

**Section 848**

1 Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
___" x ___" Concrete Curb	Linear Foot
___' ___" Concrete Curb and Gutter	Linear Foot
___' Concrete Gutter	Linear Foot
Shoulder Berm Gutter	Linear Foot
Concrete Expressway Gutter	Linear Foot
Concrete Valley Gutter	Linear Foot

2 **SECTION 848**  
3 **CONCRETE SIDEWALKS, DRIVEWAYS AND CURB RAMPS**

4 **848-1 DESCRIPTION**

5 Construct Portland cement concrete sidewalks, driveways and curb ramps in accordance with  
6 the contract.

7 **848-2 MATERIALS**

8 Refer to Division 10.

<b>Item</b>	<b>Section</b>
Curing Agents	1026
Joint Fillers	1028-1
Joint Sealers	1028-2, 1028-3
Portland Cement Concrete, Class B	1000

9 Detectable warning for curb ramps shall consist of raised truncated domes. Use material for  
10 detectable warning systems as shown herein. Material and coating specifications must be  
11 stated in the Manufacturers Type 3 Certification and all Detectable Warning systems must be  
12 on the NCDOT APL.

13 Install detectable warnings created from one of the following materials: precast concrete  
14 blocks or bricks, clay paving brick, gray or ductile iron castings, mild steel, stainless steel,  
15 and engineered plastics, rubber or composite tile. Only one material type for detectable  
16 warning will be permitted per project, unless otherwise approved by the Engineer.

17 Detectable Warnings shall consist of a base with integrated raised truncated domes, and when  
18 constructed of precast concrete they shall conform to the material requirements.

19 Detectable Warnings shall consist of a base with integrated raised truncated domes, and may  
20 be comprised of other materials including, but not limited to, clay paving brick, gray iron or  
21 ductile iron castings, mild steel, stainless steel, and engineered plastics, rubber or composite  
22 tile, which are applied directly to the curb ramps by incorporating into or attaching to the  
23 existing ramp floor. The material shall have an integral color throughout the thickness of the  
24 material. The detectable warning shall include fasteners, anchors, or adhesives for attachment  
25 in the existing ramp and shall be furnished as a system from the manufacturer.

26 Prior to installation, the Contractor shall submit to the Engineer assembling instructions from  
27 the manufacturer for each type of system used. The system shall be furnished as a kit  
28 containing all consumable materials and consumable tools, required for the application. They  
29 shall be capable of being affixed to or anchored in the concrete curb ramp, including green  
30 concrete (concrete that has set but not appreciably hardened). The system shall be solvent  
31 free and contain no volatile organic compounds (VOC). The static coefficient of friction shall  
32 be 0.8 or greater when measured on top of the truncated domes and when measured between  
33 the domes in accordance with ASTM C1028 (dry and wet). The system shall be resistant to  
34 deterioration due to exposure to sunlight, water, salt or adverse weather conditions and  
35 impervious to degradation by motor fuels, lubricants and antifreeze.

1 When steel or gray iron or ductile iron casting products are provided, only products that meet  
2 the requirements of Subarticle 106-1(B) may be used. Submit to the Engineer a Type 6  
3 Certification, catalog cuts and installation procedures at least 30 days prior to installation for  
4 all.

### 5 **848-3 CONSTRUCTION METHODS**

6 Where it is necessary to remove a portion of existing sidewalks or driveways, saw a neat edge  
7 along the pavement to be retained approximately 2 inches deep with a concrete saw before  
8 breaking the adjacent pavement away.

9 Construct concrete in accordance with Section 825 and give a sidewalk finish, except as  
10 otherwise provided herein.

11 Broom the concrete surface in a transverse direction to traffic. Make joint spacing no less  
12 than 5 feet. Where existing sidewalks are being widened, line up new transverse joints with  
13 existing joints in the adjacent sidewalk. Seal expansion joints where sidewalk and curb ramps  
14 are placed adjacent to concrete curb and/or gutter. Do not seal grooved joints.

15 Do not place backfill adjacent to the sidewalk, driveway or curb ramp until at least 3 curing  
16 days, as defined in Article 825-9, have elapsed unless otherwise approved. Compact backfill  
17 to a degree comparable to the adjacent undisturbed material.

18 Do not place vehicles on the completed work until 7 curing days, as defined in Article 825-9,  
19 have elapsed. When high early strength concrete is used, vehicles will be permitted on the  
20 completed work after 3 curing days have elapsed.

21 Install detectable warnings for proposed curb ramps in accordance with the contract  
22 documents.

23 Prior to placing detectable warnings in existing concrete curb ramps, saw cut to the full depth  
24 of the concrete, for other material remove as necessary, and adjust the existing subgrade to the  
25 proper grade.

26 Place all detectable warnings in accordance to manufacturer's recommendations.

### 27 **848-4 MEASUREMENT AND PAYMENT**

28 \_\_\_" *Concrete Sidewalk* will be measured and paid in square yards, measured along the surface  
29 of the completed and accepted work. Such price includes, but is not limited to, excavating  
30 and backfilling, sawing the existing sidewalk, furnishing and placing concrete, and  
31 constructing and sealing joints.

32 \_\_\_" *Concrete Driveway* will be measured and paid in square yards, measured along the  
33 surface of the completed and accepted work. Such price includes, but is not limited to,  
34 excavating and backfilling, sawing the existing driveway, furnishing and placing concrete,  
35 and constructing and sealing joints.

36 *Concrete Curb Ramps* will be measured and paid in units of each. Such price includes, but is  
37 not limited to, excavating and backfilling, sawing the existing sidewalk or driveway,  
38 furnishing and placing concrete, curb and gutter, constructing and sealing joints and  
39 furnishing and installing truncated domes shown in the *Roadway Standard Drawings*.

40 *Retrofit Existing Curb Ramps* with detectable warnings constructed of any type material will  
41 be paid as the actual number of retrofitted curb ramps, completed and accepted. Such price  
42 and payment will be full compensation for excavating and backfilling; sawing, repairing and  
43 replacing portions of the existing curb ramp within the pay limits for retrofit shown on the  
44 detail; pavement repairs; furnishing and placing detectable warnings, construction joints and  
45 removing and disposing of portions of the existing curb ramp when required and for all  
46 materials, labor, equipment, tools and incidentals necessary to complete the work.

**Section 850**

1 *Remove and Replace Curb Ramps* will be measured and paid in units of each. Such price  
2 includes, but is not limited to, excavating and backfilling, sawing the existing sidewalk or  
3 driveway and furnishing and installing truncated domes and constructing the new curb ramp.  
4 Removal and disposal of existing curb ramps will be incidental to the work performed.

5 Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
___" Concrete Sidewalk	Square Yard
___" Concrete Driveway	Square Yard
Concrete Curb Ramps	Each
Retrofit Existing Curb Ramps	Each
Remove and Replace Curb Ramps	Each

6 **SECTION 850**  
7 **CONCRETE PAVED DITCH**

8 **850-1 DESCRIPTION**

9 Construct Portland cement concrete paved ditches as shown in the plans for the various types  
10 of ditches. Work includes, but is not limited to, all excavating and backfilling, furnishing and  
11 placing concrete, constructing curtain walls and constructing and sealing joints.

12 **850-2 MATERIALS**

13 Refer to Division 10.

<b>Item</b>	<b>Section</b>
Curing Agents	1026
Joint Fillers	1028-1
Joint Sealers	1028-2, 1028-3
Portland Cement Concrete, Class B	1000

14 **850-3 CONSTRUCTION METHODS**

15 Construct concrete in accordance with Section 825 and give a sidewalk finish, except as  
16 otherwise provided herein.

17 Broom the concrete surface transverse to the longitudinal centerline of the paved ditch. Make  
18 joint spacing no less than 5 feet.

19 Do not place backfill adjacent to the paved ditch until at least 3 curing days have elapsed,  
20 unless otherwise approved. Compact backfill to a degree comparable to the adjacent  
21 undisturbed material.

22 **850-4 MEASUREMENT AND PAYMENT**

23 \_\_\_" *Concrete Paved Ditch* will be measured and paid in square yards that is completed and  
24 accepted. Longitudinal measurements will be made along the surface of the pavement at the  
25 centerline of the ditch and transverse measurements will be made along the surface of the  
26 pavement at right angles to the centerline. No measurement will be made of curtain walls at  
27 the beginning or ends of the paved ditches.

28 Payment will be made under:

<b>Pay Item</b>	<b>Pay Unit</b>
___" Concrete Paved Ditch	Square Yard