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LANE Facilities

PENNSYLVANIA

Bedford	814.623.1191
Carlisle	717.249.8342
King of Prussia	610.272.4531
Pulaski	724.652.7747
Shippensburg	717.532.5959

VIRGINIA

Bealeton	540.439.3201
Dublin	540.674.4645
Wytheville	276.223.1051

NEW YORK

Ballston Spa	518.885.4385
Bath	607.776.3366

NORTH CAROLINA

Statesville	704.872.2471

TEXAS

Temple	254.727.3346

CORPORATE HEADQUARTERS

Camp Hill	717.761.8175

LANE Products

Corrugated Metal Pipe
Spiral Rib Pipe
Corrugated HDPE Pipe
Corrugated Polypropylene Pipe
Structural Plate Pipe and Arches
Structural Plate Box Culverts
Storm Water Collection Chambers
Storm Water Management Systems
Storm Water Filters
CFT (HDPE) Water Quality Unit
CMP Sandfilter
Open Top Slotted Drain
Welded Wire Mesh Gabions
Structural Plate Headwall-Culvert Systems
Custom Fabrications (Pond Kits, Trash Racks, etc.)
Long Span Bridge & Culvert Services
Rebar and Custom Powder Coatings

NCSPA
STEEL: PROVEN 100-YEARS STRONG
ncspa.org

PLASTICS PIPE INSTITUTE®
plasticpipe.org

ESOP
An Employee-Owned Company

RAKZID-5/20-AA

LANE

Structural Plate Products

Solving Site Problems

ABOUT LANE

As a full-line manufacturer of corrugated metal and plastic drainage products, Lane Enterprises, Inc. operates plants throughout the Northeastern, Mid-Atlantic, and South-Central states producing various types of buried structures for the construction industry.

For nearly 90 years, Lane has partnered with contractors, engineers, and municipalities to supply reliable products that provide the highest levels of service life, strength, versatility, and economy. Our focus on quality products, responsive customer service, and technical expertise has established a long, proven history of successful partnerships within the industries we serve.

Call upon the experts at Lane during the design phase to ensure an application and specification is completely suited to your project needs.

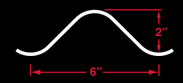
FULL RANGE OF SOLUTIONS

Lane manufactures both steel and aluminum structural plate so that engineers, developers, and contractors have a choice. Our comprehensive line of structural plate solutions can be used in a variety of applications and situations where other pipe products will not meet the requirements. Structural plate sheds the shipment limitations associated with large conventional pipe, boasts increased thicknesses, and stiffer corrugations – resulting in maximum efficiency and durability for your next project.

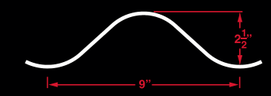
LANE FABRICATORS / A Lane Division
A division of Lane, dedicated to the assembly of structural plates into their final formation. Whether you need someone to get you started, supervise your crew, or manage the entire assembly, Lane can provide the expertise that will get your structure standing and ready for backfill. Lane fabricators supplies all the experience to properly and securely erect your structure when time is of the essence.

LONG SPAN BRIDGE & CULVERT (LSBC) / Pages 4 and 5
A division of Lane, equipped to support your project from conceptual design through installation, including stamped engineering drawings for the entire structure, foundation, and retaining walls. LSBC provides all the benefits of a manufacturer, an engineering consultant, and a construction inspector rolled into a one-stop shop.

STEEL STRUCTURAL PLATE / Pages 8 through 13
A 6"x 2" corrugation, a 3 oz. per square foot galvanized coating, nine thickness options, from 0.111" to 0.380", and the complete range of shapes and sizes to suit your application; with all the strength, versatility, and cost benefits afforded by steel.



ALUMINUM STRUCTURAL PLATE / Pages 14 through 19
A 9"x 2½" corrugation, a solid aluminum alloy (Alloy 5052), six thickness options from 0.125" to 0.250", and the complete range of shapes and sizes to suit your application, with all the lightweight and durability advantages of aluminum.



ENGINEERING SERVICES

LONG SPAN BRIDGE & CULVERT

The addition of special features such as longitudinal and circumferential stiffening elements to conventional structural plate structures permits the use of spans exceeding 80'. The tremendous popularity of these larger span structures ("Buried Bridges") is due to the development of national specifications by the American Association of State Highway and Transportation Officials (AASHTO).

LONGSPAN BRIDGE & CULVERT

As a service to the industry, Lane Enterprises, Inc. created LongSpan Bridge & Culvert (LSBC) to provide engineering and field services associated with the design and installation of long span structural plate structures. LSBC provides engineering consultation and certified design services to facilitate regulatory approvals, in addition to assembly and construction monitoring during the backfilling operation.

LSBC helps clients choose from a variety of culvert material and end wall structure types to ensure a complete project that most appropriately meets their structural and aesthetic requirements.

ENGINEERING SERVICES

- Initial project consultation
- Conceptual site plan layouts
- Footing and foundation designs
- Headwall designs and end treatment options
- Hydraulic modeling and scour analysis

INSTALLATION SERVICES

- Plate delivery and assembly
- Complete installation specification development
- Installation supervision and documentation
- Shape, backfill and compaction monitoring

LSBC MISSION STATEMENT

To furnish the highest quality engineering and field services associated with the design, construction, and use of Lane structural plate structures all while minimizing overall costs, impact to jobsite environments (by providing engineering consultation), and certified design services (to facilitate regulatory approvals) with incorporating headwall or end treatment options that will aesthetically blend the structure into the environs, recommending a construction sequence conducive to site characteristics, and providing assembly and construction monitoring to assure long-term sound structure performance.

1.0 SITE EVALUATION

1.1 Evaluate design flow and finished grade to determine structure geometry
1.2 Review soils report to determine footing and foundation design
1.3 Perform final hydraulic analysis to ensure capacity and scour protection

2.0 ENGINEERING DRAWINGS

2.1 Support preliminary and final site plan development
2.2 Incorporate material and installation specifications into project plans
2.3 Provide shop, fabrication, and assembly drawings

3.0 MATERIAL DELIVERY

3.1 Coordinate material delivery and drop off location with site contractor
3.2 Ensure plate is properly marked and organized at the drop off location
3.3 Verify components, ample hardware, and appurtenances

4.0 STRUCTURE ASSEMBLY

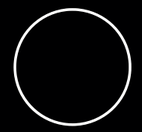
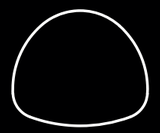
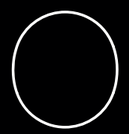
4.1 Furnish a trained and experienced assembly crew (or representative)
4.2 Assemble plates on prepared foundation in accordance with shop drawings
4.3 Tighten all bolts in the proper sequence and specified torque
4.4 Ensure all seams are tightly joined, smooth, and symmetric
4.5 Secure circumferential stiffeners per shop drawing schedule (when applicable)

5.0 BACKFILL AND SHAPE MONITORING

5.1 Provide full-time monitor at the site during backfilling operation
5.2 Document the specified backfill material is used
5.3 Record density, moisture content, and lift thickness measurements
5.4 Continuously measure shape deflection and symmetry during backfilling
5.5 Ensure proper construction of longitudinal stiffeners (when applicable)

Structure Selection / Selecting the best structure for your site requires a number of factors to be considered: economics, hydraulics, structural, and environmental. Our knowledgeable engineers are available to assist you with the selection of the structure shape, size, and end treatment that best match the jobsite conditions and allow for optimum appearance and performance.

STRUCTURAL PLATE PRODUCTS

SHAPE	STEEL	ALUMINUM
	5'-0" to 26'-0" diameters	5'-0" to 21'-0" diameters
	6'-1" x 4'7" to 20'-7" x 13'-2"	6'-7" x 5'-8" to 21'-11" x 14'-11"
	5'-0" x 1'-9" to 26'-0" x 13'	5'-0" x 1'-9" to 23'-0" x 11'-11"
	9'-8" x 2'-7" to 20'-9" x 10'-2"	8'-9" x 2'-6" to 35'-3" x 13'-7"
	5'-8" x 5'-9" to 20'-4" x 17'-9"	6'-1" x 5'-9" to 20'-5" x 17'-9"
	4'-8" x 5'-2" to 25'-0" x 27'-8"	4'-8" x 5'-2" to 20'-1" x 22'-3"

ROUND STRUCTURAL PLATE

One of the more commonly used shapes for buried structures and better supports the deeper fill heights. Diameters for structural plate pipe are available in 6" increments within the defined range. The pipe bottom can also be filled with earth to create a natural streambed.

STRUCTURAL PLATE PIPE ARCH

The most economical choice for culvert and small bridge applications where cover height is limited and afford increased hydraulic capacities at low-flow conditions. Minimum and maximum covers are typically governed by the soil bearing pressures that radiate from the pipe arch corners, being inversely proportional to the corner radius.

STRUCTURAL PLATE ARCH

Ideal for maximizing flow capacity in low-cover applications, and are also appropriate for a wide range of burial depths. With a strategically selected modular block headwall and a natural streambed, an arch provides the look and feel of a stone arch bridge. Multiple side-by-side arch structures are an attractive and cost effective option for spanning large areas.

STRUCTURAL PLATE BOX CULVERT

A composite-reinforced rib plate structure are relatively flat across the top and require a large flexural capacity due to the extreme geometry and shallow depths of cover (1.4' to 5'). Box Culverts provide a cost-effective bridge solution due to the shape's low, wide profile. The ability to provide a wide span for shallow installations provides for optimum waterway area.

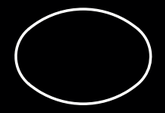
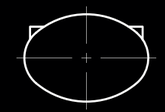
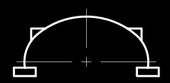
STRUCTURAL PLATE UNDERPASS

Underpasses are intended for use where a greater vertical clearance is required and the bottom needs to be relatively flat. Underpasses are especially useful for auto, truck, railroad, golf cart, pedestrian, and animal traffic. Like the pipe arch, the underpass requires good soil bearing capacities in the corner regions for proper support.

STRUCTURAL PLATE VERTICAL ELLIPSE

Are commonly used for vehicular, railroad, and pedestrian underpasses. Without the relatively flat bottom afforded by the underpass shapes the vertical ellipse would require additional filling along the bottom. With the absence of sharp corner regions, the vertical ellipse would not be subject to bearing capacity limitations and therefore would have greater heights of cover. Industrial applications such as equipment enclosures for aggregate conveyor tunnels are also appropriate.

NOTE: Shape dimensions are shown as Span x Rise, where span is the widest horizontal dimension and rise is the tallest vertical dimension.

SHAPE	STEEL	ALUMINUM
	7'-4" x 5'-6" to 14'-11" x 11'-2"	9'-2" x 6'-8" to 14'-11" x 11'-2"
	19'-4" x 12'-9" to 40'-0" x 29'-7"	19'-4" x 12'-9" to 37'-3" x 22'-2"
	19'-5" x 6'-9" to 51'-7" x 24'-2"	19'-5" x 6'-9" to 38'-8" x 15'-9"
	20'-1" x 9'-1" to 38'-0" x 23'-6"	20'-1" x 9'-1" to 35'-5" x 20'-0"

STRUCTURAL PLATE HORIZONTAL ELLIPSE

Horizontal ellipse can often provide the lowest overall installed cost of any structure by eliminating the need for concrete footings. If a natural stream bottom is desired, the invert of the ellipse may be buried and filled with native streambed material. Buried ellipses also make for an excellent vehicle, pedestrian, or wildlife underpass.

LONG SPAN HORIZONTAL ELLIPSE

Long span designs for the horizontal ellipse shape are accommodated by the inclusion of longitudinal stiffeners along the top arch corners. In those instances, Lane's Long Span Bridge & Culvert division becomes a valuable consideration for the design team.

LONG SPAN LOW PROFILE ARCH

These wide-span, low-rise structures allow large open-end areas at relatively low covers. Low profile arches are most commonly used for stream and wetland crossings where spanning requirements exceed that are not attainable with the box culvert. Long span designs are accommodated by the inclusion of longitudinal stiffeners along the top arch corners, making Lane's LongSpan Bridge & Culvert division a valuable addition to the design team.

LONG SPAN HIGH PROFILE ARCH

The high-profile arch shape is ideal for crossing wide areas when higher heights of cover are encountered and additional hydraulic capacity is needed. These shapes often require smaller footings and can reduce the overall structure width as compared to the low-rise shapes. As with the horizontal ellipse and the low-profile arch, long span designs are accommodated by the inclusion of longitudinal stiffeners along the top arch corners, making Lane's LongSpan Bridge & Culvert division a valuable addition to the design team.

STRUCTURAL PLATE MATERIAL STANDARDS

ASTM A761	Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe Arches, and Arches
ASTM A964	Corrugated Steel Box Culverts
ASTM B746	Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe Arches, and Arches
ASTM B864	Corrugated Aluminum Box Culverts
AASHTO M167	Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe Arches, and Arches
AASHTO M219	Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe Arches, and Arches

STRUCTURAL PLATE INSTALLATION STANDARDS

ASTM A807	Practice for Installing Corrugated Steel Structural Plate Pipe for Sewers
ASTM B789	Practice for Installing Corrugated Aluminum Structural Plate Pipe for Culverts and Sewers
AASHTO	LRFD Bridge Construction Specifications, Section 26, Metal Culverts

STRUCTURAL PLATE DESIGN STANDARDS

ASTM A796	Practice for Structural Design of Corrugated Steel Pipe, Pipe-Arches, and Arches
ASTM B790	Practice for Structural Design of Corrugated Aluminum Pipe, Pipe Arches, and Arches
AASHTO	LRFD Bridge Design Specifications, Section 12, Buried Structures, and Tunnel Liners
AREMA	Manual for Railway Engineering, Section 4, Culverts

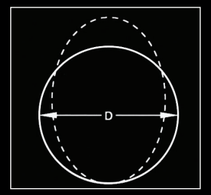
NOTE: Shapes identified as "Long Span" take the designation from AASHTO for certain structural plate structures that require shape monitoring measures during the backfill operation. The designation is not to be confused with Lane's Long Span Bridge & Culvert division (Pages 4 and 5), which is not limited to these shapes or services.

Round Structural Plate

Structure No.	Span (ft-in)	Area (ft²)
R-S-1	5-0	19.6
R-S-2	5-6	23.8
R-S-3	6-0	28.3
R-S-4	6-6	33.2
R-S-5	7-0	38.5
R-S-6	7-6	44.2
R-S-7	8-0	50.3
R-S-8	8-6	56.7
R-S-9	9-0	63.6
R-S-10	9-6	70.9
R-S-11	10-0	78.5
R-S-12	10-6	86.6
R-S-13	11-0	95.0
R-S-14	11-6	103.9
R-S-15	12-0	113.1
R-S-16	12-6	122.7
R-S-17	13-0	132.7
R-S-18	13-6	143.1
R-S-19	14-0	153.9
R-S-20	14-6	165.1
R-S-21	15-0	176.7
R-S-22	15-6	188.7
R-S-23	16-0	201.1
R-S-24	16-6	213.8
R-S-25	17-0	227.0
R-S-26	17-6	240.5
R-S-27	18-0	254.5
R-S-28	18-6	268.8
R-S-29	19-0	283.5
R-S-30	19-6	298.6
R-S-31	20-0	314.2
R-S-32	20-6	330.1
R-S-33	21-0	346.4
R-S-34	21-6	363.1
R-S-35	22-0	380.1
R-S-36	22-6	397.6
R-S-37	23-0	415.5
R-S-38	23-6	433.7
R-S-39	24-0	452.4
R-S-40	24-6	471.4
R-S-41	25-0	490.9
R-S-42	25-6	510.7
R-S-43	26-0	530.9

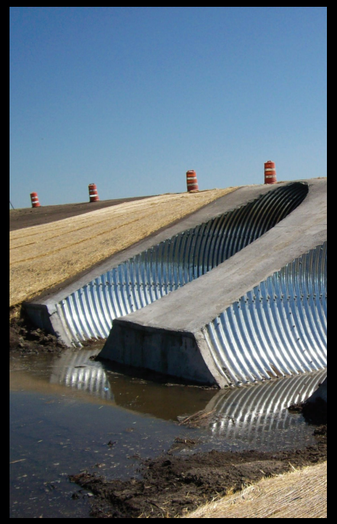
Minimum 5' diameter with size increases in increments of 6"

The structure can be fabricated with a vertical elongation to offset any planned or expected pipe deflections.



Structural Plate Vertical Ellipse

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
VE-S-1	4-8	5-2	19
VE-S-2	5-2	5-8	23
VE-S-3	5-7	6-3	28
VE-S-4	6-1	6-9	32
VE-S-5	6-7	7-4	38
VE-S-6	7-1	7-10	43
VE-S-7	7-7	8-5	50
VE-S-8	8-1	8-11	55
VE-S-9	8-7	9-6	62
VE-S-10	9-1	10-0	70
VE-S-11	9-7	10-7	77
VE-S-12	10-0	11-1	85
VE-S-13	10-6	11-7	94
VE-S-14	11-0	12-2	102
VE-S-15	11-6	12-8	112
VE-S-16	11-10	13-1	124
VE-S-17	12-4	13-8	134
VE-S-18	12-10	14-2	144
VE-S-19	13-3	14-8	155
VE-S-20	13-9	15-3	167
VE-S-21	14-3	15-9	178
VE-S-22	14-9	16-3	191
VE-S-23	15-2	16-10	203
VE-S-24	15-9	17-5	216
VE-S-25	16-3	18-0	230
VE-S-26	16-9	18-6	244
VE-S-27	17-3	19-0	258
VE-S-28	17-8	19-7	272
VE-S-29	18-1	20-1	287
VE-S-30	18-8	20-7	302
VE-S-31	19-1	21-2	318
VE-S-32	19-8	21-9	336
VE-S-33	20-1	22-3	352
VE-S-34	20-7	22-10	370
VE-S-35	21-1	23-4	387
VE-S-36	21-7	23-11	405
VE-S-37	22-0	24-3	423
VE-S-38	22-7	24-11	442
VE-S-39	22-11	25-4	461
VE-S-40	23-7	26-0	480
VE-S-41	24-1	26-7	496
VE-S-42	24-6	27-1	516
VE-S-43	25-0	27-8	536



Structural Plate Pipe-Arch

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
with 18" corner radius			
PA-S-1	6-1	4-7	22
PA-S-2	6-4	4-9	24
PA-S-3	6-9	4-11	26
PA-S-4	7-0	5-1	28
PA-S-5	7-3	5-3	31
PA-S-6	7-8	5-5	33
PA-S-7	7-11	5-7	35
PA-S-8	8-2	5-9	38
PA-S-9	8-7	5-11	40
PA-S-10	8-10	6-1	43
PA-S-11	9-4	6-3	46
PA-S-12	9-6	6-5	49
PA-S-13	9-9	6-7	52
PA-S-14	10-3	6-9	55
PA-S-15	10-8	6-11	58
PA-S-16	10-11	7-1	61
PA-S-17	11-5	7-3	64
PA-S-18	11-7	7-5	67
PA-S-19	11-10	7-7	71
PA-S-20	12-4	7-9	74
PA-S-21	12-6	7-11	78
PA-S-22	12-8	8-1	81
PA-S-23	12-10	8-4	85
PA-S-24	13-5	8-5	89
PA-S-25	13-11	8-7	93
PA-S-26	14-1	8-9	97
PA-S-27	14-3	8-11	101
PA-S-28	14-10	9-1	105
PA-S-29	15-4	9-3	109
PA-S-30	15-6	9-5	113
PA-S-31	15-8	9-7	118
PA-S-32	15-10	9-10	122
PA-S-33	16-5	9-11	126
PA-S-34	16-7	10-1	131
with 31" corner radius			
PA-S-35	13-3	9-4	97
PA-S-36	13-6	9-6	102
PA-S-37	14-0	9-8	105
PA-S-38	14-2	9-10	109
PA-S-39	14-5	10-0	114
PA-S-40	14-11	10-2	118
PA-S-41	15-4	10-4	123
PA-S-42	15-7	10-6	127
PA-S-43	15-10	10-8	132
PA-S-44	16-3	10-10	137
PA-S-45	16-6	11-0	142
PA-S-46	17-0	11-2	146
PA-S-47	17-2	11-4	151
PA-S-48	17-5	11-6	157
PA-S-49	17-11	11-8	161
PA-S-50	18-1	11-10	167
PA-S-51	18-7	12-0	172
PA-S-52	18-9	12-2	177
PA-S-53	19-3	12-4	182
PA-S-54	19-6	12-6	188
PA-S-55	19-8	12-8	194
PA-S-56	19-11	12-10	200
PA-S-57	20-5	13-0	205
PA-S-58	20-7	13-2	211

**Where cover height allows for applications involving Structures No. 24-34, consideration should be given towards a comparable size from the 31" corner radius table since the larger corner radius will produce a lower soil pressure in the corner region of the pipe.*

Structural Plate Underpass

Pedestrian

Vehicular

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
U-S-1	5-8	5-9	27
U-S-2	5-8	6-1	29
U-S-3	5-9	6-6	32
U-S-4	5-9	7-0	32
U-S-5	5-9	7-4	36
U-S-6	5-10	7-8	38
U-S-7	5-10	8-2	41
U-S-8	8-6	8-6	58
U-S-9	8-8	8-8	62
U-S-10	8-11	8-11	65
U-S-11	9-8	9-4	73
U-S-12	10-10	9-6	81
U-S-13	11-5	10-3	93
U-S-14	12-2	11-0	107
U-S-15	12-11	11-2	116
U-S-16	13-2	11-10	126
U-S-17	13-10	12-2	136
U-S-18	14-1	12-10	147
U-S-19	14-6	13-5	158
U-S-20	14-10	14-0	169
U-S-21	15-6	14-4	180
U-S-22	15-8	15-0	192
U-S-23	16-4	15-5	204
U-S-24	16-5	16-0	217
U-S-25	16-9	16-3	224
U-S-26	17-3	17-0	239
U-S-27	18-4	16-11	252
U-S-28	19-1	17-2	266
U-S-29	19-6	17-7	280
U-S-30	20-4	17-9	295

Structural Plate Horizontal Ellipse

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
HE-S-1	7-4	5-6	31.3
HE-S-2	8-1	5-9	36.4
HE-S-3	8-10	6-0	41.4
HE-S-4	9-2	6-9	48.2
HE-S-5	9-7	6-4	46.7
HE-S-6	9-11	7-0	54.0
HE-S-7	10-4	6-7	52.2
HE-S-8	10-8	7-3	60.1
HE-S-9	11-0	8-0	68.2
HE-S-10	11-1	6-10	58.1
HE-S-11	11-4	7-6	66.4
HE-S-12	11-8	8-3	75.1
HE-S-13	12-0	8-11	84.1
HE-S-14	11-9	7-1	64.2
HE-S-15	12-1	7-10	73.0
HE-S-16	12-5	8-6	82.2
HE-S-17	12-9	9-2	91.7
HE-S-18	12-6	7-4	70.5
HE-S-19	12-10	8-1	79.9
HE-S-20	13-2	8-9	89.6
HE-S-21	13-6	9-6	99.6
HE-S-22	13-7	8-4	87.1
HE-S-23	13-11	9-0	97.3
HE-S-24	14-3	9-9	107.8
HE-S-25	14-7	10-5	118.7
HE-S-26	14-11	11-2	129.9

Structural Plate Arch

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
A-S-1	5-0	2-7½	10.5
A-S-2		2-2½	8.4
A-S-3		1-9½	6.5
A-S-4	6-0	3-1½	14.9
A-S-5		2-9	12.7
A-S-6		2-4	10.4
A-S-7		1-10	7.9
A-S-8	7-0	3-8	20.4
A-S-9		3-3	17.5
A-S-10		2-10	14.8
A-S-11		2-4½	12.0
A-S-12	8-0	4-2	26.5
A-S-13		3-9	22.5
A-S-14		3-4	20.0
A-S-15		2-11	17.1
A-S-16		2-5	13.8
A-S-17	9-0	4-8	33.3
A-S-18		4-3½	30.0
A-S-19		3-10½	26.4
A-S-20		3-5	22.7
A-S-21		2-11½	19.2
A-S-22	10-0	5-2½	41.4
A-S-23		4-9½	37.2
A-S-24		4-4½	33.2
A-S-25		3-11½	29.4
A-S-26		3-5½	25.1
A-S-27		2-11½	21.0
A-S-28	11-0	5-8½	49.8
A-S-29		5-3½	45.2
A-S-30		4-11	41.3
A-S-31		4-5½	36.7
A-S-32		4-0	32.2
A-S-33		3-6	27.6
A-S-34	12-0	6-2½	59.1
A-S-35		5-10	54.6
A-S-36		5-5	49.7
A-S-37		5-0	45.1
A-S-38		4-6½	40.2
A-S-39		4-0½	35.1
A-S-40	13-0	6-9	69.7
A-S-41		6-4	64.2
A-S-42		5-11	59.0
A-S-43		5-6	53.9
A-S-44		5-0½	48.6
A-S-45		4-7	43.4
A-S-46	14-0	7-3	80.5
A-S-47		6-10	74.7
A-S-48		6-5½	69.6
A-S-49		6-0	63.5
A-S-50		5-7	58.2
A-S-51		5-1½	52.6
A-S-52		4-7½	46.7
A-S-53	15-0	7-9	92.1
A-S-54		7-4½	86.5
A-S-55		6-11½	80.4
A-S-56		6-6½	74.5
A-S-57		6-1½	68.8
A-S-58		5-8	62.7
A-S-59		5-2	56.3
A-S-60		4-7½	49.6
A-S-61	16-0	8-3	104.6
A-S-62		7-10½	98.5
A-S-63		7-5½	92.0
A-S-64		7-0½	85.7
A-S-65		6-7½	79.6
A-S-66		6-2	73.0
A-S-67		5-8½	66.7
A-S-68		5-2½	60.0
A-S-69	17-0	8-9½	118.5
A-S-70		8-4½	111.4
A-S-71		8-0	105.1
A-S-72		7-7	98.4
A-S-73		7-1½	91.2
A-S-74		6-8½	84.8
A-S-75		6-2½	77.4
A-S-76		5-9	70.8
A-S-77		5-2½	63.2
A-S-78	18-0	9-3½	132.5
A-S-79		8-11	125.7
A-S-80		8-6	118.4
A-S-81		8-1	111.2
A-S-82		7-8	104.2
A-S-83		7-2½	96.8
A-S-84		6-9	89.5
A-S-85		6-3½	82.4
A-S-86		5-9	74.3
A-S-87	19-0	9-9½	147.4
A-S-88		9-5	140.2
A-S-89		9-0	132.4
A-S-90		8-7½	125.6
A-S-91		8-2	117.4
A-S-92		7-9	110.2
A-S-93		7-3½	102.5
A-S-94		6-9½	94.3
A-S-95		6-3½	86.3
A-S-96		5-9½	78.6
A-S-97	20-0	10'4	163.8
A-S-98		9-11	155.4
A-S-99		9-6½	148.0
A-S-100		9-1½	140.0
A-S-101		8-8½	132.2
A-S-102		8-3	123.8
A-S-103		7-9½	115.6
A-S-104		7-4	107.6
A-S-105		6-10	99.1
A-S-106		6-4	90.9
A-S-107	21-0	10-10	180.2
A-S-108		10-5½	172.3
A-S-109		10-0½	163.7
A-S-110		9-7½	155.2
A-S-111		9-2½	147.0
A-S-112		8-9½	138.9
A-S-113		8-4	130.3
A-S-114		7-10½	121.8
A-S-115		7-4½	112.8
A-S-116		6-10½	104.1
A-S-117		6-4	94.8
A-S-118	22-0	11-4½	198.4
A-S-119		10-11½	189.2
A-S-120		10-7	181.0
A-S-121		10-2	172.1
A-S-122		9-9	163.4
A-S-123		9-3½	154.1
A-S-124		8-10½	145.8
A-S-125		8-5	136.9
A-S-126		7-11	127.4
A-S-127		7-5	118.1
A-S-128		6-11	109.1
A-S-129	23-0	11-6	207.7
A-S-130		11-1	198.3
A-S-131		10-8	189.0
A-S-132		10-3	179.9
A-S-133		9-10	170.9
A-S-134		9-4½	161.4
A-S-135		8-11	152.0
A-S-136		8-5½	142.8
A-S-137		7-11½	133.0
A-S-138		7-5½	123.5
A-S-139		6-11	113.4
A-S-140	24-0	12-0	226.2
A-S-141		11-7	216.3
A-S-142		11-2	206.6
A-S-143		10-9	197.1
A-S-144		10-4	187.7
A-S-145		9-11	178.6
A-S-146		9-5½	168.7
A-S-147		9-0	159.1
A-S-148		8-6	148.8
A-S-149		8-0	138.7
A-S-150		7-5½	128.1
A-S-151	25-0	12-6	245.4
A-S-152		12-1½	236.1
A-S-153		11-8½	226.0
A-S-154		11-3½	216.0
A-S-155		10-10	205.3
A-S-156		10-5	195.8
A-S-157		10-0	186.4
A-S-158		9-6	175.3
A-S-159		9-0½	165.5
A-S-160		8-6½	154.9
A-S-161		8-0	143.7
A-S-162		7-6	133.6
A-S-163	26-0	13-0	265.5
A-S-164		12-7½	255.8
A-S-165		12-2½	245.2
A-S-166		11-9½	234.9
A-S-167		11-4½	224.7
A-S-168		10-11	213.7
A-S-169		10-6	203.9
A-S-170		10-0½	193.3
A-S-171		9-7	183.0
A-S-172		9-1	171.9
A-S-173		8-7	161.0
A-S-174		8-0½	149.5













Footing Options for Structural Plate Arches

Structural Plate Box Culvert

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
BC-S-1	9-8	2-7	20.2
BC-S-2	10-1	3-4	27.9
BC-S-3	10-7	4-2	35.9
BC-S-4	11-0	4-11	44.2
BC-S-5	11-5	5-8	53.0
BC-S-6	11-10	6-5	61.9
BC-S-7	12-3	7-3	71.2
BC-S-8	12-8	8-0	80.9
BC-S-9	10-5	2-8	23.1
BC-S-10	10-10	3-5	31.2
BC-S-11	11-2	4-3	39.7
BC-S-12	11-7	5-0	48.4
BC-S-13	12-0	5-9	57.7
BC-S-14	12-5	6-7	67.0
BC-S-15	12-10	7-4	76.9
BC-S-16	13-3	8-2	85.1
BC-S-17	11-1	2-9	25.1
BC-S-18	11-6	3-6	34.0
BC-S-19	11-10	4-4	43.1
BC-S-20	12-3	5-1	52.5
BC-S-21	12-7	5-10	62.3
BC-S-22	13-0	6-8	72.3
BC-S-23	13-5	7-5	82.6
BC-S-24	13-9	8-2	93.2
BC-S-25	11-10	2-10	28.0
BC-S-26	12-2	3-8	37.4
BC-S-27	12-6	4-5	47.0
BC-S-28	12-10	5-2	57.0
BC-S-29	13-3	6-0	67.1
BC-S-30	13-7	6-9	77.6
BC-S-31	13-11	7-6	88.2
BC-S-32	14-3	8-4	97.5
BC-S-33	12-6	2-11	30.6
BC-S-34	12-10	3-9	40.6
BC-S-35	13-2	4-6	50.8
BC-S-36	13-6	5-4	61.4
BC-S-37	13-10	6-1	72.2
BC-S-38	14-2	6-10	83.1
BC-S-39	14-6	7-8	94.4
BC-S-40	14-10	8-5	105.9
BC-S-41	13-3	3-1	33.8
BC-S-42	13-6	3-10	44.3
BC-S-43	13-10	4-8	55.1
BC-S-44	14-1	5-5	66.0
BC-S-45	14-5	6-2	77.2
BC-S-46	14-9	7-0	88.8
BC-S-47	15-0	7-9	100.5
BC-S-48	15-4	8-7	110.1
BC-S-49	13-11	3-2	36.6
BC-S-50	14-2	3-11	47.8
BC-S-51	14-6	4-9	59.1
BC-S-52	14-9	5-6	70.7
BC-S-53	15-0	6-4	82.4
BC-S-54	15-4	7-1	94.5
BC-S-55	15-7	7-11	106.8
BC-S-56	15-10	8-8	119.2
BC-S-57	14-7	3-3	40.2
BC-S-58	14-10	4-1	51.8
BC-S-59	15-1	4-10	63.6
BC-S-60	15-4	5-8	75.6
BC-S-61	15-7	6-5	88.0
BC-S-62	15-10	7-3	100.3
BC-S-63	16-1	8-0	113.0
BC-S-64	16-4	8-10	123.0
BC-S-65	15-3	3-5	43.3
BC-S-66	15-6	4-2	55.9
BC-S-67	15-9	5-0	68.1
BC-S-68	16-0	5-9	80.7
BC-S-69	16-2	6-7	93.2
BC-S-70	16-5	7-4	106.5
BC-S-71	16-8	8-2	119.7
BC-S-72	16-10	8-11	133.0
BC-S-73	16-0	3-6	47.1
BC-S-74	16-2	4-4	59.9
BC-S-75	16-4	5-1	72.8
BC-S-76	16-7	5-11	85.8
BC-S-77	16-9	6-9	99.1
BC-S-78	17-0	7-6	112.4
BC-S-79	17-2	8-4	126.0
BC-S-80	17-5	9-1	137.0
BC-S-81	16-8	3-8	50.7
BC-S-82	16-10	4-6	64.1
BC-S-83	17-0	5-3	77.6
BC-S-84	17-2	6-1	91.3
BC-S-85	17-4	6-10	105.1
BC-S-86	17-6	7-8	119.1
BC-S-87	17-8	8-5	133.2
BC-S-88	17-10	9-3	147.4
BC-S-89	17-4	3-10	55.0
BC-S-90	17-6	4-7	68.8
BC-S-91	17-7	5-5	82.8
BC-S-92	17-9	6-2	96.8
BC-S-93	17-11	7-0	111.1
BC-S-94	18-1	7-9	125.4
BC-S-95	18-3	8-7	139.8
BC-S-96	18-5	9-4	151.2
BC-S-97	18-0	3-11	58.8
BC-S-98	18-1	4-9	73.3
BC-S-99	18-3	5-7	87.9
BC-S-100	18-4	6-4	102.6
BC-S-101	18-6	7-2	117.3
BC-S-102	18-7	7-11	132.3
BC-S-103	18-9	8-9	147.3
BC-S-104	18-10	9-6	162.4
BC-S-105	18-8	4-1	63.4
BC-S-106	18-9	4-11	78.4
BC-S-107	18-10	5-8	93.4
BC-S-108	18-11	6-6	108.5
BC-S-109	19-1	7-4	123.6
BC-S-110	19-2	8-1	138.9
BC-S-111	19-3	8-11	154.2
BC-S-112	19-4	9-8	166.0
BC-S-113	19-4	4-3	67.7
BC-S-114	19-5	5-1	83.3
BC-S-115	19-6	5-10	98.9
BC-S-116	19-6	6-8	114.6
BC-S-117	19-7	7-5	126.6
BC-S-118	19-8	8-3	146.2
BC-S-119	19-9	9-1	162.0
BC-S-120	19-10	9-10	178.0
BC-S-121	20-8	4-7	77.5
BC-S-122	20-8	5-5	94.1
BC-S-123	20-8	6-2	110.7
BC-S-124	20-8	7-0	127.4
BC-S-125	20-9	7-10	143.3
BC-S-126	20-9	8-7	160.7
BC-S-127	20-9	9-5	177.4
BC-S-128	20-9	10-2	194.2

Footing Options for Structural Plate Box Culverts

Long Span Horizontal Ellipse

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHE-S-1	19-4	12-9	191
LSHE-S-2	20-1	13-0	202
LSHE-S-3	20-2	11-11	183
LSHE-S-4	20-10	12-2	194
LSHE-S-5	21-0	15-2	248
LSHE-S-6	21-11	13-1	221
LSHE-S-7	22-6	15-8	274
LSHE-S-8	23-0	14-1	249
LSHE-S-9	23-3	15-11	288
LSHE-S-10	24-4	16-11	320
LSHE-S-11	24-6	14-8	274
LSHE-S-12	25-2	14-11	287
LSHE-S-13	25-5	16-9	330
LSHE-S-14	26-1	18-2	369

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHE-S-15	26-3	15-10	320
LSHE-S-16	27-0	16-2	334
LSHE-S-17	27-2	19-1	405
LSHE-S-18	27-11	19-5	421
LSHE-S-19	28-1	17-1	369
LSHE-S-20	28-10	17-5	384
LSHE-S-21	29-5	19-11	455
LSHE-S-22	30-1	20-2	472
LSHE-S-23	30-3	17-11	415
LSHE-S-24	31-2	21-2	513
LSHE-S-25	31-4	18-11	454
LSHE-S-26	32-1	19-2	471
LSHE-S-27	32-3	22-2	555
LSHE-S-28	33-0	22-5	574

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHE-S-29	33-2	20-1	512
LSHE-S-30	34-1	23-4	619
LSHE-S-31	34-7	20-8	548
LSHE-S-32	34-11	21-4	574
LSHE-S-33	35-1	24-4	665
LSHE-S-34	35-9	25-9	718
LSHE-S-35	36-0	22-4	619
LSHE-S-36	36-11	25-7	735
LSHE-S-37	37-2	22-2	631
LSHE-S-38	38-0	26-7	785
LSHE-S-39	38-8	27-11	843
LSHE-S-40	40-0	29-7	927

Long Span Low Profile Arch

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSLPA-S-1	19-5	6-9	105
LSLPA-S-2	20-1	7-6	120
LSLPA-S-3	21-6	7-9	133
LSLPA-S-4	22-3	7-11	140
LSLPA-S-5	23-0	8-0	147
LSLPA-S-6	23-9	8-2	154
LSLPA-S-7	24-6	8-3	161
LSLPA-S-8	25-2	8-5	168
LSLPA-S-9	25-11	8-7	176
LSLPA-S-10	27-3	10-0	217
LSLPA-S-11	28-1	9-6	212
LSLPA-S-12	28-9	10-3	234
LSLPA-S-13	28-10	9-8	220
LSLPA-S-14	30-3	9-11	237

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSLPA-S-15	30-11	10-8	261
LSLPA-S-16	31-7	12-1	309
LSLPA-S-17	31-0	10-1	246
LSLPA-S-18	32-4	12-3	319
LSLPA-S-19	31-9	10-2	255
LSLPA-S-20	33-1	12-5	330
LSLPA-S-21	33-2	11-1	289
LSLPA-S-22	34-5	13-3	367
LSLPA-S-23	34-7	11-4	308
LSLPA-S-24	37-11	15-7	477
LSLPA-S-25	35-4	11-5	318
LSLPA-S-26	38-8	15-9	490
LSLPA-S-27	40-1	12-9	398
LSLPA-S-28	40-4	18-2	597

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSLPA-S-29	40-6	11-7	359
LSLPA-S-30	41-4	11-9	369
LSLPA-S-31	42-7	12-7	411
LSLPA-S-32	43-0	13-10	464
LSLPA-S-33	43-2	19-5	689
LSLPA-S-34	44-0	15-4	530
LSLPA-S-35	45-3	16-5	592
LSLPA-S-36	46-1	18-5	685
LSLPA-S-37	47-0	20-1	772
LSLPA-S-38	49-0	18-2	709
LSLPA-S-39	50-7	19-7	786
LSLPA-S-40	50-8	22-6	927
LSLPA-S-41	51-7	24-2	1024

NOTE: Shapes identified as "Long Span" take the designation from AASHTO for certain structural plate structures that require shape monitoring measures during the backfill operation. The designation is not to be confused with Lane's LongSpan Bridge & Culvert division (Pages 4 and 5), which is not limited to these shapes or services.

Long Span High Profile Arch

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHPA-S-1	20-1	9-1	152
LSHPA-S-2	20-8	12-1	214
LSHPA-S-3	21-6	11-8	215
LSHPA-S-4	22-10	14-6	284
LSHPA-S-5	22-3	11-10	224
LSHPA-S-6	22-11	14-0	275
LSHPA-S-7	23-0	11-11	234
LSHPA-S-8	24-4	14-10	309
LSHPA-S-9	23-9	12-1	244
LSHPA-S-10	24-6	13-9	288
LSHPA-S-11	25-9	15-1	334
LSHPA-S-12	25-2	13-1	283

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHPA-S-13	26-6	15-3	347
LSHPA-S-14	25-11	13-3	294
LSHPA-S-15	27-3	15-5	360
LSHPA-S-16	27-5	13-6	317
LSHPA-S-17	29-5	16-5	412
LSHPA-S-18	28-2	14-5	348
LSHPA-S-19	30-1	18-0	466
LSHPA-S-20	30-3	15-5	399
LSHPA-S-21	31-7	18-4	496
LSHPA-S-22	31-0	15-7	412
LSHPA-S-23	31-8	17-9	483
LSHPA-S-24	32-4	19-11	553

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHPA-S-25	31-9	17-2	469
LSHPA-S-26	33-1	20-1	570
LSHPA-S-27	32-6	17-4	484
LSHPA-S-28	33-10	20-3	587
LSHPA-S-29	34-0	17-8	513
LSHPA-S-30	34-7	19-10	590
LSHPA-S-31	34-8	17-10	529
LSHPA-S-32	35-3	21-3	645
LSHPA-S-33	35-4	20-0	608
LSHPA-S-34	36-0	21-5	663
LSHPA-S-35	37-3	23-5	747
LSHPA-S-36	38-0	23-6	767

NOTE: Shapes identified as "Long Span" take the designation from AASHTO for certain structural plate structures that require shape monitoring measures during the backfill operation. The designation is not to be confused with Lane's LongSpan Bridge & Culvert division (Pages 4 and 5), which is not limited to these shapes or services.

Round Structural Plate

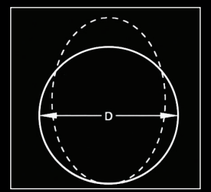
Structure No.	Span (ft-in)	Area (ft²)
R-A-1	5-0	19.6
R-A-2	5-6	23.8
R-A-3	6-0	28.3
R-A-4	6-6	33.2
R-A-5	7-0	38.5
R-A-6	7-6	44.2
R-A-7	8-0	50.3
R-A-8	8-6	56.7
R-A-9	9-0	63.6
R-A-10	9-6	70.9
R-A-11	10-0	78.5

Structure No.	Span (ft-in)	Area (ft²)
R-A-12	10-6	86.6
R-A-13	11-0	95.0
R-A-14	11-6	103.9
R-A-15	12-0	113.1
R-A-16	12-6	122.7
R-A-17	13-0	132.7
R-A-18	13-6	143.1
R-A-19	14-0	153.9
R-A-20	14-6	165.1
R-A-21	15-0	176.7
R-A-22	15-6	188.7

Structure No.	Span (ft-in)	Area (ft²)
R-A-23	16-0	201.1
R-A-24	16-6	213.8
R-A-25	17-0	227.0
R-A-26	17-6	240.5
R-A-27	18-0	254.5
R-A-28	18-6	268.8
R-A-29	19-0	283.5
R-A-30	19-6	298.6
R-A-31	20-0	314.2
R-A-32	20-6	330.1
R-A-33	21-0	346.4

Minimum 5' diameter with size increases in increments of 6"

The structure can be fabricated with a vertical elongation to offset any planned or expected pipe deflections.



Structural Plate Vertical Ellipse

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
VE-A-1	4-8	5-2	18.8
VE-A-2	5-2	5-8	22.9
VE-A-3	5-7	6-3	27.5
VE-A-4	6-1	6-9	32.4
VE-A-5	6-7	7-4	37.8
VE-A-6	7-1	7-10	43.6
VE-A-7	7-7	8-5	49.7
VE-A-8	8-1	8-11	56.3
VE-A-9	8-7	9-6	63.3
VE-A-10	9-1	10-0	70.7
VE-A-11	9-7	10-7	78.5
VE-A-12	10-0	11-1	86.7
VE-A-13	10-6	11-7	95.4
VE-A-14	11-0	12-2	104.4
VE-A-15	11-6	12-8	113.9
VE-A-16	11-10	13-1	123.7
VE-A-17	12-4	13-8	134.0

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
VE-A-18	12-9	14-2	144.7
VE-A-19	13-3	14-8	155.7
VE-A-20	13-9	15-3	167.2
VE-A-21	14-3	15-9	179.1
VE-A-22	14-9	16-3	191.4
VE-A-23	15-2	16-10	204.2
VE-A-24	15-9	17-5	217.3
VE-A-25	16-3	17-11	230.8
VE-A-26	16-8	18-6	244.8
VE-A-27	17-2	19-0	259.1
VE-A-28	17-8	19-7	273.9
VE-A-29	18-1	20-1	289.1
VE-A-30	18-8	20-7	304.7
VE-A-31	19-1	21-2	321.0
VE-A-32	19-7	21-8	337.0
VE-A-33	20-1	22-3	354.0

Structural Plate Pipe-Arch

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
PA-A-1	6-7	5-8	29.6
PA-A-2	6-11	5-9	31.9
PA-A-3	7-3	5-11	34.3
PA-A-4	7-9	6-0	36.8
PA-A-5	8-1	6-1	39.3
PA-A-6	8-5	6-3	41.9
PA-A-7	8-10	6-4	44.5
PA-A-8	9-3	6-5	47.1
PA-A-9	9-7	6-6	49.9
PA-A-10	9-11	6-8	52.7
PA-A-11	10-3	6-9	55.5
PA-A-12	10-9	6-10	58.4
PA-A-13	11-1	7-0	61.4
PA-A-14	11-5	7-1	64.4
PA-A-15	11-9	7-2	67.5
PA-A-16	12-3	7-3	70.5

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
PA-A-17	12-7	7-5	73.7
PA-A-18	12-11	7-6	77.0
PA-A-19	13-1	8-2	83.0
PA-A-20	13-1	8-4	86.8
PA-A-21	13-11	8-5	90.3
PA-A-22	14-0	8-7	94.2
PA-A-23	13-11	9-5	101.5
PA-A-24	14-3	9-7	105.7
PA-A-25	14-8	9-8	109.9
PA-A-26	14-11	9-10	114.2
PA-A-27	15-4	10-0	118.6
PA-A-28	15-7	10-2	123.1
PA-A-29	16-1	10-4	127.6
PA-A-30	16-4	10-6	132.3
PA-A-31	16-9	10-8	136.9
PA-A-32	17-0	10-10	141.8

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
PA-A-33	17-3	11-0	146.7
PA-A-34	17-9	11-2	151.6
PA-A-35	18-0	11-4	156.7
PA-A-36	18-5	11-6	161.7
PA-A-37	18-8	11-8	167.0
PA-A-38	19-2	11-9	172.2
PA-A-39	19-5	11-11	177.6
PA-A-40	19-10	12-1	182.9
PA-A-41	20-1	12-3	188.5
PA-A-42	20-1	12-6	194.4
PA-A-43	20-10	12-7	199.7
PA-A-44	21-6	12-11	211.2
PA-A-45	20-1	13-11	216.6
PA-A-46	20-7	14-3	224.0
PA-A-47	21-5	14-7	241.5
PA-A-48	21-11	14-11	254.7

Structural Plate Arch

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
A-A-1	5-0	1-9	6.5
A-A-2		2-3	8.5
A-A-3		2-7	10.4
A-A-4	6-0	1-10	7.8
A-A-5		2-4	10.2
A-A-6		2-9	12.6
A-A-7		3-2	14.9
A-A-8	7-0	2-4	12.0
A-A-9		2-10	14.8
A-A-10		3-3	17.5
A-A-11		3-8	20.3
A-A-12	8-0	2-11	17.0
A-A-13		3-4	20.2
A-A-14		4-2	26.4
A-A-15	9-0	2-11	19.1
A-A-16		3-10	26.3
A-A-17		4-8	33.4
A-A-18	10-0	3-6	25.3
A-A-19		4-5	33.3
A-A-20		5-2	41.2
A-A-21	11-0	3-6	27.8
A-A-22		4-6	36.8
A-A-23		5-8	49.8
A-A-24	12-0	4-1	35.3
A-A-25		5-0	45.0
A-A-26		6-3	59.3
A-A-27	13-0	4-1	38.1
A-A-28		5-1	48.9
A-A-29		5-11	59.3
A-A-30		6-9	69.5

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
A-A-31	14-0	4-8	46.9
A-A-32		5-7	58.4
A-A-33		6-5	69.5
A-A-34		7-3	80.6
A-A-35	15-0	4-8	50.0
A-A-36		5-8	62.6
A-A-37		6-7	74.7
A-A-38		7-5	86.5
A-A-39		7-9	92.5
A-A-40	16-0	5-3	60.0
A-A-41		6-2	73.3
A-A-42		7-1	86.2
A-A-43		7-11	98.9
A-A-44		8-3	105.2
A-A-45	17-0	5-3	63.5
A-A-46		6-3	77.9
A-A-47		7-2	91.7
A-A-48		8-0	105.2
A-A-49		8-10	118.7
A-A-50	18-0	5-9	74.8
A-A-51		6-9	89.9
A-A-52		7-8	104.5
A-A-53		8-6	118.8
A-A-54		8-11	125.9
A-A-55	19-0	6-4	86.9
A-A-56		7-4	102.7
A-A-57		8-2	118.0
A-A-58		9-0	133.2
A-A-59		9-5	140.7

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
A-A-60	20-0	6-4	91.2
A-A-61		7-4	108.4
A-A-62		8-3	124.4
A-A-63		9-2	140.4
A-A-64		10-0	156.3
A-A-65		10-4	164.2
A-A-66	21-0	6-4	95.4
A-A-67		7-5	113.5
A-A-68		8-4	130.7
A-A-69		9-3	147.6
A-A-70		10-1	164.3
A-A-71		10-10	181.0
A-A-72	22-0	6-11	109.2
A-A-73		7-11	127.9
A-A-74		8-11	146.0
A-A-75		9-9	163.6
A-A-76		10-7	181.1
A-A-77		11-5	198.6
A-A-78	23-0	7-6	123.8
A-A-79		8-0	133.6
A-A-80		8-6	143.2
A-A-81		8-11	152.7
A-A-82		9-5	162.0
A-A-83		9-10	171.3
A-A-84		10-3	180.5
A-A-85		10-8	189.6
A-A-86		11-1	198.8
A-A-87		11-6	207.9
A-A-88		11-11	217.1







Structural Plate Box Culvert



Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
BC-A-1	8-9	2-6	18.4
BC-A-2	9-2	3-3	25.4
BC-A-3	9-7	4-1	32.6
BC-A-4	10-0	4-10	40.2
BC-A-5	10-6	5-7	48.1
BC-A-6	10-11	6-4	56.4
BC-A-7	11-4	7-2	65.0
BC-A-8	10-2	2-8	23.0
BC-A-9	10-7	3-5	31.1
BC-A-10	10-11	4-3	39.5
BC-A-11	11-4	5-0	48.2
BC-A-12	11-8	5-9	57.2
BC-A-13	12-1	6-7	66.4
BC-A-14	12-5	7-4	76.0
BC-A-15	11-7	2-10	28.1
BC-A-16	11-11	3-7	37.4
BC-A-17	12-3	4-5	46.9
BC-A-18	12-7	5-2	56.6
BC-A-19	12-11	6-0	66.6
BC-A-20	13-3	6-9	76.9
BC-A-21	13-0	3-0	33.8
BC-A-22	13-4	3-10	44.2
BC-A-23	13-7	4-7	54.8
BC-A-24	13-10	5-5	65.6
BC-A-25	14-1	6-2	76.6
BC-A-26	14-5	3-3	40.0
BC-A-27	14-8	4-1	51.5
BC-A-28	14-10	4-10	63.2
BC-A-29	15-1	5-8	75.1
BC-A-30	15-4	6-5	87.2
BC-A-31	15-6	7-3	99.4
BC-A-32	15-9	8-0	111.8
BC-A-33	15-10	3-6	46.8
BC-A-34	16-0	4-3	59.5
BC-A-35	16-2	5-1	72.3
BC-A-36	16-4	5-11	85.2
BC-A-37	16-6	6-8	98.3
BC-A-38	16-8	7-6	111.5
BC-A-39	16-10	8-3	124.8
BC-A-40	17-9	3-10	54.4
BC-A-41	18-2	4-7	68.3
BC-A-42	18-7	5-4	82.5
BC-A-43	19-0	6-1	97.1
BC-A-44	19-5	6-11	111.9
BC-A-45	19-10	7-8	127.1
BC-A-46	20-3	8-5	142.6
BC-A-47	19-1	4-2	63.3
BC-A-48	19-5	4-11	78.3

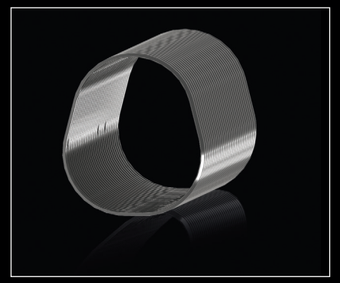
Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
BC-A-49	19-9	5-8	93.6
BC-A-50	20-1	6-6	109.2
BC-A-51	20-6	7-3	125.0
BC-A-52	20-10	8-1	141.2
BC-A-53	21-2	8-10	157.6
BC-A-54	20-4	4-6	73.1
BC-A-55	20-7	5-3	89.2
BC-A-56	20-11	6-1	105.5
BC-A-57	21-3	6-10	122.1
BC-A-58	21-6	7-8	139.0
BC-A-59	21-10	8-5	156.0
BC-A-60	22-1	9-3	173.3
BC-A-61	21-7	4-11	83.8
BC-A-62	21-10	5-8	101.0
BC-A-63	22-1	6-6	118.4
BC-A-64	22-3	7-3	135.9
BC-A-65	22-6	8-1	153.7
BC-A-66	22-9	8-10	171.6
BC-A-67	23-0	9-8	189.8
BC-A-68	22-9	5-4	95.5
BC-A-69	23-0	6-1	113.7
BC-A-70	23-2	6-11	132.1
BC-A-71	23-4	7-8	150.6
BC-A-72	23-6	8-6	169.3
BC-A-73	23-8	9-3	188.1
BC-A-74	23-10	10-1	207.0
BC-A-75	24-0	5-9	108.2
BC-A-76	24-1	6-6	127.5
BC-A-77	24-3	7-4	146.8
BC-A-78	24-4	8-2	166.2
BC-A-79	24-5	8-11	185.7
BC-A-80	24-7	9-9	205.3
BC-A-81	24-8	10-6	225.0
BC-A-82	25-2	6-2	122.0
BC-A-83	25-2	7-0	142.2
BC-A-84	25-3	7-9	162.4
BC-A-85	25-4	8-7	182.6
BC-A-86	25-4	9-5	202.9
BC-A-87	25-5	10-2	223.3
BC-A-88	26-7	5-5	111.6
BC-A-89	27-0	6-3	132.4
BC-A-90	27-5	7-0	153.4
BC-A-91	27-8	7-9	174.8
BC-A-92	28-3	8-7	196.5
BC-A-93	28-8	9-4	218.6
BC-A-94	29-2	10-1	241.0
BC-A-95	27-10	5-10	125.4
BC-A-96	28-3	6-8	147.3

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
BC-A-97	28-7	7-5	169.4
BC-A-98	29-0	8-3	191.8
BC-A-99	29-4	9-0	214.6
BC-A-100	29-8	9-9	237.6
BC-A-101	30-0	10-7	260.9
BC-A-102	29-1	6-4	140.2
BC-A-103	29-4	7-1	163.2
BC-A-104	29-9	7-11	186.4
BC-A-105	30-0	8-8	209.8
BC-A-106	30-4	9-5	233.6
BC-A-107	30-7	10-3	257.5
BC-A-108	31-0	11-0	281.8
BC-A-109	30-3	6-9	156.1
BC-A-110	30-6	7-7	160.1
BC-A-111	30-10	8-4	204.4
BC-A-112	31-1	9-2	228.8
BC-A-113	31-4	9-11	253.5
BC-A-114	31-8	10-9	278.4
BC-A-115	31-11	11-6	303.5
BC-A-116	31-5	7-3	173.1
BC-A-117	31-8	8-0	198.2
BC-A-118	31-10	8-10	223.4
BC-A-119	32-1	9-8	248.8
BC-A-120	32-3	10-5	274.4
BC-A-121	32-7	11-3	300.1
BC-A-122	32-8	12-0	326.1
BC-A-123	32-7	7-9	191.3
BC-A-124	32-9	8-6	217.3
BC-A-125	32-11	9-4	243.4
BC-A-126	33-1	10-2	269.7
BC-A-127	33-3	10-11	296.4
BC-A-128	33-8	11-9	322.8
BC-A-129	33-8	12-6	349.5
BC-A-130	33-8	8-3	210.5
BC-A-131	33-9	9-1	237.5
BC-A-132	33-11	9-10	264.5
BC-A-133	34-1	10-8	291.7
BC-A-134	34-2	11-5	319.0
BC-A-135	34-4	12-3	346.4
BC-A-136	34-5	13-1	373.8
BC-A-137	34-9	8-9	230.9
BC-A-138	34-10	9-7	258.1
BC-A-139	34-11	10-4	286.7
BC-A-140	35-0	11-2	314.6
BC-A-141	35-1	12-0	342.7
BC-A-142	35-2	12-9	370.8
BC-A-143	35-3	13-7	399.0

Structural Plate Underpass (Pedestrian/Animal)

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
U-A-1	6-1	5-9	28
U-A-2	6-3	6-1	30
U-A-3	6-3	6-5	32
U-A-4	6-2	6-11	34

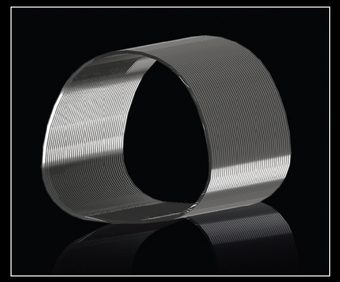
Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
U-A-5	6-4	7-3	37
U-A-6	6-3	7-9	39
U-A-7	6-5	8-1	42



Structural Plate Underpass (Vehicular)

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
U-A-8	12-1	11-0	106
U-A-9	12-10	11-2	114
U-A-10	13- 0	12-0	124
U-A-11	13-8	12-4	133
U-A-12	14-0	1211	143
U-A-13	14-6	13-5	155
U-A-14	14-8	14-1	165
U-A-15	15-5	14-5	177
U-A-16	15-6	15-2	190

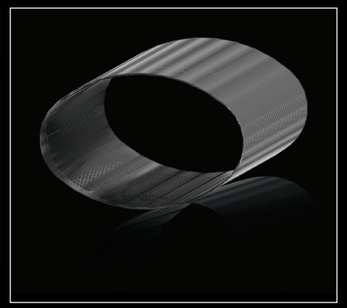
Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
U-A-17	16-2	15-6	200
U-A-18	16-6	16-0	208
U-A-19	16-8	16-4	215
U-A-20	17-3	17-1	240
U-A-21	18-5	16-11	253
U-A-22	19-0	17-4	267
U-A-23	19-7	17-7	281
U-A-24	20-5	17-9	296



Structural Plate Horizontal Ellipse

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
HE-A-1	9-2	6-8	47.9
HE-A-2	9-11	7-0	53.7
HE-A-3	10-7	7-3	59.8
HE-A-4	10-11	7-11	68.0
HE-A-5	11-4	7-6	66.2
HE-A-6	11-8	8-3	74.8
HE-A-7	12-0	8-11	83.8
HE-A-8	12-1	7-9	72.8
HE-A-9	12-5	8-6	82.0
HE-A-10	12-9	9-2	91.5

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
HE-A-11	12-10	8-1	79.7
HE-A-12	13-2	8-9	89.4
HE-A-13	13-6	9-6	99.4
HE-A-14	13-7	8-4	86.8
HE-A-15	13-11	9-0	97.1
HE-A-16	14-3	9-9	107.6
HE-A-17	14-7	10-5	118.5
HE-A-18	14-11	11-2	129.7

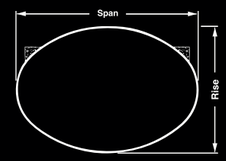


Long Span Ellipse

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHE-A-1	19-4	12-9	191
LSHE-A-2	20-1	13-0	202
LSHE-A-3	20-2	11-11	183
LSHE-A-4	20-10	12-2	194
LSHE-A-5	21-0	15-2	248
LSHE-A-6	21-11	13-1	221
LSHE-A-7	22-6	15-8	275
LSHE-A-8	23-0	14-1	249
LSHE-A-9	23-3	15-11	288
LSHE-A-10	24-4	16-11	320
LSHE-A-11	24-6	14-8	275
LSHE-A-12	25-3	14-11	288
LSHE-A-13	25-6	16-9	330
LSHE-A-14	26-2	18-2	369

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHE-A-15	26-4	15-10	320
LSHE-A-16	27-0	16-2	334
LSHE-A-17	27-2	19-1	405
LSHE-A-18	27-11	19-5	422
LSHE-A-19	28-1	17-1	369
LSHE-A-20	28-10	17-5	385
LSHE-A-21	29-5	19-11	455
LSHE-A-22	30-2	20-2	473
LSHE-A-23	30-4	17-11	416
LSHE-A-24	31-3	21-2	513
LSHE-A-25	31-5	18-11	455
LSHE-A-26	32-1	19-2	472
LSHE-A-27	32-3	22-2	556
LSHE-A-28	33-0	22-5	575

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHE-A-29	32-5	19-10	495
LSHE-A-30	34-1	23-5	620
LSHE-A-31	34-8	20-8	549
LSHE-A-32	35-0	21-4	575
LSHE-A-33	35-2	24-4	667
LSHE-A-34	36-1	22-4	620
LSHE-A-35	37-3	22-2	632

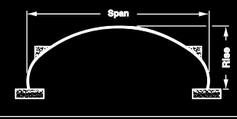


Long Span Low Profile Arch

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSLPA-A-1	19-5	6-9	105
LSLPA-A-2	20-1	7-6	120
LSLPA-A-3	21-7	7-9	133
LSLPA-A-4	22-3	7-11	140
LSLPA-A-5	23-0	8-0	147
LSLPA-A-6	23-9	8-2	154
LSLPA-A-7	24-6	8-3	161
LSLPA-A-8	25-3	8-5	168
LSLPA-A-9	26-0	8-7	176
LSLPA-A-10	27-3	10-0	217

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSLPA-A-11	28-1	9-6	212
LSLPA-A-12	28-9	10-3	234
LSLPA-A-13	28-10	9-8	220
LSLPA-A-14	30-4	9-11	237
LSLPA-A-15	31-0	10-8	261
LSLPA-A-16	31-8	12-2	309
LSLPA-A-17	31-1	10-1	246
LSLPA-A-18	32-4	12-3	320
LSLPA-A-19	31-10	10-2	255
LSLPA-A-20	33-1	12-5	330

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSLPA-A-21	33-2	11-1	289
LSLPA-A-22	34-6	13-3	368
LSLPA-A-23	34-8	11-4	308
LSLPA-A-24	37-11	15-8	478
LSLPA-A-25	35-5	11-5	318
LSLPA-A-26	38-8	15-9	491

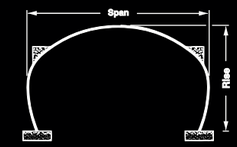


Long Span High Profile Arch

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHPA-A-1	20-1	9-1	152
LSHPA-A-2	20-9	12-1	214
LSHPA-A-3	21-6	11-8	215
LSHPA-A-4	22-10	14-6	285
LSHPA-A-5	22-3	11-10	225
LSHPA-A-6	22-11	14-0	275
LSHPA-A-7	23-0	11-11	235
LSHPA-A-8	24-4	14-10	309
LSHPA-A-9	23-9	12-1	245
LSHPA-A-10	24-6	13-9	289
LSHPA-A-11	25-10	15-1	335
LSHPA-A-12	25-3	13-1	283

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHPA-A-13	26-7	15-3	347
LSHPA-A-14	26-0	13-3	294
LSHPA-A-15	27-3	15-5	360
LSHPA-A-16	27-5	13-7	317
LSHPA-A-17	29-5	16-5	412
LSHPA-A-18	28-2	14-5	348
LSHPA-A-19	30-2	18-0	466
LSHPA-A-20	30-4	15-5	400
LSHPA-A-21	31-8	18-4	497
LSHPA-A-22	31-1	15-7	413
LSHPA-A-23	31-9	17-9	484
LSHPA-A-24	32-4	19-11	555

Structure No.	Span (ft-in)	Rise (ft-in)	Area (ft²)
LSHPA-A-25	31-10	17-3	470
LSHPA-A-26	33-1	20-1	572
LSHPA-A-27	32-6	17-4	485
LSHPA-A-28	33-10	20-3	589
LSHPA-A-29	34-0	17-8	514
LSHPA-A-30	34-8	19-10	591
LSHPA-A-31	34-9	17-9	529
LSHPA-A-32	35-5	20-0	608



NOTE: Shapes identified as "Long Span" take the designation from AASHTO for certain structural plate structures that require shape monitoring measures during the backfill operation. The designation is not to be confused with Lane's LongSpan Bridge & Culvert division (Pages 4 and 5), which is not limited to these shapes or services.