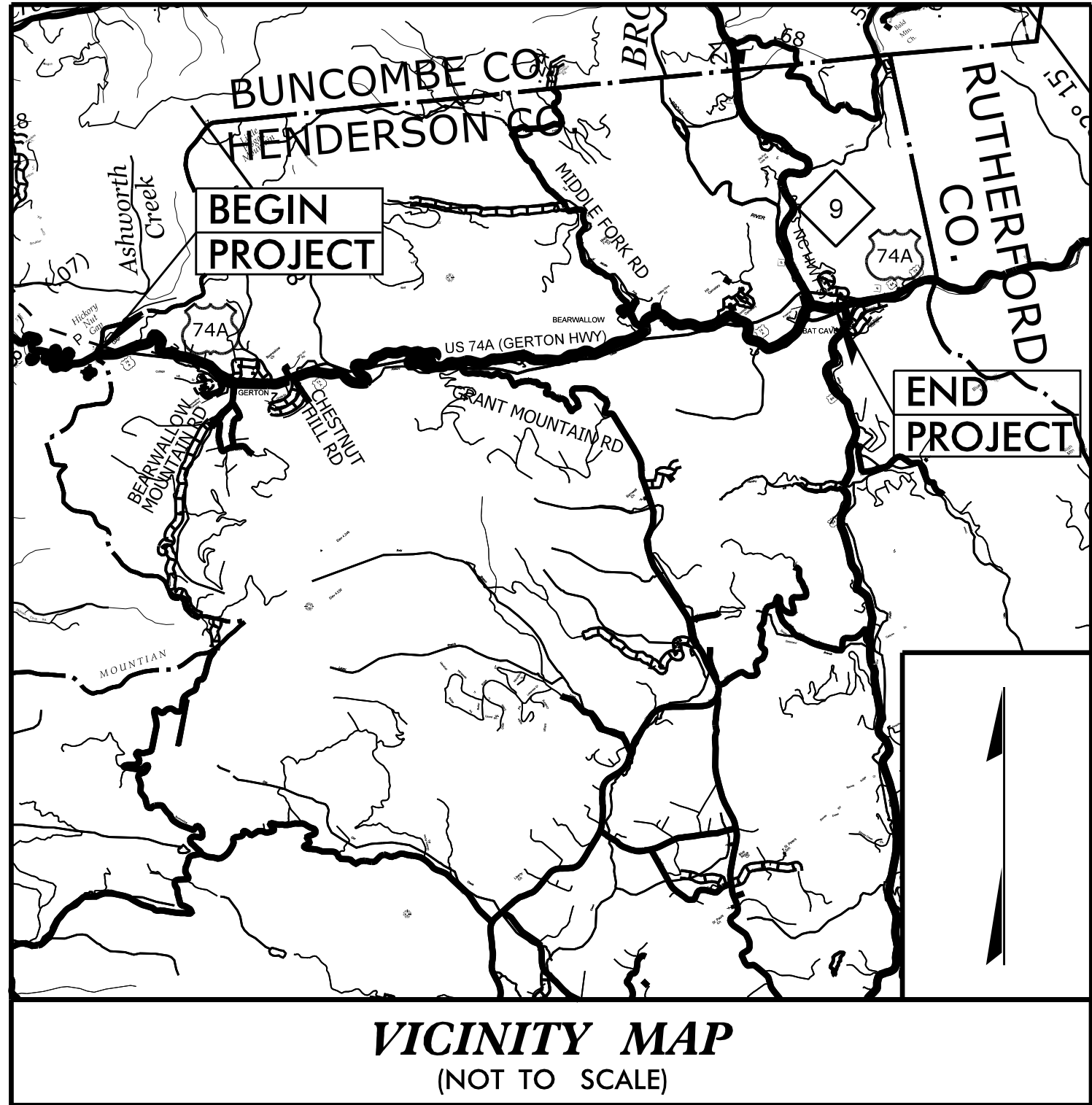


CONTRACT:

TIP PROJECT: 18314.1045999.3.3



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

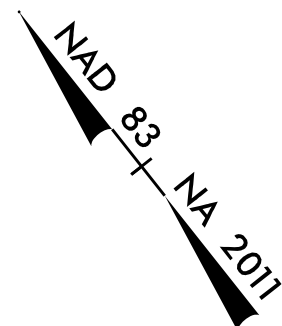
HENDERSON COUNTY

LOCATION: US 74A (GERTON HWY) FROM WEST OF SR 1693 (BEARWALLOW MOUNTAIN RD) TO US 64 (CHIMNEY ROCK RD)

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURES

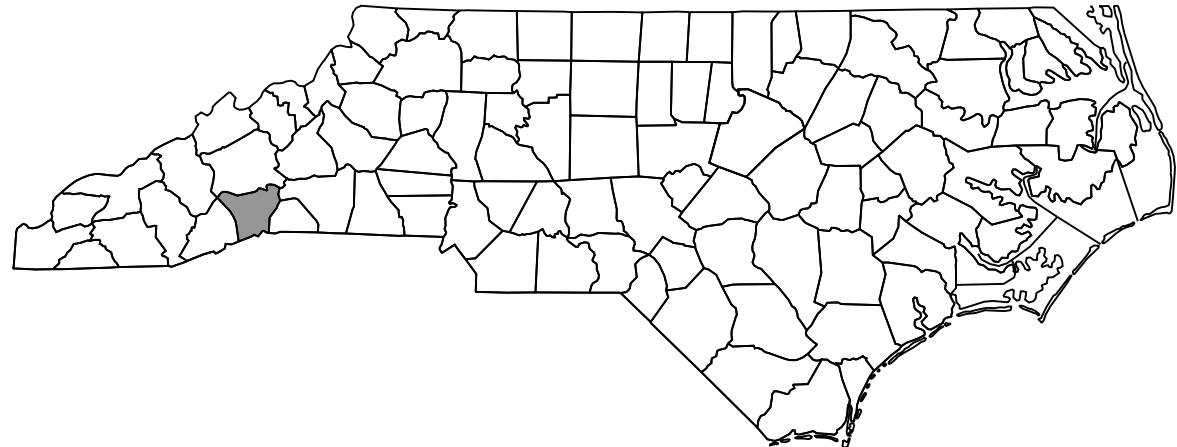
WORK PACKAGE #3: SR 1693 (BEARWALLOW MOUNTAIN ROAD) TO SR 1602 (GRANT MOUNTAIN ROAD))

WP#3 RFC PLANS

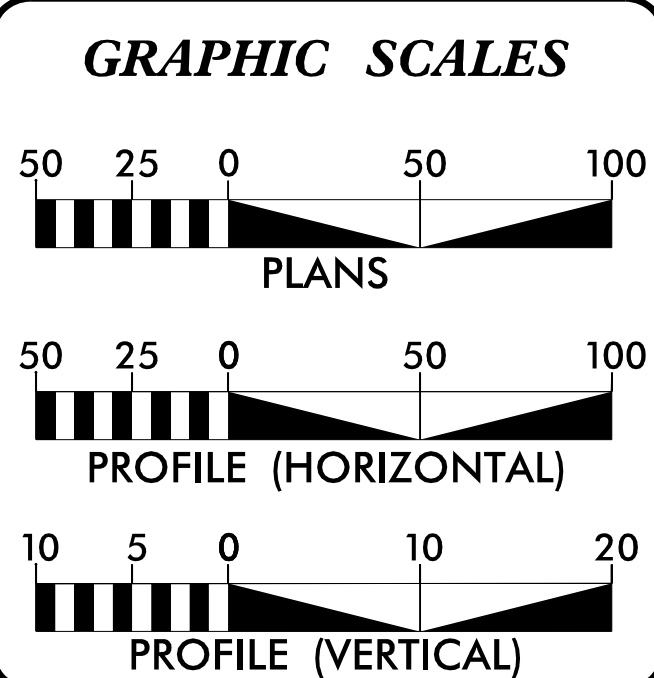
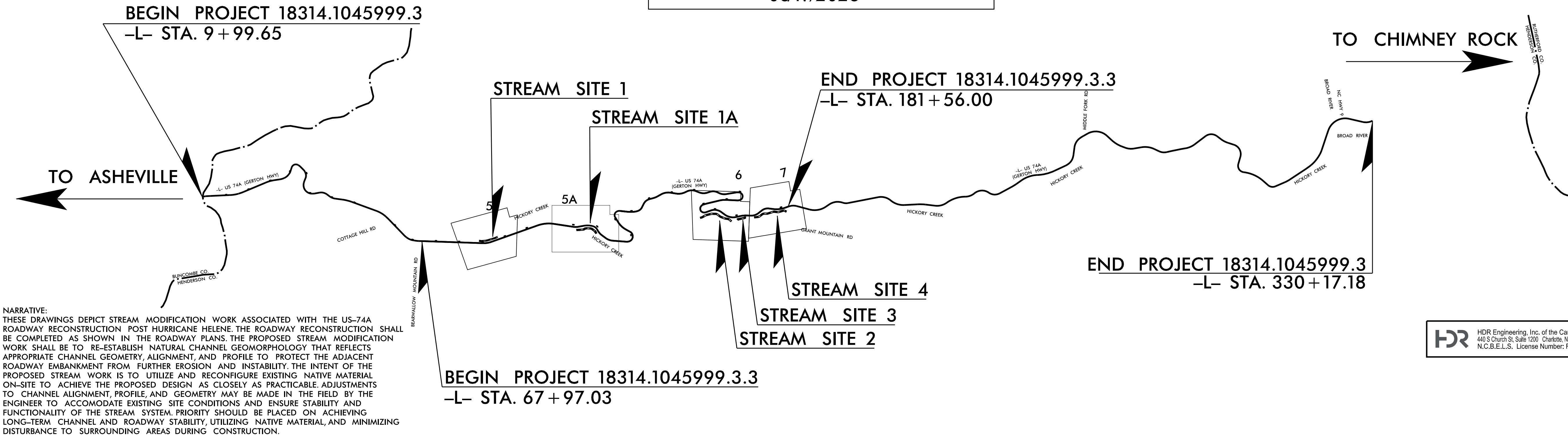


**WORK PACKAGE #3
RFC STREAM RELOCATION PLANS
06/17/2026**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	18314.1045999.3.3	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
----	N/A	P.E.	
18314.1045999.2.3	N/A	ROW	
18314.1045999.3.3	N/A	CONST	



SHEET	SHEET NO.
TITLE SHEET.....	1
ALIGNMENT DATA.....	2D-1 THRU 2D-1A
TYPICAL SECTIONS.....	2D-2
STREAM DETAILS SHEET.....	2D-3 THRU 2D-4
PLAN & PROFILE SHEETS.....	5-7
CROSS SECTIONS.....	X-1 THRU X-113

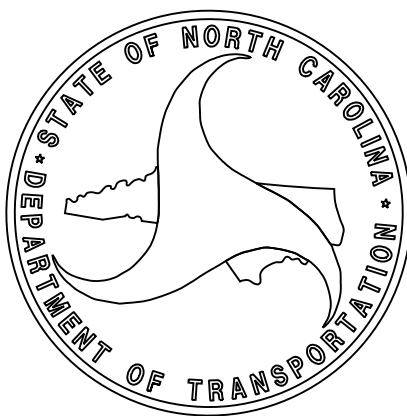


DESIGN DATA	
2022 =	1,500
ADT 2040 =	3,000
T =	8 %
V =	40 MPH
FUNC CLASS = MINOR ARTERIAL	

PROJECT LENGTH	
LENGTH ROADWAY WORK PACKAGE #3	= 2.167 MILES
TOTAL LENGTH TIP PROJECT US-74A	= 6.064 MILES

	Prepared In the Office of: HDR Engineering, Inc. of the Carolinas 440 S Church St, Suite 1200 Charlotte, NC 28202 N.C.B.E.L.S. License Number: F-0116
	2024 STANDARD SPECIFICATIONS
	RIGHT OF WAY DATE: -
	LETTING DATE: -
PHILLIP E. ROGERS, PE PROJECT ENGINEER	
MATTHEW J. WERDER, PE PROJECT DESIGN ENGINEER	
NATHAN R. TANNER, PE NCDOT CONTACT	

HYDRAULICS ENGINEER	
SIGNATURE: _____	P.E.
ROADWAY DESIGN ENGINEER	
SIGNATURE: _____	P.E.



STREAM SITE 1 ALIGNMENT DATA

Chain SS1 contains: SS1 CUR SS1-1 CUR SS1-2 CUR SS1-3 CUR SS1-4 SS3 SS2				
Beginning chain SS1 description =====				
Point SS1	N	645,517.7642 E	1,004,334.8507 Sta	0+00.00
Course from SS1 to PC SS1-1 S 47° 53' 27.17" E Dist 83.7069				
Curve Data -----*				
P.I. Station	0+91.75 N	645,455.6062 E	1,004,402.2780	
Delta	=	15° 01' 18.36" (LT)		
Degree	=	93° 53' 36.22"		
Tangent	=	8.0455		
Length	=	15.9987		
Radius	=	61.0222		
External	=	0.5261		
Long Chord	=	15.9530		
Mid. Ord.	=	0.5236		
P.C. Station	0+83.71 N	645,461.6349 E	1,004,396.9503	
P.T. Station	0+99.71 N	645,451.1643 E	1,004,408.9862	
C.C.	=	N 645,502.0436 E	1,004,442.6760	
Back	=	S 41° 28' 03.58" E		
Ahead	=	S 56° 29' 21.93" E		
Chord Bear	=	S 48° 58' 42.75" E		
Course from PT SS1-1 to PC SS1-2 S 58° 20' 46.91" E Dist 125.4961				
Curve Data -----*				
P.I. Station	2+28.21 N	645,383.8620 E	1,004,518.4504	
Delta	=	8° 47' 25.84" (LT)		
Degree	=	146° 27' 48.03"		
Tangent	=	3.0068		
Length	=	6.0019		
Radius	=	38.1195		
External	=	0.1154		
Long Chord	=	5.9960		
Mid. Ord.	=	0.1150		
P.C. Station	2+25.20 N	645,385.3061 E	1,004,515.8130	
P.T. Station	2+31.20 N	645,382.8379 E	1,004,521.2774	
C.C.	=	N 645,418.6186 E	1,004,534.6012	
Back	=	S 61° 17' 47.90" E		
Ahead	=	S 70° 05' 13.75" E		
Chord Bear	=	S 65° 41' 30.83" E		
Course from PT SS1-2 to PC SS1-3 S 69° 57' 02.22" E Dist 94.9996				
Curve Data -----*				
P.I. Station	3+27.70 N	645,349.7786 E	1,004,611.9379	
Delta	=	3° 22' 12.14" (RT)		
Degree	=	112° 13' 33.84"		
Tangent	=	1.5005		
Length	=	3.0002		
Radius	=	51.0084		
External	=	0.0221		
Long Chord	=	2.9998		
Mid. Ord.	=	0.0221		
P.C. Station	3+26.20 N	645,350.2692 E	1,004,610.5199	
P.T. Station	3+29.20 N	645,349.2055 E	1,004,613.3247	
C.C.	=	N 645,302.0638 E	1,004,593.8434	
Back	=	S 70° 55' 01.82" E		
Ahead	=	S 67° 32' 49.68" E		
Chord Bear	=	S 69° 13' 55.75" E		
Course from PT SS1-3 to PC SS1-4 S 68° 09' 17.63" E Dist 71.5030				
Curve Data -----*				
P.I. Station	4+05.21 N	645,320.9658 E	1,004,683.8919	
Delta	=	7° 16' 28.10" (LT)		
Degree	=	80° 50' 35.20"		
Tangent	=	4.5052		
Length	=	8.9953		
Radius	=	70.8728		
External	=	0.1430		
Long Chord	=	8.9922		
Mid. Ord.	=	0.1428		
P.C. Station	4+00.71 N	645,322.5994 E	1,004,679.6934	
P.T. Station	4+09.70 N	645,319.8770 E	1,004,688.2636	
C.C.	=	N 645,388.6498 E	1,004,705.3920	
Back	=	S 68° 44' 23.61" E		
Ahead	=	S 76° 00' 51.61" E		
Chord Bear	=	S 72° 22' 37.56" E		
Course from PT SS1-4 to SS3 S 76° 07' 12.26" E Dist 52.3070				
Point SS3	N	645,307.3291 E	1,004,739.0432 Sta	4+62.01
Course from SS3 to SS2 S 85° 52' 50.79" E Dist 35.2509				
Point SS2	N	645,304.7970 E	1,004,774.2030 Sta	4+97.26
Ending chain SS1 description =====				

STREAM SITE 2 ALIGNMENT DATA

Chain SS2 contains: S21 S22 CUR SS2-1 CUR SS2-2 CUR SS2-3 CUR SS2-4 CUR SS2-5 CUR SS2-6 CUR SS2-7 - S24 S25 S26 SS2				
Beginning chain SS2 description				
Point S21	N	642,944.0590 E	1,008,342.6810 Sta	0+00.00
Course from S21 to S22 N 85° 41' 01.63" E Dist 32.4703				
Point S22	N	642,946.5027 E	1,008,375.0592 Sta	0+32.47
Course from S22 to PC SS2-1 S 68° 34' 44.48" E Dist 40.9999				
Curve Data				
-----*				
P.I. Station		+083.03 N	642,928.1375 E	1,008,422.1620
Delta	=	15° 32' 42.56" (LT)		
Degree	=	81° 49' 54.15"		
Tangent	=	9.5569		
Length	=	18.9965		
Radius	=	70.0166		
External	=	0.6492		
Long Chord	=	18.9383		
Mid. Ord.	=	0.6433		
P.C. Station		+073.47 N	642,931.5288 E	1,008,413.2270
P.T. Station		+092.47 N	642,927.2649 E	1,008,431.6790
C.C.	=	N 642,996.9889 E		1,008,438.0725
Back	=	S 69° 12' 56.29" E		
Ahead	=	S 84° 45' 38.85" E		
Chord Bear	=	S 76° 59' 17.57" E		
Course from PT SS2-1 to PC SS2-2 S 85° 59' 19.57" E Dist 57.0000				
Curve Data				
-----*				
P.I. Station		+160.55 N	642,921.9128 E	1,008,499.5355
Delta	=	16° 57' 19.71" (RT)		
Degree	=	77° 04' 26.33"		
Tangent	=	11.0805		
Length	=	21.9990		
Radius	=	74.3387		
External	=	0.8213		
Long Chord	=	21.9188		
Mid. Ord.	=	0.8123		
P.C. Station		+149.47 N	642,923.2776 E	1,008,488.5394
P.T. Station		+171.47 N	642,917.4005 E	1,008,509.6556
C.C.	=	N 642,849.5050 E		1,008,479.3828
Back	=	S 82° 55' 28.94" E		
Ahead	=	S 65° 58' 09.23" E		
Chord Bear	=	S 74° 26' 49.09" E		
Course from PT SS2-2 to PC SS2-3 S 64° 42' 10.59" E Dist 116.9998				
Curve Data				
-----*				
P.I. Station		+160.55 N	642,921.9128 E	1,008,499.5355
Delta	=	16° 57' 19.71" (RT)		
Degree	=	77° 04' 26.33"		
Tangent	=	11.0805		
Length	=	21.9990		
Radius	=	74.3387		
External	=	0.8213		
Long Chord	=	21.9188		
Mid. Ord.	=	0.8123		
P.C. Station		+149.47 N	642,923.2776 E	1,008,488.5394
P.T. Station		+171.47 N	642,917.4005 E	1,008,509.6556
C.C.	=	N 642,849.5050 E		1,008,479.3828
Back	=	S 82° 55' 28.94" E		
Ahead	=	S 65° 58' 09.23" E		
Chord Bear	=	S 74° 26' 49.09" E		
Course from PT SS2-3 to PC SS2-4 S 64° 42' 10.59" E Dist 116.9998				
Curve Data				
-----*				
P.I. Station		+280.55 N	642,921.9128 E	1,008,499.5355
Delta	=	16° 57' 19.71" (RT)		
Degree	=	77° 04' 26.33"		
Tangent	=	11.0805		
Length	=	21.9990		
Radius	=	74.3387		
External	=	0.8213		
Long Chord	=	21.9188		
Mid. Ord.	=	0.8123		
P.C. Station		+149.47 N	642,923.2776 E	1,008,488.5394
P.T. Station		+171.47 N	642,917.4005 E	1,008,509.6556
C.C.	=	N 642,849.5050 E		1,008,479.3828
Back	=	S 82° 55' 28.94" E		
Ahead	=	S 65° 58' 09.23" E		
Chord Bear	=	S 74° 26' 49.09" E		
Course from PT SS2-4 to PC SS2-5 S 64° 42' 10.59" E Dist 116.9998				
Curve Data				
-----*				
P.I. Station		+406.16 N	642,921.9128 E	1,008,499.5355
Delta	=	16° 57' 19.71" (RT)		
Degree	=	77° 04' 26.33"		
Tangent	=	11.0805		
Length	=	21.9990		
Radius	=	74.3387		
External	=	0.8213		
Long Chord	=	21.9188		
Mid. Ord.	=	0.8123		
P.C. Station		+149.47 N	642,923.2776 E	1,008,488.5394
P.T. Station		+171.47 N	642,917.4005 E	1,008,509.6556
C.C.	=	N 642,849.5050 E		1,008,479.3828
Back	=	S 82° 55' 28.94" E		
Ahead	=	S 65° 58' 09.23" E		
Chord Bear	=	S 74° 26' 49.09" E		
Course from PT SS2-5 to PC SS2-6 S 64° 42' 10.59" E Dist 116.9998				
Curve Data				
-----*				
P.I. Station		+509.02 N	642,921.9128 E	1,008,499.5355
Delta	=	14° 30' 53.75" (LT)		
Degree	=	76° 23' 38.74"		
Tangent	=	5.5511		
Length	=	19.0000		
Radius	=	62.7284		
External	=	0.6057		
Long Chord	=	18.9492		
Mid. Ord.	=	0.6009		
P.C. Station		+449.46 N	642,701.9953 E	1,008,730.5817
P.T. Station		+518.46 N	642,684.5226 E	1,008,737.9150
C.C.	=	N 642,722.0512 E		1,008,802.8504
Back	=	S 15° 30' 36.93" E		
Ahead	=	S 30° 01' 30.68" E		
Chord Bear	=	S 22° 46' 03.80" E		
Course from PT SS2-6 to PC SS2-7 S 30° 44' 06.52" E Dist 75.0000				
Curve Data				
-----*				
P.I. Station		+604.02 N	642,692.7920 E	1,008,733.1358
Delta	=	14° 32' 46.57" (LT)		
Degree	=	69° 15' 27.81"		
Tangent	=	10.5583		
Length	=	21.0031		
Radius	=	62.7284		
External	=	0.6710		
Long Chord	=	20.9467		
Mid. Ord.	=	0.6556		
P.C. Station		+543.46 N	642,620.0572 E	1,008,776.2453
P.T. Station		+614.47 N	642,603.1652 E	1,008,788.6318
C.C.	=	N 642,660.1378 E		1,008,848.6161
Back	=	S 28° 58' 43.21" E		
Ahead	=	S 43° 31' 29.78" E		
Chord Bear	=	S 36° 15' 06.30" E		
Course from PT SS2-7 to S24 S 7° 27' 52.56" E Dist 46.0872				
Point S24	N	642,473.1036 E	1,008,852.1697 Sta	7+64.56
Course from S24 to S25 S 19° 16' 39.69" E Dist 2.7815				
Point S25	N	642,470.4780 E	1,008,853.0880 Sta	7+67.34
Course from S25 to S26 S 8° 32' 04.19" E Dist 14.4268				
Point S26	N	642,456.2110 E	1,008,855.2290 Sta	7+81.76
Course from S26 to S23 S 3° 46' 54.44" E Dist 29.8239				
Point S23	N	642,426.4520 E	1,008,857.1961 Sta	8+11.59
Beginning chain SS3 description				
Point SS31	N	642,407.6722 E	1,008,952.6603 Sta	0+00.00
Course from SS31 to SS32 N 60° 01' 44.52" E Dist 25.1962				
Point SS32	N	642,420.2593 E	1,008,974.4873 Sta	0+25.20
Course from SS32 to PC SS3-1 N 84° 53' 32.78" E Dist 0.9999				
Curve Data				
-----*				
P.I. Station		+028.20 N	642,420.4397 E	1,008,977.4821
Delta	=	4° 32' 12.47" (RT)		
Degree	=	113° 25' 29.06"		
Tangent	=	2.0010		
Length	=	3.9998		
Radius	=	50.5144		
External	=	0.0396		
Long Chord	=	3.9998		
Mid. Ord.	=	0.0396		
P.C. Station		+026.20 N	642,420.3493 E	1,008,975.4832
P.T. Station		+030.20 N	642,420.3728 E	1,008,979.4819
C.C.	=	N 642,369.8867 E		1,008,977.7913
Back	=	N 87° 22' 52.07" E		
Ahead	=	S 88° 04' 55.40" E		
Chord Bear	=	N 89° 38' 58.31" E		
Course from PT SS3-1 to PC SS3-2 S 89° 23' 01.85" E Dist 1.0000				
Curve Data				
-----*				
P.I. Station		+028.20 N	642,420.4397 E	1,008,977.4821
Delta	=	4° 32' 12.47" (		

STREAM SITE 1A ALIGNMENT DATA

Chain SS1A contains:
SS100 SS101 CUR SS1A-1 CUR SS1A-2 CUR SS1A-3 CUR SS1A-4 CUR SS1A-5 CUR
SS1A-6
SS102 CUR SS1A-7 CUR SS1A-8 CUR SS1A-9 CUR SS1A-10 CUR SS1A-11 CUR
SS1A-12 CUR -
SS1A-13 SS103 SS104

Beginning chain SS1A description

Point SS100 N 644,398.6217 E 1,006,126.4466 Sta 0+00.00

Course from SS100 to SS101 S 48° 10' 49.05" E Dist 24.7572

Point SS101 N 644,381.4800 E 1,006,144.3094 Sta 0+24.76

Course from SS101 to PC SS1A-1 S 56° 09' 49.58" E Dist 8.0000

Curve Data

Curve SS1A-1
P.I. Station 0+34.76 N 644,375.9263 E 1,006,152.6330
Delta = 11° 07' 06.47" (RT)
Degree = 277° 57' 09.47"
Tangent = 2.0064
Length = 4.0011
Radius = 20.6135
External = 0.0974
Long Chord = 3.9939
Mid. Ord. = 0.0970
P.C. Station 0+32.76 N 644,377.0254 E 1,006,150.9545
P.T. Station 0+36.76 N 644,374.5241 E 1,006,154.0880
C.C. N 644,359.7804 E 1,006,139.6617
Back = S 56° 46' 53.23" E
Ahead = S 45° 39' 46.76" E
Chord Bear = S 51° 13' 19.99" E

Course from PT SS1A-1 to PC SS1A-2 S 48° 00' 47.53" E Dist 4.9997

Curve Data

Curve SS1A-2
P.I. Station 0+54.27 N 644,363.5048 E 1,006,167.6649
Delta = 6° 50' 35.67" (LT)
Degree = 27° 22' 52.31"
Tangent = 12.5111
Length = 24.9925
Radius = 209.2523
External = 0.3737
Long Chord = 24.9776
Mid. Ord. = 0.3730
P.C. Station 0+41.75 N 644,371.1795 E 1,006,157.7843
P.T. Station 0+66.75 N 644,357.0620 E 1,006,178.3896
C.C. N 644,536.4357 E 1,006,286.1467
Back = S 52° 09' 42.40" E
Ahead = S 59° 00' 18.07" E
Chord Bear = S 55° 35' 00.24" E

Curve Data

Curve SS1A-3
P.I. Station 0+81.77 N 644,349.7650 E 1,006,191.5151
Delta = 6° 48' 54.94" (RT)
Degree = 22° 43' 03.92"
Tangent = 15.0176
Length = 29.9997
Radius = 252.2070
External = 0.4467
Long Chord = 29.9820
Mid. Ord. = 0.4459
P.C. Station 0+69.75 N 644,357.0620 E 1,006,178.3896
P.T. Station 0+96.75 N 644,340.9619 E 1,006,203.6820
C.C. N 644,136.6295 E 1,006,055.8420
Back = S 60° 55' 42.62" E
Ahead = S 54° 06' 47.68" E
Chord Bear = S 57° 31' 15.15" E

Course from PT SS1A-3 to PC SS1A-4 S 54° 32' 54.96" E Dist 24.0000

Curve Data

Curve SS1A-4
P.I. Station 1+29.25 N 644,322.2672 E 1,006,230.2716
Delta = 4° 51' 54.02" (RT)
Degree = 28° 36' 59.77"
Tangent = 8.5054
Length = 17.0006
Radius = 200.2187
External = 0.1806
Long Chord = 16.9855
Mid. Ord. = 0.1804
P.C. Station 1+20.75 N 644,327.0416 E 1,006,223.2326
P.T. Station 1+37.75 N 644,316.9130 E 1,006,236.8903
C.C. N 644,161.3430 E 1,006,110.8427
Back = S 55° 51' 06.44" E
Ahead = S 50° 59' 12.42" E
Chord Bear = S 53° 25' 09.43" E

Course from PT SS1A-4 to PC SS1A-5 S 51° 14' 58.96" E Dist 11.9998

Curve Data

Curve SS1A-5
P.I. Station 1+66.00 N 644,299.1711 E 1,006,258.8621
Delta = 24° 48' 04.97" (LT)
Degree = 77° 31' 56.39"
Tangent = 16.2487
Length = 31.9884
Radius = 73.8992
External = 1.7653
Long Chord = 31.7393
Mid. Ord. = 1.7241
P.C. Station 1+49.75 N 644,309.4020 E 1,006,246.2388
P.T. Station 1+81.74 N 644,295.1789 E 1,006,274.6128
C.C. N 644,366.8130 E 1,006,292.7691
Back = S 50° 58' 33.59" E
Ahead = S 75° 46' 38.56" E
Chord Bear = S 63° 22' 36.08" E

Course from PT SS1A-5 to PC SS1A-6 S 81° 21' 03.90" E Dist 30.9983

Curve Data

Curve SS1A-6
P.I. Station 2+19.82 N 644,289.3965 E 1,006,312.2580
Delta = 22° 11' 40.45" (RT)
Degree = 158° 32' 23.39"
Tangent = 7.3865
Length = 13.9994
Radius = 36.1397
External = 0.6886
Long Chord = 13.9120
Mid. Ord. = 0.6757
P.C. Station 2+12.74 N 644,290.5174 E 1,006,305.2586
P.T. Station 2+26.74 N 644,285.7147 E 1,006,318.3153
C.C. N 644,254.8324 E 1,006,299.5440
Back = S 80° 54' 06.93" E
Ahead = S 58° 42' 26.48" E
Chord Bear = S 69° 48' 16.70" E

Course from PT SS1A-6 to SS102 S 59° 05' 25.60" E Dist 15.5926

Point SS102 N 644,277.7050 E 1,006,331.6935 Sta 2+42.33

Course from SS102 to PC SS1A-7 S 59° 20' 45.62" E Dist 10.0000

Curve Data

Curve SS1A-7
P.I. Station 2+59.85 N 644,268.9394 E 1,006,346.8670
Delta = 11° 11' 32.52" (RT)
Degree = 74° 36' 24.02"
Tangent = 7.5249
Length = 15.0018
Radius = 76.7971
External = 0.3678
Long Chord = 14.9780
Mid. Ord. = 0.3660
P.C. Station 2+52.33 N 644,272.6064 E 1,006,340.2961
P.T. Station 2+73.33 N 644,254.0667 E 1,006,352.6011
C.C. N 644,205.5456 E 1,006,302.8710
Back = S 60° 50' 06.44" E
Ahead = S 49° 38' 33.92" E
Chord Bear = S 55° 14' 20.18" E

Course from PT SS1A-7 to PC SS1A-8 S 48° 12' 54.03" E Dist 52.9948

STREAM SITE 1A ALIGNMENT DATA (CONTINUED)

Curve Data

Curve SS1A-8
P.I. Station 3+32.35 N 644,220.5427 E 1,006,400.9046
Delta = 9° 24' 23.16" (RT)
Degree = 39° 11' 32.16"
Tangent = 12.0274
Length = 24.0007
Radius = 146.1915
External = 0.4939
Long Chord = 23.9738
Mid. Ord. = 0.4923
P.C. Station 3+20.33 N 644,228.7543 E 1,006,392.1167
P.T. Station 3+44.33 N 644,211.0053 E 1,006,408.2324
C.C. N 644,121.9375 E 1,006,292.3061
Back = S 46° 56' 31.26" E
Ahead = S 37° 32' 08.10" E
Chord Bear = S 42° 14' 19.68" E

Curve Data

Curve SS1A-9
P.I. Station 3+53.38 N 644,203.8477 E 1,006,413.7816
Delta = 15° 35' 35.61" (RT)
Degree = 86° 37' 18.80"
Tangent = 9.0567
Length = 18.0015
Radius = 66.1447
External = 0.6172
Long Chord = 17.9460
Mid. Ord. = 0.6115
P.C. Station 3+44.33 N 644,211.0053 E 1,006,408.2324
P.T. Station 3+62.33 N 644,195.4620 E 1,006,417.2025
C.C. N 644,170.4774 E 1,006,355.9580
Back = S 37° 47' 10.17" E
Ahead = S 22° 11' 34.55" E
Chord Bear = S 29° 59' 22.36" E

Course from PT SS1A-9 to PC SS1A-10 S 19° 25' 46.33" E Dist 31.9887

Curve Data

Curve SS1A-10
P.I. Station 4+03.83 N 644,156.2182 E 1,006,430.6973
Delta = 7° 38' 53.12" (RT)
Degree = 40° 15' 01.02"
Tangent = 9.5148
Length = 19.0013
Radius = 142.3488
External = 0.3176
Long Chord = 18.9872
Mid. Ord. = 0.3169
P.C. Station 3+94.32 N 644,165.2949 E 1,006,427.8435
P.T. Station 4+13.32 N 644,146.8424 E 1,006,432.3177
C.C. N 644,122.6002 E 1,006,292.0483
Back = S 17° 27' 12.40" E
Ahead = S 9° 48' 19.29" E
Chord Bear = S 13° 37' 45.84" E

Curve Data

Curve SS1A-11
P.I. Station 4+28.32 N 644,132.1532 E 1,006,435.3590
Delta = 1° 35' 11.94" (RT)
Degree = 5° 17' 20.11"
Tangent = 15.0007
Length = 29.9995
Radius = 1,083.3172
External = 0.1039
Long Chord = 29.9986
Mid. Ord. = 0.1038
P.C. Station 4+13.32 N 644,146.8424 E 1,006,432.3177
P.T. Station 4+13.32 N 644,117.3855 E 1,006,437.9925
C.C. N 643,927.2009 E 1,005,371.5002
Back = S 11° 41' 51.94" E
Ahead = S 10° 06' 40.00" E
Chord Bear = S 10° 54' 15.97" E

Curve Data

Curve SS1A-12
P.I. Station 4+51.96 N 644,109.1312 E 1,006,440.5619
Delta = 24° 58' 14.66" (RT)
Degree = 146° 45' 17.19"
Tangent = 8.6449
Length = 17.0153
Radius = 39.0419
External = 0.9457
Long Chord = 16.8809
Mid. Ord. = 0.9233
P.C. Station 4+43.32 N 644,117.3855 E 1,006,437.9925
P.T. Station 4+60.33 N 644,100.5639 E 1,006,439.4065
C.C. N 644,105.7818 E 1,006,400.7149
Back = S 17° 17' 24.65" E
Ahead = S 7° 40' 50.01" W
Chord Bear = S 4° 48' 17.32" E

Curve Data

Curve SS1A-13
P.I. Station 4+68.36 N 644,092.5455 E 1,006,438.9999
Delta = 11° 36' 51.49" (RT)
Degree = 72° 34' 43.95"
Tangent = 8.0287
Length = 16.0023
Radius = 78.9428
External = 0.4072
Long Chord = 15.9749
Mid. Ord. = 0.4051
P.C. Station 4+60.33 N 644,100.5639 E 1,006,439.4065
P.T. Station 4+76.33 N 644,064.7732 E 1,006,436.9874
C.C. N 644,104.5617 E 1,006,360.5650
Back = S 2° 54' 10.17" W
Ahead = S 14° 31' 01.68" W
Chord Bear = S 8° 42' 35.92" W

Course from PT SS1A-13 to SS103 S 12° 17' 53.61" W Dist 29.0000

Point SS103 N 644,056.4387 E 1,006,430.8104 Sta 5+05.33

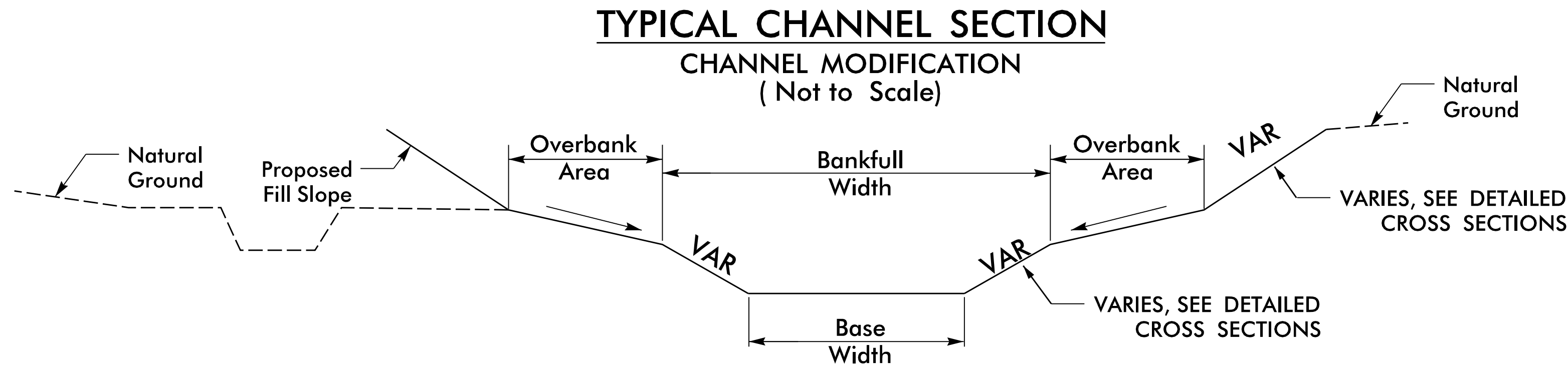
Course from SS103 to SS104 S 0° 15' 54.88" W Dist 34.2103

Point SS104 N 644,022.2287 E 1,006,430.6520 Sta 5+39.54

Ending chain SS1A description

REVISIONS

6/2/99



NOTES:

1. WHERE SUITABLE SOIL MATERIAL EXISTS FOR PLANT GROWTH, OVERBANK AREAS AND HIGHER ELEVATION SLOPES SHALL BE SEEDED WITH RIPARIAN BUFFER SEED MIX. BIOENGINEERING LIVESTAKING SHALL BE PROVIDED AS SHOWN ON PLANS AND IN ALL AREAS WHERE EXISTING TREES ARE REMOVED.

TYPICAL CHANNEL SECTION

VARIABLE	STATION - STATION
STREAM SITE 1	79+20.46 - 83+59.46
STREAM SITE 1A	100+70.04 - 106+17.12
STREAM SITE 2	162+12.67 - 168+83.89
STREAM SITE 3	169+93.93 - 171+91.12
STREAM SITE 4	173+54.26 - 180+72.80

Permanent Riparian Seed Mix (20 lbs/acre w/ cover crop*)			
Botanical Name	Common Name	Percentage of Mix	Seed (lbs./acre)
<i>Sorghastrum nutans</i>	Indiangrass	24	4.8
<i>Panicum virgatum</i>	Switchgrass	23	4.6
<i>Andropogon gerardii</i>	Big Bluestem	20.8	4.2
<i>Elymus virginicus</i>	Virginia Wild Rye	20	4
<i>Helopsis helianthoides</i>	Oxeye Sunflower	3	0.6
<i>Rudbeckia hirta</i>	Black-eyed Susan	3	0.6
<i>Asclepias incarnata</i>	Swamp Milkweed	2	0.4
<i>Monarda fistulosa</i>	Wild Bergamot	1.2	0.2
<i>Helianthus angustifolius</i>	Narrowleaf Sunflower	1	0.2
<i>Aster umbellatus</i>	Flat Topped White Aster	0.5	0.1
<i>Eupatorium perfoliatum</i>	Boneset	0.5	0.1
<i>Solidago nemoralis</i>	Gray Goldenrod	0.5	0.1
<i>Vernonia noveboracensis</i>	New York Ironweed	0.5	0.1

*For a cover crop, use either grain rye (30 lbs/acre, 1 Sept to 31 Apr) or Japanese Millet (10 lbs/acre, 1 May to 31 Aug).

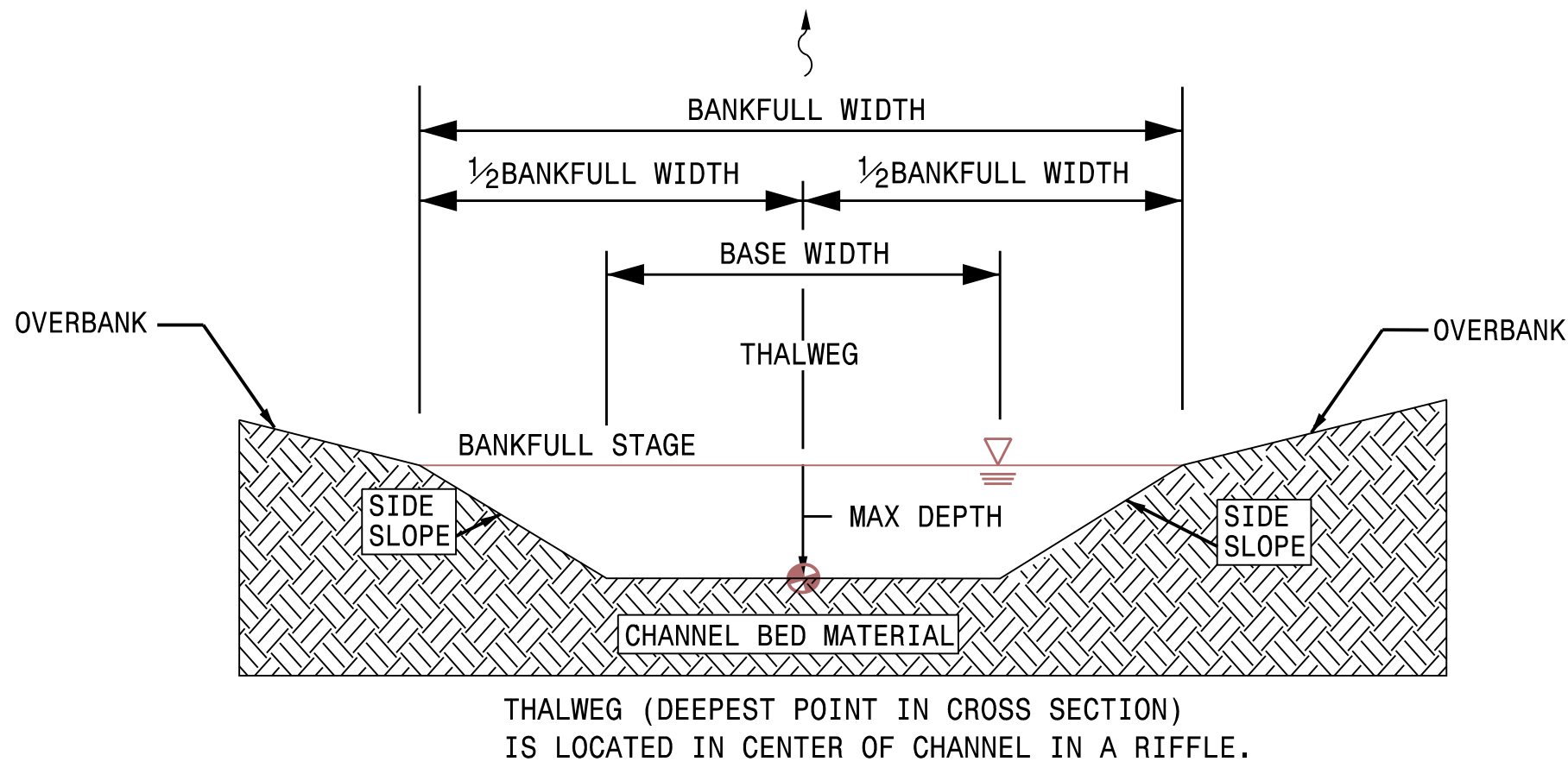
NOTES:

1. CONTRACTOR MAY USE ERNST NC. MOUNTAINS RIPARIAN (ERNMX-304) SEED MIX SHOWN IN THE TABLE OR APPROVED EQUAL.

TYPICAL SECTION - RIFFLE

SCALE: NTS
ALL UNITS ARE IN FEET

VARIABLE	STREAM SITE 1	STREAM SITE 1A	STREAM SITE 2	STREAM SITE 3	STREAM SITE 4
BANKFULL WIDTH	25	27	27	29	29
BASE WIDTH	12	12	12	13	13
MAXIMUM DEPTH	2.2	2.5	2.6	2.7	2.7
SIDE SLOPE (H:V)	3:1	3:1	3:1	3:1	3:1



- NOTES:
- ALL CROSS SECTIONS ARE SHOWN LOOKING IN THE (DOWNSTREAM) DIRECTION.
 - - GRADE POINT IS THE ELEVATION SHOWN ON PROFILE.
 - ALL SHARP CORNERS SHOULD BE ROUNDED
 - CONSTRUCT CHANNEL BED USING LOCAL MATERIAL CONSISTING OF GRAVEL, COBBLE, AND BOULDERS. LARGEST LOCAL MATERIAL SHOULD BE UTILIZED IN THE OVERBANK AREA.

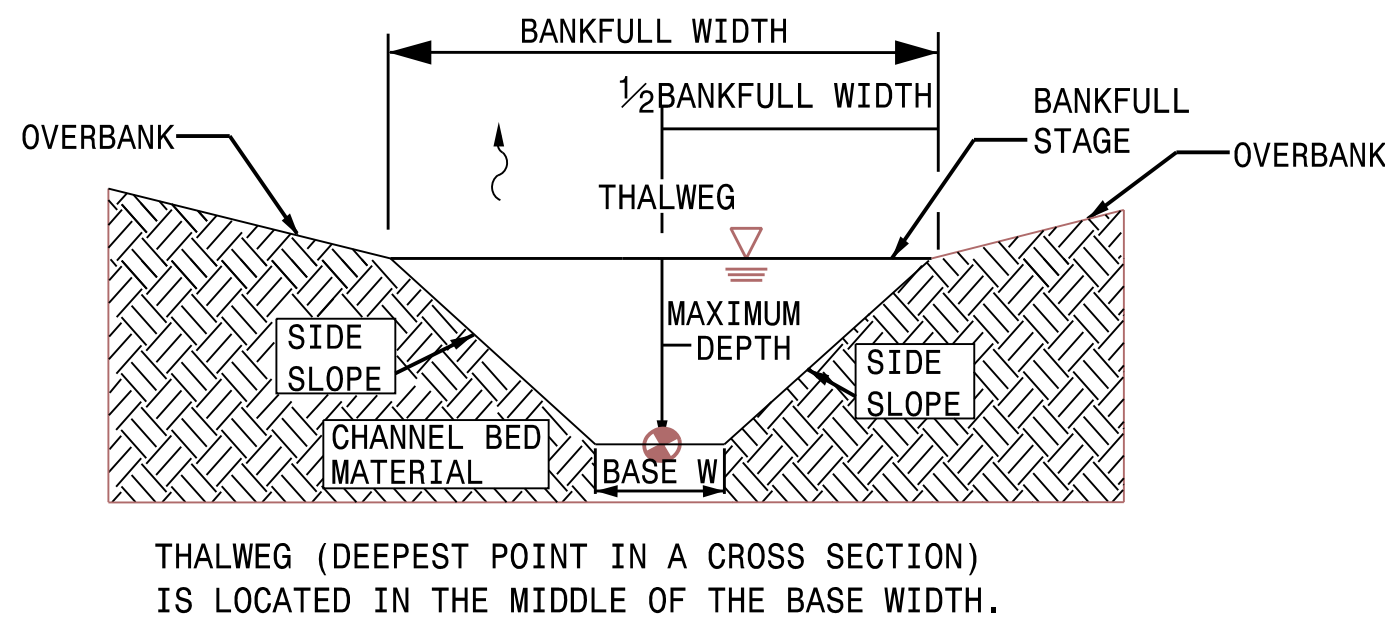
	Estimated Bankfull Flow Based on Regional Curves	
Stream Site	cfs	gpm
SS1	199	89300
SS1A	265	119000
SS2	303	136200
SS3	315	141500
SS4	315	141500

		Stream Site									
		SS1		SS1A		SS2		SS3		SS4	
Parameter	Unit	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
Rifle Slope	%	-2	-6	-2	-10	-4	-6	-3	-6	-2	-6
Run Slope	%	-12	-25	-20	-45	-15	-30	-10	-25	-12	-25
Pool Slope	%	2	5	2	5	2	5	2	5	2	5
Glide Slope	%	6	15	5	15	12	25	6	15	6	15
Rifle Length	Ft	20	30	10	20	10	20	25	35	25	35
Pool Length	Ft	15	25	8	15	8	15	20	30	20	30

TYPICAL SECTION - POOL

SCALE: NTS
ALL UNITS ARE IN FEET

VARIABLE	STREAM SITE 1	STREAM SITE 1A	STREAM SITE 2	STREAM SITE 3	STREAM SITE 4
BANKFULL WIDTH	28	30	30	32	32
BASE WIDTH	11.5	11.6	11.5	12.6	12.6
MAX DEPTH	3.2	3.6	3.7	3.8	3.8
SIDE SLOPE (H:V)	2.5:1	2.5:1	2.5:1	2.5:1	2.5:1



- NOTES:
- ALL CROSS SECTIONS ARE SHOWN LOOKING IN THE (DOWNSTREAM) DIRECTION.
 - - GRADE POINT IS THE ELEVATION SHOWN ON PROFILE.
 - ALL SHARP CORNERS SHOULD BE ROUNDED
 - CONSTRUCT CHANNEL BED USING LOCAL MATERIAL CONSISTING OF GRAVEL, COBBLE, AND BOULDERS. LARGEST LOCAL MATERIAL SHOULD BE UTILIZED IN THE OVERBANK AREA.

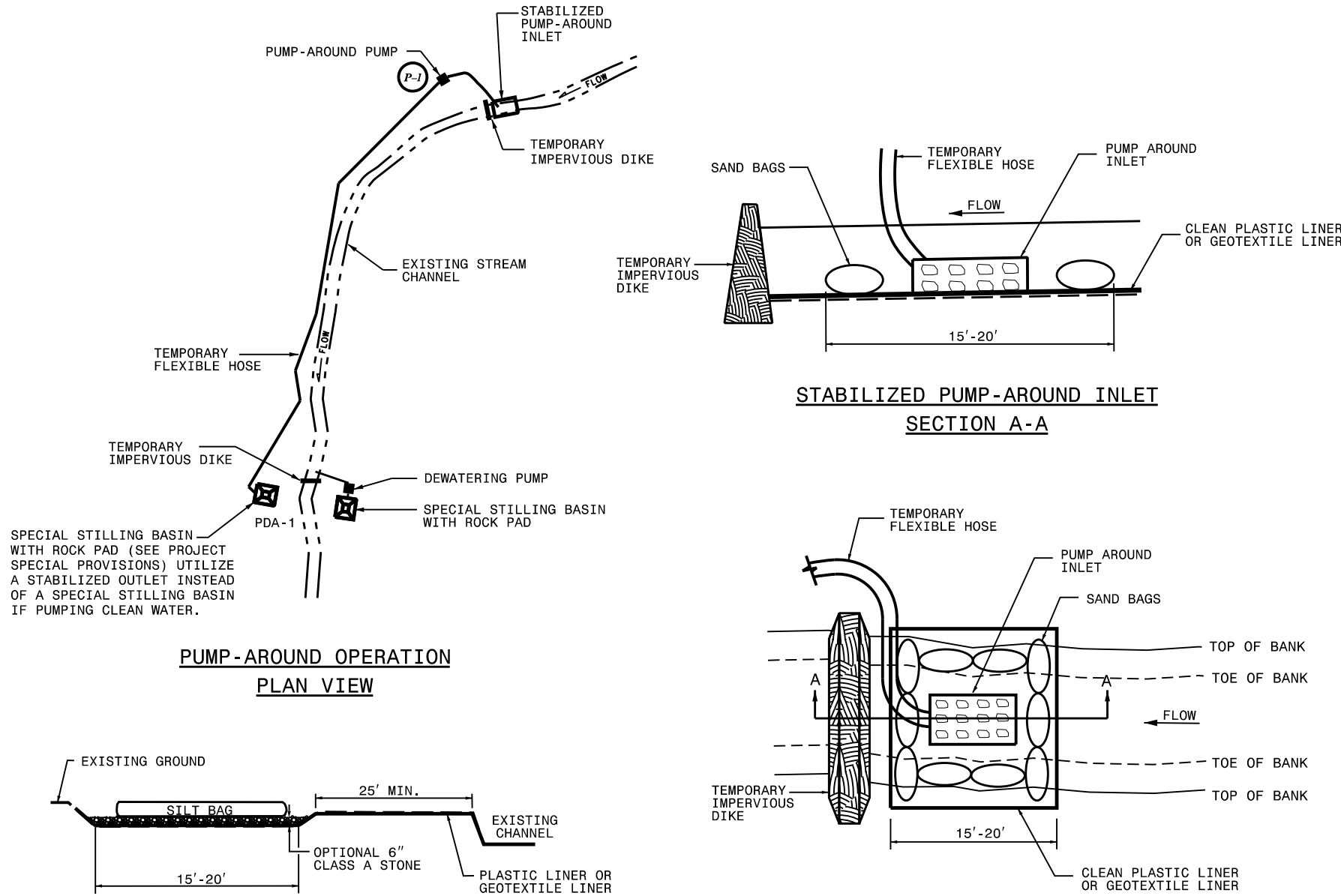
NOTES:

1. PROVIDED RANGES ARE ALLOWABLE ADJUSTMENTS FROM SPECIFIED DESIGN PARAMETERS DURING IN-FIELD ADJUSTMENTS AS APPROVED BY ENGINEER.

- SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA
1. INSTALL SPECIAL STILLING BASIN(S).
 2. INSTALL STABILIZED PUMP AROUND INLET, UPSTREAM PUMP, AND TEMPORARY FLEXIBLE HOSE.
 3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
 4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER EXTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
 5. PERFORM STREAM MODIFICATION WORK IN ACCORDANCE WITH THE PLANS.
 6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
 7. ALL GRADING AND STABILIZATION MUST BE COMPLETED AT THE END OF EACH WORK DAY WITHIN THE PUMP AROUND AREAS BETWEEN THE IMPERVIOUS DIKES. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
 8. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

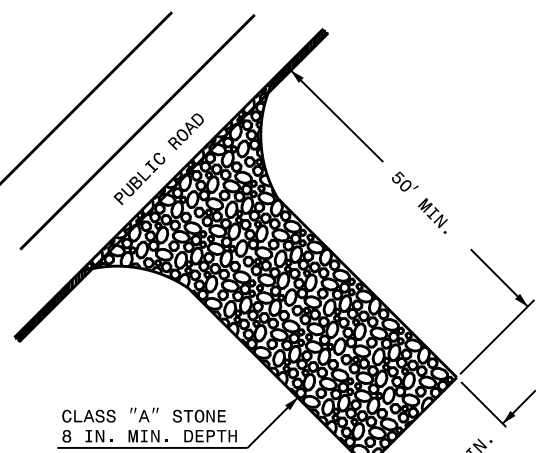
- NOTES:
1. ALL EXCAVATION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
 2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW WHEN NECESSARY.
 3. SAND BAGS SHALL BE FILLED WITH CLEAN MASONRY SAND OR CLEAN #57 STONE.
 4. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
 5. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
 6. PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA.
 7. SIDESLOPES OF RESTORED CHANNEL SHALL BE MATTED PRIOR TO TURNING WATER INTO CHANNEL. SEE TYPICAL MATTING LOCATION DETAIL.
 8. CONTRACTOR IS RESPONSIBLE FOR DETERMINING & ACQUIRING THE PROPER SIZED PUMP. SEE BANKFULL CHANNEL FLOW TABLE PROVIDED ON SHEET 2D-2 FOR GUIDANCE.
 9. WATER PUMPED FROM EXCAVATIONS SHALL BE DISCHARGED INTO A GEOTEXTILE SILT BAG AND SHALL PROVIDE MEASURES TO PREVENT DISCHARGE FROM EXCEEDING 10 NTU'S. CONTRACTOR MAY UTILIZE FLOCCULANTS TO SETTLE OUT PARTICLES.

PUMP-AROUND OPERATION
SCALE: NTS

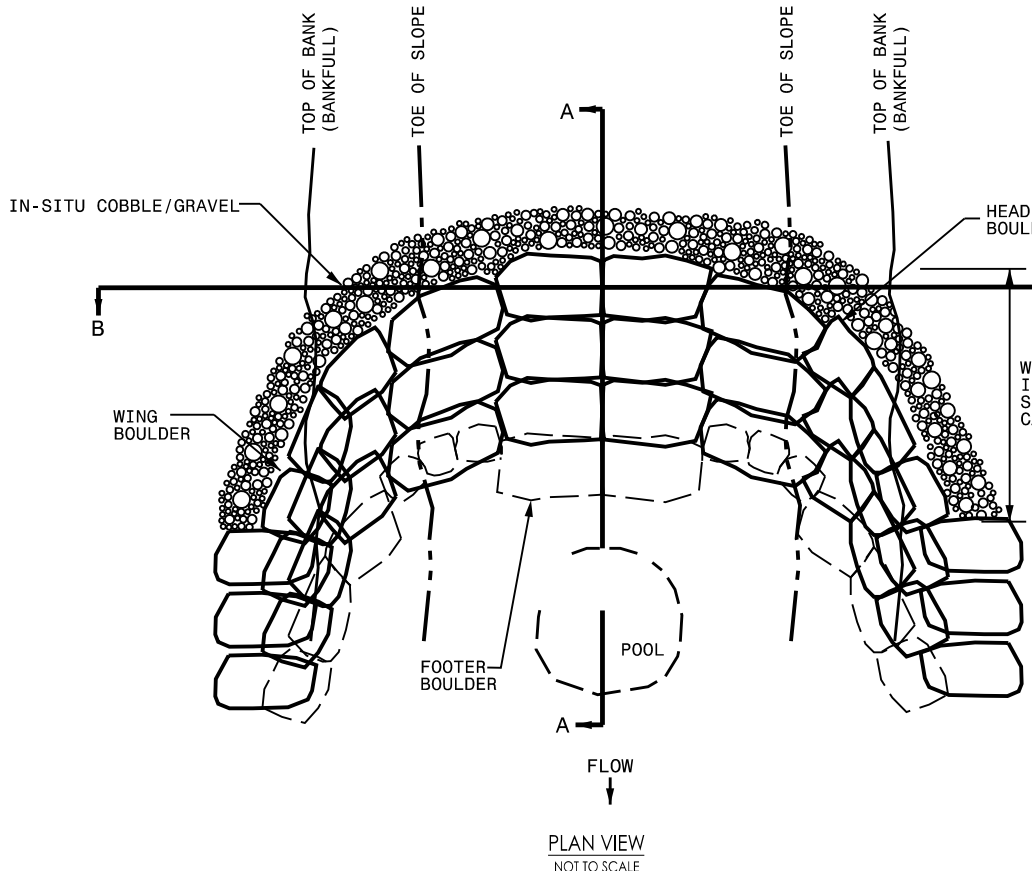


TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
SCALE: NTS

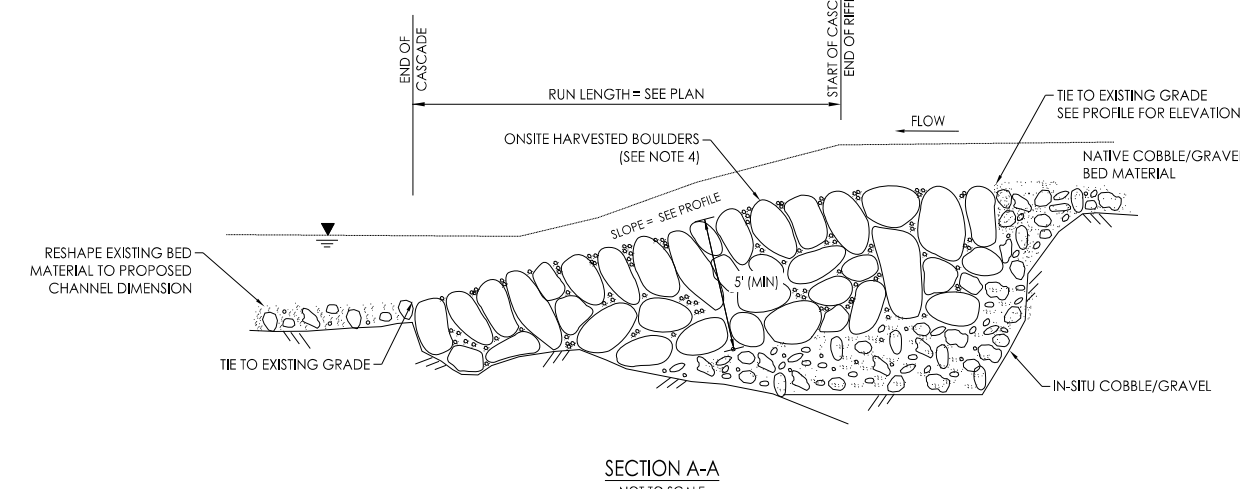
- NOTES:
1. TURNING RADIUS SUFFICIENT TO ACCOMMODATE LARGE TRUCKS SHALL BE PROVIDED.
 2. ENTRANCE(S) SHOULD BE LOCATED TO PROVIDE FOR UTILIZATION BY ALL CONSTRUCTION VEHICLES.
 3. MUST BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR DIRECT FLOW OF MUD ONTO STREETS. PERIODIC TOP DRESSING WITH STONE WILL BE NECESSARY.
 4. ANY MATERIAL TRACKED ONTO THE ROADWAY MUST BE CLEANED UP IMMEDIATELY.
 5. GRAVEL CONSTRUCTION ENTRANCE SHALL BE LOCATED AT ALL POINTS OF INGRESS AND EGRESS UNTIL SITE IS STABILIZED. FREQUENT CHECKS OF THE DEVICE AND TIMELY MAINTENANCE MUST BE PROVIDED.
 6. FILTER FABRIC TO BE PLACED BENEATH STONE.



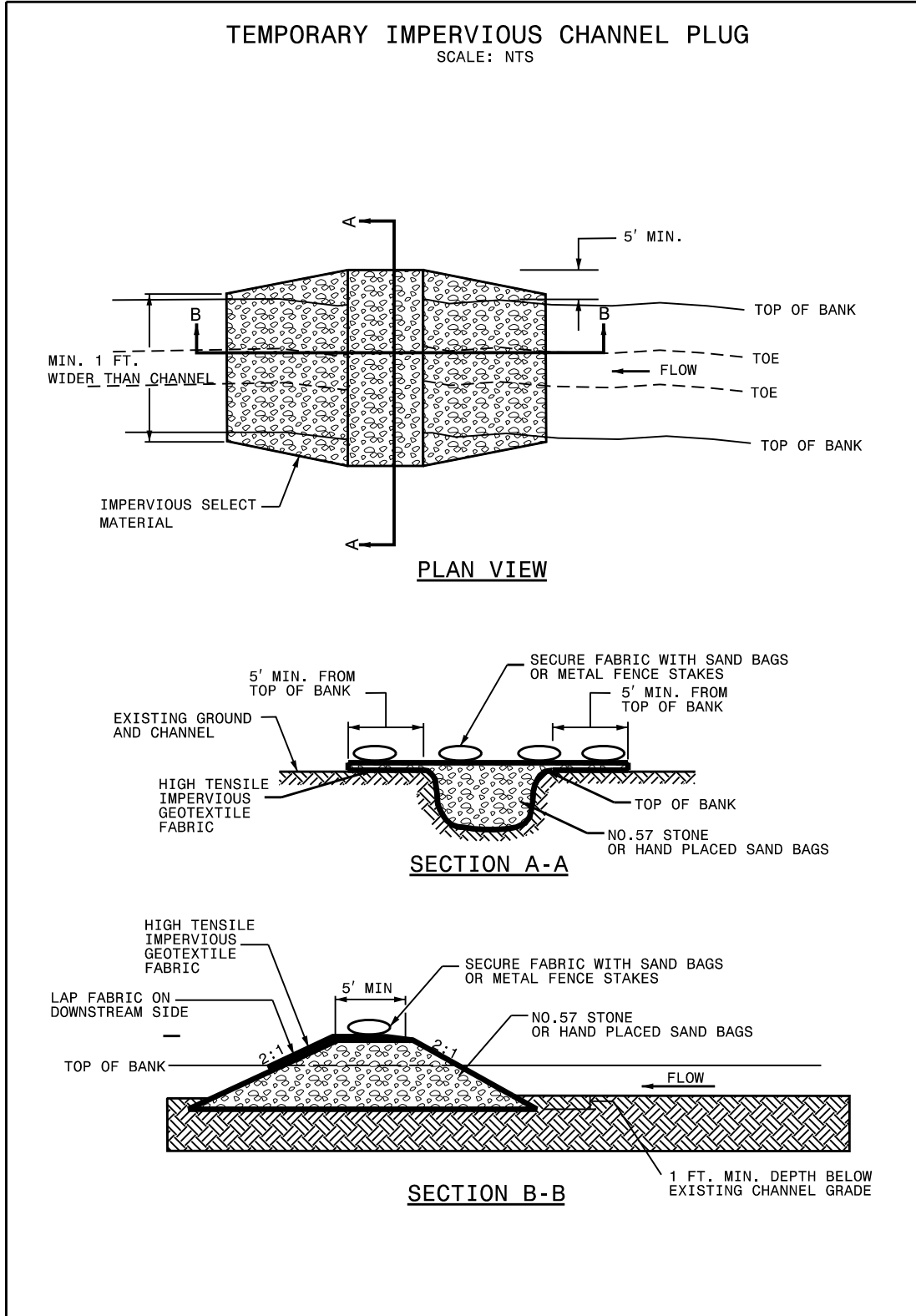
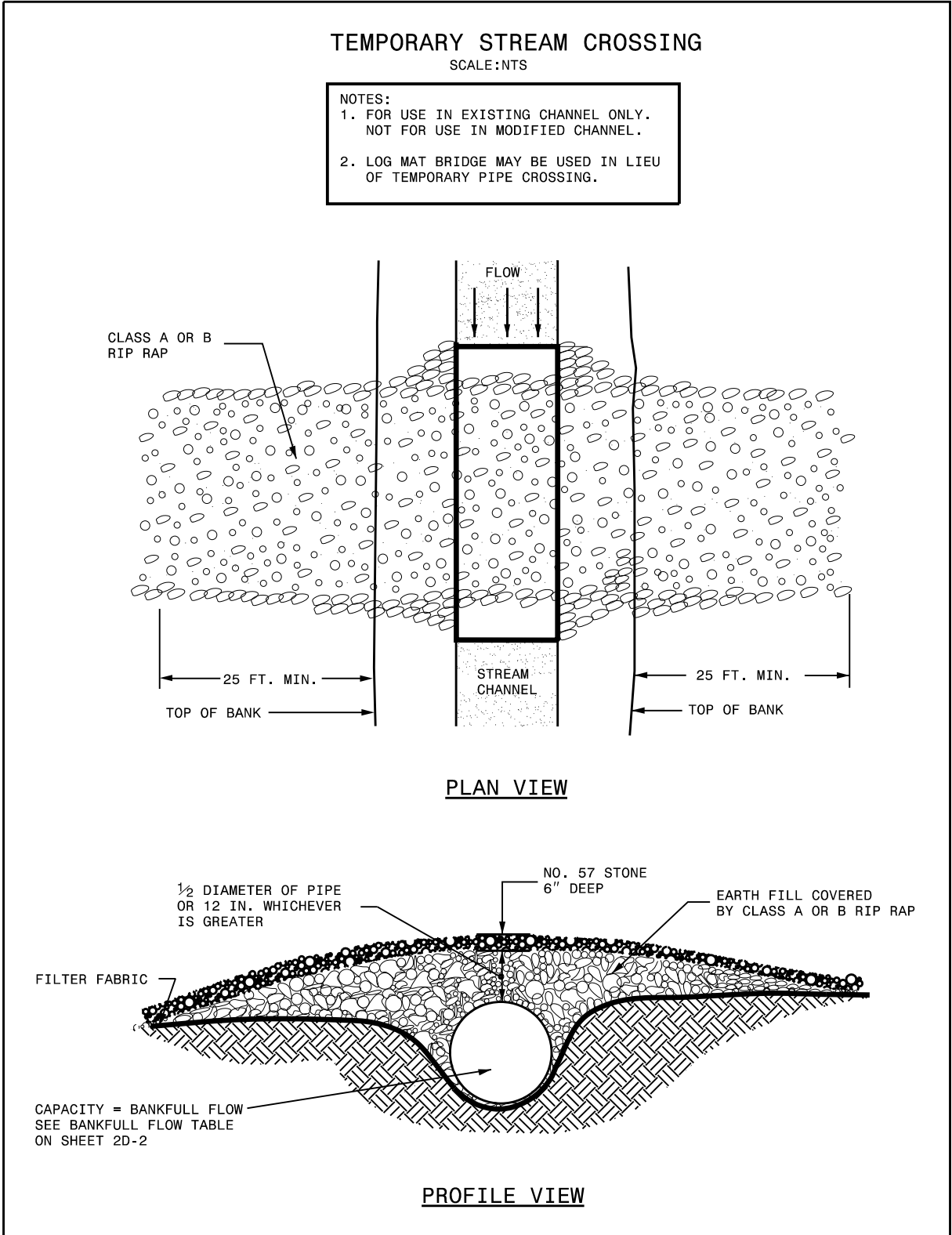
RIFFLE - ROCK CASCADE SEQUENCE
SCALE: NTS



EXAMPLE RIFFLE - ROCK CASCADE SEQUENCE FOR REFERENCE ONLY.



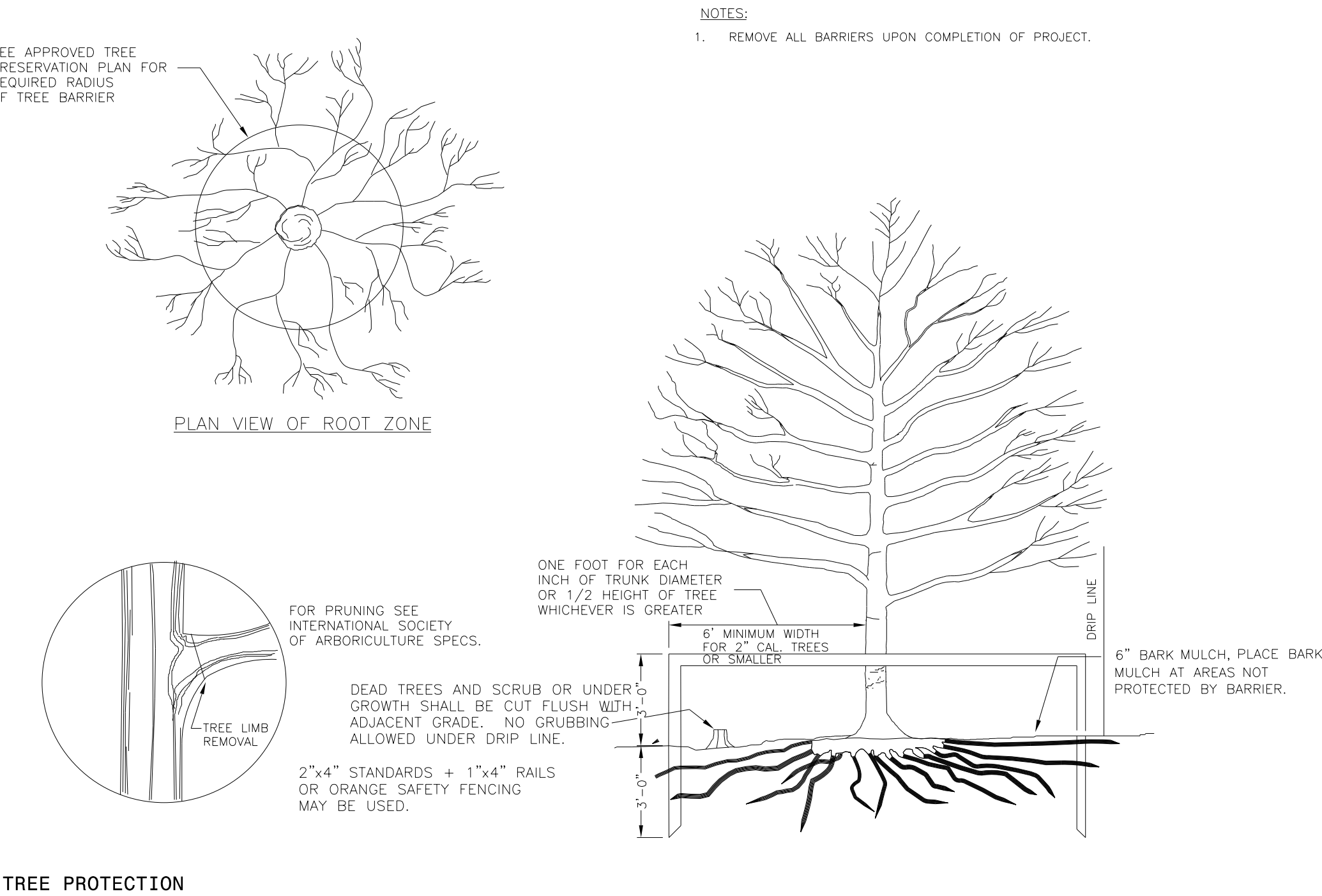
- NOTES:
1. DIMENSIONS ARE APPROXIMATE AND MAY BE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS AND THE DIRECTION OF THE ENGINEER AND/OR THE CLIENT REPRESENTATIVE.
 2. CONSTRUCT CASCADE STRUCTURE BEGINNING AT THE DOWNSTREAM END AND MOVING IN THE UPSTREAM DIRECTION.
 3. PLACE BOULDERS SO THEY ARE TOUCHING AND ORIENTED WITH THEIR DOWNSTREAM END PITCHED UP INTO THE FLOW AS SHOWN.
 4. BOULDERS SHALL BE SOURCED ON SITE WITH SIZE DIMENSIONS MEETING THE MINIMUM RANGE OF 36" - 48" (11' x 36" - 48" (IN) x 24" - 36" (D). NON-NATIVE CLASS VII AND LARGER RIPRAP AND BOULDERS CAN BE USED IN NON-EXPOSED LOWER LAYERS OF THE IN-STREAM CONSTRUCTION WHEN A SUFFICIENT AMOUNT OF ON-SITE HARVESTED BOULDERS ARE NOT AVAILABLE.



REVISIONS

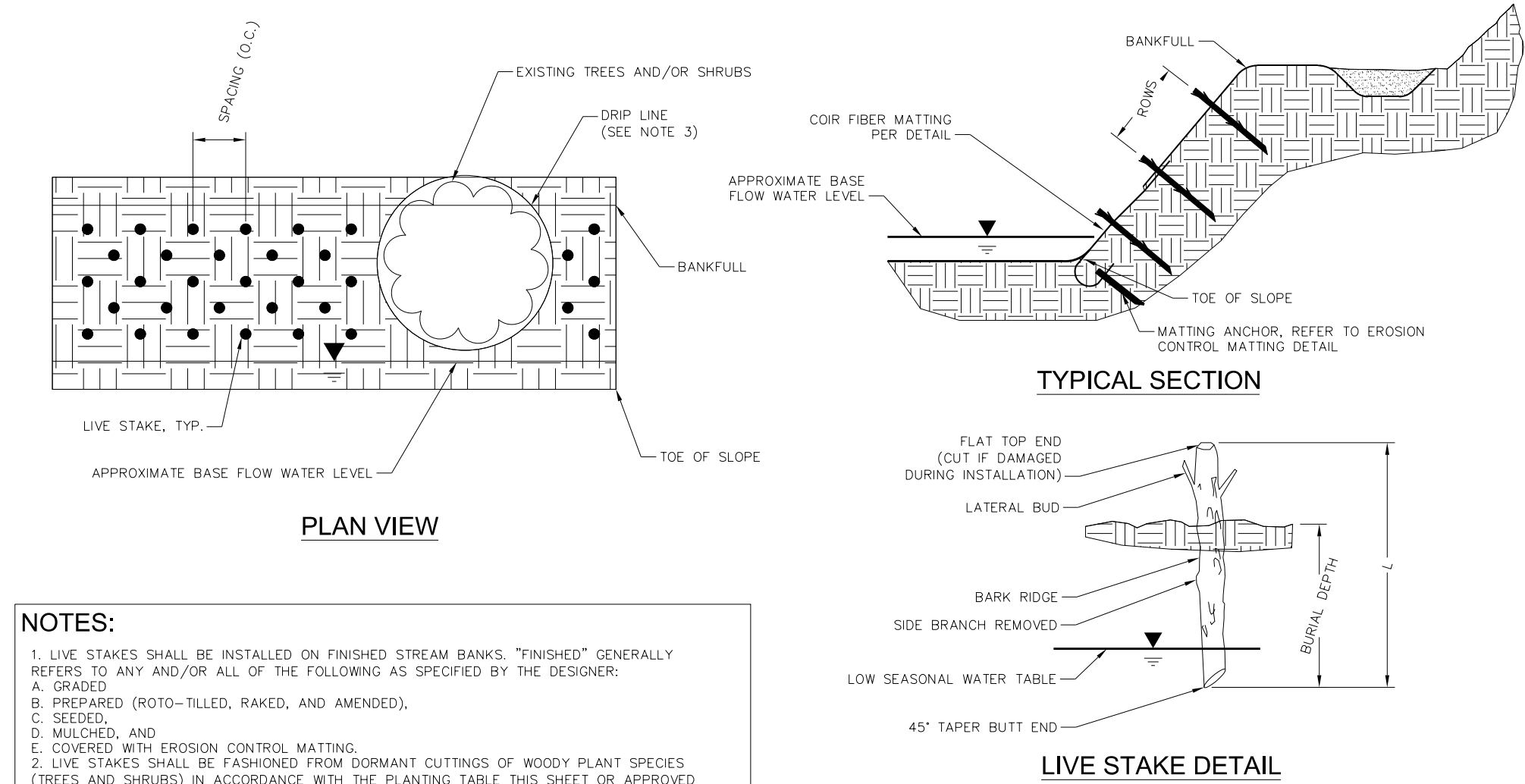
6/2/99

LIVE STAKING



NOTES:

- LIVE STAKES SHALL BE INSTALLED ON FINISHED STREAM BANKS. "FINISHED" GENERALLY REFERS TO ANY AND/OR ALL OF THE FOLLOWING AS SPECIFIED BY THE DESIGNER:
 - GRADED
 - PREPARED (ROTO-TILLED, RAKED, AND AMENDED),
 - SEEDED,
 - MULCHED, AND
 - COVERED WITH EROSION CONTROL MATTING.
- LIVE STAKES SHALL BE FASHIONED FROM DORMANT CUTTINGS OF WOODY PLANT SPECIES (TREES AND SHRUBS) IN ACCORDANCE WITH THE PLANTING TABLE THIS SHEET OR APPROVED EQUAL.
- LIVE STAKES SHALL NOT BE PLACED WITHIN THE DRIP LINE OF ANY EXISTING TREES AND/OR SHRUBS THAT REMAIN ON THE BANKS.
- LIVE STAKES SHALL NOT BE PLANTED WITHIN 5 FEET OF HEADWALL, WINGWALL, OR OTHER INFRASTRUCTURE.
- DETAILED HANDLING, PREPARATION, AND INSTALLATION GUIDELINES FOR LIVE STAKES SHALL BE SPECIFIED BY THE DESIGNER, INCLUDING:
 - LIVE STAKES MAY BE STORED UP TO 10 DAYS IN WATER.
 - ALL LATERAL BRANCHES SHALL BE CAREFULLY REMOVED FROM THE WOODY CUTTINGS PRIOR TO INSTALLATION.
- LIVE STAKES SHALL BE DRIVEN INTO THE GROUND USING A "DEAD BLOW" PLASTIC HAMMER, BY CREATING A PILOT HOLE AND SLIPPING THE STAKE INTO IT, OR WITH THE USE OF A HYDRAULIC INJECTION SYSTEM. SOIL SHALL BE FIRMLY PACKED AROUND THE HOLE AFTER INSTALLATION.
- SPLIT OR OTHERWISE DAMAGED LIVE STAKES SHALL NOT BE USED.

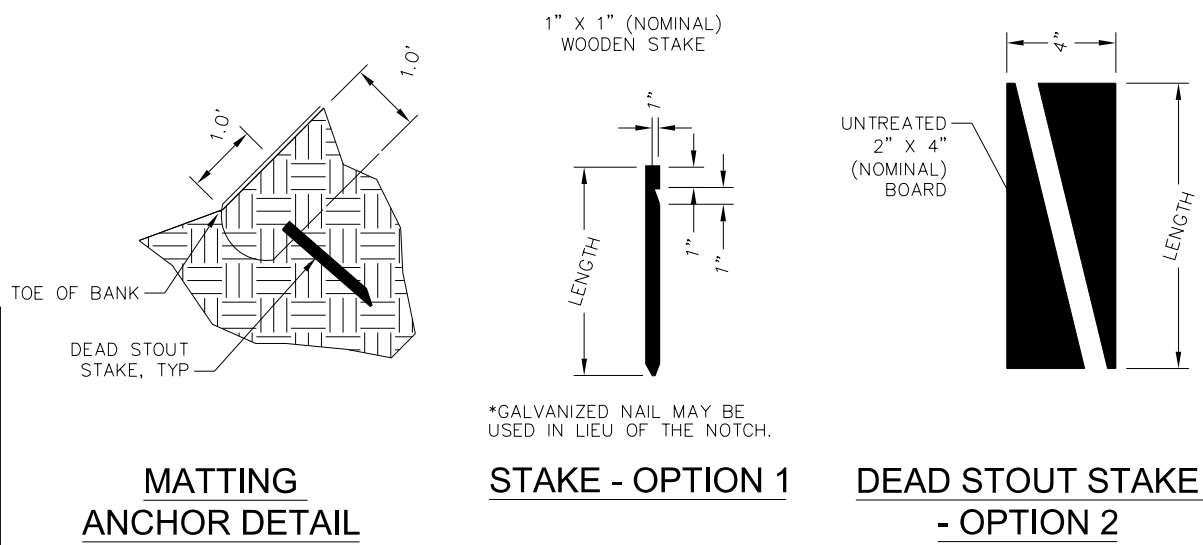


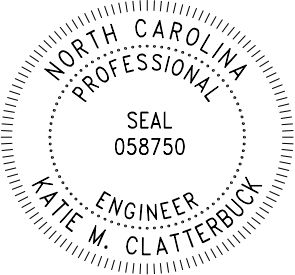
Live Stakes			
Botanical Name	Common Name	Stratum	Percent of Total Livestakes by Stream Site
<i>Cornus amomum</i>	Silky Dogwood	Shrub	25
<i>Salix nigra</i>	Black Willow	Shrub	30
<i>Salix sericea</i>	Silky Willow	Shrub	30
<i>Sambucus canadensis</i>	Elderberry	Shrub	15

NOTES:

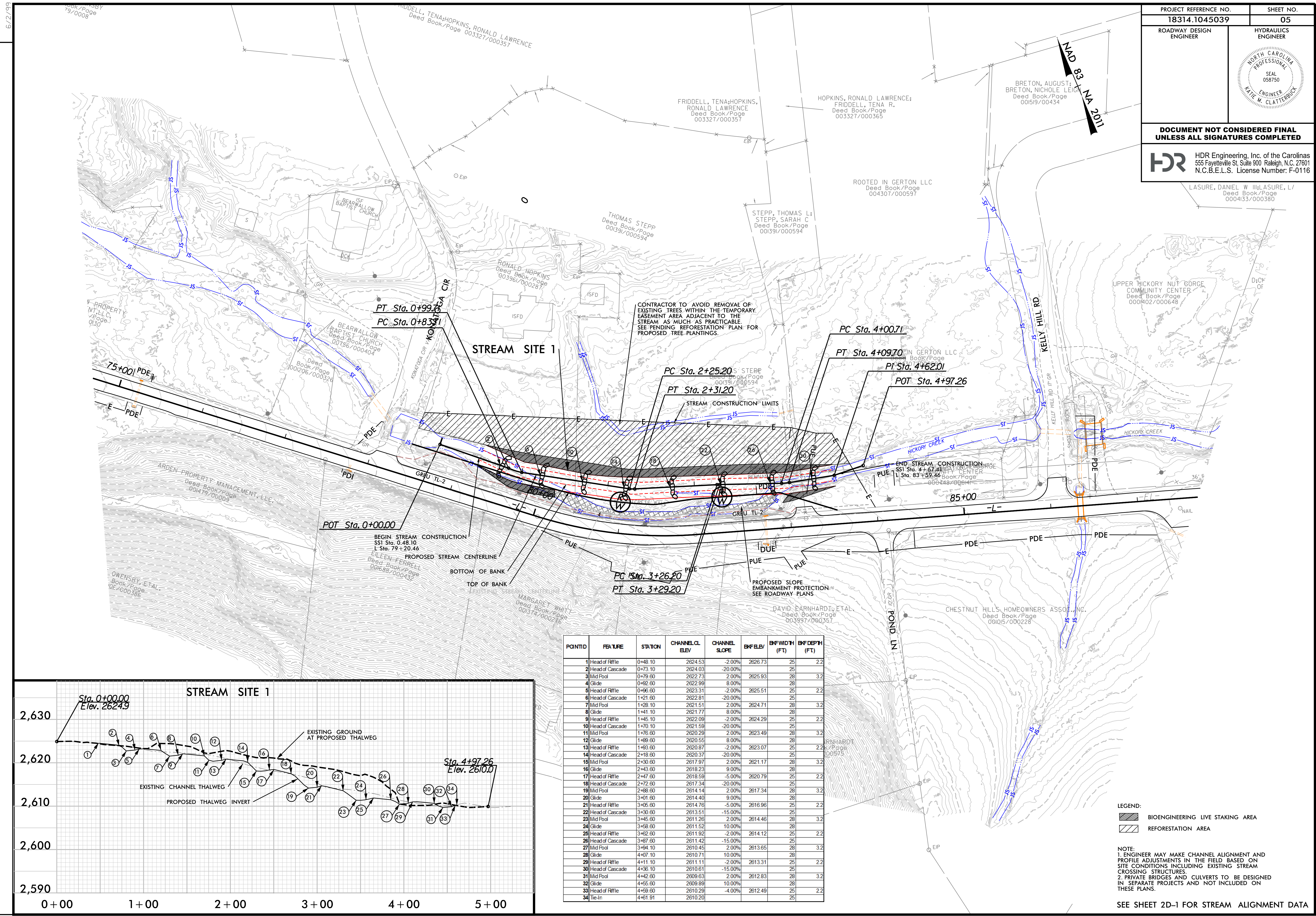
- THE SLOPE AND/OR STREAM BANK SHALL BE PREPARED (GRADED, TILLED, SMOOTHED, ETC.) AND SEEDED AND MULCHED AS SPECIFIED BY THE DESIGNER PRIOR TO THE PLACEMENT OF THE MATTING.
- THE MATTING SHALL BE INSTALLED SO AS TO NOT BE IN TENSION, BUT BE PLACED NEATLY, FLUSH AGAINST THE SOIL, AND WITH NO GAPS OR WRINKLES.
- MATTING SHALL BE NEATLY SECURED AROUND ANY PROJECT STRUCTURES, STRUCTURE ARMS, AND/OR SILLS TO PREVENT ANY LOOSE OR FRAYED EDGES.
- THERE SHALL BE NO LOOSE ENDS OR UNSECURED MATTING ON THE COMPLETED WORK.

COIR MATTING BANK STABILIZATION



PROJECT REFERENCE NO.	SHEET NO.
18314.1045039	2D-4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	
 HDR Engineering, Inc. of the Carolinas 555 Fayetteville St. Suite 900 Raleigh, N.C. 27601 N.C.B.E.L.S. License Number: F-0116	

REVISIONS



REVISIONS

6/2/99

LEGEND:
BIOENGINEERING LIVE STAKING AREA
REFORESTATION AREA

NOTE:
1. ENGINEER MAY MAKE CHANNEL ALIGNMENT AND PROFILE ADJUSTMENTS IN THE FIELD BASED ON SITE CONDITIONS INCLUDING EXISTING STREAM CROSSING STRUCTURES.
2. PRIVATE BRIDGES AND CULVERTS TO BE DESIGNED IN SEPARATE PROJECTS AND NOT INCLUDED ON THESE PLANS.

SEE SHEET 2D-1A FOR STREAM ALIGNMENT DATA

PROJECT REFERENCE NO.
18314.1045039

ROADWAY DESIGN
ENGINEER

SHEET NO.
05A

HYDRAULICS
ENGINEER

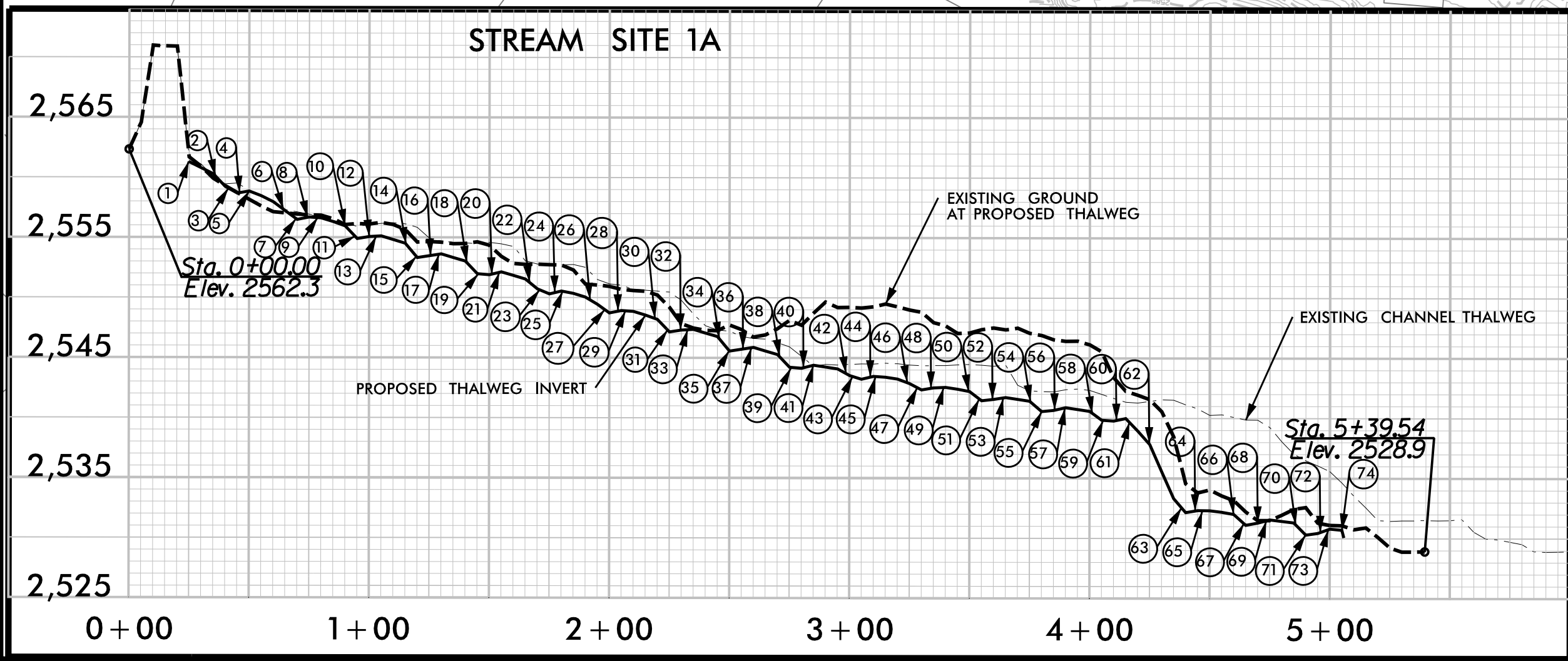
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555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
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PROFESSIONAL
SEAL
058750
ENGINEER
MICHAEL C. LATTERBUCK

POINT ID	FEATURE	STATION	CHANNEL CL. ELEV.	CHANNEL SCLOPE	BWF ELEV.	BWF WIDTH (FT.)	BWF DEPTH (FT.)
1	Head of Riffle	0+04.76	2561.30	-10.00%	2563.8	27	2.5
2	Head of Cascade	0+37.76	2560.00	-36.00%	2560.0	27	2.5
3	Mid Pool	0+41.76	2558.80	2.00%	2562.2	30	3.6
4	Glide	0+47.76	2560.72	8.00%	2560.7	30	3.6
5	Head of Riffle	0+50.76	2558.87	-10.00%	2561.37	27	2.5
6	Head of Cascade	0+53.76	2567.57	-29.00%	2567.5	27	2.5
7	Mid Pool	0+57.76	2566.47	3.00%	2566.01	30	3.6
8	Glide	0+73.76	2566.89	7.00%	2566.8	30	3.6
9	Head of Riffle	0+76.76	2566.80	-6.00%	2566.3	27	2.5
10	Head of Cascade	0+88.76	2566.02	-28.00%	2566.0	27	2.5
11	Mid Pool	0+93.76	2564.88	3.00%	2564.48	30	3.6
12	Glide	0+98.76	2565.04	7.00%	2565.0	30	3.6
13	Head of Riffle	1+02.76	2565.25	-6.00%	2567.75	27	2.5
14	Head of Cascade	1+15.76	2564.47	-26.00%	2564.4	27	2.5
15	Mid Pool	1+18.76	2563.31	3.00%	2566.91	30	3.6
16	Glide	1+26.76	2563.48	7.00%	2563.4	30	3.6
17	Head of Riffle	1+28.76	2563.70	-6.00%	2566.2	27	2.5
18	Head of Cascade	1+41.76	2562.92	-29.00%	2562.9	27	2.5
19	Mid Pool	1+46.76	2561.76	3.00%	2565.36	30	3.6
20	Glide	1+57.76	2561.94	7.00%	2561.9	30	3.6
21	Head of Riffle	1+54.76	2562.15	-6.00%	2564.65	27	2.5
22	Head of Cascade	1+57.76	2561.37	-29.00%	2561.3	27	2.5
23	Mid Pool	1+71.76	2560.21	3.00%	2563.81	30	3.6
24	Glide	1+77.76	2560.38	7.00%	2560.3	30	3.6
25	Head of Riffle	1+80.76	2560.00	-6.00%	2563.1	27	2.5
26	Head of Cascade	1+93.76	2549.82	-29.00%	2549.8	27	2.5
27	Mid Pool	1+97.76	2548.89	3.00%	2552.28	30	3.6
28	Glide	2+03.76	2548.84	7.00%	2548.8	30	3.6
29	Head of Riffle	2+06.76	2548.06	-6.00%	2551.65	27	2.5
30	Head of Cascade	2+13.76	2548.70	-29.00%	2548.7	27	2.5
31	Mid Pool	2+23.76	2547.11	3.00%	2550.71	30	3.6
32	Glide	2+28.76	2547.28	7.00%	2547.2	30	3.6
33	Head of Riffle	2+32.76	2547.60	-6.00%	2550	27	2.5
34	Head of Cascade	2+45.76	2546.72	-29.00%	2546.7	27	2.5
35	Mid Pool	2+48.76	2546.50	3.00%	2546.16	30	3.6
36	Glide	2+50.76	2546.70	7.00%	2546.7	30	3.6
37	Head of Riffle	2+58.76	2546.98	-6.00%	2546.48	27	2.5
38	Head of Cascade	2+71.76	2546.17	-29.00%	2546.1	27	2.5
39	Mid Pool	2+75.76	2544.01	3.00%	2547.81	30	3.6
40	Glide	2+81.76	2544.18	7.00%	2544.1	30	3.6
41	Head of Riffle	2+84.76	2544.40	-3.00%	2546.9	27	2.5
42	Head of Cascade	2+97.76	2544.01	-21.00%	2544.0	27	2.5
43	Head of Cascade	2+33.76	2543.17	-2.00%	2546.77	27	2.5
44	Glide	3+07.76	2543.28	8.00%	2543.2	30	3.6
45	Head of Riffle	3+10.76	2543.63	-3.00%	2546.03	27	2.5
46	Head of Cascade	3+23.76	2543.14	-21.00%	2543.1	27	2.5
47	Mid Pool	3+27.76	2542.30	2.00%	2546.9	30	3.6
48	Glide	3+33.76	2542.42	8.00%	2542.4	30	3.6
49	Head of Riffle	3+38.76	2542.88	-3.00%	2546.16	27	2.5
50	Head of Cascade	3+48.76	2542.27	-21.00%	2542.2	27	2.5
51	Mid Pool	3+53.76	2541.43	2.00%	2546.03	30	3.6
52	Glide	3+59.76	2541.88	8.00%	2541.8	30	3.6
53	Head of Riffle	3+62.76	2541.78	-3.00%	2544.29	27	2.5
54	Head of Cascade	3+75.76	2541.40	-21.00%	2541.4	27	2.5
55	Mid Pool	3+79.76	2540.66	2.00%	2544.16	30	3.6
56	Glide	3+85.76	2540.88	8.00%	2540.8	30	3.6
57	Head of Riffle	3+88.76	2540.92	-3.00%	2543.42	27	2.5
58	Head of Cascade	4+01.76	2540.63	-21.00%	2540.6	27	2.5
59	Mid Pool	4+05.76	2539.89	2.00%	2543.29	30	3.6
60	Glide	4+11.76	2539.81	8.00%	2539.8	30	3.6
61	Head of Riffle	4+14.76	2540.06	-21.00%	2542.66	27	2.5
62	Head of Cascade	4+24.76	2537.88	-46.00%	2537.8	27	2.5
63	Mid Pool	4+37.76	2532.10	3.00%	2536.7	30	3.6
64	Glide	4+43.76	2532.28	4.00%	2532.2	30	3.6
65	Head of Riffle	4+47.76	2532.40	-2.50%	2534.9	27	2.5
66	Head of Cascade	4+59.76	2532.08	-26.00%	2532.0	27	2.5
67	Mid Pool	4+63.76	2531.08	3.00%	2534.876	30	3.6
68	Glide	4+69.76	2531.26	12.00%	2531.2	30	3.6
69	Head of Riffle	4+72.76	2531.62	-2.00%	2534.116	27	2.5
70	Head of Cascade	4+85.76	2531.28	-26.00%	2531.2	27	2.5
71	Mid Pool	4+89.76	2530.28	3.00%	2533.88	30	3.6
72	Glide	4+95.76	2530.47	12.00%	2530.4	30	3.6
73	Head of Riffle	4+98.76	2530.83	-2.00%	2533.33	27	2.5
74	Te-tn	5+05.89	2530.89			27	2.5

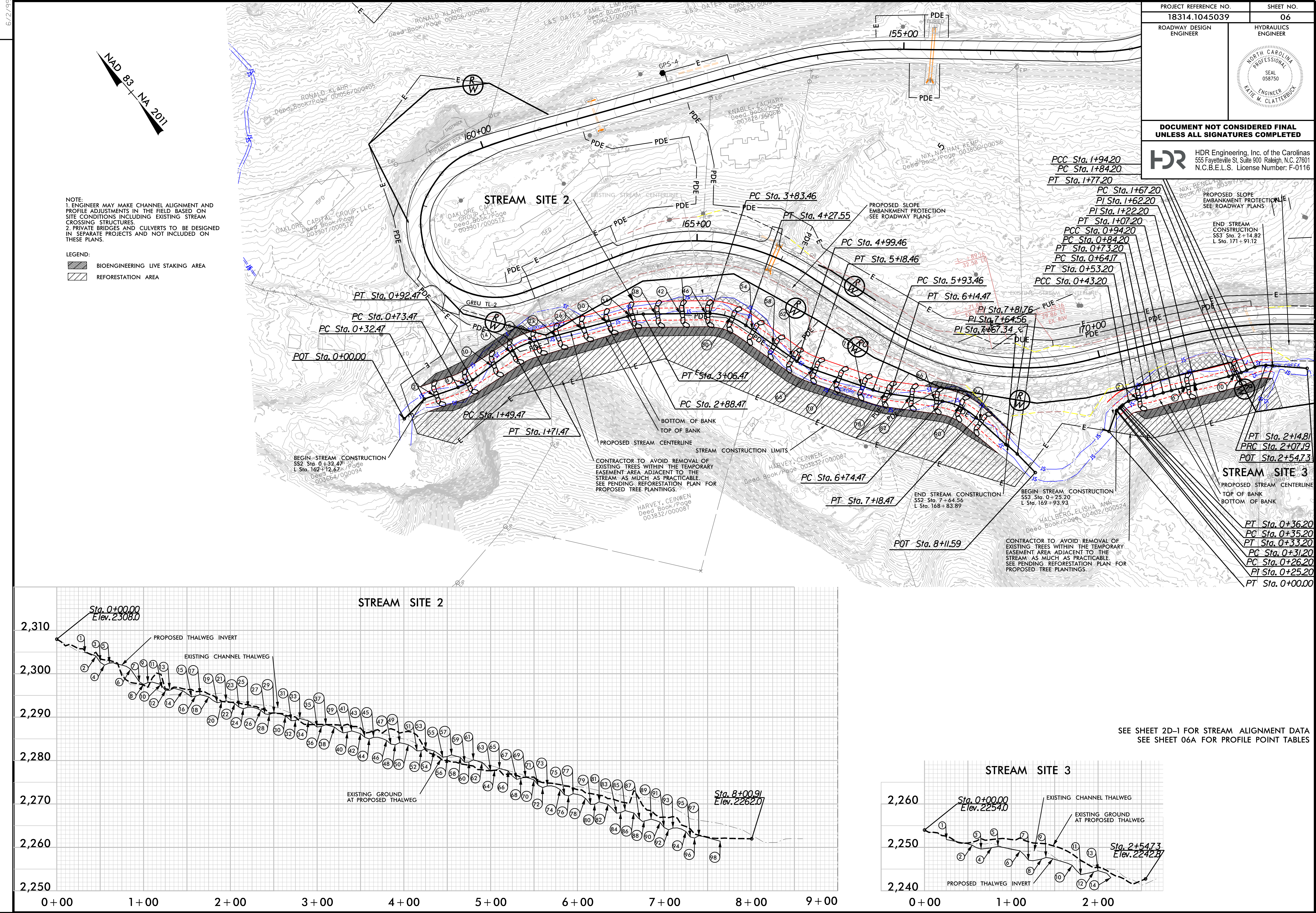


CONTRACTOR TO AVOID REMOVAL OF EXISTING TREES WITHIN THE TEMPORARY EASEMENT AREA ADJACENT TO THE STREAM AS MUCH AS PRACTICABLE. SEE PENDING REFORESTATION PLAN FOR PROPOSED TREE PLANTINGS.

PROPOSED SLOPE EMBANKMENT PROTECTION SEE ROADWAY PLANS

END STREAM CONSTRUCTION
SS1A Sta. 5+05.33
L Sta. 106+17.12

REVISIONS



REVISIONS

STREAM SITE 2

POINT ID	FEATURE	STATION	CHANNEL CL. ELEV	CHANNEL SLOPE	BKF ELEV	BKF WIDTH (FT.)	BKF DEPTH (FT.)
1	Head of Rffle	0+32.47	2304.90	-5.50%	2307.5	27	2.6
2	Head of Cascade	0+44.47	2304.24	-29.00%		27	
3	Mid Pool	0+52.47	2301.82	3.00%	2305.62	30	3.7
4	Glide	0+58.47	2302.10	21.00%		30	
5	Head of Rffle	0+61.47	2302.73	-5.50%	2305.33	27	2.6
6	Head of Cascade	0+83.47	2301.52	-28.00%		27	
7	Mid Pool	0+97.47	2297.46	3.00%	2301.16	30	3.7
8	Glide	1+03.47	2297.64	21.00%		30	
9	Head of Rffle	1+06.47	2298.27	-5.50%	2300.87	27	2.6
10	Head of Cascade	1+20.47	2297.50	-29.00%		27	
11	Mid Pool	1+25.47	2296.05	3.00%	2299.75	30	3.7
12	Glide	1+31.47	2296.23	15.00%		30	
13	Head of Rffle	1+34.47	2296.68	-5.50%	2299.28	27	2.6
14	Head of Cascade	1+46.47	2296.02	-17.00%		27	
15	Mid Pool	1+54.47	2294.66	3.00%	2298.36	30	3.7
16	Glide	1+60.47	2294.84	15.00%		30	
17	Head of Rffle	1+63.47	2295.29	-5.50%	2297.89	27	2.6
18	Head of Cascade	1+75.47	2294.63	-17.00%		27	
19	Mid Pool	1+83.47	2293.27	3.00%	2296.97	30	3.7
20	Glide	1+89.47	2293.45	15.00%		30	
21	Head of Rffle	1+92.47	2293.90	-5.50%	2296.5	27	2.6
22	Head of Cascade	2+04.47	2293.24	-17.00%		27	
23	Mid Pool	2+12.47	2291.88	3.00%	2295.58	30	3.7
24	Glide	2+18.47	2292.06	15.00%		30	
25	Head of Rffle	2+21.47	2292.51	-5.50%	2295.11	27	2.6
26	Head of Cascade	2+33.47	2291.85	-17.00%		27	
27	Mid Pool	2+41.47	2290.49	3.00%	2294.19	30	3.7
28	Glide	2+47.47	2290.67	15.00%		30	
29	Head of Rffle	2+50.47	2291.12	-5.50%	2293.72	27	2.6
30	Head of Cascade	2+62.47	2290.46	-17.00%		27	
31	Mid Pool	2+70.47	2289.10	3.00%	2292.8	30	3.7
32	Glide	2+76.47	2289.28	15.00%		30	
33	Head of Rffle	2+79.47	2289.73	-5.50%	2292.33	27	2.6
34	Head of Cascade	2+91.47	2289.07	-17.00%		27	
35	Mid Pool	2+99.47	2287.71	3.00%	2291.41	30	3.7
36	Glide	3+05.47	2287.89	15.00%		30	
37	Head of Rffle	3+08.47	2288.31	-5.50%	2290.94	27	2.6
38	Head of Cascade	3+20.47	2287.68	-17.00%		27	
39	Mid Pool	3+28.47	2286.32	3.00%	2290.02	30	3.7
40	Glide	3+34.47	2286.50	15.00%		30	
41	Head of Rffle	3+37.47	2286.95	-5.50%	2289.55	27	2.6
42	Head of Cascade	3+49.47	2286.29	-17.00%		27	
43	Mid Pool	3+57.47	2284.93	3.00%	2288.63	30	3.7
44	Glide	3+63.47	2285.11	15.00%		30	
45	Head of Rffle	3+66.47	2285.56	-5.50%	2288.16	27	2.6
46	Head of Cascade	3+78.47	2284.90	-17.00%		27	
47	Mid Pool	3+86.47	2283.54	3.00%	2287.24	30	3.7
48	Glide	3+92.47	2283.72	15.00%		30	
49	Head of Rffle	3+95.47	2284.17	-5.50%	2286.77	27	2.6
50	Head of Cascade	4+07.47	2283.51	-17.00%		27	
51	Mid Pool	4+15.47	2282.15	3.00%	2285.85	30	3.7
52	Glide	4+21.47	2282.33	15.00%		30	
53	Head of Rffle	4+24.47	2282.78	-5.50%	2285.38	27	2.6
54	Head of Cascade	4+36.47	2282.12	-17.00%		27	
55	Mid Pool	4+44.47	2280.76	3.00%	2284.46	30	3.7
56	Glide	4+50.47	2280.94	15.00%		30	
57	Head of Rffle	4+53.47	2281.39	-5.50%	2283.99	27	2.6
58	Head of Cascade	4+65.47	2280.73	-25.00%		27	
59	Mid Pool	4+70.47	2279.48	4.00%	2283.18	30	3.7
60	Glide	4+76.47	2279.72	16.00%		30	
61	Head of Rffle	4+79.47	2280.20	-5.50%	2282.8	27	2.6
62	Head of Cascade	4+91.47	2279.54	-25.00%		27	
63	Mid Pool	4+99.47	2277.54	4.00%	2281.24	30	3.7
64	Glide	5+05.47	2277.78	16.00%		30	
65	Head of Rffle	5+08.47	2278.26	-5.50%	2280.86	27	2.6
66	Head of Cascade	5+20.47	2277.60	-25.00%		27	
67	Mid Pool	5+28.47	2275.60	4.00%	2279.3	30	3.7
68	Glide	5+34.47	2275.84	16.00%		30	
69	Head of Rffle	5+37.47	2276.32	-5.50%	2278.92	27	2.6
70	Head of Cascade	5+49.47	2275.66	-25.00%		27	
71	Mid Pool	5+57.47	2273.66	4.00%	2277.36	30	3.7
72	Glide	5+63.47	2273.90	16.00%		30	
73	Head of Rffle	5+66.47	2274.38	-5.50%	2276.98	27	2.6
74	Head of Cascade	5+78.47	2273.72	-25.00%		27	
75	Mid Pool	5+86.47	2271.72	4.00%	2275.42	30	3.7
76	Glide	5+92.47	2271.96	16.00%		30	
77	Head of Rffle	5+95.47	2272.44	-5.50%	2275.04	27	2.6
78	Head of Cascade	6+07.47	2271.78	-25.00%		27	
79	Mid Pool	6+15.47	2269.78	4.00%	2273.48	30	3.7
80	Glide	6+21.47	2270.02	16.00%		30	
81	Head of Rffle	6+24.47	2270.50	-5.50%	2273.1	27	2.6
82	Head of Cascade	6+36.47	2269.84	-25.00%		27	
83	Mid Pool	6+44.47	2267.84	4.00%	2271.54	30	3.7
84	Glide	6+50.47	2268.08	16.00%		30	
85	Head of Rffle	6+53.47	2268.56	-5.50%	2271.16	27	2.6
86	Head of Cascade	6+65.47	2267.90	-25.00%		27	
87	Mid Pool	6+73.47	2265.90	4.00%	2269.6	30	3.7
88	Glide	6+79.47	2266.14	16.00%		30	
89	Head of Rffle	6+82.47	2266.62	-5.50%	2269.22	27	2.6
90	Head of Cascade	6+94.47	2265.96	-25.00%		27	
91	Mid Pool	7+02.47	2263.96	4.00%	2267.66	30	3.7
92	Glide	7+08.47	2264.20	16.00%		30	
93	Head of Rffle	7+11.47	2264.68	-5.50%	2267.28	27	2.6
94	Head of Cascade	7+23.47	2264.02	-25.00%		27	
95	Mid Pool	7+31.47	2262.02	4.00%	2265.72	30	3.7
96	Glide	7+37.47	2262.26	16.00%		30	
97	Head of Rffle	7+40.47	2262.74	-5.50%	2265.34	27	2.6
98	Tie-In	7+64.56	2261.42			27	

STREAM SITE 3

POINT ID	FEATURE	STATION	CHANNEL CL. ELEV	CHANNEL SLOPE	BKF ELEV	BKF WIDTH (FT.)	BKF DEPTH (FT.)
1	Head of Rffle	0+25.20	2251.80	-4.00%	2254.50	29	2.7
2	Head of Cascade	0+53.20	2250.68	-11.00%		29	
3	Mid Pool	0+63.20	2249.58	2.00%	2253.38	32	3.8
4	Glide	0+78.20	2249.88	8.00%		32	
5	Head of Rffle	0+83.20	2250.28	-4.00%	2252.98	29	2.7
6	Head of Cascade	1+11.20	2249.16	-24.00%		29	
7	Mid Pool	1+21.20	2246.76	4.00%	2250.56	32	3.8
8	Glide	1+36.20	2247.36	8.00%		32	
9	Head of Rffle	1+41.20	2247.76	-6.00%	2250.46	29	2.7
10	Head of Cascade	1+69.20	2246.08	-24.00%		29	
11	Mid Pool	1+79.20	2243.68	4.00%	2247.48	32	3.8
12	Glide	1+94.20	2244.28	8.00%		32	
13	Head of Rffle	1+99.20	2244.68	-6.00%	2247.38	29	2.7
14	Tie-In	2+14.82	2243.74			29	

REVISIONS

6/2/2026

NOTE:
1. ENGINEER MAY MAKE CHANNEL ALIGNMENT AND PROFILE ADJUSTMENTS IN THE FIELD BASED ON SITE CONDITIONS INCLUDING EXISTING STREAM CROSSING STRUCTURES.
2. PRIVATE BRIDGES AND CULVERTS TO BE DESIGNED IN SEPARATE PROJECTS AND NOT INCLUDED ON THESE PLANS.

POINTID	FEATURE	STATION	CHANNEL CL. ELEV	CHANNEL SLOPE	BKF ELEV	BKF WIDTH (FT)	BKF DEPTH (FT)
1	Head of Riffle	0+27.76	2230.80	-3.00%	2233.5	29	2.7
2	Head of Cascade	0+56.76	2229.96	-14.00%		29	
3	Mid Pool	0+66.76	2228.56	2.00%	2232.36	32	3.8
4	Glide	0+79.76	2228.84	10.00%		32	
5	Head of Riffle	0+84.76	2229.34	-3.00%	2232.04	29	2.7
6	Head of Cascade	1+12.76	2228.50	-14.00%		29	
7	Mid Pool	1+22.76	2227.10	2.00%	2230.9	32	3.8
8	Glide	1+36.76	2227.38	10.00%		32	
9	Head of Riffle	1+41.76	2227.88	-3.00%	2230.58	29	2.7
10	Head of Cascade	1+69.76	2227.04	-14.00%		29	
11	Mid Pool	1+79.76	2225.64	2.00%	2229.44	32	3.8
12	Glide	1+83.76	2225.92	10.00%		32	
13	Head of Riffle	1+86.76	2228.42	-6.00%	2229.12	29	2.7
14	Head of Cascade	2+26.76	2224.74	-20.00%		29	
15	Mid Pool	2+36.76	2222.74	2.00%	2226.54	32	3.8
16	Glide	2+50.76	2223.02	10.00%		32	
17	Head of Riffle	2+56.76	2223.52	-6.00%	2226.22	29	2.7
18	Head of Cascade	2+83.76	2221.84	-20.00%		29	
19	Mid Pool	2+93.76	2219.84	2.00%	2223.64	32	3.8
20	Glide	3+07.76	2220.12	10.00%		32	
21	Head of Riffle	3+12.76	2220.62	-6.00%	2223.32	29	2.7
22	Head of Cascade	3+40.76	2218.94	-20.00%		29	
23	Mid Pool	3+50.76	2216.94	2.00%	2220.74	32	3.8
24	Glide	3+64.76	2217.22	10.00%		32	
25	Head of Riffle	3+69.76	2217.72	-6.00%	2220.42	29	2.7
26	Head of Cascade	3+97.76	2216.04	-20.00%		29	
27	Mid Pool	4+07.76	2214.04	2.00%	2217.84	32	3.8
28	Glide	4+21.76	2214.32	10.00%		32	
29	Head of Riffle	4+26.76	2214.82	-5.90%	2217.52	29	2.7
30	Head of Cascade	4+54.76	2213.17	-20.00%		29	
31	Mid Pool	4+64.76	2211.17	2.00%	2214.98	32	3.8
32	Glide	4+78.76	2211.45	9.00%		32	
33	Head of Riffle	4+83.76	2211.90	-5.90%	2214.58	29	2.7
34	Head of Cascade	5+11.76	2210.25	-20.00%		29	
35	Mid Pool	5+21.76	2208.25	2.00%	2212.04	32	3.8
36	Glide	5+35.76	2208.53	9.00%		32	
37	Head of Riffle	5+40.76	2208.98	-5.90%	2211.67	29	2.7
38	Head of Cascade	5+68.76	2207.32	-20.00%		29	
39	Mid Pool	5+78.76	2205.32	2.00%	2209.124	32	3.8
40	Glide	5+82.76	2205.60	9.00%		32	
41	Head of Riffle	5+97.76	2206.05	-5.90%	2208.754	29	2.7
42	Head of Cascade	6+25.76	2204.40	-20.00%		29	
43	Mid Pool	6+35.76	2202.40	2.00%	2206.202	32	3.8
44	Glide	6+49.76	2202.68	9.00%		32	
45	Head of Riffle	6+54.76	2203.13	-5.90%	2205.832	29	2.7
46	Head of Cascade	6+82.76	2201.48	-20.00%		29	
47	Mid Pool	6+92.76	2199.48	2.00%	2203.28	32	3.8
48	Glide	7+06.76	2199.76	9.00%		32	
49	Head of Riffle	7+11.76	2200.21	-5.90%	2202.91	29	2.7
50	Tie-In	7+56.77	2197.55			29	

LEGEND:
BIOENGINEERING LIVE STAKING AREA
REFORESTATION AREA

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2,230

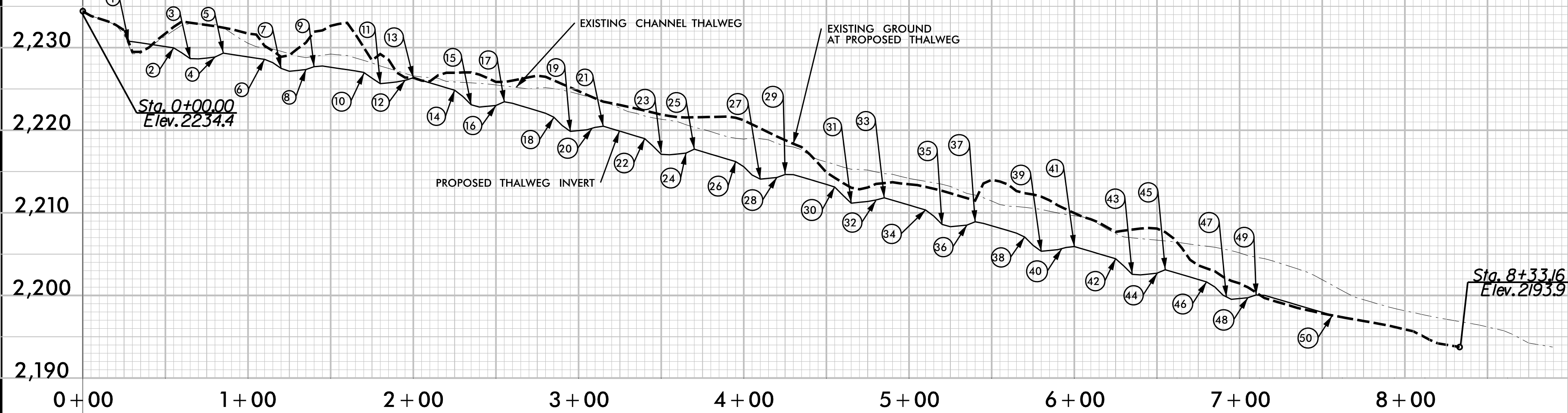
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STREAM SITE 4



SEE SHEET 2D-1 FOR STREAM ALIGNMENT DATA

PROJECT REFERENCE NO.
18314.1045039

ROADWAY DESIGN
ENGINEER

SHEET NO.
07

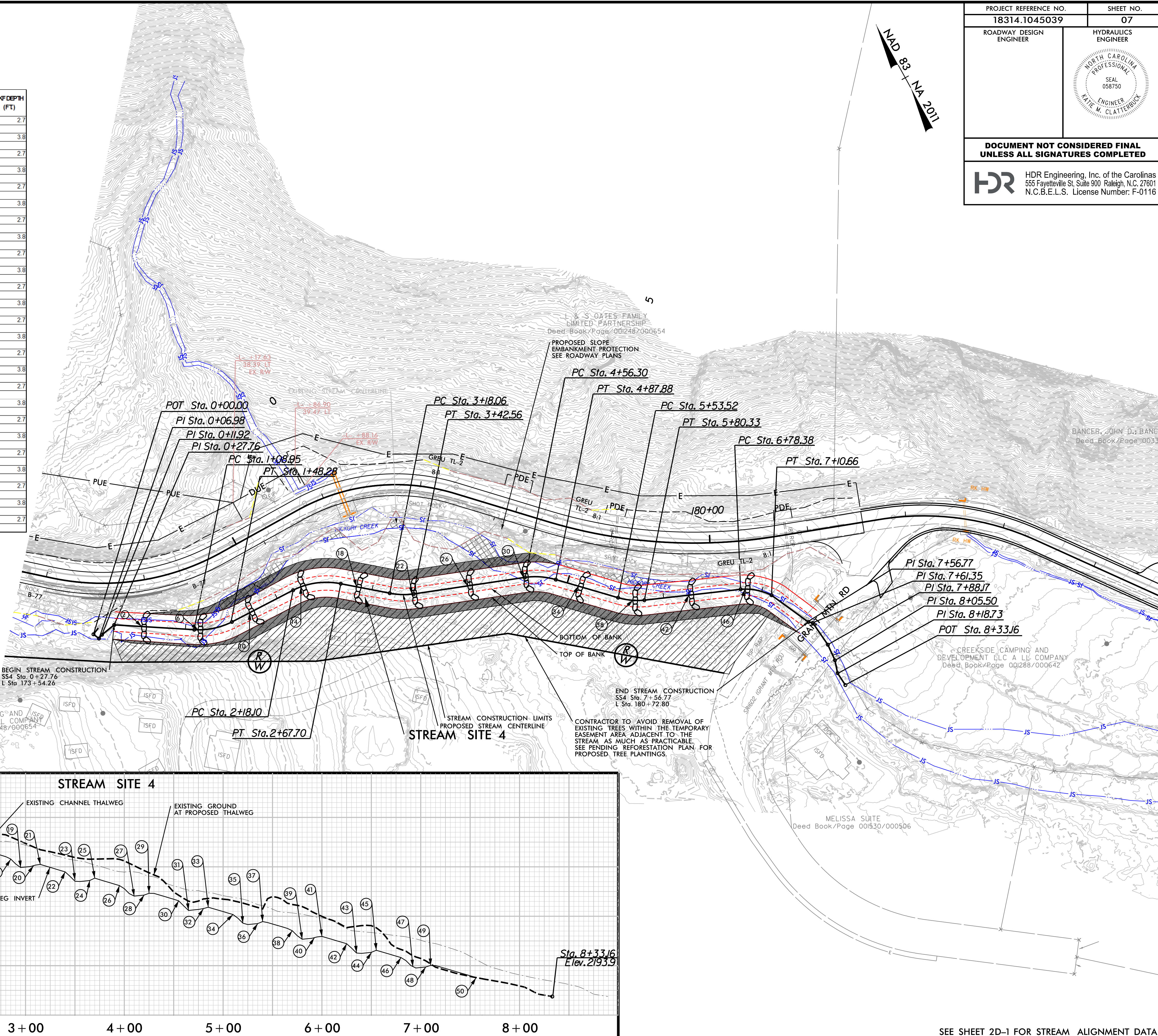
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ENGINEER

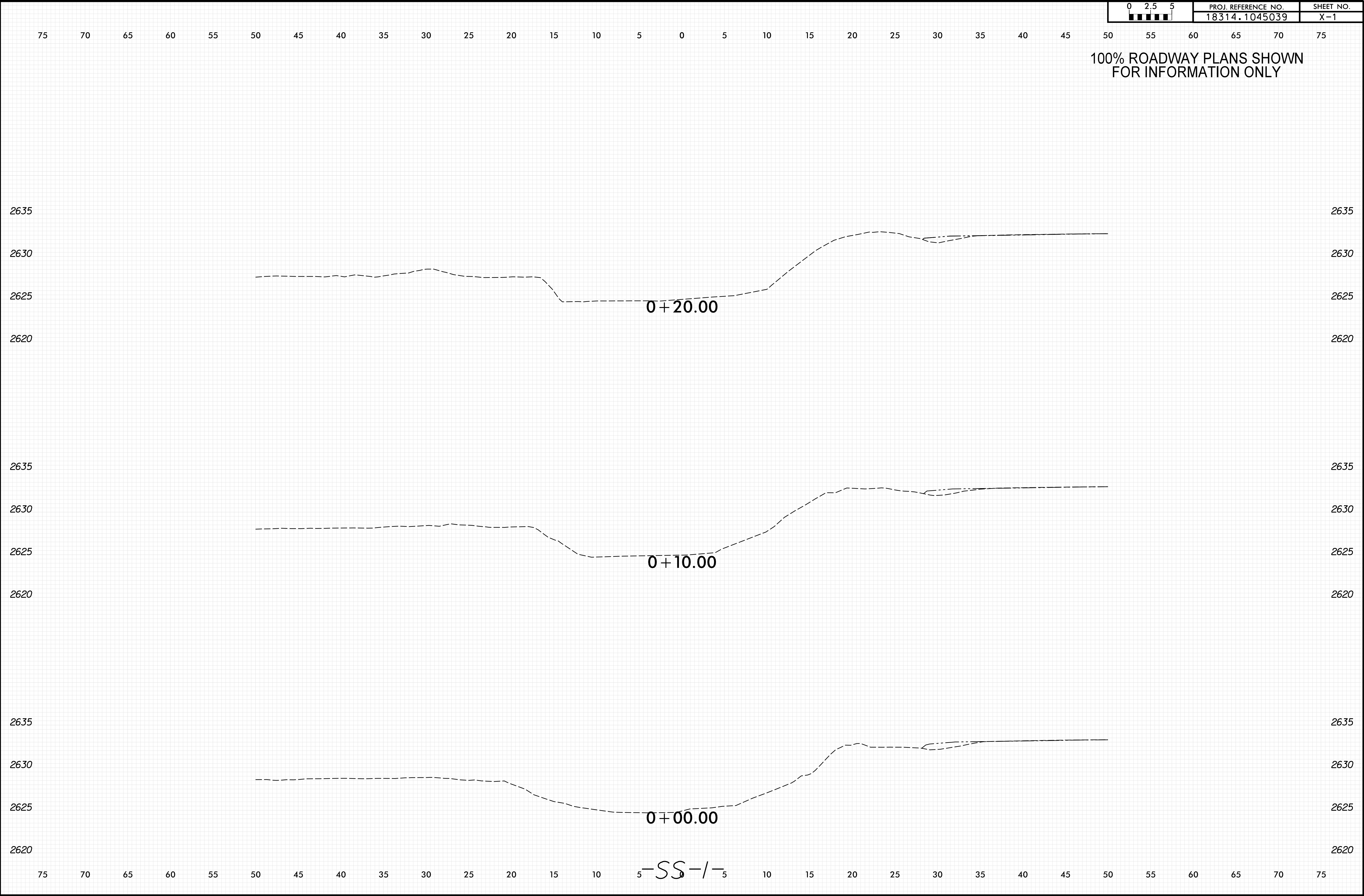
NORTH CAROLINA
PROFESSIONAL
ENGINEER
KATE M. CLATTERBUCK
SEAL
058750

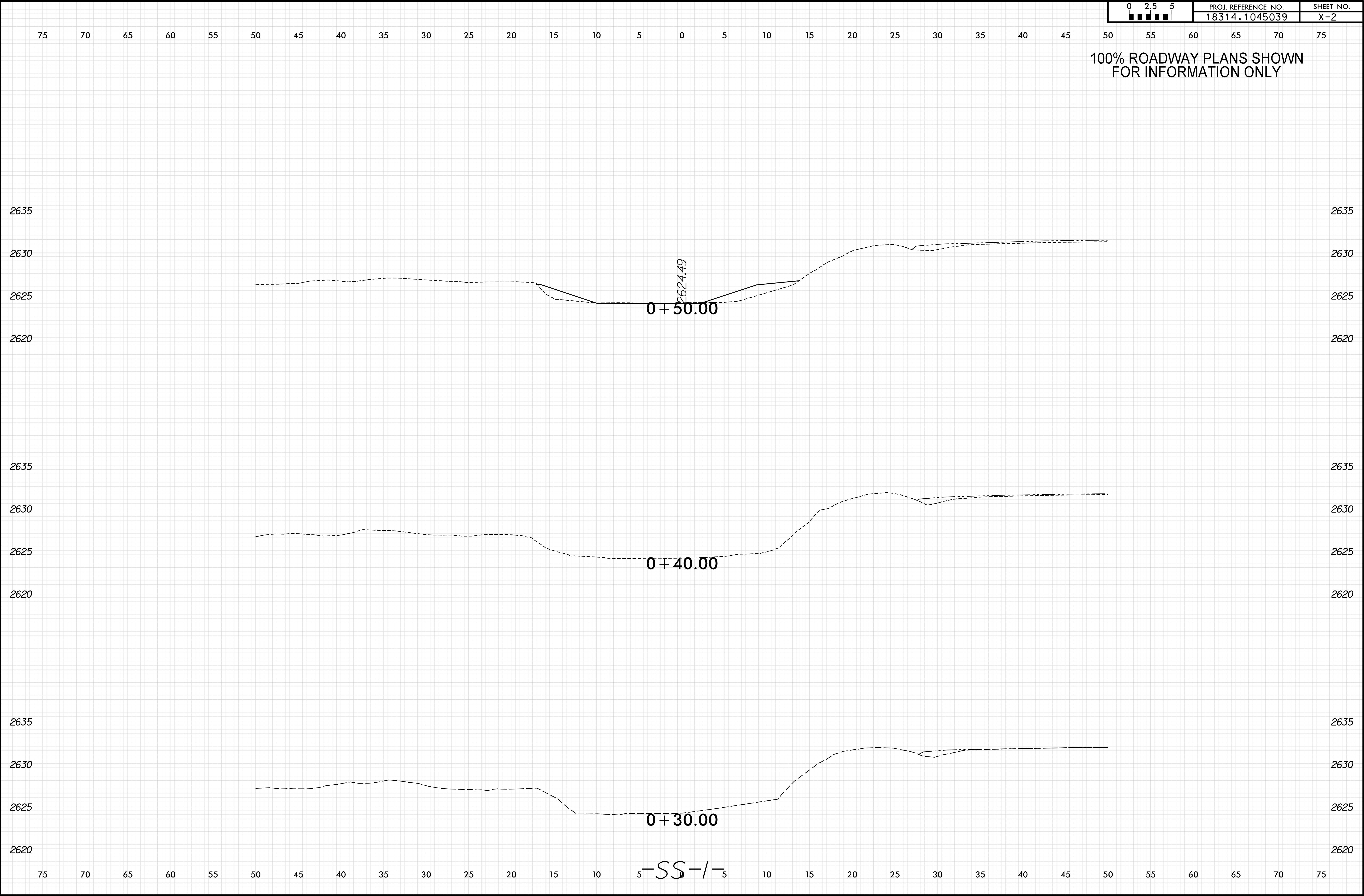
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UNLESS ALL SIGNATURES COMPLETED

HDR

HDR Engineering, Inc. of the Carolinas
555 Fayetteville St. Suite 900 Raleigh, N.C. 27601
N.C.B.E.L.S. License Number: F-0116



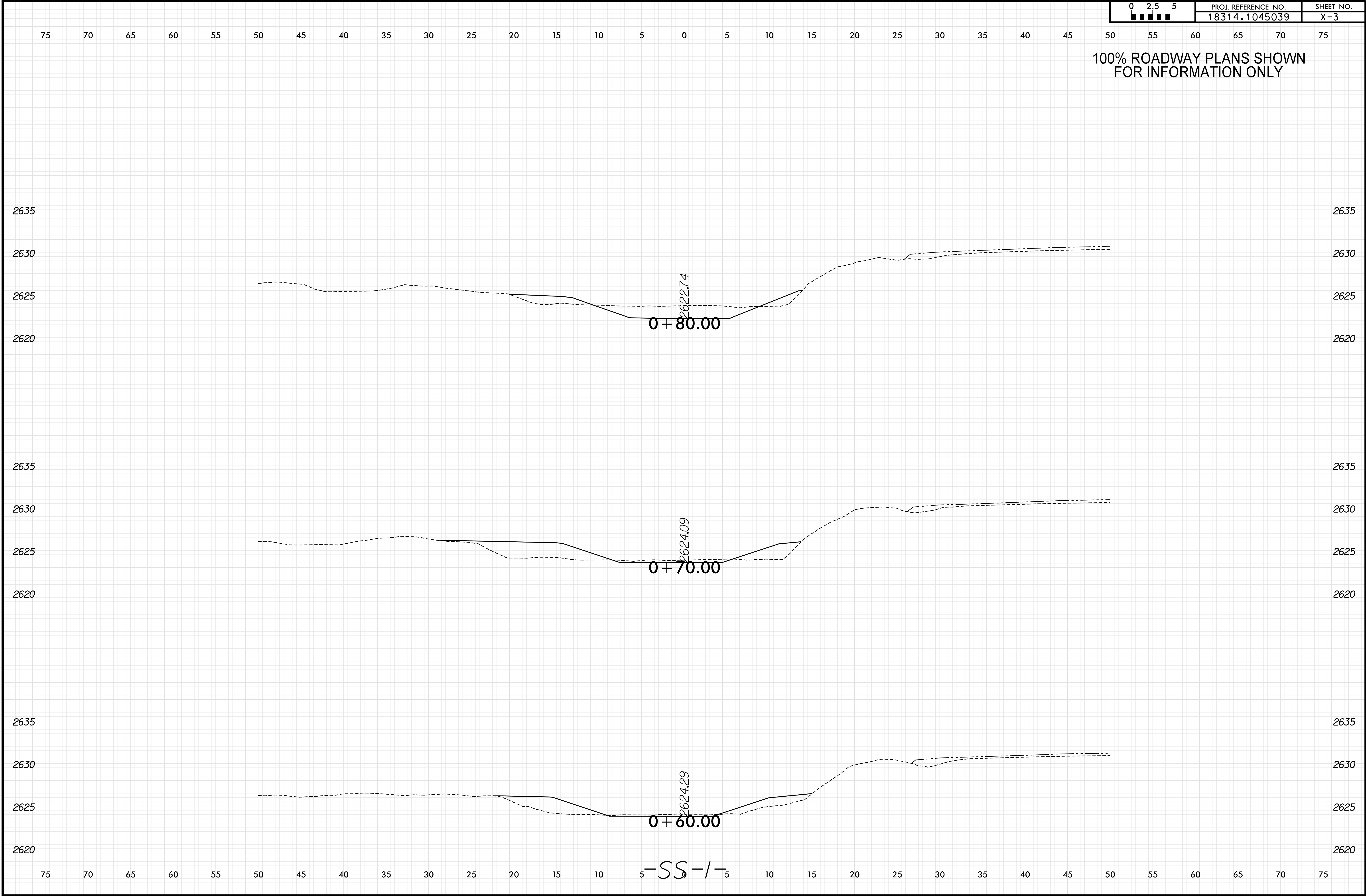




8/23/99

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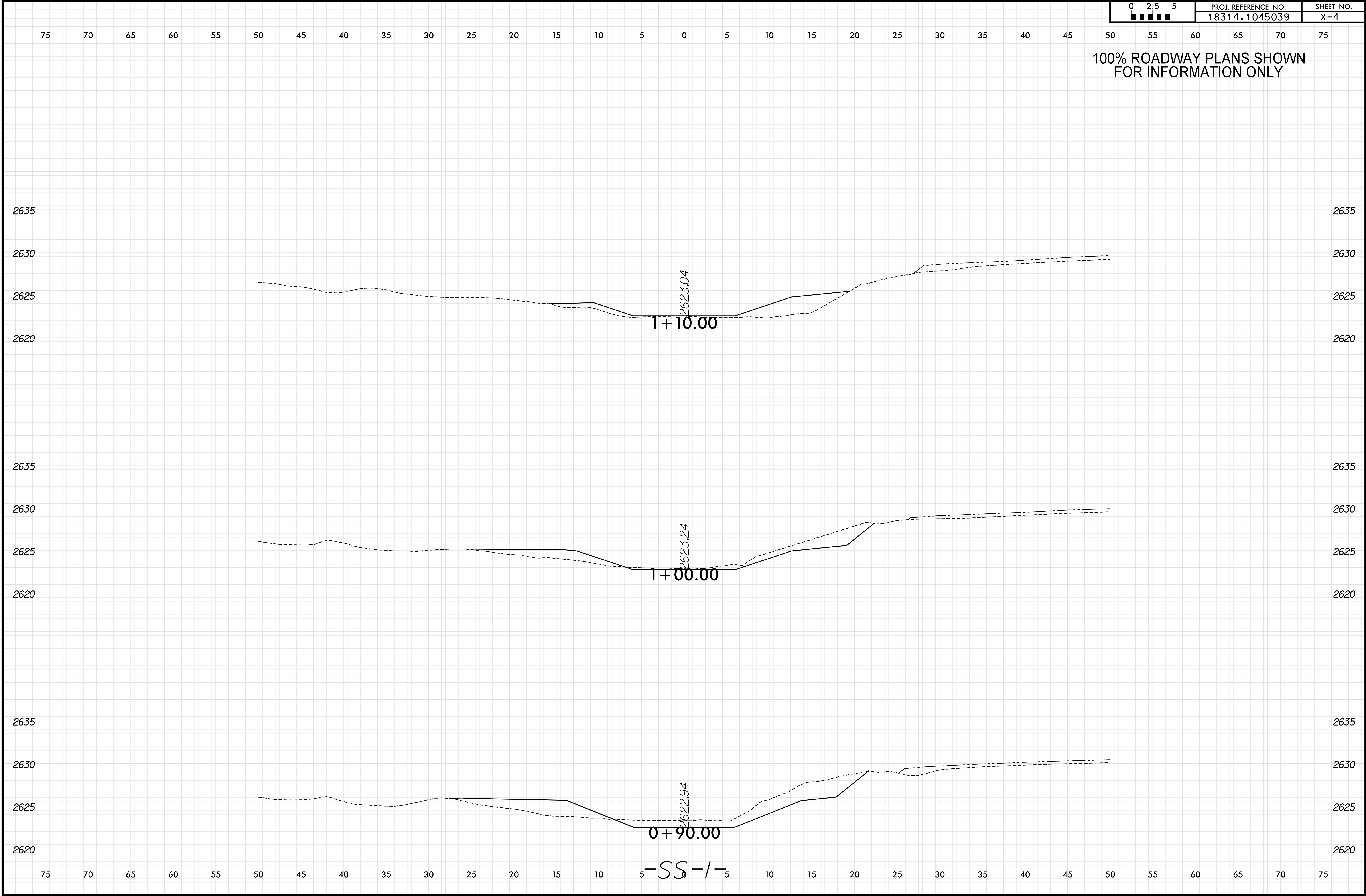
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



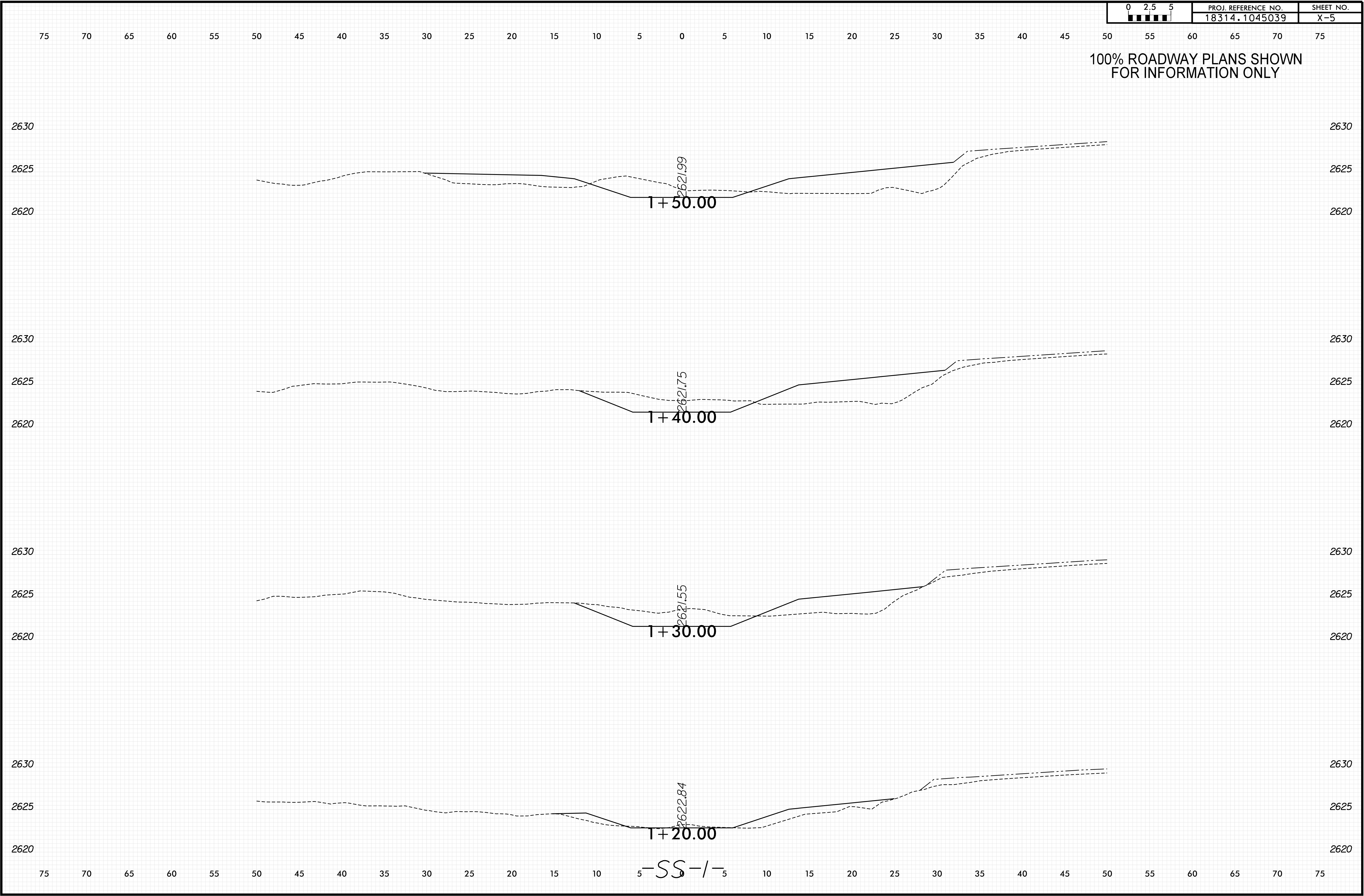
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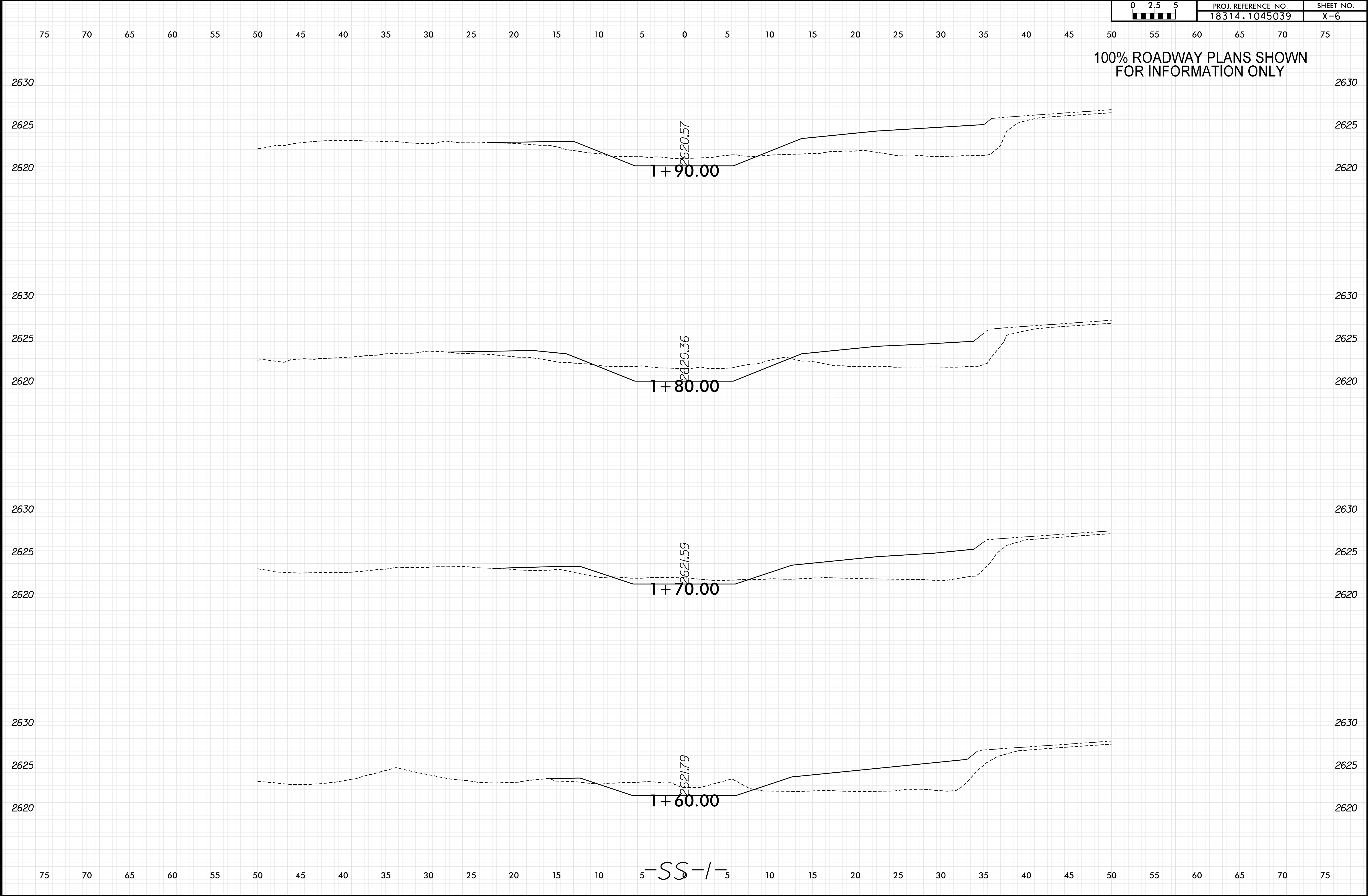
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100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



PLOT DRIVER: NCD0T_pdf_color_eng_50.plt
 USER: KCLATTERBU DATE: 5/8/2026
 PENTABLE: xpl_eh_v8.tbl
 TIME: 9:37:30 AM

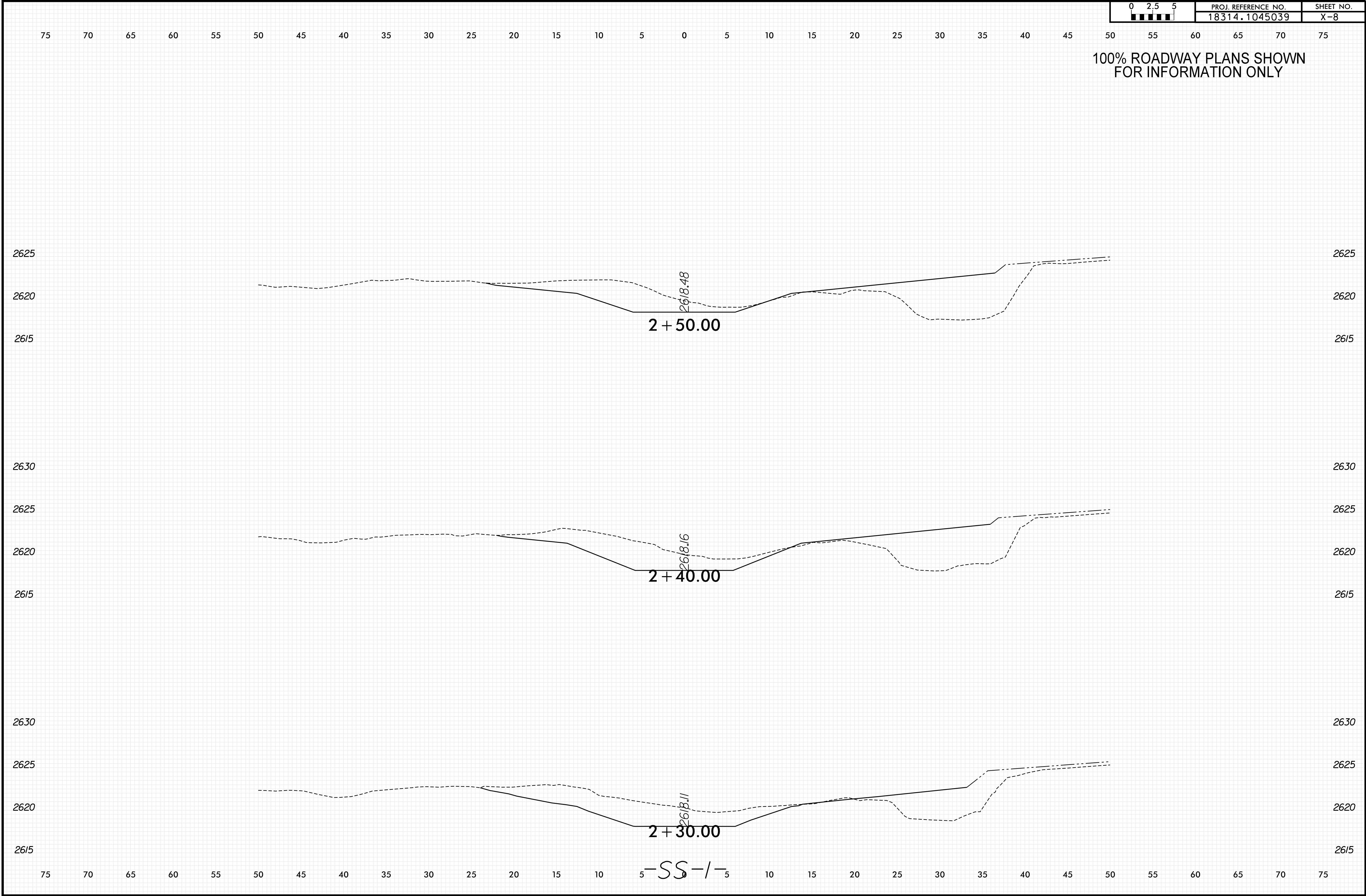


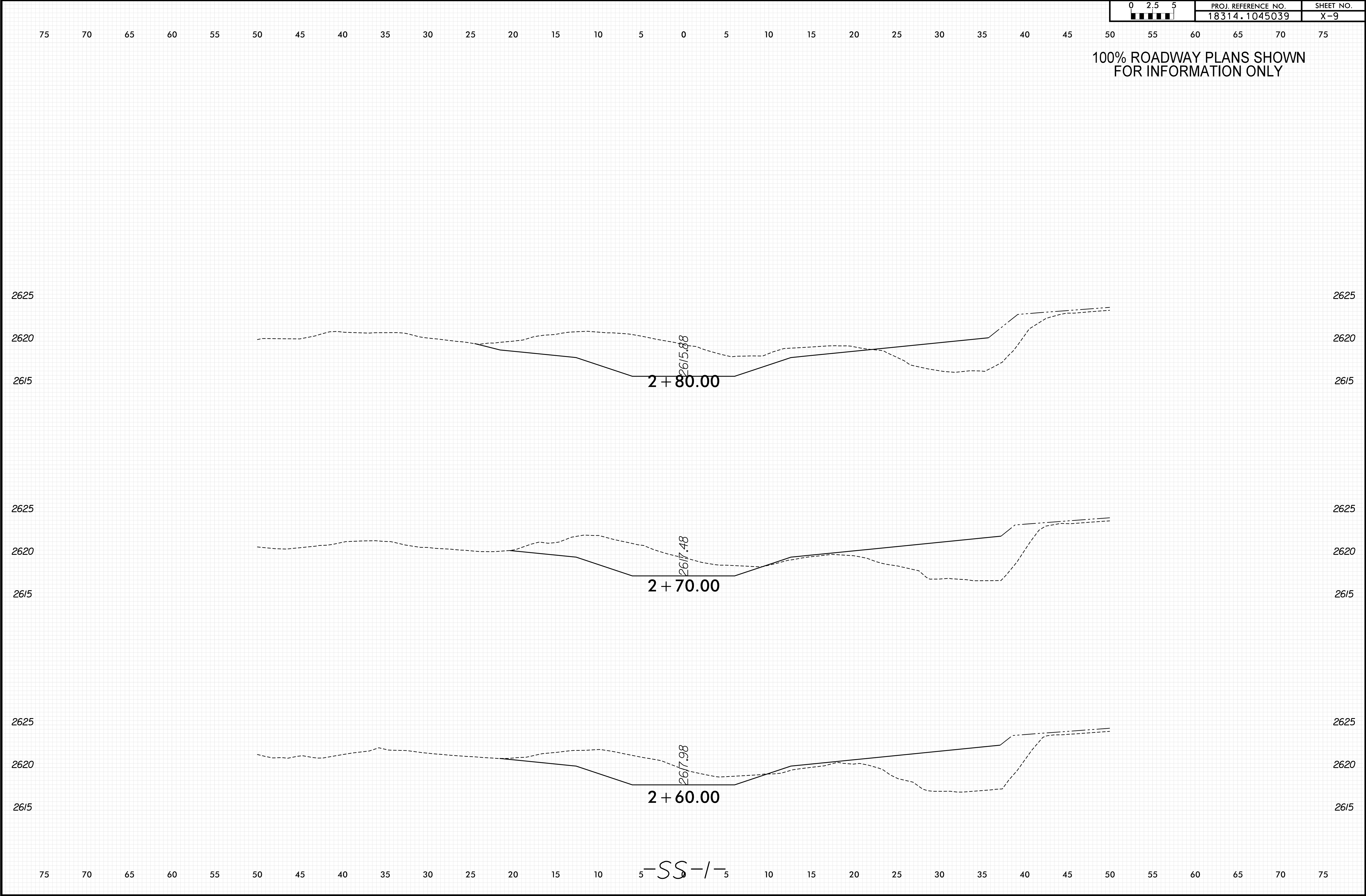


8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-8

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



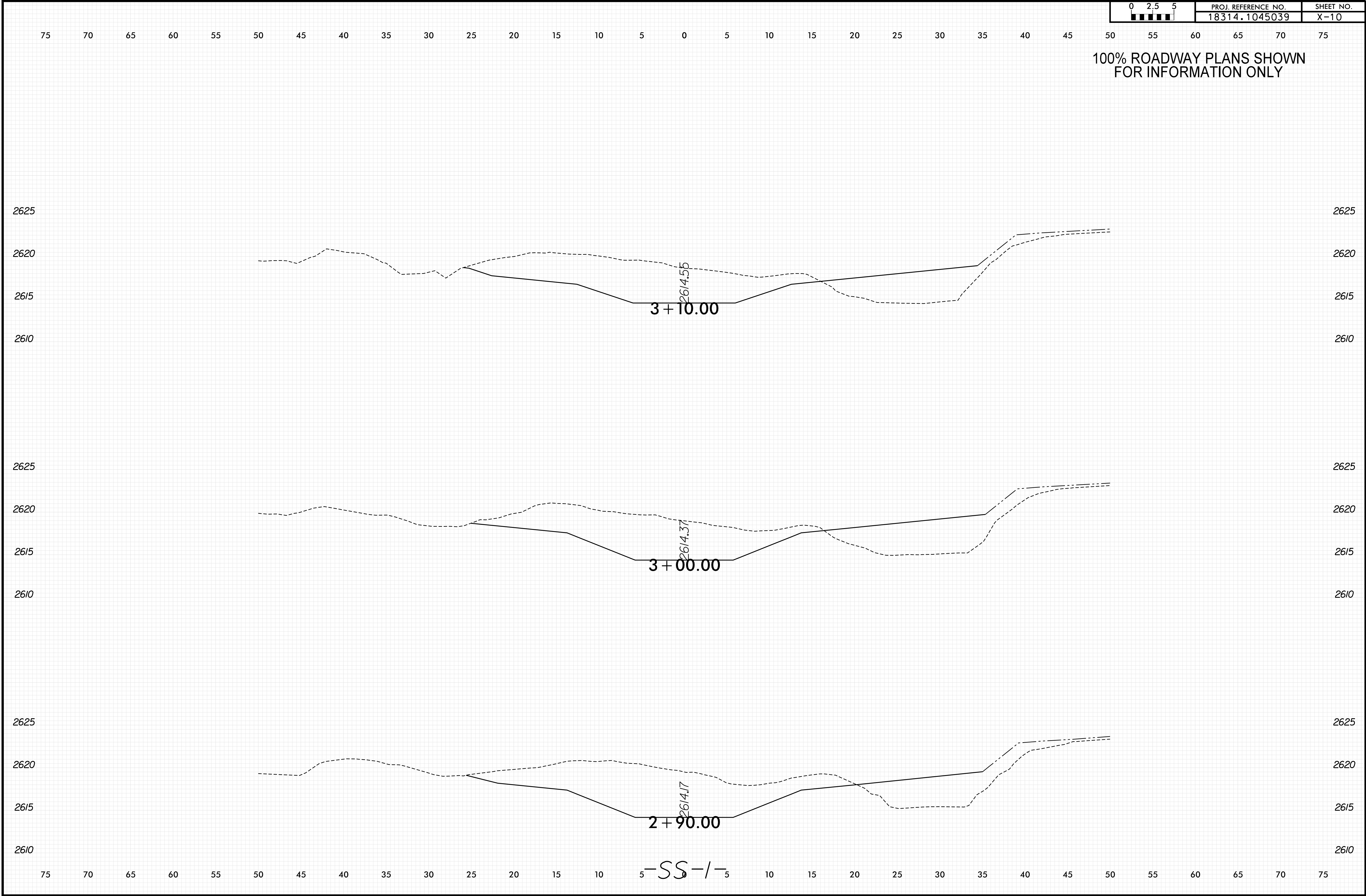


SS-/-

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-10

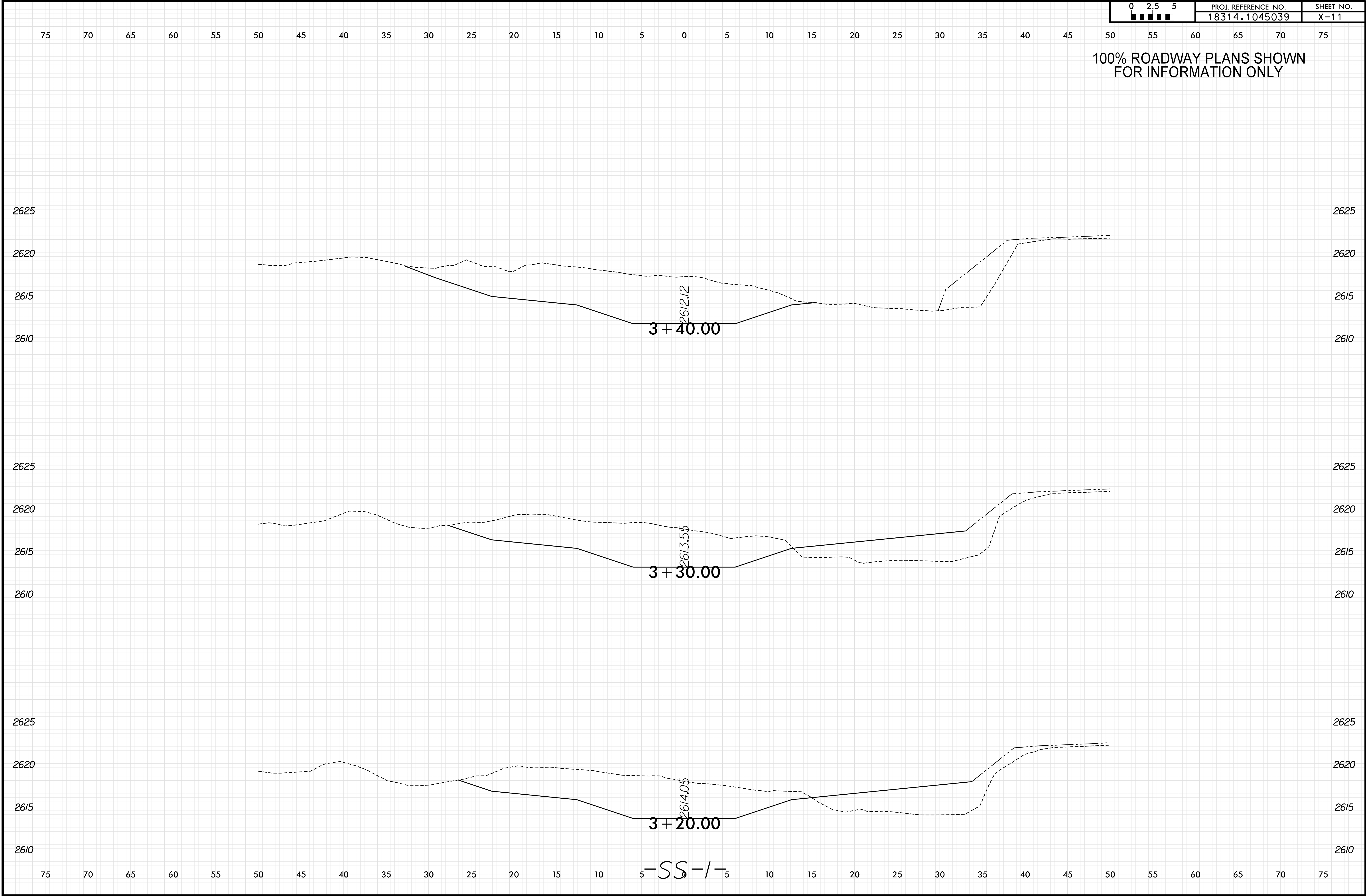
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-11

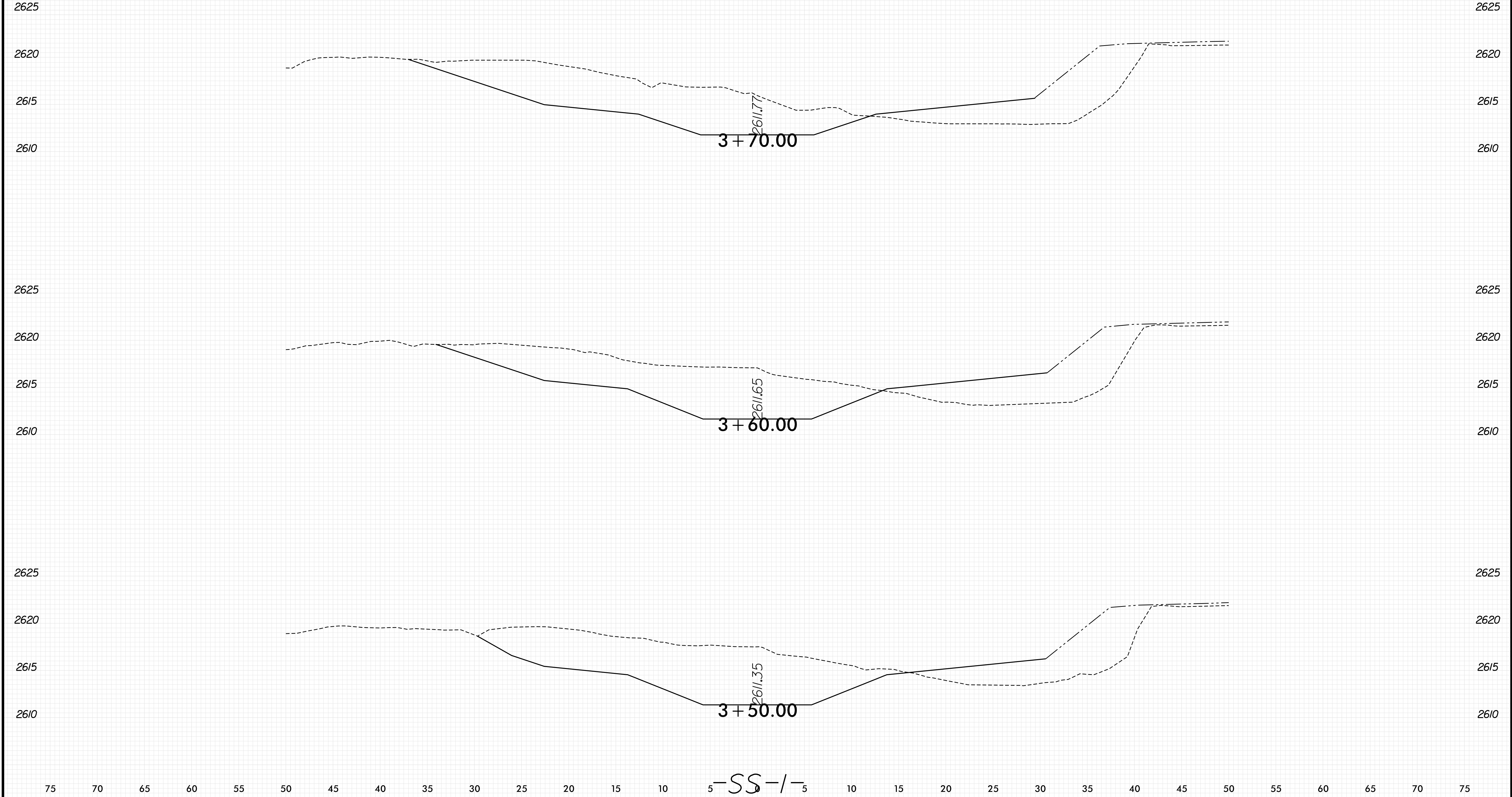
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

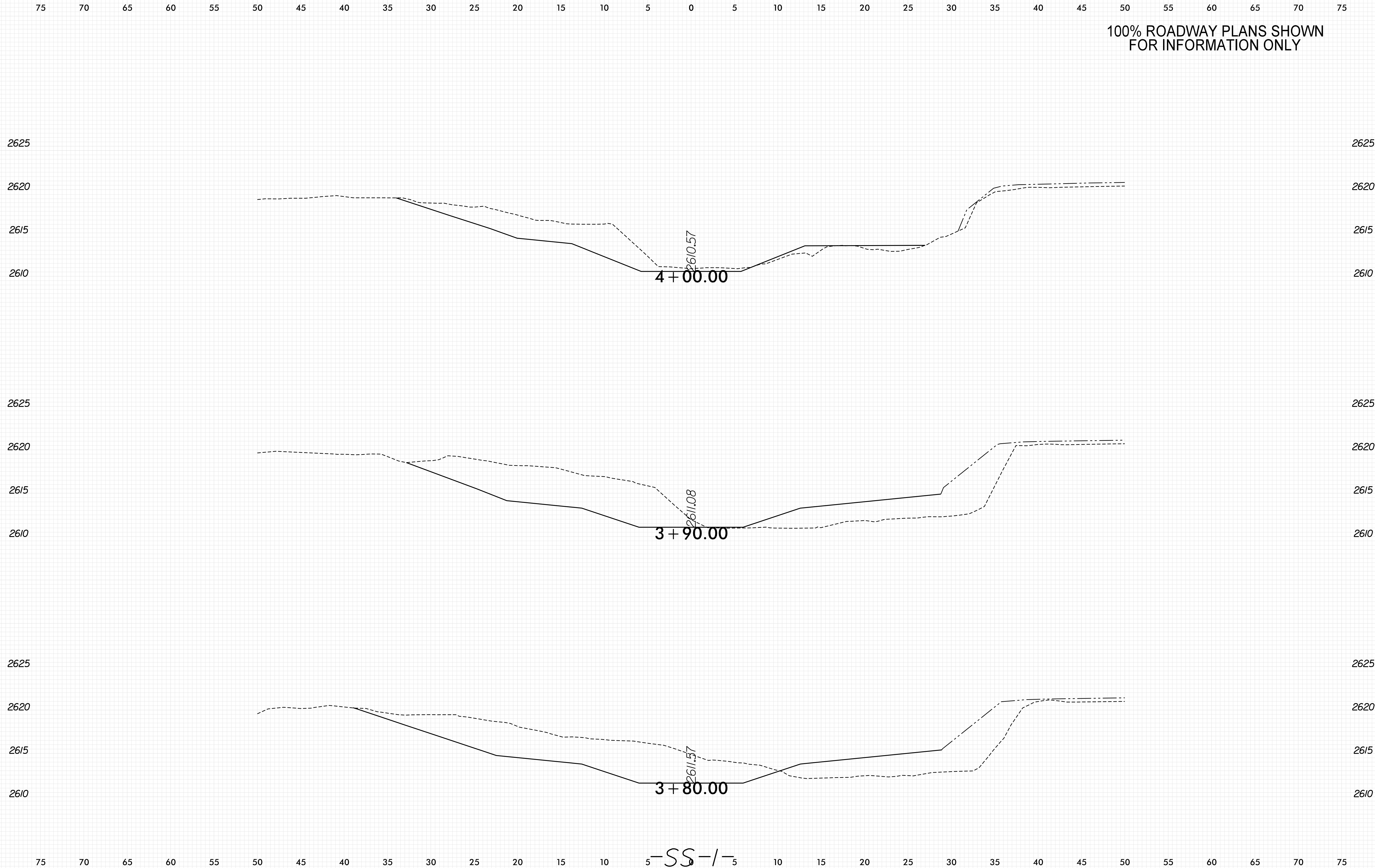


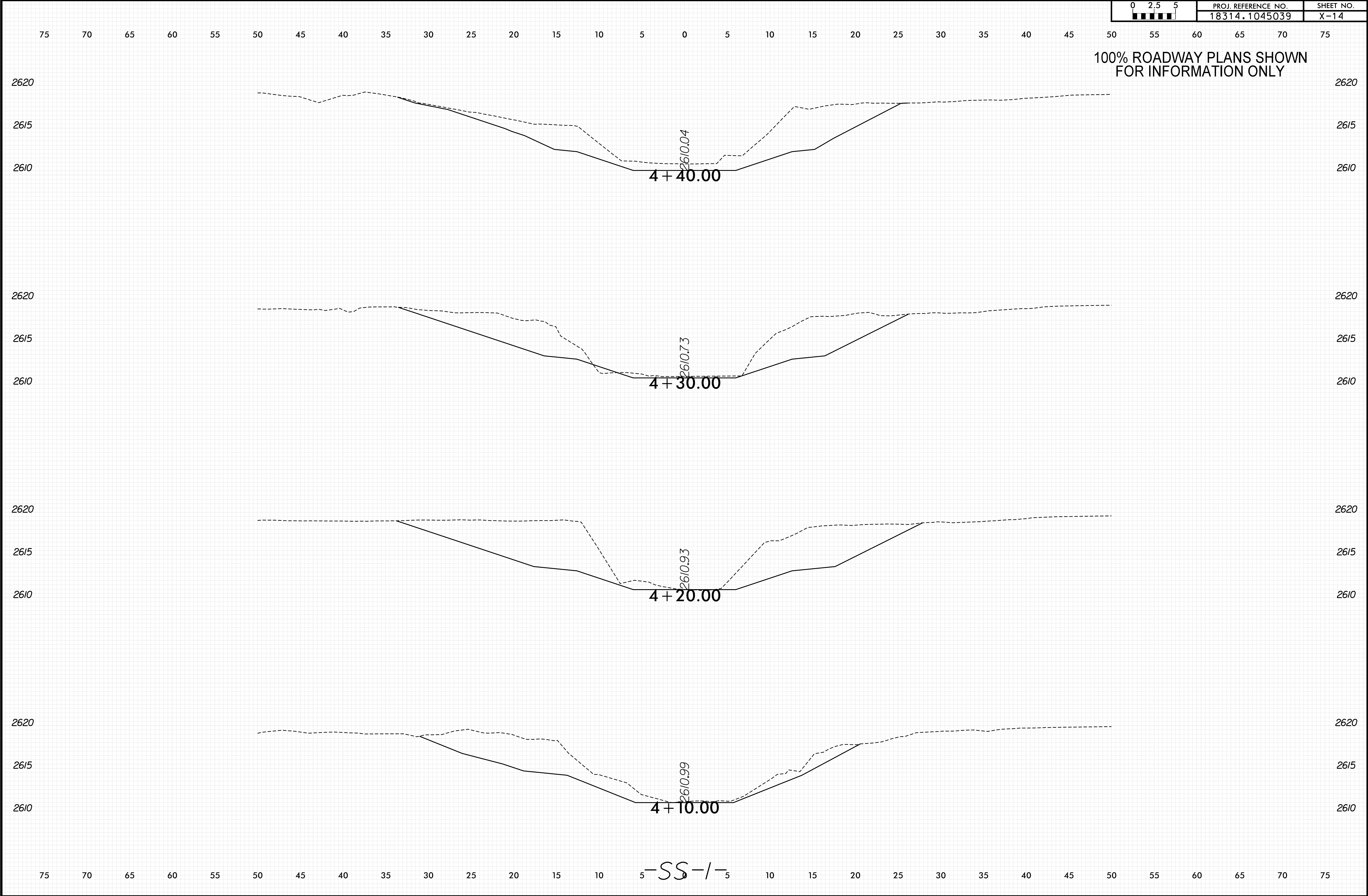
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-12

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY





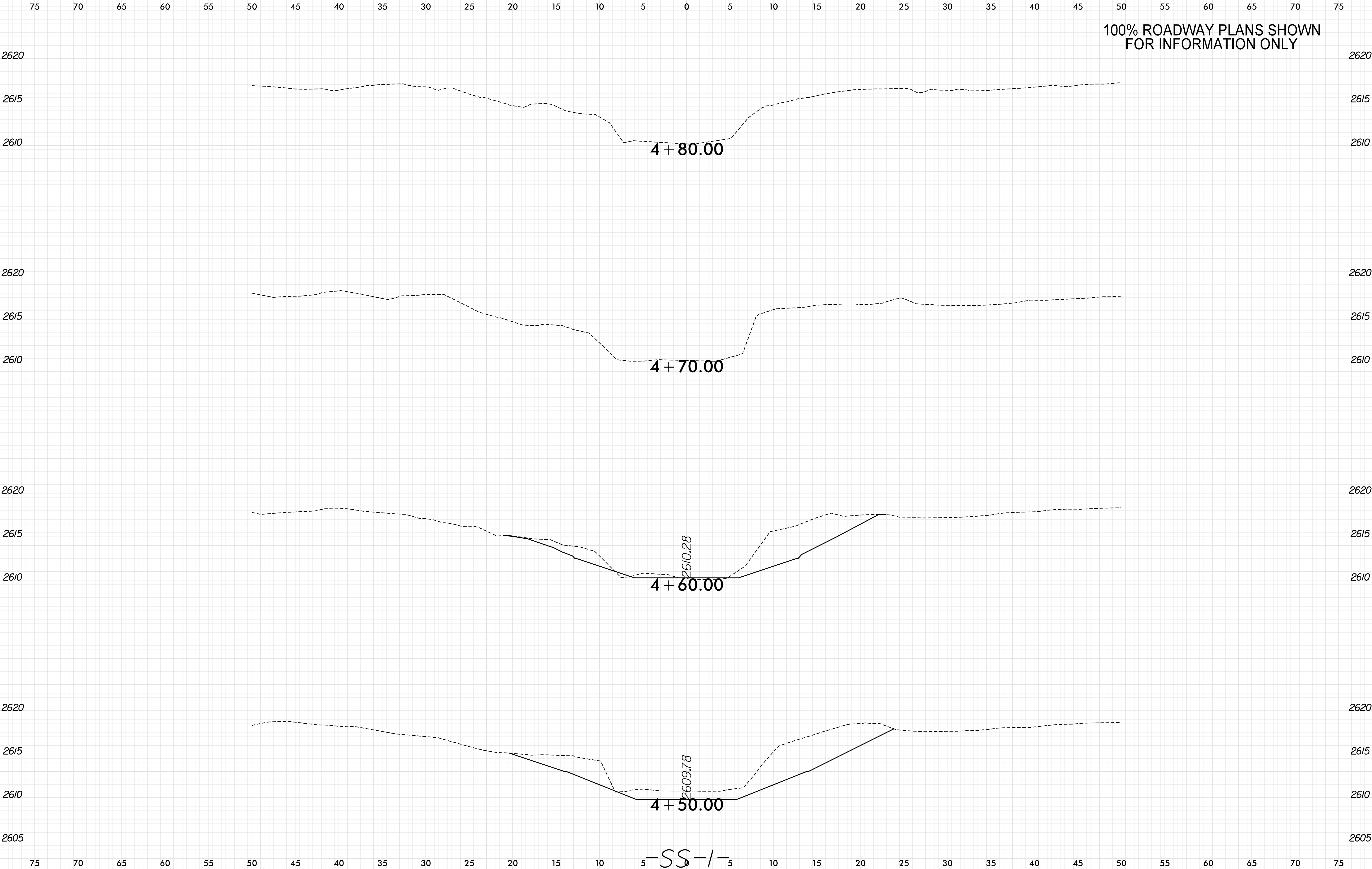


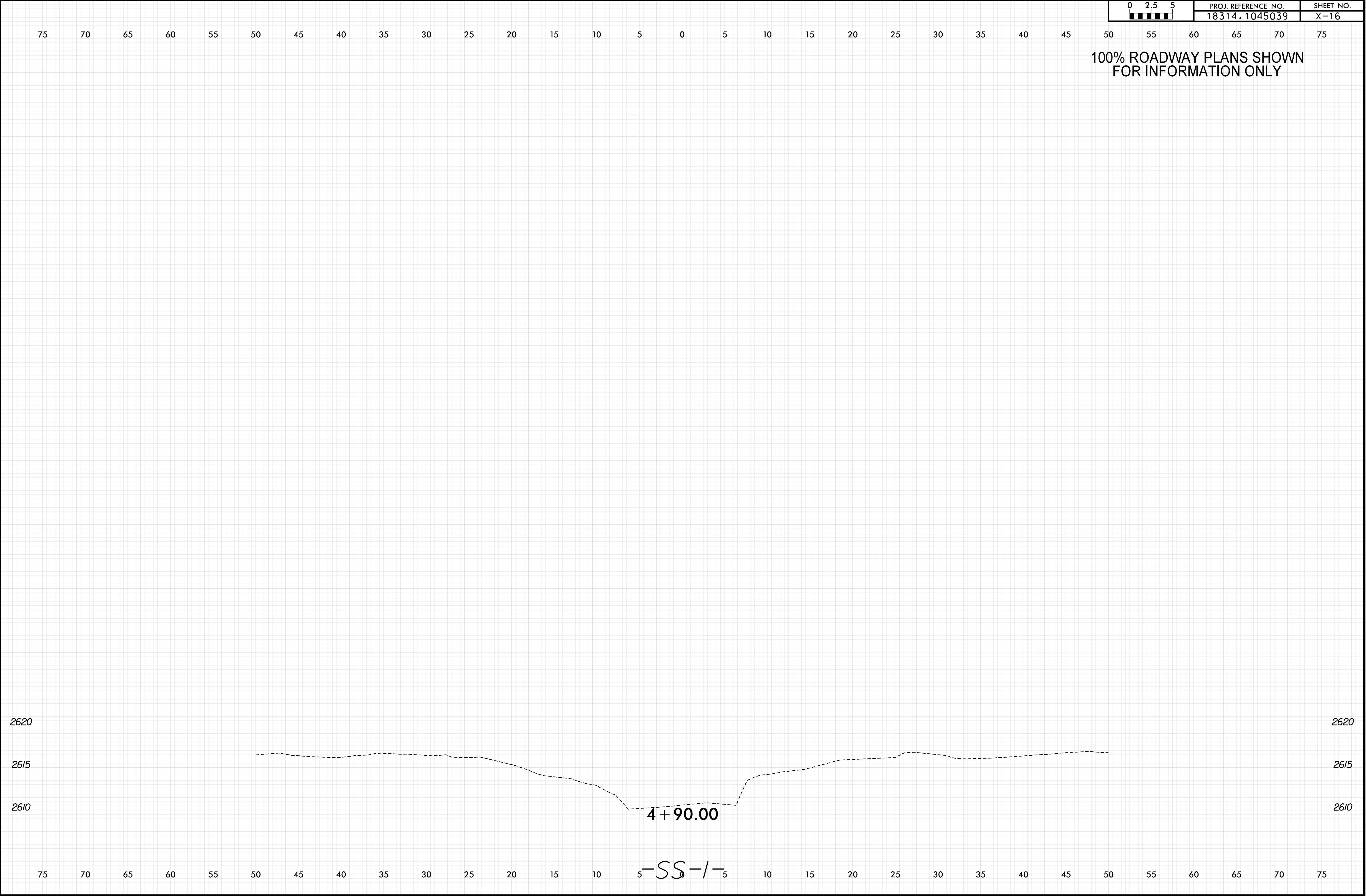
SS-/-

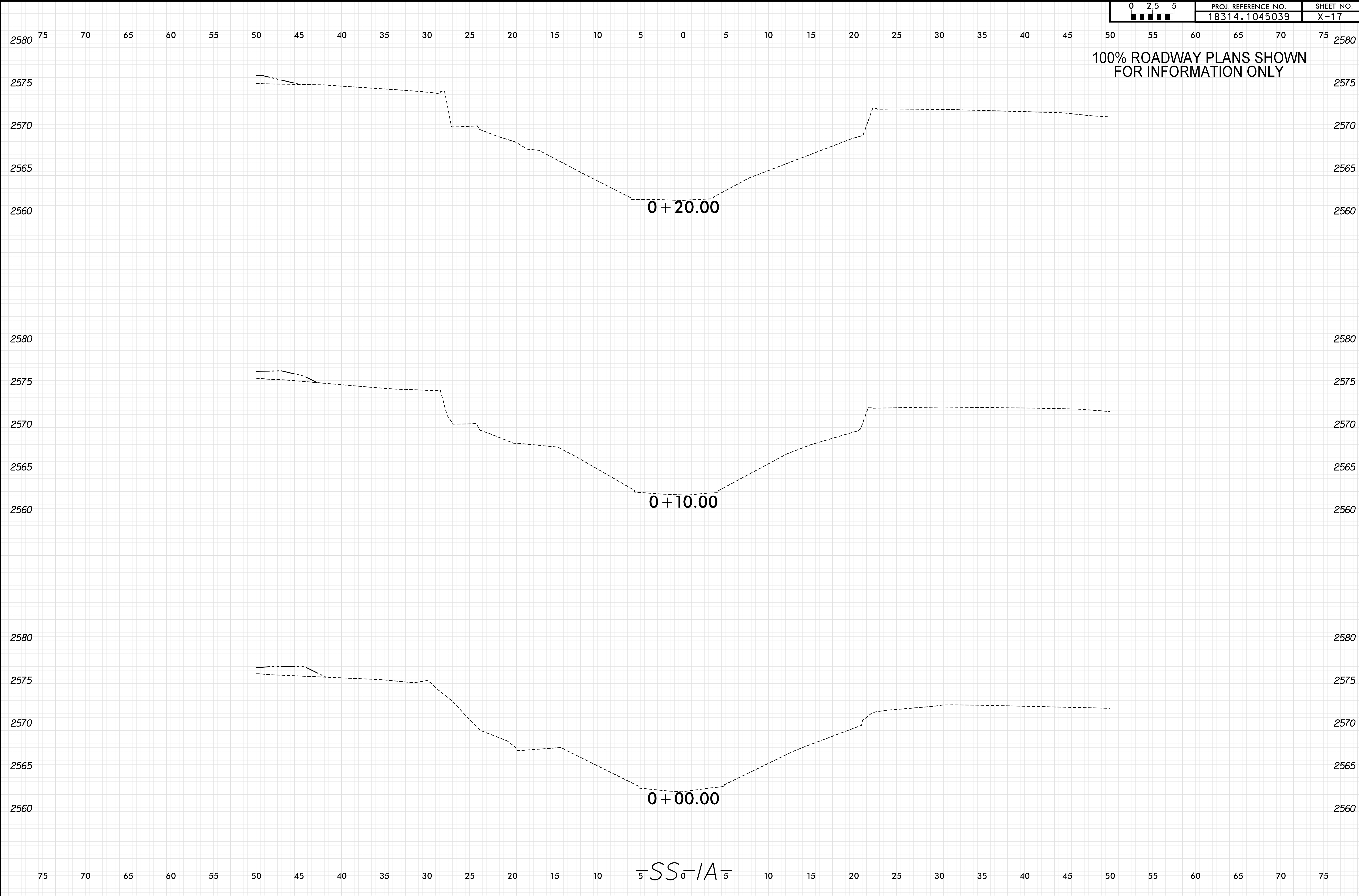
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-15

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY







8/23/99

PLOT DRIVER: NC001.pdf_color_eng_50.plt
USER: KCLATTER8U
FILE: \

DATE: 5/8/2026
TIME: 9:37:51 AM

PENTABLE: xpl_sh_v8.tbl

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-18

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

2580

2575

2570

2565

2560

2555

2580

2575

2570

2565

2560

2555

2580

2575

2570

2565

2560

2580

2575

2570

2565

2560

0 + 40.00

2559.21

0 + 30.00

2560.78

-SS-1A-

8/23/99

PLOT DRIVER: NC001.pdf_color_eng_50.plt
USER: KCLATTER8U
FILE: \

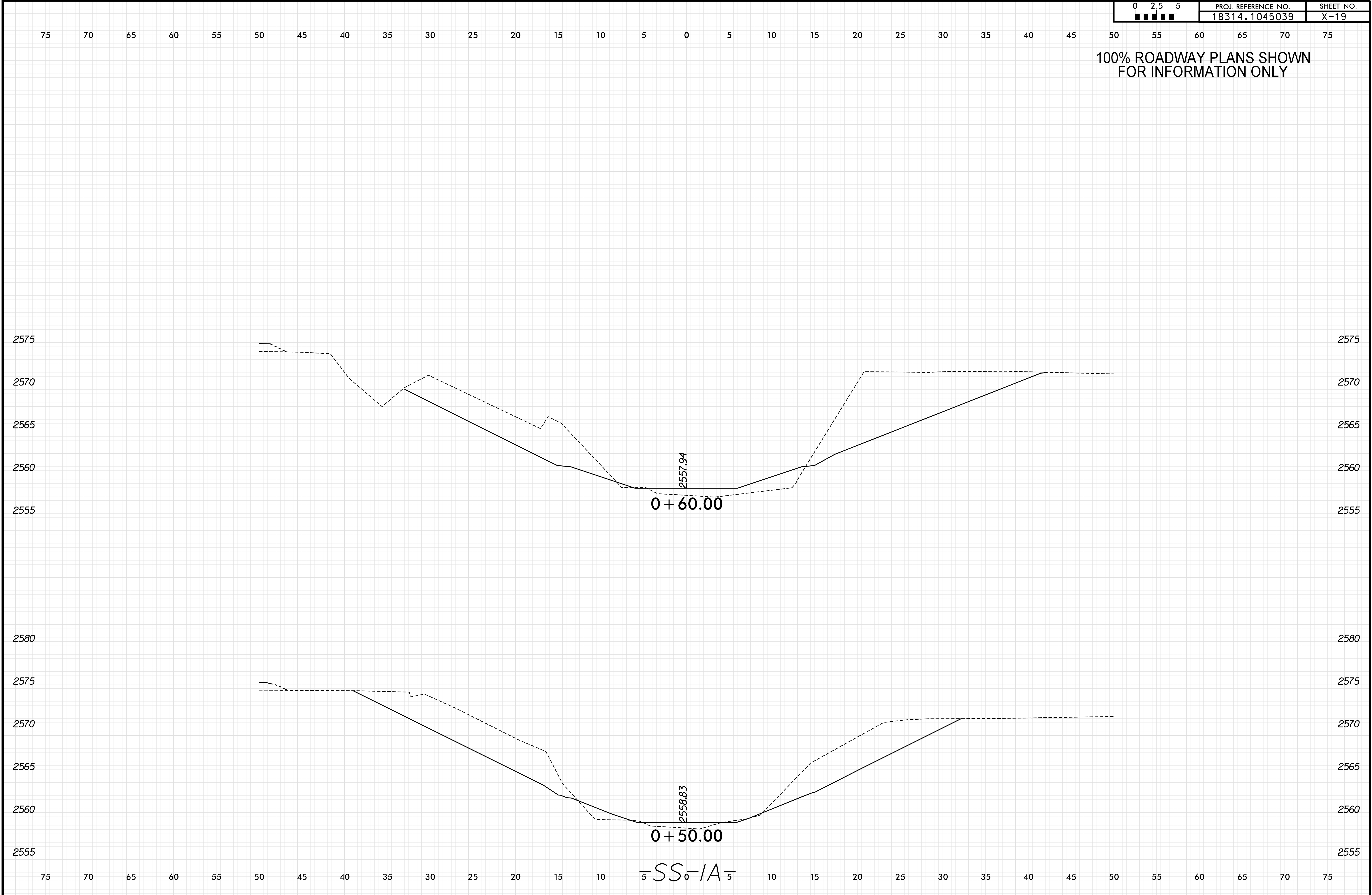
DATE: 5/8/2026

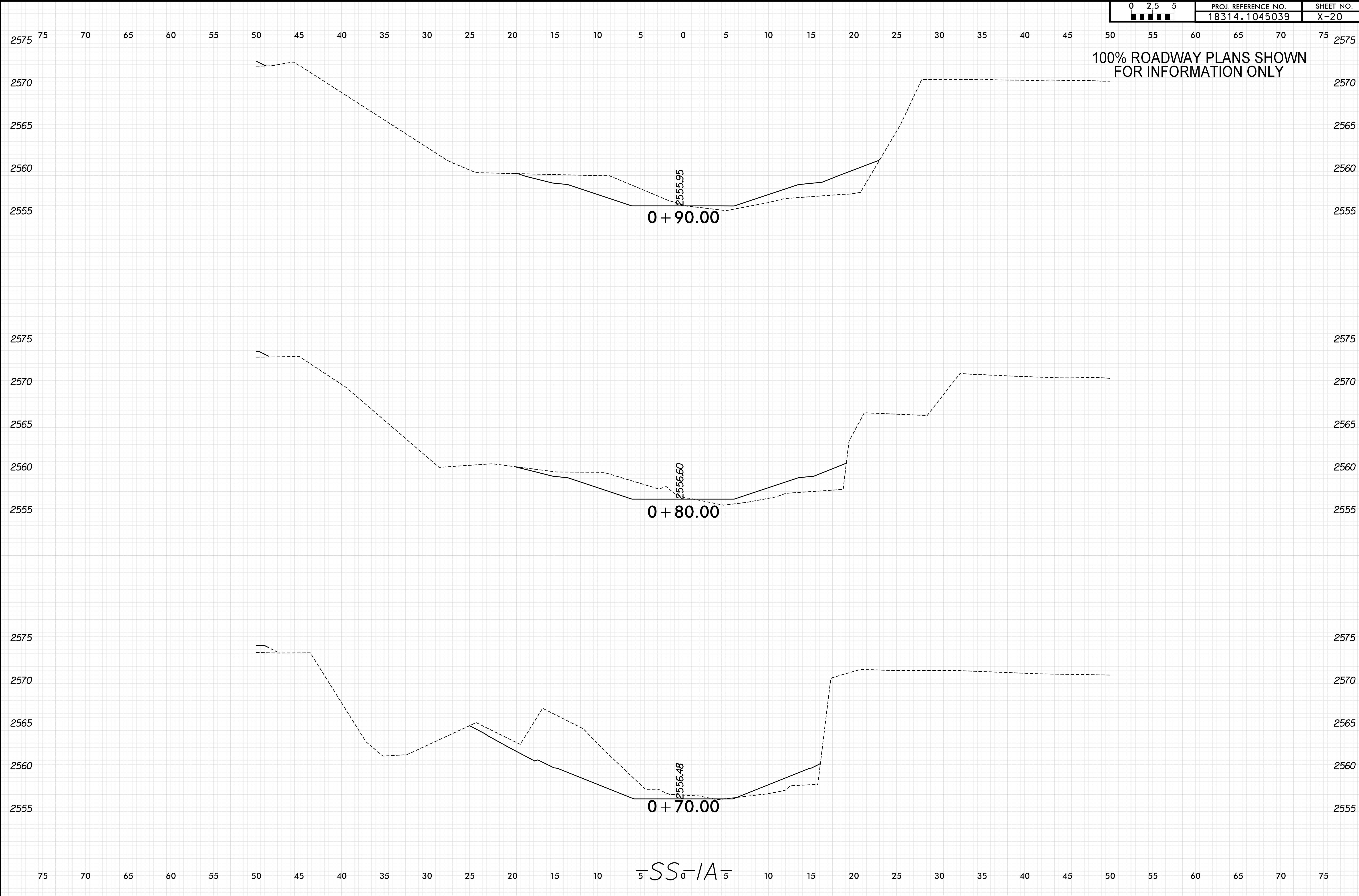
TIME: 9:37:52 AM

PENTABLE: xpl_sh_v8.tbl

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-19

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

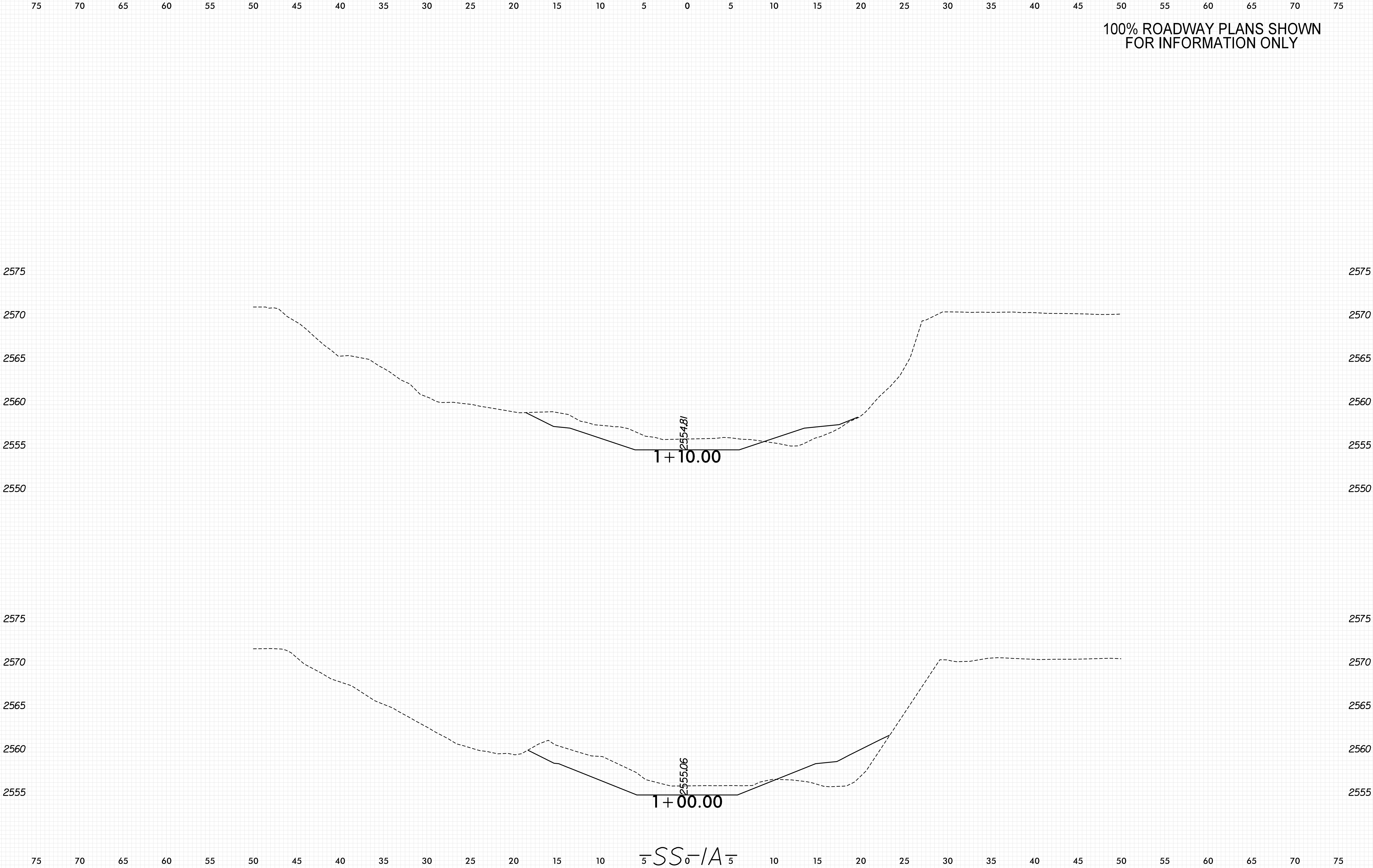




8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-21

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



8/23/99

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-22

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

2575

2570

2565

2560

2555

2550

2575

2570

2565

2560

2555

2550

2575

2570

2565

2560

2555

2550

2575

2570

2565

2560

2555

2550

1 + 30.00

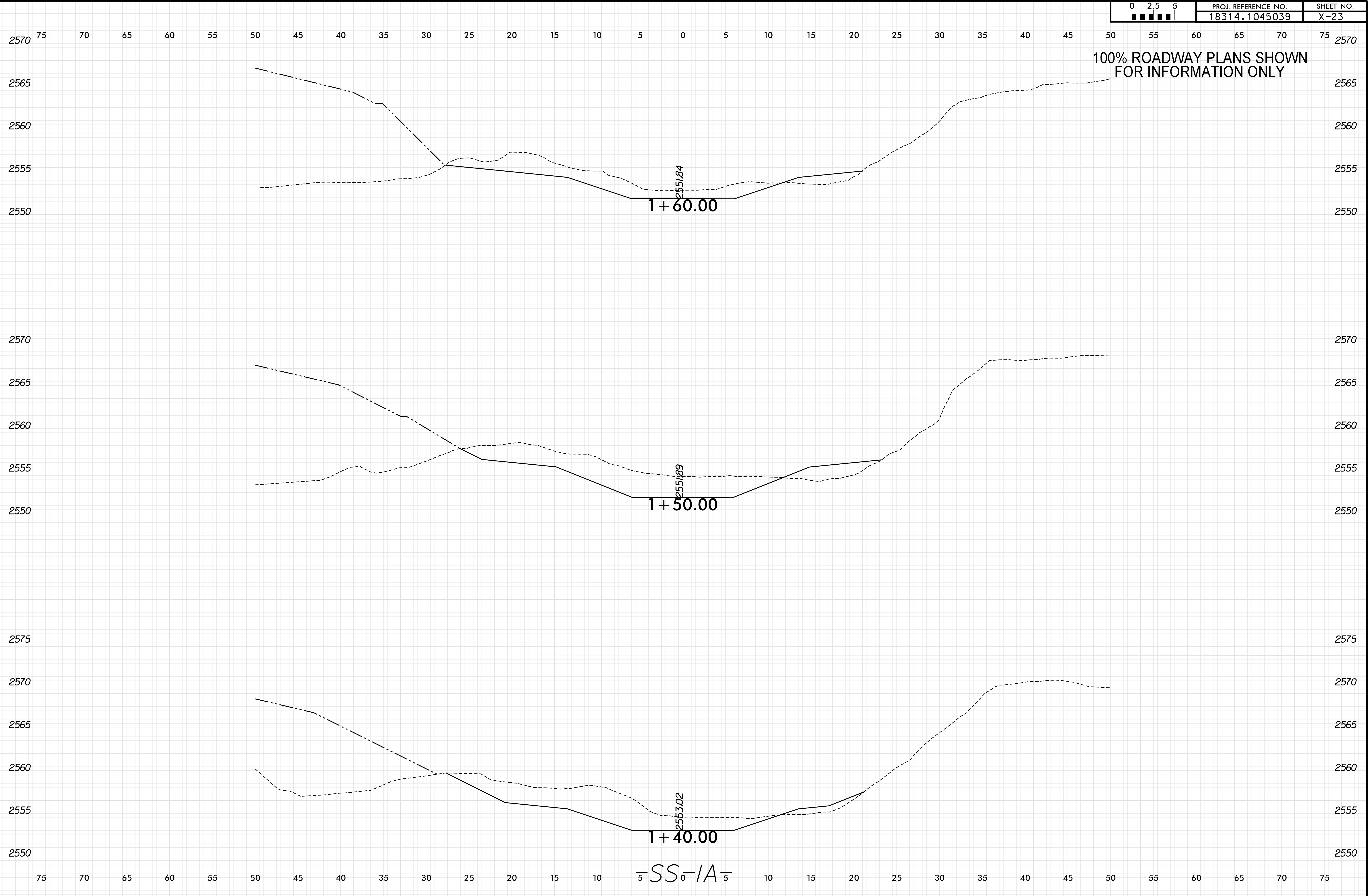
2553.62

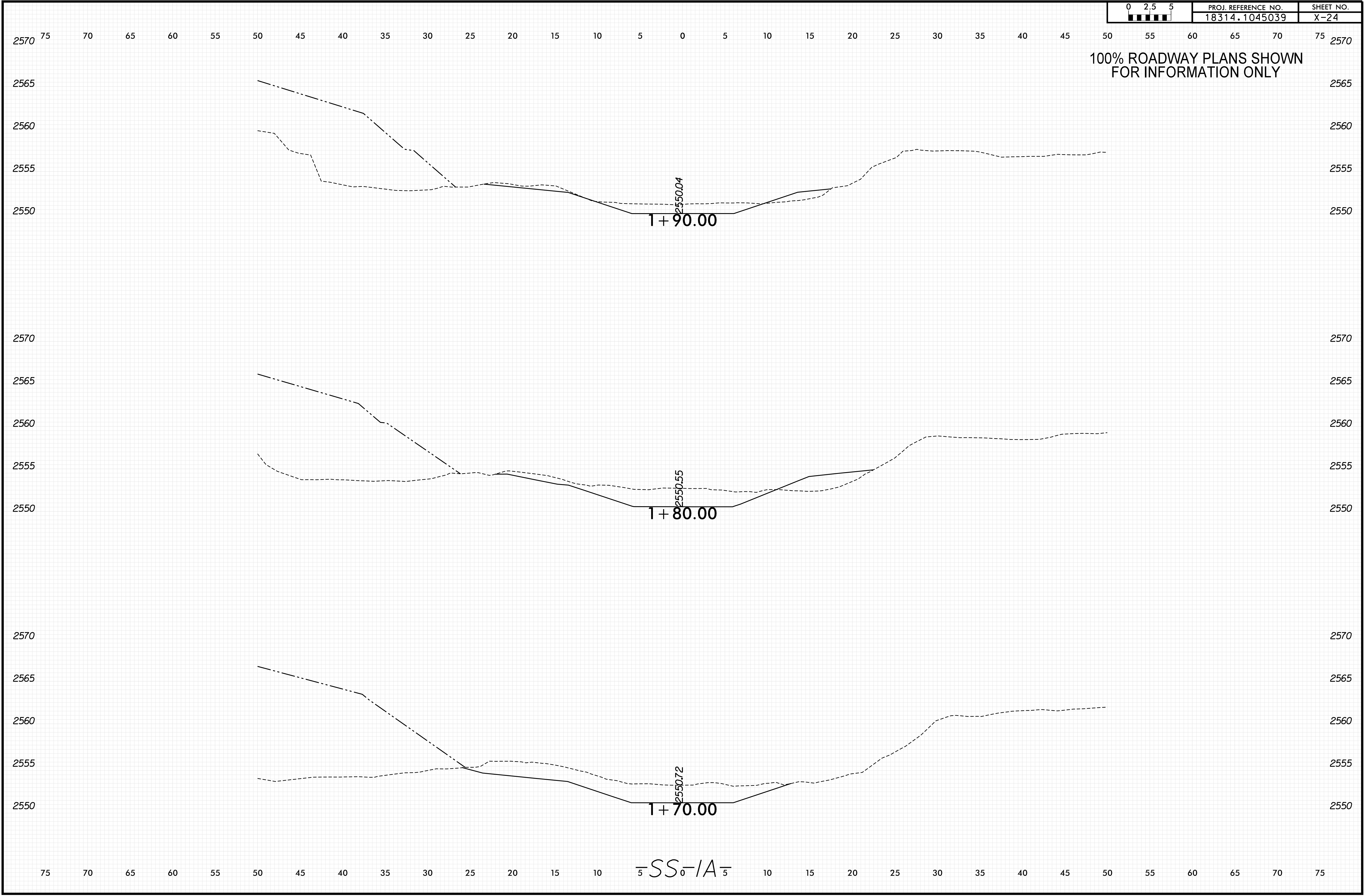
1 + 20.00

2553.32

$$SS = \frac{1}{A}$$

PLOT DRIVER: NC001.pdf_color_eng_50.plt
PENTABLE: xpl_ah_v8.tbl
USER: KCLATTER8U
DATE: 5/8/2026
TIME: 9:37:56 AM
FILE: \

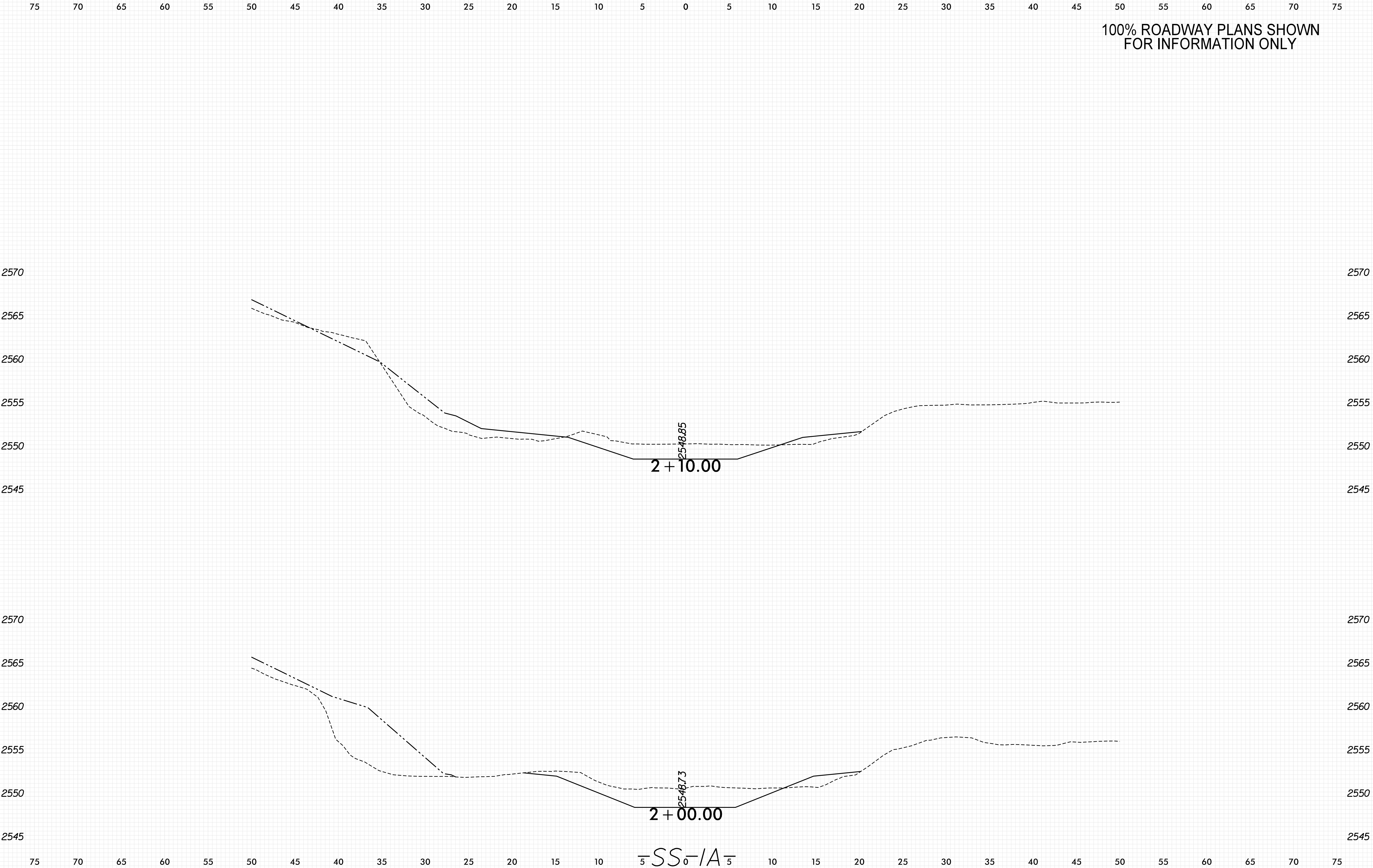




8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-25

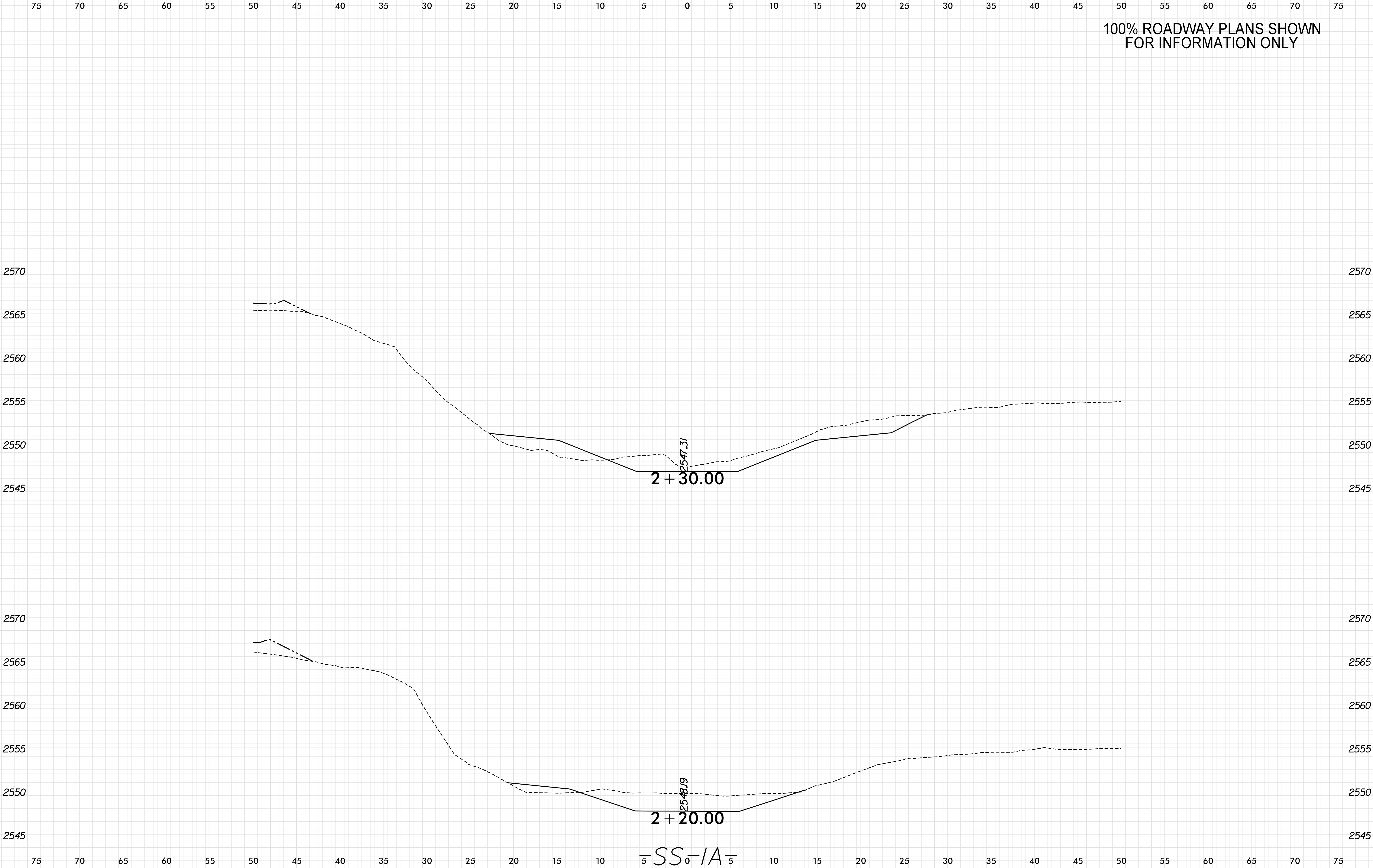
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-26

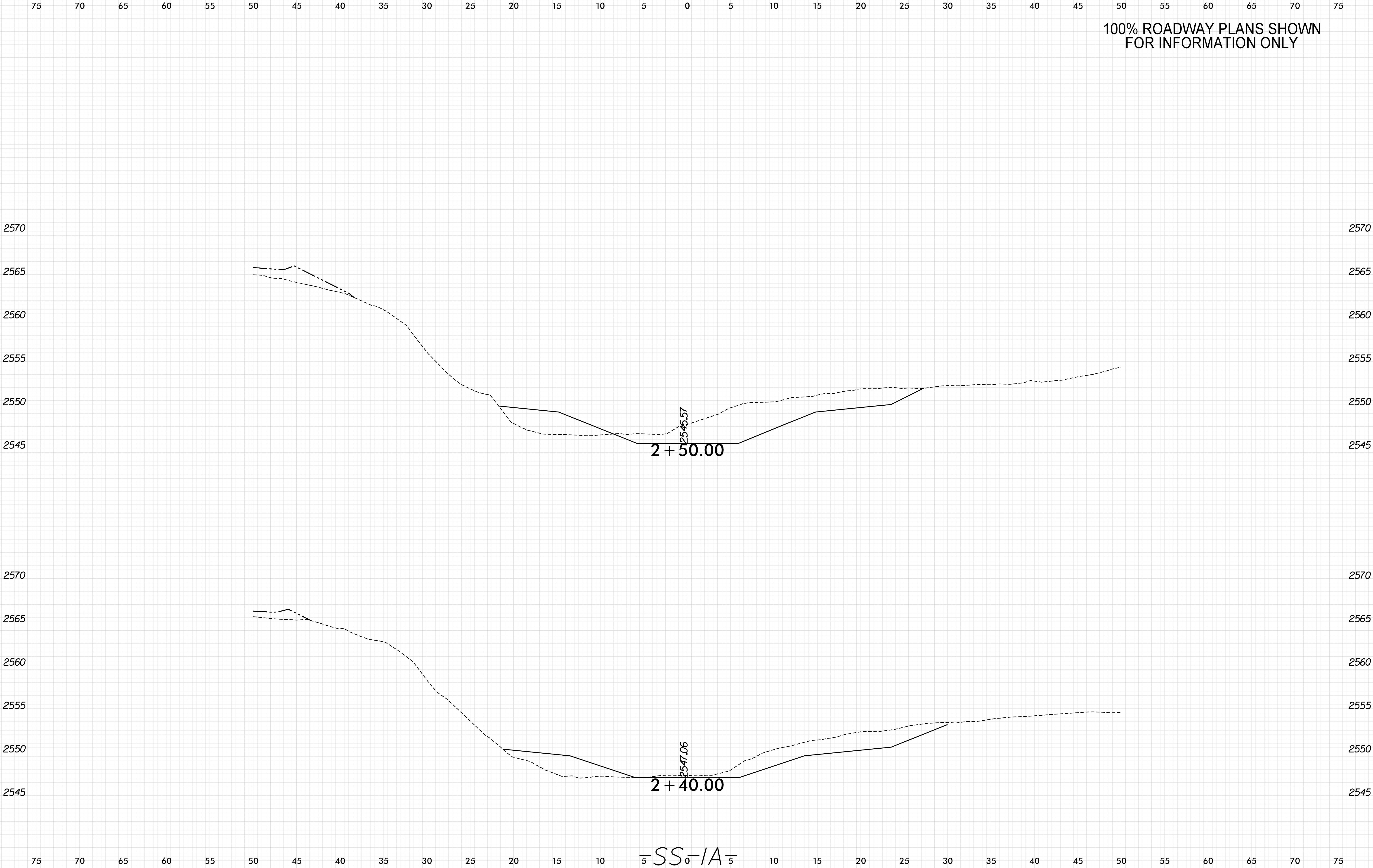
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-27

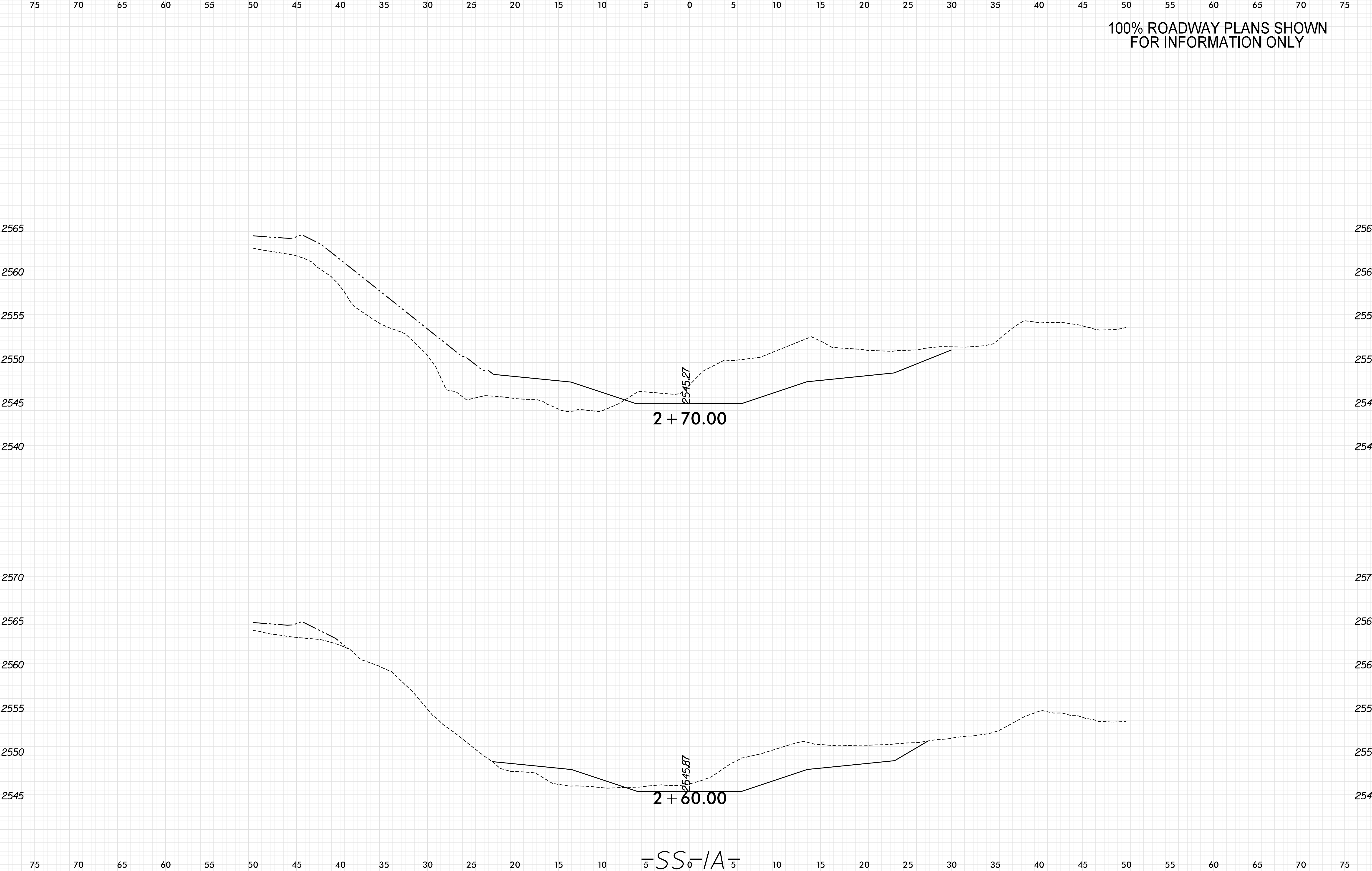
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-28

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

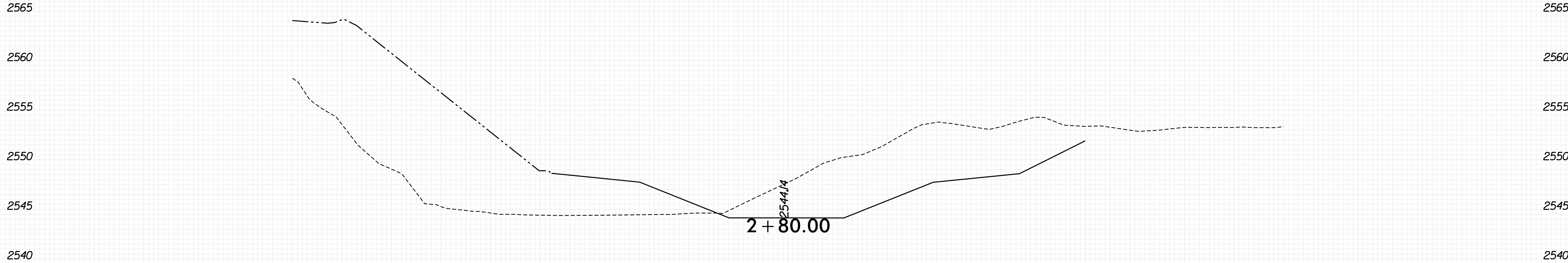
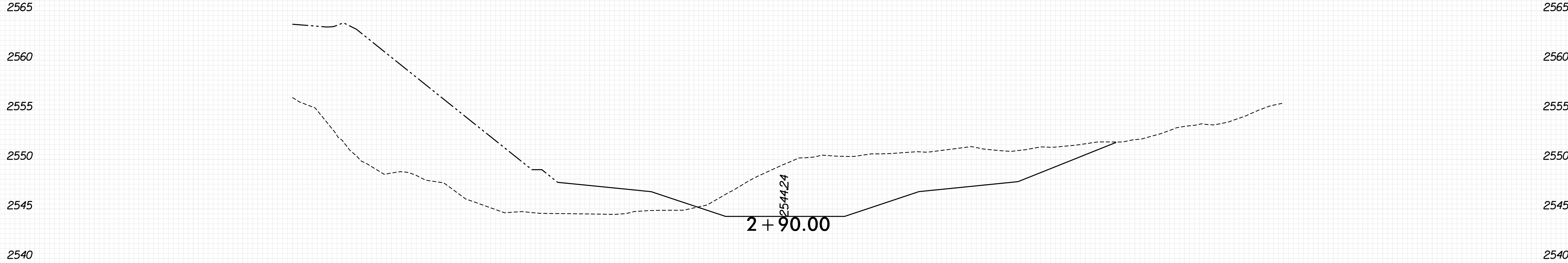


8/23/99

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

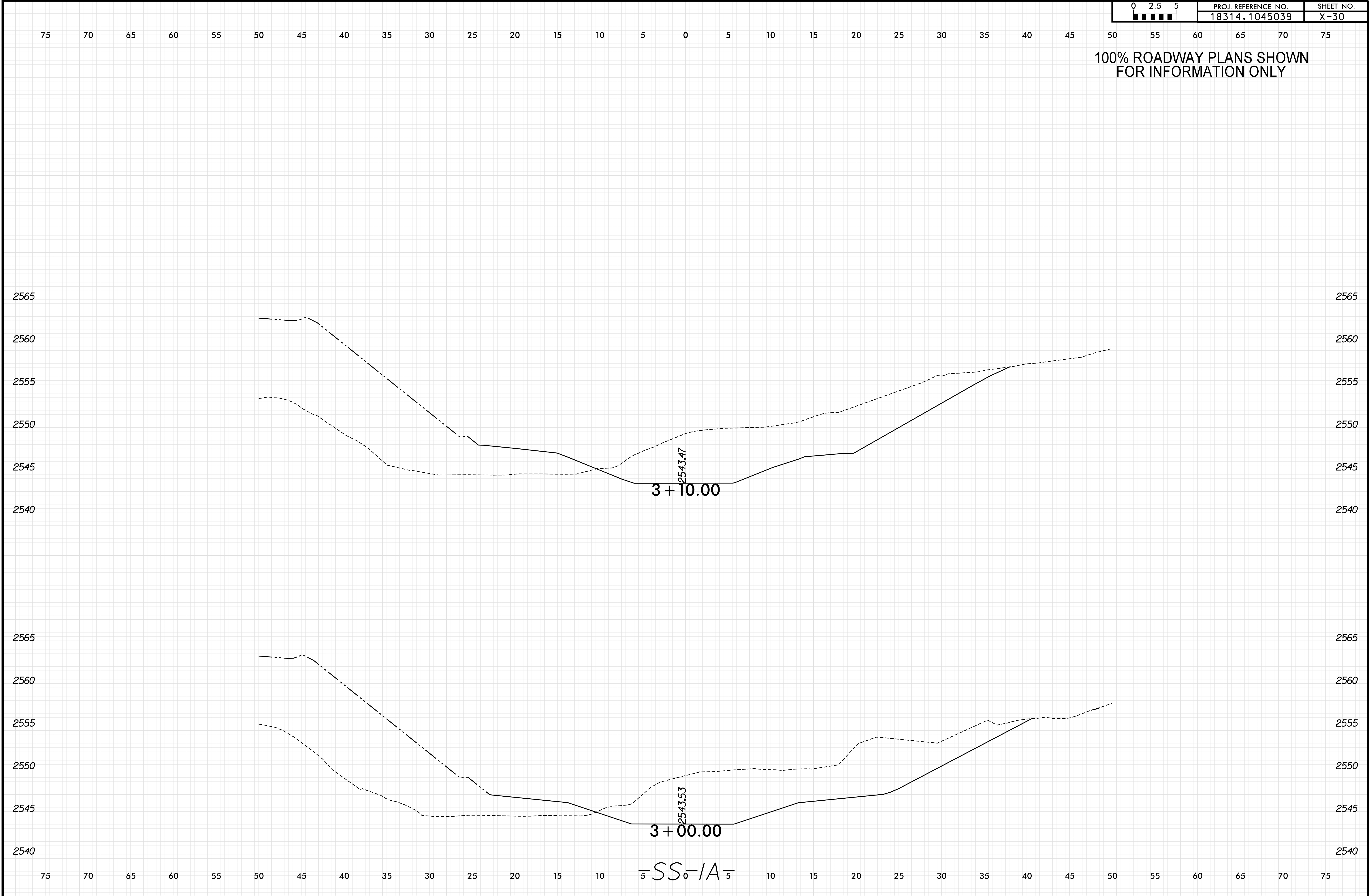
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-29

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



SS-1A

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



8/23/99

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-31

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

2565

2560

2555

2550

2545

2540

2565

2560

2555

2550

2545

2540

2565

2560

2555

2550

2545

2540

2565

2560

2555

2550

2545

2540

3 + 30.00

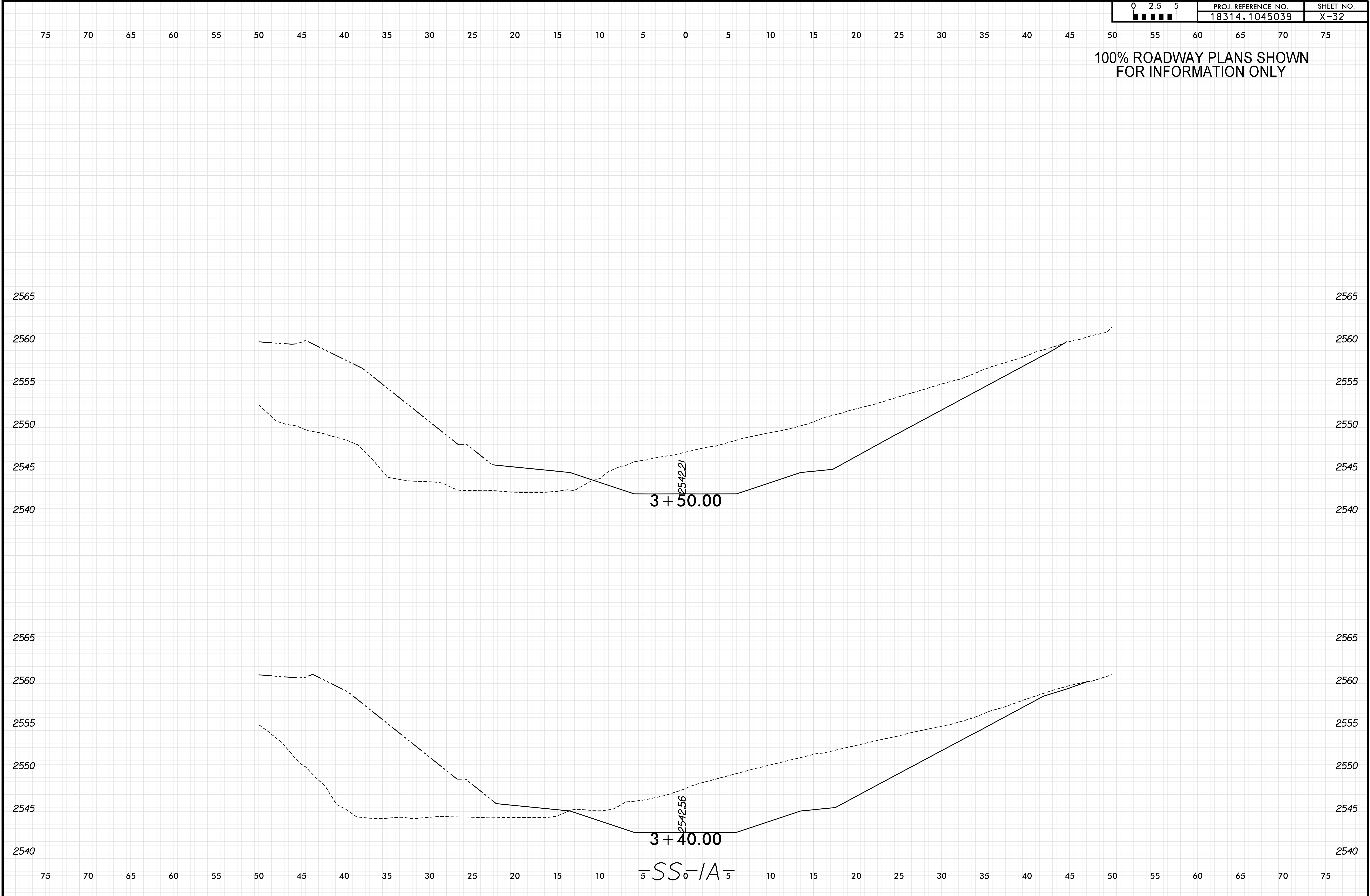
2542.35

3 + 20.00

2543.25

-SS-A-

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

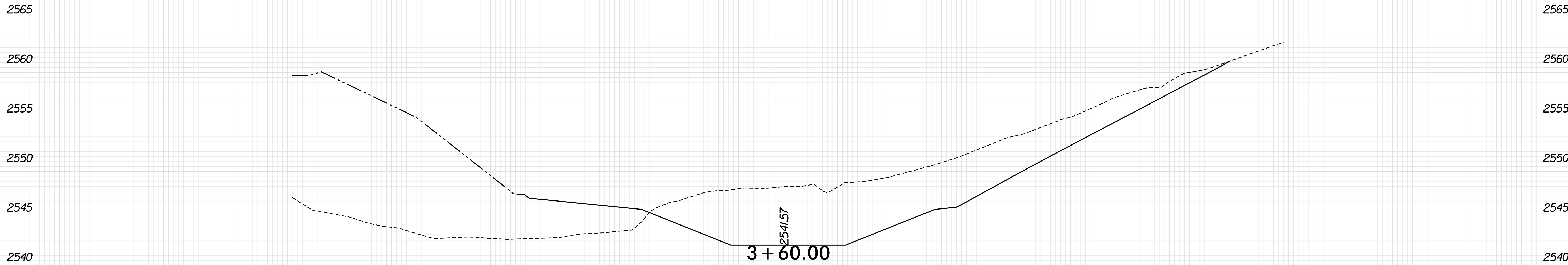
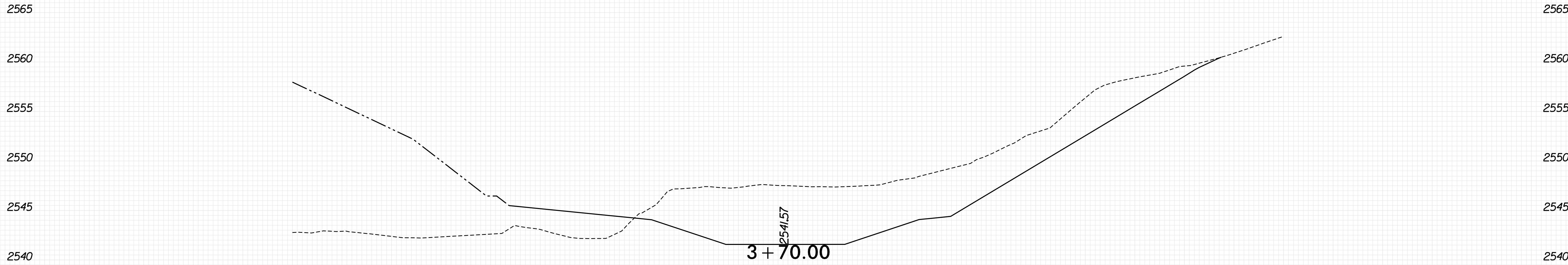


8/23/99

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-33

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

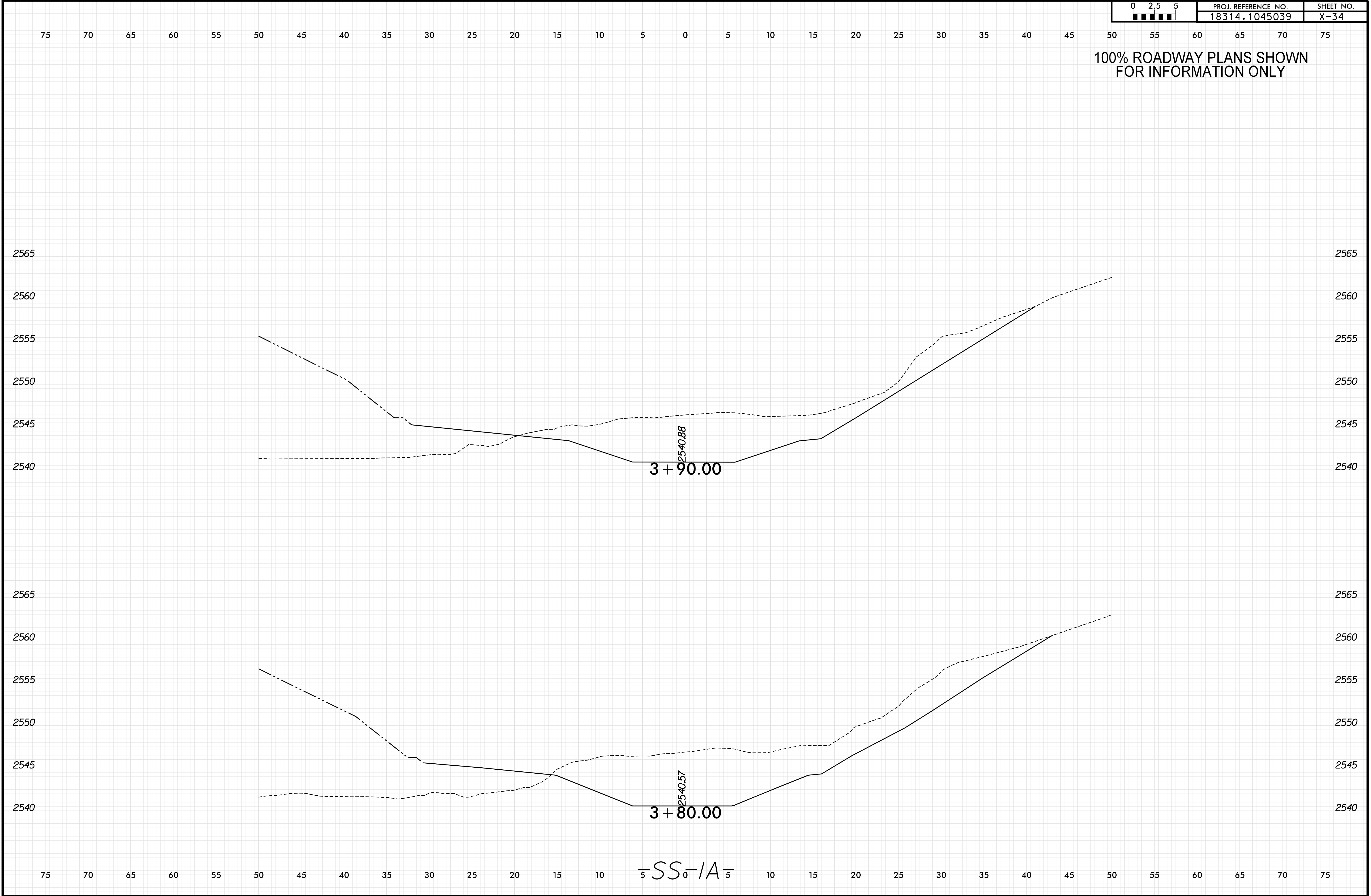


$-SS - \frac{1}{A} -$

8/23/99

PLOT DRIVER: NC001.pdf_color_eng_50.plt
USER: KCLATTER8U
FILE: \

PENTABLE: xpl_ah_v8.tbl
DATE: 5/8/2026
TIME: 9:38:11 AM

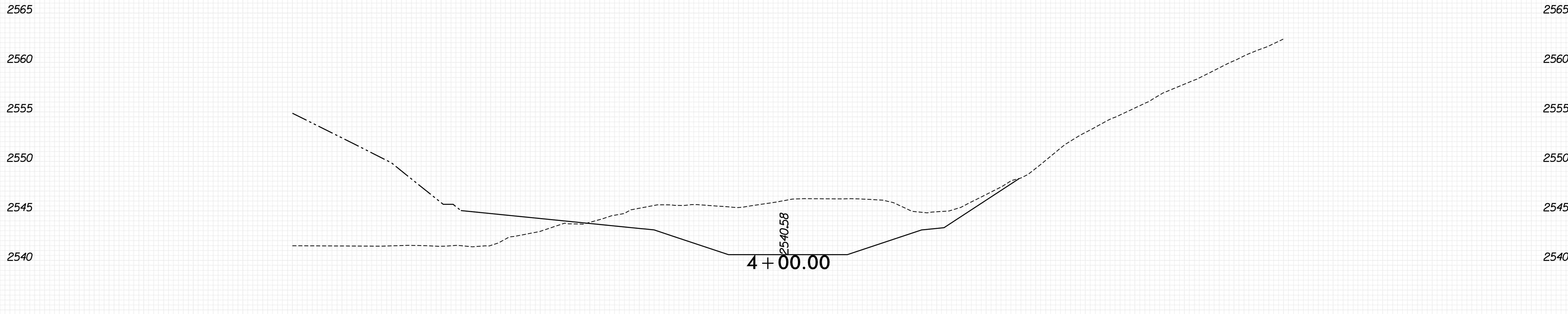
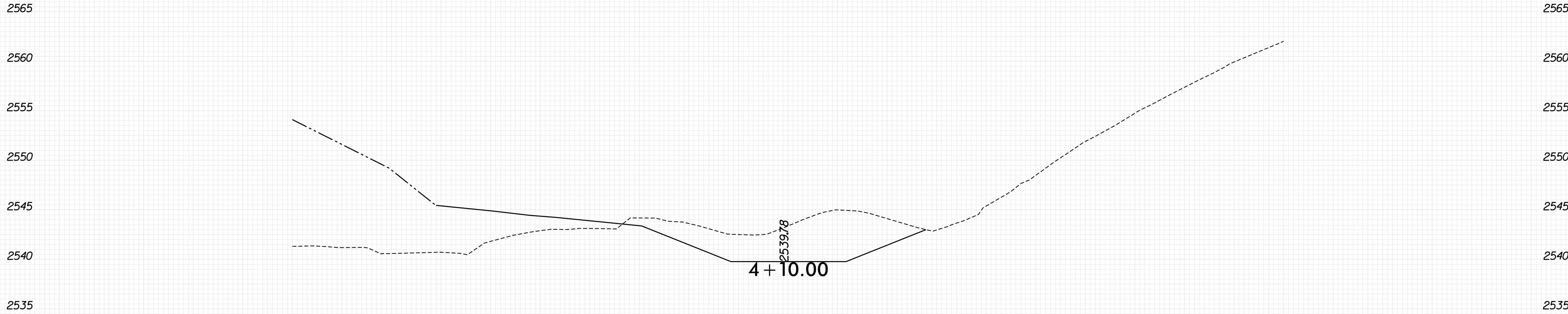


8/23/99

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

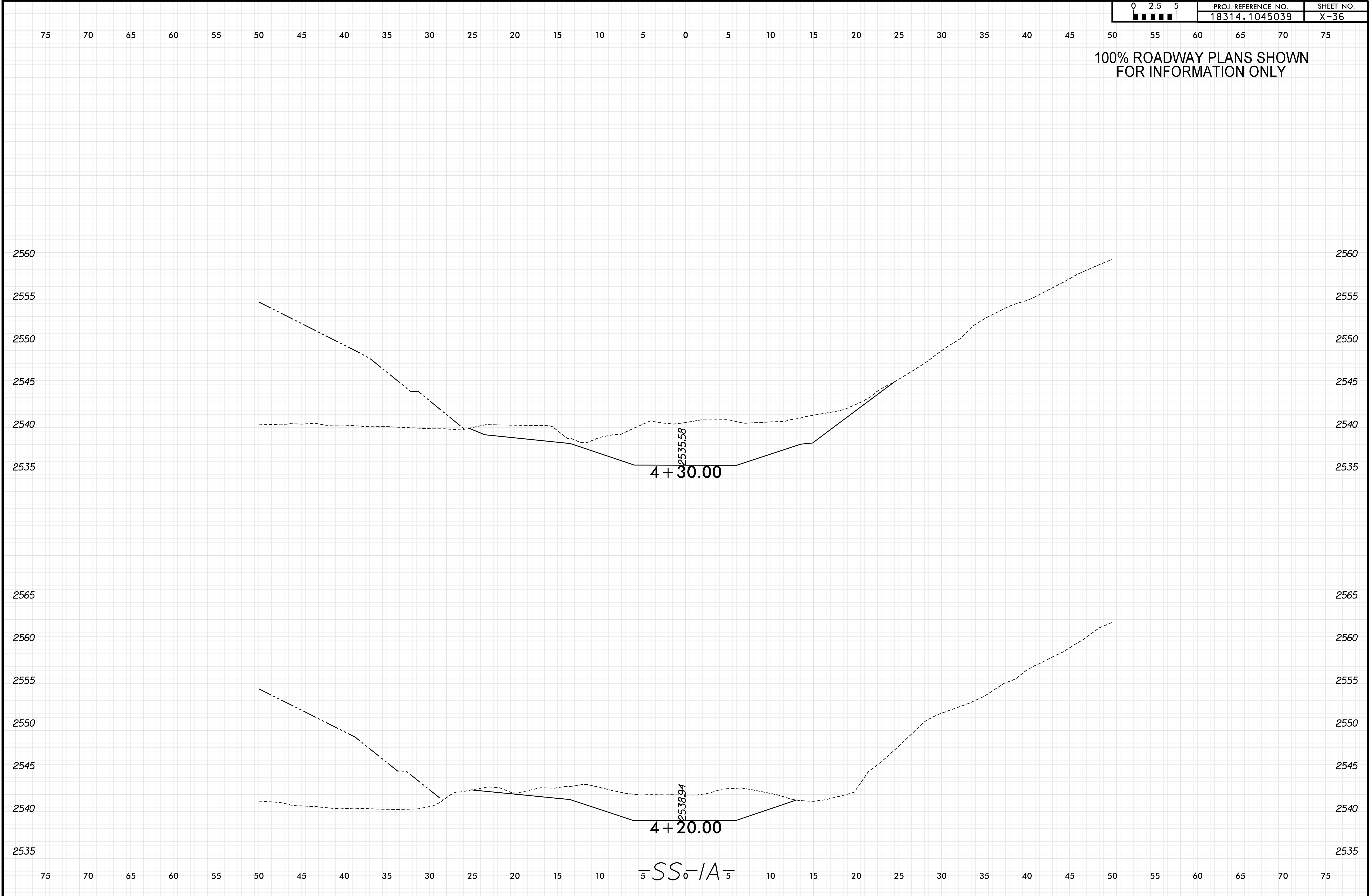
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-35

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



SS-A

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

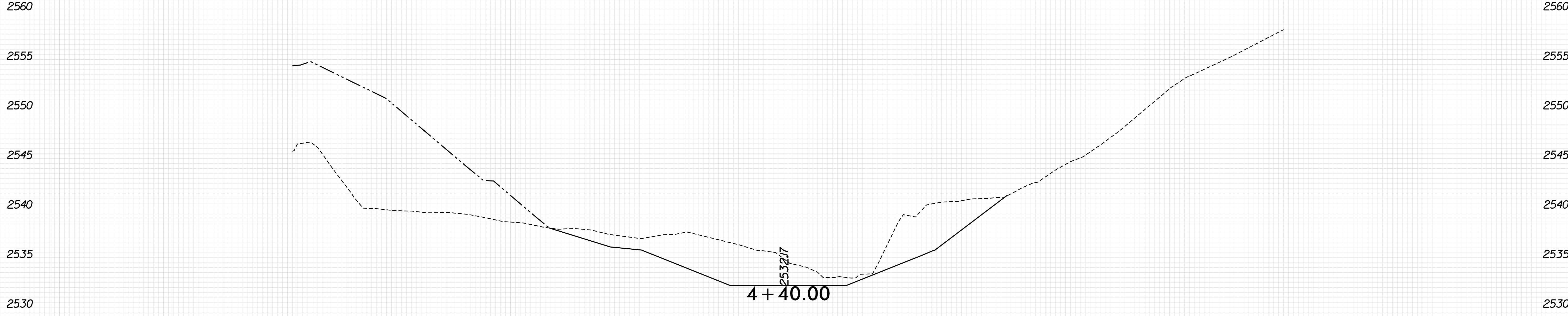
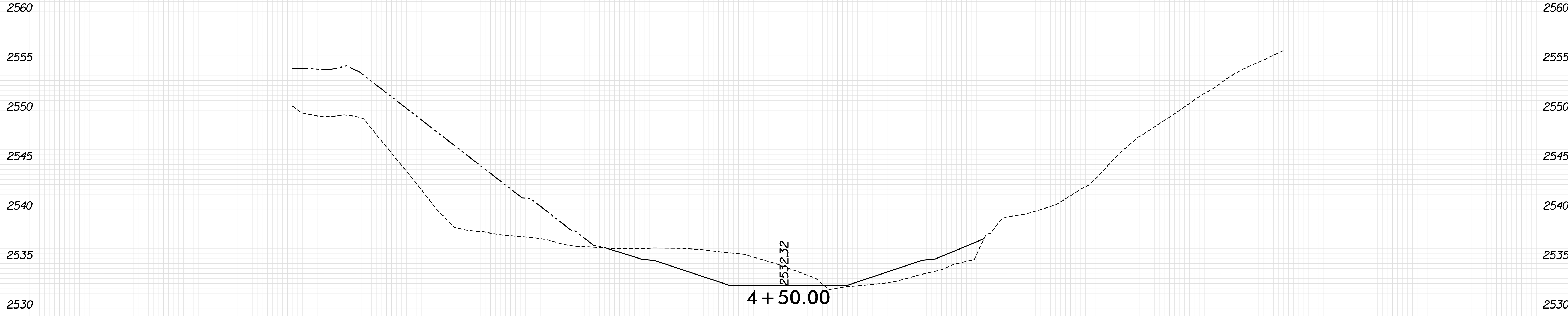


8/23/99

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-37

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



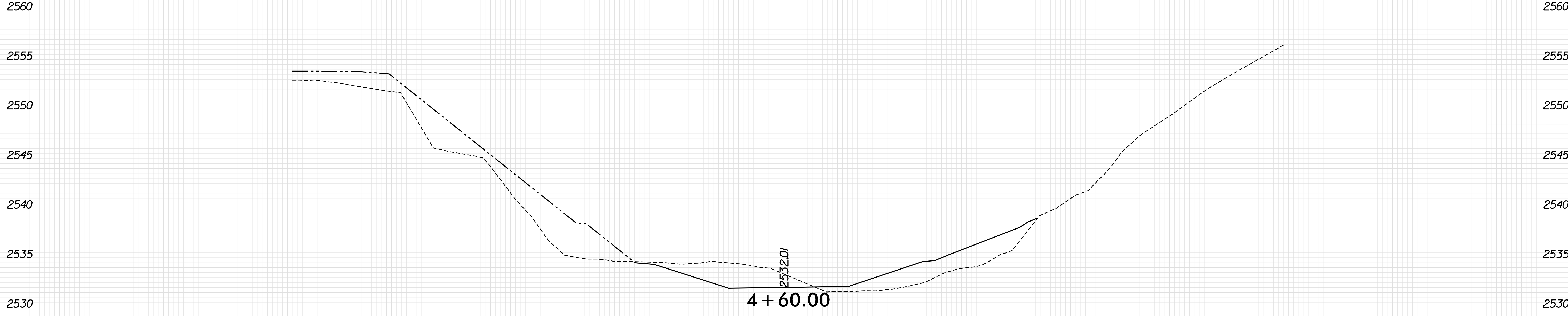
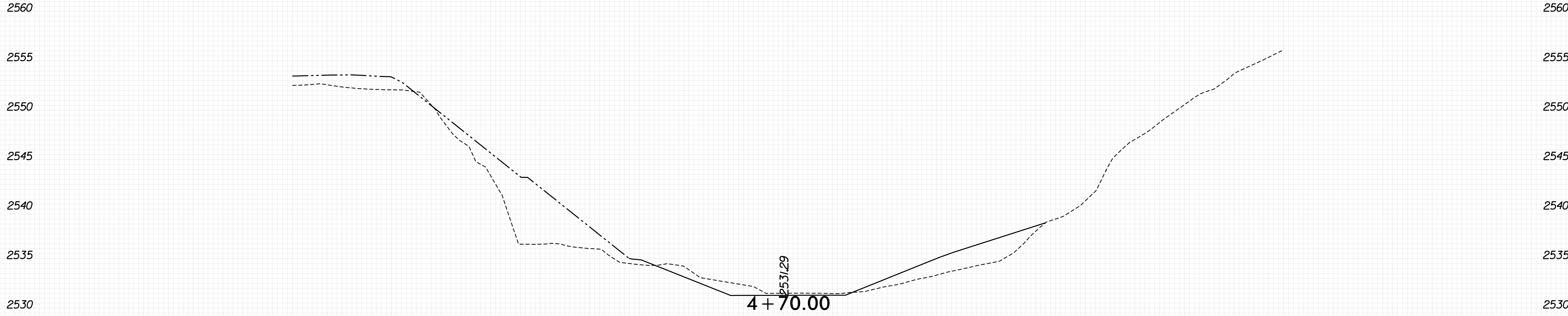
-SS-A-

8/23/99

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-38

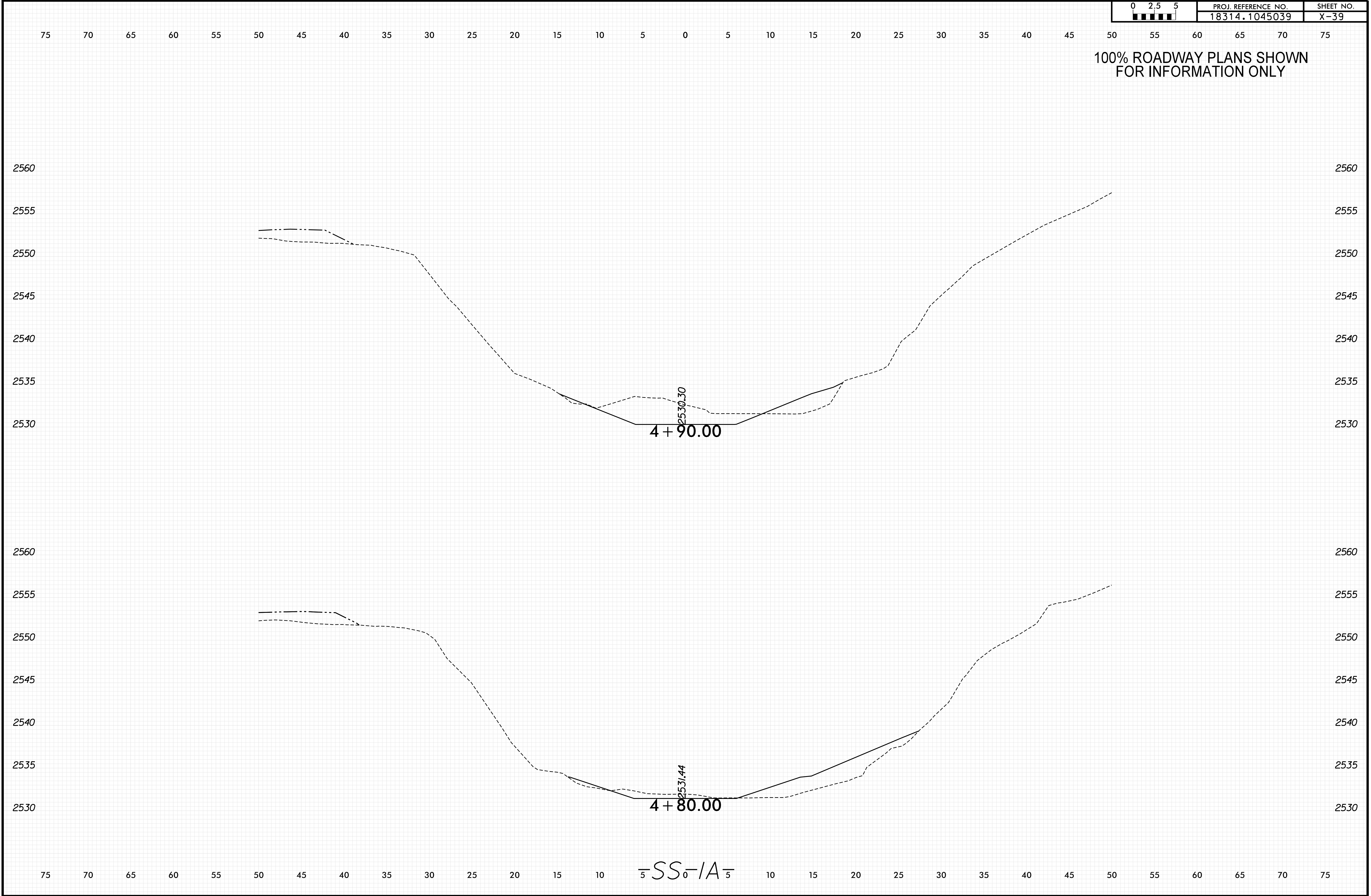
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



-SS-A-

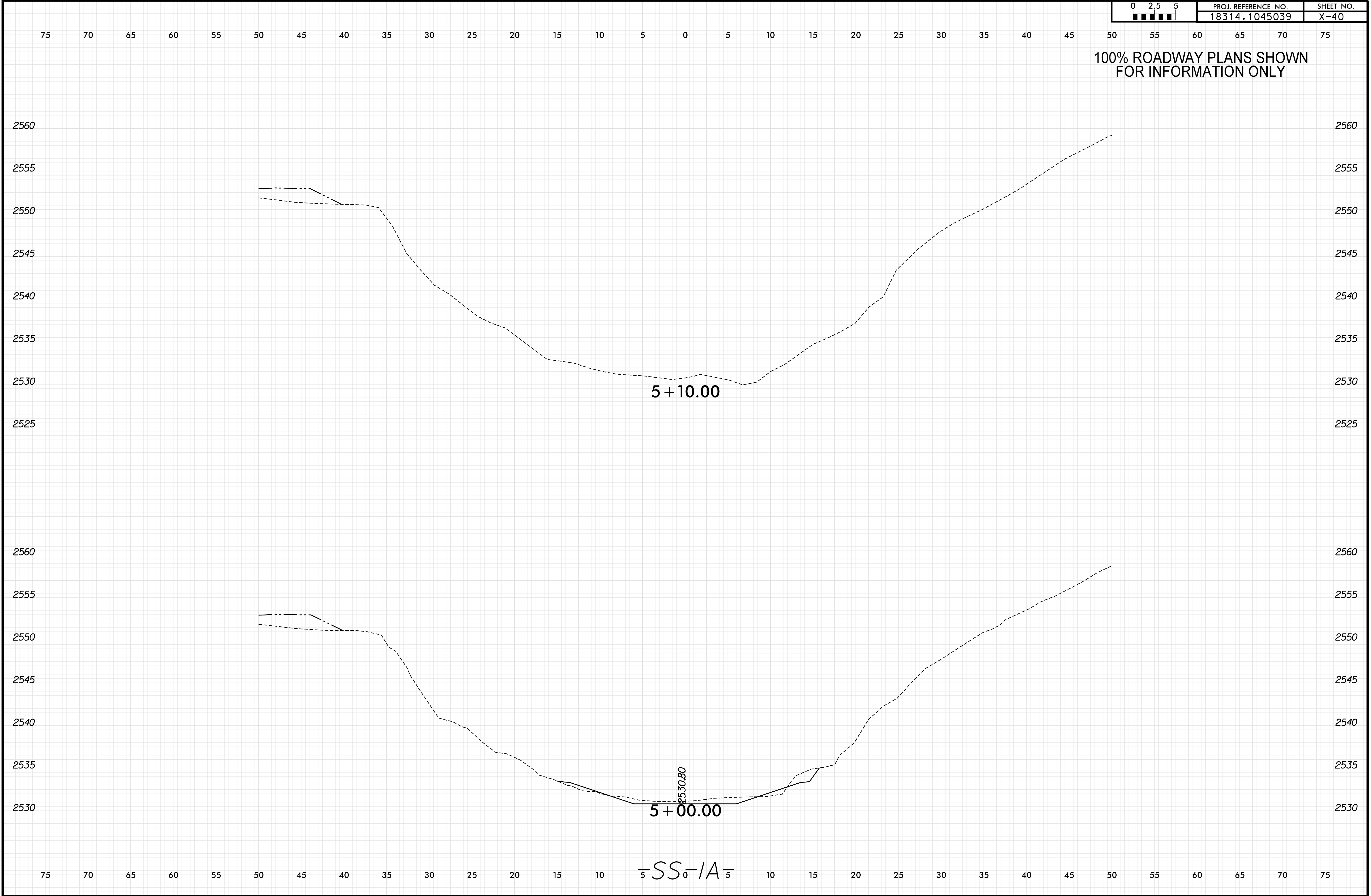
8/23/99

PLOT DRIVER: NC001.pdf_color_eng_50.plt
PENTABLE: xpl_gh_v8.tbl
USER: KCLATTER8U
DATE: 5/8/2026
TIME: 9:38:17 AM
FILE: \

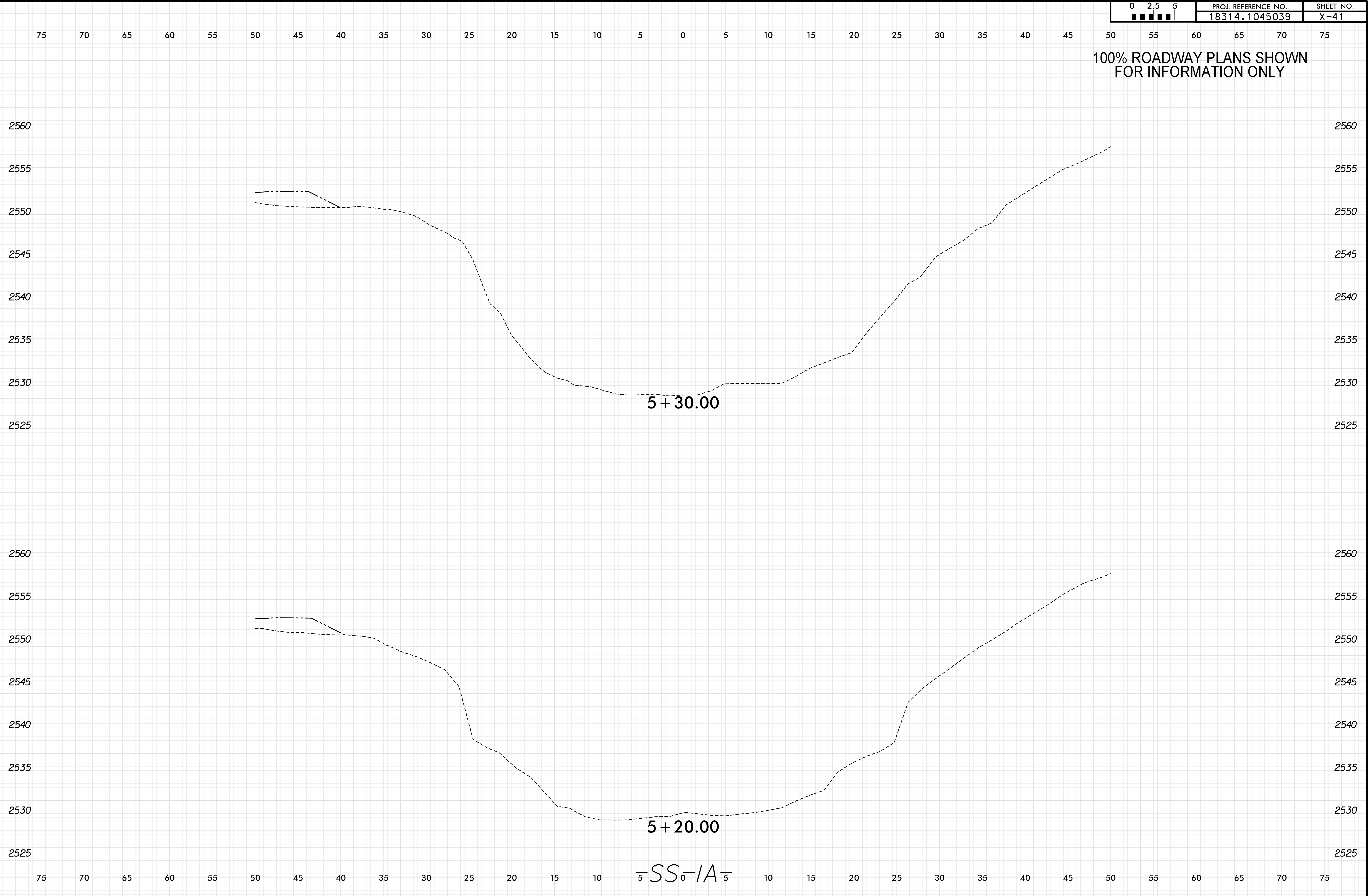


8/23/99

PLOT DRIVER: NC001.pdf_color_eng_50.plt
PENTABLE: xpl_gh_v8.tbl
USER: KCLATTER8U
DATE: 5/8/2026
TIME: 9:38:18 AM
FILE: \



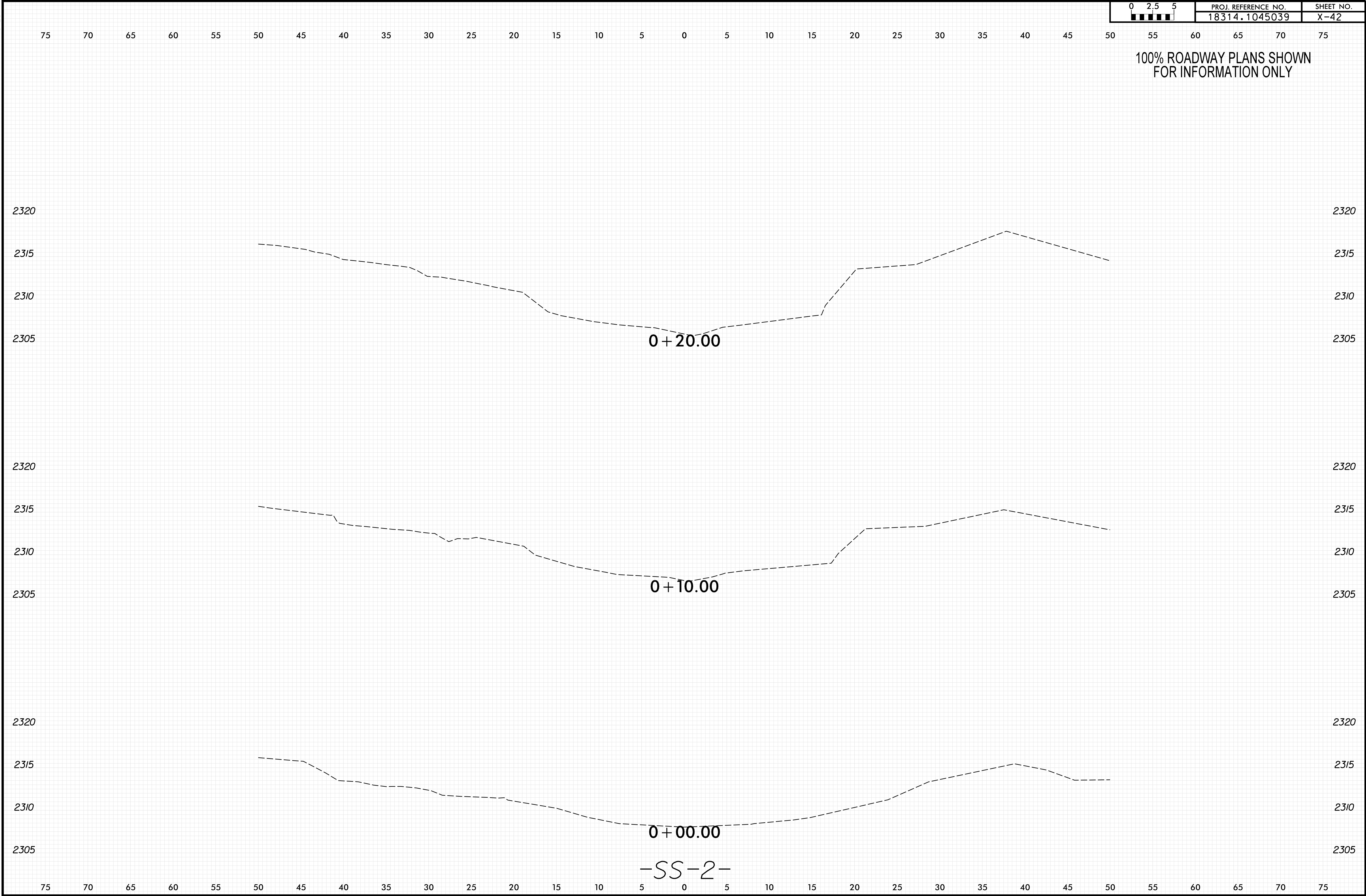
8/23/99
PLOT DRIVER: NC001.pdf_color_eng_50.plt
PENTABLE: xpl_sh_v8.tbl
USER: KCLATTER8U
DATE: 5/8/2026
TIME: 9:38:19 AM
FILE: \

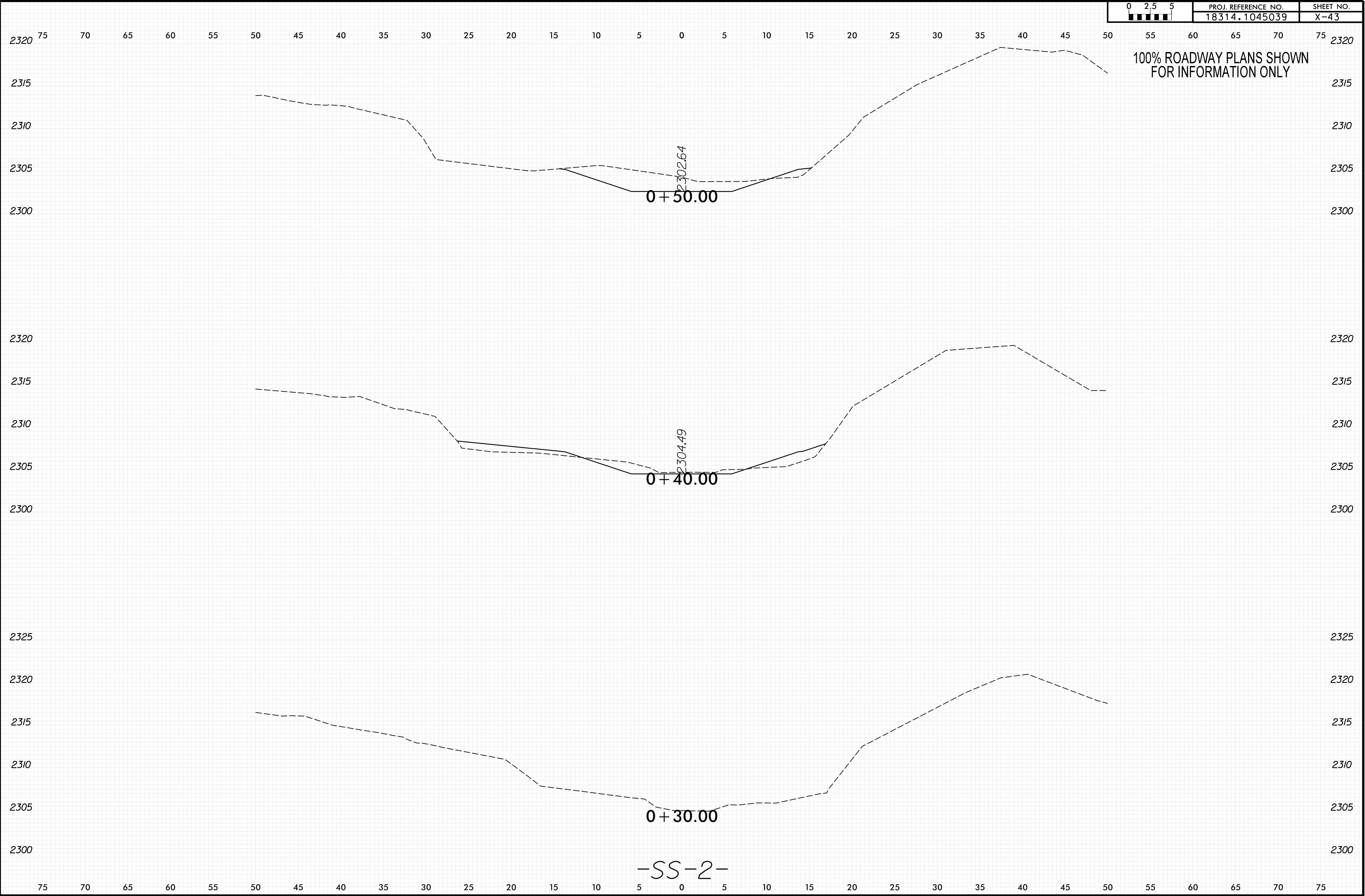


8/23/99

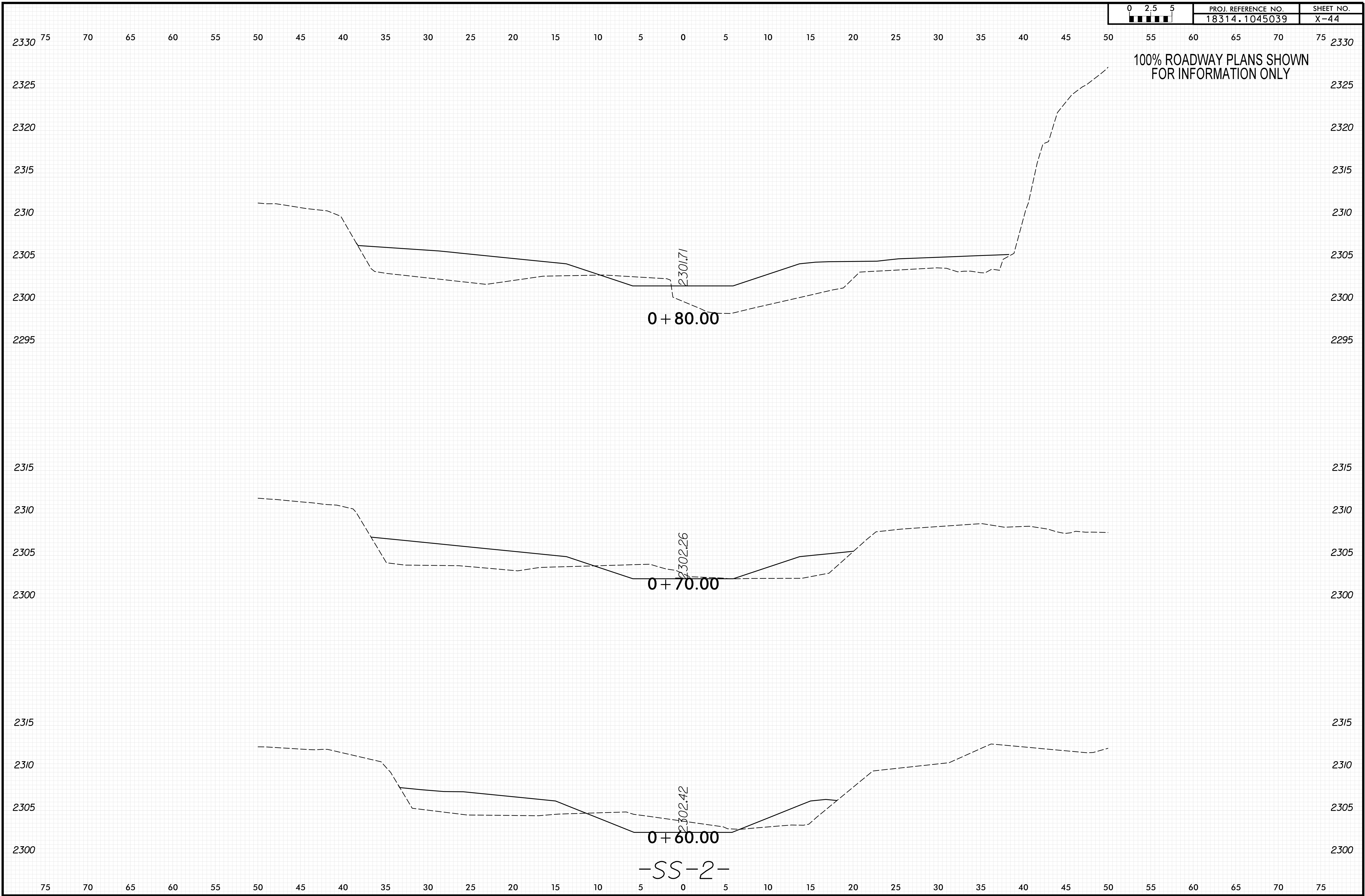
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-42

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY





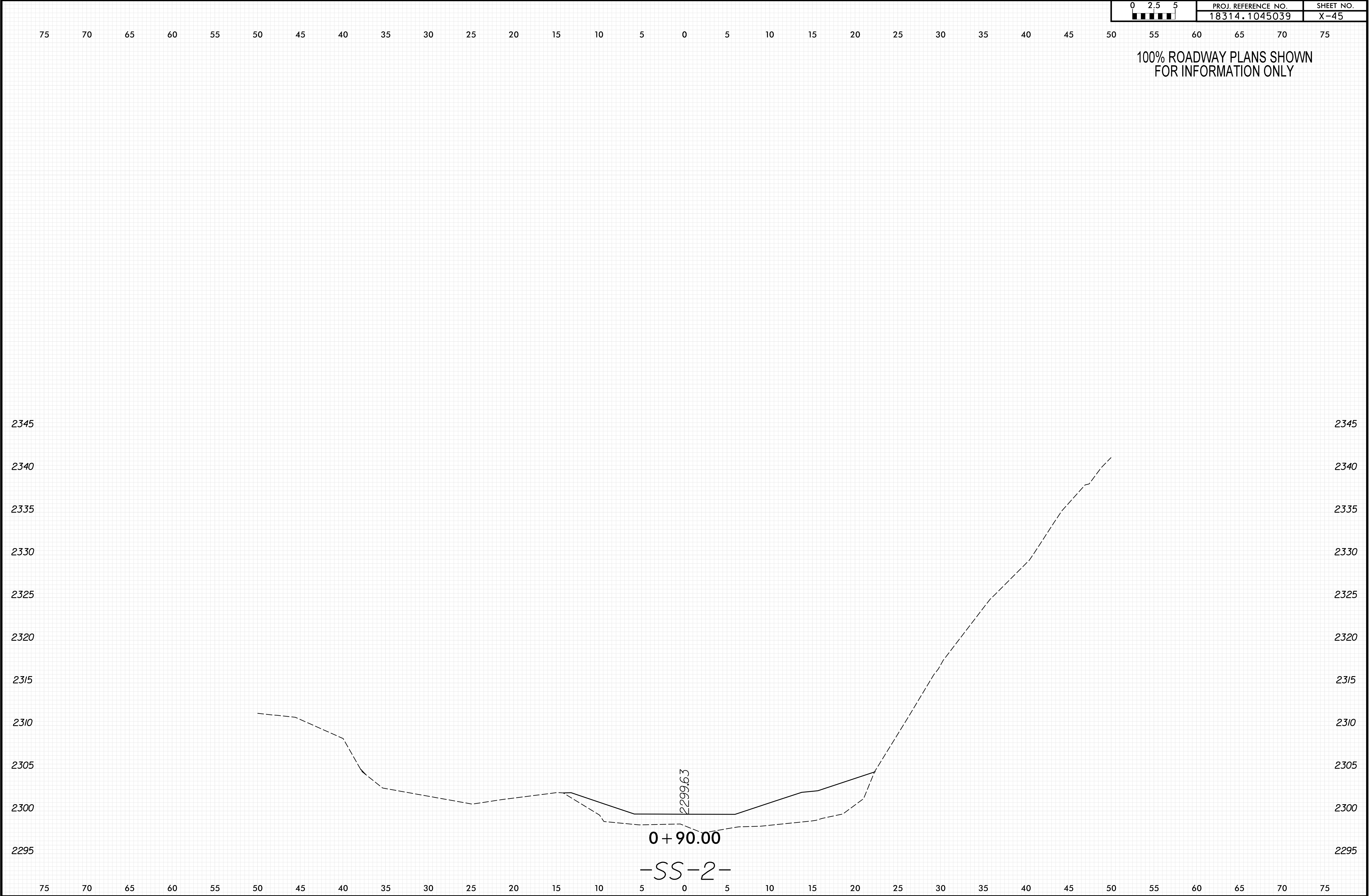
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-43



8/23/99

PLOT DRIVER: NCD01_.pdf_color_eng_50.plt
USER: KCLATTERBU
FILE: \

PENTABLE: xpl_en_v8.tbl
DATE: 5/8/2026
TIME: 9:38:27 AM



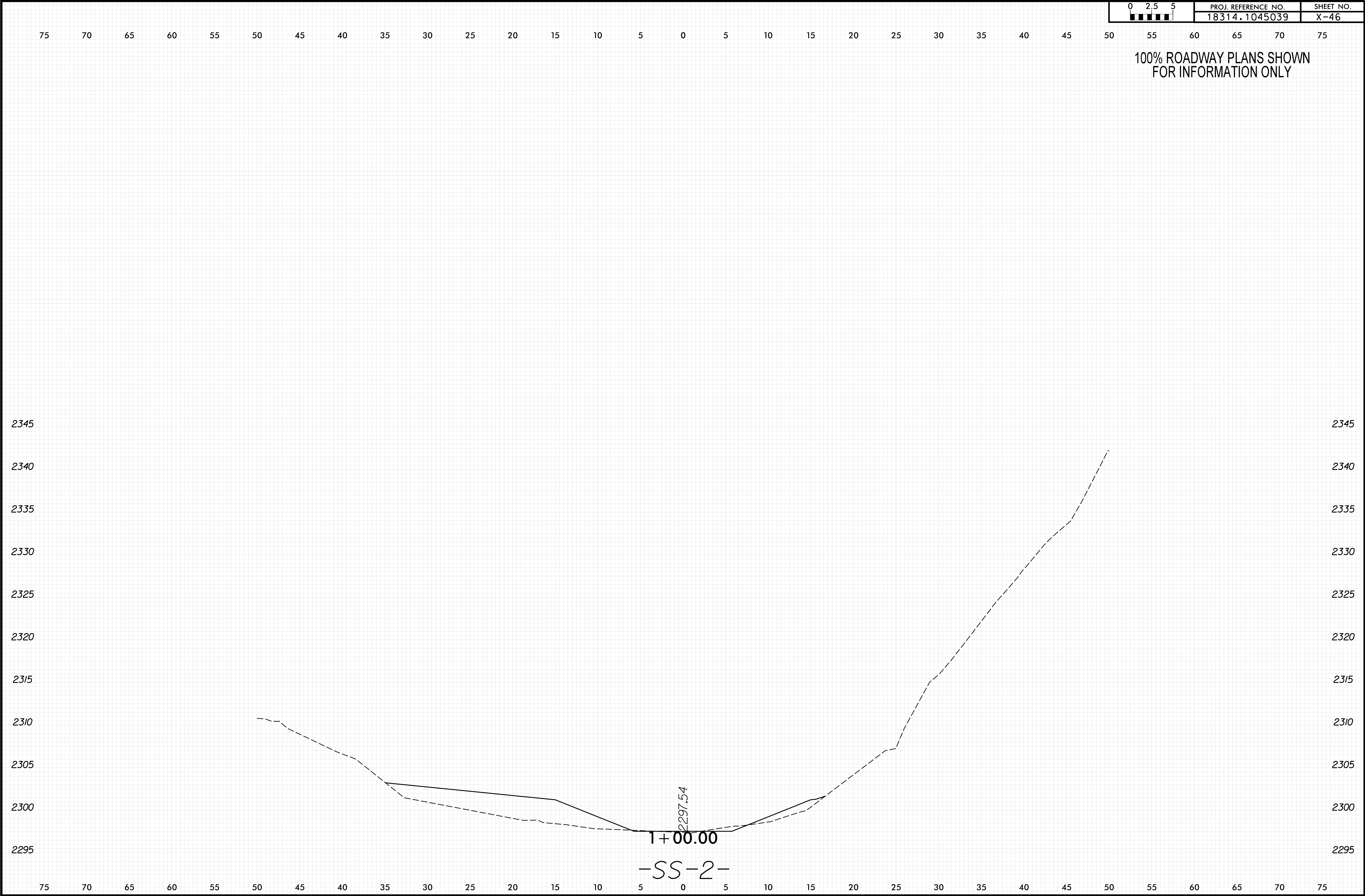
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-46

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

PLOT DRIVER: NCDOT_pdf_color_eng_50.plt
USER: KCLATTERBU
FILE: \

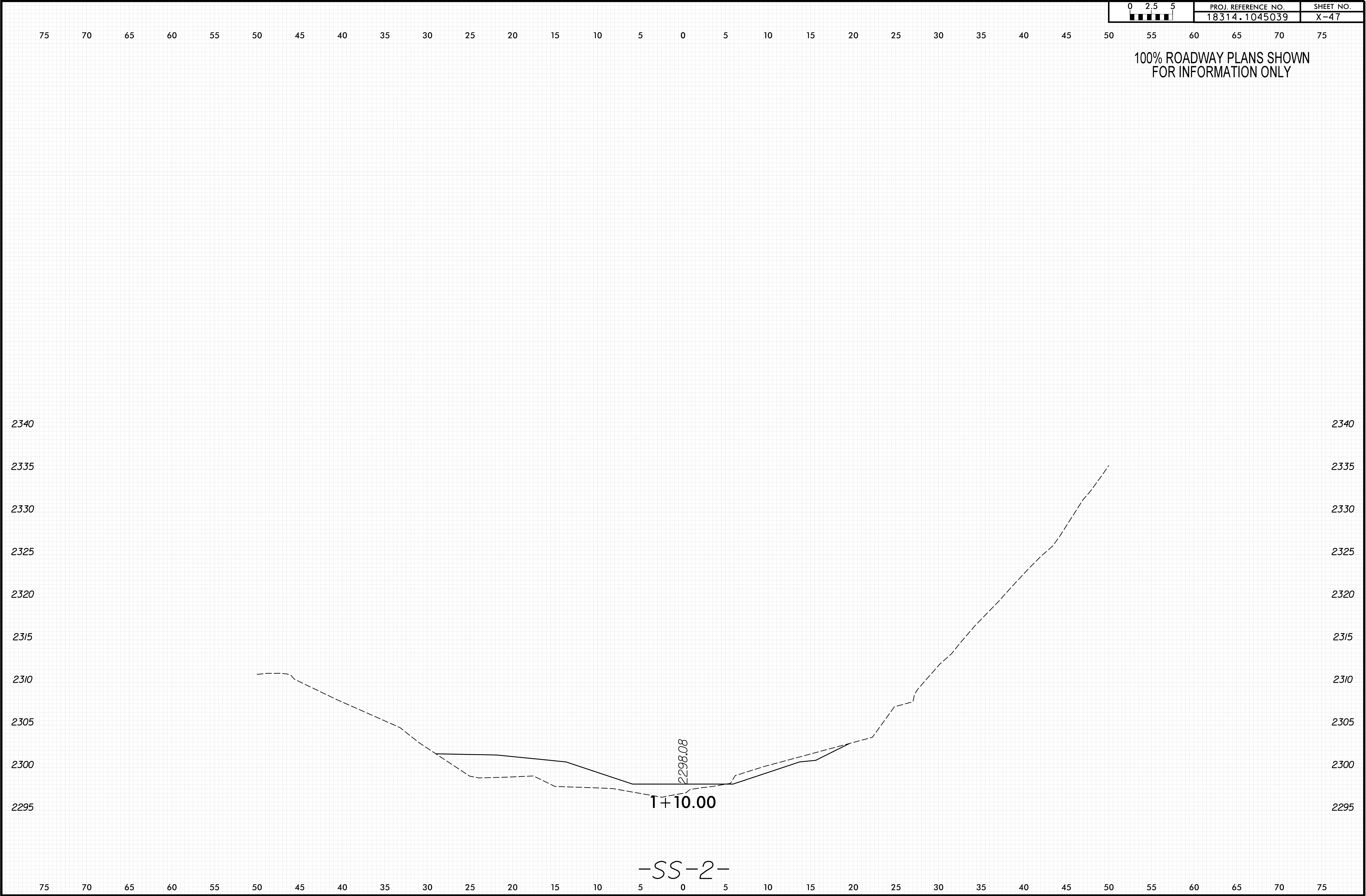
DATE: 5/8/2026
TIME: 9:38:28 AM

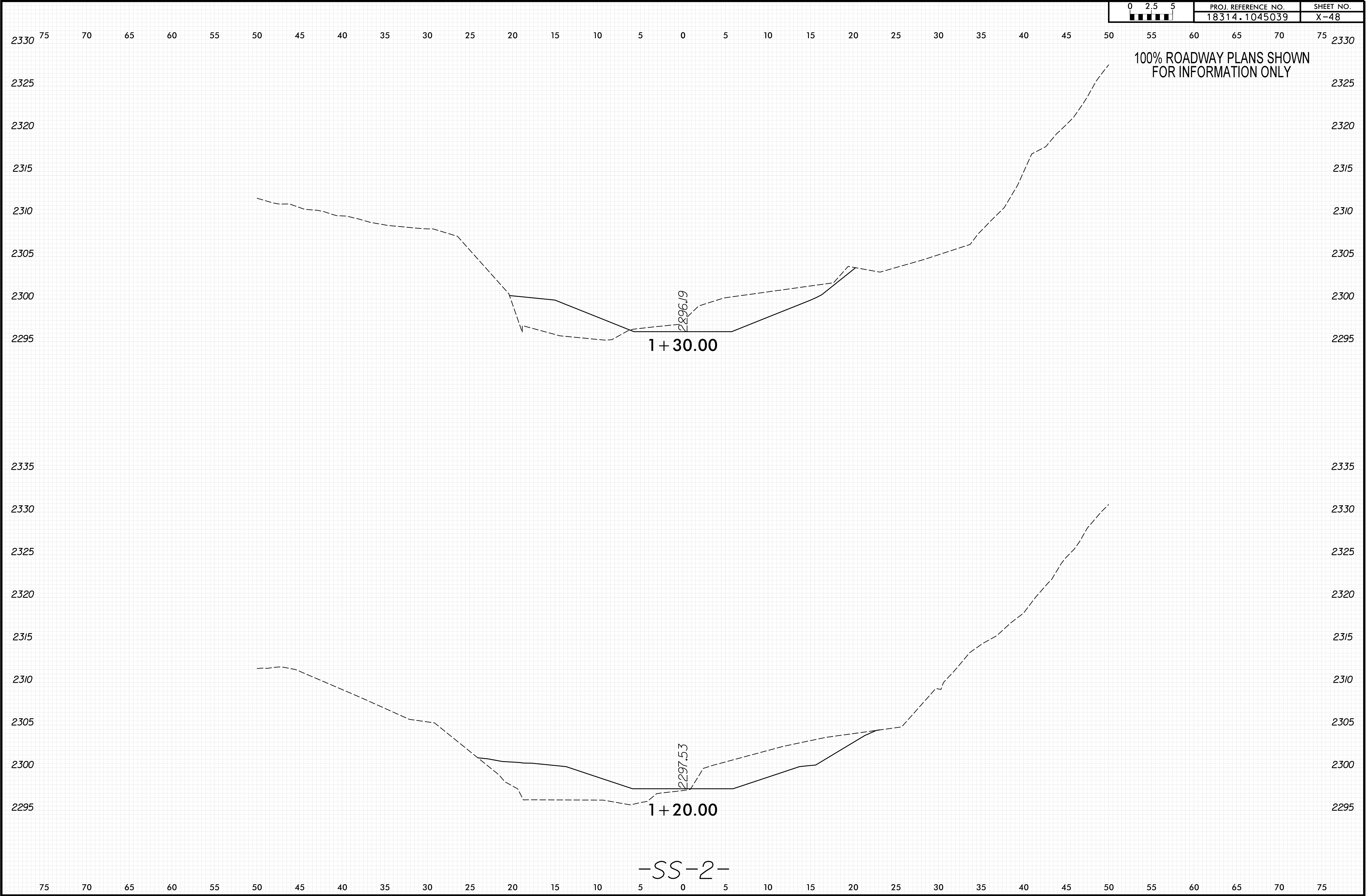


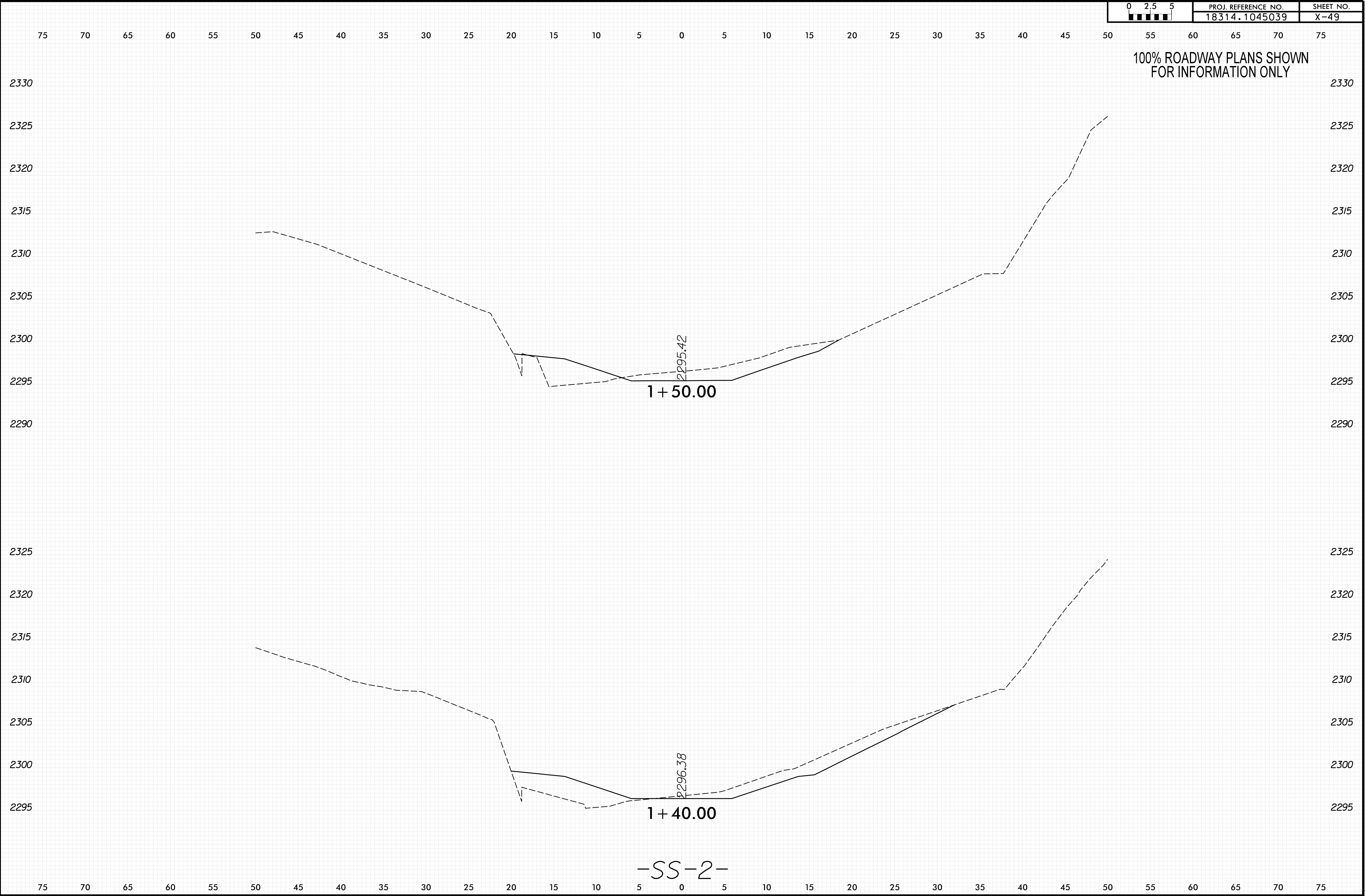
8/23/99

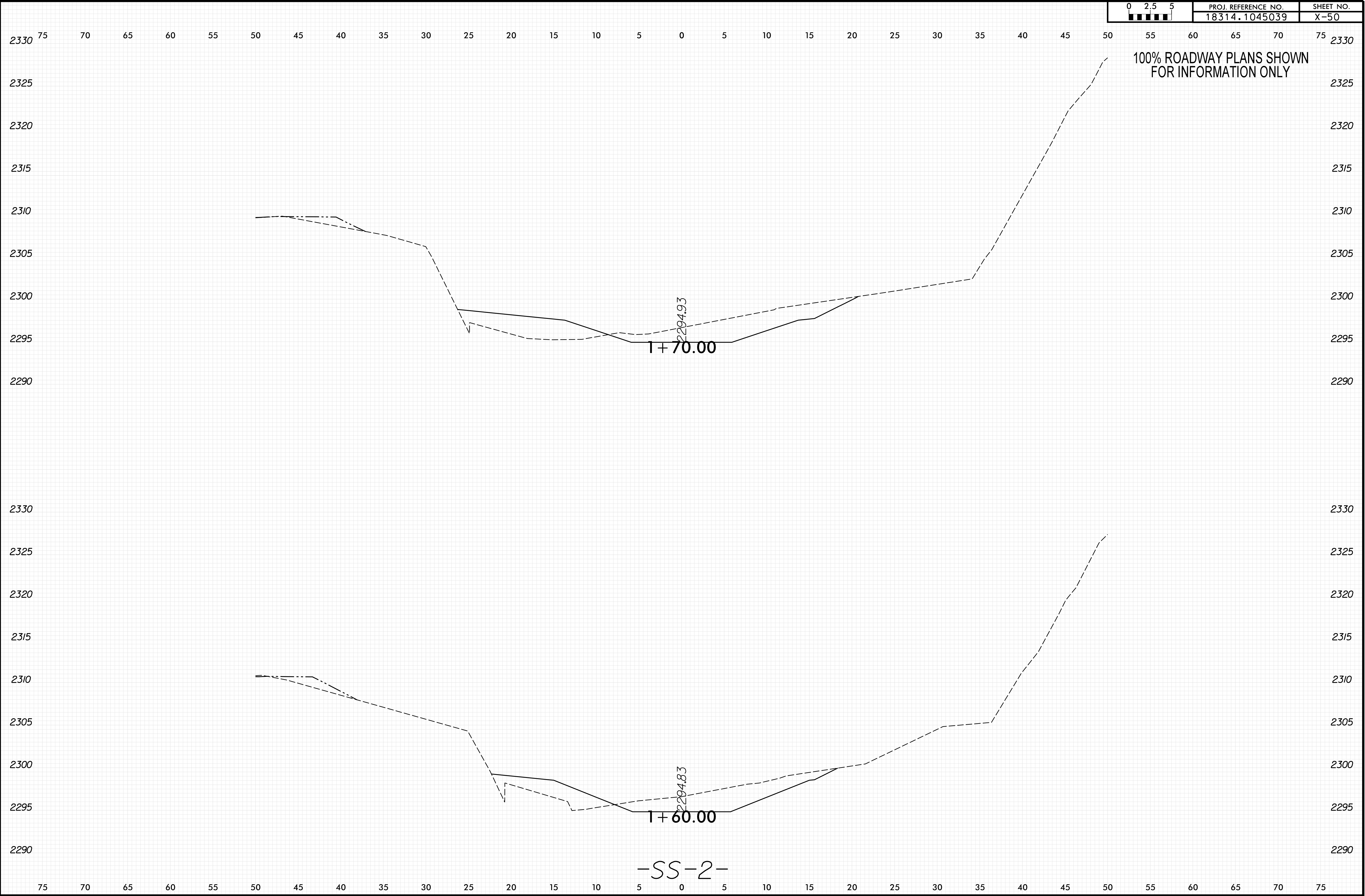
PLOT DRIVER: NCD01_pdf_color_eng_50.plt
USER: KCLATTERBU
FILE: \

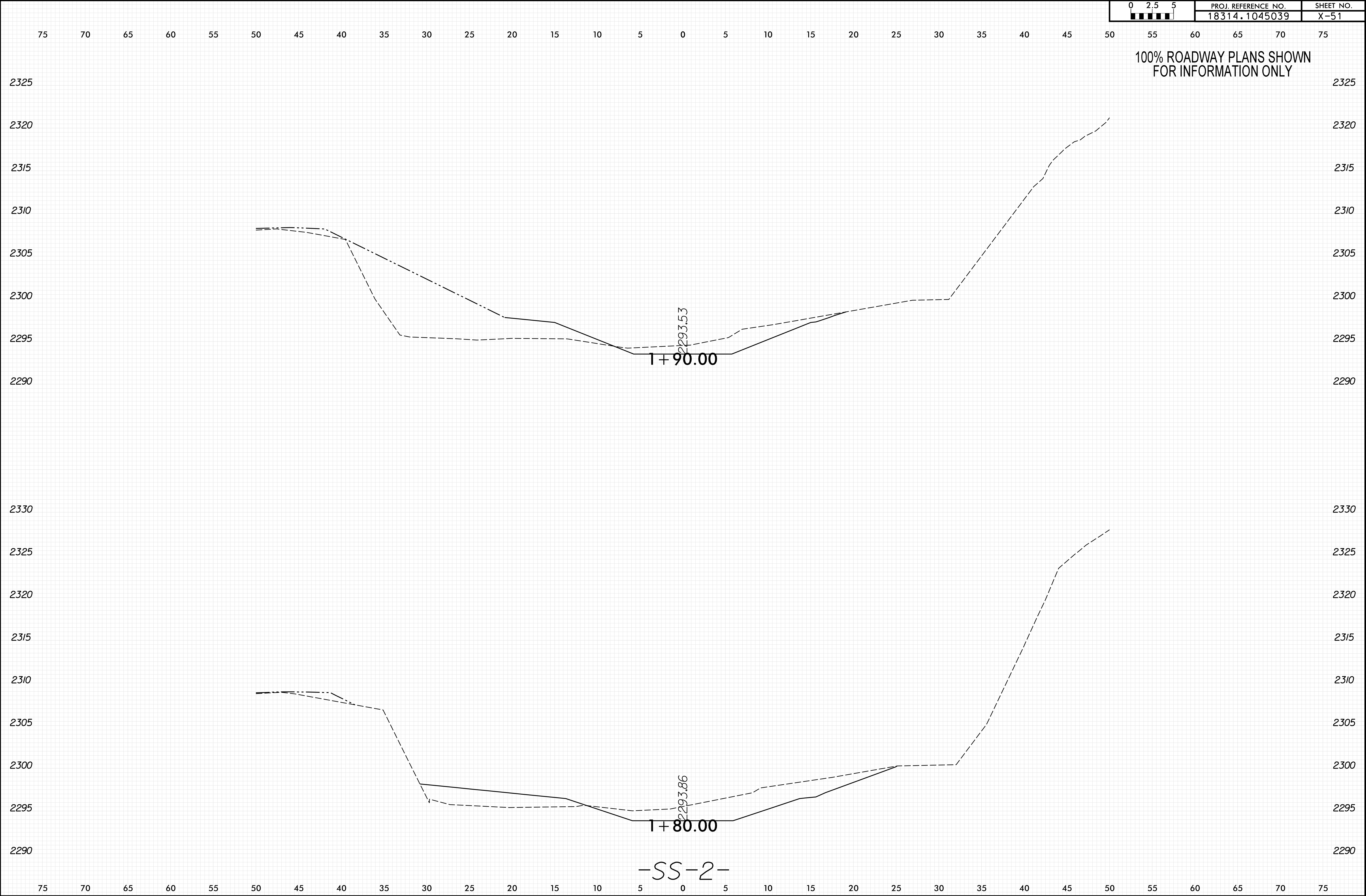
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DATE: 5/8/2026
TIME: 9:38:29 AM



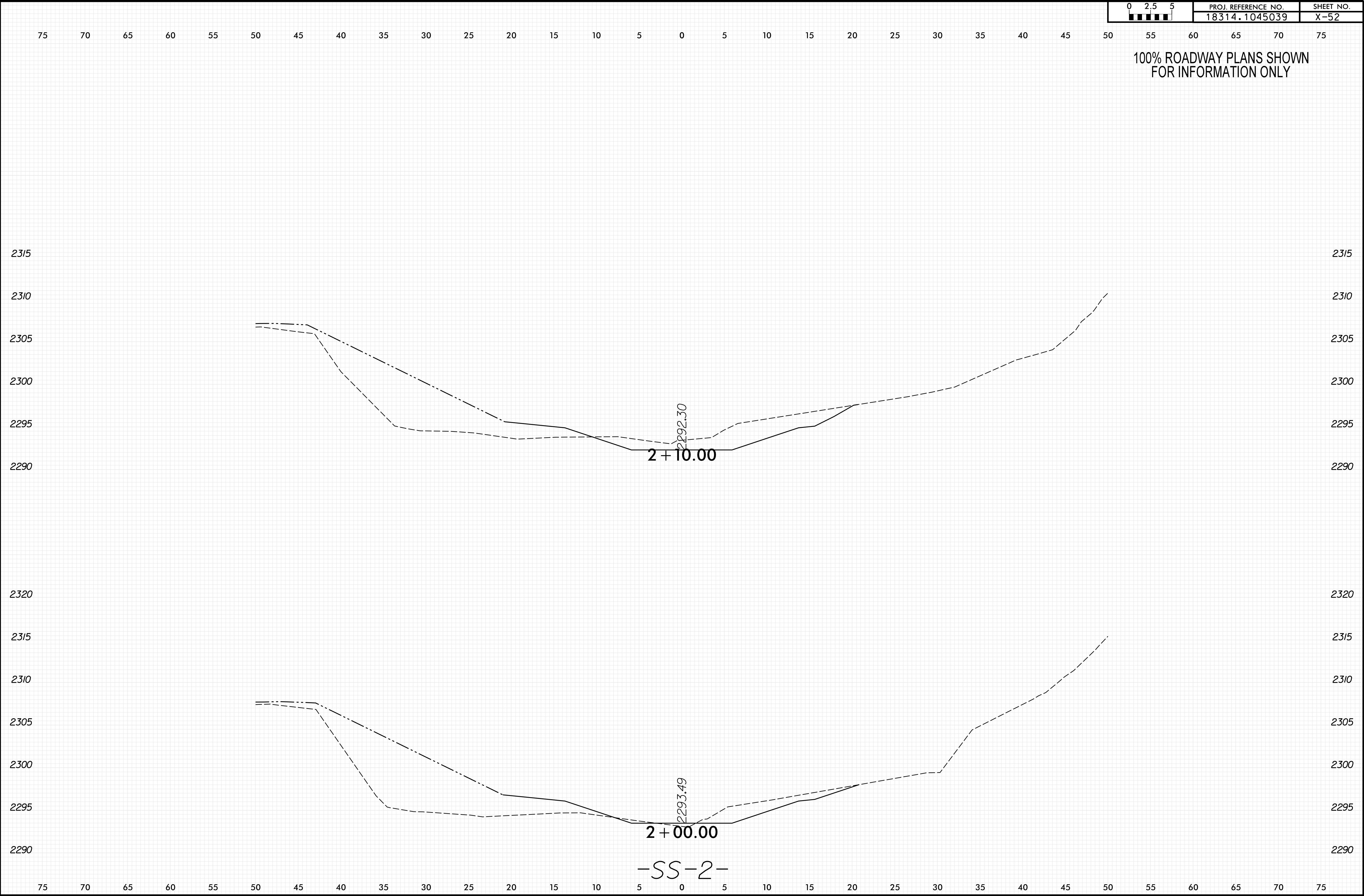


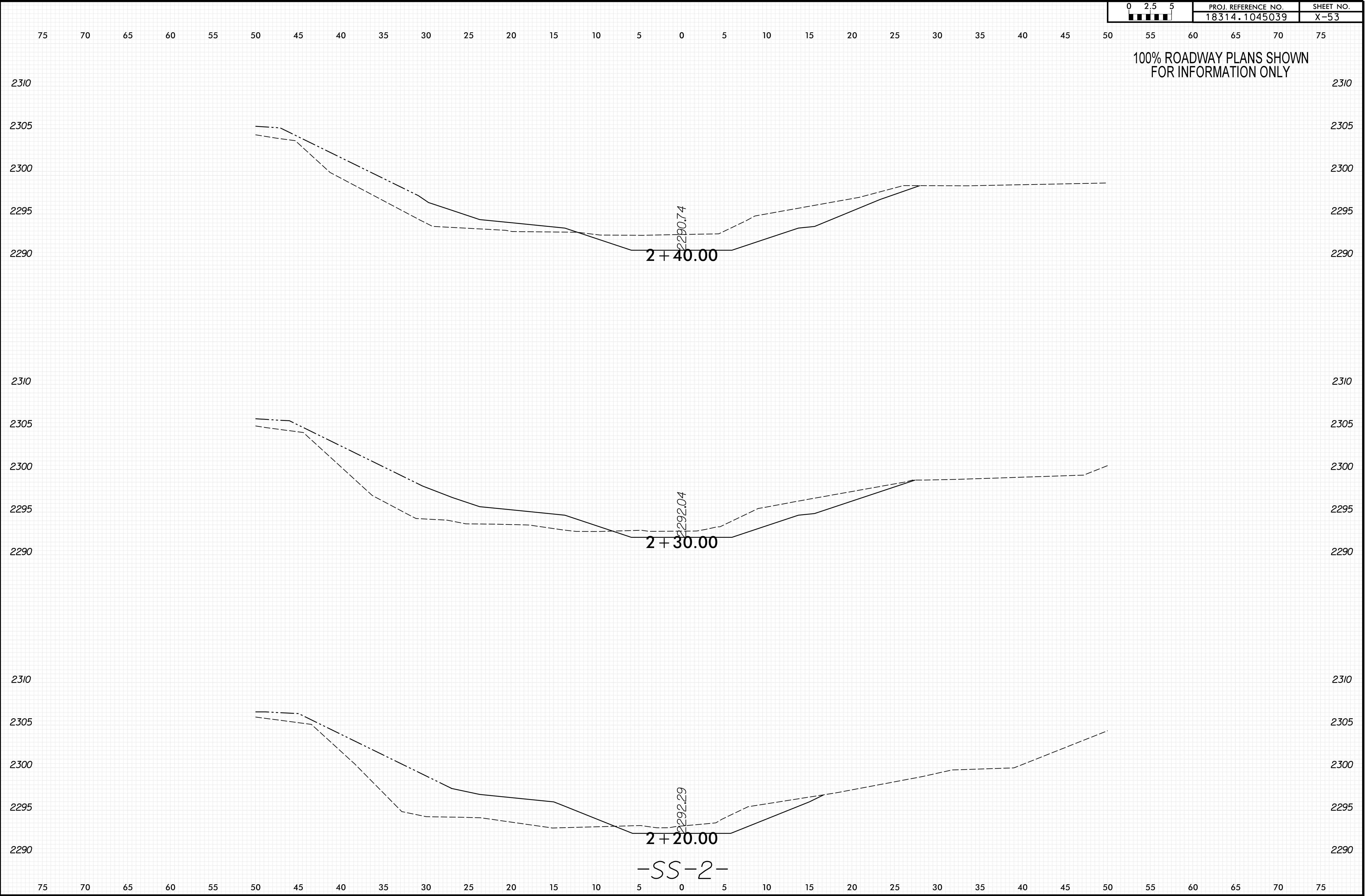




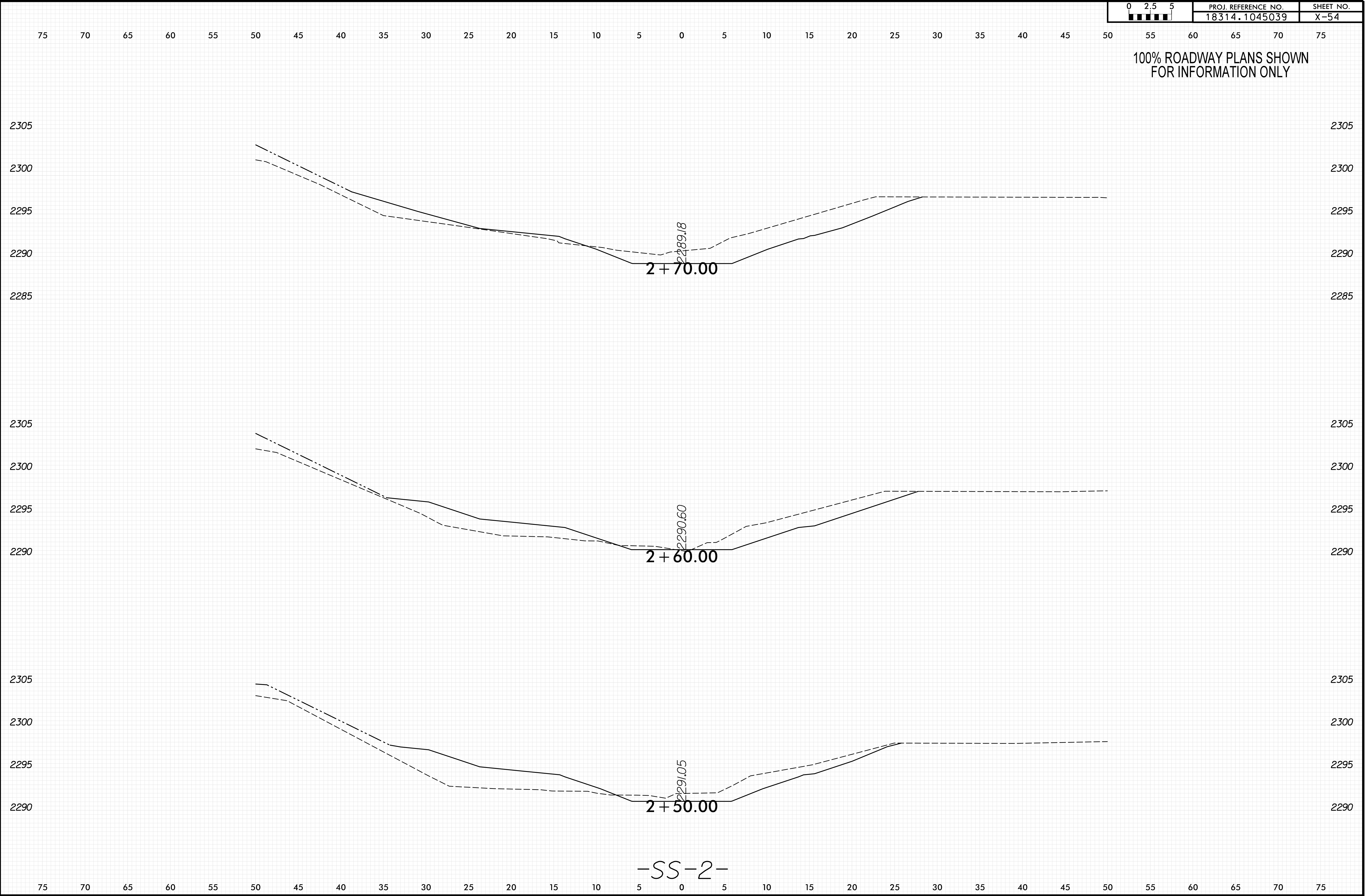


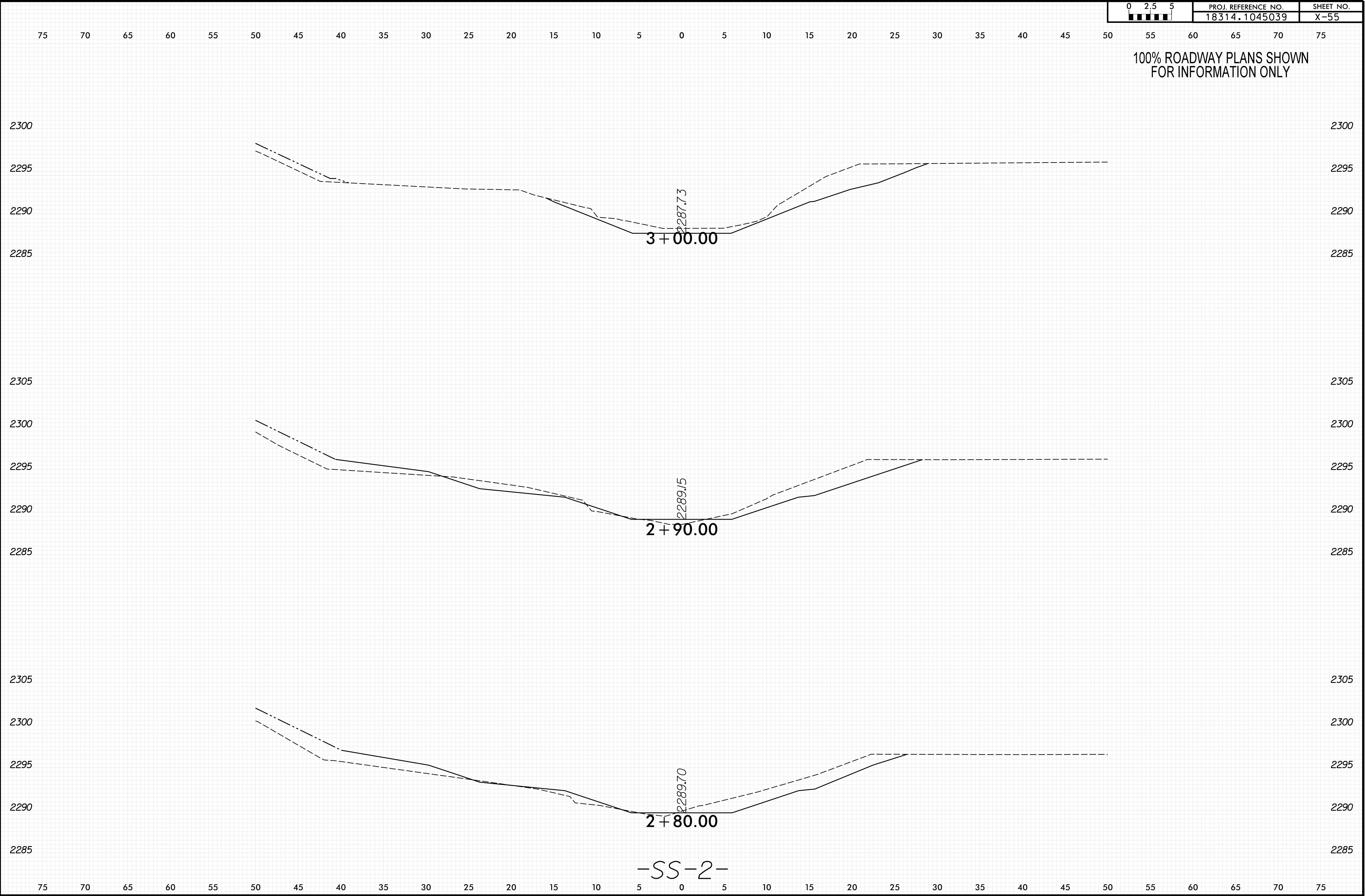
-SS-2-





SS-2-

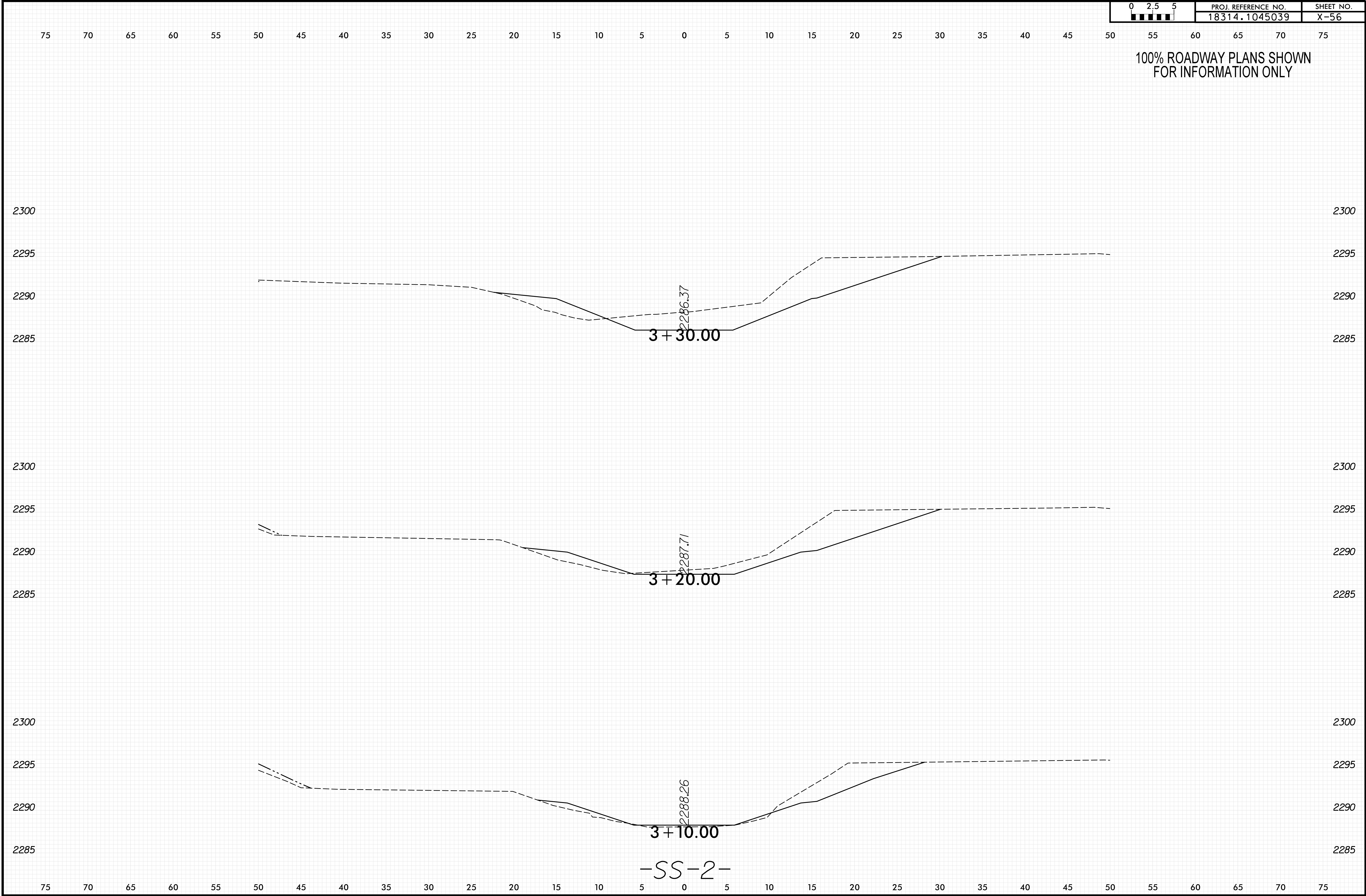




8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-56

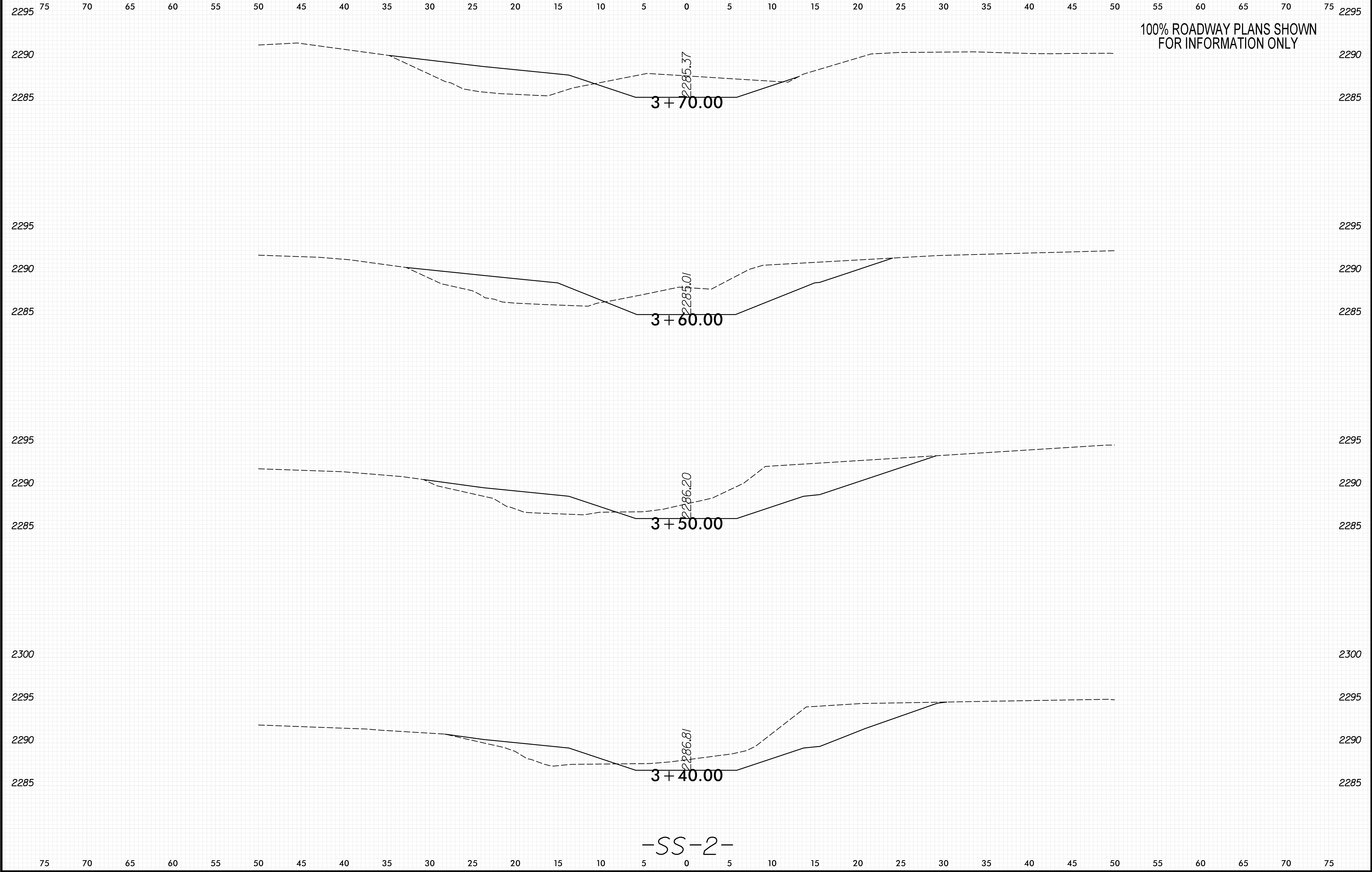
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

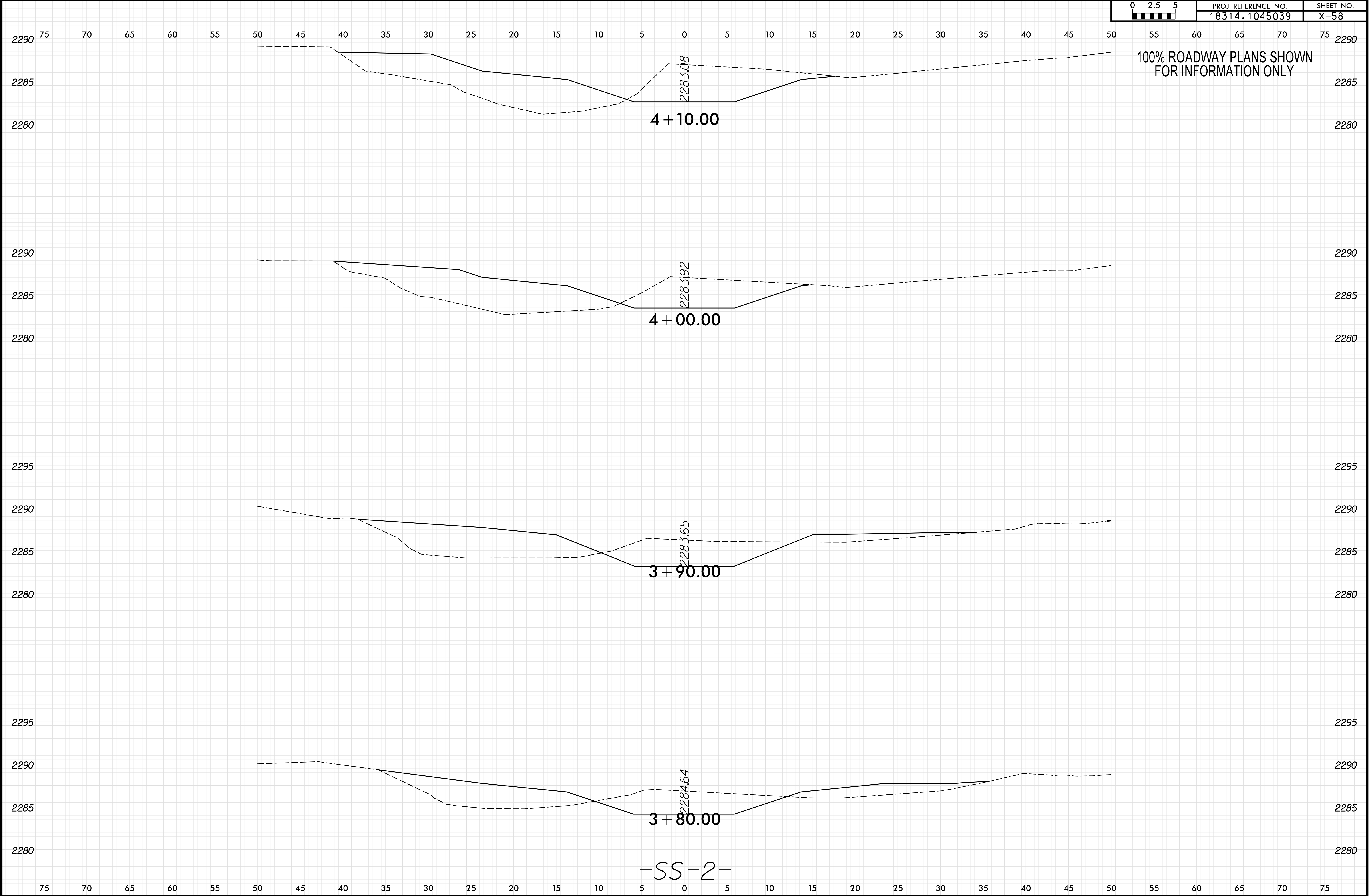


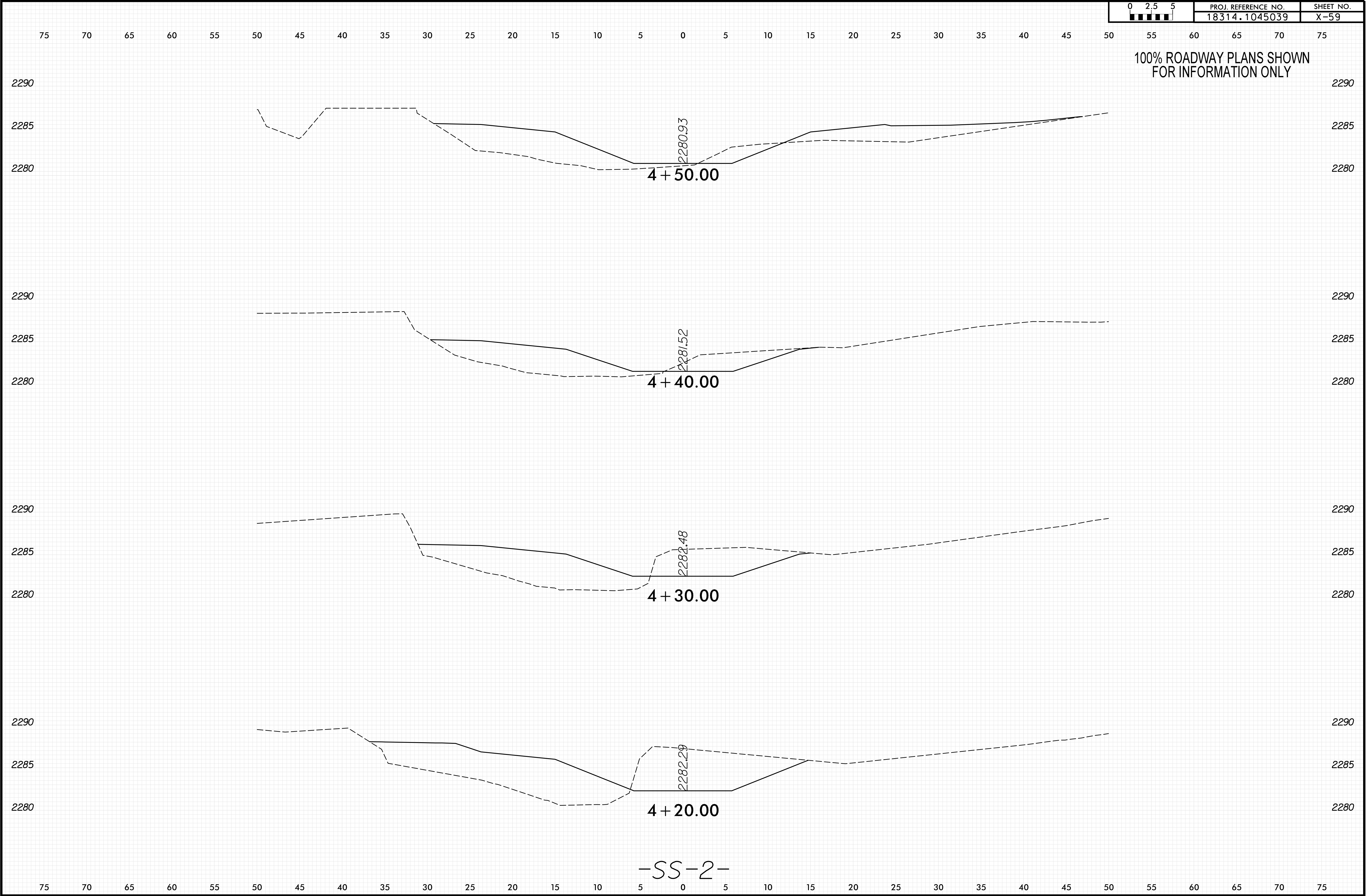
8/23/99

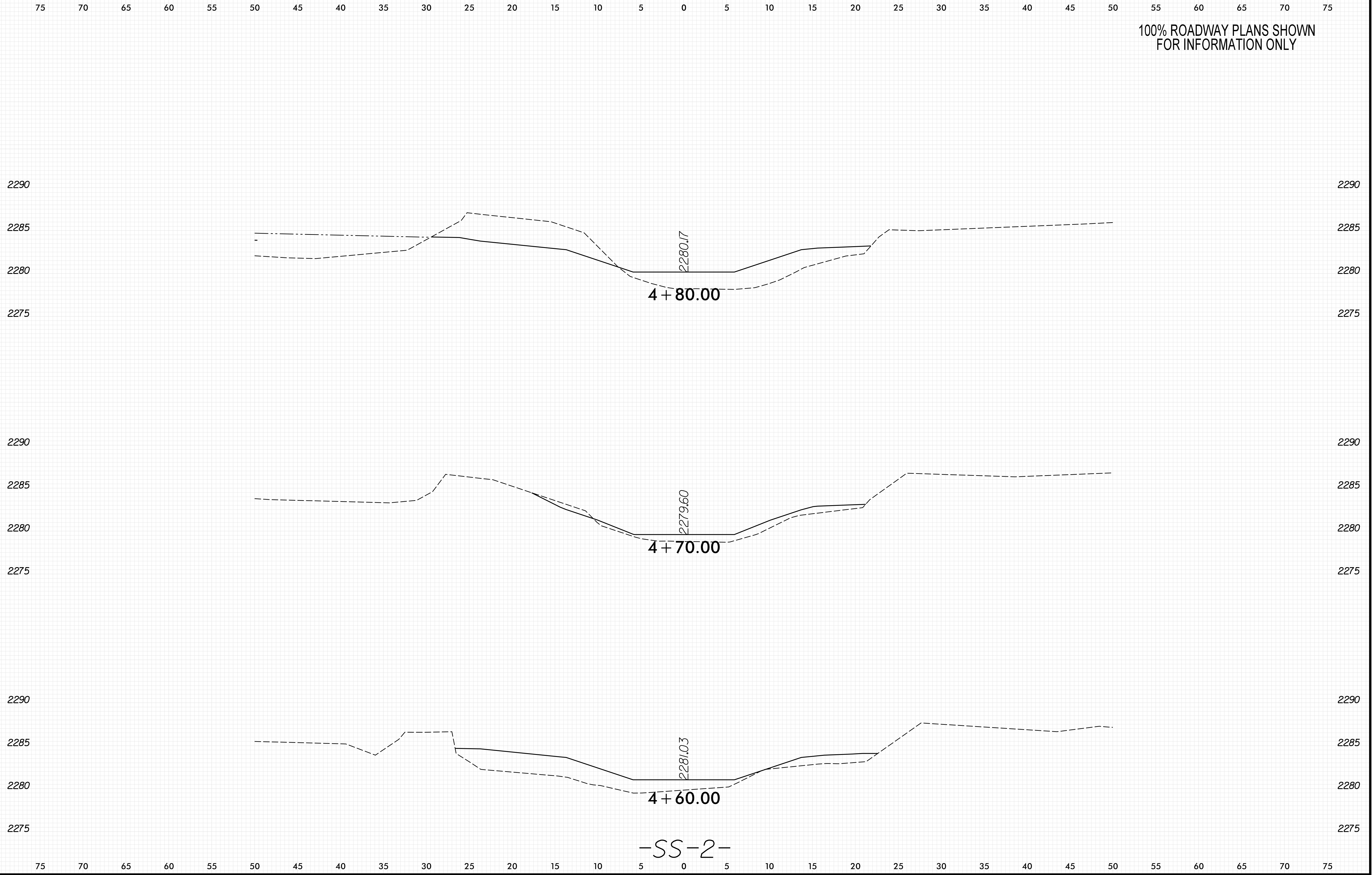
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-57

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY









100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

$$4 + 80.00$$

228017

$$4 + 70.00$$

09622

$$4 + 60.00$$

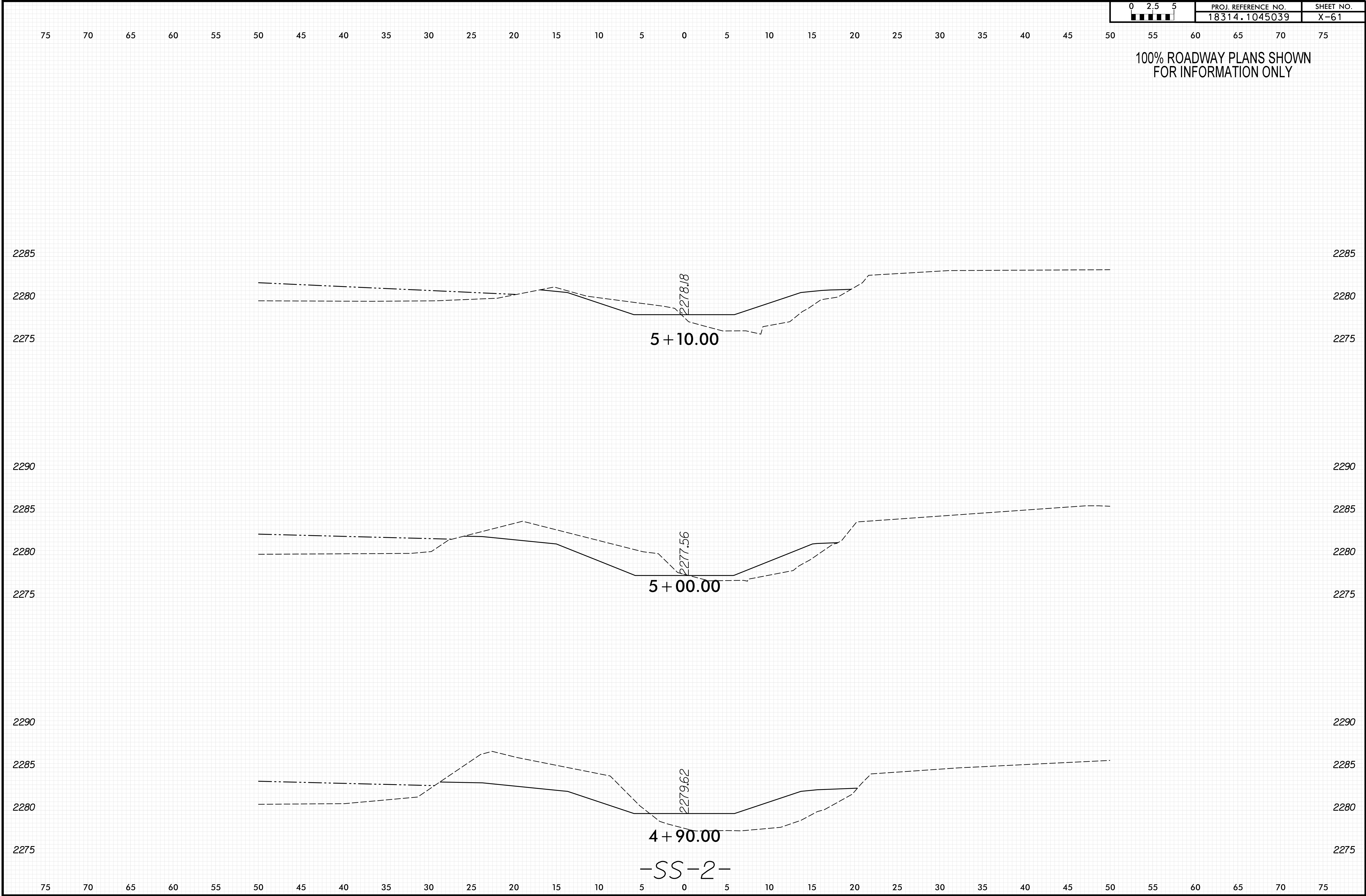
228103

-SS-2-

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-61

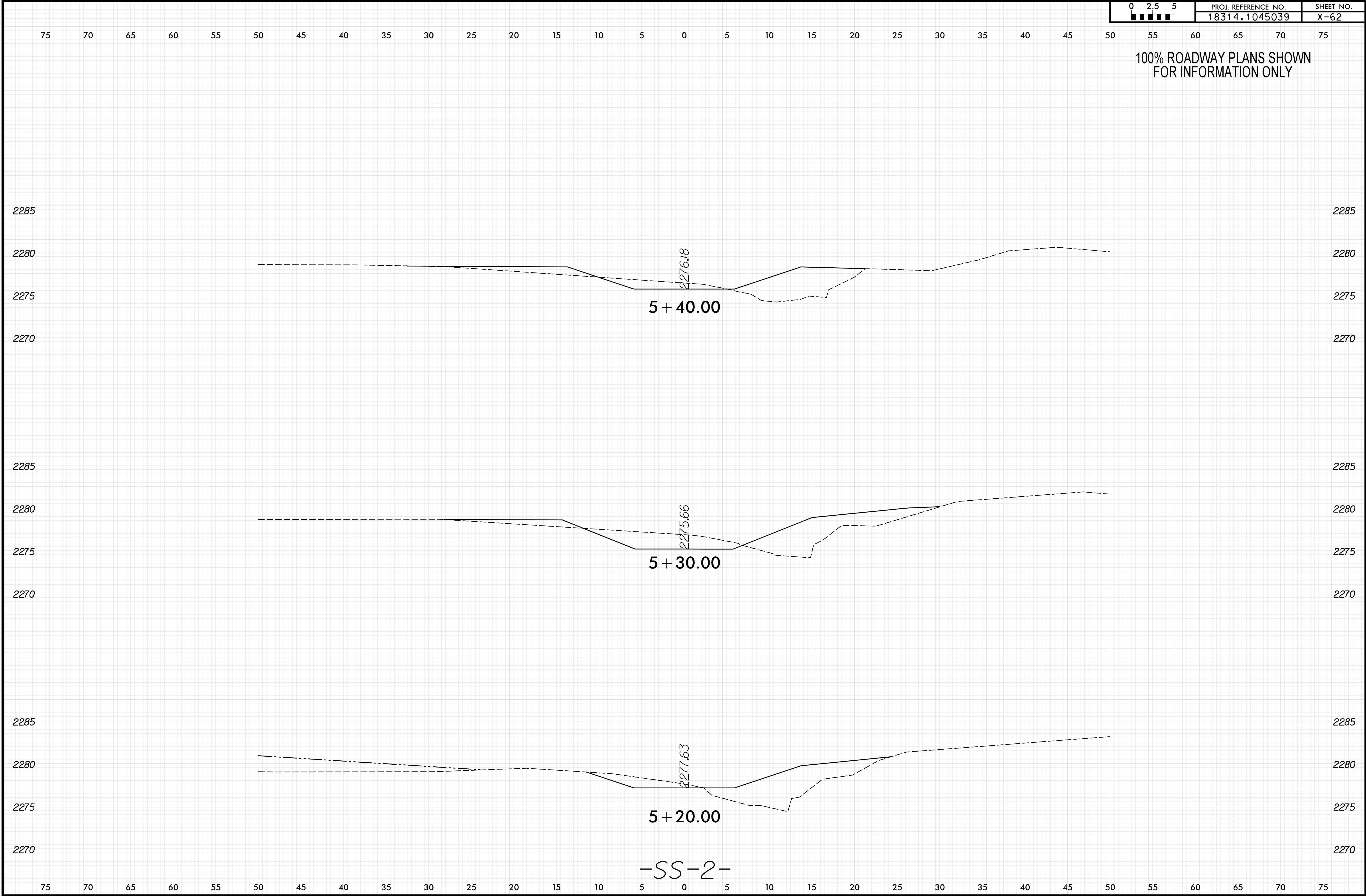
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

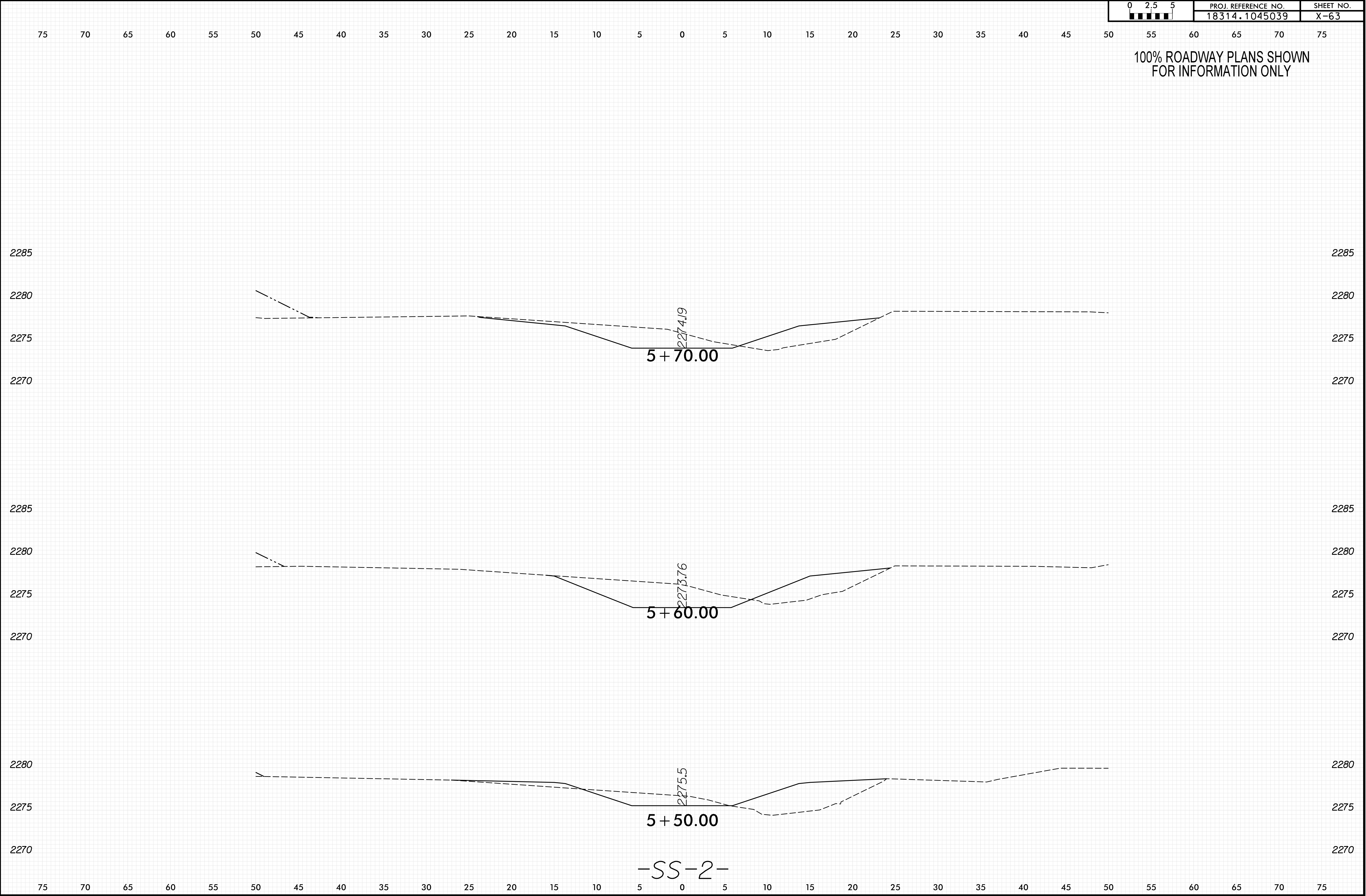


8/23/99

02.55	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-62

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

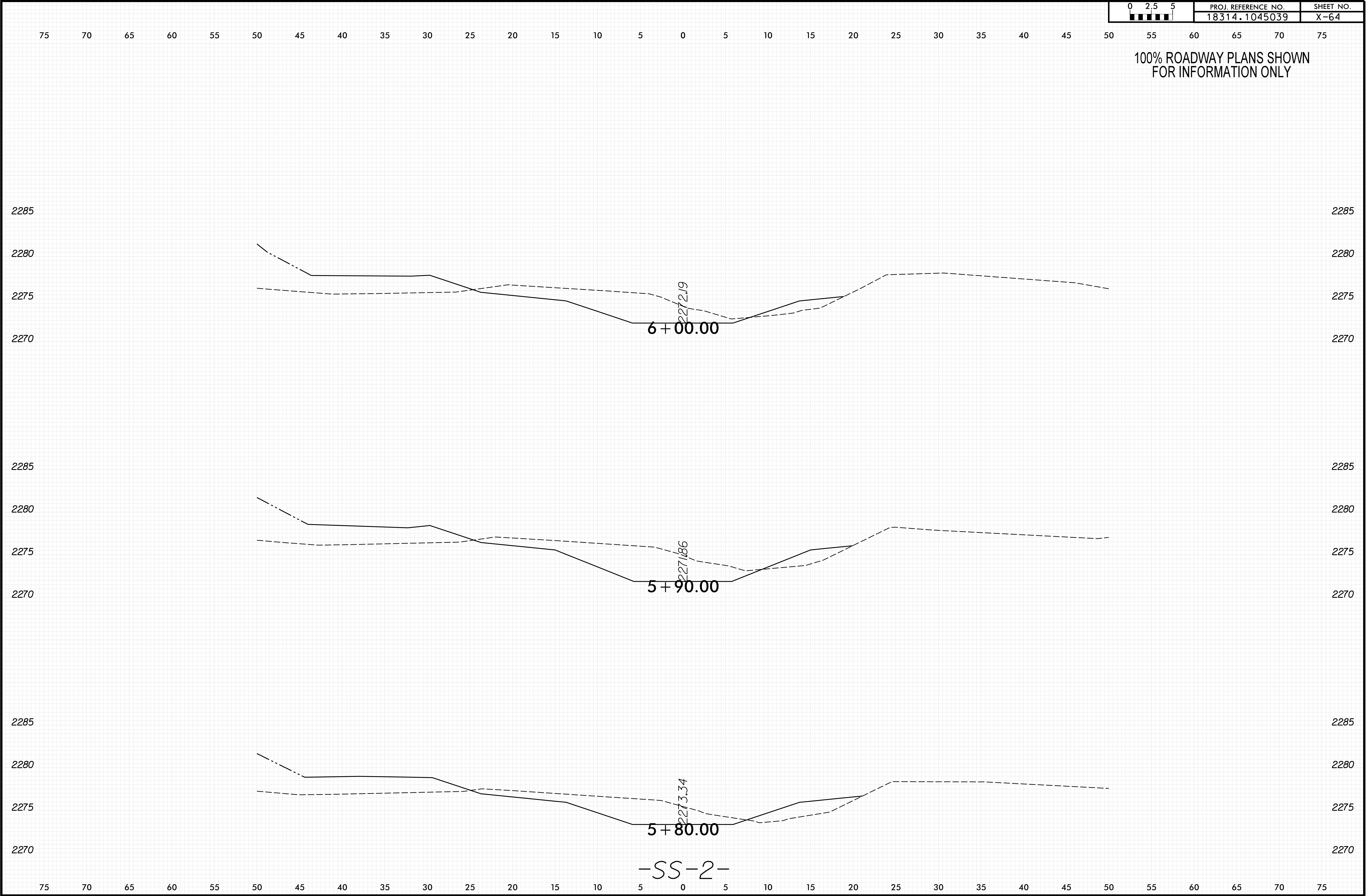




8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-64

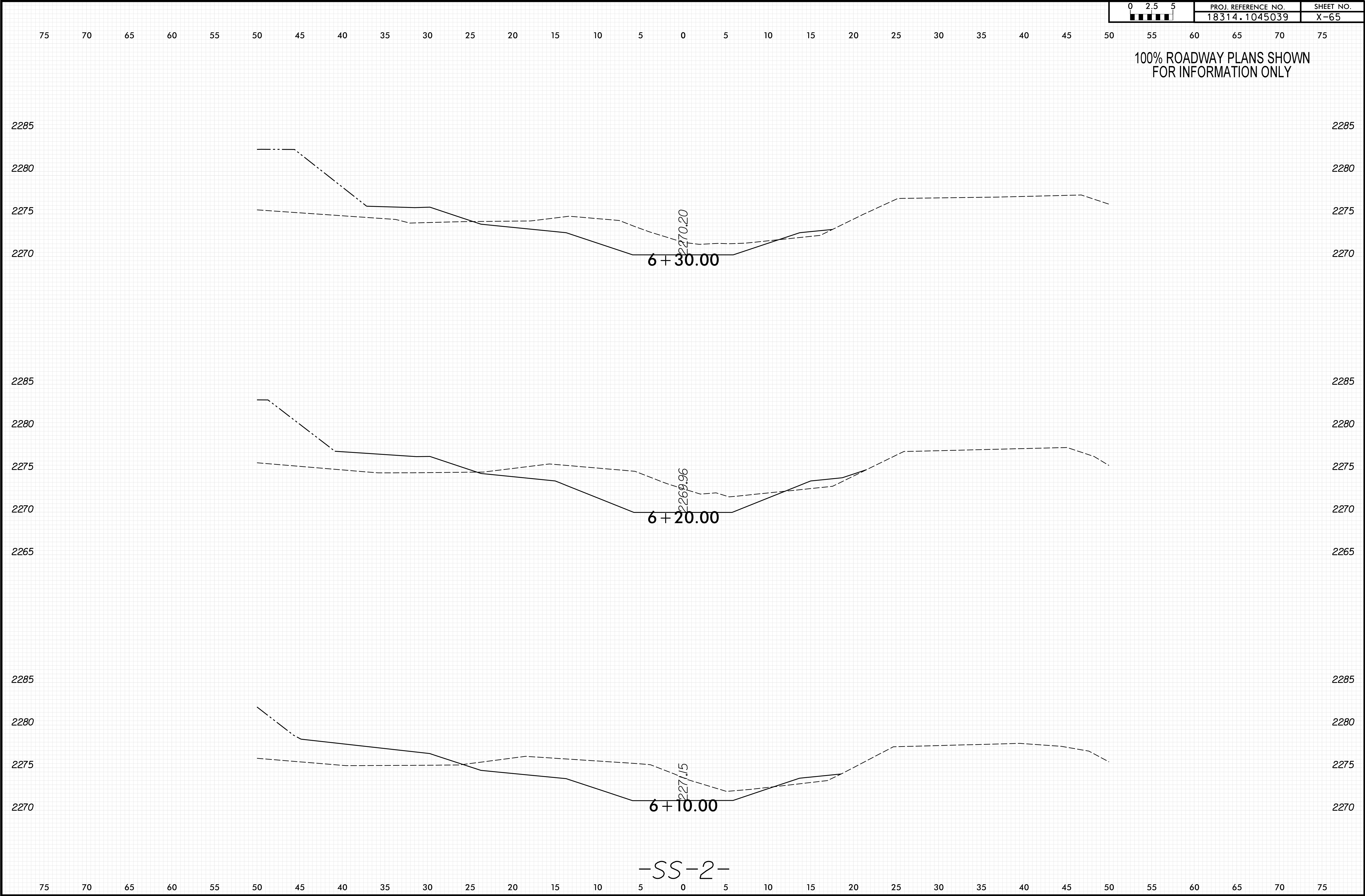
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

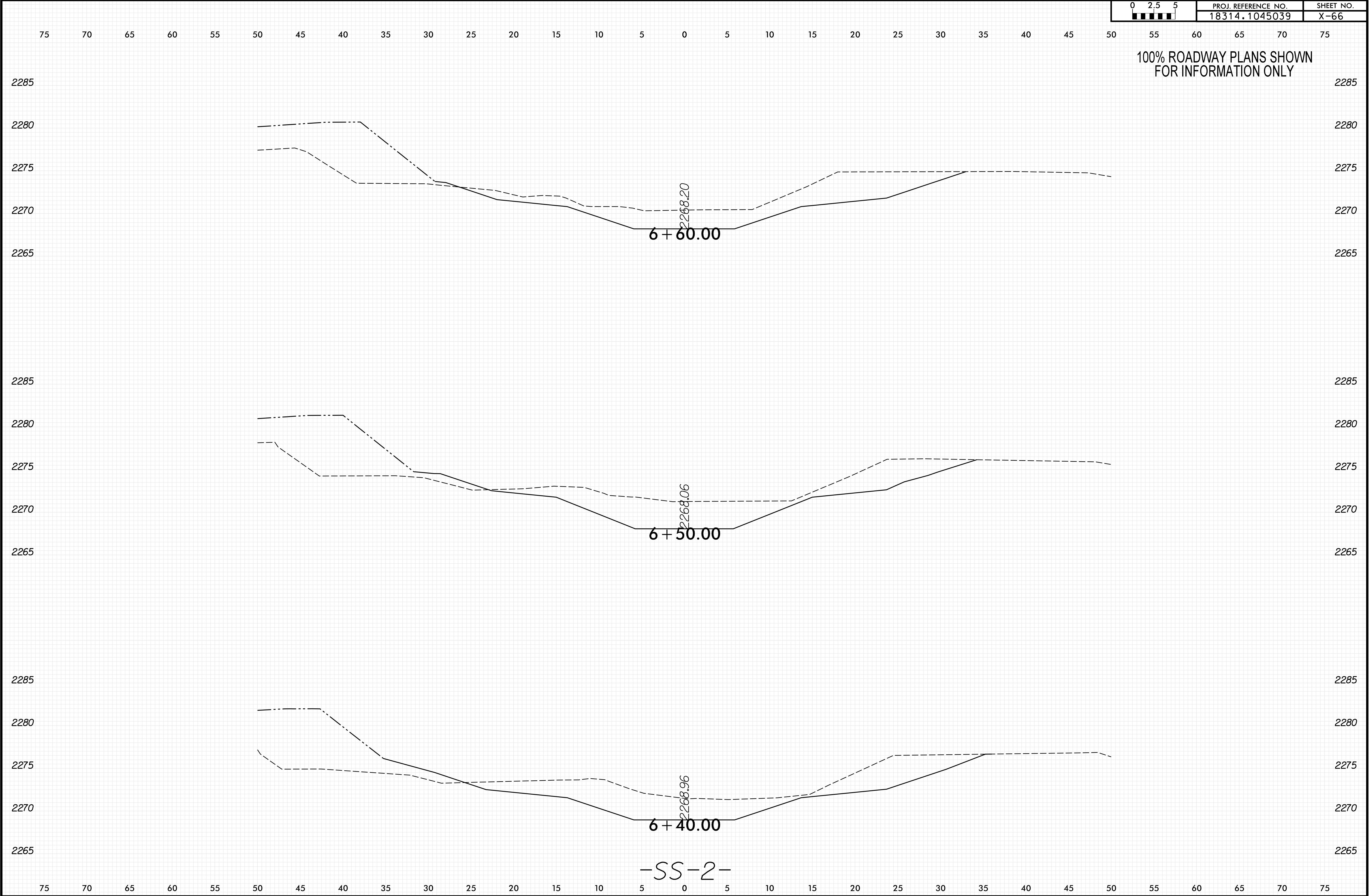


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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-65

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY



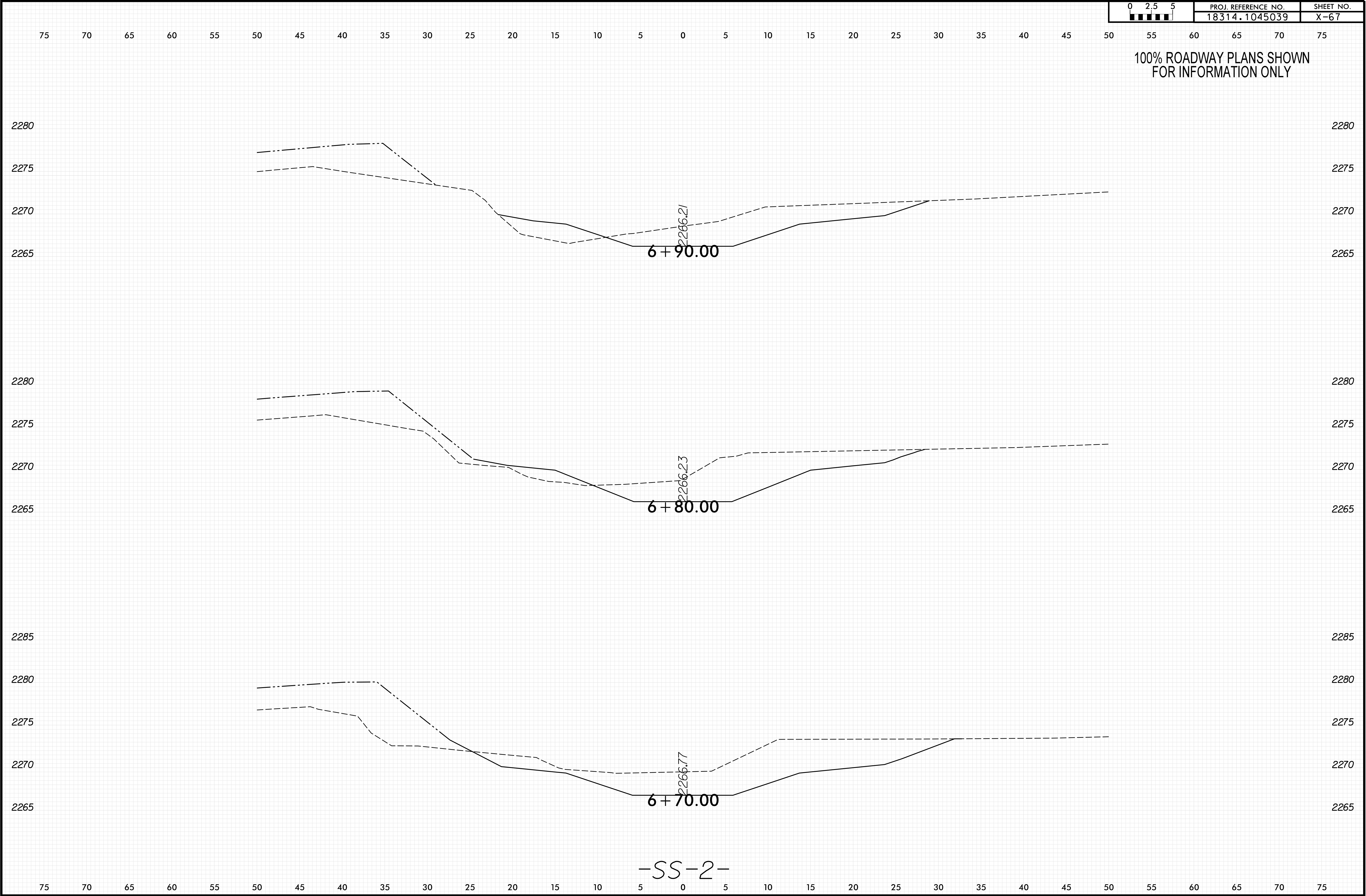


-SS-2-

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-67

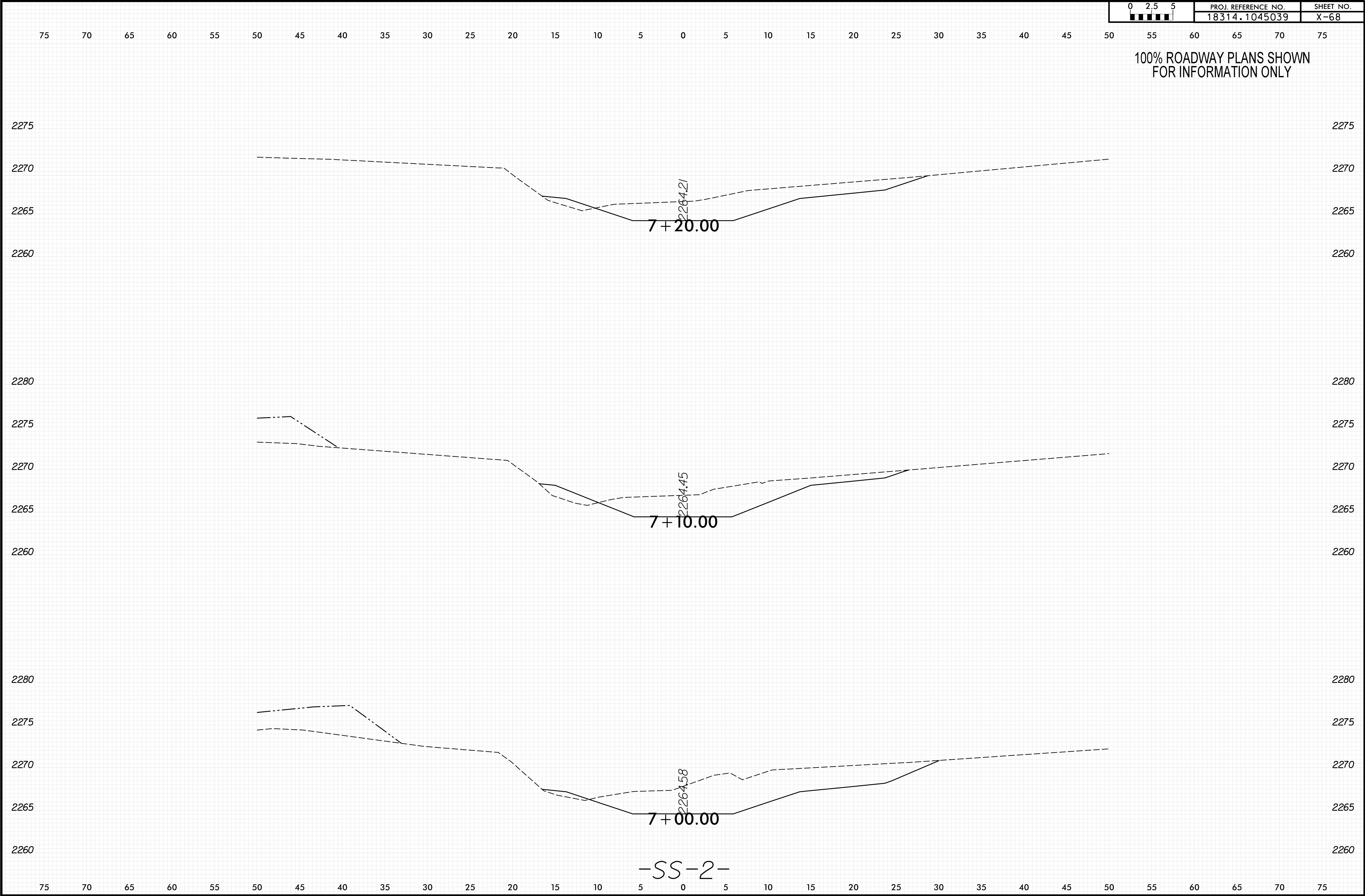
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

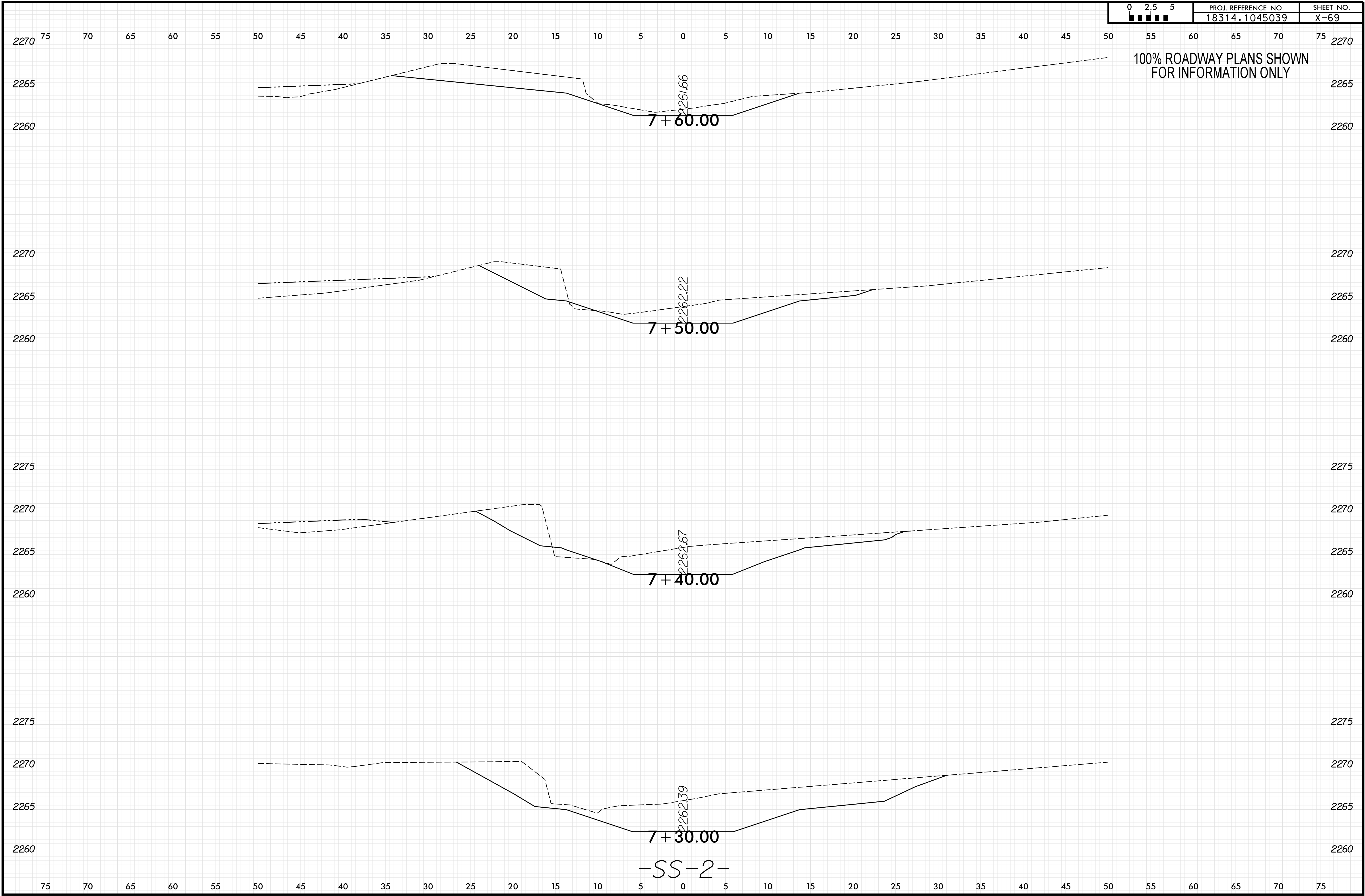


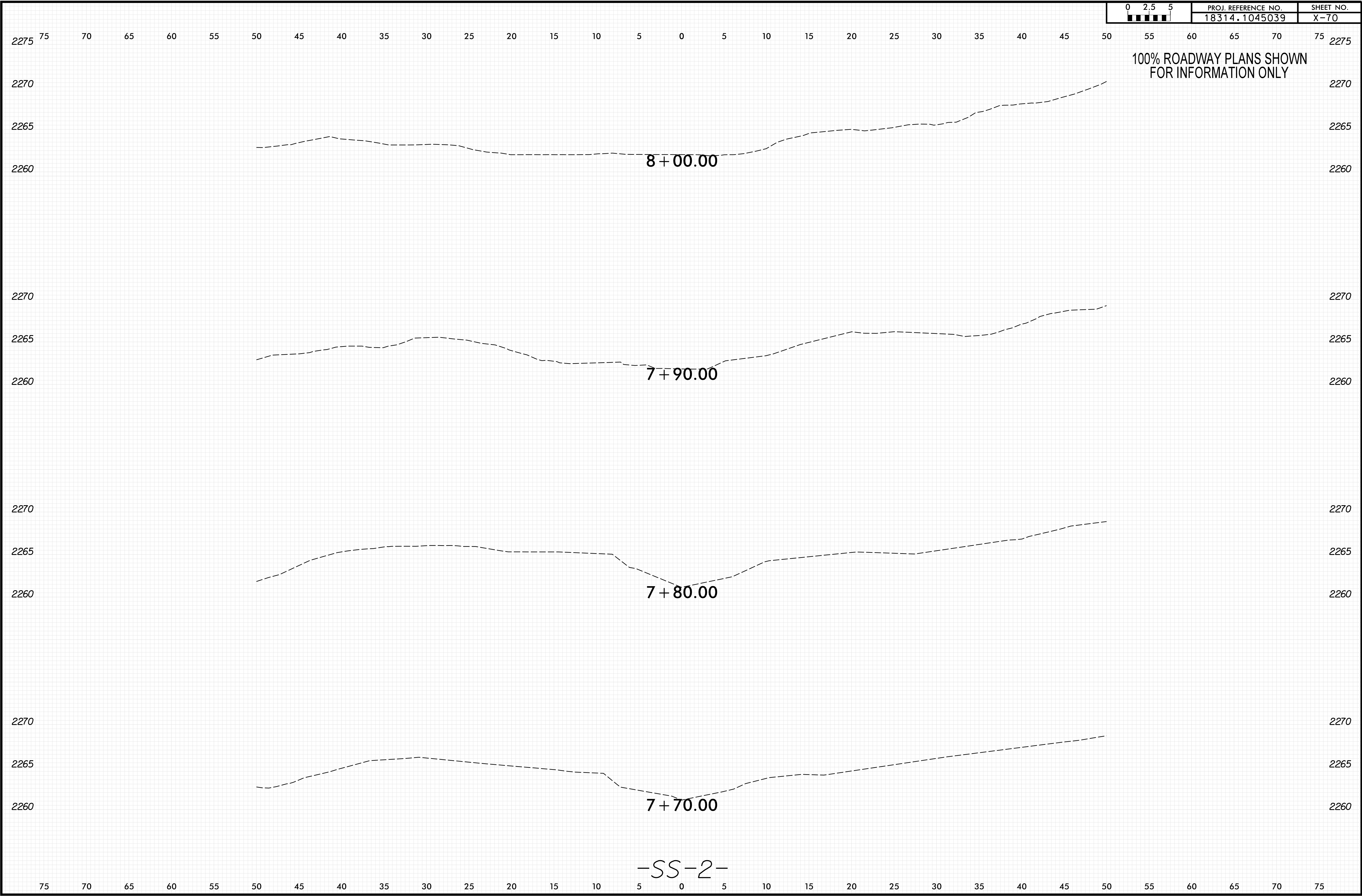
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-68

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY







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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-71

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

2275

2275

2270

2270

2265

2265

2260

2260

8 + 10.00

-SS-2-

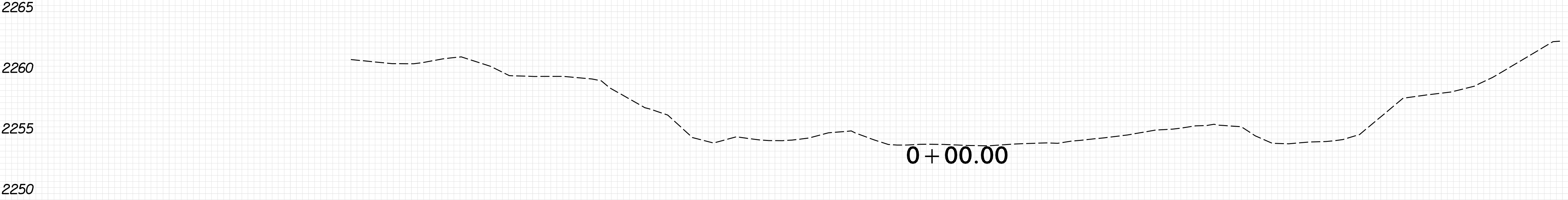
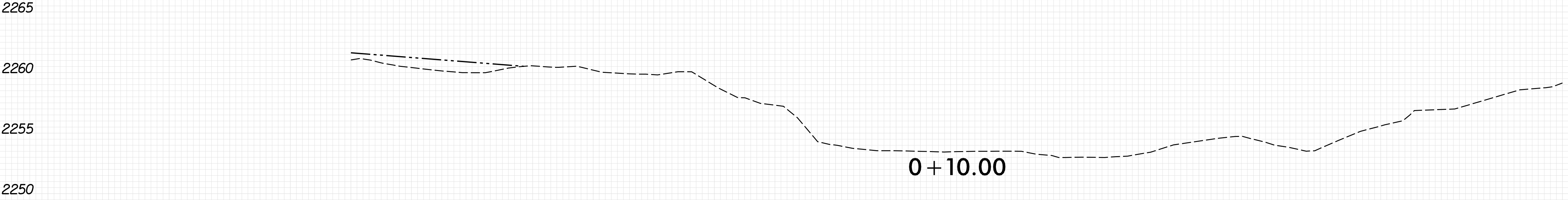
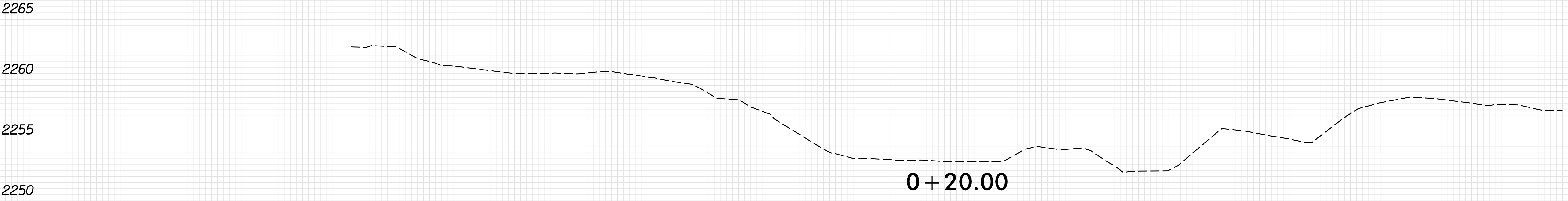
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0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-72

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50

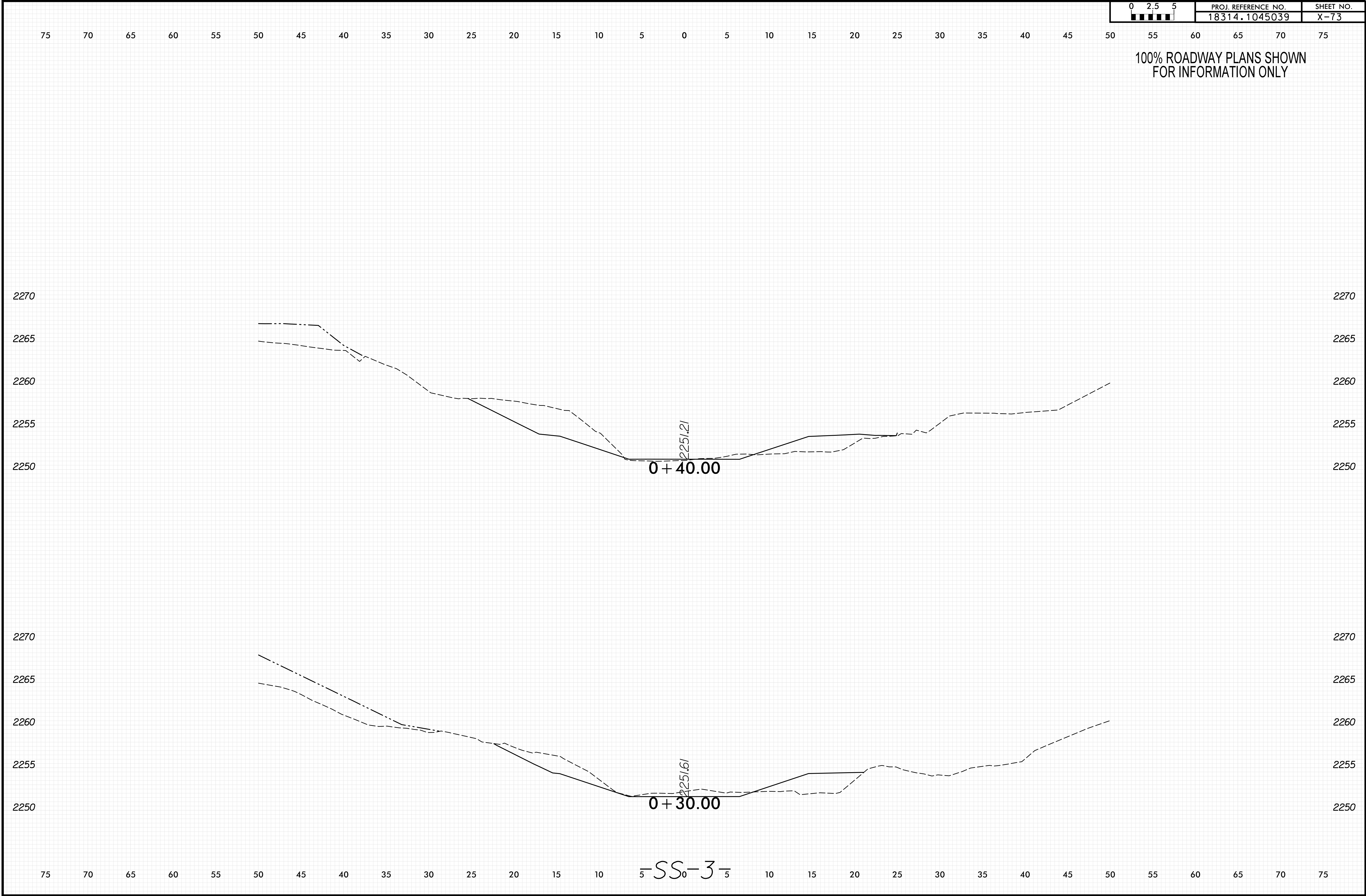


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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-73

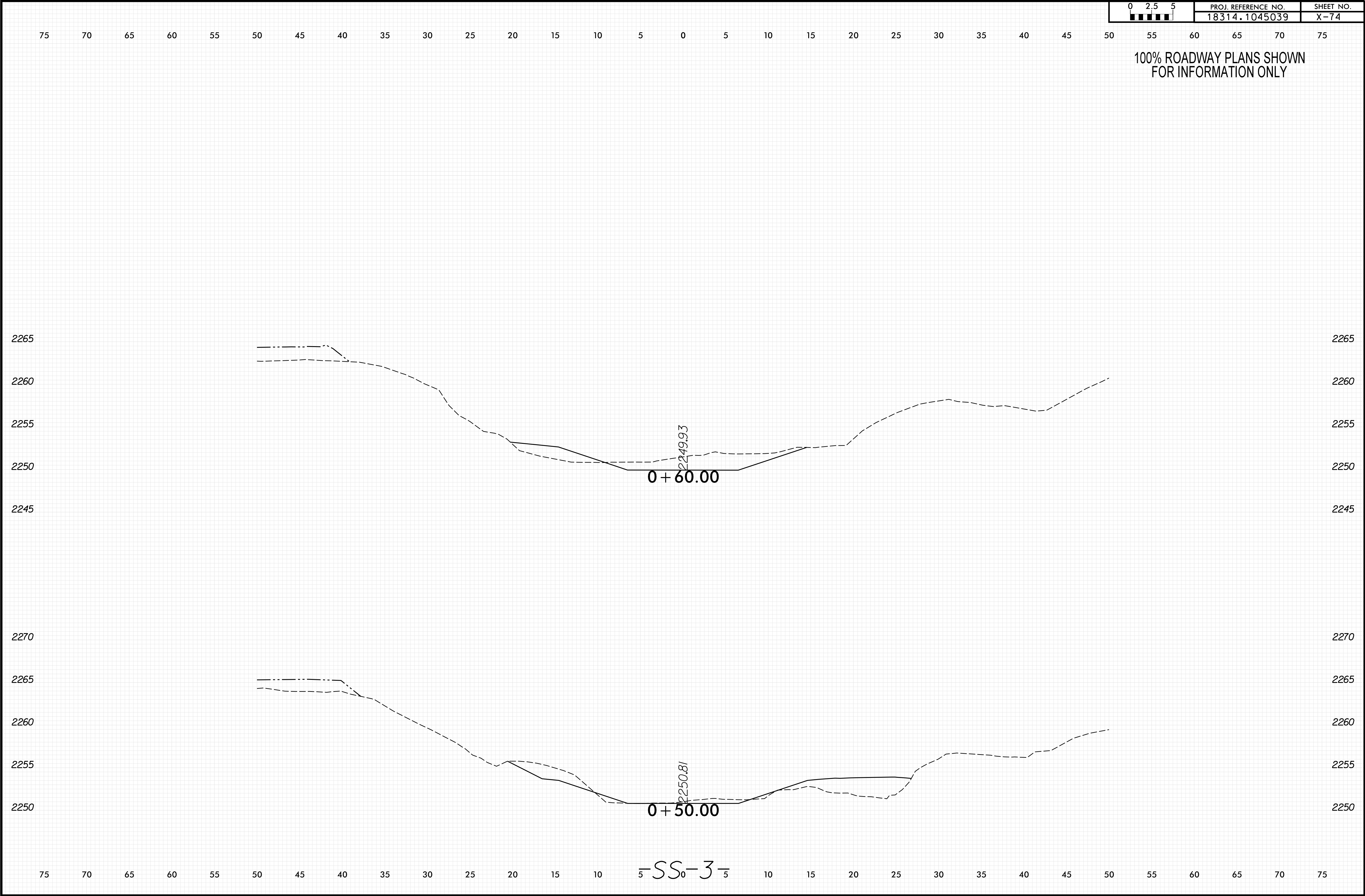
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

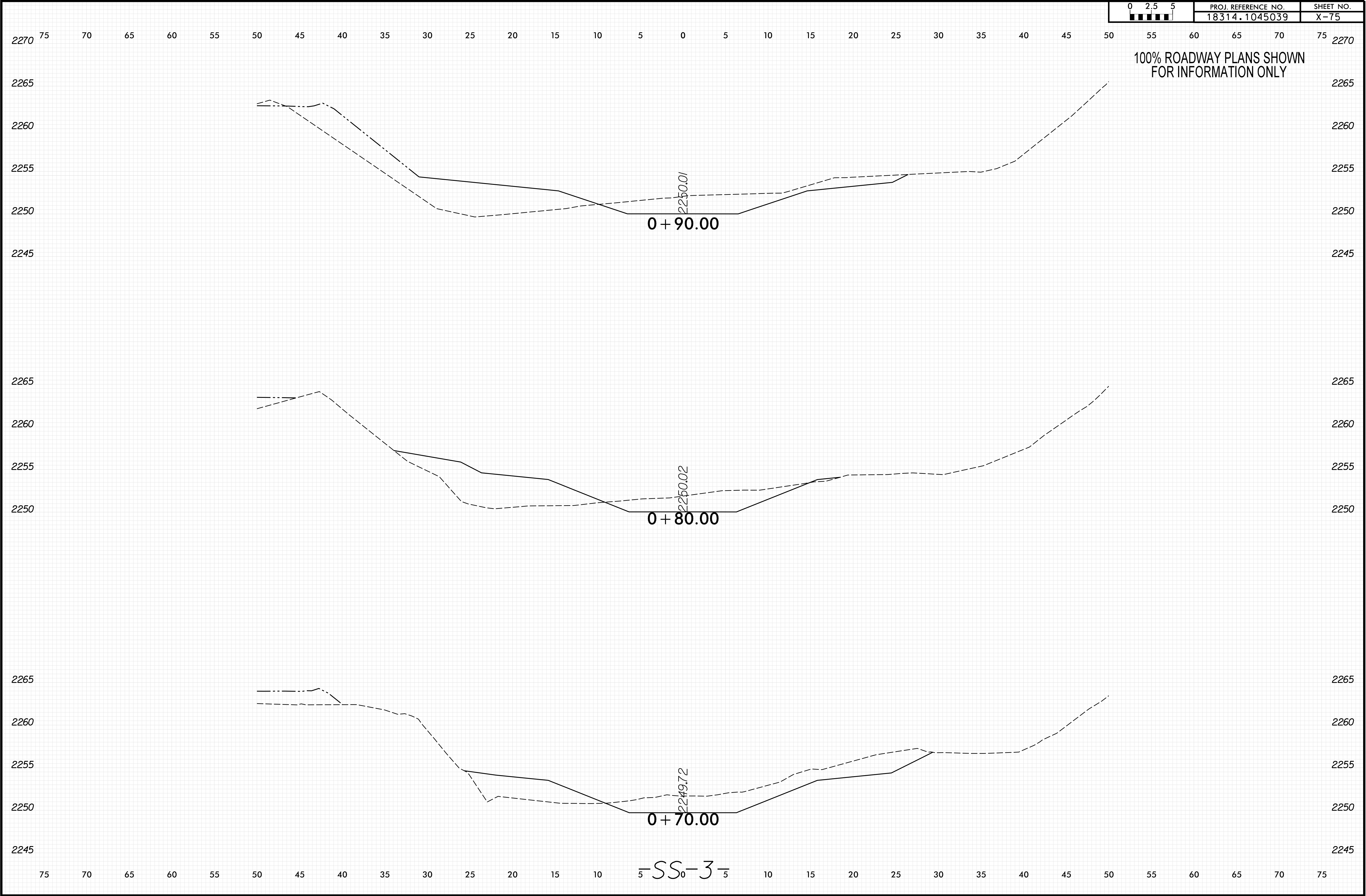


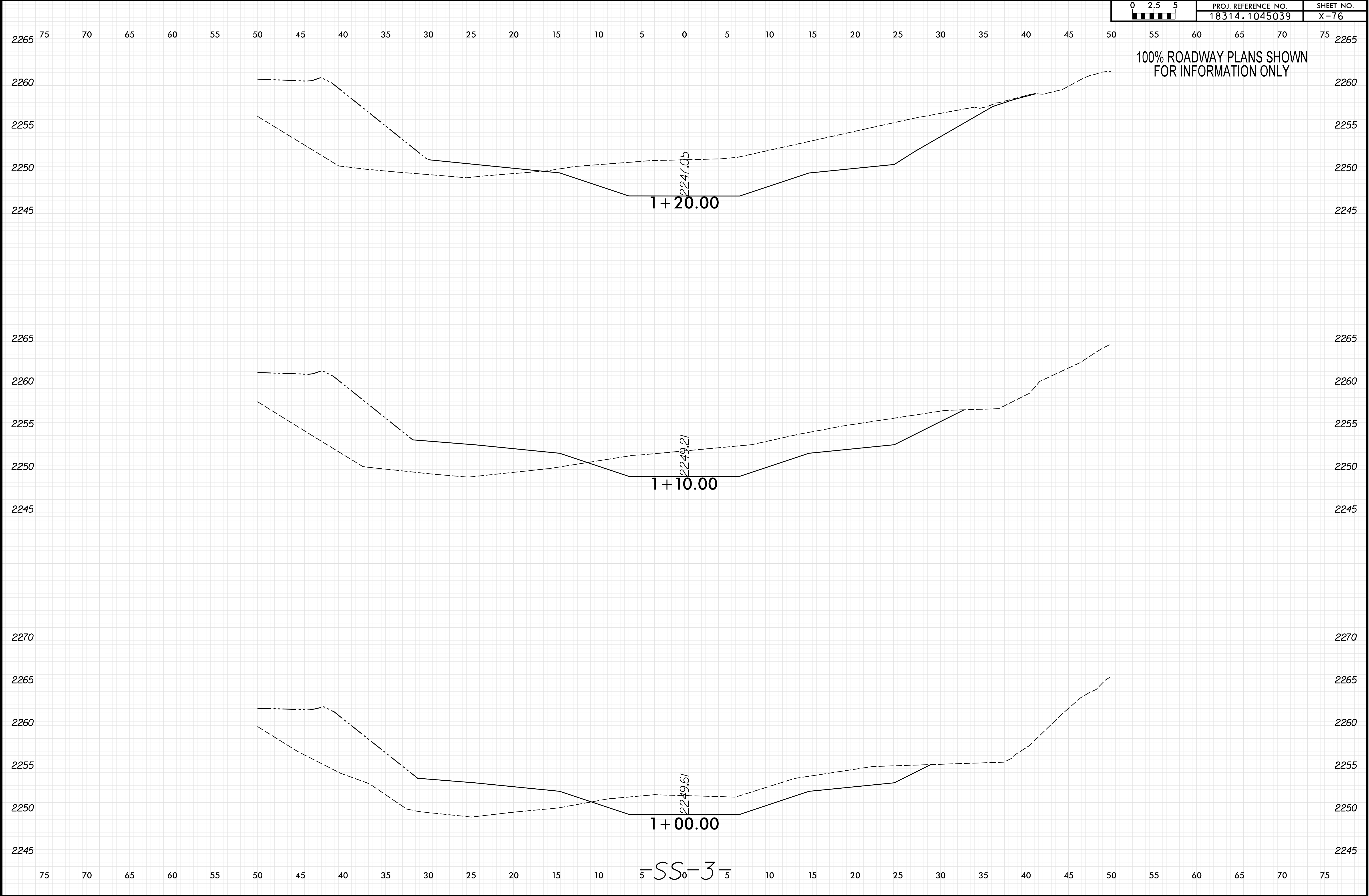
8/23/99

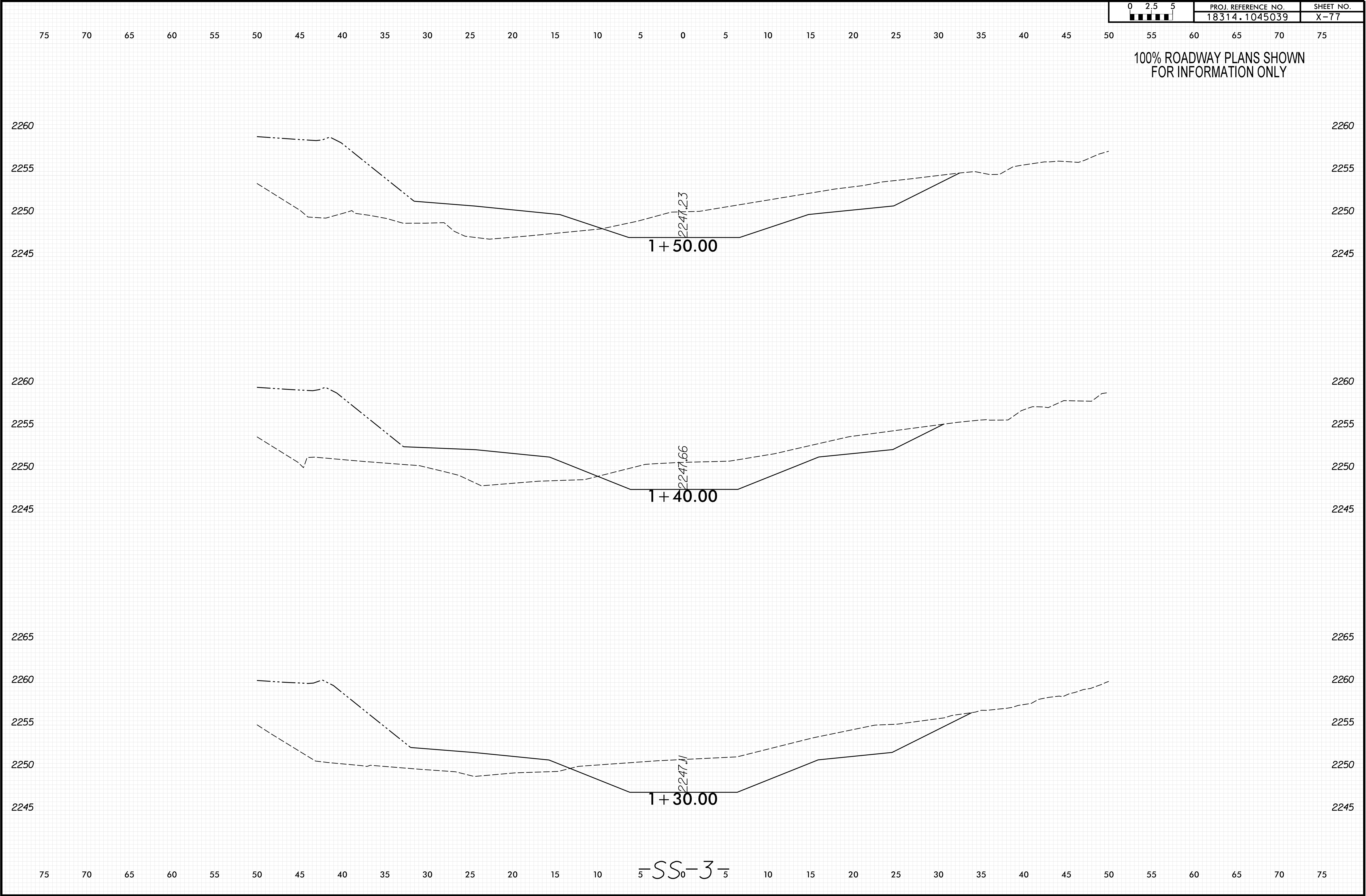
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	18314.1045039	X-74

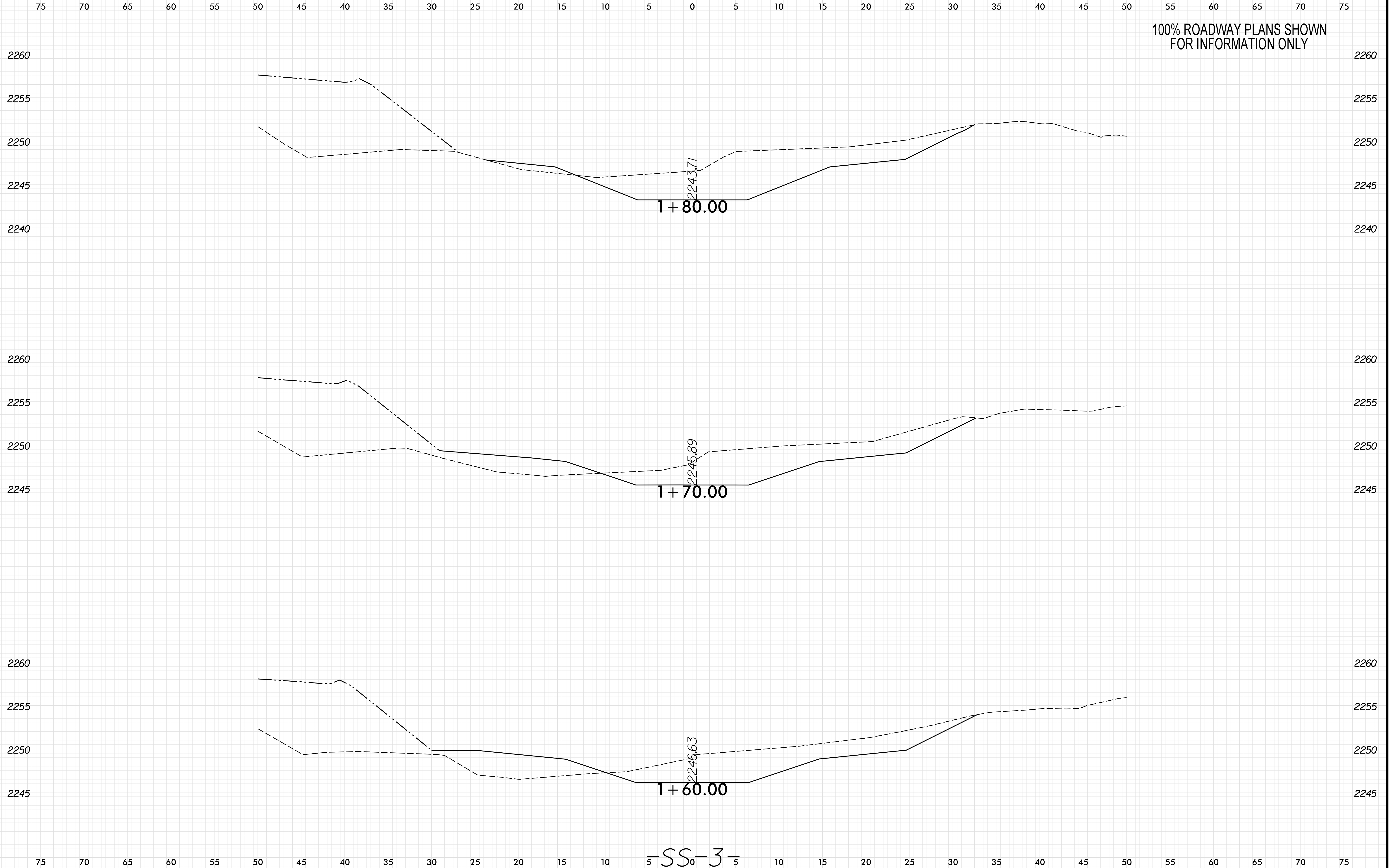
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

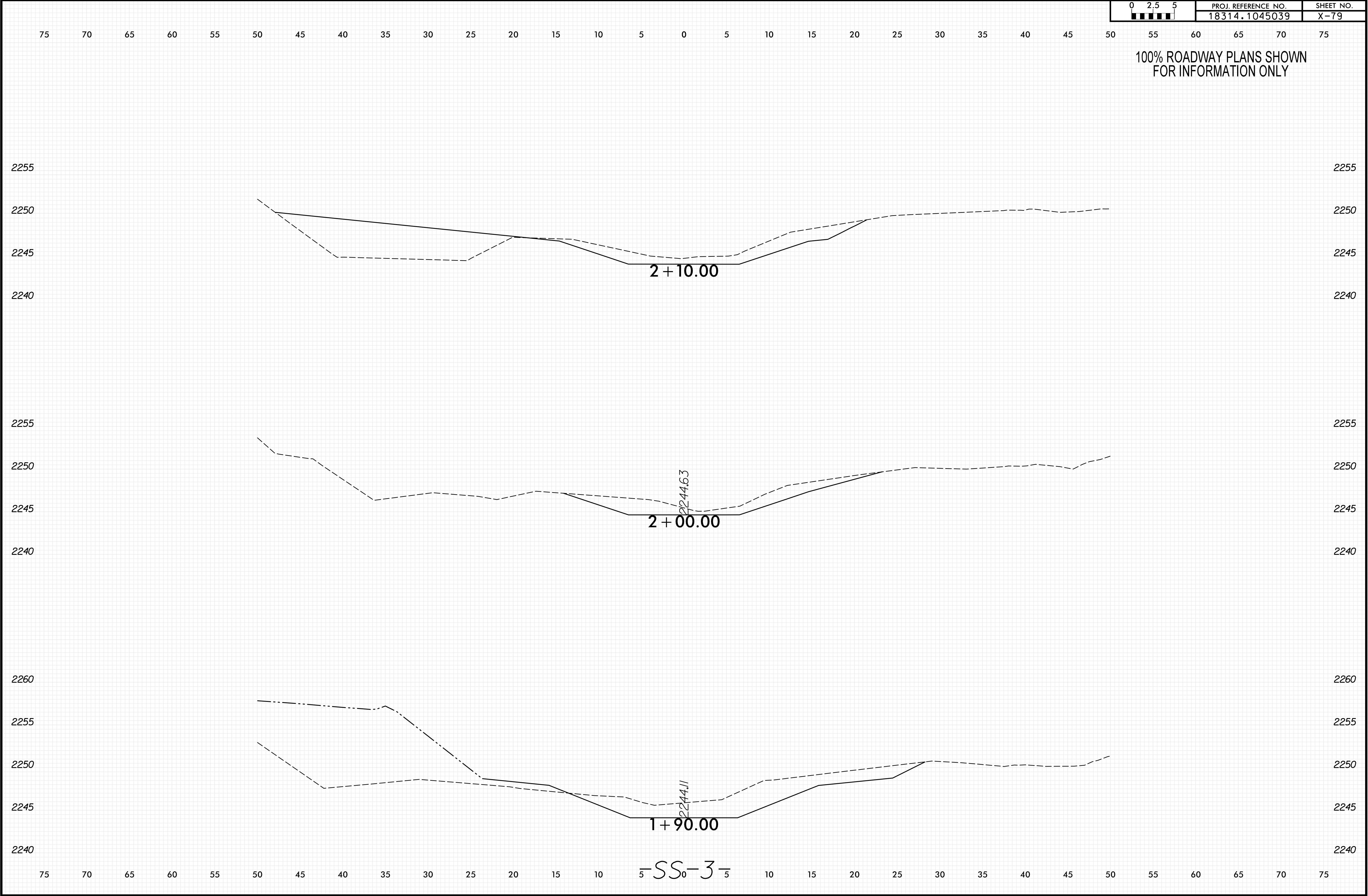


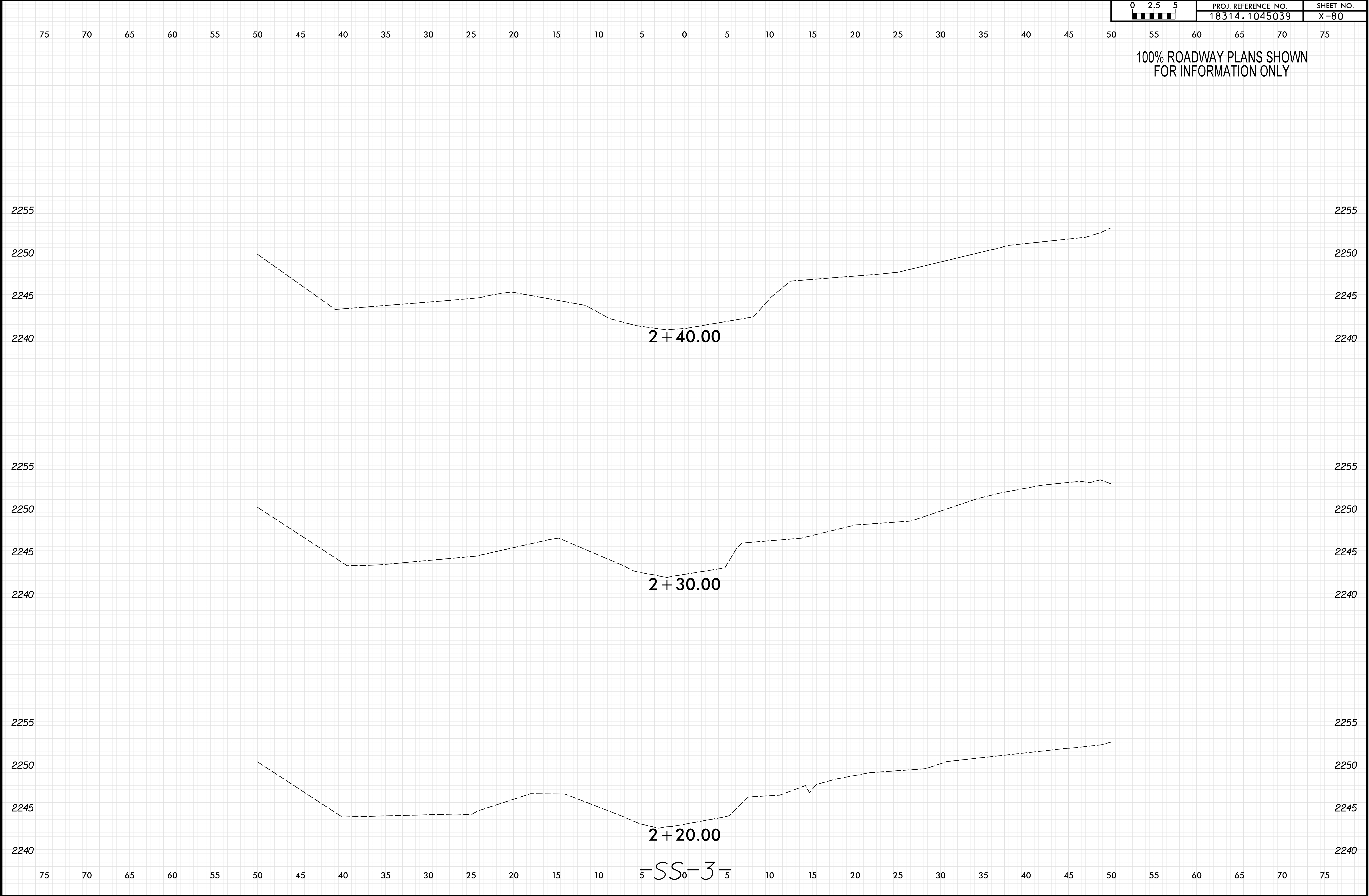


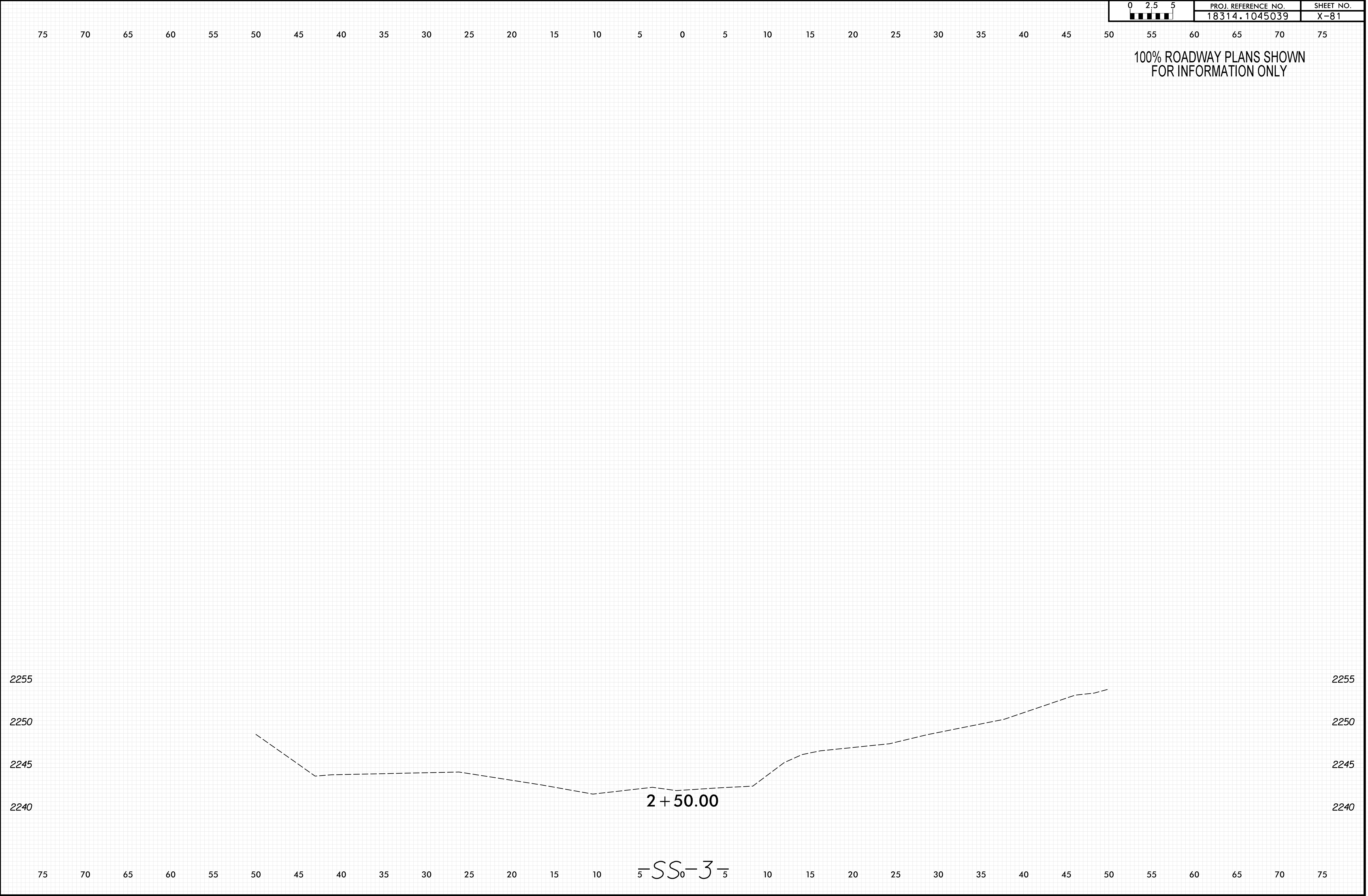


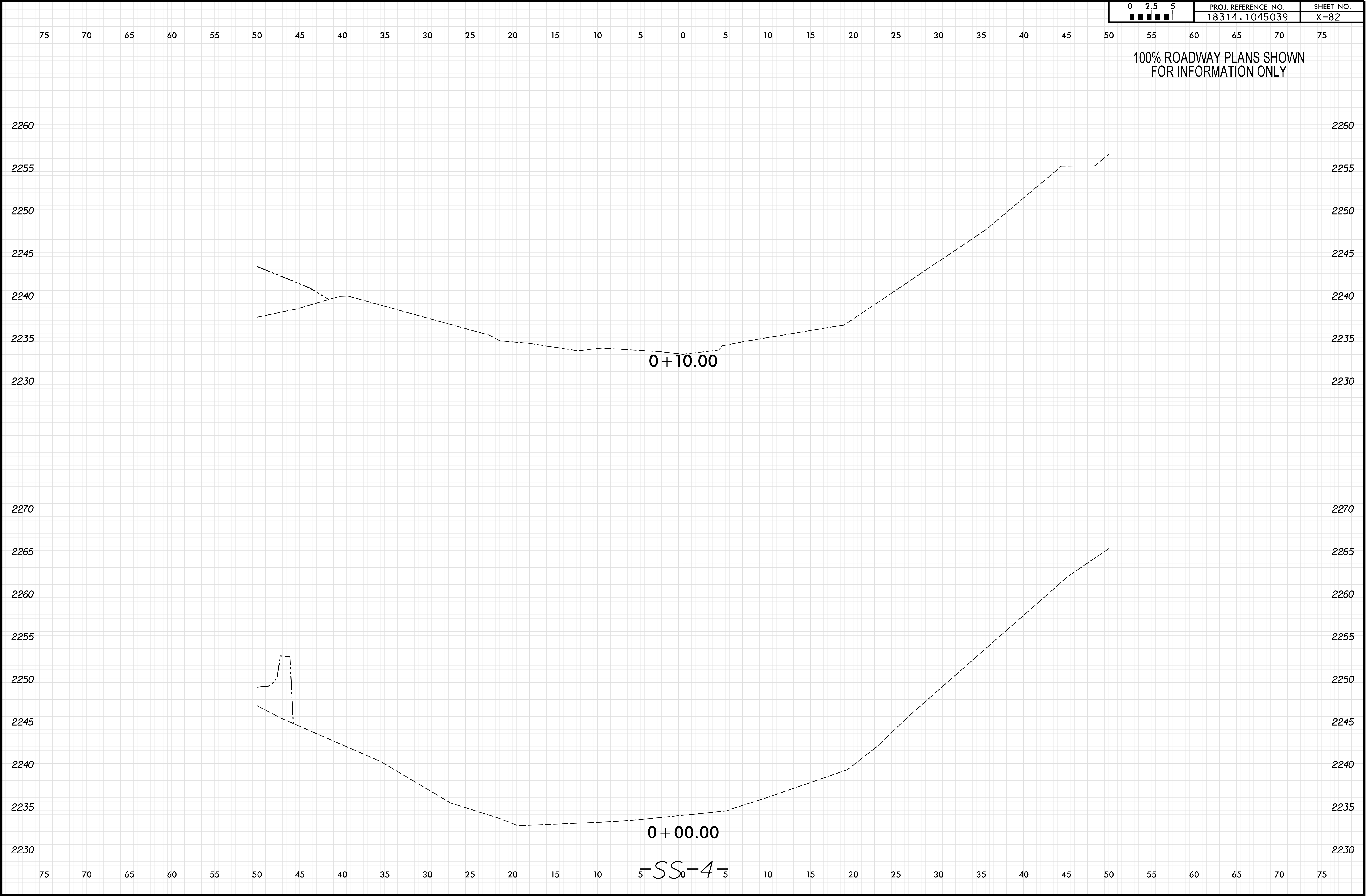


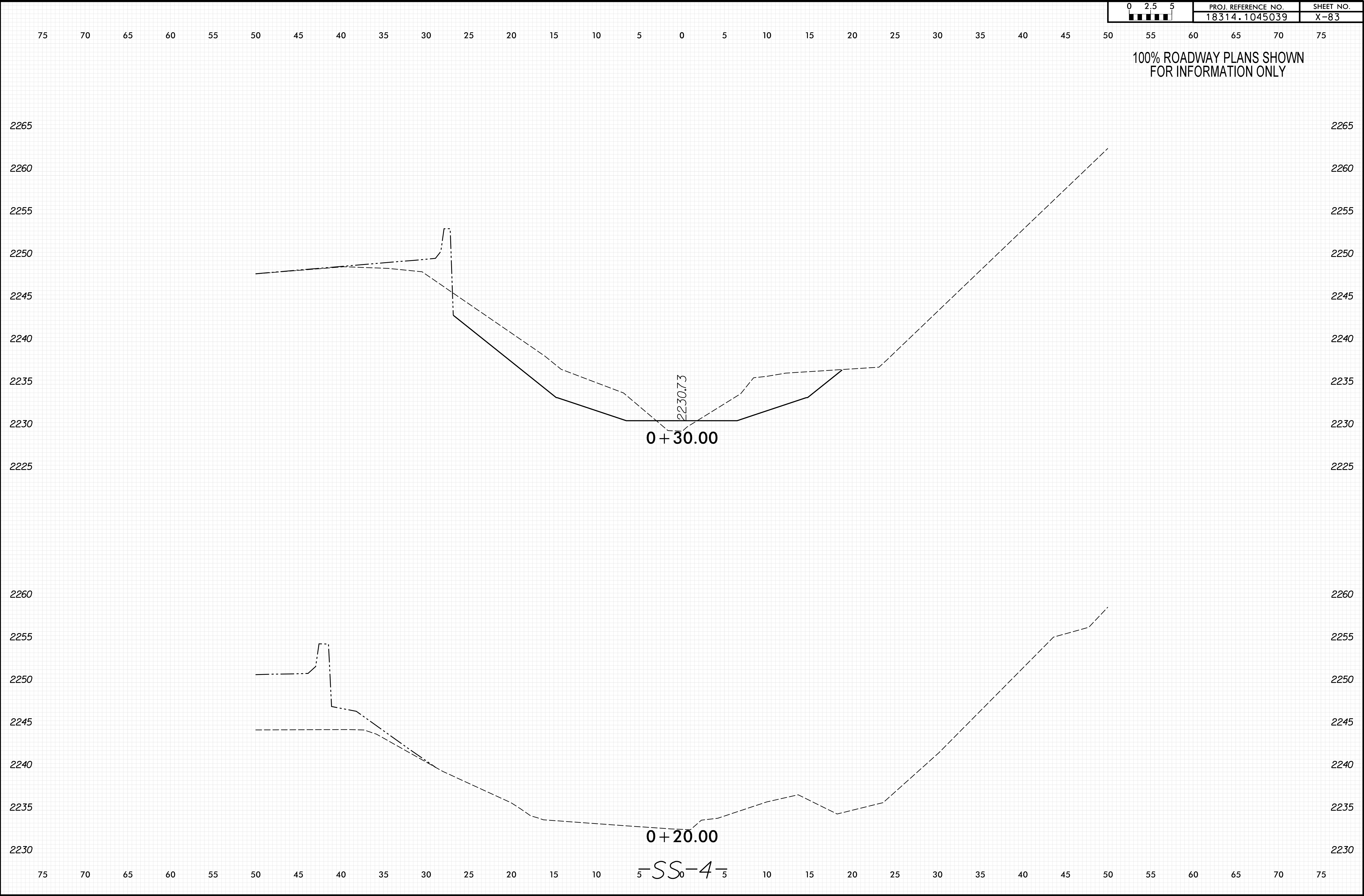


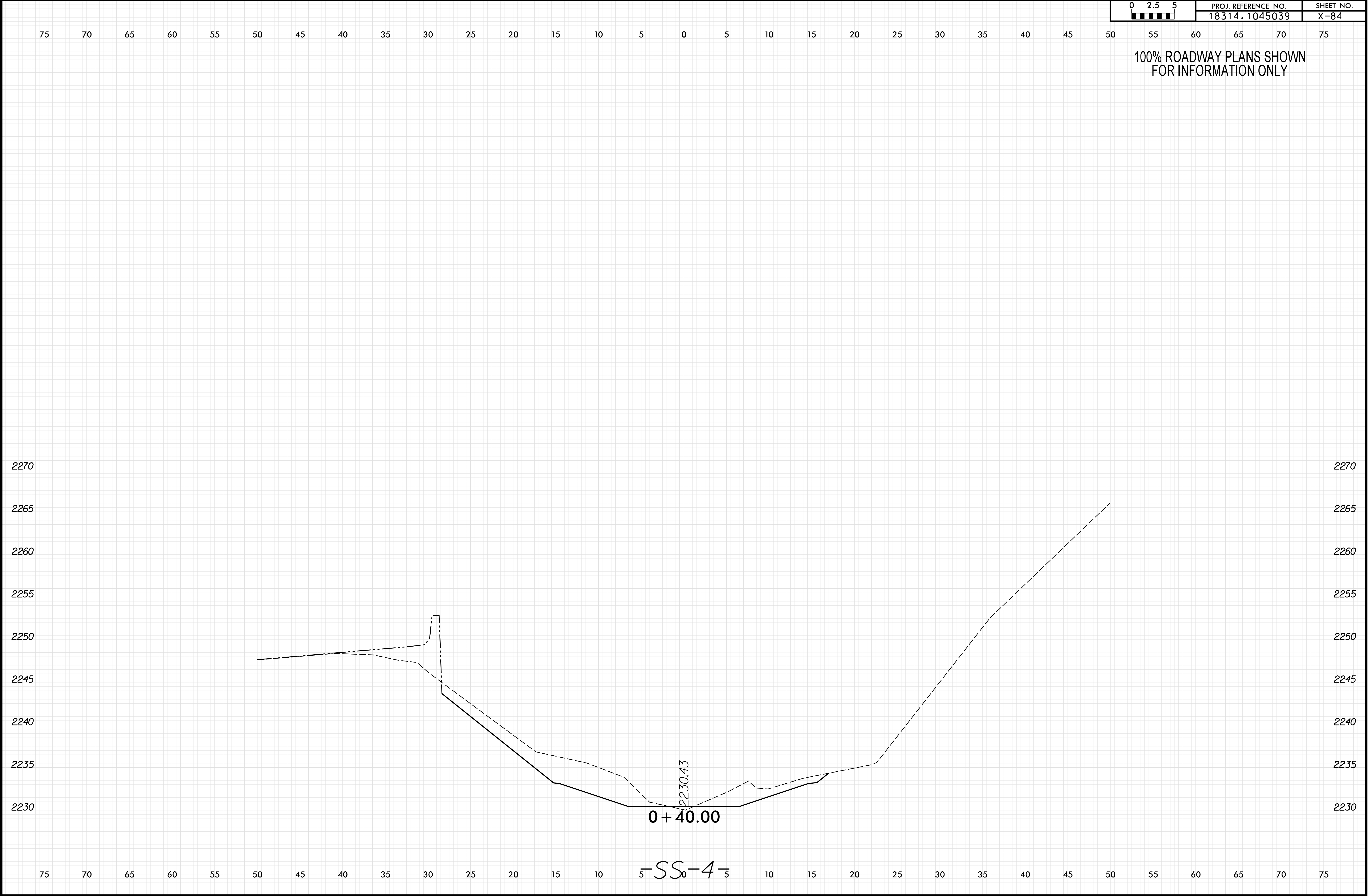




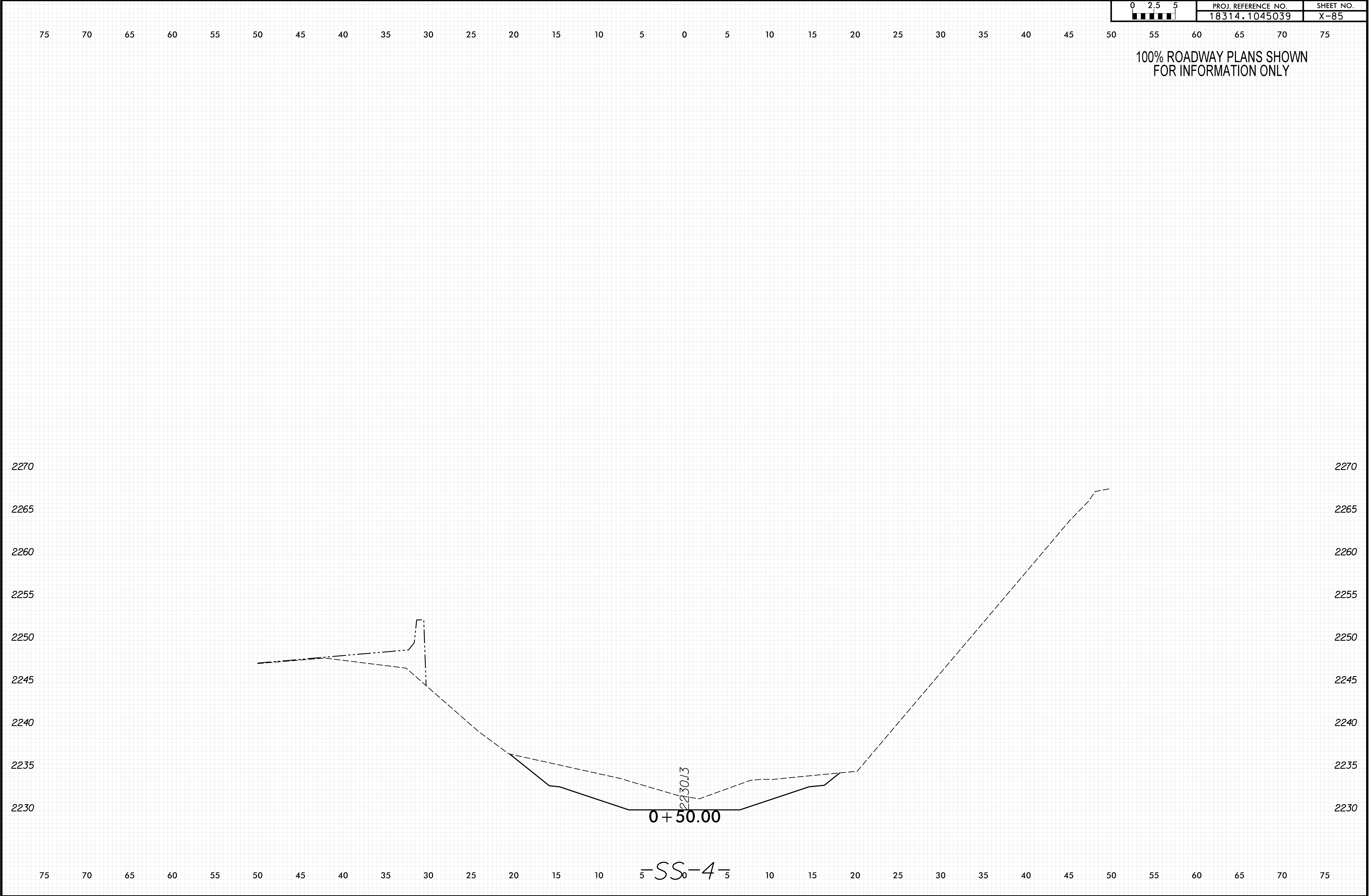


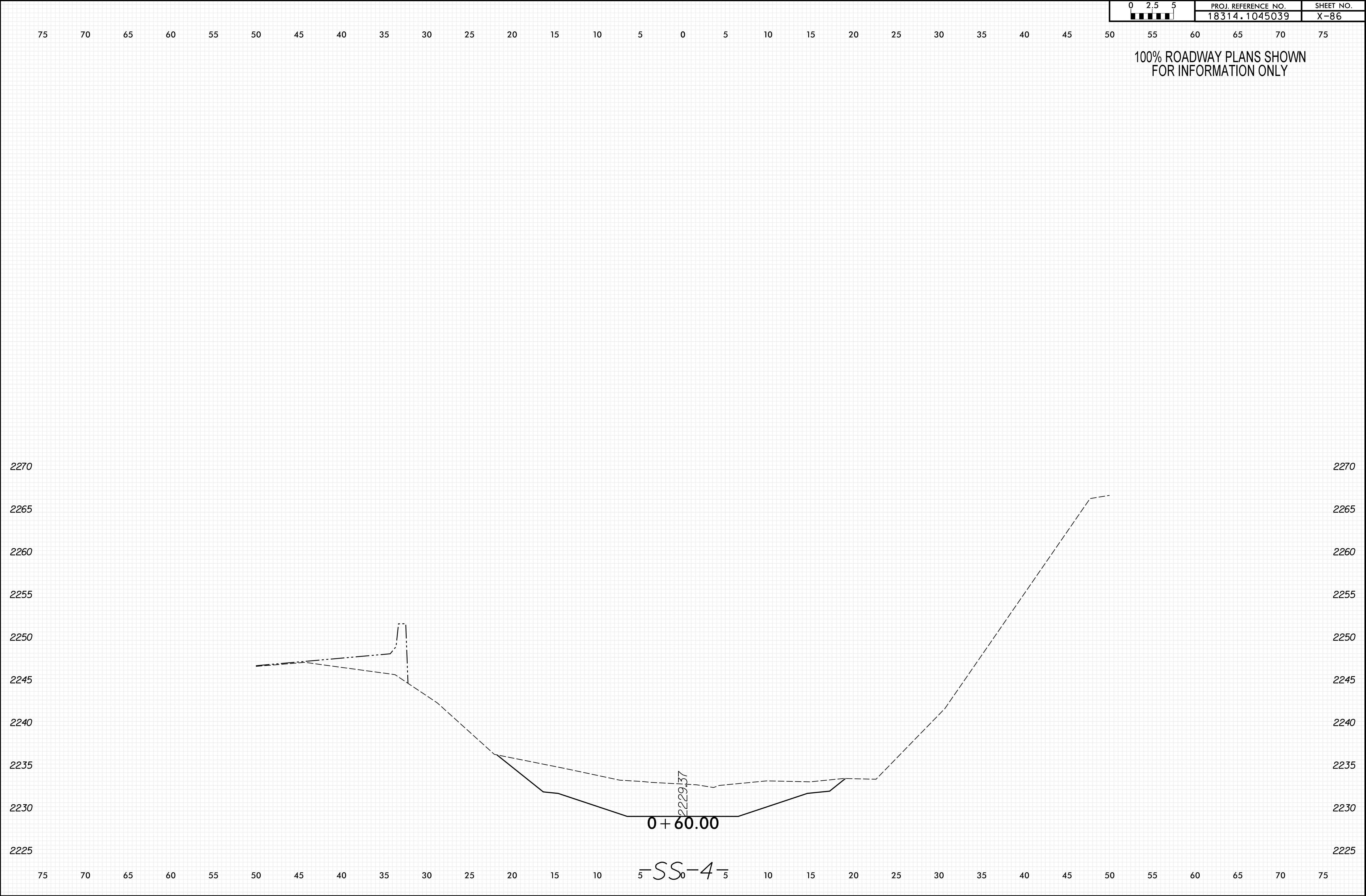




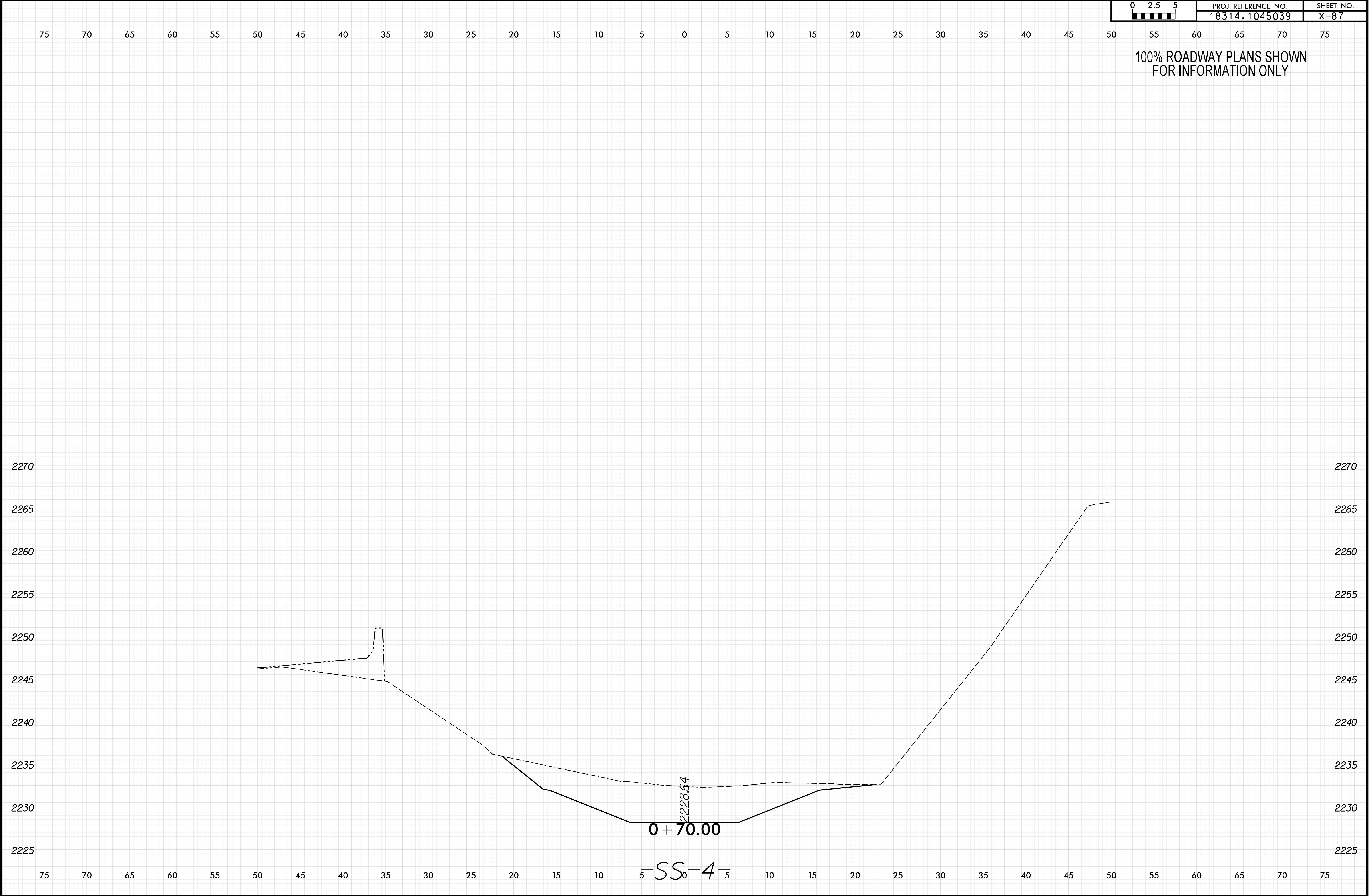


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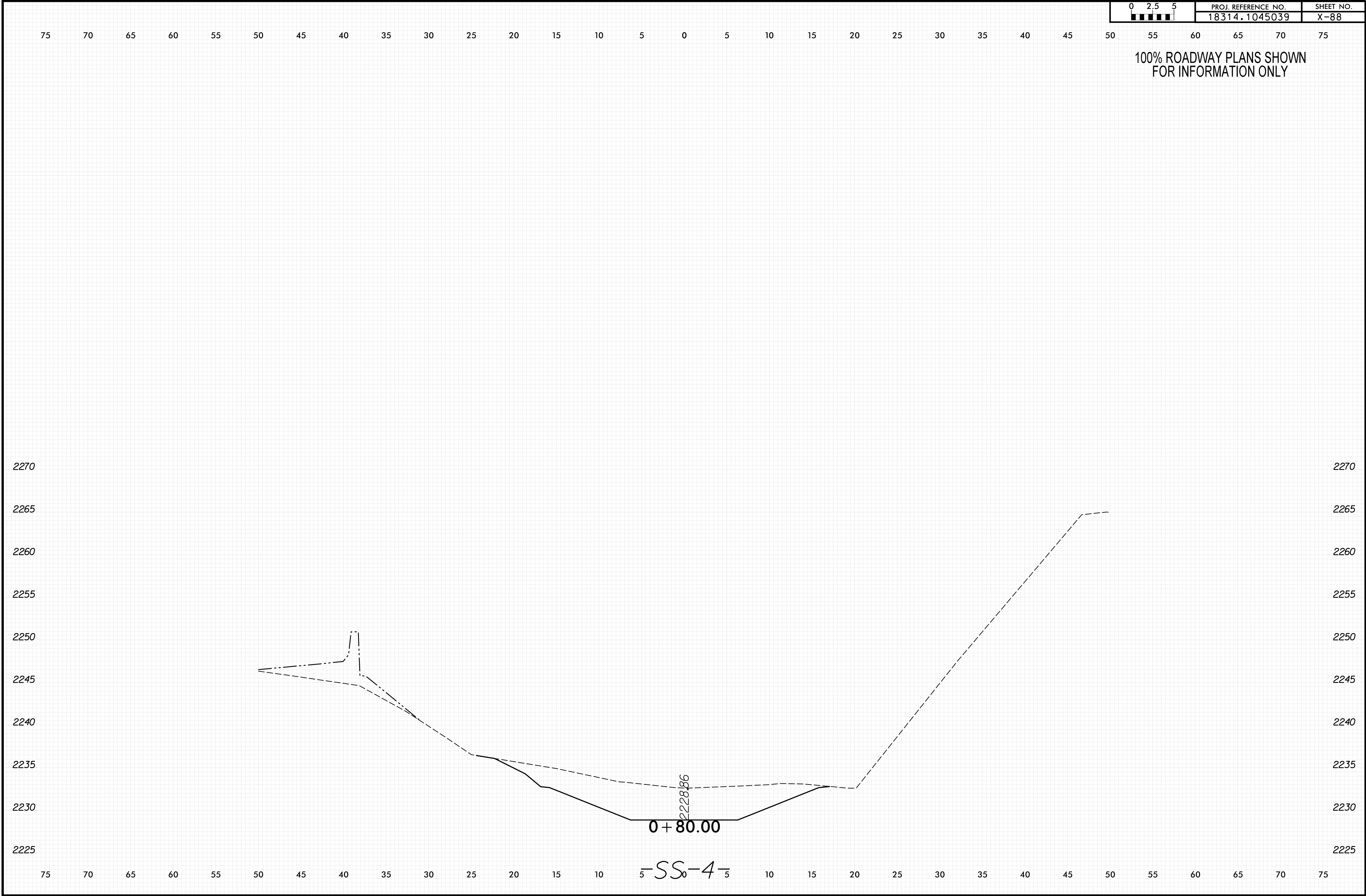
SS-4

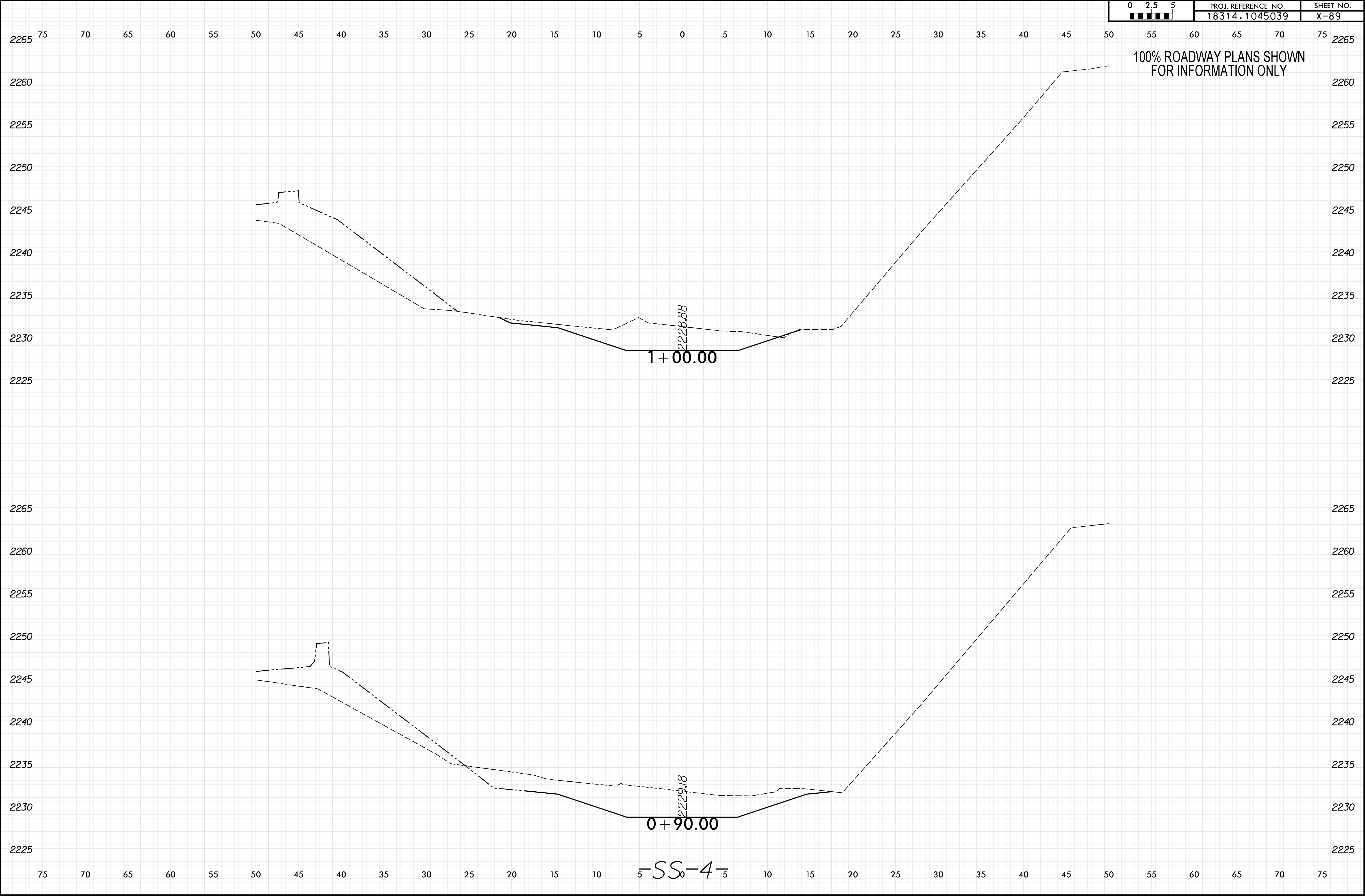


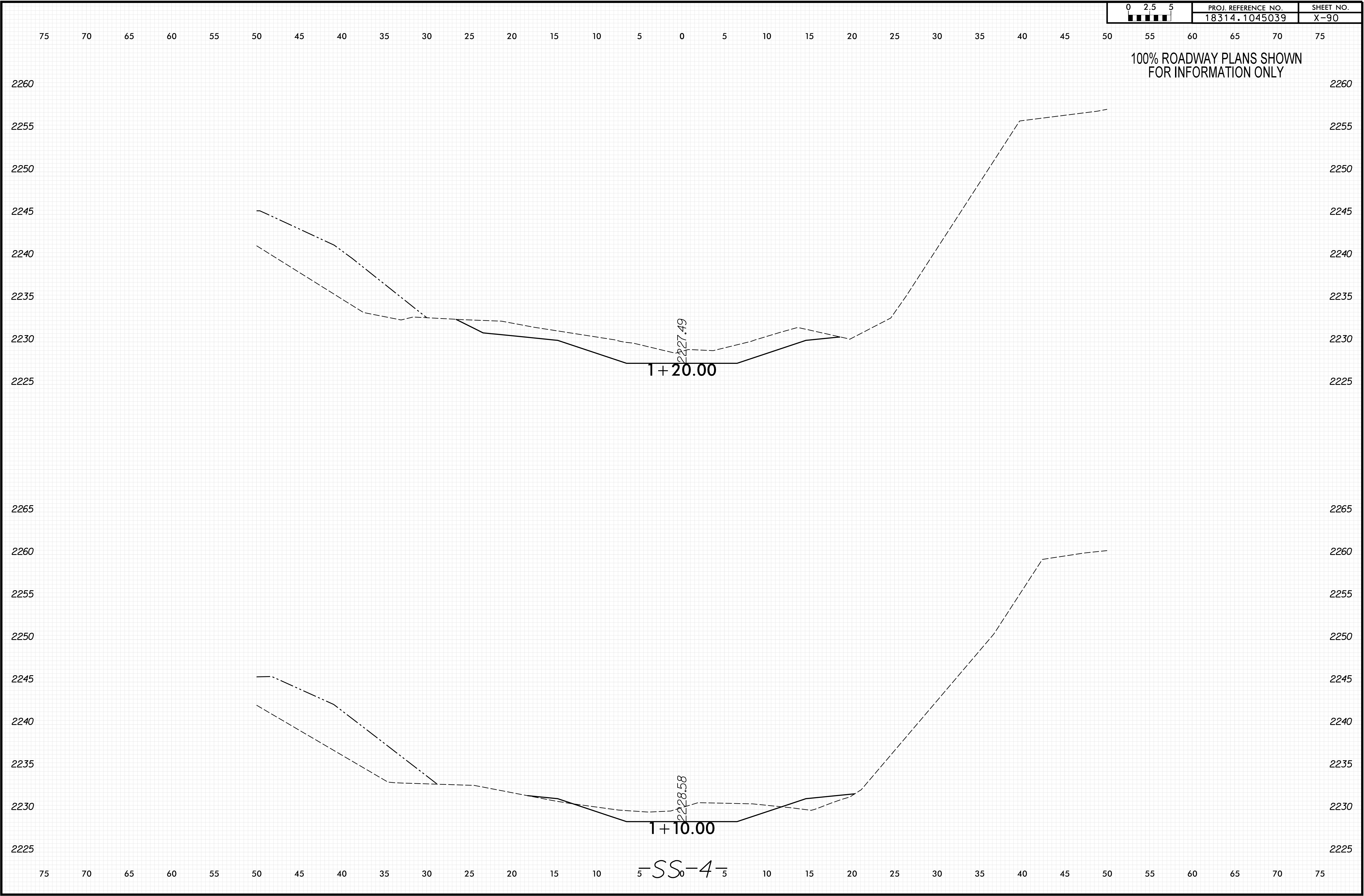
8/23/99

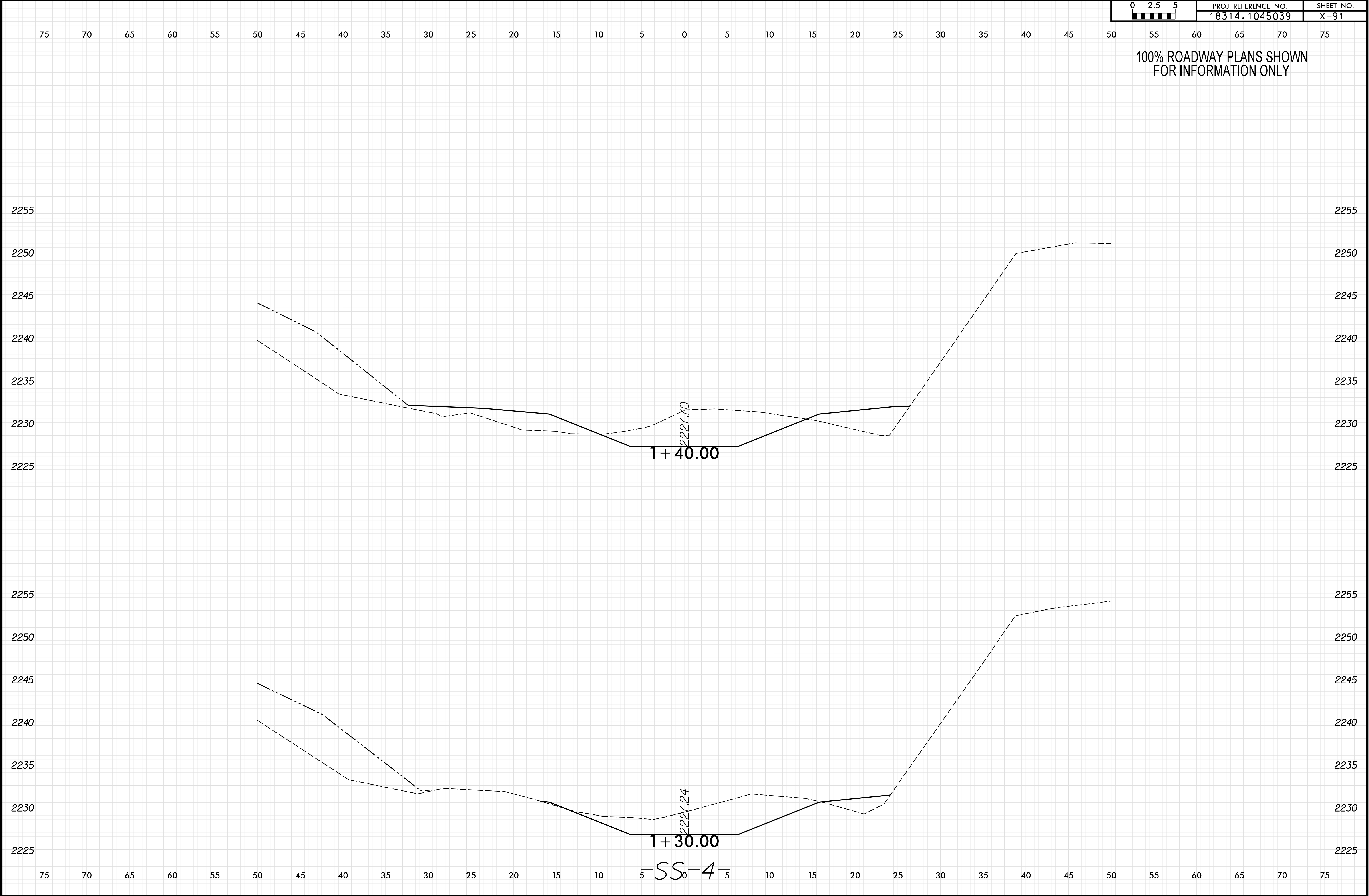
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-88

100% ROADWAY PLANS SHOWN
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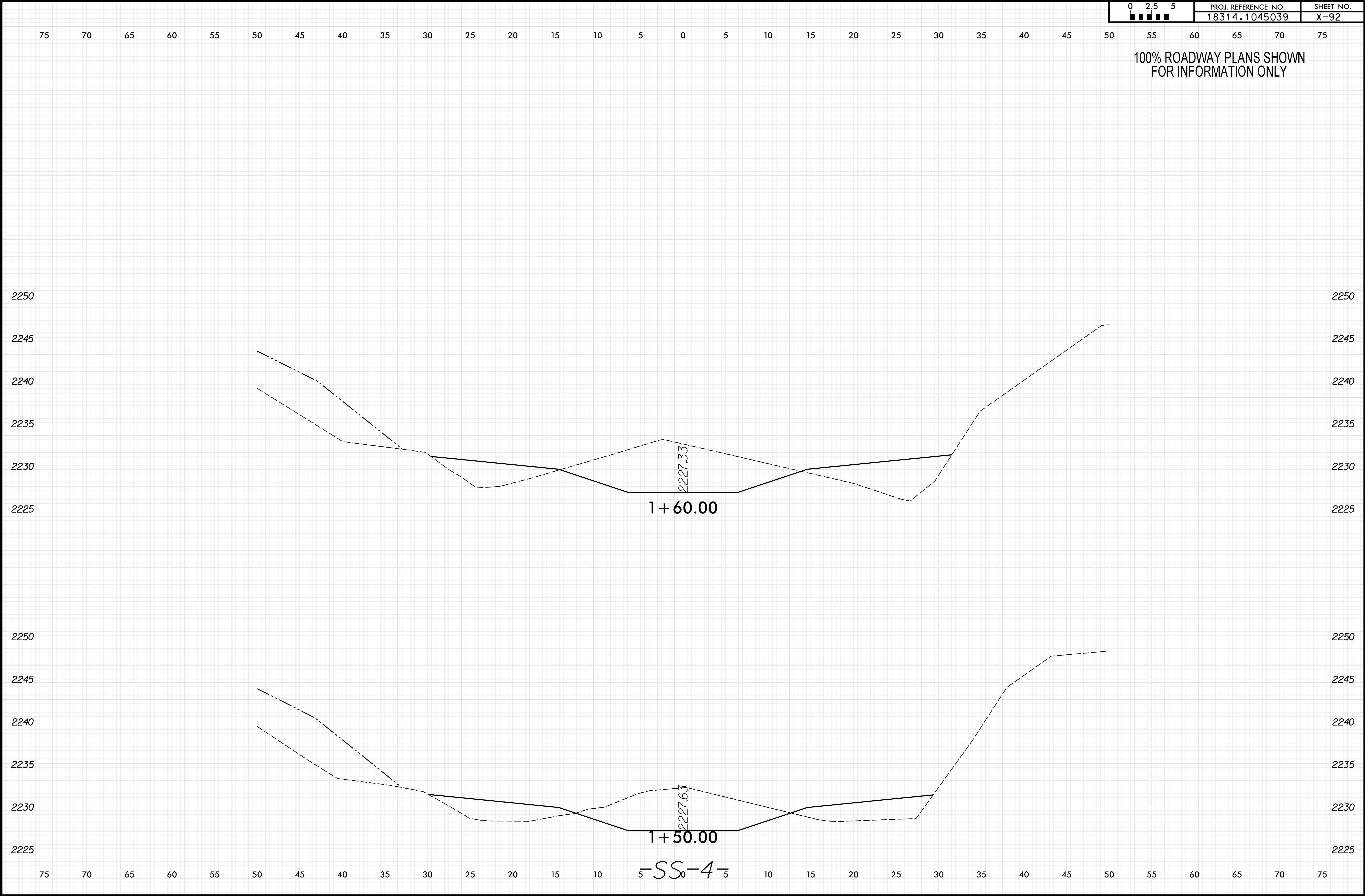


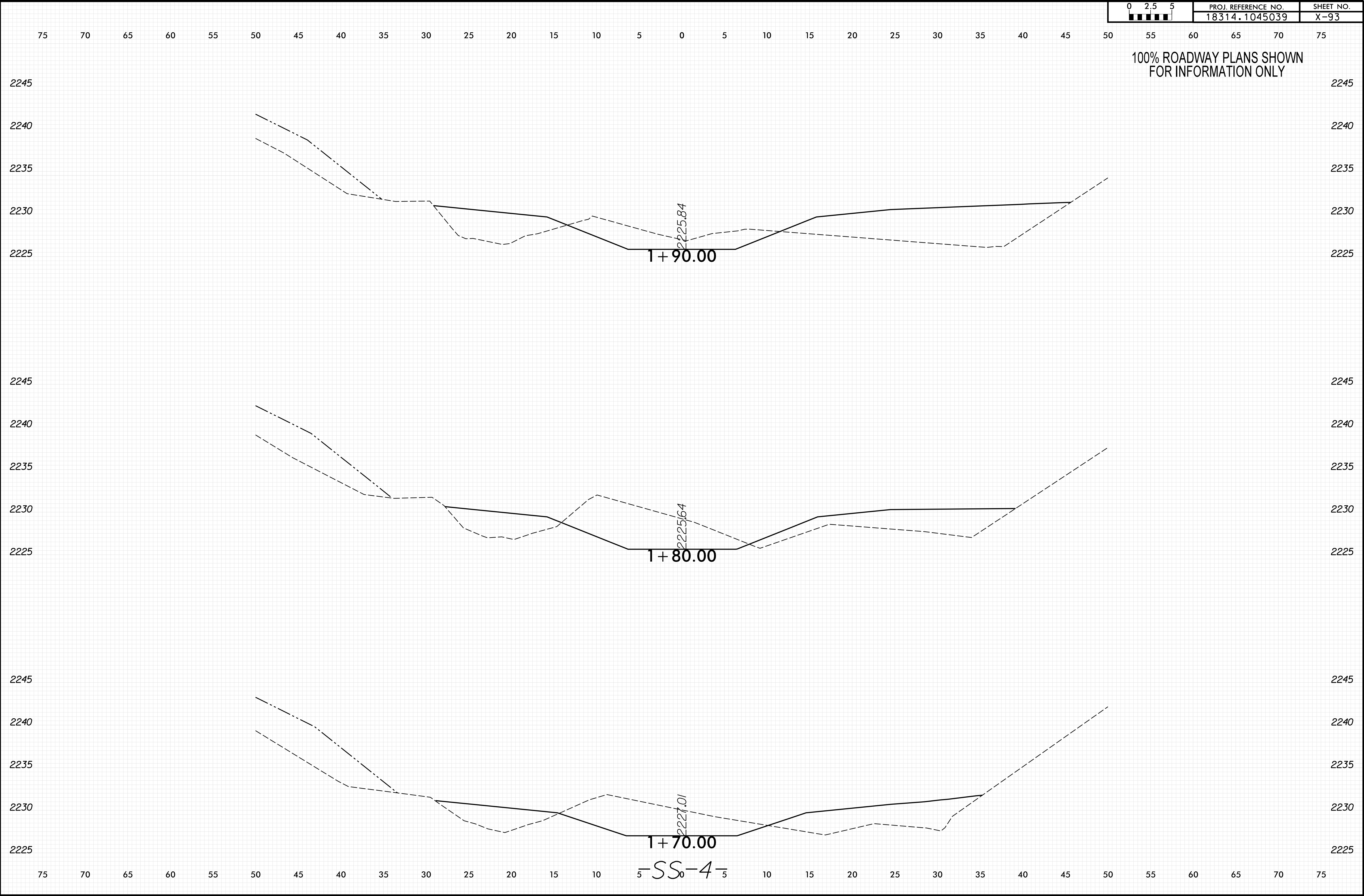


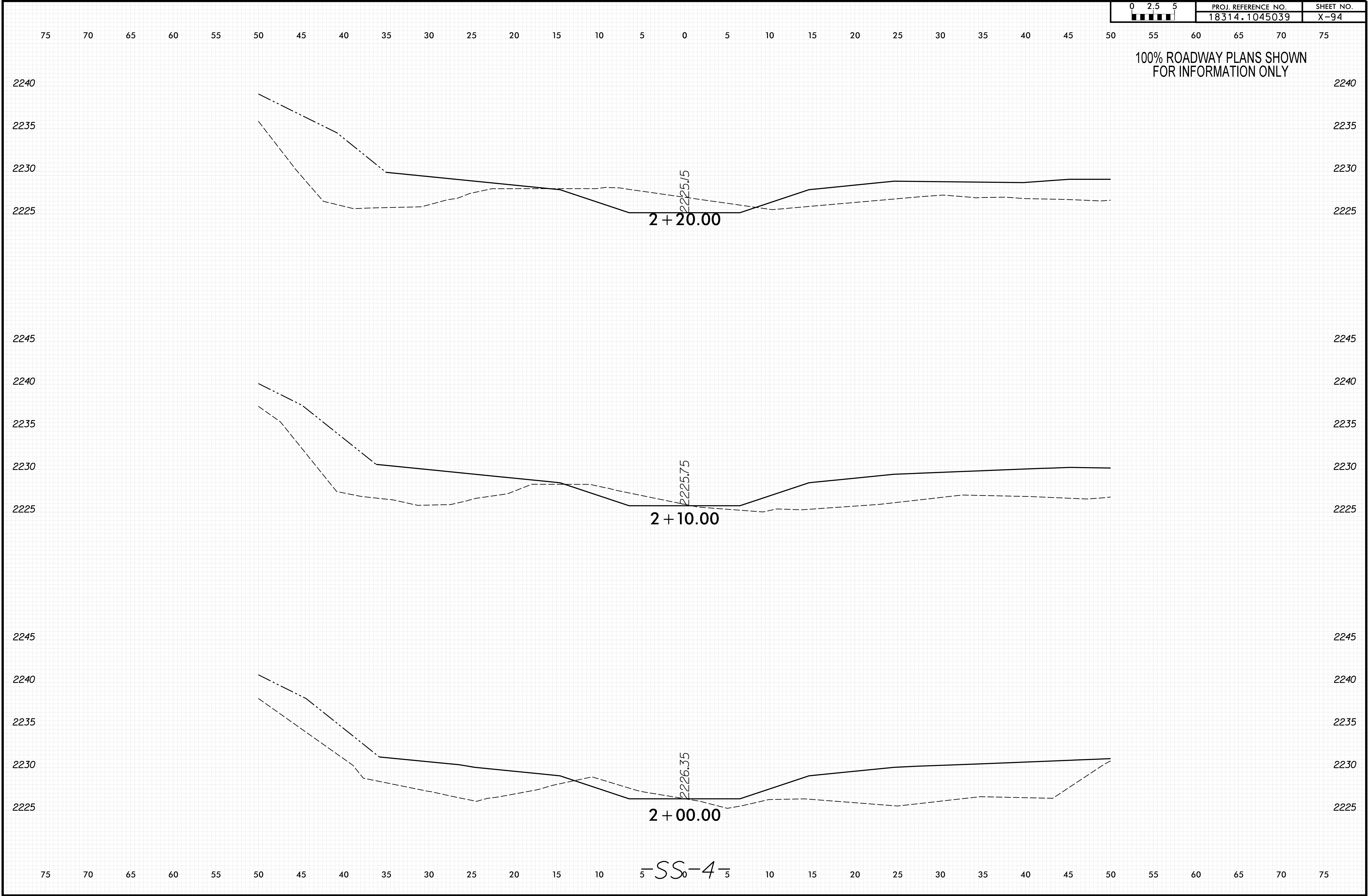
8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-92

100% ROADWAY PLANS SHOWN
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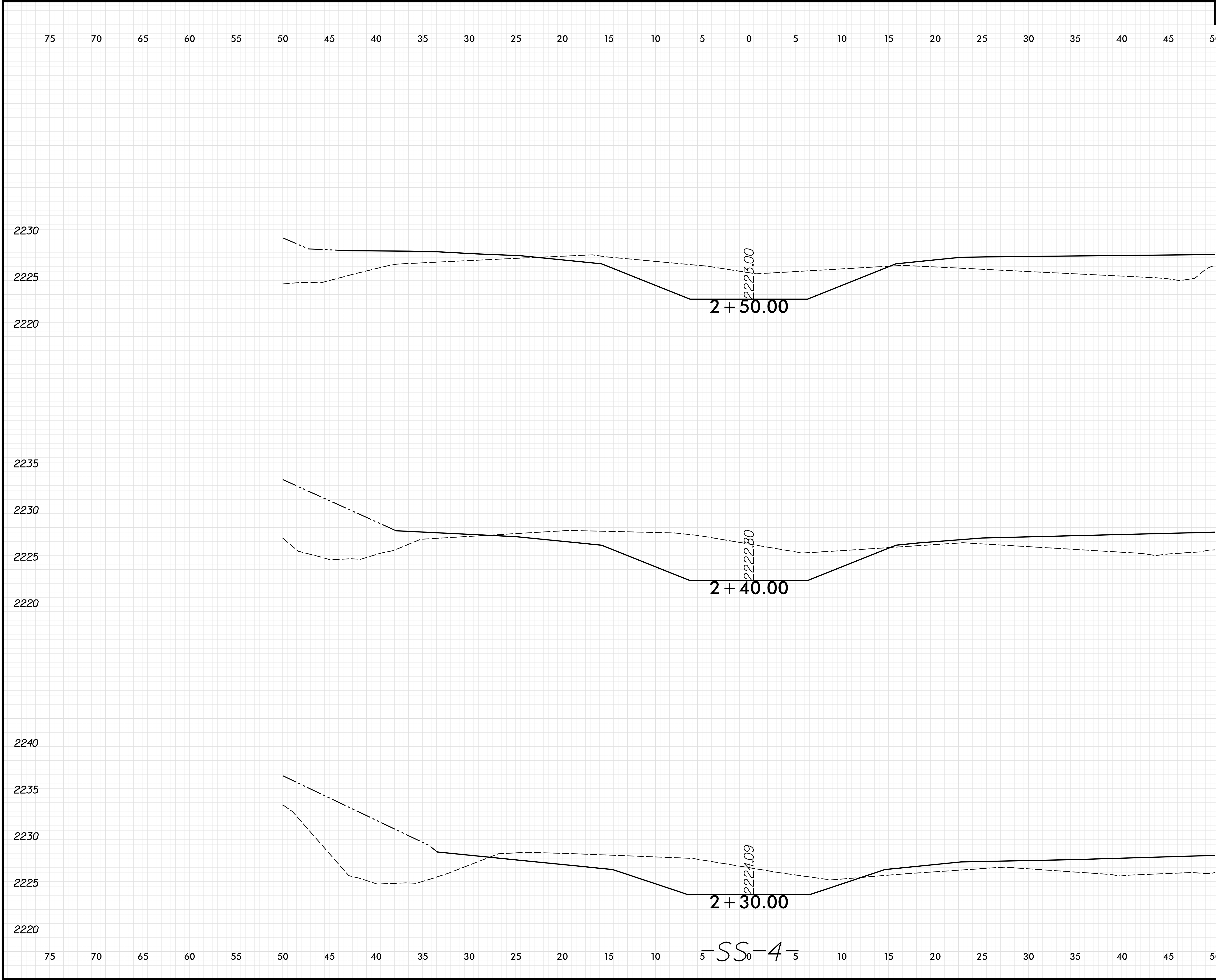


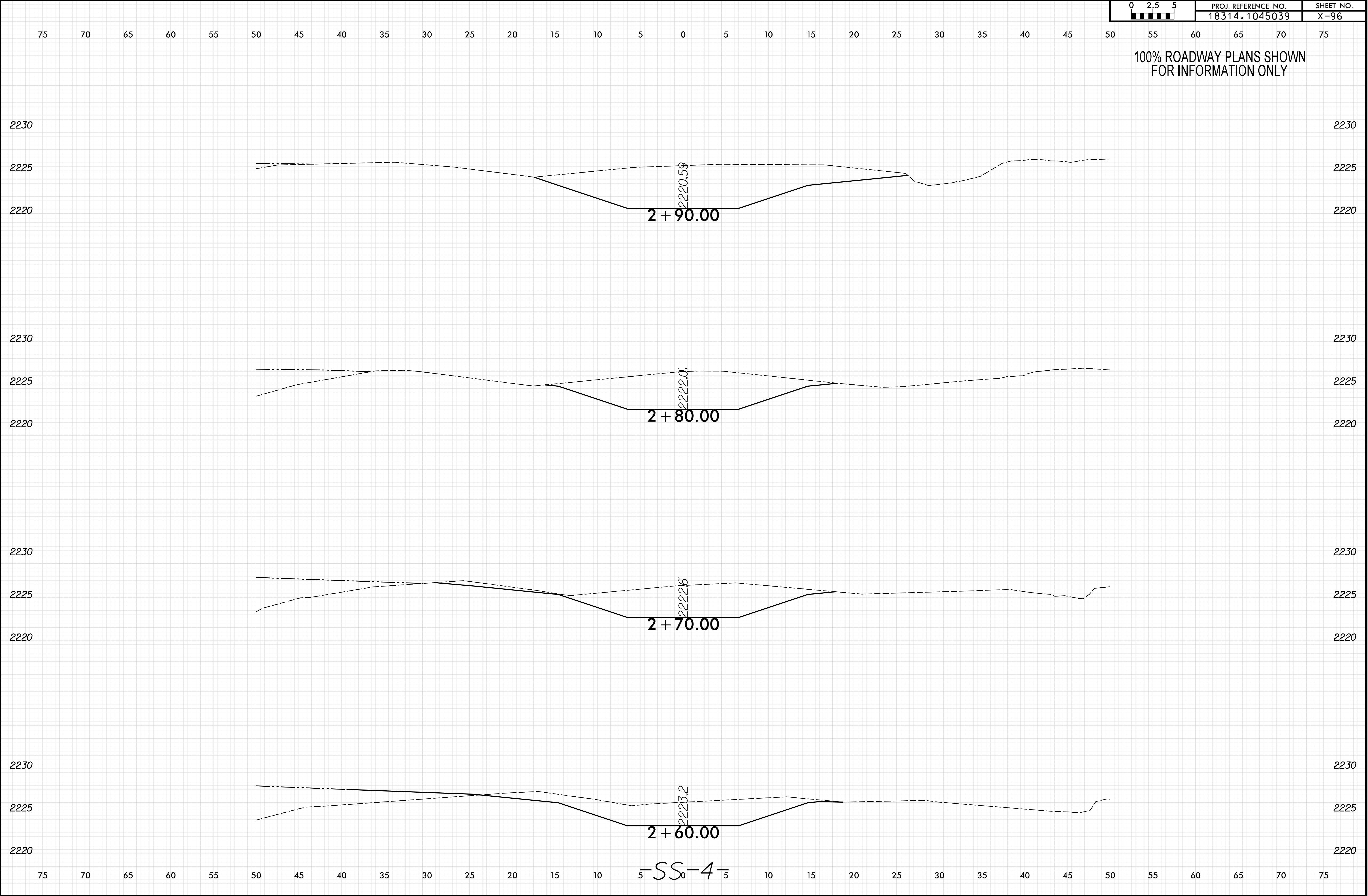


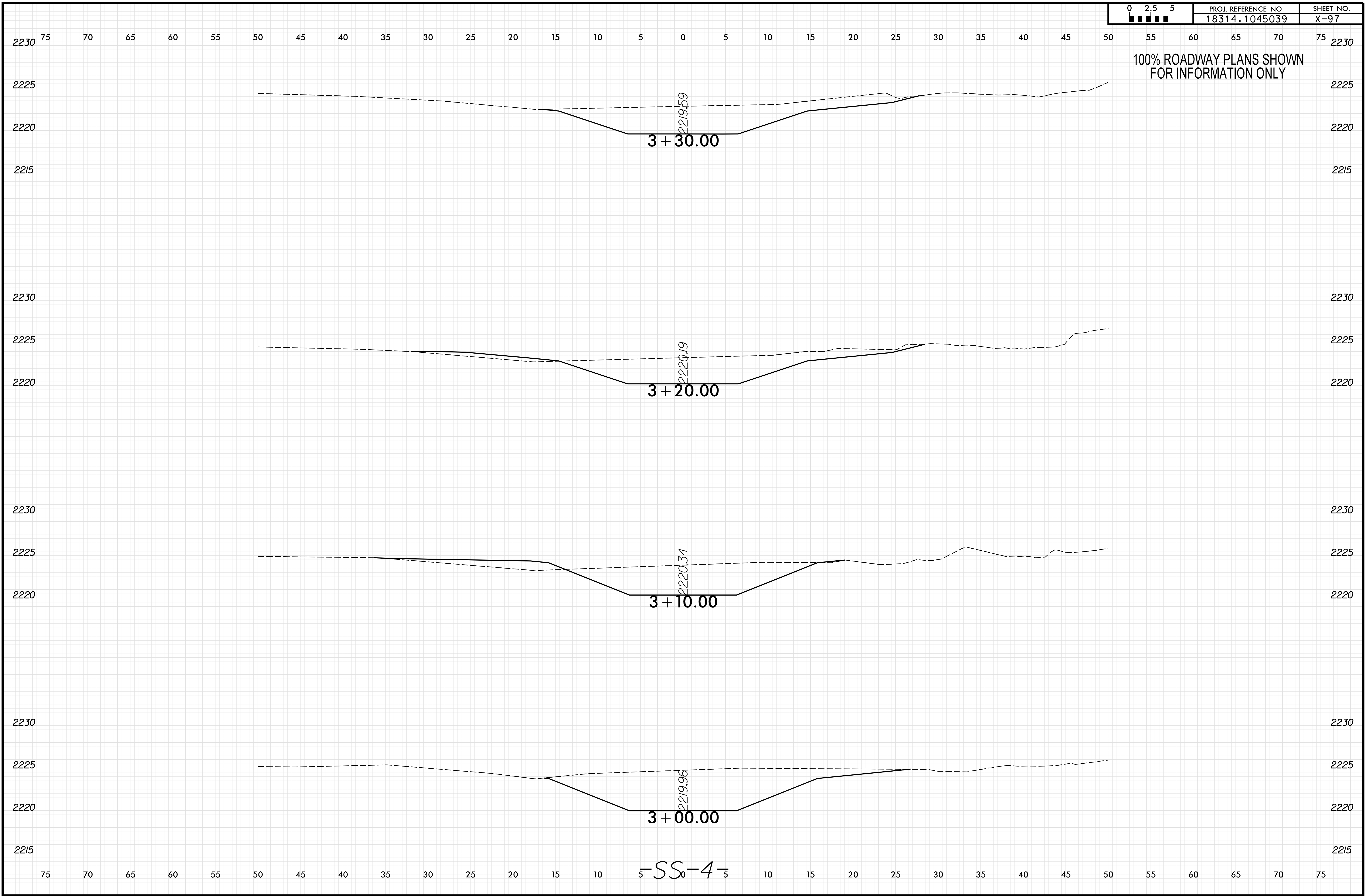
8/23/99

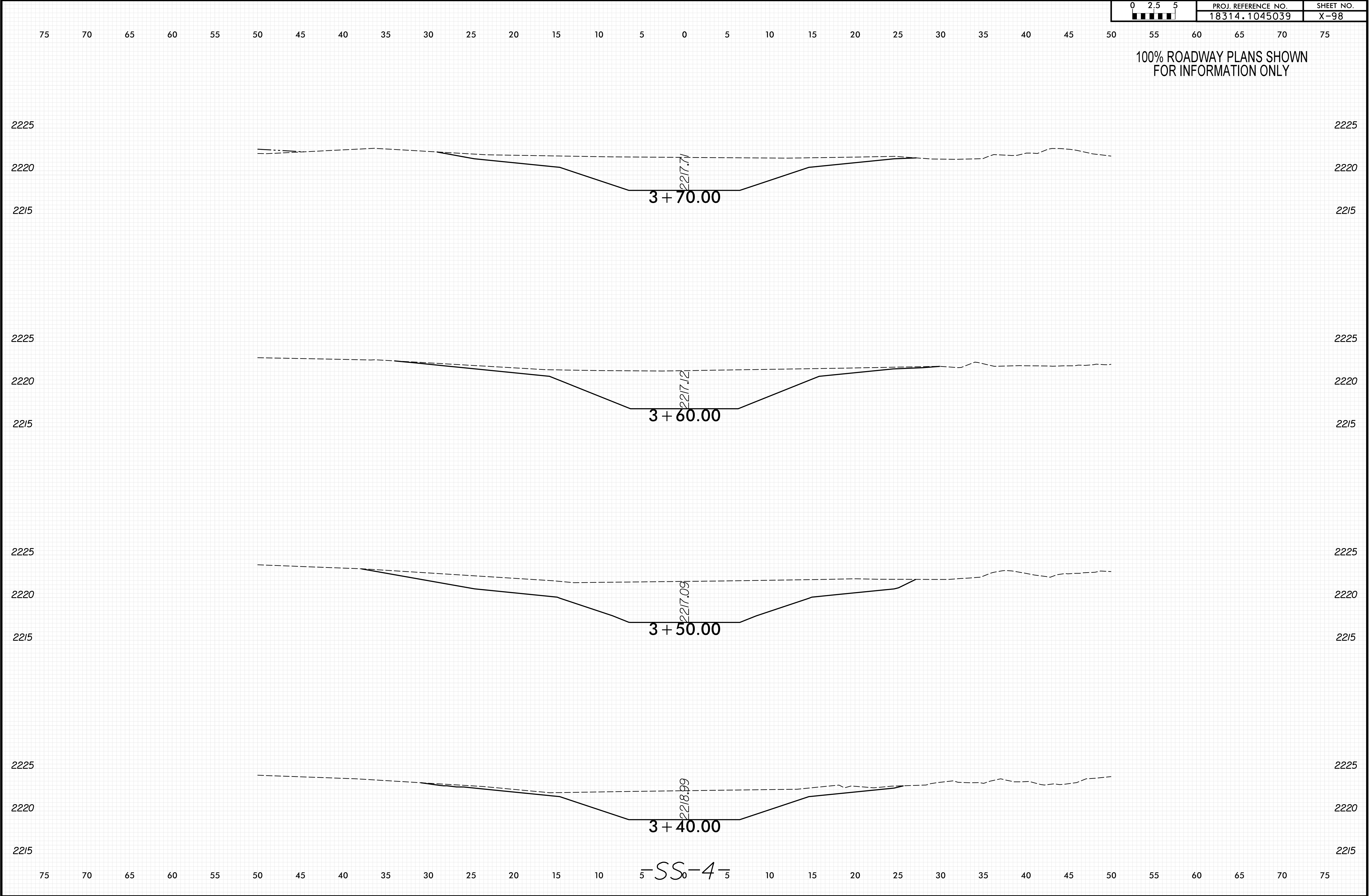
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-95

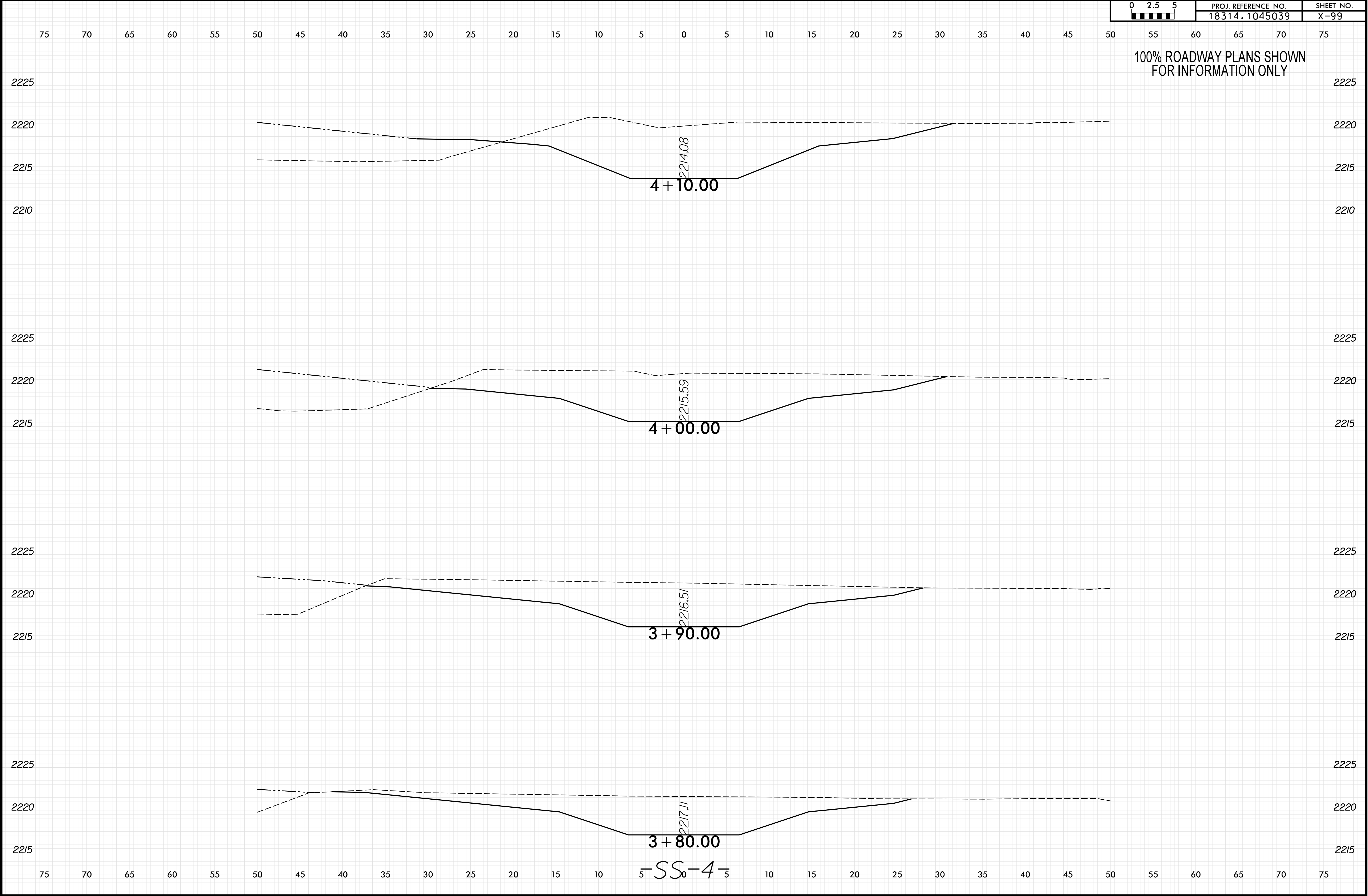
100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

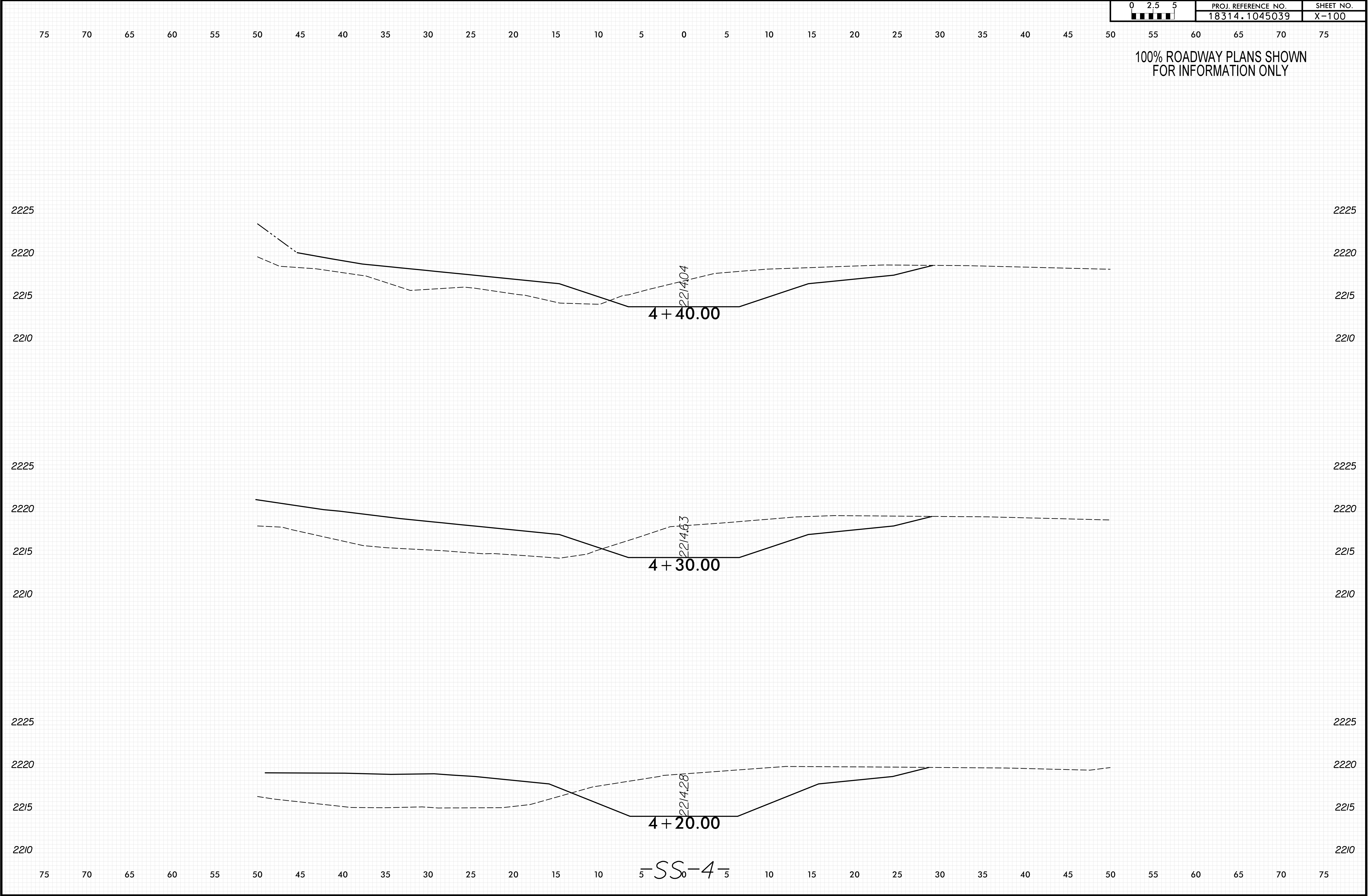


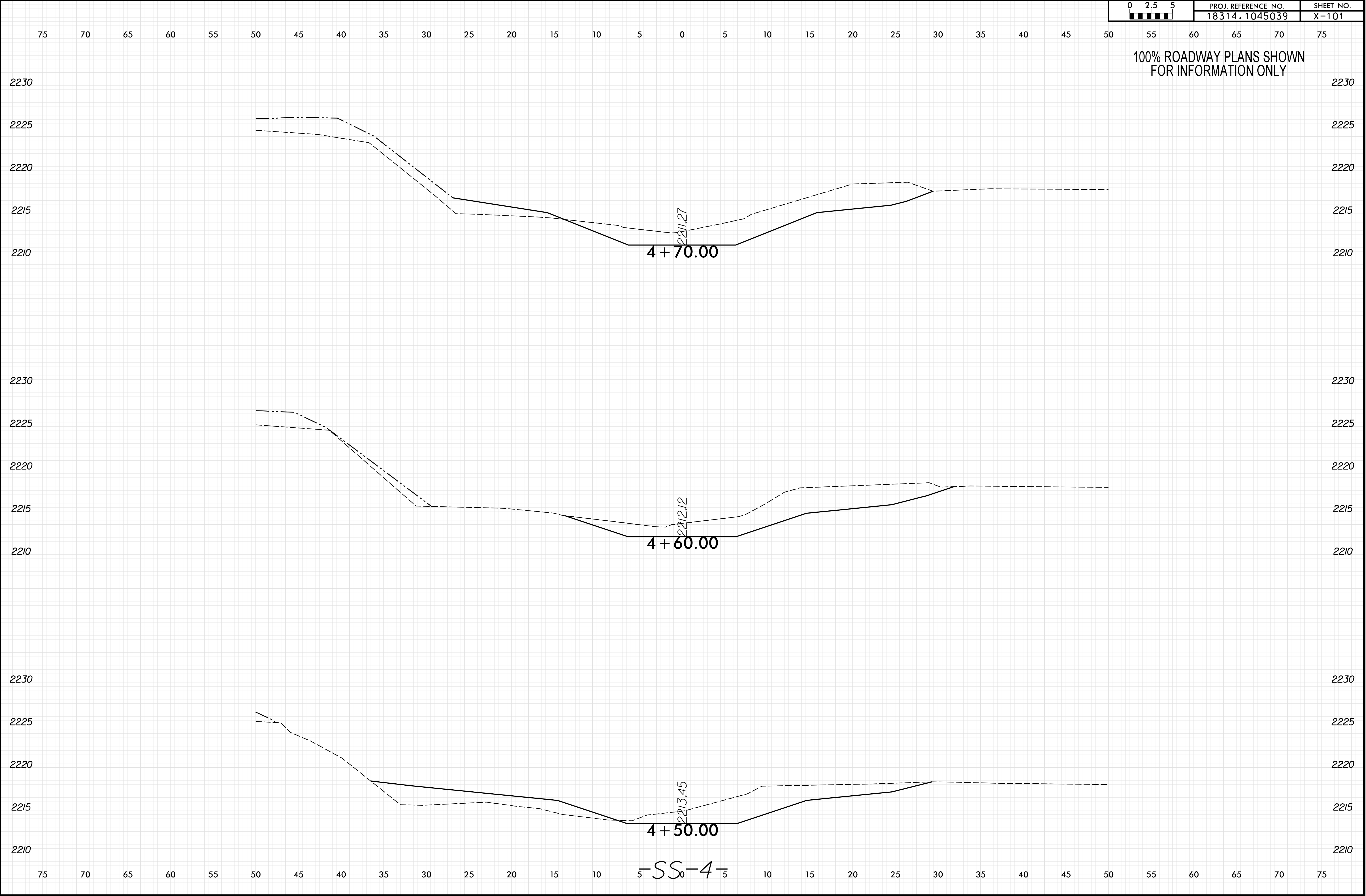




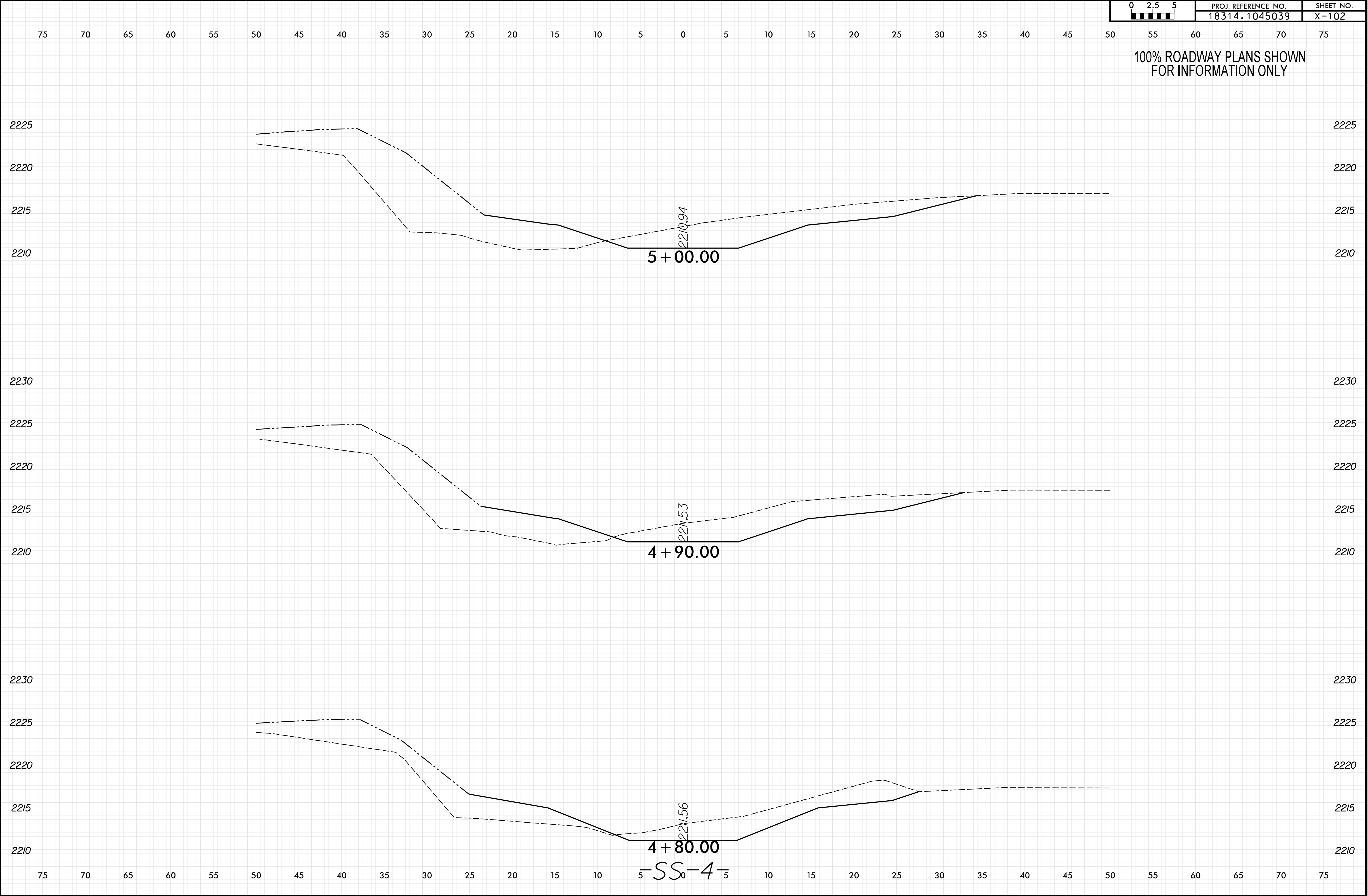


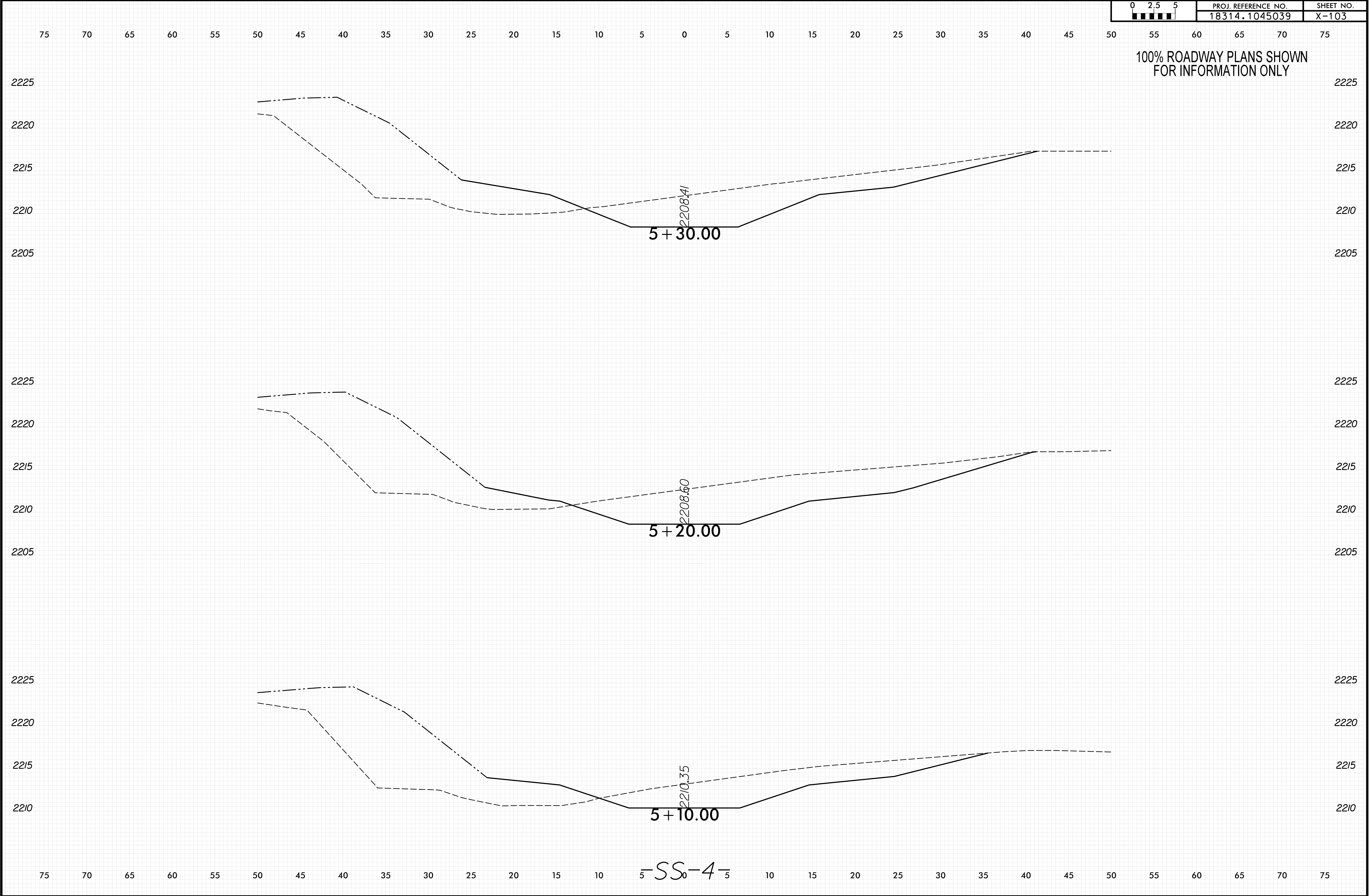


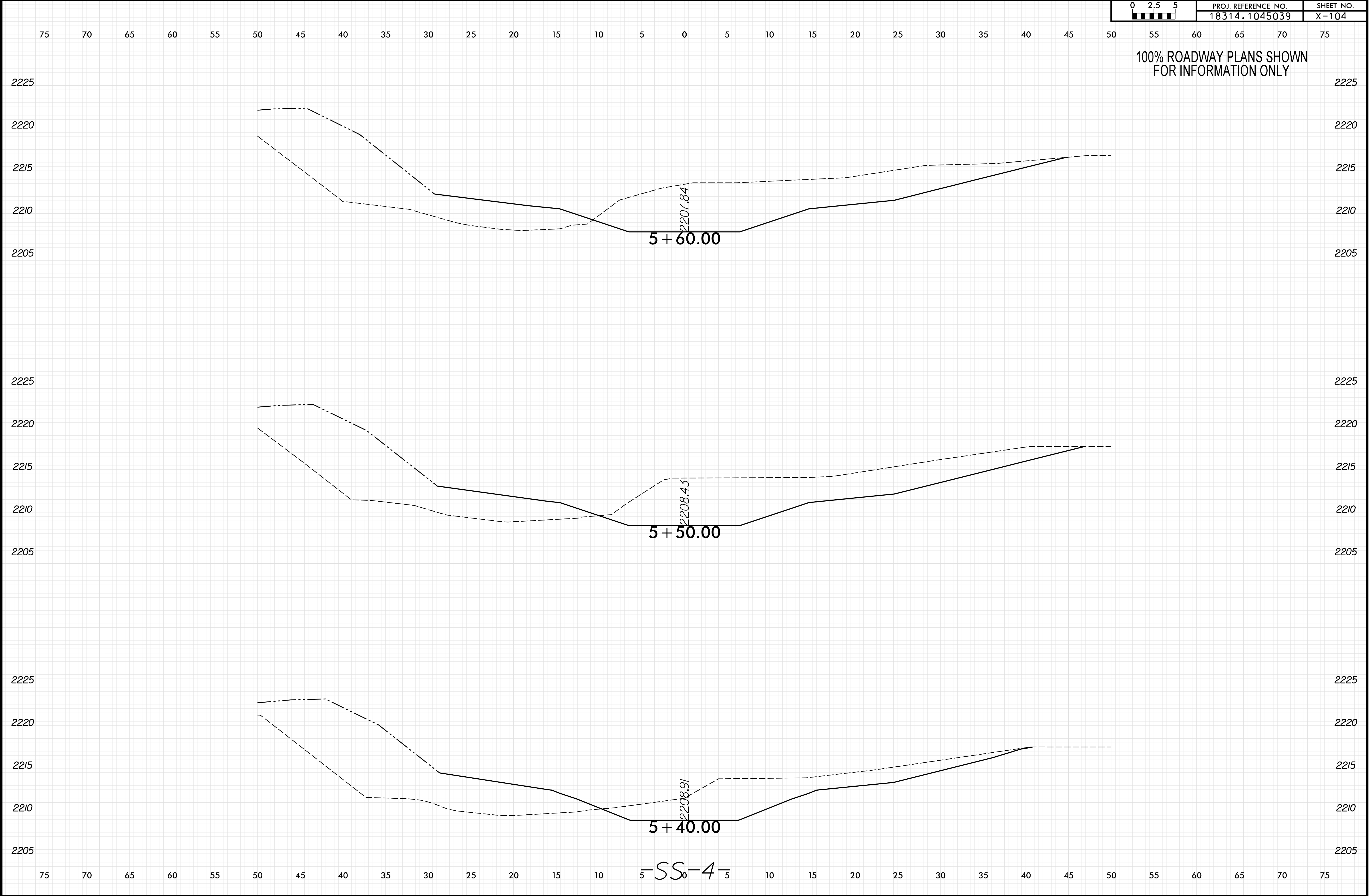




SS-4



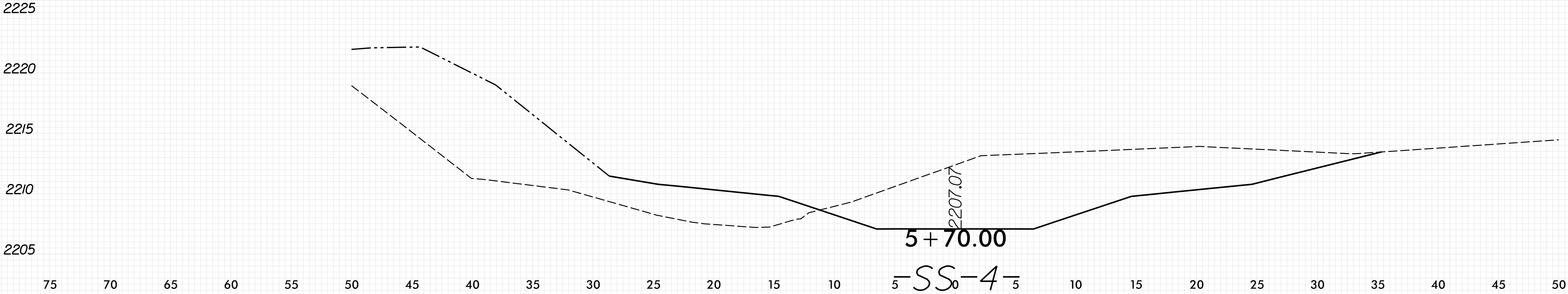
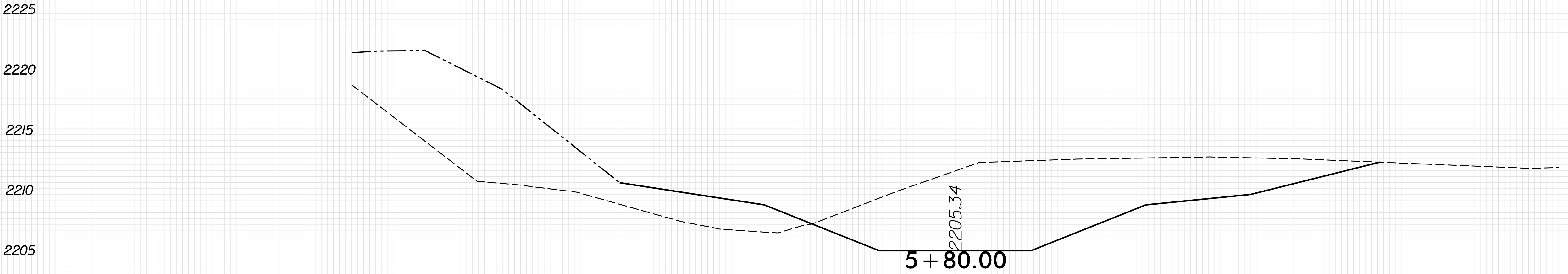
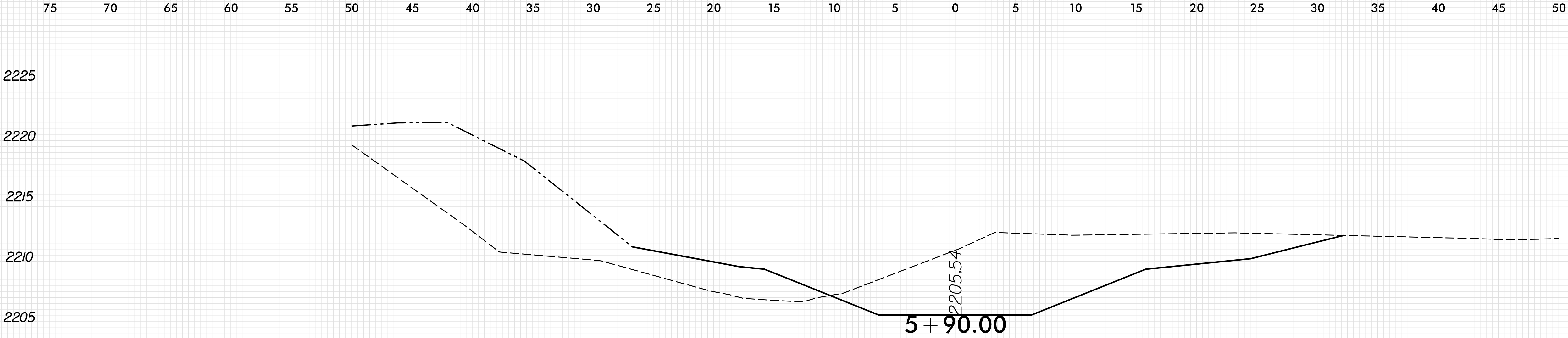


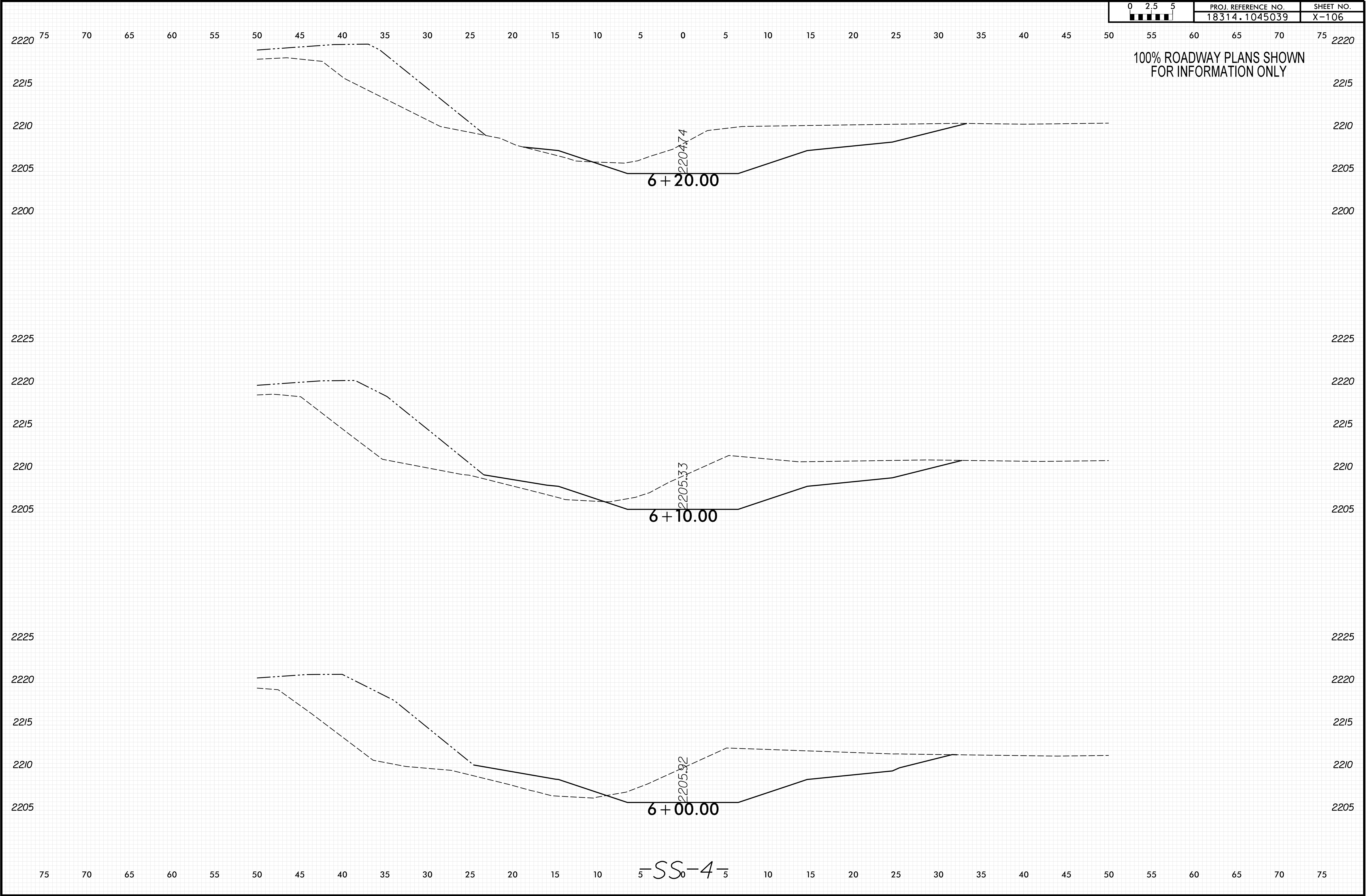


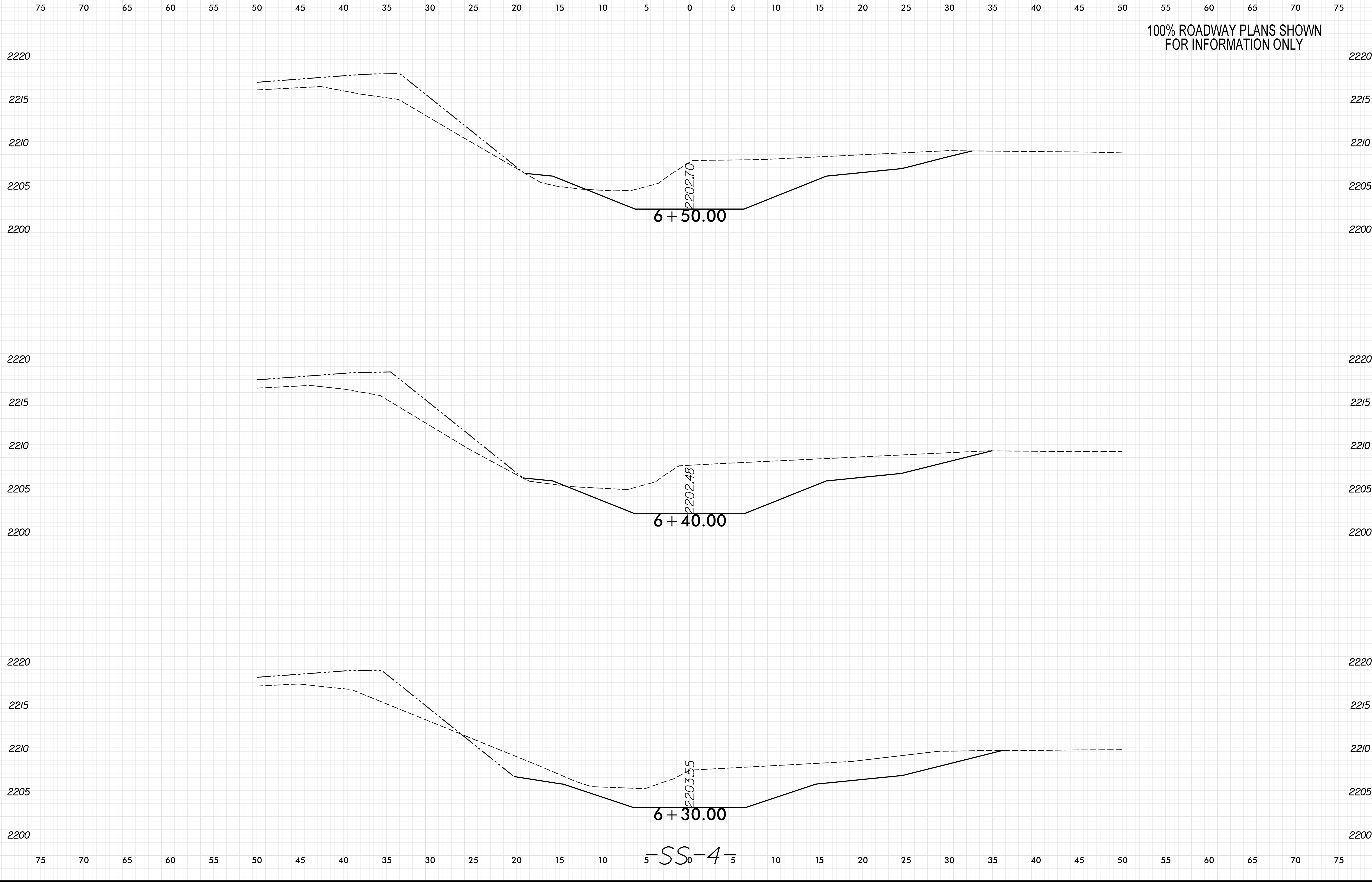
8/23/99

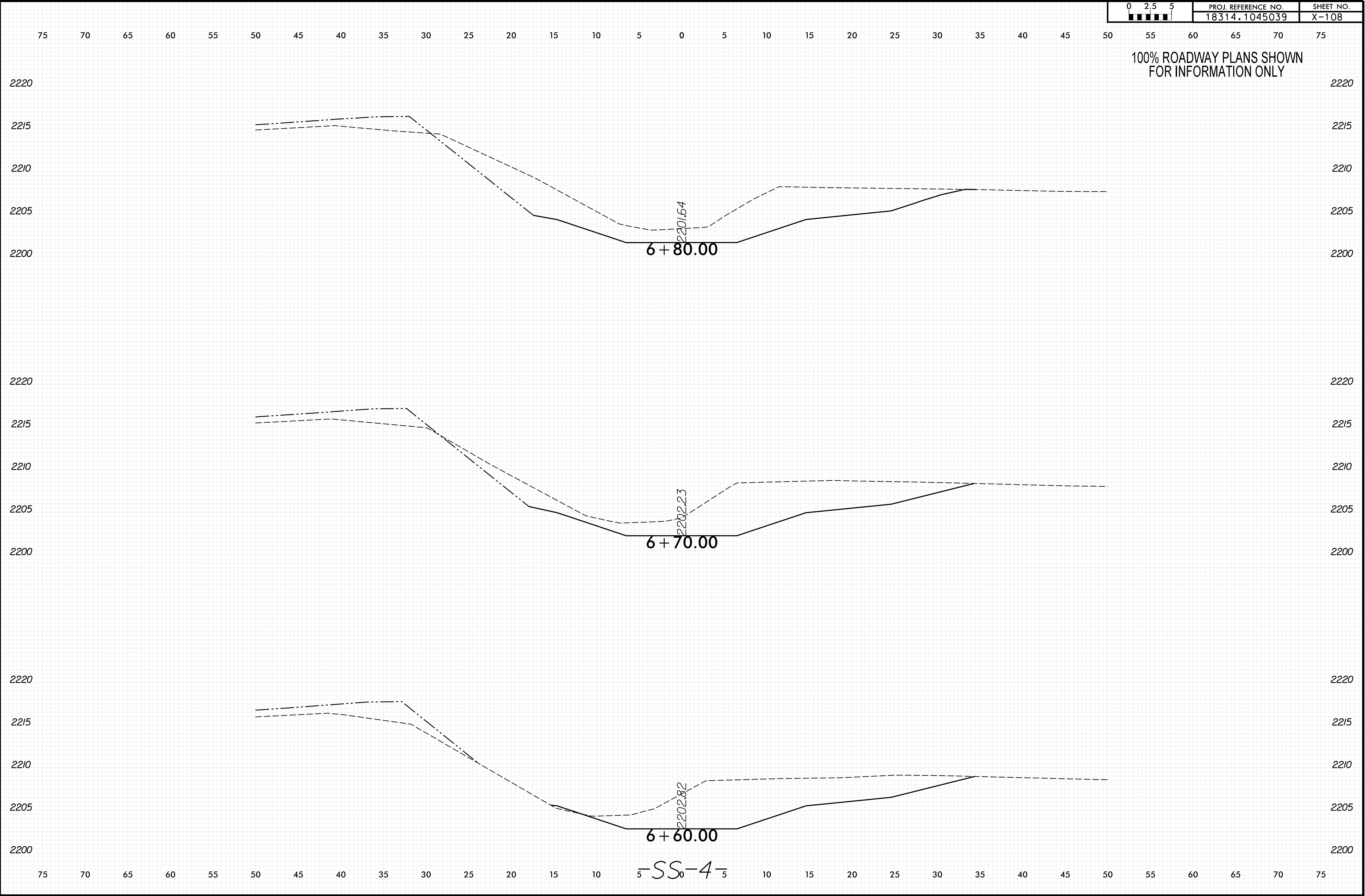
0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-105

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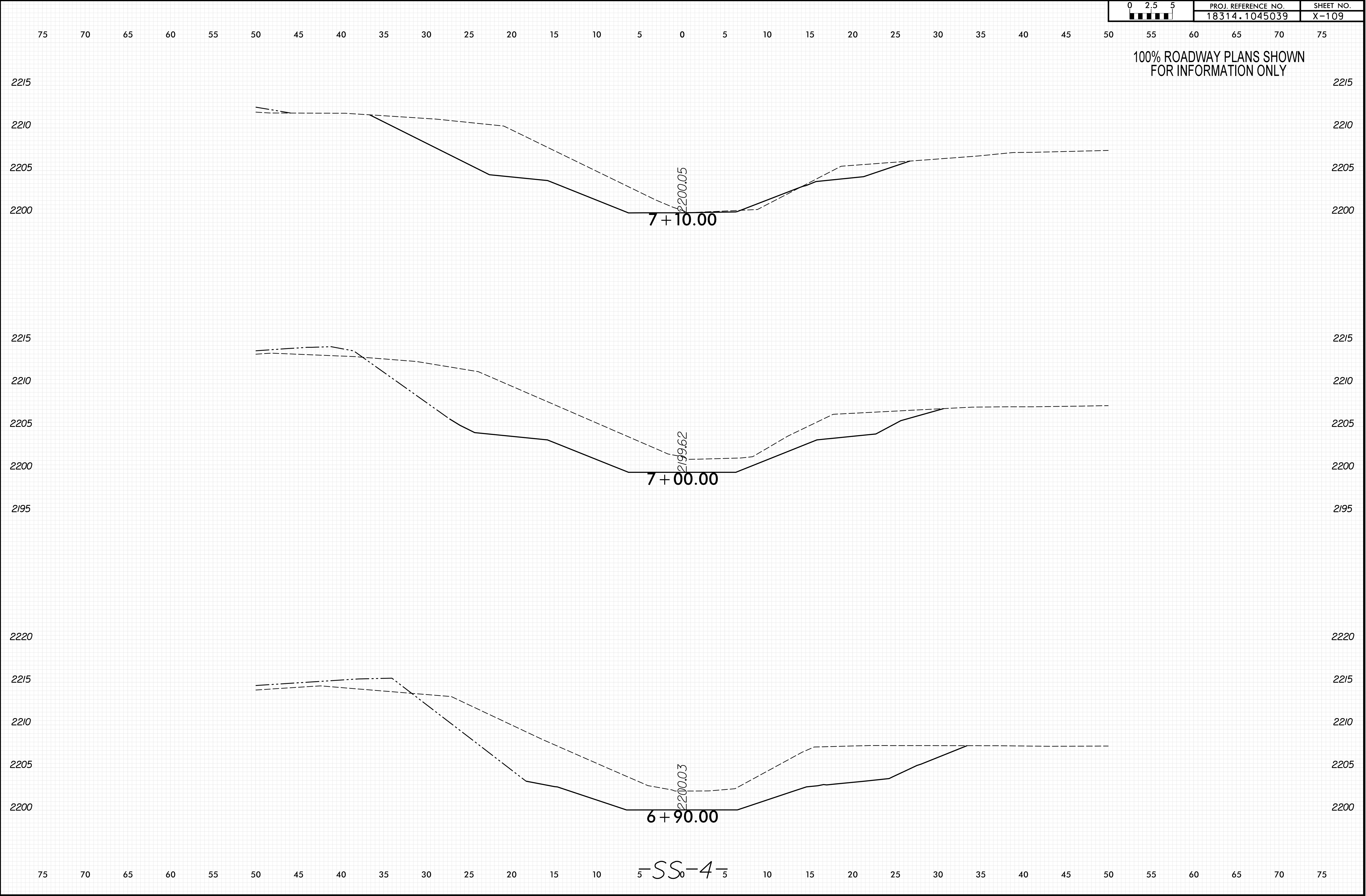








SS-4



8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	18314.1045039	X-110

100% ROADWAY PLANS SHOWN
FOR INFORMATION ONLY

