Project Name

Project Location

Lane HDPE Stormwater Management System

Product Specialist: John Doe
Phone Number: (XXX)XXX-XXXX

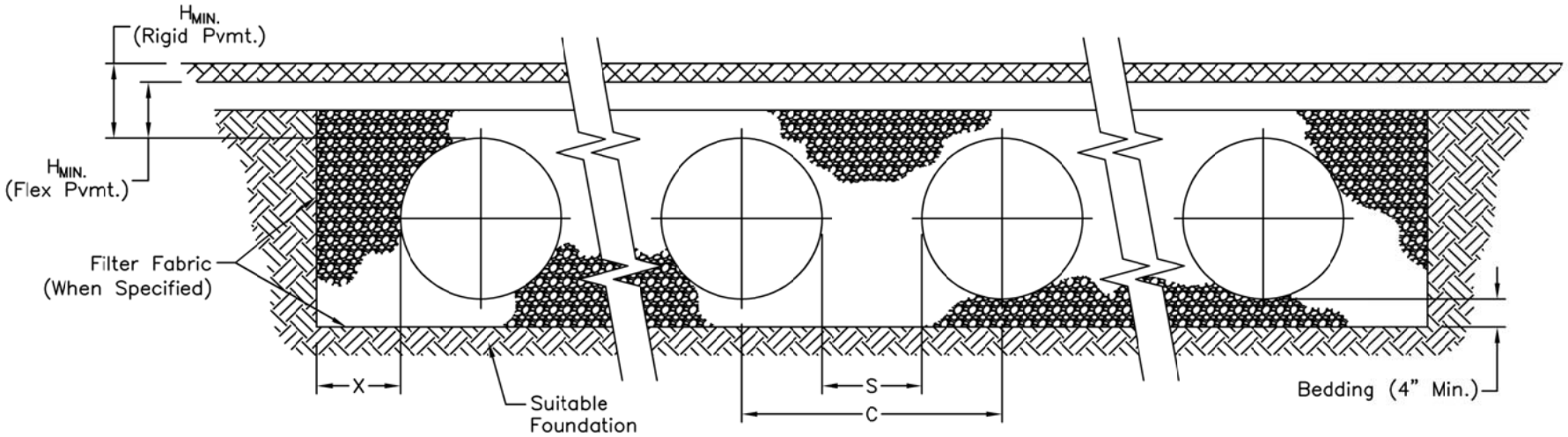
Lane Salesperson: Jane Doe
Phone Number: (XXX)XXX-XXXX

Notes:

1. The Lane HD100/HD100EC storm water management system shall be installed in accordance with industry standard installation practices adapted to the special installation procedures contained herein.
2. Construction equipment shall not traverse or otherwise be located atop the pipe system or its components until sufficient cover is properly placed and compacted. Construction loading restrictions are contained herein. The installer shall contact the manufacturer to address any uncertainties in this regard.
3. The foundation and/or bedding stone must be properly leveled to the elevation shown on the project plans prior to the placement of any pipe or fittings.
4. Spacings shown between pipe runs are standard and will ensure sufficient space for material placement and compaction. Considerations for spacing reductions will not be made unless the installer formally acknowledges that the desired reduction will not compromise the ability to properly place and compact backfill in affected areas.
5. Backfill and bedding materials shall be as specified in the project plans and consistent with the notes contained herein.
6. Contact your local Lane sales representative for any modifications needed to the system design.

STORM STORAGE

LANE



Typical Cross Section

General Design Notes

1. Pipe shall be Lane HD100, HD100EC, or approved equal. In general, corrugated HDPE shall meet the requirements of AASHTO M294 when HD100 is specified, and ASTM F2648 when HD100EC is specified. Fittings shall meet the requirements of ASTM F2306.
2. Pipe and fitting materials specified herein are intended for and directly applicable to the construction of underground storm water detention and/or retention facilities. Applications beyond the traditional, limited scope of storm water detention and retention functions may require special design considerations.
3. Unless specified otherwise, all connections shall be constructed in such a manner as to provide soil-tight joint performance.
4. The drawing and table identifies standard lateral spacing for Lane HD100 and HD100EC pipe retention and detention systems. All dimensions are subject to the manufacturer's tolerances.
5. Typical sidewall dimensions shown in the table are suggested minimums to ensure sufficient clearance for the proper placement and compaction of backfill materials and apply only for stable trench walls. The dimension shall be increased consistent with standard installation practices when unstable materials are encountered.
6. Minimum cover heights shown are more conservative than that used for straight pipe segments and are applicable to system fittings. A buoyancy analysis may indicate the need for additional cover where the seasonal high ground water elevation becomes a factor.
7. Maximum cover heights are limited to 8 feet above the top of fittings for standard installations. Consult a Lane representative when deeper fill heights are anticipated.

NOMINAL DIAMETER	NOMINAL O.D.	TYPICAL SPACING "S"	TYPICAL SPACING "C"	TYPICAL SIDE WALL "X"	$H_{MIN.}$ (NON-TRAFFIC)	$H_{MIN.}$ (TRAFFIC)
12"	14.5"	9.00"	23.50"	8"	12"	12"
15"	17.5"	13.50"	31.00"	8"	12"	12"
18"	21.5"	14.00"	35.50"	9"	12"	12"
24"	28.0"	19.25"	47.25"	10"	12"	12"
30"	34.5"	21.50"	56.00"	15"	12"	12"
36"	41.0"	23.00"	64.00"	15"	12"	12"
42"	47.5"	27.25"	74.75"	15"	12"	24"
48"	54.5"	20.25"	74.75"	15"	12"	24"
60"	66.8"	23.25"	90.00"	15"	12"	24"

*CLASS I BACKFILL REQUIRED AROUND ALL 60" DIAMETER FITTINGS.

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General Installation Notes

1. The contractor shall be advised that corrugated HDPE pipe is flexible and therefore derives structural stability from the strength and relative stiffness of the surrounding backfill material. The resulting soil-culvert interaction system defines the ability of the flexible pipe to withstand anticipated loads.
2. It shall be the responsibility of the general contractor or their agent to research and implement applicable safety, hazard, and health regulations; and obtain the necessary approvals, consents or permits from applicable agencies, private landowners, or public road authorities.
3. Retention and detention systems shall be installed in a manner consistent with the standard practice used for corrugated HDPE pipe installations, ASTM D2321, and the manufacturer's published installation guidelines. Class I and Class II material references are per the latest edition of ASTM D2321.
4. Pipe bedding and embedment shall be Class I or Class II materials for non-perforated pipe applications, except for 60-inch diameter installations, which shall be embedded with Class I materials only. Applications that involve perforated pipe shall be bedded and backfilled with Class I materials. Filter fabric is required when using Class I materials to eliminate the potential of soil migration from adjacent soils.
5. The backfill operation shall commence and progress evenly on both sides of the manifold and alongside the pipe runs simultaneously. In this manner, the overall backfill operation shall progress in the direction of the pipe runs and towards the opposite manifold, where care is again taken to ensure the backfilling is done evenly. Perimeter backfill must be brought up evenly as well, and extended horizontally to stable and/or undisturbed trench walls. Special care shall be taken to ensure the haunch regions of the pipe are completely filled and properly compacted. Filling the inside haunch regions of the manifold between stubs is more challenging and will require additional care.
6. No equipment shall be operated on the system until a minimum of 12 inches of cover has been established, at which time only walk-behind compaction equipment and small spreading equipment may be used. Excavators must be located off the bed, and dump trucks shall not dump stone directly on to the bed.

Access Riser Notes

1. The access riser detail shall be considered conceptual with the intention of illustrating how loads placed on the cover or surrounding pavement will be transferred to the subgrade and not be brought to bear directly on the riser pipe.
2. All risers shall be field cut to the elevation needed to accommodate construction of the riser detail.
3. Poured-in-place concrete collars shall be properly formed to provide a small gap around the outside diameter of the riser, with the top level of the collar set approximately two inches above the top of the riser pipe.
4. Flat tops, manhole openings, and appurtenances shall be constructed and/or provided in accordance with the standard details and specifications of the state or local road authority for an H20/HS20 highway truck loading.
5. Stubs for risers and in general are determined by the manufacturer based on fabrication standards and/or shipping limitations.

Temporary Minimum Cover for Construction Equipment Notes

1. During construction and prior to the construction of pavement additional temporary cover may be required to accommodate construction equipment traffic over the pipe system in accordance with Table 2.
2. Minimum cover is measured from the top of the pipe to the top of the maintained construction roadway surface.
3. Temporary cover shall be duly compacted and maintained at the proper elevation to ensure no loss of required cover over time. Clean, open-graded manufactured aggregate may be unsuitable for these purposes unless properly locked-in place or confined with a binder material.

Joint Performance Notes

1. Soil-tight, silt-tight and water-tight joint performance designations shall be as defined by AASTHO M294.
2. Standard HD100 and HD100EC in-line bell and spigot connections with a manufacturer-installed gasket shall be provided to meet the water-tight performance requirements of ASTM D3212.
3. A reinforced mastic polyseal coupler shall be used to join field cut or plain end pipes when meeting the water-tight performance requirements of ASTM D3212.
4. A standard wrap-around coupler shall be used to join field cut or plain end pipes when meeting soil-tight joint performance requirements.
5. Requirements for silt-tight performance shall be met by wrapping the standard coupler with a suitable filter fabric.
6. All joint configurations shall be constructed in accordance with the manufacturer's recommendations.
7. All couplers shall cover at least two full corrugations on each side of field cut or plain end pipes.

Access Riser Detail

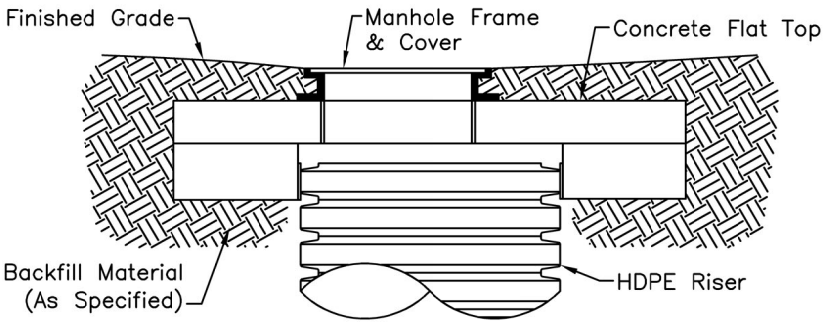
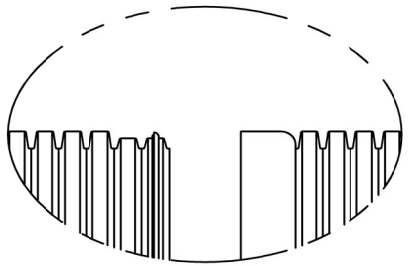


Table 1.

Riser Diameters	
Mainline	Typical
12"	12"
15"	15"
18"	18"
24"	24"
30"	24"
36"	24"
42"	24"
48"	24"
60"	24"



Standard In-Line Bell & Spigot with a Manufacturer Installed Gasket

Table 2.
Temporary Mimimum Cover for Construction Equipment

Pipe Dia.	Minimun Cover (ft) for Indicated Axle Loads			
(in)	18-50 kips	50-75 Kips	75-110 kips	110-150 kips
24-36	2.0	2.5	3.0	3.0
42-60	3.0	3.0	3.5	4.0

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