

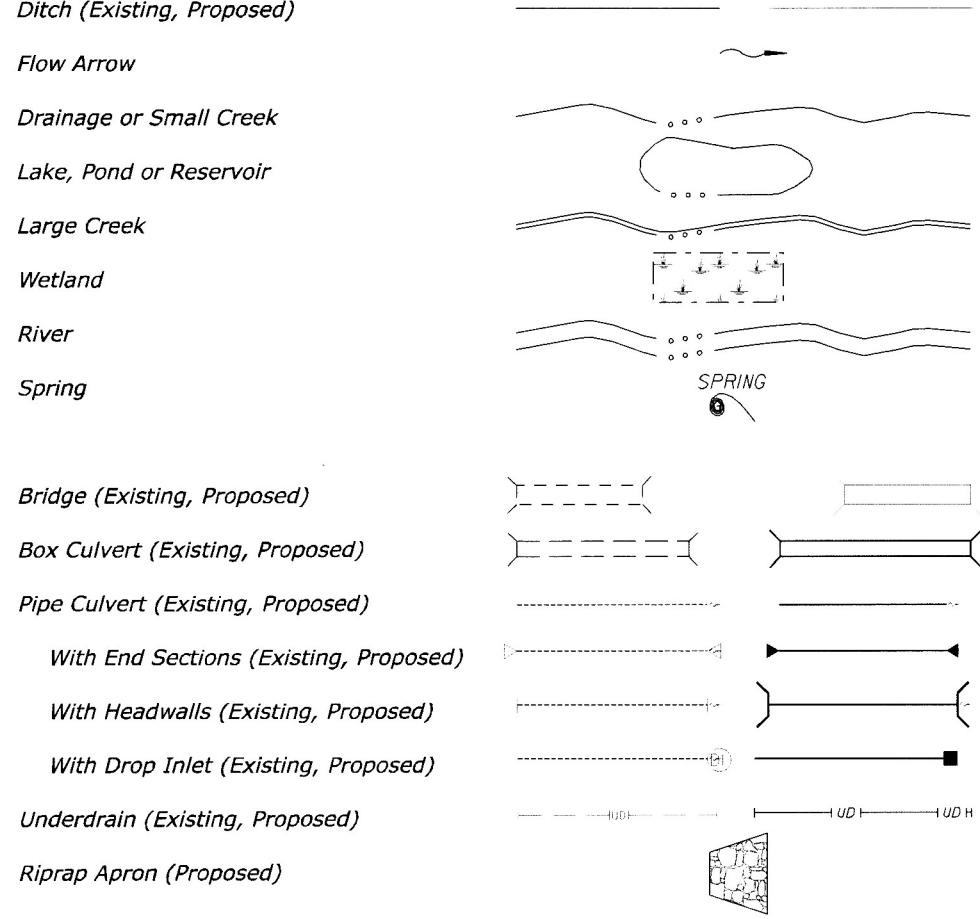
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	A2	A7

**ABBREVIATIONS**

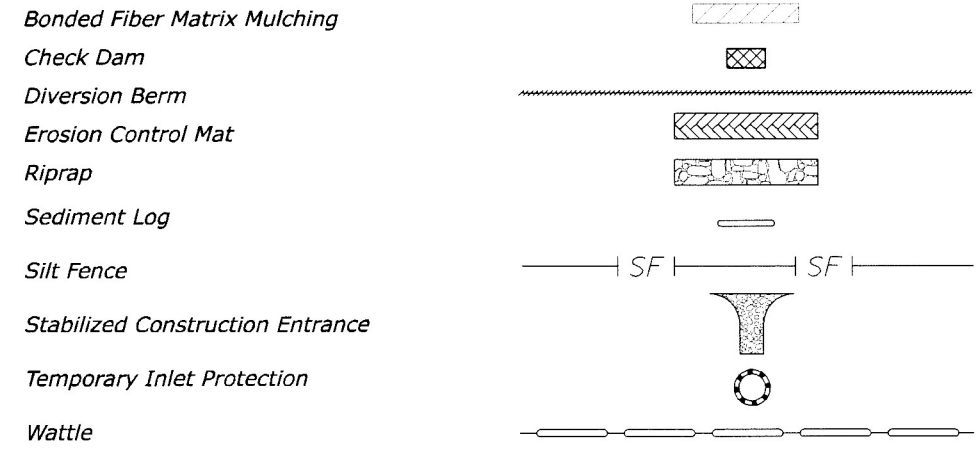
℄	centerline
Δ	curve delta
<b>A</b> abut.	abutment
ADT	average daily traffic
aggr.	aggregate
AH	ahead
alt.	alternate
appr.	approach
asph.	asphalt
<b>B</b> b.f.	both faces
beg.	beginning, begin
BK	back
BM	bench mark
BP	balance point
br.	bridge
brg.	bearing
<b>C</b> CBC	concrete box culvert
c-c	center to center
cl.	clear
CMP	corrugated metal pipe
Co.	county
col.	column
conc.	concrete
constr.	construction
constr. jt.	construction joint
cont.	continuous
corr.	corrugated
cr.	creek
CS	point of curve to spiral
ctrs.	centers
CTSM	contingent sum
culv.	culvert
<b>D</b> decr.	decrement
DHV	design hour volume
DI	drop inlet
dia. or D	diameter
diag.	diagonal
diaph.	diaphragm
dist.	distance
Dist.	district
DLC	donation land claim
dwg(s).	drawing(s)
<b>E</b> E	east
e	superelevation rate
El. 94.066	elevation with number
elev.	elevation
emb.	embankment
engr(s).	Engineer(s)
EOP	edge of pavement
EQ or eq.	equation
ER	edge of road
et al	and others
et ux	and wife
EW	edge of water
exc.	excavation
exp. jt.	expansion joint
ext.	exterior
<b>F</b> f.f.	fill face
Fed.	federal
FES	flared end section
fin.	finish
ftg.	footing
<b>G</b> ga.	gage (gauge)
galv.	galvanized
gdr.	girder
<b>H</b> hdwl.	headwall
HES	homestead entry survey
hex.	hexagon
horiz.	horizontal
HW	high water
hwy.	highway
<b>I</b> ID	inside diameter
incl.	inclusive, including
incr.	increment
int.	interior
<b>J</b> jt.	joint

<b>L</b> L	length of curve
lam.	lamination
lat.	latitude
long.	longitudinal
LPSM	lump sum
Lt. or LT	left
LW	low water
<b>M</b> mag.	magnetic
maint.	maintenance
matl.	material
max.	maximum
min.	minimum
mon.	monument
mntn(s).	mountain(s)
<b>N</b> N	north
NC	normal crown
neg.	negative
no. or #	number
<b>O</b> o.c.	on centers
o.f.	other face
OD	outside diameter
<b>P</b> PC	point of curve
PCC	point of compound curve
perf.	perforate
PI	point of intersection
pl.	plate
POC	point on curve
POS	point on spiral
POT	point on tangent
proj.	project
psi	pounds per square inch
PT	point of tangent
pvmt.	pavement
<b>Q</b> quant., Qty	quantities
<b>R</b> R	radius
R.	range
R/W	right-of-way
rd.	road
rdwy.	roadway
reconst.	reconstruction
reinf.	reinforcement
reqd.	required
res.	reservoir
Res.	Reservation
ret. wall	retaining wall
RH	reference hub
Rt. or RT	right
rte.	route
<b>S</b> S	south
SADT	seasonal average daily traffic
SC	point of spiral to curve
sec.	section
shldr.	shoulder
spa.	spacing, Spaces or Spaced
spec.	specification
st.	street
ST	point of spiral to tangent
sta.	station
std.	standard
stiff.	stiffener
str.	straight
struc.	structural
sym.	symmetrical
<b>T</b> T	tangent length
T.	township
tan.	tangent
TBM	temporary bench mark
TCE	temporary construction easement
transv.	transverse
TS	point of tangent to spiral
typ.	typical
<b>V</b> V	vertical
vert.	vertical
vph	vehicles per hour
VPI	vertical point of intersection
<b>W</b> W	west

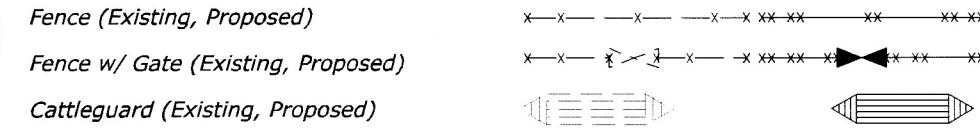
**DRAINAGE SYMBOLS**



**EROSION & SEDIMENT CONTROL SYMBOLS**



**FENCE & CATTLEGUARD SYMBOLS**



**GEOLOGIC SYMBOLS**



**GENERAL NOTES**


1. Design based on GPS data collector and partial survey information. Centerline is not necessarily the horizontal control line from station 384+00 to 661+20. Contractor to determine centerline of the road based on existing roadway location.
2. All proposed features shown in plans such as run-out ditches, approach roads, culverts, pull outs, etc are a general depiction of the intended design. Final location of these features will be directed by the contracting officer.
3. All signs removed and not reset become the property of the BLM.
4. All existing signs not called out are to be protected and remain in place at no additional cost to the project.

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U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
 U.S. CUSTOMARY  
**CONVENTIONAL PLAN**  
**SYMBOLS AND ABBREVIATIONS**  
 Sheet 1 of 2

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
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### LANDSCAPING & VEGETATION SYMBOLS

Tree 

Treeline 

### MAPPING SYMBOLS

Building (Existing, Proposed) 

Coordinate Grid Tick 

North Arrow 

Railroad Single Track 



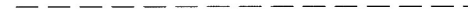


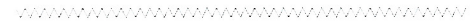






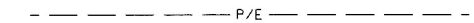
Double Track 



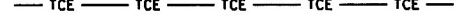

Spot Elevation 

Trail 


Survey Control Point 




### RIGHT-OF-WAY SYMBOLS

Boundaries  
 National   
 State   
 County   
 City   
 Township or Range Line   
 Section   
 1/4 Section   
 1/16 Section   
 Bureau of Indian Affairs   
 Bureau of Land Management   
 National Forest   
 National Park   
 National Wildlife Refuge 


Easements  
 Construction & Maintenance   
 Permanent (Existing)   
 Permanent (Proposed)   
 Temporary (Proposed) 


Monument (As described) 

Parcel Number 

Property Line   
 Right-of-Way Line (Existing)   
 Right-of-Way Line (Proposed) 

Section Corner (Found, Projected) 


1/4 Section Corner (Found, Projected) 

1/16 Section Corner (Found) 

### GUARDRAIL, BARRIER & WALL SYMBOLS

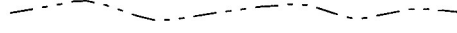
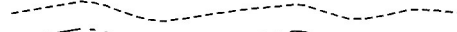
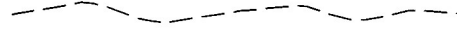


Guardrail (Existing, Proposed) 

Guardwall (Existing, Proposed) 

Median & Side Barrier (Existing, Proposed) 

Retaining Wall (Existing, Proposed) 

### ROADWAY SYMBOLS

Clearing/Construction Limits   
 Slope Stake Limits   
 Top of Cut   
 Transition   
 Toe of Fill 





Edge of Roadway Existing 

Proposed 






Roadway Centerline (With Station ticks) 

Roadway Obliteration 

### SIGN SYMBOLS


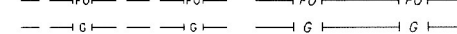






Signs  
 Commercial (Existing, Proposed)   
 Delineator (Existing, Proposed)   
 Portable (Proposed)   
 Post Mounted (Existing, Proposed) 

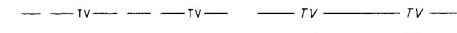

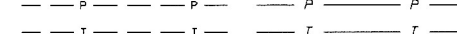

### UTILITY SYMBOLS

Irrigation Ditch  
 Underground (Existing, Proposed)   
 Surface (Existing, Proposed)   
 Support Pole (Existing, Proposed)   
 Support Pole Anchor (Existing, Proposed)   
 Street Light (Existing, Proposed) 

Telephone Booth (Existing, Proposed) 

Telephone Pedestal (Existing, Proposed) 

Underground Utility (Existing, Proposed)  
 CATV   
 Fiber Optic   
 Gas   
 Oil   
 Power   
 Sanitary Sewer   
 Telephone   
 Water 

Overhead Utility Line (Existing, Proposed)  
 CATV   
 Fiber Optic   
 Power   
 Telephone 

### MISCELLANEOUS SYMBOLS

See Note 4 

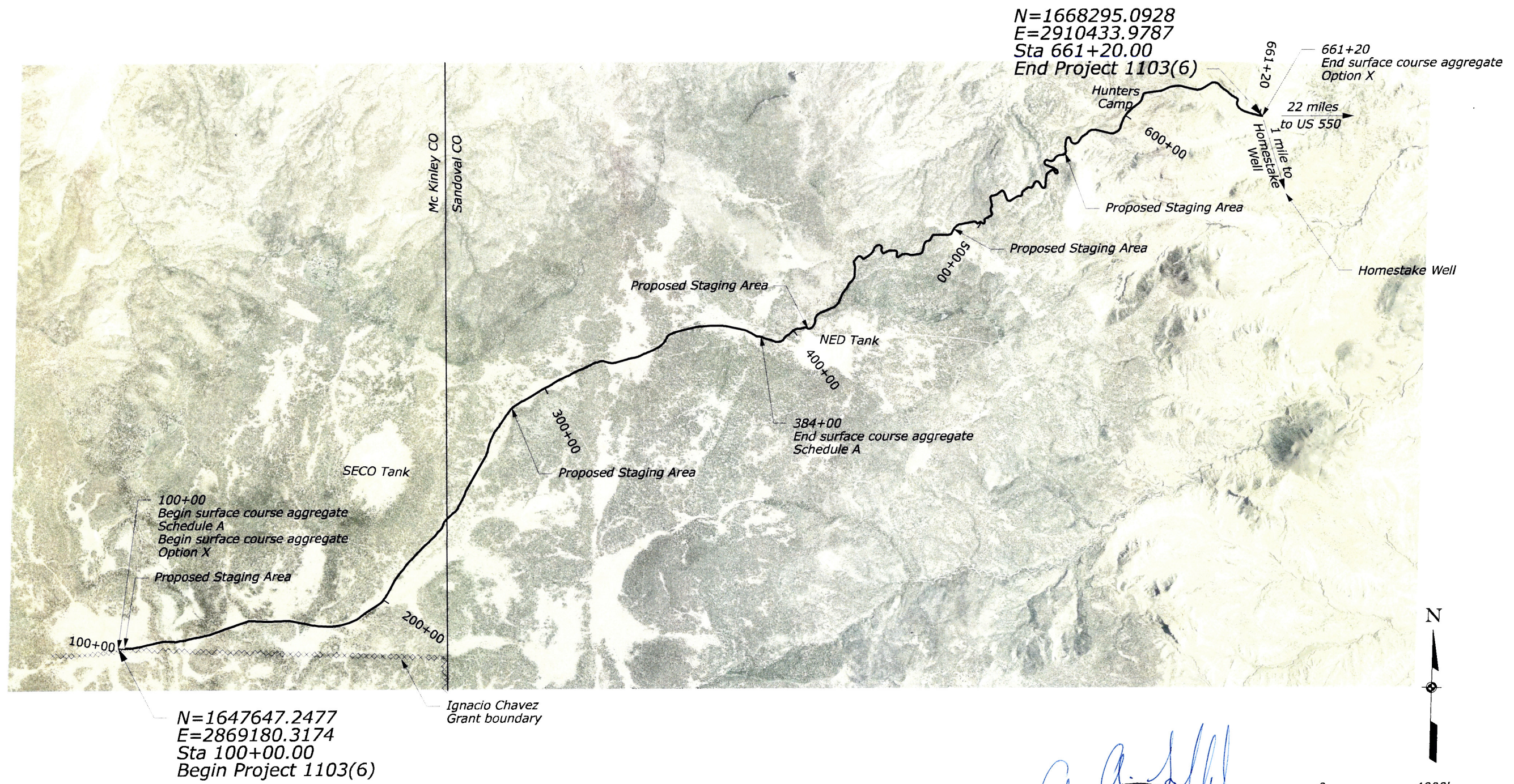
  
  
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 U.S. CUSTOMARY  
**CONVENTIONAL PLAN SYMBOLS AND ABBREVIATIONS**  
 Sheet 2 of 2

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100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	A4	A7



$N=1647647.2477$   
 $E=2869180.3174$   
 Sta 100+00.00  
 Begin Project 1103(6)

$N=1668295.0928$   
 $E=2910433.9787$   
 Sta 661+20.00  
 End Project 1103(6)

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 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

**SITE MAP**

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	A5	A7

GPS - PRIMARY PROJECT CONTROL

POINT NUMBER	NORTHING <sup>(1)</sup> (US FT) [GRID]	EASTING <sup>(1)</sup> (US FT) [GRID]	ELEVATION <sup>(2)</sup> (FT)	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT (FT)	MAPPING ANGLE	COMBINED SCALE FACTOR (AVG) <sup>(3)</sup>	NORTHING <sup>(3)</sup> (US FT) [GROUND]	EASTING <sup>(3)</sup> (US FT) [GROUND]	JOB 243.GPK STATION	JOB 243.GPK OFFSET	DESCRIPTION
2000	1646968.556	2867943.132	8008.09	35° 31' 32.10744" N	107° 20' 47.46988" W	7941.66	N/A	0.999589604	1647644.743	2869120.608	89+20.93	58.78' LT	SET STD CFLHD 2 1/2" ALUM CAP ON 5/8" REBAR - "CFL H.D. DENVER, COLO."
2001	1647129.225	2868607.737	8011.62	35° 31' 33.66398" N	107° 20' 39.41957" W	7945.18	N/A	0.999589604	1647805.478	2869785.486	106+45.88	35.81' LT	SET STD CFLHD 2 1/2" ALUM CAP ON 5/8" REBAR - "CFL H.D. DENVER, COLO."
2002	1658979.218	2892798.916	7832.04	35° 33' 29.57704" N	107° 15' 45.91568" W	7765.30	N/A	0.999589604	1659660.336	2893986.596	406+03.06	403.92' RT	SET STD CFLHD 2 1/2" ALUM CAP ON 5/8" REBAR - "CFL H.D. DENVER, COLO."
2003	1658959.005	2893582.569	7833.98	35° 33' 29.33212" N	107° 15' 36.43241" W	7767.24	N/A	0.999589604	1659640.115	2894770.571	407+77.16	799.53' RT	SET STD CFLHD 2 1/2" ALUM CAP ON 5/8" REBAR - "CFL H.D. DENVER, COLO."

See FP-03, Section 107.02 and 152 for surveying and staking requirements. Set permanent monuments according to FP-03, Section 621.

CONVENTIONAL - PRIMARY PROJECT CONTROL

POINT NUMBER	NORTHING <sup>(1)</sup> (US FT) [GRID]	EASTING <sup>(1)</sup> (US FT) [GRID]	ELEVATION <sup>(2)</sup> (FT)	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT (FT)	MAPPING ANGLE	COMBINED SCALE FACTOR (AVG) <sup>(3)</sup>	NORTHING <sup>(3)</sup> (US FT) [GROUND]	EASTING <sup>(3)</sup> (US FT) [GROUND]	JOB 243.GPK STATION	JOB 243.GPK OFFSET	DESCRIPTION
9001	1647235.181	2869228.221	8026.70	N/A	N/A	N/A	N/A	0.999589604	1647911.477	2870406.224	112+73.01	21.48' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9002	1647299.524	2869446.737	8037.57	N/A	N/A	N/A	N/A	0.999589604	1647975.846	2870624.830	115+00.57	5.25' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9003	1647295.673	2869782.976	8045.05	N/A	N/A	N/A	N/A	0.999589604	1647971.994	2870961.207	118+36.88	7.26' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9004	1647367.925	2870262.363	8055.91	N/A	N/A	N/A	N/A	0.999589604	1648044.275	2871440.791	123+23.83	6.09' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9005	1647433.801	2870731.933	8065.54	N/A	N/A	N/A	N/A	0.999589604	1648110.179	2871910.553	127+99.93	57.37' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9006	1647645.172	2871294.193	8074.50	N/A	N/A	N/A	N/A	0.999589604	1648321.637	2872473.044	133+94.15	11.71' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9007	1648135.604	2872228.752	8073.23	N/A	N/A	N/A	N/A	0.999589604	1648812.270	2873407.987	144+44.35	109.39' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9008	1648107.010	2872959.193	8082.41	N/A	N/A	N/A	N/A	0.999589604	1648783.665	2874138.728	151+52.77	20.77' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9009	1648203.485	2873742.161	8084.31	N/A	N/A	N/A	N/A	0.999589604	1648880.179	2874922.017	159+40.65	42.55' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9010	1648131.863	2874441.644	8076.68	N/A	N/A	N/A	N/A	0.999589604	1648808.527	2875621.788	166+38.79	15.21' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9011	1647967.889	2875112.603	8070.56	N/A	N/A	N/A	N/A	0.999589604	1648644.486	2876293.022	173+23.08	45.90' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9012	1648018.884	2875741.909	8063.82	N/A	N/A	N/A	N/A	0.999589604	1648695.502	2876922.587	179+50.34	8.16' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9013	1648121.919	2876291.324	8060.03	N/A	N/A	N/A	N/A	0.999589604	1648798.579	2877472.227	185+01.31	52.33' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9014	1648757.330	2877111.599	8055.05	N/A	N/A	N/A	N/A	0.999589604	1649434.251	2878292.839	195+29.80	23.16' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9015	1649368.846	2877654.016	8056.82	N/A	N/A	N/A	N/A	0.999589604	1650046.018	2878835.478	203+76.25	27.51' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9016	1650066.378	2878076.547	8061.91	35° 32' 02.23361" N	107° 18' 44.67401" W	7995.41	N/A	0.999589604	1650743.837	2879258.183	211+90.49	17.06' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9017	1650389.268	2878495.874	8063.10	N/A	N/A	N/A	N/A	0.999589604	1651066.859	2879677.682	217+15.34	115.79' RT	SET TACK IN 4" DIA STUMP, 0.5' ABOVE GRADE
9018	1650836.426	2878758.594	8072.10	N/A	N/A	N/A	N/A	0.999589604	1651514.201	2879940.510	222+22.44	12.60' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9019	1651178.907	2879191.251	8069.21	N/A	N/A	N/A	N/A	0.999589604	1651856.822	2880373.345	227+70.56	80.10' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9020	1651603.886	2879536.080	8069.38	N/A	N/A	N/A	N/A	0.999589604	1652281.975	2880718.315	233+19.20	54.48' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9021	1651955.955	2879637.676	8073.15	N/A	N/A	N/A	N/A	0.999589604	1652634.190	2880819.953	236+65.72	14.53' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9022	1652380.438	2880078.445	8062.24	N/A	N/A	N/A	N/A	0.999589604	1653058.847	2881260.903	242+76.01	0.33' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9023	1652757.446	2880265.222	8057.45	N/A	N/A	N/A	N/A	0.999589604	1653436.009	2881447.756	246+98.95	5.12' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9024	1653125.538	2880405.865	8048.96	N/A	N/A	N/A	N/A	0.999589604	1653804.253	2881588.457	250+94.27	12.66' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9025	1653663.753	2880750.213	8022.33	N/A	N/A	N/A	N/A	0.999589604	1654342.688	2881932.947	257+30.65	36.48' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9026	1654246.878	2881031.642	8015.15	N/A	N/A	N/A	N/A	0.999589604	1654926.053	2882214.491	263+77.91	11.20' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9027	1654566.807	2881172.469	8009.18	N/A	N/A	N/A	N/A	0.999589604	1655246.113	2882355.376	267+26.27	9.67' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9028	1655105.869	2881277.761	7999.54	N/A	N/A	N/A	N/A	0.999589604	1655785.396	2882460.712	272+70.39	40.73' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9029	1655426.476	2881505.414	7989.34	N/A	N/A	N/A	N/A	0.999589604	1656106.135	2882688.458	276+60.29	2.51' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9030	1655811.936	2881760.462	7980.06	N/A	N/A	N/A	N/A	0.999589604	1656491.754	2882943.611	281+22.63	6.19' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9031	1656203.171	2882016.510	7972.99	N/A	N/A	N/A	N/A	0.999589604	1656883.149	2883199.764	285+89.04	14.21' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9032	1656481.448	2882538.875	7967.26	N/A	N/A	N/A	N/A	0.999589604	1657161.541	2883722.343	291+81.30	46.11' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9033	1656985.232	2883188.117	7959.92	N/A	N/A	N/A	N/A	0.999589604	1657665.532	2884371.851	299+94.76	32.59' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9034	1657354.794	2883773.189	7953.00	N/A	N/A	N/A	N/A	0.999589604	1658035.245	2884957.163	306+84.92	47.47' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9035	1657641.479	2884410.932	7943.74	N/A	N/A	N/A	N/A	0.999589604	1658322.048	2885595.169	313+85.79	7.51' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9036	1657820.541	2884822.813	7945.24	N/A	N/A	N/A	N/A	0.999589604	1658501.183	2886007.219	318+35.23	7.85' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9037	1657913.639	2885043.186	7943.74	N/A	N/A	N/A	N/A	0.999589604	1658594.320	2886227.682	320+83.29	30.90' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9038	1658018.011	2885353.438	7913.57	N/A	N/A	N/A	N/A	0.999589604	1658698.734	2886538.062	324+09.43	16.86' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9039	1657987.835	2885999.327	7899.14	N/A	N/A	N/A	N/A	0.999589604	1658668.546	2887184.216	330+65.34	41.51' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9040	1658254.504	2886801.896	7894.77	N/A	N/A	N/A	N/A	0.999589604	1658935.324	2887987.115	339+08.47	41.45' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9041	1658707.235	2887473.857	7884.92	N/A	N/A	N/A	N/A	0.999589604	1659388.242	2888659.351	347+26.67	25.38' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9042	1659139.535	2887801.616	7882.10	N/A	N/A	N/A	N/A	0.999589604	1659820.719	2888987.245	352+60.53	60.98' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9043	1659390.932	2888930.146	7874.26	N/A	N/A	N/A	N/A	0.999589604	1660072.219	2890116.238	364+05.90	15.38' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9044	1659431.906	2889821.177	7869.31	N/A	N/A	N/A	N/A	0.999589604	1660113.210	2891007.635	372+92.84	34.58' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9045	1659225.515	2890795.070	7864.19	N/A	N/A	N/A	N/A	0.999589604	1659906.734	2891981.927	382+68.16	83.39' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9046	1658992.480	2891220.445	7872.29	N/A	N/A	N/A	N/A	0.999589604	1659673.603	2892407.478	387+70.70	3.31' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9047	1658863.512	2891749.035	7861.81	N/A	N/A	N/A	N/A	0.999589604	1659544.582	2892936.284	393+14.71	13.88' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9048	1659094.559	2892013.096	7843.65	N/A	N/A	N/A	N/A	0.999589604	1659775.724	2893200.454	396+72.24	9.35' RT	SET 8" SPIKE - "CH2M HILL CONTROL"
9049	1659361.928	2892342.602	7856.28	N/A	N/A	N/A	N/A	0.999589604	1660043.203	2893530.096	400+96.97	8.23' LT	SET 8" SPIKE - "CH2M HILL CONTROL"
9050	1659418.954	2892686.347	7844.49	N/A	N/A	N/A	N/A	0.999589604	1660100.253	2893873.981	404+48.02	11.62' RT	SET 8" SPIKE - "CH2M HILL CONTROL"

NOTES:

- (1) Horizontal coordinates established by means of conventional traverse, holding OPUS solutions (GEOID 09) for 2000, 2001, 9016, 2002 and 2003. Final results for all control by means of STARNET Least Squares Adjustment.
- (2) Elevations for control points 2000, 2001, 9016, 2002 and 2003 held GPS OPUS solutions. Elevations for all other control points established by trigonometric leveling.
- (3) Combined Scale Factor applied to move project horizontal grid coordinates to ground values, is average of CSF factors as shown on GPS OPUS reports. Ground values derived by dividing grid values by CSF, and used for all mapping of field survey data.
- (4) 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.
- (5) To compute geodetic azimuths use the following formula: geodetic azimuths = grid azimuth + mapping angle

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

**SURVEY CONTROL**

A05\_SurvCL.dgn

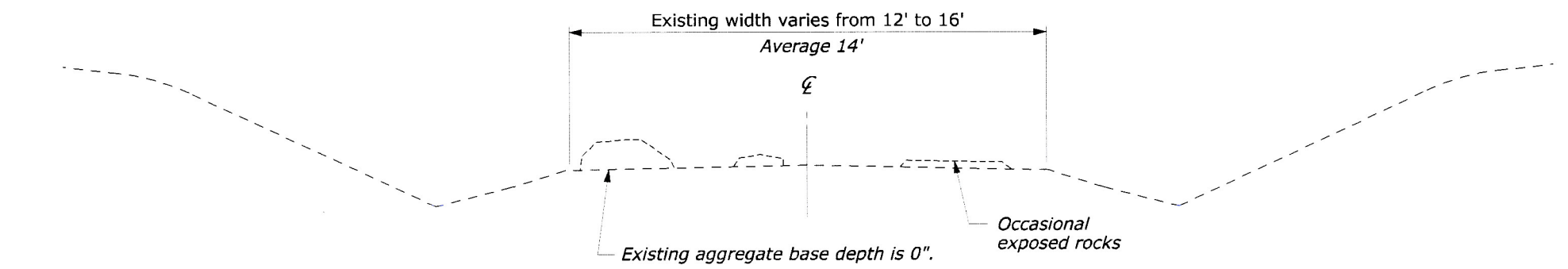
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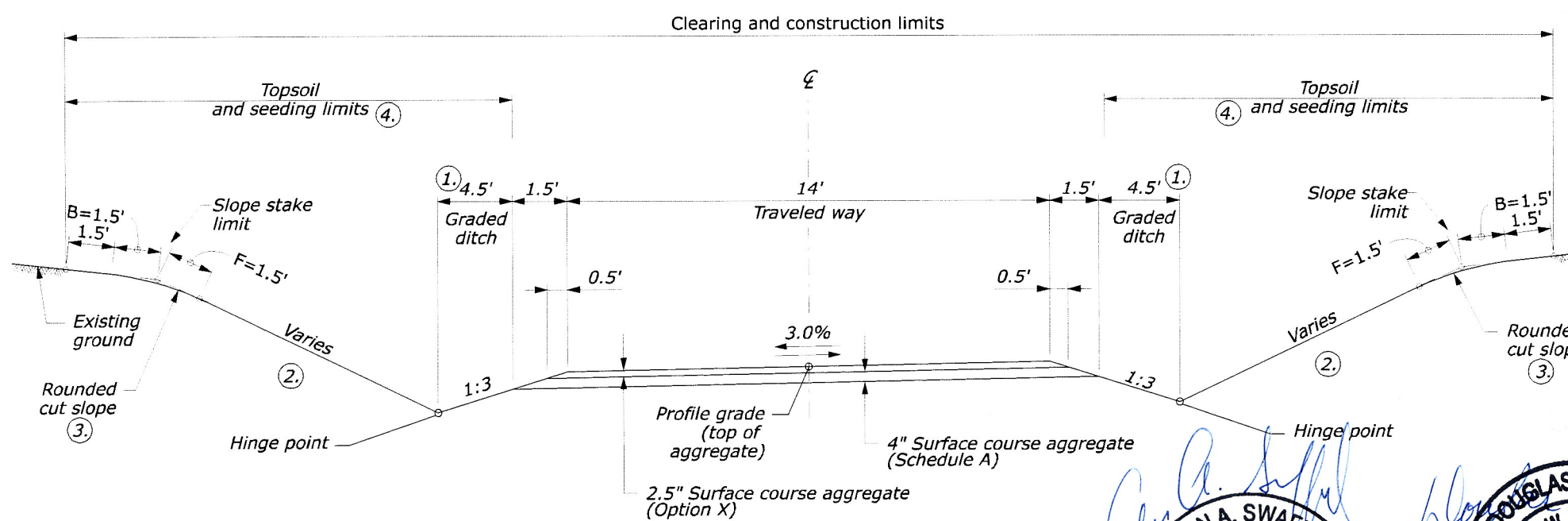
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	A6	A7

**NOTE:**

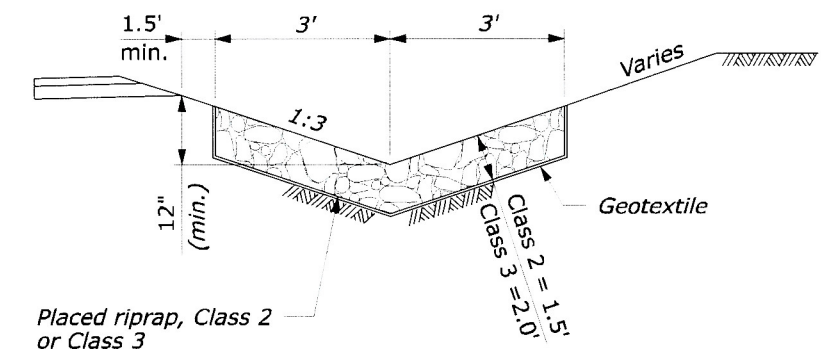
- The gradient and width of roadway ditches and the excavation and embankment slope ratios may be adjusted by the Contracting Officer to assure adequate drainage and stability.
- See the cross sections for cut and fill slope ratios.
- Round all earth slopes and all rippable rock slopes. For cut heights less than B, reduce the B and F dimensions to the actual cut height.
- Conserve and place topsoil to a depth of 1.5".
- Spread shape and compact aggregate surface course in accordance with Section 301 of the Special Contract Requirements.
- Centerline is not necessarily the horizontal control line from station 384+00 to 661+20. Contractor to determine centerline of the road based on existing roadway location.
- Compact and perform roadbed reconditioning at selected areas to repair the existing surface and provide a suitable subgrade for placing the aggregate surface course. Maintain drainage and cross slope while performing roadbed reconditioning.
- Place roadway aggregate to match existing width if less than 14'. Minimum roadway width is 12'.
- Limits of riprap ditches shown on plans.



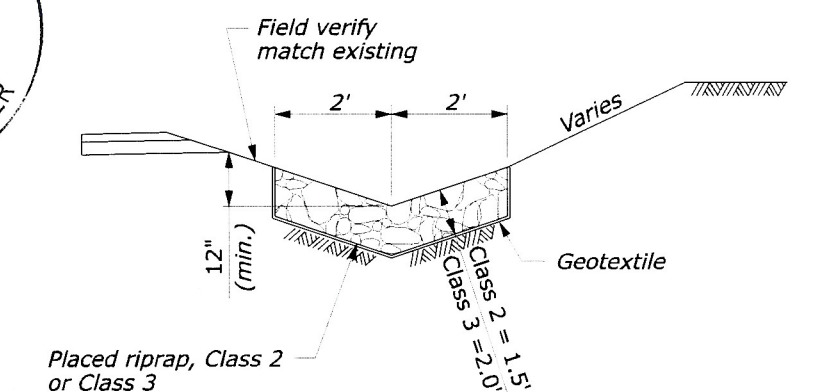
**EXISTING TYPICAL SECTION**



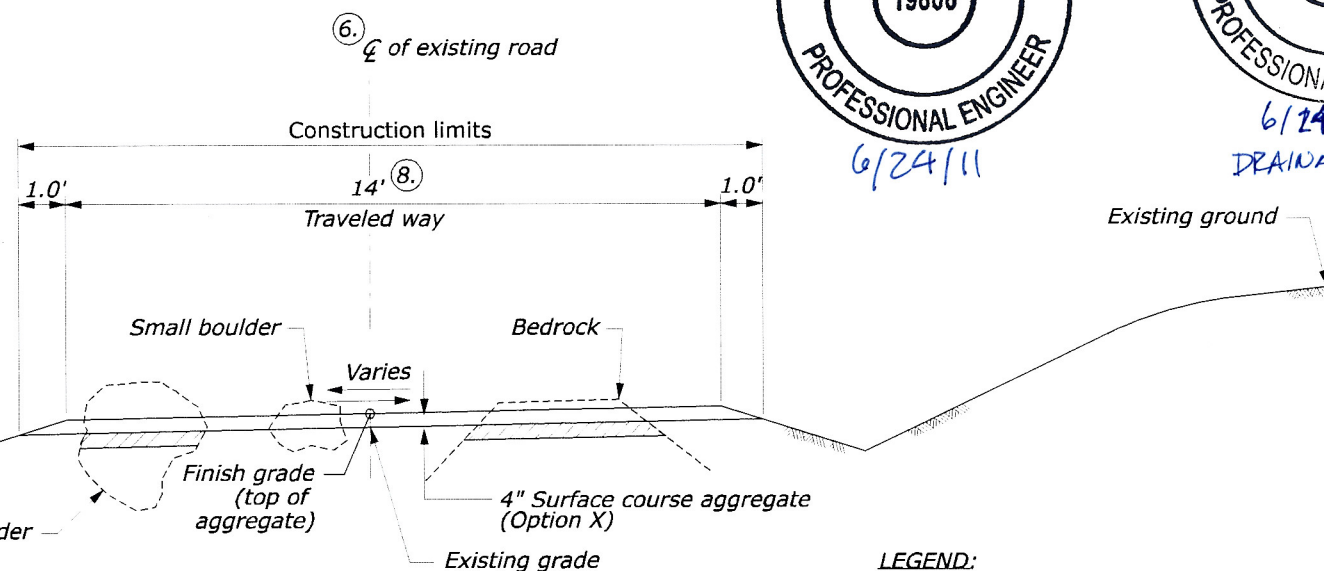
**TYPICAL SECTION  
100+00.00 to 384+00.00**



**PLACED RIPRAP DITCH DETAIL  
100+00.00 to 384+00.00**



**PLACED RIPRAP DITCH DETAIL  
384+00.00 to 661+20.00**



**TYPICAL SECTION  
384+00.00 to 661+20.00**

*Carla A. Swafford*  
**AARON A. SWAFFORD**  
 NEW MEXICO  
 19806  
 PROFESSIONAL ENGINEER  
 6/24/11

*Douglas P. Stewart*  
**DOUGLAS P. STEWART**  
 NEW MEXICO  
 20405  
 PROFESSIONAL ENGINEER  
 6/24/11  
 DRAINAGE

LENGTH OF PROJECT	
Station to Station	Roadway (ft)
100+00.00 to 661+20.00	56120
<b>TOTALS (ft)</b>	<b>56120</b>
<b>TOTAL (mi)</b>	<b>10.63</b>

**LEGEND:**  
 Remove rock to 6" below subgrade for Roadbed Reconditioning. Backfilling resulting voids is subsidiary to roadbed reconditioning.

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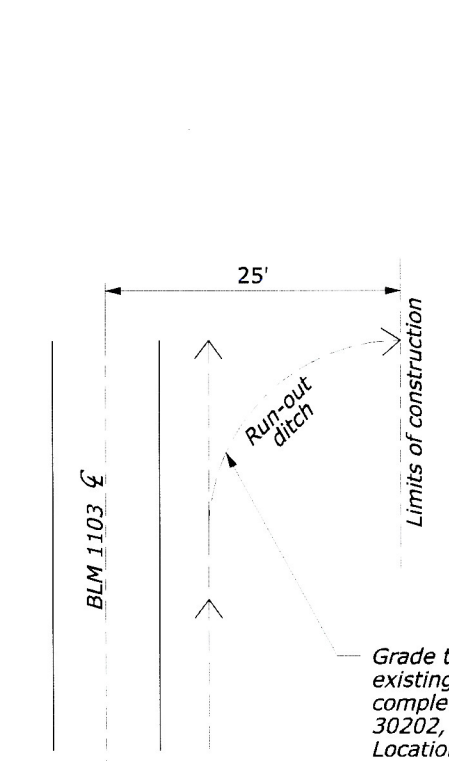
**TYPICAL SECTIONS  
MAINLINE**

NO SCALE

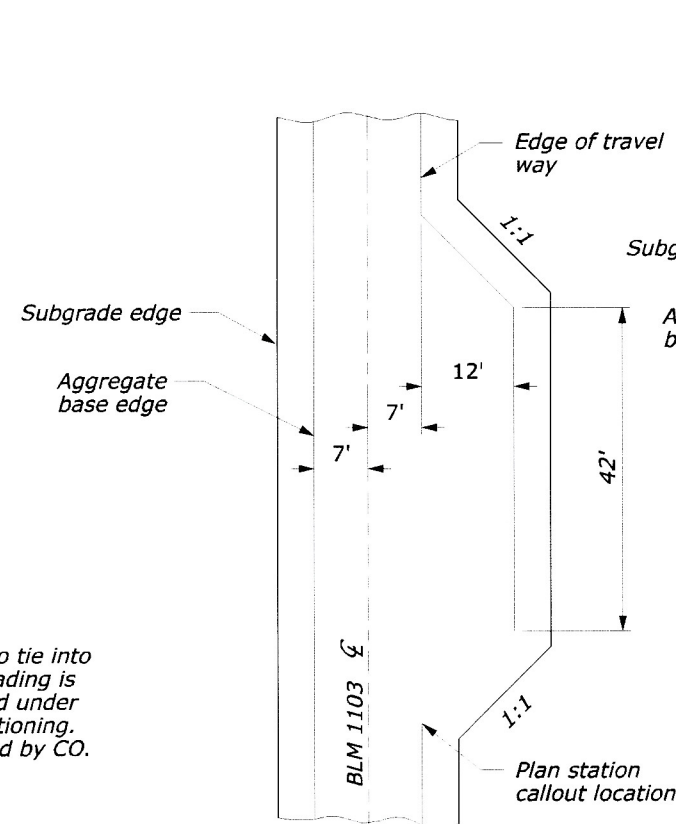
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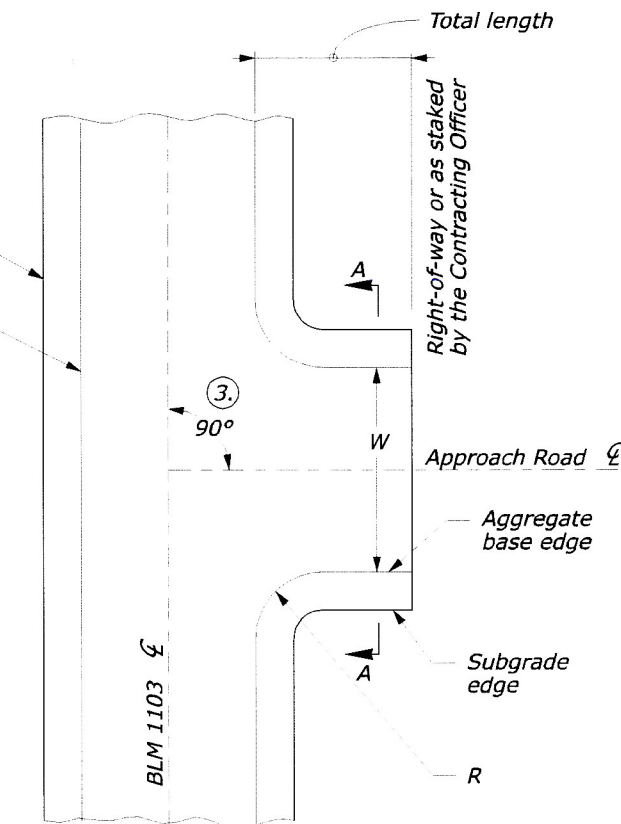
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	A7	A7



**RUN-OUT DITCH DETAIL**

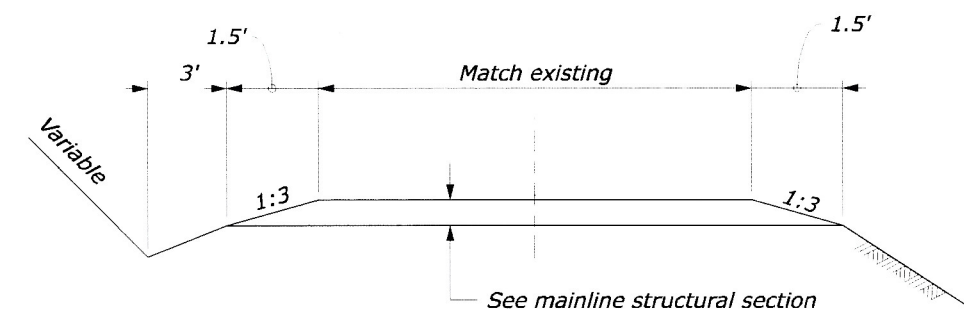


**PULLOUT PLAN**



**APPROACH ROAD TYPE 1 TYPICAL PLAN**

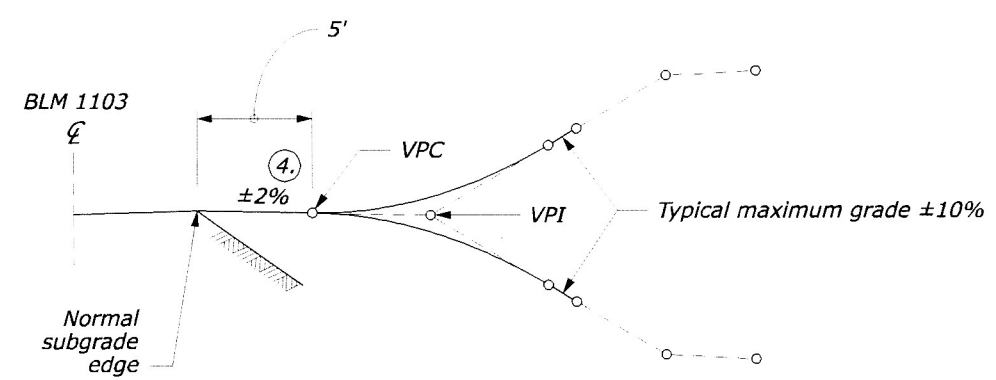
- NOTE:**
- Stations shown are approximate locations. Actual locations to be field verified.
  - Construct cut and fill slopes for approach roads to match with mainline roadway construction.
  - Under special conditions, the approach road angle shown may be varied  $\pm 45^\circ$ .
  - Construct approach roads with landing areas having grades within  $\pm 2\%$ . Under special conditions, use 6% maximum.
  - Refer to mainline typical sections for structural section thicknesses and foreslopes.



**SECTION A-A**

TYPE	CLASS	MIN. WIDTH W (ft)	MIN. RADIUS R (ft)	SAMPLE APPLICATION
1	A	12'	10'	Roadway aggregate

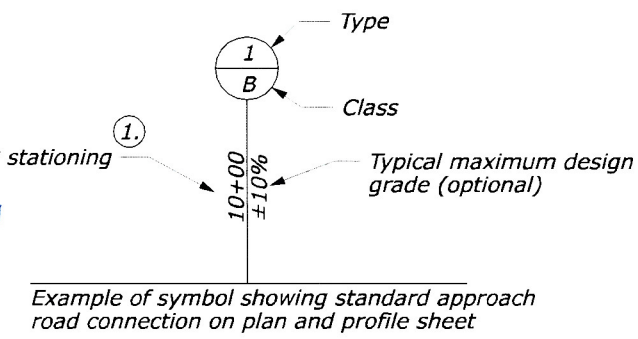
\* Match existing



**TYPICAL PROFILE**

**APPROACH ROAD SUMMARY**

STATION ①	TYPE & CLASS	TOTAL LENGTH (ft)	W (ft)	REMARKS
108+24 Lt.	1A	12'	12'	Los Indios Spring
274+15 Lt.	1A	12'	12'	Seco Tank
603+00 Lt.	1A	12'	12'	Hunters Camp



**TYPICAL SYMBOL**

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

**TYPICAL SECTIONS  
APPROACH ROADS**

NO SCALE

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100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	B1	B6

**SCHEDULE A - IGNACIO CHAVEZ GRANT ROAD**

ITEM NO.	ITEM DESCRIPTION	UNIT	SHEET NUMBER AND DESCRIPTION				ESTIMATED QUANTITIES		REMARKS AND/OR DETERMINATION OF ESTIMATED QUANTITY
			B2	B4	B5	B6	PLAN	BID	
			GRADING SUMMARY	DRAINAGE SUMMARY	MISC. SUMMARY	MISC. SUMMARY			
15101-0000	MOBILIZATION	LPSM					ALL	ALL	
15206-0000	SLOPE, REFERENCE, AND CLEARING AND GRUBBING STAKE	STA				284	284	284	
15210-3000	CENTERLINE, VERIFICATION AND STAKING	STA				277	277	277	
15215-3000	SURVEY AND STAKING, DRAINAGE STRUCTURE	EACH		9			9	9	
15216-2000	SURVEY AND STAKING, GRADE FINISHING STAKES	STA				284	284	284	
15301-0000	CONTRACTOR QUALITY CONTROL	LPSM					ALL	ALL	
15401-0000	CONTRACTOR TESTING	LPSM					ALL	ALL	
15501-0000	CONSTRUCTION SCHEDULE	LPSM					ALL	ALL	
15705-0100	SOIL EROSION CONTROL, SILT FENCE	LNFT				6,150	6,150	6,200	
15705-1400	SOIL EROSION CONTROL, SEDIMENT LOG	LNFT				400	400	500	
15706-1700	SOIL EROSION CONTROL, WATER BAR (ROLLING DIP)	EACH		3			3	3	
15802-0000	WATERING FOR DUST CONTROL	LPSM					ALL	ALL	
20101-0000	CLEARING AND GRUBBING	ACRE				26.40	26.40	26.40	
20301-1900	REMOVAL OF PIPE CULVERT	EACH		9			9	9	
20301-2400	REMOVAL OF SIGN	EACH				1	1	1	
20401-0000	ROADWAY EXCAVATION	CUYD	17,810				17,810	19,000	
25101-2000	PLACED RIPRAP, CLASS 2	CUYD		1,134			1,134	1,200	
25101-3000	PLACED RIPRAP, CLASS 3	CUYD		802			802	850	
30110-0000	AGGREGATE SURFACE COURSE	TON			10,552		10,552	11,100	
30301-4000	ROADBED RECONDITIONING	STA			28.3		28.3	30	
30302-1000	DITCH RECONDITIONING	LNFT		2,465			2,465	2,600	
60201-0600	18-INCH PIPE CULVERT	LNFT		282			282	300	
60201-0800	24-INCH PIPE CULVERT	LNFT		80			80	80	
60704-0000	CLEANING CULVERT IN PLACE	EACH		4			4	4	
62201-0200	DUMP TRUCK, 8 CUBIC YARD MINIMUM CAPACITY	HOURL			24		24	24	
62201-0900	WHEEL LOADER, 2 CUBIC YARD MINIMUM RATED CAPACITY	HOURL			24		24	24	
62201-2850	MOTOR GRADER, 12 FOOT MINIMUM BLADE	HOURL			24		24	24	
62302-1100	SPECIAL LABOR, HIRED SURVEY SERVICES	HOURL			24		24	24	
62407-0000	PLACING CONSERVED TOPSOIL	CUYD	2,815				2,815	3,000	
62510-2000	SEEDING, HYDRAULIC METHOD	ACRE				12.32	12.32	12.40	
62515-2000	MULCHING, HYDRAULIC METHOD	ACRE				12.32	12.32	12.40	
63302-0000	SIGN SYSTEM	SQFT			38.50		38.50	39	
63308-0000	OBJECT MARKER	EACH		18			18	18	
63316-1000	REMOVE AND RESET SIGN	EACH				7	7	7	
63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH			2		2	2	
63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT			62		62	62	
63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOURL			160		160	160	


The following quantities are approximate unless noted as a contract quantity. Payment will be made for the actual quantities of work performed and accepted or for materials furnished according to the contract.

**OPTION X - IGNACIO CHAVEZ GRANT ROAD**

ITEM NO.	ITEM DESCRIPTION	UNIT	SHEET NUMBER AND DESCRIPTION		ESTIMATED QUANTITIES		REMARKS AND/OR DETERMINATION OF ESTIMATED QUANTITY
			B5	B6	PLAN	BID	
			MISC. SUMMARY	MISC. SUMMARY			
15101-0000	MOBILIZATION	LPSM			ALL	ALL	
15301-0000	CONTRACTOR QUALITY CONTROL	LPSM			ALL	ALL	
15401-0000	CONTRACTOR TESTING	LPSM			ALL	ALL	
15802-0000	WATERING FOR DUST CONTROL	LPSM			ALL	ALL	
20301-0600	REMOVAL OF CATTLE GUARD	EACH		2	2	2	
30110-0000	AGGREGATE SURFACE COURSE	TON	16,384		16,384	17,300	Additional 2.5" Sta 100+00-384+00, 4" Sta 384+00-662+20
61903-0400	CATTLE GUARD, 18 FEET	EACH		3	3	3	
61920-2000	REMOVE AND RESET GATE	EACH		1	1	1	
63308-0000	OBJECT MARKER	EACH		6	6	6	

The following quantities are approximate unless noted as a contract quantity. Payment will be made for the actual quantities of work performed and accepted or for materials furnished according to the contract.

  
 Aaron A. Swafford  
 6/24/11

  
 Douglas P. Stewart  
 6/24/11  
 DRAINAGE

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

**SUMMARY OF QUANTITIES**

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100% DESIGN SUBMITTAL - JUNE 24, 2011

Pay Item	Roadway Excavation			Adjustments To Excavation			Roadway Embankment		Adjustments to Embankment	Total Embankment	Mass Haul		62407-0000	Waste
	Roadway Prism	Approach Roads	Roadway Excavation	(-) Topsoil Stripping In Cuts	Average Shrink/Swell Factor <sup>(4)</sup>	Total Excavation Available for Fills	Roadway Prism	Approach Roads	(+) Topsoil Replacement Under Fill		Excavation - Embankment	Mass Ordinate	Conserved Topsoil <sup>(6)</sup>	
Station to Station	(BCY)	(BCY)	(BCY)	(BCY)		(CCY)	(CCY)	(CCY)	(CCY)	(CCY)	(CCY)	(CCY)	(CY)	
10000 - 11200	897	0	897	101	0.93	740	207	0	14	221	519	519	115	
11200 - 12600	585	0	585	82	0.93	468	1013	0	53	1066	-598	-79	135	
12600 - 14000	1282	0	1282	108	0.93	1092	690	0	28	718	374	295	136	
14000 - 15400	776	0	776	102	0.93	627	612	0	36	648	-21	274	138	
15400 - 16800	1219	0	1219	120	0.93	1022	707	0	33	740	282	556	153	
16800 - 18200	446	0	446	68	0.93	352	1119	0	50	1169	-817	-261	118	
18200 - 19600	596	0	596	90	0.93	471	863	0	37	900	-429	-690	127	
19600 - 21000	1103	0	1103	97	0.93	936	679	0	32	711	225	-465	129	
21000 - 22400	917	0	917	117	0.93	744	366	0	37	403	341	-124	154	
22400 - 23800	1162	0	1162	85	0.93	1002	873	0	40	913	89	-35	125	
23800 - 25200	965	0	965	108	0.93	797	686	0	37	723	74	39	145	
25200 - 26600	922	0	922	109	0.93	756	637	0	39	676	80	119	148	
26600 - 28000	452	0	452	73	0.93	352	1064	0	55	1119	-767	-648	128	
28000 - 29400	745	0	745	101	0.93	599	581	0	37	618	-19	-667	138	
29400 - 30800	561	0	561	94	0.93	434	681	0	39	720	-286	-953	133	
30800 - 32200	675	0	675	94	0.93	540	817	0	51	868	-328	-1,281	145	
32200 - 33600	639	0	639	99	0.93	502	682	0	43	725	-223	-1,504	142	
33600 - 35000	1189	0	1189	138	0.93	977	294	0	21	315	662	-842	159	
35000 - 36400	1878	0	1878	131	0.93	1625	277	0	24	301	1324	482	155	
36400 - 37800	589	0	589	97	0.93	458	577	0	45	622	-164	318	142	
37800 - 38400	212	0	212	32	0.93	167	233	0	18	251	-84	234	50	234
<b>Totals</b>	<b>17810</b>	<b>0</b>	<b>17810</b>	<b>2046</b>		<b>14661</b>	<b>13658</b>	<b>0</b>	<b>769</b>	<b>14427</b>			<b>2815</b>	<b>234</b> <sup>(5)</sup>

NOTES:

1. BCY = Bank Cubic Yard = One cubic yard of material as it lies in natural bank state.
  2. CCY = Compacted Cubic Yard = One cubic yard of material after it has been compacted to specification density.
  3. The quantities shown herein are approximations. Payment will be made for the actual quantities of work performed and accepted.
  4. The average shrink/swell factor shown is computed by taking an average of values over the specified station range. Recommended shrink/swell factors are used in the calculations. See Pavement Report for recommended shrink/swell values.
- (5) Waste on site as directed by CO.
- (6) Includes staging areas that may be located outside station range.



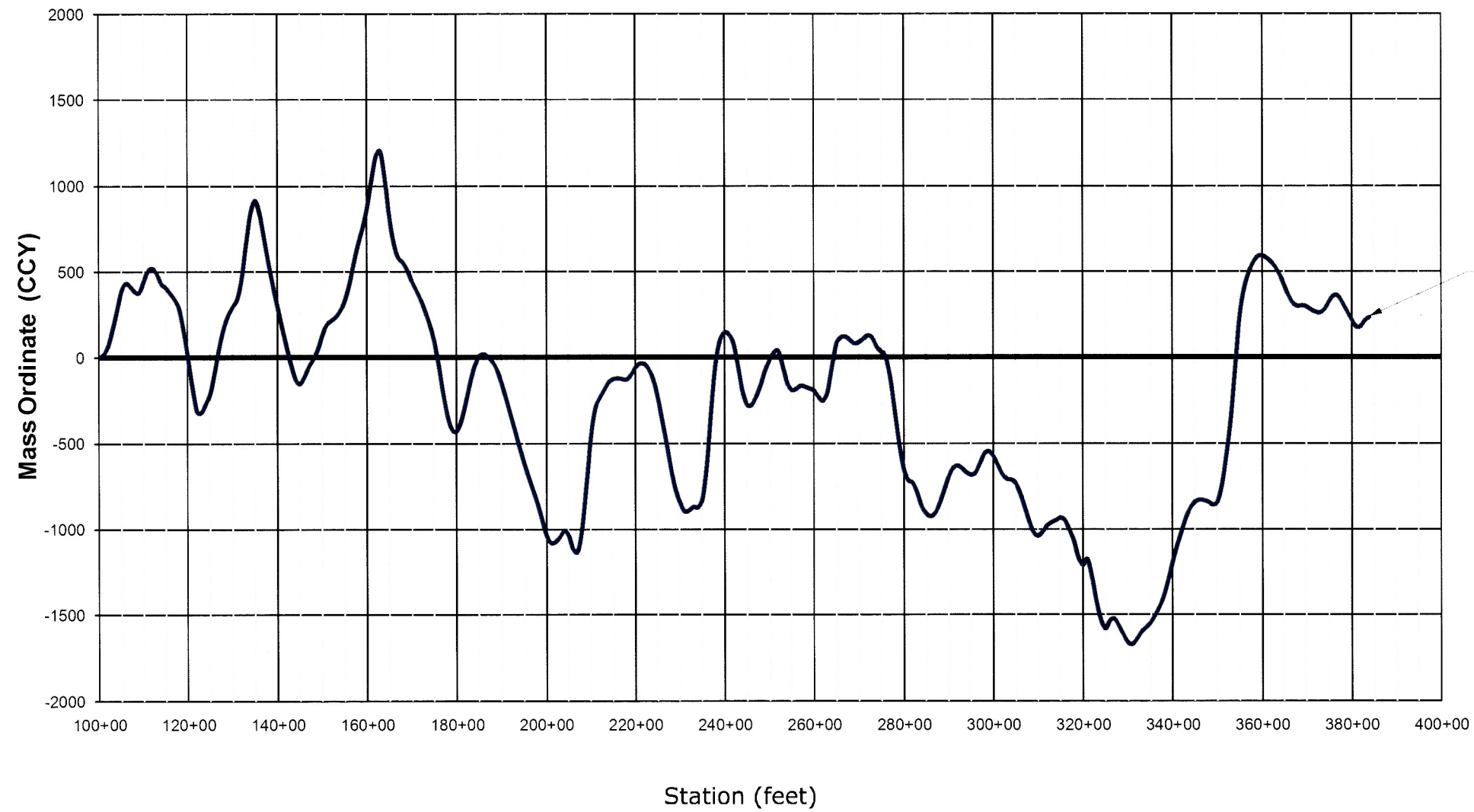
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 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION

**GRADING SUMMARY**



REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	B3	B6

### Mass Haul Diagram



*Aaron A. Swafford*  
 AARON A. SWAFFORD  
 NEW MEXICO  
 19806  
 PROFESSIONAL ENGINEER  
 6/24/11

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

### MASS HAUL DIAGRAM

**SCHEDULE A -DRAINAGE SUMMARY**

STATION	Skew (degrees)	Max Fill Height (Feet)	SURVEY AND STAKING, DRAINAGE STRUCTURE EACH	SOIL EROSION CONTROL, WATER BAR (ROLLING DIP) EACH	REMOVAL OF PIPE CULVERT EACH	PLACED RIPRAP, CLASS 2 CUYD	PLACED RIPRAP, CLASS 3 CUYD	DITCH RECONDITIONING LNFT	18-INCH PIPE CULVERT LNFT	24-INCH PIPE CULVERT EACH	CLEANING CULVERT IN PLACE EACH	OBJECT MARKER EACH	REMARKS
			15215-3000	15706-1700	20301-1900	25101-2000	25101-3000	30302-1000	60201-0600	60201-0800	60704-0000	63308-0000	
100+00 Lt./Rt. to 384+00 Lt./Rt.								600					Used at the discretion of the CO for run-out ditches
111+90 Lt./Rt. to 116+15 Lt./Rt.						298.8							Riprap Ditch
122+00 Lt./Rt. to 124+15 Lt./Rt.						151.1							Riprap Ditch
251+70 Lt./Rt. to 255+50 Lt./Rt.						267.1							Riprap Ditch
319+60 Lt./Rt. to 325+15 Lt./Rt.							520.1						Riprap Ditch
412+20											1		
425+75											1		
427+45 Lt. to 429+55 Lt.							85.6						Riprap Ditch
429+90											1		
433+30 Lt. to 436+78 Lt.													Riprap Ditch
437+50	Field verify	10	1		1	4.4			40			2	Triple delineator object marker
440+40	Field verify	10	1		1				40			2	Triple delineator object marker
439+10 Lt. to 442+00 Rt.								290					
441+00 Rt. to 442+00 Rt.								100					
453+20	Field verify	10	1		1	6.7				40		2	Triple delineator object marker
454+25 Rt. to 454+75 Rt.								50					
461+80 Rt. to 462+30 Rt.								50					
468+00											1		
470+50 Rt.	Field verify	10	1		1	6.7				40		2	Triple delineator object marker
470+50 Rt. to 472+00 Rt.								150					
479+00				1			4.4						Rolling Dip
485+50				1			4.4						Rolling Dip
486+70 Lt.							17.8						
498+00 Rt. to 498+50 Rt.								50					
500+50 Rt. to 501+00 Rt.								50					
509+25 Rt. to 510+25 Rt.								100					
510+30	Field verify								1.5				Extension
514+50				1			4.4						Rolling Dip
523+25 Rt. to 524+25 Rt.								100					
526+50 Rt. to 527+00 Rt.								50					
527+10	Field verify	10	1		1	4.4			40			2	Triple delineator object marker
529+00 Rt. to 532+25 Rt.								325					
529+90	Field verify	10	1		1	4.4			40			2	Triple delineator object marker
546+60 Rt. to 548+22 Rt.						49.5							Riprap Ditch
553+00 Lt. to 554+50 Lt.								150					
555+50 Rt. to 558+00 Rt.								250					
568+00 Lt. to 571+00 Lt.							91.6						Riprap Ditch
611+00 Rt.							12.0						
615+02 Lt. to 618+47 Lt.							105.5						Riprap Ditch
619+10 Rt.							8.0						
623+50 Lt. to 625+00 Lt.							65.2						Riprap Ditch
624+50	Field verify	10	1		1	4.4			40			2	Provide 12 gauge or thicker pipe. Triple delineator object marker
629+70	Field verify	10	1		1	4.4			40			2	Provide 12 gauge or thicker pipe. Triple delineator object marker
633+80 Rt.							8.0						
645+50	Field verify	10	1		1	4.4			40			2	Provide 12 gauge or thicker pipe. Triple delineator object marker
646+50 Lt. to 648+00 Lt.								150					
648+30 Rt.							37.0						
654+72 Lt. to 655+30 Lt.								23.7					Riprap Ditch
<b>TOTALS</b>			<b>9</b>	<b>3</b>	<b>9</b>	<b>1133.6</b>	<b>802.2</b>	<b>2465</b>	<b>281.5</b>	<b>80</b>	<b>4</b>	<b>18</b>	

The quantities, locations, and skews shown here on are approximate and are subject to field adjustment. Do not order culvert pipe or appurtenances until the actual quantities are approved in the field by the CO. Inlet Treatment, Berm quantity will be incidental to culverts (Section 602).



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**DRAINAGE SUMMARIES**

### SCHEDULE A -SURFACING SUMMARY

LOCATION	STATION TO STATION	AGGREGATE SURFACE COURSE	ROADBED RECONDITIONING STA
		TON	TON
		30110-0000	30301-4000
BLM 1103	100+00 to 113+00	477	
LOS INDIOS SPRING	108+24 Lt.	3	
BLM 1103	113+00 to 127+00	514	
BLM 1103	127+00 to 141+00	514	
BLM 1103	141+00 to 155+00	514	
BLM 1103	155+00 to 169+00	514	
PULLOUT	163+88 Rt.	15	
BLM 1103	169+00 to 183+00	514	
BLM 1103	183+00 to 197+00	514	
PULLOUT	196+07 Rt.	15	
BLM 1103	197+00 to 211+00	514	
BLM 1103	211+00 to 225+00	514	
PULLOUT	211+57 Lt.	15	
BLM 1103	225+00 to 239+00	514	
PULLOUT	236+31 Lt.	15	
BLM 1103	239+00 to 253+00	514	
BLM 1103	253+00 to 267+00	514	
BLM 1103	267+00 to 281+00	514	
PULLOUT	268+32 Lt.	15	
SECO TANK	274+16 Rt.	3	
BLM 1103	281+00 to 295+00	514	
BLM 1103	295+00 to 309+00	514	
PULLOUT	297+92 Rt.	15	
BLM 1103	309+00 to 323+00	514	
BLM 1103	323+00 to 337+00	514	
PULLOUT	323+76 Lt.	15	
BLM 1103	337+00 to 351+00	514	
BLM 1103	351+00 to 365+00	514	
PULLOUT	353+52 Rt.	15	
BLM 1103	365+00 to 379+00	514	
BLM 1103	379+00 to 384+00	183	
BLM 1103	438+23 to 439+85		1.6
BLM 1103	455+10 to 457+75		2.7
BLM 1103	463+00 to 472+39		9.4
BLM 1103	519+35 to 523+60		4.3
BLM 1103	567+53 to 571+55		4.0
BLM 1103	575+72 to 581+97		6.3
<b>Project Total:</b>		<b>10,552</b>	<b>28.3</b>

VALUES USED FOR ESTIMATING QUANTITIES  
Aggregate Surface Course Unit Weight: 139 pounds per cubic foot

### OPTION X -SURFACING SUMMARY

LOCATION	STATION TO STATION	AGGREGATE SURFACE COURSE 2 1/2"	AGGREGATE SURFACE COURSE 4"
		TON	TON
		30110-0000	30110-0000
BLM 1103	100+00 to 113+00	309	
LOS INDIOS SPRING	108+24 Lt.	2	
BLM 1103	113+00 to 127+00	333	
BLM 1103	127+00 to 141+00	333	
BLM 1103	141+00 to 155+00	333	
BLM 1103	155+00 to 169+00	333	
PULLOUT	163+88 Lt.	9	
BLM 1103	169+00 to 183+00	333	
BLM 1103	183+00 to 197+00	333	
PULLOUT	196+07 Lt.	9	
BLM 1103	197+00 to 211+00	333	
BLM 1103	211+00 to 225+00	333	
PULLOUT	211+57 Lt.	9	
BLM 1103	225+00 to 239+00	333	
PULLOUT	236+31 Lt.	9	
BLM 1103	239+00 to 253+00	333	
BLM 1103	253+00 to 267+00	333	
BLM 1103	267+00 to 281+00	333	
PULLOUT	268+32 Lt.	9	
SECO TANK	274+16 Lt.	2	
BLM 1103	281+00 to 295+00	333	
BLM 1103	295+00 to 309+00	333	
PULLOUT	297+92 Lt.	9	
BLM 1103	309+00 to 323+00	333	
BLM 1103	323+00 to 337+00	333	
PULLOUT	323+76 Lt.	9	
BLM 1103	337+00 to 351+00	333	
BLM 1103	351+00 to 365+00	333	
PULLOUT	353+52 Lt.	9	
BLM 1103	365+00 to 379+00	333	
BLM 1103	379+00 to 384+00	119	
BLM 1103	384+00 to 393+00		310
PULLOUT	390+11 Rt.		15
BLM 1103	393+00 to 425+00		1101
BLM 1103	425+00 to 468+00		1479
BLM 1103	468+00 to 501+00		1135
BLM 1103	501+00 to 544+00		1479
BLM 1103	544+00 to 592+00		1651
BLM 1103	592+00 to 624+00		1101
HUNTERS CAMP	603+00 Lt.		3
BLM 1103	624+00 to 657+00		1135
BLM 1103	657+00 to 661+20		144
<b>Project Total:</b>		<b>6,831</b>	<b>9,553</b>

### SCHEDULE A -TEMPORARY TRAFFIC CONTROL SIGNS SUMMARY

LOCATION	MUTCD CODE	DESCRIPTION	PANEL DIMENSIONS (INCHES X INCHES)	TOTAL AREA	SIGN POSTS	COMMENTS
				SQFT	NO PAY	
100+00	R11-2	ROAD CLOSED	48 x 30	10.00		MOUNTED ON TYPE III BARRICADE
602+00	R11-2	ROAD CLOSED	48 x 30	10.00		MOUNTED ON TYPE III BARRICADE
100+00	SPECIAL 1	CONSTRUCTION DATES	96 x 18	12.00		
602+00	SPECIAL 2	CONSTRUCTION DATES	96 x 18	12.00		
607+00 Lt.	W20-3	ROAD CLOSED 500 FT	36 x 36	9.00	1	
612+00 Lt.	W20-3	ROAD CLOSED 1000 FT	36 x 36	9.00	1	
<b>PROJECT TOTAL</b>				<b>62.00</b>	<b>2</b>	

### SCHEDULE A -TRAFFIC CONTROL SUMMARY

DESCRIPTION	ITEM NO.	UNIT	QUANTITY
SIGN SYSTEM	63302-0000		①
TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	63502-0600	EACH	2
TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	63504-1000		②
TEMPORARY TRAFFIC CONTROL, FLAGGER	63506-0500	HR	160

Note:  
① See Permanent Traffic Control Signs Summary  
② See Temporary Traffic Control Signs Summary  
3 Minimum width of Barricade Type 3 shall be 12.0 feet

### SCHEDULE A -PERMANENT TRAFFIC CONTROL SIGNS SUMMARY

LOCATION	MUTCD CODE	DESCRIPTION	PANEL DIMENSIONS (INCHES X INCHES)	TOTAL AREA	SIGN POSTS	COMMENTS
				SQFT	NO PAY	
318+50 Rt.	W1-5	WINDING ROAD	24 x 24	4.00	1	
330+50 Lt.	W1-5	WINDING ROAD	24 x 24	4.00	1	
400+00 Rt.	W1-5	WINDING ROAD	24 x 24	4.00	1	
581+00 Lt.	W1-5	WINDING ROAD	24 x 24	4.00	1	
608+00 Rt.	W8-5	SLIPPERY WHEN WET	24 x 24	4.00	1	
661+00 Lt.	W8-5	SLIPPERY WHEN WET	24 x 24	4.00	1	
394+00 Rt.	W7-1	STEEP GRADE	24 x 24	4.00	1	
394+00 Rt.	W7-3a	NEXT 5 MILES	24 x 12	2.00		Mounted on same post as W7-1
400+00 Rt.	W7-3a	NEXT 5 MILES	24 x 12	2.00		Mounted on same post as W1-5
581+00 Lt.	W7-3a	NEXT 5 MILES	24 x 12	2.00		Mounted on same post as W1-5
608+00 Rt.	SPECIAL 2	WHEN WET	18 x 18	2.25		Mounted on same post as W8-5
661+00 Lt.	SPECIAL 2	WHEN WET	18 x 18	2.25		Mounted on same post as W8-5
<b>PROJECT TOTAL</b>				<b>38.50</b>	<b>7</b>	

### SCHEDULE A - EQUIPMENT AND LABOR SUMMARY

DESCRIPTION	ITEM NO.	UNIT	QUANTITY
DUMP TRUCK, 8 CUBIC YARD MINIMUM CAPACITY	62201-0200	HOUR	24
WHEEL LOADER, 2 CUBIC YARD MINIMUM RATED CAPACITY	62201-0900	HOUR	24
MOTOR GRADER, 12 FOOT MINIMUM BLADE	62201-2850	HOUR	24
SPECIAL LABOR, HIRED SURVEY SERVICES	62302-1100	HOUR	24



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### MISCELLANEOUS SUMMARIES

### SCHEDULE A - EROSION CONTROL SUMMARY

LOCATION	STATION TO STATION	SOIL EROSION CONTROL, SILT FENCE LNFT	SOIL EROSION CONTROL, SEDIMENT LOG LNFT	REMARKS
		15705-0100	15705-1400	
BLM1103	101+50 Rt. to 103+50 Rt.	235	20	Staging Area
BLM1103	118+00 Lt. to 122+00 Lt.	400	20	
BLM1103	118+00 Rt. to 122+00 Rt.	400	20	
BLM1103	135+00 Lt. to 140+00 Lt.	500	20	
BLM1103	163+00 Lt. to 165+00 Lt.	200	20	
BLM1103	163+00 Rt. to 167+00 Rt.	400	20	
BLM1103	168+00 Rt. to 170+00 Rt.	200	20	
BLM1103	175+00 Rt. to 177+00 Rt.	200	20	
BLM1103	223+00 Rt. to 230+00 Rt.	700	20	
BLM1103	242+00 Lt. to 244+00 Lt.	200	20	
BLM1103	242+00 Rt. to 245+00 Rt.	300	20	
BLM1103	260+00 Rt. to 262+00 Rt.	200	20	
BLM1103	272+25 Lt. to 274+00 Lt.	210	20	Staging Area
BLM1103	277+00 Lt. to 280+00 Lt.	300	20	
BLM1103	276+00 Rt. to 281+00 Rt.	500	20	
BLM1103	282+00 Rt. to 285+00 Rt.	300	20	
BLM1103	316+00 Lt. to 320+00 Lt.	400	20	
BLM1103	405+25 Rt. to 406+25 Rt.	135	20	Staging Area
BLM1103	487+00 Rt. to 488+50 Rt.	185	20	Staging Area
BLM1103	560+50 Rt. to 562+00 Rt.	185	20	Staging Area
<b>Project Total:</b>		<b>6,150</b>	<b>400</b>	

Note:  
1. Sediment logs are to be placed at each end of silt fence.

### SCHEDULE A - MISCELLANEOUS ITEMS SUMMARY

LOCATION	STATION	CENTERLINE, VERIFICATION AND STAKING STA	SLOPE REFERENCE AND CLEARING AND GRUBBING STA	SURVEY AND STAKING, GRADE FINISHING STAKES STA	CLEARING AND GRUBBING ACRE	REMOVAL OF SIGN EACH	SEEDING, HYDRAULIC METHOD ACRE	MULCHING, HYDRAULIC METHOD ACRE	REMOVE AND RESET SIGN EACH
		15210-3000	15206-0000	15216-2000	20101-0000	20301-2400	62510-2000	62515-2000	63316-1000
BLM 1103	100+00 to 384+00		284	284	26.40		12.32	12.32	
BLM 1103	101+27 Lt.								2
BLM 1103	107+75 Rt.								1
BLM 1103	212+00 Rt.								1
BLM 1103	234+70 Rt.								1
BLM 1103	274+15 Lt.								1
BLM 1103	383+25 Lt.								1
BLM 1103	384+00 to 661+20	277							
BLM 1103	450+10 Rt.					1			
<b>Project Total:</b>		<b>277</b>	<b>284</b>	<b>284</b>	<b>26.40</b>	<b>1</b>	<b>12.32</b>	<b>12.32</b>	<b>7</b>

Note:  
1. Seeding and Mulching to include staging areas that are located outside station range.  
2. Removed sign at station 450+10 is not to be reset.

### OPTION X - MISCELLANEOUS ITEMS SUMMARY

LOCATION	STATION	REMOVAL OF CATTLE GUARD EACH	CATTLE GUARD, 18 FEET EACH	REMOVE AND RESET GATE EACH	OBJECT MARKER EACH	REMARKS
		20301-0600	61903-0400	61920-2000	63308-0000	
BLM 1103	109+28		1		2	Triple delineator object marker
BLM 1103	254+86	1	1		2	Triple delineator object marker
BLM 1103	422+25	1	1		2	Triple delineator object marker
BLM 1103	439+10			1		
<b>Project Total:</b>		<b>2</b>	<b>3</b>	<b>1</b>	<b>6</b>	



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### MISCELLANEOUS SUMMARIES

CURVE ID	BEARING	DISTANCE (FEET)	NORTHING (Y)	EASTING (X)	PC	PI	PT	DELTA	R (FEET)	L (FEET)	T (FEET)
IC_1	S 89°00'00" E	153.12	1647691.053	2869186.474	100+00.00		100+72.43	83°00'00"	50.00	72.43	44.24
IC_2	N 76°00'00" E	190.87	1647687.003	2869418.551	101+81.32		103+38.40	15°00'00"	-600.00	157.08	78.99
IC_3	N 83°00'00" E	58.70	1647740.577	2869633.426	104+50.28		105+11.36	7°00'00"	500.00	61.09	30.58
IC_4	N 74°00'00" E	239.68	1647752.526	2869730.741	105+39.48		106+18.02	9°00'00"	-500.00	78.54	39.35
IC_5	N 76°30'00" E	269.35	1647827.612	2869992.598	108+18.34		108+83.79	2°30'00"	1500.00	65.45	32.73
IC_6	N 72°00'00" E	123.72	1647890.490	2870254.505	110+79.16		111+61.63	4°30'00"	-1050.00	82.47	41.25
IC_7	N 76°30'00" E	132.69	1647915.987	2870332.976	111+61.63		112+44.09	4°30'00"	1050.00	82.47	41.25
IC_8	N 88°30'00" E	434.96	1647969.045	2870553.978	113+35.53		115+24.02	12°00'00"	900.00	188.50	94.59
IC_9	S 83°30'00" E	142.09	1647980.196	2870979.834	118+13.47		118+97.25	8°00'00"	600.00	83.78	41.96
IC_10	N 71°00'00" E	86.95	1647969.683	2871072.105	118+97.25		119+97.39	25°30'00"	-225.00	100.14	50.91
IC_11	N 87°00'00" E	101.99	1648018.582	2871214.118	120+33.43		121+59.09	16°00'00"	450.00	125.66	63.24
IC_12	N 70°00'00" E	136.21	1648027.049	2871375.666	121+97.84		123+16.52	17°00'00"	-400.00	118.68	59.78
IC_13	N 77°00'00" E	197.81	1648089.326	2871546.771	123+92.95		124+84.58	7°00'00"	750.00	91.63	45.87
IC_14	N 79°00'00" E	157.39	1648143.639	2871782.028	126+36.52		127+23.79	2°00'00"	2500.00	87.27	43.64
IC_15	N 73°00'00" E	145.50	1648178.671	2871962.251	128+37.54		128+89.90	6°00'00"	-500.00	52.36	26.20
IC_16	N 78°30'00" E	140.51	1648229.638	2872128.958	130+09.20		130+66.80	5°30'00"	600.00	57.60	28.82
IC_17	N 67°00'00" E	235.92	1648267.689	2872315.983	131+78.48		132+78.84	11°30'00"	-500.00	100.36	50.35
IC_18	N 68°30'00" E	398.79	1648370.100	2872557.248	134+64.41		135+16.77	1°30'00"	2000.00	52.36	26.18
IC_19	N 70°30'00" E	254.21	1648525.854	2872952.652	138+89.38		139+41.74	2°00'00"	1500.00	52.36	26.18
IC_20	N 68°30'00" E	414.75	1648619.452	2873216.965	141+69.77		142+22.13	2°00'00"	-1500.00	52.36	26.18
IC_21	S 85°30'00" E	216.75	1648826.458	2873742.481	146+10.70		149+05.67	26°00'00"	650.00	294.96	150.06
IC_22	S 89°00'00" E	56.81	1648806.456	2873996.637	149+72.35		150+48.71	3°30'00"	-1250.00	76.36	38.19
IC_23	N 85°00'00" E	546.63	1648798.147	2874472.632	150+67.32		159+05.08	6°00'00"	-8000.00	837.76	419.26
IC_24	S 82°00'00" E	848.90	1648858.202	2875159.058	160+32.45		163+16.07	13°00'00"	1250.00	283.62	142.42
IC_25	S 76°00'00" E	614.40	1648773.135	2875764.343	167+37.71		168+31.96	6°00'00"	900.00	94.25	47.17
IC_26	S 89°00'00" E	574.29	1648692.815	2876086.487	168+31.96		173+99.19	13°00'00"	-2500.00	567.23	284.84
IC_27	N 78°00'00" E	332.73	1648680.108	2876814.482	176+88.65		179+94.95	13°00'00"	-1350.00	306.31	153.81
IC_28	N 52°00'00" E	702.91	1648833.288	2877535.136	181+73.87		189+68.00	26°00'00"	-1750.00	794.12	404.02
IC_29	N 56°30'00" E	436.26	1649302.329	2878135.481	192+66.89		193+84.70	4°30'00"	1500.00	117.81	58.94
IC_30	N 32°30'00" E	273.75	1649610.573	2878601.187	197+62.02		200+02.88	24°00'00"	-575.00	240.86	122.22
IC_31	N 26°30'00" E	506.07	1649963.007	2878825.712	201+54.41		204+42.39	6°00'00"	-2750.00	287.98	144.12
IC_32	N 35°30'00" E	273.70	1650461.690	2879074.346	208+04.34		209+06.45	9°00'00"	650.00	102.10	51.16
IC_33	N 40°00'00" E	159.25	1650705.302	2879248.113	211+28.99		211+80.04	4°30'00"	650.00	51.05	25.54
IC_34	N 32°00'00" E	137.72	1650851.398	2879370.703	213+13.75		213+76.58	8°00'00"	-450.00	62.83	31.47
IC_35	N 43°00'00" E	209.70	1651021.272	2879476.852	214+82.84		216+07.63	11°00'00"	650.00	124.79	62.59
IC_36	N 41°00'00" E	333.18	1651193.789	2879637.726	217+54.74		218+07.10	2°00'00"	-1500.00	52.36	26.18
IC_37	N 45°00'00" E	125.51	1651465.011	2879873.496	221+14.10		221+66.46	4°00'00"	750.00	52.36	26.19
IC_38	N 41°00'00" E	183.43	1651578.449	2879986.934	222+65.78		223+35.59	4°00'00"	-1000.00	69.81	34.92
IC_39	N 49°00'00" E	121.61	1651748.551	2880134.801	224+84.10		225+67.88	8°00'00"	600.00	83.78	41.96
IC_40	N 44°00'00" E	278.07	1651871.304	2880276.012	226+47.53		227+78.43	5°00'00"	-1500.00	130.90	65.49
IC_41	N 34°00'00" E	97.06	1652109.089	2880505.638	229+91.01		230+95.73	10°00'00"	-600.00	104.72	52.48
IC_42	N 46°00'00" E	253.29	1652233.120	2880589.298	231+40.29		232+45.01	12°00'00"	500.00	104.72	52.55
IC_43	N 11°00'00" E	318.46	1652403.087	2880765.305	233+34.67		235+33.20	35°00'00"	-325.00	198.53	102.47
IC_44	N 44°00'00" E	466.37	1652612.716	2880806.052	235+33.20		237+49.18	33°00'00"	375.00	215.98	111.08
IC_45	N 52°00'00" E	102.56	1652970.826	2881151.875	241+04.47		241+67.30	8°00'00"	450.00	62.83	31.47
IC_46	N 18°00'00" E	134.63	1653085.731	2881298.947	242+38.39		244+01.58	34°00'00"	-275.00	163.19	84.08
IC_47	N 28°00'00" E	284.28	1653238.735	2881348.661	244+52.14		245+04.50	10°00'00"	300.00	52.36	26.25
IC_48	N 17°00'00" E	167.31	1653574.760	2881527.329	247+62.53		249+54.52	11°00'00"	-1000.00	191.99	96.29
IC_49	N 31°00'00" E	194.14	1653805.207	2881597.783	250+25.53		251+72.14	14°00'00"	600.00	146.61	63.67
IC_50	N 26°00'00" E	161.48	1653986.607	2881706.779	252+44.61		253+75.51	5°00'00"	-1500.00	130.90	75.49
IC_51	N 28°00'00" E	1109.24	1654088.614	2881756.531	253+75.51		254+71.50	2°00'00"	2750.00	95.99	48.00
IC_52	N 11°30'00" E	202.53	1655167.234	2882330.044	255+32.74		267+55.93	16°30'00"	-775.00	223.18	112.37
IC_53	N 23°00'00" E	392.24	1655563.048	2882410.573	268+46.09		272+47.52	11°30'00"	2000.00	401.43	201.39
IC_54	N 40°00'00" E	135.28	1655999.773	2882595.952	274+38.37		276+01.56	17°00'00"	550.00	163.19	82.20
IC_55	N 31°30'00" E	392.87	1656171.720	2882740.232	276+54.64		278+32.67	8°30'00"	-1200.00	178.02	89.18
IC_56	N 36°00'00" E	306.05	1656531.825	2882960.905	281+36.37		281+95.27	4°30'00"	750.00	58.90	29.47
IC_57	N 31°00'00" E	425.46	1656671.125	2883062.113	282+83.41		283+92.49	5°00'00"	-1250.00	109.08	54.58
IC_58	N 56°00'00" E	352.92	1656879.431	2883187.276	283+92.49		287+63.38	25°00'00"	850.00	370.88	188.44
IC_59	N 62°00'00" E	154.31	1657113.412	2883534.166	289+27.85		290+58.75	6°00'00"	1250.00	130.90	65.51
IC_60	N 56°30'00" E	570.97	1657236.593	2883765.836	291+47.55		293+63.53	5°30'00"	-2250.00	215.98	108.08
IC_61	N 62°00'00" E	295.26	1657591.499	2884302.041	298+26.43		299+70.42	5°30'00"	1500.00	143.99	72.05
IC_62	N 54°30'00" E	248.09	1657763.963	2884626.397	301+93.63		303+37.62	7°30'00"	-1100.00	143.99	72.10
IC_63	N 65°00'00" E	357.50	1657950.715	2884888.215	305+13.61		306+60.21	10°30'00"	800.00	146.61	73.51
IC_64	N 57°00'00" E	185.48	1658153.518	2885323.126	309+44.20		311+88.55	8°00'00"	-1750.00	244.35	122.37
IC_65	N 67°00'00" E	346.34	1658283.125	2885522.704	312+51.65		313+56.37	10°00'00"	600.00	104.72	52.49
IC_66	N 60°00'00" E	354.54	1658429.203	2885866.842	316+50.22		317+05.19	7°00'00"	-450.00	54.98	27.52
IC_67	S 90°00'00" E	63.03	1658627.908	2886211.009	320+32.21		321+15.98	30°00'00"	160.00	83.78	42.87
IC_68	N 58°00'00" E	46.10	1658627.908	2886299.850	321+36.15		321+86.41	32°00'00"	-90.00	50.27	25.81
IC_69	S 75°00'00" E	253.03	1658709.943	2886431.133	322+06.71		324+11.78	47°00'00"	250.00	205.08	108.70
IC_70	N 72°00'00" E	607.84	1658800.371	2886840.061	325+56.11		328+87.29	33°00'00"	-575.00	331.18	170.32
IC_71	N 78°00'00" E	379.41	1658812.495	2887492.911	333+24.80		334+81.88	6°00'00"	1500.00	157.08	78.61
IC_72	N 62°00'00" E	469.26	1658873.253	2887778.758	335+97.12		337+92.60	16°00'00"	-700.00	195.48	98.38
IC_73	N 67°00'00" E	269.08	1659006.554	2888029.460	337+92.60		341+63.48	5°00'00"	4250.00	370.88	185.56
IC_74	N 58°00'00" E	249.96	1659142.445	2888349.598	342+47.01		344+04.09	9°00'00"	-1000.00	157.08	78.70
IC_75	N 25°00'00" E	261.49	1659365.162	2888706.020	345+75.35		349+06.52	33°00'00"	-575.00	331.18	170.32
IC_76	N 64°30'00" E	213.61	1659691.636	2888858.258	349+97.69		351+87.28	39°30'00"	275.00	189.59	98.74
IC_77	N 72°30'00" E	269.82	1659806.175	2889098.395	353+02.15		354+06.87	8°00'00"	750.00	104.72	52.45
IC_78	N 76°00'00" E	477.90	1659895.580	2889381.950	356+24.24		356+79.22	3°30'00"	900.00	54.98	27.50
IC_79	N 84°00'00" E	448.34	1660040.798	2889964.387	361+19.62		363+73.97	8°00'00"	1750.00	244.35	122.37
IC_80	S 90°00'00" E	334.86	1660094.510	2890475.422	366+99.93		368+30.83	6°00'00"	1250.00	130.90	65.51
IC_81	S 80°00'00" E	615.27	1660094.510	2890915.274	371+00.19		373+09.63	10°00'00"	1200.00		

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C2	C30

**Begin Project  
NM BLM 1103(6)  
100+00.00  
N 1647647.2477  
E 2869180.3174**

100+00.00  
Begin surface course  
aggregate  
Schedule A  
Begin surface course  
aggregate  
Option X

Protect existing fence,  
gate, and cattle guard.



R11-2  
Mounted on Barricade,  
Type 3

XX/XX/XX - XX/XX/XX

SPECIAL 1

101+27, Rt.  
Remove and reset  
existing sign (x2)

101+50, Rt.  
Begin proposed  
staging area

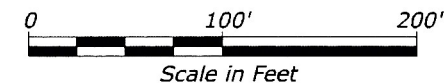
103+50, Rt.  
End proposed  
staging area

107+75, Rt.  
Remove and reset  
existing sign

109+28  
Install cattle guard  
Option X

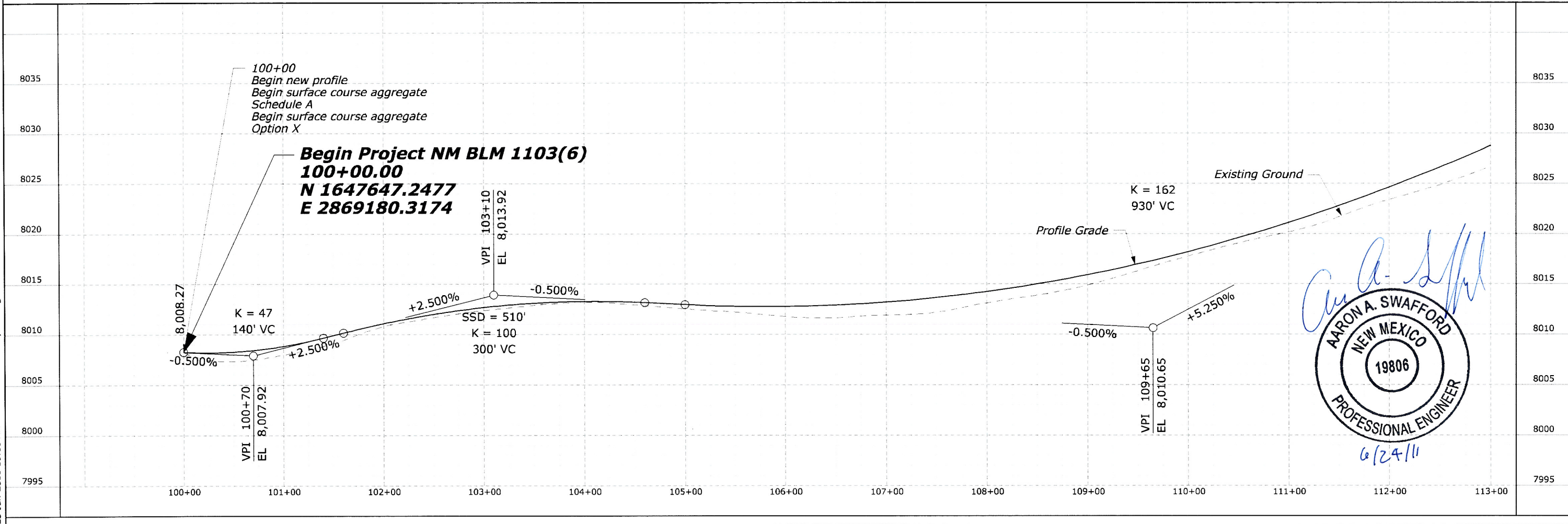
111+90, Lt., Rt.  
Begin riprap ditch class 2  
See detail on sheet A6

Protect existing fence



C02-RdwyPPI.C.dgn

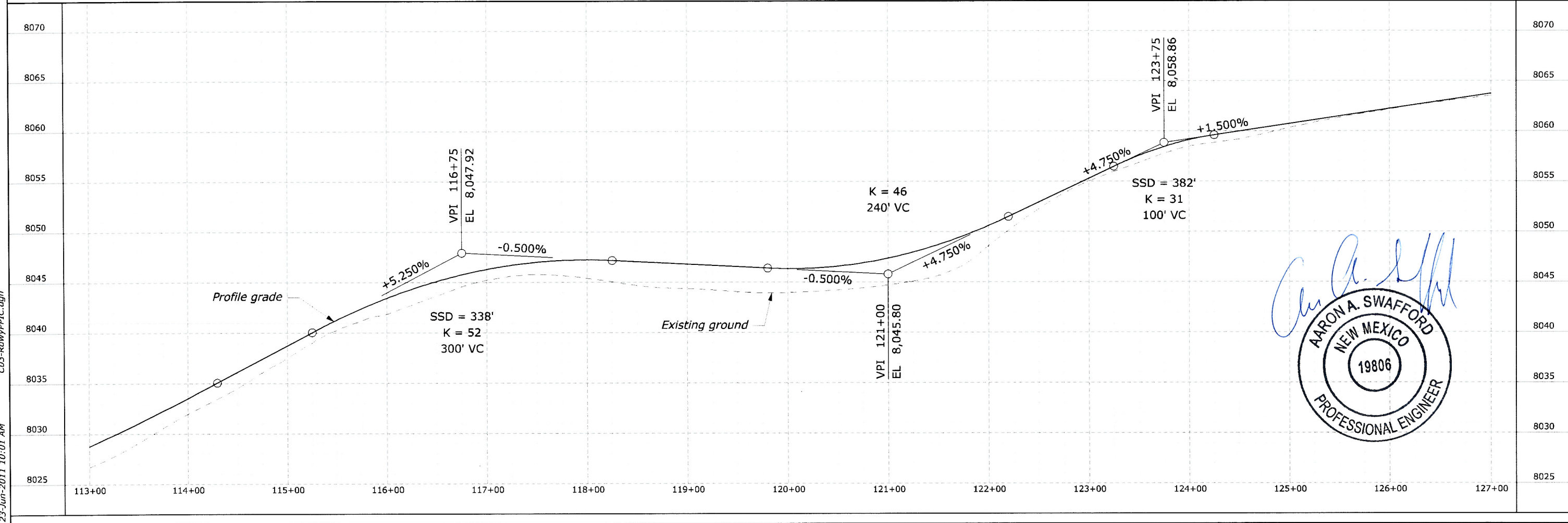
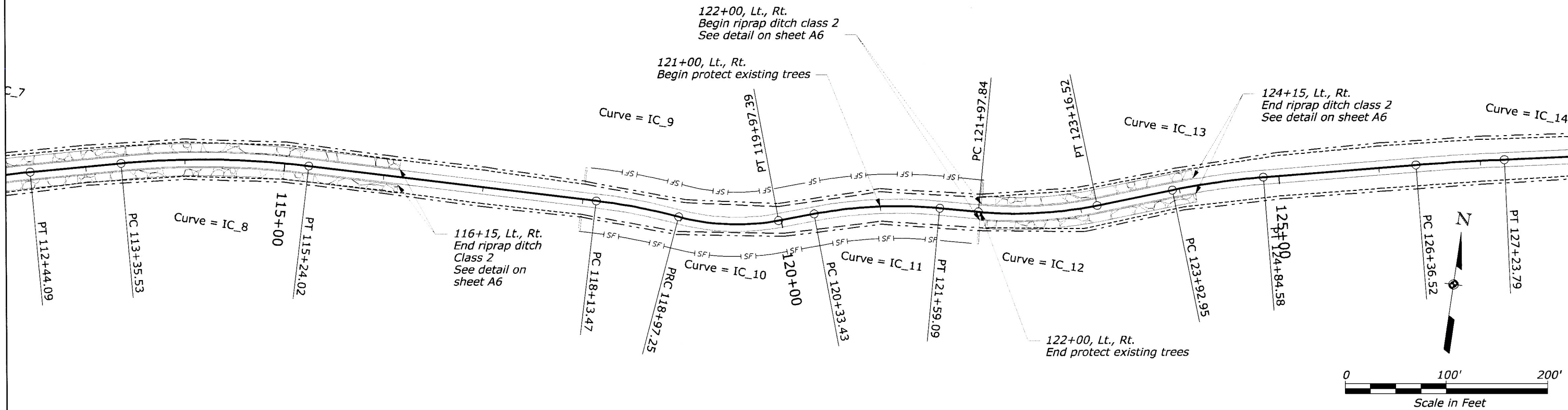
23-Jun-2011 10:00 AM



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 6/24/11

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REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C3	C30

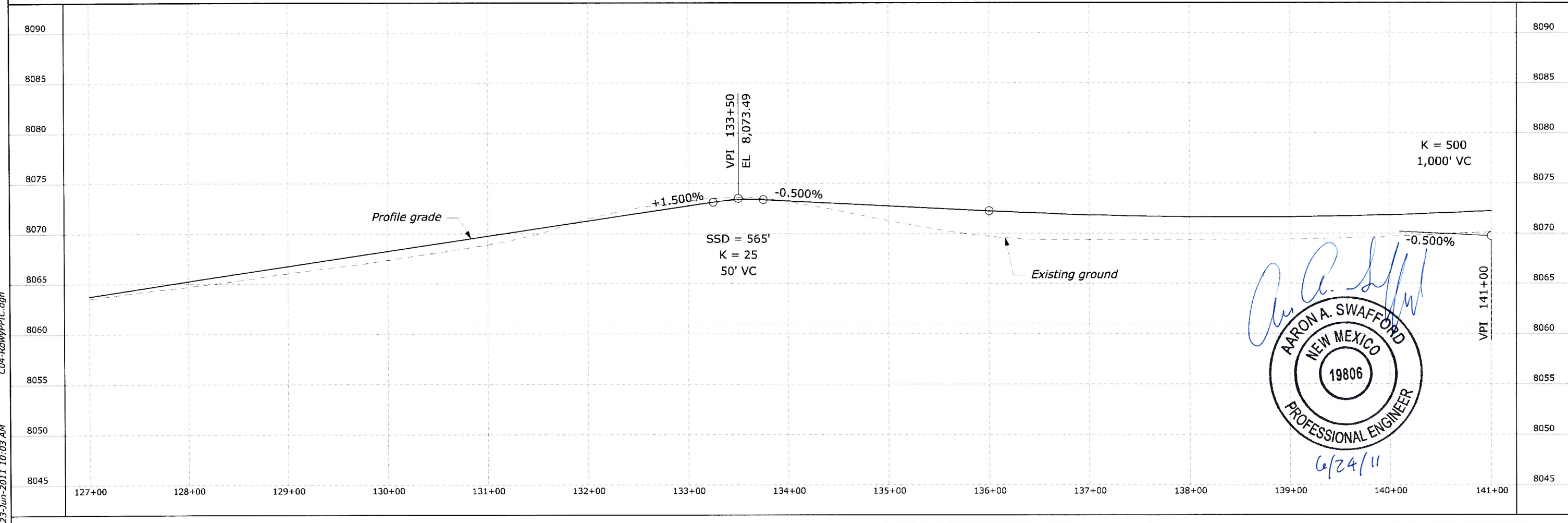
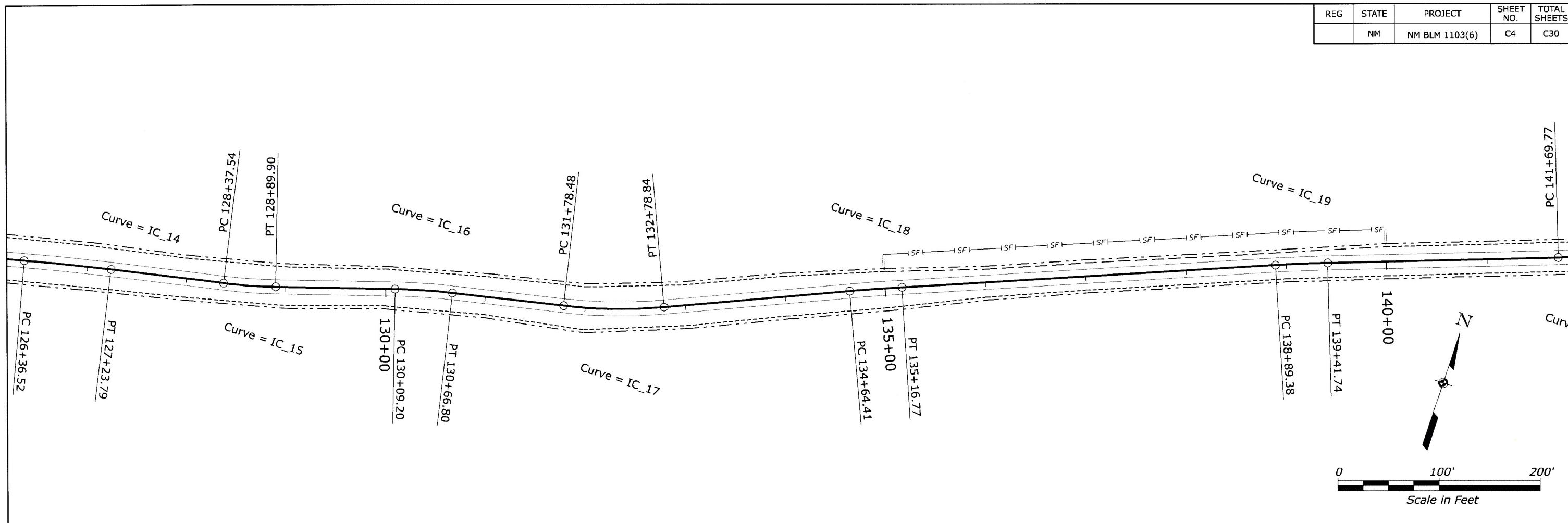


*[Handwritten Signature]*  
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23-Jun-2011 10:01 AM C03-RdwyPPI.C.dgn

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REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C4	C30



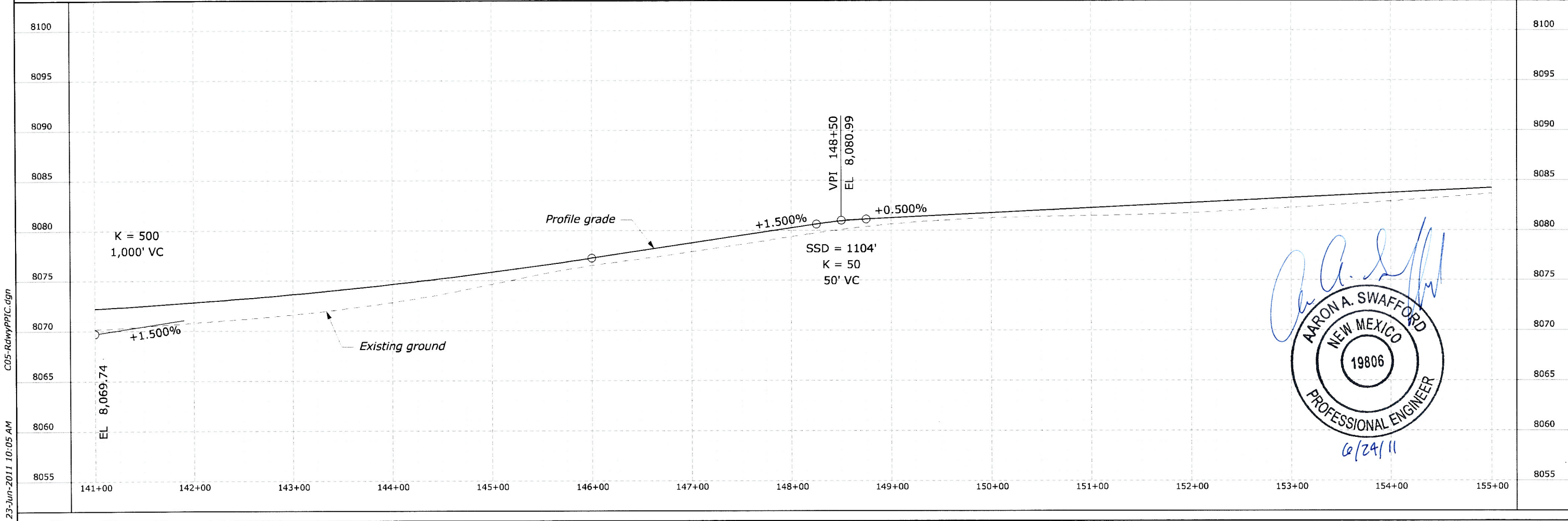
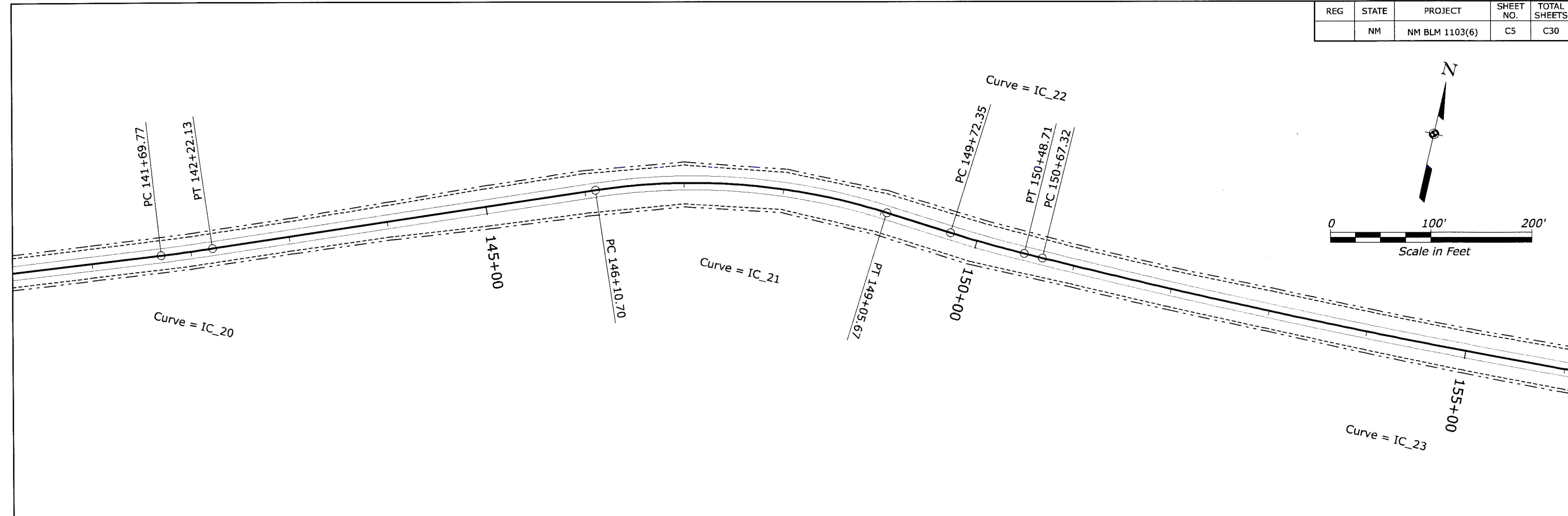
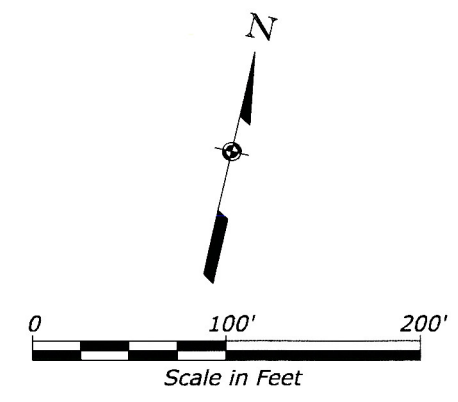
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23-Jun-2011 10:03 AM CD4-RdwyPPIC.dgn

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REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C5	C30

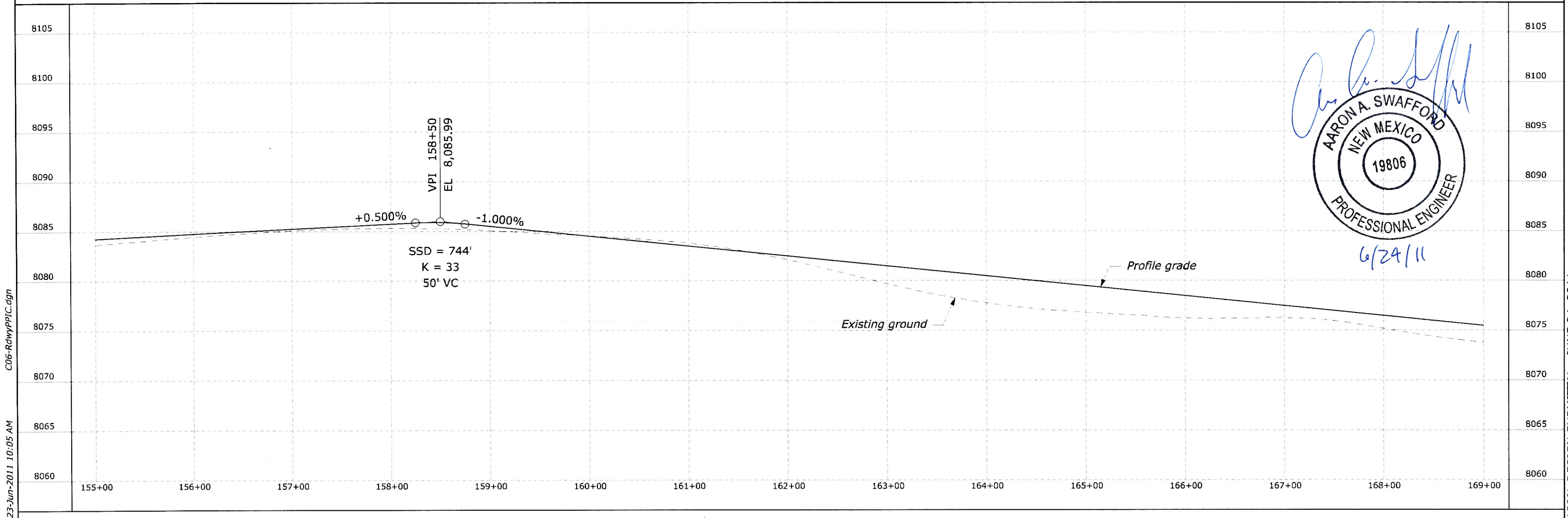
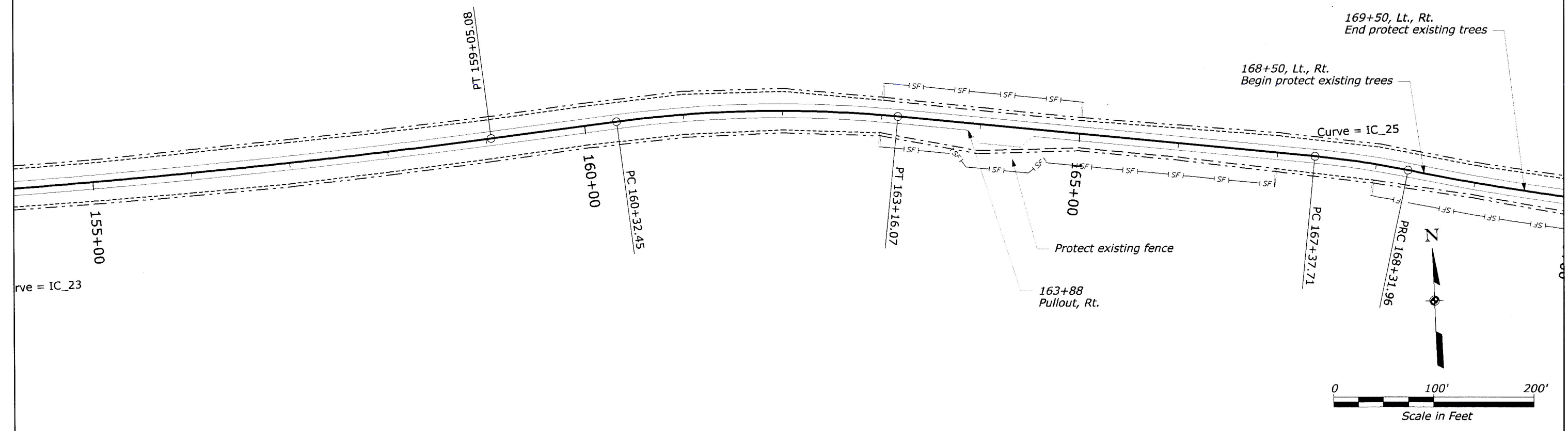


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100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C6	C30

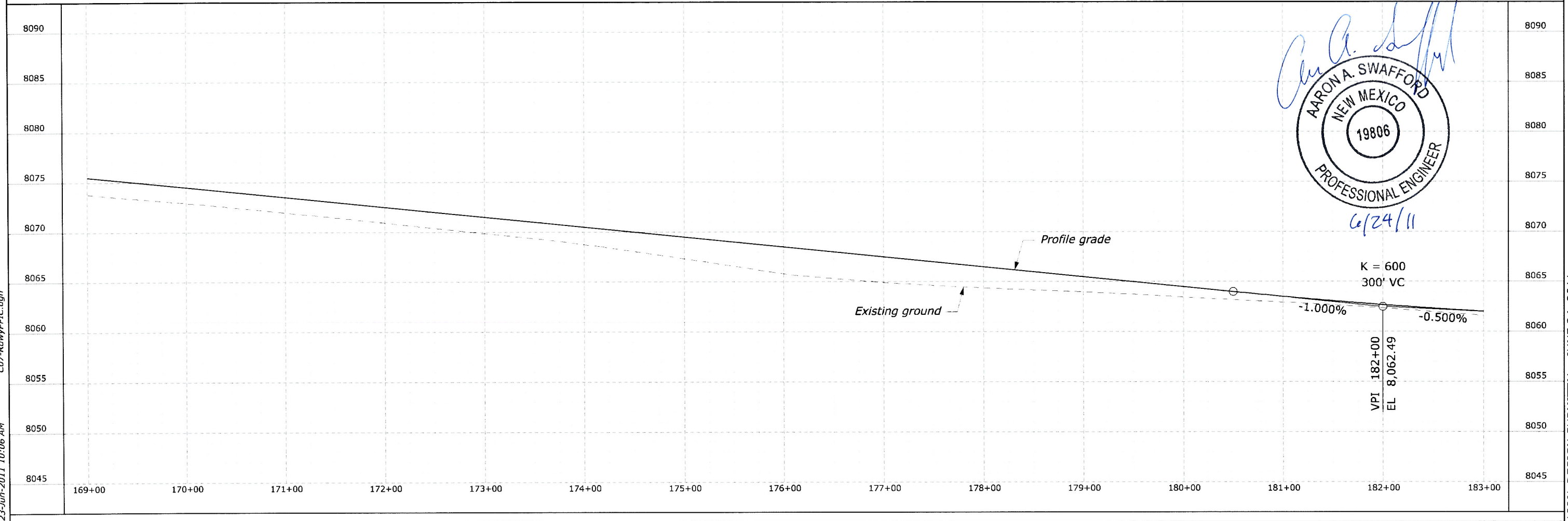
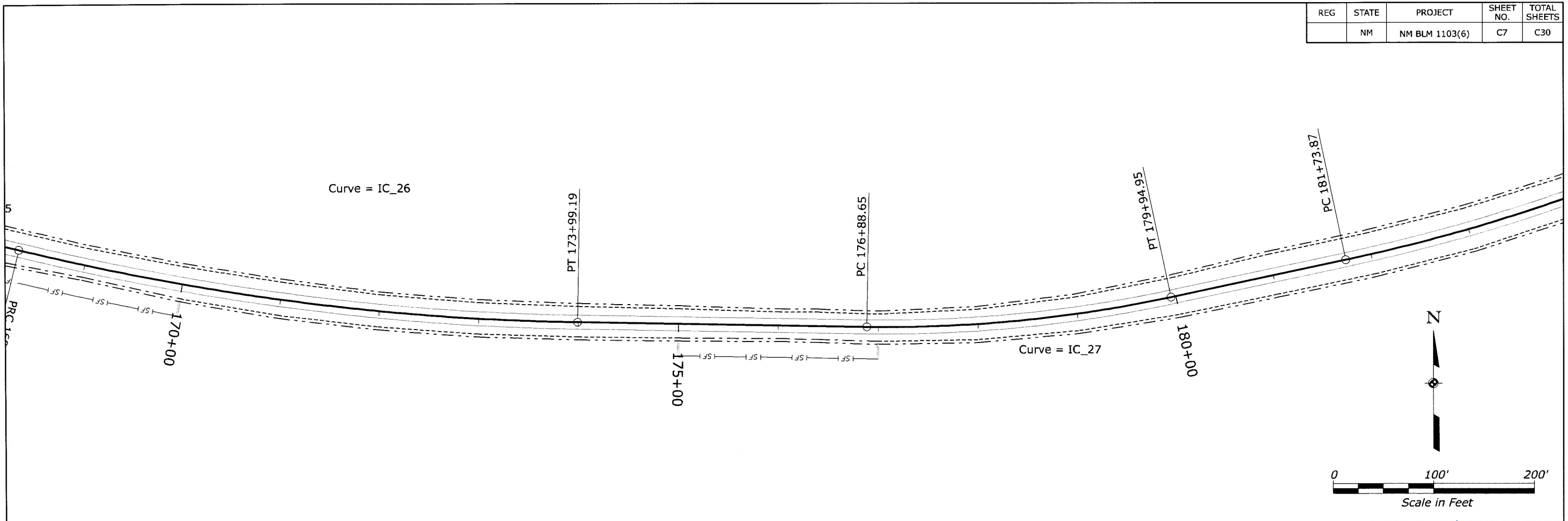
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100% DESIGN SUBMITTAL - JUNE 24, 2011

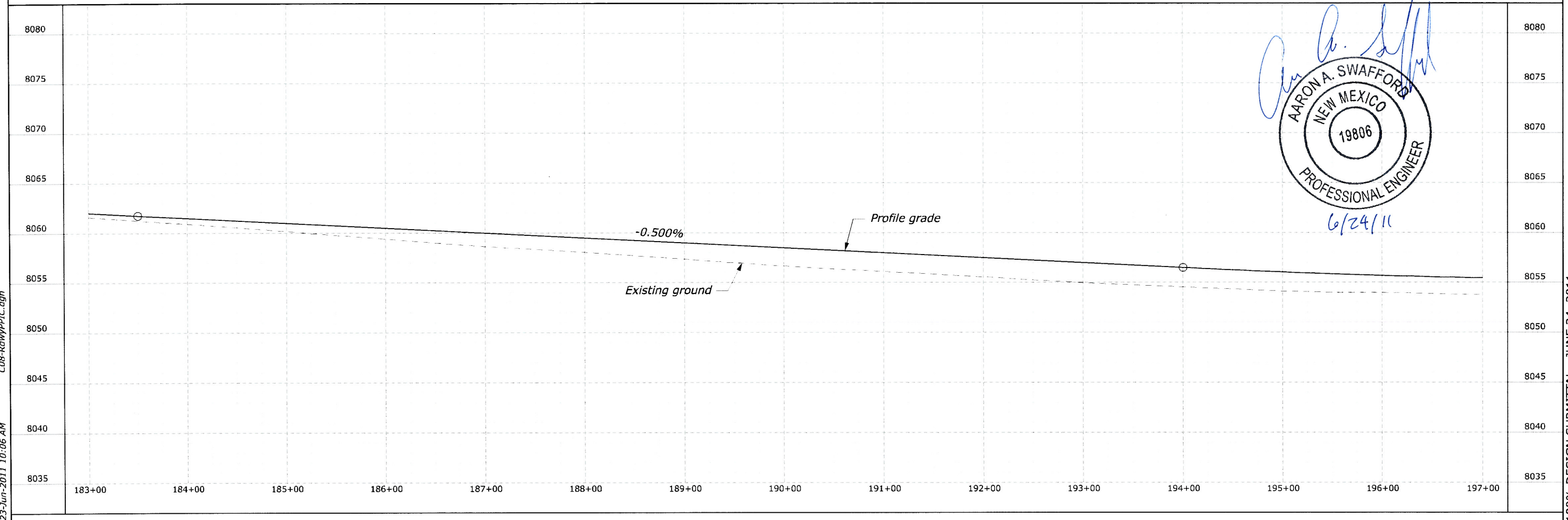
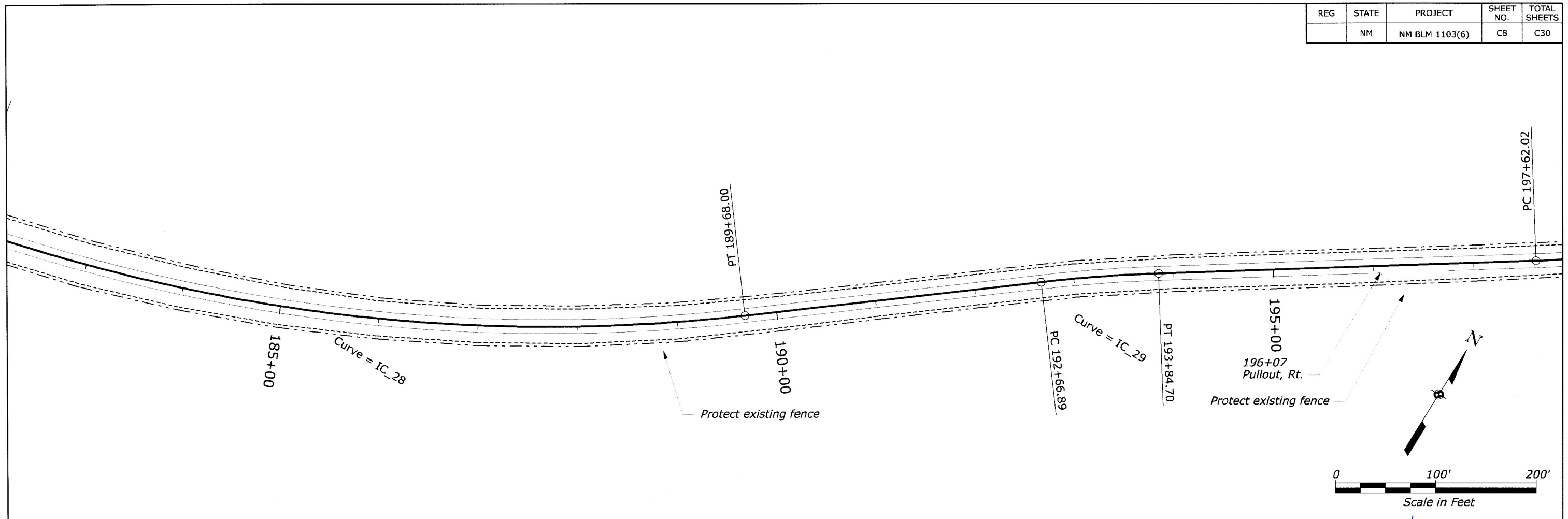
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	NM	NM BLM 1103(6)	C7	C30



23-Jun-2011 10:06 AM C07-RdwyPPLC.dgn

100% DESIGN SUBMITTAL - JUNE 24, 2011

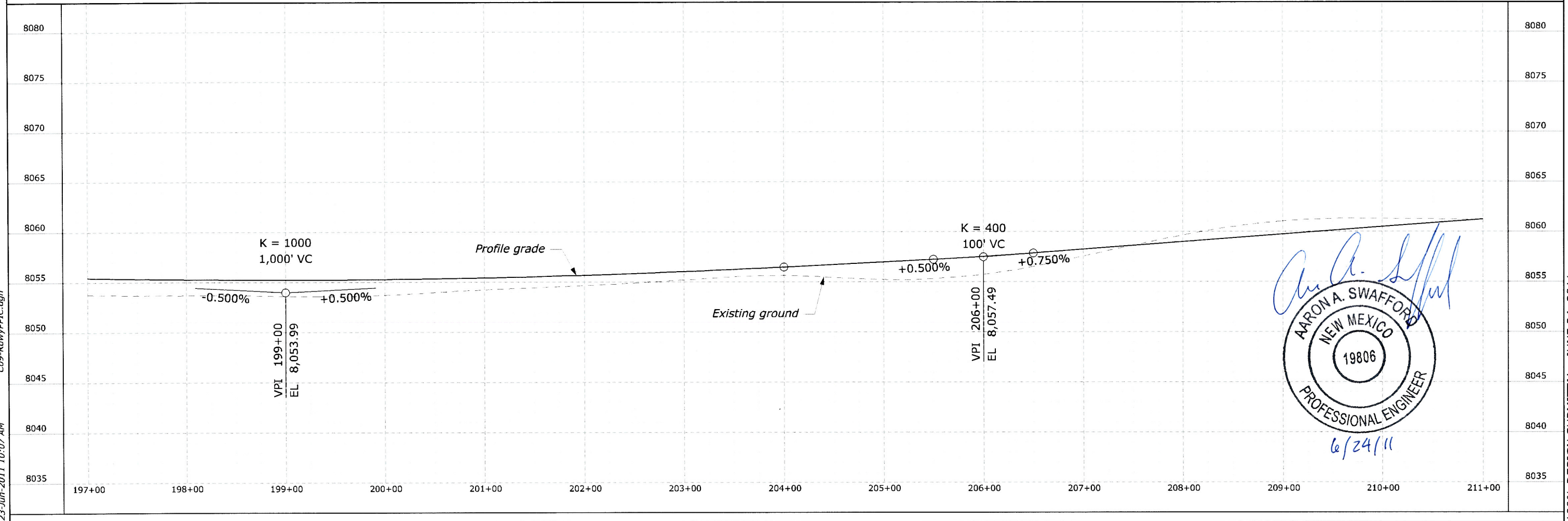
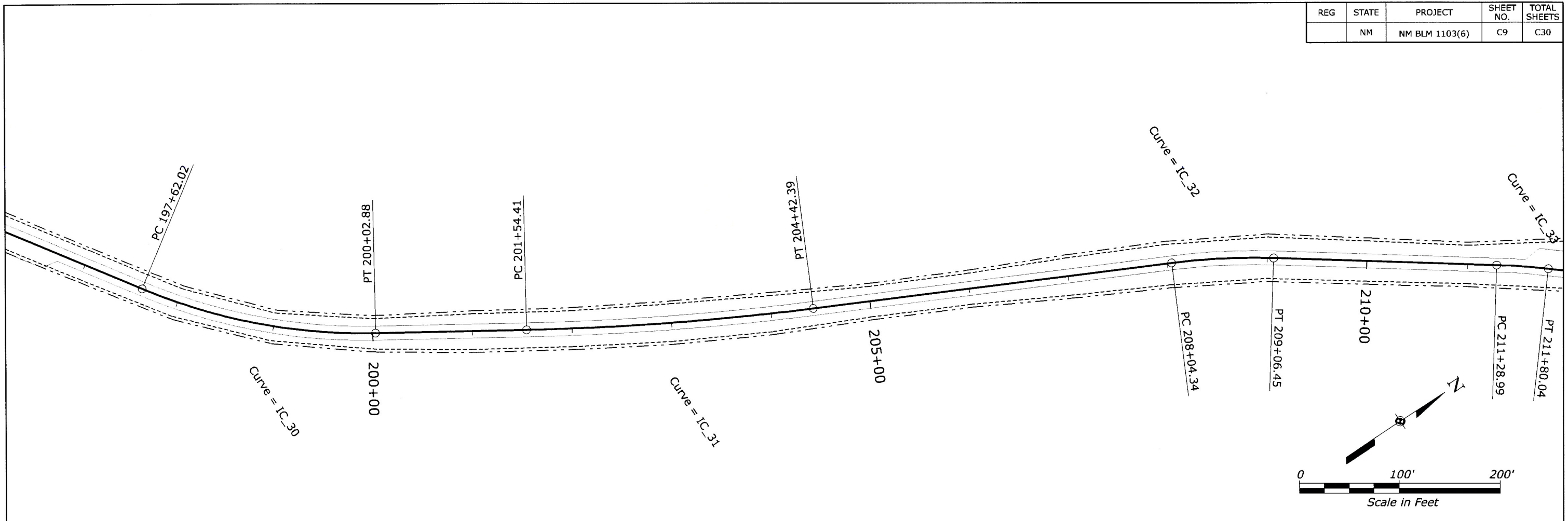
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	NM	NM BLM 1103(6)	C8	C30



23-Jun-2011 10:06 AM C08-RdwyPPIC.dgn

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C9	C30

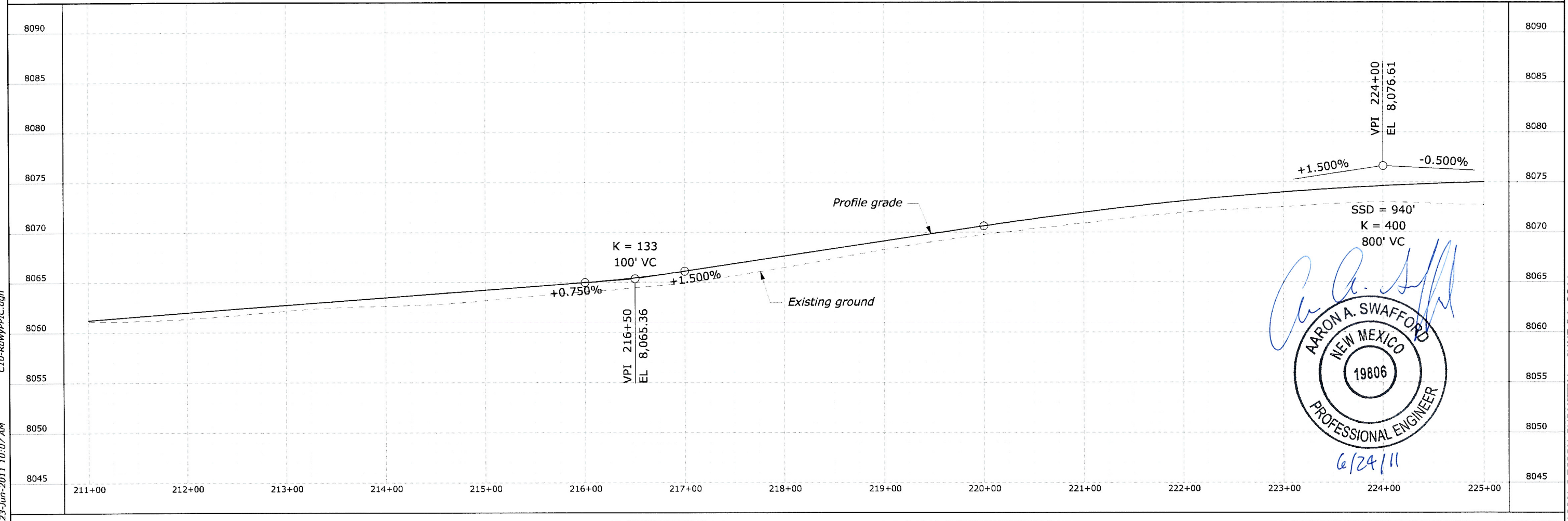
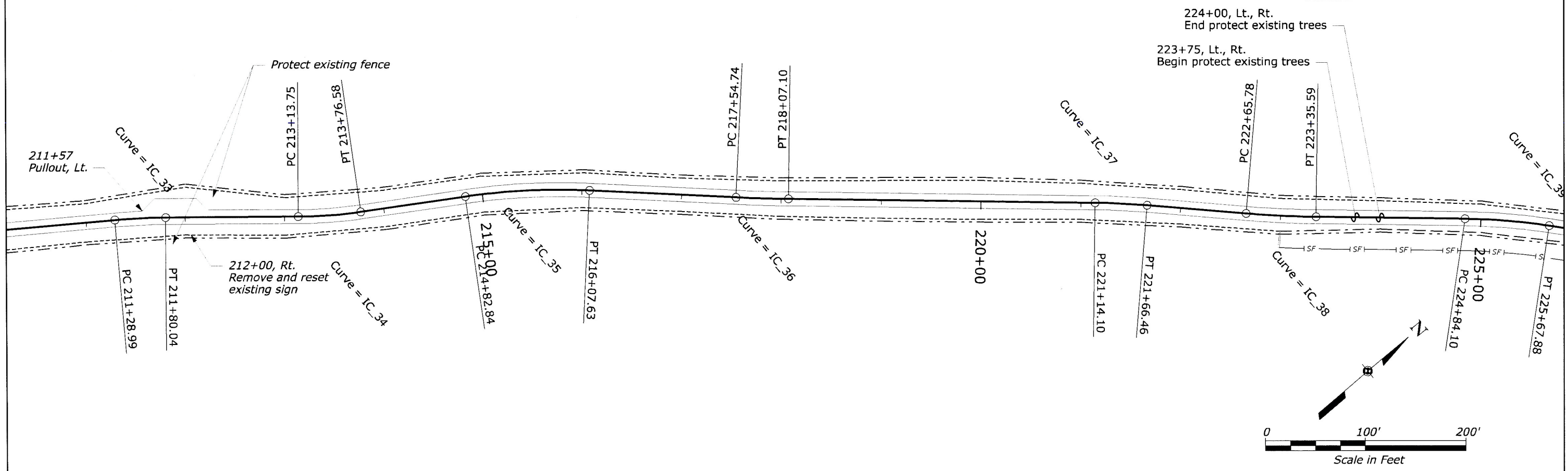


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23-Jun-2011 10:07 AM CD9-RdwyPPLC.dgn

100% DESIGN SUBMITTAL - JUNE 24, 2011

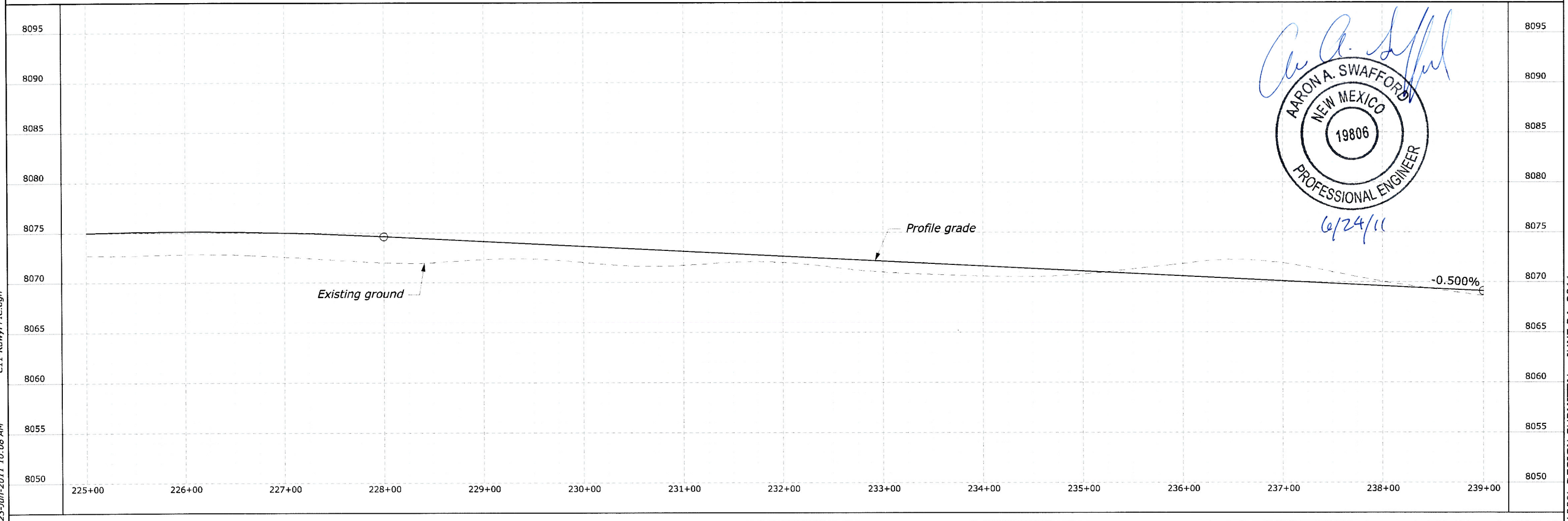
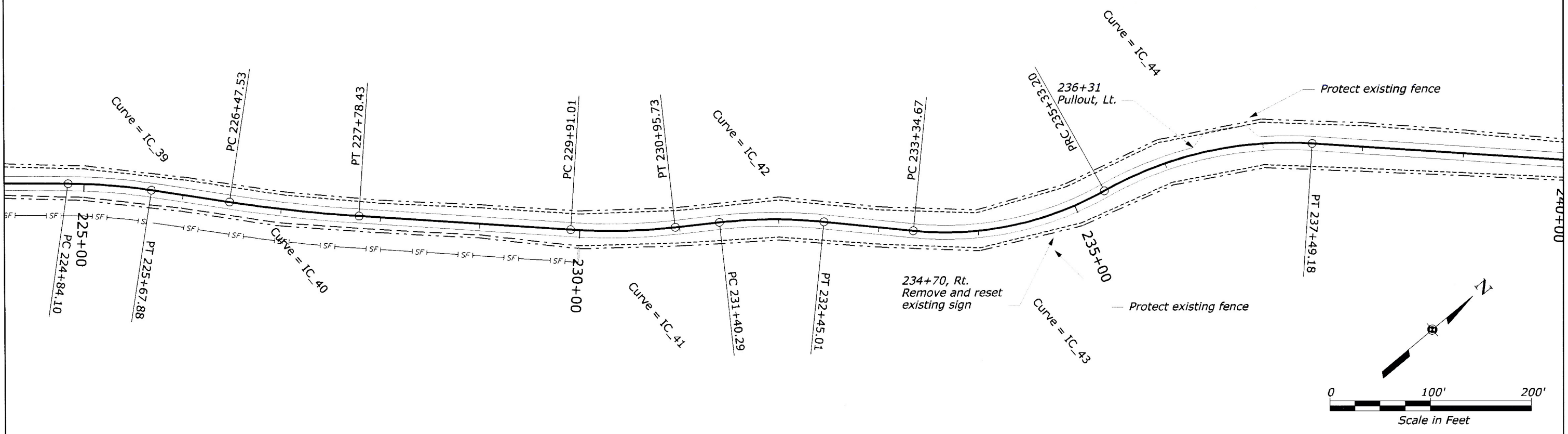
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C10	C30



C10-RdwyPPIC.dgn  
23-Jun-2011 10:07 AM

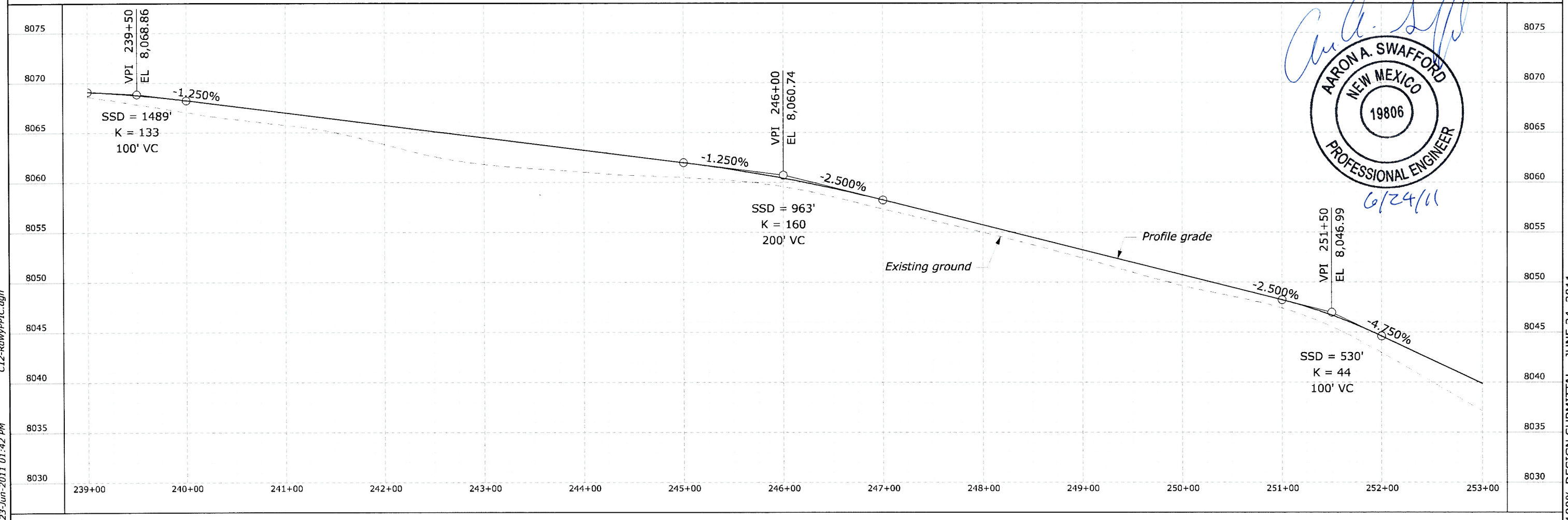
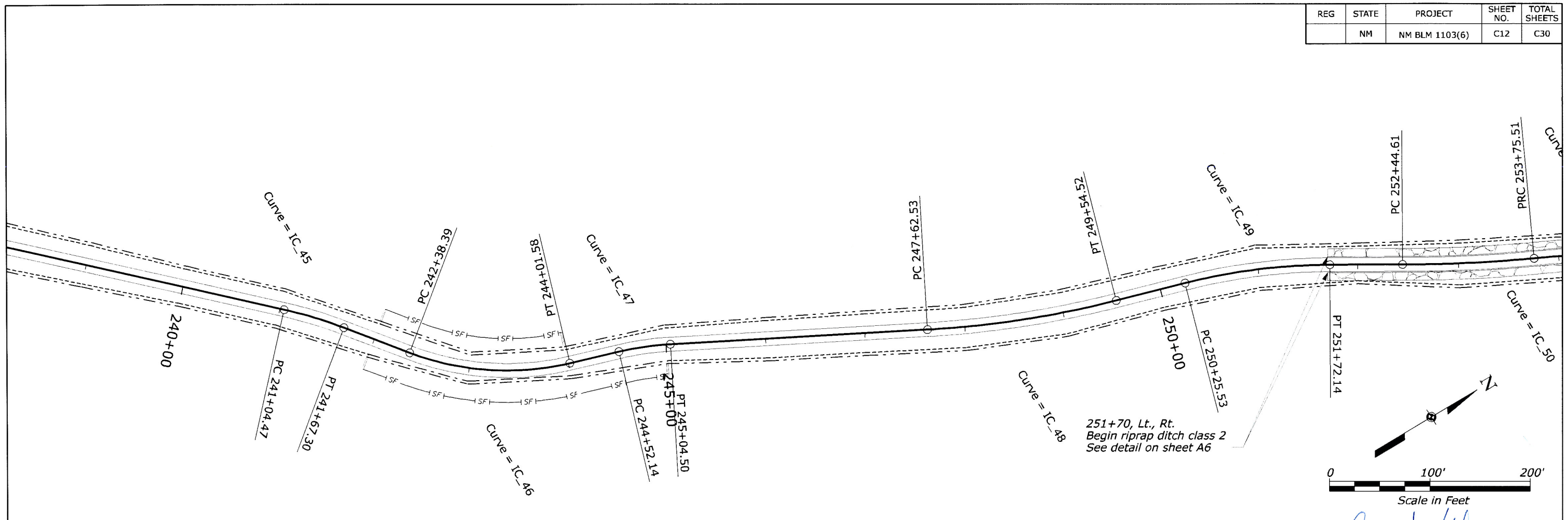
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REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C11	C30



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REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C12	C30

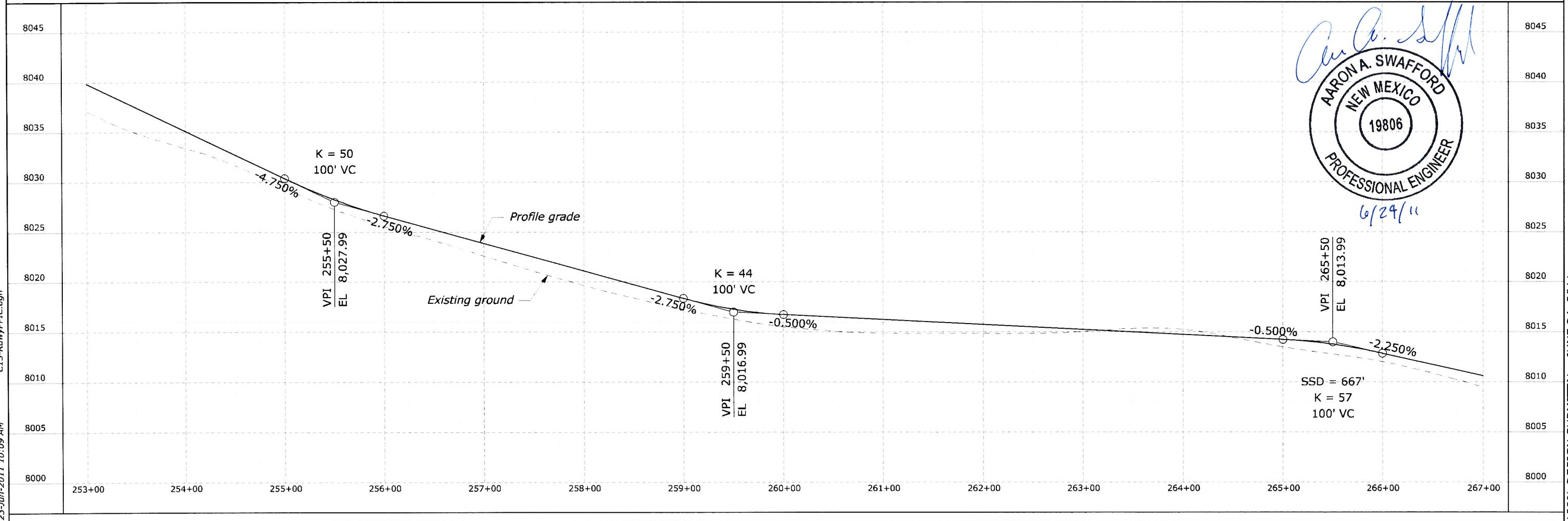
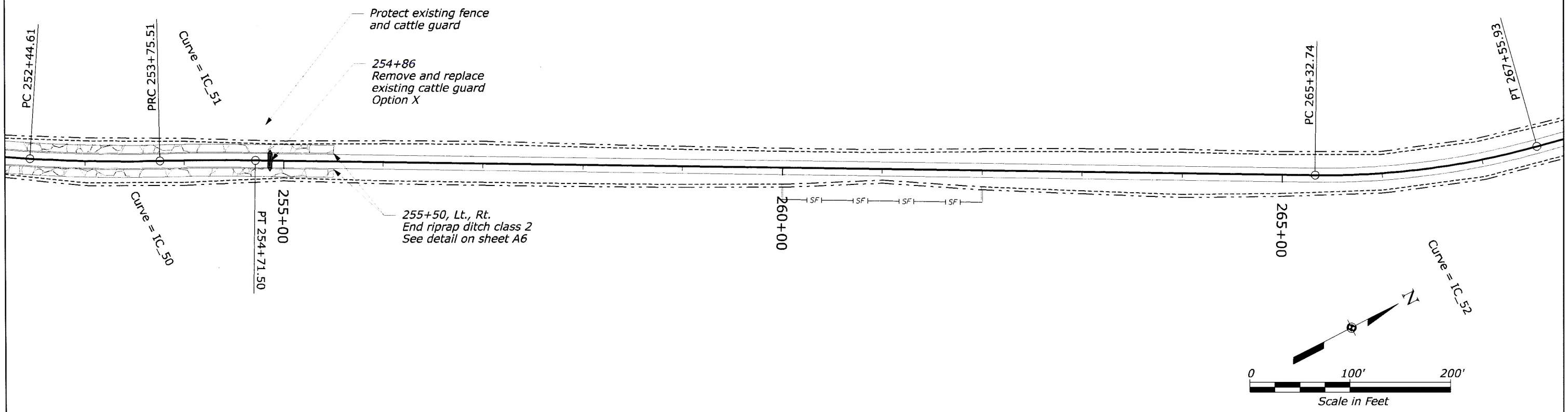


23-Jun-2011 01:42 PM C12-RdwyPPIC.dgn

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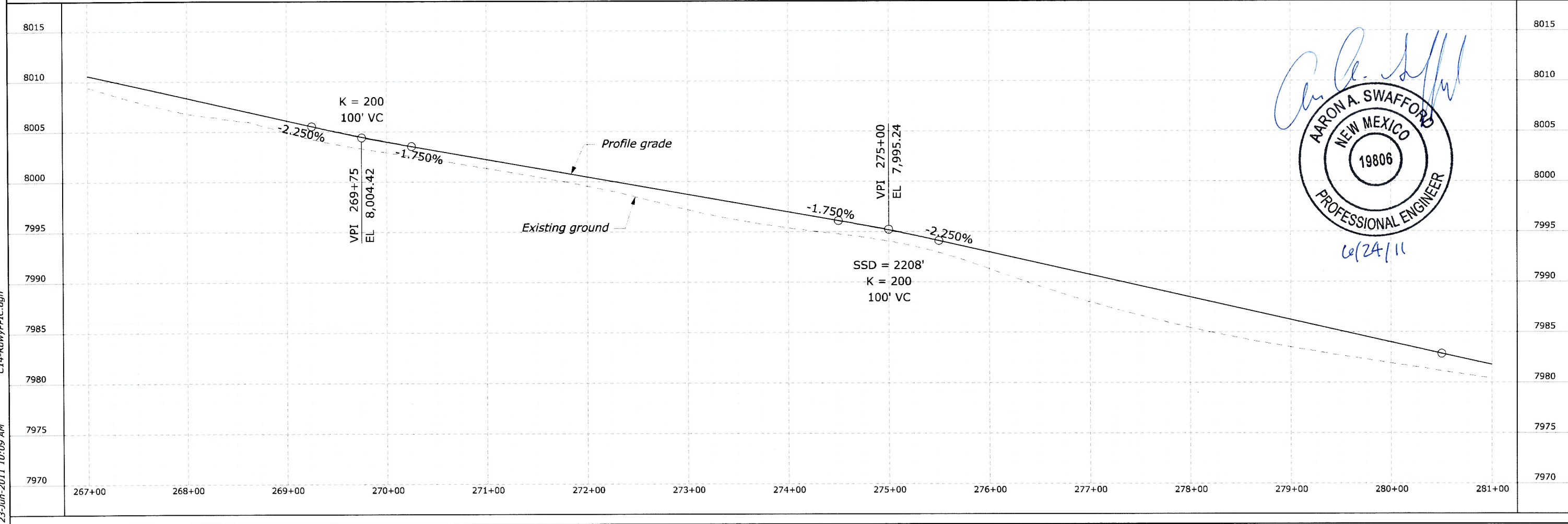
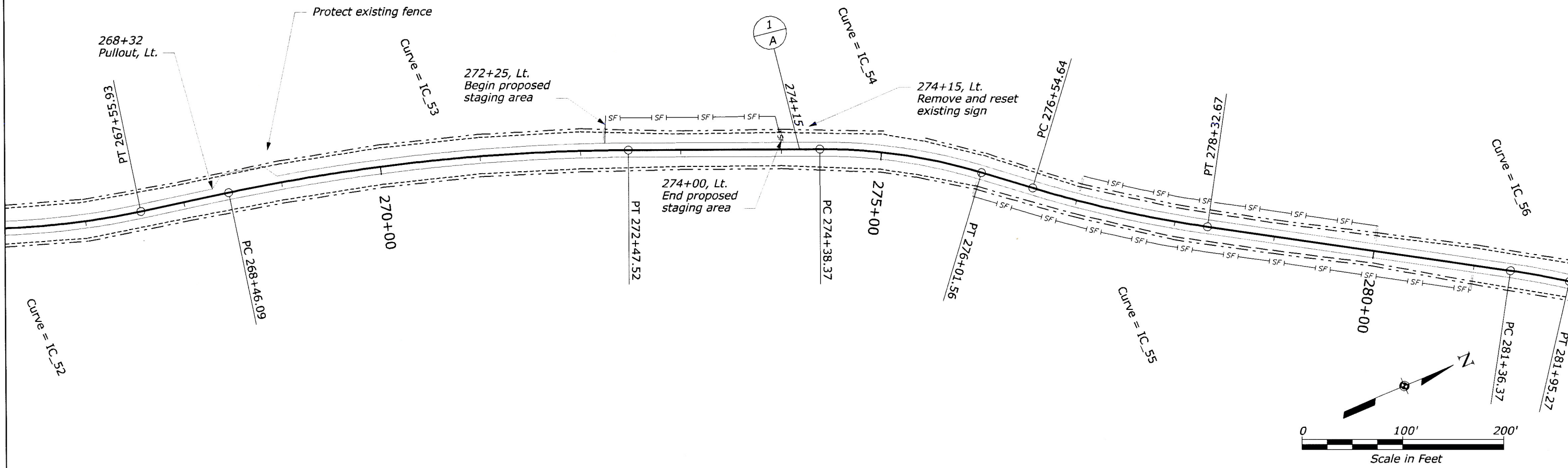
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C13	C30



23-Jun-2011 10:09 AM C13-RdwyPPIC.dgn

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REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C14	C30

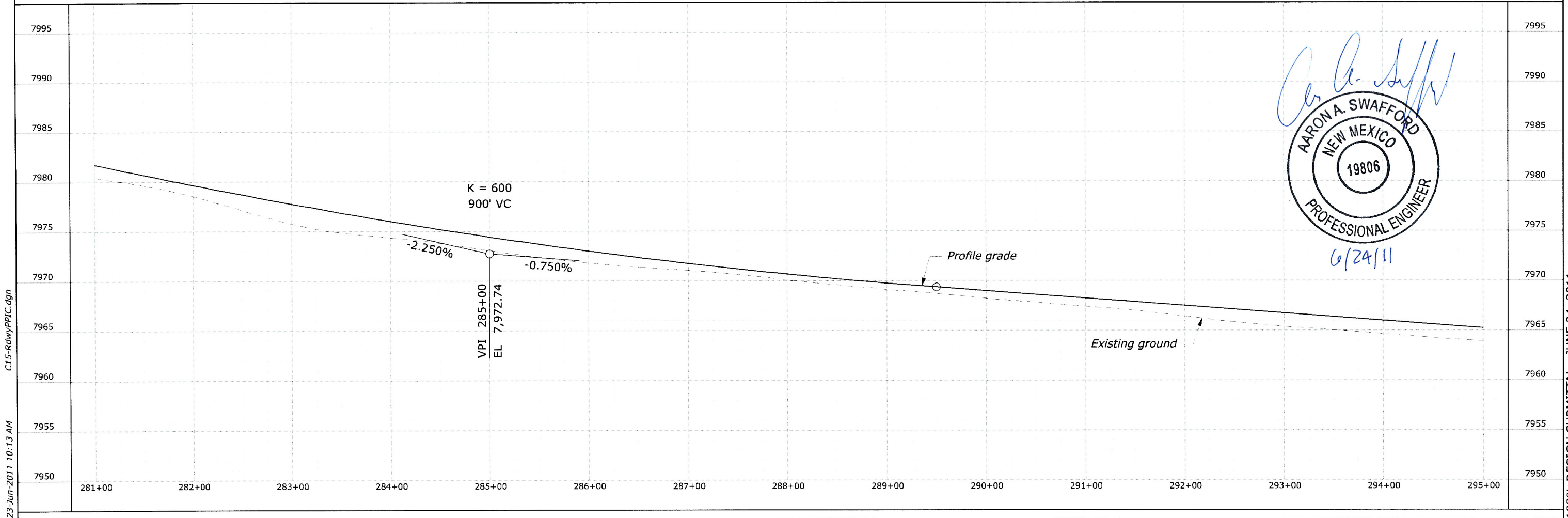
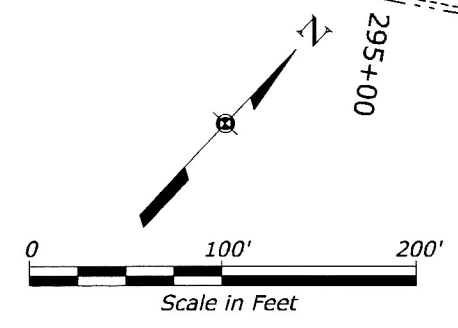
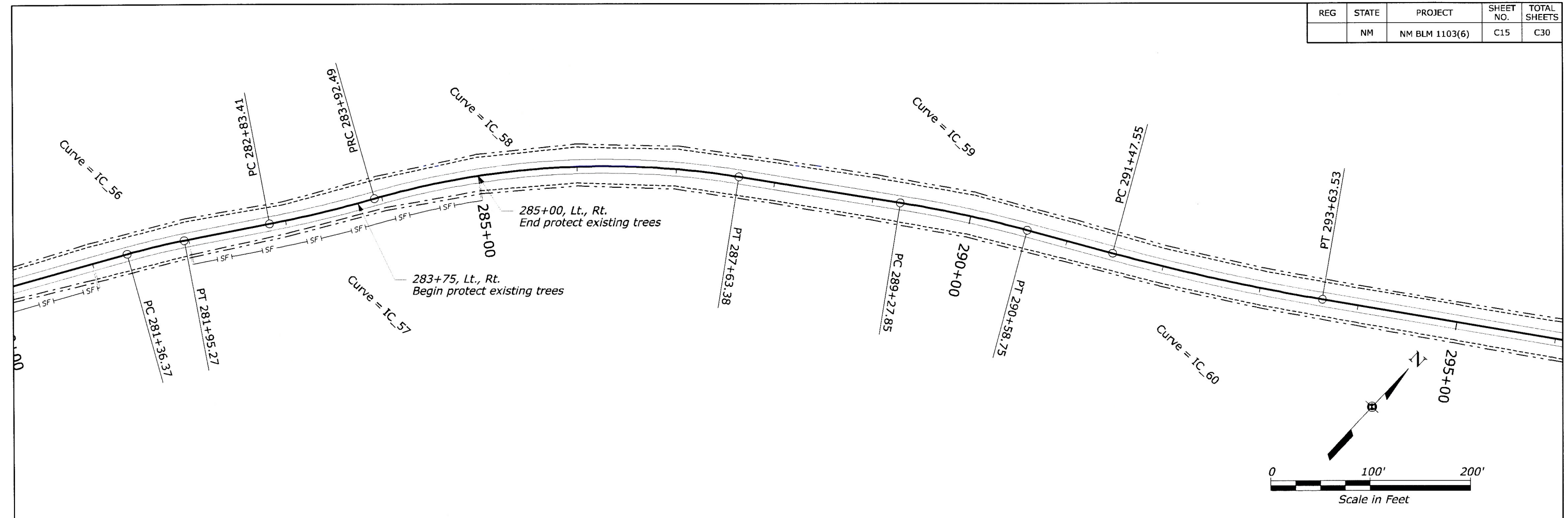


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REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C15	C30

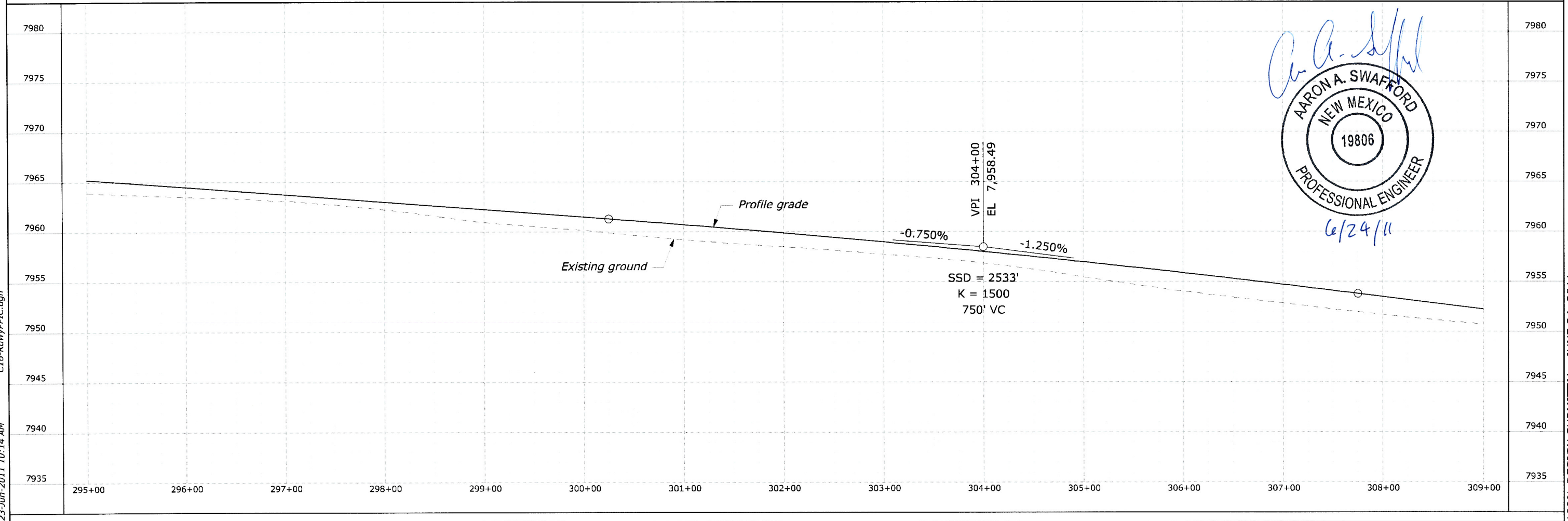
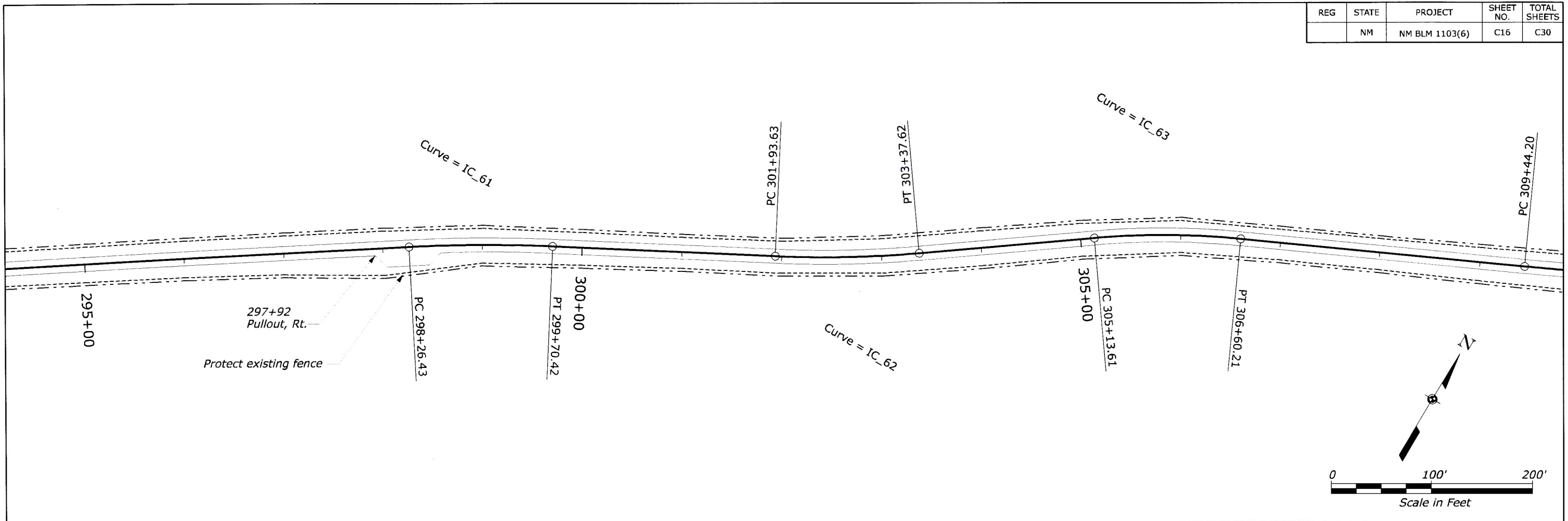


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23-Jun-2011 10:13 AM C15-RdwyPPLC.dgn

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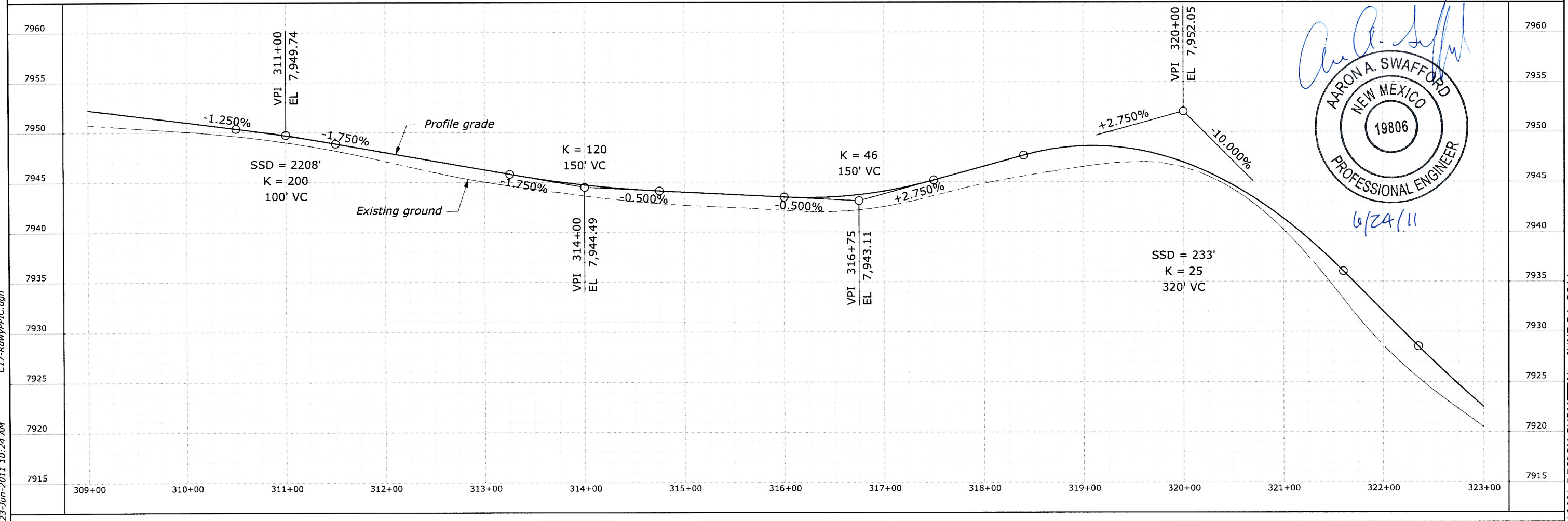
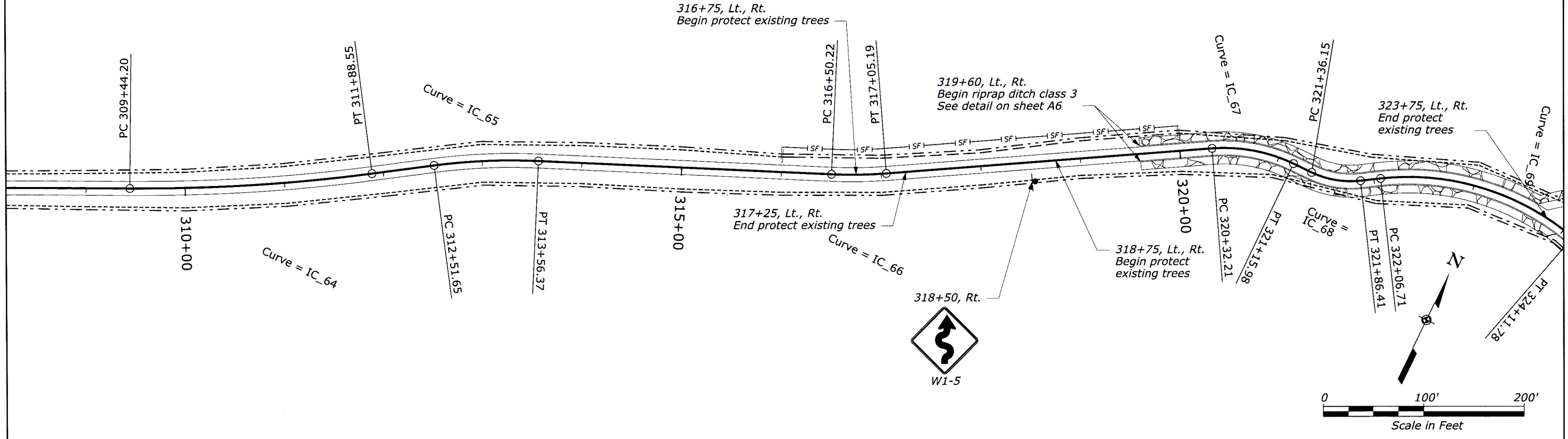
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C16	C30



23-Jun-2011 10:14 AM C16-RdwyPPLC.dgn

100% DESIGN SUBMITTAL - JUNE 24, 2011

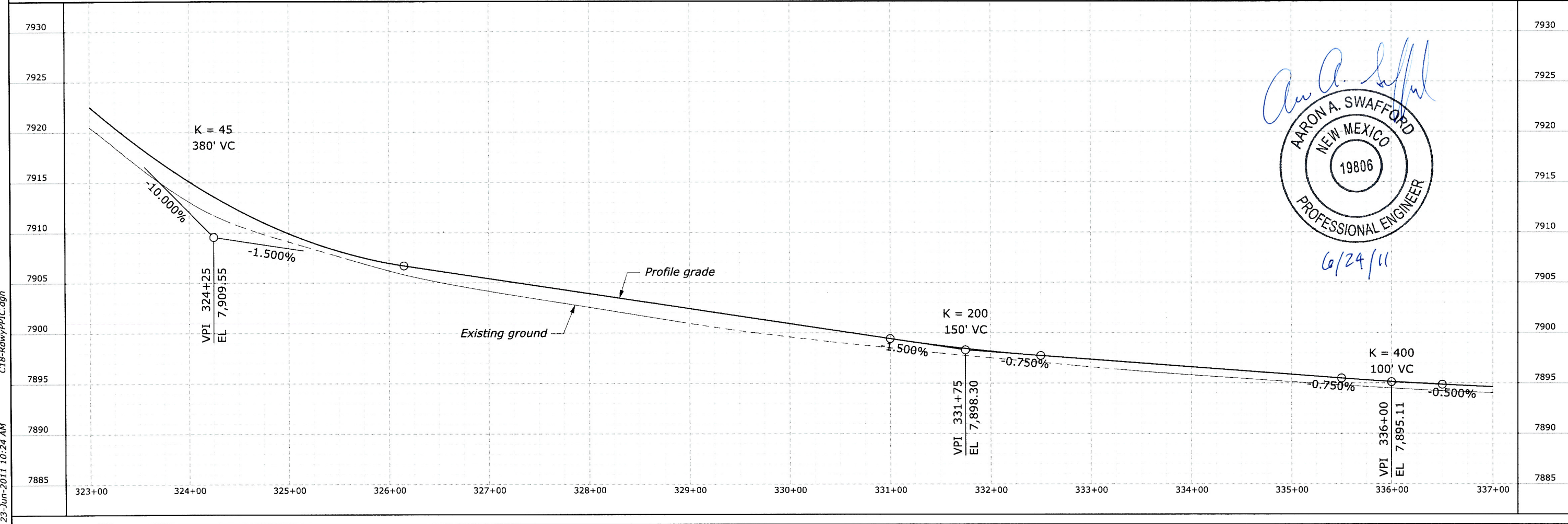
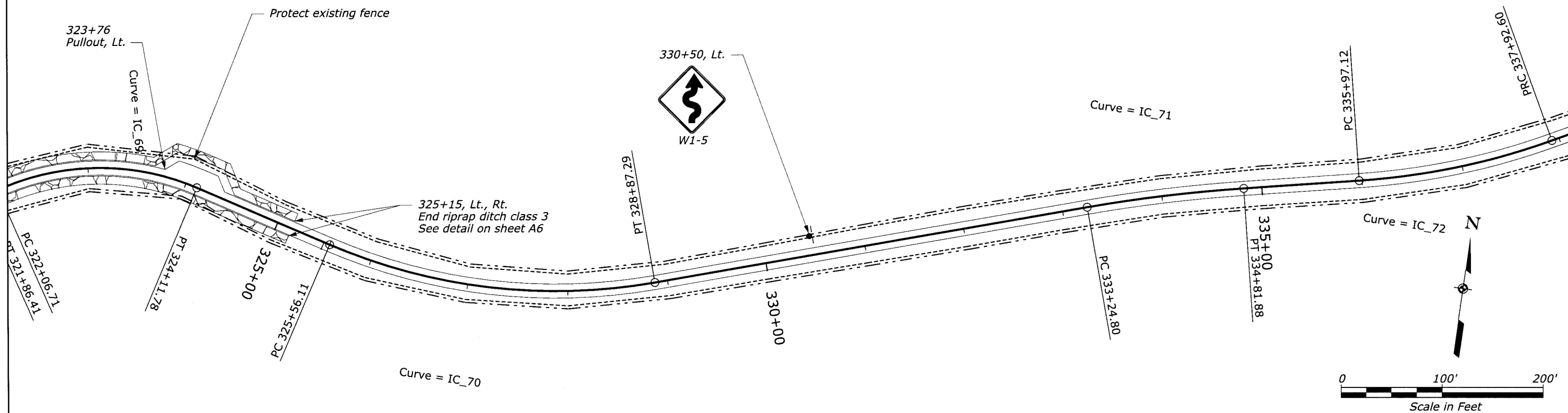
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C17	C30



23-Jun-2011 10:24 AM C17-RdwyPPIC.dgn

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C18	C30

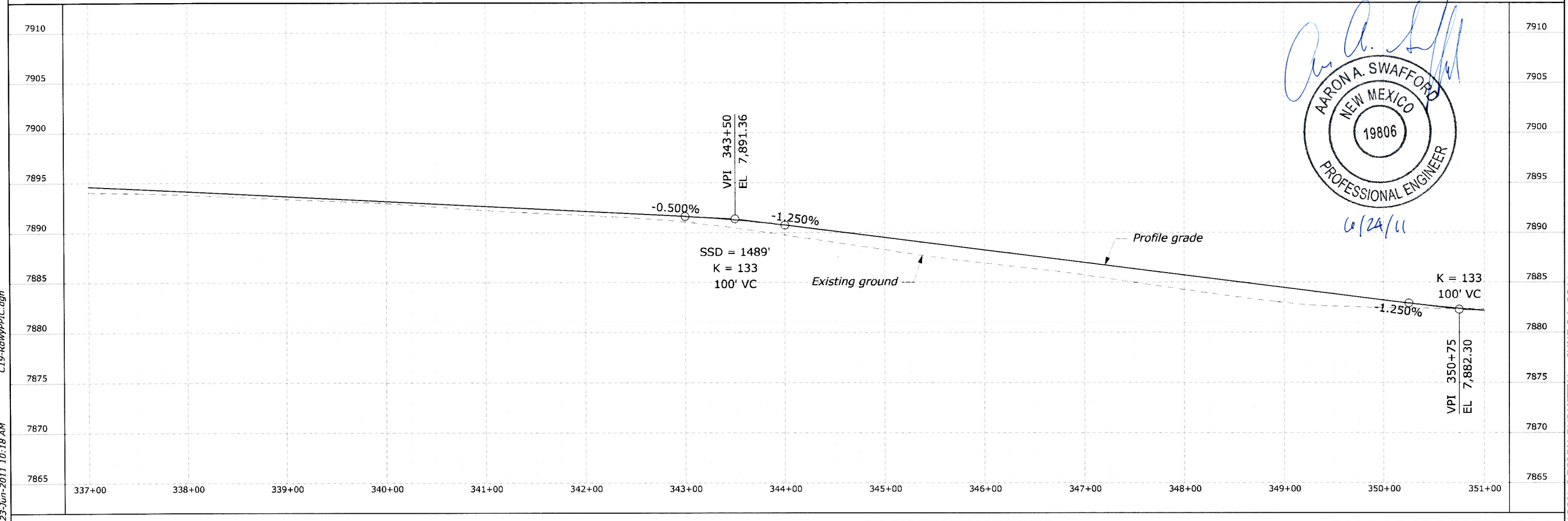
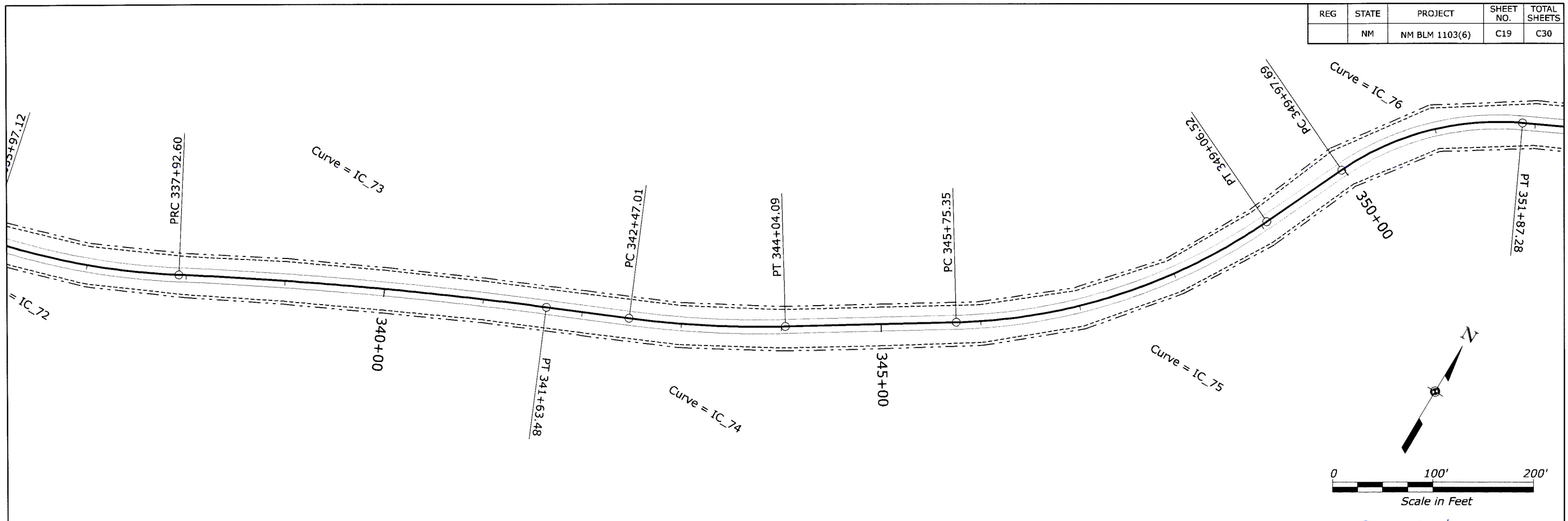


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C18-Rdwy/PPIC.dgn  
23-Jun-2011 10:24 AM

100% DESIGN SUBMITTAL - JUNE 24, 2011

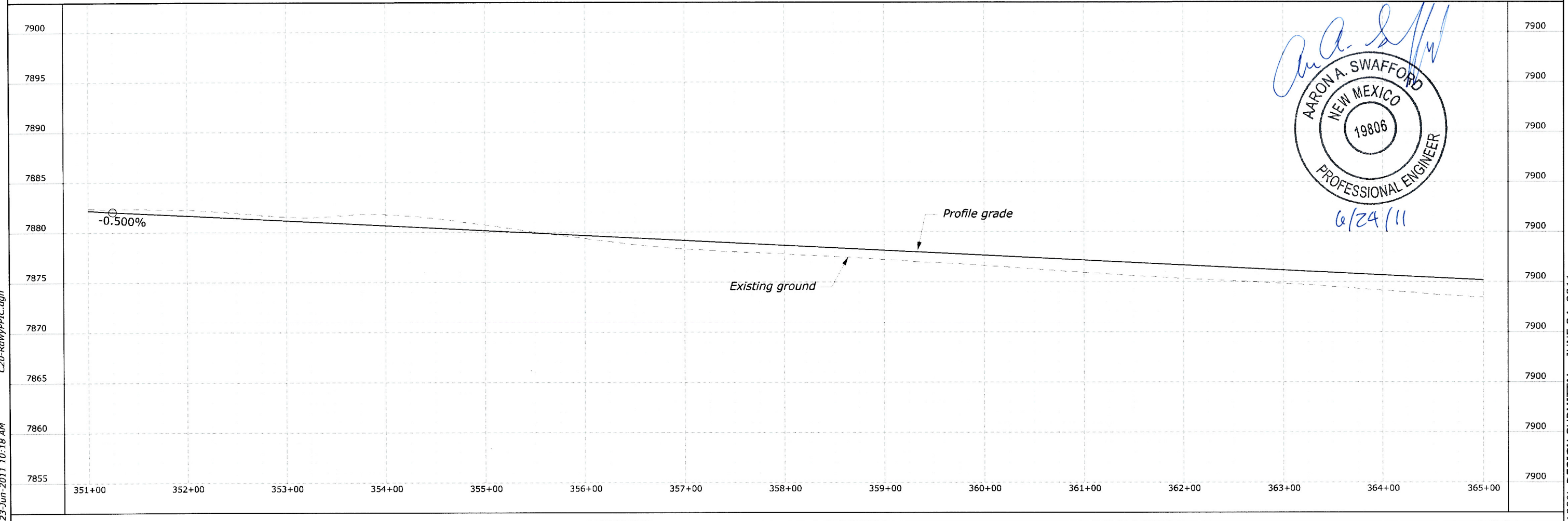
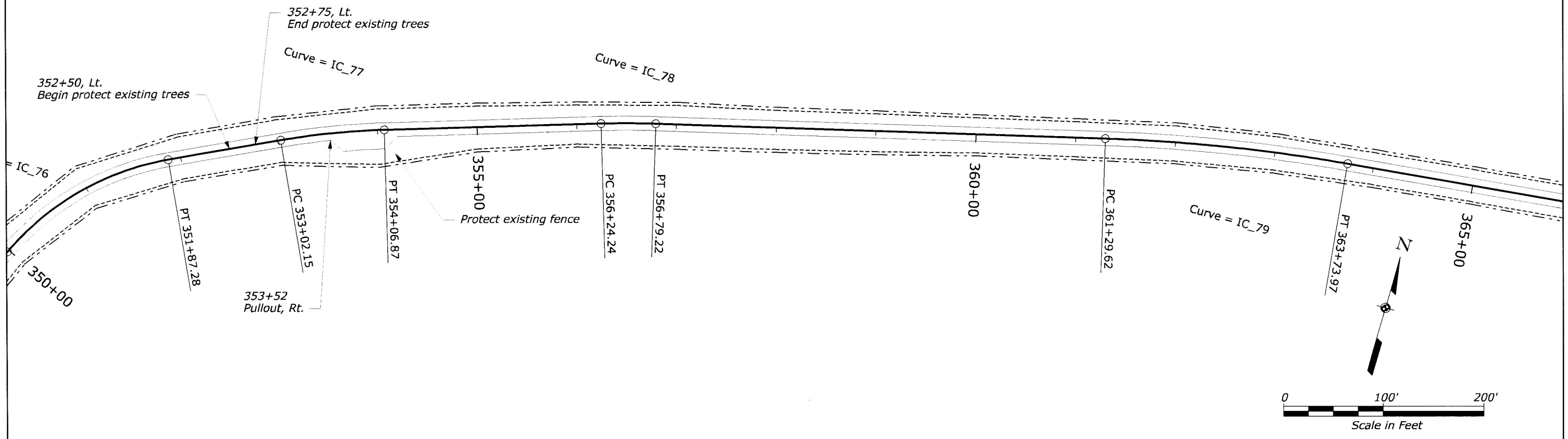
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C19	C30



23-Jun-2011 10:18 AM C19-RdwyPPTC.dgn

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C20	C30

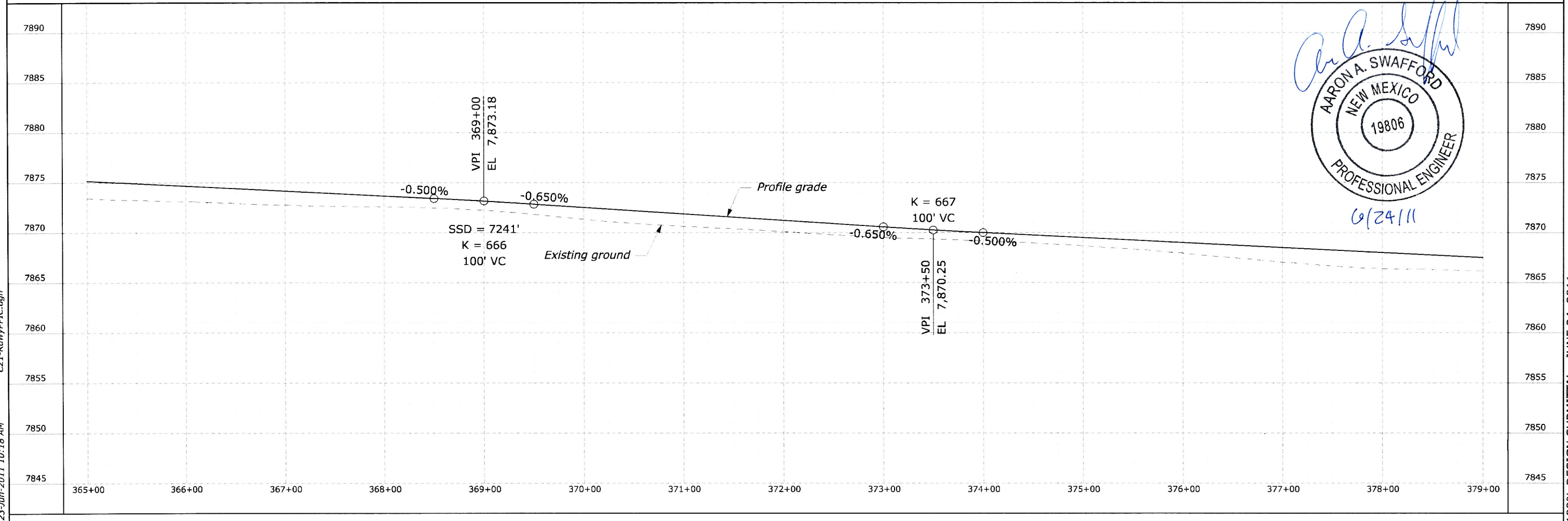
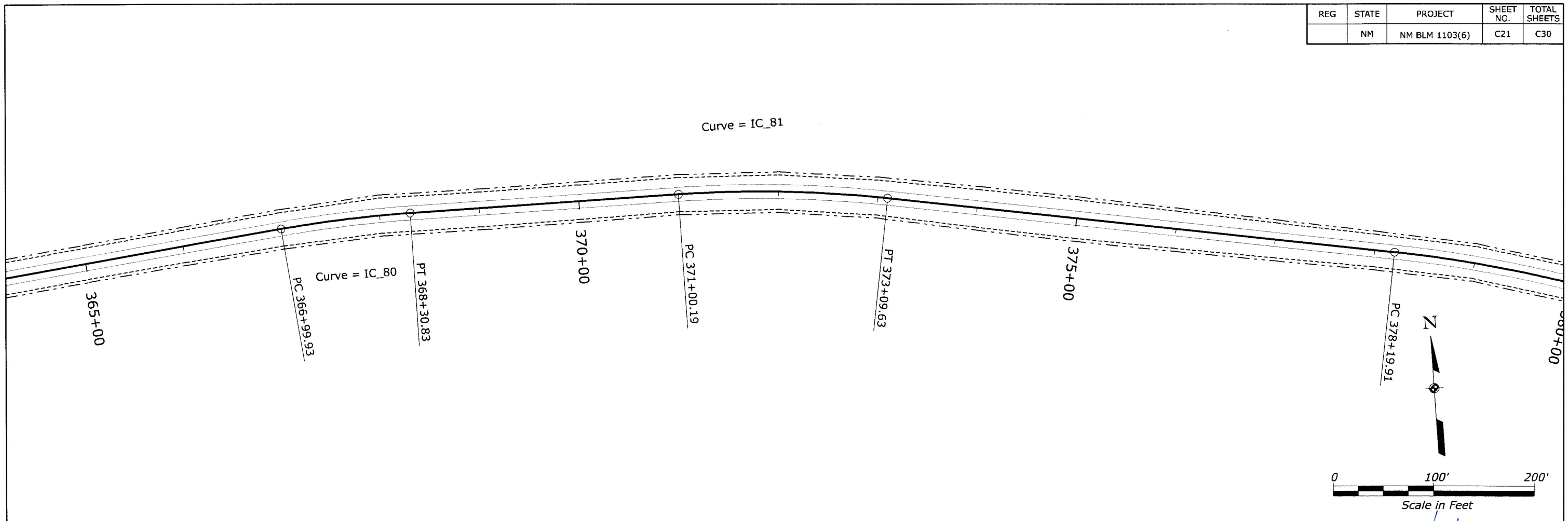


C20-RdwyPPLC.dgn  
23-Jun-2011 10:18 AM

100% DESIGN SUBMITTAL - JUNE 24, 2011



REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C21	C30

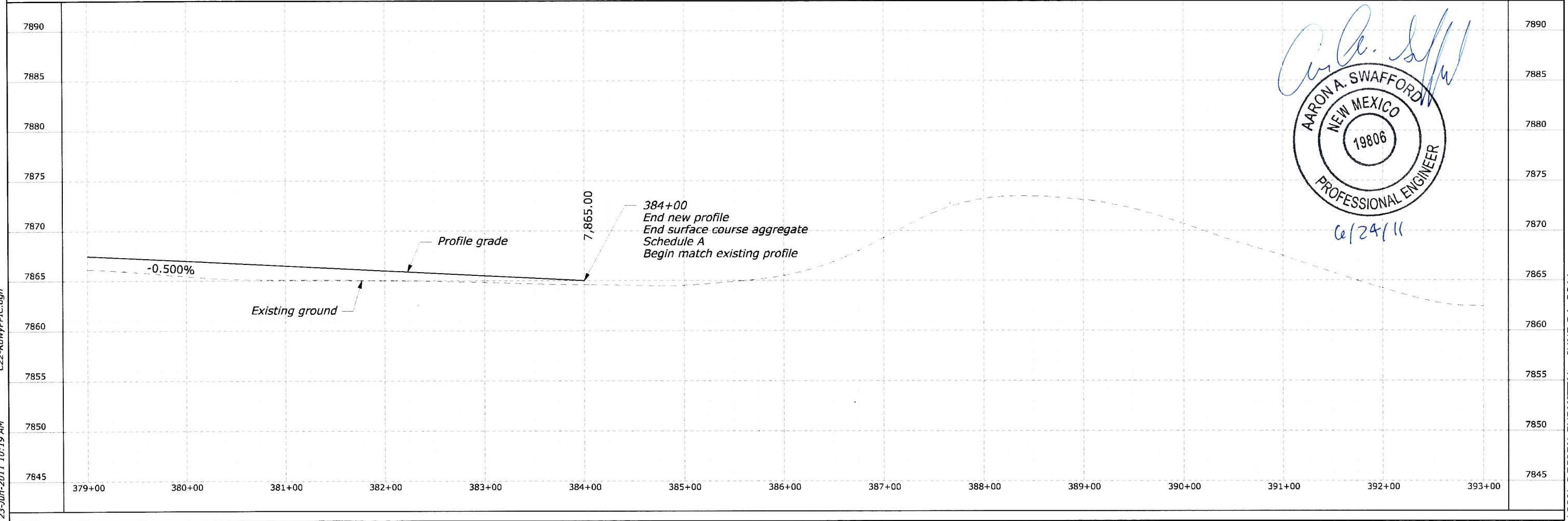
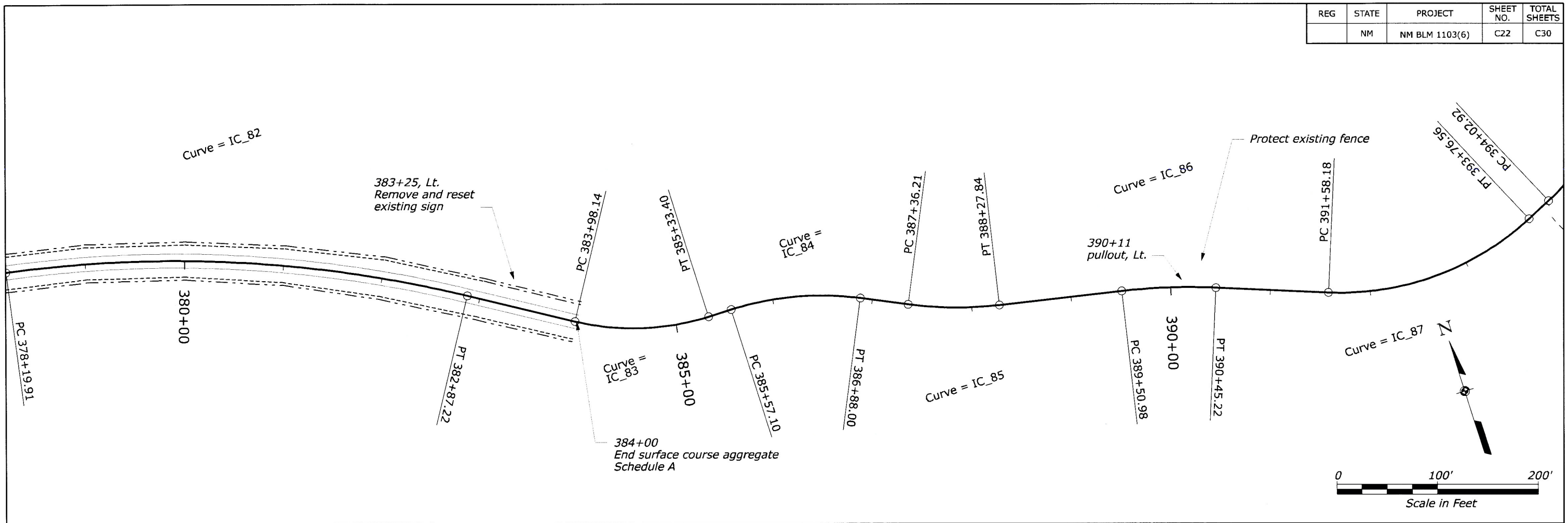


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100% DESIGN SUBMITTAL - JUNE 24, 2011

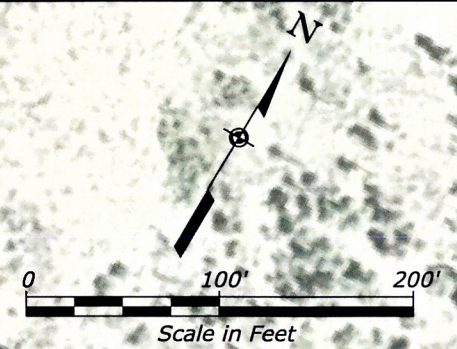
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C22	C30



23-Jun-2011 10:19 AM C22-RdwyPPI.C.dgn

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C23	C30



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

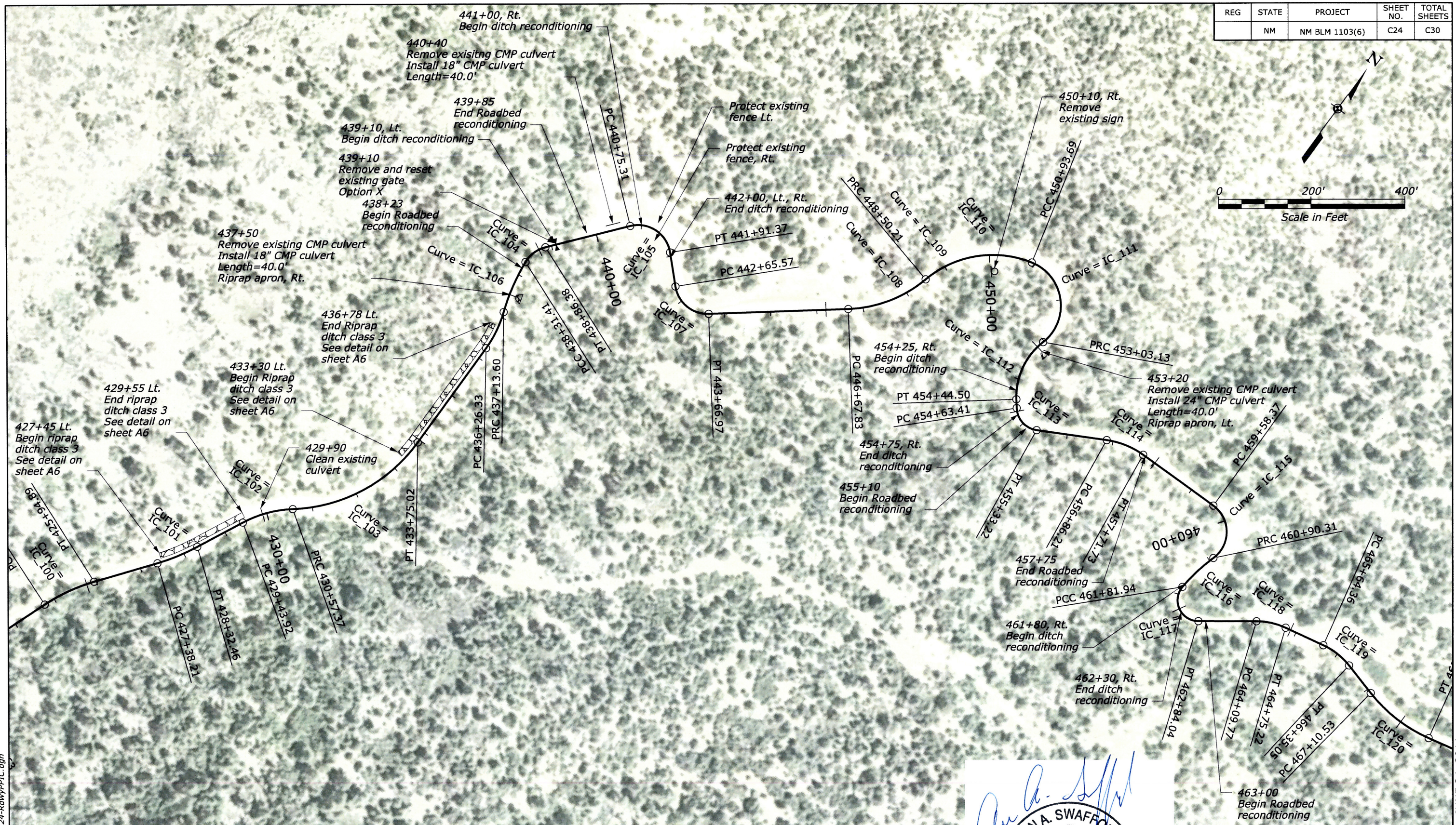
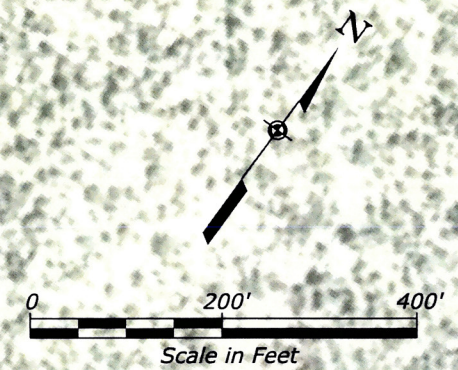
**STA 393+00 TO STA 425+00**

C23-RdwyPPIC.dgn

23-Jun-2011 10:25 AM

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C24	C30



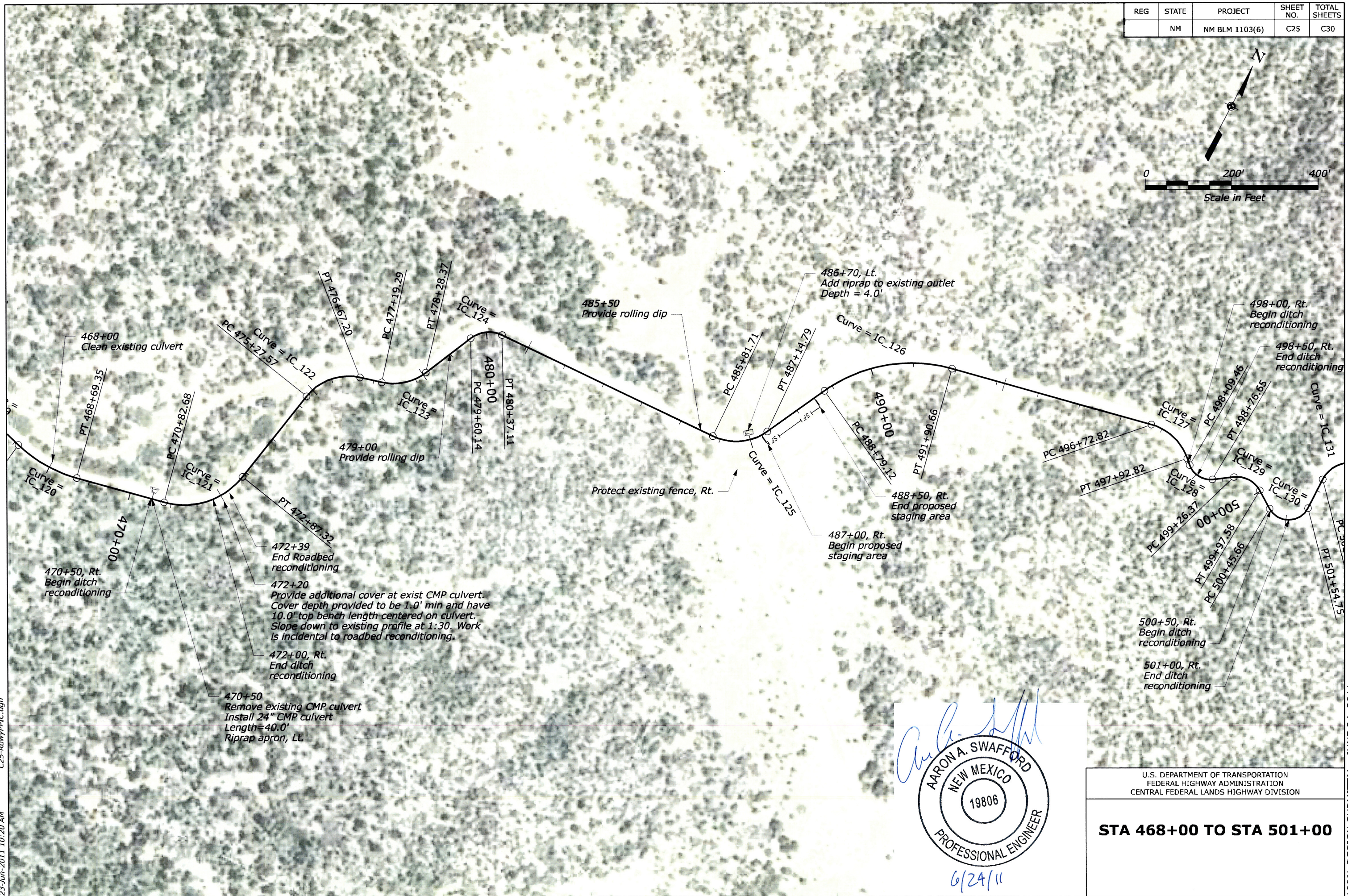
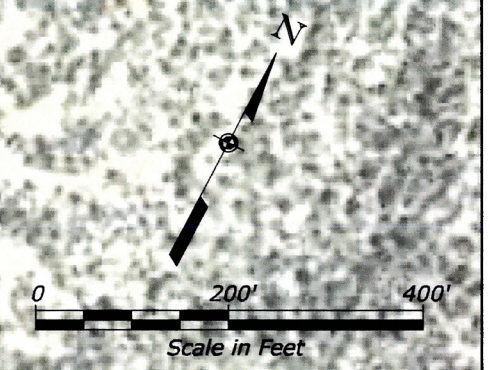
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23-Jun-2011 10:25 AM

6/24/11

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
**STA 425+00 TO STA 468+00**

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C25	C30



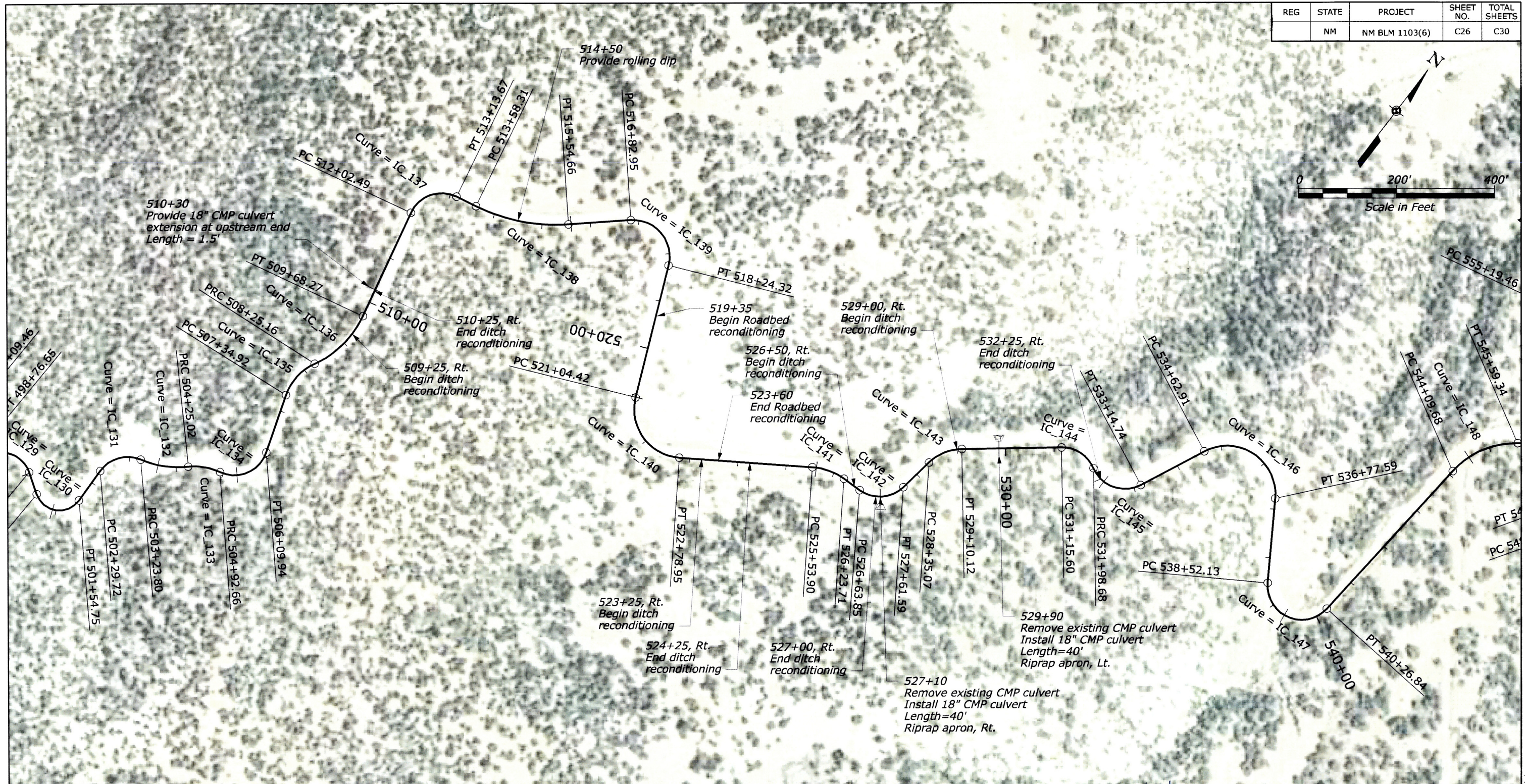
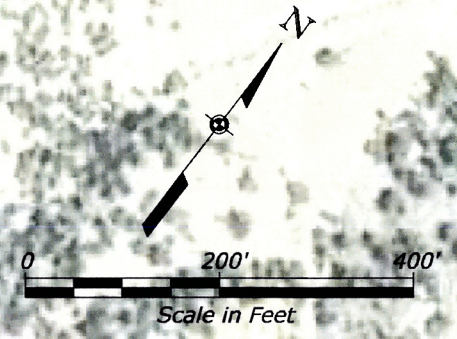
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6/24/11


U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
**STA 468+00 TO STA 501+00**

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C26	C30



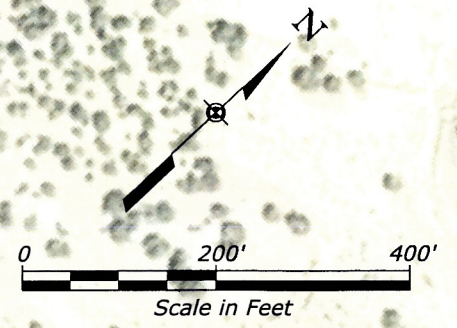
C26-Rdwy/PI/C.dgn  
23-Jun-2011 10:21 AM

  
**AARON A. SWAFFORD**  
 NEW MEXICO  
 19806  
 PROFESSIONAL ENGINEER  
 6/24/11

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
**STA 501+00 TO STA 544+00**

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C27	C30



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

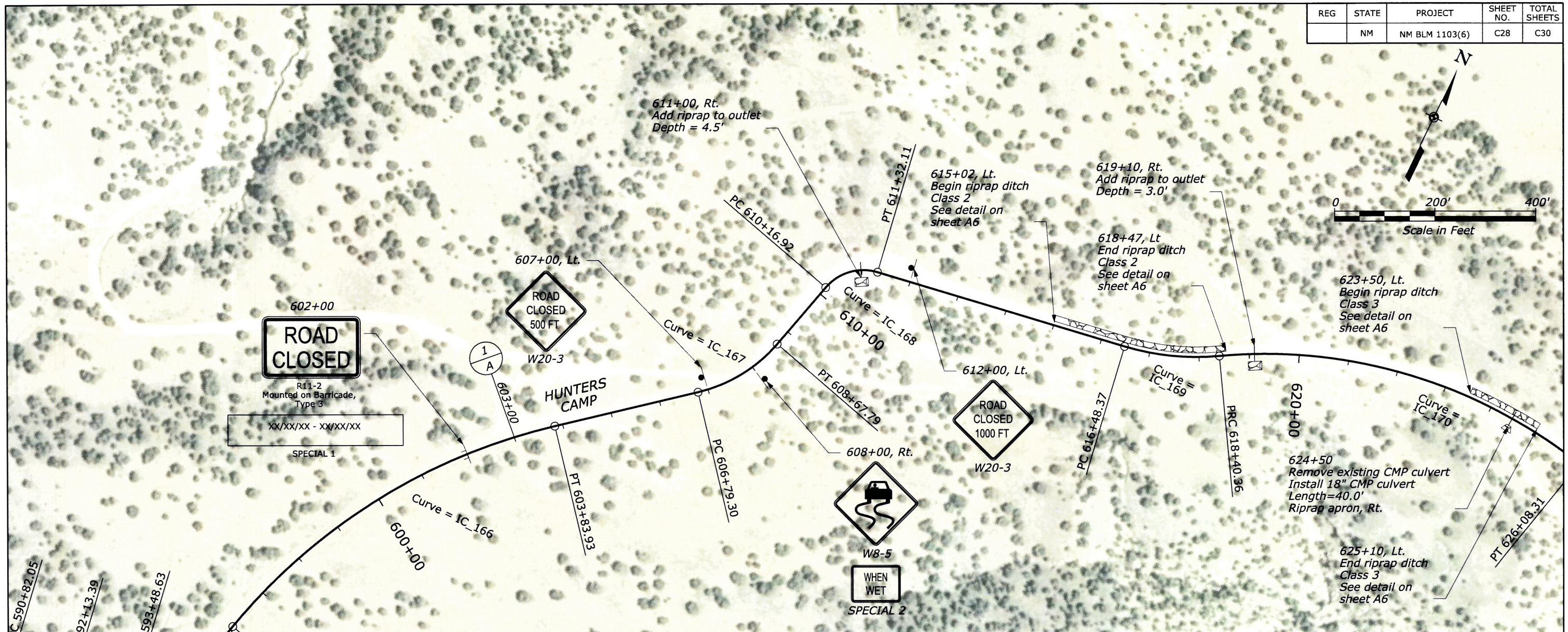
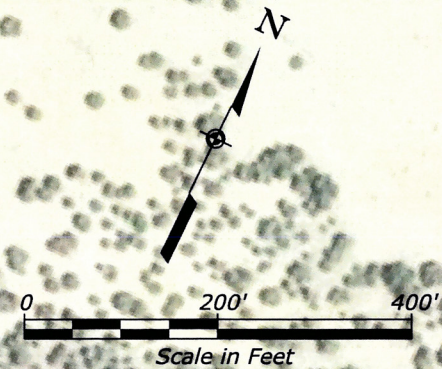
**STA 544+00 TO STA 592+00**

C27-Rdwy/PPLC.dgn

23-Jun-2011 10:25 AM

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C28	C30



**SIGN DETAIL**

SIGN NUMBER	Special 1
WIDTH x HIGHT.	8'-0" x 1'-6"
BORDER WIDTH	0.63"
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: Reflective COLOR: Orange
LEGEND/BORDER	TYPE: Reflective COLOR: Black

SYMBOL	ROT	X	Y	WID	HT

Dimensions are in inches.tenths      Letter Position are panel edge to lower left corner

**LETTER POSITIONS (X)**

X	X	/	X	X	/	X	X	-	X	X	/	X	X	/	X	X	LENGTH	SERIES/SIZE		
5.7	9.6	13.3	19.6	23.5	27.2	33.5	37.4	41	47	49.1	55.1	59	62.7	69	72.9	76.6	82.9	86.8	84.7	6

Note: Dates for Special 1 to be coordinated with BLM and substituted for graphic shown in month / day / year format.



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

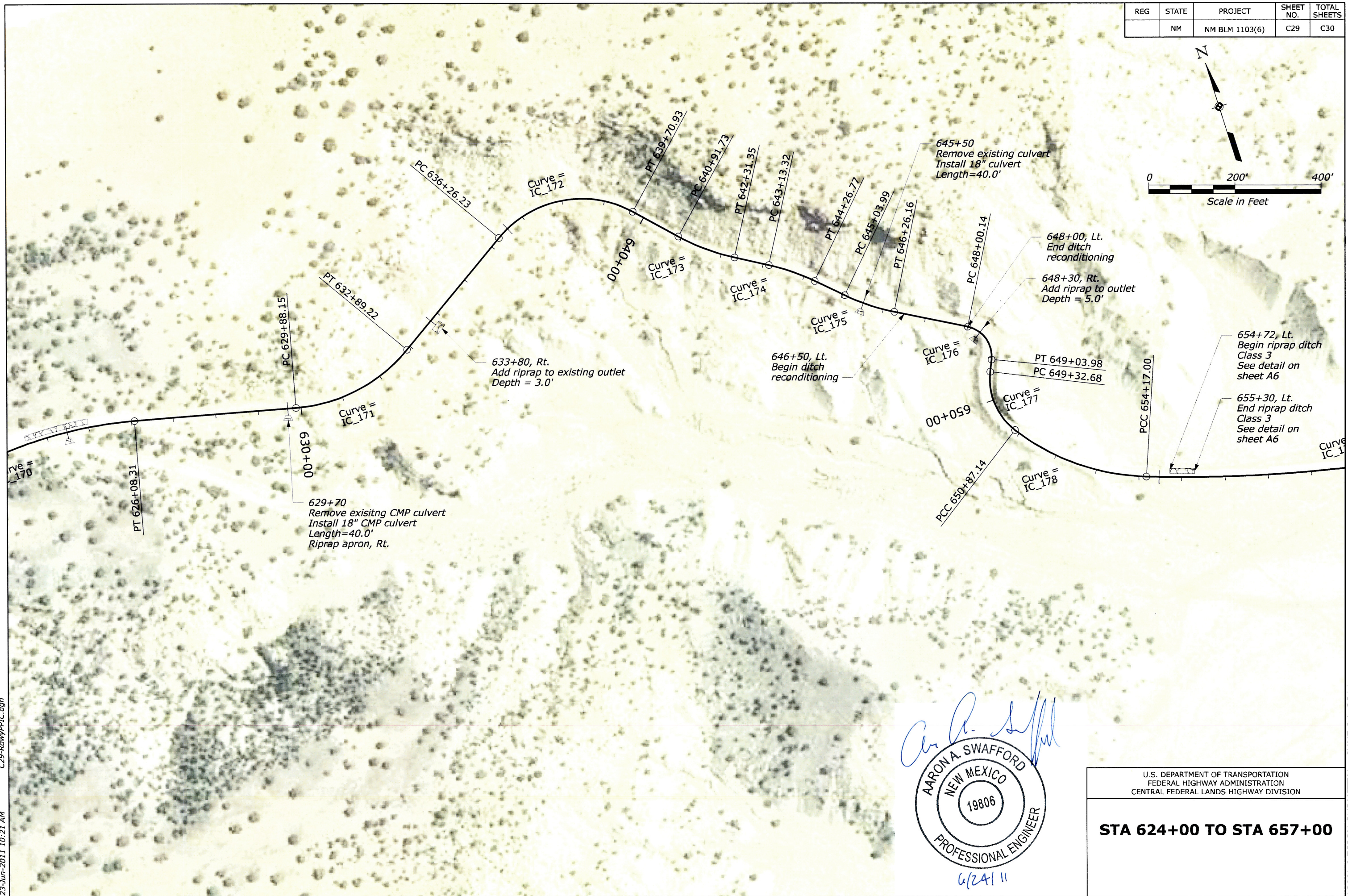
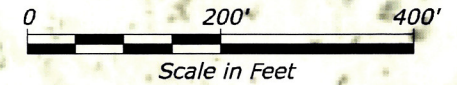
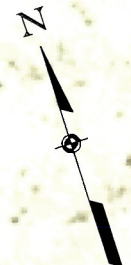
**STA 592+00 TO STA 624+00**

23-Jun-2011 10:26 AM C28-Rdwy/PPIC.dgn

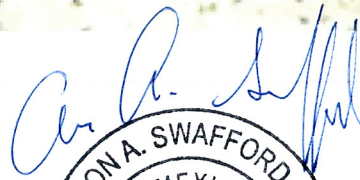
100% DESIGN SUBMITTAL - JUNE 24, 2011



REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	C29	C30



23-Jun-2011 10:21 AM C29-RdwyPTIC.dgn

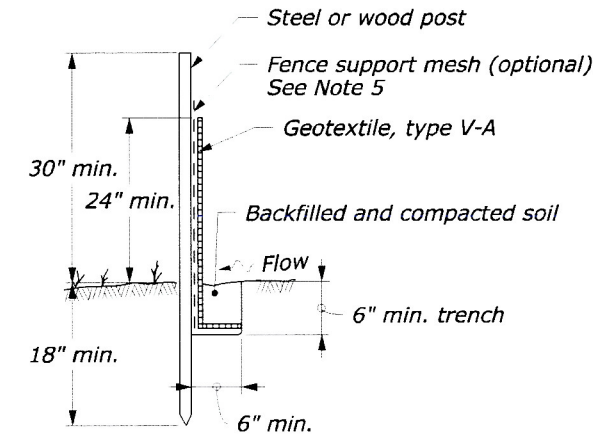
  
**AARON A. SWAFFORD**  
 NEW MEXICO  
 19806  
 PROFESSIONAL ENGINEER  
 6/24/11

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 CENTRAL FEDERAL LANDS HIGHWAY DIVISION  
  
**STA 624+00 TO STA 657+00**

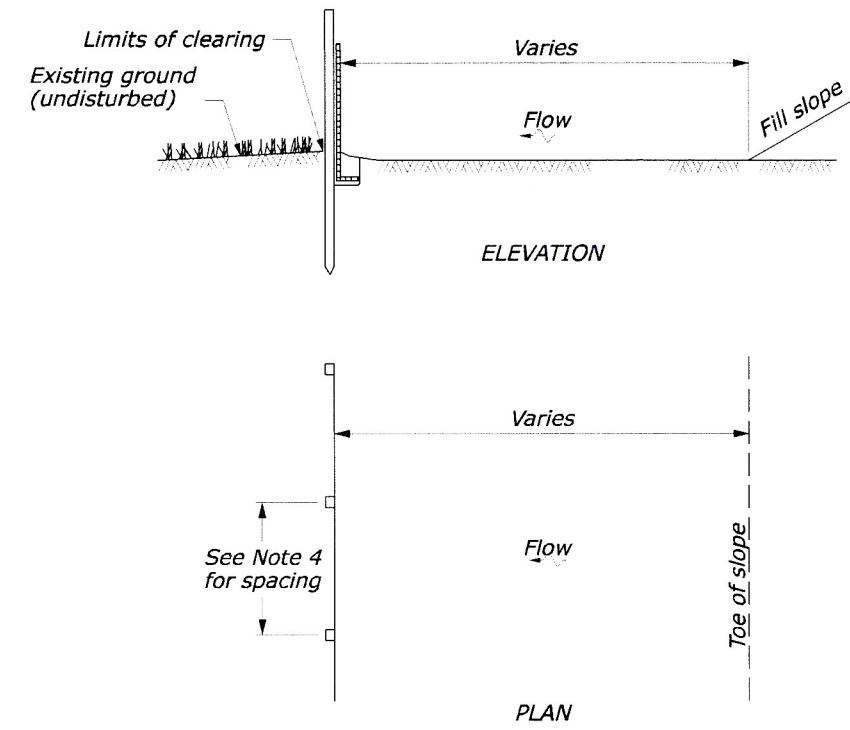
100% DESIGN SUBMITTAL - JUNE 24, 2011



REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	E1	E3

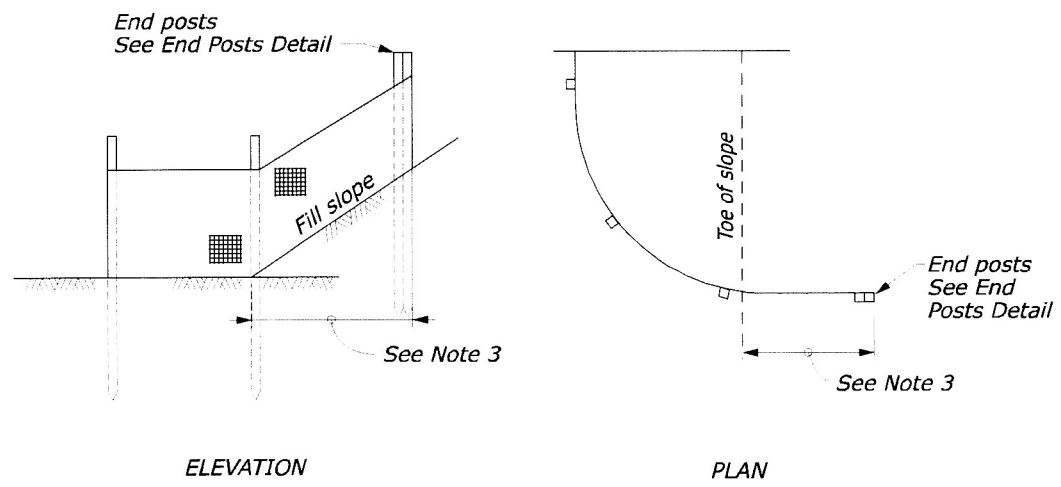


**POST AND GEOTEXTILE INSTALLATION DETAIL**

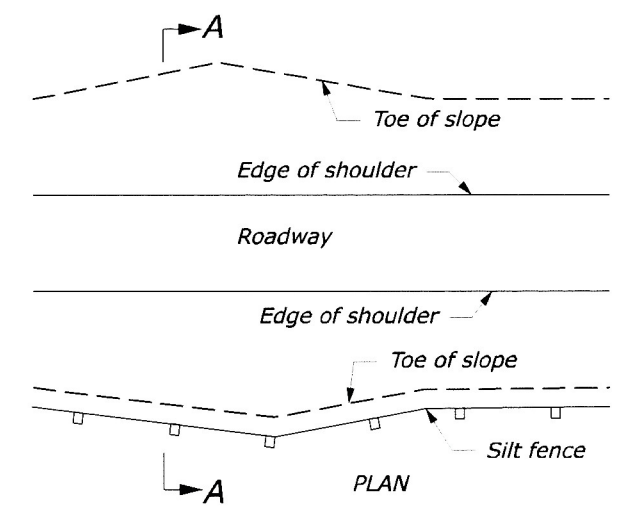


**SILT FENCE INSTALLATION AT TOE OF FILL**

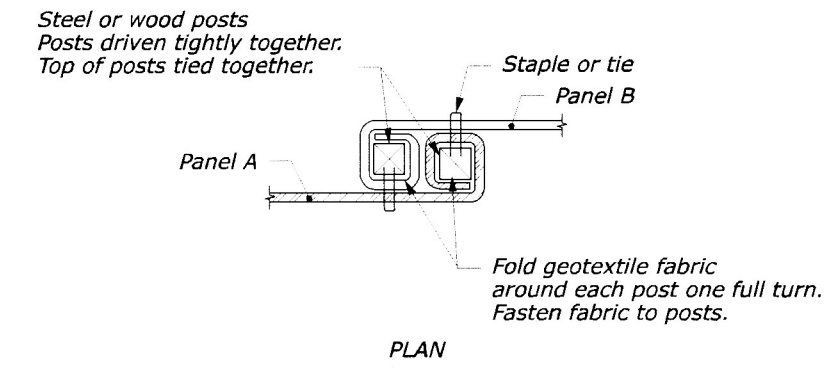
- NOTE:**
- Silt fence may be installed using machine slicing as approved by the CO. Install machine-sliced silt fence according to the manufacturer's recommendations.
  - Install silt fence to follow the ground contours as closely as possible.
  - Curve the silt fence up the slope to prevent water from running around the ends.
  - Post spacing with fence support mesh = 10 ft. (max.)  
Post spacing without fence support mesh = 6 ft. (max.)
  - Silt fence support mesh consists of 14-gauge steel wire with a mesh spacing of 6 in. x 6 in. or prefabricated polymeric mesh of equivalent strength.



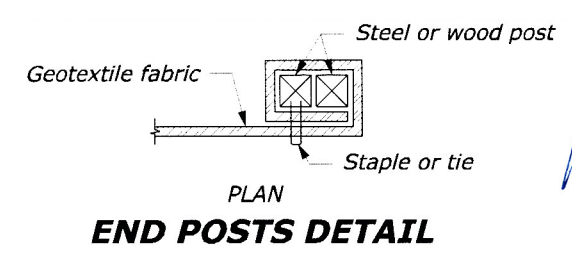
**END DETAIL**



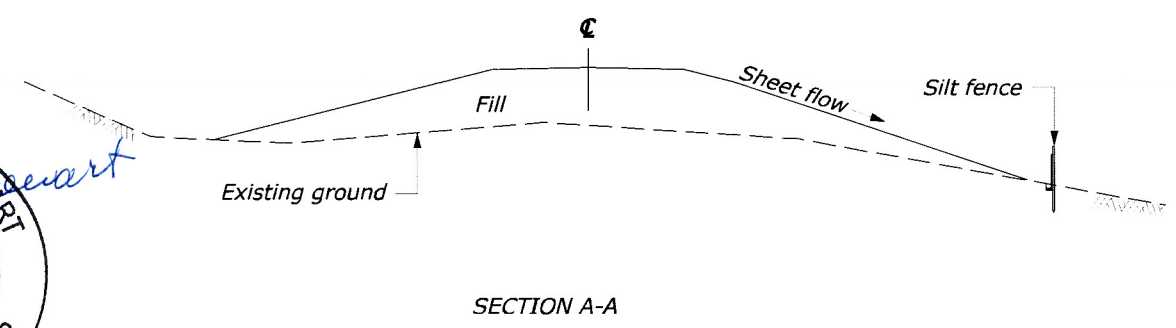
**SILT FENCE AS PERIMETER CONTROL**



**POSTS AT JOINTS**



**END POSTS DETAIL**



**SECTION A-A**

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>SILT FENCE</b>	
DETAIL APPROVED FOR USE	DETAIL
REVISED:	C157-50

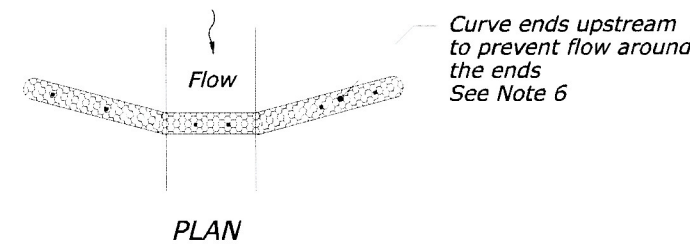
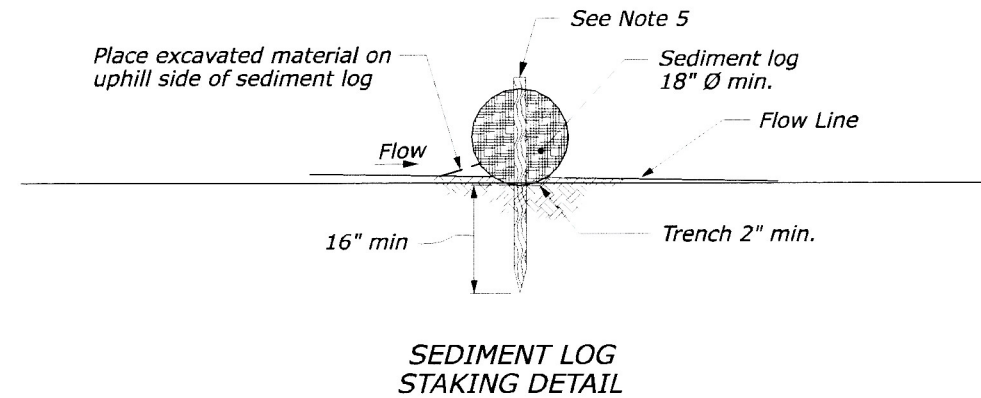
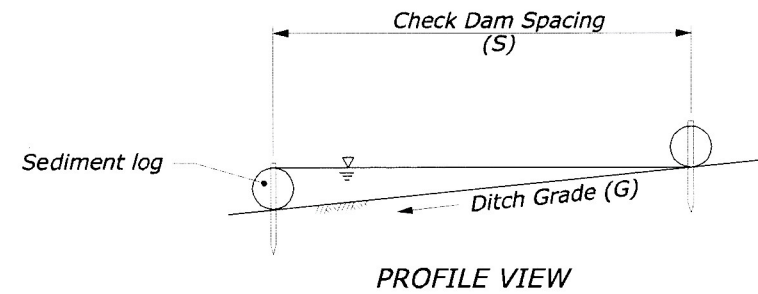
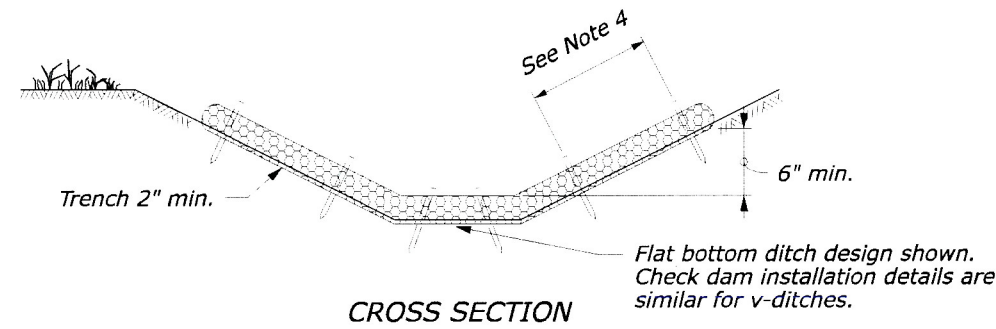
23-Jun-2011 09:54 AM ED1\_Sifnc1C.dgn

100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	E2	E3

**NOTE:**

1. Check dams of sediment logs may be used as approved by the CO, to meet the functional requirements of the check dam device.
2. Repair all rills or gullies prior to installation.
3. Install in ditches perpendicular to the flowline.
4. Stake sediment logs in place with 1" x 1" wood stakes. Drive stakes at each end of the sediment log and at 2' (max) spacing.
5. Drive stakes into undisturbed soil of trench bottom 16" (min). Expose stakes 2" (min.) above top of log.
6. Provide sufficient length to prevent water from flowing around the ends of the sediment log.

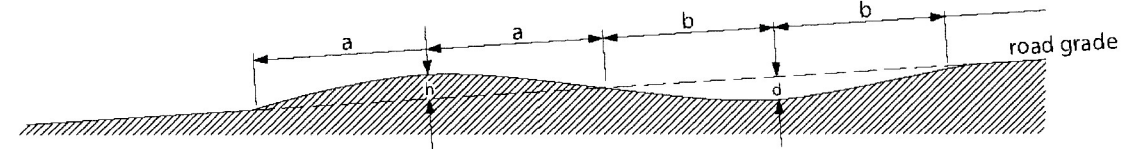
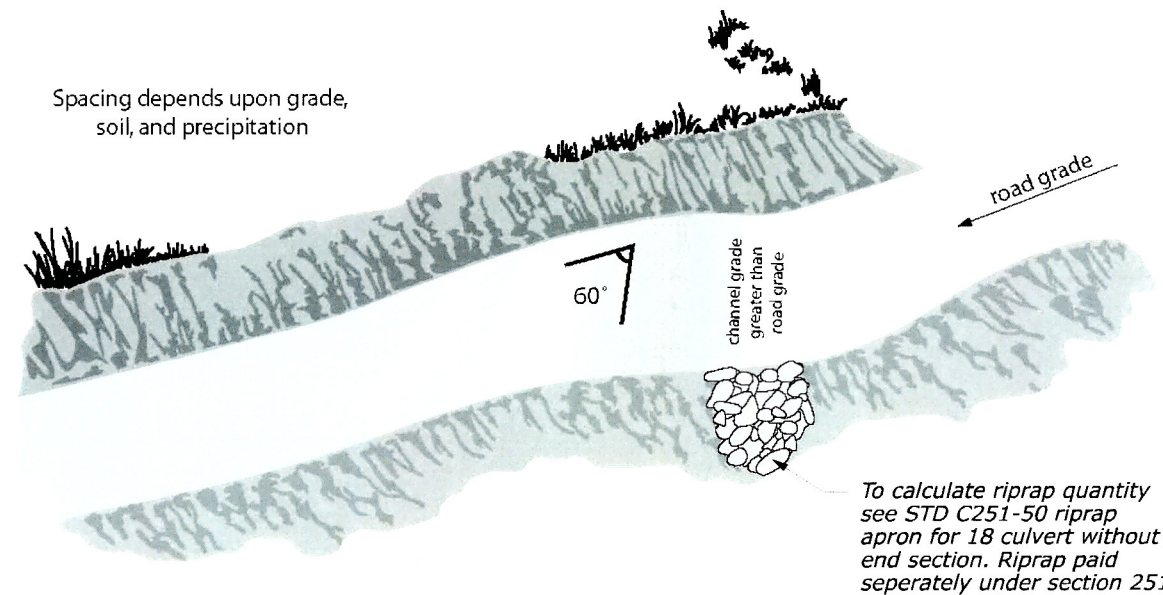


6/24/11

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY SPECIAL	
<b>SEDIMENT LOG</b>	
	SPECIAL C157-53

NO SCALE

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	E3	E3



Cross-Section of Waterdip on Center Line

Road Grade	d	h	a	b
2%	0.6'	0.4'	10'	10'
4%	1.0'	0.8'	14'	14'
6%	1.2'	1.4'	16'	18'
8%	2.0'	2.2'	22'	24'

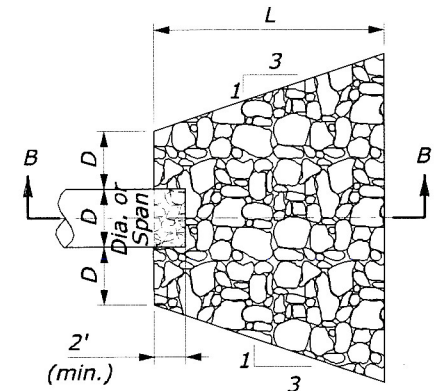
*Handwritten signature: Douglas P. Stewart*  
  
*Handwritten date: 6/24/11*

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

U.S. CUSTOMARY SPECIAL

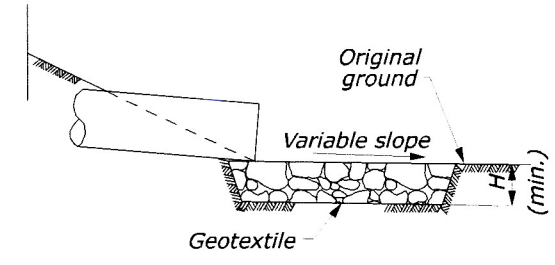
**ROLLING DIP**

SPECIAL  
 157-A



PLAN VIEW  
CULVERT WITHOUT STANDARD END SECTION

**PROTECTIVE APRON AT CULVERT OUTLET WITHOUT DITCH**



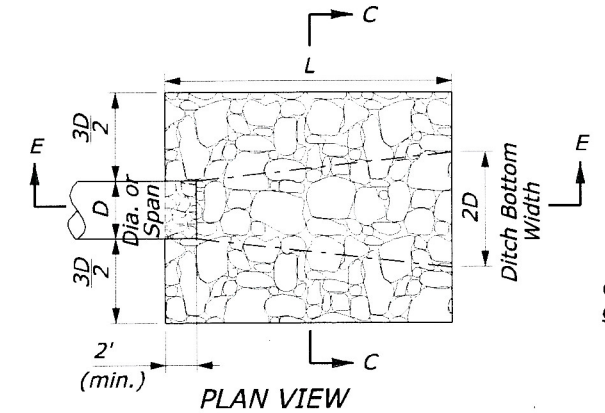
SECTION B-B

**OUTLET WITHOUT DITCH  
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES**

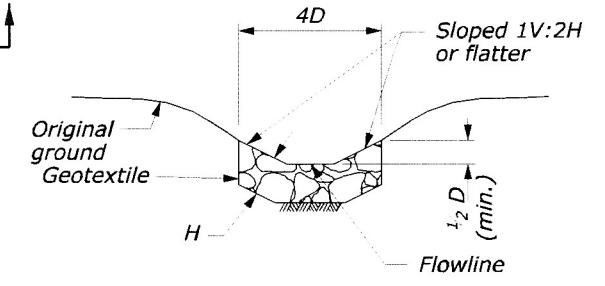
	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITHOUT END SECTION	12	2	8	1.5	2.6	10
	18	2	10	1.5	4.4	15
	24	2	12	1.5	6.7	21
	30	3	16.5	2	15.9	38
	36	3	19	2	21.6	49
	42	4	25	2.5	43.6	78
	48	4	28	2.5	55.4	95

**NOTE:**

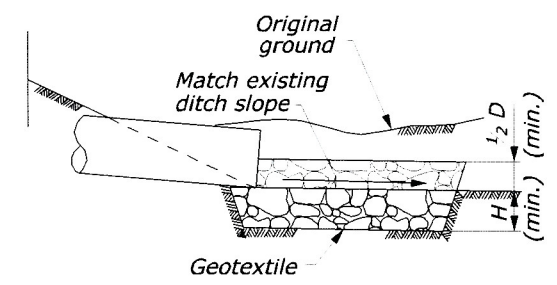
1. Use for aprons serving culverts with slopes of less than 10%.
2. Furnish geotextile conforming to Subsection 714.01(a).
3. Excavation for placement of riprap will not be measured for payment.



PLAN VIEW  
CULVERT WITHOUT STANDARD END SECTION



SECTION C-C



SECTION E-E

**PROTECTIVE APRON AT CULVERT OUTLET WITH DITCH**

**OUTLET WITH DITCH  
PROTECTIVE APRON DIMENSIONS AND ESTIMATED QUANTITIES**

	CULVERT SIZE D (inches)	RIPRAP CLASS	LENGTH OF APRON L (feet)	DEPTH OF APRON H (feet)	ESTIMATED RIPRAP QUANTITY (CY)	ESTIMATED GEOTEXTILE QUANTITY (SY)
WITHOUT END SECTION	12	2	8	1.5	1.8	8
	18	2	10	1.5	3.4	12
	24	2	12	1.5	5.4	18
	30	3	16.5	2	12.3	31
	36	3	19	2	16.9	40
	42	4	25	2.5	32.5	61
	48	4	28	2.5	41.5	75

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23-Jun-2011 09:55 AM

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY SPECIAL <b>PLACED RIPRAP</b>	
	SPECIAL C251-50

100% DESIGN SUBMITTAL - JUNE 24, 2011



### COUPLING BANDS FOR METAL PIPE CULVERT <sup>1/</sup>

CORRUGATION SIZE <sup>2/</sup> INCHES	ROUND PIPE DIAMETER INCHES	PIPE ARCH SPAN x RISE INCHES	MINIMUM BAND WIDTH (INCHES)		
			ANNULAR CORRUGATED BANDS <sup>3/</sup>	HELICALLY CORRUGATED BANDS <sup>4/</sup>	SEMI-CORRUGATED BANDS <sup>5/</sup>
1 1/2 x 1/4	underdrain <sup>6/</sup>	-	10.5	7	10.5
	12 to 36	17 x 13 to 42 x 29	7	12	
2 2/3 x 1/2	42 to 72	49 x 33 to 83 x 57	10.5	12	
	78 to 84	-	10.5	12	10.5
3 x 1	36 to 72	60 x 46 to 81 x 59	12	14	10.5
	78 to 144	87 x 64 to 142 x 91	12	14	10.5
5 x 1	36 to 72	60 x 46 to 81 x 59	20	22	
	78 to 144	87 x 64 to 142 x 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:  
 3/8" for 18" round culvert (21" x 15" pipe arch) or less  
 1/2" for 21" round culvert (24" x 18" pipe arch) or more

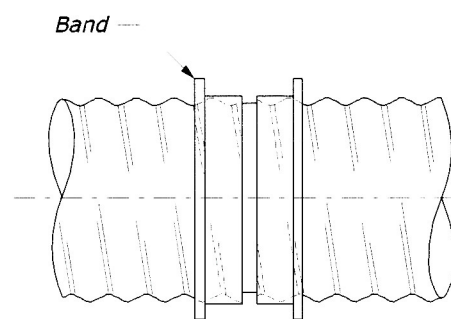
<sup>2/</sup> For helically corrugated pipe with rerolled ends, the nominal corrugations size refers to the dimension of the end corrugation in the pipe.

<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 2 2/3" x 1/2" corrugations. A 12 inch band is acceptable on pipe ends rerolled with 3" x 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" x 1" and 5" x 1" corrugated sizes apply to 2 2/3" x 1/2" corrugations on rerolled pipe ends.

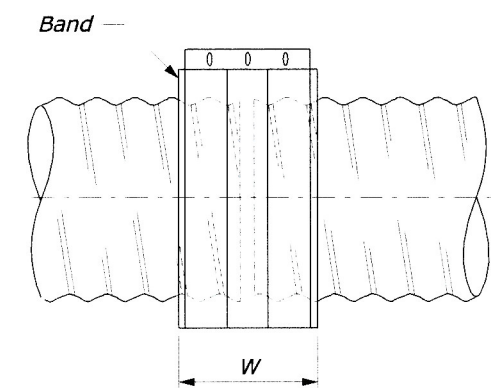
<sup>6/</sup> Smooth sleeve-type couplers and flat bands may be used for pipe diameters of 12" or less. Use a matching metal having a nominal thickness of not less than 0.040 inch for steel, or 0.036 inch for aluminum, or a plastic with an equivalent strength to metal.



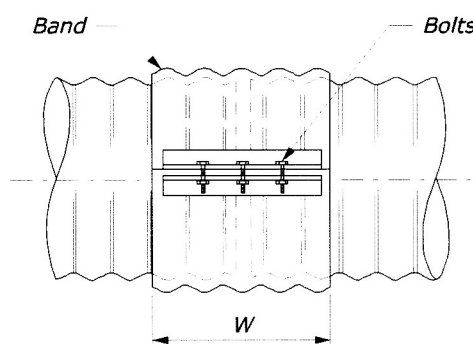
SLEEVE JOINT

Smother sleeve with center stop.  
Stab type joint

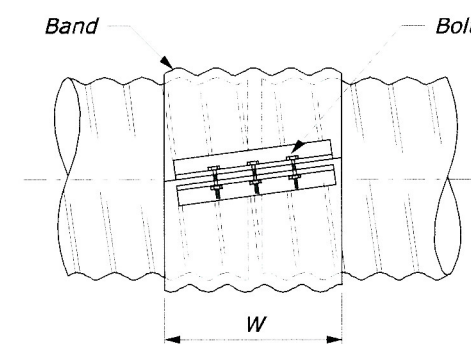
### SMOOTH SLEEVE BAND



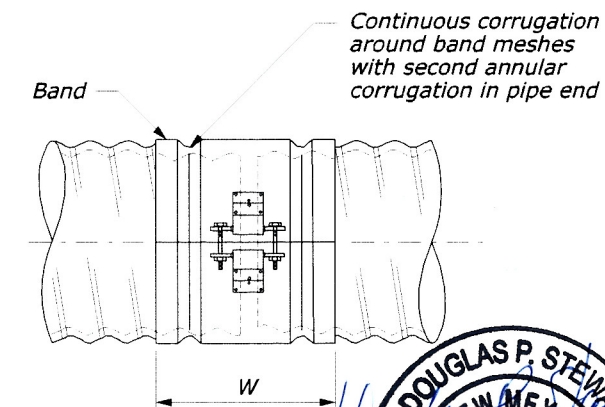
### FLAT BAND



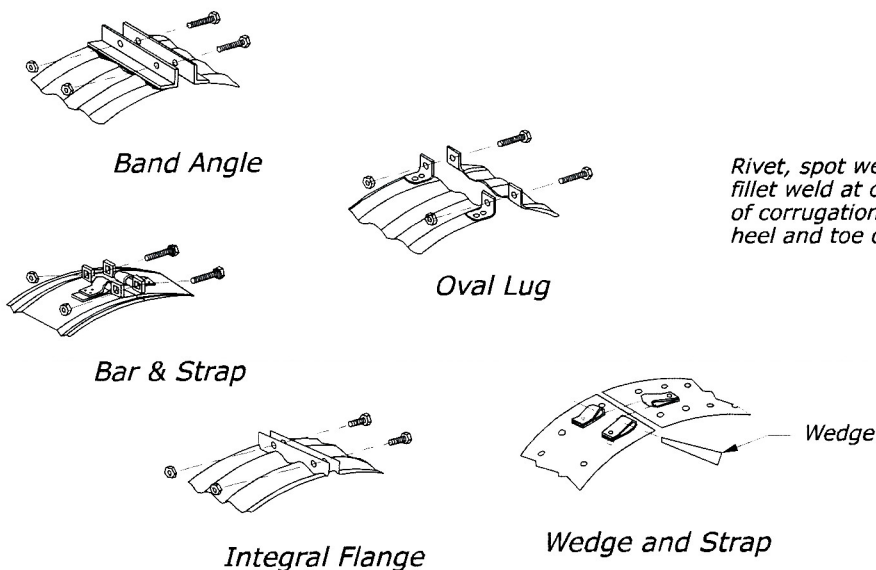
SIDE VIEW



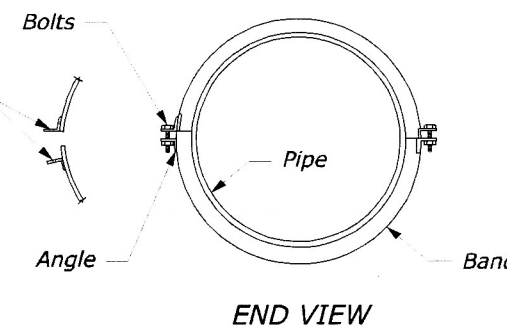
SIDE VIEW



SIDE VIEW



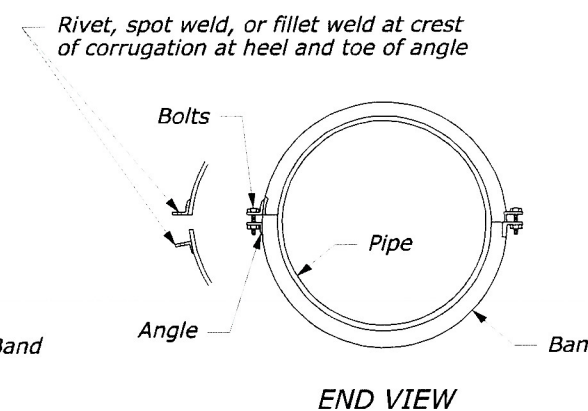
### STANDARD BAND CONNECTIONS



END VIEW

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

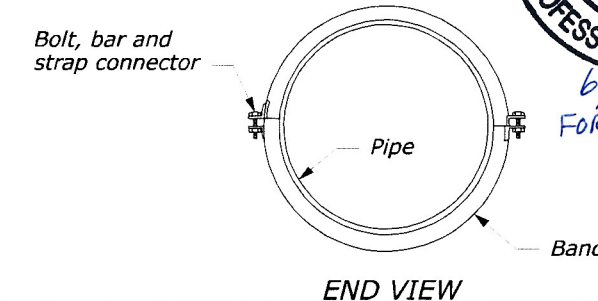
### ANNULAR BAND



END VIEW

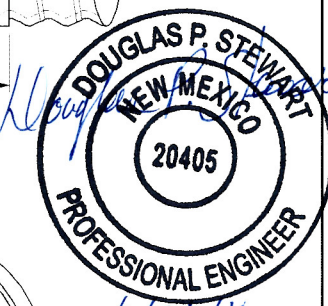
Second angle connection optional to 42" diameter, required above 42" diameter

### HELICAL BAND



END VIEW

### SEMI-CORRUGATED BAND



6/24/11  
FOR SELECTION ONLY

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
FEDERAL LANDS HIGHWAY OFFICE

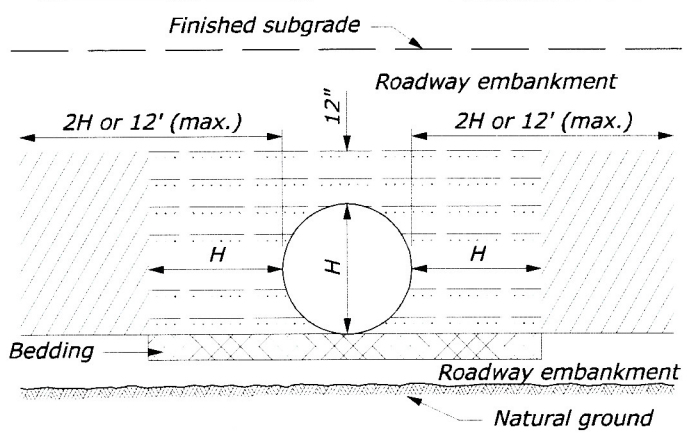
U.S. CUSTOMARY STANDARD

### METAL PIPE CULVERT COUPLING BAND

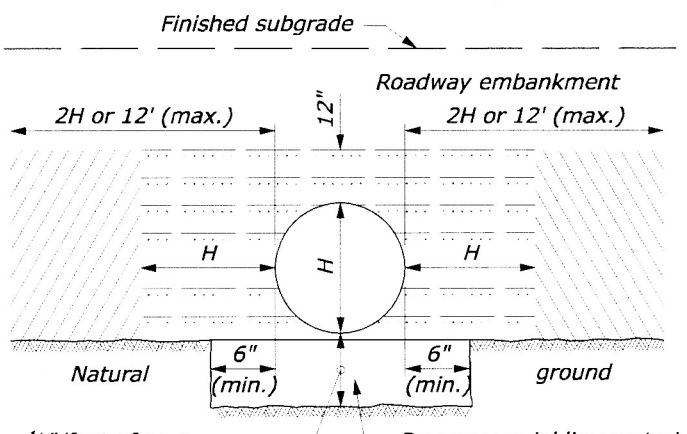
STANDARD APPROVED FOR USE XX/XX  
REVISED:

STANDARD  
602-2

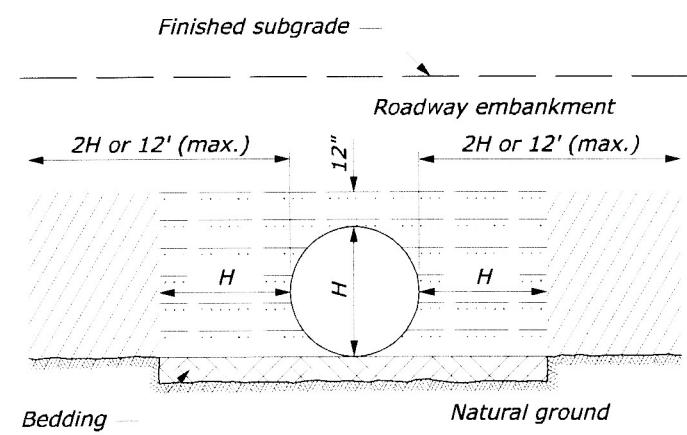




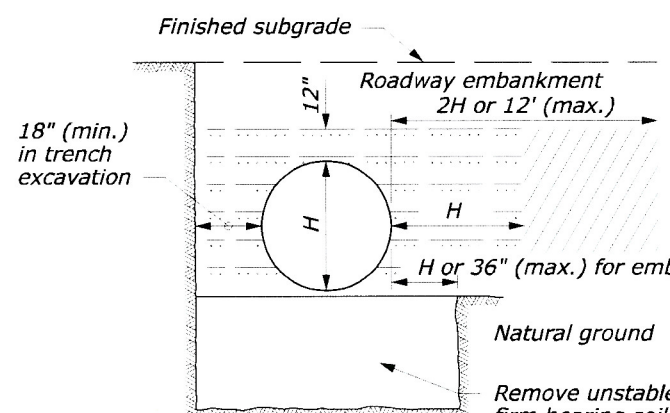
**ABOVE NATURAL GROUND**



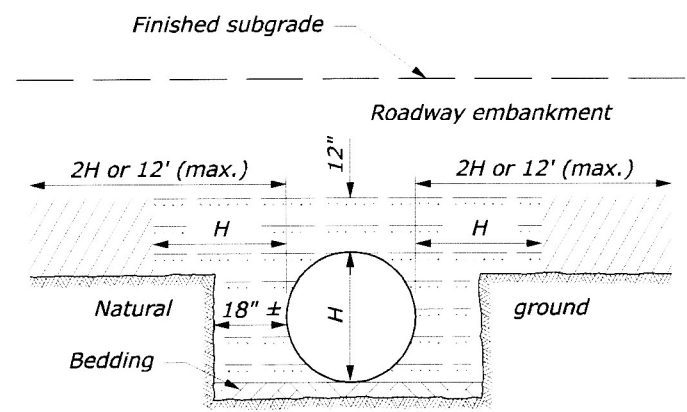
**ON UNYIELDING MATERIAL**



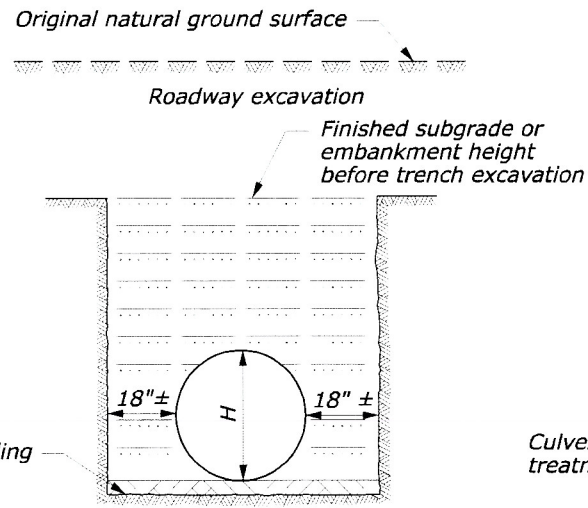
**ON NATURAL GROUND**



**ON UNSTABLE MATERIAL**

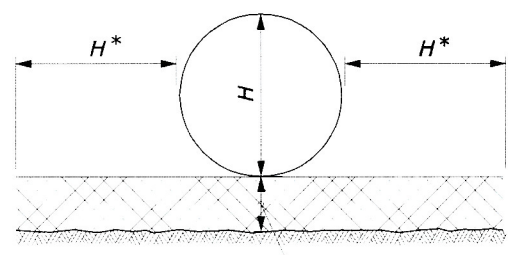


**ABOVE AND BELOW NATURAL GROUND**



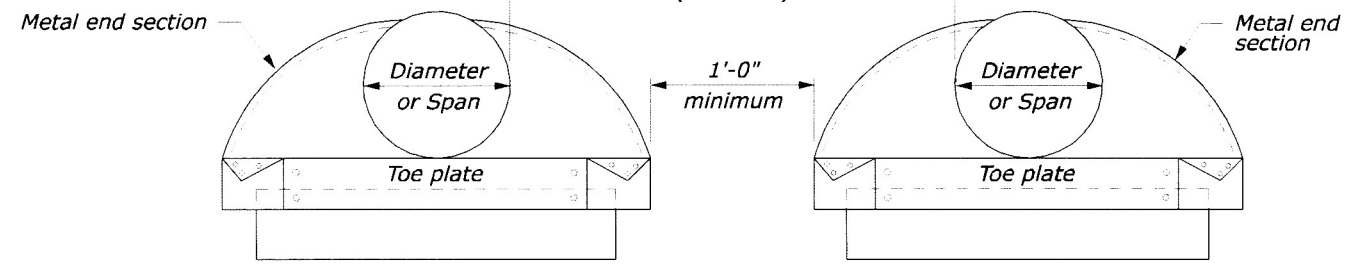
**BELOW NATURAL GROUND OR TRENCH EXCAVATION IN EMBANKMENT**

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



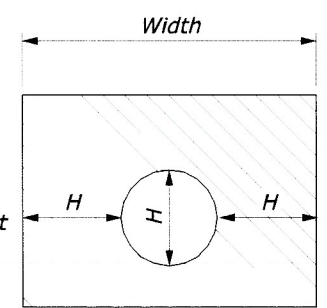
**PIPE BEDDING**

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

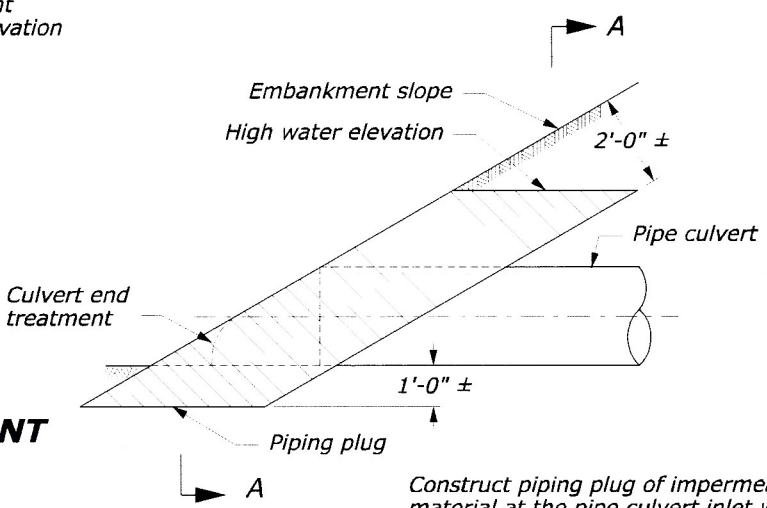


**ELEVATION**

**MULTIPLE PIPE INSTALLATION**



**SECTION A-A**



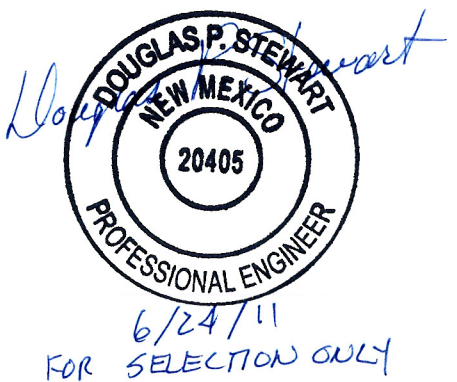
Construct piping plug of impermeable backfill material at the pipe culvert inlet where granular material is used for backfill. Width may be adjusted to tie into impervious material.

**PIPING PLUG**

- Bedding material (uncompacted)
- Embankment material placed in layers not exceeding 6" compacted depth.
- Compacted backfill material placed in layers not exceeding 6" compacted depth meeting the following:  
Metal Pipe: Maximum particle size = 3"  
Soil classification: A-1, A-2, or A-3  
Plastic Pipe: Maximum particle size: 1 1/2"  
Soil classification: A-1, A-2-4, A-2-5, or A-3  
Or lean concrete backfill in accordance with Section 614.

**NOTES:**

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. H equals the diameter of all round pipe culverts or the rise dimension of all pipe arch culverts.



U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
FEDERAL LANDS HIGHWAY OFFICE

U.S. CUSTOMARY STANDARD

**METAL AND PLASTIC PIPE CULVERT BEDDING**

STANDARD APPROVED FOR USE XX/XX

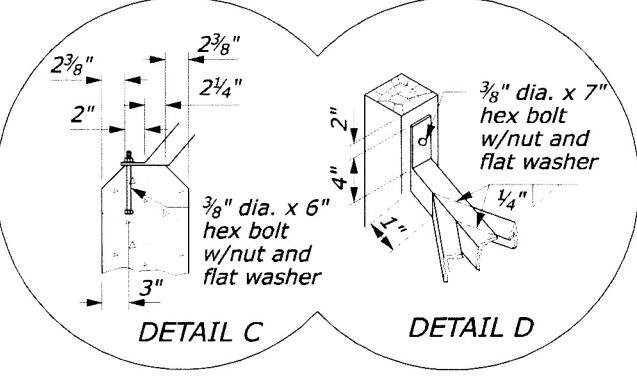
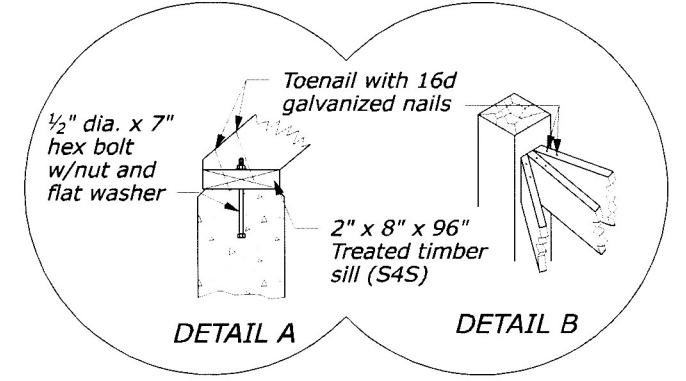
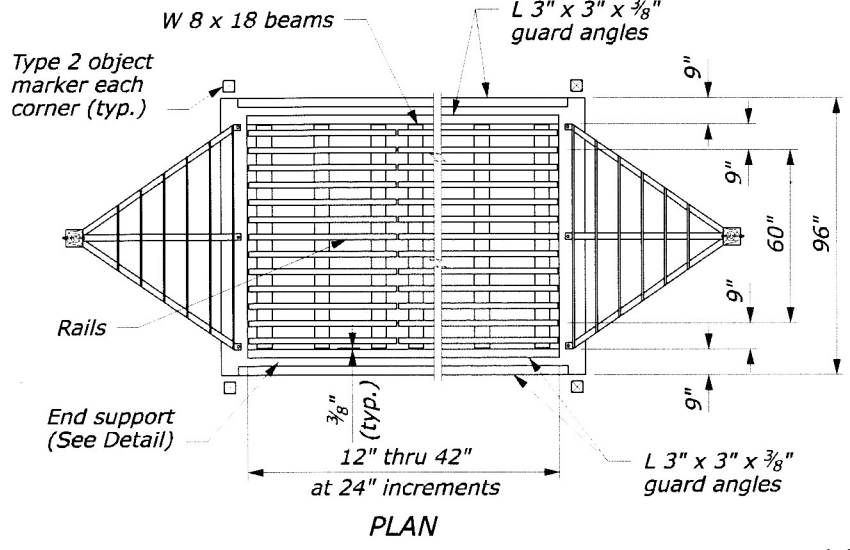
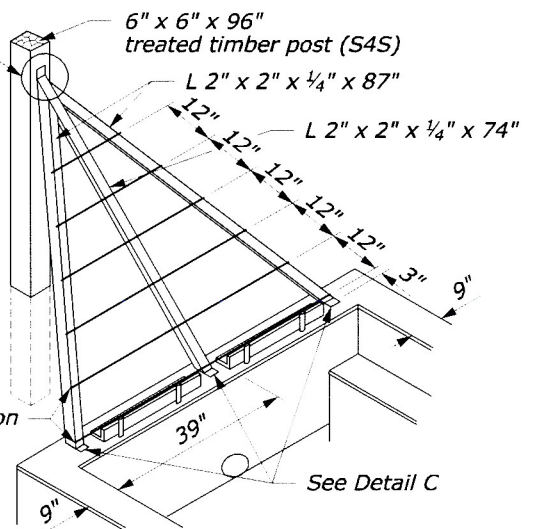
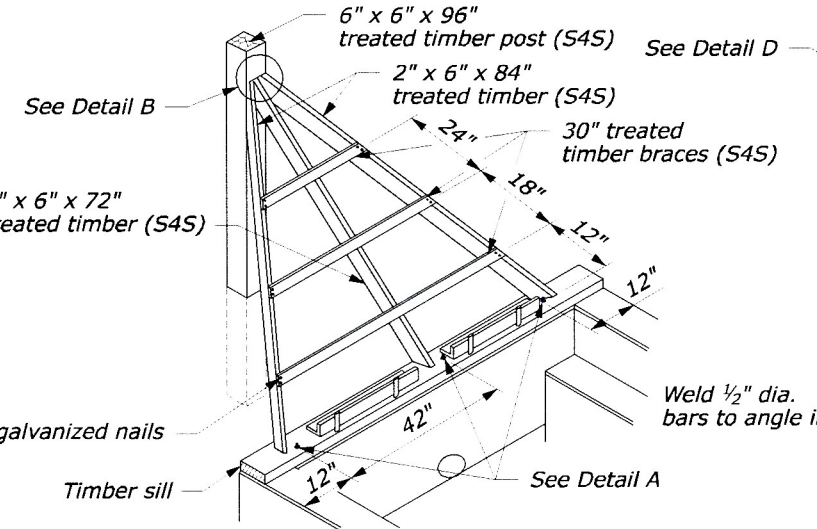
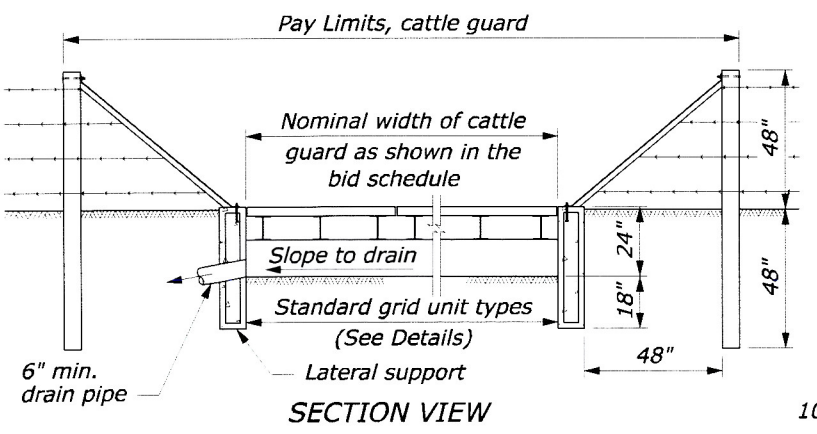
STANDARD 602-3

REVISOR: \_\_\_\_\_

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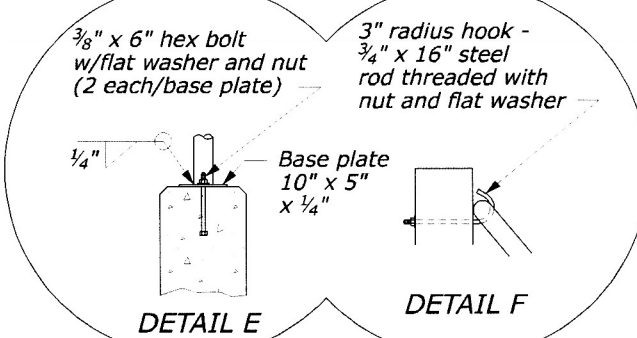
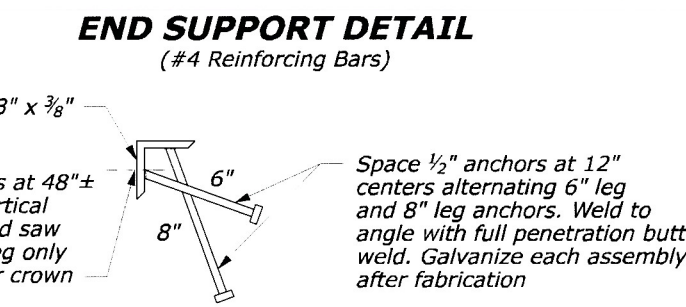
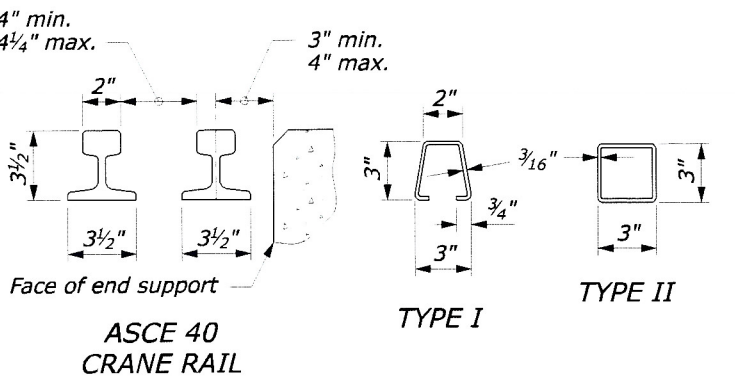
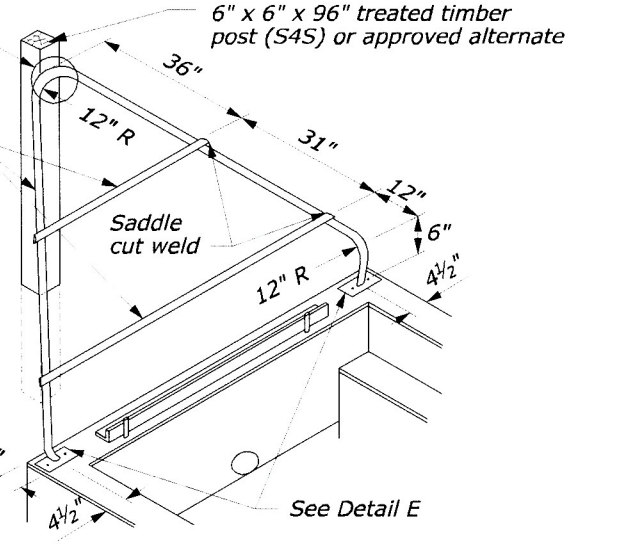
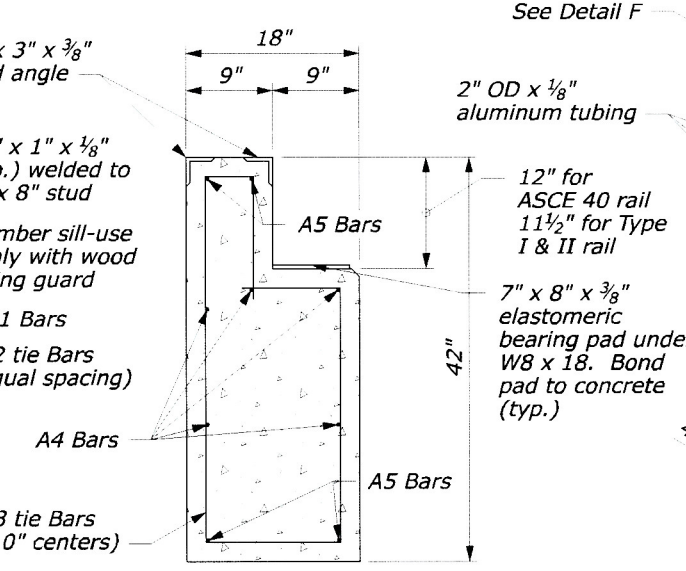
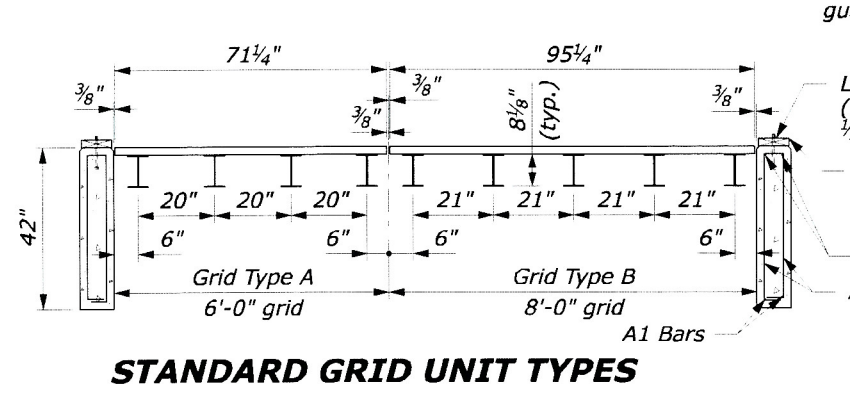
100% DESIGN SUBMITTAL - JUNE 24, 2011

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	T4	T9

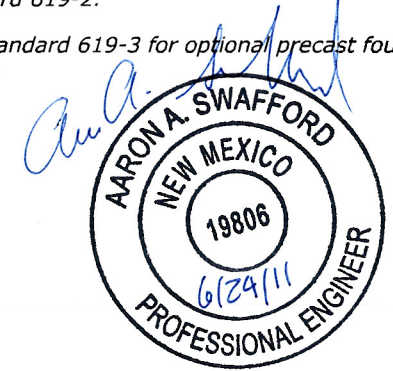


**WOOD WING GUARD**

**ANGLE IRON WING GUARD**



- NOTE:**
- LOADING: AASHTO HS20.
  - CONCRETE: Chamfer exposed edges 3/4" unless otherwise shown. Give all concrete surfaces a Class 1 finish.
  - STRUCTURAL STEEL: Rails conform to the requirements for ASCE 40 crane rail. Structural steel for alternate sections conforms to ASTM A 500, Grade B, Copper Steel or ASTM A 618, Grade 2. If the steel does not contain a minimum of 0.2 percent copper, galvanize the alternate sections. All other structural steel conforms to AASHTO ASTM A36 and is painted.
  - The minimum concrete cover to the face of any bar is 2" unless otherwise shown. All bars are #4.
  - All welds are continuous 1/4" fillet shop welds. Weld rail or alternate sections on both sides to the W 8 x 18 beams at each intersection. Conform all welding to Section 555.
  - Use aluminum alloy 6061-T6 or 6063-T6 for aluminum tubing.
  - All timber conforms to AASHTO M 168. Treat timber with chromated copper arsenate according to AASHTO M 133.
  - Galvanize all hardware according to AASHTO M 111.
  - Construct the cattle guard to conform with the finished roadway grade and template.
  - Place one object marker at each corner of the cattle guard as shown. Mount object markers on 4" x 4" x 6'-0" posts with the reflector located 42" above the elevation of the lateral support concrete.
  - Install drain pipe as shown where required. Drain pipe is included in cattle guard unless otherwise shown.
  - Unless otherwise shown in the special contract requirements, shop apply paint system 2 according to Section 555 and color the top coat according to Federal Standard 595B, Gray, 36231. Repair any damage to the paint system during installation.
  - Install channels and wood blocking on cattle guards than 16 feet to maintain grate spacing as shown on Standard 619-2.
  - See Standard 619-3 for optional precast foundation details.



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY OFFICE	
U.S. CUSTOMARY STANDARD	
<b>CATTLE GUARD</b>	
STANDARD APPROVED FOR USE XX/XX	STANDARD
REVISED:	619-1

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100% DESIGN SUBMITAL - JUNE 24, 2011

### CATTLE GUARD

#### REINFORCING STEEL, CONCRETE, STRUCTURAL STEEL, AND GRID UNIT TABLE OF QUANTITIES

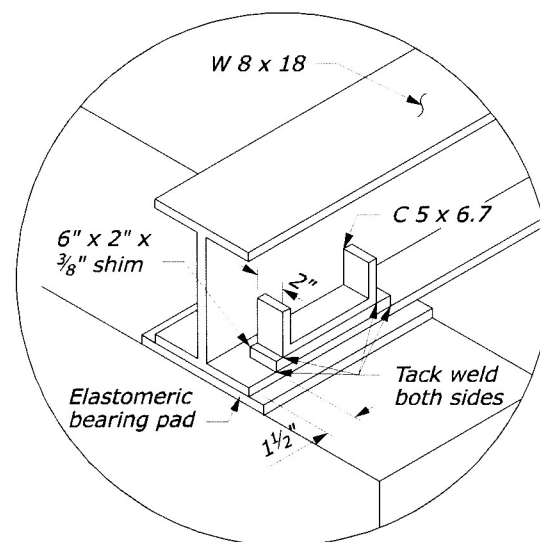
DESCRIPTION	NOMINAL CATTLE GUARD WIDTH																												REMARKS								
	12'		14'		16'		18'		20'		22'		24'		26'		28'		30'		32'		34'		36'		38'			40'		42'					
	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.	QUAN.	LGTH.		QUAN.	LGTH.	QUAN.	LGTH.				
#4 Reinforcing bars, A1	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	8	92"	
#4 Reinforcing bars, A2	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	20	86"	See Bar Bending Detail
#4 Reinforcing bars, A3	32	108"	36	108"	40	108"	46	108"	50	108"	54	108"	60	108"	64	108"	70	108"	74	108"	80	108"	84	107"	90	108"	94	108"	98	108"	102	108"	108	108"	See Bar Bending Detail		
#4 Reinforcing bars, A4	10	156"	10	180"	10	204"	10	228"	10	252"	10	276"	10	300"	10	324"	10	348"	10	372"	100	396"	10	420"	10	444"	10	468"	10	492"	10	516"					
#4 Reinforcing bars, A5	8	140"	8	164"	8	188"	8	212"	8	236"	8	260"	8	284"	8	308"	8	332"	8	356"	8	380"	8	404"	8	428"	8	452"	8	476"	8	500"					
Grid unit A (6 ft)	2		1				3		2		1				3		2		5				3		6		1			7		See Grid Unit List of Materials					
Grid unit B (8 ft)			1		2				1		2		3		1		2				4		2			4			5			See Grid Unit List of Materials					
Concrete lateral supports, yd3	1.56		1.56		1.56		1.56		1.56		1.56		1.56		1.56		1.56		1.56		1.56		1.56		1.56		1.56		1.56								
Concrete end supports, yd3	4.03		4.70		5.37		6.04		6.71		7.38		8.05		8.73		9.40		10.07		10.74		11.41		12.08		12.75		13.42		14.10						
Total concrete, yd3	5.59		6.26		6.93		7.60		8.27		8.94		9.61		10.29		10.96		11.63		12.30		12.97		13.64		14.31		14.98		15.66						
W 8 x 18 beams	936		1053		1170		1404		1521		1638		1755		1989		2106		2340		2340		2574		2808		2808		2925		3276		Beams 18 lb/ft				
Rail, ASCE 40	2052		2398		2744		3078		3424		3770		4116		4450		4796		5130		5488		5822		6156		6514		6860		7182		13.30 lb/ft				
Rail, Type I	806		942		1078		1209		1345		1481		1617		1748		1884		2015		2156		2287		2418		2559		2695		2821		Approx. 5.22 lb/ft				
Rail, Type II	1060		1238		1416		1590		1768		1946		2124		2298		2476		2650		2832		3006		3180		3362		3540		3710		6.86 lb/ft				
Reinforcing steel, lb	478		526		574		634		683		731		791		839		899		947		1007		1055		1115		1164		1212		1260		0.668 lb/ft				

\* Structural steel weights do not include hardware or guard angle.

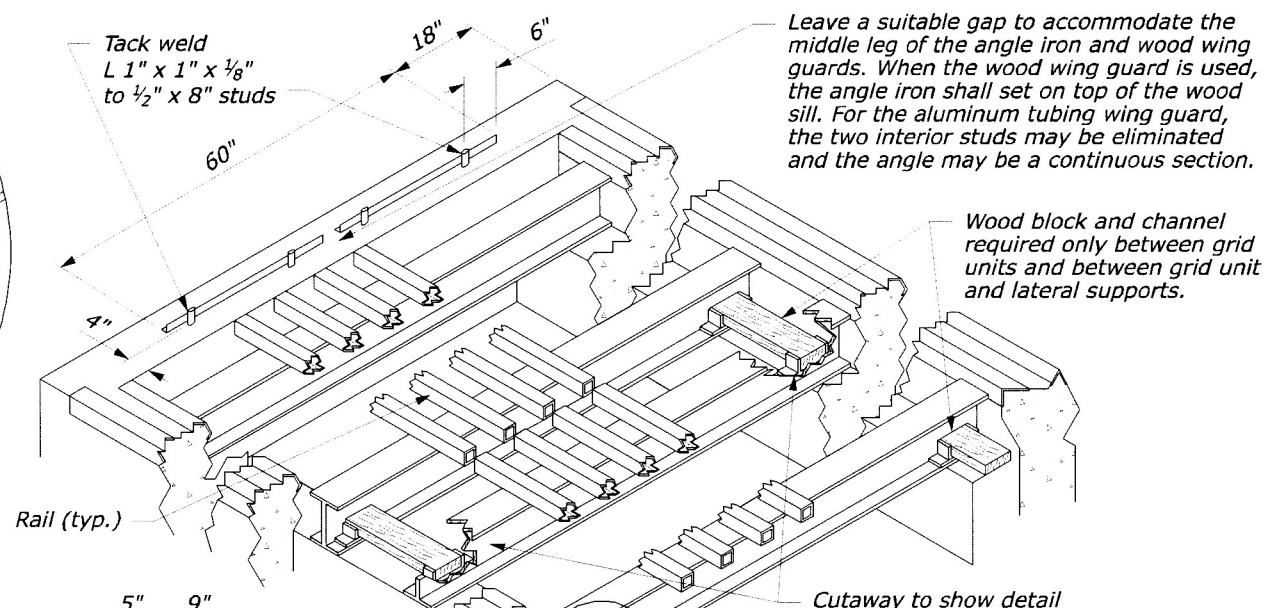
### CATTLE GUARD WING

#### LIST OF MATERIALS PER WING (TWO REQUIRED PER INSTALLATION)

PART DESCRIPTION	WOOD WING	ANGLE IRON WING	ALUMINUM TUBING WING
Outside diagonal supports	Two 2" x 6" x 84" treated S4S	Two 2" x 2" x 1/4" x 87" galvanized steel angle	One 2" OD x 1/8" x 165" aluminum tubing
Middle support	One 2" x 6" x 72" treated S4S	One 2" x 2" x 1/4" x 73" galvanized steel angle	
Horizontal brace no. 1	One 2" x 6" x 66" treated S4S	One 1/2" x 78" galvanized steel bar	One 2" OD x 1/8" x 72" aluminum tubing
No. 2	One 2" x 6" x 48" treated S4S	One 1/2" x 66" galvanized steel bar	One 2" OD x 1/8" x 30" aluminum tubing
No. 3	One 2" x 6" x 18" treated S4S	One 1/2" x 54" galvanized steel bar	None
No. 4	None	One 1/2" x 39" galvanized steel bar	None
No. 5	None	One 1/2" x 24" galvanized steel bar	None
No. 6	None	One 1/2" x 9" galvanized steel bar	None
Post	6" x 6" x 96" treated S4S	One 6" x 6" x 84" treated S4S or approved alternate	One 6" x 6" x 96" treated S4S or approved alternate
Top anchor assembly	Toenail diagonal supports to the post with 16d galvanized nails as required.	3/8" dia. x 6" galvanized hex bolt w/nut and flat washer	3/4" dia. x 16" galvanized steel rod threaded on one end w/nut and washers & 3" radius hook in other end.
Bottom anchor assembly	2" x 8" x 96" treated S4S sill attached to concrete w/3 each 1/2" dia. x 7" hex bolts w/nuts & washers embedded in concrete. Toenail diagonal supports to wooden sill w/16d galvanized nails.	3 each 3/8" dia. x 6" galvanized hex bolts embedded in concrete. Attach steel L iron to bolt w/flat washer and nut	2 each 1/4" x 5" x 10" flat irons welded to 4" tubing. 4 each 3/4" dia. x 6" galvanized hex bolts embedded in concrete. Attach the flat iron plates to the bolts with washer & nuts.

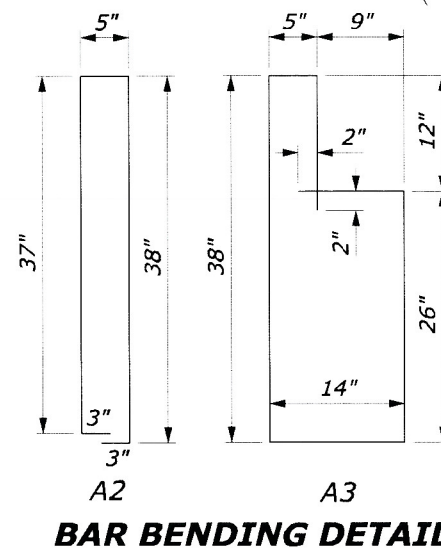


DETAIL A



ISOMETRIC VIEW

GRID UNIT LIST OF MATERIALS
<b>GRID UNIT TYPE A</b>
4 each W 8 x 18 x 77" long 13 each ASCE 40 crane rail (with minimum spacing), or II tubular cross bar sections, (with minimum spacing), Type I or Type II, 71 1/4"
<b>GRID UNIT TYPE B</b>
5 each W 8 x 18 x 77" long 13 each ASCE 40 crane rail (with minimum spacing), or II tubular cross bar sections, (with minimum spacing), Type I or Type II, 95 1/4"



BAR BENDING DETAIL



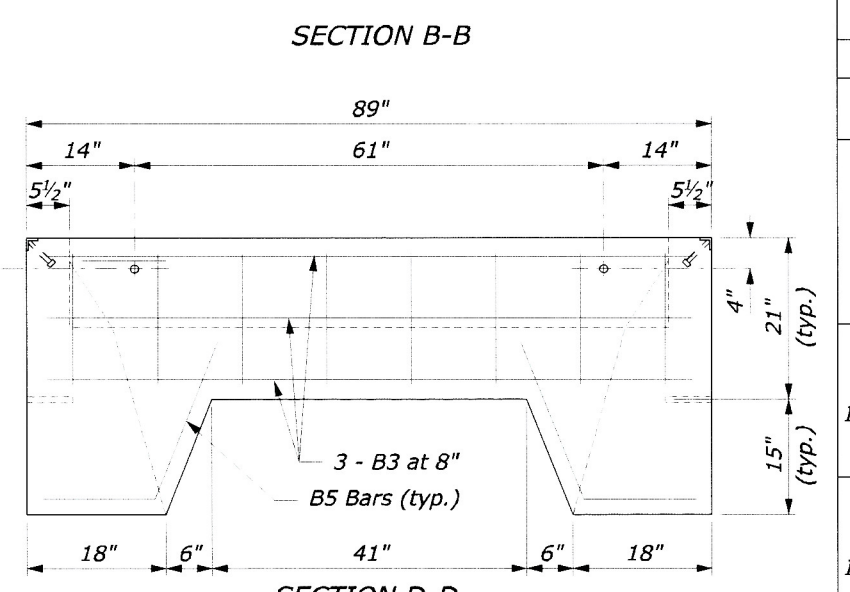
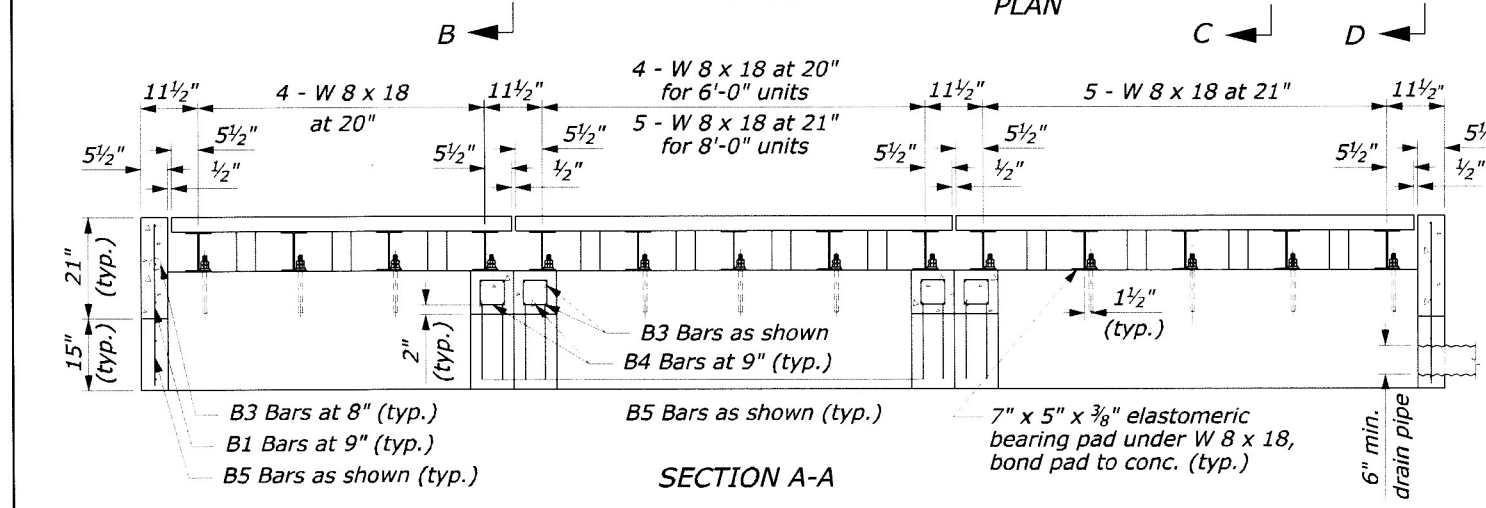
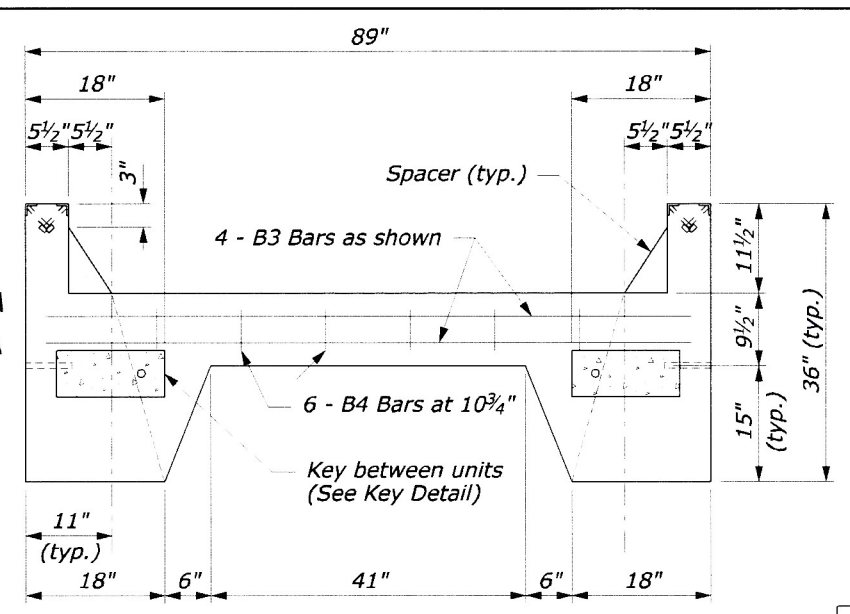
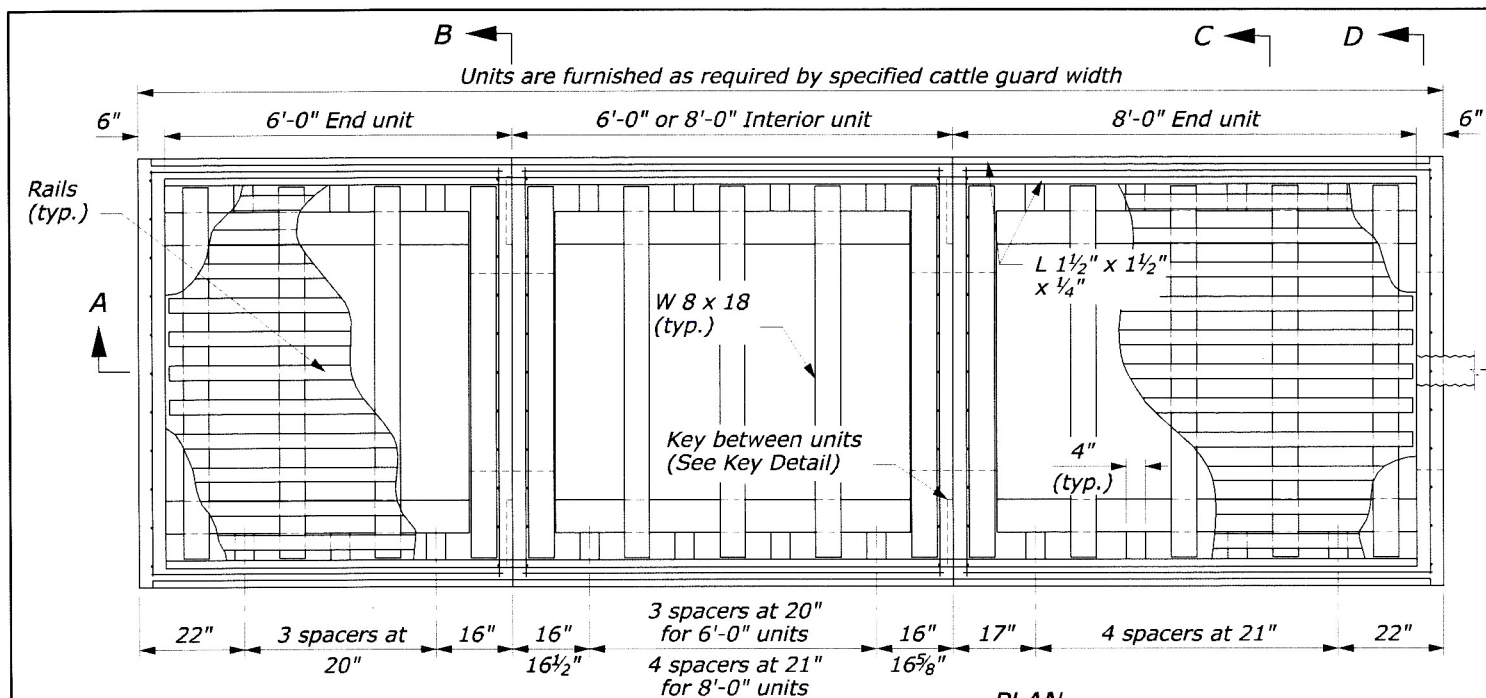
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
FEDERAL LANDS HIGHWAY OFFICE

U.S. CUSTOMARY STANDARD

### CATTLE GUARD

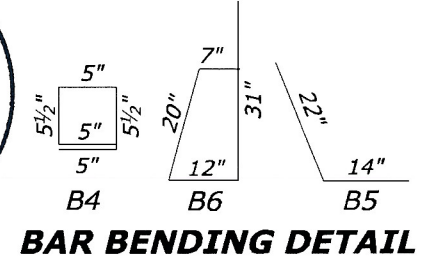
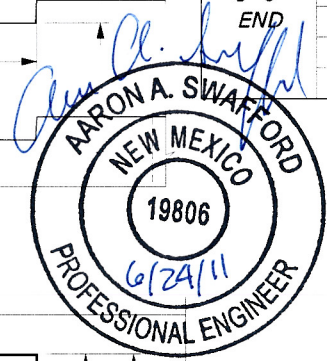
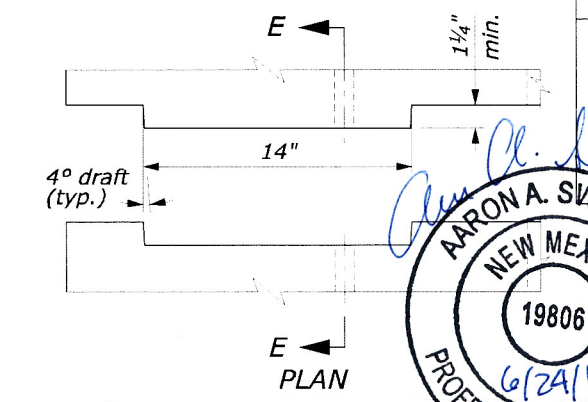
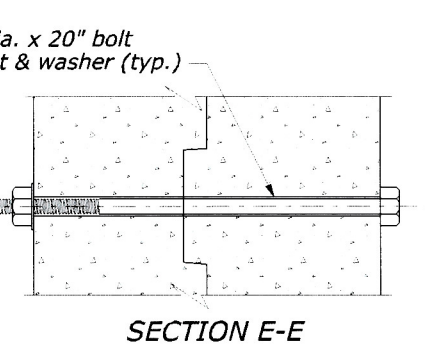
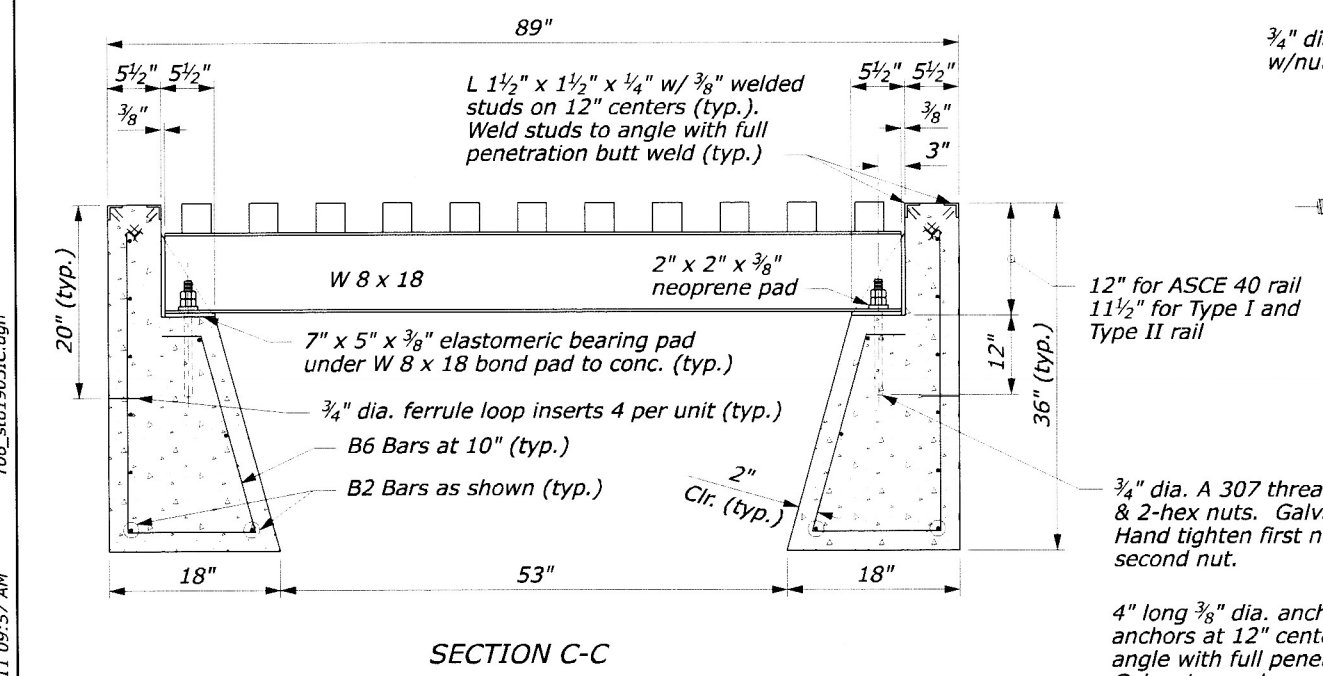
STANDARD APPROVED FOR USE XX/XX  
REVISID: STANDARD 619-2

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	T6	T9



- NOTE:**
1. See Standard 619-1 for reinforcing steel size and grade.
  2. See Standard 619-2 for cattle guard wing details. Fabricate end units to accommodate selected cattle guard wing.
  3. Minimum soil bearing 4,000 lb/ft<sup>2</sup>. Place units in fine aggregate bed 3 inch thick over hand leveled soil compacted to not less than 95 percent density.
  4. Chamfer exposed concrete edges 3/4" unless otherwise shown. Give all concrete surfaces a Class 1 finish.
  5. Approved alternate designs may be used.

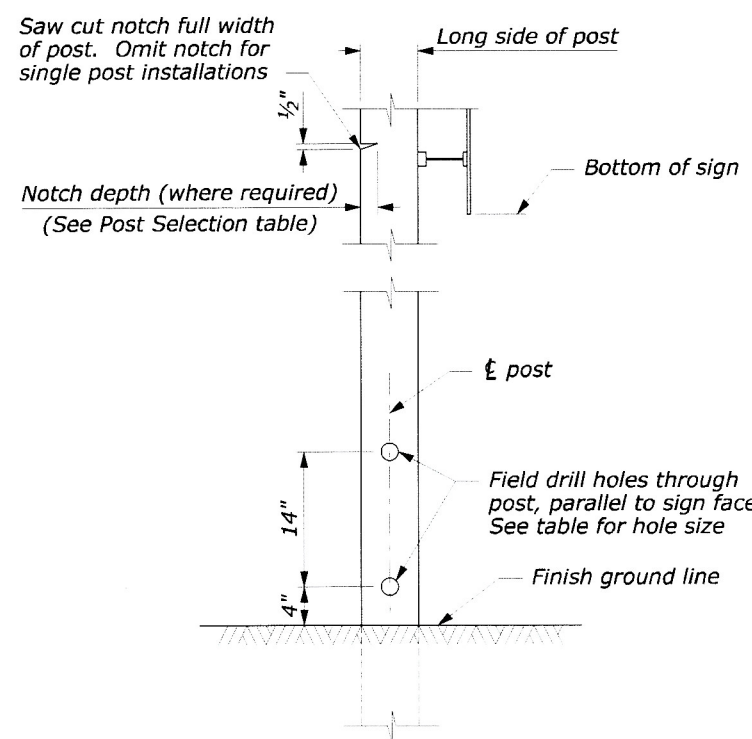
PRECAST CATTLE GUARD REINFORCING STEEL AND CONCRETE					
UNIT	No. of BARS	BAR MARK	LENGTH	MASS LB	CONCRETE CU YD
6'-0" END	7	B3	85"	33.1	1.89
	10	B2	74"	41.2	
	8	B1	17"	7.6	
	6	B4	26"	8.7	
	18	B6	70"	70.1	
6'-0" INTERIOR	6	B5	36"	12.0	1.90
	8	B3	85"	37.9	
	10	B2	68"	37.9	
	18	B4	26"	17.4	
	18	B6	70"	70.1	
8'-0" INTERIOR	8	B3	85"	37.9	2.34
	10	B2	92"	51.2	
	12	B4	26"	17.4	
	20	B6	70"	77.9	
	8	B5	36"	16.0	
8'-0" END	7	B3	85"	33.1	2.32
	10	B2	98"	54.6	
	8	B1	17"	7.6	
	6	B4	26"	8.7	
	20	B6	70"	77.9	
6	B5	36"	12.0		



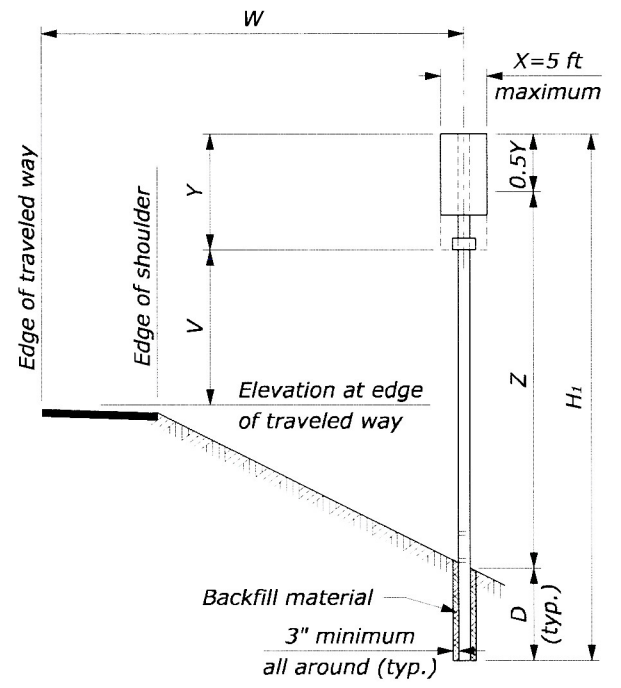
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY OFFICE	
U.S. CUSTOMARY STANDARD	
<b>CATTLE GUARD PRECAST FOUNDATION</b>	
STANDARD APPROVED FOR USE XX/XX	STANDARD
REVISED:	619-3

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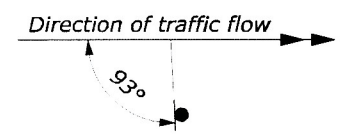
100% DESIGN SUBMITTAL - JUNE 24, 2011



**POST DETAIL**



**SINGLE POST SIGNS**



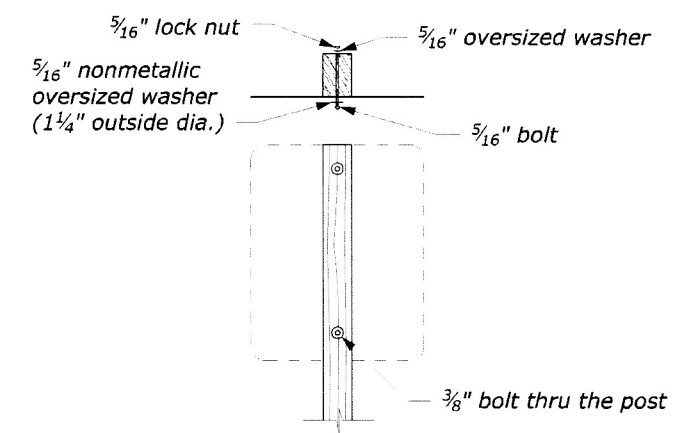
**SIGN INSTALLATION ANGLE**  
For all retroreflectorized signs where W > 25'

MINIMUM DISTANCE TO SIGN		
Location	Lateral Offset (W)	Mounting Height (V)
Rural Districts	6 ft	5 ft

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

**NOTE:**

- H<sub>1</sub> thru H<sub>4</sub> indicate overall post length. Select post lengths to fit field conditions.
- D is the minimum post embedment depth for average soil conditions. See Wood Post Selection Table below.
- Z is the height from ground line to mid-height of sign at the longest post.
- 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**

POST SIZE (inch)	NUMBER OF POSTS		D	Notch depth and hole diameter
	1	Product of X-Y-Z in CUFT		
	4 x 4	80		
4 x 6	180	4'-0"	1 3/4"	
6 x 6	235	4'-0"	1 3/4"	
6 x 8	300	4'-0"	2 1/2"	
6 x 10	385	5'-0"	-	
8 x 10	575	5'-0"	-	
8 x 12	775	6'-0"	-	

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



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

**U.S. CUSTOMARY SPECIAL  
PERMANENT SIGN  
INSTALLATION  
WOOD POSTS**

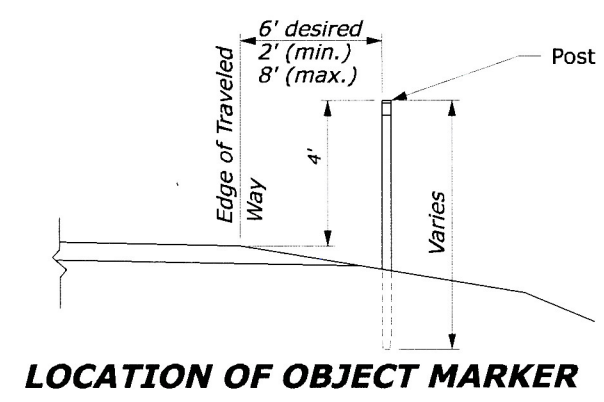
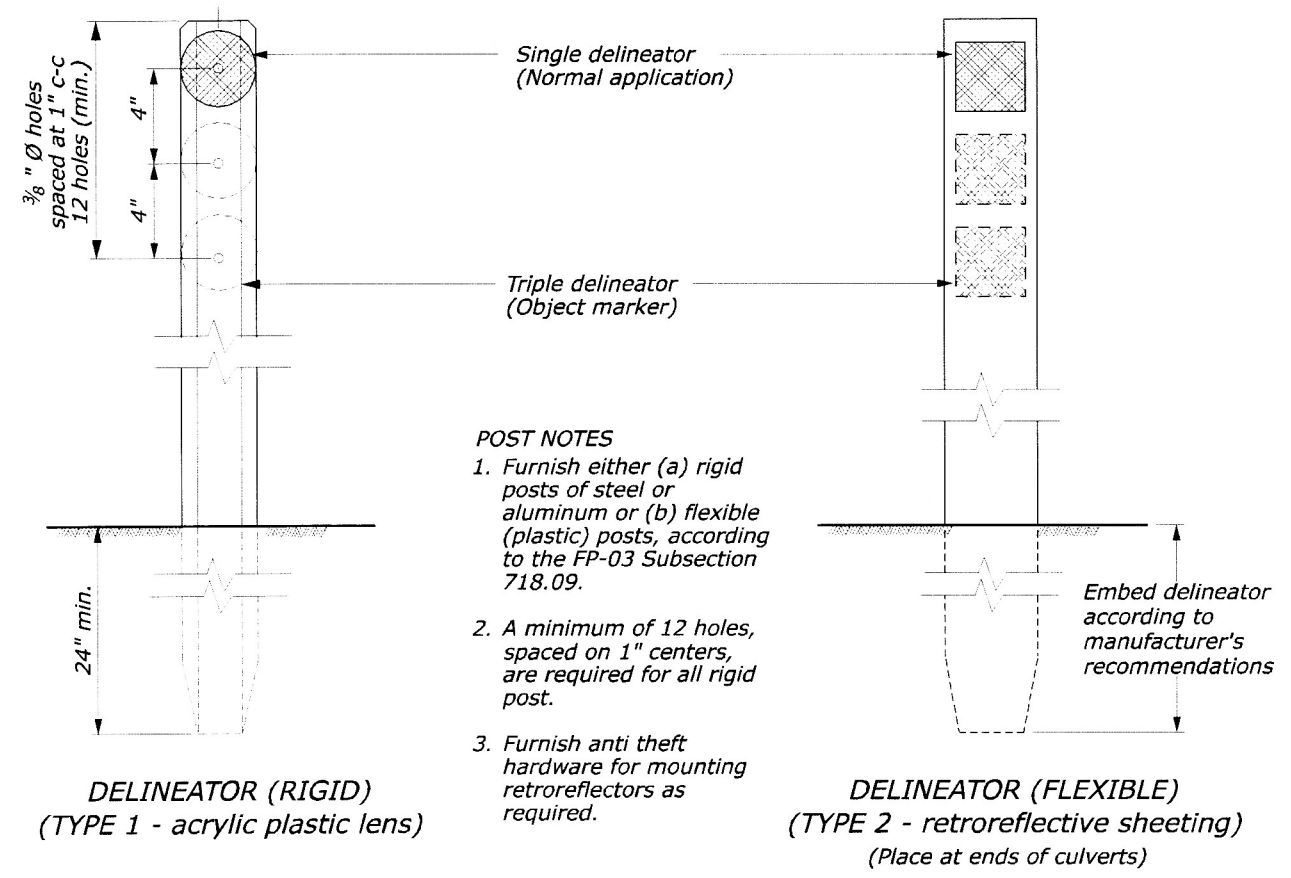
DETAIL APPROVED FOR USE --/--

REVIS: 2/1998  
DRAFT: 10/2009

SPECIAL  
**W633-7**

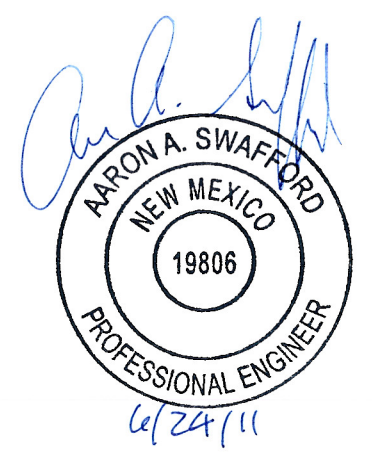
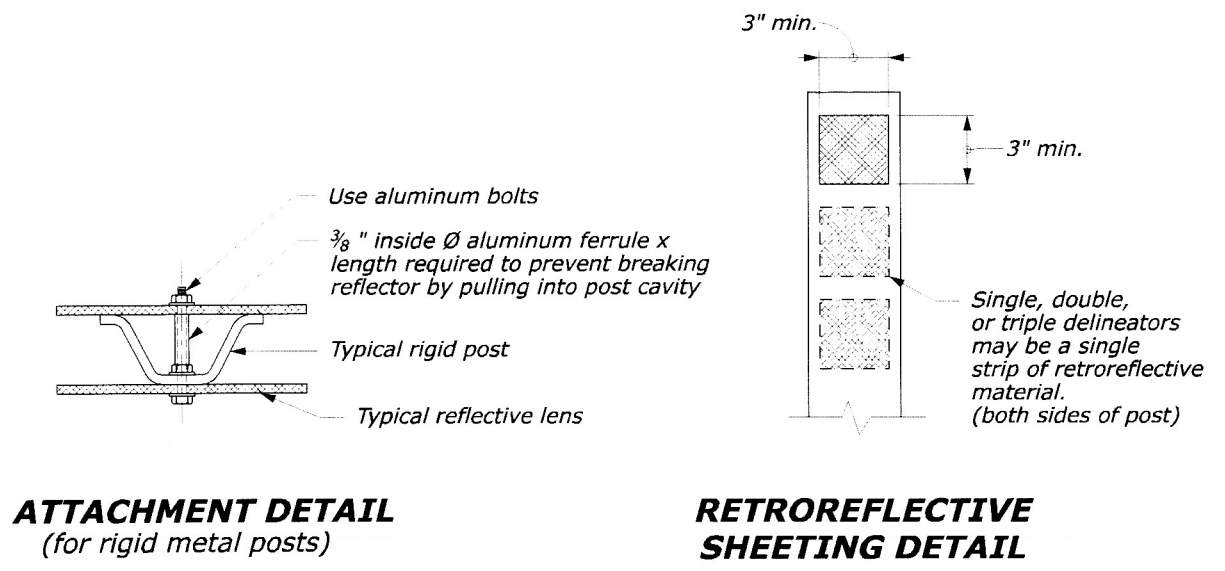
NO SCALE

REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	T8	T9



- NOTE:**
1. Use yellow reflective elements for triple delineators installed to mark obstructions.
  2. Install reflective elements according to the manufacturer's recommendations.
  3. Alternate delineator types may be used with approval of the CO. Provide delineators conforming to the MUTCD and install according to the manufacturer's recommendations.
  4. Place delineators at a constant distance from the edge of the pavement.
  5. Delineators meeting current state-approved standards and the MUTCD may be used if approved by the CO.

**POST DETAILS**



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION CENTRAL FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY SPECIAL	
<b>OBJECT MARKER</b>	
NO SCALE	SPECIAL C633-51

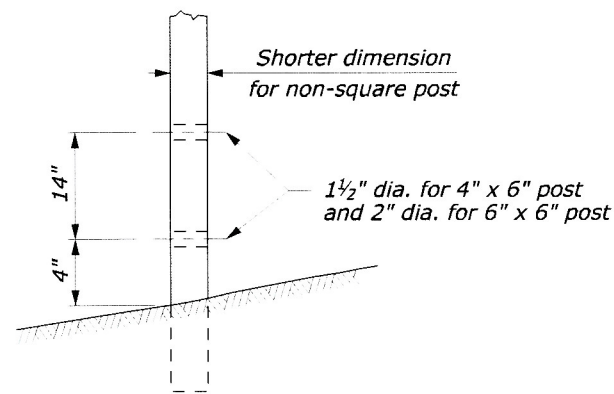
T08-C633511C.dgn  
23-Jun-2011 09:58 AM

100% DESIGN SUBMITTAL - JUNE 24, 2011

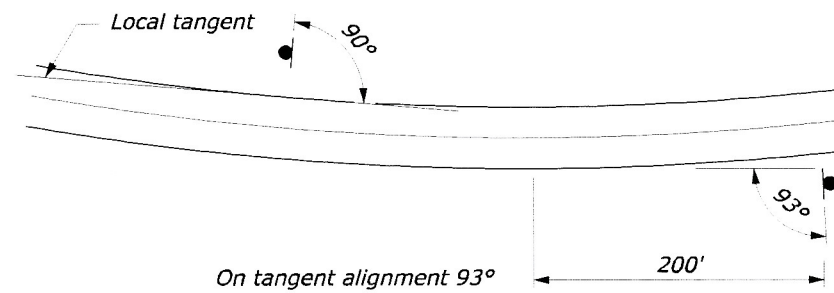
REG	STATE	PROJECT	SHEET NO.	TOTAL SHEETS
	NM	NM BLM 1103(6)	T9	T9

**NOTE:**

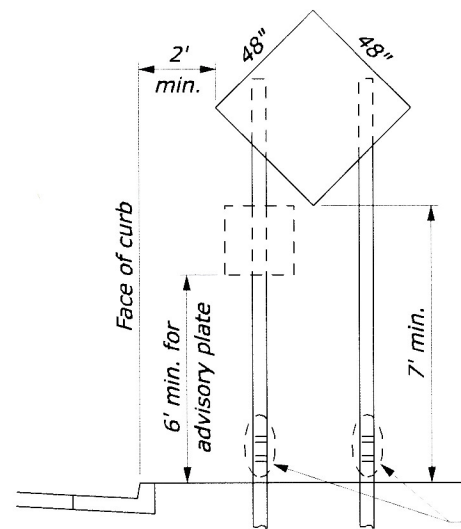
1. Use Type III or higher type sheeting on all signs and channelizing devices. Warning lights are not normally needed on devices with Type III or higher type sheeting, but may be beneficial to attract the drivers attention in fog or other special conditions. When used, apply the appropriate type of warning light (Type A, B, C, or D) per the MUTCD Chapter 6F.
2. Ensure all sign supports exposed to impact by traffic meet the requirements of NCHRP-350 for crash worthiness.
3. Do not store traffic control devices along the roadway when not in use. Cover post-mounted signs when not applicable.
4. State standards may be used as an alternative if approved by the CO.



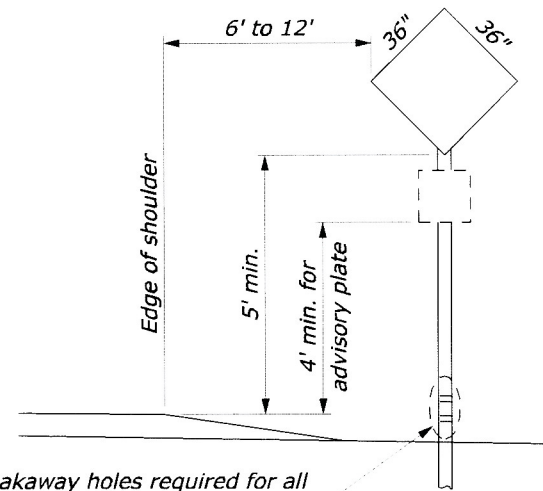
**POST DETAIL**



**SIGN INSTALLATION ANGLE**



**URBAN AREAS**  
(or pedestrian or parking areas)



**RURAL AREAS**

Breakaway holes required for all wooden sign posts larger than 4" x 4". See Post Detail

NOTE: Mount signs with area 9 sqft and under on a single 4" x 4" wood post. Use double wood posts for signs wider than 36" or signs with an area over 9 sqft. Steel may be used in lieu of wood posts (See Note 2)

**SIGN PLACEMENT**



U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY OFFICE	
U.S. CUSTOMARY STANDARD	
<b>TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION</b>	
STANDARD APPROVED FOR USE XX/XX	STANDARD
REVISED:	635-14