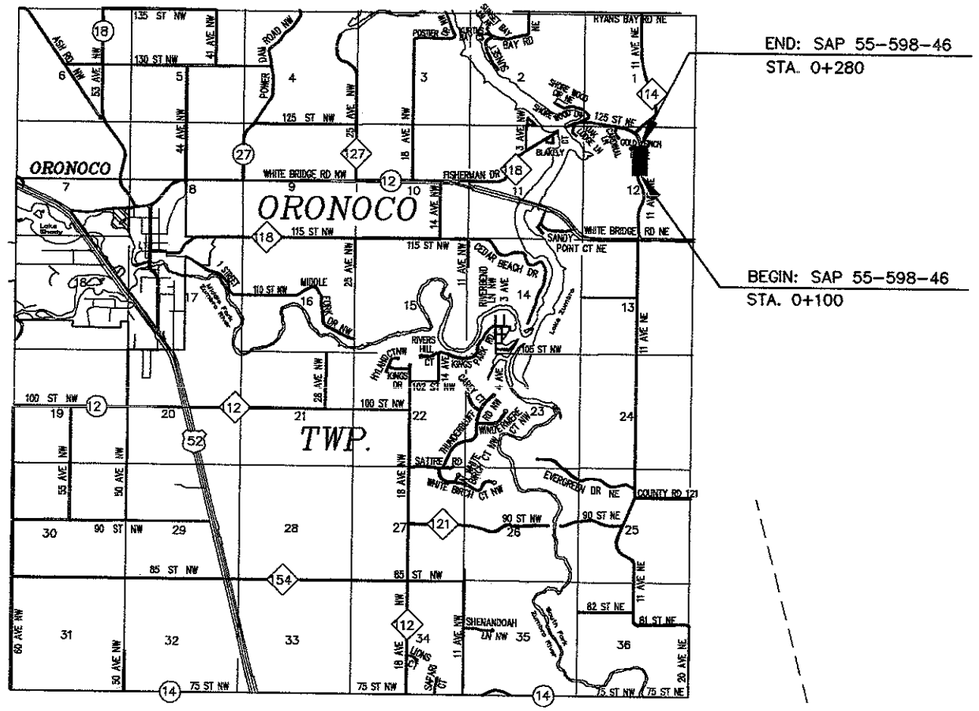
CONSTRUCTION PLAN FOR REPLACEMENT OF BRIDGE 3764 (NEW NO. 55J18)

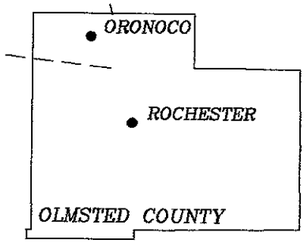
LOCATED ON C.R. 114 BETWEEN C.S.A.H. 12 AND WABASHA CNTY LINE (GEOGRAPHIC DESCRIPTION)

APPROX. 1.135 km N. OF S. FROM 1/4 COR. SEC. 12-108-14 TO APPROX. 1.335 km N. OF S. 1/4 COR. SEC. 12-108-14 (LEGAL DESCRIPTION)

S.A.P. NO. 55-598-46

GROSS LENGTH	180	meter	0.180	kilometer
BRIDGE-LENGTH		meter		kilometer
EXCEPTIONS-LENGTH		meter		kilometer
NET LENGTH	180	meter	0.180	kilometer





MINN. PROJ. NO.

GOVERNING SPECIFICATIONS

THE 1995 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION " STANDARD SPECIFICATIONS FOR CONSTRUCTION " SHALL GOVERN.

ATTENTION: THIS IS A METRIC PLAN

INDEX

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	ESTIMATE OF QUANTITIES TYPICAL SECTIONS & DETAIL
SHEET NO. 3–5	STANDARD PLAN SHEETS
SHEET NO. 6	PLAN SHEET
SHEET NO. 7	PROFILE SHEET
SHEET NO. 8	BRIDGE SURVEY
SHEET NO. 9–10	CROSS SECTIONS
SHEET NO. 11	TRAFFIC CONTROL

THIS PLAN CONTAINS 11 SHEETS.

DESIGN DESIGNATION: S.A.P. 55-598-46

ADT (Current Year)	=596(1998)	Design Speed	60 km\h
ADT (Future Year)	=894(2018)	Based on STOPPING Sight Distance	
DHV (Design Hr. Vol.)	=	Height of eye 1070mm Height of object	150mm
D (Directional Distr.)	=	Design Speed not achieved at:	
T (Heavy Commercial)	=	STA. TO STA.	
SUBGRADE	= K=130	STA. TO STA.	
SHOULDER WIDTH	= 1.2m	Vit. 8.2 for design	
SOIL FACTOR	= 130%		

minnesota metric

LOCAL AGENCY

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

DATE 11/20/98 REGISTRATION NUMBER 19917

Kaye M Brienek
APPROVED: DESIGN ENGINEER DATE:

DATE 11/20/98 REGISTRATION NUMBER 10397

Michael Sheehan
APPROVED: COUNTY ENGINEER DATE:

STATE AID APPROVALS:

for Andy Schmidt DATE: 12-15-98
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE- AID RULES/POLICY

for K.B. Schultz DATE: 1-4-98
APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

STATE PROJ. NO.
STATEAID PROJ. NO. S.A.P. 55-598-46 SHEET NO. 1 OF 11 SHEETS

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	NON PARTICIPATING	PARTICIPATING	TOTAL ESTIMATED QUANTITIES
①	2101.511	CLEARING AND GRUBBING	LUMP SUM	1		1
	2104.501	REMOVE PIPE CULVERTS	m	12		12
	2104.503	REMOVE BITUMINOUS PAVEMENT	m2	1260		1260
	2104.513	SAWING BITUMINOUS PAVEMENT	m	14		14
	2105.515	UNCLASSIFIED EXCAVATION	m3	1415		(P) 1415
	2105.523	COMMON BORROW (CV)	m3	114		(P) 114
	2211.501	AGGREGATE BASE CLASS 2	t	530		530
	2211.501	AGGREGATE BASE CLASS 5 MOD.	t	578		578
②	2412.511	3050 mm x 2130 mm PRECAST CONC BOX CULV	m		69.54	69.54
③	2412.512	3050 mm x 2130 mm PC C BOX CULV END SECT	EACH		6	6
	2442.501	REMOVE OLD BRIDGE	LUMP SUM	1		1
	2451.507	GRANULAR BEDDING (CV)	m3		179	(P) 179
	2501.511	600 mm C.S. PIPE CULVERT	m	10		10
	2501.515	600 mm G.S. PIPE APRON	EACH	2		2
④	2511.501	RANDOM RIPRAP CL. IV	m3		129	129
	2573.502	SILT FENCE, TYPE HEAVY DUTY	m	76		76
	2575.501	SEEDING	ha	0.2		(P) 0.2
	2575.502	SEED MIXTURE 50A	kg	10		10
	2575.502	SEED MIXTURE 110A	kg	20		20
	2575.511	MULCH MATERIAL, TYPE 1	t	0.9		0.9
	2575.519	DISK ANCHORING	ha	0.14		(P) 0.14
	2575.532	COMMERCIAL FERTILIZER ANALYSIS 12-12-12	kg	45		45

QUANTITY NOTES:

① TREES TO BE REMOVED WILL BE DESIGNATED BY ENGINEER IN FIELD. APPROXIMATELY 0.34 ha.

② CULVERT EXCAVATION WILL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM NO. 2412.511 AND ITEM NO. 2412.512.

③ INCLUDES FURNISHING AND INSTALLATION OF DROP WALLS ON INLET AND OUTLET.

④ PLACE RIPRAP ON 150 mm GRANULAR FILTER OR GEOTEXTILE MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

BASIS OF PLANNED QUANTITIES:

AGGREGATE BASE	2160 kg / m3 COMPACTED
SEED MIXTURE 50A	50 kg / ha
SEED MIXTURE 110A	100 kg / ha
MULCH MATERIAL	4.5 t / ha
DISC ANCHOR	ALL SEEDING AREAS EXCEPT 1:2 SLOPES
COMMERCIAL FERTILIZER	225 kg / ha

GENERAL NOTES:

1. THE LOCATION OF UNDERGROUND UTILITIES SHOWN ON THE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS AND DEPTHS AS REQUIRED ON CONSTRUCTION. EXCAVATION TO LOCATE EXISTING UNDERGROUND UTILITIES SHALL BE INCIDENTAL.
2. THE CONTRACTOR SHALL NOTIFY THE UTILITY OWNERS AT LEAST 48 HOURS BEFORE BEGINNING CONSTRUCTION.
3. GOPHER STATE ONE CALL – TELEPHONE NO. 1-800-252-1166.

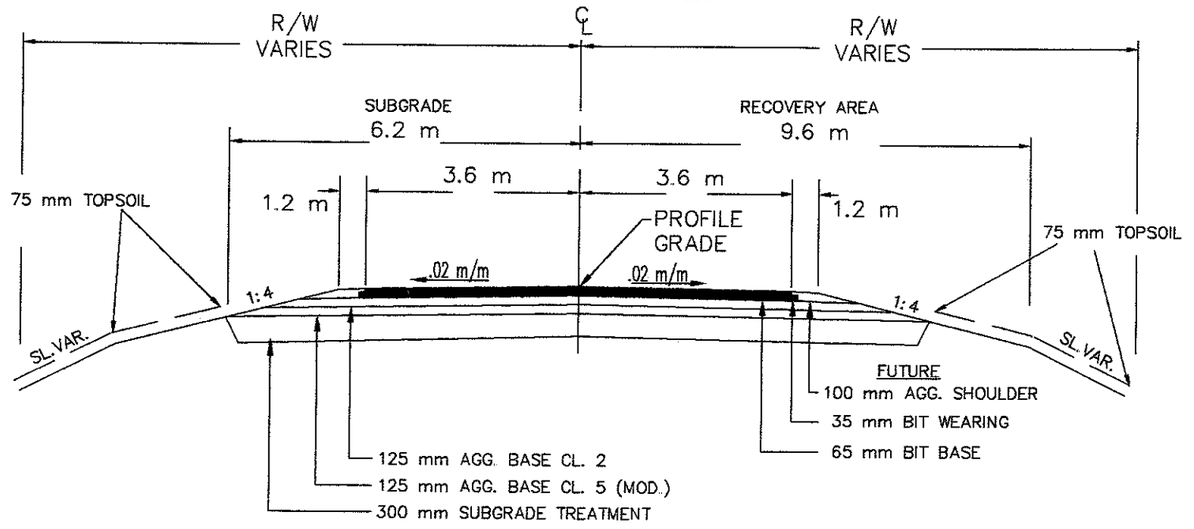
STANDARD PLATES

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

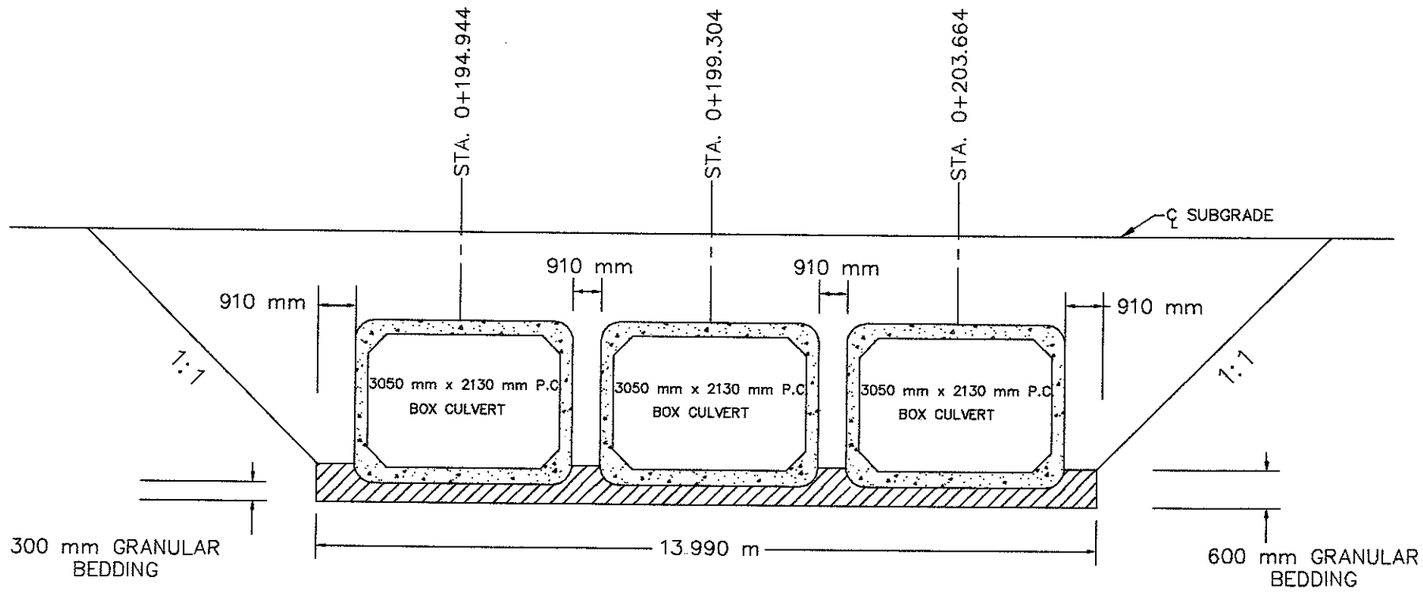
PLATE NO.	DESCRIPTION
	NUMERICAL INDEX OF STANDARD PLATES
M3007C	SHEAR REINFORCEMENT FOR PRE CAST DRAINAGE STRUCTURES
M3145E	CONCRETE PIPE TIES
M8000I	STANDARD BARRICADES
M9000C	APPROACHES AND ENTRANCES

TYPICAL SECTION

STA. 0+100 TO STA. 0+280



NOTES: ALL UTILITY POLES AND UNYIELDING OBJECTS WILL BE RELOCATED OUTSIDE THE 9.6 m RECOVERY AREA BY OTHERS.



NOTES:
1. CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL AND SHALL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE THEREFORE.
2. ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTION ARE APPROXIMATE.

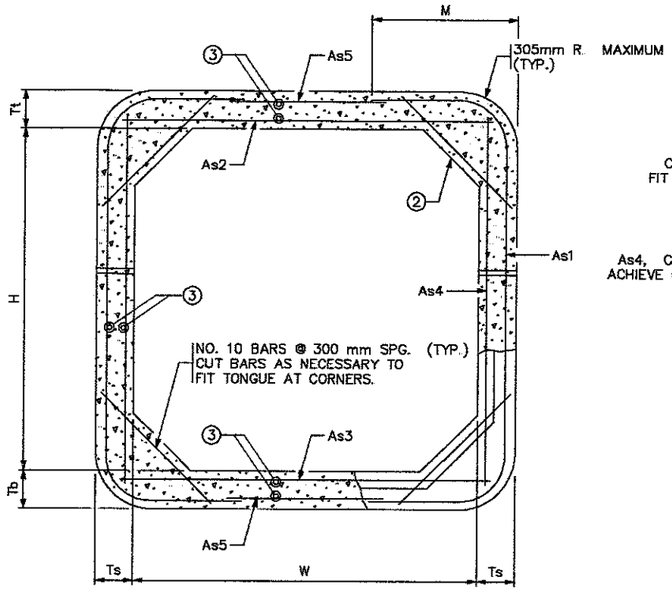
BEDDING DETAIL

CERTIFIED BY Kay M Bierwirth PROFESSIONAL ENGINEER REG. NO. 19917 12/8 1998

STATE AID PROJ. NO. 55-598-46

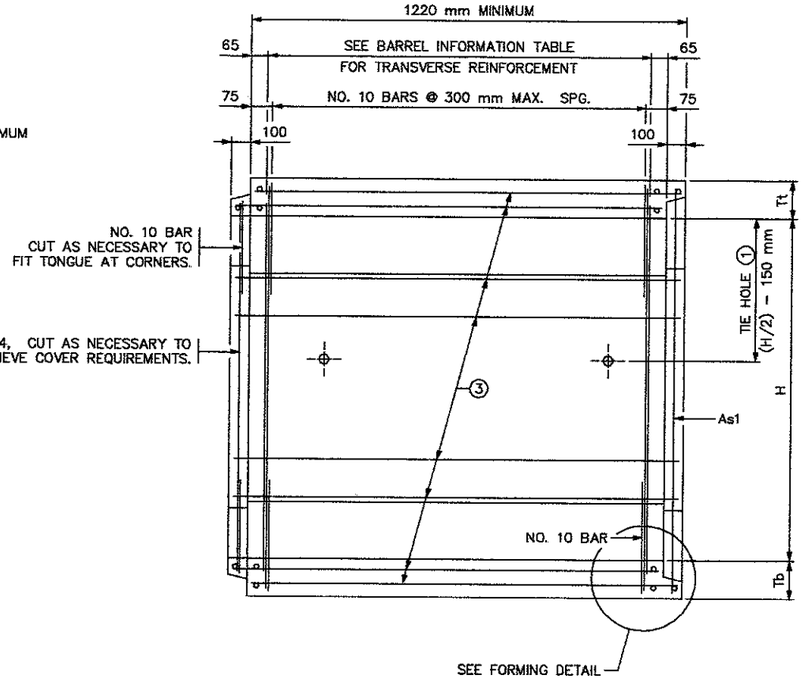
EST. OF QUANTITIES, TYPICAL SECTION, DETAIL

SHEET 2 OF 11 SHEETS



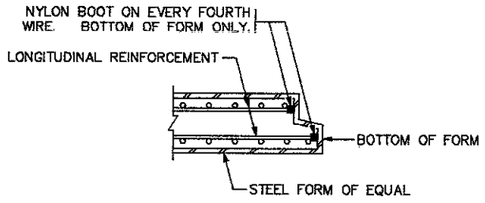
TRANSVERSE BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN.

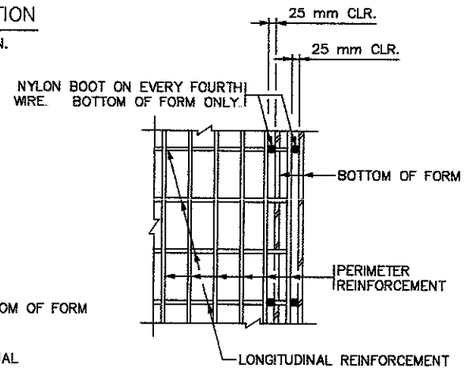


LONGITUDINAL BARREL SECTION

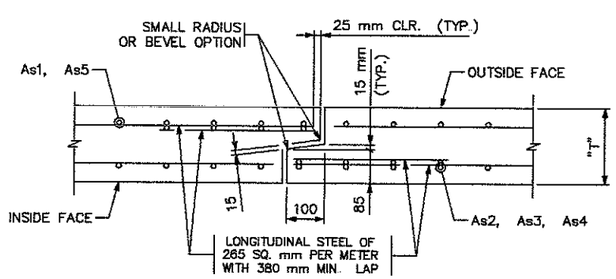
BAR REINFORCEMENT OPTION SHOWN.



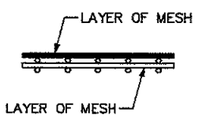
FORMING DETAIL SECTION



FORMING DETAIL PLAN



TONGUE AND GROOVE JOINT DETAIL



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN.

CONSTRUCTION NOTES:

CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

40 MILLIMETERS MINIMUM AND 50 MILLIMETERS MAXIMUM CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH, OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS, OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 15 MILLIMETERS DIAMETER PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 50 MILLIMETERS NOR MORE THAN 100 MILLIMETERS. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 200 MILLIMETERS.

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX. NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

(1) CULVERT TIES ARE TO BE 25 MILLIMETER DIAMETER RODS. SEE STANDARD PLATE NO. M3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
- 1830 AND 2440 MILLIMETER WIDTHS – 150 TO 305 MILLIMETERS
- 3050 MILLIMETER WIDTH – 250 TO 305 MILLIMETERS
- 3660 MILLIMETER WIDTH – 305 MILLIMETERS

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 130 SQ. MILLIMETERS/METER.

SHOP DRAWING APPROVAL PER SPEC. 3238.2A IS NOT REQUIRED UNLESS OPENINGS OR ATTACHMENTS ARE PLACED ON A BARREL SEGMENT.

BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (MPa)	FILL HEIGHT RANGE (mm)	DIMENSIONS W (mm)	H (mm)	Tt (mm)	Tb (mm)	Ts (mm)	MASS (kg/m)	STEEL FABRIC REINFORCEMENT As1 AREA (mm²/m)	As1 LENGTH (mm)	As1 M (mm)	As2 AREA (mm²/m)	As2 LENGTH (mm)	As3 AREA (mm²/m)	As3 LENGTH (mm)	As4 AREA (mm²/m)	As4 LENGTH (mm)	As5 AREA (mm²/m)	As5 LENGTH (mm)
0+194.944	3050x2130	2	35	600–2400	3050	2130	225	250	200	6230	1020	3885	850	1760	3200	1570	3200	420	2285	130	2360
0+199.304	3050x2130	2	35	600–2400	3050	2130	225	250	200	6230	1020	3885	850	1760	3200	1570	3200	420	2285	130	2360
0+203.664	3050x2130	2	35	600–2400	3050	2130	225	250	200	6230	1020	3885	850	1760	3200	1570	3200	420	2285	130	2360

APPROVED: SEPTEMBER 19, 1996
Donald J. Klemmy
STATE BRIDGE ENGINEER

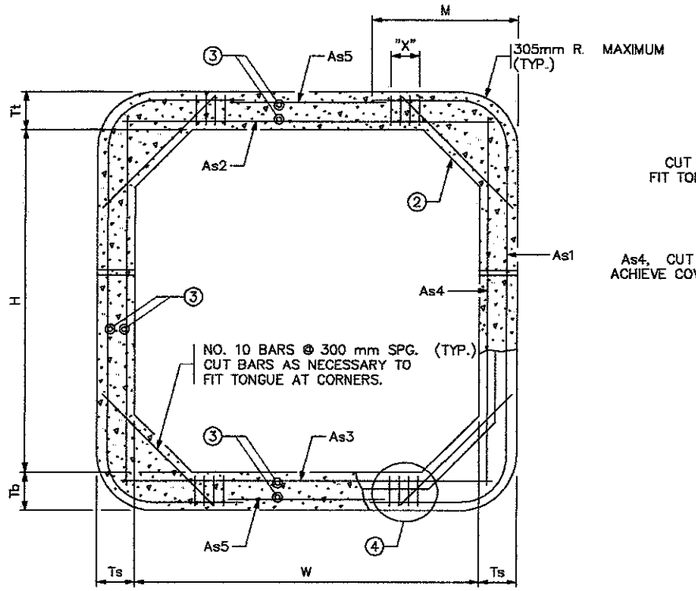
S.A.P. 55–598–46 CL. STA. 0+194.944, 0+199.304, AND 0+203.664 | FIG. 5–395.101M (1 of 2)

CERTIFIED BY: Kaye M Borenick PROFESSIONAL ENGINEER
REG. NO. 19917 11/20 19 98

TITLE: BARREL DETAILS

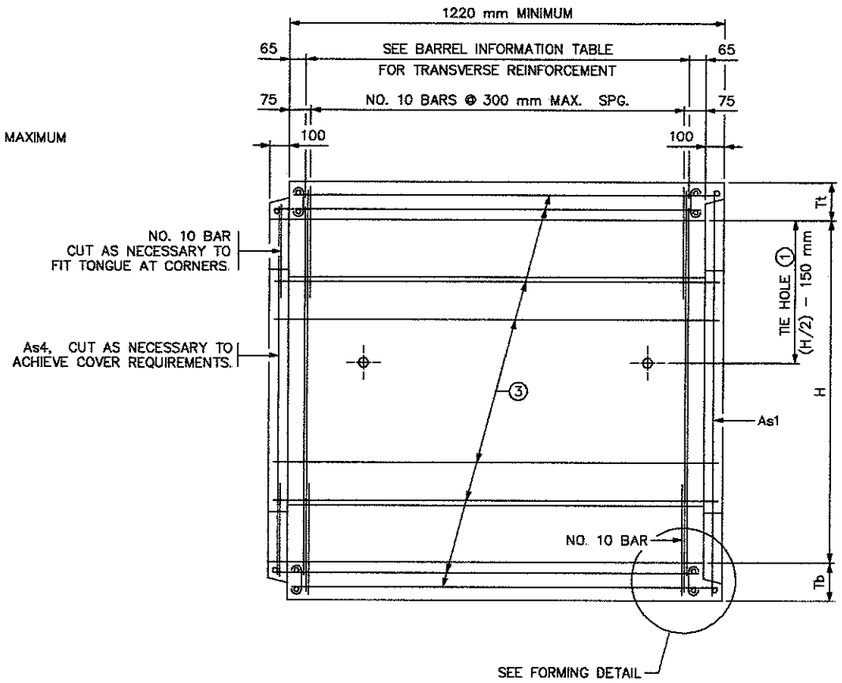
DES: | DR: | APPROVED:
CHK: | CHK:
SHEET NO. 3 OF 11 SHEETS

BRIDGE NO. 55J18



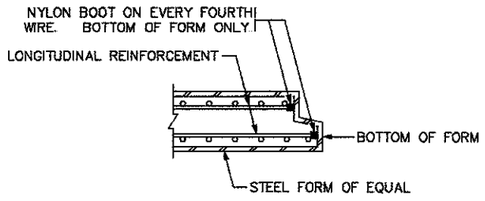
TRANSVERSE BARREL SECTION

(BAR REINFORCEMENT OPTION SHOWN)

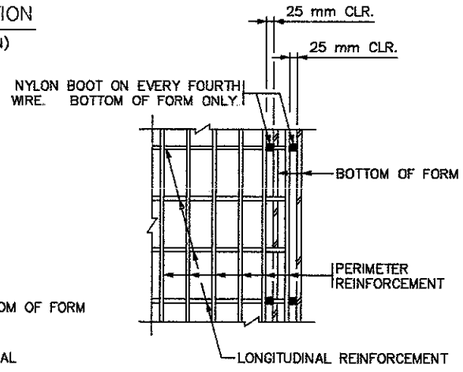


LONGITUDINAL BARREL SECTION

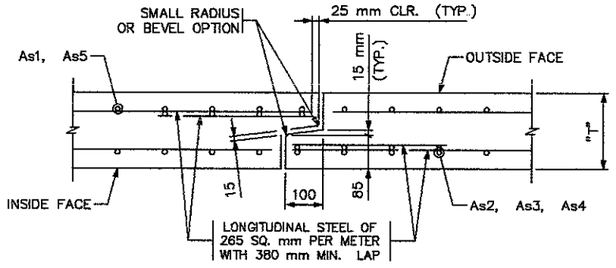
(BAR REINFORCEMENT OPTION SHOWN.)



FORMING DETAIL SECTION



FORMING DETAIL PLAN



TONGUE AND GROOVE JOINT DETAIL

CONSTRUCTION NOTES:

CULVERTS TO BE CONSTRUCTED AS PER SPEC. 2412 EXCEPT AS NOTED.

THE STEEL FABRIC, SHEAR REINFORCEMENT AND REINFORCEMENT BARS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF AASHTO M259.

40 MILLIMETERS MINIMUM AND 50 MILLIMETERS MAXIMUM CONCRETE COVER ON ALL REINFORCEMENT, INCLUDING SHEAR REINFORCEMENT, EXCEPT FOR TONGUE AND GROOVE DETAIL.

ANY OF THE FOLLOWING COMBINATIONS OF STEEL REINFORCEMENT MAY BE USED:
- (a) 1 OR 2 LAYERS OF MESH, OR
- (b) 1 LAYER OF MESH AND 1 LAYER OF REINFORCEMENT BARS, OR
- (c) 1 LAYER OF REINFORCEMENT BARS.

THE REINFORCEMENT SHALL BE DEVELOPED IN ACCORDANCE WITH AASHTO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES". IF BAR REINFORCEMENT IS SUBSTITUTED FOR WIRE MESH, THE AREAS OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 19. THE MAXIMUM MESH SIZE SHALL BE 15 MILLIMETERS DIAMETER PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 50 MILLIMETERS NOR MORE THAN 100 MILLIMETERS. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 200 MILLIMETERS.

WELDING WILL NOT BE ALLOWED ON REINFORCEMENT BARS OR STEEL FABRIC, EXCEPT THAT THE ORIGINAL WELDING REQUIRED TO MANUFACTURE WIRE FABRIC IS ACCEPTABLE.

WHEN REINFORCEMENT IS CUT, ADDITIONAL REINFORCEMENT SHALL BE ADDED ON BOTH SIDES OF THE CUT MEMBER TO REPLACE OR EXCEED THE CUT STEEL.

CONCRETE SHALL BE MIX. NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED.

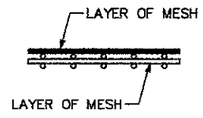
(1) CULVERT TIES ARE TO BE 25 MILLIMETER DIAMETER RODS. SEE STANDARD PLATE NO. M3145 FOR CONNECTION DETAILS.

(2) HAUNCH SIZE AS FOLLOWS:
- 1830 AND 2440 MILLIMETER WIDTHS – 150 TO 305 MILLIMETERS
- 3050 MILLIMETER WIDTH – 250 TO 305 MILLIMETERS
- 3660 MILLIMETER WIDTH – 305 MILLIMETERS

(3) MINIMUM LONGITUDINAL STEEL SHALL BE 130 SQ. MILLIMETERS/METER.

(4) SEE STANDARD PLATE NO. M3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 150 MILLIMETERS.

SHOP DRAWING APPROVAL PER SPEC. 3238.2A IS REQUIRED.



FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN.

BARREL INFORMATION

LOCATION	SIZE	f'c (MPa)	OVER-FILL LIMITS (mm)	DIMENSIONS W (mm)	H (mm)	Tt (mm)	Tb (mm)	Ts (mm)	MASS (kg/m)	STEEL FABRIC REINFORCEMENT As1 AREA (mm²/m)	As1 LENGTH (mm)	As1 M (mm)	As2 AREA (mm²/m)	As2 LENGTH (mm)	As3 AREA (mm²/m)	As3 LENGTH (mm)	As4 AREA (mm²/m)	As4 LENGTH (mm)	As5 AREA (mm²/m)	As5 LENGTH (mm)	SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL (4) AREA (mm²/m)	MAX. SPG. (mm)	X (mm)

S.A.P. 55–598–46 CL. STA. 0+194.944, 0+199.304, AND 0+203.664

FIG. 5–395.101M (2 of 2)

APPROVED: SEPTEMBER 19, 1996
Donald J. Flemming
STATE BRIDGE ENGINEER

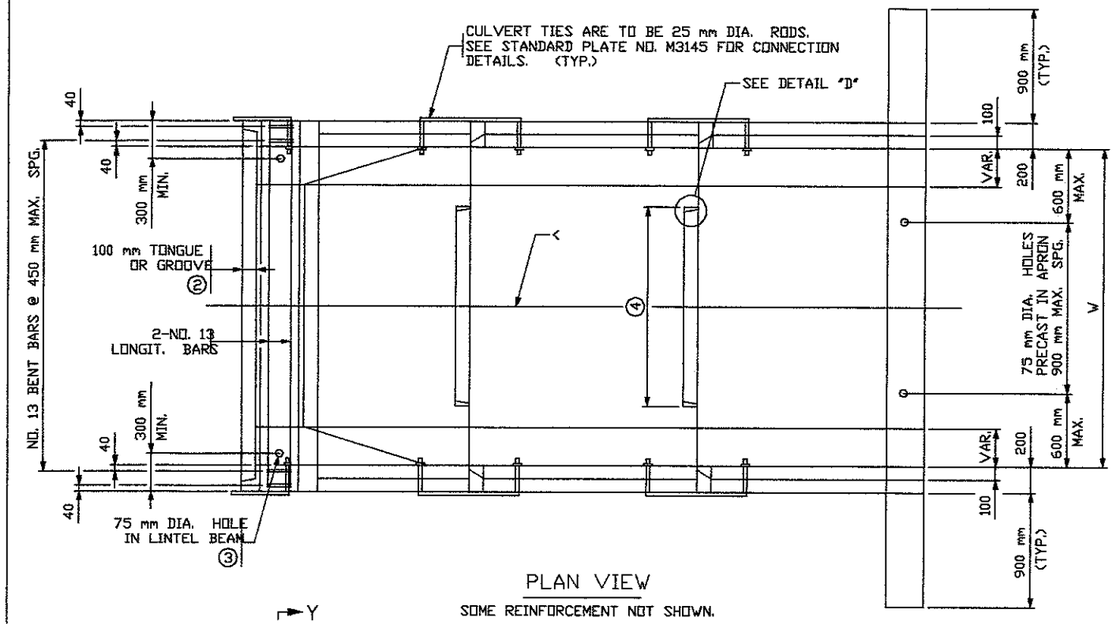
CERTIFIED BY: Kaye M Brunich PROFESSIONAL ENGINEER
REG. NO. 19917 11/20 19 98

TITLE: BARREL DETAILS (SPECIAL DESIGNS)

DES: DR: APPROVED:
CHK: CHK:

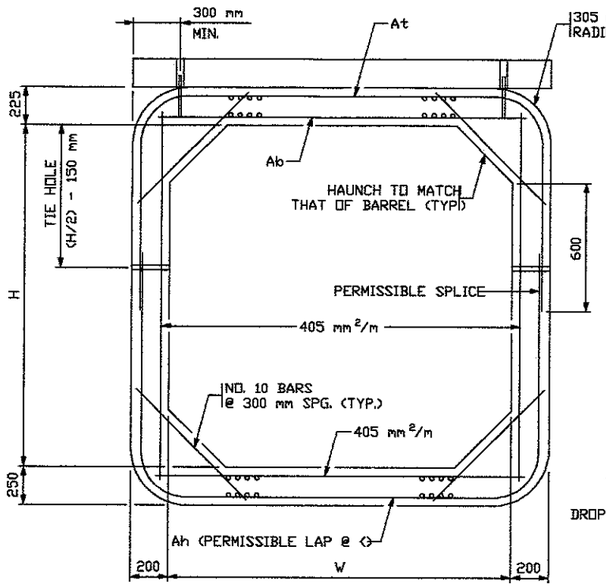
SHEET NO. 4 OF 11 SHEETS

BRIDGE NO. 55J18

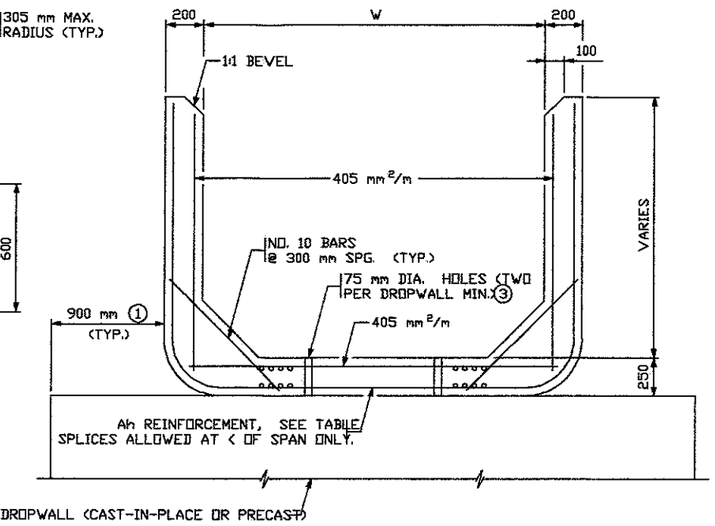


PLAN VIEW

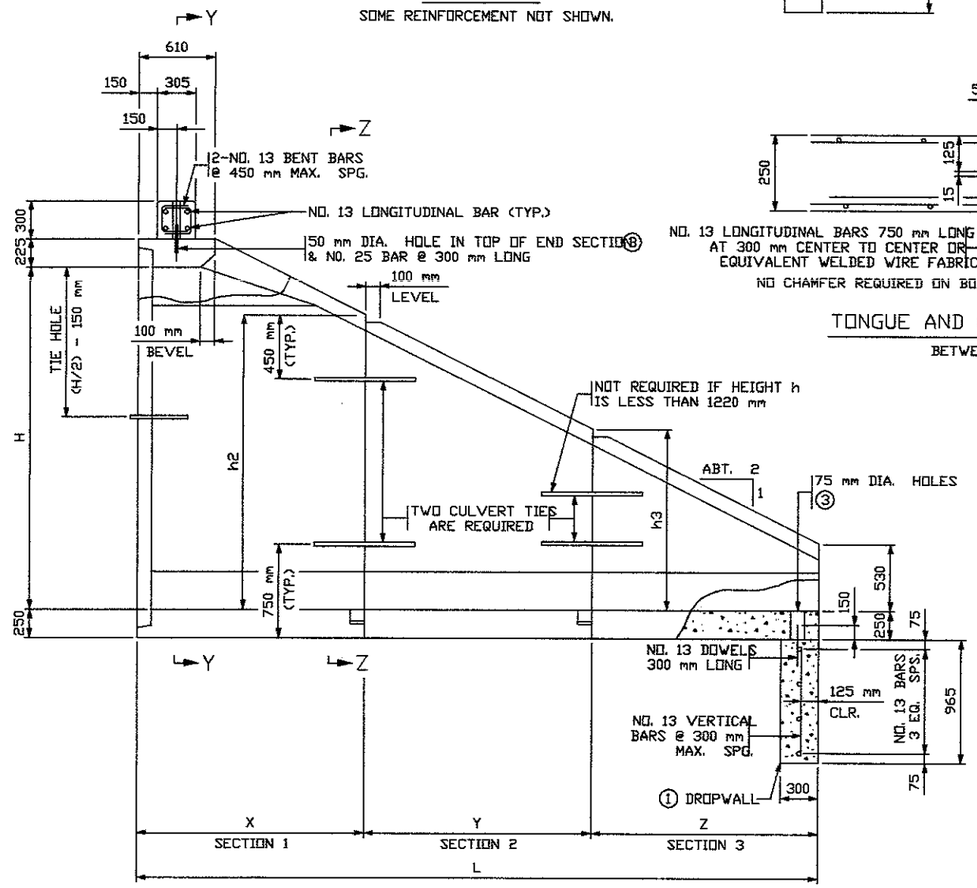
SOME REINFORCEMENT NOT SHOWN.



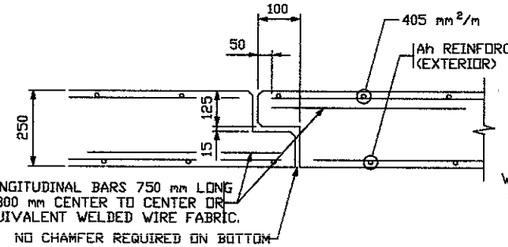
SECTION Y-Y



SECTION Z-Z

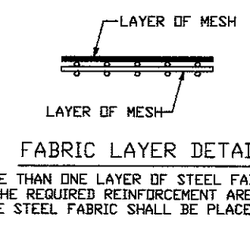


SIDE ELEVATION



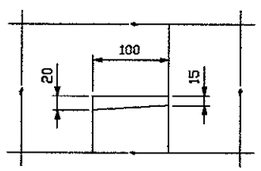
TONGUE AND GROOVE JOINT DETAIL

BETWEEN END SECTIONS.

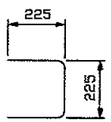


FABRIC LAYER DETAIL

WHEN MORE THAN ONE LAYER OF STEEL FABRIC IS USED TO OBTAIN THE REQUIRED REINFORCEMENT AREAS, THE WIRES OF THE STEEL FABRIC SHALL BE PLACED AS SHOWN.



DETAIL "D"



NO. 13 BENT BAR

At, Ab REINFORCEMENT		
WIDTH (mm)	At (mm²/m)	Ab (mm²/m)
1830	570	930
2440	990	1270
3050	1310	1570
3660	1860	2240

NOTES:

SEE FIG. 5-395.101M FOR DIMENSIONS AND CONSTRUCTION NOTES, EXCEPT AS NOTED.

LONGITUDINAL REINFORCEMENT PARALLEL TO THE AXIS OF THE CULVERT SHALL HAVE A MINIMUM OF 130 SQ. MILLIMETERS PER PERIPHERAL METER ON ALL FACES OF THE BARREL, EXCEPT IN THE TONGUE AND GROOVE AREA.

SEE FIG. 5-395.115M FOR EMBANKMENT PROTECTION.

FINISH ALL EXPOSED EDGES OF CONCRETE WITH 15 MILLIMETER OR 20 MILLIMETER CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

① WITH MULTIPLE BOXES LOCATE DROPWALL JOINTS BETWEEN END SECTIONS. SEE FIG. 5-395.111M FOR ALTERNATE DROPWALLS. LIMITS OF EXCAVATION FOR DROPWALL TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. DROPWALL TO BE CONCRETE MIX NO. 1A43 OR 3Y43. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS. DROPWALL NOT REQUIRED FOR NON-WATERWAY USE.

② CHECK LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED.

③ FILL HOLE WITH GROUT. GROUT SHALL CONSIST OF 1 PART CEMENT AND 2 PARTS SAND. USE TYPE 1A AIR ENTRAINED PORTLAND CEMENT. GROUT MIX SHALL HAVE A MAXIMUM SLUMP OF 100 MILLIMETERS.

④ 1065 MILLIMETER TONGUE AND 1090 MILLIMETER GROOVE FOR 1830 MILLIMETER WIDE CULVERTS.
1525 MILLIMETER TONGUE AND 1550 MILLIMETER GROOVE FOR CULVERTS OVER 1830 MILLIMETERS WIDE.
CENTER TONGUE AND GROOVE ON ℄ OF EACH APRON JOINT.

APRON DIMENSIONS & Ah REINFORCEMENT													
H (mm)	L (mm)	SECTION 1		h2 (mm)	SECTION 2		h3 (mm)	SECTION 3		h4 (mm)	SECTION 4		h5 (mm)
		X (mm)	Ah		Y (mm)	Ah		Z (mm)	Ah		ZZ (mm)	Ah	
1220	2440	2440	410	530									
1520	3050	1830	410	1150	1220	410	530						
1830	3660	1830	410	1450	1830	410	530						
2130	4270	1830	410	1750	2440	410	530						
2440	4880	1830	420	2060	1830	410	1150	1220	410	530			
2740	5490	1830	610	2375	1830	420	1450	1830	410	530			
3050	6100	1830	890	2675	1830	610	1750	2440	410	530			
3350	6710	1830	1270	2975	1830	890	2050	1830	410	1150	1220	410	530
3660	7320	1830	1650	3275	1830	1270	2360	1830	420	1450	1830	410	530

NOTE: Ah IS AREA OF REINFORCEMENT PER METER OF LENGTH² (mm/m).

APPROVED: SEPTEMBER 19, 1996
Donald J. Manning
STATE BRIDGE ENGINEER

S.A.P. NO. 55-598-46 STA. 0+194.944, 0+199.304, AND 0+203.664

FIG. 5-395.102M

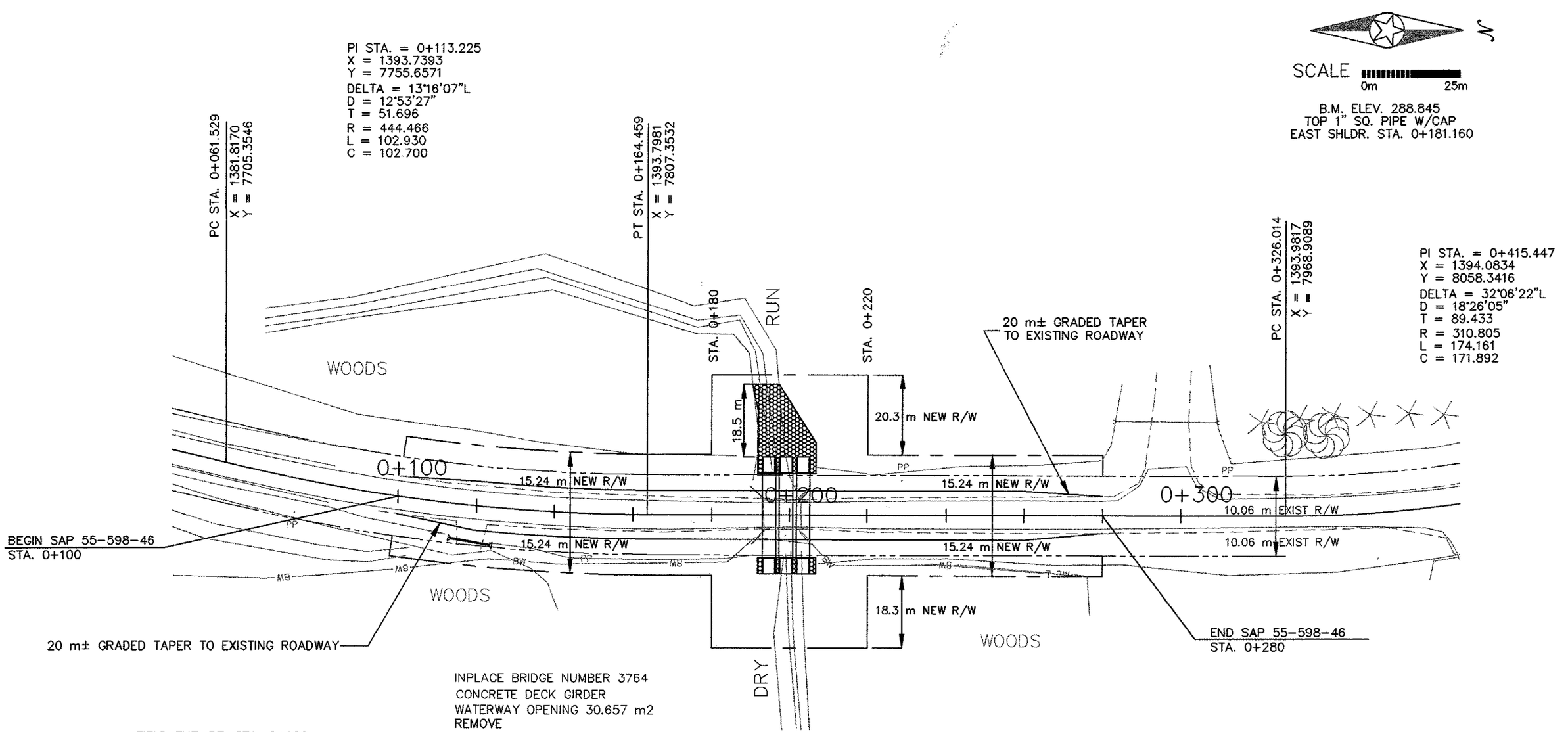
CERTIFIED BY: Kaye M Borenick PROFESSIONAL ENGINEER
REG. NO. 19917 11/20 1998

TITLE: PRECAST CONCRETE END SECTION TYPE I -SINGLE OR MULTI-BARREL FOR SKEWS UP TO 7 1/2°

DES: DR: APPROVED:
CHK: CHK:

SHEET NO. 5 OF 11 SHEETS

BRIDGE NO. 55J18



INPLACE BRIDGE NUMBER 3764
CONCRETE DECK GIRDER
WATERWAY OPENING 30.657 m2
REMOVE

FIELD ENT RT. STA. 0+120
INPLACE 600 mm x 10 m C.M.PIPE
REMOVE 12 m

600 mm x 10 m C.S. PIPE
2 – 600 mm G.S. PIPE APRONS

NEW BRIDGE NO. 55J18
CONST. C.L. CULV. STA. 0+194.944 NO SKEW
3050 mm x 2130 mm x 23.18 m PRECAST CONC. BOX CULVERT
2–3050 mm x 2130 mm PRECAST CONC. BOX CULVERT END SECTIONS
CONST. C.L. CULV. STA. 0+199.304 NO SKEW
3050 mm x 2130 mm x 23.18 m PRECAST CONC. BOX CULVERT
2–3050 mm x 2130 mm PRECAST CONC. BOX CULVERT END SECTIONS
CONST. C.L. CULV. STA. 0+203.664 NO SKEW
3050 mm x 2130 mm x 23.18 m PRECAST CONC. BOX CULVERT
2–3050 mm x 2130 mm PRECAST CONC. BOX CULVERT END SECTIONS

F&I APPROVED JOINT TIES FOR ALL PIPE JOINTS
PLACE CULVERT AND END SECTIONS ON 179 m3 (CV) GRANULAR BEDDING AS PER BEDDING DETAIL (SHEET 2)

F&I 10 m3 CL. IV RANDOM RIPRAP 525 mm DEPTH AT INLET END
F&I 119 m3 CL. IV RANDOM RIPRAP 525 mm DEPTH AT OUTLET END
F&I 150 mm DEPTH GRANULAR FILTER OR GEOTEXTILE FABRIC UNDER RIPRAP CONSTRUCTION. THIS WORK SHALL BE INCIDENTAL TO RIPRAP.

SILT FENCE TO BE LOCATED IN THE FIELD BY THE ENGINEER
APPROXIMATELY 76 m FOR (FOUR) DITCH – STREAM INTERSECTIONS

CHANNEL EXCAVATION TO BE LOCATED IN THE FIELD BY THE ENGINEER
APPROXIMATELY 15 m ON INLET SIDE AND 20 m ON OUTLET SIDE
CHANNEL EXCAVATION WILL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM NO. 2412.511 AND NO. 2412.512

SAW CUT AND REMOVE EXISTING PAVEMENT STA. 0+100 TO STA. 0+280

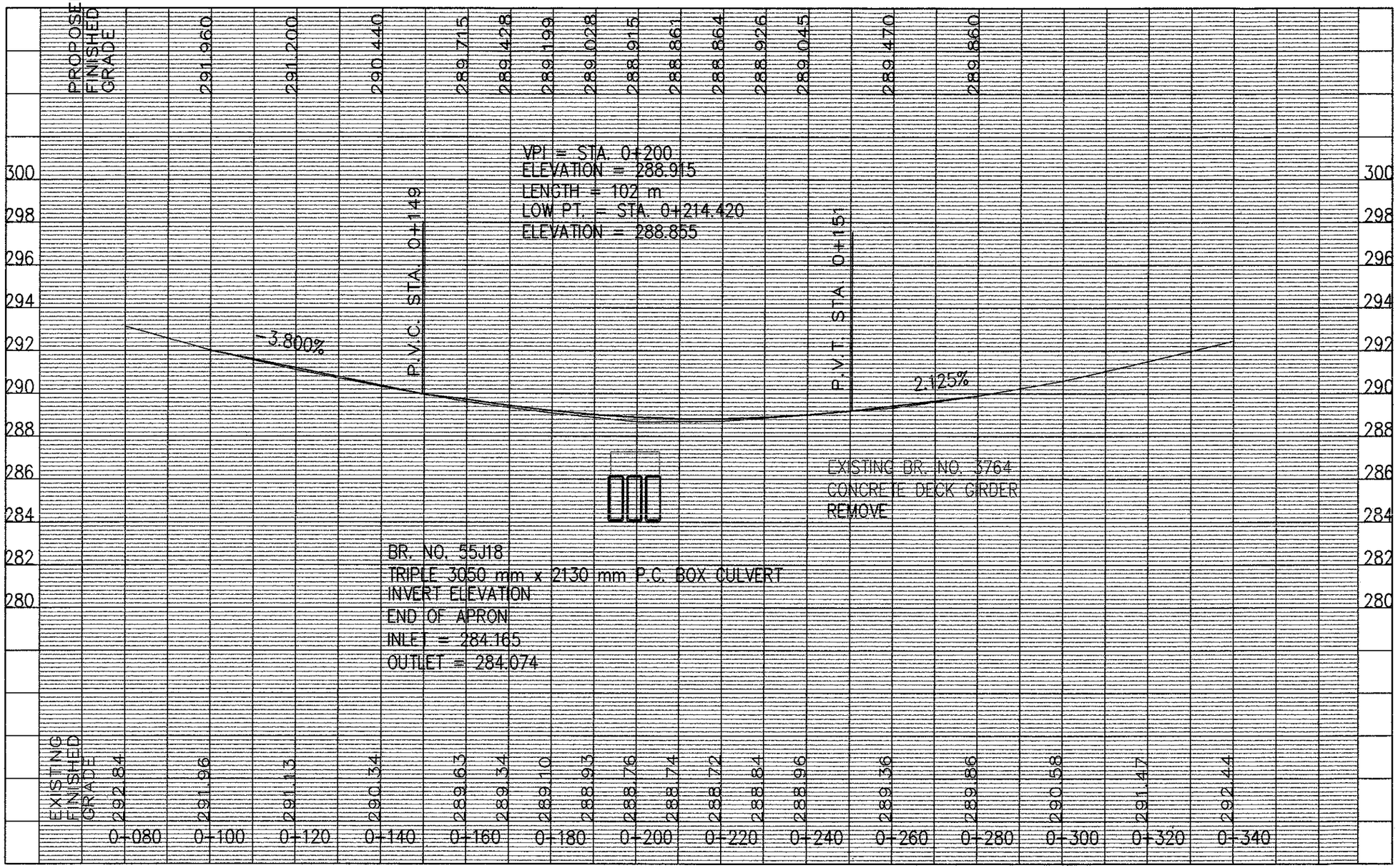
CERTIFIED BY Gary M Pieniek REG.NO. 19917 12/8 19 98
PROFESSIONAL ENGINEER

STATE AID PROJ. NO. 55-598-46

PLAN SHEET

SHEET 6 OF 11 SHEETS

SCALE VER. 0 m 2 m / HOR. 0 m 10 m



CERTIFIED BY Kaye M Bierwirth REG.NO. 19917 12/8 1998
PROFESSIONAL ENGINEER

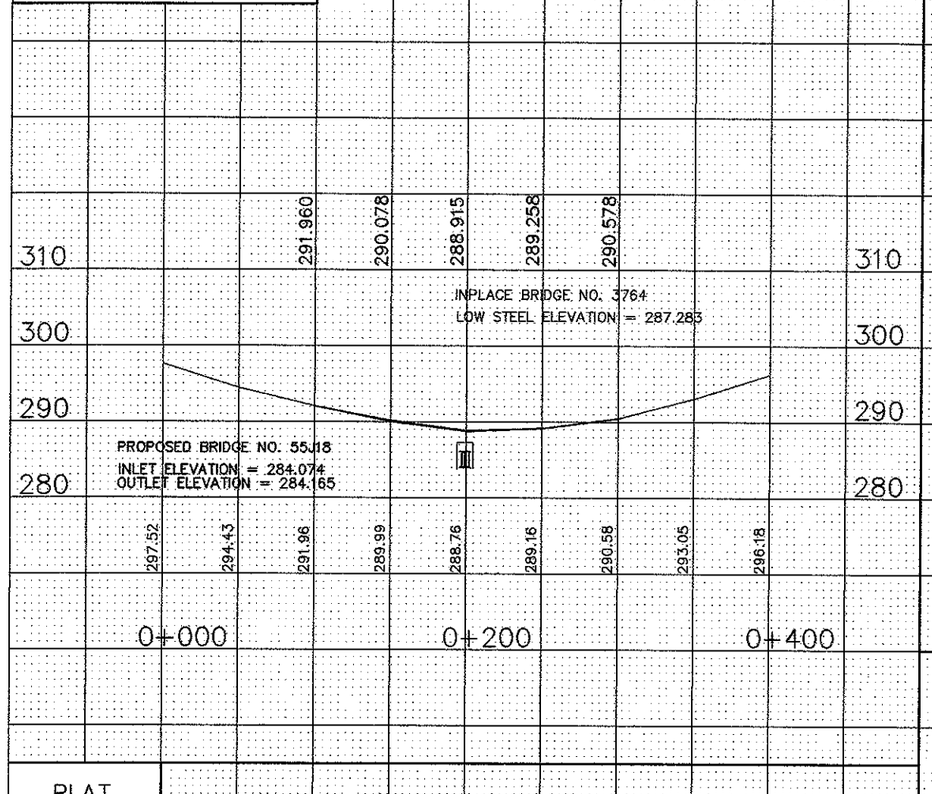
PROFILE SHEET

STATE AID PROJ. NO. 55-598-46

SHEET 7 OF 11 SHEETS

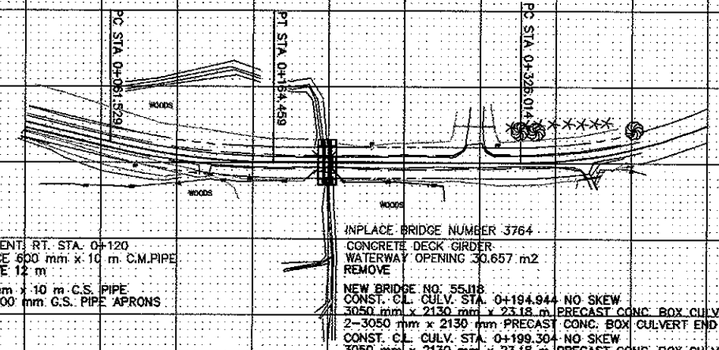
CONTRACTED PROFILE

SCALE HOR 0m 50m VER. 0m 10m



PLAT

SCALE 0m 50m

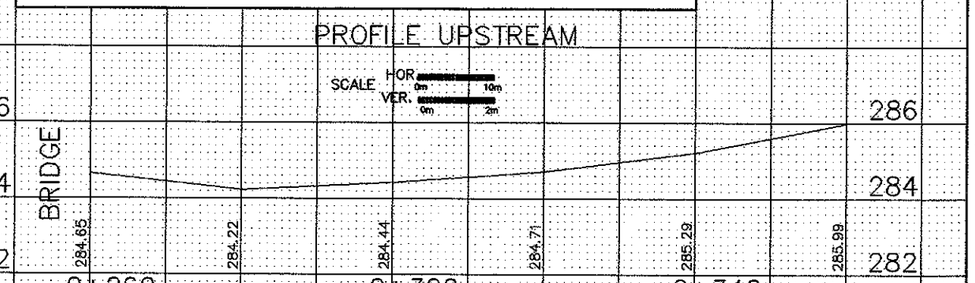


TYPICAL SECTIONS & PERTINENT DATA

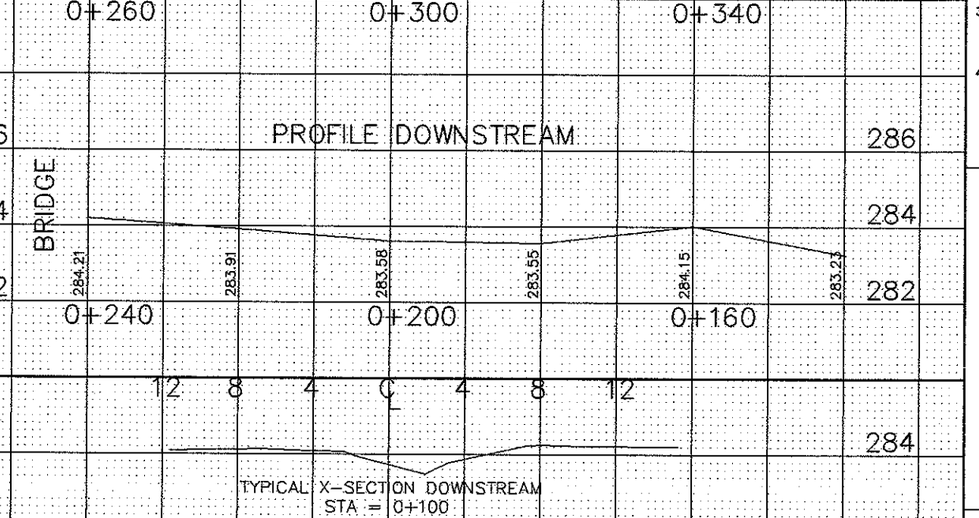
SCALE AS SHOWN

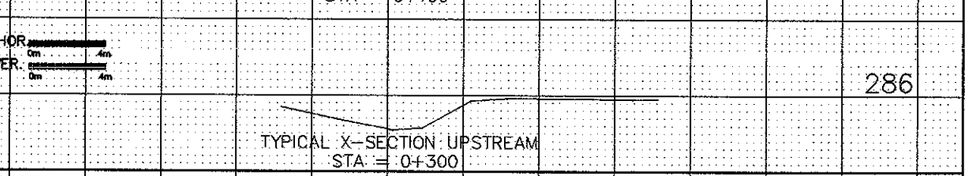
PROFILE UPSTREAM

SCALE HOR 0m 10m VER. 0m 2m

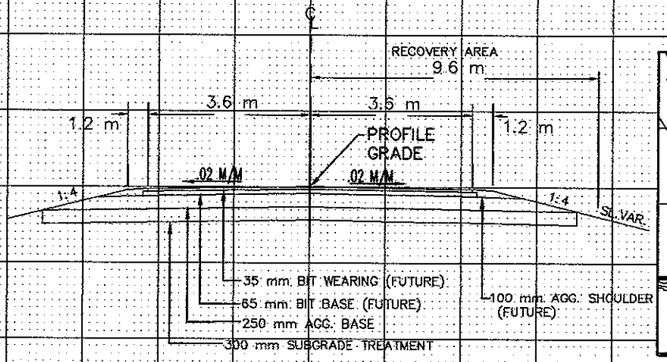


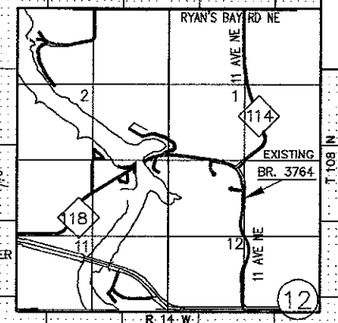
PROFILE DOWNSTREAM





TYPICAL SECTION





Fed. Proj. No.

1. Special Features: Waterfalls, dams, floods, ice, debris, sliding banks, recreational boating.
DRY RUN.

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.
MN/DOT BRIDGE NUMBER 8313, 2.4 KM UPSTREAM, ON T.H. 63.

3. Apparent highwater elevation UNKNOWN Obtained from

4. Other data: Approx. velocity of water at time of survey DRY 10-30-96.
BRIDGE NUMBER 3764 BUILT 1922.

HYDRAULIC ENGINEERS RECOMMENDATION

DATE MAY 18, 1998

Stream or ditch designation UNNAMED
Drainage area 11.140 km2
Max. flood on record UNK. Design flood (25 yr. freq.) 31.57m3/SEC.
Max. observed highwater elevation UNK. Design highwater elevation 286.24
Design mean velocity through structure 2.03 m/SEC.
Low superstructure at or above elevation
Flowline 284.165 - 284.074 Skew angle
Waterway area req'd. below elevation = m2 at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 50.77m3/SEC. at stage 285.268 and mean velocity of m/SEC. with m swellhead. The above recommendation will provide a structure of adequate waterway to pass the regional flood within criteria established by the Dept. of National Resources.

FOUNDATION ENGINEERS RECOMMENDATION

DATE MAY 18, 1998

3 LINES OF 3050 mm x 2130 mm BOX CULVERTS

Bridge survey sheets made from: SURVEY BY OLMSTED COUNTY ENGINEERING DEPT. 10-30-96.

Bench mark elevation 302.332 (M.S.L. 1929 Adj.)
Location: CHISELED SQUARE ON SE COR. HDWL. BR. 88746.

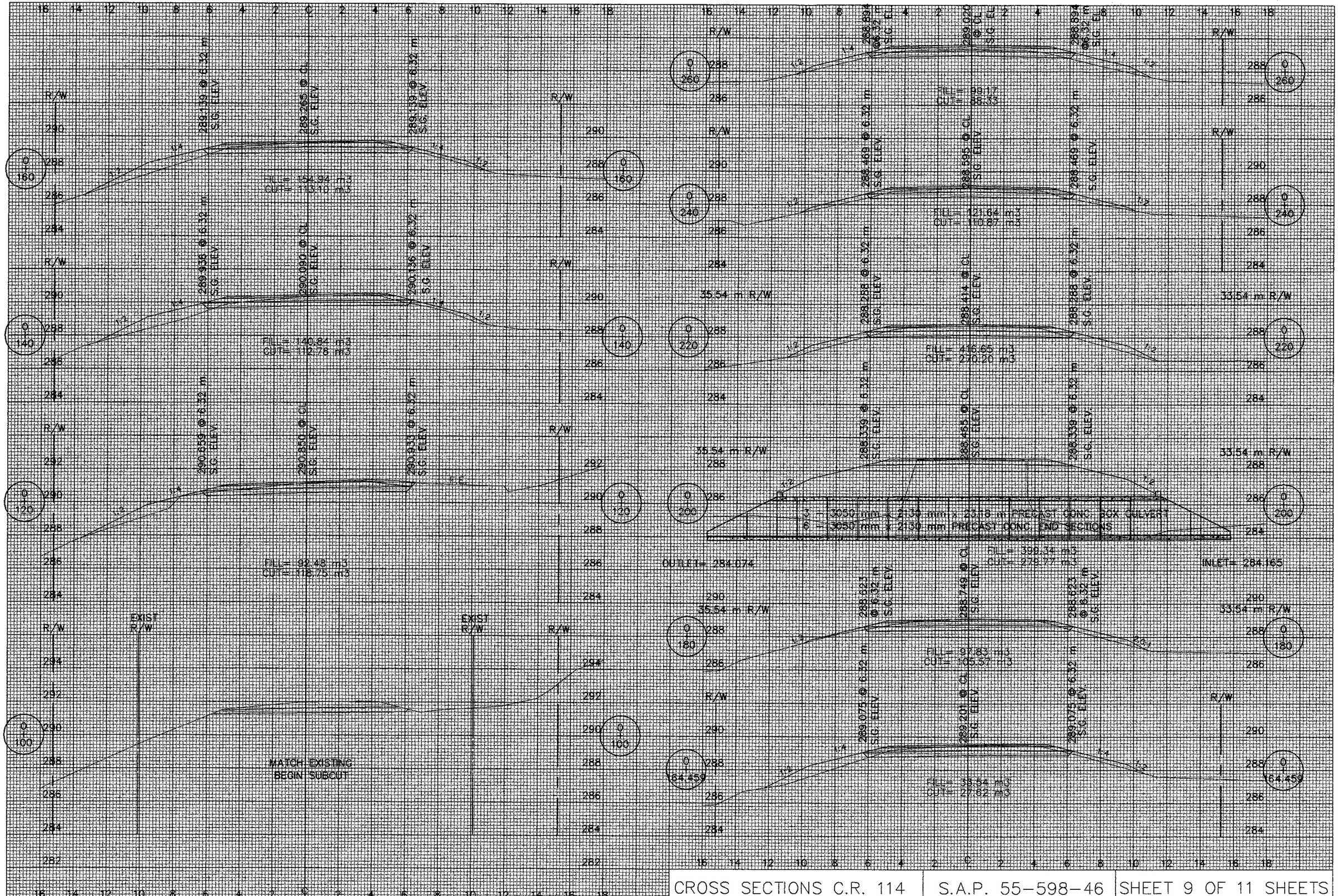
MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

AT MILE POINT ON C. R. 114 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 1.2 km NORTH OF JCT. C.R. 114 AND C.S.A.H. 12
SEC. 12 TWP. T 108 N R R 14 W
TOWNSHIP ORONOCO COUNTY OLMSTED
BRIDGE NO. 55118

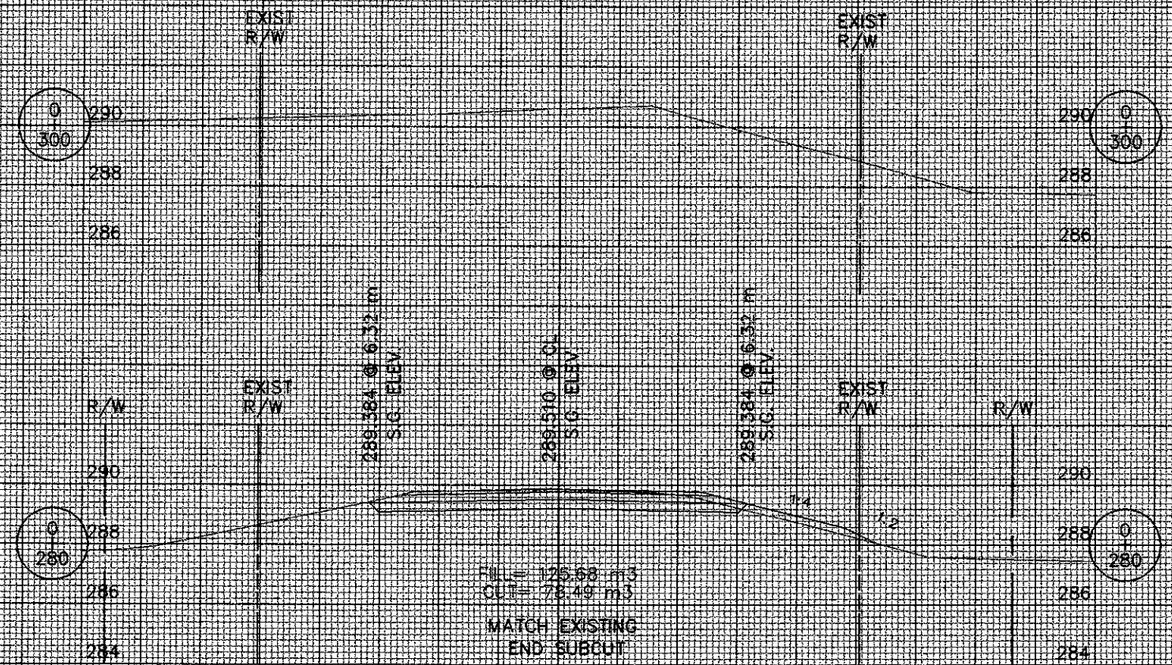
CERTIFIED BY Kaye M Prinsen PROFESSIONAL ENGINEER REG. NO. 19917 12/8/1998

State Aid Proj. No. 55-598-46



CROSS SECTIONS C.R. 114	S.A.P. 55-598-46	SHEET 9 OF 11 SHEETS

CUT VOLUME = 1305.48 m3 FILL VOLUME = 1682.11 m3



CROSS SECTIONS C.R. 114	S.A.P. 55-598-46	SHEET 10 OF 11 SHEETS