

## Slotted Drain™ Installation Guide



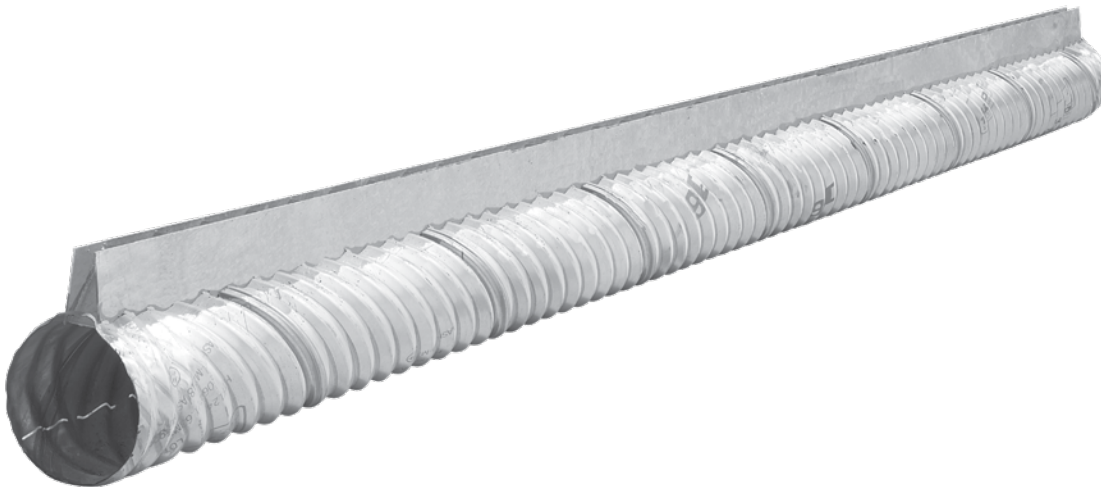
## Introduction

Millions of feet of Slotted Drain™ have been installed around the country since the first installation in the late 1960's by the California Department of Transportation. Steel Slotted Drain is manufactured in 12" – 36" pipe diameters with 8" and 10" diameter pipe available in some regions of the country. Standard grate heights are 2.5" and 6". Variable grate heights and other non-standard height grates are available up to 31" high.

Slotted Drain is made from aluminized steel, polymer-coated steel, or galvanized steel pipe with a hot dip galvanized, high-modulus steel grating.

Proper installation of a steel slotted drainpipe will ensure long-term performance. The installation of the drainage system does not require special construction equipment. The installation guide should give the reader a better understanding of the installation of a steel Slotted Drain™ Pipe.

A local Contech Sales Engineer is available to attend a pre-construction meeting to help with any questions that arise prior to installation. OSHA and local safety guidelines should be observed during the construction of the Slotted Drain™ System.



## Slotted Drain™ Unloading, Handling and Placement

Slotted Drain™ System is loaded in bundles and shipped to the site on flat bed trailers. Slotted Drain should be unloaded off the flatbed trailer with a forklift, excavator, or other piece of construction equipment. The pipe should never be dropped or pushed off the flatbed trailer. It is recommended to use Nylon slings when setting the Slotted Drain in the trench.



*Slotted Drain shipped in bundles and stored on a project site.*



*Lifting Polymer Coated Steel Slotted Drain™ System with nylon slings at a project site.*



## Joining Slotted Drain™ with Connecting Bands

There are a couple connecting band options for the Slotted Drain™ System. Normally modified HUGGER® Bands are used to connect the pipe. The purpose of the connecting band is to connect two pipes together and prevent infiltration from the backfill into the pipe.



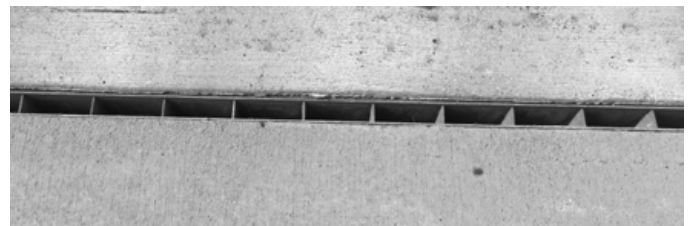
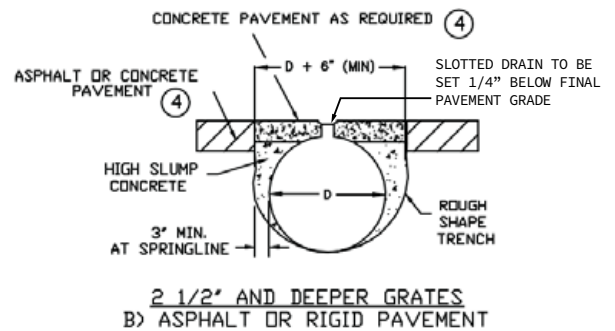
Slotted Drain™ System with modified HUGGER® band.



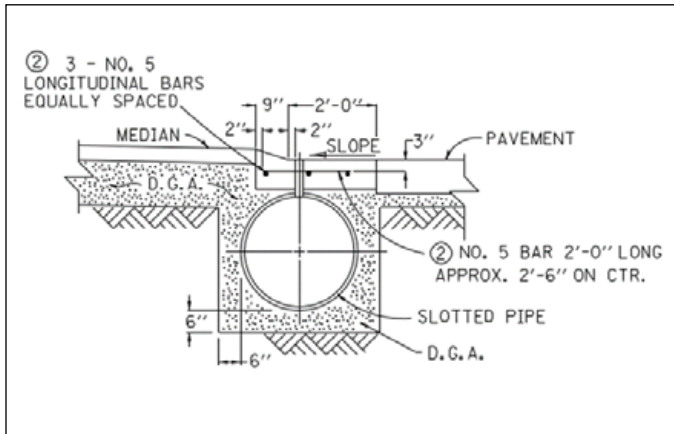
Connection of Slotted Drain™ System on to standard CMP.

## Slotted Drain™ System Bedding and Backfill

It is important to note that Steel Slotted Drain trench details and backfill requirements vary among different State Department of Transportation. There are two types of potential backfill for a Slotted Drain™ System. The most popular method of backfill is a high slump concrete with a minimum compressive strength of 750 psi. A select bedding material may not be required when a concrete backfill is used.



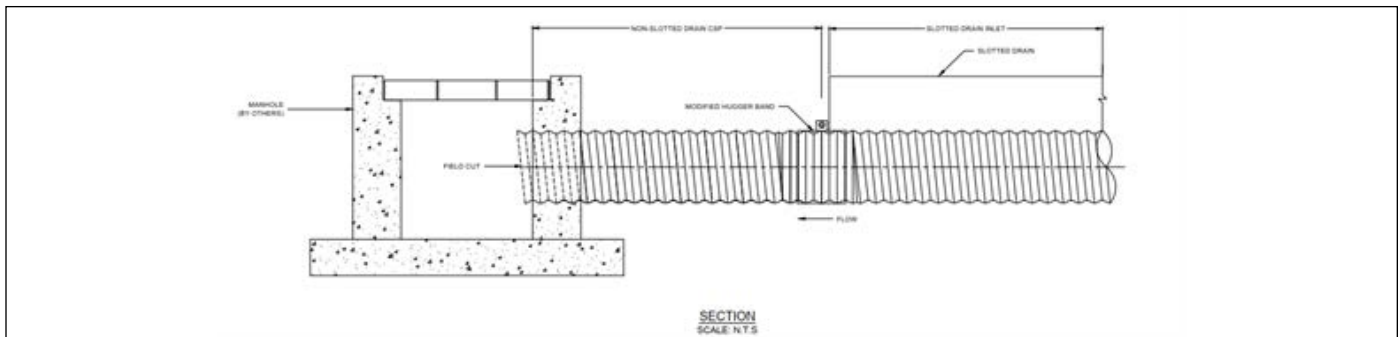
If the design engineer specifies a dense graded aggregate backfill, a 6" bedding of aggregate is normally used. The dense graded aggregate requires a standard pipe trench. The select backfill elevation is to the spring line of the pipe or to the crown of the pipe an inch below the grate. The dense graded aggregate should meet AASHTO M145 Class A-1-a soil backfill and compacted to a minimum of 95% proctor density. When a dense graded aggregate is used as backfill, a minimum 6" high grate is required with a reinforced concrete surface ribbon.



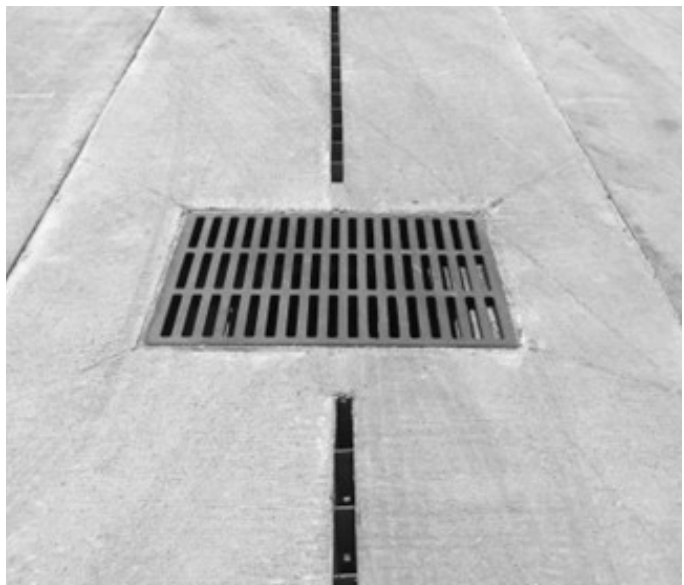
Slotted Drain Grate is to be set at 1/4" below the final pavement grade elevation

## Manhole and Drop Box Connections

Slotted Drain™ is normally extended into manholes or cleanout structures with a standard corrugated steel pipe of the same coating and connected with a modified HUGGER® Band.



Slotted Drain System connected to a corrugated steel pipe inserted into a concrete manhole.



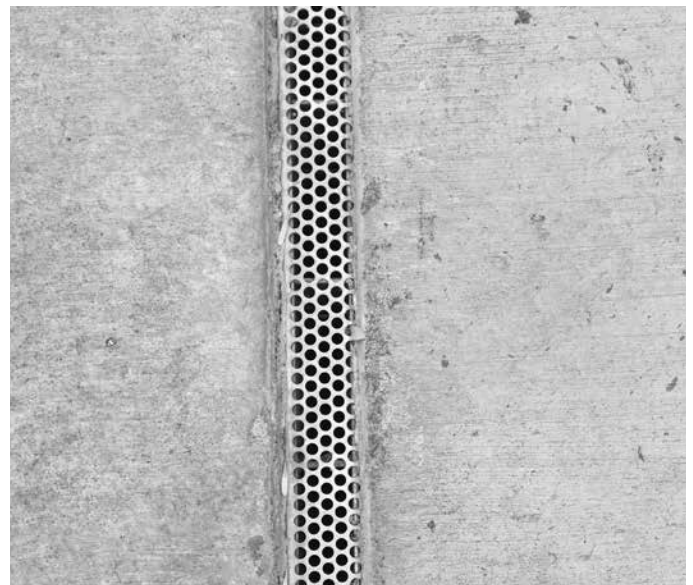
Finished photo of Slotted Drain into a drop box inlet.



## Additional Design and Installation Considerations



Some designs call for steel rebar attached to the grate or installed through the grate prior to pouring the concrete surface. Holes can be predrilled at the manufacturing plant for ease of installation.



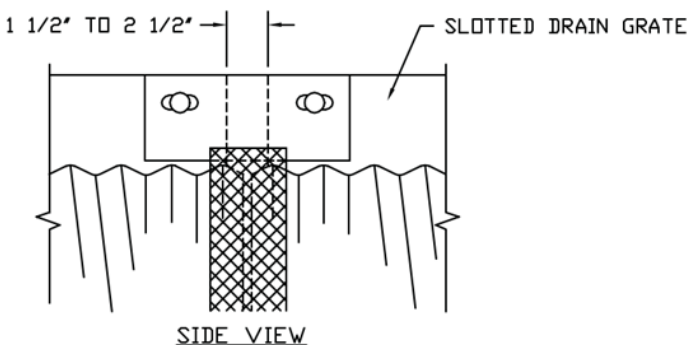
Contech offers an ADA compliant grate. When heel guards are specified, they are normally installed at the manufacturing plant. However, heel guards can always be added later by welding in the field.



Temporary duct tape can be used to prevent concrete from falling into the grate during backfilling and final paving.

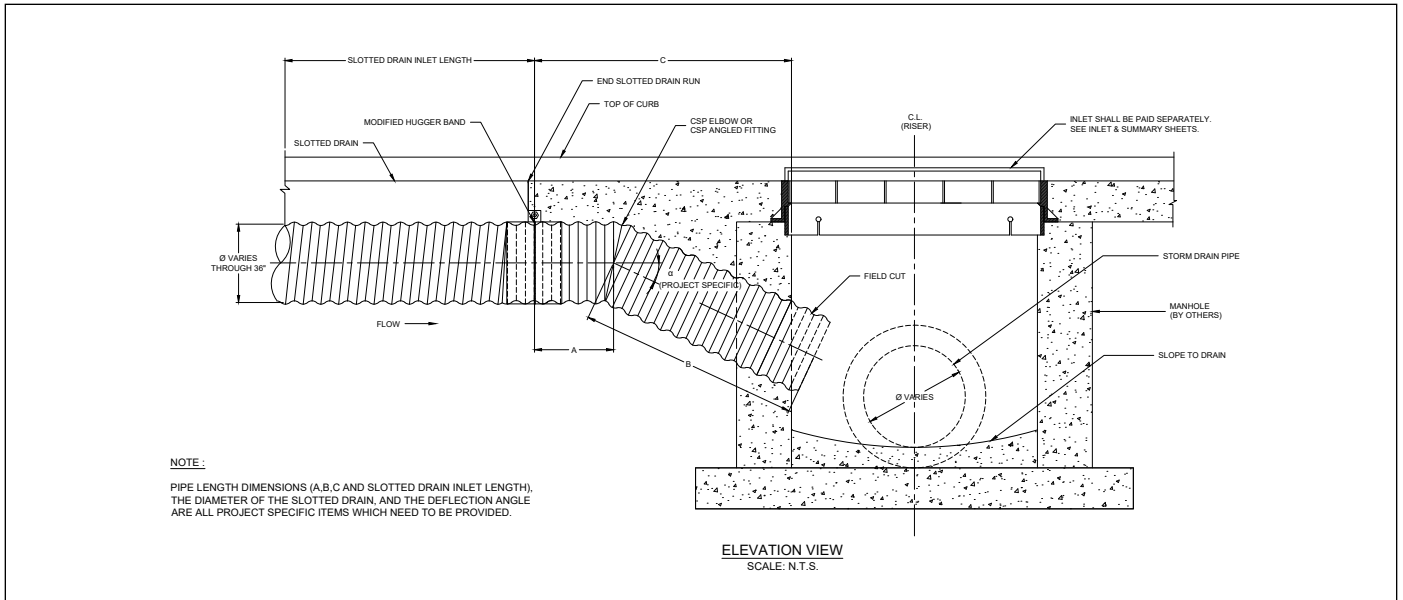


Flotation of the Slotted Drain™ System is a consideration during backfilling with a high slump concrete. A few of the many different techniques used to prevent flotation of the Slotted Drain include periodic placement of a low slump concrete on 10' centers before placement of the high slump concrete, backfilling in smaller lifts around the pipe, and restraining the pipe by various means.



Temporary or permanent steel closure plates can be used to help align the grate. These can be bolted on or clamped across the gap. Other means of alignment include prybars and wooden tiedowns.





Slotted Drain into drop box inlet detail shown above.

## Preconstruction Meeting

It is a best practice to have a pre-construction meeting with the installation contractor and Contech personnel.

A successful preconstruction meeting will help bring all the project stake holders together to discuss how to successfully complete the project. It will identify any discrepancies between each stake holder early enough to address them effectively and economically. It also provides a map of the stakeholders should a later issue on the jobsite arise. In the end, early communication is always the key to a successful project.





## Preconstruction Checklist

Contech Field Contact and Phone: \_\_\_\_\_

Contech Plant Contact and Phone: \_\_\_\_\_

Contractor Contact and Phone: \_\_\_\_\_

Project Name: \_\_\_\_\_

Site Address: \_\_\_\_\_

Pre-con Attendees: \_\_\_\_\_

### Topics to Review:

- Truck access and pipe storage availability/expectation
- Pipe unloading and handling safety, equipment and procedures
- System layout and shop drawing review
- Shipping schedule and installation sequence
- Joint configuration and assembly
- Connection with dissimilar materials
- Backfill material selection and placement strategy
- Backfill sequence, lift thickness and balanced loading
- Compaction requirement (95%) and equipment
- Anti-flotation and hold-down methods

Notes: \_\_\_\_\_

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