

PROJECT	DESIGNATION
1800074	1800151
CONTRACT	STRUCTURE FILE
B-41589	CV 231-067-137.53

STRUCTURE INFORMATION				
STRUCTURE	TYPE	SPAN AND SKEW	OVER	STATION
CV 231-067-137.53	PRECAST REINFORCED CONCRETE BOX	SINGLE SPAN: 15'-0" SKEW: 0°	UNNAMED TRIBUTARY TO SAND BRANCH	C STRUCTURE Sta. 304+40.00 "A"

KIN PROJECT INFORMATION	
DESIGNATION	PROJECT DESCRIPTION
1800074	Bridge Replacement for Structure (231) 43-67-10369 (LEAD)
1800151	Small Structure Replacement for Structure CV 231-067-137.53

INDIANA DEPARTMENT OF TRANSPORTATION



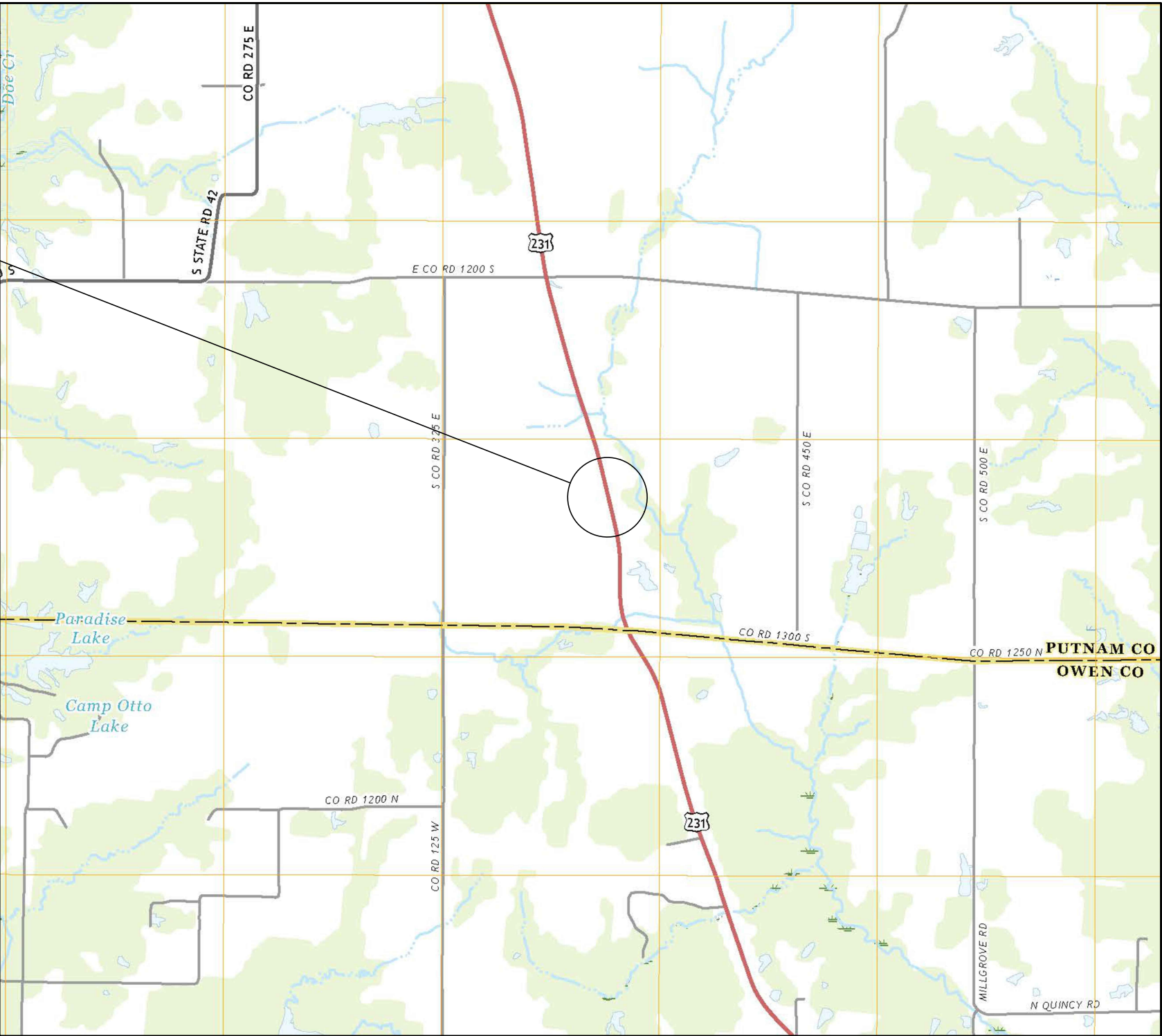
ROAD PLANS

SMALL STRUCTURE REPLACEMENT
ROUTE: US 231 AT: RP 137+53

PROJECT NO. 1800074 P.E.
1800074 R/W
1800074 CONST.

Small Structure Replacement on US 231 Over Unnamed Tributary to Sand Branch
Located 1.45 Miles South of SR 42
Section 18, T-12N, R-3W, Cloverdale Township, Putnam County, Indiana

PROJECT LOCATION
Begin Project-Sta.304+00.00 "A"
End Project-Sta.304+75.00 "A"



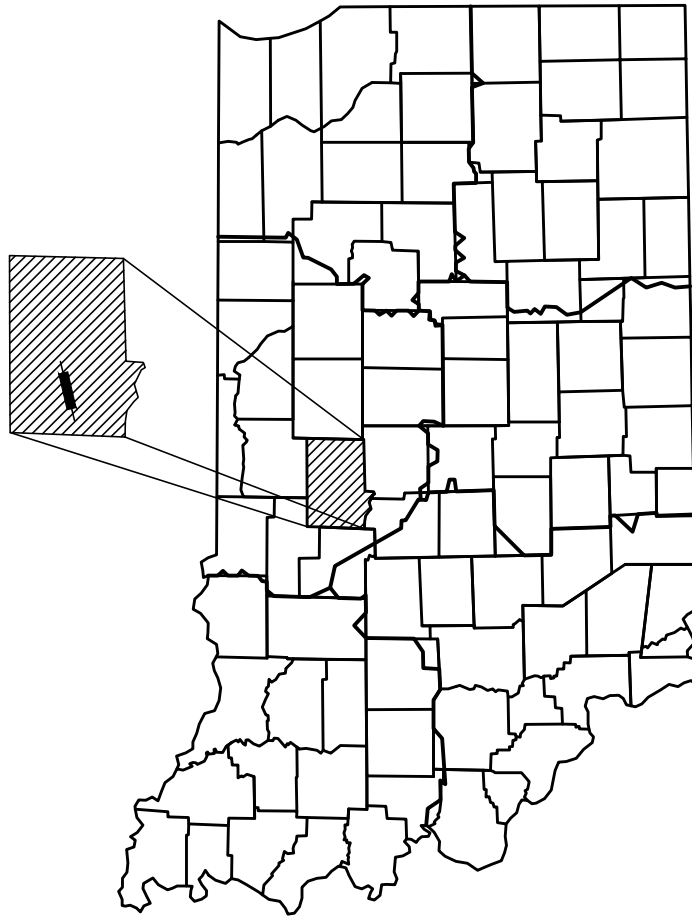
LOCATION MAP
SCALE: 1:24000

TRAFFIC DATA

A.A.D.T. (2022)	6,155	V.P.D.
A.A.D.T. (2042)	6,330	V.P.D.
D.H.V (2042)	568	V.P.H.
DIRECTIONAL DISTRIBUTION	49.8	%
TRUCKS	16.96 %	A.A.D.T.
	13.32 %	D.H.V.

DESIGN DATA

DESIGN SPEED	55 M.P.H.
PROJECT DESIGN CRITERIA	3R (NON-FREEWAY)
FUNCTIONAL CLASSIFICATION	MINOR ARTERIAL
RURAL/URBAN	RURAL
TERRAIN	LEVEL
ACCESS CONTROL	NONE



PROJECT LOCATION SHOWN BY
PUTNAM COUNTY

LATITUDE: 39°28'49" N LONGITUDE: 86°46'59" W

BRIDGE LENGTH: 0.000 MI.
ROADWAY LENGTH: 0.014 MI.
TOTAL LENGTH: 0.014 MI.
MAX. GRADE: 0.86 %

HUC 12: 051202030510
HUC 14: 05120203060130

INDIANA DEPARTMENT OF TRANSPORTATION
STANDARD SPECIFICATIONS DATED 2022
TO BE USED WITH THESE PLANS.

PLANS PREPARED BY:

BLN:
BEAM·LONGEST·NEFF
8320 CRAIG STREET | INDIANAPOLIS, IN 46250
317.849.5832 | F: 317.841.4280 | WWW.B-L-N.COM

PLANS PREPARED BY: BEAM, LONGEST & NEFF, LLC (317)849-5832
PHONE NUMBER

CERTIFIED BY: DATE

APPROVED FOR LETTING: INDIANA DEPARTMENT OF TRANSPORTATION DATE

DRAWING NO.	STRUCTURE FILE	
	CV 231-067-137.53	
	DESIGNATION	
CONTRACT	1800151	
	SHEETS	
	1	of 29
B-41589	PROJECT	
	1800074	

UTILITIES

ENDEAVOR COMMUNICATIONS
2 S. West Street
Cloverdale, IN 46120
Attn: Jason Lotz
Ph: 765-720-2119
Email: jlotz@weendeavor.com

VECTREN ENERGY DELIVERY
2345 E. Main Street
Danville, IN 46122
Attn: Benjamin Vasquez
Ph: 317-718-3657
Email: Benjamin.Vasquez@centerpointenergy.com

DUKE ENERGY
100 S. Mill Creek Road
Noblesville, IN 46062
Attn: Kyle Gore
Ph: 317-804-3887
Email: Kyle.l.gore@leidos.com

HENDRICKS POWER COOPERATIVE
P.O. Box 309
Danville, IN 46122
Attn: Jason Stewart
Ph: 317-718-7621
Email: jstewart@hendrickspower.com

COMCAST COMMUNICATIONS
2520 Endress Place
Greenwood, IN 46143
Attn: Richard Miller
Ph: 317-945-2670
Email: Richard_Miller3@cable.comcast.com



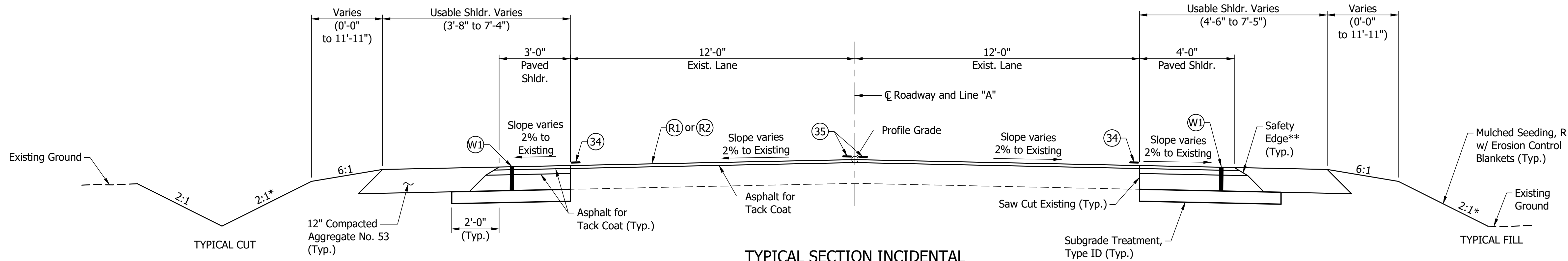
REVISIONS

REVISIONS		
SHEET NO.	DATE	REVISED

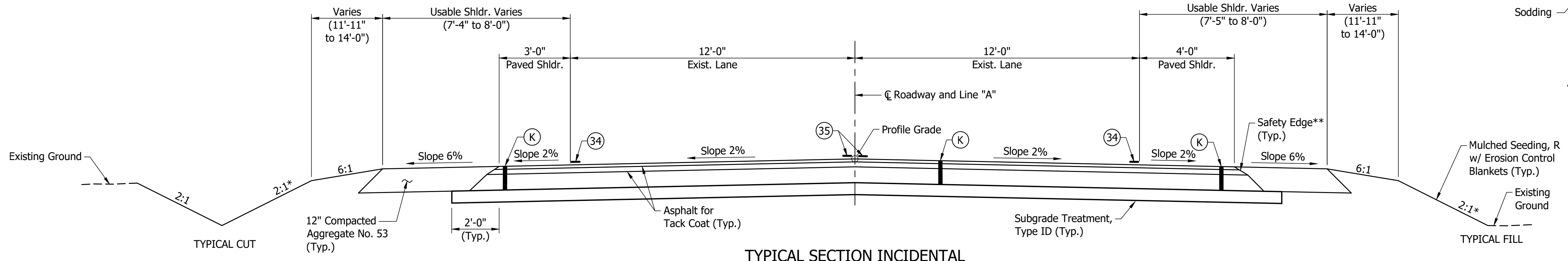
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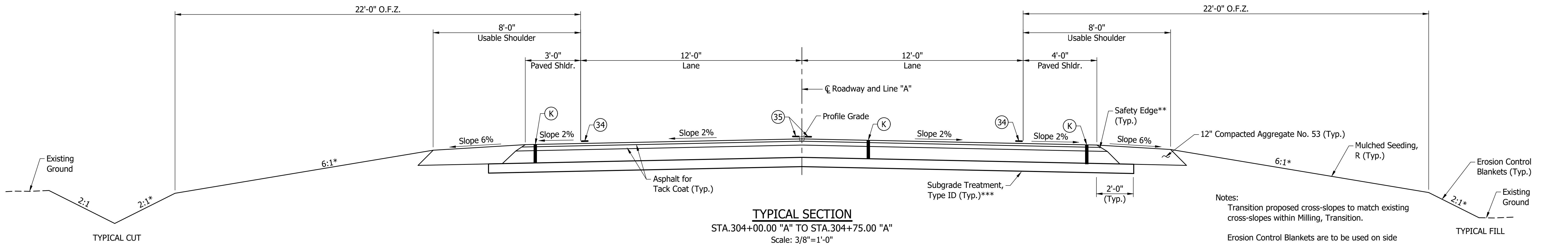
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			NONE	CV 231-067-137.53		
			VERTICAL SCALE	DESIGNATION		
	DESIGN ENGINEER _____ DATE _____		NONE	1800151		
DESIGNED: GLB	DRAWN: OMV	INDEX SHEET	DRAWING NO.	SHEETS		
				2	of	29
CHECKED: TSW	CHECKED: KB		CONTRACT	PROJECT		
			B-41589	1800074		



TYPICAL SECTION INCIDENTAL
STA.302+00.00 "A" TO STA.303+70.00 "A"
STA.305+85.00 "A" TO STA.306+75.00 "A"
Scale: 3/8"=1'-0"



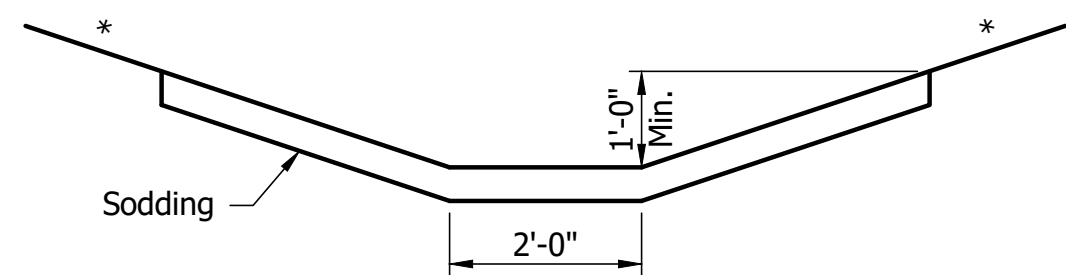
TYPICAL SECTION INCIDENTAL
STA.303+70.00 "A" TO STA.304+00.00 "A"
STA.304+75.00 "A" TO STA.305+85.00 "A"
Scale: 3/8"=1'-0"



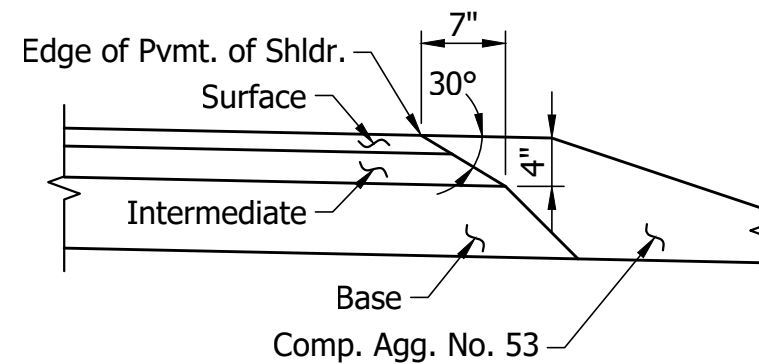
TYPICAL SECTION
STA.304+00.00 "A" TO STA.304+75.00 "A"
Scale: 3/8"=1'-0"

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 880#/Syd QC/QA-HMA, 3, 64, Base, 19.0 mm
- (R1) Milling Asphalt, 1 1/2" 165#/Syd QC/QA-HMA, 3, 70, Surface, 9.5 mm After Milling, any cracks visible with 0.25 inch width or greater shall be sealed prior to applying tack coat. The material utilized to fill cracks shall be PG 64-22 only. No emulsion shall be used. The sealed cracks shall not be overbanded.
- (R2) Milling, Transition 165#/Syd QC/QA-HMA, 3, 70 Surface, 9.5 mm
- (W1) 165#/Syd QC/QA-HMA, 3, 70, Surface, 9.5 mm on Widening with HMA, Type C 275#/Syd, HMA Intermediate, Type C on 880#/Syd, HMA Base, Type C
- (34) Line, Thermoplastic, Solid, White, 6"
- (35) Line, Thermoplastic, Solid, Yellow, 6"



TYP. SODDED SIDE DITCH
Scale: 1/2"=1'-0"



30° SAFETY EDGE
Scale: 3/4"=1'-0"

Notes:
Transition proposed cross-slopes to match existing cross-slopes within Milling, Transition.

Erosion Control Blankets are to be used on side slopes steeper than 3:1.

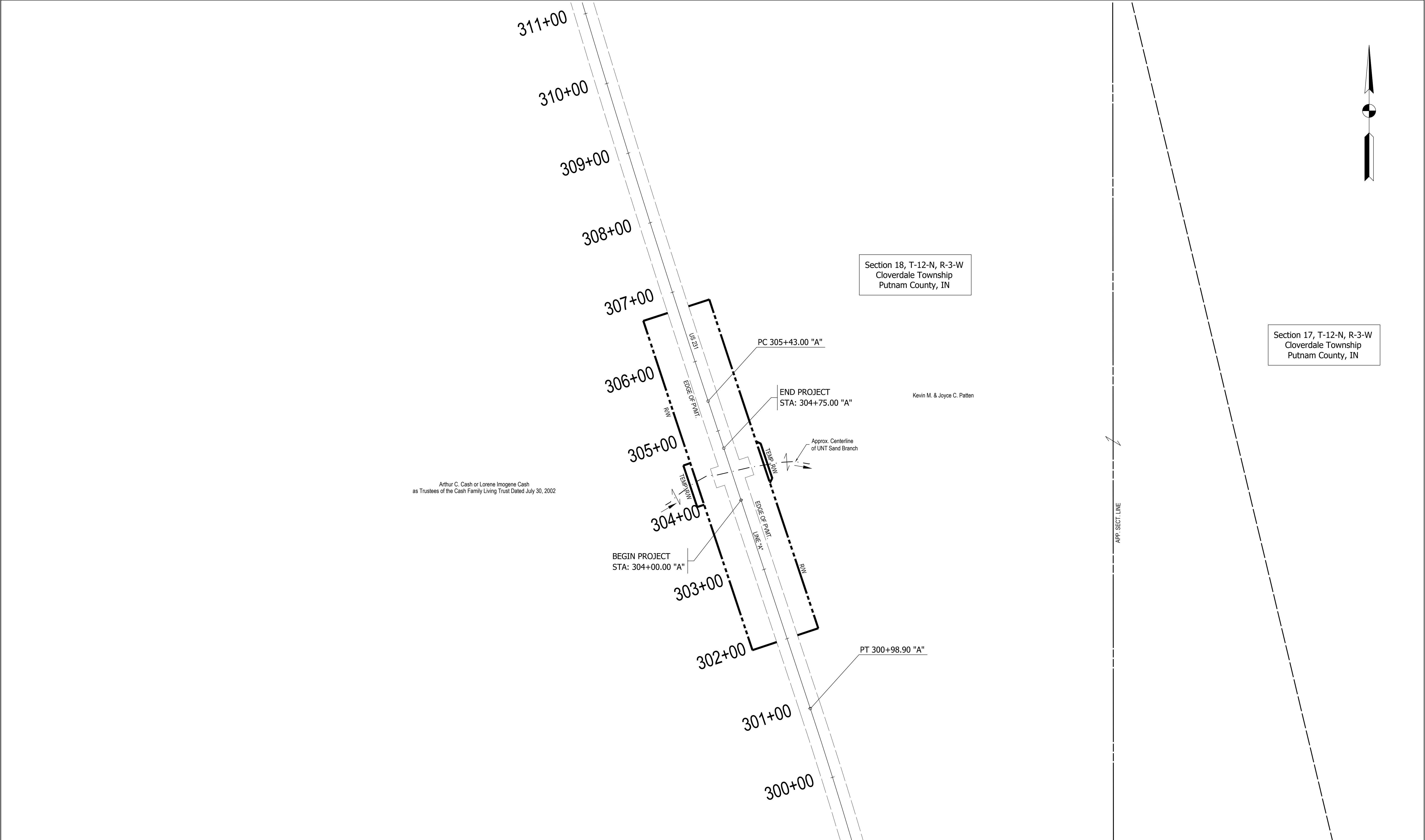
* See Cross Sections for Slope
** Safety Edge (30°) Applicable to Surface and Intermediate Layers Only
***Subgrade Treatment, Type ID is not required over the structure backfill

RECOMMENDED FOR APPROVAL _____	
DESIGNED: GLB	DRAWN: OMV
CHECKED: TSW	CHECKED: KB

INDIANA
DEPARTMENT OF TRANSPORTATION

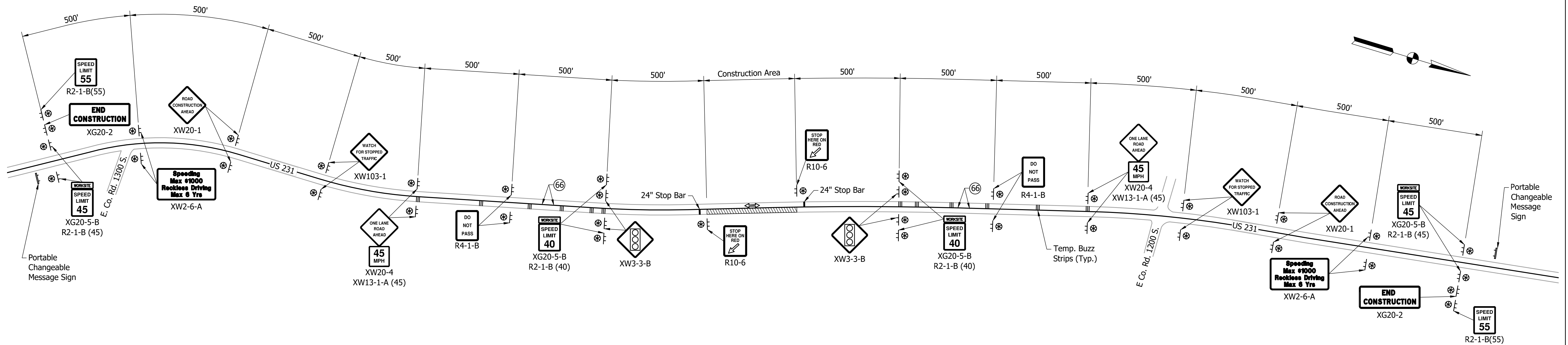
TYPICAL CROSS SECTIONS

HORIZONTAL SCALE	STRUCTURE FILE
AS NOTED	CV 231-067-137.53
VERTICAL SCALE	DESIGNATION
AS NOTED	1800151
DRAWING NO.	SHEETS
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CONTRACT	PROJECT
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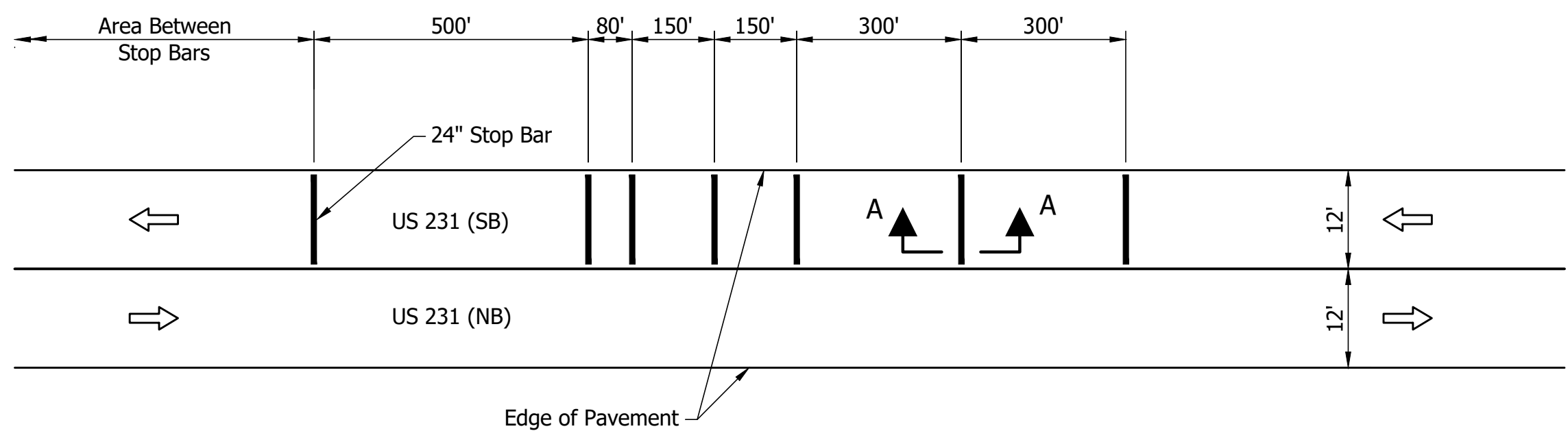
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						1"=60'		CV 231-067-137.53			
						VERTICAL SCALE		DESIGNATION			
						N/A		1800151			
		DESIGNED: JMT		DRAWN: MJD		PLAT NO. 1		DRAWING NO.		SHEETS	
								4 of 29			
		CHECKED: GMW		CHECKED: ECP				CONTRACT		PROJECT	
						B-41589		1800074			

CONSTRUCTION ZONE DESIGN SPEED = 45 MPH



PHASE I - ADVANCED SIGN PLACEMENT PLAN

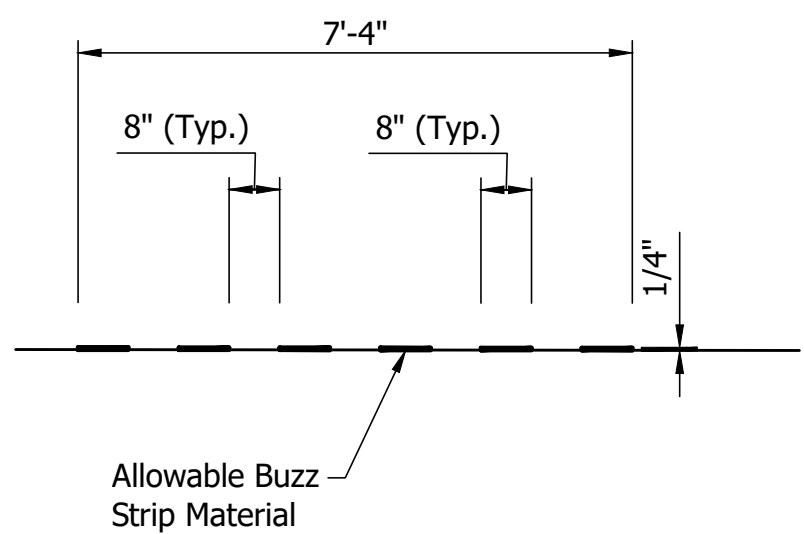
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TEMPORARY BUZZ STRIP INSTALLATION

(SB Shown, NB Same by Opposite Hand)

No Scale



SECTION A-A

No Scale

Notes:

For Legend & Maintenance of Traffic General Notes, see Sht.6.

For Construction Area Details, see Sht.7.

For Quantities, see Sht.13.

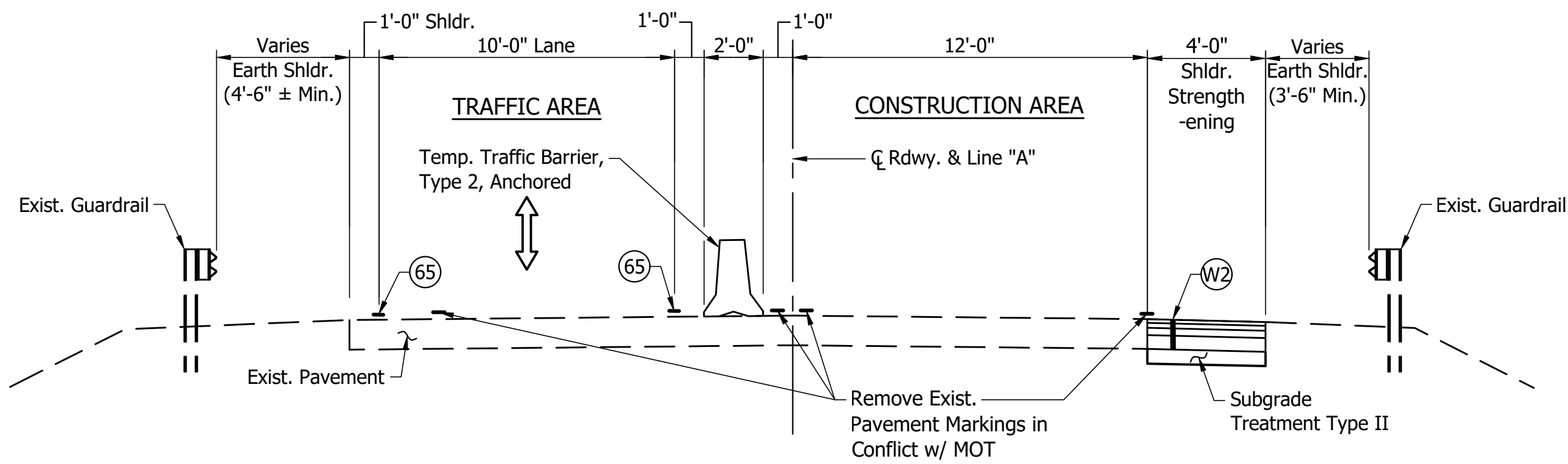
RECOMMENDED FOR APPROVAL _____
DESIGN ENGINEER DATE

DESIGNED: GLB DRAWN: LLB
CHECKED: TSW CHECKED: KB

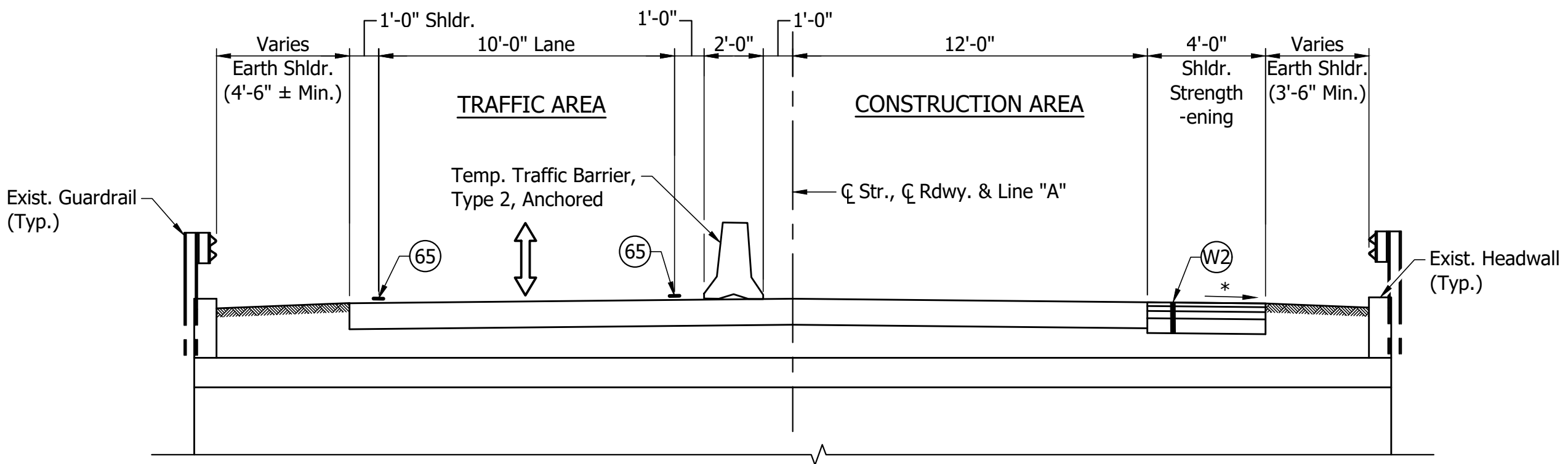
INDIANA
DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC
PHASE I

HORIZONTAL SCALE	STRUCTURE FILE
AS NOTED	CV 231-067-137.53
VERTICAL SCALE	DESIGNATION
AS NOTED	1800151
DRAWING NO.	SHEETS
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CONTRACT	PROJECT
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PHASE I - ROAD SECTION
Scale: 1/4" = 1'-0"



PHASE I - STRUCTURE SECTION
Scale: 1/4" = 1'-0"

MAINTENANCE OF TRAFFIC GENERAL NOTES

- The Maintenance of Traffic listed here is only a recommendation and should the Contractor desire to adopt another Method of maintaining Traffic during Construction, it shall be submitted to the Engineer for Review and Approval in advance of the Commencement of Work in the Affected Area.
- All Construction Signs, Drums, and Barricades shall be Equipped with Construction Warning Lights, Type B.
- Actual construction sign location shall be determined by the Project Engineer. The locations shown are approximate and may be adjusted by the Project Engineer.
- Existing Pavement Markings that conflict with the Maintenance of Traffic Scheme shall be removed prior to construction.
- The Contractor shall be required to Erect, Furnish and Maintain all construction signs and barricades as shown
- Maintenance of Traffic shall be in accordance with Section 104.04 and the Indiana Manual on Uniform Traffic Control Devices, dated 2011 with Revision #1-#3, and the Maintaining Traffic Sequence for Individual Segments as detailed.
- Remove snowplowable raised pavement markers as necessary where centerline markings are to be removed. The snowplowable raised pavement markers shall not be replaced.
- Portable Changeable Message Signs to be utilized as directed by the Engineer.
- The Contractor to cover 55 mph Speed Limit Signs located within the Advance Sign Placement Plan.
- Access to Residential Drives to be maintained at all times.

SIGNALIZATION NOTES

Any temporary wood poles to be utilized for signals to be placed as far from edge of pavement as possible (within R/W).

2" conduit and aerial cable may be placed on either side of the structure at the option of the contractor.

Signal controller to be provided to district signal supervisor for programming timings.

LEGEND

- Widening with HMA, Type C
165#/Syd, HMA Surface, Type C on
275#/Syd, HMA Intermediate, Type C on
660#/Syd, HMA Base, Type C
- Construction Zone
- Construction Sign and Supports
 - Construction Drums
- Low Intensity Construction Warning Light Type A
- Directional Traffic
- Line Removal
- Temporary Traffic Barrier, Type 2, Anchored
- Energy Absorbing Terminal, CZ, TL-2
- 1-Way, 3-Section (12" Red, 12" Amber, 12" Green) Signal Indication
- Portable Signal
- Barricade Type III-B
- Barricade Type III-B
- Temporary Pavement Marking, Removable, 4 in. (White)
- Temporary Pavement Marking, Removable, 4 in. (Yellow)
Place double centerline markings 1000 ft. ahead of the Construction Area.
- Temporary Transverse Markings, White, Stop Line, 24 in.

Notes:

For Advanced Sign Placement Plan, see Sht.5.

For Construction Area Details, see Sht.7.

For Quantities, see Sht.13.

* Match Existing Cross-Slope.

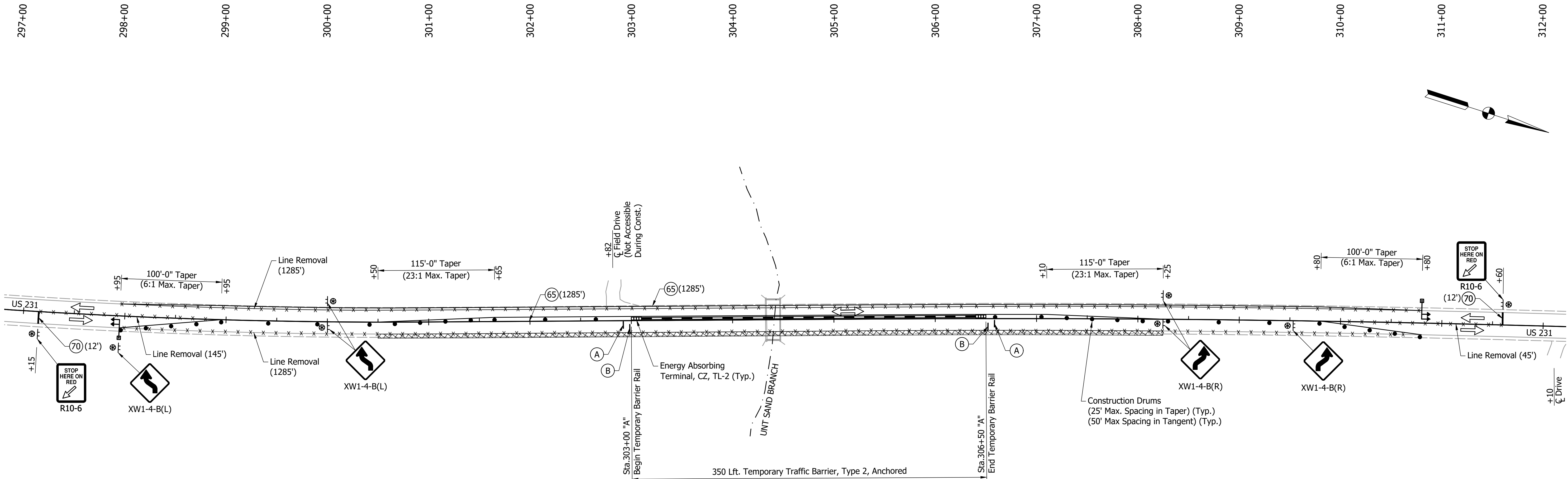
RECOMMENDED FOR APPROVAL	
DESIGN ENGINEER	DATE
DESIGNED: KB	DRAWN: LLB
CHECKED: TSW	CHECKED: KB

INDIANA
DEPARTMENT OF TRANSPORTATION

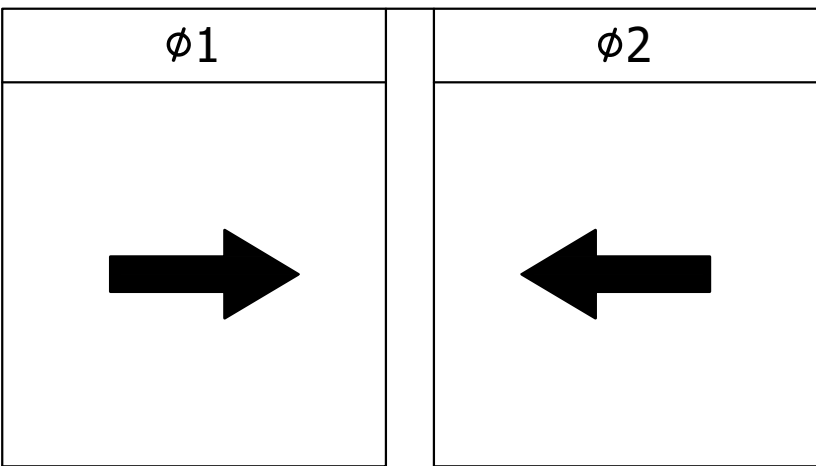
MAINTENANCE OF TRAFFIC
PHASE I

HORIZONTAL SCALE	STRUCTURE FILE
1/4" = 1'-0"	CV 231-067-137.53
VERTICAL SCALE	DESIGNATION
1/4" = 1'-0"	1800151
DRAWING NO.	SHEETS
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CONTRACT	PROJECT
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CONSTRUCTION ZONE DESIGN SPEED = 45 MPH



PHASE I - MAINTENANCE OF TRAFFIC DETAILS
No Scale

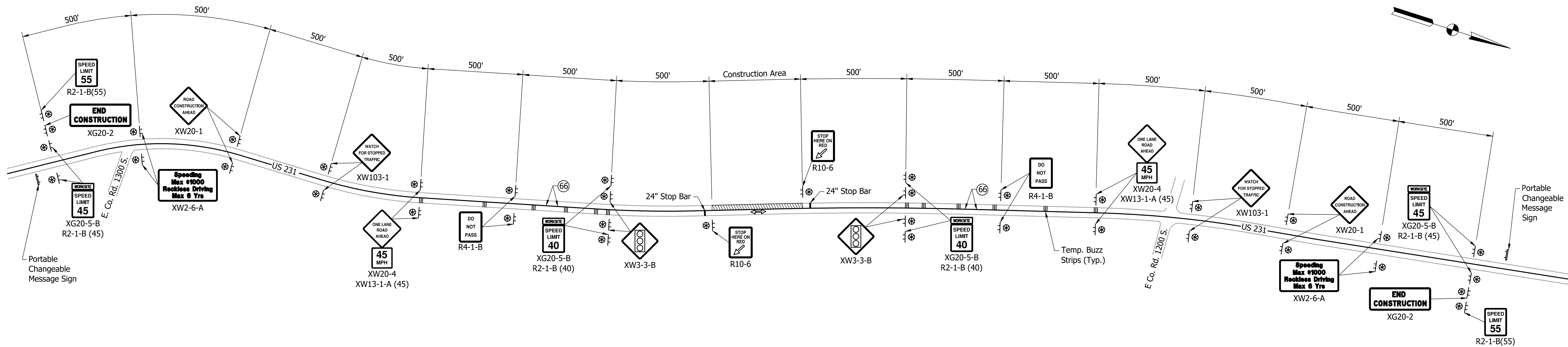


SIGNAL PHASING DIAGRAM

Notes:
For Advanced Sign Placement for Phase I, see Sht.5.
For Legend & Maintenance of Traffic General Notes, see Sht.6.
For Quantities, see Sht.13.

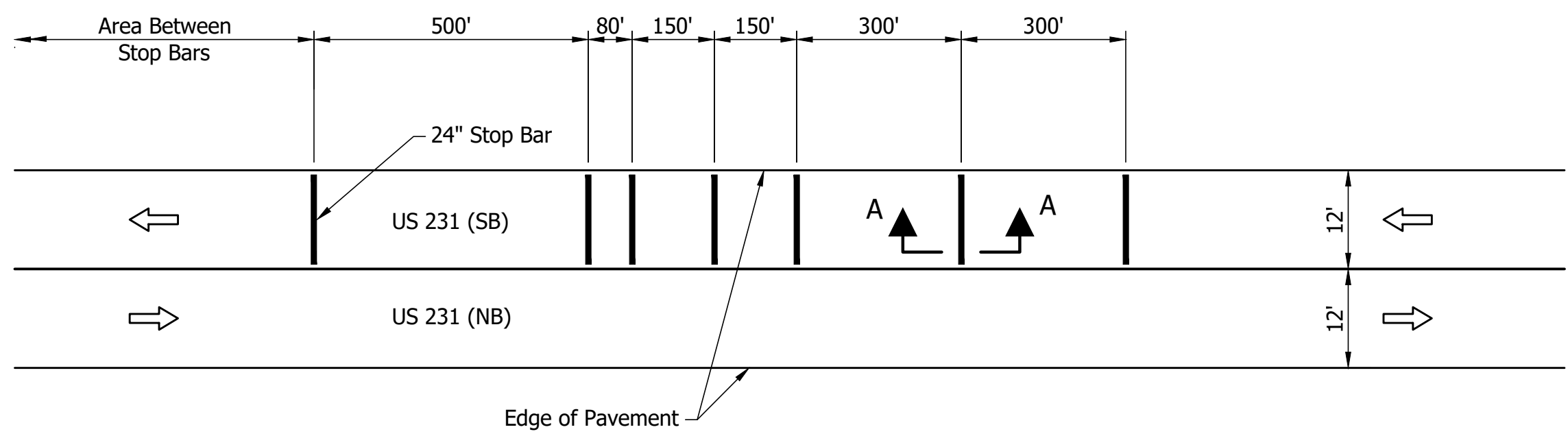
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						AS NOTED		CV 231-067-137.53			
						VERTICAL SCALE		DESIGNATION			
		DESIGNED: KB		DRAWN: LLB		MAINTENANCE OF TRAFFIC PHASE I		AS NOTED		1800151	
								DRAWING NO.		SHEETS	
								CONTRACT		PROJECT	
CHECKED: TSW		CHECKED: KB				B-41589		1800074			

CONSTRUCTION ZONE DESIGN SPEED = 45 MPH



PHASE II - ADVANCED SIGN PLACEMENT PLAN

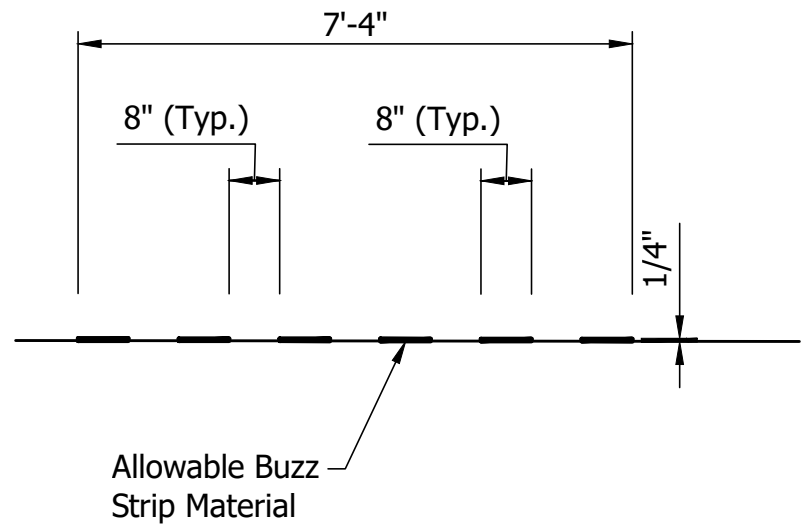
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TEMPORARY BUZZ STRIP INSTALLATION

(SB Shown, NB Same by Opposite Hand)

No Scale



SECTION A-A

No Scale

Notes:

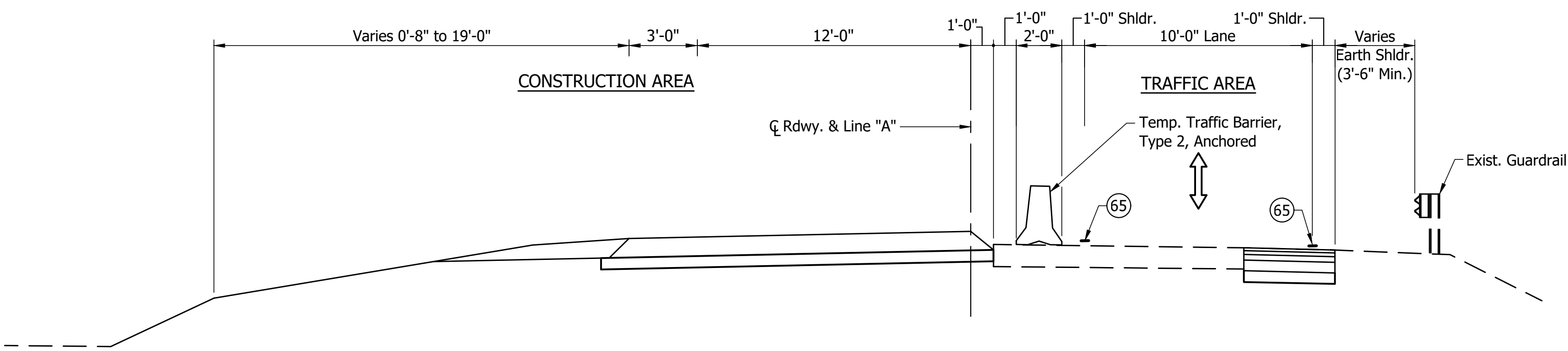
- For Legend & Maintenance of Traffic General Notes, see Sht.6.
- For Construction Area Details, see Sht.10.
- For Quantities, see Sht.13.

RECOMMENDED FOR APPROVAL _____	
DESIGNED: KB _____	DRAWN: LLB _____
CHECKED: TSW _____	CHECKED: KB _____

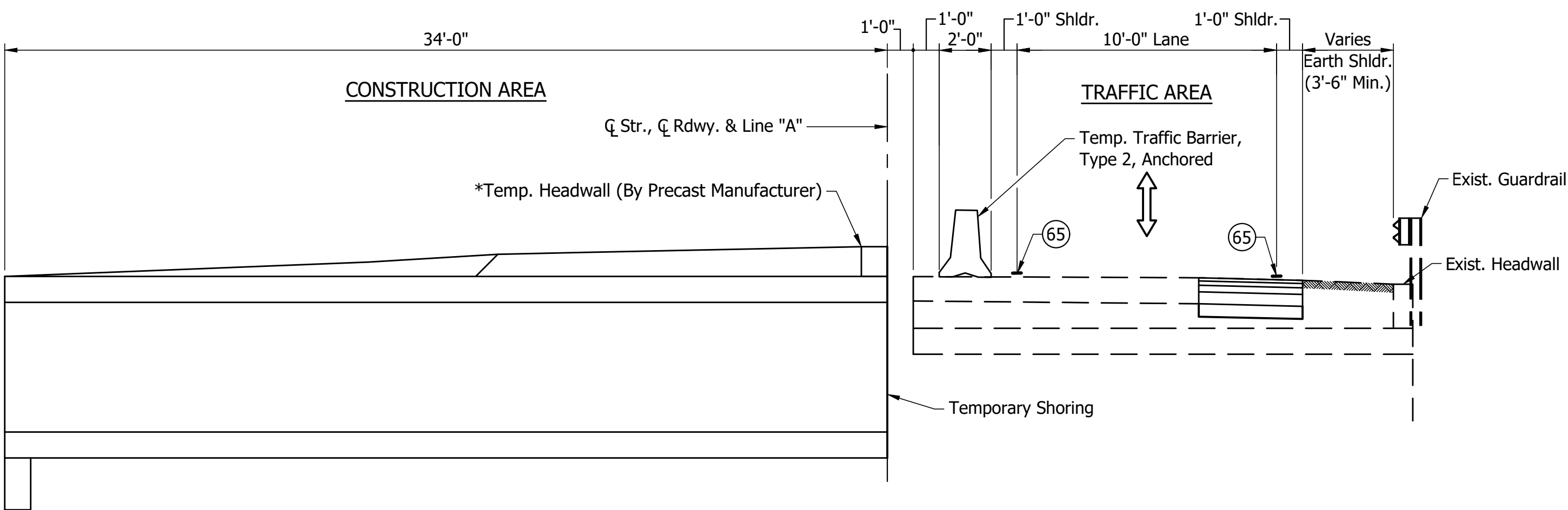
INDIANA
DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC
PHASE II

HORIZONTAL SCALE	STRUCTURE FILE
AS NOTED	CV 231-067-137.53
VERTICAL SCALE	DESIGNATION
AS NOTED	1800151
DRAWING NO.	SHEETS
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CONTRACT	PROJECT
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PHASE II - ROAD SECTION
Scale: 1/4" = 1'-0"



PHASE II - STRUCTURE SECTION
Scale: 1/4" = 1'-0"

Notes:

For Legend & Maintenance of Traffic General Notes, see Sht.6.

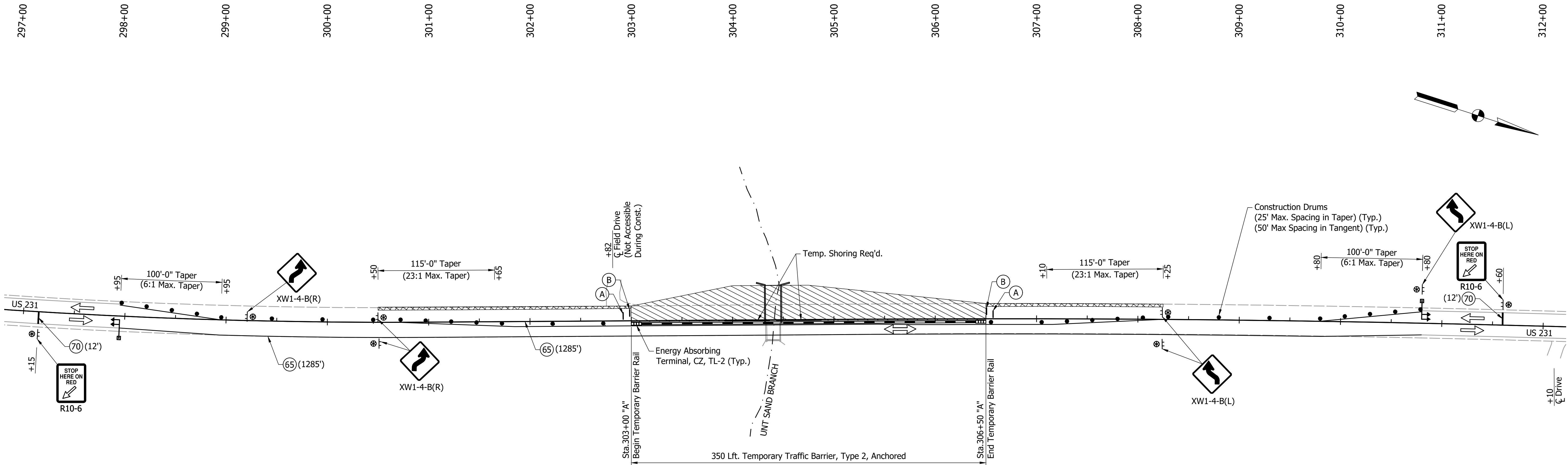
For Advanced Sign Placement Plan, see Sht.8.

For Construction Area Details, see Sht.10.

* Temporary Headwall in this Phase shall be made flush with the pavement to provide required Temporary Traffic Barrier anchorage in Phase III

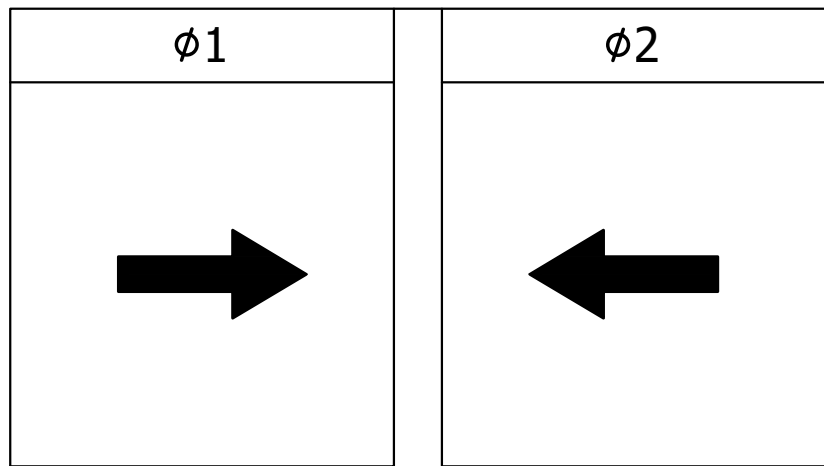
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		DESIGN ENGINEER _____ DATE _____			1/4" = 1'-0"		CV 231-067-137.53				
		DESIGNED: KB _____		DRAWN: OMV _____		VERTICAL SCALE		DESIGNATION			
		CHECKED: TSW _____		CHECKED: KB _____		1/4" = 1'-0"		1800151			
						DRAWING NO.		SHEETS			
						9		of		29	
				MAINTENANCE OF TRAFFIC PHASE II		CONTRACT		PROJECT			
						B-41589		1800074			

CONSTRUCTION ZONE DESIGN SPEED = 45 MPH



PHASE II - MAINTENANCE OF TRAFFIC DETAILS

No Scale

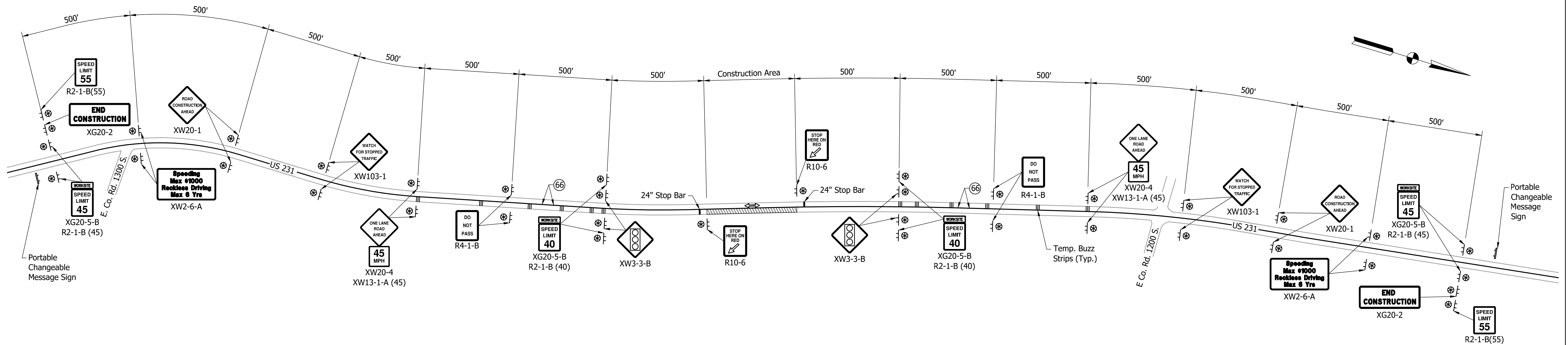


SIGNAL PHASING DIAGRAM

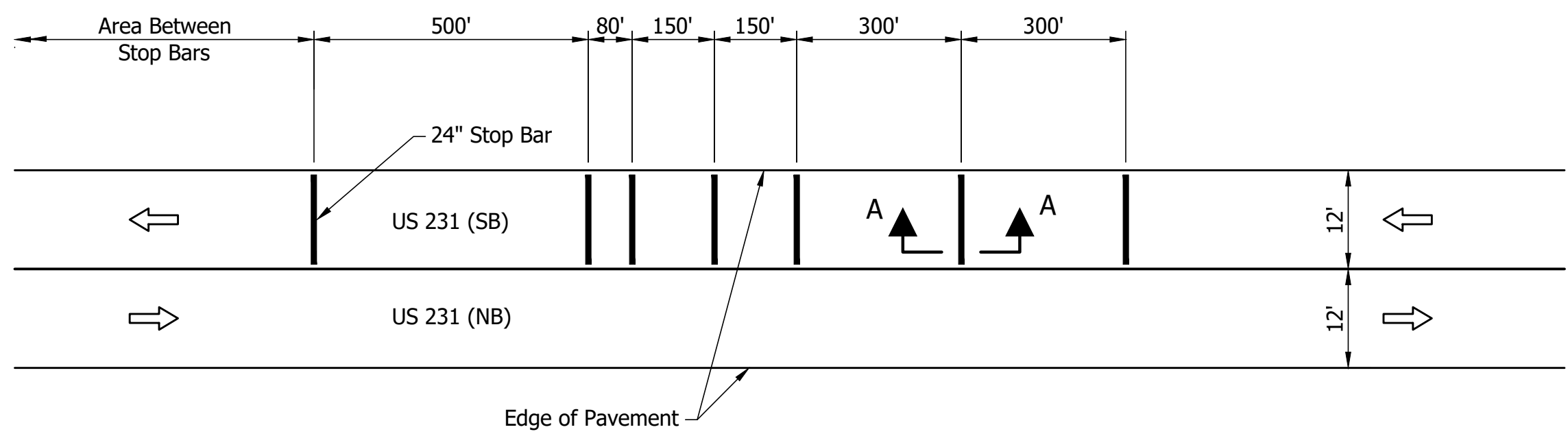
Notes:
For Advanced Sign Placement for Phase II, see Sht.8.
For Legend & Maintenance of Traffic General Notes, see Sht.6.
For Quantities, see Sht.13.

		RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE		INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		STRUCTURE FILE			
						AS NOTED		CV 231-067-137.53			
						VERTICAL SCALE		DESIGNATION			
						AS NOTED		1800151			
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								10		of 29	
		CHECKED: TSW		CHECKED: KB				CONTRACT		PROJECT	
								B-41589		1800074	

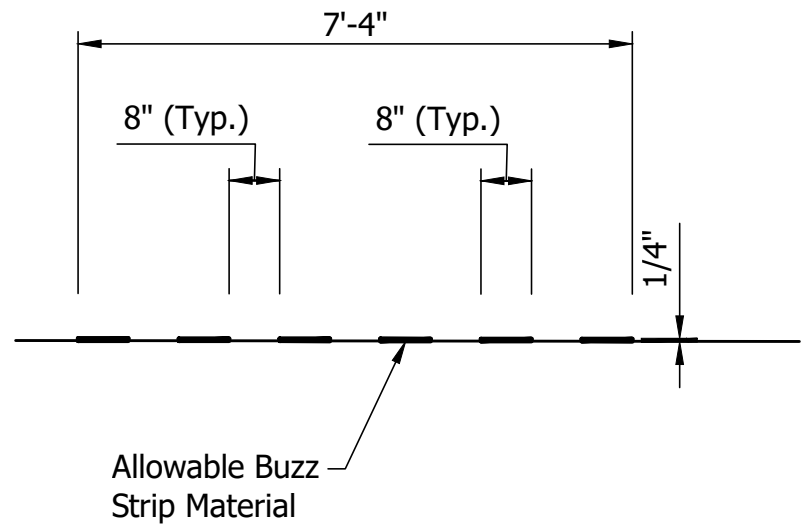
CONSTRUCTION ZONE DESIGN SPEED = 45 MPH



PHASE III - ADVANCED SIGN PLACEMENT PLAN
No Scale



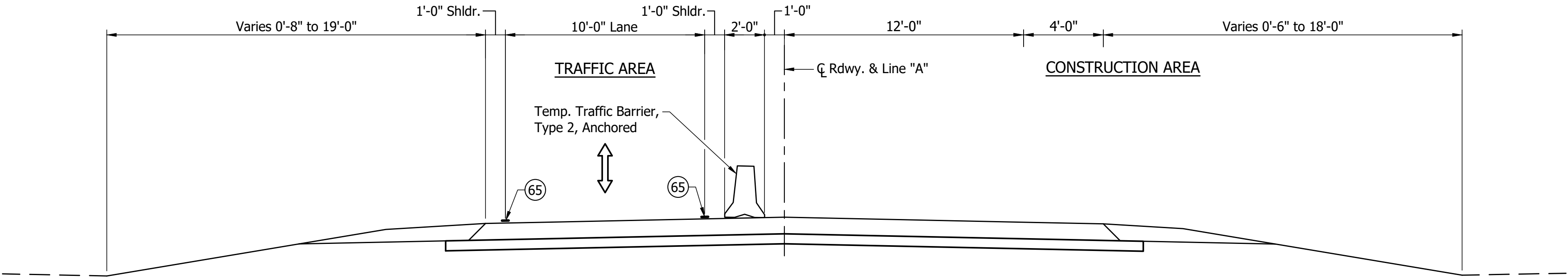
TEMPORARY BUZZ STRIP INSTALLATION
(SB Shown, NB Same by Opposite Hand)
No Scale



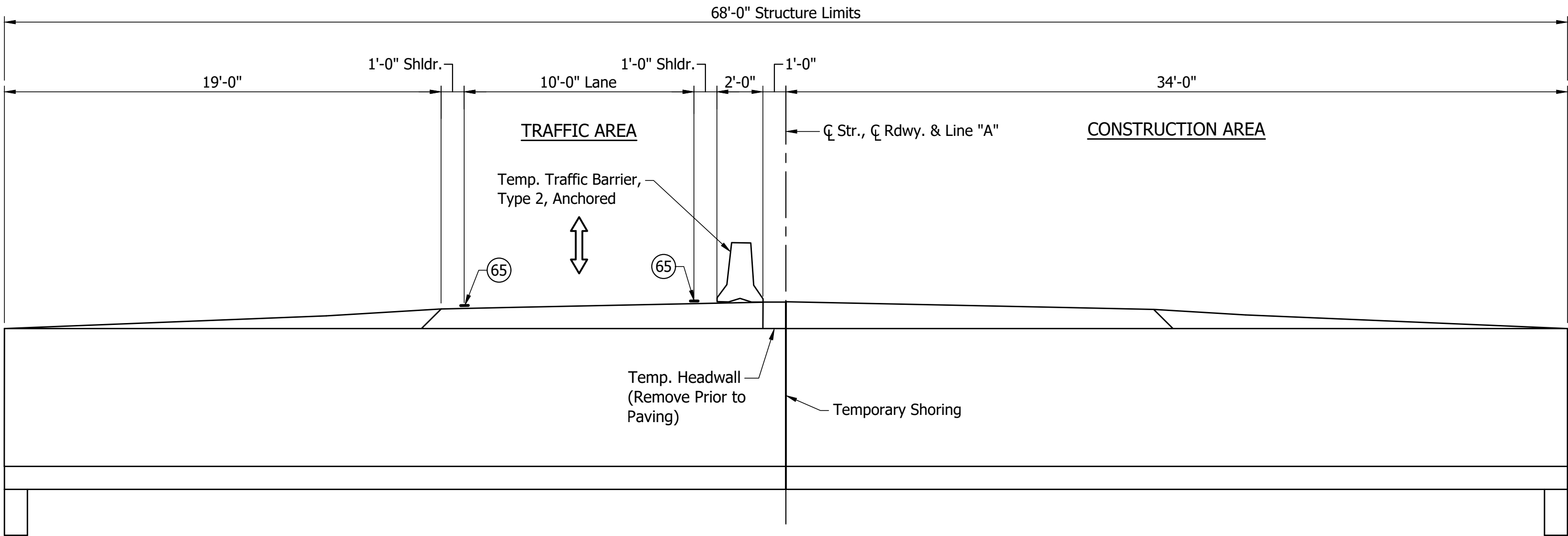
SECTION A-A
No Scale

Notes:
For Legend & Maintenance of Traffic General Notes, see Sht.6.
For Construction Area Details, see Sht.13.
For Quantities, see Sht.13.

RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE _____	INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE AS NOTED	STRUCTURE FILE CV 231-067-137.53
	MAINTENANCE OF TRAFFIC PHASE III		VERTICAL SCALE AS NOTED	DESIGNATION 1800151
DESIGNED: KB	DRAWN: LLB		DRAWING NO.	SHEETS 11 of 29
CHECKED: TSW	CHECKED: KB		CONTRACT B-41589	PROJECT 1800074



PHASE III - ROAD SECTION
Scale: 1/4" = 1'-0"

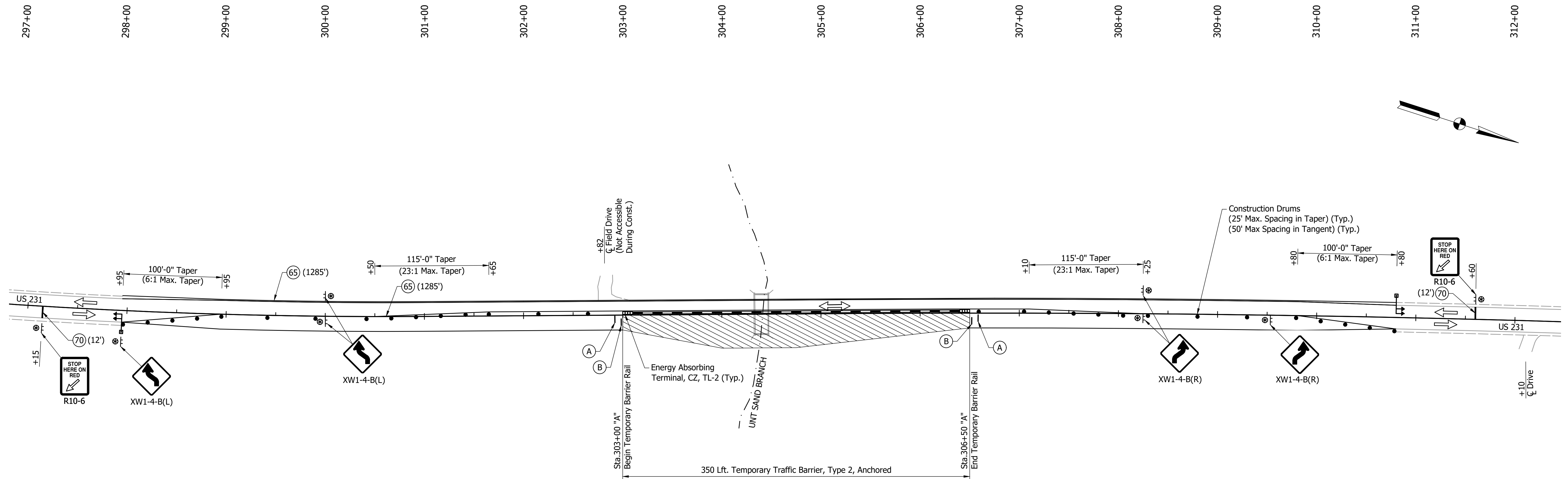


PHASE III - STRUCTURE SECTION
Scale: 1/4" = 1'-0"

- Notes:
- For Legend & Maintenance of Traffic General Notes, see Sht.6.
 - For Advanced Sign Placement Plan, see Sht.11.
 - For Construction Area Details, see Sht.13.
 - For Quantities, see Sht.13.

		RECOMMENDED FOR APPROVAL _____		INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		STRUCTURE FILE			
						1/4" = 1'-0"		CV 231-067-137.53			
		DESIGN ENGINEER _____		DATE _____		VERTICAL SCALE		DESIGNATION			
						1/4" = 1'-0"		1800151			
		DESIGNED: KB _____		DRAWN: OMV _____		MAINTENANCE OF TRAFFIC PHASE III		DRAWING NO.		SHEETS	
								12 of 29			
CHECKED: TSW _____		CHECKED: KB _____				CONTRACT		PROJECT			
						B-41589		1800074			

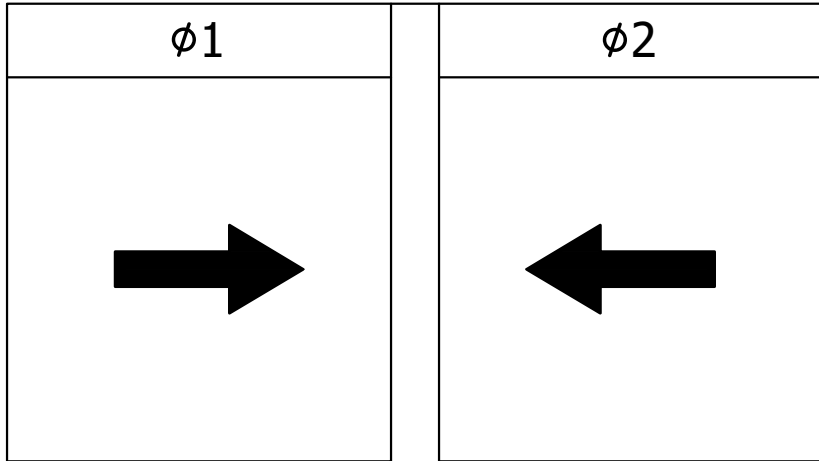
CONSTRUCTION ZONE DESIGN SPEED = 45 MPH



PHASE III - MAINTENANCE OF TRAFFIC DETAILS

No Scale

ITEM DESCRIPTION	UNIT	QUANTITY			
		PHASE I	PHASE II	PHASE III	PAY QUANTITY
Temporary Shoring	LS	-	1	1	1
Road Closure Sign Assembly	EACH	2	2	2	2
Temporary Pavement Marking, Removable, 4 in. (White)	LFT	2570	2570	2570	7710
Temporary Pavement Marking, Removable, 4 in. (Yellow)	LFT	4000	-	-	4000
Temporary Transverse Pavement Marking, Removable, 24 in. (White)	LFT	24	24	24	24
Construction Sign, A	EACH	42	42	42	42
Construction Sign, B	EACH	14	14	14	14
Maintaining Traffic	LS	-	-	-	1
Barricade, Type III-B	LFT	48	48	48	48
Temporary Traffic Barrier, Anchored, Type 2	LFT	350	350	350	350
Portable Changeable Message Sign	EACH	2	2	2	2
Portable Signal	LS	1	1	1	1
Temporary Buzz Strips	LFT	864	864	864	864
Line Remove	LFT	2840	-	-	2840
Snowplowable Raised Pavement Marker, Remove	EACH	7	-	-	7



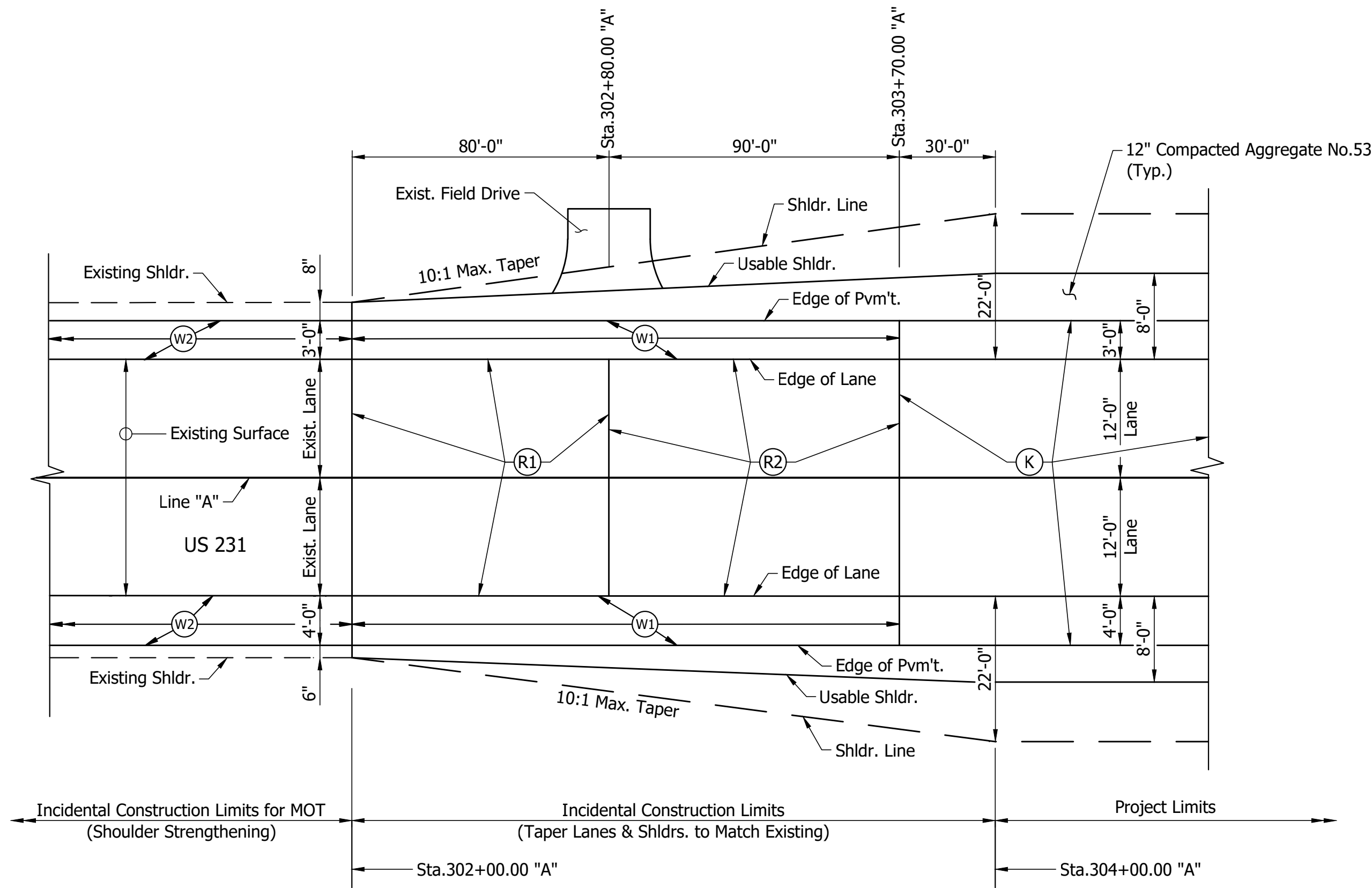
SIGNAL PHASING DIAGRAM

Notes:

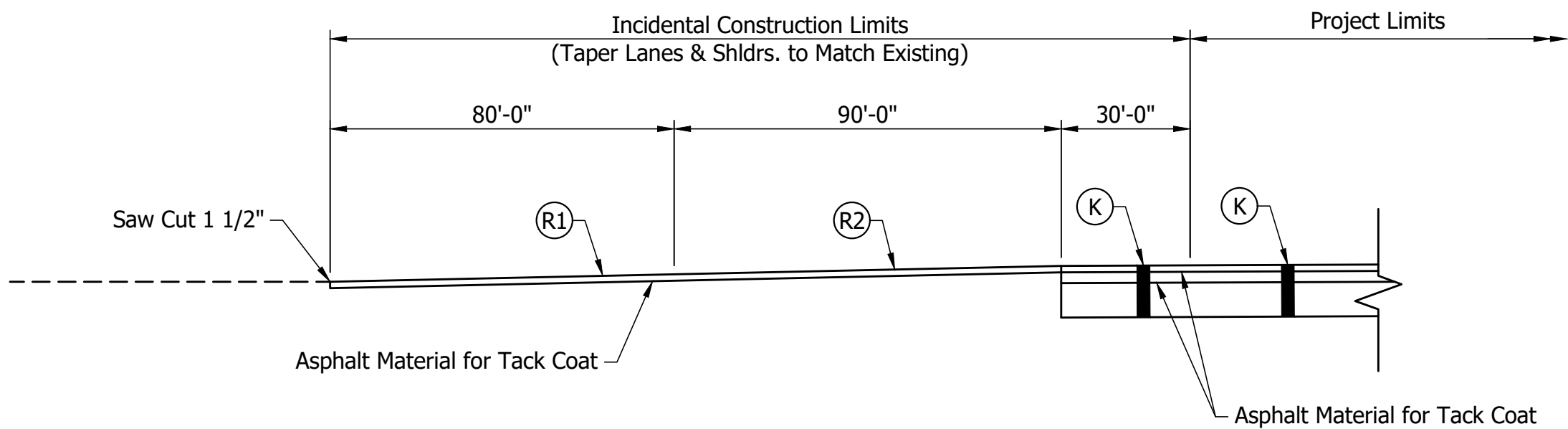
For Advanced Sign Placement for Phase III, see Sht.11.

For Legend & Maintenance of Traffic General Notes,
see Sht.6.

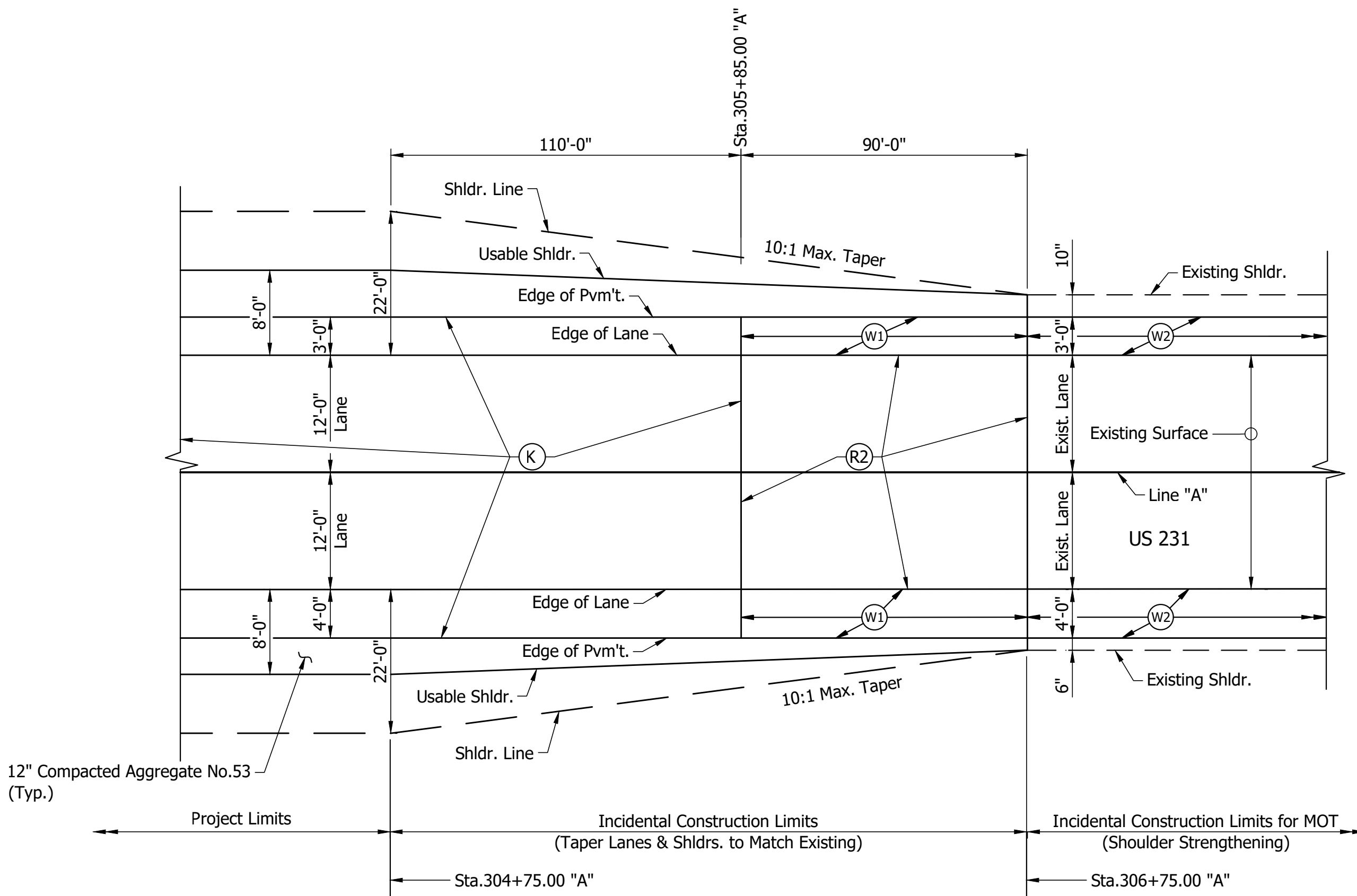
RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE _____		INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		STRUCTURE FILE			
				NONE		CV 231-067-137.53			
				VERTICAL SCALE		DESIGNATION			
				NONE		1800151			
DESIGNED: KB		DRAWN: OMV		MAINTENANCE OF TRAFFIC PHASE III		DRAWING NO.		SHEETS	
						13		of 29	
CHECKED: TSW		CHECKED: KB				CONTRACT		PROJECT	
						B-41589		1800074	



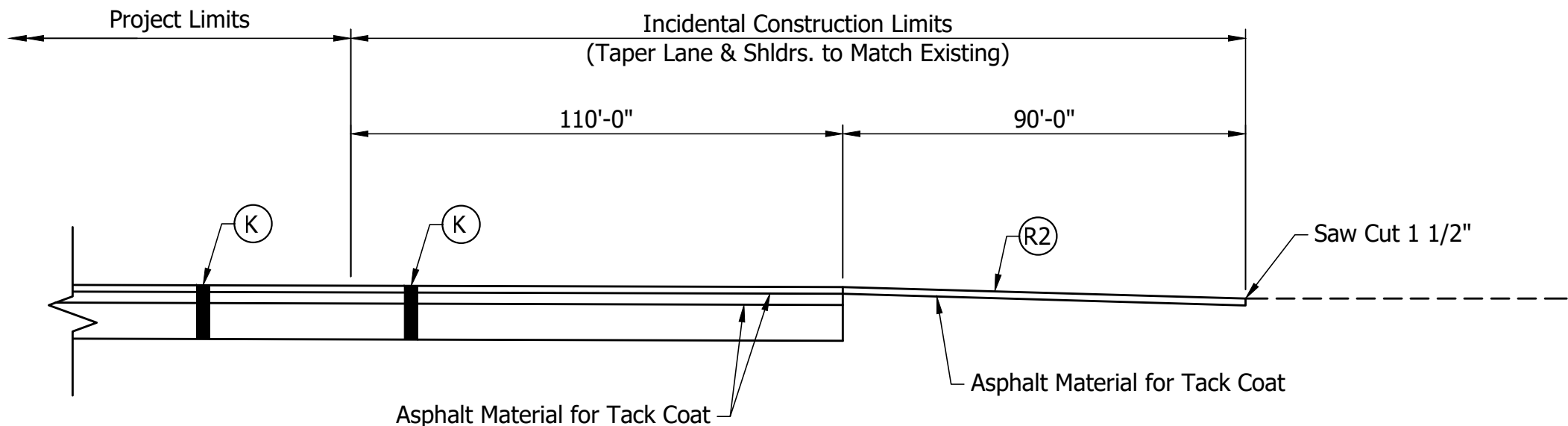
DETAIL - MATCHING EXISTING ROADWAY
(REQ'D. @ BEGIN OF PROJECT)
No Scale



MATCHING EXISTING PAVEMENT - LINE "A"
(REQ'D. @ BEGIN OF PROJECT)
No Scale



DETAIL - MATCHING EXISTING ROADWAY
(REQ'D. @ END OF PROJECT)
No Scale



MATCHING EXISTING PAVEMENT - LINE "A"
(REQ'D. @ END OF PROJECT)
No Scale

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 880#/Syd QC/QA-HMA, 3, 64, Base, 19.0 mm
- (R1) Milling Asphalt, 1 1/2" 165#/Syd QC/QA-HMA, 3, 70, Surface, 9.5 mm After Milling, any cracks visible with 0.25 inch width or greater shall be sealed prior to applying tack coat. The material utilized to fill cracks shall be PG 64-22 only. No emulsion shall be used. The sealed cracks shall not be overbanded.
- (R2) Milling, Transition 165#/Syd QC/QA-HMA, 3, 70, Surface, 9.5 mm
- (W1) 165#/Syd QC/QA-HMA, 3, 70, Surface, 9.5 mm on Widening with HMA, Type C 275#/Syd, HMA Intermediate, Type C on 880#/Syd, HMA Base, Type C
- (W2) Widening with HMA, Type C 165#/Syd, HMA Surface Type C on 275#/Syd, HMA Intermediate, Type C on 660#/Syd, HMA Base, Type C

Note:
Transition proposed cross-slopes to match existing cross-slopes within Milling, Transition.

INDOT BORING LOG

GEOTECHNICAL CONSULTANT : S&ME, Inc.

DES NO. : 1800151

STRUCTURE #:

PROJECT TYPE: Small Structure Replacement

LOCATION : Cloverdale, Indiana

COUNTY : Putnam

BORING NO.: TB-1

SHEET 1 OF 1

NORTHING : 361184.256

EASTING : 503009.4696

DATUM : NAD83

DATE STARTED : 12-23-20

DATE COMPLETED : 12-23-20

ELEVATION : 761.7

STA : 304+25

OFFSET : 8.0 ft Left

LINE : 'A'

DEPTH : 30.0 ft

BORING METHOD : Hollow Stem Auger

RIG TYPE : CME 45

CASING DIA. : N/A

CORE SIZE : N/A

HAMMER : Auto

DRILLER/INSP : TF/KH

TEMPERATURE : °F

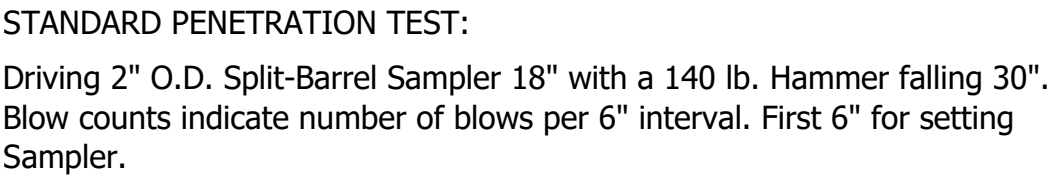
WEATHER : Clear

GROUNDWATER: ∇ Encountered at 11.0 ft

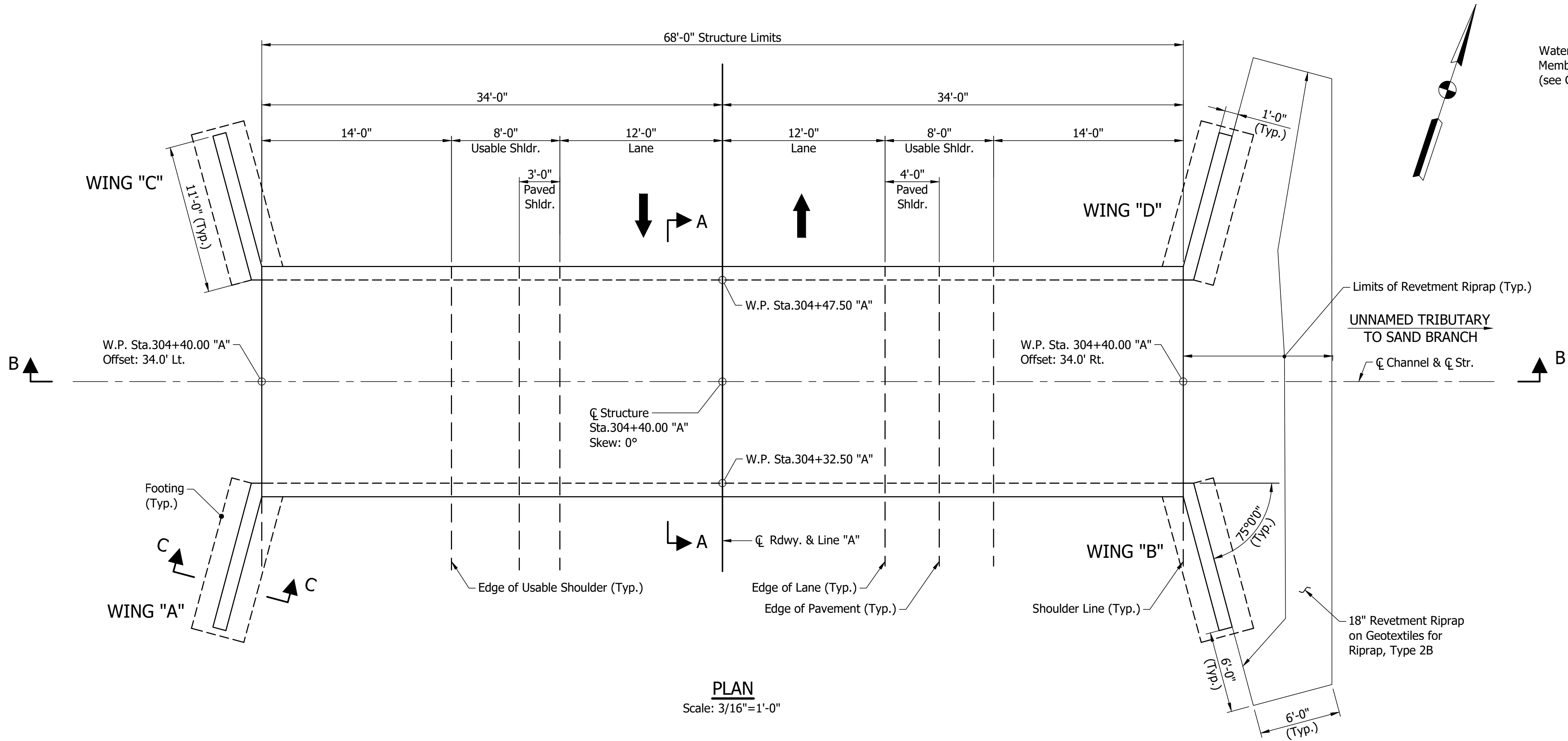
∇ At completion 13.0 ft

ELEVATION	SAMPLE DEPTH	SOIL/MATERIAL DESCRIPTION	SAMPLE NUMBER	SPT per 6"	% RECOVERY	MOISTURE CONTENT	DRY DENSITY, pcf	POCKET PEN., tsf	UNCONF. COMP., tsf	ATTERBERG LIMITS			REMARKS
										LL	PL	PI	
760.0		18.0 in. Asphalt, (VISUAL)											
		Gravel Medium Dense, 18.0 in. Aggregate Subbase, (VISUAL)											
	5		SPT 1	10-10-5	44	3.0							
			SPT 2	5-3-3	33								
755.0		Silty Loam A-6, Brown and gray to dark gray, Moist to Very Moist, Medium Stiff to Very Soft, with trace of Gravel, (Lab No. 14)	SPT 3	2-2-2	44	25.5							
			SPT 4	2-3-2	89	23.0							
			SPT 5	2-2-1	78	27.1							
750.0	10		SPT 6	2-5-11	89	19.1							
		Loam A-4 (2), Gray, Moist to Very Moist, Very Stiff to Medium Stiff, with trace of Gravel, (Lab No. 7)	SPT 7	5-4-5	100	16.2					21	11	10
	15		SPT 8	10-9-9	100	10.7							
745.0													
	20		SPT 9	23-38-33	89	7.4							
740.0		Loam A-4, Gray, Wet to Very Moist, Hard, with trace of Gravel, (Lab No. 7)											
	25		SPT 10	13-27-31	89	8.1							
735.0													
	30	Silty Loam A-4 (0), Dark gray, Slightly Moist, Very Dense, (Lab No. 11)	SPT 11	17-21-22	89	13.9					NP	NP	NP
730.0		Bottom of Boring at 30.0 ft											
		Backfilled with bentonite chips and cuttings. Pavement patched with asphalt cold patch.											
	35												
725.0													
	40												
720.0													
	45												

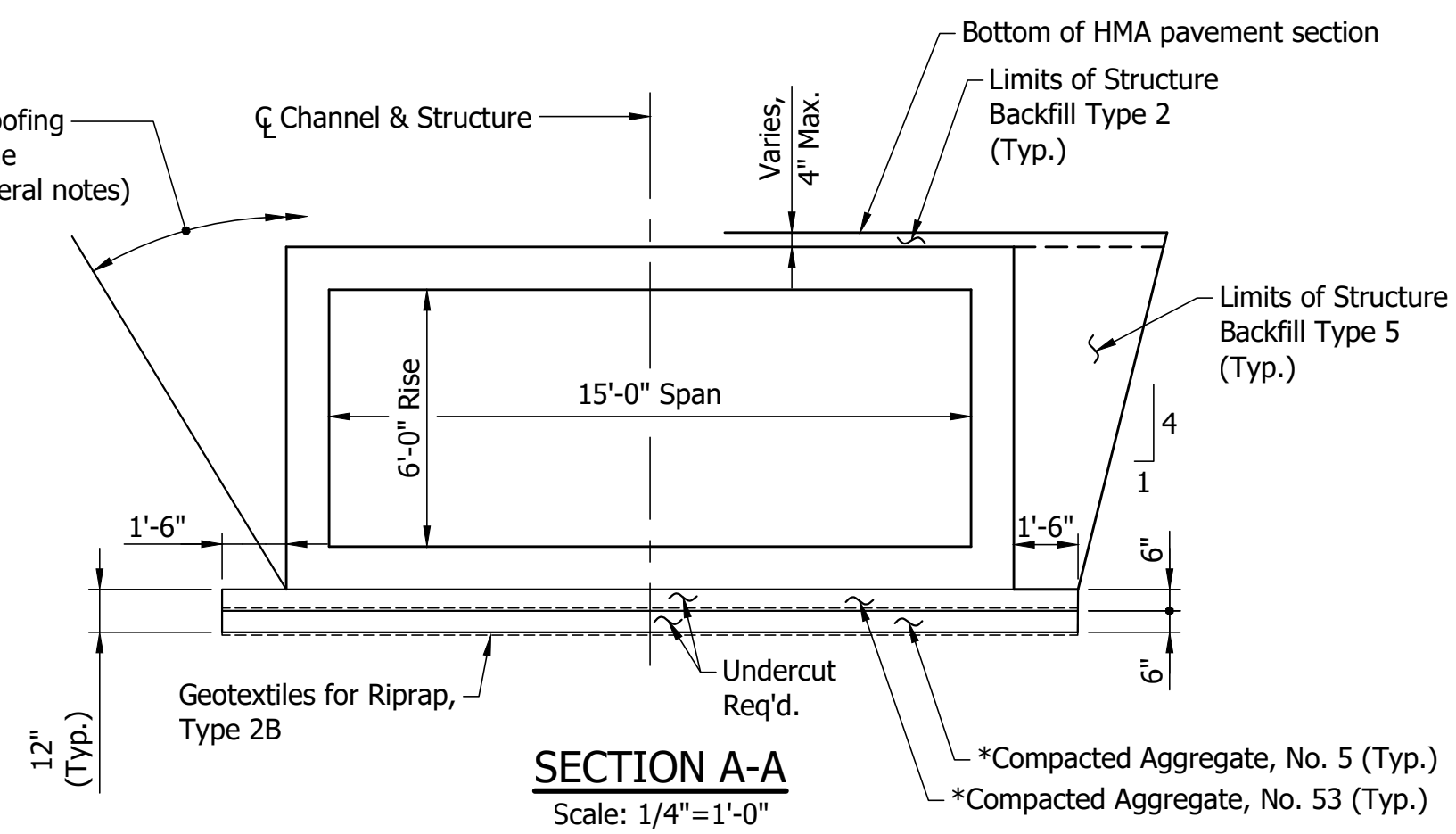
INDOT BORING LOG DES. 1800151 U.S. 231 SMALL STRUCTURE.GPJ INDOT 089 GDT 2/18/21



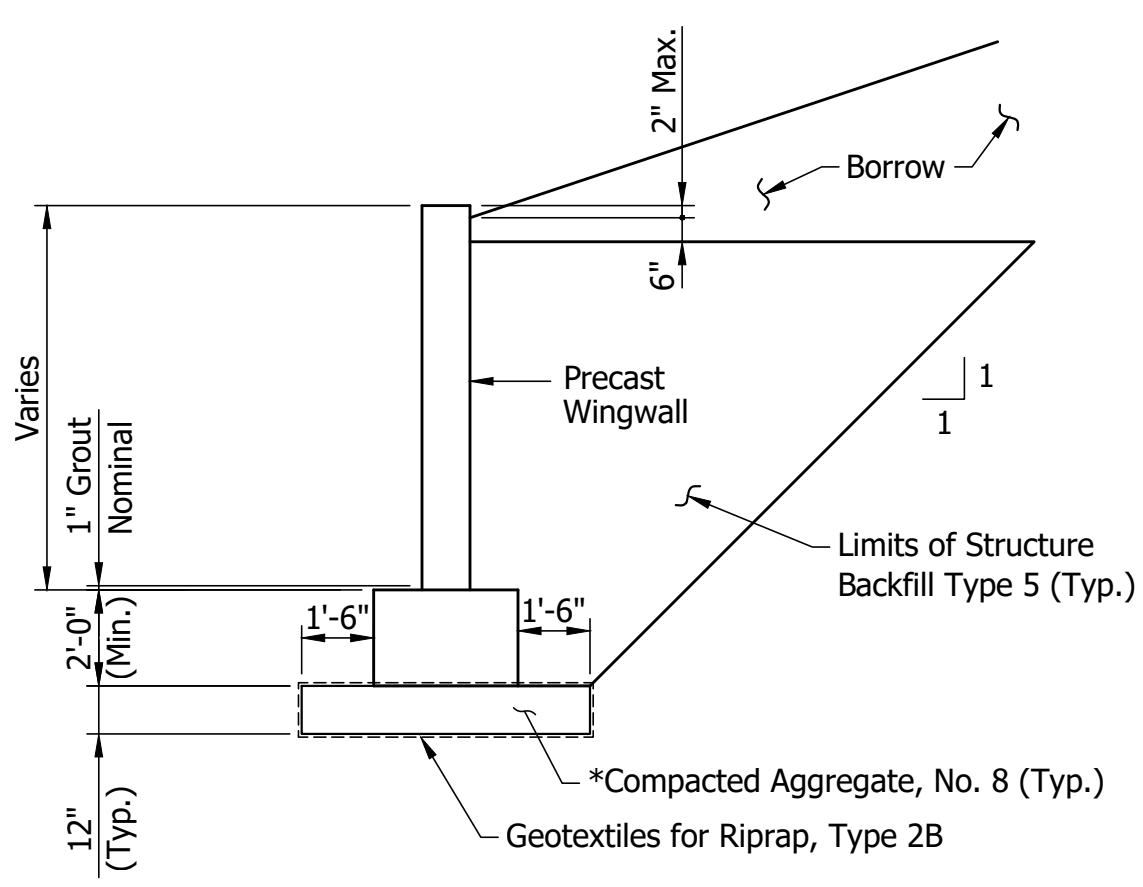
RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE _____		INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		STRUCTURE FILE			
				NA		CV 231-067-137.53			
				VERTICAL SCALE		DESIGNATION			
				NA		1800151			
DESIGNED: GLB		DRAWN: LLB		SOIL BORINGS		DRAWING NO.		SHEETS	
						17		of 29	
CHECKED: TSW		CHECKED: KB				CONTRACT		PROJECT	
						B-41589		1800074	



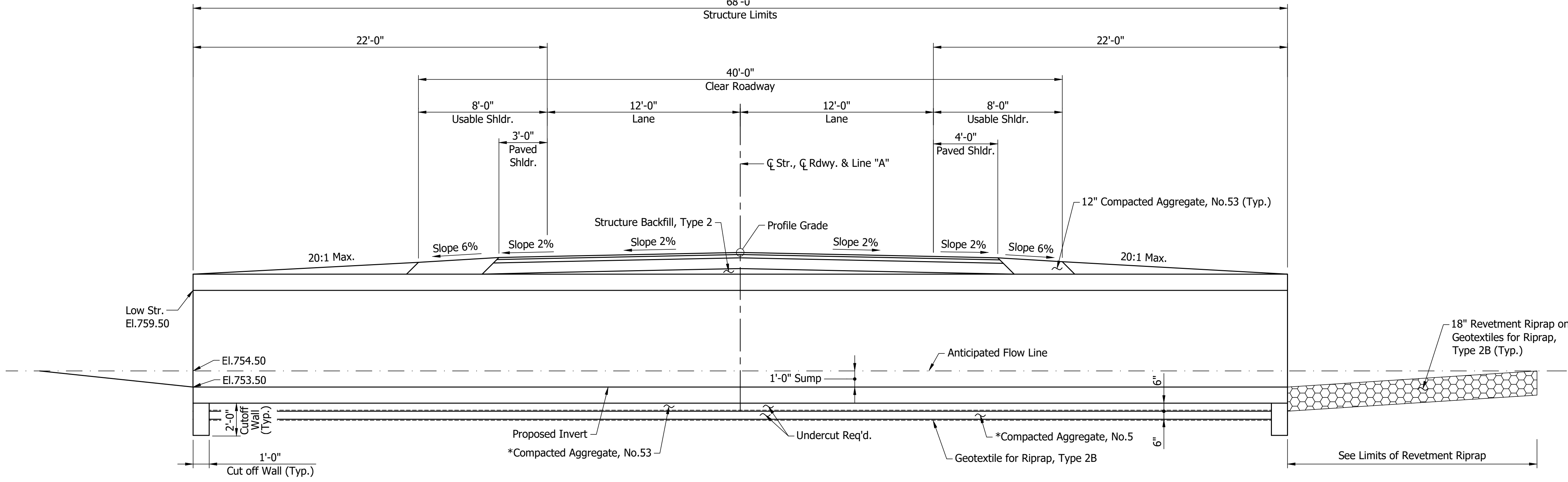
PLAN
Scale: 3/16"=1'-0"



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



SECTION C-C
Scale: 1/4"=1'-0"



SECTION B-B
Scale: 1/4" = 1'-0"

Note:
For General Notes and Wingwall Information, see Dwg.No.C3.

* The Contractor shall excavate the soft or wet soils below the proposed structure and footings and replace the unsuitable material. If the depth of this over excavation exceeds 12 inches, contact the INDOT Office of Geotechnical Services.

PRECAST REINFORCED CONCRETE BOX
1 SPAN: 15'-0" RISE: 6'-0"
40'-0" CLEAR ROADWAY SKEW: 0°
US 231 OVER UNNAMED TRIBUTARY TO SAND BRANCH
PUTNAM COUNTY

RECOMMENDED FOR APPROVAL _____	
DESIGNED: GLB	DRAWN: OMV
CHECKED: TSW	CHECKED: KB

INDIANA
DEPARTMENT OF TRANSPORTATION

GENERAL PLAN

HORIZONTAL SCALE	STRUCTURE FILE
AS NOTED	CV 231-067-137.53
VERTICAL SCALE	DESIGNATION
AS NOTED	1800151
DRAWING NO.	SHEETS
C2 of C3	19 of 29
CONTRACT	PROJECT
B-41589	1800074

GENERAL NOTES

Reinforcing steel covering in footings and base slab shall be 3" in the top and sides and 4" in the bottom. All other parts to be 2" unless otherwise noted.

Alternate Cast-In-Place Wings may be substituted for the Precast Wing shown in Section C-C.

The exposed faces of headwalls and wings to be sealed in accordance with Article 702.21 of the Specifications. The surface seal shall be applied in the shop for precast concrete elements. (Estimated Quantity = 240 Sft.)

Contractor shall verify the existing flowline elevation to set appropriate sump depth. (1'-0" Sump)

Wings be set on outside of the ends of the precast four-sided box structure. The minimum width for the wing footing shall be 3'-0".

An alternate Three-Sided structure (Flat Top or Arch Top) with a 16 ft. perpendicular span and a 5 ft. rise may be substituted for the structure shown.

Reinforcing in Precast Box shall be epoxy coated.

The Contractor shall submit shop drawings for precast box, headwalls, wings, and foundation designs for review prior to construction.

Waterproofing membrane to be placed on top and sides of the structure's entire length in accordance with special provisions.

DESIGN DATA

LIVE LOAD

Designed for HL-93 loading in accordance with 2017 AASHTO LRFD Bridge Design Specifications, and all subsequent interims.

DESIGN STRENGTHS

To be in accordance with 2018 AASHTO LRFD Bridge Design Specifications, and all subsequent interims.

CONCRETE:

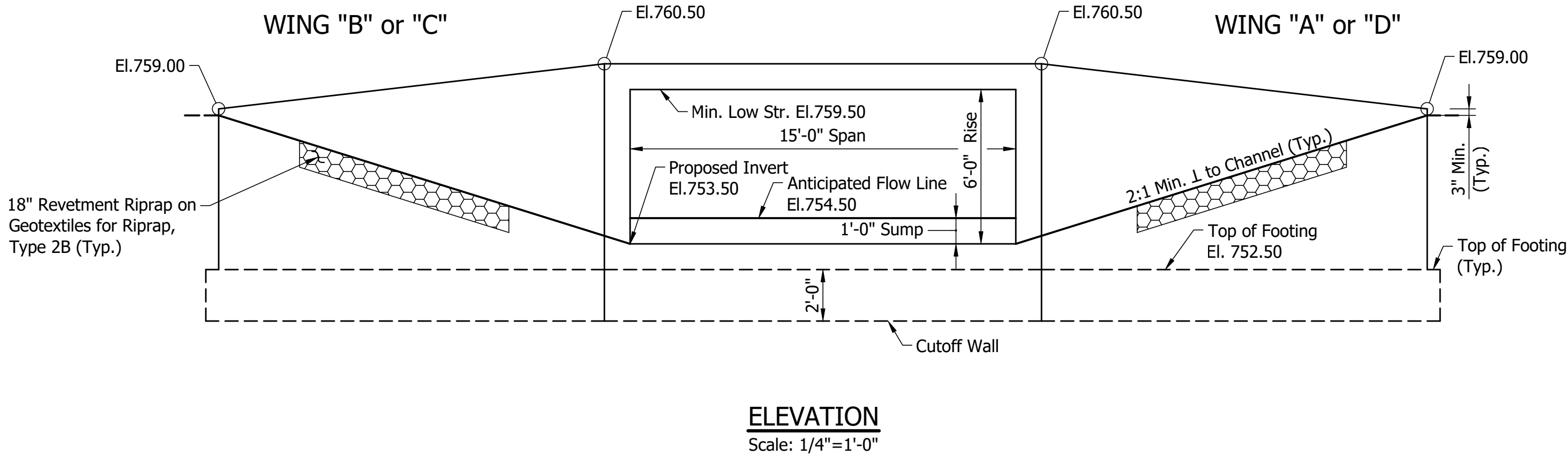
Class "A": f'c=3,500 psi

Class "B": f'c=3,000 psi

Class "C": f'c=4,000 psi

REINFORCING STEEL:

Grade 60: fy=60,000 psi



GEOTECHNICAL PARAMETERS FOR CULVERT FOUNDATION							
BEARING MATERIAL	ESTIMATED BEARING DEPTH (ft.)	ESTIMATED BEARING ELEVATION (ft.)	COHESION C (psf)	LIMIT STATE	NOMINAL BEARING RESISTANCE, q _n (psf)	RESISTANCE FACTOR, φ _b	FACTORED BEARING RESISTANCE, q _R (psf)
Loam (A-4)	9.5 feet	752.5	500	Service	2,000	1.0	2,000
				Strength	3,000	0.50	1,500

GEOTECHNICAL PARAMETERS FOR WINGWALL DESIGN	
PARAMETER	VALUE
Factored Bearing Resistance, q _R (psf)	2,500
Bearing resistance Factor, φ _b	0.45
Nominal Bearing Resistance, q _n (psf)	5,600
Cohesion of Foundation Soil, C (psf)	1,000
Adhesion of Foundation Soil, C _a	750
Friction Angle Between Wall and Backfill, δ (°)	21
Friction Factor at Base, tanδ	N/A

WINGWALL INFORMATION		
	AREAS	LENGTH
Wing "A"	79.8 Sft.	11'-0"
Wing "B"	79.8 Sft.	11'-0"
Wing "C"	79.8 Sft.	11'-0"
Wing "D"	79.8 Sft.	11'-0"

Note:
For General Plan and Sections,
see Dwg.No.C2.

PRECAST REINFORCED CONCRETE BOX
1 SPAN: 15'-0" RISE: 6'-0"
40'-0" CLEAR ROADWAY SKEW: 0°
US 231 OVER UNNAMED TRIBUTARY TO SAND BRANCH
PUTNAM COUNTY

		RECOMMENDED FOR APPROVAL _____		INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE	STRUCTURE FILE
		DESIGN ENGINEER _____ DATE _____				AS NOTED	CV 231-067-137.53
		DESIGNED: GLB _____ DRAWN: OMV _____				VERTICAL SCALE	DESIGNATION
		CHECKED: TSW _____ CHECKED: KB _____				AS NOTED	1800151
				GENERAL PLAN		DRAWING NO.	SHEETS

C3 of C3	20	of	29
CONTRACT	PROJECT		
B-41589	1800074		

PAVEMENT QUANTITIES AND APPROACH TABLE

[illegible]

STRUCTURE DATA

STRUCTURE NUMBER	LOCATION				SIZE	PIPE TYPE	MANHOLE, INLET, CATCH BASIN, OR SPECIALTY STRUCTURE AND TYPE	LENGTH	SKEW	FLOW LINE			SERVICE LIFE	SITE DESIGNATION	pH	BACKFILL METHOD	STRUCTURE BACKFILL		REVETMENT RIPRAP	GOTEXTILE FOR RIPRAP, TYPE 2B	WET EXCAVATION	COMPACTED AGGREGATE NO.5	COMPACTED AGGREGATE NO.8	COMPACTED AGGREGATE NO.53	SURFACE SEAL **	SAFETY METAL END SECTION				REMARKS
	STATION	LEFT	CROSS	RIGHT						COVER	UP STREAM	DOWN STREAM					TYPE	CYS								TONS	SYS	CYS	CYS	
								IN.	LFT				FT	ELEV.	ELEV.	YR														
		304+40 "A"		X							15'x6' PRECAST COATED REINF. CONC. BOX	68	0		754.50	754.50					2	10	37	456	61	26	10	26	240	
																	5	149												
	TOTALS							68									10/149	37	456	61	26	10	26	240						

**Estimated Quantity

SHEET SIGN SUMMARY

[illegible]

PAVEMENT MARKING TABLE

LOCATION		6 IN., THERMO, SOLID WHITE EDGE LINE	6 IN., THERMO, SOLID YELLOW CENTERLINE	6 IN., THERMO, BROKEN YELLOW CENTERLINE	4 IN., MULTICOMPONENT, SOLID, YELLOW CENTERLINE	TRANSVERSE MARKING, THERMO, STOP LINE, 24 IN.
LT/RT	STATION					
LT/RT	297+95 "A" to 310+80 "A"	2570				
☐	297+15 "A" to 298+95 "A"		180			
☐	297+15 "A" to 298+95 "A"			45		
☐	302+00 "A" to 306+75 "A"			119		
☐	309+80 "A" to 311+60 "A"			45		
TOTALS		2570	180	209		

R/W MARKER SUMMARY

LT./RT.	STATION	OFFSET (ft)	NO. REQ'D.	FLUSH MOUNT
Lt.	302+00 "A"	50'	1	No
Rt.	302+00 "A"	45'	1	No
Lt.	305+43 PC "A"	50'	1	No
Rt.	305+43 PC "A"	45'	1	No
Lt.	306+75 "A"	50'	1	No
Rt.	306+75 "A"	45'	1	No
TOTALS			6	

MAILBOX APPROACHES

LT./RT.	C BOX STATION	DESCRIPTION	WIDTH, W (FT)	ASSEMBLY REQ'D		
				SINGLE	DOUBLE	TRIPLE
TOTAL						

MONUMENT TABLE

LOCATION	OFFSET	TYPE	SECTION CORNER
304+00 "A"	℄	B	
304+75 "A"	℄	B	
	TOTAL	2	

REVISIONS

[illegible]

GUARDRAIL SUMMARY TABLE

LOCATION		W-BEAM GUARDRAIL LENGTH								GUARDRAIL FLARE RATE	GUARDRAIL TRANSITION TYPE TGB	GUARDRAIL TRANSITION TYPE _____		GUARDRAIL END TREATMENT TYPE OS		CURVED W-BEAM GUARDRAIL SYSTEM				GUARDRAIL REMOVE	GUARDRAIL RESET	IMPACT ATTENUATOR TYPE CR-1, W1, TL-2	IMPACT ATTENUATOR TYPE _____	REMARKS
FROM STATION	TO STATION	LEFT MEDIAN LEFT MEDIAN RIGHT RIGHT	STANDARD POST AT 6 FT. 3 IN. SPA.	STANDARD POST AT 3 FT. 1.5 IN. SPA.	DOUBLE FACED AT 6 FT. 3 IN. SPA.	DOUBLE FACED AT 3 FT. 1.5 IN. SPA.		SHOP CURVED AT ____ FT. SPA.	NESTING GUARDRAIL							TERMINAL SYSTEM		CONNECTOR SYSTEM						
																LFT	LFT	LFT	LFT					
303+01 "A"	306+04 "A"	X									EACH	EACH		EACH		TYPE	EACH	TYPE	EACH	LFT 303	LFT	EACH	EACH	
302+76 "A"	306+04 "A"		X																	328				
TOTALS																				631				

RECOMMENDED FOR APPROVAL _____	DESIGN ENGINEER _____	DATE _____	INDIANA DEPARTMENT OF TRANSPORTATION	HORIZONTAL SCALE		STRUCTURE FILE	
				N/A		CV 231-067-137.53	
				VERTICAL SCALE		DESIGNATION	
				N/A		1800151	
DESIGNED: GLB	DRAWN: LLB		ROAD SUMMARY OF QUANTITIES	DRAWING NO.		SHEETS	
				21 of 29			
CHECKED: TSW	CHECKED: KB			CONTRACT		PROJECT	
				B-41589		1800074	

PIPE MATERIAL TABLE									
PIPE TYPE/SHAPE									
SMOOTH PIPE SIZE									
CORRUGATED PIPE SIZE									
RCP/ RCHEP (S)	CLASS								
	D _{0.01} RATING								
NON-REINFORCED CONCRETE PIPE, CLASS 3 (S)									
CORRUGATED PE PIPE, TYPE S (S) *									
RIBBED PE PIPE									
SMOOTH WALL PE PIPE (S)/ MAXIMUM DR									
PROFILE WALL PVC PIPE (S)									
SMOOTH WALL PVC PIPE (S)									
VITRIFIED CLAY PIPE, EXTRA STRENGTH (S)									
CORRUGATED STEEL PIPE/ PIPE-ARCH	FULLY BIT. PAVED & LINED (S)	CORR. PROFILE							
		THICKNESS							
	ZINC COATED (C)	CORR. PROFILE							
		THICKNESS							
	ZINC COATED W/ BPI (LS)	CORR. PROFILE							
		THICKNESS							
	ALUM. COATED TYPE 2 (C)	CORR. PROFILE							
		THICKNESS							
	ALUM. COATED TYPE 2 W/ BPI (LS)	CORR. PROFILE							
		THICKNESS							
	POLYMER PRECOATED GALVANIZED TYPE 1A (S)	CORR. PROFILE							
		THICKNESS							
	POLYMER PRECOATED GALVANIZED W/ BPI (C)	CORR. PROFILE							
		THICKNESS							
	FIBER BONDED BITUMINOUS COATED (C)	CORR. PROFILE							
		THICKNESS							
	FIBER BONDED BITUMINOUS COATED W/ BPI (C)	CORR. PROFILE							
		THICKNESS							
	CORRUGATED ALUM. ALLOY PIPE W/ BPI (RIVETED)	CORR. PROFILE							
		THICKNESS							
CORRUGATED ALUM. ALLOY PIPE W/ BPI (LS)	CORR. PROFILE								
	THICKNESS								
STR. PLATE ALUMINUM ALLOY PIPE (C)	CORR. PROFILE								
	THICKNESS								
STR. PLATE ALUMINUM ALLOY PIPE W/ CFP (C)	CORR. PROFILE								
	THICKNESS								
STR. PLATE STEEL PIPE (C)	CORR. PROFILE								
	THICKNESS **								
STR. PLATE STEEL PIPE W/ CFP (C)	CORR. PROFILE								
	THICKNESS **								

RCP -	REINFORCED CONCRETE PIPE
RCHPE -	REINFORCED CONCRETE HORIZONTAL ELLIPTICAL PIPE
PE -	POLYETHYLENE
DR -	DIMENSION RATIO
PVC -	POLYVINYL CHLORIDE
BIT -	BITUMINOUS
CORR -	CORRUGATION
BPI -	BITUMINOUS PAVED INVERT
ALUM -	ALUMINUM
STR -	STRUCTURAL
CFP -	CONCRETE FIELD PAVING
(S) -	SMOOTH PIPE MATERIAL
(C) -	CORRUGATED PIPE MATERIAL
OK -	ACCEPTABLE FOR USE
(LS) -	LOCK SEAM PIPE REQUIRED
(SP) -	PERFORATED SMOOTH PIPE MATERIAL
* -	REFER TO STANDARD DRAWING 715-PHCL-18 OR -19 FOR DIAMETER APPROPRIATE FOR PAY ITEM DIAMETER.
** -	TABULATED THICKNESS REFERS TO TOP & SIDE PLATES, BOTTOM PLATES SHALL BE OF NEXT GREATER AVAILABLE THICKNESS.
*** -	UNDISTRIBUTED QUANTITY

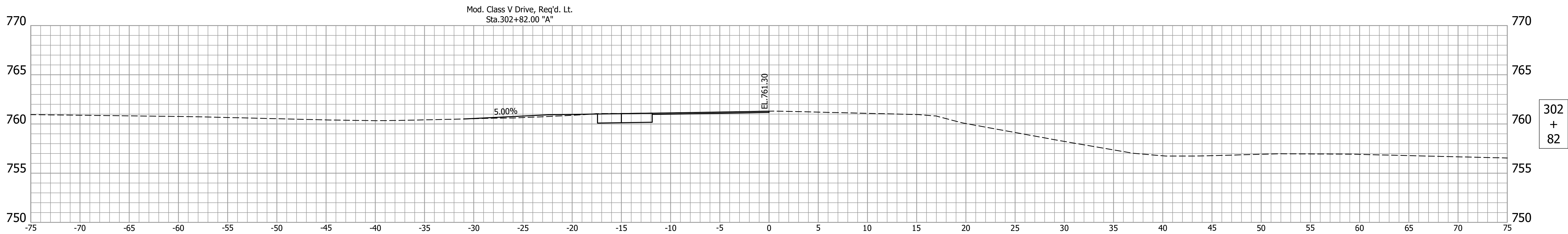
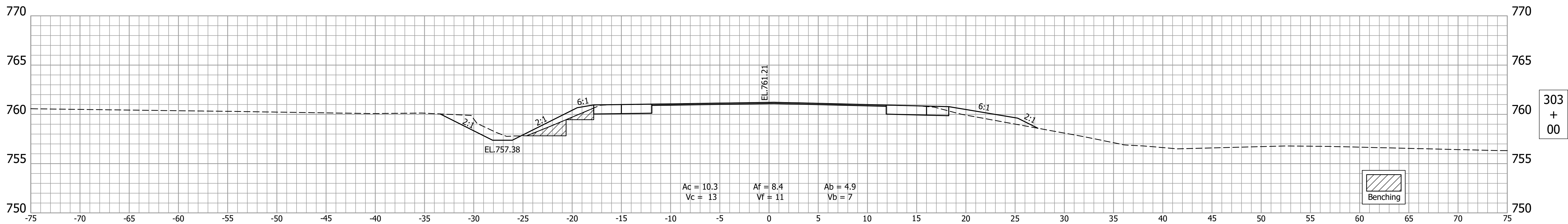
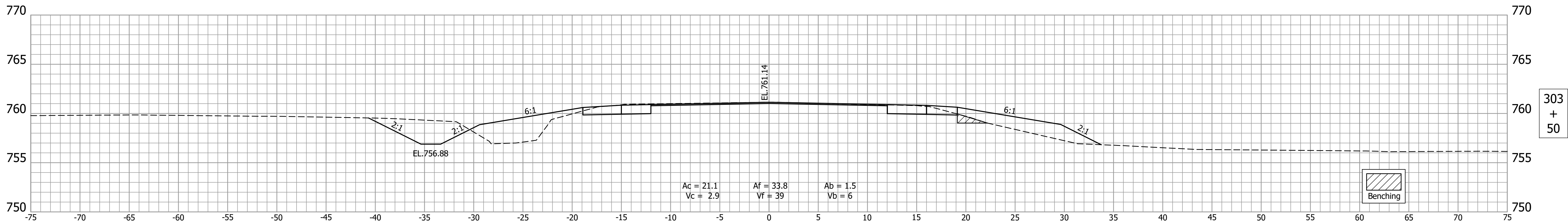
LOCATION	TEMPORARY SILT FENCE	PUMP AROUND	TEMPORARY INLET PROTECTION	TEMPORARY SLOPE DRAIN	CHECK DAM	CHECK DAM	TEMPORARY CHECK DAM, REVETMENT RIPRAP	TEMPORARY CHECK DAM, REVETMENT RIPRAP, MODIFIED	TEMPORARY CHECK DAM, TRAVERSABLE	TEMPORARY FILTER BERM	TEMPORARY SEDIMENT TRAP	TEMPORARY GEOTEXTILE	TEMPORARY FILTER STONE	SEDIMENT, REMOVE	NO.2 STONE	TEMPORARY MULCH	TEMPORARY SEED MIXTURE	FERTILIZER	TEMPORARY MULCH STABILIZATION, TYPE _____	MANUFACTURED SURFACE PROTECTION PRODUCT	*EROSION CONTROL BLANKETS
					NO.REQ'D.	SPA.															
STATION TO STATION	LFT	EACH	EACH	LFT	EACH	LFT	TON	TON	LFT	LFT	TON	SYS	TON	CYS	TON	TON	LBS	TON	SYS	SYS	SYS
LINE "A"																					
304+40 (Structure)		1																			
302+00 to 304+00 Lt.	220													1							
302+00 to 304+00 Rt.	218													1							
305+00 to 306+75 Lt.	216													1							
305+00 to 306+75 Rt.	215													1							
302+00 to 304+35 Lt.																0.4	24				
302+00 to 304+35 Rt.																0.3	15				
304+45 to 306+75 Lt.																0.6	31				
304+45 to 306+75 Rt.																0.3	15				
304+15 Lt.					1		7					19	1.5	0.5							
304+65 Lt.					1		7					19	1.5	0.5							
302+00 to 306+75																				553	553
Construction Entrance												235			100						
TOTAL	869	1			2		14					273	3	5	100	1.6	85			553	553

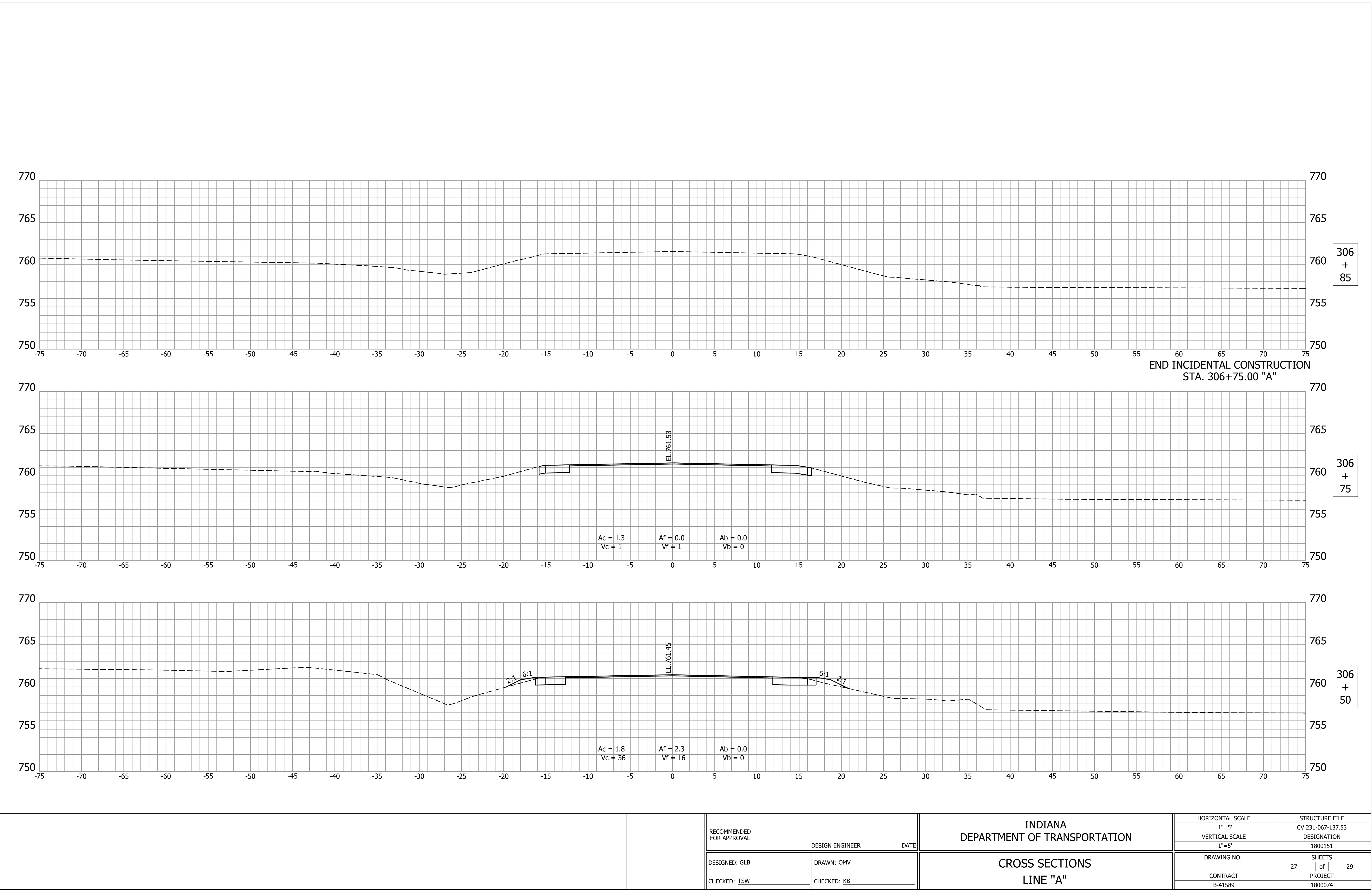
*Erosion Control Blanket to be utilized on Seeded slopes greater than 3:1 after final seeding.

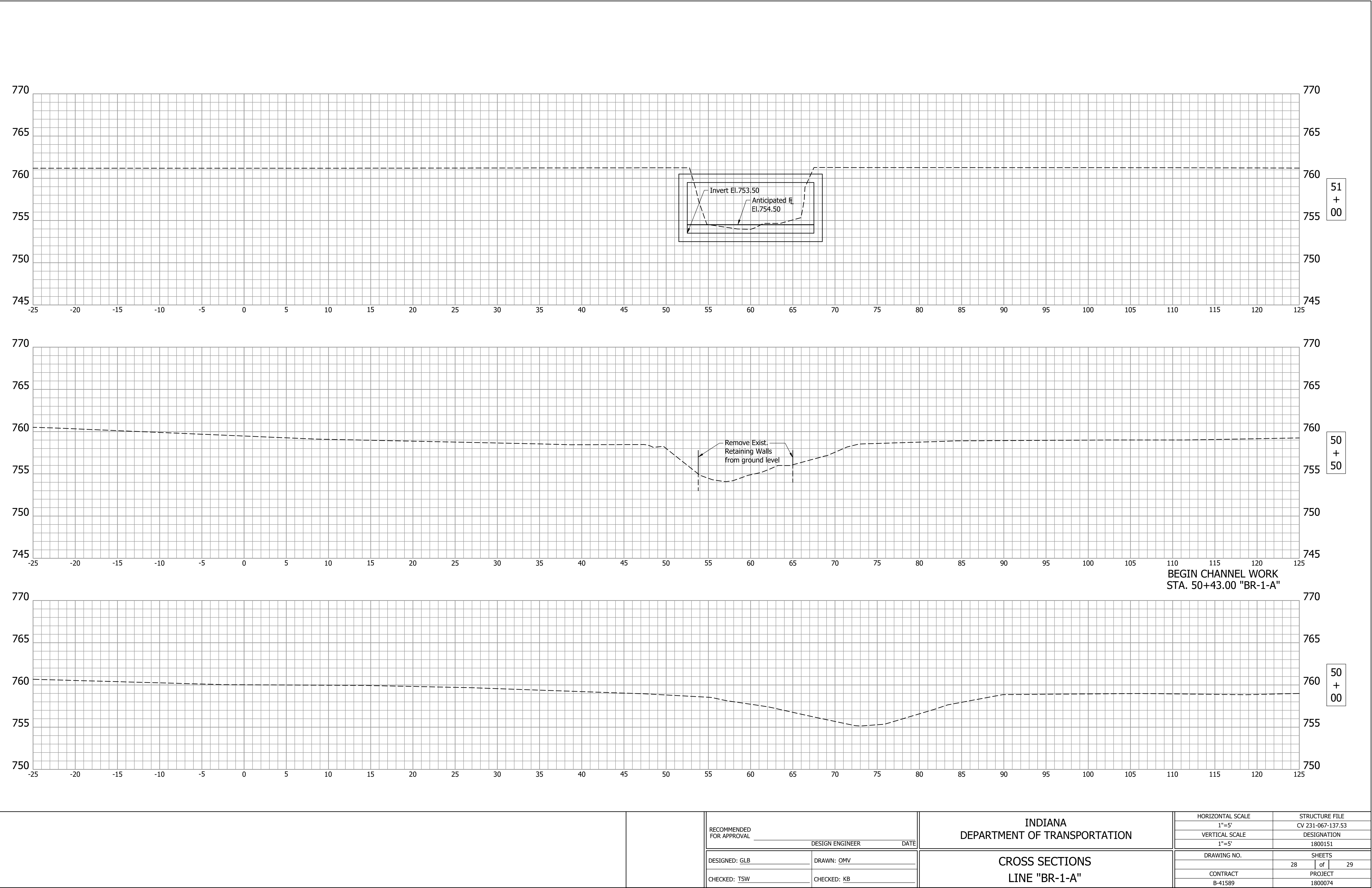
RECOMMENDED FOR APPROVAL _____	DESIGN ENGINEER _____	DATE _____	INDIANA DEPARTMENT OF TRANSPORTATION	HORIZONTAL SCALE		STRUCTURE FILE	
				N/A		CV 231-067-137.53	
				VERTICAL SCALE		DESIGNATION	
				N/A		1800151	
DESIGNED: GLB	DRAWN: LLB		ROAD SUMMARY OF QUANTITIES	DRAWING NO.		SHEETS	
				22		of	29
CHECKED: TSW	CHECKED: KB			CONTRACT		PROJECT	
				B-41589		1800074	

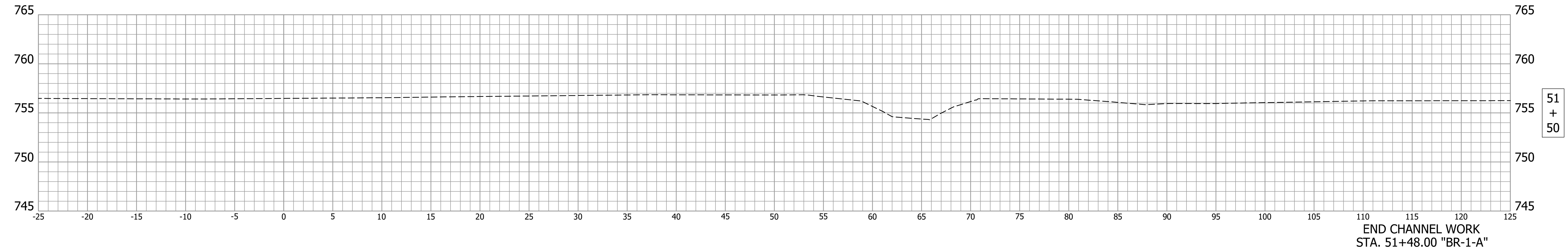


		RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE _____		INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		STRUCTURE FILE	
						1"=5'		CV 231-067-137.53	
		DESIGNED: GLB _____ DRAWN: OMV _____ CHECKED: TSW _____ CHECKED: KB _____		CROSS SECTIONS LINE "A"		VERTICAL SCALE		DESIGNATION	
						1"=5'		1800151	
						DRAWING NO.		SHEETS	
						23	of	29	
						CONTRACT		PROJECT	
						B-41589		1800074	









		RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER _____ DATE _____		INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE		STRUCTURE FILE	
						1"=5'		CV 231-067-137.53	
		DESIGNED: GLB _____ DRAWN: OMV _____ CHECKED: TSW _____ CHECKED: KB _____		VERTICAL SCALE		DESIGNATION			
				1"=5'		1800151			
				DRAWING NO.		SHEETS			
				29 of 29					
CONTRACT		PROJECT							
B-41589		1800074							