

STATE OF SOUTH DAKOTA
DEPARTMENT OF HIGHWAYS

PLANS FOR PROPOSED
**FEDERAL AID PROJECT
NO. F 047-7 (4)**

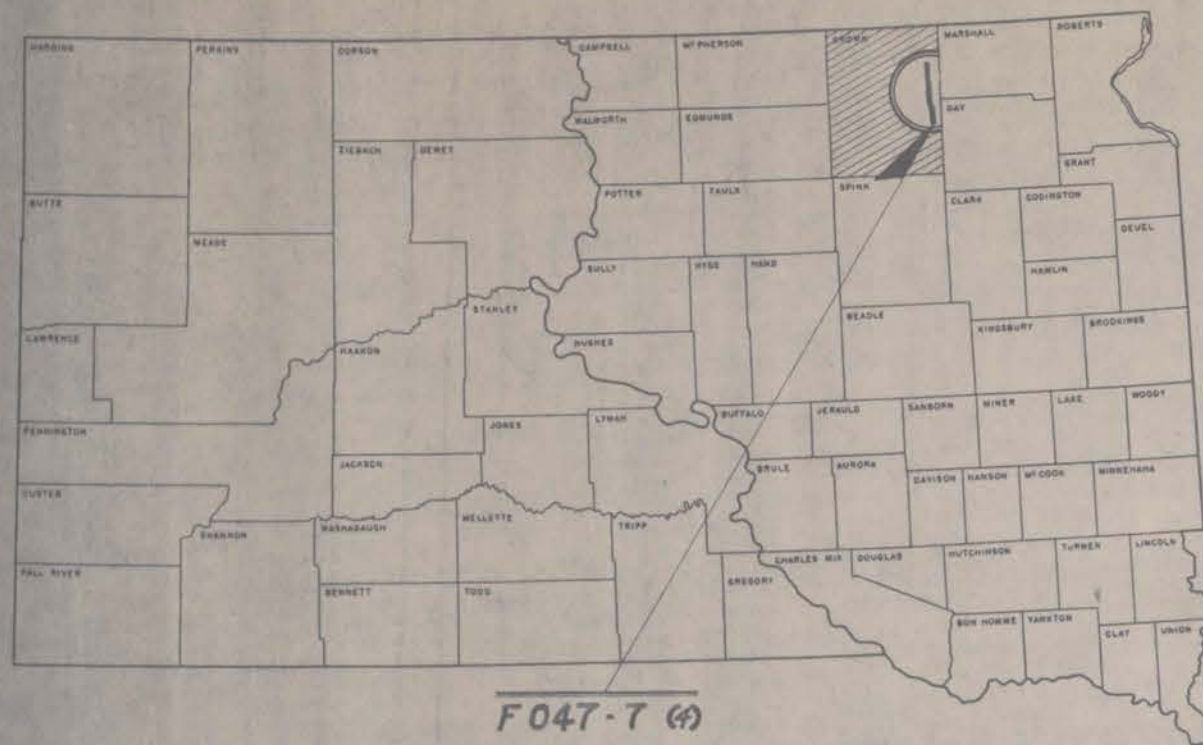
**S.D. TRUNK HIGHWAY NO. 37
BROWN COUNTY**

GRADING, STRUCTURES AND BASE COURSE PLANS

FED. ROAD DIST. NO.	STATE OF	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	S. D.	F047-7 (4)		1	108

INDEX OF SHEETS

SHEET NO. 1 - TITLE SHEET AND LAYOUT MAP.
SHEET NO. 2 - TYPICAL GRADING SECTIONS AND ESTIMATE OF QUANTITIES.
SHEET NO. 3 - TYPICAL SECTION AND ESTIMATE OF QUANTITIES FOR STABILIZED SAND SUBGRADE AND PLANT-MIXED BASE COURSE AND NOTES PERTAINING THERETO.
SHEETS NO. 4 TO 20 (INCL.) - PLAN AND PROFILE SHEETS.
SHEETS NO. 21 AND 22 - DETAILS OF MISCELLANEOUS STRUCTURES.
SHEETS NO. 23 AND 24 - DETAILS OF RIGHT-OF-WAY FENCES.
SHEETS NO. 25 TO 29 (INCL.) - DETAILS OF 117'0" CONT. CONC. BRIDGE STA. 364+51.50 TO STA. 365+68.50.
SHEET NO. 30 - DETAILS OF STANDARD GUIDE POSTS.
SHEETS NO. 31 TO 108 (INCL.) - CROSS SECTIONS.

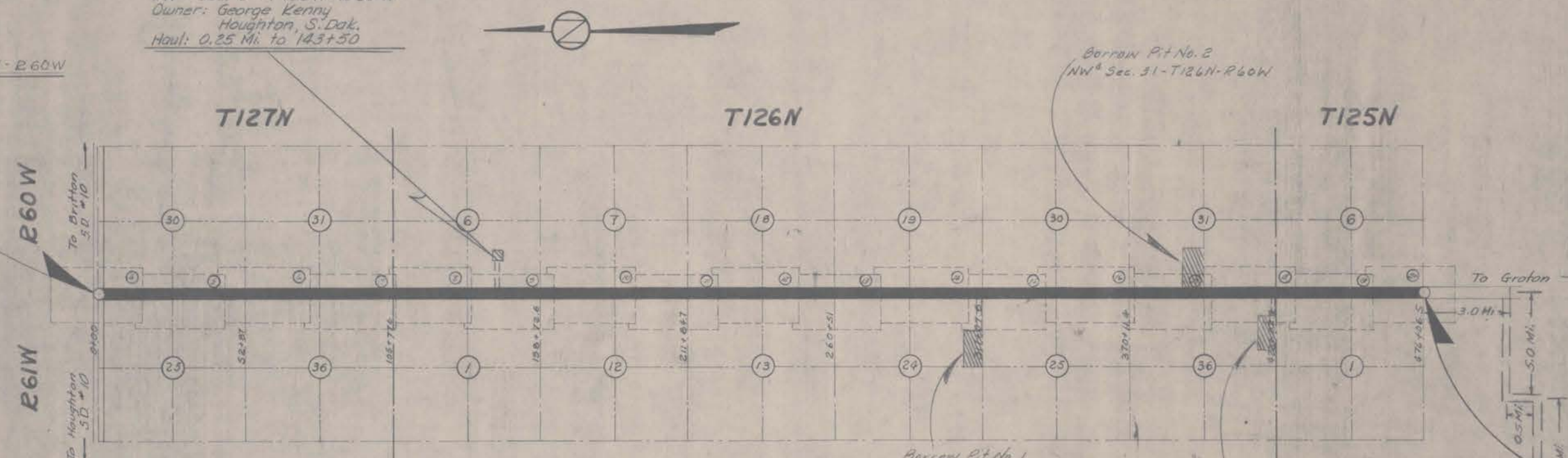


F047-7 (4)

BEGINNING OF F047-7 (4)

Sta 0+00 - PI Sta 2+85.5 on
FAP 216 B - Sta 423+84.5 on F142 (5)
Northwest Corner Section 30-T127N-R60W

Pit No. 1 - Base Course Sand
SW 1/4 Sec. 6 - T126N-R60W
Owner: George Kenny
Houghton, S. Dak.
Haul: 0.25 Mi. to 143+50



END OF F047-7 (4)

Sta. 476+06.5 - Sta 477+00.5
End of Original FHP 216 B -
PI Sta 800+00 on Original FAP 216A -
0+00, Beginning of F047-7 (3)
Southwest Corner Section 6 -
T125N-R60W

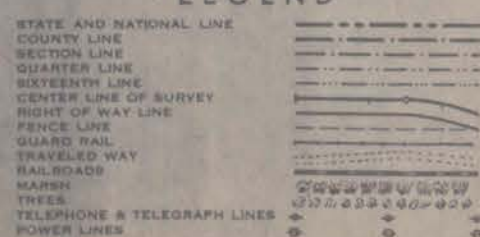
Pit No. 2 - 3/4" Crushed Rock Chips
NW 1/4 NW 1/4 Sec. 16-T124N-R63W
Owner: Dept. of Highways
Pierre, S. Dak.
Haul: 23.0 Mi. to 476+06

DESIGN DESIGNATION

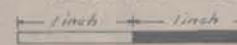
ADT (1958)	340
ADT (1978)	552
DHV	76
D	70.0%
T	12.2%
V	70 MPH

BASED ON 1200' CLEAR SIGHT DISTANCE
USED FOR MARKING PURPOSES, THERE ARE
NO NON-PASSING ZONES.

LEGEND



REDUCTION SCALE



SCALES

LAYOUT: 2 INCHES = 1 MILE

PLAN: 1 INCH = 100 FT.

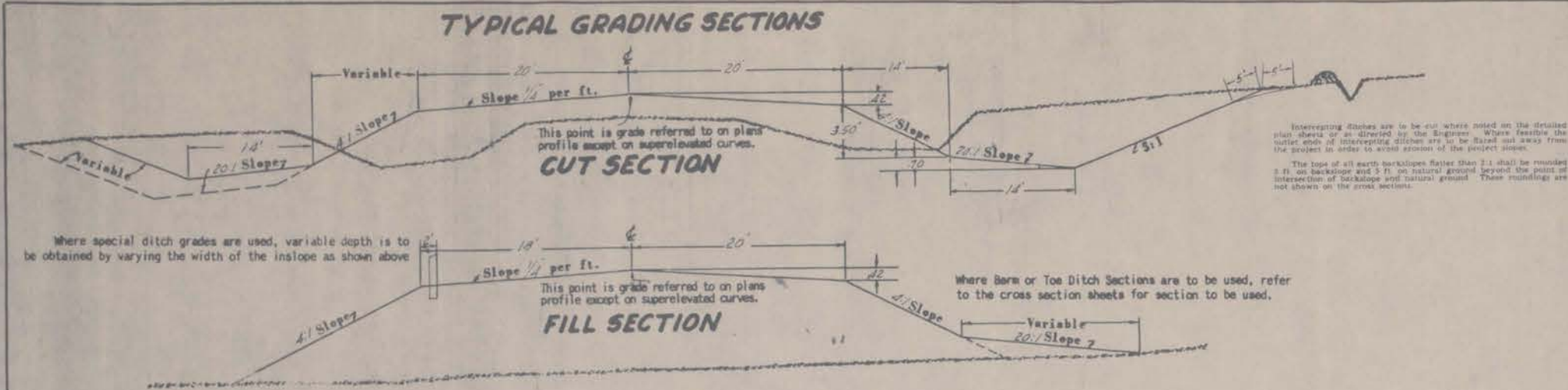
PROFILE: HORIZONTAL 1 INCH = 100 FT.
VERTICAL 1 INCH = 10 FT.

CROSS SECTIONS: HORIZONTAL 1 INCH = 10 FT.
VERTICAL 1 INCH = 5 FT.

GROSS LENGTH	47606.5	FEET	9.016	MILES
LENGTH OF EXCEPTIONS	None	FEET	None	MILES
NET LENGTH	47606.5	FEET	9.016	MILES
LENGTH OF GRADING	45483.5	FEET	8.234	MILES
LENGTH OF BRIDGES	117	FEET	.022	MILES

APPROVED	DATE
HIGHWAY ENGINEER, SOUTH DAKOTA DEPARTMENT OF HIGHWAYS	
DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS	
APPROVED:	
DIVISION ENGINEER	DATE

F047-7(4) Brown County



While the estimated quantities of "overhaul of excavation," on the cubic yard 100 ft. station basis (estimated to involve 10,076,400 cu. yd. of overhaul of excavation), are shown on the detailed plan sheet, there will be no measurement or separate payment for "overhaul of excavation." The cost of necessary haul of excavated materials shall be absorbed and included in the unit price bid per cubic yard for "unclassified excavation."

Since the Standard Specifications provide that payment for "Pipe Culverts," at the contract unit price per linear foot, shall include the cost of all necessary excavations for the placement of such culverts, the detailed plan sheets and the "Estimate of Quantities" do not include any quantities of excavations for "Pipe Culverts." Excavations for the placement of such culverts shall be approximately cubic yards of excavated material as shown on the detailed plan sheets and the "Estimate of Quantities" shall be approximately cubic yards of excavated material as shown on the detailed plan sheets and the "Estimate of Quantities."

The estimated yardages of excavation and/or embankment required to cut outlet ditches, construct blocks and grade approaches from intersecting roads, driveways, farm and field entrances, as designated on the detailed plan sheets, are included in the summations of grading quantities between balance points on such detailed plan sheets, except in the cases where such yardages are designated as "additional excavation" or by the abbreviation "add. exc."

The contractor will be required to construct temporary structures, where necessary, and to maintain the project and keep it open to traffic, in accordance with Section 4.5 of the Standard Specifications. (Detours to be constructed and maintained in accordance with detail sheet No. 21.)

The shoulder slopes are to be warped for a distance of 50 ft. adjacent to box culverts, and 75 ft. adjacent to bridges, to conform to the wing walls of the structure.

In general, all shallow inlet and outlet ditches, as called for on the detail plan sheets are to be cut with a 10 ft. flat bottom and 10:1 back-slopes.

All approaches to intersecting roads, ditch blocks, summits, farm and field entrances have been computed to construct 4:1 shoulder slopes to provide driving approaches to the ditches.

All excavation is to be let unclassified. See estimate of quantities below. No classified excavation is shown on the detail plan sheets. All classification of excavation will be paid for at the price bid for "unclassified excavation."

All rock and broken concrete encountered during construction is to be disposed of as directed by the engineer.

Compaction will be required in accordance with "Specified Density Method."

35° RADIUS CURVES SHALL BE CONSTRUCTED AT ALL INTERSECTING ROADS EXCEPT WHERE OTHERWISE STATED ON THE PLANS.

SHRINKAGE FACTOR
Embankment Plus

35%

SPECIFICATIONS TO BE USED ARE

Standard Specifications for Roads and Bridges issued April 1957 and Approved as Standard November 5, 1957 and Revising Provisions - Federal-Aid-Contracts Primary Highways dated May 27, 1958, and Supplemental Specifications as included in the Provisions.

Where modified sections are necessary on account of special ditch grades, etc., called for on the profile, the contractor is to move the excavation as called for on the cross section sheets, for the station or stations for which such modified sections are shown.

On super-elevated curves the grade referred to on the profile is the center line grade elevation prior to calculating super-elevation. Refer to the cross sections for elevation of inside shoulder line grade and elevation of outside shoulder line super-elevated grade.

Water for compaction of earth embankments is included in the estimate of quantities at the rate of 1.2 gallons of water per cubic yard of unclassified excavation.

SEEDING

The areas to be seeded comprise all areas between the new highway shoulder line (edges of roadbed) and the outer limits of the grading lines (tops of back-slopes and toes of fill-slopes).

The designated areas are to be seeded with a number one grass seed mixture, consisting of:

NOTE: The engineer may exclude from seeding certain areas outside of the regular right-of-way widths which are devoted to cultivation and/or certain undisturbed areas within the regular right-of-way widths which already have a satisfactory growth of grass.

NOTE REGARDING SALVAGEABLE MATERIALS

All reusable salvaged pipe, not being reused on the project, will be retained by this State and/or County for future highway uses.

MOVING OF TELEPHONE AND POWER POLES AND LINES

The telephone and power poles and lines within the limits of the proposed grading work and within the limits of the existing right of way are to be moved, as necessary, by the utilities company (or companies, as the case may be), which will be advised by the State in advance of construction. (No Federal participation.)

Moving of telephone and power poles and lines, which are now outside of the existing right of way lines is to be performed by the utility company, under force account agreement, and in accordance with the utility company's requirements for such facilities. (No Federal participation.) CONTRACTOR TO COOPERATE WITH UTILITY COMPANIES SO ONLY ONE MOVE OF POLES, OR ADJUSTMENT OF POLES OUTSIDE RIGHT OF WAY, WILL BE REQUIRED.

NOTES PERTAINING TO GUIDE POSTS, TRAFFIC AND ADVERTISING SIGNS

It is understood that guide posts will be necessary to guide and protect traffic on this project. Such construction will be provided for in future planning and agreement.

Prior to construction of the new project, any existing guide posts, guard rail and traffic signs will be removed, as necessary, by the State maintenance forces.

All advertising signs will be removed from the right of way by the owners.

NOTES REGARDING "UNCLASSIFIED EXCAVATION" GRADING WORK TO BE PERFORMED UNDER THE BRIDGE CONTRACT

AT STA. 365+2 THE CHANNEL CLEAN OUT WITHIN AND OUTSIDE OF THE REGULAR RIGHT OF WAY, AND CONSTRUCTION OF BERMS FOR THE NEW BRIDGE (ESTIMATED AS 8800 CU. YDS. OF "UNCLASSIFIED EXCAVATION") SHALL BE PERFORMED UNDER THE BRIDGE CONTRACT. APPROXIMATELY 1300 CU. YDS. OF EXC. FROM THE CHANNEL CLEAN OUT WITHIN THE RIGHT OF WAY SHALL BE USED IN THE BERMS, THE BALANCE NEEDED FOR THE BERMS OF APPROXIMATELY 5500 CU. YDS. SHALL BE OBTAINED AS DIRECTED BY THE ENGINEER. THE APPROXIMATE 2000 CU. YDS. ABOVE AND BELOW THE BRIDGE OUTSIDE OF THE FILLSLOPES SHALL BE WASTED AS DIRECTED BY THE ENGINEER. THE BRIDGE BERMS SHALL BE WATERED AND COMPACTED, BY THE BRIDGE CONTRACTOR, IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS.

FERTILIZER

A COMMERCIAL FERTILIZER WITH A MINIMUM ANALYSIS OF 16-20-0 SHALL BE APPLIED PRIOR TO SEEDING AT THE RATE OF THREE HUNDRED AND TWENTY (320) POUNDS OF FERTILIZER PER ACRE, TO ALL AREAS DESIGNATED FOR SEEDING.

SEEDING

THE AREAS TO BE SEEDING COMPRISE ALL AREAS BETWEEN THE NEW HIGHWAY SHOULDER LINE (EDGES OF ROADBED) AND THE OUTER LIMITS OF THE GRADING LINES (TOPS OF BACKSLOPES AND/OR EDGES OF BORROW PITS AND TOES OF FILLSLOPES).

THE DESIGNATED AREAS ARE TO BE SEEDING WITH A NUMBER ONE GRASS SEED MIXTURE CONSISTING OF THE FOLLOWING:

8 LBS. LINCOLN BROMEGRASS (BROMIS INERMIS) MIN. 68% PLS
8 LBS. REE INTERMEDIATE WHEATGRASS (AGROPYRON INTERMEDIUM) MIN. 68% PLS
2 LBS. SWITCHGRASS (PANICUM VIRGATUM) MIN. 60% PLS
1 LB. REED CANARYGRASS (PHALARIS ARUNDINACEA) MIN. 65% PLS
3 LB. SAND DROPS (SPOROBOLUS CRYPTANDRUS) MIN. 65% PLS
3 LB. SAND LOVEGRASS (ERAGROSTIS TRICHODES) MIN. 60% PLS

20 LBS. PER ACRE TOTAL
PLS (PURE LIVE SEED) = PURITY X GERMINATION

THE ENGINEER MAY EXCLUDE FROM SEEDING CERTAIN AREAS OUTSIDE OF THE REGULAR RIGHT OF WAY WIDTHS WHICH ARE DEVOTED TO CULTIVATION AND/OR CERTAIN UNDISTURBED AREAS WITHIN THE REGULAR RIGHT OF WAY WIDTHS WHICH ALREADY HAVE A SATISFACTORY GROWTH OF GRASS.

MULCHING

A MULCH COVER SHALL BE PLACED ON ALL SEEDING AREAS. MULCHING MATERIAL SHALL CONSIST OF STRAW TREATED WITH EMULSIFIED ASPHALT. USE OF MULCHING MATERIAL OTHER THAN STRAW SHALL BE APPROVED BY THE ENGINEER. THE MULCH SHALL BE PLACED UNIFORMLY OVER THE SEEDING AREAS TO A LOOSE DEPTH OF ONE TO TWO INCHES, USING ONE AND ONE-HALF (1 1/2) TONS OF STRAW PER ACRE AND ONE HUNDRED (100) GALLONS OF EMULSIFIED ASPHALT (55-1) PER TON OF STRAW.

RATES OF APPLICATION OF STRAW AND/OR ASPHALT MAY BE VARIED, AT THE DIRECTION OF THE ENGINEER, IF DEEMED NECESSARY TO PROVIDE A MORE STABLE MULCH COVER.

IF SEEDING IS DONE BY METHOD B (HYDROSEEDING), MULCHING MAY, AT THE DISCRETION OF THE ENGINEER, BE DONE PRIOR TO SEEDING, WITH LATER HYDROSEEDING THROUGH THE MULCH, IN ORDER TO PROVIDE EROSION PROTECTION AS SOON AS POSSIBLE AFTER GRADING IS COMPLETED.

NOTES:

THE CONTRACTOR SHALL ARRANGE HIS GRADING OPERATIONS SO THAT IF HEAVY TYPE SOIL, (1) CLAY SILT, (2) SILT CLAY AND (3) CLAY, IS ENCOUNTERED AT THE STATIONS LISTED BELOW, SAME SHALL BE UNDERCUT AND BACKFILLED WITH TYPE (8) OR (6) SAND TAKEN FROM REGULAR EXCAVATION. ANY TYPE (1), (2) OR (3) MATERIAL TAKEN EITHER FROM UNDERCUT OR REMOVED FROM DITCHES SHALL NOT BE PLACED WITHIN THE UPPER ONE FOOT OF THE CENTER PORTION (40 FEET) OF FINISHED SUBGRADE. ANY OTHER PORTION OF GRADE NOT SO DESIGNATED ON THE PLANS, FOR THIS TYPE OF TREATMENT SHALL BE HANDLED IN THE SAME MANNER AS INDICATED ABOVE, AT THE DIRECTION OF THE ENGINEER.

STA. 87+ TO 95+
STA. 181+ TO 190+
STA. 204+ TO 206+
STA. 270+ TO 271+
STA. 285+ TO 290+
STA. 298+ TO 302+

THE UPPER THREE INCHES OF THE COMPACTED SAND SUBGRADE SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

THE LIQUID LIMIT SHALL NOT EXCEED 30.0.
THE PLASTIC LIMIT SHALL NOT EXCEED 15.0.

THE MATERIAL SHALL HAVE NOT MORE THAN 30 PERCENT, BY WEIGHT, PASSING THE NO. 200 SIEVE.

SHOULD IT BE NECESSARY TO SELECT, STOCKPILE AND/OR HAUL MATERIAL IN ORDER TO MEET THE ABOVE REQUIREMENTS THE COST OF SELECTING, STOCKPILING AND HAULING SHALL BE INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD FOR "UNCLASSIFIED EXCAVATION."

NOTES RELATIVE TO BORROW PITS

THE TOP SOIL FROM BORROW PITS NOS. 1, 2 AND 3 (3" TO 6" DEEP) IS TO BE SALVAGED AND RESPAVED OVER EXCAVATED AREA AFTER BORROW MATERIAL IS REMOVED. THE COST OF SALVAGING AND REPLACING TOPSOIL IS TO BE INCLUDED AND ABSORBED IN THE PRICE BID FOR "UNCLASSIFIED EXCAVATION."

BORROW FROM PIT NO. 1 IS TO BE REMOVED SO THAT PIT WILL DRAIN. SIDE SLOPES ARE TO BE 10:1.

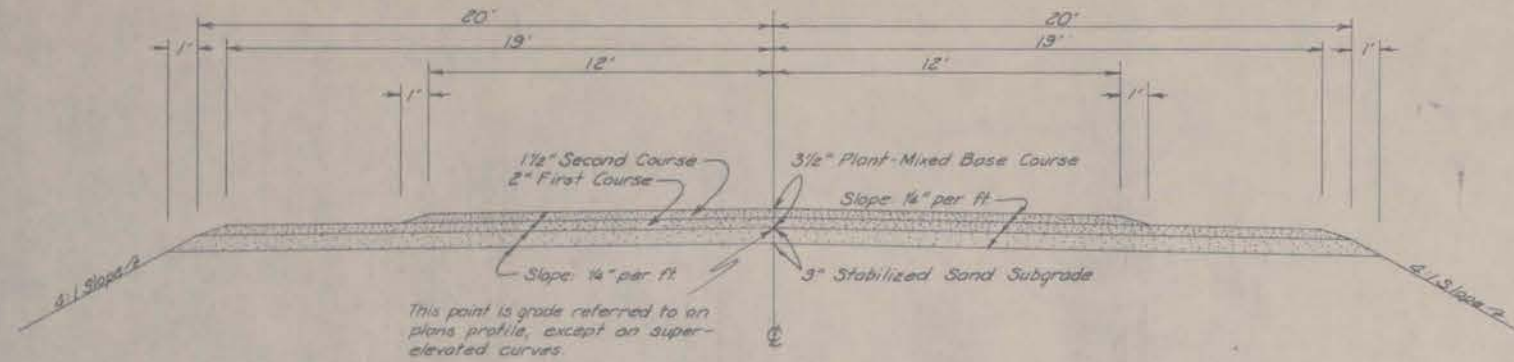
ESTIMATE OF QUANTITIES

Non-Participating

Roadside Improvement

SECTION	SPECIFICATION REFERENCES			15.3	63.5(c)	15.4	25.5										25.5										15.4		11.4(f)	25.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
	STATION			UNCLASSIFIED EXCAVATION CU. YDS.	Guide Posts Each	WATER FOR COMPACTION M. GALL.	EXCAVATION FOR STRUCTURES CU. YDS.	CORRUGATED METAL										RIGHT OF WAY FENCE										Fertilizer lbs	Seeding lbs	Mulching Tons	Emulsified Asphalt Gals.	CLEARING AND GRUBBING		REMOVING PORTABLE CULVERTS LIN. FT.	INCIDENTAL WORK																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	FROM	TO	LENGTH FEET					Circular Pipes						Arch Pipes				Flared Ends		Type 1 Class "A" Fence Lin. Ft.	Type 2 Class "B" Fence Lin. Ft.	Type 3 Class "A" Fence Lin. Ft.	Type 4 Class "B" Fence Lin. Ft.	Type 4 Class "B" Fence Lin. Ft.	Salvage Fence Lin. Ft.	Temporary Fence Sq. Ft.	TREES EACH					STUMPS EACH																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
								18"	24"	30"	42"	24"	18"	24"	30"	Concrete	Steel	Steel	Reinforcing														Class "A"																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
								Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Lin. Ft.	Each	Each	Each	Each	cu. yds.	lbs.	lbs.														Lin. Ft.			Lin. Ft.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	0+00	50+36	5036	32956																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

TYPICAL SECTION FOR STABILIZED SAND SUBGRADE AND PLANT-MIXED BASE COURSE Code No. 4143



UNDERCUTTING AND SCARIFYING

UNDERCUTTING AND SCARIFYING, BELOW THE EXCAVATED LINES FOR THE PLACEMENT OF GRAVEL SUBBASE WILL BE REQUIRED, IN ACCORDANCE WITH THE PROVISIONS OF THE STANDARD SPECIFICATIONS DATED APRIL 1957.

THERE WILL BE NO MEASUREMENT OR SEPARATE PAYMENT MADE FOR UNDERCUTTING AND SCARIFYING, SHAPING AND RECOMPACTING. THE COST OF THIS WORK SHALL BE ABSORBED AND INCLUDED IN THE UNIT PRICE BID PER CUBIC YARD FOR "UNCLASSIFIED EXCAVATION".

THE ESTIMATED AMOUNTS OF UNDERCUTTING ARE AS FOLLOWS:

STATION	TO	STATION	UNDERCUTTING Cu. Yds.
0+32		50+36	995
50+36		106+25	2355
106+25		159+02	2345
159+02		212+12	1467
212+12		260+00	810
260+00		323+20	1800
323+20		369+00	0
369+00		436+39	0
436+39		475+95	2008
GRAND TOTAL			11,780

(DOES NOT INCLUDE MATERIAL TO BE ONLY SCARIFIED)

PIT NOTES:

Pit No. 1 - Base Course Sand.
Haul Road - Prairie Trail.
Stripping to be replaced in the excavated area of the pit upon completion of hauling and spread to a uniform depth, as directed by the Engineer.
Material to be screened.

Pit No. 2 - 3/4-inch Crushed Rock Chips.
Haul Road - 0.1 Mi. Prairie Trail, 3.0 Mi. on S.D. #37, balance gravelled road.
Stripping to be replaced as directed by the Engineer.
Material to be crushed.

NOTE REGARDING 3/4-INCH CHIP SEAL

BUILDING PAPER SHALL BE USED AT TRANSVERSE JOINTS FOR ALL DISTRIBUTOR STARTS.
SATISFACTORY POWER-DRIVEN FRONT-END CHIP SPREADERS ARE REQUIRED. PNEUMATIC-TIRED ROLLERS, AS REQUIRED, SHALL BE UNDERSTOOD TO MEAN ONLY THE POWER-DRIVEN TYPE.

ALL CHIPS SHALL BE ADEQUATELY MOISTENED IN ADVANCE OF SPREADING AND THE COST OF WETTING THE CHIPS SHALL BE UNDERSTOOD TO BE INCLUDED IN THE COMPENSATION FOR THE CHIPS.

THE CONTRACTOR WILL BE REQUIRED TO MAINTAIN THE PROJECT AND KEEP IT OPEN TO TRAFFIC, IN ACCORDANCE WITH SECTION 4.5 OF THE STANDARD SPECIFICATIONS. ONE WAY TRAFFIC, OFF THE NEW CHIP SPREAD, SHALL BE HANDLED SATISFACTORILY BY THE USE OF A PILOT CAR, AS DIRECTED BY THE ENGINEER.

THE ENTIRE DAY'S APPLICATION OF CHIP SEAL COURSE SHALL BE CONSTRUCTED CONTINUOUSLY ON ONE SIDE OF THE CENTERLINE WITH APPLICATION ON THE OTHER SIDE THE FOLLOWING DAY, UNLESS OTHERWISE ORDERED BY THE ENGINEER.

NOTE REGARDING NON-STRIPPING ADDITIVE

THE NON-STRIPPING ADDITIVE SHALL BE ADDED TO AND SATISFACTORILY BLENDED WITH THE BITUMINOUS MATERIAL RC-4 AT THE REFINERY PRIOR TO LOADING TANK CARS OR TRANSPORTS FOR SHIPMENT OR HAULING TO THE PROJECT. THE NON-STRIPPING ADDITIVE, AS SUCH, WILL NOT BE MEASURED OR PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE MEASUREMENT AND PAYMENT, BY THE US GALLON OF "BITUMINOUS MATERIAL RC-4 WITH ADDITIVE", AS FURNISHED AND APPLIED ON THE PROJECT. THE NON-STRIPPING ADDITIVE USED AT THE REFINERY SHALL CONFORM TO ALL THE REQUIREMENTS OF THE "SUPPLEMENTAL SPECIFICATIONS FOR NON-STRIPPING ADDITIVE FOR USE WITH BITUMINOUS ROAD MATERIALS", DATED JANUARY 7, 1960, EXCEPT FOR THE METHOD OF MEASUREMENT AND BASIS OF PAYMENT.

NOTE: THE MATERIALS NECESSARY TO CONSTRUCT THE SAND SUBGRADE AND BASE COURSE ON THE APPROACHES TO INTERSECTING ROADS AND FARM AND FIELD ENTRANCES ARE INCLUDED IN THE ESTIMATE OF QUANTITIES BELOW.

EXCEPTION TO SURFACING
STA. 364+51.5 TO STA. 365+68.5
CONT. CONC. BRIDGE
117.0 FEET = 0.022 MILE

RATES OF MATERIALS

3" BITUMINOUS STABILIZED SAND SUBGRADE

THE FOLLOWING QUANTITIES OF MATERIALS WILL BE REQUIRED PER MILE TO CONSTRUCT THE STABILIZED SAND SUBGRADE TO THE TYPICAL SECTION SHOWN LEFT:
EMULSIFIED ASPHALT SS-1 AT THE RATE OF 57,000 GALS. FOR STABILIZING SAND SUBGRADE.
WATERING AT THE RATE OF 72 M. GALS. FOR STABILIZING SAND SUBGRADE.
ROLLING AT THE RATE OF 40 HOURS.

BASE COURSE

THE FOLLOWING QUANTITIES OF MATERIALS WILL BE REQUIRED PER MILE TO CONSTRUCT THE PLANT-MIXED BASE COURSE TO THE TYPICAL SECTION SHOWN LEFT:

EMULSIFIED ASPHALT SS-1 AT THE RATE OF 1408 GAL. FOR FIRST COURSE TACK COAT - APPLIED 40 FEET WIDE (RATE = 0.06 GAL. PER SQ. YD.)
EMULSIFIED ASPHALT SS-1 AT THE RATE OF 986 GAL. FOR SECOND COURSE TACK COAT - APPLIED 28 FEET WIDE (RATE = 0.06 GAL. PER SQ. YD.)
EMULSIFIED ASPHALT SS-1 AT THE RATE OF 36500 GALS. FOR FIRST COURSE BASE COURSE (RATE = 8% OF THE WEIGHT OF THE SAND).
EMULSIFIED ASPHALT SS-1 AT THE RATE OF 17300 GALS. FOR SECOND COURSE BASE COURSE (RATE = 8% OF THE WEIGHT OF THE SAND).
WATERING AT THE RATE OF 44 M. GALS. TO PROMOTE MIXING AND COATING OF THE SAND WITH ASPHALT (RATE = 10% OF THE WEIGHT OF THE SAND) - FIRST COURSE.
WATERING AT THE RATE OF 22 M. GALS. TO PROMOTE MIXING AND COATING OF THE SAND WITH ASPHALT (RATE = 10% OF THE WEIGHT OF THE SAND) - SECOND COURSE.
PLANT-MIXED BASE COURSE AT THE RATE OF 2228 TONS FOR THE FIRST COURSE OF THE BASE COURSE.
PLANT-MIXED BASE COURSE AT THE RATE OF 1072 TONS FOR THE SECOND COURSE OF THE BASE COURSE.
ROLLING AT THE RATE OF 60 HOURS (40 HOURS FOR THE FIRST COURSE; 20 HOURS FOR THE SECOND COURSE).

3/4-INCH CHIP SEAL COURSE

THE FOLLOWING QUANTITIES OF MATERIALS WILL BE REQUIRED PER MILE TO CONSTRUCT THE CHIP SEAL COURSE.
BITUMINOUS MATERIAL RC-4 (INCLUDING 1% NON-STRIPPING ADDITIVE) AT THE RATE OF 4224 GALS. - APPLIED 24 FEET WIDE (RATE = 0.30 GAL. PER SQ. YD.).
3/4-INCH CRUSHED ROCK CHIPS AT THE RATE OF 248 TONS - APPLIED 24 FEET WIDE (RATE = 35 POUNDS PER SQ. YD.).
ROLLING AT THE RATE OF 20 HOURS.

NOTE:

THE TONNAGE OF "PLANT-MIXED BASE COURSE" SHOWN IN THE ESTIMATE OF QUANTITIES BELOW IS THE GROSS TONNAGE, AFTER MIXING, WITH NO DEDUCTION FOR THE WEIGHT OF THE EMULSIFIED ASPHALT OR WATER IN THE MIXTURE. THIS TONNAGE IS ESTIMATED AS FOLLOWS:

FIRST COURSE	SAND - 1888 TONS PER MILE
	EMULSIFIED ASPHALT SS-1 - 152 TONS PER MILE (36,500 GALS.)
SECOND COURSE	WATER - 188 TONS PER MILE (44 M. GALS.)
	SAND - 910 TONS PER MILE
SECOND COURSE	EMULSIFIED ASPHALT SS-1 - 72 TONS PER MILE (17,300 GALS.)
	WATER - 90 TONS PER MILE (22 M. GALS.)

FED. ROAD DIST. NO.	STATE OF	PROJECT	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	S. D.	F047-7(4)		3	102

BITUMINOUS STABILIZED MIXED-IN-PLACE SAND SUBGRADE AND PLANT-MIXED BASE COURSES, WITH 3/4" CHIP SEAL (CLASS A INTERIM TYPE), FOR F 047-7(4), BROWN CO.

DESCRIPTION: BITUMINOUS STABILIZED MIXED-IN-PLACE SUBBASE, AND PLANT-MIXED BASE COURSES - WITH 3/4" CHIP SEAL (CLASS A INTERIM TYPE) BITUMINOUS SURFACING SHALL CONSIST OF A BITUMINOUS MIXED-IN-PLACE 3" TOP LAYER OF THE COMPACTED SAND SUBGRADE, ACCURATELY SCARIFIED AS TO DEPTH AND WIDTH, AND PULVERIZED IN ADVANCE OF THE SATISFACTORY MIXING, THEREWITH, WITH WATER AND SS-1 EMULSIFIED ASPHALT, FOLLOWED BY AERATION, SPREADING AND COMPACTION ROLLING TO COMPLY WITH THE PLAN TYPICAL SECTION. THE STABILIZED SUBGRADE SHALL THEN BE COVERED WITH TWO SATISFACTORY LIFTS OF PLANT-MIXED SAND, WATER AND SS-1 EMULSIFIED ASPHALT, AS SHOWN BY THE TYPICAL SECTION. ADEQUATE TACK COURSES SHALL BE PLACED BETWEEN ALL COURSES. THE COMPLETED MIDDLE 24 FEET OF THE BASE COURSE SHALL NEXT, AND LAST, RECEIVE A 3/4-INCH CHIP SEAL AS SOON AS ADEQUATE BASE STABILITY, WEATHER AND SEASONAL CONDITIONS WILL PERMIT.

MATERIALS: THE SAND USED IN THE PLANT-MIXED BASE COURSE SHALL MEET THE FOLLOWING REQUIREMENTS, BY DRY WEIGHT:

PASSING 1/4" SIEVE.....	100%
PASSING NO. 10 SIEVE.....	85 TO 100%
PASSING NO. 40 SIEVE.....	60 TO 100%
PASSING NO. 200 SIEVE.....	15 TO 30%

THE LIQUID LIMIT SHALL NOT EXCEED 25, THE PLASTICITY INDEX SHALL NOT EXCEED TWO AND THE LOOSE WEIGHT OF THE SAND PER CUBIC FOOT SHALL BE 70 TO 90 POUNDS. THE SAND SHALL BE CLEAN, FREE FROM LUMPS, VEGETATION AND STRIPPING DIRT. ALL OTHER MATERIALS USED SHALL MEET THE REQUIREMENTS OF DIVISION IV OF THE CURRENT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.

CONSTRUCTION METHODS: THE UPPER THREE INCHES OF THE COMPACTED SAND SUBGRADE SHALL BE SATISFACTORILY SCARIFIED, PULVERIZED AND SUITABLY AND UNIFORMLY MIXED IN PLACE WITH WATER AND SS-1 EMULSIFIED ASPHALT FOLLOWED BY AERATION, SPREADING AND COMPACTION TO APPROVED STABILITY AND SMOOTHNESS COMPLYING WITH THE TYPICAL SECTION. EQUIPMENT AND METHODS USED, AND MATERIAL QUANTITIES SHALL BE APPROVED IN ADVANCE BY THE ENGINEER.

THE PLANT-MIXED FIRST AND TOP COURSES OF SAND AND SS-1 EMULSIFIED ASPHALT SHALL BE PRECEDED BY BITUMINOUS TACK COURSES (SS-1, DILUTED WITH WATER, AS ORDERED ON CONSTRUCTION). THE MIXING PLANT AND SPREADING DEVICES USED SHALL BE SUITABLE FOR THE PURPOSE AND APPROVED BY THE ENGINEER IN ADVANCE. POWER-DRIVEN, PNEUMATIC-TIRED AND STEEL-FACED ROLLERS, APPROVED BY THE ENGINEER, SHALL BE USED FOR ALL COMPACTION ROLLING.

THE WEATHER SHALL BE WARM AND DRY, AT LEAST 60°F., AND THE LIMITING SEASON: BETWEEN JUNE 1 AND SEPTEMBER 15, INCL. THIS APPLIES TO ALL COURSES OF BITUMINOUS SURFACING WORK ON THIS PROJECT, EXCEPT THE SEAL COURSE. INCOMPLETE WORK WILL BE CARRIED OVER TO THE FOLLOWING SEASON ENTIRELY AT THE CONTRACTOR'S RESPONSIBILITY.

THE 3/4"-CHIP SEAL COURSE SHALL BE PLACED AS SOON AS SATISFACTORY BASE COURSE SURFACE CURING AND STABILITY HAVE BEEN OBTAINED. THE SEAL COURSE WORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 32 OF THE CURRENT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES.

THIS 3/4"-SEAL COURSE WILL BE DESIGNATED AS A CLASS A, INTERIM TYPE OF BITUMINOUS SURFACING TO BE FOLLOWED AT A LATER DATE WITH A HIGHER TYPE OF BITUMINOUS SURFACING.

METHOD OF MEASUREMENT: MIXING SAND SUBGRADE, AS DESCRIBED HEREIN AND AS SHOWN BY THE TYPICAL SECTION, WILL BE MEASURED BY THE MILE AND NEAREST ONE-THOUSANDTH THEREOF, AND SHALL INCLUDE ALL SCARIFYING, PULVERIZING, MIXING, AERATING, SPREADING AND SHAPING WORK (LABOR AND EQUIPMENT) NECESSARY TO ACCOMPLISH THE WORK IN A SATISFACTORY, APPROVED MANNER, AS SHOWN ON THE PLANS.

WATERING, SATISFACTORILY APPLIED IN PLACE, WILL BE MEASURED BY THE THOUSAND GALLONS (M. GAL.), AS DESCRIBED IN SECTION 19.3 OF THE CURRENT STANDARD SPECIFICATIONS.

SS-1 EMULSIFIED ASPHALT, FURNISHED SATISFACTORILY IN PLACE FOR ALL COURSES, WILL BE MEASURED BY THE US GALLON OF APPROVED MATERIAL, AS DESCRIBED IN SECTION 91.5 OF THE STANDARD SPECIFICATIONS.

PLANT-MIXED SAND BASE COURSE WILL BE MEASURED BY THE TON (2000 LBS.) AND NEAREST TENTH THEREOF COMPLETE IN PLACE INCLUDING ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO SATISFACTORILY PERFORM THE REQUIRED WORK TO THE APPROVAL OF THE ENGINEER. THERE WILL BE NO DEDUCTION FOR THE WEIGHTS OF THE WATER AND THE SS-1 EMULSIFIED ASPHALT IN THE MIX.

ROLLING OF ALL THREE COURSES OF THE SAND STABILIZATION WORK WILL BE MEASURED BY THE ROLLER HOUR IN THE SAME MANNER, AND INCLUDING THE SAME REQUIREMENTS, AS STATED IN THE SUPPLEMENTAL SPECIFICATIONS FOR ROLLING, DATED AUGUST 15, 1958.

MEASUREMENT OF THE ITEMS FOR THE 3/4" SEAL COURSE WILL BE MADE IN ACCORDANCE WITH SECTION 32 OF THE STANDARD SPECIFICATIONS AND SHALL MEET ALL THE REQUIREMENTS THEREOF.

BASIS OF PAYMENT: MIXING SAND SUBGRADE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER MILE, AS SET FORTH IN THE FOREGOING. COMPENSATION THEREFOR SHALL BE UNDERSTOOD TO INCLUDE FULL PAYMENT FOR ALL NECESSARY LABOR AND EQUIPMENT REQUIRED TO PERFORM THE WORK SATISFACTORILY.

WATERING WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER M. GAL., AS SET FORTH IN SECTION 19.4 OF THE STANDARD SPECIFICATIONS. COMPENSATION THEREFOR SHALL BE UNDERSTOOD TO INCLUDE FULL PAYMENT FOR ALL NECESSARY WATER USED IN THE WORK.

SS-1 EMULSIFIED ASPHALT WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER US GALLON AS SET FORTH IN SECTION 91.5 OF THE STANDARD SPECIFICATIONS. COMPENSATION THEREFOR SHALL BE UNDERSTOOD TO INCLUDE FULL PAYMENT FOR FURNISHING AND APPLYING THIS SS-1 MATERIAL, AS INDICATED.

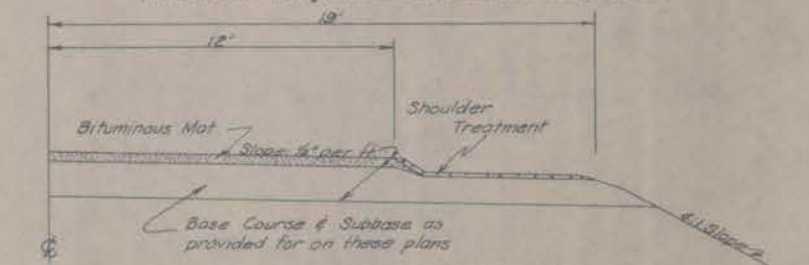
PLANT-MIXED SAND BASE COURSE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER TON AS DESCRIBED IN THE FOREGOING. COMPENSATION THEREFOR SHALL BE UNDERSTOOD TO INCLUDE FULL PAYMENT FOR FURNISHING THE SAND AND ALL LABOR AND EQUIPMENT NECESSARY TO PERFORM THE WORK INDICATED IN A SATISFACTORY MANNER.

ROLLING WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER ROLLER HOUR AS DESCRIBED IN THE SUPPLEMENTAL SPECIFICATIONS FOR ROLLING, DATED AUGUST 15, 1958. COMPENSATION THEREFOR SHALL BE UNDERSTOOD TO BE FULL PAYMENT FOR ALL LABOR AND EQUIPMENT NECESSARY TO SATISFACTORILY PERFORM ALL THE REQUIRED COMPACTION ROLLING WORK.

THE PAYMENT FOR THE ITEMS OF THE 3/4" SEAL COURSE WILL BE MADE AT THE CONTRACT UNIT PRICES THEREFOR AS SET FORTH IN SEC. 32.5 OF THE STANDARD SPECIFICATIONS, AND COMPENSATION THEREFOR SHALL BE UNDERSTOOD TO INCLUDE FULL PAYMENT FOR ALL SEAL COURSE WORK SHOWN ON THE PLANS.

TYPICAL HALF SECTION SHOWING ULTIMATE ROADBED IMPROVEMENT

(Bituminous Mat quantities not included in these plans)



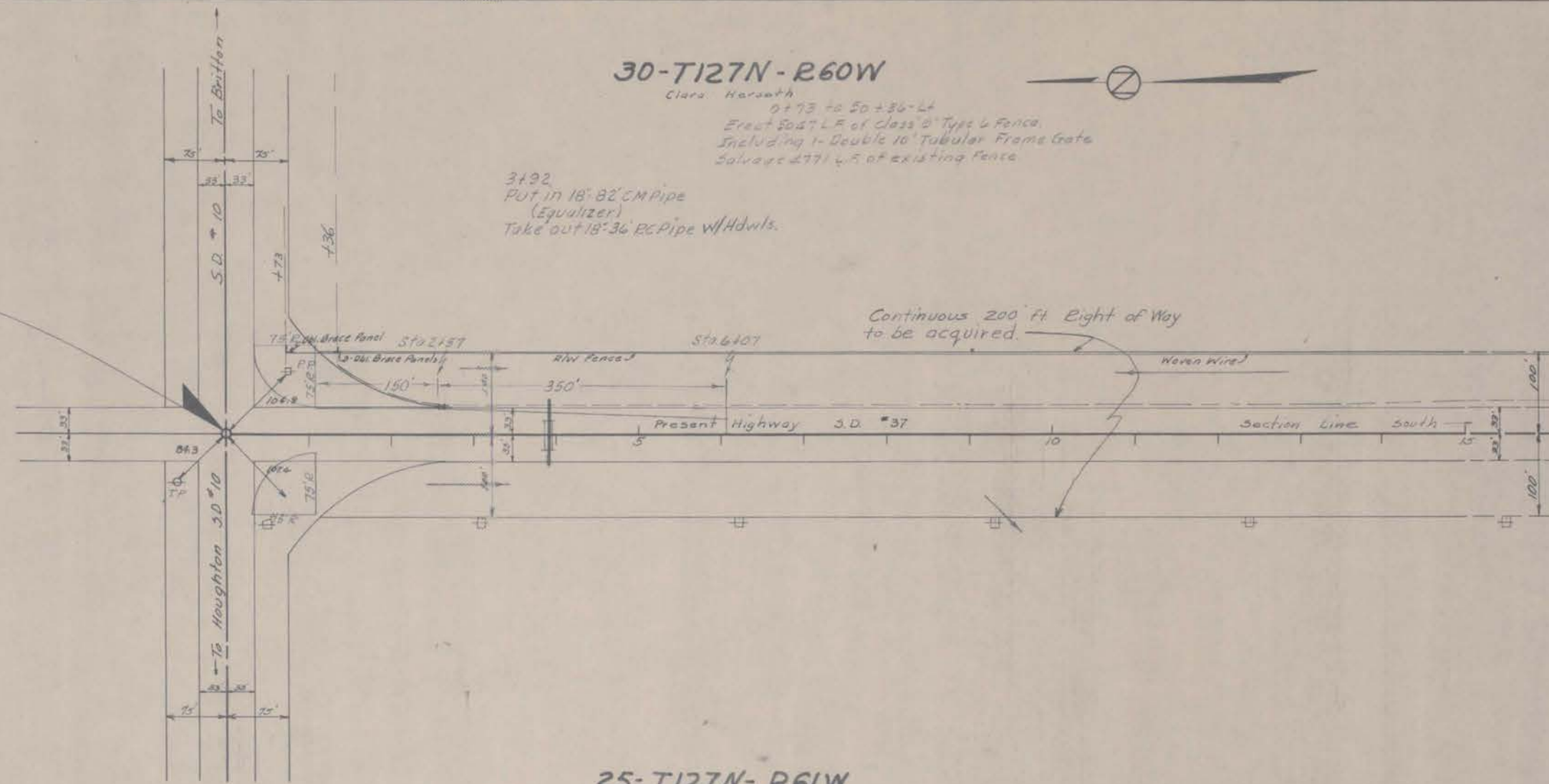
SECTION	SPECIFICATION REFERENCES:			SEE NOTES ON THIS SHEET				35.5(a)			19.4			SEE NOTES ON THIS SHEET		SEE NOTES ON THIS SHEET		SUPPLEMENTAL SPECIFICATIONS			32.5(e)	32.5(f)	32.5(g)
	STATION		LENGTH IN FEET	EMULSIFIED ASPHALT (SS-1) GALS.		EMULSIFIED ASPHALT FOR TACK (SS-1) GALS.		WATERING			PLANT-MIXED BASE COURSE		MIXING STABILIZED SAND SUBGRADE		ROLLING			CUTBACK ASPHALT FOR CHIP SEAL (RC-4) WITH ADDITIVE GALS.	3/4-INCH CRUSHED ROCK CHIPS	ROLLING SEAL COURSE			
				STABILIZED SAND SUBGRADE	PLANT-MIXED BASE COURSE		FIRST COURSE	SECOND COURSE	STABILIZED SAND SUBGRADE	PLANT-MIXED BASE COURSE		TONS		STABILIZED SAND SUBGRADE	PLANT-MIXED BASE COURSE		MILES						
	FROM	TO	FIRST COURSE		SECOND COURSE	FIRST COURSE				SECOND COURSE	FIRST COURSE	SECOND COURSE	FIRST COURSE		SECOND COURSE	FIRST COURSE					SECOND COURSE	FIRST COURSE	SECOND COURSE
1	0+00	50+36	5036	55010	35246	16819	1359	957	69.5	42.5	21.4	2152	1042	0.954	38.7	38.7	19.5	4110	242	19.5			
2	50+36	106+25	5589	60363	38654	18321	1491	1044	76.2	46.6	23.3	2359	1135	1.059	42.4	42.4	21.2	4473	263	21.2			
3	106+25	159+02	5277	57000	36500	17300	1408	986	72.0	44.0	22.0	2228	1072	1.000	40.0	40.0	20.0	4224	248	20.0			
4	159+02	212+12	5310	57342	36719	17404	1416	992	72.4	44.3	22.1	2241	1078	1.006	40.2	40.2	20.1	4249	249	20.1			
5	212+12	260+40	4828	52098	33361	15812	1287	901	65.8	40.2	20.1	2036	980	0.914	36.6	36.6	18.3	3841	227	18.3			
6	260+40	323+20	6280	67773	43399	20570	1674	1172	85.6	52.3	26.2	2649	1275	1.189	47.6	47.6	23.8	5022	295	23.8			
7	323+20	369+00	4463	48165	30843	14619	1190	833	60.8	37.2	18.6	1883	906	0.845	33.8	33.8	16.9	3569	210	16.9			
8	369+00	436+39	6739	72732	46574	22075	1797	1258	91.9	56.1	28.1	2843	1368	1.276	51.0	51.0	25.5	5390	317	25.5			
9	436+39	476+06.5	3967.5	42945	27505	13061	1061	744	54.3	33.1	16.6	1679	809	0.751	30.1	30.1	15.1	3189	187	15.1			
TOTAL			47489.5	513428	328801	155981	12683	8887	648.5	396.3	198.4	20070	9665	8.994	360.4	360.4	180.4	38087	2238	180.4			
				484782		21570		594.7		540.8													
				998210																			
				1019780				1243.2		29735		901.2											

BEG OF F047-7(4)
Sta. 0+100 = PI Sta. 2+85.5 on FHP
216.8' Sta. 423+94.5 on F142(4)
Northwest Corner Sec. 30 - T127N - R60W

30-T127N - R60W
Class: Harroath

0+73 to 50+36-24
Erect 5047 L.F. of Class 5 Type 6 Fence
Including 1- Double 10' Tubular Frame Gate
Salvage 2771 L.F. of existing fence

3192
Put in 18" 82' CM Pipe
(Equalizer)
Take out 18" 36' RC Pipe w/Hdws.



25-T127N - R61W

Begin Work
Sta. 0+132

Hubert Binger

Sta. 9558

Sta. 9558

Overhaul 4000 cu. yd. s.p.

9558

Sta. 0+132
E.L.

Sta. 2132
E.L. 302.05

Sta. 9558
E.L. 301.04
V.O. 300

-0.21%

+0.08%

Sta. 9558
E.L. 301.04
V.O. 300

Sta. 9558
E.L. 301.04
V.O. 300

BM N° 1 ELEV. 1300.00
P.B. 3' 6" in C.P.
3' 6" 2' 0" 10'

PLAN	DATE	BY	CHECKED
NOTED	2/15/57	Long	Schneider
NOTED	2/15/57	Schneider	Long
NOTED	2/15/57	Long	Schneider

PROFILE	DATE	BY	CHECKED
NOTED	2/15/57	Schneider	Long
NOTED	2/15/57	Long	Schneider
NOTED	2/15/57	Schneider	Long

Clara Herseth

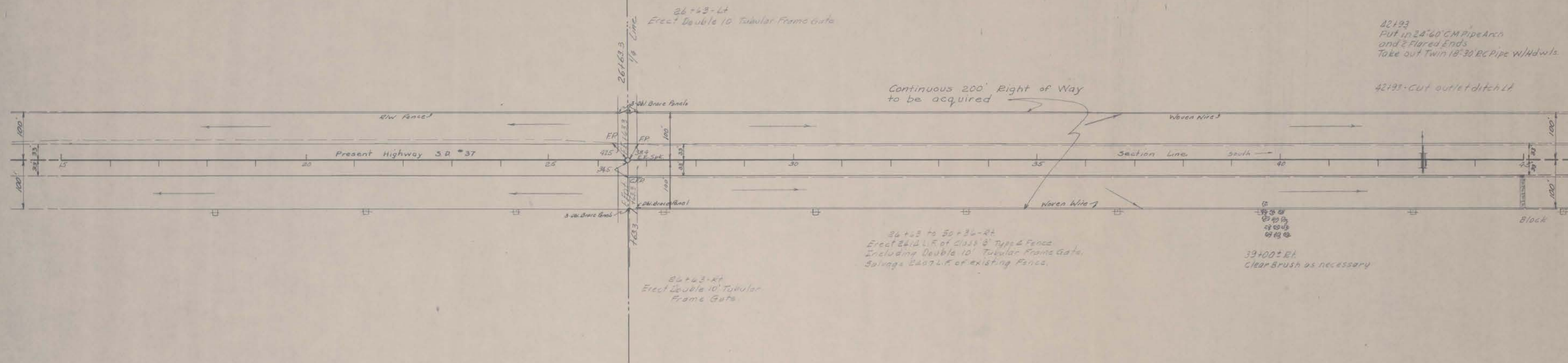
30-T127N-R60W

POT 26+63.3

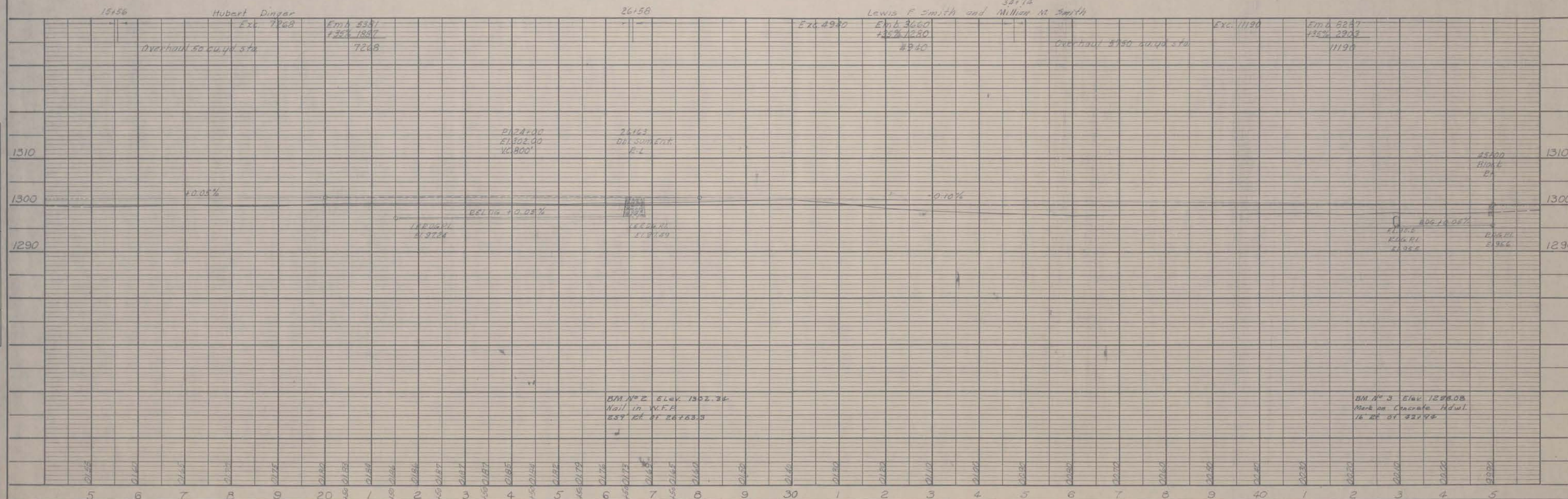
Clara Herseth

DATE	BY	PROJECT	SCALE	SHEET
5-1-76	CLH	F047-7 (A)	5'	168

PLAN	SURVEYED	BY	DATE
NOTE BOOK	PLOTTED	Long	CLH
NO.	ALIGNMENT CHECKED	Schmidt	6-1-76
	ITT. OF WAY CHECKED	Washington	7-2-76



25-T127N-R61W



PROFILE	SUBMITTED PLOTTED GRACES CHECKED G. M. & NOTED FOR PLANS STRUCTURE NATUS CHKO	BY <i>Schramm</i> <i>L. Keller</i>	DATE <i>6-1-77</i> <i>6-30-80</i>
---------	---	--	---

Clara Herseth

30-T127N R60W

31-T127N-R60W

Conrad J. Hinderk and Alice V. Hinderks

DATE	2/1/76	BY	Schumann	DATE	2/1/76
PLANNED	2/1/76	BY	Schumann	DATE	2/1/76
NOTED	2/1/76	BY	Schumann	DATE	2/1/76
DATE	2/1/76	BY	Schumann	DATE	2/1/76

PI-52+87.6
Δ=0°06'rt
SEC corner

52+54-120' L+u Back
Put in 18"-40' C.M. Pipe
and 2 Flared Ends

52+27
Put in 18"-40' C.M. Pipe
and 2 Flared Ends

52+33
Take out 18"-30' EC Pipe with h/w.

50+36 to 105+27-Lt
Erect 3784 L.F. of Class 6 Type 6 Fence,
Including 3 Double 10' Tubular Frame Gates,
and 1-24' Wire Gate
Salvage 5892 L.F. of Existing Fence.

48+70-117' LA (Cross Fence)
Erect 1-24' Wire Gate

70+00-32' Ac. Pr.
Put in 24"-58' C.M. Pipe
and 2 Flared Ends
66+95.5
Take out 24"-30' EC Pipe with h/w.

69+00 Lt
Clear 5' x 8' Trees 6'-18" D
and 1 stump over 18"

Continuous 200' Right of Way
to be acquired

49+00 to 49+50 Rt
Clear 5' x 8' Trees 6'-18" D
and 1 stump 6'-18" D
Clear Brush as necessary

50+36 to 52+24-Rt
Erect 239 L.F. of Class 6 Type 6 Fence
Salvage 239 L.F. of Existing Fence.

Note:
52+12 to 49+00-R-L
Provide 16' In Slopes
See Cross Sections

Lewis F. Smith &
Million M. Smith

25-T127N-R61W

36-T127N-R61W

Hobart Dinger

72+66

Overhaul 10700' of 24"

PI 29+00
Elev 1299.50
VC 200'

52+87.6
TAN 80°
R-L
52+15-120' LA (Cross Fence)
Erect 1-24' Wire Gate
PI 52+87.6
Elev 1299.50
VC 200'

PI 60+00
Elev 1299.50
VC 200'

PI 70+00
Elev 1299.50
VC 200'

B.M. N° 4 Elev 1296.53
R.R. Sp. in R.P.
290' E of 53+20

B.M. N° 5 Elev 1296.36
Nail in V.E.P.
165' E of 63+70

91+43 to 93184 Lt.
Clear 5' Grub 9 Trees 6" 18" D
and 8 Trees over 18" D
and 20 stumps 6"-18" D
Clear Brush as necessary

93417 Lt.
Put in 18'-40" CM Pipe
and 2 Flored Ends
Take out 15'-25" RC Pipe

2341766
Put in 18" 40' CM Pipe
and 2 Flared Ends
Take out 15" 25' RG Pipe

State of South Dakota

974

EXL 4801	End 355A
	+35% 1247
	4801

overhaul 11702 curyd sta

Exc 15076

End 1.420
135% 4012
1547.5

 $\frac{5}{6}$

PR 80100
EL 295.00
VD 800'

PR 80100
EL 295.00
VD 800'

85400
50m. E. W. S.
D-L

10.171%

FL915

93417
F. E. L. B.
E. L.

PI.99109
ET.275.25
VL.800

3/10

300

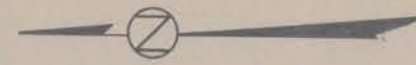
290

-0.175%

BM N°6	Elev.	1274.76
RP	Sp. in tree	
1st Lt	at	79+93

BM N° 7 295.57
EP SpL in dead tree
No. 87 at 91.00

31-T127N-R60W 6-T126N-R60W



DATE	BY	PROJECT	SCALE	SHEET	TOTAL
6-25-52	S. H. Eames	FO47-7 (4)	1" = 100'	8	108

PI 105+77.6
Δ 0'03" Rt
Sec Corner

105+10 to 131+40-Lt
Erect 5334 L.F. of Class B Type 1 Fence
Including 2-24" Wire Gates
Salvage 5478 L.F. of Existing Fence

PI 132+33.8
Δ 0'01'00" Rt
1/4 Corner

105+59 to 107+02-Lt
Clear Grub 36 Trees 6" 18" D
and 34 stumps 6" 18" D

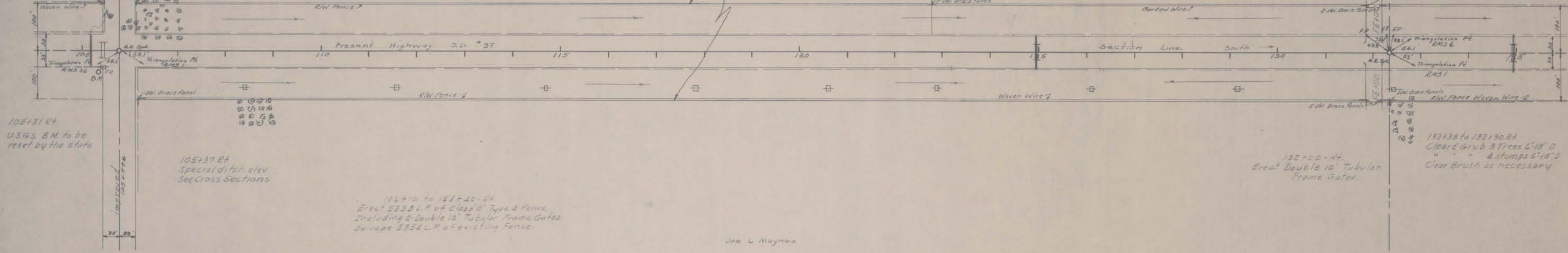
105+17
Put in 18" 60' CM Pipe
and 2 Flared Ends
105+37
Take out 18" 34' EC Pipe w/ Hdwls.

124+96 - 55 AC Very Flat
Put in 24" 62' CM Pipe
Take out 24" 30' EC Pipe w/ Hdwls.

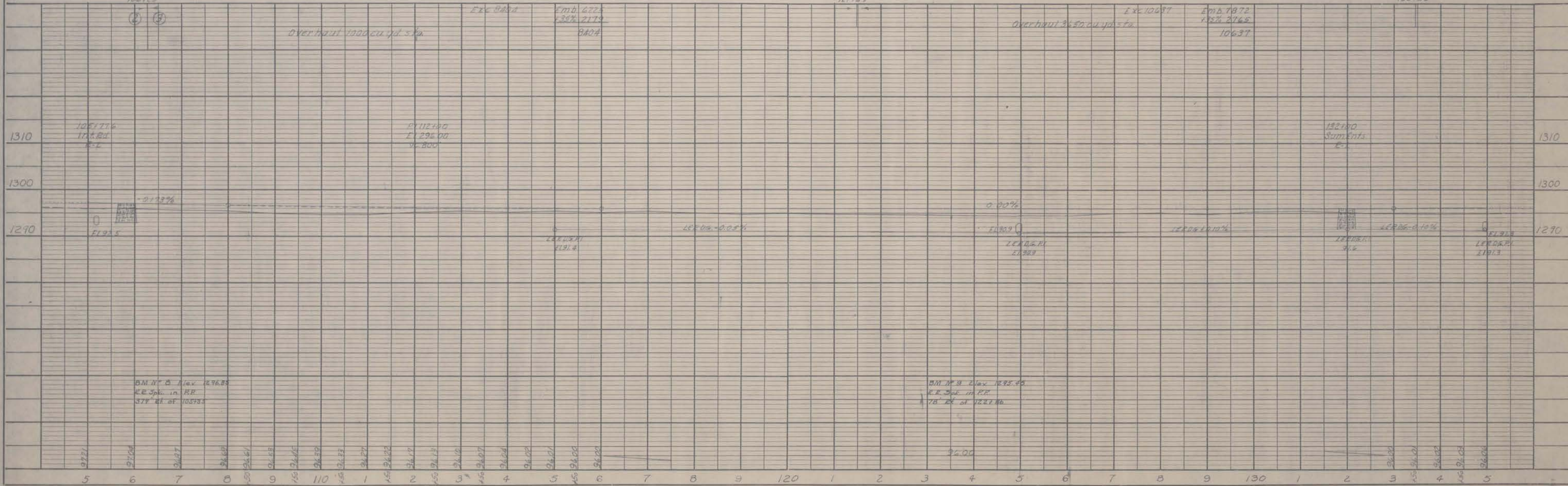
131+00-Lt
Erect 1-24" Wire Gate

134+96
Put in 18" 74' CM Pipe (Equalized)
Take out 18" 30' EC Pipe w/ Hdwls.

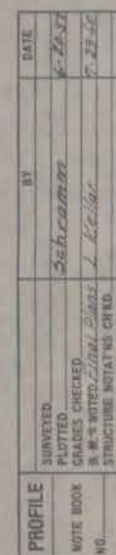
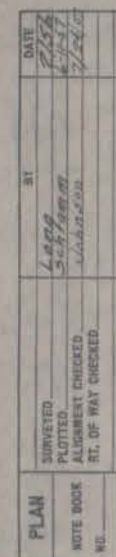
Continuous 200 ft Right of Way
to be acquired



36-T127N-R61W 1-T126N-R61W



PROFILE	SURVIVED	BY	DATE
NOTE BOOK	GRADES CHECKED	SCHUBERT	6-22-57
NO.	IS - M - S NOTED	L. K. 11/62	7-22-60
	STRUCTURE	NOTATIONS CHKD.	



DATE	2/26
BY	Long
PLANNED	Substation
CONSTRUCTION	Substation
NO.	108

DATE	2-25-27
BY	Schuman
PLANNED	Substation
CONSTRUCTION	Substation
NO.	108

7-T126N-R60W

18-T126N-R60W

DATE	2/26
BY	Long
PLANNED	Substation
CONSTRUCTION	Substation
NO.	108

The Union Central Life Insurance Company
193+03 to 202+55-Lt
Erect 1 1/2" L.F. of Temporary Fence

202+44-Lt
Erect Double 10' Tubular Frame Gate

202+70 to 211+09-Lt
Clear small trees as necessary

208+03
Put in 18" 70' C.M. Pipe and 2 Flared Ends
Take out 18" 51' R.C. Pipe

PI 211+64.7
Δ=0'01" Rt
Sec Corner

Marion L. Cross

197+80-Lt
Erect Double 10' Tubular Frame Gate

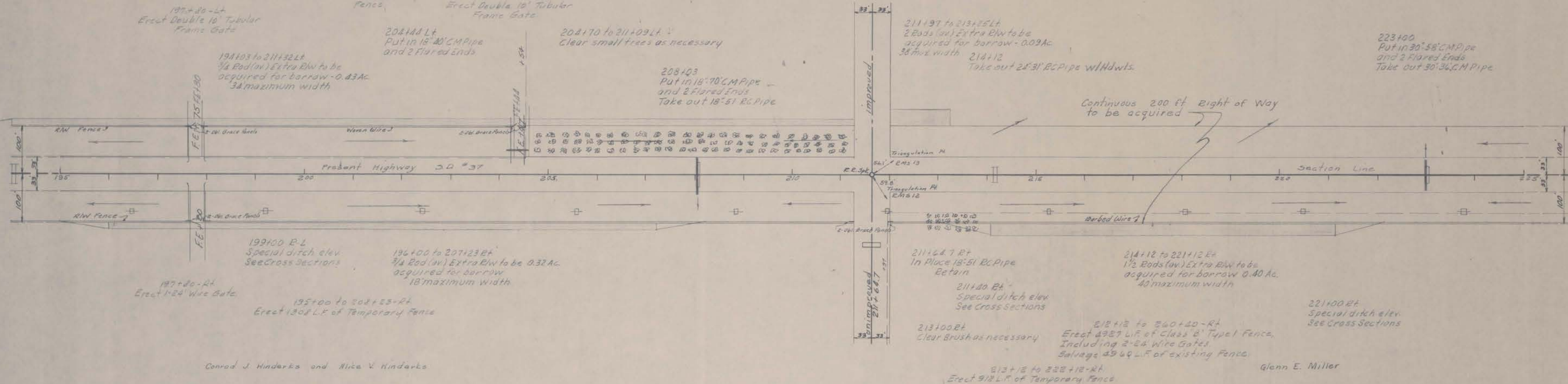
194+03 to 211+32-Lt
1/4 Rod (av) Extra R/W to be acquired for borrow-0.03 Ac.
3d maximum width

202+44-Lt
Put in 18" 40' C.M. Pipe and 2 Flared Ends

211+97 to 213+25-Lt
2 Rods (av) Extra R/W to be acquired for borrow-0.03 Ac.
3d max width
214+12
Take out 25' 31' R.C. Pipe with dwt.

223+00
Put in 30" 36' C.M. Pipe and 2 Flared Ends
Take out 30" 36' C.M. Pipe

Continuous 200 ft Right of Way to be acquired



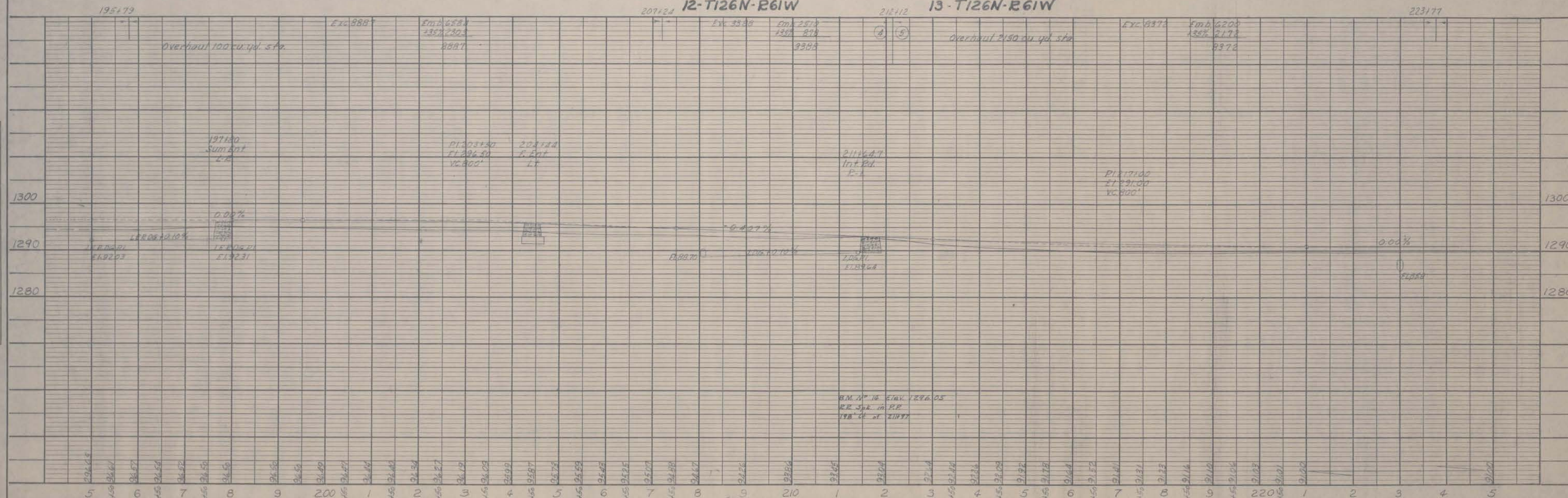
Conrad J. Hindarke and Alice V. Hindarke

213+00 Rt
Clear brush as necessary
Erect 9' 12' L.F. of Temporary Fence

Glenn E. Miller

12-T126N-R61W

13-T126N-R61W



Marion L. Cross

L. V. Oviatt

18-T126N-R60W

19-T126N-R60W



DATE	7/26/27	BY	W. J. Sullivan
REVISION		DATE	7/26/27
NO.	1	DATE	7/26/27
NO.	2	DATE	7/26/27
NO.	3	DATE	7/26/27
NO.	4	DATE	7/26/27
NO.	5	DATE	7/26/27
NO.	6	DATE	7/26/27
NO.	7	DATE	7/26/27
NO.	8	DATE	7/26/27
NO.	9	DATE	7/26/27
NO.	10	DATE	7/26/27
NO.	11	DATE	7/26/27
NO.	12	DATE	7/26/27
NO.	13	DATE	7/26/27
NO.	14	DATE	7/26/27
NO.	15	DATE	7/26/27
NO.	16	DATE	7/26/27
NO.	17	DATE	7/26/27
NO.	18	DATE	7/26/27
NO.	19	DATE	7/26/27
NO.	20	DATE	7/26/27
NO.	21	DATE	7/26/27
NO.	22	DATE	7/26/27
NO.	23	DATE	7/26/27
NO.	24	DATE	7/26/27
NO.	25	DATE	7/26/27
NO.	26	DATE	7/26/27
NO.	27	DATE	7/26/27
NO.	28	DATE	7/26/27
NO.	29	DATE	7/26/27
NO.	30	DATE	7/26/27
NO.	31	DATE	7/26/27
NO.	32	DATE	7/26/27
NO.	33	DATE	7/26/27
NO.	34	DATE	7/26/27
NO.	35	DATE	7/26/27
NO.	36	DATE	7/26/27
NO.	37	DATE	7/26/27
NO.	38	DATE	7/26/27
NO.	39	DATE	7/26/27
NO.	40	DATE	7/26/27
NO.	41	DATE	7/26/27
NO.	42	DATE	7/26/27
NO.	43	DATE	7/26/27
NO.	44	DATE	7/26/27
NO.	45	DATE	7/26/27
NO.	46	DATE	7/26/27
NO.	47	DATE	7/26/27
NO.	48	DATE	7/26/27
NO.	49	DATE	7/26/27
NO.	50	DATE	7/26/27
NO.	51	DATE	7/26/27
NO.	52	DATE	7/26/27
NO.	53	DATE	7/26/27
NO.	54	DATE	7/26/27
NO.	55	DATE	7/26/27
NO.	56	DATE	7/26/27
NO.	57	DATE	7/26/27
NO.	58	DATE	7/26/27
NO.	59	DATE	7/26/27
NO.	60	DATE	7/26/27
NO.	61	DATE	7/26/27
NO.	62	DATE	7/26/27
NO.	63	DATE	7/26/27
NO.	64	DATE	7/26/27
NO.	65	DATE	7/26/27
NO.	66	DATE	7/26/27
NO.	67	DATE	7/26/27
NO.	68	DATE	7/26/27
NO.	69	DATE	7/26/27
NO.	70	DATE	7/26/27
NO.	71	DATE	7/26/27
NO.	72	DATE	7/26/27
NO.	73	DATE	7/26/27
NO.	74	DATE	7/26/27
NO.	75	DATE	7/26/27
NO.	76	DATE	7/26/27
NO.	77	DATE	7/26/27
NO.	78	DATE	7/26/27
NO.	79	DATE	7/26/27
NO.	80	DATE	7/26/27
NO.	81	DATE	7/26/27
NO.	82	DATE	7/26/27
NO.	83	DATE	7/26/27
NO.	84	DATE	7/26/27
NO.	85	DATE	7/26/27
NO.	86	DATE	7/26/27
NO.	87	DATE	7/26/27
NO.	88	DATE	7/26/27
NO.	89	DATE	7/26/27
NO.	90	DATE	7/26/27
NO.	91	DATE	7/26/27
NO.	92	DATE	7/26/27
NO.	93	DATE	7/26/27
NO.	94	DATE	7/26/27
NO.	95	DATE	7/26/27
NO.	96	DATE	7/26/27
NO.	97	DATE	7/26/27
NO.	98	DATE	7/26/27
NO.	99	DATE	7/26/27
NO.	100	DATE	7/26/27

L.V. Orloff

Const Curve Data
PC 258+63.8
PI 264+51
PT 270+38.1
Δ 0° 47'
DE 0.45°
T 587.2
L 1174.3
E 195

PI 264+51.0
Δ 0° 47' Rt
Sec Corner

264+79 to 275+40-Lt.
Erect 200 L.F. of Class 'B' Type 3 Fence.
Salvage 513 L.F. of existing Fence.

Roy R. Pulfray and Viola Pulfray

264+00
Put in 24" 72" CM Pipe
Equalizer
Take out Twin 18" 30" RC Pipes
w/ Hdws.

264+51 Lt.
Put in 24" 40" CM Pipe
and 2 Flared Ends
Take out Twin 18" 30" RC Pipes
w/ Hdws.

269+50 to 273+50 Lt.
1/2 Rod (av.) Extra R/W to be
acquired for borrow 0.08 Ac.
Maximum width

268+50 to 274+50-Lt
Erect 600 L.F. of Temporary Fence

Continuous 200 ft Right of Way
to be acquired

Section Line

260+40 to 264+55-Rt
Erect 216 L.F. of Class 'B' Type 3 Fence.
Salvage 270 L.F. of existing Fence.

264+51 Rt
Put in 24" 40" CM Pipe
and 2 Flared Ends
Take out Twin 18" 30" RC Pipes
w/ Hdws.

270+00 to 273+00 Rt
1/2 Rod (av.) Extra R/W to be
acquired for borrow 0.06 Ac.
Maximum width

264+79 to 290+49-Rt
Erect 270 L.F. of Class 'B' Type 3 Fence.
Including 2-24" Wire Gates
Salvage 234 L.F. of existing Fence.

269+00 to 274+00-Rt
Erect 500 L.F. of Temporary Fence

275+03-117 Rt
Erect 1-24" Wire Gate

276+02 to 290+68 Rt
2 1/4 Rods (av.) Extra R/W to be
acquired for borrow 1.56 Ac.
Maximum width

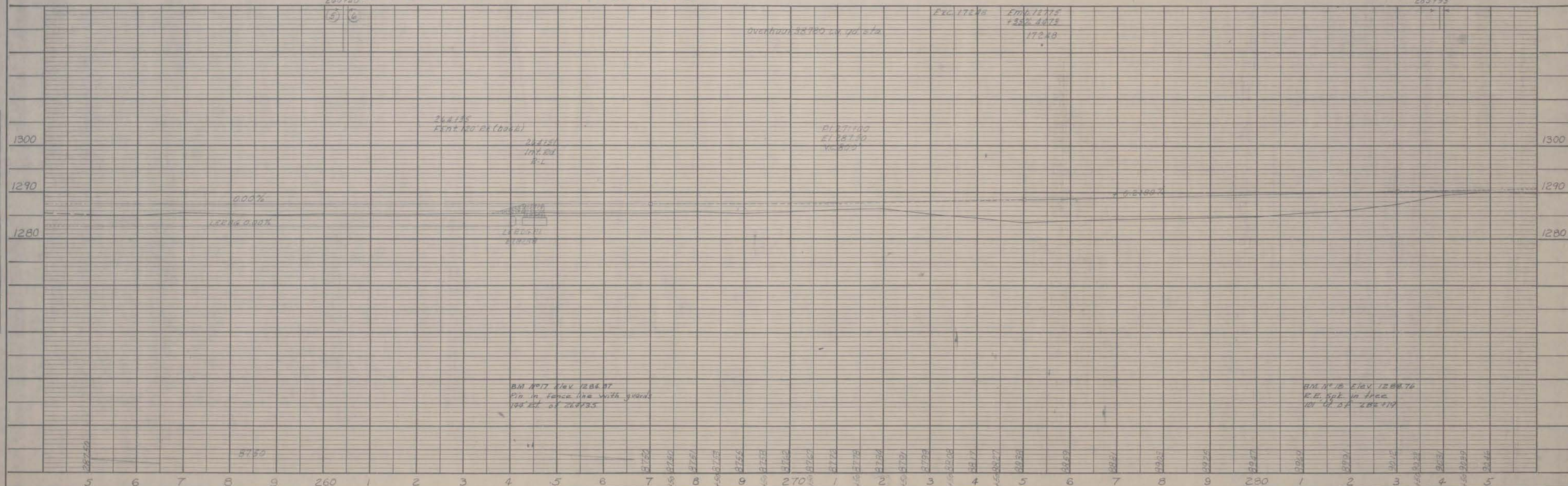
274+02 to 270+70-Rt
Erect 146 L.F. of Temporary Fence

James F. Spencer and Doris L. Spencer

Roy R. Pulfray and Viola Pulfray

13-T126N-R61W

24-T126N-R61W



$FC = 302 + 21.6$
 $PI = 304 + 00$
 $PT = 305 + 78.3$
 $\Delta = 147.00$ Lt. $\frac{1}{16}$ Line Approx.
 $D_c = 30$
 $Tan = 178.36$
 $L_c = 356.66$
 $B = 1146.00$
 $Elev = 1431.6$
 $Station = 1588.1$

James F. Spencer and Doris L. Spencer

DATE 10/10/74	TIME 10:00	LOCATION FOIA-7(A)	BY 12	PAGE 108
------------------	---------------	-----------------------	----------	-------------

Const Curve Data

PI 290 + 68.9
Δ - 1°00'00" Lt
42 ft. West 1/4 Corner

390 + 69 to 237 + 11-24
Erect 763.6 F of Class 3 Type 6 Fence,
Including 1 Double 6' Tubular Frame Gate
Salvage 659.6 F of existing Fence.

Const Curve Data
PC 298+651
PI 304+00
PT 309+128
 Δ 1°47'
Dc 0°10' Lt
T 534.9
Lc 1063.7
E 4.13

Tan = 178.30
Lc = 356.66
B = 11460.0

1. $308 + 56$ to $314 + 72$ - Lt
Erect 1491 L.F. of Class "B" Type 6 Fence
Salvage 1582 L.F. of existing Fence.

285+82 to 286+22 Lf.
Clear & Grub 2 Trees 6'-18"
" " Astumps 6'-18"

PT 290/189 Erect 357 L.F. of class 2 Type 6 Fence
 at 1'00" Including Double Tubular Gate
 Do. of 1st Salvage 230 L.F. of 290/189 Lt
 T 750" existing fence Put in 18'40"
 L. 1500" and 2 Flared
 S. E 329

234-00-61 Ac. Flot
Put in 4'x5'-23" B.C. Cattle Pass
and 2 Flared Ends
Take out 24" 30 EC Pipe
w/ No. 10

305+0.8 - 19A₂ Pr.
Put in 18' 30" CP Pipe
and 2 Flared Ends
Take out 18' 30" CP Pipe w/Hdwls

Continuous 200 ft Right of Way
to be acquired

Ray E. Pulfrey and Viola Pulfrey

19-T126N-R60W

30-T126N-R60W

FO47-70
15 108PI 317+07.6
Δ=2°21'00" Rt
Sec. cornerPI 343+67
Δ=0°08'00" Lt
¼ Corner

Amanda Trouth

316+28
Put in 18" 82' CM Pipe
Equalizer
Take out 18" 41' RC Pipe
W/HDW/LSContinuous 200 ft Right of Way
to be acquired

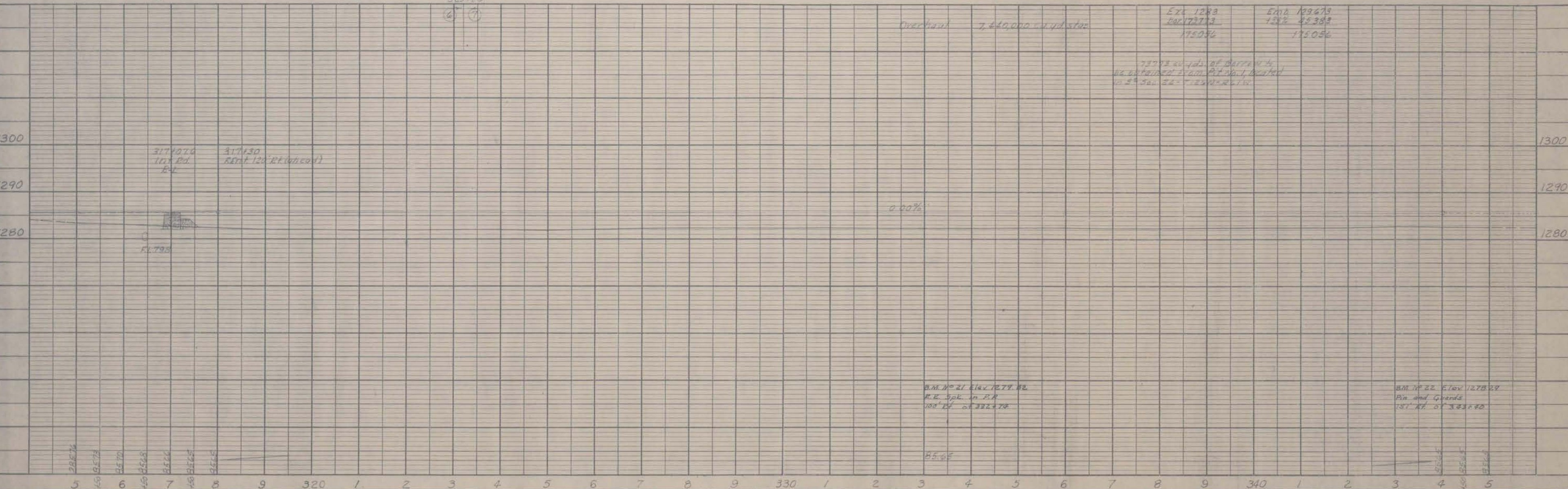
Const. Curve Data

PC 314+72.5
PI 317+07.6
PT 319+42.4
Δ 2°21' Rt
T 235.06
L 470.0
E 11462.0PC 310+02.6
PI 317+07.6
PT 324+12.3
Δ 2°21'
OC 0°10' Rt
T 705.0
L 1409.7
E 726317+23 to 438+00 R1FL
Special 8:1 Fill Slopes
See Cross Sections333+30 to 365+74-R1
Erect 42" ALR of Class B Type 1 Fence.
Salvage 4343 L.F. of existing Fence.

Donald I. Miller

24-T126N-R61W

25-T126N-R61W





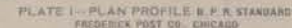
Bobo Brace Pencil

RW Fence

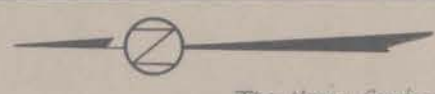
		Wave
--	--	------

South	-
-------	---

State of South Dakota



PROFILE		SURVIVED		BY	DATE
NOTE BOOK	GRAVES CHECKED			<i>2/24/88</i>	<i>6-21-88</i>
MO	ALL GRAVES IDENTIFIED			<i>2/24/88</i>	<i>6-21-88</i>
	STRUCTURE NOTATIONS CHKD.				



The Union Central Life Insurance Company

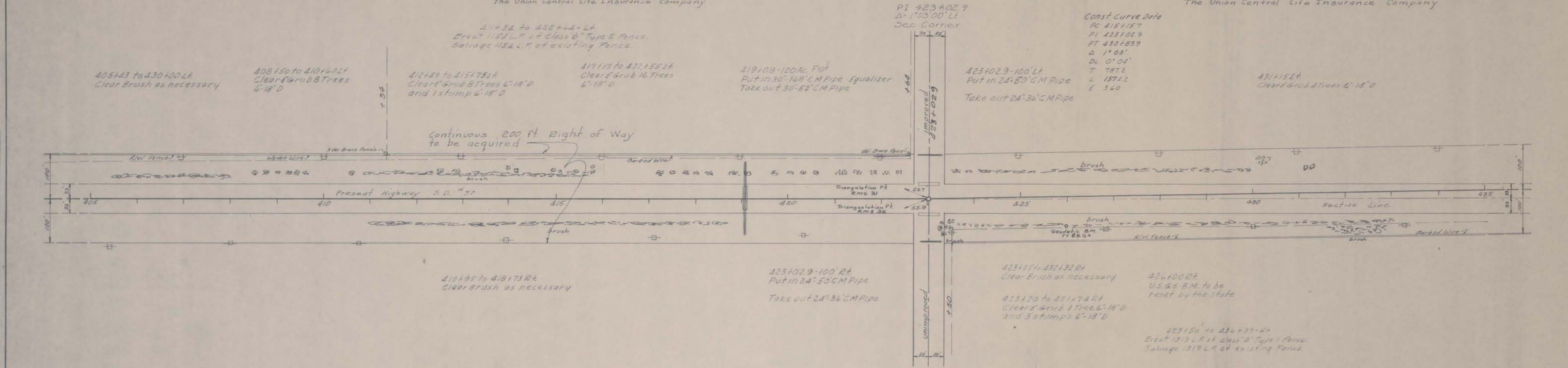
31-T126N-R60W 6-T125N-R60W

FILE NO.	PROJECT NO.	DATE	BY	DATE
100	100	100	100	100

The Union Central Life Insurance Company

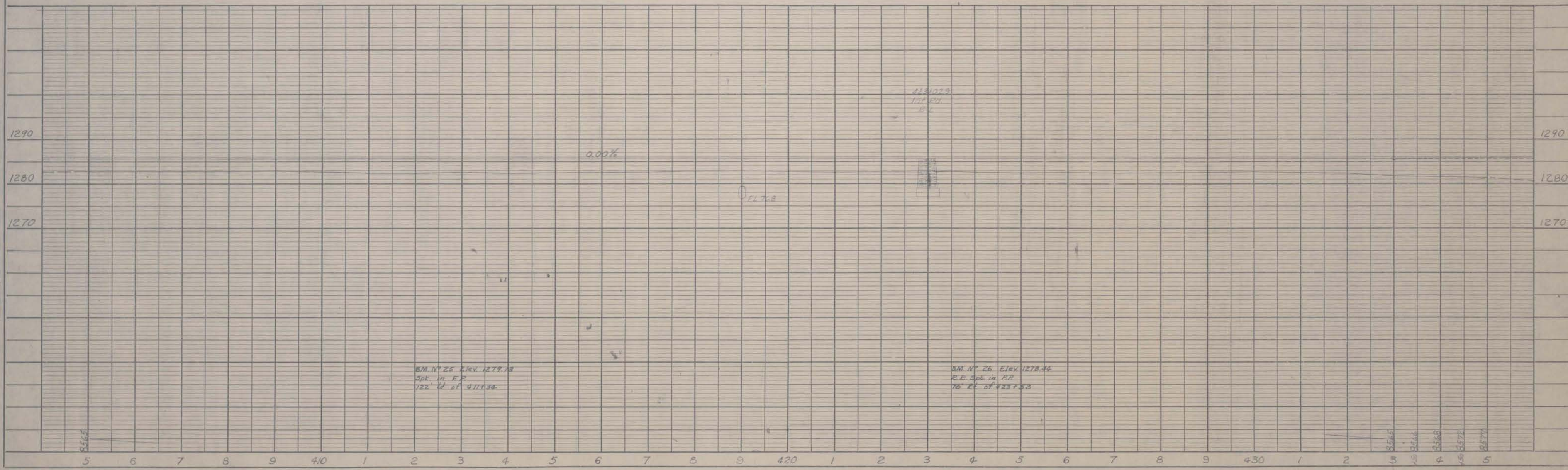
DATE	BY	REVISION
100	100	100

DATE	BY	REVISION
100	100	100



State of South Dakota

Elmer F. Seland



The Union Central Life Insurance Company

6-T125N-R60W

115 ROAD	116	117	118	119	120
FOOT	5.0	FOOT	5.0	FOOT	5.0
1	5.0	FOOT	5.0	FOOT	5.0
1	5.0	FOOT	5.0	FOOT	5.0
1	5.0	FOOT	5.0	FOOT	5.0

Alfred T. Hagen

426+00 to 426+50-Lt
Eliminate R. Ent.

436+05 Lt
Clear Grub 1 Tree 6" 18" D

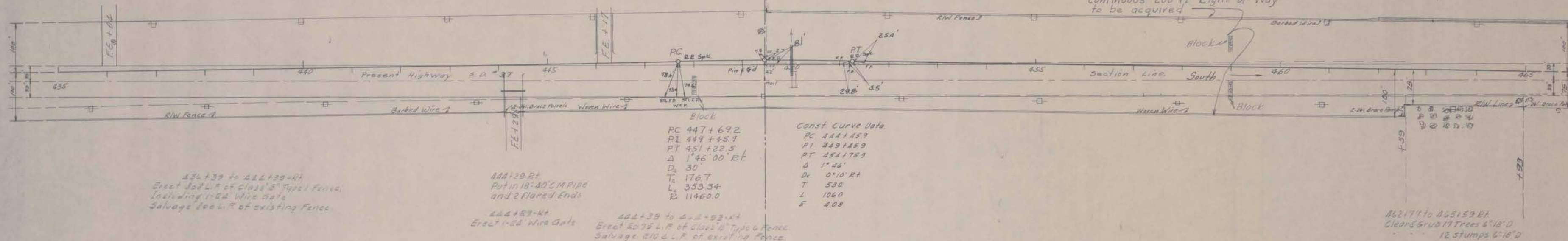
447+00 Lt
Clear Grub 1 Tree over 18"

450+06-20 AC. Plot
Put in 18" 58" CM Pipe
and 2 Flared Ends
Take out 18" 30" RC Pipe w/ Hd w/ 1/2

468+00 to 473+54-Lt
1/2 Red Oak Extra 6" 1/2 to 6"
acquired for Barron 2.11.14
a maximum width

481+00 to 492+54-Lt
Erect 18" 6" L.F. of Temporary Fence.

Continuous 200 ft Right of Way
to be acquired



1-T125N-R61W

Elmer F. Odland

Overhaul 185200 cu yds

Exc. 23772

Emd. 17412
+2.2% 141.1
23772

PT 45100
ET 290.50
K=800

452+00
E 295.2
L 8

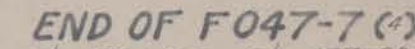
452+00
E 295.2
L 8

452+00
E 295.2
L 8

1270

1280

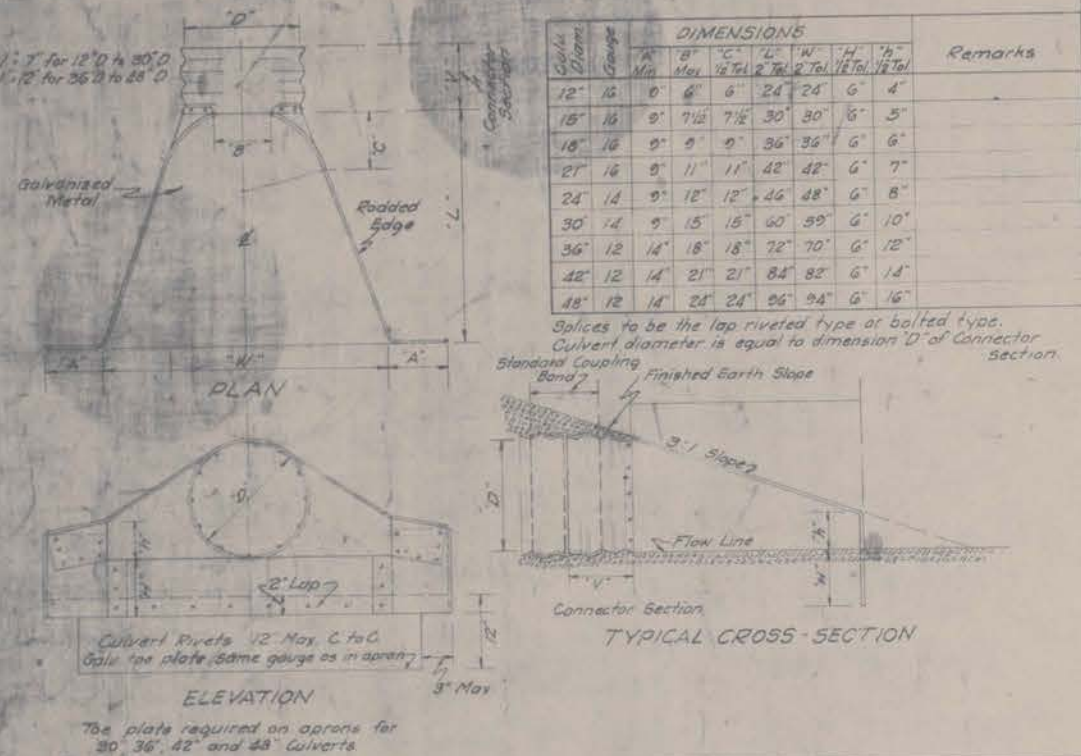
1290



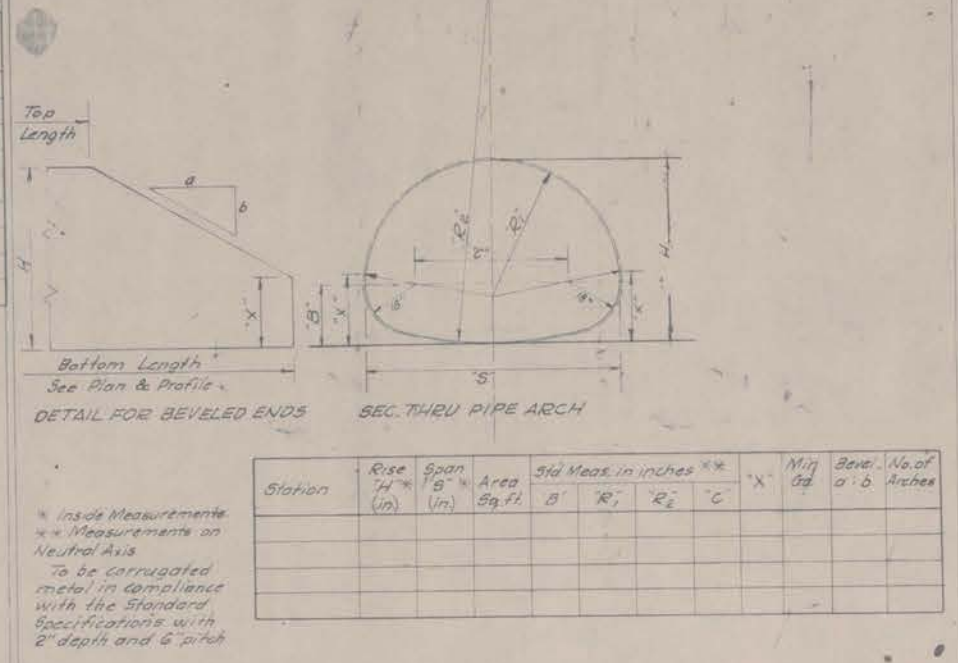
Sta 476 + 06.5 = Sta 477 + 00.5
End of Original FAP 2165 - PI
Sta 200 + 00 on Original FAP 216A.
0 + 00 Beg. of 'FOAT-7(3)
Southwest Corner Sec. 6 - T125N - R60W



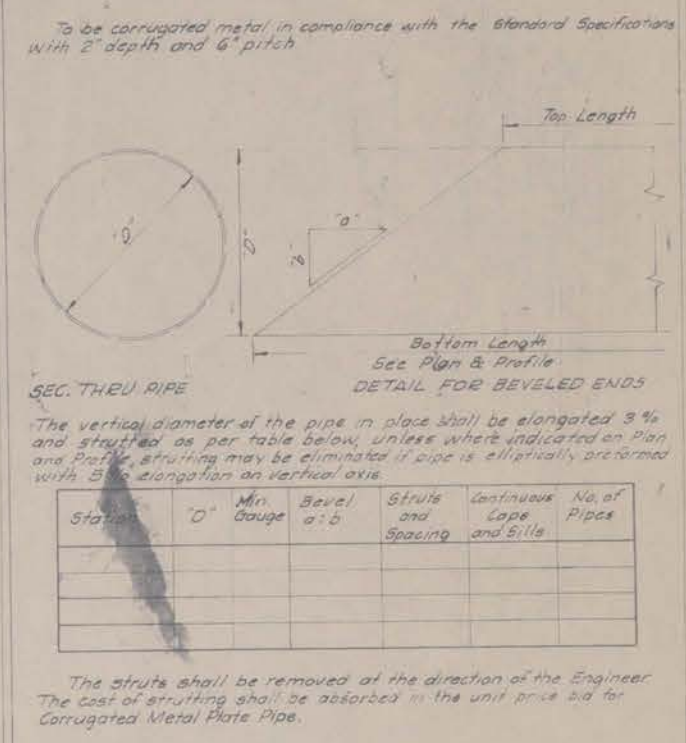
METAL END SECTION FOR CIRCULAR CORRUGATED METAL PIPE



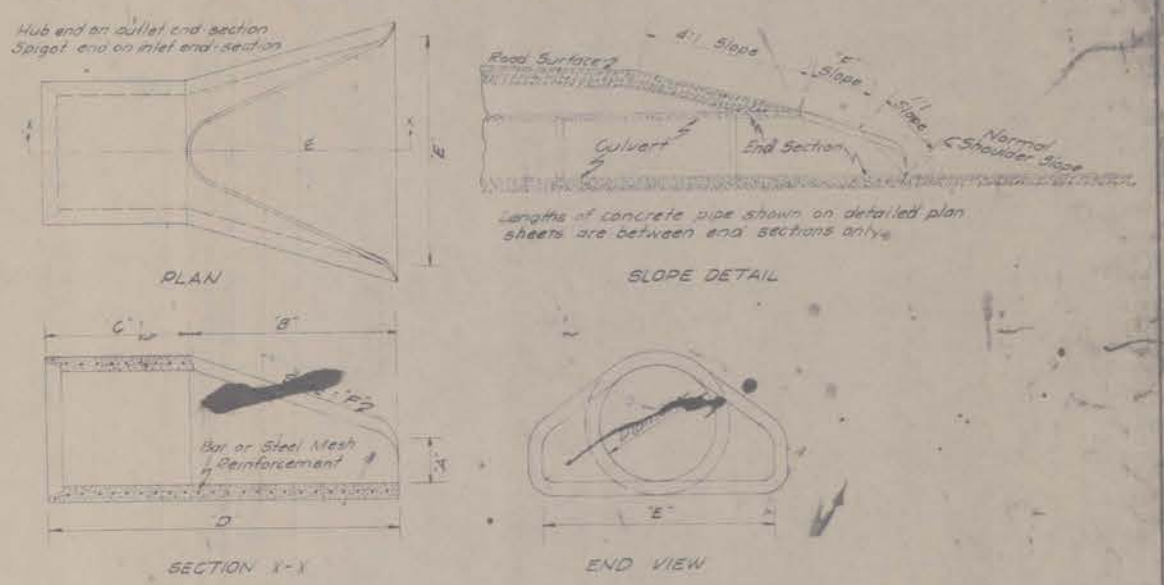
CORRUGATED METAL PLATE PIPE ARCH



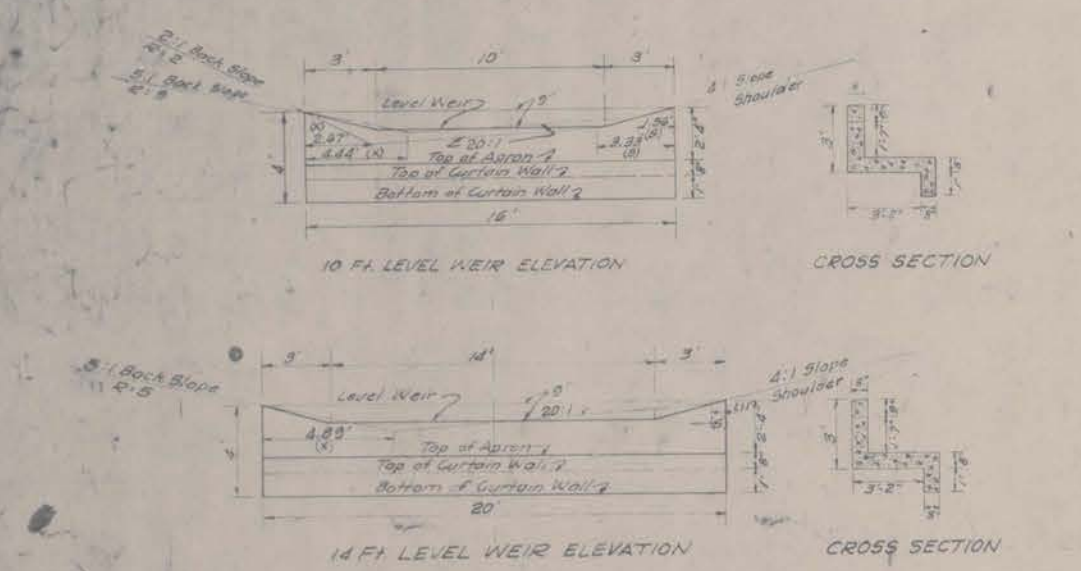
CORRUGATED METAL PLATE PIPE



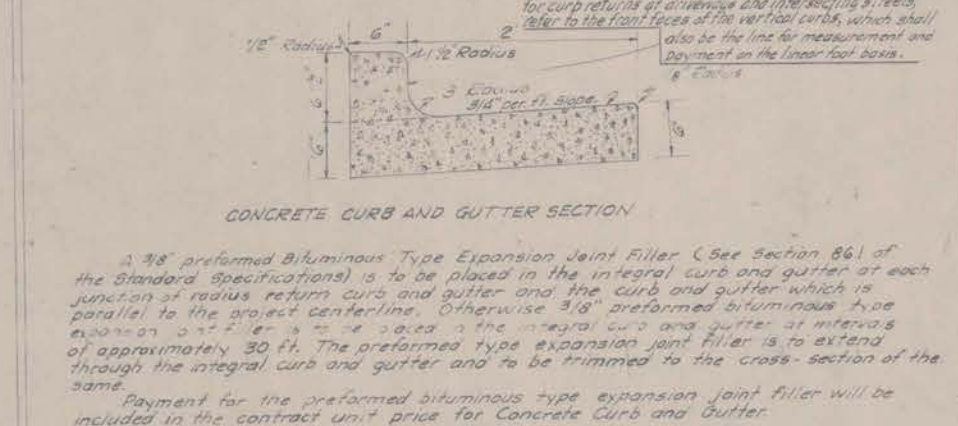
FLARED END SECTION FOR CIRCULAR REINFORCED CONCRETE PIPE



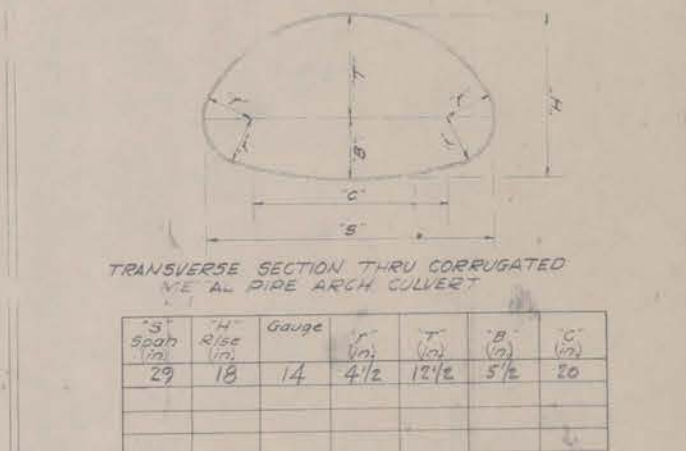
CLASS "B" CONCRETE DITCH CHECK



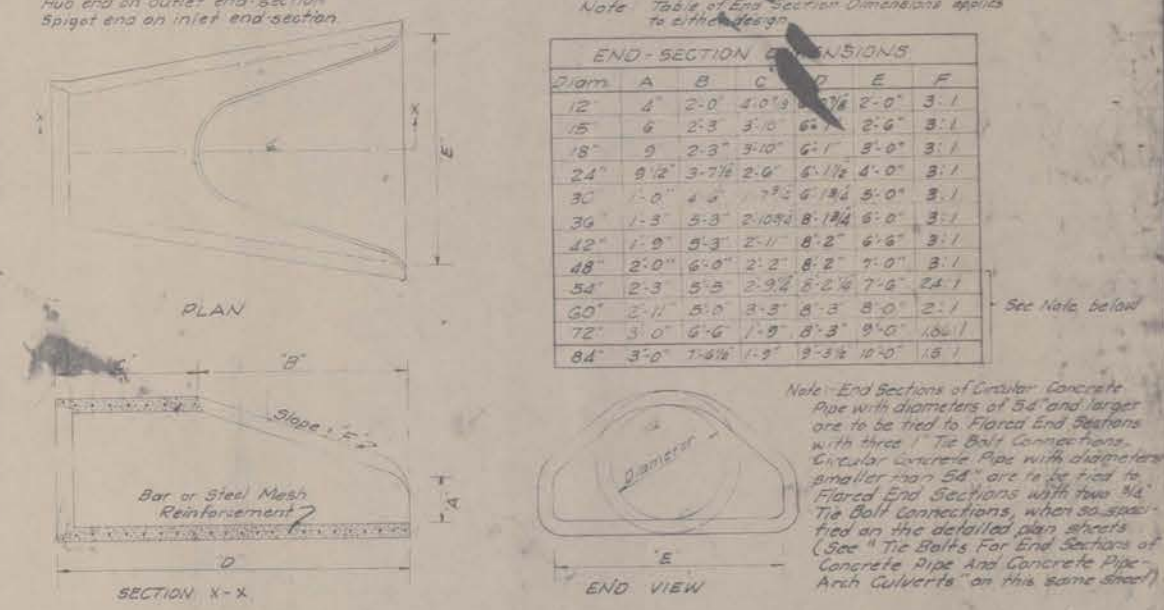
TYPE A CONCRETE CURB AND GUTTER



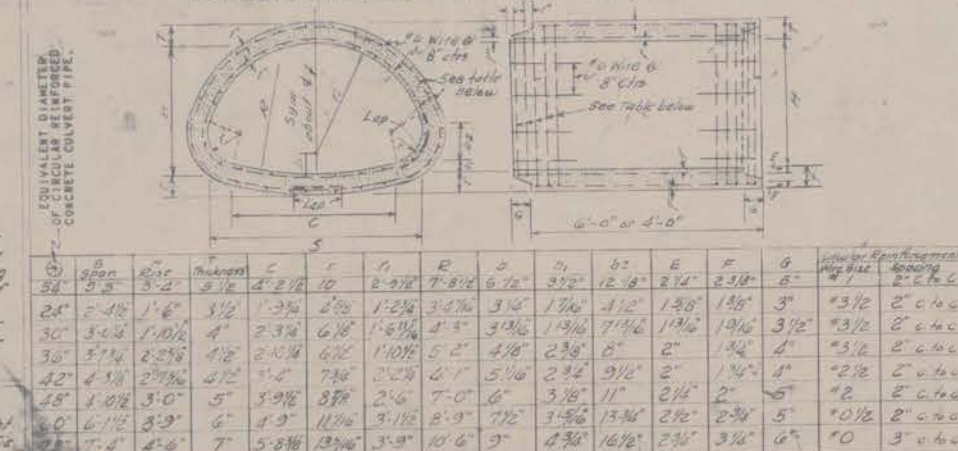
CORRUGATED METAL PIPE ARCH CULVERT



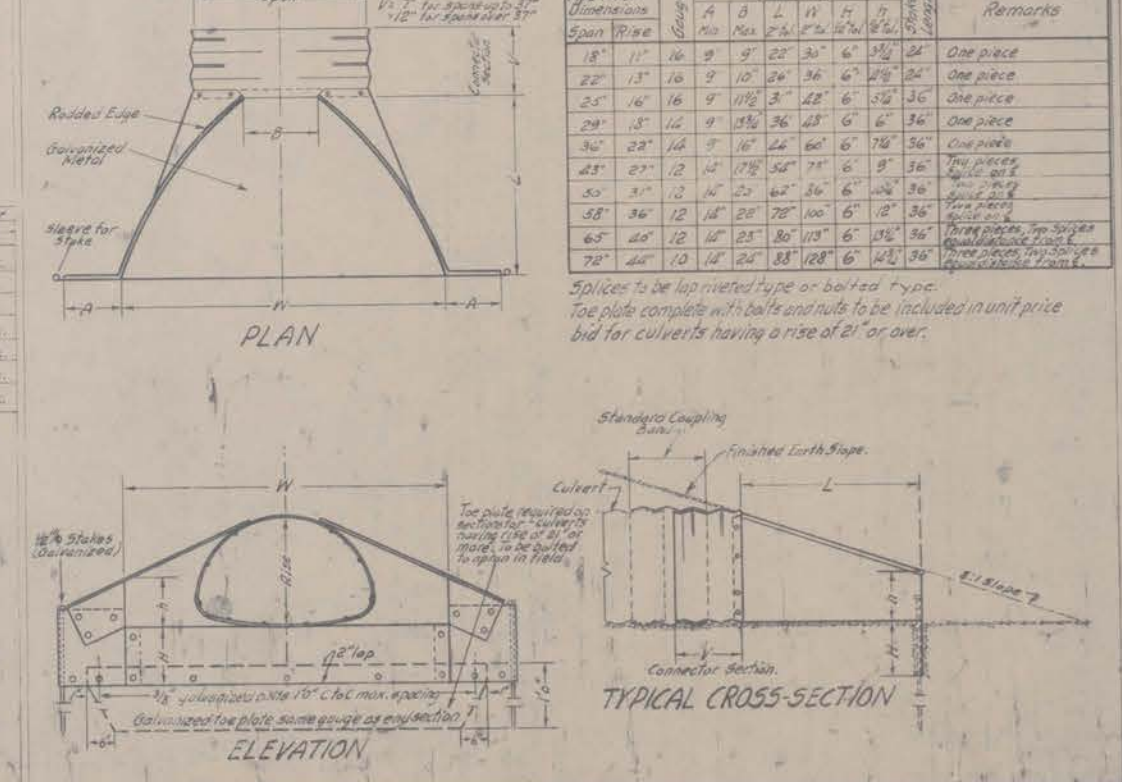
ACCEPTABLE ALTERNATE DESIGN



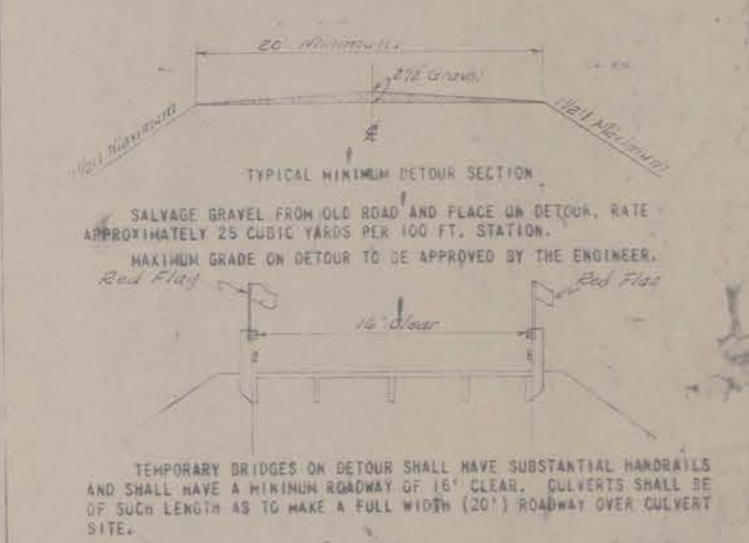
SECTIONAL CONCRETE PIPE-ARCH CULVERT



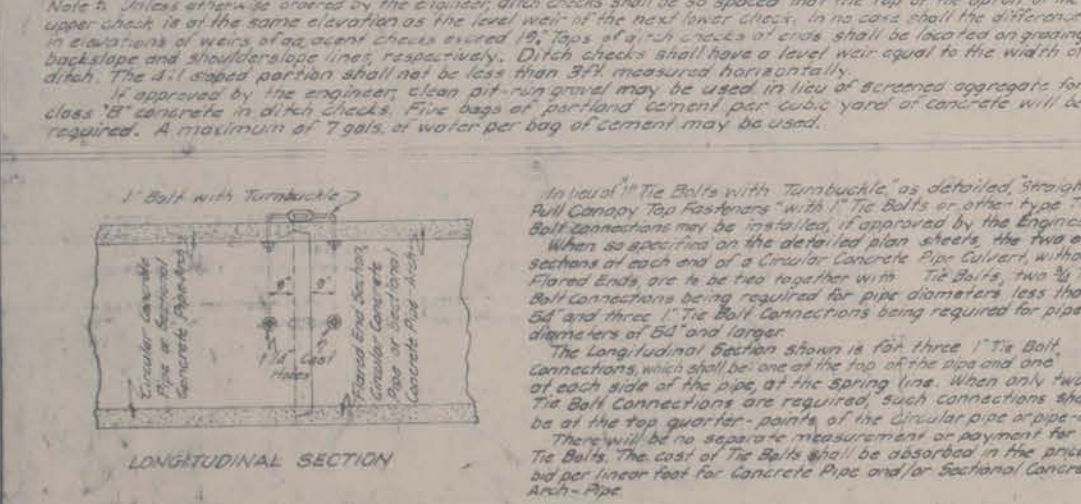
METAL END SECTION FOR CORRUGATED METAL PIPE-ARCH CULVERTS



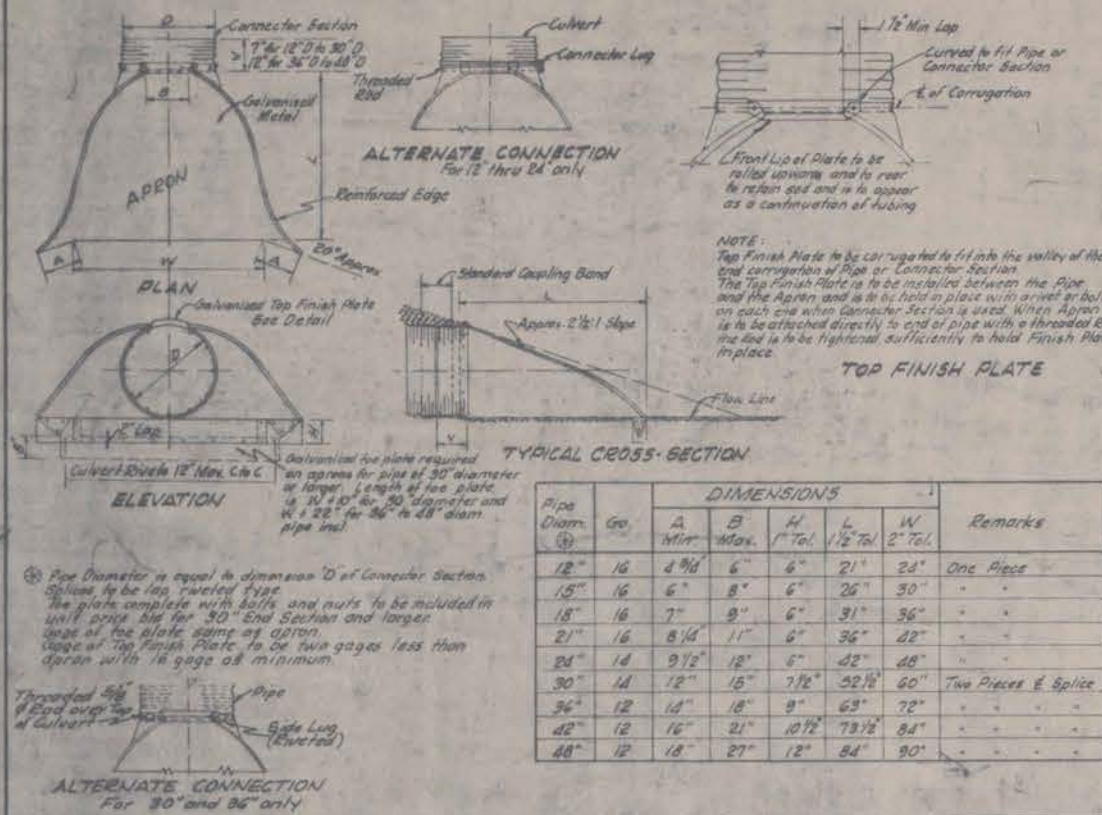
SHORT DETOURS AROUND STRUCTURES UNDER CONSTRUCTION



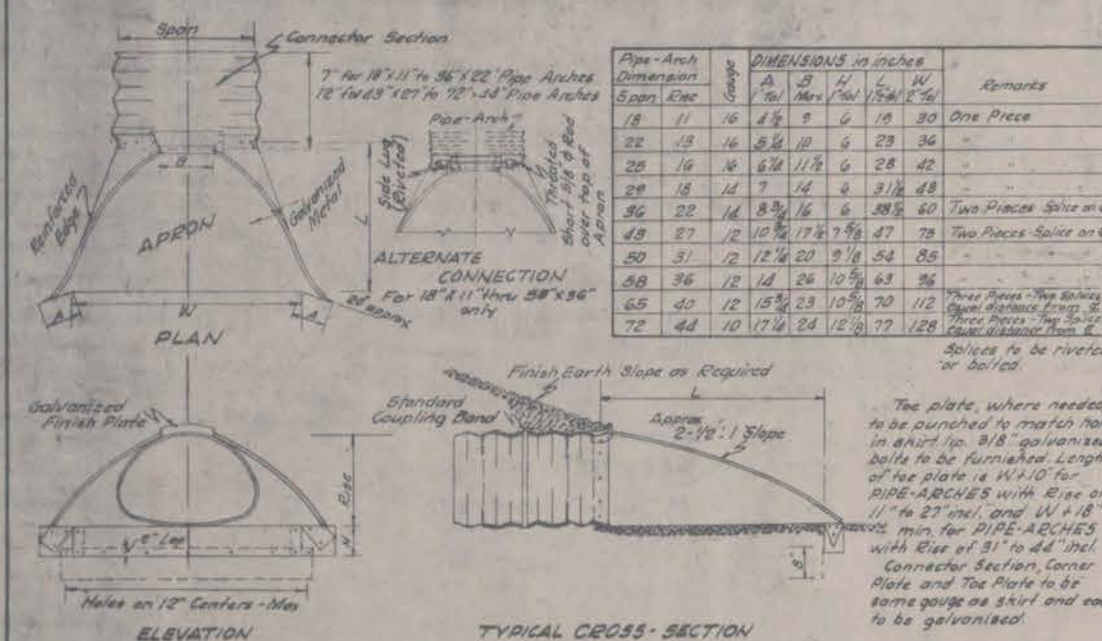
TIE BOLTS FOR END SECTIONS OF CONCRETE PIPE AND CONCRETE PIPE-ARCH CULVERTS



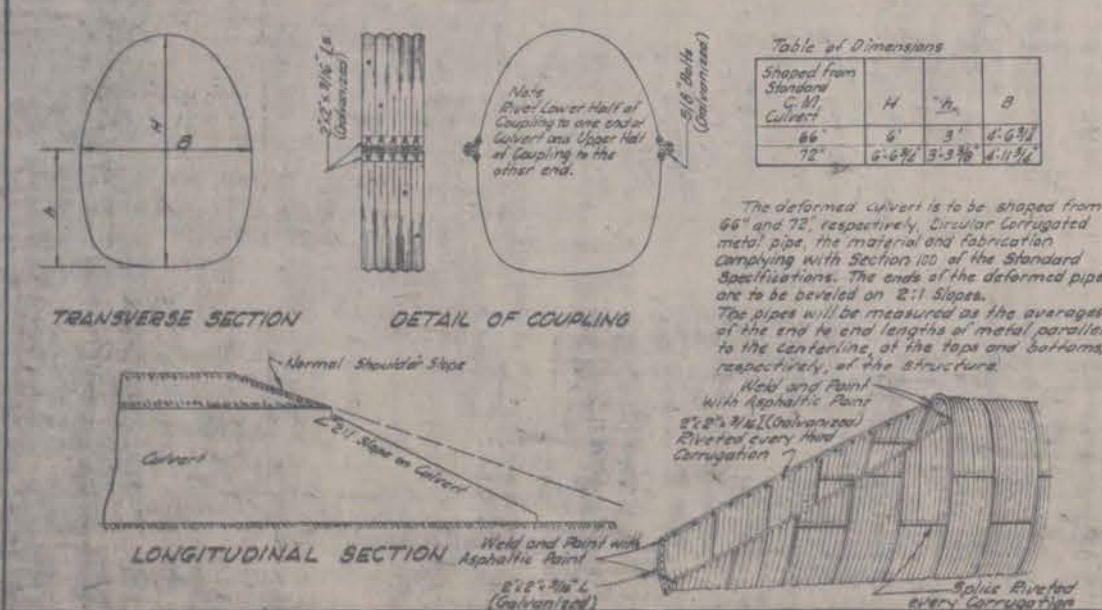
ALTERNATE METAL END SECTION FOR CIRCULAR CORRUGATED METAL PIPE



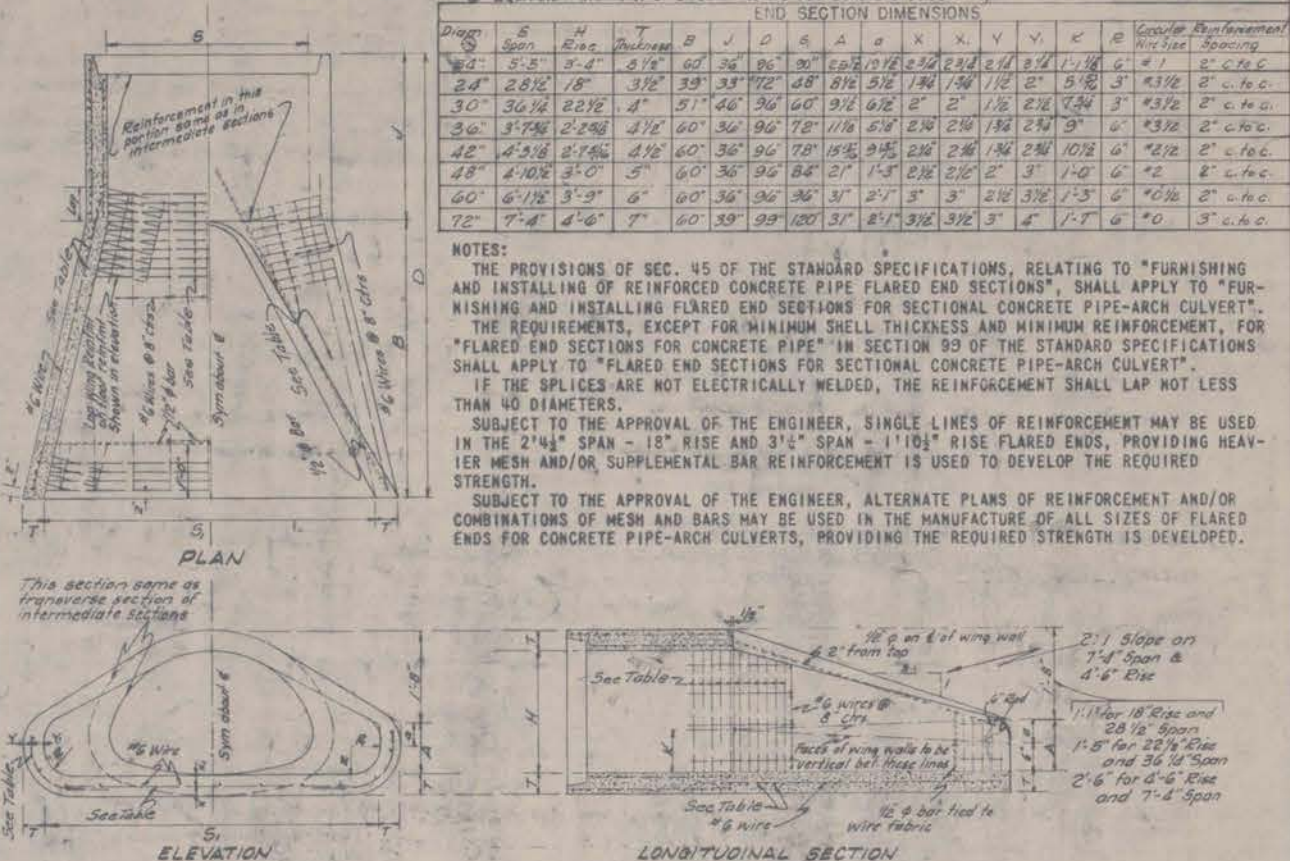
ALTERNATE METAL END SECTION FOR CORRUGATED METAL PIPE-ARCH CULVERTS



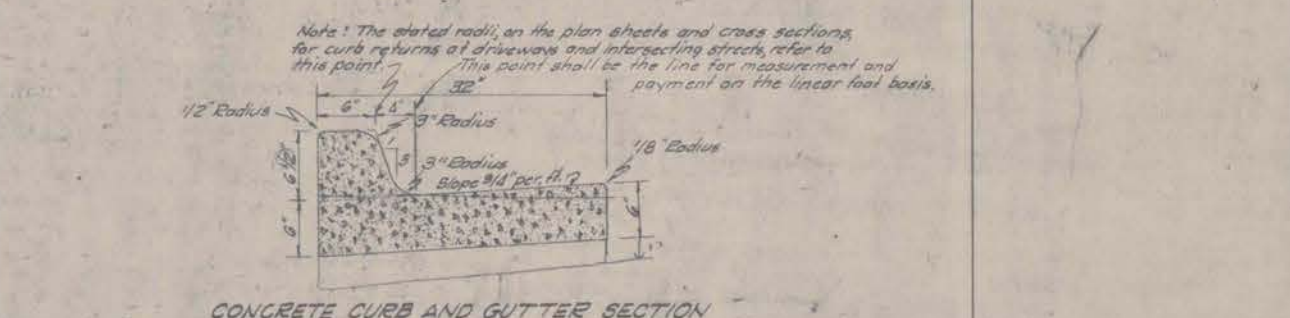
DEFORMED CORRUGATED METAL PIPE CULVERT



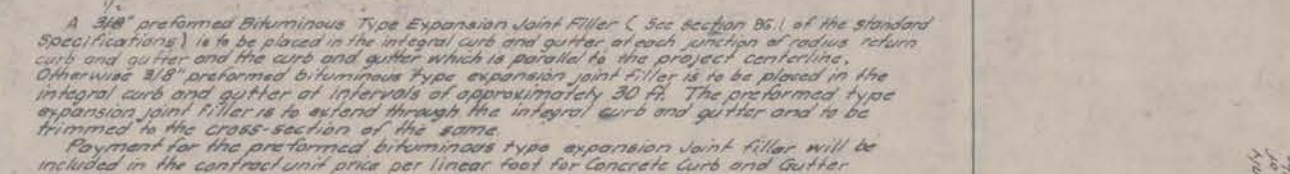
FLARED END SECTION FOR SECTIONAL CONCRETE PIPE-ARCH CULVERT



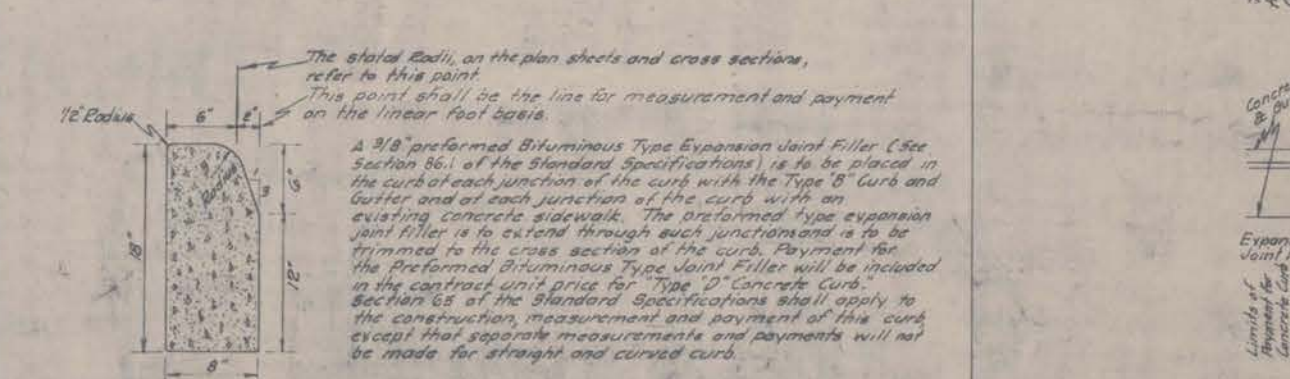
TYPE B CONCRETE CURB AND GUTTER



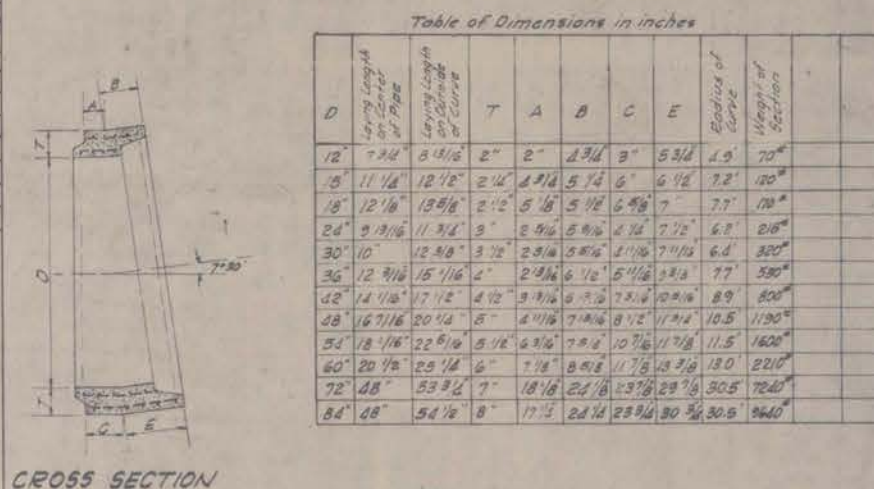
CONCRETE CURB AND GUTTER SECTION



TYPE D CONCRETE CURB

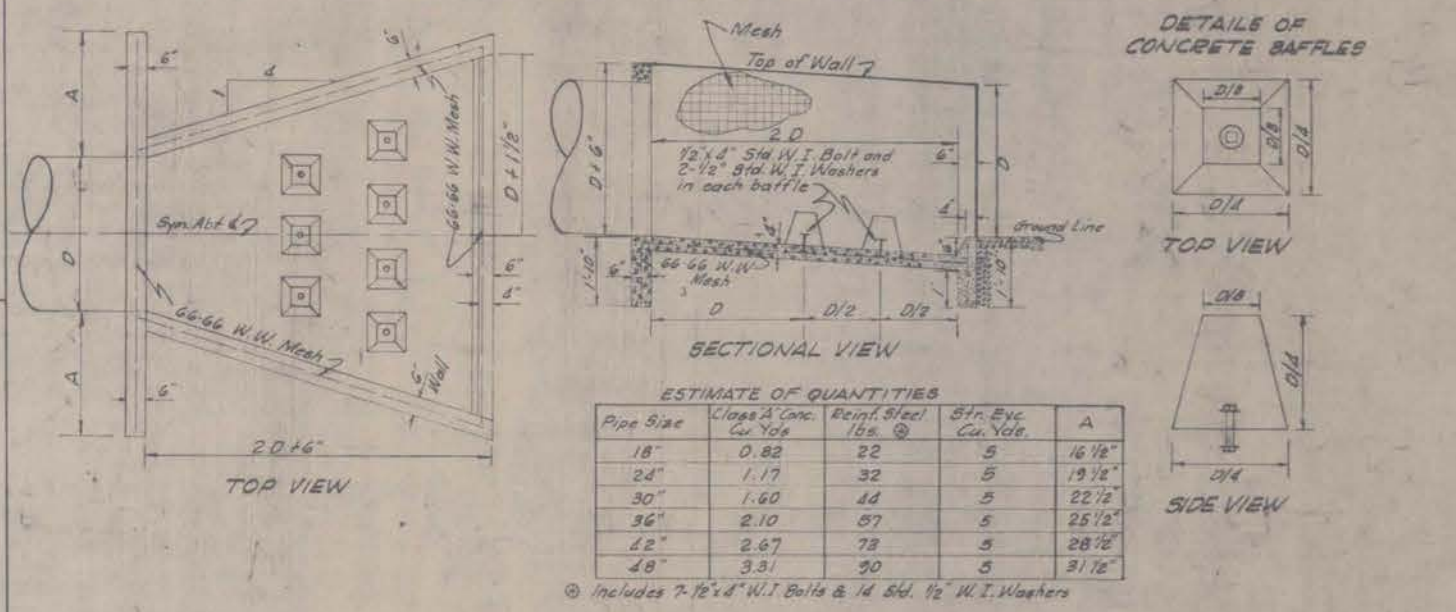


REINFORCED CONCRETE PIPE ELBOW

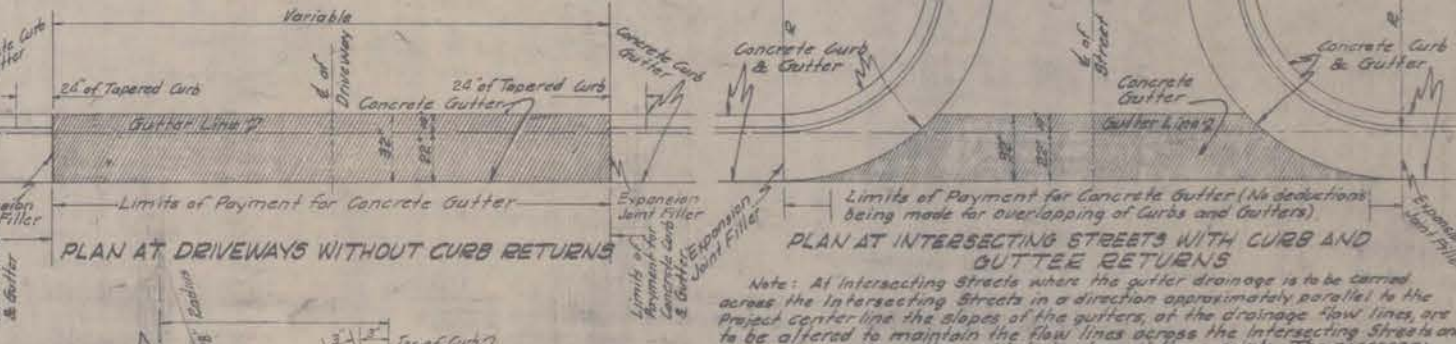
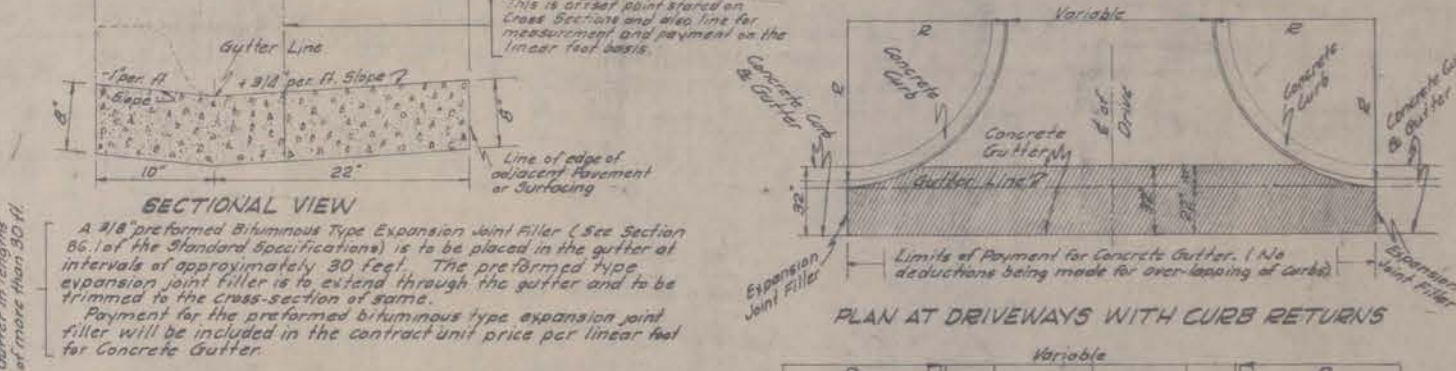


CROSS SECTION

REINFORCED CONCRETE STILLING BASIN



CONCRETE GUTTER



South Dakota State Highway Commission DETAILS OF MISCELLANEOUS STRUCTURES.

Sheet 2 of 2 Sheets

Prepared in Plans Department January 1951

Revised Jan. 1952 Revised Sept. 1955 Revised July 1957 Revised 4-27-58 Revised 12-10-58

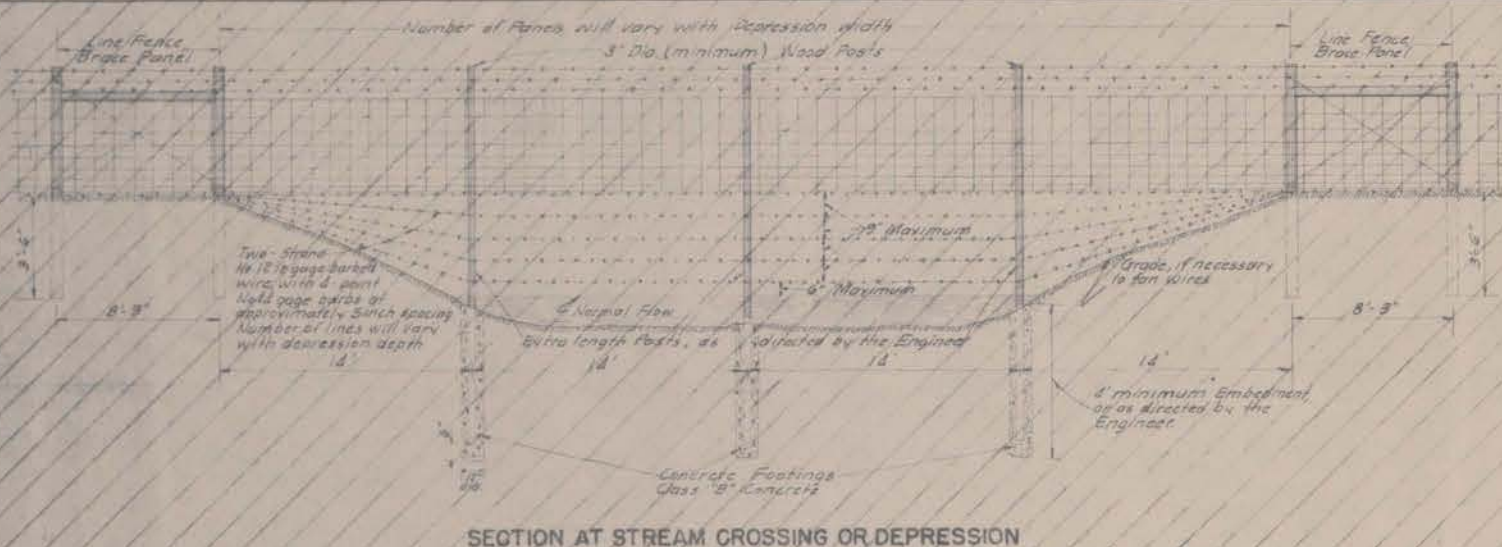
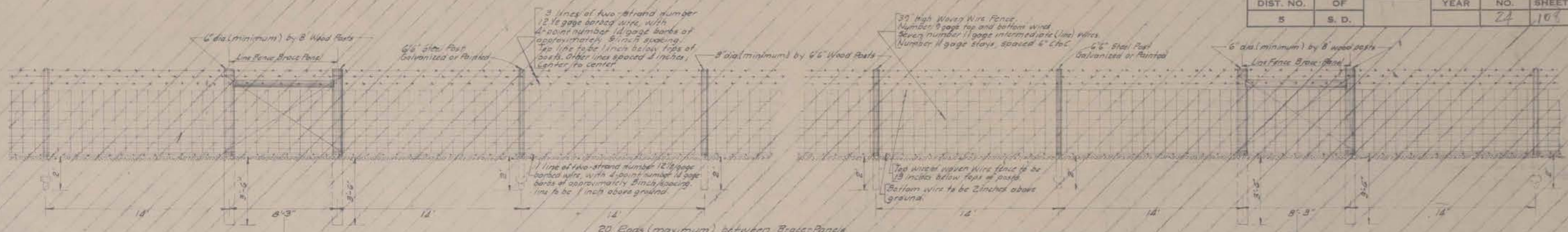
REQUIREMENTS REGARDING ANCHORS

AT ALL GRADE DEPRESSIONS WHERE STRESSES TENDING TO PULL THE POSTS FROM THE GROUND ARE CREATED, THE FENCING SHALL BE SHROBBED OR GUYED AT THE CRITICAL POINTS BY MEANS OF DOUBLE-STRANDS OF NUMBER NINE GAGE GALVANIZED WIRE CONNECTED TO THE TOP AND BOTTOM HORIZONTAL LINES OF THE WOVEN WIRE FABRIC. THE ENDS OF THE COMBINED STRANDS BEING FIRMLY ATTACHED TO A DEADMAN LOCATED AT A POINT WHICH WILL SERVE BEST TO RESIST THE PULL OF THE WIRE FENCE. A DEADMAN SHALL WEIGH AT LEAST 100 POUNDS AND SHALL BE BURIED IN THE GROUND WITH A COVER OF NOT LESS THAN TWO FEET. IT MAY BE A SINGLE ROCK, A PORTLAND CEMENT CONCRETE BLOCK, OR OTHER OBJECT SATISFACTORY TO THE ENGINEER.

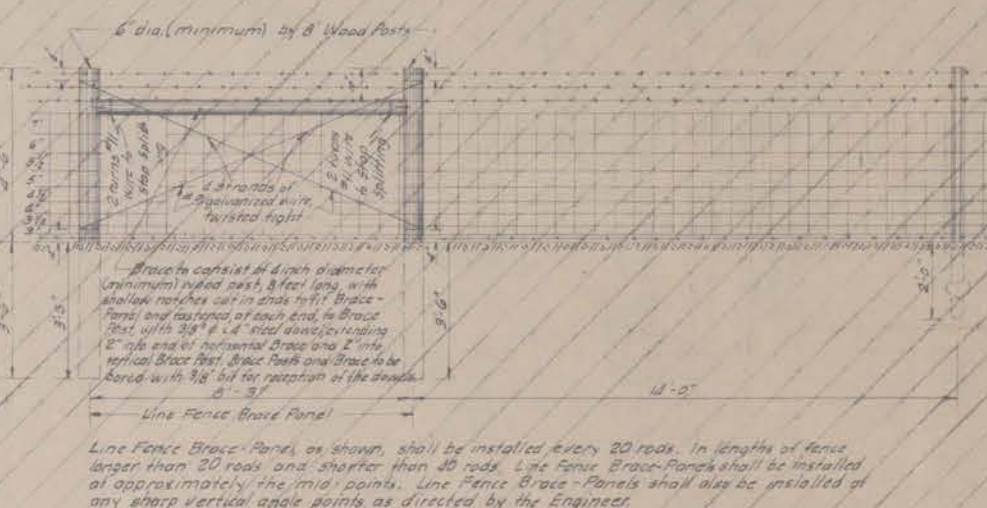
THE COST OF ALL MATERIALS, LABOR, EQUIPMENT AND INCIDENTALS IN CONNECTION WITH THE CONSTRUCTION OF ANCHORS, AS HEREIN REQUIRED, SHALL BE ABSORBED AND INCLUDED IN THE UNIT CONTRACT PRICE BID PER LINEAR FOOT FOR RIGHT-OF-WAY FENCE.

IN LIEU OF THE CONSTRUCTION HEREIN REQUIRED, THE CONTRACTOR ELECTS TO FURNISH AND INSTALL COMMERCIAL-TYPE ANCHORS, THE ENGINEER WILL GIVE CONSIDERATION TO APPROVAL OF THE SAME, UPON RECEIPT OF THE PERTINENT DETAILS REGARDING SAME.

THE LOCATIONS OF ANCHORS SHALL BE AS DIRECTED BY THE ENGINEER.



Notes:
This installation is to be made only where directed by the Engineer. Barbed wire will not be required at points where such installation would cause the collecting of drift in the channel.
In Dry Crossings, if approved by the Engineer, the concrete footings may be omitted.
There will be no extra measurement or payment for this required construction at stream crossings and/or depressions. Payment for same shall be absorbed and included in the contract unit bid price per linear foot for Woven Wire Right-Of-Way Fence.



GENERAL NOTES:

EXCEPT FOR BRACE-PANES, THE RIGHT-OF-WAY FENCE SHALL CONSIST OF 4 LINES OF BARBED WIRE AND A 39 INCH HIGH STRIP OF WOVEN-WIRE FASTENED TO ALTERNATE STEEL AND WOOD POSTS.

ALL STEEL POSTS SHALL BE "T" TYPE STUDDED POSTS, 6 FEET 6 INCHES LONG, AND SHALL BE COMPLETE WITH ANCHOR PLATES AND ACCEPTABLE FASTENINGS. STEEL POSTS SHALL BE GALVANIZED OR PAINTED AND SHALL WEIGH AT LEAST 9.32 POUNDS.

ALL WOOD POSTS SHALL BE CEDAR, BLACK HILLS PINE, SOUTHERN YELLOW PINE, NORTHERN WHITE PINE, PONDROSA PINE OR DOUGLAS FIR FROM SOUND, SEASONED STOCK. ALL WOOD POSTS SHALL BE FULLY PRESERVED TREATED IN ACCORDANCE WITH THE PROVISIONS OF SEC. 95 OF THE STANDARD SPECIFICATIONS. MINIMUM NET RETENTION OF PRESERVATIVE SHALL COMPLY WITH THE REQUIREMENTS FOR "POSTS" IN INTERIM FEDERAL SPECIFICATION TT-M-00571, REVISION 1, FEBRUARY 10, 1956. LINE POSTS SHALL BE 3 INCHES IN DIAMETER AT SMALLER END AND SHALL BE 6 FEET 6 INCHES LONG. BRACE POSTS SHALL BE 6 INCHES IN DIAMETER AT SMALLER END AND SHALL BE 8 FEET LONG. POSTS FOR HORIZONTAL BRACES IN BRACE-PANES SHALL BE 4 INCHES IN DIAMETER AT THE SMALLER END AND SHALL BE 8 FEET LONG. WHERE WOOD POSTS ARE SAWN OR DRILLED, LIBERAL AMOUNTS OF CREOSOTE OR OIL-BORNE PRESERVATIVE SHALL BE APPLIED TO THE CUT AREAS.

THE WOVEN WIRE FENCE FABRIC SHALL BE 30 INCHES IN HEIGHT WITH NUMBER 5 GAGE TOP AND BOTTOM WIRES, SEVEN NUMBER 11 GAGE INTERMEDIATE HORIZONTAL, OR LINE, WIRES AND NUMBER 11 GAGE STAYS, SPACED 6 INCHES CENTER TO CENTER. BARBED WIRE SHALL CONSIST OF 2 MAIN STRANDS OF NUMBER 12 GAGE WIRE WITH 4-POINT ROUND BARBS OF NUMBER 14 GAGE WIRE AT APPROXIMATELY 5 INCH SPACING, INTERLOCKED AND WRAPPED AROUND BOTH MAIN STRANDS. ALL WOVEN WIRE FABRIC, BARBED WIRE AND BRACE WIRE SHALL HAVE A CONTINUOUS COATING OF ZINC OF A UNIFORM THICKNESS. THE WEIGHT OF ZINC COATING FOR EACH WIRE SHALL BE 0.8 MINIMUM OUNCE OF ZINC PER SQUARE FOOT OF SURFACE AFTER FABRICATION. WOVEN WIRE CONFORMING WITH A.S.T.M. SPECIFICATION A-16-57, CLASS 3, AND BARBED WIRE CONFORMING WITH A.S.T.M. SPECIFICATION A-12-57, CLASS 3.

STAPLES FOR FASTENING THE FENCE FABRIC AND WIRES TO WOODEN POSTS SHALL BE NUMBER 5 GAGE GALVANIZED WIRE WITH A MINIMUM LENGTH OF 1 3/4 INCHES FOR CEDAR POSTS AND 1 1/2 INCHES FOR WOOD POSTS OF OTHER SPECIES. WIRE TIES, OR CLAMPS, FOR FASTENING THE FENCE FABRIC AND WIRES TO STEEL POSTS SHALL BE GALVANIZED AND OF STANDARD COMMERCIAL GRADE.

WOOD POSTS MAY BE EITHER HAND-SET OR POWER-DRIVEN. IF HAND-SET, THE POSTS SHALL BE PLACED IN THE CENTERS OF THE POST HOLES AND THE BACKFILL SHALL BE THOROUGHLY TAMPERED AROUND THE POSTS. IF POWER-DRIVEN, THE POSTS SHALL BE SHARPENED TO A SLANT POINT (APPROXIMATELY 3/4 INCH WIDE) ON THE LARGE END. POSTS THAT ARE TO BE POWER-DRIVEN SHALL BE POINTED PRIOR TO PRESERVE TREATMENT.

EXCEPT AS OTHERWISE ORDERED BY THE ENGINEER, THE FENCING SHALL BE FASTENED TO THE SIDES OF THE POSTS FACING THE PRIVATE PROPERTY ADJACENT TO THE HIGHWAY RIGHT-OF-WAY. HOWEVER, ON CURVED FENCE ALIGNMENT THE FENCING SHALL BE FASTENED TO THE OUTSIDES OF THE POSTS, IN ORDER THAT THE WIRE CAN BE PULLED TIGHT AGAINST THE POSTS. THE WOVEN WIRE FENCE FABRIC SHALL BE PLACED BY SECURING OR FASTENING ONE END AND APPLYING SUFFICIENT TENSION TO REMOVE ALL SLACK BEFORE MAKING PERMANENT ATTACHMENTS ELSEWHERE. THE FABRIC SHALL BE STRETCHED UNTIL THE TENSION CURVES IN THE LINE WIRES ARE APPROXIMATELY ONE-HALF THEIR ORIGINAL DEPTHS, KEEPING STAY WIRES AS NEARLY VERTICAL AS IS POSSIBLE. THE BOTTOM OF THE WOVEN WIRE FABRIC SHALL BE PLACED A NORMAL DISTANCE OF 2 INCHES ABOVE THE GROUND LINE. HOWEVER, OVER IRREGULAR GROUND A MINIMUM CLEARANCE OF 1 INCH AND A MAXIMUM CLEARANCE OF 6 INCHES WILL BE PERMITTED FOR A DISTANCE OF NOT TO EXCEED 5 FEET. THE CONTRACTOR SHALL REMOVE ALL DEBRIS AND PERFORM ANY NECESSARY EXCAVATION AND BACKFILLING IN ORDER TO COMPLY WITH THESE PROVISIONS. THE LINE WIRES SHALL BE FASTENED TO END, CORNER AND BRACE-PANEL POSTS BY WRAPPING THE WIRES AROUND THE POSTS AND TYING THE WIRES BACK ON THEMSELVES WITH NOT LESS THAN 3 TWISTS, TIGHTLY WRAPPED. ALL SPICES IN THE FABRIC SHALL BE SECURELY MADE WITH WESTERN UNION SPLICES OR A COMMERCIAL SPLICING DEVICE APPROVED BY THE ENGINEER. FENCE FABRIC SHALL BE FASTENED TO STEEL POSTS WITH 5 WIRE TIES, OR CLAMPS. THE TOP AND BOTTOM WIRES OF WOVEN WIRE FABRIC SHALL BE STAPLED TO EACH WOODEN POST. ALTERNATE WIRES SHALL BE STAPLED TO EACH WOODEN POST, ALTERNATING ON SUCCESSIVE POSTS. THE STAPLES SHALL BE SET DIAGONALLY, SO THAT EACH POINT ENTERS A SEPARATE GRAIN OF WOOD, AND SHALL BE SLOPED DOWNWARD ON LEVEL GROUND AND OVER KNOLLS. IN DEPRESSIONS THE STAPLES SHALL BE SLOPED UPWARD. THE STAPLES SHALL BE DRIVEN ONLY ENOUGH TO HOLD THE WIRE CLOSE TO THE POSTS. THE WIRE SHALL NOT BE TIGHTLY HELD AGAINST THE POSTS. BARBED WIRE SHALL BE FASTENED TO ALL POSTS IN THE SAME MANNER AS WOVEN WIRE.

DIAGONAL BRACE WIRES, IN BRACE PANELS, SHALL BE MADE FROM 2 LOOPS (FOUR STRANDS) OF NUMBER 9 GAGE GALVANIZED WIRE. THEY SHALL BE WRAPPED, ONCE AROUND, EACH POST AT EACH END OF THE DIAGONAL WIRE, AND SHALL BE TIED BACK AND STAPLED. THEY SHALL BE TIGHTENED, BY TWISTING WITH A 3/4 INCH BY 1 1/2 INCH MEMBER (LEVER), UNTIL THE ENTIRE ASSEMBLY IS RIGID.

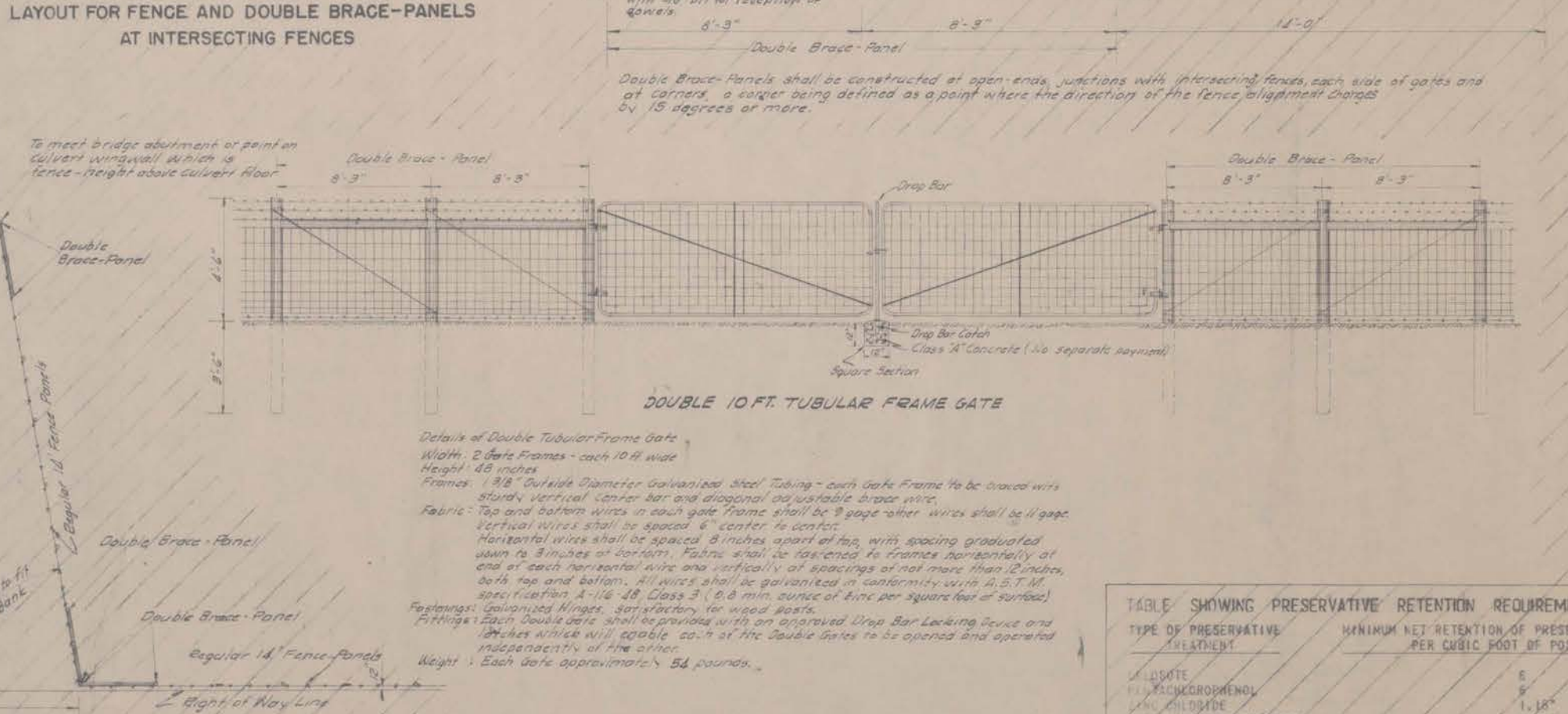
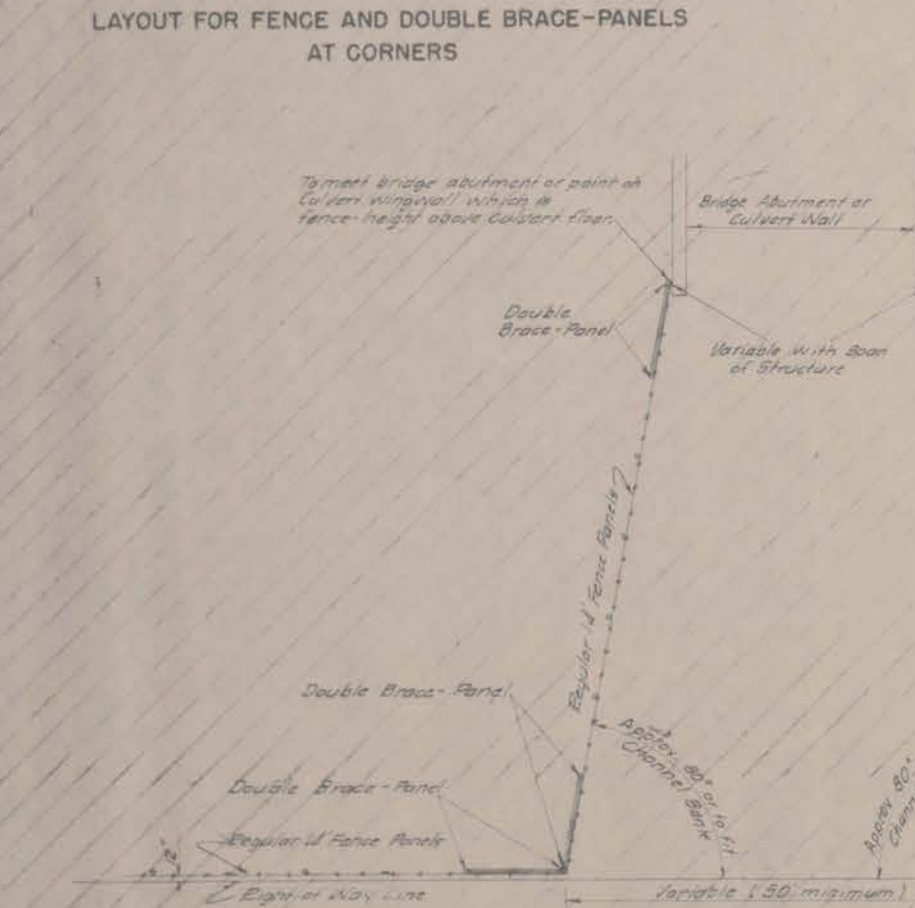
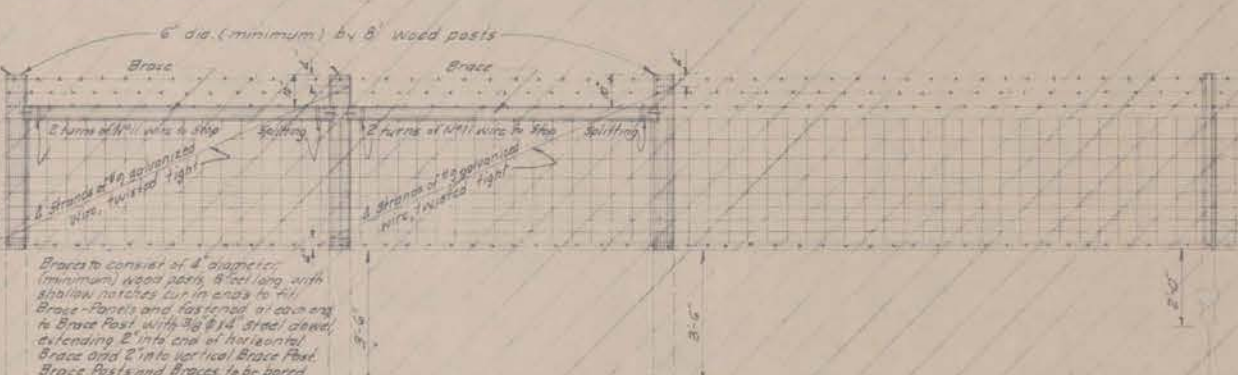
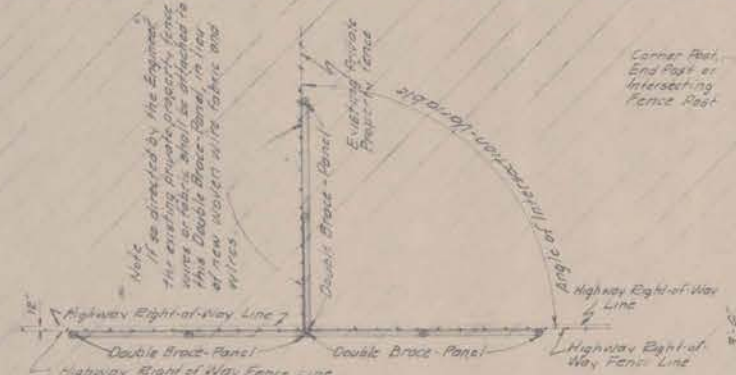
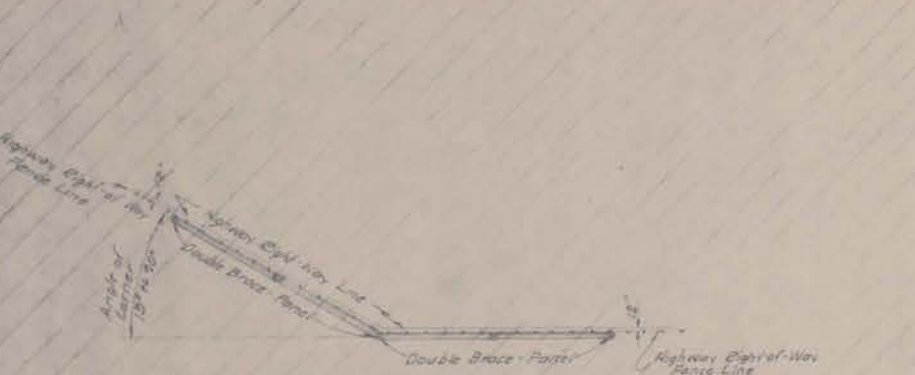
RIGHT-OF-WAY FENCE WILL BE MEASURED IN OVERALL LENGTH PARALLEL TO THE GROUND, INCLUSIVE OF BRACE-PANELS AND GATES, BY THE LINEAR FOOT, COMPLETE IN PLACE.

RIGHT-OF-WAY FENCE WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER LINEAR FOOT, COMPLETE IN PLACE, INCLUSIVE OF BRACE PANELS AND GATES. SUCH PAYMENT SHALL BE FULL COMPENSATION FOR FURNISHING THE PLAN-REQUIRED MATERIALS AND FOR ALL LABOR AND EQUIPMENT REQUIRED TO CONSTRUCT THE RIGHT-OF-WAY FENCE, AS SHOWN HEREON AND SPECIFIED IN THE FOREGOING, INCLUDING CLEARING THE LINE FOR THE FENCE AND SATISFACTORY DISPOSAL OF DEBRIS, SMOOTHING THE IRREGULARITIES OF THE GROUND AT THE FENCE SITE AND NECESSARY EXCAVATION AND BACKFILL.

EXCEPT AS HEREINBEFORE SPECIFIED AND HEREON SHOWN, THE PROVISIONS OF THE STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF RIGHT-OF-WAY FENCE SHALL APPLY.

EXTENT AND LOCATION OF RIGHT-OF-WAY FENCE

EXCEPT AT BRIDGE OPENINGS, STOCK PASSES AND AS OTHERWISE DIRECTED BY THE ENGINEER, "RIGHT-OF-WAY FENCE" SHALL BE CONSTRUCTED WITHIN THE NEW HIGHWAY RIGHT-OF-WAY LIMITS AND ON LINES ONE FOOT FROM THE OUTSIDE RIGHT-OF-WAY LINES. THE EXTENT AND LOCATION OF "RIGHT-OF-WAY FENCE", AS INDICATED ON THE DETAILED PLAN SHEETS, IS THE BASIS FOR THE QUANTITIES OF "RIGHT-OF-WAY FENCE" INCLUDED IN THE "ESTIMATE OF QUANTITIES".



TYPE OF PRESERVATIVE TREATMENT	MINIMUM NET RETENTION OF PRESERVATIVE, IN POUNDS, PER CUBIC FOOT OF POST TREATED
CREOSOTE	6
PICUACROPHENOL	1.18
ZINC CHLORIDE	1.15
CHROMIATED ZINC CHLORIDE	0.85
TANALATH	0.85
OSMOSALTS (OSMOSAR)	0.85

SOUTH DAKOTA DEPARTMENT OF HIGHWAYS
DETAILS FOR CONSTRUCTION OF
WOVEN WIRE RIGHT-OF-WAY FENCE

PREPARED BY PLANS DIVISION JANUARY, 1958

Revised 5-27-58 - Revised 5-15-58 - Revised 8-15-58 - Revised 9-23-58
Revised 12-24-58 - Revised 2-10-59 - Revised 6-5-59 - Revised 8-20-60

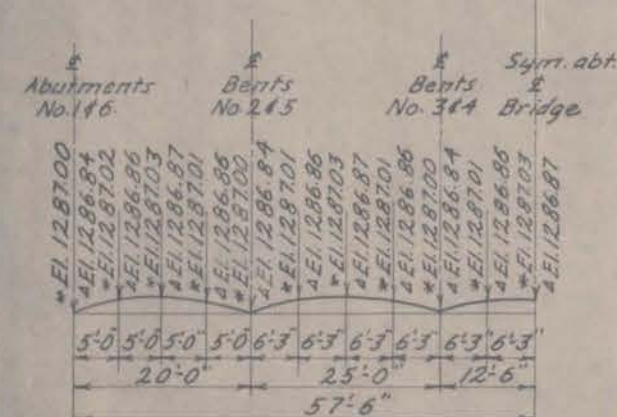
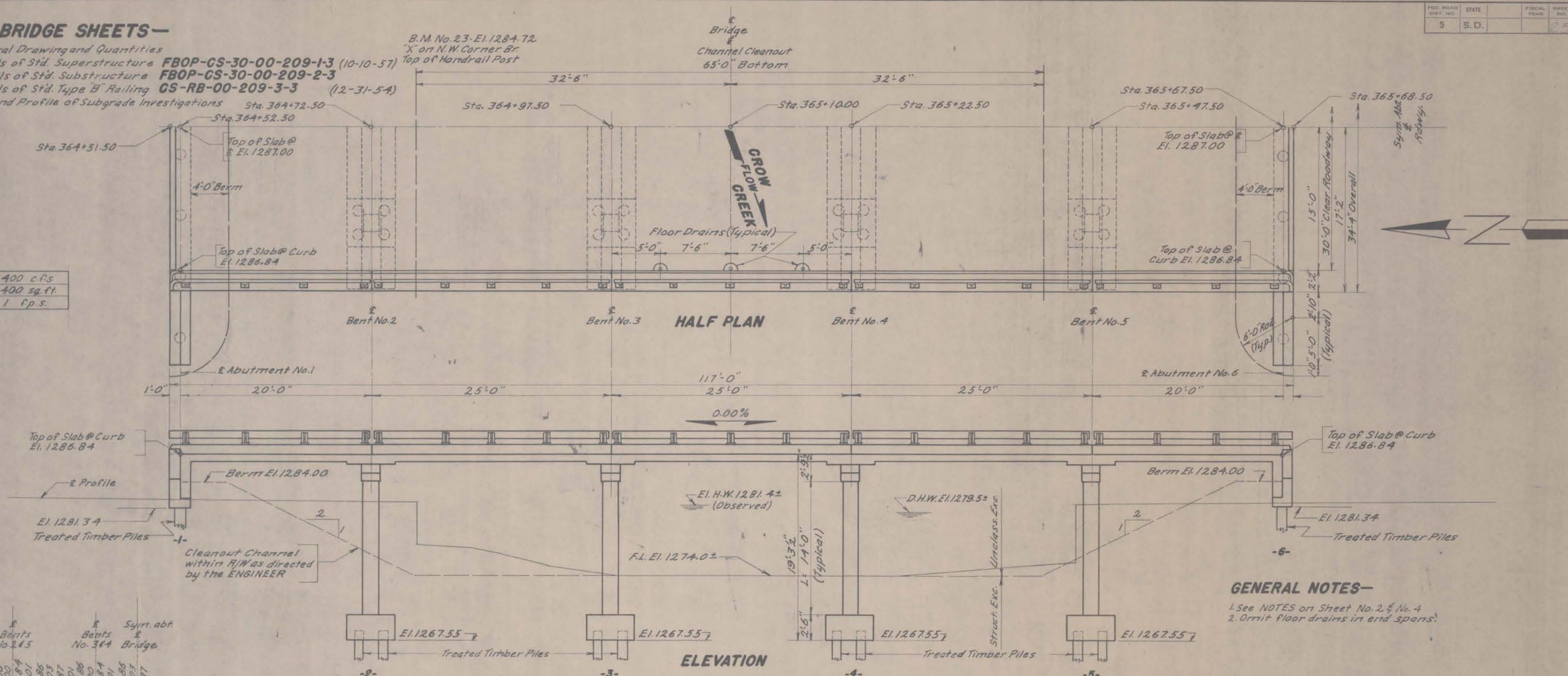
-X020- INDEX OF BRIDGE SHEETS-

Sheet No.1-General Drawing and Quantities
Sheet No.2-Details of Std. Superstructure
Sheet No.3-Details of Std. Substructure
Sheet No.4-Details of Std. Type B Railing
Sheet No.5-Plan and Profile of Subgrade Investigations

FBOP-CS-30-00-209-1-3 (10-10-57)
FBOP-CS-30-00-209-2-3
CS-RB-00-209-3-3 (12-31-54)

FED. ROAD DIST. NO.	STATE	FISCAL YEAR	SHEET NO.	TOTAL
5	S. D.		25	109

Q	400 c.f.s.
A	400 sq.ft.
V	1 f.p.s.



CURB & E ELEVATIONS

NOTE: Elevations shown are *Top of Finished Slab @ Rdwy. and A at Curb, which provide Camber for Dead Load Deflection and Plastic Flow. Do not use Camber Dimensions shown on Sheet No.2 of Bridge Plans.

ITEM	C.I. A' Conc. Cu. Yds.	Steel-Lbs		Type B-Steel Railing Lin. Ft.	Treated Timber Piles # Lin. Ft.	Excavation-Cu. Yds.		*INCIDENTAL WORK
		Reinr.	Struct.			Struct.	*Unclass.	
Superstructure	140.6	33,740	200	236.3				
Abutments No. 1 & No. 6	35.6	3,630	760		16 @ 65' = 1,040	40		
Bents No. 2, No. 3, No. 4, & No. 5	46.2	6,310			32 @ 50' = 1,600	110		
Totals	222.4	43,680	960	236.3	2,640	150	18,800	

* One Treated Timber Test Pile shall be driven at Abut. No. 1 & No. 6 and Bents No. 2 to No. 5 incl. before remaining piles are ordered. All piling shall obtain their design load (20 tons) with tips being below Elev. 1218.0.
* See Grading Plans for Unclassified Excavation.
PILE NOTE- Piles driven at Abutments No. 1 & No. 6, including Test Piles, shall obtain their full bearing (20 tons) in natural ground below the existing roadway fill elevation 1274± and 1275± respectively. Pre-bored holes thru the fill are authorized and shall have a minimum diameter 2" larger than the nominal diameter (3" from the butt) of the pile.
* INCIDENTAL WORK- In place, Sta. 364+76.3 to 365+43.3, 45± Skew R.H.F., 67' x 18' Rdwy., 3 span I-Beam Viaduct. Break down rail posts and salvage Gas Pipe Rail. Break down concrete floor and salvage stringers. Care shall be taken not to injure the structural properties of the Steel I-Beams and Gas Pipe Rail. Break down old concrete Abutments and Bents to 1± below finished ground line. All salvaged materials shall be placed neatly within the right-of-way as directed by the ENGINEER. All other materials shall be disposed of as directed by the ENGINEER.

GENERAL NOTES-

1. See NOTES on Sheet No. 2 & No. 4
2. Omit floor drains in end spans.

SPECIFICATION NOTE-

Use current South Dakota Standard Specifications for Roads and Bridges; and the Supplemental Specifications for Timber Bearing Piles dated Sept. 1959.

GENERAL DRAWING AND QUANTITIES

FOR

117'-0" CONTINUOUS CONCRETE BRIDGE

30'-0" ROADWAY

OVER CROW CREEK SEC. 25/30-T 126 N-R 61/60 W

STA. 364+51.50 TO 365+68.50 F047-7(4)

BROWN COUNTY

SOUTH DAKOTA H20-44

DEPARTMENT OF HIGHWAYS

-X020-

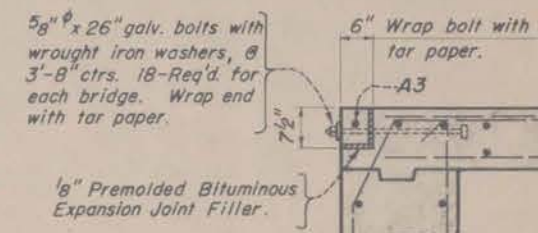
JULY 1960

① OF ⑤

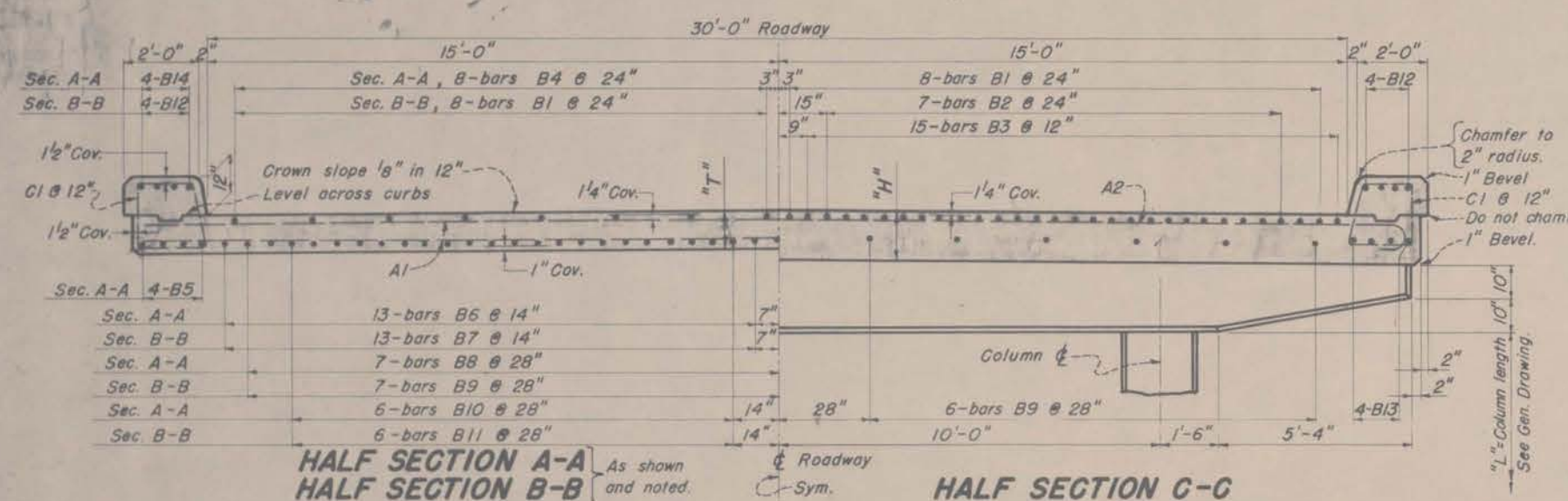
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	H.C.P.	B.D.M.	J.D. Sevier
			BRIDGE ENGINEER

NOTES

DESIGN DATA: Design loading: H20-44 (T-3-45) A.A.S.H.O. Unit stresses: Concrete, $f_c = 1350$ p.s.i., $n = 8$; Reinforcing $f_s = 20,000$ p.s.i. (Int. Grade Steel). Column design: American Concrete Institute Requirements (ACI 318-47). Equivalent fluid pressure of earth at 40' / sq. ft. Minimum pile loading = 20 Tons per pile.



DETAIL (A)

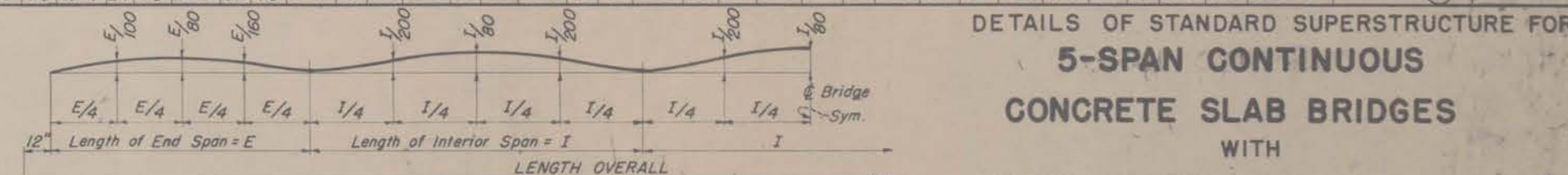


REINFORCING SCHEDULE

LENGTH			END	INTERIOR	REINFORCING SCHEDULE																																																DIMENSIONS												LENGTH	BAR BENDS								
OVERALL	SPAN	SPAN	A1		A2				A3				B1				B2				B3				B4				B5				B6				B7				B8				B9				B10				B11				B12				B13				B14				C1				OVERALL	Note: All detail dimensions are out to out.
			No.	Size	Length	No.	Size	Length	Type	B	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	No.	Size	Length	Type	A	B																									
94'-0"	16'	20'	151	5/8	33'-6"	24	7/8	35'-3"	1	33'-7"	2	5/8	29'-9"	64	7/8	23'-0"	56	7/8	13'-0"	120	3/4	9'-0"	32	3/4	7'-3"	16	3/4	16'-9"	52	7/8	13'-6"	78	7/8	14'-0"	26	7/8	16'-3"	39	7/8	20'-0"	24	7/8	14'-6"	36	7/8	16'-0"	32	3/4	23'-0"	24	3/4	22'-0"	16	3/4	7'-9"	198	1/2	7'-6"	71	7"	1'-5 1/2"	8 1/2"	1 1/2"	1'-6"	6'-6"	4'-6"	24"	2'-0"	3'-0"	94'-0"	4d 10d for 1" bars 8d for others TYPE 1 TYPE 1 1'-7" TYPE 7 12			
105'-6"	18'	22'-6"	149	5/8	35'-3"	1	33'-7"	2	5/8	29'-9"	64	7/8	25'-6"	56	7/8	13'-6"	78	7/8	13'-0"	120	3/4	9'-0"	32	3/4	8'-0"	16	3/4	18'-9"	52	7/8	14'-6"	78	7/8	16'-0"	26	7/8	18'-3"	39	7/8	20'-0"	24	7/8	16'-6"	36	7/8	17'-6"	32	3/4	25'-6"	24	3/4	22'-0"	16	3/4	8'-6"	218	1/2	7'-9"	71	7"	1'-6 1/4"	9 1/4"	1 1/2"	12'-9"	6'-9"	4'-6"	27"	2'-0"	3'-0"	105'-6"				
117'-0"	20'	25'	179	1"	35'-9"	1	33'-7"	2	5/8	29'-9"	64	7/8	28'-0"	56	7/8	16'-6"	78	7/8	12'-0"	120	3/4	9'-0"	32	3/4	8'-9"	16	3/4	20'-9"	52	7/8	15'-6"	78	7/8	15'-0"	26	7/8	20'-3"	39	7/8	25'-0"	24	7/8	17'-6"	36	7/8	19'-0"	32	3/4	28'-0"	24	3/4	22'-0"	16	3/4	9'-3"	244	1/2	7'-9"	71	7"	1'-6 3/4"	9 3/4"	1 1/2"	14'-0"	8'-3"	6'-0"	30"	3'-0"	4'-0"	117'-0"				
128'-6"	22'	27'-6"	200	1"	35'-9"	1	33'-7"	2	5/8	29'-9"	64	7/8	31'-0"	56	7/8	16'-6"	78	7/8	12'-0"	120	3/4	9'-0"	32	3/4	9'-3"	16	3/4	22'-9"	52	7/8	17'-0"	78	7/8	16'-0"	26	7/8	22'-3"	39	7/8	27'-6"	24	7/8	19'-0"	36	7/8	20'-0"	32	3/4	31'-0"	24	3/4	27'-6"	16	3/4	9'-9"	264	1/2	8'-0"	71	7"	1'-7 1/2"	10 1/2"	1 1/2"	14'-6"	8'-3"	6'-0"	33"	3'-0"	4'-0"	128'-6"				
140'-0"	24'	30'	218	1"	35'-9"	1	33'-7"	2	5/8	29'-9"	64	7/8	33'-6"	56	7/8	16'-6"	78	7/8	12'-0"	120	3/4	9'-0"	32	3/4	10'-0"	16	3/4	24'-9"	52	7/8	19'-0"	78	7/8	19'-0"	26	7/8	23'-0"	39	7/8	29'-6"	24	7/8	23'-0"	32	3/4	33'-6"	16	3/4	10'-6"	290	1/2	8'-0"	71	7"	1'-8"	11"	1 1/2"	16'-9"	8'-0"	6'-0"	36"	3'-0"	5'-0"	140'-0"										
151'-6"	26'	32'-6"	238	1"	35'-9"	1	33'-7"	2	5/8	29'-9"	64	7/8	36'-0"	56	7/8	16'-6"	78	7/8	12'-0"	120	3/4	9'-0"	32	3/4	10'-9"	16	3/4	26'-9"	52	7/8	19'-6"	78	7/8	17'-0"	26	7/8	26'-3"	39	7/8	32'-6"	24	7/8	21'-6"	36	7/8	22'-6"	32	3/4	36'-0"	16	3/4	11'-3"	310	1/2	8'-3"	71	7"	1'-8 3/4"	11 3/4"	1 1/2"	18'-0"	8'-3"	6'-0"	39"	4'-0"	5'-0"	151'-6"							
163'-0"	28'	35'	256	1"	35'-9"	1	33'-7"	2	5/8	29'-9"	64	7/8	38'-6"	56	7/8	16'-6"	78	7/8	12'-0"	120	3/4	9'-0"	32	3/4	11'-6"	16	3/4	28'-9"	52	7/8	21'-0"	78	7/8	19'-0"	26	7/8	28'-3"	39	7/8	35'-0"	24	7/8	23'-6"	32	3/4	38'-0"	16	3/4	12'-0"	336	1/2	8'-3"	71	7"	1'-9 1/2"	12 1/2"	1 1/2"	19'-3"	8'-3"	6'-0"	42"	5'-0"	6'-0"	163'-0"										
174'-6"	30'	37'-6"	279	1"	35'-9"	1	33'-7"	2	5/8	29'-9"	64	7/8	41'-0"	56	7/8	16'-6"	78	7/8	12'-0"	120	3/4	9'-0"	32	3/4	12'-3"	16	3/4	30'-9"	52	7/8	21'-0"	78	7/8	22'-6"	26	7/8	32'-6"	39	7/8	37'-0"	24	7/8	25'-0"	32	3/4	41'-0"	16	3/4	12'-9"	356	1/2	8'-6"	71	7"	1'-10 1/4"	13 1/4"	1 1/2"	20'-6"	8'-6"	6'-0"	45"	5'-0"	6'-0"	174'-6"										
186'-0"	32'	40'	297	1"	35'-9"	1	33'-7"	2	5/8	29'-9"	64	7/8	43'-6"	56	7/8	16'-6"	78	7/8	12'-0"	120	3/4	9'-0"	32	3/4	13'-0"	16	3/4	32'-9"	52	7/8	21'-0"	78	7/8	23'-0"	26	7/8	34'-0"	39	7/8	40'-0"	24	7/8	26'-6"	32	3/4	43'-6"	16	3/4	13'-6"	382	1/2	8'-6"	71	7"	1'-11"	14"	1 1/2"	21'-9"	8'-6"	6'-0"	48"	5'-0"	7'-0"	186'-0"										
197'-6"	34'	42'-6"	315	1"	35'-9"	1	33'-7"	2	5/8	29'-9"	64	7/8	46'-6"	56	7/8	16'-6"	78	7/8	12'-0"	120	3/4	9'-0"	32	3/4	13'-6"	16	3/4	34'-9"	52	7/8	21'-0"	78	7/8	24'-6"	26	7/8	36'-3"	39	7/8	42'-0"	24	7/8	28'-6"	32	3/4	46'-6"	16	3/4	14'-0"	402	1/2	8'-9"	71	7"	1'-12 1/4"	14 3/4"	1 1/2"	23'-3"	8'-9"	6'-0"	51"	5'-0"	7'-0"	197'-6"										
209'-0"	36'	45'	335	5/8	33'-6"	24	1"	35'-9"	1	33'-7"	2	5/8	49'-0"	56	1"	19'-6"	120	1"	13'-6"	32	3/4	14'-3"	16	1"	36'-9"	52	1"	25'-6"	78	1"	25'-0"	26	1"	36'-3"	39	1"	48'-0"	24	1"	31'-0"	32	1"	49'-0"	24	1"	42'-6"	16	3/4	14'-9"	428	1/2	8'-9"	71	7"	2'-0"	15 1/2"	20"	23'-3"	9'-3"	6'-0"	54"	6'-0"	8'-0"	209'-0"										

LENGTH	TWO ABUTMENTS				FOUR INTERIOR BENTS				SLABS & CURBS				TOTALS, Exclusive of Railing & Excavation					
	Class A Concrete Cu. Yds.	Reinforcing Steel Lbs.	Number of Piles	Structural Steel Lbs.	Class A Concrete - Cu. Yds.		Reinforcing Steel - Lbs.		Number of Piles	Class A Concrete Cu. Yds.		Reinforcing Steel Lbs.		Class A Concrete Cu. Yds.	Reinforcing Steel Lbs.	Structural Steel Lbs.	Number of Piles	
					Constant Cu.Yds./lin.ft. for Quantity	8 columns="Q"	Constant Lbs./lin.ft. for Quantity	8 columns="R"		Reinforcing Steel Lbs.	Bolts	Number of Floor Drains	Reinforcing Steel Lbs.					
94'-0"	35.6	3630	16	760	34.7	0.824	4465	128.4	32	99.4	24,605	18	20	200	169.7 + "(Q"x"L")	32,700 + "(R"x"L")	960	48
105'-6"			16	760	34.7	0.824	4500	128.4	32	120.5	26,745		26	260	190.8 + "	34,875 + "	1020	48
117'-0"			16	760	34.7	0.824	4510	128.4	32	140.6	33,740		26	270	210.9 + "	41,880 + "	1030	48
128'-6"			16	760	45.1	0.824	4660	128.4	40	165.3	39,425		30	320	246.0 + "	47,715 + "	1080	56
140'-0"			18	855	46.5	0.996	5115	159.5	40	188.3	45,520		30	330	270.4 + "	54,265 + "	1185	58
151'-6"			18	855	46.5	0.996	5470	159.5	40	216.5	49,015		36	400	298.6 + "	58,115 + "	1255	58
163'-0"			18	855	46.6	1.185	6305	193.3	48	246.6	57,835		36	420	328.8 + "	67,770 + "	1275	66
174'-6"			20	950	46.6	1.185	6345	193.3	48	278.6	66,550		36	435	360.8 + "	76,525 + "	1385	68
186'-0"			20	950	61.9	1.390	10215	251.4	64	312.6	72,000		40	500	410.1 + "	85,845 + "	1450	84
197'-6"			20	950	63.2	1.611	10285	254.3	64	348.4	79,210		46	590	447.2 + "	93,125 + "	1540	84
209'-0"	35.6	3630	20	950	68.9	1.611	10590	254.3	64	386.2	88,275	18	46	610	490.6 + "	102,495 + "	1560	84

⑨ Bid Items



DETAILS OF STANDARD SUPERSTRUCTURE FOR
5-SPAN CONTINUOUS
CONCRETE SLAB BRIDGES
 WITH

INTERIOR FRAMED BENTS ON PILES
30'-0" ROADWAY 94'-0" TO 209'-0" OVERALL LGTH

SOUTH DAKOTA

STATE HIGHWAY COMMISSION

1948

H20-44
(T-3-45)

CAMBER DIAGRAM

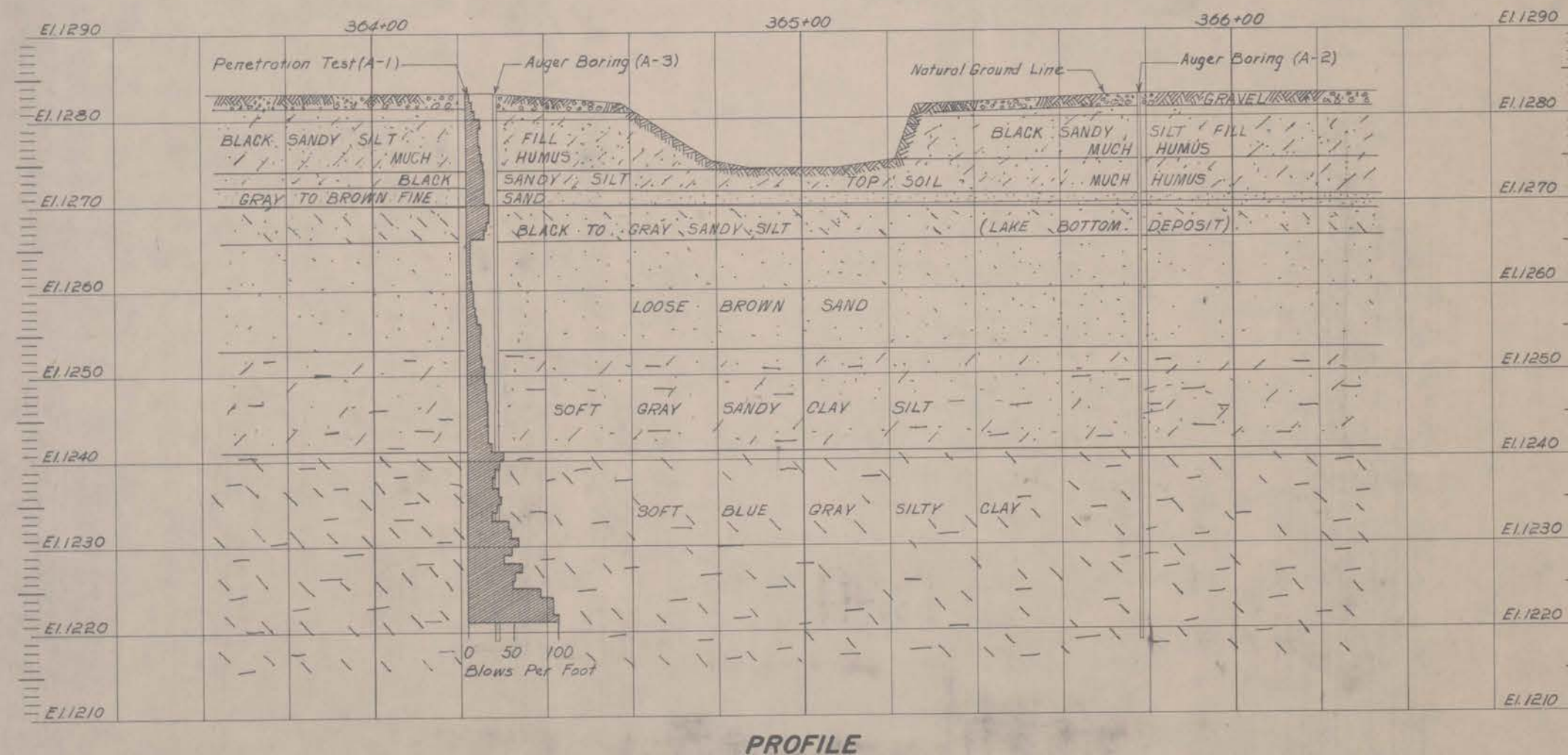
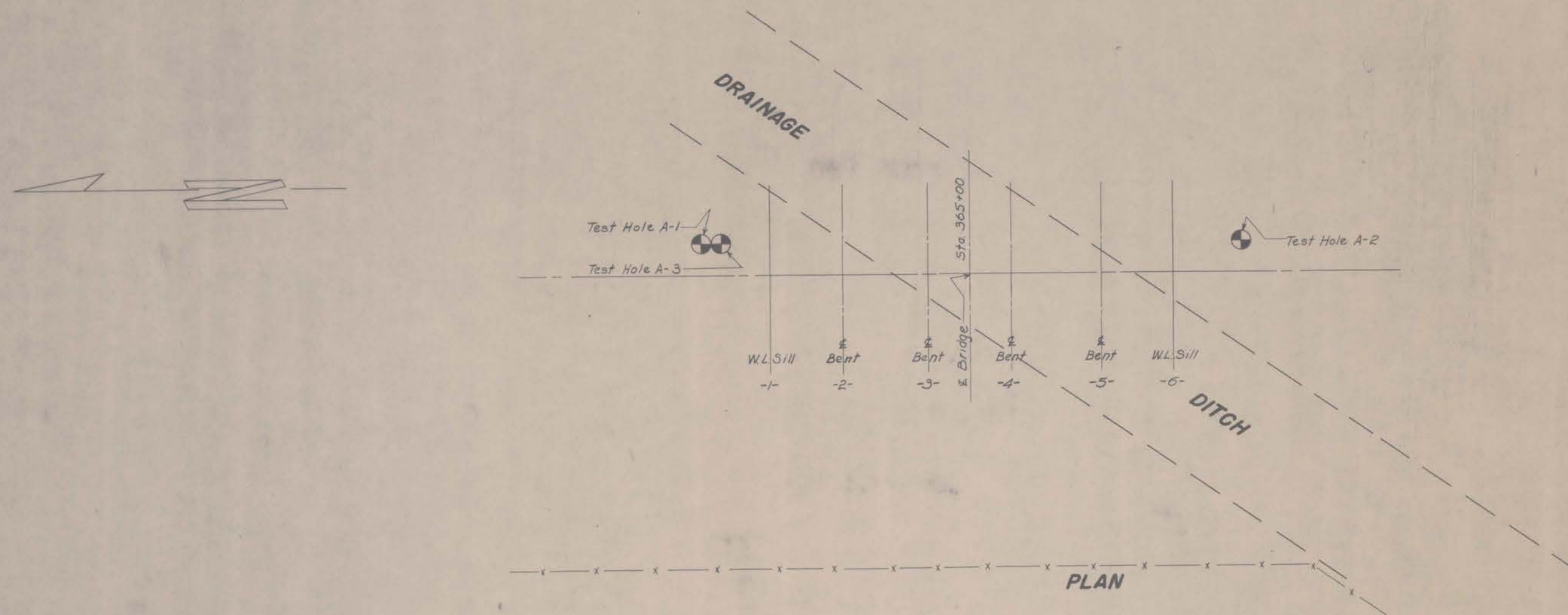
Camber is calculated for dead load plus plastic flow. Camber is calculated thus using the 186'-0" Bridge as an illustration: $E=32'$ and $I=40'$, $1/80=40/80=1/2$, provide $1/2"$ camber at centers of interior spans. The values obtained for camber shall be added to the proposed grade elevations at the respective stations to establish the elevation of the top of the finished roadway slab.

The slab shall also be raised 5g" additional over the interior bents at Roadway 4 to provide for dead load deflection and plastic flow at the 4 of the bents as noted on details thereof.

Spec. Note Rev. 10-10-'57

DESIGNED BY H.O.T.	DRAWN BY H.O.T.	CHECKED BY P.E.T.	APPROVED <i>[Signature]</i> BRIDGE ENGINEER
-----------------------	--------------------	----------------------	---

FBOP-CS-30-00-209-1-3



PLAN AND PROFILE OF SUBSURFACE INVESTIGATIONS
FOR

117'-0" CONTINUOUS CONCRETE BRIDGE

30'-0" ROADWAY

OVER CROW CREEK SEC. 25/30-T 126 N-R 61/60 W

STA. 364+62.50 TO 365+58.50 F047-7 (4)

BROWN COUNTY

SOUTH DAKOTA

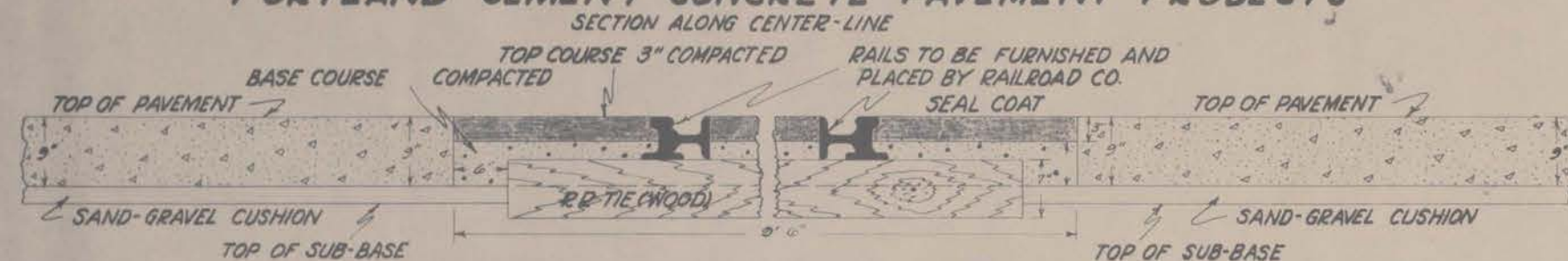
DEPARTMENT OF HIGHWAYS

JULY 1960

5 OF 5

DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED
	GA	MJ	R. H. Davis
			BRIDGE ENGINEER

BITUMINOUS SURFACED RAILROAD CROSSING FOR USE ON PORTLAND CEMENT CONCRETE PAVEMENT PROJECTS



NOTE: THIS CROSSING IS THE CROSSING DESCRIBED IN SECTION 60 OF THE STANDARD SPECIFICATIONS - ISSUED APRIL, 1957

THE CROSSING IS TO BE PREPARED BY THE RAILROAD COMPANY INCLUSIVE OF REMOVING OLD PLANK, REPLACING WORN OUT TIES, FURNISHING AND PLACING RAILS FOR FLANGE WAYS AND SUCH EXCAVATION AS NECESSARY TO DO THE ABOVE-DESCRIBED WORK.

NECESSARY EXCAVATION TO COMPLETE THE CROSSING TO A DEPTH AND AREA REQUIRED IS TO BE INCLUDED IN THE UNIT PRICE BID FOR BITUMINOUS SURFACED RAILROAD CROSSINGS ON CONCRETE PAVEMENT.

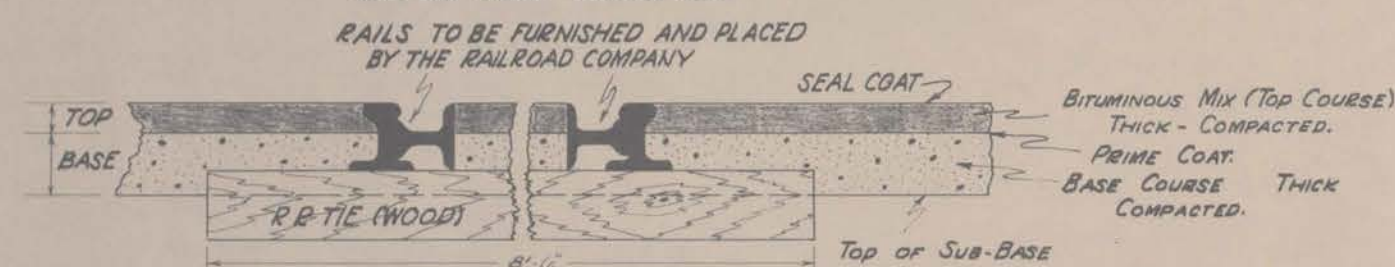
THE MATERIALS AND CONSTRUCTION SHALL COMPLY IN FULL WITH THE REQUIREMENTS AS GIVEN IN SECTION 60 OF THE STANDARD SPECIFICATIONS.

THE NECESSARY QUANTITIES BELOW ARE NOT LISTED AS A BID ITEM BUT MERELY AS A GUIDE. THE BASIS OF PAYMENT WILL BE BY THE SQUARE YARD FOR BITUMINOUS SURFACED RAILROAD CROSSINGS ON CONCRETE PAVEMENT.

(THE QUANTITIES BELOW ARE BASED ON 10 SQUARE YARDS OF SURFACE)

MATERIAL	AMOUNT
1 1/2\" DUSTLESS SCREENED PAVING ROCK	2.10 TONS
3/4\" DUSTLESS SCREENED PAVING ROCK	1.55 TONS
1/4\" ROCK CHIPS FOR SEAL	0.06 TONS
EMULSIFIED ASPHALT, CUTBACK ASPHALT OR REFINED ROAD TAR	27 GALS.

BITUMINOUS RAILROAD CROSSING FOR USE ON BITUMINOUS SURFACED PROJECTS



THE CROSSING IS TO BE PREPARED BY THE RAILROAD COMPANY, INCLUSIVE OF REMOVING OLD PLANK, REPLACING WORN OUT TIES, FURNISHING AND PLACING RAILS FOR FLANGE WAYS AND SUCH EXCAVATION AS NECESSARY TO DO THE ABOVE-DESCRIBED WORK.

ALL LABOR INVOLVED IN PLACING AND TAMPING BASE GRAVEL, INCLUSIVE OF SUFFICIENT EXCAVATION TO SECURE FULL COMPACTED SECTION, IS TO BE DONE AS A PART OF "THE CONTRACT WORK".

THE BITUMINOUS MIX SHALL BE PREPARED IN REGULAR CONSTRUCTION OF THE PROJECT AND THE MIXING THEREOF SHALL BE DONE AT NO ADDITIONAL COST.

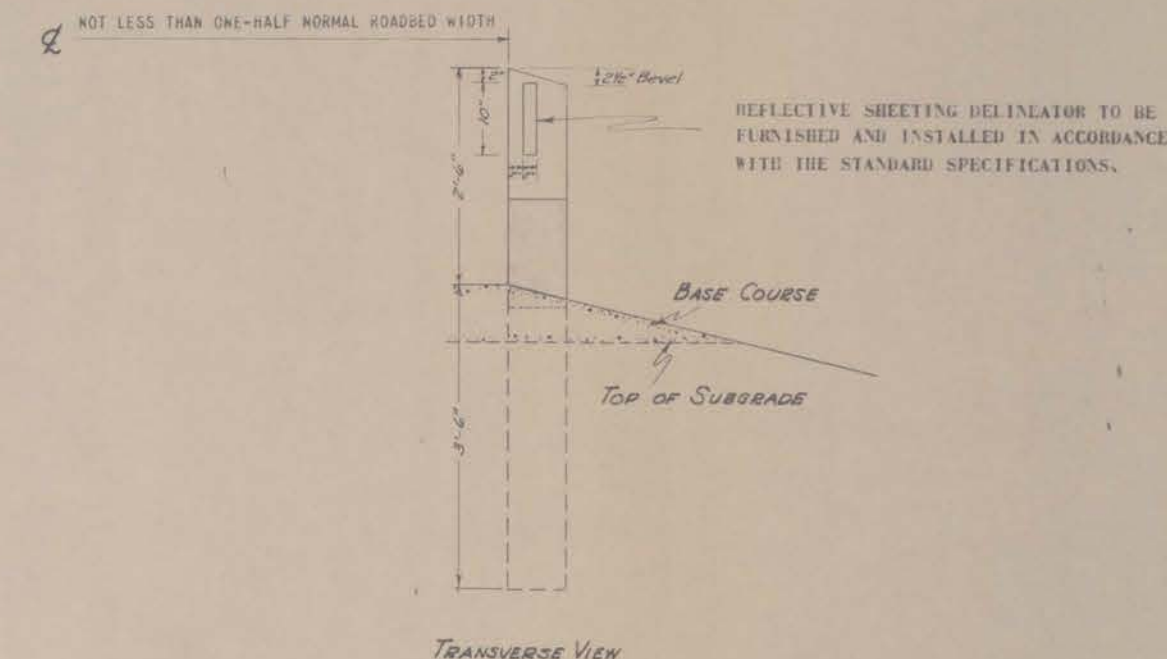
THE MATERIALS WILL BE THE SAME AS USED ON THE PROJECT.

THE NECESSARY QUANTITIES BELOW ARE NOT LISTED AS BID ITEMS BUT MERELY AS A GUIDE.

THE NECESSARY QUANTITIES ARE INCLUDED IN THE "ESTIMATE OF QUANTITIES" ON THIS PROJECT.

MATERIAL	AMOUNT
BASE COURSE GRAVEL AND BINDER	5.5 TONS
PRIMER BITUMEN	18 GALS.
MINERAL AGGREGATE	2.1 TONS
FILLER	0.2 TONS
BITUMEN FOR MIX	28 GALS.
ROCK CHIPS FOR SEAL COAT	0.1 TONS
BITUMEN FOR SEAL COAT	7 GALS.

STANDARD GUIDE POSTS



THE POSTS FURNISHED BY THE CONTRACTOR FOR GUIDE POSTS ARE TO BE 8\" x 6\"-0\" OF SOUND WOOD OF A VARIETY APPROVED BY THE ENGINEER. THE TOPS OF THE POSTS ARE TO BE BEVELED AS SHOWN. THE SPACING OF POSTS IS TO BE AS SHOWN IN THE TABLE OF GUIDE POSTS OR AS DIRECTED BY THE ENGINEER.

THE LOWER PORTION OF THE POST SHALL BE CREOSOTED TO THREE INCHES ABOVE THE TOP OF THE BASE COURSE AT THE SHOULDER LINE.

THE TOP OF THE POSTS TO THE CREOSOTE LINE (THREE INCHES ABOVE THE TOP OF THE BASE COURSE AT THE SHOULDER LINE) IS TO BE GIVEN A PRIME COAT OF WHITE LEAD GUARD RAIL PAINT.

THE TOP PORTION OF THE POST SHALL THEN BE PAINTED WITH TWO COATS OF ALUMINUM PAINT.

THE PORTION OF THE POST FROM TWELVE INCHES ABOVE TO THREE INCHES BELOW THE TOP OF THE BASE COURSE AT THE SHOULDER LINE IS TO BE PAINTED WITH TWO COATS OF BLACK GUARD RAIL PAINT.

DISTANCE FROM FACE OF POST TO CENTERLINE OF ROADBED IS TO BE NOT LESS THAN ONE-HALF THE NORMAL FINISHED ROADBED WIDTH.

REFLECTIVE SHEETING DELINEATORS, OF A TYPE APPROVED BY THE ENGINEER, ARE TO BE INSTALLED ON THAT SIDE OF EACH GUIDE POST WHICH FACES ONCOMING TRAFFIC ALONG THE SIDE OF THE HIGHWAY ON WHICH THE POSTS ARE ERECTED.

DETAILS OF CONSTRUCTION NOT COVERED ON THIS PLAN SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES ISSUED APRIL, 1957.

DETAILS OF STANDARD BITUMINOUS RAILROAD CROSSINGS AND STANDARD GUIDE POSTS

APPROVED: *H. C. Remington*
STATE HIGHWAY ENGINEER

SOUTH DAKOTA DEPARTMENT OF HIGHWAYS