

1. OVERHEAD CLEARANCES

.01 Monument Signs (**NS catalog ID 012039-0**) are to be installed by the B&B supervisor, or his representative, at each overhead structure to define the safe clearance to be maintained at the structure. Monument Signs are to be installed throughout critical clearance tunnels.

.02 Do Not Raise Track Signs (**NS Catalog ID 349500-0**) are to be installed over the Monument Signs at structures designated as Clearance Critical (See 1.04c, 1.05 and 1.07) to insure no loss of clearance occurs at these structures.

.02 Description of Monument Sign

a. Aluminum plate 1/8 inch by 4 inches by 6 inches (**see Standard Plan 6-23**).

b. Information conveyed

(1) **T/R:** Vertical offset distance from top of plate to top of rail.

(2) **SE:** Maximum superelevation of the track under the structure.

(3) **TRK:** In tunnels, distance from plate to centerline of track. At all other overhead structures, designation of the track to which clearance applies.

(4) **STA:** Valuation stations through tunnels (see 1.06(a)). Station referencing is not required at other overhead structures.

Note: Vertical clearance measurements are not to be stamped on the plates.

.03 Description of DO NOT RAISE TRACK Sign

a. Aluminum frame 1/8 inch by 7 ½ inches by 8 ½ inches painted red with black lettering on white background strip (**see Standard Plan 6-23**).

b. Information conveyed

“DO NOT RAISE TRACK”

.04 Monument Sign Placement Guidelines -- Overhead Bridges and Overhead Structures

a. Permanent Monument Signs are to be installed at all overhead bridges and overhead structures, with the top of the plate set to define the maximum allowable top of high rail elevation beneath the structure.

b. Vertical (plumb) measurements are to be taken from the bottom of the overhead obstruction to the bottom edge of a board or straightedge laid across the top of both rails. The measurements are to be taken at a distance of five feet six inches (5'-6") from centerline of track on both sides and any minimum clearance point in between. The minimum clearance is determined from these measurements.

- c. If the minimum clearance measured is twenty-two feet (22') or less, the Monument Sign must be installed level with the existing top of rail. In addition, a Do Not Raise Track Sign is to be installed over the Monument Sign.
 - d. If the clearance measured is greater than twenty-two feet, the Monument Sign must be installed above the level of the top of rail, at a distance equal to the difference between the measured clearance and twenty-two feet.
 - e. Where superelevated curved track exists under an overhead structure, the clearance sign should be installed next to the high rail side.
 - f. Where practicable, Monument Signs must be located opposite the point of minimum overhead clearance under the structure. If conditions prohibit installation at 22 feet or top of rail, the plate may be located above the top of rail with the actual vertical offset distance to the allowable top of rail stamped opposite T/R on the plate.
 - g. Where overhead structures span a considerable length of track, the installation of more than one plate is recommended.
 - h. If the piers are not suitable to mount the plates, a steel post may be erected no closer than fifteen feet (15') from centerline of track, located as near as possible opposite the point of minimum clearance.
 - i. The Chief Engineer Bridges and Structures must be advised of the minimum clearance at which the plates are installed.
- .05 Do Not Raise Track Sign – Placement Guidelines – Overhead Bridges and Overhead Structures
- a. Do Not Raise Track Signs are to be installed over all existing Monument Signs where the top of rail is currently at the level of the top of Monument Sign.
 - b. Do Not Raise Track Signs are to be installed over Monument Signs whenever track surfacing results in the top of rail being raised to the level of top of Monument Sign.
- .06 Monument Sign - Placement Guidelines -- Tunnels
- a. Monument Signs are to be installed, on 31 foot stations along curved track and on 50 foot stations along tangent track, throughout the length of critical clearance tunnels. These stations correspond to valuation map stationing. These plates are placed so as to provide the best combination of track geometry and clearances.
 - b. In single track tunnels on tangent track, Monument Signs are placed to the right of (in the direction of increasing mileposts) and facing the centerline of track. In single track tunnels with curved track, Monument Signs are placed on the LOW rail side of curves and indicate the highest desirable elevation of the LOW rail. In double track tunnels, plates are placed on both tunnel walls adjacent to the track to which they apply, on

either tangent or curved track. Monument Signs in double track tunnels having curved track also indicate the highest desirable elevation of the LOW rail. The distance from the plate to the centerline of track is stamped on the plate opposite "TRK" on the plate as indicated in 1.02b(3).

- c. Grade and Alignment plans have been provided to the Chief Engineers Line Maintenance for each of the previously monumented tunnels. These plans show the grade and alignment defined by the plates that provides the best combination of track geometry and clearances. Also shown on these plans are the MAXIMUM top-of-rail elevations that will maintain the necessary minimum clearances, for regularly handled equipment, provided a somewhat irregular profile is acceptable.

.07 Do Not Raise Track Sign - Placement Guidelines -- Tunnels

- a. In single track tunnels, Do Not Raise Track Signs are to be installed over at least one Monument Sign at each end of the tunnel.
- b. In double track tunnels, Do Not Raise Track Signs are to be installed over at least one Monument Sign on both tunnel walls at each end of the tunnel.

.08 Maintenance of Overhead Clearance

WARNING: Due to mounting difficulties at some locations, Monument Signs found above the top of rail may actually designate a maximum allowable top of rail level below the top of the plate. These plates have the distance between the top of plate and allowable top of rail stamped opposite T/R on the plate. This offset must be considered before raising the track.

- a. In the absence of a Monument Sign, contact clearance engineer, Atlanta, GA at (404) 527-2509 before raising track.
- b. Where only one plate is used, clearance defined by the plate applies throughout the entire length of the overhead structure.
- c. It is the responsibility of gangs performing any work that could reduce overhead clearance to determine the level of the track relative to the level of the plates. Before beginning work, all necessary precautions must be taken to prevent encroachment on the minimum clearances designated by the signs and verify that there was no encroachment on the clearance upon completion of the work.
- d. If the top of rail at any location under the structure is found to be at the elevation designated by the sign, no raise of track is to be made at that location.
- e. The presence of a DO NOT RAISE TRACK Sign over any Monument Sign at an overhead structure or tunnel indicates existing clearance is critical at that structure and no raise of track can be made.

- f. If the top of rail at any point under the structure is below top of plate level, track may be raised at that point provided that after raising, top of rail at any location under the structure does not exceed the top of plate level.
- g. No change in superelevation is to be made under an overhead structure without consulting the clearance engineer.
- h. Variation of clearances from that designated by the plates must have approval of the Chief Engineer Bridges and Structures.

2. HORIZONTAL CLEARANCES

.01 Maintaining Track Center Distances

- a. It is the responsibility of the division engineer to assure that track centers are maintained to at least the specified minimum and that any changes are promptly reported to the clearance engineer at (404) 527-2509.
- b. Minimum track centers required are:
 - (1) The following minimum track centers are required:
 - (a) Between adjacent main tracks — 13' - 0".
 - (b) Between any main track and sidings — 13' - 0".
 - (c) Between any main track and industry track — 14' - 0".
 - (d) Between siding and industry track — 14' - 0".
 - (2) Track centers at any of the above must be increased one inch per degree of curve on curved tracks.
 - (3) In multiple curved track territory, when the track on the inside of curve has less superelevation than the track on the outside of the curve, track centers must be increased by 4-1/2 inches for each inch difference in superelevation between the involved tracks.
 - (4) Any existing track centers less than (1) (a), (b), (c), or (d) immediately above must not be reduced. When practical, existing track centers less than the minimums specified in above, should be increased, except (1)(a), (b), (c), or (d), immediately where physical constraints such as bridge piers, rock cuts, loading docks, etc. prohibit widening of track centers without a loss of clearance.
- c. Any improvement in track centers, including the removal of any listed tracks, should be promptly forwarded to the clearance engineer.

- d. If it is necessary to temporarily reduce track centers below the designated minimums, these reductions must be immediately phoned to the Clearance Engineer at (404) 527-2509.

NOTE: It is recognized that there are locations where the economics must be considered and corrective work done in connection with T&S, surfacing, or other maintenance work at the proper time of the year. In these situations, good judgment must be used and corrections made as promptly as practical.

.02 Horizontal Clearances in Tunnels:

See item 1.06 of this procedure.

3. NEW TRACK CONSTRUCTION CLEARANCES

.01 Minimum Clearances Required for New Construction on NS Right-of-way

- a. Except where state regulations specify a greater clearance, for new construction, the minimum vertical clearance on main tracks and sidings must be 23 feet above top-of-rail as measured at a distance of 5 feet 6 inches from centerline of track on each side. Minimum side clearance must be 13 feet from centerline of track. Provided state regulations permit, horizontal clearance may be reduced to a minimum of 9 feet from centerline of track on through truss or through girder bridges.

- b. Minimum Track Centers Required Are:

- (1) The following minimum track centers are required:
 - (a) Between adjacent main tracks — 14' - 0".
 - (b) Between any main track and sidings — 14' - 0".
 - (c) Between any main track and industry track — 15' - 0".
 - (d) Between siding and industry track — 15' - 0".
- (2) Track centers at any of the above must be increased one inch per degree of curve on curved tracks.
- (3) In multiple curved track territory, when the track on the inside of curve has less superelevation than the track on the outside of the curve, track centers must be increased by 4-1/2 inches for each inch difference in superelevation between the involved tracks

.02 Minimum Clearances Required for New Construction Located on Industry Property

New construction on industry property served by NS must conform to standards set forth on **Standard Plan 7-1** as well as current state regulations where applicable.

- .03 The Division Engineer must notify the Clearance Engineer of the actual track center measurements upon completion of all new track construction.
- .04 Prior to placing any new thru truss or thru girder bridge into service, the B&B supervisor must measure the structure to determine that actual clearances meet or exceed those shown on the design drawings.

4. TEMPORARY CONSTRUCTION

- .01 Temporary construction, not in compliance with the standards, is not permitted without the approval of the Chief Engineer Bridges and Structures.
- .02 Division Engineer or employee designated by Division Engineer must immediately provide the Chief Engineer Bridges and Structures with dimensions of any false work or other temporary obstructions, the date of erection and estimated date of removal. Division Engineers must provide Chief Engineer Bridges and Structures new alignment data or location of temporary run-around tracks, and the date of installation and estimated date of removal.
- .03 Division Engineers must advise the Chief Engineer Bridges and Structures as soon as temporary obstructions are removed or when operation on temporary run-around tracks is discontinued.

5. MAINTENANCE OF THE CLEARANCE RECORDS

- .01 Following track surfacing work, the Manager Program & Schedules' office periodically submits a list to Division Engineers where track surfacing work has occurred since the last list.
 - a. The B&B supervisor is responsible for checking behind track gangs to assure that track is at the proper elevation relative to Monument Signs and clearances have been protected. Any track found to be above the level designated by the top of Monument Sign must be promptly reported to the Clearance Engineer, (404) 527-2509.
 - b. Track supervisors are responsible for ensuring that track centers are measured following track maintenance work that affects track centers to ensure designated minimum track centers have been maintained as outlined in section 2.01. Measurements are to be recorded on the Track Center Measurements Form (copy attached to this procedure) within Forty-Five days of the track work and in accordance with the instructions on the form.
- .02 Any loss of clearance must be immediately phoned to Clearance Engineer in Atlanta at (404) 527-2509.
- .03 Notification is to be given to the Chief Engineer Bridges and Structures of removal of any structure, whether permanent or temporary, as well as any other modifications which may improve clearances such as scaling of rock cuts, replacement of bridges, realignment of track away from an obstruction, or removal of adjacent track.



- .04 Where the clearances of overhead wires must be measured, a non-contact method such as a laser or ultrasound instrument is to be used.

APPROVED by the Assistant Vice President – MW&S

- OVERHEAD STRUCTURES (BRIDGES, WALKWAYS, CONVEYORS, ETC.) - EXCEPT:
- 1. PIPE LINES ----- 25'-0"
 - 2. OVERHEAD WIRE AND CABLE CROSSING THE MINIMUM SHALL BE AS FOLLOWS:
 - CABLES AND COMMUNICATION WIRES ----- 27'-0"
 - ELECTRIC LINES 0 TO 750 VOLTS ----- 30'-0"
 - ELECTRIC LINES 750 TO 15,000 VOLTS ----- 31'-0"
 - ELECTRIC LINES 15,000 TO 50,000 VOLTS ----- 33'-0"

THE ABOVE MINIMUM CLEARANCE SHALL BE INCREASED AS OUTLINED IN ACCORDANCE WITH NS STANDARDS AND PROCEDURES UTILIZING $\frac{1}{2}$ " FOR EACH 1,000 VOLTS (PHASE TO GROUND) ABOVE 50,000V.

ALL POWER AND COMMUNICATION LINES CONSTRUCTED OVER, UNDER OR PARALLEL TO THE RAILROAD SHALL MEET OR EXCEED THE REQUIREMENTS OF THE NESC LATEST REVISION

ADDED SIDE CLEARANCES, REQUIRED FOR STRAIGHT TRACK AT END OF CURVE

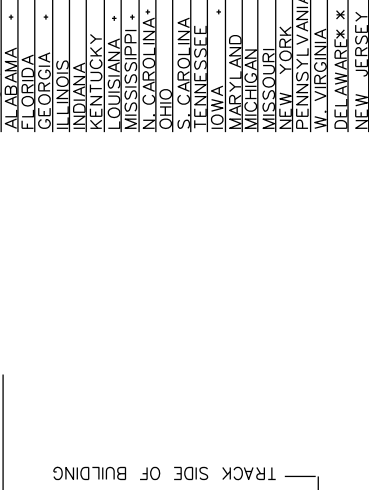
DISTANCE FROM ADJACENT OBSTRUCTION TO NEAR END OF CURVED TRACK	INCREASE IN SIDE CLEARANCE PER DEGREE OF CURVATURE
0 - 22 FT.	1 1/2 INCHES
23 - 45 FT.	1 INCH
46 - 68 FT.	1/2 INCH
69 - 90 FT.	1/4 INCH

TABLE OF CURRENT STATE LEGAL CLEARANCE REQUIREMENTS

TRACK CENTERS BETWEEN INDUSTRIAL TRACKS	INDUSTRIAL TRACKS	GENERAL	BUILDING DOORS	BUILDING DOORS	CLEARANCE					
					VERTICAL	HORIZONTAL	GENERAL			
VIRGINIA *	N	N	N	N	N	N	N	N	N	N
ALABAMA *	N	N	N	N	N	N	N	N	N	N
FLORIDA	13'-6"	13'-6"	22'	17'	8'	5'-9"	CFH	8'	10'	8'
GEORGIA *	N	N	N	N	N	N	N	N	N	N
ILLINOIS	13'-6"	15'	23'-0"	H	7'	6'-2"	CFH	8'	9'	8'
INDIANA	N	N	22'	22'	8'	x	N	8'	8'	8'
KENTUCKY	N	N	N	N	N	N	N	N	N	N
LOUISIANA *	N	N	N	N	N	N	N	N	N	N
MISSISSIPPI *	N	N	N	N	N	N	N	N	N	N
N. CAROLINA *	N	N	N	N	N	N	N	N	N	N
OHIO	14'	15'	21'	21'	8'	x	N	8'	8'	8'
S. CAROLINA	N	N	N	N	N	N	N	N	N	N
TENNESSEE *	13'	14'	22'	17'	8'	7'-6"	4'	8'	8'	8'
IOWA	N	N	N	N	N	N	N	N	N	N
MARYLAND	13'-6"	15'	22'	18'	8'	5'-7"	4'	8'-6"	8'-6"	8'-6"
MICHIGAN	14'	14'	22'-6"	22'-6"	8'-6"	N	N	8'-6"	8'-6"	8'-6"
MISSOURI	14'	14'	22'	18'-6"	5'-9"	CFH	8'	8'-6"	8'-6"	8'-6"
NEW YORK	13'-6"	15'	22'	18'	8'	8'-6"	4'	8'-6"	8'-6"	8'-6"
PENNSYLVANIA	13'-6"	15'	22'	18'	8'	8'-6"	4'	12'	12'	12'
W. VIRGINIA	14'	15'	22'	22'	8'	6'-4"	4'	8'	10'	8'
DELAWARE x	N	N	N	N	N	N	N	N	N	N
NEW JERSEY	N	N	N	N	N	N	N	N	N	N

RETRACTABLE DEVICES, SUCH AS CHUTES, SPOUTS AND CANOPIES WILL BE PERMITTED WITH 17'-6" MINIMUM OVERHEAD CLEARANCE WHEN IN THE OPERATING POSITION & GANGWAYS WILL BE PERMITTED PROVIDED APPLICANT AGREES TO THE FOLLOWING:

- 1) DEVICE (S) MUST BE RETRACTED AND LOCKED IN PLACE WHEN CARS ARE BEING MOVED.
- 2) DEVICE (S) MUST RETRACT SO AS TO PROVIDE THE MINIMUM STANDARD SIDE CLEARANCE.
- 3) AND 23'-0" OVERHEAD CLEARANCE. APPLICANT MUST FULLY INDEMNIFY THE RAILROAD AGAINST ANY AND ALL DAMAGES CAUSED BY THE DEVICE (S).



NOTE: ABOVE EXCEPTED FROM AREMA CHART SHOWING LEGAL CLEARANCE REQUIREMENTS LAST REVISED 2004

- * NO CURRENT REGULATIONS
- CFH - CAR FLOOR HEIGHT
- H - HEIGHT OF CAR GOVERNS
- N - NO REGULATION GIVEN
- x - MUST APPLY TO STATE PUBLIC SERVICE COMMISSION FOR LESS THAN 8'-0" LATERAL CLEARANCE TO PLATFORMS.
- x x - AREMA STANDARDS APPLY

WHERE PUBLIC LAW OR REGULATION REQUIRES CLEARANCE GREATER THAN RAILWAY COMPANY STANDARD, SUCH LAWS AND REGULATIONS WILL GOVERN. SEE ABOVE TABLE.

WHERE NORFOLK SOUTHERN STANDARDS SPECIFY CLEARANCES GREATER THAN STATE STANDARDS, NORFOLK SOUTHERN CLEARANCE SHALL APPLY.

REVISION

DATE	1-26-09	REVISION NOTES
	5-28-14	REVISION NOTES
	6-4-14	RETRACTABLE CHUTE, ETC.
	7-20-18	REVISE OVERHEAD MIN CLEARANCE

1. CLEARANCES APPLY BOTH TO STUB END TRACK AND TRACK CONNECTED AT BOTH ENDS.
2. CLEARANCES APPLY BOTH TO OUTSIDE AND INSIDE OF BUILDING.
3. DOORWAY FOR TRACK ENTERING BUILDING MUST HAVE 8'-0" SIDE CLEARANCE AND 22'-0" OVERHEAD CLEARANCE.
4. SIGN MUST BE PLACED ON EACH SIDE OF DOORWAY TO WARN OF CLOSE SIDE CLEARANCE.
5. INDUSTRY TRACK MUST BE NOT LESS THAN 15'-0" CENTER TO CENTER WITH MAIN AND RUNNING TRACK OF RAILWAY COMPANY. MINIMUM DISTANCE, CENTER TO CENTER, FOR ALL OTHER TRACKS TO BE 14'-0".
6. WHERE THE TRACK IS CURVED ALL SIDE CLEARANCES TO AN ADJACENT OBSTRUCTION MUST BE INCREASED 1 1/2 INCHES FOR EACH DEGREE OF TRACK CURVATURE.
7. WHERE THE TRACK IS CURVED WITHIN 90 FEET OF AN ADJACENT OBSTRUCTION, THE SIDE CLEARANCES MUST BE INCREASED AS PER THE TABLE IN THE UPPER RIGHT HAND CORNER.
8. FOR ANY STRUCTURE CROSSING OR PROJECTING OVER TRACK, INDUSTRY MUST SUBMIT PLANS BEARING THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER TO THE DIVISION SUPERINTENDENT FOR FORWARDING TO THE CHIEF ENGINEER BRIDGES AND STRUCTURES FOR APPROVAL.

RETRACTABLE CHUTE, ETC.

MIN. 9'-0" (TANGENT TRACK)

MIN. 9'-0" (TANGENT TRACK)

MIN. 6'-0"

23'-0" MINIMUM

20'-0" MINIMUM

OBSTRUCTION ADJACENT TO TRACKS, BUILDINGS, POLES, FENCES, GATES, STORED MATERIAL, ETC.

5'-0"

RETRACTABLE CHUTE, ETC.

MINIMUM 17'-6"

TRACK SIDE OF BUILDING

PLATFOMS OR LOADING DOCKS

SHALL BE CONSTRUCTED SO AS TO PERMIT A MAN TO STAND OR WALK THEREON.

PLATFOMS OR LOADING DOCKS ONLY

7'-6" MIN.

EQUIPMENT DIAGRAM SHOWN IS FOR RAILCAR EQUIPMENT IN GENERAL USE ONLY. SIDINGS, ANTICIPATED TO HANDLE SPECIAL CARS OR OVERSIZED LOADS, NEED TO BE GIVEN SPECIAL ATTENTION BY THE ENGINEER.

PLATFOMS OR LOADING DOCKS

PLATFOMS OR LOADING DOCKS

NORFOLK SOUTHERN RAILWAY COMPANY

MARCH 1994

Atlanta, Georgia

CLEARANCES FOR TRACKS LOCATED ON INDUSTRY PROPERTY