GENERAL NOTES:

1. Remove trees outside the clearing limit when, in the opinion of the engineer, the utility of a tree will be destroyed by the construction or the clearing operation.

2. Clear in accordance with this standard except where additional clearing is required for safety as shown on the plans.

3. For sections with wide medians where trees are to remain, clear the median side in the same manner as on the outside.

CLEAR TO SLOPE STAKE LINE OR CONSTRUCTION LIMITS

METHOD OF CLEARING

PART SECTION D-D

PART SECTION C-C

PART SECTION B-B

SECTION A-A
GENERAL NOTES:
1. REMOVE TREES OUTSIDE THE CLEARING LIMIT WHEN, IN THE OPINION OF THE ENGINEER, THE UTILITY OF A TREE WILL BE DESTROYED BY THE CONSTRUCTION OR THE CLEARING OPERATION.
2. CLEAR IN ACCORDANCE WITH THIS STANDARD EXCEPT WHERE ADDITIONAL CLEARING IS REQUIRED FOR SAFETY AS SHOWN ON THE PLANS.

METHOD III CLEARING LIMITS

(A) CUTS -- CLEAR TO 10' BEYOND CONSTRUCTION LIMITS.
(B) FILLS -- CLEAR TO 10' BEYOND CONSTRUCTION LIMITS, UNLESS SPECIFIED OTHERWISE BY WETLAND PERMIT.
(C) CUTS AND FILLS -- WHEN THE CLEARING LIMITS (A AND B) EXCEED THE PROPOSED R/W OR PROPOSED CONSTRUCTION EASEMENTS, THEN CLEAR ONLY TO THE R/W OR CONSTRUCTION EASEMENT WHICHEVER IS GREATER.

METHOD II CLEARING LIMITS

(PART SECTION D-D)

METHOD III CLEARING LIMITS

(PART SECTION D-D)

METHOD III CLEARING LIMITS

(PART SECTION C-C)

METHOD III CLEARING LIMITS

(PART SECTION B-B)
1. SEE TYPICAL SECTION FOR LATERAL LOCATION OF ROLLOVER.
2. SEE PLANS FOR METHOD OF CONSTRUCTING CUT AND FILL SLOPES.
3. SUBGRADE LINE WILL NOT UNDERCUT DITCH GRADE AT ANY POINT.
4. OUTSIDE SHOULDER SUBGRADES ARE THE SAME RATE OF SLOPE AS THE ADJACENT TRAVEL LANE SUBGRADES UNLESS CONSTRUCTED ON THE HIGH SIDE OF SUPERELEVATION OR CONSIST OF 10' AND WIDER FULL DEPTH PAVEMENT (SEE STDS. 560.01 AND 560.02).

**TYPICAL NORMAL CROWN SECTION**

**TYPICAL SUPERELEVATED SECTION**
TYPICAL NORMAL CROWN SECTION

TYPICAL SUPERELEVATED SECTION

*SEE PLANS FOR METHOD OF CONSTRUCTING CUT AND FILL SLOPES.

** TRENCH OR GRADED SECTION. SEE PLANS.
DECELERATION AND ACCELERATION LANES

GENERAL NOTES:
1. IF PAVEMENT IS PORTLAND CEMENT CONCRETE:
   1. THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS
      WILL BE LOCATED AS DENOTED BY THE DASHED LINES.
   2. FORM THE TRANSVERSE CONSTRUCTION JOINT IN LINE WITH
      WITH THE NEAREST EXISTING TRANSVERSE CONTRACTION JOINT
      IN THE THROUGH LANE PAVEMENT. THE DISTANCE ALONG THIS
      CONSTRUCTION JOINT WILL BE NO LESS THAN TWO FEET AND NO
      GREATER THAN FOUR FEET.

PARALLEL EXIT
FLEXIBLE OR RIGID PAVEMENT
INTERSTATE

ANGULAR EXIT
FLEXIBLE OR RIGID PAVEMENT
INTERSTATE

INSET "A"
DETAIL OF CONCRETE TAPER CONSTRUCTION
PARALLEL ENTRANCE

FLEXIBLE OR RIGID PAVEMENT
INTERSTATE

GENERAL NOTES:
IF PAVEMENT IS PORTLAND CEMENT CONCRETE:
1. THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS
   WILL BE LOCATED AS DENOTED BY THE DASHED LINES.
2. FORM THE TRANSVERSE CONSTRUCTION JOINT IN LINE
   WITH THE NEAREST EXISTING TRANSVERSE CONTRACTION JOINT
   IN THE THROUGH LANE PAVEMENT. THE DISTANCE ALONG THIS
   CONSTRUCTION JOINT WILL BE NO LESS THAN TWO FEET AND NO
   GREATER THAN FOUR FEET.

ANGULAR ENTRANCE

FLEXIBLE OR RIGID PAVEMENT
INTERSTATE

INSET "A"

DETAIL OF CONCRETE
TAPER CONSTRUCTION
**PARALLEL EXIT**

FLEXIBLE PAVEMENT

NON-INTERSTATE

**ANGULAR EXIT**

FLEXIBLE PAVEMENT

NON-INTERSTATE
PARALLEL ENTRANCE
FLEXIBLE PAVEMENT
NON-INTERSTATE

ANGULAR ENTRANCE
FLEXIBLE PAVEMENT
NON-INTERSTATE
**DECELERATION AND ACCELERATION LANES**

**GENERAL NOTES:**

1. **The Longitudinal and Transverse Construction Joints** will be located as denoted by the dashed lines.

2. **Form the Transverse Construction Joint in Line** with the nearest existing transverse contraction joint in the through lane pavement. The distance along this construction joint will be no less than two feet and no greater than four feet.

**PARALLEL EXIT**

**Rigid Pavement**

**Non-Interstate**

**ANGULAR EXIT**

**Rigid Pavement**

**Non-Interstate**
GENERAL NOTES:

IF PAVEMENT IS PORTLAND CEMENT CONCRETE:

1. THE LONGITUDINAL AND TRANSVERSE CONSTRUCTION JOINTS WILL BE LOCATED AS DENOTED BY THE DASHED LINES.

2. FORM THE TRANSVERSE CONSTRUCTION JOINT IN LINE WITH THE NEAREST EXISTING TRANSVERSE CONTRACTION JOINT IN THE THROUGH LANE PAVEMENT. THE DISTANCE ALONG THIS CONSTRUCTION JOINT WILL BE NO LESS THAN TWO FEET AND NO GREATER THAN FOUR FEET.
METHOD OF OBTAINING SUPERELEVATION

SECTION A-A

NORMAL CROWN

T.S. OR S.T.

LEVEL

NORMAL CROWN

SECTION B-B

NORMAL CROWN

T.S. OR S.T.

SECTION C-C

NORMAL CROWN

LEVEL

SECTION D-D

NORMAL CROWN

S.C. OR C.S.

RUNOFF

SECTION E-E

NORMAL CROWN

P.C. OR P.T.

NOTE:
SHORT VERTICAL CURVES 100' OR LESS MAY BE INSERTED AT POINTS C & D WHEN DIRECTED DURING CONSTRUCTION.

GENERAL NOTES:
SPECIAL CARE MUST BE USED TO PREVENT DITCH SUMPS WHICH MIGHT BE INDUCED BY SUPERELEVATION.
TANGENT RUNOFF DISTANCE WILL VARY WITH NORMAL CROWN OF PAVEMENT WITHIN TANGENT RUNOUT-DISTANCE.
SUPERELEVATION TO BE AS PROVIDED IN "A POLICY ON GEOMETRIC DESIGN ON HIGHWAYS AND STREETS".

FIGURE 1 - SPIRAL CURVE

2-LANE PAVEMENT PROFILE GRADE ON \( \theta \) OF PAVEMENT. CROWN BOTH WAYS FROM \( \theta \) ROTATE ABOUT \( \theta \).

FIGURE 2 - SIMPLE CURVE

2-LANE PAVEMENT WITHOUT TRANSITION PROFILE GRADE ON \( \theta \) PAVEMENT. SLOPE BOTH WAYS FROM \( \theta \) ROTATE ABOUT \( \theta \).
FULL SUPERELEVATION
PROFILE GRADE MEDIAN
LEFT EDGE PAVEMENT
TANGENT RUNOUT
VAR.
C.S. OR S.C.

SECTION D-D
FULL SUPERELEVATION
EDGE OF PAVEMENT
NORMAL CROWN
T.S. OR S.T.

SECTION A-A
NORMAL CROWN
T.S. OR S.T.

SECTION B-B
LEVEL
NORMAL CROWN
T.S. OR S.T.

SECTION C-C
SUPERELEVATION = SLOPE
OF NORMAL CROWN
NORMAL CROWN

FIGURE 1  SPIRAL CURVE
4 LANE PAVEMENT
PROFILE GRADE ON MEDIAN EDGE OF PAVEMENT. SLOPE BOTH WAYS FROM MEDIAN, ROTATE ABOUT MEDIAN.

FIGURE 2  SIMPLE CURVE OR SPIRAL CURVE
4 LANE PAVEMENT
PROFILE GRADE MEDIAN EDGE OF PAVEMENT. CROWNED ABOUT CENTER OF PAVEMENTS, ROTATE ABOUT MEDIAN EDGES.

GENERAL NOTES:
- SUPERELEVATION TO BE AS PROVIDED IN "A POLICY ON GEOMETRIC DESIGNS OF HIGHWAYS AND STREETS".
- SPECIAL CARE MUST BE USED TO PREVENT DITCH SUMPS WHICH MIGHT BE INDUCED BY SUPERELEVATION.
- PROFILE GRADE WILL BE MEDIAN EDGE OF PAVEMENT ON BOTH TANGENTS AND CURVES.
- IN WIDE MEDIANS, WHERE INDIVIDUAL ALIGNMENT IS USED, PROFILE GRADE WILL REMAIN ON MEDIAN EDGE OF PAVEMENT.
- SHORT VERTICAL CURVES 100' OR LESS MAY BE INSERTED AT POINTS C AND D WHEN DIRECTED ON CONSTRUCTION.

NO TANGENT RUNOUT NEEDED ON RIGHT LANE
FULL SUPERELEVATION
C.S. OR S.C.

SECTION D-D
FULL SUPERELEVATION
EDGE OF PAVEMENT
NORMAL CROWN
T.S. OR S.T.

SECTION A-A
NORMAL CROWN
T.S. OR S.T.

SECTION B-B
LEVEL
NORMAL CROWN
T.S. OR S.T.

SECTION C-C
SUPERELEVATION = SLOPE
OF NORMAL CROWN
NORMAL CROWN

FIGURE 1  SPIRAL CURVE
4 LANE PAVEMENT
PROFILE GRADE MEDIAN EDGE OF PAVEMENT. SLOPE BOTH WAYS FROM MEDIAN, ROTATE ABOUT MEDIAN.

FIGURE 2  SIMPLE CURVE OR SPIRAL CURVE
4 LANE PAVEMENT
PROFILE GRADE MEDIAN EDGE OF PAVEMENT. CROWNED ABOUT CENTER OF PAVEMENTS, ROTATE ABOUT MEDIAN EDGES.

GENERAL NOTES:
- SUPERELEVATION TO BE AS PROVIDED IN "A POLICY ON GEOMETRIC DESIGNS OF HIGHWAYS AND STREETS".
- SPECIAL CARE MUST BE USED TO PREVENT DITCH SUMPS WHICH MIGHT BE INDUCED BY SUPERELEVATION.
- PROFILE GRADE WILL BE MEDIAN EDGE OF PAVEMENT ON BOTH TANGENTS AND CURVES.
- IN WIDE MEDIANS, WHERE INDIVIDUAL ALIGNMENT IS USED, PROFILE GRADE WILL REMAIN ON MEDIAN EDGE OF PAVEMENT.
GENERAL NOTES:

USE THIS GRADING GUIDE AT GRADE SEPARATIONS WITH FALSE CUT APPROACH.

IF STRUCTURE HAS OUTSIDE PIERS, ELIMINATE THE 6' VERTICAL CURVE.

D - TYPICAL DITCH WIDTH
^ - SEE ROADWAY TYPICAL SECTIONS FOR NORMAL SHOULDER WIDTHS, SHOULDER SLOPES, AND DITCH WIDTHS.
** - SEE ROADWAY PLANS AND/OR STRUCTURE PLANS FOR VARIABLE OFFSET.

SECTION A

SECTION B

SECTION C

SECTION D

SECTION E

SECTION F

SECTION G
GENERAL NOTES:


1. GRADING
   - PLACE THE "4" CONCRETE SLOPE PROTECTION IN ACCORDANCE WITH THE DETAILS SHOWN ON THE SHEET OF ROADWAY STANDARD DRAWING FOR EARTH BERM MEDIAN PIER PROTECTION. TRANVERSE JOINTS: FORM A GROOVED JOINT 1" DEEP WITH A RADIUS AT APPROXIMATELY 10' INTERVALS. SPACE THESE JOINTS AT 25 INTERVALS. SPACE CONSTRUCTION JOINTS AT 25 INTERVALS.
   - GENERAL NOTES: SPACE CONTRACTION JOINTS AT 25' INTERVALS. SEALING OF THESE JOINTS IS NOT REQUIRED. WIRE MESH TO BE LAPPED 6" JOINT SO AS TO INTERSECT THE EXPANSION JOINT MATERIAL PLACED AROUND EACH EARTH MATERIAL BEFORE PLACING SLOPE PROTECTION REINFORCING AND CONCRETE. AS PART OF THE PAVING CONTRACT, PROPERLY SHAPE AND FIRMLY COMPACT THE 4" CONCRETE SLOPE PROTECTION IN ACCORDANCE WITH THESE DETAILS.

2. CONCRETE SLOPE PROTECTION
   - CONCRETE SLOPE PROTECTION MAY BE CONSTRUCTED PRIOR TO COMPLETION OF THE MEDIAN BRIDGE PIER.
NOTES:
1. IF OUTSIDE PIER IS USED (A-3), ELIMINATE 6' VERTICAL CURVE ON B-1.
2. USE 100'-300' TRANSITION ON THE TRAILING SIDE OF CUT SECTION.
   * SEE ROADWAY TYPICAL SECTIONS FOR NORMAL SHOULDER WIDTHS, SHOULDER SLOPES, AND DITCH WIDTHS.
   ** SEE ROADWAY PLANS AND/OR STRUCTURE PLANS FOR OFFSET.

*SHOULDER PAVED

E.O.L.

*SHOULDER

E.O.L.

*SHOULDER SLOPE

*SHOULDER DITCH

E.O.L.

E.O.L.

E.O.L.
EMBANKMENT MONITORING SEQUENCE

1. Place steel/wood base at approximate gauge locations shown in the plans as determined by the engineer.
2. Set base on level ground so pipe/coupler is plumb.
3. Before constructing embankment, notify engineer to survey and record the following:
   - Top of pipe elevation
   - Top of extension elevation
4. Base settlement gauge highly visible so gauge is not hit or damaged.
5. Place and compact fill material around settlement gauge without disturbing gauge.
6. Notify engineer to survey and record the following:
   - Top of pipe elevation
   - Top of extension elevation
7. Connect pipe/coupler extension to existing pipe/coupler as needed to maintain a pipe/coupler setup of at least 6" while monitoring settlement.
8. Screw pipe/couplers together hand tight and then tighten 2 to 3 full turns with a wrench.
9. Notify engineer to survey and record the following:
   - Top of pipe elevation
   - Settlement elevation
   - Top of extension elevation
10. Return to step 4 with new top of pipe elevation equal to top of extension elevation.

NOTES:
1. See roadway summary sheets for approximate settlement gauge locations.
2. For embankment monitoring, see section 235 of the standard specifications.
3. Install settlement gauges after clearing and grubbing gauge locations and before constructing embankments with embankment monitoring.
GUIDE FOR BERM DITCH CONSTRUCTION

1-18
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
NOTES:

1. SEE ROADWAY PLANS AND SUMMARY SHEETS FOR ROCK PLATING LOCATIONS.
2. FOR ROCK PLATING, SEE SECTION 275 OF THE STANDARD SPECIFICATIONS.
3. USE CLASS I, II OR B RIPRAP UNLESS REQUIRED OTHERWISE IN THE ROADWAY SUMMARY SHEETS.