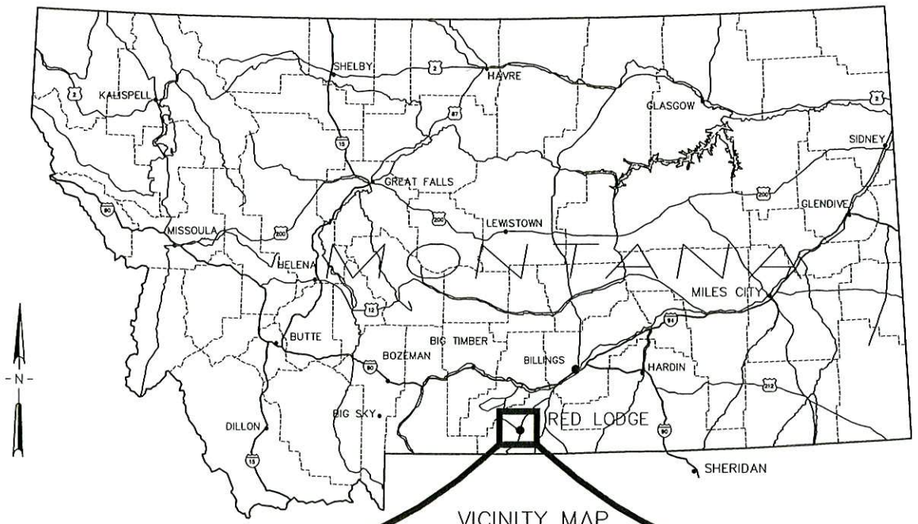
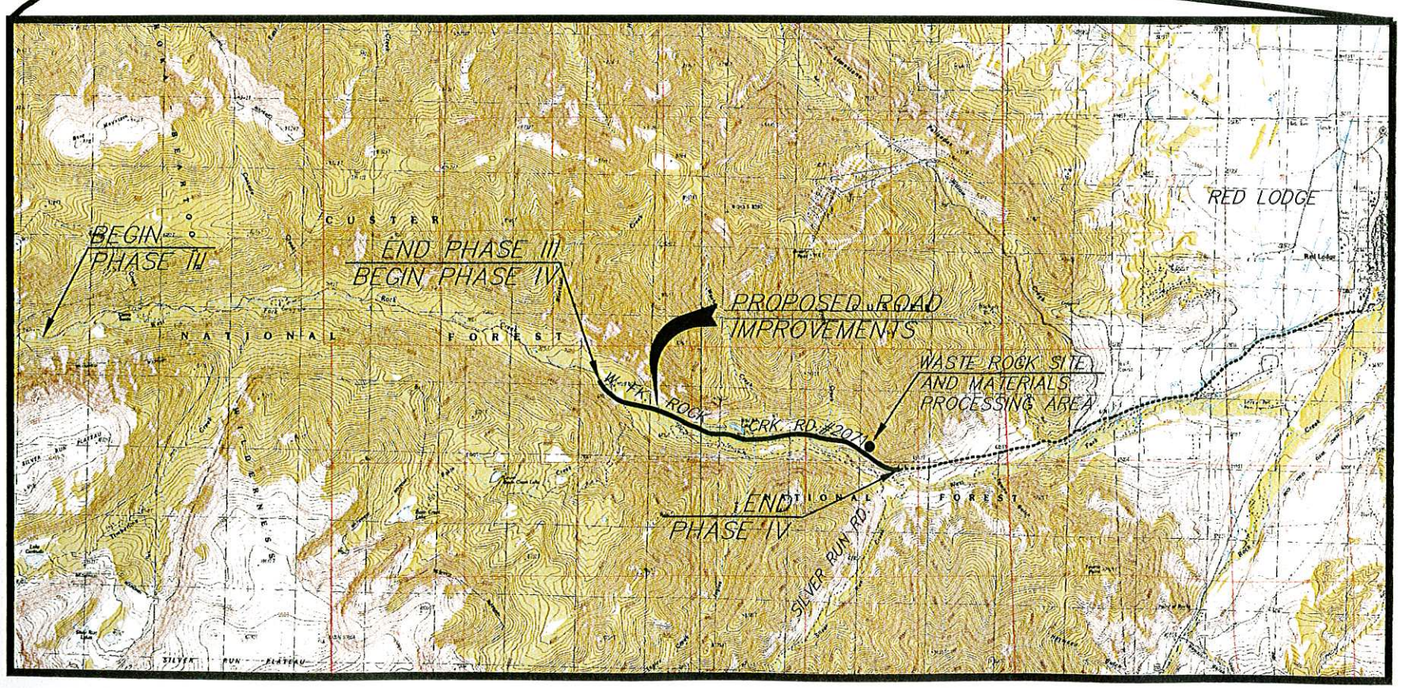
PLANS FOR
RECONSTRUCTION OF WEST FORK OF ROCK CREEK ROAD #2071
PHASE IV

BEARTOOTH RANGER DISTRICT
CUSTER NATIONAL FOREST
U.S.D.A. FOREST SERVICE – REGION 1



VICINITY MAP
NOT TO SCALE
CUSTER NATIONAL FOREST



LOCATION MAP
NOT TO SCALE

PREPARED FOR:
UNITED STATES FOREST SERVICE
CUSTER NATIONAL FOREST
1310 MAIN STREET
BILLINGS, MONTANA 59105

PREPARED BY:

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AND

HKM ENGINEERING, Inc.
601 Nikles Dr. Suite 2
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(406) 586-8834
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PROJECT NO. 04m551.103

AG-0355-S-09-0004

PROJECT MANAGER/ENGINEER	PROJECT MANAGER/ENGINEER
MONTANA WILLIAM B. LLOYD 11222PE LICENSED PROFESSIONAL ENGINEER	MONTANA GREGORY C. UNDERHILL 8759 PE LICENSED PROFESSIONAL ENGINEER
WILLIAM B. LLOYD PE Project Manager GREAT WEST ENGINEERING	GREGORY C. UNDERHILL PE Project Manager HKM ENGINEERING, Inc.

Reviewed By:		3/11/09 Date
Approved By Name	Forest Engineer	03/11/09 Date
Approved By Name	For Travis Parrie 3-10-09 District Ranger	Date
Approved By Name	for M. Erickson Forest Supervisor	3/12/09 Date

Sheet No. G–1

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F:\1-06148-USFS W FORK ROCK CREEK\CADD-06148\M551104\SHEETS\COVER.dwg 11/13/2006 1:38:19 PM MST

AG-0355-S-09-0004

GENERAL NOTES:

1. THE LOCATION OF EXISTING UTILITIES SHOWN IS APPROXIMATE AND THE CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION. THE CONTRACTOR IS REQUIRED TO TAKE ALL PRECAUTIONARY MEANS TO PROTECT ALL EXISTING UTILITIES.
2. WHERE CONDITIONS ARE ENCOUNTERED WHICH APPEAR DIFFERENT FROM THOSE INDICATED ON THE PLANS OR IN THE SPECIFICATIONS, THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER OR REPRESENTATIVE PRIOR TO THE PERFORMANCE OF WORK.
3. ALL WORK AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE FEDERAL HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS FP-03. UNLESS INDICATED OTHERWISE ON THE CONTRACT DOCUMENTS. ORDER OF PRECEDENCE SHALL BE AS CONTAINED IN FAR CLAUSE 52.214-29.
4. CONSTRUCTION SAFETY AND SANITATION FACILITIES SHALL BE PROVIDED BY THE CONTRACTOR AND MAINTAINED BY THE CONTRACTOR.
5. THE CONTRACTOR SHALL PROTECT ADJACENT PRIVATE AND PUBLIC PROPERTY FROM DAMAGE DURING CONSTRUCTION.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING ANY AND ALL UTILITIES IN THE AREA PRIOR TO BEGINNING ANY WORK ON THIS PROJECT.
7. WEST FORK ROCK CREEK ROAD #2071 SHALL REMAIN OPEN THROUGHOUT THE DURATION OF THE PROJECT. EXCEPT DURING CONSTRUCTION OF THE MECHANICALLY STABILIZED EARTH WALL. SEE SECTION 156 FOR ADDITIONAL RESTRICTIONS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL, INCLUDING BUT NOT LIMITED TO DETOURS, SIGNAGE AND FLAGGING PERSONNEL.
9. ROAD SIGNS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT VERSION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".
10. FILL MATERIAL PLACED ON HILL SLOPES SHALL BE BENCHED INTO THE EXISTING HILL SLOPE AS SPECIFIED PER SECTION 204.09(d)
11. ALL EMBANKMENT MATERIAL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY AT ±2% OF OPTIMUM MOISTURE PER AASHTO T99 IN ACCORDANCE TO SECTION 204.11
12. AGGREGATE BASE AND SURFACE COURSE SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 308.05(a) METHOD 2.
13. LIMIT CONSTRUCTION OPERATIONS AND SUPPORT ACTIVITIES TO THE CLEARING LIMITS.
14. ALL EXCAVATION SHALL BE PERFORMED UTILIZING TRADITIONAL EXCAVATION MEANS (BULLDOZER, EXCAVATOR, ETC..). BLASTING OF ROCK MATERIALS SHALL NOT BE PERMITTED WITHOUT PRIOR APPROVAL OF THE CONTRACT OFFICER OR REPRESENTATIVE.
15. ANY REMOVED STRUCTURES SHALL BE DISPOSED OF OFF OF NATIONAL FOREST SYSTEM LANDS IN A LAWFUL AND LEGAL MANNER.
16. THE CONTRACTOR SHALL PROVIDE A SET OF AS BUILT DRAWINGS TO THE C.O. PRIOR TO FINAL ACCEPTANCE.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL, USING METHODS APPROVED BY THE C.O.
18. FIELD VERIFY PIPE SIZES, CORRUGATIONS, LENGTHS, AND MATERIALS BEFORE ORDERING.
19. EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR. QUANTITIES AND LOCATIONS SHOWN IN THE PLANS ARE FOR ESTIMATING PURPOSES ONLY.
20. APPROACH QUANTITIES ARE INCLUDED IN MAINLINE QUANTITIES.

QUANTITY NOTE:

SEE SHEET D-2 MASS HAUL, D-3, AND D-4 EARTHWORK QUANTITIES FOR SUMMARY OF QUANTITIES

TRAFFIC CONTROL NOTE:

1. SEE SHEET D-8 FOR TRAFFIC CONTROL SIGNAGE
2. SEE SHEET D-8 FOR ROAD STRIPING PLAN
3. SEE SHEET D-8 FOR SIGN INSTALLATION DETAIL

SURVEY CONTROL

PROJECT HORIZONTAL DATUM: ASSUMED

PROJECT VERTICAL DATUM:
NAVD 88 FROM GEOID 99
ACCURACY: ±0.4' OF TRUE AT CP#1
GRID ELEVATION: 6700 FT

Transverse Mercator Projection
Projection Origin
Latitude : 45°09'03.86677"N
Longitude : 109°20'21.97000"W
Scale Factor : 1.00031964

False Origin
False Northing : 30000.0000ift
False Easting : 30000.000ift

Local site settings

Project height : 6700.0000sft

GPS Site Calibration Details

Rotation : 0°00'00.00000"

SHEET INDEX

SHT. NO.	TITLE
G-1	COVER SHEET
G-2	GENERAL NOTES, PROJECT LEGEND & SHEET INDEX
G-3	KEY MAP, SHEET LAYOUTS & PROJECT CONTROL POINTS
C-1	PLAN & PROFILE - STA. 300+00.00 TO STA. 312+00.00
C-1A	PLAN & PROFILE - STA. 300+00.00 TO STA. 312+00.00
C-2	PLAN & PROFILE - STA. 312+00.00 TO STA. 325+00.00
C-3	PLAN & PROFILE - STA. 325+00.00 TO STA. 338+00.00
C-4	PLAN & PROFILE - STA. 338+00.00 TO STA. 351+00.00
C-5	PLAN & PROFILE - STA. 351+00.00 TO STA. 364+00.00
C-6	PLAN & PROFILE - STA. 364+00.00 TO STA. 377+00.00
C-7	PLAN & PROFILE - STA. 377+00.00 TO STA. 390+00.00
C-8	PLAN & PROFILE - STA. 390+00.00 TO STA. 403+00.00
C-9	PLAN & PROFILE - STA. 403+00.00 TO STA. 416+00.00
C-10	PLAN & PROFILE - STA. 416+00.00 TO STA. 429+00.00
C-11	PLAN & PROFILE - STA. 429+00.00 TO STA. 442+00.00
C-12	PLAN & PROFILE STA. 442+00.00 TO STA. 452+07.43
D-1	QUANTITY SCHEDULES
D-2	MASS-HAUL DIAGRAM
D-3	EARTHWORK QUANTITY TABLES
D-4	EARTHWORK QUANTITY TABLES
D-5	CURVE DATA
D-6	CURVE DATA
D-7	TYPICAL SECTIONS
D-8	TRAFFIC CONTROL, SIGNING, STRIPING DETAILS
D-9	CULVERT DETAILS
D-10	MSE WALL DETAILS
D-11	MSE WALL STAKING INFORMATION
D-12	SILT FENCE DETAILS
D-13	GATE DETAILS
D-14	GATE DETAILS
D-15	TREATED TIMBER BRIDGE REPAIRS
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D-22	GAURDRAIL DETAILS
D-23	GAURDRAIL DETAILS
D-24	GAURDRAIL DETAILS
D-25	GAURDRAIL DETAILS
D-26	GAURDRAIL DETAILS
D-27	GAURDRAIL DETAILS
D-28	GAURDRAIL DETAILS
XS-1 THRU XS-36	CROSS SECTION SHEETS

GENERAL PROJECT LEGEND

EXISTING ITEMS

- CONTOUR INTERVAL OF 10.00 ft
- CONTOUR INTERVAL OF 2.00 ft
- EXISTING KILN
- EXISTING PROPERTY LINE OR RIGHT OF WAY
- EXISTING EDGE OF ROAD
- EXISTING STORM DRAIN
- EXISTING PROFILE
- PP — EXISTING POWER POLES
- EXISTING POWER PEDESTAL
- EXISTING SIGN
- BORING LOCATION
- CONTROL POINT
- TEL — EXISTING TELEPHONE
- PWR — EXISTING UNDERGROUND POWER
- OHP — EXISTING OVERHEAD POWER
- C10 — CURVE NO. RELATES TO CURVE TABLE
- STREAM

NEW ITEMS

- NEW ROAD CENTERLINE
- EDGE OF PAVEMENT
- NEW ROADSIDE DITCH
- LIMITS OF CUT/FILL SLOPES
- NEW PROFILE
- SILT FENCE
- ROW LINE
- GUARD RAIL
- MSE WALL

COMMON ABBREVIATIONS

SD	STORM DRAIN	PVI	POINT OF VERITCAL INTERSECTION
PP	POWER POLE	BVCS	BEGIN VERTICAL CURVE STATION
GA	GUY ANCHOR	EVCS	END VERTICAL CURVE STATION
EOP	EDGE OF PAVEMENT	BVCE	BND VERTICAL CURVE ELEVATION
L.F.	LINEAL FEET	EVCE	END VERTICAL CURVE ELEVATION
EL.	ELEVATION	I.E.	INVERT ELEVATION
(TYP)	TYPICAL	INV. EL.	INVERT ELEVATION
INV.	INVERT	UG-PWR	UNDERGROUND POWER
S=	SLOPE	UG-TEL	UNDERGROUND TELEPHONE
C.B.	CATCH BASIN	IN	INCH
MH	MANHOLE	CMP	CORRUGATED METAL PIPE
CL	CENTERLINE	DH	DRILL HOLE
FL	FLOWLINE	FT	FOOT
OHP	OVERHEAD POWER	CP	CONTROL POINT
C.O.	CONTRACTING OFFICER	VC	VERTICAL CURVE
C.O.R.	CONTRACTING OFFICER REPRESENTATIVE	CP	CONTROL POINT
LT	LEFT	PC	POINT OF CURVE
RT	RIGHT	PT	POINT OF TANGENCY
K	CURVE COEFFICIENT	M	METER
A D	ALGEBRAIC DIFFERENCE	mm	MILLIMETER

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	SMJ	2/29/04

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

U.S.D.A. FOREST SERVICE - REGION 1
BEARTOOTH RANGER DISTRICT - CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
GENERAL NOTES, PROJECT LEGEND & SHEET INDEX

● Project No. Q4M551.104 ● KEY_MAP.DWG ● Date MAR 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved

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Sheet No.
G-2

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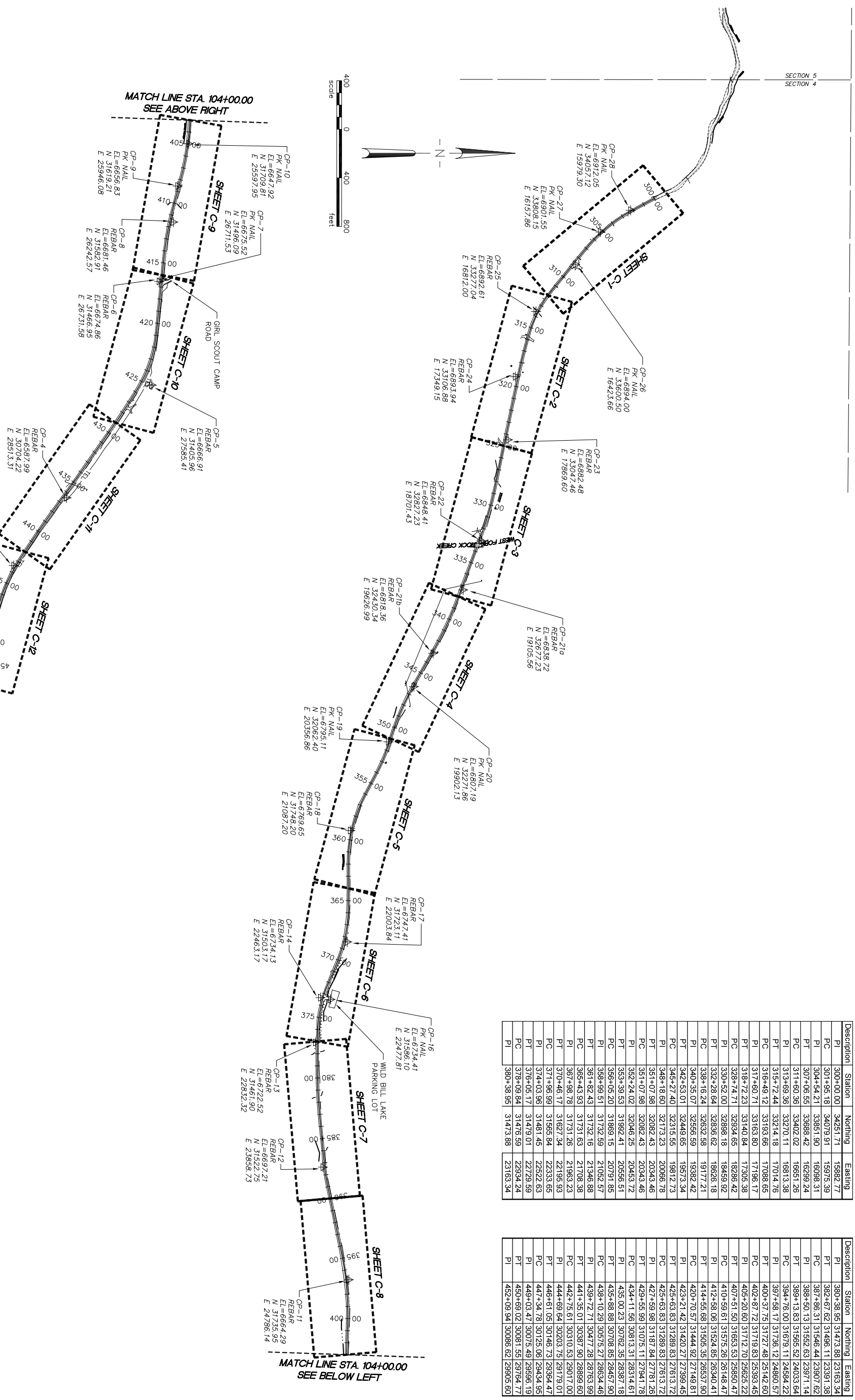

Description	Station	Northing	Easting
PI	300+00.00	34251.71	15882.77
PC	301+95.18	34079.91	15975.39
PI	304+54.21	33851.90	16098.31
PT	307+06.55	33688.42	16299.24
PC	311+60.36	33402.02	16651.26
PI	313+69.36	33270.11	16813.38
PT	315+72.44	33214.18	17014.76
PC	316+49.12	33193.66	17088.65
PI	317+60.71	33163.80	17196.17
PT	318+72.23	33140.84	17305.38
PC	328+74.71	32934.65	18286.42
PI	330+52.00	32898.18	18459.92
PT	332+28.64	32836.62	18626.18
PC	338+16.24	32632.58	19177.21
PI	340+35.07	32556.59	19382.42
PT	342+53.01	32449.65	19573.34
PC	345+27.40	32315.55	19812.73
PI	348+18.60	32173.23	20066.78
PT	351+07.98	32082.43	20343.46
PC	351+07.98	32082.43	20343.46
PI	352+24.02	32046.25	20453.72
PT	353+39.53	31992.41	20556.51
PC	356+05.20	31869.15	20791.85
PI	358+99.51	31732.59	21062.57
PT	361+82.43	31732.16	21346.88
PC	365+43.93	31731.63	21708.38
PI	367+98.78	31731.26	21963.23
PT	370+46.17	31627.34	22195.93
PC	371+96.99	31565.84	22333.65
PI	374+03.96	31481.45	22522.63
PT	376+05.17	31479.01	22729.59
PC	378+09.84	31476.59	22934.24
PI	380+38.95	31473.88	23163.34

Description	Station	Northing	Easting
PI	380+38.95	31473.88	23163.34
PT	382+67.62	31496.11	23391.38
PC	387+86.31	31546.44	23907.62
PI	388+50.13	31552.63	23971.14
PT	389+13.83	31565.52	24033.64
PC	394+76.00	31679.11	24584.22
PI	397+58.17	31736.12	24860.57
PT	400+37.75	31727.48	25142.60
PC	402+87.72	31719.83	25393.45
PI	405+20.60	31712.70	25625.22
PT	407+51.50	31653.53	25850.47
PC	410+59.61	31575.26	26148.47
PI	412+58.06	31524.85	26340.41
PT	414+55.68	31505.35	26537.90
PC	420+70.57	31444.92	27149.81
PI	423+21.42	31420.27	27399.45
PT	425+63.83	31289.83	27613.72
PC	425+63.83	31289.83	27613.72
PI	427+59.98	31187.84	27781.26
PT	429+55.99	31075.11	27941.78
PC	434+11.56	30813.31	28314.61
PI	435.00.23	30762.35	28387.18
PT	435+88.88	30708.85	28457.90
PC	438+10.29	30575.27	28634.46
PI	439+72.71	30477.28	28763.99
PT	441+35.01	30387.90	28899.60
PC	442+75.61	30310.53	29017.00
PI	444+69.64	30203.75	29179.01
PT	446+61.05	30146.73	29364.47
PC	447+34.78	30125.06	29434.95
PI	449+03.47	30075.49	29596.19
PT	450+69.02	30081.55	29764.77
PI	452+09.94	30086.62	29905.60

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● Project No. 04M551.104 ● KEY_MAP.DWG ● Date MAR 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved_____

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST

RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
KEY MAP, SHEET LAYOUTS & PROJECT CONTROL POINTS

WARNING
0 ? 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	SMJ	2/29/04

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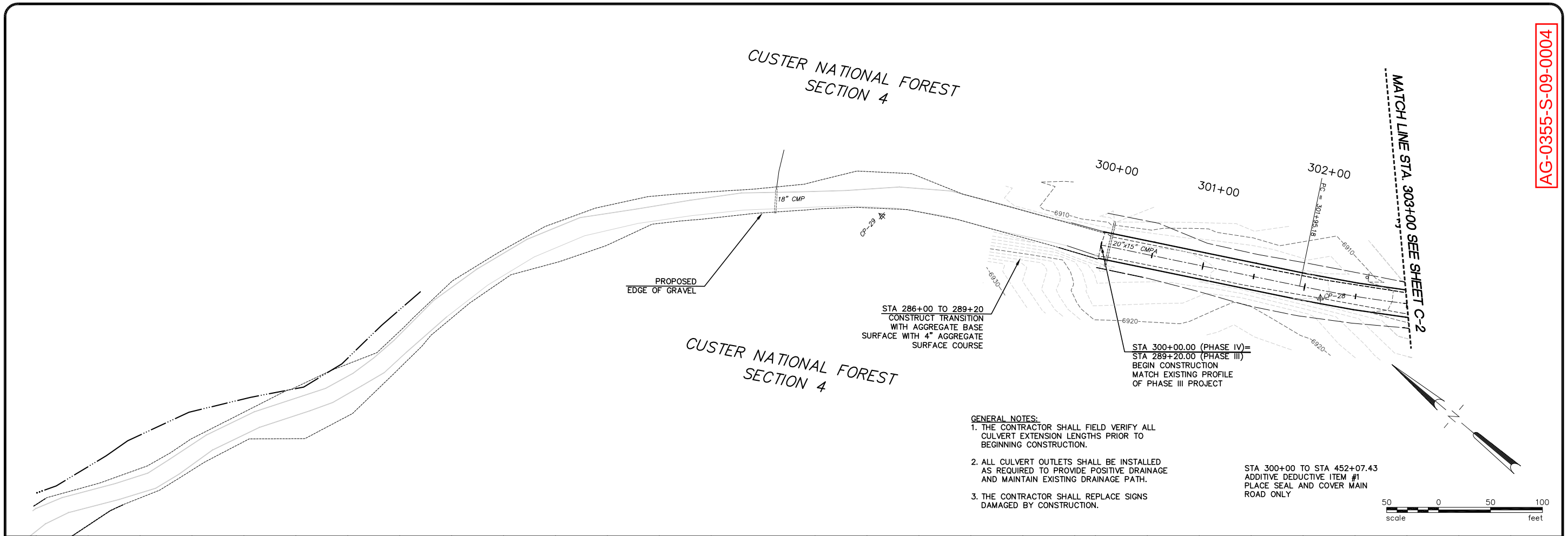
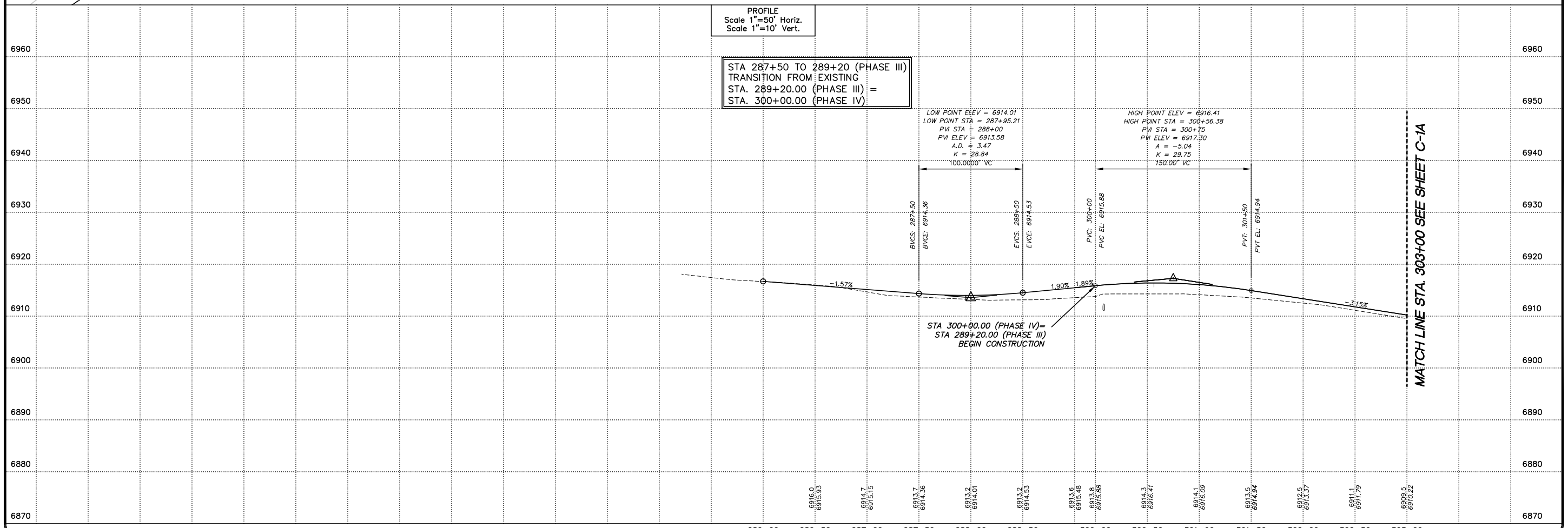


GENERAL NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL CULVERT EXTENSION LENGTHS PRIOR TO BEGINNING CONSTRUCTION.
2. ALL CULVERT OUTLETS SHALL BE INSTALLED AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN EXISTING DRAINAGE PATH.
3. THE CONTRACTOR SHALL REPLACE SIGNS DAMAGED BY CONSTRUCTION.

STA 300+00 TO STA 452+07.43
ADDITIVE DEDUCTIVE ITEM #1
PLACE SEAL AND COVER MAIN
ROAD ONLY



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2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

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U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
TRANSITION TO PHASE III

● Project No. 04M551.104 ● P&P C-1.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

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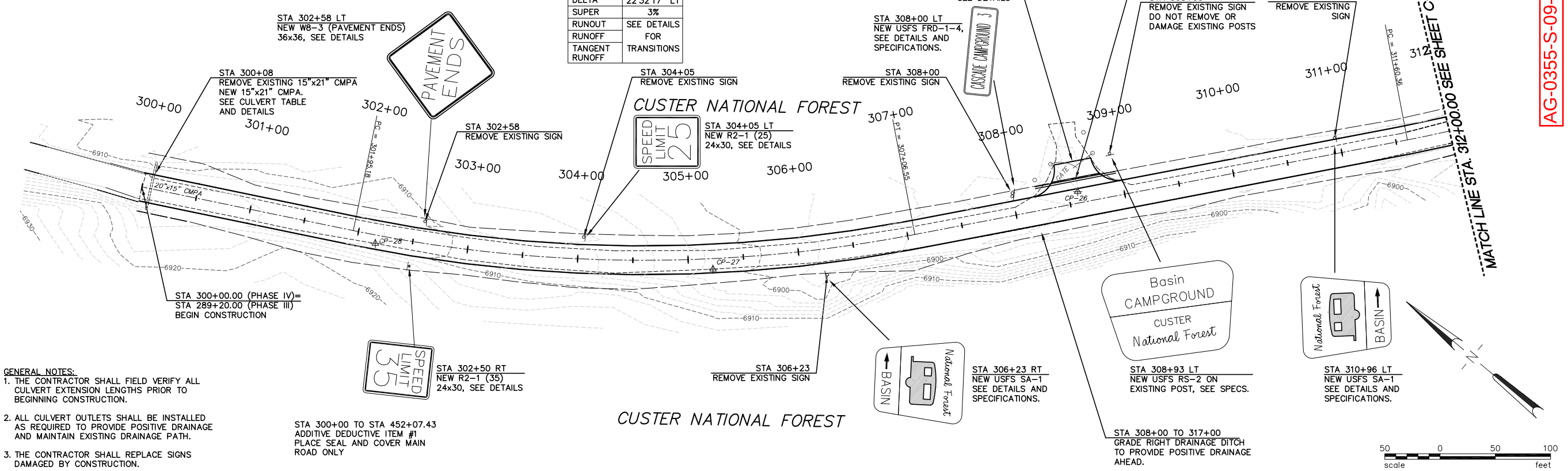
Curve #1	
PI STATION	304+54.21
RADIUS	1300.00
LENGTH	511.37
TANGENT	259.03
DELTA	22°32'17" LT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS



GENERAL NOTES:

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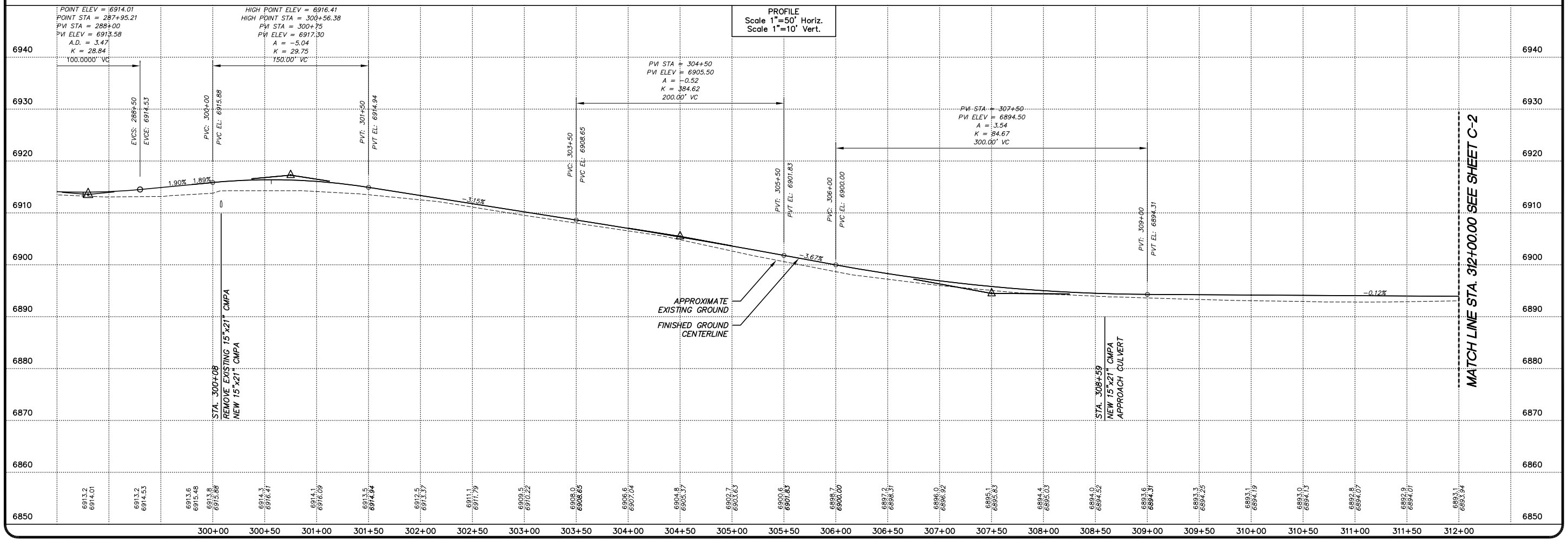

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No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

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● Project No. 04M551.104 ● P&P C-1.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 300+00.00 TO STA. 312+00.00

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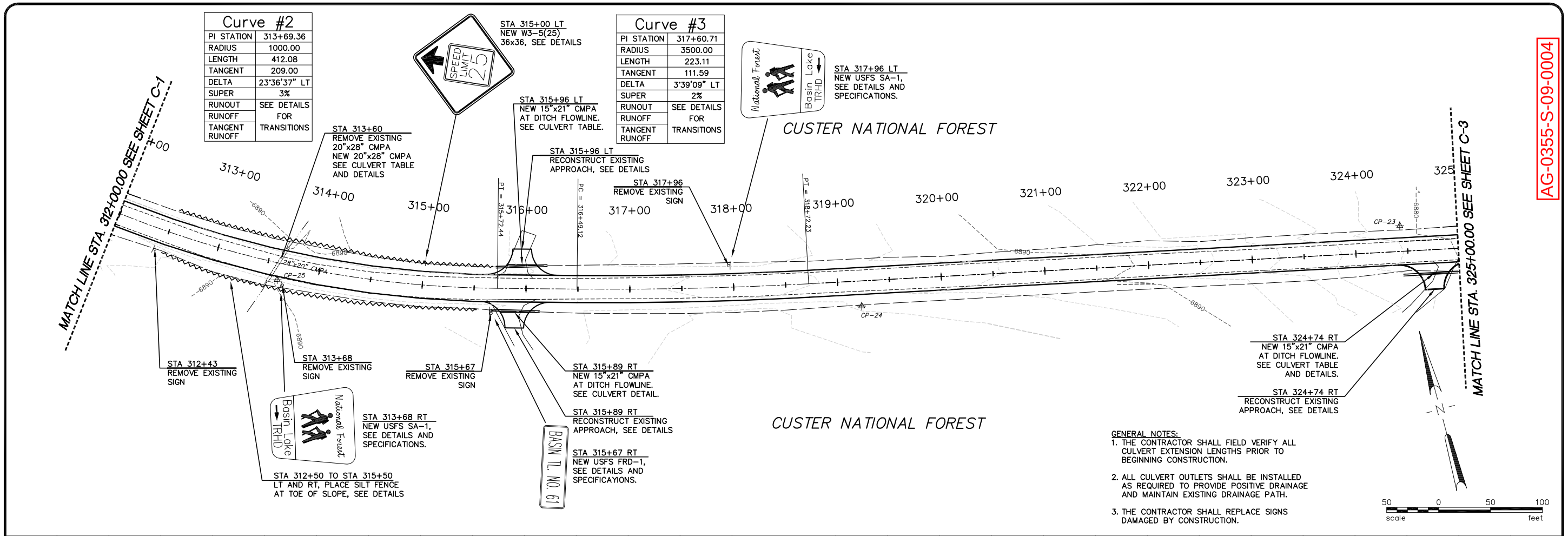
Sheet No.
C-1A

Curve #2	
PI STATION	313+69.36
RADIUS	1000.00
LENGTH	412.08
TANGENT	209.00
DELTA	23°36'37" LT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

Curve #3	
PI STATION	317+60.71
RADIUS	3500.00
LENGTH	223.11
TANGENT	111.59
DELTA	3°39'09" LT
SUPER	2%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS



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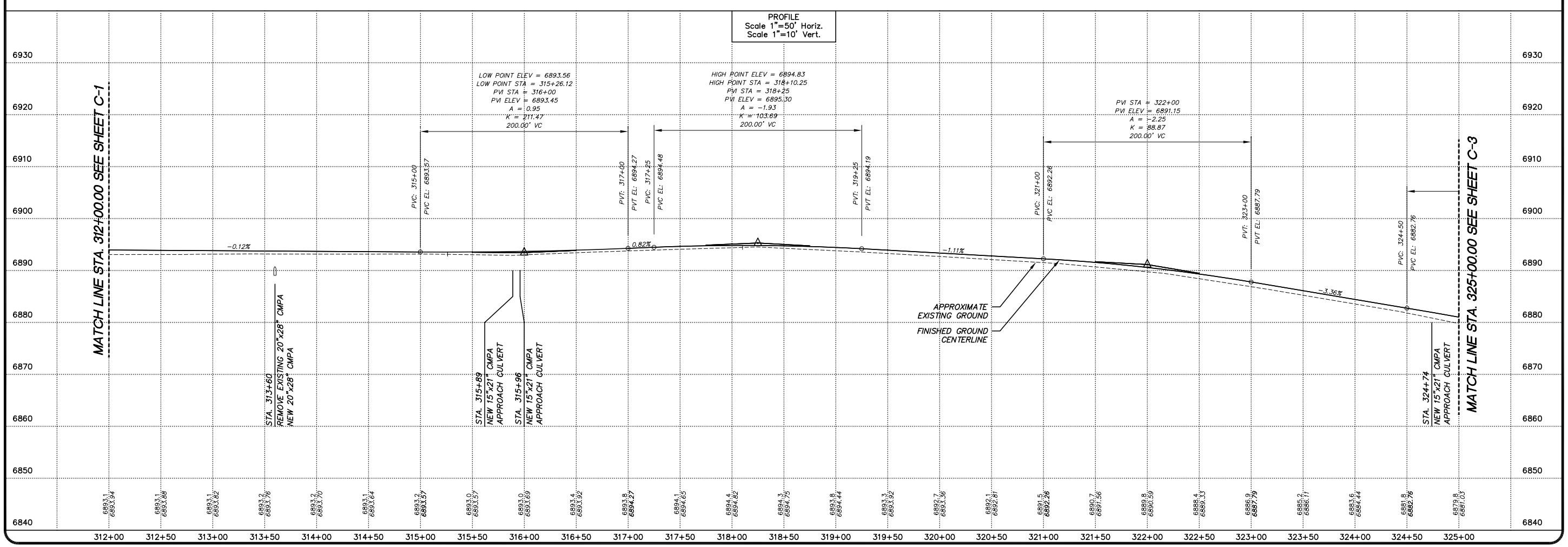

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2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

Project No. G4M551.104 ● P&P C-2.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

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BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 312+00.00 TO STA. 325+00.00

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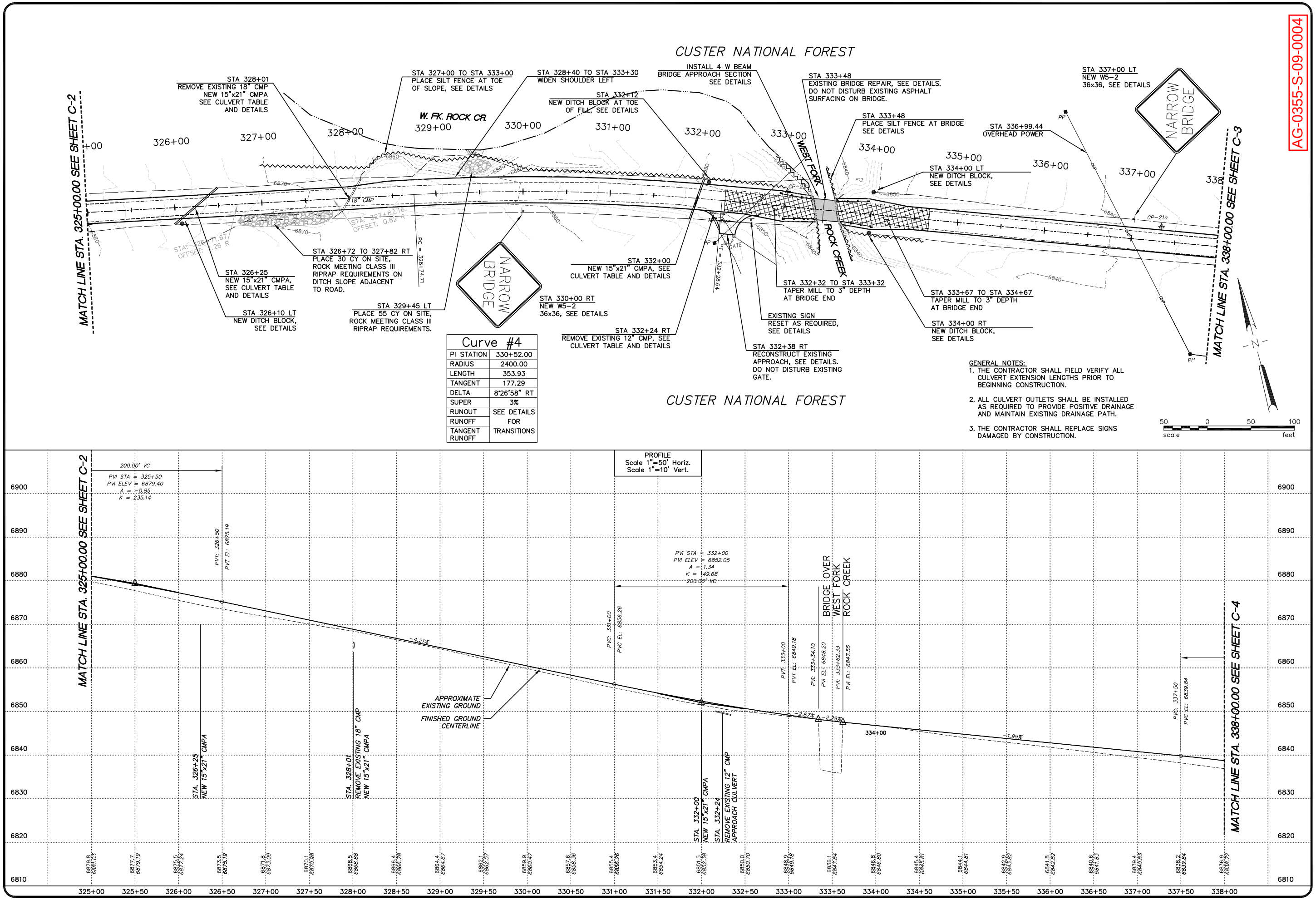

Curve #4	
PI STATION	330+52.00
RADIUS	2400.00
LENGTH	353.93
TANGENT	177.29
DELTA	8°26'58" RT
SUPER	3%
RUNOUT	SEE DETAILS FOR TRANSITIONS
RUNOFF	
TANGENT RUNOFF	

GENERAL NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL CULVERT EXTENSION LENGTHS PRIOR TO BEGINNING CONSTRUCTION.
2. ALL CULVERT OUTLETS SHALL BE INSTALLED AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN EXISTING DRAINAGE PATH.
3. THE CONTRACTOR SHALL REPLACE SIGNS DAMAGED BY CONSTRUCTION.

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Project No. G4M551.104 ● P&P C-3.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 325+00.00 TO STA. 338+00.00

HKM Engineering Inc.
601 Nikles Drive
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Sheet No.
C-3

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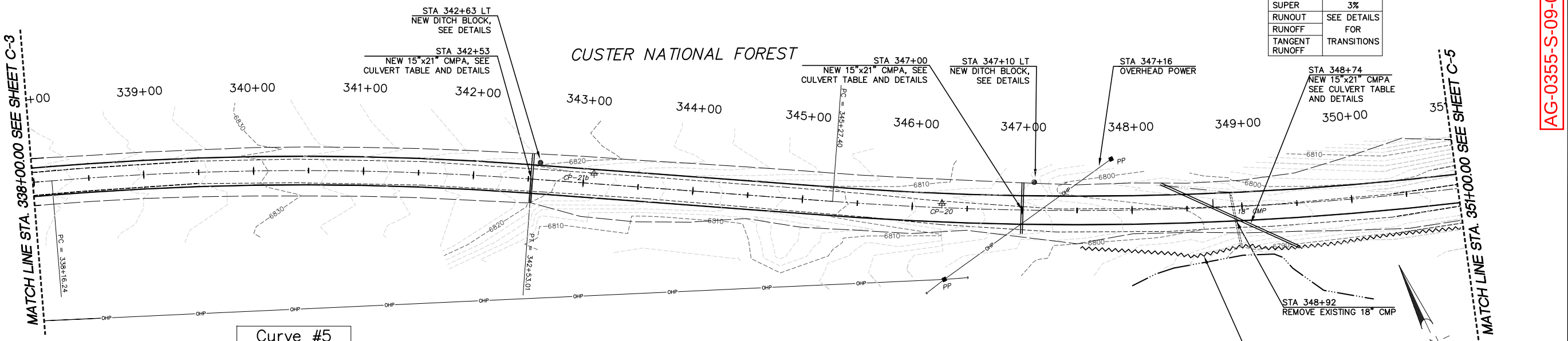
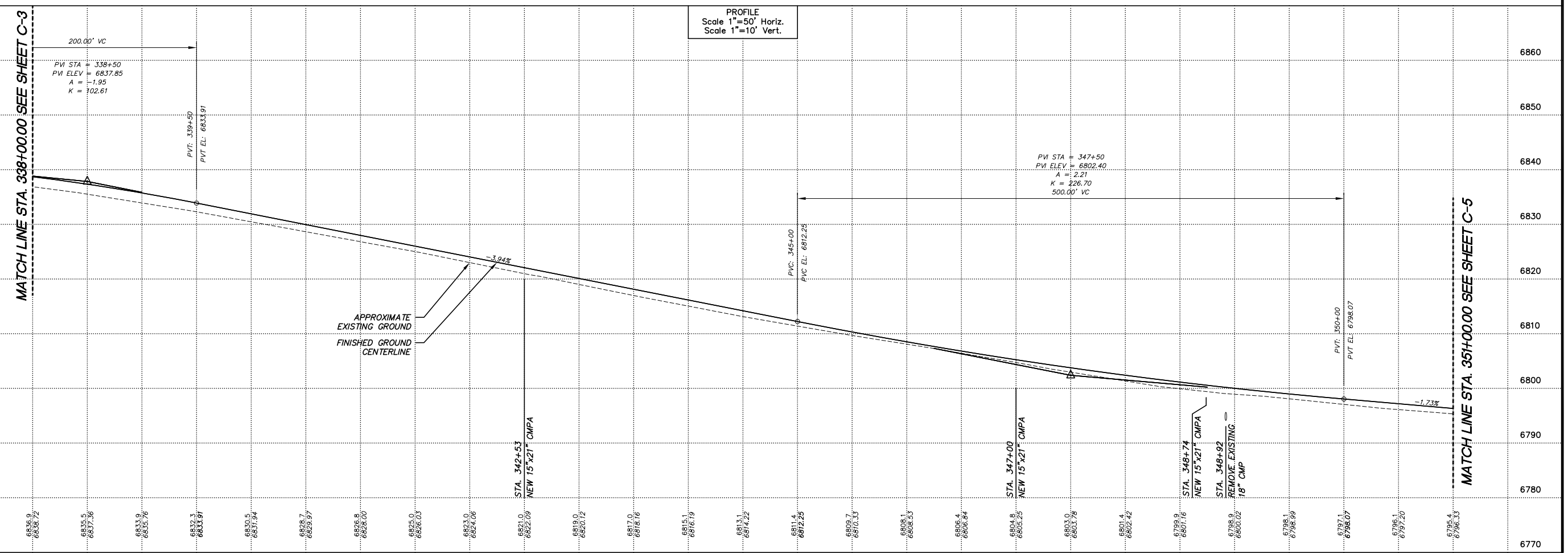


Curve #5	
PI STATION	340+35.07
RADIUS	2800.00
LENGTH	436.77
TANGENT	218.83
DELTA	8°56'15" RT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

Curve #6	
PI STATION	348+18.60
RADIUS	3000.00
LENGTH	580.58
TANGENT	291.20
DELTA	11°05'18" LT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

GENERAL NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL CULVERT EXTENSION LENGTHS PRIOR TO BEGINNING CONSTRUCTION.
2. ALL CULVERT OUTLETS SHALL BE INSTALLED AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN EXISTING DRAINAGE PATH.
3. THE CONTRACTOR SHALL REPLACE SIGNS DAMAGED BY CONSTRUCTION.



No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

● Project No. G4M551.104 ● P&P C-4.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 338+00.00 TO STA. 351+00.00

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Sheet No.
C-4

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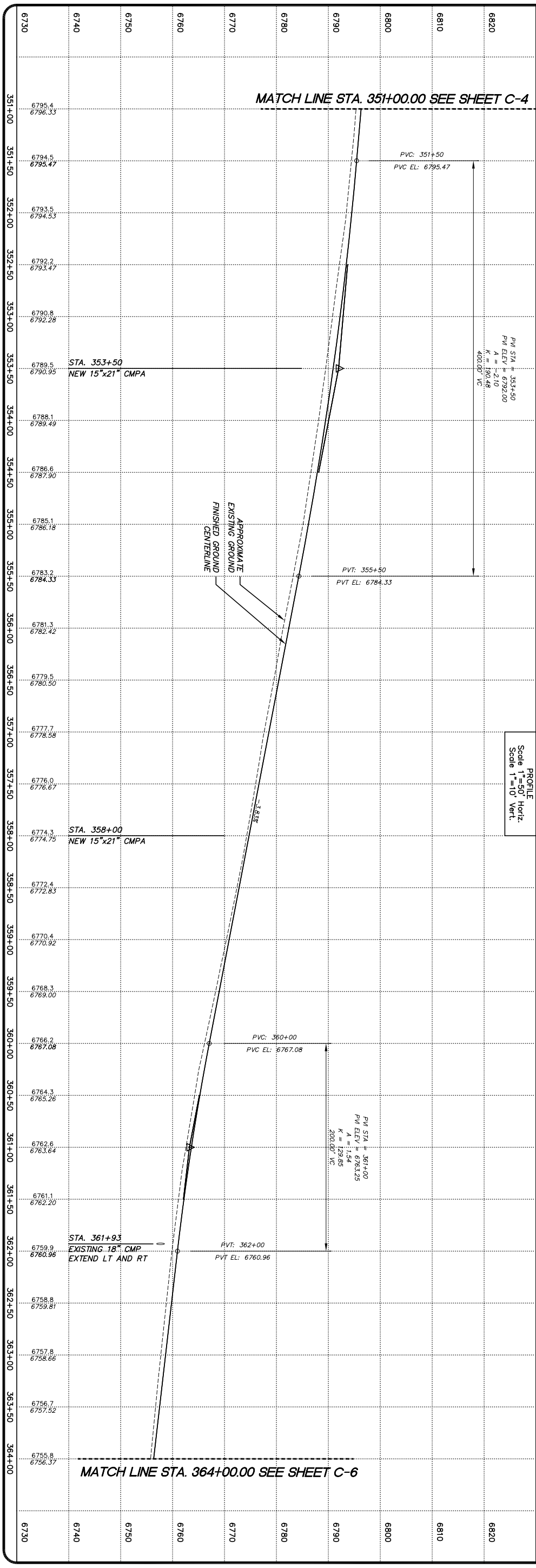
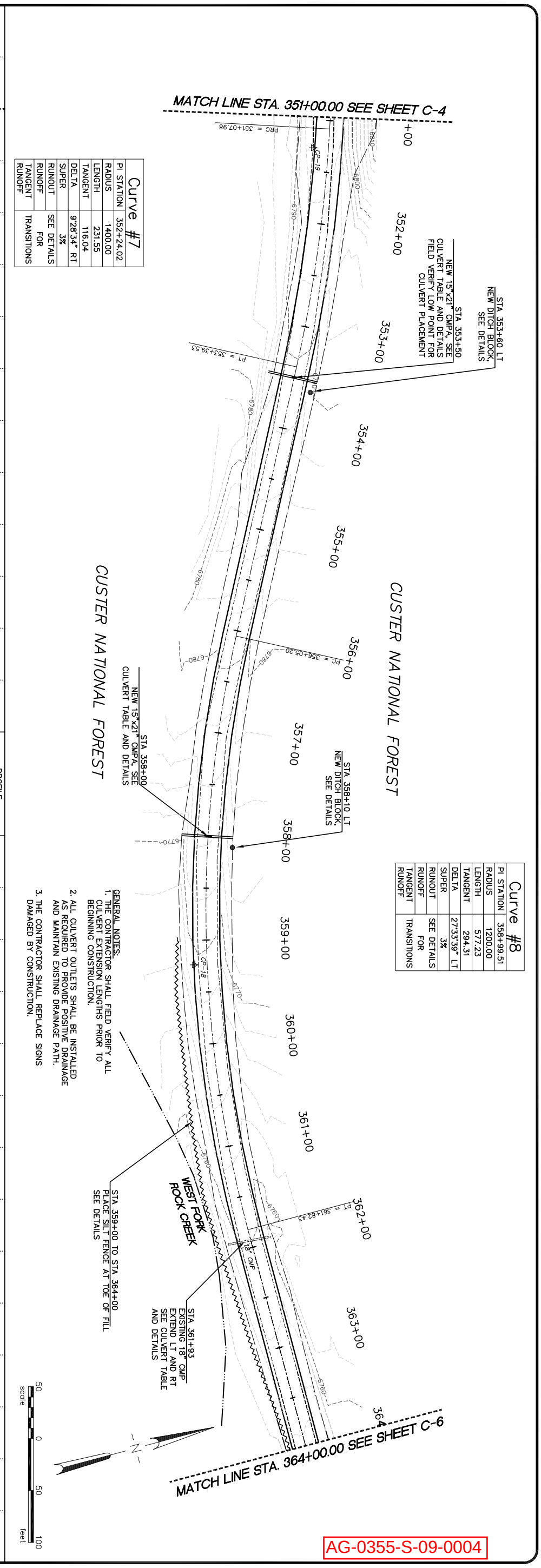


Curve #7	
PI STATION	352+24.02
RADIUS	1400.00
LENGTH	231.55
TANGENT	116.04
DELTA	9°28'34" RT
SUPER	3%
RUNOUT	SEE DETAILS FOR TRANSITIONS
RUNOFF	
TANGENT RUNOFF	



Curve #8	
PI STATION	358+99.51
RADIUS	1200.00
LENGTH	577.23
TANGENT	294.31
DELTA	27°33'39" LT
SUPER	3%
RUNOUT	SEE DETAILS FOR TRANSITIONS
RUNOFF	
TANGENT RUNOFF	

GENERAL NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL CULVERT EXTENSION LENGTHS PRIOR TO BEGINNING CONSTRUCTION.
2. ALL CULVERT OUTLETS SHALL BE INSTALLED AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN EXISTING DRAINAGE PATH.
3. THE CONTRACTOR SHALL REPLACE SIGNS DAMAGED BY CONSTRUCTION.

AG-0355-S-09-0004

● Project No. 04M551.104 ● P&P C-5.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

Sheet No. C-5

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BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 351+00.00 TO STA. 364+00.00

WARNING
0 ? 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

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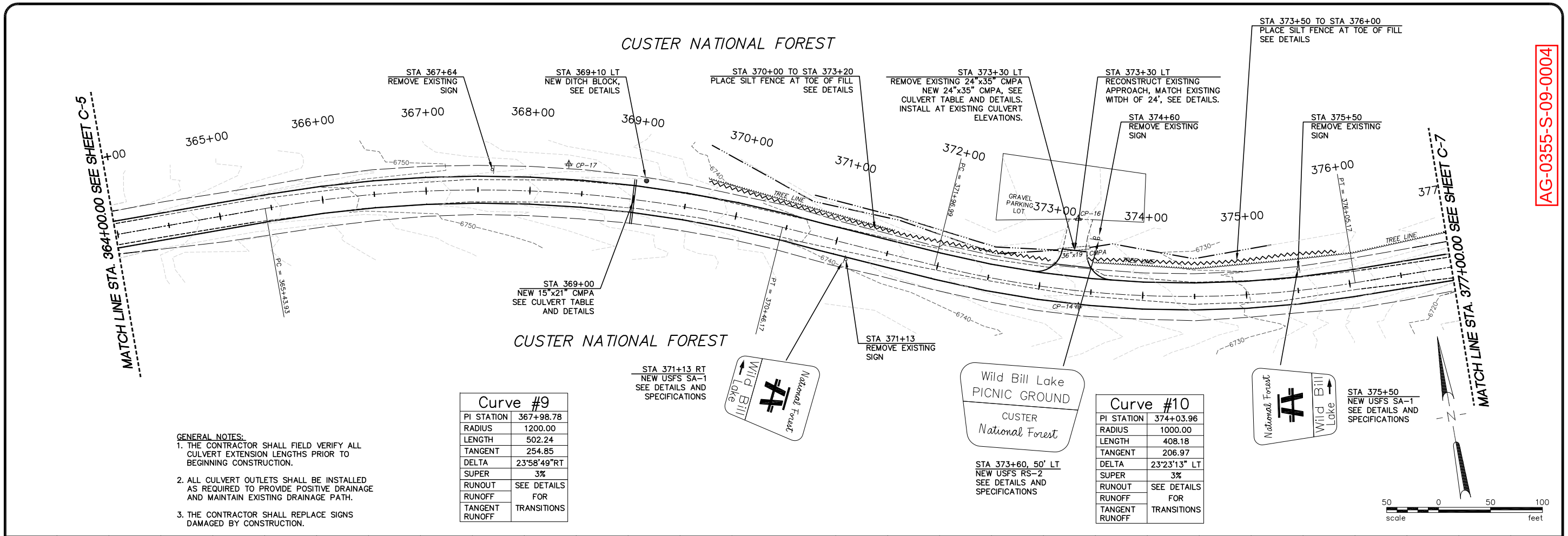

Curve #9	
PI STATION	367+98.78
RADIUS	1200.00
LENGTH	502.24
TANGENT	254.85
DELTA	23°58'49"RT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

Curve #10	
PI STATION	374+03.96
RADIUS	1000.00
LENGTH	408.18
TANGENT	206.97
DELTA	23°23'13" LT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

GENERAL NOTES:

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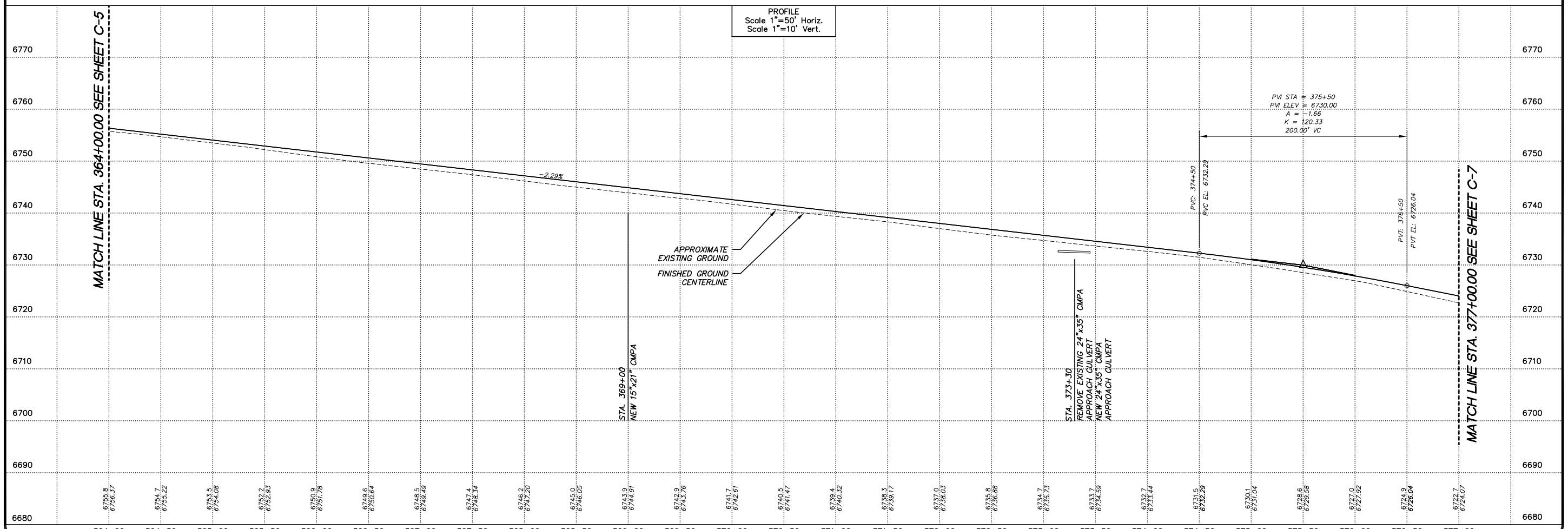

AG-0355-S-09-0004

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

● Project No. G4M551.104 ● P&P C-6.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 364+00.00 TO STA. 377+00.00

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Sheet No.
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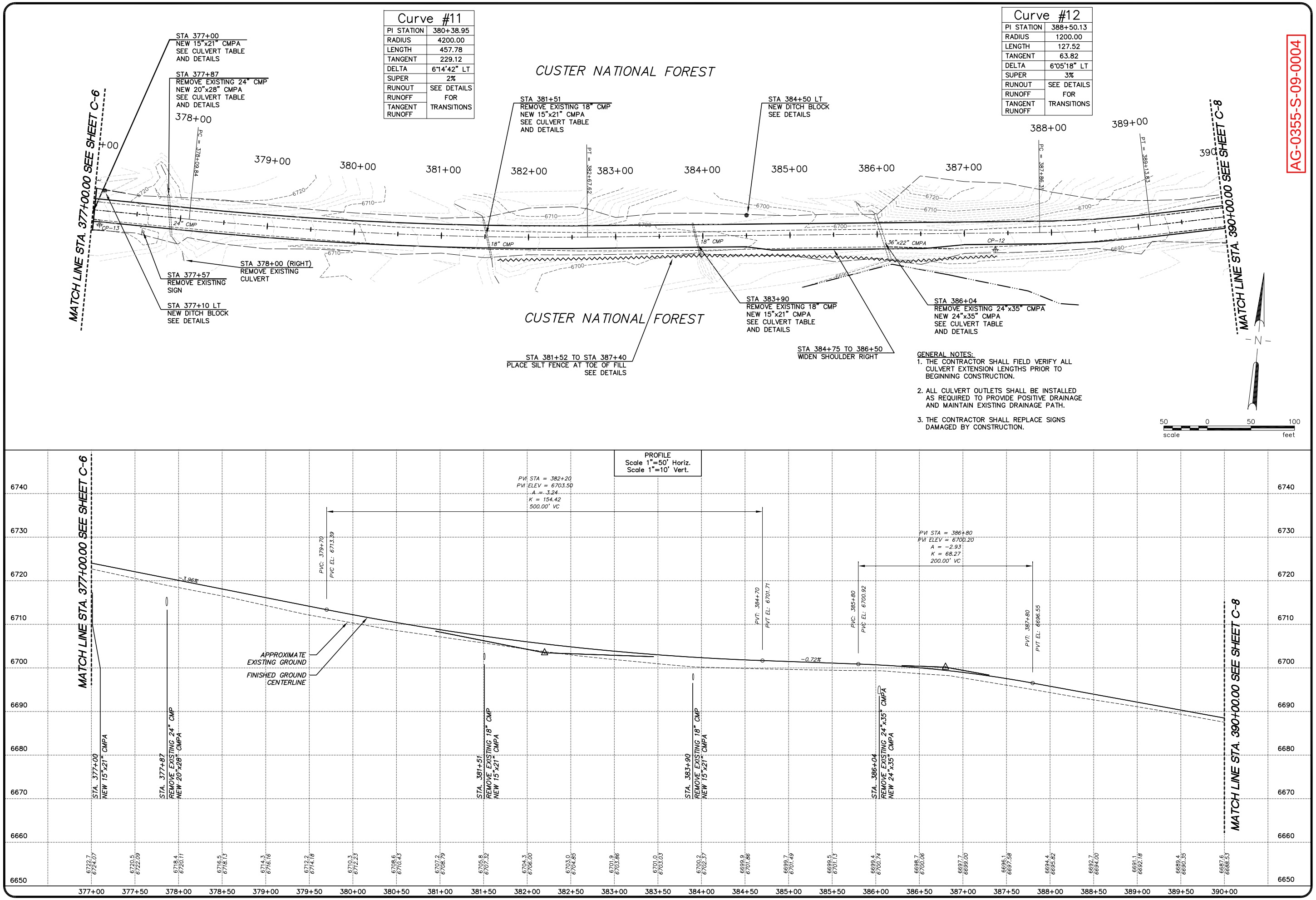
Curve #11	
PI STATION	380+38.95
RADIUS	4200.00
LENGTH	457.78
TANGENT	229.12
DELTA	6°14'42" LT
SUPER	2%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

Curve #12	
PI STATION	388+50.13
RADIUS	1200.00
LENGTH	127.52
TANGENT	63.82
DELTA	6°05'18" LT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS



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AG-0355-S-09-0004

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

WARNING
0 1
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U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 377+00.00 TO STA. 390+00.00

● Project No. 04M551.104 ● P&P C-7.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

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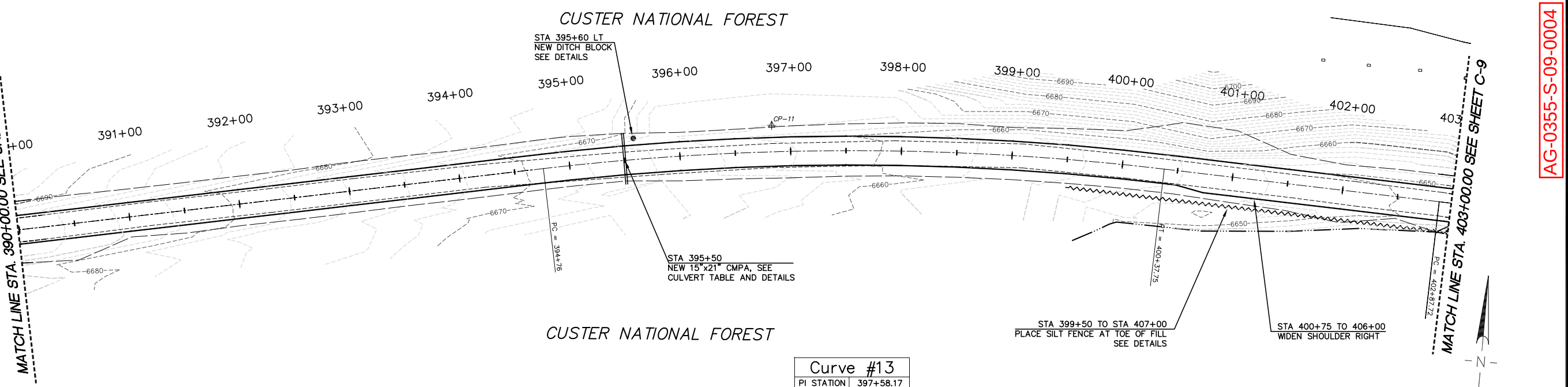

AG-0355-S-09-0004

Curve #13	
PI STATION	397+58.17
RADIUS	2400.00
LENGTH	561.75
TANGENT	282.16
DELTA	13°24'39" RT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

GENERAL NOTES:
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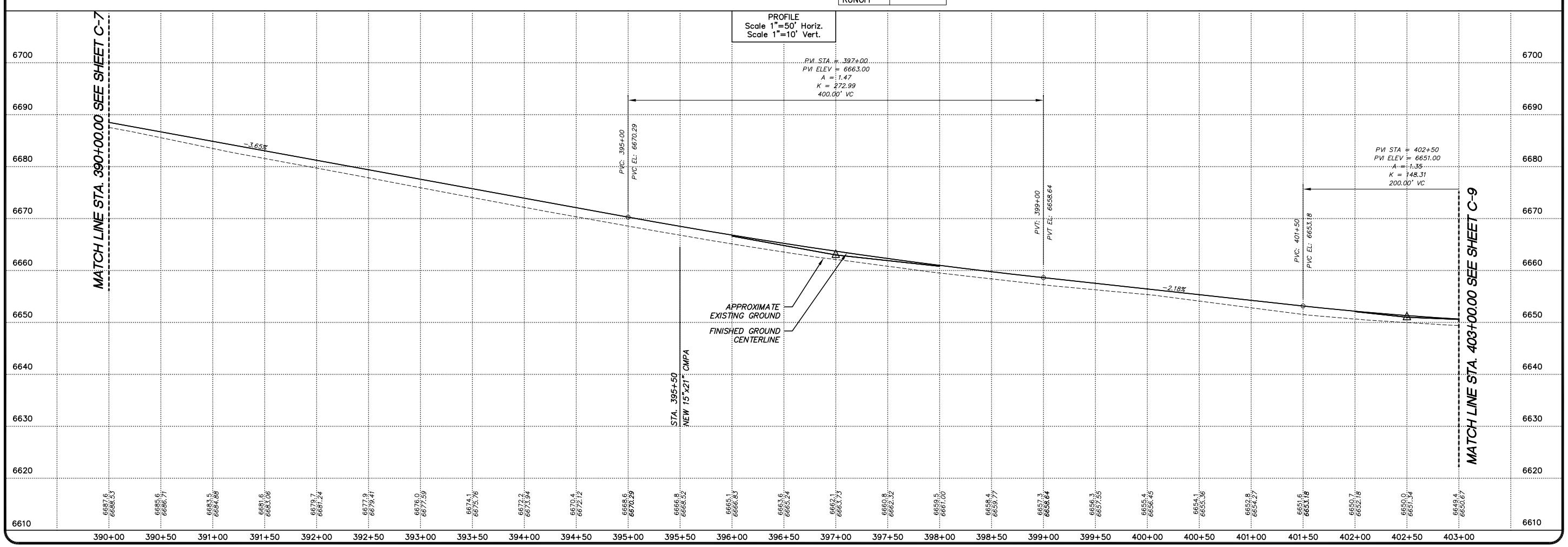

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Project No. 04M551.104 ● P&P C-8.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 390+00.00 TO STA. 403+00.00

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Sheet No.
C – 8

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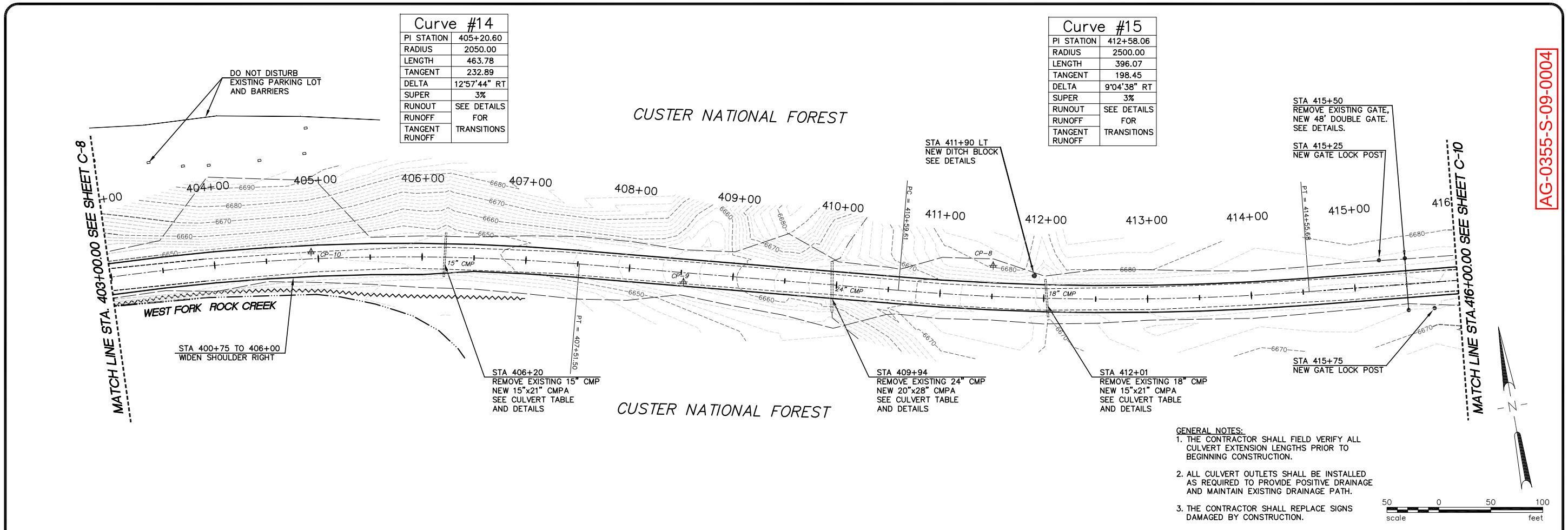
Curve #14	
PI STATION	405+20.60
RADIUS	2050.00
LENGTH	463.78
TANGENT	232.89
DELTA	12°57'44" RT
SUPER	3%
RUNOUT	SEE DETAILS FOR TRANSITIONS
RUNOFF	
TANGENT RUNOFF	

Curve #15	
PI STATION	412+58.06
RADIUS	2500.00
LENGTH	396.07
TANGENT	198.45
DELTA	9°04'38" RT
SUPER	3%
RUNOUT	SEE DETAILS FOR TRANSITIONS
RUNOFF	
TANGENT RUNOFF	



GENERAL NOTES:

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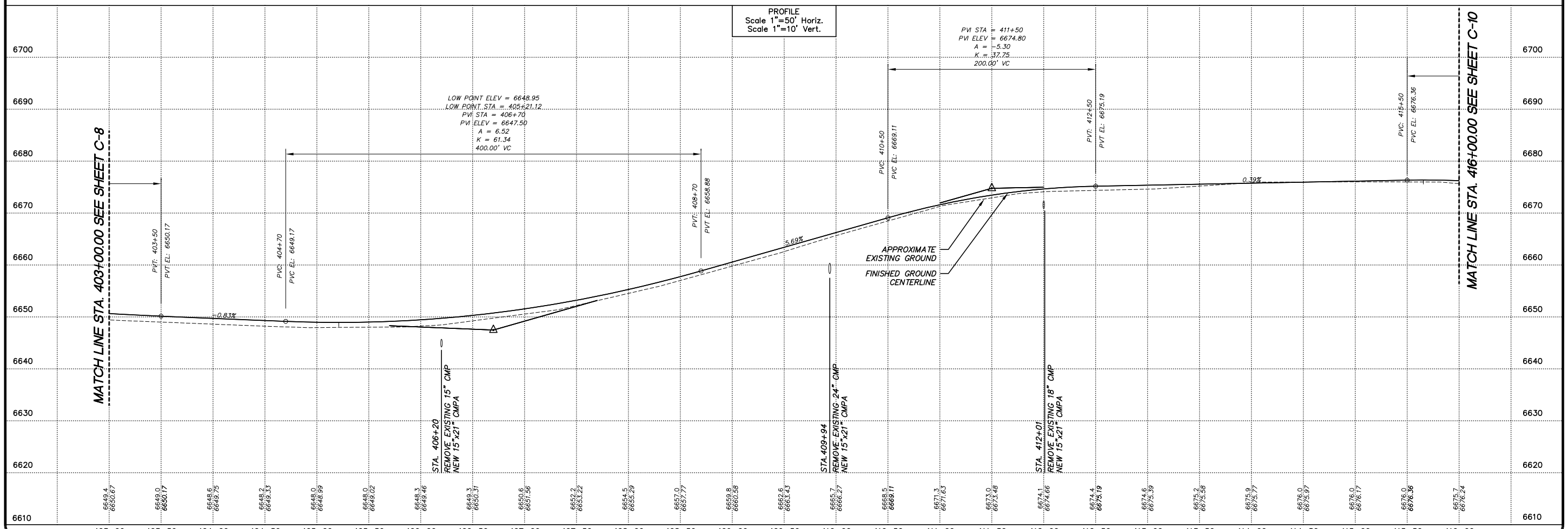
2. ALL CULVERT OUTLETS SHALL BE INSTALLED AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN EXISTING DRAINAGE PATH.
3. THE CONTRACTOR SHALL REPLACE SIGNS DAMAGED BY CONSTRUCTION.

50 0 50 100
scale feet



AG-0355-S-09-0004

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 403+00.00 TO STA. 416+00.00

Project No. G4M551.104 ● P&P C-9.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

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Sheet No.
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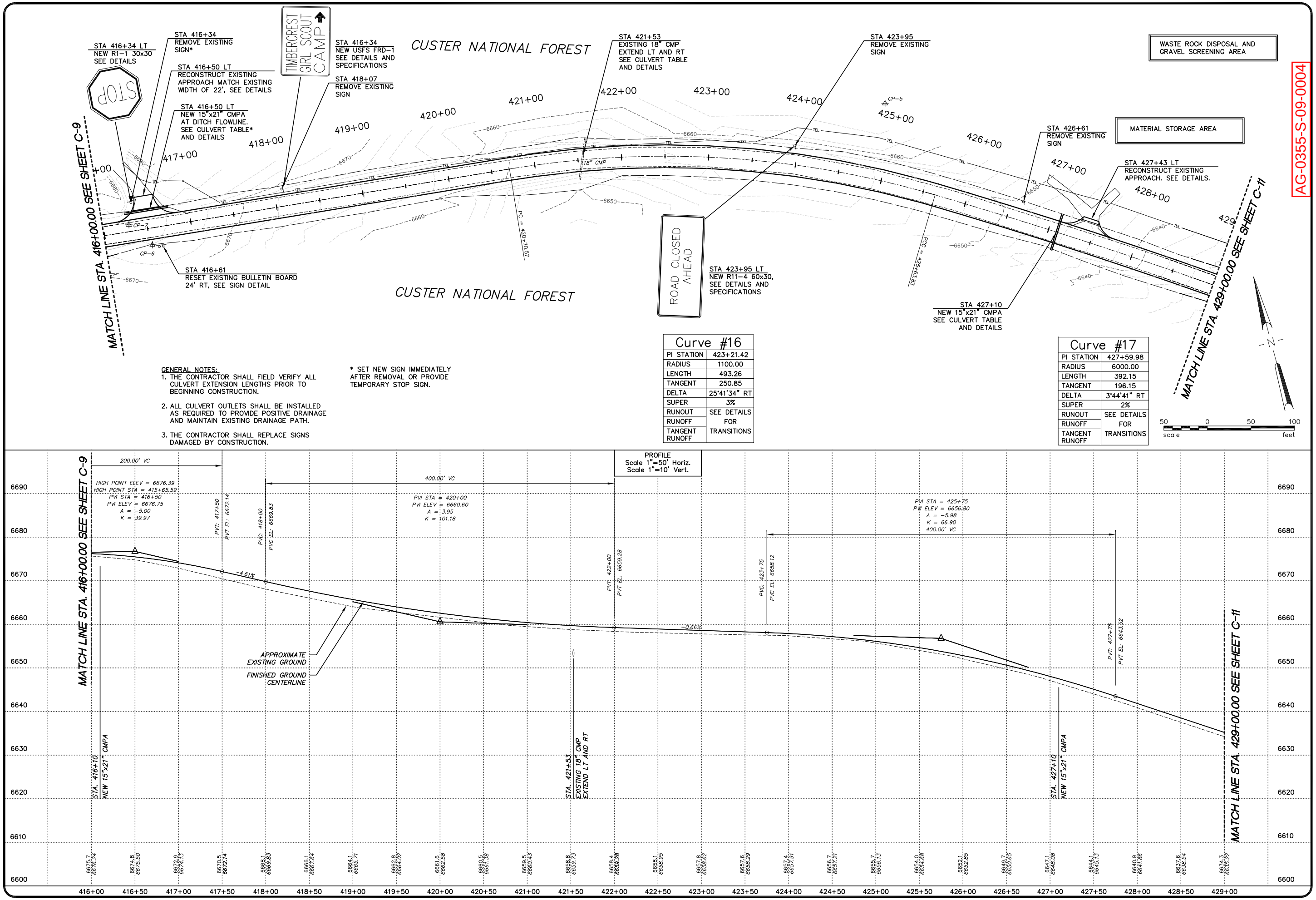

GENERAL NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL CULVERT EXTENSION LENGTHS PRIOR TO BEGINNING CONSTRUCTION.
2. ALL CULVERT OUTLETS SHALL BE INSTALLED AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN EXISTING DRAINAGE PATH.
3. THE CONTRACTOR SHALL REPLACE SIGNS DAMAGED BY CONSTRUCTION.

* SET NEW SIGN IMMEDIATELY AFTER REMOVAL OR PROVIDE TEMPORARY STOP SIGN.

Curve #16	
PI STATION	423+21.42
RADIUS	1100.00
LENGTH	493.26
TANGENT	250.85
DELTA	25°41'34" RT
SUPER	3%
RUNOUT	SEE DETAILS FOR TRANSITIONS
RUNOFF	
TANGENT RUNOFF	

Curve #17	
PI STATION	427+59.98
RADIUS	6000.00
LENGTH	392.15
TANGENT	196.15
DELTA	3°44'41" RT
SUPER	2%
RUNOUT	SEE DETAILS FOR TRANSITIONS
RUNOFF	
TANGENT RUNOFF	

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AG-0355-S-09-0004

No.	Revision	By	Date
1	50% SUBMITTAL	RDH	12/1/03
2	95% SUBMITTAL	SMJ	1/30/04
3	CONST. PLANS	NMG	5/04

Project No. G4M551.104 ● P&P C-10.LAYOUT ● Date MAY 2004 ● Designed LHB ● Drawn SMJ ● Checked LHB ● Approved GCU

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 416+00.00 TO STA. 429+00.00

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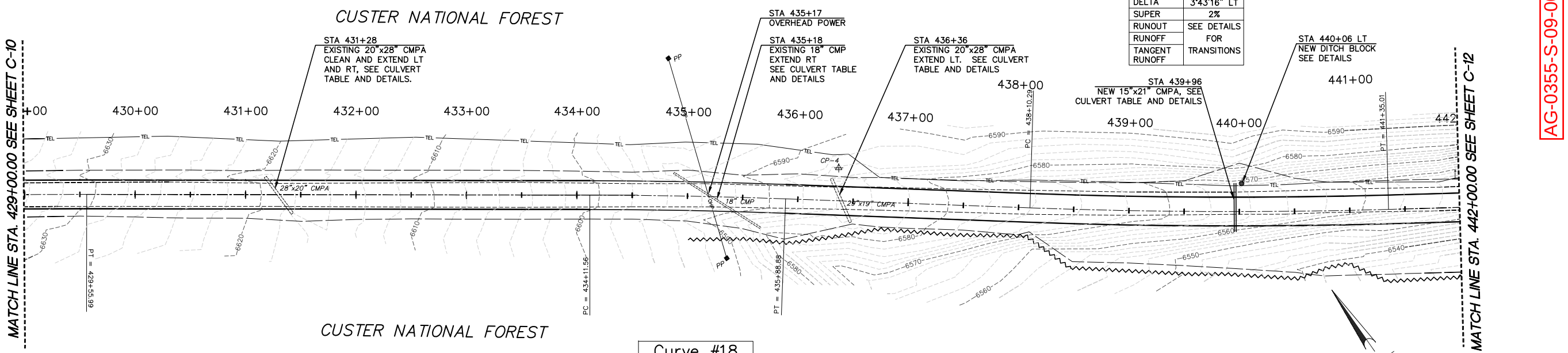


AG-0355-S-09-0004

Curve #19	
PI STATION	439+72.71
RADIUS	5000.00
LENGTH	324.72'
TANGENT	162.42'
DELTA	3°43'16" LT
SUPER	2%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

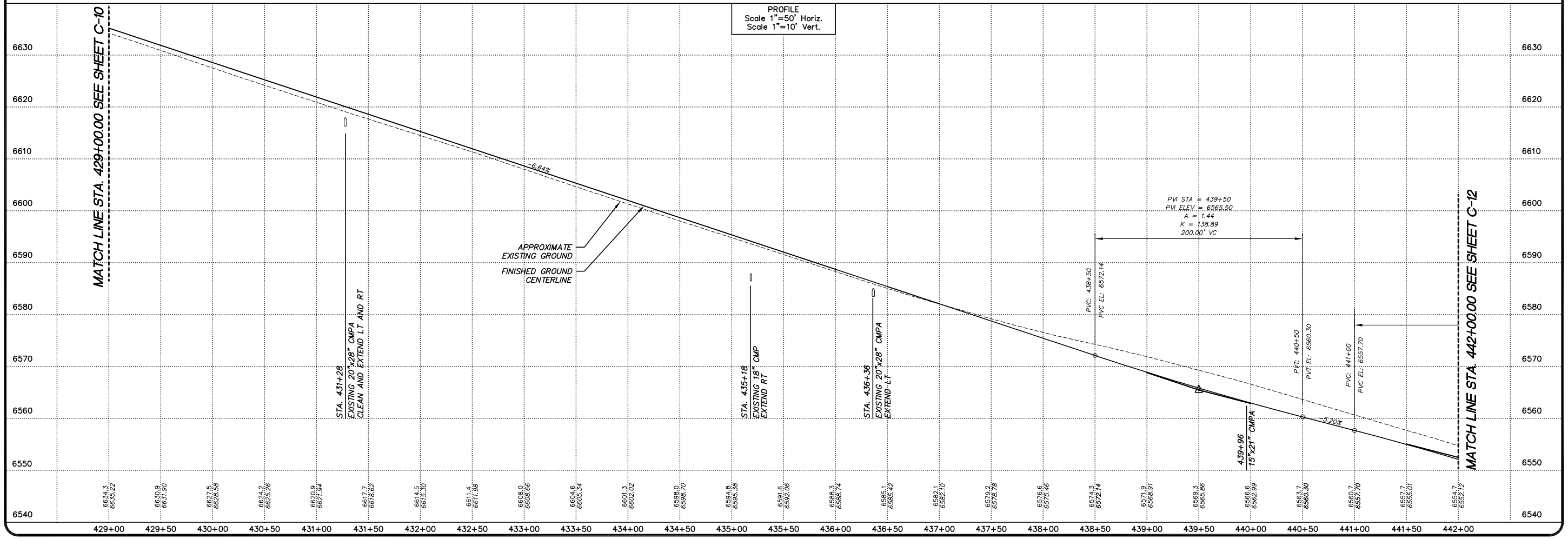
CUSTER NATIONAL FOREST

GENERAL NOTES:

1. THE CONTRACTOR SHALL FIELD VERIFY ALL CULVERT EXTENSION LENGTHS PRIOR TO BEGINNING CONSTRUCTION.
2. ALL CULVERT OUTLETS SHALL BE INSTALLED AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN EXISTING DRAINAGE PATH.
3. THE CONTRACTOR SHALL REPLACE SIGNS DAMAGED BY CONSTRUCTION.

Curve #18	
PI STATION	435+00.23
RADIUS	5000.00
LENGTH	177.33'
TANGENT	88.67'
DELTA	2°01'55" RT
SUPER	2%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

PROFILE
Scale 1"=50' Horiz.
Scale 1"=10' Vert.



No.	Revision	By	Date
1	50% SUBMITTAL	WBL	6/23/06
2	95% SUBMITTAL	WBL	8/31/06
3	CONST. PLANS	WBL	11/10/06

WARNING
0 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE – STA. 429+00.00 TO STA. 442+00.00

GREAT WEST ENGINEERING
2030 11th. AVENUE
HELENA, MT 59601
(406) 449-8627, FAX (406) 449-8631

GreatWest engineering

Sheet No.
C-11

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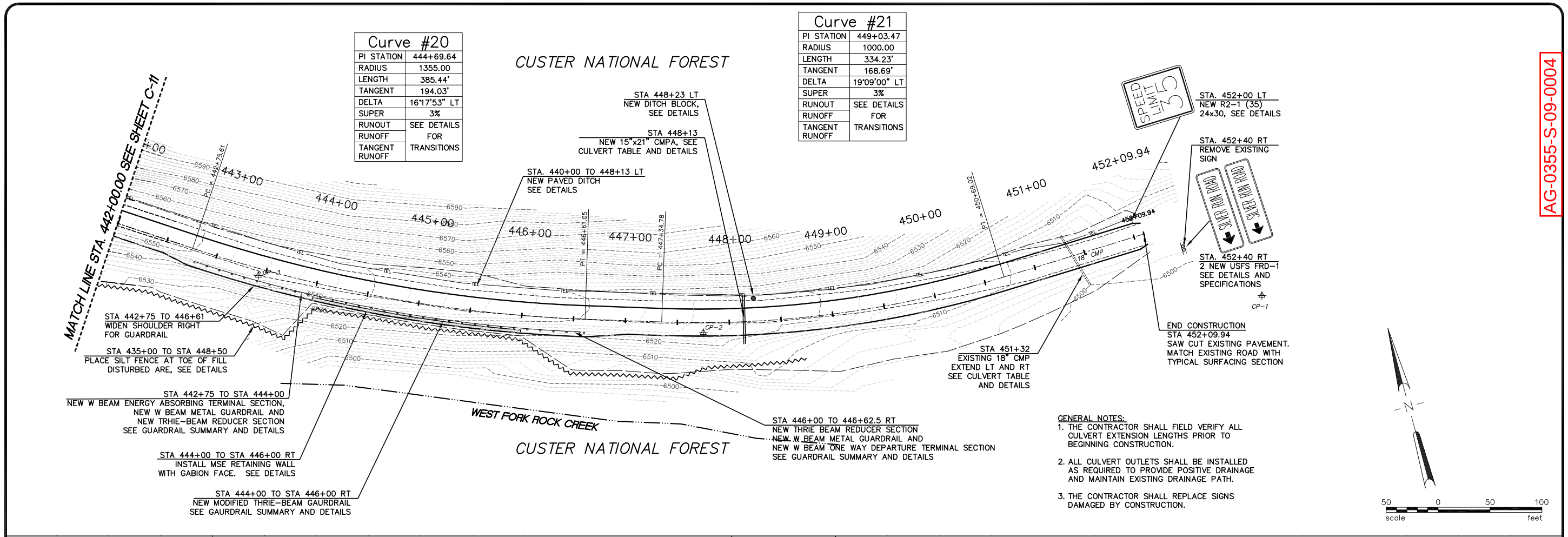
Curve #20	
PI STATION	444+69.64
RADIUS	1355.00
LENGTH	385.44'
TANGENT	194.03'
DELTA	16°17'53" LT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS

Curve #21	
PI STATION	449+03.47
RADIUS	1000.00
LENGTH	334.23'
TANGENT	168.69'
DELTA	19°09'00" LT
SUPER	3%
RUNOUT	SEE DETAILS
RUNOFF	FOR
TANGENT RUNOFF	TRANSITIONS



GENERAL NOTES:

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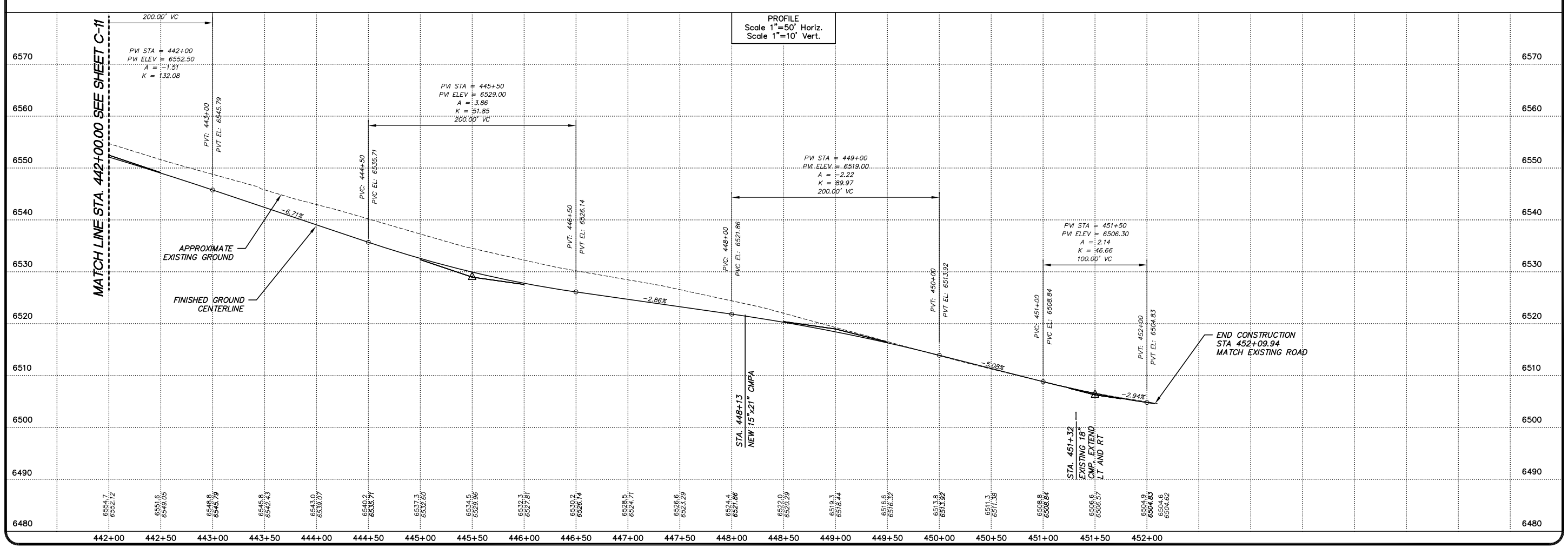
2. ALL CULVERT OUTLETS SHALL BE INSTALLED AS REQUIRED TO PROVIDE POSITIVE DRAINAGE AND MAINTAIN EXISTING DRAINAGE PATH.
3. THE CONTRACTOR SHALL REPLACE SIGNS DAMAGED BY CONSTRUCTION.



AG-0355-S-09-0004

No.	Revision	By	Date
1	50% SUBMITTAL	WBL	6/23/06
2	95% SUBMITTAL	WBL	8/31/06
3	CONST. PLANS	WBL	11/10/06

WARNING
0 1 2
IF THE BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

U.S.D.A. FOREST SERVICE – REGION 1
BEARTOOTH RANGER DISTRICT – CUSTER NATIONAL FOREST
RECONSTRUCTION OF WEST FORK ROCK CREEK ROAD #2071
PHASE IV
PLAN & PROFILE STA. 442+00.00 TO STA. 452+07.43

GREAT WEST ENGINEERING
2030 11th. AVENUE
HELENA, MT 59601
(406) 449-8627, FAX (406) 449-8631

Sheet No.
C-12

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