NDS, Inc. August 2012

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 **SECTION 33 44 16**

**STORM UTILITY TRENCH DRAINS**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

A. Pre-sloped channel drain system.

**1.2 RELATED SECTIONS**

A. Section 31 23 00 - Excavation and Fill.

B. Section 33 41 00 - Storm Utility Drainage Piping.

**1.3 SUBMITTALS**

A. Comply with Section 01 33 00 - Submittal Procedures.

B. Product Data: Submit manufacturer's product data, including installation instructions.

C. Shop Drawings: Submit manufacturer's shop drawings, indicating layout, materials, components, accessories, and dimensions.

D. Warranty: Submit manufacturer's standard warranty.

**1.4 QUALITY ASSURANCE**

A. Single Source Responsibility: Provide pre-sloped channel drain system from single manufacturer.

**1.5 DELIVERY, STORAGE, AND HANDLING**

A. Delivery: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Storage: Store materials in clean, cool, dry area in accordance with manufacturer's instructions. Do not store materials in direct sunlight.

C. Handling: Protect materials during handling and installation to prevent damage.

**PART 2 PRODUCTS**

**2.1 MANUFACTURER**

A. NDS, Inc., 851 North Harvard Avenue, PO Box 339, Lindsay, California 93247. Toll Free (800) 726-1994. Toll Free Fax (800) 726-1998. Phone (559) 562-9888. Fax (559) 562-4488. Website www.ndspro.com. E-Mail nds@ndspro.com.

**2.2 PRE-SLOPED CHANNEL DRAINS**

A. Dura Slope Channel Drain:

1. Description: 6-5/8-inch wide trench drain system.

a. Material: Molded, gray, structural-foam polyethylene with UV inhibitor.

b. Built-In Slope: 0.7 percent.

c. Inside Diameter: 4 inches.

d. Bottom Radius: 2 inches.

e. Each Modular Channel Section: 4-feet long. Molded bottom outlet.

f. Pre-Installed Pro Fit Locking System: Locks grate to integral frame.

g. Level Loc Integral Rebar Supports: Located at 24-inch intervals along each side of channel contain internal protruding knob to grip No.4 rebar to provide channel height adjustment during installation.

h. Dura Loc Tongue-and-Groove Ends: Connect to allow for precise fit and straight channel runs.

**2.3 CHANNEL GRATES**

A. Dura Slope 2-Foot Channel Grate:

1. Part Number: See plans and/or detail drawings.

2. Description: 2-foot, structural-foam polyolefin, secured channel grate with UV inhibitor.

3. Grate Openings: 1/2 inch by 3-13/16 inches.

4. Open Surface Area: 20.61 square inches per foot.

5. Inlet Capacity: 27.00 gpm per foot.

6. Load: 61 to 175 psi at speeds less than 20 mph.

7. Color: To be decided by project Architect / Engineer.

B. Dura Slope 2-Foot Cast Iron Channel Grate:

1. Part Number: DS-231.

2. Description: 2-foot, heavy-duty, cast iron, channel grate.

3. Grate Openings: 5/16 inch by 4-11/16 inches.

4. Open Surface Area: 15.27 square inches per foot.

5. Inlet Capacity: 20.00 gpm per foot.

6. Load: 326 to 575 psi. H-20 rated at speeds less than 20 mph.

7. Color: Black.

C. Dura Slope 2-Foot Ductile Iron Channel Grate:

1. Part Number: DS-232.

2. Description: 2-foot, heavy-duty, ductile iron, channel grate.

3. Grate Openings: 5/16 inch by 4-11/16 inches.

4. Open Surface Area: 15.27 square inches per foot.

5. Inlet Capacity: 20.00 gpm per foot.

6. Load: 326 to 575 psi. H-20 rated at speeds less than 20 mph.

7. Color: Black.

D. Dura Slope 2-Foot Galvanized Steel Channel Grate:

1. Part Number: DS-221.

2. Description: 2-foot, galvanized rolled steel, channel grate.

3. Grate Openings: 3/4 inch by 4-7/16 inches.

4. Open Surface Area: 19.85 square inches per foot.

5. Inlet Capacity: 26.00 gpm per foot.

6. Load: 176 to 325 psi. H-20 rated at speeds less than 20 mph.

7. Color: Galvanized steel.

**2.4 IN-LINE CATCH BASINS**

A. Dura Slope In-Line Catch Basin:

1. Part Number: DS-140.

2. Description: 6-5/8-inch wide catch basin.

a. Material: Structural-foam polyethylene with UV inhibitor.

b. Module Size: 2-feet long by 2-feet deep.

c. Pre-Installed Pro Fit Locking System: Locking devices for grating.

d. Level Loc Integral Rebar Supports: Located along each side of catch basin contain internal protruding knob to grip No.4 rebar to provide height adjustment during installation.

e. Dura Loc Tongue-and-Groove Ends: Connect to allow for precise fit and straight channel runs.

f. Outlets: Each side of catch basin.

3. Color: Gray.

**2.5 ACCESSORIES**

A. Pro Fit Grate Lock:

1. Part Number: DS-122.

B. Universal End Cap Screws:

1. Part Number: DS-123.

C. Universal End Cap:

1. Part Number: DS-124.

D. Universal End Outlet:

1. Part Number: DS-127.

E. Bottom Outlet Adapter:

1. Part Number: DS-126.

F. Grate Screws:

1. Part Number: 629.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

A. Examine areas to receive pre-sloped channel drain system. Notify Architect if areas are not acceptable. Do not begin installation until unacceptable conditions have been corrected.

**3.2 INSTALLATION**

A. Install pre-sloped channel drain system in accordance with manufacturer's instructions at locations indicated on the Drawings.

B. Excavate trench to ensure proper thickness of concrete beneath and on both sides of channel is maintained and in accordance with designed load range.

C. Dura Slope channel drain sections shall be installed in accordance with plan elevations and details.

D. Ensure directional flow arrows located on bottom of channel are pointing in direction of flow, toward catch basin and/or evacuation outlet.

E. Catch basins shall be installed at required elevation as located on plans and/or details.

F. Apply silicon sealant to joints of Dura Slope channel drain system as directed by Architect and/or Engineer for watertight joint integrity.

G. Insure Blank Grate Inserts are installed if removed during installation procedure. Loosen grate screws to slide Blank Grate Inserts longitudinally to insure joint alignment is maintained during concrete placement. Tighten grate screws to maintain Blank Grate Insert placement.

H. Concrete:

1. Place concrete beneath and on both sides of drain system in accordance with specified load design and plan details.

2. Ensure concrete has a minimum compressive strength of 3,500 psi at 28 days.

3. Concrete shall be as specified in Section 03300.

I. Recess top of drain system 1/8” below concrete finish grade for pedestrian applications and 1/4” for traffic bearing applications.

J. Allow concrete to cure to specified compressive strength. Remove Blank Grate Inserts, save grate screws and dispose of Blank Grate Inserts in a proper manner. Blank Grate Inserts are recyclable and should be recycled if proper facilities exist. Install final grate selection using saved grate screws. Insure sediment and debris does not collect in Dura Slope channel.

K. Clean Dura Slope channel and Dura Slope Catch Basin basket of any accumulated sediment and/or debris prior to final project completion.

**3.3 PROTECTION**

A. Protect installed pre-sloped channel drain system from damage during construction.

 **END OF SECTION**