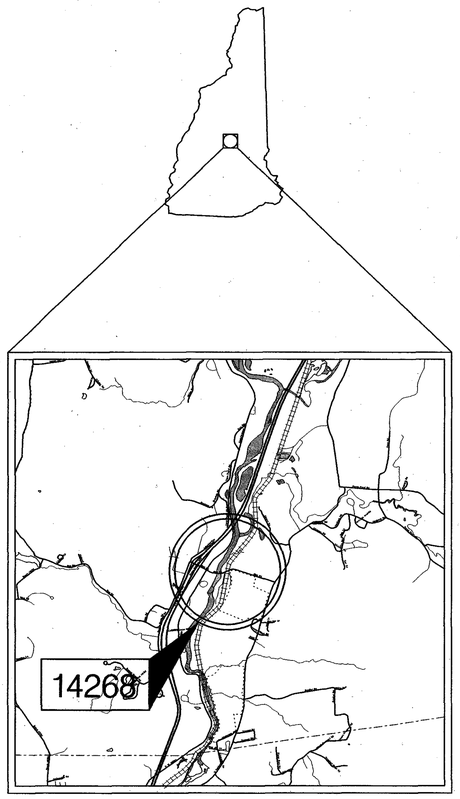
STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLANS
FEDERAL AID PROJECT

X-AOOO (266)
N.H. PROJECT NO. 14268
BLAIR ROAD

DESIGN DATA

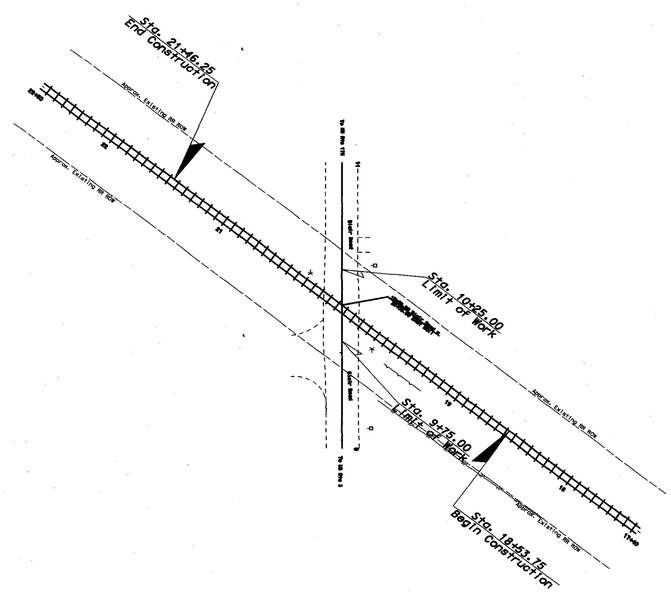
AVERAGE DAILY TRAFFIC 20 XX	XX
AVERAGE DAILY TRAFFIC 20 XX	XX
PERCENT OF TRUCKS	XX
DESIGN SPEED	XX
LENGTH OF PROJECT	XX

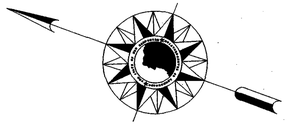


LOCATION MAP

1 1/2 0 1 2 mi.

GRAPHIC SCALE





TOWN OF CAMPTON
COUNTY OF GRAFTON
SCALE: 1" = 50'

THE STATE OF NEW HAMPSHIRE
CRAIG A. GREEN
No. 5059
REGISTERED PROFESSIONAL ENGINEER

NHDOT THE STATE OF NEW HAMPSHIRE DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL:
James A. Moore — August 10, 2004
ASST. DIRECTOR OF PROJECT DEVELOPMENT — DATE

APPROVED:
James A. Moore — 8/10/04
for ASSISTANT COMMISSIONER AND CHIEF ENGINEER — DATE

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:
DIVISION ADMINISTRATOR — DATE

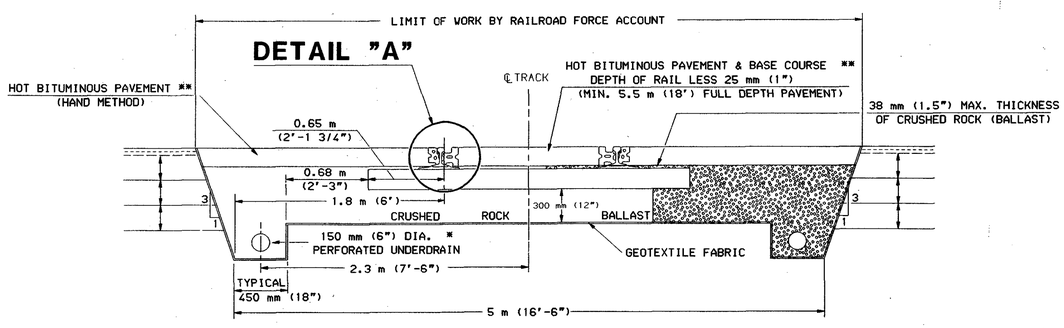
FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-AOOO (266)	14268	1	8

DRAWN BY XX DATE XX
CHECKED BY XX DATE XX

TYPICAL SECTIONS OF IMPROVEMENT RAILROAD CROSSINGS

GENERAL NOTES

1. SPECIFICATIONS ARE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (M.U.T.C.D.), WITH PART VIII - TRAFFIC CONTROL SYSTEMS FOR RAILROAD HIGHWAY GRADE CROSSINGS.
2. ALL WORK AND MATERIALS SHALL MEET OR EXCEED A.R.E.A. SPECIFICATIONS.
3. ALL RAIL MUST BE 52 kg (115 LB) THERMIT WELDED (BUTT WELD PREFERRED). ENDS OF RAIL SHALL BE CROPPED TO THERMIT WELD SO THERE WILL BE NO HOLES IN AREAS OF WELD.
4. NO "TORCH CUTTING" SHALL BE ALLOWED. ALL RAIL CUTS SHALL BE "SAW CUT".
5. 52 kg (115 LB) CONTINUOUS WELDED RAIL SHALL EXTEND THROUGH THE CROSSING TO APPROXIMATELY 15 m (50') EACH SIDE OF CROSSING SHOULDER.
6. JOINTS AND WELDS SHALL BE STAGGERED, NO LESS THAN 0.9 m (3'), NO MORE THAN 1.5 m (5').
7. NEW CREOSOTED GRADE 4 OR 5 TIES TO BE PLACED THROUGH THE CROSSING AND UNDER WELDED RAIL TO APPROXIMATELY 15 m (50') EACH SIDE OF CROSSING SHOULDER. 2.75 m (9'-0") TIES THROUGH CROSSING AND 2.60 m (8'-6") TIES ON APPROACHES. TIE SPACING SHALL BE 450 mm (18") NOMINAL.
8. TIE PLATES SHALL BE DOUBLED SHOULDERED CANTED SIZE 200 X 350 mm (7 3/4"X 14"), A.R.E.A. PLAN 8, EIGHT HOLE PUNCHING. NEOPRENE TIE PADS TO BE USED UNDER EACH TIE PLATE.
9. RAIL ANCHORS TO BE USED IN CROSSING PANEL, FOUR PER TIE, EXCEPT UNDER PAVEMENT.
10. THE RAILROAD SHALL BE RESPONSIBLE FOR EXCAVATION AND DISPOSAL OF SURPLUS MATERIALS.
11. A GEOTEXTILE MATERIAL, MIRIFI 600X WILL BE INSTALLED 15' BEYOND THE LENGTH OF FULL DEPTH CONSTRUCTION.
12. CRUSHED ROCK BALLAST TO EXTEND ALONG TRACK BEYOND EDGE OF PAVED SHOULDER FOR A DISTANCE OF APPROXIMATELY 15 m (50') AT SAME MINIMM DEPTH AS THROUGH CROSSING. TAPER TO EXISTING DEPTH UNDER TIES FOR A LENGTH OF 12 m (40').
14. USE OF MECHANICAL BALLAST TAMPER IS REQUIRED, TO INCLUDE REPEATED PASSES AS IS NECESSARY, OR AS DIRECTED BY THE ENGINEER.
15. ALL CRIBS WILL BE FILLED WITH BALLAST PRIOR TO PAVING.
16. IN LIEU OF USING EPFLEX (OR APPROVED EQUAL RAIL SEAL INTERFACE), PAVING MAY BE APPROVED BY THE ENGINEER.
17. RAIL SEAL INTERFACE TO EXTEND 0.6 m (2') MINIMUM BEYOND PAVED SHOULDER OR BACK OF SIDEWALK, WHICHEVER IS GREATER, BEFORE TAPERING DOWN (LENGTH TO BE DETERMINED IN FIELD).
18. PLANE OF CROSSING WILL EXTEND 0.9 m (3') OUTSIDE OF RAILS.
19. LIMIT OF PAVING ACROSS TRACK SHALL BE OUTSIDE OF HIGHWAY SHOULDERS. SHOULDERS OF HIGHWAY APPROACHES ARE TO BE PAVED FULL WIDTH FROM THE NEAR RAIL OF THE CROSSING FOR A MINIMUM OF:
    (a) 1.5 m (5') PAST EXISTING OR PROPOSED CROSSING SIGNALS OR,
    (b) 6.1 m (20') IF NO SIGNALS EXIST OR ARE PROPOSED.
20. PAVED SHOULDERS ARE THEN TO BE TAPERED TO NORMAL PAVEMENT WIDTH IN A DISTANCE TO BE SPECIFIED BY THE ENGINEER.
21. BEGINNING OR END OF CURB WILL NOT BE SET CLOSER THAN 1.2 m (4') FROM RAIL.
22. AT LEAST ONE WAY TRAFFIC MUST BE MAINTAINED DURING CONSTRUCTION WITH PROPER SIGNS AND ONE OR MORE COMPETENT FLAGMEN IF, (NO SUITABLE DETOUR CAN BE ARRANGED).
23. ALL DETOURS TO BE CONSTRUCTED MUST BE SUBMITTED TO THE PROJECT ENGINEER FOR APPROVAL.
24. ANY VARIATIONS FROM STATED CONDITIONS OR TYPICALS MAY BE DONE ONLY WITH PRIOR APPROVAL FROM THE ENGINEER.



SECTION THROUGH TRACK

(NOT TO SCALE)

** ALL HOT BITUMINOUS PAVEMENT, (3 COURSES) TO BE HAND METHOD. CARE SHALL BE TAKEN TO SEE THAT BASE COURSE IS UNDER, AND AROUND, BASE OF RAIL AND UNDER BALL OF RAIL.

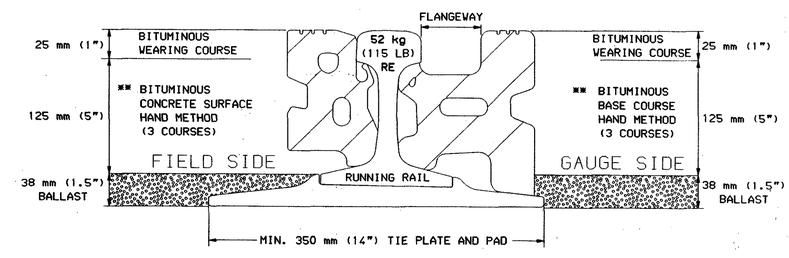
NOTES:

LIMITS OF CROSSING ARE DEFINED AS 4.5 m (15') BEYOND OUTSIDE OF SHOULDER TO OUTSIDE OF SHOULDER OR BACK OF SIDEWALK.

FULL DEPTH CONSTRUCTION IS DEFINED AS 27" FROM TOP OF RAIL.

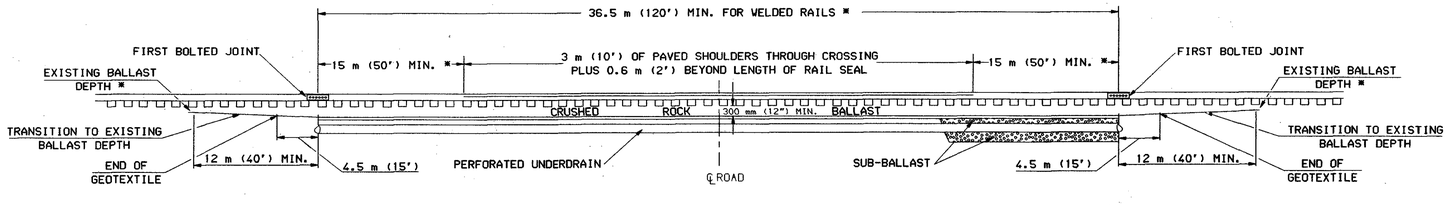
DETAIL "A"

(NOT TO SCALE)



ELASTOMERIC DETAIL

(RAIL SEAL INTERFACE)



SECTION THROUGH ROAD

(NOT TO SCALE)

* TO BE DETERMINED IN FIELD

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	DESCRIPTION

NOTEBOOKS		
BOOK	PAGE	
BOOK	PAGE	
BOOK	PAGE	

EXISTING DETAIL	DATE	
PROPOSED DESIGN	DATE	
SHEET CHECKED	DATE	
AS BUILT DETAILS	DATE	

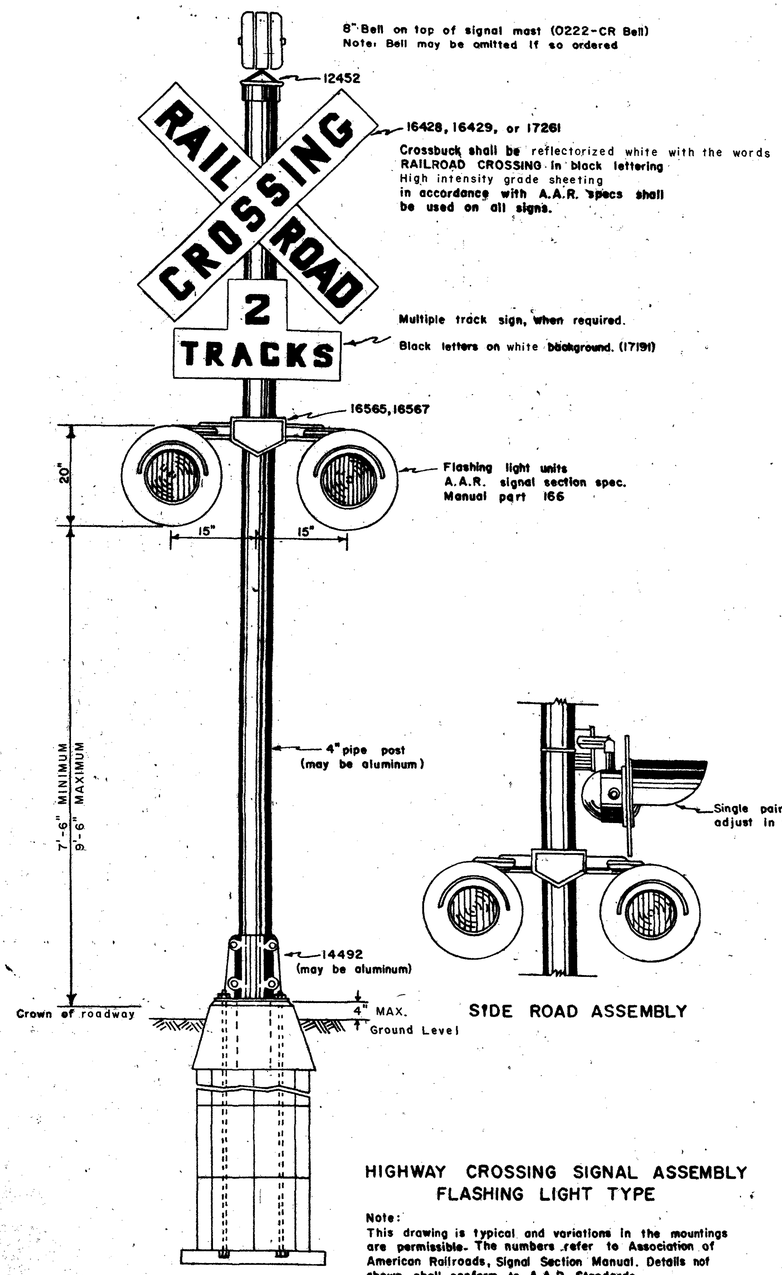
STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

TYPICAL SECTION
RAILROAD CROSSING

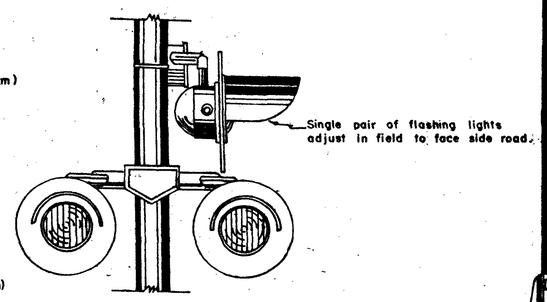
WINDOW NAME	.FGB FILENAME	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
TYP_MET	RAILROAD	X-A000 (266)	14268	2	8

F.H.W.A. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS

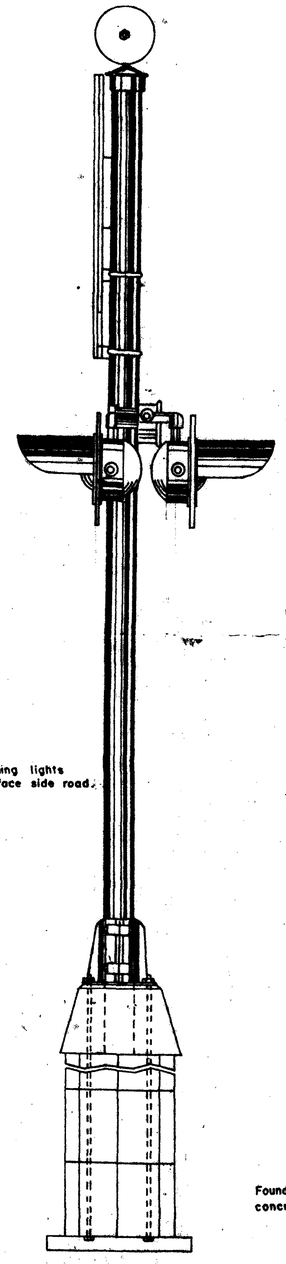


HIGHWAY CROSSING SIGNAL ASSEMBLY
FLASHING LIGHT TYPE

Note:
This drawing is typical and variations in the mountings are permissible. The numbers refer to Association of American Railroads, Signal Section Manual. Details not shown shall conform to A.A.R. Standards.

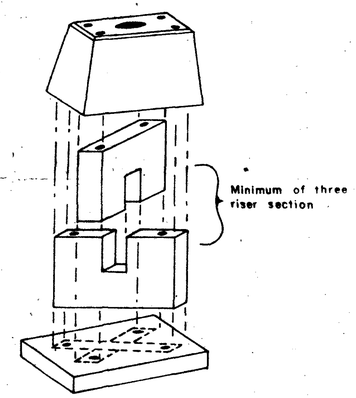


SIDE ROAD ASSEMBLY

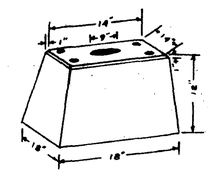


SIGNAL FOUNDATION OR
A.A.R. 1695 (Modified)

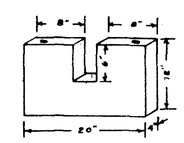
Precast or cast in place, circular or square, foundations meeting A.A.R. standards may be used.



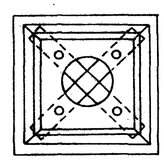
ISOMETRIC



FOUNDATION MAST SEAT

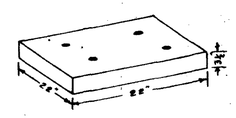


FOUNDATION RISER
(Two each section)



FOUNDATION
TOP VIEW

Foundation shall be made of Portland Cement concrete in accordance with A.R.E.A. specifications



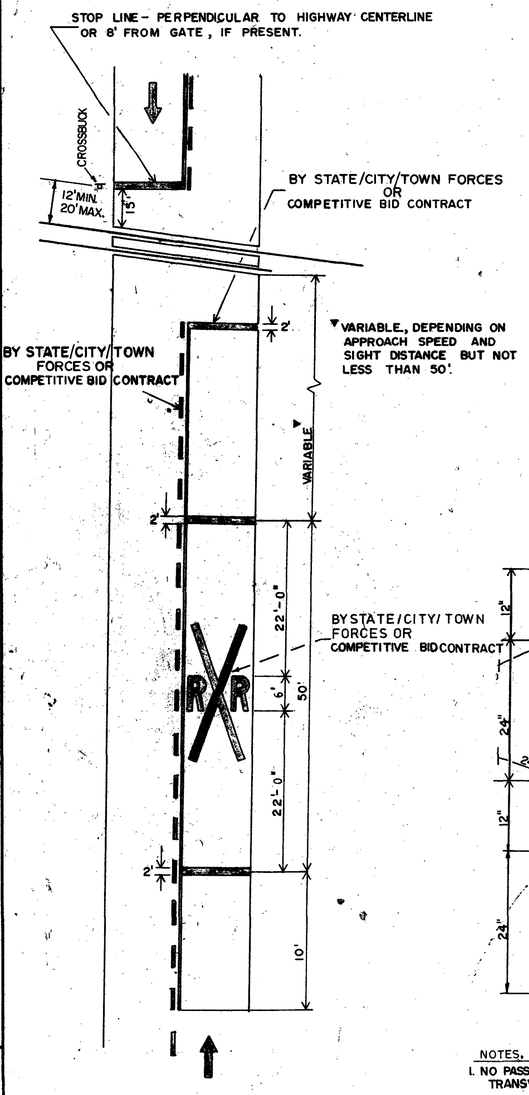
FOUNDATION FOOTING

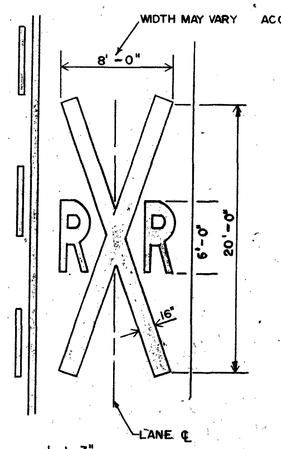
DATE	BY	
		DESIGN - DETAILED
		CHECKED
		REVISIONS
		FIELD CHANGES

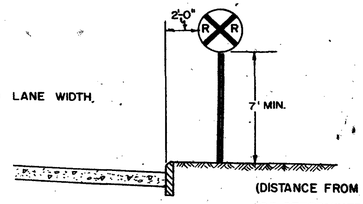
PLANS

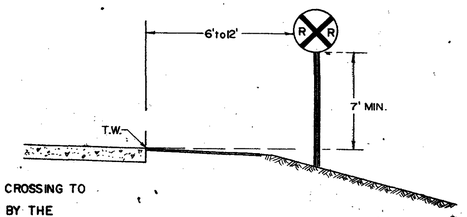
FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
X-A000 (266)	14268	3	8

STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
N. H.			









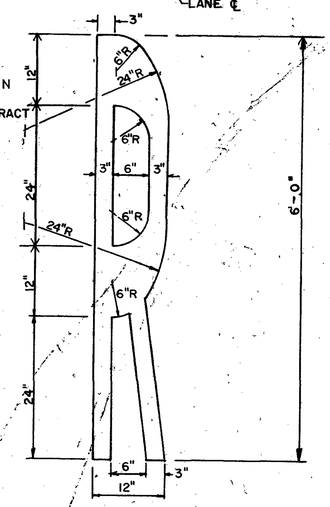
(DISTANCE FROM CROSSING TO BE DETERMINED BY THE ENGINEER IN THE FIELD)

BUSINESS OR RESIDENTIAL DISTRICT

RURAL DISTRICT

ADVANCE WARNING SIGNS

A RAILROAD ADVANCE WARNING SIGN IS REQUIRED IN ADVANCE OF EVERY RAILROAD CROSSING EXCEPT MINOR SPURS OR IN BUSINESS DISTRICTS OR WHERE PHYSICAL CHARACTERISTICS ARE SUCH THAT EVEN A PARTIALLY EFFECTIVE DISPLAY OF THE SIGN IS IMPOSSIBLE. THE SIGN IN URBAN AREAS SHALL BE NOT LESS THAN 100 FEET NOR MORE THAN 350 FEET FROM THE NEAREST TRACK. IN RURAL AREAS IT SHALL BE NOT LESS THAN 350 FEET NOR MORE THAN 750 FEET FROM THE NEAREST TRACK. THIS SIGN WILL BE LOCATED WITHIN THE ABOVE LIMITS BY THE RESIDENT ENGINEER.



NOTES, PAVEMENT MARKINGS

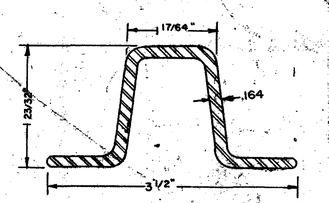
1. NO PASSING LINES WILL BE YELLOW; LETTER, X's & TRANSVERSE LINES WILL BE WHITE.
2. THREE LANE ROADWAY WILL BE MARKED WITH A CENTERLINE FOR TWO-LANE APPROACH.
3. ON MULTI-LANE ROADS INDIVIDUAL RXR SYMBOLS WILL BE USED IN EACH APPROACH LANE.
4. RAILROAD SYMBOLS & STOP BARS SHALL BE REFLECTORIZED FOIL SCOTCHLANE, CATALANE OR EQUAL & WILL REQUIRE A PRIMER BEFORE APPLYING TO THE PAVEMENT.

PAVEMENT MARKINGS AT RAILROAD-HIGHWAY GRADE CROSSINGS

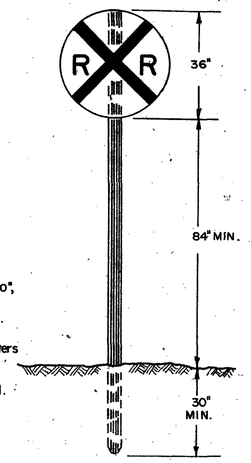
PAVEMENT MARKINGS

THESE MARKINGS SHALL BE PLACED, IF PHYSICALLY FEASIBLE, ON ALL PAVED APPROACHES TO RAILROAD CROSSINGS, WHERE THERE ARE SIGNALS, AND/OR AUTOMATIC GATES AND AT ALL OTHER CROSSINGS WHERE THE PREVAILING SPEED OF HIGHWAY TRAFFIC IS 40 MPH OR GREATER.

THE MARKINGS SHALL ALSO BE PLACED AT CROSSINGS WHERE ENGINEERING STUDIES INDICATE THERE IS A SIGNIFICANT POTENTIAL CONFLICT BETWEEN VEHICLES AND TRAINS. AT MINOR CROSSINGS OR IN URBAN AREAS, THESE MARKINGS MAY BE OMITTED IF ENGINEERING STUDY INDICATES THAT OTHER DEVICES INSTALLED PROVIDE SUITABLE PROTECTION. SUCH MARKINGS SHALL BE WHITE EXCEPT FOR THE NO PASSING MARKINGS. THIS MARKING SHALL BE CENTERED OPPOSITE THE ADVANCE WARNING SIGN AND AS INDICATED ABOVE.

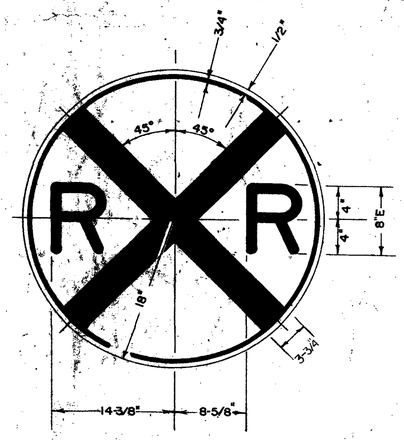


SECTION: P-12, P-14, P-16 SIGN POSTS
LENGTH: P-12, 12'0", P-14, 14'0", P-16, 16'0"
WEIGHT: 3 lbs. per linear foot.
HOLE SIZE 3/8" diameter
NO. HOLES: 60 min., 1" on centers
FINISH: Galvanized, A.A.S.H.T.O. Spec. M-111-60
Steel shall conform to A.S.T.M. A 499 (AISI C 1060)



ITEM 615.__
ADVANCED WARNING SIGN WITH POST

BY STATE/CITY/TOWN FORCES OR COMPETITIVE BID CONTRACT

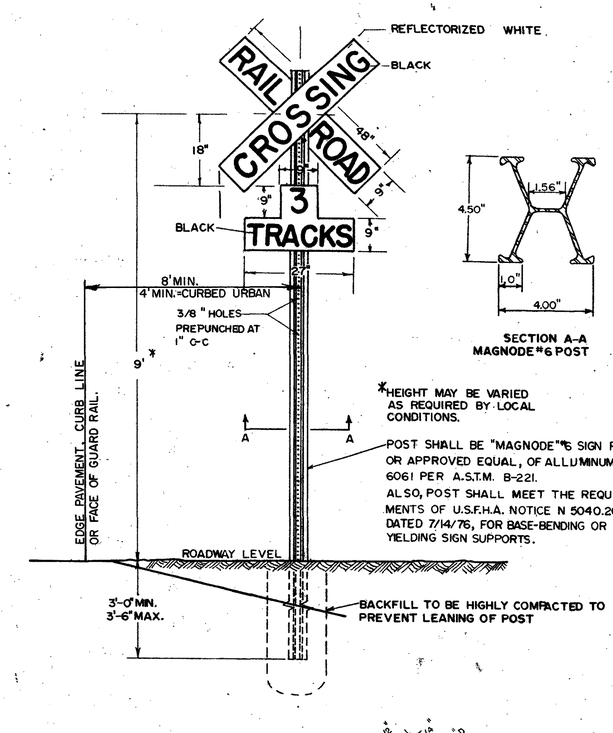


W 10-1

COLORS:
LEGEND - BLACK (NON REFL.)
BACKGROUND - YELLOW (REFL.)

BY STATE/CITY/TOWN FORCES OR COMPETITIVE BID CONTRACT

HIGH INTENSITY GRADE SHEETING

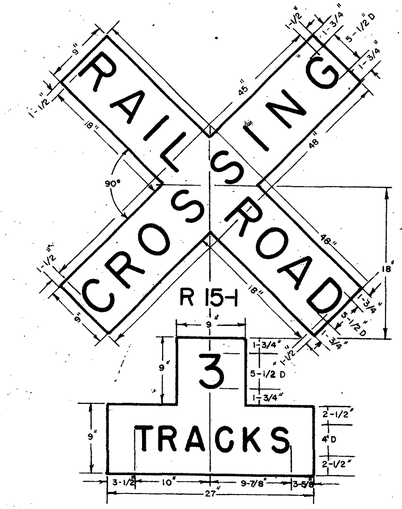


*HEIGHT MAY BE VARIED AS REQUIRED BY LOCAL CONDITIONS.

POST SHALL BE "MAGNODE" #6 SIGN POST, OR APPROVED EQUAL, OF ALLUMINUM ALLOY 6061 PER A.S.T.M. B-221.

ALSO, POST SHALL MEET THE REQUIREMENTS OF U.S.F.H.A. NOTICE N 5040.20 DATED 7/14/76, FOR BASE-BENDING OR YIELDING SIGN SUPPORTS.

BACKFILL TO BE HIGHLY COMPACTED TO PREVENT LEANING OF POST



R 15-2

HIGH INTENSITY GRADE SHEETING

CROSSBUCKS:
WHERE PHYSICALLY FEASIBLE AND VISIBLE TO APPROACHING TRAFFIC, THESE SIGNS SHALL BE INSTALLED ON THE RIGHT-HAND SIDE OF THE ROADWAY FOR EACH APPROACH TO THE CROSSING.

AUXILIARY SIGNS:
A NUMBER OF TRACK SIGNS SHALL BE USED WHERE THERE ARE TWO OR MORE TRACKS AT THE CROSSING.

REVISIONS AFTER PROPOSAL (USE BOTTOM LINES FIRST)				
NO.	DATE	STATION	STATION	DESCRIPTION

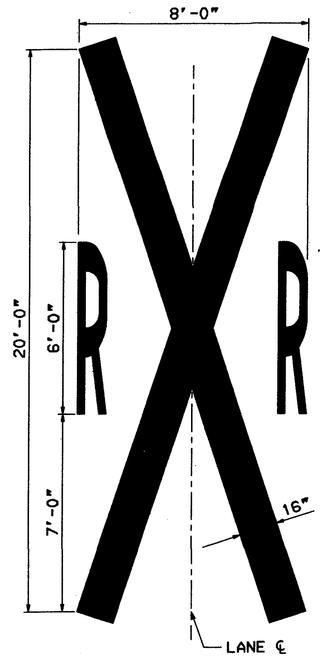
NOTEBOOKS		
BOOK NO.	PAGE NO.	
" "	" "	
" "	" "	
BOOK NO.	PAGE NO.	

		DATE
PLAN TRACED	D. GRAHAM	1-9-79
PLAN CHECKED	J. AMROL	" 10-2-81
PROFILE TRACED		"
PROFILE CHECKED		"
INVED		"
CHECKED		DATE

PROJ. NO.	SHEET NO.	TOTAL SHEETS
14268	4	8

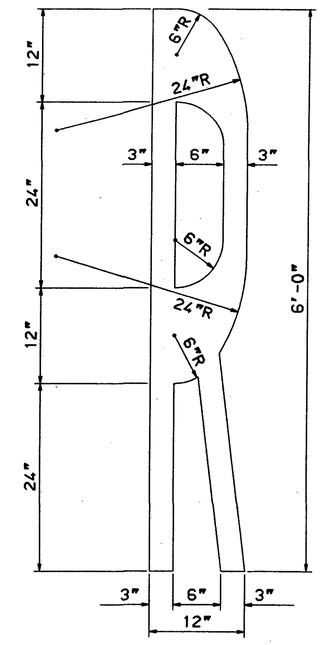
STANDARD WORDS AND SYMBOLS

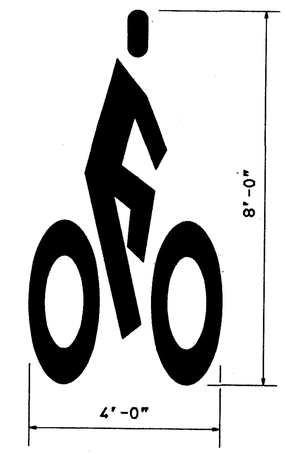
PAY QUANTITIES FOR STANDARD (8-FOOT) LETTERS AND NUMERALS (SQUARE FEET)			
A	5.8	S	6.1
B	7.7	T	4.0
C	5.3	U	6.6
D	6.8	V	5.0
E	6.3	W	7.0
F	5.0	X	4.3
G	6.3	Y	4.2
H	6.6	Z	5.7
I	2.0	1	2.0
J	3.9	2	5.7
K	6.4	3	5.6
L	4.1	4	5.5
M	9.0	5	6.6
N	7.7	6	7.9
O	6.3	7	3.6
P	5.8	8	7.3
Q	6.7	9	7.9
R	6.8	0	6.3



RAILROAD CROSSING SYMBOL

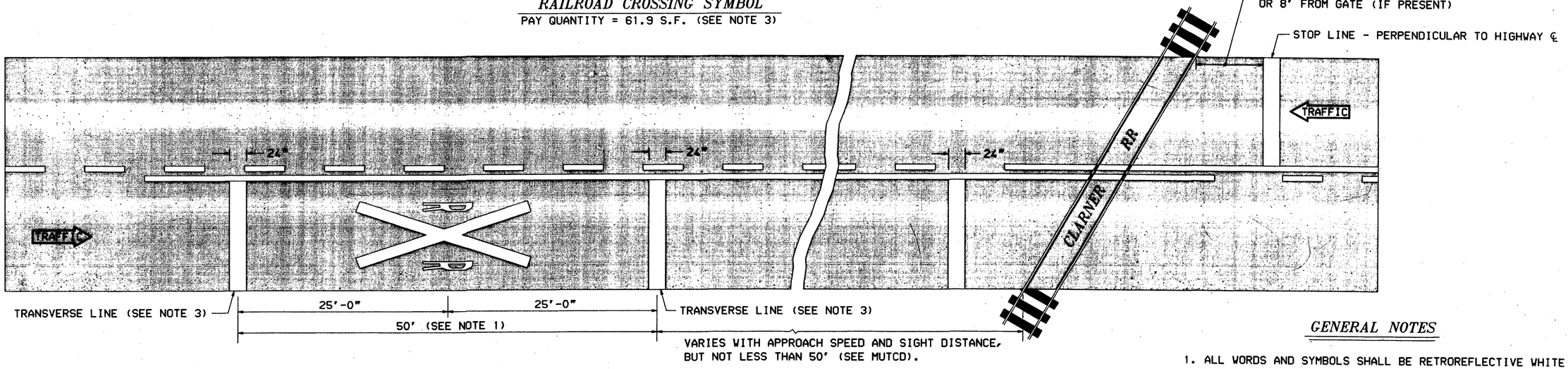
PAY QUANTITY = 61.9 S.F. (SEE NOTE 3)





BICYCLE LANE SYMBOL

PAY QUANTITY = 10.3 S.F.



PAVEMENT MARKINGS AT RAILROAD-HIGHWAY GRADE CROSSINGS

1. WHEN USED, A PORTION OF THE PAVEMENT MARKING SYMBOL SHOULD BE DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN (W10-1, NOT SHOWN).
2. ON MULTI-LANE ROADS THE TRANSVERSE LINES SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL RXR SYMBOLS SHOULD BE USED IN EACH APPROACH LANE.
3. RXR SYMBOL WILL BE PAID FOR BY THE SQUARE FOOT, TRANSVERSE LINES (24" WIDE) WILL BE PAID FOR BY THE LINEAR FOOT.

GENERAL NOTES

1. ALL WORDS AND SYMBOLS SHALL BE RETROREFLECTIVE WHITE AND SHALL CONFORM TO THE MUTCD.
2. PREFORMED TAPE WORDS AND SYMBOLS SHALL BE PRE-CUT BY THE MANUFACTURER.

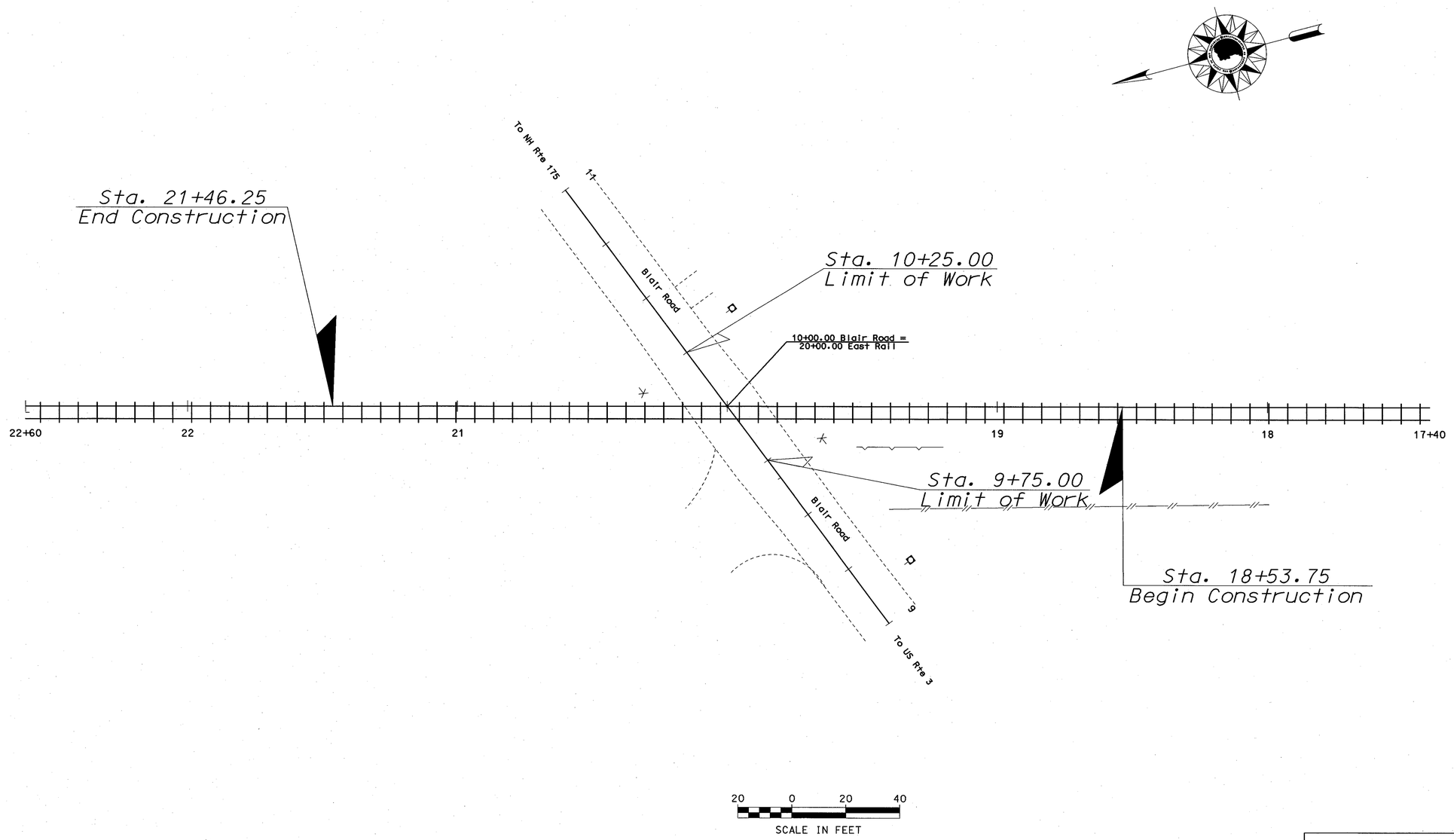
STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF TRAFFIC

PAVEMENT MARKING STANDARDS

WORDS AND SYMBOLS

REVISION DATE	WINDOW NAME	.FGB FILENAME	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
2-12-97	SYMBOL2		X-A000(266)	14268	5	8



REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	STATION	DESCRIPTION

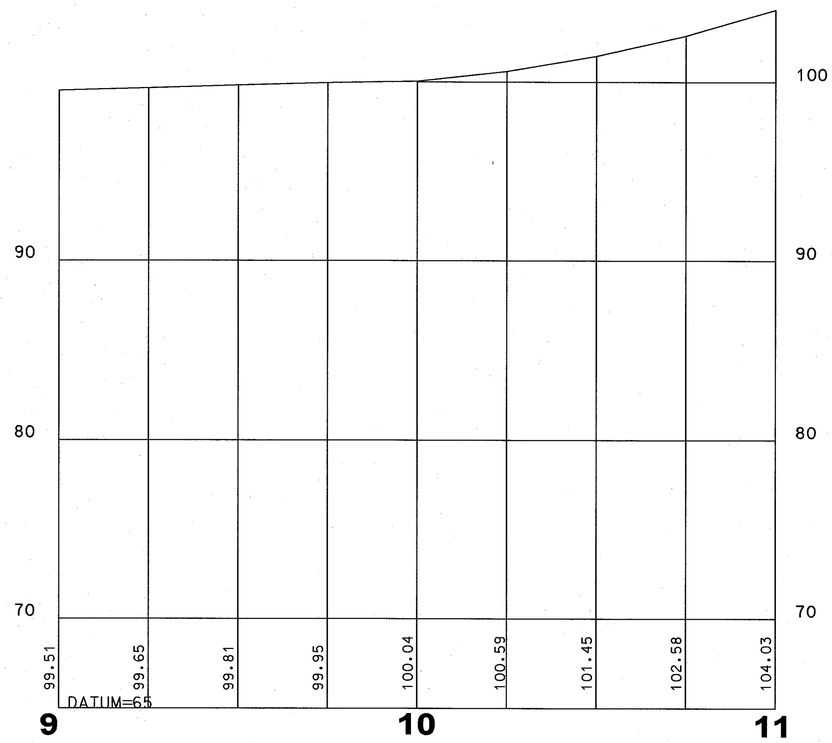
SDR PROCESSED	XX	DATE	XX
NEW DESIGN	XX	DATE	XX
SHEET CHECKED	XX	DATE	XX
AS BUILT DETAILS		DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

General Plan

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
14268mth	14268	6	8



SCALE:
1"= 20' HORIZ.
1"= 4' VERT.

REVISIONS AFTER PROPOSAL			
NUMBER	DATE	STATION	STATION	DESCRIPTION

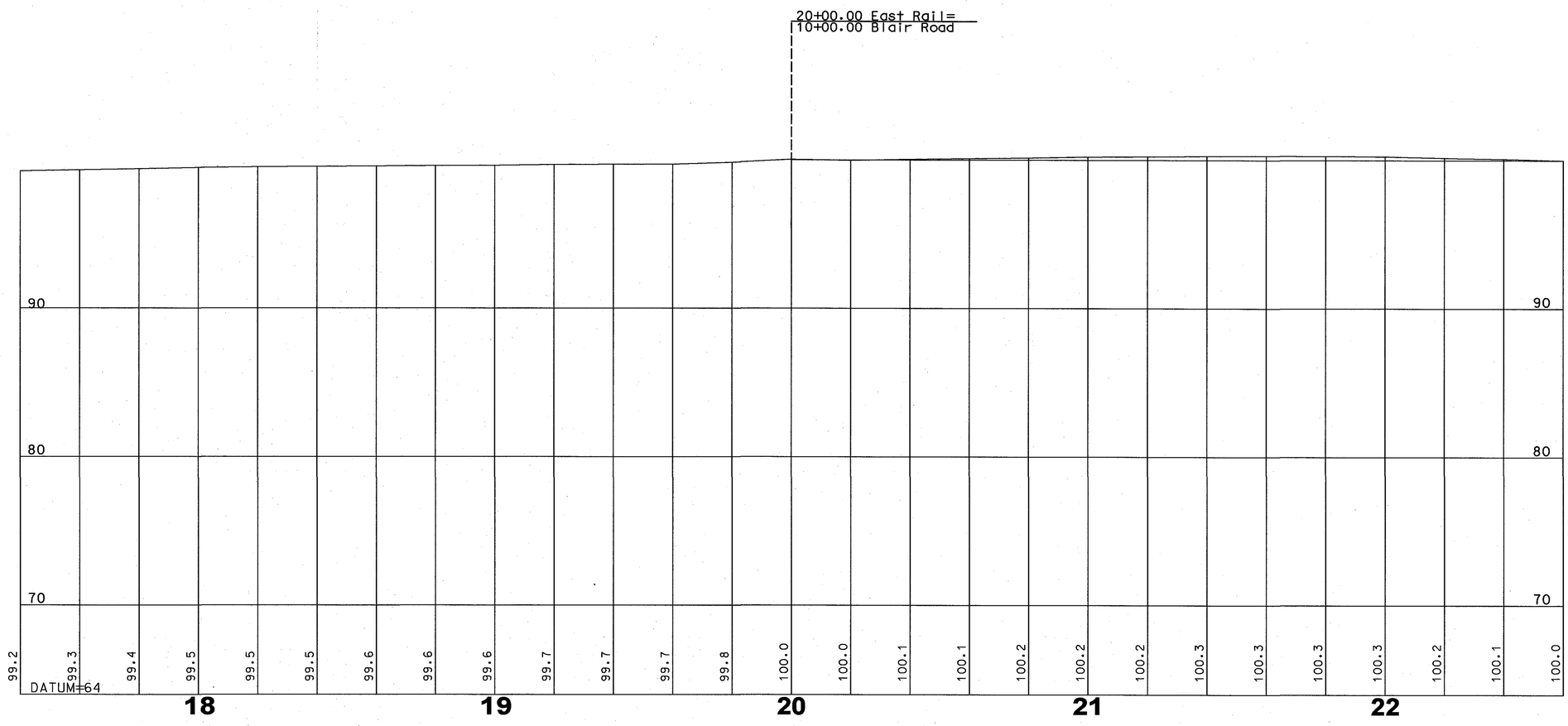
SDR PROCESSED XX	DATE XX	
NEW DESIGN XX	DATE XX	
SHEET CHECKED XX	DATE XX	
AS BUILT DETAILS	DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

Blair Road Profile

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
14268 promc1s	14268	7	8



SCALE:
1"= 20' HORIZ.
1"= 4' VERT.

REVISIONS AFTER PROPOSAL			
STATION	STATION	NUMBER	DATE	DESCRIPTION

SDR PROCESSED XX	DATE XX	
NEW DESIGN XX	DATE XX	
SHEET CHECKED XX	DATE XX	
AS BUILT DETAILS	DATE	

STATE OF NEW HAMPSHIRE

DEPARTMENT OF TRANSPORTATION ∘ BUREAU OF HIGHWAY DESIGN

East Rail Profile

DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
14268promcrs	14268	8	8