

PROJECT	DESIGNATION
1802982	1802982
CONTRACT	
R-41524	

STRUCTURE NO. CV 056-058-187.65

INDIANA DEPARTMENT OF TRANSPORTATION

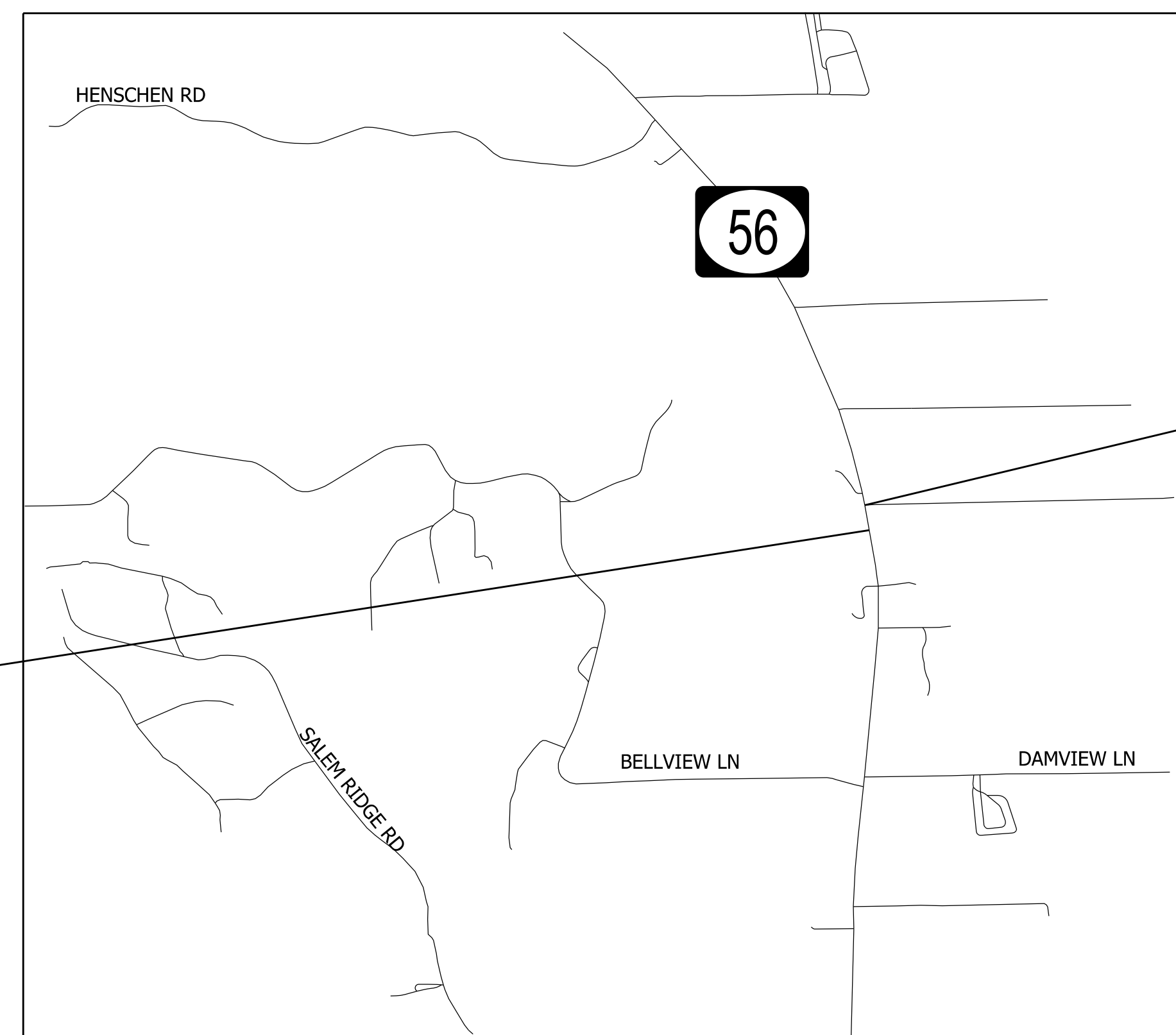


ROAD PLANS

ROUTE: SR 56 FROM: RP 187+65 TO: RP 187+65
 PROJECT NO. 1802982 P.E.
 1802982 R/W
 1802982 CONST.

KIN PROJECT INFORMATION	
DESIGNATION	PROJECT DESCRIPTION
1801046	SMALL STRUCTURE REPLACEMENT

Small Structure Replacement on SR 56 over Buck Run
 Located 2.35 Miles East of SR 262
 Section 26, T-4-N, R-1-W, Randolph Township, Ohio County, Indiana



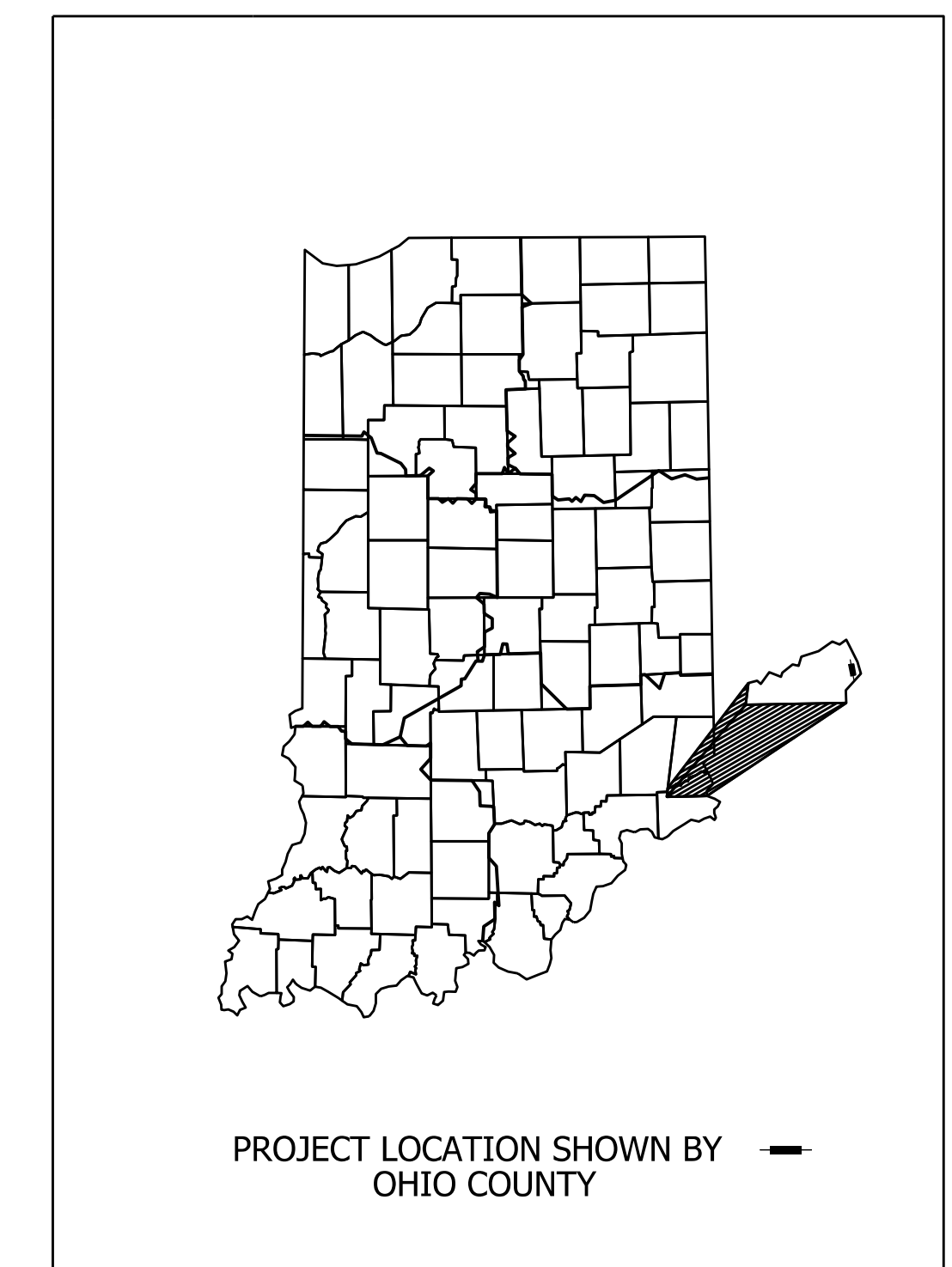
BEGIN PROJECT 1802982
 STA. 403+22 "B"

SCALE: 1" = 1,500'
 END PROJECT 1802982
 STA. 403+92 "B"

October 30, 2020
 Stage 2 Submittal

TRAFFIC DATA		
A.A.D.T. (2023)		5931 V.P.D.
A.A.D.T. (2043)		6123 V.P.D.
D.H.V (2043)		28 V.P.H.
DIRECTIONAL DISTRIBUTION		49.71 %
TRUCKS		3.93% A.A.D.T. 4.73% 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	ROLLING
ACCESS CONTROL	NONE



LATITUDE: 38° 56' 57" N LONGITUDE: 84° 50' 56" W

GROSS LENGTH:	0.013 MI.
NET LENGTH:	0.013 MI.
MAX. GRADE:	0.81 %

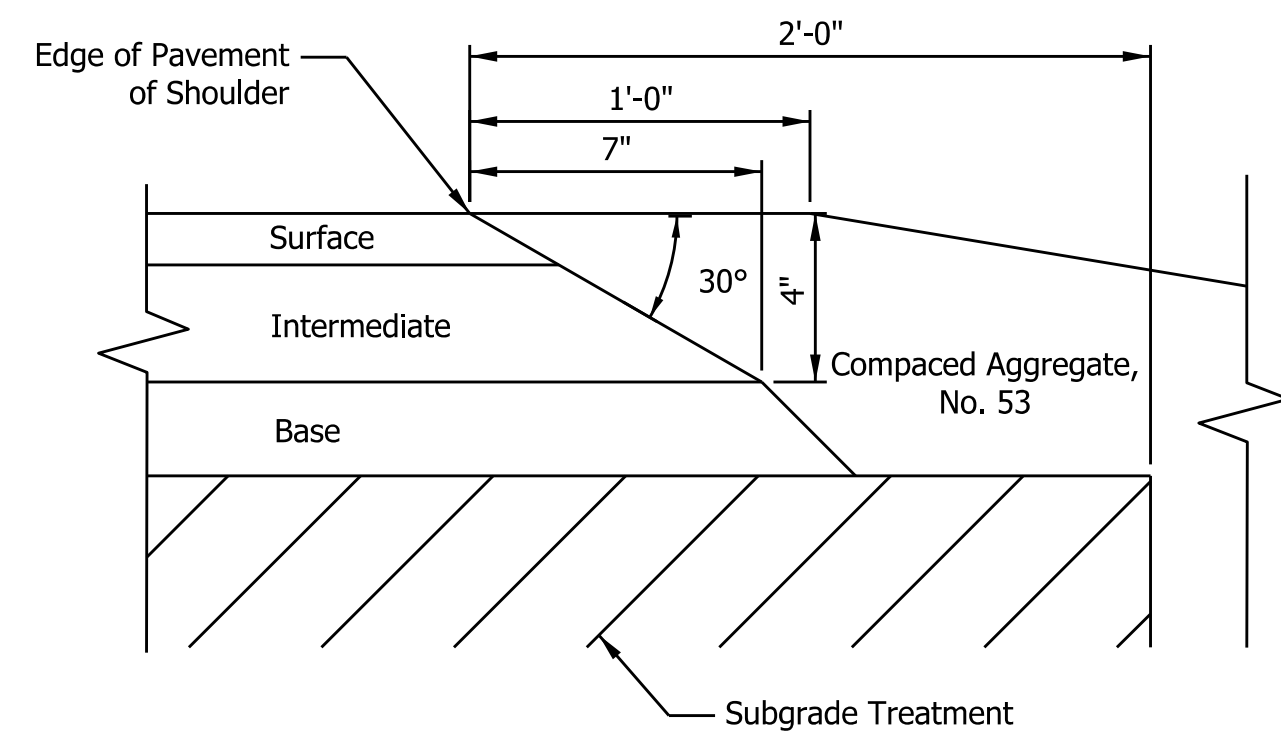
HYDROLOGIC UNIT CODE
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INDIANA DEPARTMENT OF TRANSPORTATION
 STANDARD SPECIFICATIONS DATED 2020
 TO BE USED WITH THESE PLANS

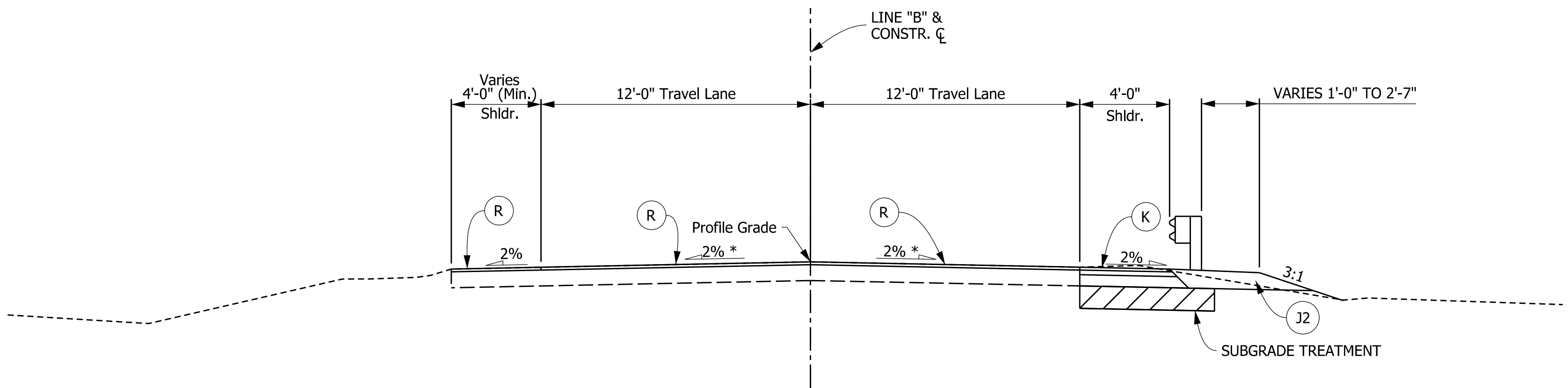
10/30/2020 P:\P1857863\CDIST\1.dgn

PLANS PREPARED BY:	BURGESS & NIPL, INC.	(317) 237-2760
CERTIFIED BY:		DATE
RECOMMENDED FOR LETTING:	INDIANA DEPARTMENT OF TRANSPORTATION	DATE

DESIGNATION	1802982
SHEETS	1 of 23
CONTRACT	R-41524
PROJECT	1802982



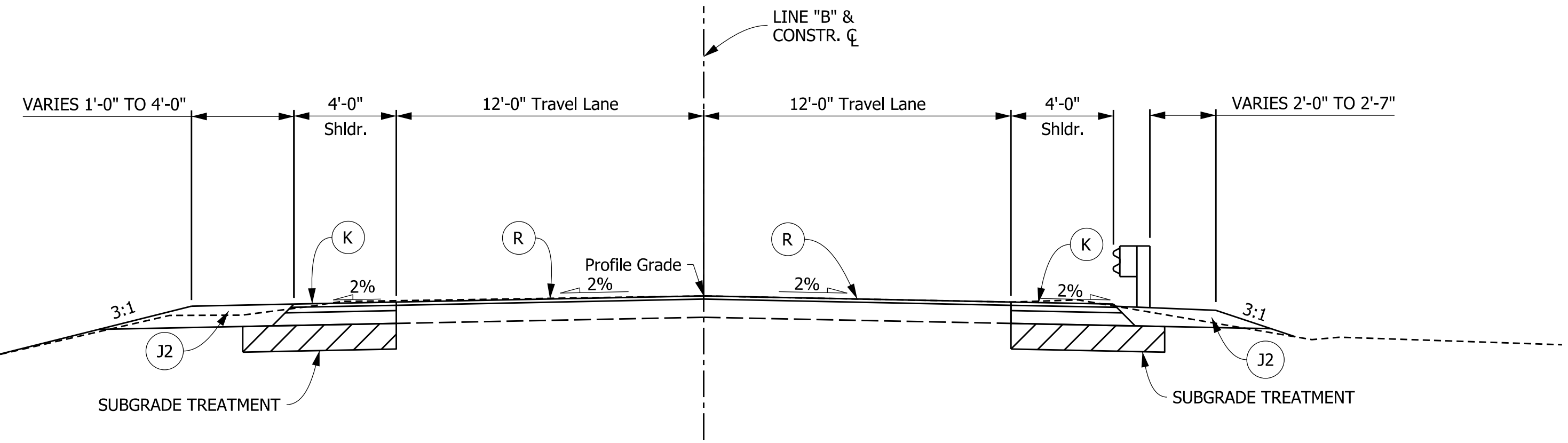
SAFETY EDGE ON HMA PAVEMENT



TYPICAL SECTION

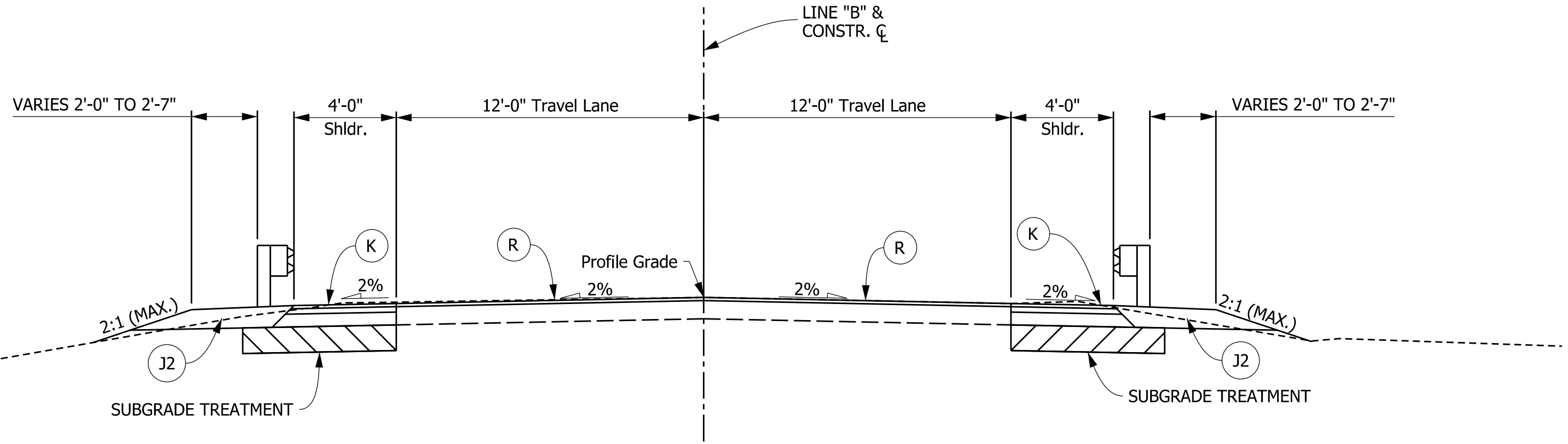
STA. 401+37.00 TO STA. 401+83.00
 STA. 405+23.91 TO STA. 406+15.00 Opp. Hand

* Transition from existing slope to 2%



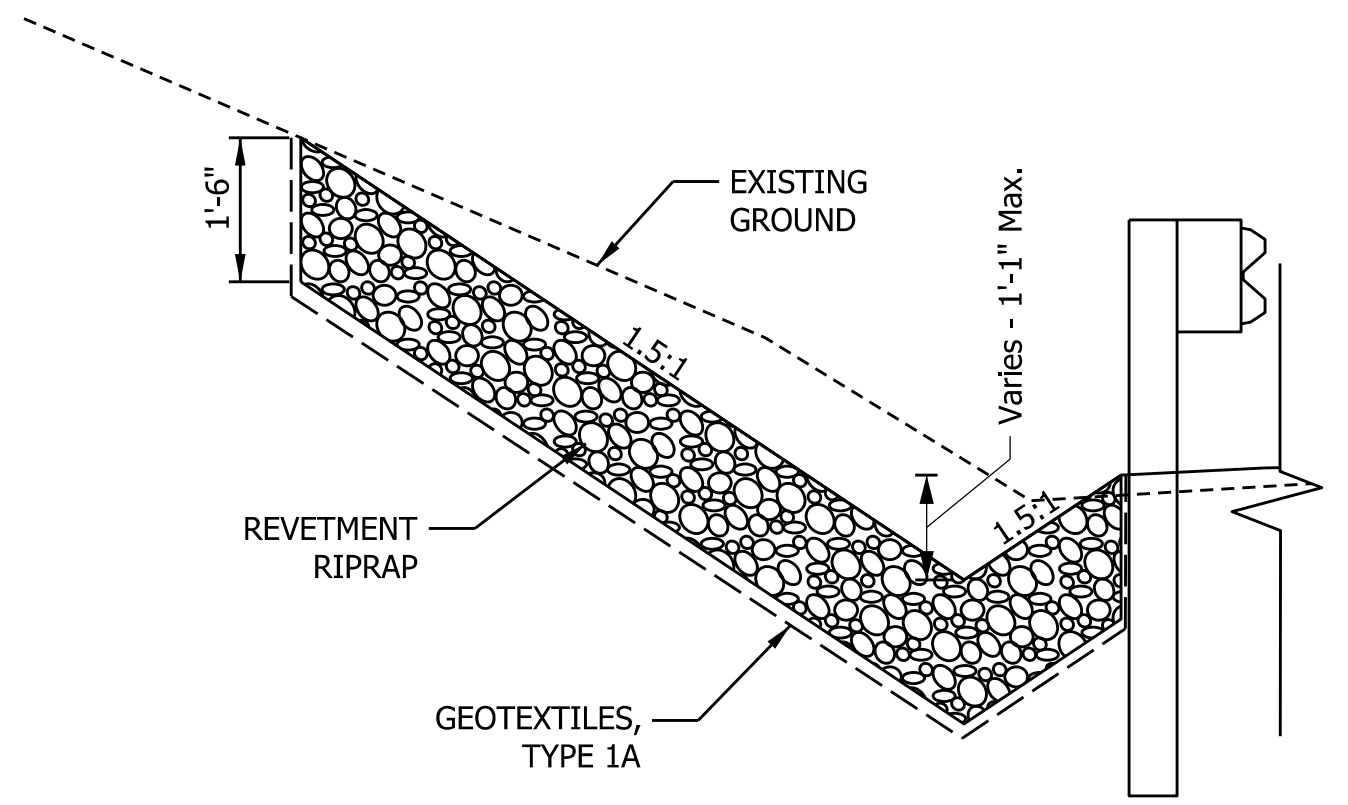
TYPICAL SECTION

STA. 401+83.00 TO STA. 402+23.00
 STA. 404+99.50 TO STA. 405+23.91 Opp. Hand



TYPICAL SECTION

STA. 402+23.00 TO STA. 403+22.00
 STA. 403+92.00 TO STA. 404+99.50



TYPICAL RIPRAP DITCH BEHIND GUARDRAIL

LEFT STA. 405+00 TO STA. 406+00

NOTE TO REVIEWER:
 LEVEL 2 DESIGN EXCEPTION
 FOR NOT PROVIDING 2' BEHIND
 POST BEFORE GRADE BREAK HAS
 BEEN INCLUDED IN STAGE 2
 SUBMITTAL.

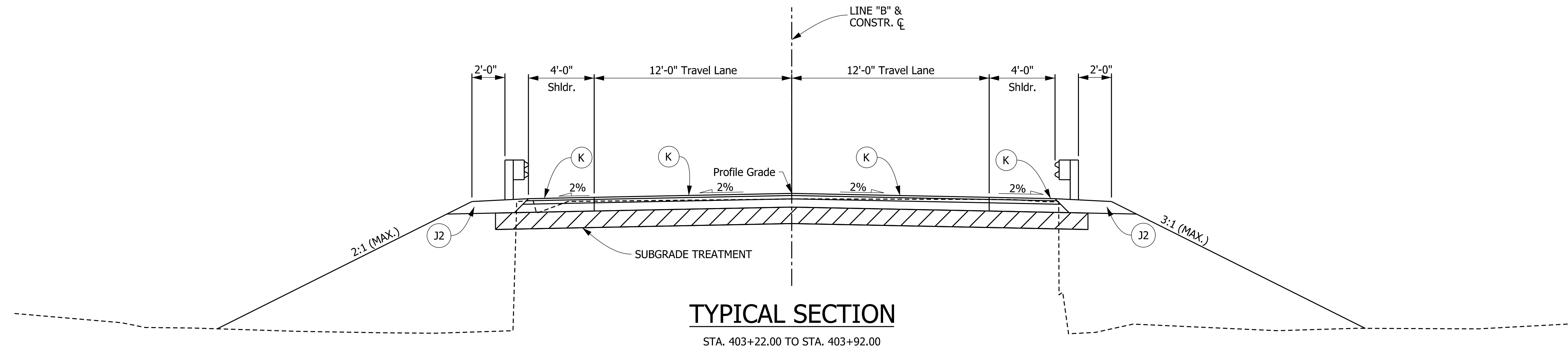
LEGEND	
(K)	FULL DEPTH HMA (TBD)
(R)	165 #/SY QC/QA HMA, 2, 64, SURFACE, 9.5 mm, ON 1.5" SURFACE MILLING, HMA
(J2)	COMPACTED AGGREGATE, NO. 53

RECOMMENDED FOR APPROVAL		DESIGN ENGINEER		DATE	
DESIGNED: LEJ	DRAWN: LEJ				
CHECKED: JMM	CHECKED: JMM				

INDIANA	
DEPARTMENT OF TRANSPORTATION	
TYPICAL SECTIONS	

HORIZONTAL SCALE	BRIDGE FILE
1/4" = 1'-0"	N/A
VERTICAL SCALE	DESIGNATION
N/A	1802982
SURVEY BOOK	SHEET NO.
	3 of 23
CONTRACT	PROJECT
R-41524	1802982

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LEGEND

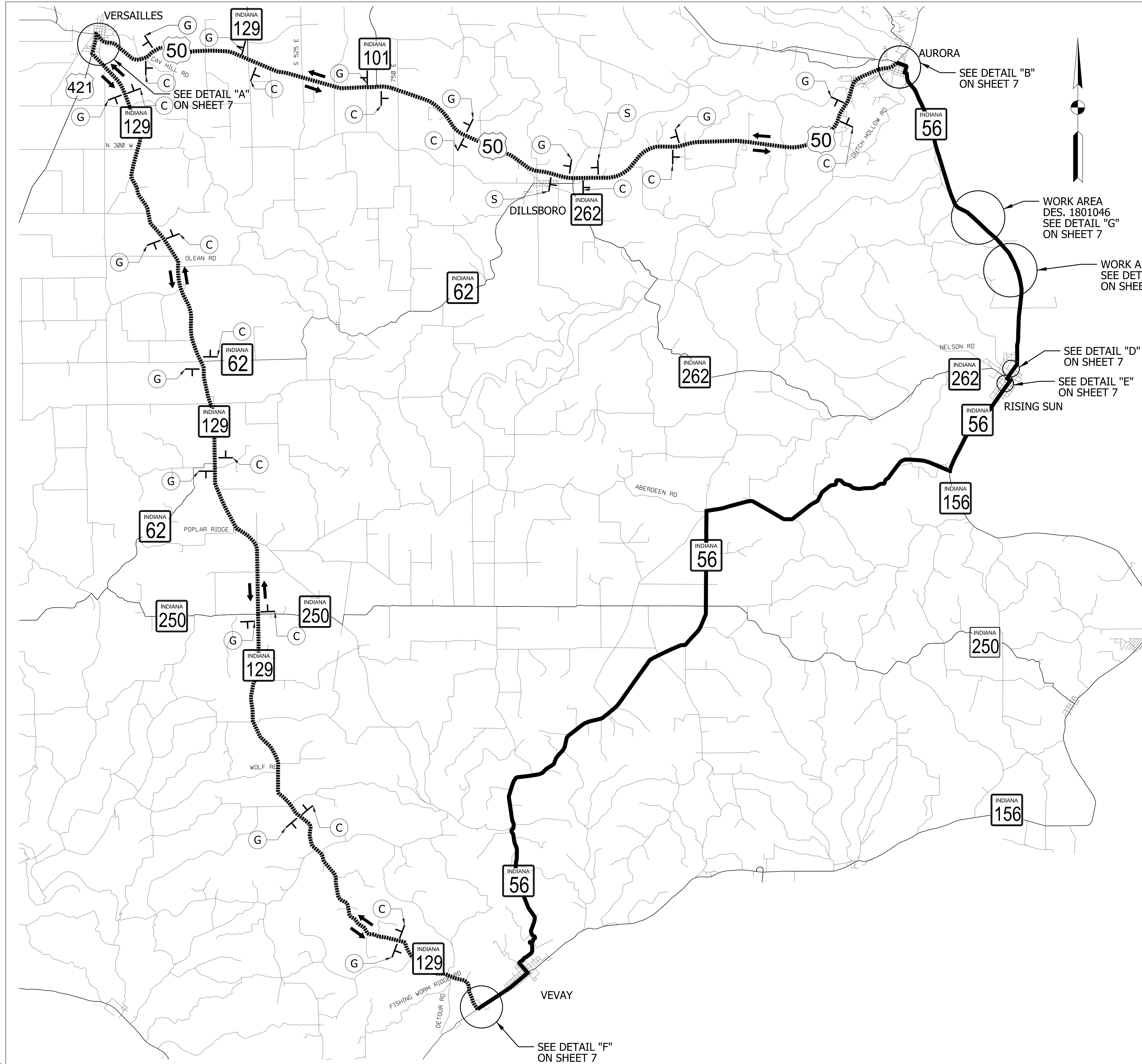
- (K) FULL DEPTH HMA (TBD)
- (R) 165 #/SY QC/QA HMA, 2, 64, SURFACE, 9.5 mm, ON 1.5" SURFACE MILLING, HMA
- (J2) COMPACTED AGGREGATE, NO. 53

RECOMMENDED FOR APPROVAL	
DESIGN ENGINEER	DATE
DESIGNED: LEJ	DRAWN: LEJ
CHECKED: JMM	CHECKED: JMM

INDIANA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

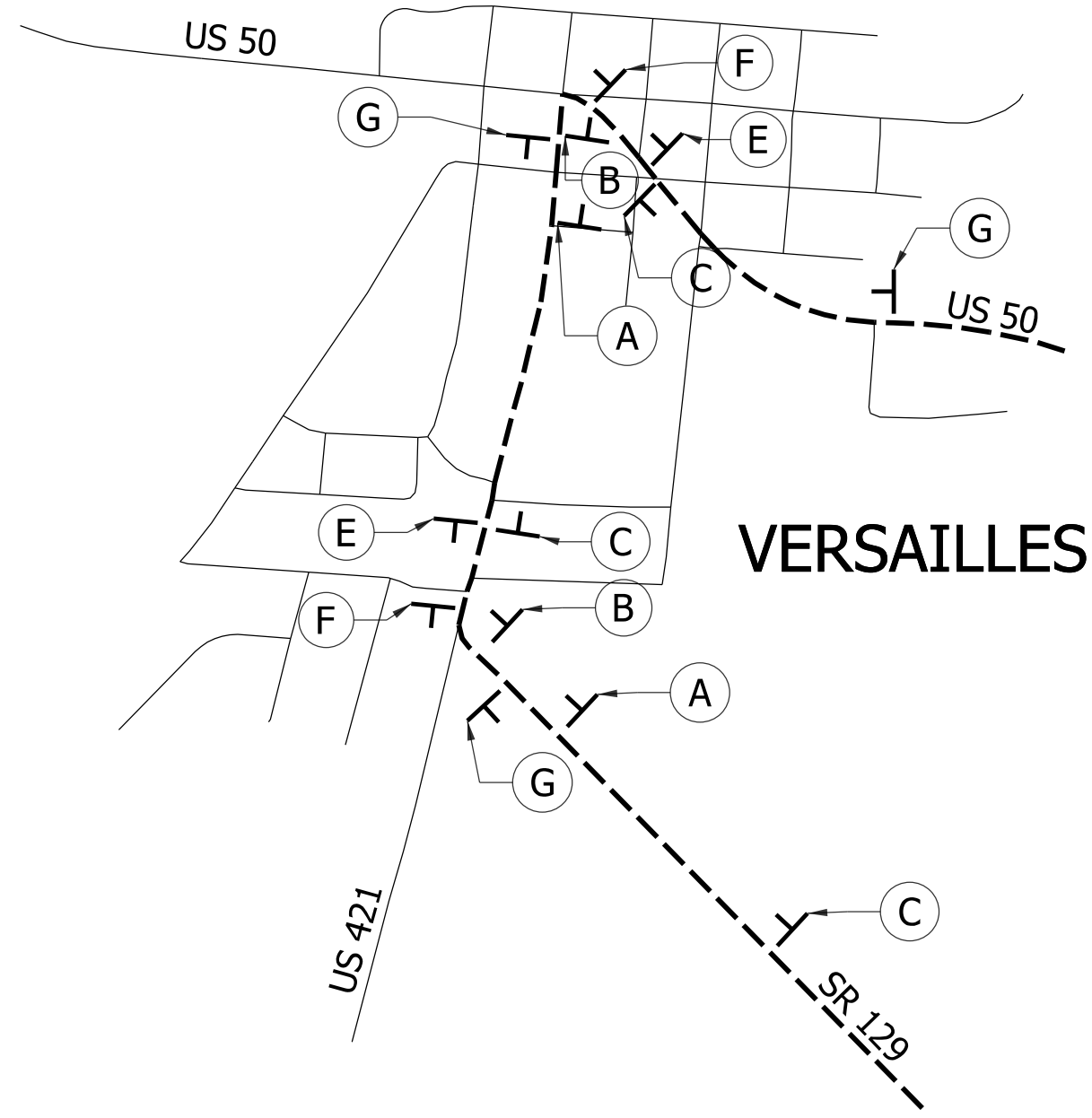
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VERTICAL SCALE N/A	DESIGNATION 1802982
SURVEY BOOK	SHEET NO. 4 of 23
CONTRACT R-41524	PROJECT 1802982



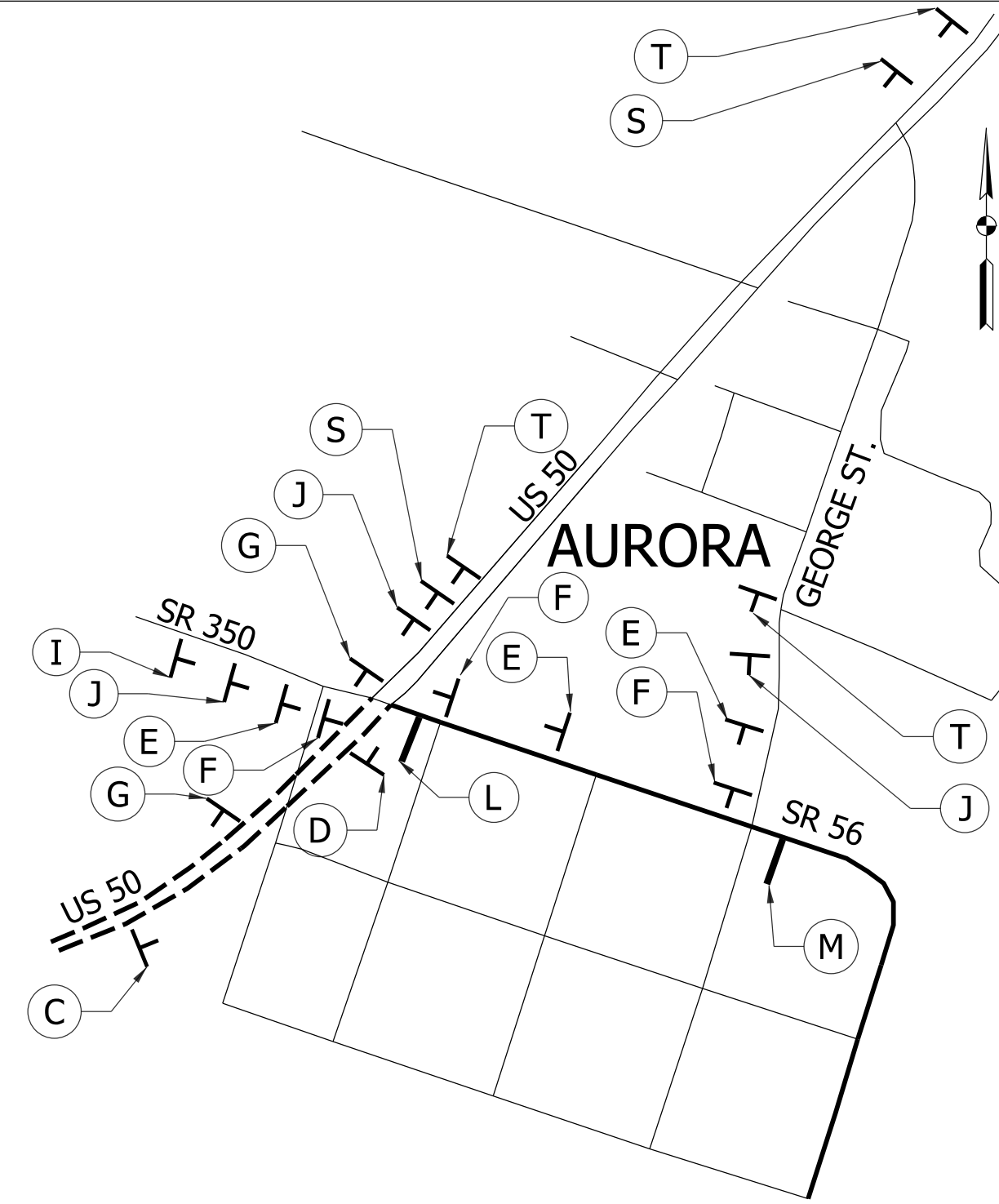
LEGEND

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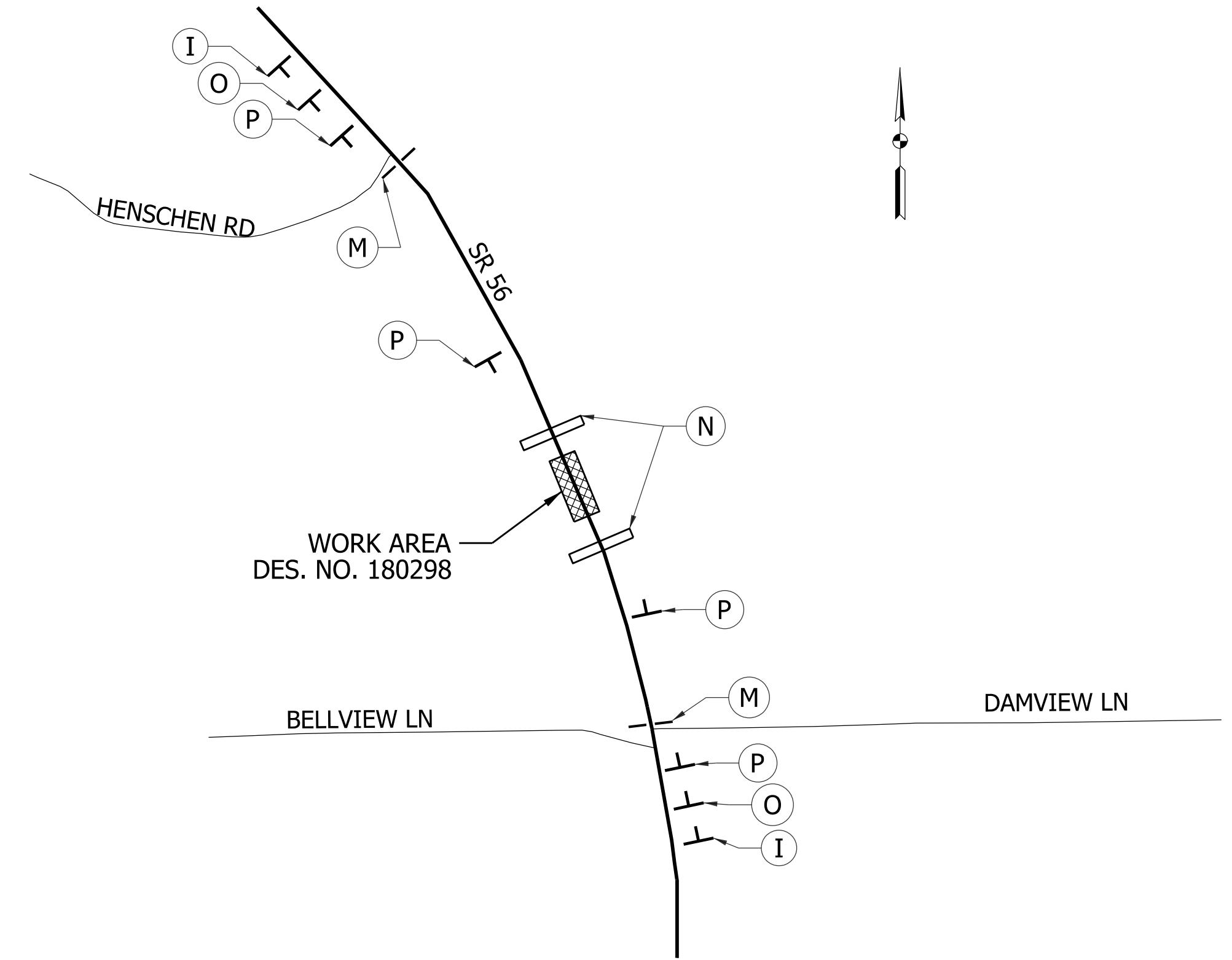
RECOMMENDED FOR APPROVAL _____ DESIGN ENGINEER DATE		INDIANA DEPARTMENT OF TRANSPORTATION		HORIZONTAL SCALE N.T.S.	BRIDGE FILE N/A
DESIGNED: LEJ	DRAWN: LEJ	DETOUR		VERTICAL SCALE N/A	DESIGNATION 1802982
CHECKED: JMM	CHECKED: JMM			SURVEY BOOK	SHEET NO. 6 of 23
				CONTRACT R-41524	PROJECT 1802982



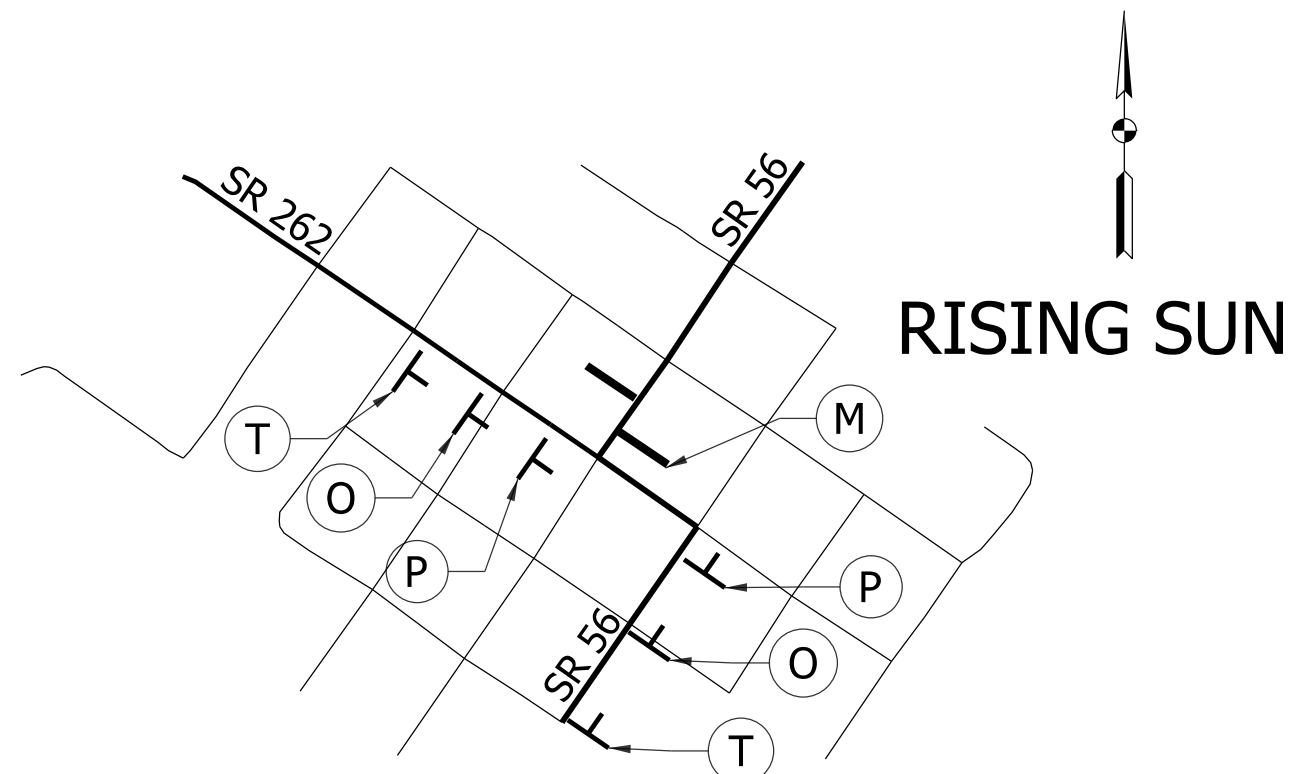
DETAIL "A"



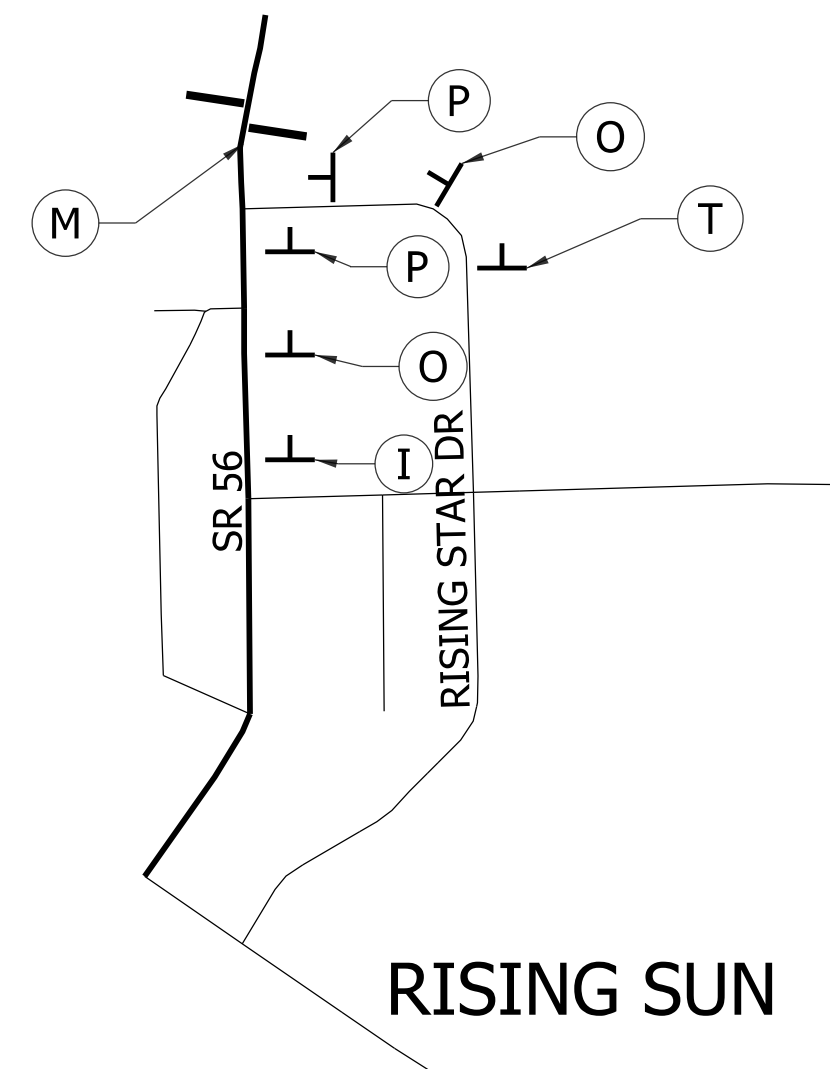
DETAIL "B"



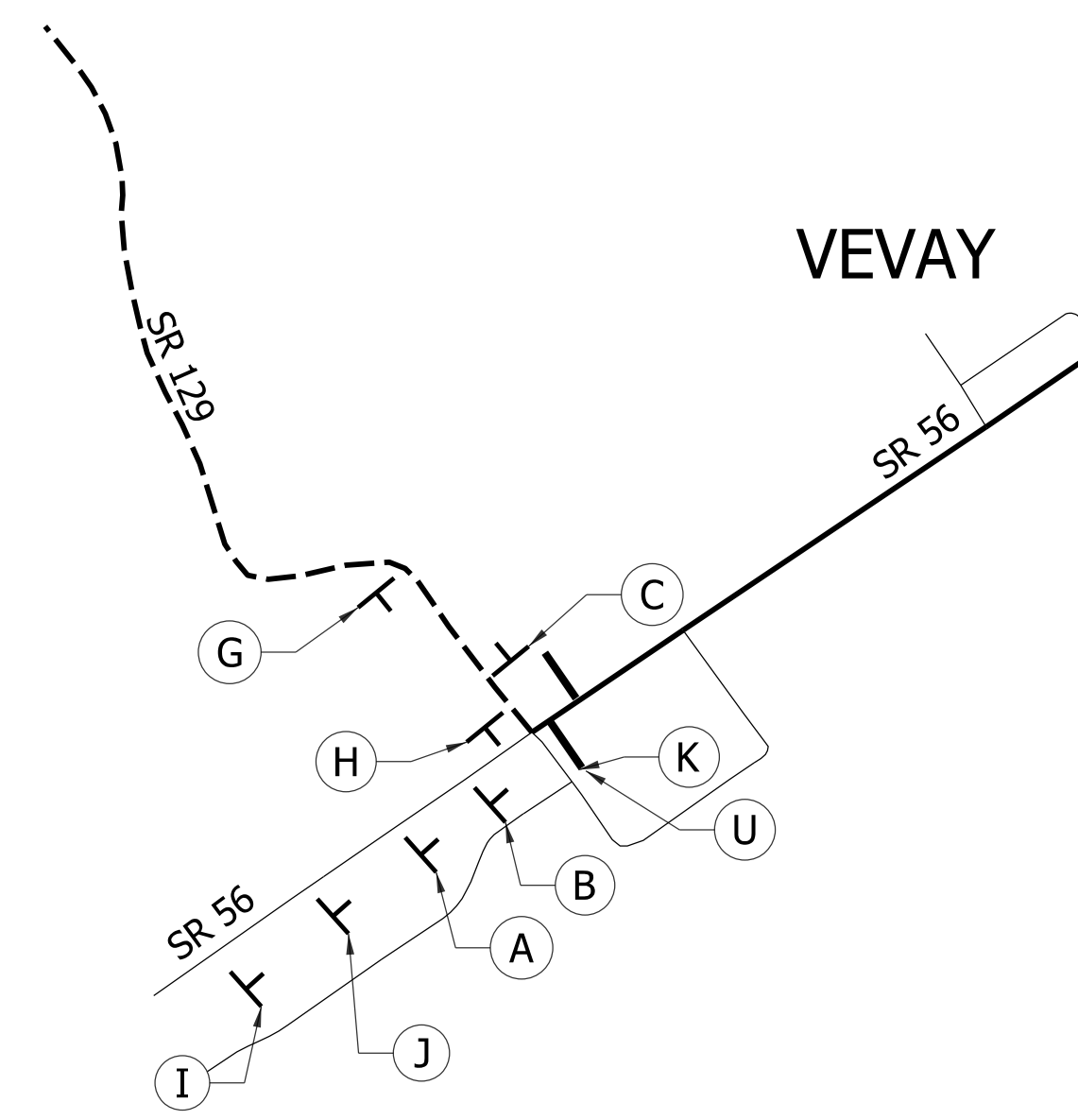
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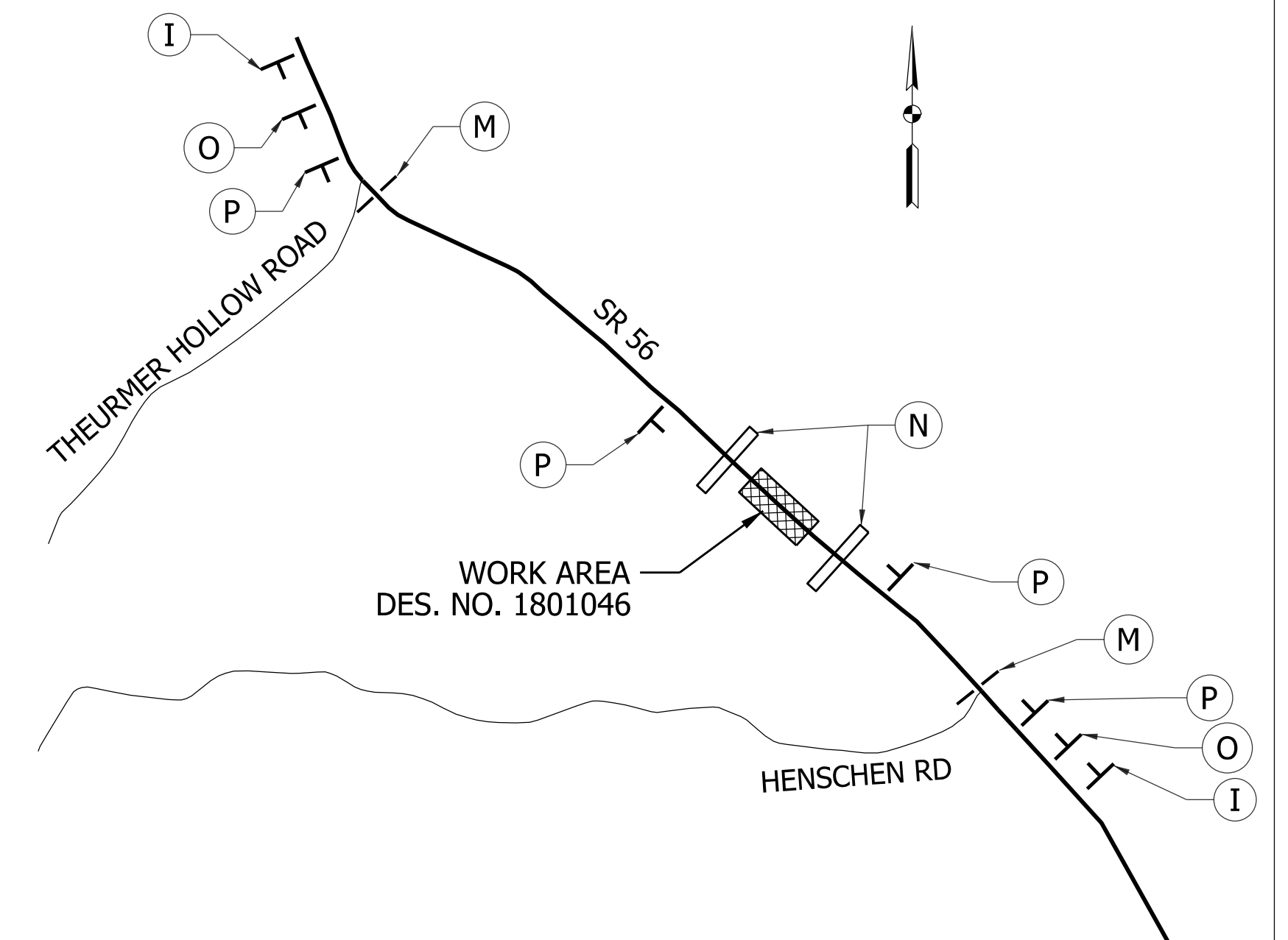
DETAIL "D"



DETAIL "E"



DETAIL "F"



DETAIL "G"

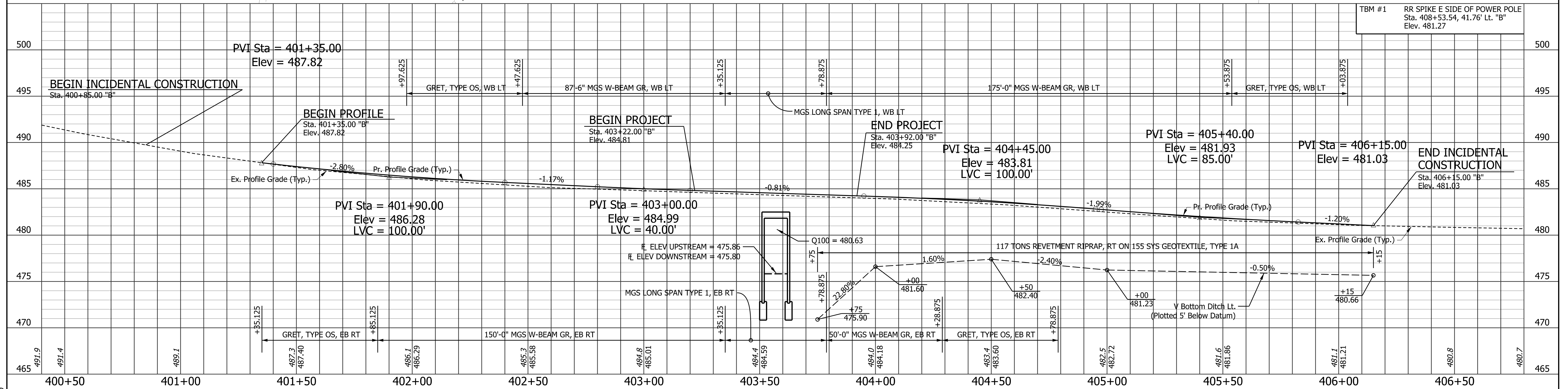
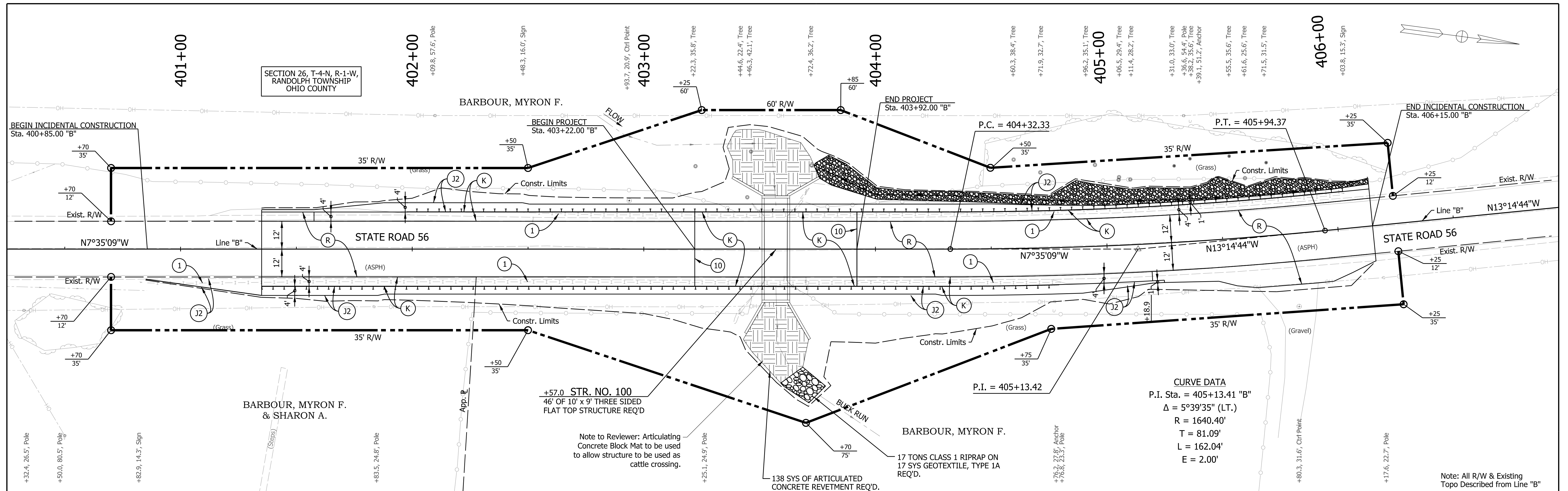
NOTE:
SEE LEGEND ON SHEET 6

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RECOMMENDED FOR APPROVAL _____		DESIGN ENGINEER _____ DATE _____	
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CHECKED: JMM	CHECKED: JMM		

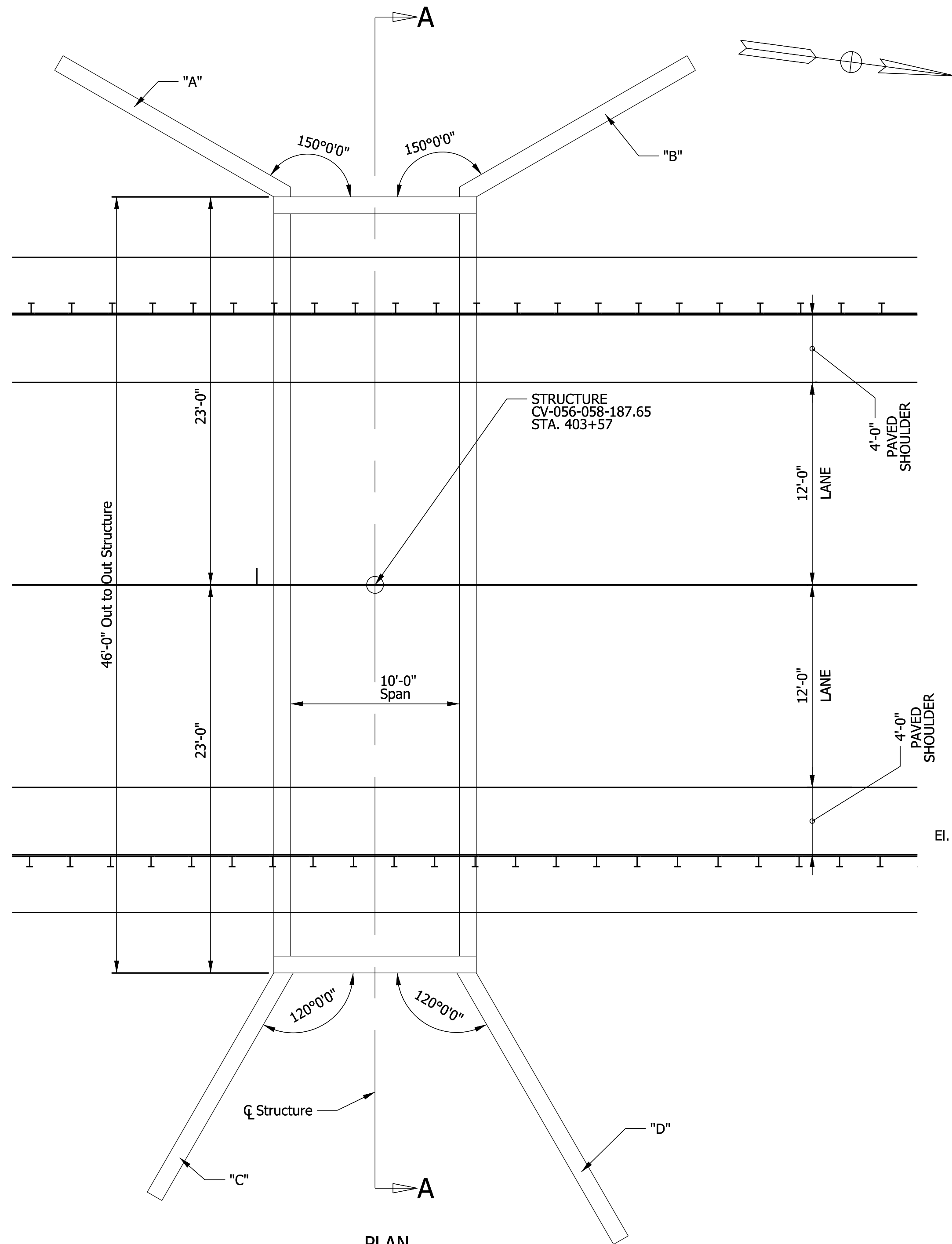
INDIANA	
DEPARTMENT OF TRANSPORTATION	
DETOUR	

HORIZONTAL SCALE	BRIDGE FILE
N.T.S.	N/A
VERTICAL SCALE	DESIGNATION
N/A	1802982
SURVEY BOOK	SHEET NO.
	7 of 23
CONTRACT	PROJECT
R-41524	1802982



LEGEND (K) FULL DEPTH HMA (TBD) (R) 165 #/SY QC/QA HMA, 2, 64, SURFACE, 9.5 mm, ON 1.5" SURFACE MILLING, HMA (MIN.) (J2) COMPACTED AGGREGATE, NO. 53 (10) SAW CUT (1) REMOVE GUARDRAIL ARTICULATING CONCRETE BLOCK MAT REVETMENT RIPRAP CLASS 1 RIPRAP			INDIANA DEPARTMENT OF TRANSPORTATION PLAN & PROFILE STA. 401+37.00 "B" TO STA. 405+98.00 "B"		HORIZONTAL SCALE 1" = 20' VERTICAL SCALE 1" = 5' SURVEY BOOK R-41524 BRIDGE FILE DESIGNATION 1802982 SHEET NO. 8 of 23 PROJECT 1802982	
RECOMMENDED FOR APPROVAL _____ DATE X-X-20XX DESIGN ENGINEER _____ DESIGNED: MWR DRAWN: LEJ CHECKED: JMM CHECKED: JMM						

User: mrobison
 10/30/2020
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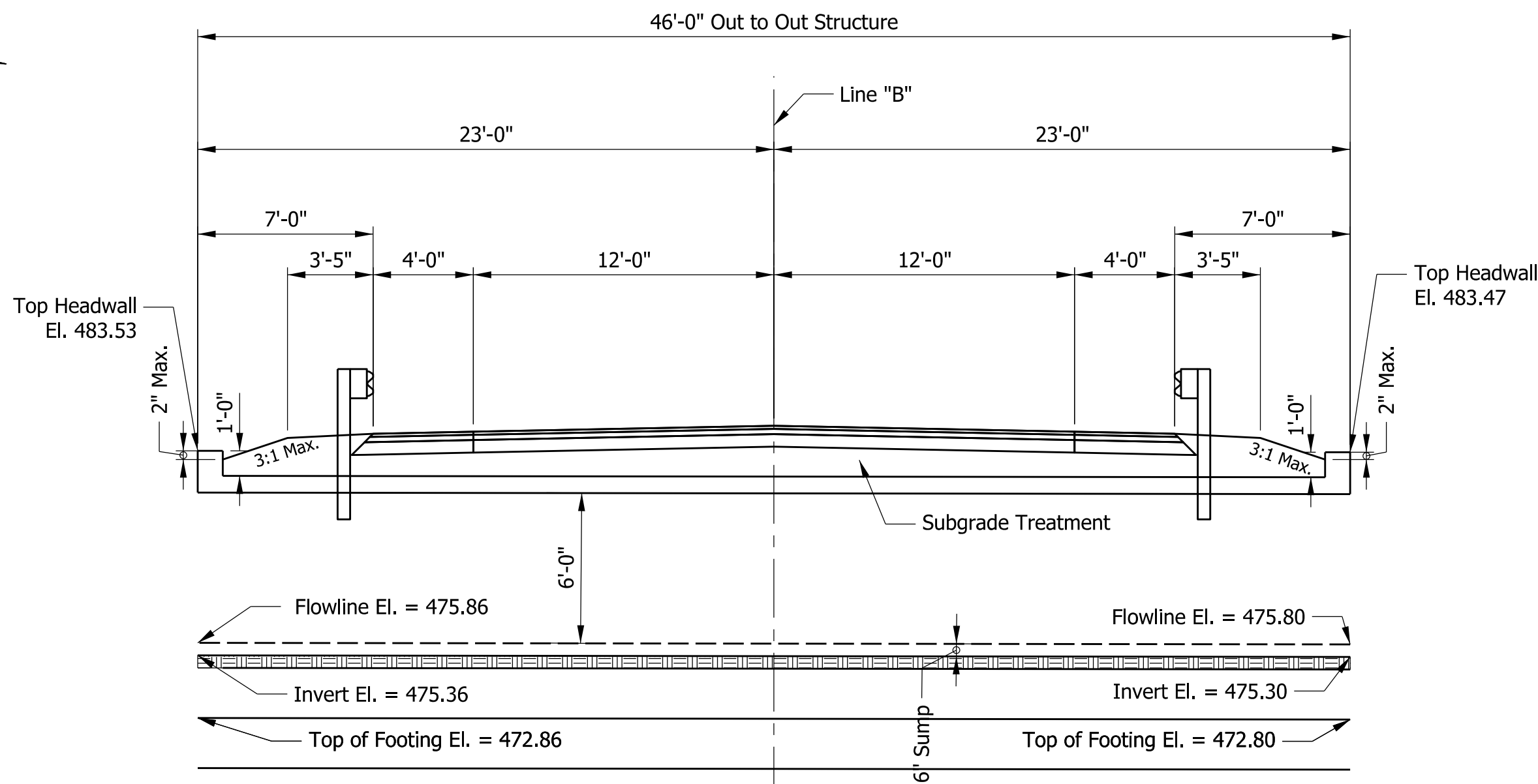
PLAN
SCALE: 1" = 5'-0"

WINGWALL INFORMATION

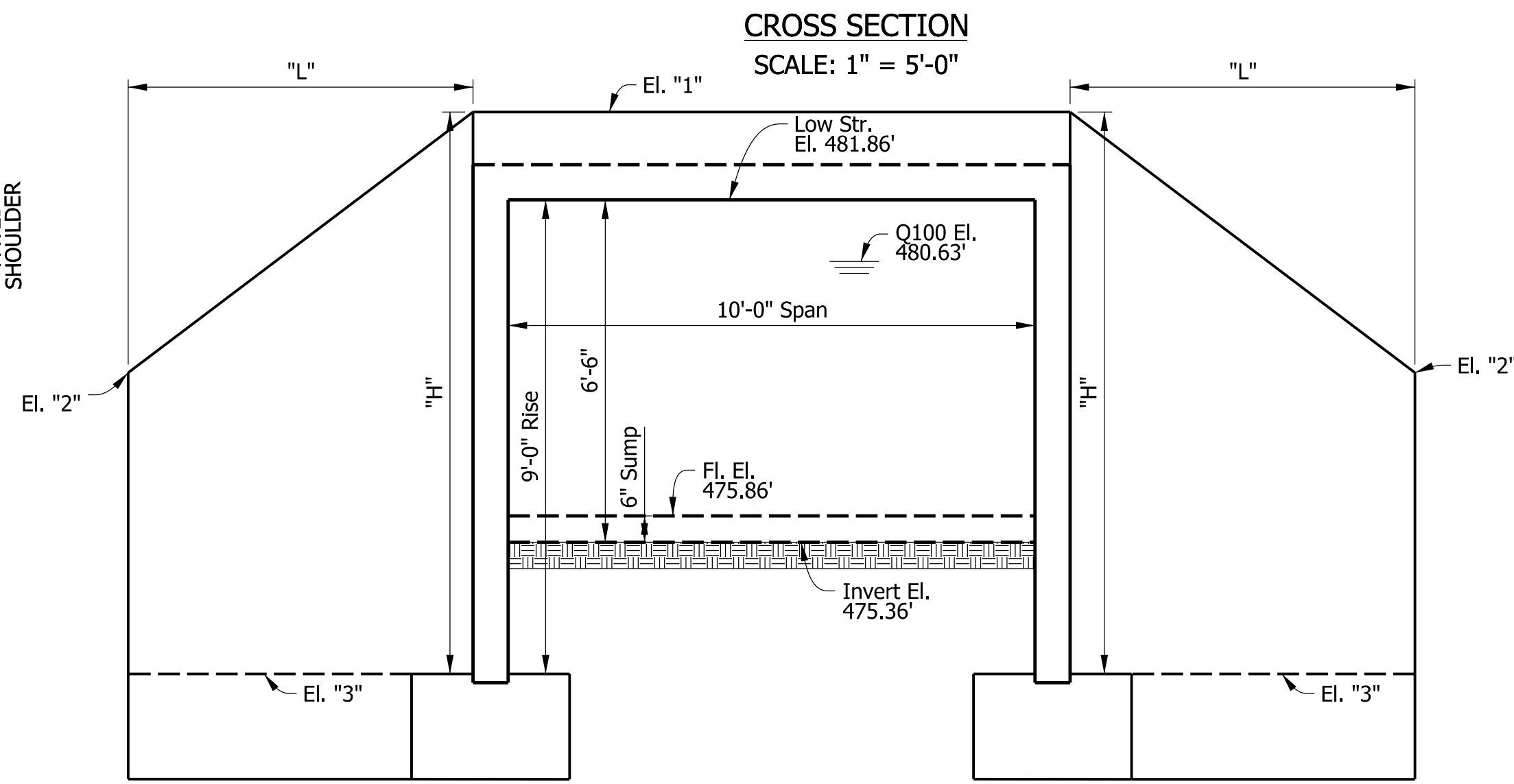
ELEVATION	WING "A"	WING "B"	WING "C"	WING "D"
1	483.53	483.53	483.47	483.47
2	482.38	481.92	482.44	481.15
3	472.86	472.86	472.80	472.80
DIMENSION				
L	15'-0"	15'-0"	15'-0"	18'-0"
H	10'-8"	10'-8"	10'-8"	10'-8"
AREA	151.4 SFT.	147.8 SFT.	152.3 SFT.	171.2 SFT.

HYDRAULIC DATA TABLE

ITEM	UNIT	PROPOSED STRUCTURE
DRAINAGE AREA	Sq Mi	0.67
Q100 DISCHARGE	cfs	250
Q100 ELEVATION	ft	480.63
Q100 BACKWATER	ft	1.41
Q50 VELOCITY	ft/sec	6.91
WATERWAY OPENING BELOW Q100	Sft	47.70
MIN. LOW STR. ELEV.	ft	481.86
ROADWAY OVERFLOW-Q100	Sft	0



CROSS SECTION
SCALE: 1" = 5'-0"



ELEVATION
SCALE: 1" = 10'-0"

GEOTECHNICAL DATA TABLES

Table 2 - Soil Parameters for Spread Footing Design on Improved Soils

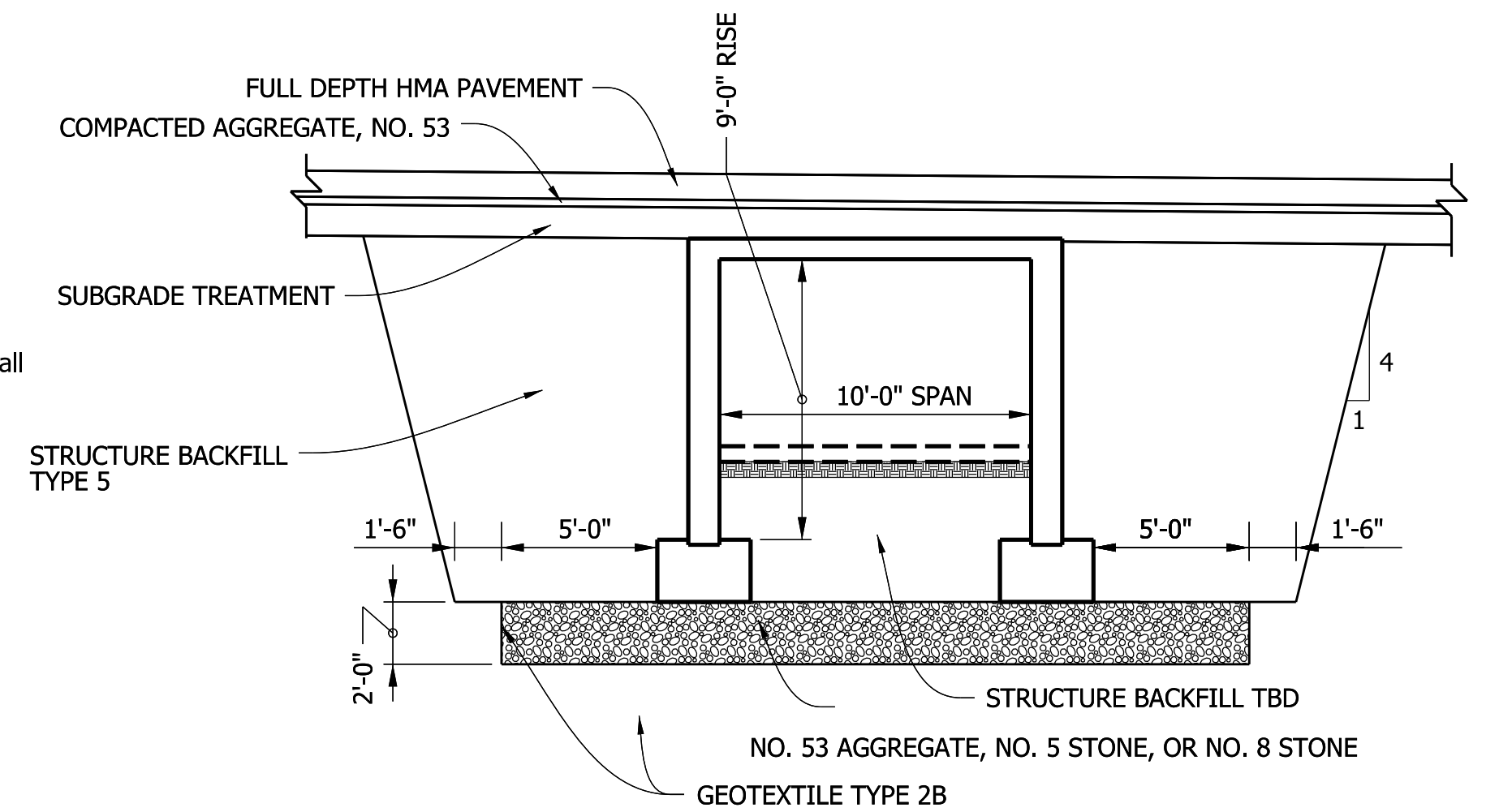
Parameters	Estimated Value
Minimum Bottom of Footing Elevations	4 Feet below Flowline @ Elevation 471.3 on improved soils
Minimum Footing Width, feet	3.0
Nominal Bearing Resistance (q_u), psf (Service Limit)	Table 3 & Figure 1
Bearing Resistance Factor (ϕ_b) (Strength Limit)	0.45
Soil Bearing Resistance, psf (Strength Limit)	Table 3 & Figure 1
Friction Angle of Foundation Soil (ϕ), degrees	30 ⁽¹⁾
Friction Angle between Footing and Foundation Soil (δ), degrees	20 ⁽¹⁾
Friction Factor ($\tan \delta$)	0.364 ⁽¹⁾
Nominal Cohesion of Foundation Soil (C), psf	0.0
Nominal Adhesion between Foundation Soil and Concrete (C_a), psf	0.0
Friction Angle of Backfill Material, degrees	30
Friction Angle between Wall and Backfill (δ_b), degrees	20
Total Unit Weight of Foundation Soil, pcf	125
Unit Weight of Backfill Material, pcf	130

⁽¹⁾ Soil parameters for a minimum of 2 feet undercut below proposed footing elevations and backfilling with No. 53 aggregate, No. 5 or No. 8 stone. The improvement area shall be performed a minimum horizontal distance of 5 feet beyond the footprint of the footings.

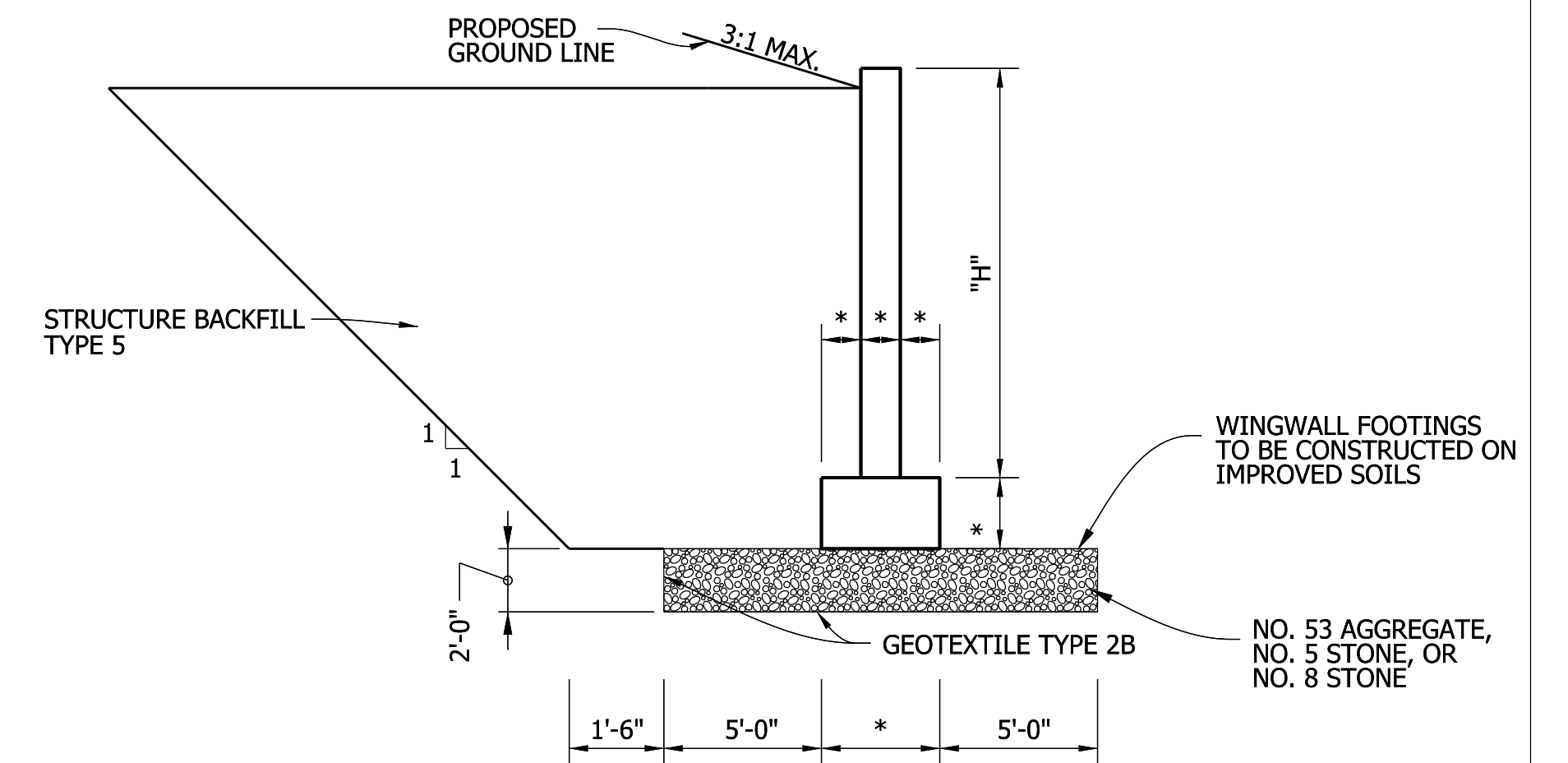
Table 3 - Recommended Factored Bearing Resistance on Improved Soils

Footing Width (feet)	Strength Limit State Factored Bearing Resistance (psf)	Service Limit State Bearing Resistance (psf)		Design Bearing Resistance (psf) *
		At 0.5-inch settlement	At 1.0-inch settlement	
3	4,100	750	2,050	2,050
4	3,650	550	1,450	1,450
5	3,400	450	1,200	1,200
6	3,250	400	1,050	1,050
7	3,150	350	900	900

* Assuming 1-inch settlement criteria.



TYPICAL STRUCTURE ELEVATION
SCALE: 1" = 5'-0"



TYPICAL WING ELEVATION
N.T.S.

DESIGN DATA

ALL ELEMENTS SHALL BE DESIGNED FOR HL-93 LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, EIGHTH EDITION (2017), AND ALL SUBSEQUENT INTERIM SPECIFICATIONS. DEAD LOAD INCREASED 35 PSF FOR FUTURE WEARING SURFACE.

NOTES

* - INDICATES DIMENSIONS TO BE DETERMINED BY THE PRECAST MANUFACTURER.
CONTRACTOR SHALL VERIFY THE EXISTING FLOWLINE ELEVATION TO SET THE APPROPRIATE SUMP DEPTH.

PRECAST CULVERT THREE-SIDED FLAT TOP
10'-0" SPAN x 9'-0" RISE
STA. 403+57.00 LINE "B"

RECOMMENDED FOR APPROVAL	DESIGN ENGINEER	DATE	INDIANA DEPARTMENT OF TRANSPORTATION	HORIZONTAL SCALE	BRIDGE FILE
DESIGNED: MWR	DRAWN: LEJ	CHECKED: JMM		AS NOTED	N/A
CHECKED: JMM			PRECAST CULVERT DETAILS STRUCTURE CV-056-058-187.65	VERTICAL SCALE	DESIGNATION
				AS NOTED	1802982
				SURVEY BOOK	SHEET NO.
				R-41524	9 of 23
				CONTRACT	PROJECT
					1802982