Bridge Inspection Report

SR 29

over

FLYNT CREEK

STONE County

- INSPECTION DATE
  10/27/2022
- STRUCTURE NUMBER
  310002906600120
- BRIDGE ID
  14535

Suffiency Rating:
66.2

Health Index:
0.00

Status:
OK

Inspected By: Team Leader Tommy Keyes
Kevin Henry, Tommy Keyes,

Inspection Type(s): Routine

Inspection Performed By: State

TABLE OF CONTENTS

County:	STONE	**Structure Number:**	310002906600120	**Facility Carried:**	SR 29
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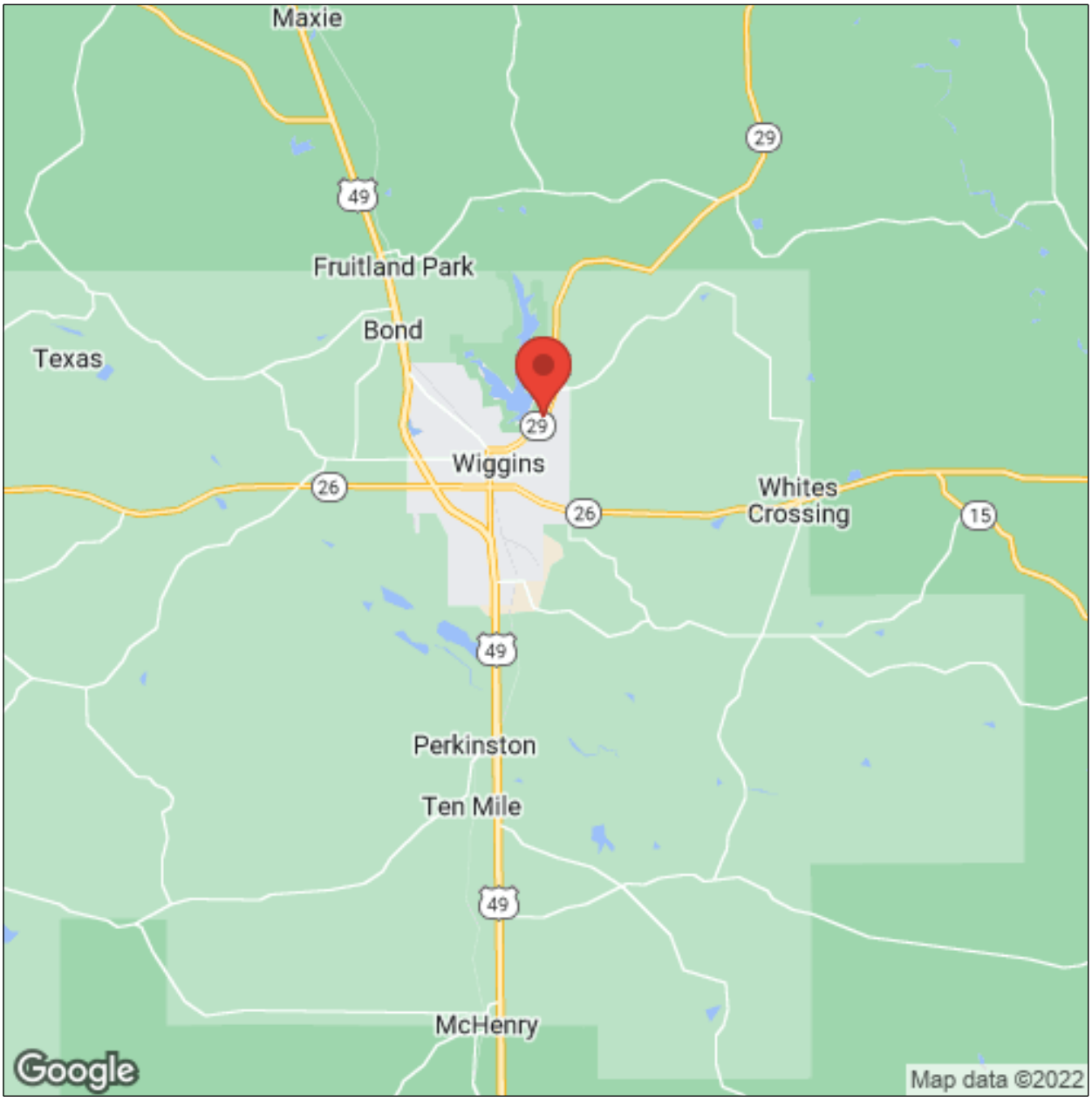
Location Map



Latitude: 30.870323

Longitude: -89.121189

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Executive Summary

After routine inspection, the structure's condition ranges from good to fair.
Approach: The approach to the structure is in fair condition. The roadway has settled at both ends of the structure. Repairs has been made since last inspection. Minor settling at Northwest approach. The Northeast and Southeast bridge end markers are leaning downhill away from the roadway. Markers has been replaced since last inspection. Weight limit signs has been removed sine last inspection.
Channel Beams: The channel beams are in overall good condition. The top flange of the channel beams has an asphalt overlay and couldn't be inspected. Minor flexure cracks in the webs of the channel beams. Minor spall in the channel beam located above pile 6 of bent 1. Small spalls with exposed rebar in the channel beams located above bent 2. Spall with some exposed rebar around the connection bolts of the beams located above bent 2.
Substructure: The substructure is in overall fair condition. The bulkheads at both abutments have moderate to severe decay issues. The timber wingwalls have settled and have minor to moderate decay issues. The decay has allowed fill material to spill through causing roadway settlement. The Southwest wingwall has been replaced. Spall in pile 5 of bent 1. The piles located in bent 2 have minor to moderate waterline abrasion issues.
Channel: The channel has an NBI rating of a 4, which places it in the condition of poor. The upstream and downstream channel banks have slumping issues. The North channel bank at the site has minor erosion and slumping issues. The South abutment is encroached into the channel, and during high water events the North abutment would be exposed to the channel. Grassing in the channel downstream from the structure is restricting channel flow.
Recommendations:

- Spalls in the channel beams need to be patched.(Not complete)
    - Spall in pile 5 of bent 1 needs to be patched.(Not complete)

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National Bridge Inventory

IDENTIFICATION

(1) STATE CODE 284 - Mississippi
(8) STRUCTURE NUMBER 310002906600120
(5) INV. ROUTE (ON/UNDER) 1 3 1 00029 0
(2) HIGHWAY AGENCY 06 (3) COUNTY CODE 131
(4) PLACE CODE 80160
(6) FEATURES INTERSECTED FLYNT CREEK
(7) FACILITY CARRIED SR 29
(9) LOCATION 1.3 MI E SR 149
(11) MILEPOINT 1.281 (12) BASE HIGHWAY NETWORK 0
(13A) LRS INVENTORY ROUTE 000000029P (13B) SUBROUTE NUMBER 01
(16) LATITUDE 30.870323 (17) LONGITUDE -89.121189
(98A) BORDER BRIDGE CODE
PERCENT RESPONSIBILITY (99) BORDER BRIDGE STRUCT

STRUCTURE TYPE AND MATERIAL

(43) STRUCTURE TYPE, MAIN
A) KIND OF MATERIAL/DESIGN: 1 - Concrete
B) TYPE OF DESIGN/CONSTR: 22 - Channel Beam
(44) STRUCTURE TYPE, APPROACH SPANS
A) KIND OF MATERIAL/DESIGN:
B) TYPE OF DESIGN/CONSTR:
(45) NUMBER OF SPANS IN MAIN 2 (46) NUMBER OF APPROACH 0
(107) DECK STRUCTURE TYPE 2 (108A) WEARING SURFACE 6
(108B) DECK MEMBRANE 0 (108C) DECK PROTECTION 0

AGE OF SERVICE

(27) YEAR BUILT 1973 (106) YEAR RECONSTRUCTED
(42) TYPE OF SERVICE ON 1 UNDER 5
(28) LANES ON 02 UNDER 00
(29) AVERAGE DAILY TRAFFIC 3000 (19) BYPASS DETOUR LENGTH 54
(30) YEAR OF AVERAGE DAILY TRAFFIC 2020
(109) AVERAGE DAILY TRUCK TRAFFIC 9

GEOMETRIC DATA

(48) LENGTH OF MAX SPAN (ft.) 19 (49) STRUCTURE LENGTH (ft.) 40
(50) CURB/SIDEWALK WIDTHS (ft.) LEFT 0 RIGHT 0
(51) BRDG RDWY WIDTH CURB-TO-CURB (ft.) 41
(52) DECK WIDTH, OUT-TO-OUT (ft.) 42.3
(32) APPROACH ROADWAY WIDTH (ft.) 47.9
(33) BRIDGE MEDIAN 0 (34) SKEW (DEG.) 0
(35) STRUCTURE FLARED 0 (10) INV RTE, MIN VERT CLEAR (ft.) 99.99
(47) TOTAL HORIZONTAL CLEARANCE (ft.) 40.7
(53) VERTICAL CLEARANCE OVER BRIDGE ROADWAY (ft.) 99.99
(54) VERTICAL UNDER CLEARANCE (ft.) N 0
(55) LATERAL UNDER CLEARANCE RIGHT (ft.) N 0
(56) MIN LATERAL UNDER CLEARANCE (ft.) 0

PROPOSED IMPROVEMENTS

(75A) TYPE OF WORK PROPOSED 31 (75B) WORK DONE BY 1
(76) LENGTH OF STRUCTURE IMPROVEMENT (ft.) 40
(94) BRIDGE IMPROVEMENT COST ($) 46000
(95) ROADWAY IMPROVEMENT COST ($) 200000
(96) TOTAL PROJECT COST 391000
(97) YEAR OF IMPROVEMENT COST ESTIMATE 2009
(114) FUTURE ADT 3000 (115) YEAR OF FUTURE ADT 2040

INSPECTIONS

(90) INSPECTION DATE 10/27/2022
(91) DESIGNATED INSPECTION FREQUENCY 24
(92) CRITICAL FEATURE INSPECTION (93) CFI DATE
A. FRACTURE CRITICAL DETAIL N
B. UNDERWATER INSPECTION N
C. OTHER SPECIAL N

CONDITION

(58) DECK 7
(59) SUPERSTRUCTURE 7 (60) SUBSTRUCTURE 5
(61) CHANNEL & CHANNEL PROTECTION 4 (62) CULVERT N

LOAD RATING AND POSTING

(31) DESIGN LOAD 2
(63) METHOD USED TO DETERMINE OPERATING RATING 1
(64) OPERATING RATING 57.6
(65) METHOD USED TO DETERMINE INVENTORY RATING 1
(66) INVENTORY RATING 34.5
(70) BRIDGE POSTING 5
(41) STRUCTURE OPEN/POSTED/CLOSED A

APPRAISAL

(67) STRUCTURAL EVALUATION 5
(68) DECK GEOMETRY 6
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATERWAY ADEQUACY 8
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURE
36A) BRIDGE RAILINGS: 0
36B) TRANSITIONS: 0
36C) APPROACH GUARDRAIL: 0
36D) APPROACH GUARDRAIL ENDS: 1
(113) SCOUR CRITICAL BRIDGES 5
SUFFICIENCY RATING 66.2 STATUS 0

CLASSIFICATION

(112) NBIS BRIDGE LENGTH Y
(104) HIGHWAY SYSTEM OF THE INVENTORY ROUTE 0
(26) FUNCTIONAL CLASSIFICATION OF INVENTORY ROUTE 07
(100) STRAHNET HIGHWAY DESIGNATION 0
(101) PARALLEL STRUCTURE DESIGNATION N
(102) DIRECTION OF TRAFFIC 2
(103) TEMP STRUCTURE
(105) FEDERAL LANDS HIGHWAYS 0
(110) DESIGNATED NATIONAL NETWORK 0
(20) TOLL 3
(21) MAINTENANCE RESPONSIBILITY 01
(22) OWNER 01
(37) HISTORICAL 5

NAVIGATION DATA

(38) NAVIGATION CONTROL 0
(111) PIER OR ABUTMENT PROTECTION
(39) NAV VERT CLEARANCE (ft.) 0
(116) MIN NAVIGATION VERT CLEARANCE, VERT LIFT BRIDGE (ft.)
(40) NAV HORIZONTAL CLEARANCE (ft.) 0

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Element Inspection

	Environment	Total Quantity	Units	Condition State 1	Condition State 2	Condition State 3	Condition State 4
16 - Reinforced Concrete Top Flange	Ben.	1558	sq. ft.	1558	0	0	0
510 - Wearing Surfaces		1558	sq. ft.	1558	0	0	0
110 - Reinforced Concrete Open Girder/Beam	Ben.	456	ft.	427	25	4	0
1080 - Delamination/Spall/Patched Area		7		0	3	4	0
1090 - Exposed Rebar		22		0	22	0	0
216 - Timber Abutment	Ben.	104	ft.	0	54	25	25
1140 - Decay/Section Loss		104		0	54	25	25
226 - Prestressed Concrete Pile	Ben.	21	each	13	5	3	0
1080 - Delamination/Spall/Patched Area		1		0	1	0	0
1190 - Abrasion/Wear (PSC/RC)		7		0	4	3	0
234 - Reinforced Concrete Pier Cap	Ben.	129	ft.	129	0	0	0
304 - Open Expansion Joint	Ben.	41	ft.	41	0	0	0
330 - Metal Bridge Railing	Ben.	76	ft.	76	0	0	0
515 - Steel Protective Coating		228	sq. ft.	228	0	0	0
331 - Reinforced Concrete Bridge Railing	Ben.	76	ft.	76	0	0	0

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ADMINISTRATION

Structure Assessment

Structural/Functional Classification: OK

Health Index: 0.00

Suffiency Rating: 66.2

Replacement Index: 62.5

Proposed Improvements

75A Type of Work Proposed: 31 - Replacement -

94 Bridge Improvement Cost: 46000 $

75B Work Done By: 1 - Work to be done by contract

95 Roadway Improvement Cost: 200000 $

76 Length Of Structure Improvement: 40 Ft.

96 Total Project Cost: 391000

Project Notes: 518030.46576025465

97 Year Of Improvement Cost Estimate: 2009

Original Construction

Project Number: UNKNOWN

Plans Available: No

Station: UNKNOWN

Site Conditions

Snooper Required: No

Site Vegetation: Low

Traffic control required: None

Utility Attachments:

☐ Water ☐ Sewer ☐ Telecom

☐ Gas ☐ Electric ☐ Other

Overhead Appurtenances:

☐ Sign Truss ☐ Signal ☐ Lighting

☐ Utility Line ☐ Other

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Approach Report

NBI Info	
(36B) TRANSITIONS	0 - Does not meet acceptable standards/safety feature is required
(36C) APPROACH GUARDRAIL	0 - Does not meet acceptable standards/safety feature is required
(36D) APPROACH GUARDRAIL ENDS	1 - Meets acceptable standards
(72) APPROACH ROADWAY ALIGNMENT	8 - Equal to present desirable criteria

Approach		
Appr Guardrail-rear Left Position	Good	
Appr Guardrail-rear Right Position	Good	
Appr Guardrail-forward Left Position	Good	
Appr Guardrail-forward Right Position	Good	
Appr Roadway Condition	Good	
Appr Roadway Transitions	Good	The roadway is settling at both approaches. Has been repaired since last inspection. Minor settling at Northwest approach.

Signage		
End Of Bridge Markers	Good	
Vertical Clearance Signing	NA	
Posting Sign - Rear		Since has been removed since last inspection.
Posting Sign - Forward		
Posting Values Correct		
Valid Posting Limits		

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DECK

NBI Info

(58) DECK	7 - Good Condition (some minor problems)	
(036A) BRIDGE RAIL	0 - Does not meet acceptable standards/safety feature is required	
(108A) WEARING SURFACE	6 - Bituminous	
LEFT SHOULDER WIDTH		FT.
RIGHT SHOULDER WIDTH		FT.
ASBESTOS DRAINS	U	
DECK AREA	1692	SQ FT.

Full Bridge

	Condition	Notes
Structure:	Good	
Wearing Surface:	Good	Asphalt overlay.
Curbs:	NA	
Median:	NA	
Sidewalk:	NA	
Joints:	0	Joints couldn't be inspected due to the asphalt overlay.
Railing:	Good	
Drainage:	Good	
Lighting:	NA	
Utilities:	NA	
Overlay Thickness:	2	in

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SUPERSTRUCTURE

NBI Info

(59) SUPERSTRUCTURE 7 - Good Condition (some minor problems)

NUMBER OF BRIDGE PINS

FRACTURE CRITICAL DETAILS None - No FC Details

Full Bridge

CONDITION

	Condition	Notes
Girders:	Good	Very minor flexure cracks in the channel beams. Spall in channel beam above pile 6 of bent 1.
Floor Beams:	NA	
Stringers:	NA	
Steel Risers:	NA	
Bearings:	NA	
Hinge Pins/Hangers:	NA	
Diaphragms/Cross Frames:	Good	Spalls with some exposed rebar around the connection bolts at bent 2.
Paint:	NA	
Collision Damage:	NA	
Deflection/Vibration:	Good	
Cap/Girder Debris:	Good	
Navigation Lighting:	NA	

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SUBSTRUCTURE

NBI Info

(60) SUBSTRUCTURE 5 - Fair Condition (minor section loss)

(111) PIER PROTECTION

Abutments

	Condition	Notes
Backwall:	NA	
Bulkhead:	Poor	Moderate and severe decay in both bulkheads.
Wing Walls:	Poor	All timber wing walls are settling, and have decay issues. Southwest wing has been repaired.
Cap:	Good	
Footings:	NA	
Piles:	Good	Spall in pile 5 of bent 1
Embankment:	Fair	Minor slumping and erosion issues.
Slope Paving:	NA	

Full Bridge

	Condition	Notes
Cap:	Good	
Risers:	NA	
Columns/Piles:	Good	Piles located in bent 2 have minor to moderate waterline abrasion.
Footings:	NA	
Web Walls:	NA	
Bracing:	NA	
Pier Protection-Navigation:	NA	
Pier Protection Lighting:	NA	

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Hydraulics Report

NBI Info

(61) CHANNEL & CHANNEL PROTECTION	4 - Protect. severely undermined. sev. damage
(113) SCOUR CRITICAL BRIDGES	5 - Scour within limits of footing or piles
(71) WATERWAY ADEQUACY	8 - Bridge Above Approaches

Hydraulics

DESIGN MAIN CHANNEL SPAN		CURRENT MAIN CHANNEL SPAN
BANK CONDITION-UPSTREAM	Fair	Minor bank slumping.
BANK CONDITION-SITE	Poor	Minor bank erosion and slumping. The South abutment is encroached into the channel. The North abutment is exposed to the channel during a high water event. With the decay of the timber wing walls, fill material is spilling through and allowing roadway settlement.
BANK CONDITION-DOWNSTREAM	Fair	Minor bank slumping. Grassing in the channel is restricting channel flow.

SCOUR COUNTERMEASURES

☐ SPURS	☐ BENDWAY WEIRS	☐ DROP STRUCTURES	☐ HARDPOINTS
☐ JACKS	☐ LONGITUDINAL DIKES	☐ GUIDE BANKS	☐ RIPRAP
☐ GABIONS	☐ CRUTCH BENTS/UNDERPINNING	☐ CROSS BRACING	☐ SHEET PILE/COFFERDAM
☐ DEBRIS DEFLECTORS	☐ VISUAL SCOUR MONITORING	☐ FIXED SCOUR MONITORING INSTRUMENTATION	

STREAMBED MATERIAL

☐ COBBLE/BOULDER	☐ GRAVEL	☐ SAND	☑ SILT	☐ SILT-CLAY

UNKNOWN FOUNDATION	Yes
SCOUR EVALUATION DONE	
USGS GAGING STATION	None
OBSERVED STREAM VELOCITY	Low
STREAMBED AGGRADATION EVIDENT	None
STREAMBED DEGRADATION EVIDENT	None
ABUTMENTS ENCROACH INTO CHANNEL	Yes
INDICATIONS OF SCOUR	No
EVIDENCE OF ABUTMENT UNDERMINING	No
EVIDENCE OF PIER UNDERMINING	NA
INDICATIONS THAT FLOODWATERS OVERTOP BRIDGE	No
INDICATIONS THAT FLOODWATERS OVERTOP APPROACHES	No

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SCOUR NOTES No scour

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Pictures

PHOTO 1 Approach

Description Looking South

Pictures

PHOTO 2 Approach

Description Left side looking South

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Pictures

PHOTO 3 Channel

Description Looking downstream

Pictures

PHOTO 4 Superstructure

Description Typical cracks in channel beams

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Pictures

PHOTO 5 Substructure

Description South abutment

Pictures

PHOTO 6 Substructure

Description South abutment

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Pictures

PHOTO 7 Superstructure

Description Typical spalls with exposed rebar

Pictures

PHOTO 8 Superstructure

Description Minor spall in channel beam above pile 6 bent 1

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Pictures

PHOTO 9 Channel

Description Looking upstream

Pictures

PHOTO 10 Substructure

Description Typical waterline abrasion on piles bent 2

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Pictures

PHOTO 11 Substructure

Description North abutment

Pictures

PHOTO 12 Substructure

Description Southeast wing wall

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Pictures

PHOTO 13 Channel

Description Looking downstream

Pictures

PHOTO 14 Channel

Description Looking upstream

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Pictures

PHOTO 15 Substructure

Description Spall in pile 5 of bent 1

Pictures

PHOTO 16 Channel

Description Looking downstream

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Pictures

PHOTO 17 Approach

Description Right side looking North

Pictures

PHOTO 18 Approach

Description Looking North

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Pictures

PHOTO 19 Approach

Description Settlement at Northwest corner of bridge

Pictures

PHOTO 20 Substructure

Description Southwest wingwall

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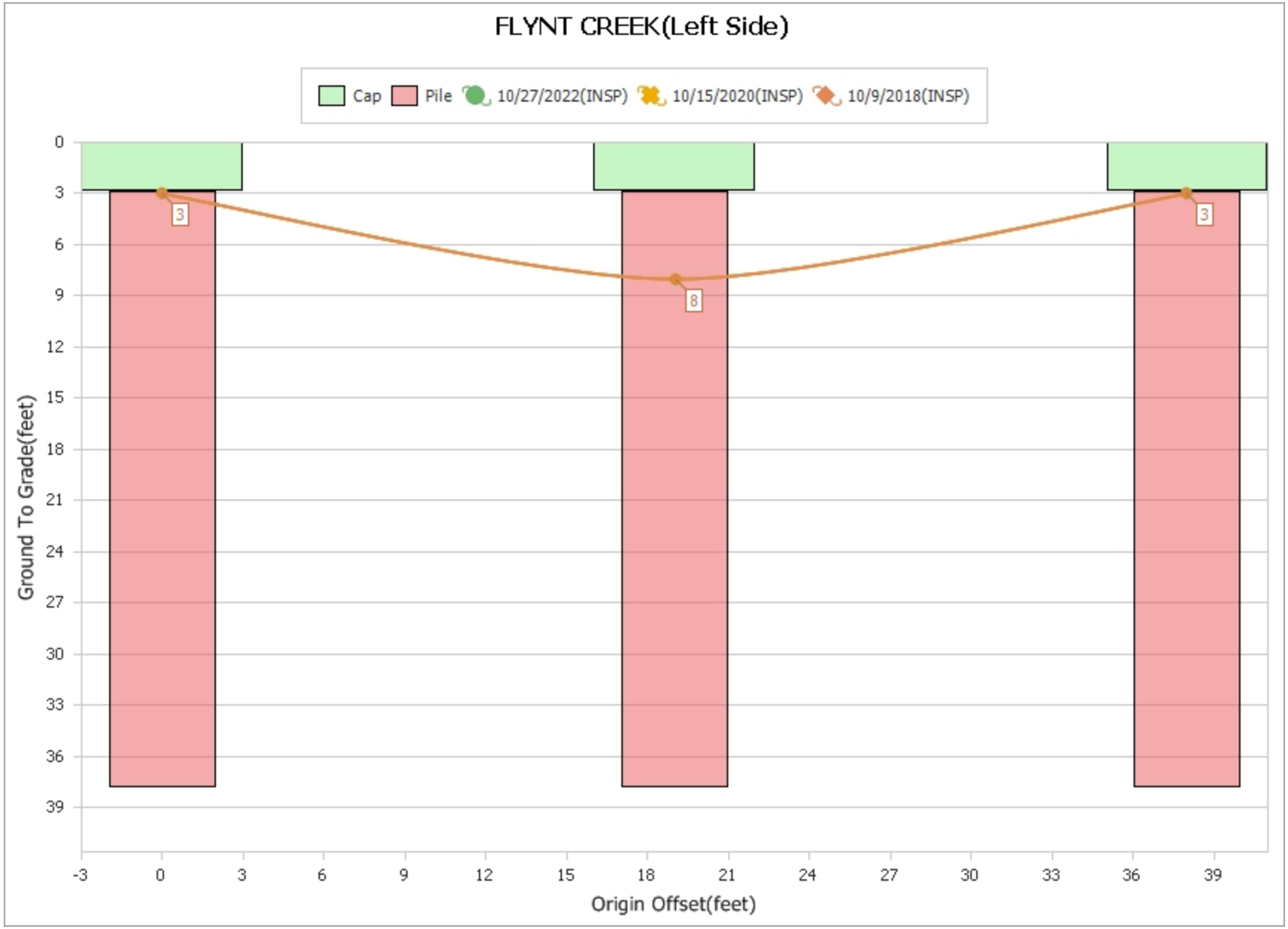
Location: 1.3 MI E SR 149



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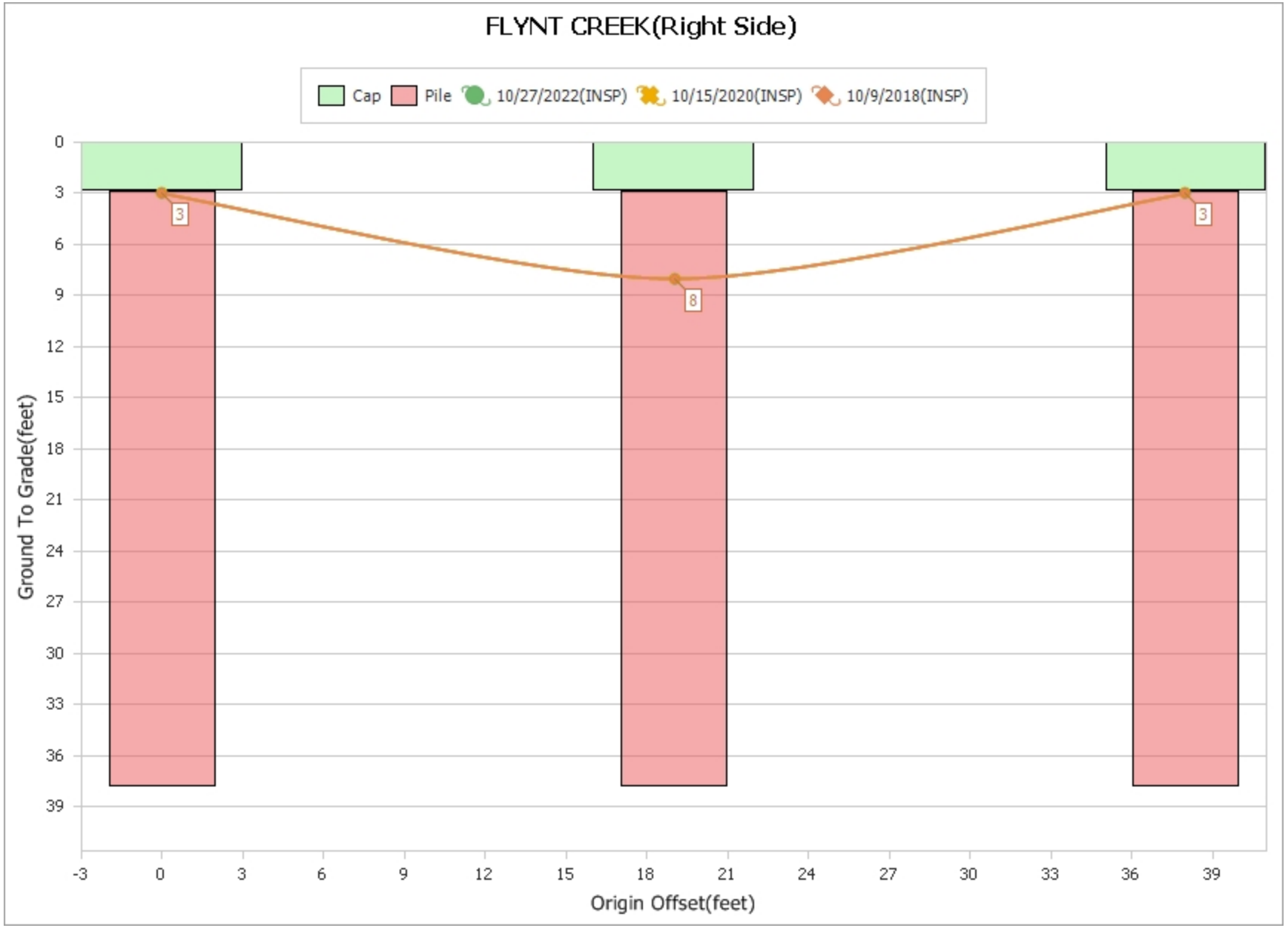

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