MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING & PRECAST CONC. BOX (BRIDGE NO. 55J14)

LOCATED ON 10th ST. S.E. BETWEEN 1.126 km E. C.R. 102 AND 2.897 km W. T.H. 42 (GEOGRAPHIC DESCRIPTION)

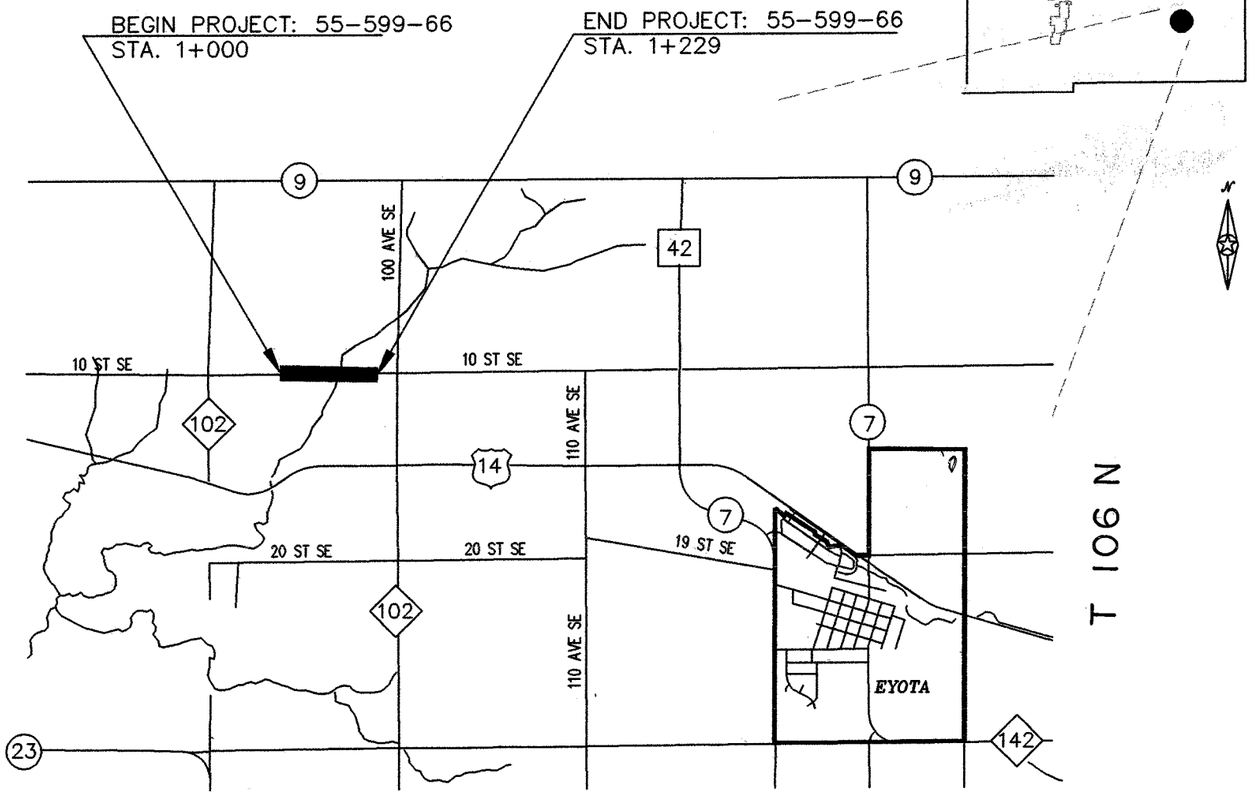
FROM 168 m. E. OF QUARTER SECT. 5 & 8 T 106 N – R 12 W TO 408 m W. SEC. 5 & 4 T 106 N – R 12 W (LEGAL DESCRIPTION)

S.A.P. NO. 55-599-66

GROSS LENGTH	229	meter	0.229	kilometer
BRIDGE-LENGTH		meter		kilometer
EXCEPTIONS-LENGTH		meter		kilometer
NET LENGTH	229	meter	0.229	kilometer

BEGIN PROJECT: 55-599-66
STA. 1+000

END PROJECT: 55-599-66
STA. 1+229



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

MINN. PROJ. NO. .....

GOVERNING SPECIFICATIONS

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

ATTENTION: THIS IS A METRIC PLAN

INDEX

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	TYPICAL SECTION & ESTIMATE OF QUANTITIES
SHEET NO. 3 – 4	BARREL DETAILS
SHEET NO. 5 – 6	PRECAST CONC. END SECTION DETAILS
SHEET NO. 7	PLAN AND PROFILE
SHEET NO. 8	CROSS SECTIONS
SHEET NO. 9	BRIDGE SURVEY SHEET
SHEET NO. 10	TRAFFIC CONTROL
THIS PLAN CONTAINS	10 SHEETS.

DESIGN DESIGNATION: S.A.P. 55-599-66

R ..... ΣN18(20) .....
ADT (Current Year) = ≤100 (1998) Design Speed 50 km/h
ADT (Future Year) = ≤100 (2018) Based on STOPPING Sight Distance
DHV (Design Hr. Vol.) = ... Height of eye 1070 mm Height of object 150 mm
D (Directional Distr.) = ... Design Speed not achieved at: .....
T (Heavy Commercial) = ... STA. ..... TO STA. ..... mph
SUBGRADE = ... STA. ..... TO STA. ..... mph
LANE WIDTH 3.353 m
SHOULDER WIDTH 0.914 m
SOIL FACTOR = 130%

TOWNSHIP APPROVAL:
David Bush
APPROVED: TOWNSHIP CHAIRPERSON
6/22/98
DATE

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 6/22/98 REGISTRATION NUMBER 19917
Kaye M Premuda
APPROVED: COUNTY DESIGN ENGINEER

DATE 6/23/98 REGISTRATION NUMBER 10397
Michael Sheehan
APPROVED: OLMSTED COUNTY ENGINEER

STATE AID APPROVALS:
Cindy Schmidt
DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES POLICY
DATE: July 27, 98
TD
APPROVED FOR STATE AID FUNDING:
STATE AID ENGINEER
DATE: 8/7/98

S.A.P. NO. 55-599-66 EYOTA TWP. SHEET NO. 1 OF 10 SHEETS

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	NON PARTICIPATING	PARTICIPATING	TOTAL ESTIMATED QUANTITIES
	2101.502	CLEARING	TREE	3		3
	2101.507	GRUBBING	TREE	3		3
	2105.515	UNCLASSIFIED EXCAVATION	m^3	544		544 (P)
			m^3			
	2105.523	COMMON BORROW (CV)	m^3	1078		1078 (P)
	2412.511	3050 mm x 2130 mm PRECAST CONCRETE BOX CULVERT	m		35.357	35.357
	2412.512	3050 mm x 2130 mm PRECAST CONC. BOX CULVERT END SECTION	EACH		4	4
	2442.501	REMOVE OLD BRIDGE	LUMP SUM	1		1
	2451.507	GRANULAR BEDDING (CV)	m^3		60.263	60.263(P)
①	2511.501	RANDOM RIPRAP CL. III	m^3		81	81

(P) PLAN

QUANTITY NOTES:

① PLACE RIPRAP ON 230 mm GRANULAR FILTER OR GEOTEXTILE MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE THEREFOR.

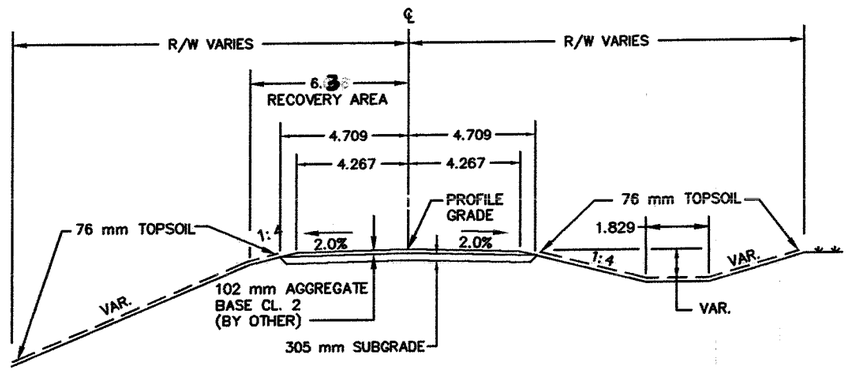
STANDARD PLATES

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

PLATE NO.	DESCRIPTION
	NUMERICAL INDEX OF STANDARD PLATES
M3007 B	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
M3145 E	CONCRETE PIPE TIES
M8000 I	STANDARD BARRICADES

TYPICAL SECTION

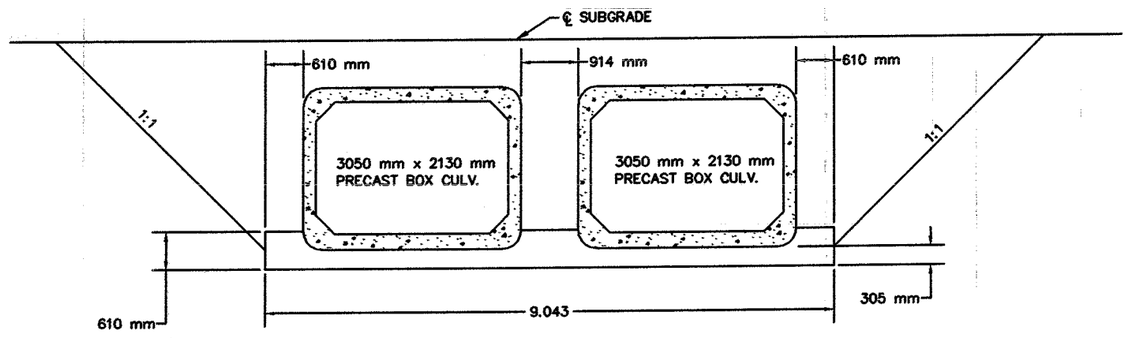
STA. 1+000 TO STA. 1+220



NOTES: ALL UTILITY POLES AND UNYIELDING OBJECTS WILL BE LOCATED OUTSIDE THE 6.096 m RECOVERY AREA BY OTHERS.

TURF ESTABLISHMENT BY OTHER.

BEDDING DETAIL

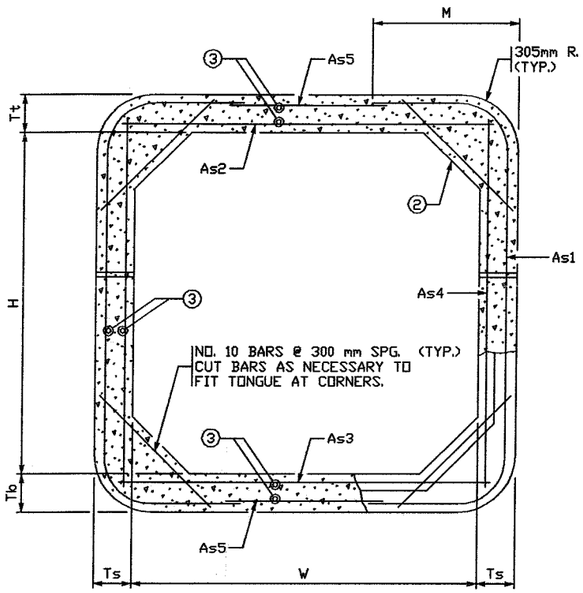


NOTES:
1. CULVERT EXCAVATION WILL BE CONSIDERED INCIDENTAL AND WILL BE INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR ITEM NO. 2412.511 AND ITEM NO. 2412.512.
2. CULVERT TO BE BACKFILLED WITH EXCAVATION MATERIAL AND WILL BE CONSIDERED INCIDENTAL TO UNCLASSIFIED EXCAVATION AND NO DIRECT COMPENSATION WILL BE MADE.
3. ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTION ARE APPROXIMATE.
4. GRANULAR BEDDING TO BE PLACED UNDER 17.678 m BARREL SECTIONS ONLY.

NOTES: ALL DIMENSION ARE meter UNLESS OTHERWISE SPECIFIED.

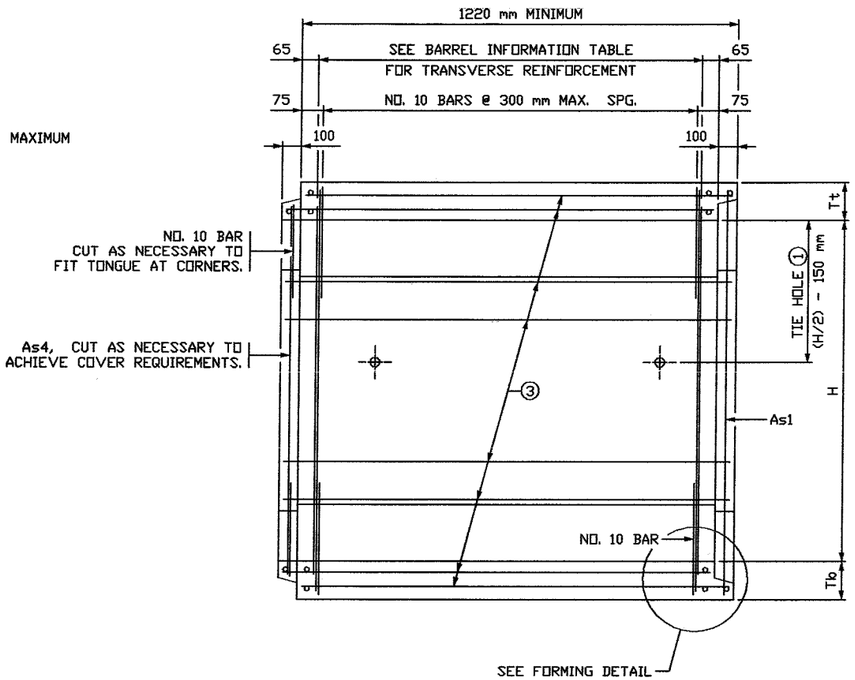
CERTIFIED BY Kayell Bierneh PROFESSIONAL ENGINEER REG. NO. 19917 6/22 1998

PROJECT NO. 55-599-66 EYOTA TWP.



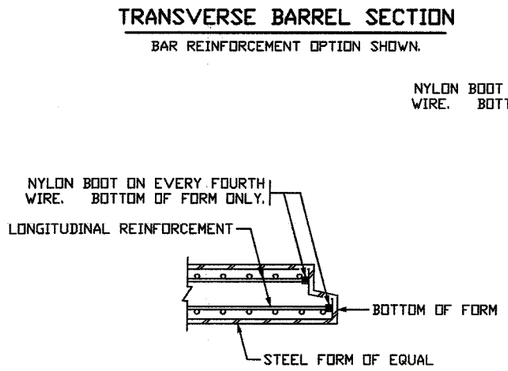
TRANSVERSE BARREL SECTION

BAR REINFORCEMENT OPTION SHOWN.

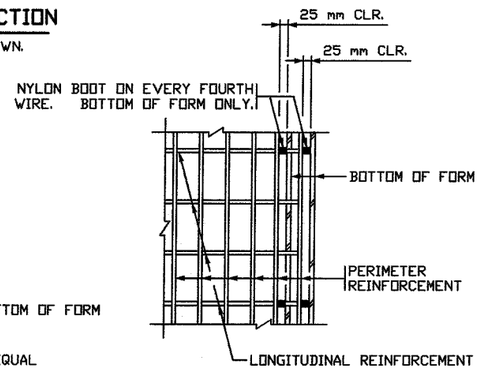


LONGITUDINAL BARREL SECTION

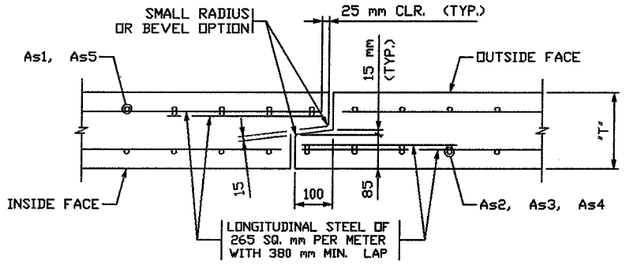
BAR REINFORCEMENT OPTION SHOWN.



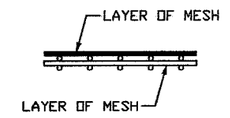
FORMING DETAIL SECTION



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)
1+128.738	3050x2130	2	35	600-2400	3050	2130	225	250	200	6230	1020	3885	850	1760	3200	1570	3200	420	2285	130	2360
1+133.390	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. Flemming
STATE BRIDGE ENGINEER

S.A.P. 55-599-66 STA. 1+128.738 & STA. 1+133.390 — FIG. 5-395.101M (1 of 2)

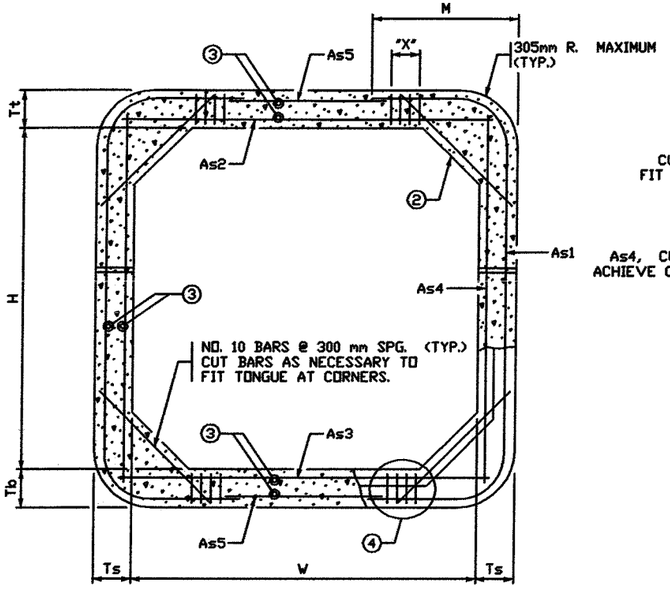
CERTIFIED BY: Kaye M Biernich PROFESSIONAL ENGINEER
REG. NO. 19917 6/22 19 98

TITLE: BARREL DETAILS

DES: DR: APPROVED:
CHK: CHK:

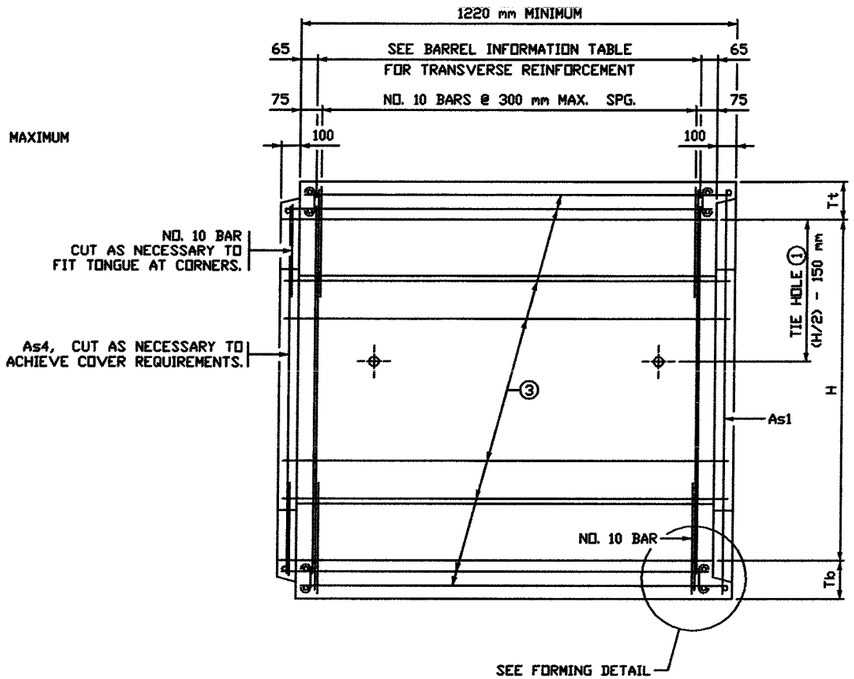
SHEET NO. 3 OF 10 SHEETS

BRIDGE NO. 55J14



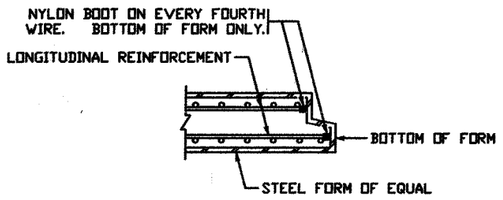
TRANSVERSE BARREL SECTION

(BAR REINFORCEMENT OPTION SHOWN)

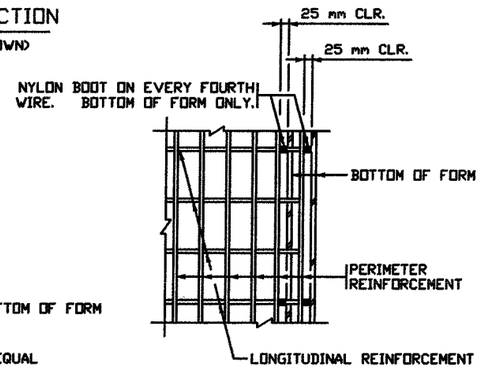


LONGITUDINAL BARREL SECTION

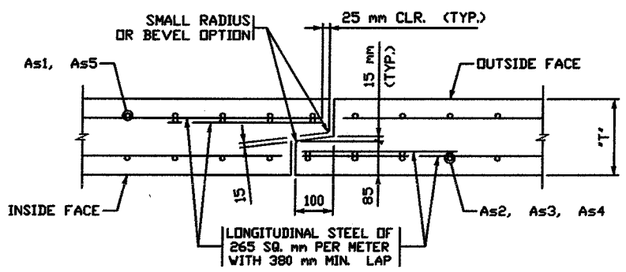
(BAR REINFORCEMENT OPTION SHOWN.)



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.

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- (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).

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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.

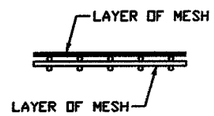
(1) CULVERT TIES ARE TO BE 25 MILLIMETER DIAMETER RODS. SEE STANDARD PLATE NO. M3145 FOR CONNECTION DETAILS.

(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.



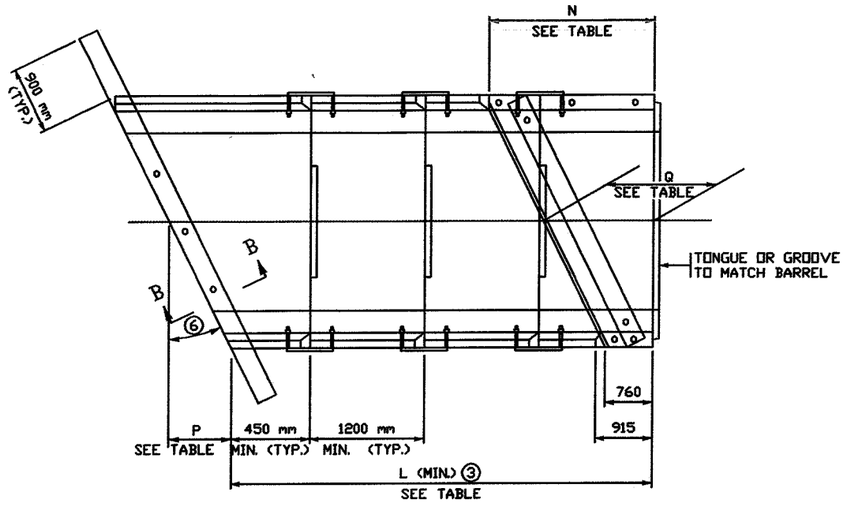
FABRIC LAYER DETAIL

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

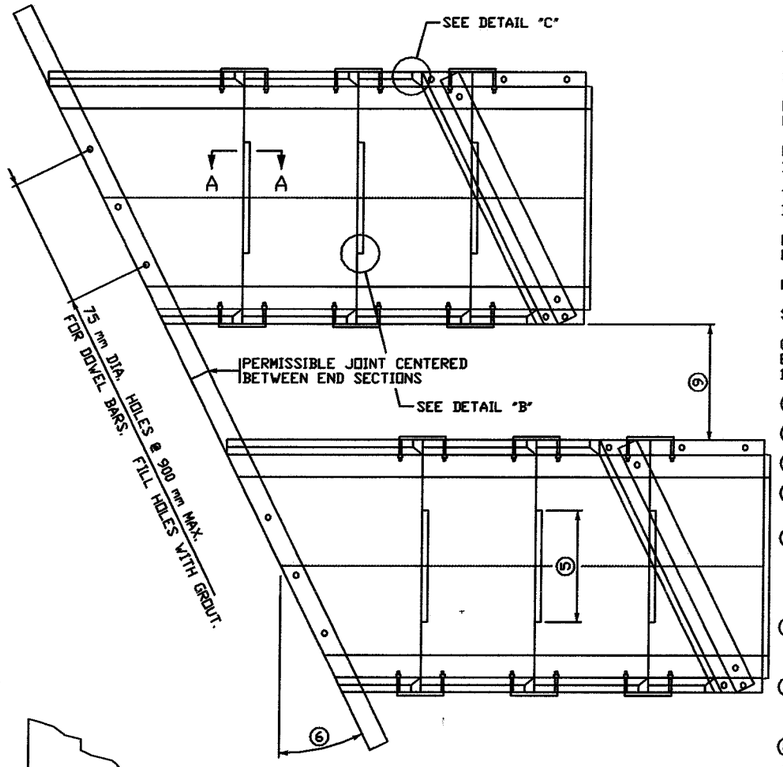
LOCATION	SIZE	f'c (MPa)	OVER-FILL LIMITS (mm)	DIMENSIONS W (mm)	H (mm)	Tt (mm)	Tb (mm)	Ts (mm)	MASS (kg/m)	STEEL FABRIC REINFORCEMENT As1 AREA (mm²/m)	As1 LENGTH (mm)	As1 M (mm)	As2 AREA (mm²/m)	As2 LENGTH (mm)	As3 AREA (mm²/m)	As3 LENGTH (mm)	As4 AREA (mm²/m)	As4 LENGTH (mm)	As5 AREA (mm²/m)	As5 LENGTH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

APPROVED: SEPTEMBER 19, 1996 Donald J. Flemming STATE BRIDGE ENGINEER	S.A.P. 55-599-66 STA. 1+128.738 & STA. 1+133.390			FIG. 5-395.101M (2 of 2)
	CERTIFIED BY: Kaye M Bzenich PROFESSIONAL ENGINEER REG. NO. 19917 6/22 19 98	TITLE: BARREL DETAILS (SPECIAL DESIGNS)	DES: DR: APPROVED: CHK: CHK: SHEET NO. 4 OF 10 SHEETS	BRIDGE NO. 55J14



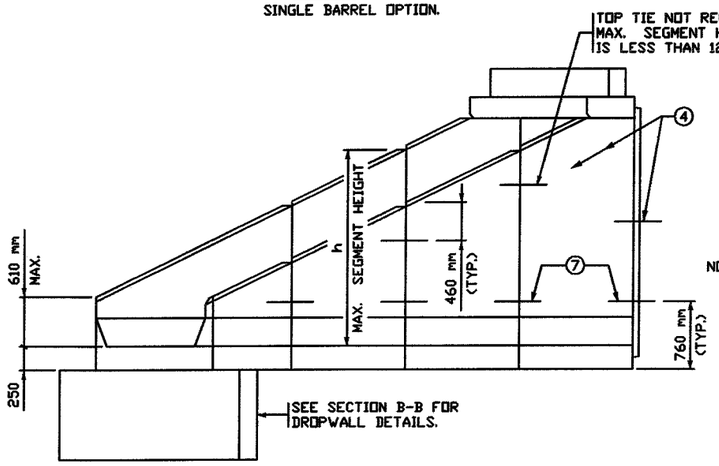
PLAN VIEW

SINGLE BARREL OPTION.

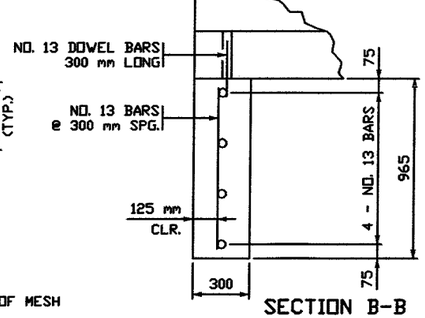


PLAN VIEW

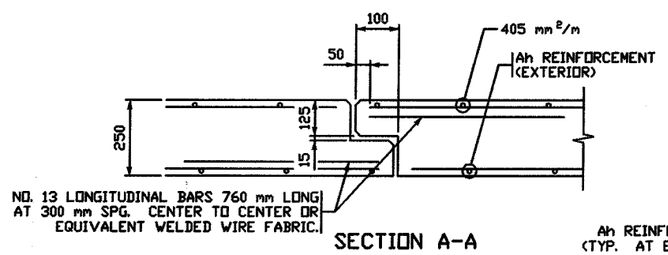
MULTI-BARREL OPTION.



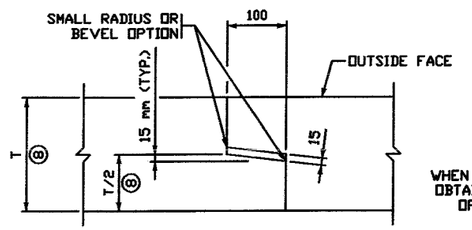
ELEVATION



SECTION B-B

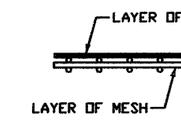


SECTION A-A



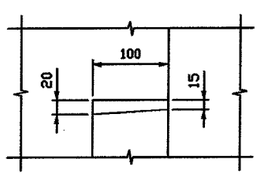
TONGUE AND GROOVE JOINT

MAKE DIMENSION OF TONGUE OR GROOVE ON ADJACENT PRECAST BARREL SECTIONS SO INSIDE WALLS ARE FLUSH.

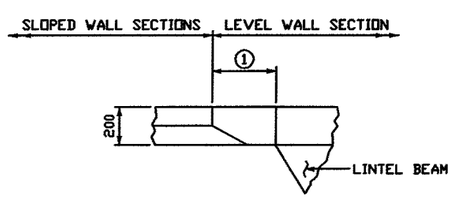


FABRIC LAYER DETAIL

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 "B"



DETAIL "C"

MIN. LENGTH L (mm)			
HEIGHT H (mm)	15° SKEW	30° SKEW	45° SKEW
1220	2180	2320	2640
1520	2805	3025	3500
1830	3440	3730	4360
2130	4070	4435	5225
2440	4700	5135	6085
2740	5330	5840	6950
3050	5965	6545	7810
3350	6595	7250	8675
3660	7225	7955	9535

LENGTH P (mm)			
WIDTH W (mm)	15° SKEW	30° SKEW	45° SKEW
1830	300	645	1115
2440	380	820	1420
3050	465	995	1725
3660	545	1170	2030

LENGTH Q (mm)			
WIDTH W (mm)	15° SKEW	30° SKEW	45° SKEW
1830	1060	1405	1875
2440	1140	1580	2180
3050	1220	1755	2485
3660	1300	1930	2790

NOTES:

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

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

PRECAST CONCRETE SHALL BE MIX NO. 3W36 WITH NO CALCIUM CHLORIDE ALLOWED. DROPWALL CONCRETE SHALL BE MIX NO. 1A43 OR 3Y43. LIMITS FOR DROPWALL EXCAVATION TO BE APPROXIMATELY THE SAME AS DROPWALL DIMENSIONS. FURNISHING AND INSTALLATION OF DROPWALL TO BE INCLUDED IN PRICE BID FOR END SECTIONS.

LONGITUDINAL REINFORCEMENT SHALL BE A MINIMUM OF 130 SQ. MILLIMETERS PER METER ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE FIG. 5-395.115M FOR EMBANKMENT PROTECTION.

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.

① 205 MILLIMETERS @ 15°; 270 MILLIMETERS @ 30°; 355 MILLIMETERS @ 45°.

② SEE FIG. 5-395.101M (2 OF 2) FOR REINFORCEMENT TABLES.

③ NUMBER OF SECTIONS VARIES WITH H DIMENSION.

④ EXCEPT AS NOTED, CULVERT TIES ARE TO BE 25 MILLIMETER DIAMETER RODS. SEE STANDARD PLATE NO. M3145 FOR DETAILS.

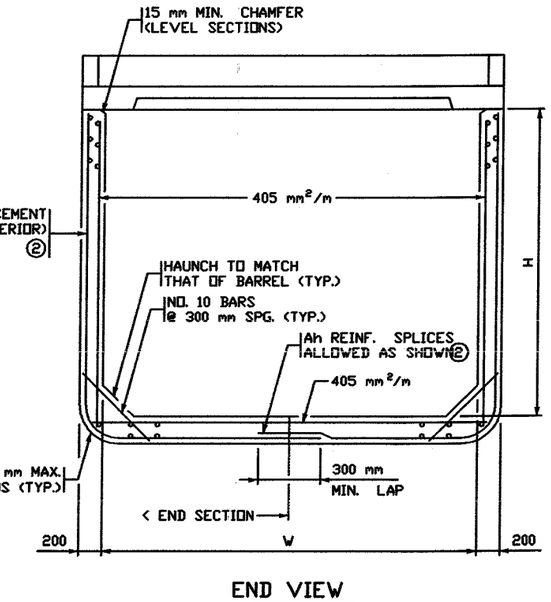
⑤ 1065 MILLIMETER TONGUE AND 1090 MILLIMETER GROOVE FOR 1830 MILLIMETER WIDE CULVERTS.
1525 MILLIMETER TONGUE AND 1550 MILLIMETER GROOVE FOR CULVERTS OVER 1830 MILLIMETERS WIDE.
CENTER TONGUE AND GROOVE ON ℄ OF EACH APRON JOINT.

⑥ FOR SKEW ANGLES OVER 7 1/2 ° UP TO 22 1/2 °, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22 1/2 ° UP TO 37 1/2 °, USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37 1/2 ° UP TO 45°, USE A 45° SKEW END SECTION.

⑦ PROVIDE EXTRA STRONG CONNECTION AT LOCATION SHOWN; REQUIRED ONLY ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 1830 MILLIMETERS HIGH. SEE FIG. 5-395.110M (2 OF 2) FOR DETAILS.

⑧ DIMENSION T IS EQUAL TO Tt, Tb OR Ts.

⑨ PROVIDE 600 MILLIMETERS MINIMUM BETWEEN END SECTIONS FOR STANDARD DESIGNS.



END VIEW

APPROVED: SEPTEMBER 19, 1996
STATE BRIDGE ENGINEER

S.A.P. 55-599-66 STA. 1+128.738 & STA. 1+133.390

FIG. 5-395.110M (1 OF 2)

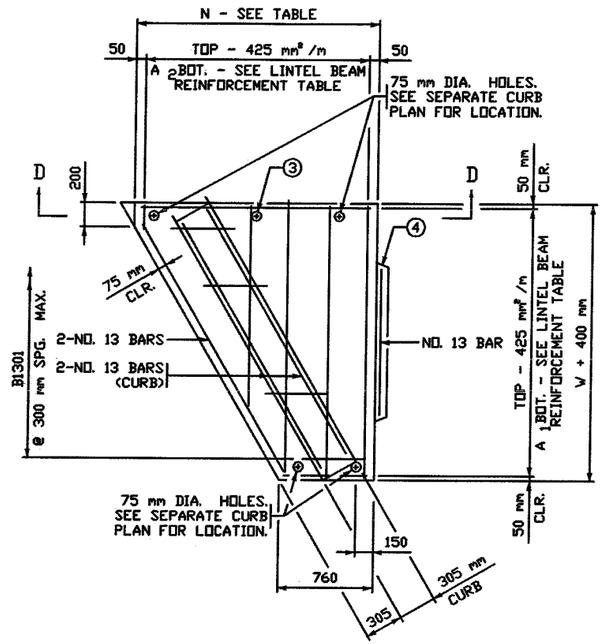
CERTIFIED BY: Kayne M Brenneke
PROFESSIONAL ENGINEER
REG. NO. 19917 6/22 1998

TITLE: PRECAST CONCRETE END SECTION TYPE III-SINGLE OR MULTI-BARREL FOR SKEWS 7 1/2 ° TO 45°

DES: DR: APPROVED:
CHK: CHK:

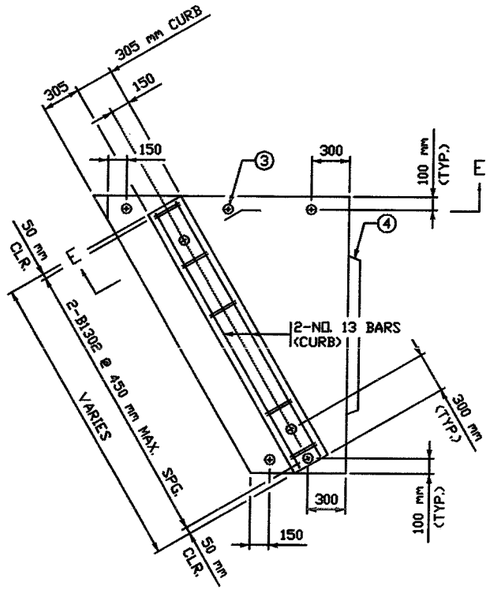
SHEET NO. 5 OF 10 SHEETS

BRIDGE NO. 55J14



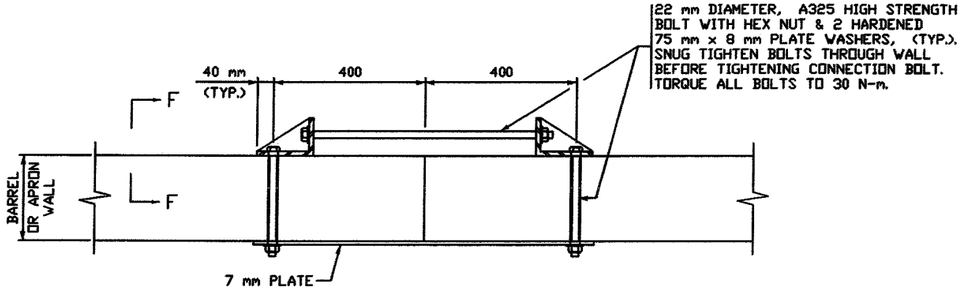
PLAN VIEW

LINTEL BEAM WITH INTEGRAL CURB.

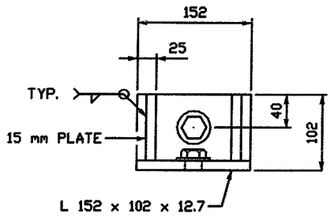


PLAN VIEW

LINTEL BEAM WITH SEPARATE CURB (SOME REINFORCEMENT NOT SHOWN).



PLAN VIEW



SECTION F-F

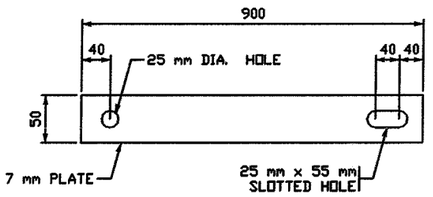
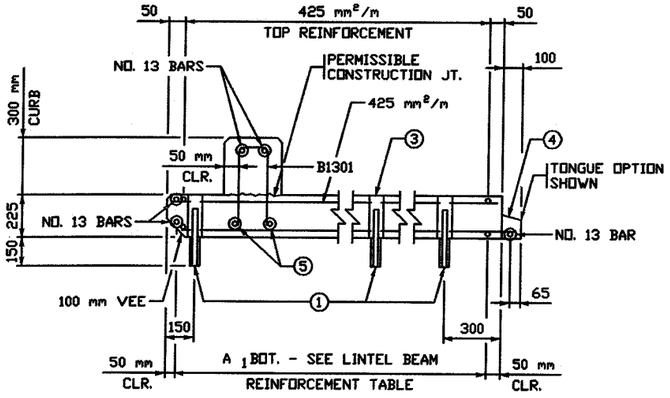
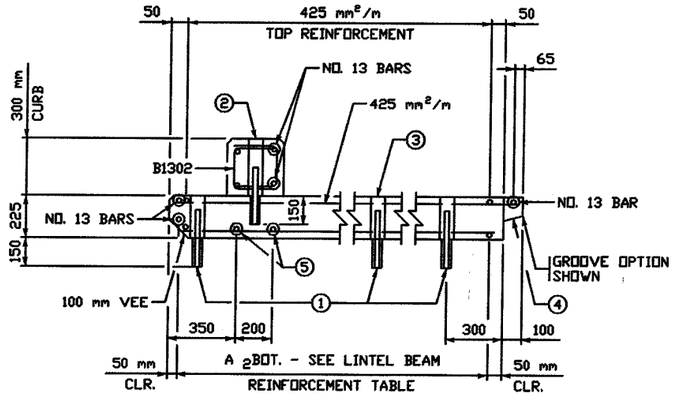


PLATE DETAIL

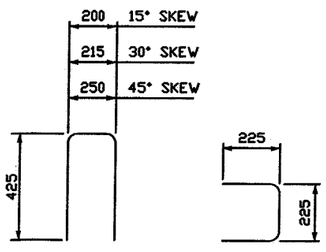
EXTRA STRONG CONNECTION DETAILS



SECTION D-D



SECTION E-E



B1301 B1302

Ah REINFORCEMENT TABLE		
HEIGHT h (mm)	Ah (mm²/m)	
	15° & 30° SKEW	45° SKEW
2130 OR LESS	410	410
2440	420	510
2740	610	760
3050	900	1120
3350	1270	1590
3660	1650	2070

NOTE: h IS THE LARGEST VERTICAL DIMENSION OF THE SEGMENT.

LINTEL BEAM REINFORCEMENT TABLE		
WIDTH W (mm)	BOTTOM REINFORCEMENT	
	A_1	A_2
1830	NO. 13 @ 450 mm	NO. 13 @ 400 mm
2440	NO. 13 @ 325 mm	NO. 13 @ 225 mm
3050	NO. 13 @ 225 mm	NO. 13 @ 150 mm
3660	NO. 16 @ 225 mm	NO. 16 @ 150 mm

LENGTH N (mm)			
WIDTH W (mm)	15° SKEW	30° SKEW	45° SKEW
1830	1305	1935	2795
2440	1470	2285	3405
3050	1630	2640	4015
3660	1800	2990	4625

NOTES:

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.

STRUCTURAL STEEL PER SPEC. 3306.

WELDING PER SPEC. 2471.

GALVANIZE STRUCTURAL STEEL PER SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER SPEC. 3392.

① NO. 25 DOWEL, 300 MILLIMETERS LONG, 50 MILLIMETER DIAMETER HOLE IN THE TOP OF THE WALL SECTION AND 75 MILLIMETER HOLE IN THE CURB. FILL HOLE WITH GROUT.

② NO. 25 DOWEL, 300 MILLIMETERS LONG, 50 MILLIMETERS DIAMETER HOLE IN THE TOP OF THE LINTEL BEAM AND 75 MILLIMETER HOLE IN THE CURB. FILL HOLE WITH GROUT.

③ CAST AN ADDITIONAL 75 MILLIMETER HOLE AT MIDPOINT OF BEAM WHEN SIDE OF LINTEL BEAM IS OVER 1830 MILLIMETERS.

④ CHECK THE LOCATION TO DETERMINE WHETHER A TONGUE OR A GROOVE IS USED. TONGUE AND GROOVE TO TERMINATE AT CULVERT RADIUS.

⑤ FOR SKEW LENGTH UNDER 2050 MILLIMETERS USE NO. 25 BARS.
FOR SKEW LENGTH OF 3050 MILLIMETERS TO 4270 MILLIMETERS USE NO. 29 BARS.
FOR SKEW LENGTH OVER 4270 MILLIMETERS TO 5485 MILLIMETERS USE NO. 32 BARS.
FOR SKEW LENGTH OVER 5485 MILLIMETERS TO 6100 MILLIMETERS USE NO. 36 BARS OR EQUAL.
SKEW LENGTH IS DISTANCE BETWEEN INSIDE FACES OF END SECTION ALONG LINTEL BEAM.

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

S.A.P. 55-599-66 STA. 1 + 128.738 & STA. 1+133.390 FIG. 5-395.110M (2 OF 2)

CERTIFIED BY: Kaye M Boenisch PROFESSIONAL ENGINEER
REG. NO. 19917 6/22 1998

TITLE: PRECAST CONCRETE END SECTION TYPE III-SINGLE OR MULTI-BARREL FOR SKEWS 7 1/2 ° TO 45°

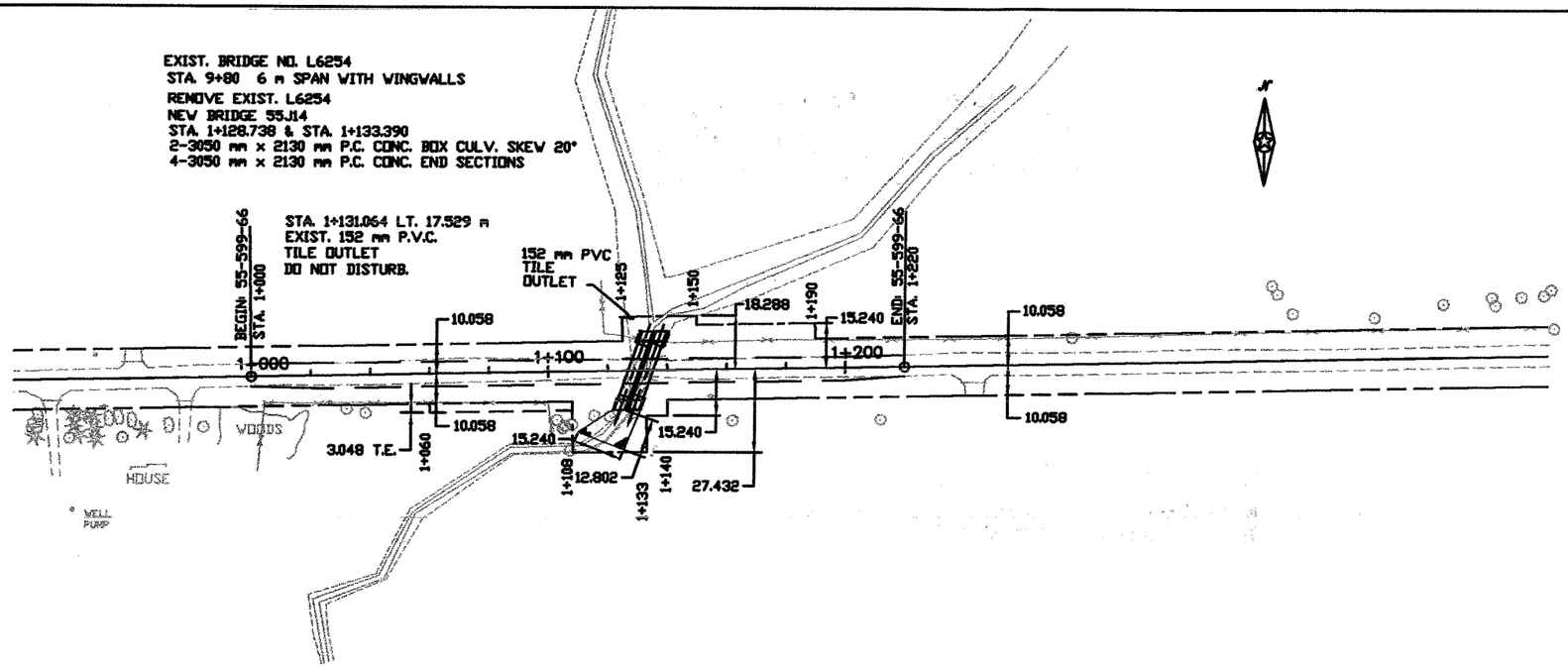
DES: DR: APPROVED:
CHK: CHK:

SHEET NO. 6 OF 10 SHEETS

BRIDGE NO. 55J14

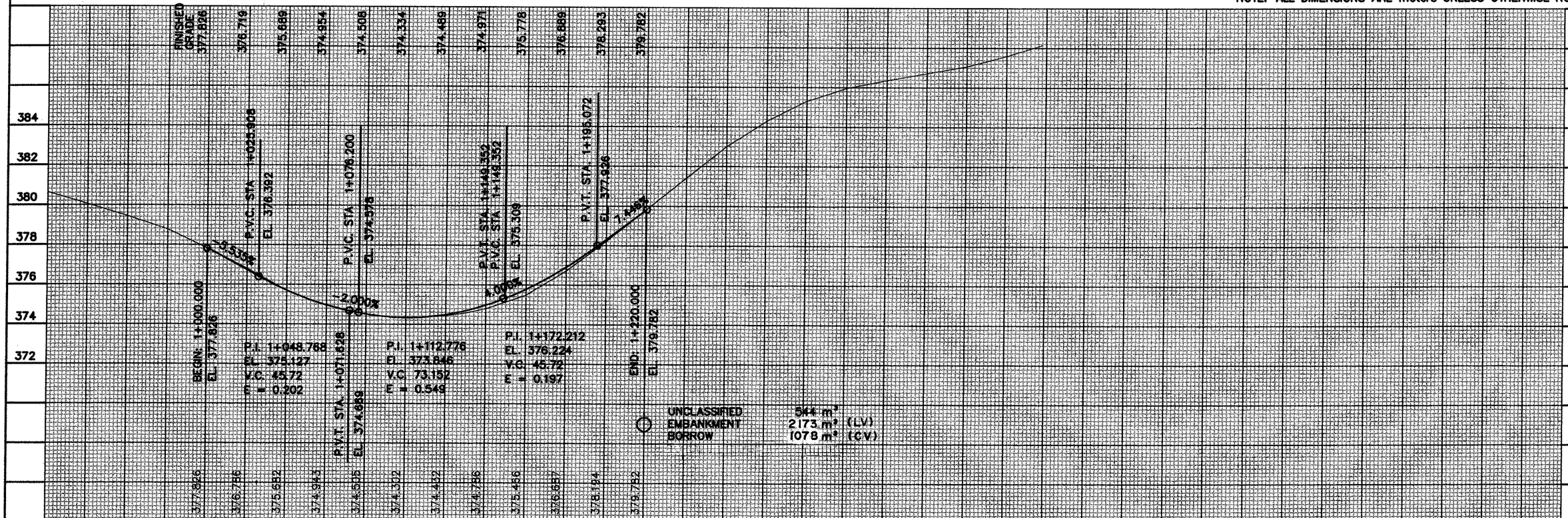
EXIST. BRIDGE NO. L6254
STA. 9+80 6 m SPAN WITH WINGWALLS
REMOVE EXIST. L6254
NEW BRIDGE 55J14
STA. 1+128.738 & STA. 1+133.390
2-3050 mm x 2130 mm P.C. CONC. BOX CULV. SKEW 20°
4-3050 mm x 2130 mm P.C. CONC. END SECTIONS

STA. 1+131.064 LT. 17.529 m
EXIST. 152 mm P.V.C.
TILE OUTLET
DO NOT DISTURB.



1 cm = 20 m
1 mm = 1 m

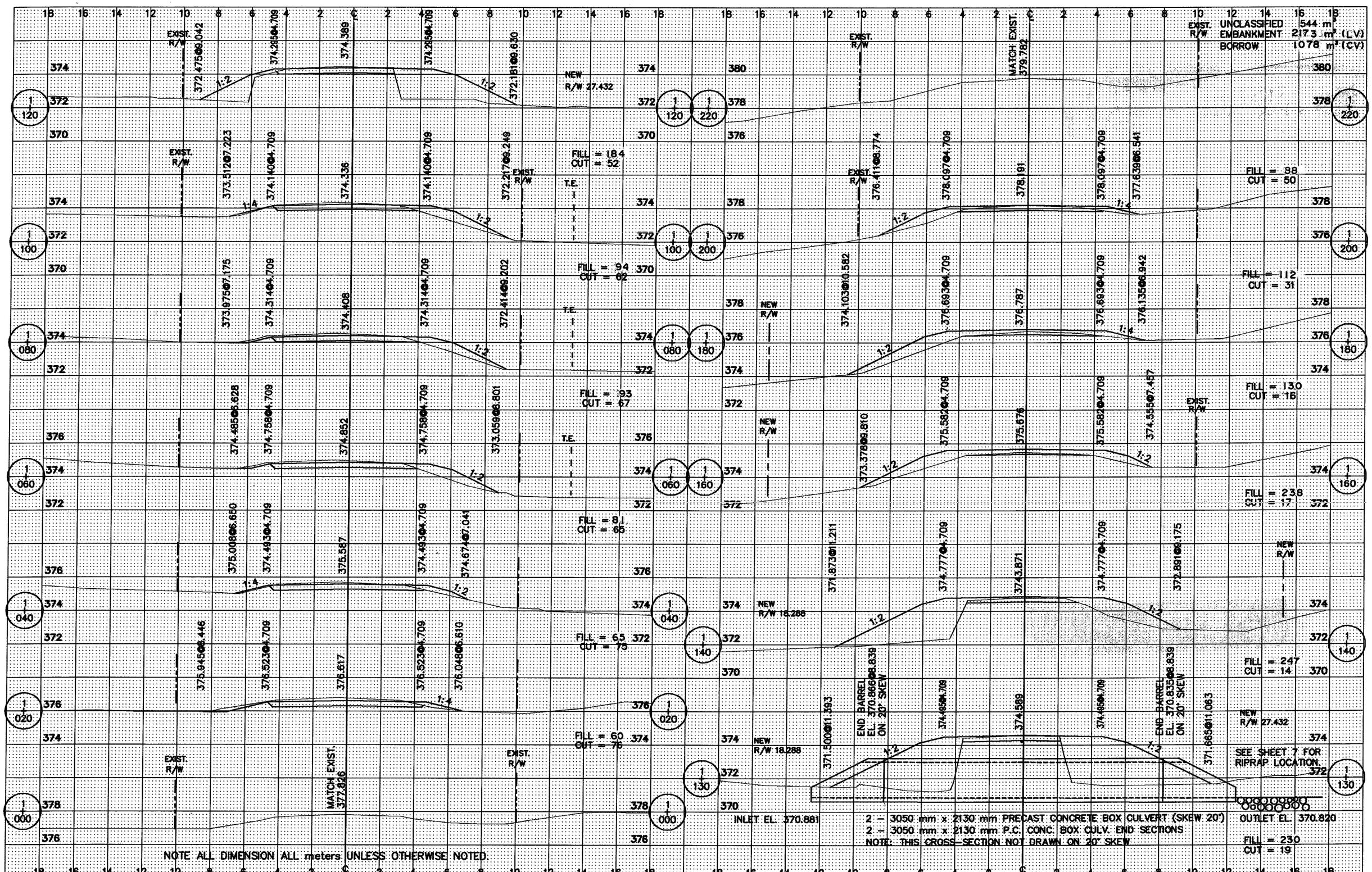
NOTE: ALL DIMENSIONS ARE meters UNLESS OTHERWISE NOTED.



CERTIFIED BY Kevin M Burnett PROFESSIONAL ENGINEER REG. NO. 19917 6/22 19 98

S.A.P. 55-599-66

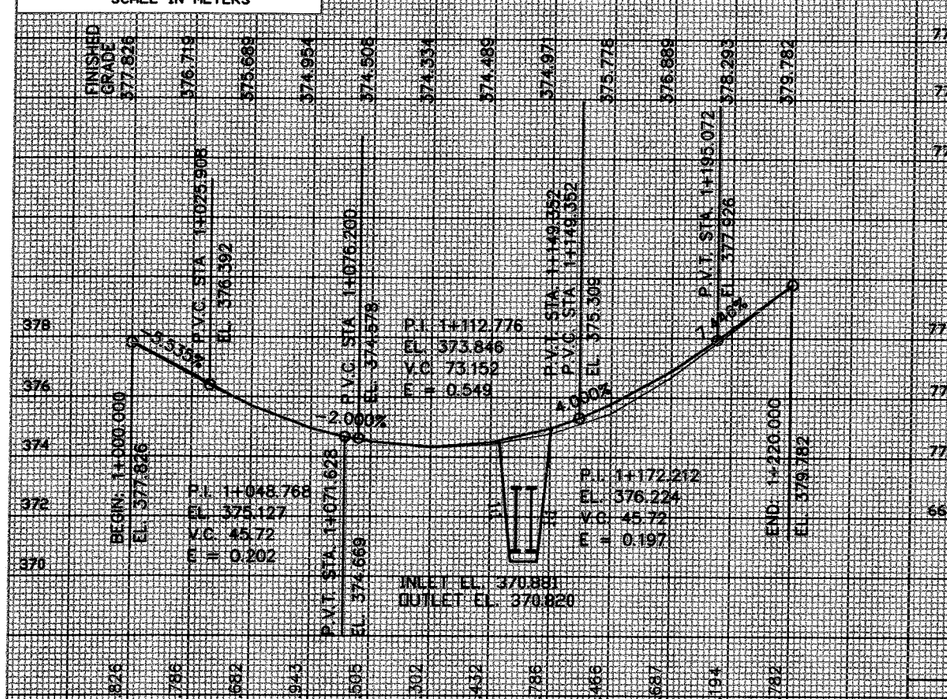
SHEET 7 OF 10 SHEETS


EXIST. UNCLASSIFIED 544 m³
EMBANKMENT 2173 m³ (L.V.)
BORROW 1078 m³ (C.V.)
EXIST. R/W
NEW R/W 27.432
NEW R/W
NEW R/W 18.288
MATCH EXIST. 379.782
MATCH EXIST. 377.826
FILL = 184
CUT = 52
FILL = 94
CUT = 62
FILL = 93
CUT = 67
FILL = 81
CUT = 65
FILL = 65
CUT = 75
FILL = 60
CUT = 76
FILL = 88
CUT = 50
FILL = 112
CUT = 31
FILL = 130
CUT = 16
FILL = 238
CUT = 17
FILL = 247
CUT = 14
FILL = 230
CUT = 19
T.E.
1:2
1:4
1:3
1:1½
END BARREL EL. 370.866 ON 20° SKEW
END BARREL EL. 370.835 ON 20° SKEW
INLET EL. 370.881
OUTLET EL. 370.820
SEE SHEET 7 FOR RIPRAP LOCATION.
2 – 3050 mm x 2130 mm PRECAST CONCRETE BOX CULVERT (SKEW 20°)
2 – 3050 mm x 2130 mm P.C. CONC. BOX CULV. END SECTIONS
NOTE: THIS CROSS-SECTION NOT DRAWN ON 20° SKEW
NOTE ALL DIMENSION ALL meters UNLESS OTHERWISE NOTED.

CONTRACTED PROFILE

HOR. 1"=20' VER. 1"=2'

SCALE IN METERS



PLAT

SCALE IN METERS

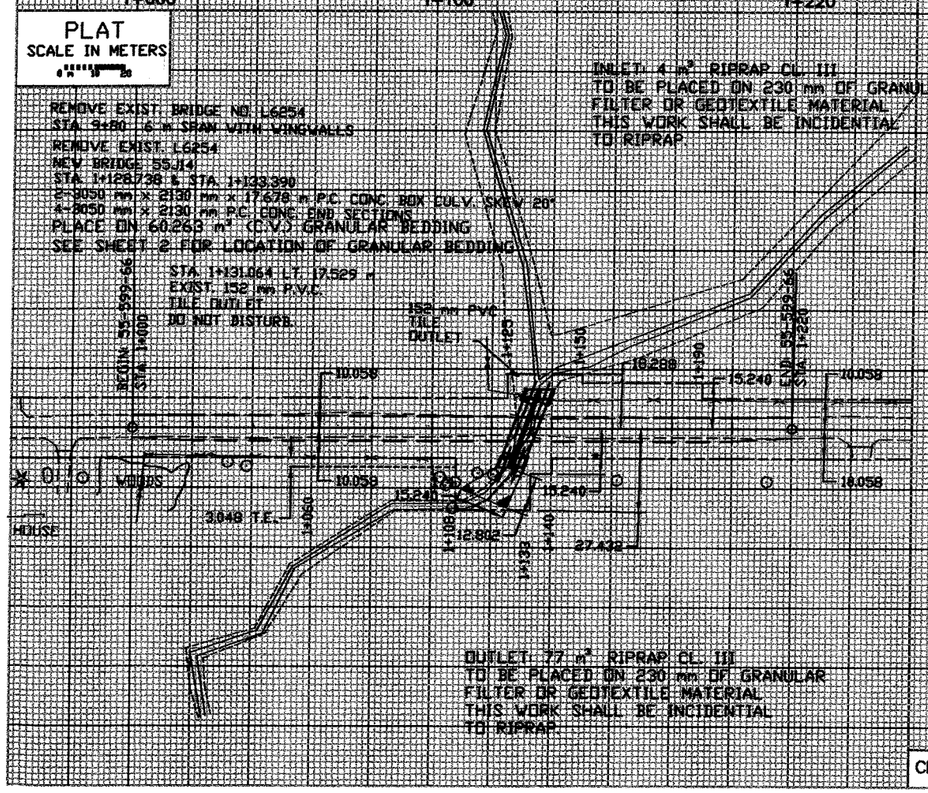
REMOVE EXIST. BRIDGE NO. L6254
STA. 9+80.6 m SPAN WITH WINGWALLS
REMOVE EXIST. L6254
NEW BRIDGE 55J14
STA. 1+128.798 & STA. 1+133.390
2-3050 mm x 2130 mm x 17.678 m P.C. CONC. BOX CULV. SKEW 20°
4-3050 mm x 2130 mm P.C. CONC. END SECTIONS
PLACE DIN 60.263 m³ (C.Y.) GRANULAR BEDDING
SEE SHEET 2 FOR LOCATION OF GRANULAR BEDDING

STA. 1+131.064 LT. 17.529 m
EXIST. 152 mm P.V.C.
TILE OUTLET
DO NOT DISTURB.

152 mm PVC TILE OUTLET

INLET: 4 m² RIPRAP CL. III
TO BE PLACED ON 230 mm OF GRANULAR FILTER OR GEOTEXTILE MATERIAL
THIS WORK SHALL BE INCIDENTIAL TO RIPRAP.

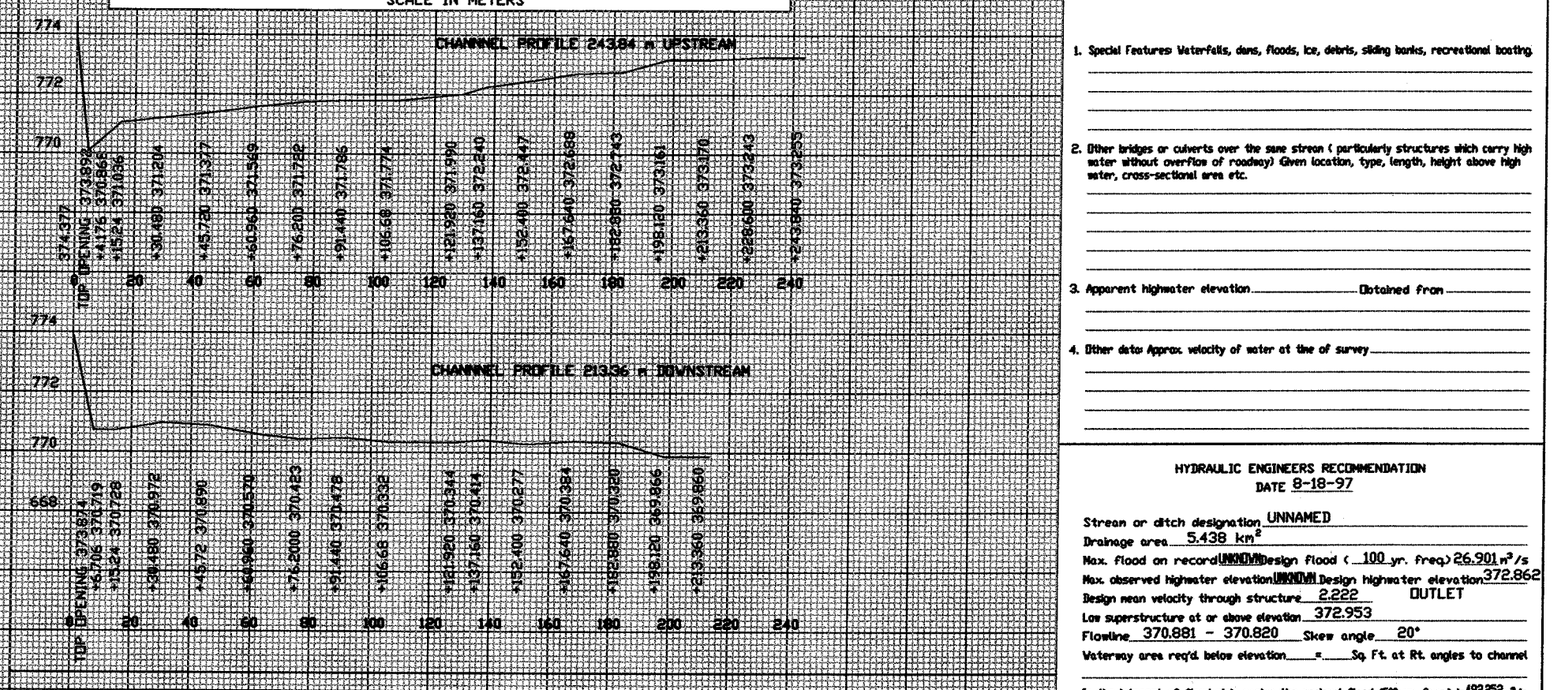
OUTLET 77 m² RIPRAP CL. III
TO BE PLACED ON 230 mm OF GRANULAR FILTER OR GEOTEXTILE MATERIAL
THIS WORK SHALL BE INCIDENTIAL TO RIPRAP.



TYPICAL SECTIONS & PERTINENT DATA

HOR. 1"=20' VER. 1"=2'

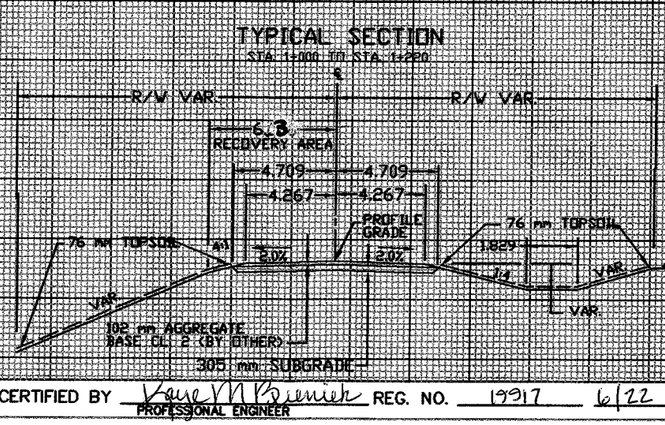
SCALE IN METERS

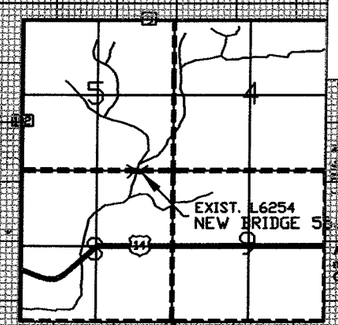


HOR. & VER. SCALE IN METERS

TYPICAL SECTION

STA. 1+000 TO STA. 1+220





(R.12.W. INDEX MAP, 2 CAR SECTIONS)

Fed. Proj. No.

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

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.

3. Apparent highwater elevation _____ Obtained from _____

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

HYDRAULIC ENGINEERS RECOMMENDATION

DATE 8-18-97

Stream or ditch designation UNNAMED
Drainage area 5.438 km²
Max. flood on record UNKNOWN Design flood (100 yr. freq.) 26.901 m³/s
Max. observed highwater elevation UNKNOWN Design highwater elevation 372.862
Design mean velocity through structure 2.222 OUTLET
Low superstructure at or above elevation 372.953
Flowline 370.881 - 370.820 Skew angle 20°
Waterway area req'd. below elevation _____ = _____ Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (500 yr. freq.) is 92.252 m³/s at stage 374.172 and mean velocity of 1.768 m/s with 1.036 m 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.

FOUNDATION ENGINEERS RECOMMENDATION

DATE _____

Bridge survey sheets made from: _____

Bench mark elevation _____ (M.S.L. 1929 Adj.)
Location: _____

MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

10th ST. S.E.

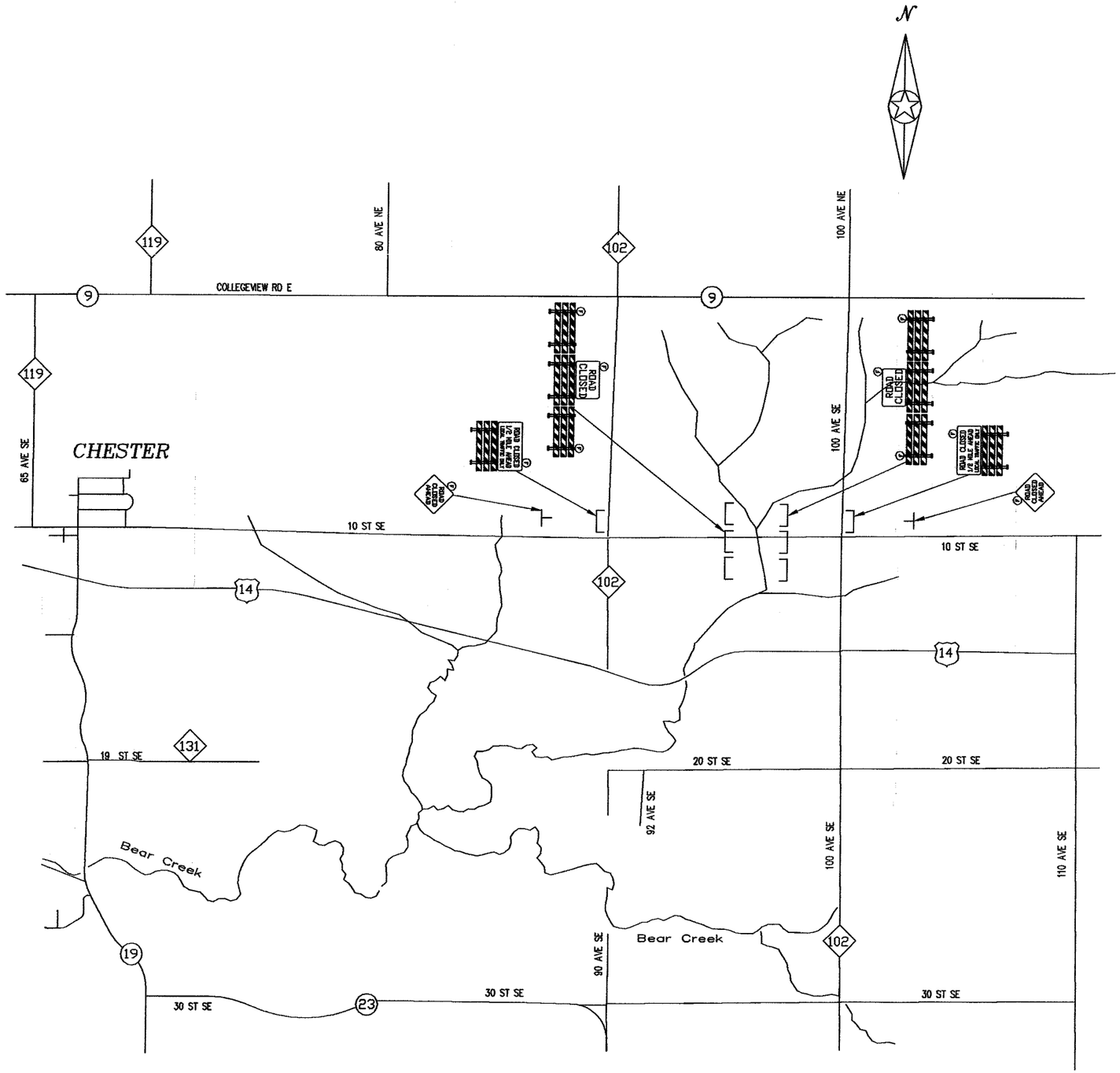
AT kilometer POINT 2.134 ON (TWP. RD. 212) (T.H., C.S.A.H., C.R. etc)
PROPOSED BRIDGE LOCATED 2.134 km EAST OF
ROCHESTER
SEC. 5 TWP. 106 R 12
TOWNSHIP EYOTA COUNTY OLMSTED
BRIDGE NO. 55J14

ALL DIMENSIONS ARE METRIC UNLESS OTHERWISE NOTED.

CERTIFIED BY Kevin M Bierman PROFESSIONAL ENGINEER REG. NO. 19917 6/22 1998

S.A.P. 55-599-66

Sheet No. 9 of 10 Sheets



ESTIMATE OF TRAFFIC CONTROL DEVICES

DEVICE	NUMBER	SIZE	COLOR	QUANTITY	DEVICE	NUMBER	SIZE	COLOR	QUANTITY
ROAD CLOSED	R11-2	48 x 30	BLK/WH	2		TYPE III	MIN. 6'	OR & BLK	8
ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY	R11-3	60 x 30	BLK/WH	2	(F)	TYPE A	FLASHING LAMP	AMBER	10
ROAD CLOSED AHEAD	W20-3	48 x 48	BLK/OR	2					

TRAFFIC CONTROL LEGEND

⊥ POST OR STAND MOUNTED SIGN

└┘ TYPE III BARRICADE

(F) TYPE "A" AMBER FLASHING LAMP

TRAFFIC CONTROL NOTES

1. THE LOCATION OF SIGNS AND DEVICES WILL BE STAKED BY THE ENGINEER IN THE FIELD.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL ON THIS PROJECT.
3. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL DATED APRIL 1995.
4. CONSTRUCTION ZONE SIGNING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL INCLUDE, BUT NOT BE LIMITED TO SIGNS FOR LANE CLOSURE, MACHINERY AHEAD, BUMP, DIP, LOOSE GRAVEL, ETC.. THE NUMBER AND LOCATION WILL BE DETERMINED BY THE CONTRACTORS OPERATION.
5. ALL BARRICADES ON THIS PROJECT SHALL BE REFLECTORIZED ON BOTH SIDES.

CERTIFIED BY Kayel M Bienek PROFESSIONAL ENGINEER REG. NO. 19917 6/22 19 98

S.A.P. 55-599-66 EYOTA TWP.

SHEET 10 OF 10 SHEETS