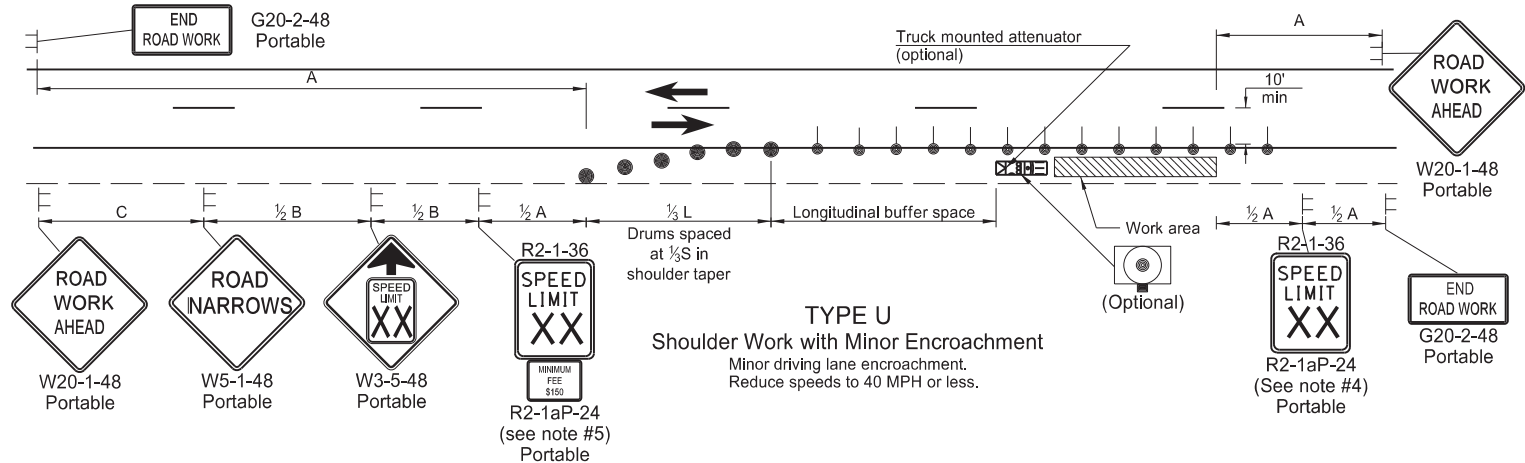
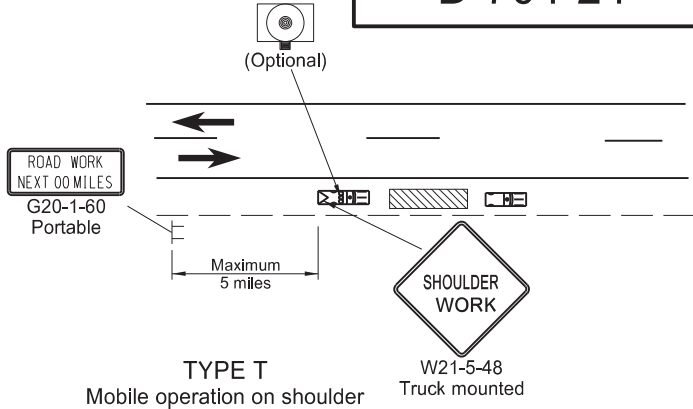
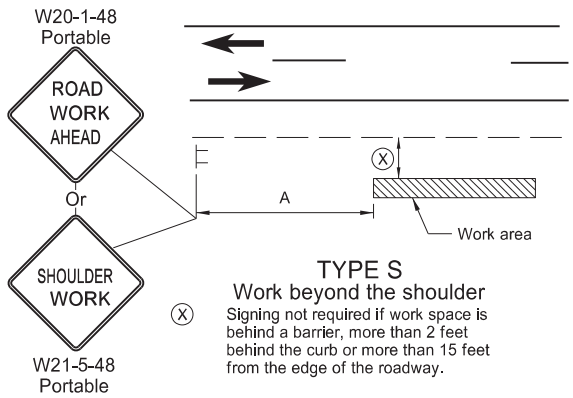
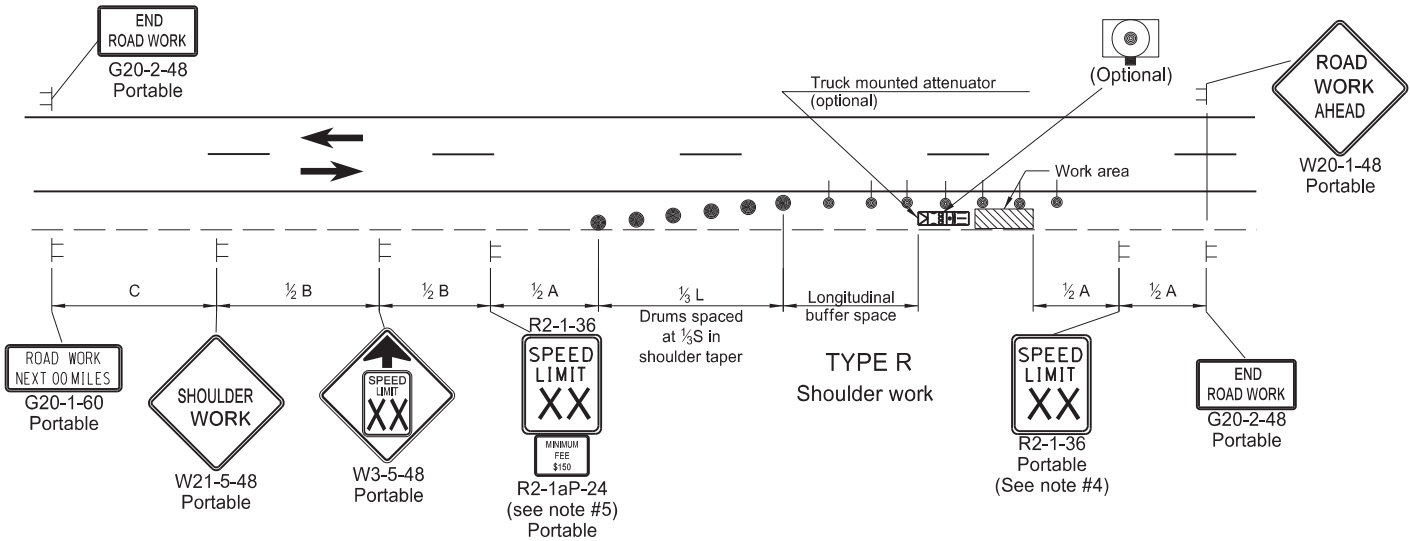
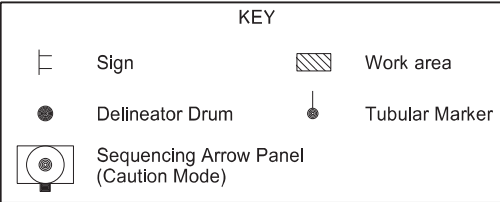
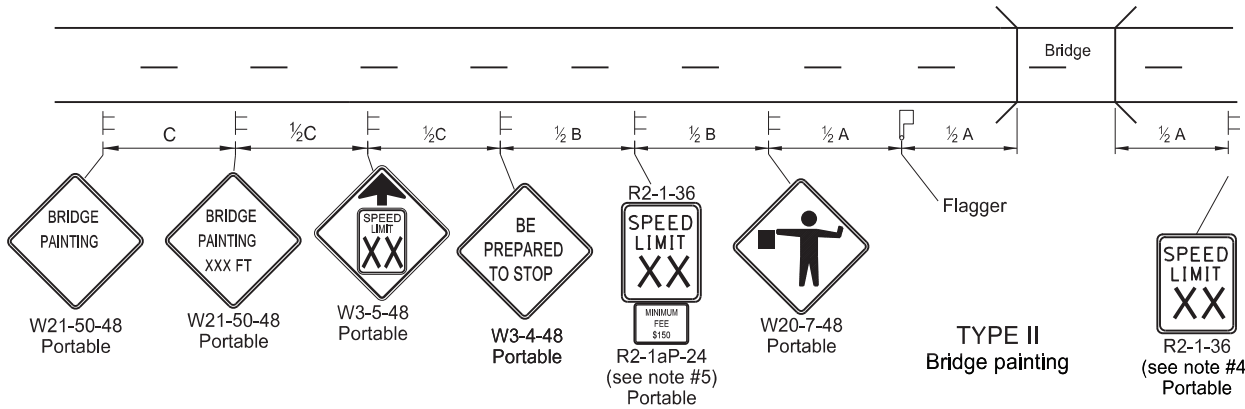
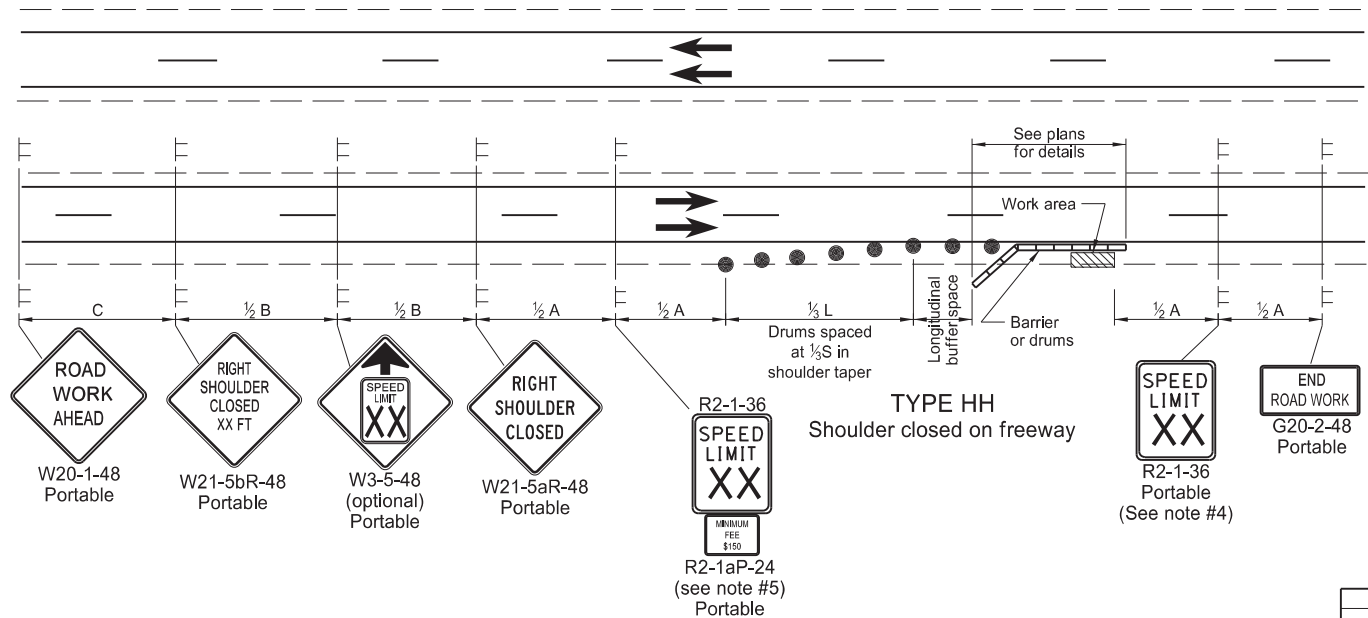


SHOULDER CLOSURES AND BRIDGE PAINTING LAYOUTS

D-704-24



- Notes
- Variables
    - S = Numerical value of speed limit or 85th percentile.
    - W = The width of the taper in feet.
    - L = Minimum length of taper,  $S \times W$  for freeways, expressways, and all other roads with speeds of 45 mph or greater, or  $W \times S^2 / 60$  for urban, residential, and other streets with speeds of 40 mph or less.
  - Space delineator drums for tapering traffic at dimension "S". Space delineator drums or tubular markers for tangents at 2 times "S".
  - Sequencing Arrow Panels
    - Use Type A on roadways with slow moving traffic speeds and low volume (25 mph or less and 750 ADT or less).
    - Use Type B on roadways with moderate traffic speeds and volumes (40 mph or less and 5000 ADT or less).
    - Use Type C on roadways with high traffic speeds and volumes (over 40 mph or over 5000 ADT).
  - Re-establish speed limit. Determine exact speed limit in the field, dependent on location and conditions.
  - Determine the reduced speed limit based on the in-place speed limit before construction. Where speed reductions exceed 30 MPH, install a second speed limit sign with the desired speed reduction (not to exceed 30 mph.) Place the second speed limit sign at 1/2 B.
  - Install flags on warning signs in urban areas when signs are not portable. Mount 24 inch square flags perpendicular to the edges of the sign, and at such a distance above the edge that the flag does not touch the sign when limp.
  - Cover existing speed limit signs within a reduced speed zone.
  - As an option, use portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Drawing D-704-14.
  - Recommend 40 mph speed limit in vicinity of workers, unless location and conditions dictate otherwise.



| ADVANCE WARNING SIGN SPACING                          |                                  |      |      |
|---|----------------------------------|------|------|
| Road Type   | Distance Between Signs Min. (ft) |      |      |
|   | A                                | B    | C    |
| Urban - Low Speed (30 mph or less)                    | 150                              | 150  | 150  |
| Urban - Low Speed (over 30 to 40 mph)                 | 280                              | 280  | 280  |
| Urban - High Speed (over 40 mph to 50 mph)            | 360                              | 360  | 360  |
| Rural - High Speed (over 50 mph to 65 mph)            | 720                              | 720  | 720  |
| Urban Expressway and Freeway (55 mph to 60 mph)       | 850                              | 1350 | 2200 |
| Rural Expressway and Freeway (70 mph to 80 mph)       | 1000                             | 1500 | 2640 |
| Interstate/4-Lane Divided (Maintenance and Surveying) | 750                              | 1000 | 1500 |

| Longitudinal Buffer Space |                   |
|---------------------------|-------------------|
| Speed (mph)               | Length Min (feet) |
| 20                        | 115               |
| 25                        | 155               |
| 30                        | 200               |
| 35                        | 250               |
| 40                        | 305               |
| 45                        | 360               |
| 50                        | 425               |
| 55                        | 495               |
| 60                        | 570               |
| 65                        | 645               |
| 70                        | 730               |
| 75                        | 820               |
| 80                        | 910               |

| NORTH DAKOTA DEPARTMENT OF TRANSPORTATION |                                  |
|---|----------------------------------|
| 9-27-13                                   |                                  |
| REVISIONS                                 |                                  |
| DATE                                      | CHANGE                           |
| 08-17-17                                  | Updated notes & revised signs    |
| 11-01-19                                  | Revised drum spacing & signs nos |
| 08-01-24                                  | Electronic Stamp/Signature       |
| 06-30-25                                  | Legislative Changes              |

