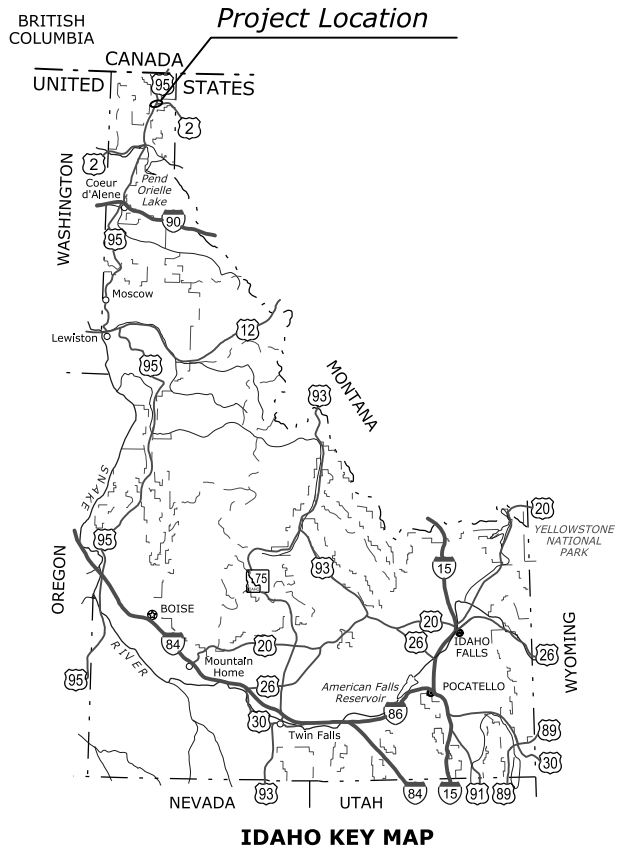


04/2020 J. PEDERSON Checked by: 04/2020 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ign\ld-a2158061\_RiversideId-a2158061\_aa.dgn [USC] 6 May 2020 3:08 PM



# U. S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION



## PLANS FOR PROPOSED PROJECT ID BOUNDARY 5806(1) **RIVERSIDE ROAD IMPROVEMENTS** BOUNDARY COUNTY IDAHO

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	A.1

SEE SHEET A.2 FOR INDEX TO SHEETS

### TYPE OF CONSTRUCTION:

Grading, base, drainage, walls, guardrail  
and asphalt paving

### DESIGN DESIGNATION:

	9+76.97 - 224+00	224+00 - 247+00
ADT (2015)	463	463
ADT (2035)	740	740
% Truck (2015)	5.3%	5.3%
% Truck (2035)	5.6%	5.6%
V	35 MPH	25 MPH
e (max)	6%	6%

### SPECIFICATION:

Standard Specifications for  
Construction of Roads and Bridges  
on Federal Highway Projects, FP-14

PLANS PREPARED BY



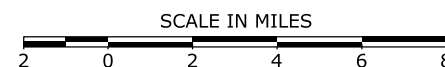
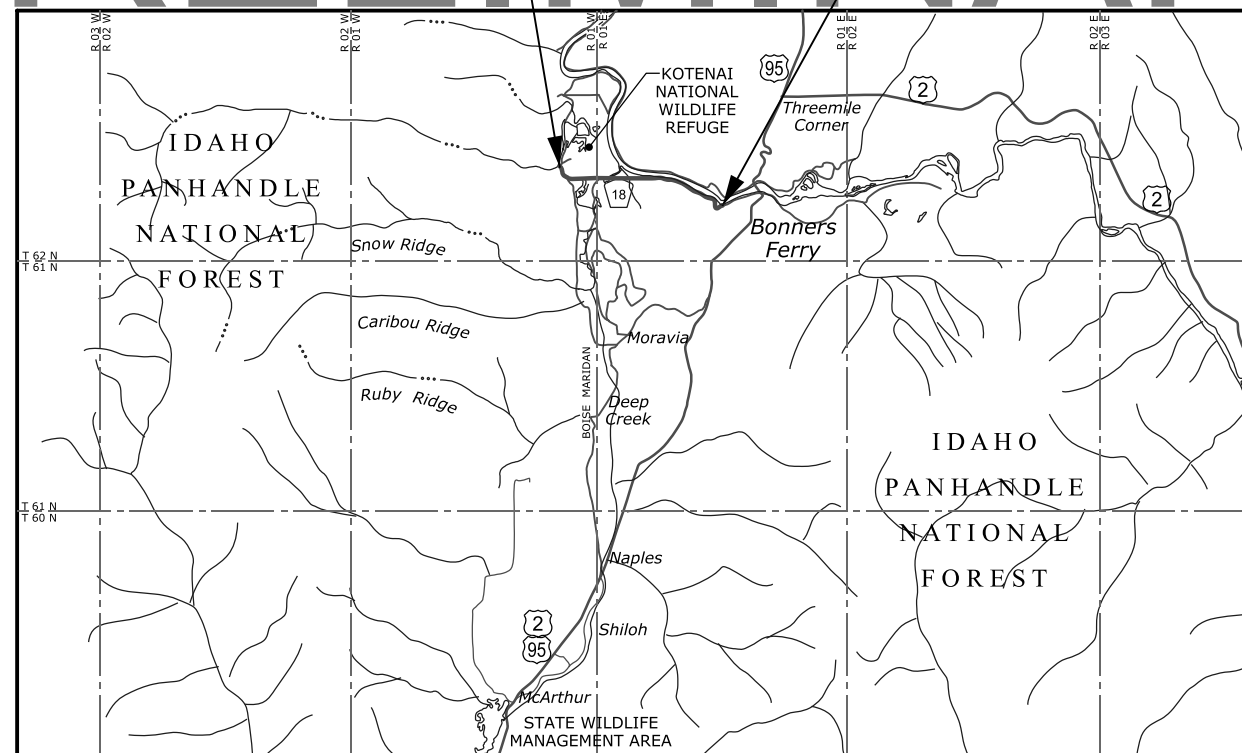
PLANS PREPARED FOR

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION**  
WESTERN FEDERAL LANDS HIGHWAY DIVISION  
VANCOUVER, WASHINGTON

LENGTH 4.493 MILES

**BEGIN PROJECT**  
9+76.97

**END PROJECT**  
247+00.00



**APPROVED:**

\_\_\_\_\_  
Chief of Engineering,  
Western Federal Lands Highway Division

\_\_\_\_\_  
DATE

PROJECT MANAGER  
B. STOKES

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	A.2

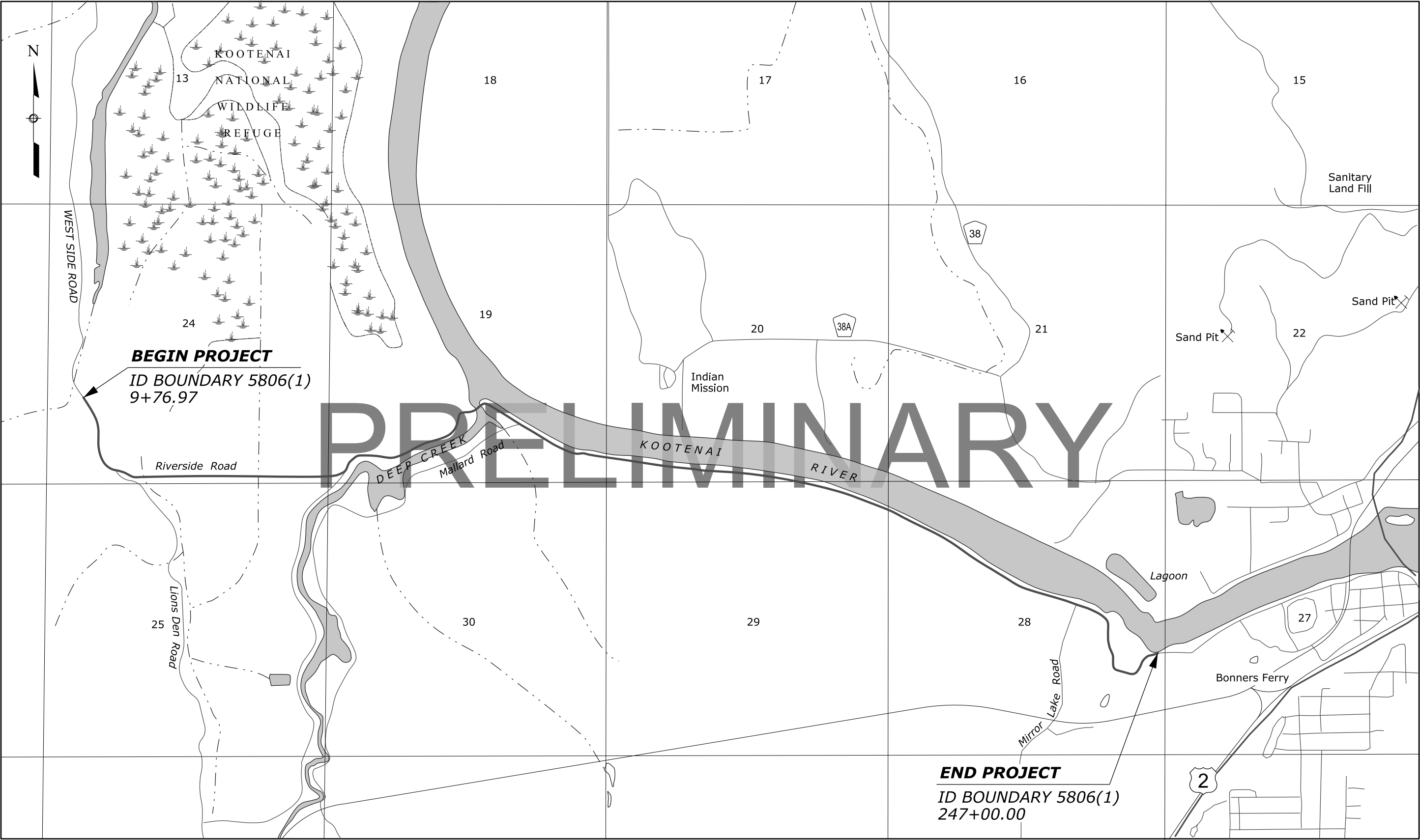
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A.4	VICINITY MAP
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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	A.4



08/2019 J. PEDERSON 08/2019 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_ba.dgn [Int. ft2D] 6 May 2020 11:14 AM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	C.1

TYPICAL SECTION QUANTITIES											
STATION	ITEM 20101-0000 CLEARING AND GRUBBING (ACRE)	ITEM 20303-1600 REMOVAL OF PAVEMENT, ASPHALT (SQYD)	ITEM 20315-0000 SAWCUTTING PAVEMENT (LNFT)	ITEM 20401-0000 ROADWAY EXCAVATION (CUYD)		ITEM 20402-0000 SUBEXCAVATION (CUYD)	ITEM 20410-0000 SELECT BORROW (CUYD)	ITEM 20466-0000 CONSERVE AND STOCKPILE TOPSOIL (CUYD)	ITEM 20701-0100 SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE A (NON-WOVEN) (SQYD)	ITEM 20701-0200 SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE B (WOVEN) (SQYD)	ITEM 20701-0300 SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE C (WOVEN) (SQYD)
				CUT	1/ FILL						
9+76.97 TO 31+50	3.8	5,495	195	3,000	11,360			1,345	9,190		
31+50 TO 53+00	2.8	5,435		80	690	5,800	4,150	810			6,100
53+00 TO 83+00	6.2	5,025		800	13,025	10,590	11,440	2,045			21,815
83+00 TO 93+00	0.7	2,360		1,200	80	1,705	2,085	335			1,150
93+00 TO 95+85	1.2	1,190		780	1,645			290	1,380		
95+85 TO 102+00	0.3	670		205	600			80	1,960		
102+00 TO 225+00	15.9	30,460	65	76,100	1,020		11,745	3,550		54,470	
225+00 TO 236+50	1.8	2,740		1,200	550			405	4,820		
236+50 TO 247+00	1.8	2,550	22	1,180	3,905			120	4,120		
TOTAL	34.5	55,925	282	84,545	32,875	18,095	29,420	8,980	21,470	54,470	29,065

TYPICAL SECTION QUANTITIES										
STATION	ITEM 20703-2000 GEOGRID, STABILIZATION (SQYD)	ITEM 21101-1000 ROADWAY OBLITERATION, METHOD 1 (SQYD)	ITEM 30101-2000 AGGREGATE BASE, GRADING D (TON) [1.97 TONS/CUYD]	ITEM 40101-5600 ASPHALT CONCRETE PAVEMENT, GYRATORY MIX, 1/2-INCH OR 3/4- INCH NOMINAL MAXIMUM SIZE AGGREGATE, 0.3 TO <3 MILLION ESAL (TYPE III PAVEMENT ROUGHNESS) (TON) [1.94 TONS/CUYD]	ITEM 40105-3000 ANTISTRIP ADDITIVE, TYPE 3 (TON) [1% BY WEIGHT OF ITEM 40101-5600]	ITEM 41201-0000 TACK COAT (TON) [0.10 GAL/SY PER APPLICATION, 240 GAL/TON]	ITEM 41301-0000 ASPHALT PAVEMENT MILLING (SQYD)	ITEM 55901-0000 MEMBRANE WATERPROOFING, TYPE II (SQYD)	ITEM 62401-0400 FURNISHING AND PLACING TOPSOIL, 6-INCH DEPTH (SQYD)	ITEM 62407-0000 PLACING CONSERVED TOPSOIL, 6-INCH DEPTH (CUYD)
9+76.97 TO 31+50			5,345	1,783	18	4			900	1,345
31+50 TO 53+00	10,305		4,708	1,570	16	3				810
53+00 TO 83+00		4,975	7,549	2,516	25	5				1,750
83+00 TO 93+00			2,411	804	8	2				300
93+00 TO 95+85			670	217	2	1			420	290
97+75 TO 102+00			1,497	502	5	1	517	640	570	80
102+00 TO 225+00			29,692	9,897	99	19				2,935
225+00 TO 236+50			2,699	894	9	2			700	405
236+50 TO 247+00			2,380	794	8	2			1,500	120
TOTAL	10,305	4,975	56,951	18,977	190	39	517	640	4,090	8,035

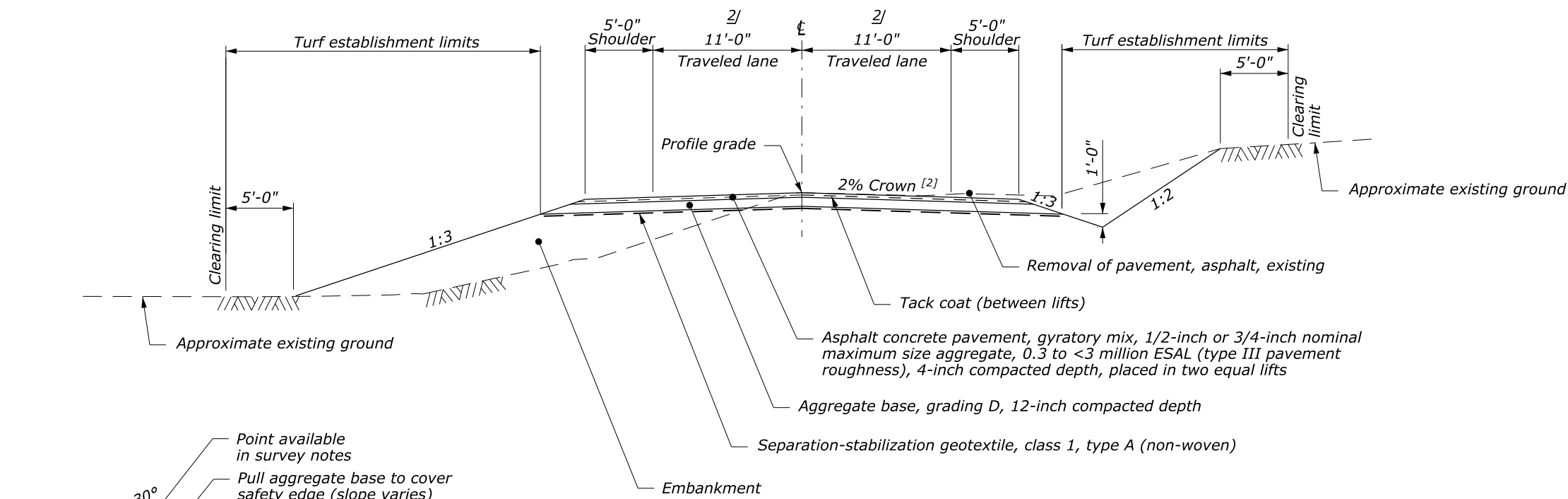
FOOTNOTE:

1/ ROADWAY EXCAVATION FILL QUANTITIES ARE FOR INFORMATION ONLY

TABULATION OF TYPICAL SECTION QUANTITIES

08/2019 J. PEDERSON  
08/2019 B. McCRA Y  
Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_ca.dgn [US\_Sur\_R2D]  
23 April 2020 10:19 AM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	C.2



**SAFETY EDGE DETAIL**

**FILL SLOPE ROUNDING DETAIL 1/**

**CUT SLOPE ROUNDING DETAIL 1/**

**FOOTNOTE:**

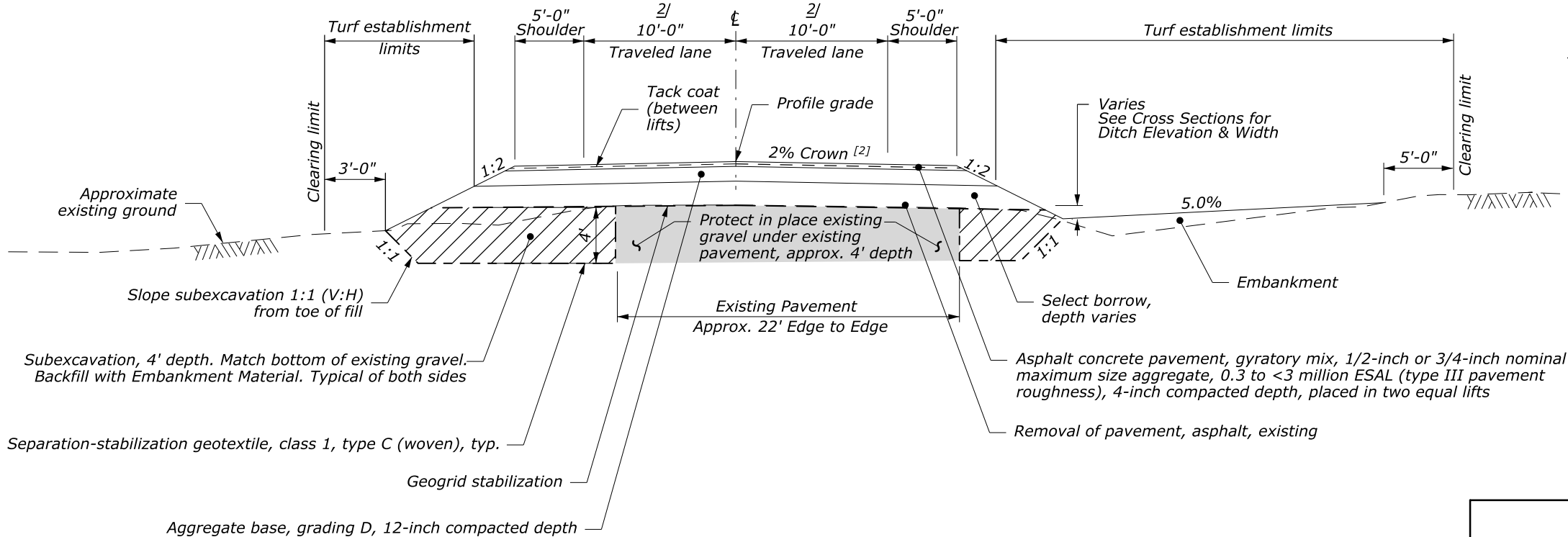
- 1/ For heights less than "D", reduce "D" to the cut or fill height dimension and reduce the front slope rounding distance proportionally.
- 2/ See Curve Widening Table on sheet C.7 for inner Traveled Lane width in curve widening sections.

**NOTES:**

1. Superelevate roadway on curves at the rate 'e' as indicated on the plan and profile curve data.
2. Construct slopes as shown in the Staking Report.
3. Mirror slope geometries left or right to fit cut or fill field conditions as appropriate.

**PRELIMINARY**

**WEST SIDE/RIVERSIDE ROAD SECTION A**  
9+76.97 to 29+50 (Trans to typical Section B)  
93+00 to 95+85



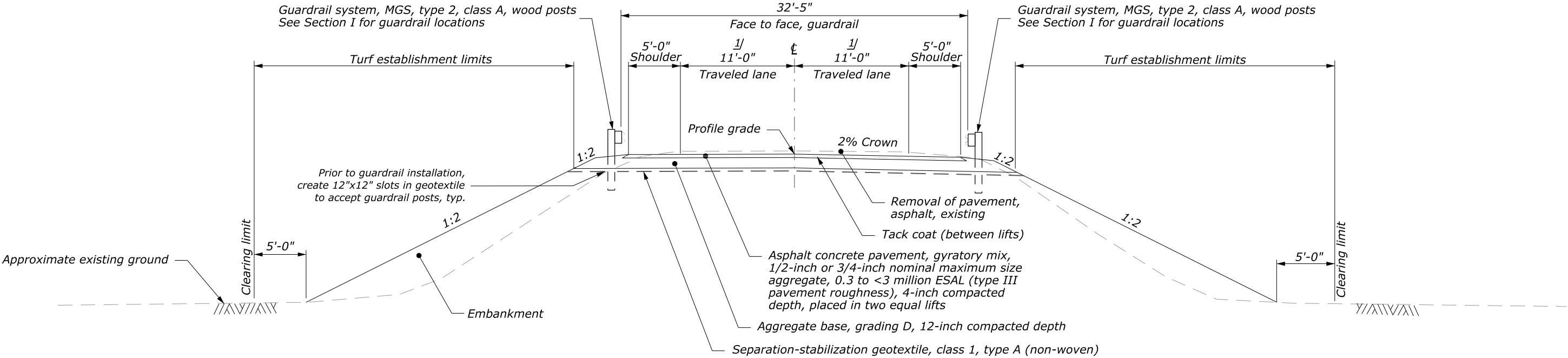
**RIVERSIDE ROAD SECTION B**  
30+50 to 52+50 (Trans to typical Section C)

**TYPICAL SECTIONS**

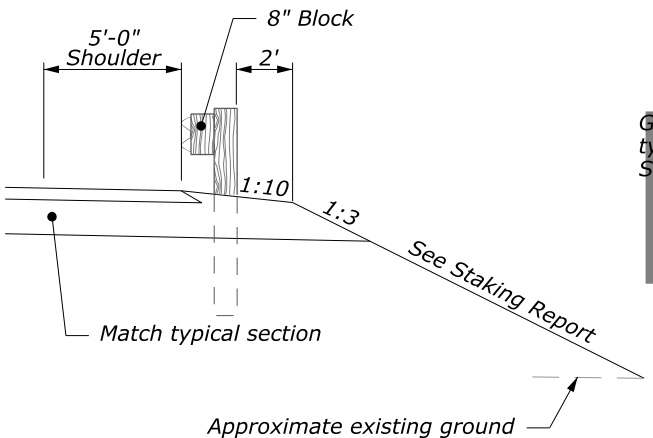


08/2019 J. PEDERSON Checked by: 08/2019 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_cg.dgn [US\_Sur\_r2D] 15 April 2020 4:37 PM

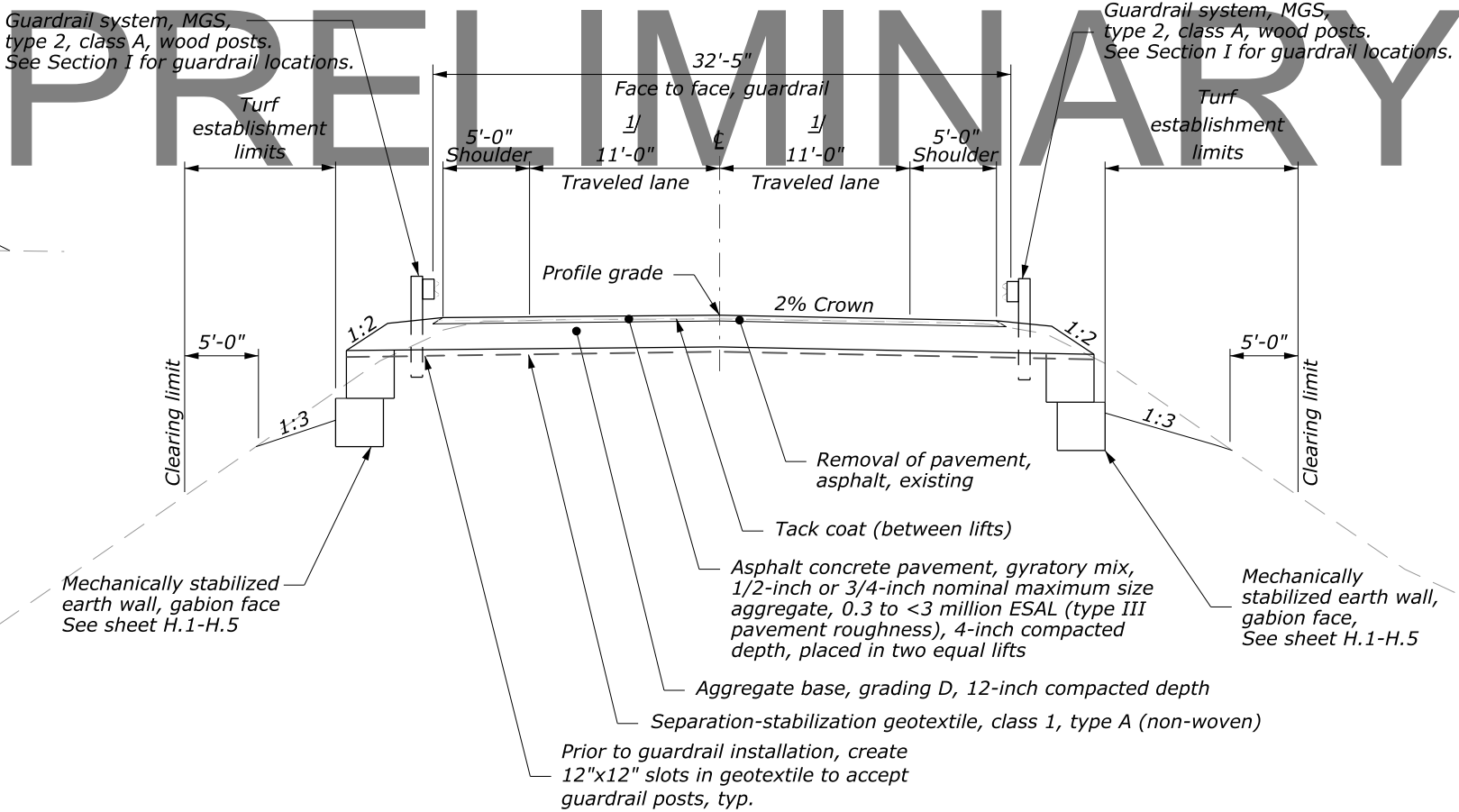
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	C.4



**RIVERSIDE ROAD SECTION E**  
93+00 to 95+85



**GUARDRAIL DETAIL**



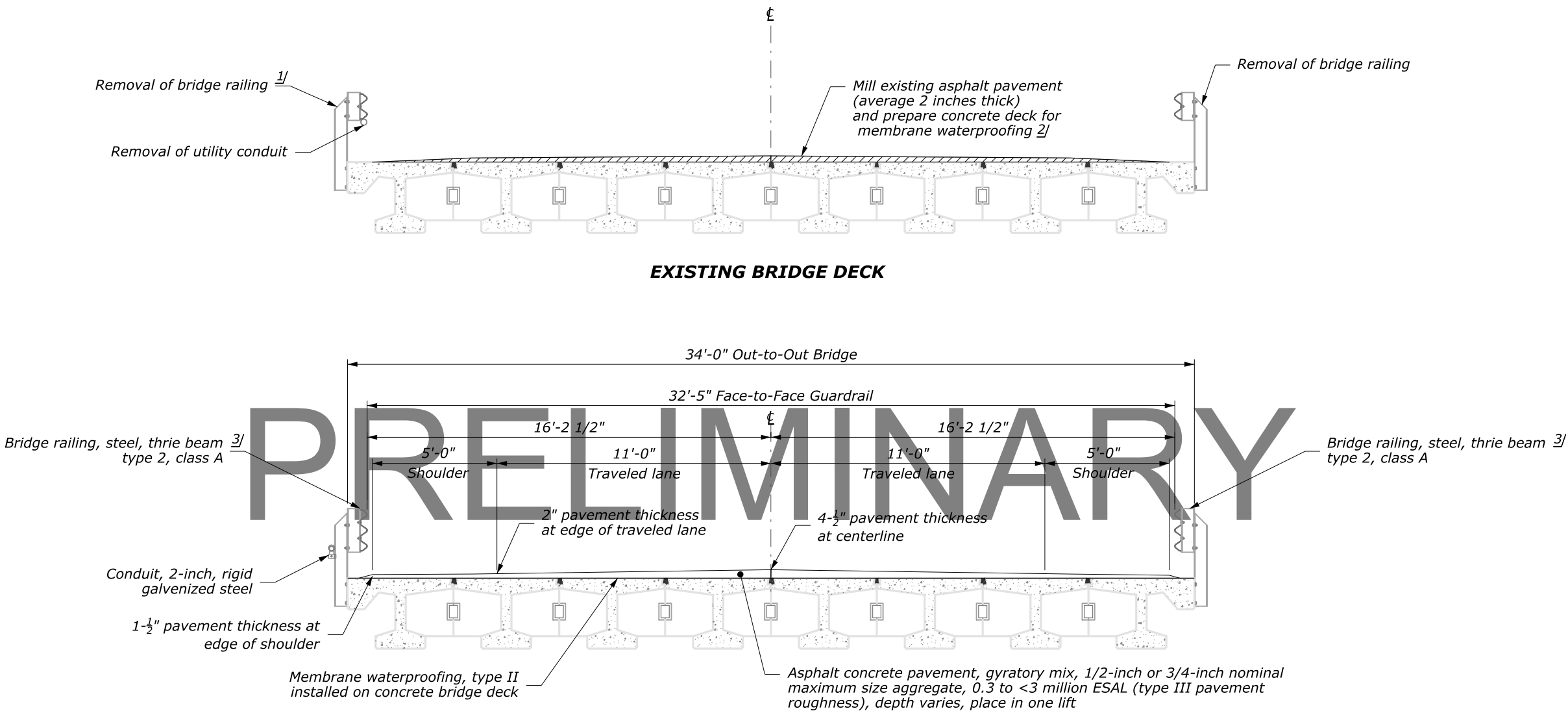
**RIVERSIDE ROAD SECTION F**  
95+85 to 102+00\*  
(\* See typical Section G, 98+92 to 100+71)

- NOTES:**
1. Superelevate roadway on curves at the rate 'e' as indicated on the plan and profile curve data.
  2. Construct slopes as shown in the Staking Report.
  3. Mirror slope geometries left or right to fit cut or fill field conditions as appropriate.

**FOOTNOTE:**  
1/ See Curve Widening Table on sheet C.7 for inner Traveled Lane width in curve widening sections.

**TYPICAL SECTIONS**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	C.5



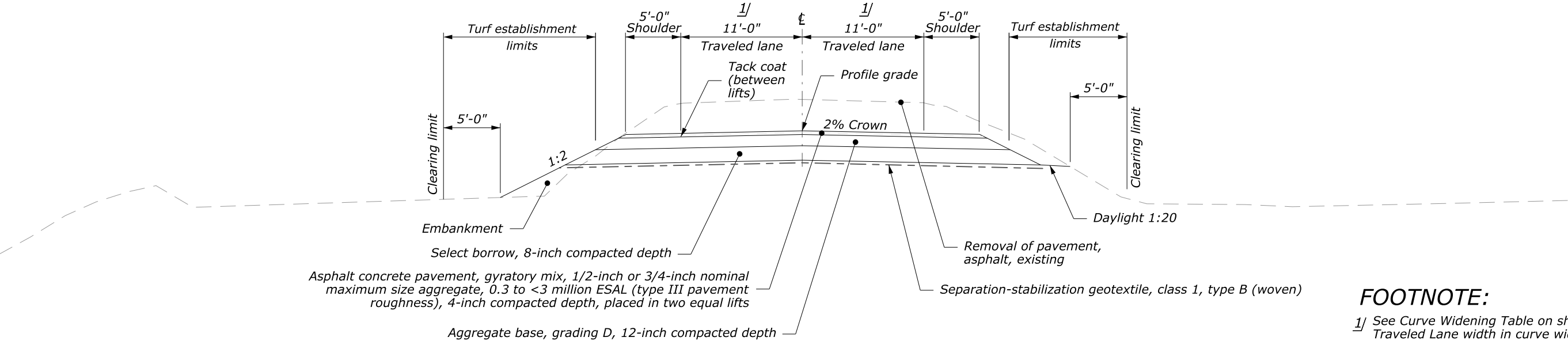
**FOOTNOTE:**

- 1/ Removal of bridge railing. Maintain existing side-mounted bridge rail posts.
- 2/ Mill and remove existing asphalt overlay (asphalt pavement milling, Item 41301-0000) prior to applying new overlay. Take care not to penetrate into existing concrete during milling.
- 3/ Verify all dimensions in the field prior to ordering railing or guardrail.

**TYPICAL SECTIONS**

08/2019 J. PEDERSON Checked by: 08/2019 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_ch.dgn [US\_Sur\_R2D] 5 December 2019 8:54 AM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	C.6



**RIVERSIDE ROAD SECTION H**  
102+00 to 225+00

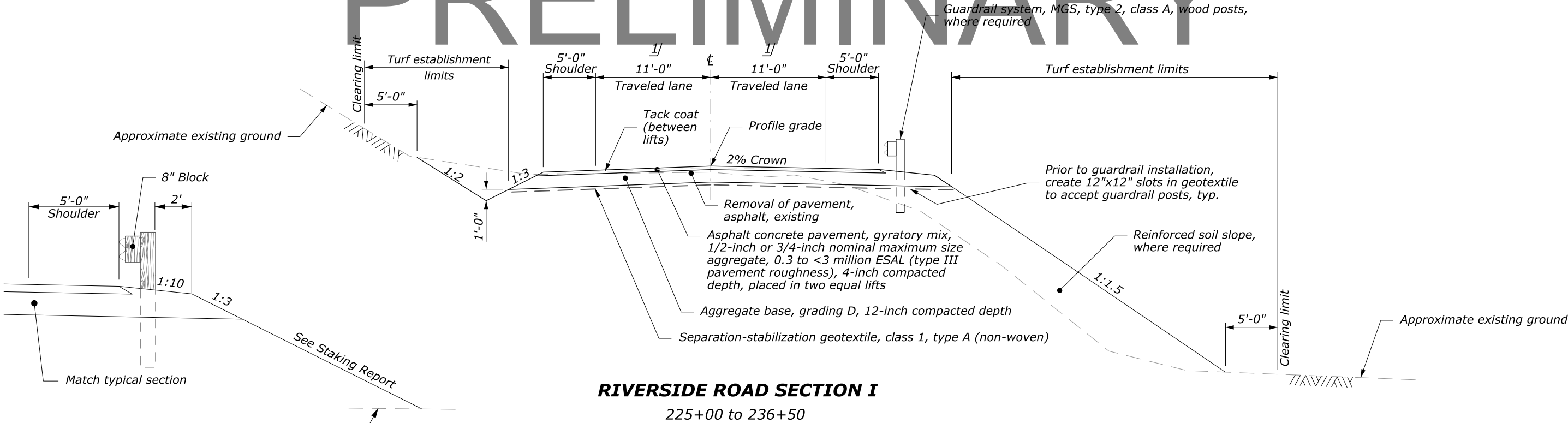
PRELIMINARY

**FOOTNOTE:**

1/ See Curve Widening Table on sheet C.7 for inner Traveled Lane width in curve widening sections.

**NOTES:**

1. Superelevate roadway on curves at the rate 'e' as indicated on the plan and profile curve data.
2. Construct slopes as shown in the Staking Report.
3. Mirror slope geometries left or right to fit cut or fill field conditions as appropriate. Section H only.

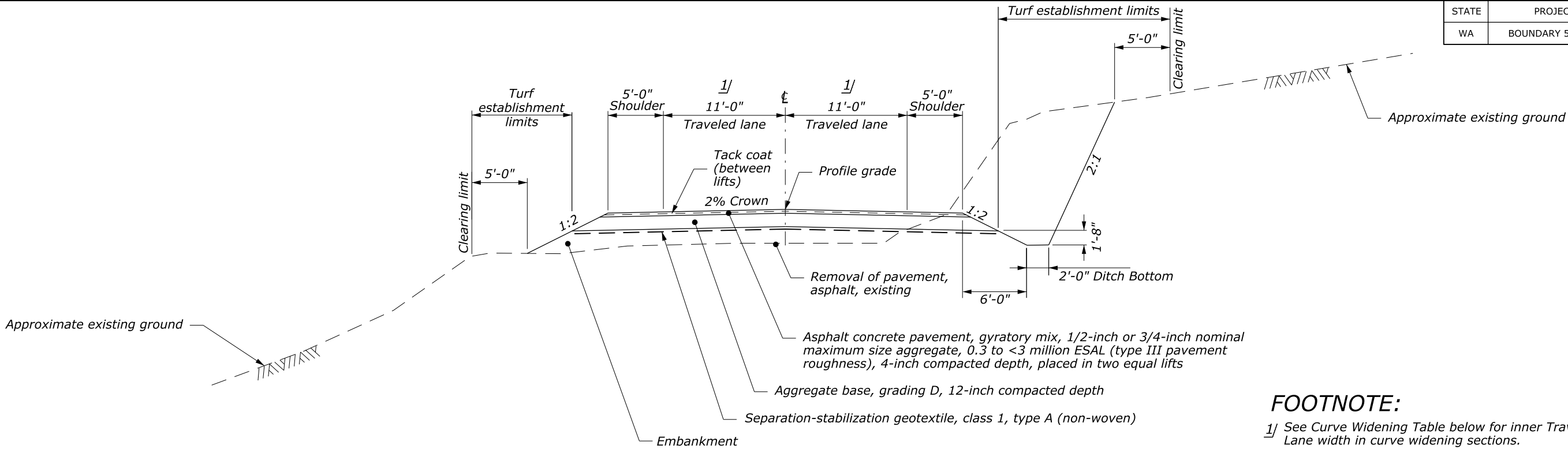


**RIVERSIDE ROAD SECTION I**  
225+00 to 236+50

**GUARDRAIL DETAIL**

**TYPICAL SECTIONS**





**RIVERSIDE ROAD SECTION J**  
236+50 to 247+00

**FOOTNOTE:**  
1/ See Curve Widening Table below for inner Traveled Lane width in curve widening sections.

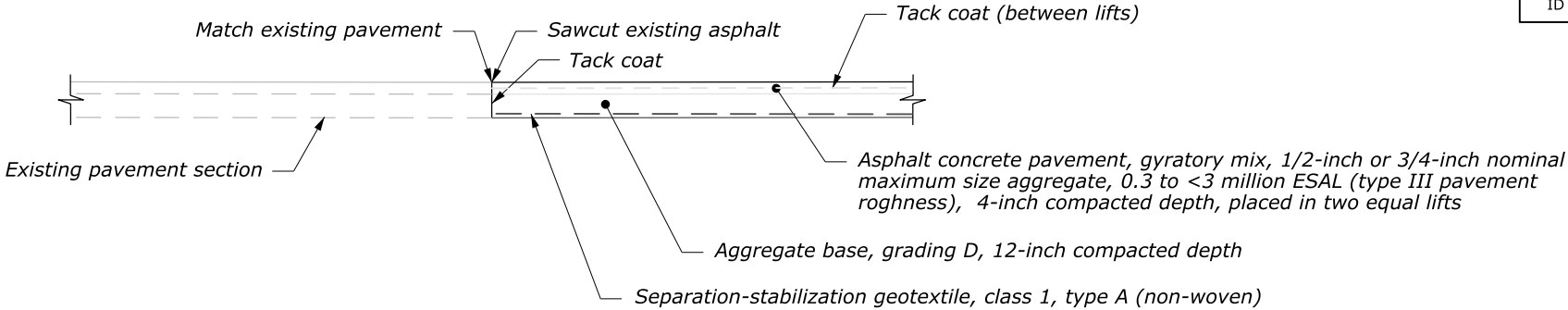
- NOTES:**
1. Superelevate roadway on curves at the rate 'e' as indicated on the plan and profile curve data.
  2. Construct slopes as shown in the Staking Report.
  3. Mirror slope geometries left or right to fit cut or fill field conditions as appropriate.

Superelevation & Curve Widening Table								
Curve PI	Curve Radius, feet	PC Station	PT Station	Superelevation Rate, e	Tangent Runout Length, feet	Superelevation Runoff Length, feet	Curve Widening: Inner Traveled Lane Width, feet	Curve Widening: Inner Traveled Lane Width, feet
14+71.22	485	13+56.28	15+82.00	0.058	45	130	16.4	17
21+25.63	500	20+29.44	22+19.22	0.052	45	110	15.9	16.4
24+52.21	340	23+17.68	25+73.89	0.060	45	95	17.1	18.1
29+76.02	1650	26+84.24	32+61.83	0.032	45	65	N/A	N/A
68+20.72	500	65+56.68	70+42.54	0.056	45	125	15.9	16.4
72+76.82	400	70+42.54	74+66.41	0.060	45	135	17.1	18.1
80+69.14	600	79+32.80	82+00.94	0.052	45	115	15	16
91+69.39	850	89+85.41	93+47.77	0.045	45	100	13.9	14.7
97+14.88	450	95+64.04	98+55.12	0.058	45	130	N/A	17.4
102+35.14	380	100+88.20	103+68.63	0.060	45	135	N/A	18.5
118+89.61	525	117+28.36	120+41.26	0.056	45	125	15.9	16.6
122+11.91	1200	120+41.26	123+80.30	0.038	45	85	N/A	13.8
223+46.12	550	222+70.64	224+20.66	0.054	45	120	15.5	16.4
227+14.66	180	226+14.31	227+97.40	0.059	40	120	N/A	N/A
231+31.64	700	230+06.57	232+54.10	0.036	40	70	N/A	N/A
233+74.05	620	232+54.10	234+91.07	0.038	40	75	N/A	N/A
236+20.47	150	234+91.07	237+04.61	0.060	40	120	N/A	N/A
241+00.50	150	239+66.16	241+58.27	0.060	40	120	N/A	N/A
244+26.01	230	242+77.97	245+41.04	0.056	40	110	N/A	N/A

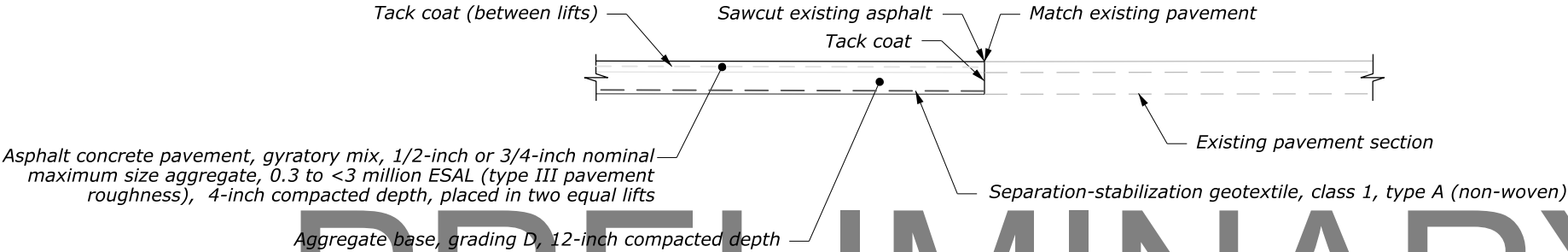
**TYPICAL SECTION AND SUPERELEVATION AND CURVE WIDENING TABLE**

08/2019 J. PEDERSON 08/2019 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_cf.dgn [US\_Sur\_t2D] 2 May 2020 3:46 PM

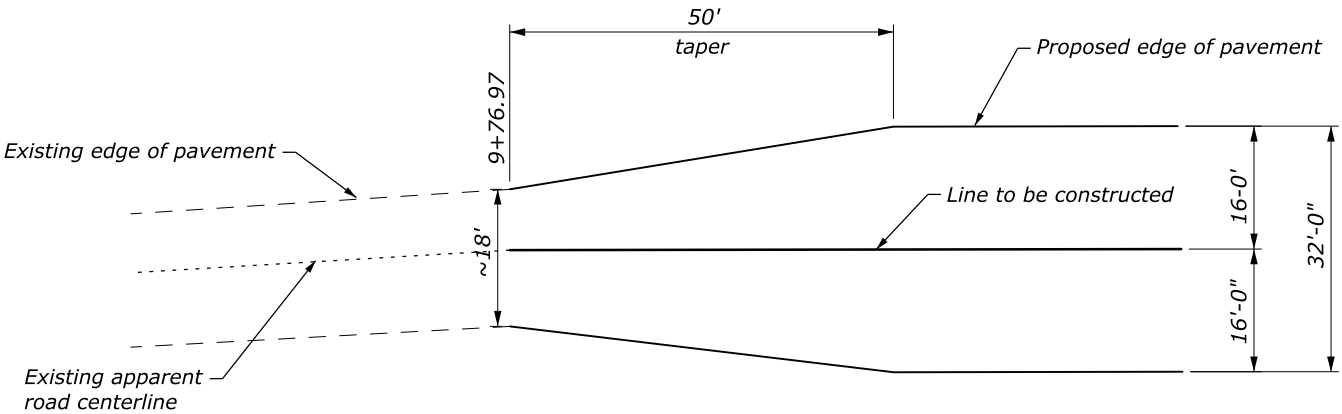
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	C.8



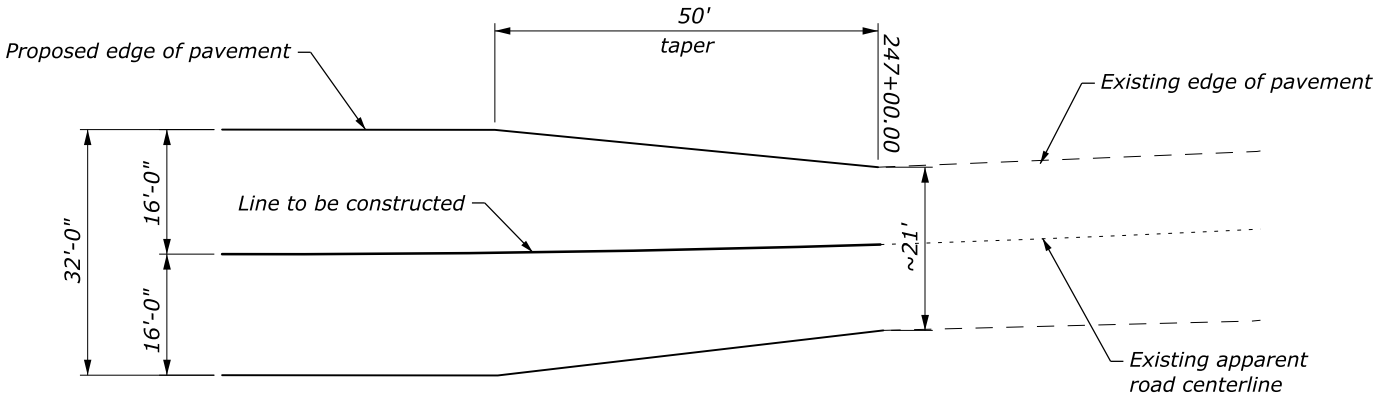
**TRANSITION - ASPHALT CONCRETE PAVEMENT,  
TO EXISTING RIVERSIDE ROAD  
9+76.97**



**TRANSITION - ASPHALT CONCRETE PAVEMENT,  
TO EXISTING RIVERSIDE ROAD  
247+00.00**



**ROADWAY WIDTH TRANSITION FROM  
EXISTING RIVERSIDE ROAD TO  
PROPOSED RIVERSIDE ROAD  
AT 9+76.97**

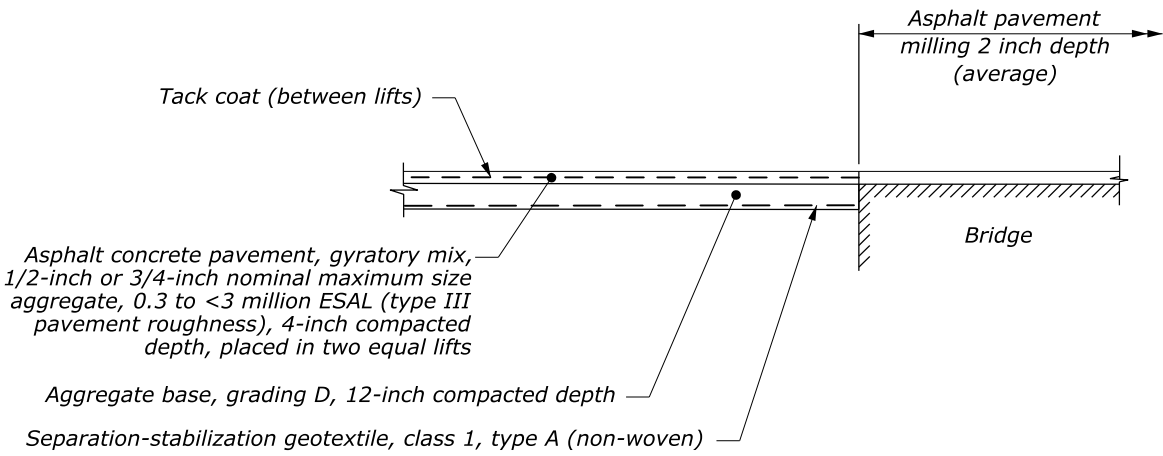


**ROADWAY WIDTH TRANSITION FROM  
PROPOSED RIVERSIDE ROAD TO  
EXISTING RIVERSIDE ROAD  
AT 247+00.00**

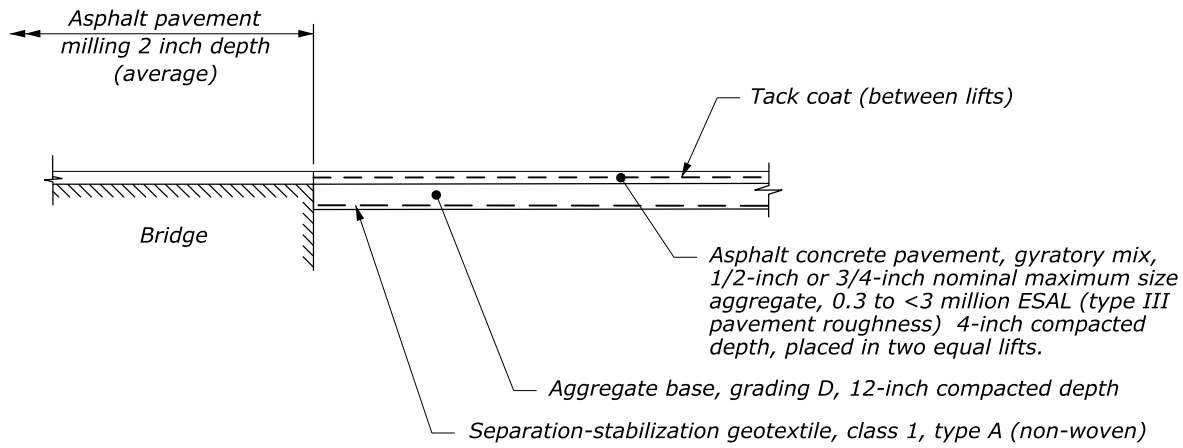
**PAVEMENT TRANSITION  
DETAILS**

08/2019 J. PEDERSON 08/2019 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_ce.dgn [US\_Sur\_12D] 2 May 2020 3:49 PM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	C.9

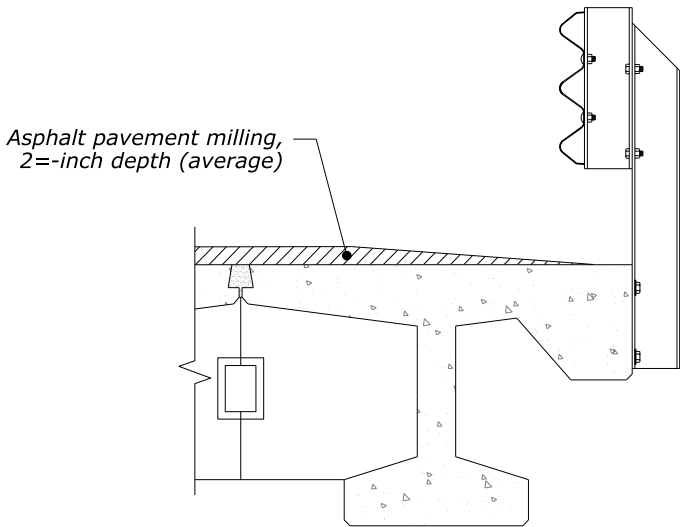


**BRIDGE TRANSITION  
98+92**

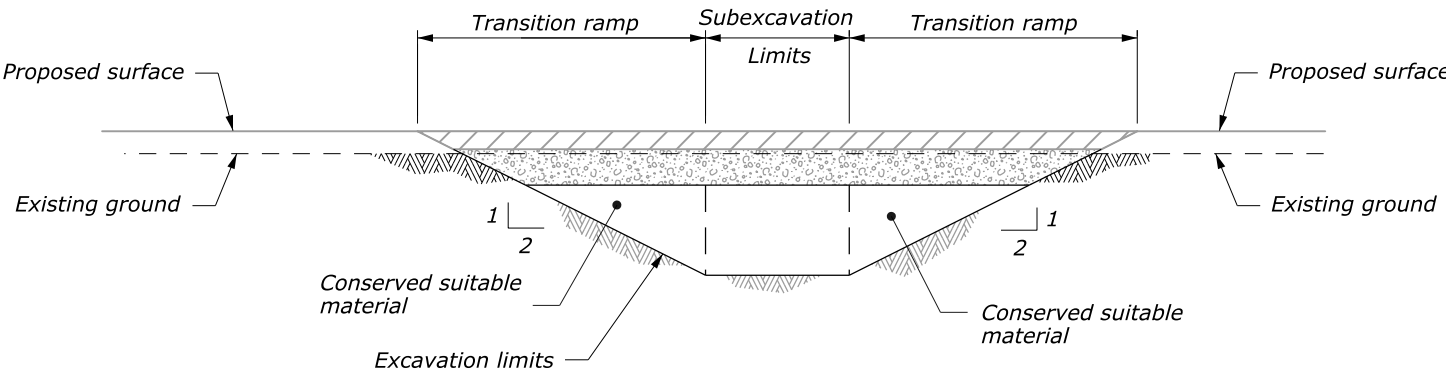


**BRIDGE TRANSITION  
100+71**

PRELIMINARY



**BRIDGE DECK ASPHALT PAVEMENT MILLING,  
TYPICAL DETAIL**



**SUBEXCAVATION TRANSITION DETAIL  
PROFILE**

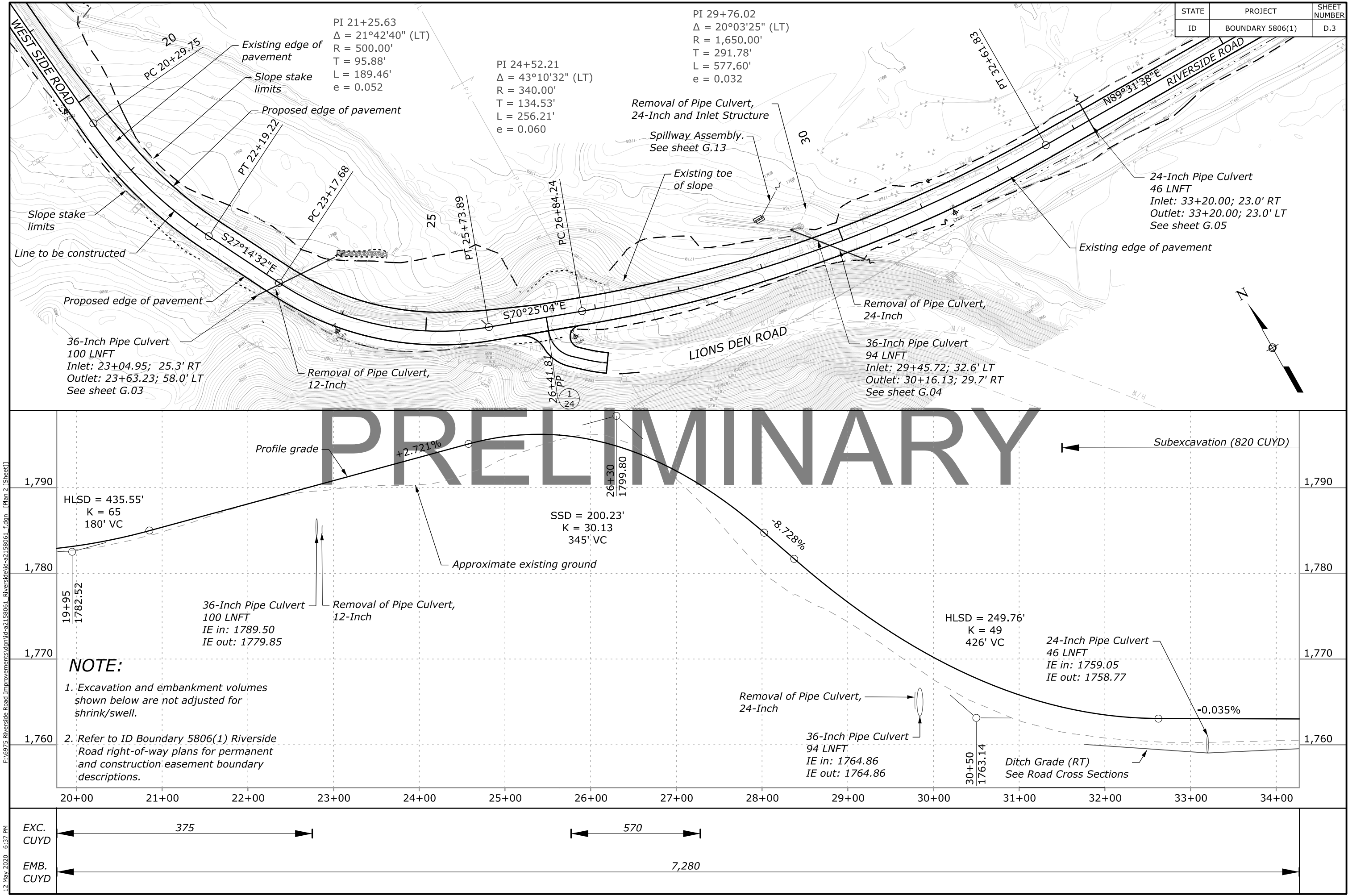
**TYPICAL SECTION DETAILS**

TURF ESTABLISHMENT QUANTITIES				
ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	REMARKS AND/OR DETERMINATION OF ESTIMATED QUANTITY
62501-0000	TURF ESTABLISHMENT	ACRE	11.0	

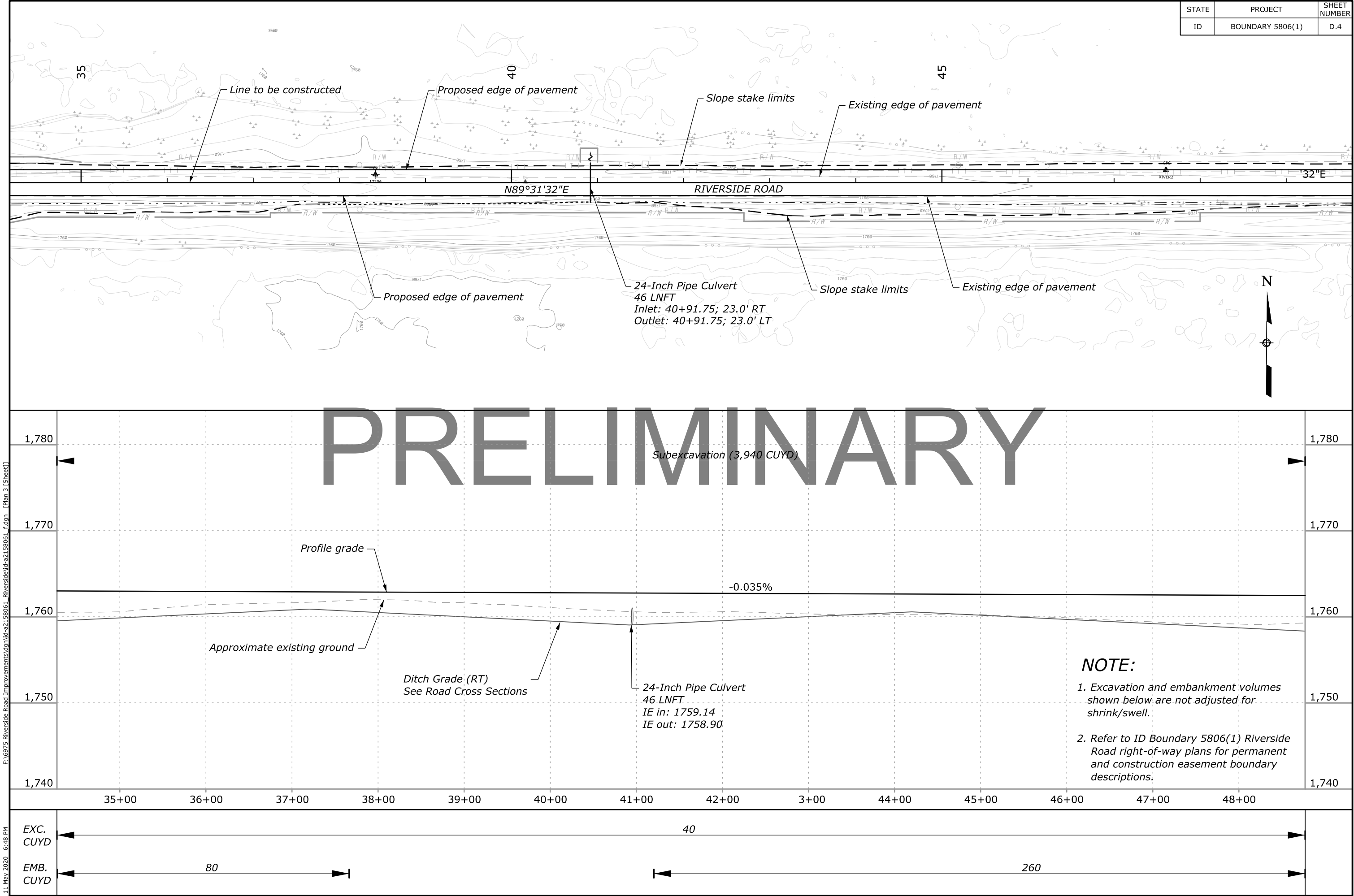
FENCING QUANTITIES				
ITEM	DESCRIPTION FENCE	UNIT	ESTIMATED QUANTITY	REMARKS AND/OR DETERMINATION OF ESTIMATED QUANTITY
20302-0700	REMOVAL OF FENCE	LNFT	1,276	
20302-1000	REMOVAL OF FENCE, RAIL (HANDRAIL)	LNFT	10	REMOVE TOP SECTION OF EXISTING HANDRAIL, SEE DETAIL ON SHEET K.2
61901-2000	FENCE, CHAIN LINK, 72-INCH HEIGHT	LNFT	740'	232+00 TO 234+73; 234+91 TO 237+35; 237+53 TO 237+65; 239+40 TO 241+50
61902-3600	GATE, CHAIN LINK, 18 FEET WIDTH	EACH	3	234+82; 237+44; 243+96
64603-2100	FIXTURE, STAIRWAY	EACH	1	REMOVE TWO ROCK STAIRS, ADJUST HANDRAIL, 149+56

MISCELLANEOUS QUANTITIES				
ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	REMARKS AND/OR DETERMINATION OF ESTIMATED QUANTITY
15302-0000	CONTRACTOR QUALITY CONTROL MANAGER, TRIBAL MONITORING	DAY	160	TWO (2) MONITORS FOR 6 DAYS A WEEK FOR 4 WEEKS (AMBUSH ROCK SECTION), AND 8 DAYS PER MONTH FOR 7 MONTHS (NON-AMBUSH ROCK SECTION)
20301-0100	REMOVAL OF BOLLARD, STEEL	EACH	1	149+85
20301-2800	REMOVAL OF STRUCTURES AND OBSTRUCTIONS, WOODEN SHACK	EACH	1	229+80
25126-0000	REMOVE AND RESET BOULDER	EACH	2	149+56
61920-2000	REMOVE AND RESET GATE, ELECTRIC AUTO-TOUR GATE	EACH	1	NWR AUTO-TOUR EXIT GATE
61920-2000	REMOVE AND RESET GATE, ORNAMENTAL GATE	EACH	1	150+25
61920-2000	REMOVE AND RESET GATE,	EACH	2	CENTER DITCH (52+55), S-TURN (66+91)
64620-0400	REMOVE AND RESET MAILBOX	EACH	1	212+50

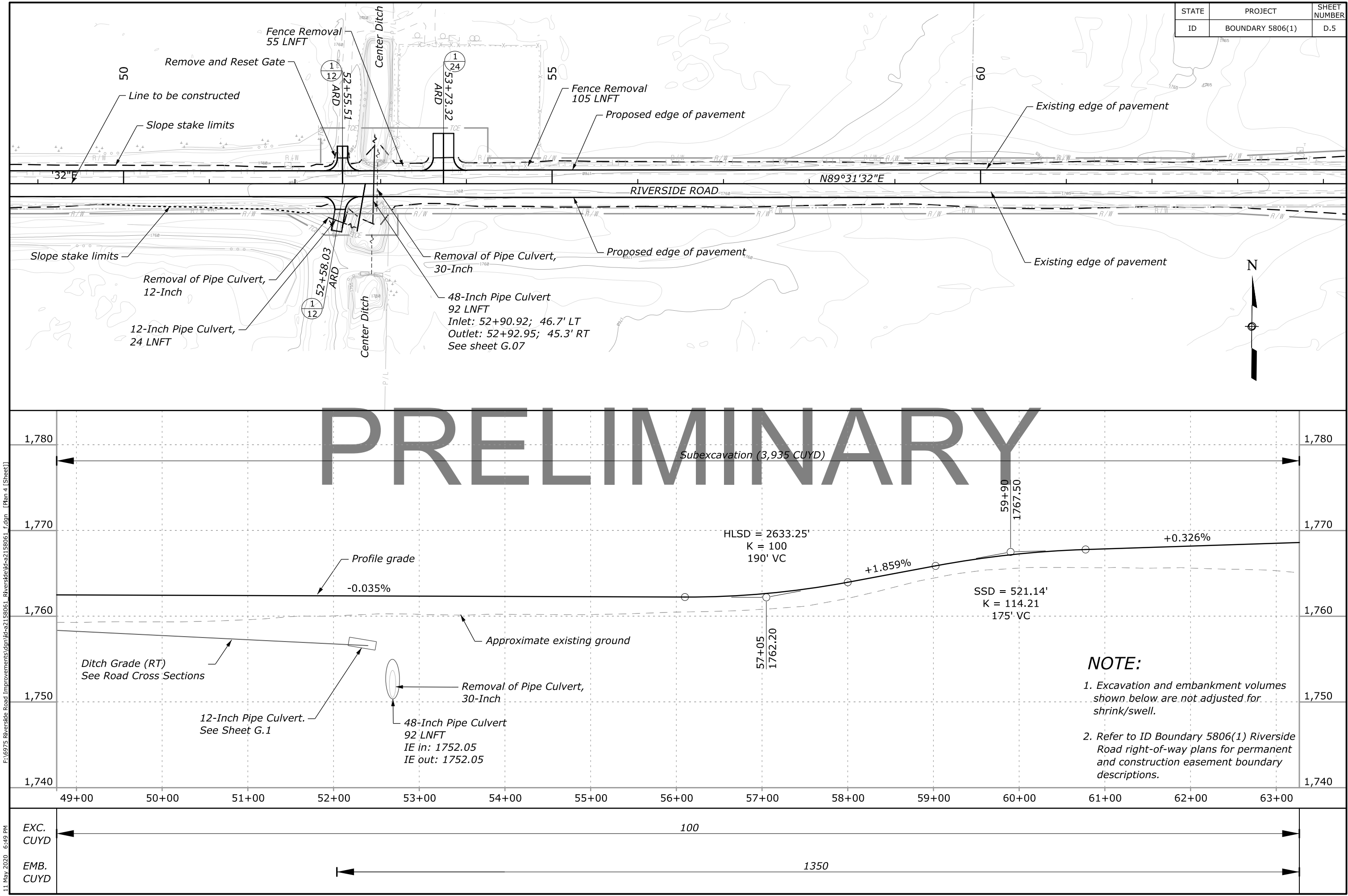




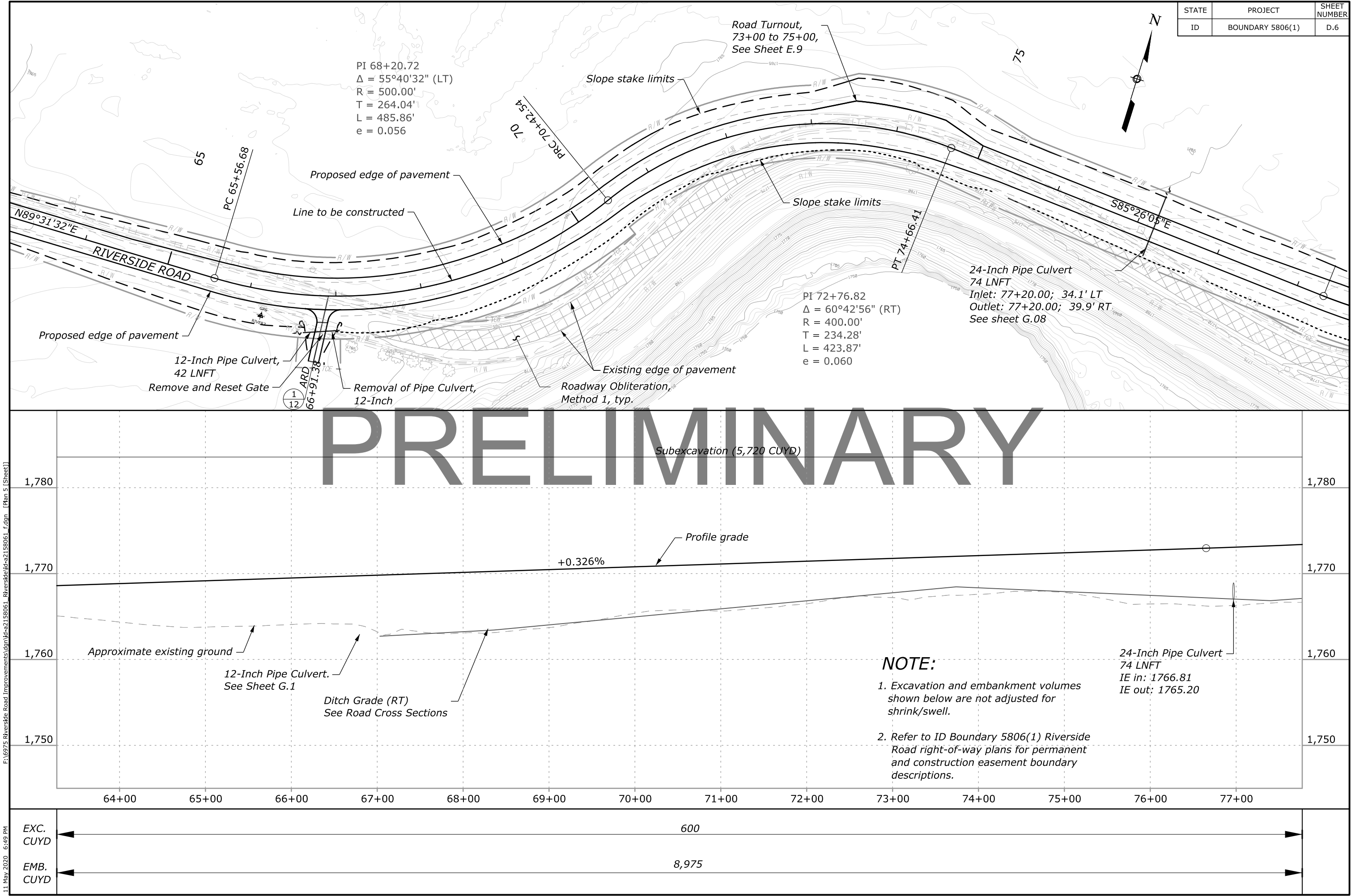
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12 May 2020 6:37 PM



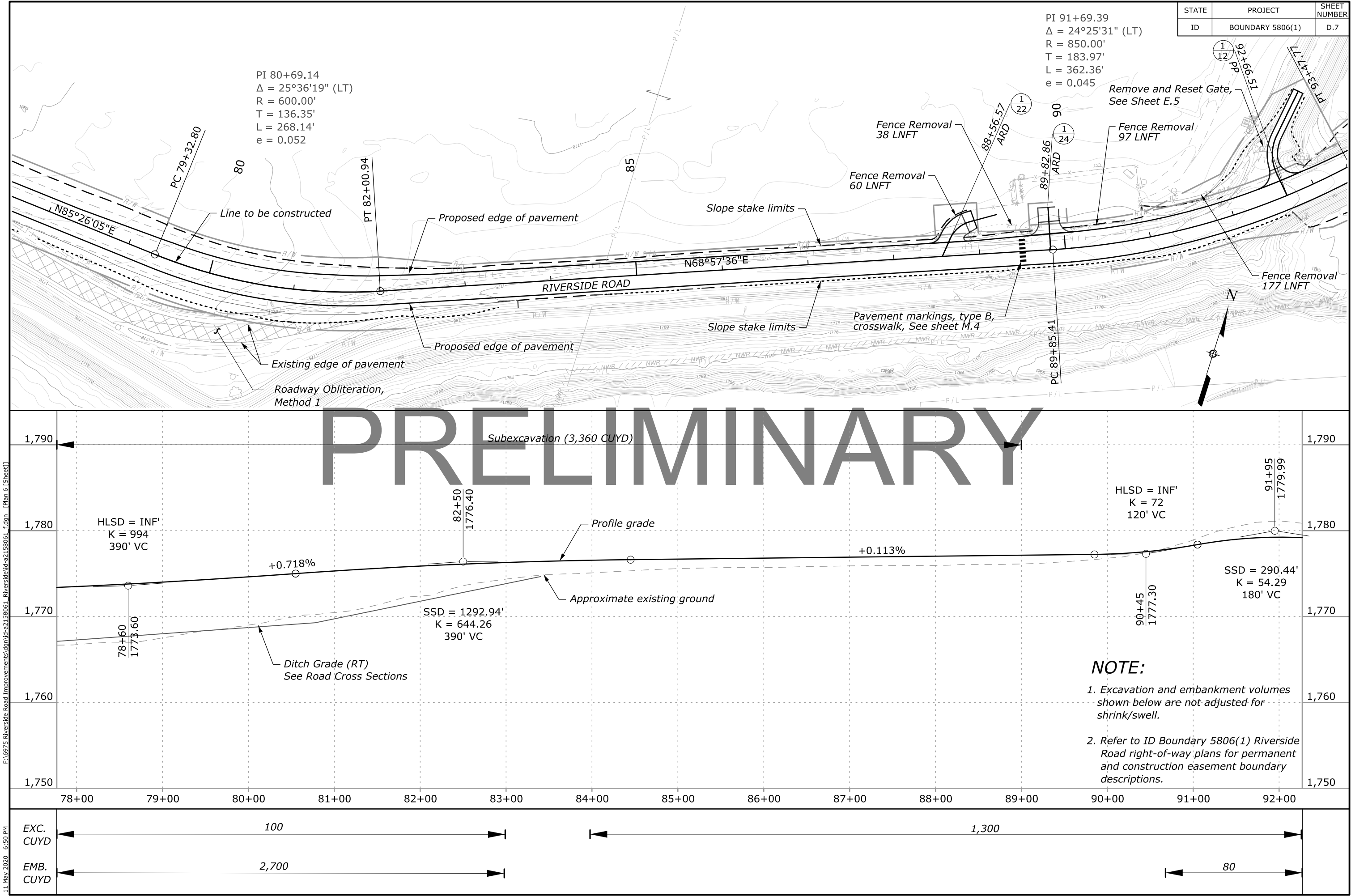
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11 May 2020 6:48 PM



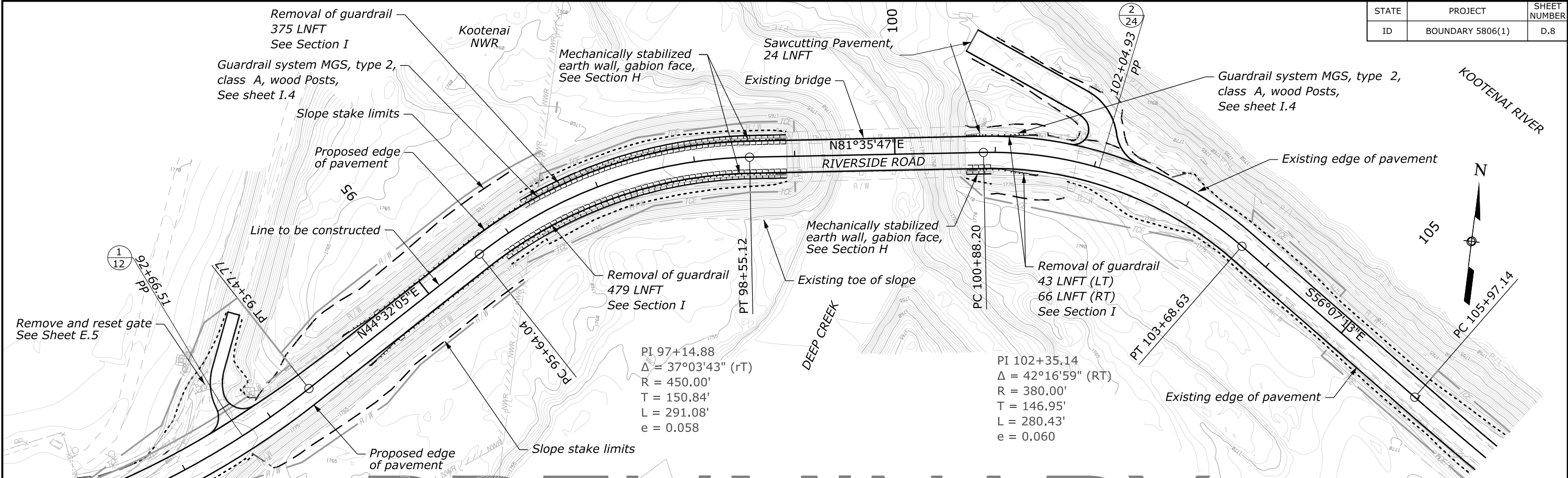




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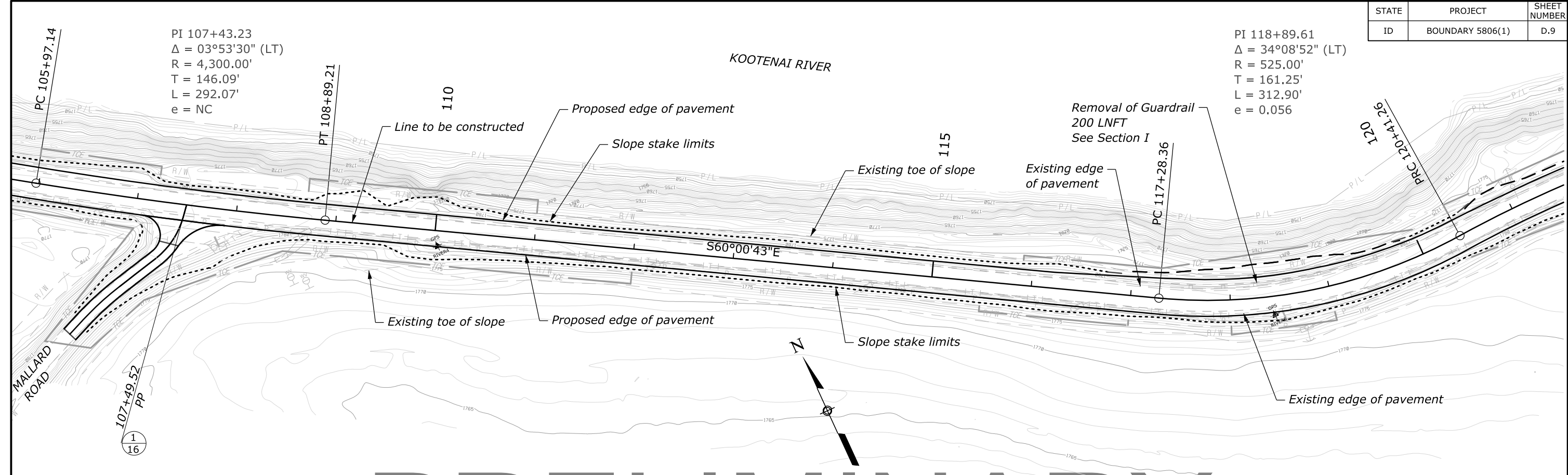


STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.8

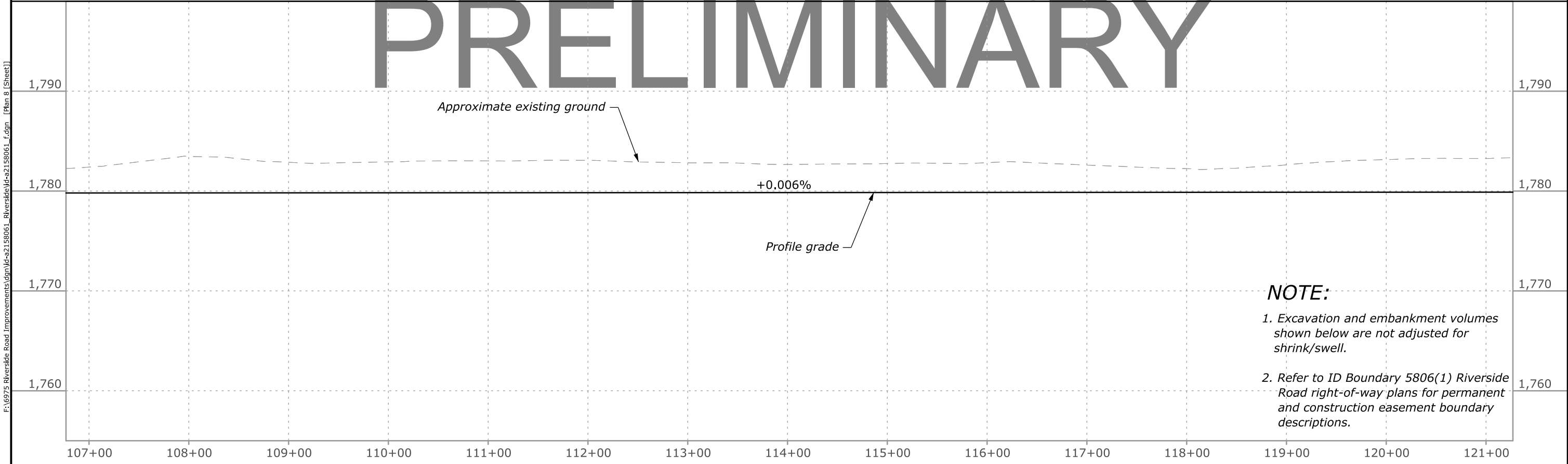


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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.9



PRELIMINARY



EXC. CUYD	8,920	
EMB. CUYD		170

F:\6975 Riverside Road Improvements\dm\id-a2158061\_Riverside\id-a2158061.f.dgn [Plan 9 [Sheet]] 11 May 2020 11:37 AM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.10

PI 126+46.84  
 $\Delta = 03^\circ 49' 00''$  (LT)  
 $R = 8,000.00'$   
 $T = 266.54'$   
 $L = 532.89'$   
 $e = NC$

KOOTENAI RIVER

130

135

Line to be constructed

PRC 123+80.30

125

Proposed edge of pavement

Slope stake limits

PT 129+13.19

Existing toe of slope

Existing edge of pavement

RIVERSIDE ROAD

$S81^\circ 47' 18'' E$

PI 122+11.91  
 $\Delta = 16^\circ 11' 17''$  (RT)  
 $R = 1,200.00'$   
 $T = 170.66'$   
 $L = 339.04'$   
 $e = 0.038$

125+44.76

ARD

Proposed edge of pavement

N

Slope stake limits

Existing toe of slope

Existing edge of pavement

PRELIMINARY

Approximate existing ground

+0.006%

Profile grade

NOTE:

- Excavation and embankment volumes shown below are not adjusted for shrink/swell.
- Refer to ID Boundary 5806(1) Riverside Road right-of-way plans for permanent and construction easement boundary descriptions.

122+00

123+00

124+00

125+00

126+00

127+00

128+00

129+00

130+00

131+00

132+00

133+00

134+00

135+00

EXC.  
CUYD

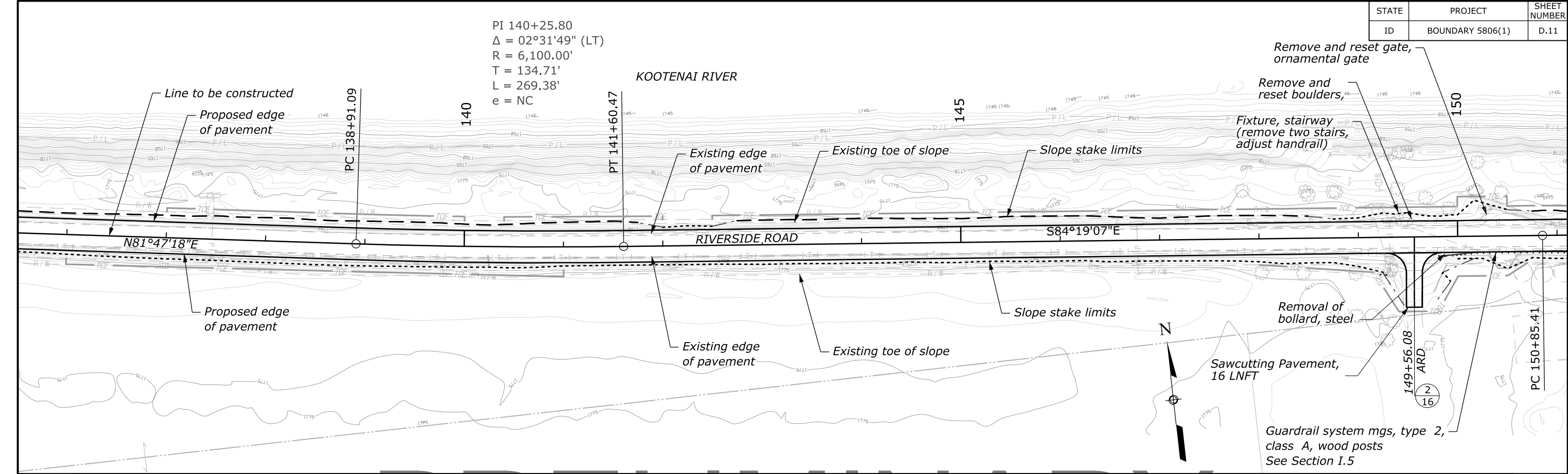
7,640

EMB.  
CUYD

180

F:\6975 Riverside Road Improvements\dm\id-a2158061\_Riverside\id-a2158061\_f.dgn [Plan 10 [Sheet]] 15 May 2020 10:33 AM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.11



PRELIMINARY

Approximate existing ground

+0.006%

Profile grade

- NOTE:**
- 1. Excavation and embankment volumes shown below are not adjusted for shrink/swell.
  - 2. Refer to ID Boundary 5806(1) Riverside Road right-of-way plans for permanent and construction easement boundary descriptions.

EXC.  
CUYD

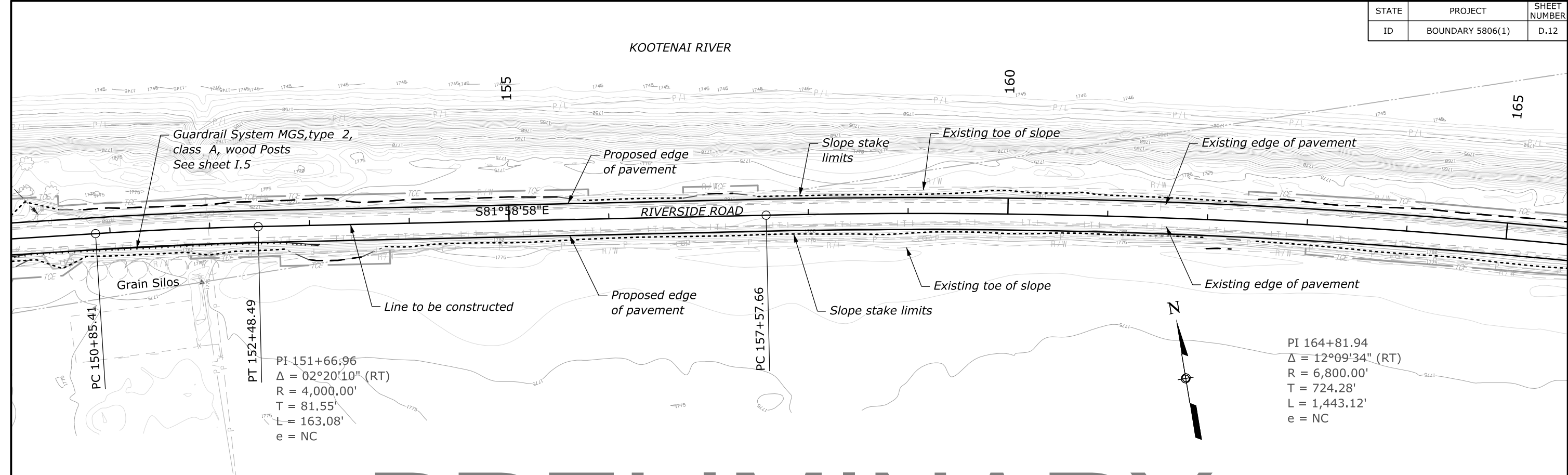
7,550

EMB.  
CUYD

220



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.12



PRELIMINARY

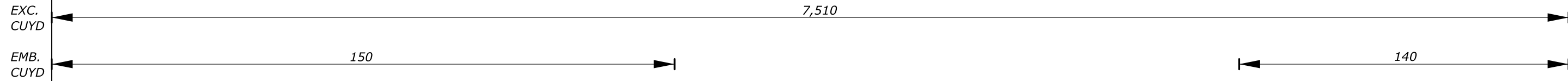
Approximate existing ground

+0.006%

Profile grade

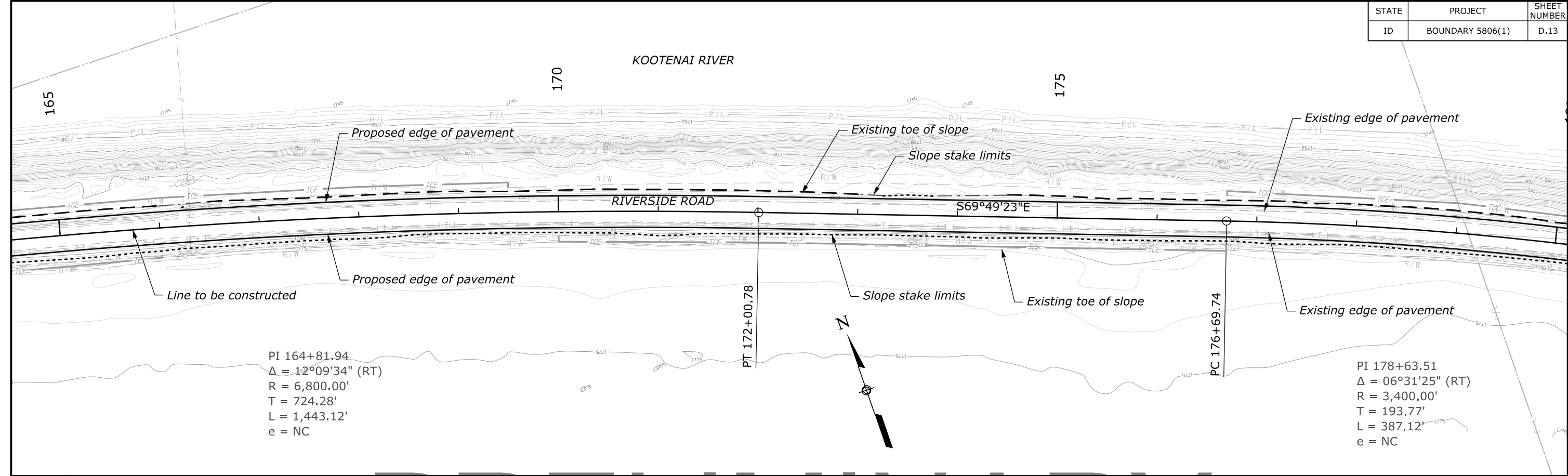
NOTE:

- Excavation and embankment volumes shown below are not adjusted for shrink/swell.
- Refer to ID Boundary 5806(1) Riverside Road right-of-way plans for permanent and construction easement boundary descriptions.



F:\6975 Riverside Road Improvements\ dgn\id-a2158061\_Riverside\id-a2158061\_f.dgn [Plan 12 [Sheet]] 3 May 2020 3:18 PM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.13



PRELIMINARY

Approximate existing ground

+0.006%

Profile grade

### NOTE:

- Excavation and embankment volumes shown below are not adjusted for shrink/swell.
- Refer to ID Boundary 5806(1) Riverside Road right-of-way plans for permanent and construction easement boundary descriptions.

EXC.  
CUYD

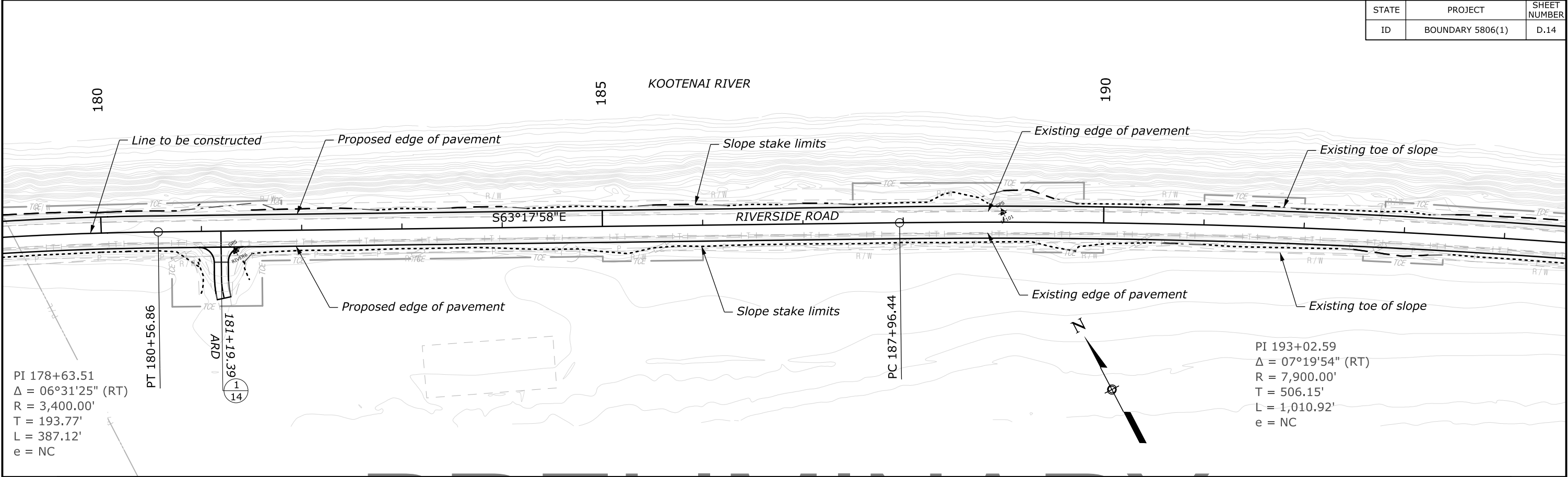
7,520

EMB.  
CUYD

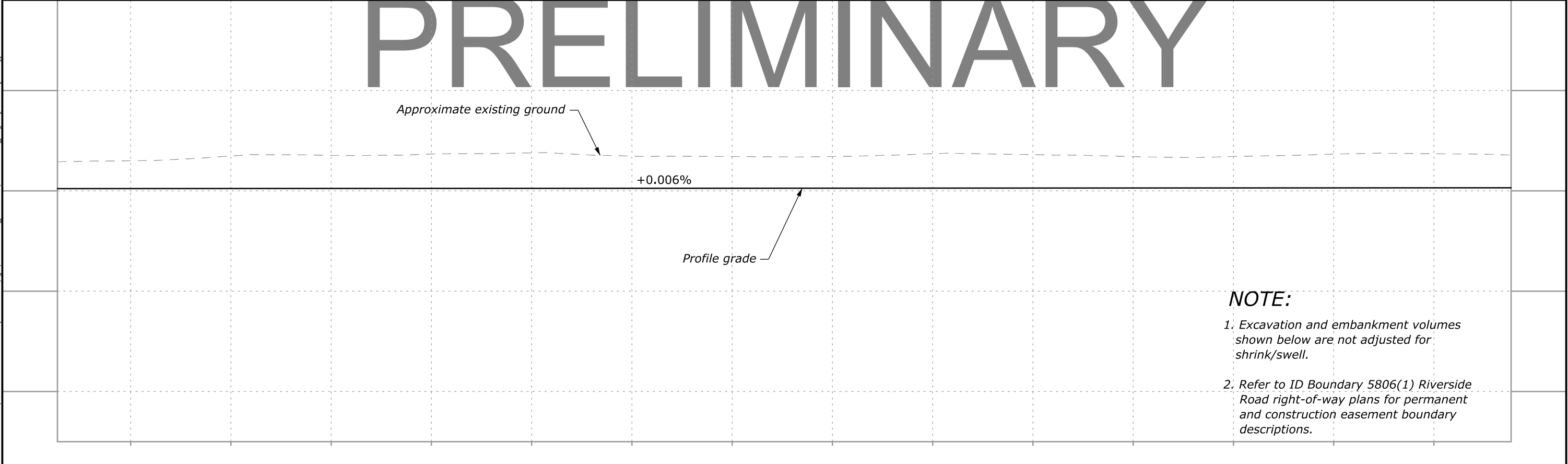
120



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.14

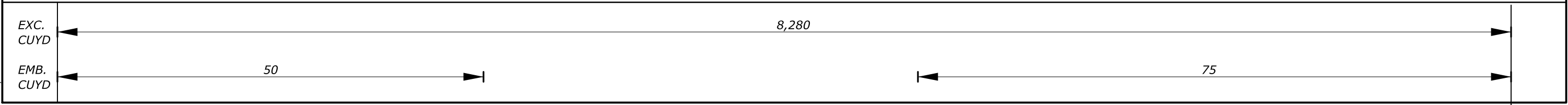


PRELIMINARY



**NOTE:**

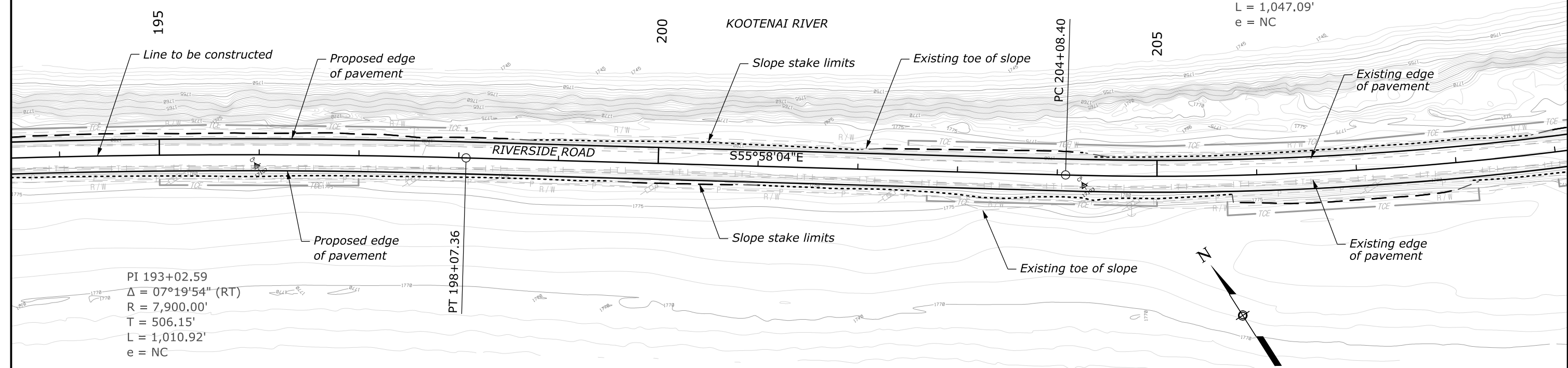
- Excavation and embankment volumes shown below are not adjusted for shrink/swell.
- Refer to ID Boundary 5806(1) Riverside Road right-of-way plans for permanent and construction easement boundary descriptions.



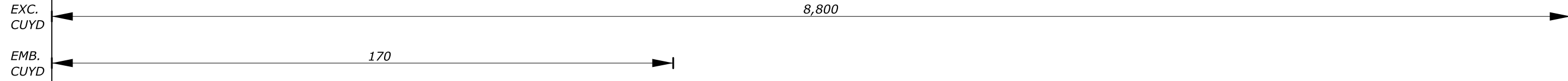
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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.15

PI 209+36.52  
 $\Delta = 18^\circ 27' 35''$  (LT)  
R = 3,250.00'  
T = 528.12'  
L = 1,047.09'  
e = NC



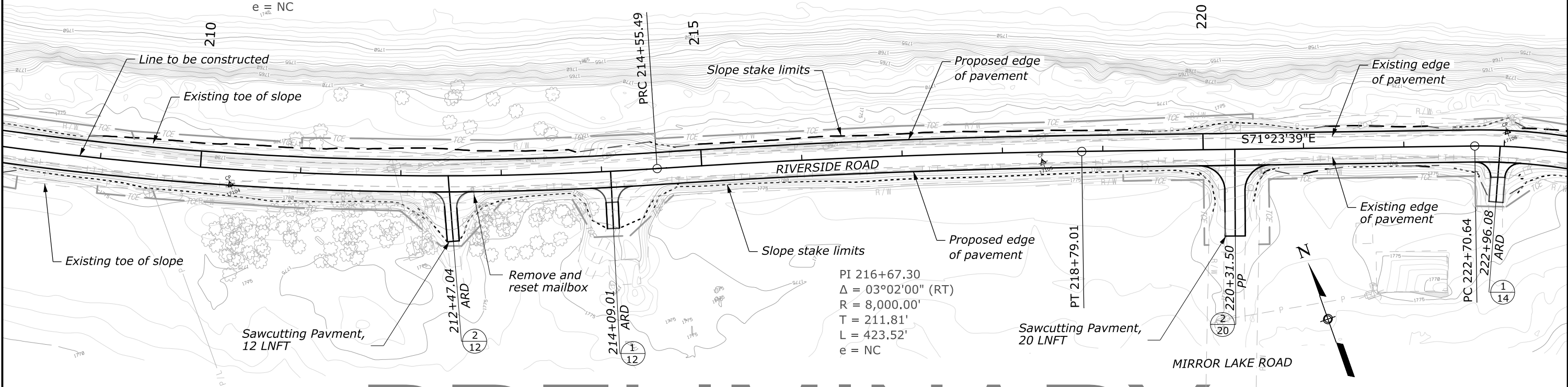
PRELIMINARY



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.16

PI 209+36.52  
 $\Delta = 18^{\circ}27'35''$  (LT)  
 $R = 3,250.00'$   
 $T = 528.12'$   
 $L = 1,047.09'$   
 $e = NC$

KOOTENAI RIVER



PRELIMINARY

Approximate existing ground

+0.006%

Profile grade

**NOTE:**

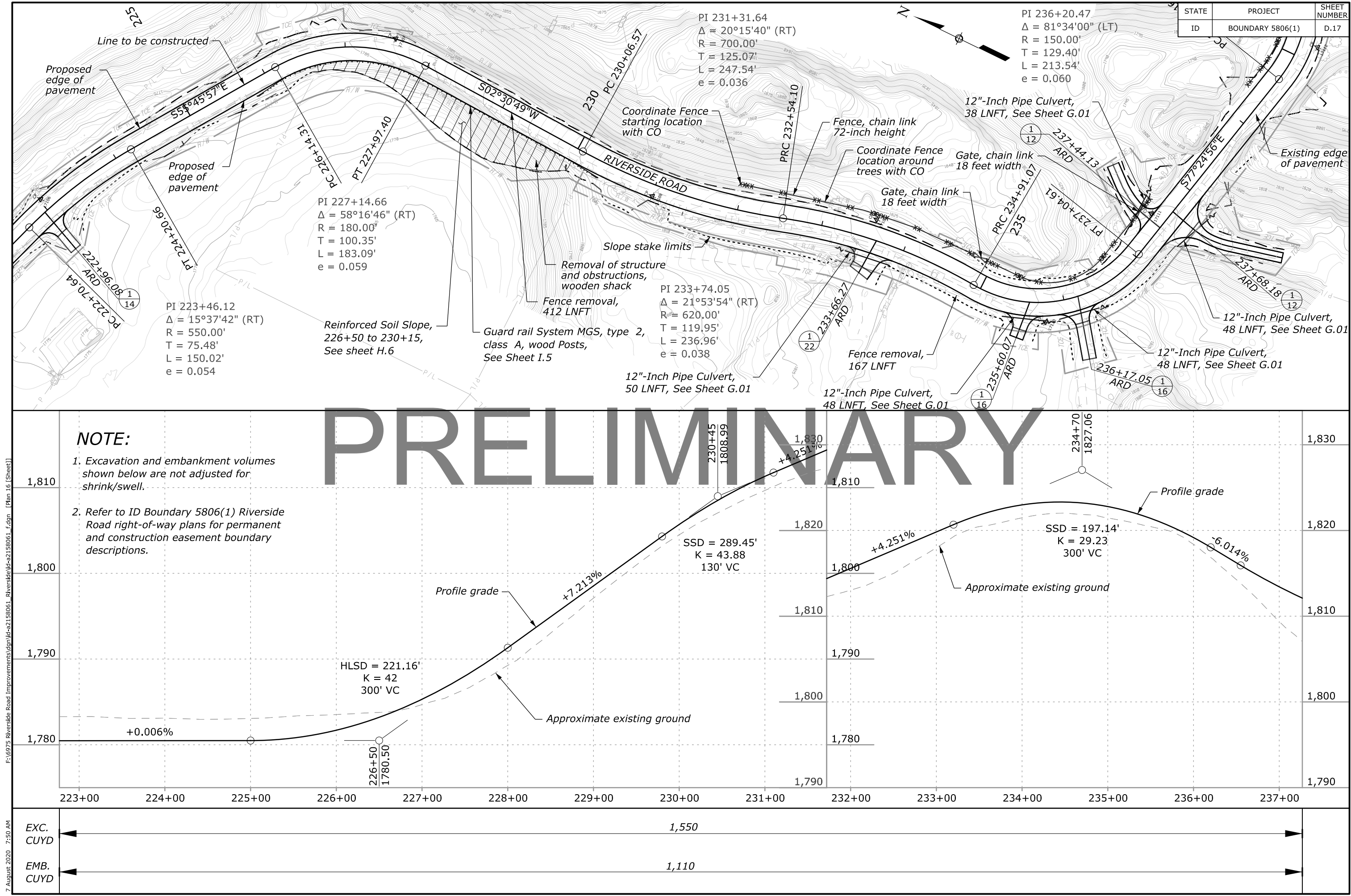
- Excavation and embankment volumes shown below are not adjusted for shrink/swell.
- Refer to ID Boundary 5806(1) Riverside Road right-of-way plans for permanent and construction easement boundary descriptions.

8,830

350

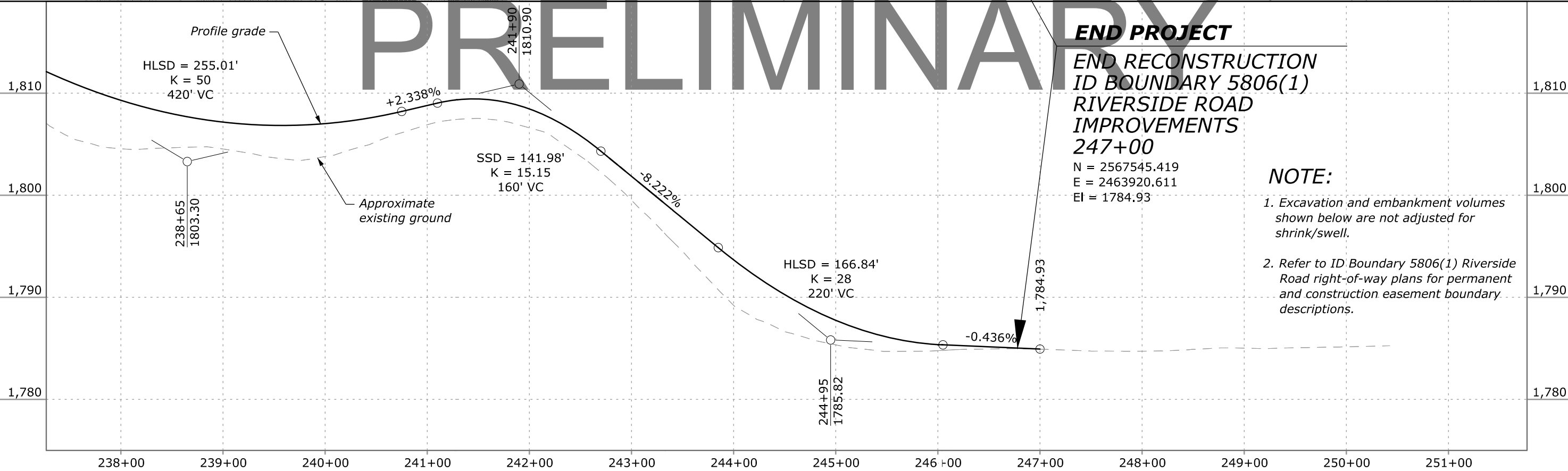
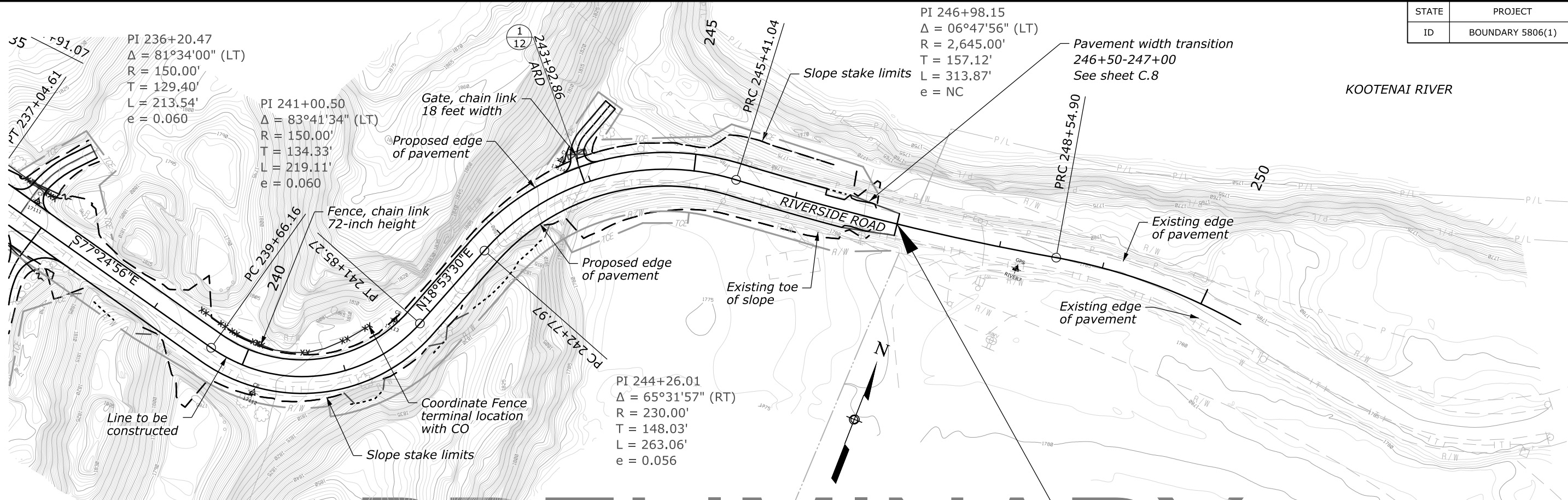
EXC.  
CUYD

EMB.  
CUYD



F:\6975 Riverside Road Improvements\dm\id-a2158061\_Riverside\id-a2158061\_f.dgn [Plan 17 (Sheet)] 7 August 2020 7:52 AM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	D.18



**END PROJECT**  
**END RECONSTRUCTION**  
**ID BOUNDARY 5806(1)**  
**RIVERSIDE ROAD**  
**IMPROVEMENTS**  
**247+00**  
N = 2567545.419  
E = 2463920.611  
El = 1784.93

**NOTE:**

- Excavation and embankment volumes shown below are not adjusted for shrink/swell.
- Refer to ID Boundary 5806(1) Riverside Road right-of-way plans for permanent and construction easement boundary descriptions.

EXC. CUYD	1,107
EMB. CUYD	3,360

29-Aug-2019 7:40

F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\Road\_ControlSheet.xlsx\Sheet

Designed by:

WFLHD Survey

Checked by:

WFLHD Survey

STATE

PROJECT

SHEET NUMBER

ID

Boundary 5806(1)

D.19

PROJECT : Riverside Road Improvements

DATE OF FIELD WORK : October-November 2017

DATE OF FINAL ADJUSTMENT : 12/2017

GPK FILE DATED 12/4/2017

PROJECT UNITS : US SURVEY FOOT

COORDINATE SYSTEM : Idaho West SPCS NAD83 (2011)

EPOCH DATE : 2010.000

VERTICAL DATUM : Orthometric elevations based on the NAVD88 GEOID12b

POINT NUMBER	STATE PLANE COORDINATES			GEO COORDINATES				DESCRIPTION
	NORTH	EAST	ELEVATION	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT	COMBINED FACTOR	
17101	2564885.566	2480028.329	1783.144	48°42'00.182094"N	116°20'56.224159"W	1728.9742	0.99987463	PK & WASHER
17102	2564518.548	2480621.960	1783.590	48°41'56.606483"N	116°20'47.332200"W	1729.407	0.99987441	PK & WASHER
17103	2564057.778	2481311.447	1784.055	48°41'52.112953"N	116°20'37.000857"W	1729.8589	0.99987417	PK & WASHER
17104	2563765.212	2481841.638	1784.083	48°41'49.266722"N	116°20'29.063905"W	1729.8771	0.99987399	PK & WASHER
17105	2563517.232	2482612.801	1783.768	48°41'46.878642"N	116°20'17.540459"W	1729.5489	0.99987376	PK & WASHER
17106	2563392.445	2483059.389	1782.903	48°41'45.681245"N	116°20'10.869414"W	1728.6774	0.99987365	5/8" IR W/FHWA ALUM CAP
17107	2563102.662	2483409.750	1786.277	48°41'42.848373"N	116°20'05.613916"W	1732.0448	0.99987338	5/8" IR W/FHWA ALUM CAP
17108	2562753.109	2483376.146	1809.786	48°41'39.396633"N	116°20'06.074834"W	1755.5505	0.99987227	5/8" IR W/FHWA ALUM CAP
17109	2562506.005	2483466.847	1820.922	48°41'36.965209"N	116°20'04.694687"W	1766.6833	0.99987171	5/8" IR W/FHWA ALUM CAP
17110	2562276.439	2483445.977	1819.479	48°41'34.698399"N	116°20'04.979522"W	1765.237	0.99987178	5/8" IR W/FHWA ALUM CAP
17111	2562221.423	2483613.932	1805.011	48°41'34.168229"N	116°20'02.469908"W	1750.769	0.99987242	5/8" IR W/FHWA ALUM CAP
17112	2562132.398	2483873.353	1803.994	48°41'33.309361"N	116°19'58.593161"W	1749.7487	0.99987239	5/8" IR W/FHWA ALUM CAP
17113	2562248.348	2483971.487	1806.403	48°41'34.460891"N	116°19'57.143704"W	1752.1577	0.99987224	5/8" IR W/FHWA ALUM CAP
17114	2562449.737	2484059.279	1791.891	48°41'36.454703"N	116°19'55.858096"W	1737.649	0.9998729	5/8" IR W/FHWA ALUM CAP
17201	2566873.382	2464211.905	1782.063	48°42'18.503724"N	116°24'52.253048"W	1728.3492	0.99988017	MAG & WASHER
17202	2566594.561	2464217.004	1782.877	48°42'15.752957"N	116°24'52.140811"W	1729.1599	0.99988012	5/8" IR W/FHWA ALUM CAP
17203	2566216.555	2464368.120	1791.186	48°42'12.036051"N	116°24'49.838927"W	1737.4591	0.99987967	5/8" IR W/FHWA ALUM CAP
17204	2566075.107	2464607.237	1794.000	48°42'10.660866"N	116°24'46.255930"W	1740.26	0.99987945	5/8" IR W/FHWA ALUM CAP
17205	2565985.000	2465064.610	1761.594	48°42'09.810926"N	116°24'39.425988"W	1707.831	0.99988083	5/8" IR W/FHWA ALUM CAP
17206	2566016.070	2465775.307	1761.236	48°42'10.178147"N	116°24'28.835295"W	1707.4369	0.99988059	5/8" IR W/FHWA ALUM CAP
RIVER1	2567184.122	2464232.548	1776.436	48°42'21.571658"N	116°24'51.985664"W	1722.7222	0.99988043	5/8" IR W/FHWA ALUM CAP
RIVER2	2566028.886	2466693.565	1758.514	48°42'10.382562"N	116°24'15.147999"W	1704.6755	0.99988039	5/8" IR W/FHWA ALUM CAP
RIVER3	2566003.177	2468554.310	1763.129	48°42'10.285466"N	116°23'47.405616"W	1709.2216	0.99987951	2 1/2" section corner brass cap
RIVER4	2566811.311	2472460.049	1781.992	48°42'18.582244"N	116°22'49.280102"W	1727.9928	0.99987724	5/8" IR W/FHWA ALUM CAP
RIVER5	2566398.654	2473194.205	1781.921	48°42'14.570149"N	116°22'38.284497"W	1727.9021	0.99987699	5/8" IR W/FHWA ALUM CAP
RIVER6	2565203.484	2479330.992	1782.625	48°42'03.264950"N	116°21'06.656649"W	1728.4716	0.99987488	5/8" IR W/FHWA ALUM CAP
RIVER7	2562520.870	2484498.768	1783.798	48°41'37.189655"N	116°19'49.315603"W	1729.5527	0.99987315	5/8" IR W/FHWA ALUM CAP
RIVER8	2562613.311	2485112.891	1784.368	48°41'38.147823"N	116°19'40.172529"W	1730.1227	0.99987293	5/8" IR W/FHWA ALUM CAP

NOTE:

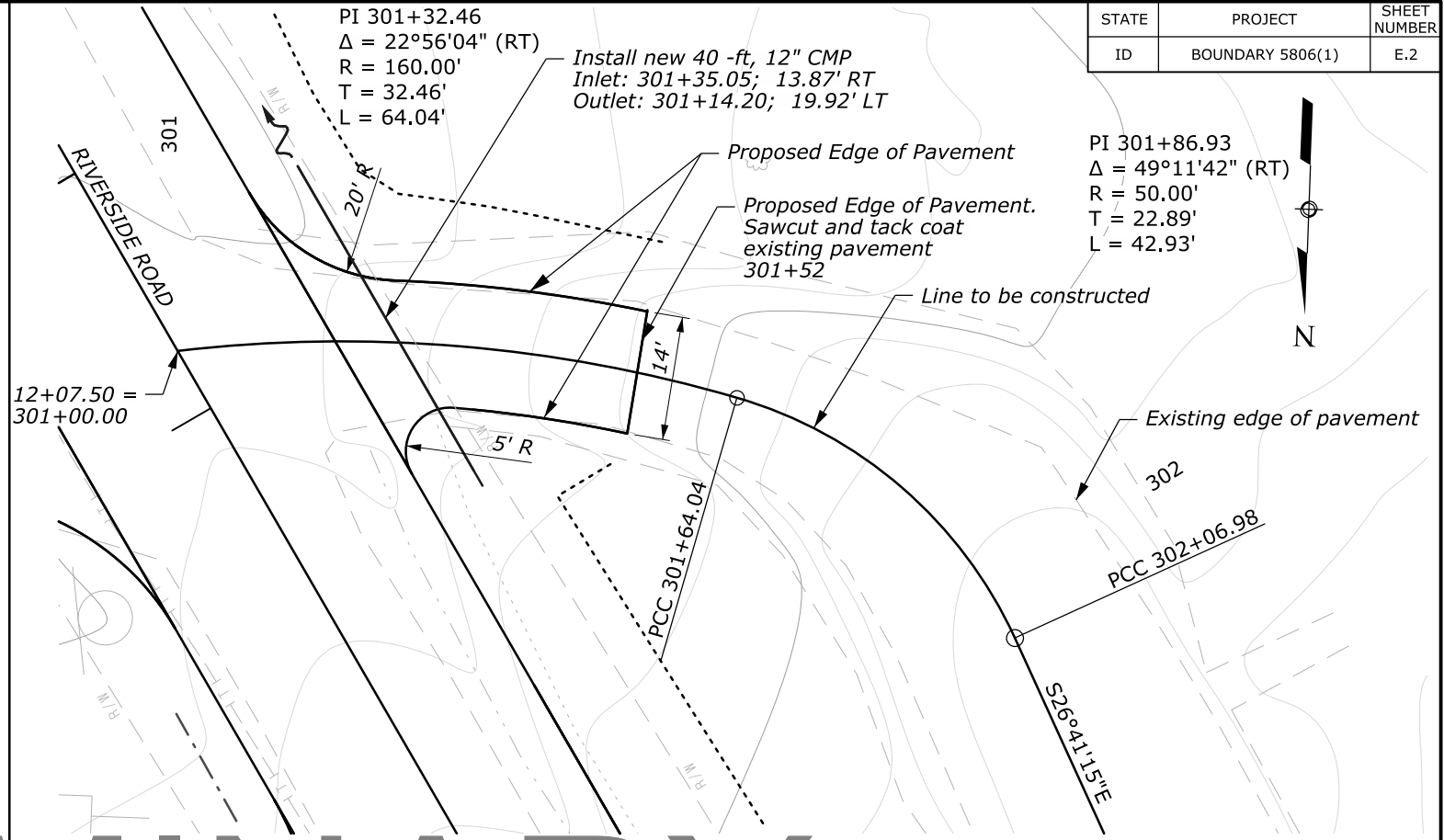
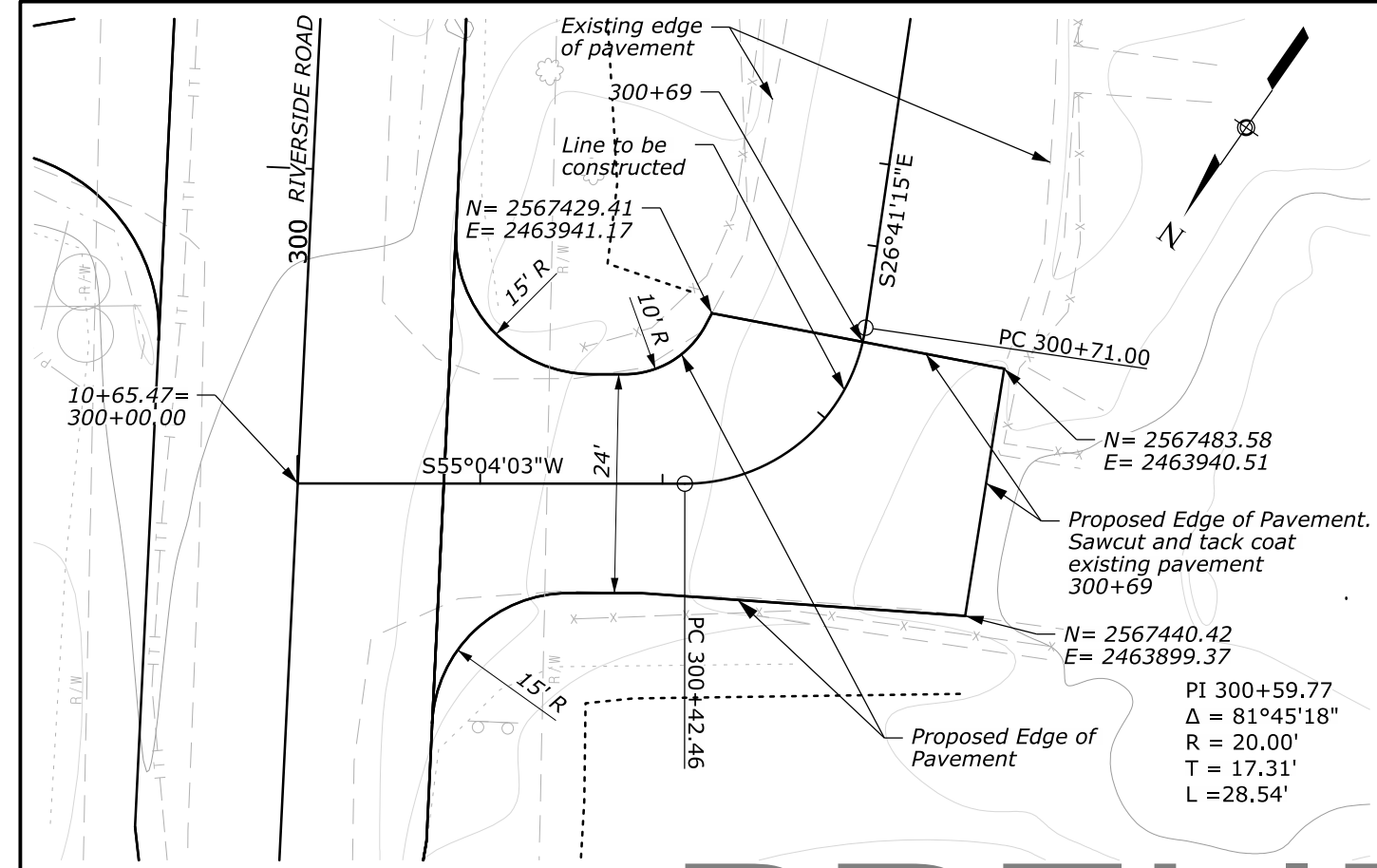
1. To precisely check distances between points as measured on the ground, inverse the state plane coordinates and divide the computed distance by a mean combined factor of the two points.

SURVEY CONTROL

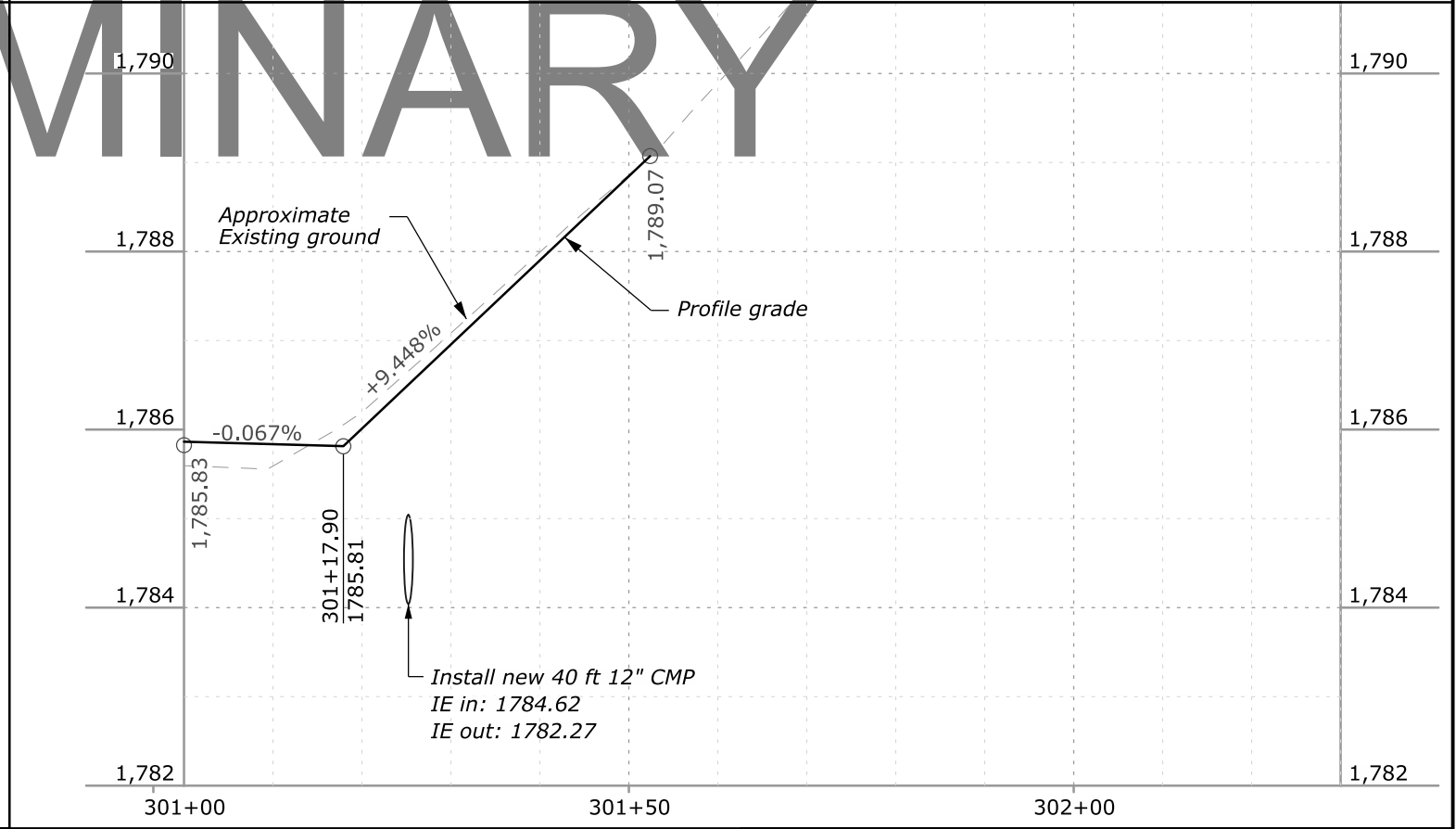
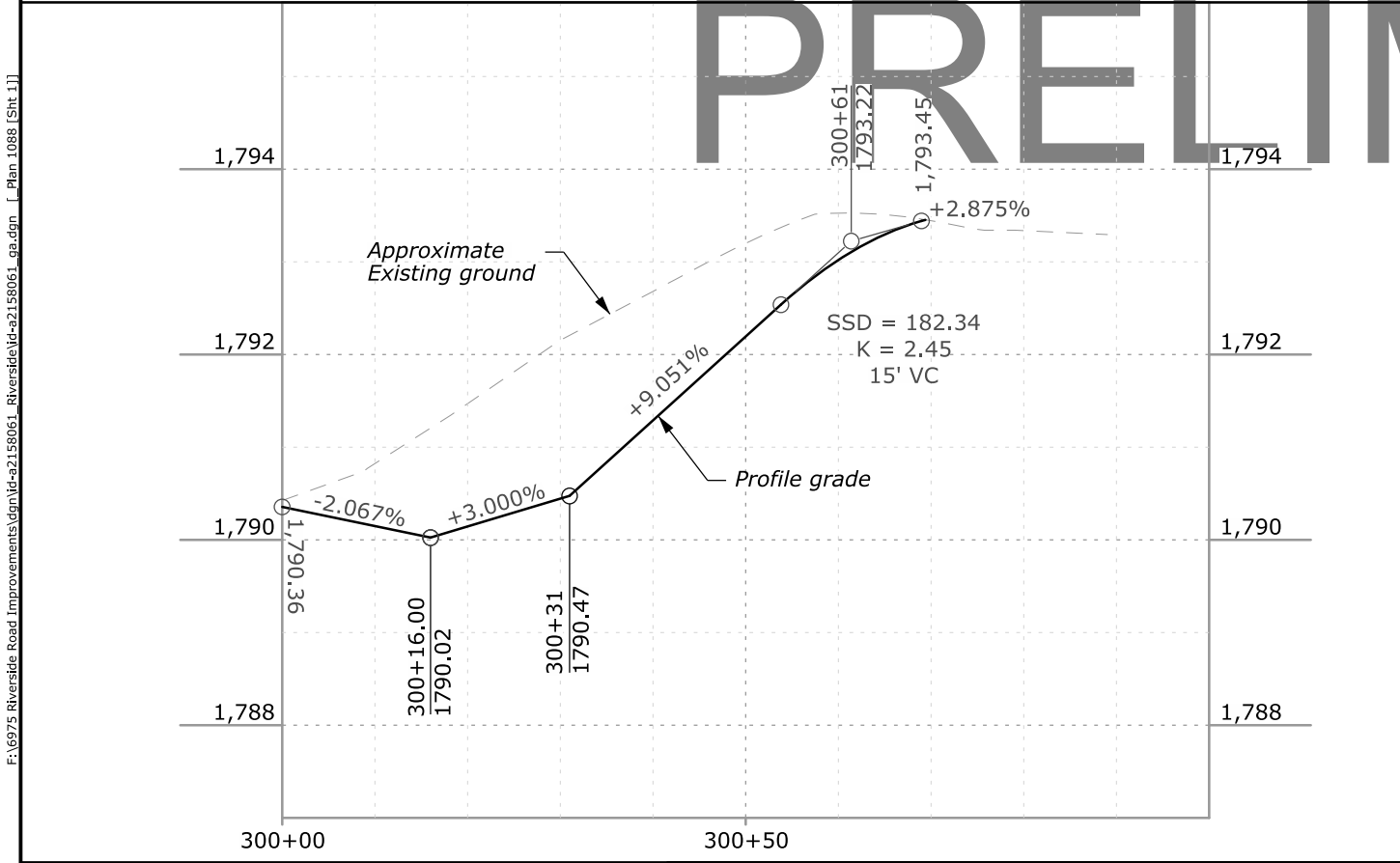


APPROACH ROAD QUANTITIES				
ITEM	DESCRIPTION	UNIT	ESTIMATED QUANTITY	ESTIMATING VALUE
20701-0100	SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE A (NON-WOVEN) (SQYD)	SQYD	2,780	
30201-1000	ROADWAY AGGREGATE, METHOD 1	CUYD	390	6" DEPTH, APPROACH ROADS 1.9 TON/CUYD
30101-2000	AGGREGATE BASE GRADING D	TON	916	1.97 TONS/CUYD
40101-5600	ASPHALT CONCRETE PAVEMENT, GYRATORY MIX, 1/2-INCH OR 3/4-INCH NOMINAL MAXIMUM SIZE AGGREGATE, 0.3 TO <3 MILLION ESAL (TYPE III PAVEMENT ROUGHNESS)	TON	463	1.97 TON/CUYD

TABULATION OF  
APPROACH ROADS  
QUANTITIES



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	E.2

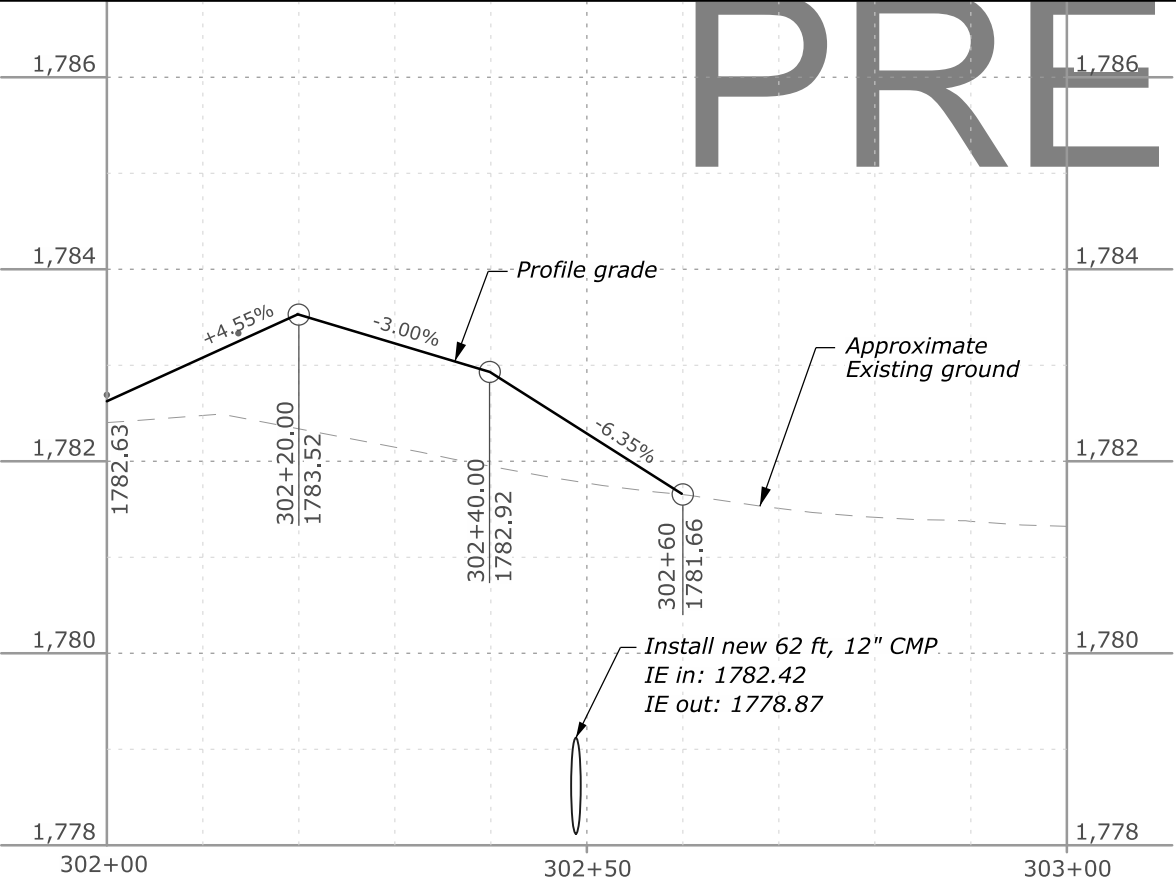
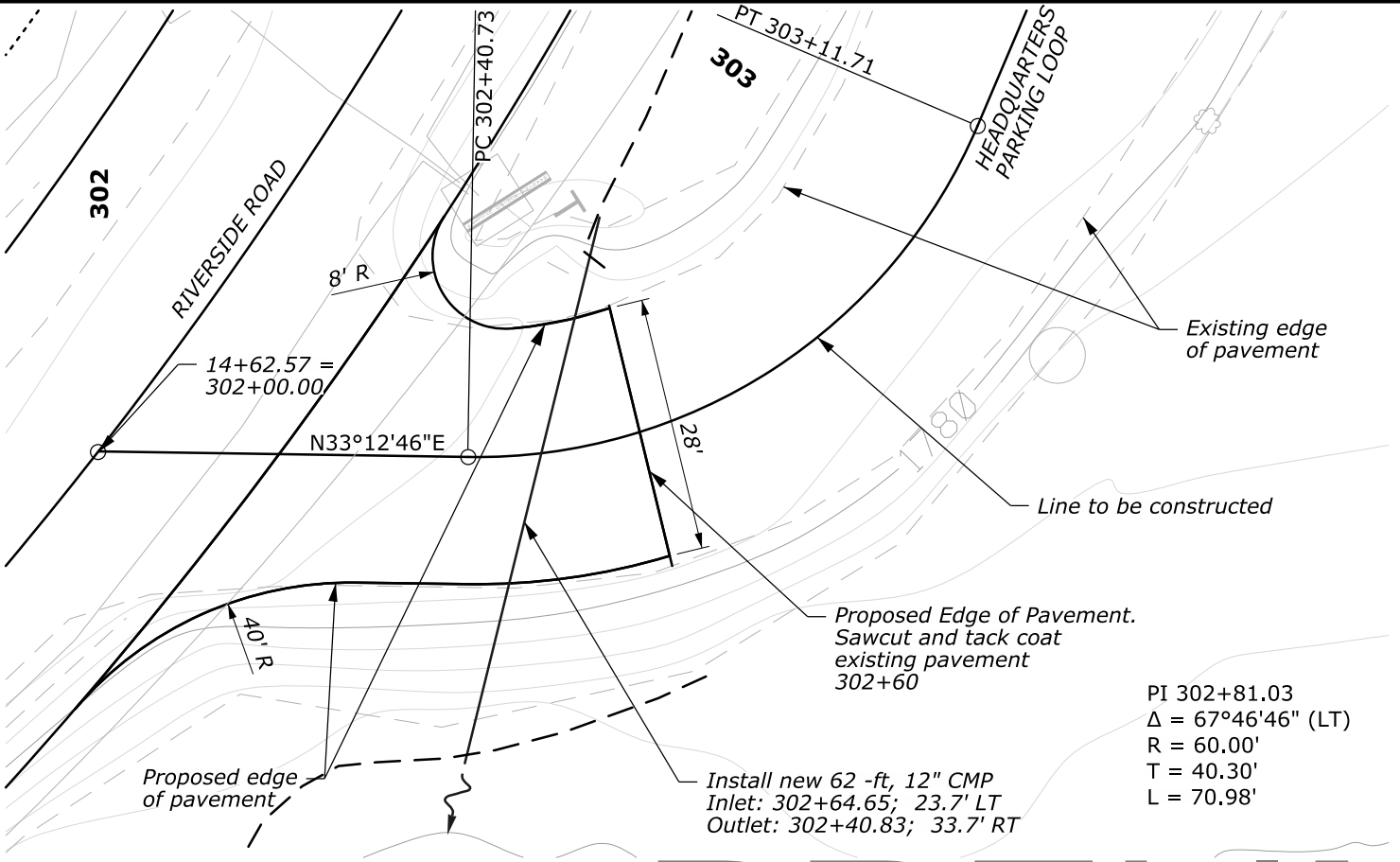


MYRTLE FALLS TRAIL PARKING  
10+65.47

MYRTLE FALLS TRAIL PARKING  
12+07.50



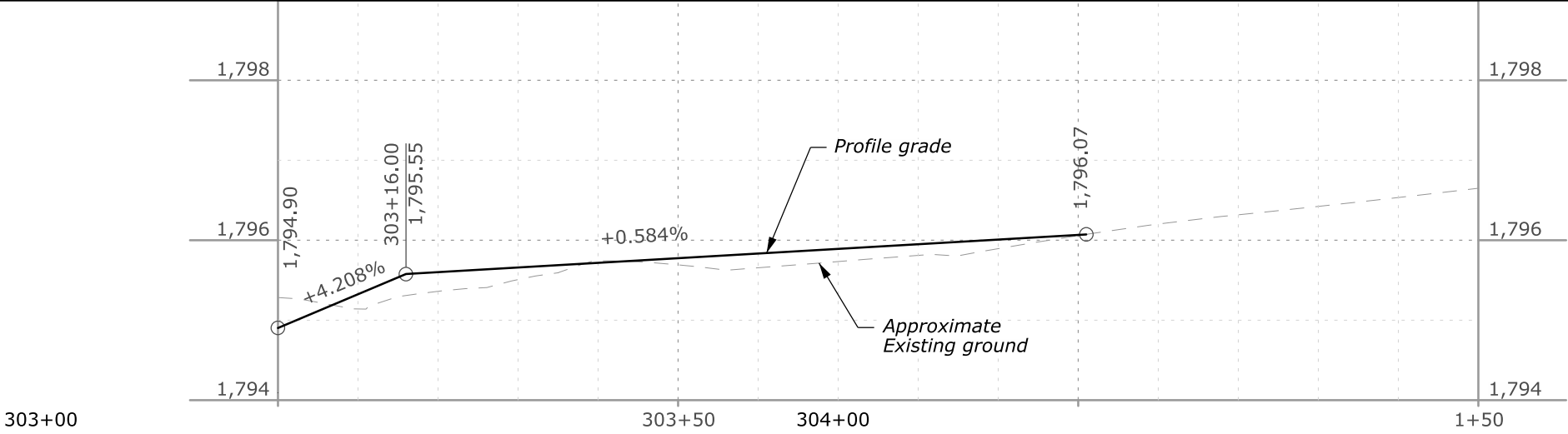
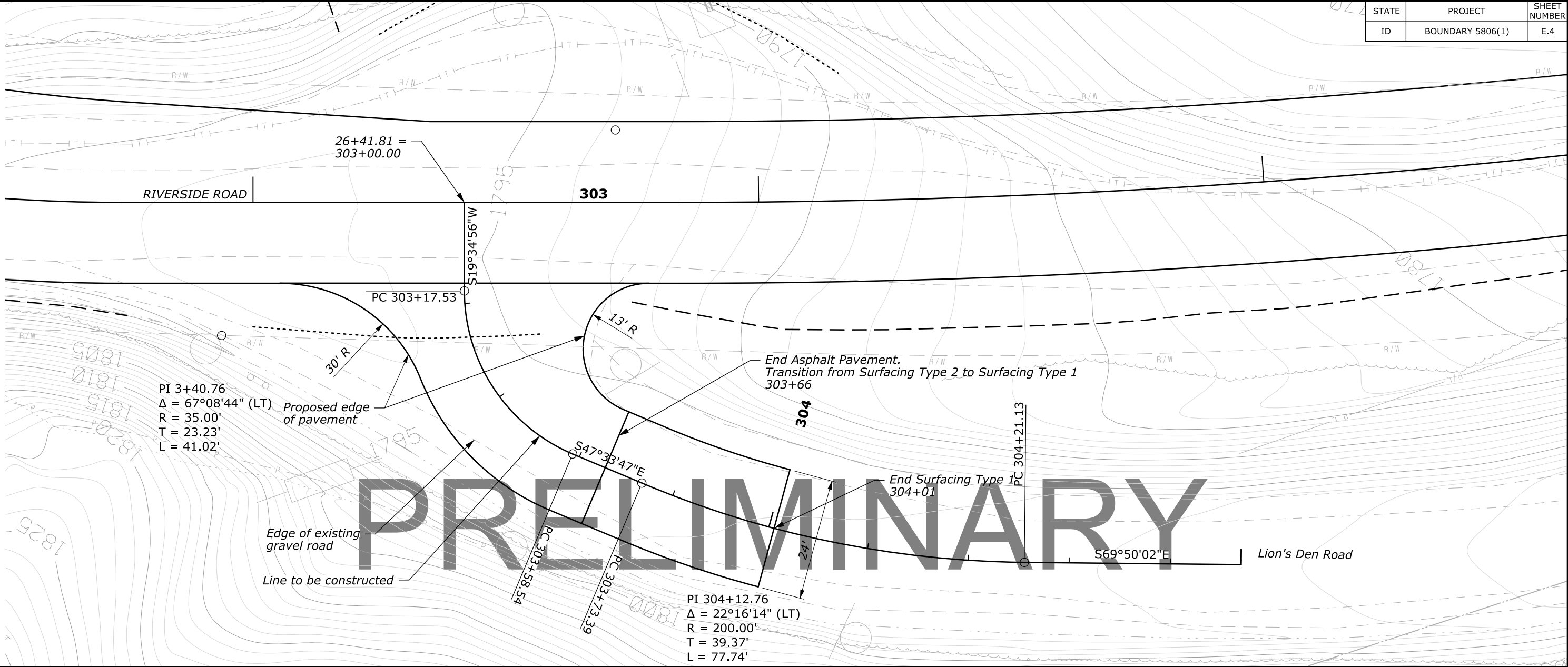
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	E.3



**HEADQUARTERS PARKING LOOP**  
**14+62.57 LT**

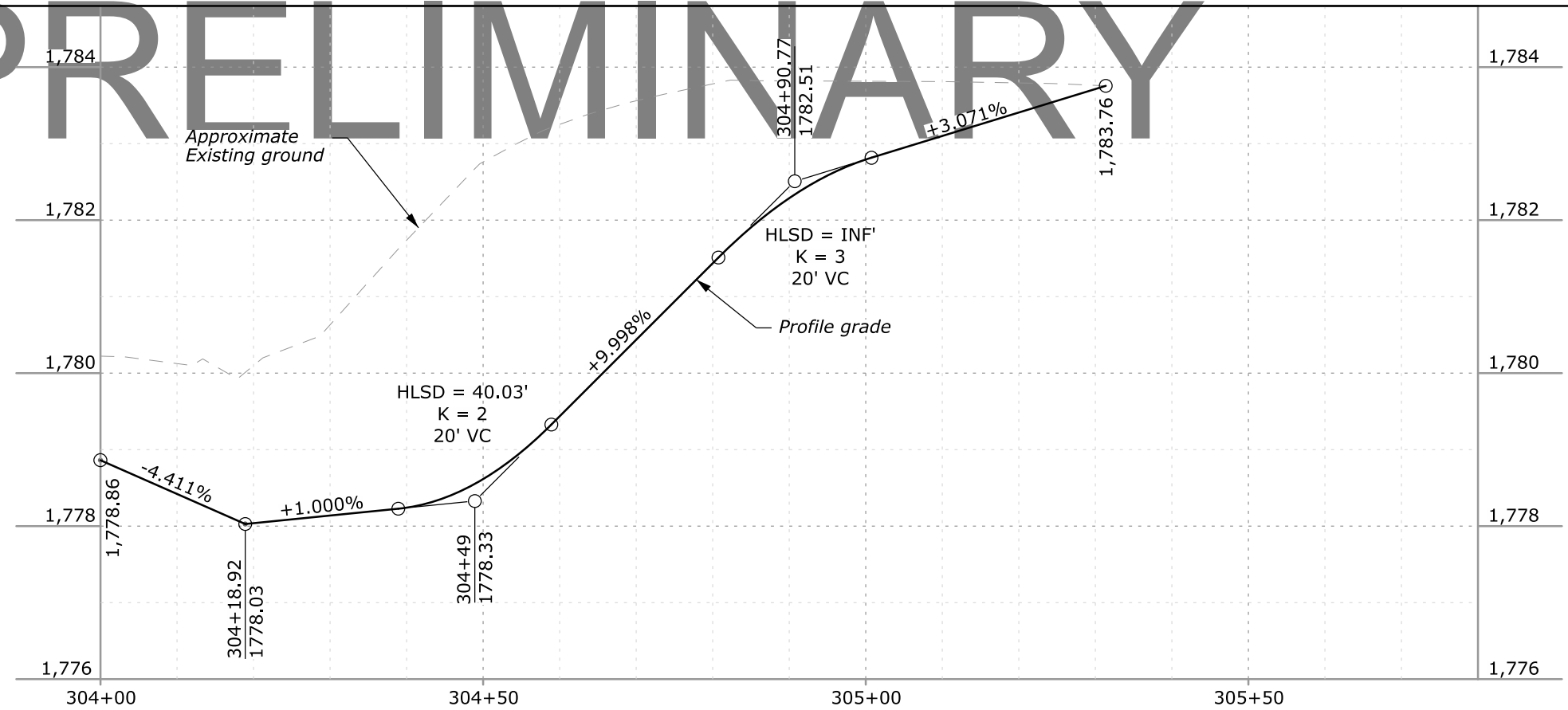
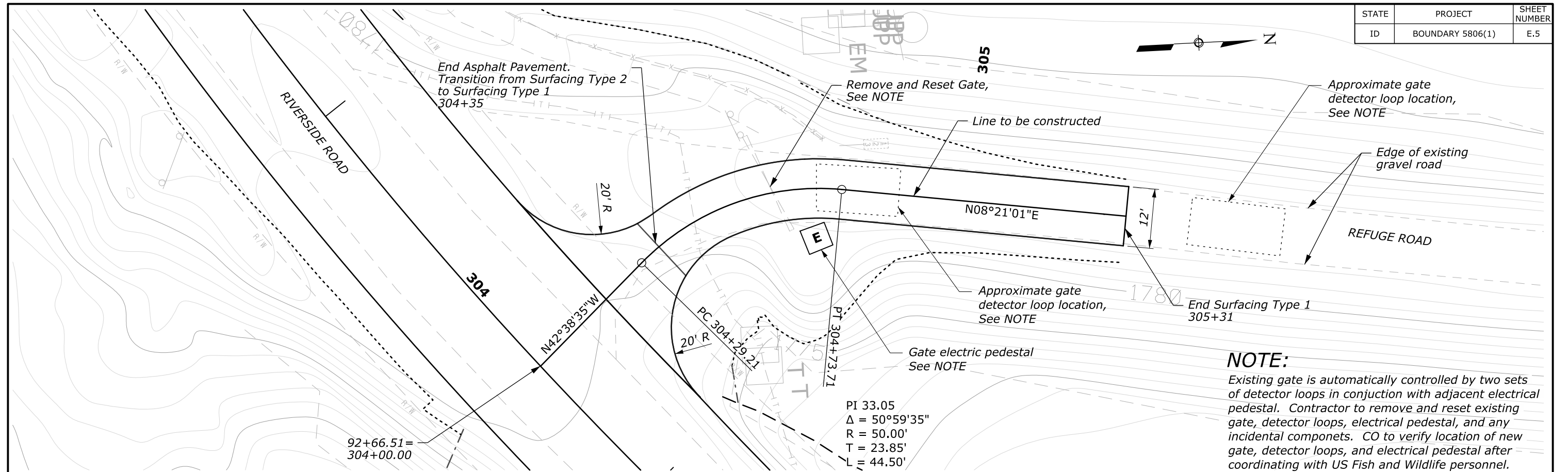
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ID	BOUNDARY 5806(1)	E.4



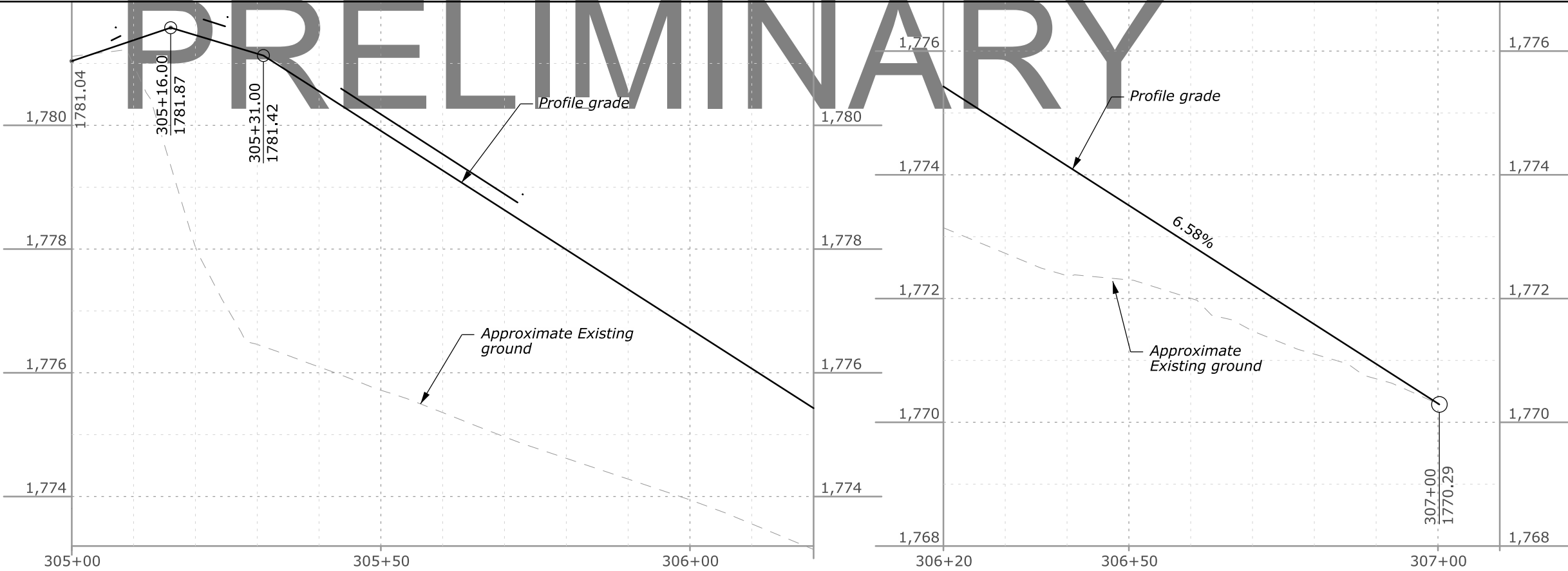
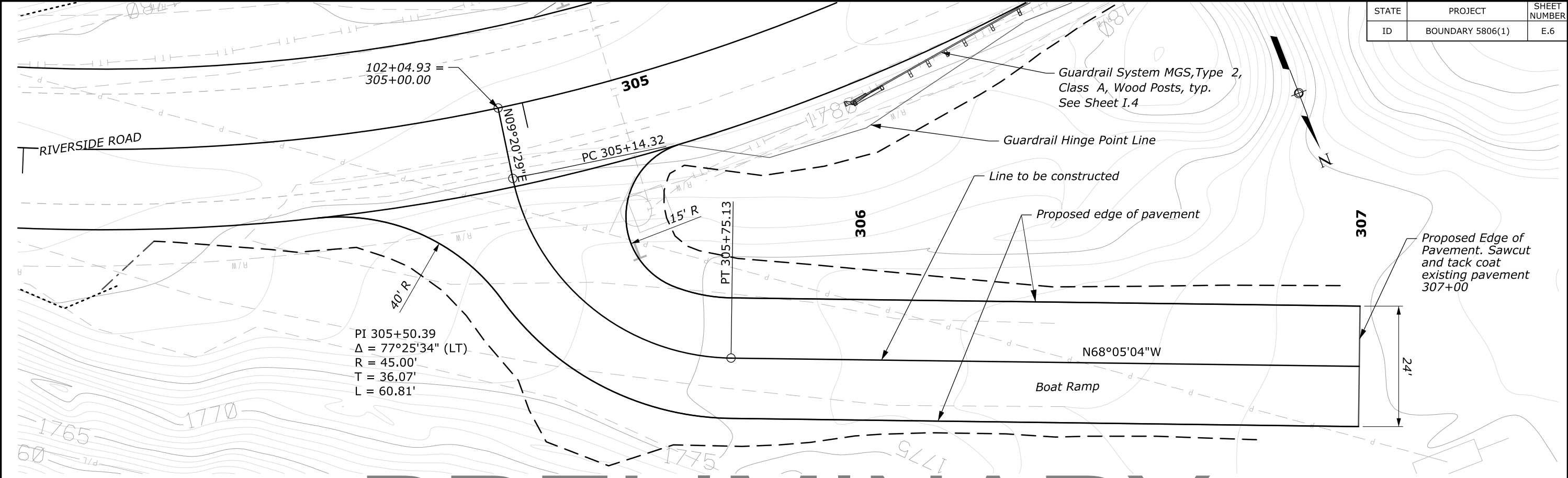
**LION'S DEN ROAD**  
**26+41.81**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	E.5



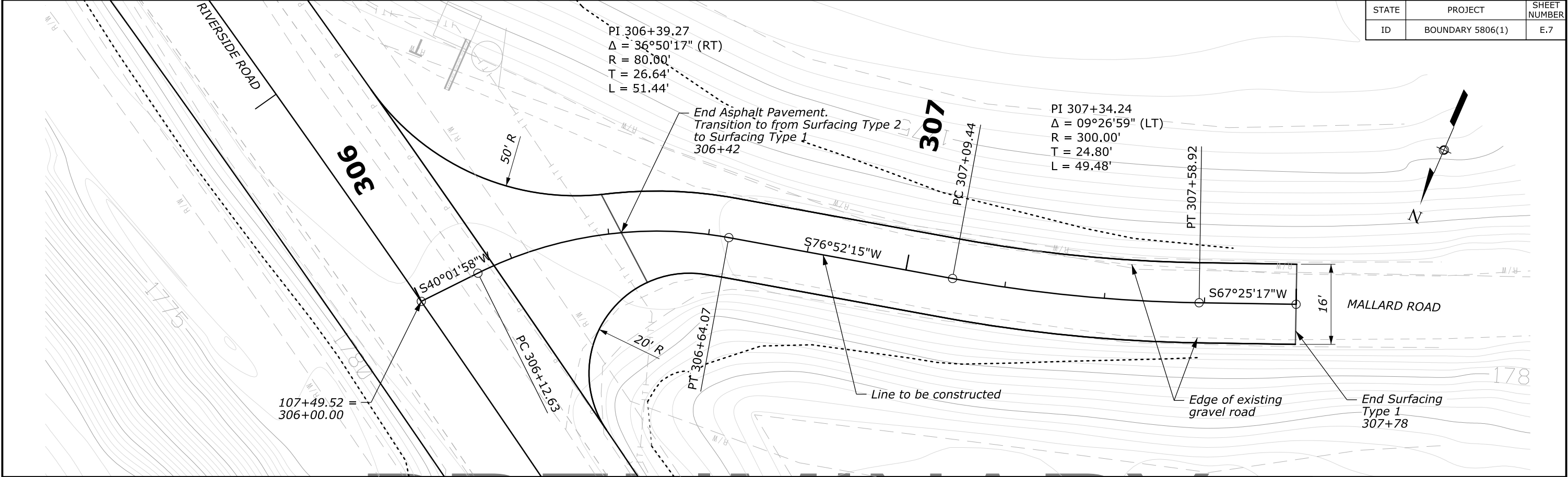
**REFUGE ROAD**  
**92+66.51 LT**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	E.6

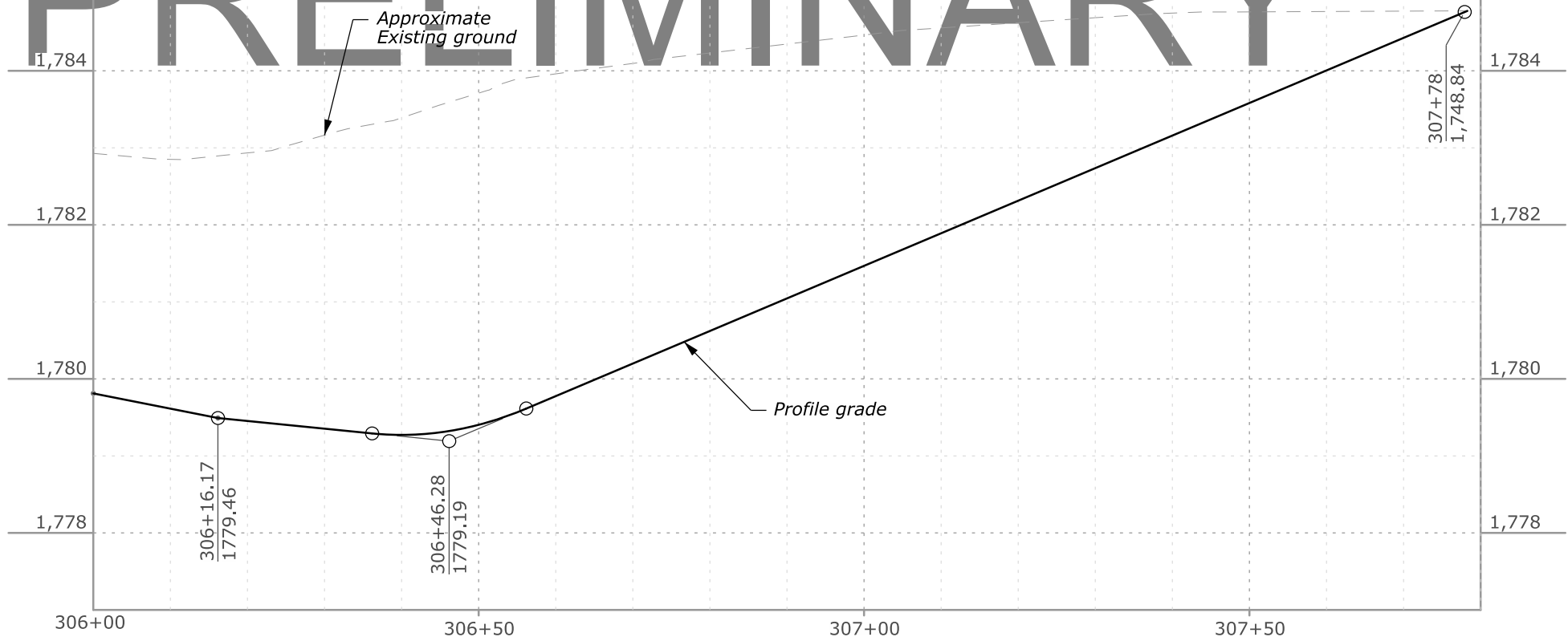


**BOAT RAMP**  
**102+04.93**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	E.7



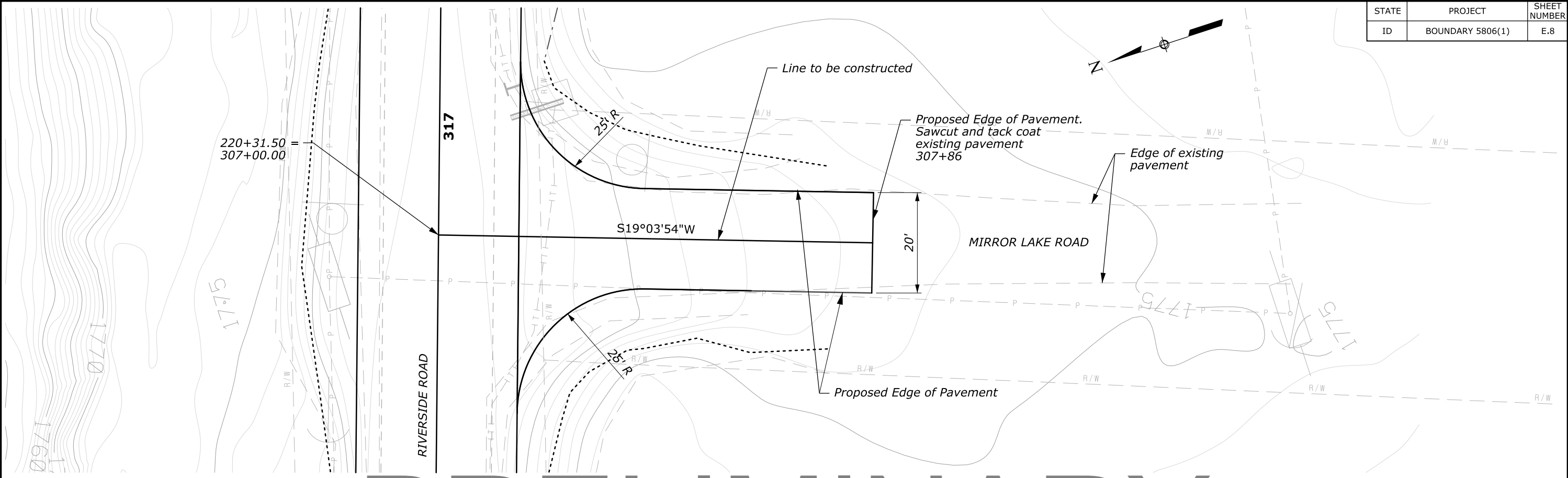
PRELIMINARY



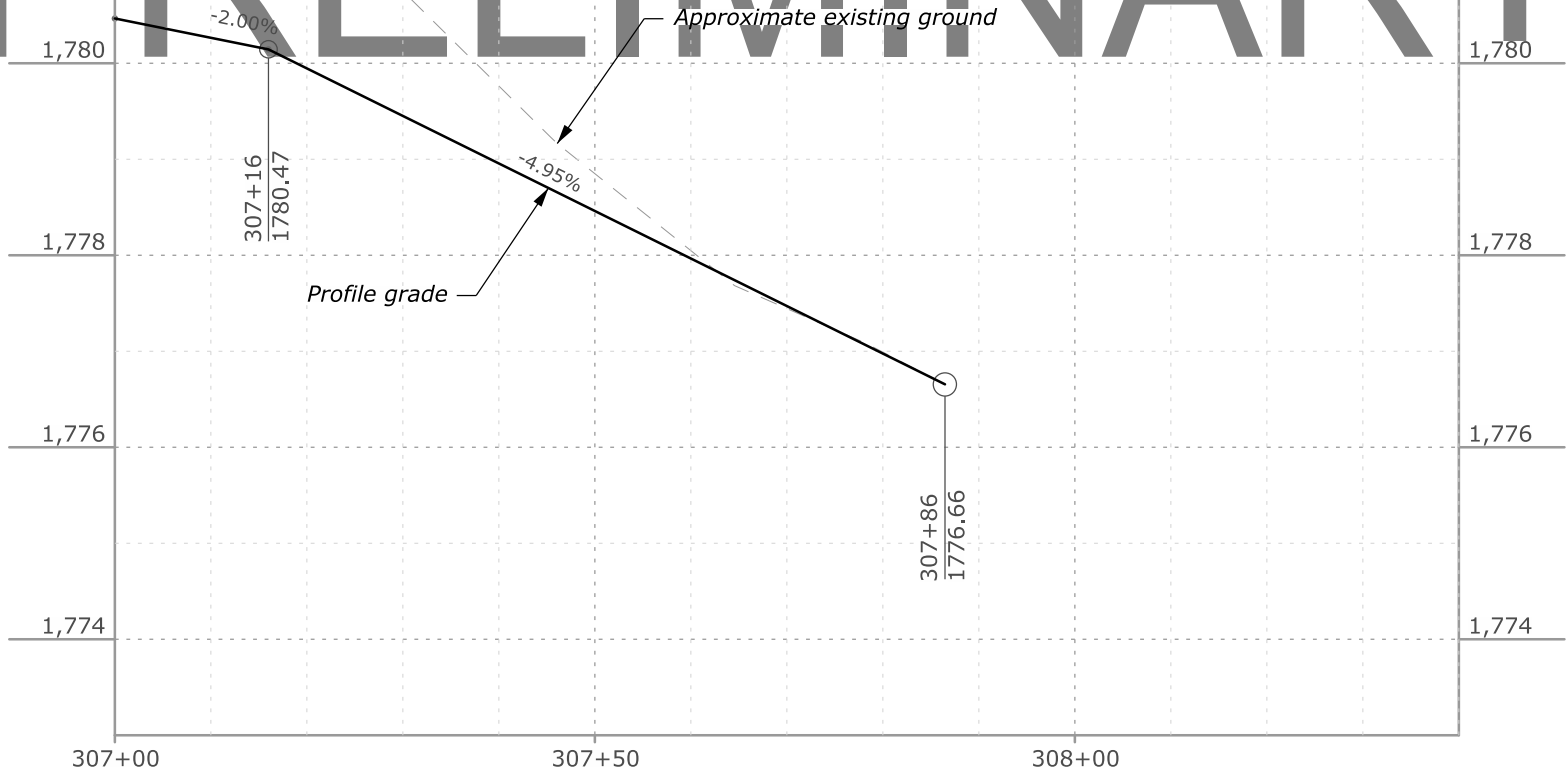
MALLARD ROAD  
107+49.52

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STATE	PROJECT	SHEET
ID	BOUNDARY 5806(1)	NUMBER
		E.8



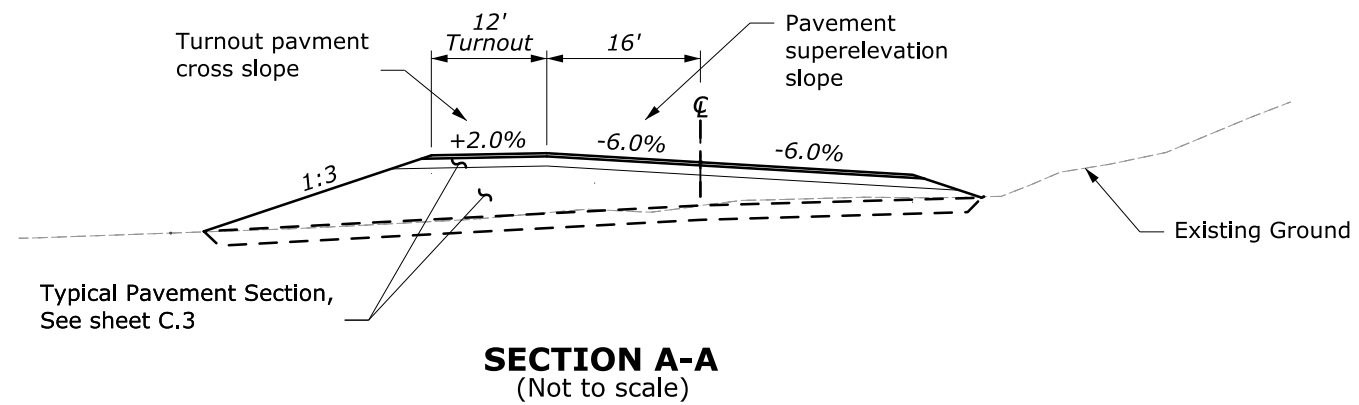
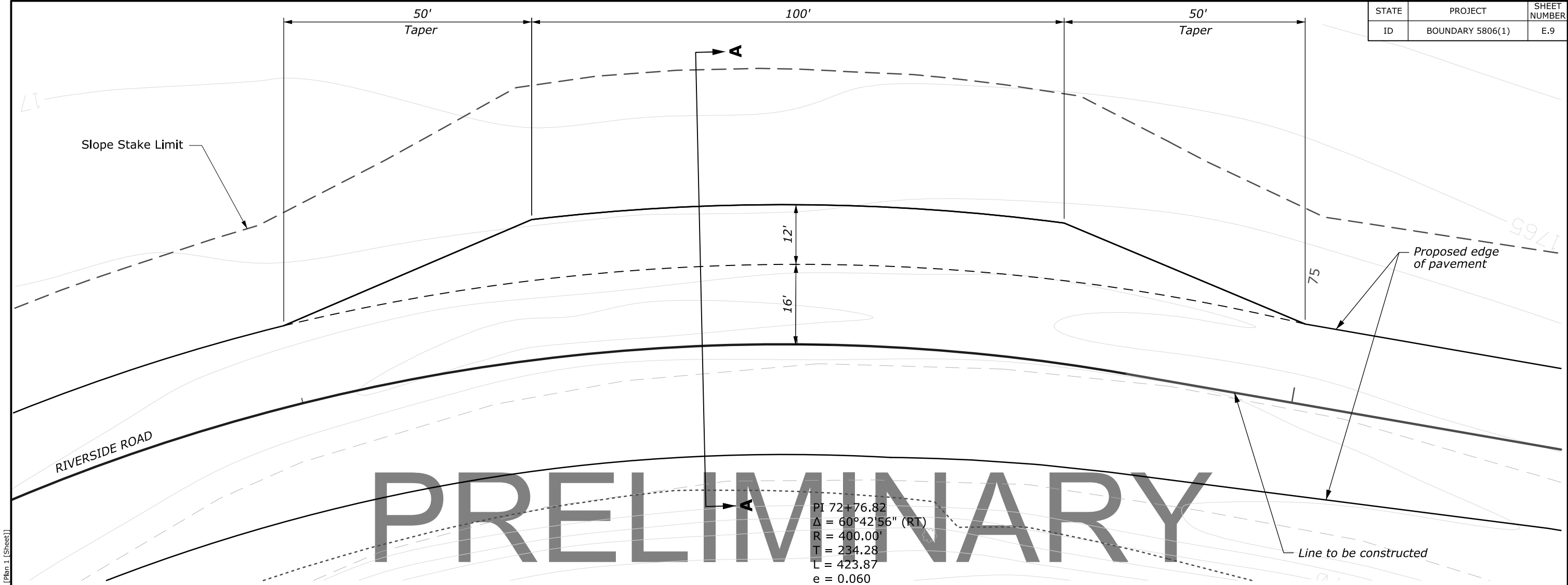
PRELIMINARY



**MIRROR LAKE ROAD**  
**220+31.50**

F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_gd.dgn [Plan 1 (Sheet)] 29 August 2019 7:36 PM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	E.9



**TURNOUT**  
**73+00 to 75+00**





ITEM 15702-1000 SOIL EROSION CONTROL, TEMPORARY DIVERSION CHANNEL			
LOCATION	SIDE	QUANTITY (LPSM)	REMARKS
23+46	LT	ALL	Unnamed Stream
52+95	N/A	ALL	Center Ditch
	TOTAL	ALL	Includes both temporary diversion channels

ITEM 15705-0100 SOIL EROSION CONTROL, SILT FENCE			
LOCATION	SIDE	QUANTITY (LNFT)	REMARKS
30+50 TO 67+00	LT	3,650	Wetlands
31+50 TO 67+00	RT	3,550	Wetlands
52+75 TO 53+50	RT	150	Center Ditch
52+75 TO 53+50	RT	150	Center Ditch
99+00 TO 99+50	LT	150	Deep Creek Bridge
99+00 TO 99+50	RT	150	Deep Creek Bridge
101+00 TO 101+50	LT	150	Deep Creek Bridge
101+00 TO 101+50	RT	150	Deep Creek Bridge
102+50 TO 106+50	LT	400	Levee
109+50 TO 121+00	LT	1,150	Levee
147+75 TO 150+75	LT	250	Levee
152+00 TO 157+50	LT	550	Levee
180+00 TO 181+50	LT	150	Levee
188+50 TO 189+50	LT	100	Levee
194+50 TO 197+00	LT	250	Levee
211+00 TO 213+75	LT	275	Levee
	TOTAL	11,225	

ITEM 15705-1400 SOIL EROSION CONTROL, FIBER ROLL			
LOCATION	SIDE	QUANTITY (LNFT)	REMARKS
9+76.97 TO 10+75	RT	116	
9+76.97 TO 11+25	LT	120	
11+00 TO 12+00	RT	100	
11+50 TO 12+25	LT	100	
12+25 TO 20+00	RT	775	
12+75 TO 14+50	LT	175	
14+75 TO 20+50	LT	1,150	High Fill
20+50 TO 23+50	LT	300	
23+50 TO 26+25	LT	550	High Fill
26+25 TO 27+25	LT	150	
27+25 TO 29+00	LT	350	High Fill
67+00 TO 89+00	LT	2,200	
67+00 TO 79+00	RT	1,200	
82+00 TO 92+75	RT	1,075	
91+00 TO 95+00	LT	400	
92+50 TO 99+50	RT	1,400	High Fill
95+00 TO 99+50	LT	900	High Fill
100+50 TO 101+75	LT	250	
101+00 TO 233+50	RT	13,650	
105+50 TO 109+50	LT	300	
121+00 TO 147+75	LT	2,675	
150+75 TO 152+00	LT	125	
157+50 TO 180+00	LT	2,250	
181+50 TO 188+50	LT	700	
189+50 TO 194+50	LT	500	
197+00 TO 211+00	LT	1,400	
213+75 TO 226+00	LT	1,225	
244+00 TO 247+00	LT	300	
243+50 TO 247+00	RT	350	
	TOTAL	34,786	

ITEM 15705-1400 SOIL EROSION CONTROL, FIBER ROLLS		
LOCATION	QUANTITY (LNFT)	REMARKS
23+46.89	30	Culvert
29+83.49	30	Culvert
33+20.00	30	Culvert
40+91.74	30	Culvert
77+20.00	30	Culvert
TOTAL	150	

ITEM 15706-0200 SOIL EROSION CONTROL, CHECK DAM, FIBER ROLL			
LOCATION	SIDE	QUANTITY (EACH)	REMARKS
20+00 TO 25+50	RT	8	
79+00 TO 82+00	RT	5	
234+00 TO 236+50	RT	6	
	TOTAL	19	

ITEM 15706-0200 SOIL EROSION CONTROL, CHECK DAM, FILTER ROCK			
LOCATION	SIDE	QUANTITY (EACH)	REMARKS
27+25 TO 31+50	RT	15	
226+00 TO 235+00	LT	30	
242+00 TO 244+00	LT	7	
242+00 TO 244+00	RT	7	
	TOTAL	59	

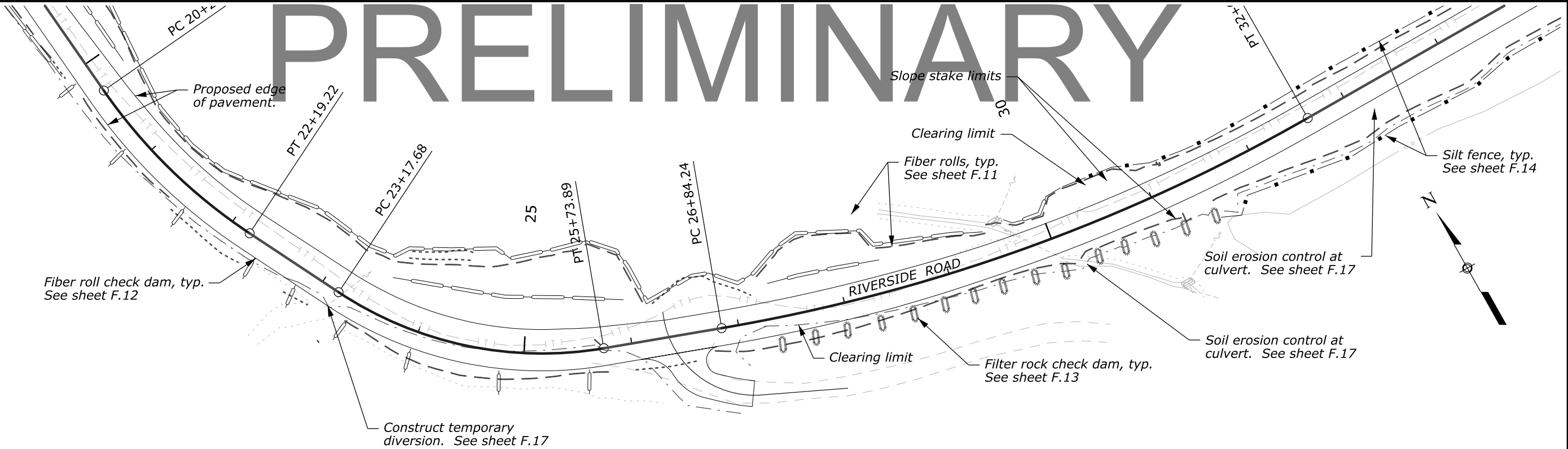
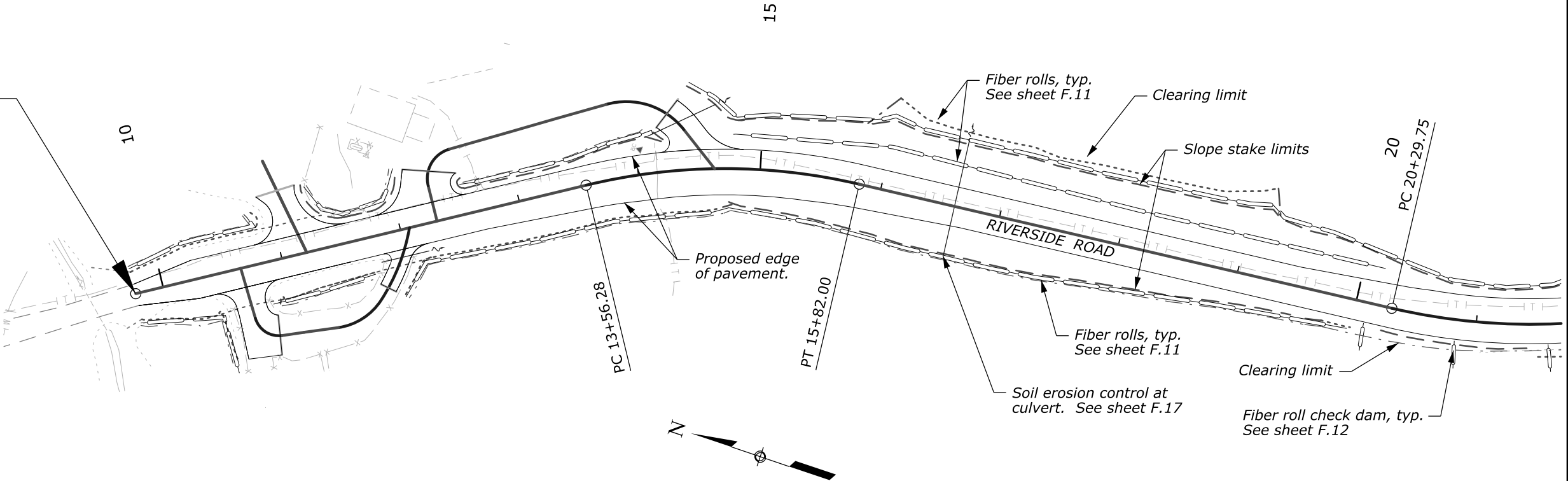
ITEM 62901-0800 ROLLED EROSION CONTROL PRODUCT, TYPE 2.D			
LOCATION	SIDE	QUANTITY (SQYD)	REMARKS
226+00 TO 230+00	RT	1,047	RSS Area
	TOTAL	1,047	

TABULATION OF SOIL EROSION  
& SEDIMENT CONTROL QUANTITIES

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.2

**BEGIN PROJECT**

BEGIN RECONSTRUCTION  
ID BOUNDARY 5806(1)  
RIVERSIDE ROAD  
IMPROVEMENTS  
9+76.97  
N = 2567545.372  
E = 2463920.537  
EI = 1790.23

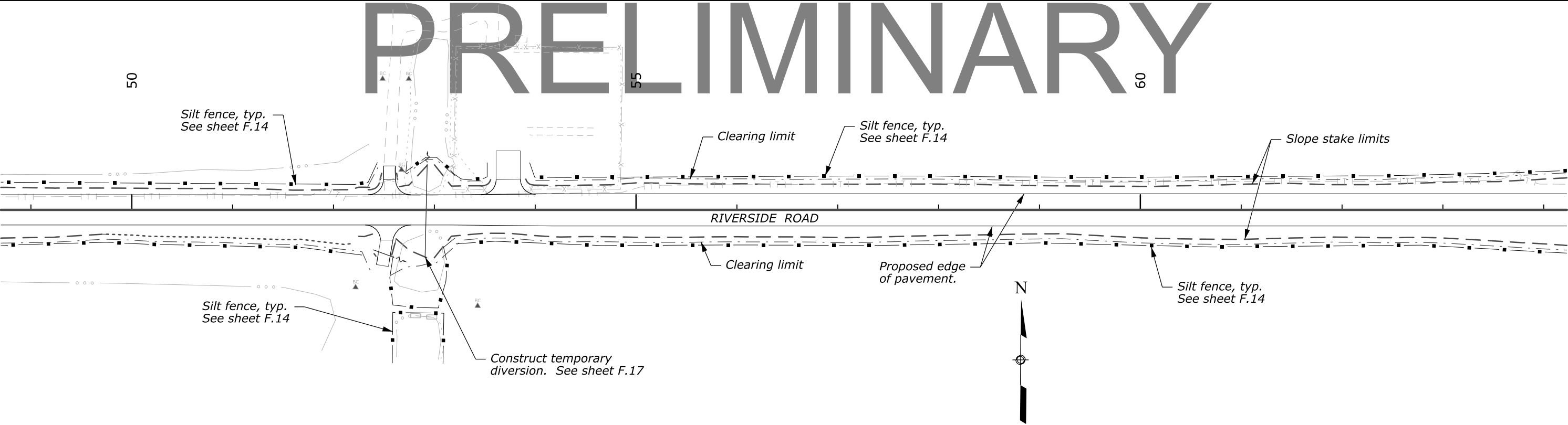
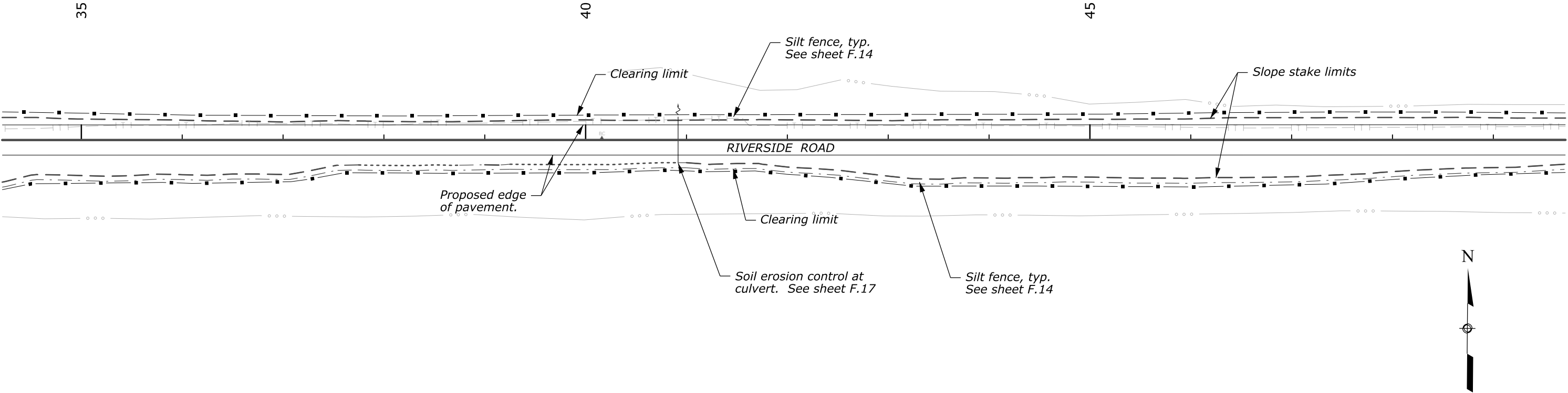


**LEGEND**

- Install soil erosion control, silt fence.  
See Sheet F.14 for details
- Install soil erosion control, fiber rolls.  
See Sheet F.11 for details
- Install soil erosion control, straw bales.  
See Sheet F.15 for details
- Install soil erosion control, rock check dams.  
See Sheet F.13 for details
- Install soil erosion control, fiber rolls, across ditch.  
See Sheet F.12 for details
- Install soil erosion control, rolled erosion control product.  
See Sheet F.16 for details

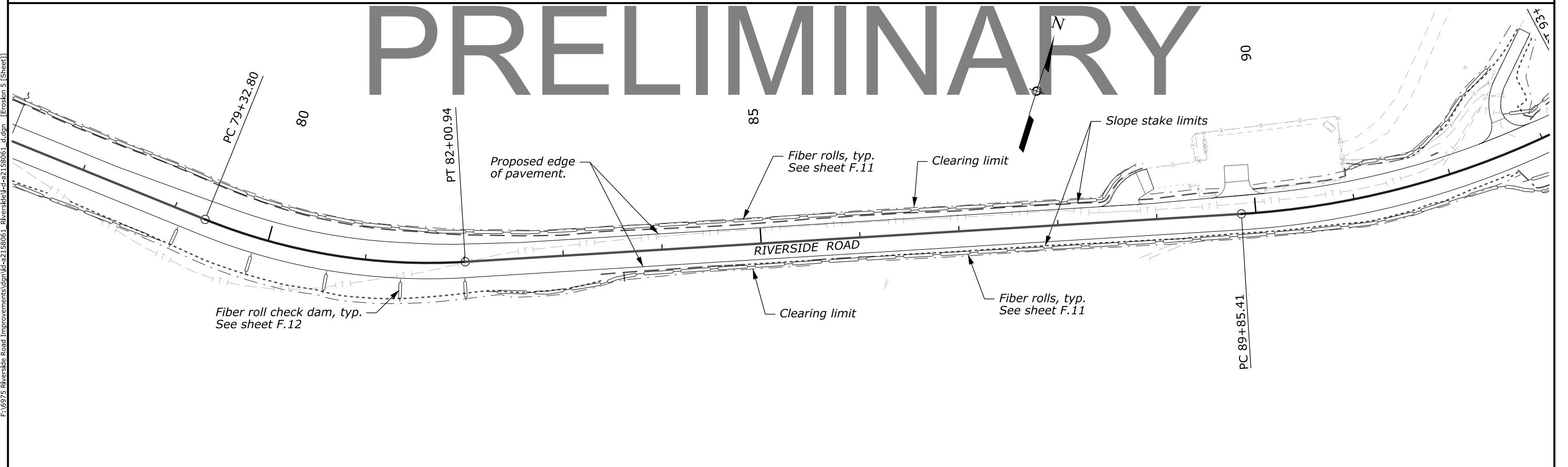
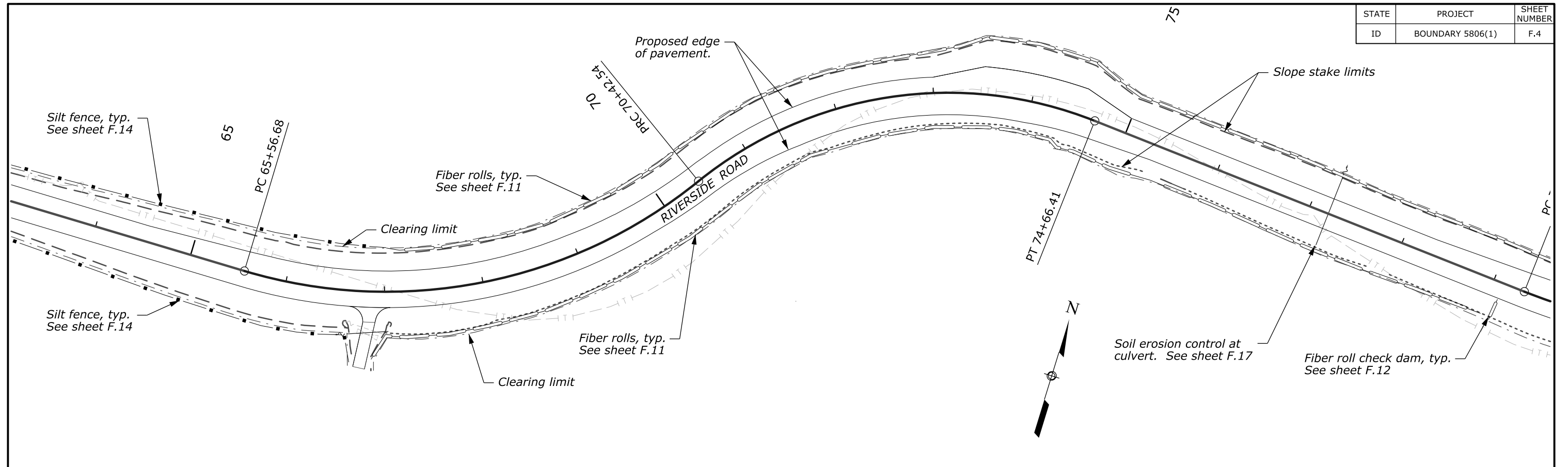
**EROSION CONTROL  
PLAN**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.3



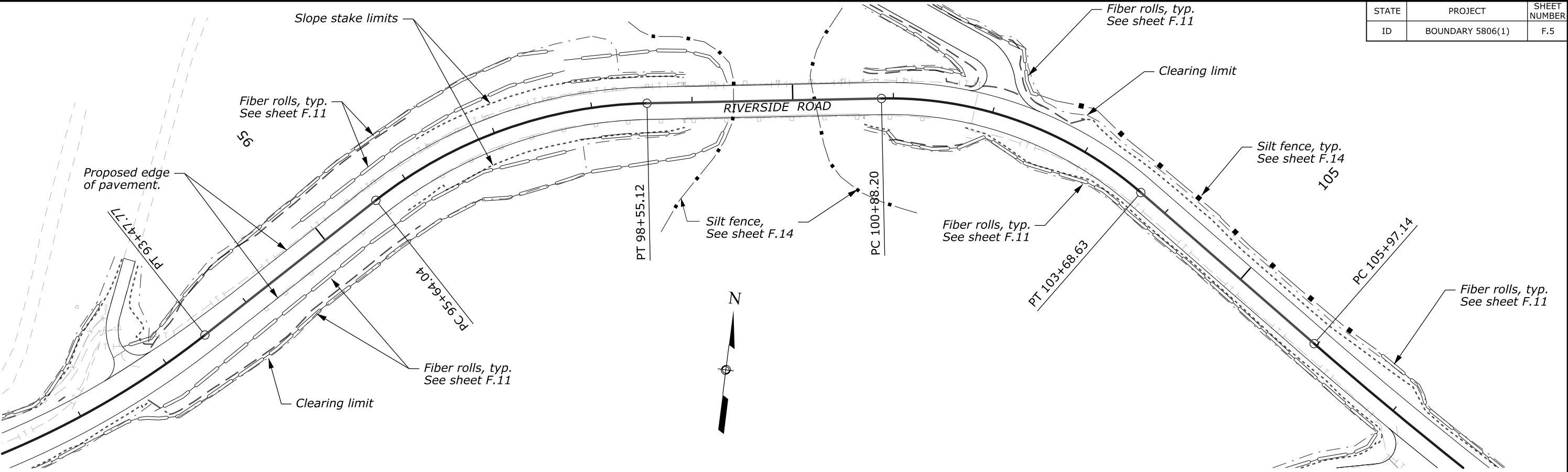
**EROSION CONTROL  
PLAN**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.4

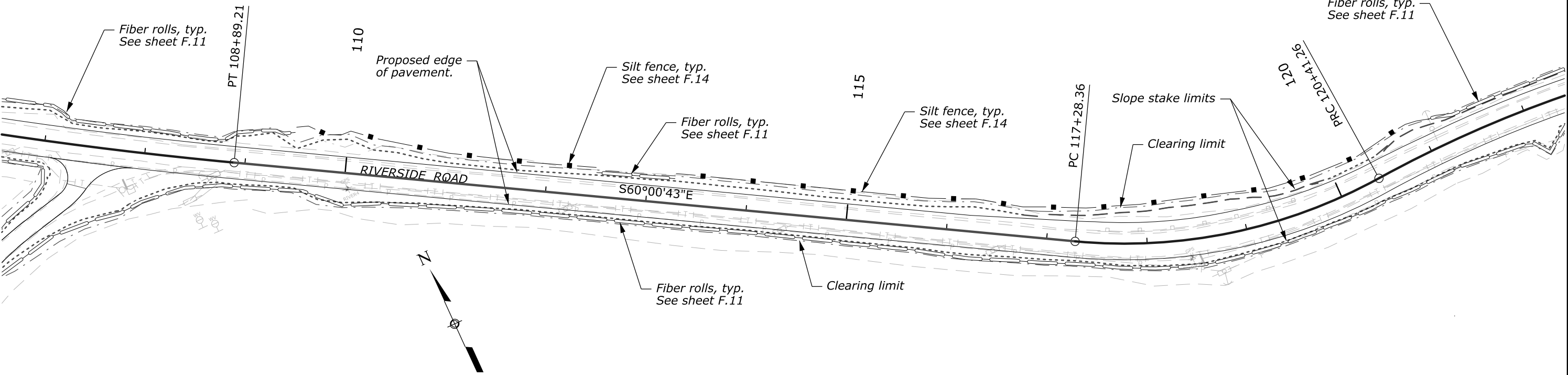


## EROSION CONTROL PLAN

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.5

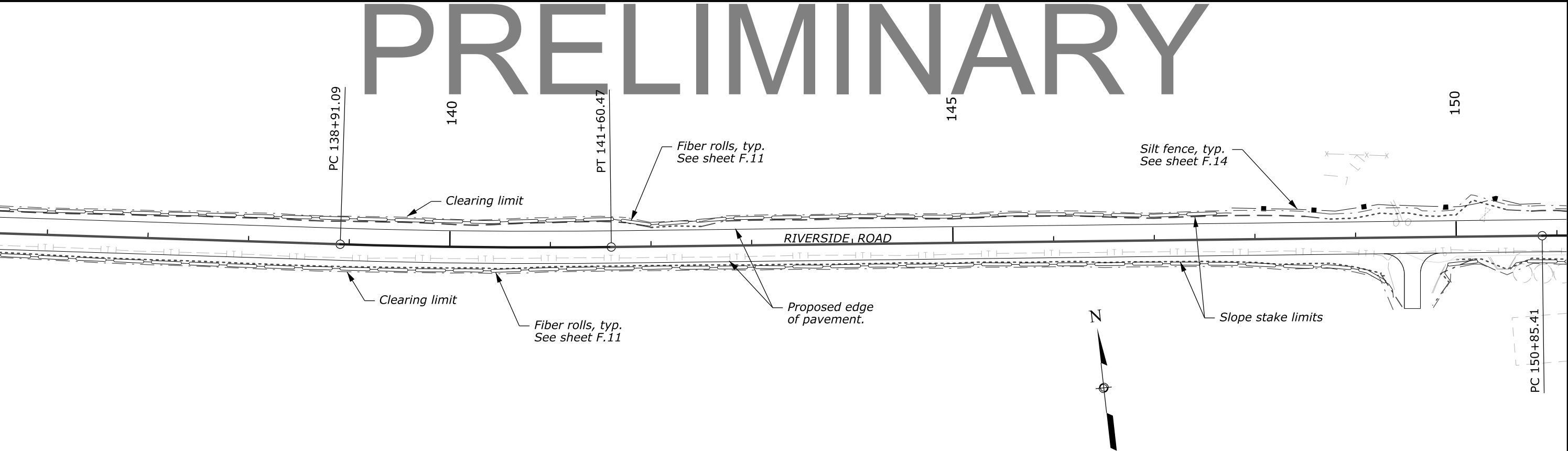
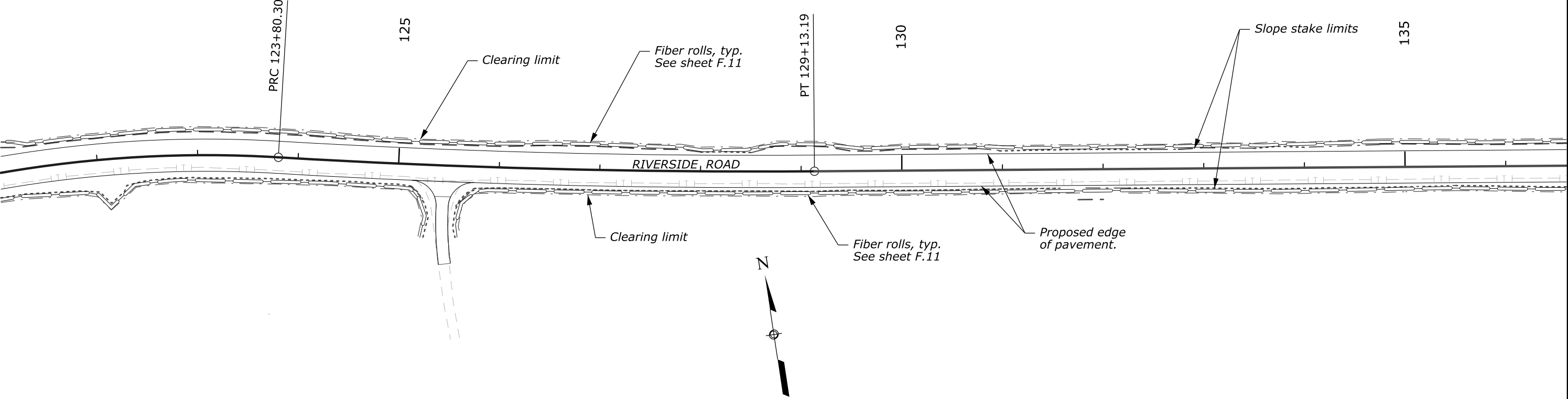


PRELIMINARY



**EROSION CONTROL  
PLAN**

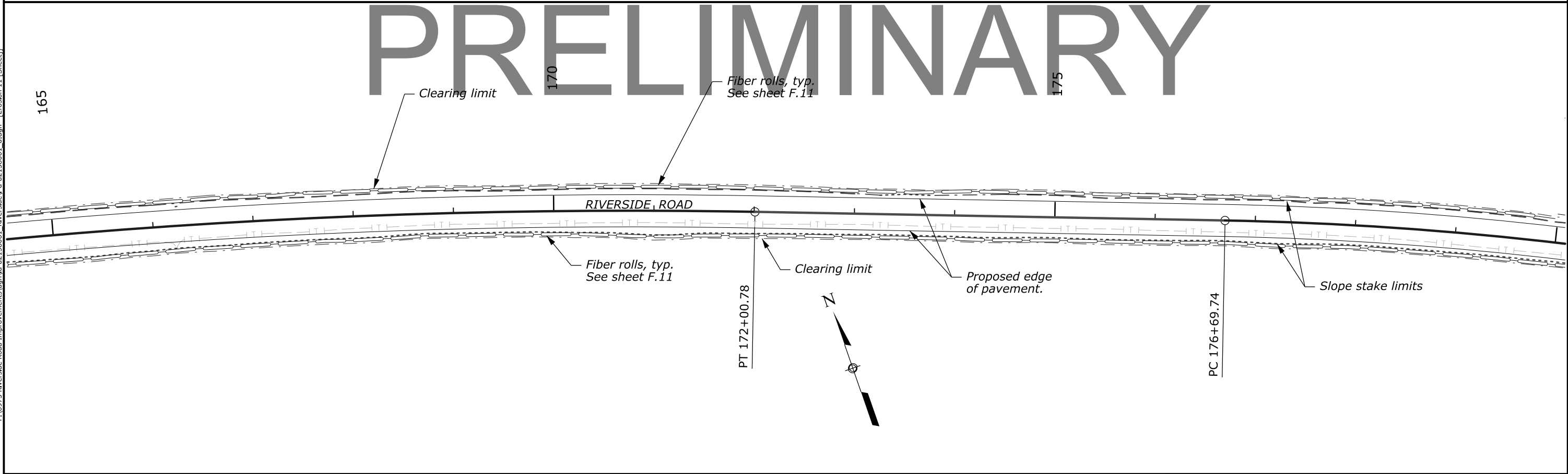
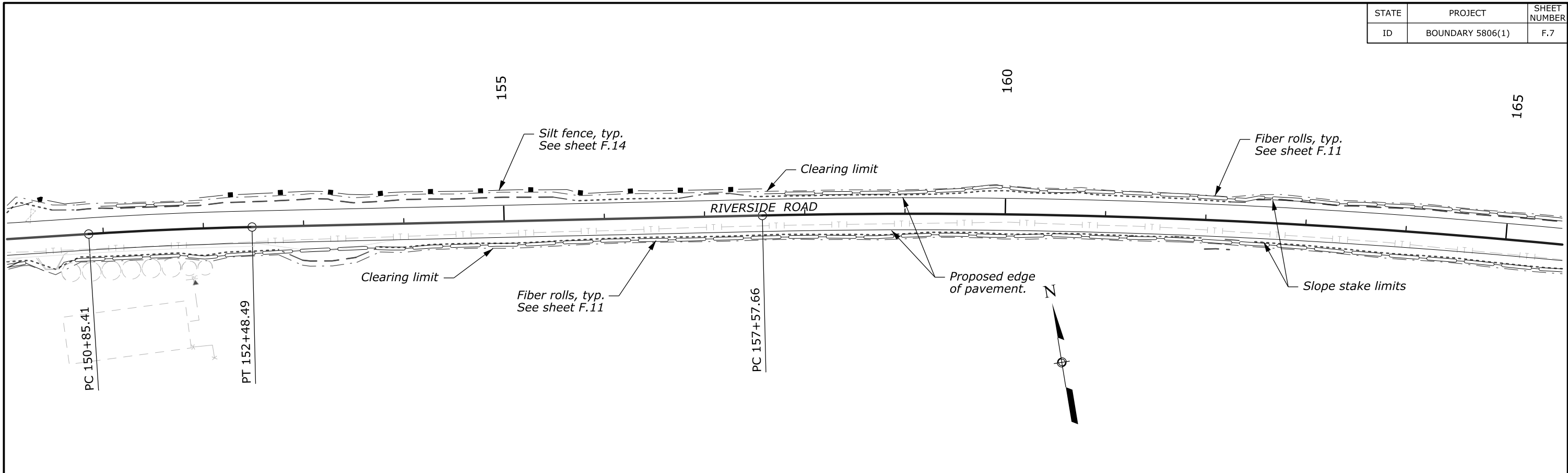
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.6



PRELIMINARY

**EROSION CONTROL  
PLAN**

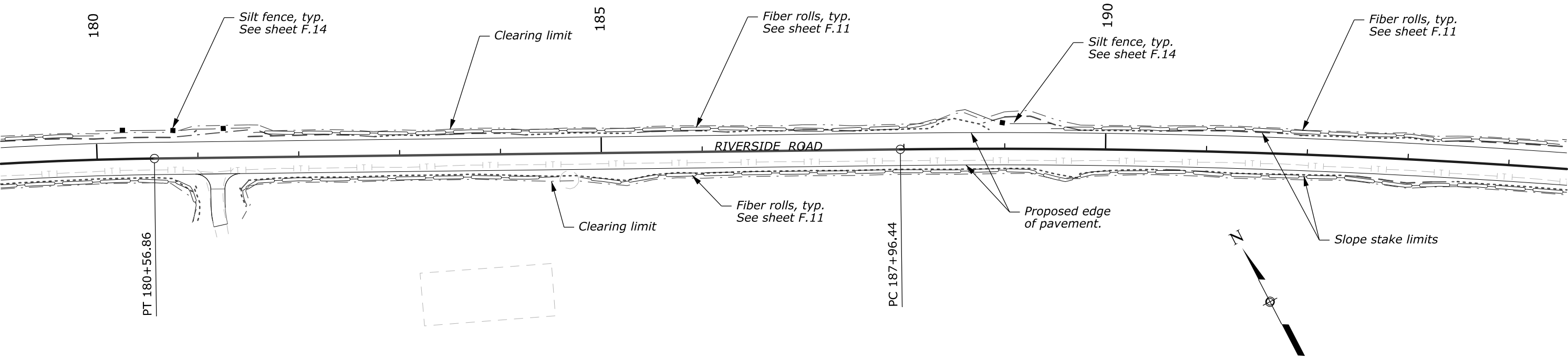
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.7



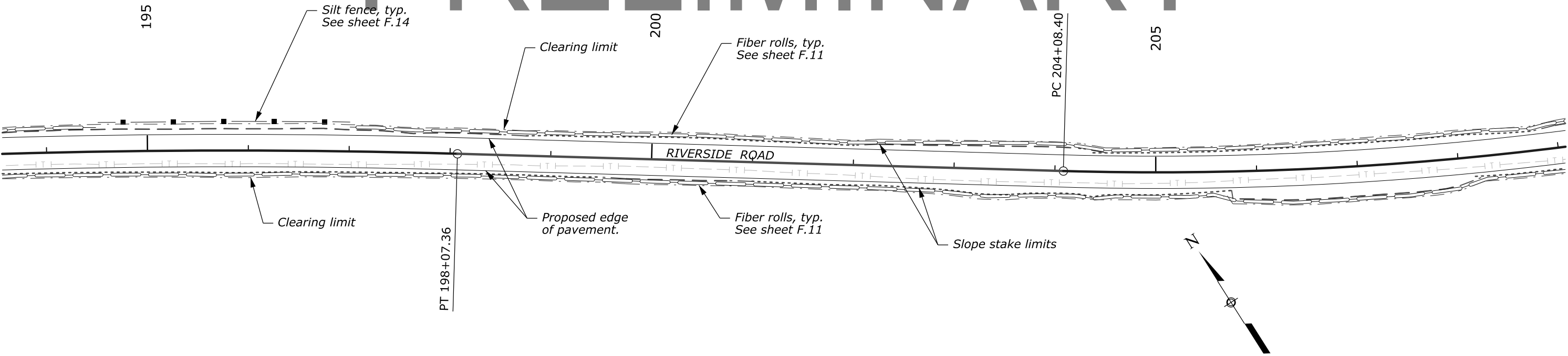
PRELIMINARY

EROSION CONTROL  
PLAN

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.8



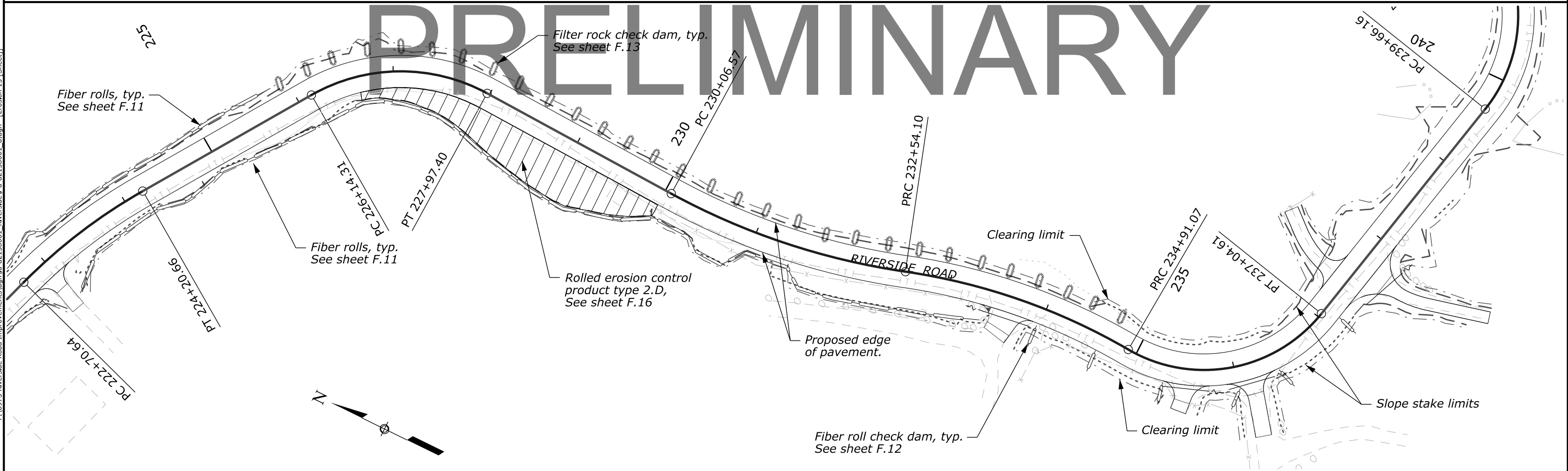
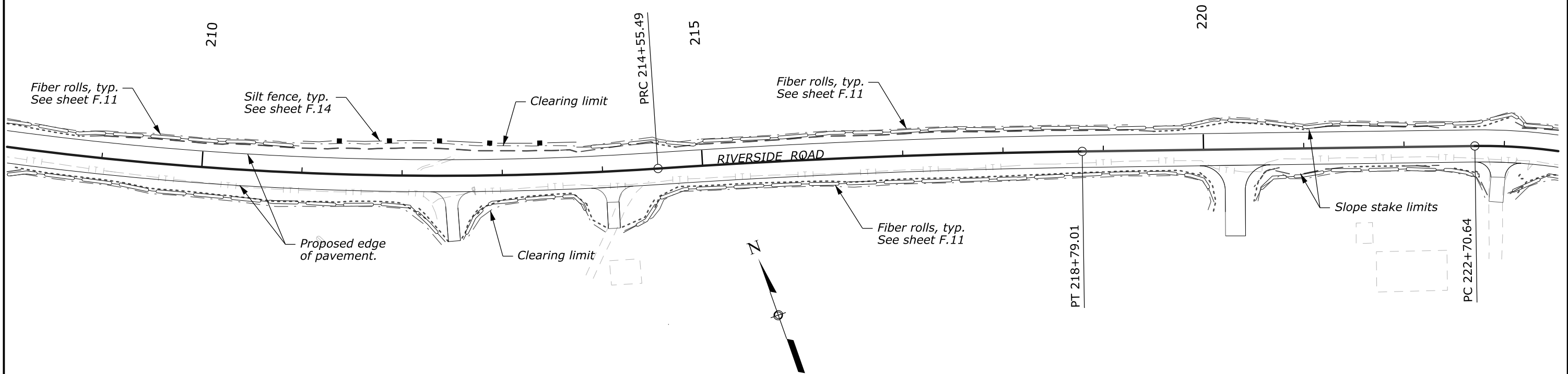
PRELIMINARY



**EROSION CONTROL  
PLAN**

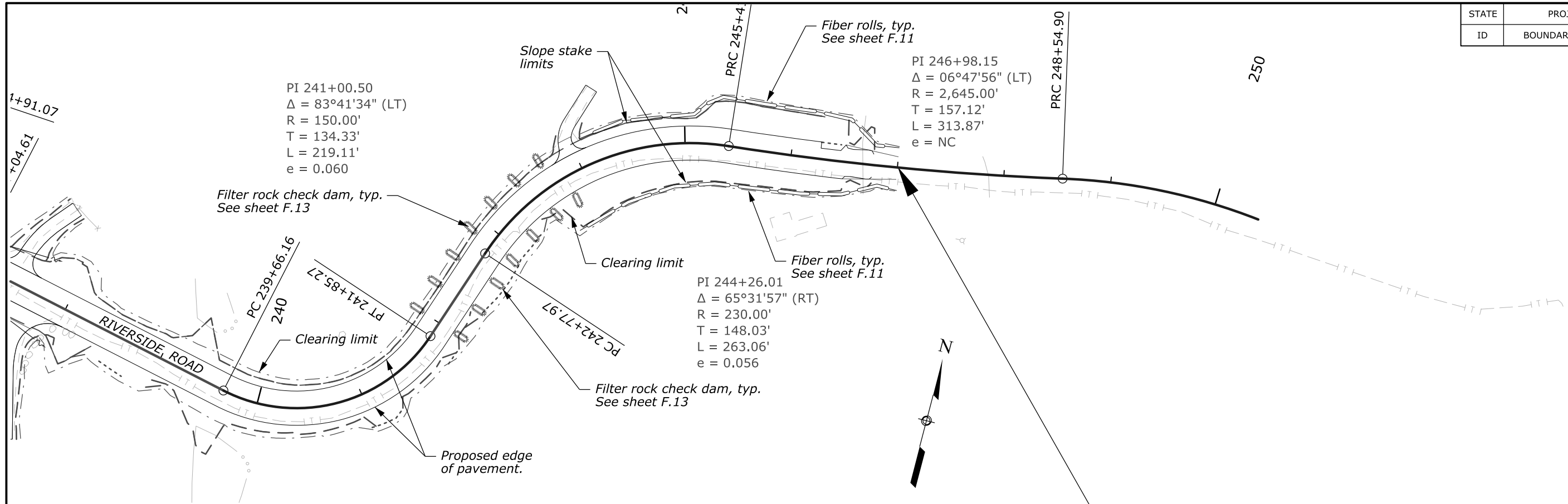


STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.9



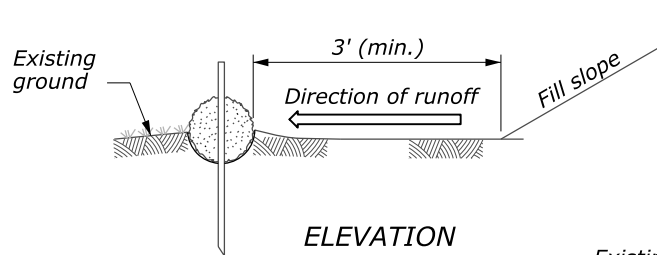
## EROSION CONTROL PLAN

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.10

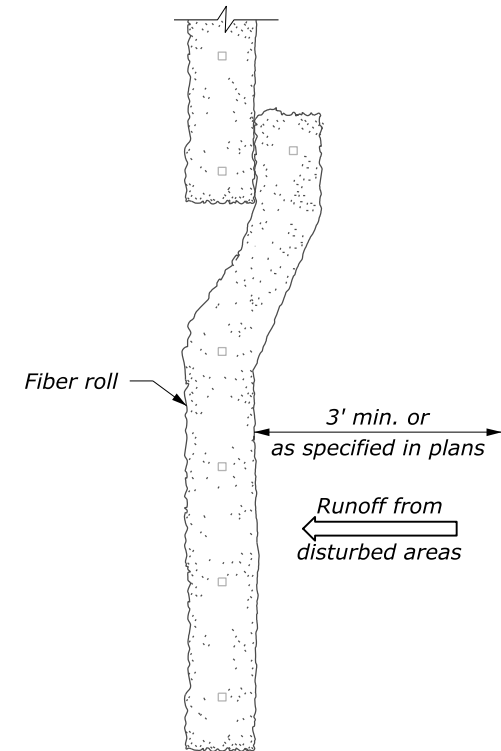


**PRELIMINARY**

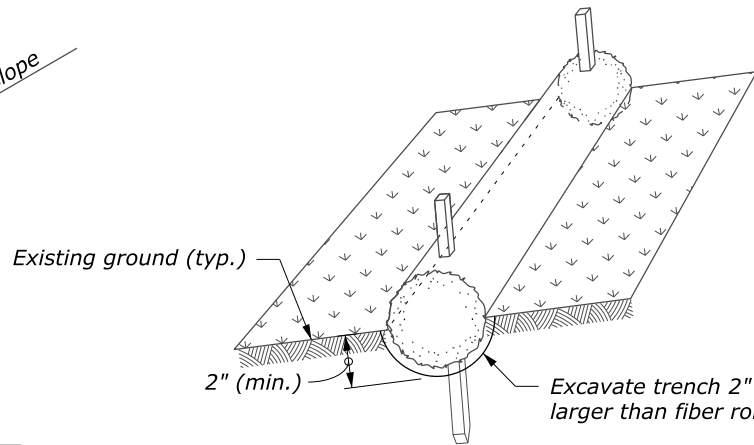
**END PROJECT**  
**END RECONSTRUCTION**  
**ID BOUNDARY 5806(1)**  
**RIVERSIDE ROAD**  
**IMPROVEMENTS**  
**247+00**  
N = 2567545.419  
E = 2463920.611  
EI = 1784.92



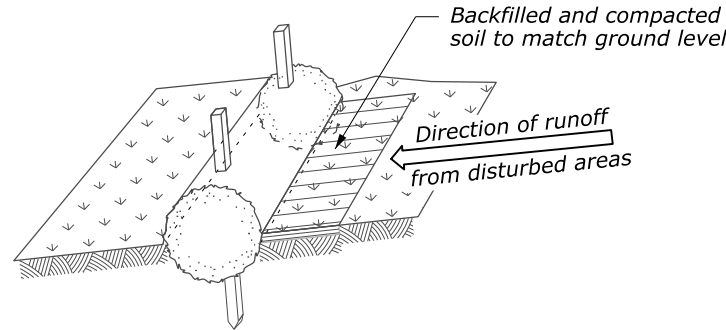
ELEVATION



PLAN



Step 1: Excavate trench and install fiber rolls



Step 2: Backfill soil against fiber rolls

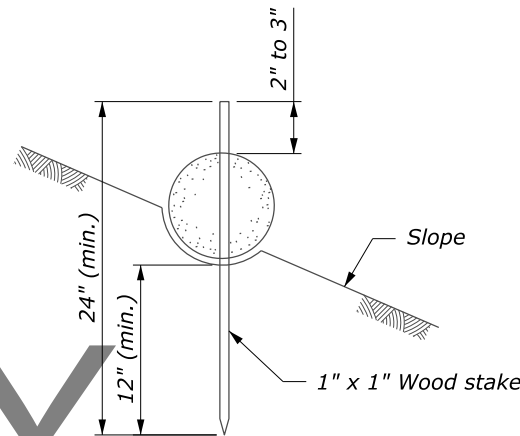
PROPERLY STAKED AND ENTRENCHED FIBER ROLL

FIBER ROLL SPACING	
Slope	Spacing (FT)
1:4 or flatter	40
1:3	30
1:2	20
1:1	10

STAKES REQUIRED	
Fiber roll length (FT)	Stakes required for each roll
25	8
20	6
12	4

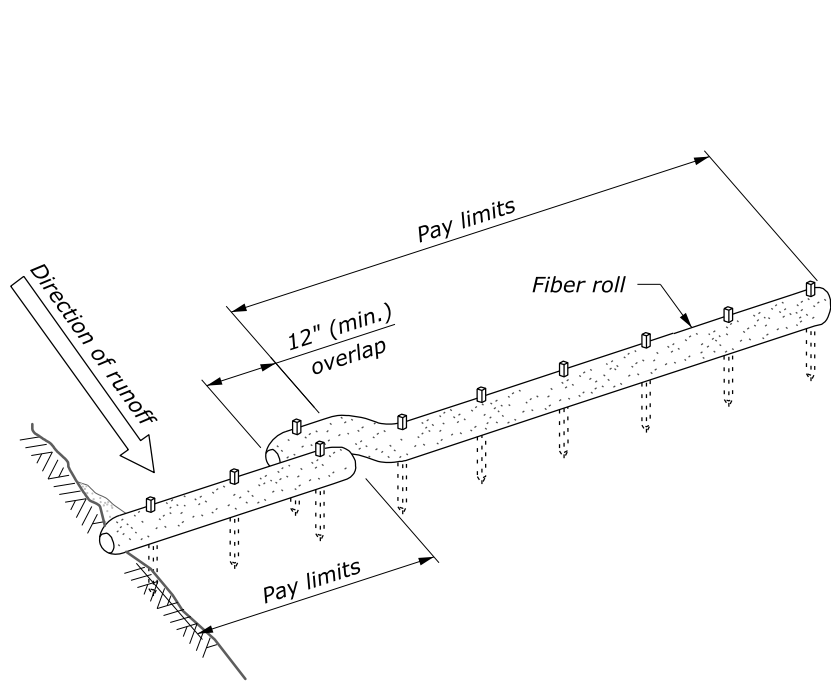
NOTE:

1. Drive stakes at each end and at 4-foot spacing until fiber roll is secure to slope. Live stakes may be used for permanent installations. Do not crush fiber roll while staking.
2. Overlap fiber rolls 12-inch minimum. Drive stakes at 6-inches from fiber roll end angles towards the adjacent fiber roll and space stakes at 4-foot max.

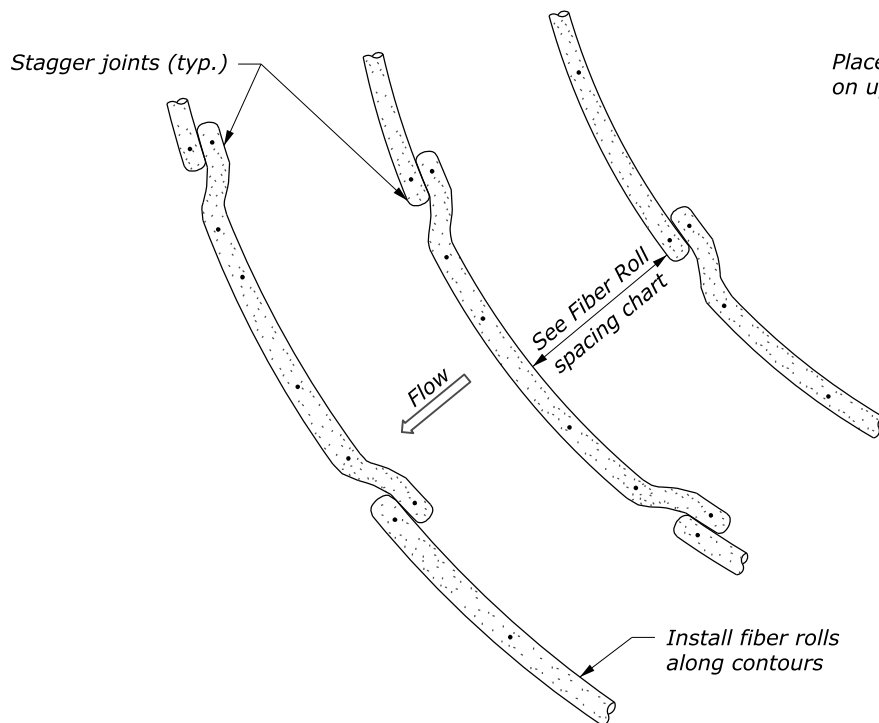


FIBER ROLL STAKING DETAIL

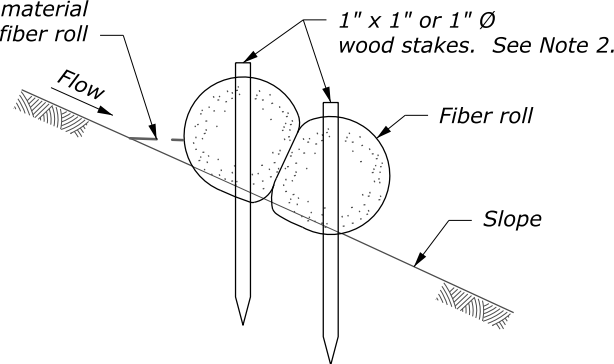
INSTALLATION BEYOND TOE OF SLOPE



ALTERNATE FIBER ROLL JOINT DETAIL  
SLOPE PROTECTION INSTALLATION



INSTALLATION ALONG SLOPES



FIBER ROLL LAPPING DETAIL

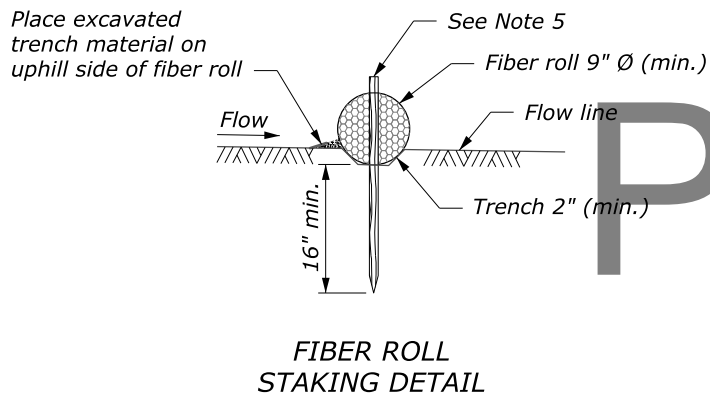
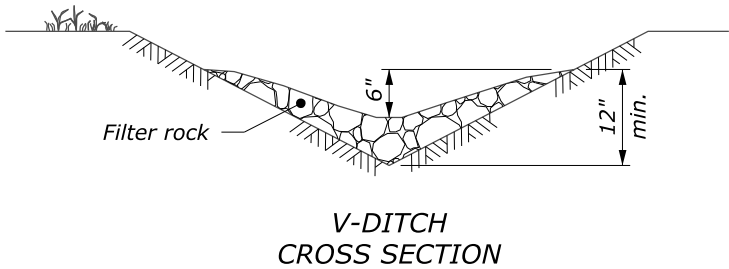
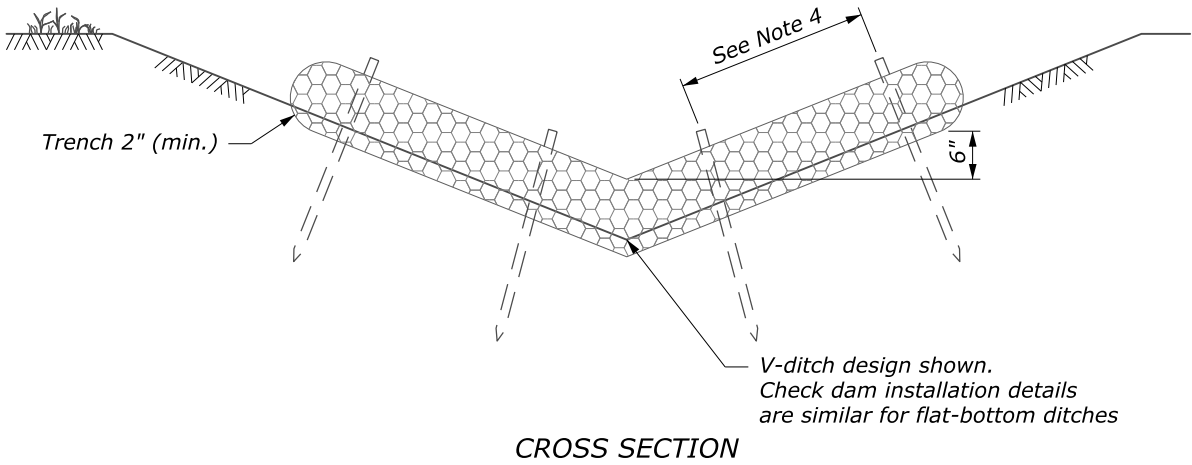
NO SCALE

F:\6975 Riverside Road Improvements\dwg\1d-a2158061\_Riverside\1d-a2158061\_db.dgn [USC]  
30 August 2019 7:46 AM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.12

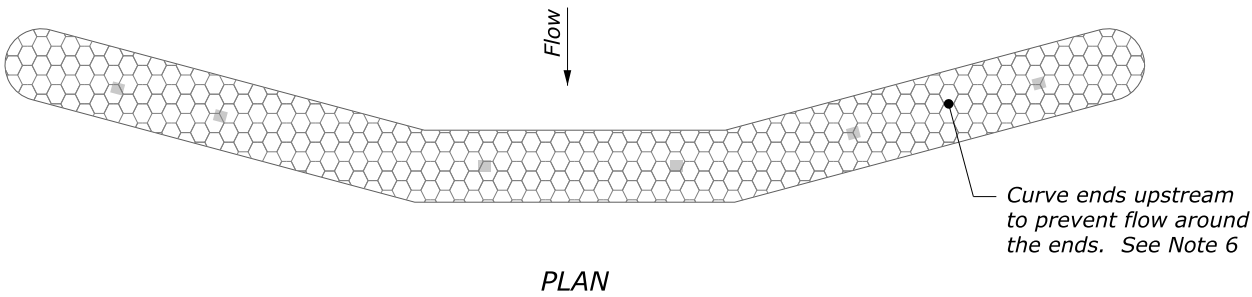
NOTE:

- Construct check dams from fiber rolls, filter rock, or gravel bags as approved by the CO, to meet the functional requirements of the check dam device.
- Repair all rills or gullies and properly compact prior to installation.
- Install check dams in ditches perpendicular to the flowline.
- Stake fiber rolls in place with 1½-inch x 1⅛-inch wood stakes. Drive stakes at each end of the fiber roll and at 2-foot (max.) spacing.
- Drive stakes into undisturbed soil of trench bottom. Expose stakes 2-inches (min.) above top of fiber roll.
- Provide sufficient length to prevent water from flowing around the ends of the fiber roll.
- Adjust check dam spacing based on site-specific conditions.

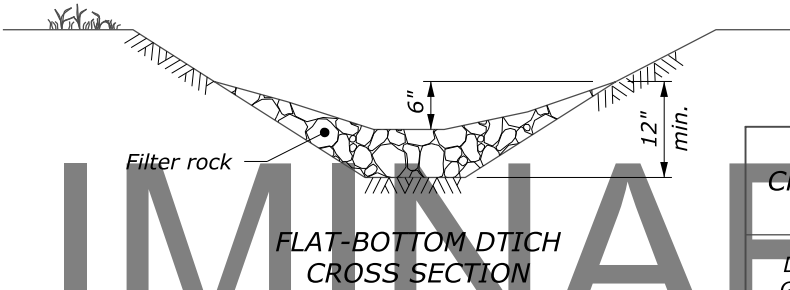


FIBER ROLL CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60

\* Spacing calculated based on 9" Ø minimum fiber roll. Do not use fiber roll check dams on ditch grades steeper than 5%.

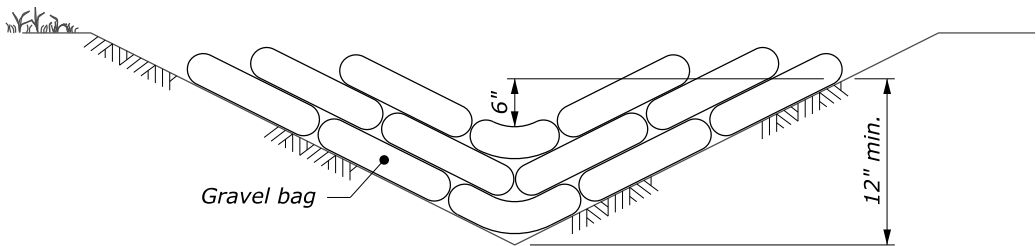


FIBER ROLL CHECK DAM



FILTER ROCK CHECK DAM SPACING (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60
6%	50

FILTER ROCK CHECK DAM



GRAVEL BAG CHECK DAM

GRAVEL BAG CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60
6%	50

\* Do not use gravel bag check dams on ditch grades steeper than 6%.

NO SCALE

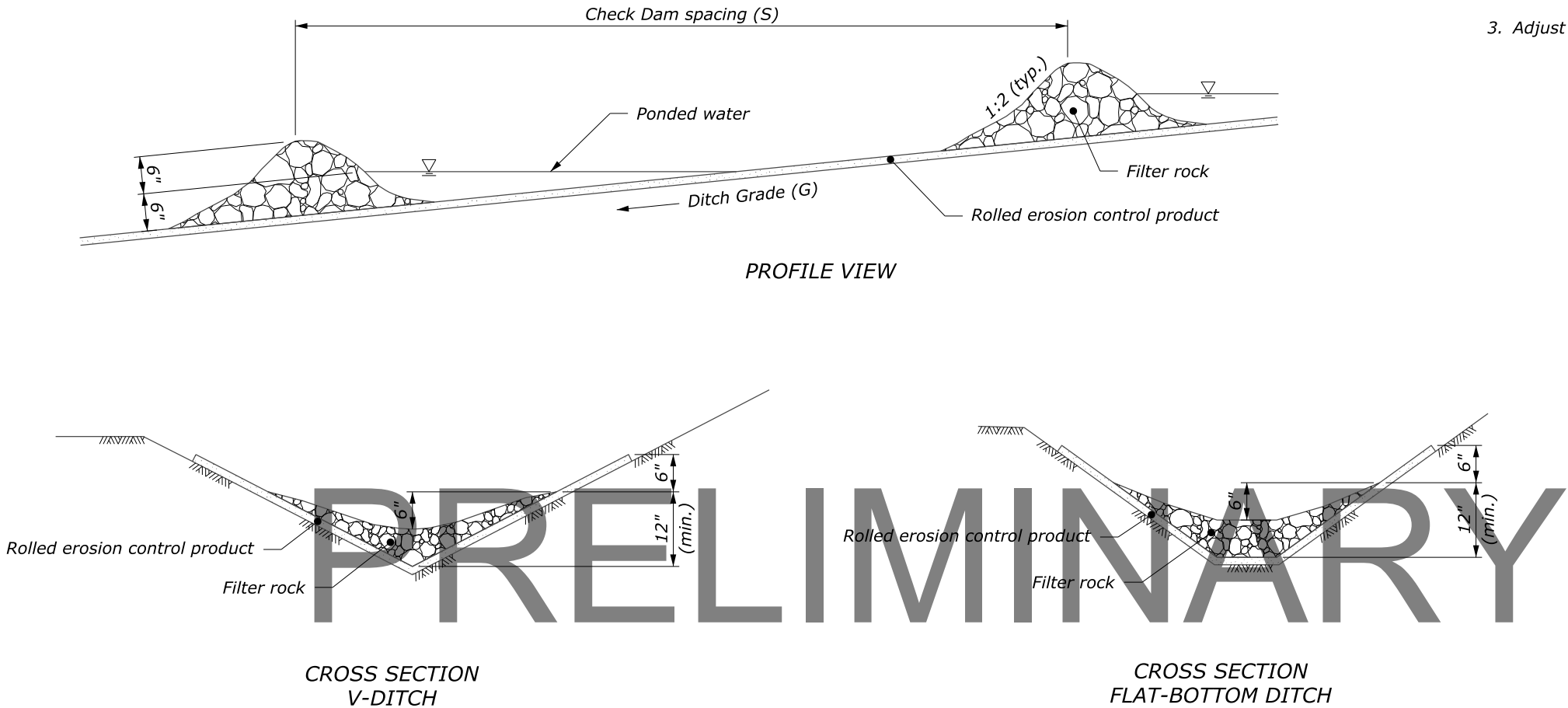
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
CHECK DAM MODERATE GRADES	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-15

30 August 2019 7:47 AM F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\l-d-a2158061\_dc.dgn [USC]

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.13

NOTE:

1. Repair all rills or gullies and properly compact prior to installation.
2. Install check dams in ditches perpendicular to the flowline.
3. Adjust check dam spacing based on site-specific conditions.

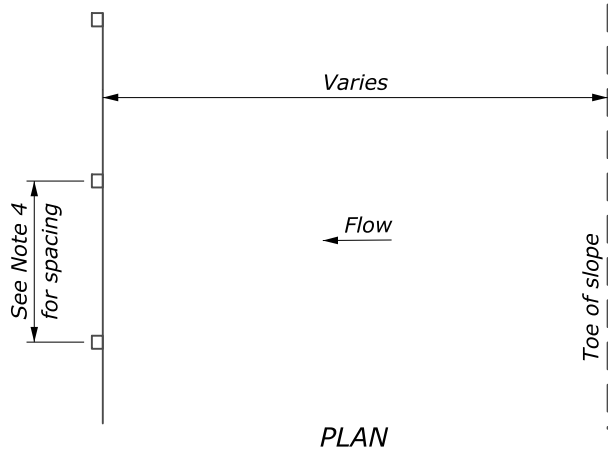
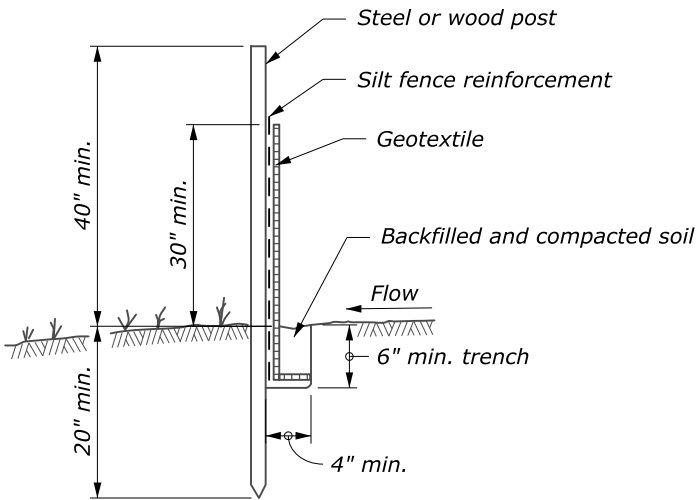


**FILTER ROCK CHECK DAM WITH  
ROLLED EROSION CONTROL PRODUCT**

FILTER ROCK CHECK DAM SPACING (See Note 3)	
DITCH GRADE (G)	MAX. CHECK DAM SPACING (S) (FT)
7%	40
8% and 9%	30
≥10%	20

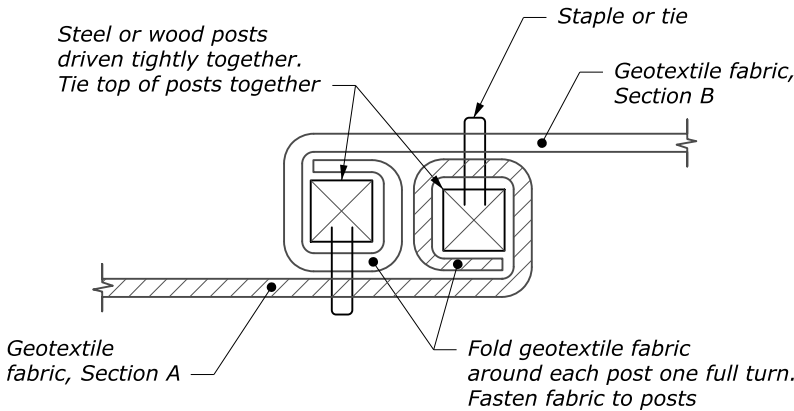
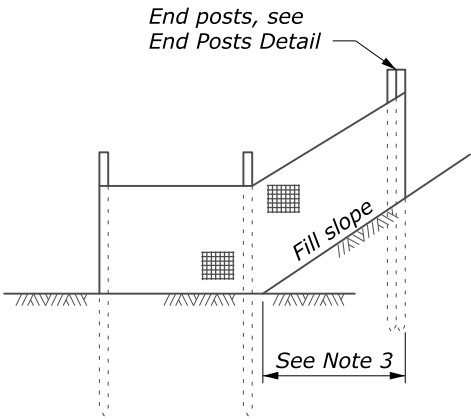
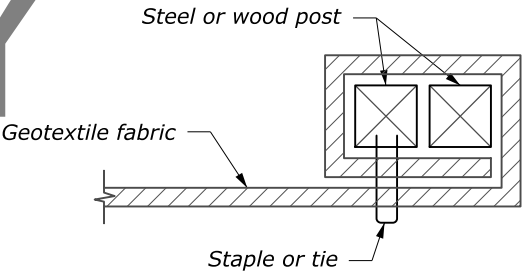
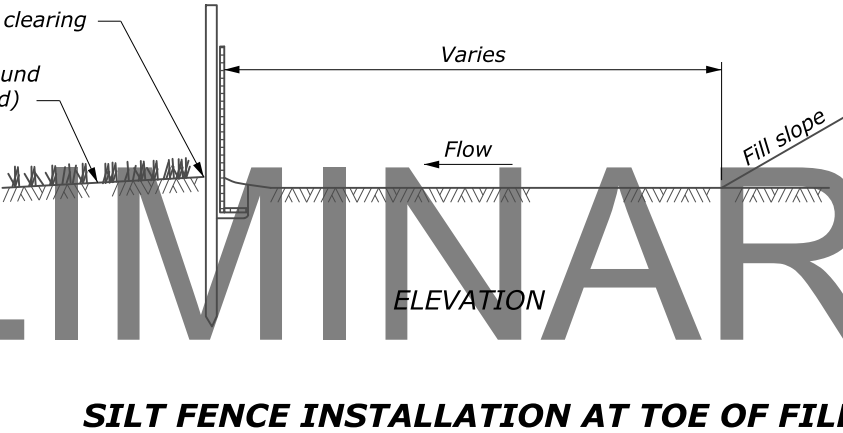
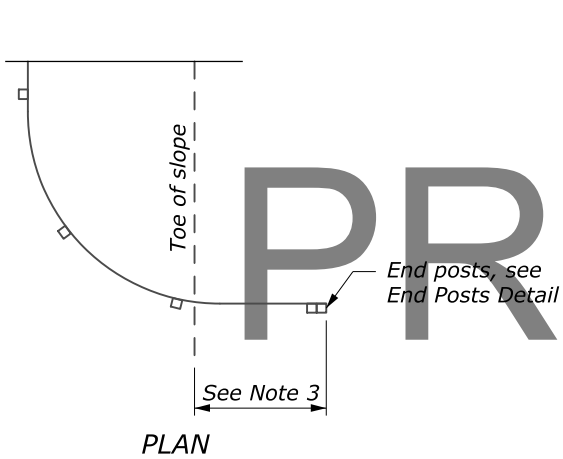
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-16



- NOTE:**
1. Alternate preassembled silt fence options will be allowed as long as specified dimensions are satisfied. Follow manufacturer's recommendations for installation procedures. All types must ensure silt fence remains attached to, and does not slide down, supporting posts.
  2. Install silt fence to follow the ground contours as closely as possible.
  3. Curve ends of silt fence upgrade to prevent water from running around the ends.
  4. 10-foot (max.) spacing with silt fence reinforcement.  
6-foot (max.) spacing without silt fence reinforcement.

**POST AND GEOTEXTILE INSTALLATION DETAIL**



**END POSTS DETAIL**

**END DETAIL**

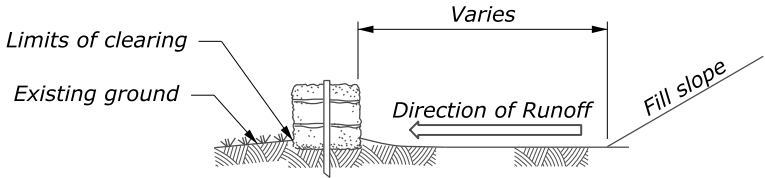
**POSTS AT JOINTS**

NO SCALE

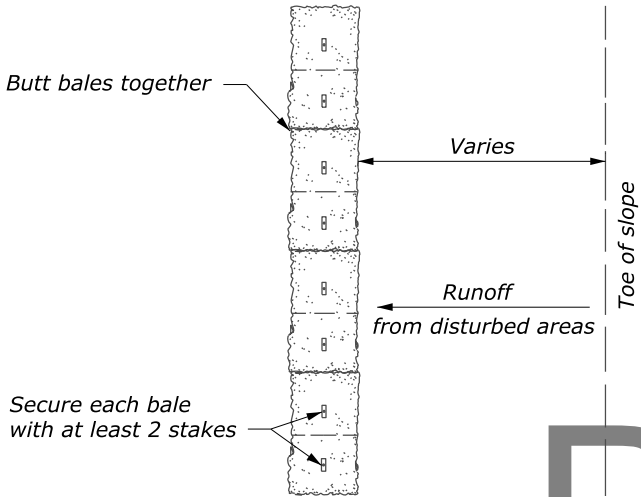
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>SILT FENCE</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-1

NOTE:

1. Use straw bales in drainage ditches only for low flow conditions and when specified on the Erosion Control Plans.

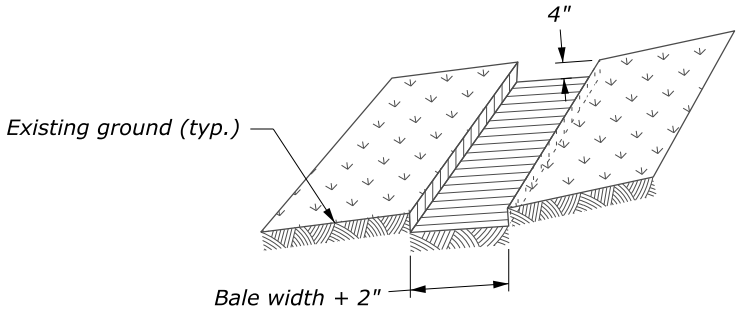


ELEVATION

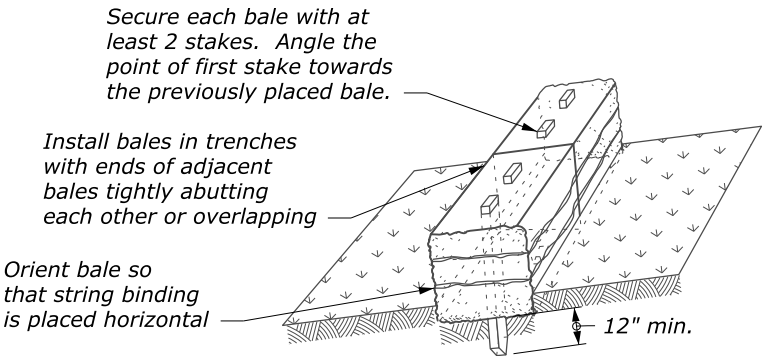


PLAN

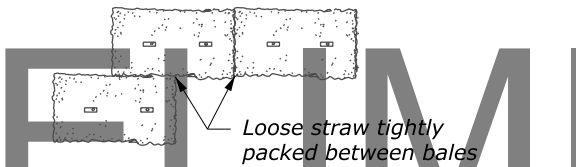
INSTALLATION OF A STRAW BALE BARRIER AT TOE OF FILL



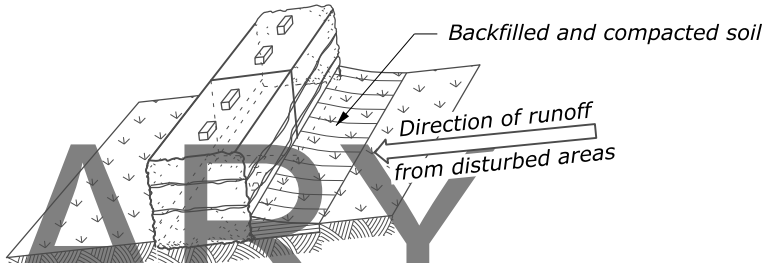
Step 1: Excavate trench



Step 2: Install bales

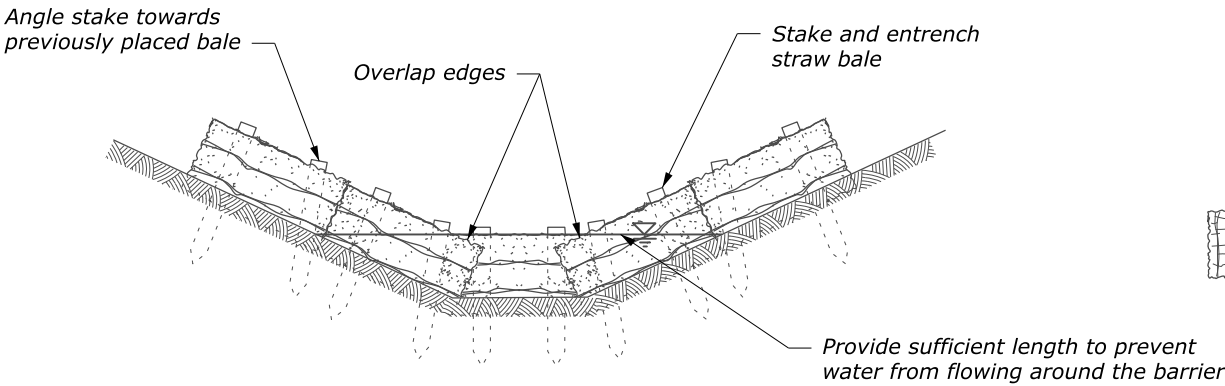


Step 3: Tightly pack straw between bales (plan view of bales)

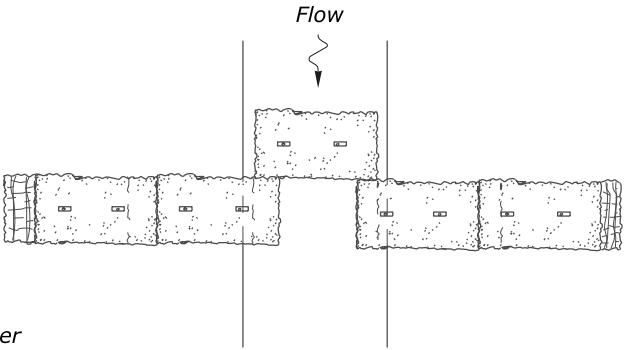


Step 4: Backfill soil against bales

PROPERLY STAKED AND ENTRENCHED STRAW BALES



ELEVATION



PLAN

INSTALLATION OF A STRAW BALE BARRIER IN DITCH

See Note 1

NO SCALE

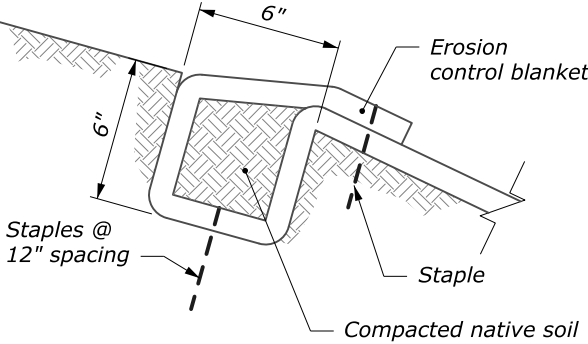
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
STRAW BALES	
STANDARD APPROVED FOR USE 6/2005 REVISED: 6/2007	STANDARD 157-3

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.15

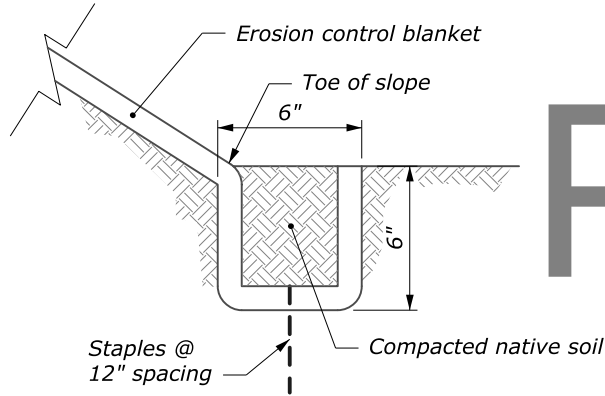
NOTE:

1. Install staples according to the manufacturer's recommendations.
2. Overlap in the direction of the prevailing wind.

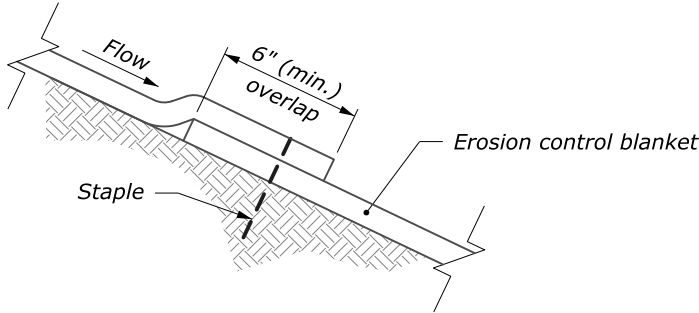
DETAIL A  
ANCHOR TRENCH  
AT TOP OF SLOPE



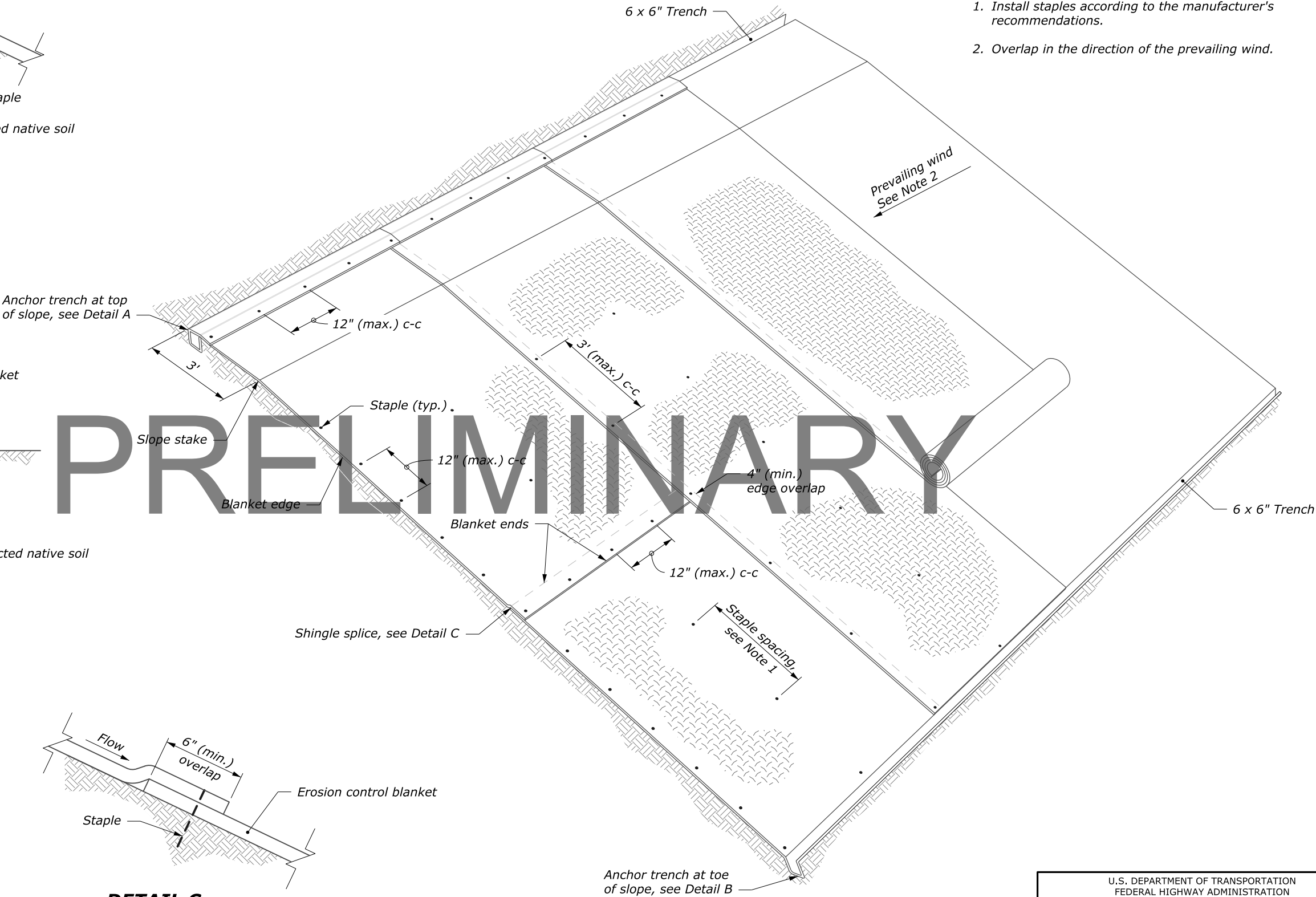
DETAIL B  
ANCHOR TRENCH  
AT TOE OF SLOPE



DETAIL C  
SHINGLE SPLICE



PERSPECTIVE VIEW



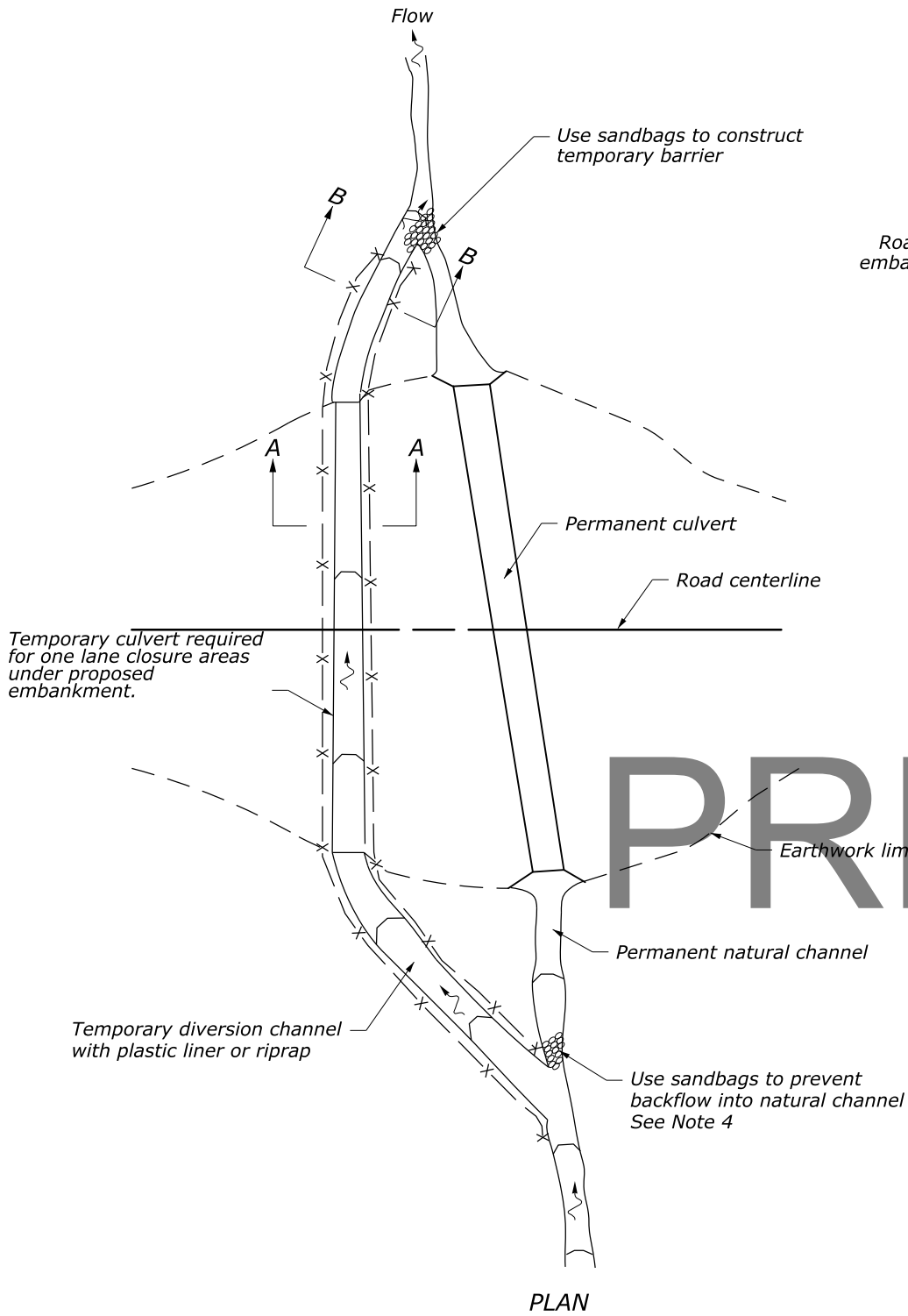
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>ROLLED EROSION CONTROL PRODUCT ON SLOPES</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W629-1



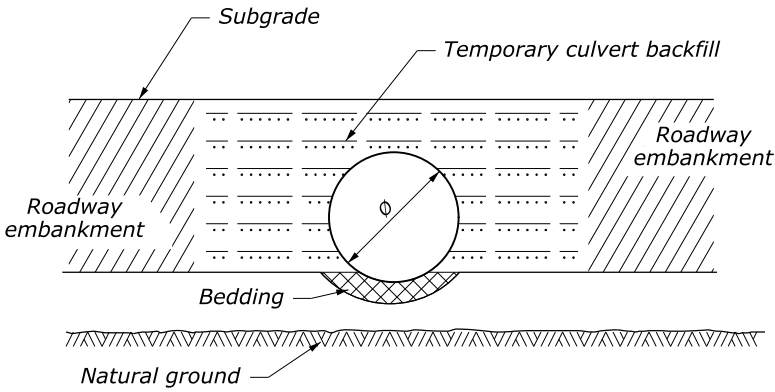
08/2019 J. PEDERSON  
08/2019 B. McCRA Y  
Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_df.dgn [Int\_r2D]  
11 May 2020 1:21 PM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	F.16

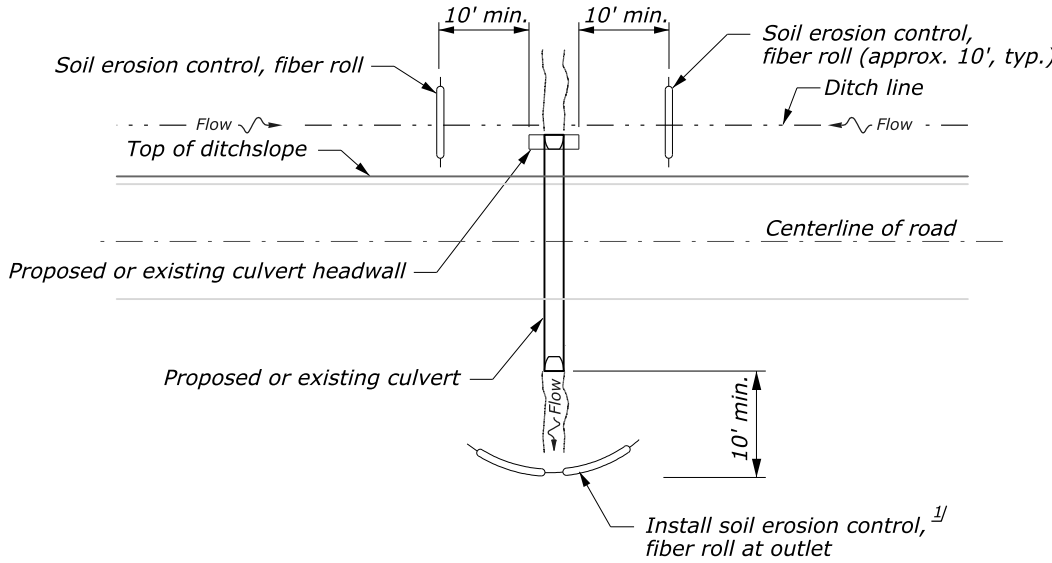


TEMPORARY DIVERSION CHANNEL

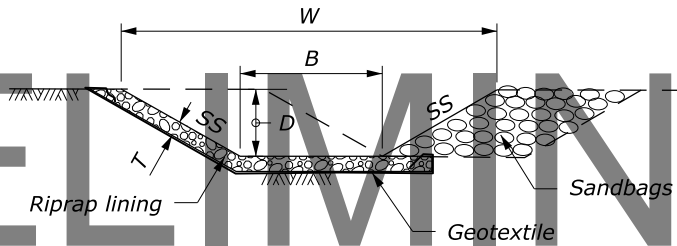
TEMPORARY DIVERSION CHANNEL DIMENSION TABLE					
LOCATION	SS	B (INCHES)	W (INCHES)	D (INCHES)	Ø (INCHES)
16+85	1:1	30	102	30	24
52+95	1:1	54	174	54	48



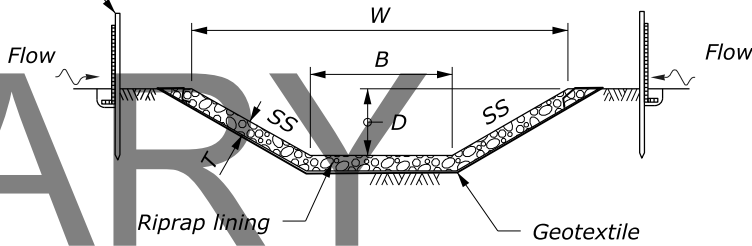
SECTION A-A  
TEMPORARY CULVERT



SOIL EROSION CONTROL AT CULVERT

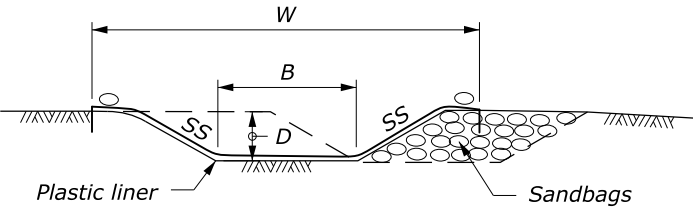


SECTION A-A

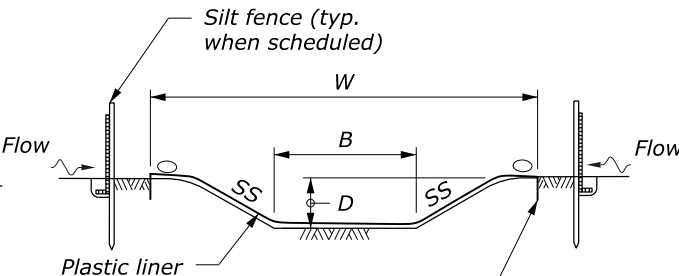


SECTION B-B

RIPRAP LINED DIVERSION CHANNEL



SECTION A-A



SECTION B-B  
and secure with sandbags (typ.)

PLASTIC LINED DIVERSION CHANNEL

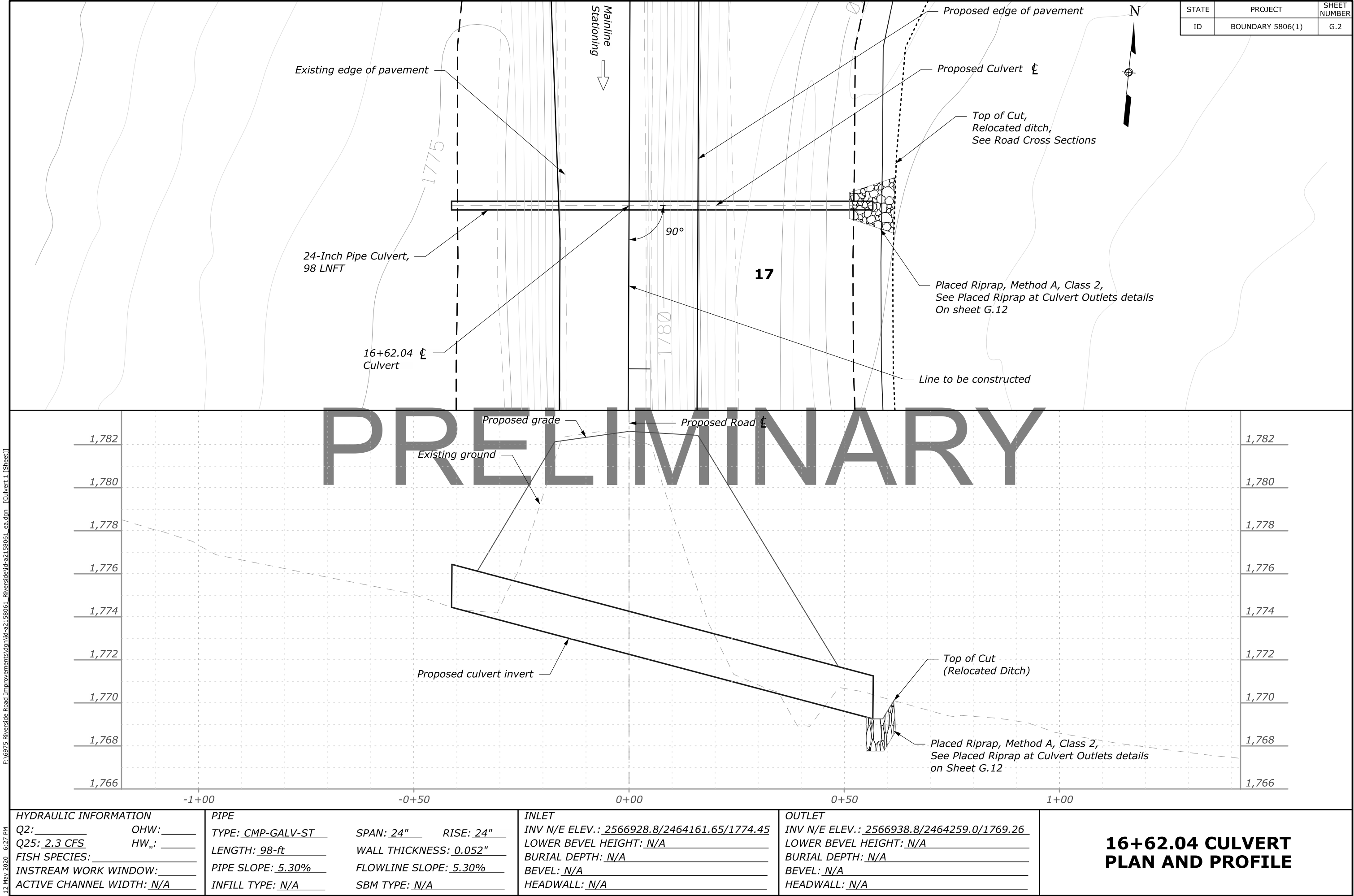
NOTE:

1. Use plastic liner or riprap along the entire length and width of the temporary diversion channel.
2. Construct channel at a minimum grade of 0.5 percent.
3. Do not construct with longitudinal joints if using a plastic liner. Bury the upstream edge of the liner a minimum of 1'.
4. When specified replace the portion of the diversion channel through the roadway embankment with temporary culvert. Compact temporary culvert backfill using one of the methods listed in Subsection 204.11(a). Re-use of the existing culvert for the temporary culvert by CO approval only.

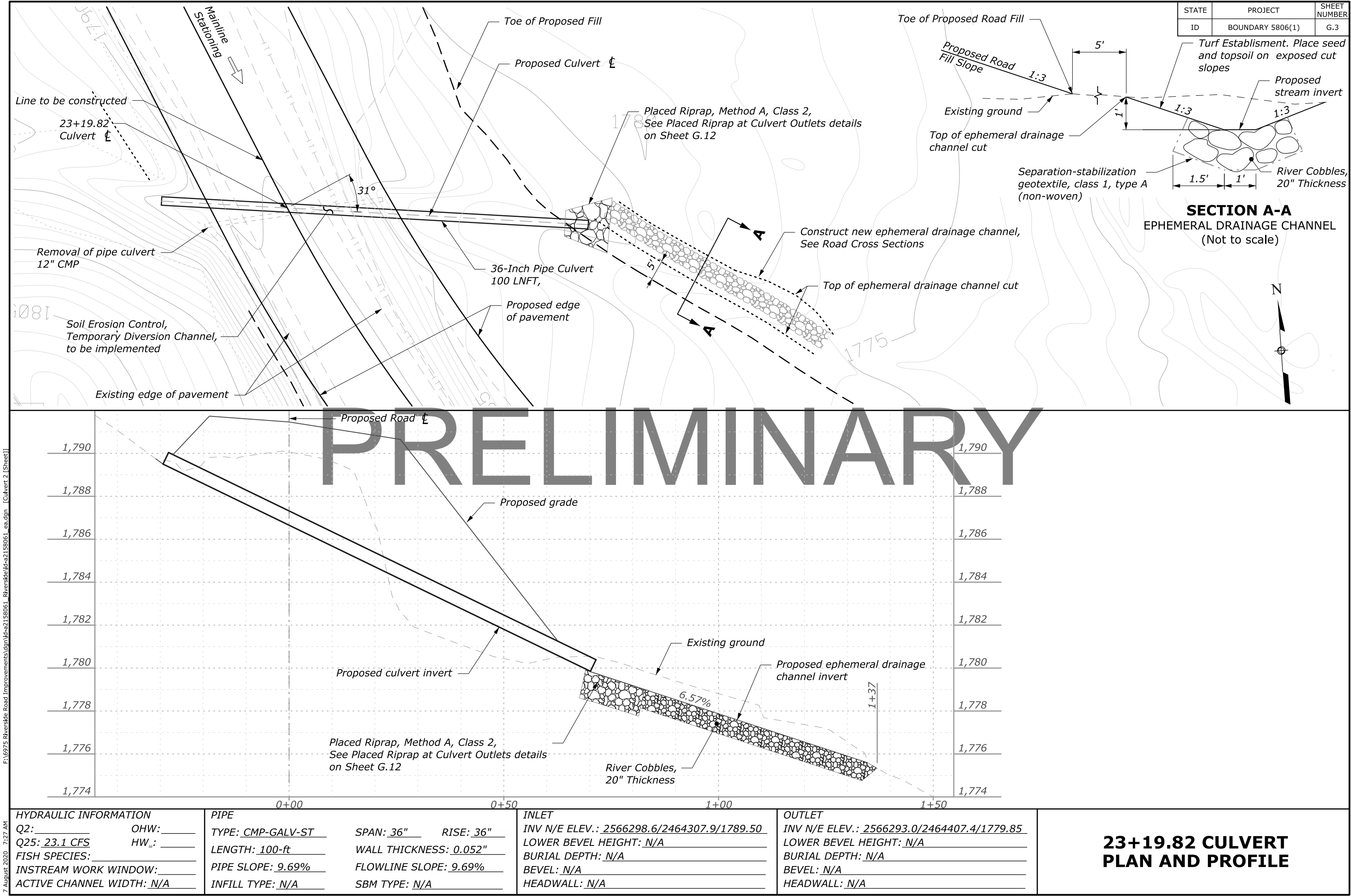
NO SCALE

EROSION DETAILS

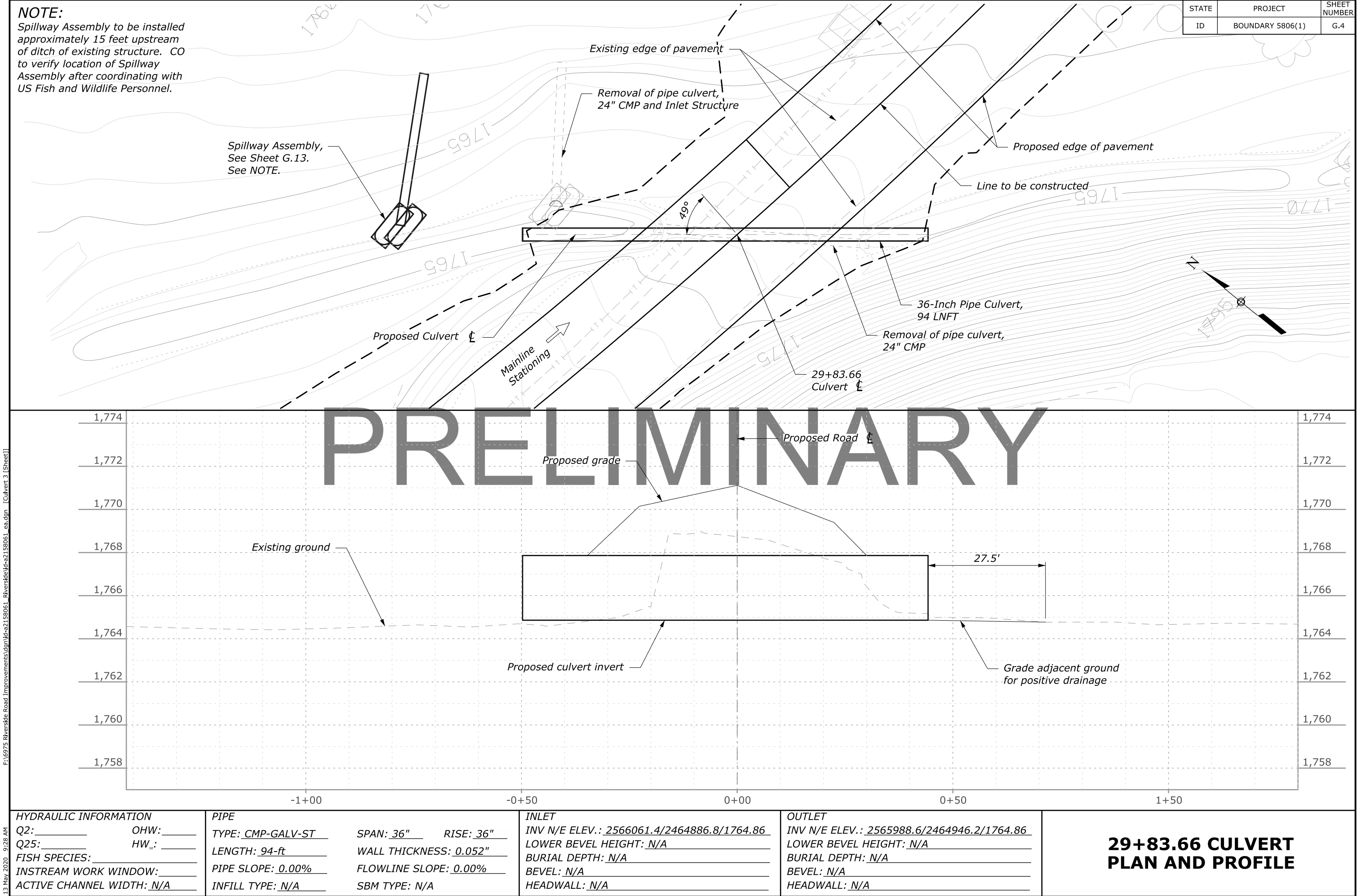




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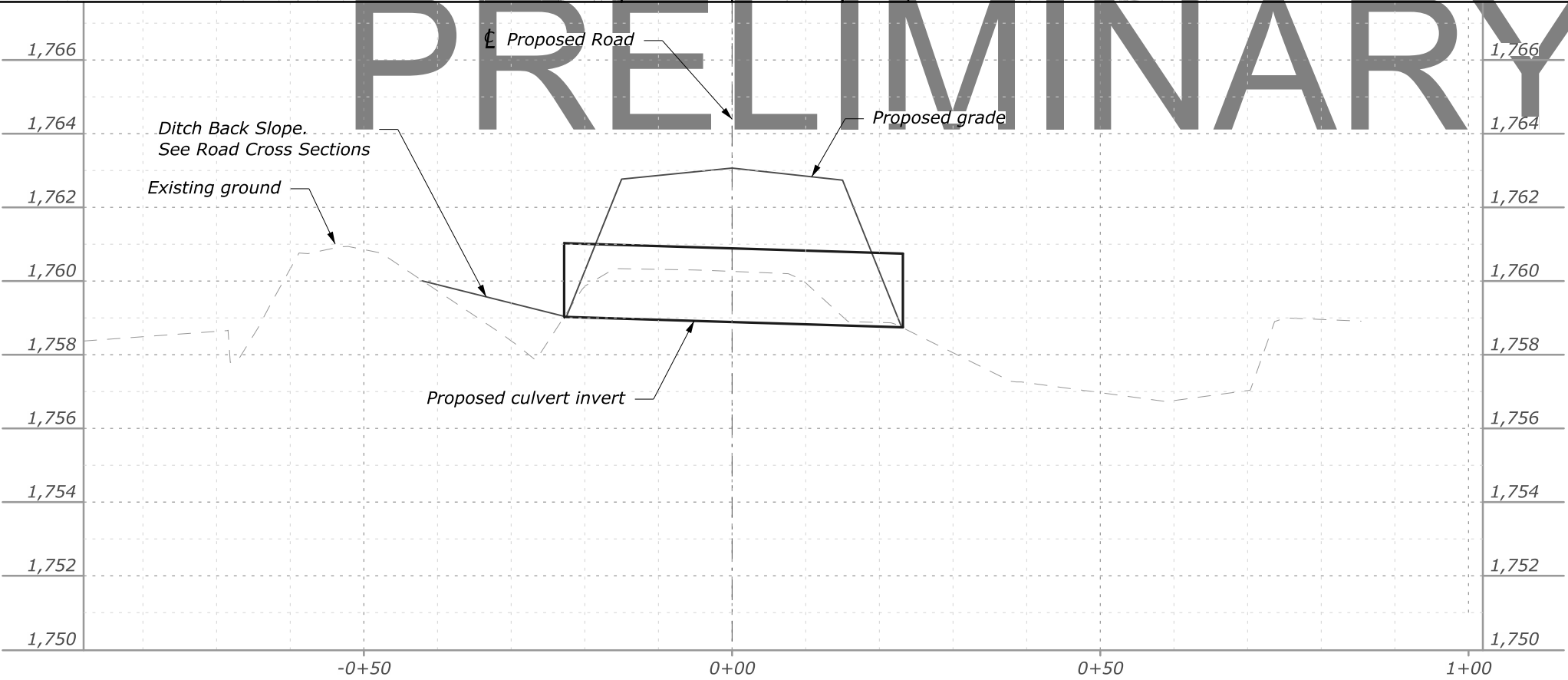
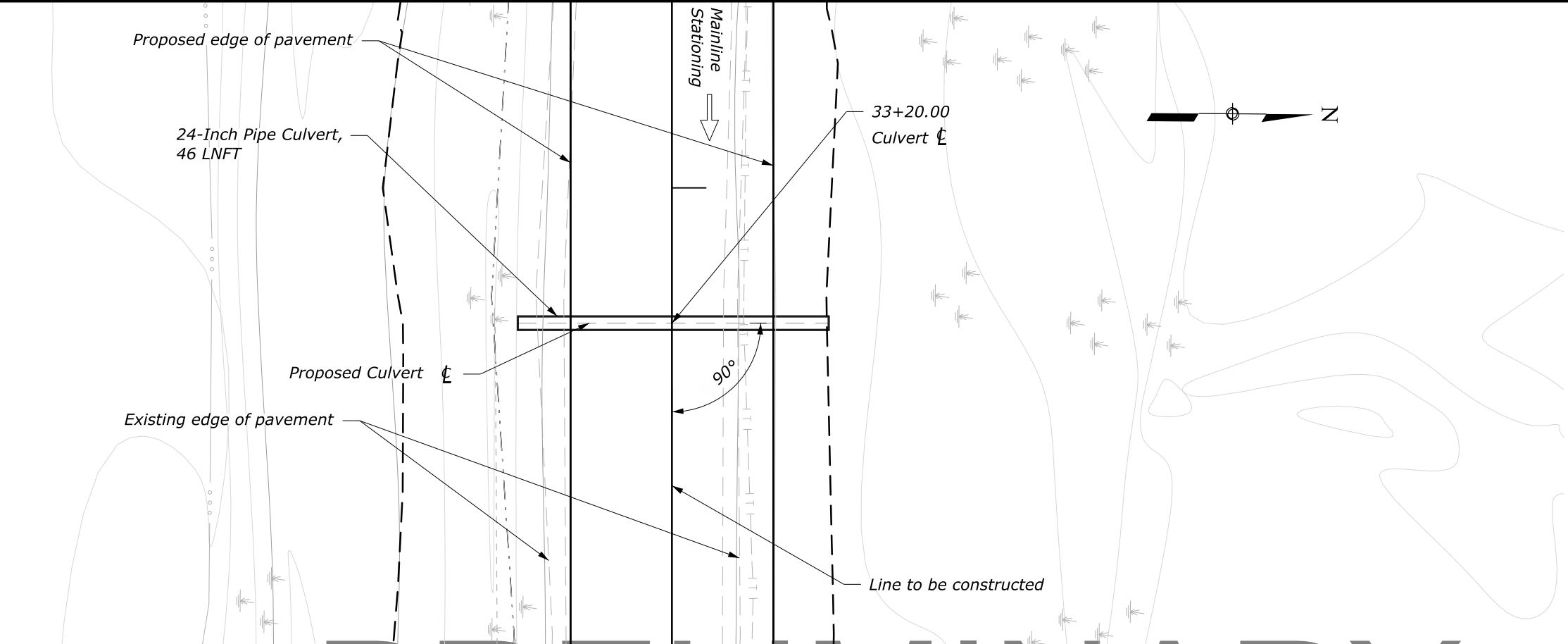


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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	G.5



HYDRAULIC INFORMATION

Q2: \_\_\_\_\_ OHW: \_\_\_\_\_  
Q25: \_\_\_\_\_ HW<sub>80</sub>: \_\_\_\_\_  
FISH SPECIES: \_\_\_\_\_  
INSTREAM WORK WINDOW: \_\_\_\_\_  
ACTIVE CHANNEL WIDTH: N/A

PIPE

TYPE: CMP-GALV-ST SPAN: 24" RISE: 24"  
LENGTH: 46-ft WALL THICKNESS: 0.052"  
PIPE SLOPE: 0.62% FLOWLINE SLOPE: 0.62%  
INFILL TYPE: N/A SBM TYPE: N/A

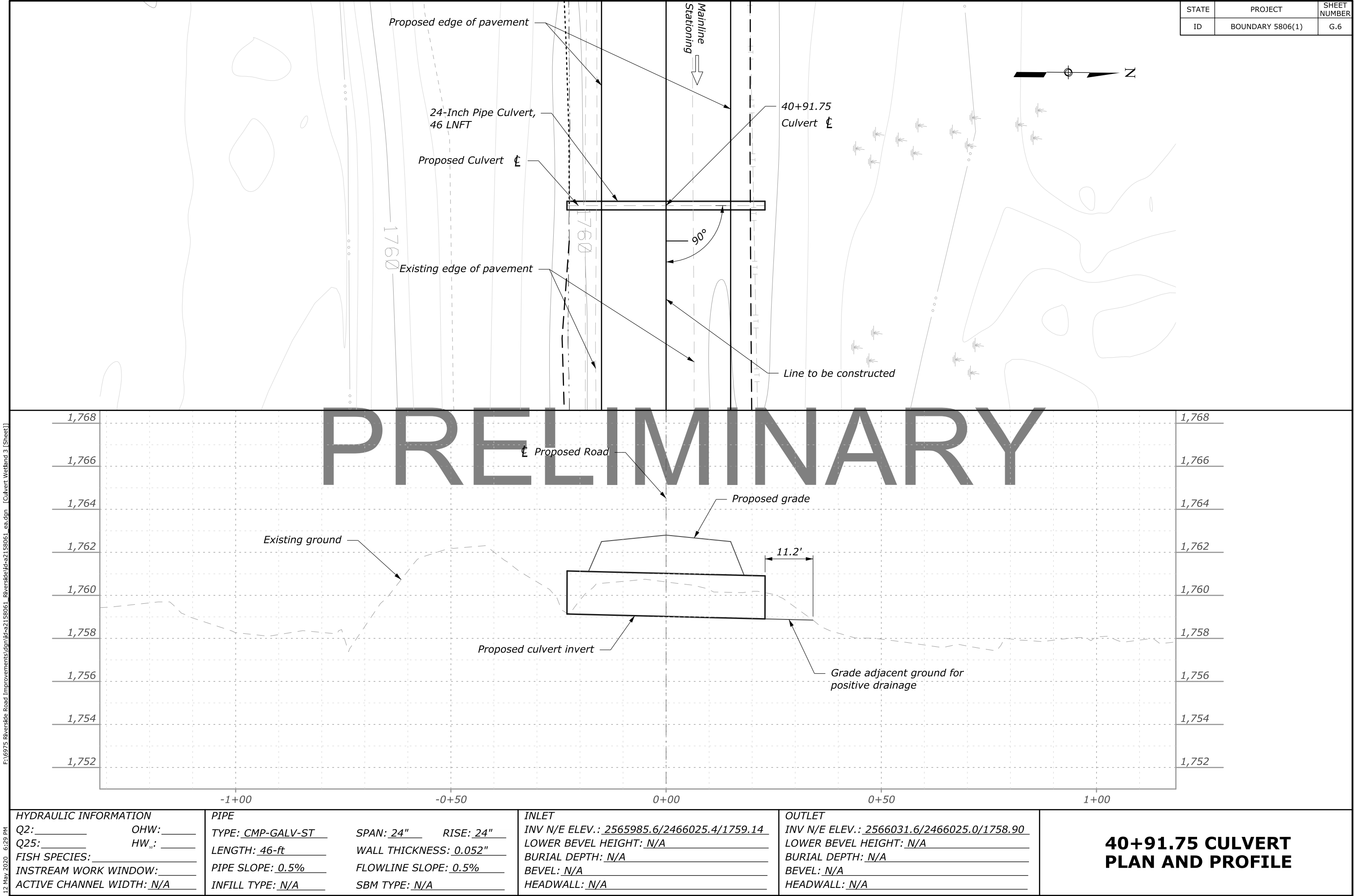
INLET

INV N/E ELEV.: 2565979.4/2465253.7/1759.05  
LOWER BEVEL HEIGHT: N/A  
BURIAL DEPTH: N/A  
BEVEL: N/A  
HEADWALL: N/A

OUTLET

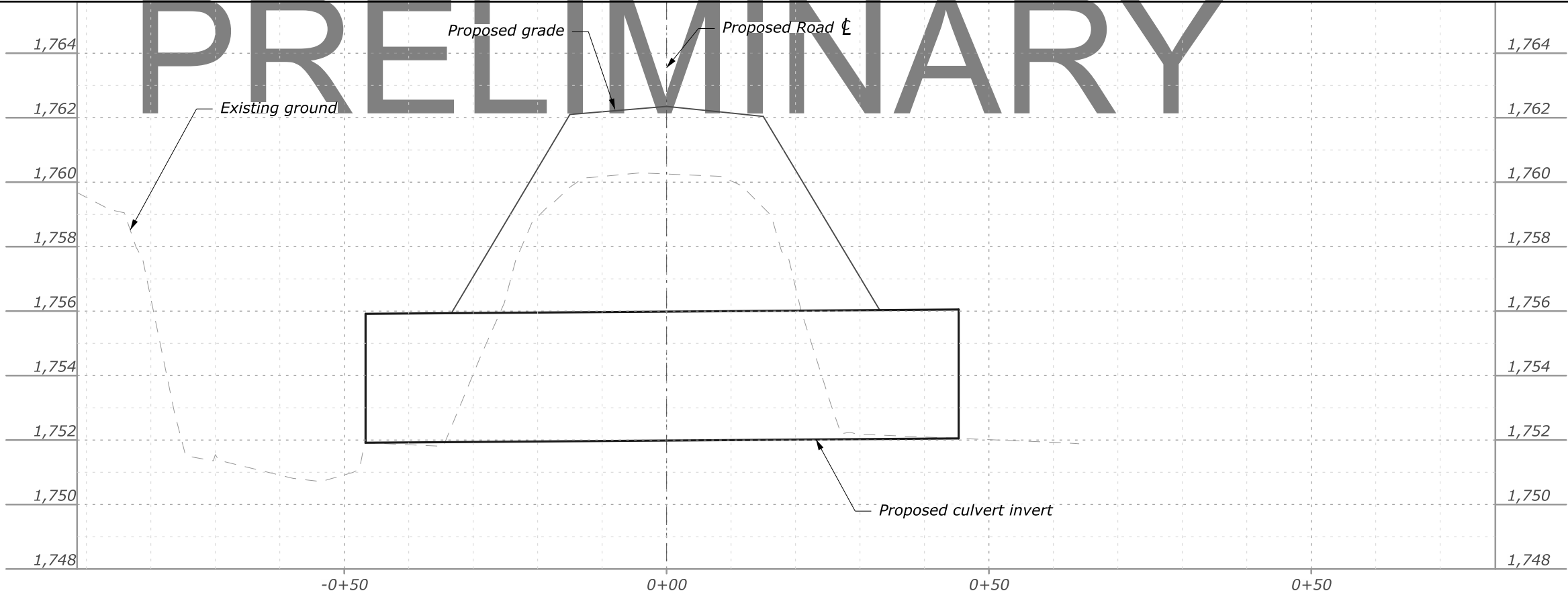
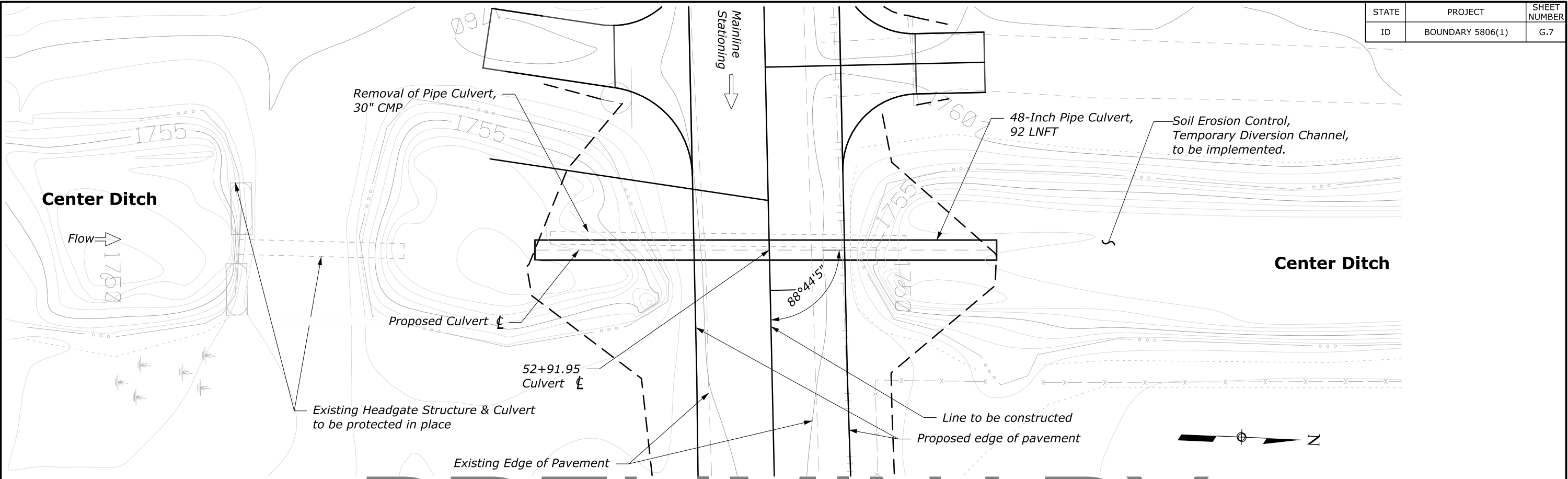
INV N/E ELEV.: 2566025.4/2465253.2/1758.77  
LOWER BEVEL HEIGHT: N/A  
BURIAL DEPTH: N/A  
BEVEL: N/A  
HEADWALL: N/A

33+20.00 CULVERT  
PLAN AND PROFILE



F:\6975 Riverside Road Improvements\dm\id-a2158061\_Riverside\id-a2158061\_es.dgn [Culvert Wetland 3 [Sheet]] 12 May 2020 6:29 PM

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HYDRAULIC INFORMATION	
Q2: _____	OHW: _____
Q25: _____	HW: _____
FISH SPECIES: _____	
INSTREAM WORK WINDOW: _____	
ACTIVE CHANNEL WIDTH: <u>N/A</u>	

PIPE	
TYPE: <u>CMP-GALV-ST</u>	SPAN: <u>48"</u> RISE: <u>48"</u>
LENGTH: <u>92-ft</u>	WALL THICKNESS: <u>0.064"</u>
PIPE SLOPE: <u>-0.000%</u>	FLOWLINE SLOPE: <u>-0.000%</u>
INFILL TYPE: <u>N/A</u>	SBM TYPE: <u>N/A</u>

INLET	
INV N/E ELEV.: <u>2566921.2/2464085.4/1752.05</u>	
LOWER BEVEL HEIGHT: <u>N/A</u>	
BURIAL DEPTH: <u>N/A</u>	
BEVEL: <u>N/A</u>	
HEADWALL: <u>N/A</u>	

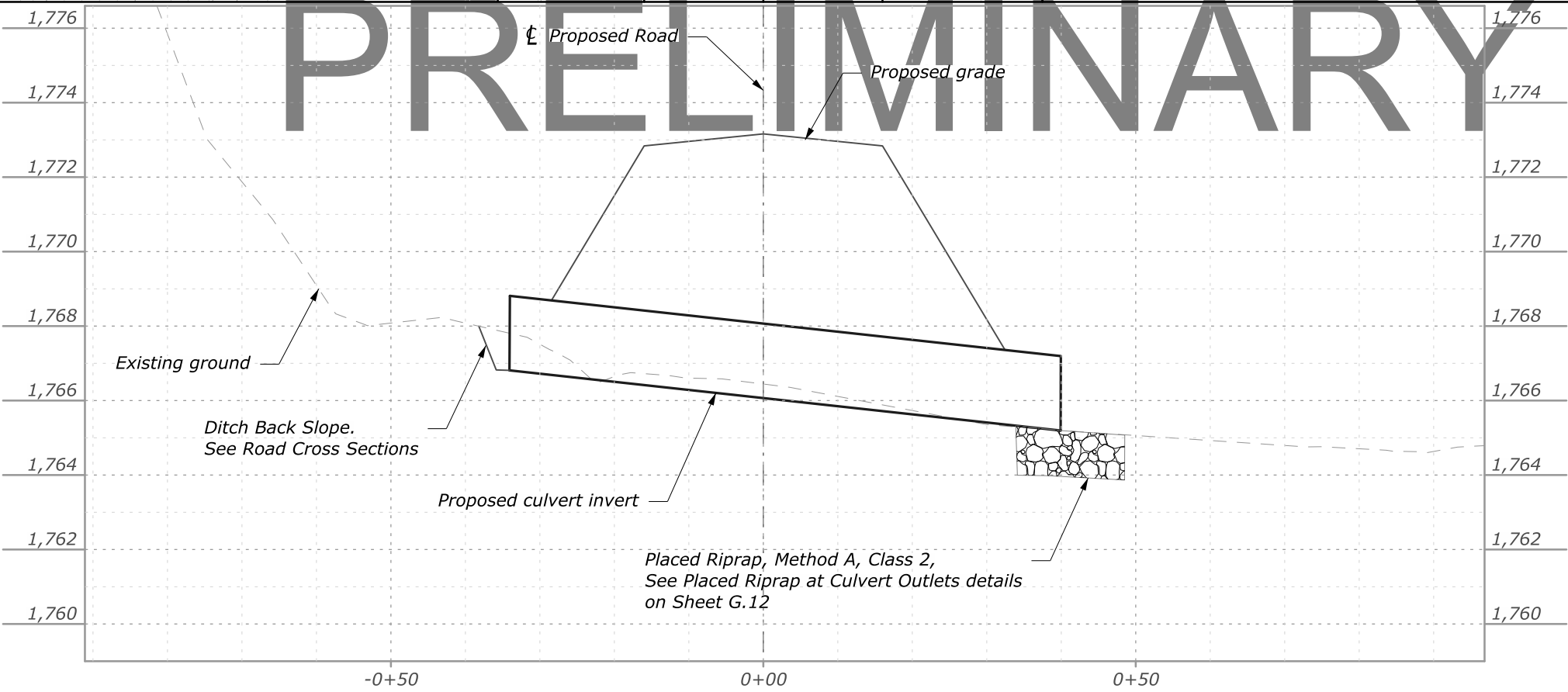
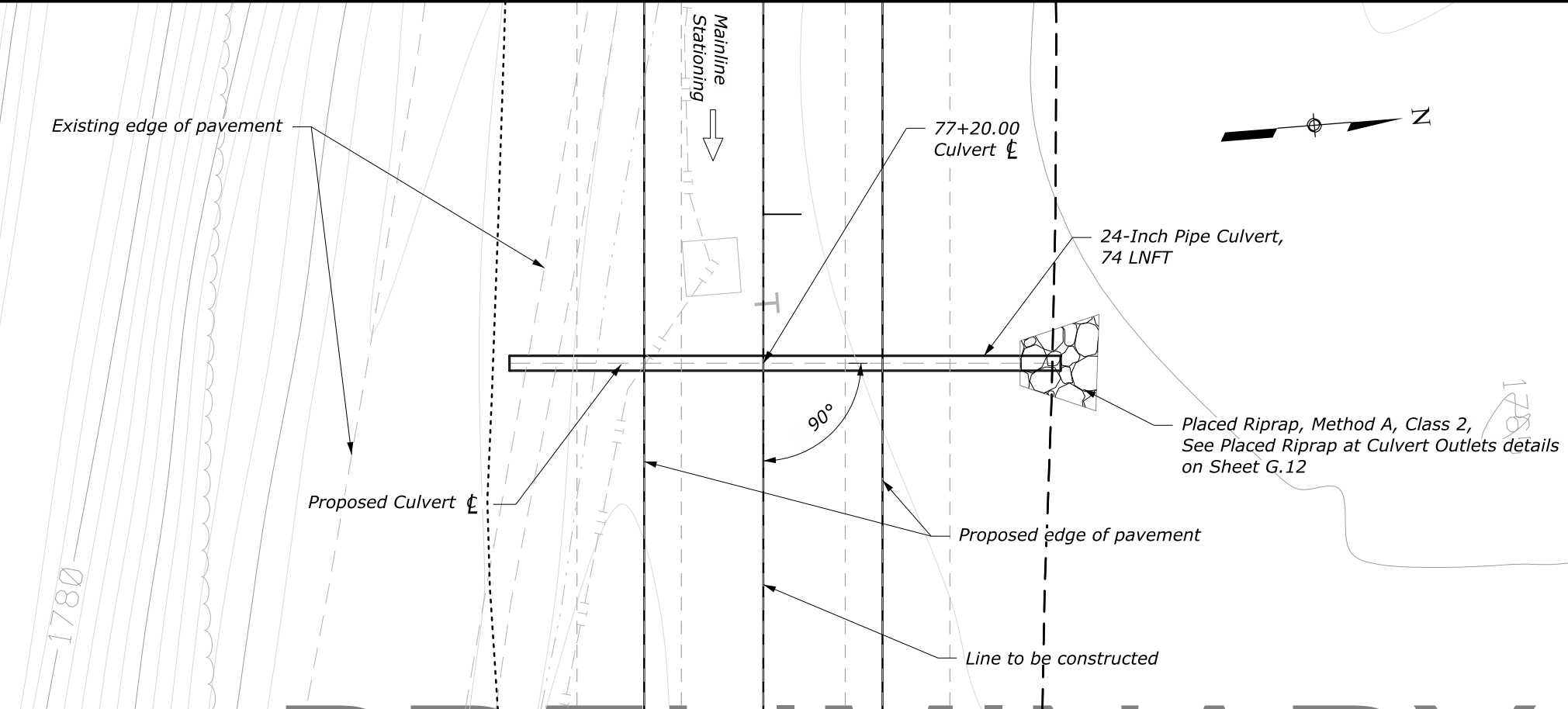
OUTLET	
INV N/E ELEV.: <u>2566921.2/2464085.4/1752.05</u>	
LOWER BEVEL HEIGHT: <u>N/A</u>	
BURIAL DEPTH: <u>N/A</u>	
BEVEL: <u>N/A</u>	
HEADWALL: <u>N/A</u>	

**52+91.95 CULVERT  
PLAN AND PROFILE**



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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	G.8



HYDRAULIC INFORMATION

Q2: \_\_\_\_\_ OHW: \_\_\_\_\_  
Q25: \_\_\_\_\_ HW: \_\_\_\_\_  
FISH SPECIES: \_\_\_\_\_  
INSTREAM WORK WINDOW: \_\_\_\_\_  
ACTIVE CHANNEL WIDTH: N/A

PIPE

TYPE: CMP-GALV-ST SPAN: 24" RISE: 24"  
LENGTH: 74-ft WALL THICKNESS: 0.052"  
PIPE SLOPE: 2.18% FLOWLINE SLOPE: 2.18%  
INFILL TYPE: N/A SBM TYPE: N/A

INLET

INV N/E ELEV.: 2566921.2/2464085.351/1766.81  
LOWER BEVEL HEIGHT: N/A  
BURIAL DEPTH: N/A  
BEVEL: N/A  
HEADWALL: N/A

OUTLET

INV N/E ELEV.: 2566921.2/2464085.4/1765.20  
LOWER BEVEL HEIGHT: N/A  
BURIAL DEPTH: N/A  
BEVEL: N/A  
HEADWALL: N/A

77+20.00 CULVERT  
PLAN AND PROFILE

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	G.09

## **METAL ROUND PIPE CULVERT**

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL																
PIPE SIZE  DIAMETER  INCHES	MINIMUM COVER  INCHES	2 $\frac{2}{3}$ " x $\frac{1}{2}$ " CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS				
		METAL THICKNESS (INCH/GAGE)														
		0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8
MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)																
12	12	100	100	100	100	100										
15	12	100	100	100	100	100										
18	12	100	100	100	100	100										
21	12	100	100	100	100	100										
24	12	100	100	100	100	100										
30	12	85	100	100	100	100										
36	12	71	89	100	100	100	81	100	100	100	100					
42	12	61	76	100	100	100	70	87	100	100	100					
48	12	53	66	93	100	100	61	76	100	100	100	54	68	95	100	100
54	12		59	83	100	100	54	68	95	100	100	48	60	85	100	100
60	12			74	97	100	49	61	86	100	100	43	54	76	98	100
66	12				87	100	44	55	78	100	100	39	49	69	89	100
72	12				80	97	40	51	71	92	100	36	45	63	82	100
78	12					87	37	47	66	85	100	33	42	58	75	92
84	12					75	35	43	61	78	96	31	39	54	70	86
90	12						32	40	57	73	90	29	36	51	65	80
96	12							38	53	69	84		34	48	61	75
102	18							36	50	65	79		32	45	57	71
108	18								47	61	75			42	54	67
114	18								45	58	71			40	52	63
120	18								43	55	67			38	49	60
126	18									52	64				47	57
132	18									50	61				44	54
138	18									48	58				42	52
144	18										56					50

ALUMINUM												
PIPE SIZE  DIAMETER  INCHES	MINIMUM COVER  INCHES	2 <sup>2</sup> / <sub>3</sub> " x ½" CORRUGATIONS					3" x 1" CORRUGATIONS					
		METAL THICKNESS (INCH/GAGE)										
		0.060/16	0.075/14	0.105/12	0.135/10	0.164/8	0.060/16	0.075/14	0.105/12	0.135/10	0.164/8	
MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)												
12	12	100	100	100	100	100						
15	12	100	100	100	100	100						
18	12	100	100	100	100	100						
21	12	88	100	100	100	100						
24	12	77	97	100	100	100						
30	12	62	77	100	100	100	71	89	100	100	100	
36	12	52	64	90	100	100	59	74	100	100	100	
42	12	44	55	77	99	100	51	64	89	100	100	
48	12			67	87	100	44	56	78	100	100	
54	18			54	71	88	39	50	69	93	100	
60	18				57	72	35	45	62	83	98	
66	18					58	32	40	56	76	89	
72	18					45	30	37	55	70	82	
78	24							34	48	64	75	
84	24								44	59	70	
90	24								41	62	65	
96	24								38	51	61	
102	24									46	55	
108	24									42	50	
114	24										45	
120	24										40	

**NOTE:**

1. *When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.*
2. *Fill heights exceeding 100 feet require special analysis by the CO.*
3. *The fill heights in the table are for helical lockseam and welded seam pipe only. Fill heights for culvert pipe with annular corrugations are more restrictive than those of helical lockseam and welded seam pipe. Obtain approval before furnishing annular corrugation pipe.*
4. *Measure minimum cover from the top of the pipe culvert to the subgrade for flexible pavements, and to the top of the pavement for rigid pavements. Measure maximum fill height from the top of the pipe to the top of the pavement for both flexible and rigid pavement.*

## METAL PIPE ARCH CULVERT

### FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL																
PIPE ARCH SIZE SPAN x RISE INCHES	EQUI- VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2 <sup>2</sup> / <sub>3</sub> " x 1 <sup>1</sup> / <sub>2</sub> " CORRUGATIONS				3" x 1" CORRUGATIONS				5" x 1" CORRUGATIONS				
				METAL THICKNESS (INCH/GAGE)												
				0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10	0.168/8
MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)																
17 x 13	15	3	12	13												
21 x 15	18	3	12	12												
24 x 18	21	3	12	13												
28 x 20	24	3	12	13												
35 x 24	30	3	12	12												
42 x 29	36	3.5	12	12												
49 x 33	42	4	12		12											
57 x 38	48	5	12			12										
60 x 46	54	8	15						21				21			
64 x 43	54	6	12			12										
66 x 51	60	9	15						21				21			
71 x 47	60	7	12			12										
73 x 55	66	12	18						20				20			
77 x 52	66	8	12				12									
81 x 59	72	14	18					17				17				
83 x 57	72	9	12				12									
87 x 63	78	14	18					17				17				
95 x 67	84	16	18					17				17				
103 x 71	90	16	18						17			17				
112 x 75	96	18	21						16				16			
117 x 79	102	18	21						16				16			
128 x 83	108	18	24							16				16		
137 x 87	114	18	24							16					16	
142 x 91	120	18	24								16					16

ALUMINUM										
PIPE ARCH SIZE SPAN x RISE INCHES	EQUI- VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2 <sup>2</sup> / <sub>3</sub> " x 1 <sup>1</sup> / <sub>2</sub> " CORRUGATIONS				3" x 1" CORRUGATIONS		
				METAL THICKNESS (INCH/GAGE)						
				0.060/16	0.075/14	0.105/12	0.135/10	0.060/16	0.075/14	0.105/12
MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)										
17 x 13	15	3	12	13						
21 x 15	18	3	12	12						
24 x 18	21	3	12	13						
28 x 20	24	3	12		13					
35 x 24	30	3	12		12					
42 x 29	36	3.5	15			12				
49 x 33	42	4	15			12				
57 x 38	48	5	15				12			
60 x 46	54	8	15					21		
64 x 43	54	6	18				12			
66 x 51	60	9	18					21		
73 x 55	66	12	18						20	
81 x 59	72	14	21							17
87 x 63	78	14	21							17
95 x 67	84	16	24							17
103 x 71	90	16	24							17

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>METAL PIPE CULVERT</b>	
STANDARD APPROVED FOR USE 12/1993	STANDARD 602-1
REVISED: 4/1994 6/2005	

*NO SCALE*

30 August 2019 8:17 AM F:\6975 Riverside Road Improvements\dwg\ld-a2158061\_Riverside\ld-a2158061\_ef.dgn [USC]

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	G.10

COUPLING BANDS FOR METAL PIPE CULVERT <sup>[1]</sup>					
CORRUGATION SIZE <sup>[2]</sup>	ROUND PIPE	PIPE ARCH	MINIMUM BAND WIDTH (INCHES)		
	DIAMETER	SPAN × RISE	ANNULAR CORRUGATED BANDS <sup>[3]</sup>	HELICALLY CORRUGATED BANDS <sup>[4]</sup>	SEMI-CORRUGATED BANDS <sup>[5]</sup>
	INCHES	INCHES			
1½ × ¼	underdrain <sup>[6]</sup>	-	10.5	7	10.5
2⅔ × ½	12 to 36	17 × 13 to 42 × 29	7	12	
	42 to 72	49 × 33 to 83 × 57	10.5	12	
	78 to 84	-	10.5	12	10.5
3 × 1	36 to 72	60 × 46 to 81 × 59	12	14	10.5
	78 to 144	87 × 64 to 142 × 91	12	14	10.5
5 × 1	36 to 72	60 × 46 to 81 × 59	20	22	
	78 to 144	87 × 64 to 142 × 91	20	22	

<sup>[1]</sup> Fabricate annular, helical and semi-corrugated type coupling bands from the same metal as the connecting pipe. Provide coupling bands not more than 3 nominal sheet thicknesses thinner than the thickness of the pipe to be connected, and no thinner than 0.052 inch for steel or 0.048 inch for aluminum. Fasten coupling bands with the following diameter of bolt: ⅜" for 18" round culvert (21" × 15" pipe arch) or less ½" for 21" round culvert (24" × 18" pipe arch) or more

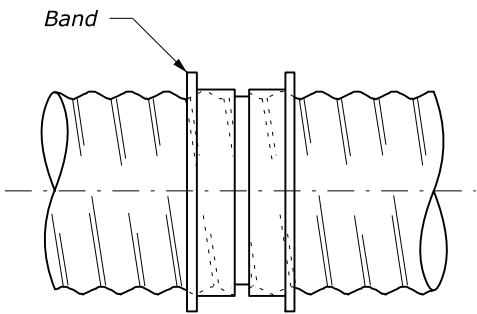
<sup>[2]</sup> For helically corrugated pipe with rerolled ends, the nominal corrugations size refers to the dimension of the end corrugation in the pipe.

<sup>[3]</sup> Use annular corrugated bands with pipes having annular corrugations or with helical pipe having rerolled end to form annular corrugations. A 10.5 inch band is acceptable on pipe ends rerolled with 2⅔" × ½" corrugations. A 12 inch band is acceptable on pipe ends rerolled with 3" × 1" pipe corrugations.

<sup>[4]</sup> Use helical corrugated bands with pipes having helically corrugated ends.

<sup>[5]</sup> The minimum band widths shown for 3" × 1" and 5" × 1" corrugated sizes apply to 2⅔" × ½" corrugations on rerolled pipe ends.

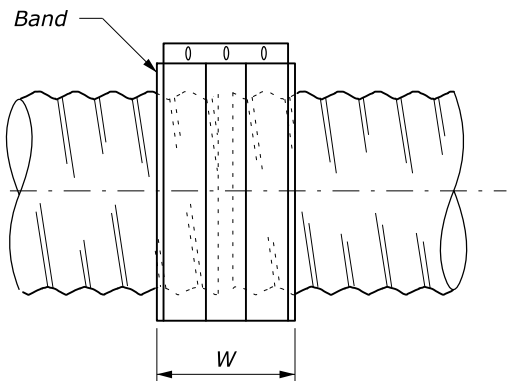
<sup>[6]</sup> Smooth sleeve-type couplers and flat bands may be used for pipe diameters of 12" or less. Use a matching metal having a nominal thickness of not less than 0.040 inch for steel, or 0.036 inch for aluminum, or a plastic with an equivalent strength to metal.



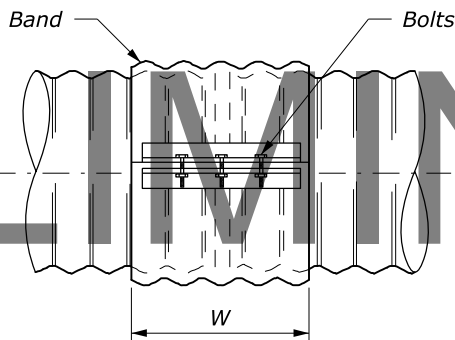
SLEEVE JOINT

Smoother sleeve with center stop.  
Stab type joint

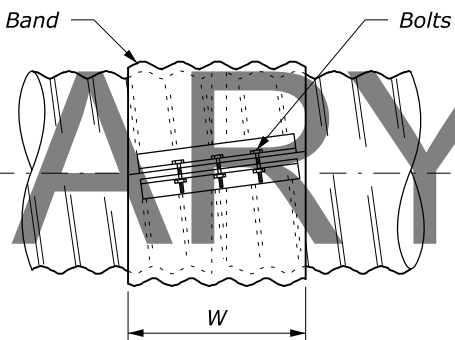
SMOOTH SLEEVE BAND



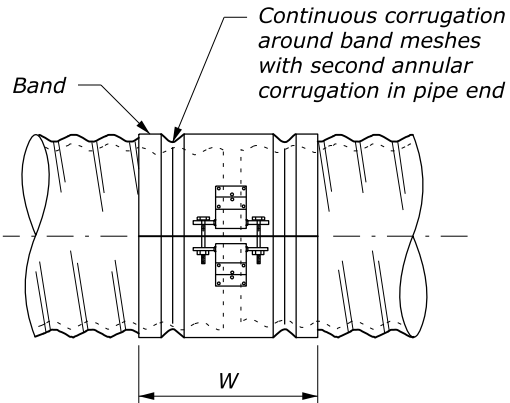
FLAT BAND



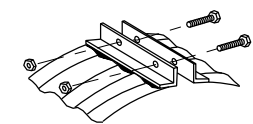
SIDE VIEW



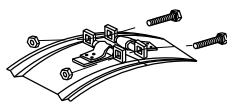
SIDE VIEW



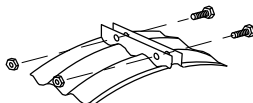
SIDE VIEW



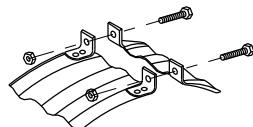
Band Angle



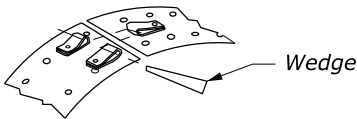
Bar & Strap



Integral Flange

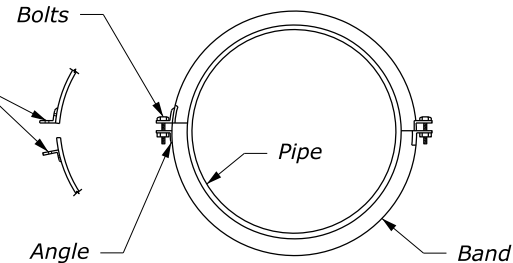


Oval Lug



Wedge and Strap

Rivet, spot weld, or  
fillet weld at crest  
of corrugation at  
heel and toe of angle

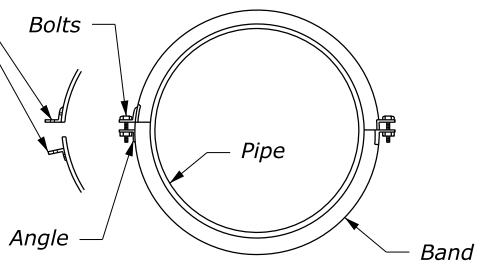


END VIEW

Second angle connection optional to 42"  
diameter, required above 42" diameter

ANNULAR BAND

Rivet, spot weld, or fillet weld at crest  
of corrugation at heel and toe of angle

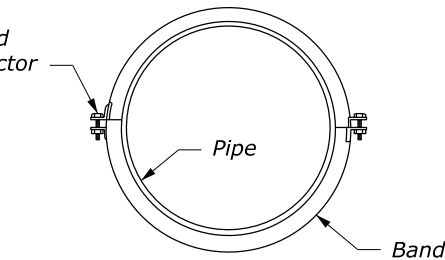


END VIEW

Second angle connection optional to 42"  
diameter, required above 42" diameter

HELICAL BAND

Bolt, bar and  
strap connector



END VIEW

SEMI-CORRUGATED BAND

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>METAL PIPE CULVERT COUPLING BAND</b>	
STANDARD APPROVED FOR USE 12/1993 REVISED: 4/1994 6/2005	STANDARD 602-2

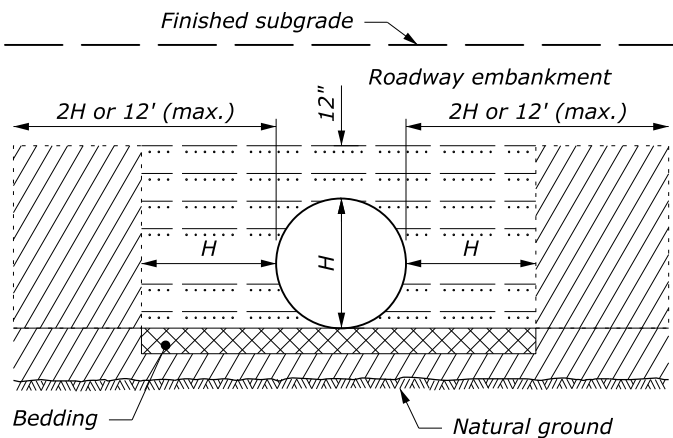
NOTE:

- Watertight pipe joints are not required unless specified in the Special Contract Requirements.
- Other types of coupling bands or fastening devices that comply with the joint performance criteria of AASHTO Standard specifications for Highway Bridges, Division II Section 26 may be used.

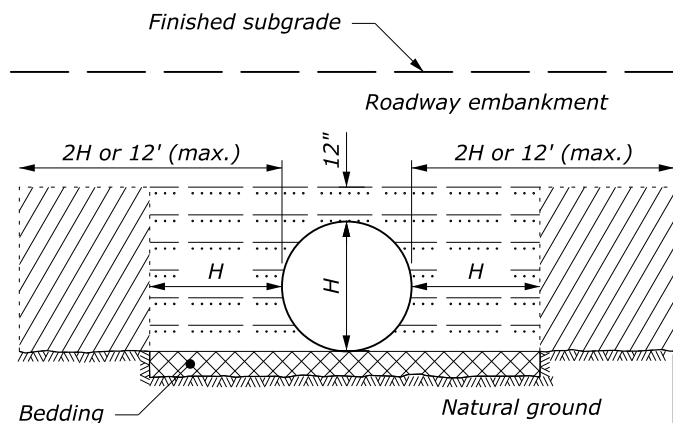
NO SCALE

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30 August 2019 8:17 AM

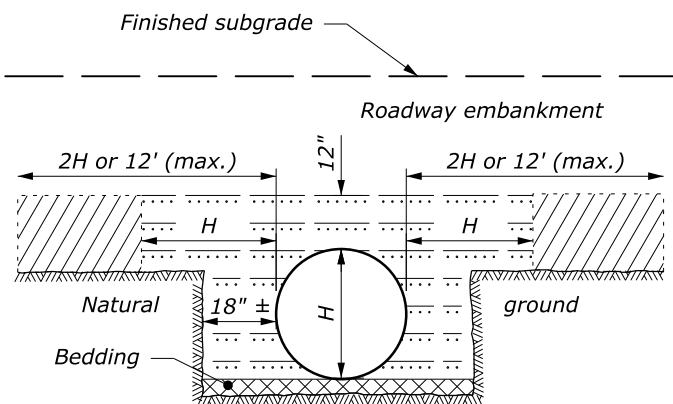
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	G.11



### ABOVE NATURAL GROUND



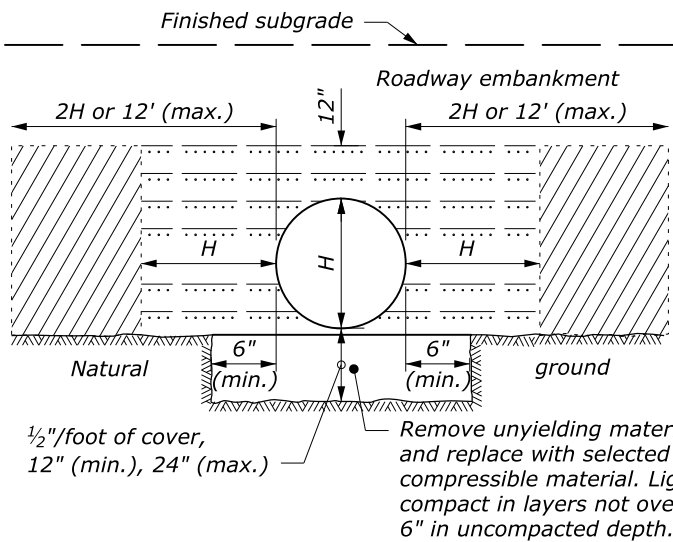
### ON NATURAL GROUND



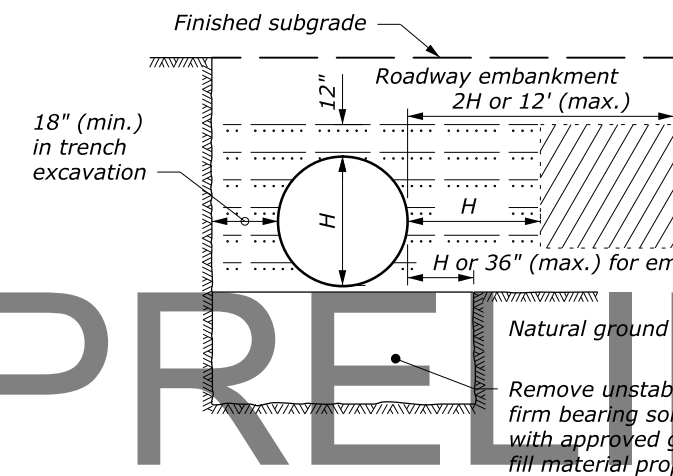
### ABOVE AND BELOW NATURAL GROUND

#### LEGEND:

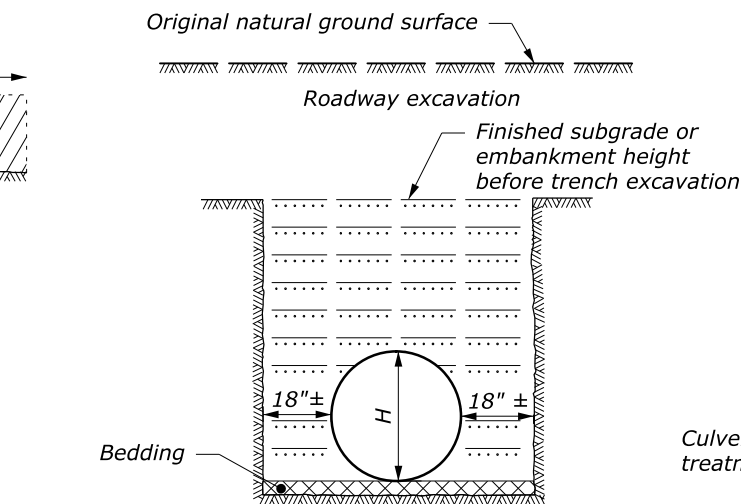
- Bedding material (uncompacted)
- Embankment material placed in layers not exceeding 6" compacted depth.
- Compacted backfill material placed in layers not exceeding 6" compacted depth; or lean concrete backfill in accordance with Section 614.
- Impermeable backfill material.



### ON UNYIELDING MATERIAL

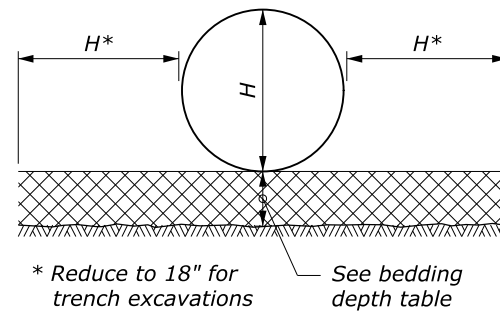


### ON UNSTABLE MATERIAL



### BELOW NATURAL GROUND OR TRENCH EXCAVATION IN EMBANKMENT

BEDDING DEPTH	
PIPE SIZE (H)	DEPTH
12" to 54"	4"
> 54"	6"

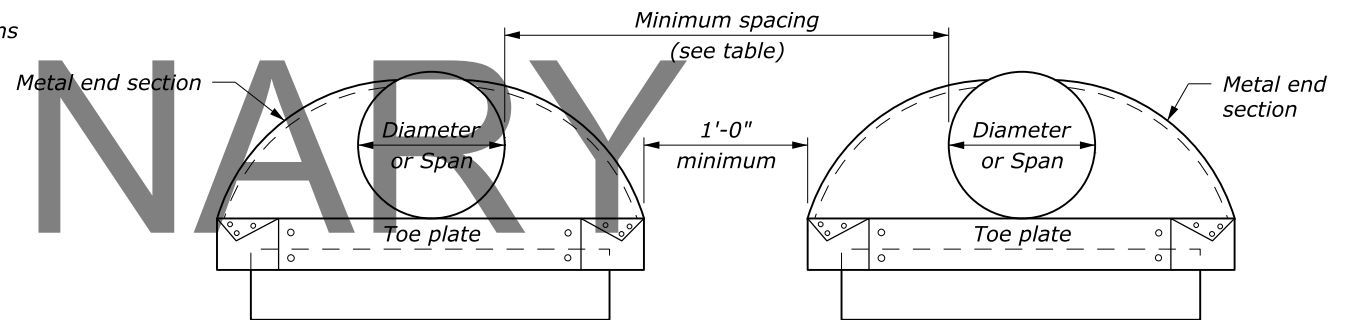


### PIPE BEDDING

MINIMUM SPACING	
DIAMETER or SPAN	SPACING
UP to 48"	24"
48" and UP	Half diameter or span or 36", whichever is less

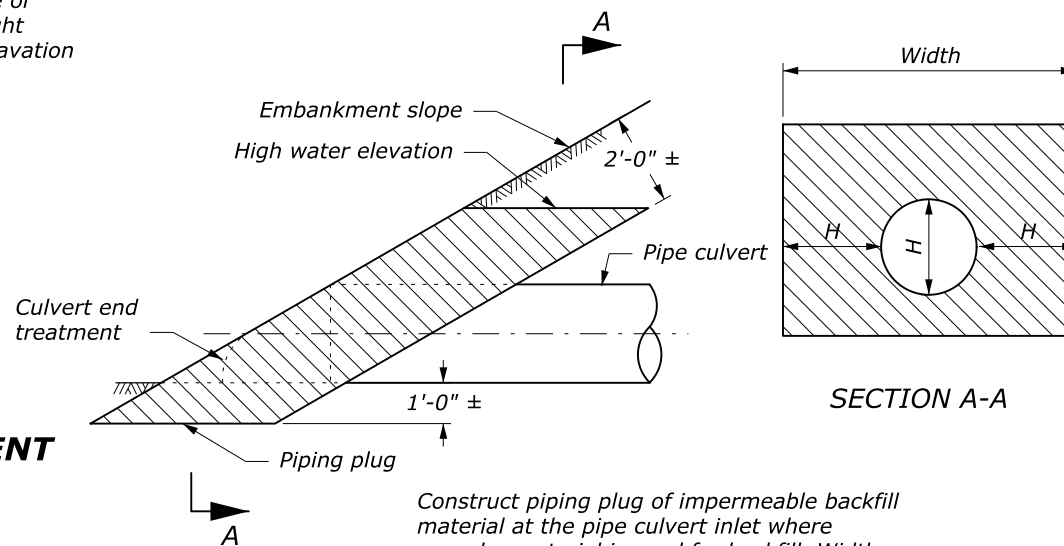
#### NOTE:

- When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
- H equals the diameter of all round pipe culverts or the rise dimension of all pipe arch culverts.
- See Section 704 for bedding and backfill requirements.



#### ELEVATION

### MULTIPLE PIPE INSTALLATION



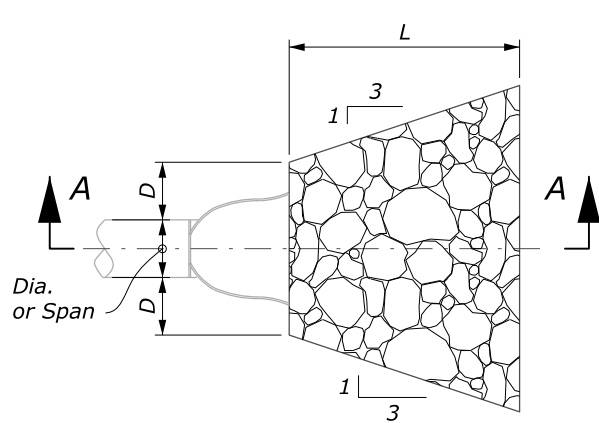
### PIPING PLUG

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>METAL AND PLASTIC PIPE CULVERT BEDDING</b>	
STANDARD APPROVED FOR USE 12/1993 REVISED: 4/1994 6/2005 DRAFT: 10/2017	STANDARD 602-3

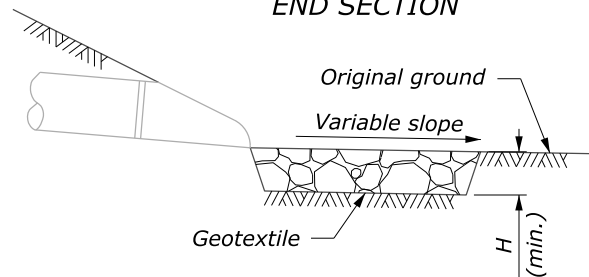
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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	G.12

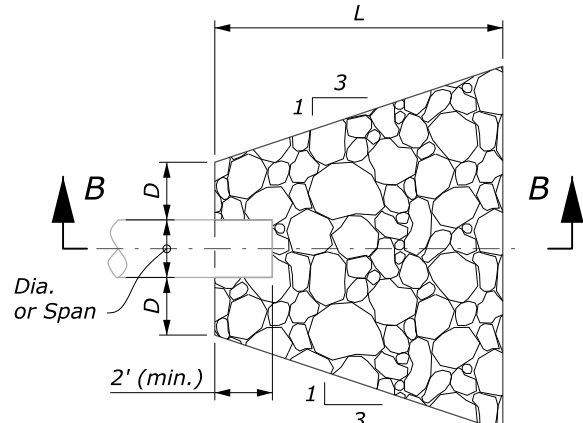


PLAN VIEW

CULVERT WITH STANDARD  
END SECTION

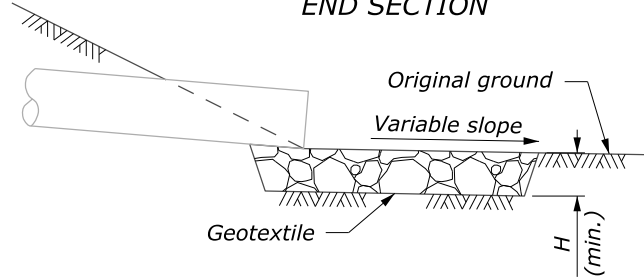


SECTION A-A



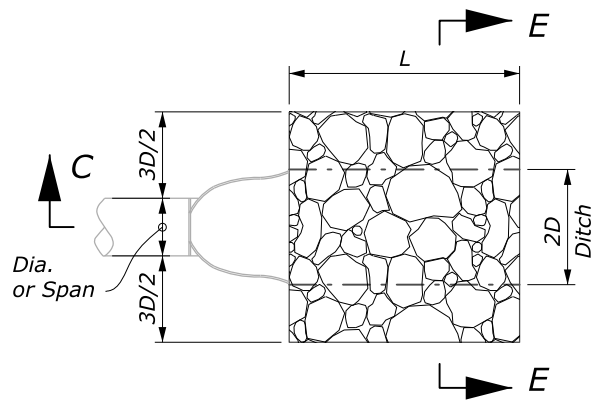
PLAN VIEW

CULVERT WITHOUT STANDARD  
END SECTION



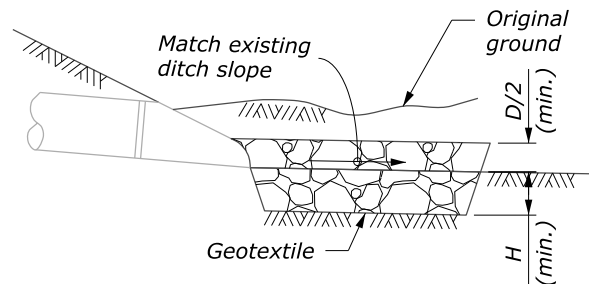
SECTION B-B

**PROTECTIVE APRON AT CULVERT OUTLET WITHOUT DITCH**

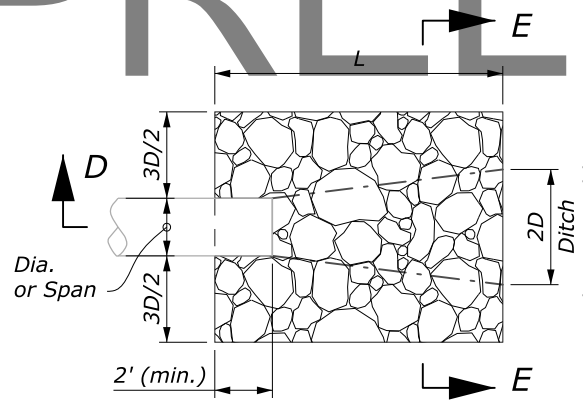


PLAN VIEW

CULVERT WITH STANDARD  
END SECTION

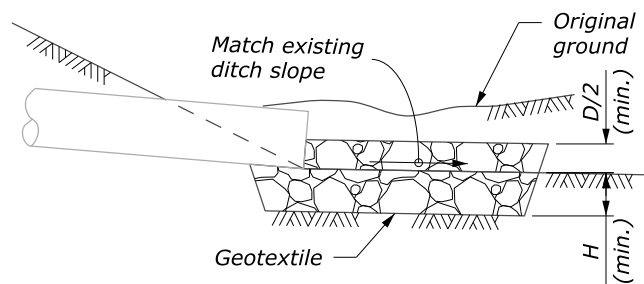


SECTION C-C



PLAN VIEW

CULVERT WITHOUT STANDARD  
END SECTION

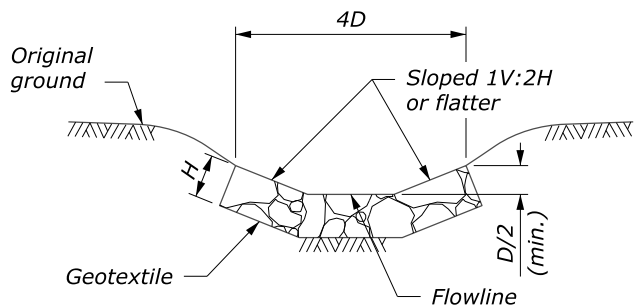


SECTION D-D

**PROTECTIVE APRON AT CULVERT OUTLET WITH DITCH**

OUTLET WITHOUT DITCH PROTECTIVE APRON DIMENSIONS AND QUANTITIES FOR INFORMATION ONLY						
	CULVERT SIZE D (INCHES)	RIPAP CLASS	APRON LENGTH L (FEET)	APRON DEPTH H (INCHES)	ESTIMATED RIPRAP QUANTITY (CUYD)	ESTIMATED GEOTEXTILE QUANTITY (SQYD)
WITH END SECTION	12	2	4	18	1.0	5
	18	2	6	18	2.2	9
	24	2	8	18	3.9	13
	30	3	12.5	24	10.8	27
	36	3	15	24	15.6	37
	42	4	21	30	34.0	63
WITHOUT END SECTION	48	4	24	30	44.4	78
	12	2	6	18	1.7	7
	18	2	8	18	3.2	12
	24	2	10	18	5.2	17
	30	3	14.5	24	13.2	32
	36	3	17	24	18.5	42
	42	4	23	30	38.7	70
	48	4	26	30	49.8	86

OUTLET WITH DITCH PROTECTIVE APRON DIMENSIONS AND QUANTITIES FOR INFORMATION ONLY						
	CULVERT SIZE D (INCHES)	RIPAP CLASS	APRON LENGTH L (FEET)	APRON DEPTH H (INCHES)	ESTIMATED RIPRAP QUANTITY (CUYD)	ESTIMATED GEOTEXTILE QUANTITY (SQYD)
WITH END SECTION	12	2	4	18	0.9	4
	18	2	6	18	2.0	8
	24	2	8	18	3.6	12
	30	3	12.5	24	9.3	24
	36	3	15	24	13.3	32
	42	4	21	30	27.2	52
WITHOUT END SECTION	48	4	24	30	35.6	65
	12	2	6	18	1.3	6
	18	2	8	18	2.7	10
	24	2	10	18	4.4	15
	30	3	14.5	24	10.7	27
	36	3	17	24	15.1	36
	42	4	23	30	29.8	56
	48	4	26	30	38.5	70



SECTION E-E

**NOTE:**

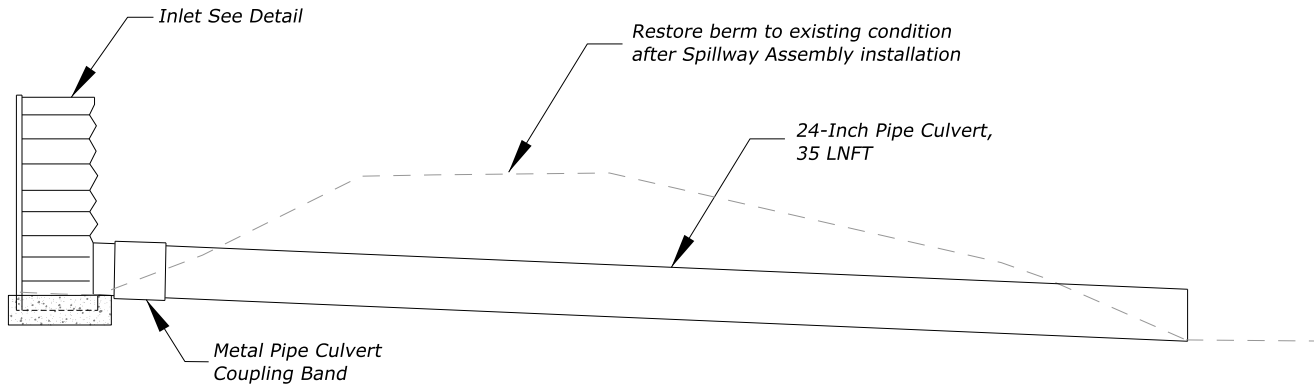
1. Use for aprons serving culverts with slopes less than 10%.
2. Furnish separation and stabilization geotextile.
3. Do not measure riprap placement excavation for payment.

NO SCALE

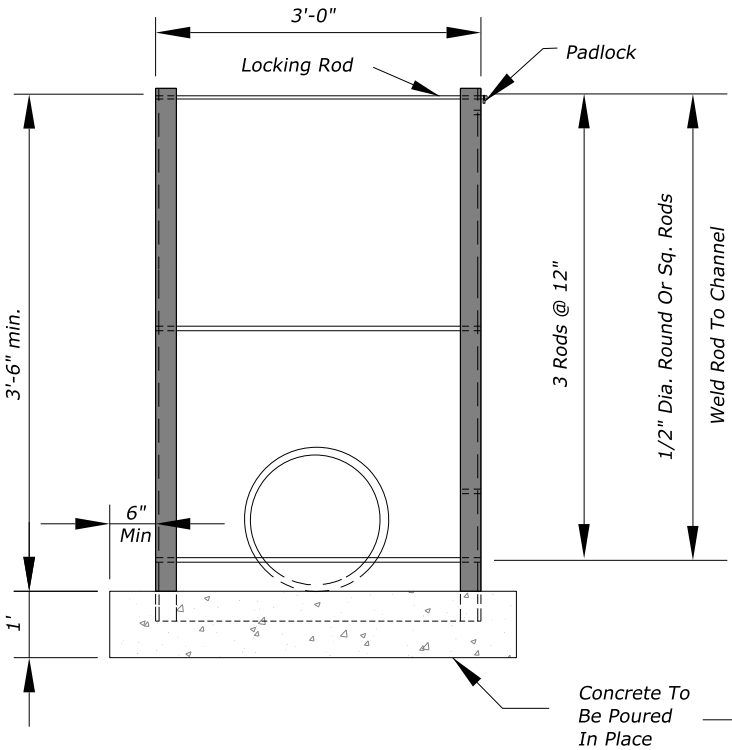
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>PLACED RIPRAP AT CULVERT OUTLETS</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 8/2016	W251-1

08/2019 J. PEDERSON 08/2019 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_ge.dgn [Model] 6 May 2020 4:59 PM

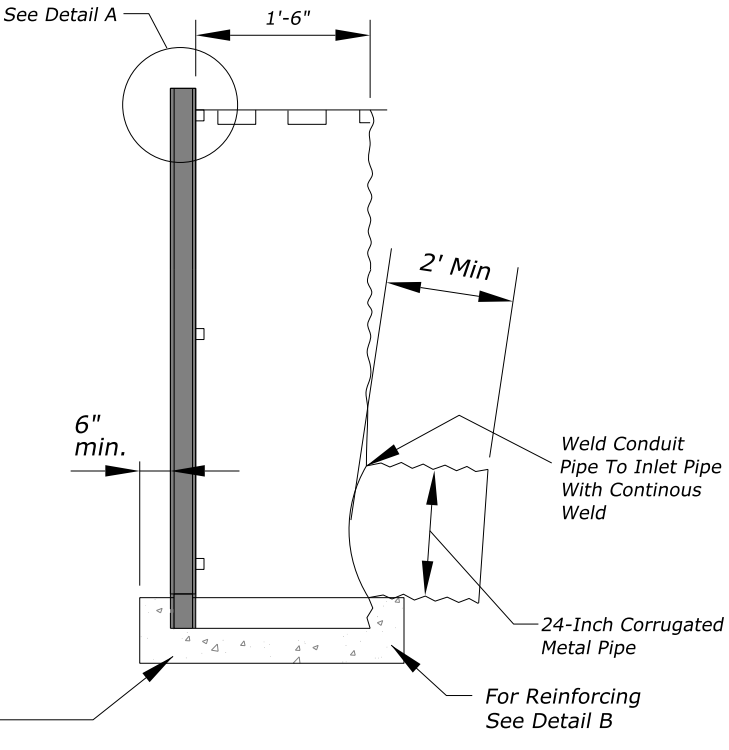
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	G.13



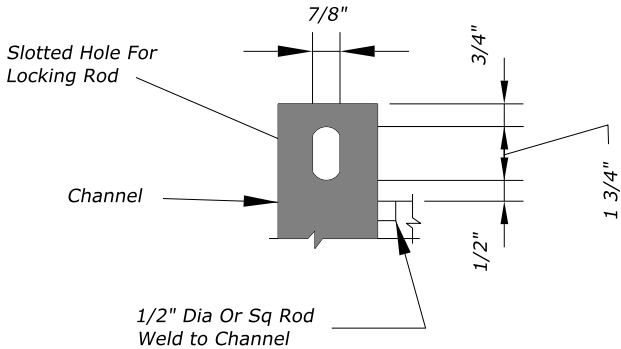
PROFILE ELEVATION



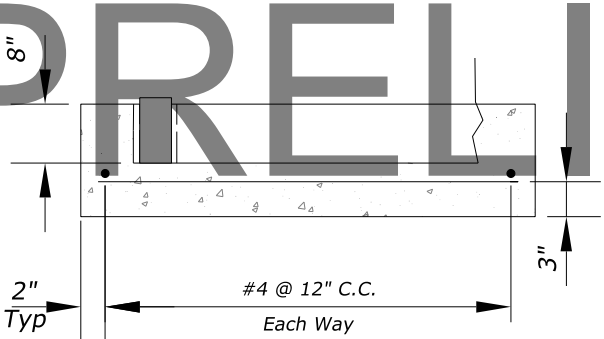
FRONT ELEVATION



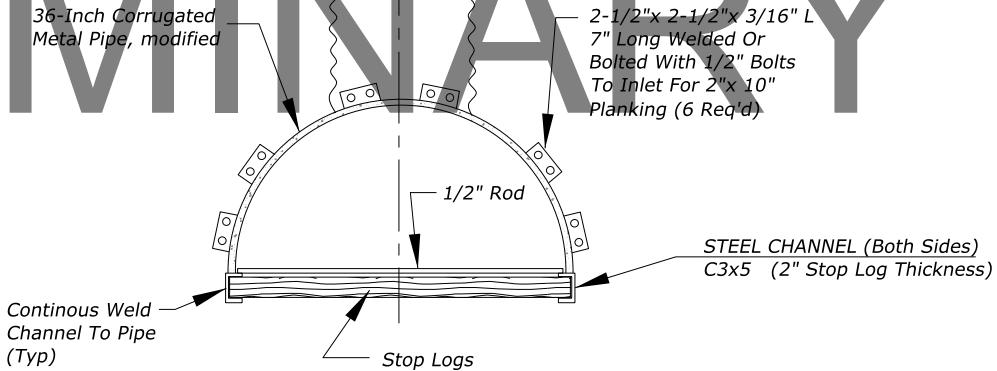
SECTION @ CENTERLINE



DETAIL A

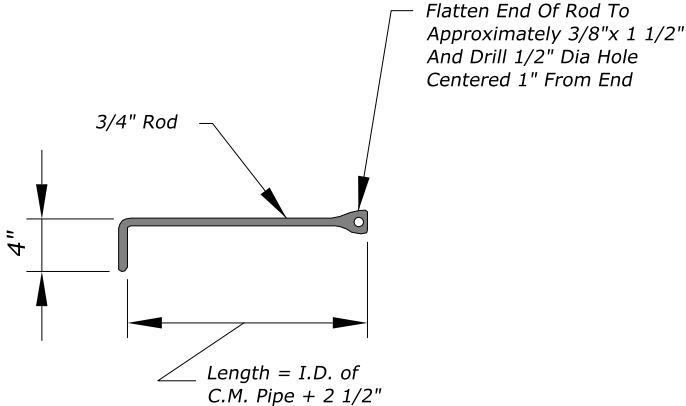


DETAIL B

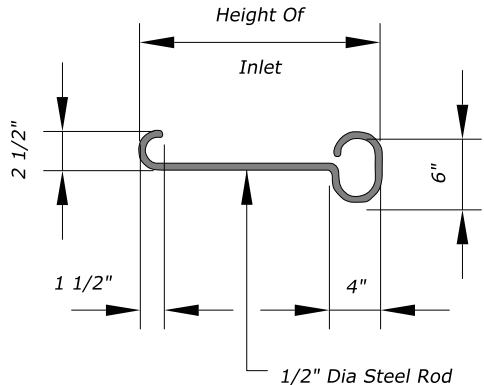


PLAN

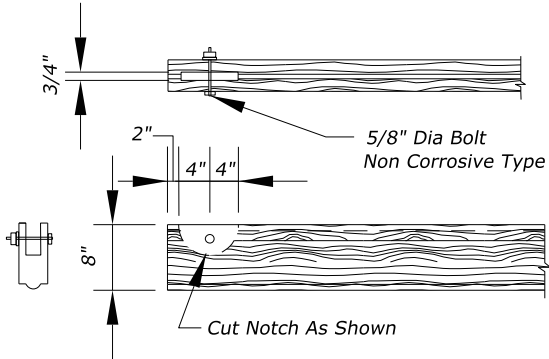
INLET DETAILS



LOCKING ROD DETAIL



STOP LOG LIFTING HOOK



STOP LOG DETAIL

INLET MODIFICATION,  
WATER CONTROL STRUCTURE DETAIL

ITEM 25501-2000 MECHANICALLY STABILIZED EARTH WALL, GABION FACE			
LOCATION	SIDE	QUANTITY (SQFT)	REMARKS
95+85 to 98+91	LT	1,638	Deep Creek Bridge, west
96+23 to 98+91	RT	1,620	Deep Creek Bridge, west
100+72 to 100+96	RT	144	Deep Creek Bridge, east
	TOTAL	3,402	

ITEM 26101-0000 REINFORCED SOIL SLOPE			
LOCATION	SIDE	QUANTITY (SQFT)	REMARKS
226+50 to 230+15	RT	7,900	West of Ambush Rock
	TOTAL	7,900	

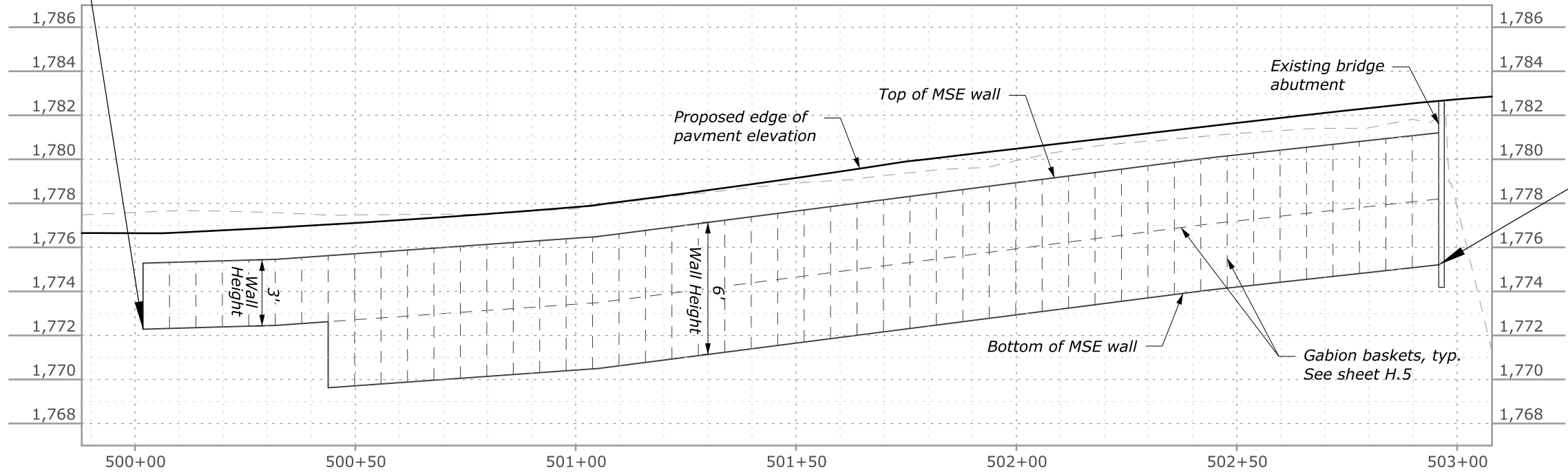
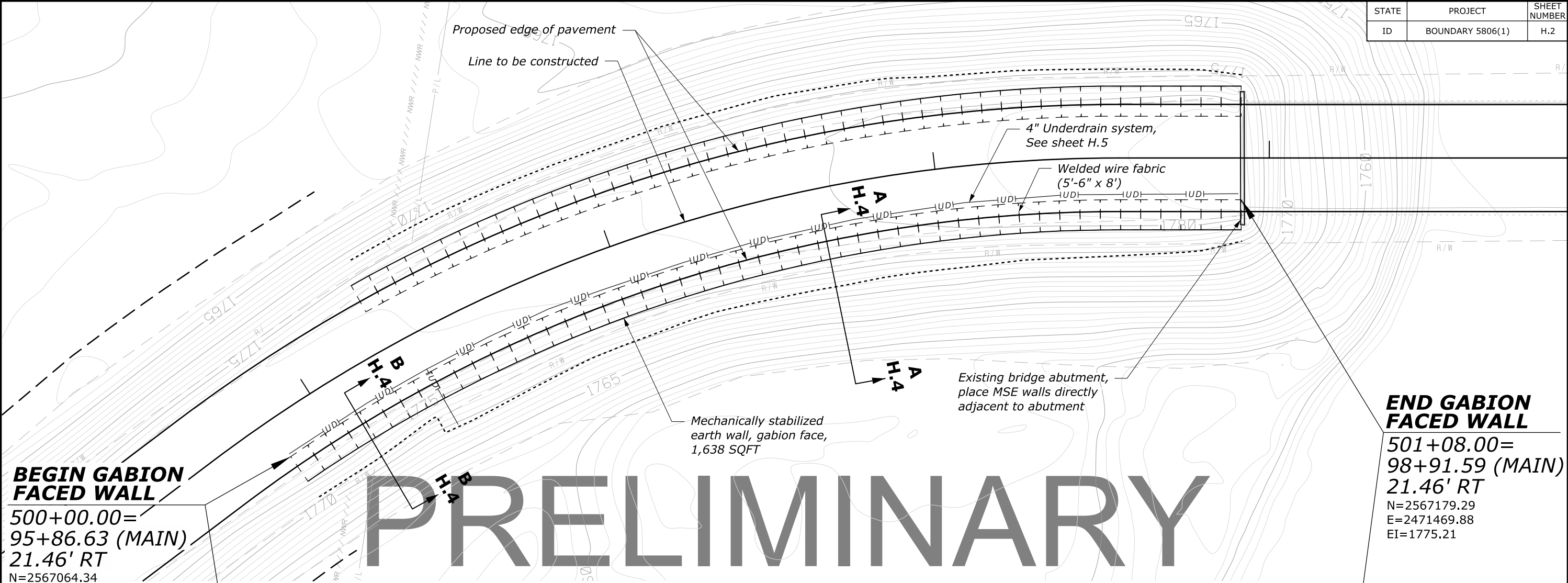
GABION FACED WALL INFORMATIONAL QUANTITIES				
ITEM	LOCATION			TOTAL
	95+86 to 98+91 (RT)	96+23 to 98+91 (LT)	100+72 to 100+96 (RT)	
Excavation (CUYD)	1430	1310	100	2,840
Select Borrow (CUYD)	825	775	70	1,670
Underdrain System, 4" perforated pipe (LNFT)	295	280	24	599
Underdrain System, 4" non-perforated pipe (LNFT)	20	20	20	60
# of Welded Wire Fabric sheets (5'-6" x 8') (Each)	91	90	8	189
# of Gabion Baskets (3'x3') (Each)	182	180	16	378
Separation-stabilization geotextile, class 1, type A (Non-woven) (SQYD)	364	360	32	756

REINFORCED SOIL SLOPE INFORMATIONAL QUANTITIES	
ITEM	QUANTITY
Backfill (CUYD)	2,770
Structural backfill (CUYD)	320
Separation-stabilization geotextile, class 1, type C (Woven) (SQYD)	1,800
Uniaxial geogrid, primary reinforcment (SQYD)	3,150
Uniaxial geogrid, secondary reinforcment (SQYD)	1,525

TABULATION OF  
RETAINING WALL QUANTITIES

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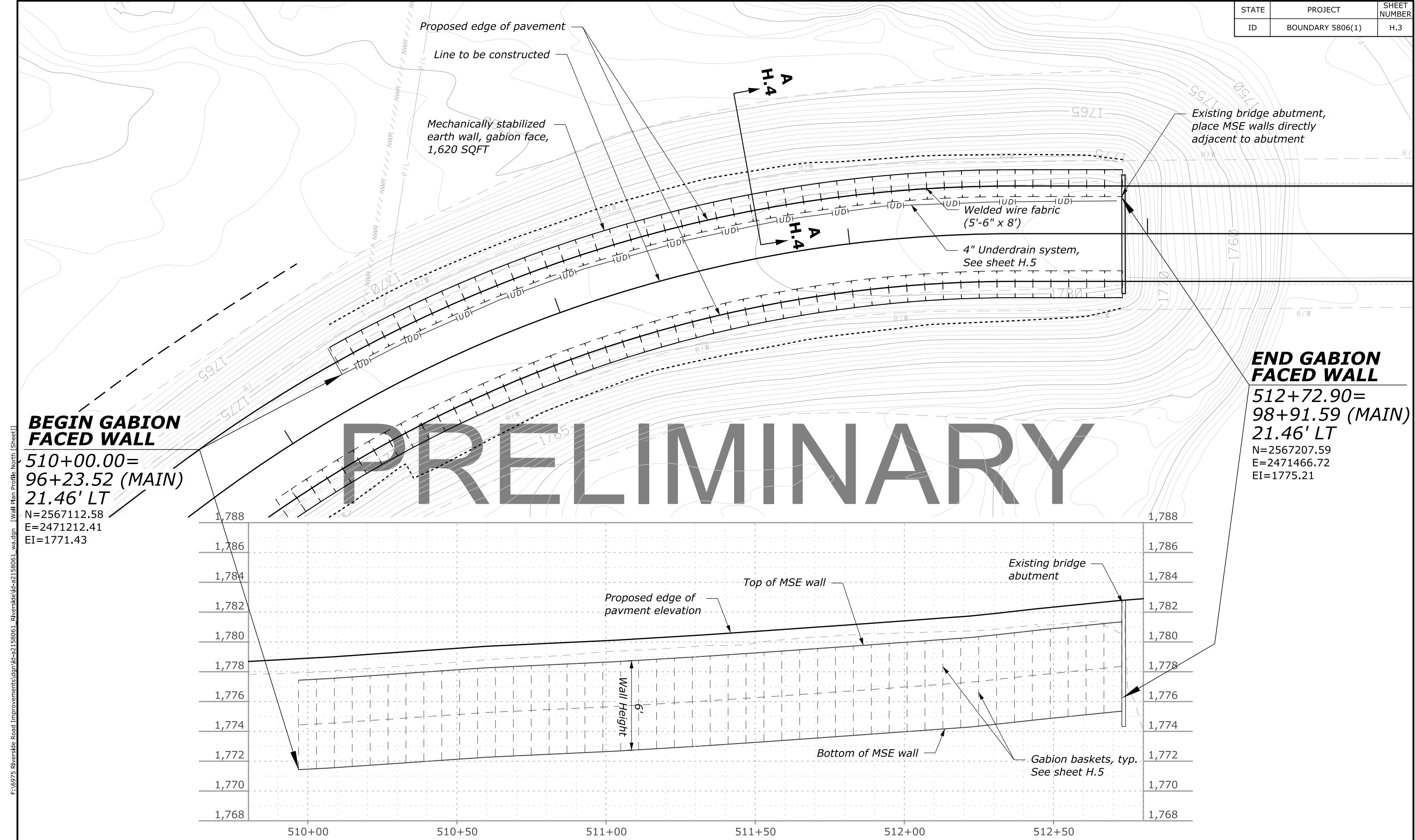
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	H.2



**MSE WALL**  
**95+86 RT TO 98+91 RT**

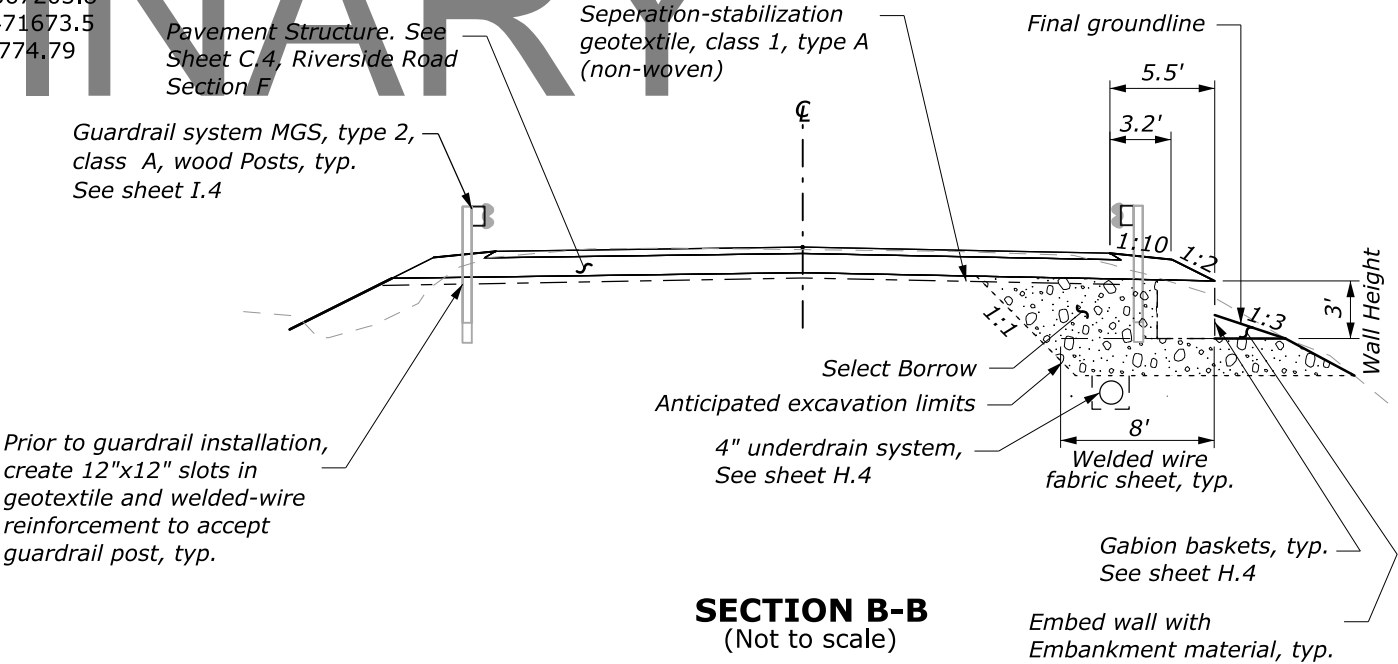
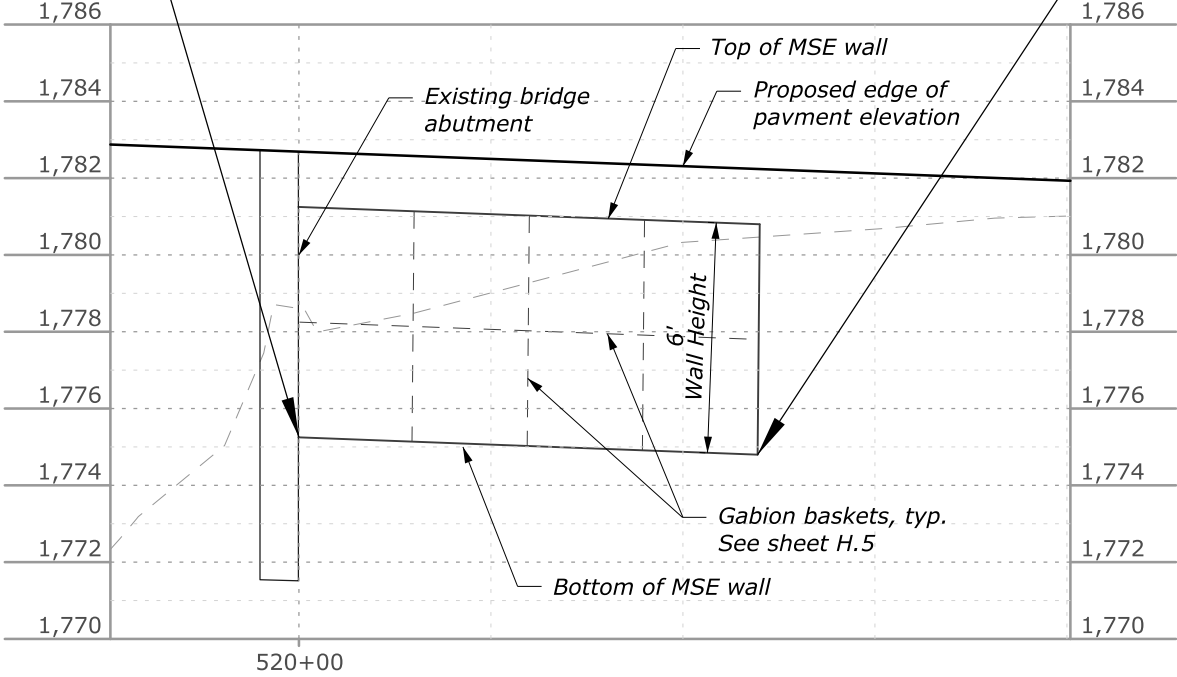
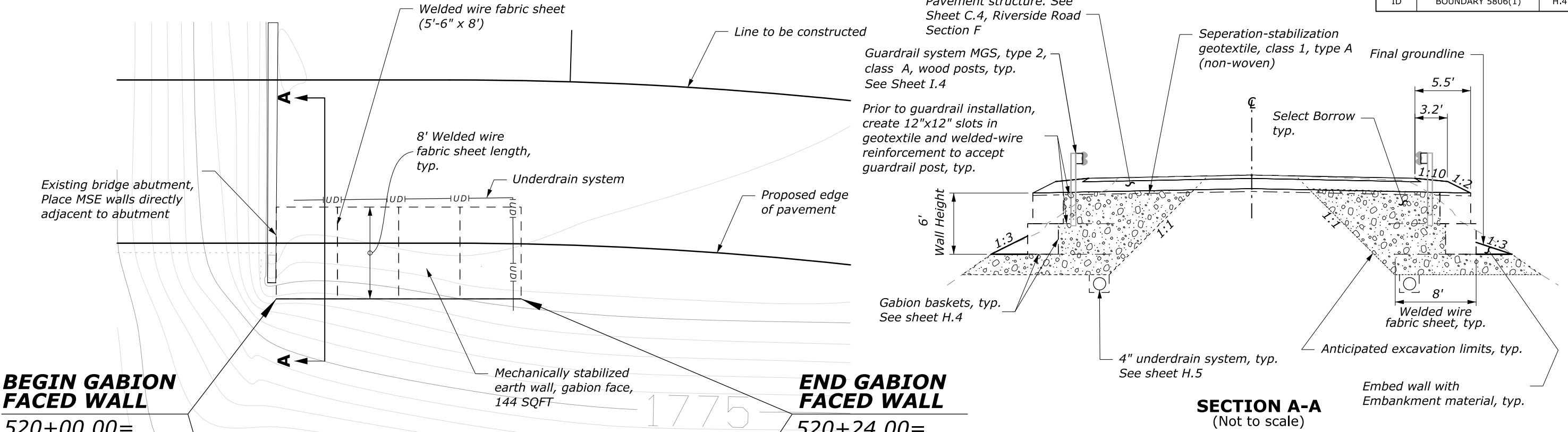


STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	H.3



**MSE WALL**  
**96+23 LT TO 98+91 LT**

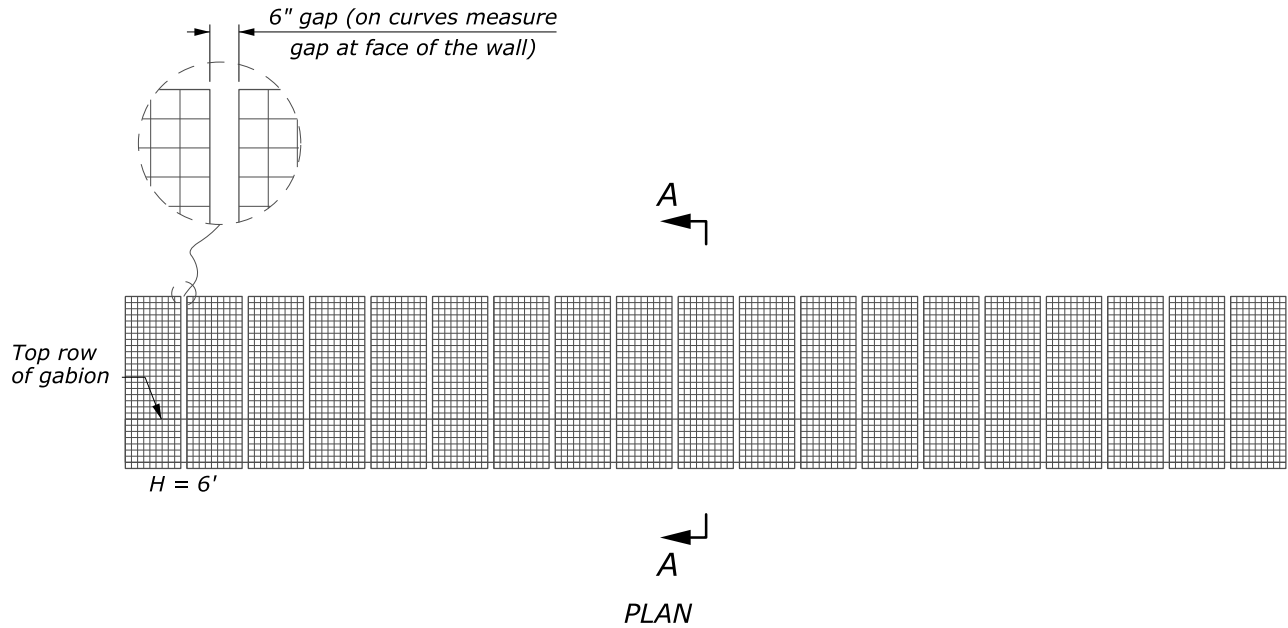
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	H.4



**MSE WALL 100+71 TO 100+96  
AND MSE WALL SECTIONS**

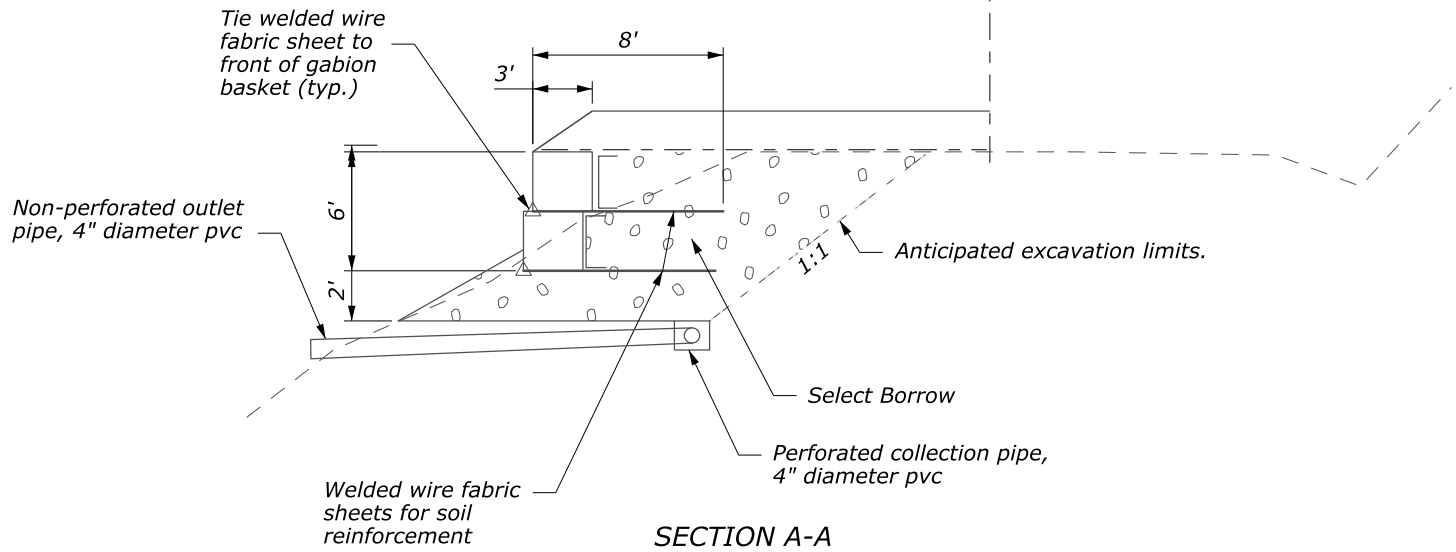
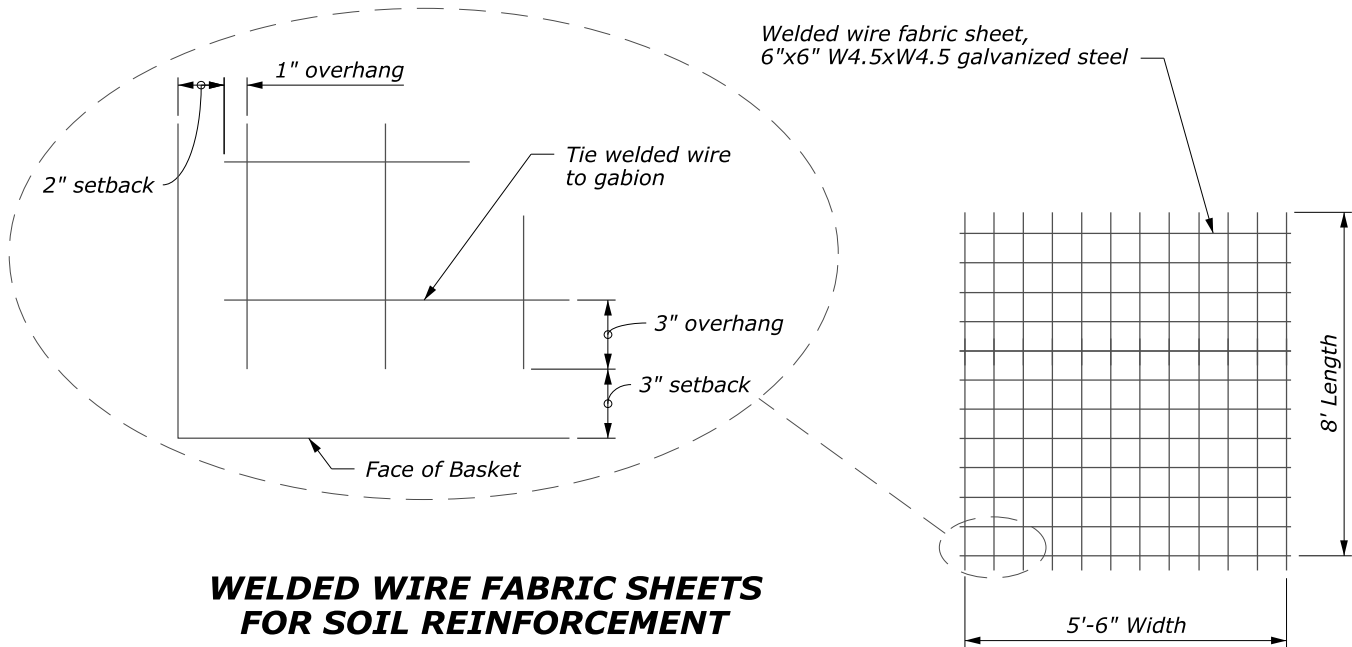
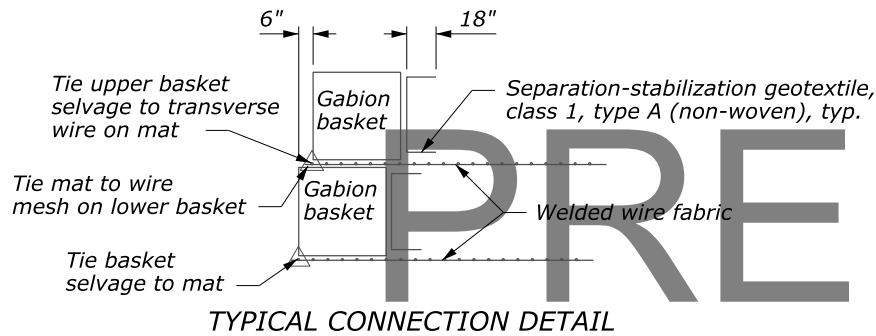
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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	H.5



**NOTE:**

1. See Sheet H.1-3 for welded wire fabric sheet lengths, and number of mats. Where the wall construction requires the width of the welded wire fabric sheets to be less than 5.5 feet, the fabric wire may be field cut to fit. Cut fabric at center of mesh of welded wire fabric sheets.
2. Place layers of welded wire fabric sheets with 6" gaps between sheets. 6" gaps are measured at the face of the wall. Connect the welded wire fabric sheets with spiral binders or tie wire to the front edge of each gabion basket.
3. The heights and quantities are subject to field adjustment. Any increase in wall heights over those shown on the plans require evaluation to determine the safe bearing pressure is not exceeded.



NO SCALE

**GABION FACED WALL DETAIL**



ITEM 20302-0150 REMOVAL OF BRIDGE RAILING, W-BEAM				
LOCATION (STATION)		SIDE	QUANTITY (LNFT)	REMARKS
98+92	100+71	LT	179	Deep Creek Bridge
98+92	100+71	RT	179	Deep Creek Bridge
		TOTAL	358	

ITEM 20302-1200 REMOVAL OF GUARDRAIL			
LOCATION (STATION)		SIDE	QUANTITY (LNFT)
94+30	98+92	LT	375
94+30	98+92	RT	479
100+71	101+13	LT	43
100+71	101+40	RT	66
117+50	119+55	LT	200
		TOTAL	1,163

ITEM 20304-7000 REMOVAL OF UTILITY CONDUITS, 2-INCH				
LOCATION (STATION)		SIDE	QUANTITY (LPSM)	REMARKS
98+92	100+71	LT	ALL	Deep Creek Bridge
		TOTAL	ALL	

ITEM 56101-0000 STRUCTURAL CONCRETE INJECTION AND CRACK REPAIR			
LOCATION (STATION)	SIDE	QUANTITY (LNFT)	REMARKS
100+71	LT	3	NW bridge corner
	TOTAL	3	

ITEM 55601-0900 BRIDGE RAILING, STEEL, REPLACEMENT GUARDRAIL THRIE-BEAM RAIL ELEMENT, TYPE 2, CLASS A			
LOCATION (STATION)		SIDE	QUANTITY (LNFT)
98+90.73	100+71.98	LT	181.25
98+90.73	100+71.98	RT	181.25
		TOTAL	363

ITEM 61401-0000 LEAN CONCRETE BACKFILL			
STATION	SIDE	QUANTITY (CUYD)	REMARKS
100+71.98	N/A	3	Approx. quantity, beneath east bridge abutment
	TOTAL	3	

1/

ITEM 61701-4550 GUARDRAIL SYSTEM MGS, TYPE 2, CLASS A, WOOD POSTS			
LOCATION (STATION)		SIDE	QUANTITY (LNFT)
94+45.01	98+71.98	LT	437.5
94+48.71	98+71.98	RT	412.5
100+90.76	101+02.74	LT	12.5
100+91.00	101+04.03	RT	12.5
150+19.60	152+70.28	RT	250.0
226+18.81	229+97.40	RT	362.5
		TOTAL	1,488

ITEM 63610-1700 CONDUIT, 2-INCH, RIGID GALVANIZED STEEL				
LOCATION (STATION)		SIDE	QUANTITY (LNFT)	REMARKS
98+90.73	100+71.98	LT	190	Deep Creek Bridge
		TOTAL	190	

ITEM 61702-1600 TERMINAL SECTION, TYPE MGS FLARED				
LOCATION (STATION)		SIDE	QUANTITY (EACH)	REMARKS
94+07.51	94+45.01	LT	1	
94+11.21	94+48.71	RT	1	
101+02.74	101+38.25	LT	1	
101+04.03	101+43.19	RT	1	
149+82.10	150+19.60	RT	1	
152+70.28	153+07.78	RT	1	
225+81.09	226+18.81	RT	1	
229+97.40	230+33.93	RT	1	
		TOTAL	8	

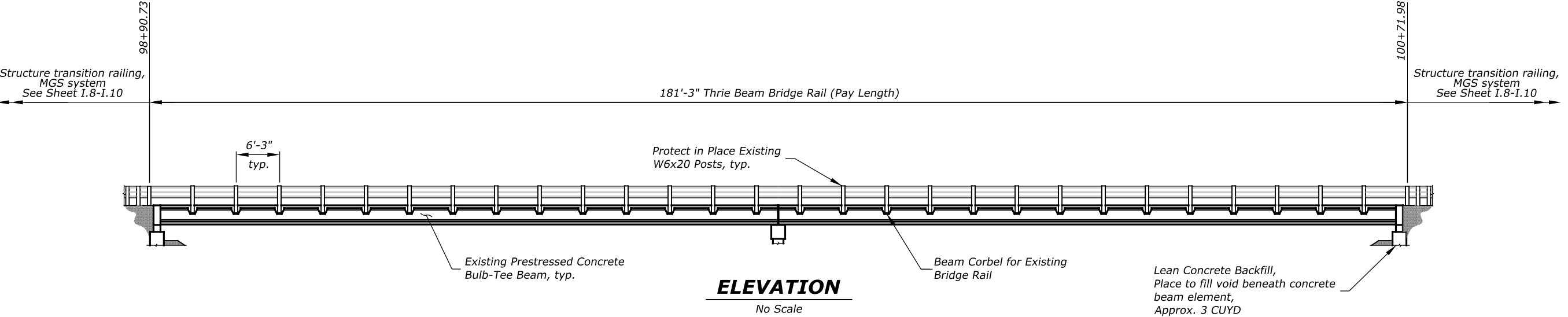
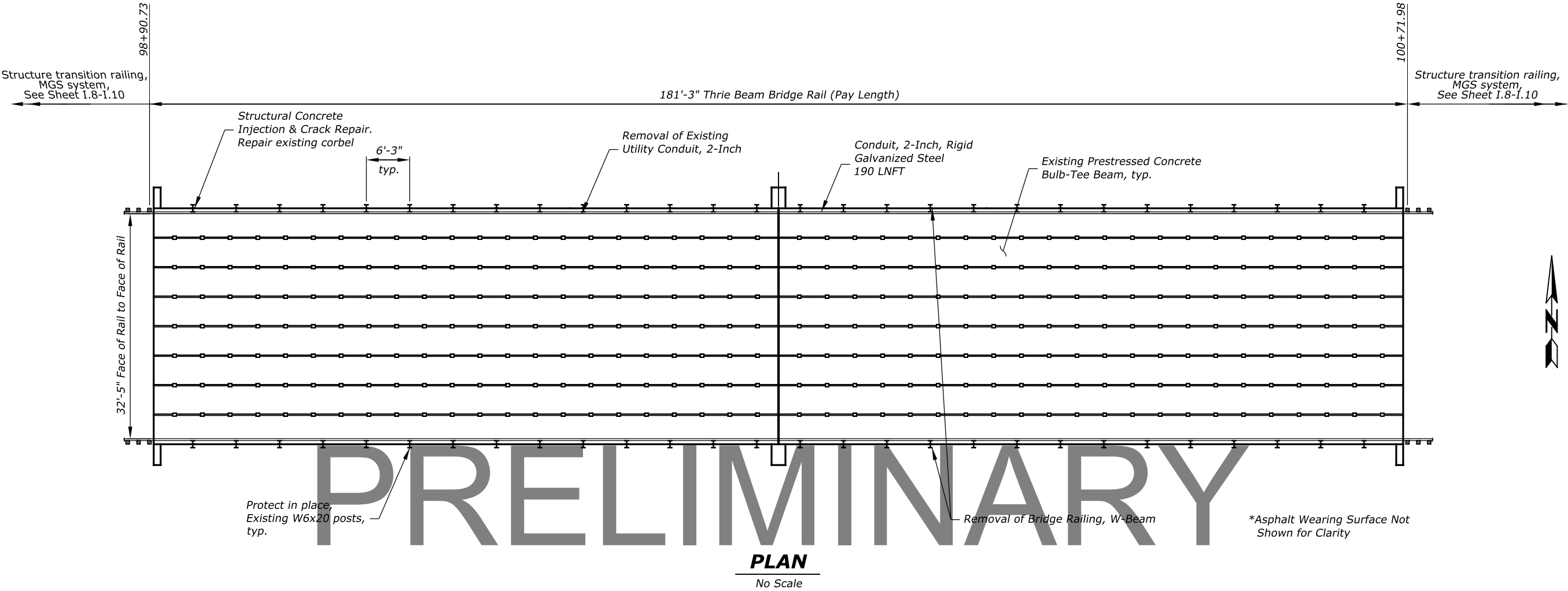
ITEM 61707-4000 STRUCTURE TRANSITION RAILING, MGS SYSTEM				
LOCATION (STATION)		SIDE	QUANTITY (LNFT)	REMARKS
98+71.98	98+90.73	LT	18.75	Thrie-bream to W-beam transition
98+72.98	98+90.73	RT	18.75	Thrie-bream to W-beam transition
100+71.98	101+02.74	LT	18.75	Thrie-bream to W-beam transition
100+71.98	101+04.03	RT	18.75	Thrie-bream to W-beam transition
		TOTAL	75.00	

FOOTNOTE:  
1/ 8" Block

TABULATION OF  
SAFETY FEATURE QUANTITIES

06/2019 J. PEDERSON 06/2019 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_la.dgn [BRIDGE] 11 May 2020 2:01 PM

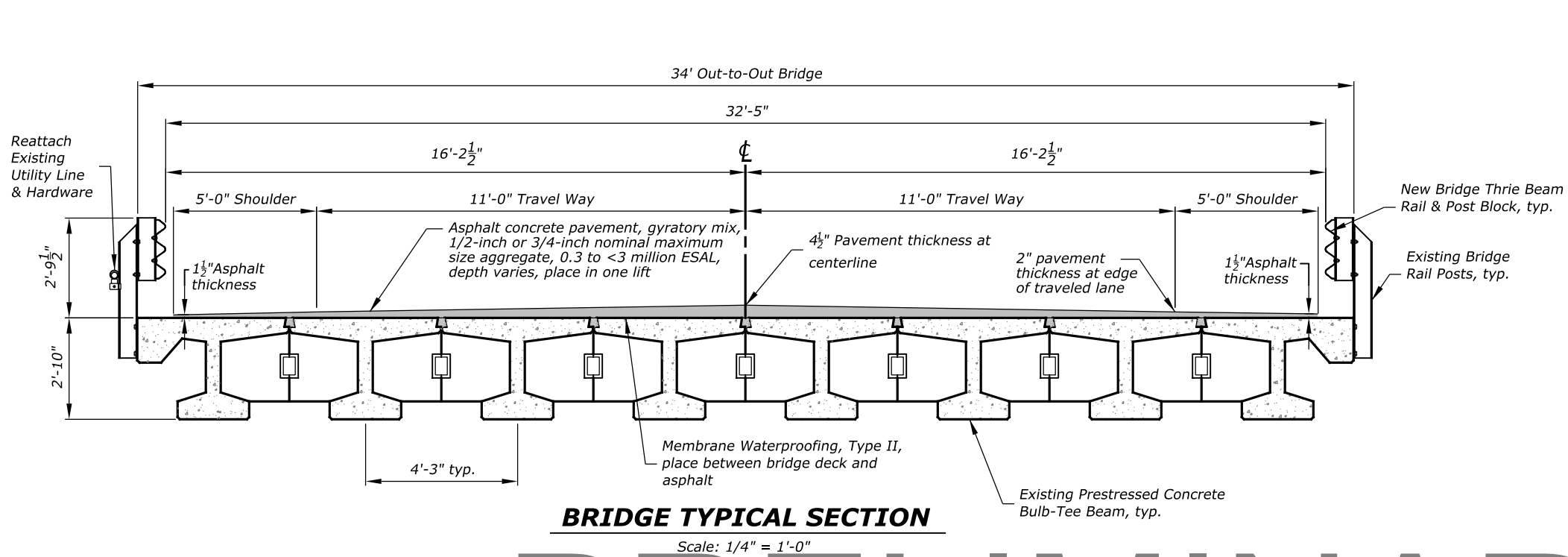
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	I.2



DEEP CREEK BRIDGE  
RAIL DESIGN

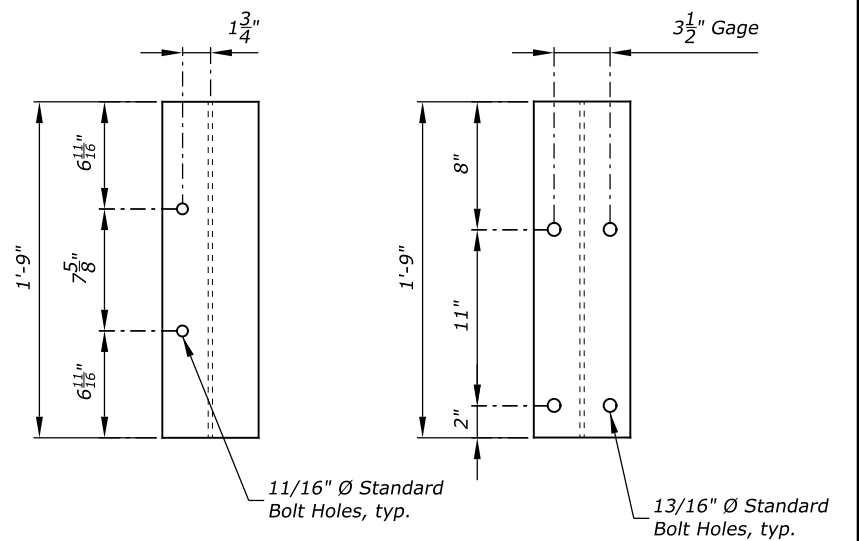
11 May 2020 2:04 PM F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_1a.dgn [BRIDGE 2] Designed by: B. McCray Checked by: J. Pederson 06/2019 06/2019 06/2019

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	I.3



**BRIDGE TYPICAL SECTION**

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



**POST BLOCK TO THRIE BEAM**

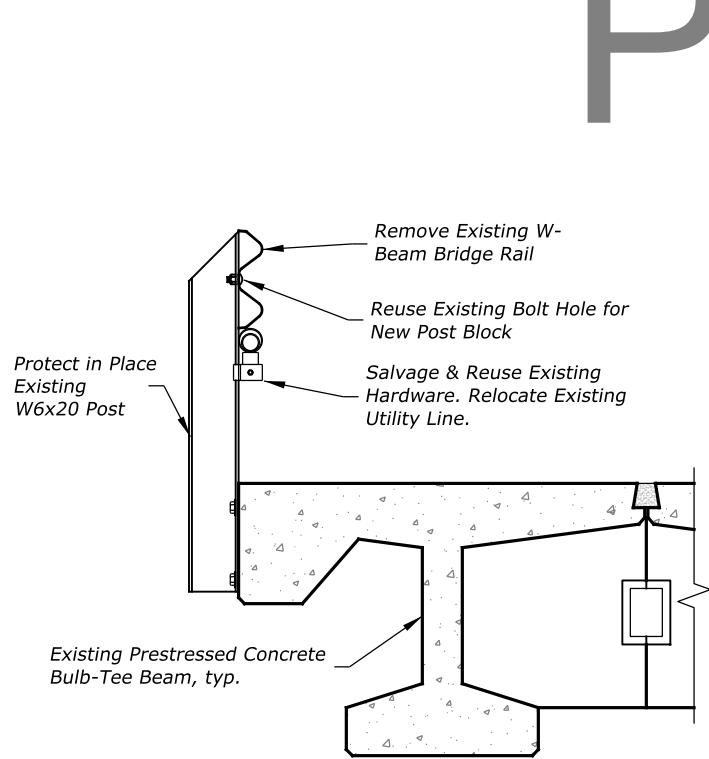
**POST BLOCK TO RAIL POST**

C  
2

**DETAIL**

Scale: 1" = 1'-0"

POST BLOCK

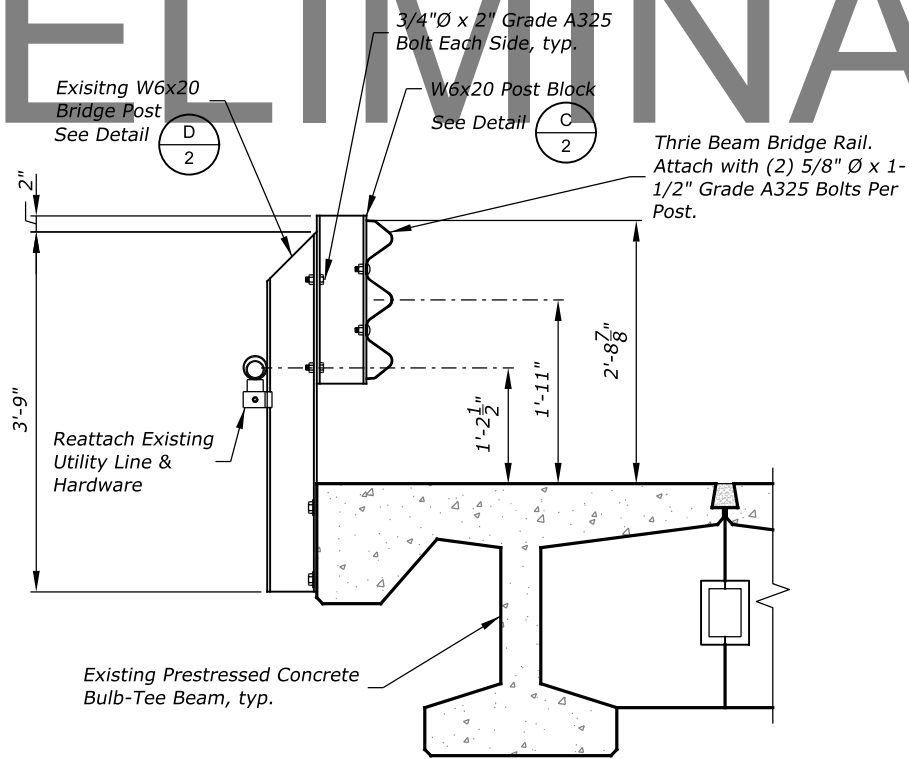


A  
2

**DETAIL**

EXISTING BRIDGE RAIL CONNECTION

Scale: 1/2" = 1'-0"

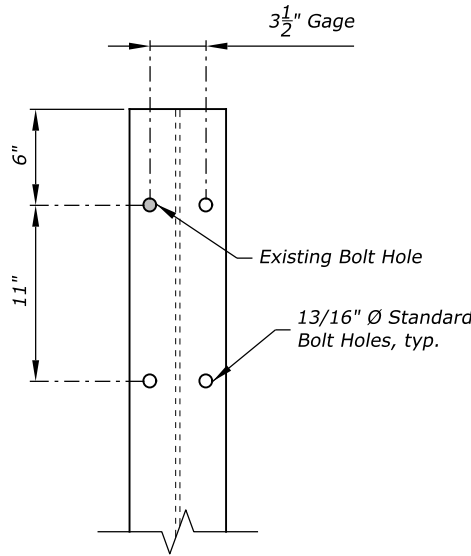


B  
2

**DETAIL**

PROPOSED BRIDGE RAIL CONNECTION

Scale: 1/2" = 1'-0"



**FRONT VIEW**

D  
2

**DETAIL**

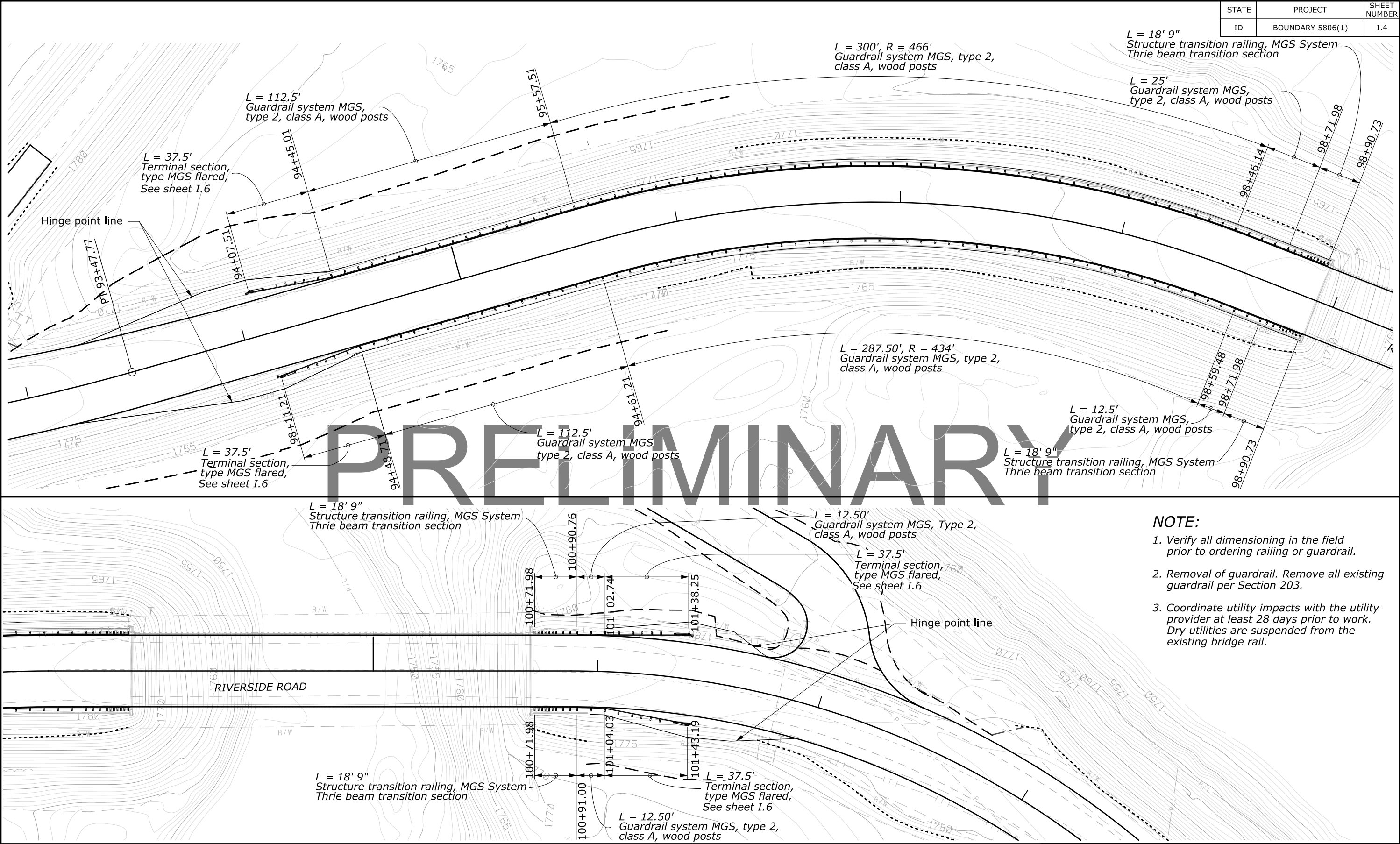
Scale: 1" = 1'-0"

EXISTING BRIDGE POST

## DEEP CREEK BRIDGE RAIL DESIGN

F:\6975 Riverside Road Improvements\dm\id-a2158061\_Riverside\id-a2158061.tb.dgn [Guardrail West Bridge (Sheet)] 13 May 2020 10:33 AM

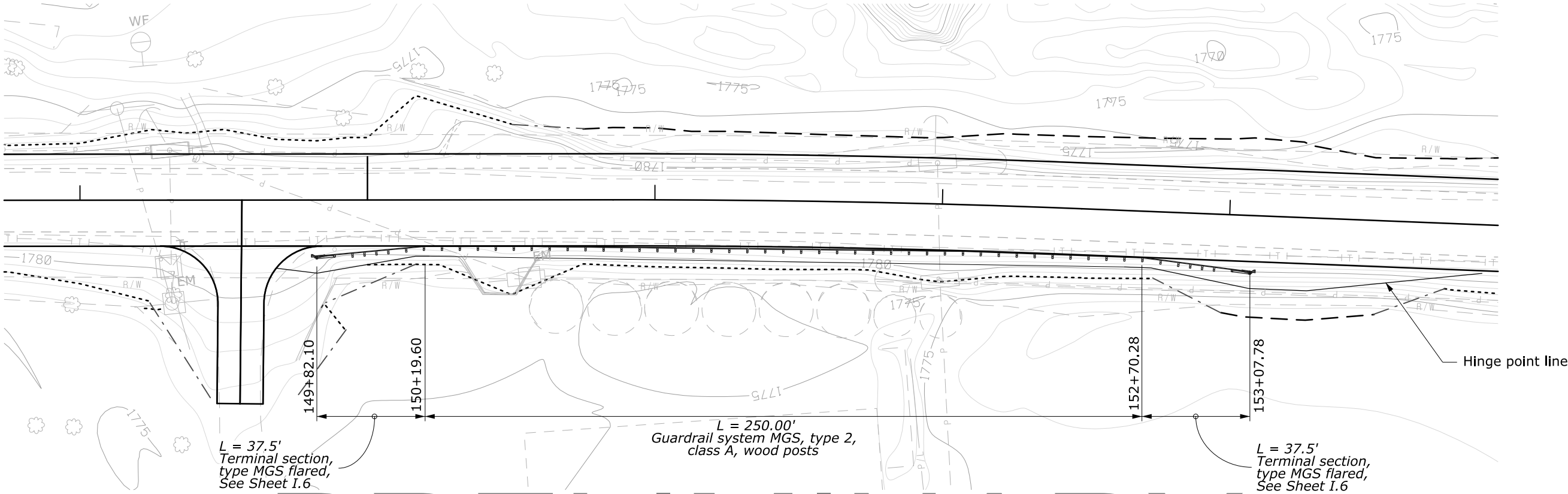
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	I.4



**DEEP CREEK BRIDGE  
APPROACH GUARDRAIL**



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	I.5



- NOTE:**
1. Verify all dimensioning in the field prior to ordering railing or guardrail.
  2. Removal of guardrail. Remove all existing guardrail per Section 203.
  3. Coordinate utility impacts with the utility provider at least 28 days prior to work. Dry utilities are suspended from the existing bridge rail.

PRELIMINARY

L = 162.50', R = 164.5'  
Guardrail system MGS, type 2,  
class A, wood posts

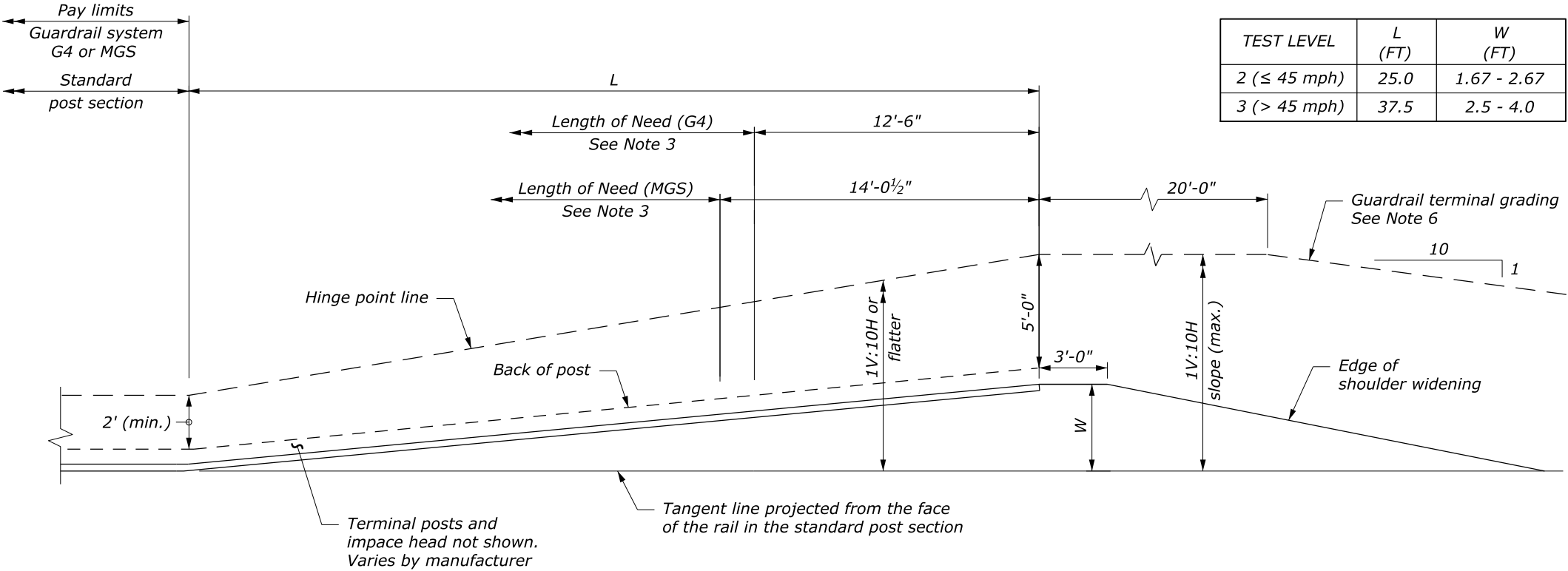
L = 37.5'  
Terminal section,  
type MGS flared,  
See Sheet I.6

L = 200.00'  
Guardrail system MGS, type 2,  
class A, wood posts

L = 37.5'  
Terminal section,  
type MGS flared,  
See Sheet I.6

**RIVERSIDE ROAD GUARDRAIL**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	I.6



TEST LEVEL	L (FT)	W (FT)
2 ( $\leq 45$ mph)	25.0	1.67 - 2.67
3 ( $> 45$ mph)	37.5	2.5 - 4.0

NOTE:

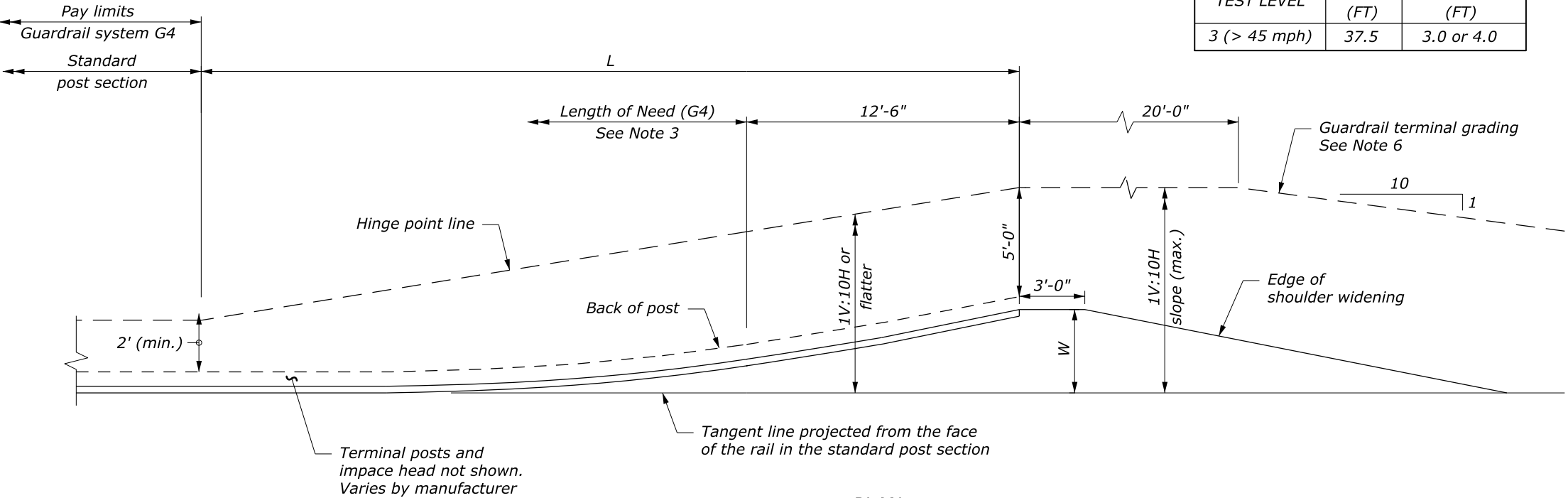
1. Install a flared W-beam guardrail terminal according to the manufacturer's recommendations. See manufacturer's drawings for other details.
2. Construct the terminal grading as shown in the staking notes or model. If no staking notes or model is provided, construct grading as shown on this sheet and as recommended by the manufacturer.
3. For design purposes, the length of need is assumed to begin as shown on the drawing. Verify the length of need with the manufacturer of a specific product. Adjust grading as necessary to install the flared terminal according to the manufacturer's recommendations.
4. Pave widened shoulder on both ends of guardrail runs when indicated on the plans.
5. Install a reflectorized object marker on the impact head.
6. Construct a 1V:4H or flatter slope outside of the guardrail terminal grading extents where practical.

PLAN

STRAIGHT FLARED OPTION  
G4 AND MGS W-BEAM GUARDRAIL

PRELIMINARY

TEST LEVEL	L (FT)	W (FT)
3 ( $> 45$ mph)	37.5	3.0 or 4.0



PLAN

PARABOLIC FLARED OPTION  
G4 W-BEAM GUARDRAIL

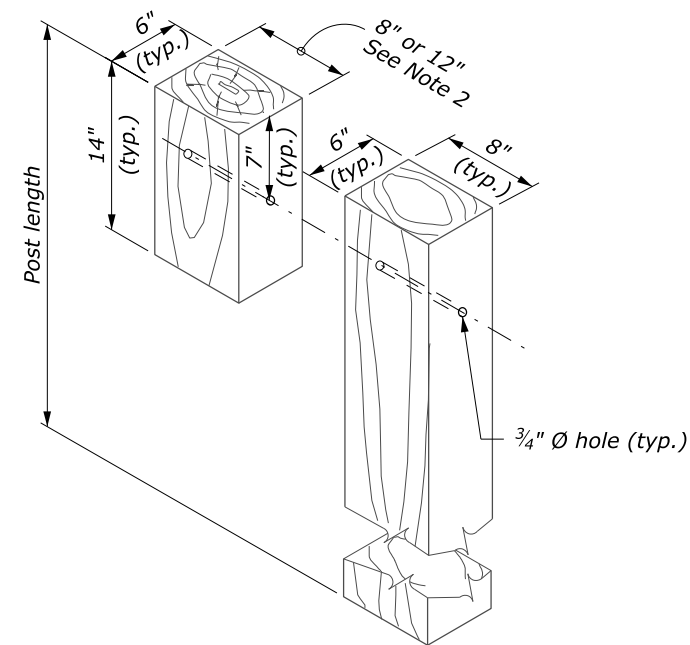
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

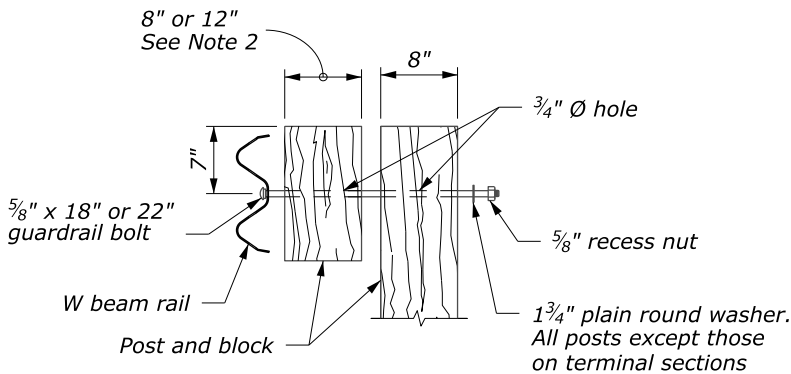
U.S. CUSTOMARY DETAIL  
MGS AND G4  
W-BEAM GUARDRAIL  
TYPE FLARED TERMINAL  
AND GRADING

DETAIL APPROVED FOR USE 02/2019	DETAIL
REVISED:	C617-19

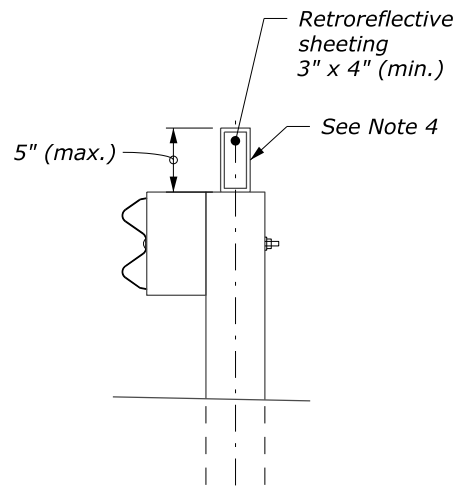
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	I.7



POST AND BLOCK



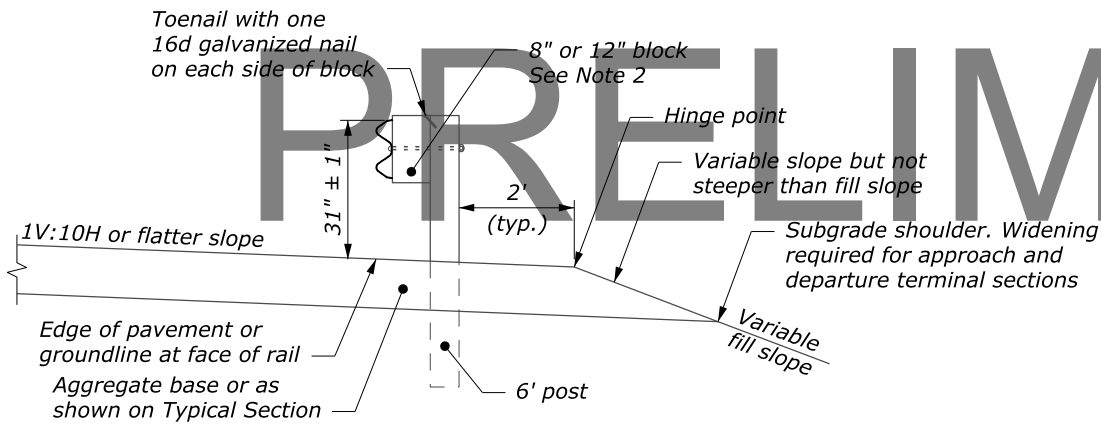
POST BOLT ASSEMBLY



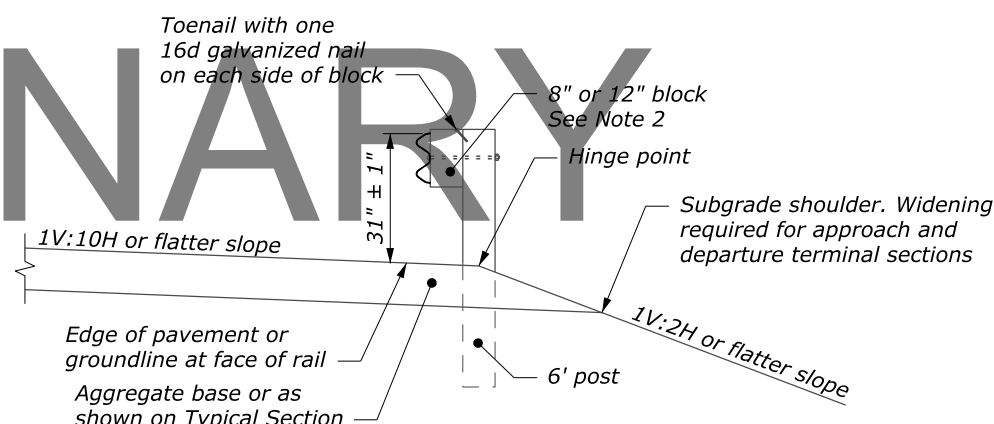
FLEXIBLE DELINEATOR  
GUARDRAIL MOUNT

NOTE:

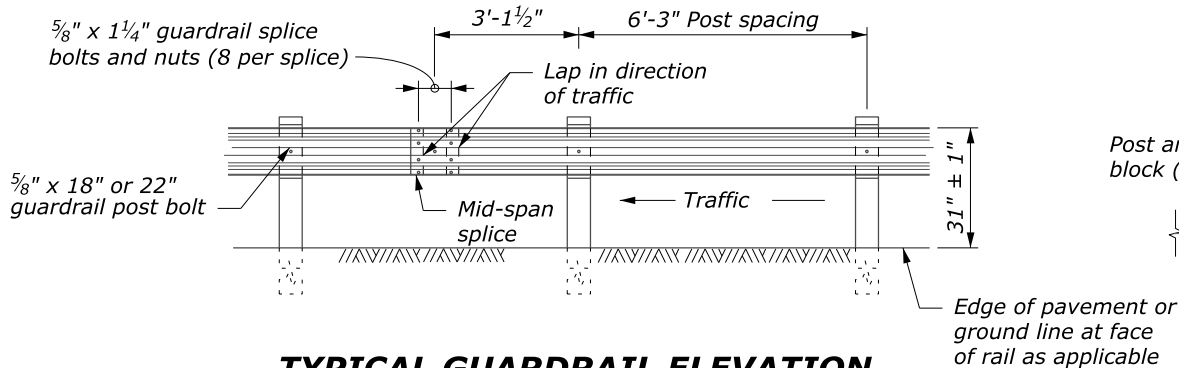
1. When encountering impenetrable material, one post may be omitted in locations where the typical guardrail cross section includes 2-feet (min.) between the back of the guardrail post and the hinge point. For all other locations, see Section 617 and Details C617-13 or C617-37.
2. Size of block shown elsewhere on the plans. Use a single block or combination of blocks (no more than two) to achieve the actual 8-inch or 12-inch offset. Secure wood blocks to the posts with anti-rotation nails. If combination blocks are used, toenail the adjacent blocks with two 16d galvanized nails to prevent block rotation.
3. Dimensional tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including its appearance, and accepted manufacturing practices.
4. Install a flexible hinged delineator every fourth post. Fasten delineator to the top of the wood post using either an adhesive or mechanical means according to the manufacturer's recommendations.



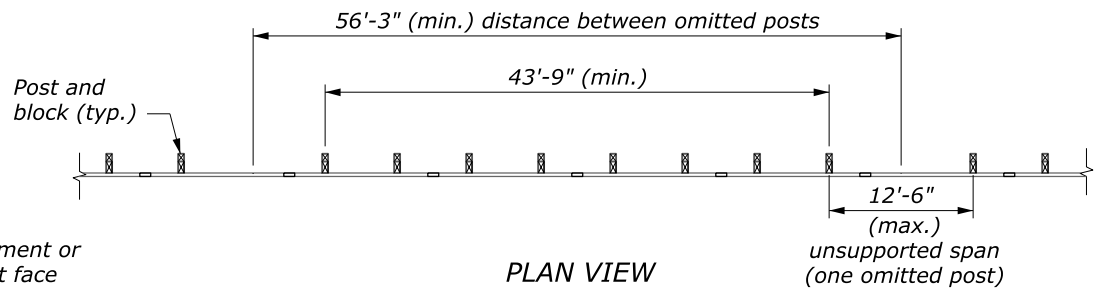
TYPICAL GUARDRAIL CROSS SECTION  
6' POST, 8" OR 12" BLOCK



TYPICAL GUARDRAIL CROSS SECTION  
6' POST CENTERED ON HINGE, 8" OR 12" BLOCK



TYPICAL GUARDRAIL ELEVATION



PLAN VIEW  
OMITTED POST DETAIL

See Note 1

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
CENTRAL FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

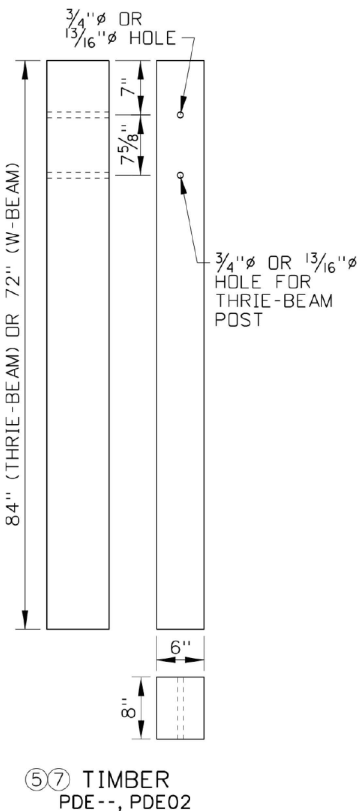
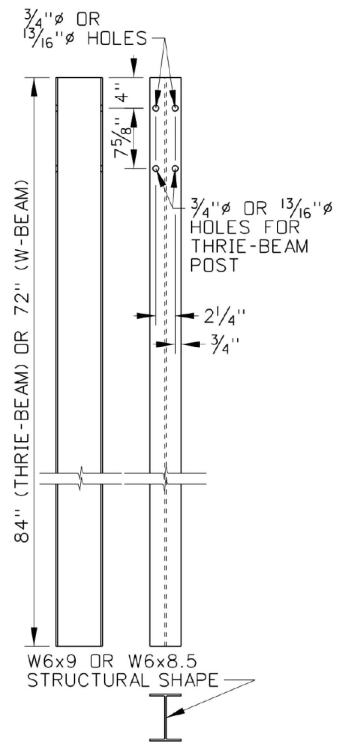
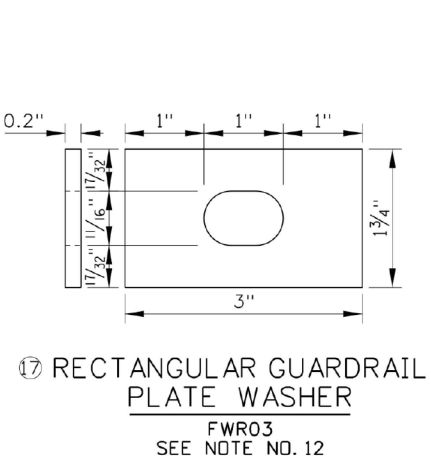
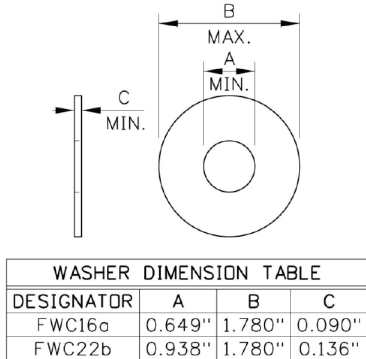
MGS W-BEAM GUARDRAIL  
WOOD POSTS

DETAIL APPROVED FOR USE 02/2019  
REVISED:

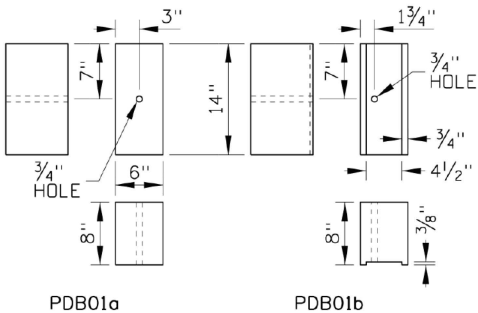
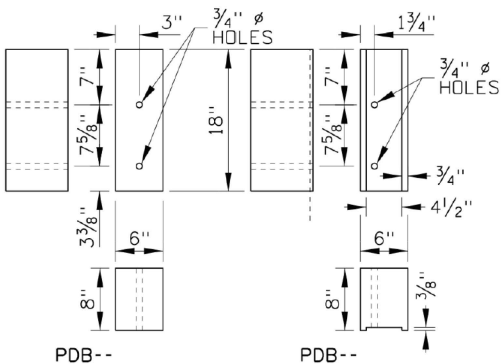
DETAIL  
C617-31



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	1.10



TRANSITION POSTS



NOTES

- USE THE TRANSITION ON HIGHWAYS WHERE THE POSTED SPEED LIMIT IS 45 MPH OR HIGHER AND WHERE 31" W-BEAM GUARDRAIL JOINS A BRIDGE RAIL OR PARAPET, CAST-IN-PLACE CONCRETE BARRIER, OR PRECAST CONCRETE BARRIER. THE GUARDRAIL TRANSITION SHOWN IS CONSIDERED TO BE A MASH TEST LEVEL 3 TRANSITION.
- PROVIDE BARRIER HARDWARE AS SHOWN AND AS SPECIFIED IN THE PUBLICATION "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE." WHERE THE GUIDE AND PLANS CONFLICT, PROVIDE HARDWARE COMPONENTS AS SHOWN ON THE PLANS.
- WIDE-FLANGE OR TIMBER POSTS MAY BE USED UNLESS OTHERWISE INDICATED. USE THE SAME POST MATERIAL AS IN THE ADJOINING 31" W-BEAM GUARDRAIL.
- USE TIMBER OR POLYETHYLENE BLOCKOUTS WITH WIDE-FLANGE POSTS. USE TIMBER BLOCKOUTS WITH TIMBER POSTS. USE THE SAME BLOCKOUT MATERIAL AS IN THE ADJOINING 31" W-BEAM GUARDRAIL. NAIL W-BEAM TIMBER BLOCKOUTS TO TIMBER POSTS TO RESTRICT BLOCK ROTATION.
- WHEN WIDE-FLANGE POSTS ARE USED AND WHEN PRACTICAL, INSTALL THE BOLTS (FBB02) ON THE UPSTREAM SIDE OF THE POST IN RELATION TO THE ADJACENT TRAFFIC.
- CONSTRUCT CURB TYPE 5 BENEATH THE THRIE-BEAM SECTION AS SHOWN. THE CURB CAN BE CAST-IN-PLACE OR PRECAST.
- THE FOLLOWING APPLY TO VARYING BARRIER CONNECTIONS:
  - BRIDGE RAIL OR PARAPET: SEE BRIDGE PLANS.
  - CAST-IN-PLACE CONCRETE BARRIER: USE THE CONCRETE BARRIER TO THRIE-BEAM TRANSITION CONNECTOR PLATE.
  - PRECAST CONCRETE BARRIER:
    - USE THE CONCRETE BARRIER TO THRIE-BEAM TRANSITION CONNECTOR PLATE.
    - CHAMFER THE THE FIRST 43/2 INCHES OF THE BARRIER THAT EXTENDS BEYOND THE FACE OF THE CURB BENEATH THE TRANSITION.
    - USE ANCHOR PINS TO PIN DOWN THE FIRST THREE BARRIER SECTIONS.
- THE FOLLOWING APPLY TO THE CONCRETE BARRIER TO THRIE-BEAM TERMINAL CONNECTOR PLATE:
  - USE ASTM A36 STEEL.
  - USE 3/16" THICK STEEL FOR FLAT PLATES P1 AND P2. USE 1/4" THICK STEEL FOR STIFFENERS S1 THROUGH S10.
  - WELD COMPONENTS WITH E60 ROD.
  - WELD STIFFENERS LOCATED ON THE OUTSIDE EDGES OF THE COVER PLATES WITH 3/16" CONTINUOUS BACK WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
  - WELD STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATES WITH 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
  - WELD RECTANGULAR AND TRIANGULAR COVER PLATES TOGETHER WITH A 3/16" CONTINUOUS BACK WELD ON BOTH SIDES.
  - GALVANIZE CONNECTOR PLATES AFTER PUNCHING AND ASSEMBLY.
- GALVANIZE THE THRIE-BEAM TERMINAL CONNECTOR PLATE.
- OVERLAP SPLICES SO THE EXPOSED W-BEAM EDGE IS DOWNSTREAM OF THE ADJACENT TRAFFIC.
- PROVIDE A MINIMUM OF 12'-6" OF 31" W-BEAM GUARDRAIL BETWEEN THE GUARDRAIL TRANSITION AND A GUARDRAIL TERMINAL OR ANCHOR.
- INSTALL RECTANGULAR GUARDRAIL PLATE WASHERS UNDER GUARDRAIL NUTS AT THE SPLICE BETWEEN THE THRIE-BEAM GUARDRAIL AND THRIE-BEAM TERMINAL CONNECTOR.
- DELINEATE THE TRANSITION WITH TYPE 9 DELINEATORS. SEE THE DELINEATOR STANDARD DRAWING FOR DELINEATOR SPACING.
- DRAWING NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
5	06-01	MSM	10	11-04	MSM	15	09-10
6	05-02	MSM	11	04-06	MSM	16	08-11
7	09-03	MSM	12	11-06	MSM	17	06-17
8	11-03	MSM	13	05-07	MSM	18	08-18
9	06-04	MSM	14	11-08	JRV	19	03-19

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 612-11_0419.dgn
DRAWING DATE: JUNE, 1988

IDAHO  
TRANSPORTATION  
DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN  
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

GUARDRAIL TRANSITION  
HIGH SPEED

ORIGINAL STORED  
AT: ITD,  
Headquarters  
3311 West State  
Boise, Idaho

PROFESSIONAL ENGINEER  
LICENSED  
13683  
STATE OF IDAHO  
RYAN D. LANCASTER

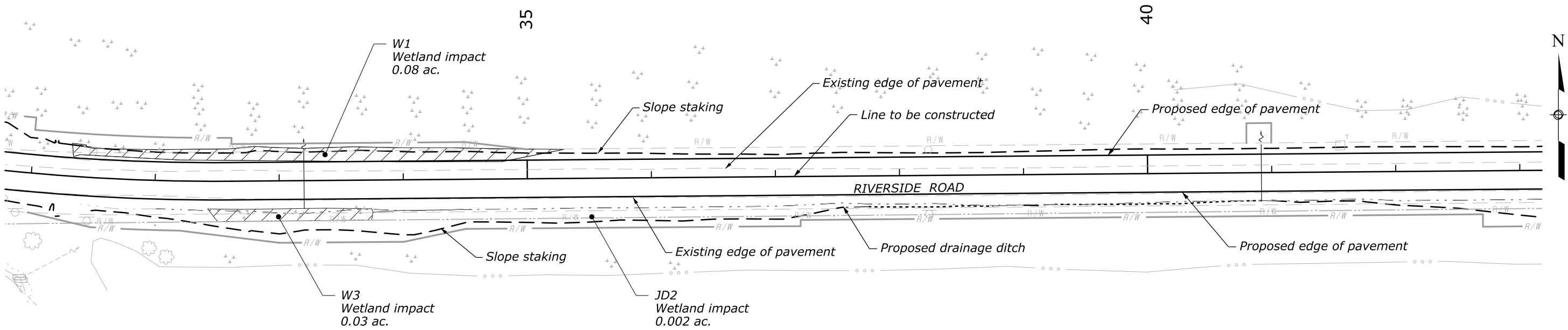
STANDARD DRAWING NO.  
612-11

SHEET 3 OF 3

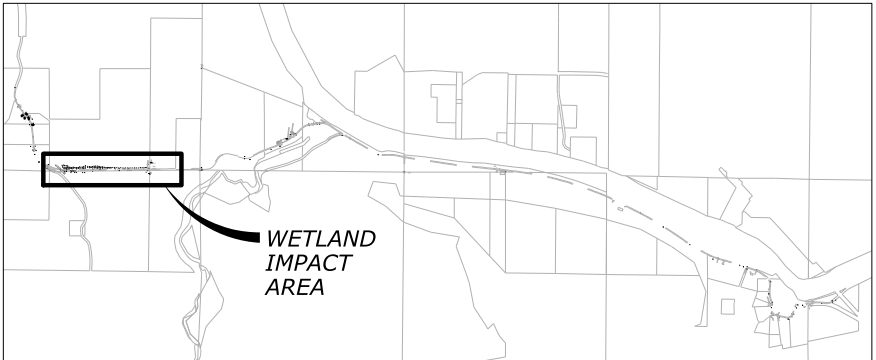
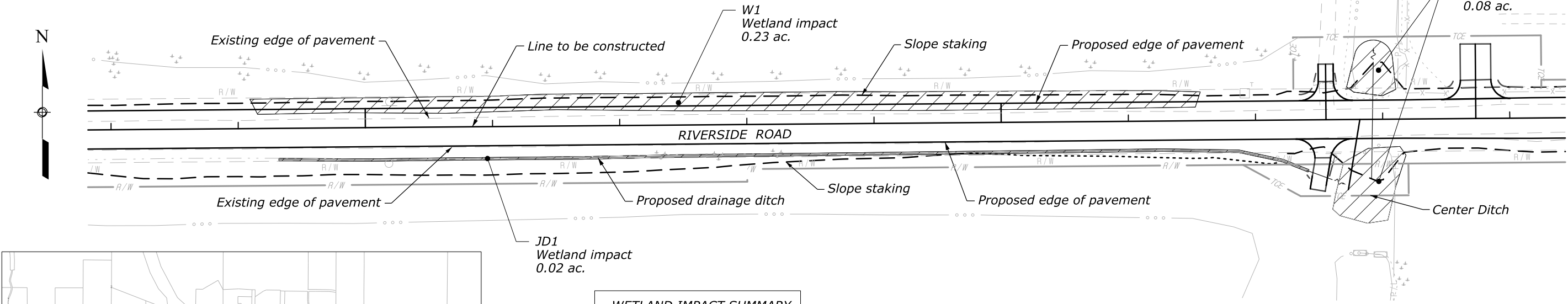
GUARDRAIL TRANSITION  
HIGH SPEED



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	K.1



PRELIMINARY



WETLAND IMPACT SUMMARY	
JD1	0.02 Acres
JD2	0.002 Acres
W1	0.31 Acres
W2	0.08 Acres
W3	0.03 Acres
TOTAL	0.442 Acres

- Existing Wetlands
- Area of Wetland Impact
- JD Jurisdictional Ditch
- W Wetland

WETLAND IMPACTS

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	K.2

**\*NOTE:**

*This stairway handrail does not meet ADA standards; handrail overhang at top and bottom per ADA 505.102*

*Cut existing handrail, plug end, grind to a clean smooth surface and paint to match existing finish*

✓ Remove fence handrail and post

Existing ground

— Proposed road surface,  
finish ground

- Remove rock steps and return to property owner

## STAIRWAY DETAIL

150 PRELIMINARY

Existing stairway,  
See stairway detail  
(this sheet)

- Reset ornamental gate per CO-approved location. CO to verify location of gate with landowner

- Remove ornamental gate

RIVERSIDE ROAD

$$\frac{12'}{\text{approx.}}$$

- *Steel post*

*Finish ground*

- *Set posts in concrete*

### ***GATE DETAIL***

## STAIRWAY AND GATE DETAILS

## STAIRWAY & GATE LOCATION

150+25 LT  
Scale : 1"=50'

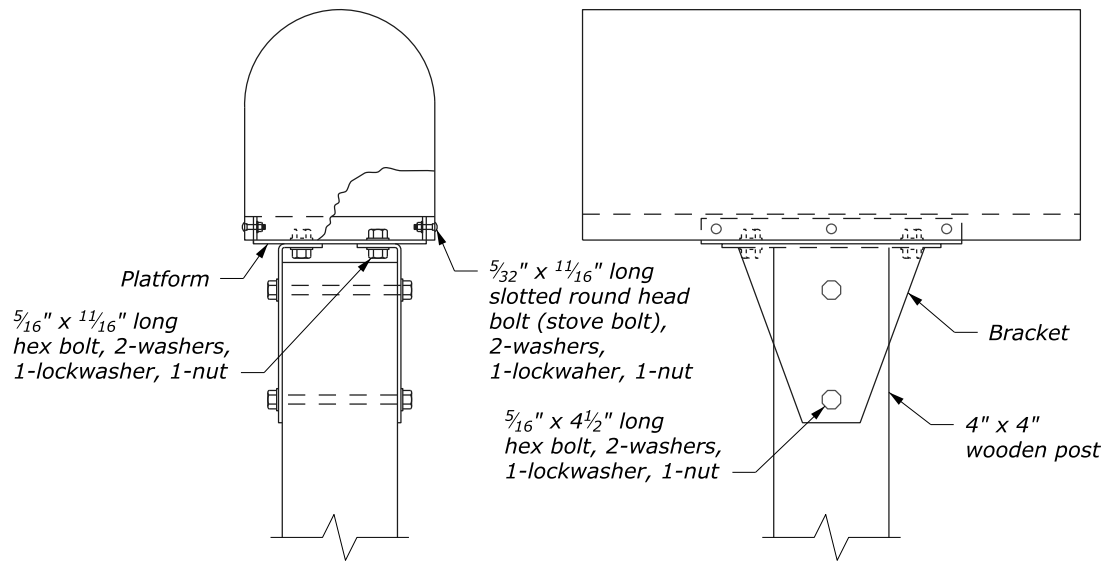


30 August 2019 8:30 AM F:\6975 Riverside Road Improvements\tdgn\id-a2158061\_Riverside\id-a2158061\_se.dgn [USC]

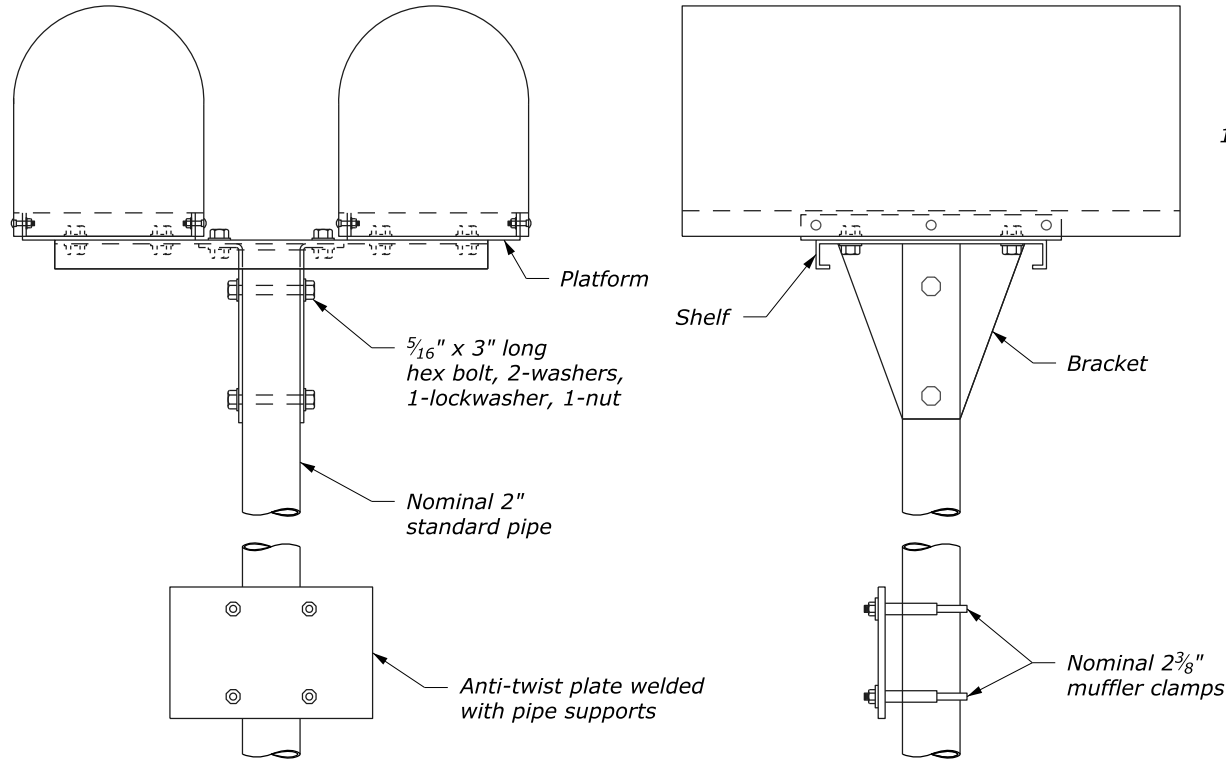
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	K.3

**NOTE:**

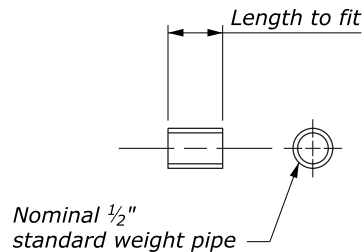
1. Spacing between multiple mailboxes and height of mailbox above ground level are as established by the U.S. Postal Service. H is usually 3'-4" to 4'-0".



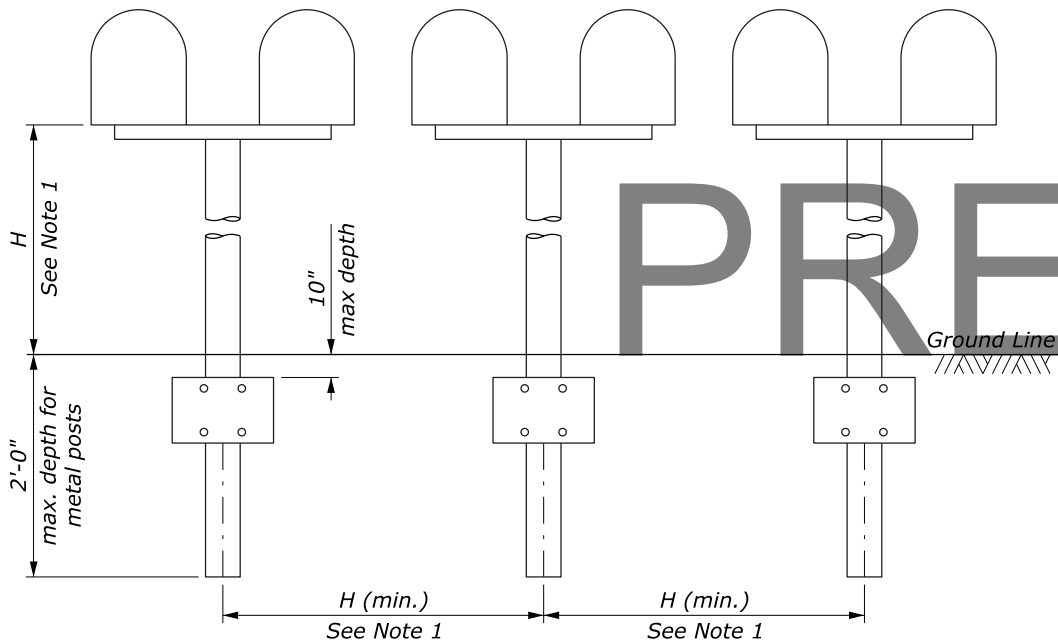
**SINGLE MAILBOX INSTALLATION**



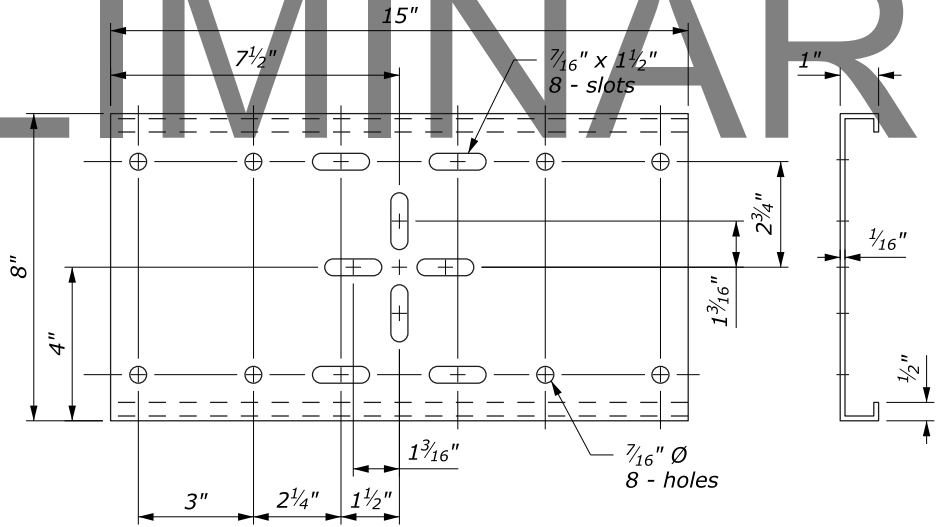
**DOUBLE MAILBOX INSTALLATION**



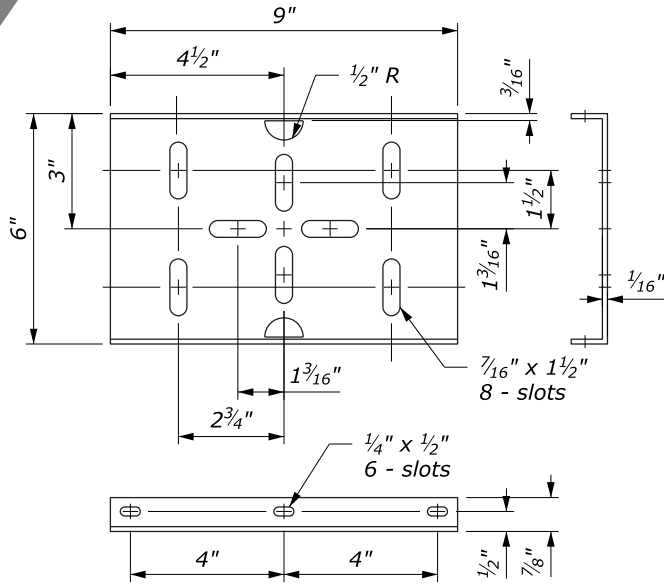
**SPACER**



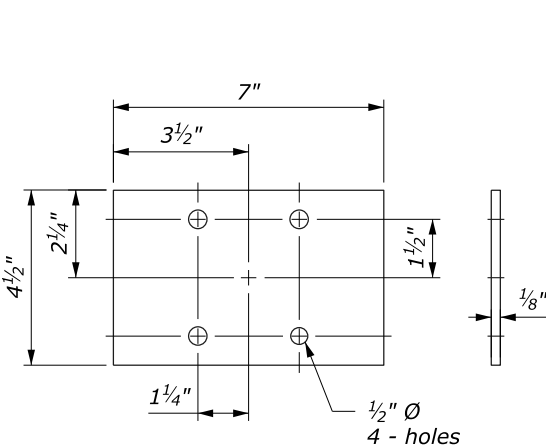
**SPACING FOR MULTIPLE INSTALLATION**



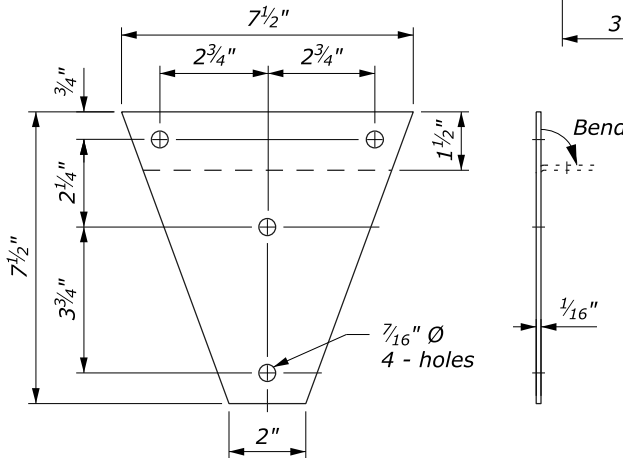
**SHELF**



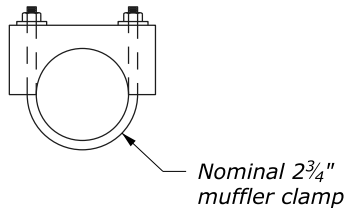
**PLATFORM**



**ANTI-TWIST PLATE**



**BRACKET**

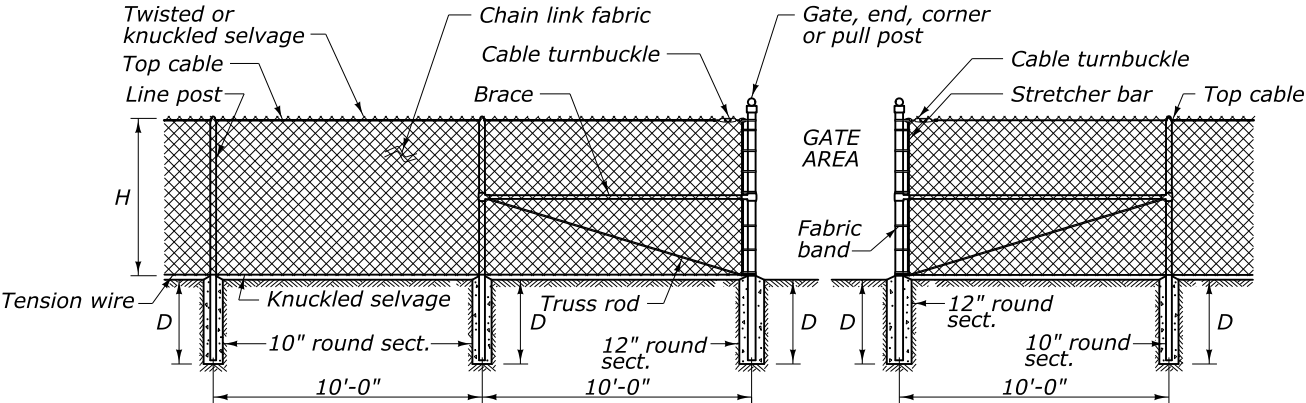


**CLAMP**

NO SCALE

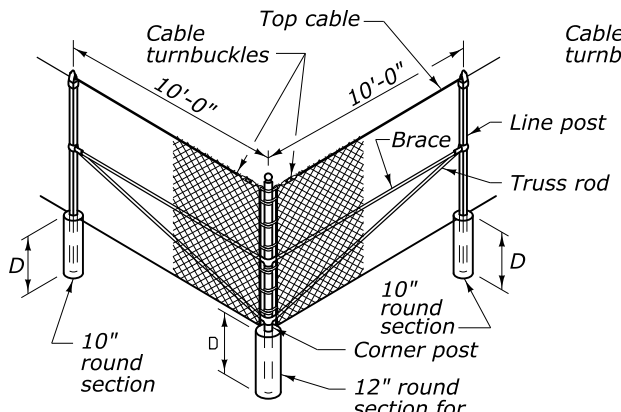
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>MAILBOX ASSEMBLY SERIES A</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: DRAFT: 11/2014	W646-2

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	K.4



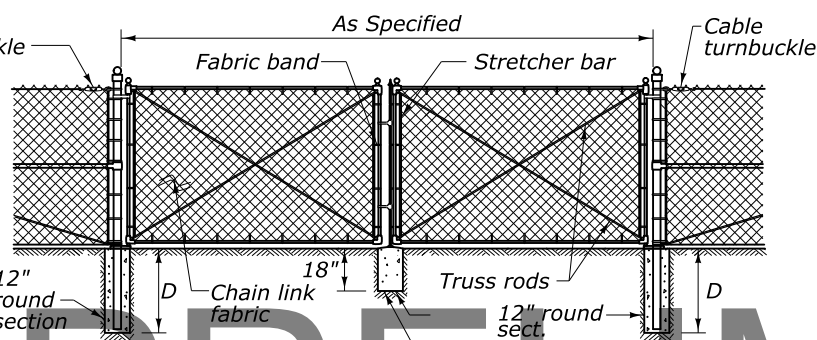
CHAIN LINK FENCE - 6' AND 8'

SINGLE PANEL



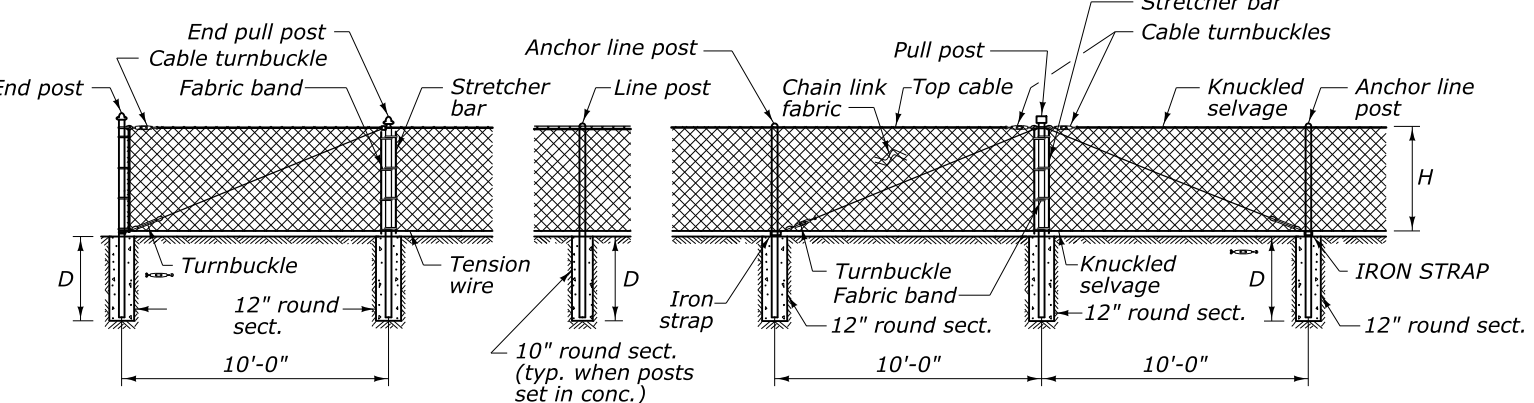
DOUBLE PANEL

PULL POST AND CORNER POST BRACING

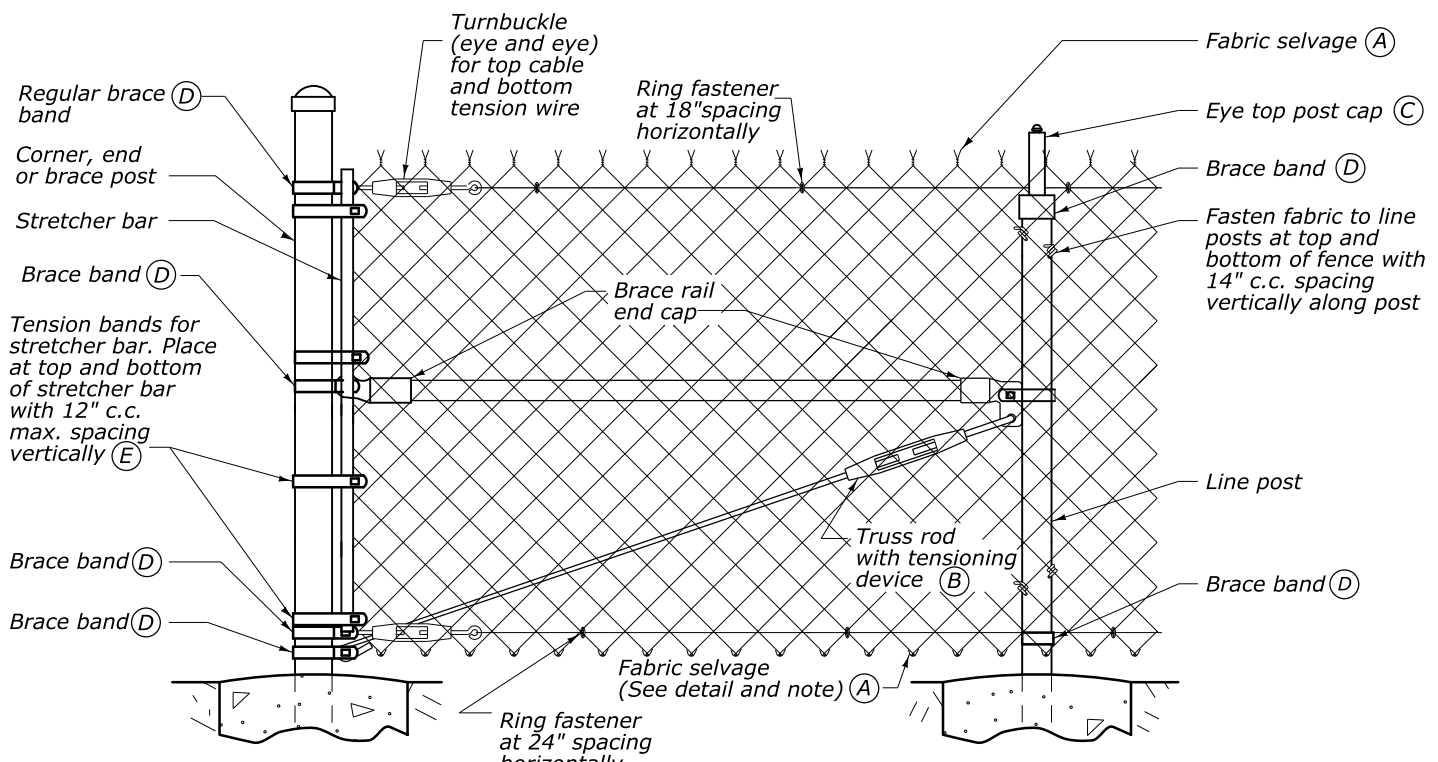


GATES

NOTE:  
No concrete block required for single gate. Gate latches directly to post.



CHAIN LINK FENCE - 3', 4' and 5'



CONNECTION DETAILS

GENERAL NOTES

Provide chain link fence materials.

(A) Fabric selvage: fence height under 6': top and bottom knuckled selvage.

Fence height 6' and over:  
Top - twisted selvage  
Bottom - knuckled selvage

(C) Post caps: provide eye-top caps for all posts carrying a top cable through the post. Provide rounded tops for all other round posts. Fit post caps tightly to prevent removal.

(D) Brace bands:



(E) Tension bands:



SELVAGE DETAIL

(B) Truss rods:

INDUSTRIAL TRUSS TIGHTENER

TURNBUCKLE

NOTES:

- Do not install double panels more than 300' apart on tangents or more than 250' apart on any curve. for curves with radii sharper than 1150', install a double panel on each curve end, plus one additional panel for each 10° of deflection, evenly spaced, between the curve ends.
- Pull post bracing on 6' and 8' fence is the same as corner bracing.
- A drop bar locking device is required for all double gate installations. The drop bar must be able to be inserted into the concrete block at least six inches.
- All concrete is class "F" or better.
- Install a 3/8" diameter galvanized steel top cable along all fence. Terminate top cable with galvanized cable turnbuckles fastened via the fabric band at the post.

HEIGHT OF FABRIC, H	WIRE FABRIC ABOVE GROUND	DEPTH OF CONCRETE, D	DEPTH OF POST IN CONC. (MIN.)
8'	1"-2"	42"	38"
6'	1"-2"	36"	32"
5'	1"-2"	36"	32"
4'	1"-2"	30"	26"
3'	1"-2"	30"	26"

CHAIN LINK FENCE DETAILS

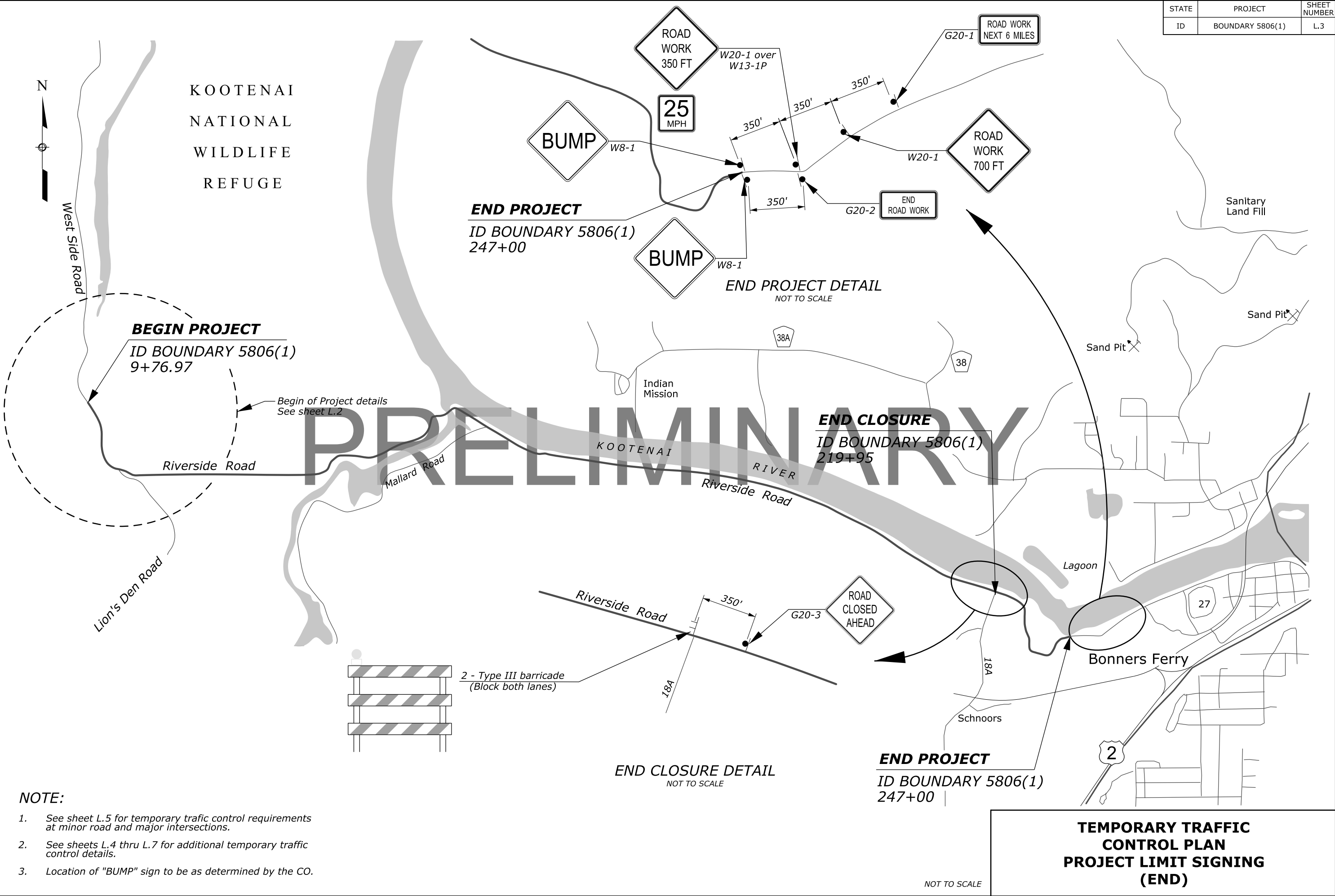
ITEM 63504-1000 TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN					
SIGN NO.	MUTCD REF. NO.	SIGN LEGEND	SIGN SIZE IN XIN	NO. OF SIGNS	QUANTITY (SQFT)
1	W20-1	ROAD CLOSED AHEAD	36x36	4	36
2	W3-4	BE PREPARED TO STOP	36x36	6	54
3	W20-7	FLAGGER	36x36	6	54
4	W16-2P	350 FEET	36x18	2	9
5	W16-8P	RIVERSIDE ROAD	24x18	13	39
6	G20-4	PILOT CAR FOLLOW ME	36x18	2	9
7	G20-1	ROAD WORK NEXT 6 MILES	36x18	2	9
8	W20-1	ROAD WORK 700 FT	36x36	2	18
9	W20-1	ROAD WORK 350 FT	36x36	2	18
10	W13-1P	25 MPH	24x30	2	10
11	W8-1	BUMP	36x36	4	36
12	G20-2	END ROAD WORK	36x18	4	18
13	W20-1	ROAD WORK AHEAD	36x36	8	72
14	W20-4	ONE LANE ROAD AHEAD	36x36	4	36
15	W20-2d	DETOUR AHEAD	36x36	2	18
16	M4-8a	END DETOUR	24x18	2	6
17	M4-9	ROAD DETOUR, WITH ARROW	30x24	11	55
TOTAL				76	497

TABULATION OF TEMPORARY TRAFFIC CONTROL DEVICE QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH	4
63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH	200
63507-0600	TEMPORARY TRAFFIC CONTROL, PILOT CAR	DAY	80
63507-0700	TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	DAY	40
63509-1000	TEMPORARY TRAFFIC CONTROL, FLAGGER	FXHR	1,600

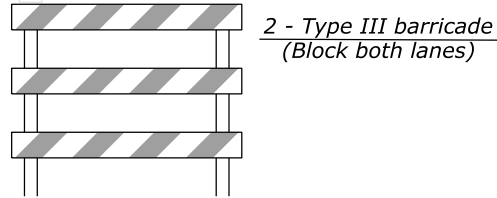
TABULATION OF TEMPORARY TRAFFIC  
CONTROL QUANTITIES



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	L.3



- NOTE:**
- See sheet L.5 for temporary traffic control requirements at minor road and major intersections.
  - See sheets L.4 thru L.7 for additional temporary traffic control details.
  - Location of "BUMP" sign to be as determined by the CO.

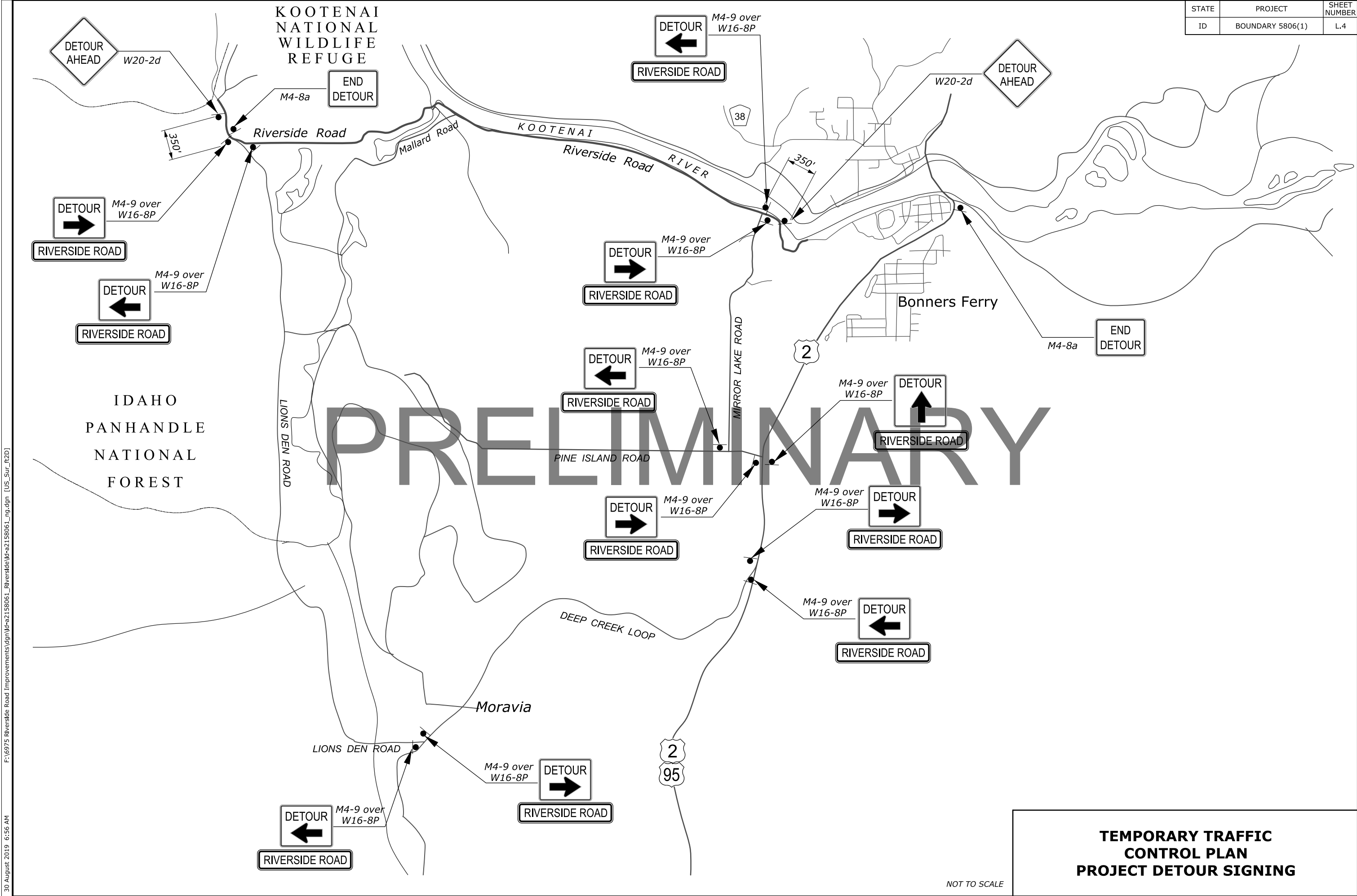


**END CLOSURE DETAIL**  
NOT TO SCALE

**END PROJECT DETAIL**  
NOT TO SCALE

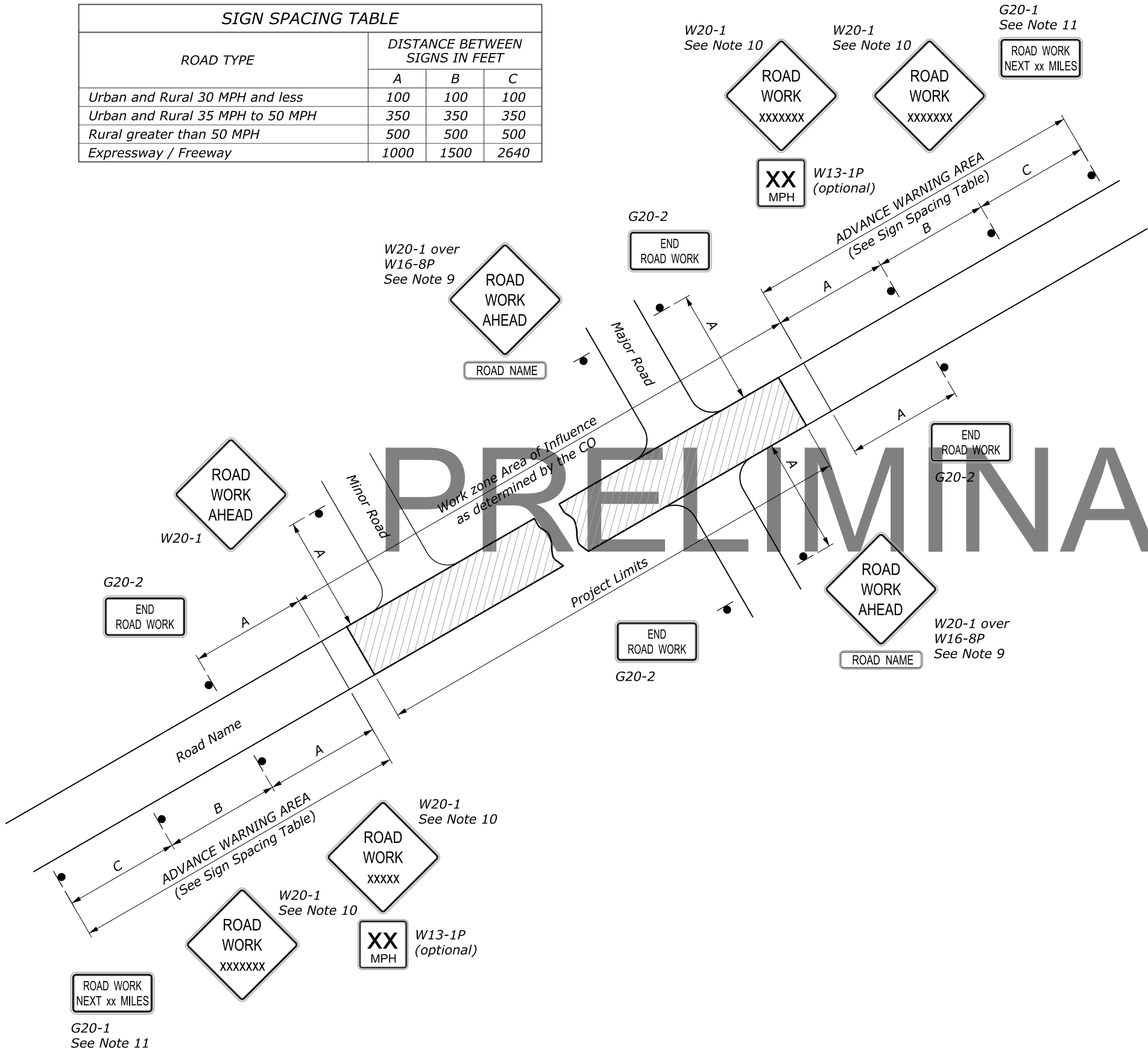
**END PROJECT**  
ID BOUNDARY 5806(1)  
247+00

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	L.4



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	L.5

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640



NOTE:

1. Erect all project advance warning signs before starting construction work.
2. Not all details shown on the temporary traffic control sheets may be applicable to this project. The Contractor may add or delete information and details in this traffic control plan as necessary to accommodate actual operations.
3. Where advance warning signs, placed as shown, interfere with permanent signs, locate the warning signs as determined by the CO for best results. Vary messages as required.
4. Additional or different message signs may be required to fit the actual construction conditions.
5. Install advisory speed plates under the W20 series warning signs as needed to indicate a maximum recommended speed through the construction area.
6. Ensure all sign supports exposed to impact by traffic meet the requirements of NCHRP-350 or MASH for crashworthiness.
7. Maintain two-way traffic during all non-work hours except as approved by the CO.
8. Do not store traffic control devices along the roadway when not in use. Cover post-mounted signs when not applicable.
9. If W20-1 is placed on a roadway other than that on which the actual construction work occurs, include a supplementary plaque indicating the name of the road on which the construction does occur (applies to major roads only).
10. The message on the W20-1 signs may be "ROAD WORK AHEAD" or may specify the distance to the work area in feet or in miles. Install an additional W20-1 sign when approach speeds exceed 50 MPH. When used place the two W20-1 signs "B" feet apart according to the Sign Spacing Table.
11. For work zones that are 2 miles or more in length, install G20-1 signs at each end of the project. Show the distance on the G20-1 sign to the nearest whole mile.
12. If signing on a roadway under a jurisdiction other than the client agency, verify that an encroachment permit has been obtained.
13. State standards may be used as an alternative if approved by the CO.
14. Refer to the Section 635 of the Special Contract Requirements for allowable retroreflective sheeting types.

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>TEMPORARY TRAFFIC CONTROL ADVANCE SIGNING</b>	
STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: DRAFT: 6/2014	635-1

NO SCALE

30 August 2019 8:47 AM F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_nh.dgn [USC]

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	L.6

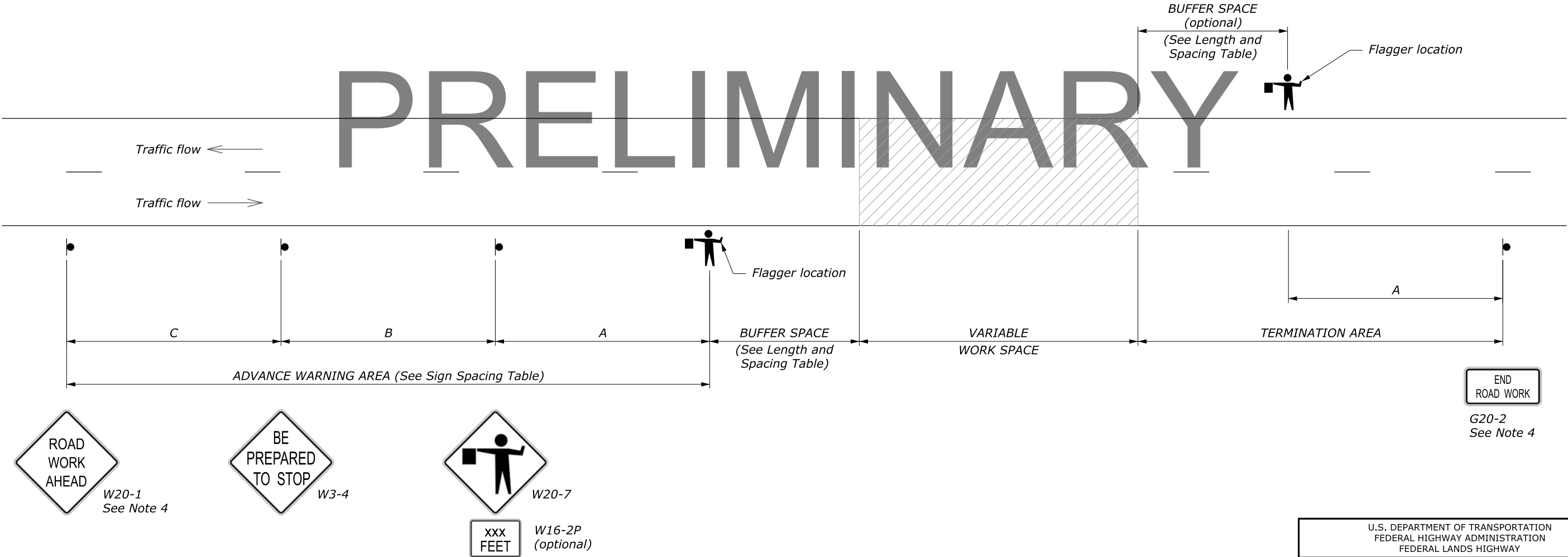
LENGTH AND SPACING TABLE	
APPROACH SPEED*	BUFFER SPACE LENGTH
MPH	FEET
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

\* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

1. Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
2. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
3. For pilot car operation, mount the "PILOT CAR FOLLOW ME" (G20-4) sign at a conspicuous location on the rear of vehicle. Prominently display the name of the Contractor on the pilot car.
4. If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
5. For night time flagging operation, provide floodlighting at flagger stations.
6. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD <b>TEMPORARY TRAFFIC CONTROL ROAD CLOSURE LAYOUT (WITH FLAGGERS)</b>	
STANDARD APPROVED FOR USE 6/2005 REVISED: DRAFT: 8/2013	STANDARD 635-5



STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	L.7

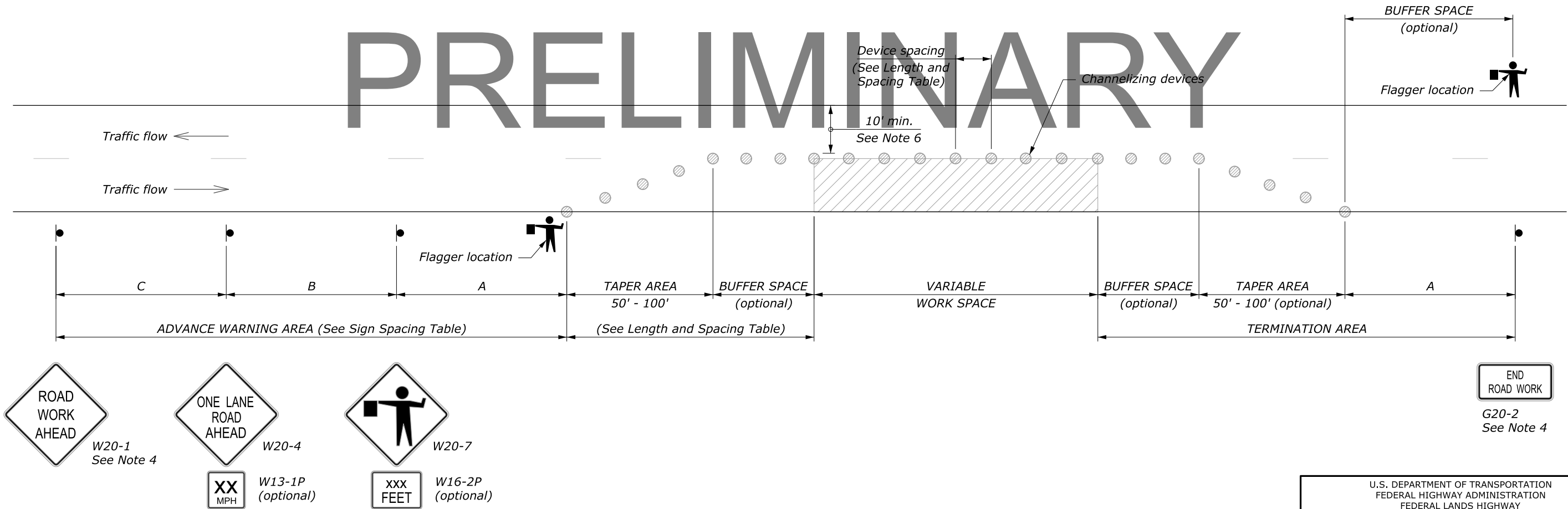
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120
65	645	20	130	130
70	730	20	140	140

\* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

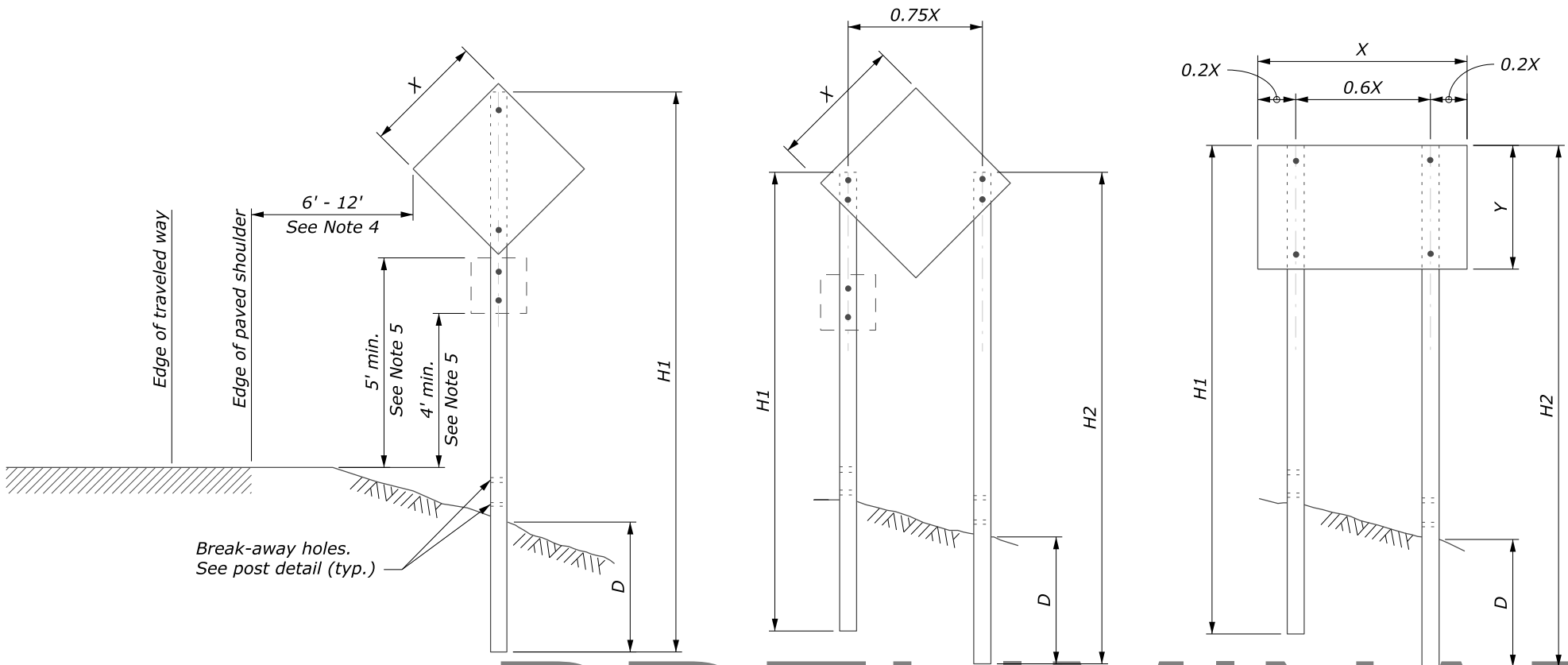
NOTE:

- Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
- Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
- For pilot car operation, mount the PILOT CAR FOLLOW ME (G20-4) sign at a conspicuous location on the rear of vehicle. Prominently display the name of the contractor on the pilot car.
- If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
- For night time flagging operation, provide floodlighting at flagger stations.
- For project specific minimum width, refer to the Special Contract Requirements, Section 156.
- Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD <b>TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH FLAGGERS)</b>	
STANDARD APPROVED FOR USE 6/2005 REVISED: DRAFT: 8/2013	STANDARD 635-6

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	L.8



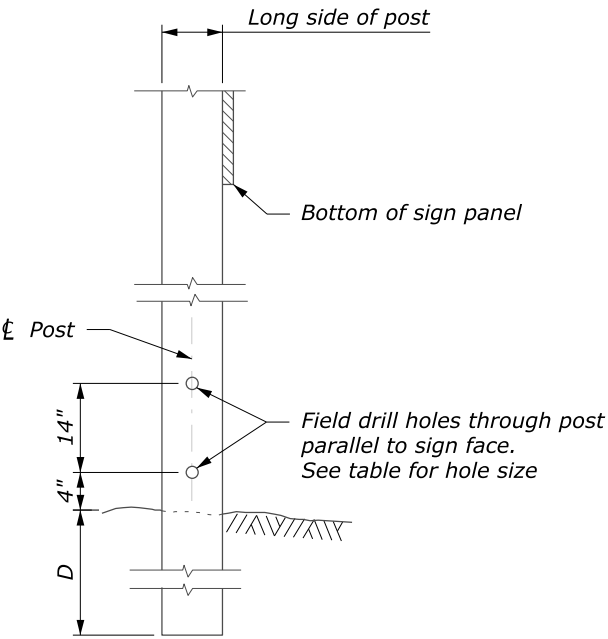
SINGLE POST SIGN

TWO POST SIGN

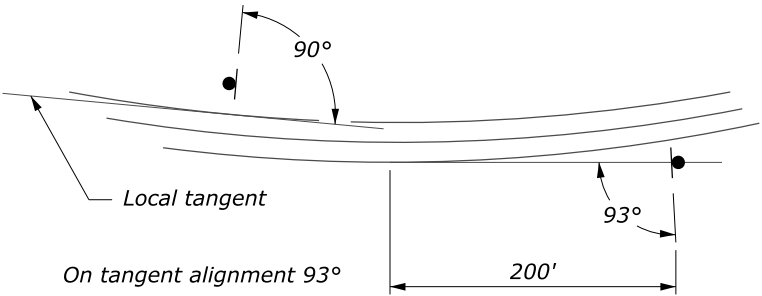
NOTE:

1. Attach sign panels with a minimum of 2 - 1/4" dia. bolts per post.
2. H1 and H2 = Overall post length. Select post lengths to fit field conditions.
3. D = Post embedment depth for average soil conditions.
4. In areas where lateral distance is limited, a minimum lateral offset of 2' may be used. In areas with curbs, a minimum lateral distance of 1' behind the face of the curb may be used.
5. In pedestrian locations, or in areas with obstructed views, use 7' minimum mounting height for main sign and 6' minimum mounting height for secondary sign.
6. Use 7' minimum spacing between posts for sign posts 6" x 6" or larger.
7. State standards may be used as an alternative if approved by the CO.

WOOD POST SELECTION TABLE					
WIDTH "X"	AREA (SQFT)	NUMBER OF POSTS	POST SIZE (INCH)	D (INCH)	HOLE SIZE (INCH)
Diamond ≤ 36" Other Shapes ≤ 48"	< 10	1	4 x 4	36	0
		1	4 x 6	48	1.5
Diamond ≤ 48"	10 - 20	1	6 x 6	48	2
Diamond ≤ 48" Other Shapes ≤ 12'	10 - 20	2	4 x 4	36	0
	20 - 50	2	4 x 6	48	1.5
> 13'	50 - 65	2	6 x 6	48	2
12' - 16'	50 - 65	3	4 x 6	48	1.5
> 17'	65 - 95	4	4 x 6	48	1.5
> 30'	65 - 95	3	6 x 6	48	2



POST DETAIL



SIGN INSTALLATION ANGLE

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION WOOD POSTS</b>	
STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: DRAFT: 10/2017	635-14

ITEM 20301-2400 REMOVAL OF SIGN		
LOCATION (STATION)	QUANTITY (EACH)	REMARKS
89+50	1	Sign post
119+50	1	Object marker
TOTAL	2	

ITEM 63301-1000 SIGN SYSTEM, GOVERNMENT FURNISHED SIGN		
LOCATION (STATION)	QUANTITY (EACH)	REMARKS
225+40	1	Dynamic warning system
TOTAL	1	

ITEM 63303-0100 SIGN, STEEL PANEL, TYPE 3 SHEETING				
SIGN NO.	MUTCD REF. NO.	SIGN SIZE (INCH x INCH)	QUANTITY (EACH)	SIGN LEGEND
1	R2-1	24x30	2	SPEED LIMIT (35 MPH)
2	R2-1	24x30	1	SPEED LIMIT (25 MPH)
5	R1-1	36x36	4	STOP
6	W11-2	36x36	4	PEDESTRIAN CROSSING
7	W16-7P	24x12	2	DOWN-LEFT ARROW
8	W16-2P	36x18	2	500 FEET
9	W1-1L	36x36	1	CURVE WARNING
10	W1-1R	36x36	1	CURVE WARNING
11	W1-8L	18x24	1	CHEVRON
TOTAL			18	

ITEM 63401-0300 PAVEMENT MARKINGS, TYPE B, SOLID				
LOCATION (STATION)		SIDE	QUANTITY (LNFT)	REMARKS
10+27	247+00	LT	23,673	White, shoulder
10+27	247+00	RT	23,673	White, shoulder
9+76.97	35+00	CL LT	2,523	Yellow, no pass
9+76.97	35+00	CL RT	2,523	Yellow, no pass
60+00	105+00	CL LT	4,500	Yellow, no pass
55+00	105+00	CL RT	5,000	Yellow, no pass
115+00	125+00	CL LT	1,000	Yellow, no pass
115+00	130+00	CL RT	1,500	Yellow, no pass
222+00	247+00	CL LT	2,500	Yellow, no pass
215+00	247+00	CL RT	3,200	Yellow, no pass
		Subtotal	70,092	
		TOTAL	140,184	Two applications/coats

ITEM 63401-0400 PAVEMENT MARKINGS, TYPE B, BROKEN				
LOCATION (STATION)		SIDE	QUANTITY (LNFT)	REMARKS
35+00	55+00	CL	2,000	Yellow, pass
55+00	60+00	CL LT	500	Yellow, west bound pass
105+00	115+00	CL	1,000	Yellow, pass
125+00	130+00	CL RT	500	Yellow, east bound pass
130+00	215+00	CL	8,500	Yellow, pass
215+00	220+00	CL LT	500	Yellow, west bound pass
		Subtotal	13,000	
		TOTAL	26,000	Two applications/coats

ITEM 63403-0200 PAVEMENT MARKINGS, TYPE B, CROSSWALK		
LOCATION (STATION)	QUANTITY (SQFT)	REMARKS
90+00	60	Crosswalk
Subtotal	60	
TOTAL	120	Two applications/coats

ITEM 63316-1000 REMOVE AND RESET SIGN			
SIGN NO.	LOCATION (STATION)	MUTCD REF. NO.	SIGN LEGEND
1	9+79	W5-3	ONE LANE BRIDGE
2	10+86	R1-1	STOP
3	10+86	N/A	287
4	11+85	R1-1	STOP
5	12+75	N/A	NWR
6	13+94	N/A	NO HUNTING ZONE
7	14+20	N/A	INFORMATION
8	19+76	EM-2	AREA CLOSED
9	20+50	R2-1	25 MPH
10	21+00	N/A	NO HUNTING ZONE
11	20+92	EM-2	AREA CLOSED
12	20+94	N/A	NWR NO HUNTING ZONE
13	21+35	N/A	DO NOT POLLUTE
14	21+83	N/A	417
15	26+51	N/A	NWR AREA CLOSED
16	26+75	R1-1	STOP, RIVERSIDE
17	30+80	R2-1	SPEED LIMIT (35 MPH)
18	30+90	R8-3	NO PARKING
19	31+50	N/A	NWR AREA CLOSED
20	31+50	N/A	NWR AREA CLOSED
21	38+25	N/A	NWR
22	38+25	N/A	NWR
23	45+19	N/A	NWR
24	45+19	N/A	NWR
25	52+60	N/A	SIGN SYSTEM
26	66+75	N/A	NWR
27	68+50	R8-3	NO PARKING
28	79+25	N/A	NWR
29	79+25	N/A	NWR
30	80+50	N/A	FRUIT RESERVED FOR WILDLIFE
31	86+50	N/A	MILE POST
32	92+00	N/A	KOOTENAI WILDLIFE REFUGE
33	92+75	N/A	AUTO TOUR MILE MARKER
34	92+75	N/A	EXIT ONLY
35	94+50	N/A	A RIVER RUNS THROUGH IT
36	94+50	N/A	A RIVER RUNS THROUGH IT
37	98+25	OM3-L	OBJECT MARKER
38	98+25	OM3-R	OBJECT MARKER
39	101+00	OM3-L	OBJECT MARKER
40	101+00	OM3-R	OBJECT MARKER
41	101+75	W1-8	CHEVRON
42	104+00	W1-2L	CURVE
43	108+00	R1-2,N/A	YIELD, MALLARD ROAD
44	219+50	N/A	A RIVER RUNS THROUGH IT
45	220+50	R1-2	MIRROR LAKE ROAD YIELD
46	220+50	R2-1	SPEED LIMIT (35 MPH)
47	234+50	R2-1	SPEED LIMIT (25 MPH)
48	244+50	R2-1	SPEED LIMIT (25 MPH)
49	246+00	N/A	VARIOUS SIGNS
50	246+00	N/A	SHARE THE ROAD
		TOTAL	50

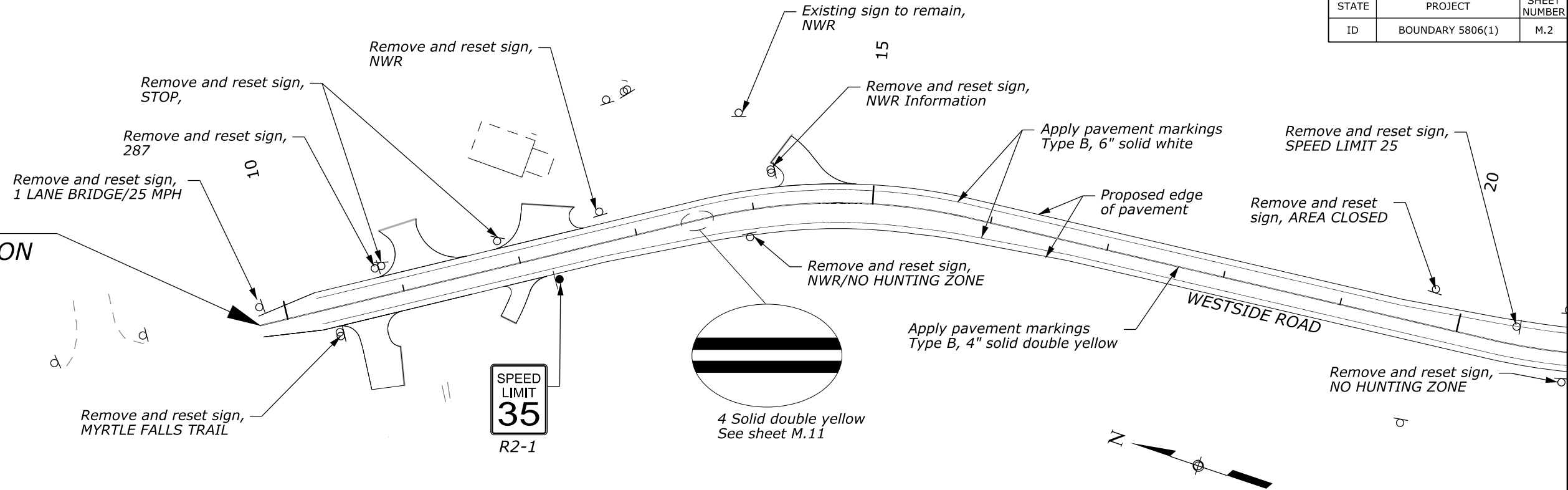
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.1

TABULATION OF PERMANENT TRAFFIC CONTROL QUANTITIES

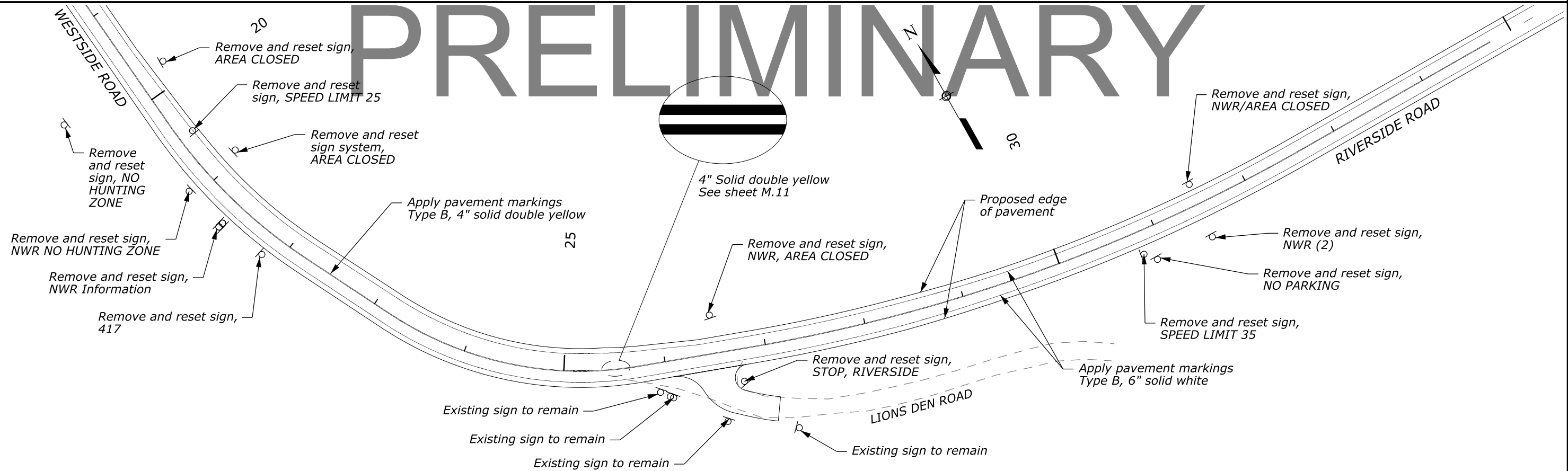
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.2

**BEGIN PROJECT**

**BEGIN RECONSTRUCTION  
ID BOUNDARY 5806(1)  
RIVERSIDE ROAD  
IMPROVEMENTS  
9+76.97**

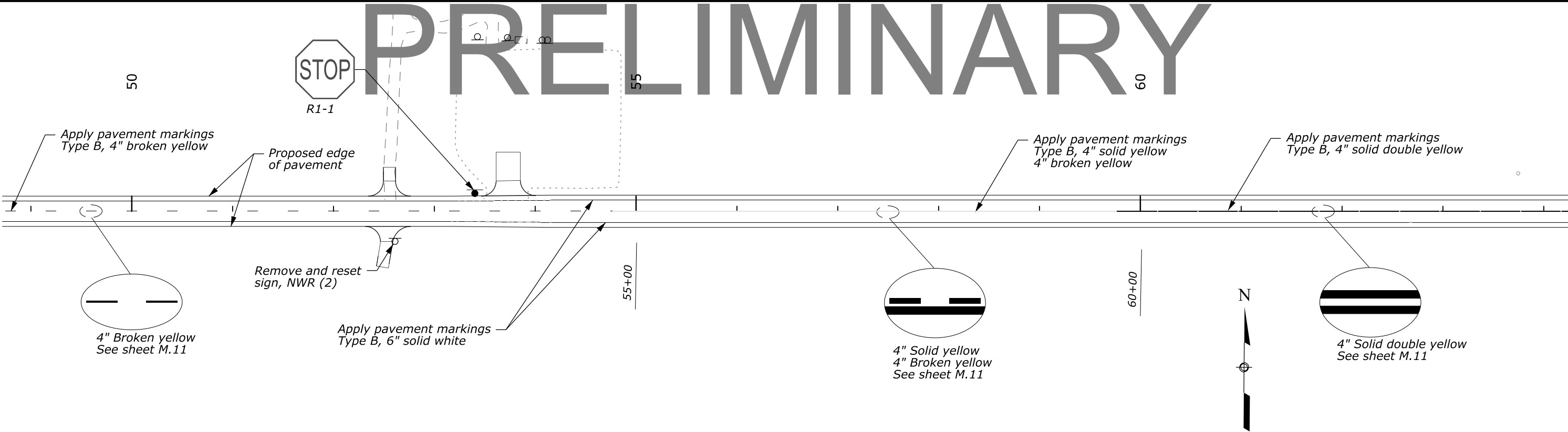
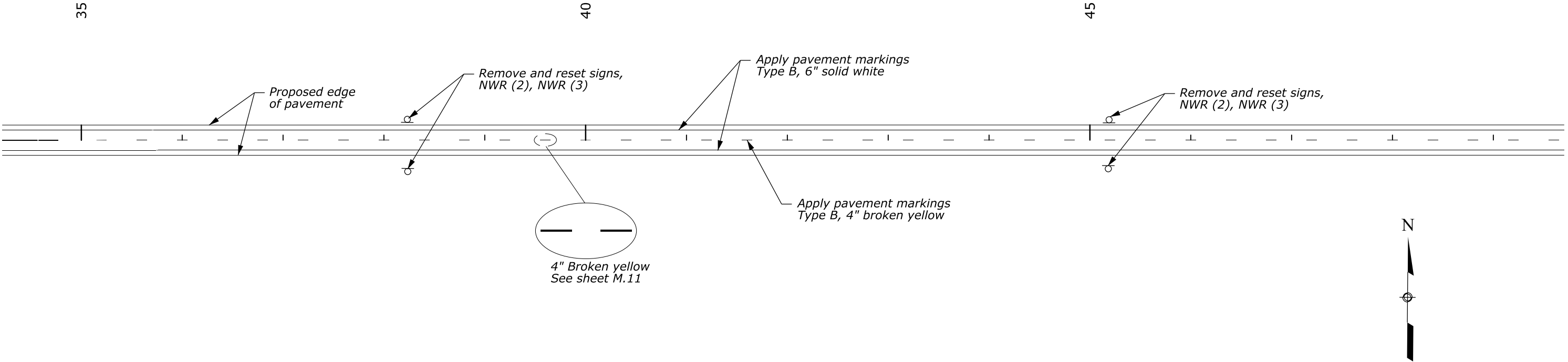


**PRELIMINARY**



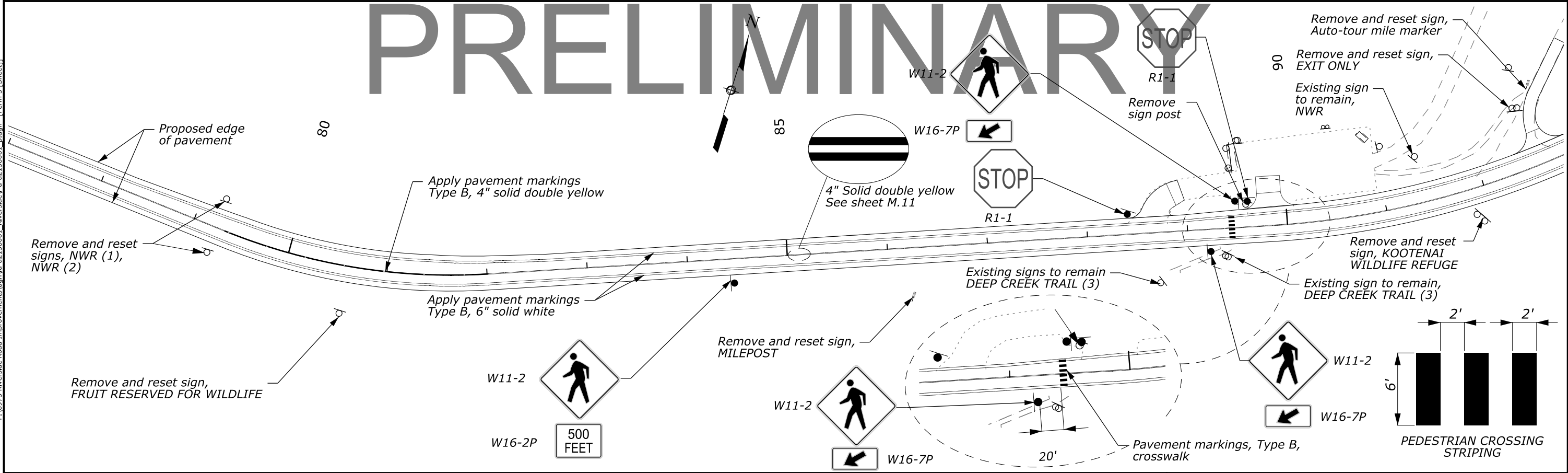
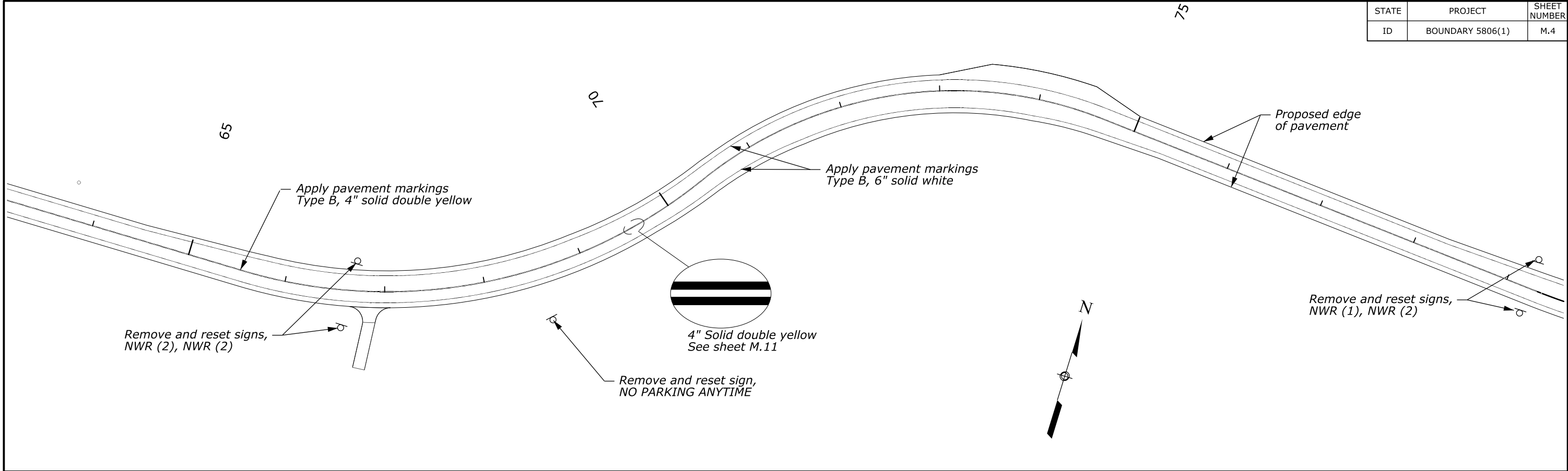
**PERMANENT  
TRAFFIC CONTROL  
PLAN**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.3



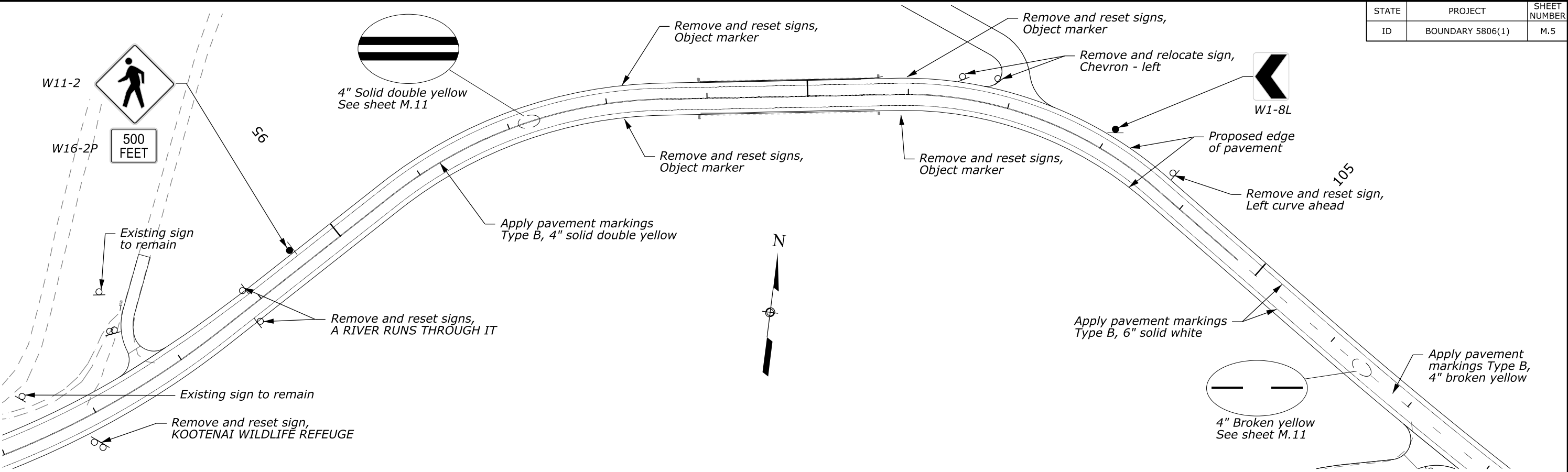
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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.4

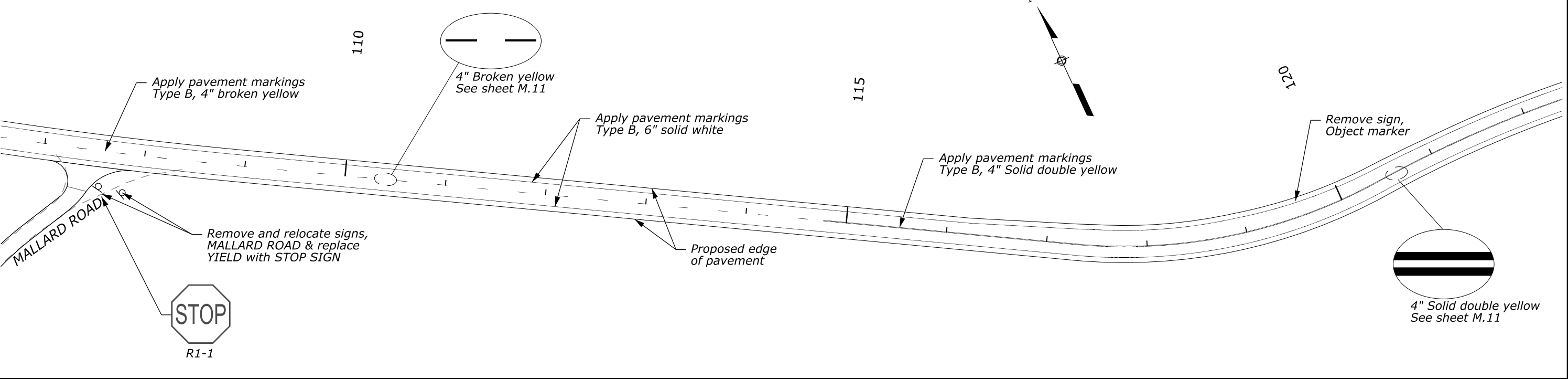


**PERMANENT  
TRAFFIC CONTROL  
PLAN**

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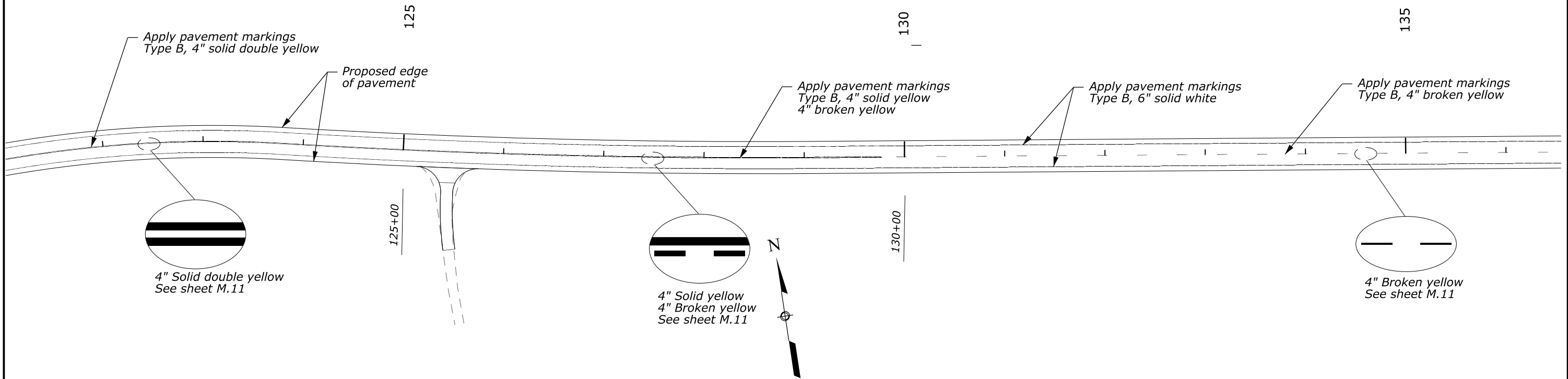


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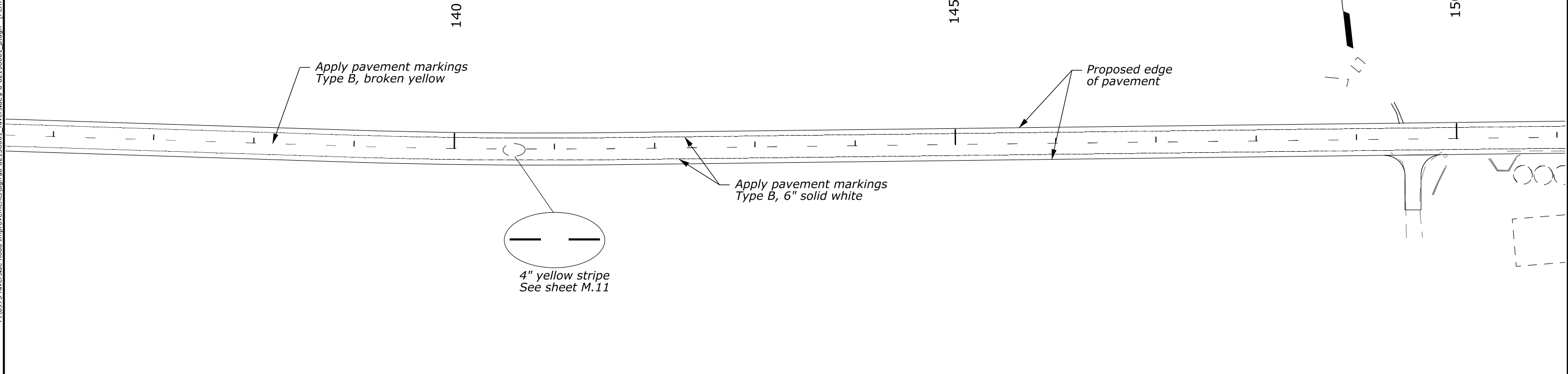


**PERMANENT  
TRAFFIC CONTROL  
PLAN**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.6



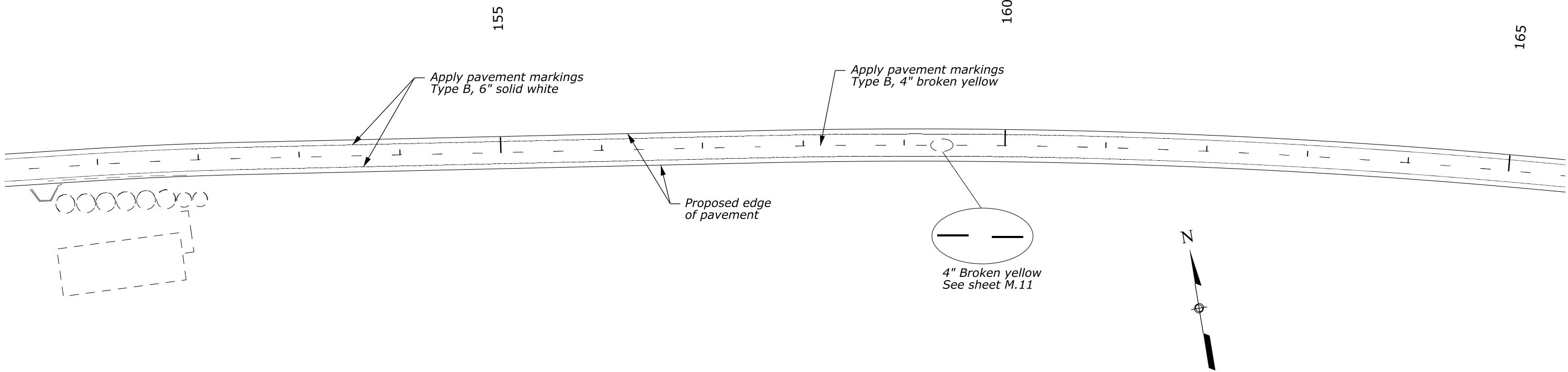
PRELIMINARY



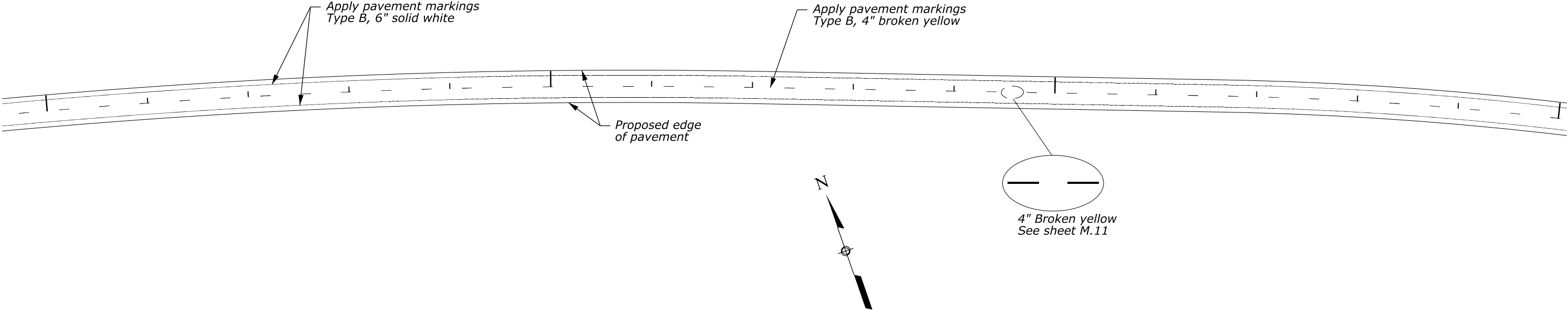
**PERMANENT  
TRAFFIC CONTROL  
PLAN**



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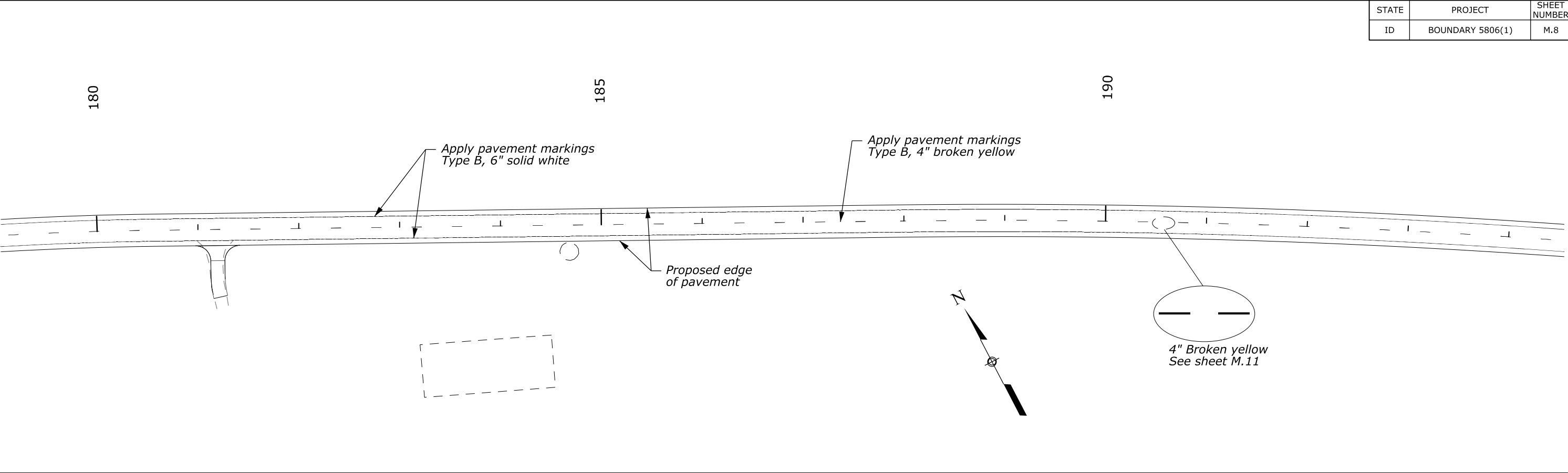


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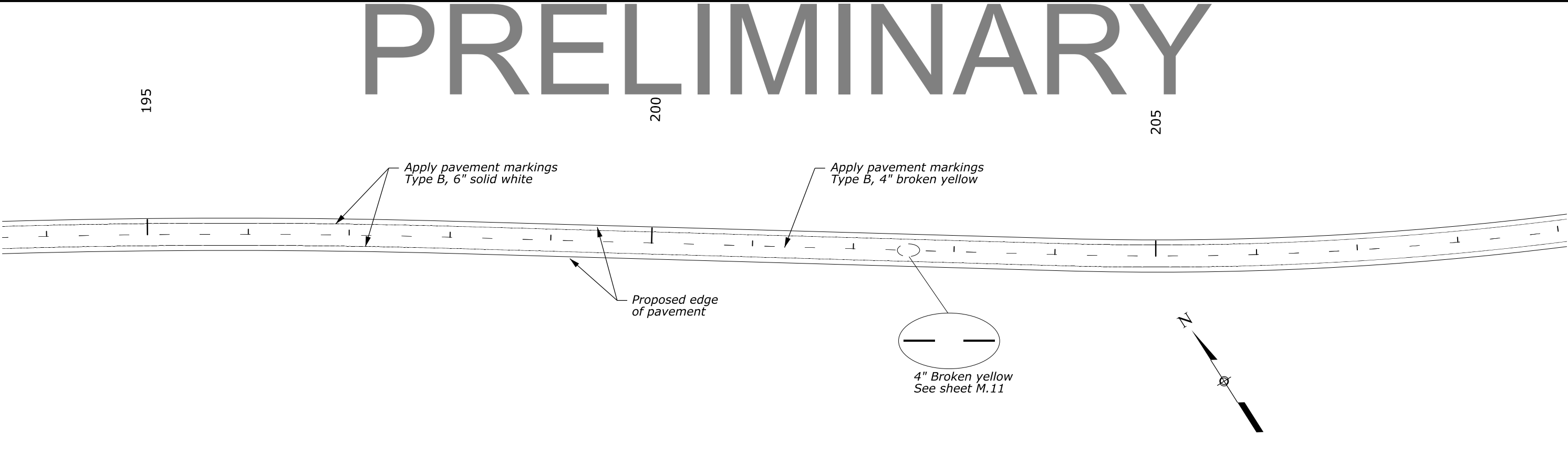


**PERMANENT  
TRAFFIC CONTROL  
PLAN**

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.8

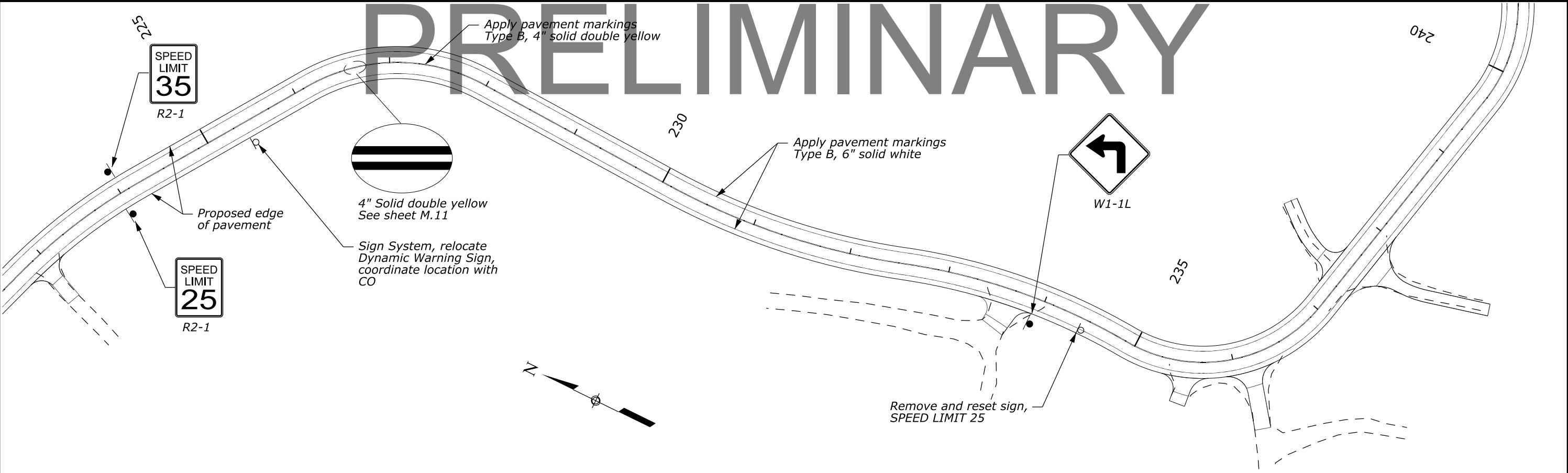
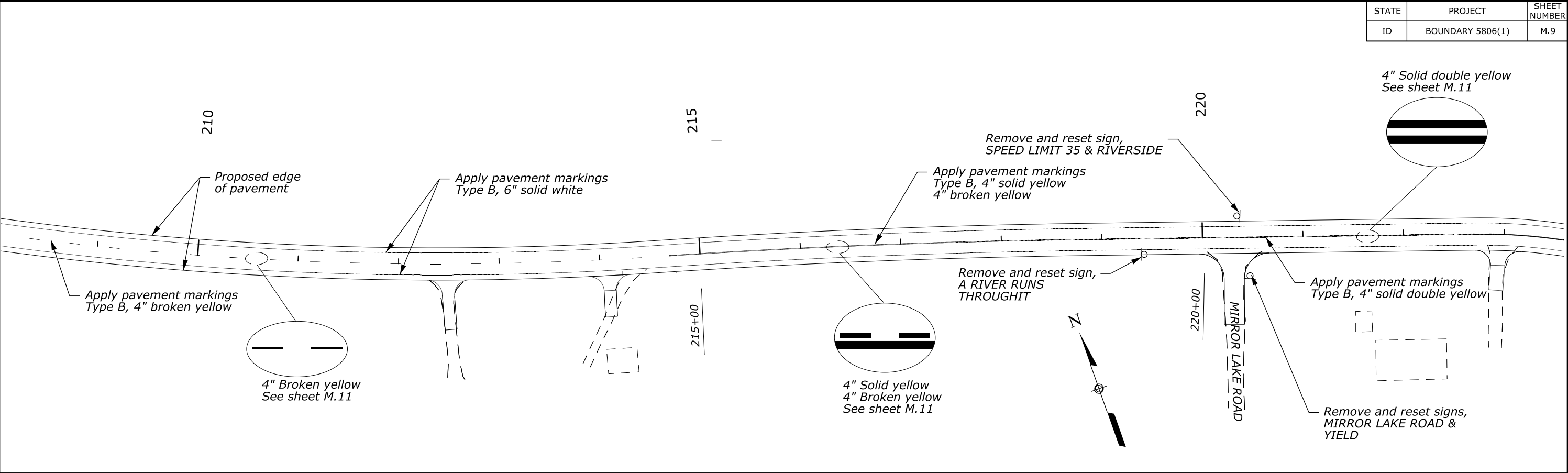


PRELIMINARY



**PERMANENT  
TRAFFIC CONTROL  
PLAN**

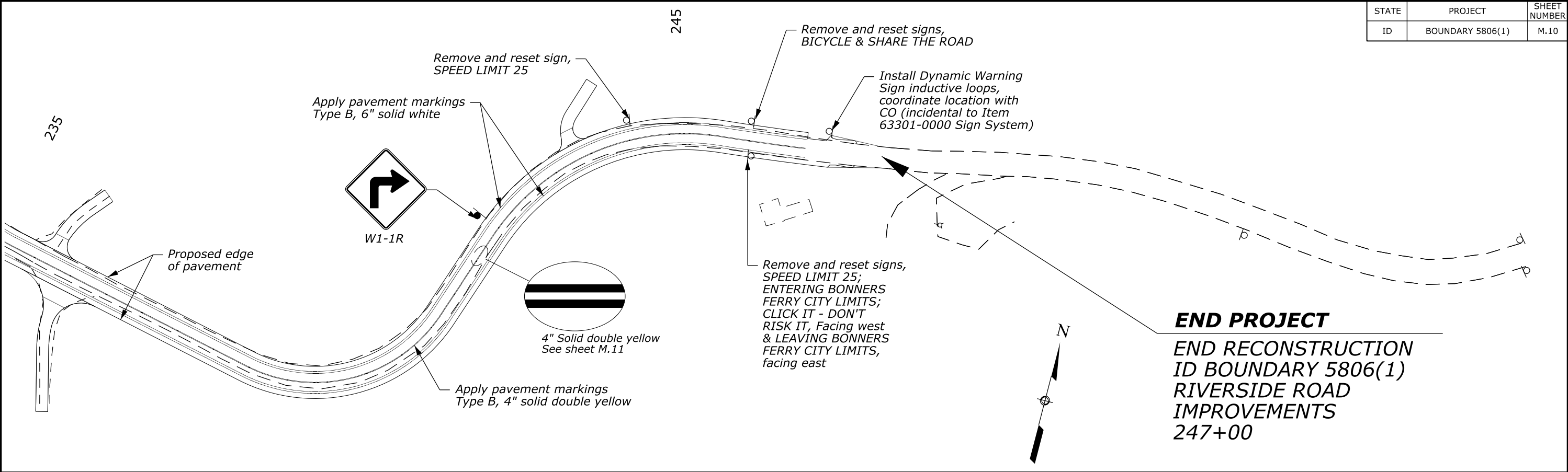
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.9



**PERMANENT  
TRAFFIC CONTROL  
PLAN**

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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.10

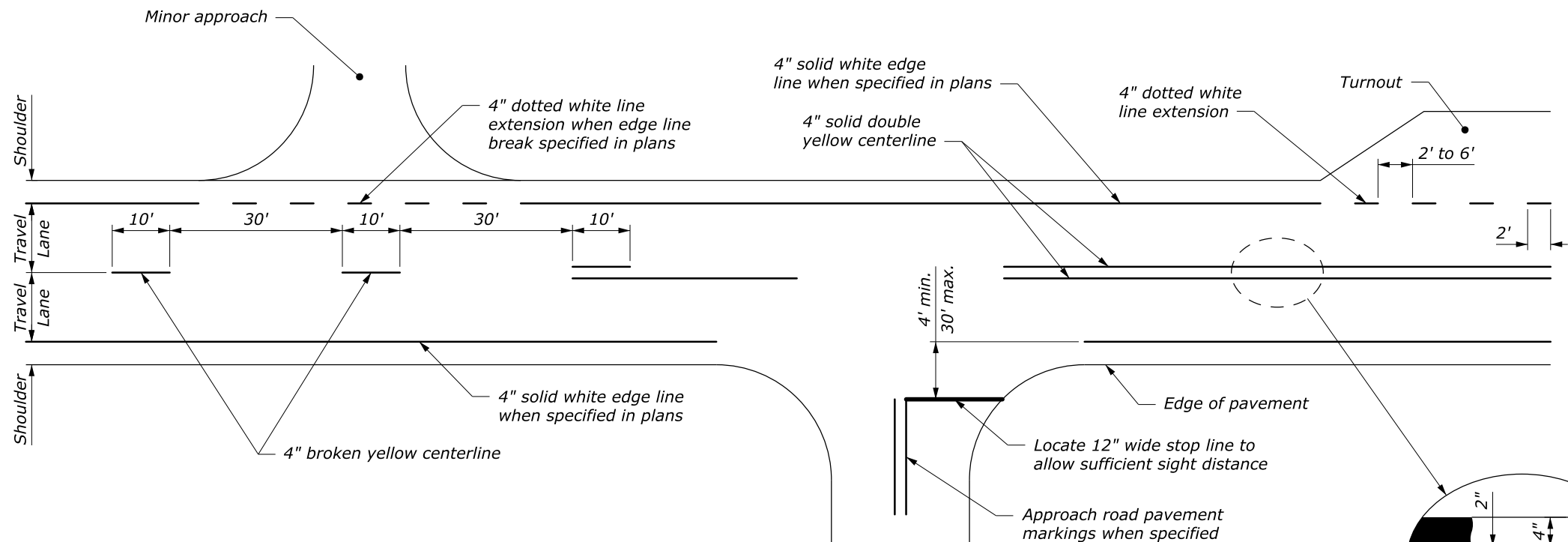


PRELIMINARY

**PERMANENT  
TRAFFI CONTROL  
PLAN**

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STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.11



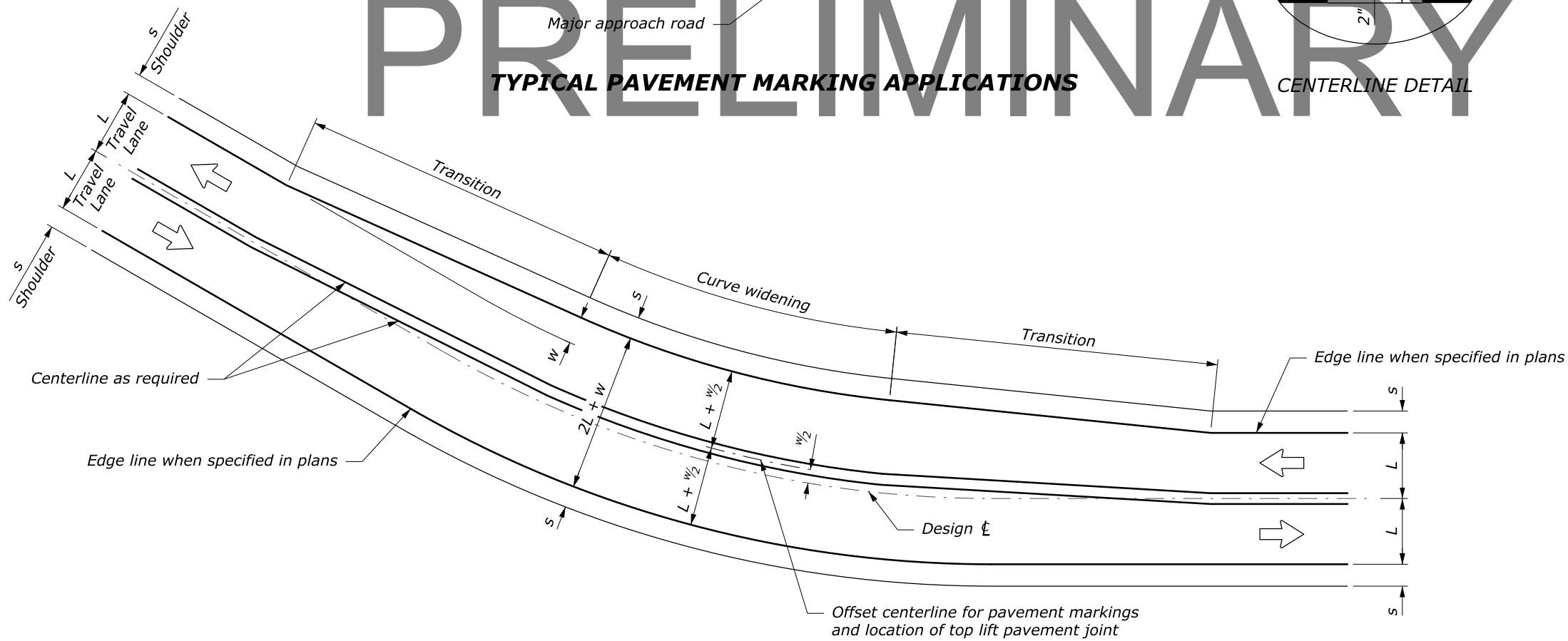
**NOTE:**

1. Place edge line pavement markings at asphalt/concrete curb interface when curb is present.
2. Paint centerline pavement markings on curves with curve widening "w" to achieve equal lane widths within the roadway. Maintain a constant shoulder width "s" throughout the curve widening area. See staking details for curve widening transition locations.
3. Typical pavement marking widths are shown. Use wider pavement markings when specified on the plans or when required by the maintaining agency.

PRELIMINARY

**TYPICAL PAVEMENT MARKING APPLICATIONS**

CENTERLINE DETAIL



**CENTERLINE MODIFICATION FOR CURVES WITH WIDENING APPLIED ON INSIDE**

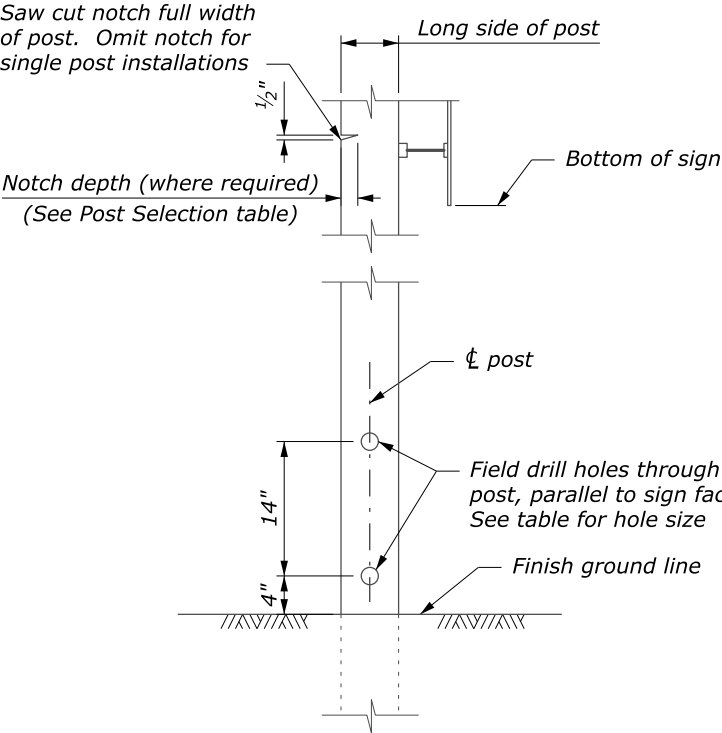
See Note 2 for treatment of curves when widening "w" is split equally on both sides of centerline

NO SCALE

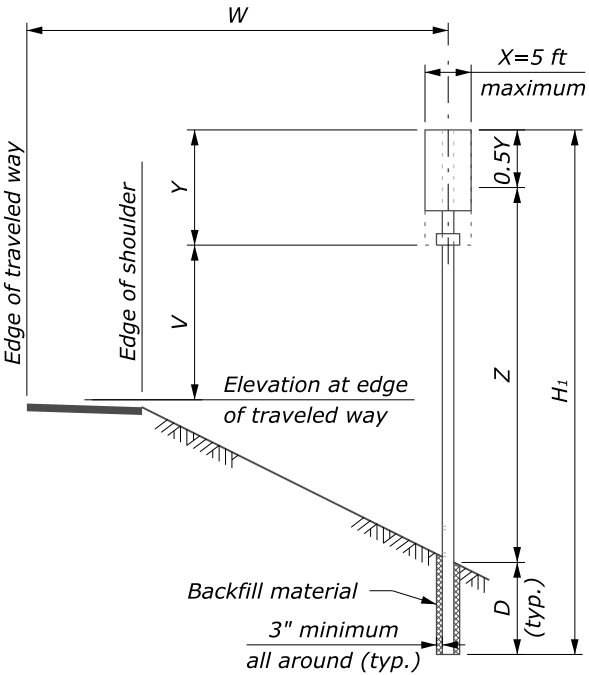
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>LINEAR PAVEMENT MARKINGS</b>	
DETAIL APPROVED FOR USE 10/2007 REVISED: 10/2012	DETAIL W634-2

30 August 2019 9:11 AM F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_pc.dgn [USC]

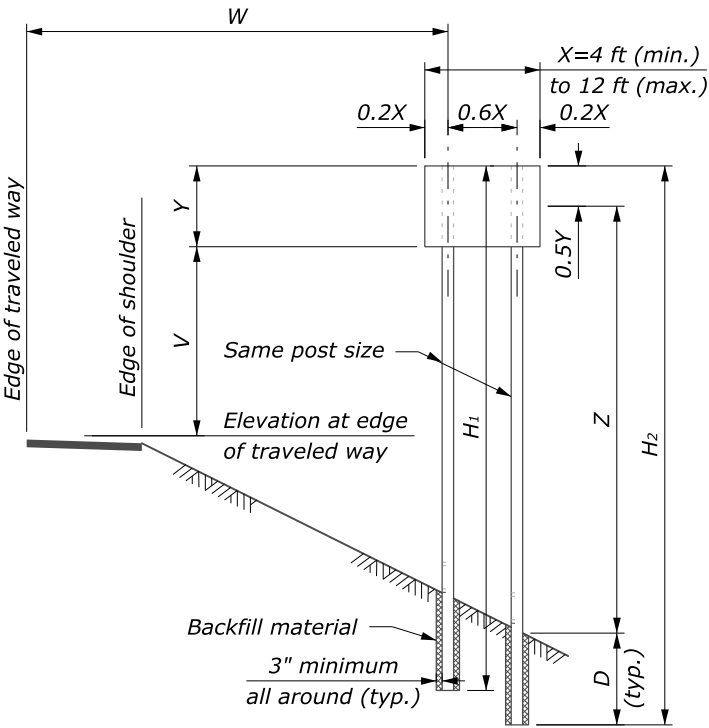
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.12



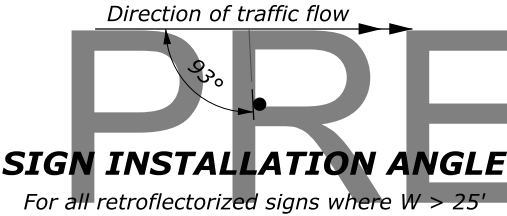
POST DETAIL



SINGLE POST SIGNS



TWO POST SIGNS

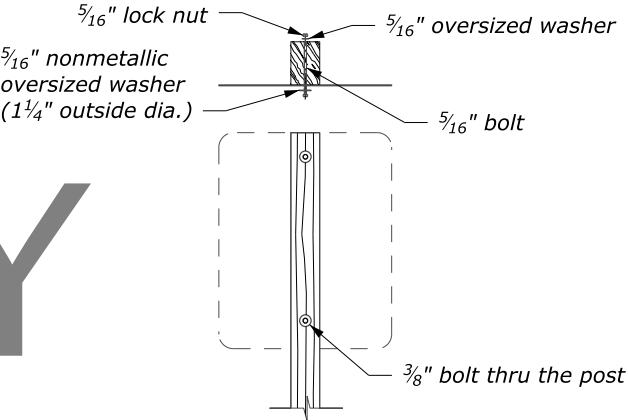


MINIMUM DISTANCE TO SIGN		
Location	Lateral Offset (W)	Mounting Height (V)
Rural Districts	6 ft	5 ft
Business or Residence Districts	2 ft from curb	7 ft

V may be reduced by 1 foot in rural districts for a secondary sign mounted below another sign.

**NOTE:**

1. Traffic barrier protection is required for all posts larger than 6" x 8" when located within the clear zone or if the post is vulnerable to being struck when placed outside the clear zone.
2.  $H_1$  thru  $H_4$  indicate overall post length. Select post lengths to fit field conditions.
3.  $D$  is the minimum post embedment depth for average soil conditions. See Wood Post Selection Table below.
4.  $Z$  is the height from ground line to mid-height of sign at the longest post.
5. For the purpose of post selection  $X$  and  $Y$  are as follows:
  - Single sign, or back to back signs:  $X$  and  $Y$  are the overall dimensions of the signs.
  - Multiple sign installations:  $X$  and  $Y$  are the dimensions of a rectangle enclosing all the signs.

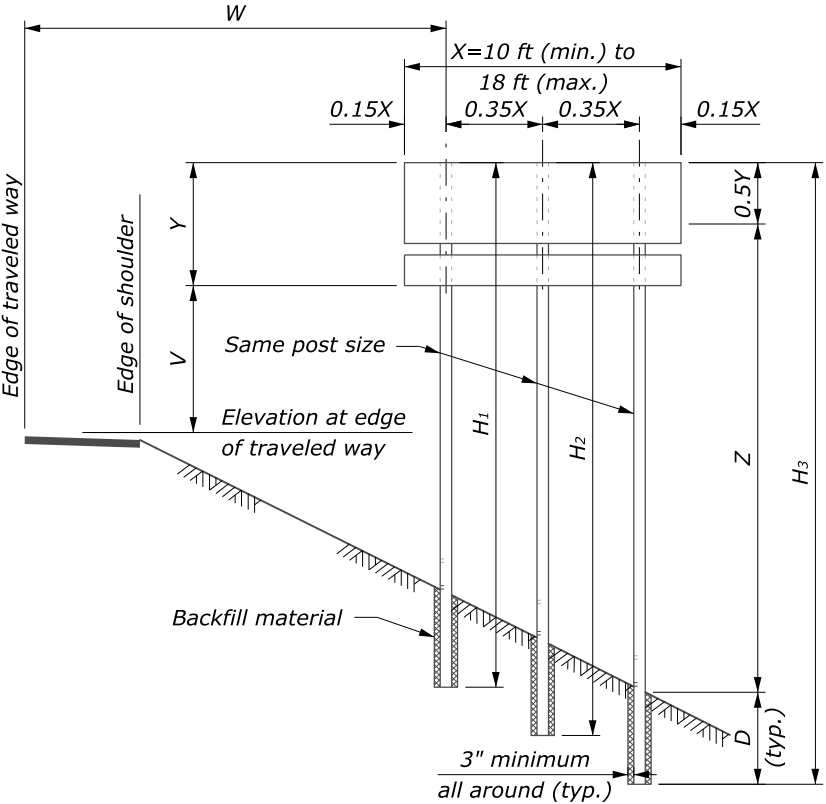


**TYPICAL MOUNTING FOR SIGNS WITHOUT ANGLES**

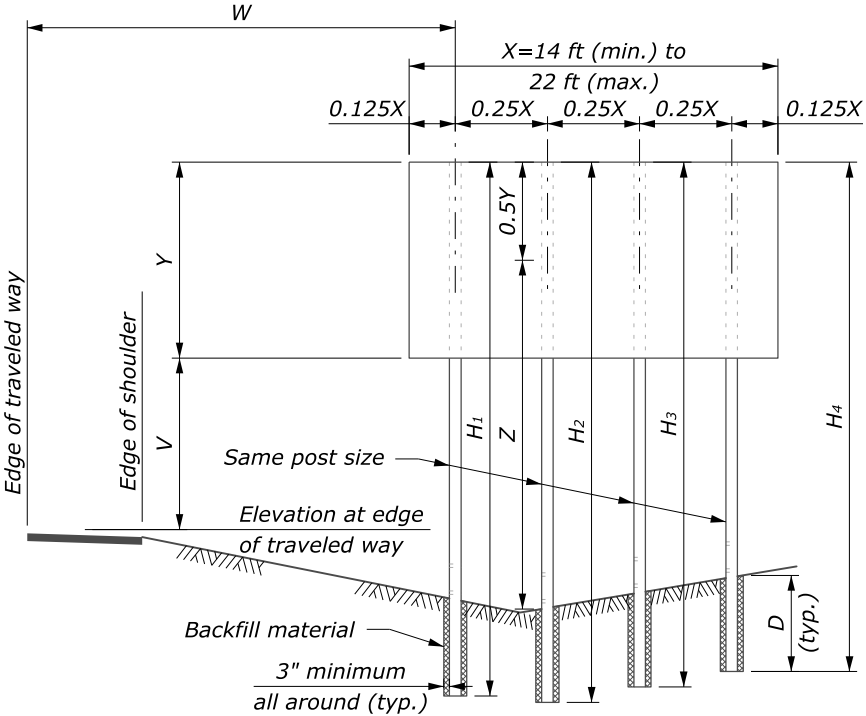
WOOD POST SELECTION TABLE						
POST SIZE (inch)	NUMBER OF POSTS				D	Notch depth and hole diameter
	1	2	3	4		
	Product of X-Y-Z in CUFT					
4 x 4	80	155	235	310	3'-0"	-
4 x 6	180	385	545	725	4'-0"	1¾"
6 x 6	235	475	710	950	4'-0"	1¾"
6 x 8	300	850	1280	1700	4'-0"	2½"
6 x 10	385	1180	1170	2360	5'-0"	-
8 x 10	575	1610	2410	3215	5'-0"	-
8 x 12	775	2310	3465	4620	6'-0"	-

Values shown are the maximum permitted. If the product of XYZ exceeds the limit for the largest post, use steel post installation.

NO SCALE



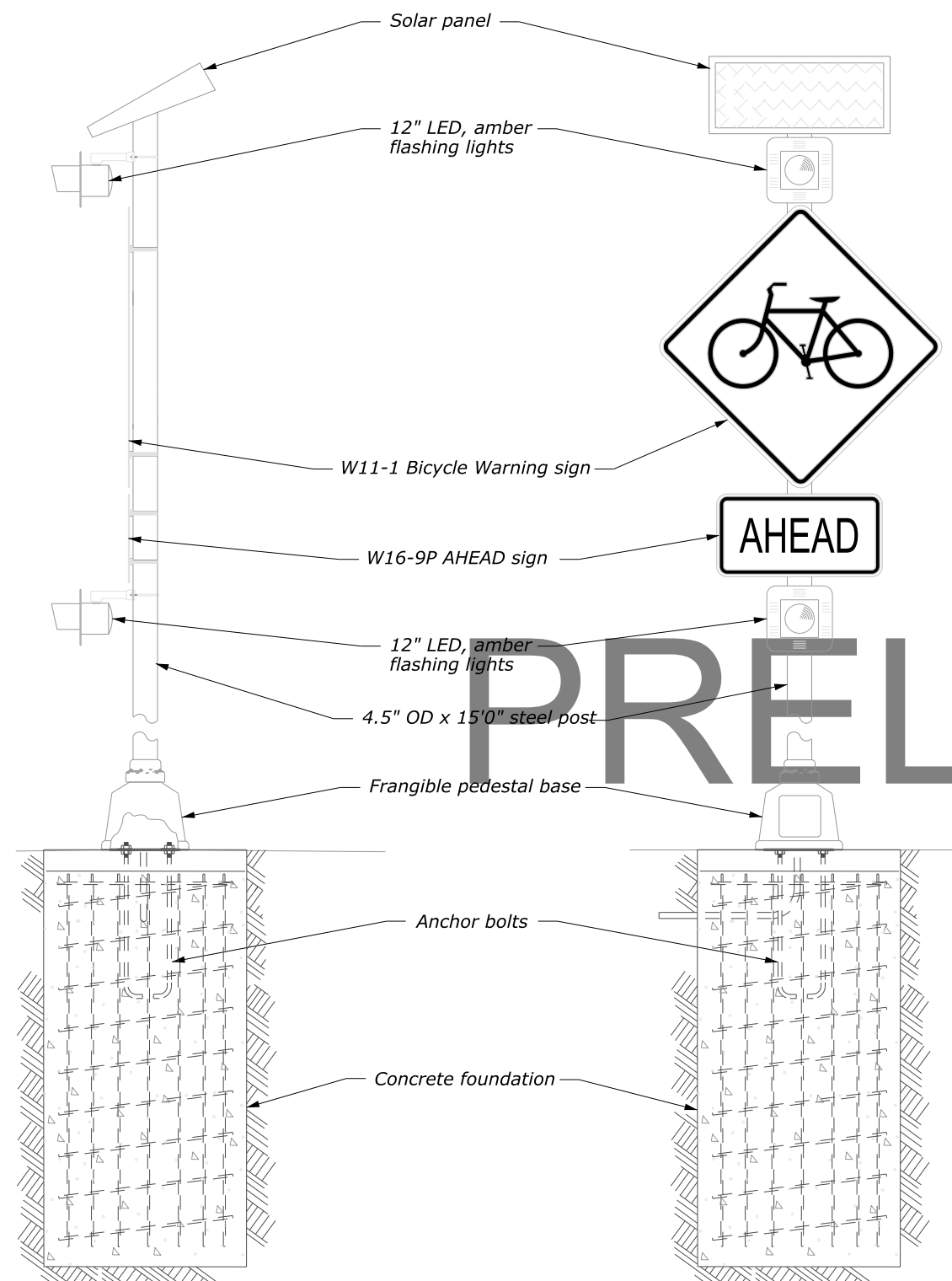
THREE POST SIGNS



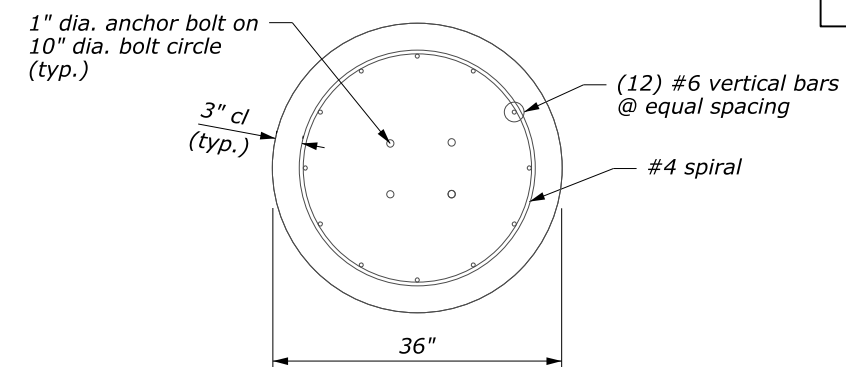
FOUR POST SIGNS

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL <b>PERMANENT SIGN INSTALLATION WOOD POSTS</b>	
DETAIL APPROVED FOR USE 10/2009	DETAIL
REVISED:	W633-7

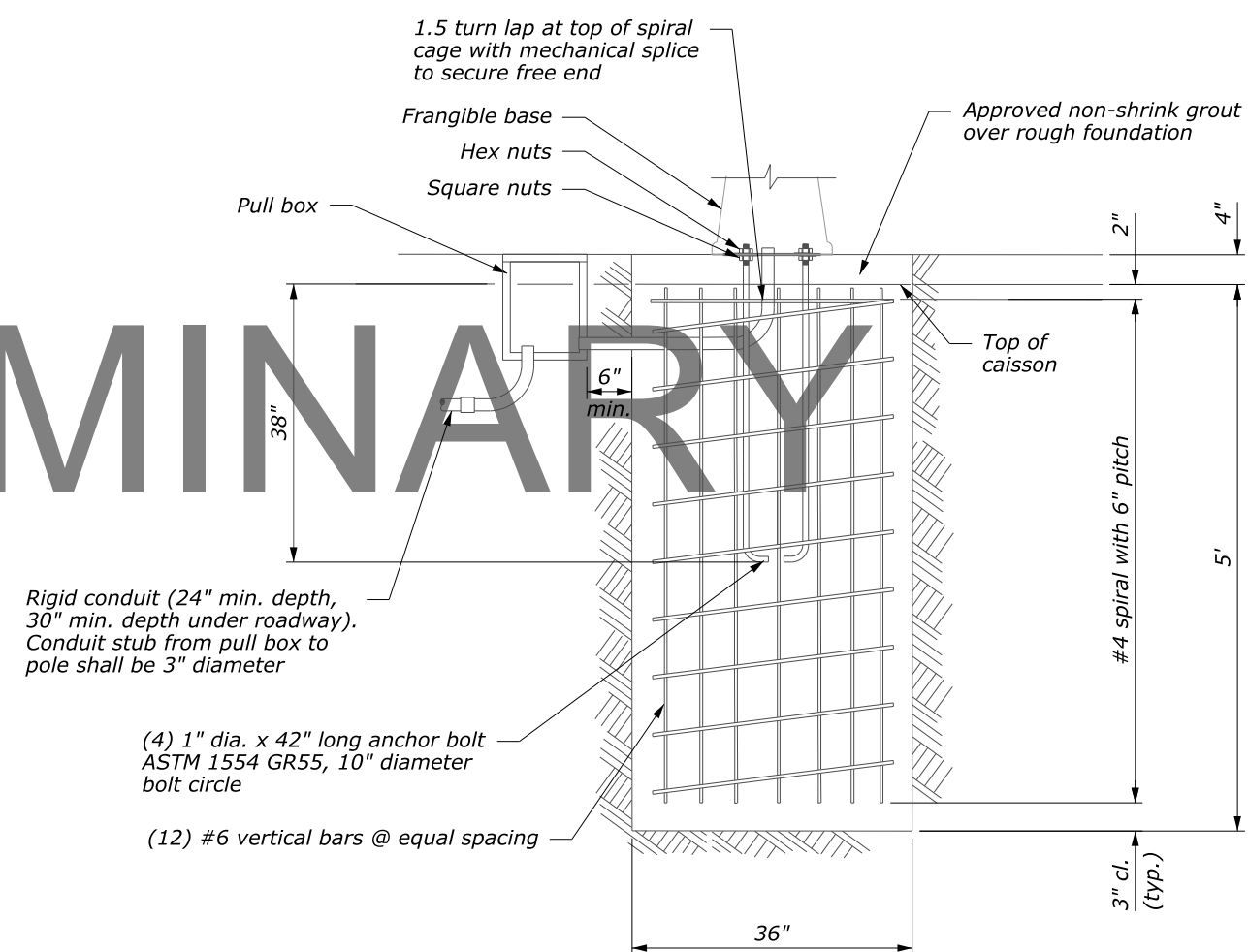
STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.13



## SIGN POST, PANEL, LIGHTS AND SOLAR SYSTEM DETAILS



## PEDESTAL POLE CAISSON



### PEDESTAL POLE FOUNDATION DETAIL

**NOTE:**

See sheet M.14 for loop installation notes.

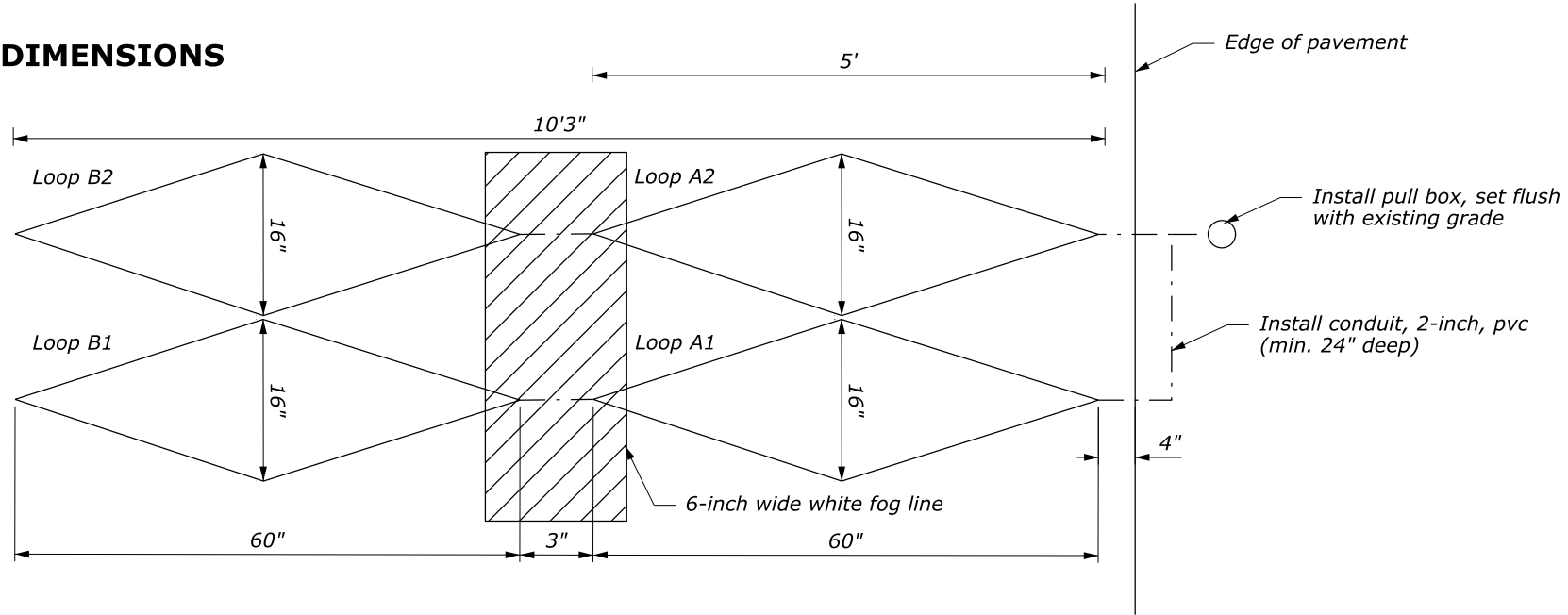
NO SCALE

## DYNAMIC WARNING SIGN DETAILS

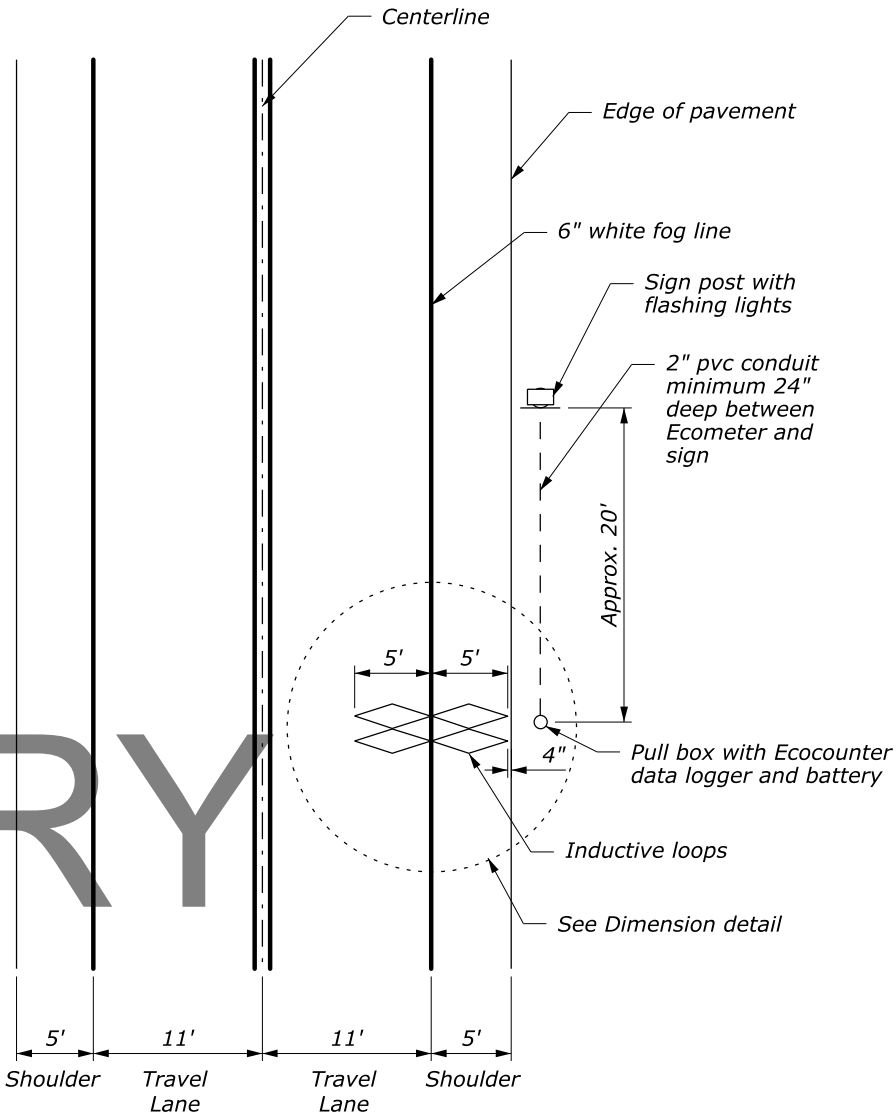
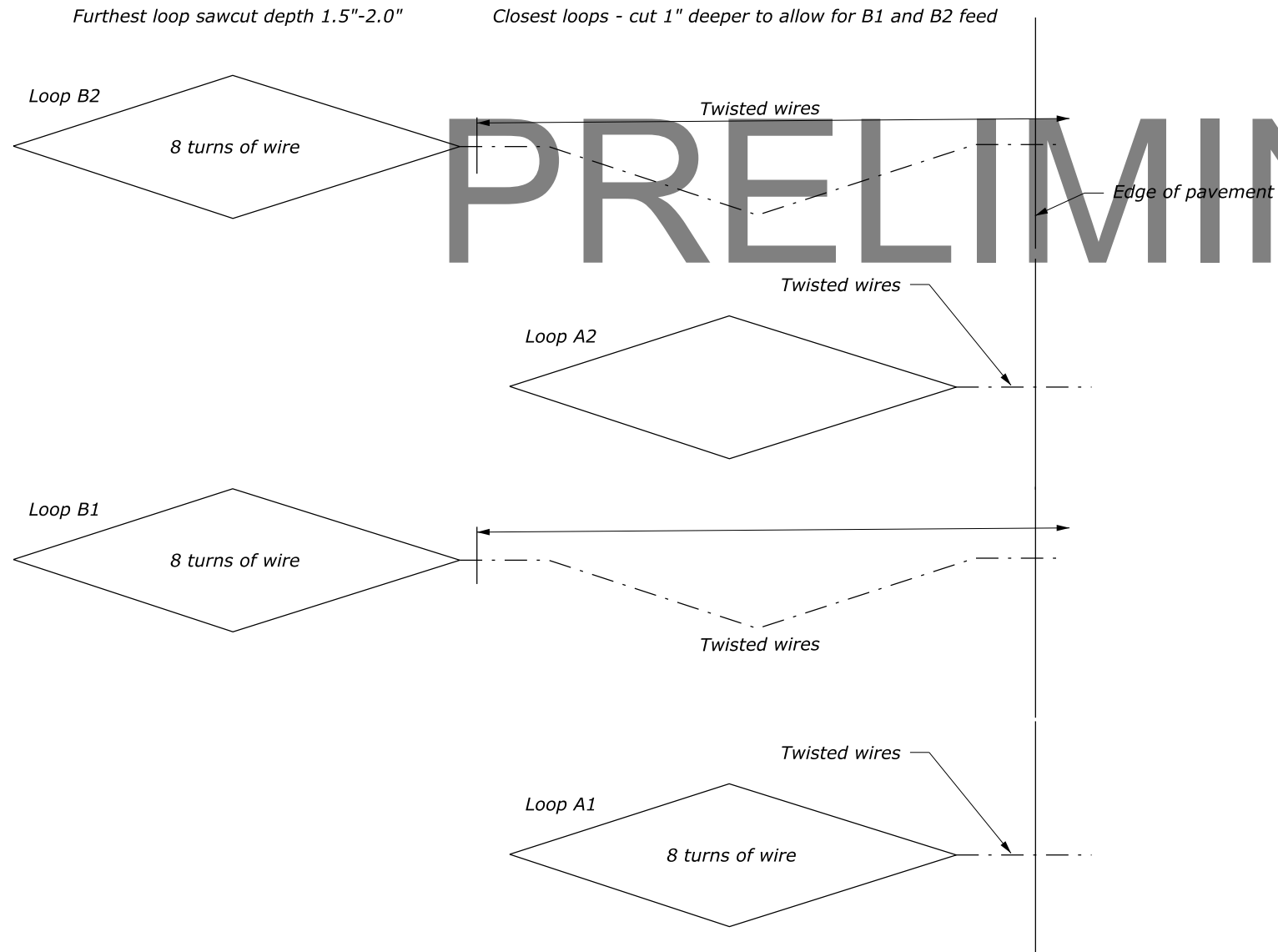
08/2019 J. PEDERSON 08/2019 B. McCRA Y Designed by: F:\6975 Riverside Road Improvements\ dgn\ld-a2158061\_Riverside\ld-a2158061\_pe.dgn [USC] 30 August 2019 8:54 AM

STATE	PROJECT	SHEET NUMBER
ID	BOUNDARY 5806(1)	M.14

DIMENSIONS



WIRING AND CUTTING



PLAN VIEW SCHEMATIC

DYNAMIC WARNING SIGN  
LOOP DETAILS

NO SCALE