

MEMORANDUM

To: Adam Higgins, P.E.
H.W. Lochner, Inc.

Date: 03-04-2021

From: Monte Mildenberg, P.E.
Beam, Longest and Neff, L.L.C.

Approved: Michael L. McCool Jr., P.E.
Beam, Longest and Neff, L.L.C.



Subject: Submittal: Stage 2
Des No. 1600701
Intersection Improvement on SR 149 at CR
875N/Robbins Road in Porter County, Indiana

*The following comments, as well as the markups in the plan set and supporting documents, are to be incorporated in the next submittal. Please submit responses to all written comments. A response of "concur" is sufficient if you agree with the comment and have taken the actions required. If you are not in concurrence with the comments, please respond with appropriate reasons why. **Comments marked "suggestion" were not considered in the evaluation.***

Ratings Justification

All ratings were satisfactory or higher.

Level 1 and 2 items

1. All Level 1 Design Criteria have been met and documented.
2. A Level 2 Design Exception Request was included with the Stage 2 submittal for construction of substandard slopes. The reviewer takes no exception to the steeper slopes. (2:1 – 3:1 with 10' shoulders and guardrail). The document should be signed by the designer and INDOT project manager.

Design Concept and Documentation

3. The Abbreviated Engineer's report was approved 09-01-2020 by the District.
4. Project commitments are not yet available for this project.
5. The submitted design calcs were complete.
6. A Pavement Design request has been submitted.
7. Approval of the Geotechnical Report is pending.
8. The Hydraulics Report for the 3'x2' box culvert has been submitted for review by INDOT Hydraulics.
9. Stormwater Quality Manager level recommendation was not referenced in the Transmittal Letter.

Plans & Cross Sections

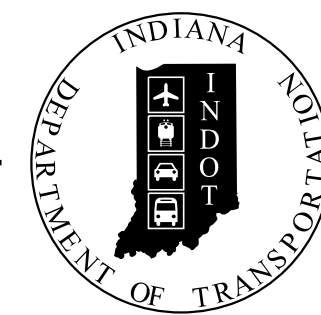
11. Show an earthwork balance in the plans.
12. Indicate skew angle for Structures.
13. Grade controlling structures should be shown in cross sections per IDM 14-2.01.
14. Verify location of outlet riprap for Str 101. Culvert will fill with water or dirt for 6 inches to tie into proposed riprap. Proposed riprap should be designed to match existing channel bottom and proposed culvert outlet invert elevations per INDOT Standard Drawing E 714-BCSP-01 and shown on the cross section.
15. See plans for additional comments.

If you have any questions or comments, please contact Monte Mildenberg at (317) 849-5832.

xc: File # 190063, 823, L04

PROJECT	DESIGNATION
1600701	1600701
CONTRACT	
R-42249	

INDIANA DEPARTMENT OF TRANSPORTATION



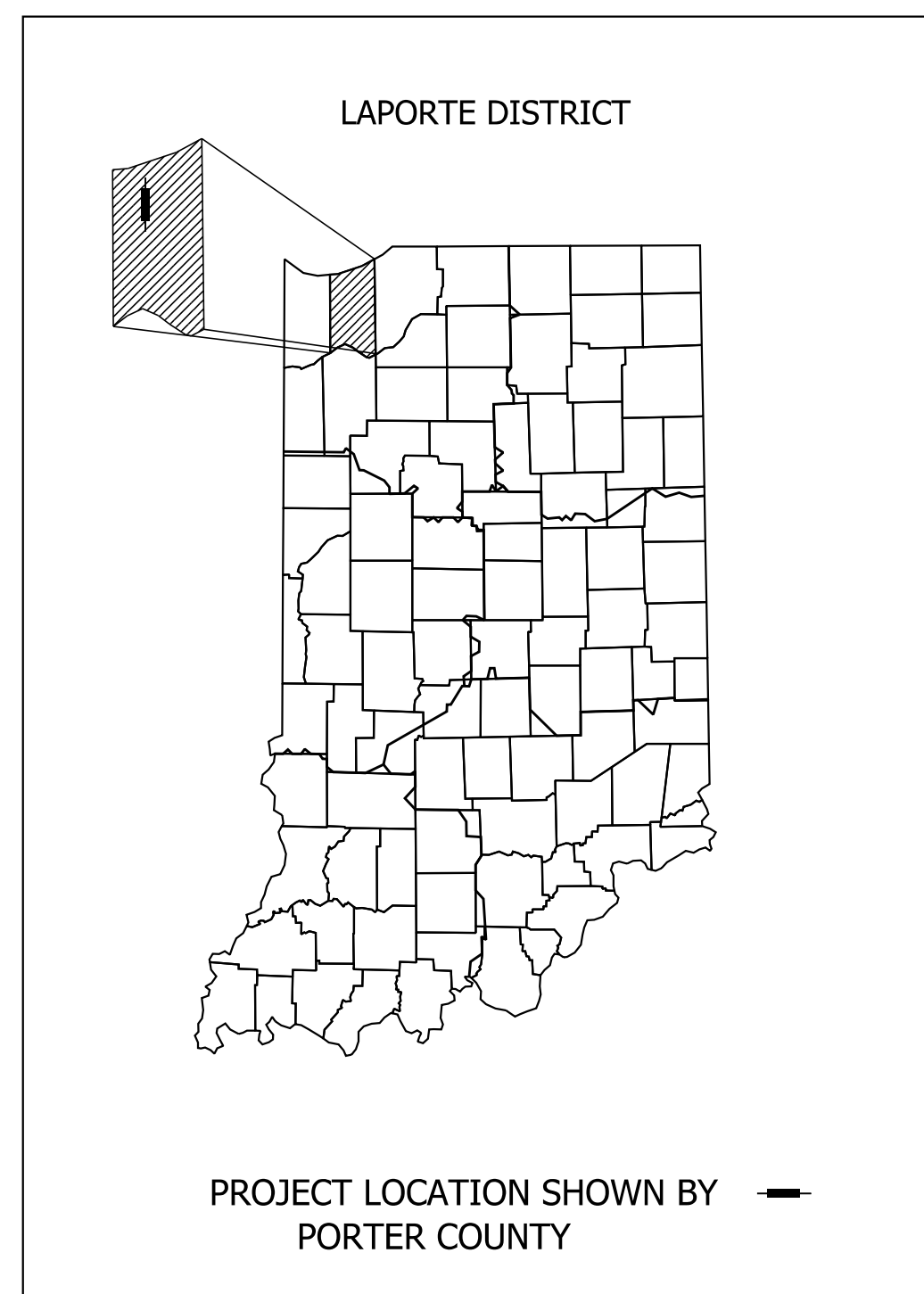
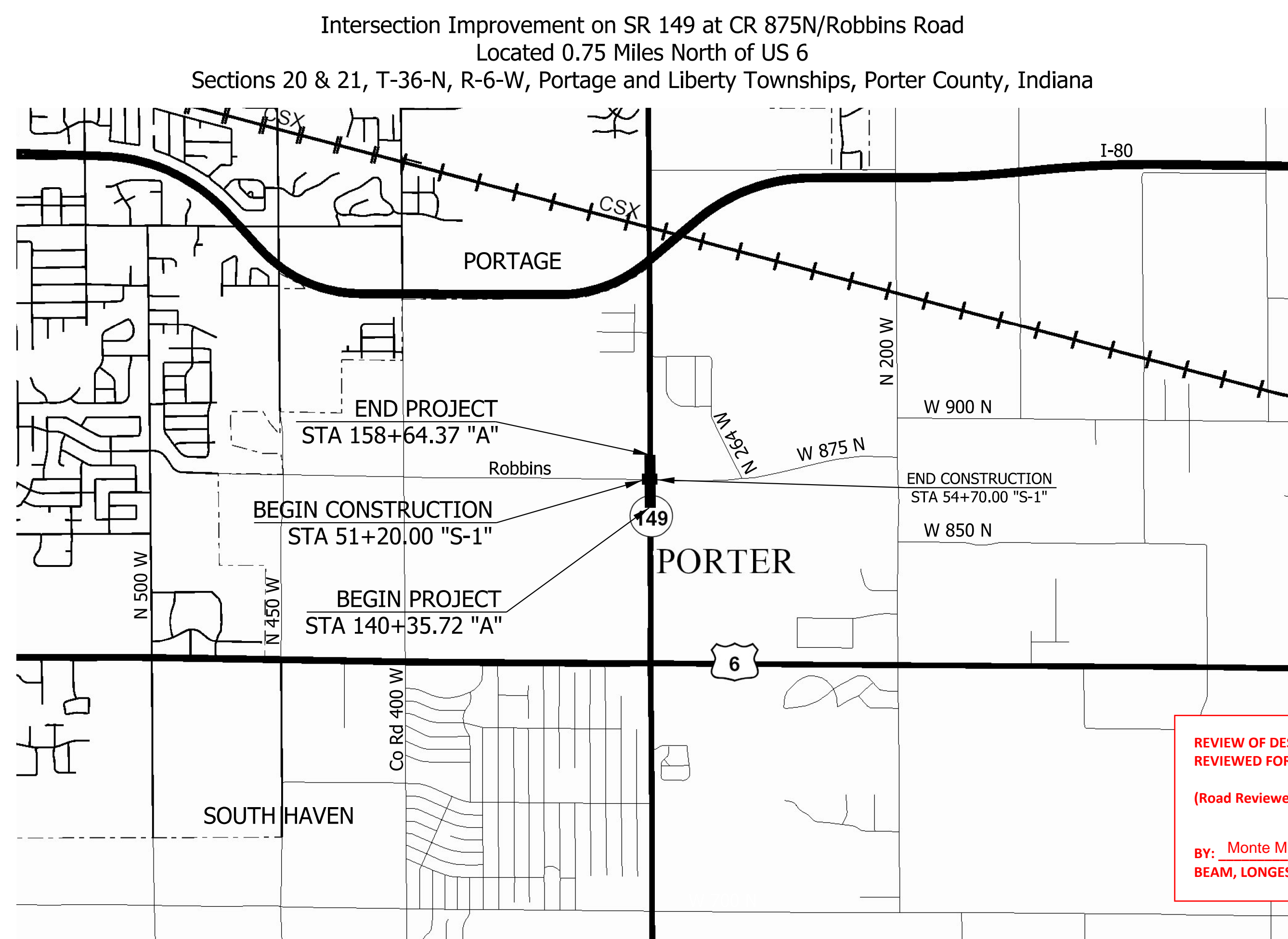
ROAD PLANS

ROUTE: SR 149 FROM: RP 4+59 TO: RP 4+80
 PROJECT NO. 1600701 P.E.
 1600701 R/W
 1600701 CONST.

TRAFFIC DATA		SR 149	Robbins Rd
A.A.D.T. (2022)		10,439 V.P.D.	Not Available V.P.D.
A.A.D.T. (2042)		11,637 V.P.D.	Not Available V.P.D.
D.H.V (2042)		1,065 V.P.H.	Not Available V.P.H.
DIRECTIONAL DISTRIBUTION		49.51 %	Not Available %
TRUCKS		5.26 % A.A.D.T.	Not Available A.A.D.T.
		3.86 % D.H.V.	Not Available D.H.V.

DESIGN DATA		
DESIGN SPEED	50 M.P.H.	35 M.P.H.
PROJECT DESIGN CRITERIA	RECONSTRUCTION (NON-FREEWAY)	RECONSTRUCTION (NON-FREEWAY)
FUNCTIONAL CLASSIFICATION	PRINCIPAL ARTERIAL	MINOR COLLECTOR
RURAL/URBAN	URBAN	URBAN
TERRAIN	LEVEL	LEVEL
ACCESS CONTROL	NONE	NONE

KIN PROJECT INFORMATION	
DESIGNATION	PROJECT DESCRIPTION
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX
XXXXXX	XXXXX



LATITUDE: 41° 41' 15" LONGITUDE: 86° 45' 49"

GROSS LENGTH: 0.35 MI.
 NET LENGTH: 0.35 MI.
 MAX. GRADE: 3.74% %

Stage 2

~~PFC Plan Set~~
 01/29/2020

NOT FOR CONSTRUCTION

REVIEW OF DESIGN PLANS/DOCUMENTS
 REVIEWED FOR DESIGN FEATURES

(Road Reviewer)

By: Monte Mildenberg DATE: 03/01/2021
 BEAM, LONGEST and NEFF, L.L.C.

INDIANA DEPARTMENT OF TRANSPORTATION
 STANDARD SPECIFICATIONS DATED 2020
 TO BE USED WITH THESE PLANS

PLANS PREPARED BY:	Lochner	219-324-4903
		PHONE NUMBER
CERTIFIED BY:		2/11/2021
		DATE
RECOMMENDED FOR LETTING:	INDIANA DEPARTMENT OF TRANSPORTATION	DATE

DESIGNATION	1600701
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CONTRACT	R-42249
PROJECT	1600701

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UTILITIES

Aqua Indiana - Sanitary Sewer
5750 Castle Creek Parkway - N. Dr. #314
Indianapolis, IN 46250
Jim Shields
317-577-1390
jeshields@aquamerica.com

Comcast - Communication
Larry Smith
larry_smith@comcast.com

Damon Run Conservancy District - Sanitary Sewer
205 Billings Street
Valparaiso, IN 46383
Steve Poulos
219-462-6174
spoulos@valpo.us

Frontier Communications - Communication
8001 West Jefferson Blvd.
Fort Wayne, IN 46804
Joe Saril
260-461-3324
utilitycordreq@ftr.com

Frontier Communications - Communication
Alison Buchanan
alison.buchanan@ftr.com

Indiana American Water Co. - Water
Ed Nickels
317-885-2407
edward.nickels@amwater.com

Centurylink (National) - Communication
Kendallyn Zetina
918-547-0547
kendall.zetina@centurylink.com

Marathon Pipeline - Gas
529 S. Main St., Room 7624A
Findlay, OH 45840
Greg Newman
419-884-0800
gnewman@mplx.com

NIPSCO Electric - Electric
22 S. SR 49
Valparaiso, IN 46383
Rich Ostertag
219-384-3382
rostertag@nisource.com

NIPSCO Gas - Gas
801 E. 86th St.
Merrillville, IN 46410
Dean Garrett
219-647-6260
dagarrett@nisource.com



**Know what's below.
Call before you dig.**

INDIANA UNDERGROUND
1-800-382-5544 OR CALL 811
24 HOURS A DAY 7 DAYS A WEEK

Note:
Indiana Underground was notified.
There may be utilities other than these that were not notified
or elected not to respond and no evidence was discovered
as to their identity.

GENERAL NOTES

The final cross sections of the grading contract will be the original cross sections of the paving contract. However, partial or complete cross sections shall be taken if necessary to determine the actual excavation quantities.

The paper relocation lines will be cross sectioned by the engineer before construction.

Existing asphalt pavement located outside the construction limits shall be removed as directed.

Existing pccp sidewalks and curbs shall be removed from project right of way limits unless otherwise noted and shall be paid for under clearing right of way.

* * All earth shoulders, median areas, cut and fill slopes shall be plain or mulched seeded except where sodding is specified.

* * All existing storm drainage pipes, inlets, and manholes shall remain unless otherwise noted.

All limited access right of way is to be fenced with black vinyl coated chain link type fence (b.v.c.l.t.f.) unless otherwise noted.

All existing right of way fence shall be removed unless otherwise noted.

* * All disturbed areas shall be seeded with seed mixture "R" unless otherwise noted.

* * All slopes are to be repaired with a minimum amount of grading so as not to disturb existing vegetation more than necessary.

All pipes that are to be removed which connect to existing sewers that are to remain in operation shall be sealed water tight.

* * Denotes General Notes Required.

SHEET INDEX

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7	PLAT NO. 1
8-9	MAINTENANCE OF TRAFFIC
10-14	PLAN AND PROFILE
15	STRUCTURE DETAIL
16	GUARDRAIL DETAIL
17	SIGNING AND PAVEMENT MARKINGS
18-19	GENERAL SUMMARY TABLES
20-47	CROSS SECTIONS

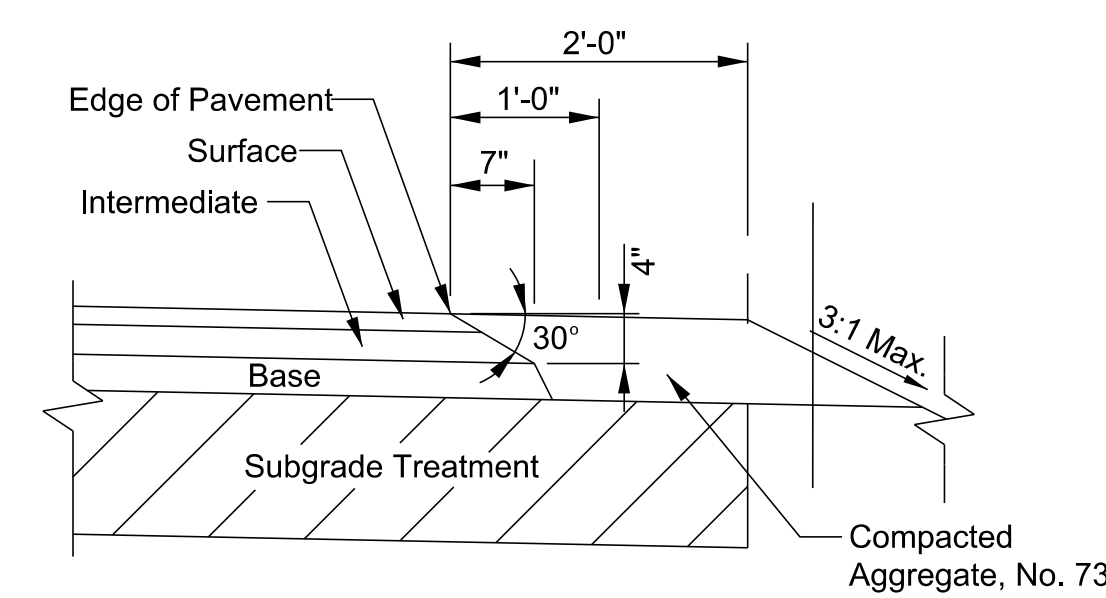
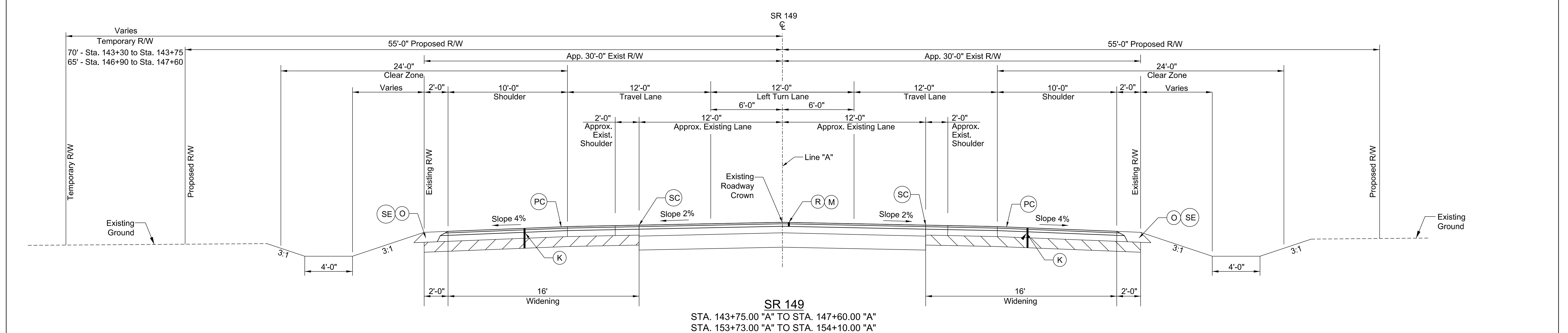
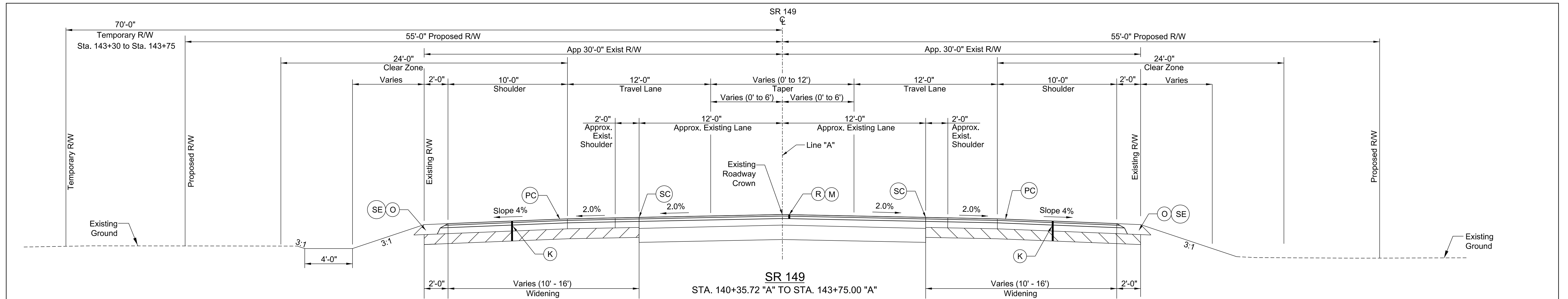
REVISIONS

SHEET NO.	DATE	REVISED

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
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DESIGNED: JMS	08/19/2020	DRAWN: KG
		08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL
		08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION
INDEX AND GENERAL NOTES

SCALE	BRIDGE FILE
N.T.S	
	DESIGNATION
	1600701
	SHEETS
ELECTRONIC	2 of 47
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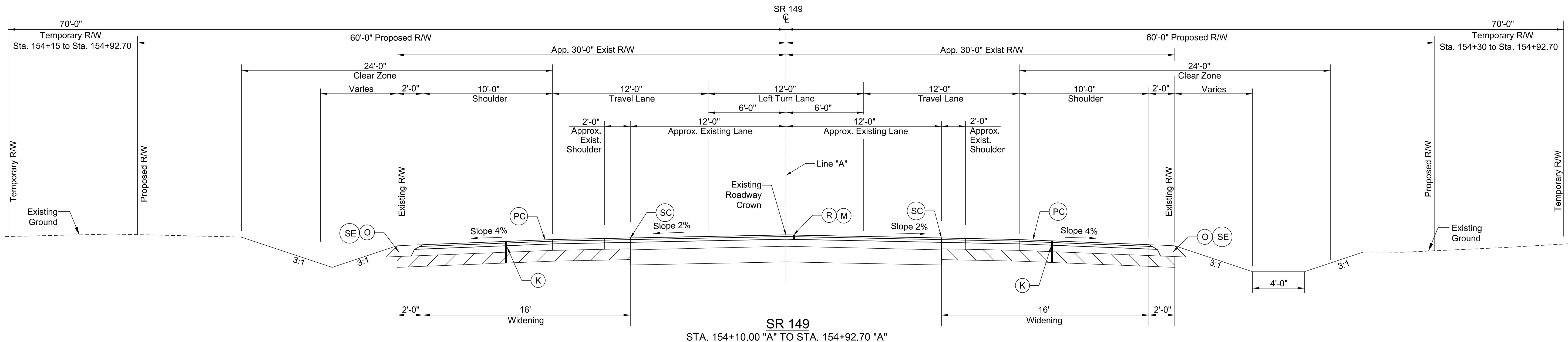
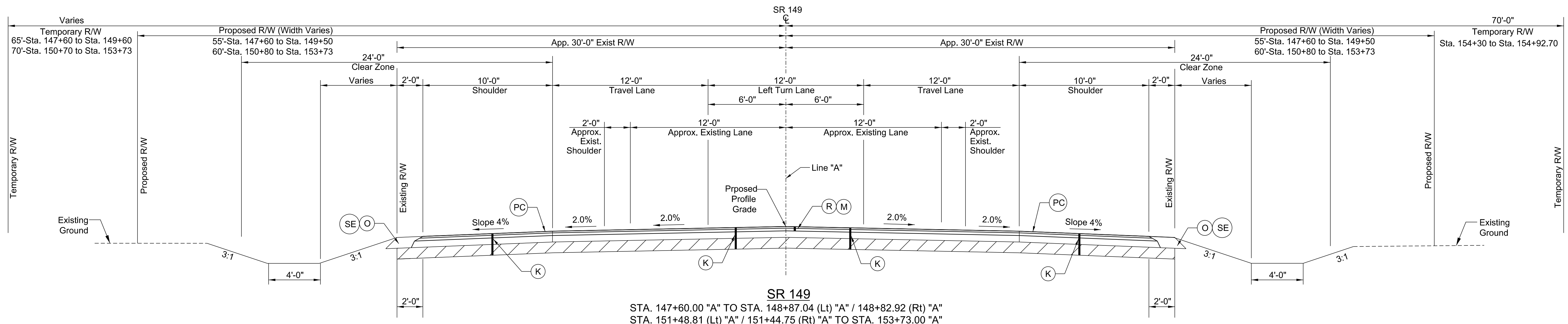
SAFETY EDGE ON HMA PAVEMENT

LEGEND

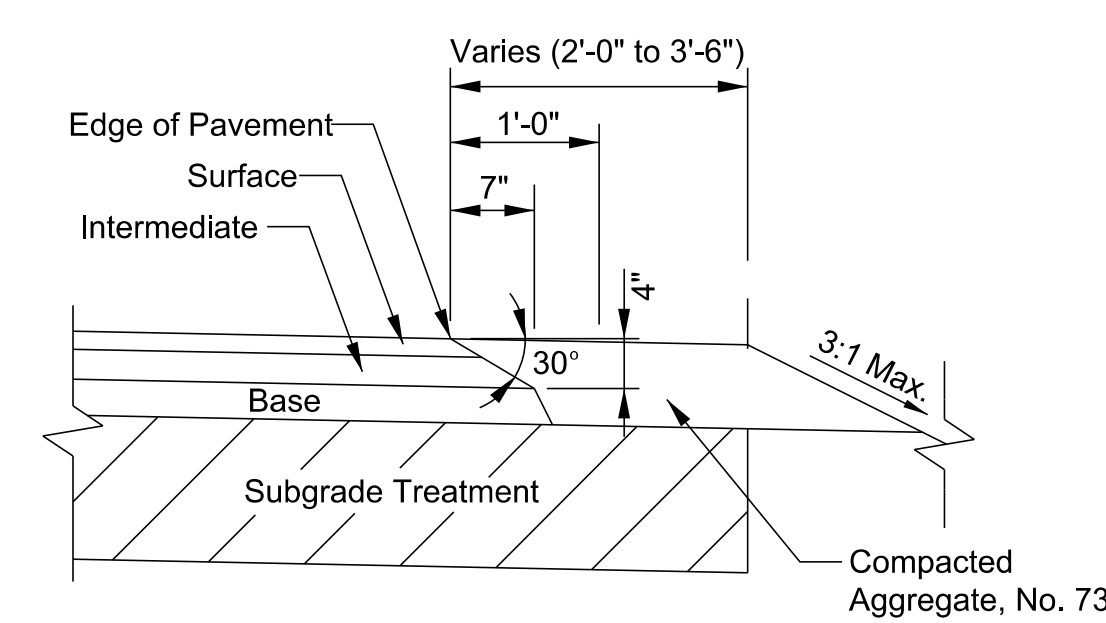
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- (O) Compacted Aggregate, No. 73
- (R) Resurfacing: 165#/SYD QC/QA - HMA, 3, 70, Surface, 9.5 mm on 275#/SYD QC/QA - HMA, 3, 70, Intermediate, 19.0 mm on
- (M) Milling, Asphalt, 4"
- (SC) Saw Cut Line (Limit of Existing Pavement Removal)
- (SE) Safety Edge (See Detail This Sheet)
- (PC) Shoulder Rumble Strip - Milled Sinusoidal Corrugations

Note: Pavement Designs TBD

	RECOMMENDED FOR APPROVAL <i>ENG SIGNATURES</i> 2/11/2021 DESIGN ENGINEER DATE	INDIANA DEPARTMENT OF TRANSPORTATION	SCALE	BRIDGE FILE		
	DESIGNED: JMS 08/19/2020 DRAWN: KG 08/19/2020 CHECKED: ACH 08/19/2020 CHECKED: MVL 08/19/2020		DESIGNATION 1600701			
	TYPICAL CROSS SECTIONS			SHEETS 3 of 47		
				PROJECT R-42249 1600701		



Pipe



- LEGEND**
- (K) 165#/SYD QC/QA - HMA, 3, 70, Surface, 9.5 mm on 275#/SYD QC/QA - HMA, 3, 70, Intermediate, 19.0 mm on 660#/SYD QC/QA - HMA, 3, 64, Base, 19.0mm (2 Lifts) Subgrade Treatment, Type TBD
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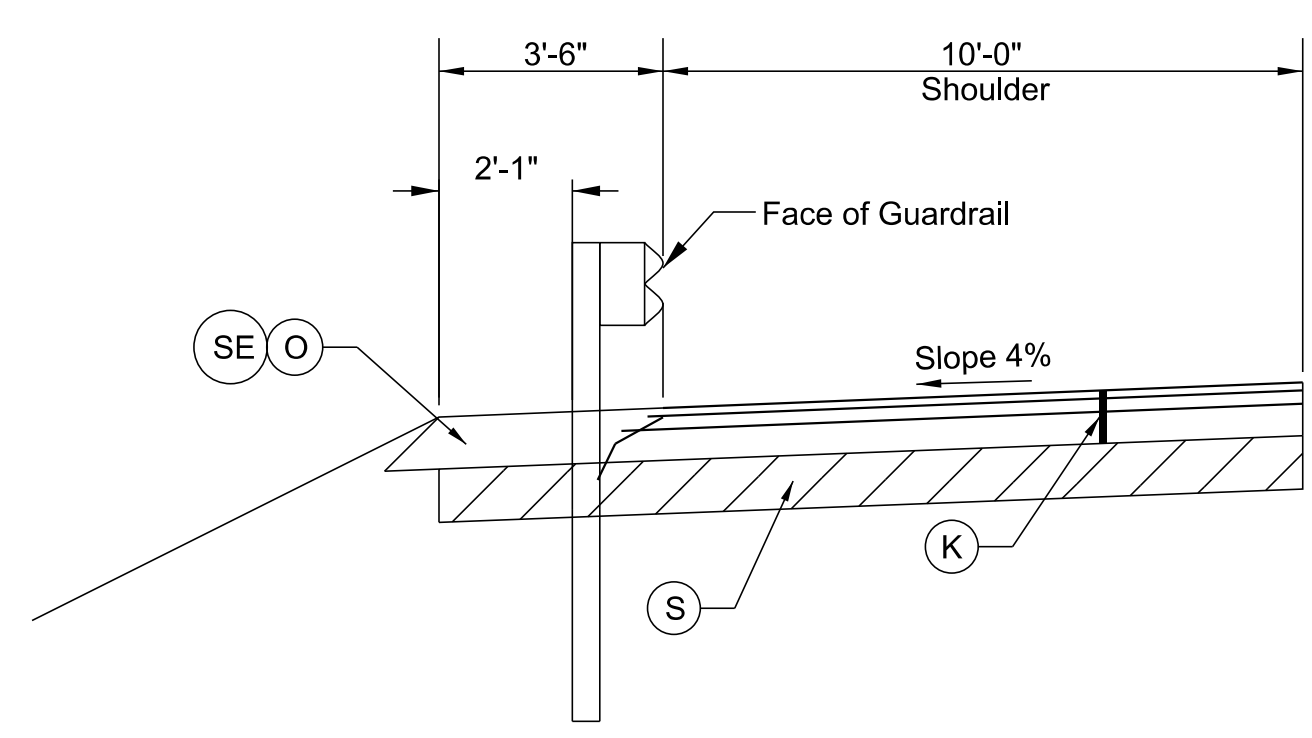
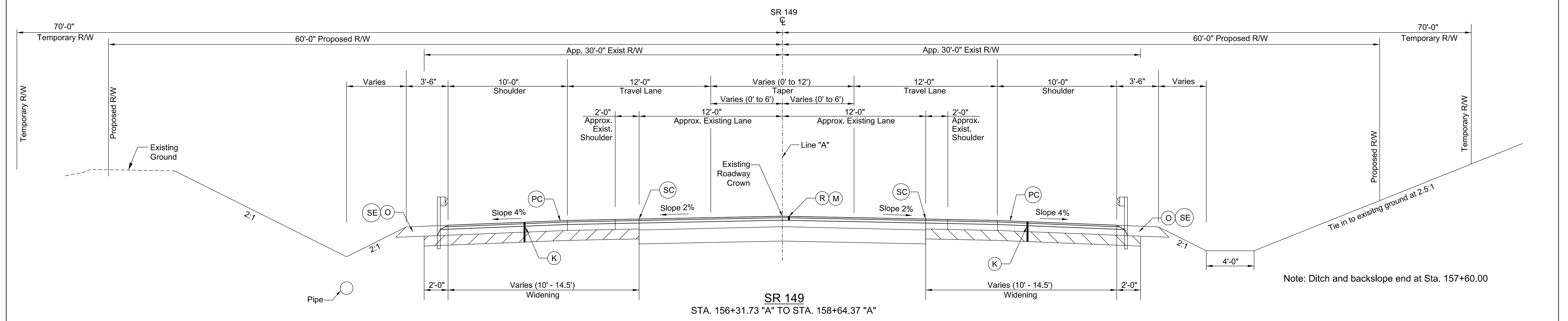
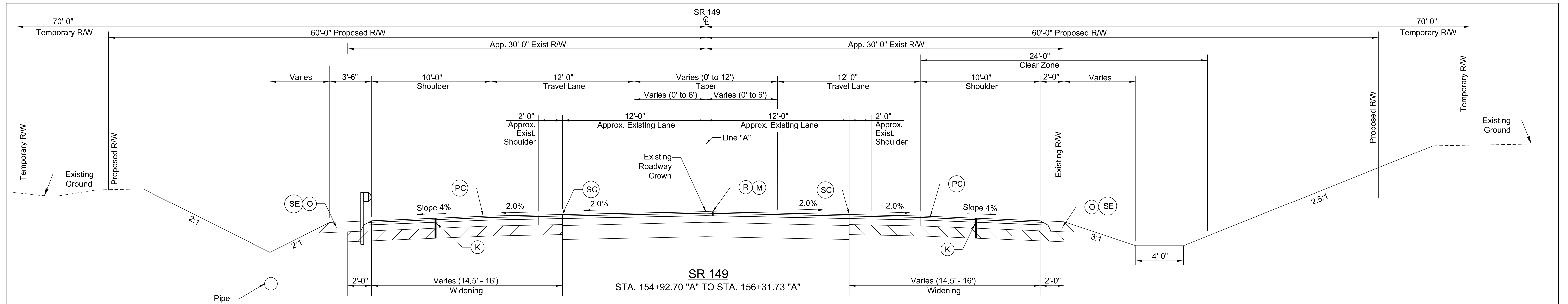
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CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

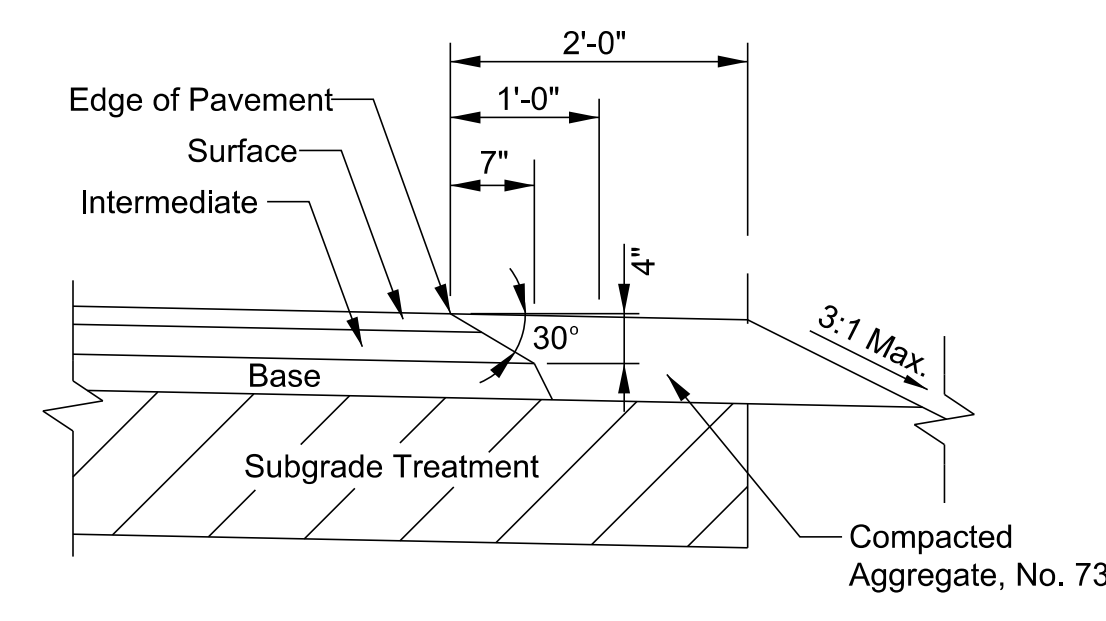
INDIANA DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTIONS

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Guardrail Detail
 STA. 154+92.70 TO STA. 159+50.14 (Lt.)
 STA. 156+30.00 TO STA. 159+30 (Rt.)
 Left Side Shown, Right Side Similar



SAFETY EDGE ON HMA PAVEMENT
 Right Side Shown, Left Side Similar

- LEGEND**
- (K) 165#/SYD QC/QA - HMA, 3, 70, Surface, 9.5 mm on 275#/SYD QC/QA - HMA, 3, 70, Intermediate, 19.0 mm on 660#/SYD QC/QA - HMA, 3, 64, Base, 19.0mm (2 Lifts) Subgrade Treatment, Type TBD
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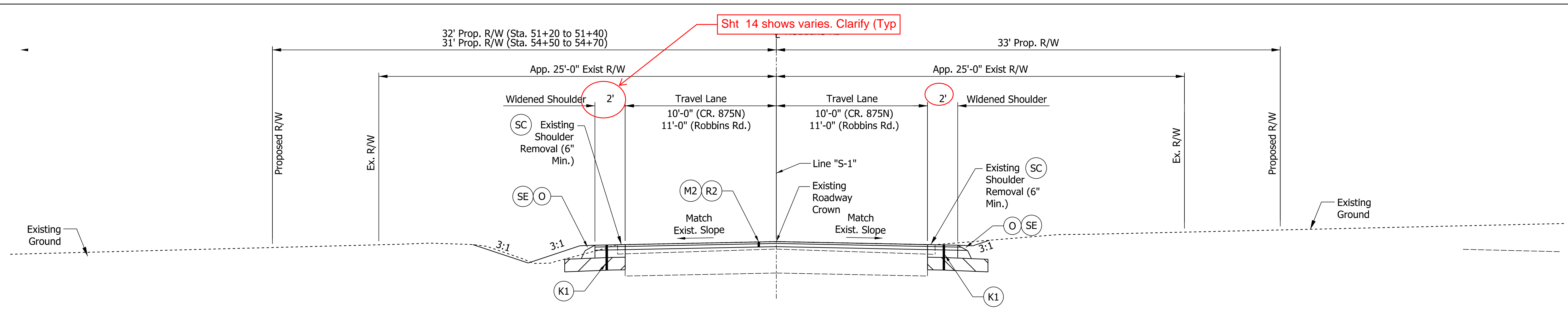
Note: Pavement Designs TBD

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CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

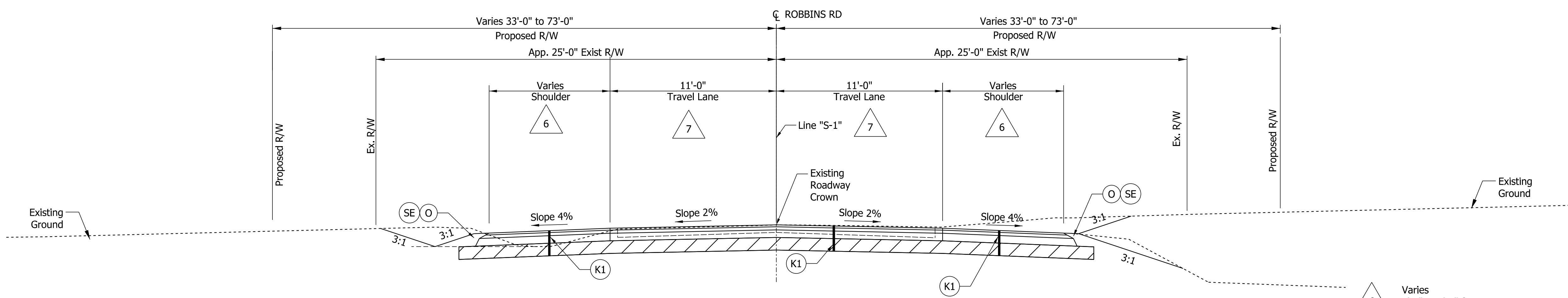
INDIANA
 DEPARTMENT OF TRANSPORTATION

TYPICAL CROSS SECTIONS

SCALE	BRIDGE FILE
1/4" = 1'-0"	
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ROBBINS ROAD
 STA. 51+20 "S-1" TO STA. 51+40 "S-1"
 STA. 54+50 "S-1" TO STA. 54+70 "S-1"



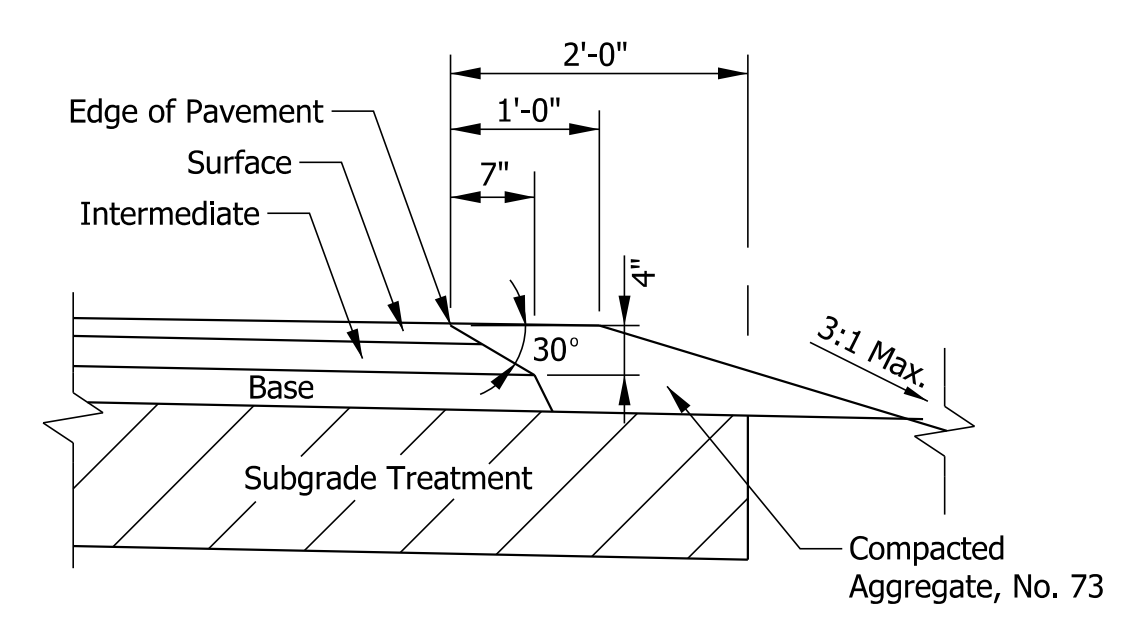
ROBBINS ROAD
 STA. 51+40 "S-1" TO STA. 54+50 "S-1"

- △ 6 Varies 3'-0" to 6'-0" from Sta. 51+40.00 to Sta. 51+67.83 and 3'-0" to 6'-0" from Sta. 53+74.84 to Sta. 54+50.00
- △ 7 Varies 11'-0" to 15'-0" from Sta. 51+67.83 to Sta. 52+17.83 and 15'-0" to 11'-0" from Sta. 53+74.84 to Sta. 54+34.84

LEGEND

- ⊙ K1 HMA for Approaches, Type B, consisting of: 165 lbs/syd HMA Surface, Type B, on 275 lbs/syd HMA Intermediate, Type B, on 6" Compacted Aggregate No. 53, on Subgrade Treatment, Type II
- ⊙ O Compacted Aggregate, No. 73
- ⊙ R2 HMA for Approaches, Type B, consisting of: 165 lbs/syd HMA Surface, Type B on Milled Surface
- ⊙ M2 Approach Milling
- ⊙ SC Saw Cut Line (Limit of Existing Pavement Removal)
- ⊙ SE Safety Edge (See Detail This Sheet)
- ⊙ PC Shoulder Rumble Strip - Milled Sinusoidal Corrugations

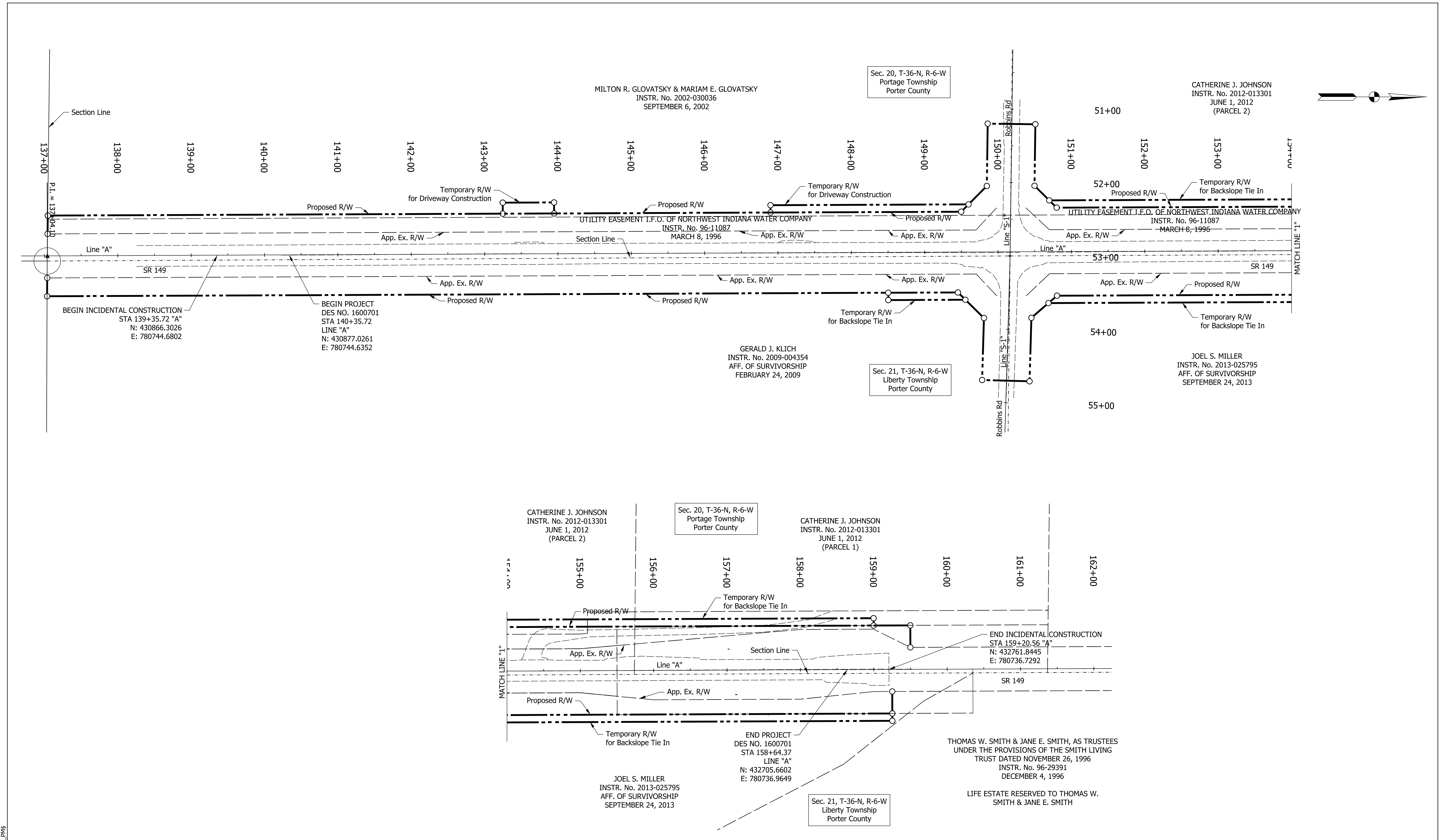
Note: Pavement Designs TBD



SAFETY EDGE ON HMA PAVEMENT

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		INDIANA DEPARTMENT OF TRANSPORTATION	SCALE	BRIDGE FILE
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	DATE			1600701	SHEETS
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020	ELECTRONIC 6 of 47	
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020	CONTRACT PROJECT	
				R-42249	1600701

TYPICAL CROSS SECTIONS



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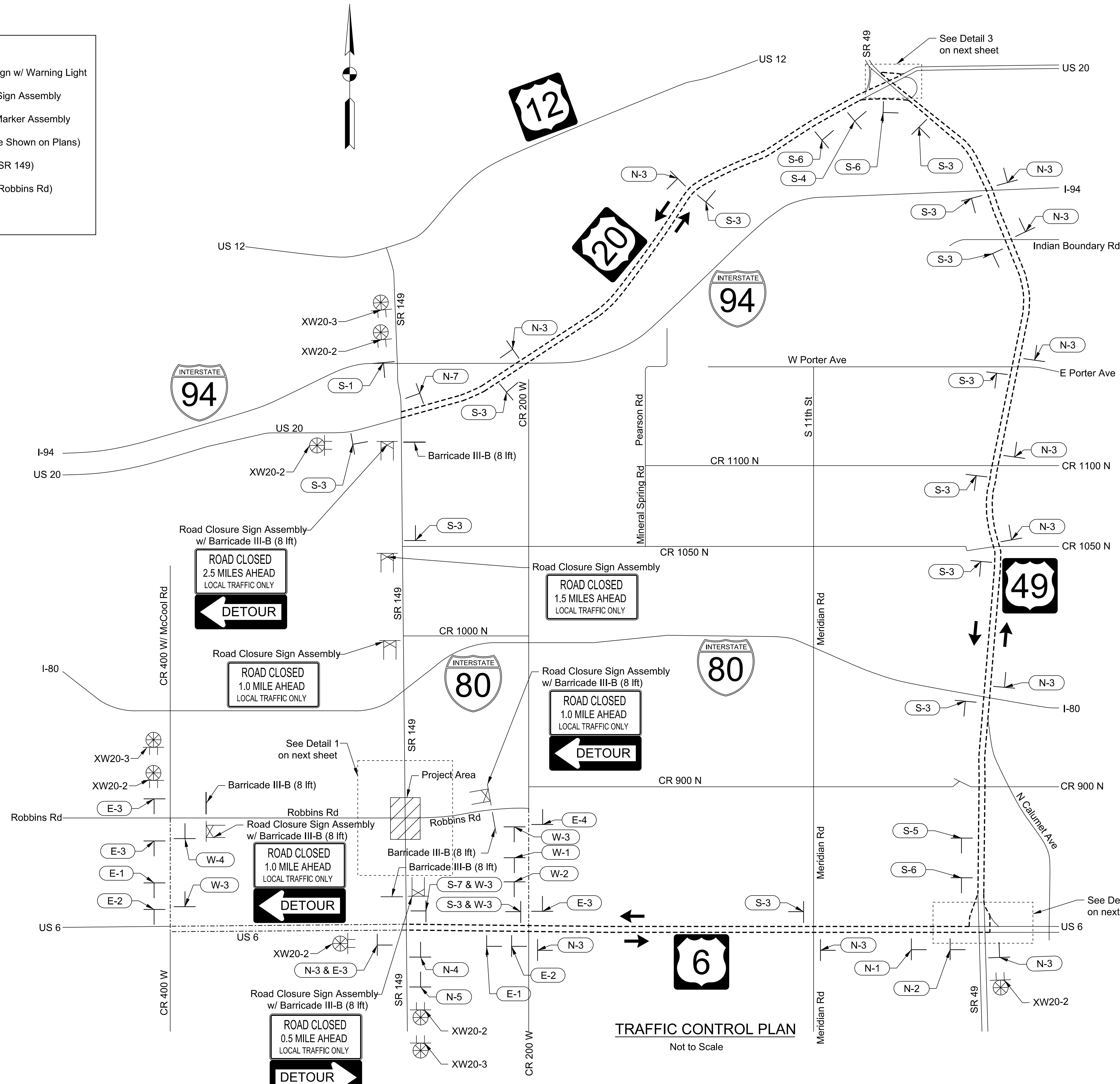
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				08/19/2020
CHECKED:	ACH	08/19/2020	CHECKED:	MVL
				08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION	
PLAT NO. 1	

SCALE	BRIDGE FILE
1" = 720'	
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LEGEND

- Construction Sign w/ Warning Light
- Road Closure Sign Assembly
- Detour Route Marker Assembly
- Barricade (Type Shown on Plans)
- Detour Route (SR 149)
- Detour Route (Robbins Rd)
- Traffic Flow



TRAFFIC CONTROL PLAN
Not to Scale

Sign assembly for Southbound traffic on SR 149:

- Top: DETOUR INDIANA 149 SOUTH
- Middle: Directional arrows (Left, Right, Up, Down, Right, Left)
- Bottom: S-1, S-2, S-3, S-4, S-5, S-6, S-7

Sign assembly for Northbound traffic on SR 149:

- Top: DETOUR INDIANA 149 NORTH
- Middle: Directional arrows (Left, Right, Up, Down, Right, Left)
- Bottom: N-1, N-2, N-3, N-4, N-5, N-6, N-7

Sign assembly for Eastbound traffic on Robbins Rd:

- Top: DETOUR INDIANA 149 EAST
- Middle: Directional arrows (Left, Right, Up, Down, Right, Left)
- Bottom: E-1, E-2, E-3, E-4, W-1, W-2, W-3, W-4

Sign assembly for Road Closure and Detour:

- R11-2: ROAD CLOSED
- R11-3A: ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
- R11-73B: ROAD CLOSED ON OR AFTER ??? ?? 20??
- XM4-10L: DETOUR (Left Arrow)
- XM4-10R: DETOUR (Right Arrow)

Sign assembly for Detour Ahead:

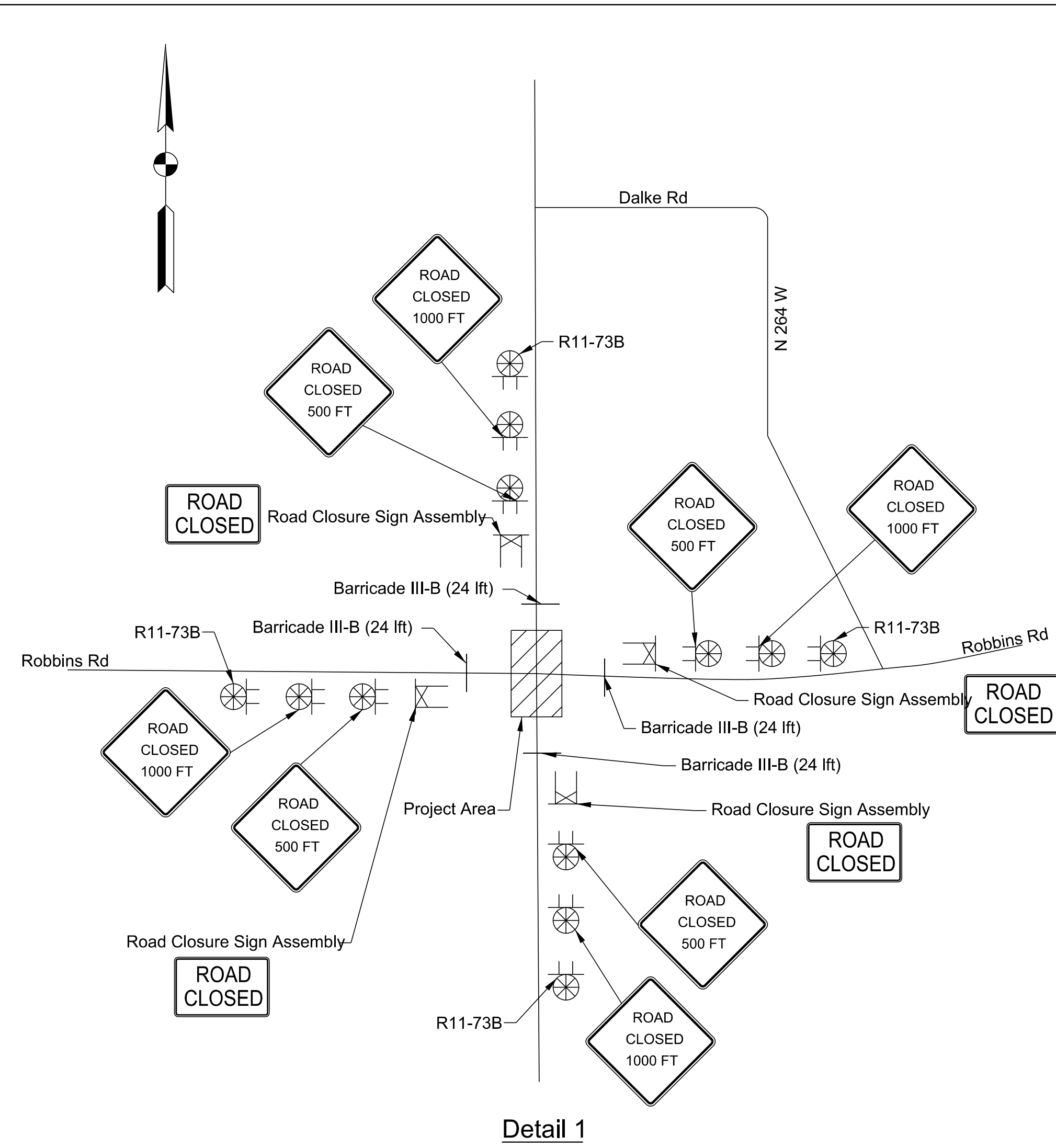
- XW20-2: DETOUR AHEAD
- XW20-3: ROAD CLOSED AHEAD
- XW20-3-500 FT: ROAD CLOSED 500 FT
- XW20-3-1000 FT: ROAD CLOSED 1000 FT

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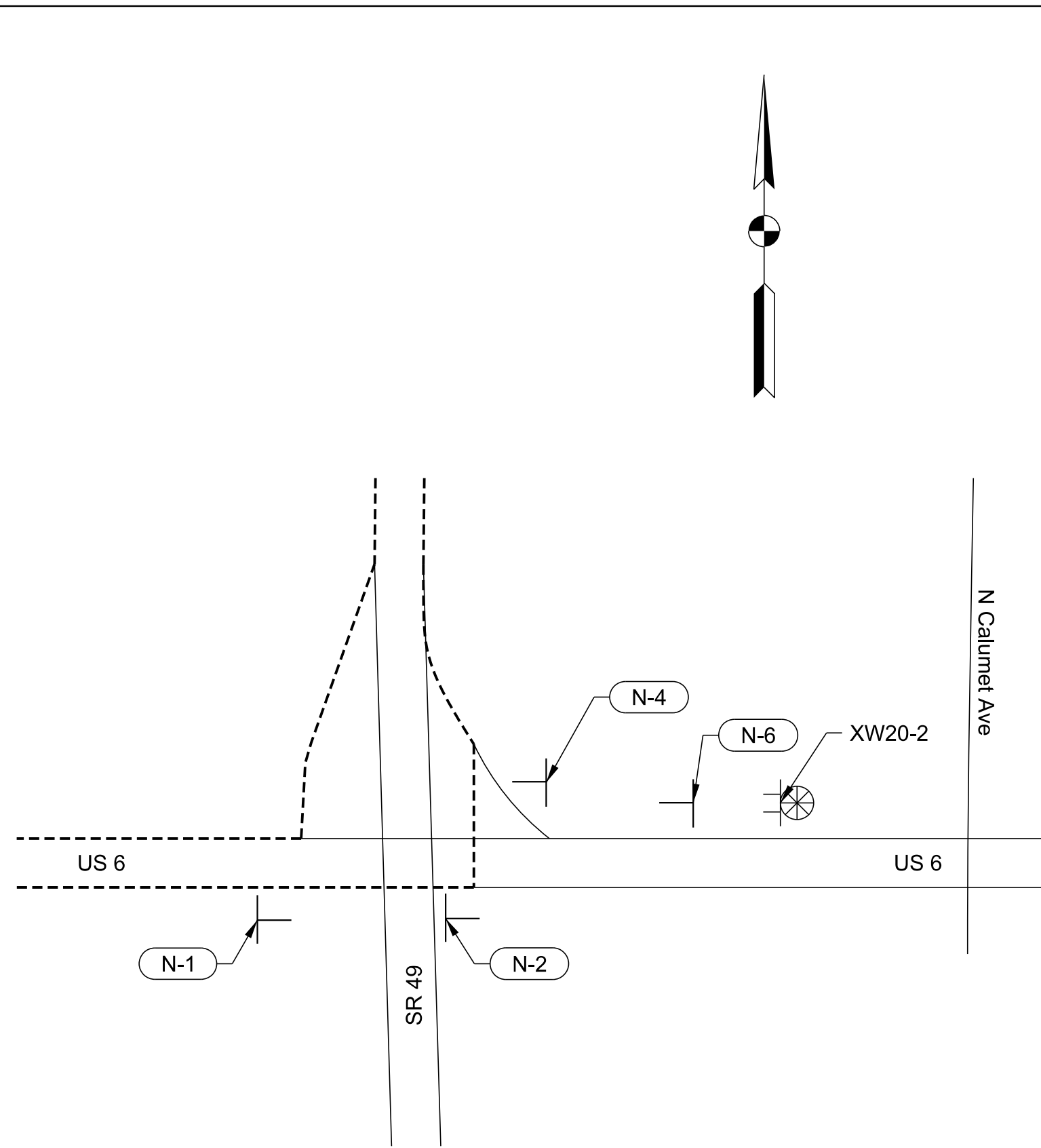
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CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION	
MAINTENANCE OF TRAFFIC	

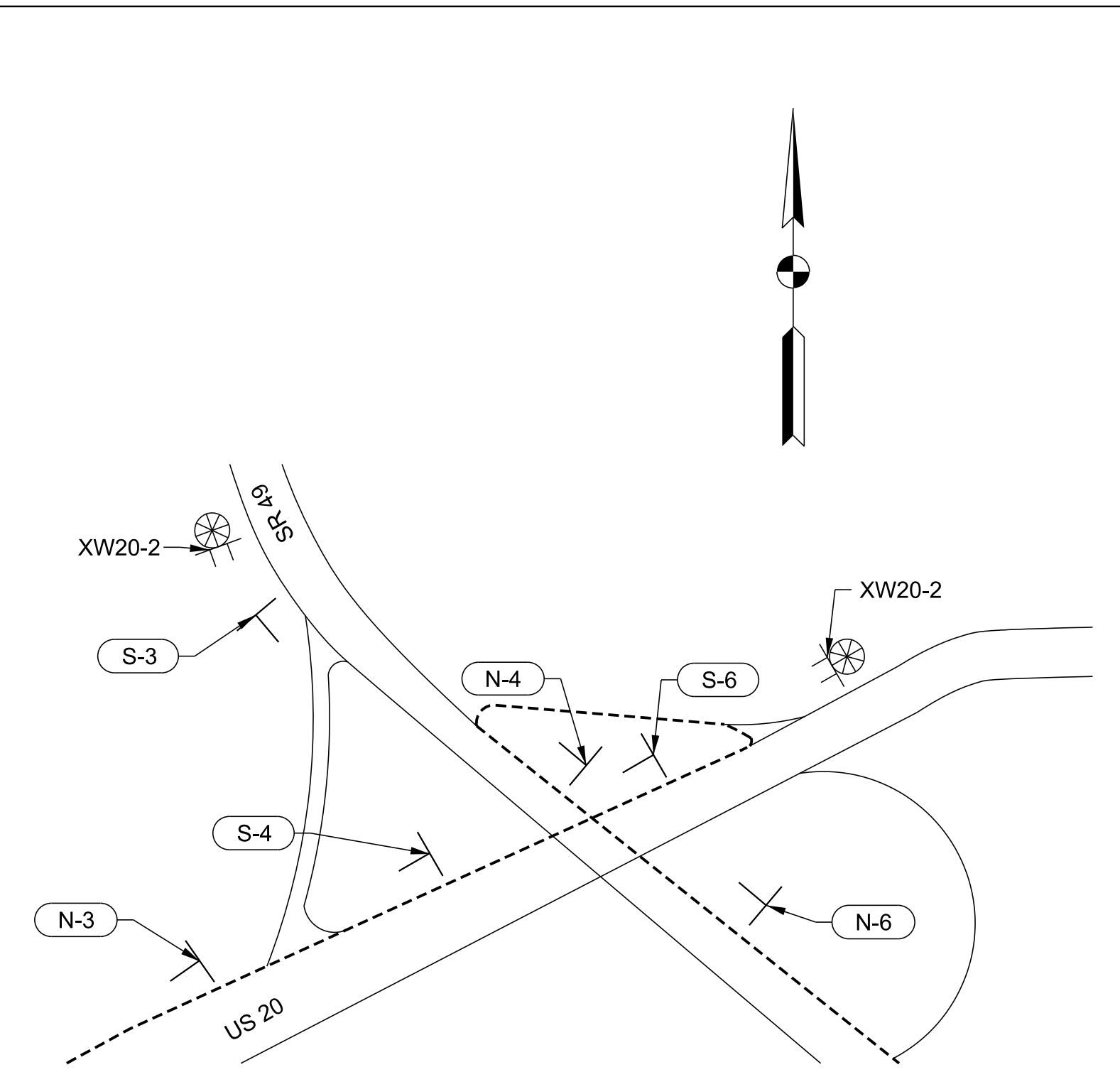
SCALE AS NOTED	BRIDGE FILE
	DESIGNATION 1600701
	SHEETS 8 of 47
CONTRACT R-42249	PROJECT 1600701



Detail 1



Detail 2



Detail 3

MOT SUMMARY

ITEM	UNIT	QUANTITY
CONSTRUCTION SIGN, A	EACH	24
ROAD CLOSURE SIGN ASSEMBLY	EACH	10
DETOUR ROUTE MARKER ASSEMBLY	EACH	63
BARRICADE, III-B	LFT	160

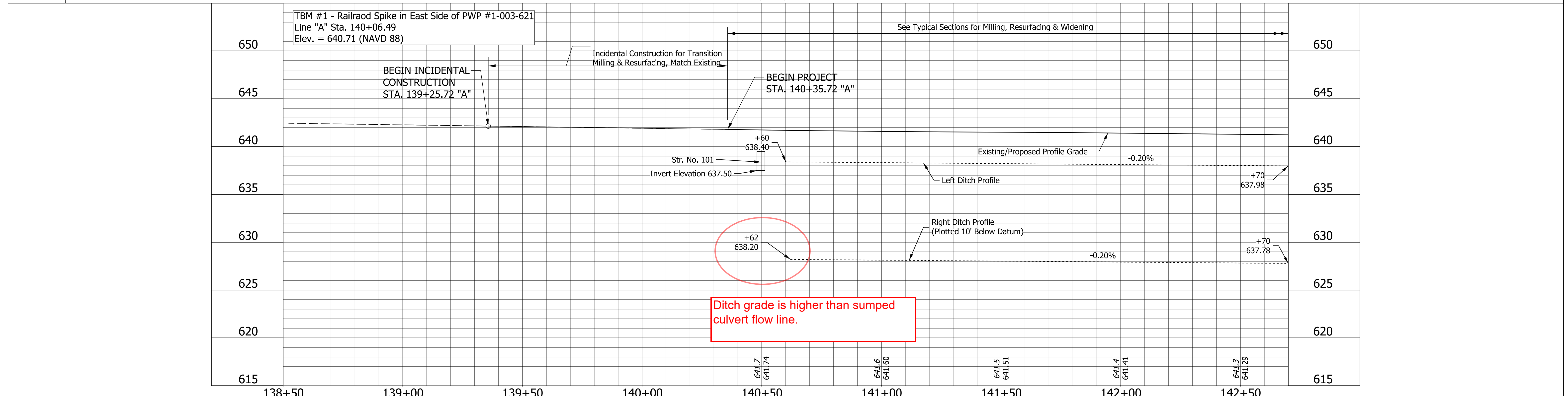
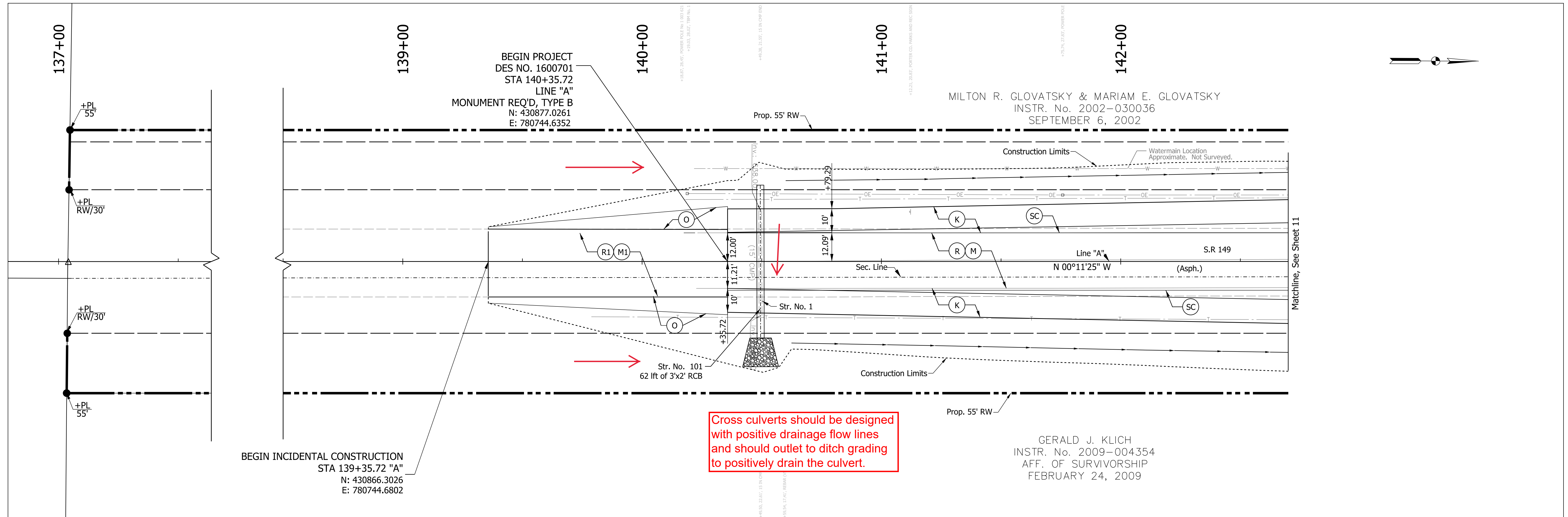
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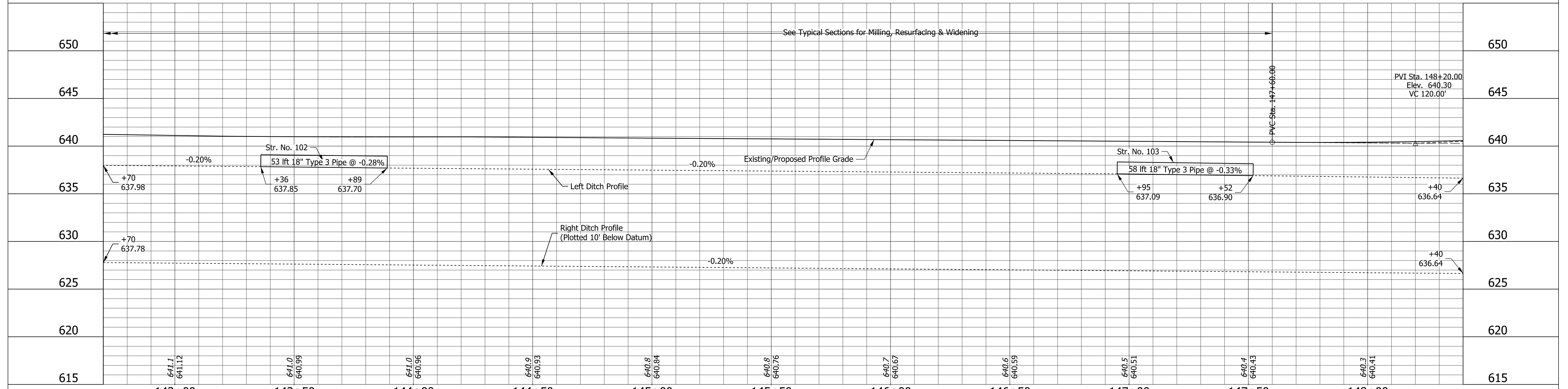
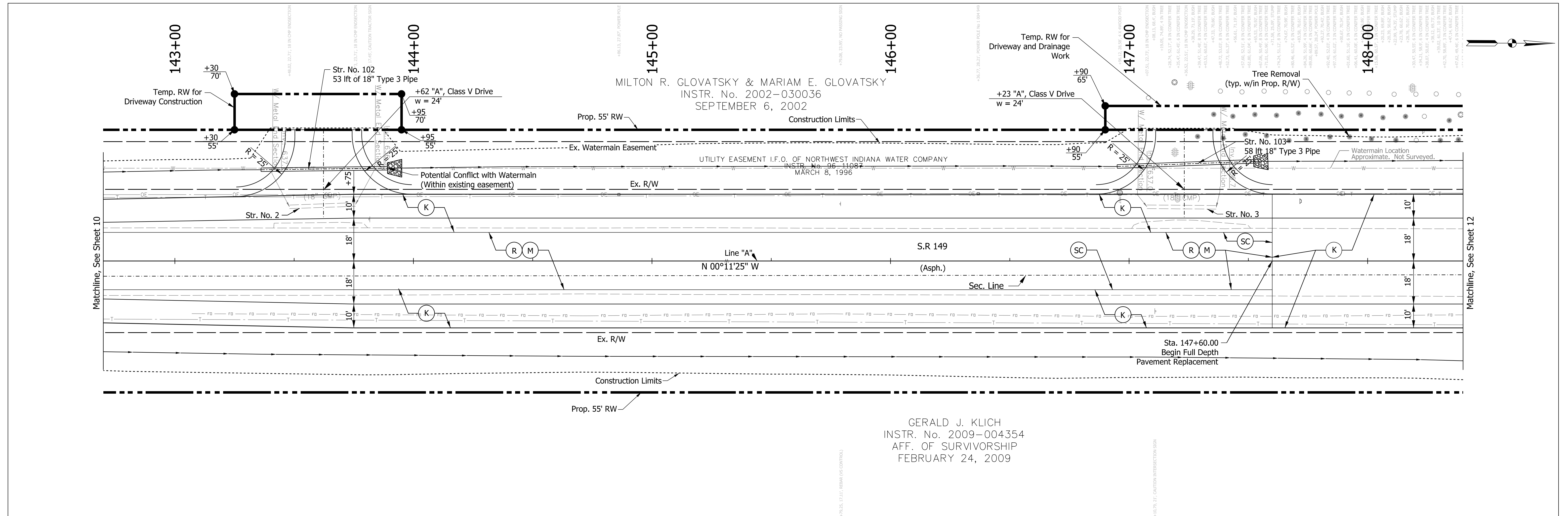
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INDIANA DEPARTMENT OF TRANSPORTATION	
MAINTENANCE OF TRAFFIC	

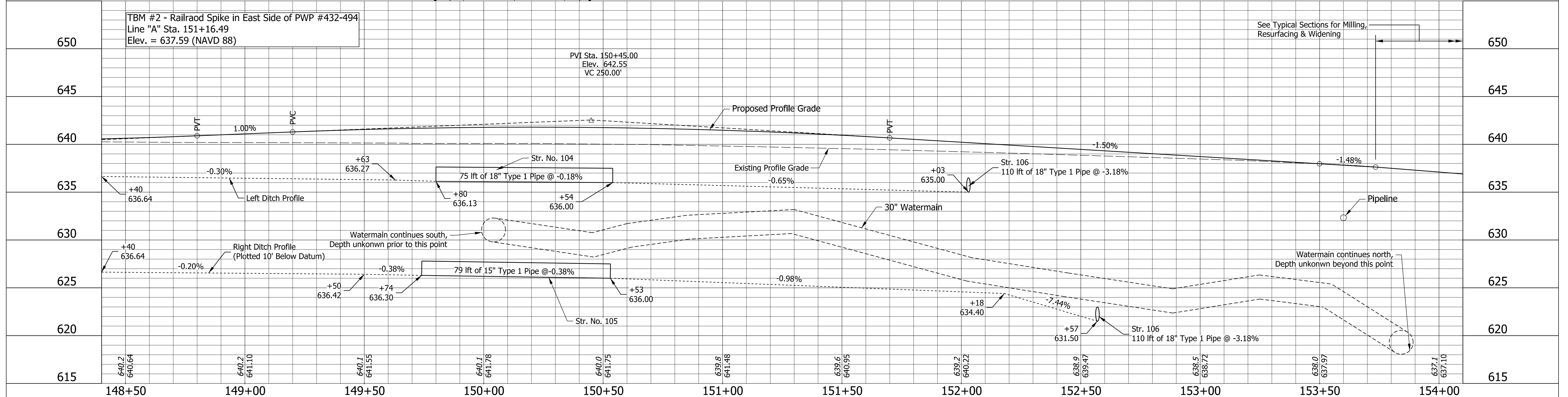
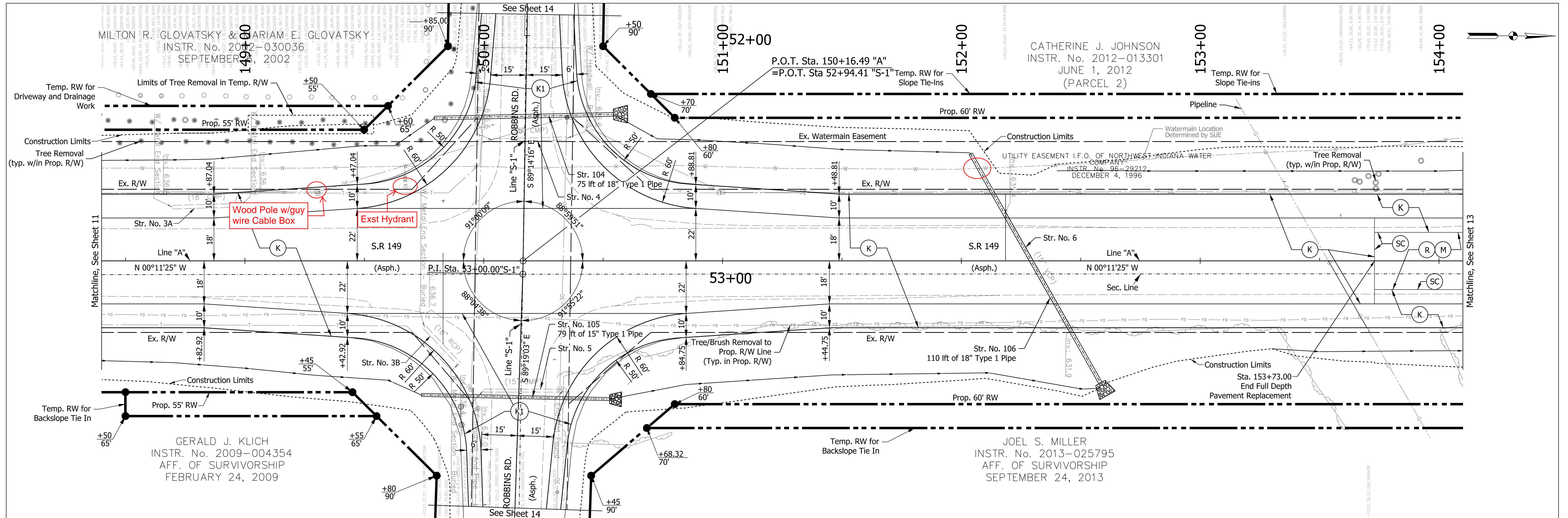
SCALE AS NOTED	BRIDGE FILE
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	SHEETS 9 of 47
CONTRACT R-42249	PROJECT 1600701



LEGEND (K) 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm on 660 #/SYD QC/QA-HMA, 3, 70, Base, 19.0 mm (2 Lifts) on Subgrade Treatment, Type TBD (O) Compacted Aggregate, No. 73 (R) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm (R1) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on (M) Milling, Asphalt, 4" (M1) Milling, Asphalt, 1.5" (SC) Saw Cut Line (Limit of Existing Pavement Removal) (D) Full Depth Driveway Replacement		RECOMMENDED FOR APPROVAL <i>ENG SIGNATURES</i> DESIGN ENGINEER DATE: 2/11/2021	INDIANA DEPARTMENT OF TRANSPORTATION PLAN AND PROFILE LINE "A"	HORIZONTAL SCALE 1" = 20'-0" VERTICAL SCALE 1" = 5'-0" BRIDGE FILE DESIGNATION 1600701 SHEETS ELECTRONIC 10 of 47 CONTRACT PROJECT R-42249 1600701
DESIGNED: JMS 08/19/2020 DRAWN: KG 08/19/2020 CHECKED: ACH 08/19/2020 CHECKED: MVL 08/19/2020				



LEGEND (K) 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm on 660 #/SYD QC/QA-HMA, 3, 70, Base, 19.0 mm (2 Lifts) on Subgrade Treatment, Type TBD (O) Compacted Aggregate, No. 73 (R) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm (R1) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on	(M) Milling, Asphalt, 4" (M1) Milling, Asphalt, 1.5" (SC) Saw Cut Line (Limit of Existing Pavement Removal) (D) Full Depth Driveway Replacement	RECOMMENDED FOR APPROVAL <i>ENG SIGNATURES</i> 2/11/2021 DESIGN ENGINEER DATE	HORIZONTAL SCALE 1" = 20'-0" BRIDGE FILE VERTICAL SCALE 1" = 5'-0" DESIGNATION 1600701
		DESIGNED: JMS 08/19/2020 DRAWN: KG 08/19/2020 CHECKED: ACH 08/19/2020 CHECKED: MVL 08/19/2020	



LEGEND		INDIANA DEPARTMENT OF TRANSPORTATION	
(K) 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm on 660 #/SYD QC/QA-HMA, 3, 70, Base, 19.0 mm (2 Lifts) on Subgrade Treatment, Type TBD	(R) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm	(M) Milling, Asphalt, 4"	HORIZONTAL SCALE 1" = 20'-0"
(R1) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on	(M1) Milling, Asphalt, 1.5"	(SC) Saw Cut Line (Limit of Existing Pavement Removal)	VERTICAL SCALE 1" = 5'-0"
(O) Compacted Aggregate, No. 73	(D) Full Depth Driveway Replacement		BRIDGE FILE DESIGNATION 1600701

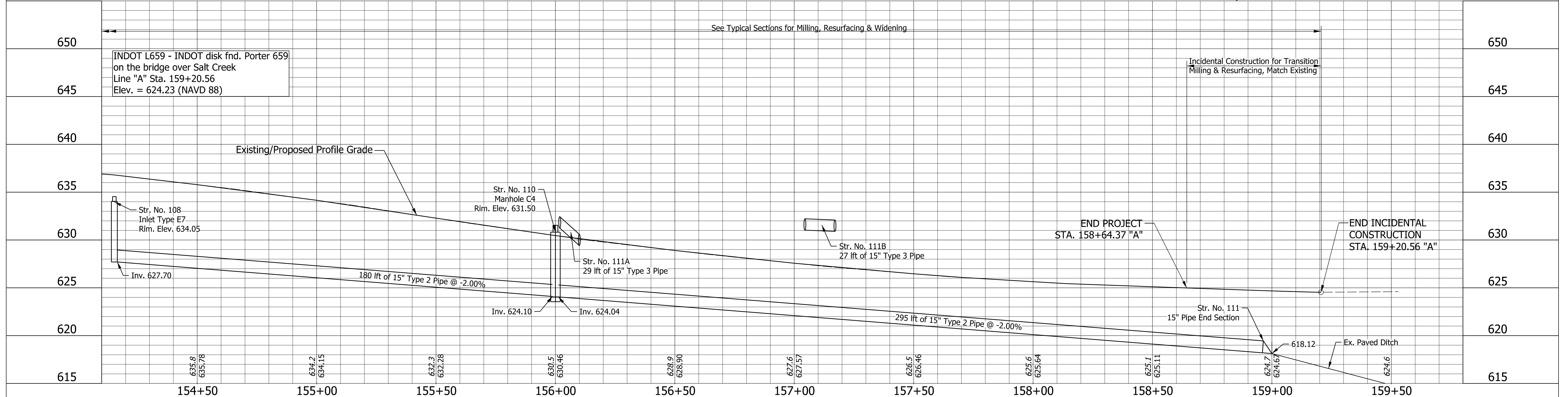
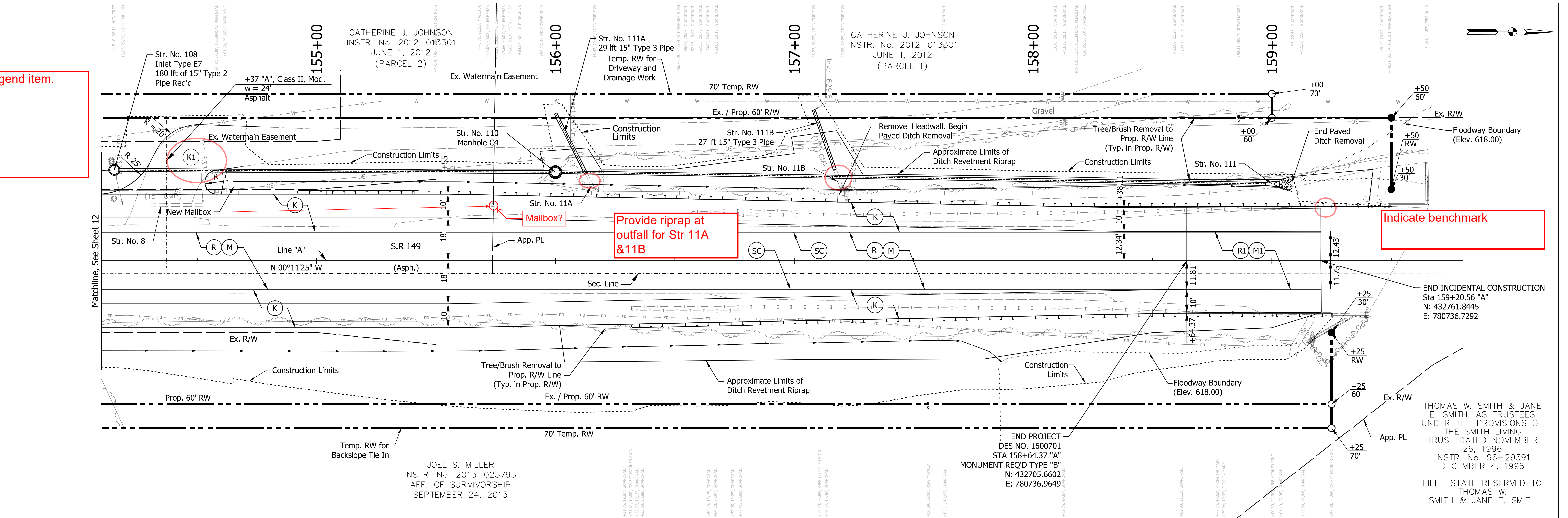
RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
DESIGNED: JMS	08/19/2020	DRAWN: KG
CHECKED: ACH	08/19/2020	CHECKED: MVL

INDIANA DEPARTMENT OF TRANSPORTATION		
PLAN AND PROFILE LINE "A"		
ELECTRONIC CONTRACT R-42249	12	of 47
SHEETS		PROJECT
		1600701

Provide K1 legend item.

Indicate benchmark

Provide riprap at outfall for Str 11A & 11B



LEGEND

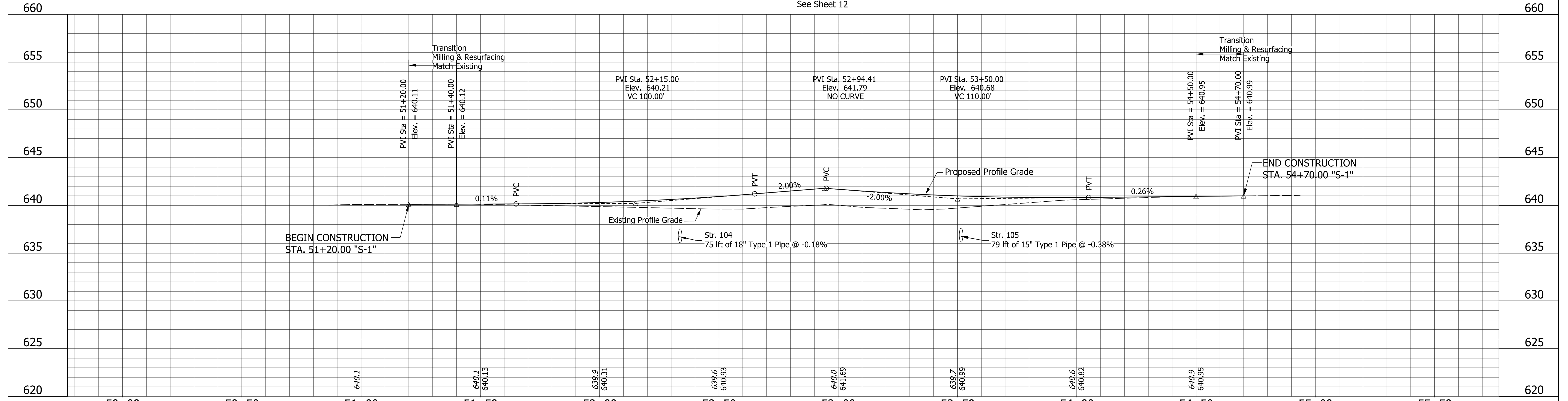
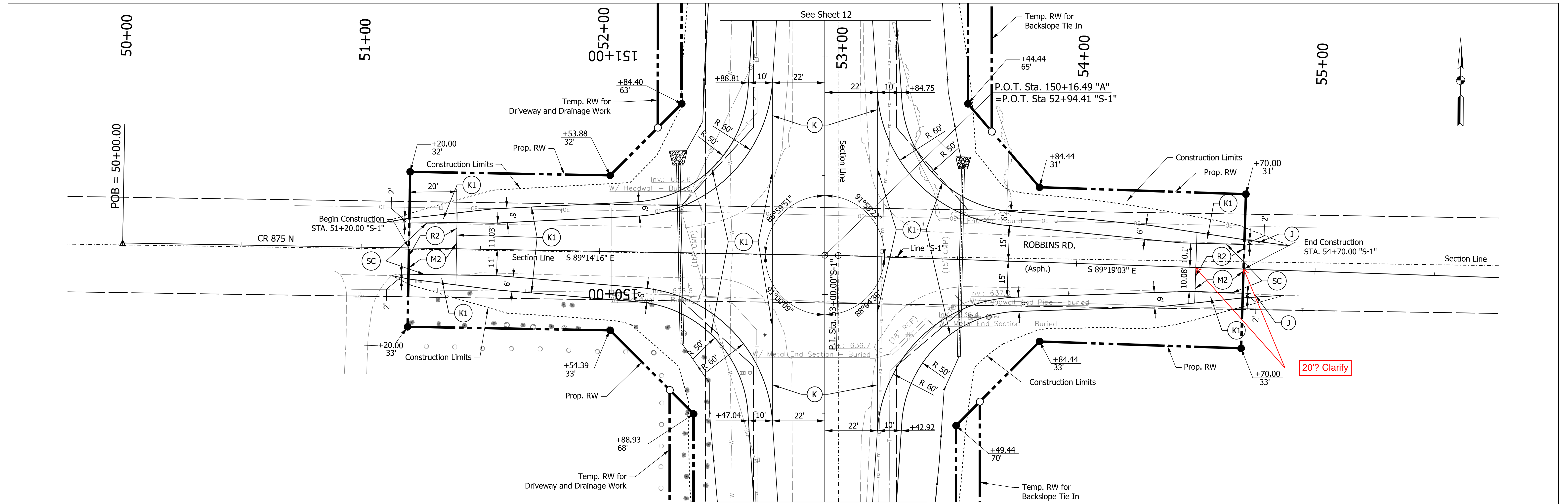
(K) 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm on 660 #/SYD QC/QA-HMA, 3, 70, Base, 19.0 mm (2 Lifts) on Subgrade Treatment, Type TBD	(R) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm	(M) Milling, Asphalt, 4"
(O) Compacted Aggregate, No. 73	(R1) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on	(M1) Milling, Asphalt, 1.5"
		(SC) Saw Cut Line (Limit of Existing Pavement Removal)
		(D) Full Depth Driveway Replacement

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE LINE "A"

HORIZONTAL SCALE	BRIDGE FILE
1" = 20'-0"	
VERTICAL SCALE	DESIGNATION
1" = 5'-0"	1600701
ELECTRONIC CONTRACT	SHEETS
R-42249	13 of 47
	PROJECT
	1600701



LEGEND (K) 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm on 660 #/SYD QC/QA-HMA, 3, 70, Base, 19.0 mm (2 Lifts) on Subgrade Treatment, Type TBD (O) Compacted Aggregate, No. 73 (R) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on 275 #/SYD QC/QA-HMA, 3, 70, Intermediate, 19.0 mm (R1) Resurfacing: 165 #/SYD QC/QA-HMA, 3, 70, Surface, 9.5 mm on	(M) Milling, Asphalt, 4" (M1) Milling, Asphalt, 1.5" (SC) Saw Cut Line (Limit of Existing Pavement Removal) (D) Full Depth Driveway Replacement	RECOMMENDED FOR APPROVAL <i>ENG SIGNATURES</i> 2/11/2021 DESIGN ENGINEER DATE DESIGNED: JMS 08/19/2020 DRAWN: KG 08/19/2020 CHECKED: ACH 08/19/2020 CHECKED: MVL 08/19/2020	INDIANA DEPARTMENT OF TRANSPORTATION PLAN AND PROFILE LINE "S-1"	HORIZONTAL SCALE 1" = 20'-0" VERTICAL SCALE 1" = 5'-0" BRIDGE FILE DESIGNATION 1600701 SHEETS 14 of 47 PROJECT 1600701
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138+00

139+00

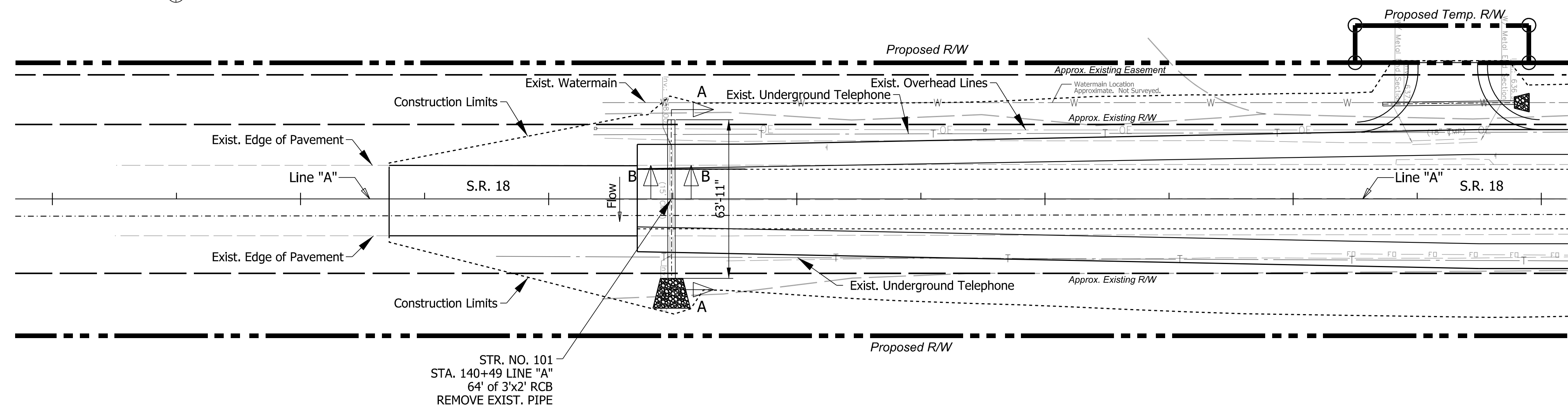
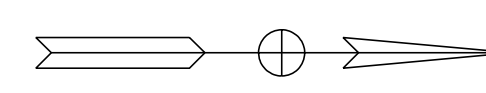
140+00

141+00

142+00

143+00

144+00



PROPOSED PLAN
Scale 1" = 30'-0"

HYDRAULIC DATA

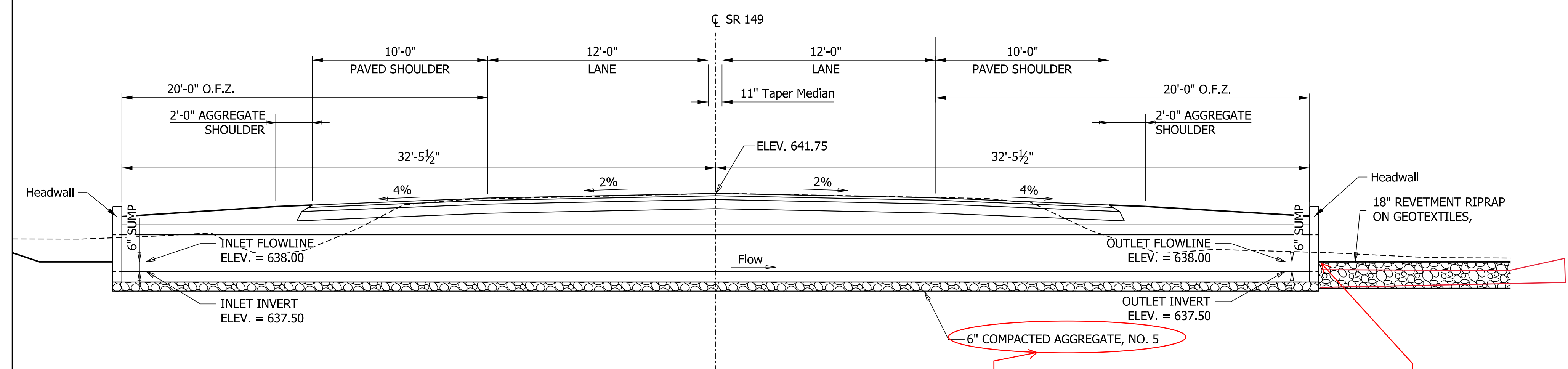
Hydraulic Rvw submitted 01-29-2021 per Box Culvert DgnComps

Drainage Area	13.25 Acres
Q100 Proposed Discharge	20.76 cfs
Q100 Proposed Water Surface Elevation (Outlet Depth)	1.14 ft.
Proposed Inlet-Edge Condition	Headwall
Q100 Proposed Headwater Elevation	640.51 ft.
Proposed Backwater Depth	1.45 ft.
Proposed Culvert Discharge Prior to Overtopping	29.74 cfs
Proposed Minimum Low Structure Elevation	639.50 ft.
Proposed Outlet-Flowline Elevation	638.00 ft.
Proposed Sump Depth	6 in.
Proposed Culvert Velocity (Q50)	5.87 ft./s
Proposed Outlet Riprap Size	Revetment Riprap

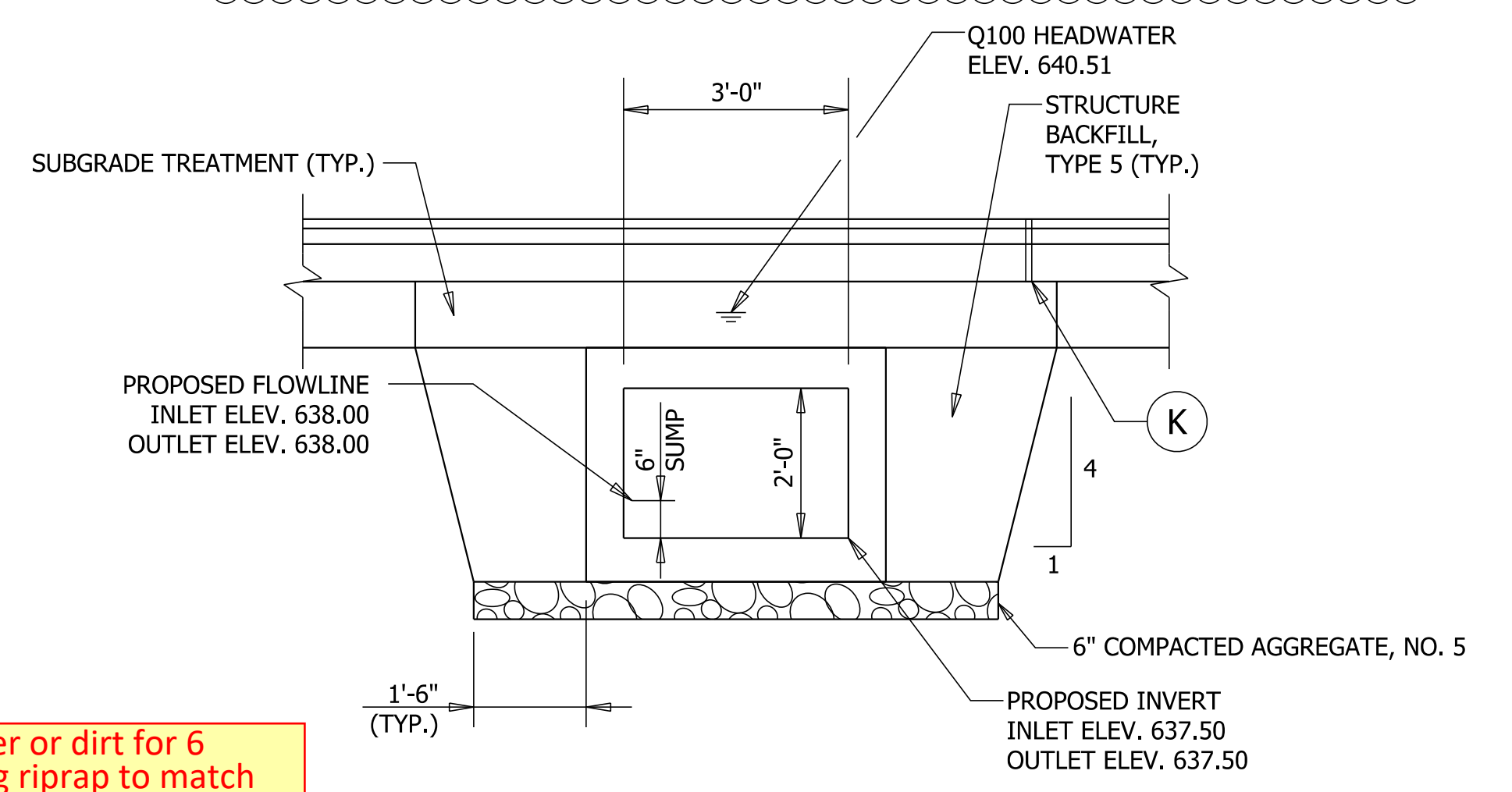
Q100 Existing Discharge	20.74 cfs
Q100 Existing Water Surface Elevation (Outlet Depth)	1.06 ft.
Existing Inlet-Edge Condition	End Projecting
Q100 Existing Headwater Elevation	641.88 ft. (Overtopping=641.75)
Existing Backwater Depth	2.82 ft.
Existing Culvert Discharge Prior to Overtopping	6.84 cfs
Existing Minimum Low Structure Elevation	639.25 ft.
Existing Outlet-Flowline Elevation	638.00 ft.
Existing Sump Depth	0 in.

SOIL PARAMETERS	
PARAMETER	Foundation Soil
Factored Bearing Resistance (psf)	
Nominal Bearing Resistance (psf)	
Estimated Unit Weight, (pcf)	
Angle of Friction of Backfill,	
Interface Friction Angle between Concrete and Soil,	
Cohesion of Foundation Soil, (psf)	

Note: To be provided after geotechnical report



SECTION A-A
Scale 1/4" = 1'-0"



SECTION B-B
Scale 1/2" = 1'-0"

Not shown in Estimate, Structure Table or quantity calcs.

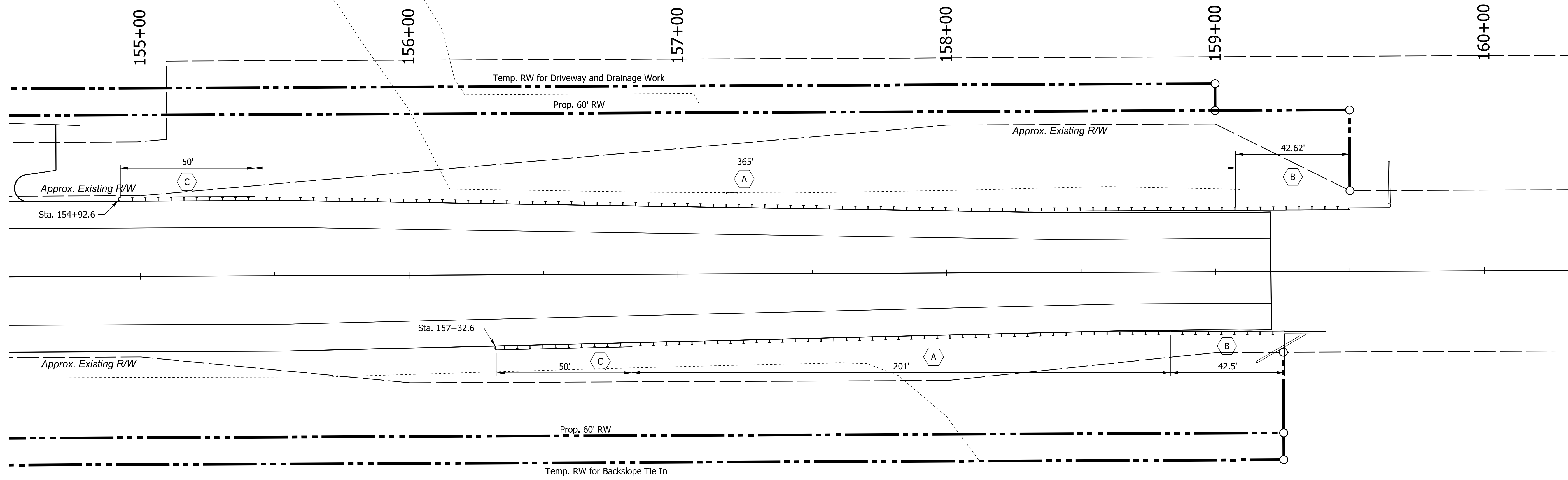
Verify construction of riprap. Culvert to fill with water or dirt for 6 inches to tie into proposed riprap? Suggest designing riprap to match existing channel bottom and proposed culvert outlet invert elevations. Proposed riprap should be designed to match existing channel bottom and proposed culvert outlet invert elevations per INDOT Standard Drawing E 714-BCSP-01 and shown on the cross section.

Cross culverts should be designed with positive drainage flow lines and should outlet to ditch grading to positively drain the culvert.

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	2/11/2021	DATE
DESIGNED: RAR	08/19/2020	DRAWN: RAR	08/19/2020
CHECKED: AH	08/19/2020	CHECKED: AH	08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION
STRUCTURE DETAILS

SCALE	BRIDGE FILE
1" = 30'-0"	N/A
	DESIGNATION
	1600701
	SHEETS
	15 of 47
CONTRACT	PROJECT
R-42249	1600701



LEGEND:

- A MGS W-Beam Guardrail, 6'-3" Spacing
- B MGS Guardrail Transition Without Curb
- C OS End Treatment, 31"

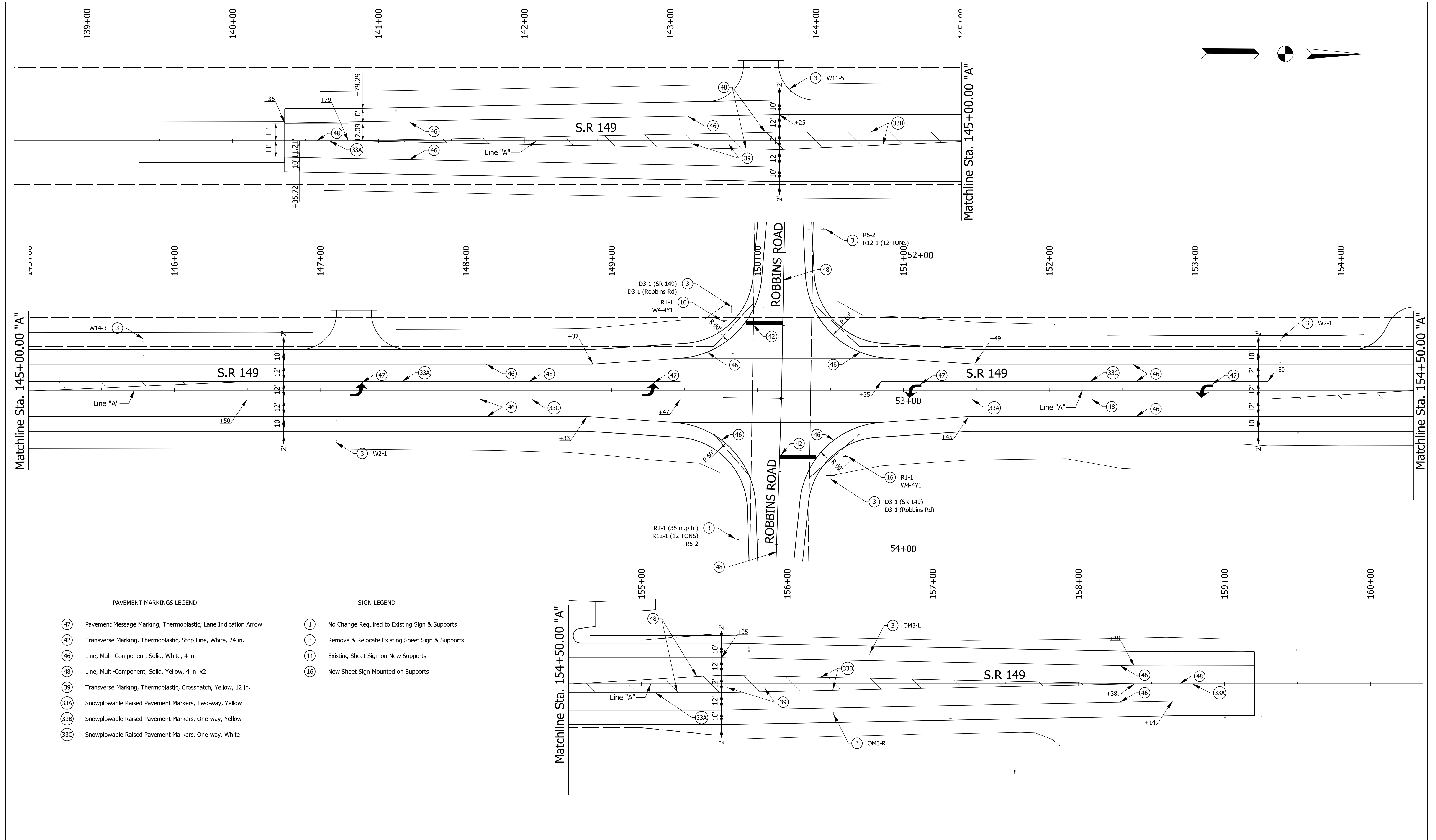
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION	
GUARDRAIL DETAILS	

SCALE	BRIDGE FILE
1" = 20'-0"	
	DESIGNATION
	1600701
	SHEETS
	16 of 47
CONTRACT	PROJECT
R-42249	1600701



PAVEMENT MARKINGS LEGEND

- 47 Pavement Message Marking, Thermoplastic, Lane Indication Arrow
- 42 Transverse Marking, Thermoplastic, Stop Line, White, 24 in.
- 46 Line, Multi-Component, Solid, White, 4 in.
- 48 Line, Multi-Component, Solid, Yellow, 4 in. x2
- 39 Transverse Marking, Thermoplastic, Crosshatch, Yellow, 12 in.
- 33A Snowplowable Raised Pavement Markers, Two-way, Yellow
- 33B Snowplowable Raised Pavement Markers, One-way, Yellow
- 33C Snowplowable Raised Pavement Markers, One-way, White

SIGN LEGEND

- 1 No Change Required to Existing Sign & Supports
- 3 Remove & Relocate Existing Sheet Sign & Supports
- 11 Existing Sheet Sign on New Supports
- 16 New Sheet Sign Mounted on Supports

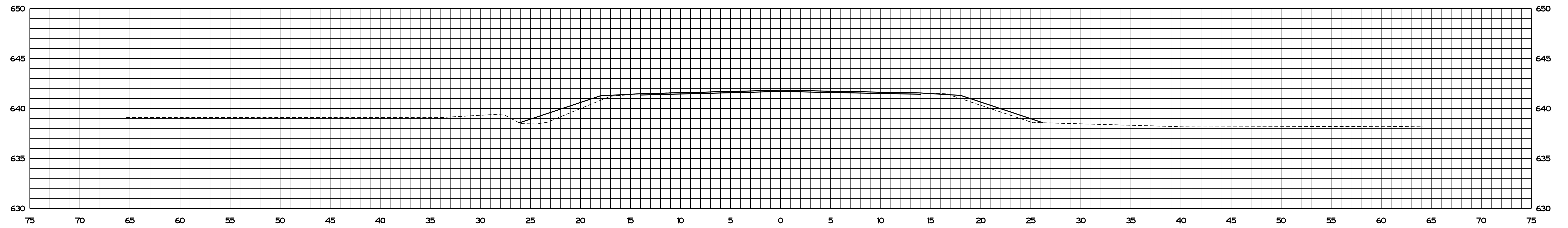
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	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION	
SIGNING AND PAVEMENT MARKINGS	

HORIZONTAL SCALE	BRIDGE FILE
1" = 30'-0"	N/A
VERTICAL SCALE	DESIGNATION
	1600701
SHEETS	
17 of 47	
CONTRACT	PROJECT
R-42249	1600701

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File: Model: SMODEL_NAMES



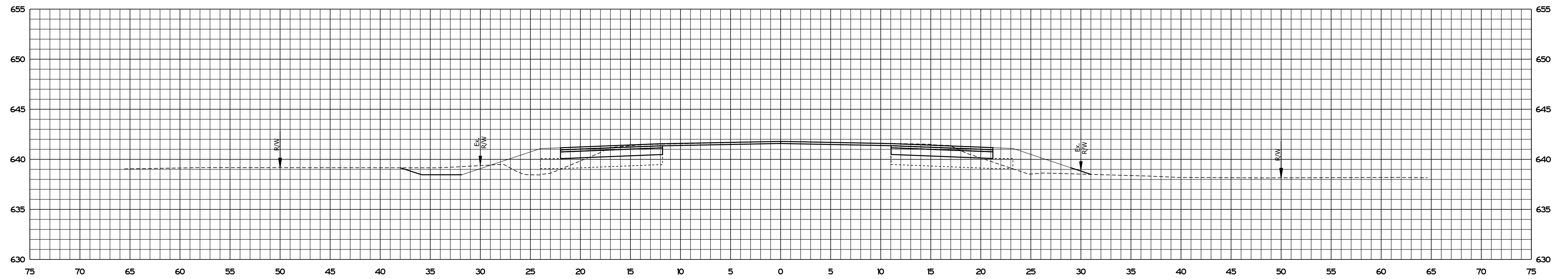
140+00.00
INCIDENTAL CONSTRUCTION

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG
		08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL
		08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

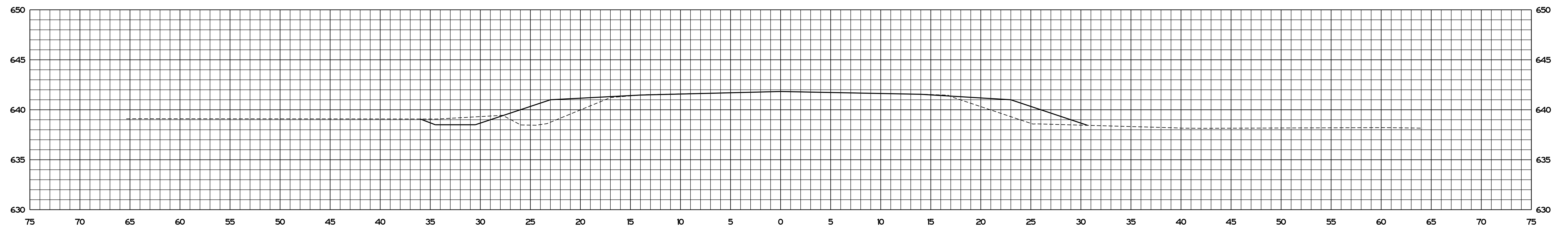
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STA. 140+00.00 TO STA. 140+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	20 of 47
CONTRACT	PROJECT
R-42249	1600701



Ac = 19.71 SFT Af = 25.77 SFT
 Vc = 3.91 CYS Vf = 5.12 CYS

140+35.72
BEGIN PROJECT



140+25.00
INCIDENTAL CONSTRUCTION

PLOT DATE: 08/19/2020 10:58 AM

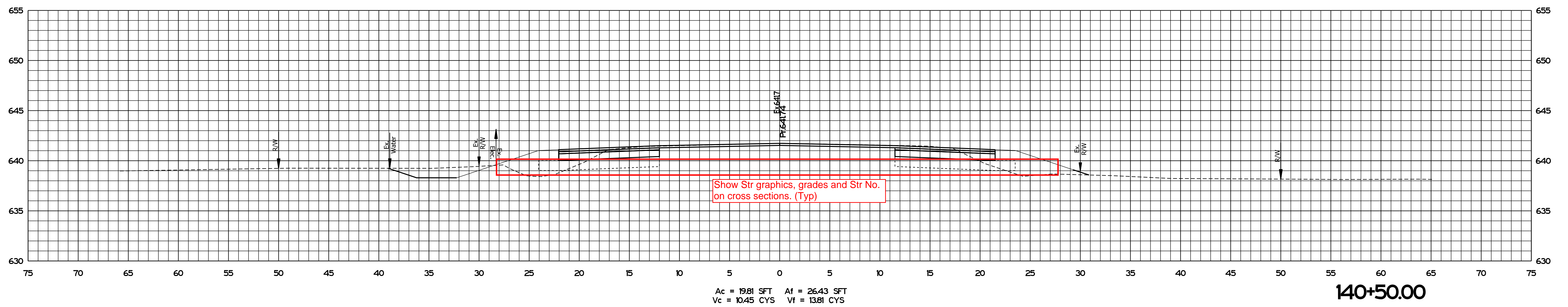
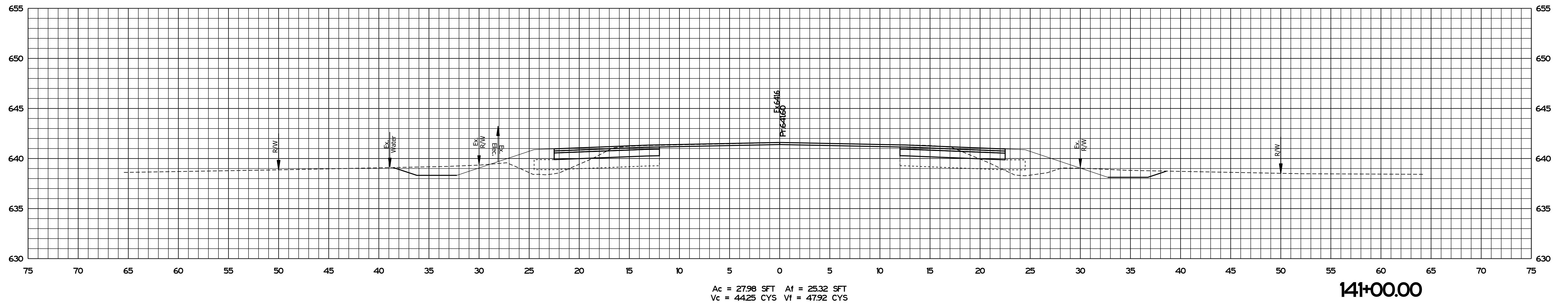
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
 DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
 STA. 140+25.00 TO STA. 140+35.72

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	21 of 47
CONTRACT	PROJECT
R-42249	1600701



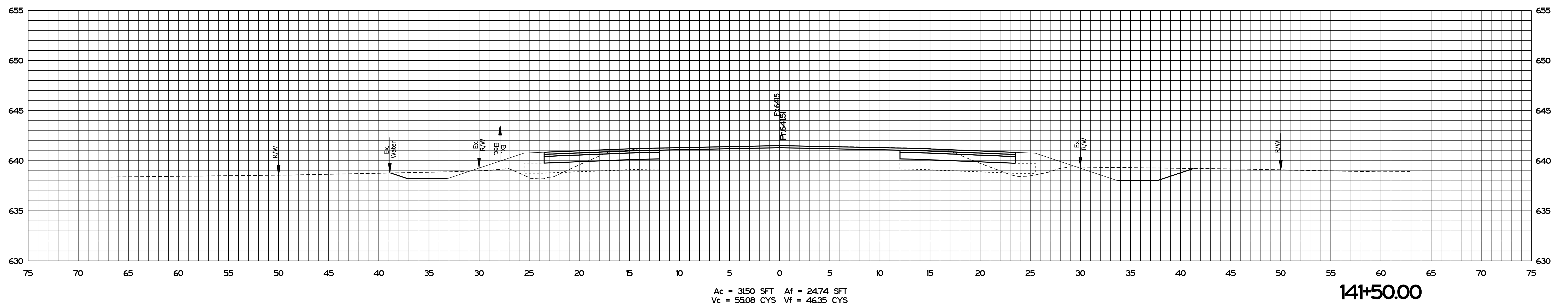
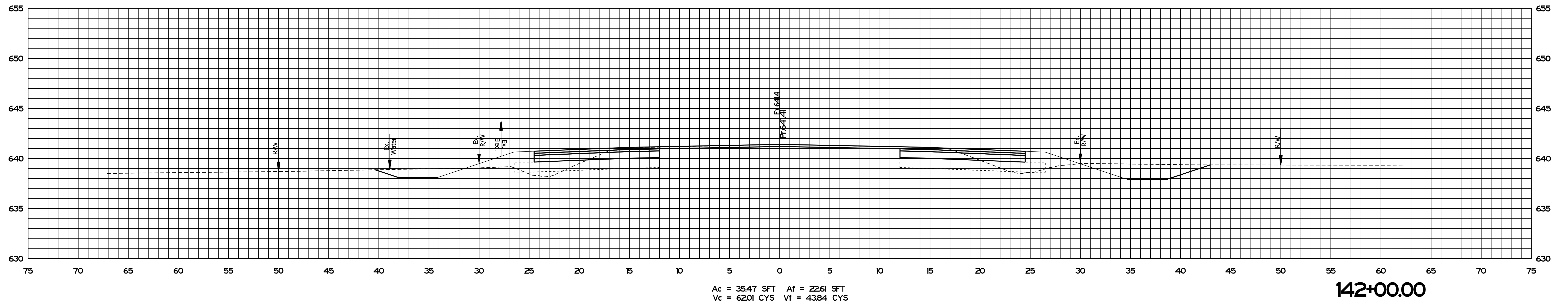
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION	
CROSS SECTIONS STA. 140+50.00 TO STA. 141+00.00	

SCALE 1" = 5'	BRIDGE FILE N/A
	DESIGNATION 1600701
SURVEY BOOK ELECTRONIC	SHEETS 22 of 47
CONTRACT R-42249	PROJECT 1600701



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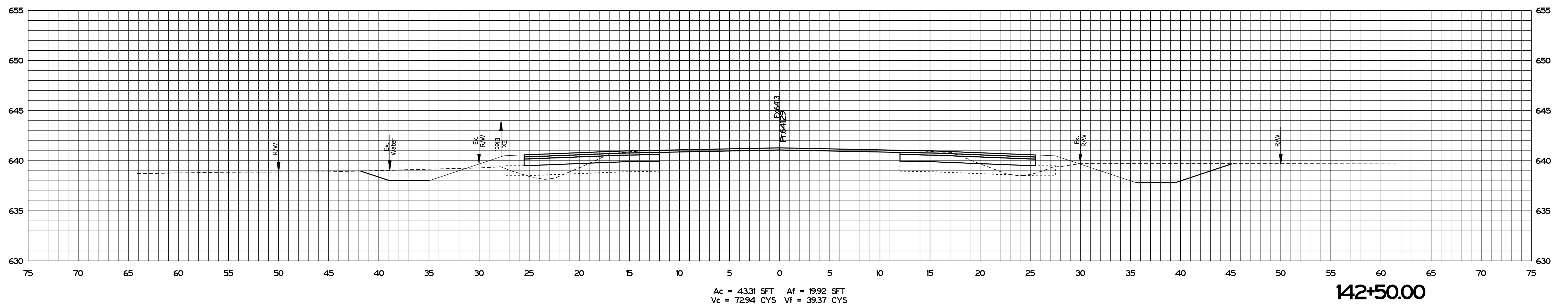
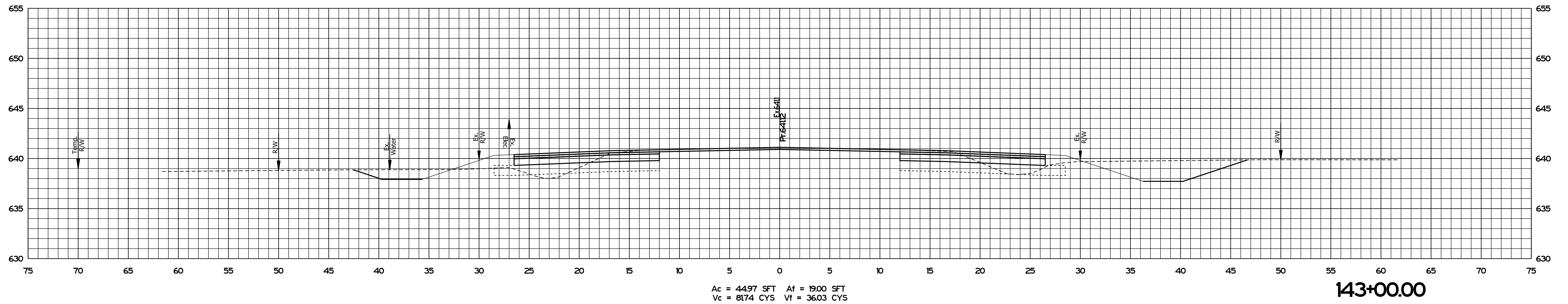
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 141+50.00 TO STA. 142+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	23 of 47
CONTRACT	PROJECT
R-42249	1600701



PLOT: PLOT_DREHSET_TIMES_SAM_PMS

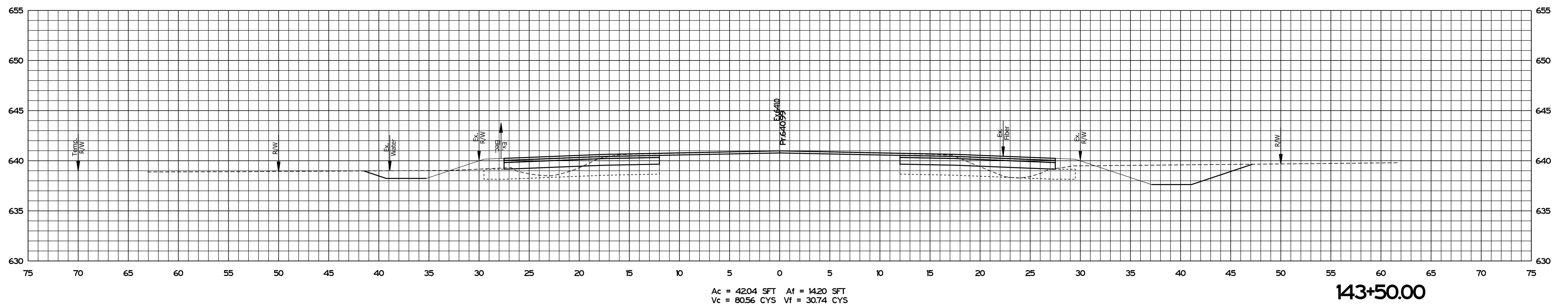
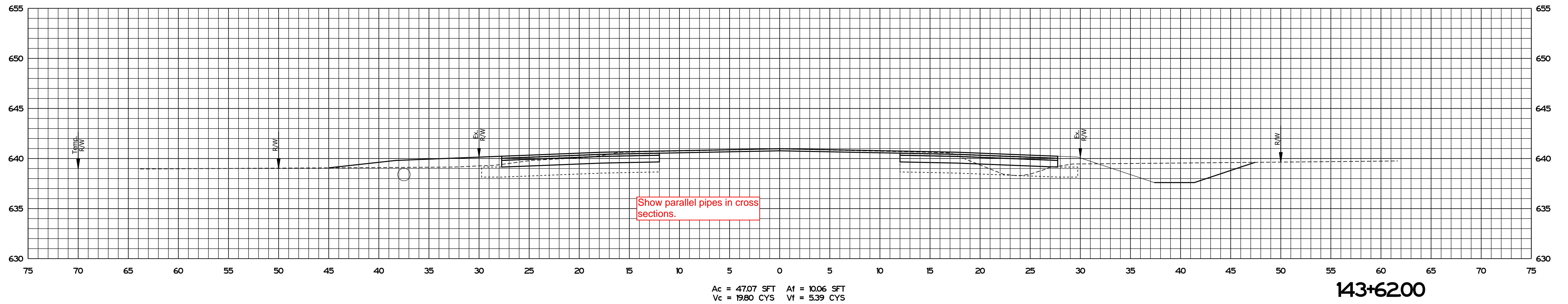
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG
		08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL
		08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 142+50.00 TO STA. 143+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	24 of 47
CONTRACT	PROJECT
R-42249	1600701



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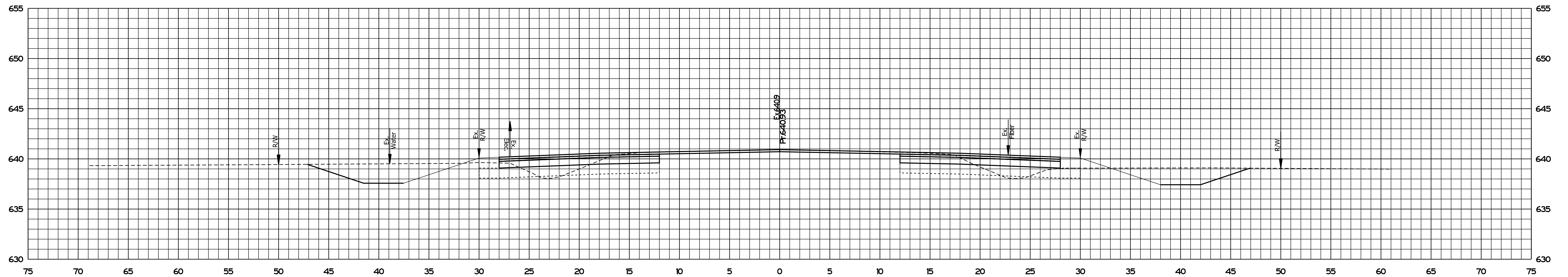
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
 DEPARTMENT OF TRANSPORTATION

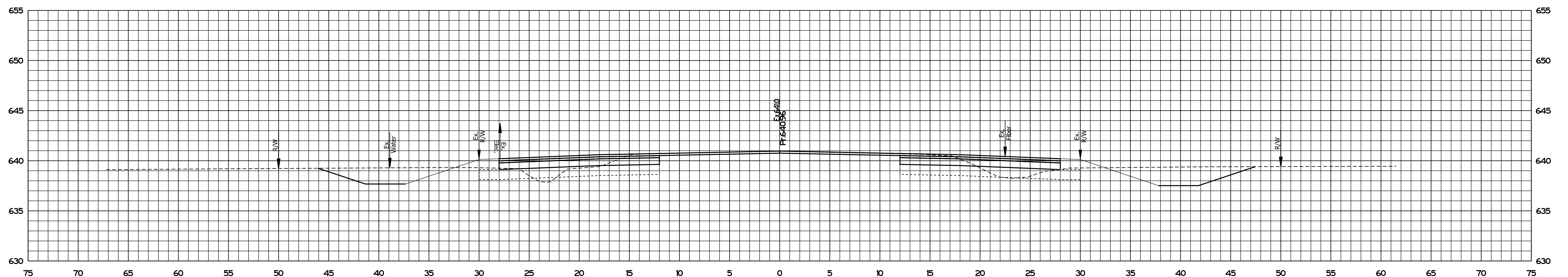
CROSS SECTIONS
 STA. 143+50.00 TO STA. 143+62.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	25 of 47
CONTRACT	PROJECT
R-42249	1600701



Ac = 51.42 SFT Af = 15.81 SFT
 Vc = 91.72 CYS Vf = 29.06 CYS

144+50.00



Ac = 47.64 SFT Af = 15.57 SFT
 Vc = 66.65 CYS Vf = 18.04 CYS

144+00.00

PLOT DATE: 08/19/2020 10:51 AM

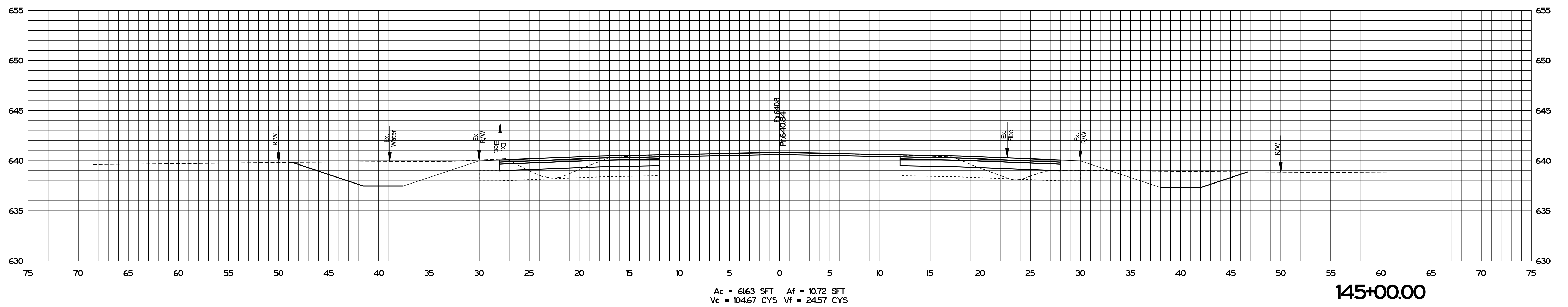
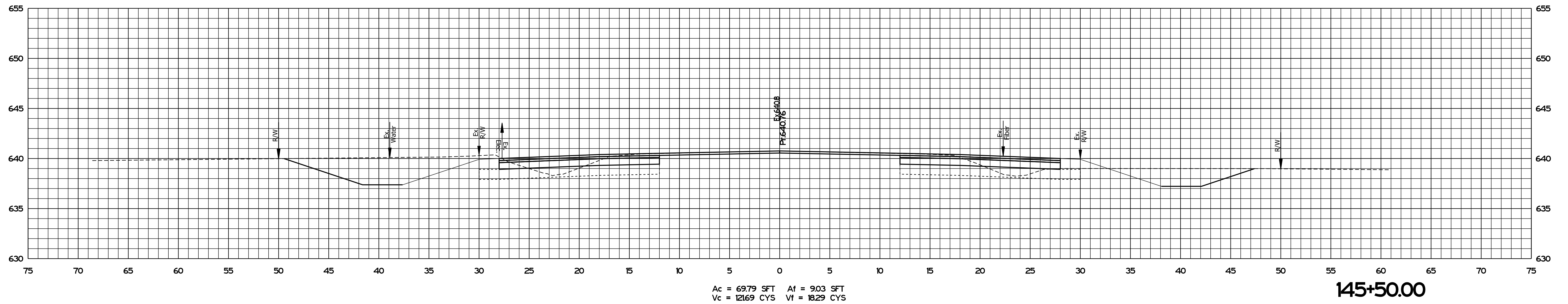
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 144+00.00 TO STA. 144+50.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	26 of 47
CONTRACT	PROJECT
R-42249	1600701



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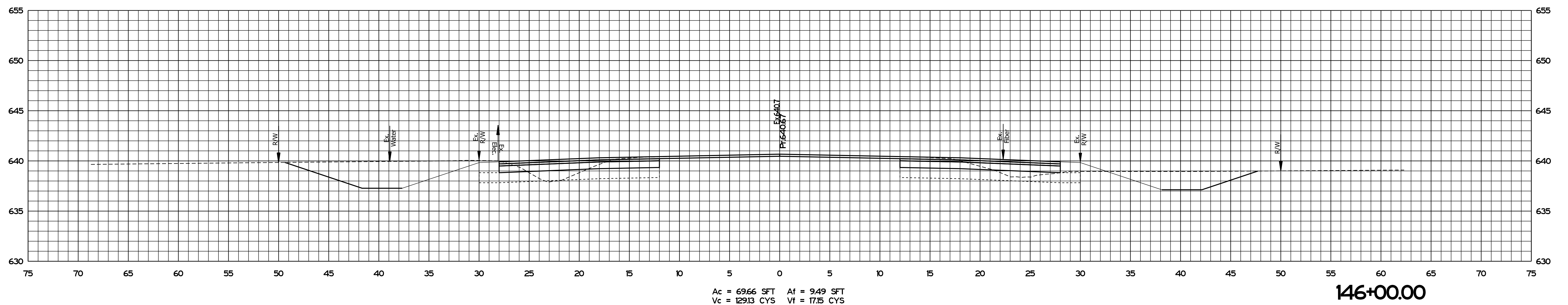
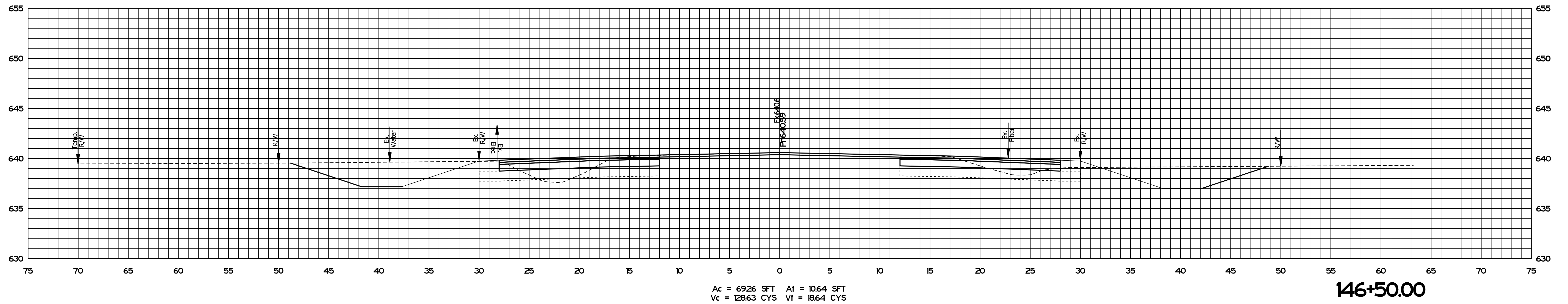
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
 DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
 STA. 145+00.00 TO STA. 145+50.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	27 of 47
CONTRACT	PROJECT
R-42249	1600701



PLOT DATE: 08/19/2020 10:54 AM

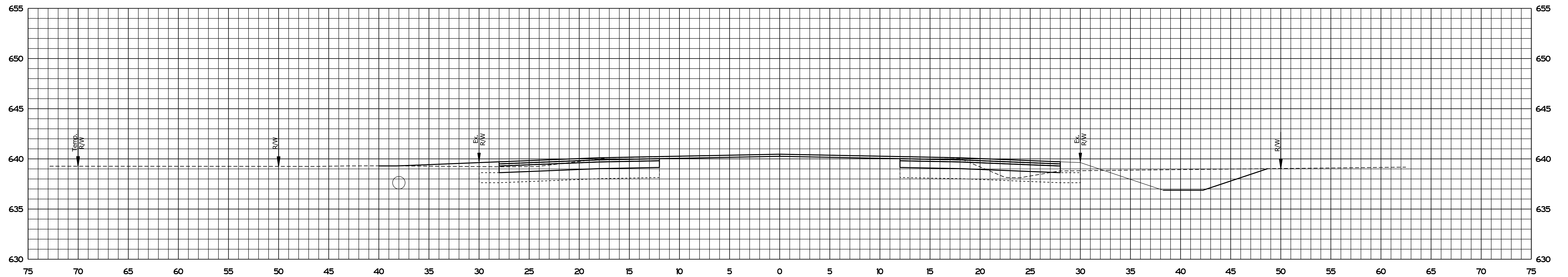
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
 DEPARTMENT OF TRANSPORTATION

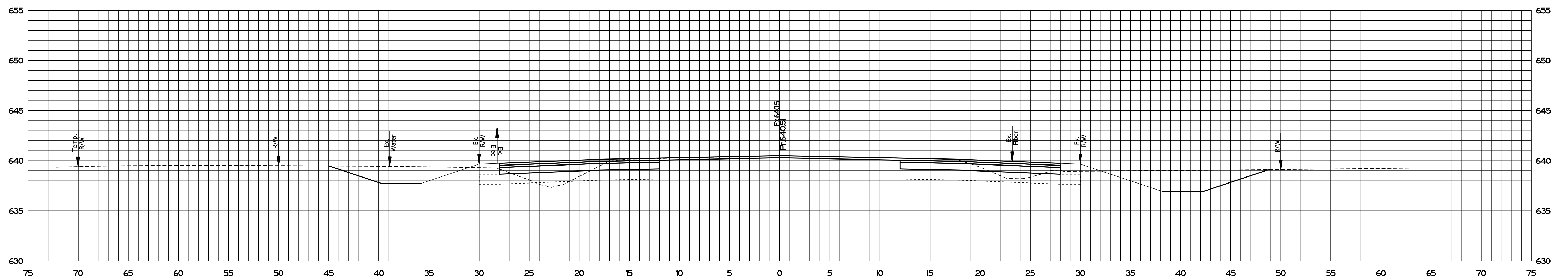
 CROSS SECTIONS
 STA. 146+00.00 TO STA. 146+50.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	28 of 47
CONTRACT	PROJECT
R-42249	1600701



Ac = 6027 SFT Af = 648 SFT
 Vc = 49.70 CYS Vf = 7.89 CYS

147+23.00



Ac = 5642 SFT Af = 1205 SFT
 Vc = 116.37 CYS Vf = 2101 CYS

147+00.00

PLOT_DATE: 2021_08_19 10:51:15 AM

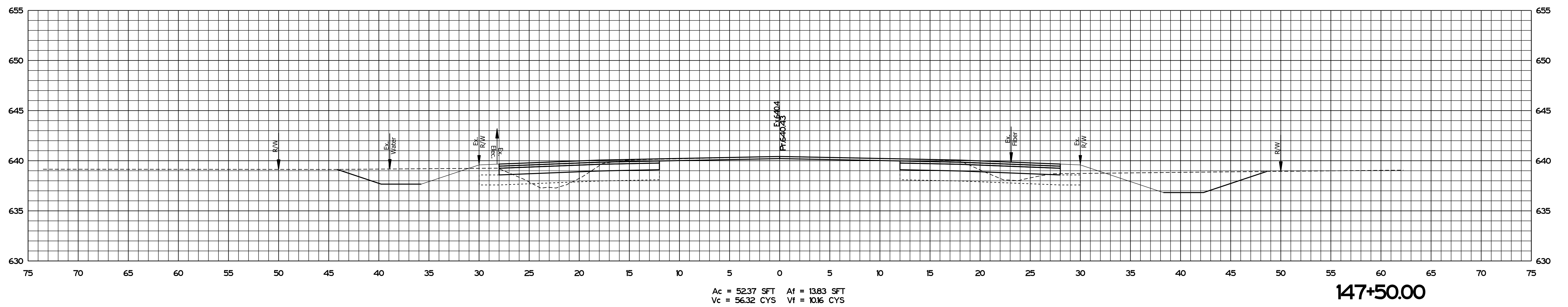
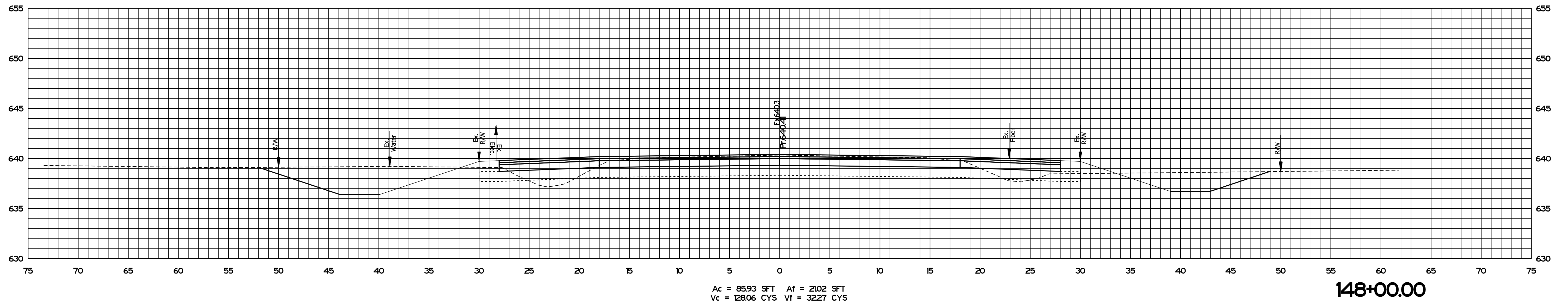
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 147+00.00 TO STA. 147+23.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	29 of 47
CONTRACT	PROJECT
R-42249	1600701



PICSPLOT_EXPORT_TIMES_SAM_PMS

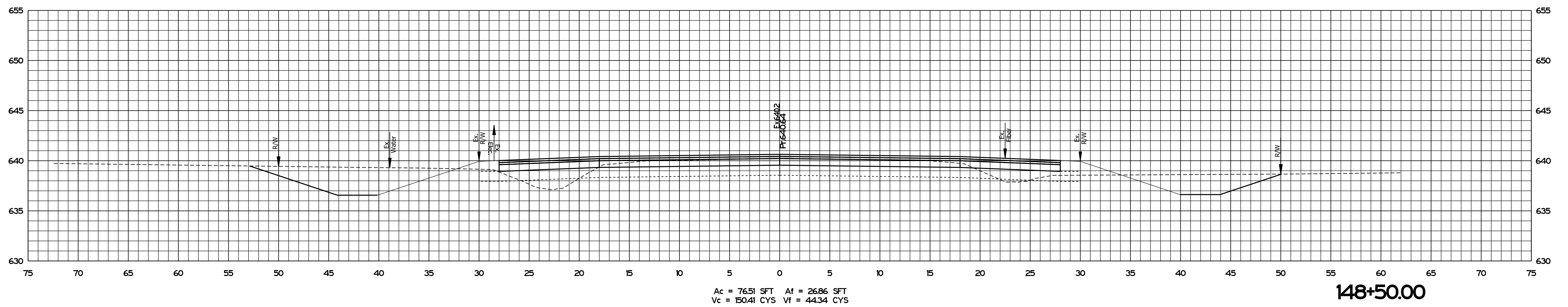
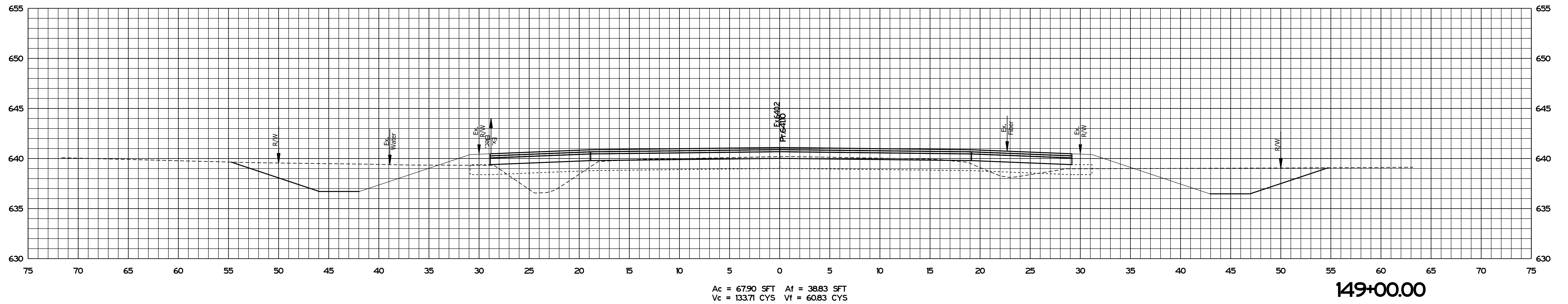
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Model:SMODEL_NAMES

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

INDIANA
 DEPARTMENT OF TRANSPORTATION

 CROSS SECTIONS
 STA. 147+50.00 TO STA. 148+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	30 of 47
CONTRACT	PROJECT
R-42249	1600701



P:\PLOT\DRIBEST_TIMES_SAM_PMS

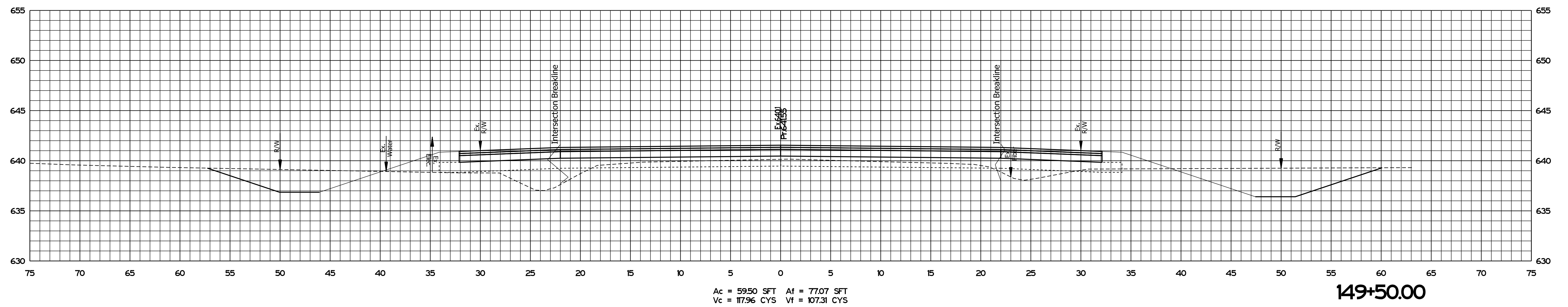
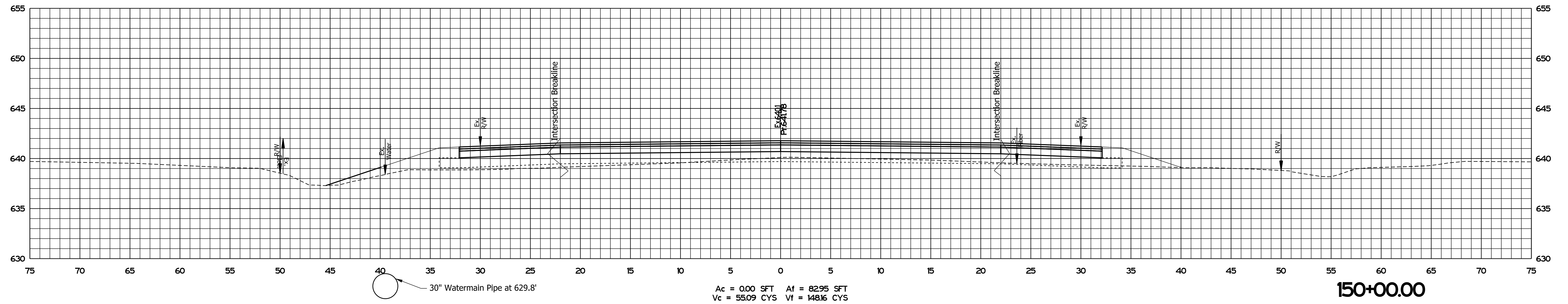
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
 DEPARTMENT OF TRANSPORTATION

 CROSS SECTIONS
 STA. 148+50.00 TO STA. 149+00.00

SCALE 1" = 5'	BRIDGE FILE N/A
	DESIGNATION 1600701
SURVEY BOOK ELECTRONIC	SHEETS 31 of 47
CONTRACT R-42249	PROJECT 1600701



PLOT DATE: 08/19/2020 10:58 AM

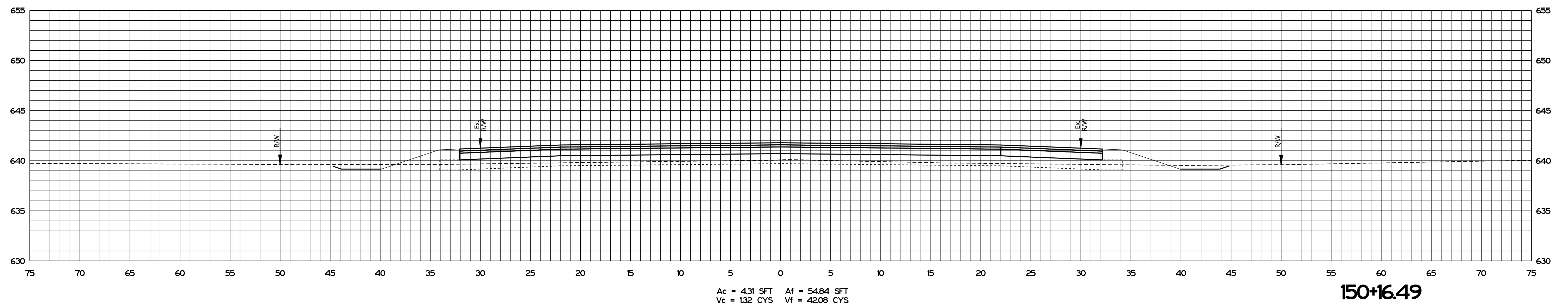
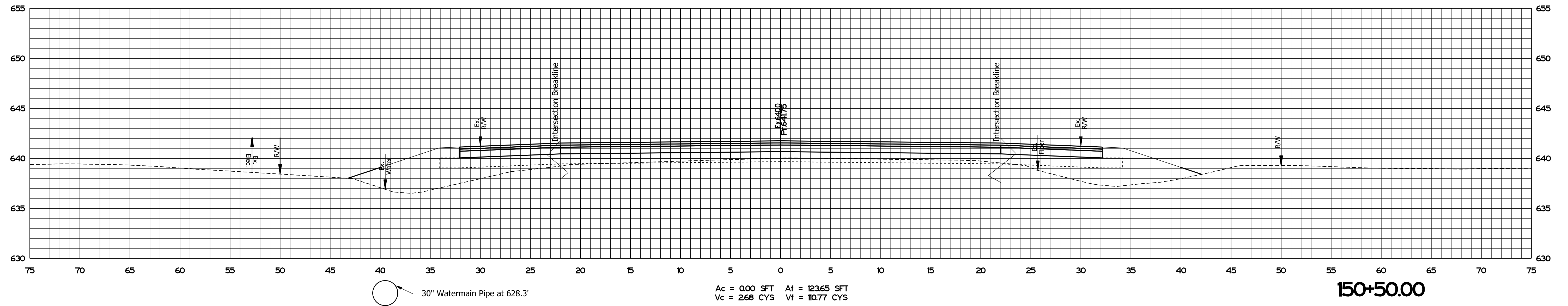
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 149+50.00 TO STA. 150+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	32 of 47
CONTRACT	PROJECT
R-42249	1600701



PLOT_TIMESTAMP_SAM_PMS

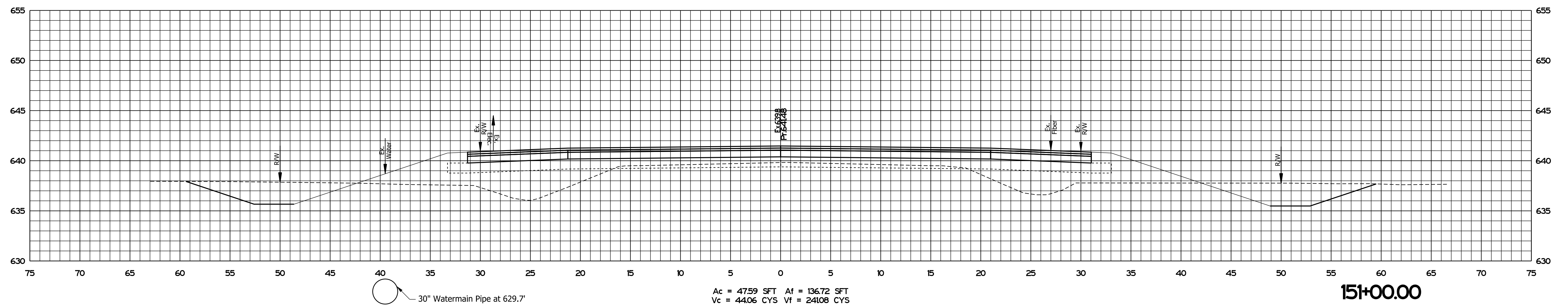
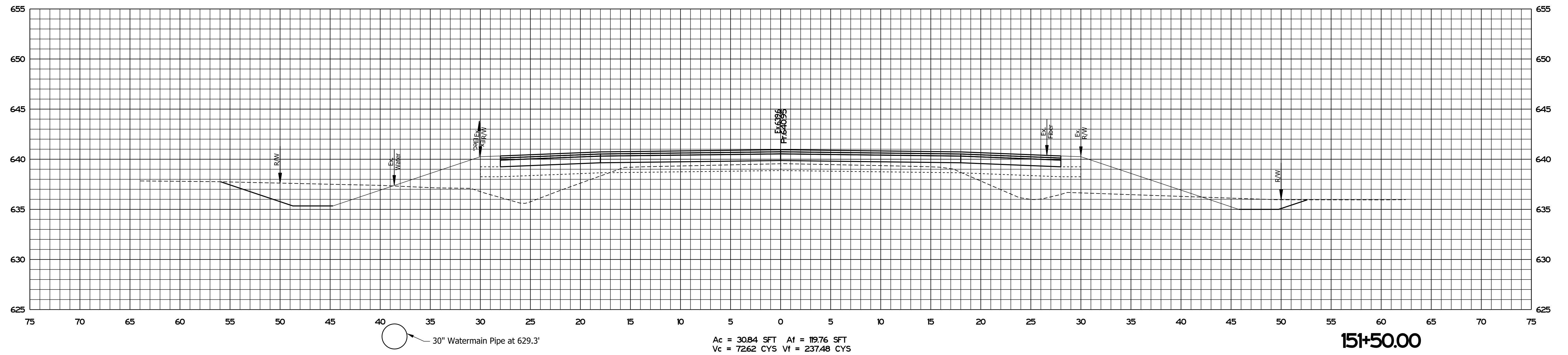
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Model:SMODEL_NAMES

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 150+16.49 TO STA. 150+50.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	33 of 47
CONTRACT	PROJECT
R-42249	1600701



PLOT DATE: 08/19/2020 10:51 AM

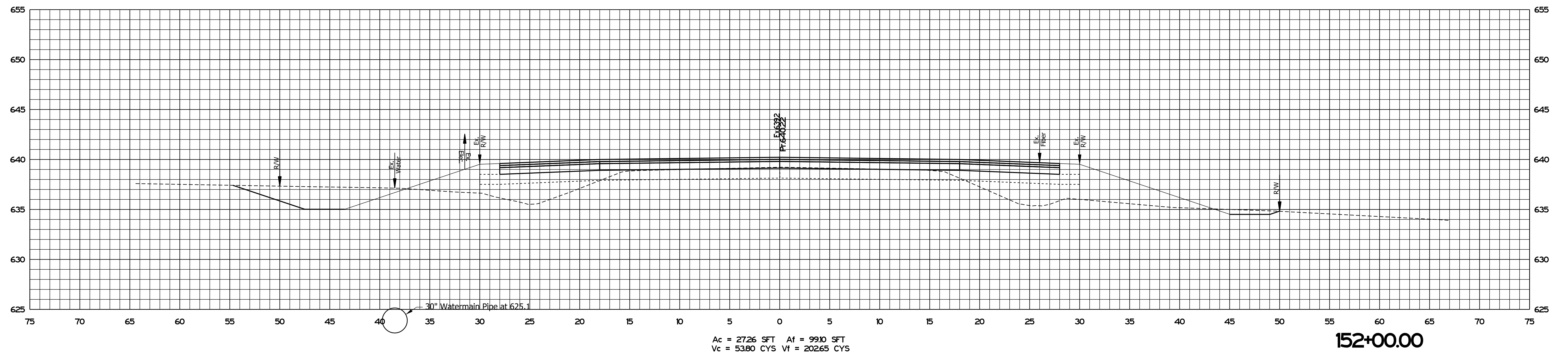
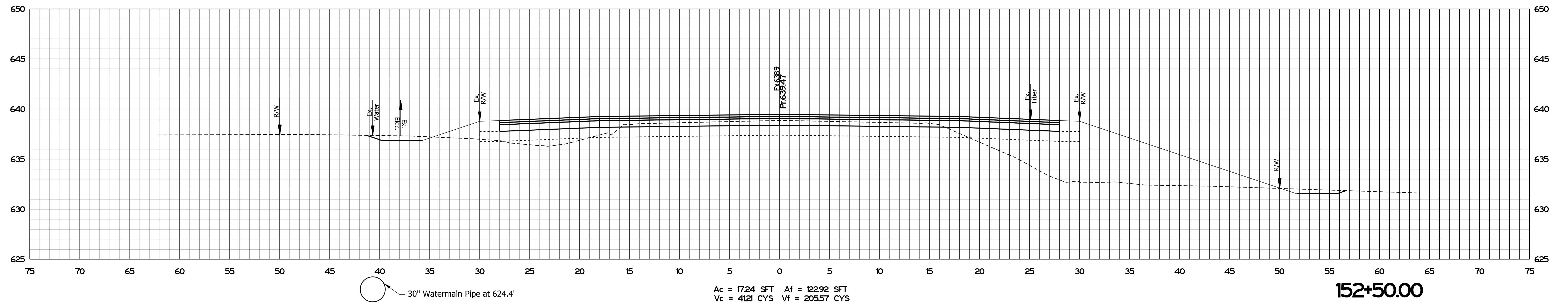
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 151+00.00 TO STA. 151+50.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	34 of 47
CONTRACT	PROJECT
R-42249	1600701



PLOT DATE: 08/19/2021 10:54 AM

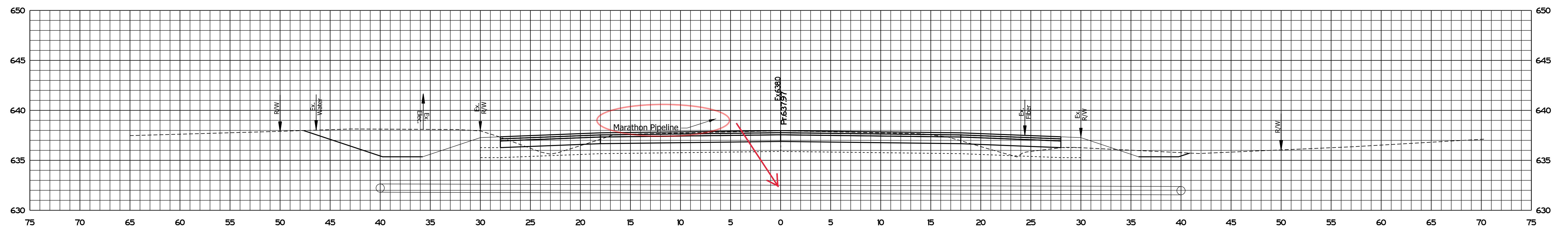
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 152+00.00 TO STA. 152+50.00

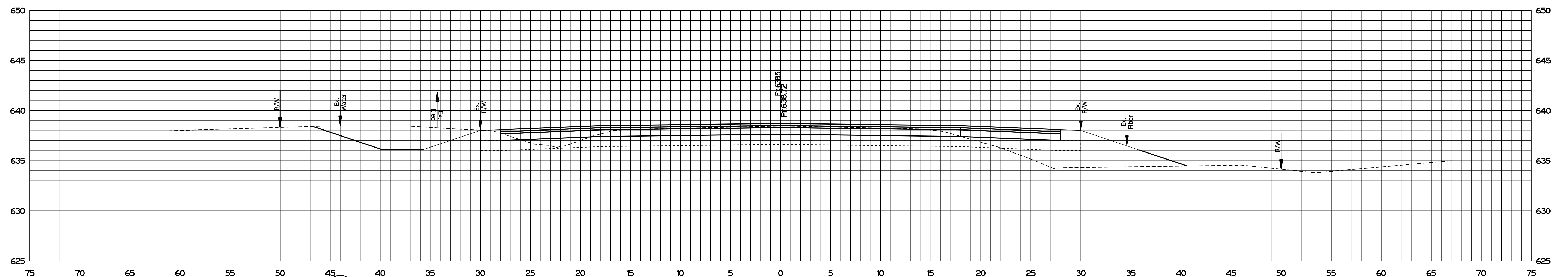
SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	35 of 47
CONTRACT	PROJECT
R-42249	1600701



30" Watermain Pipe at 625.5'

Ac = 72.04 SFT Af = 1083 SFT
Vc = 113.67 CYS Vf = 5131 CYS

153+50.00



30" Watermain Pipe at 624.5'

Ac = 50.73 SFT Af = 4459 SFT
Vc = 6294 CYS Vf = 15510 CYS

153+00.00

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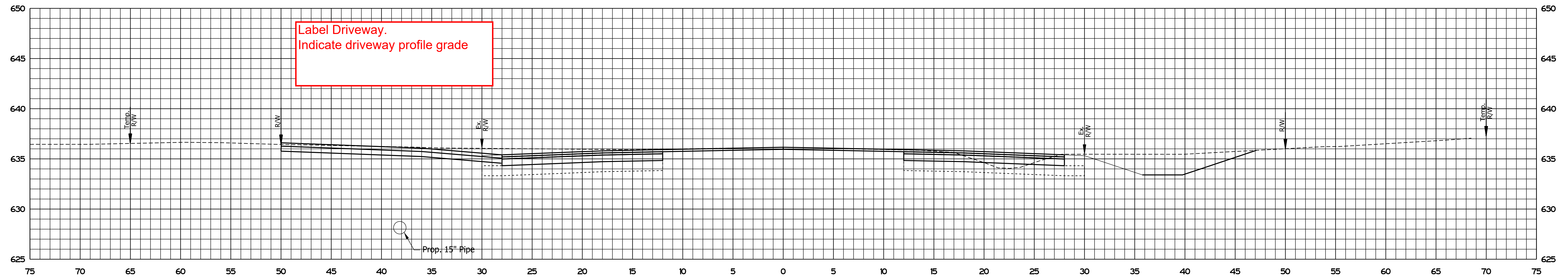
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

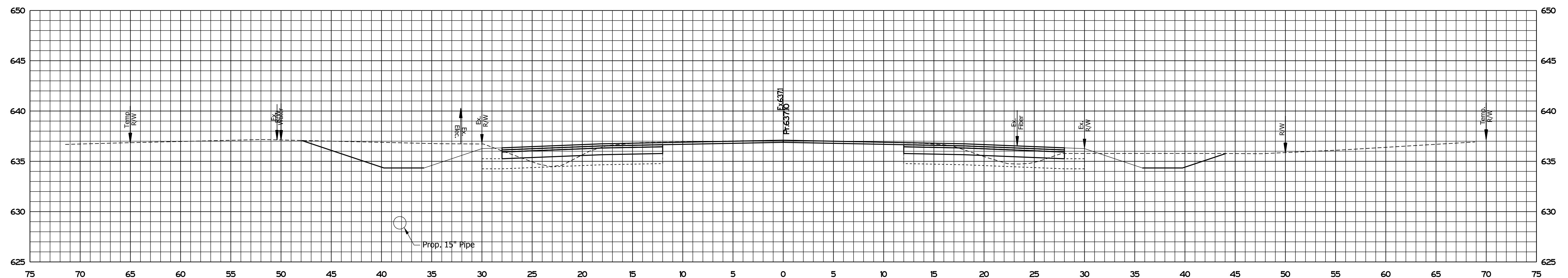
CROSS SECTIONS
STA. 153+00.00 TO STA. 153+50.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	36 of 47
CONTRACT	PROJECT
R-42249	1600701



Ac = 92.75 SFT Af = 148 SFT
 Vc = 105.15 CYS Vf = 6.49 CYS

154+37.00



Ac = 60.71 SFT Af = 8.00 SFT
 Vc = 122.91 CYS Vf = 17.43 CYS

154+00.00

P:\PLOT\DRIBEST_TIMES_SAM_PMS

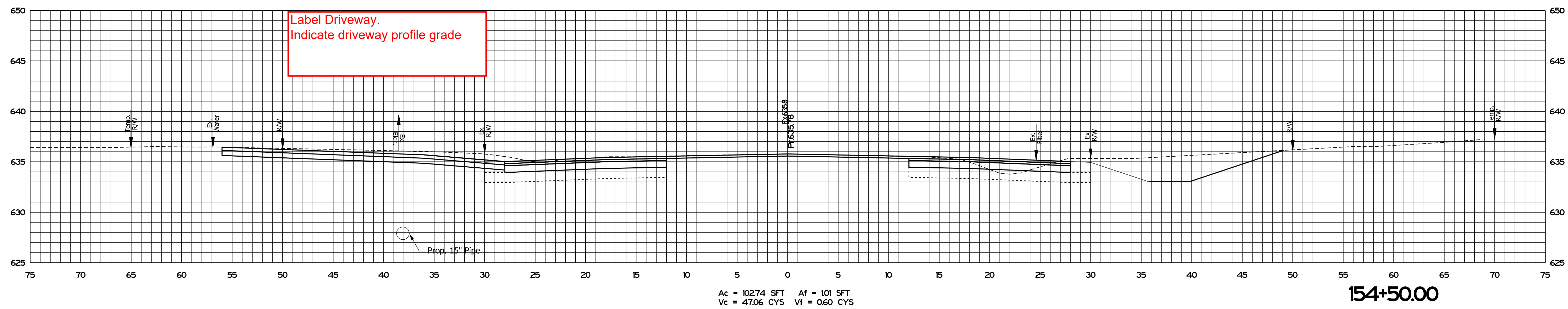
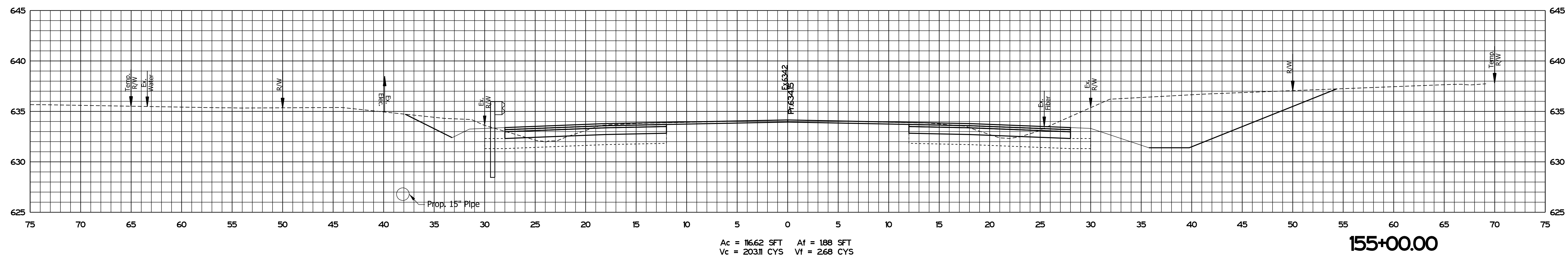
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 154+00.00 TO STA. 154+37.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	37 of 47
CONTRACT	PROJECT
R-42249	1600701



P:\PLOT\DRIBEST_TIMES_SAM_PMS

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 Model:SMODEL_NAMES

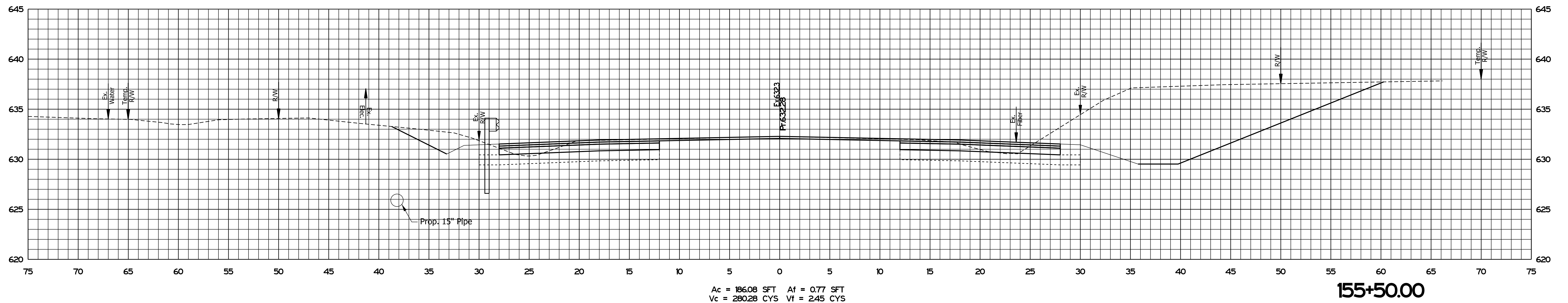
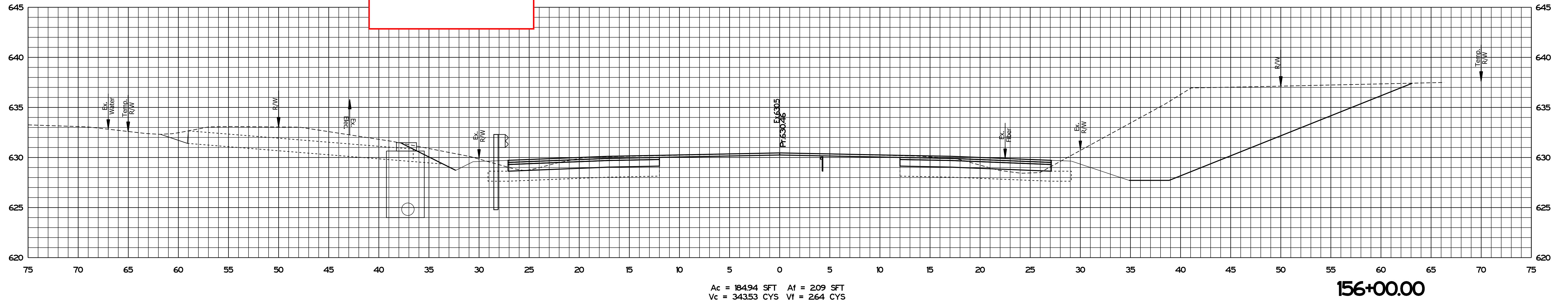
RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021	DATE
	DESIGN ENGINEER		
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
 DEPARTMENT OF TRANSPORTATION

 CROSS SECTIONS
 STA. 154+50.00 TO STA. 155+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	38 of 47
CONTRACT	PROJECT
R-42249	1600701

Label Structure number
Indicate inverts.



PLOT_TIMES_SAM_PMS

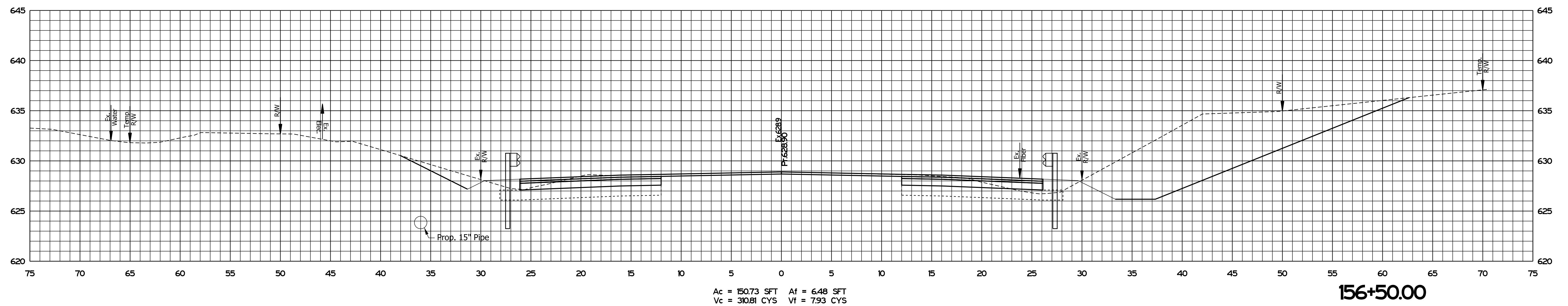
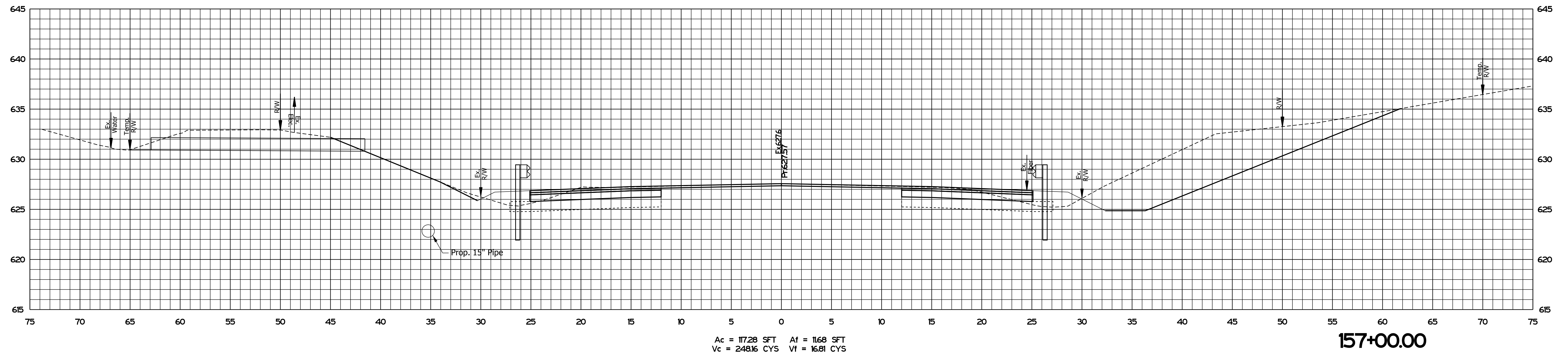
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
STA. 155+50.00 TO STA. 156+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	39 of 47
CONTRACT	PROJECT
R-42249	1600701



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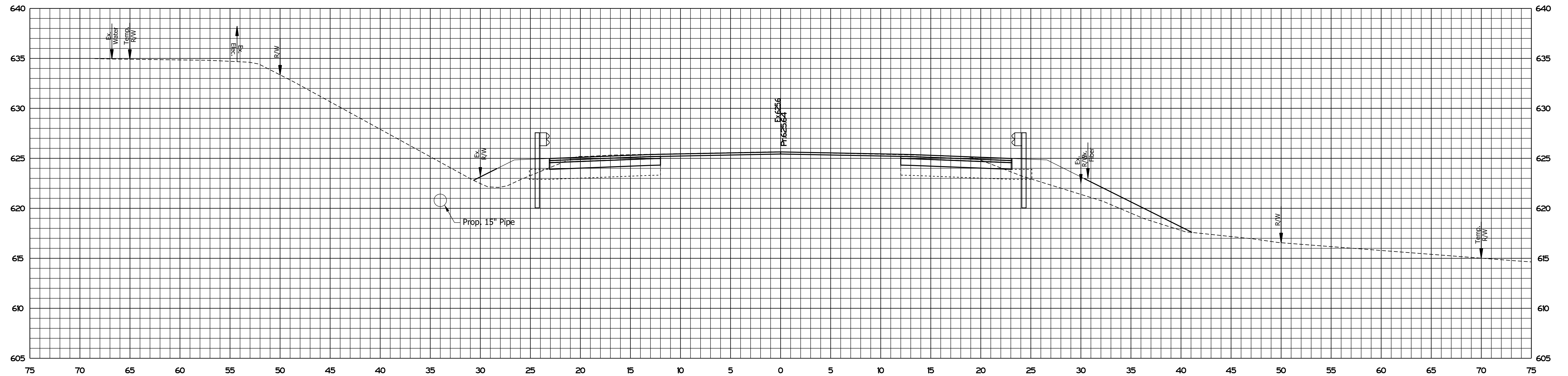
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

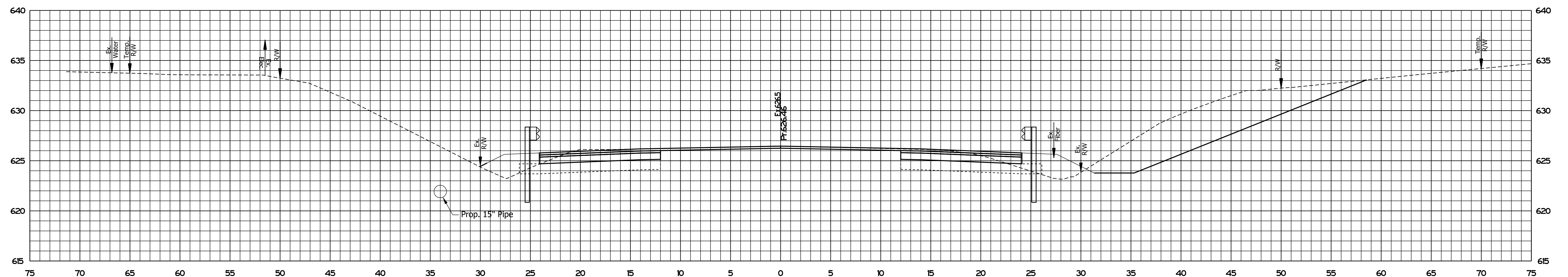
CROSS SECTIONS
STA. 156+50.00 TO STA. 157+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	40 of 47
CONTRACT	PROJECT
R-42249	1600701



Ac = 25.76 SFT Af = 36.53 SFT
 Vc = 115.87 CYS Vf = 53.06 CYS

158+00.00



Ac = 99.37 SFT Af = 20.77 SFT
 Vc = 200.61 CYS Vf = 30.05 CYS

157+50.00

PLOT_DATE: 08/19/2020 10:58:15 AM

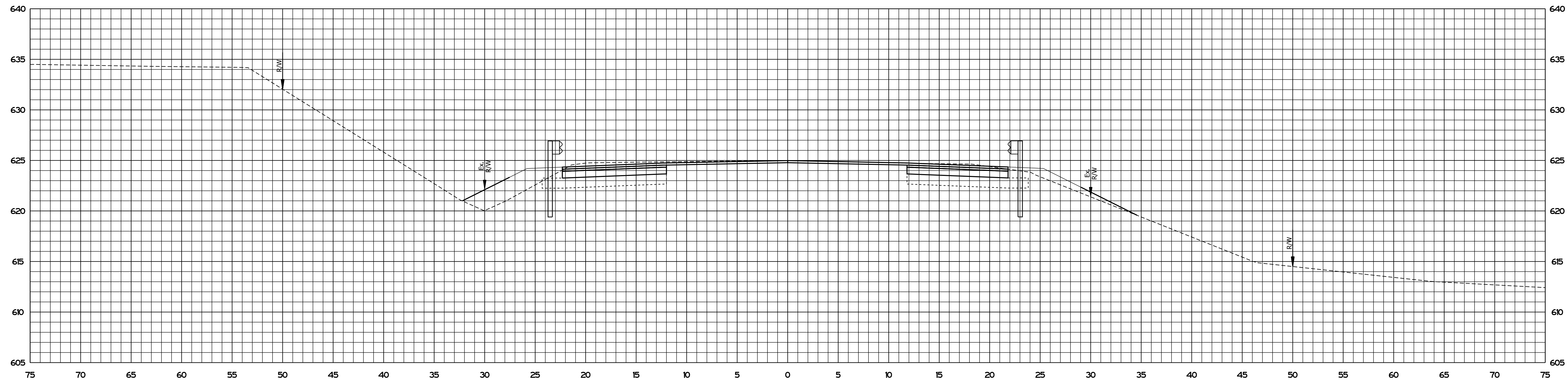
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

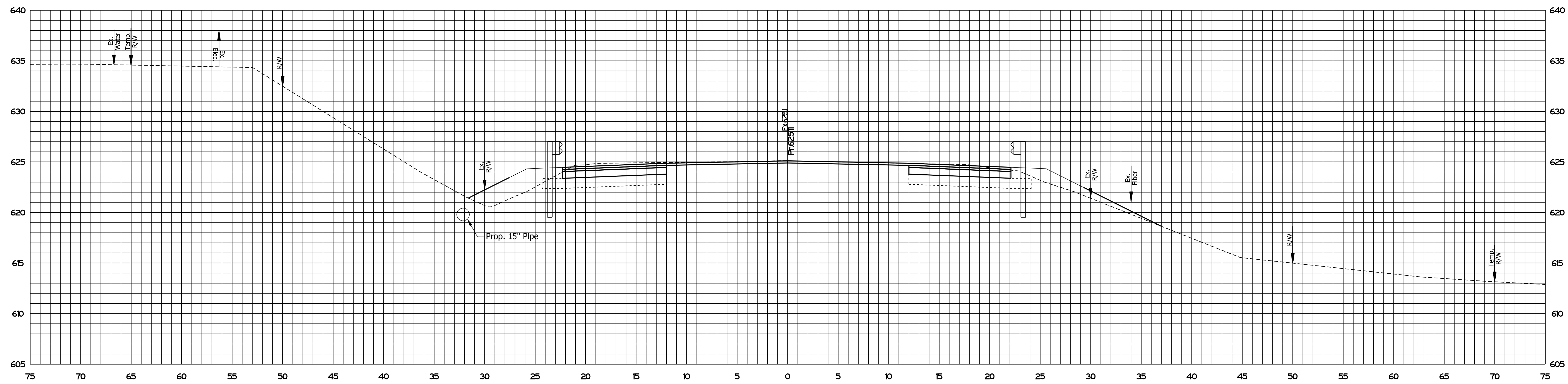
CROSS SECTIONS
STA. 157+50.00 TO STA. 158+00.00

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	41 of 47
CONTRACT	PROJECT
R-42249	1600701



Ac = 2989 SFT Af = 2138 SFT
 Vc = 1554 CYS Vf = 1215 CYS

158+64.37
END PROJECT



Ac = 2852 SFT Af = 2427 SFT
 Vc = 5026 CYS Vf = 5630 CYS

158+50.00

P:\PROJECTS\158+50.00 TO 158+64.37\158+50.00 TO 158+64.37.dwg

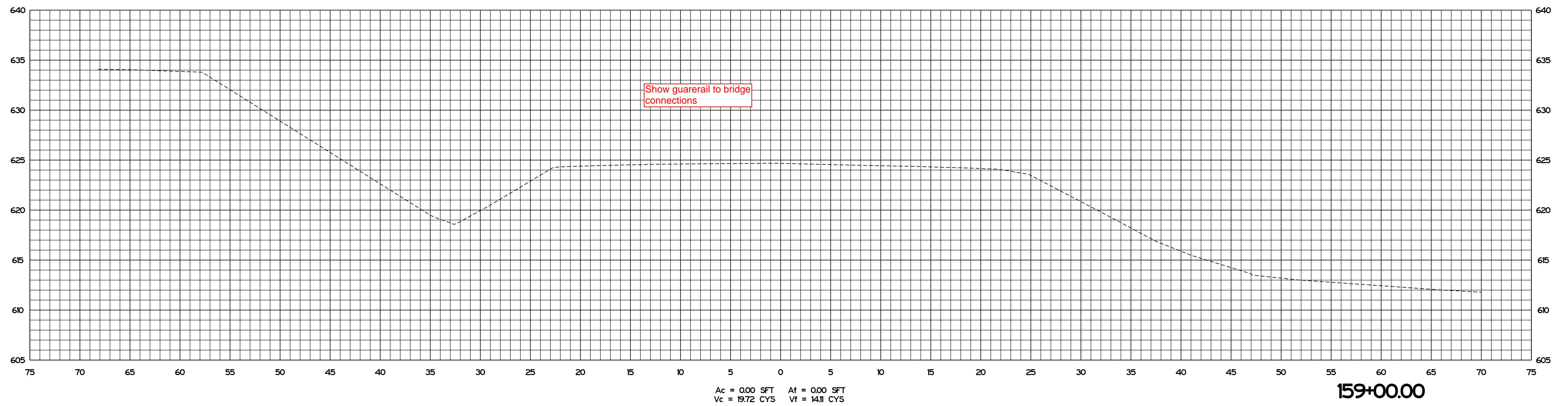
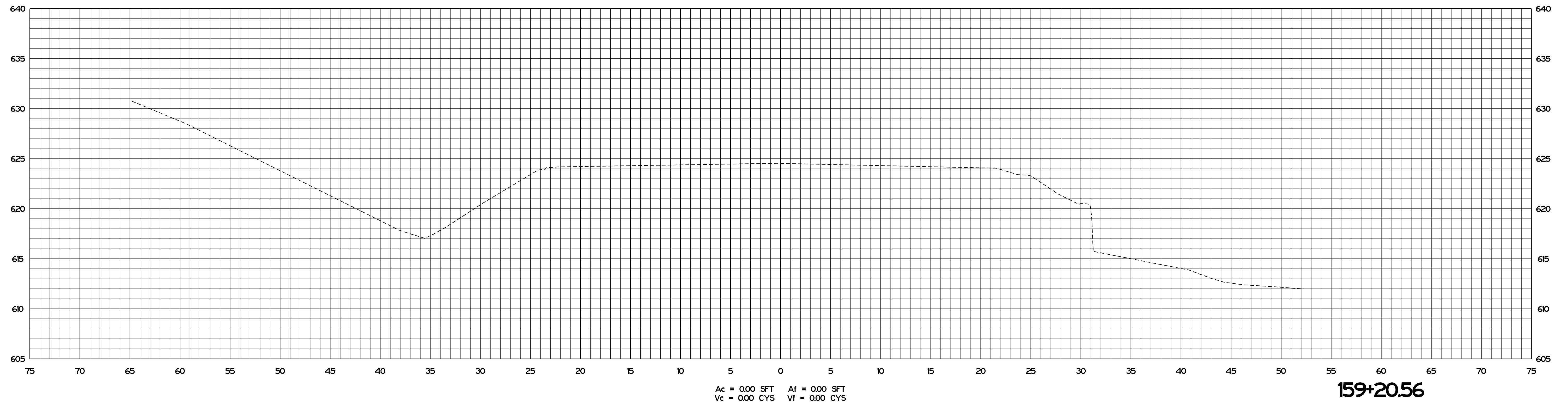
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RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

INDIANA
 DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
 STA. 158+50.00 TO STA. 158+64.37

SCALE	BRIDGE FILE
1" = 5'	N/A
	DESIGNATION
	1600701
SURVEY BOOK	SHEETS
ELECTRONIC	42 of 47
CONTRACT	PROJECT
R-42249	1600701



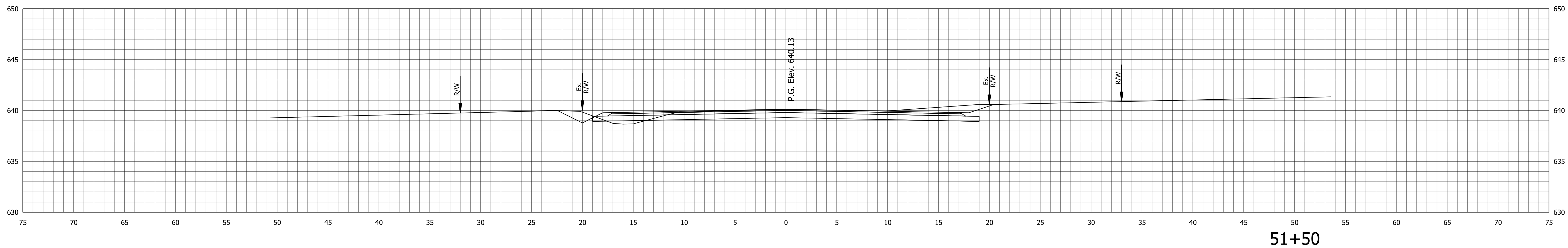
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File: S:\MODEL_NAMES

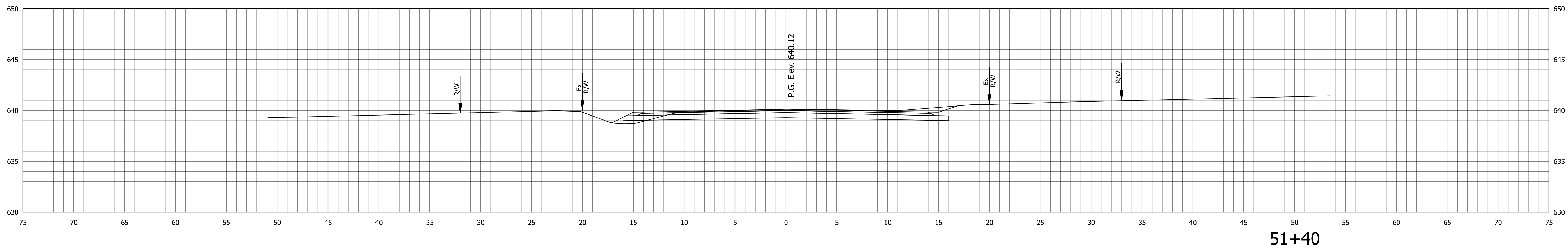
RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>		2/11/2021
	DESIGN ENGINEER		DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG	08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL	08/19/2020

INDIANA DEPARTMENT OF TRANSPORTATION	
CROSS SECTIONS STA. 159+00.00 TO STA. 159+20.56	

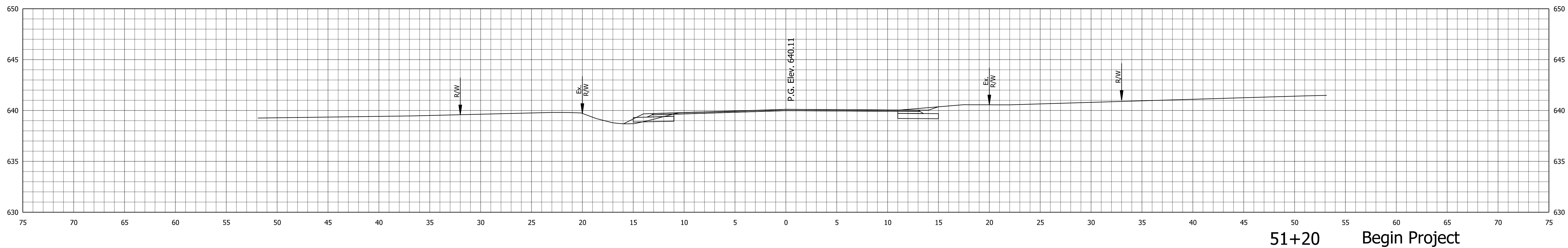
SCALE 1" = 5'	BRIDGE FILE N/A
	DESIGNATION 1600701
SURVEY BOOK ELECTRONIC	SHEETS 43 of 47
CONTRACT R-42249	PROJECT 1600701



51+50



51+40



51+20

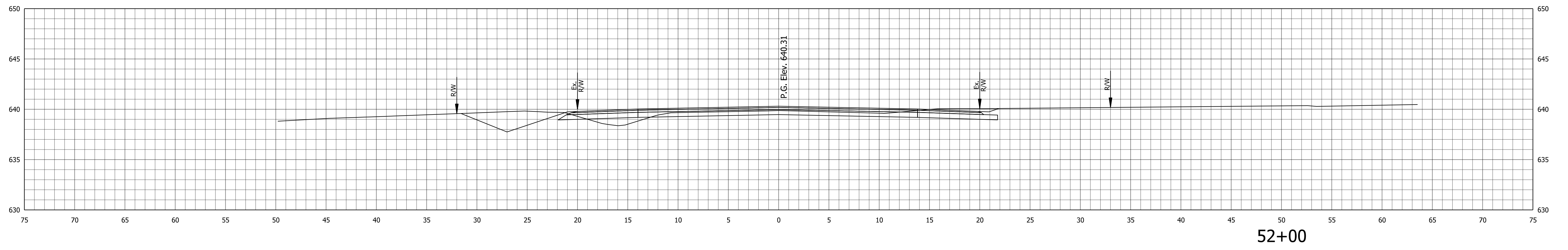
Begin Project

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG
		08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL
		08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
ROBBINS ROAD

SCALE	BRIDGE FILE
1" = 5'	
	DESIGNATION
	1600701
	SHEETS
Blah Blah Blah survey	44 of 47
CONTRACT	PROJECT
R-42249	1600701



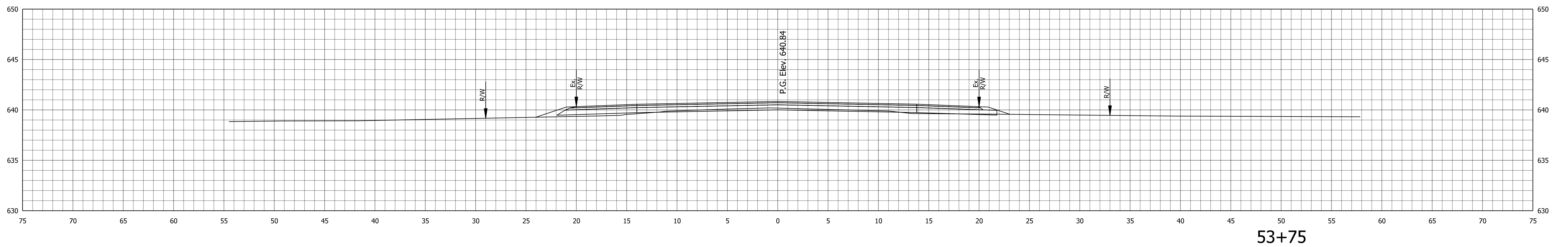
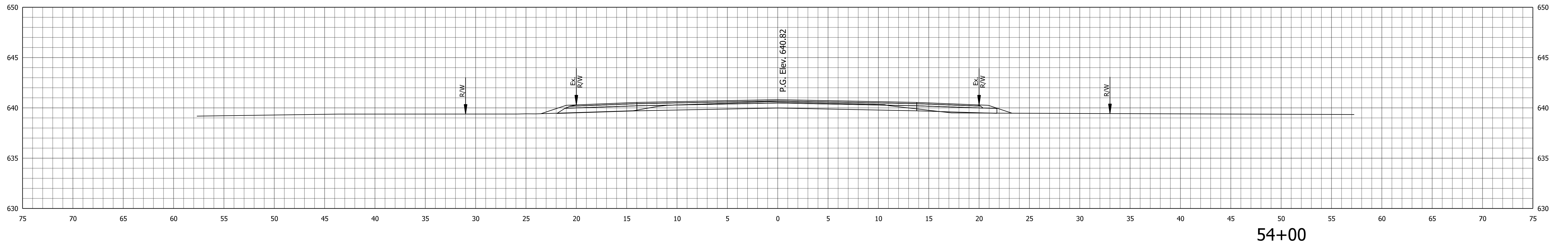
STA. 51+55 TO STA. 52+00

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

**CROSS SECTIONS
ROBBINS ROAD**

SCALE	BRIDGE FILE
1" = 5'	
	DESIGNATION
	1600701
	SHEETS
ELECTRONIC	45 of 47
CONTRACT	PROJECT
R-42249	1600701

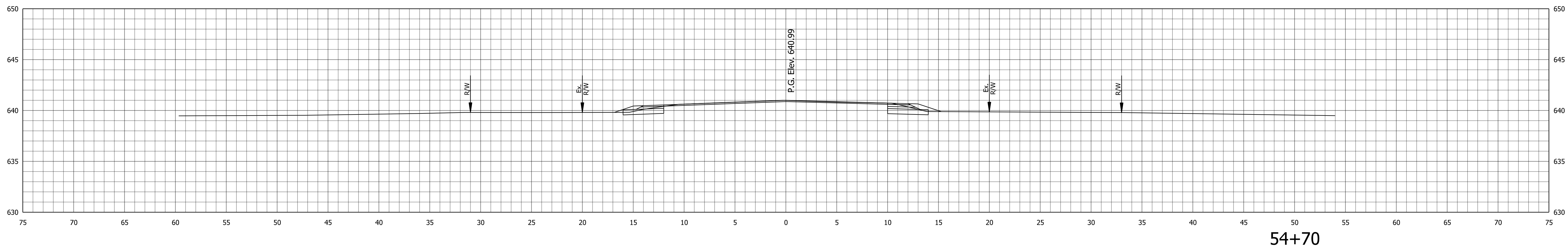


RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

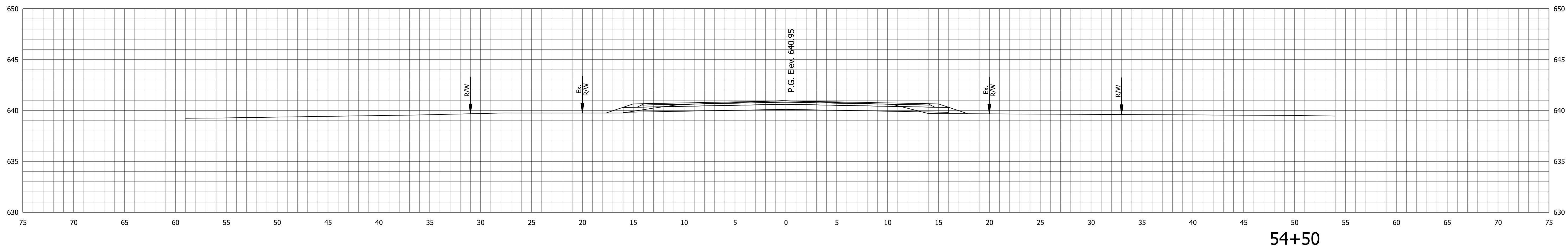
INDIANA
DEPARTMENT OF TRANSPORTATION

CROSS SECTIONS
ROBBINS ROAD

SCALE	BRIDGE FILE
1" = 5'	
	DESIGNATION
	1600701
	SHEETS
ELECTRONIC	46 of 47
CONTRACT	PROJECT
R-42249	1600701



54+70



54+50

RECOMMENDED FOR APPROVAL	<i>ENG SIGNATURES</i>	2/11/2021
	DESIGN ENGINEER	DATE
DESIGNED: JMS	08/19/2020	DRAWN: KG 08/19/2020
CHECKED: ACH	08/19/2020	CHECKED: MVL 08/19/2020

INDIANA
DEPARTMENT OF TRANSPORTATION

**CROSS SECTIONS
ROBBINS ROAD**

SCALE	BRIDGE FILE
1" = 5'	
	DESIGNATION
	1600701
	SHEETS
ELECTRONIC	47 of 47
CONTRACT	PROJECT
R-42249	1600701