PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER
ORCHARD
BRUSH
NURSERY
CATCH BASIN
FIRE HYDRANT
CATTLE GUARD
OVERPASS (HIGHWAY OVER)
UNDERPASS (HIGHWAY UNDER)
BRIDGE
BUILDING (ONE STORY FRAME)
F – FRAME C – CONCRETE
S – STONE T – TILE
B – BRICK ST – STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT
SAND PIT
BORROW PIT
ROCK QUARRY
SLOPE EASEMENT

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLE
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN
WATER MAIN
CONDUIT
TELEPHONE CABLE IN CONDUIT
ELECTRICAL CABLE IN CONDUIT
TELEPHONE MANHOLE
ELECTRICAL MANHOLE
BURIED TELEPHONE CABLE
BURIED ELECTRICAL CABLE
AERIAL TELEPHONE CABLE
SEWER (SANITARY OR SEWER)
SEWER MANHOLE

EROSION CONTROL SYMBOLS

TEMPORARY SILT FENCE
RIP RAP DITCH CHECKS

SCALES

PLAN 0 10 METERS
INDEX MAP 0 1.0 KM

MINNESOTA DEPARTMENT OF TRANSPORTATION

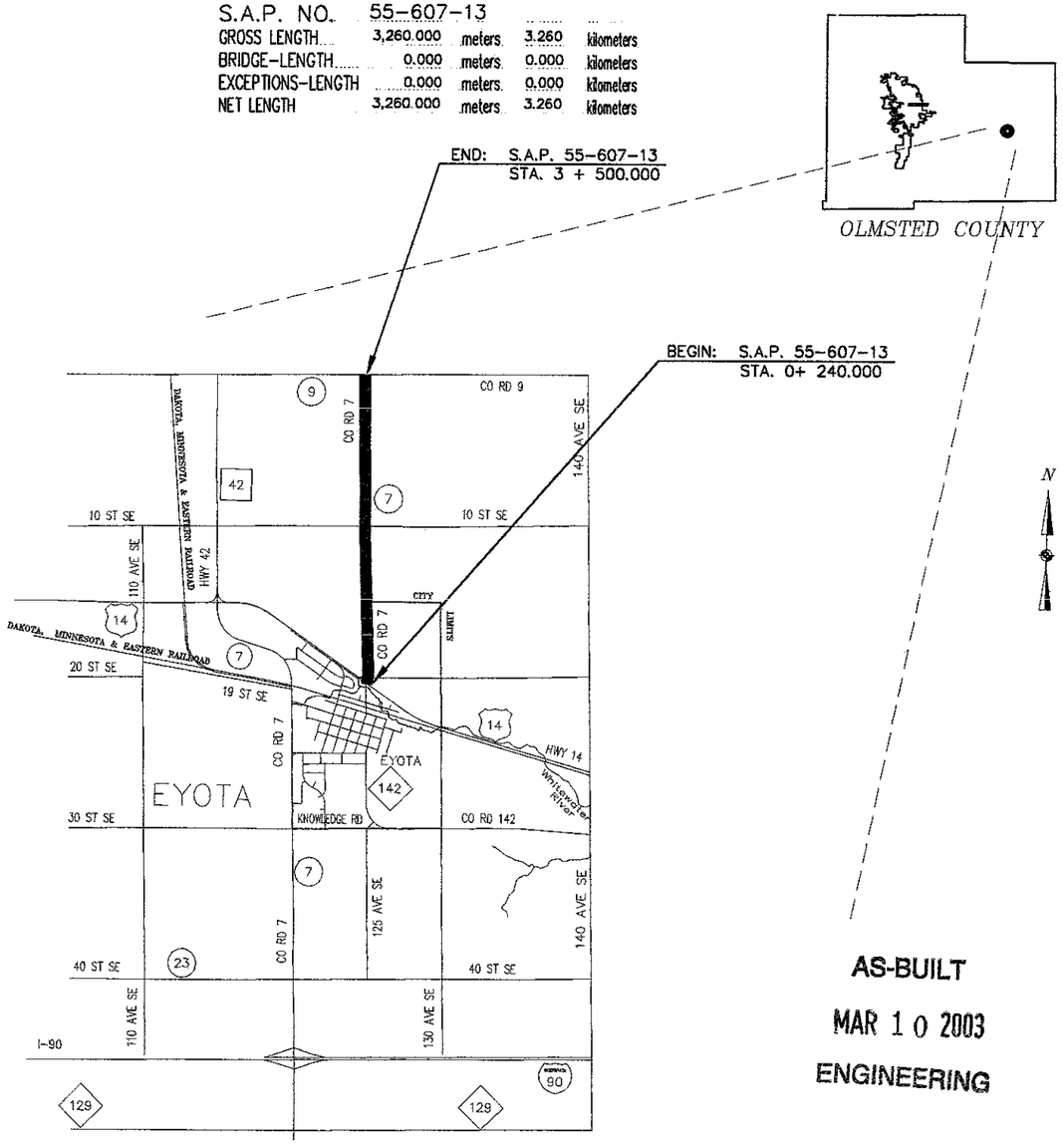
THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR AGGREGATE BASE, BITUMINOUS SURFACING, AND PAVEMENT EDGE DRAINS

LOCATED ON CSAH 7 BETWEEN JCT. TH 14 & CSAH 7 AND JCT. CSAH 9 & CSAH 7 (GEOGRAPHIC DESCRIPTION)

FROM APPROX. 60 m SOUTH OF THE 1/4 COR. OF SEC. 11 & 14 T.106N.–R.12W. TO NORTH 1/4 COR. SEC. 2 T.106N.–R.12W. (LEGAL DESCRIPTION)

S.A.P. NO. 55–607–13				
GROSS LENGTH	3,260.000	meters	3.260	kilometers
BRIDGE–LENGTH	0.000	meters	0.000	kilometers
EXCEPTIONS–LENGTH	0.000	meters	0.000	kilometers
NET LENGTH	3,260.000	meters	3.260	kilometers



AS-BUILT

MAR 1 0 2003

ENGINEERING

MINN. PROJ. NO.

GOVERNING SPECIFICATIONS

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

INDEX

SHEET NO. 1	TITLE SHEET
SHEET NO. 2	ESTIMATE OF QUANTITIES
SHEET NO. 3	TYPICAL SECTIONS
SHEET NO. 4	PLAN
SHEET NO. 5–7	MISC DETAILS
SHEET NO. 8	PAVEMENT MARKINGS
SHEET NO. 9–10	TRAFFIC CONTROL PLANS

THIS PLAN CONTAINS 10 SHEETS.

ATTENTION: THIS IS A METRIC PLAN

minnesota metric

DESIGN DESIGNATION (CSAH 7)

ADT (Current Year) = 501(2001) Design Speed 90 km/h
ADT (Future Year) = 801(2021) Based on STOPPING Sight Distance
DHV (Design Hr. Vol.) = Height of eye 1070 mm Height of object 150 mm
D (Directional Distr.) = Design Speed not achieved at:
T (Heavy Commercial) = EST 4% STA. 0+240 TO STA. 0+353.855 km/h 60*
SOIL FACTOR = 130 STA. 3+390 TO STA. 3+500 km/h 90*
METRIC TON DESIGN 8.2 *STOP CONDITIONS
NO. OF TRAFFIC LANES 2 NO. OF PARKING LANES NONE
SHOULDER WIDTH 1.8 meters
FUNCTIONAL CLASSIFICATION: MINOR COLLECTOR

DESIGN ENGINEER: I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 4/18/01 LICENSE NUMBER 19917

PRINTED NAME: KAYE M. BIENIEK

SIGNED NAME: Kaye M Bieniek

APPROVED: COUNTY DESIGN ENGINEER

DESIGN SQUAD: Holmes

DATE 4/18/01 LICENSE NUMBER 10397

Michael Sheehan

APPROVED: OLMSTED COUNTY ENGINEER

STATE AID APPROVALS:

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

DATE:

Andy Schmidt

DATE 4-24-01

APPROVED FOR STATE AID FUNDING:

for STATE AID ENGINEER

STATE AID PROJ. NO. 55–607–13

~~STATE PROJ. NO.~~

ESTIMATED QUANTITIES

	SPECIFICATION NO.	ITEM	UNIT	PARTICIPATING RURAL	PARTICIPATING MUNICIPAL	TOTAL ESTIMATED QUANTITIES
①	2105.525	TOPSOIL BORROW (CV)	m^3		45	45
	2211.501	AGGREGATE BASE CLASS 5	t	12 478	1 387	13 865
②	2221.501	AGGREGATE SHOULDERING CLASS 2	t	3 645	405	4 050
	2331.603	SEASONAL SAW CUT	m	2 057	228	2 285
③	2350.609	TYPE MV4 WEARING COURSE MIXTURE	t	2 561	284	2 845
	2350.609	TYPE MV4 NON WEARING COURSE MIXTURE	t	5 373	597	5 970
	2502.521	100 mm TP PIPE DRAIN	m	96	12	108
	2502.541	100 mm PERF PE PIPE DRAIN	m	5328	382	5710
	2502.601	PRECAST CONCRETE HEADWALL	EACH	32	4	36
④	2506.521	INSTALL CASTING	EACH		1	1
	2531.501	CONCRETE CURB & GUTTER DESIGN B424	m		50	50
	2563.601	TRAFFIC CONTROL	LUMP SUM	.9	.1	1
	2564.603	100 mm SOLID LINE WHITE–EPOXY	m	5 868	652	6 520
	2564.603	100 mm BROKEN LINE YELLOW–EPOXY	m	511	65	576
	2564.603	100 mm SOLID LINE YELLOW–EPOXY	m	1 400	230	1 630
	2564.603	100 mm DOUBLE SOLID LINE YELLOW–EPOXY	m	380		380
①	2575.505	SODDING TYPE EROSION	m^2		400	400
	2580.501	TEMPORARY LANE MARKING	m	702	78	780

QUANTITY NOTES:

① TO BE PLACED BEHIND CURB AREA.

② INCLUDES 750 METRIC TONS FOR DRIVES AND APPROACHES.

③ INCLUDES 210 METRIC TONS FOR DRIVES AND APPROACHES, SEE SHEET 6.

④ ALL TIME AND MATERIAL IN INSTALLING FRAME CASTING, GRATE CASTING, AND CURB BOX SHALL BE CONSIDERED INCIDENTAL AND PAID FOR UNDER ITEM 2506.521. SEE SHEET 4 FOR LOCATION.

STANDARD PLATES

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

PLATE NO.	DESCRIPTION
	NUMERICAL INDEX OF METRIC STANDARD PLATES
M3131 B	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS
M4010 H	CONCRETE SHORT CONE AND ADJUSTING RING
M4125 D	CATCH BASIN FRAME CASTING
M4134 A	CURB BOX CASTING FOR CATCH BASIN
M4154 B	CATCH BASIN GRATE CASTING
M7100 G	CONCRETE CURB & GUTTER
M8000 I	STANDARD BARRICADES
M9000 C	APROACHES AND ENTRANCES

BASIS OF PLANNED QUANTITIES

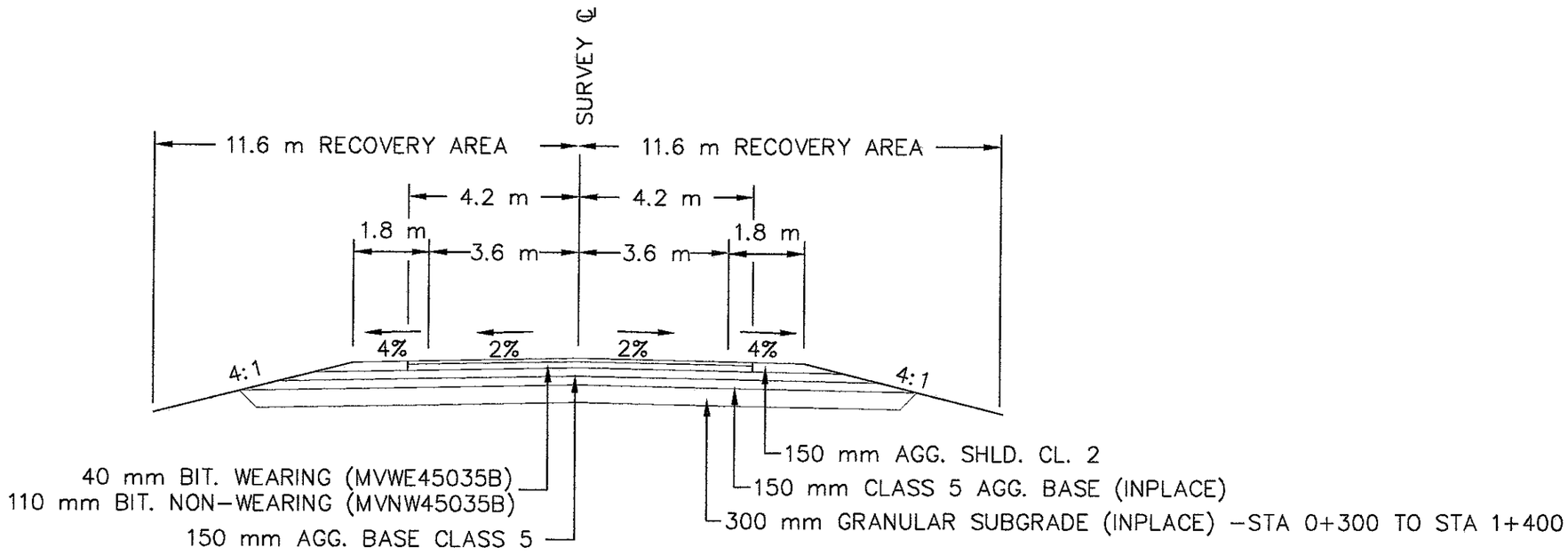
AGGREGATE BASE CLASS 5 – 2160 kg / m3 COMPACTED
AGGREGATE SHOULDER CLASS 2 – 2160 kg / m3 COMPACTED
BITUMINOUS MIXTURE – 60 kg / m2 / 25 mm

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MAR 1 0 2003
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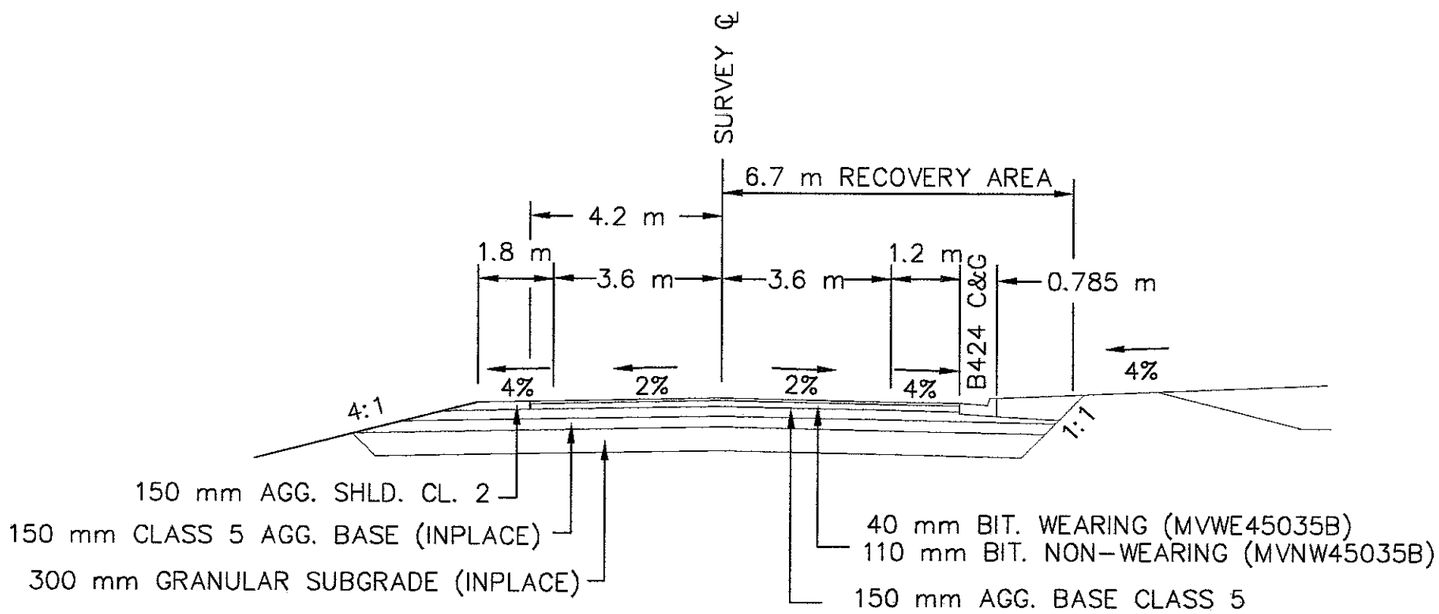
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CERTIFIED BY Kaye M Bremer LICENSED PROFESSIONAL ENGINEER LIC. NO. 19917 4/2 2001

S.A.P. 55–607–13



STA. 0+300 TO STA. 3+500



STA. 0+240 TO STA. 0+300

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MAR 1 0 2003

ENGINEERING

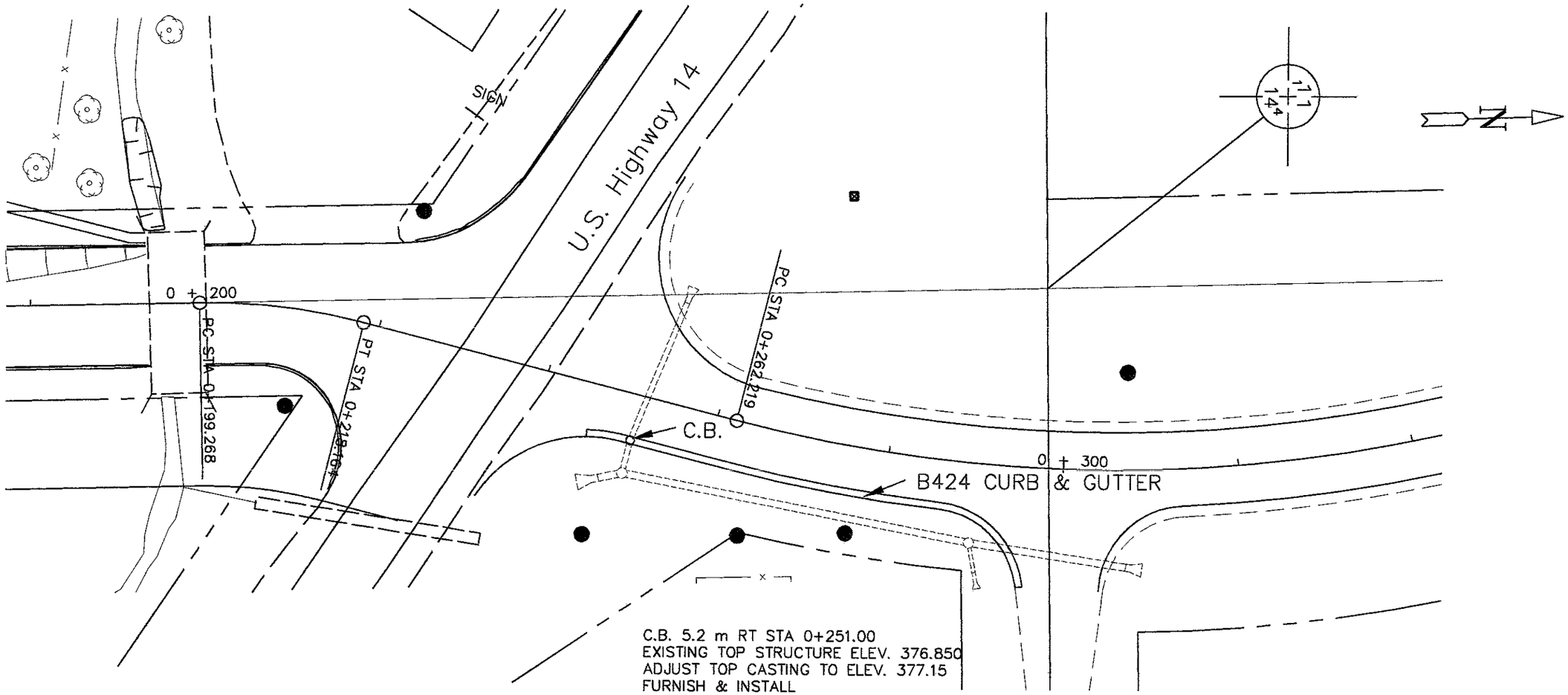
TYPICAL SECTIONS

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CERTIFIED BY Karie M Sieniek LIC. NO 19917 4/18 2001
LICENSED PROFESSIONAL ENGINEER

SAP 55 - 607 - 13

SHEET NO. 3 OF 10 SHEETS



AS-BUILT

MAR 1 0 2003

ENGINEERING

minnesota metric

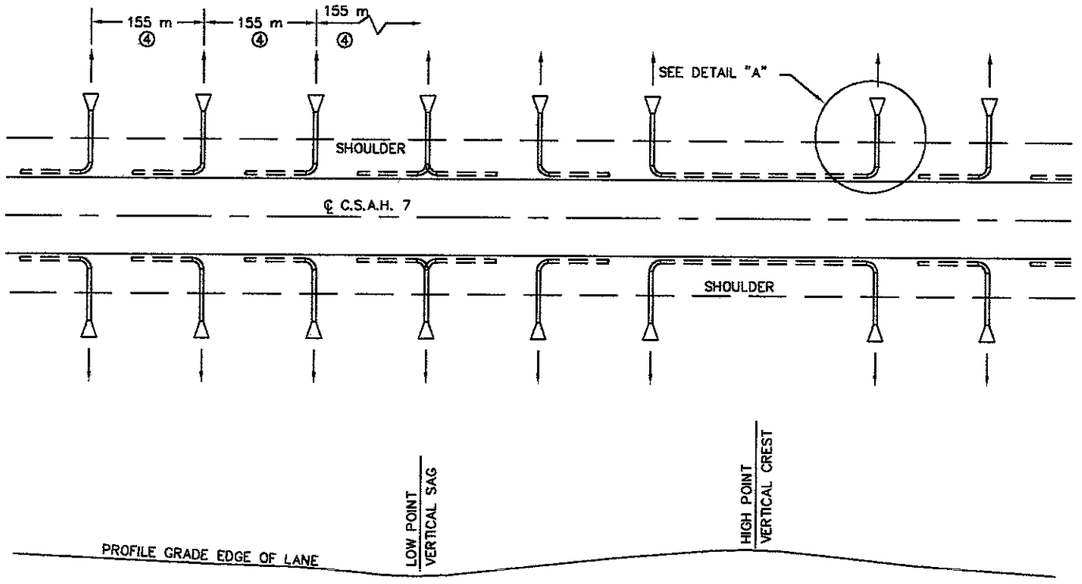
CERTIFIED BY Kaye M Pienick LICENSED PROFESSIONAL ENGINEER LIC. NO. 19917 4/2 2001

S.A.P. 55-607-13

SHEET 4 OF 10 SHEETS

EDGE DRAIN DETAILS AND CONSTRUCTION NOTES

PLAN VIEW



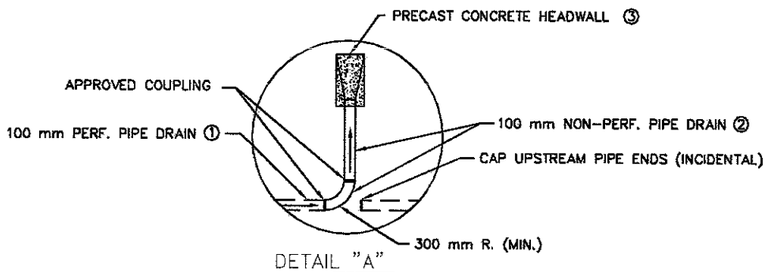
EDGE DRAINS					
ALIGNMENT AND STATIONING	LOCATION	PERF. TP PIPE DRAIN 100 mm DIA. (m)	NON-PERF. TP PIPE DRAIN 100 mm DIA. (m)	CONCRETE HEADWALL (EACH)	HEADWALL STATIONS
0+260-0+350	LT	90	3	1	0+260
0+380-0+460	RT	80	3	1	0+380
0+460-0+615	RT & LT	310	6	2	0+460
0+615-0+770	RT & LT	310	6	2	0+615
0+770-0+925	RT & LT	310	6	2	0+770
0+925-1+080	RT & LT	310	6	2	0+925
1+080-1+235	RT & LT	310	6	2	1+080
1+235-1+390	RT & LT	310	6	2	1+235
1+390-1+545	RT & LT	310	6	2	1+390
1+545-1+875	RT & LT	660	12	4	1+545-1+875
1+875-2+030	RT & LT	310	6	2	2+030
2+030-2+185	RT & LT	310	6	2	2+185
2+185-2+480	RT & LT	590	6	2	2+360 LOW PT
2+760-3+000	RT & LT	480	6	2	2+860 LOW PT
3+000-3+280	RT & LT	560	12	4	3+000-3+280
3+280-3+400	RT & LT	240	6	2	3+400
3+400-3+510	RT & LT	220	6	2	3+510
TOTALS		5710	108	36	

LEGEND

= = = 100 mm PERFORATED PIPE DRAIN

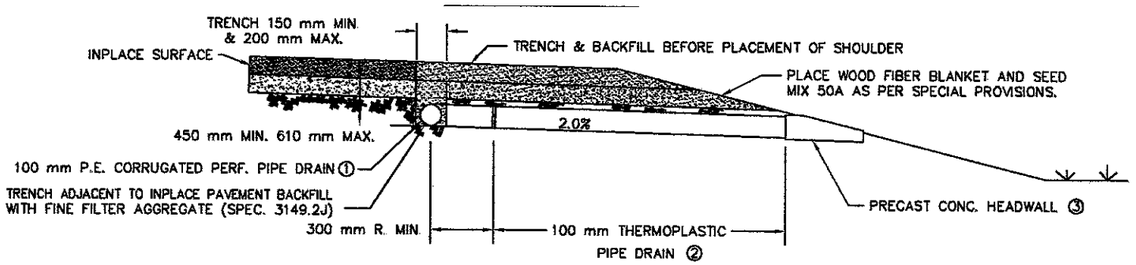
═══ 100 mm NON-PERFORATED PIPE DRAIN

▷ PRECAST CONCRETE HEADWALL



DETAIL "A"

X-SECTION VIEW



CONSTRUCTION NOTES

① PAYMENT FOR 100 mm PERFORATED PIPE DRAIN SHALL BE FULL COMPENSATION FOR TRENCHING, FABRIC WRAPPED P.E. PIPE AND INSTALLATION, FILTER AGGREGATE BACKFILL AND COMPACTION, AND ALL OTHER ASSOCIATED WORK.

② PAYMENT FOR 100 mm NON-PERFORATED PIPE DRAIN SHALL BE FULL COMPENSATION FOR TRENCHING, FURNISHING AND PLACING PIPE AND CONNECTIONS, BACKFILL AND COMPACTION, AND ALL OTHER ASSOCIATED WORK.

③ PAYMENT FOR PRECAST CONCRETE HEADWALLS SHALL BE FULL COMPENSATION FOR PLACING HEADWALL, WOOD FIBER BLANKET AND SEED, AND ALL OTHER ASSOCIATED WORK.

④ IF AN OUTLET HAPPENS TO FALL WITHIN A CROSS-OVER OR DITCH-BLOCK INCREASE THE LENGTH OF THE PERFORATED PIPE TO A POINT WHERE AN OUTLET CAN BE SATISFACTORLY CONSTRUCTED AS DIRECTED BY THE ENGINEER.

⑤ EXCESS EXCAVATED MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH MN/DOT SPEC. 2104.303.

⑥ NO EDGEDRAINS WILL BE PLACED ON ELEVATED SUPER SIDE AS DIRECTED BY ENGINEER.

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ENGINEERING

minnesota metric

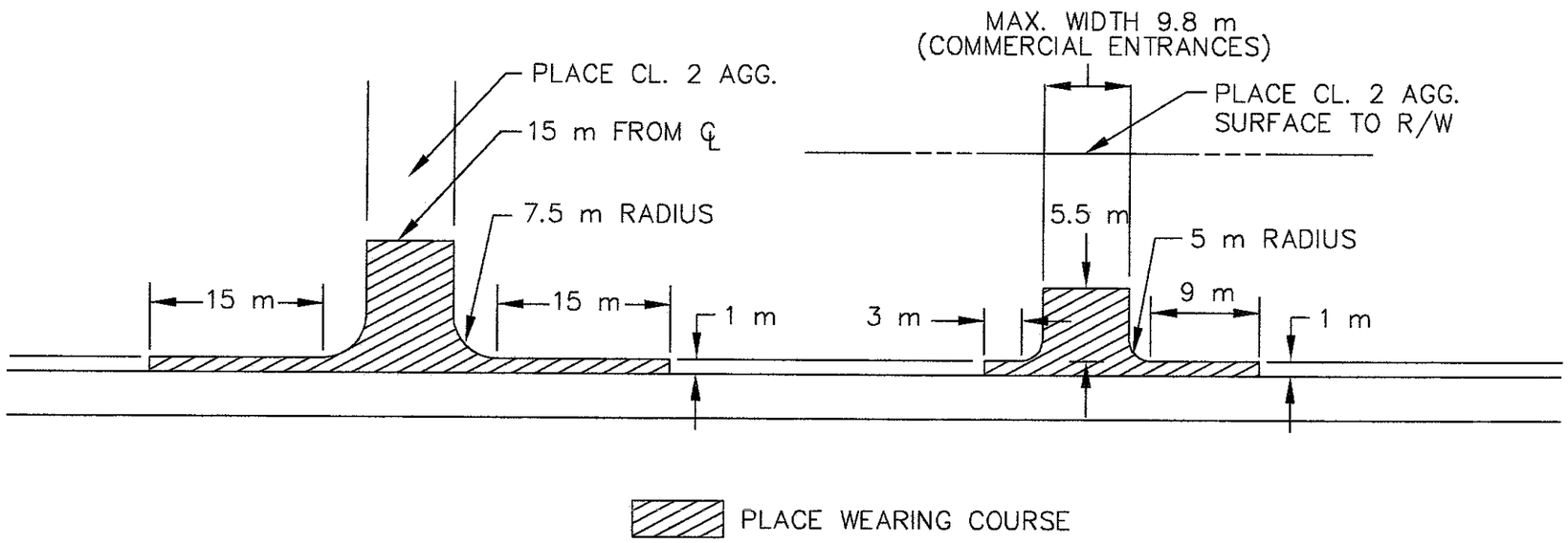
CERTIFIED BY Kaye M Bienieh LICENSED PROFESSIONAL ENGINEER LIC. NO. 19917 4/2 2001

S.A.P. 55-607-13

SHEET 5 OF 10 SHEETS

ROAD APPROACHES

COMMERCIAL ENTRANCES
FARM OR RESIDENTIAL ENTRANCES



ROAD APPROACHES	FARM OR RESIDENTIAL ENTRANCES
3	7

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ENGINEERING

minnesota metric

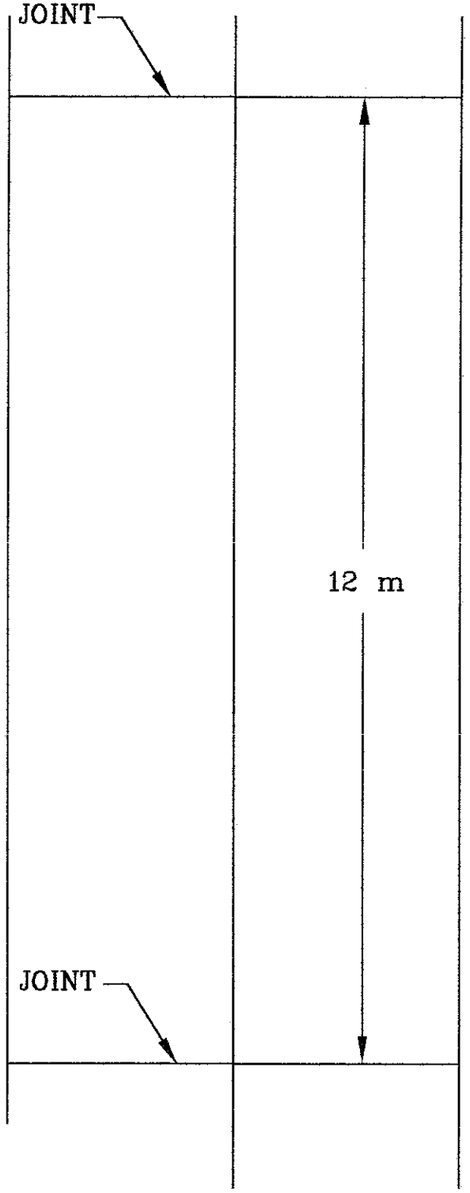
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SAP 55-607-13

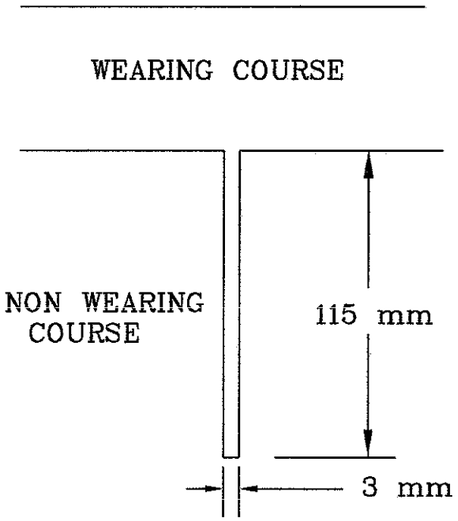
ENTRANCE DETAILS

SHEET 6 OF 10 SHEETS

TYPICAL SAW CUT



SEASONAL SAW CUT



STA. 0+240 TO STA. 3+500

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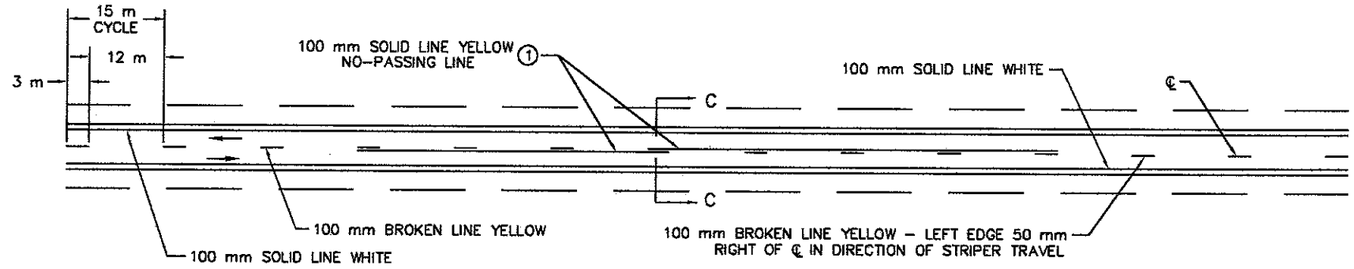
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SAW JOINT DETAIL

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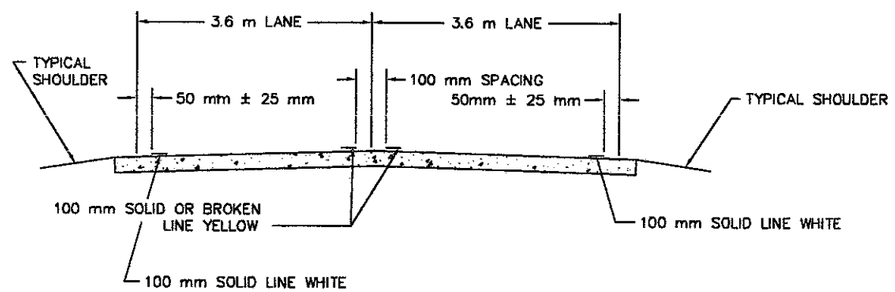
SAP 55-607-13

SHEET 7 OF 10 SHEETS



TWO LANE – TWO WAY TRAFFIC MARKING

(1) CONTACT TRAFFIC ENGINEER FOR NO PASSING ZONE SURVEY.



SECTION C – C

EPOXY

THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON–METALLIC), OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. NEW PORTLAND CEMENT CONCRETE SURFACES SHALL BE SANDBLAST CLEANED TO REMOVE ANY SURFACE TREATMENTS AND/OR LAITANCE. ON LOW SPEED (SPEED LIMIT 60 km/h OR LESS) URBAN PORTLAND CEMENT CONCRETE ROADWAYS, SANDBLAST CLEANING SHALL BE USED FOR ALL EPOXY PAVEMENT MARKINGS.

THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO–TRACK SYSTEM.

AN EPOXY RESIN LINE 100 mm WIDE AND 380 µm THICKNESS (WET), REQUIRES AN APPLICATION RATE OF 1.0 L OF COMPONENTS FOR 97 m OF LINE. GLASS BEADS SHALL BE APPLIED AT A RATE SUFFICIENT TO ACHIVE AN ACCEPTABLE NO–TRACK SYSTEM.

OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 10° C OR GREATER.

PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY MARKINGS.

GENERAL REQUIREMENTS

THE ENGINEERS INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD SPOTTING, LOCATION AND INSPECTION. THE ENGINEER WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. BROKEN LINE INTERVALS WILL NOT BE MARKED. LONGITUDINAL JOINTS, PAVEMENT EDGES, AND EXISTING MARKINGS SHALL SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.

EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN, OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF ± 6 mm FROM SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 76 mm FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 50 mm. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINT. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS .

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MAR 1 0 2003

ENGINEERING

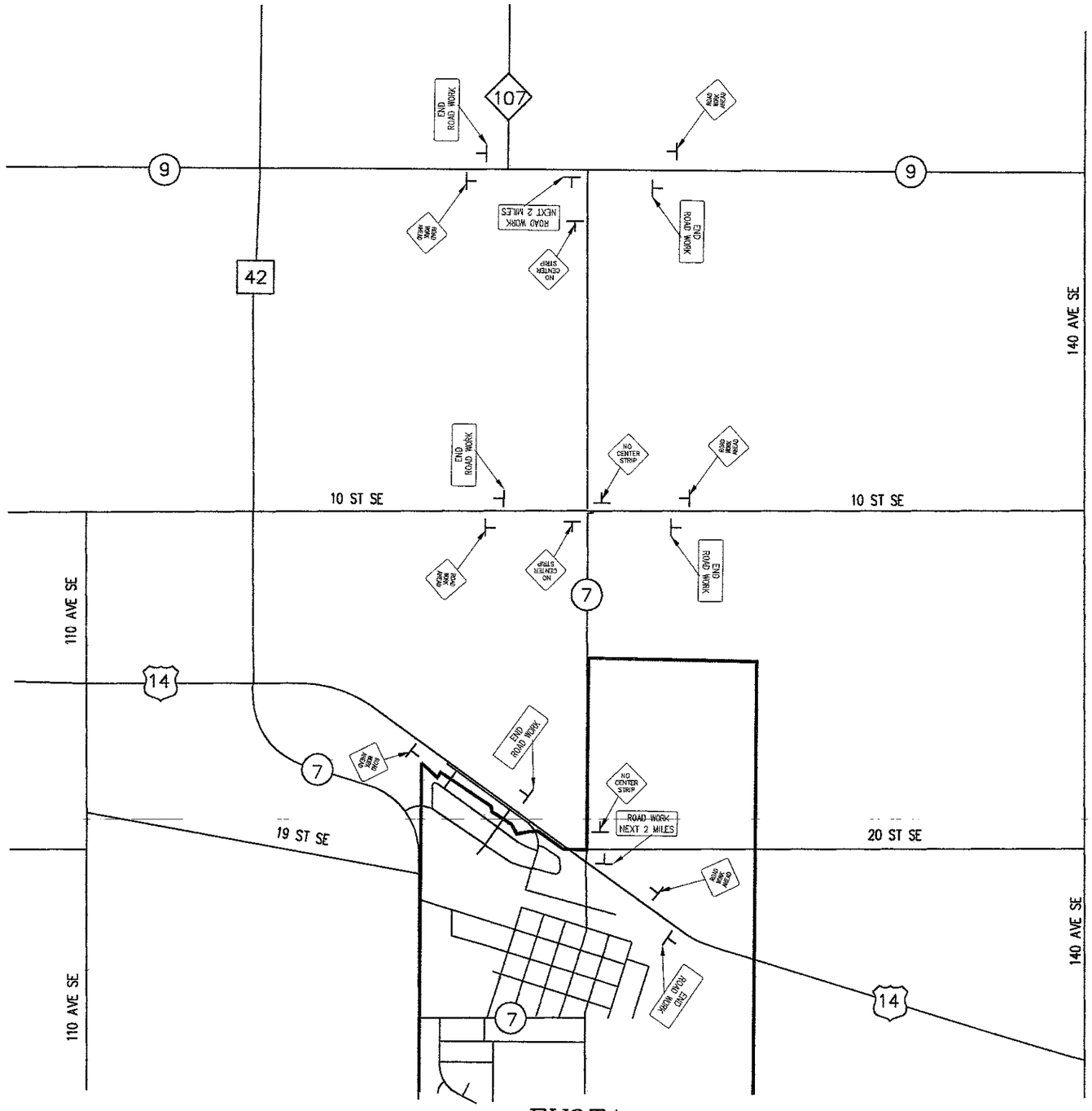
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SAP 55–607–13

PERMANENT
PAVEMENT MARKING DETAILS

SHEET 8 OF 10 SHEETS



ESTIMATE OF TRAFFIC CONTROL DEVICES

DEVICE	NUMBER	SIZE	COLOR	QUANTITY	DEVICE	NUMBER	SIZE	COLOR	QUANTITY
DO NOT PASS	R4-1	600 mm x 750 mm	BLK/WH	7	ROAD WORK AHEAD	W20-1	1200 mm x 1200 mm	BLK/OR	7
PASS WITH CARE	R4-2	600 mm x 750 mm	BLK/WH	6	NO SHOULDER	W21-X1	1200 mm x 1200 mm	BLK/OR	SEE NOTE #5
LOW SHOULDER	W8-9	1200 mm x 1200 mm	BLK/OR	SEE NOTE #5	ROAD WORK NEXT MILES	G20-1	1500 mm x 600 mm	BLK/OR	2
UNEVEN LANES	W8-11	1200 mm x 1200 mm	BLK/OR	SEE NOTE #5	END ROAD WORK	G20-2A	1200 mm x 600 mm	BLK/OR	4
NO CENTER STRIPE	W8-12	1200 mm x 1200 mm	BLK/OR	4		REBOUNDABLE PLASTIC DRUM	APPROX. 900 mm	OR & WH	SEE NOTE #5

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MAR 10 2003

ENGINEERING

TRAFFIC CONTROL LEGEND

⊥ POST OR STAND MOUNTED SIGN

⌊ TYPE III BARRICADE

Ⓕ TYPE "A" AMBER FLASHING LAMP

TRAFFIC CONTROL NOTES

1. THE LOCATION OF SIGNS AND DEVICES WILL BE STAKED BY THE ENGINEER IN THE FIELD.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL ON THIS PROJECT.
3. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES INCLUDING THE FIELD MANUAL TEMPORARY TRAFFIC CONTROL ZONE LAYOUT DATED JANUARY 2001.
4. CONSTRUCTION ZONE SIGNING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND WILL INCLUDE, BUT NOT BE LIMITED TO SIGNS FOR LANE CLOSURE, EQUIPMENT AHEAD, BUMP, DIP, LOOSE GRAVEL, ETC. THE NUMBER AND LOCATION WILL BE DETERMINED BY THE CONTRACTORS OPERATION.
5. THE CONTRACTOR SHALL INSTALL TRAFFIC CONTROL DEVICES FOR EDGE DROP OFFS AT THE END OF EACH WORK SHIFT AS THE SITUATIONS EXIST AS SHOWN ON SHEET 5. (THESE ITEMS ARE NOT INCLUDED IN THE ESTIMATE OF TRAFFIC CONTROL DEVICES.)

TRAFFIC CONTROL PLAN

minnesota metric

CERTIFIED BY Kaye M Bruesch LICENSED PROFESSIONAL ENGINEER LIC. NO. 19917 4/2 2001

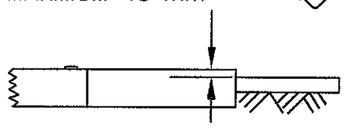
S.A.P. 55-607-13

SHEET 9 OF 10 SHEETS

EDGE DROP OFF

W8-9 LOW SHOULDER

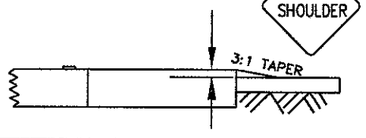
MAXIMUM 40 mm



EDGE DROP-OFF WITH TAPER

W8-9 LOW SHOULDER

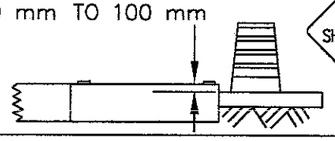
40 mm TO 100 mm



SHOULDER SHALL BE CLOSED WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES AT A MAXIMUM OF 45 m SPACING.

W21-X1 NO SHOULDER

40 mm TO 100 mm

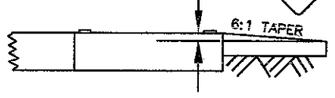


EDGE DROP-OFF WITH TAPER (SHOULDER - OPEN)

THIS CONDITION WILL NOT BE PERMITTED UNLESS THE 6:1 SLOPE IS COMPACTED SO THAT A VEHICLE MAY SAFELY DRIVE ONTO IT WITHOUT LOSING CONTROL AND IN THE OPINION OF THE ENGINEER THERE ARE NO OTHER HAZARDOUS CONDITIONS.

W8-4 SOFT SHOULDER

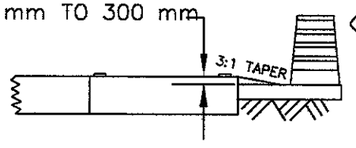
100 mm TO 300 mm



EDGE DROP-OFF WITH TAPER (SHOULDER - CLOSED)

W21-X1 NO SHOULDER

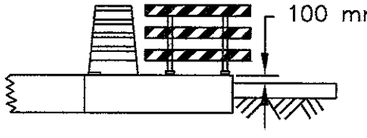
100 mm TO 300 mm



SHOULDER SHALL BE CLOSED WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES AT A MAXIMUM OF 45 m SPACING.

ADJACENT LANE SHALL BE CLOSED WITH APPROPRIATE LANE CLOSURE LAYOUT SHOWN IN APPENDIX B. CHANNELIZING DEVICES TO BE AT A MAXIMUM OF 45 m SPACING AND TYPE III BARRICADES EVERY 300 m

100 mm TO 300 mm

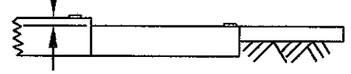


NOTE: SIGNS ARE REQUIRED ONLY ON THE SIDE OF THE ROAD THAT IS AFFECTED BY CONSTRUCTION (EXCEPT SIGNS THAT ARE FOR A LANE CLOSURE ON DIVIDED HIGHWAYS).

UNEVEN LANES

W8-11 UNEVEN PAVEMENT

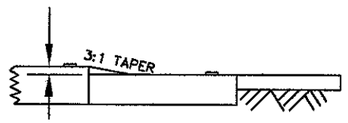
MAXIMUM 40 mm



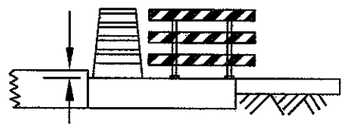
UNEVEN LANES - WITH TAPER

W8-11 UNEVEN PAVEMENT

40 mm TO 100 mm



40 mm TO 100 mm



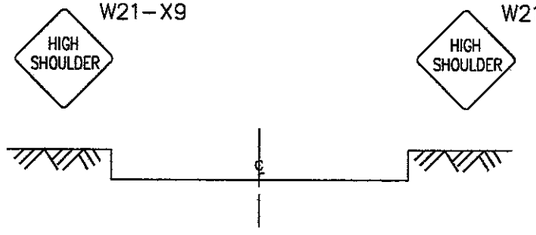
LANE SHALL BE CLOSED WITH APPROPRIATE LANE CLOSURE FROM APPENDIX B. CHANNELIZING DEVICES AT A MAXIMUM OF 45 m SPACING AND A TYPE III BARRICADE EVERY 300 m

NOTE: FOR DIVIDED HIGHWAYS, USE SIGNS ON RIGHT AND LEFT SIDE. SIGN SEQUENCE SHOWN FOR ONE DIRECTION ONLY; OTHER DIRECTION SHALL BE IDENTICAL.

MILLED EDGE

W21-X9 HIGH SHOULDER

W21-X9 HIGH SHOULDER



NOTE: MILLED EDGES SHOULD BE TREATED WITH TAPERS, CHANNELIZERS, AND SIGNING AS SHOWN ON EDGE DROP-OFF DETAILS.

GUIDELINES

THESE GUIDELINES ARE INTENDED TO INCREASE TRAFFIC SAFETY USING TRAFFIC CONTROL DEVICES, SAFETY RELATED APPURTENANCES, AND CONSTRUCTION TECHNIQUES FOR UNEVEN LANES. MILLED EDGES, AND EDGE DROP-OFFS THAT OCCUR IN HIGHWAY WORK ZONES. THE BEST WAY TO INCREASE TRAFFIC SAFETY IS TO MAKE EVERY ATTEMPT TO MINIMIZE EXPOSURE TO UNEVEN LANES, MILLED EDGES, AND EDGE DROP-OFFS; HOWEVER, IT IS REALIZED THAT THIS IS OFTEN NOT POSSIBLE OR FEASIBLE, ONLY WHEN UNEVEN LANES, MILLED EDGES, OR EDGE DROP-OFFS ARE DEEMED NECESSARY, SHALL THE APPROPRIATE PORTION(S) OF THESE GUIDELINES BE APPLIED TO ENHANCE TRAFFIC SAFETY.

APPROPRIATE UNEVEN LANE WARNING SIGNS OR SHOULDER WARNING SIGNS SHALL BE REPEATED AFTER EACH INTERSECTION.

MAXIMUM WARNING SIGN SHALL BE:
- A - 1.6 km WHEN THE SPEED LIMIT IS GREATER THAN 50 km/h AND
- B - 400 m WHEN THE SPEED LIMIT IS 50 km/h OR LESS.

WHEN SPACE PERMITS, MINIMUM WARNING SIGN SIZE SHALL BE:
- A - 1200 mm x 1200 mm WHEN THE SPEED LIMIT IS GREATER THAN 50 km/h AND
- B - 900 mm x 900 mm WHEN THE SPEED LIMIT IS 50 km/h OR LESS.

1. FOR DROP-OFFS OF 40 mm OR LESS, APPROPRIATE WARNING SHALL BE PROVIDED.
2. FOR DROP-OFFS GREATER THAN 40 mm UP TO 100 mm:
   - A - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 3:1 AND APPROPRIATE WARNING SIGNS SHALL BE PROVIDED; OR
   - B - IF THE TAPER IS NOT PROVIDED, TRAFFIC SHALL NOT BE PERMITTED TO CROSS THE DROP-OFF AND THAT PORTION OF THE ROADWAY SHALL BE CLOSED TO TRAFFIC WITH THE APPROPRIATE WARNING SIGNS AND DEVICES.
3. FOR DROP-OFFS GREATER THAN 100 mm UP TO 300 mm:
   - A - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 6:1 AND APPROPRIATE WARNING SIGNS SHALL BE PROVIDED. (6:1 TAPER SHALL NOT BE USED AS A TRAFFIC CARRYING LANE);
   - B - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 3:1, TRAFFIC SHALL NOT BE ALLOWED TO CROSS THE DROP-OFF, AND THAT PORTION OF THE ROADWAY SHALL BE CLOSED TO TRAFFIC WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES; OR
   - C - IF A TAPER IS NOT PROVIDED, THE TRAFFIC OR AUXILIARY LANE ADJACENT TO THE DROP-OFF SHALL BE CLOSED TO TRAFFIC WITH THE APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES OR A POSITIVE BARRIER, SUCH AS A PORTABLE PRECAST CONCRETE BARRIER, SHALL BE PROVIDED TO PREVENT TRAFFIC FROM CROSSING THE DROP-OFF.
4. FOR SHOULDER EDGE DROP-OFFS:
   - A - 0 - 600 mm SHOULDER WIDTH AND A 0 - 300 mm DROP-OFF; USE GUIDELINES AS SHOWN.
   - B - 600 mm - 2.4 m SHOULDER WIDTH AND A 0 - 100 mm DROP-OFF; INSTALL EDGE LINE OR USE GUIDELINES AS SHOWN.
   - C - 2.4 m OR GREATER SHOULDER WIDTH AND A 0 - 100 mm DROP-OFF; NO TRAFFIC CONTROL REQUIRED.
   - D - GREATER THAN 600 mm SHOULDER WIDTH AND A 100 - 300 mm DROP-OFF; USE GUIDELINES AS SHOWN.
5. DROP-OFFS GREATER THAN 100 mm ADJACENT TO TRAFFIC CARRYING LANES ARE PERMITTED WITHOUT TAPERS OR POSITIVE BARRIERS FOR:
   - A - PROJECTS WITHIN URBAN AREA WHEN THE SPEED LIMIT IS 50 km/h OR LESS; OR
   - B - SHORT TERM (7 CALENDAR DAYS OR LESS) CONCRETE OR UTILITY REPAIR LESS THAN 15 m IN LENGTH WHEN THE SPEED LIMIT IS GREATER THAN 50 km/h
6. AT NO TIME SHALL THERE BE MORE THAN ONE UNEVEN LANE CONDITION BETWEEN THE TRAFFIC CARRYING LANES WHICH INCLUDE AUXILIARY LANES, TURN LANES, AND RAMP ACCESS OR EGRESS AREA. WEATHER PERMITTING, ALL EXPOSED UNEVEN LANE CONDITIONS WITHIN THE TRAFFIC CARRYING LANES SHALL BE "MATCHED" WITHIN 24 HOURS.
7. MILLING OPERATIONS SHALL BE REQUIRED TO COMPLETE THE FULL WIDTH OF THE SECTION UNDER CONSTRUCTION AT THE END OF EACH WORK PERIOD.

minnesota metric

AS-BUILT

MAR 1 0 2003

ENGINEERING

REFERENCE 3/12/92

TRAFFIC CONTROL TREATMENT OF LONGITUDINAL JOINTS AND EDGE DROP-OFFS IN WORK ZONES

CERTIFIED BY Kaye M Bienieck LICENSED PROFESSIONAL ENGINEER LIC. NO. 19917 4/2 2001

SAP 55-607-13

SHEET 10 OF 10 SHEETS