MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR BRIDGE NO. L6166 REPLACEMENT C.R. 136

LOCATED ON C.R. 136 **BETWEEN** 1.6 MI. N. JCT. T.H. 52 **AND** 1.8 MI. S. JCT. C.R. 137 **(GEOGRAPHIC DESCRIPTION)**

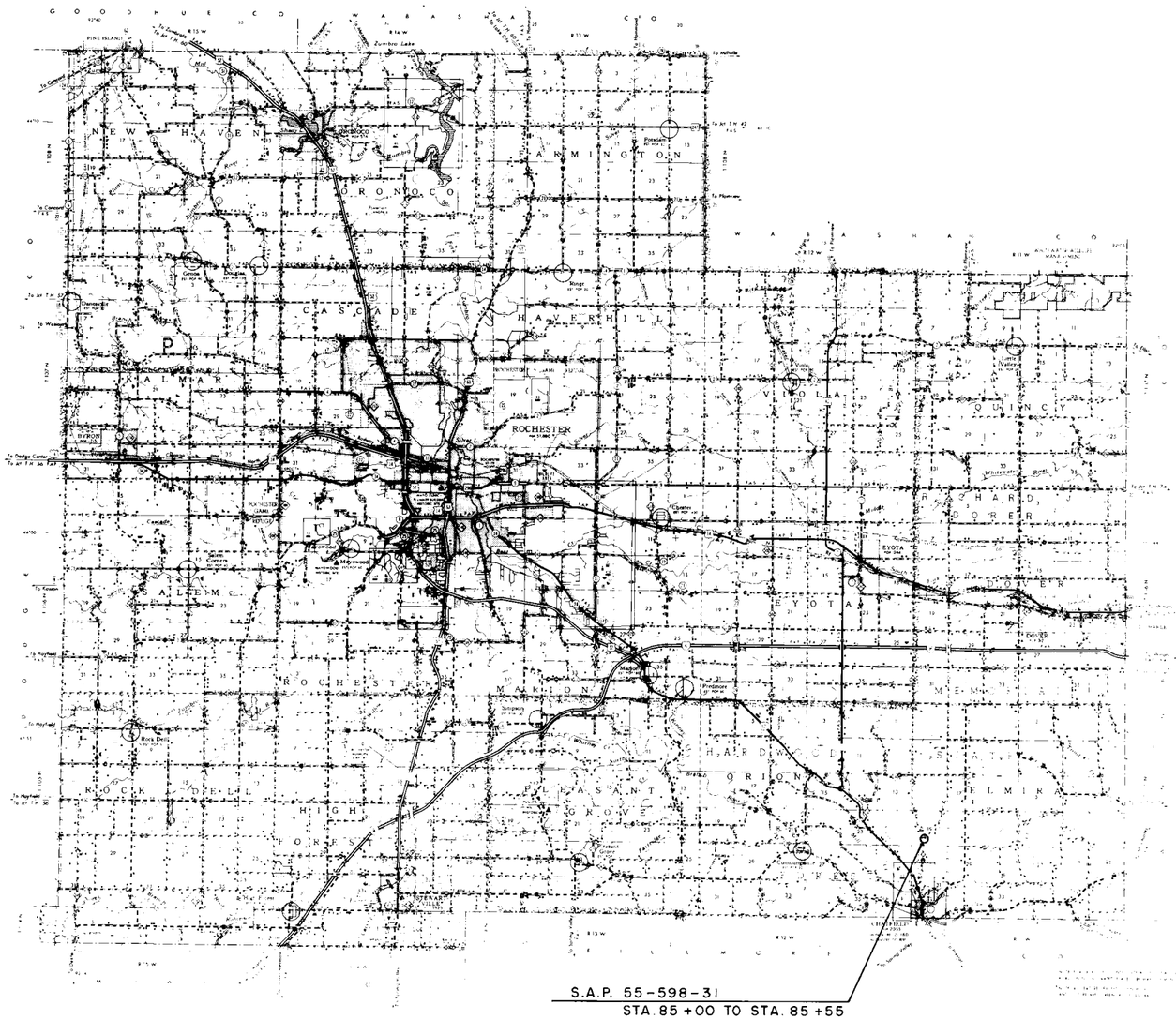
FROM APPROX. 1320' S.W. CENT. SEC. 19 ELMIRA TWP. T.105N. R.11W. **TO** APPROX 1572' N.W. S.1/4 COR SEC. 14 ELMIRA TWP. T.105N. R.11W. **(LEGAL DESCRIPTION)**

STATE PROJ. NO. .....

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

~~STATE PROJ. NO.~~ S.A.P. 55-598-31

GROSS LENGTH	55	FEET 0.0104	MILES
BRIDGES-LENGTH	0	FEET 0	MILES
EXCEPTIONS-LENGTH	0	FEET 0	MILES
NET LENGTH	55	FEET 0.0104	MILES



PLANS SYMBOLS

STATE LINE
COUNTY LINE
T. - SHIP 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 (PI, BC, EC)
RETAINING WALL
RAILROAD
RAILROAD RIGHT OF WAY LINE
RIVER OR CREEK (NAME)
DRY RUN
DRAINAGE DITCH (SIZE)
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
(TIMBER)
CATCH BASIN C.B.
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 (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)
SLOPE EASEMENT SE

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRIC CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRIC MANHOLE
BURIED TELEPHONE CABLE (T-BUR)
BURIED ELECTRIC CABLE (P-BUR)
AERIAL TELEPHONE CABLE (T-AE)
SEWER, (SANITARY OR STORM)
SEWER MANHOLE

ALUMINUM MILES SIGNS

SCALES

PLAN 0 100'
PROFILE 0 100' HORIZ. & 10' VERT.
INDEX MAP 0 2 MILES
GENERAL LAYOUT 0 10'

MINN. PROJ. NO. .....

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN

INDEX

SHEET NO. 1 TITLE SHEET
SHEET NO. 2 QUANTITIES
SHEET NO. 3&4 BRIDGE SHEETS

DESIGN DESIGNATION

R		$\Sigma N18_{(20)}$	
ADT (Current Year)	= 143	Design Speed 50	MPH
ADT (Future Year)	=	Based on STOPPING	Sight Distance
DHV (Design Hr. Vol.)	=	Height of eye 3.5'	Height of object 0.5'
D (Directional Distr.)	= %	Design Speed not achieved at:	
T (Heavy Commercial)	= %	STA. TO STA.	MPH
SOIL FACTOR	130 %	STA. TO STA.	MPH
		STA. TO STA.	MPH

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 2-13-86 REG. NO. 10219 ENGR. [signature]

COUNTY Olmsted

Recommended for Approval [signature] 19[illegible]
DISTRICT STATE AID ENGINEER

Recommended for Approval Julie Skallman 4-21 1986
STATE AID PLANS AND SPECS ENGINEER

Approved 6-27 1988 [signature]
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ADMINISTRATOR DATE

STATE AID PROJ. NO. 55-598-31
~~STATE PROJ. NO.~~

ESTIMATED QUANTITIES

SPECIFICATION NO.	ITEM	UNIT	NON PARTICIPATING	PARTICIPATING	TOTAL ESTIMATED QUANTITIES	
2442.501	REMOVE OLD BRIDGE	LUMP SUM	1		1	
2451.507	GRANULAR BEDDING (C.V.)	CU. YD.		106	106	(P)
2501.521	115" SPAN R.C.P.-ARCH CULVERT CL. IIA.	LIN. FT.		124	124	
2501.525	115" SPAN R.C.P.-ARCH APRONS	EACH		4	4	
2511.501	RANDOM RIPRAP CL. III	CU. YD.		100	100	
2511.511	GRANULAR FILTER	CU. YD.		50	50	

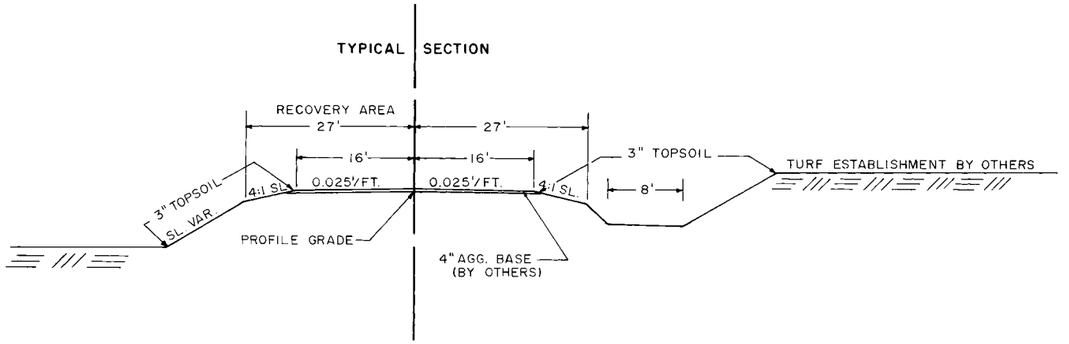
(P) PLAN QUANTITY

STANDARD PLATES

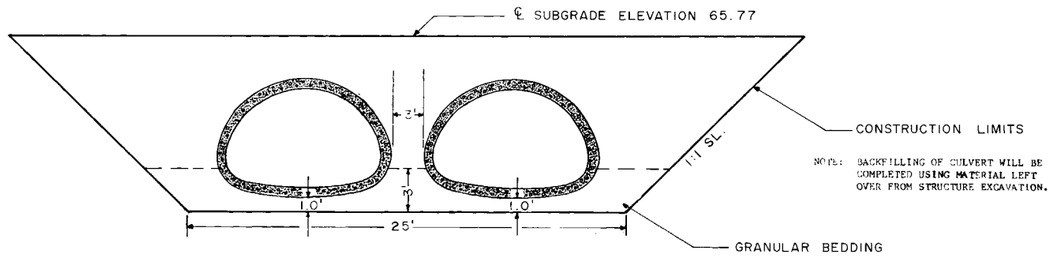
THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

PLATE NO	DESCRIPTION
0004A	SPECIFICATION REFERENCE TO STANDARD PLATES.
3007A	SHEAR REINFORCED FOR PRECAST DRAINAGE STRUCTURES.
3014J	REINFORCED CONCRETE PIPE ARCH DETAIL.
3114G	SECTIONAL CONCRETE APRON FOR REINF. CONC. PIPE ARCH.
3133B	RIPRAP AT R.C.P. OUTLETS.
3145D	CONCRETE PIPE TIES.
8000I	STANDARD BARRICADES.

TYPICAL SECTION

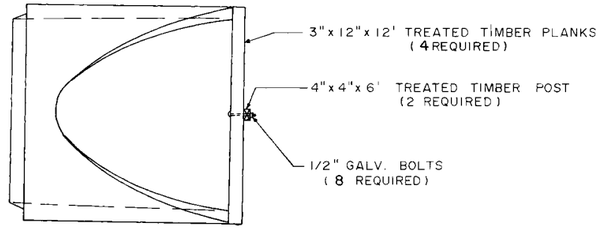


BEDDING DETAIL
(NOT TO SCALE)

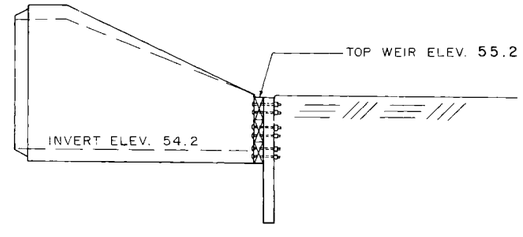


TIMBER WEIR CONSTRUCTION AT INLETS OF 2-115" SPAN R.C.P.-ARCH APRONS
(NOT TO SCALE)

TOP VIEW



SIDE VIEW



NOTE: CONSTRUCTION OF TIMBER WEIR WILL BE INCIDENTAL AND INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR R.C.P.-ARCH CULVERTS.

NOTE: EXCAVATION FOR R.C.P.-ARCH CULV. WILL BE INCIDENTAL AND INCLUDED FOR PAYMENT UNDER UNIT PRICE FOR R.C.P.-ARCH CULVERTS.

NOTE: ALL DIMENSIONS AND SLOPES SHOWN ON TYPICAL SECTION ARE APPROXIMATE.

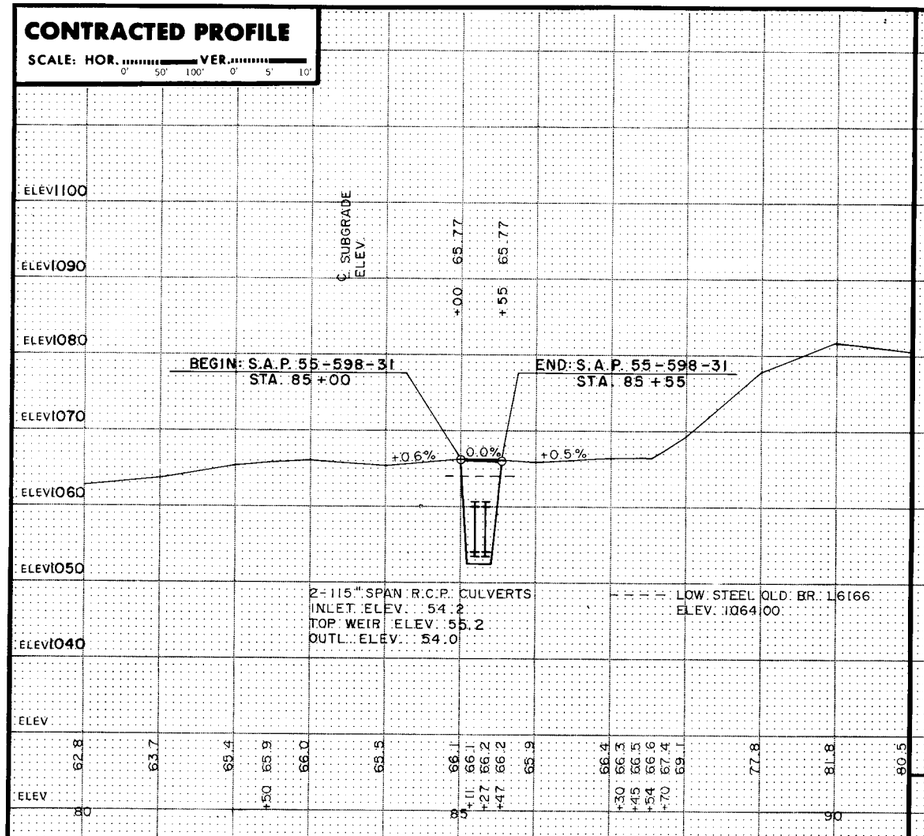
S.A.P. 55-598-31

~~State Proj. No.~~

HARRISON INC. MINNEAPOLIS 1935

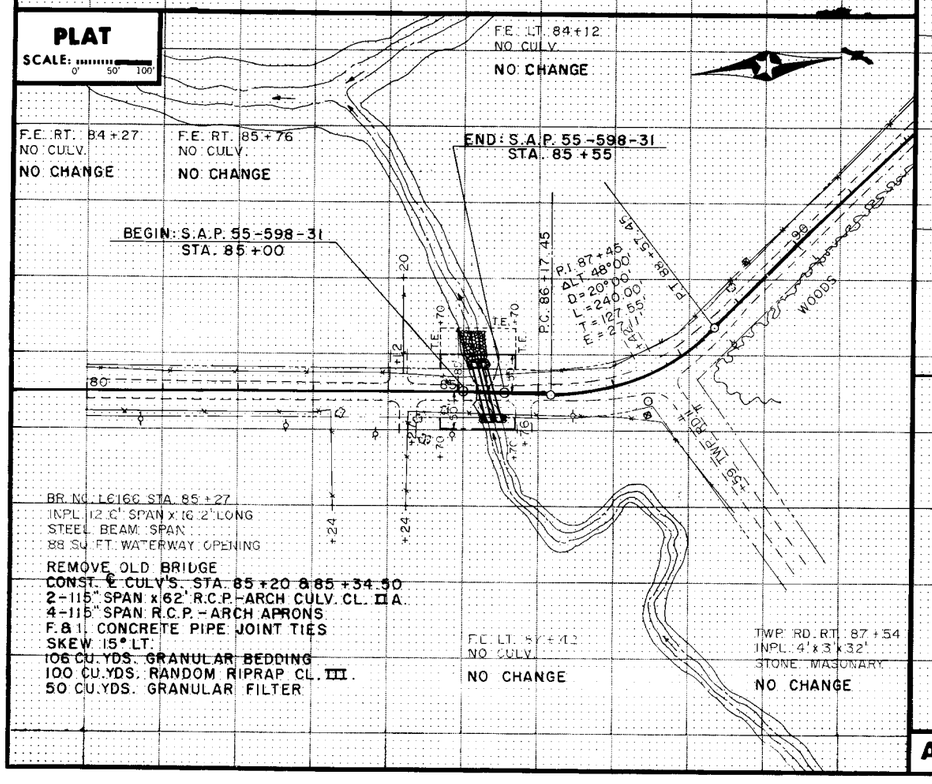
CONTRACTED PROFILE

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



PLAT

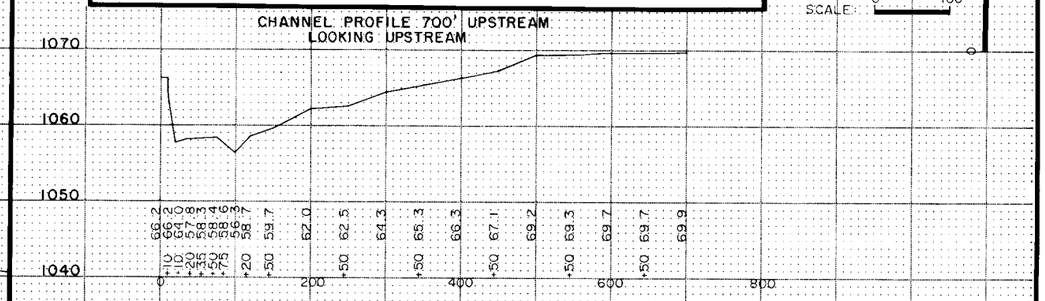
SCALE: 0' 50' 100'



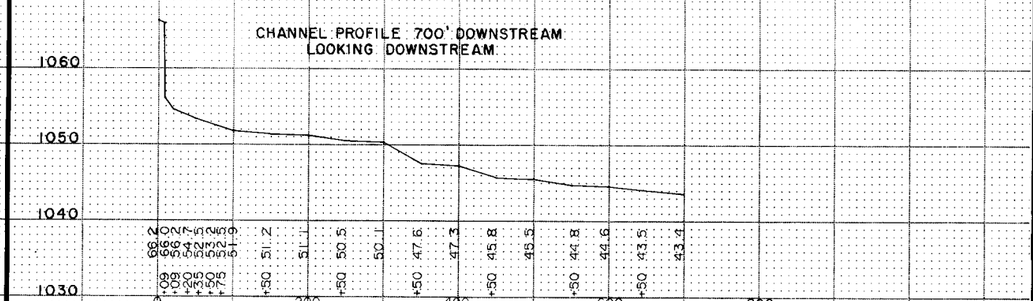
TYPICAL SECTIONS & PERTINENT DATA

SCALES AS SHOWN

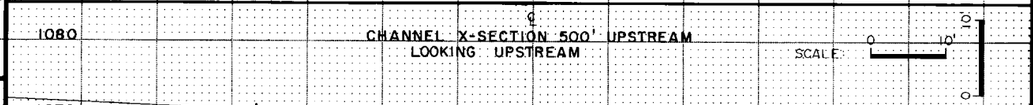
CHANNEL PROFILE 700' UPSTREAM
LOOKING UPSTREAM



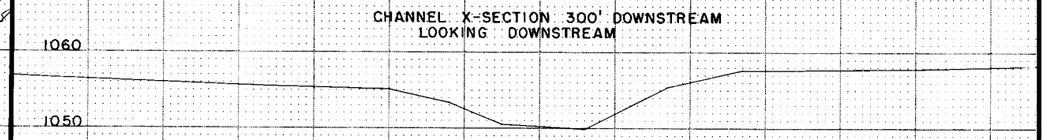
CHANNEL PROFILE 700' DOWNSTREAM
LOOKING DOWNSTREAM



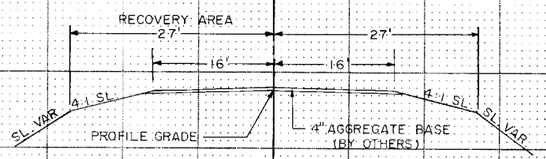
CHANNEL X-SECTION 500' UPSTREAM
LOOKING UPSTREAM



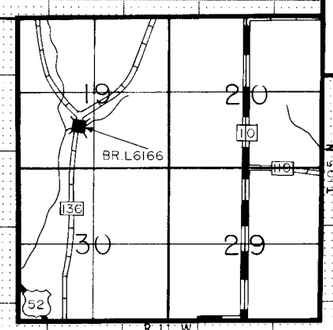
CHANNEL X-SECTION 300' DOWNSTREAM
LOOKING DOWNSTREAM



TYPICAL SECTION



℄ ROADWAY
C.R. 136



R. 11 W.
INDEX MAP
(FOUR SECTIONS)

Area No. **Job No.**

~~**State Proj. No.**~~ S.A.P. 55-598-31

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 .....

Stream or ditch designation ... DRY RUN
Drainage area ... 0.9 SQUARE MILES
Max. flood on record. . . . . Design flood (... 50 ... yr. freq.) ... 700 ... C.F.S.
Max. observed highwater elevation 1067.2 ... Design highwater elevation 1063.5
Design mean velocity through structure ... 9.6 ... F.P.S. 1.5' STAGE INCREASE
Low superstructure at or above elevation ...
Flowline elevation ... 1054.0 ... Skew angle ... 15°
Waterway area req'd. below elevation ... = ... Sq. Ft. at Rt. angles to channel

In the interest of flood plain zoning the regional flood (100 yr. freq.) is 870 C.F.S. at stage 1064.4 and mean velocity of 10.9 F.P.S. with 1.9 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

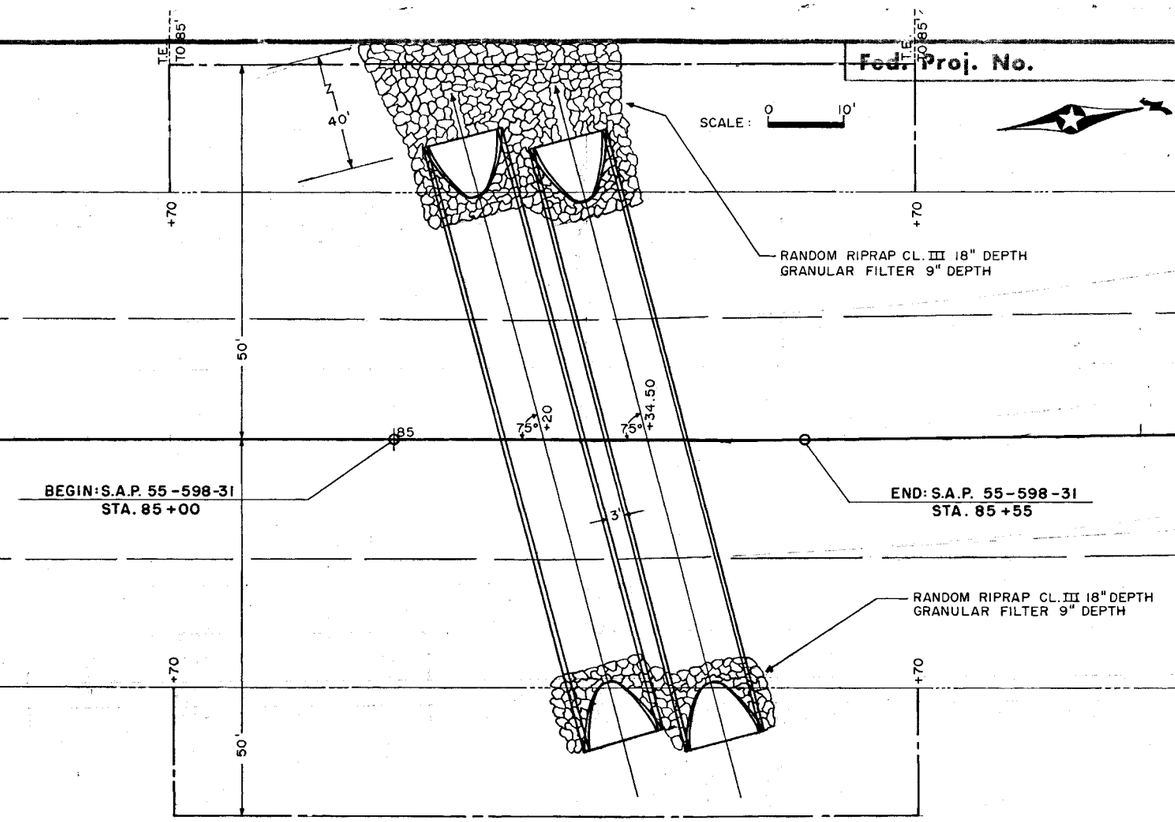
Bench mark elevation 1006.87 (M.S.L. 1929 Adj.)
Location: STD DISK S.E. COR. BR 9009 AT CUMMINGSVILLE

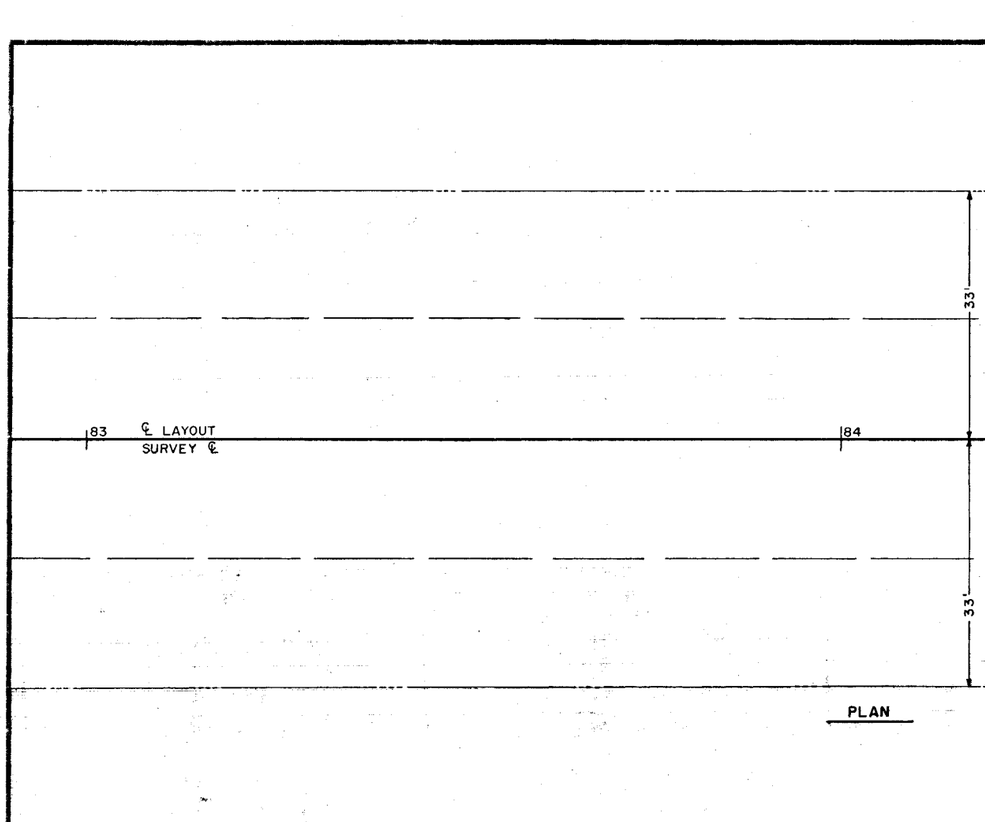
MINNESOTA
DEPARTMENT OF TRANSPORTATION

BRIDGE SURVEY

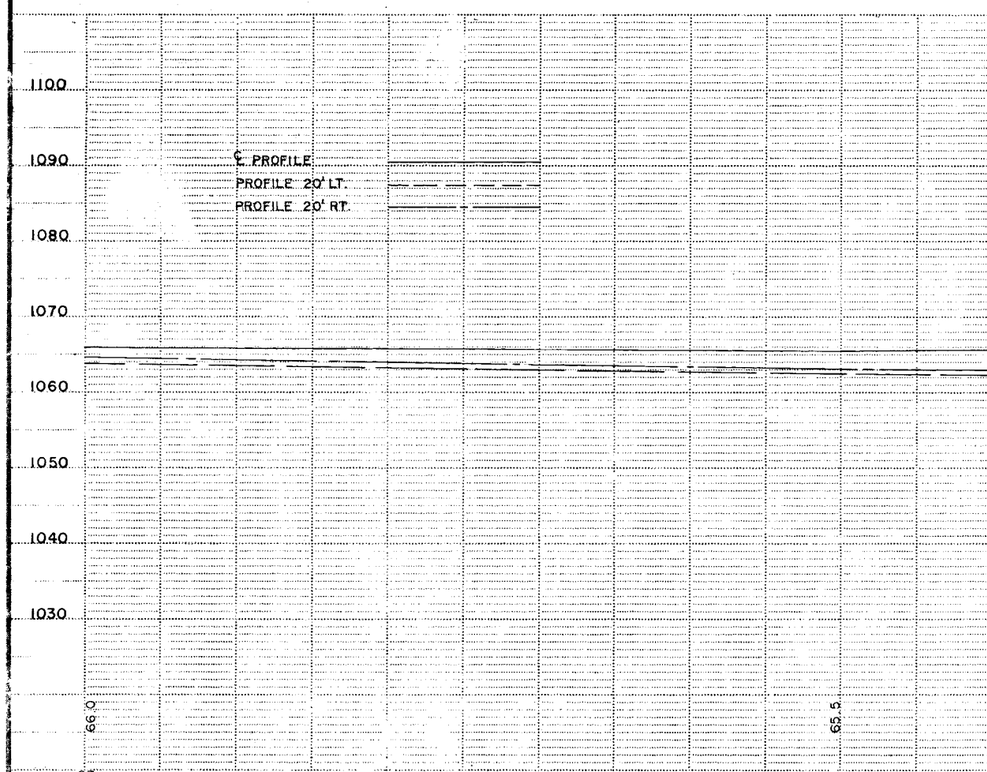
AT MILE POINT 1.6 ON C.R. 136 (T.H., C.S.A.H., C.R. etc.)
PROPOSED BRIDGE LOCATED 1.6 MILES N OF JCT. T.H. 52
SEC. 19 TWP. 105N R. 11W
TOWNSHIP ELMIRA COUNTY OLMSTED
BRIDGE NO. L6166

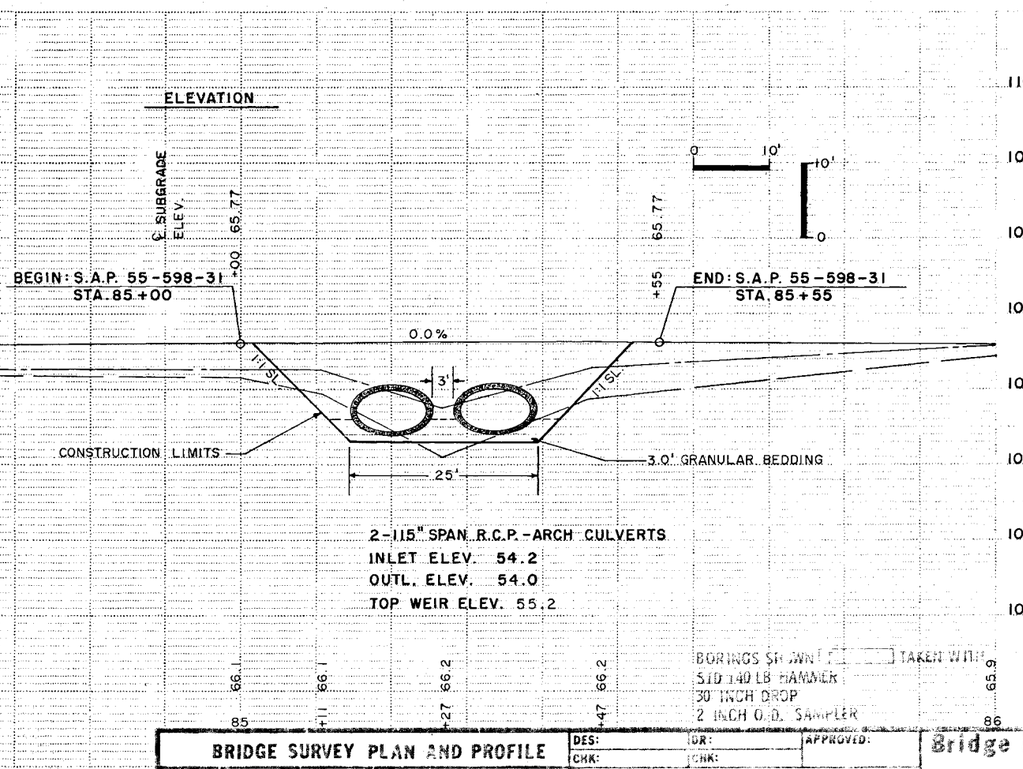
Fed. Proj. No.





PLAN





2-115" SPAN R.C.P.-ARCH CULVERTS
INLET ELEV. 54.2
OUTL. ELEV. 54.0
TOP WEIR ELEV. 55.2

66.1 66.1 66.2 66.2 65.9
85 +11 +27 +47 86

BORINGS SHOWN [ ] TAKEN WITH
S1D 140 LB HAMMER
30 INCH DROP
2 INCH O.D. SAMPLER

C.R. 136 OLMSTED COUNTY

BRIDGE SURVEY PLAN AND PROFILE	DES:	DR:	APPROVED:	Bridge No.
	CHK:	CHK:		
~~Fed. Proj. No.~~ S.A.P. 55-598-31	Sheet No. 4 of 4 Sheets			L6166