

Appendix B
Typical Structure Photographs

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rd400.dgn 14-JAN-2011

GUARDRAIL

NOTES:

- Rail height measured from final paved surface at face of rail (Typ. all types).
- Final paved surfacing to extend to face of post.
- Drainage curb alignment same as face of guardrail.

INITIAL INSTALLATION

TYPES 2A & 3
(See General Note 3)
(For Type 3 use double thickness (2) rail elements)

ASSEMBLY DETAILS

RELATION OF PARTS

TABLE OF POST SPACING				
TYPE	1	2A	3	4
SPACING	12'-6"	6'-3"	3'-1 1/2"	6'-3"

NORMAL RAIL ELEMENT DATA			
Type	Rail	Effective Lengths	Gauges
1, 2A, 3	W beam	6.25', 12.5', 25'	10 & 12
4	Thrie beam	6.25', 12.5', 25'	10 & 12

FITTINGS

- When required by the plans, post bolts to extend beyond the tightened nuts within limits of 1/4" to 1/2".
- When steel posts are used see "POSTS" for modified bolt detail, Std. Drg. RD415.
- All post bolt threads to be set after assembly for wrench removal only.

TYPE 1
(Use restricted to non-roadway applications)

INITIAL INSTALLATION

RAIL AFTER OVERLAY
(Adjust as shown)
TYPE 4

METAL MEDIAN BARRIER

NOTE:
Median barrier post spacing 6'-3".
See end construction for variations.

**CHANNEL RAIL AND SPLICE PLATE
(METAL MEDIAN BARRIER)**

SECTION
(See "Guardrail" details and general note 3)

ASSEMBLY DETAILS

RELATION OF PARTS

FITTINGS

- Post bolts to extend beyond the tightened nuts within limits of 1/4" to 1/2".
- When barrier separates to double post mounting:
 - Use 1/2" dia. button or alternate bolt with washer and hex nut.
 - Use 1/2" dia. carriage bolt with washer and nut.

TYPE 1
(Use restricted to non-roadway applications)

INITIAL INSTALLATION

METAL MEDIAN BARRIER/SHOULDER GUARDRAIL INSTALLATION AT BRIDGE DECK EXPANSION JOINT

PLAN

CORRUGATED RAIL **CHANNEL RAIL AND SPLICE PLATE**

GENERAL NOTES FOR ALL DETAILS:

- For details of parts, see Std. Drgs. RD405, RD410 & RD415.
- For details of guardrail installation, see Std. Drgs. RD420, RD425, RD430, RD435 & RD440.
- Use "Alternate Initial Installation", at bridge ends (See Std. Drg. RD440), adjacent to P.C.C. pvtmt., for temporary guardrail, to match existing guardrail, for Type 1 rail or as directed.
- See Std. Drg. RD701 for drainage curbs, where required.
- Lap guardrail in direction of adjacent traffic.

NOTES:

- Place 2 - 1/2" polytetrafluoroethylene (TFE) sheets between corrugated rail members. The sheets shall be 12 1/2" x 1'-7".
- Adjust nuts to provide a sliding fit and set threads to prevent loosening.

Calc. Book No. N/A

Baseline Report Date: 14-JAN-2011

OREGON STANDARD DRAWINGS

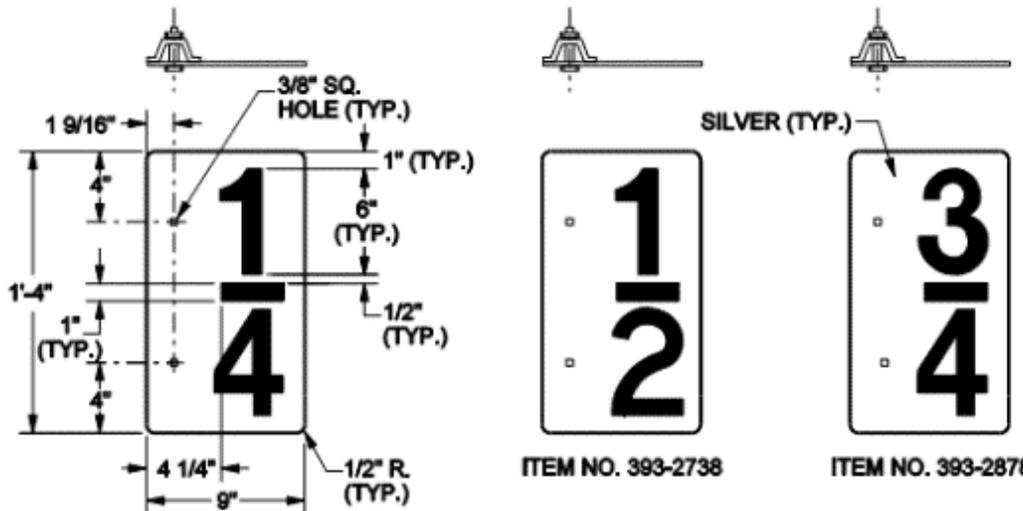
GUARDRAIL AND METAL MEDIAN BARRIER

2008

DATE	REVISION DESCRIPTION
08-2008	REVISED DETAILS & NOTES
12-2008	REVISED NOTES
04-2011	REVISED AND ADDED NOTES

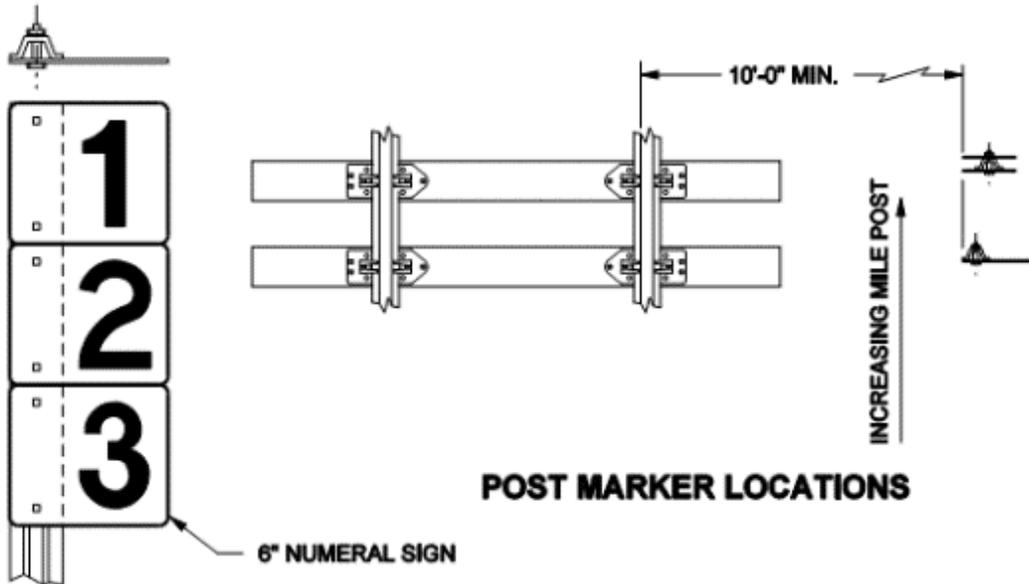
Effective Date: December 1, 2013 - May 31, 2014

RD400



ITEM NO. 393-2597

DOUBLE SIDED INTERMEDIATE POST MARKERS



POST MARKER LOCATIONS

DOUBLE SIDED MILE POST MARKER

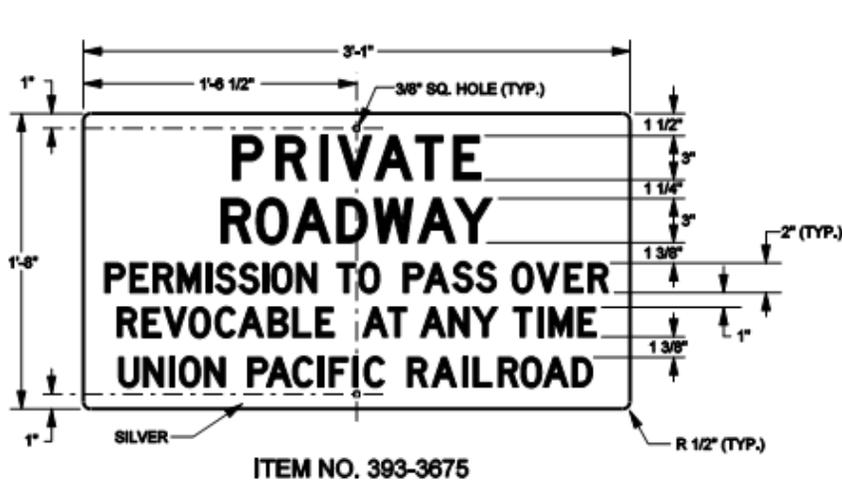
NOTES:

1. SIGN TO BE PLACED ON ENGINEER'S SIDE OF TRACK, WITH NEAREST POINT OF SIGN TO BE A MINIMUM OF TEN FEET FROM THE GAGE SIDE OF THE NEAREST RAIL.
2. IN TERRITORIES WHERE MULTIPLE MAIN TRACKS OR SINGLE MAIN TRACK WITH ADJACENT CONTROLLED SIDINGS EXIST WITH TRACK CENTERS LESS THAN 18'-9", MILE AND INTERMEDIATE MARKERS ARE TO BE PLACED ON THE FIELD SIDE OF OUTSIDE TRACKS ONLY. WHERE TRACK CENTERS BETWEEN ANY OF THESE TRACKS ARE 18'-9" OR GREATER, MARKERS ARE TO BE CENTERED AND PLACED BETWEEN TRACKS.
3. INTERMEDIATE MILE MARKERS TO BE USED WHERE QUARTER MILES ARE NOT TAGGED ON POLE LINE.
4. ON BRANCH MAIN TRACK, ONLY THE 1/2 MILE MARKERS ARE TO BE USED. THE 1/4 AND 3/4 MILE MARKERS ARE NOT TO BE USED ON BRANCH LINES UNLESS APPROVED BY THE CHIEF ENGINEER.
5. DOUBLE SIDED INTERMEDIATE AND DOUBLE SIDED MILE POST MARKER TO BE OFFSET AWAY FROM TRACK. SIGNS TO BE 3870 SILVER 3M HIGH INTENSITY BACKGROUND (BOTH SIDES) ON 0.080" 3105 ALUMINUM SHEET.
6. FOR 6" NUMERAL SIGNS, SEE STD DWG 0502 FOR MOUNTING DETAILS, SEE STD DWG 0599

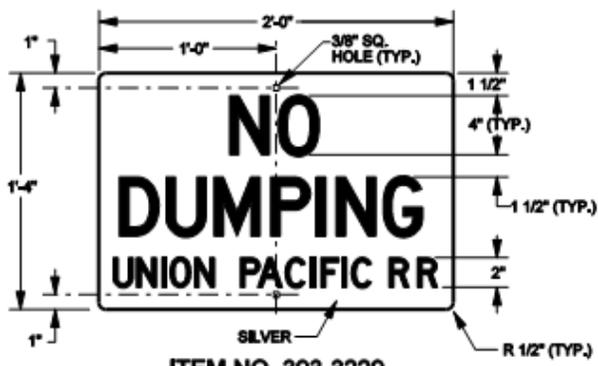
0535C
STD DWG

UNION PACIFIC RAILROAD ENGINEERING STANDARDS	
MILE AND INTERMEDIATE POST MARKER	
APPROVED: <i>Robert J. Condit</i> VP ENGINEERING ADOPTED: JULY 16, 1989 REVISED: JUNE 16, 2010 FILE NO.: 0535C	STD DWG 0535C

Detail 2. Typical Railroad Mile Post Signage Detail.



ITEM NO. 393-3675



ITEM NO. 393-3229



ITEM NO. 393-3651

NOTES:
 SIGNS TO BE 3290 SILVER 3M ENGINEER GRADE BACKGROUND, ON 0.080" 3105 SHEET ALUMINUM.

ITEM NO. 393-3675 TO BE POSTED WHERE AUTHORIZED PASSAGE IS PERMITTED, BUT ROADWAY IS NOT PERMITTED FOR PUBLIC USE.

ITEM NO. 393-3651 TO BE POSTED WHEN IT IS DESIRED TO ABSOLUTELY PREVENT PASSAGE.

ITEM NO. 393-3229 TO BE POSTED WHERE REQUIRED.

FOR MOUNTING DETAILS, SEE STD DWG 0599 FOR LETTERING, SEE STD DWG 0501

UNION PACIFIC RAILROAD ENGINEERING STANDARDS	
PRIVATE PROPERTY AND NO DUMPING SIGNS	
	ADOPTED: JAN. 11, 1989 REVISED: JAN. 15, 2009 FILE NO.: 0538B
STD DWG 0538B	

**STD DWG
0538B**

Detail 3. Typical Railroad Private Property Signage Detail.



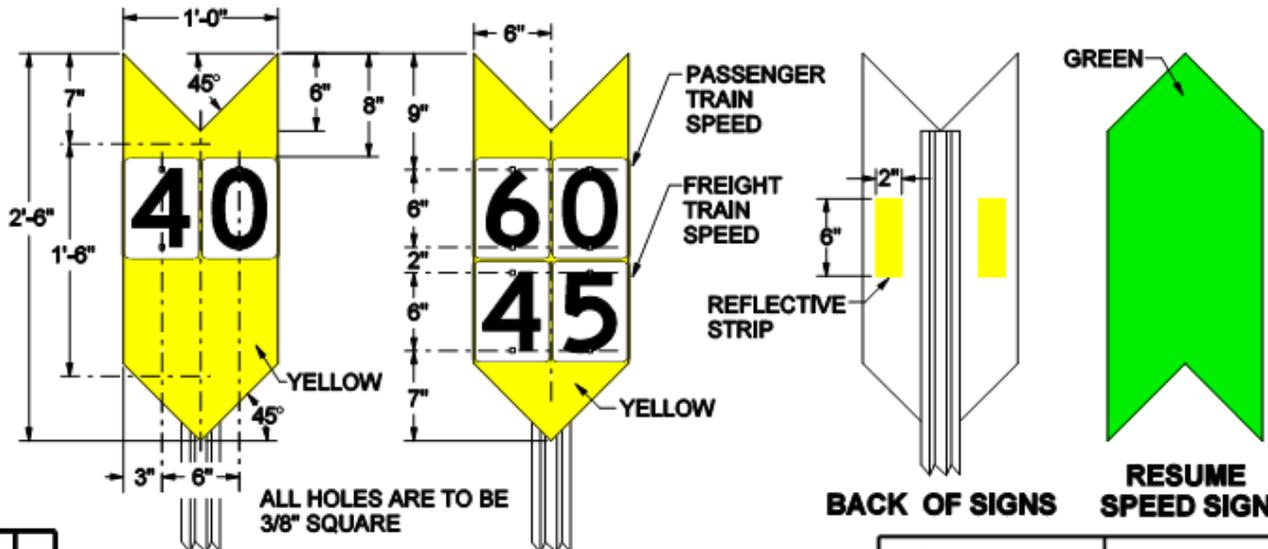
TYPICAL SIGN PLACEMENT
60 M.P.H. SUBDIVISION TIME TABLE SPEED

NOTES:

1. SEE RULE 5.5 GENERAL CODE OF OPERATING RULES.
2. REDUCE SPEED SIGNS WILL BE LOCATED 2500 FEET IN ADVANCE OF THE RESTRICTED TERRITORY AND WILL INDICATE THE MAXIMUM SPEED PERMITTED AS SHOWN IN THE CURRENT TIME TABLE. WHERE TWO SPEEDS ARE SHOWN, THE HIGHER SPEED APPLIES TO PASSENGER TRAINS AND THE LOWER SPEED TO FREIGHT TRAINS. WHERE ONE SPEED IS SHOWN, IT APPLIES TO ALL TRAINS.
3. A REDUCED SPEED SIGN WILL NOT BE PLACED WITHIN THE LIMITS OF A LOWER SPEED RESTRICTION BUT WILL BE PLACED AT THE END OF THE LOWER SPEED RESTRICTION LIMITS IN LIEU OF A RESUME SPEED SIGN.

NOTES (CONTINUED):

4. IN MULTIPLE MAIN TRACK, C.T.C. TERRITORY, SPEED RESTRICTION, RESUME SPEED AND/OR STOP SIGNS WILL BE PLACED ADJACENT TO EACH TRACK EFFECTED.
5. RESUME SPEED SIGN WILL BE PLACED TO INDICATE THE END OF THE RESTRICTED TERRITORY. THIS SIGN SHALL NOT BE PLACED WHERE THERE IS LESS THAN ONE HALF MILE BETWEEN THE END OF ONE SPEED RESTRICTION AND THE BEGINNING OF ANOTHER SPEED RESTRICTION.
6. REDUCE SPEED SIGNS TO BE 3871 YELLOW 3M HIGH INTENSITY BACKGROUND ON 0.080" 3105 SHEET ALUMINUM.
7. RESUME SPEED SIGN TO BE 3877 GREEN 3M HIGH INTENSITY BACKGROUND ON 0.080" 3105 SHEET ALUMINUM.
8. BACK SIDE OF SIGNS TO HAVE A 2" X 6" VERTICAL STRIP ON BOTH SIDES OF THE MOUNTING POST. STRIP WILL BE THE SAME 3M MATERIAL AS UTILIZED ON THE FRONT OF THE SIGN.
9. SINGLE SIDED SINGLE DIGIT SIGNS PER STD DWG 0502 ARE TO BE USED DURING FIELD INSTALLATION TO INDICATE MAXIMUM AUTHORIZED SPEED THROUGH RESTRICTIONS.



FREIGHT ONLY SUBDIVISIONS

FREIGHT AND PASSENGER SUBDIVISIONS

SIGN	ITEM NO.
REDUCE SPEED	393-3428
RESUME SPEED	393-3861

FOR MOUNTING DETAILS, SEE STD DWG 0599 FOR NUMERALS, SEE STD DWG 0502 REF. PREVIOUS U.P. STD PAGE 539-A

**UNION PACIFIC RAILROAD
ENGINEERING STANDARDS**

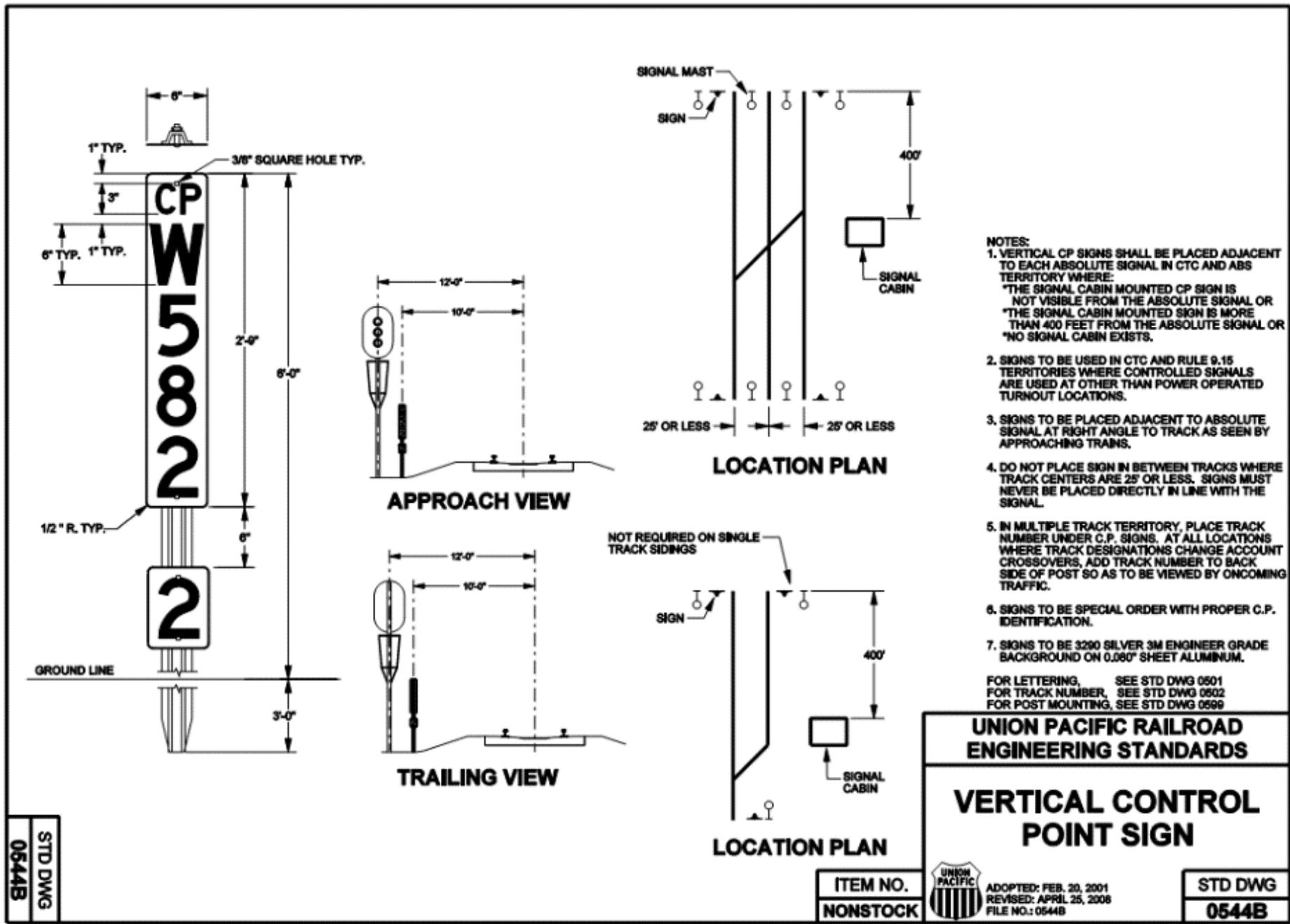
**PERMANENT SPEED
RESTRICTION SIGNS**

APPROVED: *Charles A. Condit*
VP ENGINEERING
ADOPTED: JAN. 2, 1989
REVISED: JULY 9, 2010
FILE NO.: 0539A

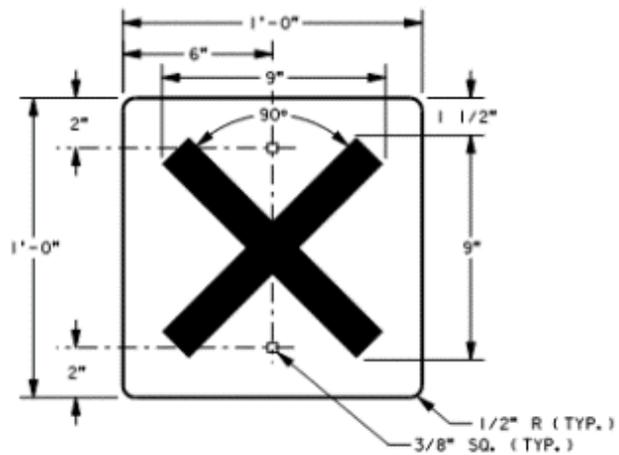
STD DWG
0539A

0539A
STD DWG

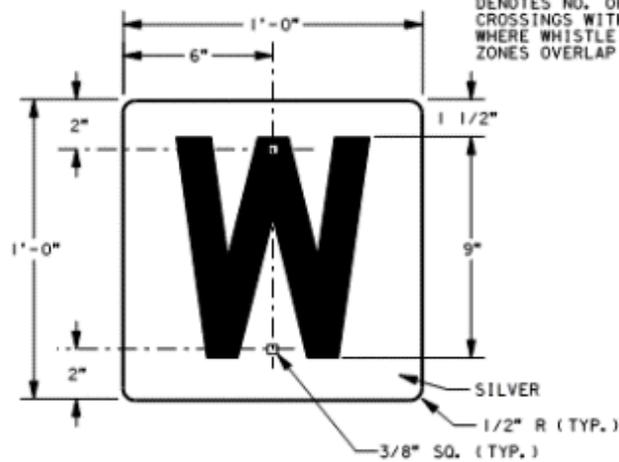
Detail 4. Typical Railroad Permanent Speed Restriction Signage Detail.



Detail 5. Typical Railroad Vertical Control Point Signage Detail.



**GRADE CROSSINGS
SIGN DETAIL**



**TUNNELS, ETC.
SIGN DETAIL**

DENOTES NO. OF SUCCESSIVE CROSSINGS WITHIN 1/4 MILE WHERE WHISTLE APPROACH ZONES OVERLAP

6" NUMERAL SIGN



NOTES:
 ALL SIGNS TO BE PLACED A MINIMUM OF ONE QUARTER MILE IN EACH DIRECTION IN ADVANCE OF LOCATIONS WHICH WARNING IS INTENDED. ALL SIGNS TO BE PLACED A MINIMUM OF TEN FEET FROM GAGE SIDE OF NEAREST RAIL. IN SINGLE TRACK TERRITORY, ALL WHISTLE SIGNS TO BE PLACED ON ENGINEERS' SIDE OF TRACK. IN MULTIPLE MAIN TRACK TERRITORY INCLUDING CONTROLLED SIDINGS, WHISTLE SIGNS SHOULD BE PLACED ON FIELD SIDE OF TRACK, HOWEVER, ON INTERIOR MULTIPLE MAIN TRACKS WHERE TRACK CENTERS ARE 20'-0" OR GREATER, WHISTLE SIGNS ARE TO BE CENTERED BETWEEN TRACKS ON THE ENGINEERS' SIDE OF TRACK.

"X" GRADE CROSSINGS SIGN TO BE PLACED IN ADVANCE OF PUBLIC CROSSINGS.
 "X" GRADE CROSSINGS SIGNS WITH NUMBERS, DENOTES NUMBER OF CROSSINGS, WHERE THERE ARE TWO OR MORE CROSSINGS WITHIN 1/4 MILE, AND THE WHISTLING APPROACH ZONES CAN OVERLAP. SIGNS TO BE NO. 3870 SILVER 3M HIGH INTENSITY BACKGROUND ON 0.080" 3105 SHEET ALUMINUM FACING.

"W" TUNNEL SIGN TO BE PLACED IN ADVANCE OF ALL TUNNELS AND AT OTHER LOCATIONS WHERE WHISTLE WARNING IS CONSIDERED NECESSARY. SIGN TO BE NO. 3870 SILVER 3M HIGH INTENSITY BACKGROUND ON 0.080" 3105 SHEET ALUMINUM FACING.

FOR LETTERING, SEE STD DWG 0501
 FOR 6" NUMBER SIGNS, SEE STD DWG 0502
 FOR MOUNTING DETAILS, SEE STD DWG 0599

REF. PREVIOUS U.P. STD PAGE 0555A-A

**UNION PACIFIC RAILROAD
ENGINEERING STANDARDS**

WHISTLE SIGNAL SIGNS

ITEM	ITEM NO.
"X"	393-1755
"W"	393-1685

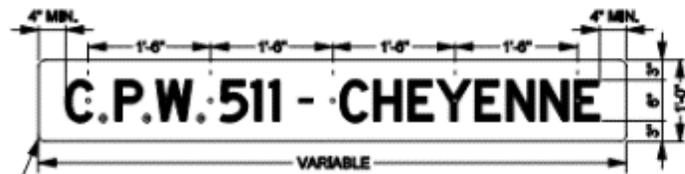


ADOPTED: JAN. 28, 1989
 REVISED: MARCH 1, 1998
 FILE NO.: 0555

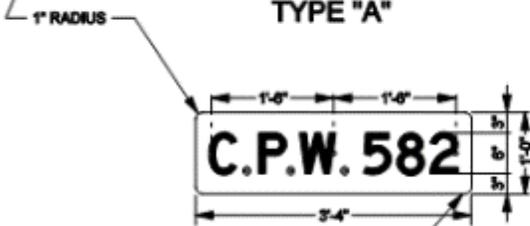
**STD DWG
0555A**

**STD DWG
0555A**

Detail 6. Typical Railroad Whistle Signal Signage Detail.



TYPE "A"



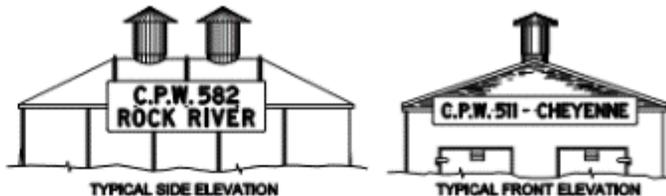
TYPE "B"



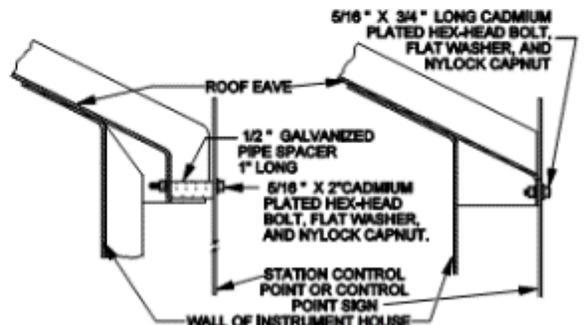
TYPE "C"

LOCATION:
 ALL SIGNS WILL BE ON THE APPROACH SIDE AT EACH C.T.C. CONTROL POINT AND INSTALLED ON THE EAVE OF THE INSTRUMENT HOUSE IN PLAIN VIEW FROM APPROACHING TRAINS. TYPE "A" STATION CONTROL POINT SIGN TO BE USED AT LOCATIONS WHERE STATION NAME HAS BEEN ASSIGNED. TYPE "B" CONTROL POINT SIGN TO BE USED AT LOCATIONS WHERE A STATION NAME HAS NOT BEEN ASSIGNED. TYPE "C" STATION CONTROL POINT SIGN IS TO BE USED AS AN ALTERNATIVE TO THE TYPE "A" SIGN WHEN LENGTH BECOMES PROHIBITIVE.

SPECIFICATIONS:
 SIGN TO BE PREDRILLED .080" 6061-T6 SHEET ALUMINUM, SURFACED ON ONE SIDE WITH WHITE BAKED ENAMEL BACKGROUND AND 6" BLACK P.R.A. CUT-OUT LETTERS AND NUMBERS. TO MINIMIZE SIGN LENGTH, STATION NAME ABBREVIATIONS THAT MAKE THE MEANING CLEAR MAY BE USED. SIGNS PREDRILLED WITH 3/8" DIA. HOLES ON 1'-0" CENTERS BALANCED ALONG THE LENGTH OF THE SIGN. NUMBER OF HOLES REQUIRED DEPENDS ON THE LENGTH OF THE SIGN.



MOUNTING ARRANGEMENTS

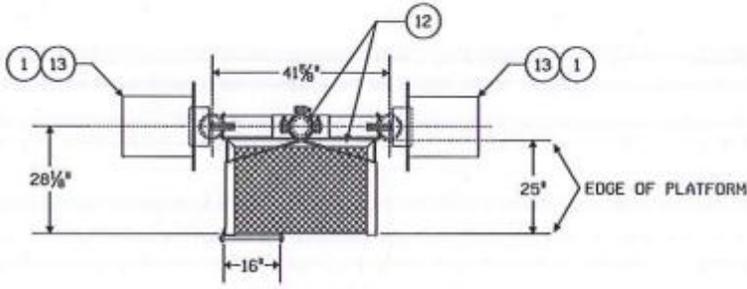


TYPICAL MOUNTING DETAILS

- NOTES:**
1. REQUISITIONS FOR STATION CONTROL AND CONTROL POINT SIGNS SHOULD SPECIFY THE TYPE OF SIGN, LETTERING AND MOUNTING HARDWARE REQUIRED THE TYPICAL MOUNTING DETAILS WILL SHOW THE HARDWARE REQUIRED DEPENDING ON THE STYLE OF INSTRUMENT HOUSE ON WHICH THE SIGNS WILL BE MOUNTED.
 2. IN HEAVY SNOW AREAS, WHERE CANTILEVERS OR BRIDGE SIGNALS ARE LOCATED, SIGN CAN BE MOUNTED ON CANTILEVER OR BRIDGE STRUCTURE WHERE THEY WILL BE IN PLAIN VIEW FROM AN APPROACHING TRAIN AND SIGNS DO NOT OBSTRUCT THE VIEW OF THE SIGNALS INVOLVED.

UNION PACIFIC RAILROAD ENGINEERING STANDARDS	
STATION AND CONTROL POINT SIGN FOR CTC	
 APPROVED: <i>Richard O'Connell</i> VP ENGINEERING ADOPTED: FEB. 19, 2009 REVISED: FILE NO.: 0596	STD DWG 0596

STD DWG
 0596



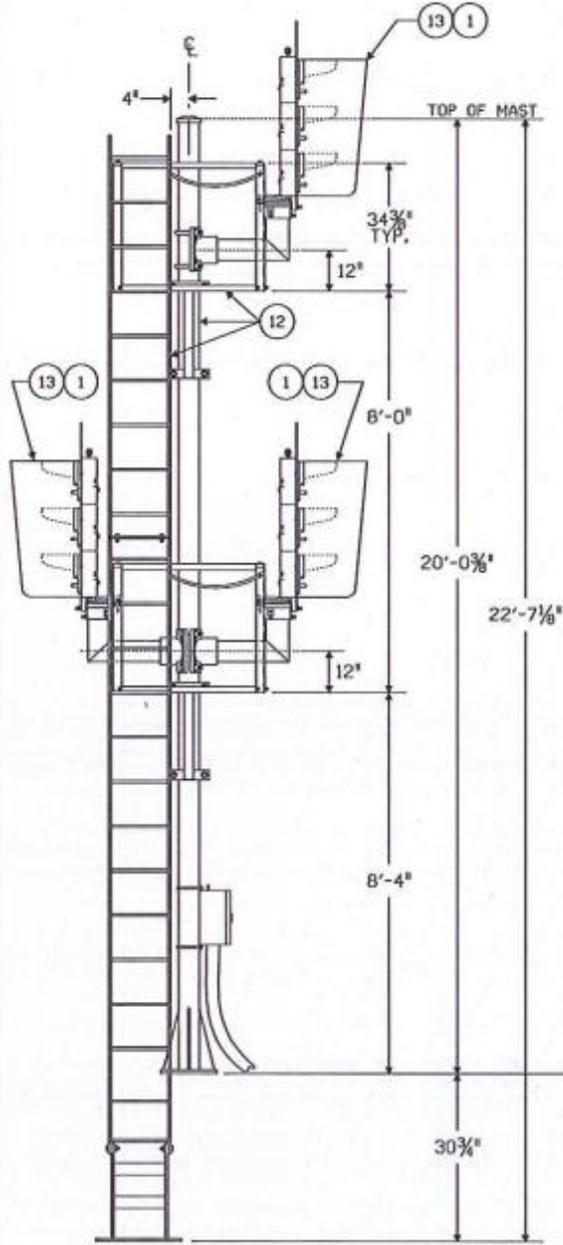
TOP VIEW

NOTE:
1. FOR MATERIAL LIST SEE DWG. 776181UP

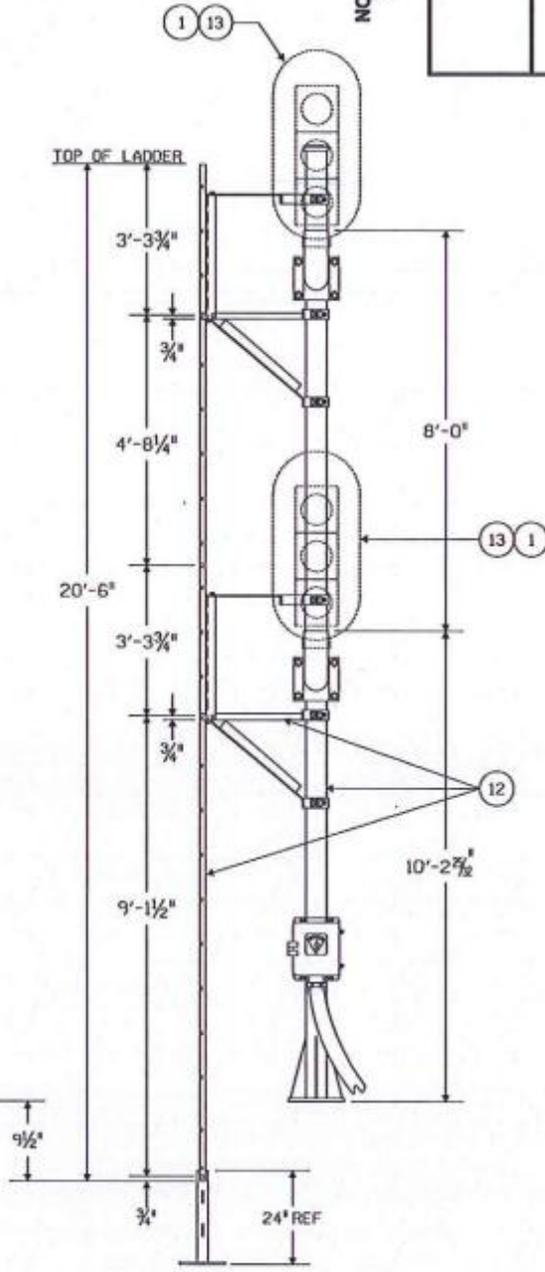
STANDARD DRAWING

**SIGNAL
COMBINATION BACK TO BACK
SIDE LADDER**

FILE OWNER: UPRR DATE: 01-01-02
REV. NO.: 2 DWG NO: 776180UP



SIDE VIEW

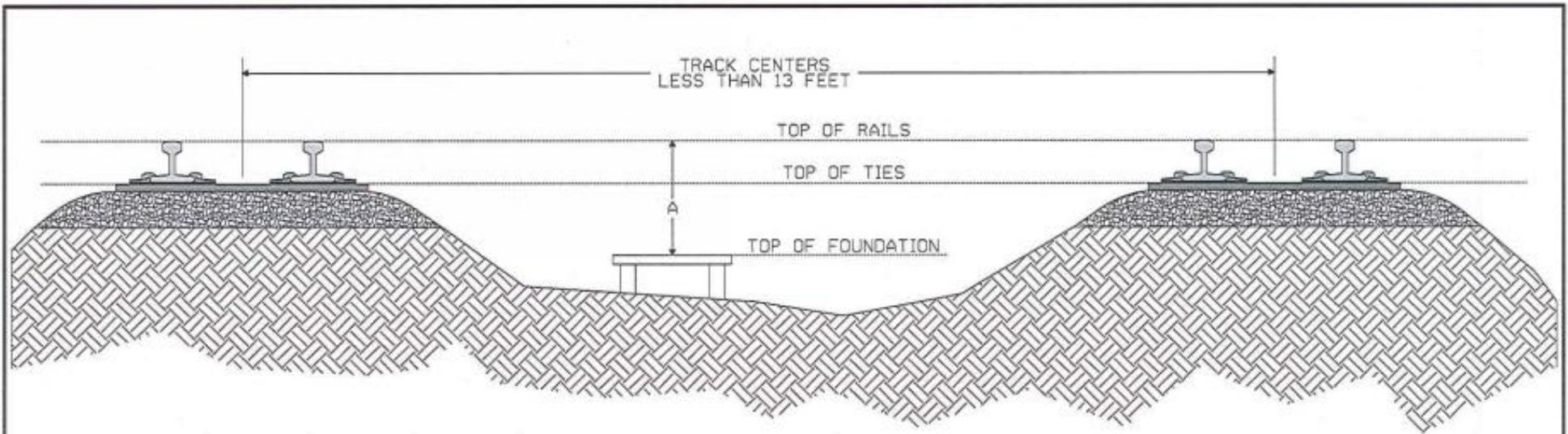


FRONT VIEW

REV. DATE
02-25-02

776180UP

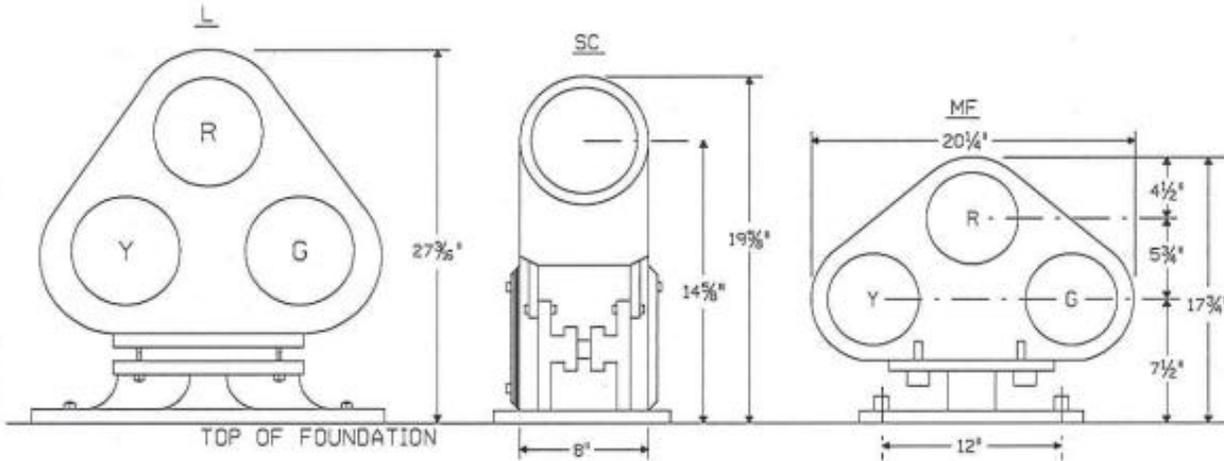
Detail 8. Typical Signal Lights (Back to Back).



WHEN TRACK CENTERS ARE MORE THAN 13 FEET, RAISE THE FOUNDATION AT A RATE OF 8 INCHES FOR EACH FOOT OVER 13 FEET, BUT NEVER PLACE FOUNDATION ABOVE TOP OF TIES.

NOTE:

AT "A" WITH TRACK CENTERS LESS THAN 13 FEET: SIGNAL L TOP OF FOUNDATION SHOULD BE 14 $\frac{1}{4}$ " BELOW TOP OF RAILS
 SIGNAL SC TOP OF FOUNDATION SHOULD BE 12 $\frac{3}{4}$ " BELOW TOP OF RAILS
 SIGNAL MF TOP OF FOUNDATION SHOULD BE 6 $\frac{1}{2}$ " BELOW TOP OF RAILS



776100UP

STANDARD DRAWING		
SIGNAL DWARF FOUNDATION HEIGHT		
REV. DATE	FILE OWNER: UPRR	DATE: 01-01-02
01-01-02	REV. NO.: 1	DWG NO: 776100UP

Detail 9. Typical Dwarf Signal Lights.



Photograph 1. Typical signal lights.



Photograph 2. Alternate view of typical signal lights.



Photograph 3. View of typical signal lights from roadway.



Photograph 4. Typical signal building structure that will be installed and painted a dark earth-toned color to match the surrounding landscape (shown in mid-ground right of the highway and left of the existing double track).



Photograph 5. Close-up view of typical signal building structure (shown in foreground right of the highway and left of the existing double track).



Photograph 6. Alternate view of typical signal building structure (shown in mid-ground left of the highway).



Photograph 7. View of typical guardrail from roadway.

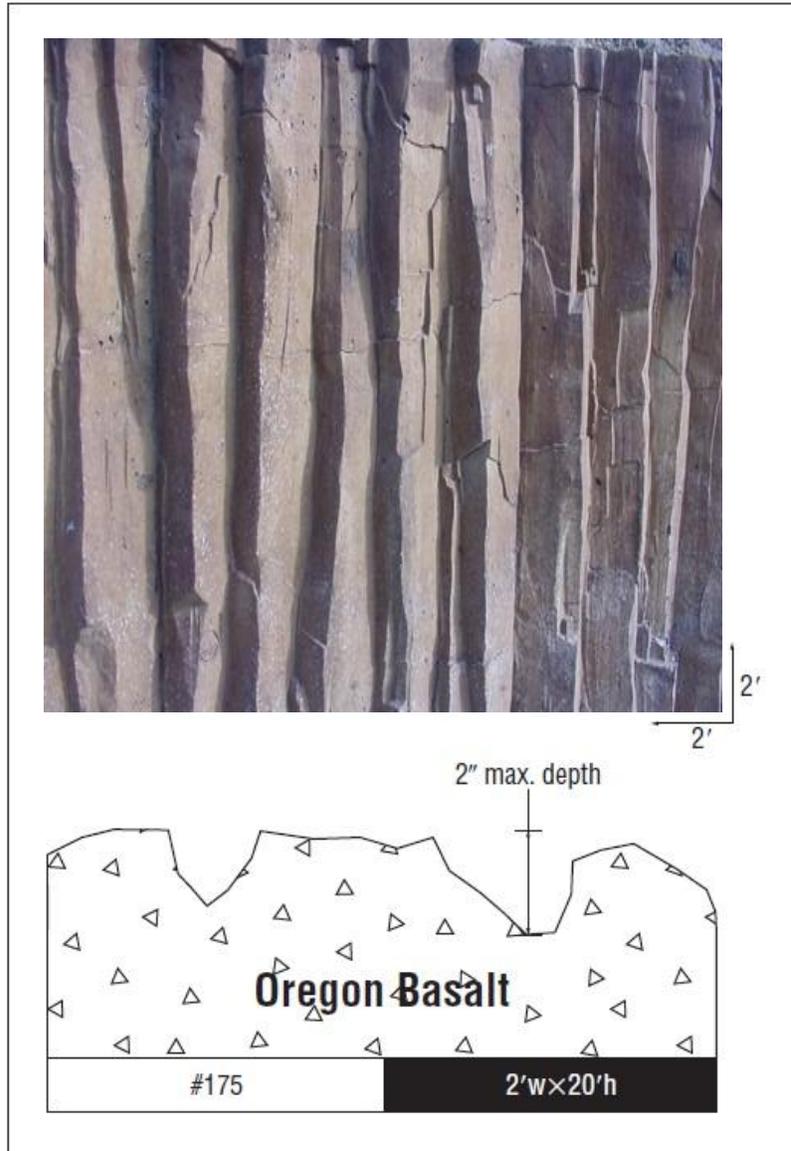


Photograph 8. View of typical wooden pole and wireless signaling appurtenances from roadway (shown directly right of the signal building structure in mid-ground right of the highway and left of the existing double track).



Detail 10. This detail shows the paint color that will be used for the new signal buildings proposed for the project; this color is equivalent to that used on typical existing signal building structures in the Wasco County National Scenic Area. The paint brand is Tiger Drylac and the paint color code is RAL 8012 49/66090 38/60012.

**Scott System #175
Oregon Basalt**



Detail 11. This detail shows an example of the Oregon Basalt rock wall covering that will be used for the retaining wall proposed for construction at MP 71.27. The exposed concrete surface covering is manufactured by Scott System, Inc., and the specification code is Oregon Basalt #175.