

MINNESOTA DEPARTMENT OF TRANSPORTATION RAMSEY COUNTY PARKS & RECREATION DEPARTMENT



GOVERNING SPECIFICATIONS

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

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 LINE.....
- 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.....

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, BITUMINOUS SURFACING
LOCATED IN RAMSEY COUNTY FROM JOHNSON PRKY. TO FROST AVE.

**ATTENTION:
THIS IS A METRIC PLAN**

S.P. NO. 62-090-01

GROSS LENGTH..... 2290.785 m 2.291 km
BRIDGE LENGTH..... 0 m 0 km
EXCEPTIONS-LENGTH..... 0 m 0 km
NET LENGTH..... 2290.785 m 2.291 km

SCALES

PLAN 10 m
PROFILE 10 m HORIZ. 1 m VERT.
INDEX MAP 300 m
X-SECTION 2 m HORIZ. 2 m VERT.

ALL DIMENSIONS ARE IN m UNLESS NOTED OTHERWISE

UTILITY SYMBOLS

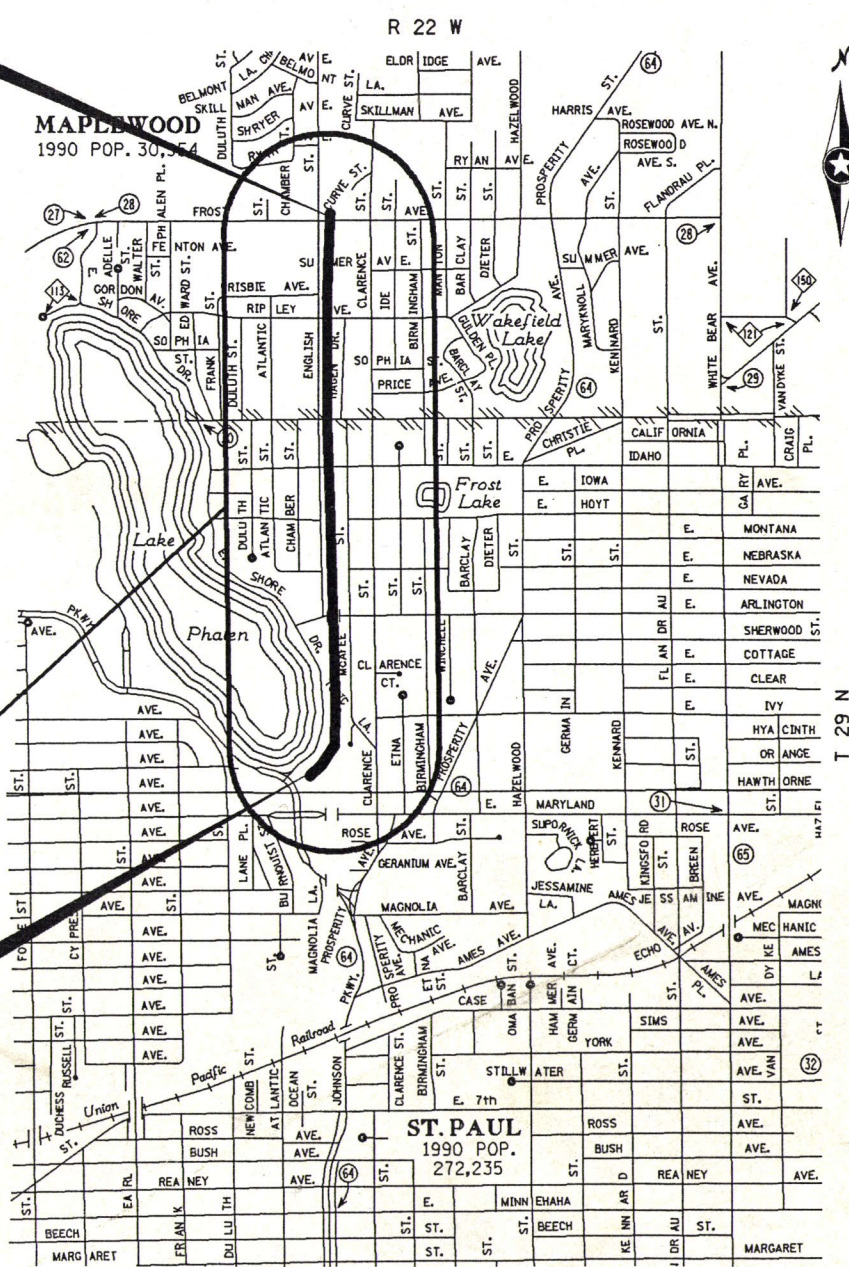
- POWER POLE LINE.....
- TELEPHONE OR TELEGRAPH POLE LINE.....
- JOINT TELEPHONE AND POWER ON POWER POLES.....
- ON TELEPHONE POLES.....
- ANCHOR.....
- STEEL TOWER.....
- STREET LIGHT.....
- PEDESTAL (TELEPHONE CABLE TERMINAL).....
- GAS MAIN.....
- WATER MAIN.....
- CONDUIT.....
- TELEPHONE CABLE IN CONDUIT.....
- ELECTRIC CABLE IN CONDUIT.....
- TELEPHONE MANHOLE.....
- ELECTRIC MANHOLE.....
- BURIED COMMUNICATION CABLE.....
- BURIED TELEPHONE CABLE.....
- BURIED ELECTRIC CABLE.....
- AERIAL TELEPHONE CABLE.....
- SEWER, (SANITARY).....
- SEWER, (STORM).....
- SEWER MANHOLE.....
- HANDHOLE.....
- CATCH BASIN.....

DESIGN DESIGNATION

S.P. 62-090-01
R-VALUE..... N/A
ADT 1999..... N/A
ADT 2019..... N/A
PAVEMENT DESIGN..... N/A
FUNCTIONAL CLASSIFICATION..... N/A
NO. OF TRAFFIC LANES..... N/A
NO. OF PARKING LANES..... N/A
SIGMA N 18 (20)..... N/A
DESIGN SPEED..... 30 km/h
BASED ON SIGHT DISTANCE..... STOPPING SIGHT DISTANCE
HEIGHT OF EYE..... 1.400 mm
HEIGHT OF OBJECT..... 0 mm

END S.P. 62-090-01
@ B.N. REGIONAL TRAIL
P.O.T. 3+290.785

BEGIN S.P. 62-090-01
@ B.N. REGIONAL TRAIL
P.O.T. 1+000.000



PROJECT LOCATION
COUNTY : RAMSEY
DISTRICT : METRO

PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY

INDEX

SHEET NO.	SHEET DESCRIPTION
1	TITLE SHEET
2	GENERAL LAYOUT
3	STATEMENT OF ESTIMATED QUANTITIES
4	CONSTRUCTION/SOILS NOTES, STANDARD PLATES, EARTHWORK SUMMARY AND EROSION CONTROL TABS
5	MISCELLANEOUS DETAILS AND TABULATION
6	TYPICAL SECTIONS
7	SIGNING AND STRIPING DETAILS
8-9	ALIGNMENT PLAN
10-11	ALIGNMENT TABULATION
12-18	CONSTRUCTION PLAN
19-20	EROSION CONTROL DETAILS
21-39	CROSS SECTIONS

OFFICE COPY
BIDS 3-1-00

THIS PLAN CONTAINS 39 SHEETS

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.

ENGR. *David J. July*
Reg. No. 223409 Date 7.23.99
SRF CONSULTING GROUP, INC.

- APPROVED *[Signature]* DATE 8-30-99
RAMSEY COUNTY DIRECTOR OF PARKS AND RECREATION
- APPROVED *[Signature]* DATE 8/31/99
RAMSEY COUNTY ENGINEER
- APPROVED *Thomas J. Egan* DATE 9/13/99
ST. PAUL CITY ENGINEER
- APPROVED *[Signature]* DATE 8/20/99
MAPLEWOOD CITY ENGINEER
- APPROVED *Tom R. Bennett* DATE 9/14/99
REGIONAL RAIL AUTHORITY
- APPROVED..... DATE.....
- APPROVED..... DATE.....
- APPROVED..... DATE 9/27/99
DISTRICT STATE AID ENGINEER REVIEWED FOR COMPLIANCE WITH STATE AND FEDERAL AID RULES POLICY
- APPROVED FOR STATE AND FEDERAL AID FUNDING: STATE AID ENGINEER
DATE.....

I hereby certify that the final revisions, if any, of this plan were made 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..... Reg. No.

JOHNSON PARKWAY

12

LAKE PHALEN

13

E. SHORE DR.

14

ENGLISH ST.

E. IDAHO AVE.

16

LARPELLEUR AVE.

McFEE ST.

E. ARLINGTON AVE.

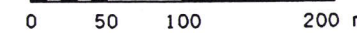
15

McFEE ST.

BEGIN S.P. 62-090-01
STA. 1+000.000



SCALE



LEGEND

XX PLAN AND PROFILE SHEETS

END S.P. 62-090-01
STA. 3+290.785

LARPELLEUR AVE.

RIPLEY AVE.

FROST AVE.

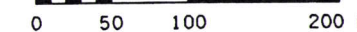
HAGEN ST.

17

18



SCALE



LEGEND

XX PLAN AND PROFILE SHEETS

LEI: h:\civ\11\008\3271\3271.g1a
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MS-HP551MX
LEI: 127-314000
TE/IME: 06/03/1999 08:40:54

NO	DATE	BY	CKD	APPR	REVISION



I hereby certify that this plan, specification or report 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: 7-23-99 23409

STATE PROJECT NO.
62-090-01

DRAWN BY DATE
C.FLEISCHACKER 5-1999
DESIGNED BY
M.TURNER 5-1999
CHECKED BY
D.JULIFF 9-1998
COMM. NO.
0983271



RAMSEY COUNTY
GENERAL LAYOUT
BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
2
OF
39

STATEMENT OF ESTIMATED QUANTITIES						
NOTES	ITEM NO.	ITEM DESCRIPTION	UNIT	ESTIMATED PARTICIPATING QUANTITIES	ESTIMATED LOCAL FUNDS QUANTITIES	TOTAL ESTIMATED QUANTITIES
GRADING:						
	2021.501	MOBILIZATION	LUMP SUM	1.0		1
	2031.501	FIELD OFFICE TYPE D	EACH	1.0		1
	2101.501	CLEARING	ha	0.82		0.82
	2101.502	CLEARING	TREE	2.0		2.0
	2101.506	GRUBBING	ha	0.82		0.82
	2101.507	GRUBBING	TREE	2.0		2.0
	2104.501	REMOVE CURB AND GUTTER	m	90.0		90.0
	2104.503	REMOVE CONCRETE WALK	m ²	5.6		5.6
	2104.511	SAWING CONCRETE PAVEMENT	m	3.0		3.0
	2105.501	COMMON EXCAVATION	m ³ (P)	3827		3827
	2105.507	SUBGRADE EXCAVATION	m ³	573		573
	2105.522	SELECT GRANULAR BORROW (CV)	m ³	573		573
	2105.525	TOPSOIL BORROW (CV)	m ³	689		689
	2112.501	SUBGRADE PREPARATION	m	1975		1975
PAVING:						
	2211.503	AGGREGATE BASE (CV) CLASS 5	m ³	1485		1485
	2531.501	CONCRETE CURB AND GUTTER DESIGN B618	m	90		90
1	2340.508	TYPE 41 WEARING COURSE MIXTURE	t	1575		1575
	2521.501	100 mm CONCRETE WALK	m ²	8.6		8.6
	2535.501	BITUMINOUS CURB	m	78		78
TRAFFIC:						
	2563.801	TRAFFIC CONTROL	LUMP SUM	1		1
	2564.531	SIGN PANELS TYPE C	m ²	25.6		25.6
	2564.802	PAVEMENT MESSAGE (TRAIL XING) PAINT	EACH	6		6
	2564.804	ZEBRA CROSSWALK WHITE - PAINT	m ²	90		90
LANDSCAPING:						
	2411.804	MODULAR BLOCK RETAINING WALL	m ²	544.4		544.4
	2540.802	BOLLARD	EACH	10		10
	2557.501	WIRE FENCE DESIGN SPECIAL	m	266.1		266.1
	2571.501	CONIFEROUS TREE 1.8 m HT B&B	TREE	44		44
	2571.502	DECIDUOUS TREE 50 mm CAL B&B	TREE	6		6
	2571.505	DECIDUOUS SHRUB 900 mm HT CONT	SHRB	14		14
5	2573.501	BALE CHECKS	EACH	0	13	13
5	2573.502	SILT FENCE, TYPE PREASSEMBLED	m	4327.9		4327.9
	2575.501	SEEDING	ha	0.5		0.5
2	2575.502	SEED MIXTURE 50A	kg	25		25
	2575.505	SODDING TYPE LAWN	m ²	2345		2345
3	2575.511	MULCH MATERIAL TYPE 1	t	2.3		2.3
	2575.519	DISK ANCHORING	ha	0.5		0.5
4	2575.532	COMMERCIAL FERT ANALYSIS 12-12-12	kg	405		405

NOTES:

- 1) 60kg/ m²/ 25 mm USED TO DETERMINE TONS OF MATERIAL.
- 2) BASED ON 50 kg / ha APPLICATION RATE.
- 3) BASED ON 4.5 t /ha
- 4) BASED ON 550 kg/ha
- 5) PROVIDED FOR EROSION CONTROL

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 PLOT BY: M.TURNER
 PLOT DATE: 09/03/1999 11:09:22

1	09/03/99	MRT	MRT	DJJ	REVISED SIGNING PER CITY COMMENTS
NO	DATE	BY	CHK	APPR	REVISION



I hereby certify that this plan, specification or report 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: 9-3-99

STATE PROJECT NO.
62-090-01

DRAWN BY: C.FLEISCHACKER
 DATE: 5-1999
 DESIGNED BY: M.TURNER
 DATE: 5-1999
 CHECKED BY: D.JULIFF
 DATE: 9-1998
 COMM. NO.: 0983271



RAMSEY COUNTY
 STATEMENT OF ESTIMATED QUANTITIES
 BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
3
OF
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THE FOLLOWING STANDARD PLATES APPROVED BY THE DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION SHALL APPLY ON THIS PROJECT.

MN/DOT STANDARD PLATES	
PLATE NO.	DESCRIPTION
M7065C	BITUMINOUS CURB
M7100G	CONCRETE CURB AND GUTTER
M7036D	PEDESTRIAN CURB RAMP
M8000I	STANDARD BARRICADES

CONSTRUCTION/SOILS NOTES

- SUITABLE GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED WITH THE EXCEPTION OF SLOPE DRESSING, DEBRIS, ORGANIC MATERIAL, MUCK AND OTHER UNSTABLE MATERIAL.
- OTHER GRADING MATERIAL ON THIS PROJECT SHALL CONSIST OF ALL SOILS ENCOUNTERED ON THIS PROJECT EXCEPT DEBRIS.
- CLEARING AND GRUBBING SHALL BE RESTRICTED TO AREAS IDENTIFIED WITHIN THE GRADING LIMITS OF THE PROJECT.
- BITUMINOUS SURFACING REMOVED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL EITHER BE RECYCLED IN THE BITUMINOUS BASE OR DISPOSED OF OFF THE PROJECT, IN ACCORDANCE WITH THE PROVISIONS OF SPEC. 2104.3C3.
- FINAL GRADED SURFACE (TOP OF THE GRADING SUBGRADE) IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE AS SHOWN ON THE TYPICAL SECTIONS.
- OTHER GRADING MATERIAL SHALL BE PLACED IN THE BERM AREAS OF THE GRADING LIMITS OF THE PROJECT OR AS DIRECTED BY THE ENGINEER.
- COMPACTION OF THE GRADING PORTION OF THE PROJECT SHALL BE BY THE "QUALITY COMPACTION METHOD".
- COMPACTION OF AGGREGATE BASE AND AGGREGATE SHOULDERING SHALL BE BY THE "QUALITY COMPACTION METHOD".
- COMPACTION OF ALL BITUMINOUS MIXTURES SHALL BE BY THE "ORDINARY COMPACTION METHOD".
- STRIP AND REUSE AS SLOPE DRESSING ALL EXISTING SLOPE DRESSING WHERE PRESENT IN AREAS TO BE DISTURBED BY CONSTRUCTION. ALL SUCH STRIPPING IS CONSIDERED TO BE COMMON EXCAVATION.
- ALL TRAFFIC CONTROL DEVICES SHALL HAVE RETRO REFLECTIVE SHEETING AND CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS- JANUARY 1998.

EARTHWORK SUMMARY ①

EXCAVATION m ³ (E.V.)	COMMON	3827
	SUBGRADE	573
EMBANKMENT m ³ (E.V.)	SUITABLE GRADING MATERIAL	735
	SELECT GRANULAR BORROW ②	573
	TOPSOIL BORROW	689
EXCESS m ³ (E.V.)	SUITABLE GRADING MATERIAL	3518

① 120% SHRINKAGE FACTOR USED FROM EXCAVATED VOLUME (EV) TO COMPACTED VOLUME (CV). 145% SHRINKAGE FACTOR USED FROM LOOSE VOLUME (LV) TO COMPACTED VOLUME (CV). SHRINKAGE FACTORS ARE ASSUMED VALUES, USED ONLY FOR THE PURPOSES OF ESTIMATING QUANTITIES. IT SHALL BE UNDERSTOOD THAT NO WARRANTY IS MADE OR IMPLIED AS TO THE ACCURACY, SUFFICIENCY, OR RELIABILITY OF THESE SHRINKAGE FACTORS.

② TO BE USED FOR BACKFILL OF SUBGRADE EXCAVATION

SILT FENCE SUMMARY

STATION	LOCATION	QUANTITY m	REMARKS
BEGIN TRAIL TO EAST ARLINGTON			
1+069.4 - 1+657.6	LT	588.2 m	CONST. LIMITS
1+012.6 - 1+657.6	RT	645.0 m	CONST. LIMITS
EAST ARLINGTON TO EAST IDAHO			
1+699.7 - 2+260.6	LT	560.9 m	CONST. LIMITS
1+672.6 - 2+061.5	RT	388.9 m	CONST. LIMITS
2+072.1 - 2+261.7	RT	189.6 m	CONST. LIMITS
EAST IDAHO TO LARPEUR AVE			
2+272.8 - 2+461.9	LT	189.1 m	CONST. LIMITS
2+272.8 - 2+461.9	RT	189.1 m	CONST. LIMITS
LARPEUR AVE TO RIPLEY			
2+474.5 - 2+867.5	LT	393.0 m	CONST. LIMITS
2+475.2 - 2+867.3	RT	392.1 m	CONST. LIMITS
RIPLEY TO FROST			
2+876.0 - 3+265.9	LT	389.9 m	CONST. LIMITS
2+876.3 - 3+264.9	RT	388.6 m	CONST. LIMITS
FROST TO END TRAIL			
3+282.1 - 3+288.6	LT	6.5 m	CONST. LIMITS
3+282.7 - 3+289.7	RT	7.0 m	CONST. LIMITS
TOTAL		4,327.9 m	

BALE CHECK SUMMARY

STATION	LOCATION	NUMBER OF BALES
1+580.000	4.4 m LT	3
1+600.000	4.5 m LT	3
1+620.000	5.2 m LT	4
1+640.000	3.1 m LT	3
TOTAL BALES		13

PLANT TABULATION

CONIFEROUS TREES 1.8 m HT B&B, (ITEM NO. 2571.501)			
COMMON NAME	BOTANICAL NAME	SIZE	QUANTITY
RED PINE	PINUS RESINOSA	1.8 m HT	15
BLACK HILLS SPRUCE	PICEA GLAUCA DENSATA	1.8 m HT	29
TOTAL			44
DECIDUOUS TREES 50 mm CAL B&B, (ITEM NO. 2571.502)			
COMMON NAME	BOTANICAL NAME	SIZE	QUANTITY
RED OAK	QUERCUS RUBRA	50 mm CAL B&B	6
TOTAL			6
DECIDUOUS SHRUB 900 mm HT CONT, (ITEM NO 2571.505)			
COMMON NAME	BOTANICAL NAME	SIZE	QUANTITY
COMMON LILAC	SYRINGA VULGARIS	900 mm HT CONT	14
TOTAL			14

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NO	DATE	BY	CHK	APPR	REVISION



I hereby certify that this plan, specification or report 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.

David J. July
 Date: 7-23-99 Reg. No. 23409

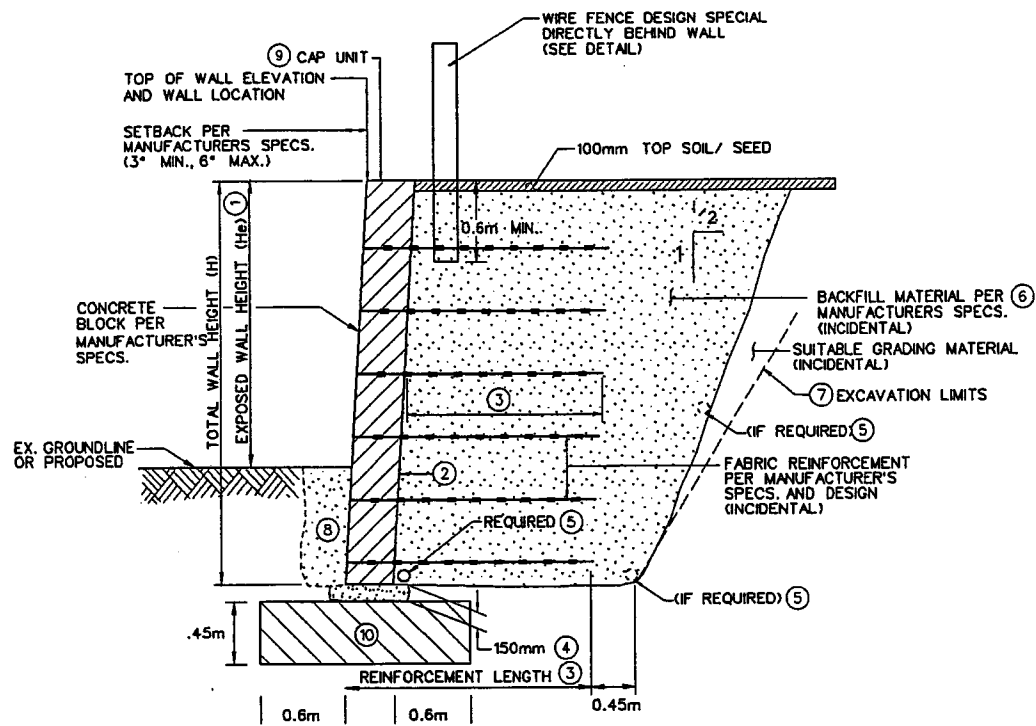
STATE PROJECT NO.
62-090-01

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C. FLEISCHACKER 5-1999
 DESIGNED BY
M. TURNER 5-1999
 CHECKED BY
D. JULIFF 9-1998
 COMM. NO.
0983271



RAMSEY COUNTY
 CONSTRUCTION/SOILS NOTES, STANDARD PLATES, EARTHWORK SUMMARY AND EROSION CONTROL TABS
 BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
4
OF
39



MODULAR BLOCK RETAINING WALL TYPICAL DETAIL
(He < 2.0m)

NOTES:

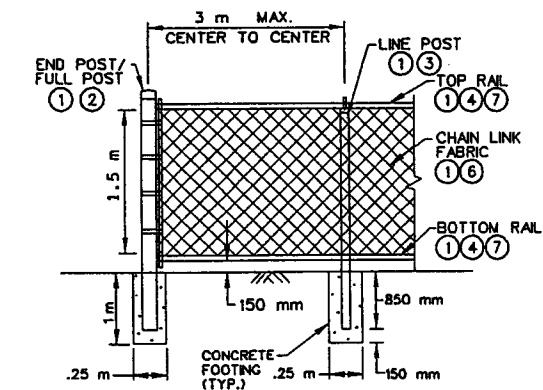
- ① FOR WALLS OF ALL HEIGHTS, MINIMUM EMBEDMENT SHALL BE PER MANUFACTURER'S RECOMMENDATION.
- ② TYPE 1 GEOTEXTILE FABRIC TO BE PLACED ON BACKSIDE OF WALL.
- ③ FOR ALL WALLS, THE MINIMUM LENGTH OF GEOTEXTILE FABRIC SHALL BE PER MANUFACTURER'S RECOMMENDATION.
- ④ AGGREGATE BASE OR OPTIONAL NON-REINFORCED CONCRETE LEVELING PAD AS APPROVED BY THE ENGINEER, 150mm MIN. (INCIDENTAL) OR AS REQUIRED BY THE MANUFACTURER.
- ⑤ 100mm T.P. PERF. DRAIN PIPE, MN/DOT 3278, W/ TYPE 1 GEOTEXTILE, MN/DOT 3733. PROJECT ENGINEER SHALL HAVE ADDITIONAL DRAINS PLACED TO INTERCEPT ANY WATER-BEARING SOIL STRATA DISCOVERED DURING CONSTRUCTION. (INCIDENTAL)
- ⑥ BACKFILL MATERIAL SHALL BE AS REQUIRED BY THE MANUFACTURER'S DESIGN. (INCIDENTAL)
- ⑦ SLOPE IS DETERMINED BY OSHA REGULATIONS AND IN-SITU SOILS; ALL EXCAVATION NECESSARY FOR CONSTRUCTION OF MODULAR BLOCK RETAINING WALLS IS INCIDENTAL.
- ⑧ EXCAVATION AND BACKFILLING WITH SELECT GRADING MATERIAL IS INCIDENTAL TO RETAINING WALL CONSTRUCTION.
- ⑨ FASTEN CAP BLOCK TO UPPER BLOCK COURSE AND UPPER BLOCK COURSE TO SECOND BLOCK COURSE WITH AN OUTDOOR CONSTRUCTION ADHESIVE SUCH AS PL 400 (OR EQUIVALENT).
- ⑩ THE AREA BELOW THE WALL FOR A DEPTH OF 0.45m AND 0.6m IN BOTH DIRECTIONS FRONT AND BACK OF WALL BASE SHALL BE EXCAVATED AND BACKFILLED WITH SELECT GRANULAR BORROW MATERIAL (INCIDENTAL)

WIRE FENCE DESIGN SPECIAL TABULATION

STATION	LOCATION	LENGTH	m
1+437.0	BEGIN FENCE	2.35 m RT	0.0
1+457.0	END FENCE	2.35 m RT	20.0
1+437.0	BEGIN FENCE	2.35 m LT	0.0
1+457.0	END FENCE	2.35 m LT	20.0
1+549.4	BEGIN FENCE	2.35 m RT	0.0
1+654.3	END FENCE	2.35 m RT	104.9
1+672.8	BEGIN FENCE	2.35 m RT	0.0
1+794.0	END FENCE	2.35 m RT	121.2
TOTAL			266.1

MODULAR BLOCK WALL TABULATION

STATION	LOCATION	APPROXIMATE TOP OF WALL	APPROXIMATE BOTTOM OF WALL	APPROXIMATE BURIED HEIGHT	APPROXIMATE EXPOSED HEIGHT	APPROXIMATE TOTAL HEIGHT	AREA
		m	m	m	m	m	m ²
1+549.420	BEGIN WALL	268.796	268.646	0.150	0.000	0.150	0
1+560.000		268.956	268.319	0.260	0.377	0.637	6.7
1+570.000		268.956	267.849	0.288	0.819	1.107	11.0
1+580.000		268.956	267.378	0.259	1.319	1.578	15.7
1+590.000		268.999	266.805	0.332	1.862	2.194	21.9
1+600.000		269.042	266.232	0.405	2.405	2.810	28.1
1+610.000		269.076	265.658	0.479	2.899	3.418	34.1
1+620.000		269.110	265.085	0.552	3.473	4.025	40.2
1+630.000		269.150	264.49	0.647	4.013	4.660	46.6
1+640.000		269.190	263.896	0.747	4.547	5.294	52.9
1+654.252	END WALL	268.199	263.995	0.207	0.997	1.204	17.1
1+672.766	BEGIN WALL	264.489	264.024	0.207	0.258	0.465	0.0
1+680.000		266.376	264.022	0.410	1.944	2.354	17.0
1+690.000		267.501	264.382	0.483	2.626	3.119	31.1
1+700.000		268.626	264.741	0.634	3.251	3.885	38.8
1+710.000		269.011	265.278	0.597	3.136	3.739	37.3
1+720.000		269.395	265.815	0.560	3.020	3.580	35.8
1+730.000		269.448	266.38	0.485	2.573	3.058	30.5
1+740.000		269.502	266.965	0.410	2.127	2.537	25.3
1+750.000		269.547	267.540	0.335	1.672	2.007	20.0
1+760.000		269.592	268.115	0.260	1.217	1.477	14.7
1+770.000		269.664	268.612	0.263	0.789	1.052	10.5
1+780.000		269.735	269.108	0.261	0.366	0.627	6.2
1+794.028	END WALL	269.798	269.848	0.207	0.000	0.207	2.9
TOTAL:							544.4



WIRE FENCE DESIGN SPECIAL GALVANIZED DETAIL

WIRE FENCE NOTES

- ① 100% GALVANIZED.
- ② TERMINAL POST 1.5 m END, CORNER OR PULL POST: 75 mm O.D. GALVANIZED.
- ③ LINE POSTS SHALL BE 65 mm O.D. GALVANIZED.
- ④ TOP AND BOTTOM RAIL SHALL BE 40 mm O.D. GALVANIZED.
- ⑤ ALL FITTINGS, TIES, LOOP CAPS, AND COMPONENT PARTS SHALL BE GALVANIZED.
- ⑥ CHAIN LINK FABRIC SHALL BE 50 mm MESH WITH KNUCKLED SELVAGE TOP AND BOTTOM, AND CONFORM TO REQUIREMENTS OF AASHTO M 181TYP IV.
- ⑦ FABRIC SHALL BE TIED AT TOP RAIL AND BOTTOM RAIL EVERY 300 mm.
- ⑧ FENCE SHALL BE GROUNDED.

CLEARING & GRUBBING

STATION	LOCATION	DESCRIPTION DIAMETER TYPE	CLEARING TREE	GRUBBING TREE	CLEARING ha	GRUBBING ha
BEGIN TO EAST ARLINGTON						
1+068.5 - 1+101.0	RT	WOODS			0.02	0.02
1+114.5 - 1+187.0	LT	WOODS			0.04	0.04
1+406.5 - 1+454.0	LT	WOODS			0.02	0.02
1+515.0 - 1+545.0	LT	WOODS			0.02	0.02
1+571.0	2.0 m LT	DECIDUOUS	1	1		
EAST ARLINGTON TO EAST IDAHO						
1+680.0 - 1+762.5	LT	WOODS			0.04	0.04
1+771.0 - 1+943.0	LT	WOODS			0.02	0.02
1+807.0 - 1+867.0	RT	WOODS			0.02	0.02
1+885.0 - 1+934.0	RT	WOODS			0.02	0.02
2+000.0 - 2+064.5	LT	WOODS			0.02	0.02
2+021.0 - 2+198.0	RT	WOODS			0.04	0.04
2+094.5 - 2+190.0	LT	WOODS			0.02	0.02
2+201.0 - 2+254.5	RT	WOODS			0.04	0.04
EAST IDAHO TO LARPENTEUR						
2+276.0 - 2+306.0	RT	WOODS			0.02	0.02
2+310.5 - 2+408.0	LT	WOODS			0.02	0.02
LARPENTEUR TO RIPLEY						
2+478.0 - 2+498.0	LT	WOODS			0.02	0.02
2+486.5 - 2+518.0	RT	WOODS			0.02	0.02
2+526.0 - 2+565.0	RT	WOODS			0.02	0.02
2+640.5 - 2+696.5	LT	WOODS			0.02	0.02
2+618.0 - 2+684.0	LT	WOODS			0.02	0.02
2+823.0 - 2+892.0	RT	WOODS			0.02	0.02
2+723.5 - 2+764.5	RT	WOODS			0.02	0.02
2+736.0 - 2+765.0	LT	WOODS			0.02	0.02
2+801.0 - 2+854.0	RT	WOODS			0.02	0.02
2+807.0 - 2+835.0	LT	WOODS			0.02	0.02
RIPLEY TO FROST						
2+895.0	1.5 m LT	DECIDUOUS	1	1		
2+925.0 - 3+188.5	LT	WOODS			0.24	0.24
FROST TO END TRAIL						
3+283.0 - 3+291.0	RT	WOODS			0.02	0.02
TOTALS			2	2	0.82	0.82

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NO	DATE	BY	CHKD	APPR	REVISION
1	01/28/00	DJJ	DJJ	DJJ	REVISE ENGLISH DIMENSIONS TO METRIC (WALL DETAIL)



I hereby certify that this plan, specification or report 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.

David J. Guly
Date: 1-28-00 Reg. No. 123409

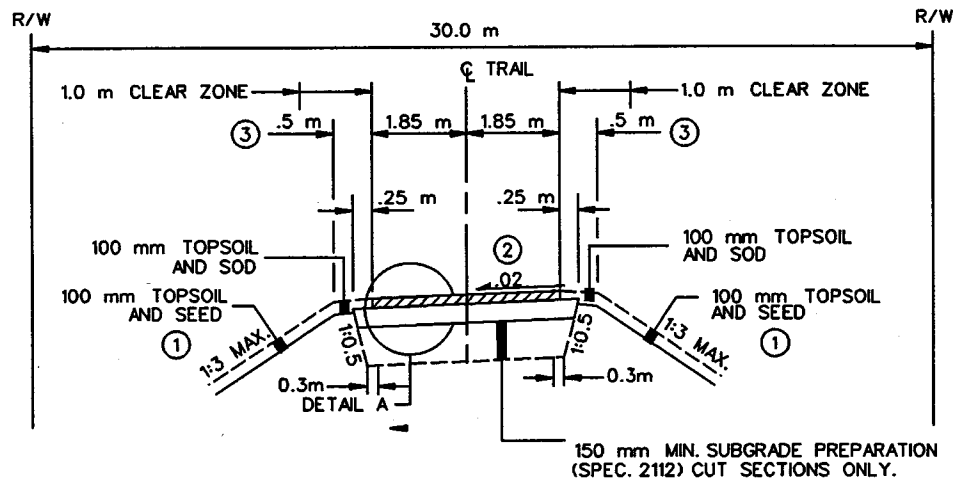
STATE PROJECT NO.
62-090-01

DRAWN BY DATE
C.FLEISCHACKER 5-1999
DESIGNED BY
M.TURNER 5-1998
CHECKED BY
D.JULIFF 9-1998
COMM. NO.
0983271

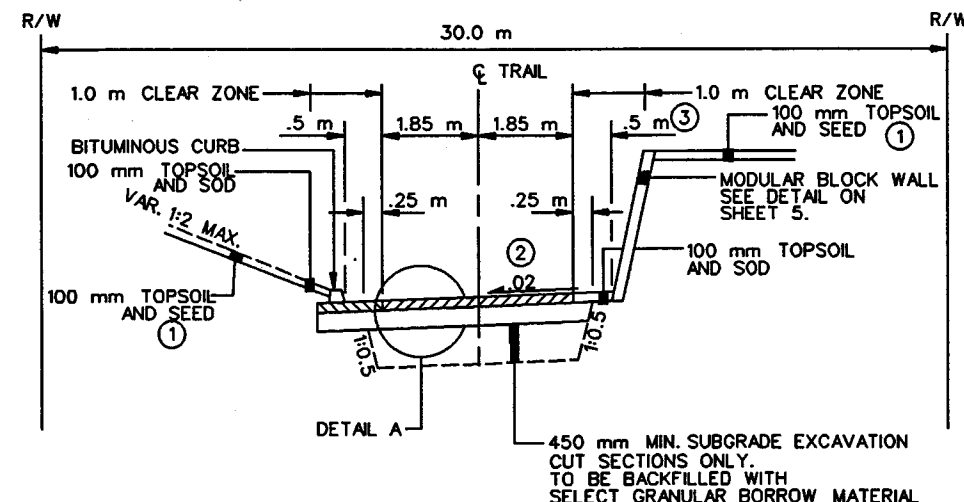


RAMSEY COUNTY
MISCELLANEOUS DETAILS AND TABULATIONS
BURLINGTON NORTHERN REGIONAL TRAIL

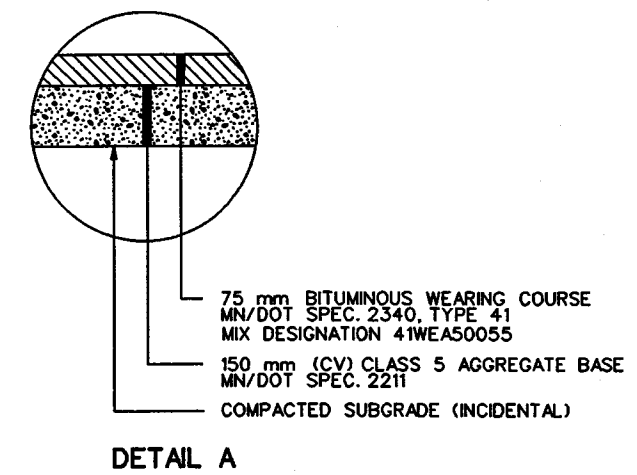
SHEET
5
OF
39



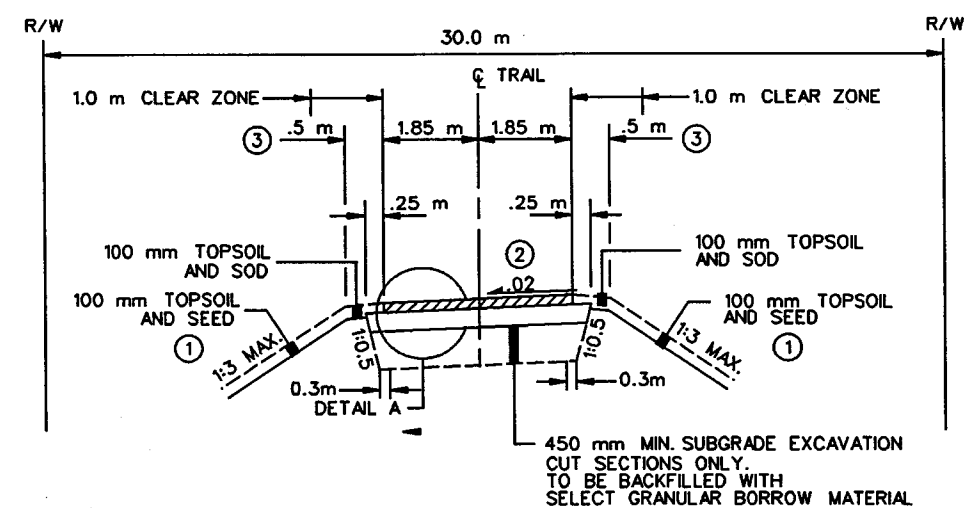
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 STA 1+000.0 - STA 1+538.0
 STA 1+807.0 - STA 3+290.785



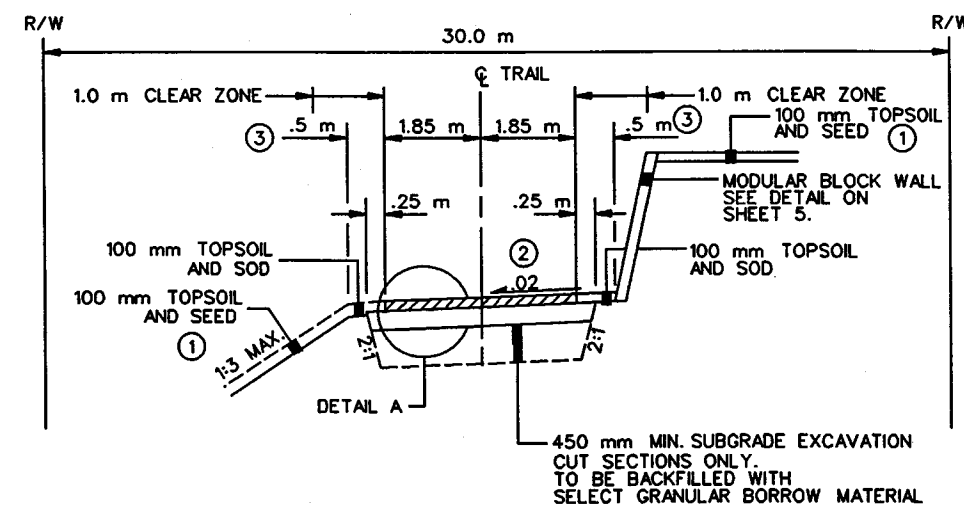
TYPICAL SECTION
 STA 1+580.000 - STA 1+654.252



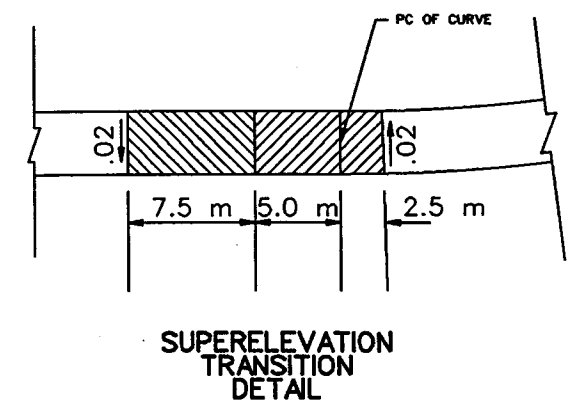
DETAIL A



TYPICAL SECTION
 STA 1+538.0 - STA 1+549.420
 STA 1+654.252 - STA 1+672.766
 STA 1+794.028 - STA 1+807.0



TYPICAL SECTION
 STA 1+549.420 - STA 1+580.000
 STA 1+672.766 - STA 1+794.028



**SUPERELEVATION
 TRANSITION
 DETAIL**

NOTES

- ALL CROSS SLOPES ARE IN m/m
- ① 100 mm TOPSOIL AND SOD (TYPE LAWN) SHALL BE USED WHERE TRAIL CONSTRUCTION OCCURS IN ESTABLISHED AREAS.
- ② TRAIL SHALL SLOPE TO THE INSIDE OF CURVES.
- ③ WHERE INSLOPE IS 1:3 OR STEEPER AND EMBANKMENT HEIGHT IS 2 m OR GREATER, OR WHERE INSLOPE IS 1:2 OR STEEPER AND EMBANKMENT HEIGHT IS 1 m OR GREATER, MINIMUM SHOULDER WIDTH SHALL BE 1.5 m SEE CROSS SECTIONS.

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 PLOTTER: HP-551MA
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NO	DATE	BY	CHKD	APPR	REVISION



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 Date: 7-23-99
 Reg. No: 23409

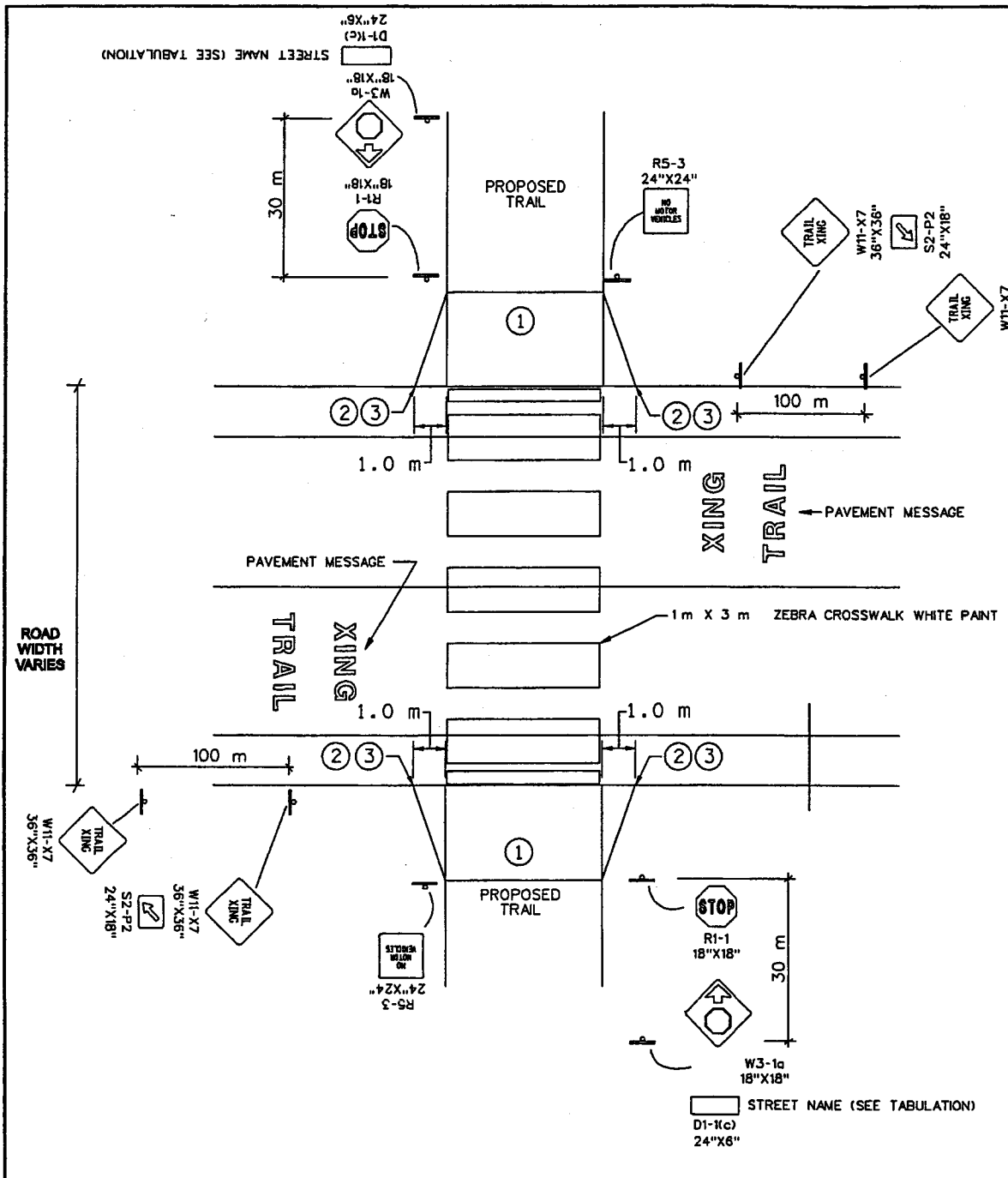
STATE PROJECT NO.
 62-090-01

DRAWN BY: C. FLEISCHACKER
 DATE: 5-1999
 DESIGNED BY: M. TURNER
 DATE: 5-1999
 CHECKED BY: G. JULIFF
 DATE: 9-1998
 COMM. NO.: 0983271

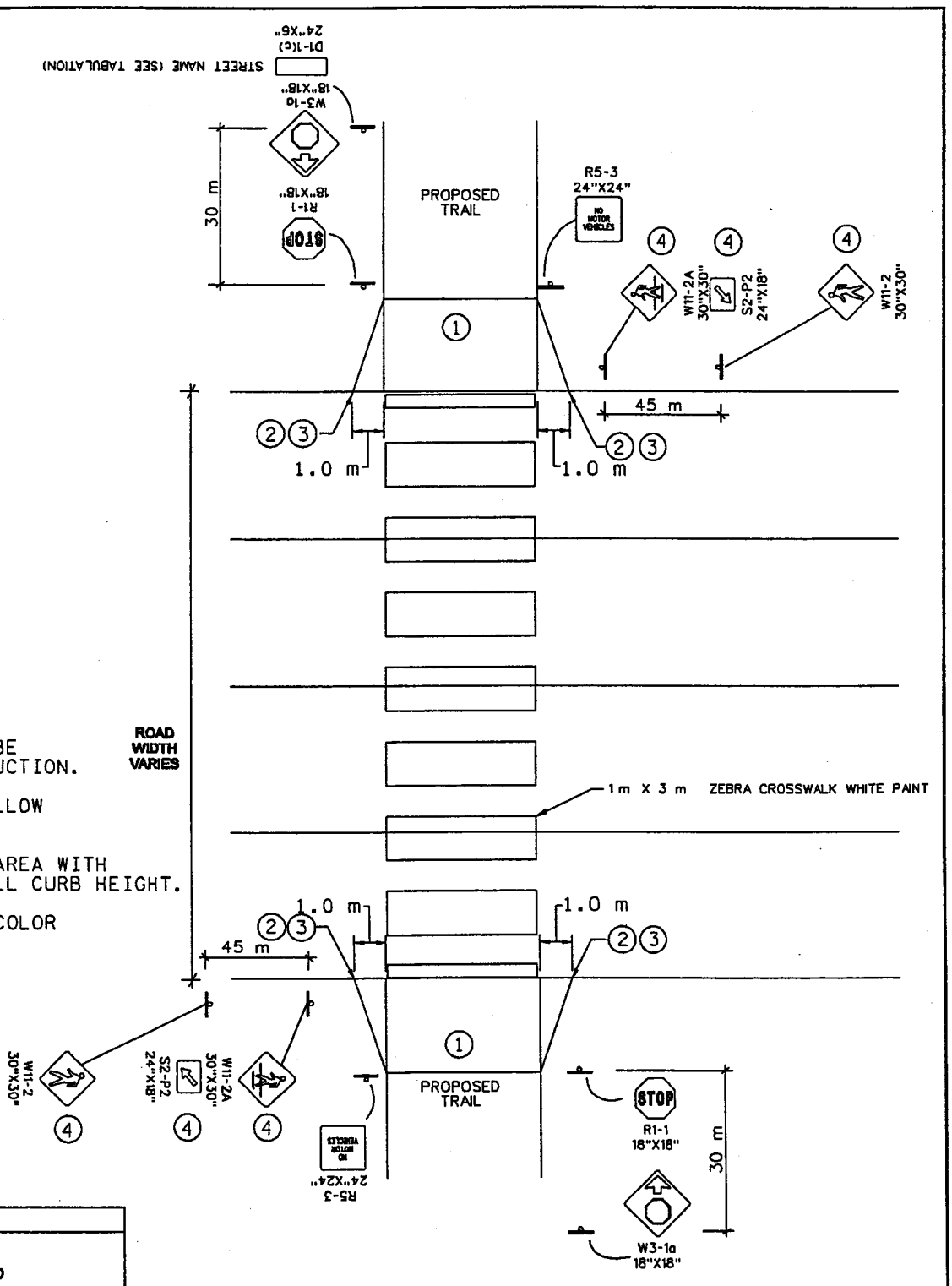


RAMSEY COUNTY
 TYPICAL SECTIONS
 BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
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 OF
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- GENERAL NOTES:**
- ALL SIGNS DIMENSIONED IN ENGLISH UNITS
 - FINAL SIGN LOCATIONS TO BE DETERMINED IN THE FIELD BY THE ENGINEER.
- SPECIFIC NOTES:**
- CONSTRUCTION OF BITUMINOUS PED. RAMP WILL BE CONSIDERED INCIDENTAL TO BIT. TRAIL CONSTRUCTION.
 - REMOVE CONC. C&G TO THE NEAREST JOINT TO ALLOW FOR BIT. PED. RAMP.
 - PLACE CONC. C&G ALLOW FOR 3.7 m DEPRESSED AREA WITH 1.0 m TRANSITION FROM DEPRESSED CURB TO FULL CURB HEIGHT.
 - SIGN SHALL BE FLOURESCENT YELLOW-GREEN IN COLOR



HIGH VOLUME STATE HIGHWAY / COUNTY ROAD
(2 LANE OR 4 LANE)
(TYPE I)

TABULATION OF TYPE I CROSSINGS	
STREET NAME	
LARPENTEUR AVE	
FROST AVE	

SIGN PANEL TYPE C TABULATION						
QUANT.	PANEL			TOTAL AREA (m ²)	SIGN CODE NO.	PANEL LEGEND
	SIZE (IN.)	SIZE (SQ FT)	SIZE (m ²)			
10	18 X 18	2.25	0.2	2.0	R1-1	STOP
10	18 X 18	2.25	0.2	2.0	W3-1a	(STOP AHEAD)
10	24 X 6	1.00	0.1	1.0	D1-1c	STREET NAME (SEE STREET CROSSING TAB.)
10	24 X 24	4.00	0.4	4.0	R5-3	NO MOTOR VEHICLES
8	36 X 36	9.00	0.8	6.4	W11-X7	TRAIL XING
10	24 X 18	3.00	0.3	3.0	S2-P2	(ARROW)
6	30 X 30	6.25	0.6	3.6	W11-2A	(PEDESTRIAN CROSSING)
6	30 X 30	6.25	0.6	3.6	W11-2	(PEDESTRIAN ADVANCE CROSSING)
TOTAL				25.6		

COUNTY ROADS/HIGH VOLUME LOCAL ROADWAY CROSSING
(TYPE II)

TABULATION OF TYPE II CROSSINGS	
STREET NAME	
E. ARLINGTON AVE	
E. IDAHO AVE	
RIPLEY AVE.	

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 PLOT SCALE: 1:100
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NO	DATE	BY	CHKD	APPR	REVISION
1	09/03/99	MRT	MRT	DJJ	REVISED SIGNING PER CITY OF ST PAUL COMMENTS

I hereby certify that this plan, specification or report 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.

minnesota metric
Date: 9-3-99
Res. No. 23400

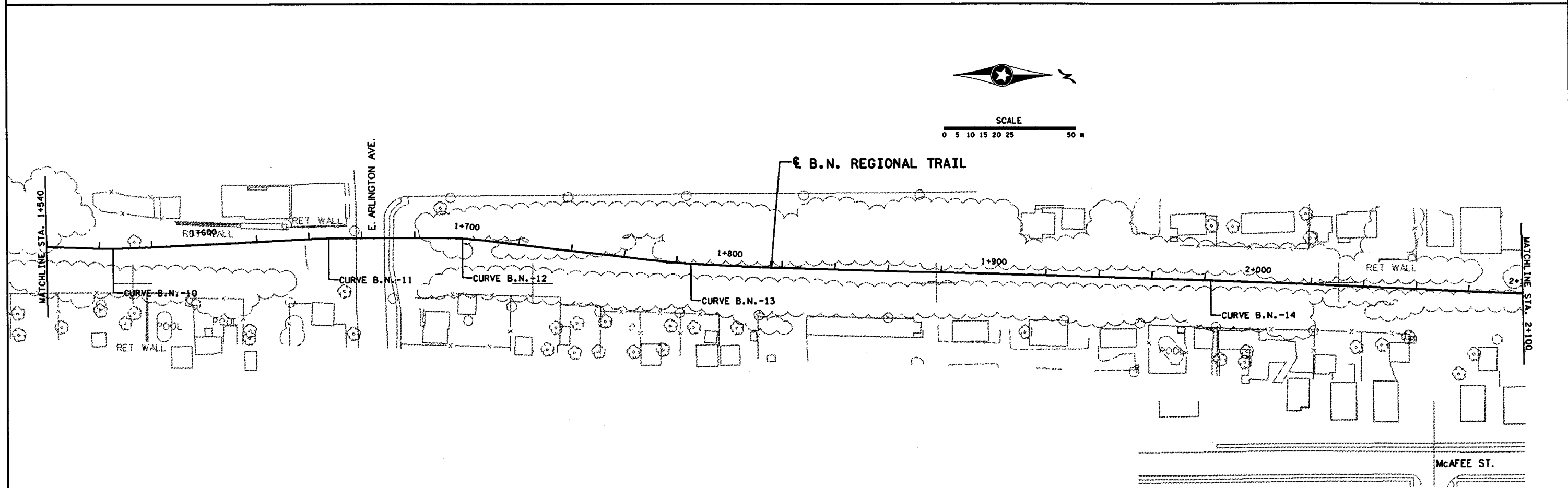
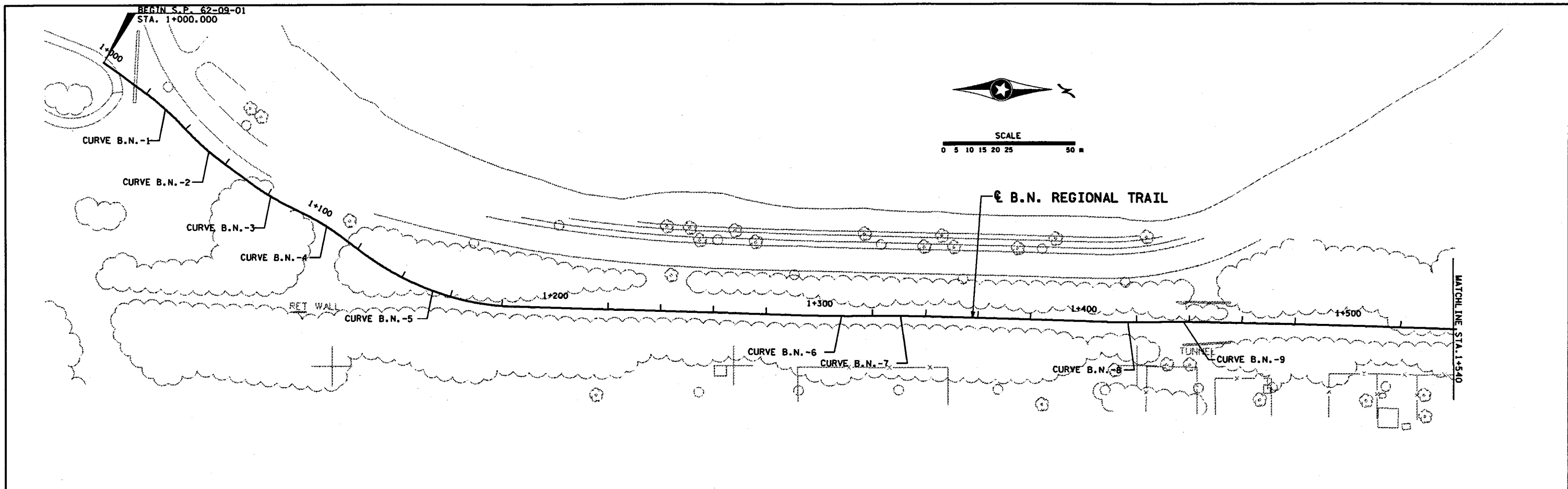
STATE PROJECT NO.
62-090-01

DRAWN BY DATE
C.FLEISCHMACKER 5-1999
DESIGNED BY
M.TURNER 5-1999
CHECKED BY
D.JULIFF 9-1998
COMM. NO.
0983271



RAMSEY COUNTY
SIGNING AND STRIPING DETAILS
BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
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39



DESIGN FILE: D:\N\11\008\3271\3271.dwg
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 PLOT DATE/TIME: 06/03/1999 16:05:05

NO	DATE	BY	CHKD	APPR	REVISION

NAME: 3271.APA DATE: June 3, 1999



I hereby certify that this plan, specification or report 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.

David J. July
 Date: 7-23-99
 Dec 19 23409

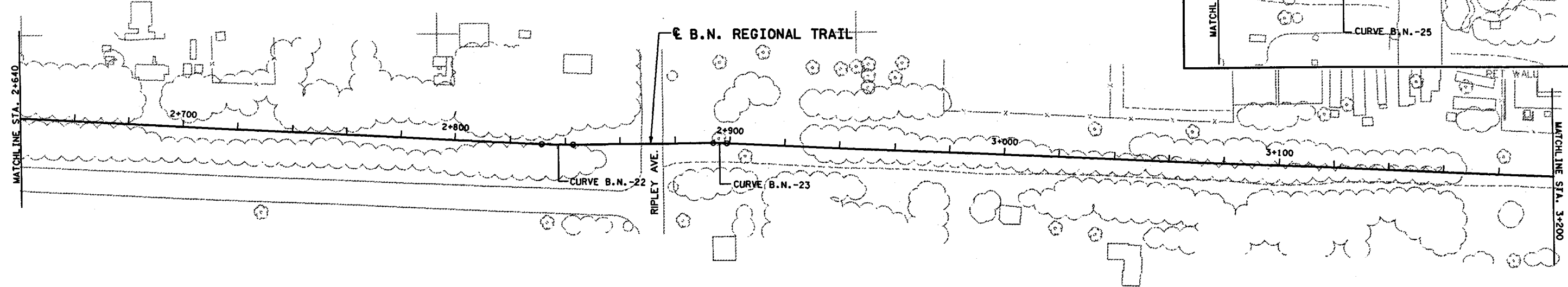
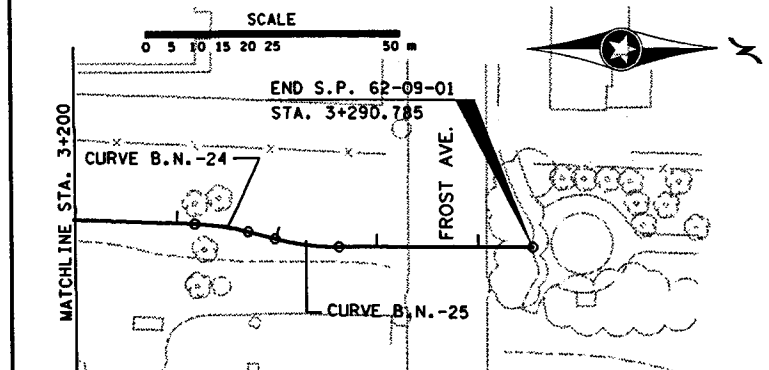
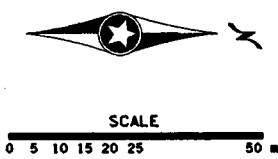
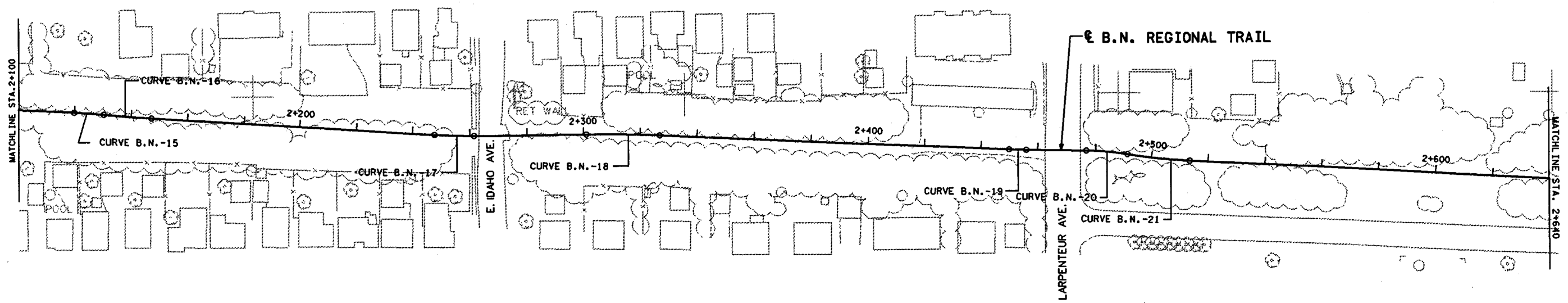
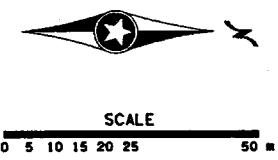
STATE PROJECT NO.
 62-090-01

DRAWN BY DATE
 C.FLEISCHACKER 5-1999
 DESIGNED BY
 M. TURNER 5-1999
 CHECKED BY
 D. JULIFF 9-1998
 COMM. NO.
 0983271



RAMSEY COUNTY
 ALIGNMENT PLAN
 BURLINGTON NORTHERN REGIONAL TRAIL

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DESIGN FILE: D:\CIVIL\1008\3271\3271.dwg
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 PLOT DATE/TIME: 06/03/1999 09:17:11

NO.	DATE	BY	CHKD	APPR	REVISION

NAME: 3271.APB DATE: June 3, 1999



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David J. July
 Date: 7-23-99 Reg. No. 23409

STATE PROJECT NO.
62-090-01

DRAWN BY DATE
C. FLEISCHACKER 5-1999
 DESIGNED BY
M. TURNER 5-1999
 CHECKED BY
D. JULIFF 9-1998
 COMM. NO.
0983271



RAMSEY COUNTY
ALIGNMENT PLAN
BURLINGTON NORTHERN REGIONAL TRAIL

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METRIC ALIGNMENT TABULATION table with columns: POINT NO., POINT, STATION, CURVE DATA (DELTA, RADIUS, TANGENT, LENGTH), COORDINATES (X, Y), AZIMUTH. Includes alignment data for E.B.N. REGIONAL TRAIL.

METRIC ALIGNMENT TABULATION table with columns: POINT NO., POINT, STATION, CURVE DATA (DELTA, RADIUS, TANGENT, LENGTH), COORDINATES (X, Y), AZIMUTH. Includes alignment data for BURLINGTON NORTHERN REGIONAL TRAIL.

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Revision table with columns: NO, DATE, BY, CKD, APPR, REVISION.



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Date 7-23-99

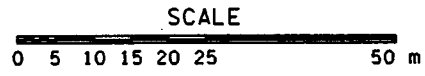
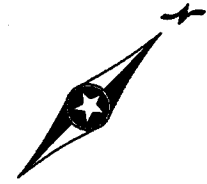
STATE PROJECT NO. 62-090-01

DRAWN BY DATE C.FLEISCHACKER 5-1999
DESIGNED BY M. TURNER 5-1999
CHECKED BY D. JULIFF 9-1998
COMM. NO. 0983271



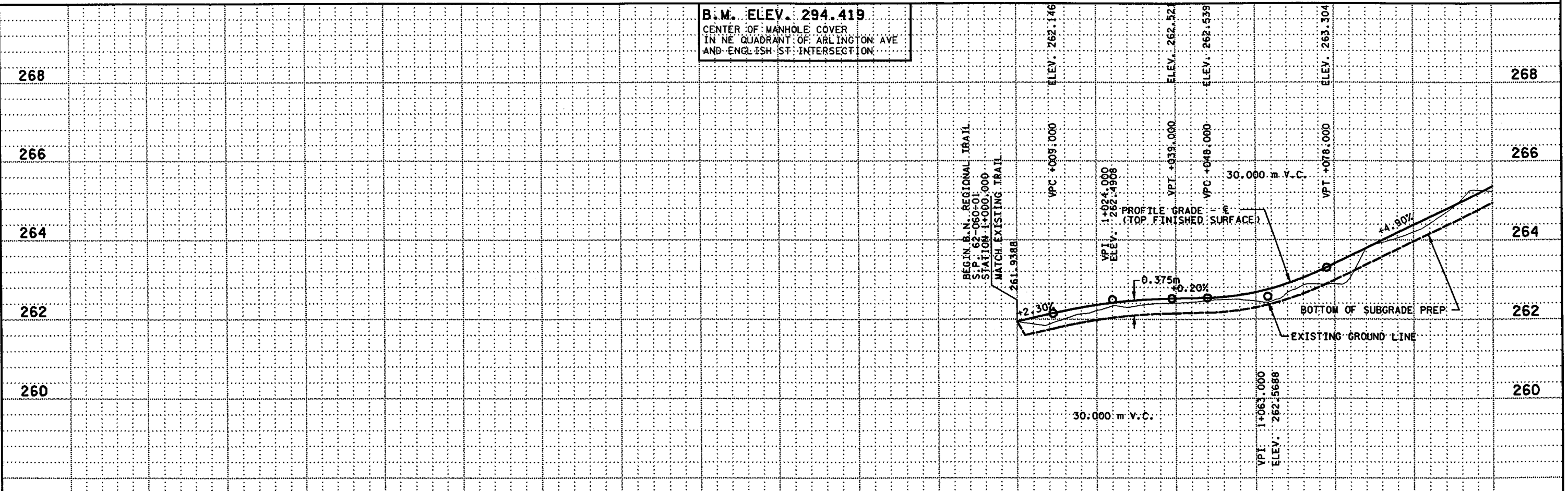
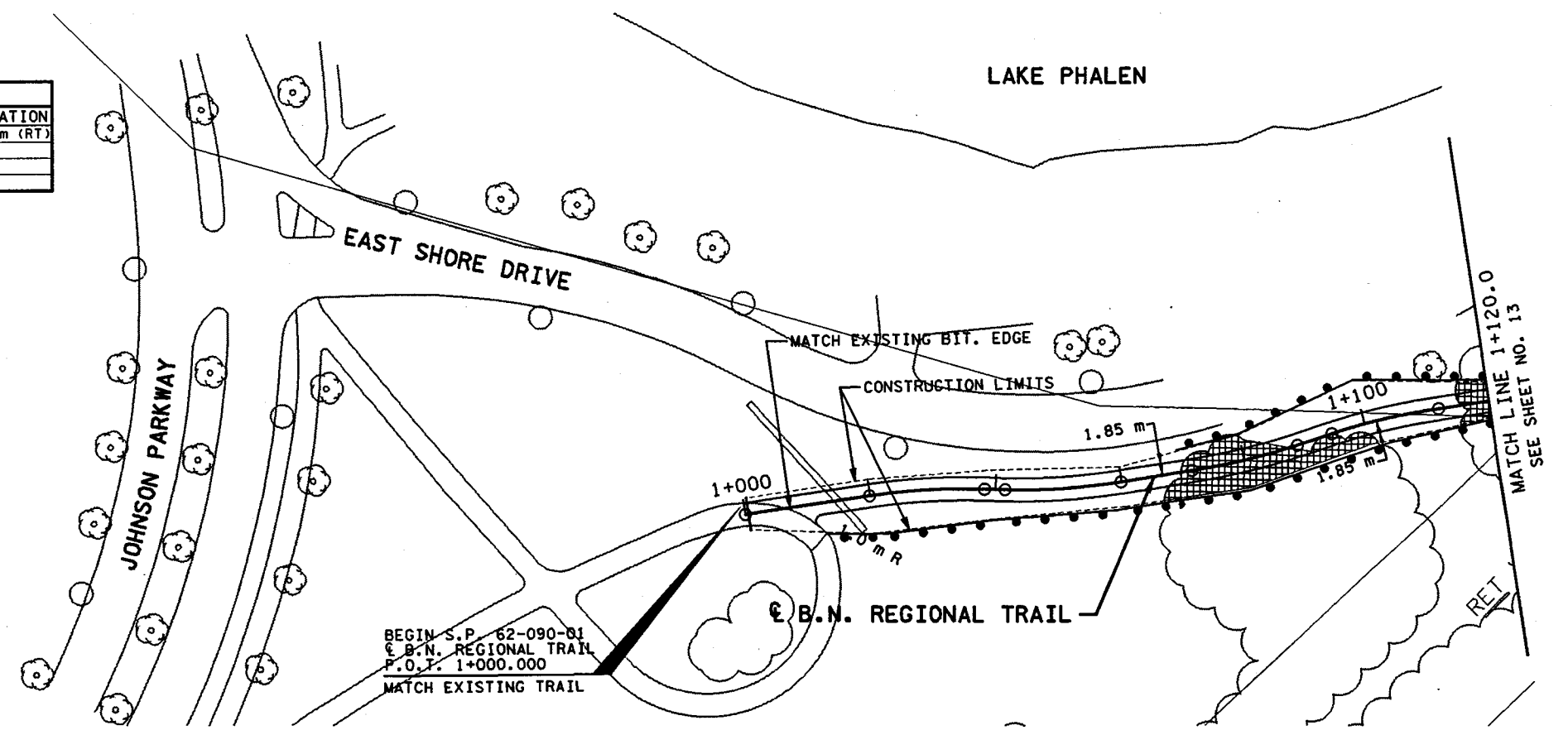
RAMSEY COUNTY ALIGNMENT TABULATION BURLINGTON NORTHERN REGIONAL TRAIL

SHEET 10 OF 39



TRAIL RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
1.0 m	B.N. TRAIL	1+011.80	2.8 m (RT)

LEGEND	
	CLEAR AND GRUB TREES
	SILT FENCE



DESIGN FILE: P:\AS\11\008\3271\3271.dwg
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NO	DATE	BY	CKD	APPR	REVISION



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 Date: 7-23-99 Reg. No. 23409

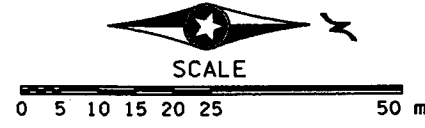
STATE PROJECT NO.
 62-090-01

DRAWN BY: C.FLEISCHACKER 5-1999
 DESIGNED BY: M.TURNER 5-1999
 CHECKED BY: D.JULIFF 9-1998
 COMM. NO. 0983271



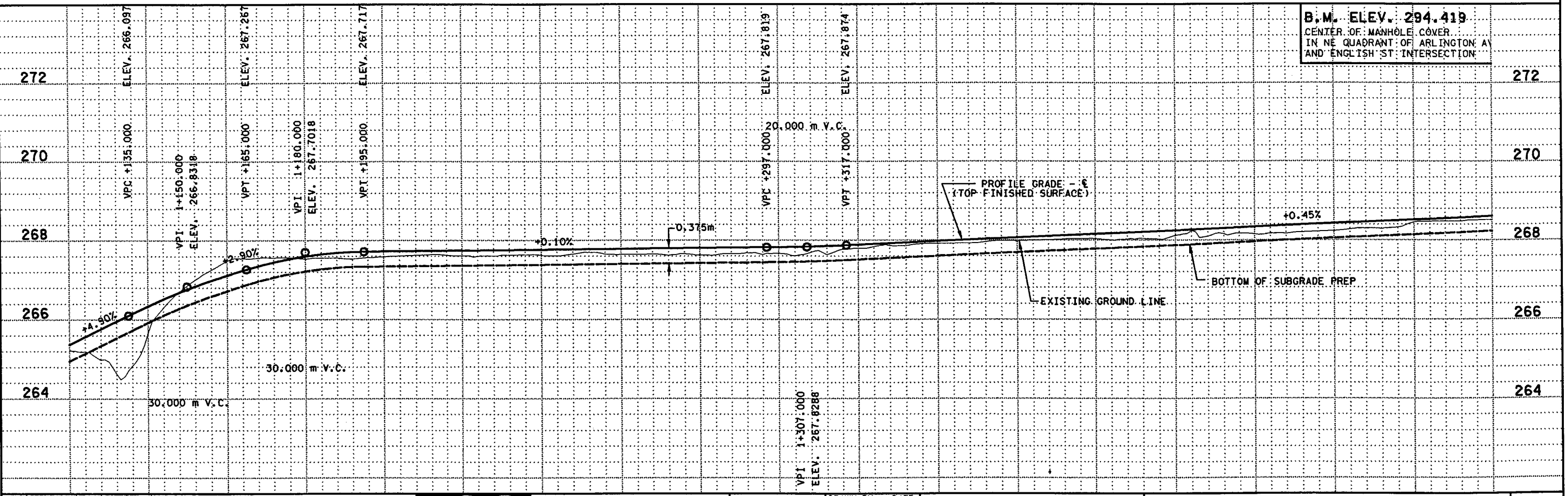
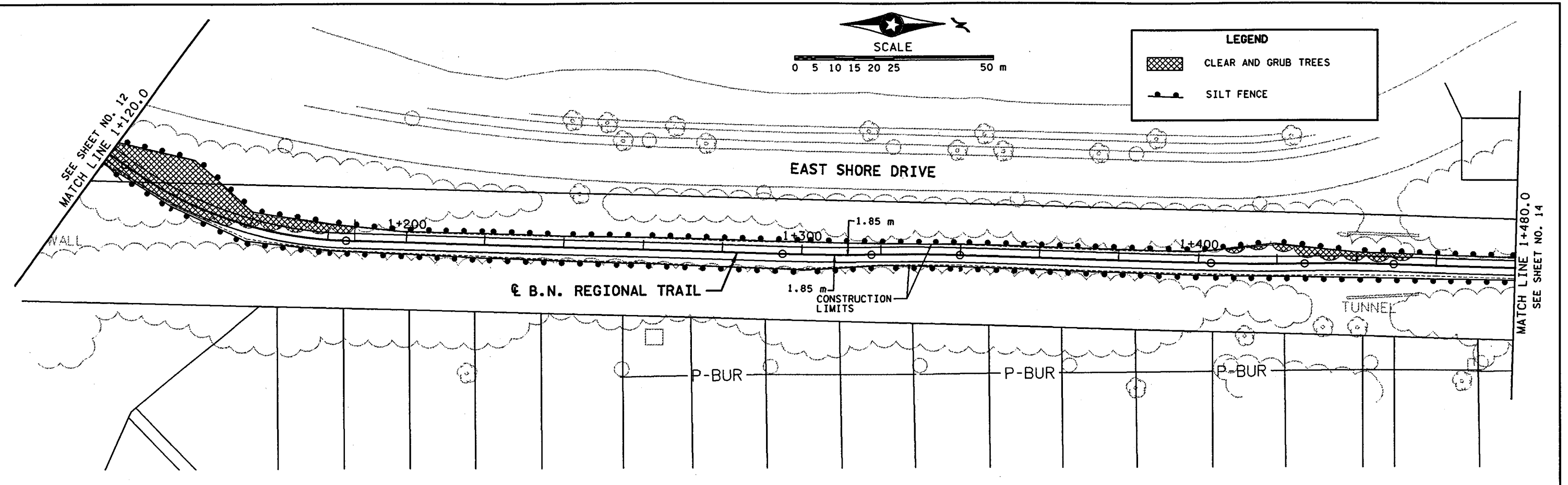
RAMSEY COUNTY
 CONSTRUCTION PLAN
 BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
 12
 OF
 39



LEGEND

- CLEAR AND GRUB TREES
- SILT FENCE



DESIGN FILE: P:\AC\11\008\3271\3271.dwg
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NO	DATE	BY	CKD	APPR	REVISION



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David J. [Signature]
 Date 7-23-99 No. 23409

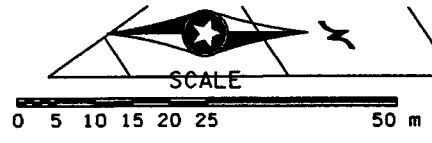
STATE PROJECT NO.
62-090-01

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0983271



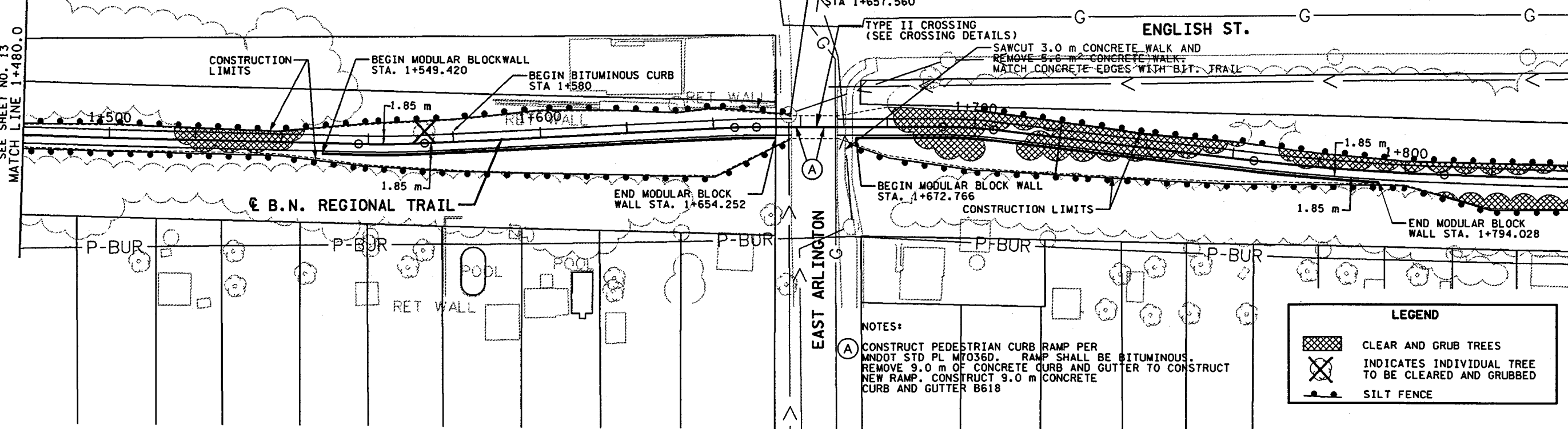
RAMSEY COUNTY
 CONSTRUCTION PLAN
BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
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39



SEE SHEET NO. 13
MATCH LINE 1+480.0

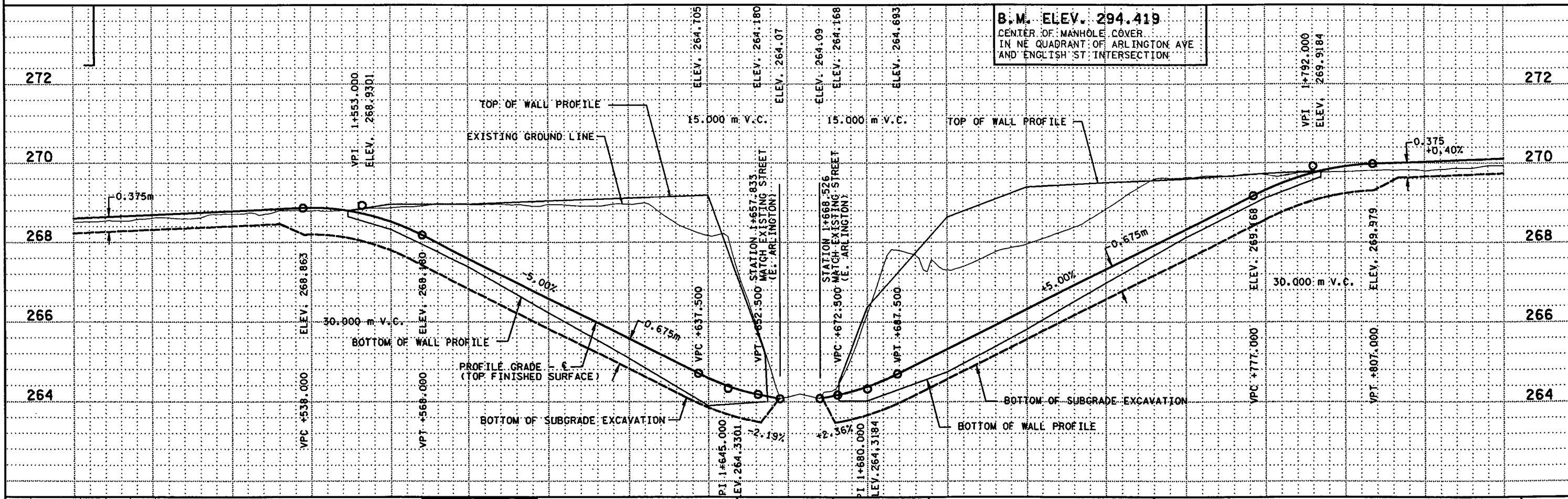
MATCH LINE 1+840.0
SEE SHEET NO. 15



NOTES:
 (A) CONSTRUCT PEDESTRIAN CURB RAMP PER MNDOT STD PL M7036D. RAMP SHALL BE BITUMINOUS. REMOVE 9.0 m OF CONCRETE CURB AND GUTTER TO CONSTRUCT NEW RAMP. CONSTRUCT 9.0 m CONCRETE CURB AND GUTTER B618

LEGEND

- CLEAR AND GRUB TREES
- INDICATES INDIVIDUAL TREE TO BE CLEARED AND GRUBBED
- SILT FENCE



B.M. ELEV. 294.419
 CENTER OF MANHOLE COVER
 IN NE QUADRANT OF ARLINGTON AVE
 AND ENGLISH ST INTERSECTION

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NO	DATE	BY	CHK	APPR	REVISION
1	09/03/99	MRT	MRT	DJ	REVISED INTERSECTION TYPE PER CITY OF ST PAUL COMMENTS



I hereby certify that this plan, specification or report 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: 9.3.99 Res: 23409

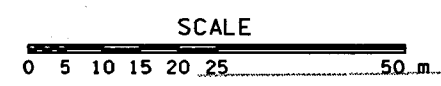
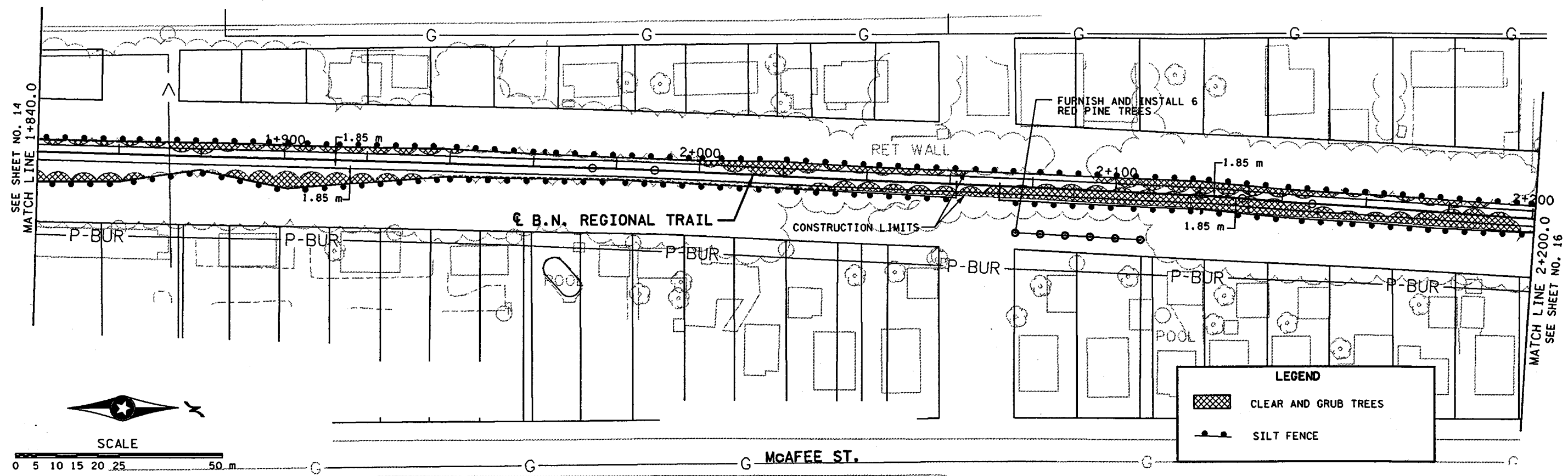
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62-090-01

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M.TURNER 5-1999
 CHECKED BY
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0983271



RAMSEY COUNTY
 CONSTRUCTION PLAN
 BURLINGTON NORTHERN REGIONAL TRAIL

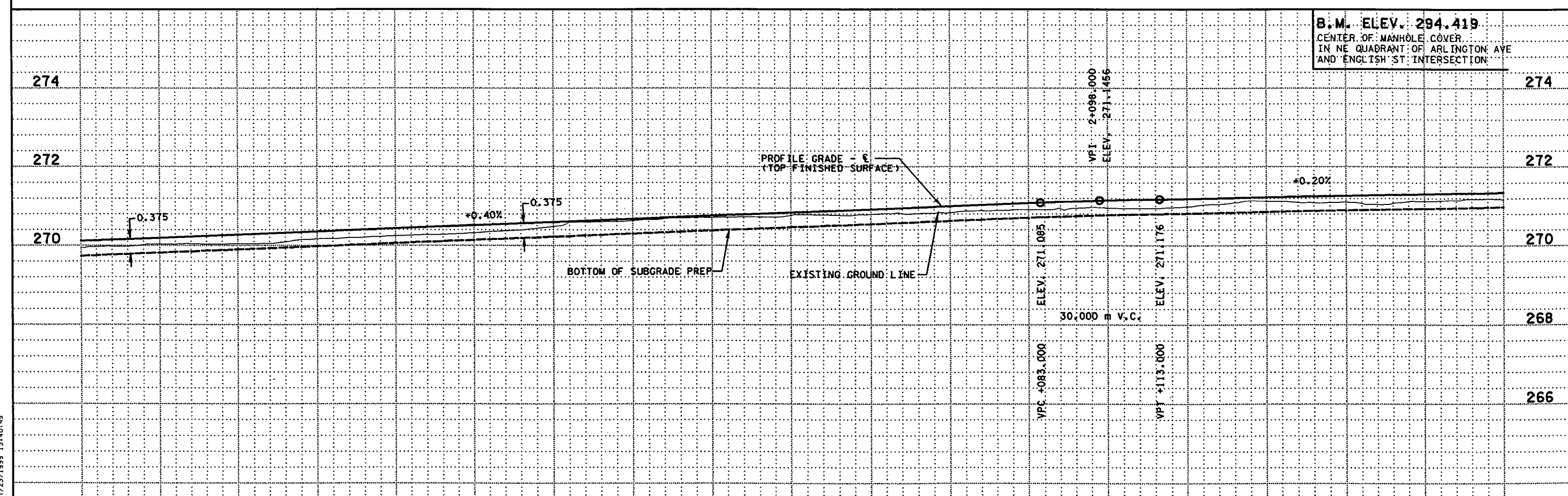
SHEET
14
OF
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LEGEND

CLEAR AND GRUB TREES

SILT FENCE



DESIGN FILE: R:\ENGIN\1008\3271\3271.dwg
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 PLOT SCALE: 25:1
 PLOT DATE/TIME: 07/23/1999 13:40:45

NO	DATE	BY	CHKD	APPR	REVISION

minnesota metric

I hereby certify that this plan, specification or report 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.

David [Signature]
Date: 7.23.99

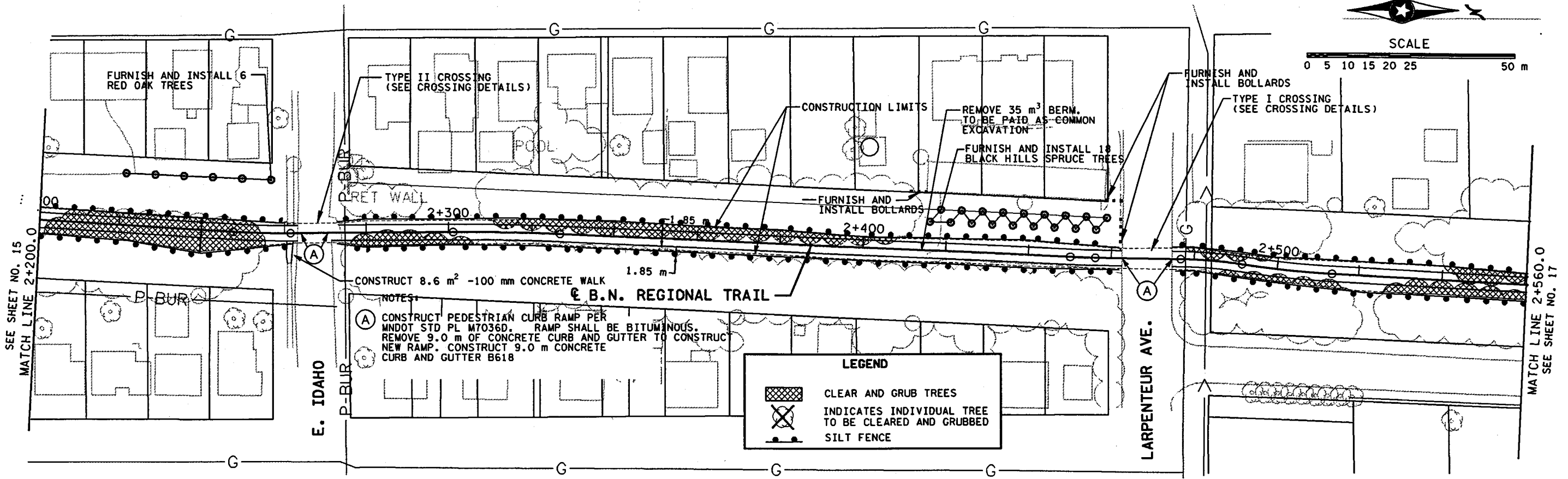
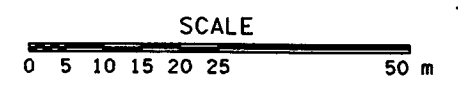
STATE PROJECT NO.
62-090-01

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DESIGNED BY
M.TURNER 5-1999
CHECKED BY
D.JULIFF 9-1998
COMM. NO.
0983271

SRF CONSULTING GROUP, INC.

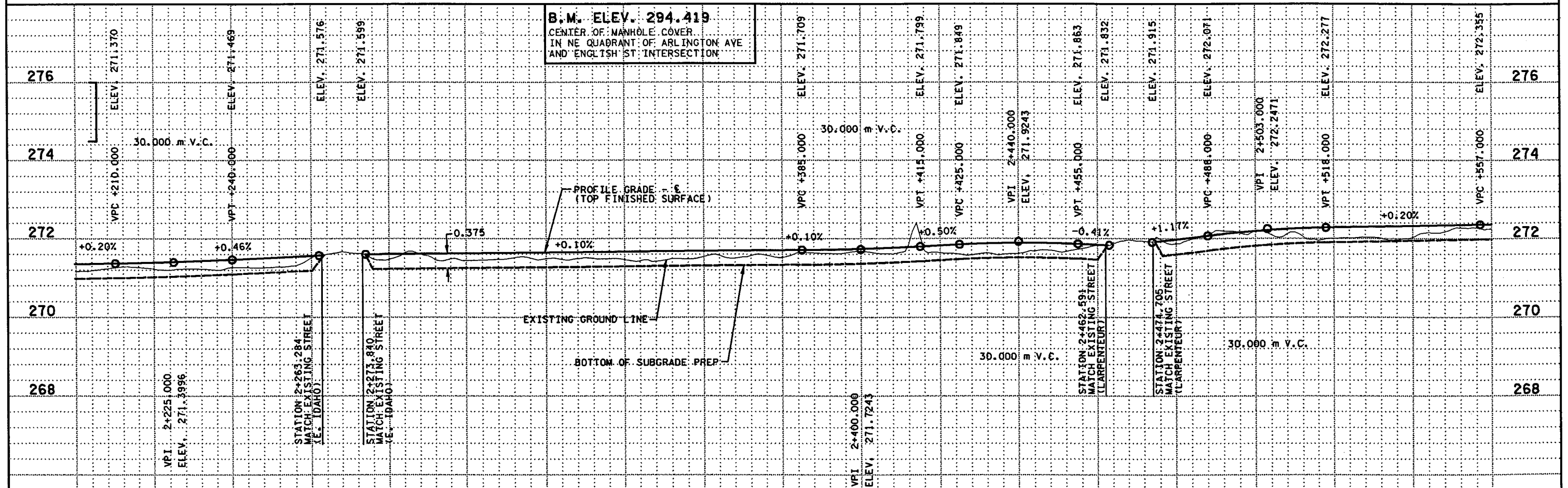
RAMSEY COUNTY
CONSTRUCTION PLAN
BURLINGTON NORTHERN REGIONAL TRAIL

SHEET 15 OF 39



LEGEND

- CLEAR AND GRUB TREES
- INDICATES INDIVIDUAL TREE TO BE CLEARED AND GRUBBED
- SILT FENCE



DESIGN FILE: R:\NG\11\008\3271\3271.dwg
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 PLOTTER: MS-HP55IMX
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 PLOT DATE/TIME: 07/23/1999 13:41:07

NO	DATE	BY	CHKD	APPR	REVISION



I hereby certify that this plan, specification or report 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: 7-23-99

STATE PROJECT NO.
62-090-01

DRAWN BY: C. FLEISCHACKER
 DATE: 5-1999
 DESIGNED BY: M. TURNER
 DATE: 5-1999
 CHECKED BY: D. JULIFF
 DATE: 9-1998
 COMM. NO.: 0983271

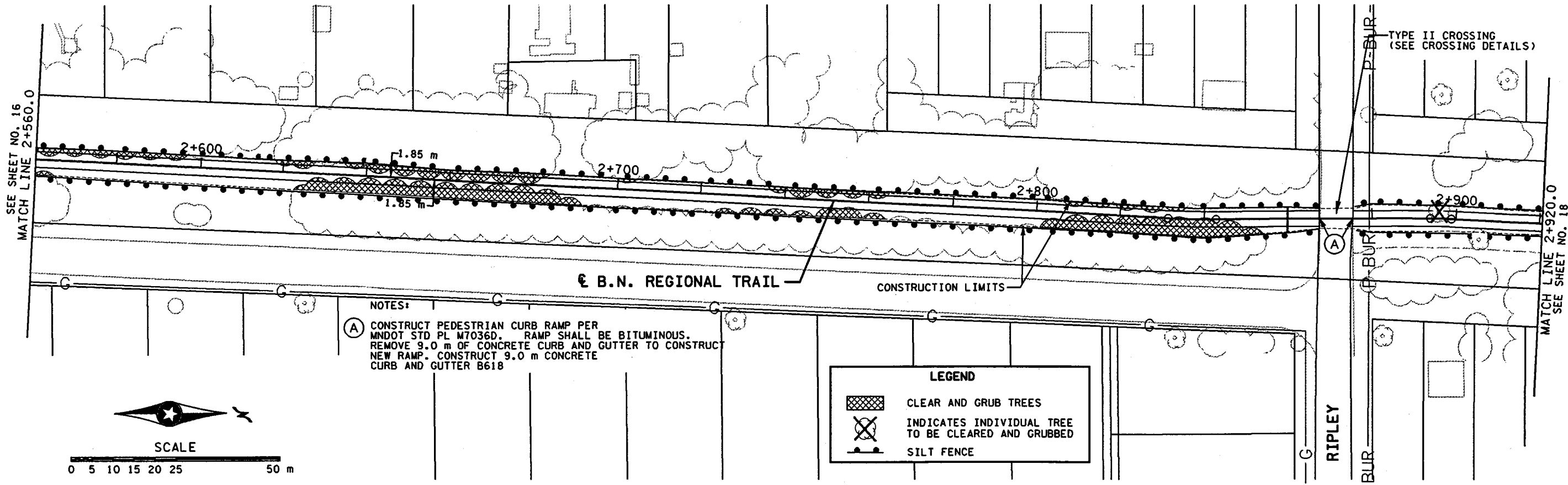


RAMSEY COUNTY
 CONSTRUCTION PLAN
 BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
 16
 OF
 39

SEE SHEET NO. 16
MATCH LINE 2+560.0

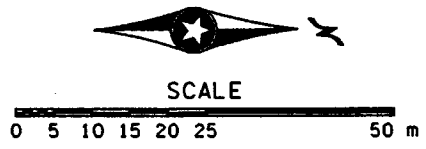
MATCH LINE 2+920.0
SEE SHEET NO. 18



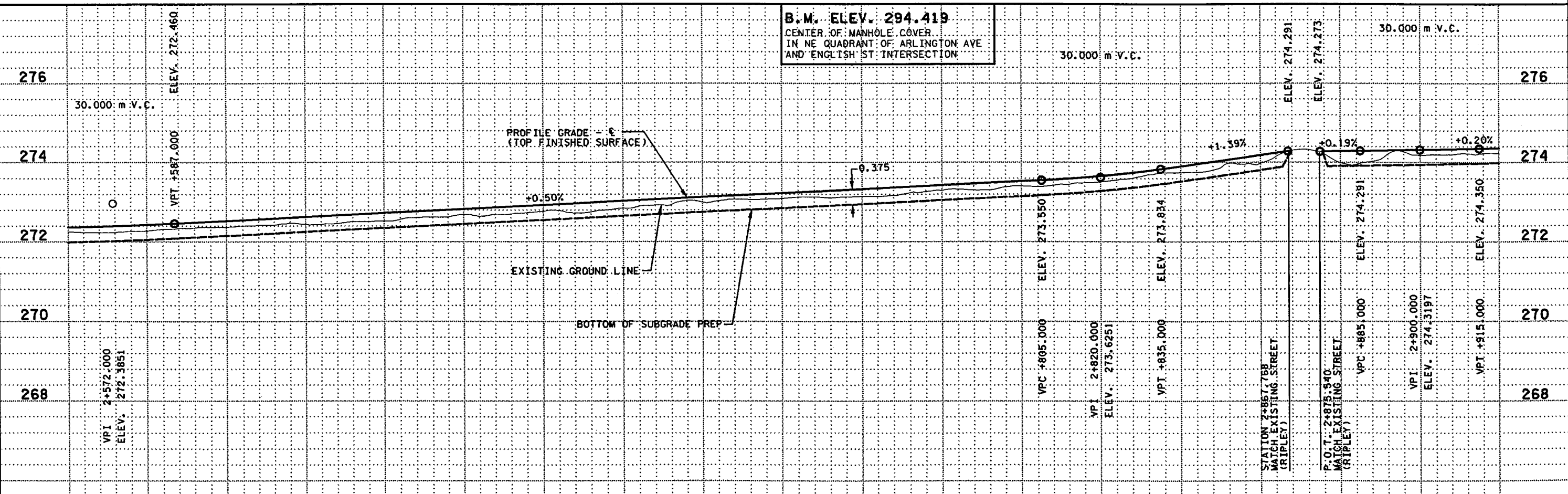
NOTES:
 (A) CONSTRUCT PEDESTRIAN CURB RAMP PER MNDOT STD PL M7036D. RAMP SHALL BE BITUMINOUS. REMOVE 9.0 m OF CONCRETE CURB AND GUTTER TO CONSTRUCT NEW RAMP. CONSTRUCT 9.0 m CONCRETE CURB AND GUTTER B618

LEGEND

- CLEAR AND GRUB TREES
- INDICATES INDIVIDUAL TREE TO BE CLEARED AND GRUBBED
- SILT FENCE



B.M. ELEV. 294.419
 CENTER OF MANHOLE COVER
 IN NE QUADRANT OF ARLINGTON AVE
 AND ENGLISH ST INTERSECTION



DESIGN FILE: H:\GIV\1\008\3271\3271.dwg
 PRE FILE: H:\GIV\1\008\3271\3271.dwg
 PLOTTER: MS-HP55IMX
 PLOT SCALE: 25.463000
 PLOT DATE/TIME: 07/23/1999 13:41:35

NO	DATE	BY	CHKD	APPR	REVISION



I hereby certify that this plan, specification or report 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: 7-23-99
 Reg. No. 23409

STATE PROJECT NO.
 62-090-01

DRAWN BY: C. FLEISCHACKER
 DATE: 5-1999
 DESIGNED BY: M. TURNER
 DATE: 5-1999
 CHECKED BY: D. JULIFF
 DATE: 9-1998
 COMM. NO.: 0983271



RAMSEY COUNTY
 CONSTRUCTION PLAN
 BURLINGTON NORTHERN REGIONAL TRAIL

SHEET
 17
 OF
 39

TRAIL RADII			
RADIUS	ALIGNMENT	STATION	LOCATION
4.0 m	WALL	3+285.260	5.85(LT)
4.0 m	WALL	3+286.895	5.85m (RT)

END S.P. 62-090-01
 E.B.N. REGIONAL TRAIL
 P.O.T. 3+290.785
 MATCH EXISTING TRAIL

TYPE I CROSSING
 (SEE CROSSING DETAILS)

SEE SHEET NO. 17
 MATCH LINE 2+920.0

FURNISH AND INSTALL 9
 RED PINE TREES

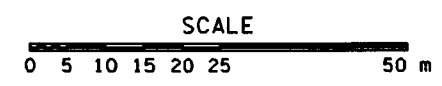
FURNISH AND INSTALL
 14 LILAC SHRUBS

E.B.N. REGIONAL TRAIL

NOTES:

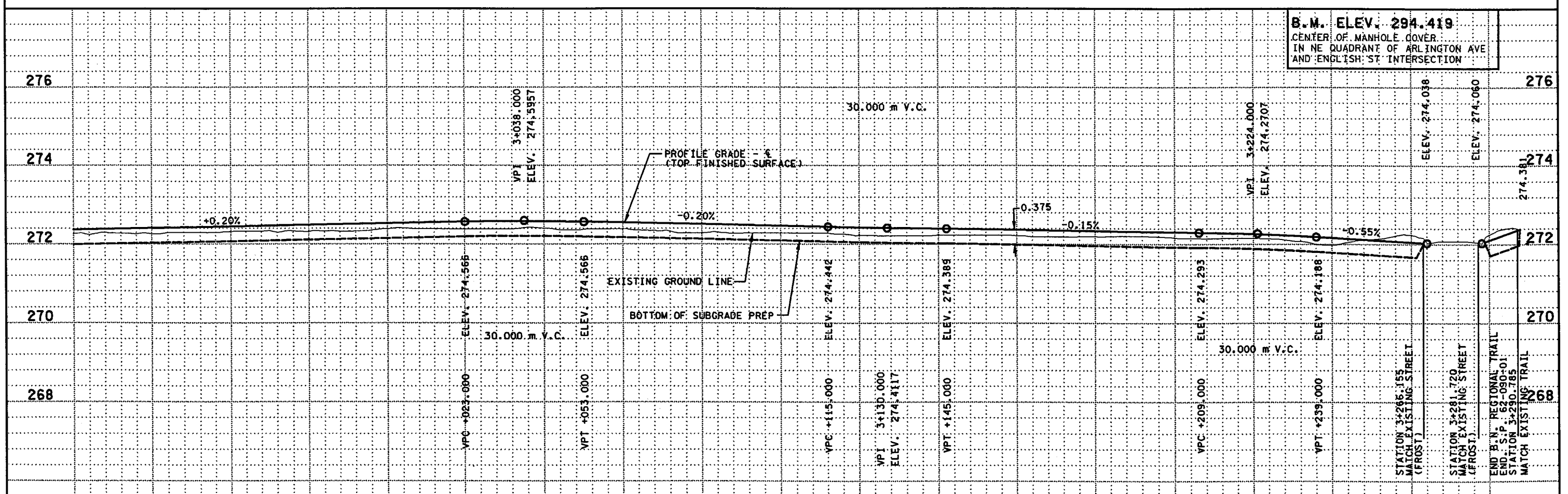
(A) CONSTRUCT PEDESTRIAN CURB RAMP PER
 MNDOT STD. PL. M7036D. RAMP SHALL BE BITUMINOUS.
 REMOVE 9.0 m DE. CONCRETE CURB AND GUTTER TO CONSTRUCT
 NEW RAMP. CONSTRUCT 9.0 m CONCRETE
 CURB AND GUTTER B618

FURNISH AND INSTALL 11
 BLACK HILLS SPRUCE TREES



LEGEND	
	CLEAR AND GRUB TREES
	INDICATES INDIVIDUAL TREE TO BE CLEARED AND GRUBBED
	SILT FENCE

B.M. ELEV. 294.419
 CENTER OF MANHOLE COVER
 IN NE QUADRANT OF ARLINGTON AVE
 AND ENGLISH ST INTERSECTION



DESIGN FILE: h:\civ\11\008\3271\3271.dwg
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 PLOTTER: MS-RPS-INK
 PLOT DATE: 02-16-2000
 PLOT TIME: 07:23/1999 13:42:03

NO	DATE	BY	CHK	APPR	REVISION



I hereby certify that this plan, specification or
 report 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: 7-23-99 Reg. No. 23409

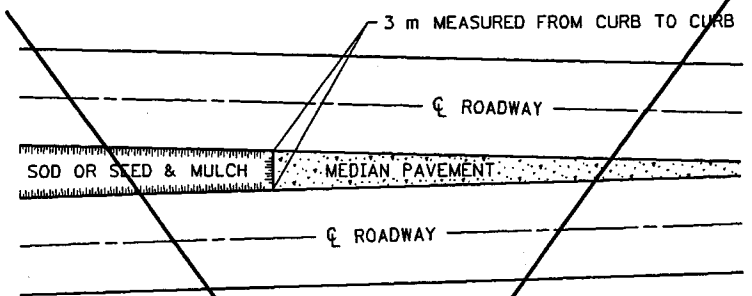
STATE
 PROJECT NO.
 62-090-01

DRAWN BY DATE
 C.FLEISCHACKER 5-1999
 DESIGNED BY
 M.TURNER 5-1999
 CHECKED BY
 D.JULIFF 9-1998
 COMM. NO.
 0983271

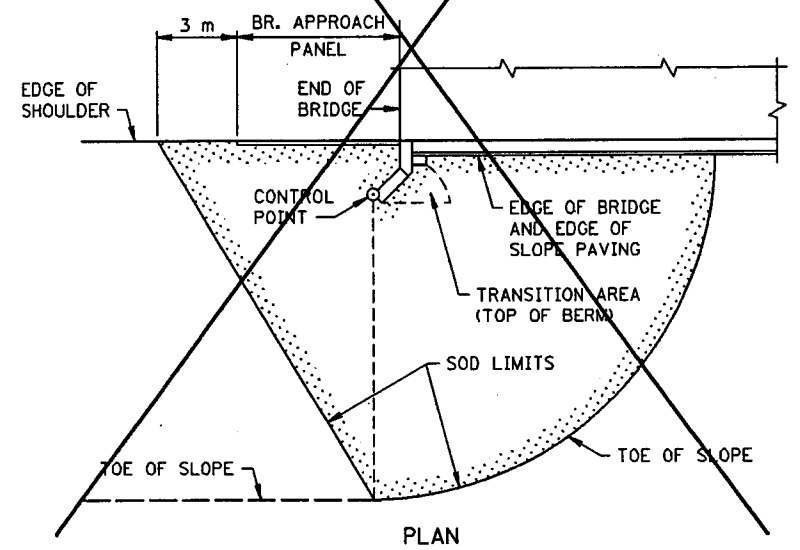


RAMSEY COUNTY
 CONSTRUCTION PLAN
 BURLINGTON NORTHERN REGIONAL TRAIL

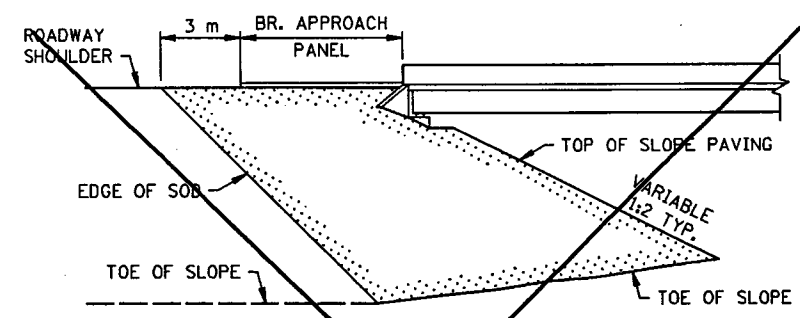
SHEET
 18
 OF
 39



SODDING LIMITS AT GORE AREA

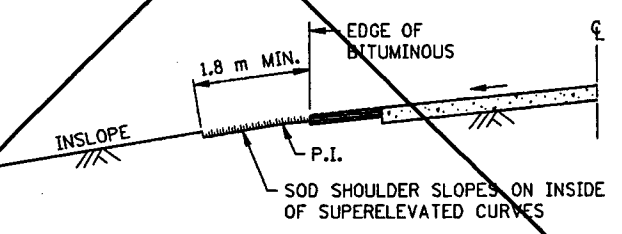


PLAN

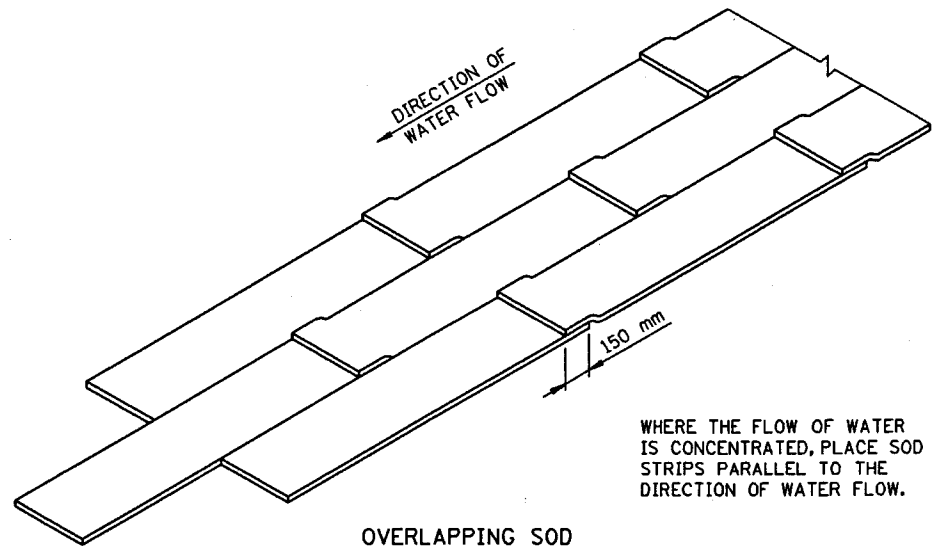


ELEVATION

SODDING LIMITS AT BRIDGE APPROACH FILLS

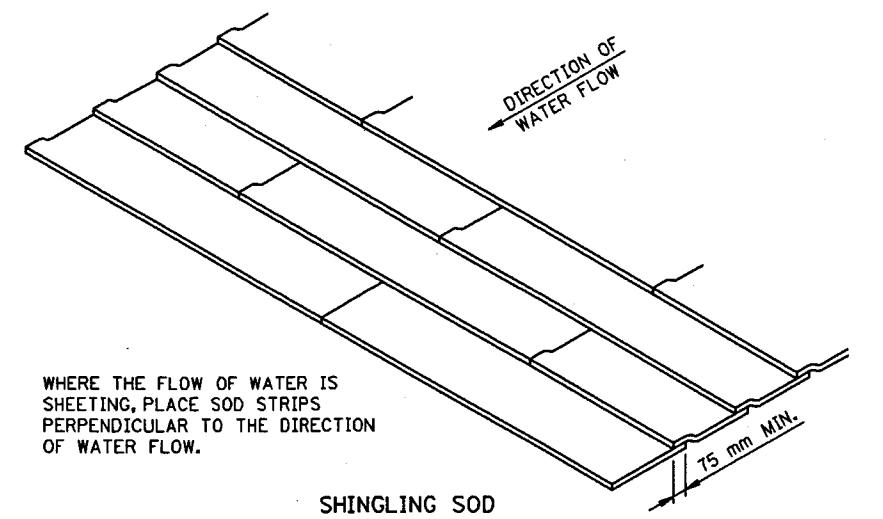


SODDING INSLOPES OF SUPERELEVATED CURVES



OVERLAPPING SOD

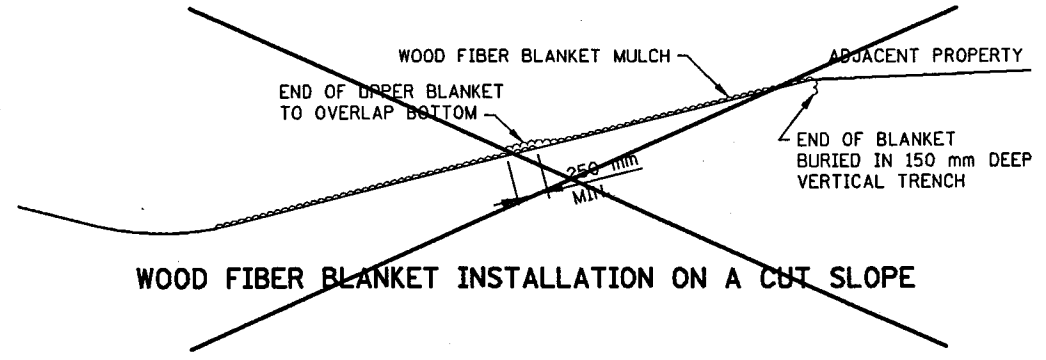
WHERE THE FLOW OF WATER IS CONCENTRATED, PLACE SOD STRIPS PARALLEL TO THE DIRECTION OF WATER FLOW.



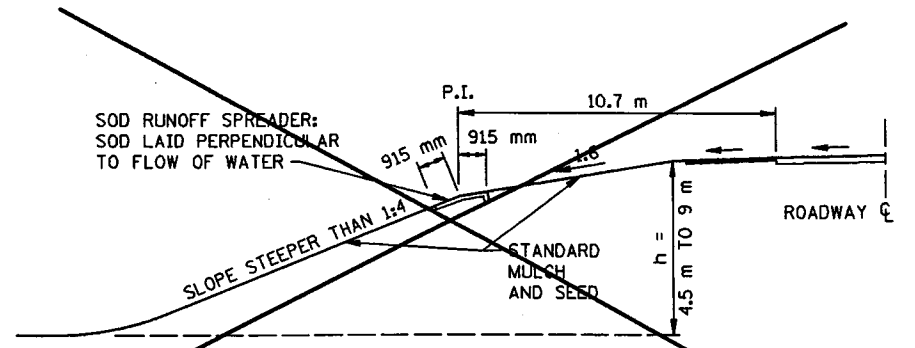
SHINGLING SOD

WHERE THE FLOW OF WATER IS SHEETING, PLACE SOD STRIPS PERPENDICULAR TO THE DIRECTION OF WATER FLOW.

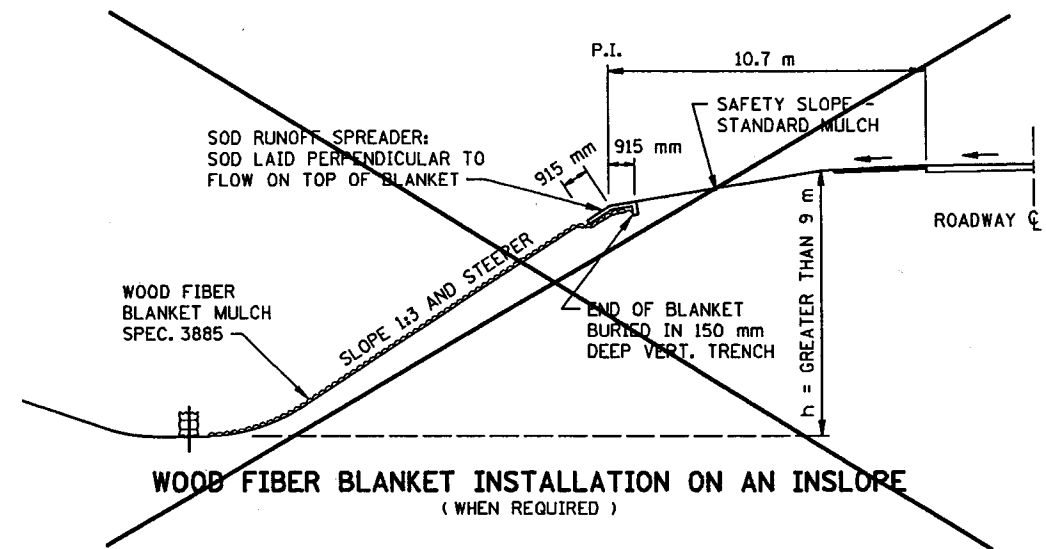
SPECIAL SOD PLACEMENT TECHNIQUES



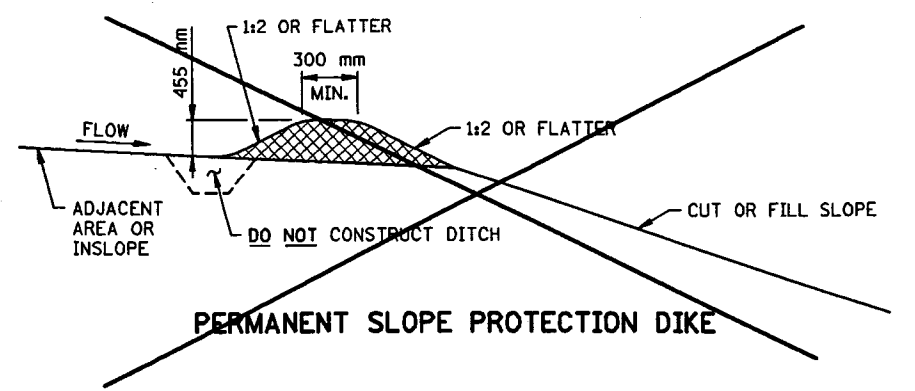
WOOD FIBER BLANKET INSTALLATION ON A CUT SLOPE



BROKEN-BACK SAFETY FILL SLOPE



WOOD FIBER BLANKET INSTALLATION ON AN INSLOPE (WHEN REQUIRED)



PERMANENT SLOPE PROTECTION DIKE

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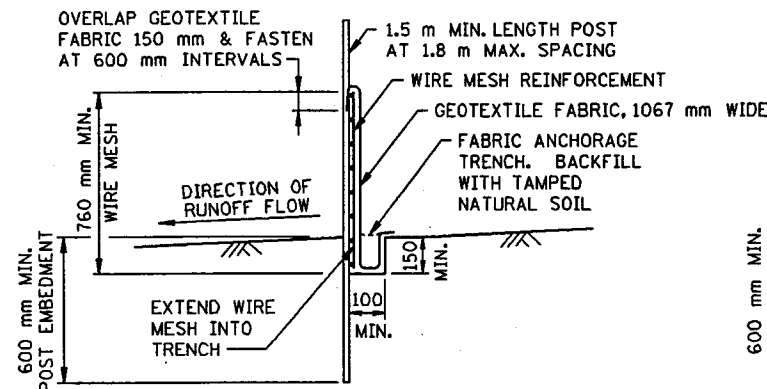
David J. Guly
Date 7.23.99 Reg. No. 23409



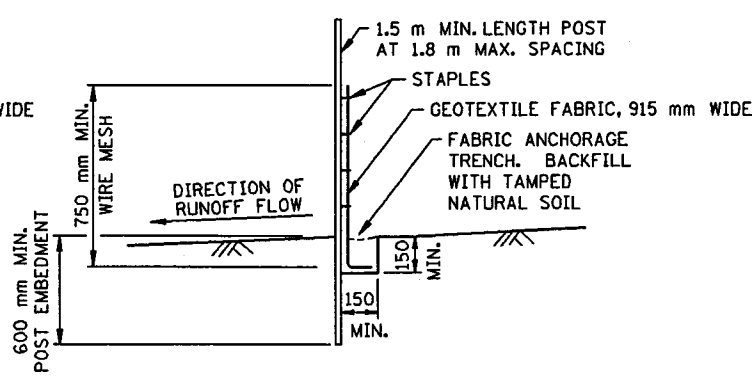
STANDARD SHEET NO. 5-297.406M
STANDARD APPROVED: JANUARY 31, 1985
REVISION DATE 4-27-95

TITLE: **PERMANENT EROSION CONTROL**
ALONG ROADWAYS AND AT GORE AREAS & BRIDGE APPROACH FILLS
STATE PROJ. NO. 62-090-01 SHEET NO. 19 OF 39 SHEETS

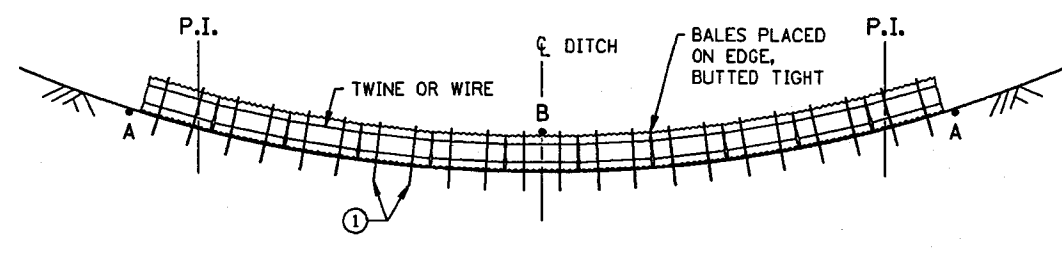
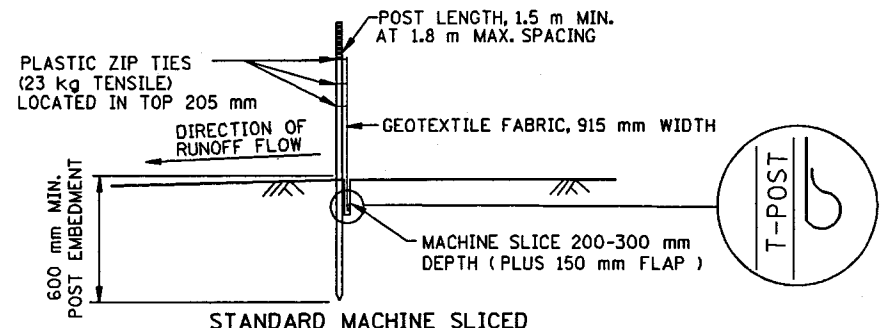
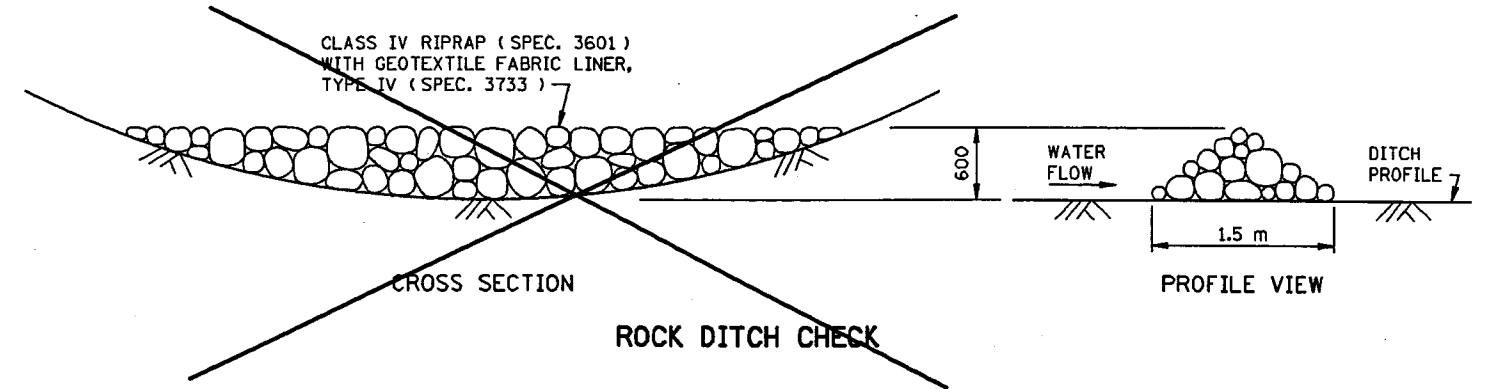
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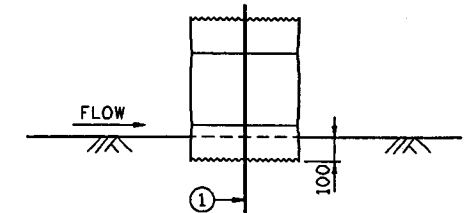
HEAVY DUTY



PREASSEMBLED

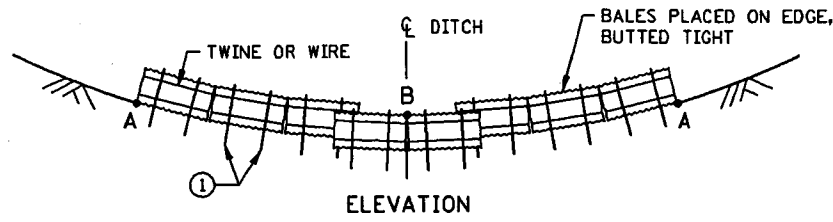
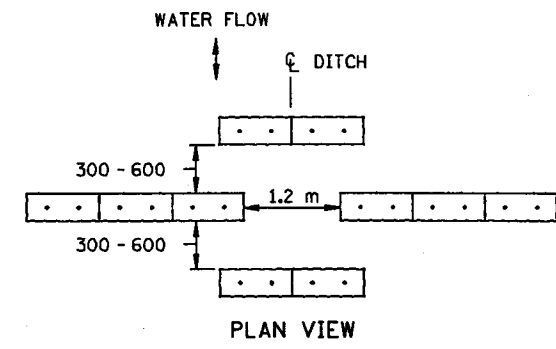
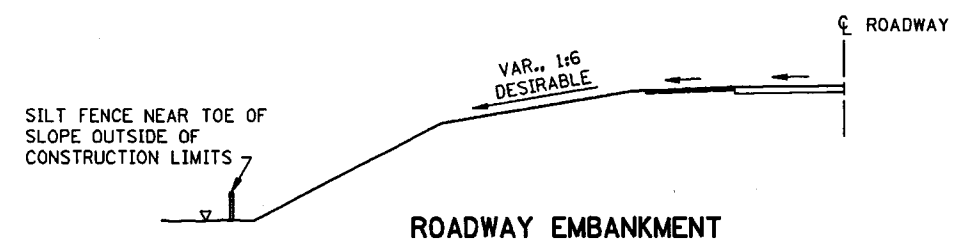


NOTE: POINT A MUST BE HIGHER THAN POINT B



DESIGN CRITERIA:
MAXIMUM CONTRIBUTING AREA: 1.2 ha

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



NOTE: POINT A MUST BE HIGHER THAN POINT B

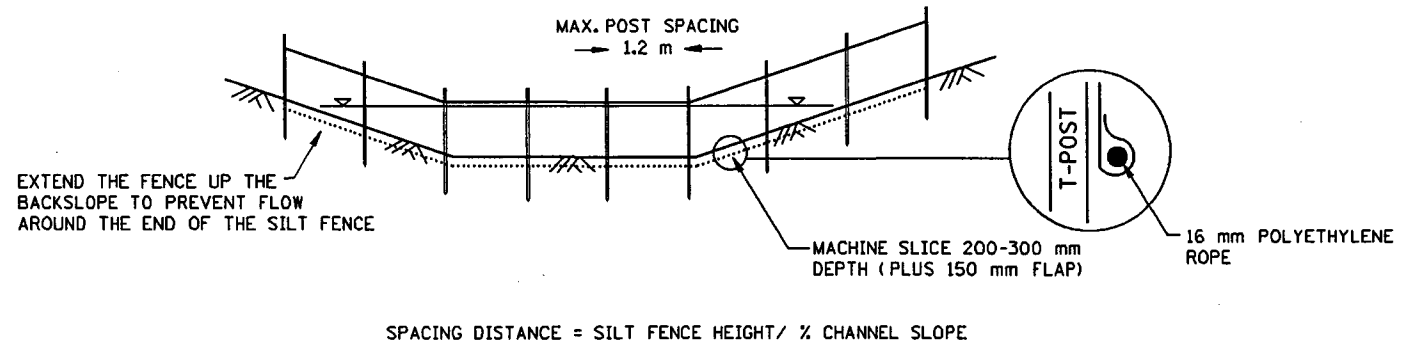
BALE DITCH VELOCITY CHECKS
(WILL REQUIRE A MINIMUM OF 10 BALES PER SITE)

RECOMMENDED SPACING BETWEEN DITCH CHECKS	
DITCH GRADE (%)	SPACING (m)
2	30
4	23
6	15
8	12
10	8

DESIGN CRITERIA:

	BALE	ROCK
STORM FREQUENCY:	2 YR. - 24 HR.	10 YR. - 24 HR.
MAX. FLOW VELOCITY:	1.5 m/s	3.6 m/s
MAX. DITCH GRADE:	5%	—
MAX. DRAINAGE AREA:	0.8 ha	2.0 ha

NOTE: ① TWO 50 mm X 50 mm WOOD STAKES OR REINFORCING BARS IN EACH BALE AND EMBEDDED IN THE GROUND 250 mm MINIMUM.



NOTE: WHEN SEDIMENT BUILD UP REACHES 460 mm THE SILT SHOULD BE REMOVED OR A SECOND SILT FENCE BUILT UPSTREAM THE EXISTING ONE AT A SUITABLE DISTANCE.

DESIGN CRITERIA

STORM FREQUENCY	2 YR. - 24 HR.
MAX. DITCH GRADE	5%
MAX. DRAINAGE AREA	0.40 ha

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[Signature]
Date 7-23-99 Rep. No. 23409

STANDARD SHEET NO. 5-297.405M (2 OF 3)

STANDARD APPROVED: MAY 1, 1995

REVISION DATE 3-25-99

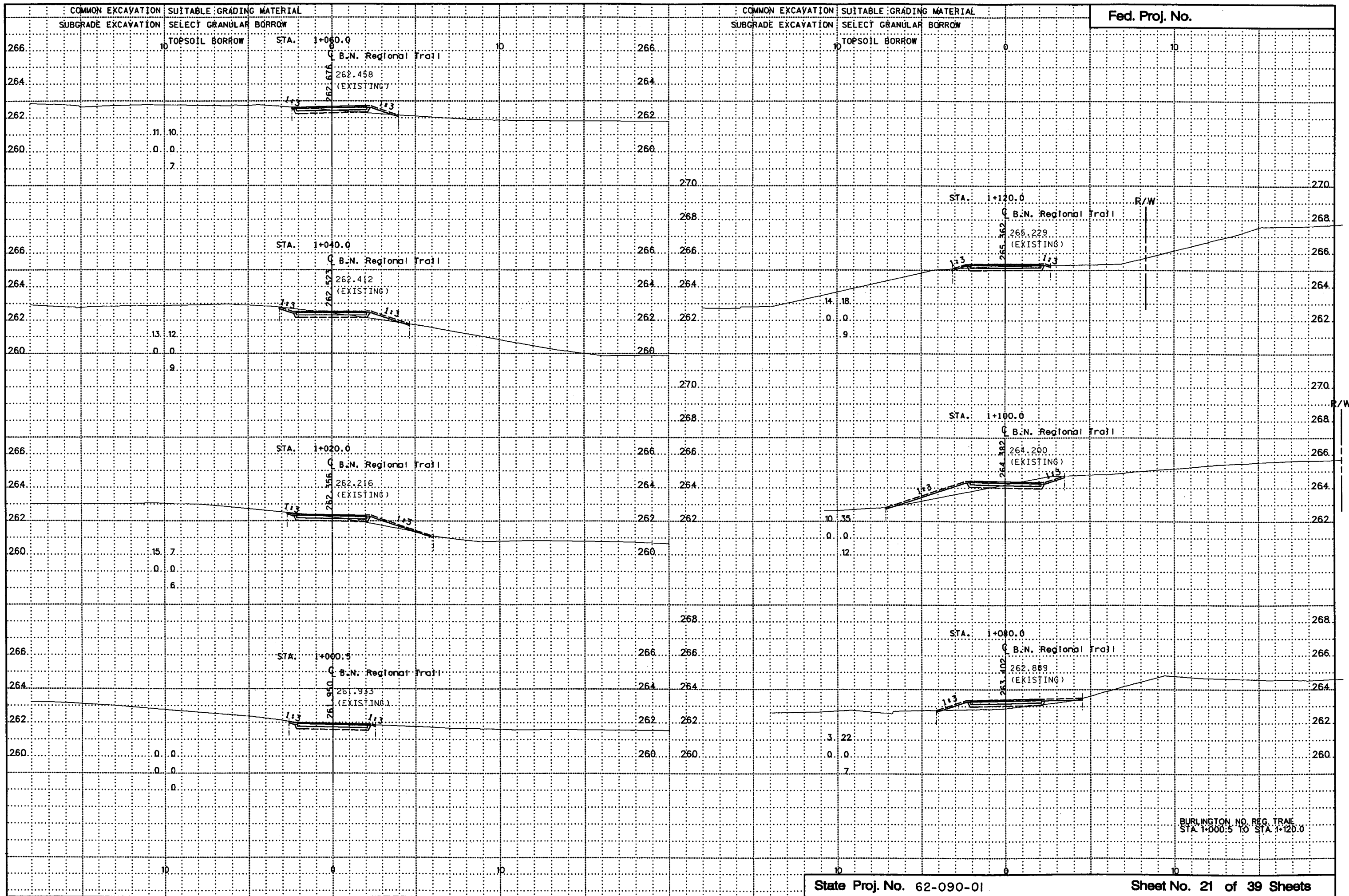
STATE PROJ. NO. 62-090-01

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS, EXCEPT AS NOTED.

TEMPORARY EROSION CONTROL

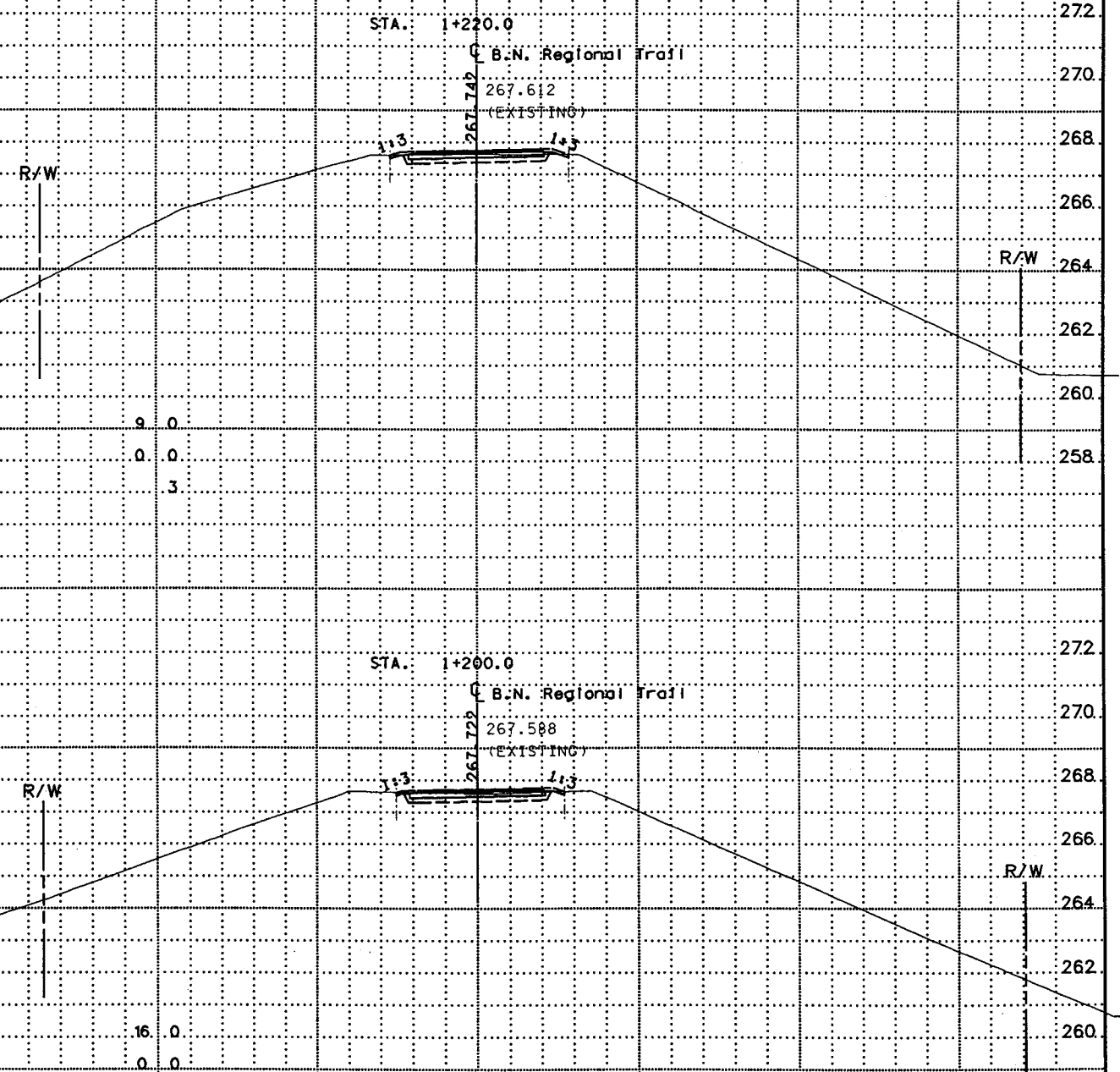
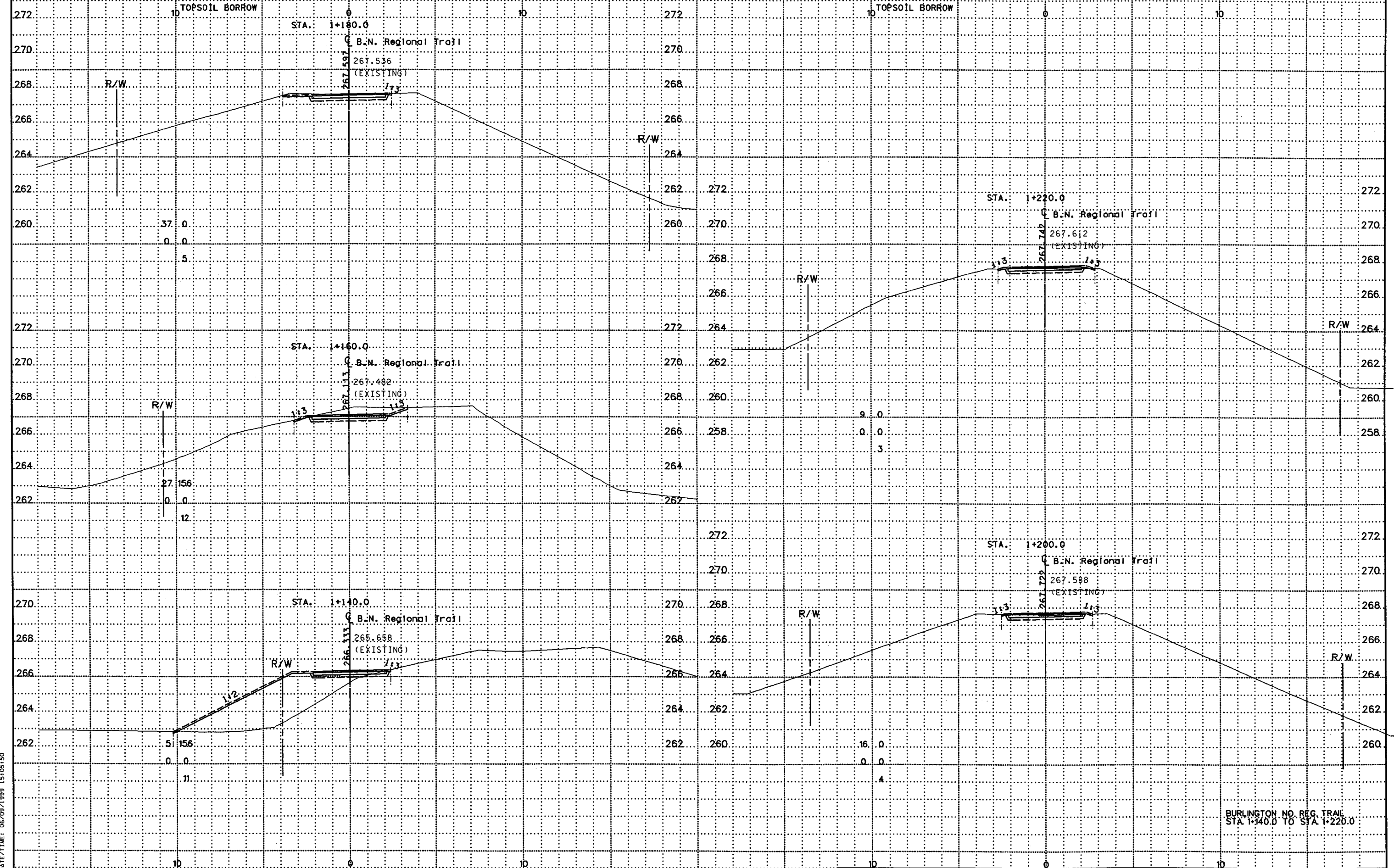
SHEET NO. 20 OF 39 SHEETS

DESIGN FILE: R:\CIVIL\08\3271\3271.dwg
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COMMON EXCAVATION SUBGRADE EXCAVATION
SUITABLE GRADING MATERIAL SELECT GRANULAR BORROW
TOPSOIL BORROW

COMMON EXCAVATION SUBGRADE EXCAVATION
SUITABLE GRADING MATERIAL SELECT GRANULAR BORROW
TOPSOIL BORROW



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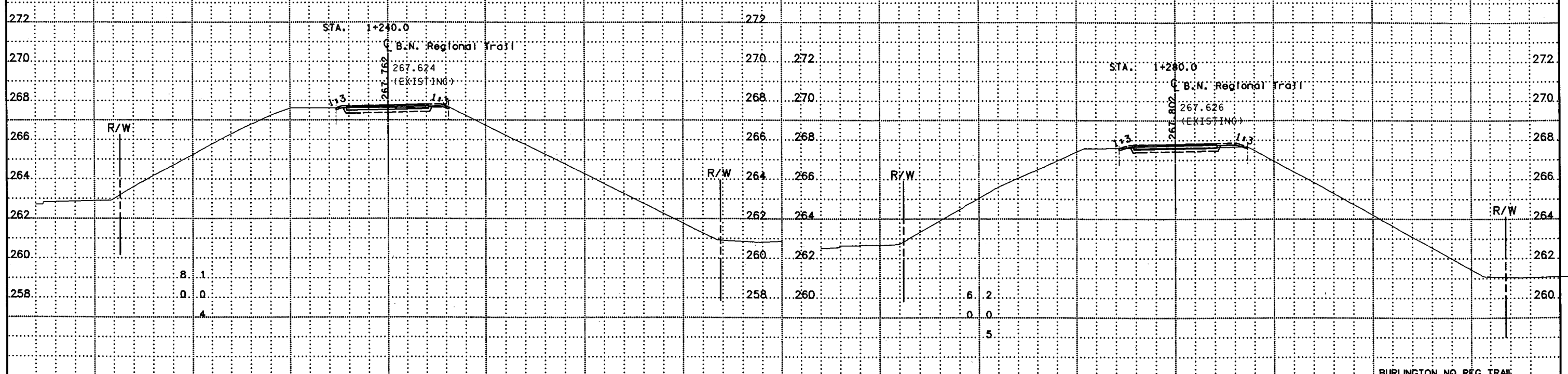
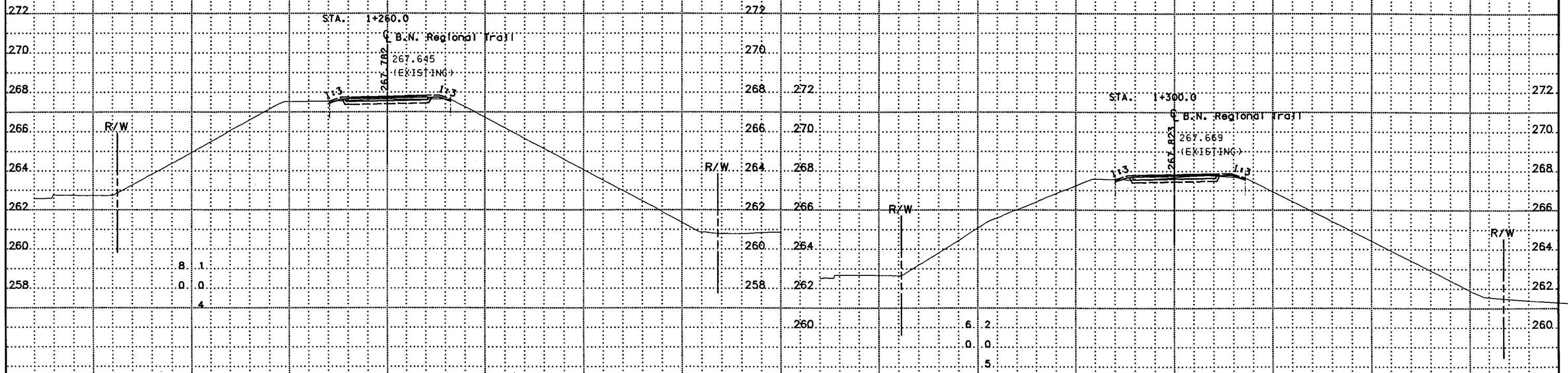
BURLINGTON NO. REG. TRAIL
 STA 1+140.0 TO STA 1+220.0

COMMON EXCAVATION
SUBGRADE EXCAVATION

SUITABLE GRADING MATERIAL
SELECT GRANULAR BORROW
TOPSOIL BORROW

COMMON EXCAVATION
SUBGRADE EXCAVATION

SUITABLE GRADING MATERIAL
SELECT GRANULAR BORROW
TOPSOIL BORROW



BURLINGTON NO. REG. TRAIL
STA 1+240.0 TO STA 1+300.0

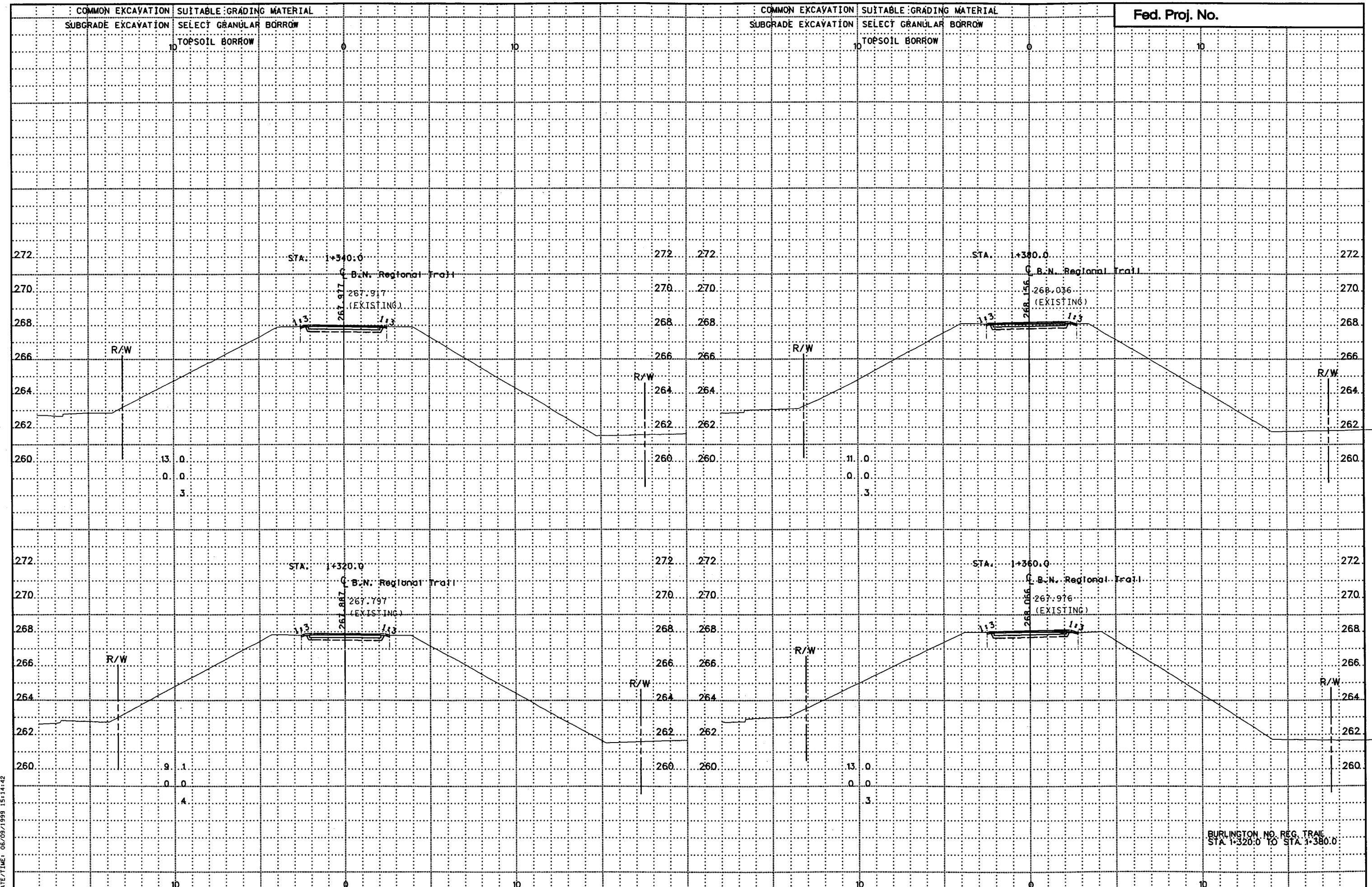
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COMMON EXCAVATION
SUBGRADE EXCAVATION

SUITABLE GRADING MATERIAL
SELECT GRANULAR BORROW
TOPSOIL BORROW

COMMON EXCAVATION
SUBGRADE EXCAVATION

SUITABLE GRADING MATERIAL
SELECT GRANULAR BORROW
TOPSOIL BORROW

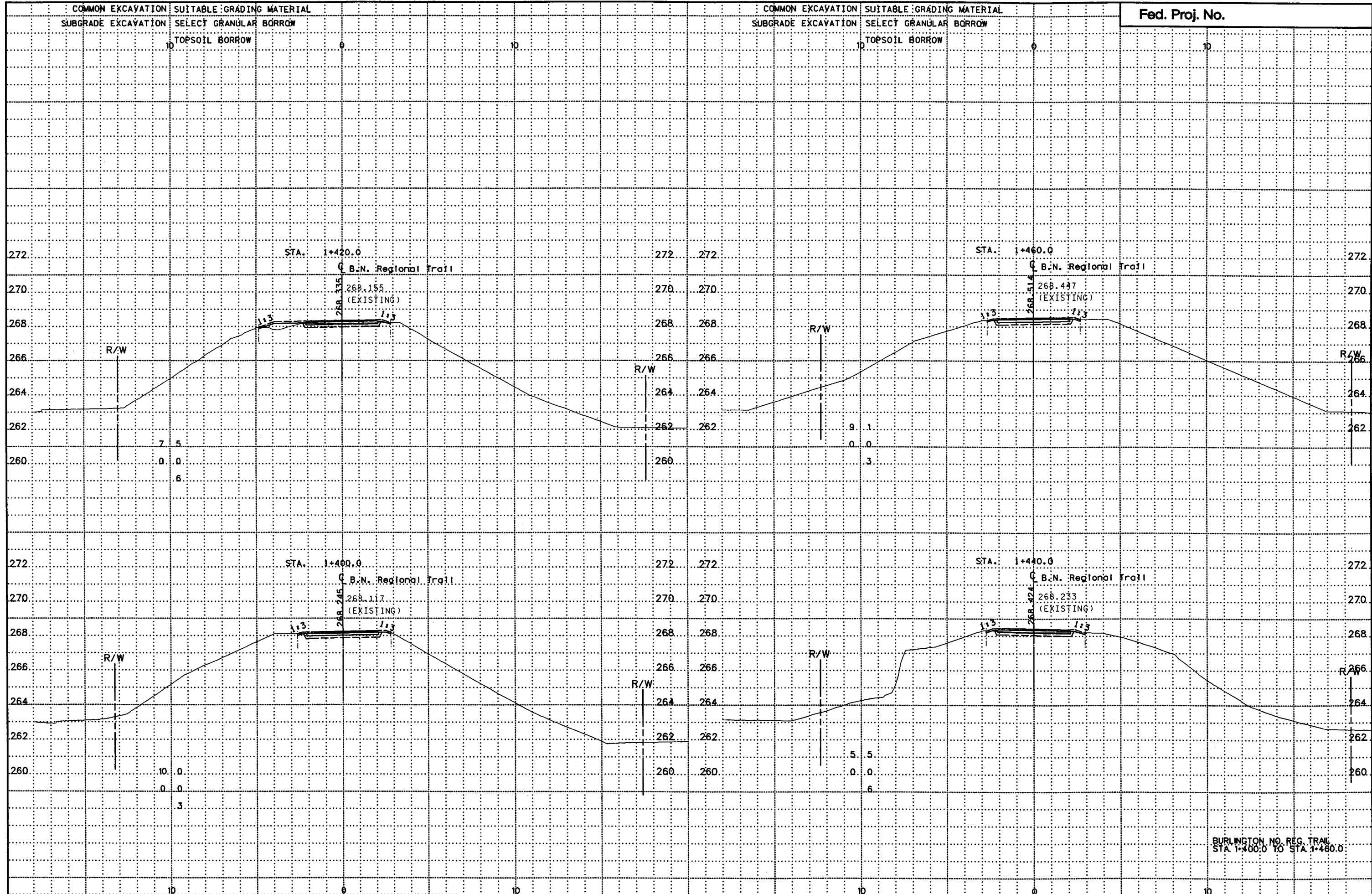


BURLINGTON NO. REG. TRAIL
STA 1+320.0 TO STA 1+380.0

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 TOPSOIL BORROW

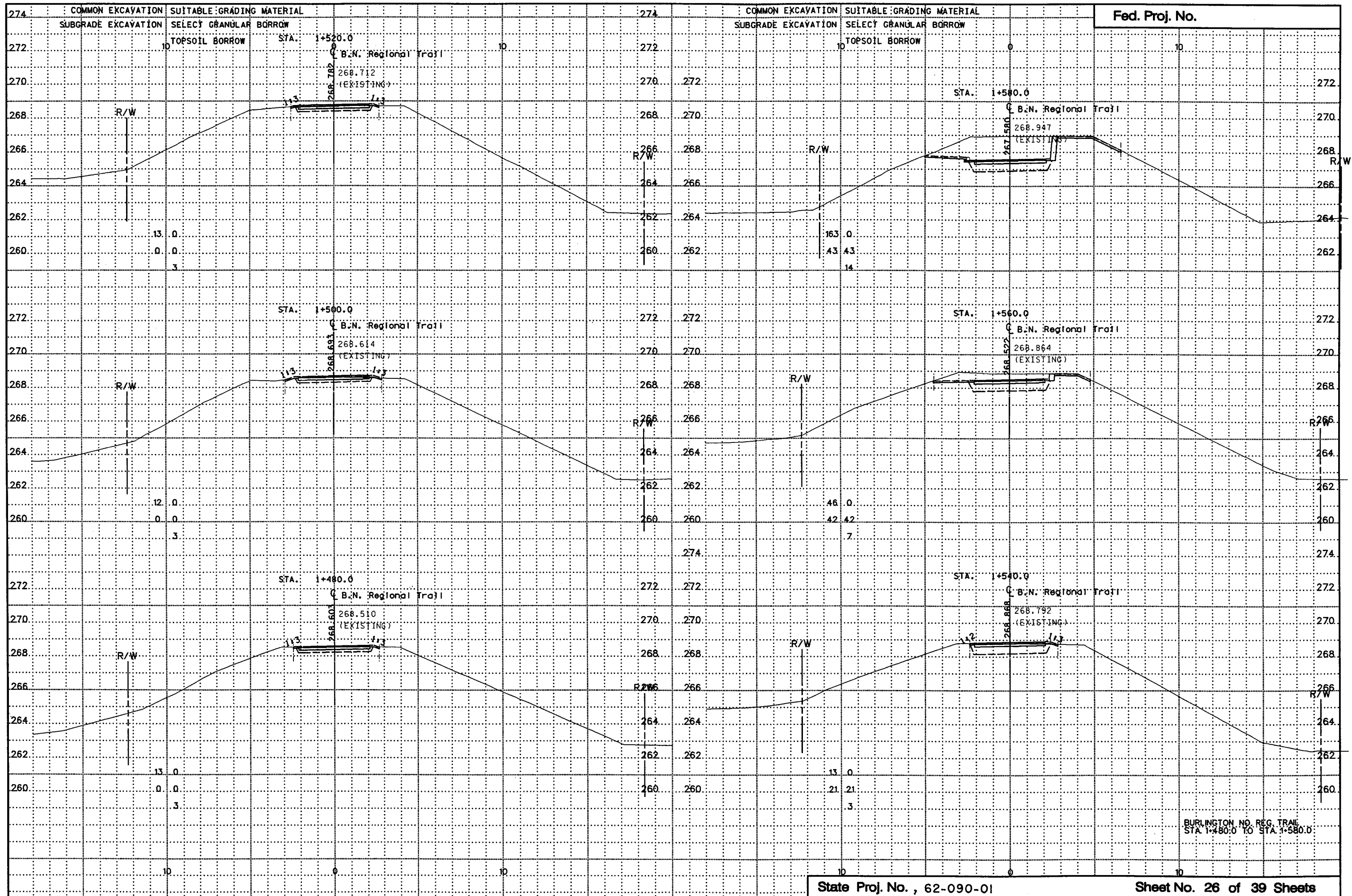
COMMON EXCAVATION SUITABLE GRADING MATERIAL
 SUBGRADE EXCAVATION SELECT GRANULAR BORROW
 TOPSOIL BORROW



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BURLINGTON NO. REG. TRAIL
 STA 1+400.0 TO STA 1+480.0

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Fed. Proj. No.

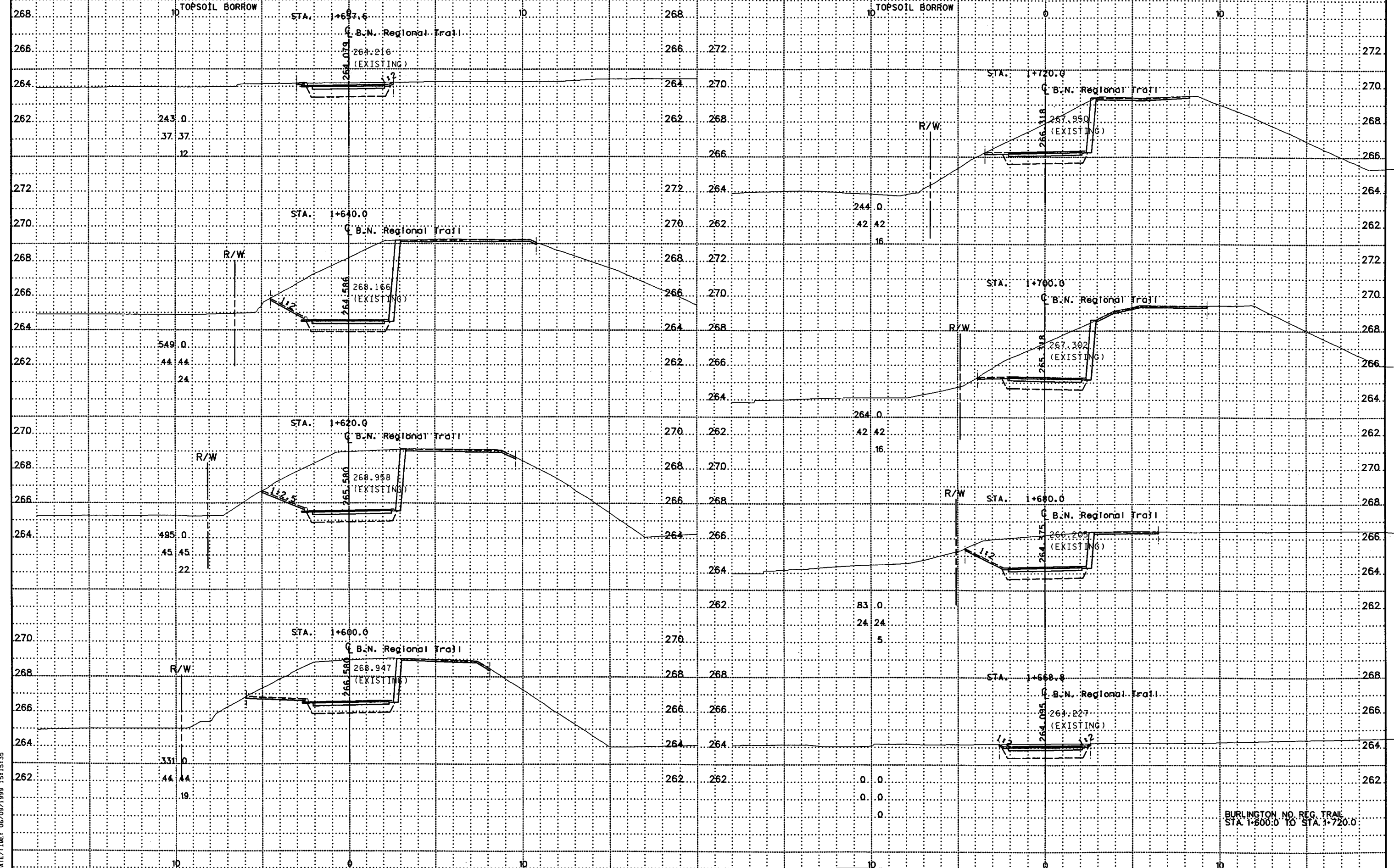
State Proj. No. , 62-090-01

Sheet No. 26 of 39 Sheets

BURLINGTON NO. REG. TRAIL
 STA 1+480.0 TO STA 1+580.0

COMMON EXCAVATION SUITABLE GRADING MATERIAL
SUBGRADE EXCAVATION SELECT GRANULAR BORROW

COMMON EXCAVATION SUITABLE GRADING MATERIAL
SUBGRADE EXCAVATION SELECT GRANULAR BORROW



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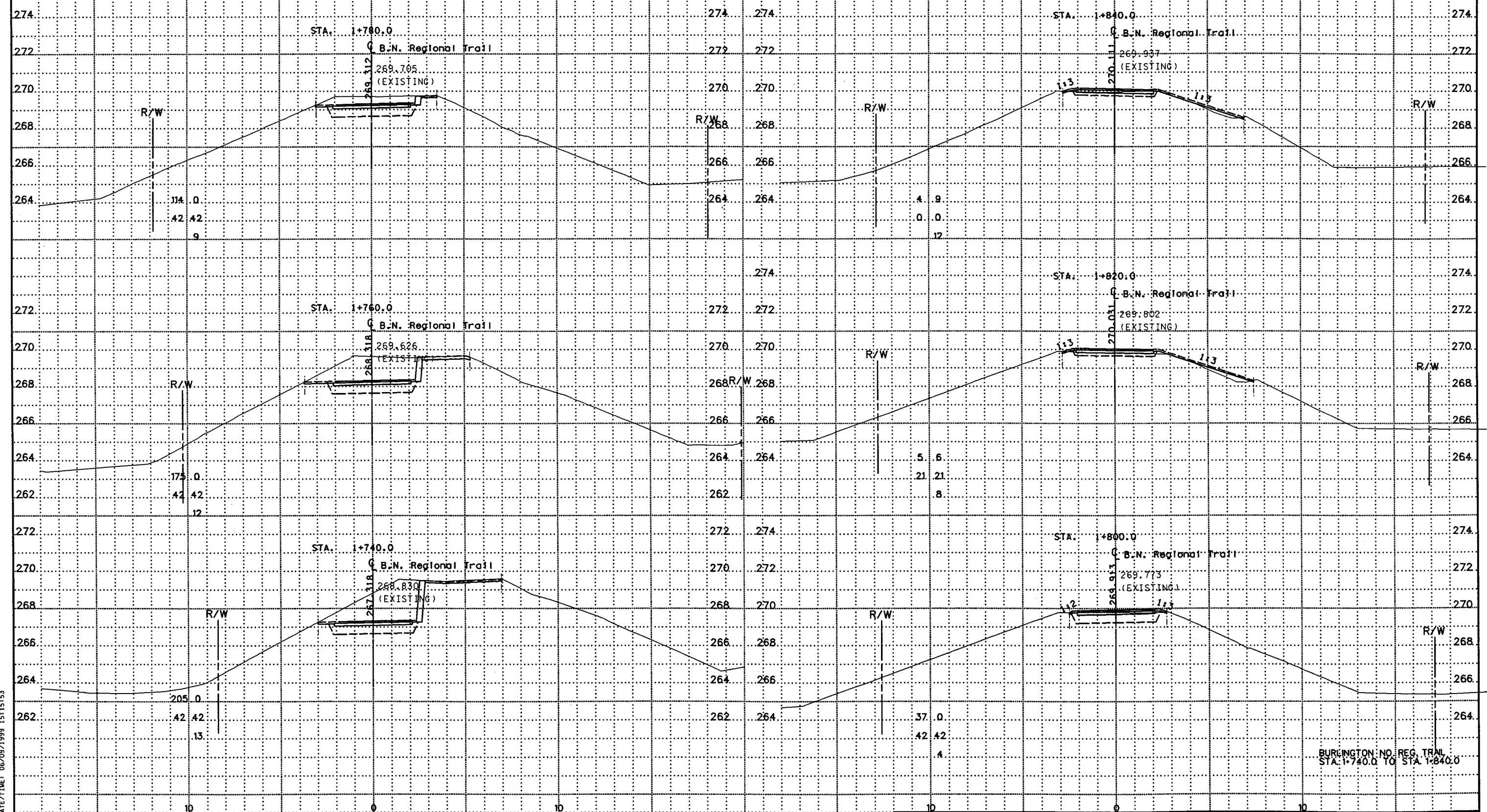
BURLINGTON NO. REG. TRAIL
 STA 1+600.0 TO STA 1+720.0

COMMON EXCAVATION SUITABLE GRADING MATERIAL
SUBGRADE EXCAVATION SELECT GRANULAR BORROW

COMMON EXCAVATION SUITABLE GRADING MATERIAL
SUBGRADE EXCAVATION SELECT GRANULAR BORROW

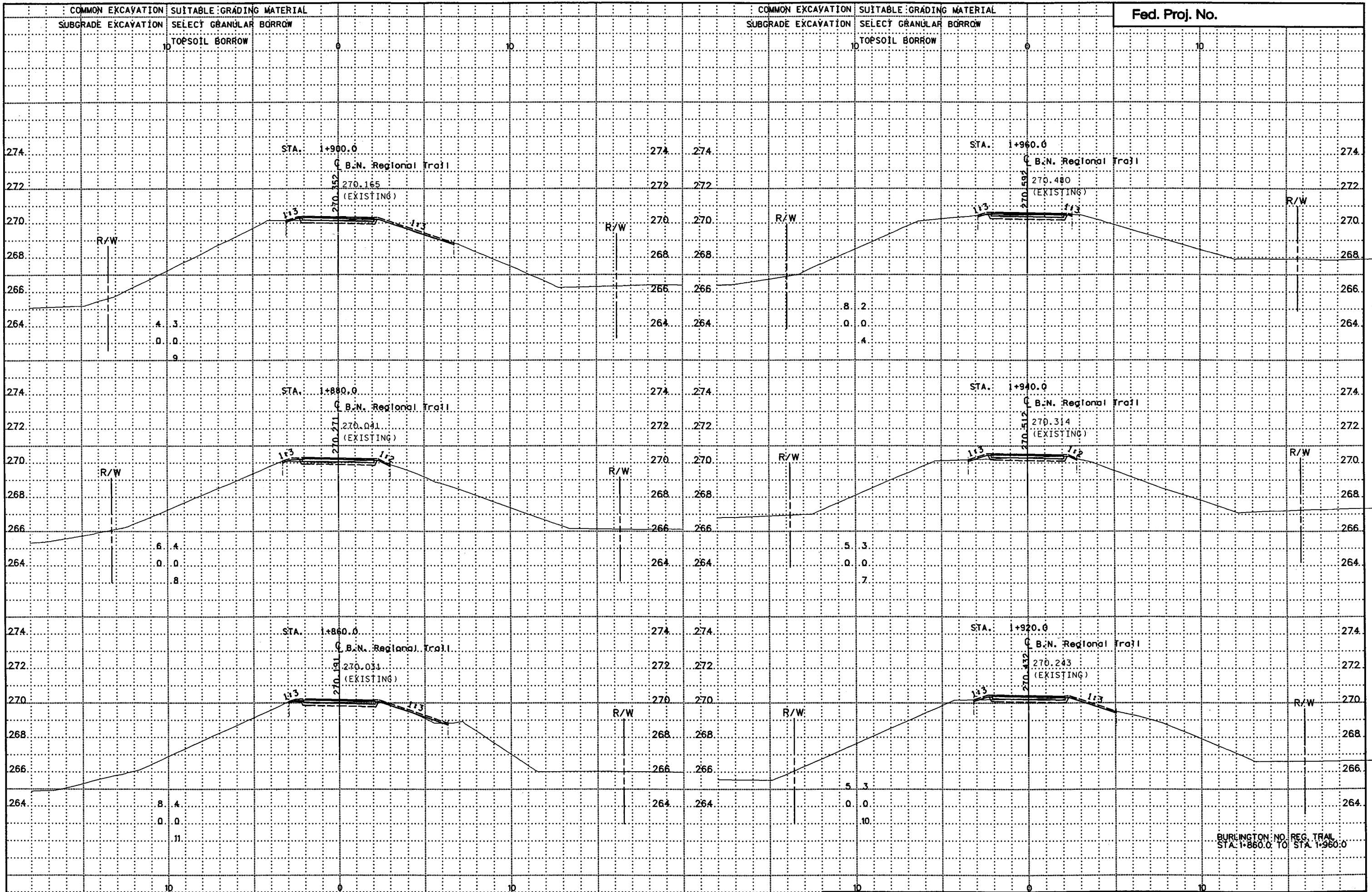
TOPSOIL BORROW

TOPSOIL BORROW



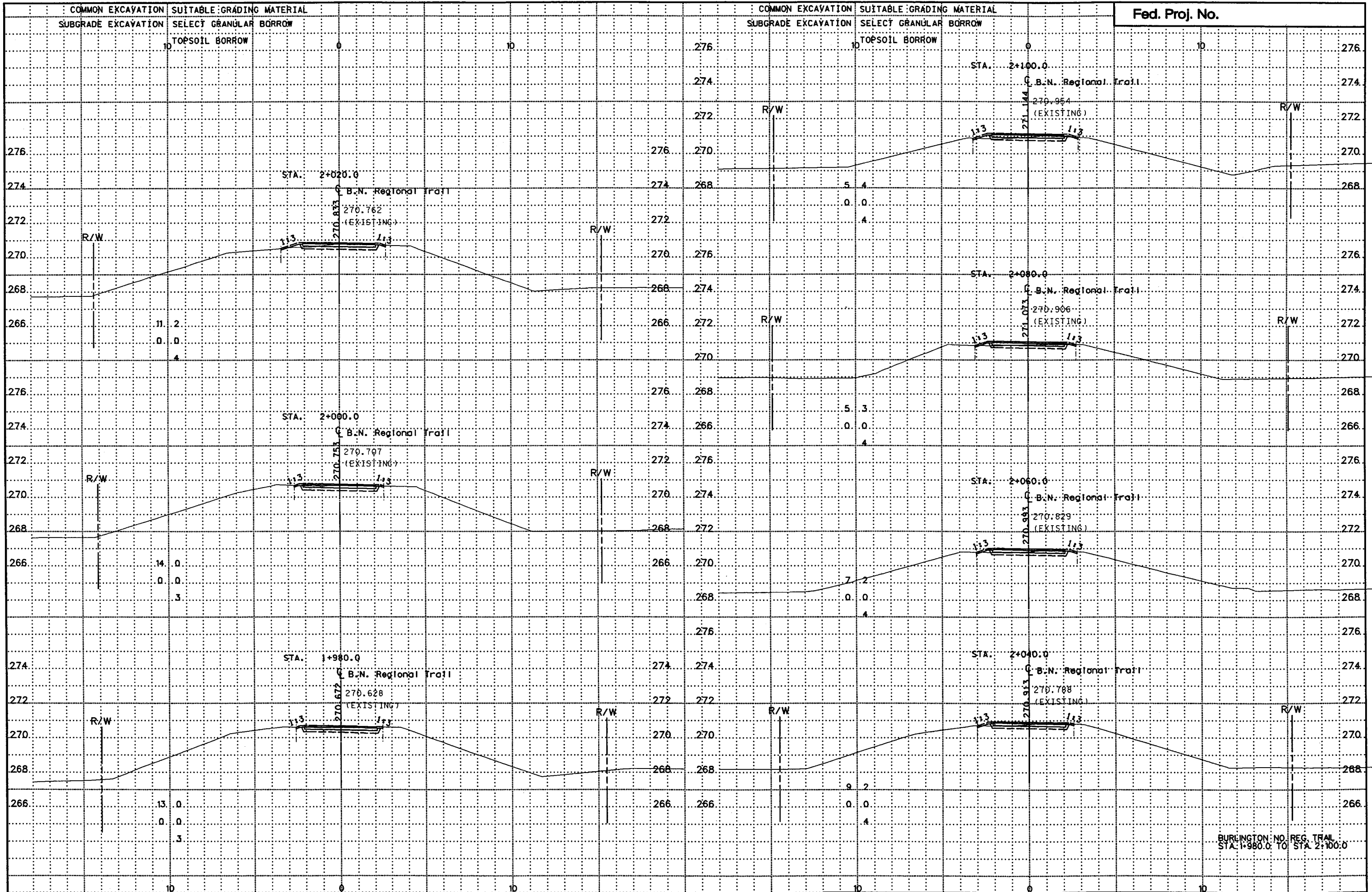
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STA. 1+740.0 TO STA. 1+840.0



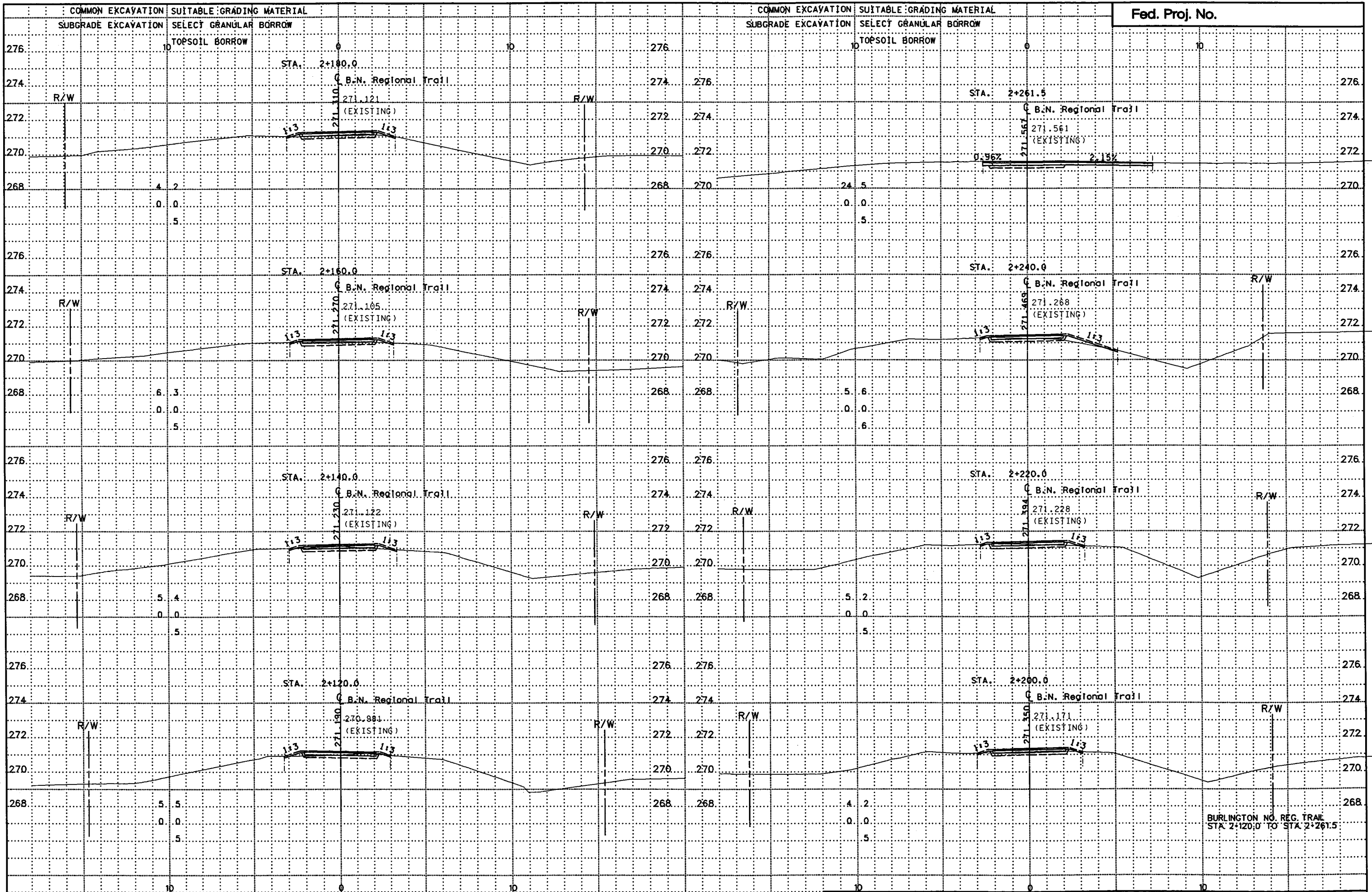
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BURLINGTON NO. REG. TRAIL
 STA. 1+860.0 TO STA. 1+960.0



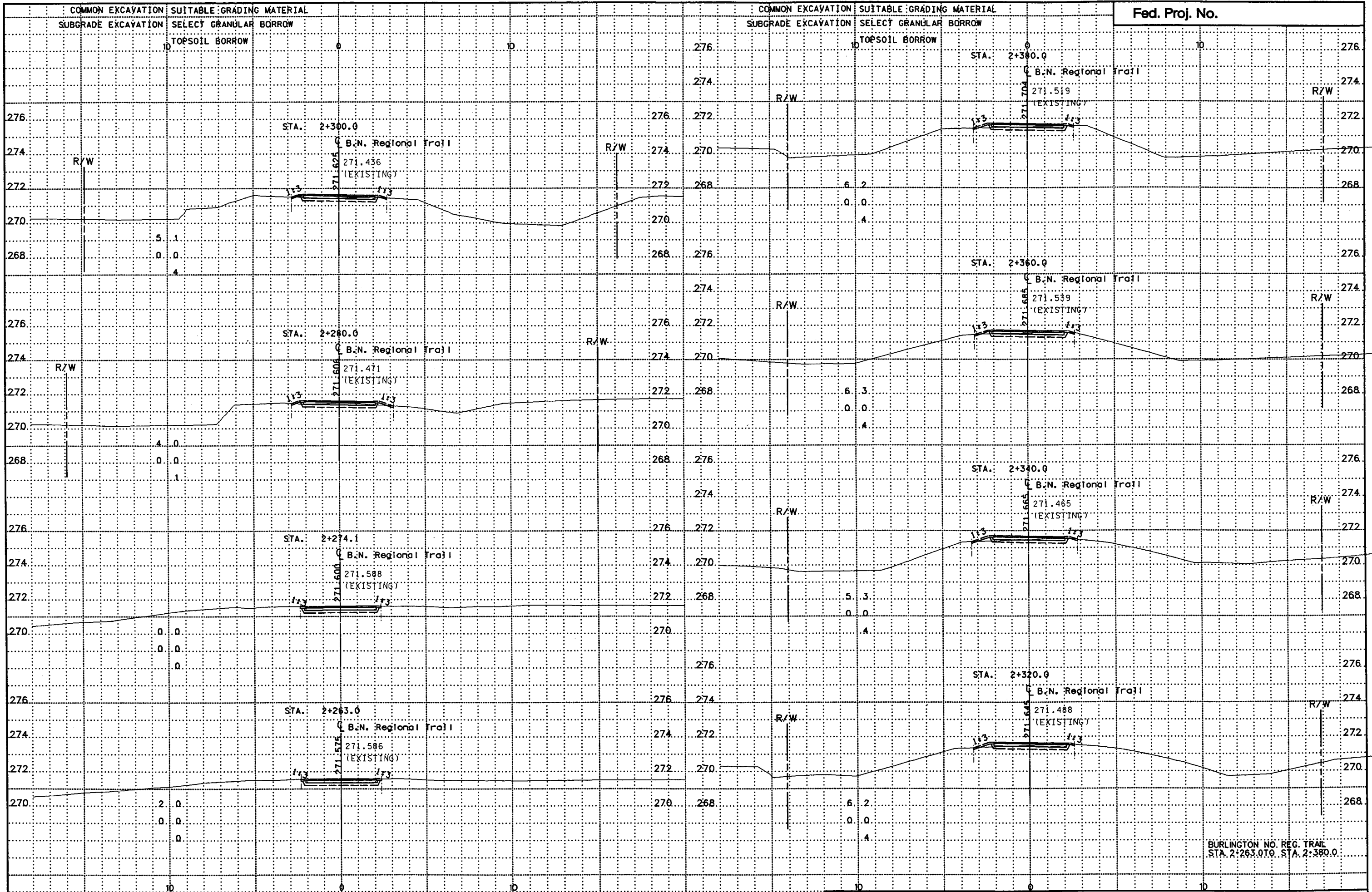
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BURLINGTON NO. REG. TRAIL
 STA. 1+980.0 TO STA. 2+100.0



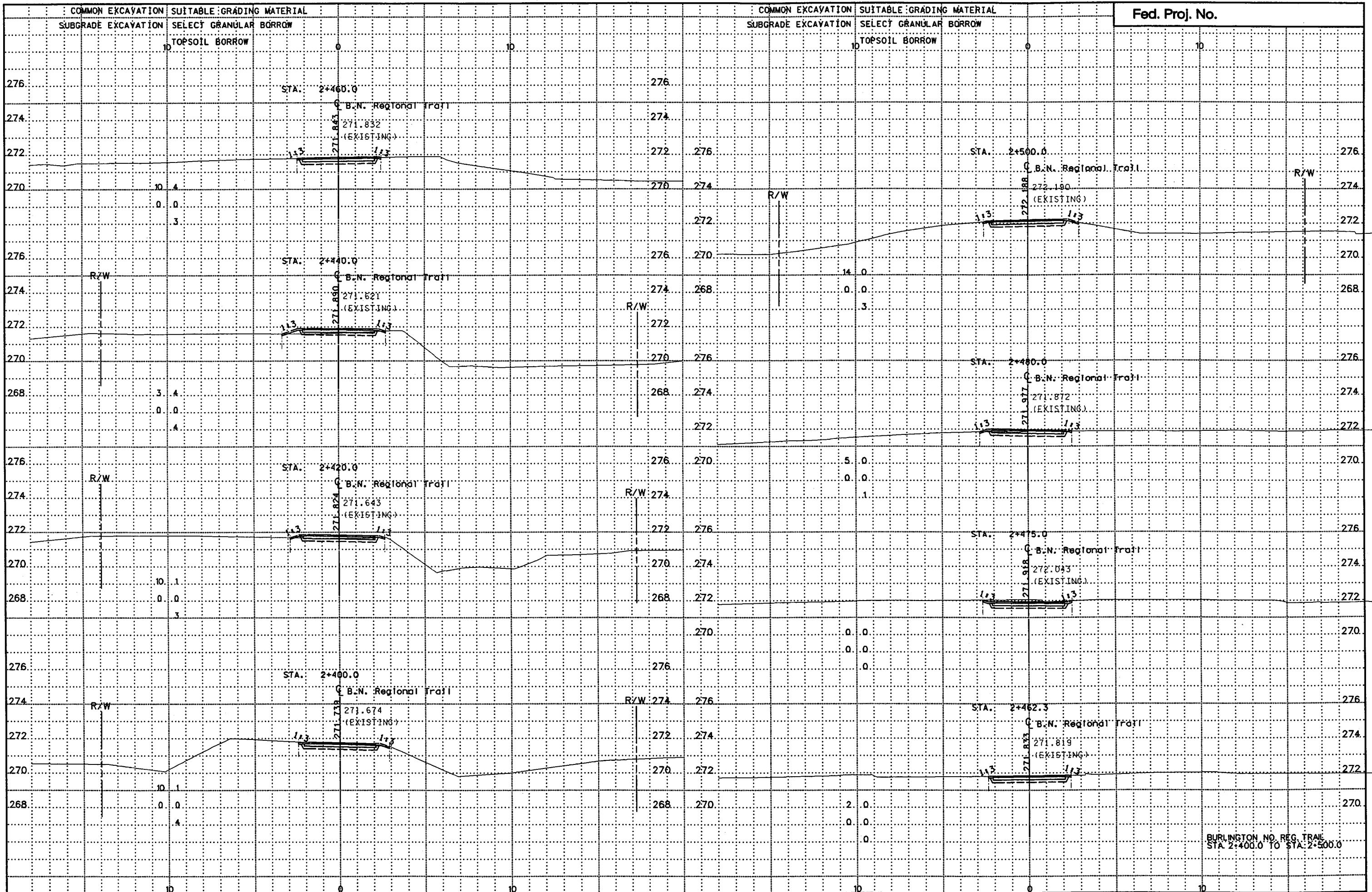
BURLINGTON NO. REG. TRAIL
STA. 2+120.0 TO STA. 2+261.5

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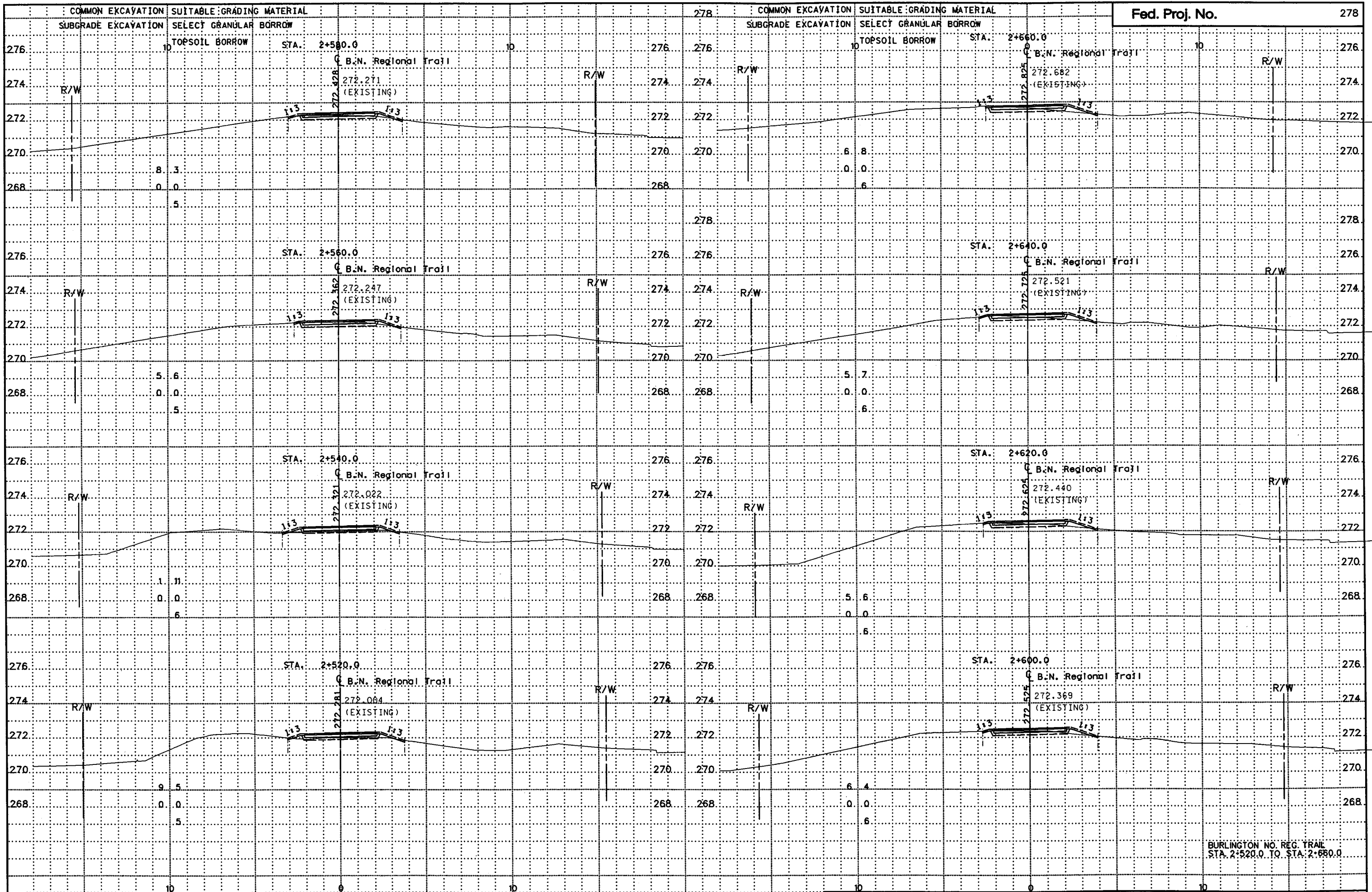
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BURLINGTON NO. REG. TRAIL
 STA. 2+263.0 TO STA. 2+380.0



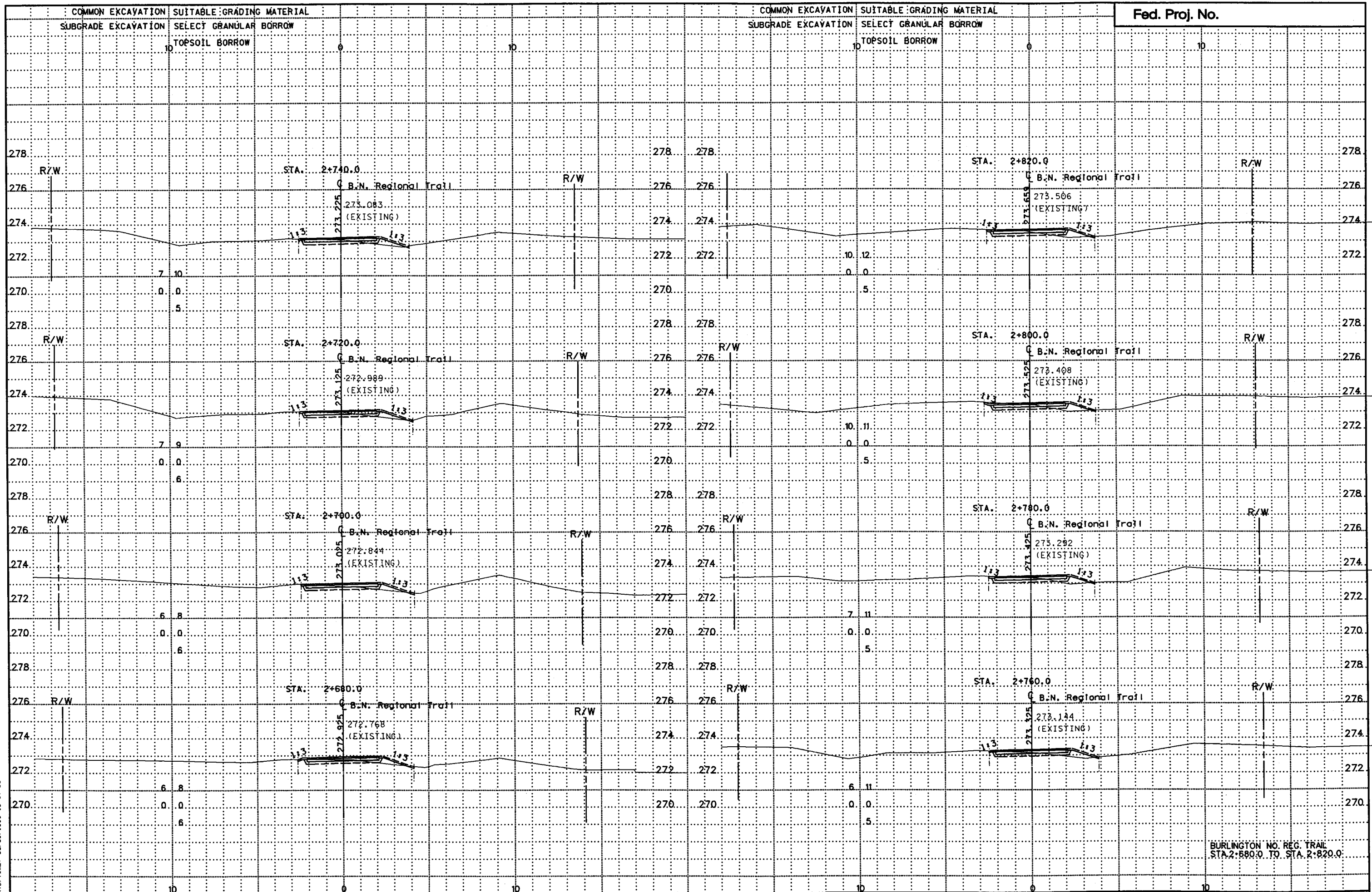
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BURLINGTON NO. REG. TRAIL
 STA. 2+400.0 TO STA. 2+500.0



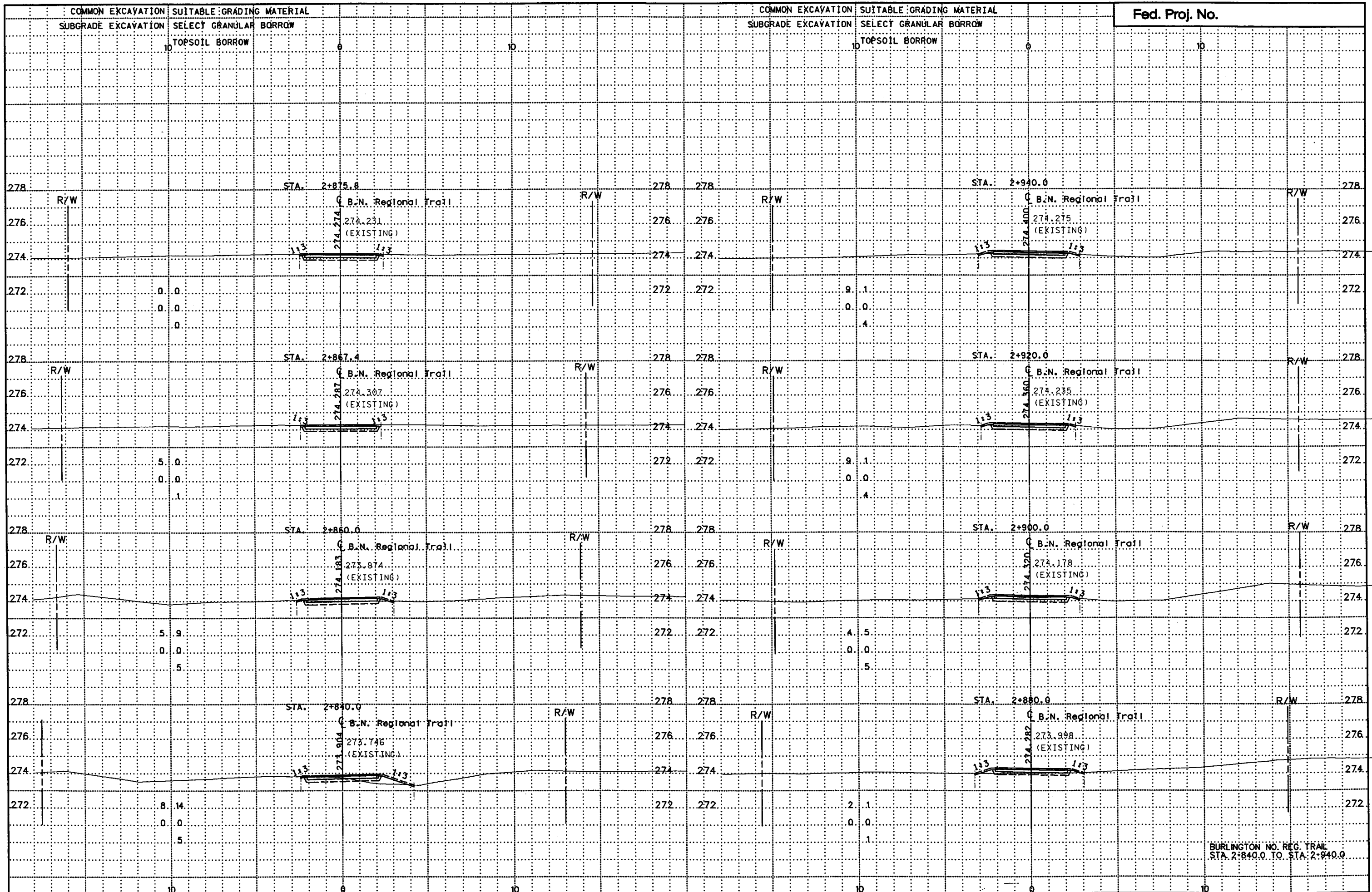
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BURLINGTON NO. REG. TRAIL
 STA. 2+520.0 TO STA. 2+680.0



BURLINGTON NO. REG. TRAIL
STA. 2+680.0 TO STA. 2+820.0

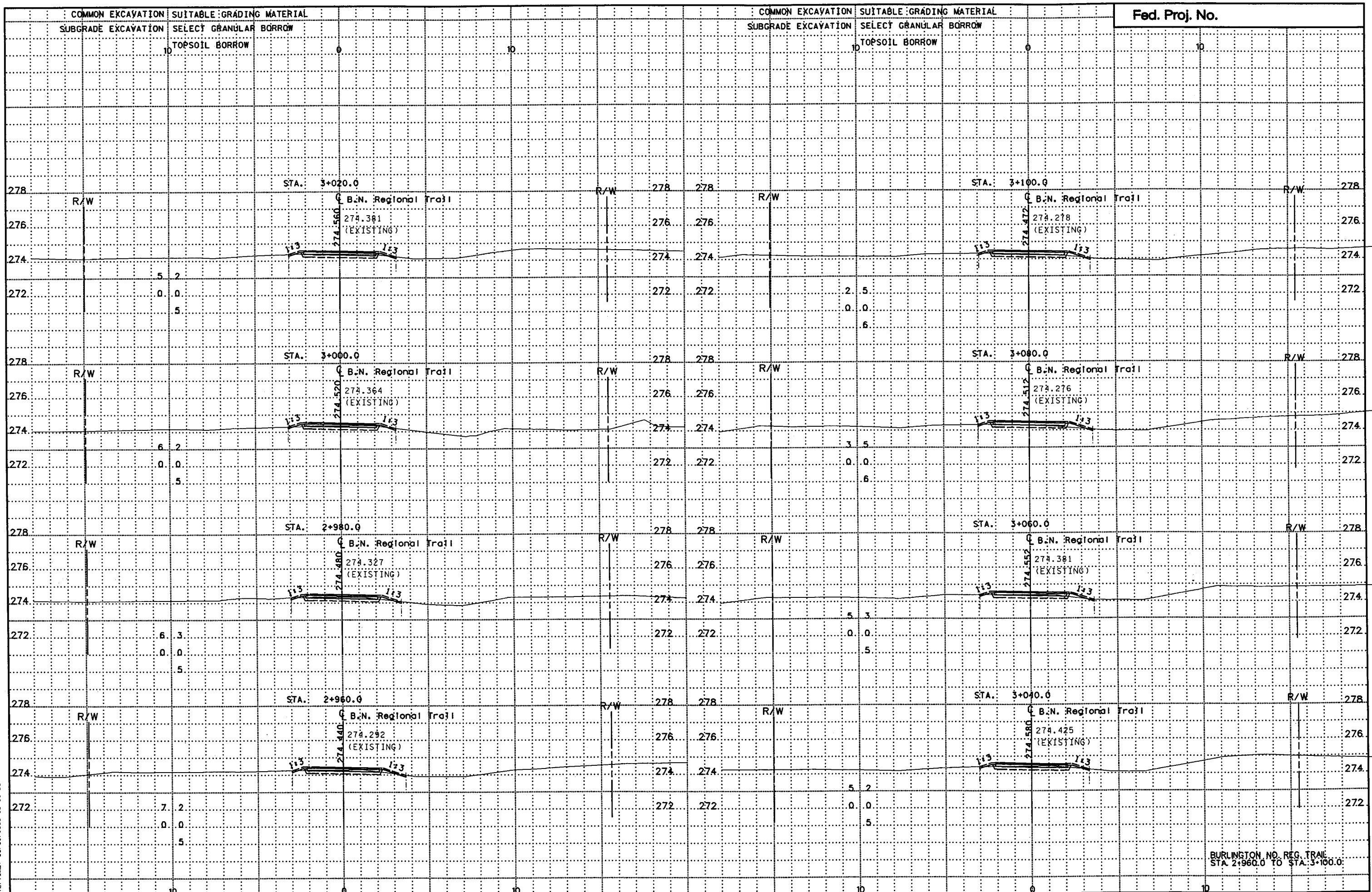
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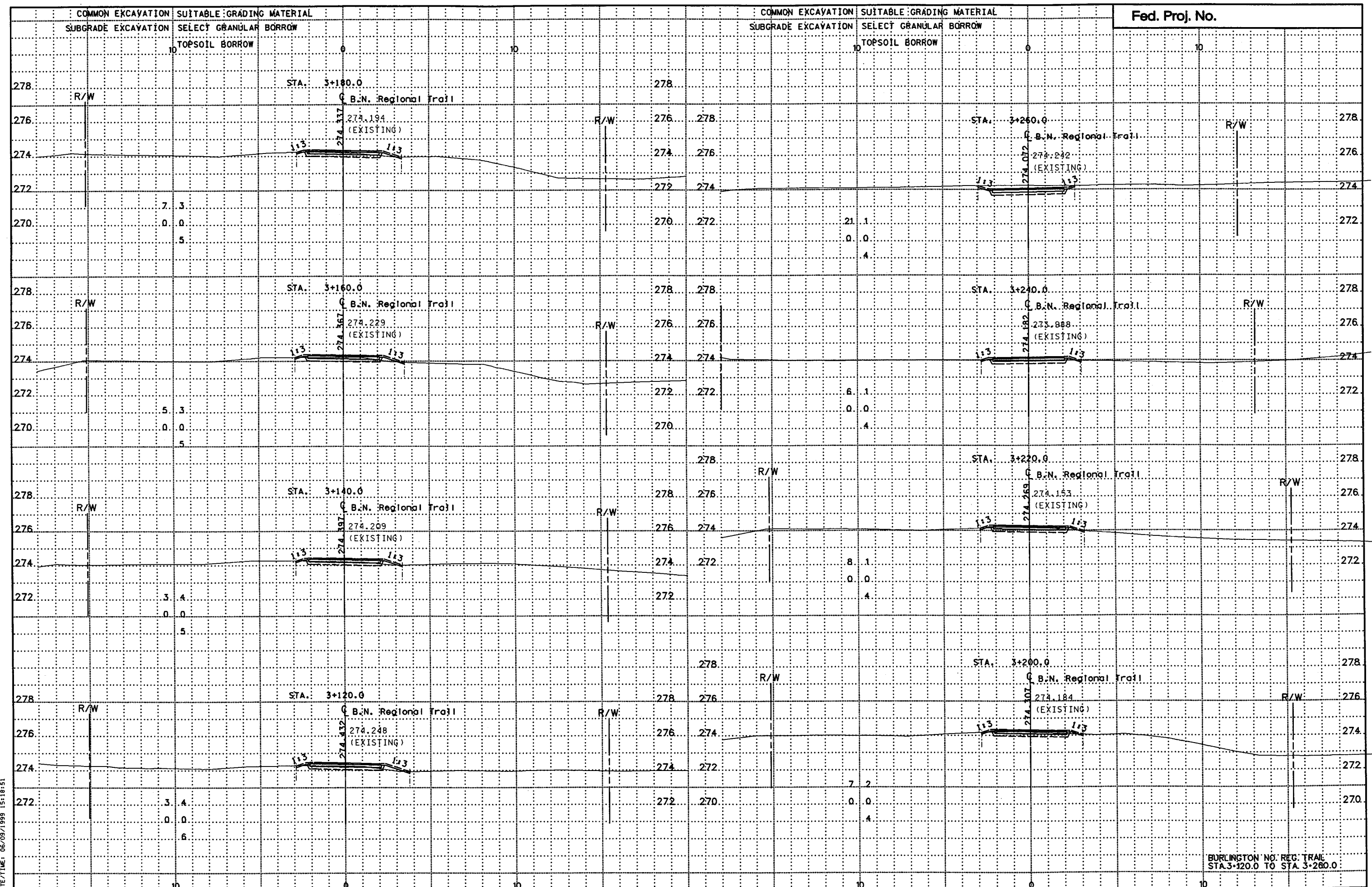
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PLOT DATE/TIME: 06/09/1999 15:18:16

COMMON EXCAVATION SUBGRADE EXCAVATION
 SUITABLE GRADING MATERIAL SELECT GRANULAR BORROW TOPSOIL BORROW



DESIGN FILE: P:\GIV\1\008\3271\3271.x81
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BURLINGTON NO. REG. TRAIL
 STA 2+960.0 TO STA. 3+100.0



DESIGN FILE: R:\GIV\11\008\3271\3271.dwg
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BURLINGTON NO. REG. TRAIL
 STA. 3+120.0 TO STA. 3+260.0

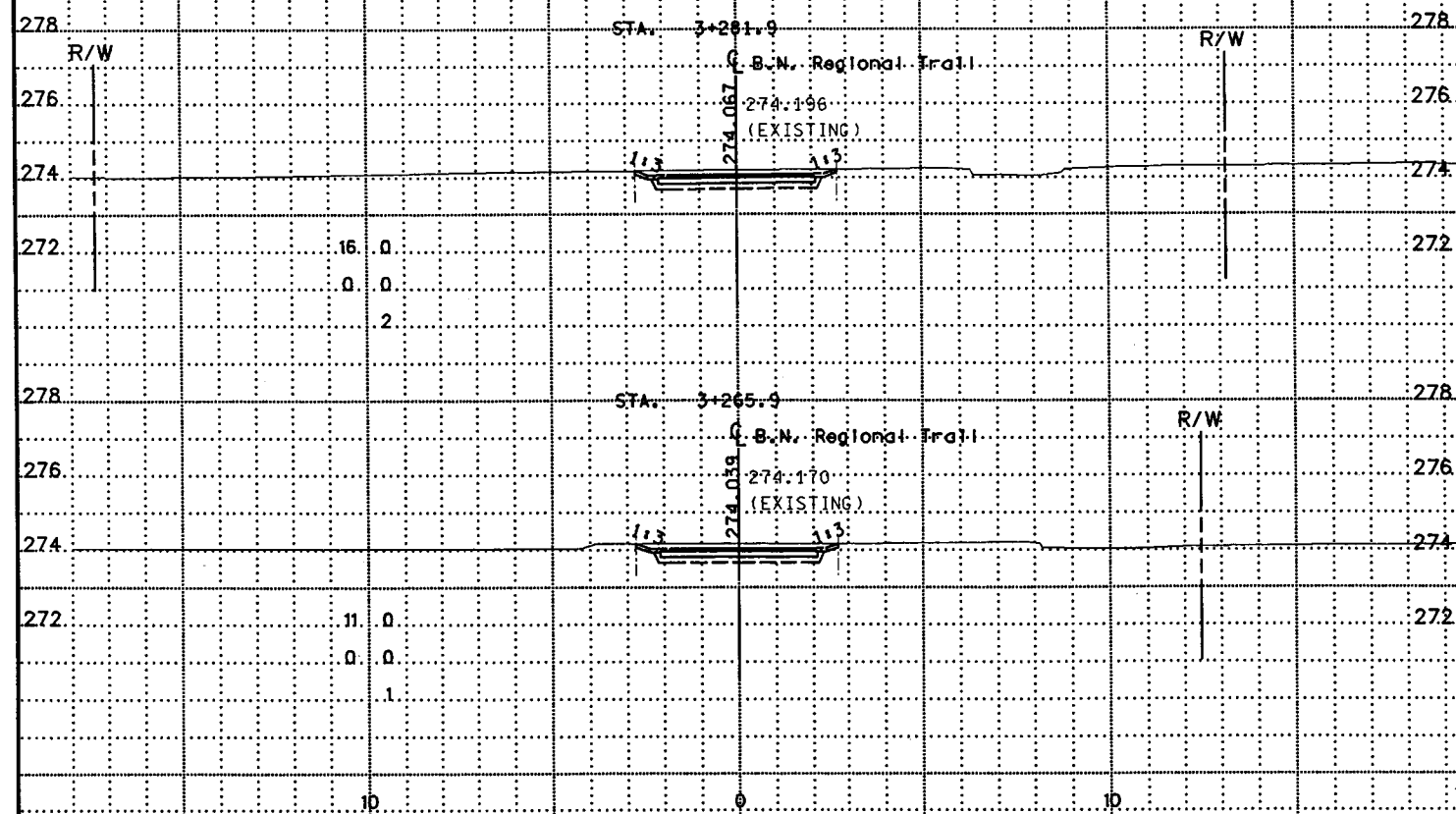
COMMON EXCAVATION
SUBGRADE EXCAVATION

SUITABLE GRADING MATERIAL
SELECT GRANULAR BORROW
TOPSOIL BORROW

COMMON EXCAVATION
SUBGRADE EXCAVATION

SUITABLE GRADING MATERIAL
SELECT GRANULAR BORROW
TOPSOIL BORROW

Fed. Proj. No.



DESIGN FILE: P:\CIVIL\008\3271\3271.dwg
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PLOT DATE/TIME: 06/03/1999 15:19:10

BURLINGTON NO. REG. TRAIL
STA. 3+265.9 TO STA. 3+281.9

State Proj. No. 62-090-01

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