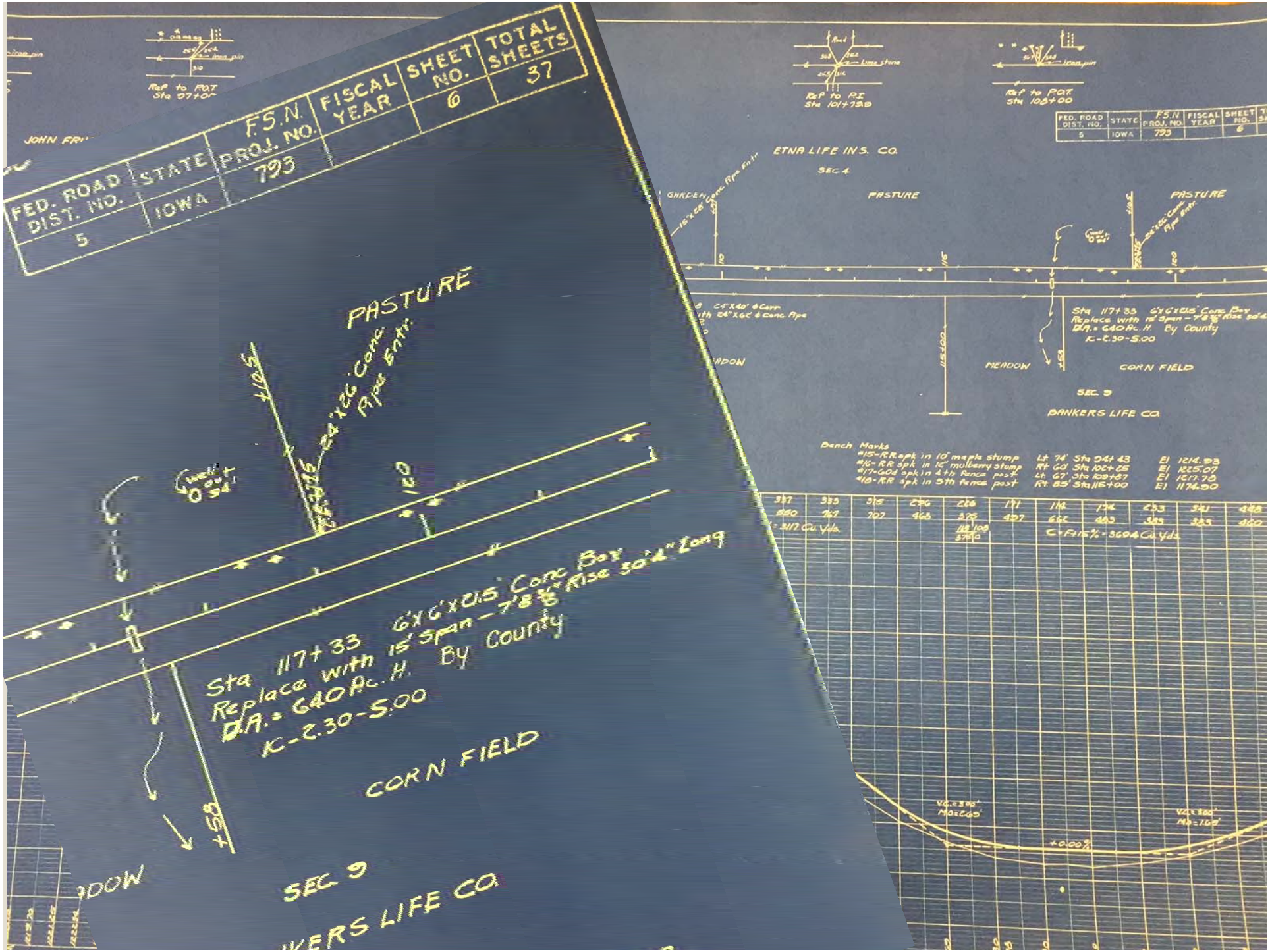
2016 Hall of Fame Project

Union County, Iowa

METAL CULVERTS INC.


FED. ROAD DIST. NO.
STATE
F.S.N. PROJ. NO.
FISCAL YEAR
SHEET NO.
TOTAL SHEETS
5
IOWA
793
6
37
Ref to POT Sta 97+00
Ref to PI Sta 101+79.9
Ref to POT Sta 108+00
ETNA LIFE INS. CO.
SEC 4
PASTURE
24'x22' Conc Pipe Entr.
Well
Sta 117+33
Replace with 15' Span - 7'8 3/8" Rise 30'4" Long
D.A. = 640 Ac. H.
By County
K-2.30-5.00
CORN FIELD
MEADOW
SEC 9
BANKERS LIFE CO.
Bench Marks
#15 - RR spk in 10" maple stump
#16 - RR spk in 12" mulberry stump
#17 - RR spk in 4th fence post
#18 - RR spk in 5th fence post
Lt 74' Sta 94+43
Rt 60' Sta 102+25
Lt 67' Sta 109+87
Rt 85' Sta 116+00
El 1214.93
El 1225.07
El 1211.76
El 1174.90
C = Fills % = 3694 Cu Yds
+0.00%

OK

110 TH ST

BRIDGE RECORD

Bridge Number 1 C-2.30-5.00 1755 Inspected ~~1941~~ ~~4/28/32~~ 1770 1780 Condition Good

Location E. Section 9 Township Spaulding Road System Trunk (H-20)

Drainage area 640 acres Topography Rolling Name of Stream

MAIN SPAN

Type ~~Corrugated Iron~~ Multi-Plate Arch Length ~~20'~~ 30'4" Width ~~6 Panels~~ 15'x7'8-3/8"

Substructure Concrete Footing and headwalls

Superstructure

APPROACHES

Type Length Width

Substructure

Superstructure

Remarks

CONSTRUCTION DATA

Project Cost Sheet No.

Built by Wilkie Date begun 10/14/~~41~~ Date finished 10/30/41

Contract Price Extras Total Cost ~~$~~ 674.14

Day labor Cost 66.00 Material 566.15 Labor

Remarks: Equip. Costs 41.98

Pembina Structural Plate Pipe

2016 project of the Year – Department of Transportation

Pembina Structural Plate Pipe

- **The North Dakota DOT is again extending this SPP.**
- **The initial installation was completed in 1968.**
- **As traffic patterns increase into Canada the expansion of the border crossing station was necessary.**
- **In 1996 a SPP extension was completed to accommodate an additional traffic into the United States from Canada**

2016 project of the Year - DOT

Pembina Structural Plate Pipe

- **In 2013 a SPP extension was added to accommodate an additional traffic lane into Canada from the United States.**
- **In 2015 as further expansion planning is underway to yet lengthen this crossing to provide a safer crossing at the border.**

2016 project of the Year - DOT

Pembina Structural Plate Pipe

- **A 16’-7” span x 10’-1” rise**
- **12 gauge**
- **6” x 2” Structural Plate**
- **Controlled Density fill was placed under the haunches for support and backfilled.**

- **2016-2017 expansion is in the works.**

2016 project of the Year - DOT

CONTECH ENGINEERED SOLUTIONS

NCSPA 2016 Project of the Year

Detention Category

CONTECH ENGINEERED SOLUTIONS

U.S. Bank Stadium
Stormwater Retention/Detention

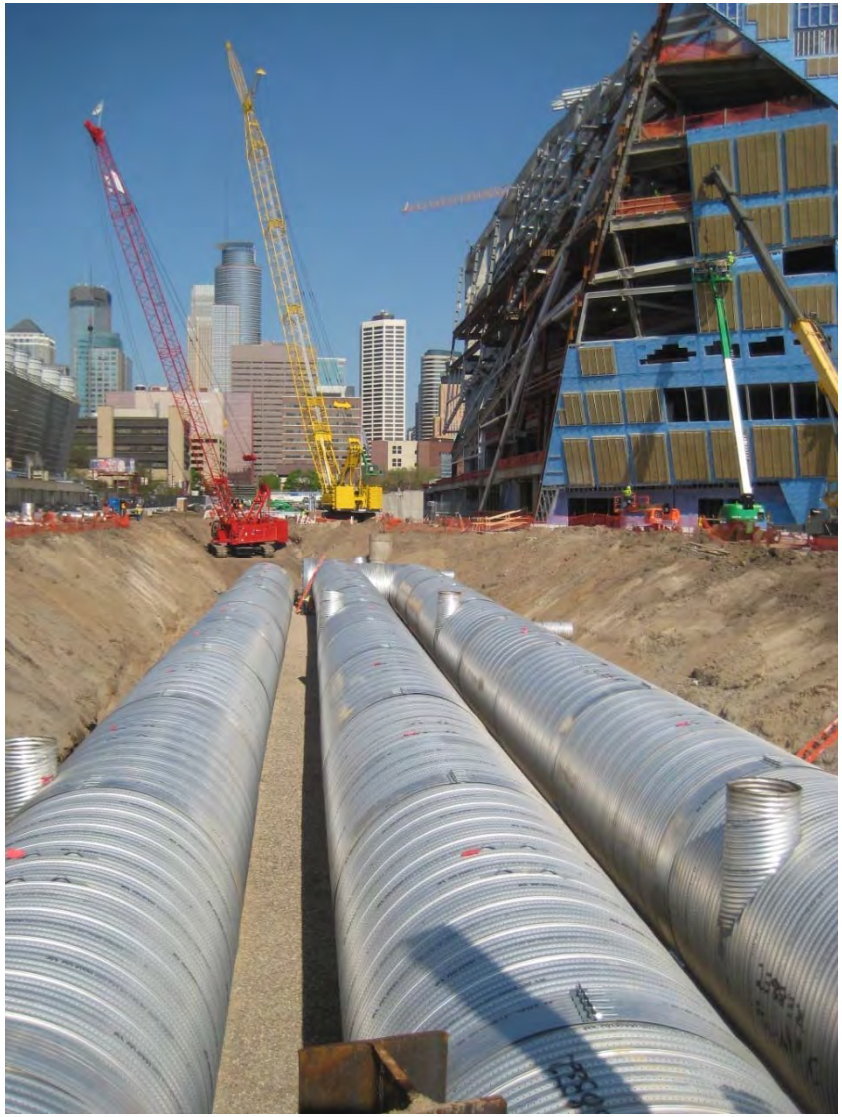
Minneapolis, Minnesota

Challenge:

- Limited footprint and tight site constraints.

Solution:

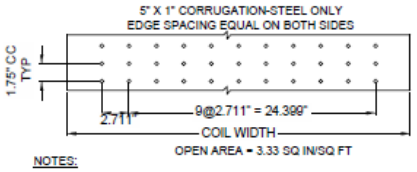
- An underground retention system that would provide the required storage.



U.S. Bank Stadium
Stormwater Retention/Detention

Minneapolis, Minnesota

Site Configuration & Perforation Detail



NOTES:

1. PERFORATIONS MEET AASHTO AND ASTM SPECIFICATIONS.
2. PERFORATION OPEN AREA PER SQUARE FOOT OF PIPE IS BASED ON THE NOMINAL DIAMETER AND LENGTH OF PIPE.
3. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
4. ALL HOLES 3/8"Ø.

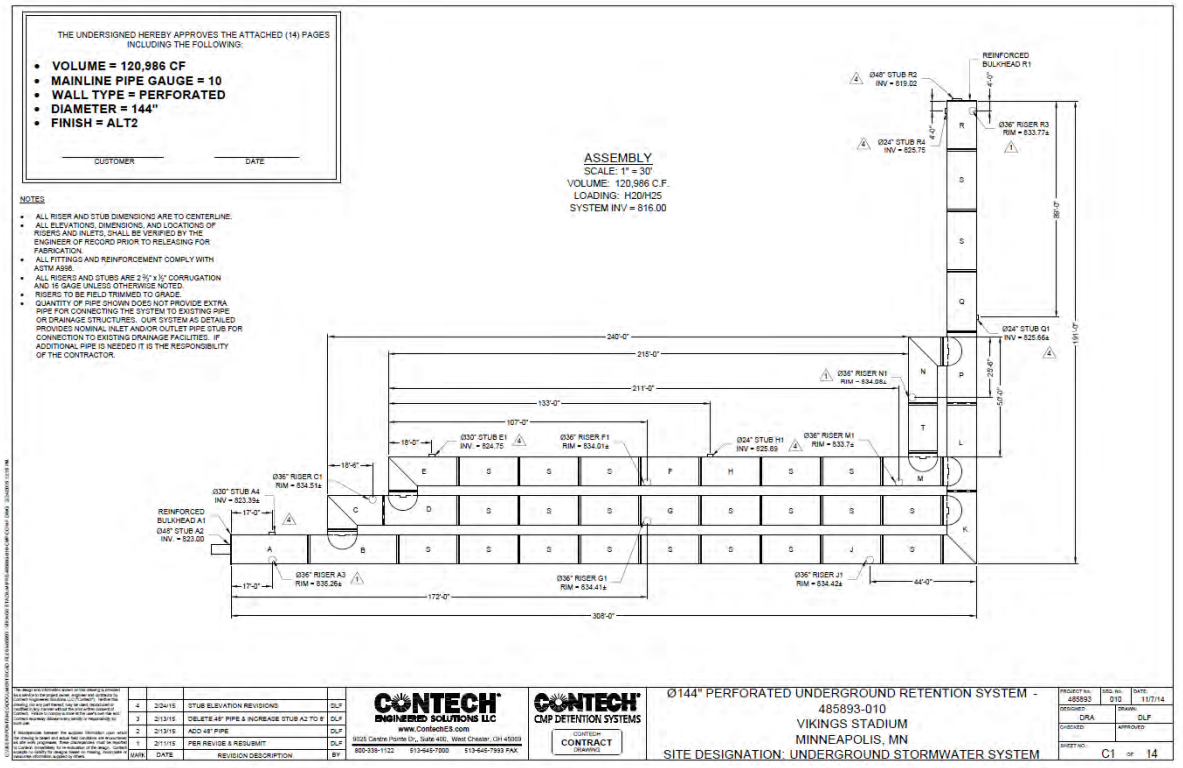
EXFILTRATION AREA
STANDARD PERFORATION PATTERNS
AASTHO M-36 AND ASTM A760, B745

APPROXIMATE AREA PER LINEAR FOOT OF PIPE				
PIPE Ø (INCHES)	CORRUGATION PATTERN			
	2-2/3"X1/2" (SQ. INCHES)	3"X1" (SQ. INCHES)	5"x1" (SQ. INCHES)	ULTRA-FLO (SQ. INCHES)
144		156.8	125.5	

NOTES:

1. ALL HOLES ARE 3/8" DIAMETER,AND ARE NOTED AS 'CLASS 2 PERFORATIONS' PER AASHTO AND ASTM.
2. GAGE AND COATING LIMITATIONS APPLY. 5" X 1" IS NOT AVAILABLE IN ALUMINUM.
3. ALL DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.

PERFORATION DETAIL
SCALE: N.T.S.



CONTECH ENGINEERED SOLUTIONS

U.S. Bank Stadium
Stormwater Retention/Detention

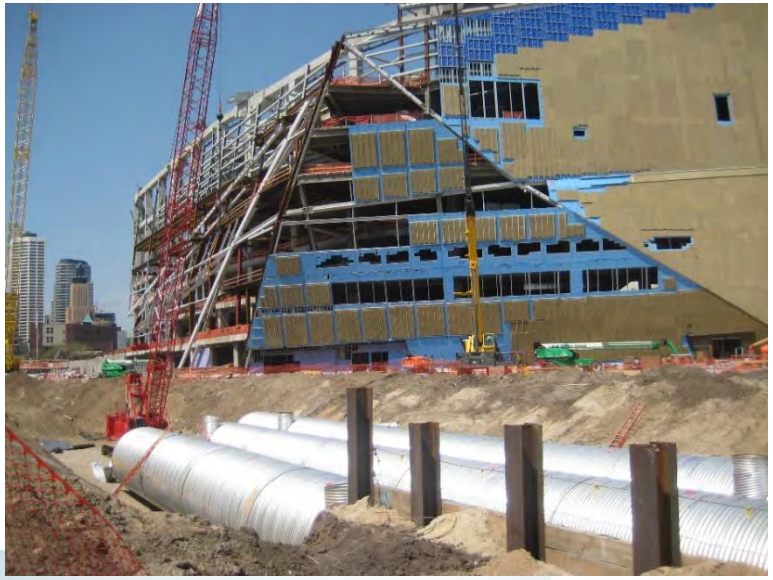
Minneapolis, Minnesota

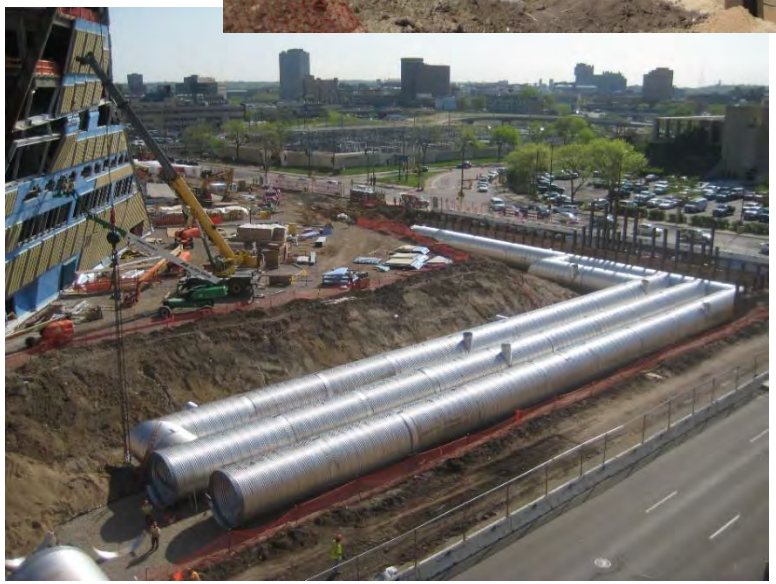
Details:

- HEL-COR® ALT2 CSP Retention System
- 1,000 LF of 144-in. dia. perforated

Completed Date:

May 2015






NCSPA 2016 Annual Meeting
Projects of the Year
LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

- 11-9 x 9-11 Arch
- 307-ft Curvilinear Alignment
- 10 Elbows
- 745-ft Radius

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

North Side

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

South Side

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

- Blast Constructed Around 1880
- Former Rail Tunnel
- Became a Bat Hibernation Locale

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

- Tunnel Closed February 2013 Due to Deteriorating Conditions (Falling Rock)

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

- Concrete Encased to 1-ft Above Arch
- 5 to 7-ft of Space Left for a Bat Cave
- Small Depressions Left for Water Pooling

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

North Side

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

South Side

LANE

NCSPA

STEEL: PROVEN 100-YEARS STRONG

Project of the Year

~Rehabilitation
~Structural Plate

Poe Paddy Tunnel Reline Along the Mid State Trail
Bald Eagle State Forest, PA

- And yes, the bats returned
- Photo - Big Brown Bats
- Tunnel Survey by PA Game Commission January 2016

LANE

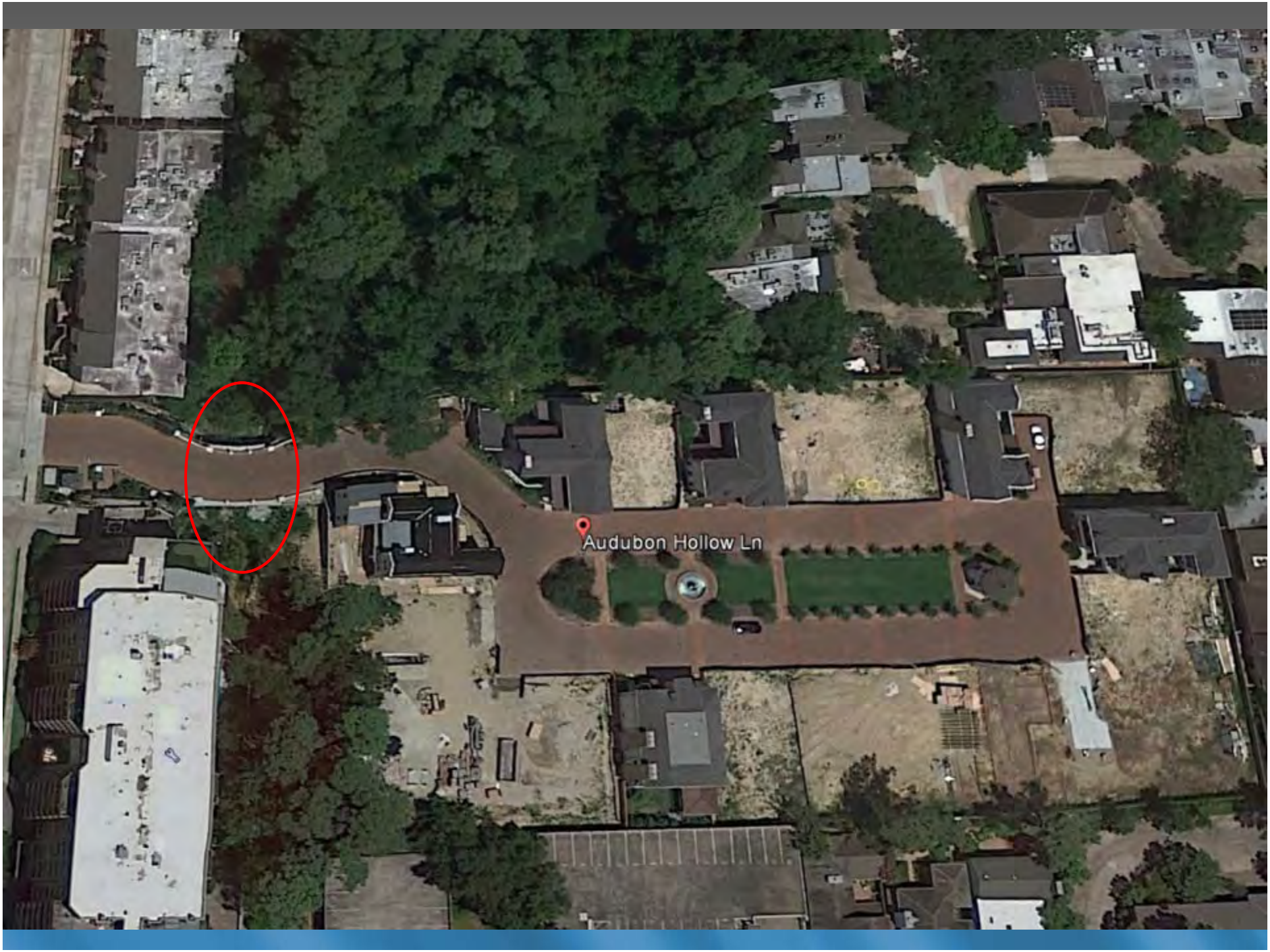
NCSPA Project of the Year Nominees

- **Hall of Fame:**
  - **NC State Veterans Home – Black Mountain, NC**
- **Project of the Year:**
  - **Audubon Hollow – Houston, TX**
  - **CVA Randolph – Randolph, NE**

Audubon Hollow – Houston, TX

- Tight site in urban area, against property line
- 32.25’ span deep corrugated buried bridge with 3’ cover & poor bearing conditions
- Staged construction with temporary & permanent MSE wire walls – needed to maintain site access
- Complex headwall configurations
- Architectural aesthetics important
- **Recycled concrete backfill + 90% recycled content for structure and MSE walls = almost 100% recycled content in completed project!**


Audubon Hollow Ln
25 Briar Hollow Ln


Audubon Hollow Ln


2896
1993
9474
Sun Coast
800-677-FUEL (3835