

## SECTION 3300 – CONCRETE WALKS, MEDIANS, AND DRIVEWAYS

### CONCRETE WALKS, MEDIANS, AND DRIVEWAYS

#### PART 1 – GENERAL

##### 1.01 Section Summary

- A. Construction of concrete walk, medians, and driveways.

##### 1.02 Related Sections

- A. Section 1800 – Excavation and Embankment.
- B. Section 2900 – Aggregate Base Course.
- C. Section 3000 – Bituminous Paving.
- D. Section 3100 – Portland Cement Concrete Pavement.
- E. Section 3200 – Concrete Curb and Gutter.

##### 1.03 References

- A. American Society of Testing Materials (ASTM)
  - 1. ASTM D8139 – Semi-Rigid, Closed-Cell Polypropylene Foam, Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction
- B. North Dakota Department of Transportation “Standard Specification for Road and Bridge Construction” 2014 Edition, As Revised.
  - 1. Section 748 – Curb and Gutter
  - 2. Section 750 – Detectable Warning Panels, Sidewalks, Driveways, and Medians
  - 3. Section 802 – Portland Cement Concrete
  - 4. Section 804 – Cement and Lime
  - 5. Section 806 – Grouts and Epoxy
  - 6. Section 808 – Concrete Admixtures
  - 7. Section 810 – Concrete Curing Materials
  - 8. Section 816 – Aggregates

9. Section 820 – Fly Ash
10. Section 826 – Joint Materials
11. Section 836 – Reinforcing Steel, Dowel Bars, and Tie Bars

1.04 Submittals

- A. Contractor shall submit the following to the Engineer at least 14 days before construction:
  1. Concrete mix design
    - a. Certified by a professional engineer licensed in ND.
    - b. Identification of aggregate source and compliance test to specified requirements.
    - c. Compressive strength at 7 days.
    - d. Brand, type, and amount of cementitious material in mix.
    - e. Proportions of each material required per cubic yard.
  2. Batch plant information including its name, address, phone number, and distance to project site
  3. Fly ash certification (if used).
  4. Steel certification.
  5. Manufacturer's descriptive literature and product specifications for each product, such as curing compound and detectable warning panels.
- B. Batch tickets (at time of concrete mix delivery).
- C. Permits
  1. Contractors doing private work: Before work commences, contractors must apply for and receive an Right-of-Way Permit from the City of Minot.
  2. Homeowners: Before work commences, homeowners must apply for and receive a Right-of-Way Permit from the City of Minot. The policy number and expiration date of an in-force Homeowner's Insurance Policy must be included with the permit application.

## PART 2 – PRODUCTS

### 2.01 Portland Cement Concrete

- A. Conform to NDDOT Specification Section 748.03 except as modified herein:
  - 1. Where high early strength concrete is specified, concrete mix shall be Class ASE.

### 2.02 Aggregate

- A. Coarse Aggregate: Conform to NDDOT Specification Section 802.01.C.2, Size No. 3.
- B. Fine Aggregate: Conform to NDDOT Specification Section 802.01.C.3.

### 2.03 Water

- A. Use only potable water, free of contaminants.

### 2.04 Fly Ash

- A. Conform to NDDOT Specification Section 820 for Fly Ash requirements.

### 2.05 Admixtures

- A. Conform to NDDOT Specification Section 808 except as modified herein:
  - 1. Concrete with air content measured at time of placement of below 5 percent or above 8 percent will be rejected.

### 2.06 Reinforcing Steel, Dowel Bars, and Tie Bars

- A. Conform to NDDOT Specification Section 836 except as modified herein:
  - 1. All reinforcing steel, dowel bars, and tie bars shall be epoxy coated.

### 2.07 Concrete Curing Materials

- A. Concrete curing compound shall be white liquid-membrane Type 2, Class B per Section 810 of the NDDOT Specification.

### 2.08 Jointing Materials

- A. Conform to NDDOT Specification Section 826.02.A.2, Hot Applied Joint Sealant, Type IV.

### 2.09 Expansion Joint Material

- A. Provide a semi-rigid, closed-cell polypropylene foam, preformed joint filler that fully complies with ASTM D8139. NOMAFLEX® by Nomaco, Inc.

## 2.10 Detectable Warning Panels

- A. Vitrified polymer composite tiles designed for cast-in-place installation. Armor-Tile as distributed under license by Engineered Plastics Inc., or approved equal.

1. Tiles shall be federal yellow in color.

## PART 3 – EXECUTION

### 3.01 General

- A. The Contractor shall maintain access to properties at all times while installing the concrete walks and aprons. Multiple pours or temporary access must be provided for properties with only one access.
- B. Provide copies of batch tickets of the concrete mixture to the Engineer when the material arrives on site.
- C. Construct walks, medians, and driveways at the location and elevation indicated on the Plans.
- D. Construct driveway aprons, walks, and curb ramps according to City Standard Details.
- E. Verify location of driveways in the field with the Engineer prior to placement.
- F. Retempering of concrete that has partially hardened with or without additional materials or water is prohibited.
- G. The Contractor shall stamp the pavement on each side of all expansion joints with the Contractor's name and year the work was done. The stamp shall have letters 5/8-inch high and shall imprint the concrete 1/8 inch deep.
- H. Concrete thickness shall not vary from the thickness specified by more than 0.3 inches. Concrete that is deficient by 0.3 inches or more shall be considered unacceptable.
- I. Any concrete work deemed unacceptable by the Engineer shall be replaced at the Contractor's expense.

3.02 Field Quality Control

- A. Testing shall follow the requirement of Section 1000 – Quality Requirements.

3.03 Aggregate Base

- A. Aggregate base shall be placed and compacted in conformance with Section 2900 – Aggregate Base and as shown on the Plans or in the City Standard Details.
- B. Base shall be approved by the Engineer prior to placement of concrete.

3.04 Forms

- A. Shall conform to NDDOT Specification Section 750.04.A.

3.05 Reinforcement

- A. Placement shall conform to the Plans and Minot Standard Details.
- B. Provide 2-inch minimum cover on all sides.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement.
- D. Reinforcing steel shall not be more than 1/2-inch out of specified tolerance. Reinforcing steel out of tolerance shall cause the concrete to be rejected and shall be replaced at the expense of the Contractor.

3.06 Joint Construction

- A. Conform to NDDOT Spec Section 750.04.F except as modified herein:
  - 1. Maximum contraction joint spacing shall be 10 feet for driveways and as shown on the City Standard Detail for sidewalks and pathways.
  - 2. Maximum expansion (isolation) joint spacing shall be 60 feet for sidewalks, and as shown on the City Standard Details.
  - 3. Match joints of adjacent concrete work when possible.
  - 4. All contraction joints shall be tooled or sawed to a depth sufficient to control cracking, typically 1/4 of the thickness of the concrete.
  - 5. Sawed joints shall be sawed within 24 hours after pouring the concrete.

6. Expansion joints shall be installed at the interface of curb and gutter and gutter concrete that has been or will be poured monolithically with driveway aprons.
7. Expansion joints shall be installed as shown on the plans and City Standard Details or as otherwise directed by the Engineer.
8. Expansion joints shall be 3/4-inch wide with smooth dowels greased or coated for debonding, installed perpendicular to the joint, and installed parallel to adjacent dowels.
9. Seal joints per Section 550.04.K of the NDDOT Specification.

### 3.07 Finishing

- A. Completed concrete work shall have an even, uniform appearance in surface contour and texture.
- B. Finished concrete surfaces shall have a light broom finish at right angles to the length of walk, median, or driveway being installed.
- C. Any deviation from specified lines and grades or design curvature of concrete edges in excess of 1/4 inch, measured with a 10-foot straight edge, will be considered unacceptable.
- D. Any surface area holding water 1/8 inch deep or greater will be considered unacceptable.

### 3.08 Curing

- A. All surfaces shall be coated with membrane curing compound within 30 minutes of finishing at the specified rate.
- B. Curing compound shall be applied in 2 different directions perpendicular to each other.
- C. Applications shall not be more than 30 minutes apart.

### 3.09 Pedestrian Curb Ramps

- A. Conform to American's with Disabilities Act (ADA) standards for constructing curb ramps.
- B. Conform to the City Standard Details for typical size and dimensions. Curb ramps shall be constructed in accordance with NDDOT Standard Drawing D-750-3.

- C. Detectable Warning Panels shall be installed according to manufacturer's recommendations and as follows:
  - 1. Shall be placed on a minimum of 4 inches of wet concrete prior to finishing the surface of the adjacent concrete surface of the pedestrian ramp. The joint between the panel and concrete shall be edged with a ½ inch radius edging tool.
  - 2. Seal all joints required by the manufacturer.

3.10 Protection

- A. Freshly finished surface shall be protected, surfaces pitted by rain will be considered unacceptable. Curb and gutter damaged by traffic, rain, cold weather, or other causes occurring prior to final acceptance shall be removed and replaced at expense of the Contractor.

3.11 High Early Strength Concrete

- A. Use only when specified or specifically requested by the Engineer.

3.12 Cold Weather Concrete

- A. When temperatures are outside the recommended temperature ranges set forth by the NDDOT, the Contractor shall adhere to the requirements of Section 750.04.G and 602.04.F of the NDDOT Specification.
- B. A written request shall be submitted to the Engineer for approval before concrete can be placed at temperatures below 35 degrees. Concrete placed without approval shall be rejected.

3.13 Backfilling

- A. Perform backfilling operations no sooner than 72 hours after placement of the concrete.
- B. Any damage during backfilling operations is the responsibility of the Contractor.

PART 4 – MEASUREMENT AND PAYMENT

- A. Driveway Pavement: By square yard (SY) installed to the thickness specified. Price shall include all equipment, materials and labor required for installation including aggregate base construction.
- B. Concrete Sidewalk: By square yard (SY) installed to the thickness specified. Price shall include all materials and labor required for installation including aggregate base construction.
- C. Detectable Warning Panel: By square foot (SF) of units installed in the concrete. Price shall include all finishing and sealing of joints if required.
- D. Concrete Median Pavement: By square yard (SY) installed to the thickness specified. Price shall include all materials and labor required for installation including aggregate base construction.
- E. All costs to properly complete the work specified herein and/or shown on the Plans shall be included in the prices bid for these or other items unless applicable bid items are included on the Bid Form.

END OF SECTION