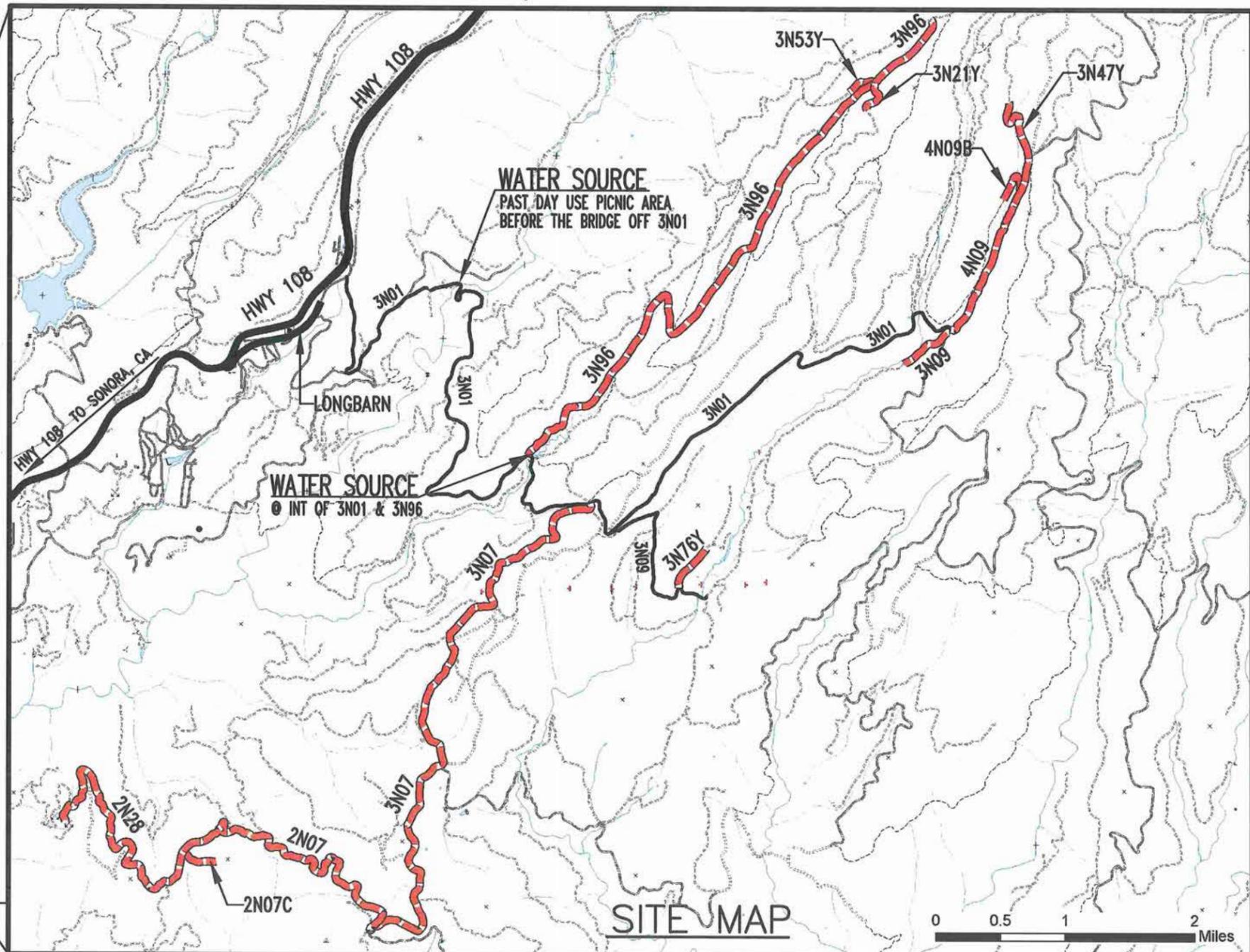
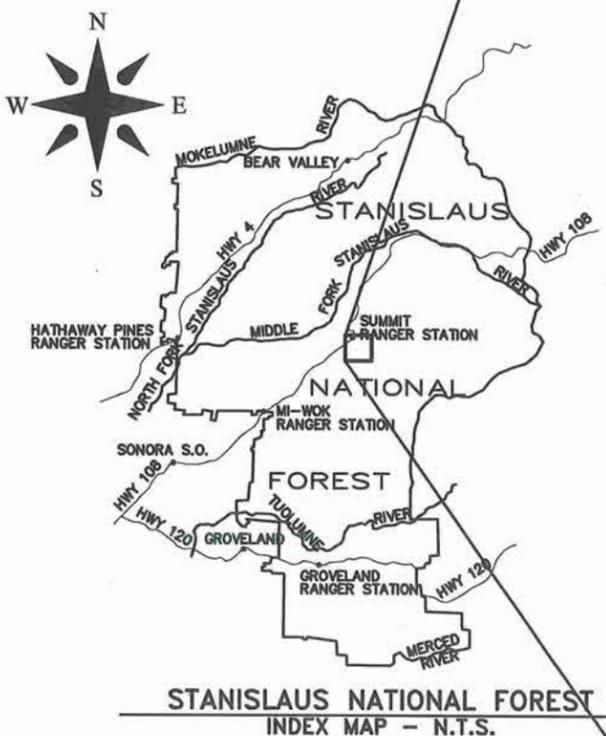


UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
REGION FIVE
STANISLAUS NATIONAL FOREST
DRAWINGS FOR PROPOSED
LOW (MP) TIMBER SALE
 Tuolumne County, California



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GOVERNING SPECIFICATIONS
 "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS" FP-03 U.S. CUSTOMARY UNITS, SHALL GOVERN.

Drawn D. ROMERO
 Designed D. ROMERO
 Reviewed R. CABLAYAN

Sheet Title
TITLE SHEET & VICINITY MAP
 Scale
 AS SHOWN

Forest
STANISLAUS
 Project
LOW (MP) TIMBER SALE

ABBREVIATIONS

AGG	AGGREGATE
BEG	BEGIN
BOP	BEGINNING OF PROJECT
CLR	CLEAR
CLVRT	CULVERT
CONST	CONSTRUCT OR INSTALL FEATURE
CW	CURVE WIDENING
CY	CUBIC YARDS
DWB	DRIVEABLE WATER BAR
EOP	END OF PROJECT
EX	EXISTING
FT	FOOT
INT	INTERSECTION
LF	LINEAR FOOT
LOD	LEAD OFF DITCH
MAINT	MAINTAIN EXISTING FEATURE
MES	METAL END SECTION
MTC	MAINTENANCE
REM	REMOVE
RRD	RIPRAP DRAINAGE
RRF	RIPRAP FILL
SHT	SHEET

SPECIAL NOTES

1. WORK ITEM LABELS ENDING WITH "-MTC" ARE NOT INCLUDED IN THE SCHEDULE OF ITEMS. THESE ITEMS REFER TO WORK INCLUDED IN THE MAINTENANCE REQUIREMENTS FOR TIMBER SALE CONTRACTS
2. THE WATER SOURCES ARE SHOWN ON THE DRAWINGS (SEE SHEET 1). WATER SOURCES SHALL COMPLY WITH SECTION 891. WATERING IS INCIDENTAL TO SECTIONS 204 AND T803. THE PURCHASER IS TO CONSTRUCT A SUMP FILTER TO USE AT WATER SOURCE. AN EXAMPLE IS AVAILABLE AT THE GROVELAND DISTRICT OFFICE AS A TEMPLATE.
3. BACK OR EXCAVATION SLOPE RATIO IS 1:1 AND FILL OR EMBANKMENT RATIO IS 1 1/2:1. RECONDITIONING OF THE TRAVELED WAY SHALL BE SCARIFIED TO THE DEPTH INDICATED FOR ROADS
4. ANY TIMBER THAT HAS TO BE CUT TO PERFORM THIS CONTRACT SHALL BE DECKED AT LOCATIONS APPROVED BY THE FOREST SERVICE. ANY TREE CUT WITHIN THE CLEARING LIMITS ARE NOT INCLUDED IN THIS CONTRACT AND MAY NOT BE REMOVED BY THE PURCHASER.
5. TREATMENT AND DISPOSAL OF CLEARING DEBRIS SHALL COMPLY WITH SECTION 203.05. DECKING AREAS SHALL BE APPROVED PRIOR TO CLEARING. BOTH MERCHANTABLE AND UNMERCHANTABLE SHALL BE CUT TO APPROVED LENGTHS AS DIRECTED BY THE CONTRACTING OFFICER.
6. DEPOSIT CHIPPED OR GROUND WOODY MATERIAL ONLY ON FINISHED EMBANKMENT SLOPES AND AT APPROVED AREAS DESIGNATED BY THE PROJECT DRAWINGS, OR AS DIRECTED BY THE CONTRACTING OFFICER.
7. CLASS 2 AND 3 ROCK AND RIPRAP SHALL BE OBTAINED FROM AN APPROVED COMMERCIAL SOURCE.
8. AGGREGATE USED SHALL BE CERTIFIED TO BE NO MORE THAN 0.25% ASBESTOS PRESENT TO BE IN COMPLIANCE WITH CALIFORNIA HEALTH AND SAFETY CODE SECTIONS 93105 AND 93106 AND OBTAINED FROM AN APPROVED COMMERCIAL SOURCE.
9. BEFORE ANY EXCAVATION ACTIVITIES BEGIN, THE PURCHASER SHALL CONTACT A SERVICE TO LOCATE ANY BURIED UTILITIES. USA = 1-800-227-2600 OR THE NATIONAL 811 NUMBER OR THE WEBSITE [HTTP://WWW.CALL811.COM/](http://www.call811.com/).
10. EQUIPMENT, FOR THIS PROJECT, IF DRIVEN ON STATE OR COUNTY ROADS SHALL BE CURRENTLY LICENSED.
11. THE PURCHASER SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE CONTRACT OFFICER FOR APPROVAL PRIOR TO ANY WORK. THE TRAFFIC CONTROL PLAN SHALL CONTAIN AS A MINIMUM THE PROPOSED LOCATION OF ROAD CONSTRUCTION WARNING SIGNS. THE TEMPORARY TRAFFIC CONTROL PLAN IS INCIDENTAL TO OTHER PAY ITEMS.
12. SLASH REMOVAL WHERE SPECIFIED IN THE DRAWINGS IS INCIDENTAL TO T-807 AND 201(05) PAY ITEM.
13. THE PURCHASER SHALL SUBMIT A WORK SCHEDULE FROM THEIR CONTRACTOR TO THE C.O. BEFORE START OF WORK.
14. THE PURCHASER SHALL SUBMIT A SAFETY PLAN FROM THEIR CONTRACTOR TO C.O. BEFORE THE START OF WORK.
15. THE PURCHASER SHALL POST IN A CONSPICUOUS PLACE THE APPROPRIATE LABOR POSTERS PROVIDED BY THE FOREST SERVICE.

LOCATION & MILEAGE

WORK AREAS ARE LOCATED IN TUOLUMNE COUNTY, CALIFORNIA. FROM SONORA, CALIFORNIA, TRAVEL APPROXIMATELY 15.2 MILES EAST ON STATE HIGHWAY 108 FROM STANDARD RD AND TURN RIGHT ON LONG BARN RD (2ND LONG BARN EXIT). PROCEED ON LONG BARN RD AND TAKE THE 2ND LEFT TURN ONTO MERRILL SPRINGS RD. TRAVEL ON MERRILL SPRINGS RD FOR 0.8 MILES AND TURN LEFT ONTO NORTH FORK RD. NORTH FORK RD WILL BECOME 3N01. TRAVEL ON NORTH FORK RD / 3N01 FOR APPROX 4.4 MILES TO REACH 3N96. CONTINUE ON 3N01 APPROXIMATELY 1 MILE TO 3N07. CONTINUE ON 3N01 APPROXIMATELY 5.04 MILES TO 4N09.

THE PROJECT INVOLVES: RECONSTRUCTION AND MAINTENANCE OF FOREST ROADS 2N07, 2N07C, 2N28, 3N07, 3N09, 3N21Y, 3N47Y, 3N53Y, 3N76Y, 3N96, 4N09, 4N09B.

TOTAL ROADS MILEAGE IS APPROXIMATELY 19.05 MILES.

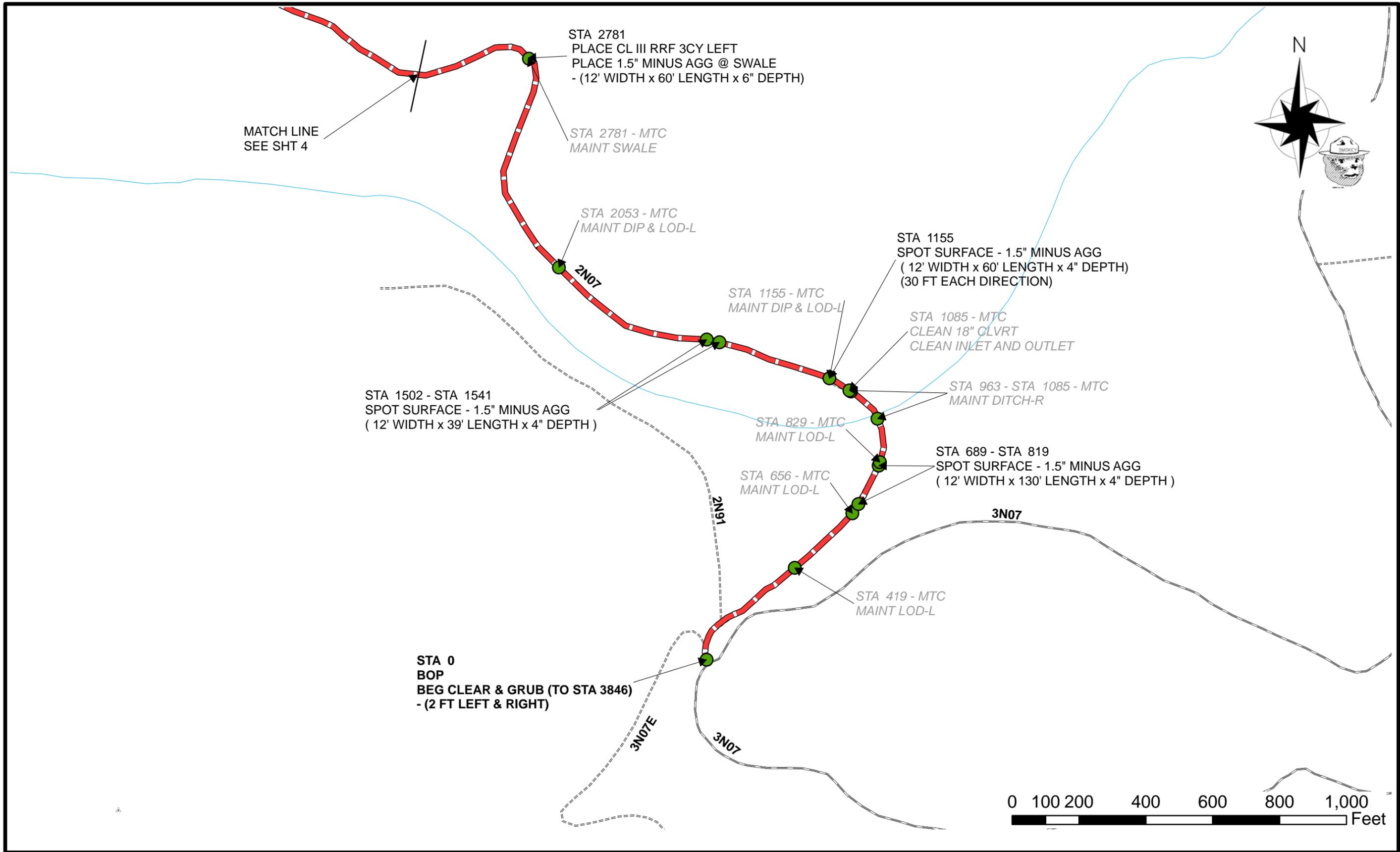
ROAD NO.	MILEAGE	ROAD NO.	MILEAGE	ROAD NO.	MILEAGE
2N07	2.87	3N09	0.54	3N76Y	0.38
2N07C	0.29	3N21Y	0.34	3N96	5.29
2N28	2.04	3N47Y	0.44	4N09	1.46
3N07	4.89	3N53Y	0.17	4N09B	0.34

GENERAL NOTES:

- UNLESS OTHERWISE SPECIFIED, NOTES APPLY TO ALL ROADS.
- SELECT CLEAR-ONLY TREES 10"D.B.H. OR LARGER TO BE CLEARED. TREES OF SMALLER DIAMETER AND BRUSH OF ANY SIZE SHALL ALSO BE CLEARED AS INDICATED IN SECTION T-807 AND ITS SUPPLEMENT.
- ALL CONSTRUCTION WORK IN THE SCHEDULE OF ITEMS, AS WELL AS DEFINED TERMS, SHALL RELATE TO THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS (FP-03).
- OUTSLOPE 3% UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
- RECONSTRUCTION-WIDEN AS NECESSARY TO OBTAIN MIN. SPECIFIED WIDTH. CUT SLOPES SHALL CONFORM TO EXISTING GRADE.
- WATERBARS ARE TO BE CONSTRUCTED AT THE END OF EACH OPERATING SEASON.
- MAINTENANCE-SUITABLE MATERIAL (AS DEFINED IN THE FP03 STANDARD SPECIFICATION) REMOVED FROM DITCHES, ROADBED SLIDES AND CULVERT CATCH BASINS SHALL BE INCORPORATED INTO THE ROADBED.
- UNSUITABLE MATERIAL SHALL BE SIDECAST FROM ROADBED.
- AT INTERSECTIONS, THE ROADBED SHALL BE GRADED TO ASSURE BLENDING OF TWO RIDING SURFACES FOR A DISTANCE OF 50 LINEAR FEET IN ALL DIRECTIONS.
- STAKING WILL BE DONE BY THE FOREST SERVICE. PURCHASER IS RESPONSIBLE FOR ALL STAKING THAT WILL BE DONE AS SPECIFIED IN SECTION 152.01 OF THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS AND ITS SUPPLEMENT. PURCHASER PAYMENT FOR STAKING WILL BE MADE PER CT5.213 DEPOSIT FOR RECONSTRUCTION ENGINEERING SERVICES.



Revisions			
NO.	DESCRIPTION	DATE	BY




U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-5
PACIFIC SOUTHWEST REGION

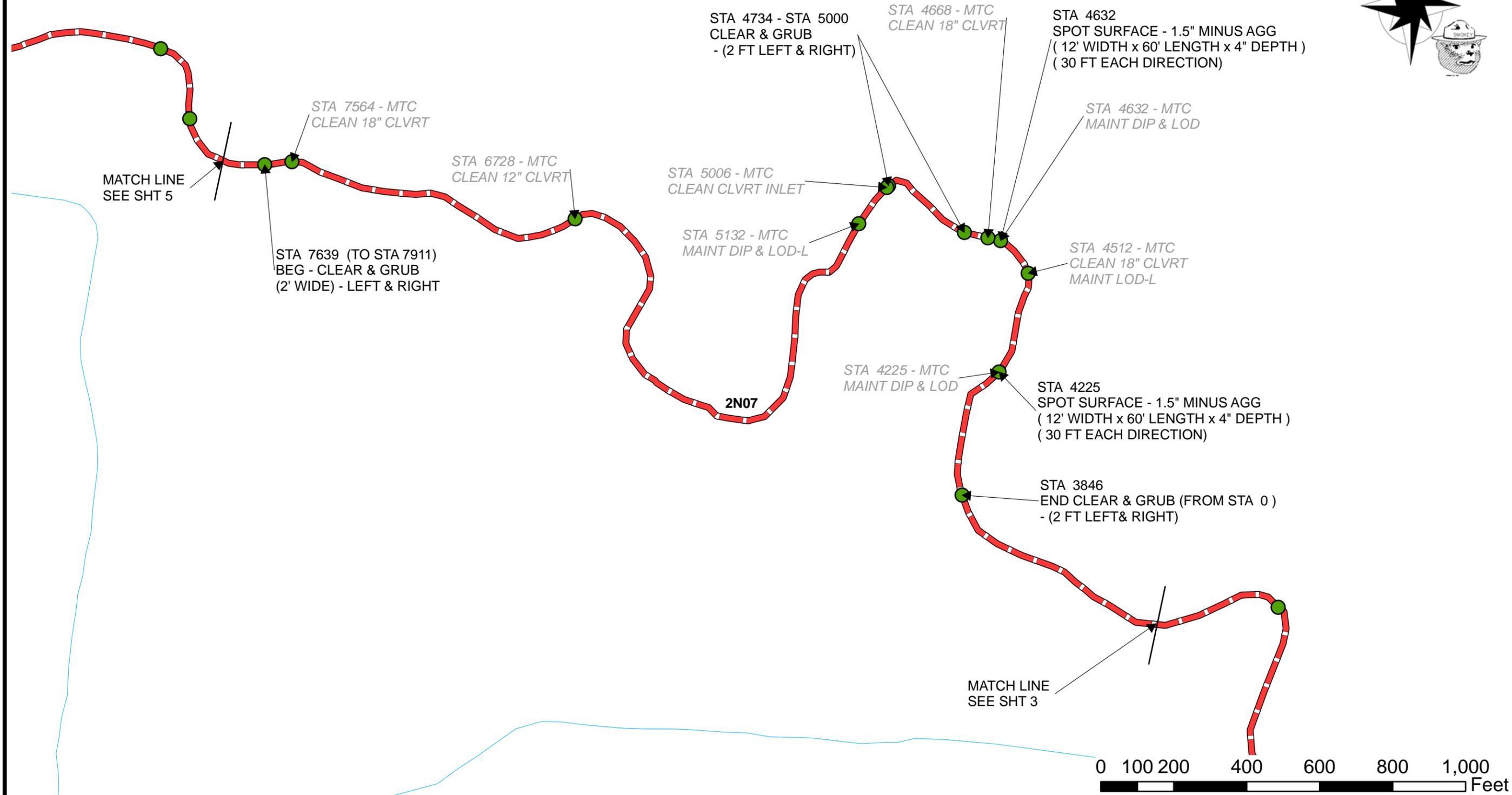
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 PROJECT NAME
LOW (MP) TIMBER SALE

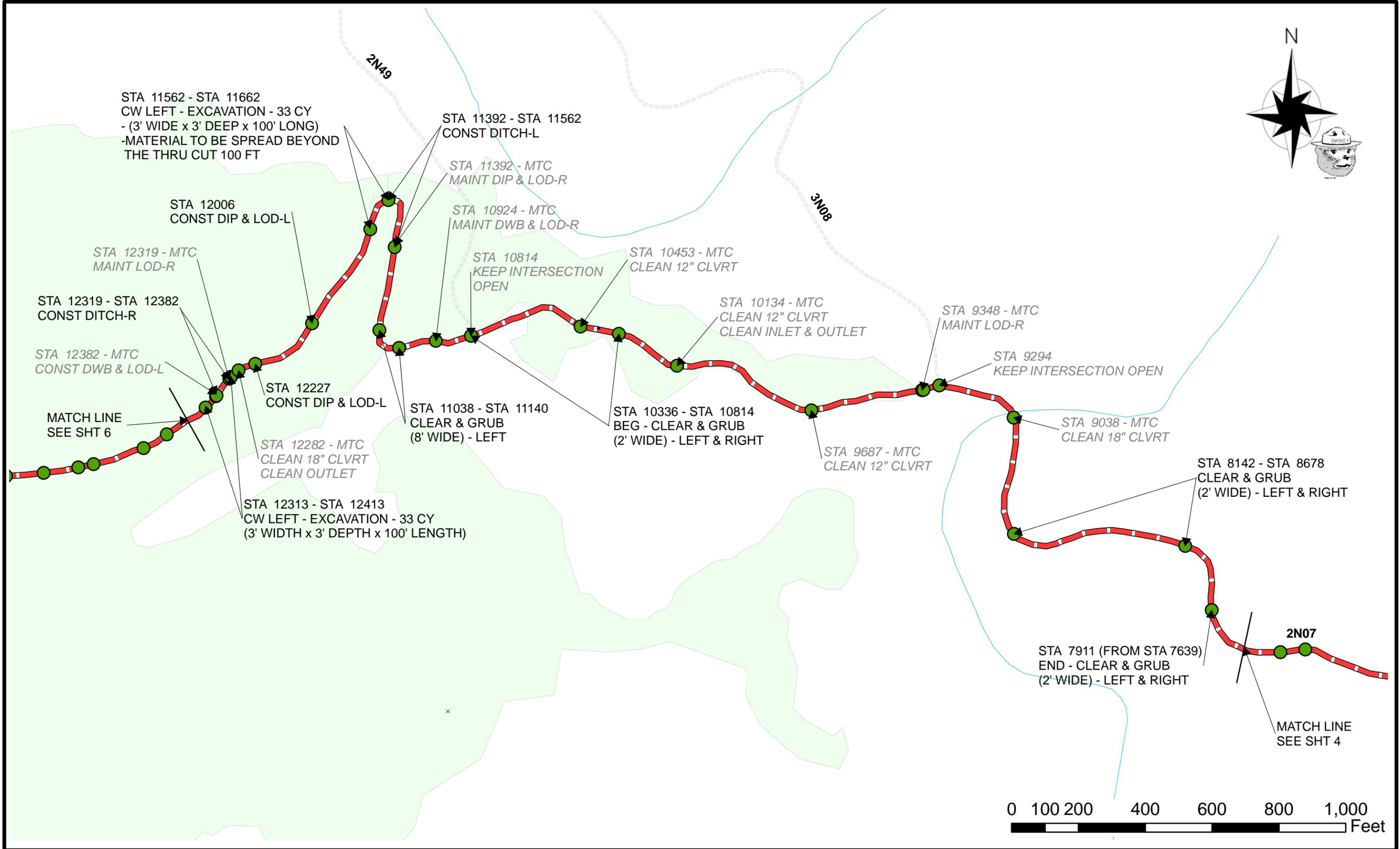
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ROAD 2N07 - 1 OF 4
 SCALE SEE BARSCALE

SHEET
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33



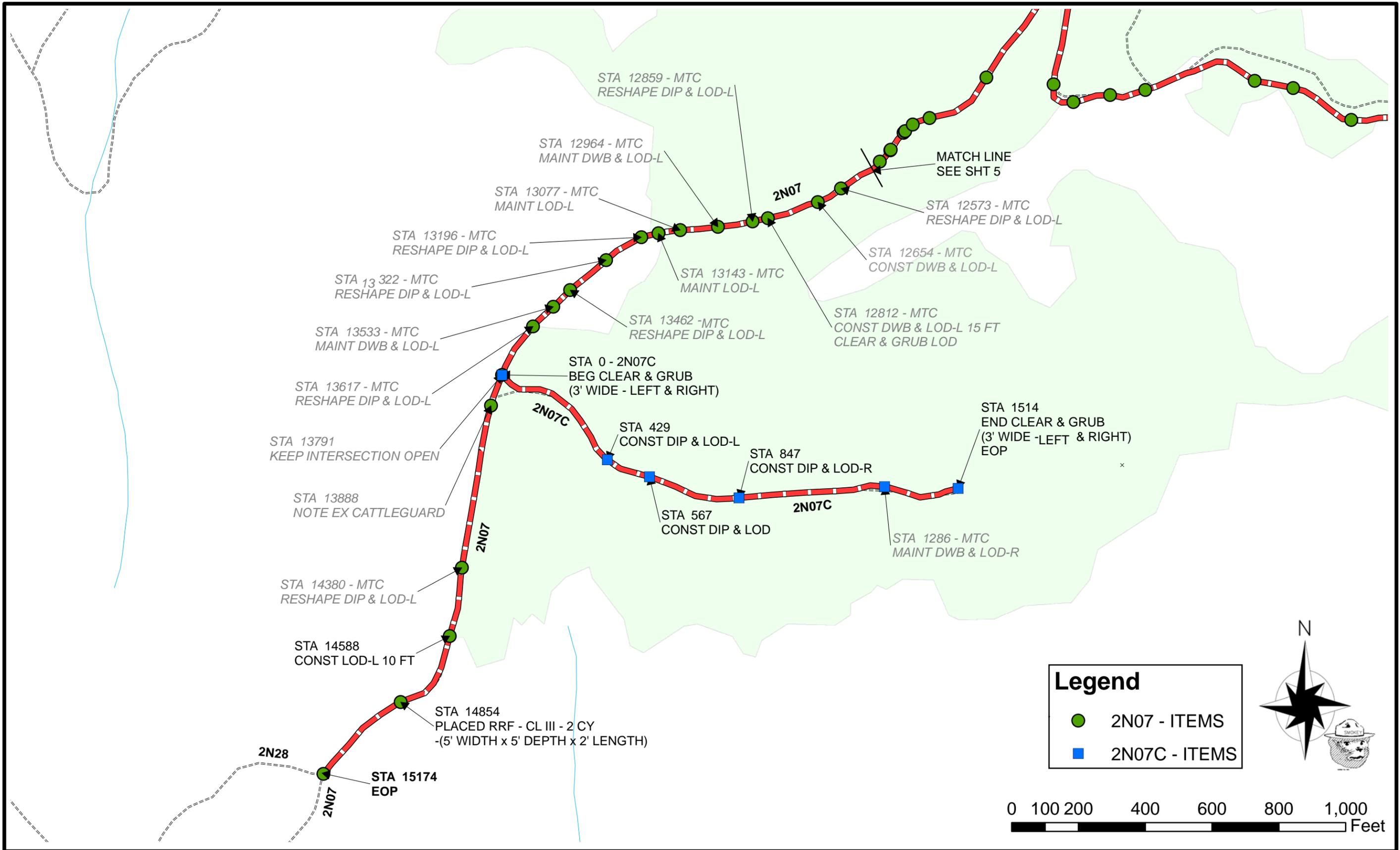
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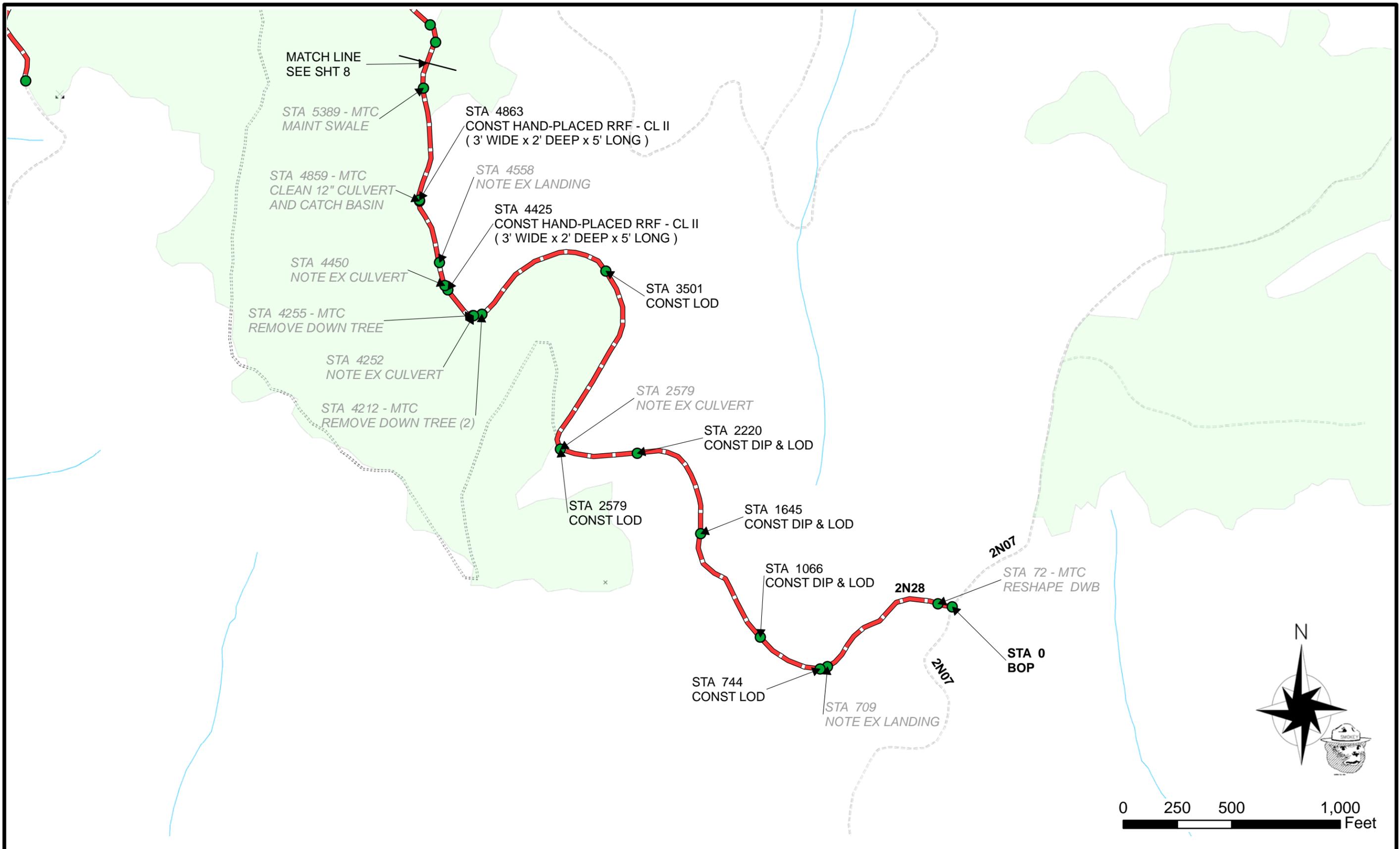
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- 2N07 - ITEMS
- 2N07C - ITEMS



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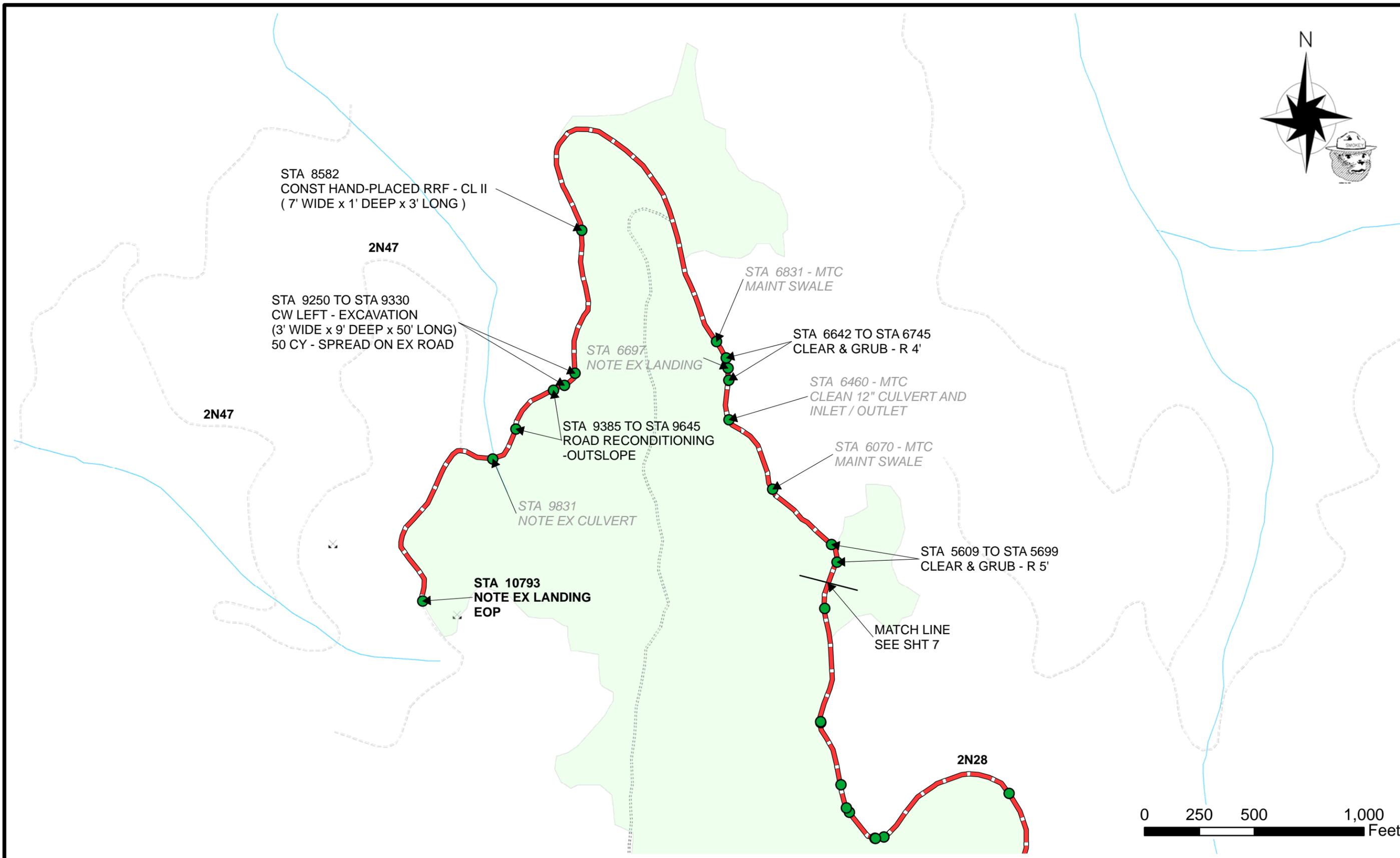
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LOW (MP) TIMBER SALE

SHEET TITLE
ROAD 2N28 - 1 OF 2
SCALE SEE BARSCALE

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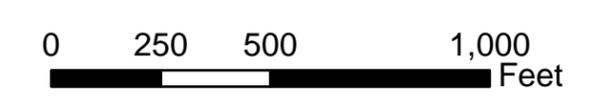
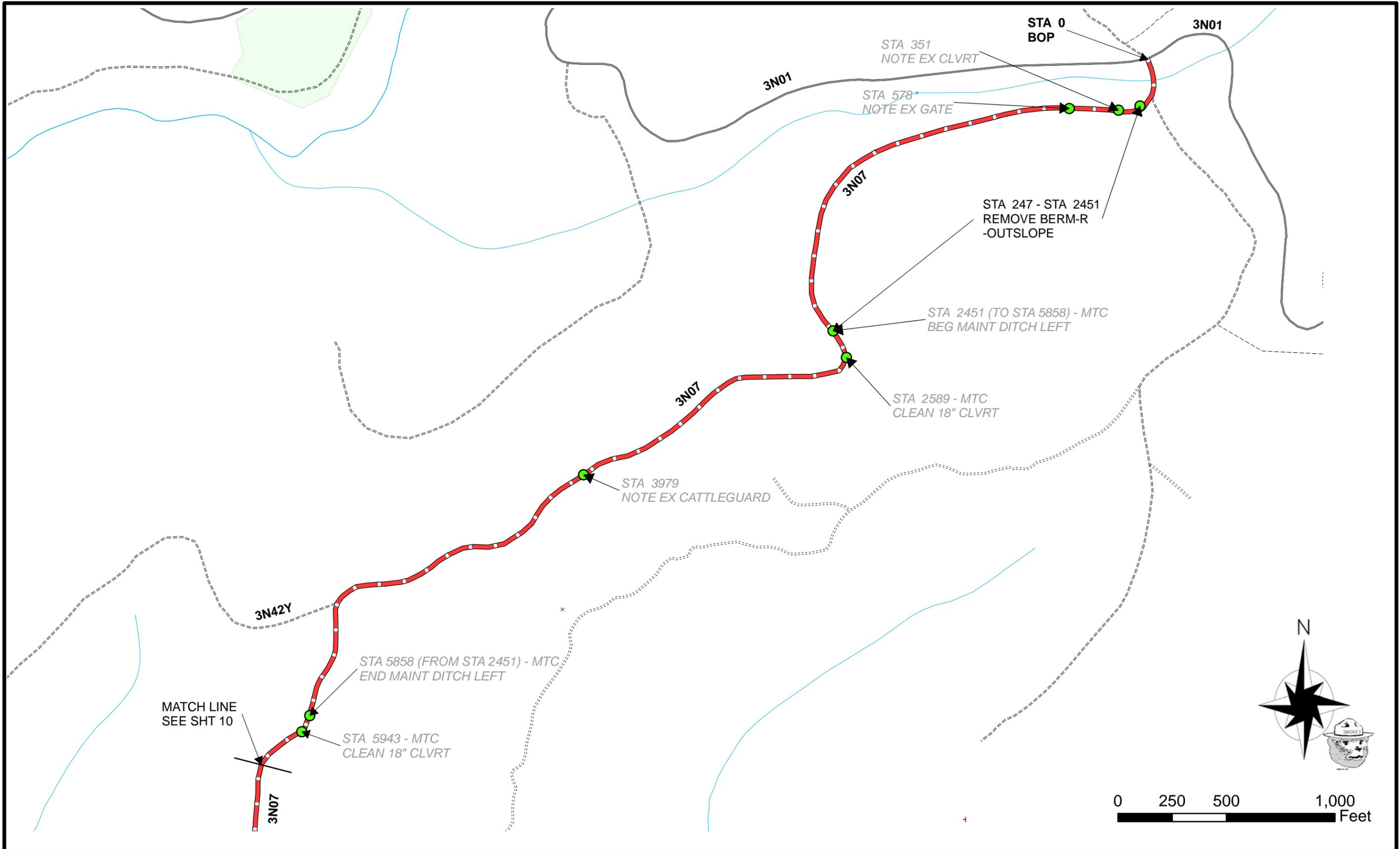
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SHEET TITLE
ROAD 2N28 - 2 OF 2
 SCALE SEE BARSCALE

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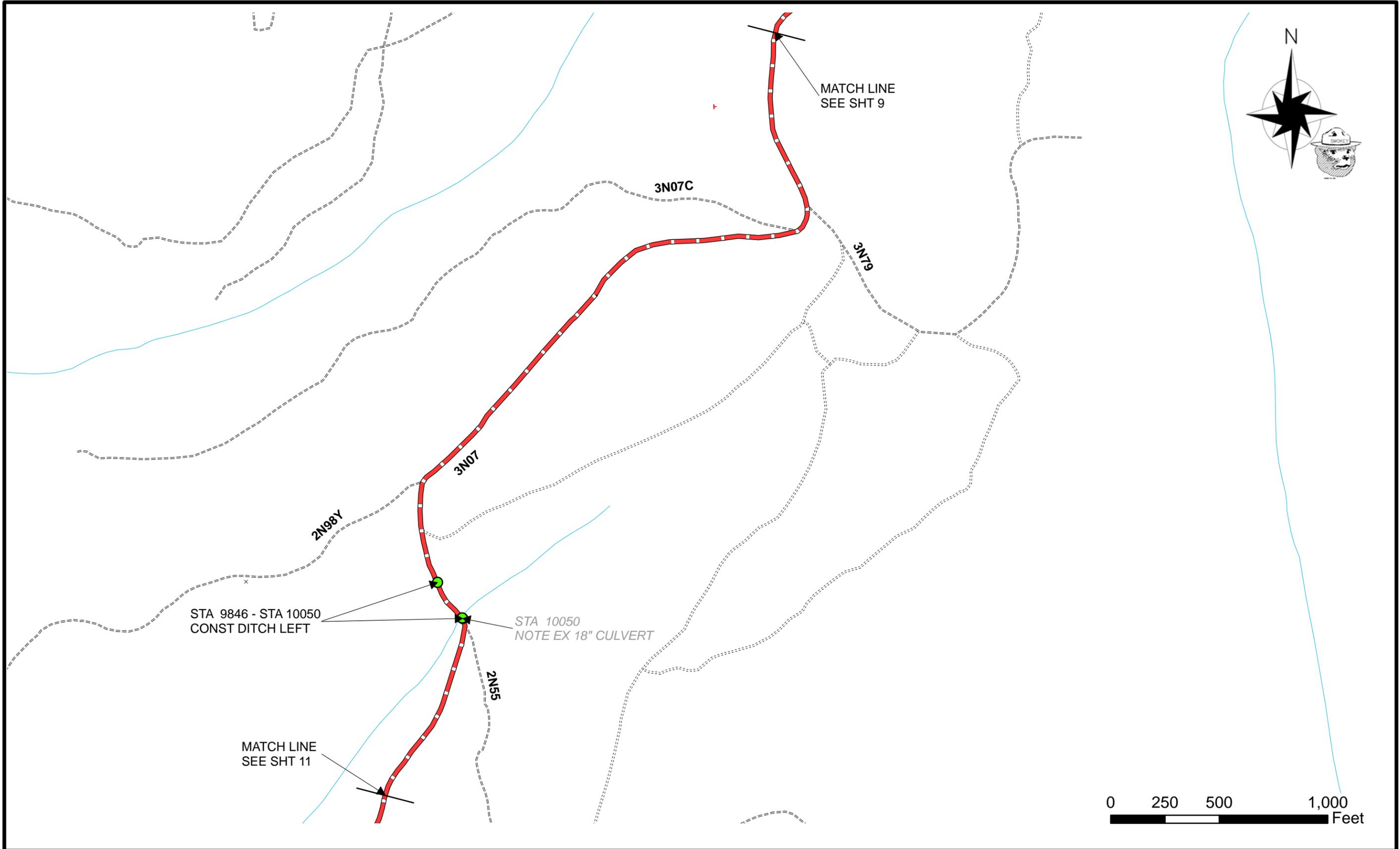
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FOREST
STANISLAUS
 PROJECT NAME
LOW (MP) TIMBER SALE

SHEET TITLE
ROAD 3N07 - 1 OF 5
 SCALE SEE BARSCALE

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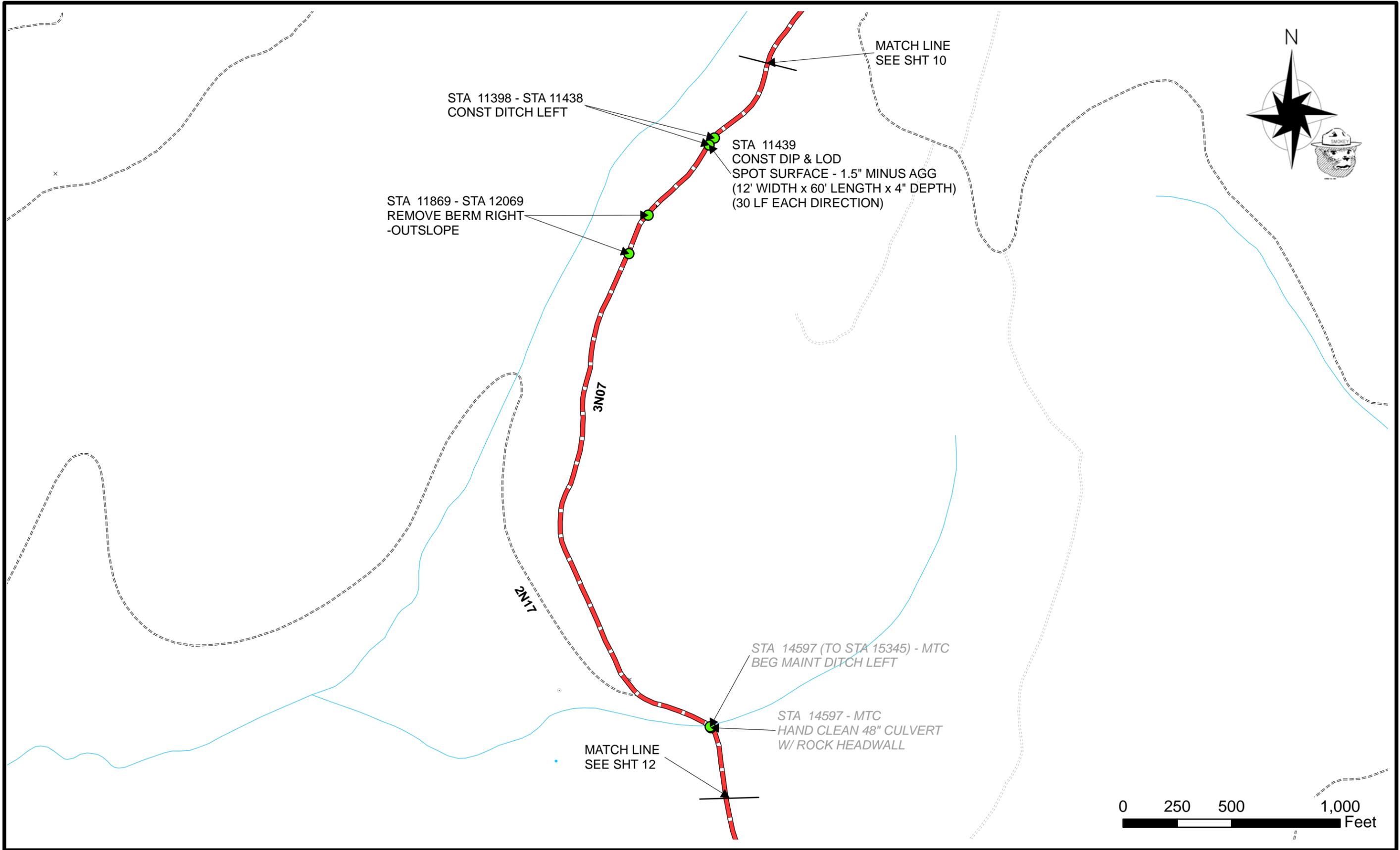
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PROJECT NAME	LOW (MP) TIMBER SALE

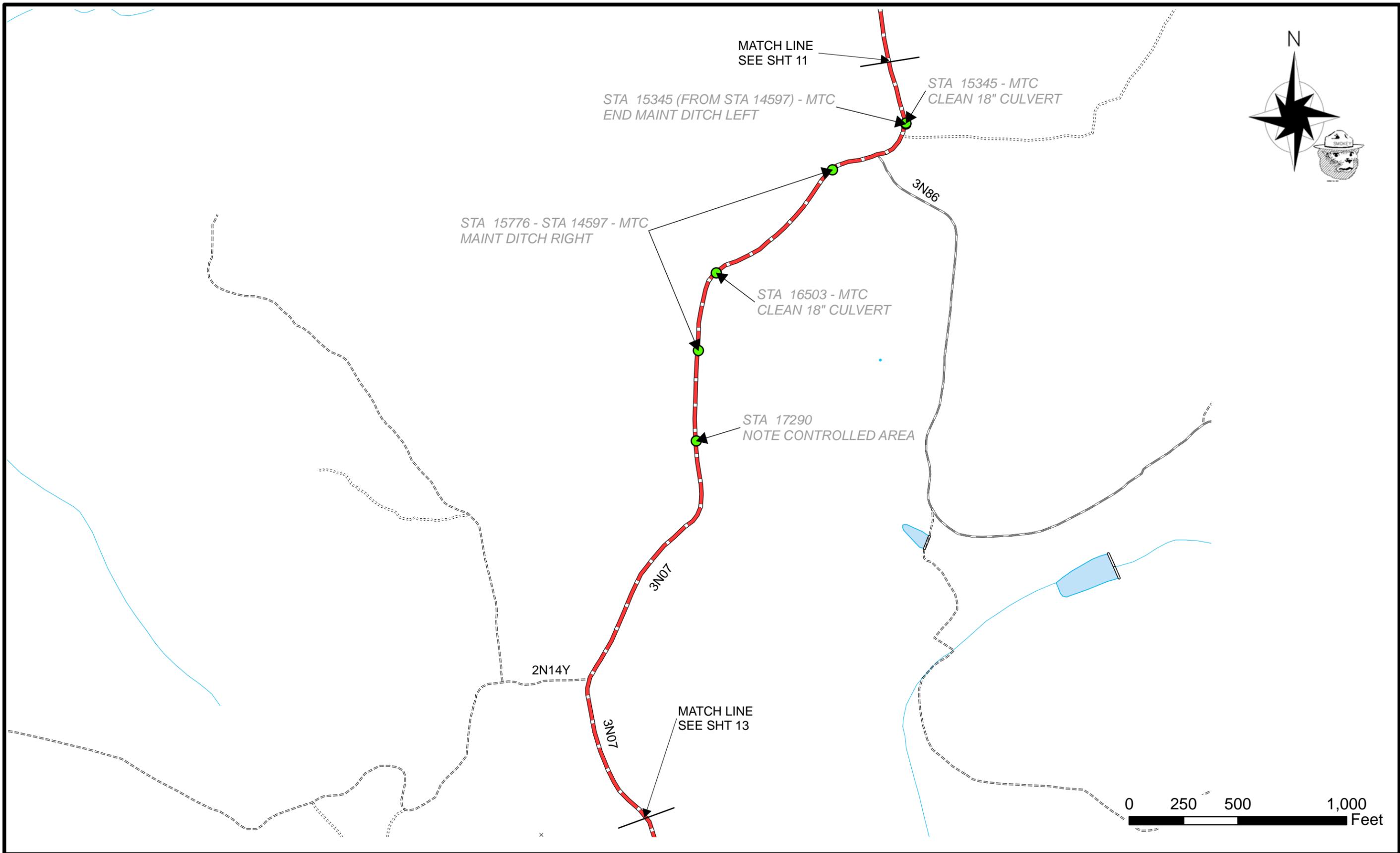
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SCALE	SEE BARSCALE

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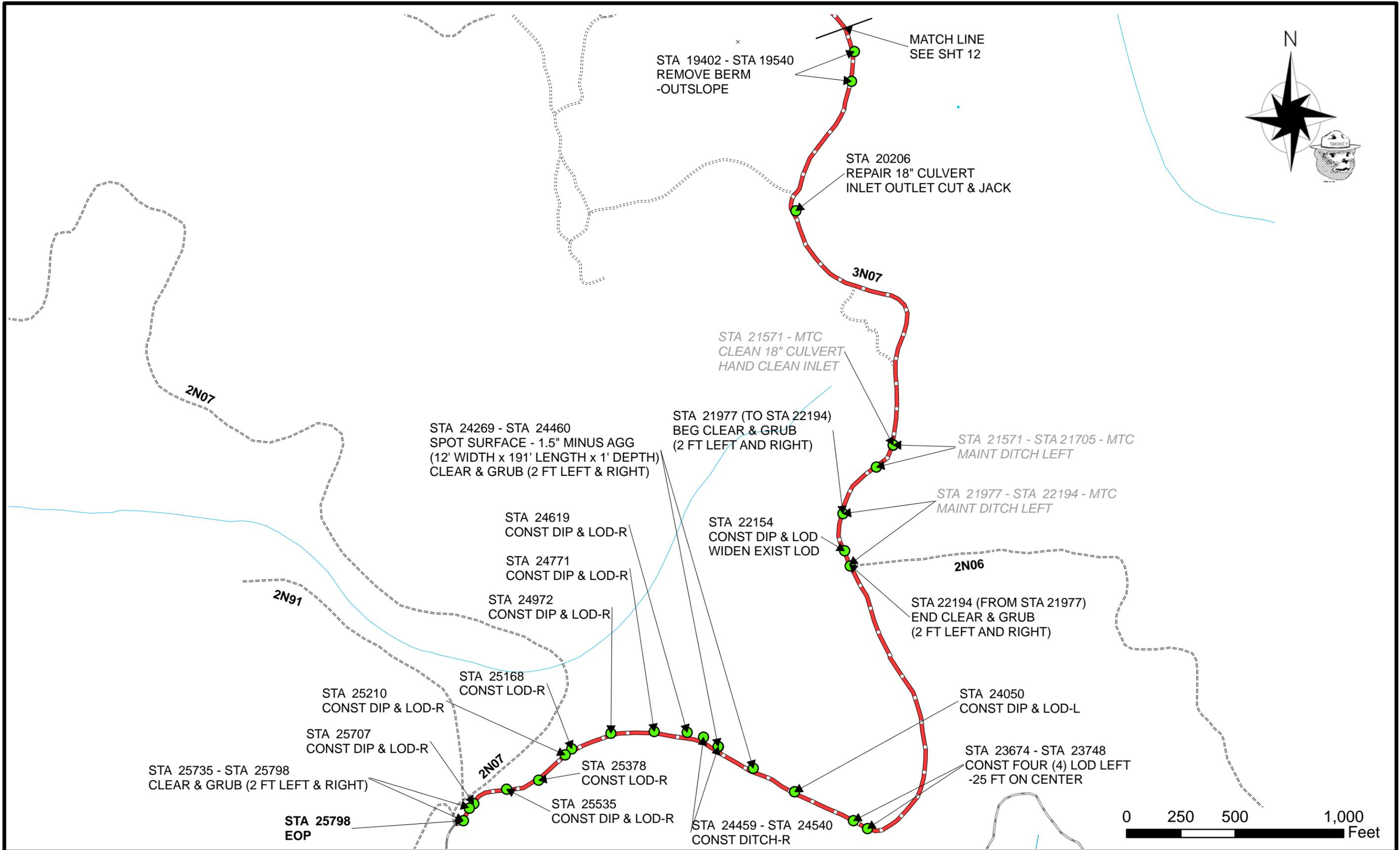
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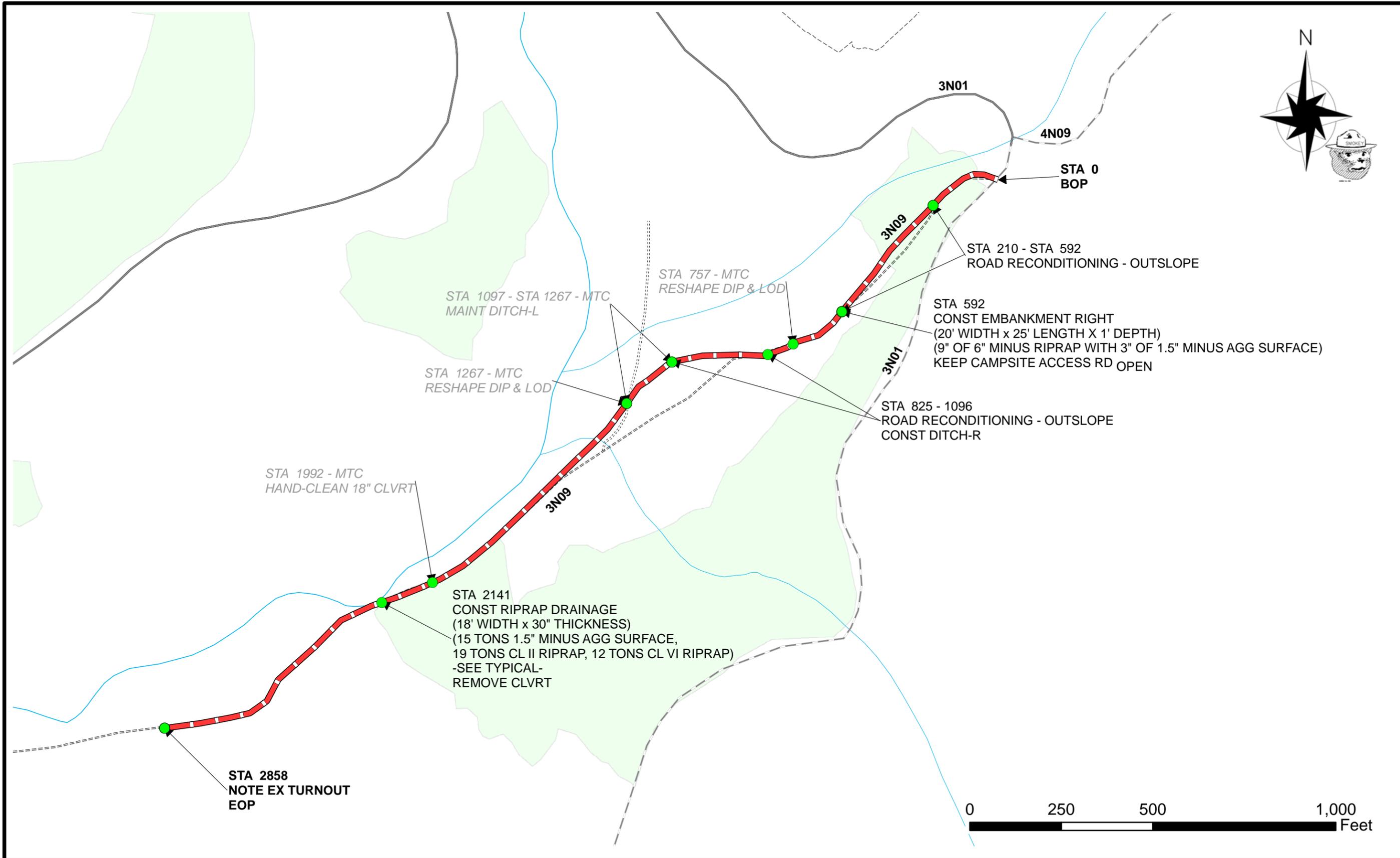
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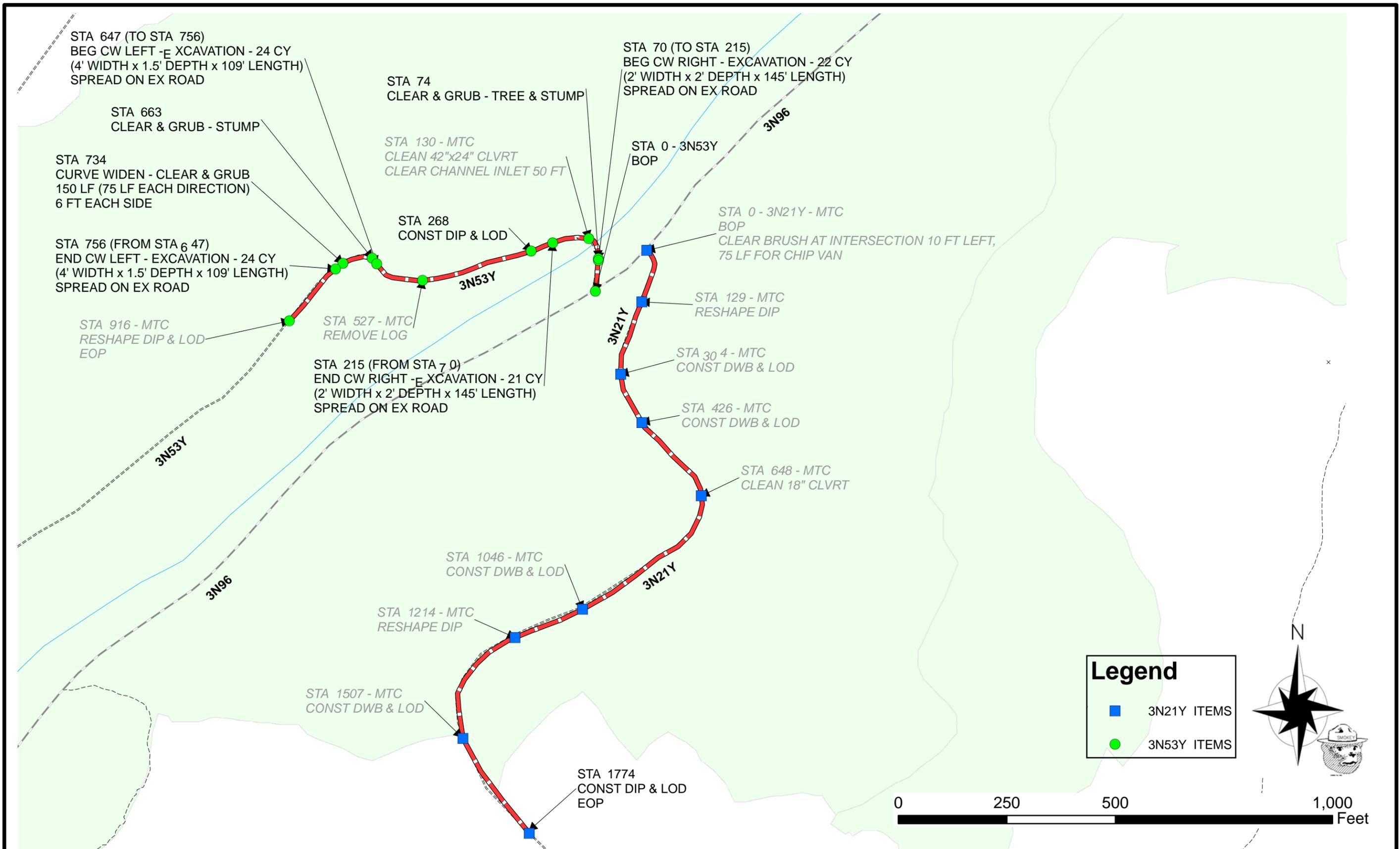
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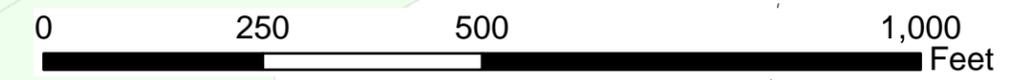
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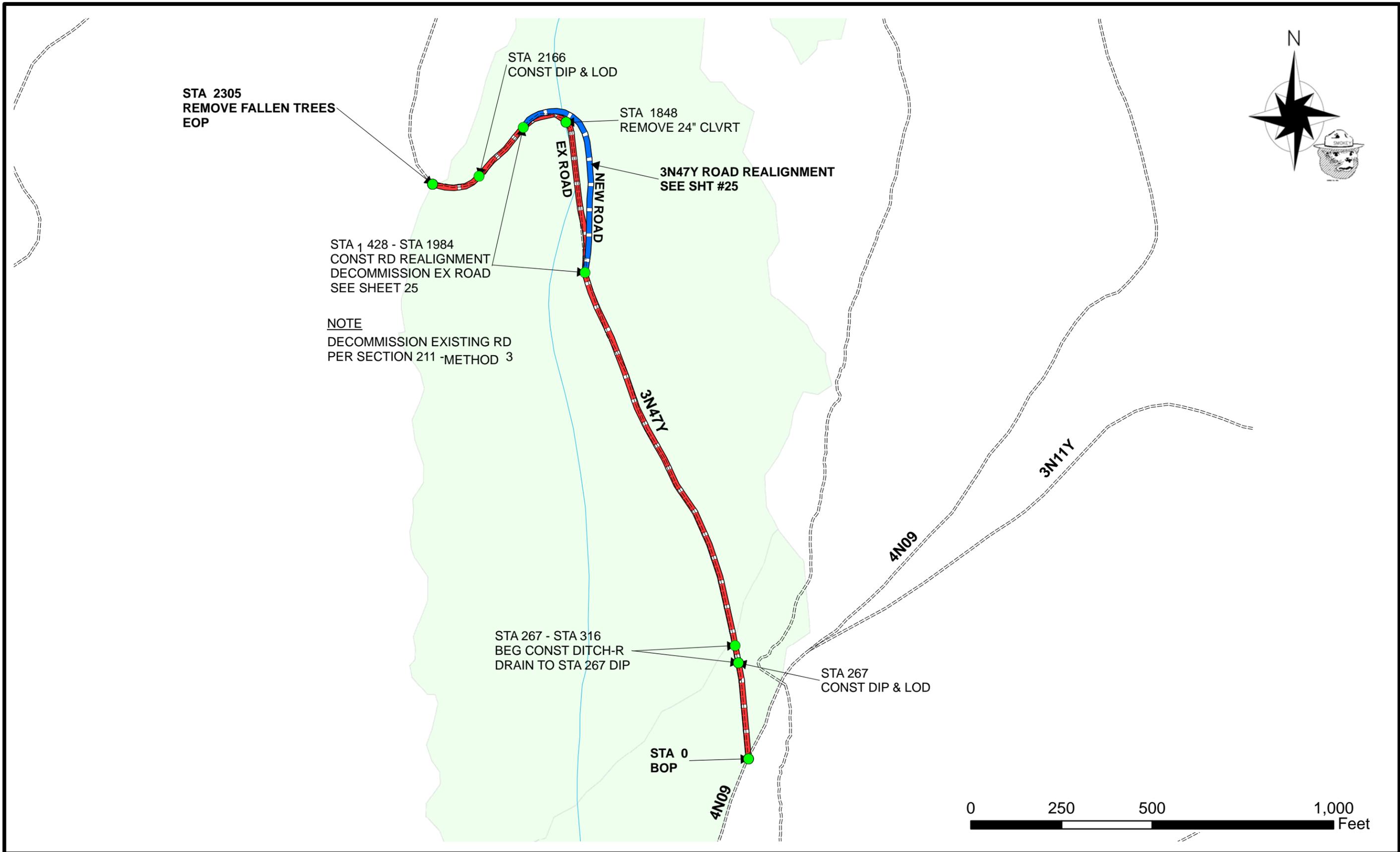
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- 3N21Y ITEMS
- 3N53Y ITEMS



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PACIFIC SOUTHWEST REGION

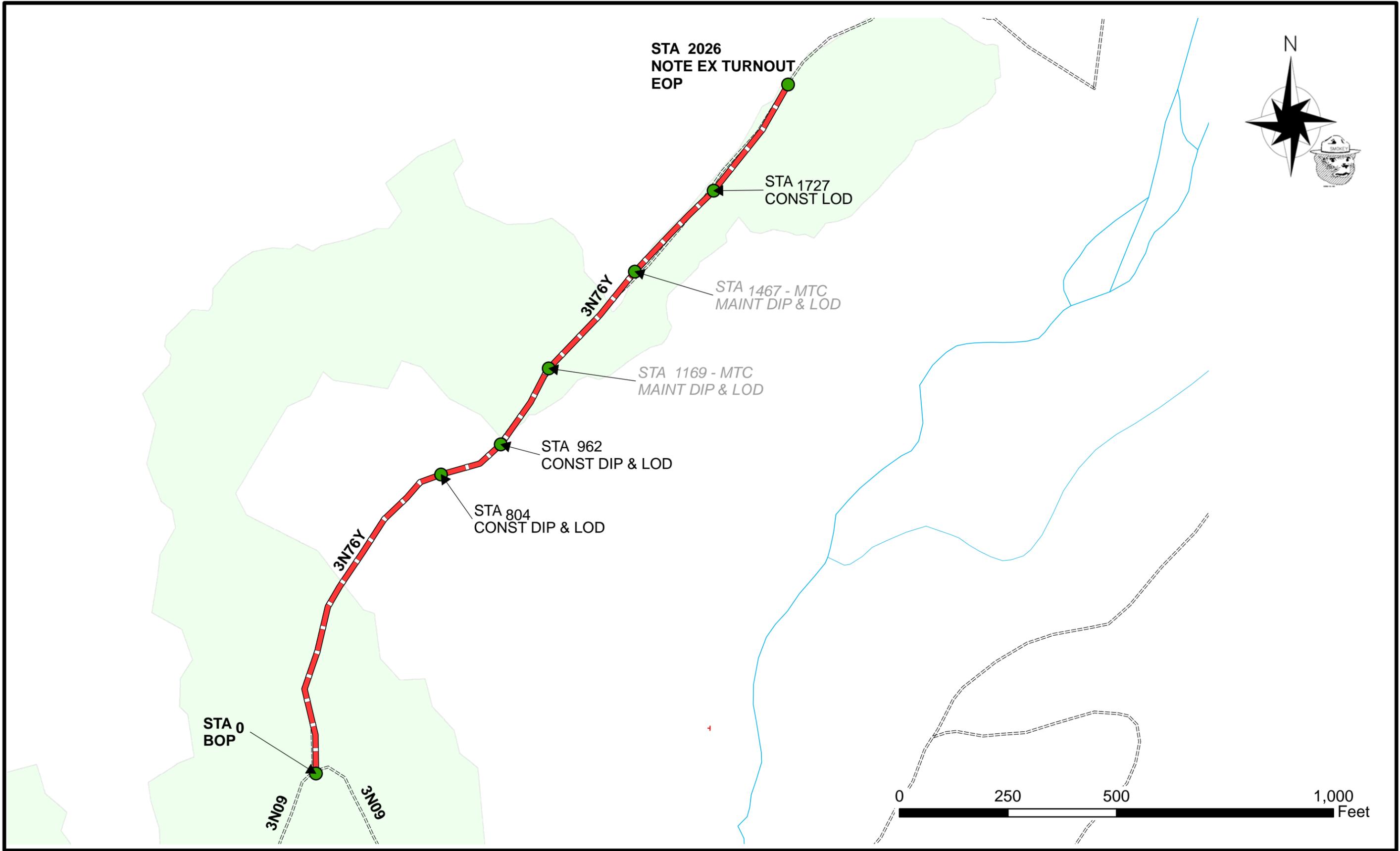
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LOW (MP) TIMBER SALE

SHEET TITLE
ROAD 3N47Y
 SCALE SEE BARSCALE

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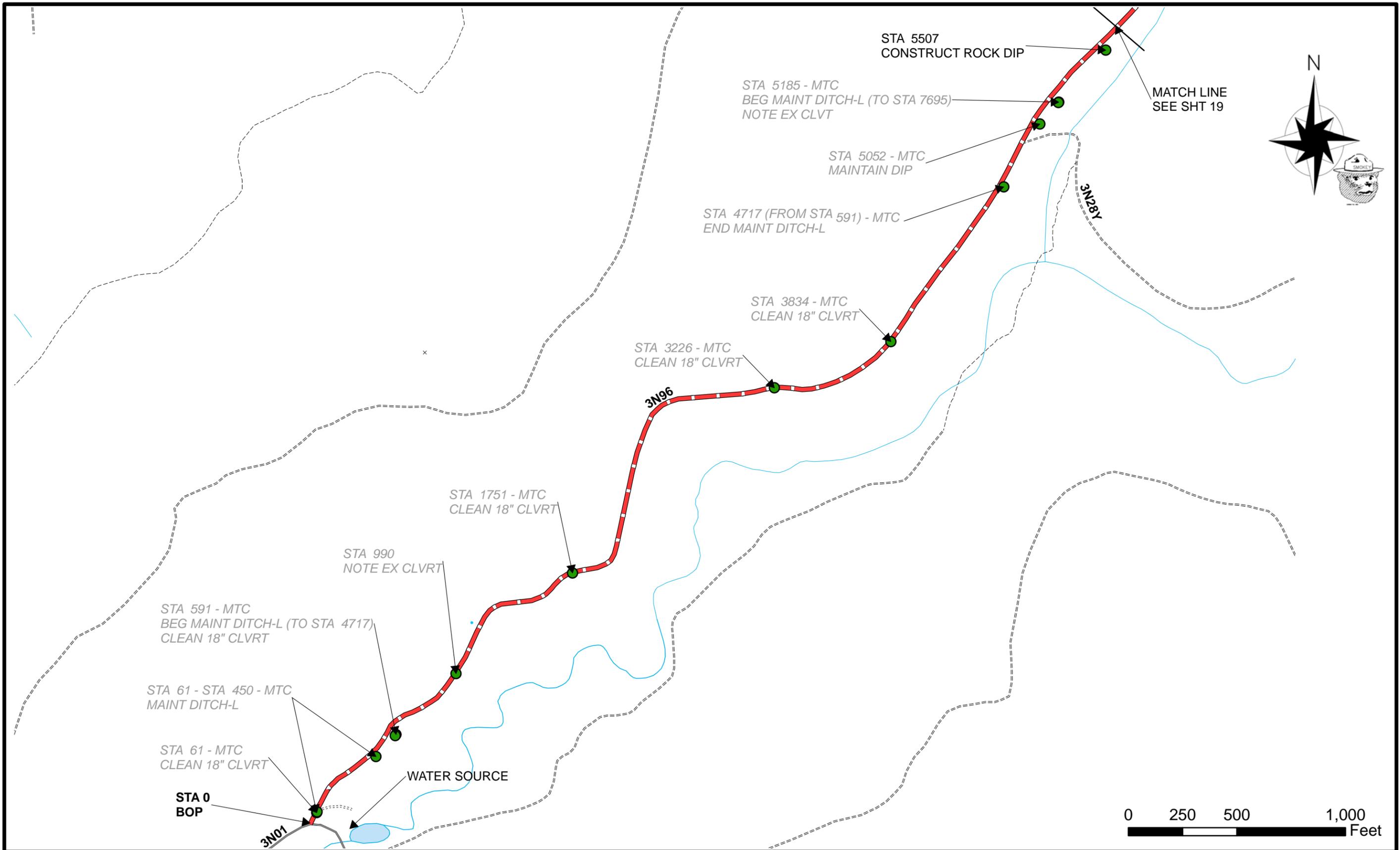
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SHEET TITLE
ROAD 3N76Y
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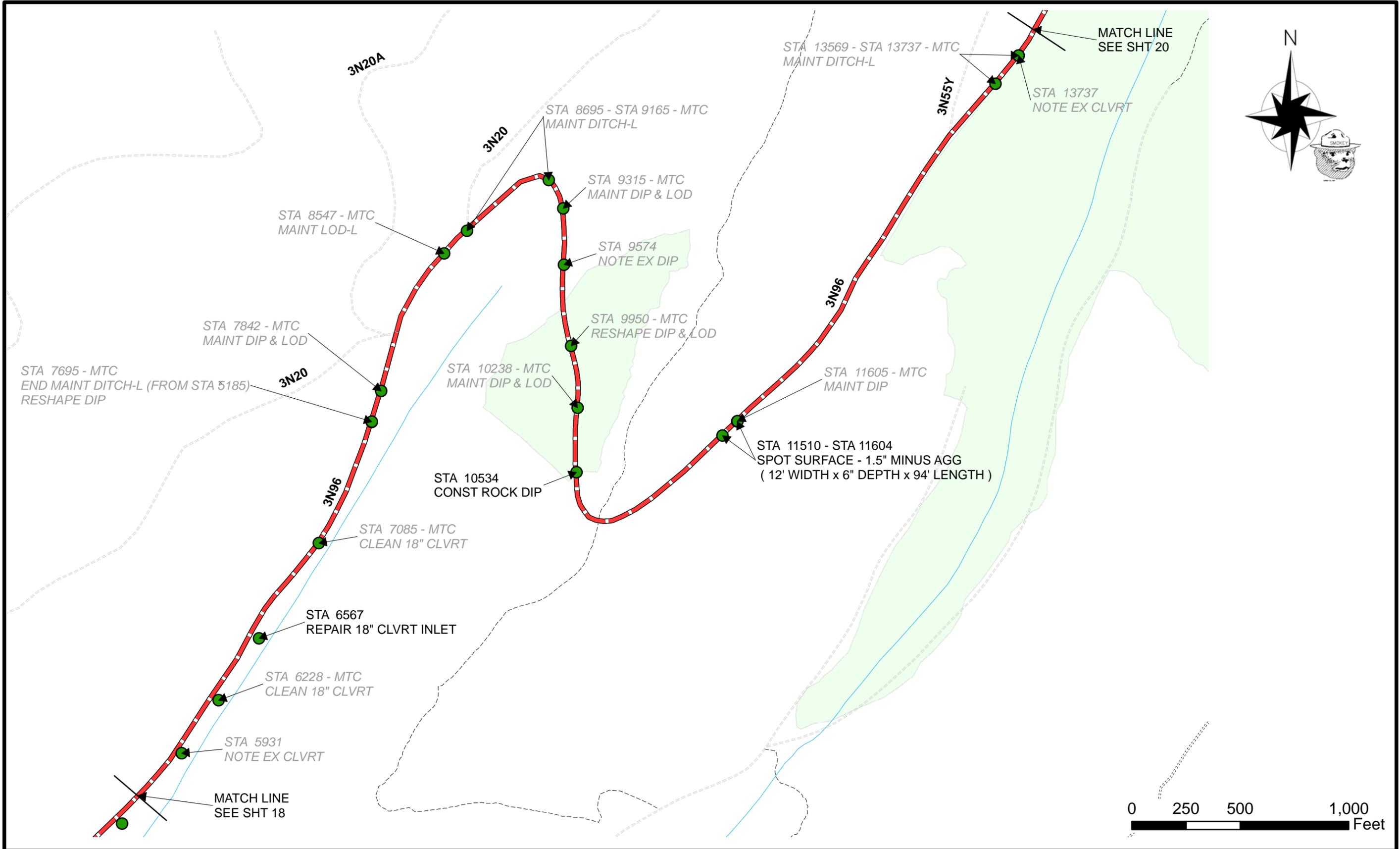
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SHEET TITLE
ROAD 3N96 - 1 OF 5
SCALE SEE BARSCALE

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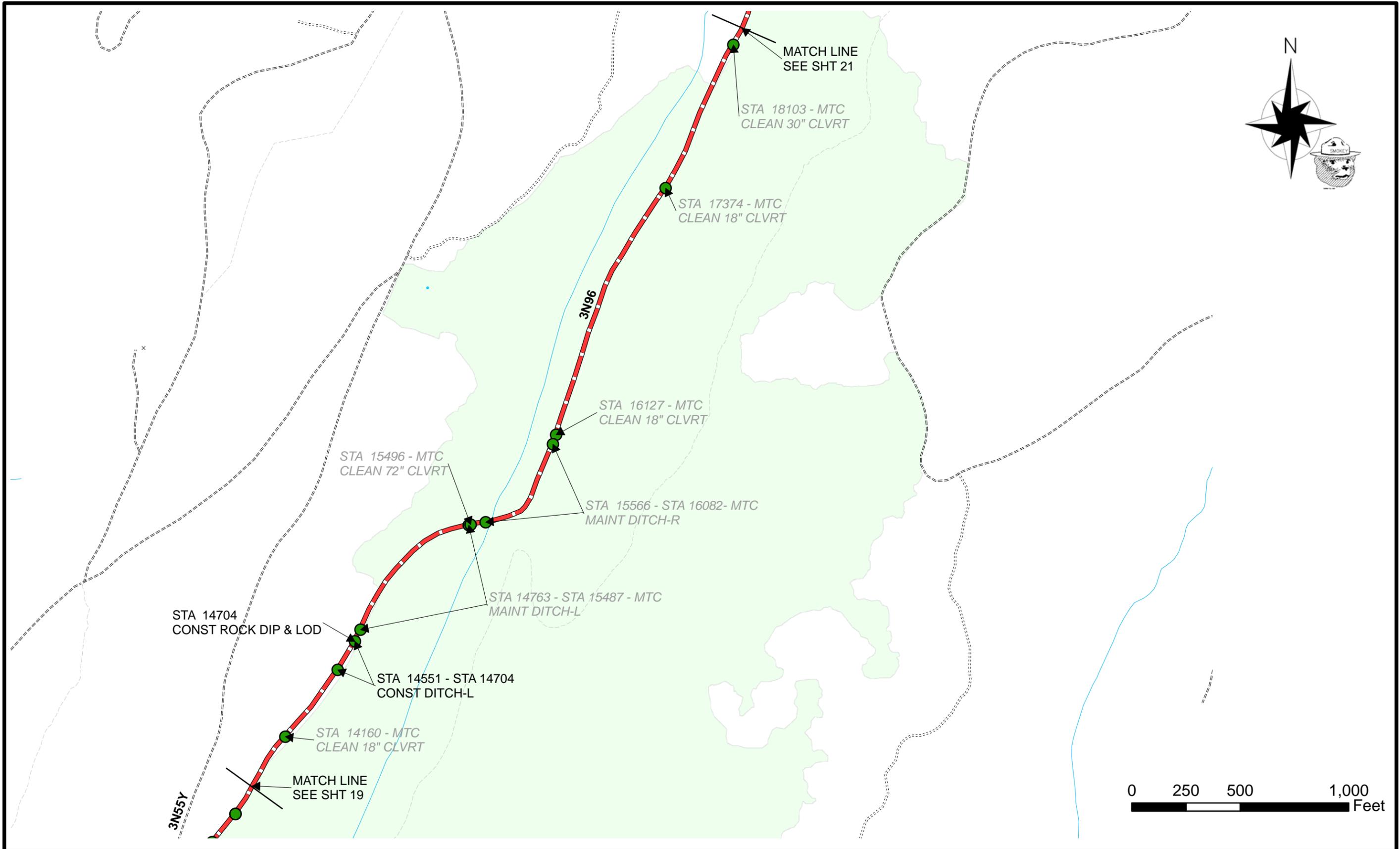
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SHEET TITLE
ROAD 3N96 - 2 OF 5
 SCALE SEE BARSCALE

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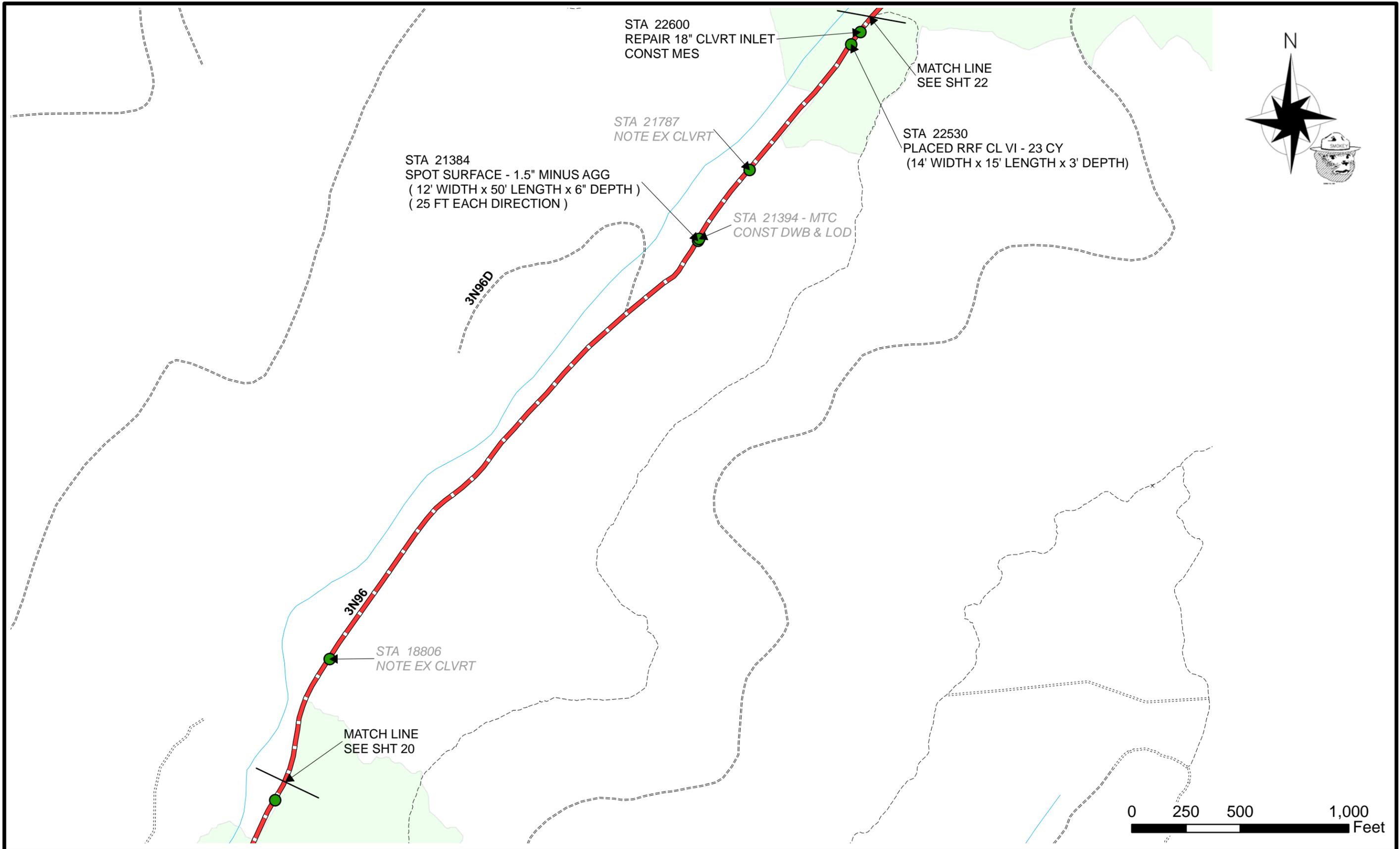
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SHEET TITLE
ROAD 3N96 - 3 OF 5
SCALE SEE BARSCALE

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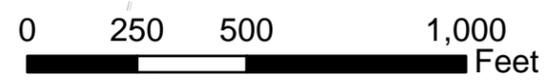
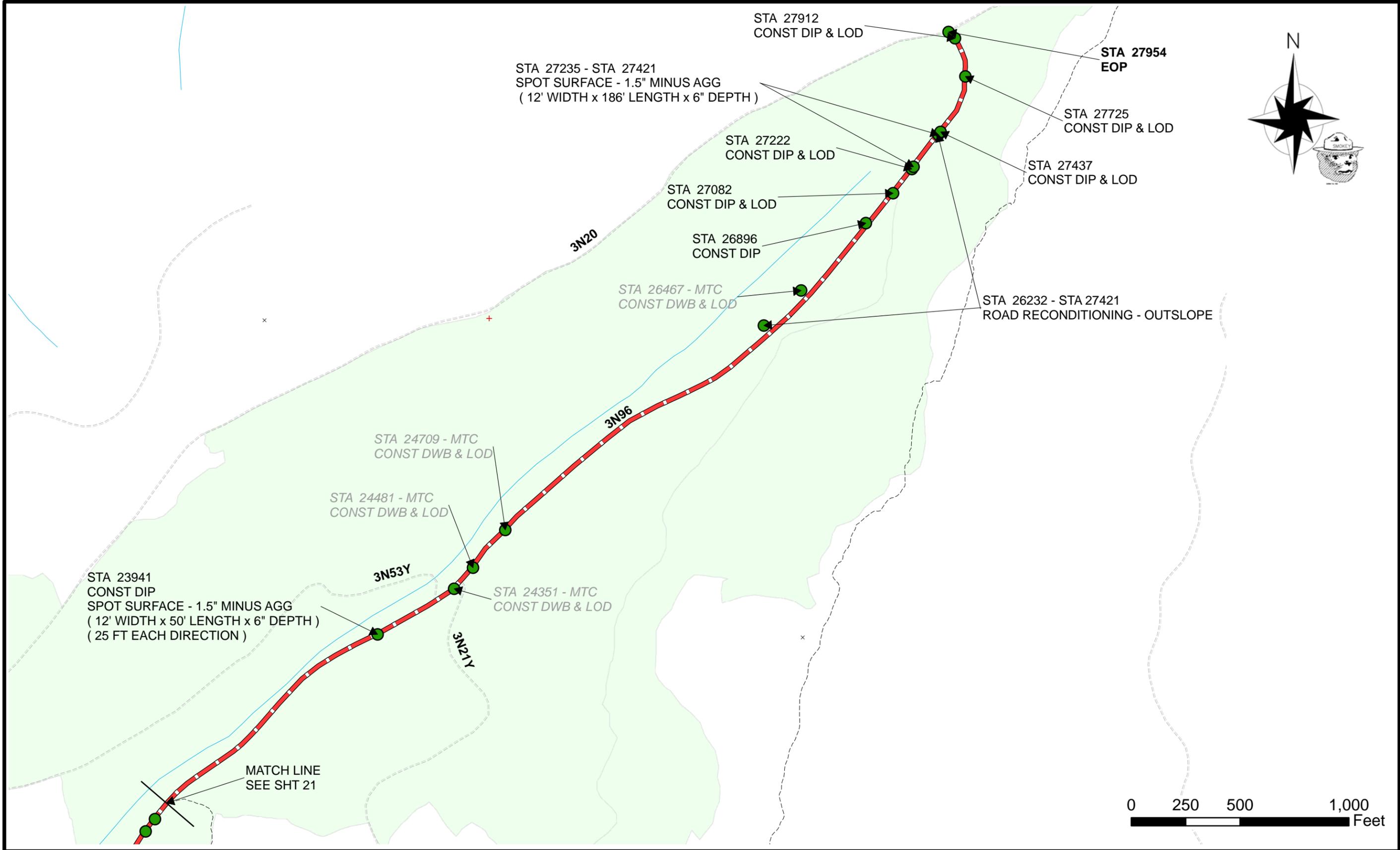
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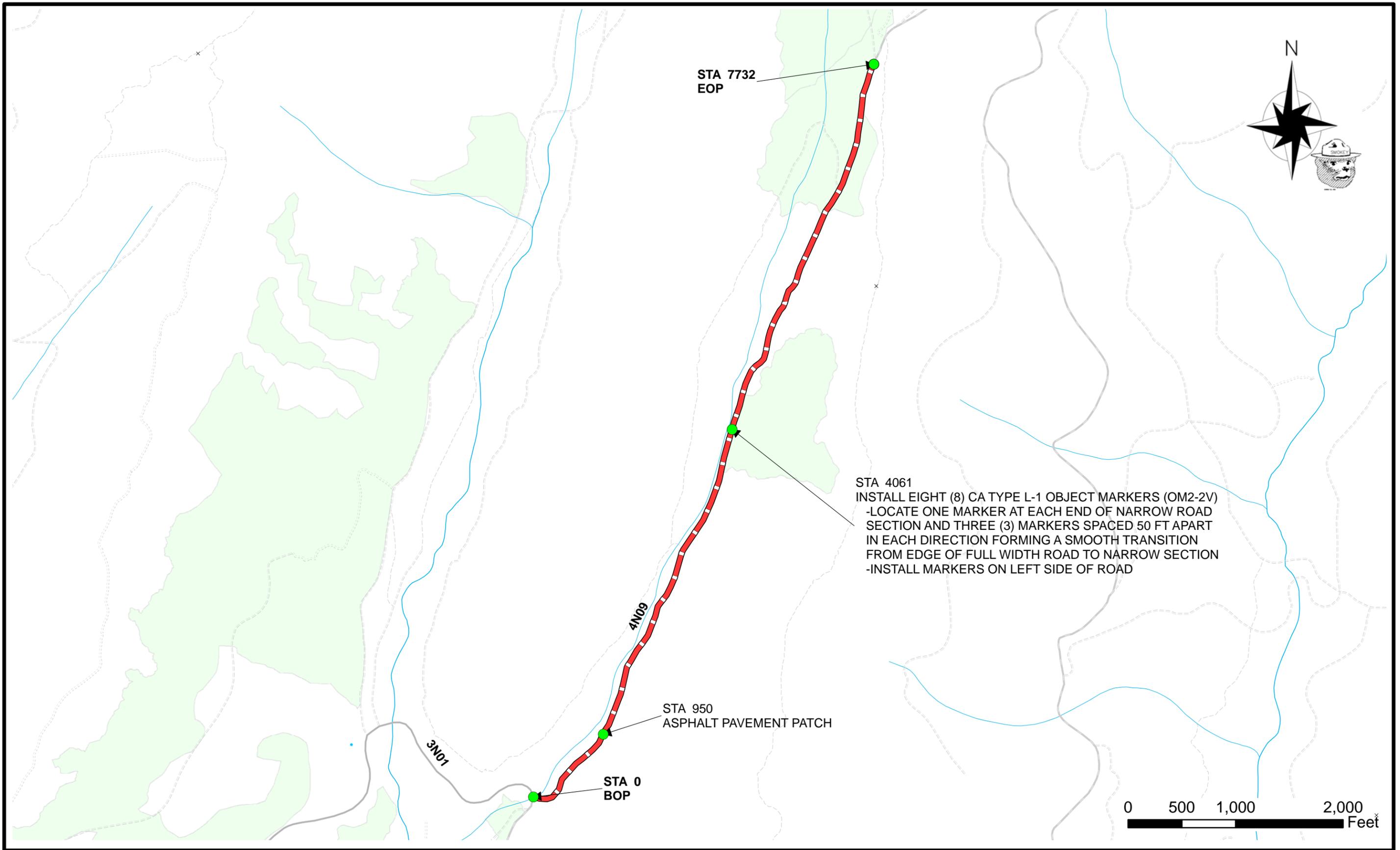
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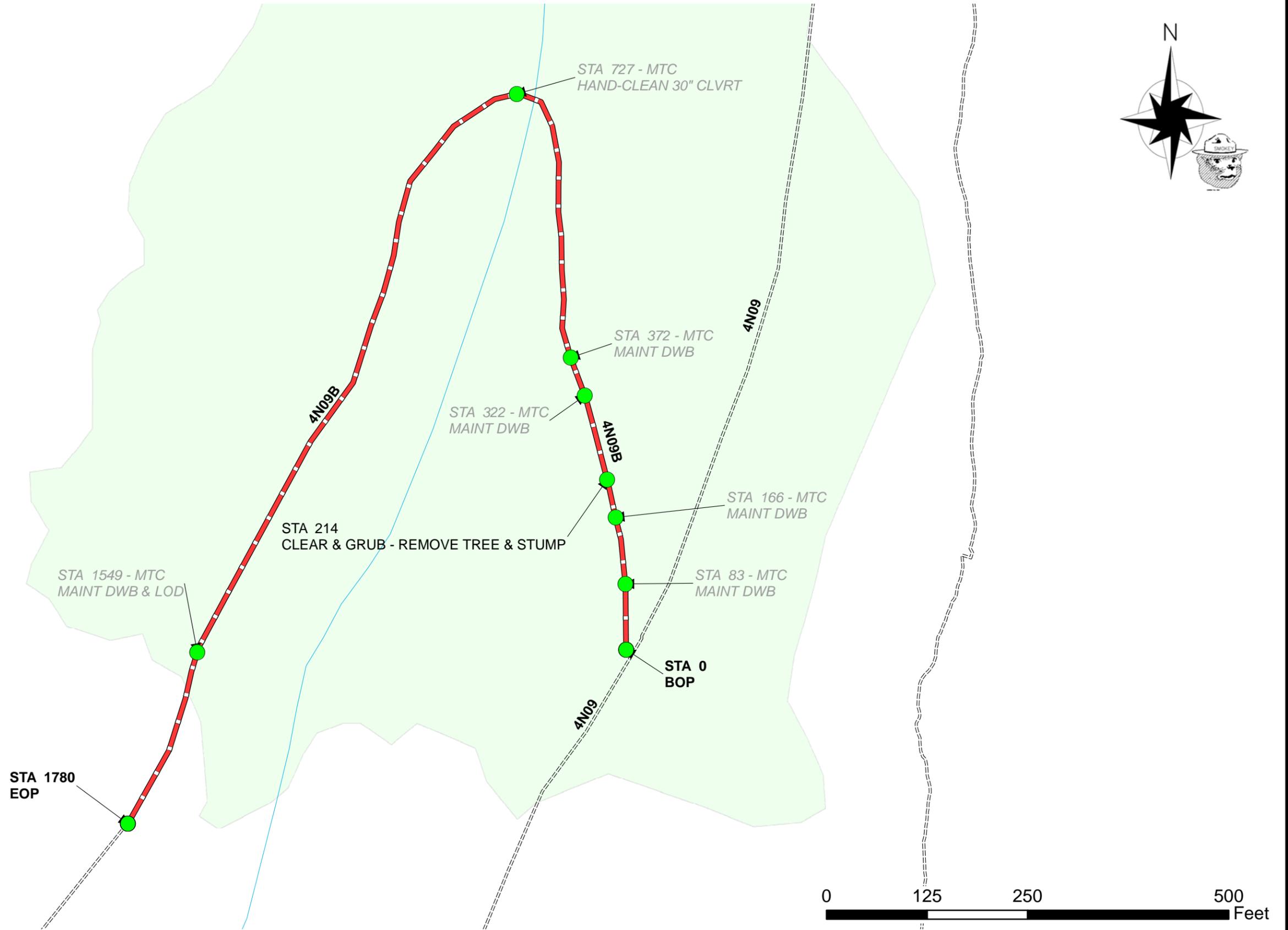
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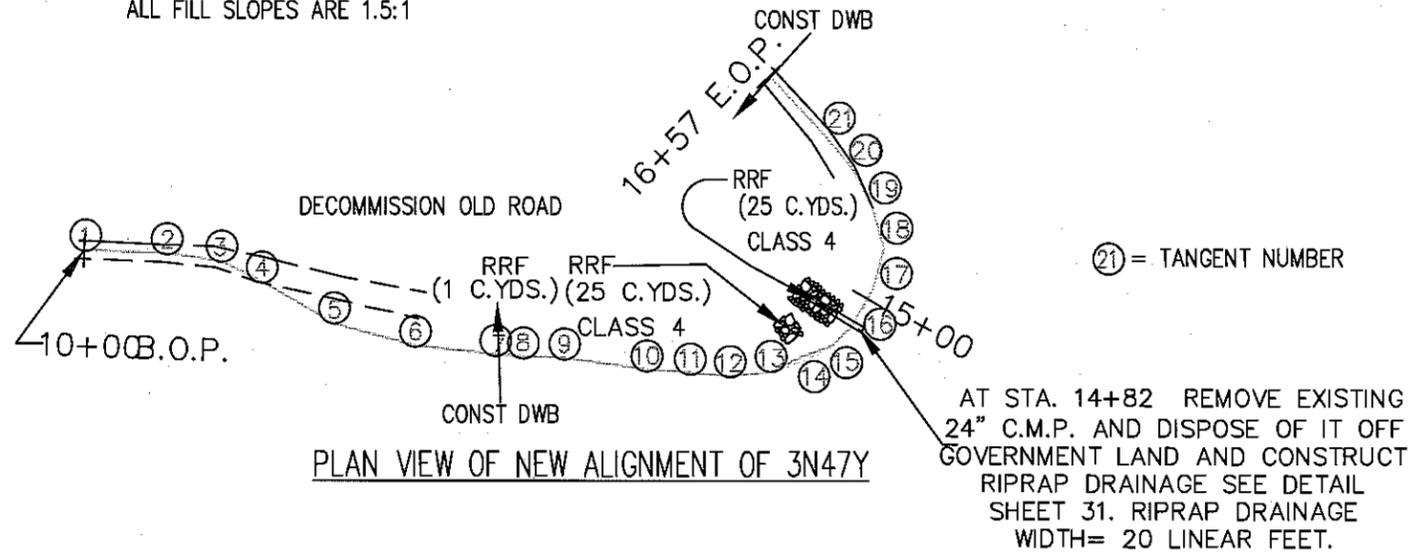
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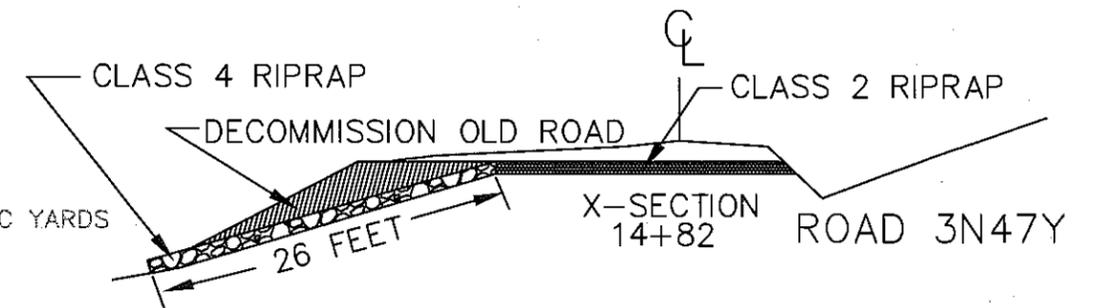
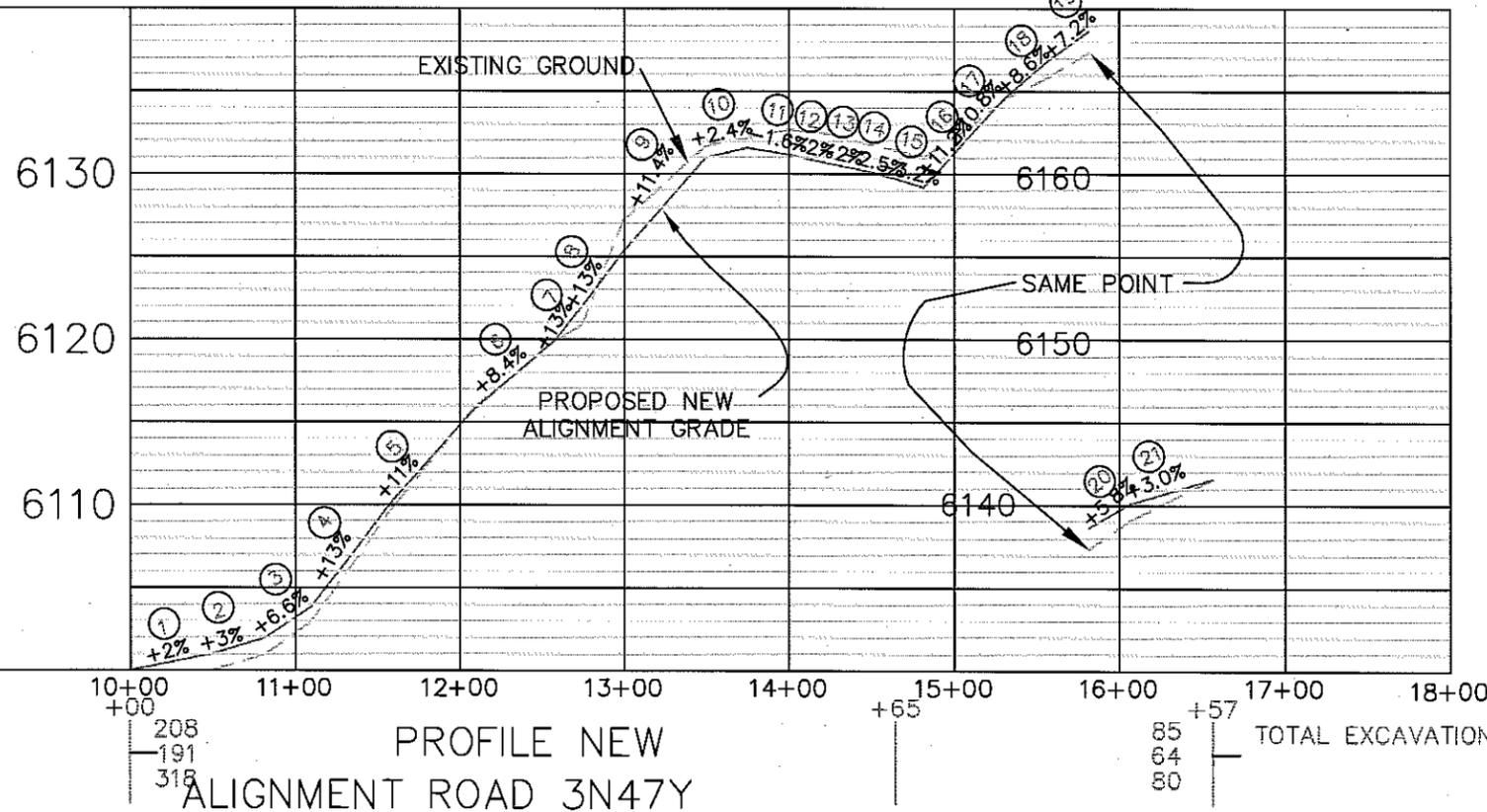
NO.	REVISIONS	DATE	BY

NOTE:
ALL CUT SLOPES ARE 3/4:1
ALL FILL SLOPES ARE 1.5:1



TANGENT INDEX

TANGENT NO.	BEARING	STATION= DISTANCE	CLEARING
1	N8°00'00"W	10+00-10+50=50'	21.32'
2	N2°00'00"W	10+50-10+82=32'	22.18'
3	N16°00'00"E	10+82-11+10=28'	22.0'
4	N20°00'00"E	11+10-11+60=50'	24.40'
5	N5°00'00"E	11+60-12+10=50'	24.44'
6	N4°00'00"W	12+10-12+60=50'	27.85'
7	N6°00'00"W	12+60-12+75=15'	28.84'
8	N8°00'00"W	12+75-13+00=25'	23.74'
9	N2°00'00"W	13+00-13+50=50'	24.21'
10	N6°00'00"W	13+50-13+75=25'	20.76'
11	N4°00'00"W	13+75-14+00=25'	20.74'
12	N 17°00'00"W	14+00-14+25=25'	24.14'
13	N36°00'00"W	14+25-14+45=20'	26.78'
14	N30°00'00"W	14+45-14+65=20'	28.27'
15	N55°00'00"W	14+65-14+82=17'	28.23'
16	N71°00'00"W	14+82-15+07=25'	37.00'
17	N85°00'00"W	15+07-15+32=25'	24.93'
18	S65°00'00"W	15+32-15+57=25'	25.94'
19	S54°00'00"W	15+57-15+82=25'	26.13'
20	S39°00'00"W	15+82-16+07=25'	23.93'
21	S37°00'00"W	16+07-16+57E.O.P.=50'	20.38'



U.S. DEPARTMENT OF AGRICULTURE
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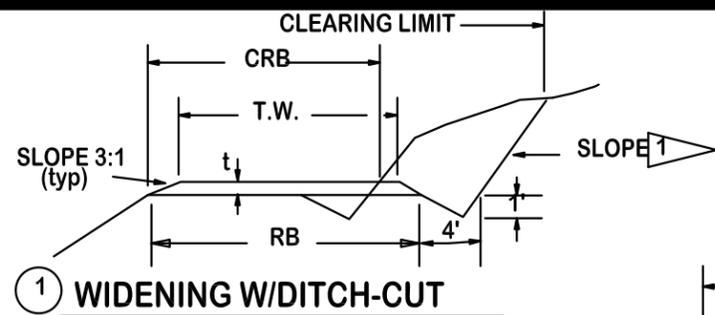
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Designed E. SCHAFER & M. SCHAFER
Reviewed
Approved

Revisions			
NO.	DESCRIPTION	DATE	BY

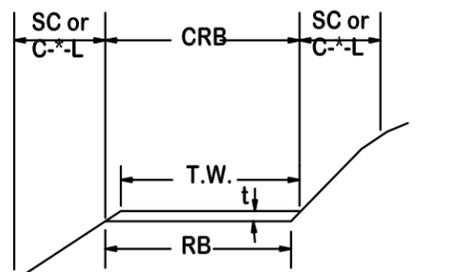
Forest
STANISLAUS
Project Name
LOW (MP) TIMBER SALE

Sheet Title
REALIGNMENT SEGMENT OF 3N47Y
AND LOW WATER CROSSING.
Scale
BAR SCALE

Sheet
25
of 33

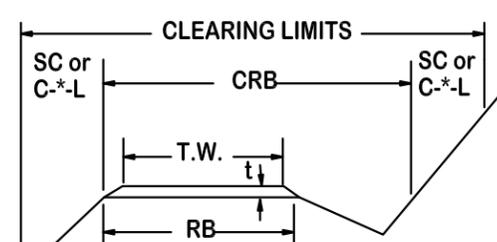


1 WIDENING W/DITCH-CUT

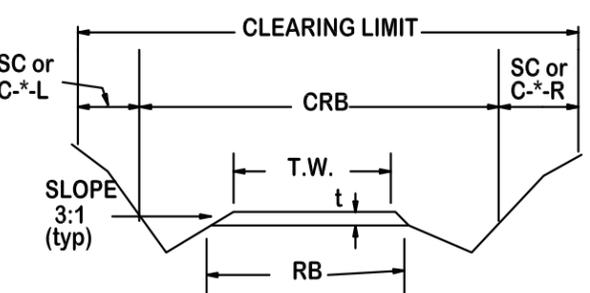


2 WIDENING W/O DITCH-CUT

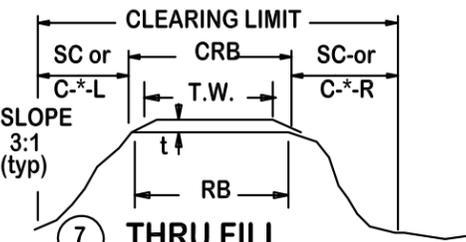
4 BALANCED W/O DITCH



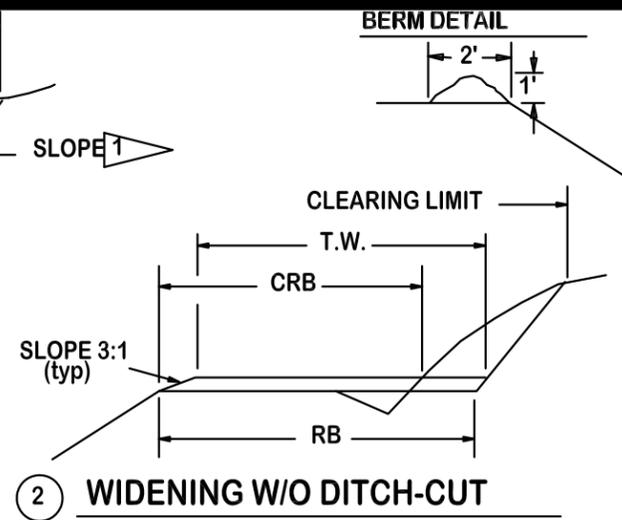
5 BALANCED W/DITCH



6 THRU CUT

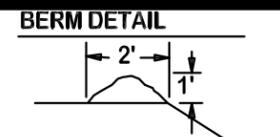


7 THRU FILL



3 WIDENING EMBANKMENT

- 7 TOLERANCE CLASS
- 6 BASE OR SURFACE COURSE DEPTH, SEE DRAWINGS FOR (t) COURSE DEPTH.
- 5 EXISTING WIDTH UNLESS DRAWINGS SHOW OTHERWISE
- 4 SEE DRAWINGS FOR CURVE WIDENING LOCATIONS.
- 3 1. "L" SHALL ACCOMODATE THE COMPACTING EQUIPMENT
2. "L" MAY BE WIDENED BY END DUMPING IN ORDER TO ACCOMODATE COMPACTING EQUIPMENT. THE REMAINDER OF THE EMBANKMENT SHALL BE PLACED AS SPECIFIED.
3. PRIOR TO END DUMPING, SCARIFY THE ORIGINAL GROUND.
- 2 FILL SLOPE - ROCK COMMON 1 1/3:1
COMMON 1 1/2:1 } OR MATCH EXISTING SLOPE:
- 1 CUT SLOPE - SOLID ROCK 1/4:1
LOOSE ROCK 1/2:1
COMMON 1 1/2:1 } CONSTRUCT AS STAKED



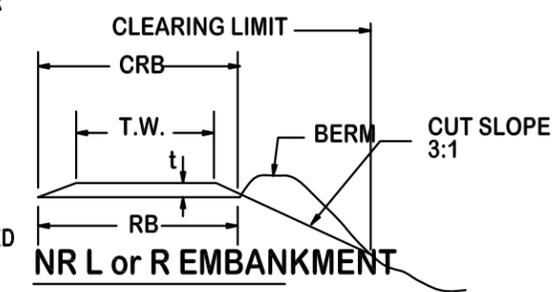
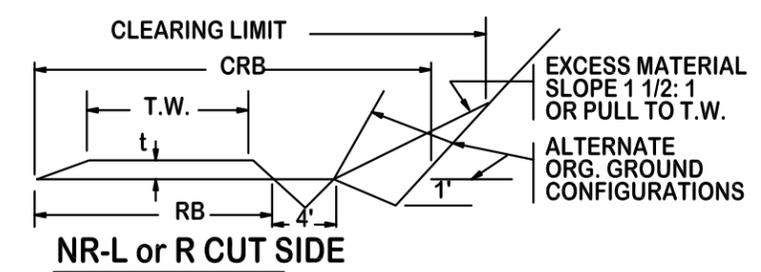
ABBREVIATIONS:
 T.C.= TOLERANCE CLASS
 t= COURSE DEPTH
 T.W.= TRAVELED WAY
 R.B.= ROADBED
 CRB= CLEAR EXISTING ROADBED AND DITCHES
 No.=NUMBER
 SC= SELECT CLEAR
 L or R= LEFT OR RIGHT
 NR= NARROW ROAD
 L= LAYER
 CW= CURVE WIDEN
 WR= WIDEN ROAD

ROAD TEMPLATE TABLE							
Road No.	R.B.	5	t	6	T.W.	4	REMARKS
2N07	12'				12'		
2N07C	12'				12'		
2N28	12'				12'		
3N07	12'				12'		
3N09	12'				12'		
3N21Y	12'				12'		
3N47Y	12'				12'		
3N53Y	12'				12'		
3N76Y	12'				12'		
3N96	12'				12'		
4N09	12'				12'		
4N09B	12'				12'		

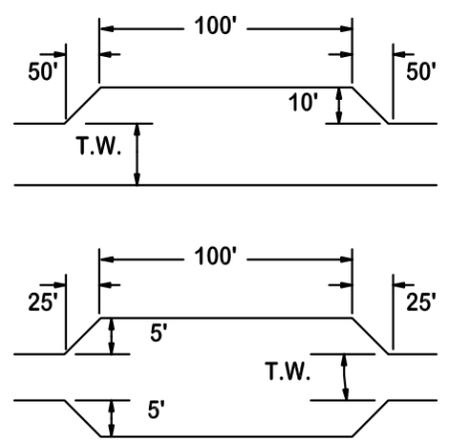
NOTE: All aggregate base is grading 2.
 ROAD WIDENING FOR WR, CW, TURNOUT OR DOUBLE LANE SEE THIS SHEET FOR DETAILS 1 2 3
 EXISTING STANDARD SEE THIS SHEET FOR DETAILS 4 5 6 7

- NOTES:**
- SEE MAINTENANCE DRAWING SHEETS FOR REQUIRED WIDTH.
 - SEE MAINTENANCE TYPICAL SECTIONS FOR BERM, ROADWAY DITCH, AND SLOPE ROUNDING DETAILS.
 - ** OR LENGTH SHOWING ON DRAWINGS.
 - MAINTAIN EXISTING ROAD SLOPE UNLESS SHOWN OTHERWISE.

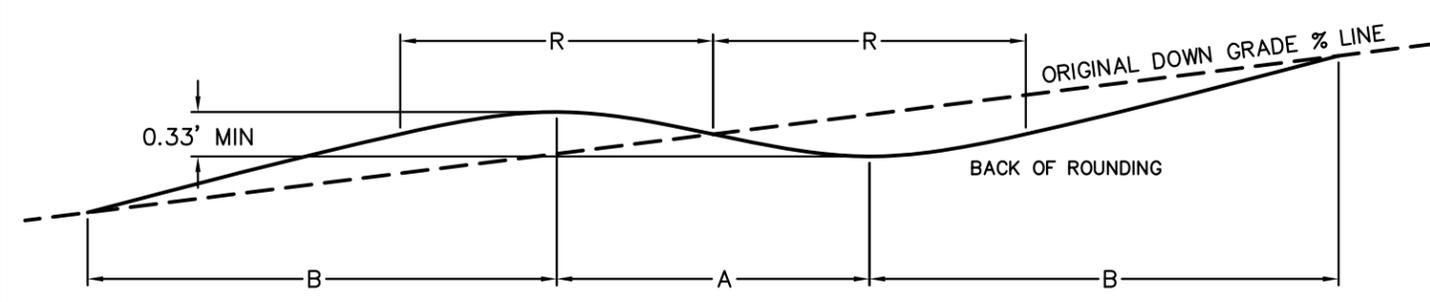
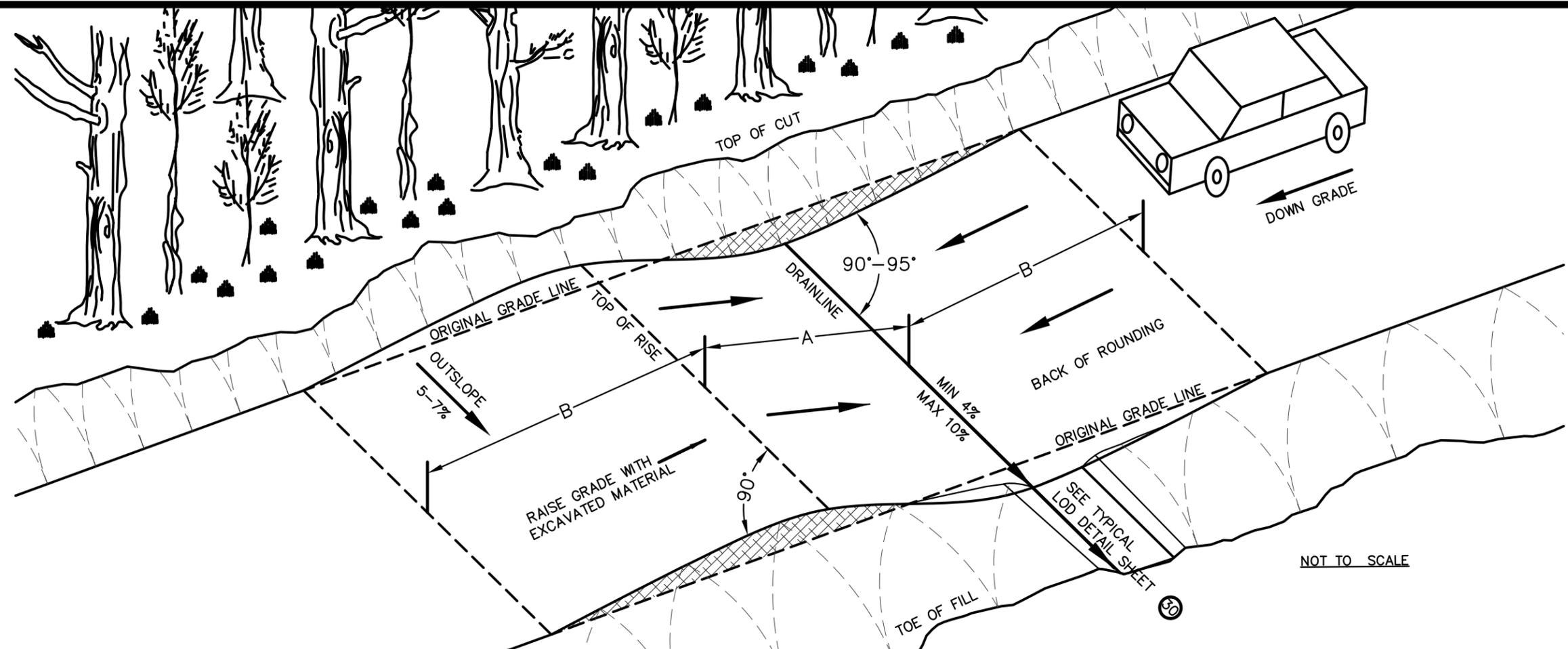
(NR L or R) NARROW ROAD STD.



TURNOUT DETAILS



Revisions			
NO.	DESCRIPTION	DATE	BY



CENTERLINE PROFILE NOT TO SCALE

DOWN GRADE %	LOWBOY				LOG TRUCK				4X4 (FIRE ENGINE)				
	LENGTH A	TAPER B	ROUNDING %	ROUNDING R	LENGTH A	TAPER B	ROUNDING %	ROUNDING R	LENGTH A	TAPER B	ROUNDING %	ROUNDING R	
0-5	30	30	7	30	20	25	10	20	10	10	19	10	
6-8	30	50	7	30	20	40	10	20	10	15	19	10	
CHORD LENGTH FOR ROUNDING				15					15				

- NOTES
- MIN CROSS-SLOPE OF DRAINLINE: MIN 4%; MAX: 10%
 - ENTIRE LENGTH OF DIP SHALL BE OUTSLOPED 4% TO 7%
 - SKEW OF DRAINLINE SHALL BE 5 DEGREES DOWN GRADE
 - WHEN RIPRAP IS SPECIFIED AT OUTLET, IT SHALL BE SHAPED TO ASSURE WATER GOES ONTO RIPRAP, NOT AROUND. INSTRUMENT SHALL BE USED TO DETERMINE LOW POINT
 - RIPRAP TOP ELEVATION SHALL BE AT TOP OF FINISHED OUTLET GRADE, NOT SUBGRADE
 - TAPER LENGTHS SHALL BE WITHIN 10% OF LISTED LENGTHS
 - DIP SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN PRIOR TO PLACEMENT OF AGGREGATE COURSE
 - BERM SHALL BE CONSTRUCTED 50-LF FROM EACH SIDE OF DRAIN OPENING. BERM SHALL BE A MINIMUM HEIGHT OF 12" AND SHALL BE COMPACTED.

U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
 R-5
 PACIFIC SOUTHWEST REGION

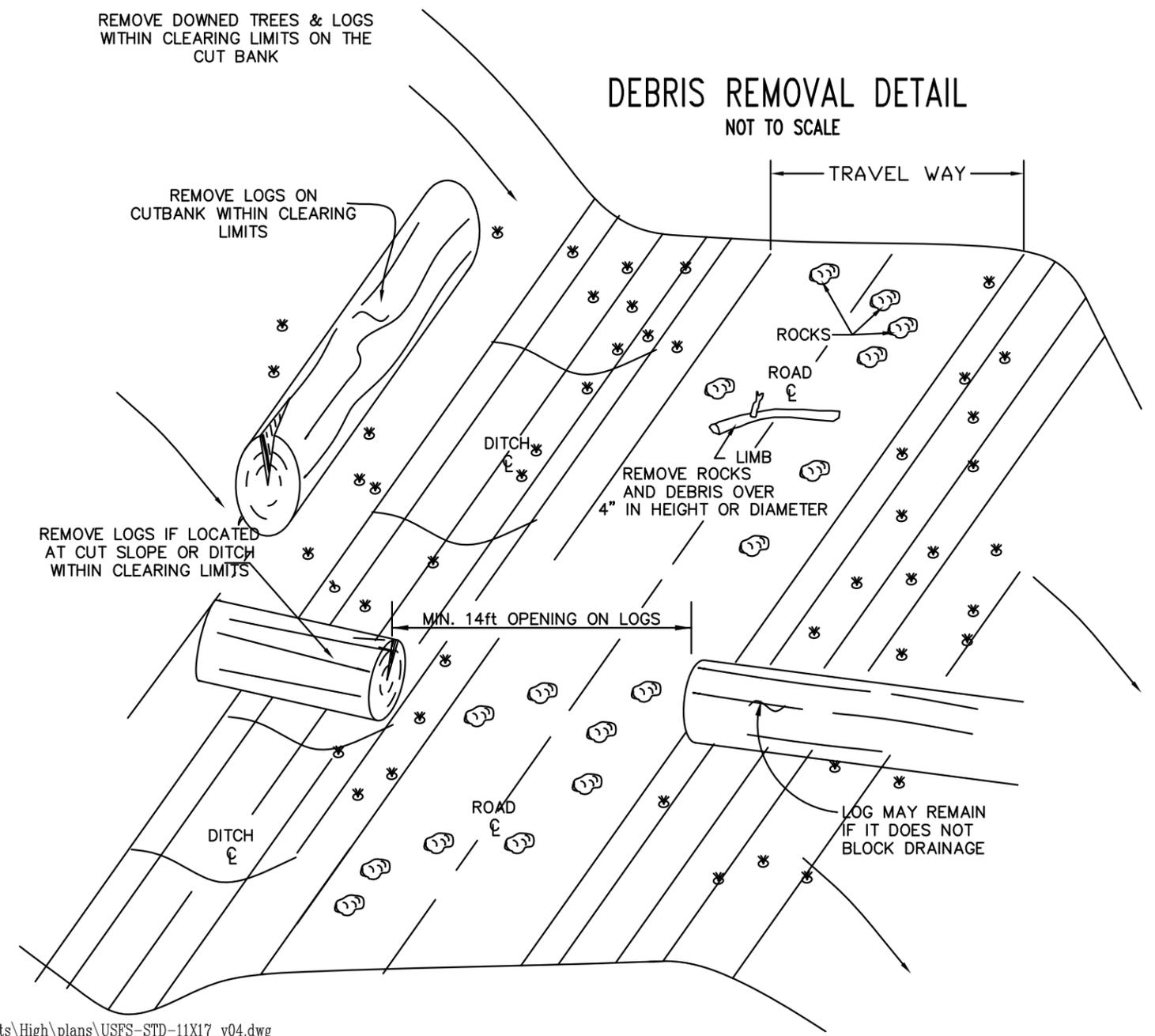
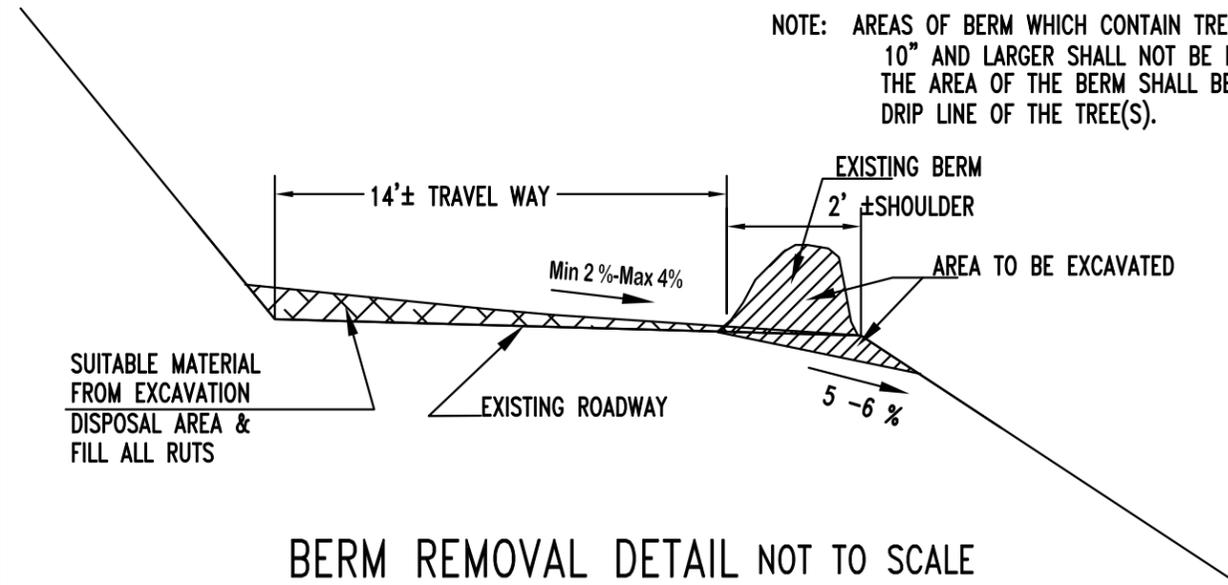
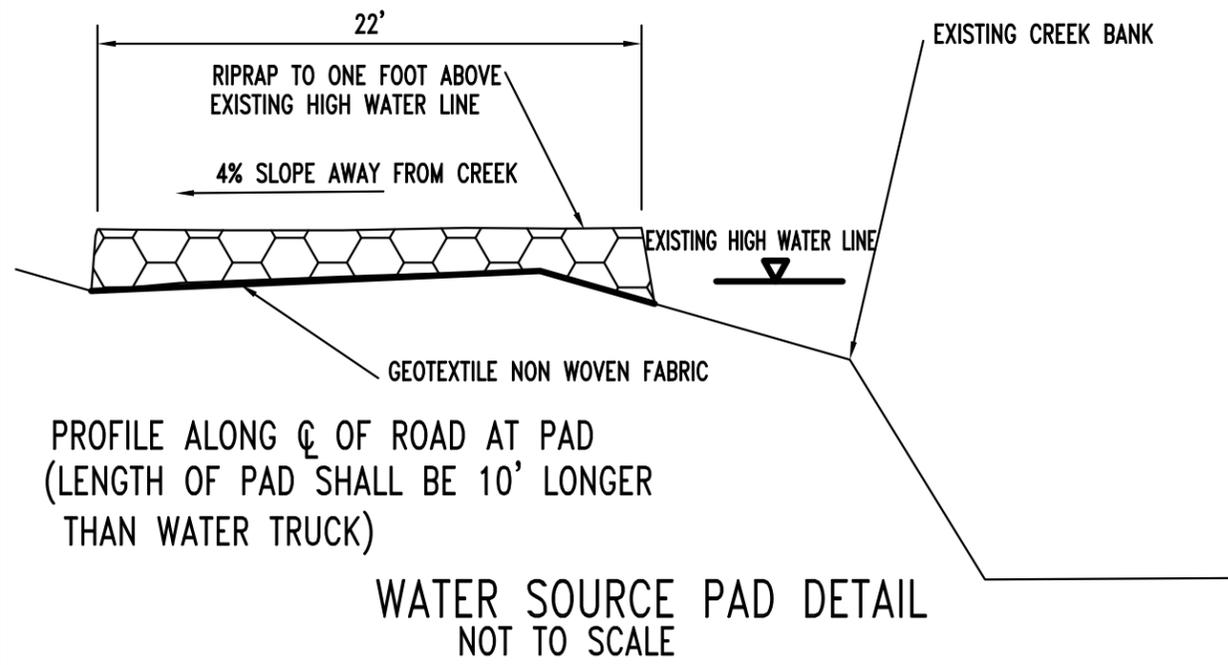
Drawn E. SETNESS & M. SCHAFER
 Designed _____
 Reviewed _____
 Approved _____

Revisions			
NO.	DESCRIPTION	DATE	BY

Forest
STANISLAUS
 Project Name
LOW (MP) TIMBER SALE

Sheet Title
 MAINTENANCE OR RECONSTRUCTION
 OF ROLLING DIP
 Scale NOT TO SCALE

Sheet
 27
 of 33



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U.S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE
R-5
PACIFIC SOUTHWEST REGION

Drawn E. SETNESS & M. SCHAFFER
Designed _____
Reviewed _____
Approved _____

Revisions			
NO.	DESCRIPTION	DATE	BY

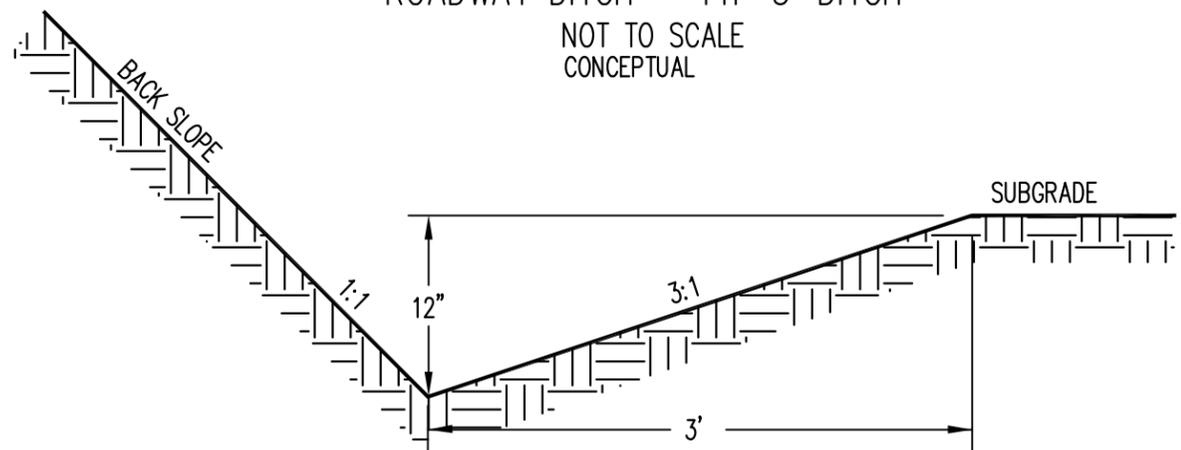
Forest
STANISLAUS
Project Name
LOW (MP) TIMBER SALE

Sheet Title
BERM & DEBRIS REMOVAL & OUTSLOPING ROAD & CONSTRUCTION OF WATER SOURCE PAD
Scale
NOT TO SCALE

Sheet
28
of 33

ROADWAY DITCH- TYP 3' DITCH

NOT TO SCALE
CONCEPTUAL

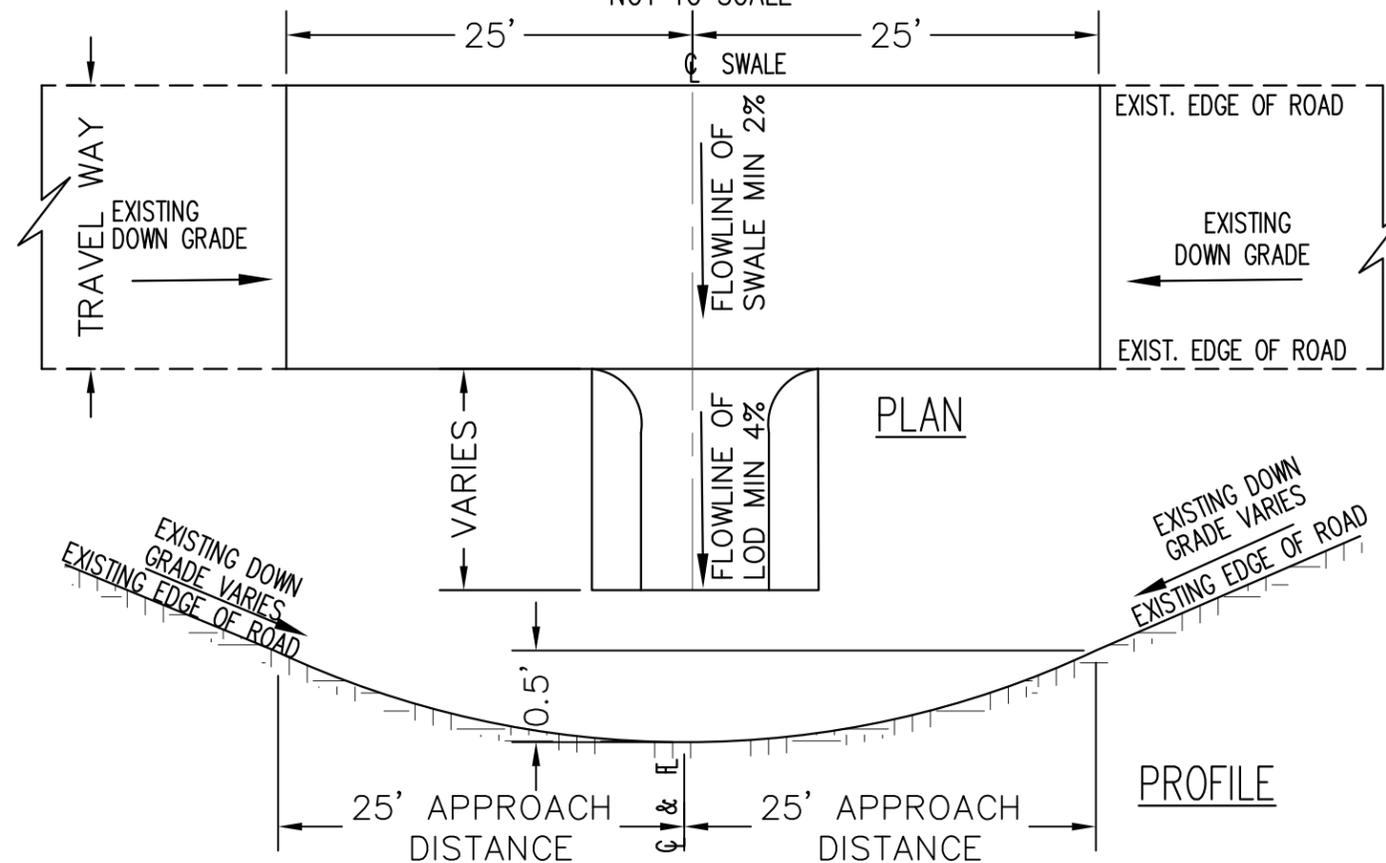


GENERAL NOTES:

1. WHEN POSSIBLE, UTILIZE SUITABLE EXCAVATED MATERIAL IN ROADBED.

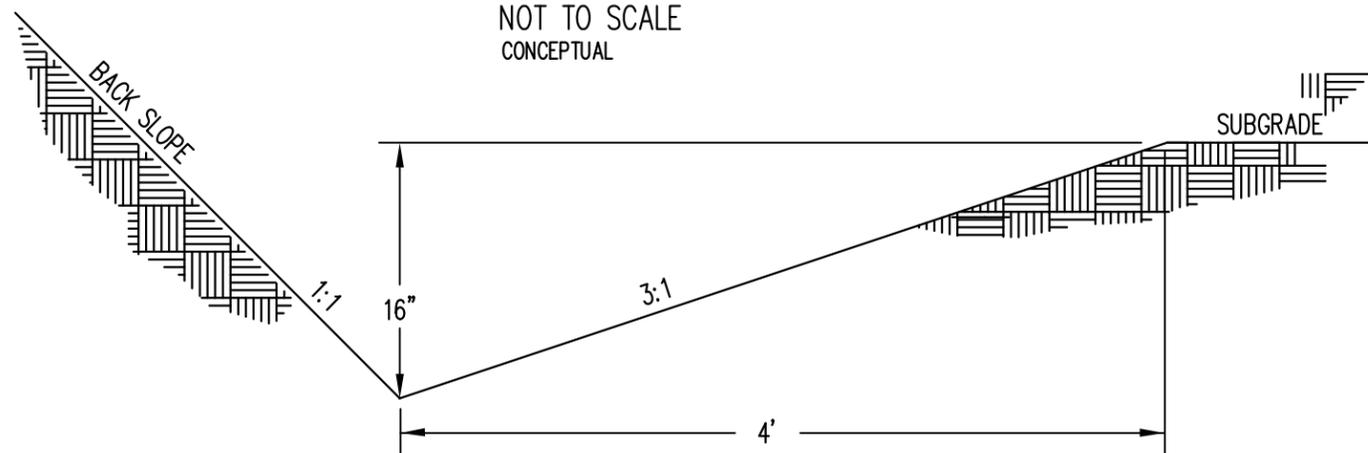
GRADED SWALE

NOT TO SCALE



ROADWAY DITCH- TYP 4' DITCH

NOT TO SCALE
CONCEPTUAL



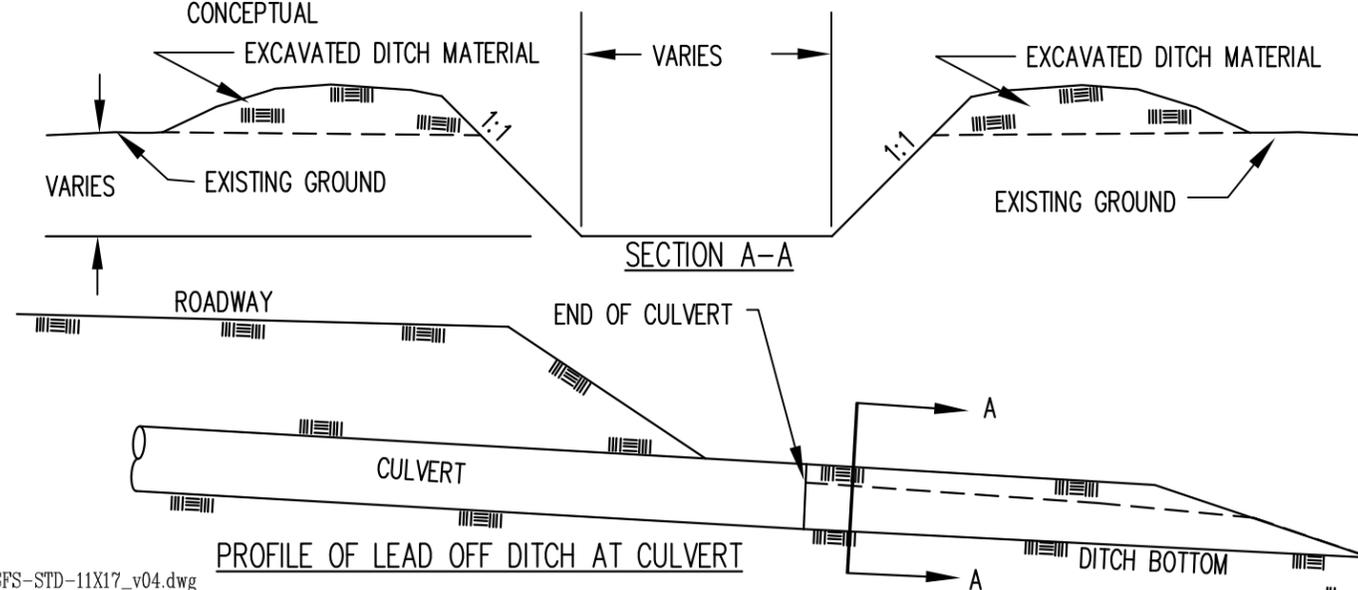
GENERAL NOTES:

1. WHEN POSSIBLE, UTILIZE SUITABLE EXCAVATED MATERIAL IN ROADBED.

LEAD OFF DITCH AT CULVERT

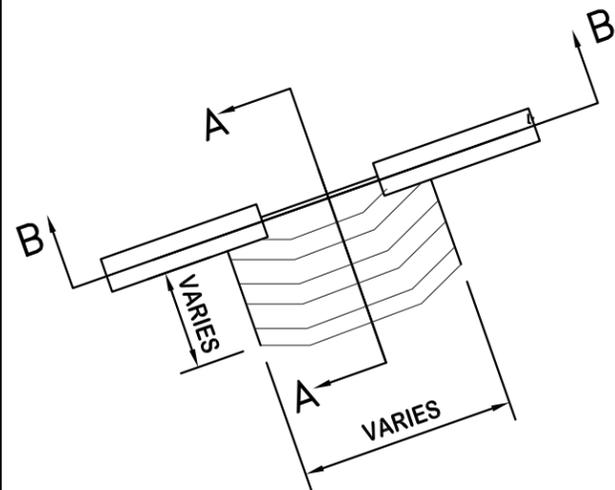
NOT TO SCALE
CONCEPTUAL

1. LEAD OFF DITCH BOTTOM SHALL BE SLOPED TO PROVIDE PROPER DRAINAGE.



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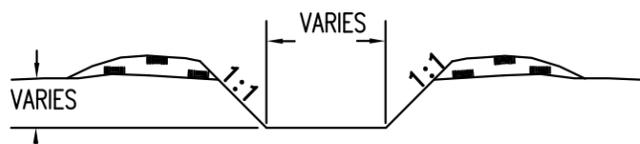
Revisions			
NO.	DESCRIPTION	DATE	BY



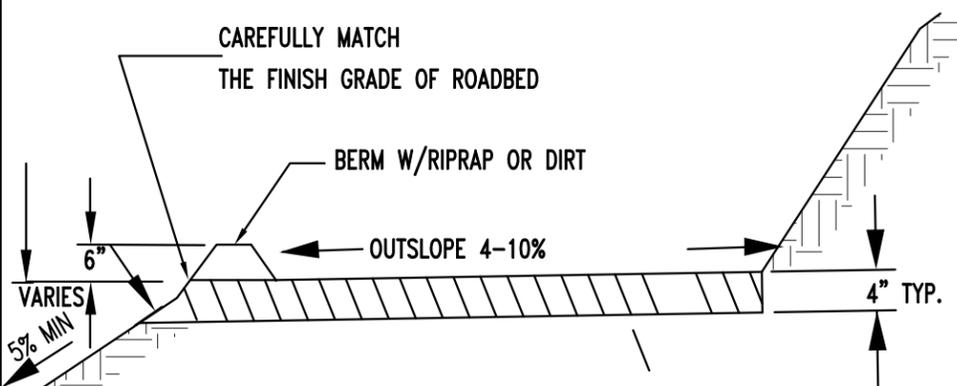
TYPICAL LEAD OFF DITCH

NO SCALE

1. LEAD OFF DITCH BOTTOM SHALL BE SLOPED TO PROVIDE PROPER DRAINAGE.
2. LOD LENGTH VARIES DEPENDING ON FIELD CONDITIONS. CONSTRUCT LOD LENGTH TO DAYLIGHT ON FILL SLOPE.

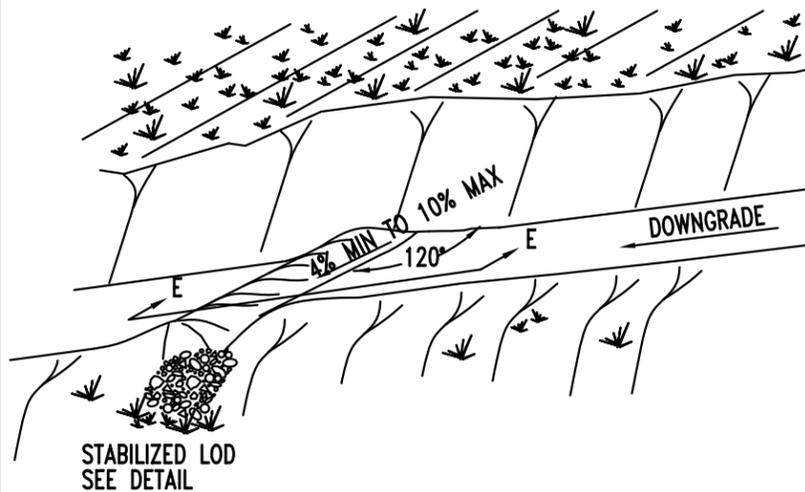


SECTION B-B
NO SCALE



SECTION A-A
W/O RIPRAP
NO SCALE

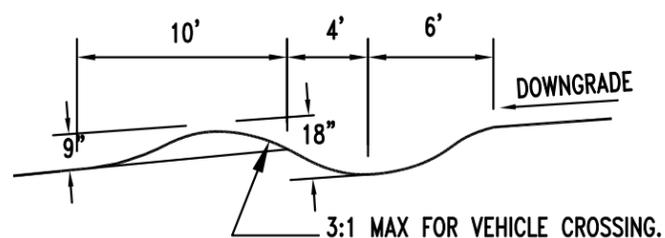
DRIVEABLE WATERBAR
FOR HIGH CLEARANCE VEHICLES



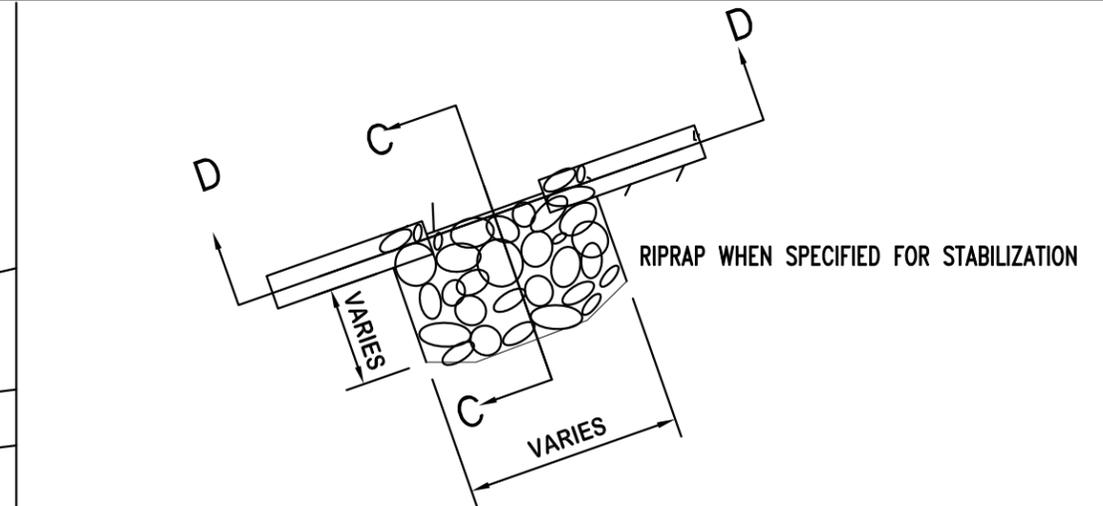
STABILIZED LOD
SEE DETAIL

NOTES - DRIVEABLE WATERBAR:

1. FOR USE ON GRADES STEEPER THAN 10%.
2. WATER NOT TO BE DISCHARGED ON FILLS GREATER THAN 3 FEET IN HEIGHT.
3. EXCAVATED MATERIAL TO BE SPREAD OUT ON ROADBED
4. WHEN STAKING FOR LOCATION, THE STAKE WILL INDICATE OUTFALL



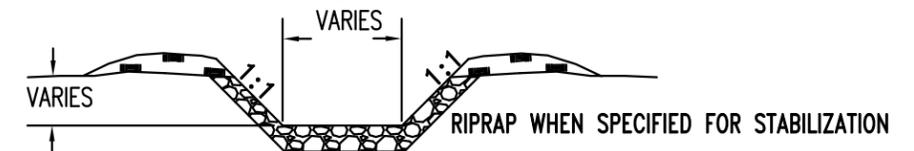
SECTION E-E
NO SCALE



LEAD OFF DITCH WITH RIPRAP STABILIZATION

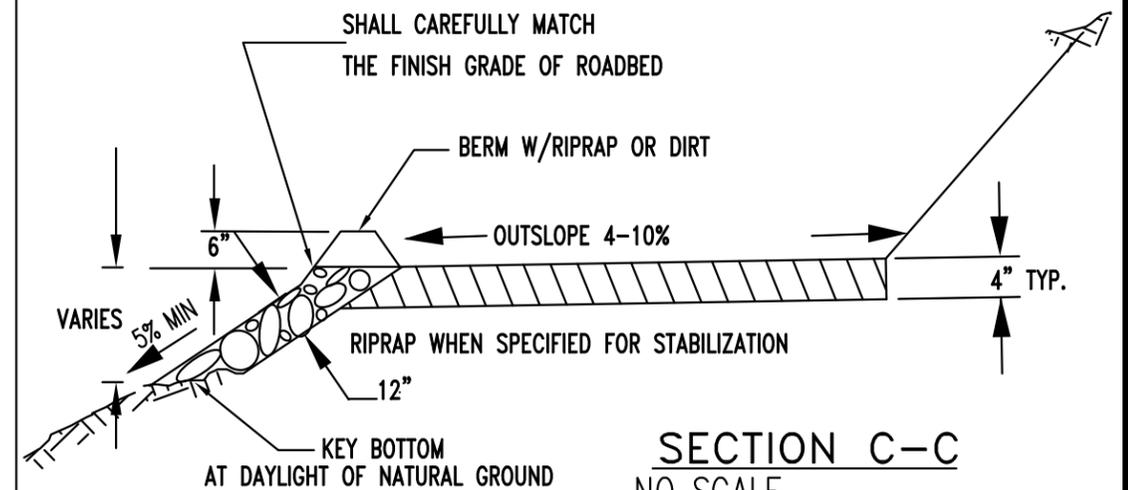
NO SCALE

1. LEAD OFF DITCH BOTTOM SHALL BE SLOPED TO PROVIDE PROPER DRAINAGE.
2. WHEN RIPRAP IS SPECIFIED AT OUTLET, IT SHALL BE SHAPED TO ASSURE WATER GOES ONTO RIPRAP, NOT AROUND. INSTRUMENT SHALL BE USED TO DETERMINE LOW POINT
3. WHEN RIPRAP IS SPECIFIED- TOP ELEVATION SHALL BE AT TOP OF FINISHED OUTLET GRADE, NOT SUBGRADE



SECTION D-D NO SCALE

ELEVATION OF CLASS 2 RIPRAP SHALL CAREFULLY MATCH THE FINISH GRADE OF ROADBED

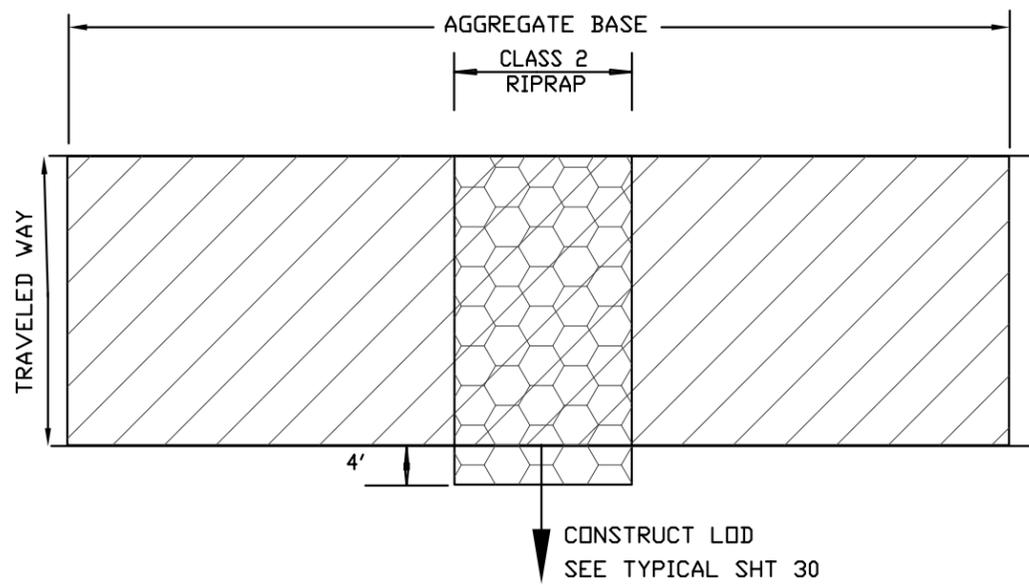


SECTION C-C
NO SCALE

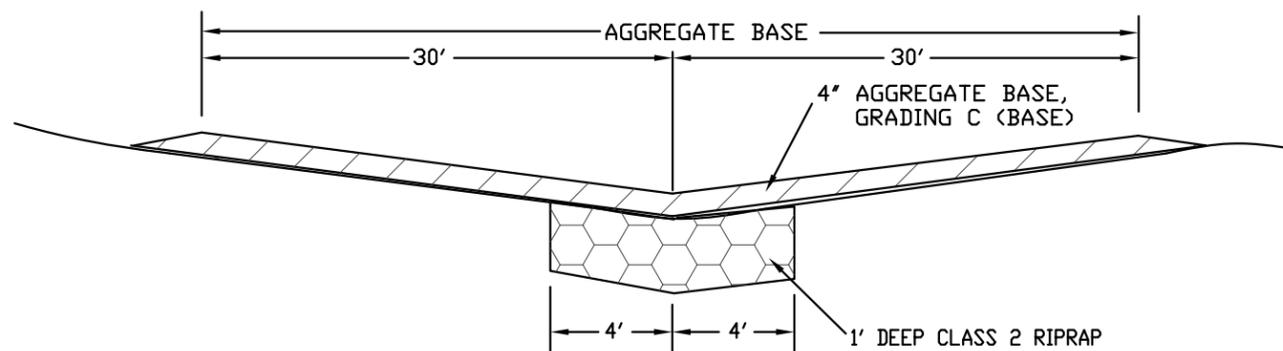
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Revisions			
NO.	DESCRIPTION	DATE	BY

ROCK DIP



PLAN



PROFILE

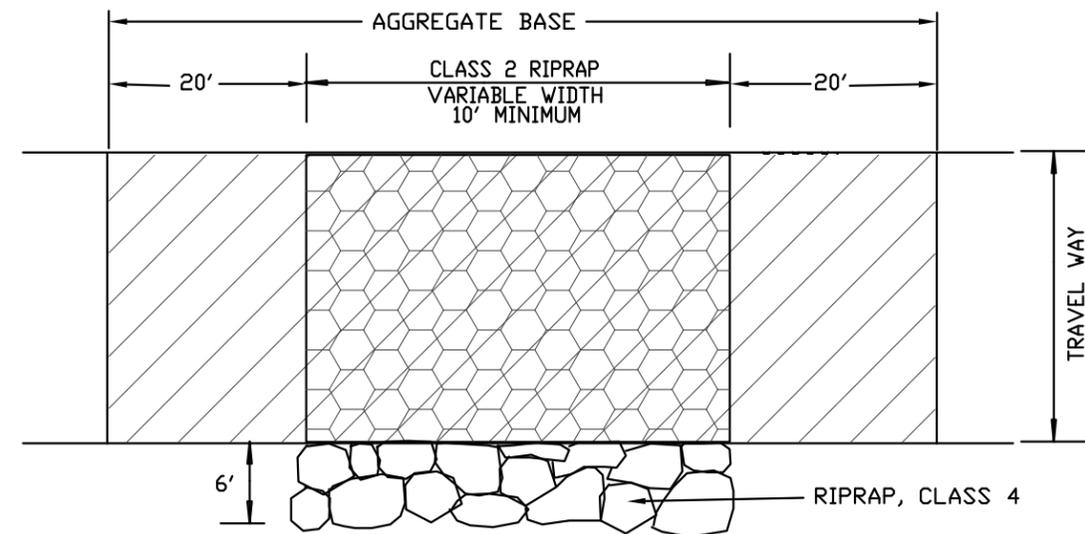
NOTE: CONSTRUCTION OF A ROCK DIP INCLUDES THE PLACEMENT OF AGGREGATE BASE (301(01)) AND RIPRAP, CLASS 2 (705(01)).

MATERIALS LIST:

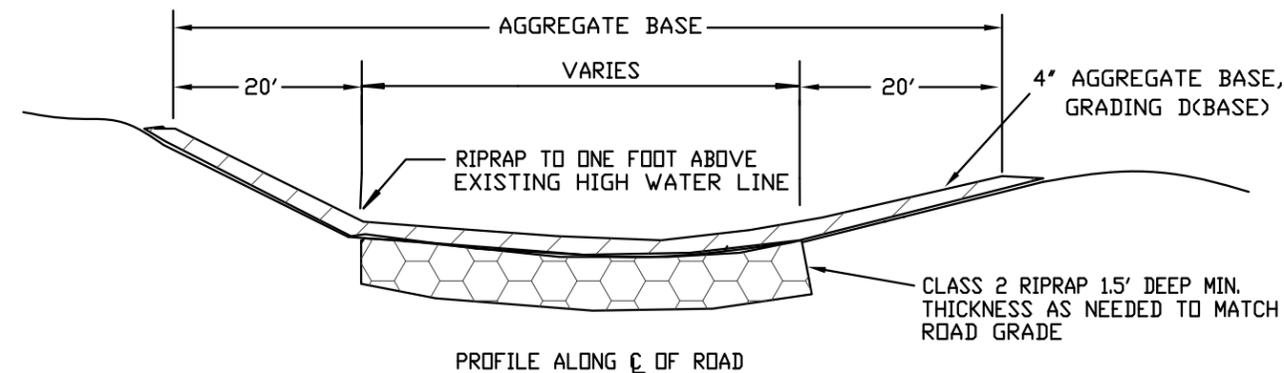
AGGREGATE BASE = 25 TONS
RIPRAP, CLASS 2 = 12 TONS

NOT TO SCALE

RIPRAP DRAINAGE



PLAN

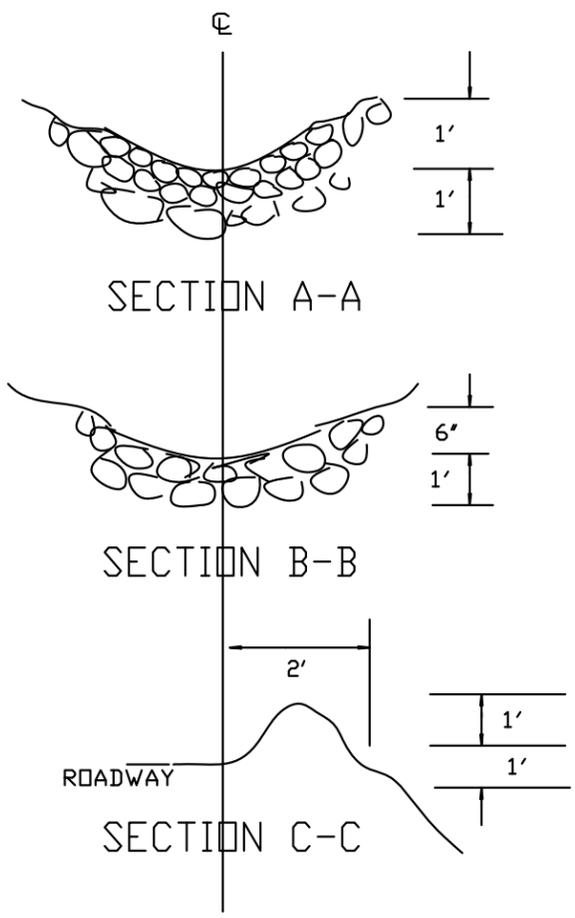
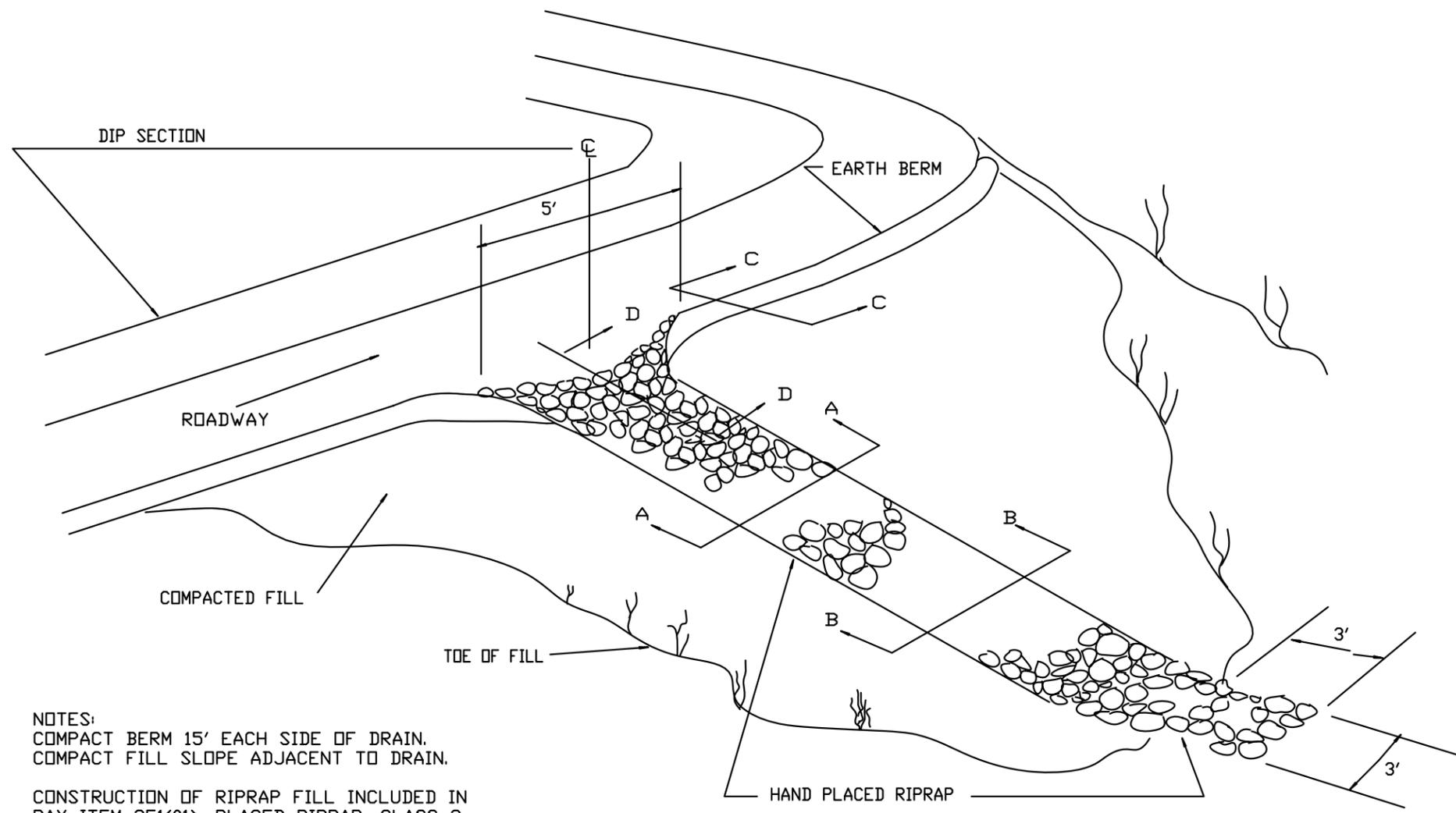


PROFILE

NOTE: CONSTRUCTION OF RIPRAP DRAINAGE INCLUDES PLACEMENT OF AGGREGATE BASE, GRADING 2 (301(01)), RIPRAP, CLASS 2 (705(01)) AND RIPRAP, CLASS 4 (705(01)).

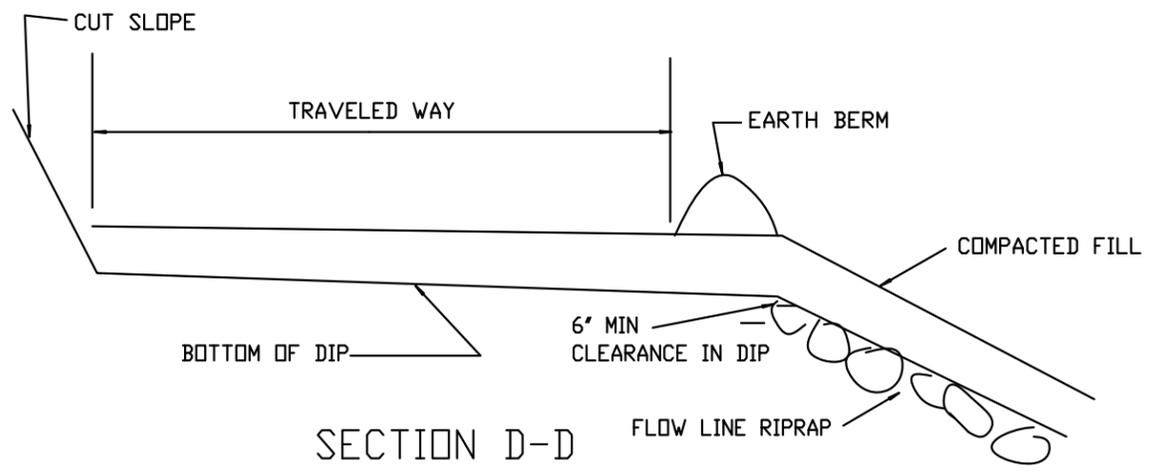
NOT TO SCALE

Revisions			
NO.	DESCRIPTION	DATE	BY

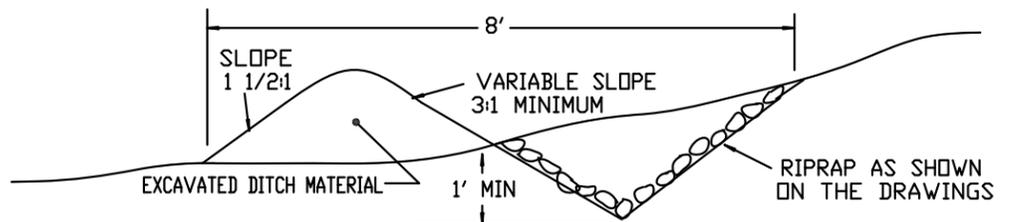


NOTES:
 COMPACT BERM 15' EACH SIDE OF DRAIN.
 COMPACT FILL SLOPE ADJACENT TO DRAIN.
 CONSTRUCTION OF RIPRAP FILL INCLUDED IN
 PAY ITEM 251(01), PLACED RIPRAP, CLASS 2.

TYPICAL RIPRAP FILL

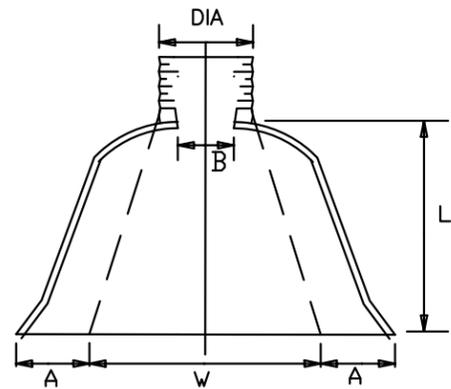


SECTION D-D

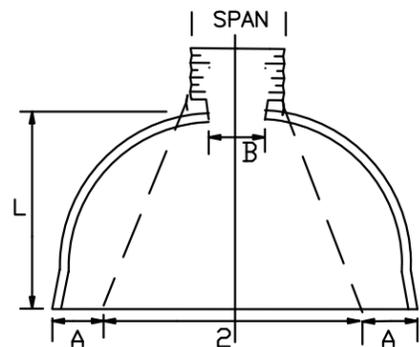


TYPICAL LEAD-OFF DITCH SECTION

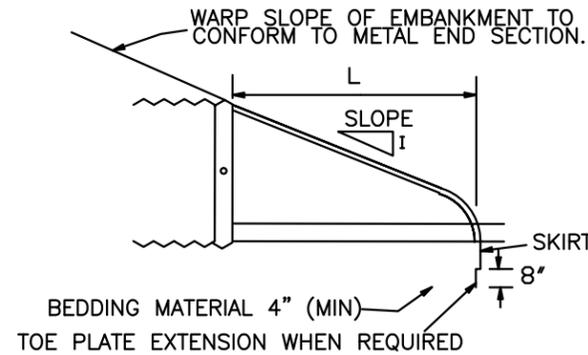
Revisions			
NO.	DESCRIPTION	DATE	BY



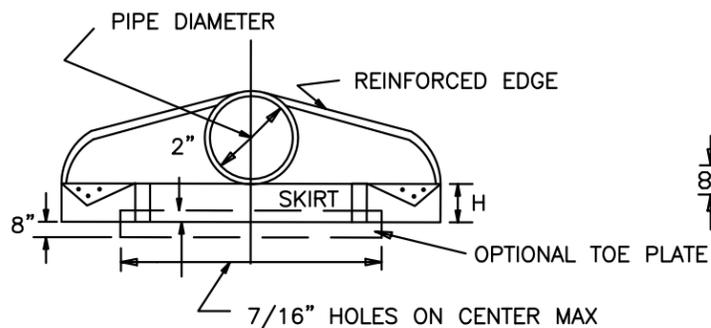
TYPICAL PLAN



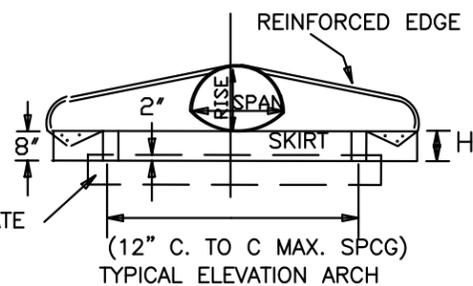
TYPICAL ARCH PLAN



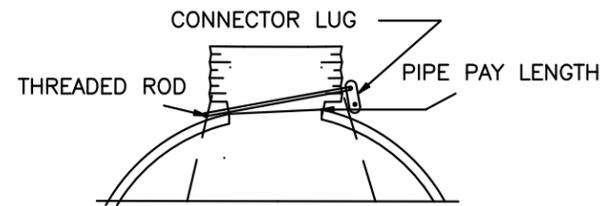
TYPICAL CROSS SECTION



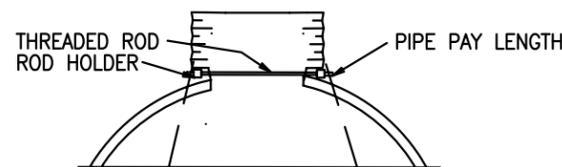
TYPICAL ELEVATION



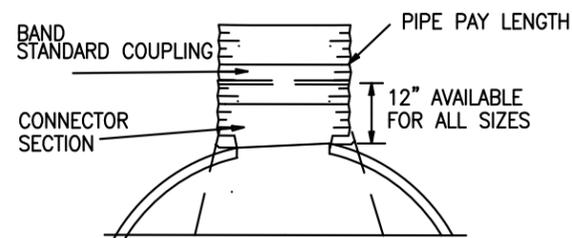
TYPICAL ELEVATION ARCH



TYPE 1 FOR 12" THROUGH 24" ONLY



TYPE 2 FOR 30" THROUGH 36" AND 21" X 15" THROUGH 57" X 38"

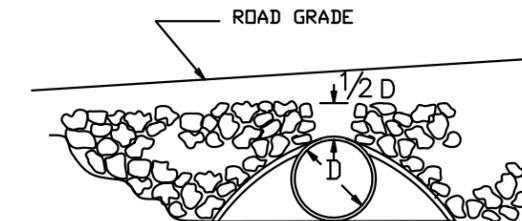


TYPE 3 FOR 42" THROUGH 84" AND 64" X 43" THROUGH 83" X 57"

STANDARD CONNECTORS

GENERAL NOTES

- ALL 3 PC BODIES SHALL HAVE 0.109" THICK STEEL SIDES OR 0.105" THICK ALUMINUM SIDES AND 0.38" STEEL OR 0.135" ALUMINUM CENTER PANELS. WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20% OF THE PIPE PERIPHERY. MULTIPLE PANEL BODIES SHALL HAVE LAP SEAMS WHICH ARE TO BE TIGHTLY JOINED BY 3/8" Ø GALVANIZED RIVETS OR BOLTS.
- REINFORCED EDGES SHALL BE SUPPLEMENTED WITH GALVANIZED STIFFENER ANGLES FOR THE 60" THRU 84" ROUND, 77"x52" AND 83"x57" PIPE-ARCH SIZES. THE ANGLES SHALL BE 2"x2"x1/4" FOR THE 60" THRU 72" ROUND, 77"x52" AND 83"x57" PIPE-ARCH SIZES AND 2 1/2"x2 1/2"x1/4" FOR 78" AND 84" ROUND. THE ANGLES SHALL BE ATTACHED BY 3/8" GALVANIZED NUTS AND BOLTS.
- ANGLE REINFORCEMENT SHALL BE PLACED UNDER THE CENTER PANEL SEAMS ON THE 77"x52" AND 83"x57" PIPE ARCH SIZES.
- TOE PLATE SHALL BE FURNISHED WHEN SPECIFIED. PUNCH 7/16" C/L HOLES IN TOE PLATE TO MATCH HOLES IN SKIRT. TOE PLATE SHALL BE ATTACHED WITH 3/8" BOLTS.
- END OF PIPE SHALL BE FINISHED WITH ANNULAR CORRUGATIONS TO CONFORM TO FLARED END SECTION SO THAT NO LEAKAGE RESULTS FROM THE CONNECTION.
- WHEN ALUMINUM END SECTIONS ARE FURNISHED, ALL HARDWARE SHALL BE ALUMINUM. MATERIAL TYPE SHALL MATCH THE MATERIAL OF THE CMP AND BE GALVANIZED STEEL OR ALUMINUM ALLOY.
- RIPRAP SHALL BE PLACED TO A MINIMUM DEPTH OF 18". RIPRAP TOE FILL PROTECTION SHALL BE OF THE SAME TYPE AND CLASS AS DESIGNATED FOR THE ENERGY DISSIPATOR FOR EACH INSTALLATION. RIPRAP SHALL BE PLACED THE FULL LENGTH OF FILL SLOPE.



TYPICAL RIPRAP DETAIL

NOTE: INSTALL RIPRAP FILL PROTECTION PER TYPICAL DETAIL WHERE DESIGNATED ON DRAWINGS.

PIPE DIA. IN INCHES	STEEL THICKNESS IN INCHES	ALUMINUM THICKNESS IN INCHES	DIMENSIONS IN INCHES					APPROX. SLOPE	BODY
			A ± 1	B(MAX)	H ± 1	L ± 1 1/2	W ± 2		
12	.064	.060	6	6	6	21	24	2 1/2	1 PC
15	.064	.060	7	8	6	26	30	2 1/2	1 PC
19	.064	.060	8	10	6	31	36	2 1/2	1 PC
21	.064	.060	9	12	6	36	42	2 1/2	1 PC
24	.064	.060	10	13	6	41	48	2 1/2	1 PC
30	.079	.075	12	16	8	51	60	2 1/2	1 PC
36	.079	.075	14	19	9	60	72	2 1/2	2 PC
42	.109	.105	16	22	11	69	84	2 1/2	2 PC
48	.109	.105	18	27	12	78	90	2 1/4	2 PC
54	.109	.105	18	30	12	84	102	2	2 PC
60			18	33	12	87	114	1 3/4	3 PC
66	SEE NOTE NO. 1	SEE NOTE NO. 1	18	36	12	87	120	1 1/2	3 PC
72			18	39	12	87	126	1 1/3	3 PC
78			18	42	12	87	132	1 1/4	3 PC
84			18	45	12	87	138	1 1/6	3 PC

ROUND CULVERTS

PIPE ARCH INCHES	THICKNESS IN INCHES	DIMENSION IN INCHES					APPROX. SLOPE	BODY		
		SPAN	RISE	STEEL	ALUM.	A ± 1			B(MAX)	H ± 1
21	15	.064	.060	7	10	6	23	36	2 1/2	1 PC
24	18	.064	.060	8	12	6	28	42	2 1/2	1 PC
28	20	.064	.060	9	14	6	32	48	2 1/2	1 PC
35	24	.079	.075	10	16	6	39	60	2 1/2	1 PC
42	29	.079	.075	12	18	8	46	75	2 1/2	1 PC
49	33	.109	.105	13	21	9	53	85	2 1/2	2 PC
57	38	.109	.105	18	26	12	63	90	2 1/2	2 PC
64	43	.109	.015	18	30	12	70	102	2 1/4	2 PC
71	47	SEE NOTE NO. 1	SEE NOTE NO. 1	18	33	12	77	114	2 1/4	3 PC
77	52	NOTE NO. 1	NOTE NO. 1	18	36	12	77	126	2	3 PC
83	57	NOTE NO. 1	NOTE NO. 1	18	39	12	77	138	2	3 PC

ARCH CULVERTS