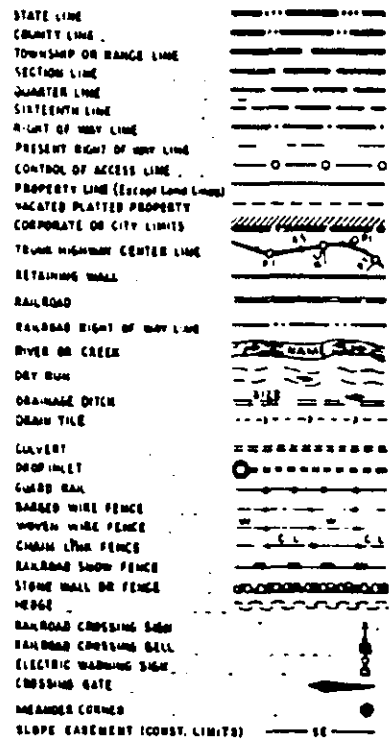
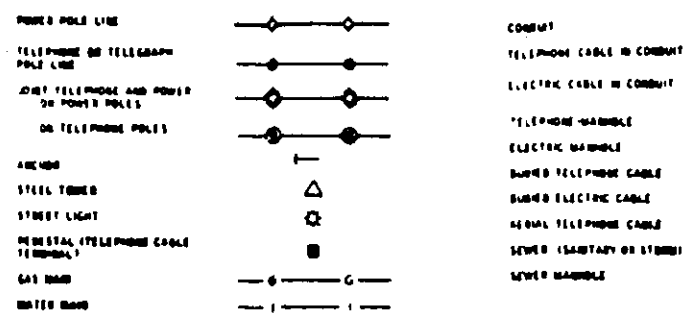


PLANS SYMBOLS



UTILITIES SYMBOLS



FOR ADDITIONAL PLANS AND UTILITIES SYMBOLS SEE TECHNICAL MANUAL



THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION 'STANDARD SPECIFICATIONS FOR CONSTRUCTION' SHALL GOVERN.

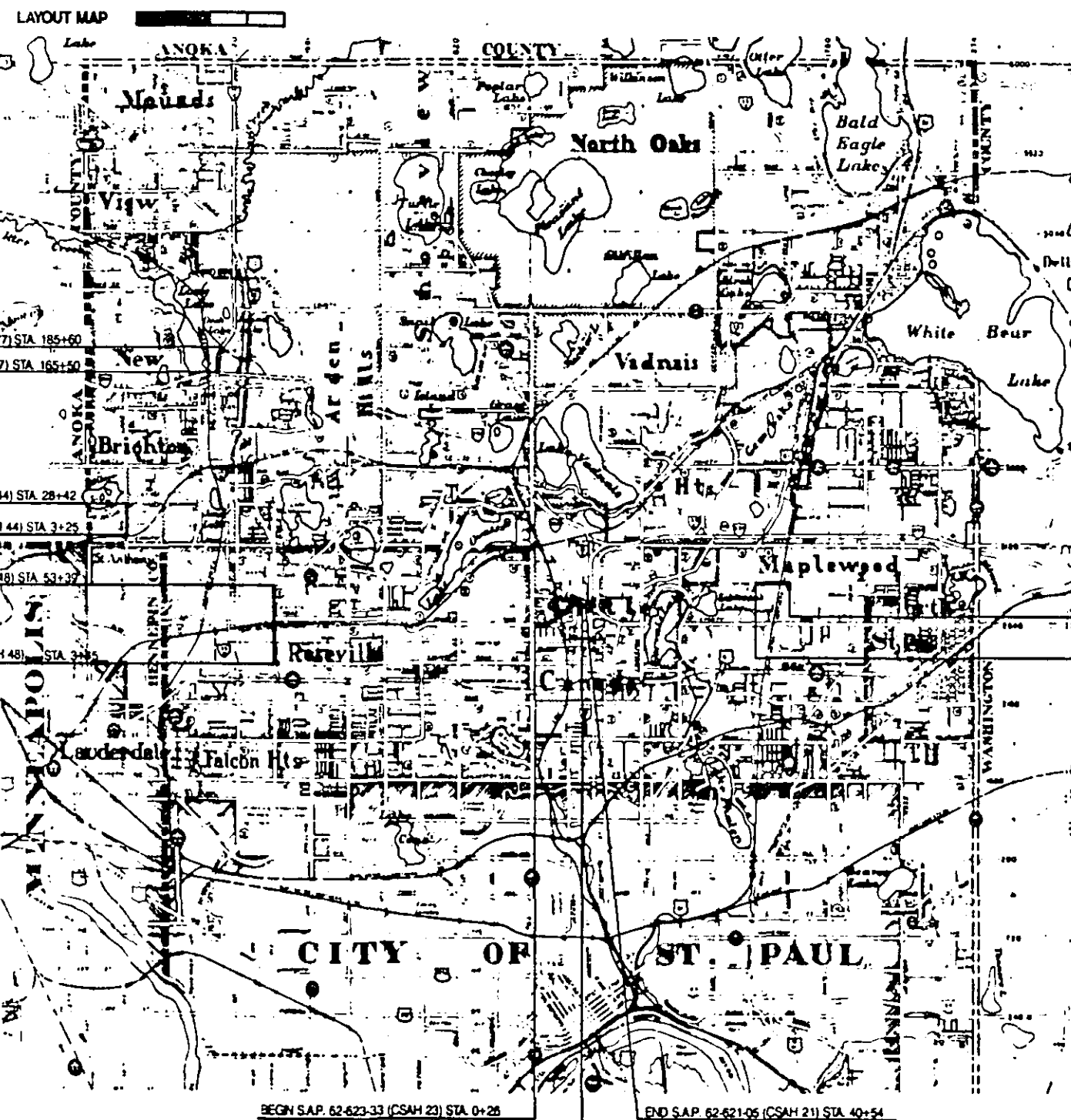
* STOPPING SIGHT DISTANCE BASED ON 3.5' HEIGHT OF EYE, 0.5' HEIGHT OF OBJECT

	BEAM AVE.	LITTLE CANADA RD.	COUNTY ROAD C	SILVER LAKE RD.	FAIRVIEW AVE.	OLD HIGHWAY 8	CO. PROJ. 47432 L.C. RD.
GROSS LENGTH	2,820 0.534	231 0.044	3,797 0.719	2,517 0.477	4,994 0.946	2,010 0.381	980 0.186
BRIDGE LENGTH	0 0	0 0	0 0	0 0	0 0	0 0	0 0
EXCEPTIONS	0 0	0 0	0 0	0 0	0 0	0 0	0 0
NET LENGTH	2,820 0.534	231 0.044	3,797 0.719	2,517 0.477	4,994 0.946	2,010 0.381	980 0.186

COMBINED LENGTH OF STATE AID PROJECTS: 16,388 FEET; 3.100 MILES

COMBINED LENGTH OF COUNTY PROJECTS: 980 FEET; 0.186 MILES

TOTAL: 17,368 FEET; 3.286 MILES



RAMSEY COUNTY DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLAN FOR MILLING, BITUMINOUS RESURFACING, AND RELATED IMPROVEMENTS

- ✓ BEAM AVE. (CSAH 19) BETWEEN T.H. 61 AND HAZELWOOD AVE. S.A.P. 62-619-13
- ✓ LITTLE CANADA RD. (CSAH 21) BETWEEN LAKESHORE DR. AND I35E, S.A.P. 62-621-05
- ✓ COUNTY ROAD C (CSAH 23) BETWEEN T.H. 49 AND LAKESHORE DR., S.A.P. 62-623-33
- ✓ SILVER LAKE RD. (CSAH 44) BETWEEN NO. OF CO. RD. D AND SILVER LAKE, S.A.P. 62-644-15
- ✓ FAIRVIEW AVE. (CSAH 48) BETWEEN CO. RD. B2 AND CO. RD. C2, S.A.P. 62-648-13
- ✓ OLD HIGHWAY 8 (CSAH 77) BETWEEN I 694 AND MIN. TRANS. RY. BUTCHER'S SPUR, S.A.P. 62-677-16

ACCOUNT NO. 47420

LITTLE CANADA RD. (CSAH 21) BETWEEN SOO LINE RY. AND LAKESHORE DR.
COUNTY PROJECT NO. 47432

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATE QUANTITIES
3	CONSTRUCTION TYPICAL SECTIONS
4	DETAILS
5	BEAM AVENUE
6	LITTLE CANADA RD. & CO. RD. C (S.A.P. 62-621-05)
7	SILVER LAKE ROAD
8	FAIRVIEW AVENUE
9	OLD HIGHWAY 8
10	LITTLE CANADA RD. (C.P. 47432)

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 01-31-89 REG. NO. 13591 ENGR. Larry J. Feltner

DESIGN SQUAD HH DATE 01-31-89
DRAWN BY _____ DATE _____
CHECKED BY _____ DATE _____

RECOMMENDED FOR APPROVAL Larry J. Feltner DATE 5/29/89
COUNTY ENGINEER
APPROVED Larry J. Feltner DATE _____
CHAIRMAN OF THE RAMSEY COUNTY BOARD

RAMSEY COUNTY

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
TRAFFIC ENGINEER

APPROVED Larry J. Feltner DATE 3-28-89
CITY OF MAPLEWOOD

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
TRAFFIC ENGINEER

APPROVED Larry J. Feltner DATE 3-28-89
CITY OF NEW BRIGHTON

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
TRAFFIC ENGINEER

APPROVED Larry J. Feltner DATE 3-15-89
CITY OF ROSEVILLE

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
TRAFFIC ENGINEER

APPROVED Larry J. Feltner DATE 3-15-89
CITY OF ST. ANTHONY

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
TRAFFIC ENGINEER

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
MINNESOTA DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
TRAFFIC ENGINEER

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
DISTRICT STATE AID ENGINEER

RECOMMENDED FOR APPROVAL DES DATE 3/15/89
TRAFFIC ENGINEER

APPROVAL Larry J. Feltner DATE 6/1/89

DATE	SHEET NO.	BY
9-13-89	LITTLE CAN. RD. 21-05	LKF

DESIGN				DESIGNATION			
	BEAM AVE.	LITTLE CANADA RD.	COUNTY ROAD C	SILVER LAKE RD.	FAIRVIEW AVE.	OLD HIGHWAY 8	LITTLE CANADA RD. CO. PROJ. 47432
A.D.T. CURRENT YEAR	13,000	14,300	7,600	13,700	12,000	7,200	5,300
A.D.T. FUTURE YEAR	20,800	22,800	12,150	21,920	19,200	12,480	8,500
EXISTING DESIGN STRENGTH	9 TON	9 TON	9 TON	9 TON	9 TON	9 TON	9 TON
H.C.A.D.T.	208	570	304	548	480	135	—
SOIL FACTOR %	75	50	100 (1)	100	100	100	—
* DESIGN SPEED - M.P.H.	55	40	30	40	35	45	—
URBAN CLASSIFICATION	HIGH DENSITY ART./ MEDIAN	HIGH DENSITY ARTERIAL	HIGH DENSITY ARTERIAL	HIGH DENSITY ARTERIAL	HIGH DENSITY ART./ MEDIAN	HIGH DENSITY ARTERIAL	LOW DENSITY ARTERIAL
NO. OF TRAFFIC LANES	4	4	4	4	4	4	2
NO. OF PARKING LANES	0	0	0	0	0	0	0

(1) 50+ STA. 26+50 TO 40+00

S.A.P. NO. 62-619-13, 62-621-05, 62-623-33, 62-644-15, 62-648-13, 62-677-16, CO. PROJ. 47432

Sheet No. 1 of 10 Sheets

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STATEMENT OF ESTIMATED QUANTITIES			PROJECT TOTALS		BEAM AVE. S.A.P. 62-819-13		LITTLE CANADA RD. S.A.P. 62-821-05		CO. RD. C. S.A.P. 62-823-33		SILVER LAKE RD. S.A.P. 62-844-15		FAIRVIEW AVE. S.A.P. 62-648-13		OLD HIGHWAY 8 S.A.P. 62-677-16		COUNTY STATE AID HIGHWAY SUBTOTAL		COUNTY PROJECT LITTLE CANADA RD. C.P. 47432	
ITEM NO.	CONTRACT ITEM	UNIT	ESTIMATED QUANTITY	FINAL QUANTITY	ESTIMATED QUANTITY	FINAL QUANTITY	ESTIMATED QUANTITY	FINAL QUANTITY	ESTIMATED QUANTITY	FINAL QUANTITY	ESTIMATED QUANTITY	FINAL QUANTITY	ESTIMATED QUANTITY	FINAL QUANTITY	ESTIMATED QUANTITY	FINAL QUANTITY	ESTIMATED QUANTITY	FINAL QUANTITY	ESTIMATED QUANTITY	FINAL QUANTITY
2021.501	MOBILIZATION	LS	1		0.17		0.16		0.17		0.17		0.17		0.18		1		0.00	
2104.501	REMOVE CURB & GUTTER (1)	LF	1318		215		50		570		220		110		151		1318		0	
2104.521	SALVAGE GUARDRAIL PLATE BEAM	LF	665		200		0		0		365		0		100		665		0	
0104.604	MILL BITUMINOUS SURFACE TYPE 1 (2,3,4)	SY	16855		0		252		5036		6367		5200				16855		0	
0104.606	MILL BITUMINOUS SURFACE TYPE 2 (2,3,4)	LF	23964		1000		510		4558		8044		9360		1318		22788		1178	
0104.604	MILL BITUMINOUS SURFACE TYPE 3 (2,3,4,5)	SY	7379		0		81		689		4912		1480		0		7182		197	
0104.604	MILL BITUMINOUS SURFACE TYPE 4 (2,3,4)	SY	27511		16541		0		250		0		0		10720		27511		0	
2211.501	AGG. BASE CL. 6 (CL.5 100% CR.) (6)	TON	32		0		2		0		0		13		12		32		0	
2231.501	BITUMINOUS PATCHING MIXTURE (7,8,9)	TON	355		30		5		100		55		80		75		345		10	
2331.504	BITUMINOUS MATERIAL FOR MIXTURE (10)	TON	407		227		0		23		5		22		101		378		29	
2331.510	BINDER COURSE MIXTURE (MOD)	TON	5794		3922		0		39		84		0		1749		5794		0	
2331.512	LEVELING COURSE MIXTURE (MOD)	TON	1349		0		0		399		0		410		0		809		540	
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	28		0		0		0		0		0		0				28	
2341.508	WEARING COURSE MIXTURE	TON	481		0		0		0		0		0		0				481	
2357.502	BITUMINOUS MAT. FOR TACK COAT (9)	GAL	9054		2757		66		1673		1235		1810		1289		8830		224	
2361.504	ASPHALT CEMENT (10)	TON	387		87		5		74		88		88		37		387		0	
2361.508	WEARING COURSE MIXTURE (MOD)	TON	6265		1410		80		1191		1394		1587		603		6265		0	
0504.602	ADJUST VALVE BOX (11)	EACH	18		2		1		4		2		3		6		18		0	
2506.512	RECONSTRUCT CATCH BASIN	LF	24		0		0		10		4		8		2		24		0	
2506.516	CASTING ASSEMBLY (15)	EACH	4		0		0		0		2		1		1		4		0	
2506.522	ADJUST FRAME AND RING CASTING TYPE 1 (12,14)	EACH	28		0		0		0		10		8		10		28		0	
2506.522	ADJUST FRAME AND RING CASTING TYPE 2 (12)	EACH	12		0		1		5		3		1		2		12		0	
2506.522	ADJUST FRAME AND RING CASTING TYPE 3 (12)	EACH	12		1		0		2		4		4		1		12		0	
2531.501	CONC. CURB & GUTTER DES. B618	LF	950		0		50		570		220		110		0		950		0	
2531.501	CONC. CURB & GUTTER DES. B624	LF	376		215		0		0		0		10		151		376		0	
2554.511	INSTALL TRAFFIC BARRIER DESIGN A	LF	265		0		0		0		265		0		0		265		0	
2554.523	TWISTED END TREATMENT	EA	9		5		0		0		2		0		2		9		0	
0565.602	LOOP DETECTOR 6' X 6' (3,13)	EACH	22		6		0		4		8		4		0		22		0	
0565.602	LOOP DETECTOR 6' X 15' (3,13)	EACH	10		0		0		0		6		2		0		10		0	
0565.602	LOOP DETECTOR 6' X 20' (3,13)	EACH	22		20		0		2		0		0		0		22		0	
0565.602	LOOP DETECTOR 6' X 25' (3,13)	EACH	5		0		0		0		4		1		0		5		0	
2575.555	TURF ESTABLISHMENT	LS	1		0.18		0.04		0.47		0.18		0.09		0.04		1		0.00	

QUANTITY NOTES

(1) FINAL QUANTITIES FOR C & G REMOVAL AND REPLACEMENT WILL BE DETERMINED IN THE FIELD BY THE ENGINEER.

(2) PROVIDE WATER FOR MILLING OPERATIONS; INCLUDE IN PRICE OF OTHER ITEMS.

(3) THE CONTRACTOR WILL NOTIFY THE COUNTY BEFORE MILLING OVER ANY LOOP DETECTORS.

(4) DELIVER THE MILLED BITUMINOUS SURFACING TO THE RAMSEY COUNTY DEPARTMENT PIT STORAGE AREA AT THE INTERSECTION OF KENT STREET AND LARSEN AVENUE. INCLUDE DELIVERY IN PRICE OF OTHER ITEMS.

(5) THE FIRST AND LAST 20 FEET OF EACH ROAD WILL BE TYPE 3 MILLED TO PROVIDE SMOOTH TRANSITIONS AT BEGINNING AND END OF EACH OVERLAY.

(6) TO BE USED UNDER CONCRETE C & G; PLACE 8" IN COMPACTED THICKNESS.

(7) THE ROADWAY ADJACENT TO AREAS OF CURB AND GUTTER REPLACEMENT SHALL BE PATCHED WITH BITUMINOUS PATCHING MIXTURE TO WITHIN 1" OF FINISHED GRADE IMMEDIATELY AFTER THE CURB AND GUTTER CONSTRUCTION AND CURE.

(8) CRACKS IN ROADWAY WILL BE CLEANED OF FOREIGN MATTER, TACKED, AND FILLED WITH ITEM NO. 2231.501 BITUMINOUS PATCHING MIXTURE. (SEE DETAIL SHEET 4).

(9) TACK COAT AND BIT. PATCHING MIXTURE SHALL BE USED TO PATCH DAMAGED AREAS IN THE ROADWAYS BEFORE OVERLAYING.

(10) 2381 WEAR COURSE COMPUTED AT 8.2%; LEVELING COURSE COMPUTED AT 5.3%; 2331 BINDER & 2341 WEAR COURSES COMPUTED AT 5.8%.

(11) VALVE BOXES LOCATED IN THE PAVEMENT WILL BE RAISED TO 1/2" BELOW FINISHED SURFACE.

(12) ITEM 2506.522 ADJUST FRAME AND RING CASTING SHALL BE REQUIRED FOR MANHOLES LOCATED IN THE OVERLAYED PAVEMENT; ADJUSTMENT HEIGHT SHALL BE TO 1/2" BELOW FINISHED GRADE AS DETERMINED BY USING A 10' STRAIGHT EDGE; THE CONTRACTOR AND COUNTY WILL TOGETHER DETERMINE THIS. WHERE SPECIALLY FORMULATED EPOXY IS USED, MATING SURFACES SHALL BE GROUND TO BRIGHT METAL. ADJUST FRAME AND RING CASTING PAY ITEMS SUMMARY:
TYPE (1) PER STANDARD PLATE 4108
TYPE (2) USE EXISTING FRAME & RING; ADJUST CASTING
TYPE (3) FOR CB DESIGN A OR F OR DESIGN RC-2; ADJUST CASTING

(13) THE CONTRACTOR SHALL PROTECT OR REPLACE EXISTING LOOP DETECTORS DURING PAVEMENT REPAIR OPERATIONS AS DIRECTED BY THE ENGINEER; ALL LOOP DETECTORS WILL BE LOCATED BY THE ENGINEER UPON REQUEST AND REPLACED IF DAMAGED BY MILLING WITHIN 3 CALENDAR DAYS. NEW LOOP DETECTORS SHALL BE INSTALLED PRIOR TO THE OVERLAY.

(14) METHOD OF ATTACHMENT OF STEEL OR CAST IRON INSIDE ADJUSTING RING SHALL BE AGREEABLE TO THE OWNER OF THAT STRUCTURE.

(15) CASTING ASSEMBLIES SHALL BE MENAHE INLET FRAME, GRATE AND CURB BOX NO R3067-L OR EQUAL.

(16) TURF ESTABLISHMENT ESTIMATE BASED ON SOO PLACED 1 ROW IN WIDTH BEHIND REPLACED CURB AND GUTTER. IT SHALL INCLUDE TOPSOIL PLACED 3" IN DEPTH UNDER SOO AND ALL OTHER NECESSARY MATERIALS AND LABOR. THE CONTRACTOR WILL RESTORE ALL DISTURBED AREAS.

(17) ALL MANHOLES OPENED FOR LOOP DETECTOR TESTING SHALL BE RESEALED PER 2545.

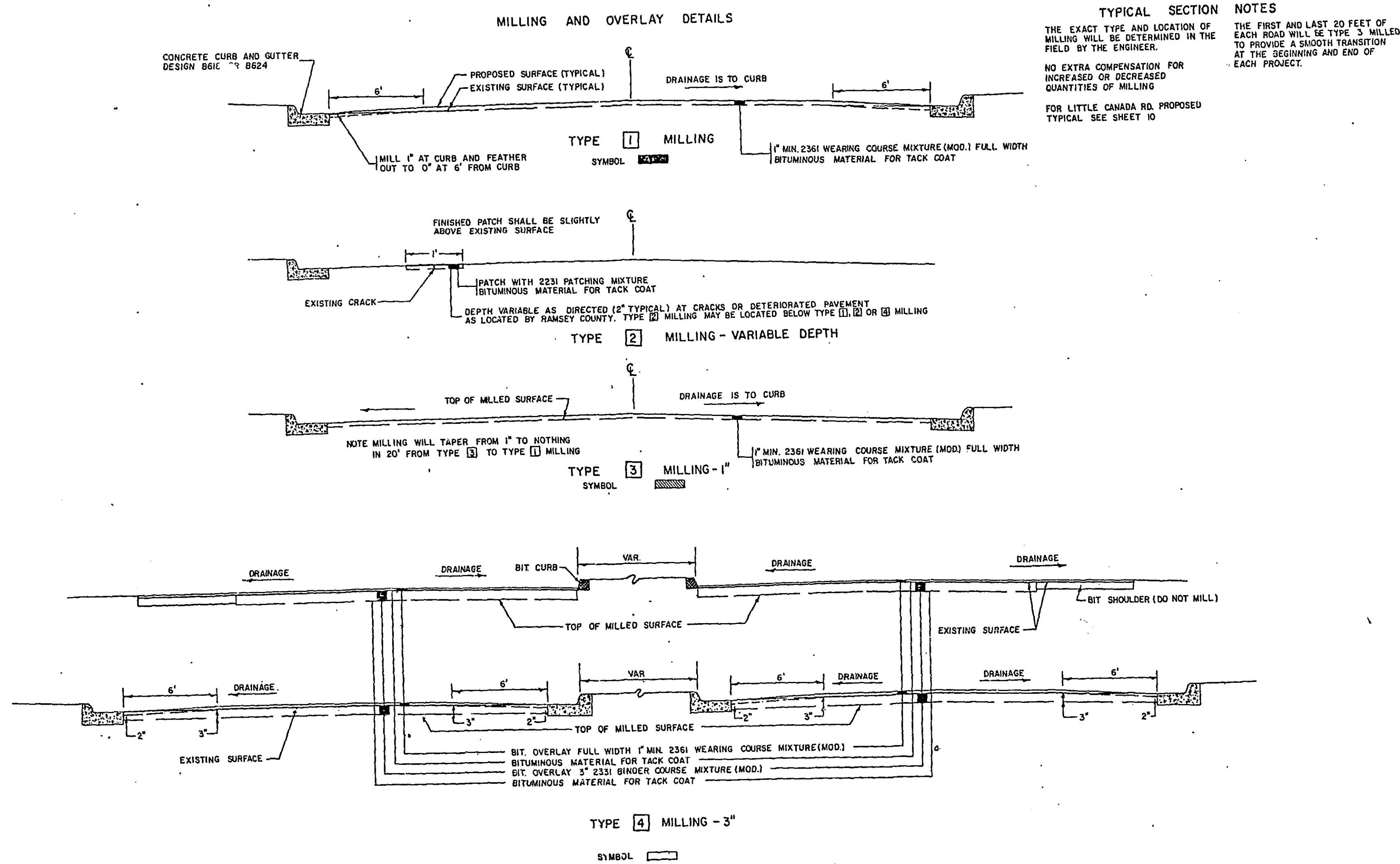
27-127

STATEMENT OF ESTIMATED QUANTITIES

5-24-89 LKF
REV 4-27-89 LKF

S.A.P. NO. 62-819-13, 62-821-05, 62-823-33,
62-844-15, 62-848-13, 62-877-15, CO. PROJ. 47432

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S.A.P. NO. 62-610-13, 62-621-05, 62-623-33, 62-644-15, 62-648-13, 62-677-16, CO. PROJ. 47432

Sheet No. 3 of 10 Sheets

CONSTRUCTION NOTES

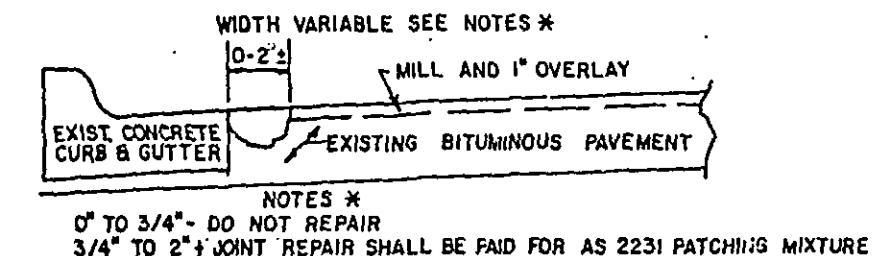
REMOVE ALL COLD MIX PATCHES BY MILLING

BACKFILL BEHIND REPLACED CURB AND GUTTER SECTIONS AND PLACEMENT OF TOPSOIL, FERTILIZER, AND SOIL OR SEED SHALL BE PAID FOR AS ITEM NO. 2575.555 TURF ESTABLISHMENT - LUMP SUM

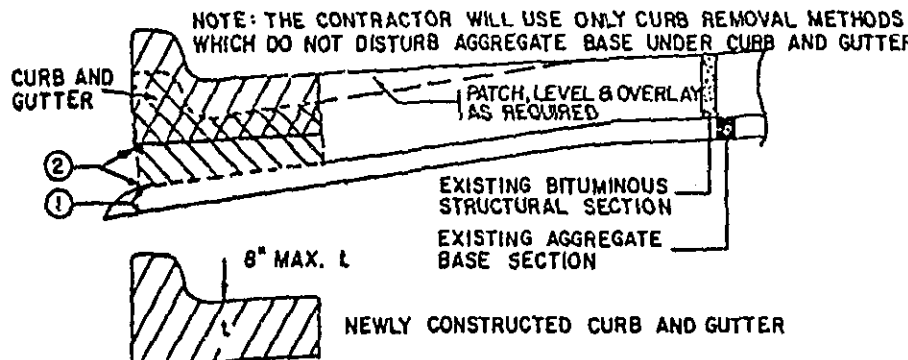
LOOP DETECTOR SEALANT SHALL BE ESPECIALLY FORMULATED FOR SUCH USE, BLACKJACK TYPE SEALANTS WILL NOT BE ACCEPTABLE

COMPACTION OF ALL BITUMINOUS COURSES SHALL BE BY THE METHOD OF ORDINARY COMPACTION

DETAIL FOR SEALING OF CONCRETE CURB AND BITUMINOUS JOINTS

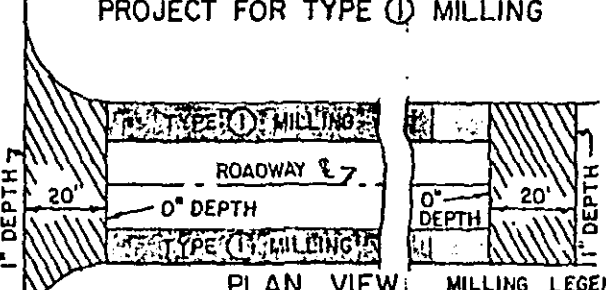


CURB AND GUTTER TREATMENT DETAIL

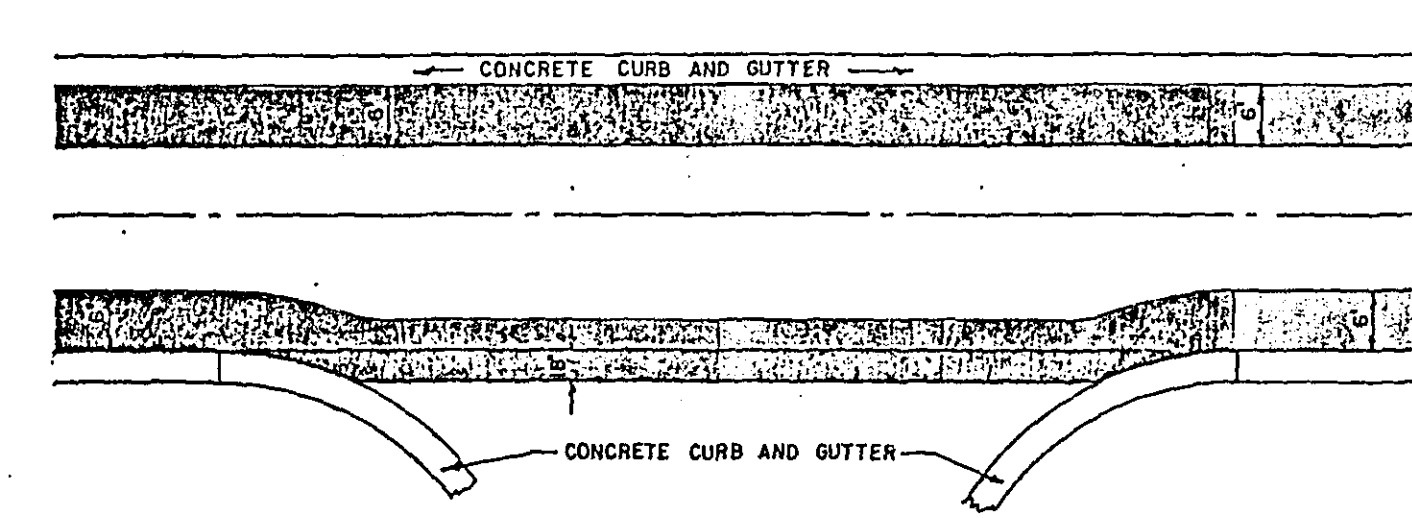


- ① DO NOT REMOVE AGGREGATE BASE UNDER CURB AND GUTTER
- ② THE CONTRACTOR SHALL PLACE AND COMPACT AGGREGATE BASE IN THIS AREA AS REQUIRED FOR AN 8" MAXIMUM THICKNESS OF GUTTER

MILLING DETAIL AT ENDS OF PROJECT FOR TYPE 1 MILLING

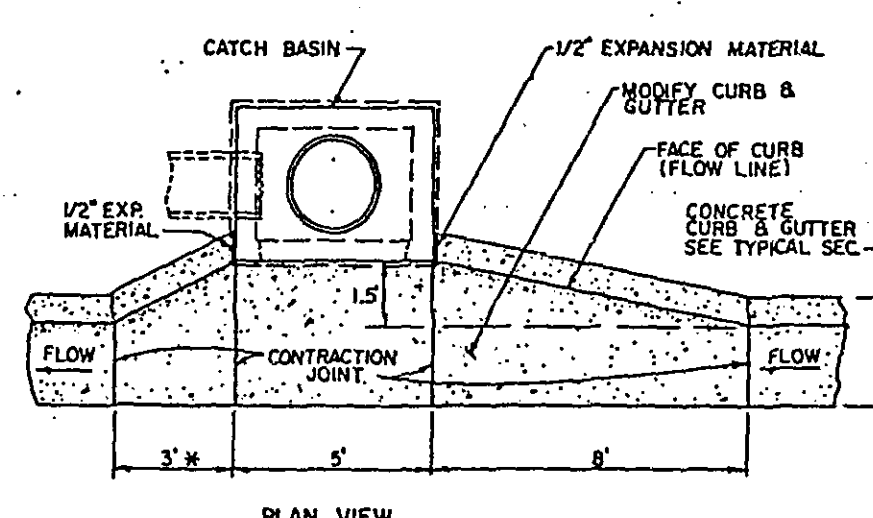


TYPE 1 MILLING AT SIDE STREET APPROACHES

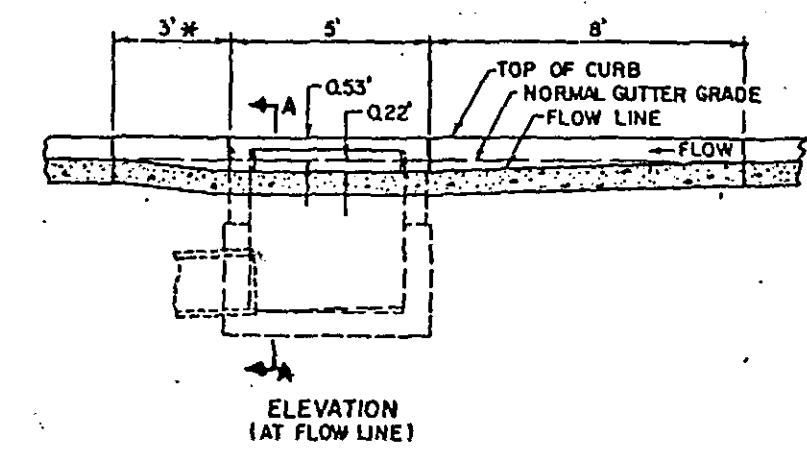


STANDARD PLATES	
PLATE NO.	DESCRIPTION
0005A	SPECIFICATION REFERENCE TO STANDARD PLATES
40001	MANHOLE OR CATCH BASIN
4005K	MANHOLE OR CATCH BASIN
4016G	CONCRETE SHORT CONE AND ADJUSTING RING
4021C	PRECAST CURB OPENING CATCH BASIN
4101C	RING CASTING FOR MANHOLE OR CATCH BASIN
4103E	MANHOLE ADJUSTING RINGS
4110D	COVER CASTING FOR MANHOLE
4126C	CATCH BASIN FRAME CASTING
4149C	DECK CASTING FOR CATCH BASIN
7035C	PEDESTRIAN CURB RAMP
7065C	BITUMINOUS CURB
7100F	CONCRETE CURB AND GUTTERS
7110E	CURB AND GUTTER CONSTRUCTION AT CATCH BASIN
7111G	INSTALLATION AND REINFORCEMENT OF CATCH BASIN CASTINGS
39001	STANDARD BARRICADES
8110D	SANCTUARY LOOP DETECTORS
8303H	STEEL PLATE BEAM GUARDRAIL
8375D	TWISTED END TREATMENT
8801A	TANGENT APPROACHES AND ENTRANCES

CURB OPENING CATCH BASIN - DESIGN LP RECONSTRUCT DETAIL

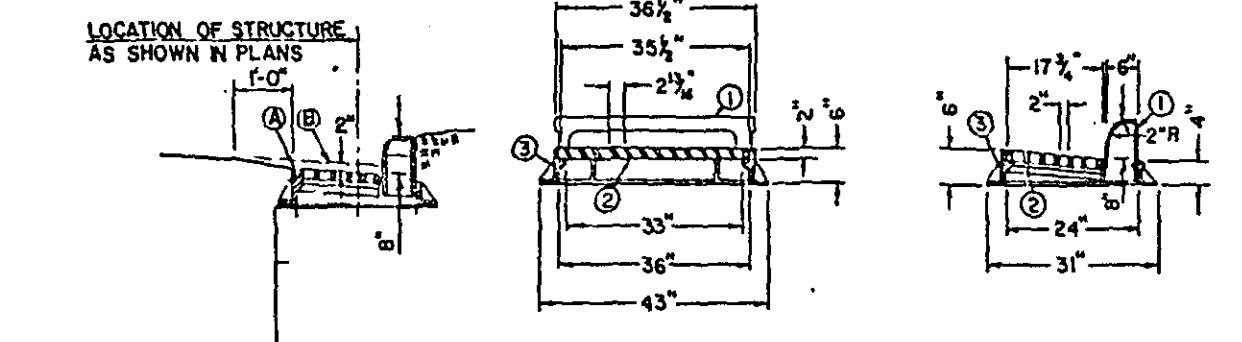


- NOTES:
- * DIMENSION SHALL BE 8' WHEN STRUCTURE INSTALLED AT LOW POINT IN GRADE
 - CATCH BASIN - DESIGN LP - SEE MV/DOOT STD. PL. NO. 4021C.
 - TOP OF CATCH BASIN SHALL BE INSTALLED AT SAME SLOPE AS BVD GRADES AND TOP OF CURB GRADE - EACH SIDE OF STRUCTURE.
 - ELEVATION OF STRUCTURE IS COMPUTED AT LOCATION SHOWN IN SEC. A-A AT E. OF C.B. OPENING.
 - ① - RECONSTRUCT HEIGHT
 - ② - SLOPE TO MATCH BOULEVARD



ADJUST CASTING ASSEMBLY DETAIL (FOR DESIGN SPECIAL 2 CATCH BASIN)

- NOTES
- 1 MATERIALS: CAST GRAY IRON, CLASS 30, MV/DOOT SPEC. REFERENCE 3321
 - 2 CURB BOX HEIGHT SHALL BE ADJUSTABLE 6" TO 9"
 - 3 SEE CATCH BASIN - DESIGN SPECIAL 2 DETAIL FOR CASTING INSTALLATION DETAIL
 - 4 TOP OF CURB BOX TO CASTING DIMENSION SHALL BE 8" AS SHOWN
 - 5 PROVIDE 2" SUMP AS SHOWN
 - 6 USE EXISTING CASTING IF POSSIBLE

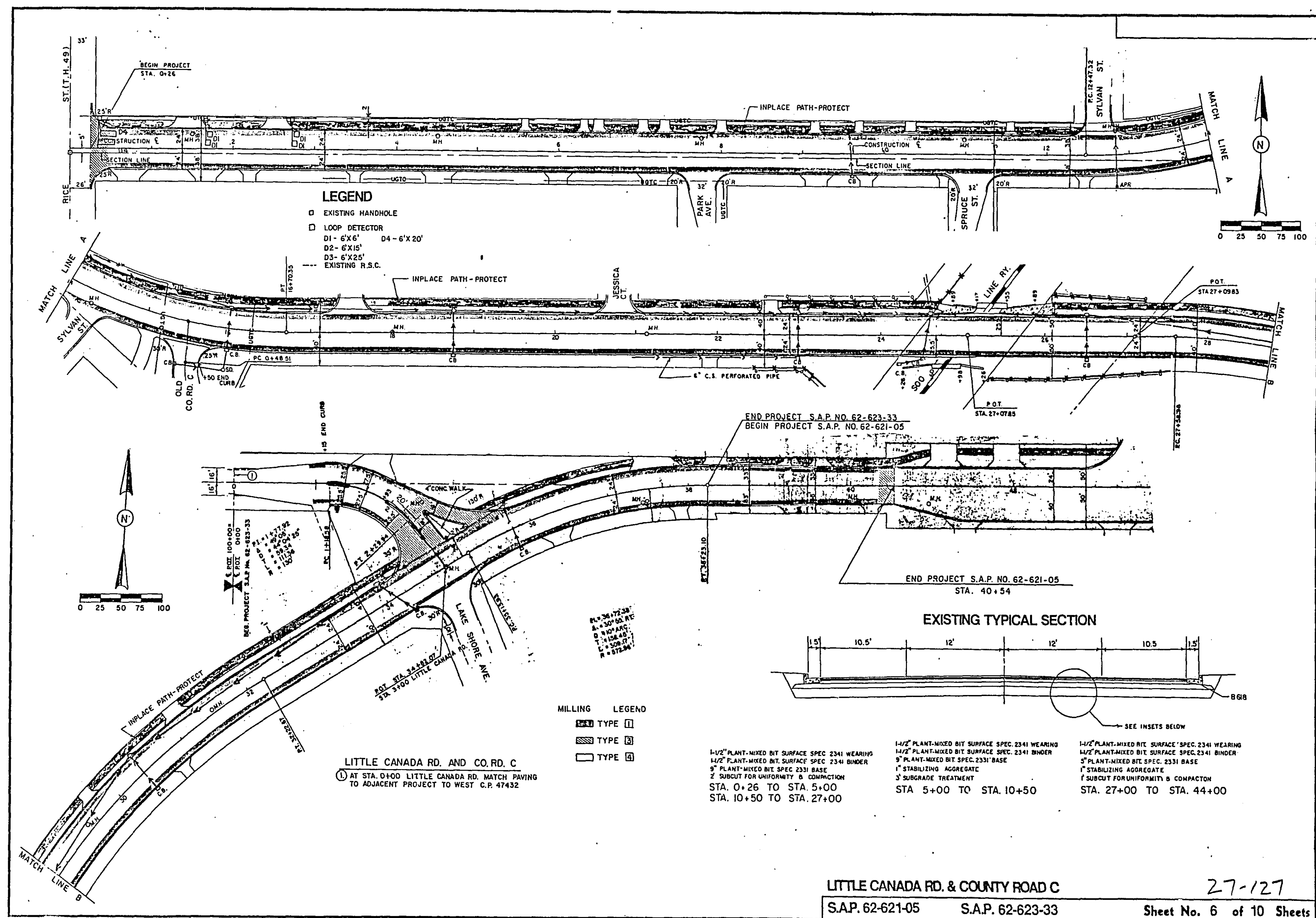
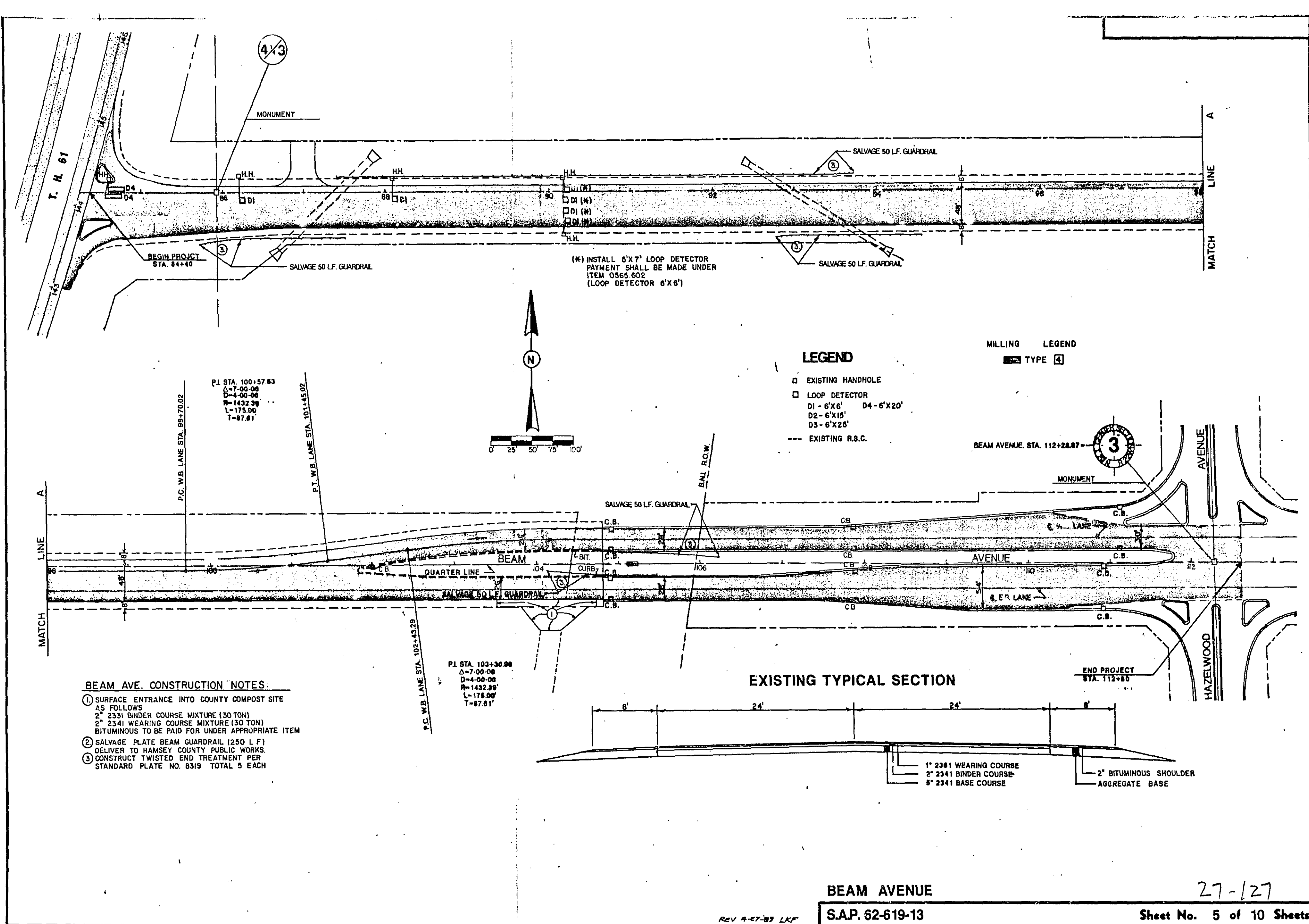


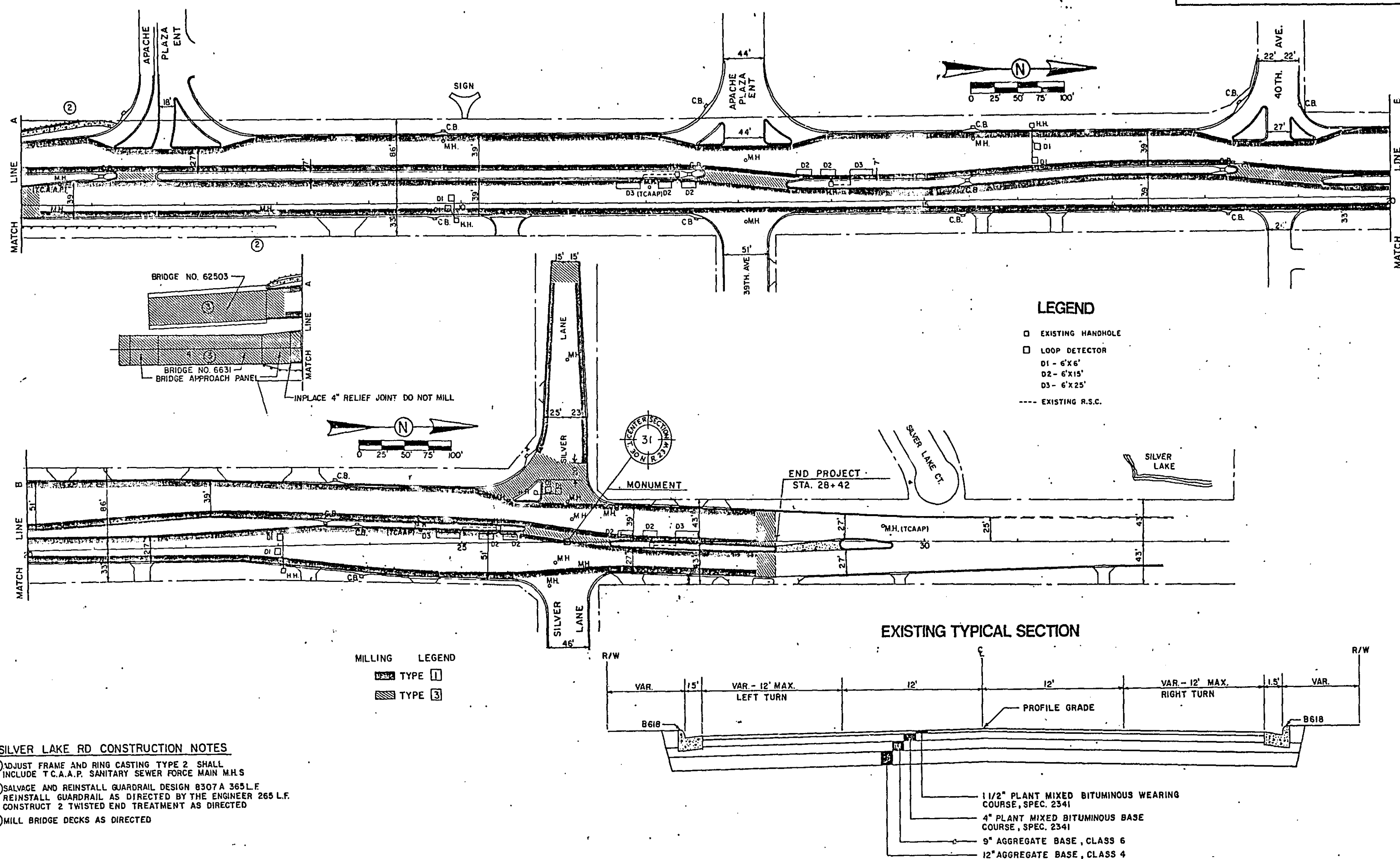
- ① ELEVATION OF STRUCTURE COMPUTED AT THIS LOCATION
- ② NORMAL GUTTER GRADE

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DETAILS

S.A.P. NO. 62-610-13, 62-621-05, 62-623-33, 62-644-15, 62-648-13, 62-677-16, CO. PROJ. 47432

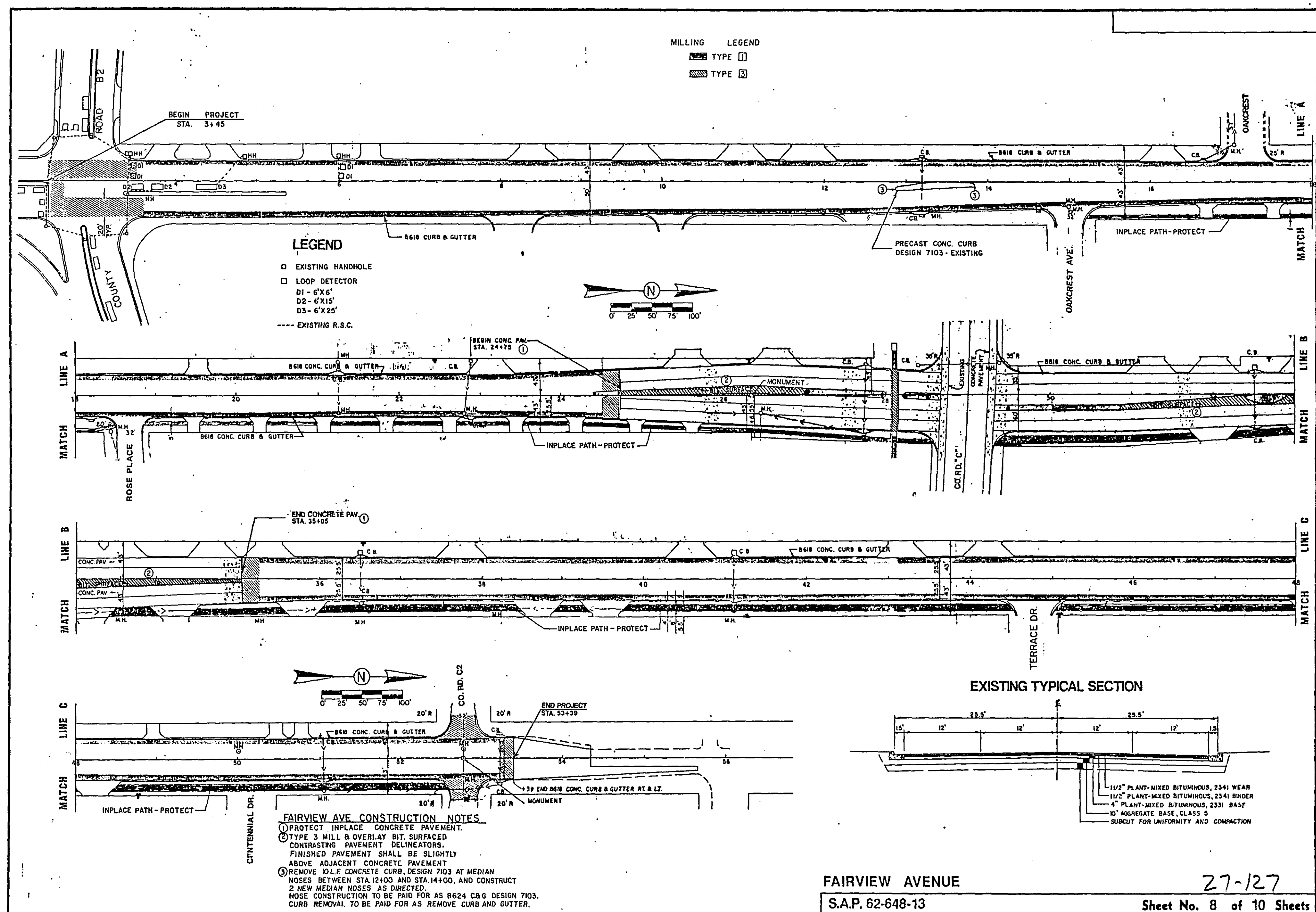
Sheet No. 4 of 10 Sheets





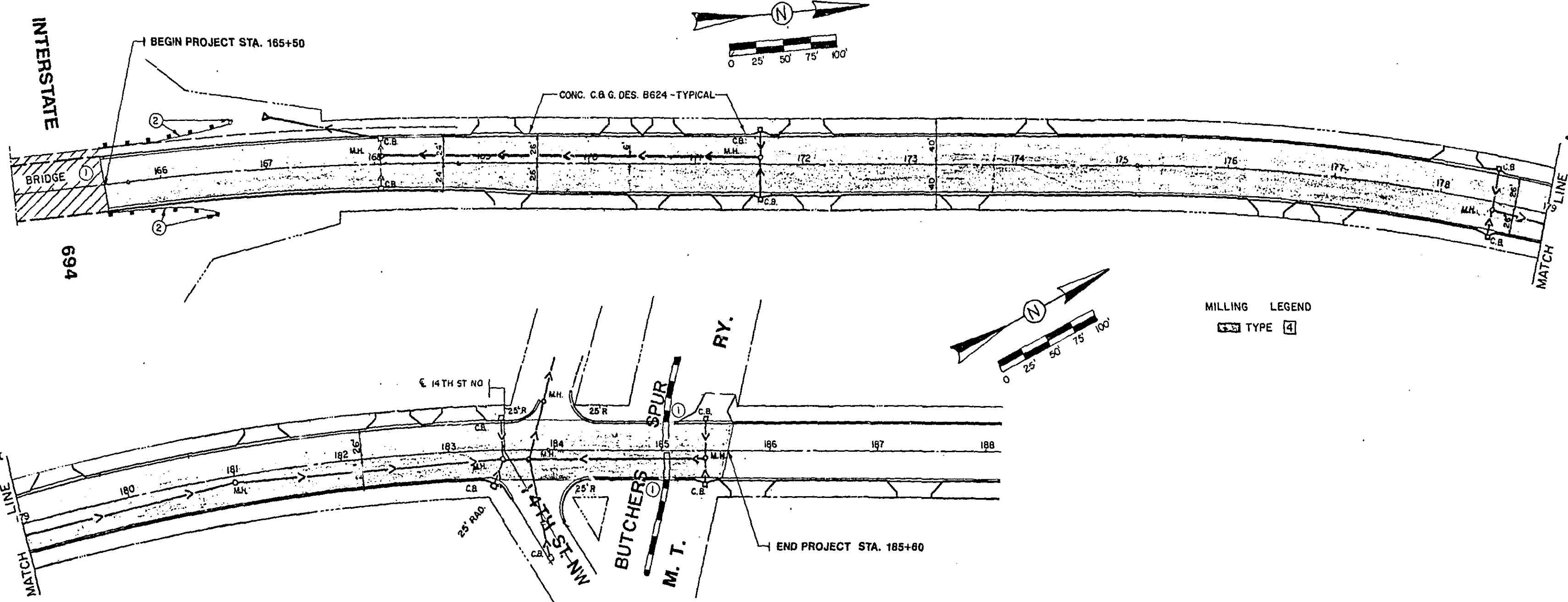
SILVER LAKE RD.
 S.A.P. 62-644-15

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 Sheet No. 7 of 10 Sheets



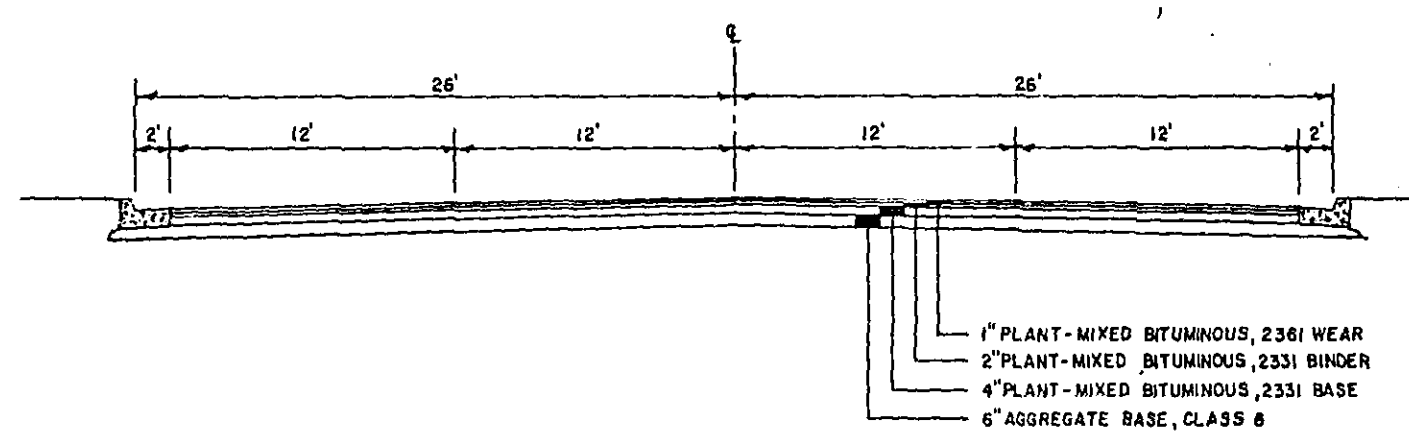
FAIRVIEW AVENUE
 S.A.P. 62-648-13

27-127
 Sheet No. 8 of 10 Sheets



MILLING LEGEND
TYPE 4

EXISTING TYPICAL SECTION

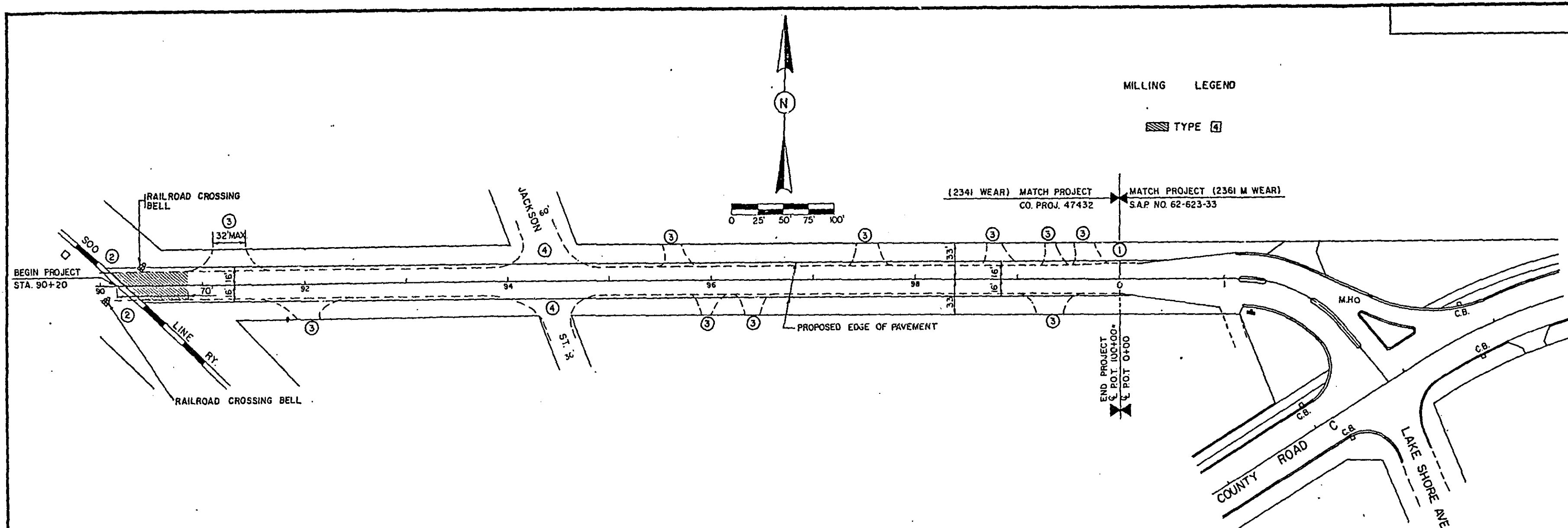


OLD HIGHWAY 8 CONSTRUCTION NOTES

- ① THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO VERIFY BITUMINOUS DEPTHS WHEN MILLING ADJACENT TO RAILS AND BRIDGE.
- ② SALVAGE PLATE BEAM GUARDRAIL 100 L.F. TOTAL AS DIRECTED AND DELIVER TO RAMSEY COUNTY PUBLIC WORKS DEPT. CONSTRUCT TWISTED END TREATMENTS PER STANDARD PLATE NO. 6319 - 2 EACH

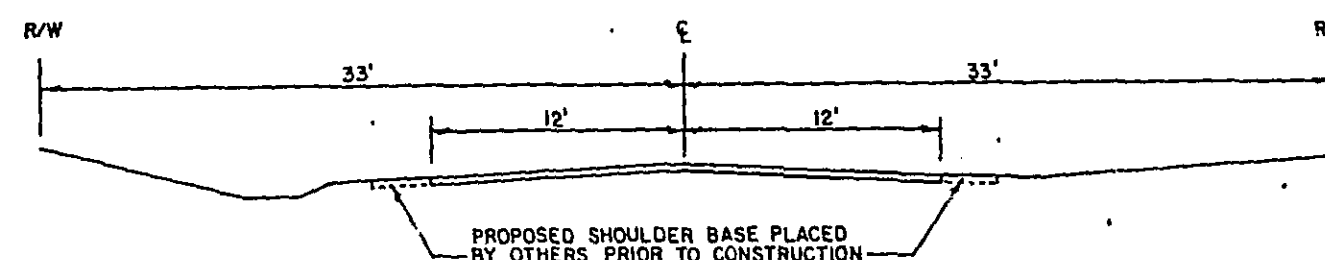
OLD HIGHWAY 8
S.A.P. 62-677-16

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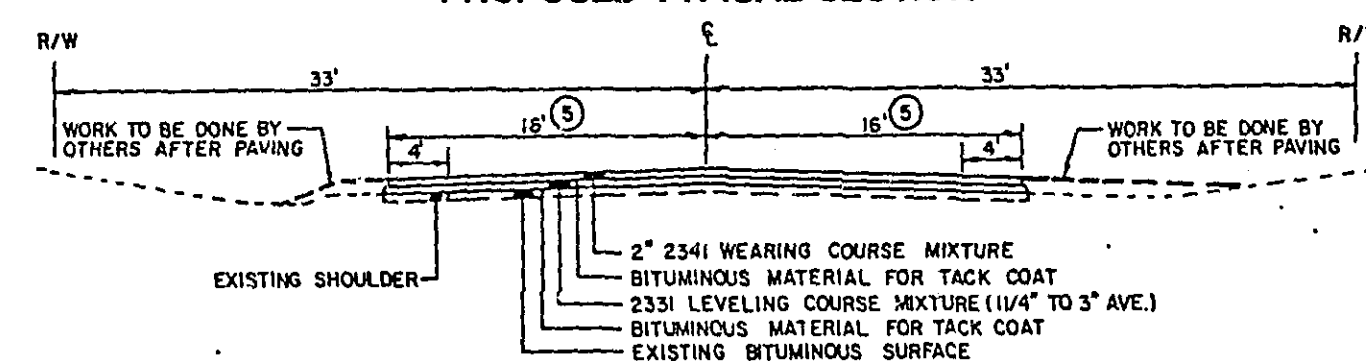


MILLING LEGEND
TYPE 4

EXISTING TYPICAL SECTION



PROPOSED TYPICAL SECTION



LITTLE CANADA RD. CONSTRUCTION NOTES:

- ① MATCH 2" WEARING COURSE PAVING AT STA. 100+00 TO ADJACENT PROJECT - CO. RD. C. S.A.P. 62-623-33
- ② CONTRACTOR SHALL PROTECT INPLACE S&O LINE RAILROAD CROSSING SURFACING AND ELECTRIC RAILROAD HIGHWAY GRADE CROSSING SIGNALS
- ③ ENTRANCE RECONSTRUCTION AND BOULEVARD RESTORATION SHALL BE BY OTHERS
- ④ JACKSON STREET RESTORATION SHALL BE BY OTHERS
- ⑤ LITTLE CANADA ROAD MAY BE PAVED ONLY 24' WIDE AS DIRECTED. SEE SPECIAL PROVISIONS.

LITTLE CANADA RD.
C.P. 47432

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