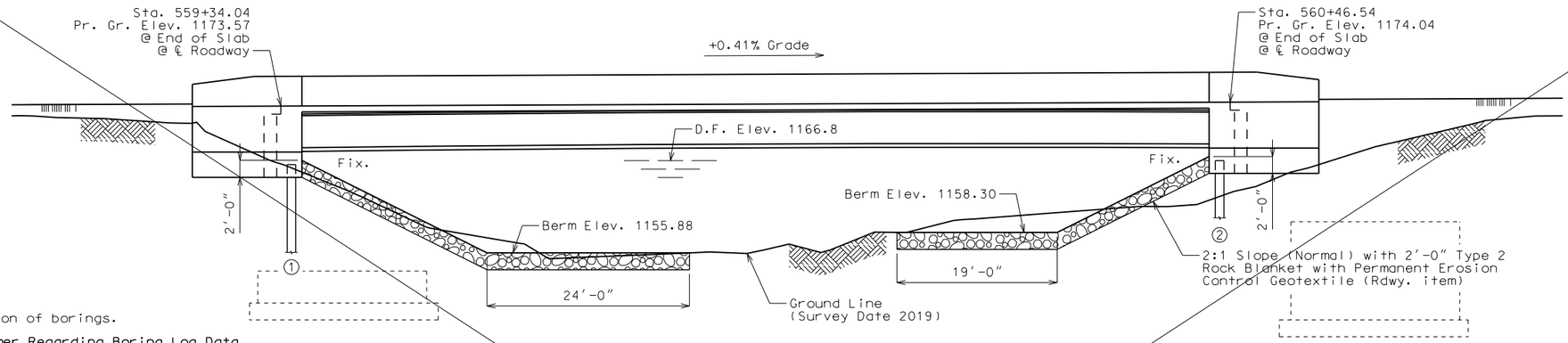
SEC/SUR 34 TWP 33N RGE 5W

(110′) PRESTRESSED CONCRETE NU-GIRDER SPAN



GENERAL ELEVATION

◓ Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

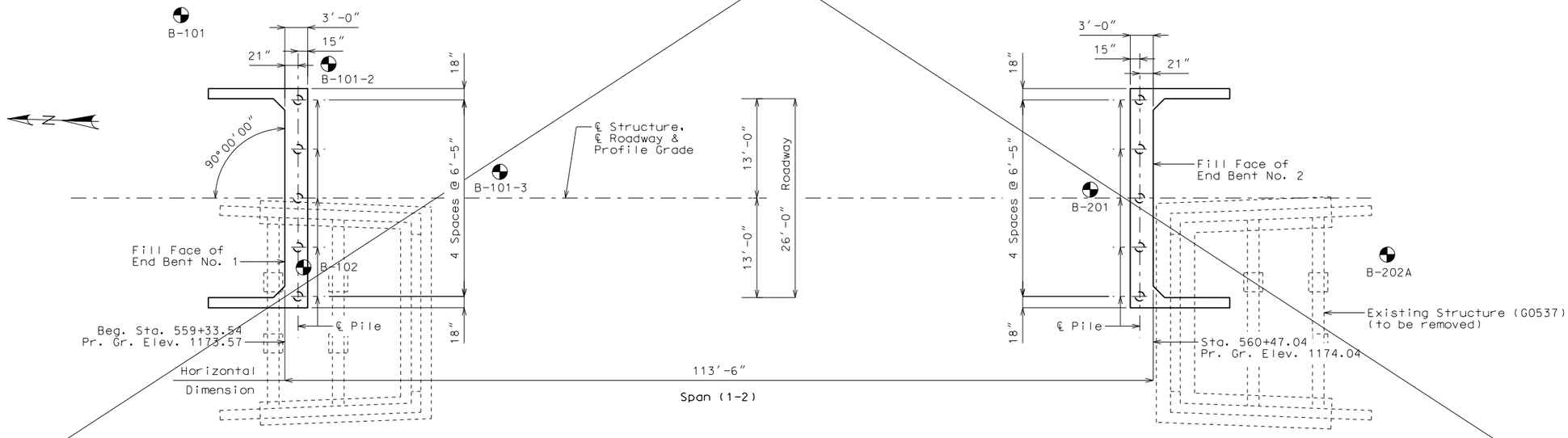
The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheets No. 20 thru 26 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

The Commission does not represent or warrant that any such boring data accurately depicts the conditions to be encountered in constructing this project. A contractor assumes all risks it may encounter in basing its bid prices, time or schedule of performance on the boring data depicted here or those available from the district, or on any other documentation not expressly warranted, which the contractor may obtain from the Commission.

Notes:

Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

Boring Location Table		
Boring	Station	Offset
B-101	559+19.97	23.93′ LT
B-101-2	559+39.25	17.54′ LT
B-101-3	559+61.64	3.45′ LT
B-102	559+35.98	9.05′ RT
B-201	560+38.80	1.13′ LT
B-202A	560+77.63	7.37′ RT



PLAN

B.M. 1-19 = ELEV. 1172.38 TABLET IN S.W. WING WALL OF BRIDGE G0537 OVER STANDING ROCK CREEK

1 SHEET DELETED

BRIDGE: ROUTE 19 OVER STANDING ROCK CREEK

ROUTE 19 FROM ROUTE N TO ROUTE WW
ABOUT 2.4 MILES SOUTH OF ROUTE N
BEG. STA. 559+33.54

Designed Sep. 2022
Detailed Sep. 2022
Checked Dec. 2022

Note: This drawing is not to scale. Follow dimensions.

KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024

ROUTE	STATE
19	MO
DISTRICT	SHEET NO.
BR	1

COUNTY DENT

JOB NO. J5P3420

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9227

DESCRIPTION

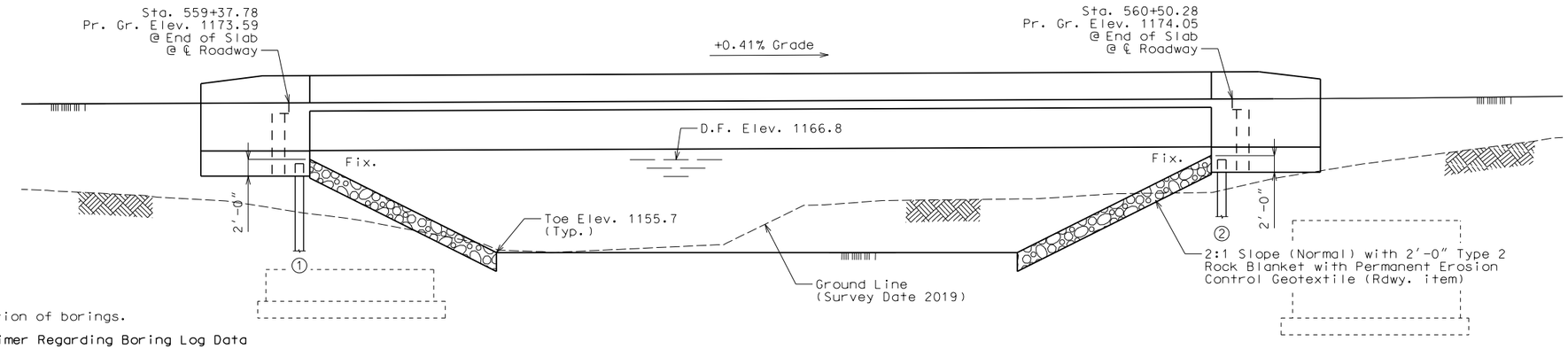
DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
SUITE 100
ST. LOUIS, MISSOURI 63141
PHONE: (636) 519.0990
CORPORATE LICENSE #2002006608
HRGreen®

SEC/SUR 34 TWP 33N RGE 5W

(110′) PRESTRESSED CONCRETE NU-GIRDER SPAN



GENERAL ELEVATION

Indicates location of borings.

Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the plan sheet(s) for this structure. The boring data for all locations indicated, as well as any other boring logs or other factual records of subsurface data and investigations performed by the department for the design of the project, are shown on Sheets No. 20 thru 26 and may be included in the Electronic Bridge Deliverables. They will also be available from the Project Contact upon written request. No greater significance or weight should be given to the boring data depicted on the plan sheets than is given to the subsurface data available from the district or elsewhere.

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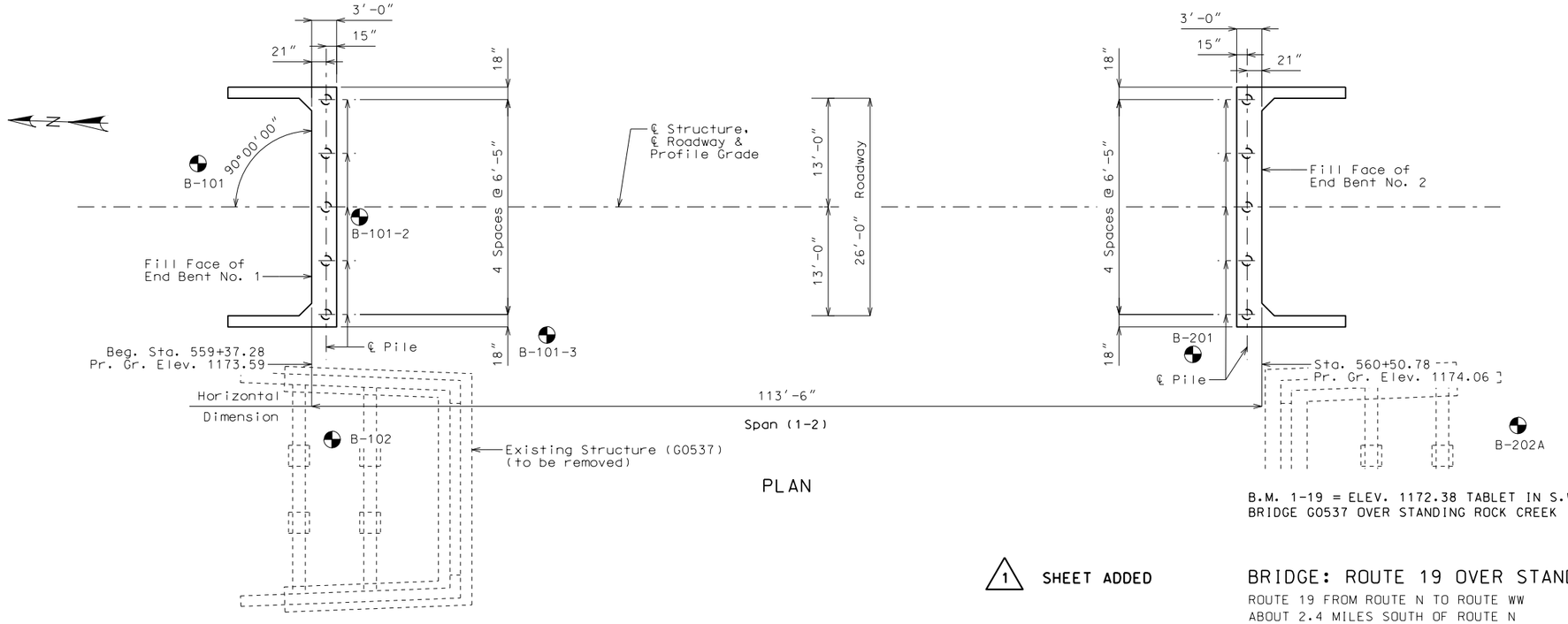
Notes:

Roadway fill shall be completed to the final roadway section and up to the elevation of the bottom of the concrete beam within the limits of the structure and for not less than 25 feet in back of the fill face of the end bents before any piles are driven for any bents falling within the embankment section.

Boring Location Table		
Boring	Station	Offset
B-101	559+23.71	5.20′ LT
B-101-2	559+42.99	1.19′ RT
B-101-3	559+65.38	15.28′ RT
B-102	559+39.72	27.78′ RT
B-201	560+42.53	17.60′ RT
B-202A	560+81.36	26.10′ RT



PLAN

B.M. 1-19 = ELEV. 1172.38 TABLET IN S.W. WING WALL OF BRIDGE G0537 OVER STANDING ROCK CREEK

1 SHEET ADDED

BRIDGE: ROUTE 19 OVER STANDING ROCK CREEK

ROUTE 19 FROM ROUTE N TO ROUTE WW
ABOUT 2.4 MILES SOUTH OF ROUTE N
BEG. STA. 559+37.28

Designed Sep. 2022
Detailed Sep. 2022
Checked Dec. 2022

Note: This drawing is not to scale. Follow dimensions.

KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024

ROUTE	STATE
19	MO
DISTRICT	SHEET NO.
BR	1A

COUNTY DENT

JOB NO. J5P3420

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9227

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
SUITE 100
ST. LOUIS, MISSOURI 63141
PHONE: (636) 519.0990
CORPORATE LICENSE #2002006608

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	30		30
Removal of Bridges (G0537)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard			118
Galvanized Cast-In-Place Concrete Piles (14 in)	linear foot	590		590
Dynamic Pile Testing	each	10		10
Pile Point Reinforcement	each	10		10
Class B Concrete (Substructure)	cu. yard	25.8		25.8
Type D Barrier	linear foot		267	267
Slab on Concrete NU-Girder	sq. yard		358	358
NU 53, Prestressed Concrete NU-Girder	linear foot		332	332
Steel Intermediate Diaphragm for P/S Concrete Girders	each		4	4
Slab Drain	each		22	22
Vertical Drain at End Bents	each	2		2
Plain Neoprene Bearing Pad	each		6	6

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the end bents and all reinforcement in cast-in-place pile at end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

Foundation Data

Type	Design Data		Bent Number 1	Bent Number 2
Load Bearing Pile	Pile Type and Size		CECIP 14"	CECIP 14"
	Number	ea	5	5
	Approximate Length Per Each	ft	Varies	57
	Pile Point Reinforcement	ea	All	All
	Min. Galvanized Penetration (Elev.)	ft	1145	1145
	Minimum Tip Penetration (Elev.)	ft	1141	1146
	Criteria for Min. Tip Penetration		Min. Embed.	Min. Embed.
	Pile Driving Verification Method		DT	DT
	Resistance Factor		0.75	0.75
	Minimum Nominal Axial Compressive Resistance	kip	319	319

CECIP = Closed Ended Cast-In-Place concrete pile

DT = Dynamic Testing

Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$

All piles shall be galvanized down to the minimum galvanized penetration (elevation).

Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.

The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in penetration less than 5 feet of the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.

CECIP piles at End Bent No. 1 are anticipated to be driven to refusal on rock. Review all borings for depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702.

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
Seismic Design Category = C
Design earthquake response spectral acceleration coefficient at 1.0 second period, S_{D1} = 0.318g
Acceleration Coefficient (effective peak ground acceleration coefficient), A_s = 0.291g

Design Loading:

Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (Min.)
Superstructure: Non-Composite for dead load.
Composite for live load.

Design Unit Stresses:

Class B Concrete (Substructure, except CECIP Concrete Pile)	f'c = 3,000 psi
Class B-1 Concrete (Barrier & CECIP Concrete Pile)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Girders and Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Welded or Seamless steel shell (pipe) for CIP pile (ASTM A252 Grade 3)	fy = 45,000 psi

For precast prestressed panel stresses, see Sheet No. 10.

For prestressed girder stresses, see Sheets No. 7 & 8.

Neoprene Pads:

Neoprene bearing pads shall be 60 durometer and shall be in accordance with Sec 716.

Joint Filler:

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

Traffic Handling:

Structure to be closed during construction. Traffic to be maintained on other routes during construction. See roadway plans for traffic control.

Miscellaneous:

MoDOT Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:

☐ Constant Joint Filler
☐ Variable Joint Filler

Hydrologic Data

Drainage Area = 11 mi^2
Design Flood Frequency = 50 years
Design Flood Discharge = 5,600 cfs
Design Flood (D.F.) Elevation = 1166.8
Base Flood (100-year)
Base Flood Elevation = 1167.7
Base Flood Discharge = 6,600 cfs
Estimated Backwater = 0.2 ft
Average Velocity thru Opening = 9.7 ft/s
Freeboard (50-year)
Freeboard = 1.1 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency > 500 years
500-Year Flood Elevation = 1169.6

Estimated Quantities for Slab on Concrete NU-Girder

Item		Total
Class B-2 Concrete	cu. yard	141
Reinforcing Steel (Epoxy Coated)	pound	24,710

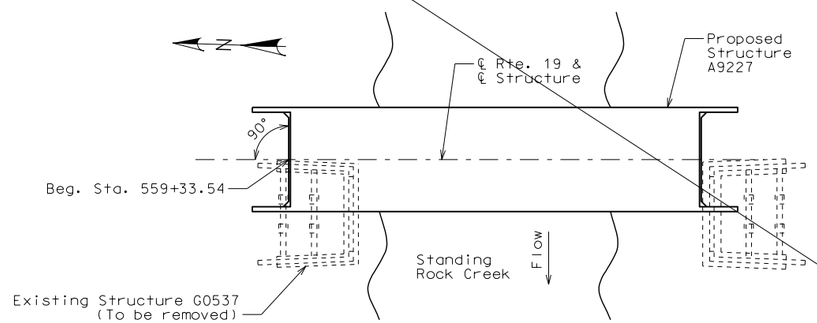
The table of Estimated Quantities for Slab on Concrete NU-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for prestressed panels, conventional forms, all concrete and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Class B-2 Concrete quantity is based on minimum top flange thickness and minimum joint material thickness.

The prestressed panel quantities are not included in the table of Estimated Quantities for Slab on Concrete NU-Girder.

1 SHEET DELETED



LOCATION SKETCH

GENERAL NOTES AND QUANTITIES

Detailed Sep. 2022
Checked Dec. 2022

Note: This drawing is not to scale. Follow dimensions.

KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024
ROUTE 19 | STATE MO
DISTRICT BR | SHEET NO. 2
COUNTY DENT
JOB NO. J5P3420
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9227

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
SUITE 100
ST. LOUIS, MISSOURI 63141
PHONE: (636) 519.0990
CORPORATE LICENSE #2002006608
HRGreen®

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	80		80
Removal of Bridges (G0537)	lump sum			1
Bridge Approach Slab (Minor)	sq. yard			118
Galvanized Cast-In-Place Concrete Piles (14 in)	linear foot	440		440
Dynamic Pile Testing	each	10		10
Pile Point Reinforcement	each	10		10
Class B Concrete (Substructure)	cu. yard	25.8		25.8
Type D Barrier	linear foot		267	267
Slab on Concrete NU-Girder	sq. yard		358	358
NU 53, Prestressed Concrete NU-Girder	linear foot		332	332
Steel Intermediate Diaphragm for P/S Concrete Girders	each		4	4
Slab Drain	each		22	22
Vertical Drain at End Bents	each	2		2
Plain Neoprene Bearing Pad	each		6	6

All concrete above the construction joint in the end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

All reinforcement in the end bents and all reinforcement in cast-in-place pile at end bents is included in the Estimated Quantities for Slab on Concrete NU-Girder.

Foundation Data

Type	Design Data		Bent Number 1	Bent Number 2
Load Bearing Pile	Pile Type and Size		CECIP 14"	CECIP 14"
	Number	ea	5	5
	Approximate Length Per Each	ft	Varies	57
	Pile Point Reinforcement	ea	All	All
	Min. Galvanized Penetration (Elev.)	ft	1145	1145
	Minimum Tip Penetration (Elev.)	ft	1145	1146
	Criteria for Min. Tip Penetration		Min. Embed.	Min. Embed.
	Pile Driving Verification Method		DT	DT
	Resistance Factor		0.75	0.75
	Minimum Nominal Axial Compressive Resistance	kip	319	319

CECIP = Closed Ended Cast-In-Place concrete pile

DT = Dynamic Testing

Minimum Nominal Axial Compressive Resistance = $\frac{\text{Maximum Factored Loads}}{\text{Resistance Factor}}$

All piles shall be galvanized down to the minimum galvanized penetration (elevation).

Pile point reinforcement need not be galvanized. Shop drawings will not be required for pile point reinforcement.

The contractor shall make every effort to achieve the minimum galvanized penetration (elevation) shown on the plans for all piles. Deviations in penetration less than 5 feet of the minimum will be considered acceptable provided the contractor makes the necessary corrections to ensure the minimum penetration is achieved on subsequent piles.

CECIP piles at End Bent No. 1 are anticipated to be driven to refusal on rock. Review all borings for depth of rock and restrict driving as appropriate to comply with hard rock driving criteria in accordance with Sec 702.

General Notes:

Design Specifications:

2020 AASHTO LRFD Bridge Design Specifications (9th Ed.)
2011 AASHTO Guide Specifications for LRFD Seismic Bridge Design (2nd Ed.) and 2014 Interim Revisions (Seismic Details)
Seismic Design Category = C
Design earthquake response spectral acceleration coefficient at 1.0 second period, S_{D1} = 0.318g
Acceleration Coefficient (effective peak ground acceleration coefficient), A_s = 0.291g

Design Loading:

Vehicular = HL-93
Future Wearing Surface = 35 lb/sf
Earth = 120 lb/cf
Equivalent Fluid Pressure = 45 lb/cf (Min.)
Superstructure: Non-Composite for dead load.
Composite for live load.

Design Unit Stresses:

Class B Concrete (Substructure, except CECIP Concrete Pile)	f'c = 3,000 psi
Class B-1 Concrete (Barrier & CECIP Concrete Pile)	f'c = 4,000 psi
Class B-2 Concrete (Superstructure, except Prestressed Girders and Barrier)	f'c = 4,000 psi
Reinforcing Steel (Grade 60)	fy = 60,000 psi
Welded or Seamless steel shell (pipe) for CIP pile (ASTM A252 Grade 3)	fy = 45,000 psi

For precast prestressed panel stresses, see Sheet No. 10.

For prestressed girder stresses, see Sheets No. 7 & 8.

Neoprene Pads:

Neoprene bearing pads shall be 60 durometer and shall be in accordance with Sec 716.

Joint Filler:

All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:

Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

Traffic Handling:

Traffic to be maintained on existing structure during construction. See roadway plans for traffic control.

Miscellaneous:

MoDOT Construction personnel will indicate the type of joint filler option used under the precast panels for this structure:

☐ Constant Joint Filler
☐ Variable Joint Filler

Hydrologic Data

Drainage Area = 11 mi^2
Design Flood Frequency = 50 years
Design Flood Discharge = 5,600 cfs
Design Flood (D.F.) Elevation = 1166.8
Base Flood (100-year)
Base Flood Elevation = 1167.7
Base Flood Discharge = 6,600 cfs
Estimated Backwater = 0.2 ft
Average Velocity thru Opening = 9.7 ft/s
Freeboard (50-year)
Freeboard = 1.1 ft
Roadway Overtopping
Overtopping Flood Discharge = N/A
Overtopping Flood Frequency > 500 years
500-Year Flood Elevation = 1169.6

Estimated Quantities for Slab on Concrete NU-Girder

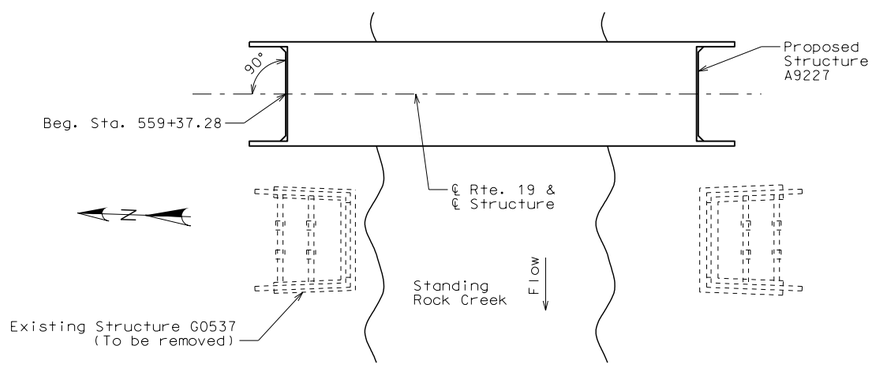
Item		Total
Class B-2 Concrete	cu. yard	141
Reinforcing Steel (Epoxy Coated)	pound	24,710

The table of Estimated Quantities for Slab on Concrete NU-Girder represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard longitudinally from end of slab to end of slab and transversely from out to out of bridge slab (or with the horizontal dimensions as shown on the plan of slab). Payment for prestressed panels, conventional forms, all concrete and epoxy coated reinforcing steel will be considered completely covered by the contract unit price for the slab. Variations may be encountered in the estimated quantities but the variations cannot be used for an adjustment in the contract unit price.

Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Class B-2 Concrete quantity is based on minimum top flange thickness and minimum joint material thickness.

The prestressed panel quantities are not included in the table of Estimated Quantities for Slab on Concrete NU-Girder.



LOCATION SKETCH

1 SHEET ADDED

GENERAL NOTES AND QUANTITIES

Detailed Sep. 2022
Checked Dec. 2022

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 2 of 26

KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
REGISTERED PROFESSIONAL ENGINEER

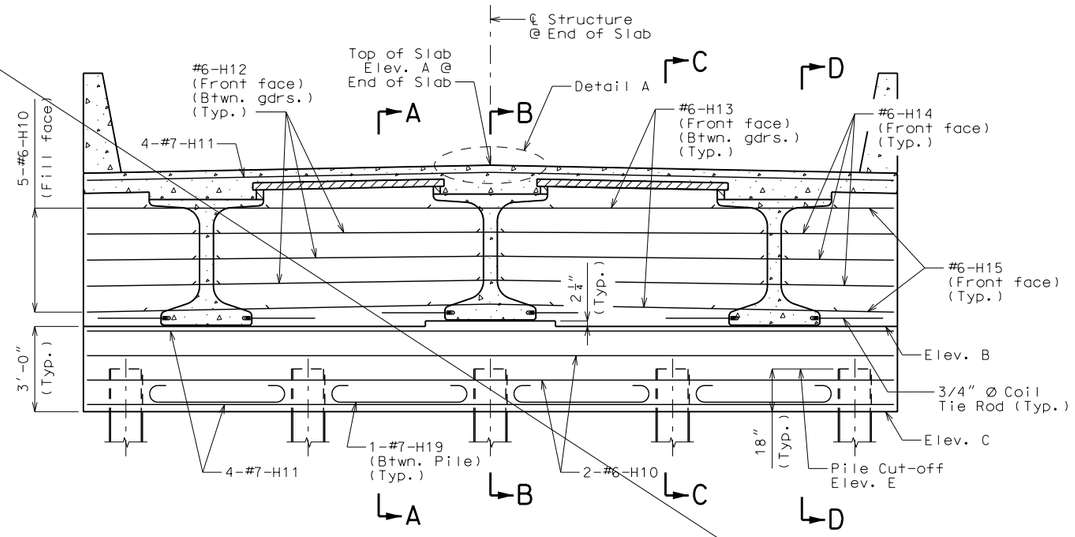
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024
ROUTE 19 | STATE MO
DISTRICT BR | SHEET NO. 2A
COUNTY DENT
JOB NO. J5P3420
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9227

DESCRIPTION | DATE

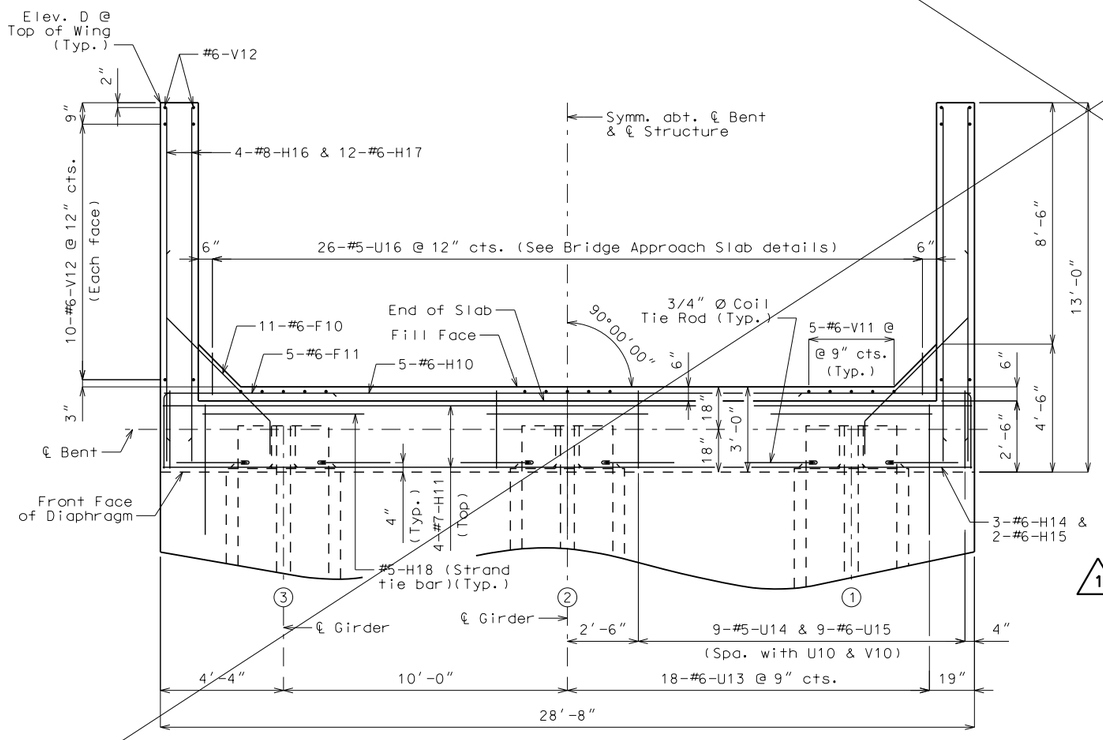
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
SUITE 100
ST. LOUIS, MISSOURI 63141
PHONE: (636) 519.0990
CORPORATE LICENSE #2002006608

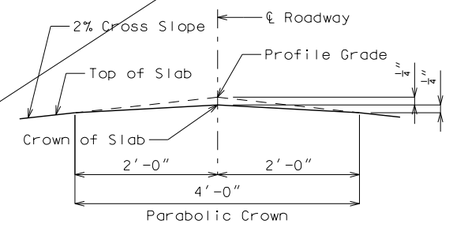


SECTION NEAR END BENT

Footing stirrups not shown for clarity.



PART PLAN



DETAIL A

General Notes:

Work this sheet with Sheet No. 5.

For Sections A-A, B-B, C-C & D-D, see Sheet No. 5.

The #6-F10 bars shall be bent in the field to clear girders.

Strands at end of the girders shall be field bent or, if necessary, cut in field to maintain 1 1/2-inch minimum clearance to fill face of end bent.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

For details of cast-in-place concrete piles, see Sheet No. 3.

For details of vertical drain at end bents, see Sheet No. 6.

For location of coil tie rods and #5-H18 (strand tie bar), see Sheets No. 7 & 8.

For details of bridge approach slab, see Sheet No. 17.

Elevations					
Location	A	B	C	D	E
End Bent 1	1173.55	1167.84	1164.84	1173.24	1166.34
End Bent 2	1174.02	1168.30	1165.30	1173.79	1166.80

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	25
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	305
Dynamic Pile Testing	each	5
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	12.9

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Class 1 Excavation	cu. yard	5
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	285
Dynamic Pile Testing	each	5
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	12.9

These quantities are included in the Estimated Quantities table on Sheet No. 2.

1 SHEET DELETED

DETAILS OF END BENTS NO. 1 & 2

Detailed Sep. 2022
Checked Dec. 2022

Note: This drawing is not to scale. Follow dimensions.

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KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024

ROUTE	STATE
19	MO
DISTRICT	SHEET NO.
BR	4

COUNTY DENT

JOB NO. J5P3420

CONTRACT ID.

PROJECT NO.

BRIDGE NO. A9227

DESCRIPTION

DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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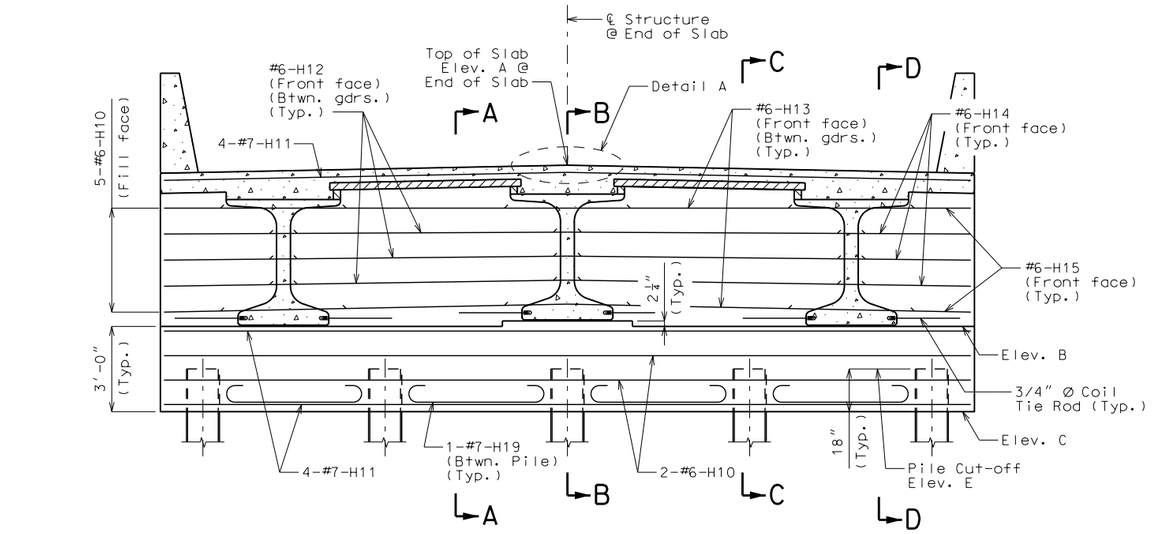
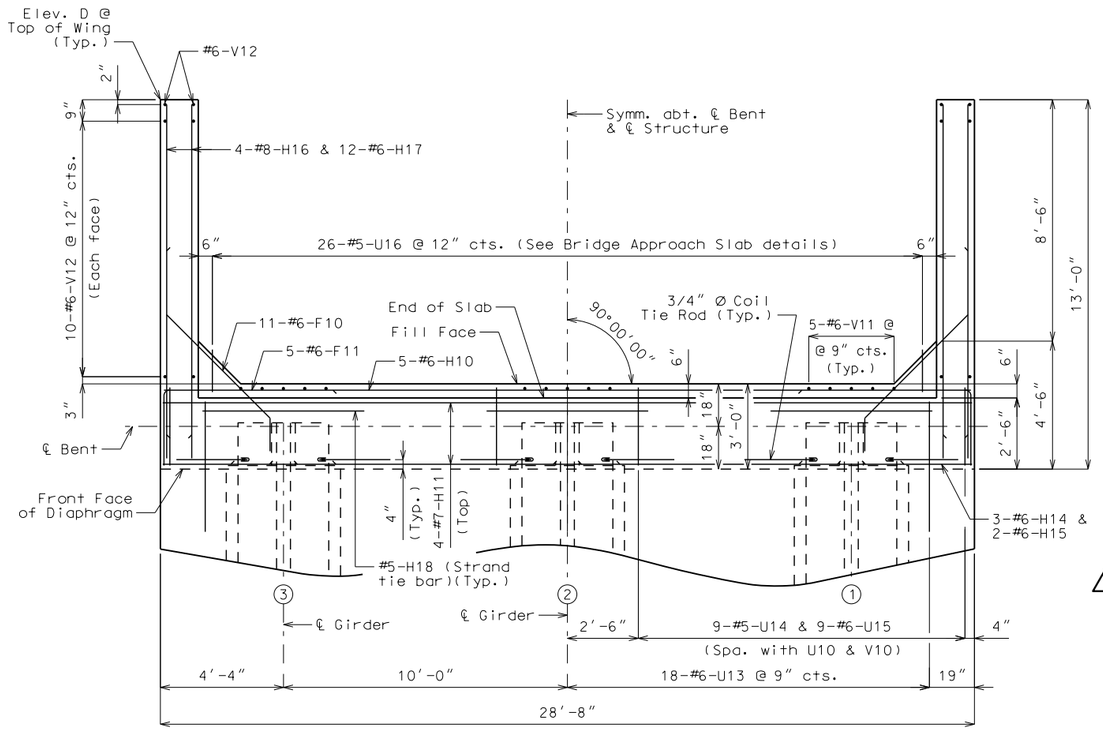
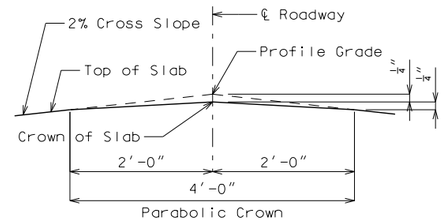


SECTION NEAR END BENT

Footing stirrups not shown for clarity.



PART PLAN



DETAIL A

General Notes:

Work this sheet with Sheet No. 5.

For Sections A-A, B-B, C-C & D-D, see Sheet No. 5.

The #6-F10 bars shall be bent in the field to clear girders.

Strands at end of the girders shall be field bent or, if necessary, cut in field to maintain 1 1/2-inch minimum clearance to fill face of end bent.

All concrete in the end bent above top of beam and below top of slab shall be Class B-2.

For details of cast-in-place concrete piles, see Sheet No. 3.

For details of vertical drain at end bents, see Sheet No. 6.

For location of coil tie rods and #5-H18 (strand tie bar), see Sheets No. 7 & 8.

For details of bridge approach slab, see Sheet No. 17.

Elevations					
Location	A	B	C	D	E
End Bent 1	1173.57	1167.86	1164.86	1173.26	1166.36
End Bent 2	1174.03	1168.32	1165.32	1173.81	1166.82

Substructure Quantity Table for Bent No. 1		
Item		Quantity
Class 1 Excavation	cu. yard	40
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	155
Dynamic Pile Testing	each	5
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	12.9

Substructure Quantity Table for Bent No. 2		
Item		Quantity
Class 1 Excavation	cu. yard	40
Galvanized Cast-In-Place Concrete Piles (14 in.)	linear foot	285
Dynamic Pile Testing	each	5
Pile Point Reinforcement	each	5
Class B Concrete (Substructure)	cu. yard	12.9

These quantities are included in the Estimated Quantities table on Sheet No. 2.

1 SHEET ADDED

DETAILS OF END BENTS NO. 1 & 2

Detailed Sep. 2022
Checked Dec. 2022

Note: This drawing is not to scale. Follow dimensions.

\\hrgreen.com\HRG\Data\2020\200478.03\CAD\Addendum\Addendum .dgn Sheets\B_A9227_004A_J5P3420_EndBent_R001.dgn 1:06:17 PM 4/18/2024

KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024

ROUTE	STATE
19	MO
DISTRICT	SHEET NO.
BR	4A

COUNTY DENT

JOB NO. J5P3420

CONTRACT ID.

PROJECT NO.

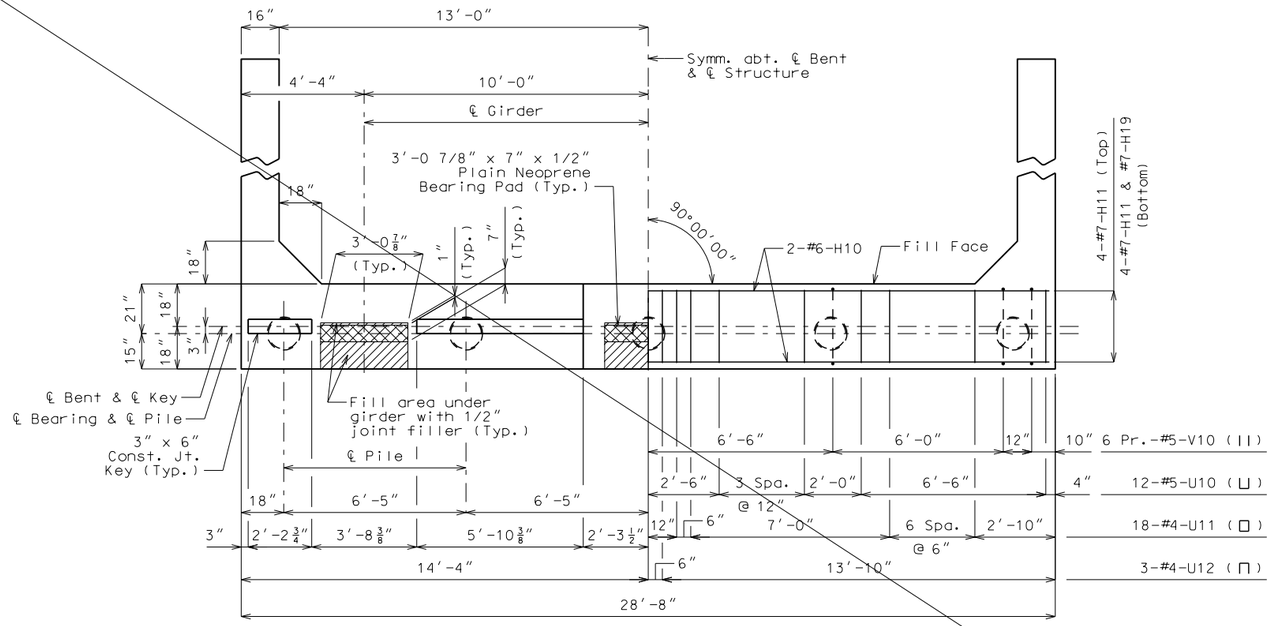
BRIDGE NO. A9227

DESCRIPTION

DATE

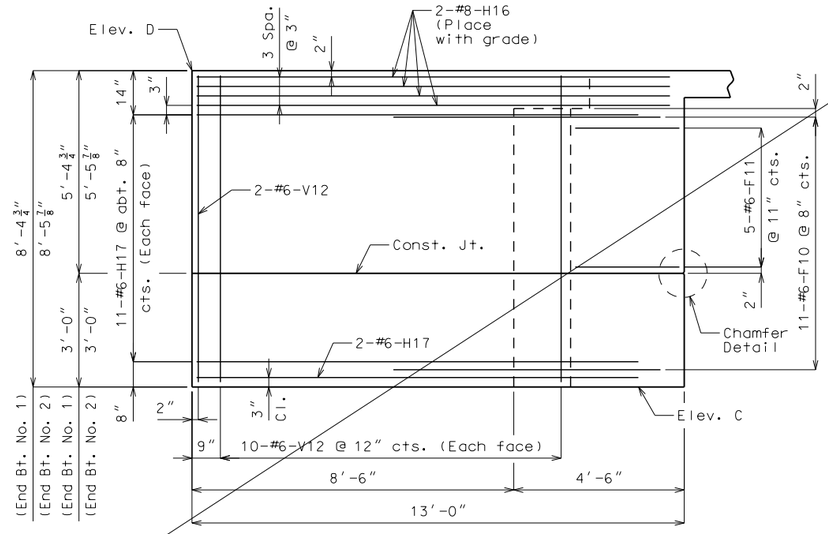
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
SUITE 100
ST. LOUIS, MISSOURI 63141
PHONE: (636) 519.0990
CORPORATE LICENSE #2002006608

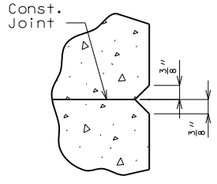


HALF PLAN OF BEAM

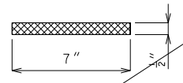
HALF PLAN OF BEAM
SHOWING REINFORCEMENT
Keys not shown for clarity.



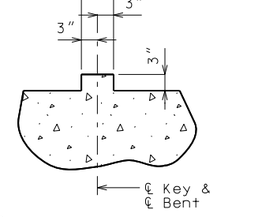
TYPICAL ELEVATION OF WING



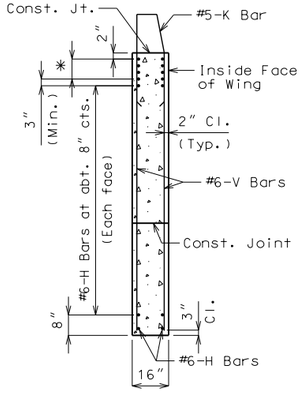
CHAMFER DETAIL



SECTION THRU PLAIN
NEOPRENE BEARING PAD

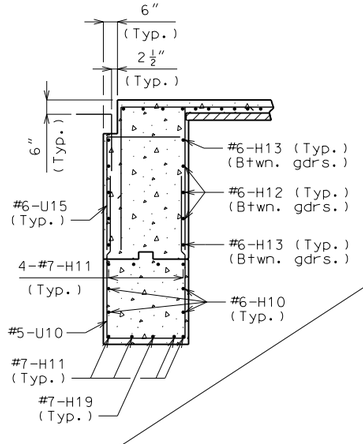


SECTION THRU KEY

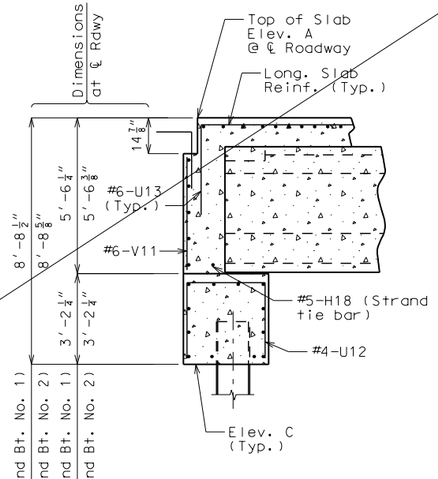


TYPICAL SECTION
THRU WING

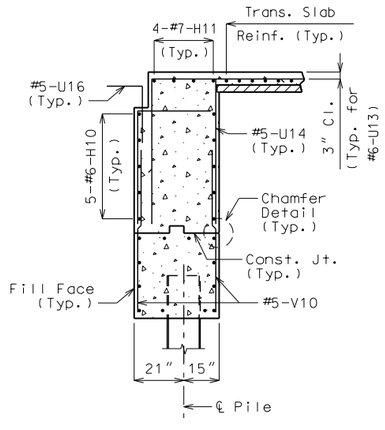
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



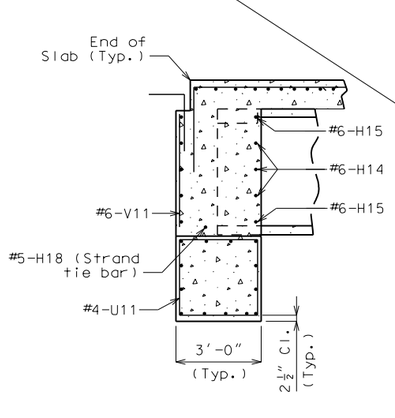
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

DETAILS OF END BENTS NO. 1 & 2

General Notes:

Work this sheet with Sheet No. 4.

For location of Sections A-A, B-B, C-C & D-D and table showing Elevations A, B, C & D, see Sheet No. 4.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.

For reinforcement of the barrier, see Sheet No. 16.

1 SHEET DELETED

KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED: 4/18/2024

ROUTE	STATE
19	MO
DISTRICT	SHEET NO.
BR	5

COUNTY: DENT
JOB NO.: J5P3420
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9227

DESCRIPTION	DATE

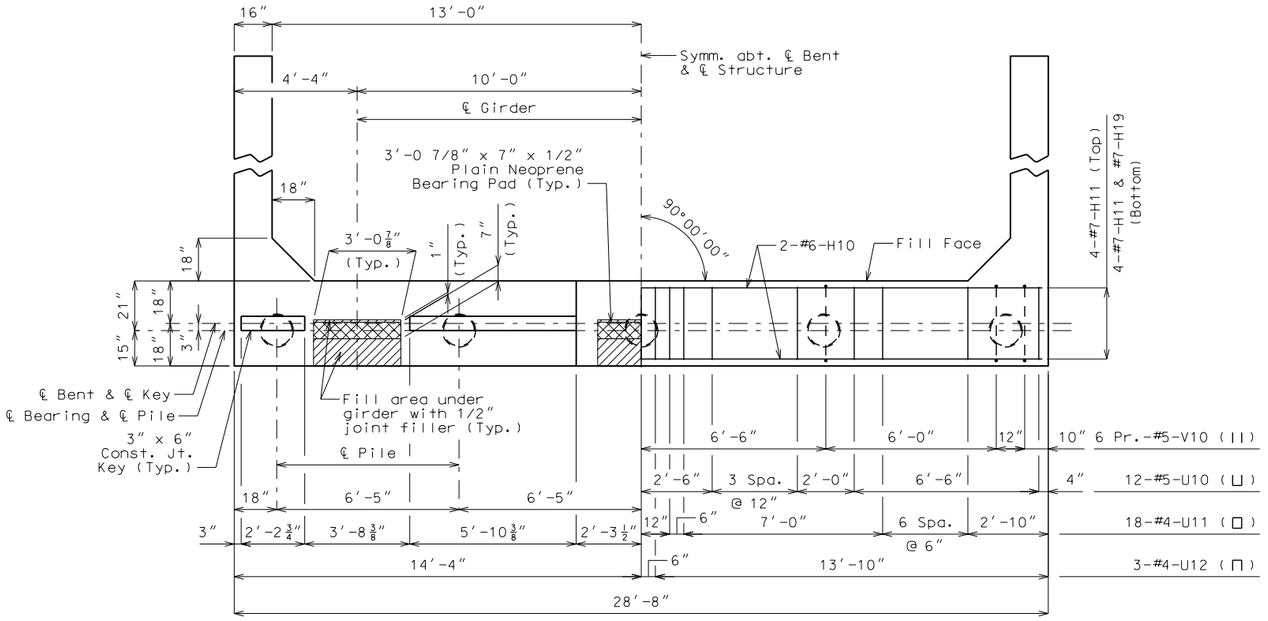
MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
SUITE 100
ST. LOUIS, MISSOURI 63141
PHONE: (636) 519.0990
CORPORATE LICENSE #2002006608

Detailed Sep. 2022
Checked Dec. 2022

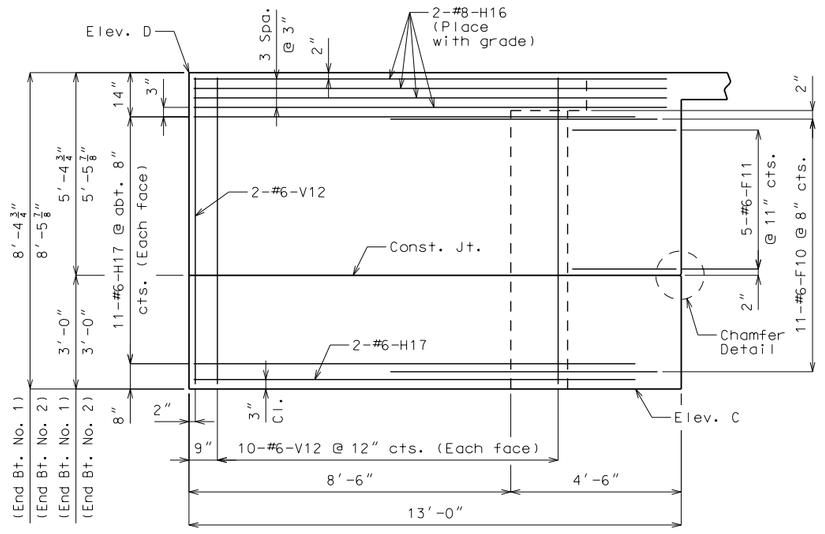
Note: This drawing is not to scale. Follow dimensions.

\\hrgreen.com\HRG\Data\2020\200478.03\CAD\Addendum\Addendum .dgn Sheets\B_A9227_005_J5P3420_EndBent_R001.dgn 1:06:31 PM 4/18/2024

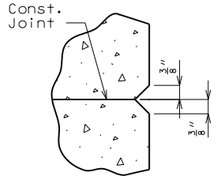


HALF PLAN OF BEAM

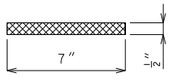
HALF PLAN OF BEAM
SHOWING REINFORCEMENT
Keys not shown for clarity.



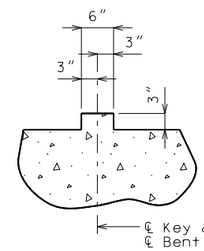
TYPICAL ELEVATION OF WING



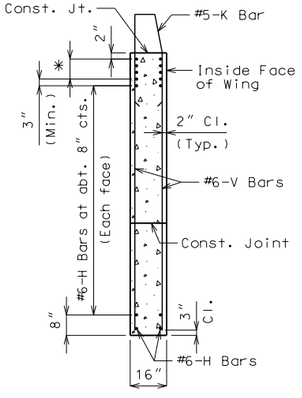
CHAMFER DETAIL



SECTION THRU PLAIN
NEOPRENE BEARING PAD

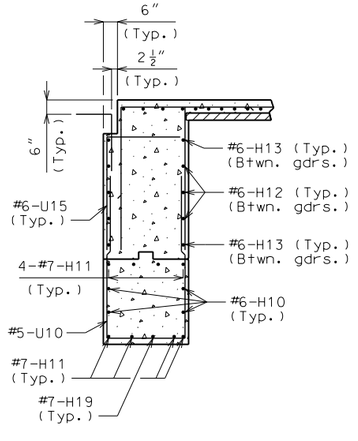


SECTION THRU KEY

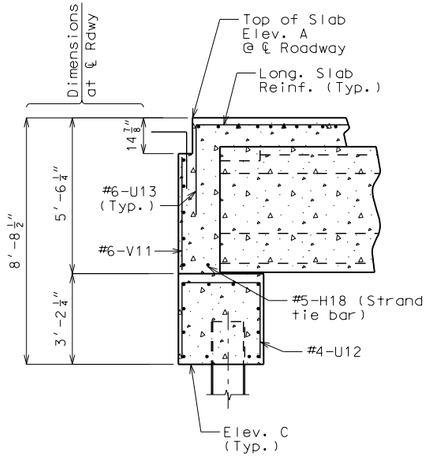


TYPICAL SECTION
THRU WING

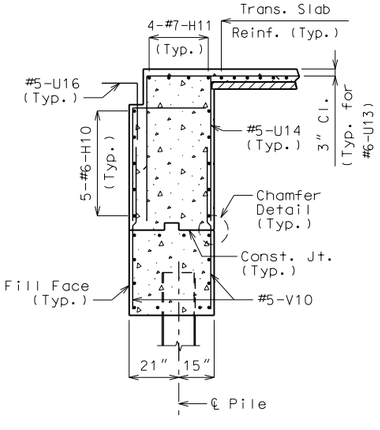
* #8-H Bars at 3" cts.
(Each face)(Place with grade)



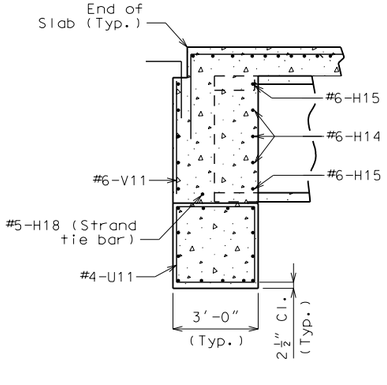
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

DETAILS OF END BENTS NO. 1 & 2

General Notes:

Work this sheet with Sheet No. 4.

For location of Sections A-A, B-B, C-C & D-D and table showing Elevations A, B, C & D, see Sheet No. 4.

Reinforcing steel shall be shifted to clear piles. U bars shall clear piles by at least 1 1/2 inches.

For reinforcement of the barrier, see Sheet No. 16.

1 SHEET ADDED

Detailed Sep. 2022
Checked Dec. 2022

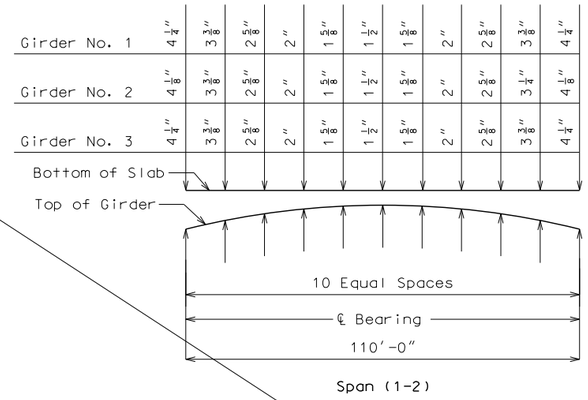
Note: This drawing is not to scale. Follow dimensions.

KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024
ROUTE 19 | STATE MO
DISTRICT BR | SHEET NO. 5A
COUNTY DENT
JOB NO. J5P3420
CONTRACT ID.
PROJECT NO.
BRIDGE NO. A9227

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)
HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
SUITE 100
ST. LOUIS, MISSOURI 63141
PHONE: (636) 519.0990
CORPORATE LICENSE #2002006608

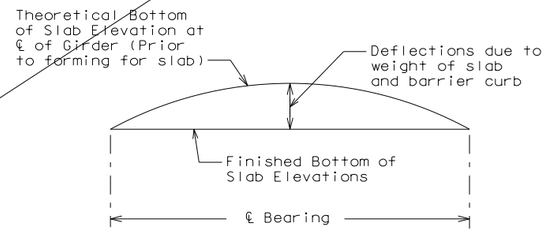


Span (1-2)

THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

If girder camber is different from that shown in the camber diagram, in order to maintain minimum slab thickness, an adjustment of the slab haunches, an increase in slab thickness or a raise in grade uniformly throughout the structure shall be necessary. The haunch shall be limited to ensure the projecting girder reinforcement is embedded into slab at least 2 inches. No payment will be made for additional labor or materials required for variation in haunching, slab thickness or grade adjustment.

Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder.

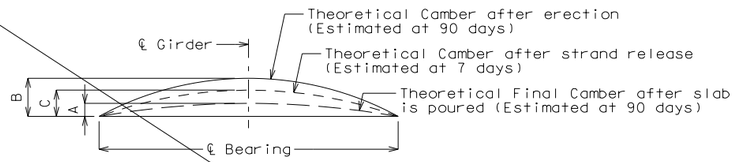


TYPICAL SLAB ELEVATIONS DIAGRAM

Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab) (Estimated at 90 days)

Girder Number	Span (1-2) (110′-0″ ℄ Brg. – ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	1172.67	1172.78	1172.89	1172.98	1173.05	1173.11	1173.14	1173.16	1173.16	1173.15	1173.12
2	1172.85	1172.97	1173.07	1173.17	1173.25	1173.30	1173.34	1173.35	1173.35	1173.33	1173.30
3	1172.67	1172.78	1172.89	1172.98	1173.05	1173.11	1173.14	1173.16	1173.16	1173.15	1173.12

Elevations are based on a constant slab thickness of 8 1/2″ and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier curb.



Girder	Span (1 – 2)		
	A	B	C
Exterior	2 3/4″	5 1/4″	3 5/8″
Interior	2 5/8″		

GIRDER CAMBER DIAGRAM

Conversion Factors for Girder Camber (Estimated at 90 days):

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
0.3 pt. = 0.813 x 0.5 pt.
0.4 pt. = 0.952 x 0.5 pt.

1 SHEET DELETED

KEVIN J. BREHM
PE-2010024490
STATE OF MISSOURI
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024

ROUTE	STATE
19	MO
DISTRICT	SHEET NO.
BR	12

COUNTY: DENT
JOB NO.: J5P3420
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9227

DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
SUITE 100
ST. LOUIS, MISSOURI 63141
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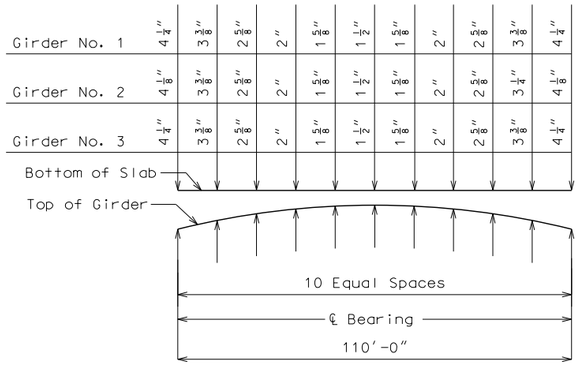

Span (1-2)

THEORETICAL SLAB HAUNCHING DIAGRAM (ESTIMATED AT 90 DAYS)

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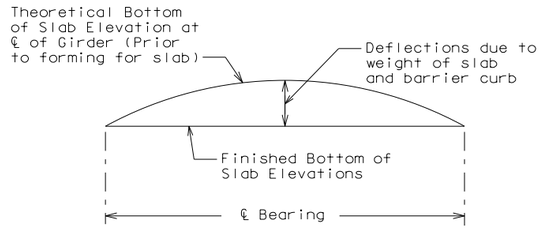
Concrete in the slab haunches is included in the Estimated Quantities for Slab on Concrete NU-Girder.

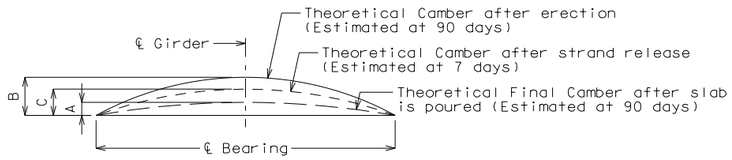


TYPICAL SLAB ELEVATIONS DIAGRAM

Theoretical Bottom of Slab Elevations at Centerline of Girder (Prior to forming for slab) (Estimated at 90 days)

Girder Number	Span (1-2) (110′-0″ ℄ Brg. - ℄ Brg.)										
	℄ Brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ Brg.
1	1172.69	1172.80	1172.90	1173.00	1173.07	1173.13	1173.16	1173.18	1173.18	1173.16	1173.14
2	1172.87	1172.98	1173.09	1173.19	1173.26	1173.32	1173.35	1173.37	1173.36	1173.35	1173.32
3	1172.69	1172.80	1172.90	1173.00	1173.07	1173.13	1173.16	1173.18	1173.18	1173.16	1173.14

Elevations are based on a constant slab thickness of 8 1/2″ and include allowance for theoretical dead load deflections due to weight of slab (including precast panel) and barrier curb.



Girder	Span (1 - 2)		
	A	B	C
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GIRDER CAMBER DIAGRAM

Conversion Factors for Girder Camber (Estimated at 90 days):

0.1 pt. = 0.314 x 0.5 pt.
0.2 pt. = 0.593 x 0.5 pt.
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0.4 pt. = 0.952 x 0.5 pt.

1 SHEET ADDED

KEVIN J. BREHM PE-2010024490 — STATE OF MISSOURI — PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

DATE PREPARED 4/18/2024

ROUTE	STATE
19	MO
DISTRICT	SHEET NO.
BR	12A

COUNTY: DENT
JOB NO.: J5P3420
CONTRACT ID.:
PROJECT NO.:
BRIDGE NO.: A9227

DESCRIPTION | DATE

MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

HR GREEN, INC.
520 MARYVILLE CENTRE DRIVE
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PHONE: (636) 519.0990
CORPORATE LICENSE #2002006608

Detailed Sep. 2022
Checked Dec. 2022

Note: This drawing is not to scale. Follow dimensions.

\\hrgreen.com\HRG\Data\2020\200478.03\CAD\Addendum\Addendum .dgn Sheets\B_A9227_012A_J5P3420_Haunching_R001.dgn 1:06:45 PM 4/18/2024