

WKE

JANUARY 2023

WITH:

PROJECT ID:

1370-17-70

COUNTY:

WAUKESHA

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 70

STATE OF WISCONSIN

DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 16

5800' WEST OF STH 83 TO STH 190

STH 16

WAUKESHA COUNTY

STATE PROJECT NUMBER

1370-17-70

STATE PROJECT

FEDERAL PROJECT

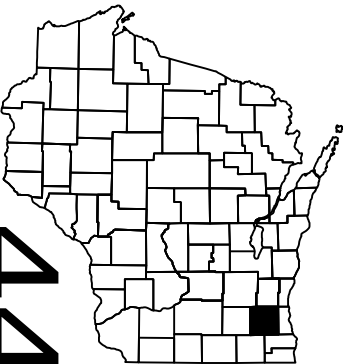
PROJECT

CONTRACT

1370-17-70

WISC 2022487

1



BEGIN PROJECT
STA 284+00
Y=194297.323
X=642522.695

END PROJECT
STA 685+00

DESIGN DESIGNATION

A.A.D.T.	(2020)	=	37,717
A.A.D.T.		=	
D.H.V.		=	8.2%
D.D.		=	58/42
T.		=	10.2%
DESIGN SPEED		=	70 MPH
ESALS		=	

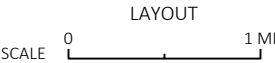
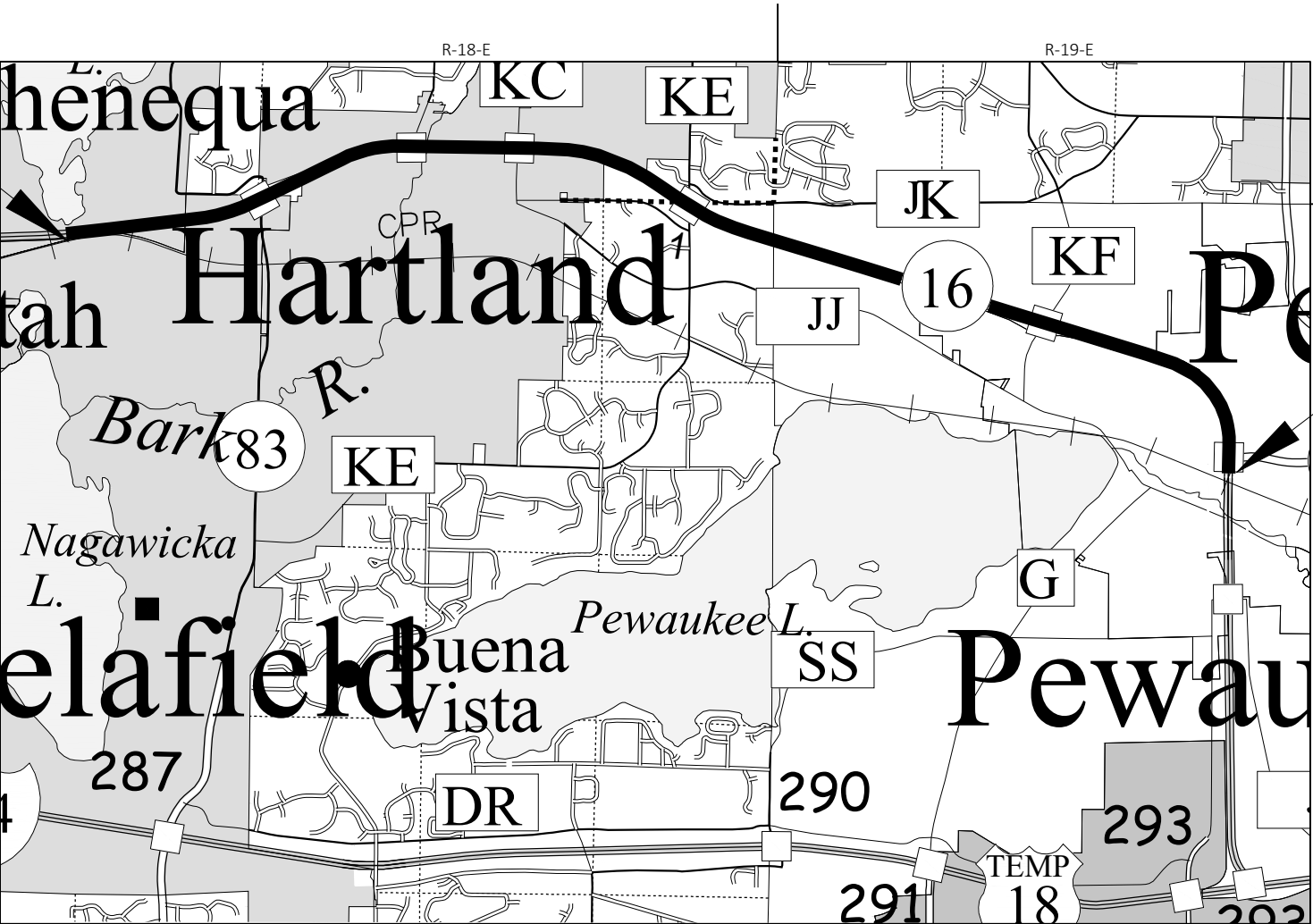
CONVENTIONAL SYMBOLS

PLAN

CORPORATE LIMITS	
PROPERTY LINE	
LOT LINE	
LIMITED HIGHWAY EASEMENT	
EXISTING RIGHT OF WAY	
PROPOSED OR NEW R/W LINE	
SLOPE INTERCEPT	
REFERENCE LINE	
EXISTING CULVERT	
PROPOSED CULVERT (Box or Pipe)	
COMBUSTIBLE FLUIDS	
MARSH AREA	
WOODED OR SHRUB AREA	

PROFILE

GRADE LINE	
ORIGINAL GROUND	
MARSH OR ROCK PROFILE (To be noted as such)	
SPECIAL DITCH	
GRADE ELEVATION	
CULVERT (Profile View)	
UTILITIES	
ELECTRIC	
FIBER OPTIC	
GAS	
SANITARY SEWER	
STORM SEWER	
TELEPHONE	
WATER	
UTILITY PEDESTAL	
POWER POLE	
TELEPHONE POLE	



TOTAL NET LENGTH OF CENTERLINE = 7.595 MI.

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WCCS, WAUKESHA COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES.

ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	WISDOT
Designer	STEVEN ROTIER
Project Manager	ROBERT BELLIN
Regional Examiner	REGIONAL EXAMINER
Regional Supervisor	BENEDICT ERUCHALU

APPROVED FOR THE DEPARTMENT
DATE: 5/1/2022 Robert A. Bellin
(Signature)

E

GENERAL NOTES

- 1) THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. COORDINATE CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.
- 2) CONTACT THE PROJECT ENGINEER AND SEWRPC AT LEAST TWO WEEKS BEFORE WORKING NEAR ANY SECTION CORNER MONUMENT.
- 3) SAWCUT EXISTING ASPHALT AND CONCRETE PAVEMENT AT THE MATCHLINE AS INDICATED ON THE PLAN OR AS DIRECTED BY THE ENGINEER.
- 4) RESHAPE, RESTORE AND FINISH ALL PREVIOUSLY GRASSED AREAS DISTURBED BY OPERATIONS OUTSIDE OF THE NORMAL CONSTRUCTION LIMITS AT NO EXPENSE TO THE DEPARTMENT
- 5) DISTURBED AREAS WITHIN THE RIGHT OF WAY ARE TO BE TOPSOILED, FERTILIZED, SEEDED, AND MULCHED WITHIN 5 DAYS OR AS DIRECTED BY THE ENGINEER.
- 6) CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED.

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- UTILITY AND OTHER CONTACTS
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS AND EROSION CONTROL
- PLAN DETAILS
- TRAFFIC CONTROL
- ALIGNMENT
- SOIL BORINGS

UTILITY CONTACTS

AT&T WISCONSIN - COMMUNICATION LINE

Tom Crowley
435 South 95th Street
Milwaukee, WI 53214-1226
(262) 896-7427
tc1657@att.com

ATC MANAGEMENT, INC. - ELECTRICITY TRANSMISSION

Chris Dailey
PO Box 47
Waukesha, WI 53187
(262) 506-6864
cdailey@atcinc.com

EVERSTREAM - COMMUNICATION LINE

Shad Garcia
324 E. Wisconsin Ave, Suite 730
Milwaukee, WI 53202
(414) 522-6685
sgarcia@everstream.net

OTHER CONTACTS

VILLAGE OF HARTLAND - ROADWAY

Dave Felkner
210 Cottonwood Ave
Hartland, WI 53029
(262) 367-2714
davef@villageofhartland.com

WISDNR

Craig Webster
2300 N. Dr. Martin Luther King Jr. Dr.
Milwaukee, WI 53212
(262) 574-2141
craig.webster@wisconsin.gov

LEVEL 3 COMMUNICATIONS LLC - COMMUNICATION LINE

Branim Gaddour
32353 Intertech Dr
Brookfield, WI 53045
(414) 908-1027
branim.gaddour@lumen.com

TDS METROCOM LLC - COMMUNICATION LINE

Matthew Schulte
525 Junction Rd
Madison, WI 53717
(262) 754-3063
matt.schulte@dstelecom.com

WISDOT ATR PULL BOXES - ELECTRICAL

Russell Lewis
3625 Pierstoff St
Madison, WI 53704
(608) 516-5754
russell.lewis@dot.wi.gov

WISDOT HIGHWAY MAINTENANCE

Gary Wolf
141 NW Barstow Street
Waukesha, WI 53187-0798
(414) 750-2715
gary1.wolf@dot.wi.gov

SPECTRUM - COMMUNICATION LINE

Nea Long
1320 N Dr Martin Luther King Jr Dr
Milwaukee, WI 53212
(414) 277-4271
nea.long@charter.com

VILLAGE OF HARTLAND - SEWER & WATER

Dave Felkner
210 Cottonwood Ave
Hartland, WI 53029
(262) 367-2714
davef@villageofhartland.com

WISDOT SIGNALS

Jarrett Gates
141 NW Barstow Street
Waukesha, WI 53188
(262) 548-5894
jarrett.gates@dot.wi.gov

WISDOT DESIGN LEADER

Steven Rotier
141 NW Barstow Street, PO Box 798
Waukesha, WI 53188
(262) 548-5679
seven.rotier@dot.wi.gov

WE ENERGIES - GAS/PETROLEUM

Jacob Spencer
513 W33800 STH 18
Delafeld, WI 53018
(262) 968-7009
Dispatch: (800) 261-5325
jacob.spencer@we-energies.com

WE ENERGIES - ELECTRIC

Eric Kickhaver
500 S 116th Street
West Allis, WI 53214
(414) 944-5917
Dispatch: (800) 662-4797
eric.kickhaver@we-energies.com

WISDOT PROJECT MANAGER

Robert Bellin
141 NW Barstow Street, PO Box 798
Waukesha, WI 53188
(262) 521-4405
robert.bellin@dot.wi.gov

SEWRPC

Rob Merry
W239 N1812 Rockwood Dr, PO Box 1607
Waukesha, WI 53187
(262) 953-4295
rmerry@sewrpc.org



Dial 811 or (800)242-8511

www.DiggersHotline.com

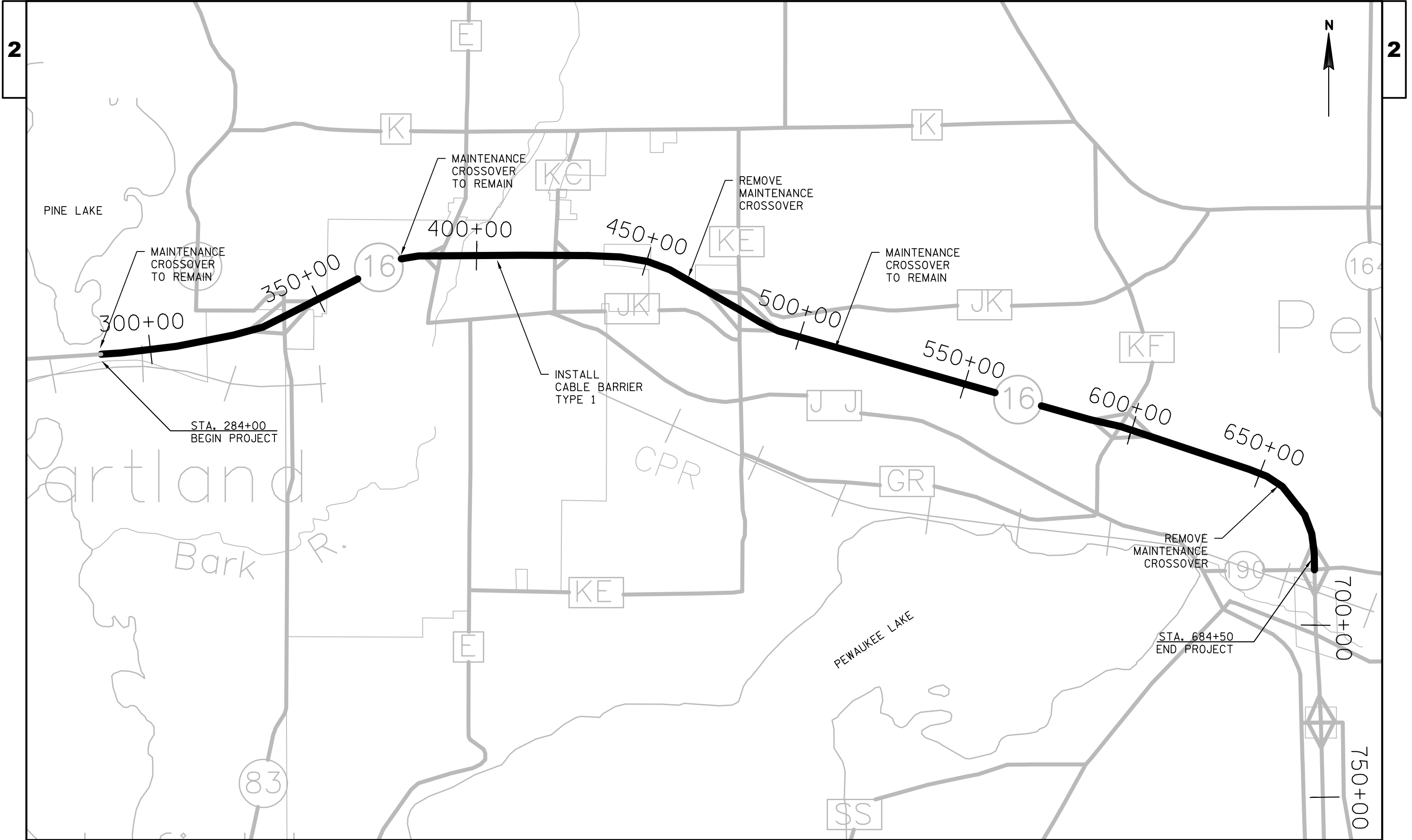
PROJECT NO: 1370-17-70

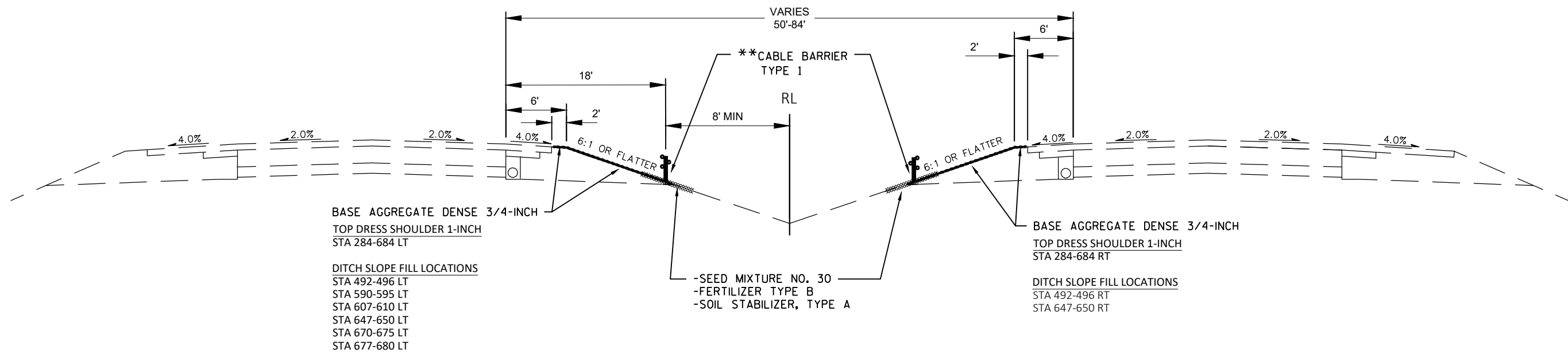
HWY: STH 16

COUNTY: WAUKESHA

GENERAL NOTES AND CONTACT INFORMATION

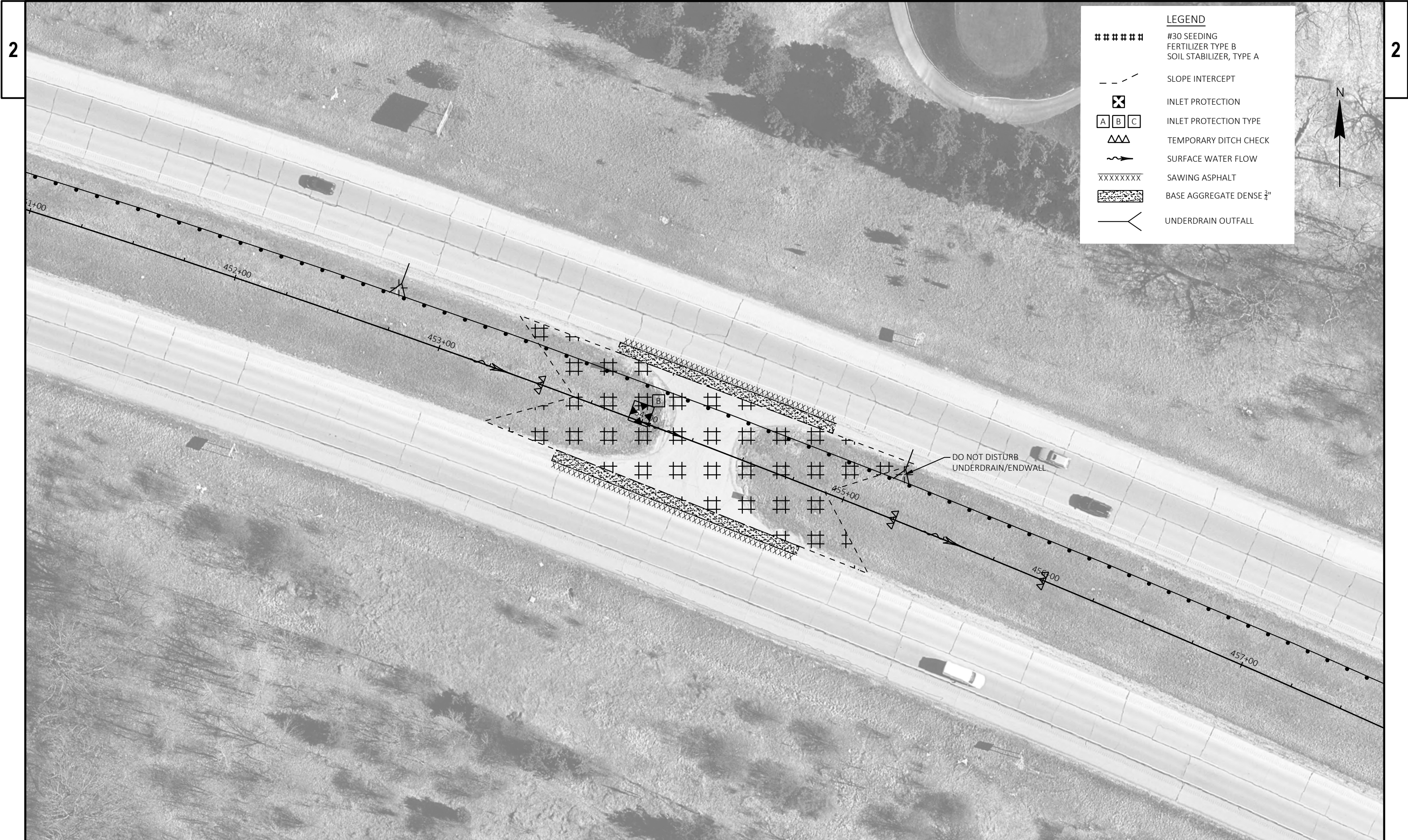
SHEET





** SEE PLAN DETAILS FOR LOCATION LEFT OR RIGHT OF DITCH

STH 16
TYPICAL FINISHED SECTION
STA 284+00 TO 685+00



LEGEND

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#30 SEEDING
FERTILIZER TYPE B
SOIL STABILIZER, TYPE A

SLOPE INTERCEPT

A

B

C

INLET PROTECTION TYPE

△△

TEMPORARY DITCH CHECK

~→

SURFACE WATER FLOW

XXXXXXXX

SAWING ASPHALT

BASE AGGREGATE DENSE 3/4"

—Y

UNDERDRAIN OUTFALL



LEGEND

#####

#30 SEEDING
FERTILIZER TYPE B
SOIL STABILIZER, TYPE A

SLOPE INTERCEPT

⊗

INLET PROTECTION

A B C

INLET PROTECTION TYPE

ΔΔΔ

TEMPORARY DITCH CHECK

~→

SURFACE WATER FLOW

XXXXXXX

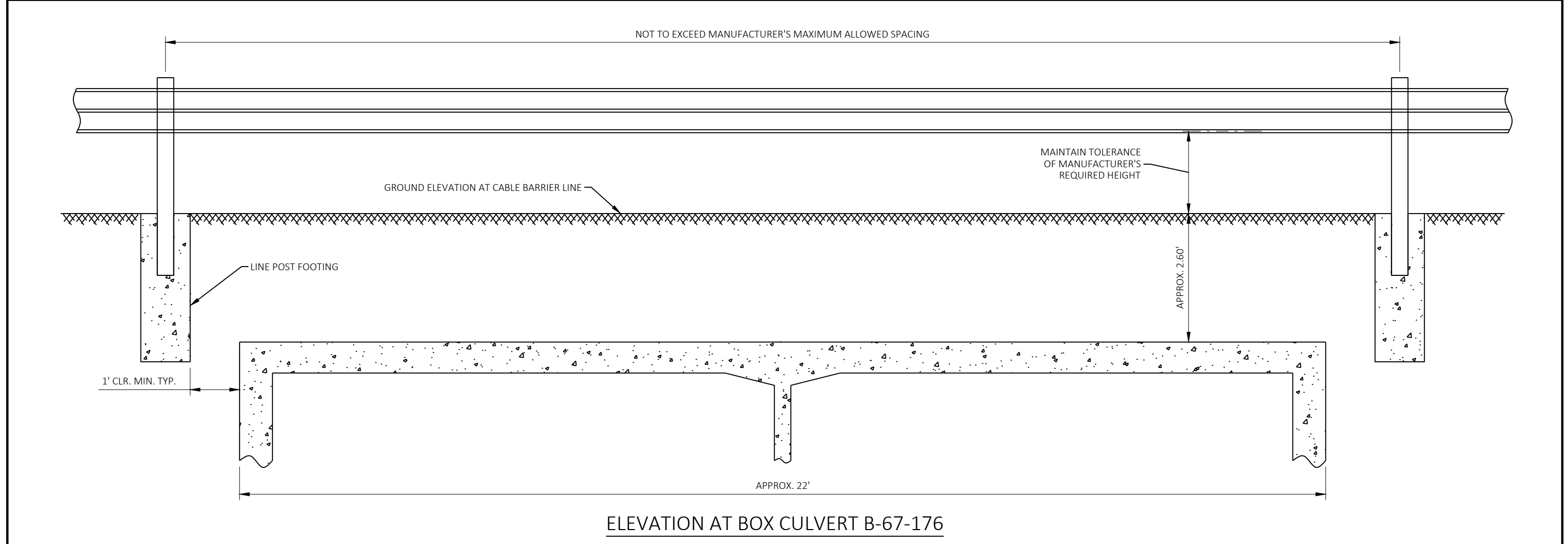
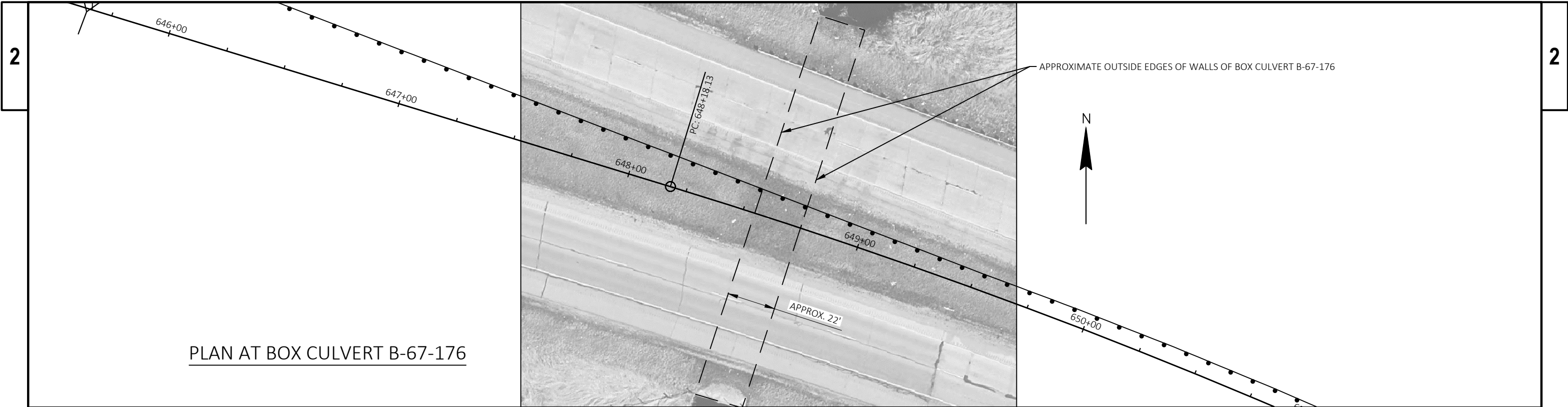
SAWING ASPHALT

▨

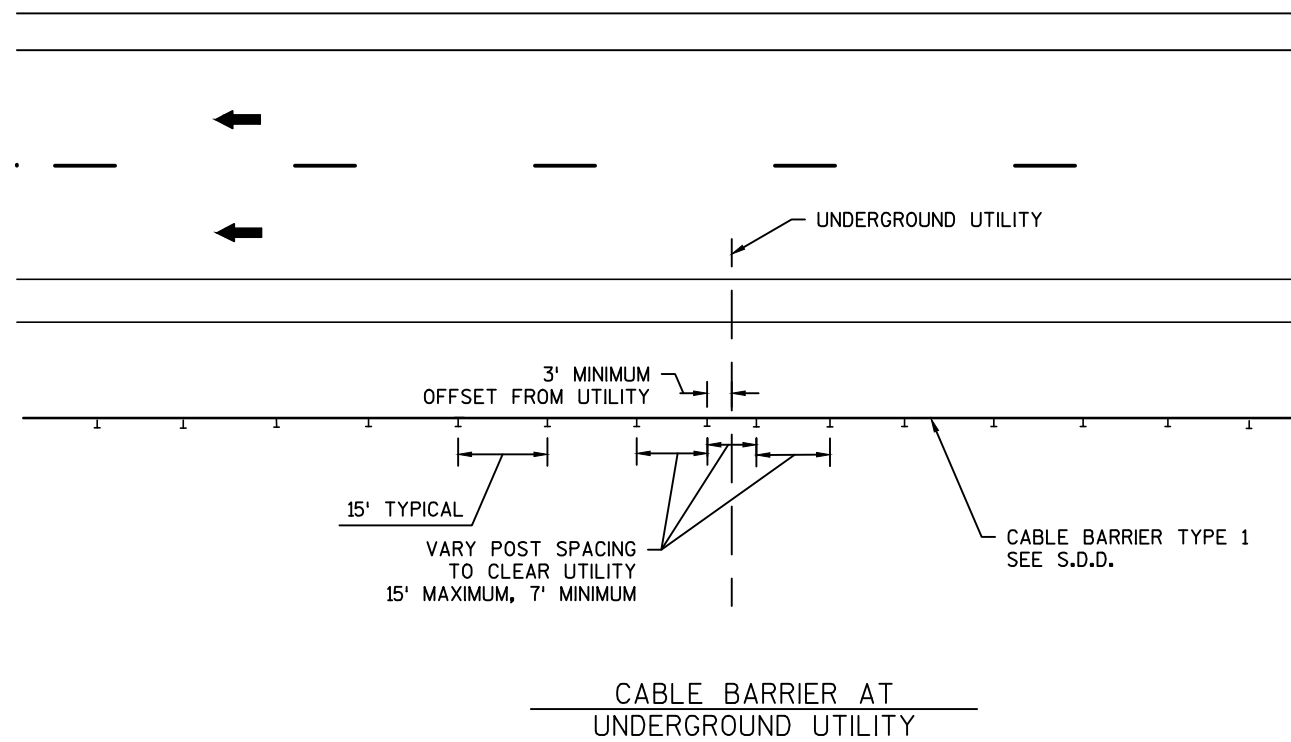
BASE AGGREGATE DENSE 3/4"

—Y

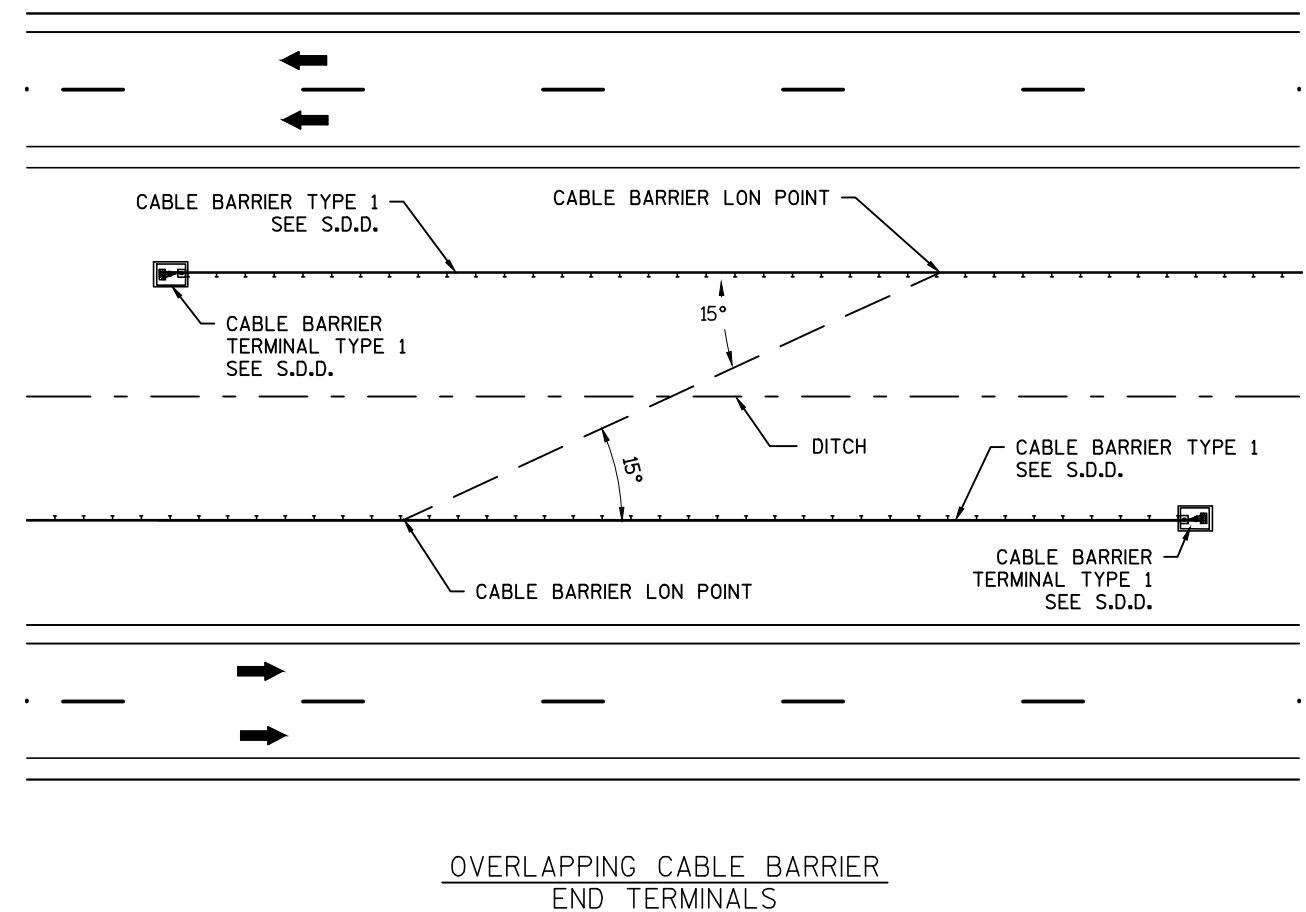
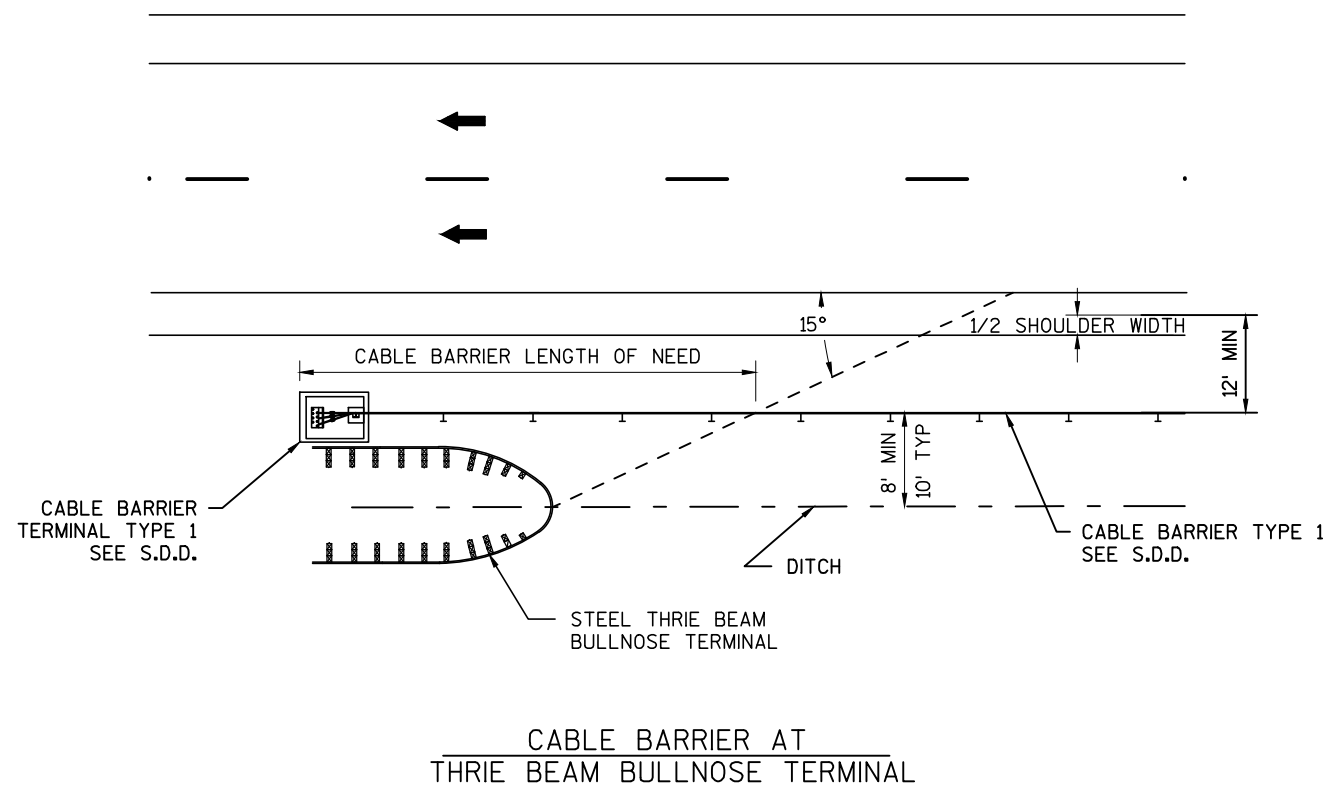
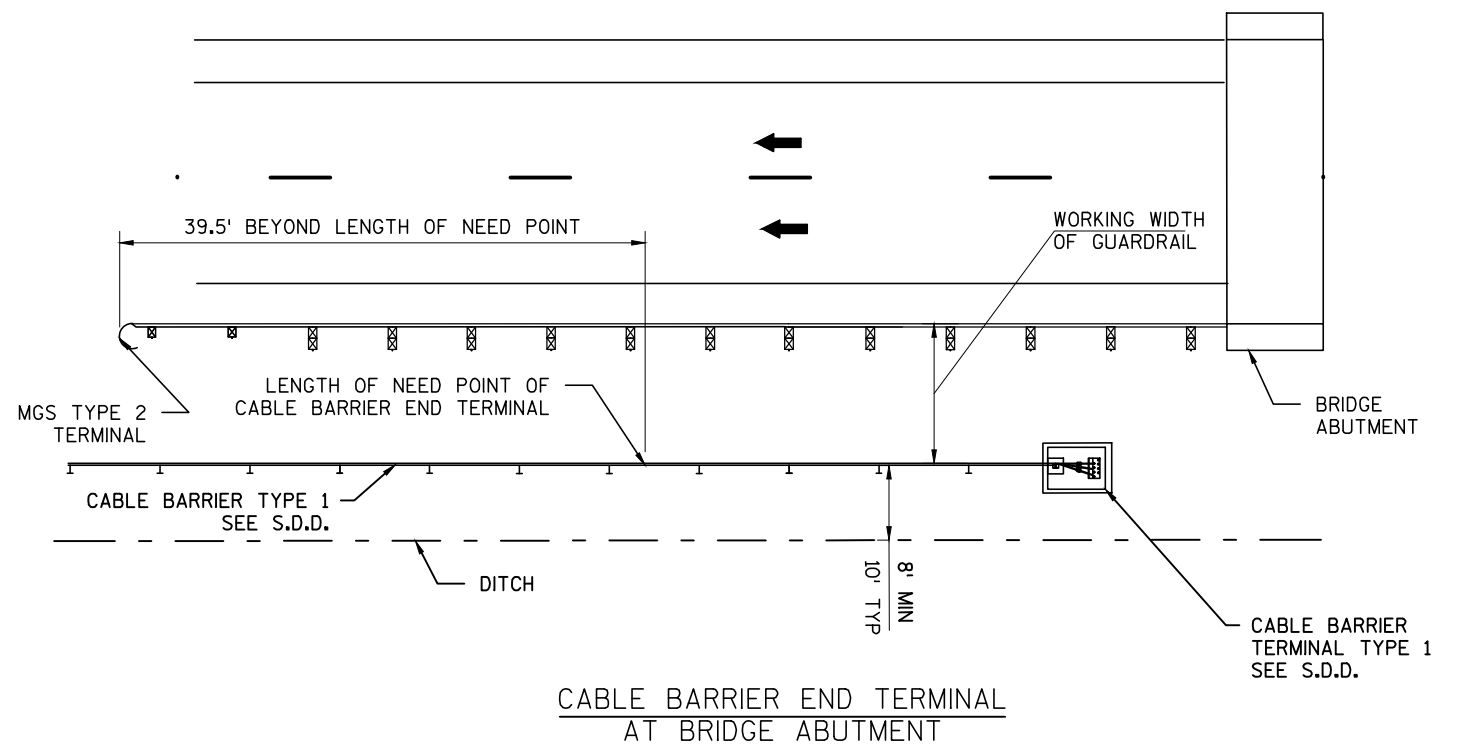
UNDERDRAIN OUTFALL

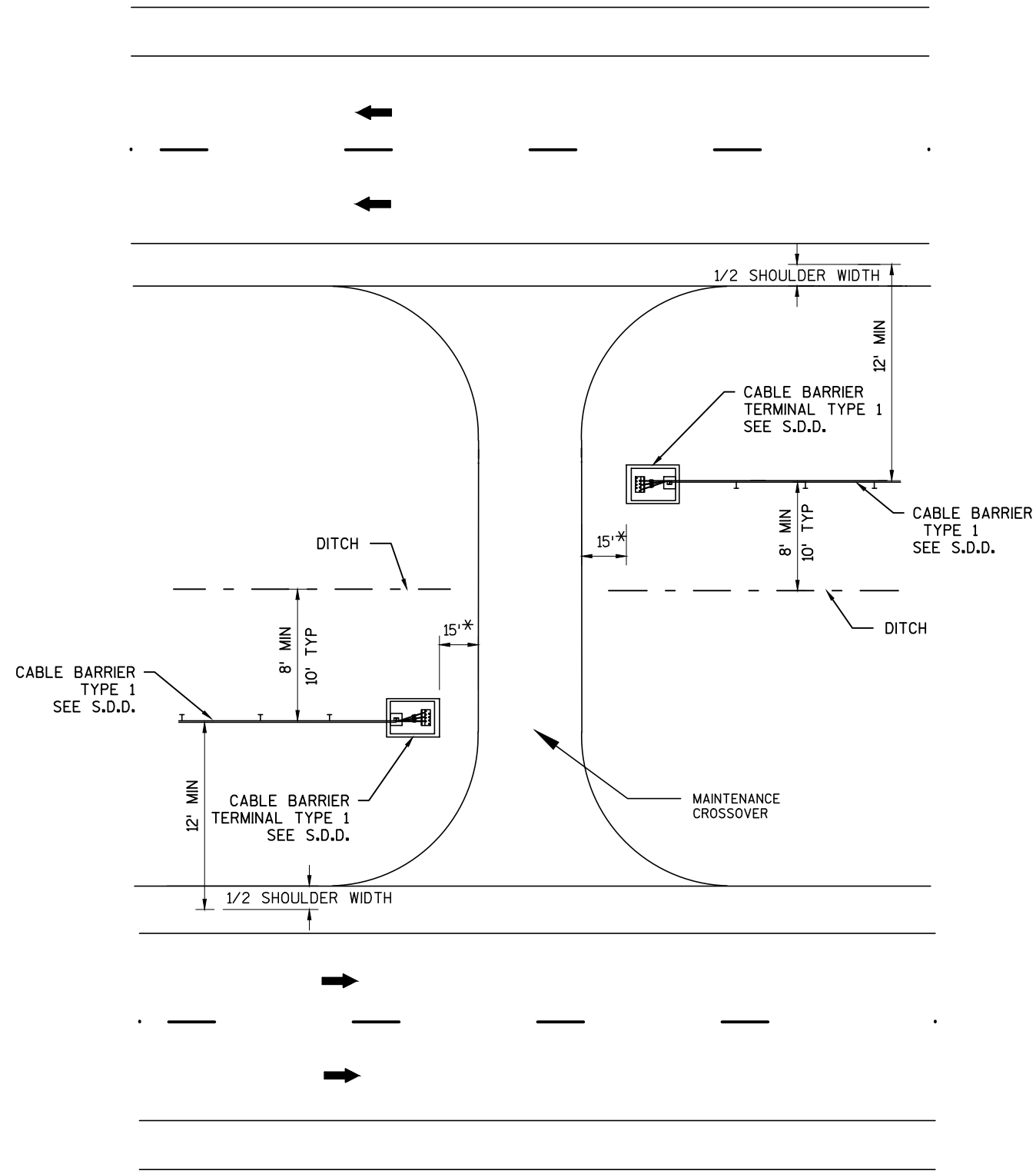


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2

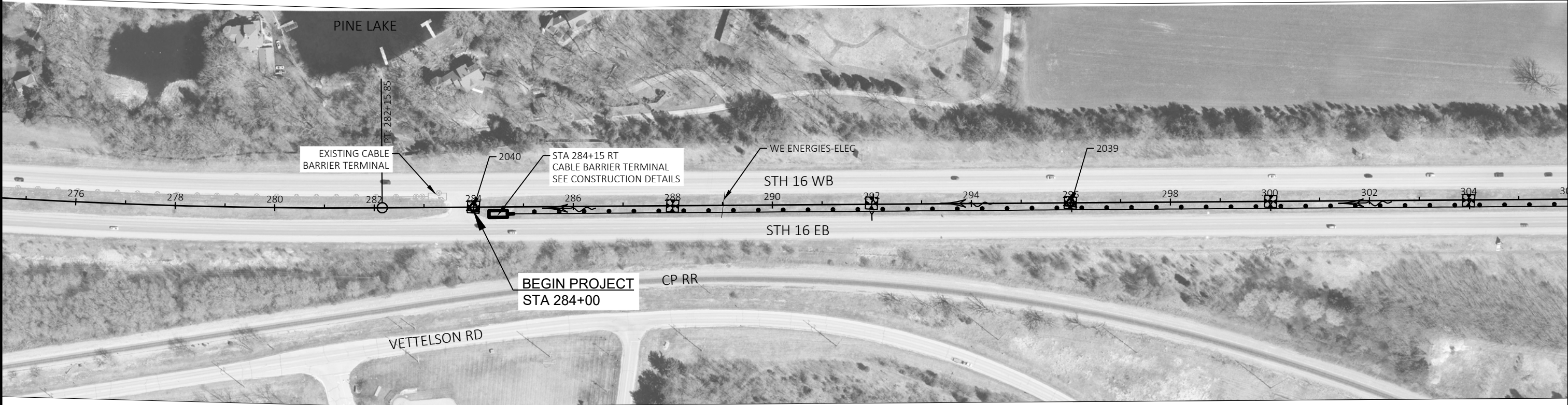




CABLE BARRIER END TERMINAL
AT MAINTENANCE CROSSOVER

* DISTANCE MEASURED FROM
EDGE OF ASPHALT

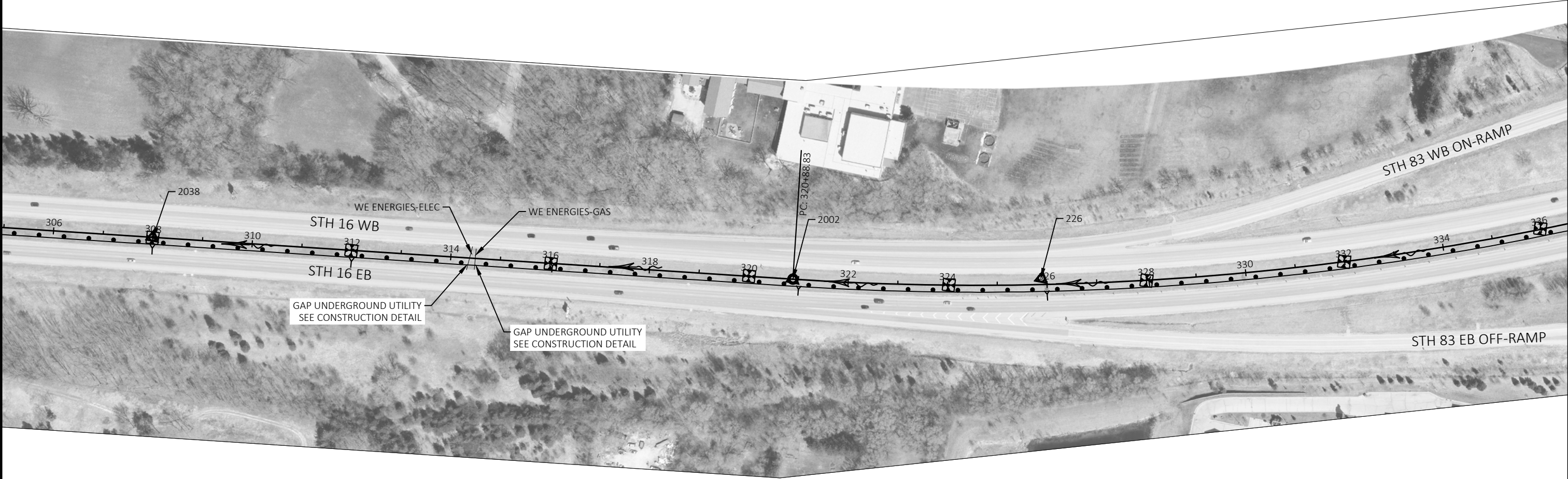
CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2040	STA 283+99 RT	CP CHISLED +	919.27
2039	STA 295+99 RT	CP CHISLED +	928.21



LEGEND

- CABLE BARRIER LINE POSTS
- CABLE BARRIER TERMINAL
- EXISTING INLET/INLET PROTECTION TYPE B
- WETLAND
- DITCH FLOW
- UNDERDRAIN OUTFALL

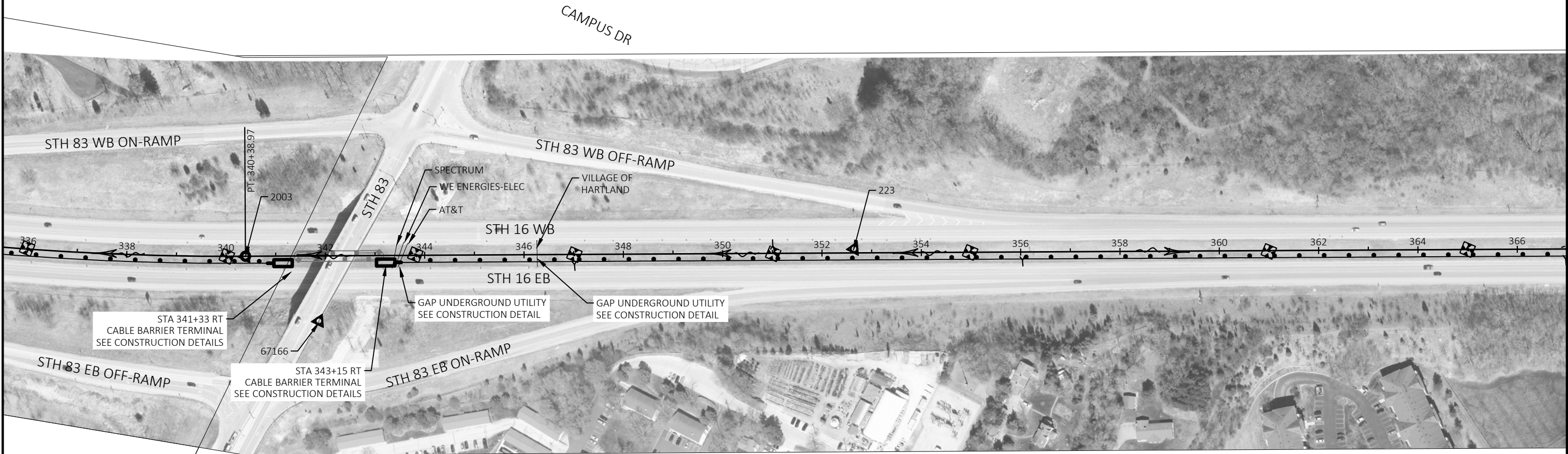
CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2038	STA 307+99	CP CHISLED +	937.47
2002	STA 320+89	PC MON ALUM CAP	947.24
226	STA 325+89	CP FENO MEDIAN	951.90



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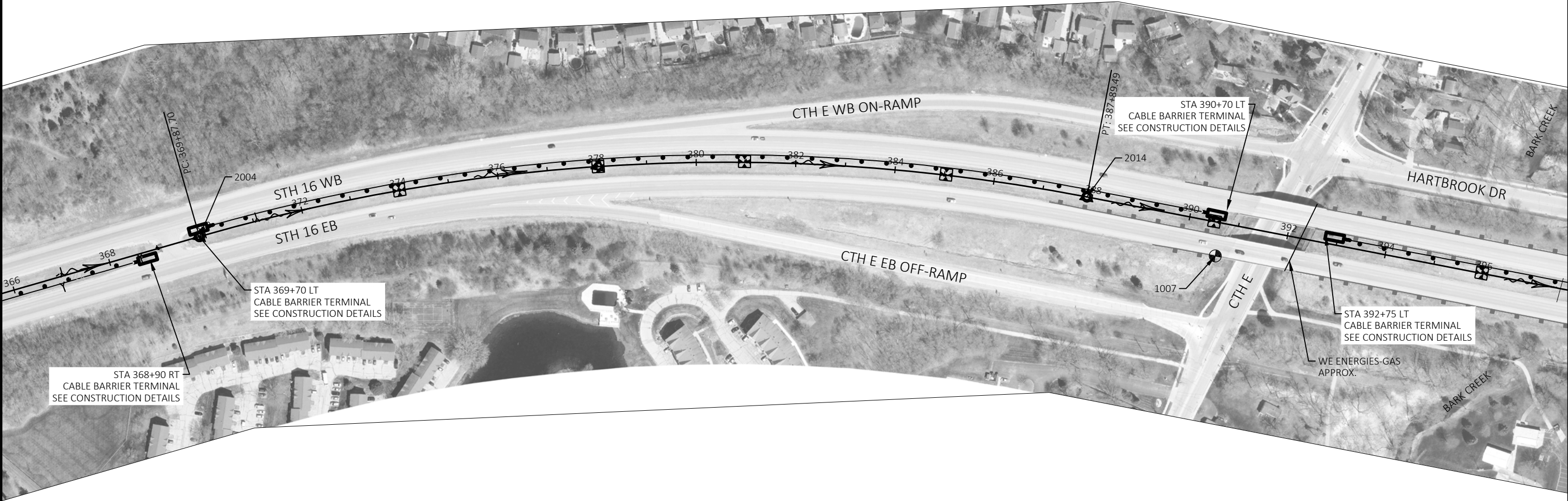
CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2003	STA 340+39	PT MON ALUM CAP	972.05
67166	STA 341+86 131' RT	ALUM CAP IN SW CORNER B67166	1005.061
223	STA 352+64	CP FENTO MEDIAN	993.32



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CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2004	STA 369+88	PC MON ALUM CAP	985.28
2037	STA 378+02	CP CHISLED +	971.39
388	STA 387+90.5	PT MON ALUM CAP	953.10
1007	STA 390+65 67.67' RT	BM BRIDGE DISK B-67-170-76	952.04



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PROJECT NO: 1370-17-70

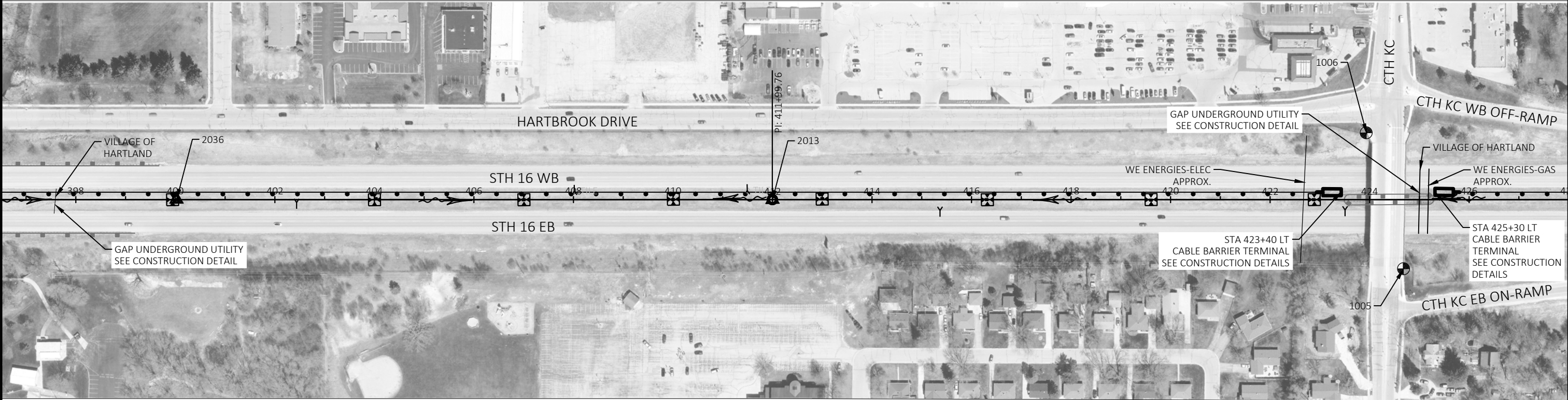
HWY: STH 16

COUNTY: WAUKESHA

PLAN DETAILS

SHEET

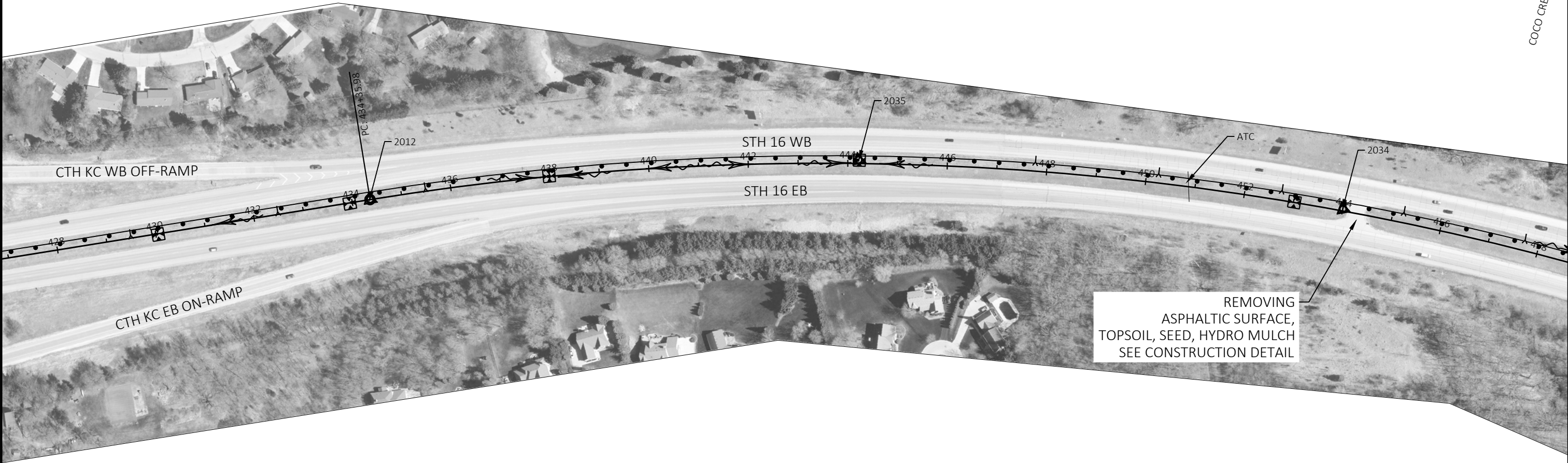
CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2036	STA 400+03	CP CHISLED +	930.68
2013	STA 411+99.76	PT MON ALUM CAP	923.95
1005	STA 423+93 134.3' LT	BM BRIDGE DISK B-67-172-76	958.86
1006	STA 424+68 139.12' RT	BM BRIDGE DISK B-67-172-76	962.17



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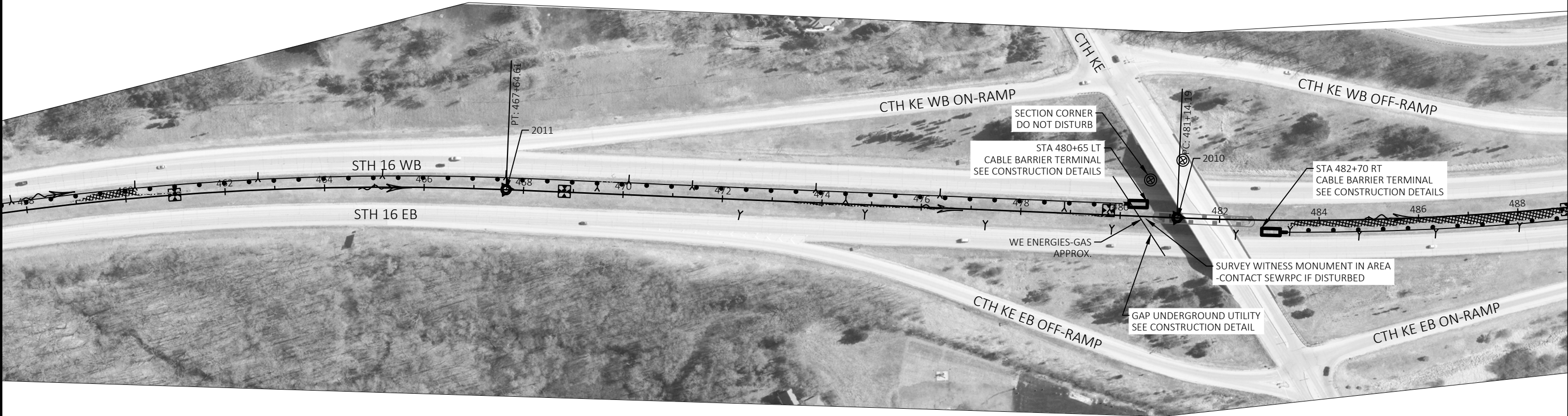
CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2012	STA 434+36	PC MON ALUM CAP	949.06
2035	STA 444+22	CP CHISELED +	951.42
2034	STA 454+01	CP CHISELED +	940.25



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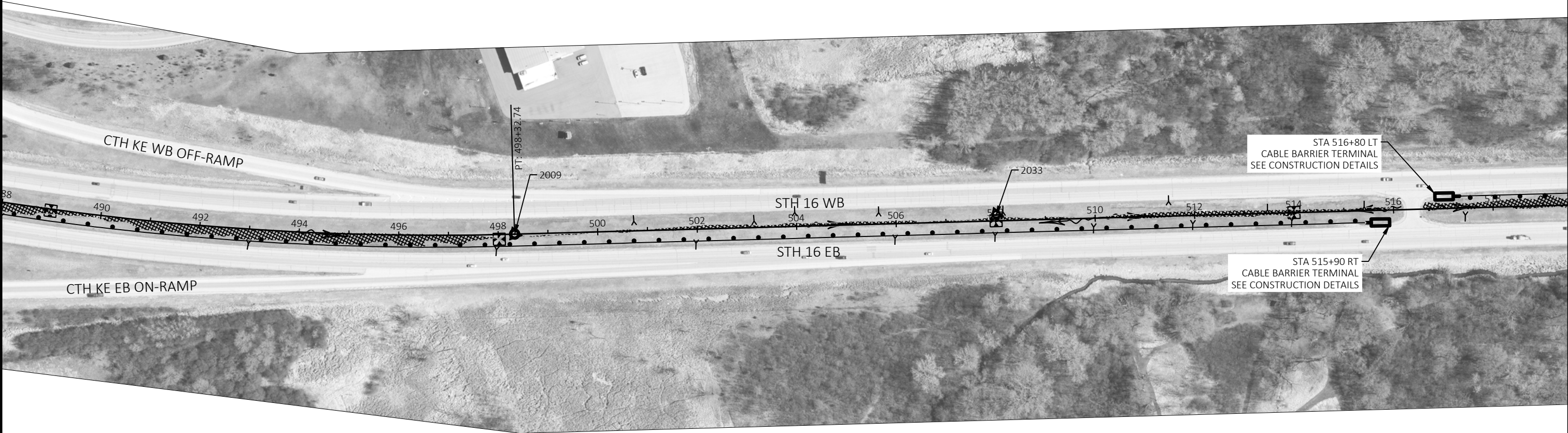
CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2011	STA 467+64	PT MON ALUM CAP	918.31
2010	STA 481+14	PC MON ALUM CAP	897.65



LEGEND

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- EXISTING INLET/INLET PROTECTION TYPE B
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CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2009	STA 498+33	PT MON ALUM CAP	869.72
2033	STA 508+03	CP CHISELED +	863.47



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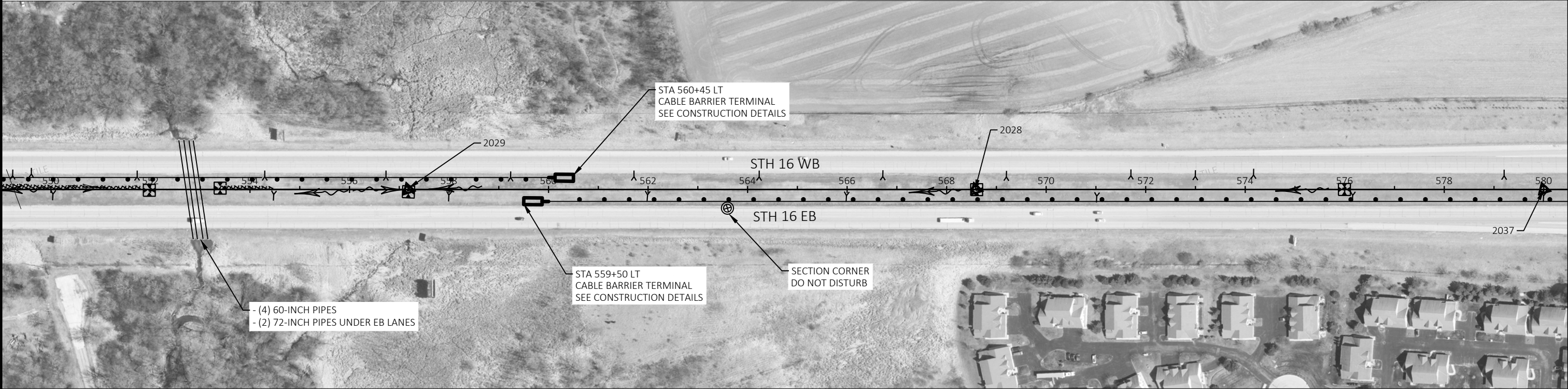
CONTROL POINTS				
NUMBER	LOCATION	DESCRIPTION	ELEVATION	
2032	STA 522+13 108.74' RT	CP CHISELED + SOUTH SIGN BASE	860.90	
2031	STA 533+54	CP CHISELED +	860.59	
2030	STA 544+00	CP CHISELED +	859.93	



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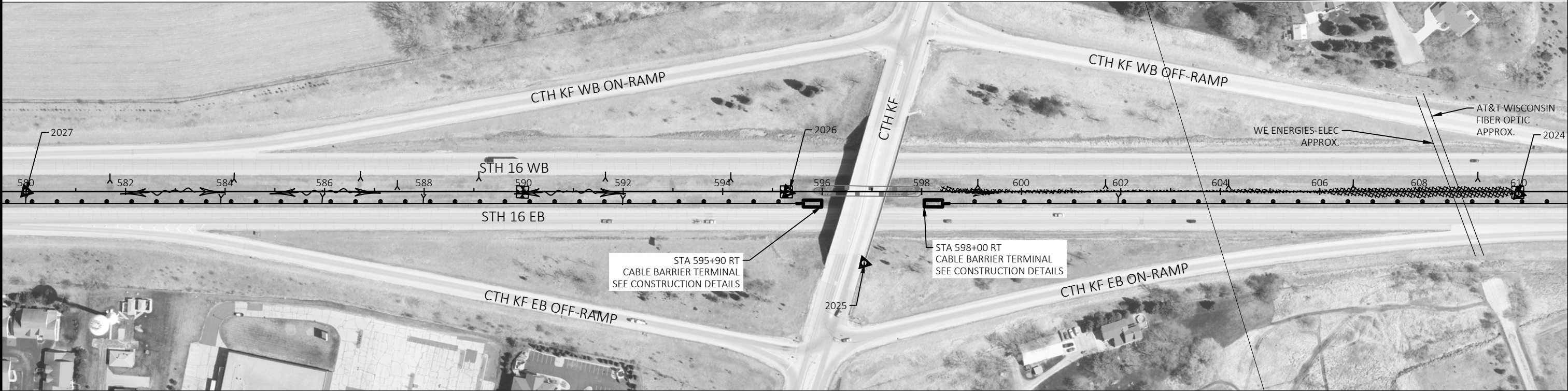
CONTROL POINTS				
NUMBER	LOCATION	DESCRIPTION	ELEVATION	
2029	STA 557+18	CP CHISELED +	858.86	
2028	STA 568+59	CP CHISELED +	869.75	
2027	STA 579+99.72	PC MON ALUM CAP	879.54	



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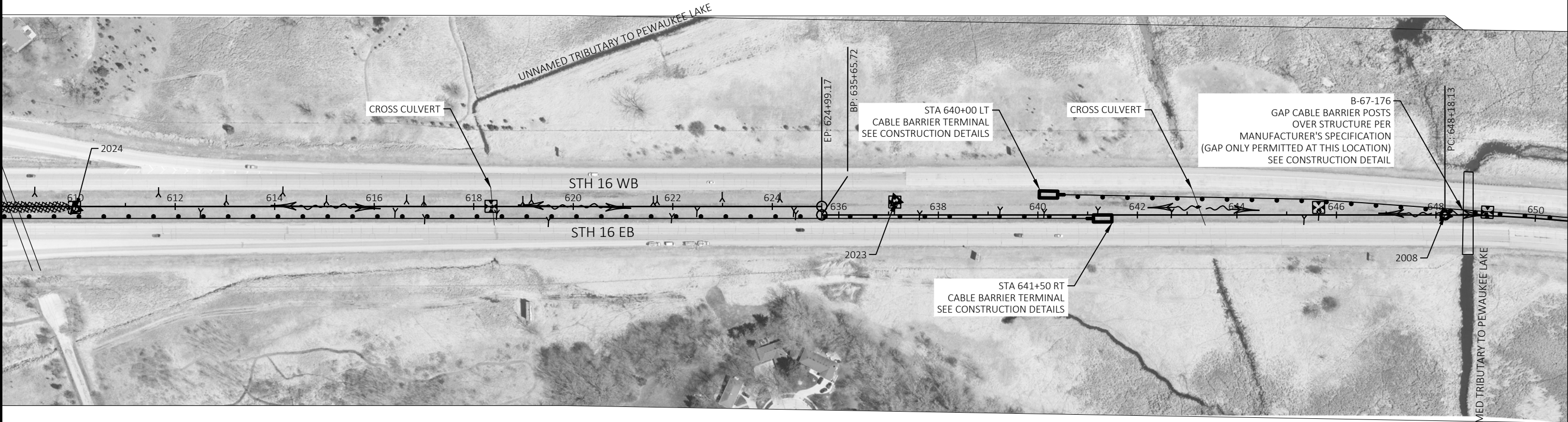
CONTROL POINTS			
NUMBER	LOCATION	DESCRIPTION	ELEVATION
2027	STA 579+99.72	PT MON ALUM CAP	879.54
2026	STA 595+31	CP CHISELED +	876.73
2025	STA 596+84	ALUM CAP B-67-174	904.11
2024	STA 609+99	CP CHISELED +	875.02



LEGEND

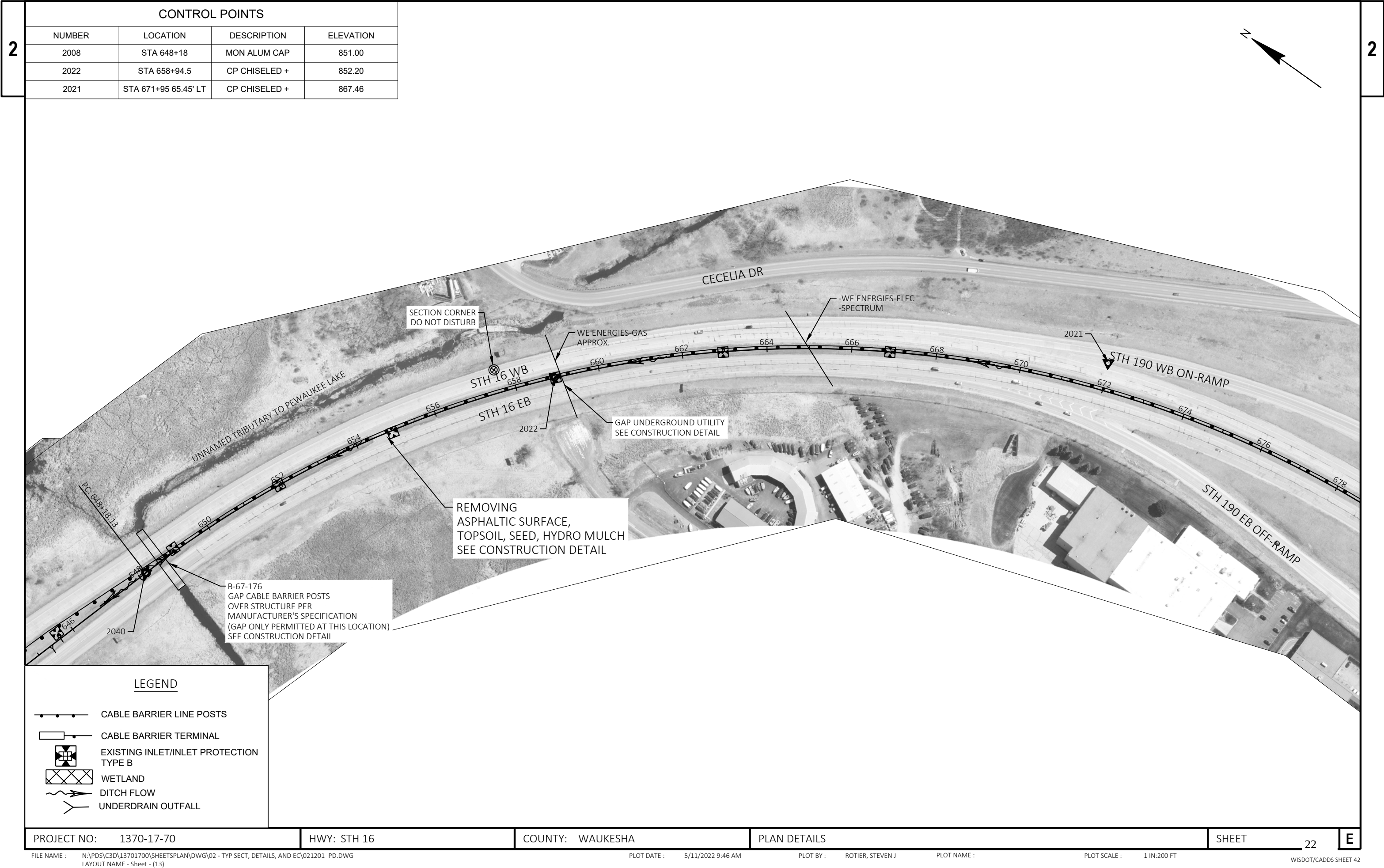
- CABLE BARRIER LINE POSTS
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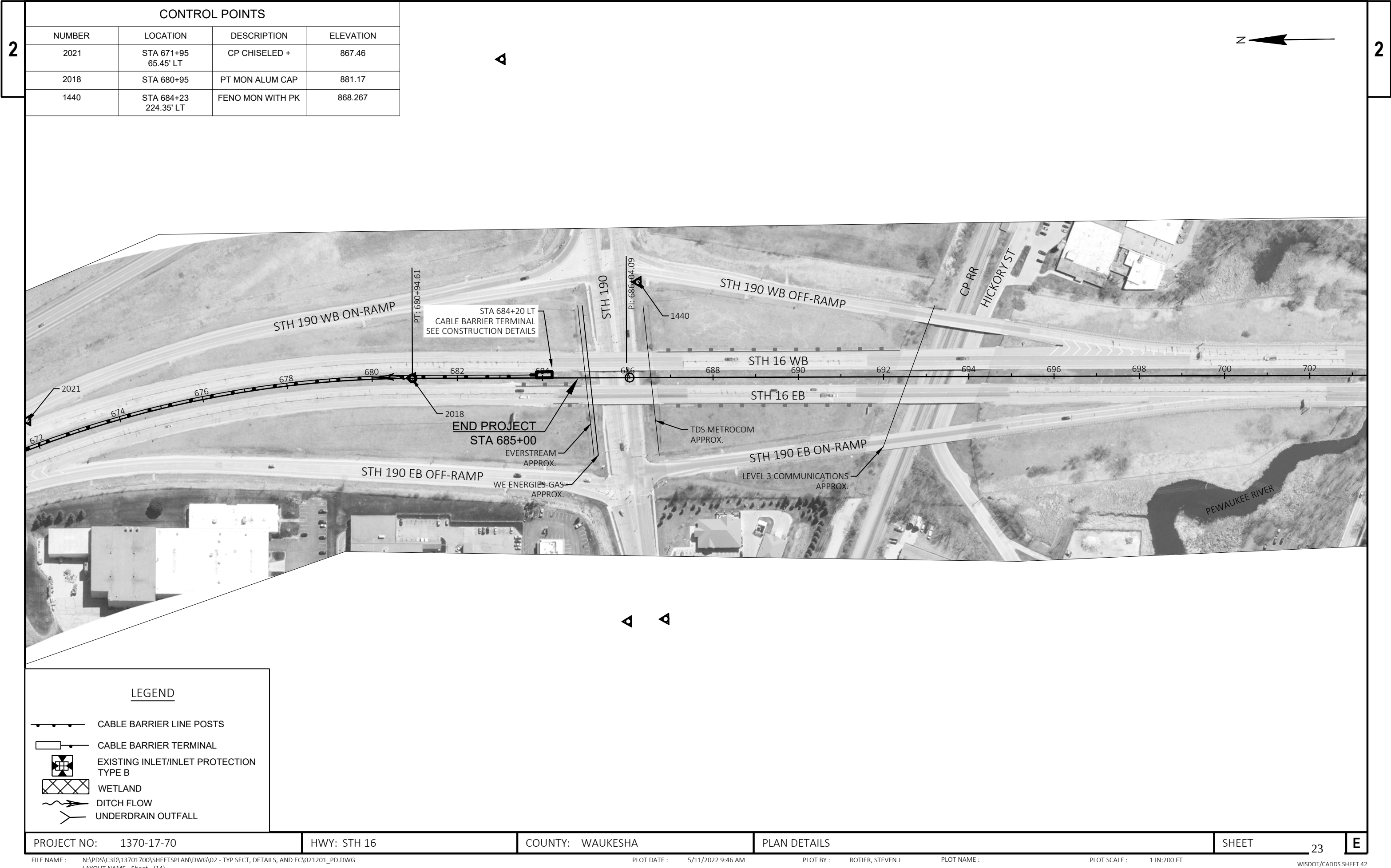
CONTROL POINTS				
NUMBER	LOCATION	DESCRIPTION	ELEVATION	
2024	STA 609+99	CP CHISELED +	875.02	
2023	STA 637.14	CP CHISELED +	849.91	
2008	STA 648+18	MON ALUM CAP	851.00	



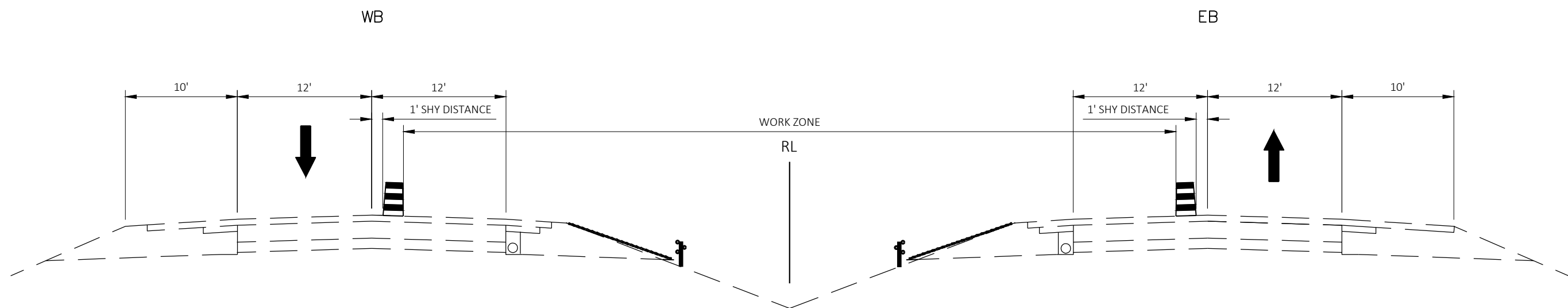
LEGEND

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- CABLE BARRIER TERMINAL
- EXISTING INLET/INLET PROTECTION TYPE B
- WETLAND
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- UNDERDRAIN OUTFALL









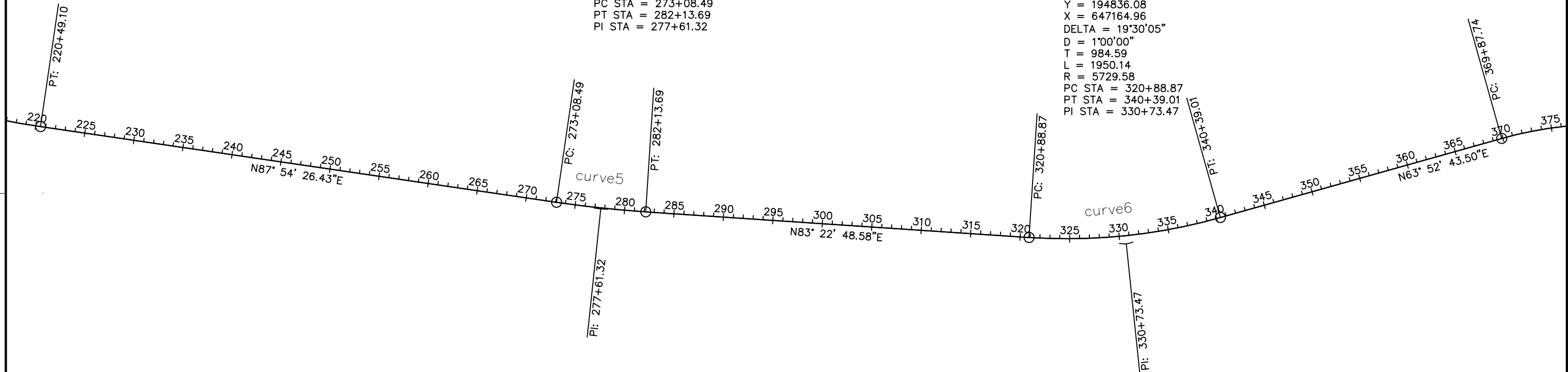
STH 16
STAGING TYPICAL SECTION OFF PEAK HOURS

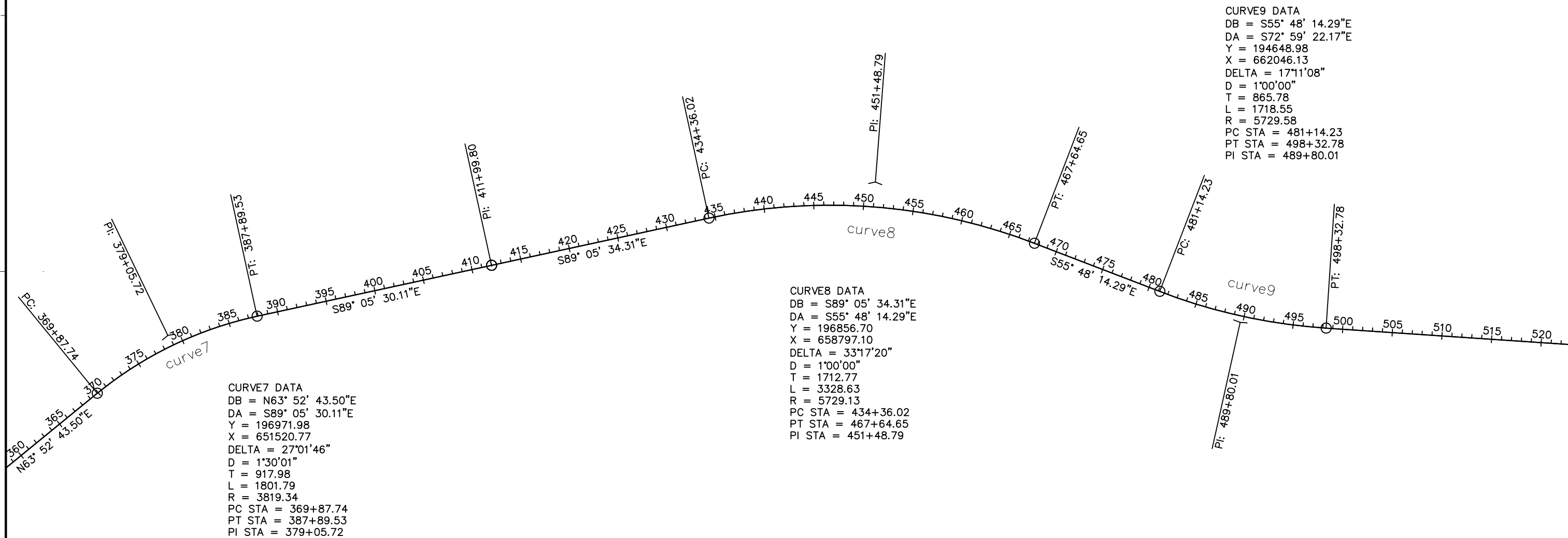
SINGLE LANE CLOSURES PERMITTED
DURING OFF PEAK HOURS. SEE SPECIAL
PROVISIONS.

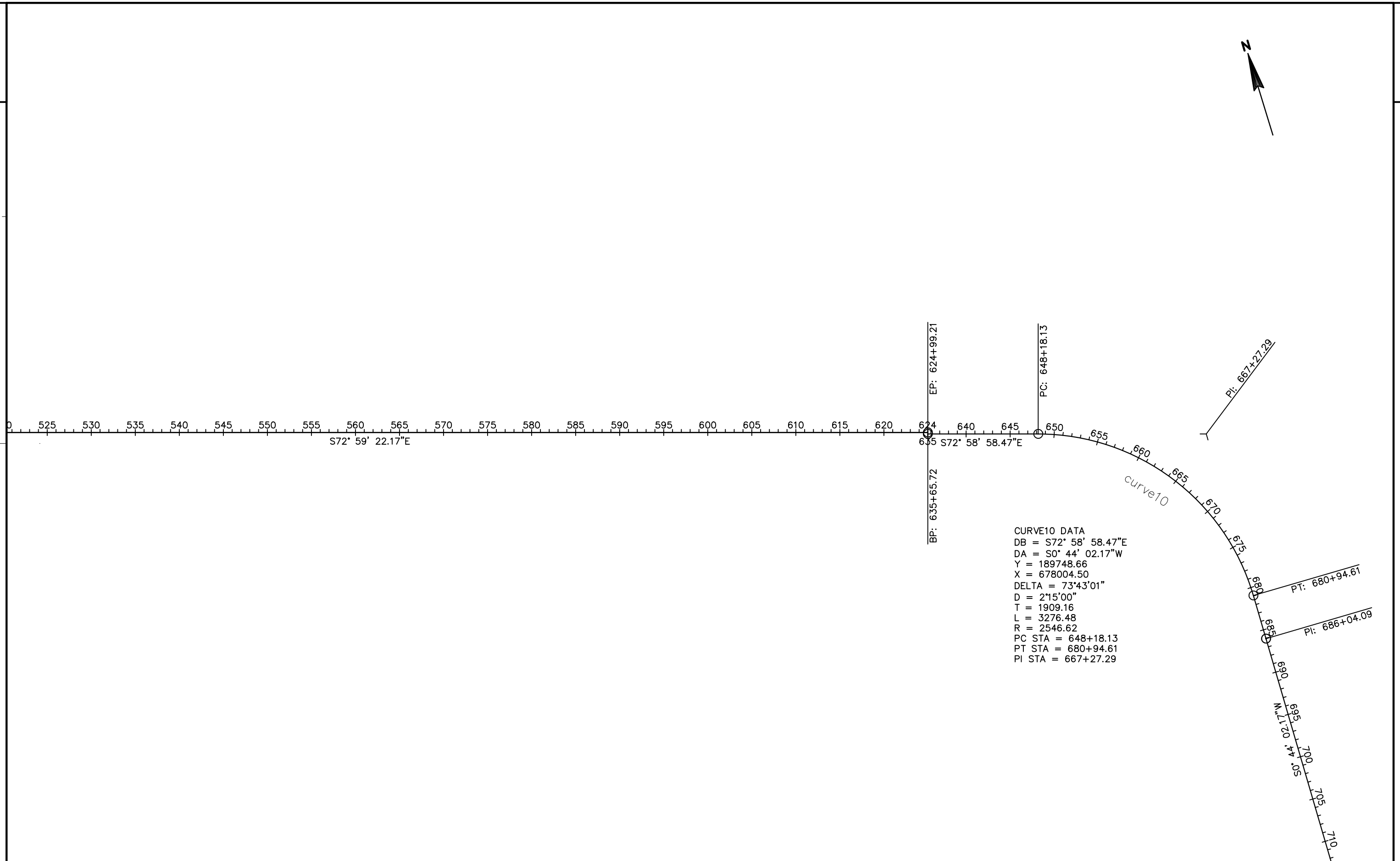


CURVE5 DATA
DB = N87° 54' 26.43"E
DA = N83° 22' 48.58"E
Y = 194223.64
X = 641887.77
DELTA = 4°31'38"
D = 0°30'00"
T = 452.83
L = 905.20
R = 11456.14
PC STA = 273+08.49
PT STA = 282+13.69
PI STA = 277+61.32

CURVE6 DATA
DB = N83° 22' 48.58"E
DA = N63° 52' 43.50"E
Y = 194836.08
X = 647164.96
DELTA = 19°30'05"
D = 1°00'00"
T = 984.59
L = 1950.14
R = 5729.58
PC STA = 320+88.87
PT STA = 340+39.01
PI STA = 330+73.47







 WI Dept. of Transportation 3502 Kinsman Blvd. Madison, WI 53704		WISDOT PROJECT ID: 1370-17-00 STH 16				BORING ID: B-02																							
		WISDOT STRUCTURE ID:				PAGE NO: 1 of 1																							
WISDOT PROJECT NAME: 1370-17-00 STH 16 Cable Barrier		CONSULTANT: Gestra		CONSULTANT PROJECT NO:		LATITUDE:		LONGITUDE:																					
ROADWAY NAME: STH 16		DRILLING CONTRACTOR: GESTRA		DRILLING CONTRACTOR PROJECT NO:		NORTHING: 196565.5		EASTING: 650698.89																					
DATE STARTED: 12/20/21		CREW CHIEF: A. Woerpel		DRILL RIG:		COORDINATE SYSTEM: WCCS																							
DATE COMPLETED: 12/20/21		LOGGED BY:		HOLE SIZE:		HORIZONTAL DATUM: WGS 1984		VERTICAL DATUM: MSL																					
COUNTY: Waukesha		LOG QC BY:		HAMMER TYPE:		STREAMBED ELEVATION: NA																							
STATION 369+90		OFFSET 0'		TOWNSHIP:		RANGE:		SECTION:																					
				1/4 SECTION:		1/4 1/4 SECTION:		SURFACE ELEVATION: 985.09 ft																					
SAMPLE TYPE NUMBER		RECOVERY (in) (RQD)		Moisture		BLOW COUNTS (N VALUE)		Depth (ft)		Graphic		Soil / Rock Description and Geological Origin for Each Major Unit / Comments		USCS / AASHTO		Strength Qp (tsf)		Liquid Limit (%)		Plasticity Index (%)		Boulders		Drilling Method		Notes			
AU		6						1		0.4		5" Topsoil		984.7										HSA					
SS 1		1		D		4-8-7 (15)		2		2.3		(Possible large gravel and/or cobbles; crushed rock fragments included with sample)		982.8		A-1-a													
								3				Brown GRAVEL, little sand, trace silt; firm																	
SS 2		1		D		13-17-13 (30)		4								A-1-a													
								5																					
SS 3		2		D		5-9-10 (19)		6																					
								7		7.3		Brown GRAVEL, some sand, trace silt; firm		977.8															
SS 4		7		D		10-11-11 (22)		8								A-1-a													
								9																					
								10		10.0				975.1															
End of Boring at 10.0 ft.																													
WATER LEVEL & CAVE-IN OBSERVATION DATA																													
		WATER ENCOUNTERED DURING DRILLING: NE														CAVE - IN DEPTH AT COMPLETION: NMR												WET ☐ DRY ☐	
		WATER LEVEL AT COMPLETION: NE														CAVE - IN DEPTH AFTER 0 HOURS: NMR												WET ☐ DRY ☐	
NOTES: 1) Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected. 2) NE = Not Encountered; NMR = No Measurement Recorded																													

 WI Dept. of Transportation 3502 Kinsman Blvd. Madison, WI 53704		WISDOT PROJECT ID: 1370-17-00 STH 16		BORING ID: B-03	
WISDOT PROJECT NAME: 1370-17-00 STH 16 Cable Barrier		WISDOT STRUCTURE ID:		PAGE NO: 1 of 1	
ROADWAY NAME: STH 16		CONSULTANT: Gestra		CONSULTANT PROJECT NO:	
DATE STARTED: 12/20/21		DRILLING CONTRACTOR: GESTRA		LATITUDE: 196947.59	
DATE COMPLETED: 12/20/21		CREW CHIEF: A. Woerpel		LONGITUDE: 652929.34	
COUNTY: Waukesha		LOGGED BY:		NORTHING: 196947.59	
STATION 392+75		LOG QC BY:		EASTING: 652929.34	
OFFSET 0'		HOLE SIZE: in		COORDINATE SYSTEM: WCCS	
TOWNSHIP:		HORIZONTAL DATUM: WGS 1984		VERTICAL DATUM: MSL	
RANGE:		HAMMER TYPE: NA		STREAMBED ELEVATION: 944.42 ft	
SECTION:		SURFACE ELEVATION:			
1/4 SECTION:					
1/4 1/4 SECTION:					
SURFACE ELEVATION:					
USCS / AASHTO		Strength Qp (tsf)		Liquid Limit (%)	
Plasticity Index (%)		Boulders		Drilling Method	
Notes					
SAMPLE TYPE NUMBER		RECOVERY (in) (RQD)		Moisture	
BLOW COUNTS (N VALUE)		Depth (ft)		Graphic	
Soil / Rock Description and Geological Origin for Each Major Unit / Comments					
1		2		3	
4		5		6	
7		8		9	
10		10.0		End of Boring at 10.0 ft.	
WATER LEVEL & CAVE-IN OBSERVATION DATA					
WATER ENCOUNTERED DURING DRILLING: NE		CAVE - IN DEPTH AT COMPLETION: NMR		WET DRY	
WATER LEVEL AT COMPLETION: NE		CAVE - IN DEPTH AFTER 0 HOURS: NMR		WET DRY	
NOTES: 1) Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected.					
2) NE = Not Encountered; NMR = No Measurement Recorded					

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 WI Dept. of Transportation 3502 Kinsman Blvd. Madison, WI 53704		WISDOT PROJECT ID: 1370-17-00 STH 16		BORING ID: B-04	
WISDOT PROJECT NAME: 1370-17-00 STH 16 Cable Barrier		WISDOT STRUCTURE ID:		PAGE NO: 1 of 1	
ROADWAY NAME: STH 16		CONSULTANT: Gestra		CONSULTANT PROJECT NO:	
DATE STARTED: 12/20/21		DRILLING CONTRACTOR: GESTRA		LATITUDE: 195163.37	
DATE COMPLETED: 12/20/21		CREW CHIEF: A. Woerpel		LONGITUDE: 661288.01	
COUNTY: Waukesha		LOGGED BY:		NORTHING: 195163.37	
STATION 423+40		LOG QC BY:		EASTING: 661288.01	
OFFSET 0'		HOLE SIZE: in		COORDINATE SYSTEM: WCCS	
TOWNSHIP:		HORIZONTAL DATUM: WGS 1984		VERTICAL DATUM: MSL	
RANGE:		HAMMER TYPE: NA		STREAMBED ELEVATION: 932.89 ft	
SECTION:		SURFACE ELEVATION:			
1/4 SECTION:					
1/4 1/4 SECTION:					
SURFACE ELEVATION:					
USCS / AASHTO		Strength Qp (tsf)		Liquid Limit (%)	
Plasticity Index (%)		Boulders		Drilling Method	
Notes					
SAMPLE TYPE NUMBER		RECOVERY (in) (RQD)		Moisture	
BLOW COUNTS (N VALUE)		Depth (ft)		Graphic	
Soil / Rock Description and Geological Origin for Each Major Unit / Comments					
1		2		3	
4		5		6	
7		8		9	
10		10.0		End of Boring at 10.0 ft.	
WATER LEVEL & CAVE-IN OBSERVATION DATA					
WATER ENCOUNTERED DURING DRILLING: NE		CAVE - IN DEPTH AT COMPLETION: NMR		WET DRY	
WATER LEVEL AT COMPLETION: NE		CAVE - IN DEPTH AFTER 0 HOURS: NMR		WET DRY	
NOTES: 1) Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected.					
2) NE = Not Encountered; NMR = No Measurement Recorded					

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 WI Dept. of Transportation 3502 Kinsman Blvd. Madison, WI 53704		WISDOT PROJECT ID: 1370-17-00 STH 16				BORING ID: B-05							
		WISDOT STRUCTURE ID:				PAGE NO: 1 of 1							
WISDOT PROJECT NAME: 1370-17-00 STH 16 Cable Barrier		CONSULTANT: Gestra		CONSULTANT PROJECT NO:		LATITUDE:		LONGITUDE:					
ROADWAY NAME: STH 16		DRILLING CONTRACTOR: GESTRA		DRILLING CONTRACTOR PROJECT NO:		NORTHING: 195163.37		EASTING: 661288.01					
DATE STARTED: 12/20/21		CREW CHIEF: A. Woerpel		DRILL RIG:		COORDINATE SYSTEM: WCCS							
DATE COMPLETED: 12/20/21		LOGGED BY:		HOLE SIZE: in		HORIZONTAL DATUM: WGS 1984		VERTICAL DATUM: MSL					
COUNTY: Waukesha		LOG QC BY:		HAMMER TYPE:		STREAMBED ELEVATION: NA							
STATION 480+65		OFFSET 0'		TOWNSHIP:		RANGE:		SECTION:					
				1/4 SECTION:		1/4 1/4 SECTION:		SURFACE ELEVATION: 897.96 ft					
SAMPLE TYPE NUMBER	RECOVERY (in) (RQD)	Moisture	BLOW COUNTS (N VALUE)	Depth (ft)	Graphic	Soil / Rock Description and Geological Origin for Each Major Unit / Comments	USCS / AASHTO	Strength Qp (tsf)	Liquid Limit (%)	Plasticity Index (%)	Boulders	Drilling Method	Notes
AU	8			0.7		Topsoil (8")						HSA	
SS 1	15		1-1-3 (4)	1		Brown CLAY, little sand, trace silt and gravel, stiff (FILL)		2.0					
				2			A-6						
				3									
SS 2	13		1-3-4 (7)	4									
				4.5		Black silty CLAY, trace sand and organics (possible buried topsoil); very stiff		2.75					
				5			A-6						
				6.0		Brown with gray silty CLAY, little sand; medium							
SS 3	5		1-2-2 (4)	7			A-6	0.75					
				7.5		Brown silty CLAY, few sand, trace gravel; hard							
				8									
SS 4	18		4-5-8 (13)	9				4.5					
				10			A-6						
				11									
SS 5	18		9-14-17 (31)	12				>4.5					
				12.5									
End of Boring at 12.5 ft.													
WATER LEVEL & CAVE-IN OBSERVATION DATA													
 WATER ENCOUNTERED DURING DRILLING: 9ft.				 CAVE - IN DEPTH AT COMPLETION: NMR				WET ☐ DRY ☐					
 WATER LEVEL AT COMPLETION: 5ft.				 CAVE - IN DEPTH AFTER 0 HOURS: NMR				WET ☐ DRY ☐					
NOTES: 1) Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected. 2) NE = Not Encountered; NMR = No Measurement Recorded													

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 WI Dept. of Transportation 3502 Kinsman Blvd. Madison, WI 53704		WISDOT PROJECT ID: 1370-17-00 STH 16				BORING ID: B-06							
		WISDOT STRUCTURE ID:				PAGE NO: 1 of 1							
WISDOT PROJECT NAME: 1370-17-00 STH 16 Cable Barrier		CONSULTANT: Gestra		CONSULTANT PROJECT NO:		LATITUDE:		LONGITUDE:					
ROADWAY NAME: STH 16		DRILLING CONTRACTOR: GESTRA		DRILLING CONTRACTOR PROJECT NO:		NORTHING: 193843.03		EASTING: 664659.33					
DATE STARTED: 12/20/21		CREW CHIEF: A. Woerpel		DRILL RIG:		COORDINATE SYSTEM: WCCS							
DATE COMPLETED: 12/20/21		LOGGED BY:		HOLE SIZE: in		HORIZONTAL DATUM: WGS 1984		VERTICAL DATUM: MSL					
COUNTY: Waukesha		LOG QC BY:		HAMMER TYPE:		STREAMBED ELEVATION: NA							
STATION 517+00		OFFSET 0'		TOWNSHIP:		RANGE:		SECTION:					
				1/4 SECTION:		1/4 1/4 SECTION:		SURFACE ELEVATION: 863 ft					
SAMPLE TYPE NUMBER	RECOVERY (in) (RQD)	Moisture	BLOW COUNTS (N VALUE)	Depth (ft)	Graphic	Soil / Rock Description and Geological Origin for Each Major Unit / Comments	USCS / AASHTO	Strength Qp (tsf)	Liquid Limit (%)	Plasticity Index (%)	Boulders	Drilling Method	Notes
AU	8			0.7		Topsoil (8")						HSA	
				1		Brown SAND, little silt, few gravel; loose							
SS 1	10	M	4-5-5 (10)	2			A-3						
				3.0		Gray silty CLAY, trace sand; medium to very stiff							
SS 2	5	M	0-2-3 (5)	4				3.0					
				5									
SS 3	5	D	1-2-3 (5)	6			A-6	1.25					
				7									
				8									
SS 4	4	D	1-1-3 (4)	9				1.0					
				10									
				10.5		Brown SAND, trace gravel, silt, clay; firm							
SS 5	14	M	5-7-7 (14)	11									
				12		SS-5 Black Sand seam (< 2") present							
				13			A-2-4						
SS 6	18	W	6-9-18 (27)	14									
				15.0									
End of Boring at 15.0 ft.													
WATER LEVEL & CAVE-IN OBSERVATION DATA													
 WATER ENCOUNTERED DURING DRILLING: 11.5ft.				 CAVE - IN DEPTH AT COMPLETION: NMR				WET ☐ DRY ☐					
 WATER LEVEL AT COMPLETION: 12ft.				 CAVE - IN DEPTH AFTER 0 HOURS: NMR				WET ☐ DRY ☐					
NOTES: 1) Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected. 2) NE = Not Encountered; NMR = No Measurement Recorded													

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 WI Dept. of Transportation 3502 Kinsman Blvd. Madison, WI 53704		1370-17-00 STH 16				BORING ID: B-08																																																																																																					
WISDOT PROJECT NAME: 1370-17-00 STH 16 Cable Barrier		WISDOT PROJECT ID:				PAGE NO: 1 of 1																																																																																																					
ROADWAY NAME: STH 16		CONSULTANT: Gestra		CONSULTANT PROJECT NO:		LATITUDE:		LONGITUDE:																																																																																																			
DATE STARTED: 12/20/21		DRILLING CONTRACTOR: GESTRA		DRILLING CONTRACTOR PROJECT NO:		NORTHING: 191538.78		EASTING: 672194.5																																																																																																			
DATE COMPLETED: 12/20/21		CREW CHIEF: A. Woerpel		DRILL RIG:		COORDINATE SYSTEM: WCCS																																																																																																					
COUNTY: Waukesha		LOGGED BY:		HOLE SIZE: in		HORIZONTAL DATUM: WGS 1984		VERTICAL DATUM: MSL																																																																																																			
STATION 595+80		LOG QC BY:		HAMMER TYPE:		STREAMBED ELEVATION: NA																																																																																																					
OFFSET 0'		TOWNSHIP:		RANGE:		SECTION:		1/4 SECTION:																																																																																																			
								1/4 1/4 SECTION: SURFACE ELEVATION: 877.7 ft																																																																																																			
<table><thead><tr><th>SAMPLE TYPE NUMBER</th><th>RECOVERY (in) (ROD)</th><th>Moisture</th><th>BLOW COUNTS (N VALUE)</th><th>Depth (ft)</th><th>Graphic</th><th>Soil / Rock Description and Geological Origin for Each Major Unit / Comments</th><th>USCS / AASHTO</th><th>Strength Qp (tsf)</th><th>Liquid Limit (%)</th><th>Plasticity Index (%)</th><th>Boulders</th><th>Drilling Method</th><th>Notes</th></tr></thead><tbody><tr><td>AU</td><td>12</td><td></td><td></td><td>1</td><td></td><td>Topsoil (12")</td><td></td><td></td><td></td><td></td><td></td><td>HSA</td><td></td></tr><tr><td>SS 1</td><td>18</td><td>D</td><td>7-13-16 (29)</td><td>2</td><td></td><td>Gray clayey SILT, trace sand and gravel; hard</td><td></td><td>>4.5</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>SS 2</td><td>16</td><td>D</td><td>11-21-16 (37)</td><td>4</td><td></td><td>Gray with white SAND, some gravel, few silt; dense</td><td>A-1-b</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>SS 3</td><td>18</td><td>D</td><td>10-30-50 (80)</td><td>7</td><td></td><td>Gray silty CLAY, trace sand and gravel; hard</td><td></td><td>>4.5</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>SS 4</td><td>18</td><td>D</td><td>22-42-50 (92)</td><td>9</td><td></td><td>Gray clayey SILT, little sand, few gravel; very dense</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td>10</td><td></td><td>End of Boring at 10.0 ft.</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table>										SAMPLE TYPE NUMBER	RECOVERY (in) (ROD)	Moisture	BLOW COUNTS (N VALUE)	Depth (ft)	Graphic	Soil / Rock Description and Geological Origin for Each Major Unit / Comments	USCS / AASHTO	Strength Qp (tsf)	Liquid Limit (%)	Plasticity Index (%)	Boulders	Drilling Method	Notes	AU	12			1		Topsoil (12")						HSA		SS 1	18	D	7-13-16 (29)	2		Gray clayey SILT, trace sand and gravel; hard		>4.5						SS 2	16	D	11-21-16 (37)	4		Gray with white SAND, some gravel, few silt; dense	A-1-b							SS 3	18	D	10-30-50 (80)	7		Gray silty CLAY, trace sand and gravel; hard		>4.5						SS 4	18	D	22-42-50 (92)	9		Gray clayey SILT, little sand, few gravel; very dense												10		End of Boring at 10.0 ft.							
SAMPLE TYPE NUMBER	RECOVERY (in) (ROD)	Moisture	BLOW COUNTS (N VALUE)	Depth (ft)	Graphic	Soil / Rock Description and Geological Origin for Each Major Unit / Comments	USCS / AASHTO	Strength Qp (tsf)	Liquid Limit (%)	Plasticity Index (%)	Boulders	Drilling Method	Notes																																																																																														
AU	12			1		Topsoil (12")						HSA																																																																																															
SS 1	18	D	7-13-16 (29)	2		Gray clayey SILT, trace sand and gravel; hard		>4.5																																																																																																			
SS 2	16	D	11-21-16 (37)	4		Gray with white SAND, some gravel, few silt; dense	A-1-b																																																																																																				
SS 3	18	D	10-30-50 (80)	7		Gray silty CLAY, trace sand and gravel; hard		>4.5																																																																																																			
SS 4	18	D	22-42-50 (92)	9		Gray clayey SILT, little sand, few gravel; very dense																																																																																																					
				10		End of Boring at 10.0 ft.																																																																																																					
WATER LEVEL & CAVE-IN OBSERVATION DATA																																																																																																											
	WATER ENCOUNTERED DURING DRILLING: NE						CAVE - IN DEPTH AT COMPLETION: NMR					WET ☐ DRY ☐																																																																																															
	WATER LEVEL AT COMPLETION: NE						CAVE - IN DEPTH AFTER 0 HOURS: NMR					WET ☐ DRY ☐																																																																																															
NOTES: 1) Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected. 2) NE = Not Encountered; NMR = No Measurement Recorded																																																																																																											

 WI Dept. of Transportation 3502 Kinsman Blvd. Madison, WI 53704		WISDOT PROJECT ID: 1370-17-00 STH 16				BORING ID: B-09							
		WISDOT STRUCTURE ID:				PAGE NO: 1 of 1							
WISDOT PROJECT NAME: 1370-17-00 STH 16 Cable Barrier		CONSULTANT: Gestra		CONSULTANT PROJECT NO:		LATITUDE:		LONGITUDE:					
ROADWAY NAME: STH 16		DRILLING CONTRACTOR: GESTRA		DRILLING CONTRACTOR PROJECT NO:		NORTHING: 190505.61		EASTING: 675517.95					
DATE STARTED: 12/21/21		CREW CHIEF: A. Woerpel		DRILL RIG:		COORDINATE SYSTEM: WCCS							
DATE COMPLETED: 12/21/21		LOGGED BY:		HOLE SIZE: in		HORIZONTAL DATUM: WGS 1984		VERTICAL DATUM: MSL					
COUNTY: Waukesha		LOG QC BY:		HAMMER TYPE:		STREAMBED ELEVATION: NA							
STATION 640+00		OFFSET 0'		TOWNSHIP:		RANGE:		SECTION:					
				1/4 SECTION:		1/4 1/4 SECTION:		SURFACE ELEVATION: 852.43 ft					
SAMPLE TYPE NUMBER	RECOVERY (in) (RQD)	Moisture	BLOW COUNTS (N VALUE)	Depth (ft)	Graphic	Soil / Rock Description and Geological Origin for Each Major Unit / Comments	USCS / AASHTO	Strength Qp (tsf)	Liquid Limit (%)	Plasticity Index (%)	Boulders	Drilling Method	Notes
AU	6			0.5		Topsoil (6")		851.9				HSA	
				1		Brown clayey SILT, some clay, little sand, trace gravel; firm							
SS 1	13	D	8-13-13 (26)	2									
				3		Dark Brown silty CLAY, little sand, trace gravel; medium to stiff		849.6					
SS 2	13	D	9-13-9 (22)	4				1.0					
				5									
SS 3	18	M	1-1-1 (2)	7				1.0					
				8		Gray/orange clayey SILT, little fine sand; stiff		844.4					
SS 4	18	M	0-1-2 (3)	9				1.25					
				10		End of Boring at 10.0 ft.		842.4					
WATER LEVEL & CAVE-IN OBSERVATION DATA													
☐ WATER ENCOUNTERED DURING DRILLING: NE				☐ CAVE - IN DEPTH AT COMPLETION: NMR				WET DRY ☐					
☐ WATER LEVEL AT COMPLETION: NE				☐ CAVE - IN DEPTH AFTER 0 HOURS: NMR				WET DRY ☐					
NOTES: 1) Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected. 2) NE = Not Encountered; NMR = No Measurement Recorded													

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 WI Dept. of Transportation 3502 Kinsman Blvd. Madison, WI 53704		WISDOT PROJECT ID: 1370-17-00 STH 16				BORING ID: B-10							
		WISDOT STRUCTURE ID:				PAGE NO: 1 of 1							
WISDOT PROJECT NAME: 1370-17-00 STH 16 Cable Barrier		CONSULTANT: Gestra		CONSULTANT PROJECT NO:		LATITUDE:		LONGITUDE:					
ROADWAY NAME: STH 16		DRILLING CONTRACTOR: GESTRA		DRILLING CONTRACTOR PROJECT NO:		NORTHING: 187514.48		EASTING: 677977.17					
DATE STARTED: 12/21/21		CREW CHIEF: A. Woerpel		DRILL RIG:		COORDINATE SYSTEM: WCCS							
DATE COMPLETED: 12/21/21		LOGGED BY:		HOLE SIZE: in		HORIZONTAL DATUM: WGS 1984		VERTICAL DATUM: MSL					
COUNTY: Waukesha		LOG QC BY:		HAMMER TYPE:		STREAMBED ELEVATION: NA							
STATION 684+20		OFFSET 0'		TOWNSHIP:		RANGE:		SECTION:					
				1/4 SECTION:		1/4 1/4 SECTION:		SURFACE ELEVATION: 886.48 ft					
SAMPLE TYPE NUMBER	RECOVERY (in) (RQD)	Moisture	BLOW COUNTS (N VALUE)	Depth (ft)	Graphic	Soil / Rock Description and Geological Origin for Each Major Unit / Comments	USCS / AASHTO	Strength Qp (tsf)	Liquid Limit (%)	Plasticity Index (%)	Boulders	Drilling Method	Notes
AU	12					Grayish Brown clayey SILT, trace sand and gravel; very stiff						HSA	
SS 1	17	D	3-7-6 (13)	2				3.0					
				3		Gray clayey SILT, trace sand and gravel; very stiff		883.5					
SS 2	15	D	1-2-4 (6)	4				3.25					
				5		Gray clayey SILT, little gravel, trace sand; very stiff		881.1					
SS 3	3	D	8-6-4 (10)	7				3.0					
				8									
SS 4	1	D	4-10-16 (26)	9									
				10		End of Boring at 10.0 ft.		876.5					
WATER LEVEL & CAVE-IN OBSERVATION DATA													
☐ WATER ENCOUNTERED DURING DRILLING: NE				☐ CAVE - IN DEPTH AT COMPLETION: NMR				WET DRY ☐					
☐ WATER LEVEL AT COMPLETION: NE				☐ CAVE - IN DEPTH AFTER 0 HOURS: NMR				WET DRY ☐					
NOTES: 1) Stratification lines between soil types represent the approximate boundary; gradual transition between in-situ soil layers should be expected. 2) NE = Not Encountered; NMR = No Measurement Recorded													

U:\COUNTIES\WAUKESHA\STH 16\1370-17-00 STH 16 CABLE BARRIER.GPJ 1370-17-00 STH 16 CABLE BARRIER 4/20/22

Estimate Of Quantities

1370-17-70					
Line	Item	Item Description	Unit	Total	Qty
0002	204.0110	Removing Asphaltic Surface	SY	40.000	40.000
0004	205.0100	Excavation Common	CY	345.000	345.000
0006	213.0100	Finishing Roadway (project) 01. 1370-17-70	EACH	1.000	1.000
0008	305.0110	Base Aggregate Dense 3/4-Inch	TON	1,940.000	1,940.000
0010	613.1100.S	Cable Barrier Type 1	LF	39,125.000	39,125.000
0012	613.1200.S	Cable Barrier End Terminal Type 1	EACH	20.000	20.000
0014	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1370-17-70	EACH	1.000	1.000
0016	619.1000	Mobilization	EACH	1.000	1.000
0018	624.0100	Water	MGAL	33.000	33.000
0020	625.0100	Topsoil	SY	950.000	950.000
0022	625.0500	Salvaged Topsoil	SY	950.000	950.000
0024	628.1905	Mobilizations Erosion Control	EACH	1.000	1.000
0026	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0028	628.6505	Soil Stabilizer Type A	ACRE	13.840	13.840
0030	628.7010	Inlet Protection Type B	EACH	70.000	70.000
0032	628.7504	Temporary Ditch Checks	LF	120.000	120.000
0034	629.0210	Fertilizer Type B	CWT	30.000	30.000
0036	630.0130	Seeding Mixture No. 30	LB	3,014.000	3,014.000
0038	630.0200	Seeding Temporary	LB	55.000	55.000
0040	630.0500	Seed Water	MGAL	1,510.000	1,510.000
0042	634.0618	Posts Wood 4x6-Inch X 18-FT	EACH	5.000	5.000
0044	637.2210	Signs Type II Reflective H	SF	20.000	20.000
0046	637.2230	Signs Type II Reflective F	SF	20.000	20.000
0048	638.2102	Moving Signs Type II	EACH	5.000	5.000
0050	638.2602	Removing Signs Type II	EACH	5.000	5.000
0052	638.3000	Removing Small Sign Supports	EACH	5.000	5.000
0054	642.5201	Field Office Type C	EACH	1.000	1.000
0056	643.0300	Traffic Control Drums	DAY	42,500.000	42,500.000
0058	643.0420	Traffic Control Barricades Type III	DAY	2,200.000	2,200.000
0060	643.0705	Traffic Control Warning Lights Type A	DAY	2,000.000	2,000.000
0062	643.0715	Traffic Control Warning Lights Type C	DAY	1,600.000	1,600.000
0064	643.0800	Traffic Control Arrow Boards	DAY	200.000	200.000
0066	643.0900	Traffic Control Signs	DAY	3,100.000	3,100.000
0068	643.1000	Traffic Control Signs Fixed Message	SF	110.000	110.000
0070	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0072	643.4100	Traffic Control Interim Lane Closure	EACH	120.000	120.000
0074	643.5000	Traffic Control	EACH	1.000	1.000
0076	646.1041.S	Marking Replace Line Wet Reflective Epoxy 4-Inch	LF	1,000.000	1,000.000
0078	650.8000	Construction Staking Resurfacing Reference	LF	40,100.000	40,100.000
0080	650.9911	Construction Staking Supplemental Control (project) 01. 1370-17-70	EACH	1.000	1.000
0082	650.9920	Construction Staking Slope Stakes	LF	300.000	300.000
0084	690.0150	Sawing Asphalt	LF	700.000	700.000
0086	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,100.000	2,100.000
0088	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	5,400.000	5,400.000

3

REMOVAL	
204.0110	
REMOVING ASPHALTIC SURFACE	
LOCATION	SY
STA 654+62, RT	29
STA 654+62, LT	11
TOTAL	40

FINISHING ROADWAY	
213.0100	
FINISHING ROADWAY	
LOCATION	EA
PROJECT	1
TOTAL	1

CABLE BARRIER				
613.1100.S				
613.1200.S				
CABLE BARRIER				
END TERMINAL				
TYPE 1				
TYPE 1				
STA	TO	STA	LF	EACH
284+15	TO	341+33	5,725	2
343+15	TO	368+90	2,575	2
369+71	TO	390+70	2,100	2
392+75	TO	423+40	3,075	2
425+30	TO	480+65	5,525	2
482+70	TO	515+90	3,325	2
516+80	TO	560+45	4,375	2
559+50	TO	595+90	3,650	2
598+00	TO	641+50	4,350	2
640+00	TO	684+20	4,425	2
TOTAL			39,125	20

MOBILIZATION	
619.1000	
MOBILIZATION	
LOCATION	EA
PROJECT	1
TOTAL	1

INLET PROTECTION				
628.7010				
INLET PROTECTION				
TYPE B				
DESCRIPTION	STATION	-	STATION	EA
STH 16	284+00		684+50	70
TOTAL				70

BASE AGGREGATE		
305.0110		
624.0100		
BASE AGGREGATE DENSE		
3/4 INCH		
LOCATION	ION	MGAL
MEDIAN REMOVAL AREAS		
STA 454+00	40	0.6
STA 654+00	35	0.5
STH 16 DITCH SLOPE FILL AREAS		
STA 492+00 - STA 496+00	138	2.1
STA 590+00 - STA 595+00	123	1.8
STA 607+00 - STA 610+00	133	2.0
STA 647+00 - STA 650+00	104	1.6
STA 670+00 - STA 675+00	222	3.3
STA 677+00 - STA 680+00	135	2.0
STH 16 EB INSIDE SHOULDERS		
STA 284+00 - STA 369+00	105	1.6
STA 369+50 - STA 390+60	25	0.4
STA 392+50 - STA 454+00	75	1.1
STA 454+50 - STA 516+00	75	1.1
STA 516+50 - STA 654+00	170	2.6
STA 655+00 - STA 684+00	35	0.5
STH 16 WB INSIDE SHOULDERS		
STA 284+00 - STA 369+00	105	1.6
STA 369+50 - STA 390+60	25	0.4
STA 392+50 - STA 454+00	75	1.1
STA 454+50 - STA 516+00	75	1.1
STA 516+50 - STA 654+00	170	2.6
STA 655+00 - STA 684+00	35	0.5
UNDISTRIBUTED	40	4.0
TOTAL	1,940	33

MAINTENANCE AND REPAIR OF HAUL ROADS	
618.0100	
MAINTENANCE AND REPAIR OF HAUL ROADS	
PROJECT	EA
1370-17-70	1
TOTAL	1

MOBILIZATIONS EROSION CONTROL		
628.1905		
628.1910		
MOBILIZATIONS EROSION		
CONTROL		
MOBILIZATIONS		
EMERGENCY		
EROSION CONTROL		
EA		EA
STH 16	1	2
TOTAL	1	2

EROSION CONTROL				
628.7504				
TEMPORARY DITCH				
CHECK				
DESCRIPTION	STATION	-	STATION	LF
STH 16	453+00		456+00	30
	652+00		657+00	30
PROJECT				60
TOTAL				120

RESTORATION									
625.0100									
625.0500									
628.6505									
629.0210									
630.0130									
630.0200									
630.0500									
TOPSOIL									
SALVAGED TOPSOIL									
SOIL STABILIZER									
TYPE A									
FERTILIZER									
TYPE B									
SEEDING MIXTURE NO. 30									
SEEDING TEMPORARY									
SEED WATER									
STA	TO	STA	SY	SY	TYPE A	CWT	LB	LB	MGAL
284+15	TO	341+33	-	-	1.97	4.7	430	-	-
343+15	TO	368+90	-	-	.89	1.9	194	-	-
369+71	TO	390+70	-	-	.72	1.6	158	-	-
392+75	TO	423+40	-	-	1.06	2.3	231	-	-
425+30	TO	480+65	-	-	1.90	4.1	414	-	-
453+00	TO	456+00	480	480	.20	.4	43	26	22
482+70	TO	515+90	-	-	1.15	2.5	250	-	-
516+80	TO	560+45	-	-	1.51	3.3	329	-	-
559+50	TO	595+90	-	-	1.26	2.7	274	-	-
598+00	TO	641+50	-	-	1.50	3.3	326	-	-
640+00	TO	684+20	-	-	1.52	3.3	332	-	-
652+00	TO	657+00	380	380	.16	.3	34	21	18
PROJECT			90	90	--	--	-	8	1,470
TOTAL			950	950	13.84	30.0	3,014	55	1,510

FIELD OFFICE	
642.5201	
FIELD OFFICE	
TYPE C	
LOCATION	EA
PROJECT	1
TOTAL	1

CAT 0010

PROJECT NO: 1370-17-70

HWY: STH 16

COUNTY: WAUKESHA

MISCELLANEOUS QUANTITIES

SHEET

35

E

3

TRAFFIC CONTROL

643.5000				643.0300				643.0420		643.0705		643.0715		643.0800		643.0900		643.1050	643.4100
(PROJECT)								BARRICADES TYPE		WARNING LIGHTS		WARNING LIGHTS		ARROW BOARDS		SIGNS		SIGNS PCMS	INTERIM LANE
1370-17-70				DRUMS				III		TYPE A		TYPE C							
STA	TO	STA	EACH	# OF DAYS	*EACH	DAY		*EACH	DAY	*EACH	DAY	*EACH	DAY	*EACH	DAY	*EACH	DAY	DAY	EA
284+00	TO	685+00	--	50	850	42,500		44	2,200	40	2,000	32	1,600	4	200	62	3,100	14	--
PROJECT			1		--			--		--		--		--		--		--	120
TOTAL			1		42,500			2,200		2,000		1,600		200		3,100		14	120

NOTES:
* FOR INFORMATION ONLY

643.1000	
TRAFFIC CONTROL	
FIXED MESSAGE SIGNS	
SIGN	SF
FM01	55
FM02	55
TOTAL	110

PAVEMENT MARKING		
646.1041.S		
MARKING REPLACE LINE WET		
REFLECTIVE EPOXY 4-INCH		
LOCATION	LF	NOTES
STA 454+30	200	REFRESH EDGELINE PAVEMENT
STA 654+52	500	MARKING AS NEEDED PER FIELD
UNDISTRIBUTED	300	ENGINEER
TOTAL	1,000	

CONSTRUCTION STAKING			
650.8000 650.9911 650.9920			
RESURFACING SUPPLEMENTAL			
REFERENCE CONTROL SLOPE STAKES			
PROJECT	LF	EACH	LF
STH 16	40,100	1	300
TOTAL	40,100	1	300

SAWING			
690.0150			
SAWING			
ASPHALT			
DESCRIPTION	STATION	-	STATION
STH 16	453+00		456+00
	652+00		657+00
	TOTAL		700

3

CAT 0010

3

3

TYPE II PERMANENT SIGNING				1370-17-70									
SIGN NO.	SIGN CODE & SIZE	SIGN MESSAGE	SIGN SIZE			637.2210	637.2230	638.2102	638.2602	638.3000	634.0618	MOUNT ON SAME POST AS SIGN #	REMARKS / NEW SIGN LOCATION
			W	x	H	SIGNS TYPE II REFLECTIVE	SIGNS TYPE II RELFECTIVE	MOVING SIGNS TYPE II	REMOVING SIGNS TYPE II	REM SMALL SIGN SUP	POSTS WOOD 4" X 6" X 18'		
			[IN.]	x	[IN.]	H [SF]	F [SF]	[EA]	(EA)	[EA]	[EA]		
		UNDISTRIBUTED				20.000	20.000	5	5	5	5		
TOTALS						20.000	20.000	5	5	5	5		

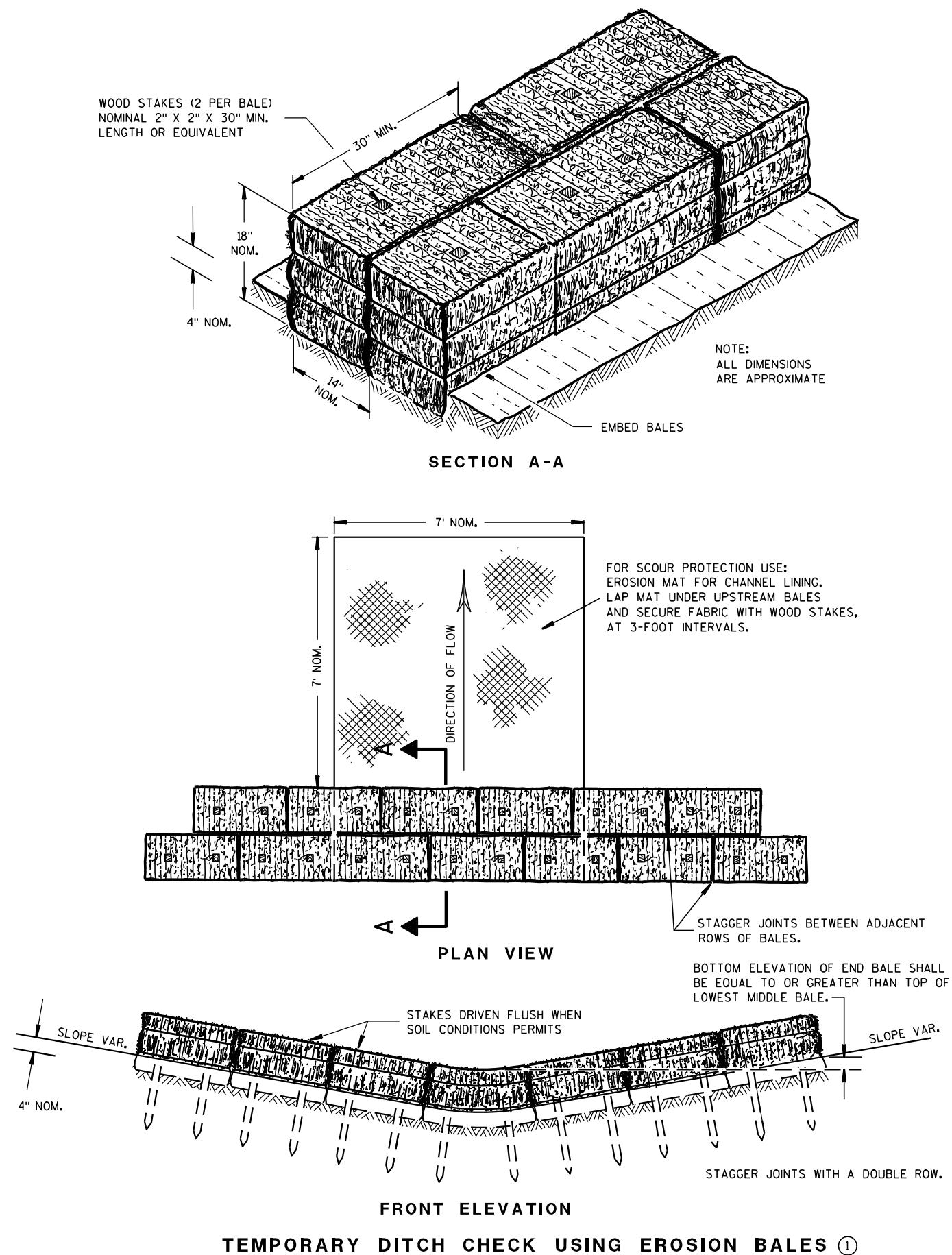
DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION	SALVAGED/UNUSABLE PAVEMENT MATERIAL (3)	AVAILABLE MATERIAL (4)	UNEXPANDED FILL	EXPANDED FILL (5)	MASS ORDINATE +/- (6)	WASTE	COMMENT
			CUT (2)				FACTOR 1.25			
DIVISION 1										
WEST MEDIAN	453+50 - 455+00	MEDIAN	168	43	125	12	15	153	153	
DIVISION 1 SUBTOTAL			168	43	125	12	15	153		
DIVISION 2										
EAST MEDIAN	656+25 - 657+72	MEDIAN	73	45	28	22	28	46	46	
DIVISION 2 SUBTOTAL			73	45	28	22	28	46		
DIVISION 3										
UNDISTRIBUTED	284+00-685+00	MEDIAN	104	0	104	83	104	104	104	
DIVISION 3 SUBTOTAL			104	0	104	83	104	104		
GRAND TOTAL			345	88	257	117	147	199	303	
TOTAL COMMON EXC			345							

NOTES:
(1) COMMON EXCAVATION IS THE SUM OF THE CUT AND EBS EXCAVATION COLUMNS. ITEM NUMBER 205.0100
(2) SALVAGED/UNSUABLE PAVEMENT MATERIAL IS INCLUDED IN CUT.
(3) SALVAGED/UNUSABLE PAVEMENT MATERIAL
(4) AVAILABLE MATERIAL = CUT - SALVAGED/UNUSUABLE PAVEMENT MATERIAL
(5) EXPANDED FILL FACTOR = 1.25
EXPANDED FILL = (UNEXPANDED FILL - EXPANDED ROCK - REDUCED MARSH - REDUCED EBS) * FILL FACTOR
(6) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE DIVISION. PLUS QUANTITY INDICATES AN EXCESS OF MATERIAL WITHIN THE DIVISION. MINUS INDICATES A SHORTAGE OF MATERIAL WITHIN THE DIVISION.
(7) FACTORS USED TO COMPUTE ANTICIPATED WASTE AND THE COMPUTED WASTE VOLUME IDENTIFIED ARE FOR GENERAL INFORMATION ONLY.

CAT 0010

Standard Detail Drawing List

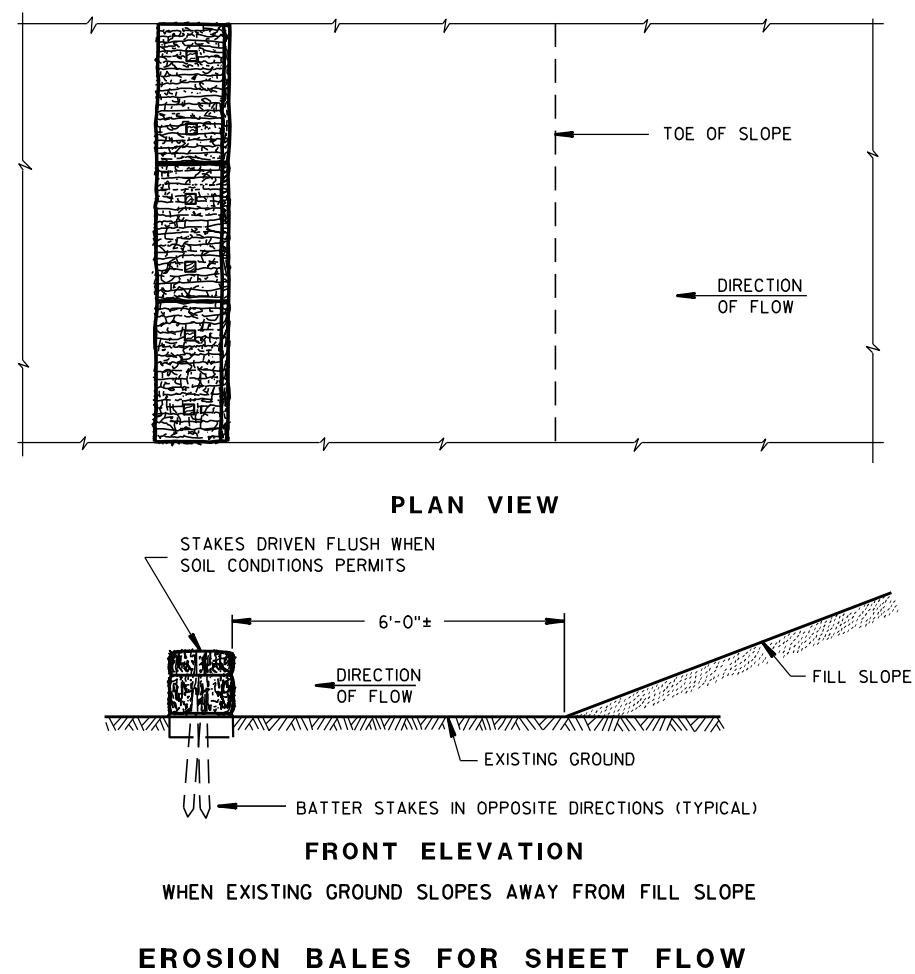
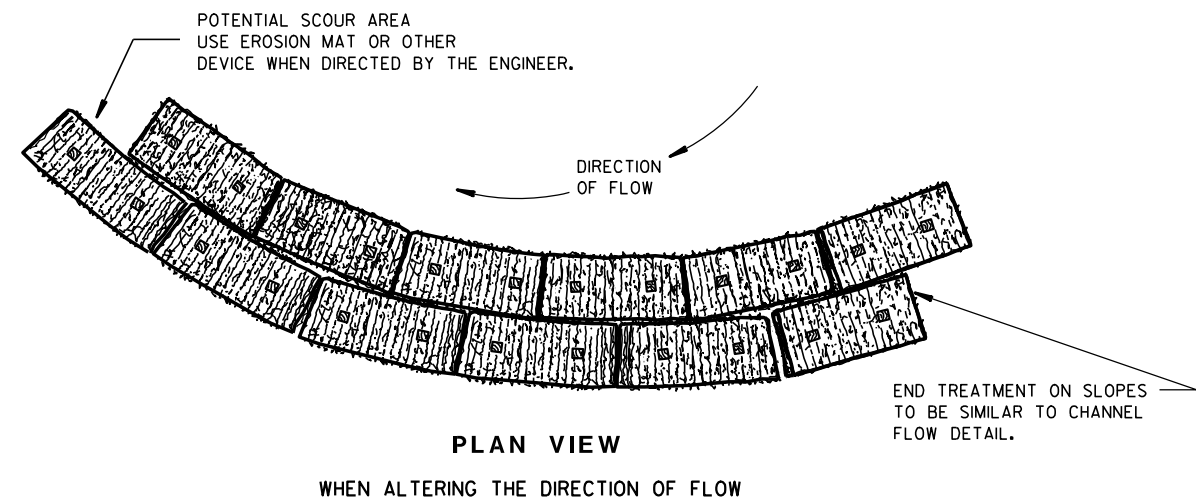
08E08-03	TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
14B52-03A	CABLE BARRIER TYPE 1 LAYOUT
14B52-03B	CABLE BARRIER TYPE 1 LAYOUT
14B52-03C	CABLE BARRIER TYPE 1 LAYOUT
15D12-10A	TRAFFIC CONTROL, LANE CLOSURE
15D15-06B	TRAFFIC CONTROL, ENTRANCE RAMP WITHIN LANE CLOSURE
15D27-03	TRAFFIC CONTROL, SHOULDER CLOSURE ON DIVIDED ROADWAY, SPEEDS GREATER THAN 40 MPH



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

- ① TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.



TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

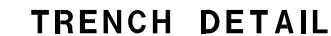
6/04/02
DATE

/S/ Beth Conn-----
CHIEF ROADWAY DEVELOP 40 ENGINEER

FHWA



- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

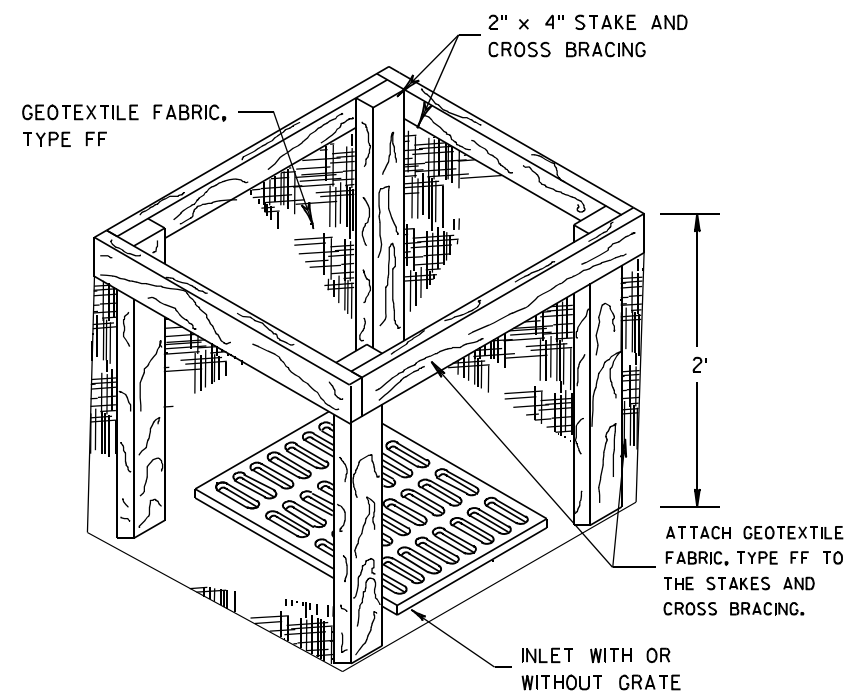
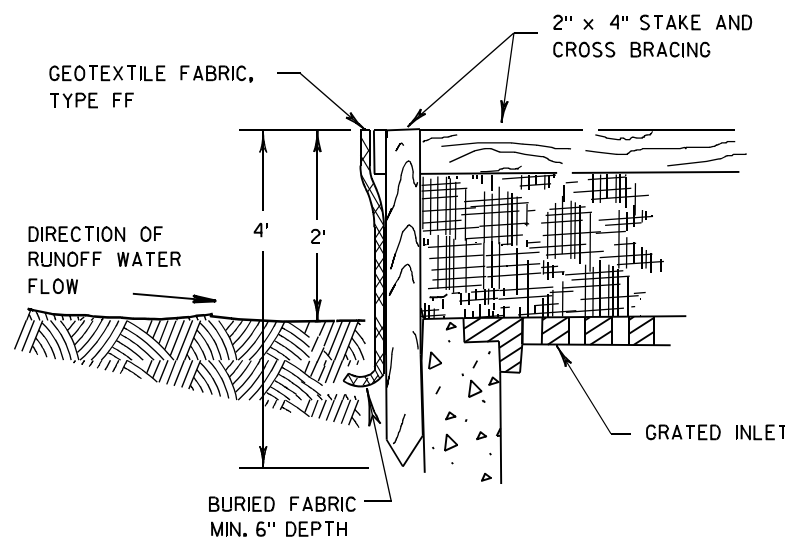


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Connolly
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER

FHWA



INLET PROTECTION, TYPE A

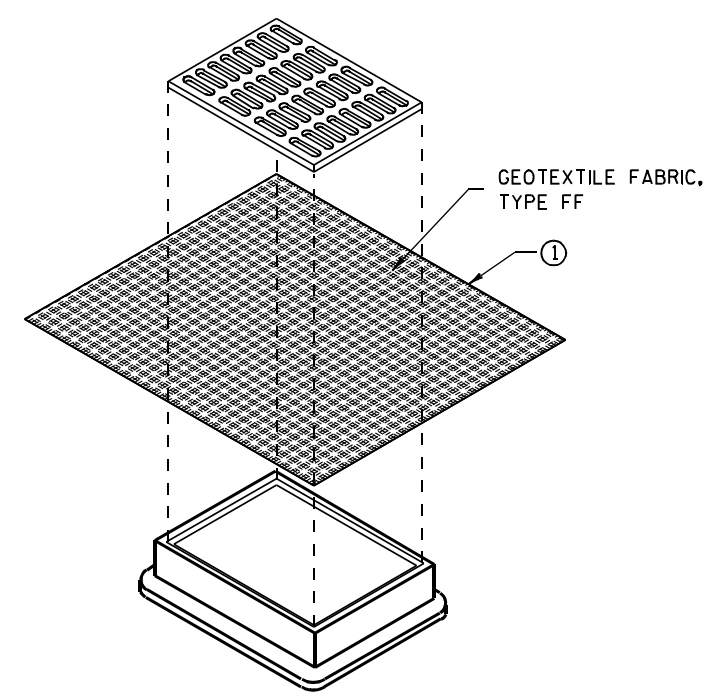
GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

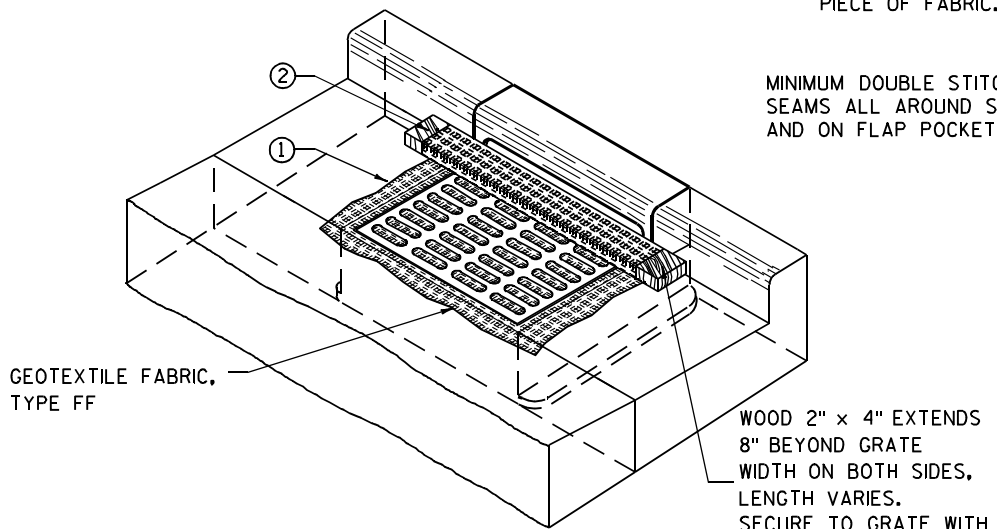
MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)

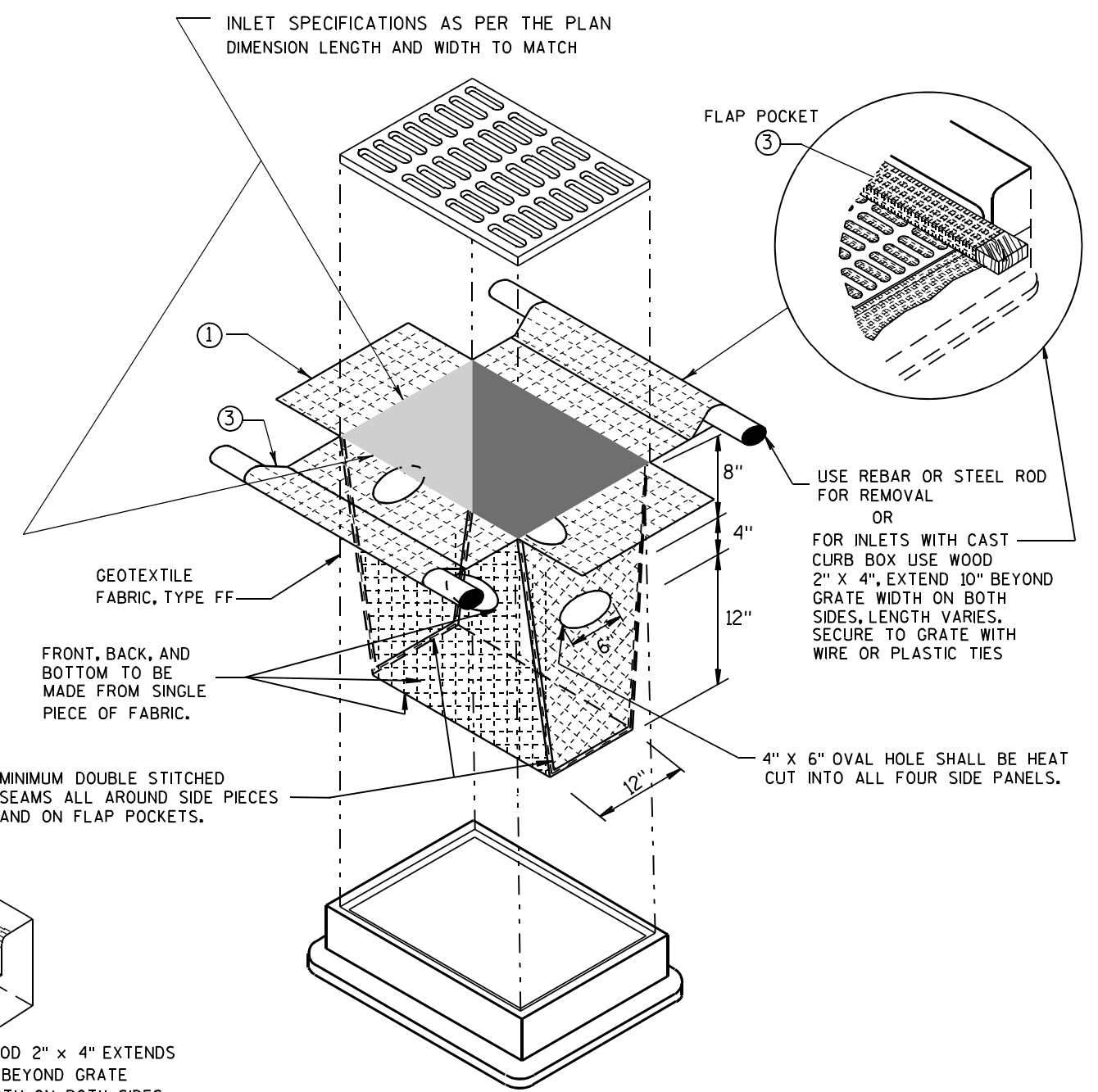
INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

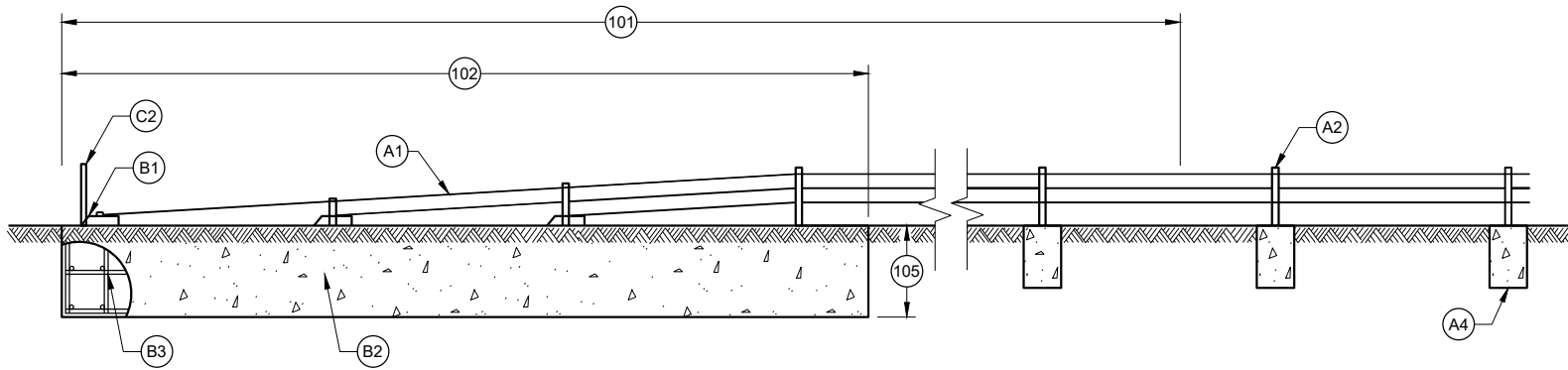
DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.



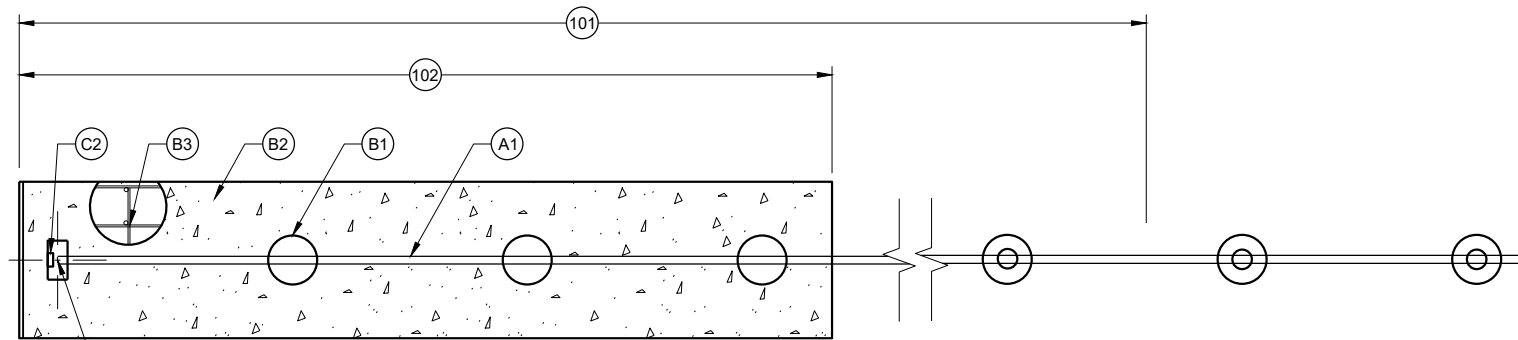
INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

INLET PROTECTION TYPE A, B, C, AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10/16/02 DATE	/S/ Beth Connolly 42 CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



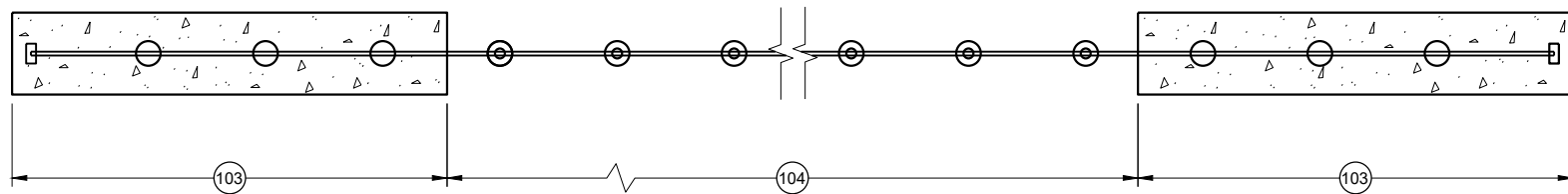
PROFILE VIEW



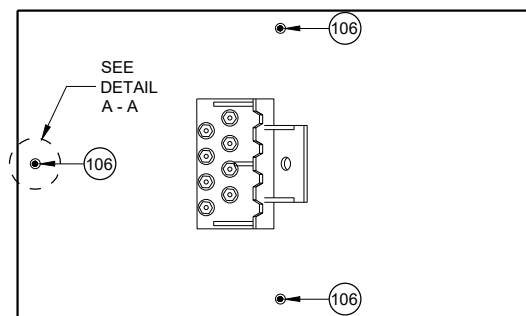
LOCATION OF STATION OFFSET FOR
CABLE BARRIER END TERMINAL

PLAN VIEW

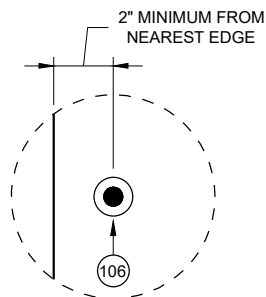
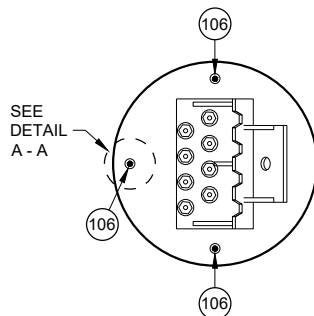
TRANSITION FROM CABLE BARRIER TERMINAL TO CABLE BARRIER LINE POSTS



TYPICAL PLAN VIEW



**ANCHOR MONITOR POINTS FOR
CABLE BARRIER END TERMINAL ANCHORS**



DETAIL A - A

GENERAL NOTES

DRAWINGS ARE GENERAL IN NATURE. SEE MANUFACTURER'S INFORMATION FOR MORE DETAIL.

PROVIDE 2 INCH CLEAR COVER FROM OUTER EDGE OF CONCRETE FOOTINGS TO REINFORCEMENT.

INSTALL LINE POSTS PLUMB. LINE POSTS ARE TO BE EASILY REMOVED BY HAND AND HOLD CABLES AT THE PROPER ELEVATION.

PROVIDE CABLE BARRIER SYSTEM FROM APPROVED PRODUCT LIST.

PROVIDE A SYSTEM TO HAVE THE WORKING WIDTH INDICATED IN PLAN.

PROVIDE DOCUMENTATION HOW POST SPACING, RADIUS OF CURVE AND ANCHOR SPACING INFLUENCES WORKING WIDTH TO CONSTRUCTION STAFF.

CONSTRUCT SHAFTS VERTICALLY. VERTICAL TOLERANCE OF SHAFT IS $\frac{1}{8}$ " PER FOOT OF DEPTH. SHAFTS ARE TO MINIMIZE DISTURBANCE TO ADJACENT SOILS.

SECURE STEEL REINFORCEMENT AND STEEL SLEEVE PRIOR TO PLACEMENT OF CONCRETE. MAINTAIN CLEAR DISTANCE BETWEEN SOIL AND REINFORCEMENT CAGE.

PLACE CONCRETE IN ONE CONTINUOUS POUR FOR EACH FOOTING. USE VIBRATION TO CONSOLIDATE CONCRETE.

PROVIDE CASING AS NECESSARY TO PREVENT INTRUSION OF UNCONSOLIDATED MATERIALS OR WATER. USE CASINGS WHEN THERE IS 3 OR MORE INCHES OF WATER IN EXCAVATION.

PROVIDE WISCONSIN PROFESSIONAL ENGINEER SIGNED AND APPROVED FOOTING DESIGN USING A CASING AND CONSTRUCTION SEQUENCE. PROJECT ENGINEER WILL REVIEW AND APPROVED CASING DESIGN AND CONSTRUCTION SEQUENCE. CASING IS TO HAVE INTIMATE CONTACT WITH SHAFT SIDEWALL. CASING IT TO WITHSTAND INSERTION STRESS, REMOVAL STRESS, CONCRETE PRESSURE AND SOIL PRESSURE. REMOVE CASING DURING CONCRETE PLACEMENT OR IMMEDIATELY AFTER CONCRETE PLACEMENT. NO TEMPORARY CASING MAY REMAIN IN-PLACE.

PROVIDE WISCONSIN PROFESSIONAL ENGINEER SIGNED AND APPROVED FOOTING DESIGN AND CONSTRUCTION SEQUENCE WHEN OVER EXCAVATION IS REQUIRED NEAR A FOOTING. PROJECT ENGINEER WILL REVIEW AND APPROVED DESIGN AND CONSTRUCTION SEQUENCE.

FINISH TOP OF FOOTINGS TO THE DIMENSIONS INDICATED IN PLAN. REMOVE EXCESS CONCRETE.

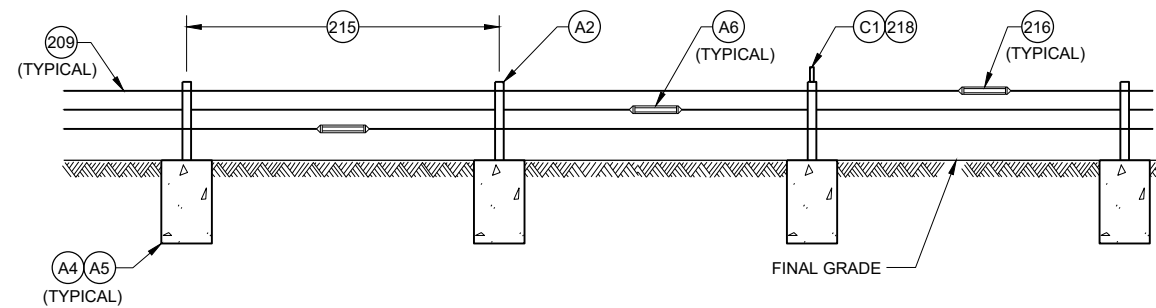
DESIGN POST FOOTINGS SO THAT LINE POST FOOTING MOVE LESS THAN 1 INCH WHEN LINE POST IS IMPACTED BY A NCHRP 350 TL-3 SMALL CAR.

USE MARINE GRADE ANTI-SEIZE LUBRICANT FOR THREADING FITTINGS THAT IS ACCEPTABLE FOR USE ON GALVANIZED STEEL.

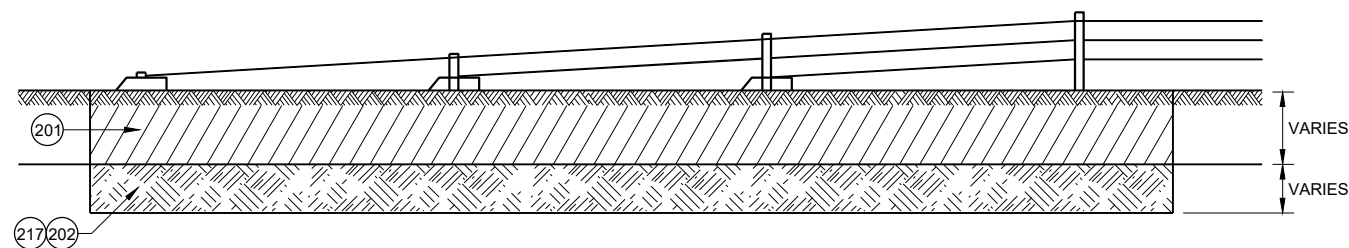
- 100 DIRECTION THAT THE CABLE PULLS THE END ANCHOR FOOTING
- 101 LOCATION OF LENGTH OF NEED POINT FOR CABLE BARRIER END TERMINAL VARIES. (SEE MANUFACTURER'S INFORMATION)
- 102 PAY LIMIT FOR CABLE BARRIER END TERMINAL. LENGTH OF CABLE BARRIER END TERMINAL VARIES. (SEE MANUFACTURER'S INFORMATION)
- 103 CABLE BARRIER END TERMINAL
- 104 CABLE BARRIER AND LINE POSTS
- 105 IN SOIL MINIMUM DEPTH OF CABLE BARRIER END TERMINAL FOOTING IS 60 INCHES. DEEPER FOOTINGS PER MANUFACTURER'S RECOMMENDATION ARE ACCEPTABLE.
- 106 ANCHOR MONITOR POINTS ARE GALVANIZED SURVEY NAIL, OR MASONRY NAIL, PLACED INTO CONCRETE FOOTING BEFORE HARDENING. IF THERE ARE MULTIPLE ANCHOR POINTS WITHIN A PAY LIMIT FOR A CABLE BARRIER END TERMINAL, EACH ANCHOR POINT NEEDS THREE ANCHOR MONITOR POINTS.

CABLE BARRIER TYPE 1 LAYOUT

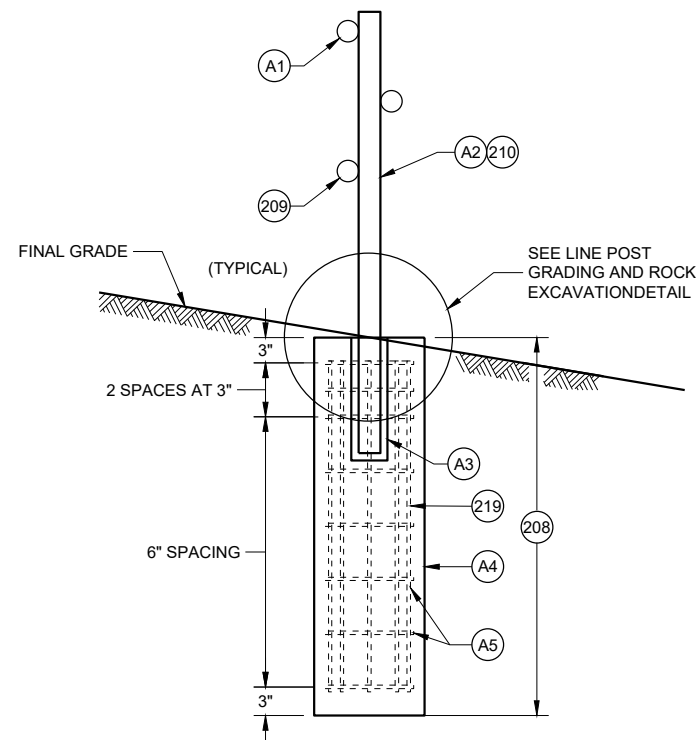
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



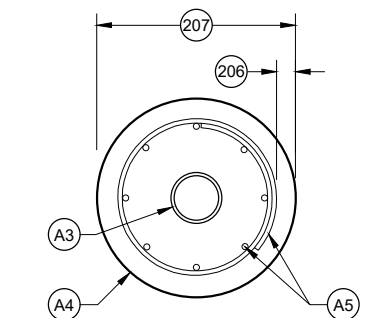
**PROFILE VIEW
LINE POST INSTALLATION**



**CABLE BARRIER END TERMINAL
ROCK EXCAVATION DETAIL**

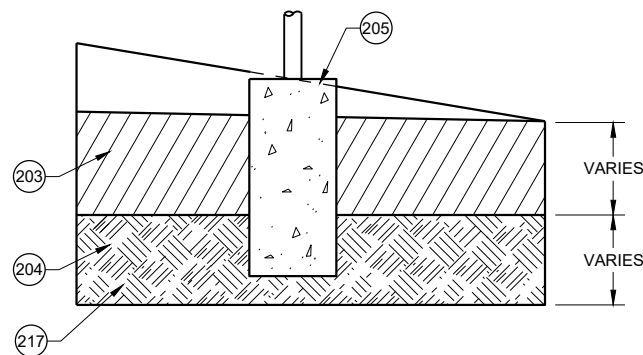


CROSS SECTION



**PROFILE VIEW
(LINE POSTS AND CABLES NOT SHOWN)**

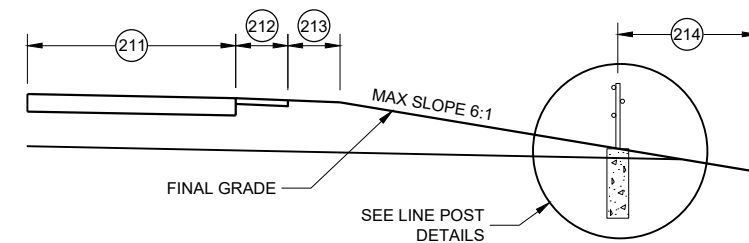
LINE POST DETAILS



**LINE POST GRADING
AND ROCK EXCAVATION DETAIL**

GENERAL NOTES

- (201) SOIL TO BE EXCAVATED FOR CABLE BARRIER END TERMINAL (VARIES)
- (202) ROCK TO BE EXCAVATED FOR CABLE BARRIER END TERMINAL (VARIES)
- (203) SOIL TO BE EXCAVATED FOR LINE POST (VARIES)
- (204) ROCK TO BE EXCAVATED FOR LINE POST (VARIES)
- (205) EXCAVATE AND GRADE LINE FOR LINE POST FOOTINGS. INSTALL LINE POST FOOTING TO MINIMIZE 4 INCH TALL OBJECT ON 5 FOOT CHORD.
- (206) 2 INCHES OF CLEAR COVER FROM EDGE OF CONCRETE TO REINFORCEMENT.
- (207) DIAMETER OF LINE POST FOOTING VARIES. SEE MANUFACTURERS' INFORMATION.
- (208) MINIMUM DEPTH OF LINE POST FOOTING IS 4' - 0" IN SOIL. DEEPER FOOTINGS PER MANUFACTURER'S RECOMMENDATION ARE ACCEPTABLE.
- (209) NUMBER AND LOCATION OF CABLES VARY. SEE MANUFACTURERS' INFORMATION.
- (210) LINE POST DIMENSIONS AND CONNECTION HARDWARE VARY. SEE MANUFACTURERS' INFORMATION.
- (211) LANE OF ROADWAY (VARIES). SEE PLAN FOR MORE INFORMATION.
- (212) PAVED SHOULDER (VARIES). SEE PLAN FOR MORE INFORMATION.
- (213) GRAVEL SHOULDER (VARIES). SEE PLAN FOR MORE INFORMATION.
- (214) CABLE BARRIER OFFSET FROM CENTERLINE OF MEDIAN DITCH (8 FOOT MINIMUM). SEE PLAN FOR MORE INFORMATION.
- (215) MAXIMUM POST SPACING IS 15 FEET.
- (216) STAGGER TURNBUCKLES (TYPICAL).
- (217) SEE MANUFACTURER'S DESIGN WHEN ROCK IS ENCOUNTERED.
- (218) LINE POST DELINEATOR SPACING IS 100 FEET.
- (219) MINIMUM LINE POST FOOTING REINFORCEMENT SHOWN. MANUFACTURER IS TO INDICATE REINFORCEMENT IS ADEQUATE FOR THEIR SYSTEM. IF REINFORCEMENT IS NOT ADEQUATE, PROVIDE FOOTING DESIGN WITH A ADEQUATE REINFORCEMENT.



CABLE BARRIER OFFSET FROM DITCH LINE

**CABLE BARRIER
TYPE 1 LAYOUT**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 44

BILL OF MATERIALS

PART NUMBER	QTY.	DESCRIPTION	MATERIALS SPECIFICATIONS
(A1)	3 OR 4	¾" 3x7 PRESTRECHED GALVANIZED STEEL WIRE ROPE	AASHTO M30 TYPE 1 CLASS A OR ASTM A741 TYPE 1 CLASS A WITH MINIMUM BREAKING STRENGTH = 39 KIPS (173.5 KN)
(A2)	1 PER LINE POST	GALVANIZED REMOVABLE STEEL LINE POST	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS. ASTM A123 (GALVANIZATION).
(A3)	1 PER LINE POST	GALVANIZED STEEL SLEEVE	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS. ASTM A123 (GALVANIZATION).
(A4)	VARIES	CONCRETE FOR LINE POST FOOTING	A, A-FA.A-T, OR A-IP OF STANDARD SPECIFICATION 501.2 OR AS MANUFACTURER SPECIFIES. STANDARD SPECIFICATION 716 QMP FOR CLASS II ANCILLARY CONCRETE SEE MANUFACTURER'S INFORMATION ON DIMENSIONS.
(A5)	MINIMUM REINFORCEMENT: 8 HORIZONTAL LOOP BARS 8 VERTICAL BARS	EPOXY COATED STEEL REINFORCEMENT	STANDARD SPECIFICATION 505. ALL BARS ARE NO. 4 BARS
(A6)	VARIES	TURNBUCKLES AND OTHER CABLE CONNECTING HARDWARE	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS. MINIMUM BREAKING STRENGTH OF TURNBUCKLES AND CONNECTION HARDWARE IS EQUAL TO CABLE. TURNBUCKLES AND OTHER CABLE CONNECTION HARDWARE IS FIELD SWAGED PER MANUFACTURER'S RECOMMENDATION AND DETAILS. PROVIDE DOCUMENTATION THAT THE FITTINGS ARE STRONGER THAN THE CABLE BARRIER. DOCUMENTATION IS TO INCLUDE: MANUFACTURER NAME, TESTING RESULTS, AND DATE OF TESTING.
(B1)	VARIES	CABLE CONNECTION TO CABLE BARRIER END TERMINAL	SEE MANUFACTURER'S INFORMATION ON DIMENSIONS AND MATERIAL REQUIREMENTS.
(B2)	VARIES	CONCRETE FOR CABLE BARRIER END TERMINAL	A, A-FA.A-T, OR A-IP OF STANDARD SPECIFICATION 501.2. STANDARD SPECIFICATION 716 QMP FOR CLASS II ANCILLARY CONCRETE
(B3)	VARIES	EPOXY COATED STEEL REINFORCEMENT	STANDARD SPECIFICATION 505.
(C1)	VARIES	LINE POST DELINEATOR	REFLECTIVE SHEETING TYPE SH. SEE APPROVED PRODUCT LIST YELLOW.
(C2)	VARIES	CABLE BARRIER END TERMINAL DELINEATOR	REFLECTIVE SHEETING TYPE SH. SEE APPROVED PRODUCT LIST OBJECT MARKER TYPE 3 PATTERN

CABLE BARRIER
TYPE 1 LAYOUT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2022 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 45
FHWA

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR CLOSING RIGHT LANE - REVERSE FOR CLOSING LEFT LANE.

ALL SIGNS ARE 48" x 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED OR AS APPROVED BY THE ENGINEER.

FOR A LANE CLOSURE THAT IS IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS, THE ADVANCED WARNING SIGNS MAY BE MOUNTED ON PORTABLE SUPPORTS.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

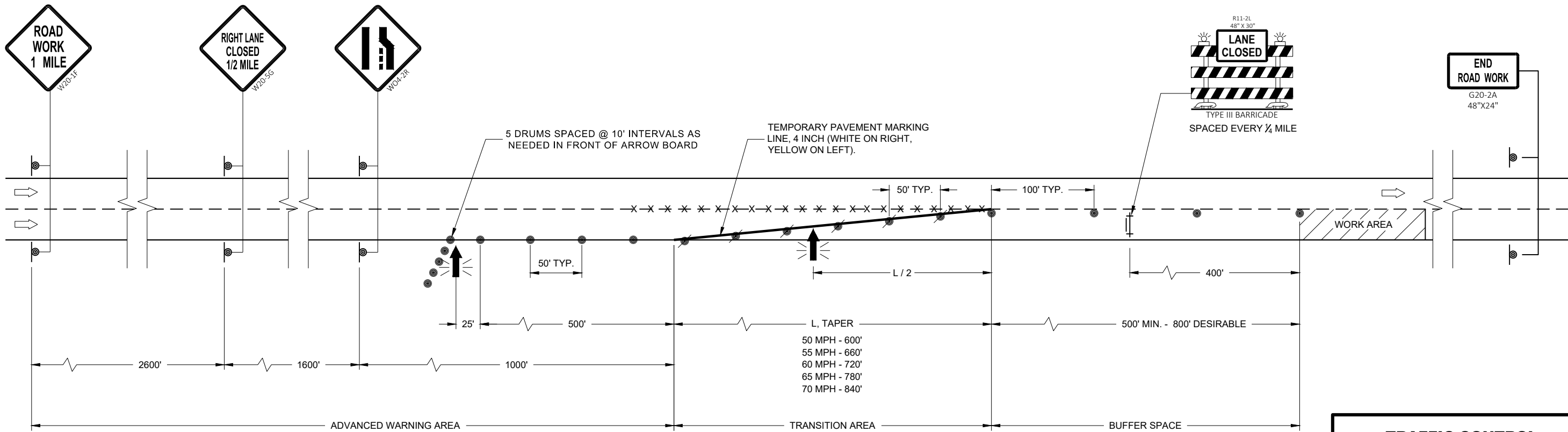
ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS

NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE MUST TAKE PLACE FAR ENOUGH IN ADVANCE OF AN EXIT OR ENTRANCE RAMP TO STILL ALLOW FOR ADEQUATE BUFFER SPACE. THE MINIMUM LENGTH OF THE BUFFER SPACE BEFORE AN EXIT RAMP SHOULD BE ONE HALF THE LENGTH OF THE TRANSITION AREA. THE ENTRANCE RAMP SHOULD BE FOLLOWED BY THE ORIGINAL BUFFER SPACE LENGTH OF 800 FEET DESIRABLE PRIOR TO ANOTHER TRAFFIC CONTROL CHANGE SUCH AS A CROSSOVER MANEUVER.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC
- WORK AREA
- FLASHING ARROW BOARD



TRAFFIC CONTROL LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED February 2022 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER 46
FHWA	

LEGEND

- SIGN ON PERMANENT SUPPORT
- SIGN ON TEMPORARY SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- REMOVING PAVEMENT MARKING (SEE GENERAL NOTES)
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

"WO" IS THE SAME AS "W" EXCEPT THE BACKGROUND IS ORANGE.

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

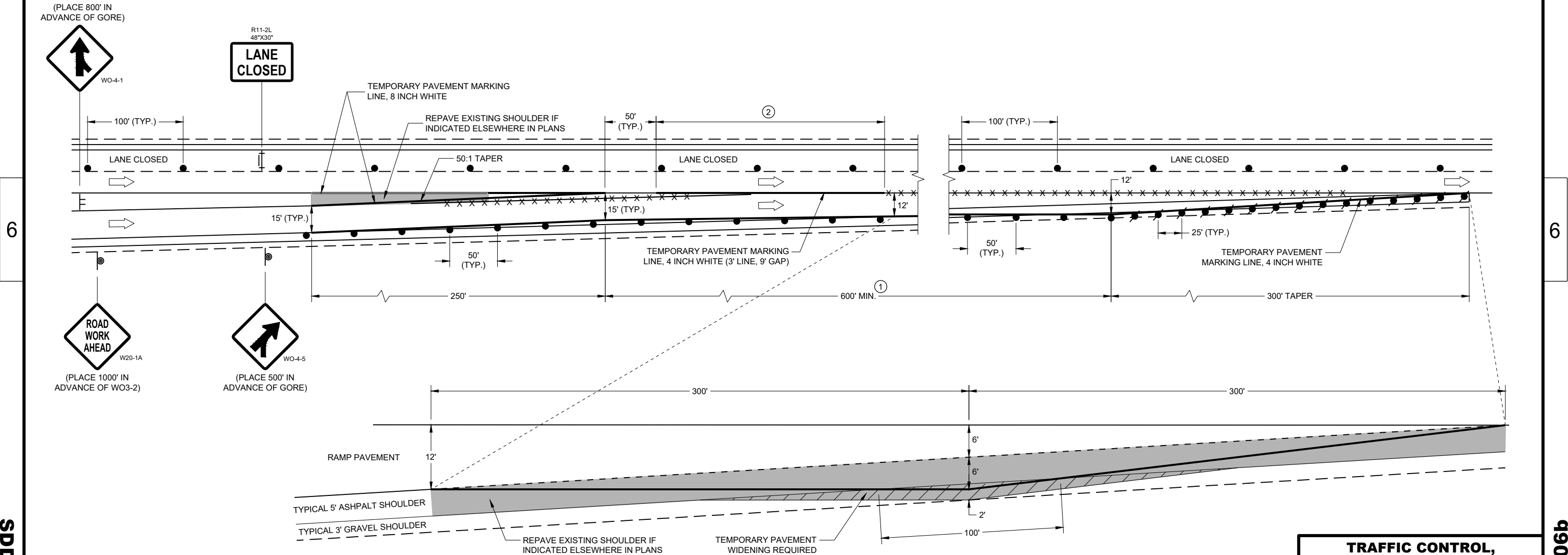
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS /OR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

- 1 EXTEND THE LENGTH OF THE MERGE AREA IF THE ENTERING (DESIGN) SPEED OF THE RAMP IS LESS THAN 50 MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- 2 END TEMPORARY PAVEMENT MARKING LINE AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.



TEMPORARY PAVEMENT DETAIL

(EXISTING RAMP DIMENSIONS MAY VARY,
ADJUST TEMPORARY PAVEMENT ACCORDINGLY)

TRAFFIC CONTROL,
ENTRANCE RAMP
WITHIN LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 47

FHWA

LEGEND

- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ⚡➡ FLASHING ARROW BOARD
- ▨ WORK AREA

GENERAL NOTES

THIS DETAIL IS TYPICAL FOR CLOSING THE RIGHT SHOULDER. FOR CLOSING THE LEFT SHOULDER, REVERSE THE TRAFFIC CONTROL.

THIS DETAIL MAY BE USED FOR DIVIDED ROADWAYS WITH ANY NUMBER OF TRAVEL LANES.

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS ARE 48" X 48" UNLESS OTHERWISE NOTED.

SIGN LAYOUTS SHALL BE IN ACCORDANCE WITH THE FHWA'S MANUAL OF STANDARD HIGHWAY SIGNS OR THE WISCONSIN STANDARD SIGN PLATES.

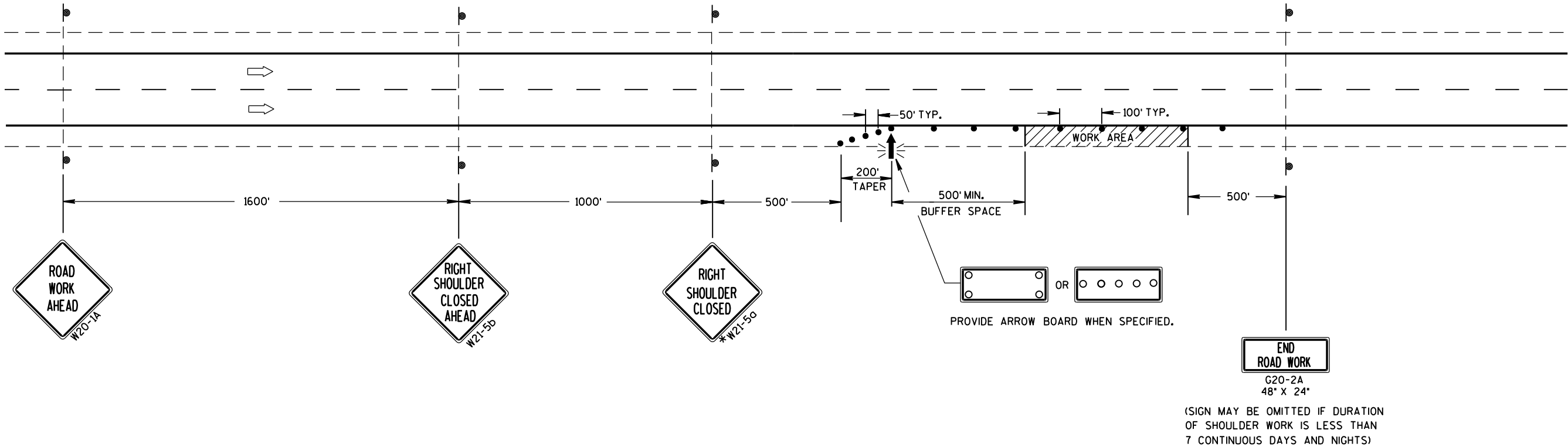
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

CHANNELIZING DEVICES PLACED ADJACENT TO THE WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, ADDITIONAL TRAFFIC CONTROLS SHALL BE PROVIDED AS SPECIFIED IN THE PLANS AND/OR THE SPECIAL PROVISIONS OR AS APPROVED BY THE ENGINEER.

*FOR SHORT DURATION SHOULDER WORK OF LESS THAN ONE HOUR, THE W21-5a SIGN MAY BE OMITTED.



TRAFFIC CONTROL
SHOULDER CLOSURE ON DIVIDED
ROADWAY, SPEEDS GREATER
THAN 40 MPH

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June 2016 /S/ Peter Amakobe Atepe
DATE STATEWIDE WORK ZONE SAFETY ENGINEER
FHWA

NOTES

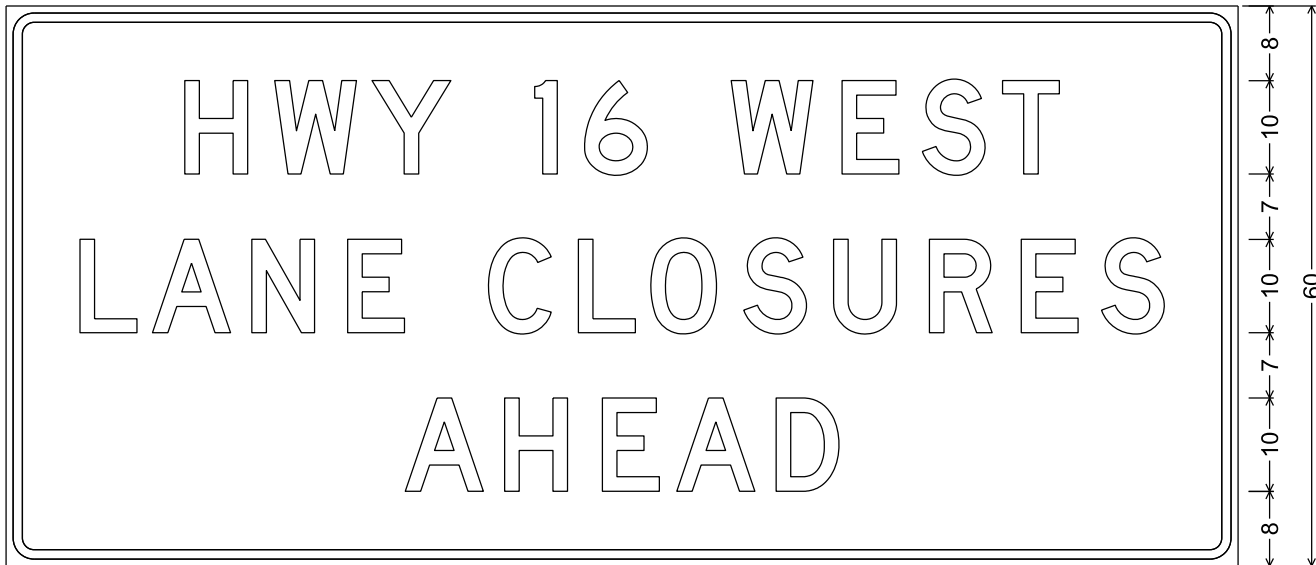
- ## 1. Fixed Message Sign is Type II - Type F Reflective

2. Color:

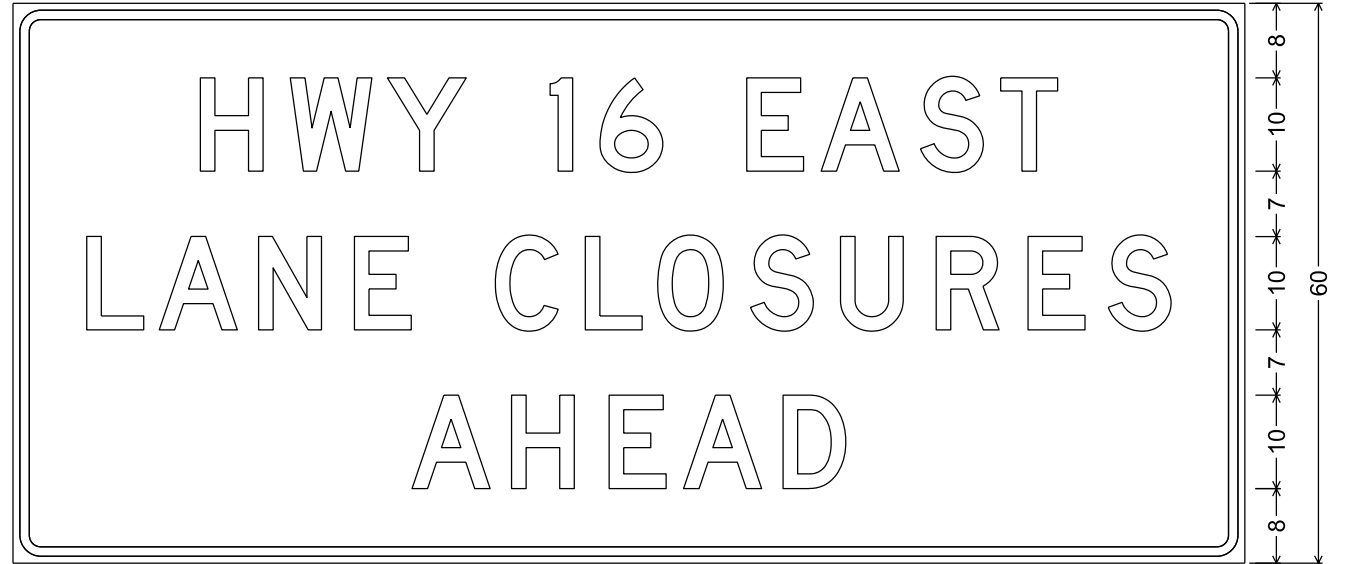
Background - Orange

Message - Black

3. Message Series - D

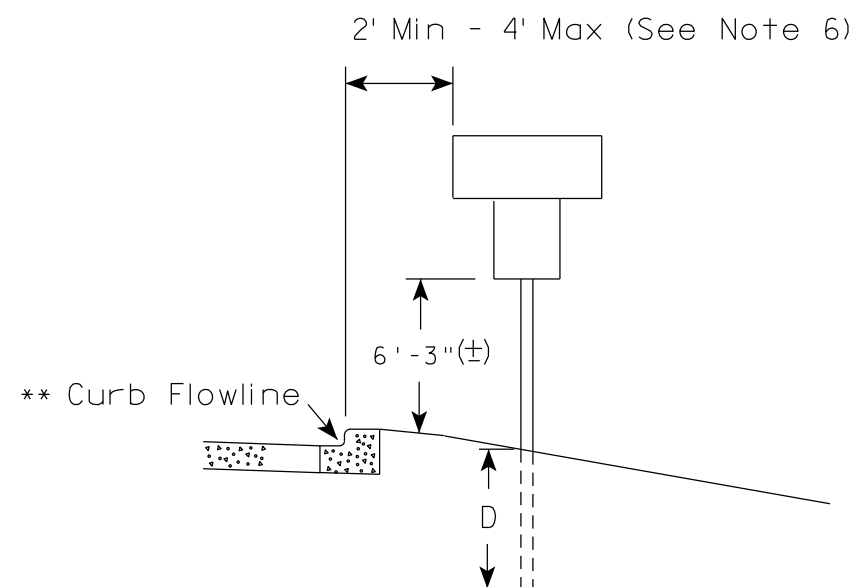
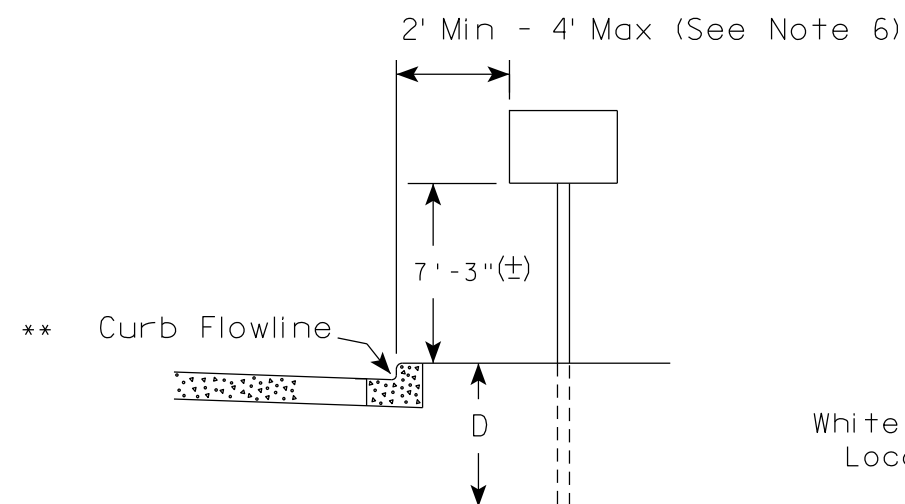


3.000" Radius, 1.000" Border, 0.750" Indent



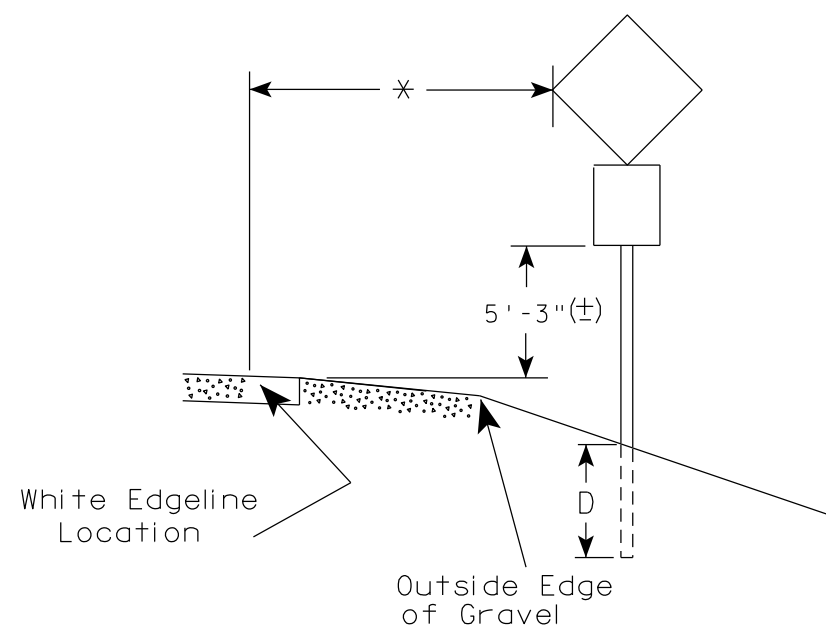
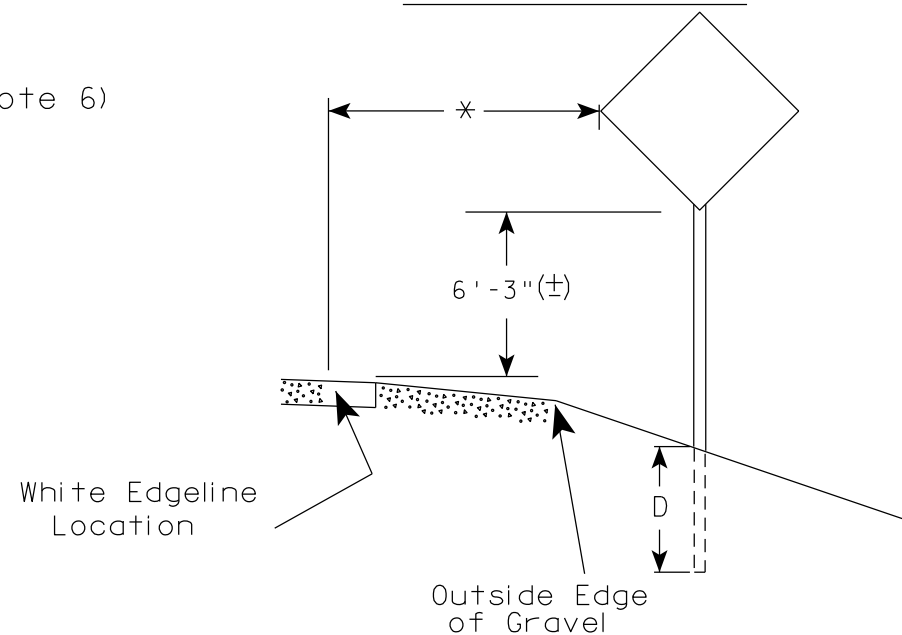
3.000" Radius, 1.000" Border, 0.750" Indent

URBAN AREA



✱✱ The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.

RURAL AREA (See Note 2)



✱ 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

GENERAL NOTES

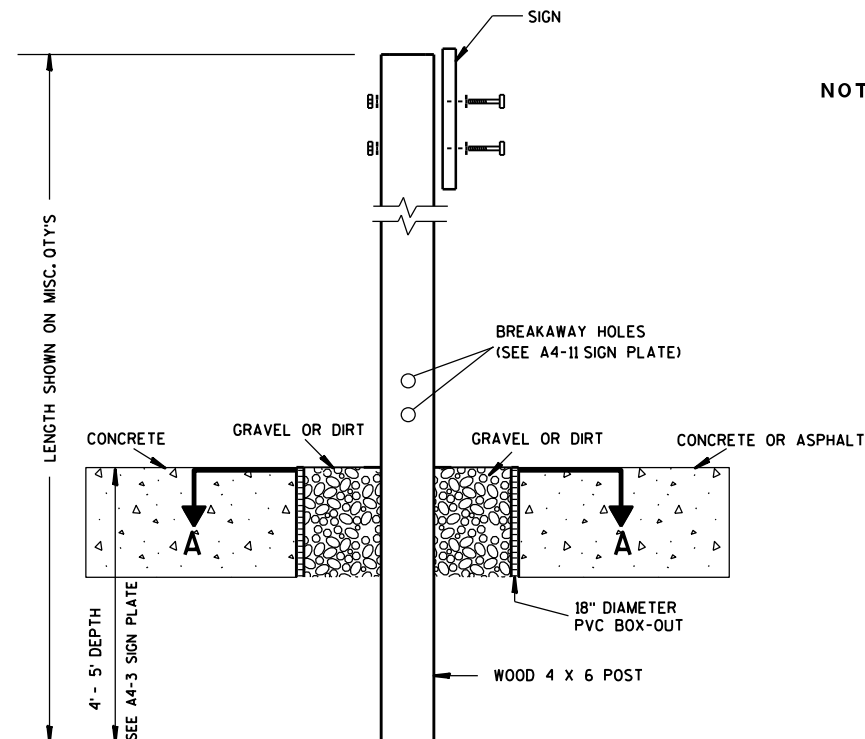
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
2. If signs are mounted on or behind barrier wall, see A4-10 sign plate.
The Double Arrow sign (W12-1D) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).
3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
4. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
5. Offset distance shall be consistent with existing signs or consistent throughout length of project.
6. The (±) tolerance for mounting height is 3 inches.
7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

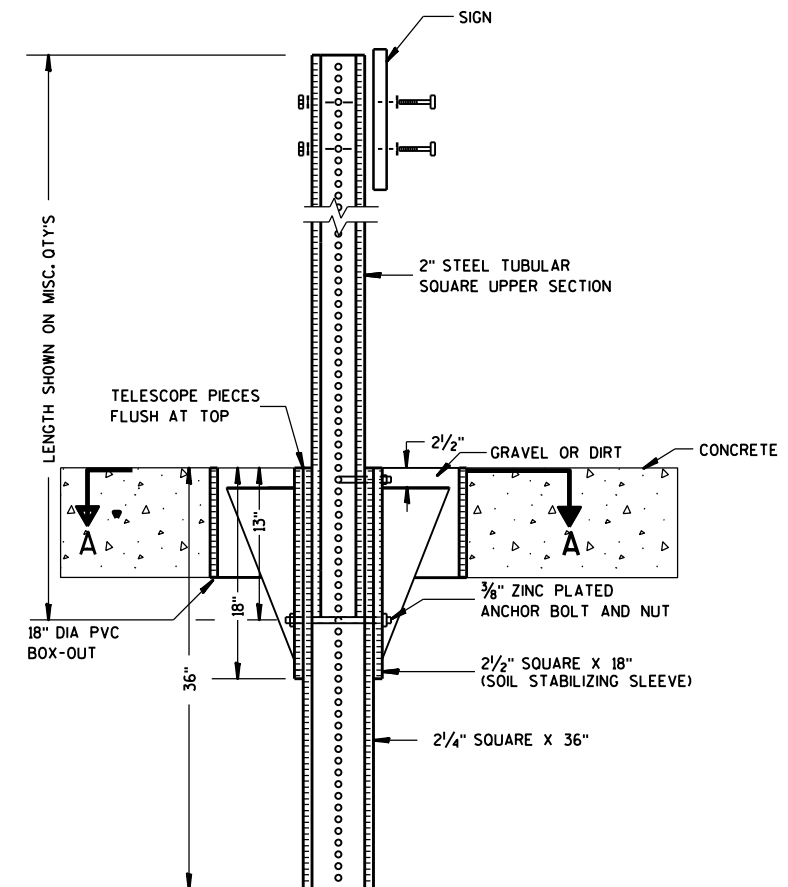
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

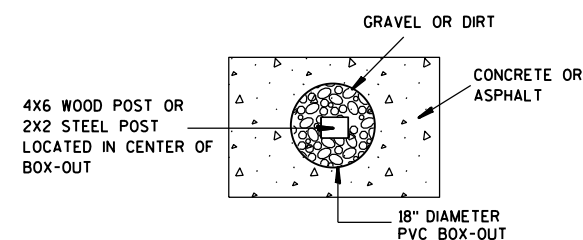
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLAT 51 A4-3B.1

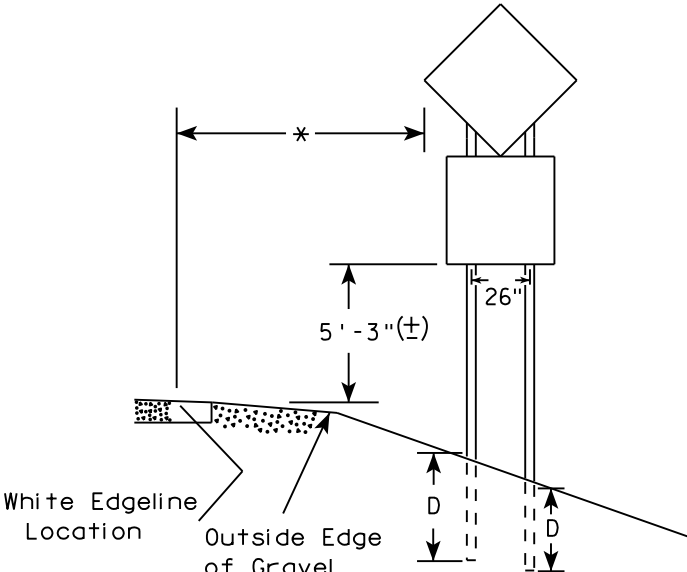
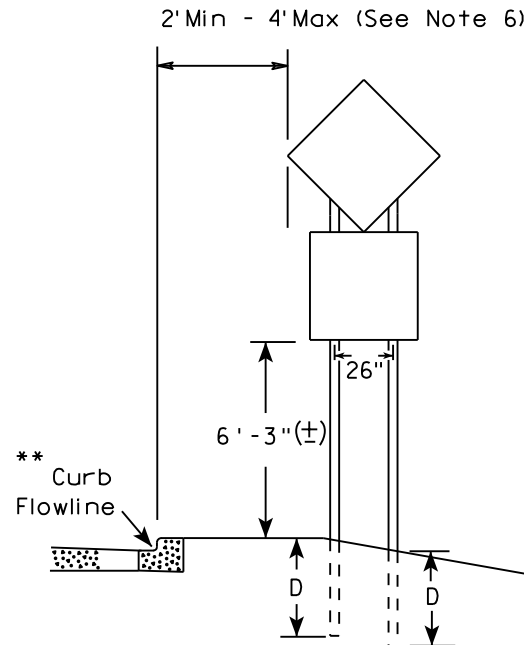
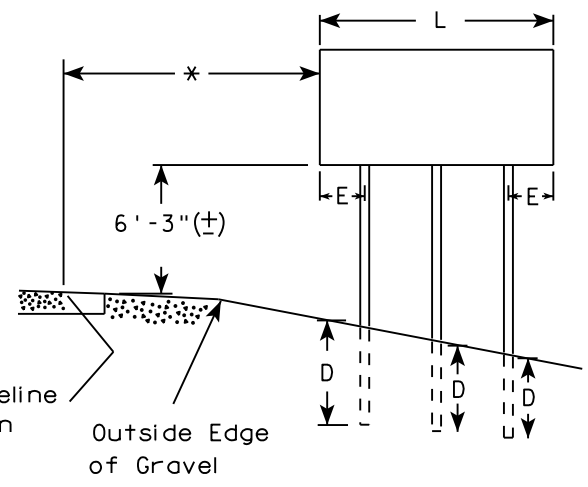
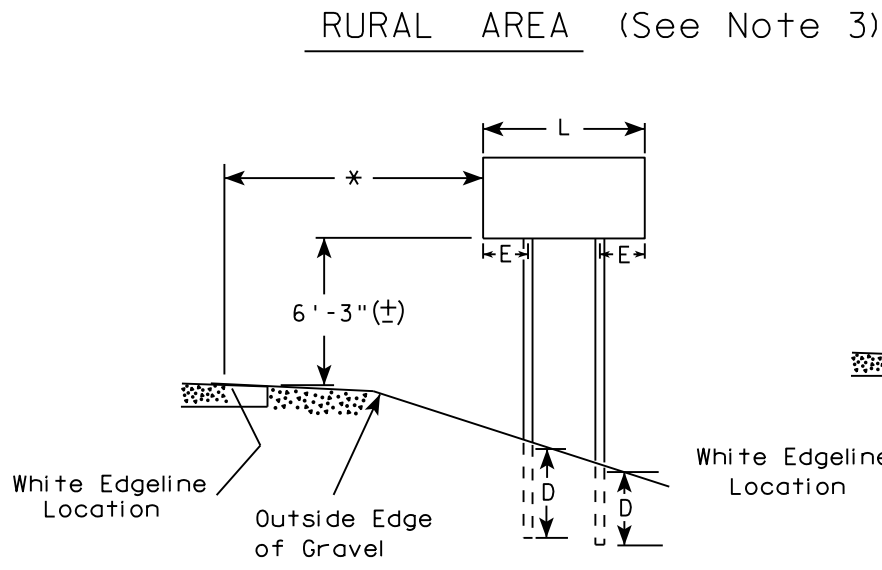
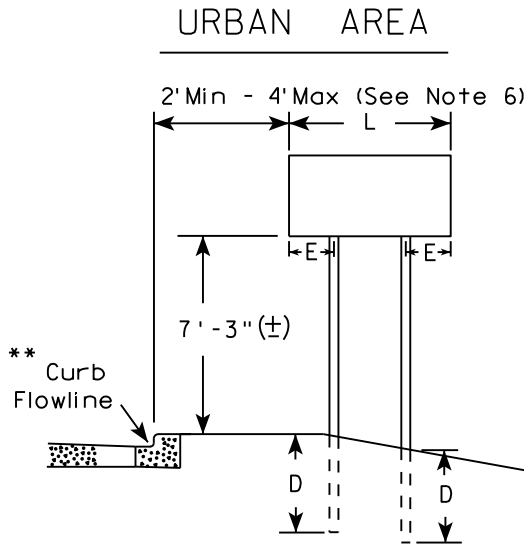
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

Area of Sign Installation (Sq. Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

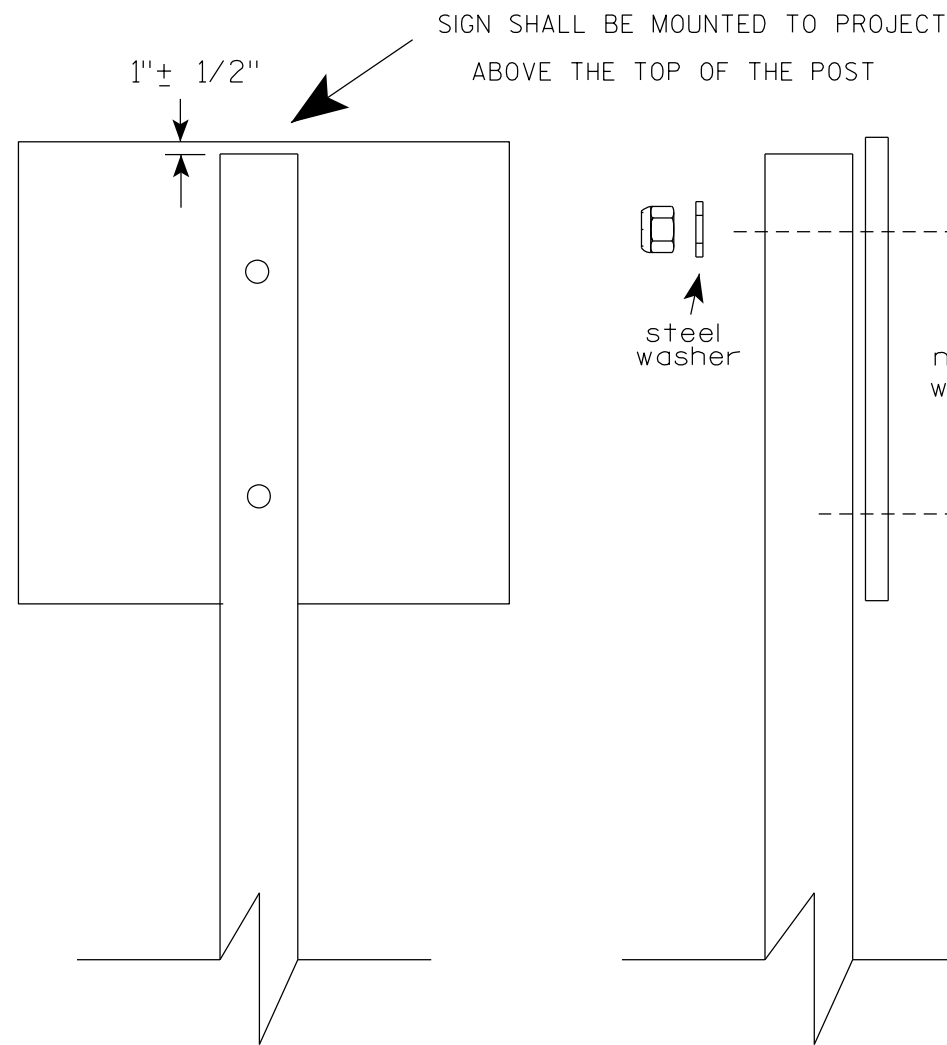
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 8/21/17 PLATE NO. A4-4.15

- GENERAL NOTES
1. For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 2. See tables below for required number of posts.
 3. For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 4. The (±) tolerance for mounting height is 3 inches.
 5. J-Assemblies are considered to be one sign for mounting height.
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 8. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

- * 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.
- ** The existence of curb and gutter does not in itself mandate the vertical clearance illustrated. That height is typically measured where there is sidewalk adjacent to the roadway or parking is permitted. In the absence of sidewalk vertical clearance is measured from the top of the curb. Offset of signs is measured from the flow line.
- *** See A4-3 sign plate for signs 4' or less in width and less than 20 S.F. in area.



Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

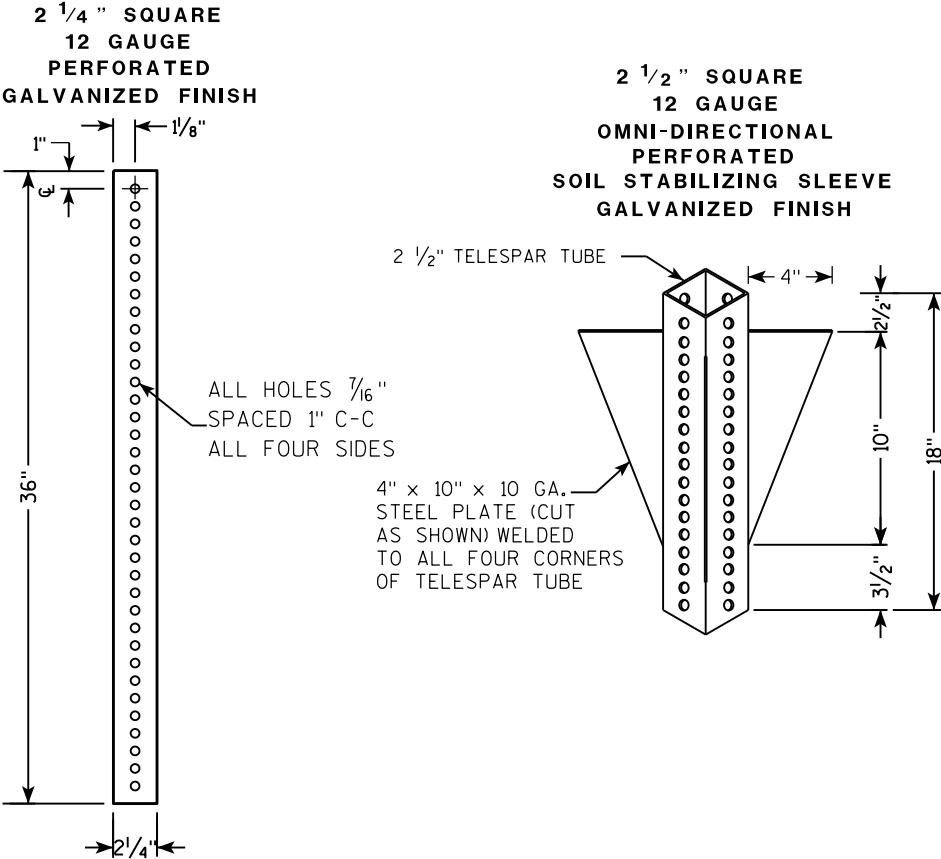
Threads on bolts and nuts shall be manufactured with sufficient allowance for the cadmium plate or galvanized coating to permit the nuts to run freely on the bolts.

- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
 - 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

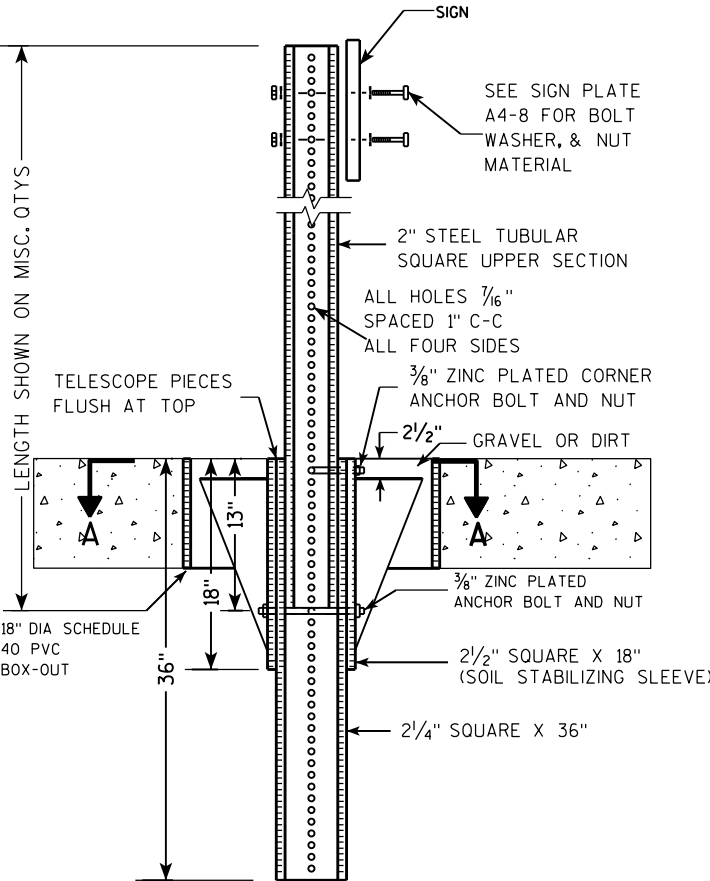
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require the use of 3 fasteners.

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

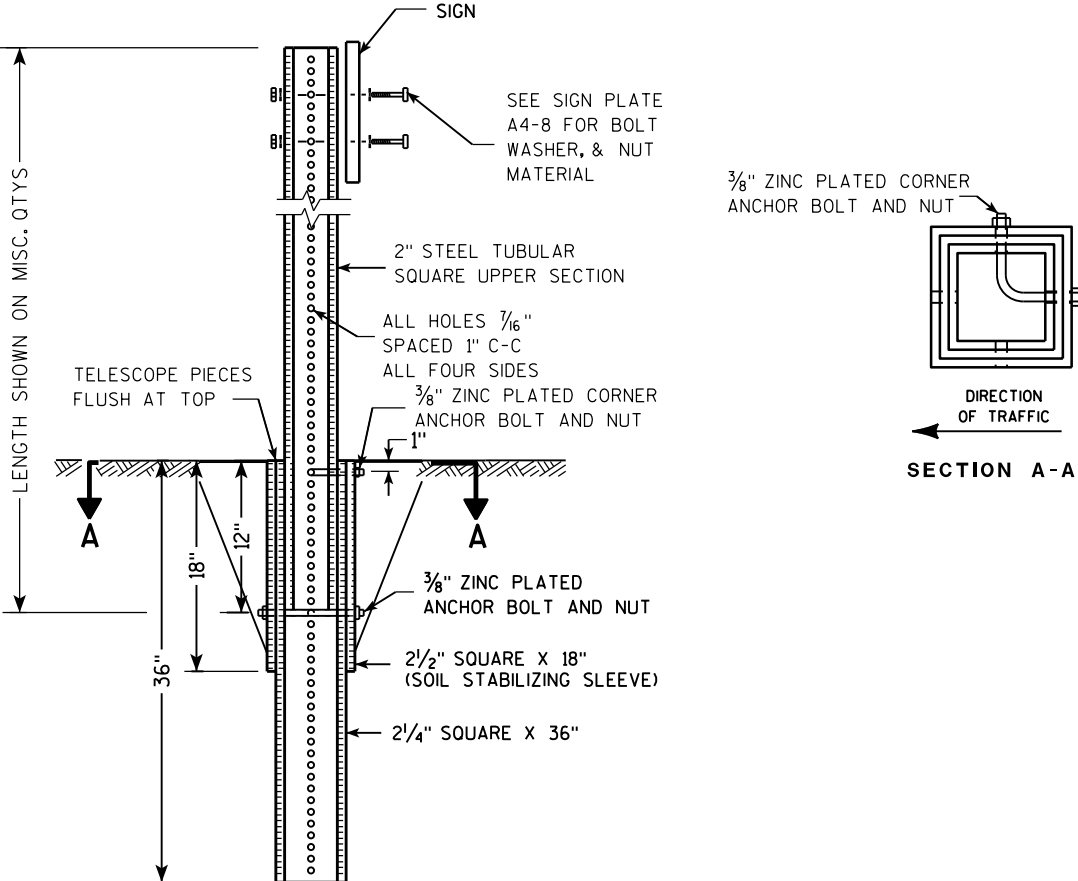
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

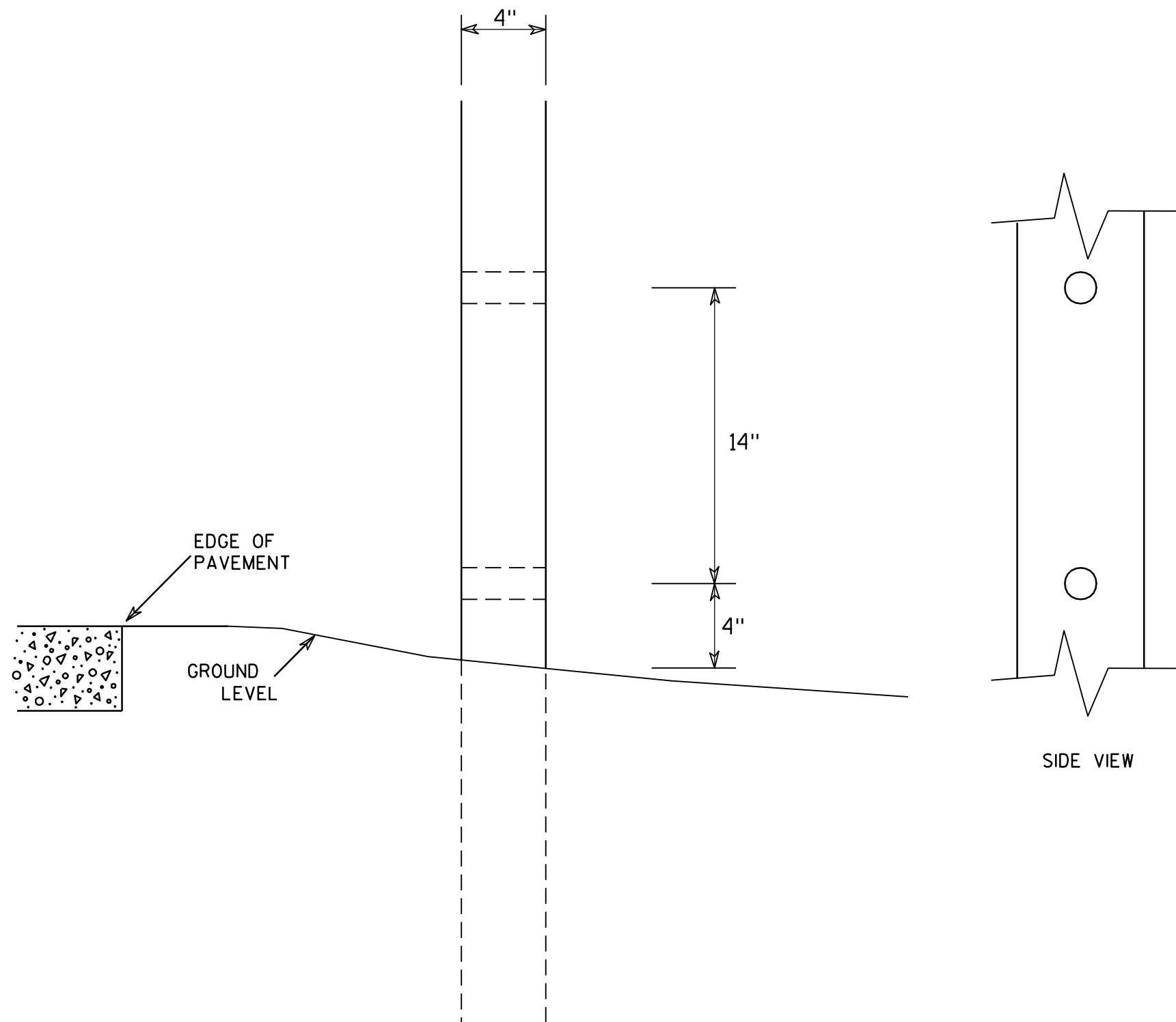
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLAT 54 14-9.9

7

GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

7

**4 X 6 WOOD POST
MODIFICATIONS****WISCONSIN DEPT OF TRANSPORTATION**

APPROVED

Chester J. Spang
for State Traffic Engineer

DATE 3/27/97PLATE NO. A4-11.2

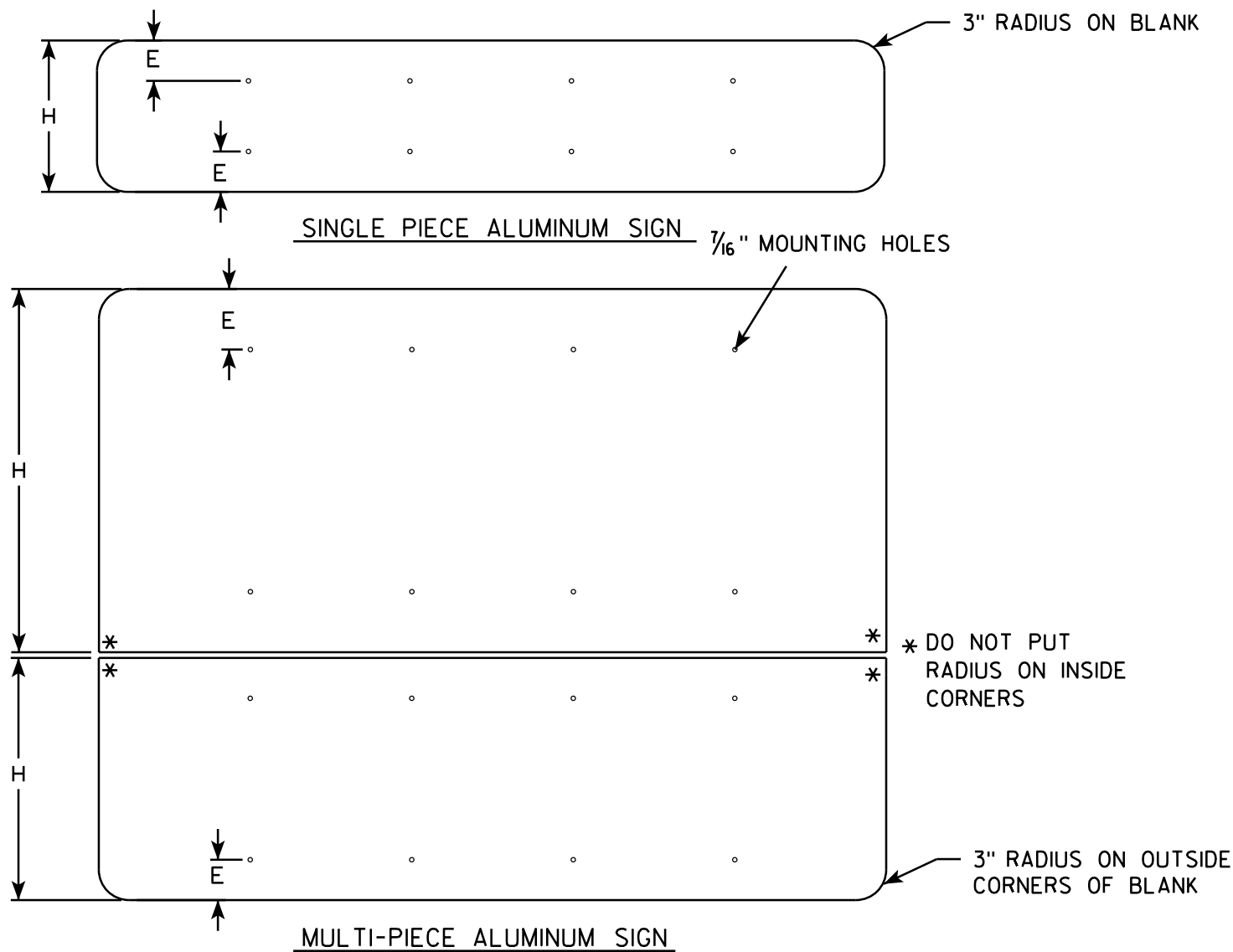
PROJECT NO:

HWY:

COUNTY:

SHEET NO: 55

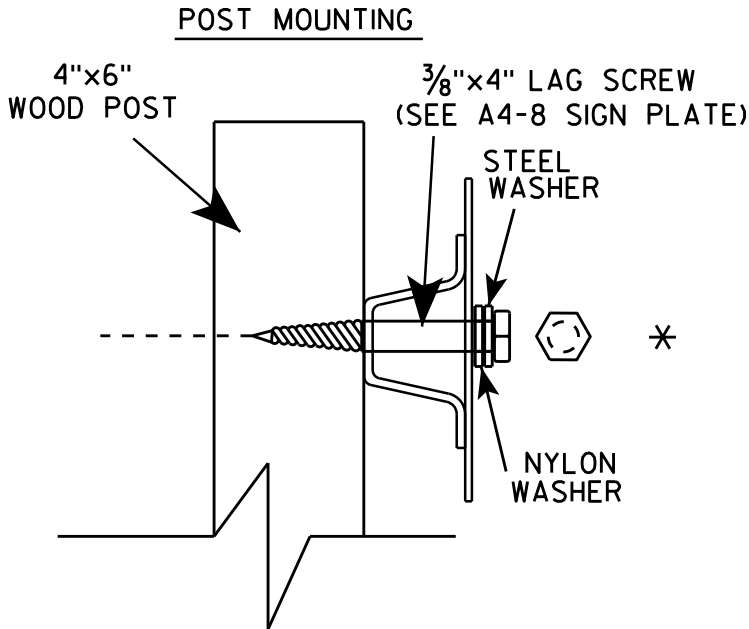
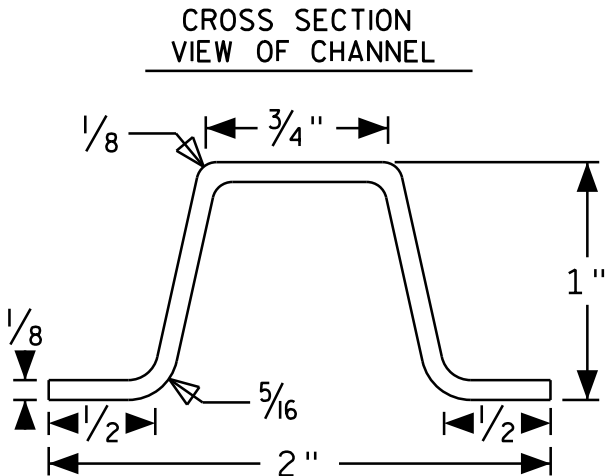
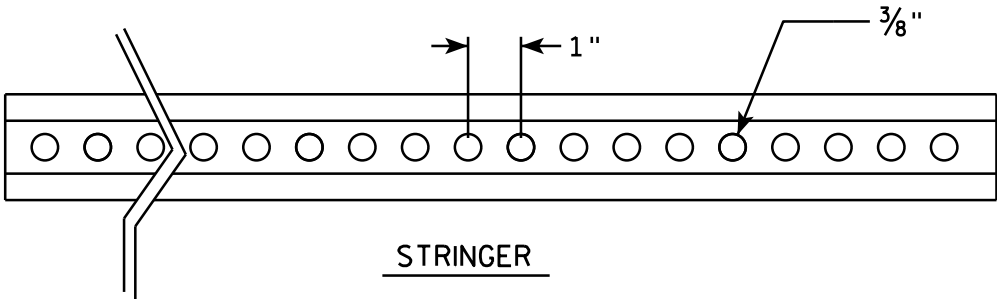
E



GENERAL NOTES

- ALL SIGNS OVER 60" IN WIDTH SHALL HAVE A 3" RADIUS ON THE OUTSIDE CORNERS OF THE ALUMINUM BLANK.
- MOUNTING HOLES SHALL BE 7/16" DIAMETER.
- SEE CHART FOR HOLE SPACING REQUIREMENTS
- FOR SIGN PANELS WITH DIMENSION (H) 36" AND OVER, DIMENSION E SHALL BE 6"
- FOR SIGN PANELS WITH DIMENSION (H) UNDER 36", DIMENSION E SHALL BE 4"
- SIGN STRINGER MATERIAL SHALL CONSIST OF STEEL CHANNEL POST SECTIONS, WEIGHING 1.12 LBS/FT IN ACCORDANCE WITH SECTION 633.2.1 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.
- SEE SIGN PLATE A4-8 FOR SIGN STRINGER BOLTING REQUIREMENTS.

SIGN WIDTH	STRINGER WIDTH	POSTS	HOLE SPACING	MOUNTING HOLES			
78"	72"	2	16"	15"	31"	47"	63"
84"	72"	2	17"	16 1/2"	33 1/2"	50 1/2"	67 1/2"
90"	72"	2	18"	18"	36"	54"	72"
96"	90"	2	19"	19 1/2"	38 1/2"	57 1/2"	76 1/2"
102"	90"	2	20"	21"	41"	61"	81"
108"	90"	2	21"	22 1/2"	43 1/2"	64 1/2"	85 1/2"
114"	108"	3	15"	12"	27"	42"	57" 72" 87" 102"
120"	108"	3	16"	12"	28"	44"	60" 76" 92" 108"
126"	108"	3	17"	12"	29"	46"	63" 80" 97" 114"
132"	126"	3	18"	12"	30"	48"	66" 84" 102" 120"
138"	126"	3	19"	12"	31"	50"	69" 88" 107" 126"
144"	126"	3	20"	12"	32"	52"	72" 92" 112" 132"

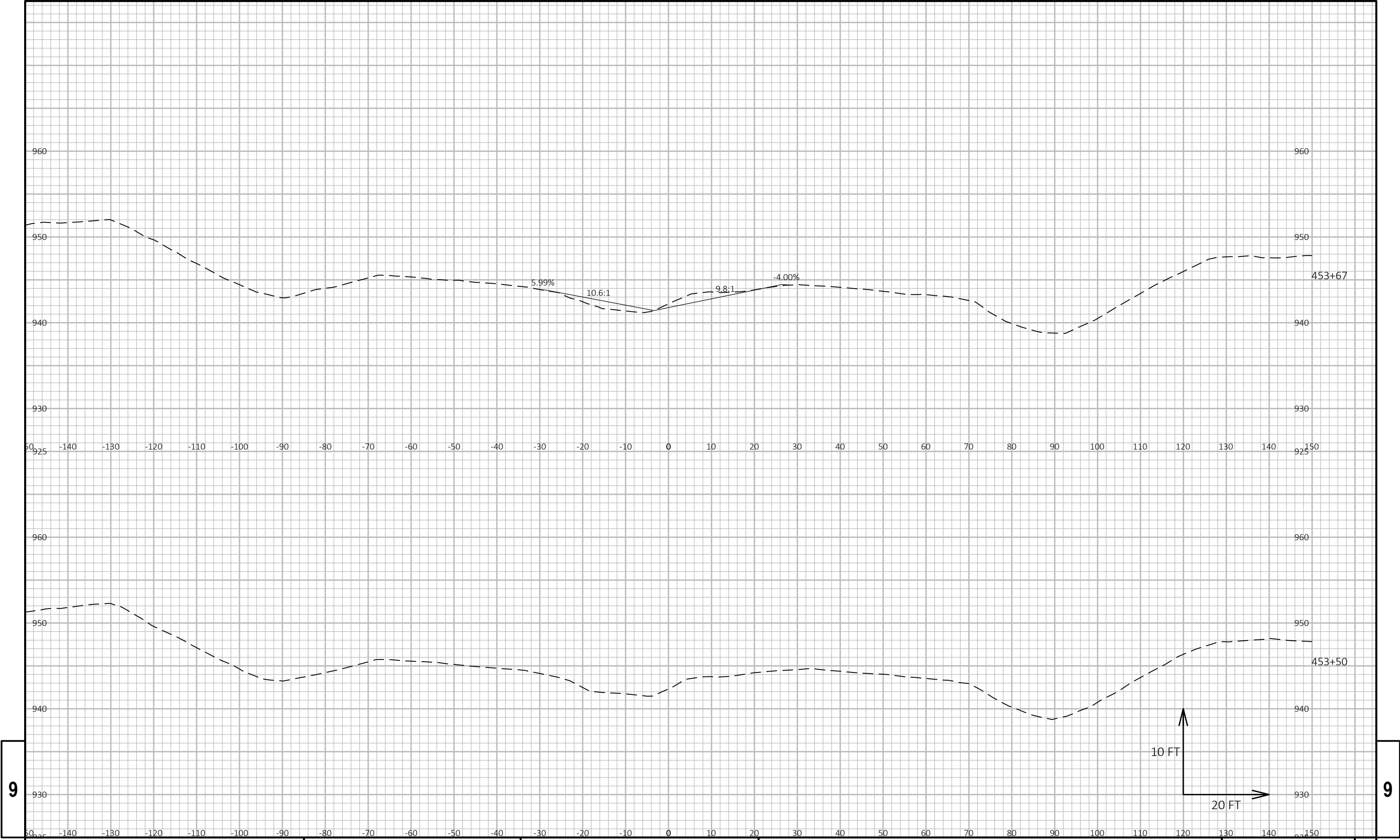


SIGN STRINGER
MOUNTING REQUIREMENTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

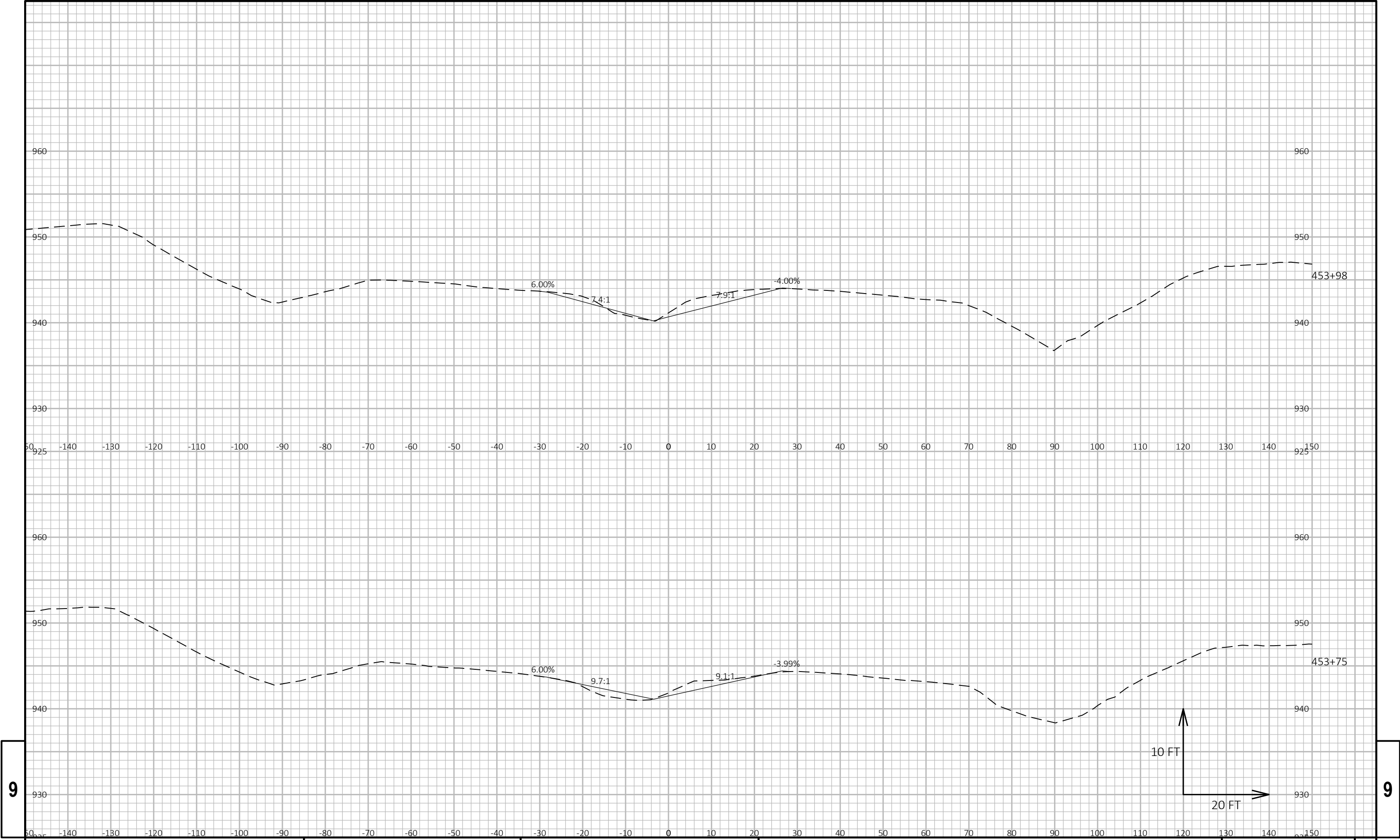
DATE 4/26/16 PLATE No A4-18.1
56



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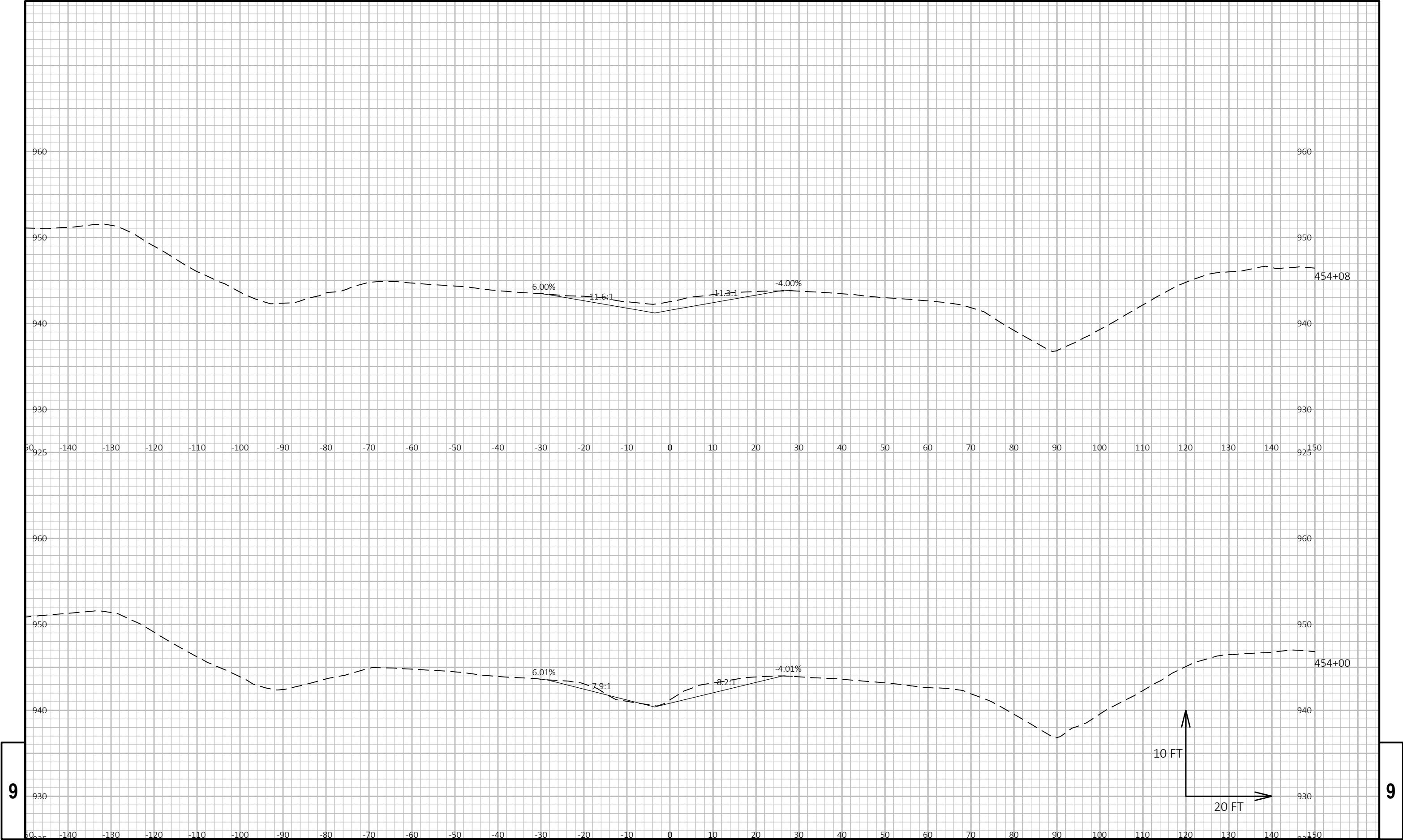
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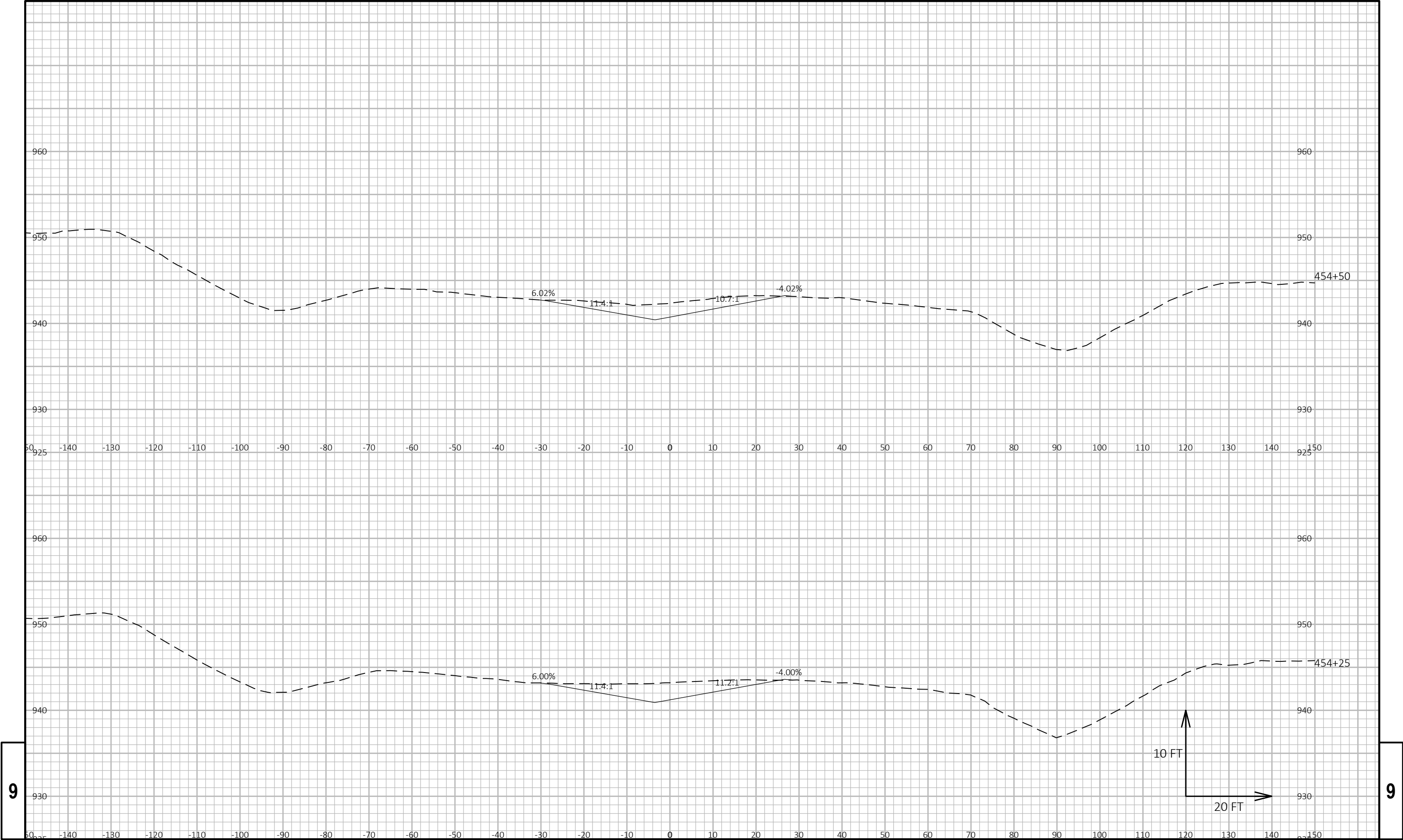
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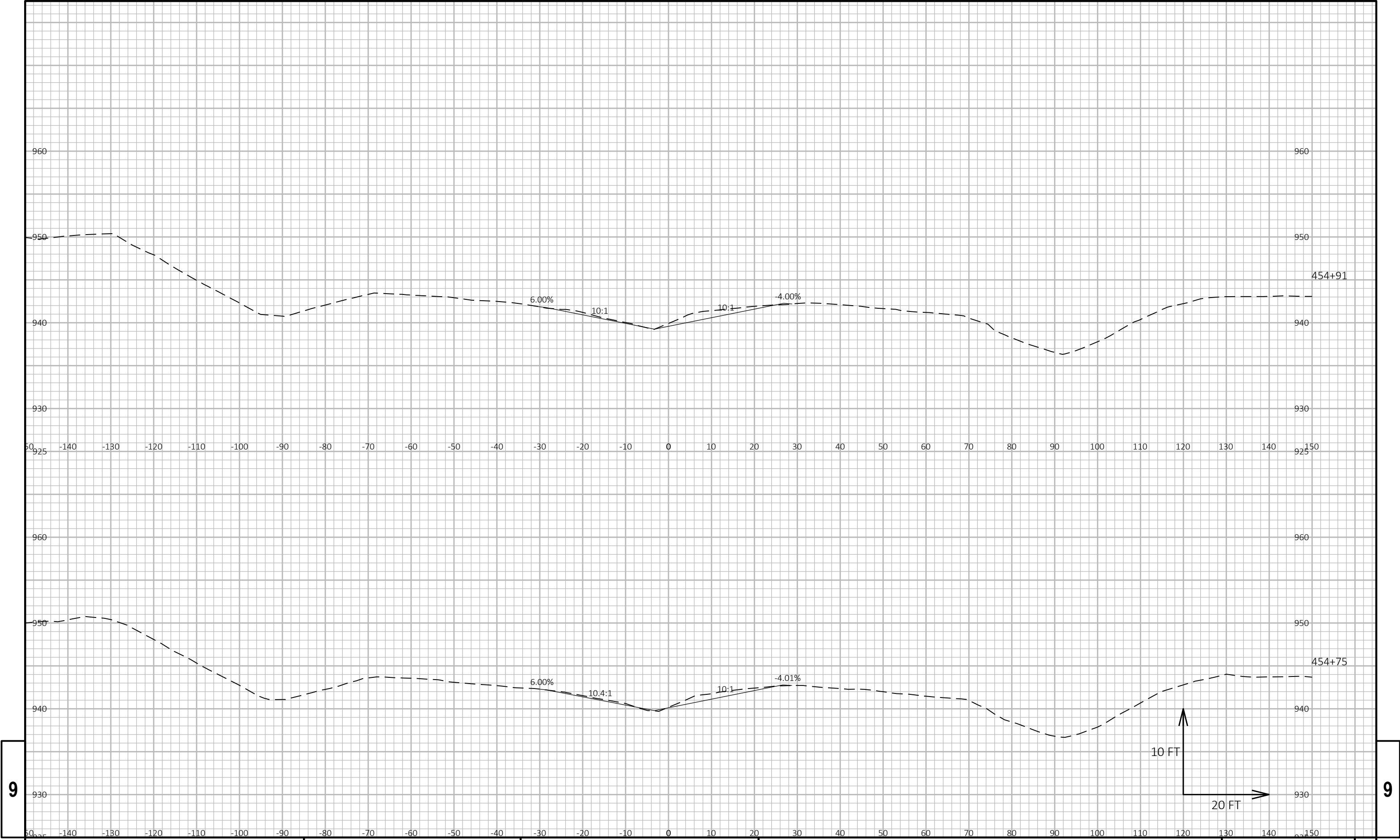
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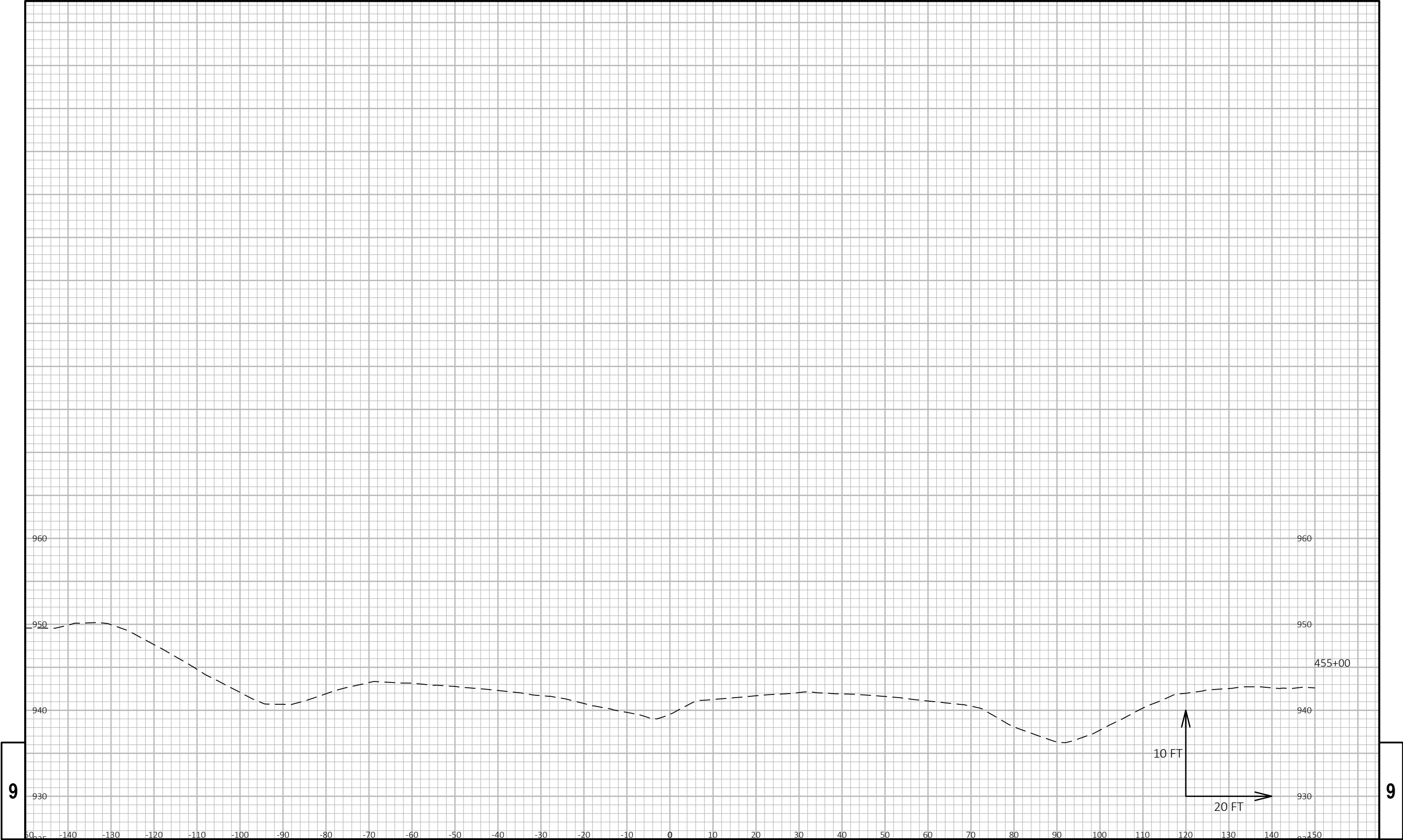
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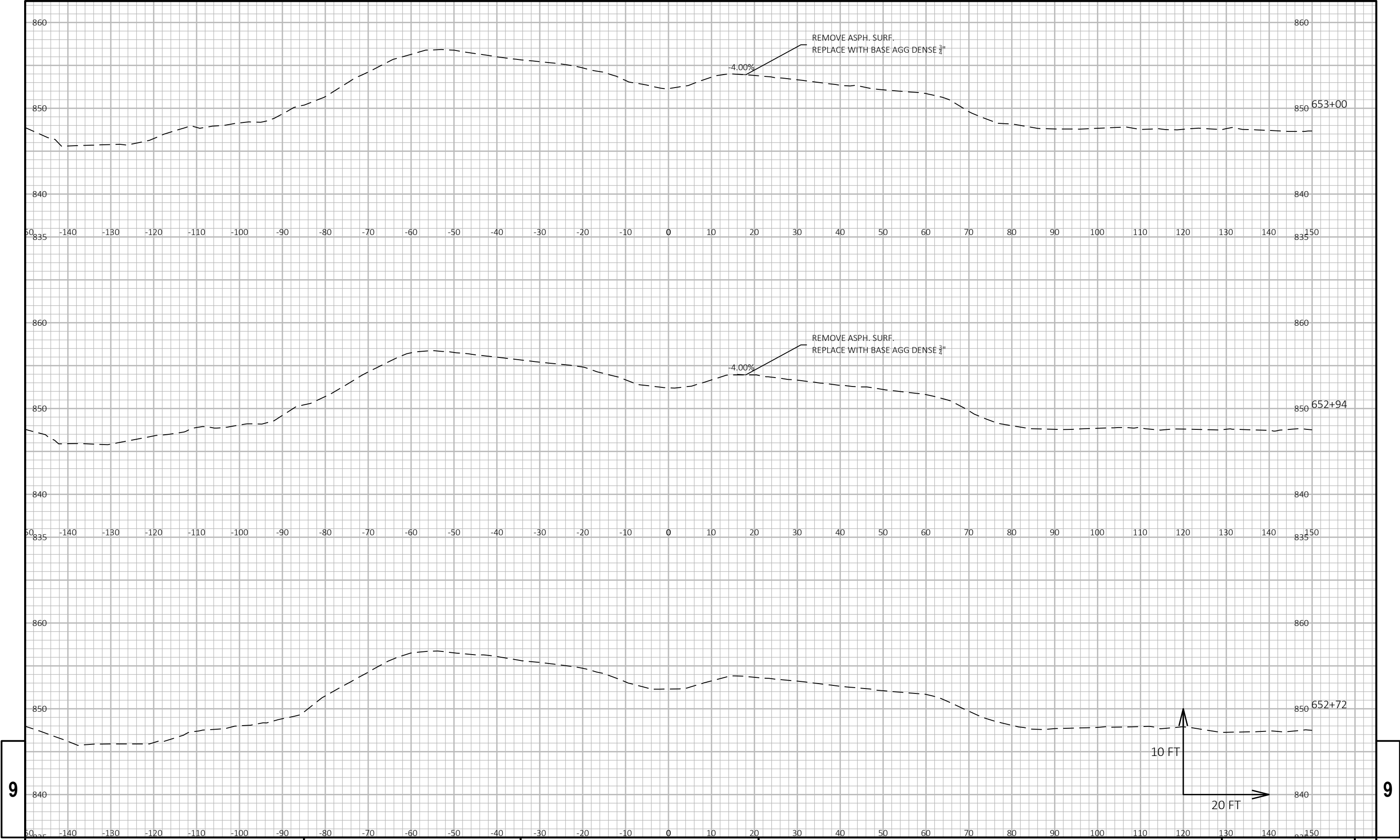
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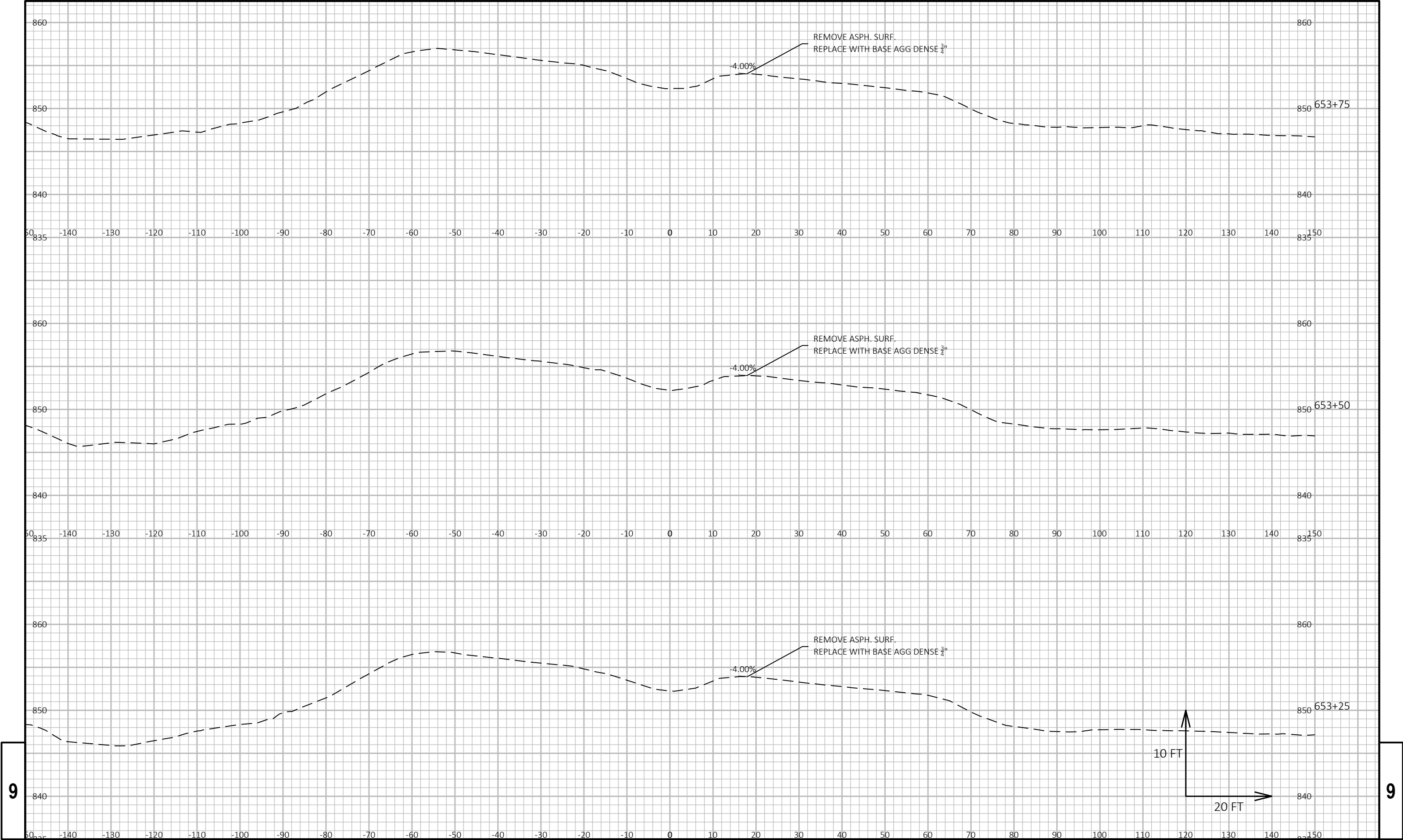
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PROJECT NO:	1370-17-70	HWY:	STH 16	COUNTY:	WAUKESHA	CROSS SECTIONS:	STH 16 - MEDIAN REMOVAL STA 454+30	SHEET	62	E
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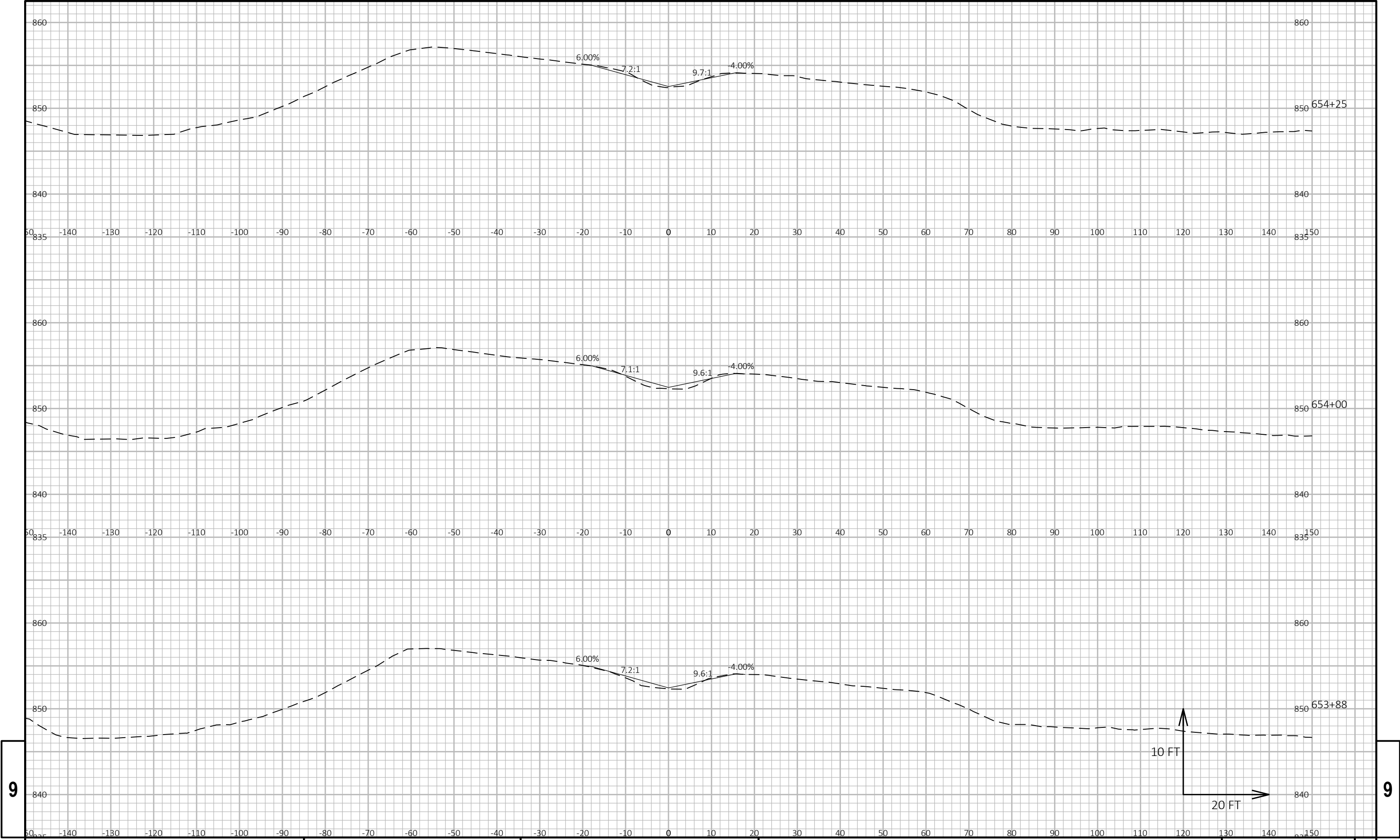
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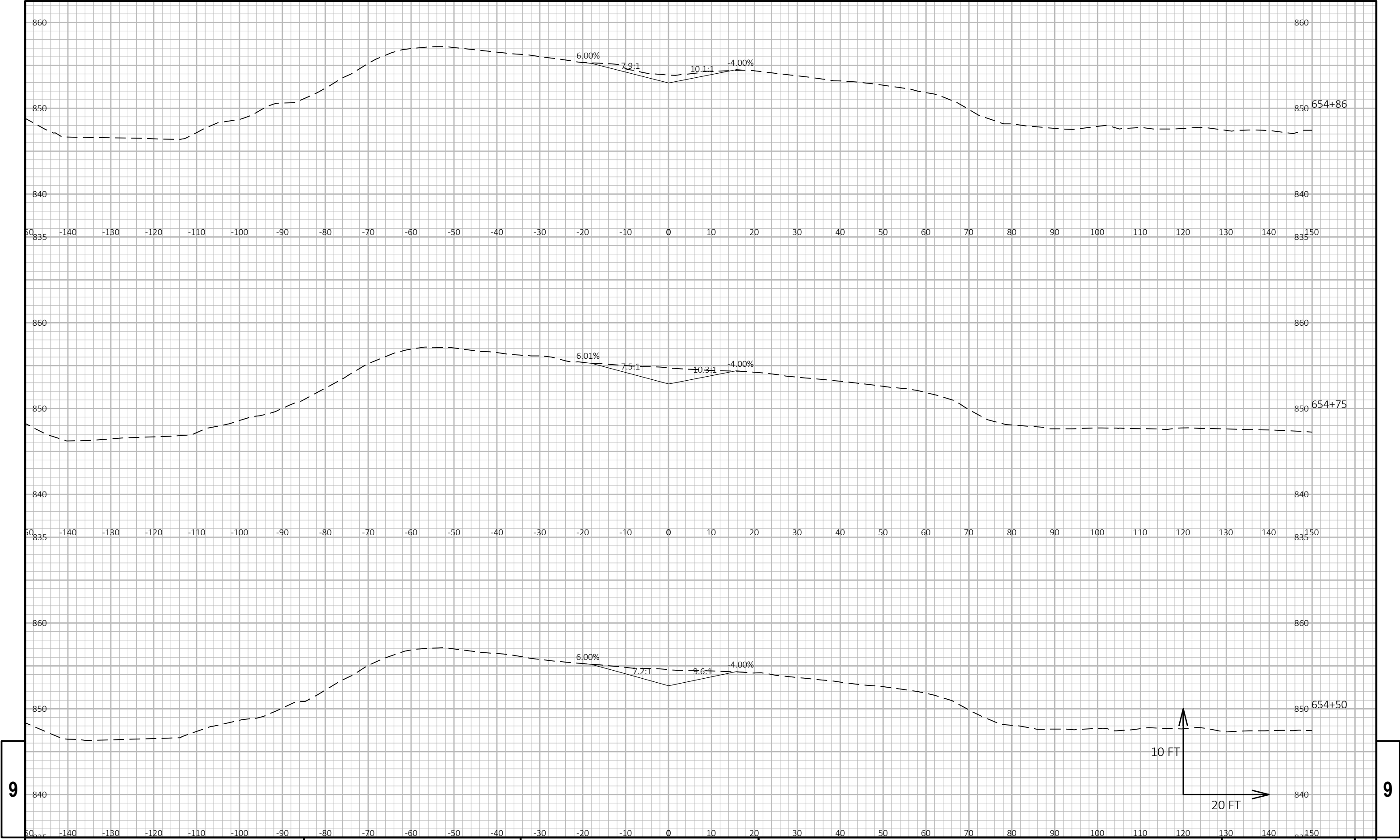
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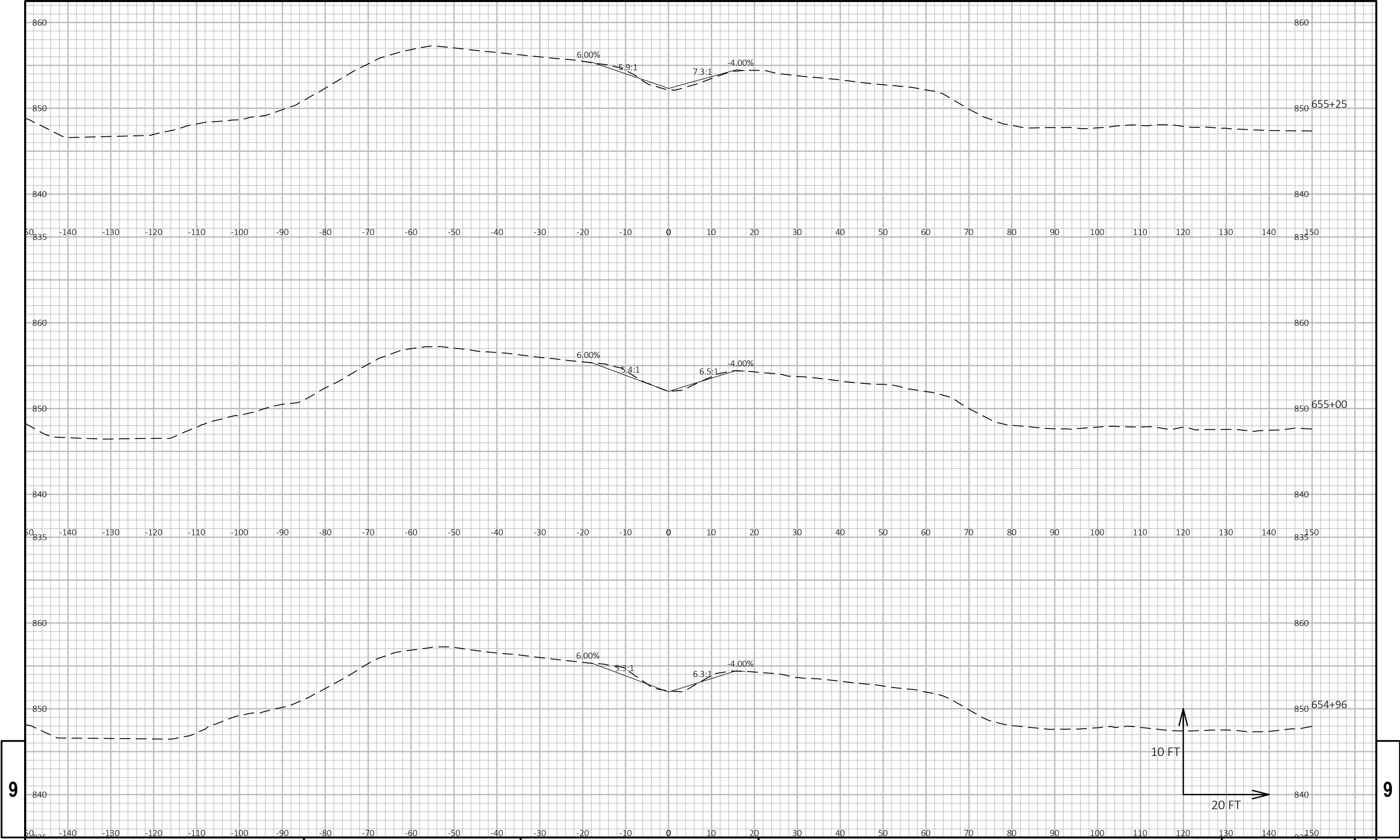
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PROJECT NO:	1370-17-70	HWY:	STH 16	COUNTY:	WAUKESHA	CROSS SECTIONS:	STH 16 - MEDIAN REMOVAL STA 654+62	SHEET	65	E
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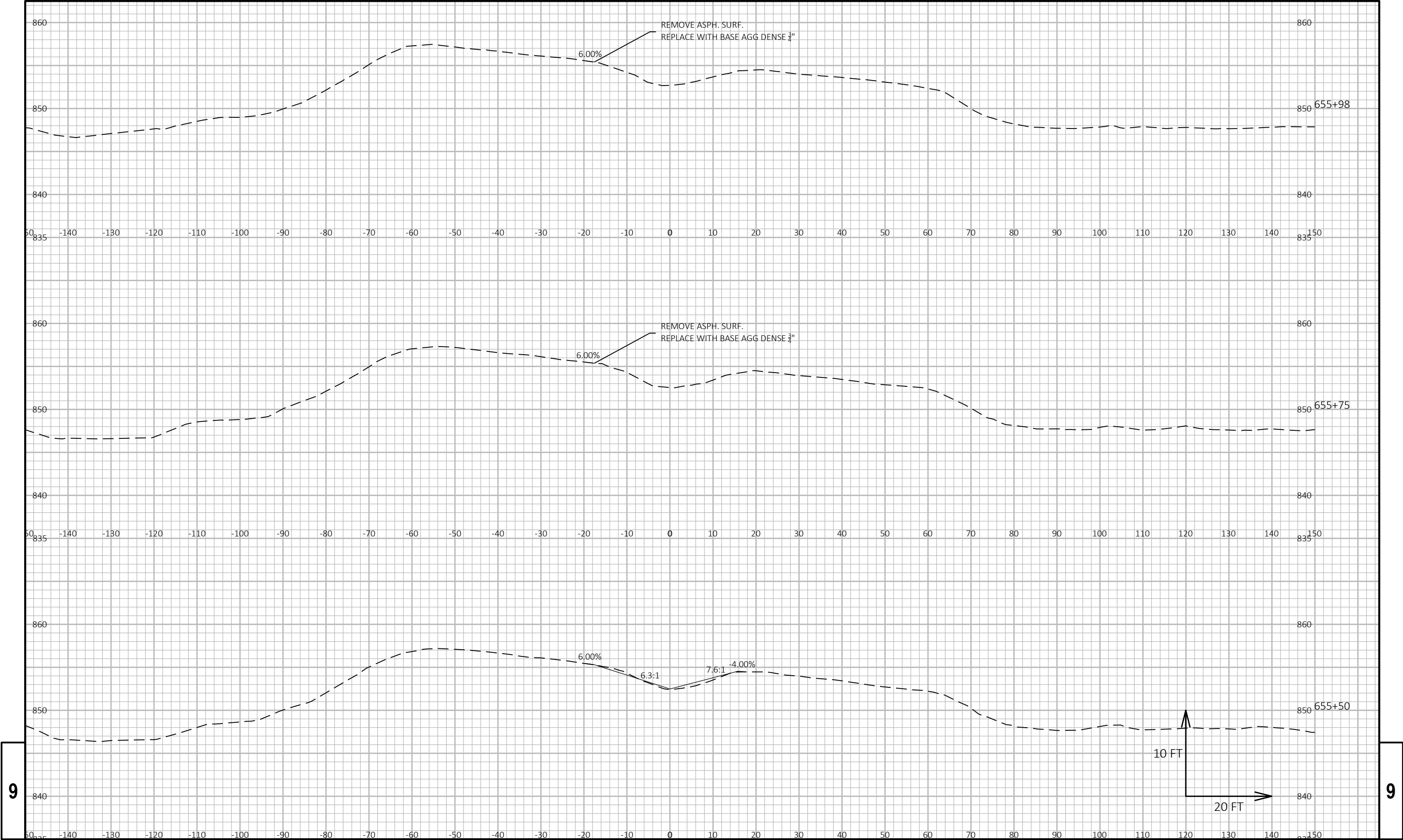
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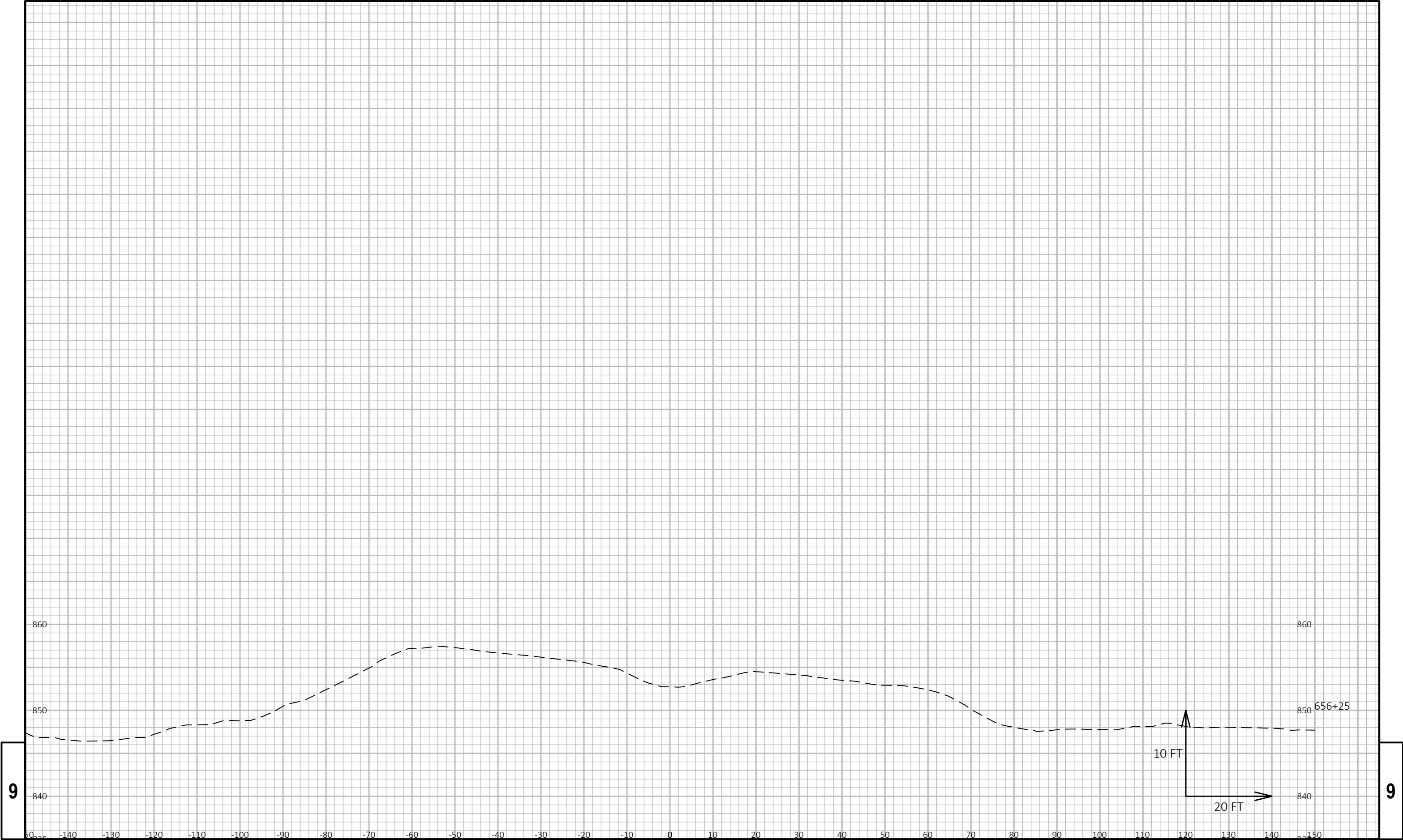
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PROJECT NO: 1370-17-70	HWY: STH 16	COUNTY: WAUKESHA	CROSS SECTIONS: STH 16 - MEDIAN REMOVAL STA 654+62	SHEET 67	E
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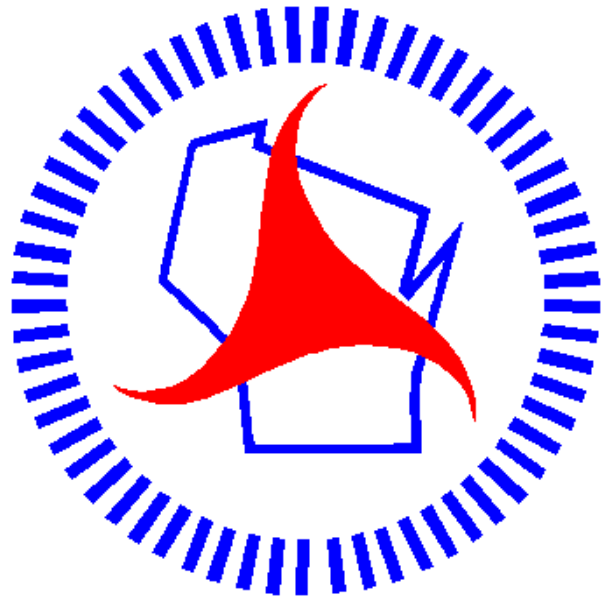
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PROJECT NO:	1370-17-70	HWY:	STH 16	COUNTY:	WAUKESHA	CROSS SECTIONS:	STH 16 - MEDIAN REMOVAL STA 654+62	SHEET	69	E
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