MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

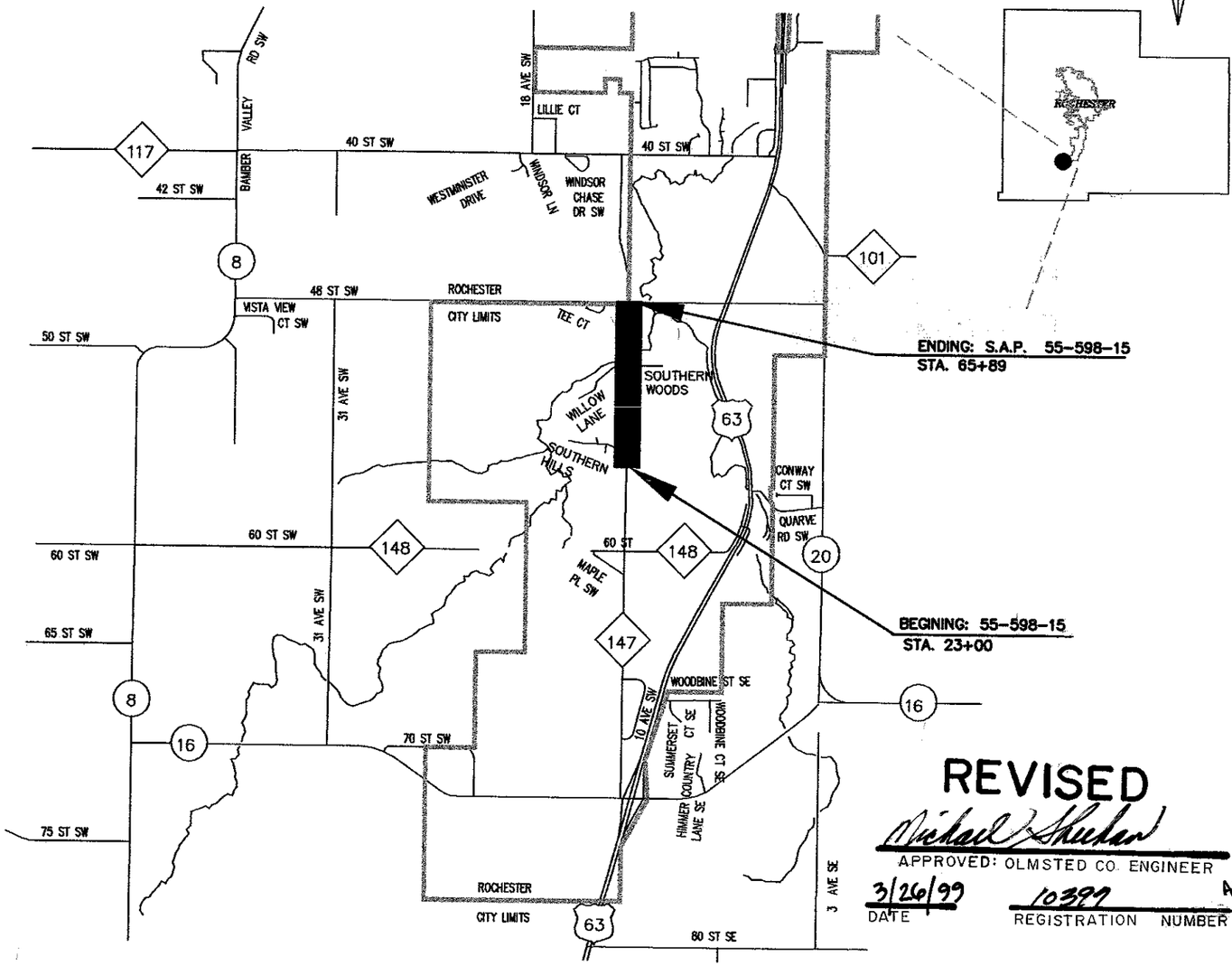
CONSTRUCTION PLAN FOR GRADING & PRECAST CONC. BOX CULVERT (BRIDGE NO. 97671)

LOCATED ON C.R. 147 BETWEEN C.R. 148 AND 48TH ST. S.W. (GEOGRAPHIC DESCRIPTION)

FROM 2980' S. SEC. COR 34 & 35 T106-R14W TO 1709' N SEC. COR. 34 & 35 T106-R14W (LEGAL DESCRIPTION)

S.A.P. NO. 55-598-15

GROSS LENGTH	4289	FEET	0.182	MILES
BRIDGE-LENGTH	0	FEET	0	MILES
EXCEPTIONS-LENGTH	0	FEET	0	MILES
NET LENGTH	4289	FEET	0.182	MILES



REVISED

Michael Sheehan

APPROVED: OLMSTED CO. ENGINEER

3/26/99 DATE

10399 REGISTRATION NUMBER

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 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION". AS AMENDED BY THE MAY 2, 1994 SUPPLEMENT SPECIFICATION SHALL GOVERN.

INDEX

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	ESTIMATE OF QUANTITIES & TYPICAL SECTION
SHEET NO. 3 - 4	PLAN & PROFILE
SHEET NO. 5 - 11	CROSS SECTIONS
SHEET NO. 12 - 14	EROSION CONTROL
SHEET NO. 15 - 16	BRIDGE PLANS
SHEET NO. 17 - 20	BRIDGE DETAILS
SHEET NO. 21	TRAFFIC CONTROL PLANS

THIS PLAN CONTAINS 21 SHEETS.

DESIGN DESIGNATION: S.A.P. 55-598-15

R. = ΣN18(20)
ADT (Current Year) = 570(1998) Design Speed 55 MPH
ADT (Future Year) = 855(2018) Based on STOPPING Sight Distance
DHV (Design Hr. Vol.) = Height of eye 3.5 FT. Height of object 0.5 FT
D (Directional Distr.) = Design Speed not achieved at:
T (Heavy Commercial) = STA. 23+00 TO STA. 31+00 MPH 45
SUBGRADE = K=150 STA. TO STA. MPH
SOIL FACTOR = 130%
SHOULDER WIDTH 8 FT.

AS-BUILT

FEB 26 2001

ENGINEERING

LOCAL APPROVALS:

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 12/15/98 REGISTRATION NUMBER 19917

Dave M Pierrich

APPROVED: COUNTY DESIGN ENGINEER

DATE 12/15/98 REGISTRATION NUMBER 10399

Michael Sheehan

APPROVED: OLMSTED COUNTY ENGINEER

STATE AID APPROVALS:

Revisions approved 4-1-99 HS

Andy Schmidt DATE: 1-5-99

ASST. DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY

DATE: 1/25/99

APPROVED FOR STATE AID FUNDING:
STATE AID ENGINEER

S.A.P. NO. 55-598-15 SHEET NO. 1 OF 21 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 CONCRETE CULVERT	LIN. FT.	76		76
	2104.501	REMOVE METAL CULVERT	LIN. FT.	108		108
②	2104.509	REMOVE CONCRETE HEADWALL	EACH	1		1
	2104.513	SAWING BITUMINOUS PAVEMENT	LIN. FT.	87		87
③	2104.521	SALVAGE CONCRETE PIPE CULVERT	LIN. FT.	104		104
④	2105.515	UNCLASSIFIED EXCAVATION	CU. YD.	36,854		(P) 36,854
⑤	2130.501	WATER	M-GAL	0.3		0.3
⑥	2211.501	AGGREGATE BASE CL. 5	TON	5,634		5,634
	2412.511	12'x 8' PRECAST CONC. BOX CULV.	LIN. FT.		172	172
	2412.512	12'x 8' PRECAST CONC. BOX CULVERT END SECTION	EACH		4	4
	2442.501	REMOVE OLD BRIDGE	LUMP SUM	1		1
	2451.507	GRANULAR BEDDING (CV)	CU. YD.		130	(P) 130
	2501.511	18" C.S. PIPE CULVERT	LIN. FT.	60		60
	2501.515	18" G.S. PIPE APRON	EACH	2		2
	2501.521	44" SPAN R.C. PIPE ARCH CULVERT CL. III	LIN. FT.	96		96
	2501.521	51" SPAN R.C. PIPE ARCH CULVERT	LIN. FT.	42		42
	2501.521	71" SPAN C.S. PIPE ARCH CULVERT	LIN. FT.	46		46
	2501.525	44" SPAN R.C. PIPE ARCH APRON	EACH	2		2
	2501.525	51" SPAN R.C. PIPE ARCH APRON	EACH	2		2
	2501.525	71" SPAN G.S. PIPE ARCH APRON	EACH	1		1
	2501.567	18" C.S. SAFETY APRON & GRATE DES 3128	EACH	2		2
	2501.567	18" R.C. SAFETY APRON & GRATE DES 3128	EACH	2		2
⑦	2501.571	INSTALL CONCRETE CULVERT	LIN. FT.	116		116
⑧	2511.501	RANDOM RIPRAP CL. III	TON		166	166
	2563.601	TRAFFIC CONTROL	LUMP SUM	1		1
⑨	2573.501	BALE CHECKS	EACH	830		830
⑩	2573.502	SILT FENCE, TYPE HEAVY DUTY, INCLUDES MAINTENANCE	EACH	550		550
	2575.501	SEEDING	ACRES	5.4		(P) 5.4
	2575.502	SEED MIXTURE 500	POUNDS	270		270
	2575.502	SEED MIXTURE 1000	POUNDS	432		432
	2575.511	MULCH MATERIAL TYPE 1	TON	10.8		10.8
	2575.519	DISK ANCHORING	ACRES	3.6		(P) 3.6
	2575.531	COMMERCIAL FERTILIZER ANALYSIS 10-10-10	TON	0.5		0.5

(P) PLAN QUANTITY

QUANTITY NOTES

① APPROX. 23 TREES AND 1.2 ACRES WOODS IN R/W, EXCEPT THOSE DESIGNATED BY THE ENGINEER.

② 48th ST. S.W. STA. 65+76 LT. INLET ONLY

③ SALVAGE 2 CONCRETE APRONS AT STA. 49+53 LT. TO BE INCLUDED IN ITEM 2104.521

④ UNCLASSIFIED EXCAVATION INCLUDES SUBGRADE TREATMENT AS SHOWN IN TYPICAL SECTIONS AND CROSS SECTIONS FOR C.R. 147. 2,169 CU. YDS. UNCLASSIFIED EXCAVATION, TO BE USED AS SALVAGE TOPSOIL.

⑤ WATER TO BE USED AS A DUST PREVENTATIVE AS DIRECTED BY THE ENGINEER.

⑥ INCLUDES 3,903 TONS FOR MAINLINE, 366 TONS FOR APPROACHES AND ENTRANCES, AND 1,365 TONS FOR TRANSITION FOR FINISHED AGGREGATE ON C.R. 147 TO BITUMINOUS SURFACE ON 48th ST. S.W.

⑦ INSTALL 2 CONCRETE APRONS AT STA. 49+53 LT. TO BE INCLUDED IN ITEM 2501.571

⑧ PLACE RIPRAP ON 9" GRANULAR FILTER OR GEOTEXTILE MATERIAL WHICH SHALL BE CONSIDERED INCIDENTAL AND NO DIRECT COMPENSATION WILL BE MADE.

⑨ 430 BALES STA. 27+00 TO STA. 51+50 RT., 370 BALES STA. 27+00 TO STA. 43+00 LT. & 30 BALES STA. 46+00 TO STA. 51+50.

⑩ TO BE PLACED AS DIRECTED BY THE ENGINEER.

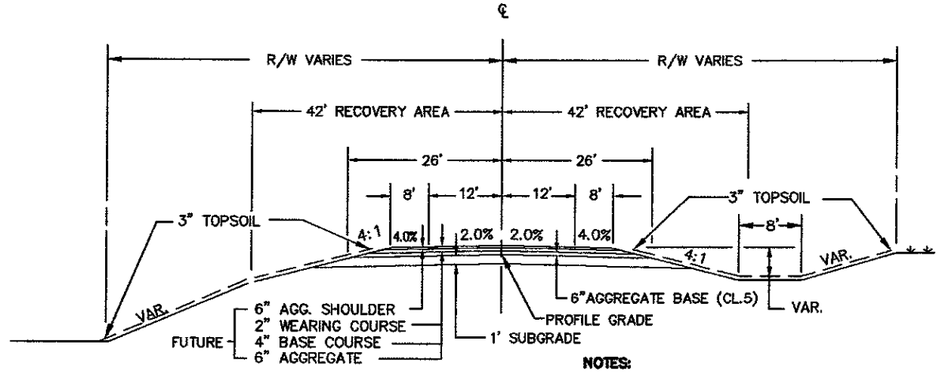
BASIS OF PLANNED QUANTITIES

AGGREGATE BASE CLASS 5 –	140 LBS / CU. FT. COMPACTED
SEED MIXTURE 500 –	50 LBS / ACRE
SEED MIXTURE 1100 –	80 LBS / ACRE
MULCH MATERIAL –	2 TONS / ACRE
DISC ANCHOR –	ALL SEEDING AREA'S, EXCLUDING 2:1 SLOPES
COMMERCIAL FERTILIZER –	200 LBS / ACRE

REVISED

TYPICAL SECTION

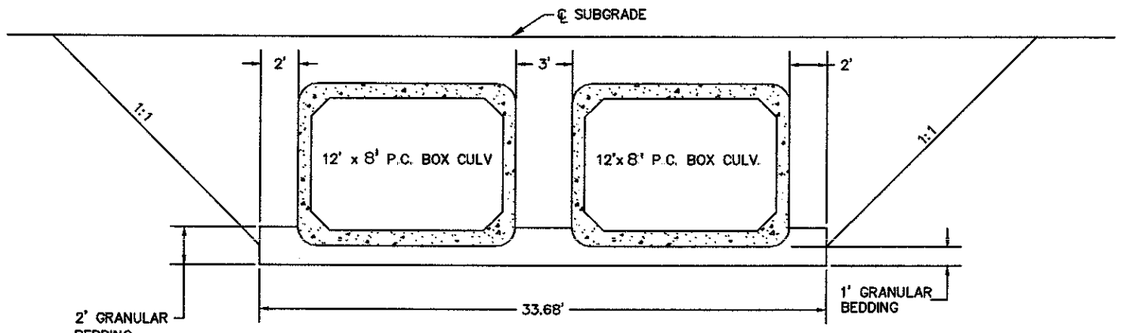
TRANSITION FROM EXIST. TO TYP: STA. 23+00 TO STA. 25+00
TYPICAL SECTION STA. 25+00 TO STA. 65+89



NOTES:

1. ALL UTILITY POLES AND UNYIELDING OBJECTS WILL BE LOCATED OUTSIDE THE 42' RECOVERY AREA BY OTHERS.

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. GRANULAR BEDDING TO BE PLACED UNDER BARREL SECTION ONLY.

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
3007C	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3014J	REINFORCED CONCRETE PIPE-ARCH
3040F	CORRUGATED METAL PIPE CULVERT
3110G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3122K	METAL APRON FOR C.M. PIPE-ARCH CULVERT
3123J	METAL APRON FOR C.S. PIPE
3124B	METAL APRON CONNECTION
3128F	SAFETY APRON
3145E	CONCRETE PIPE TIES
3221C	CORRUGATED STEEL PIPE COUPLING BAND
8000I	STANDARD BARRICADES
*9000C	APPROACHES AND ENTRANCES

*NOTE: BACKSLOPES ON APPROACHES AND ENTRANCES ARE 4:1 SLOPES.

AS-BUILT

FEB 26 2001

ENGINEERING

CERTIFIED BY Gary M Bierwiek PROFESSIONAL ENGINEER REG. NO. 19917 12/15 1998

S.A.P. 55-598-15 C.R. 147

SOUTHERN HILLS DR. LT. STA. 28+34
INPL. 18" x 64' R.C.P. CULV.
2 - R.C. PIPE APRONS
SALVAGE 64' R.C.P.

INSTALL SALVAGED 18" x 64' R.C.P. CULV.
2 - 18" R.C. PIPE SAFETY APRONS

℄ CULV STA. 43+07
INPL. 24" x 56' C.M.P. CULV.
NO APRONS
REMOVE 56'

WATER MAIN XING
CONNECT ONTO 12" STUB @ STA. 28+30
4' RT.
EXTEND TO 40' RT
36 LF, 12" DIP CL 52

F.E. RT. STA. 26+58
INPL. 18" x 24' C.M.P. CULV.
NO APRON
REMOVE 24'

MOVE F.E. RT. STA. ~~25+58~~ 22+50
18" x 24' C.S. PIPE CULV.
2 - 18" G.S. PIPE APRONS
WITH SAFETY APRONS

℄ CULV STA. 36+45 & STA. 36+60
INPL. 2 - 24" x 38' R.C.P. CULV.
NO APRONS
REMOVE 76'

℄ CULV. STA. 36+00 SKEW 30°
~~44" x 96' R.C. ARCH PIPE CULV. CL. III~~
2 - 44" R.C. ARCH PIPE APRONS
PLACE ON CLASS "B" BEDDING
44"x80' R.C. ARCH PIPE CULV. CL III

RES. DR. RT. STA. 36+85
15' BIT. WITH BIT. CURB ON NORTH SIDE
NO CULV. INPL.

MOVE RES. DR. RT. STA. 36+50
NO CULV.

BITUMINOUS PAVEMENT STARTS 48+38

AS-BUILT
FEB 26 2001
ENGINEERING

CERTIFIED BY Kenneth Bowersock REG. NO. 19917 12/15 1998
PROFESSIONAL ENGINEER

S.A.P. 55-598-15

SHEET 3 OF 21 SHEETS

WILLOW LANE S.W. LT. STA. 49+53
INPL. 18" x 40' R.C.P. CULV.
WITH 2 - 18" R.C. PIPE APRONS
SALVAGE ~~40' AND~~ APRONS
~~INSTALLED NEW 40' RCP~~
MOVE & INSTALL SALVAGED
18" R.C.P. CULV. & APRONS
OUTSIDE THE 42' RECOVERY AREA

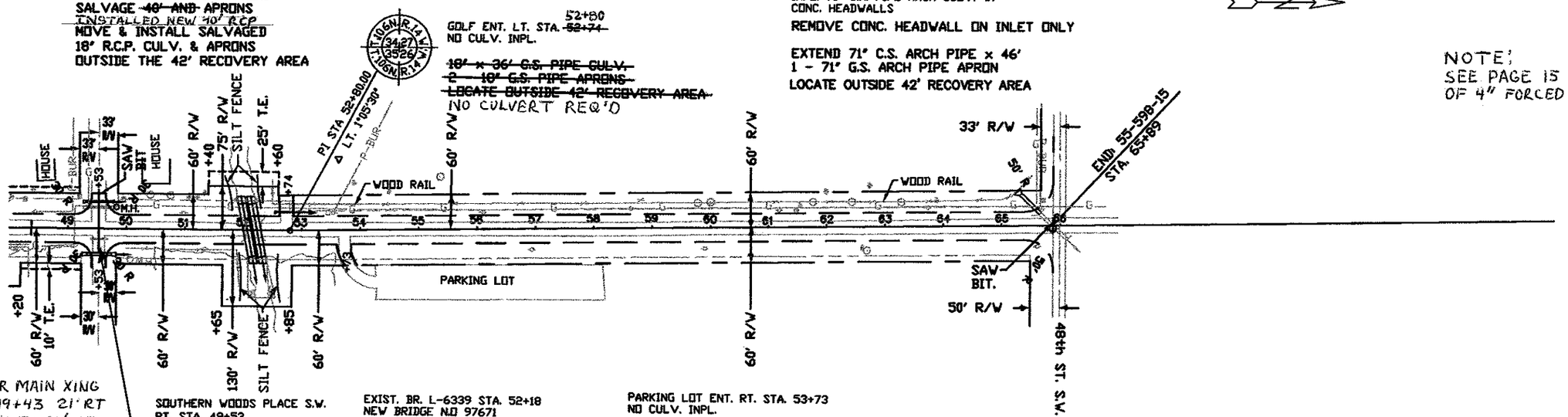
GOLF ENT. LT. STA. ~~52+74~~ 52+80
NO CULV. INPL.

~~18" x 36' C.S. PIPE CULV.~~
~~2 - 18" C.S. PIPE APRONS~~
~~LOCATE OUTSIDE 42' RECOVERY AREA~~
NO CULVERT REQ'D

℄ CULV. STA. 65+76 SKEW 46°
INPL. 71" C.M. PIPE ARCH CULV. W/
CONC. HEADWALLS
REMOVE CONC. HEADWALL ON INLET ONLY

EXTEND 71" C.S. ARCH PIPE x 46'
1 - 71" G.S. ARCH PIPE APRON
LOCATE OUTSIDE 42' RECOVERY AREA

NOTE;
SEE PAGE 15 FOR RELOCATION
OF 4" FORCED SEWER MAIN



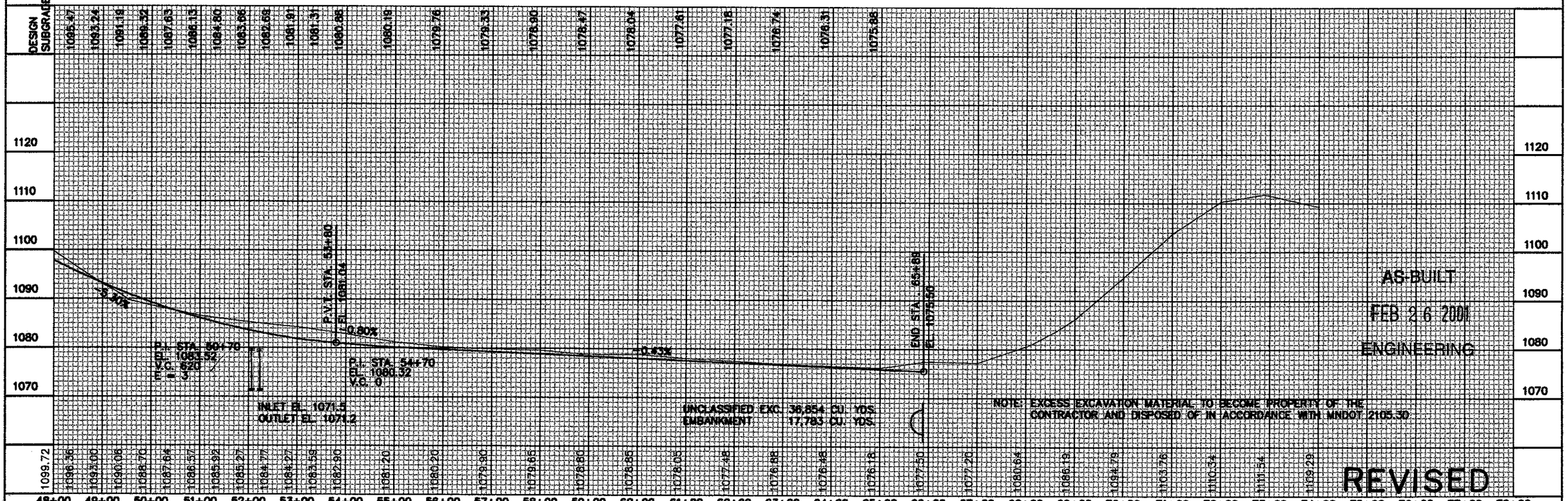
WATER MAIN XING
STA. 49+43 21' RT
EXTEND TO 60' LT.
OF ℄
81 L.F. 8" DIP CL.52

SOUTHERN WOODS PLACE S.W.
RT. STA. 49+53
INPL. 15" x 28' C.M.P. CULV.
NO APRONS
REMOVE 28'

51" x 42" R.C. PIPE ARCH
2 - 51" R.C. PIPE ARCH APRONS
LOCATE OUTSIDE 42' RECOVERY AREA

EXIST. BR. L-6339 STA. 52+18
NEW BRIDGE NO 97671
SEE BRIDGE SHEET NO. 15 & 16

PARKING LOT ENT. RT. STA. 53+73
NO CULV. INPL.
NO CHANGE



UNCLASSIFIED EXC. 36,854 CU. YDS.
EMBANKMENT 17,783 CU. YDS.

NOTE: EXCESS EXCAVATION MATERIAL TO BECOME PROPERTY OF THE CONTRACTOR AND DISPOSED OF IN ACCORDANCE WITH MNDOT 2105.3D

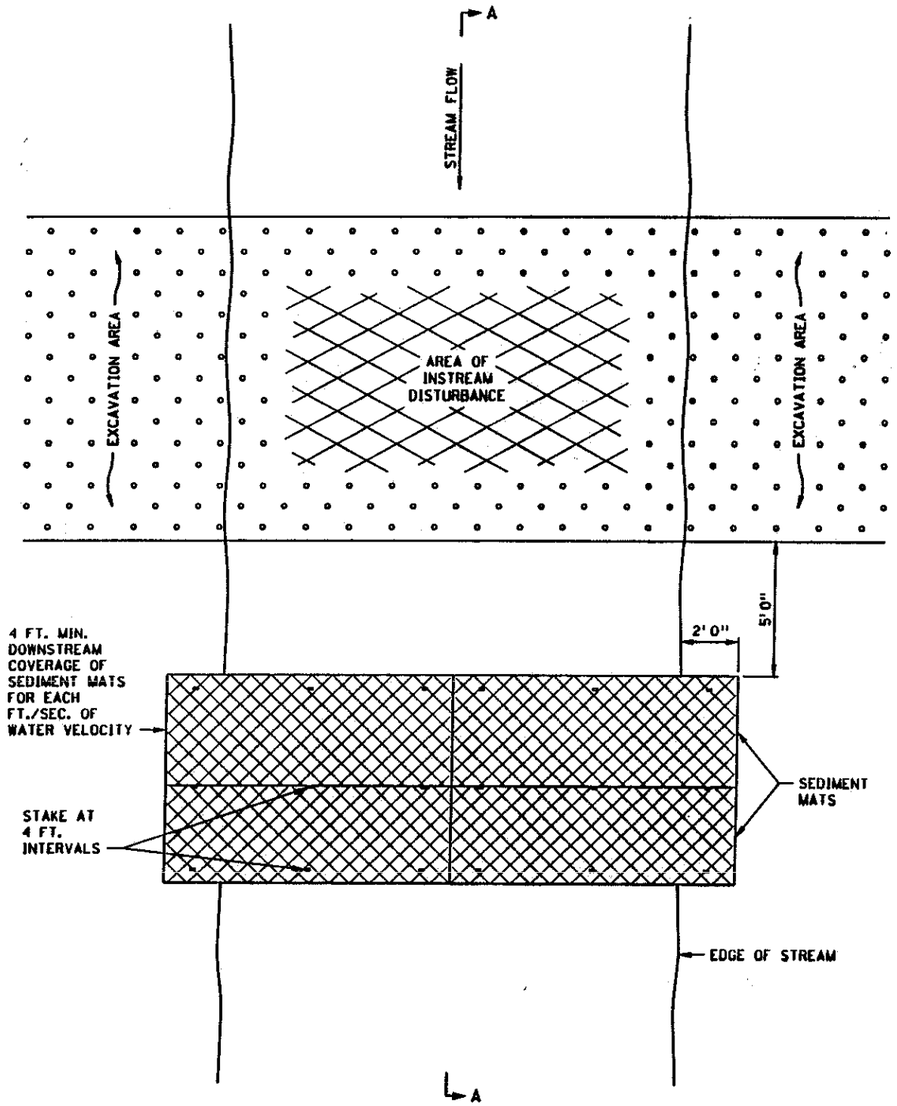
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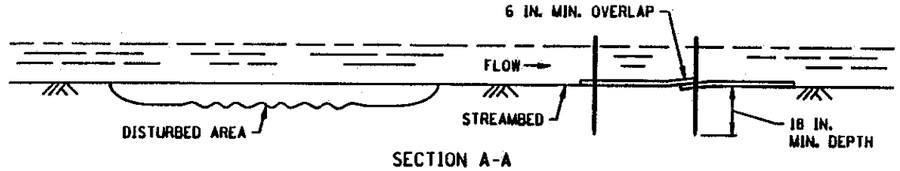
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PROFESSIONAL ENGINEER

S.A.P. 55-598-15

SHEET 4 OF 21 SHEETS



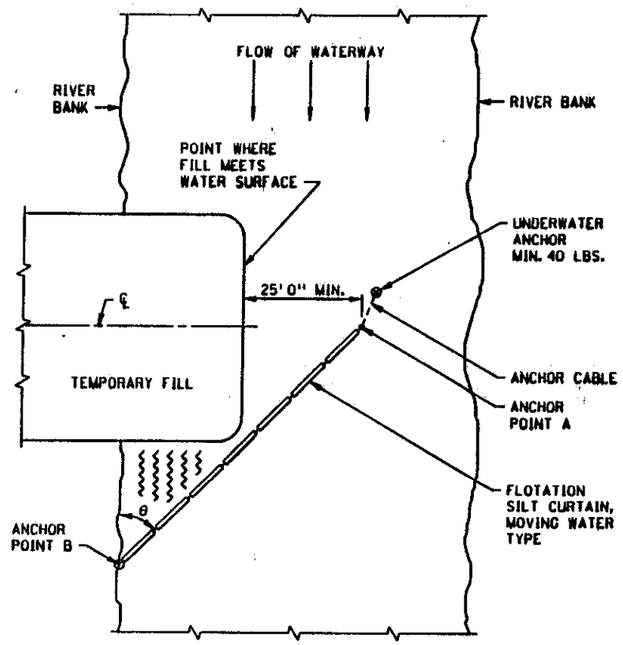
PLAN VIEW



SECTION A-A

SEDIMENT MAT
TYPICAL STREAMBED INSTALLATION

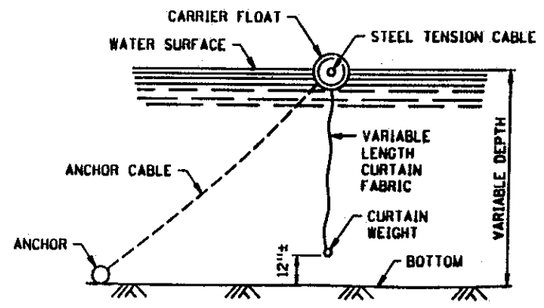
DESIGN CRITERIA:
MAXIMUM FLOW VELOCITY: 5 FT./SEC.
MAXIMUM FLOW DEPTH: 2 FT.



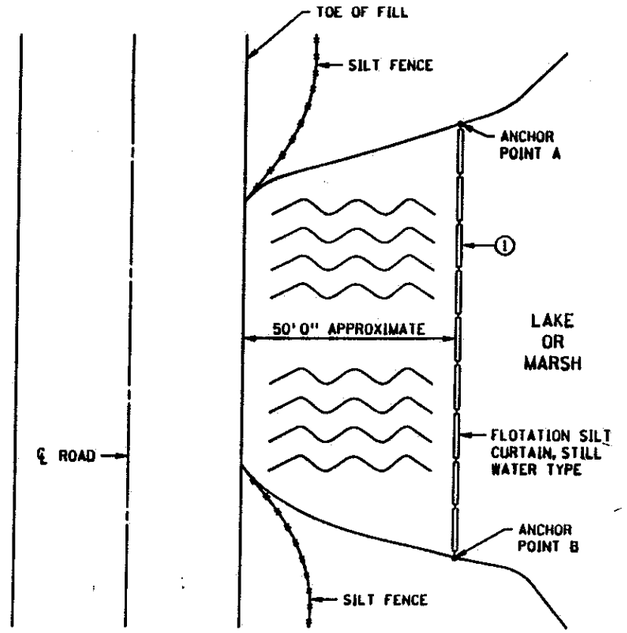
∠ θ	RIVER VELOCITY
45°	SLOW, LESS THAN 5 FT./SEC.
35°	MODERATE, 5 - 7 FT./SEC.

PLAN VIEW OF SILT CURTAIN - MOVING WATER

DESIGN CRITERIA:
MAXIMUM WATER DEPTH: 12 FT.
MAXIMUM WATER VELOCITY: 7 FT./SEC.

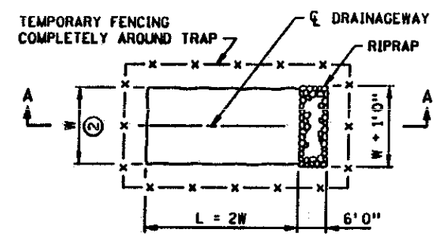


FLOTATION SILT CURTAIN DETAIL
(SEE SPEC. 3887)

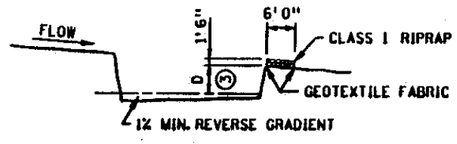


PLAN VIEW OF SILT CURTAIN - STILL WATER

DESIGN CRITERIA:
MAXIMUM WATER DEPTH: 12 FT.



PLAN



SECTION A-A

TEMPORARY SEDIMENT TRAP DETAIL

AS-BUILT

FEB 26 2001

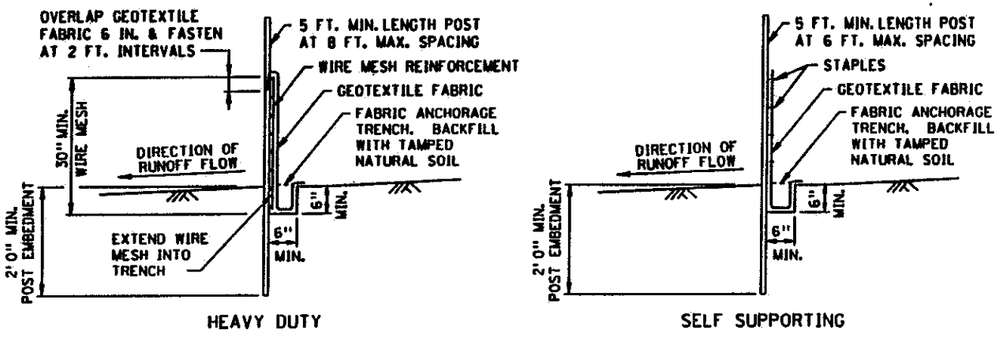
ENGINEERING

NOTES:
① CURTAIN 1 FT. FROM BOTTOM
② W = 10 FT. MIN., 20 FT. MAX.
③ D = 3 FT. MIN., 6 FT. MAX.

STANDARD SHEET NO.	TITLE:
5-297.405 (1 OF 3)	TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	

S.A.P. NO. 55-598-15 SHEET NO. 12 OF 21 SHEETS

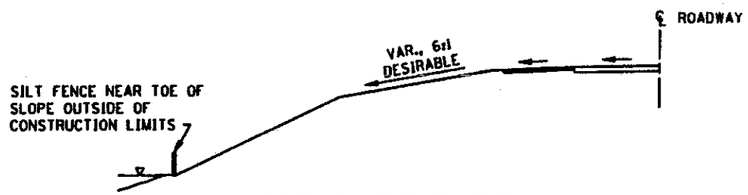
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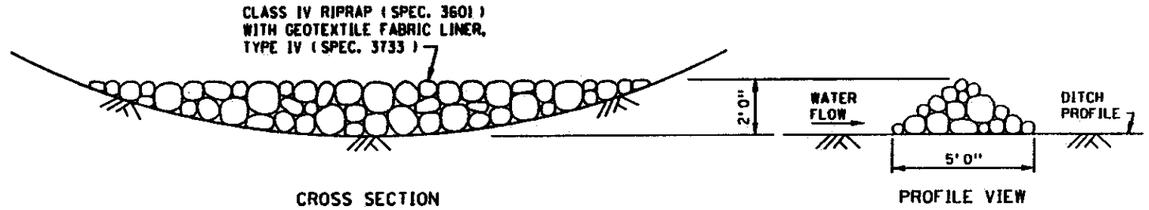
SILT FENCE DETAILS

TO PROTECT AREAS FROM SHEET FLOW
(SEE SPEC. 3886)

DESIGN CRITERIA:
MAXIMUM CONTRIBUTING AREA: 3 ACRES



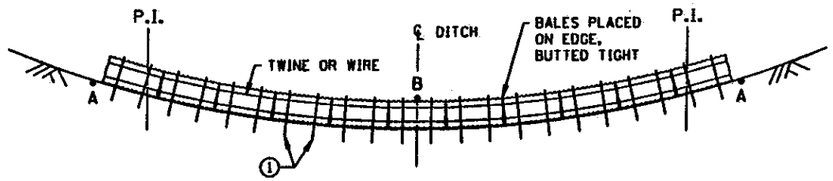
ROADWAY EMBANKMENT



CROSS SECTION

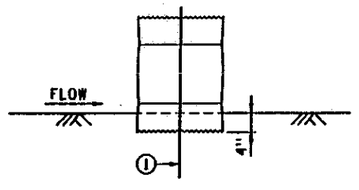
PROFILE VIEW

ROCK DITCH CHECK

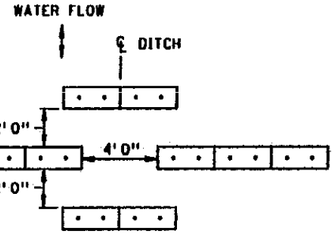


NOTE:
POINT A MUST BE HIGHER THAN POINT B

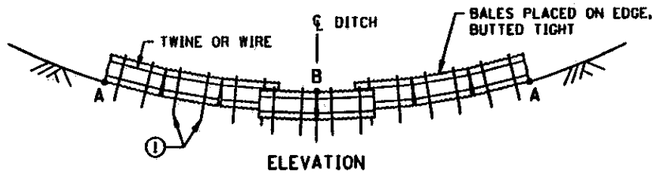
BALE DITCH SEDIMENT CHECK



BALE CHECK DETAIL



PLAN VIEW



ELEVATION

NOTE:
POINT A MUST BE HIGHER THAN POINT B

BALE DITCH VELOCITY CHECKS
(WILL REQUIRE A MINUMUM OF 10 BALES PER SITE)

RECOMMENDED SPACING BETWEEN DITCH CHECKS	
DITCH GRADE (%)	SPACING (FT.)
2	100
4	75
6	50
8	40
10	25

DESIGN CRITERIA:

	BALE	ROCK
STORM FREQUENCY:	2 YR. - 24 HR.	10 YR. - 24 HR.
MAX. FLOW VELOCITY:	5 FT./SEC.	12 FT./SEC.
MAX. DITCH GRADE:	5%	—
MAX. DRAINAGE AREA:	2 ACRES	5 ACRES

NOTE:
① TWO 2 IN. X 2 IN. WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 10 IN. MINIMUM.

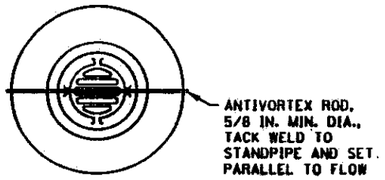
AS-BUILT

FEB 26 2001

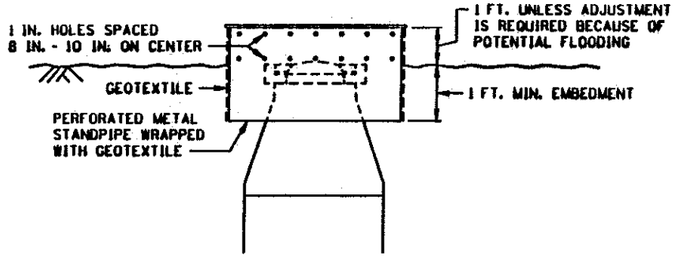
ENGINEERING

STANDARD SHEET NO. 5-297.405 (2 OF 3)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	
S.A.P. NO. 55-598-15	SHEET NO. 13 OF 21 SHEETS

SERVER CA645L/USR/STANDARDS FILE NAME S4052E95.SPN



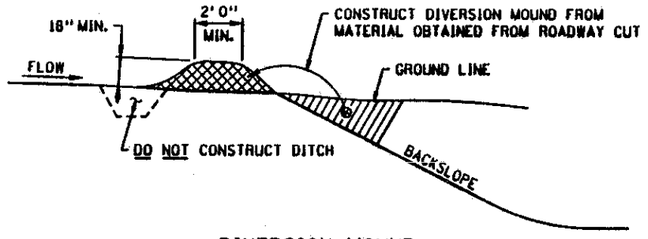
PLAN VIEW



ELEVATION

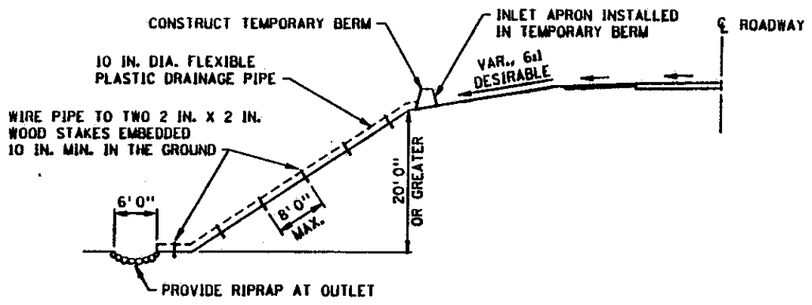
TEMPORARY STANDPIPE
TO PROTECT DROP INLET

DESIGN CRITERIA:
STORM FREQUENCY: 10 YEAR. - 24 HOUR.



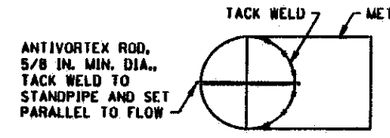
DIVERSION MOUND

DESIGN CRITERIA:
STORM FREQUENCY: 10 YEAR - 24 HOUR
MAXIMUM DRAINAGE AREA: 5 ACRES
MAXIMUM DIVERSION: GRADE 5%

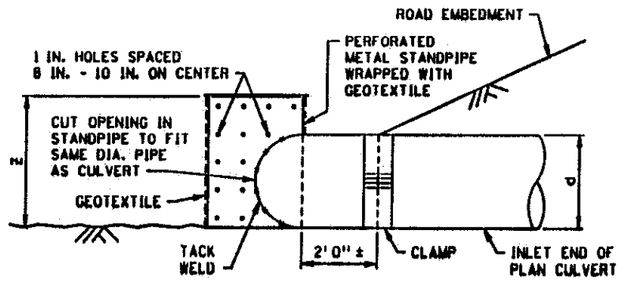


TEMPORARY DRAIN ON FILL SLOPE

DESIGN CRITERIA:
STORM FREQUENCY: 2 YEAR - 24 HOUR
MAXIMUM DRAINAGE AREA: 3 ACRES



PLAN VIEW

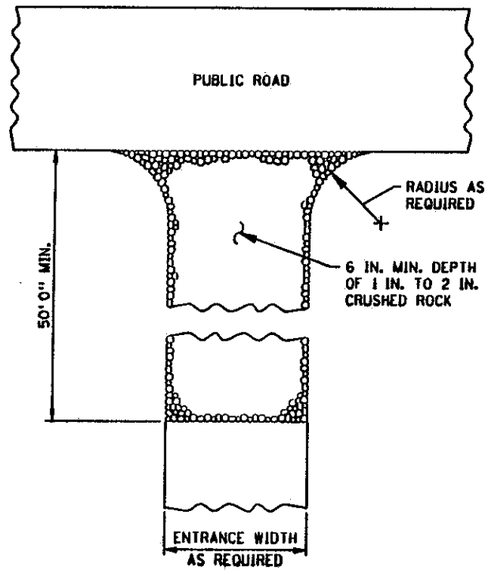


ELEVATION

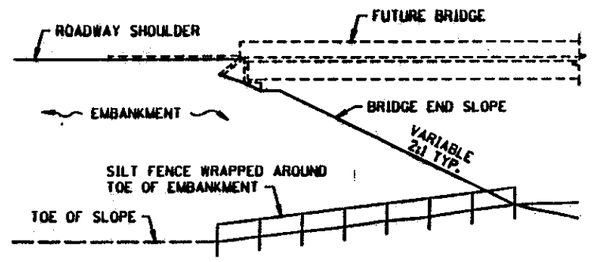
TEMPORARY STANDPIPE
FOR SEDIMENT CONTROL ON CULVERT INLET

d = DIA. OF STANDPIPE EQUAL TO DIA. OF PLAN CULVERT
ℓ = LENGTH OF PERFORATED STANDPIPE (d + 1 FT.)

DESIGN CRITERIA:
CULVERT SIZE: 12 - 36 IN.
STORM FREQUENCY: 10 YR. - 24 HR.

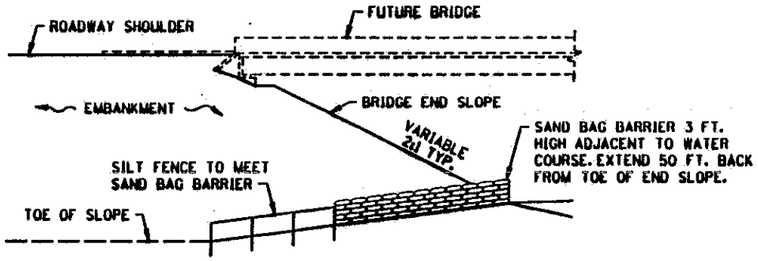


ROCK CONSTRUCTION ENTRANCE



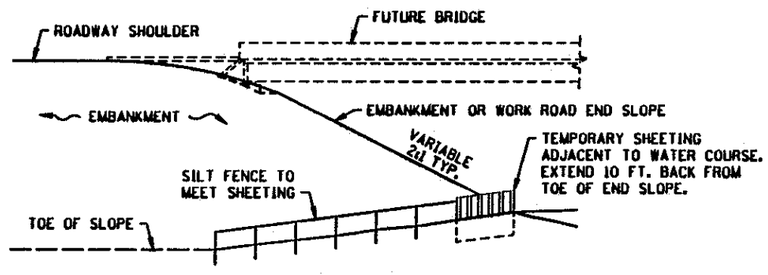
BRIDGE FILL

DESIGN CRITERIA:
WATER COURSE FLOW VELOCITY: STAGNANT
CONTRIBUTING SLOPE AREA: 1/2 ACRE



BRIDGE FILL

DESIGN CRITERIA:
MAX. WATER COURSE FLOW VELOCITY: 7 FT./SEC.
CONTRIBUTING SLOPE AREA: 1 ACRE



EMBANKMENT OR WORK ROAD FILL

DESIGN CRITERIA:
MAX. WATER COURSE FLOW VELOCITY: 15 FT./SEC.
CONTRIBUTING SLOPE AREA: 3 ACRES

AS-BUILT
FEB 26 2001
ENGINEERING

STANDARD SHEET NO. 5-297.405 (3 OF 3)	TITLE: TEMPORARY EROSION CONTROL
STANDARD APPROVED: MAY 1, 1995	

S.A.P. NO. 55-598-15 SHEET NO. 14 OF 21 SHEETS

SERVER CA645I1/USR/STANDARDS FILE NAME S405E95.SPN

Fed. Proj. No.

RELOCATED 4" DUCTILE IRON FORCED SEWER MAIN POURED 12" CRETE OVER MAIN IN CHANNEL AREA.

INLET RANDOM RIPRAP CLASS III
18" DEPTH 4 TON

INPL. 4" PVC FORCE MAIN

BEND STA. 51+70.79
LT. 67.72'
ELEV. 1070.86

BEND STA. 51+51.13
LT. 42.35'
ELEV. 1072.83

BEND STA. 52+24.24
LT. 72.41'
ELEV. 1070.64

INPL. 4" PVC FORCE MAIN

BEND STA. 52+53.76
LT. 45.30'
ELEV. 1070.92

25' TE

52+06.60

52+23.25

9°

GRANULAR BEDDING
33.68' x 92' x 1.0' = 115 CU. YDS. UNDER BARREL
7.0' x 92' x 1.0' = 24 CU. YDS. AROUND BARREL = TOTAL 139 CU. YDS. (CV)

OUTLET RANDOM RIPRAP CLASS III
18" DEPTH 162 TON

WILLOW LANE SW +53

SOUTHERN WOODS PLACE SW +53

GOLF ENT +74

PARKING LOT ENT. +73

CENTER LINE OF LAYOUT
CENTER LINE C.R. 147

PROFILE 30' LT. UPSTREAM
PROFILE 20' RT. DOWNSTREAM

DESIGN SUBGRADE

INLET EL. 715
OUTLET EL. 712

GRANULAR BEDDING

55.68'

AS-BUILT

FEB 26 2001

ENGINEERING

BORINGS SHOWN [ ] TAKEN WITH
STD 140 LB HAMMER
30 INCH DROP
2 INCH O.D. SAMPLER

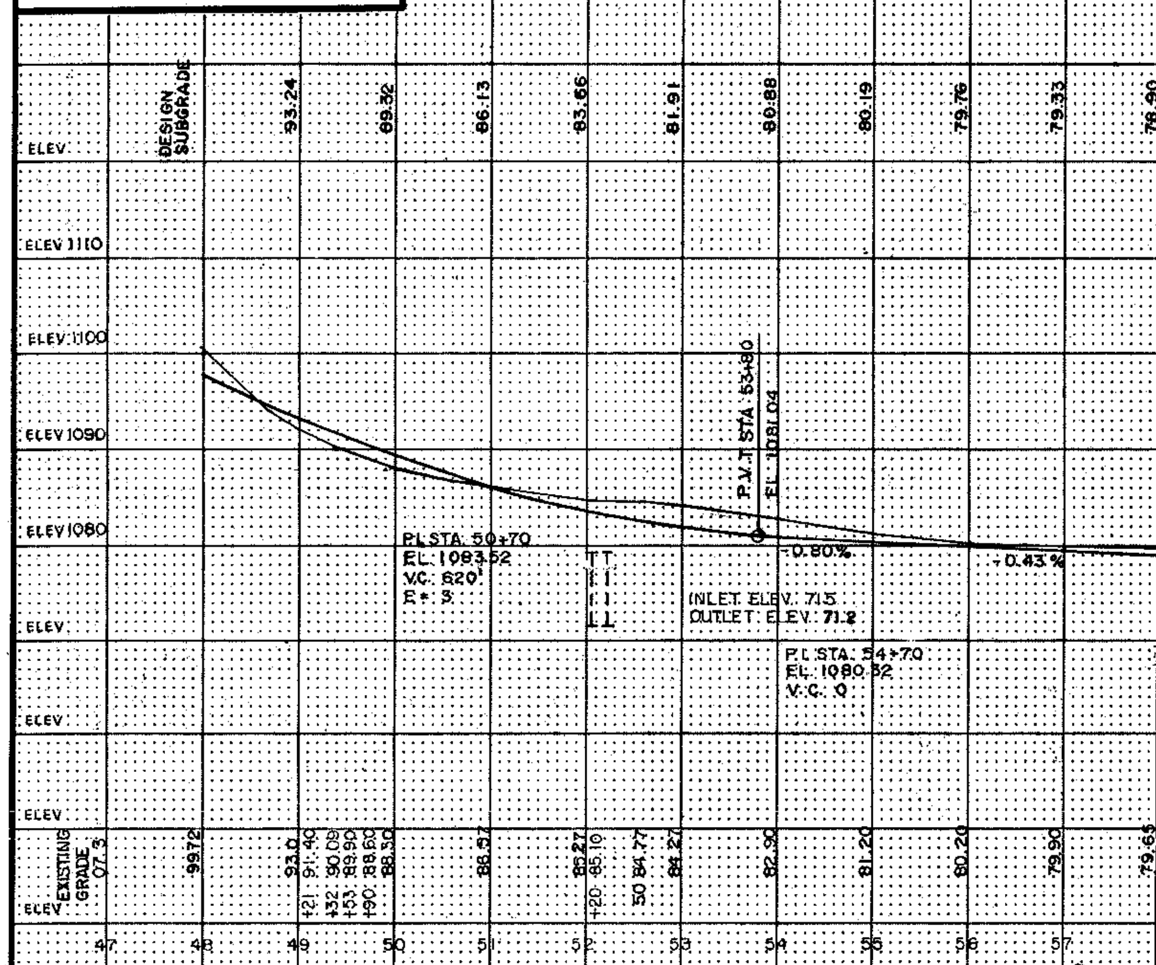
REVISED

Kaye M Bierwirth 19917 12/15/98 BRIDGE NO. 97671

BRIDGE SURVEY PLAN AND PROFILE	DES:	DR:	APPROVED:	Bridge No.
	CHK:	CHK:		97671
S.A.P. NO. 55-598-15	Sheet No. 15 of 21 Sheets			

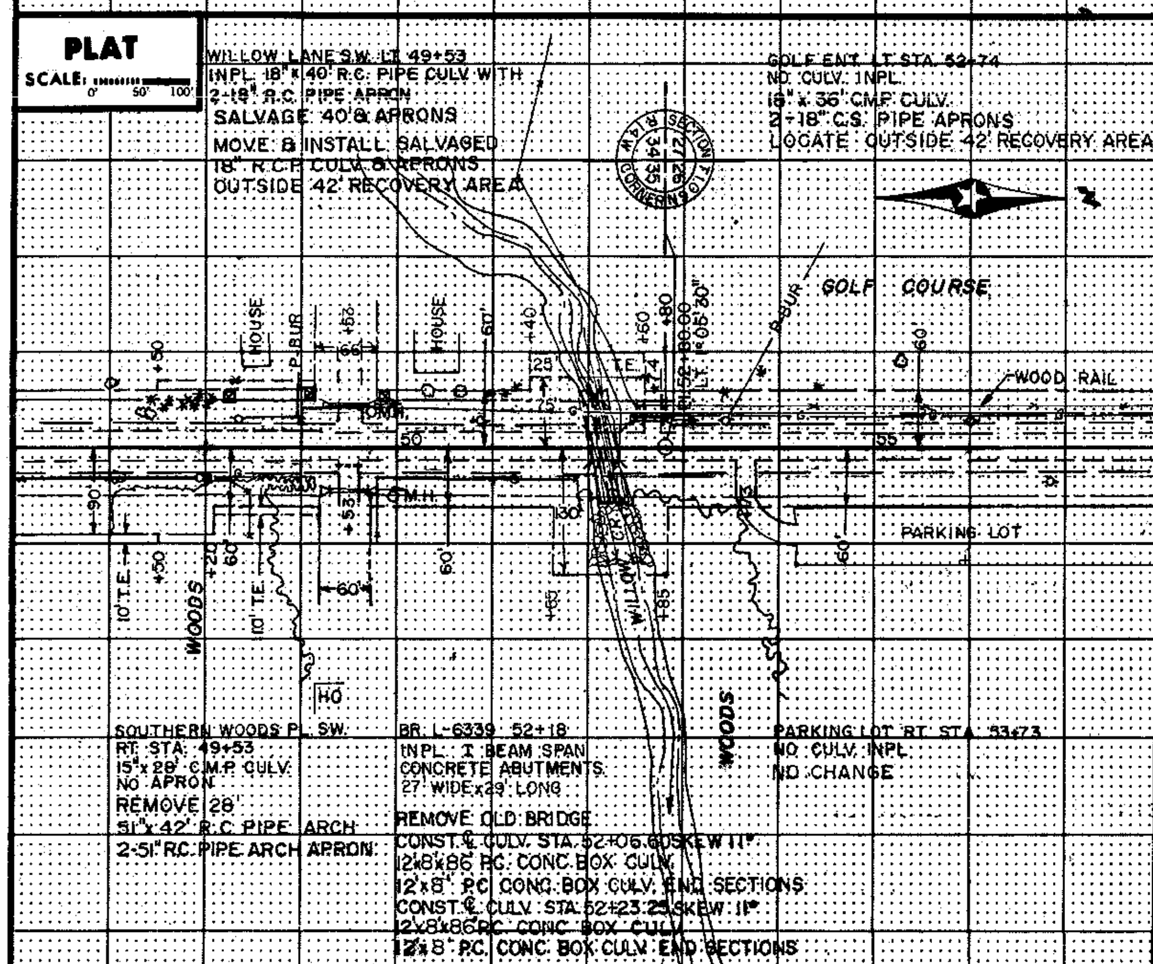
CONTRACTED PROFILE

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



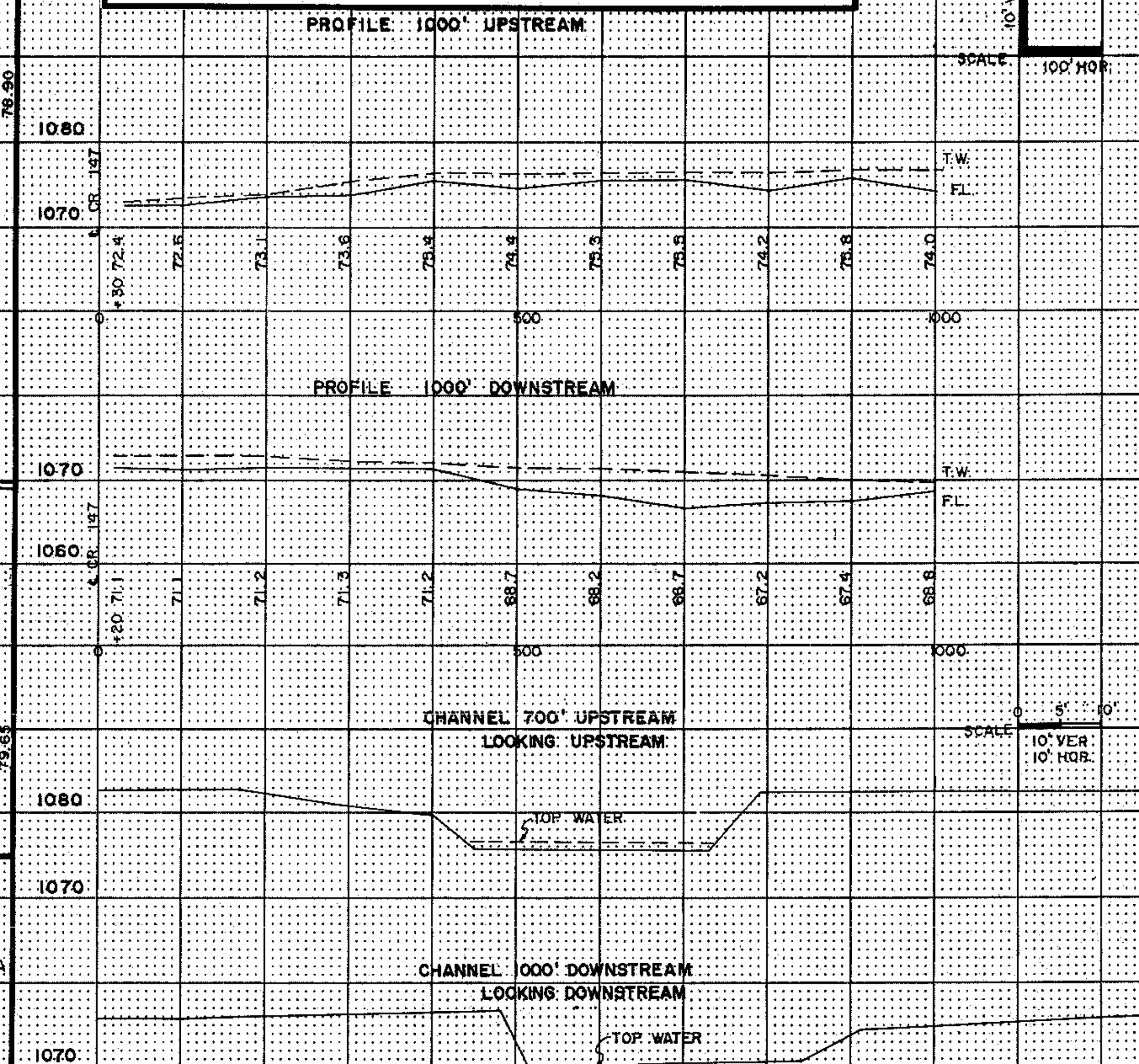
PLAT

SCALE: 0' 50' 100'



TYPICAL SECTIONS & PERTINENT DATA

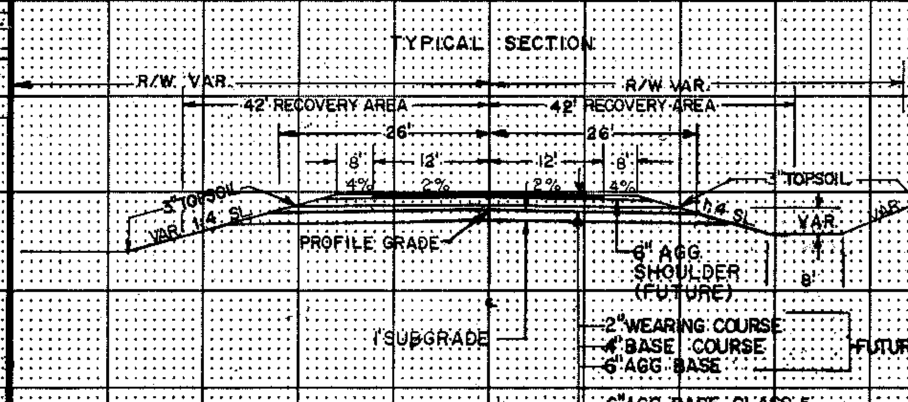
SCALES AS SHOWN

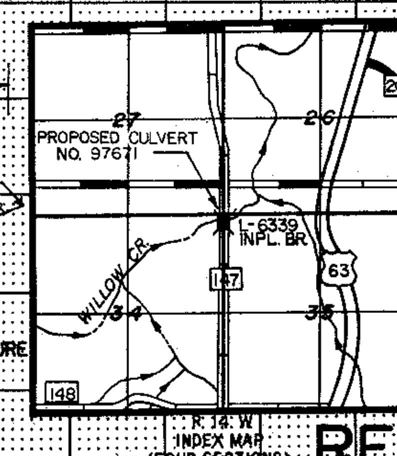


AS-BUILT

FEB 26 2001

ENGINEERING





REVISED

Fed. Proj. No.

LOCATION ENGINEER'S OBSERVATIONS AT BRIDGE SITE

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 3-12-99

Stream or ditch designation WILLOW CREEK
Drainage area 11.5 SQ. MILES
Max. flood on record UNKNOWN Design flood (100 ... yr. freq.) 1300 C.F.S.
Max. observed highwater elevation UNKNOWN Design highwater elevation ....
Design mean velocity through structure 7.4 F.P.S. OUTLET
Low superstructure at or above elevation ....
Flowline elevation 1071.3 Skew angle 11°
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 2100 C.F.S. at stage 1080.2 and mean velocity of 9.2 F.P.S. with 1.6 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.

FOUNDATION ENGINEERS RECOMMENDATION

DATE ....

Bridge survey sheets made from: BRIDGE SURVEY CONDUCTED BY OLMSTED COUNTY

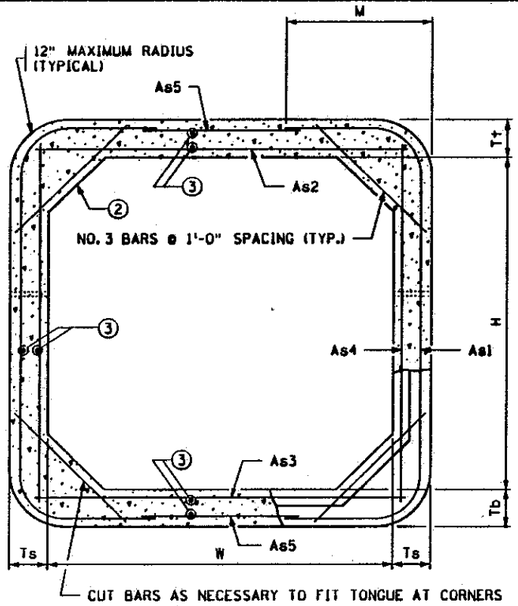
Bench mark elevation 1081.71 (M.S.L. 1929 Adj.)
Location: SPK IN P. POLE 33' RT STA. 51+33

MINNESOTA
DEPARTMENT OF TRANSPORTATION

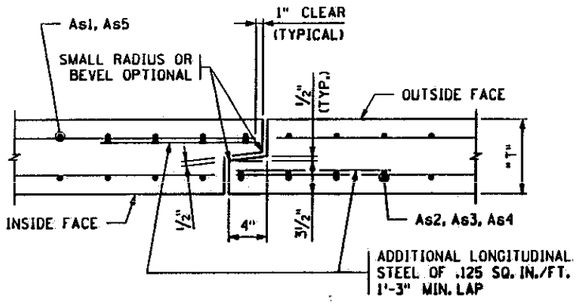
BRIDGE SURVEY

AT MILE POINT 0.96 ON CR. 147 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 4 MILES SOUTH OF ROCHESTER
SEC. 34 TWP 106 R 14
TOWNSHIP ROCHESTER COUNTY OLMSTED
BRIDGE NO. 97671

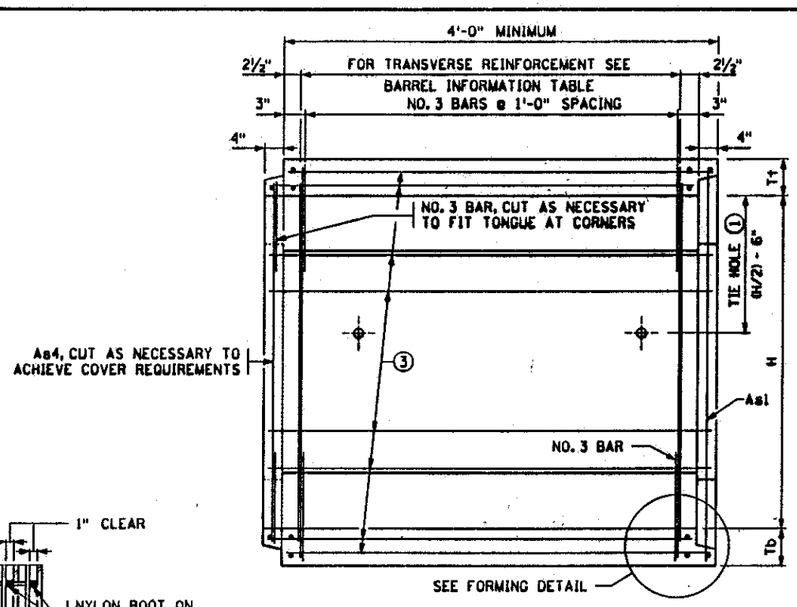
~~Area No.~~ ~~Job No.~~ Kaye M Bieniek 19917 12/15/98 S.A.R NO. 55-598-15



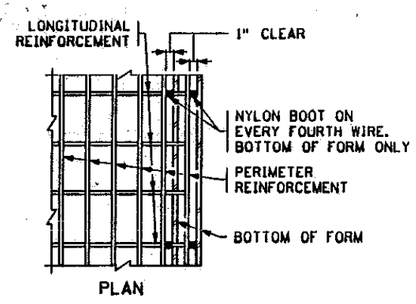
TRANSVERSE BARREL SECTION
(BAR REINFORCEMENT OPTION SHOWN)



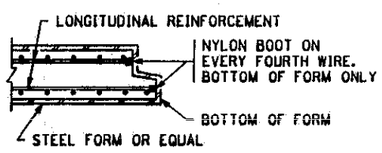
TONGUE AND GROOVE JOINT DETAIL



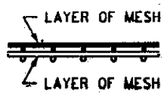
LONGITUDINAL BARREL SECTION
(BAR REINFORCEMENT OPTION SHOWN)



PLAN



SECTION
FORMING 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.

1½" MIN. AND 2" MAX. 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. 6. THE MAXIMUM MESH SIZE SHALL BE ½" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8 INCHES.

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.

BARREL SECTIONS WHICH ARE CAST WITH A DRAFT IN THE FORMS SHALL BE LAID WITH THE NARROWEST PART OF THE SECTION DOWNSTREAM.

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

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
- 6 AND 8 FT. WIDTHS - 6 TO 12 INCHES
- 10 FT WIDTH - 10 TO 12 INCHES
- 12 FT WIDTH - 12 INCHES

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN. /FT.

AS-BUILT

FEB 26 2001

ENGINEERING

BARREL INFORMATION

LOCATION	SIZE	CLASS	f'c (P.S.I.)	FILL HEIGHT RANGE (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT											
											As1			As2		As3		As4		As5	
					W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)
52+06.60	12' x 8'	2	5000	2' - 8'	12	8	9	10	8	4930	0.74	15'-3"	3'-6"	1.20	12'-8"	1.06	12'-8"	0.20	8'-8"	0.06	9'-0"
52+23.25	12' x 8'	2	5000	2' - 8'	12	8	9	10	8	4930	0.74	15'-3"	3'-6"	1.20	12'-8"	1.06	12'-8"	0.20	8'-8"	0.06	9'-0"

REVISED

CERTIFIED BY Kaye M Reinwald PROFESSIONAL ENGINEER
REG. NO. 19917 12/15 1998

DES: ____ DR: ____
CHK: ____ CHK: ____

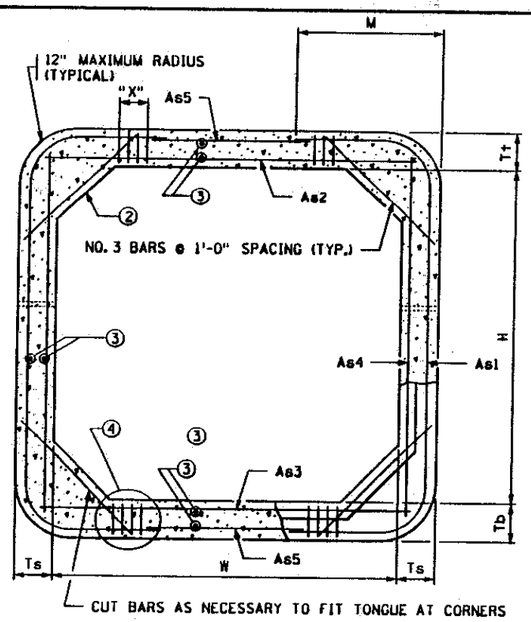
APPROVED:

STANDARD SHEET NO. 5-297.420 (1 OF 2)
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995

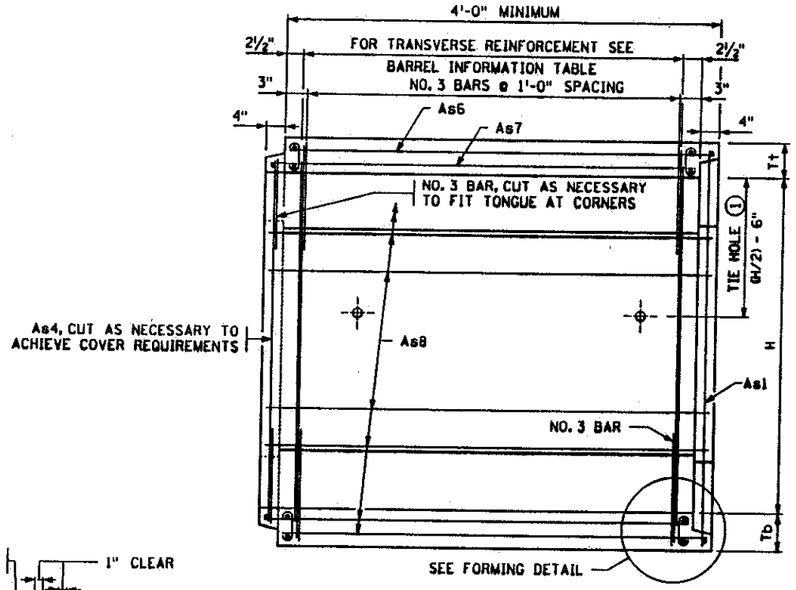
TITLE: BARREL DETAILS

S.A.P. NO. 55-598-15 SHEET NO. 17 OF 21 SHEETS

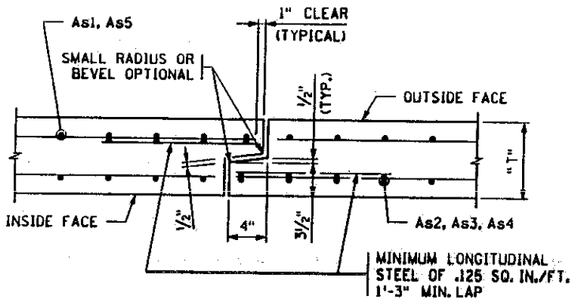
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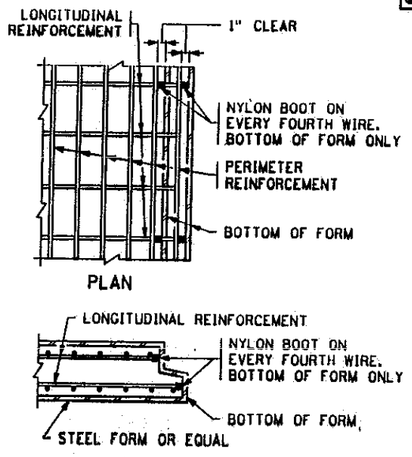
TRANSVERSE BARREL SECTION
(BAR REINFORCEMENT OPTION SHOWN)



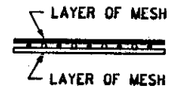
LONGITUDINAL BARREL SECTION
(BAR REINFORCEMENT OPTION SHOWN)



TONGUE AND GROOVE JOINT DETAIL



FORMING 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.

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(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 AREA OF REINFORCEMENT SHALL BE INCREASED BY 8%.

THE MAXIMUM SIZE OF REINFORCEMENT BARS SHALL BE NO. 6. THE MAXIMUM MESH SIZE SHALL BE ½" DIA. PER LAYER (MAXIMUM OF 2 LAYERS).

THE SPACING CENTER TO CENTER OF THE TRANSVERSE WIRES SHALL NOT BE LESS THAN 2 INCHES NOR MORE THAN 4 INCHES. THE SPACING CENTER TO CENTER OF THE LONGITUDINAL WIRES SHALL NOT BE MORE THAN 8 INCHES.

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.

BARREL SECTIONS WHICH ARE CAST WITH A DRAFT IN THE FORMS SHALL BE LAID WITH THE NARROWEST PART OF THE SECTION DOWNSTREAM.

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

① CULVERT TIES ARE TO BE 1" DIAMETER RODS. SEE STANDARD PLATE NO. 3145 FOR CONNECTION DETAILS.

② HAUNCH SIZE AS FOLLOWS:
6 AND 8 FT. WIDTHS - 6 TO 12 INCHES
10 FT. WIDTH - 10 TO 12 INCHES
12 FT. WIDTH - 12 INCHES

③ MINIMUM LONGITUDINAL STEEL SHALL BE 0.06 SQ. IN./FT.

④ SEE STANDARD PLATE 3007 FOR SHEAR REINFORCEMENT OPTIONS. THE MAXIMUM SHEAR REINFORCEMENT SPACING IN THE LONGITUDINAL DIRECTION SHALL BE 6 INCHES.

AS-BUILT

FEB 26 2001

ENGINEERING

BARREL INFORMATION

LOCATION	SIZE	f'c (P.S.I.)	OVERFILL LIMITS (FT.)	DIMENSIONS					WEIGHT (LBS./FT.)	STEEL FABRIC REINFORCEMENT														④ SHEAR REINFORCEMENT TOP AND BOTTOM OF BARREL		
				W (FT.)	H (FT.)	Tt (IN.)	Tb (IN.)	Ts (IN.)		As1			As2		As3		As4		As5		As6	As7	As8			
										AREA (IN.²/FT.)	LENGTH (FT.)	M (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	LENGTH (FT.)	AREA (IN.²/FT.)	AREA (IN.²/FT.)	AREA (IN.²/FT.)	AREA (IN.²/FT.)	MAX. SPC. (IN.)	X (IN.)

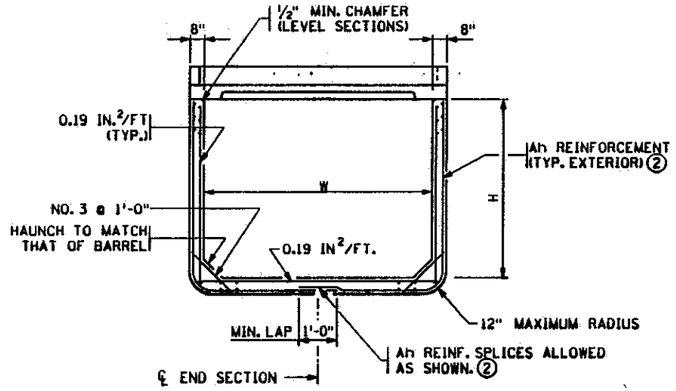
SERVER CA645ls/USR/STANDARDS FILE NAME S4202H95.SPN

CERTIFIED BY Kayce M Poremski PROFESSIONAL ENGINEER
REG. NO. 19917 12/15 1998
DES: ____ DR: ____ APPROVED:
CHK: ____ CHK: ____

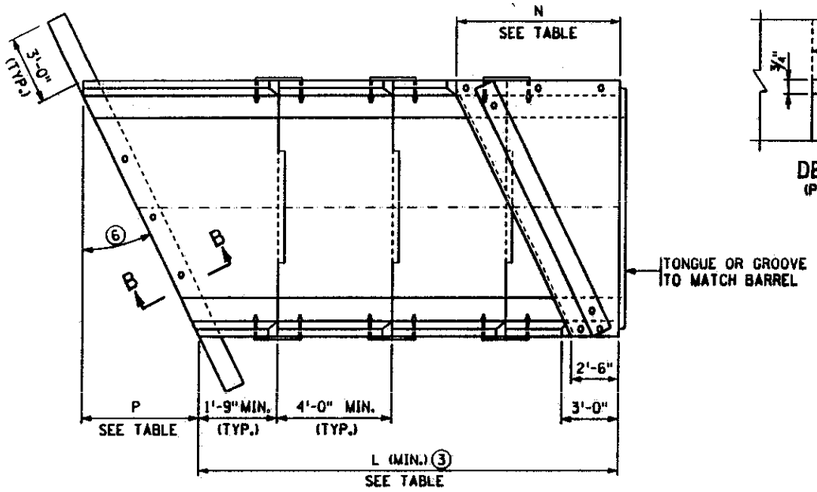
STANDARD SHEET NO. 5-297.420 (2 OF 2)
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995

TITLE: BARREL DETAILS (SPECIAL DESIGNS)

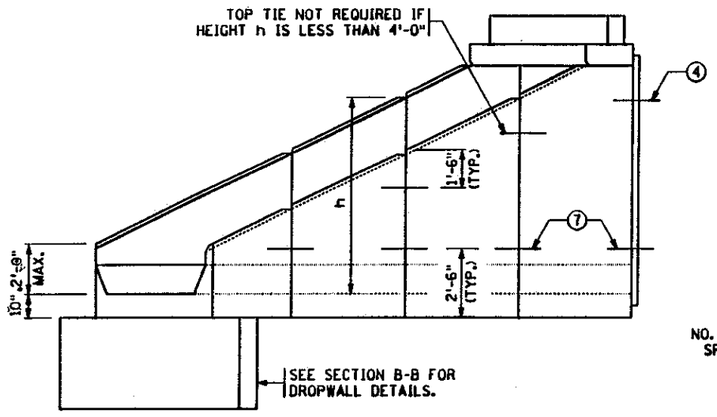
S.A.P. NO. 55-598-15 SHEET NO. 18 OF 21 SHEETS



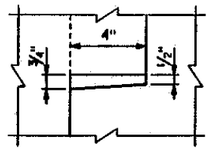
END VIEW



PLAN VIEW
SINGLE BARREL OPTION

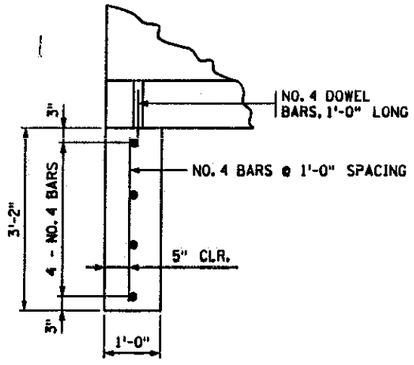


ELEVATION

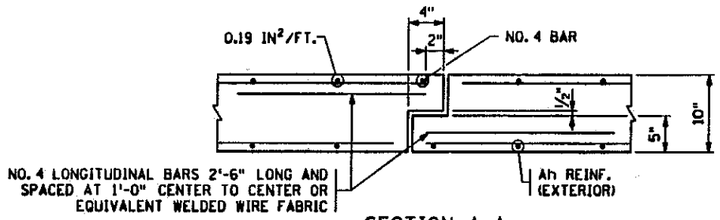


DETAIL B
(PLAN VIEW)

PLAN VIEW
MULTI-BARREL OPTION

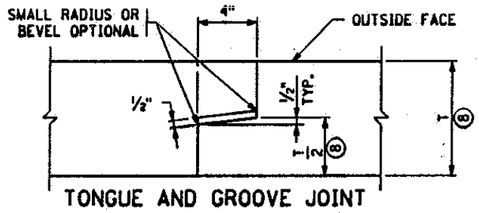


SECTION B-B



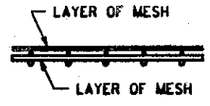
SECTION A-A

DETAIL C



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

NOTES:

SEE 5-297.420, FOR DIMENSIONS AND CONSTRUCTION NOTES, EXCEPT AS NOTED.

FINISH ALL VERTICAL EDGES OF CONCRETE WITH ½" CHAMFER OR RADIUS UNLESS OTHERWISE NOTED.

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

DROPWALL CONCRETE SHALL BE MIX 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 0.06 SQ. IN. PER FT. ON BOTH FACES.

NO TONGUE OR GROOVE REQUIRED IN WALLS BETWEEN END SECTIONS.

SEE 5-297.425 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 4".

① 8⅛" @ 15°; 10⅝" @ 30°; 1'-2" @ 45°

② SEE 5-297.420 (2 OF 2) FOR REINFORCEMENT TABLES.

③ NUMBER OF SECTIONS VARIES WITH "H" DIMENSION.

④ EXCEPT AS NOTED, CULVERT TIES ARE TO BE 1" DIA RODS. SEE STANDARD PLATE NO. 3145 FOR DETAILS.

⑤ 3'-6" TONGUE AND 3'-7" GROOVE FOR 6'-0" WIDE CULVERTS. 5'-0" TONGUE AND 5'-1" GROOVE FOR CULVERTS OVER 6'-0" WIDE. CENTER TONGUE & GROOVE ON ℄ OF EACH APRON JOINT.

⑥ FOR SKEW ANGLES OVER 7½° UP TO 22½°, USE A 15° SKEW END SECTION. FOR SKEW ANGLES OVER 22½° UP TO 37½°, USE A 30° SKEW END SECTION. FOR SKEW ANGLES OVER 37½° UP TO 45°, USE A 45° SKEW END SECTION.

⑦ PROVIDE EXTRA STRONG TIE @ BOTTOM CONNECTION BETWEEN BARREL & 1st APRON SEGMENT, AND 1st & 2nd APRON SEGMENTS; ONLY REQUIRED ON HIGH FILL SIDE FOR 45° SKEW END SECTIONS OVER 6'-0" HIGH. SEE 5-297.423 (2 OF 2) FOR DETAILS.

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

⑨ PROVIDE 2'-0" MIN. BETWEEN SEGMENTS.

LENGTH L

HEIGHT H (FT.)	15° SKEW	30° SKEW	45°SKEW
4	7'-6"	8'-6"	9'-0"
5	10'-0"	11'-0"	12'-0"
6	12'-0"	13'-6"	14'-6"
7	14'-0"	16'-0"	17'-6"
8	16'-0"	18'-0"	20'-6"
9	18'-6"	20'-6"	23'-6"
10	20'-6"	23'-0"	26'-0"
11	22'-6"	25'-6"	29'-0"
12	25'-0"	28'-0"	31'-6"

LENGTH P

WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	1'-9¾"	3'-10¼"	6'-8"
8	2'-3⅞"	5'-0"	8'-8"
10	2'-10¼"	6'-1⅞"	10'-8"
12	3'-4¾"	7'-3¾"	12'-8"

AS-BUILT

FEB 26 2001

ENGINEERING

CERTIFIED BY Kaye M Brenneck PROFESSIONAL ENGINEER
REG. NO. 19917 12/15 1998
DES: DR: CHK: CHK: APPROVED:

STANDARD SHEET NO. 5-297.423 (1 OF 2)
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995

TITLE: PRECAST CONC. END SECTION TYPE III- SINGLE OR MULTI-BARREL FOR SKEWS 7½° TO 45°

S.A.P. NO. 55-598-15 SHEET NO. 19 OF 21 SHEETS

SERVER CA6451:/USR/STANDARDS FILE NAME: S4231H95.SPN

Ah REINFORCEMENT TABLE		
HEIGHT h (FT.)	Ah (IN^2/FT.)	
	15° & 30° SKEW	45° SKEW
7 OR LESS	0.192	0.192
8	0.20	0.24
9	0.29	0.36
10	0.42	0.53
11	0.60	0.75
12	0.78	0.98

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

LINTEL BEAM REINFORCEMENT TABLE		
WIDTH W	BOTTOM REINFORCEMENT	
	A1	A2
6'	NO. 4 @ 1'-6"	NO. 4 @ 1'-4"
8'	NO. 4 @ 1'-1"	NO. 4 @ 9"
10'	NO. 4 @ 9"	NO. 4 @ 6"
12'	NO. 5 @ 9"	NO. 5 @ 6"

LENGTH N			
WIDTH W (FT.)	15° SKEW	30° SKEW	45° SKEW
6	4'-3⅜"	6'-4¼"	9'-2"
8	4'-9⅞"	7'-6"	11'-2"
10	5'-4¼"	8'-7⅛"	13'-2"
12	5'-10¾"	9'-9¾"	15'-2"

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 4".

STRUCTURAL STEEL PER SPEC. 3306.

WELDING PER SPEC. 2471.

GALVANIZE STRUCTURAL STEEL PER SPEC. 3394.

GALVANIZE BOLTS, NUTS AND WASHERS PER SPEC. 3392.

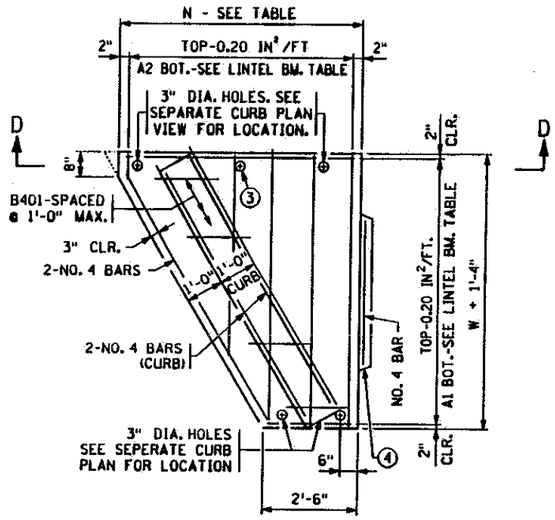
(1) NO. 8 DOWEL, 1'-0" LONG, 2" DIA. HOLE IN THE TOP OF THE WALL SECTION AND 3" DIA. HOLE IN THE LINTEL BEAM. FILL HOLE WITH GROUT.

(2) NO. 8 DOWEL, 1'-0" LONG, 2" DIA. HOLE IN THE TOP OF THE LINTEL BEAM AND 3" DIA. HOLE IN THE CURB. FILL HOLE WITH GROUT.

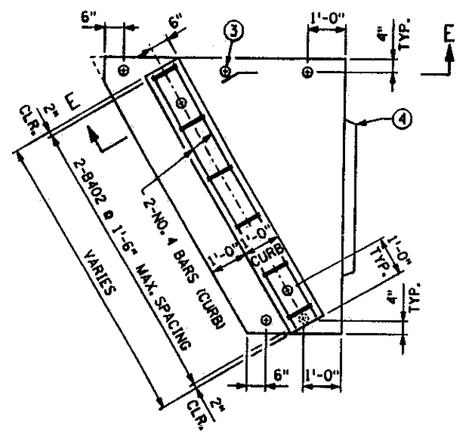
(3) CAST AN ADDITIONAL 3" HOLE AT MIDPOINT OF BEAM WHEN SIDE OF LINTEL BEAM IS OVER 6 FT.

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

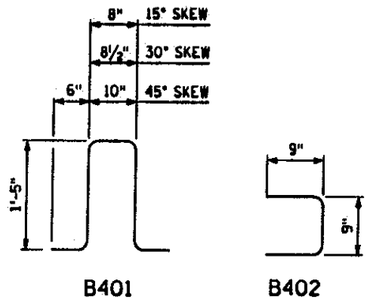
(5) FOR SKEW LENGTH UNDER 10' USE NO. 8 BARS. FOR SKEW LENGTH OF 10' TO 14' USE NO. 9 BARS. FOR SKEW LENGTH OVER 14' TO 18' USE NO. 10 BARS. FOR SKEW LENGTH OVER 18' TO 20' USE NO. 11 BARS, OR EQUAL. SKEW LENGTH IS DISTANCE ALONG LINTEL BEAM.



PLAN VIEW
(LINTEL BEAM WITH INTEGRAL CURB)

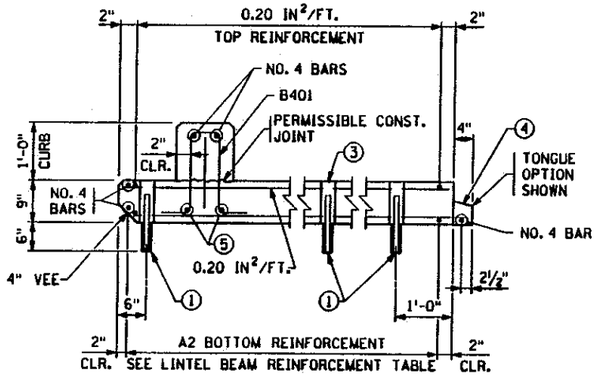


PLAN VIEW
(LINTEL BEAM WITH SEPARATE CURB)
SOME REINFORCEMENT NOT SHOWN

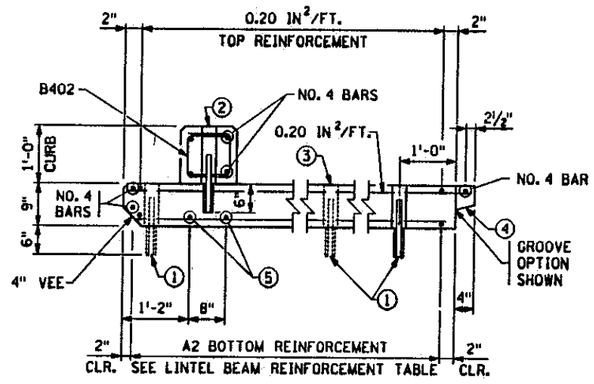


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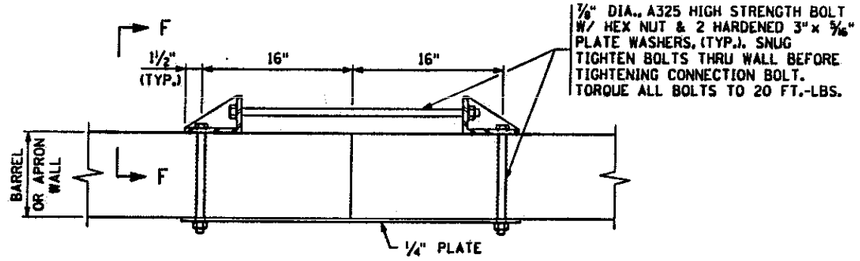
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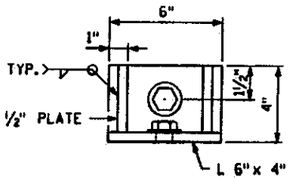
SECTION D-D



SECTION E-E



PLAN VIEW



SECTION F-F

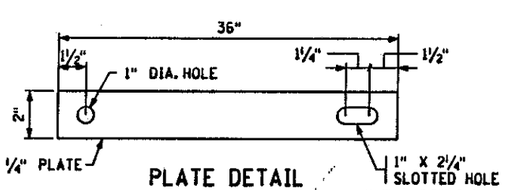


PLATE DETAIL

EXTRA STRONG CONNECTION DETAILS

AS-BUILT

FEB 26 2001

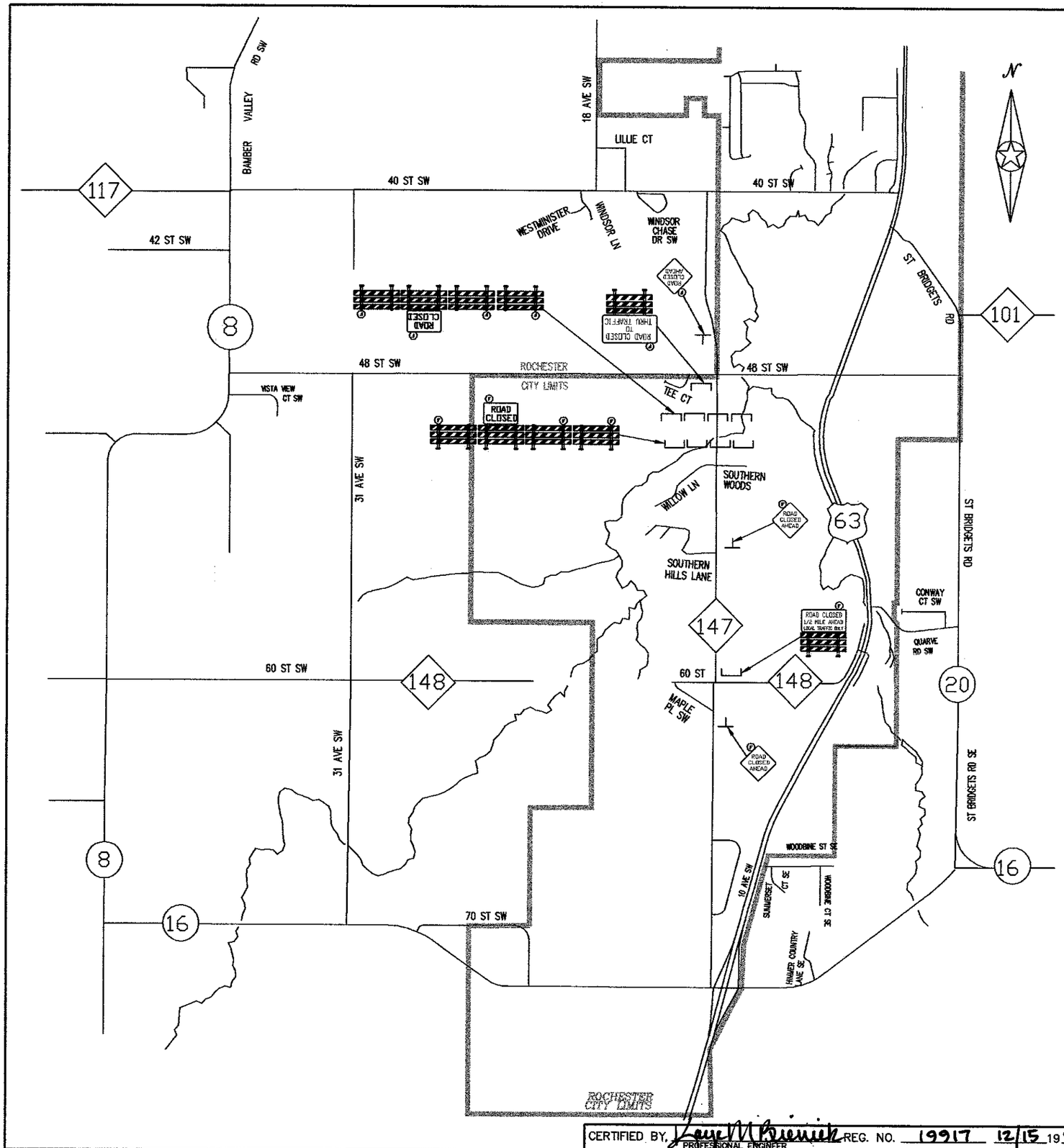
ENGINEERING

CERTIFIED BY Kaye M Brenner PROFESSIONAL ENGINEER
REG. NO. 19917 12/15 1998

DES: _____ DR: _____ APPROVED:
CHK: _____ CHK: _____

STANDARD SHEET NO. 5-297.423 (2 OF 2)	TITLE: PRECAST CONC. END SECTION TYPE III- SINGLE OR MULTI-BARREL FOR SKEWS 7½° TO 45°
STATE BRIDGE ENGINEER APPROVAL: AUGUST 10, 1995	
S.A.P. NO. 55-598-15	SHEET NO. 20 OF 21 SHEETS

SERVER CA64S1/USR/STANDARDS FILE NAME S4232H95.SPN



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	ROAD CLOSED AHEAD	W20-3	48 x 48	BLK/OR	3
ROAD CLOSED 1/2 MILE AHEAD LOCAL TRAFFIC ONLY	R11-3	60 x 30	BLK/WH	1		TYPE III	MIN. 6'	OR & WHT	10
ROAD CLOSED TO THRU TRAFFIC	R11-4	60 x 30	BLK/WH	1	(F)	TYPE A	FLASHING LAMP	AMBER	13

TRAFFIC CONTROL LEGEND

- ⊥ POST OR STAND MOUNTED SIGN
- ⌊ TYPE III BARRICADE
- (F) TYPE "A" AMBER FLASHING LAMP

AS-BUILT

FEB 26 2001

ENGINEERING

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 JANUARY 1998.
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, Lance M Brennick PROFESSIONAL ENGINEER REG. NO. 19917 12/15 1998

S.A.P. 55-598-15 C.R. 147

TRAFFIC CONTROL PLAN

SHEET 21 OF 21 SHEETS