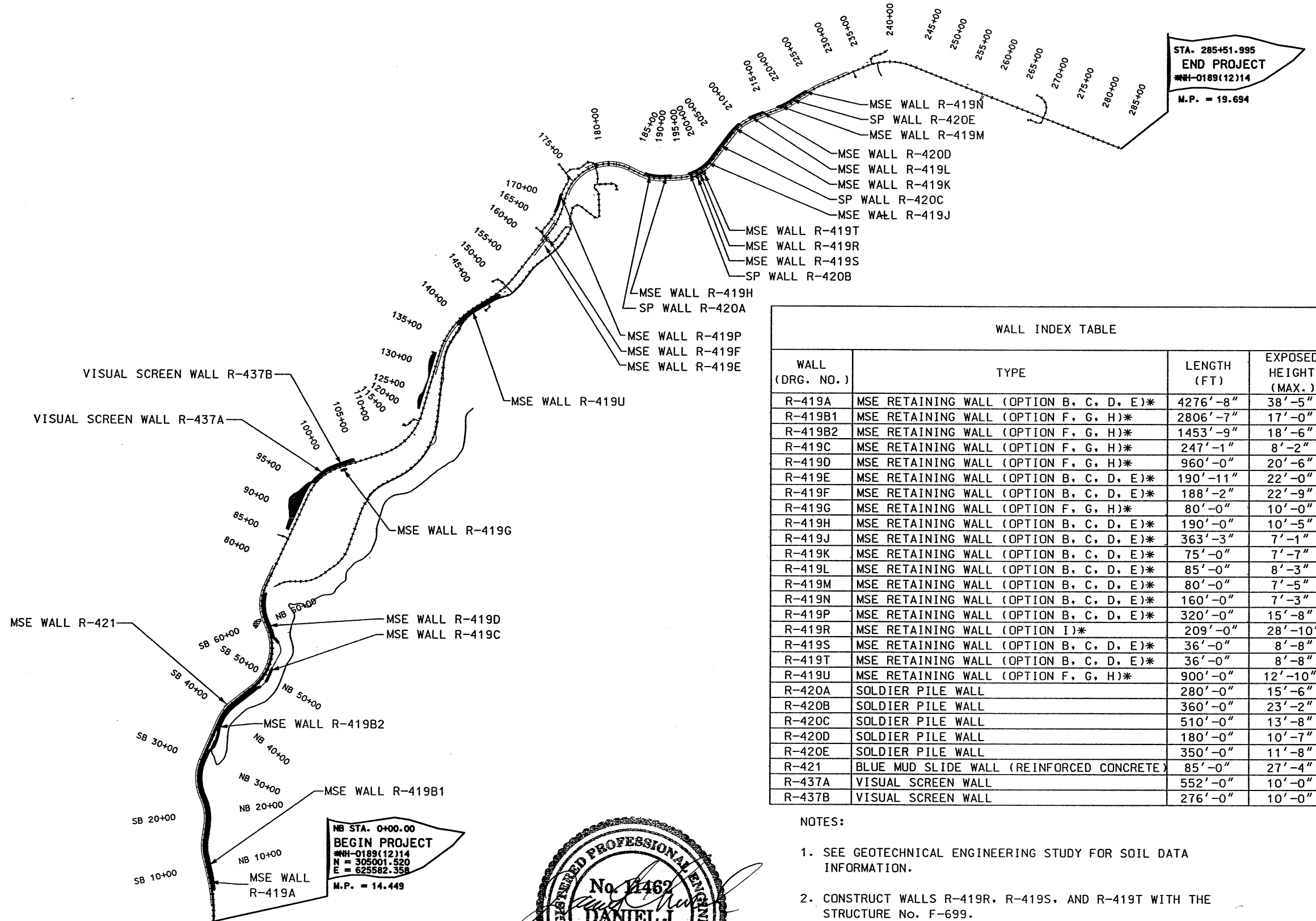


WALL INDEX SHEET



WALL INDEX TABLE			
WALL (DRG. NO.)	TYPE	LENGTH (FT)	EXPOSED HEIGHT (MAX.)
R-419A	MSE RETAINING WALL (OPTION B, C, D, E)*	4276'-8"	38'-5"
R-419B1	MSE RETAINING WALL (OPTION F, G, H)*	2806'-7"	17'-0"
R-419B2	MSE RETAINING WALL (OPTION F, G, H)*	1453'-9"	18'-6"
R-419C	MSE RETAINING WALL (OPTION F, G, H)*	247'-1"	8'-2"
R-419D	MSE RETAINING WALL (OPTION F, G, H)*	960'-0"	20'-6"
R-419E	MSE RETAINING WALL (OPTION B, C, D, E)*	190'-11"	22'-0"
R-419F	MSE RETAINING WALL (OPTION B, C, D, E)*	188'-2"	22'-9"
R-419G	MSE RETAINING WALL (OPTION F, G, H)*	80'-0"	10'-0"
R-419H	MSE RETAINING WALL (OPTION B, C, D, E)*	190'-0"	10'-5"
R-419J	MSE RETAINING WALL (OPTION B, C, D, E)*	363'-3"	7'-1"
R-419K	MSE RETAINING WALL (OPTION B, C, D, E)*	75'-0"	7'-7"
R-419L	MSE RETAINING WALL (OPTION B, C, D, E)*	85'-0"	8'-3"
R-419M	MSE RETAINING WALL (OPTION B, C, D, E)*	80'-0"	7'-5"
R-419N	MSE RETAINING WALL (OPTION B, C, D, E)*	160'-0"	7'-3"
R-419P	MSE RETAINING WALL (OPTION B, C, D, E)*	320'-0"	15'-8"
R-419R	MSE RETAINING WALL (OPTION I)*	209'-0"	28'-10"
R-419S	MSE RETAINING WALL (OPTION B, C, D, E)*	36'-0"	8'-8"
R-419T	MSE RETAINING WALL (OPTION B, C, D, E)*	36'-0"	8'-8"
R-419U	MSE RETAINING WALL (OPTION F, G, H)*	900'-0"	12'-10"
R-420A	SOLDIER PILE WALL	280'-0"	15'-6"
R-420B	SOLDIER PILE WALL	360'-0"	23'-2"
R-420C	SOLDIER PILE WALL	510'-0"	13'-8"
R-420D	SOLDIER PILE WALL	180'-0"	10'-7"
R-420E	SOLDIER PILE WALL	350'-0"	11'-8"
R-421	BLUE MUD SLIDE WALL (REINFORCED CONCRETE)	85'-0"	27'-4"
R-437A	VISUAL SCREEN WALL	552'-0"	10'-0"
R-437B	VISUAL SCREEN WALL	276'-0"	10'-0"

SEE NOTE 2
SEE NOTE 2
SEE NOTE 2

NOTES:

1. SEE GEOTECHNICAL ENGINEERING STUDY FOR SOIL DATA INFORMATION.
2. CONSTRUCT WALLS R-419R, R-419S, AND R-419T WITH THE STRUCTURE No. F-699.

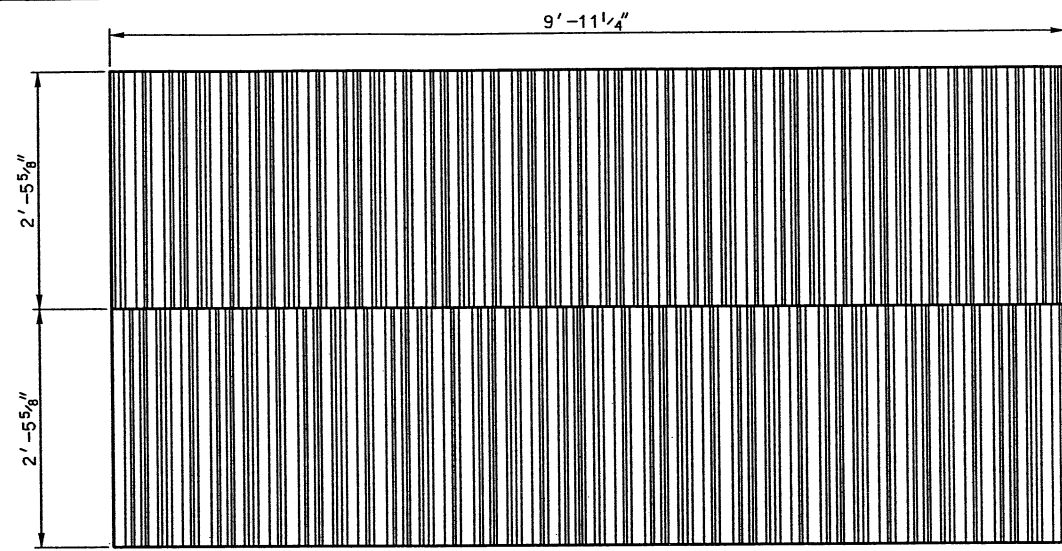
* 3. SEE SPECIAL PROVISION 02831S.



UTAH DEPARTMENT OF TRANSPORTATION	
STRUCTURES	PR PARSONS BRINCKERHOFF
SR-189 WILDWOOD TO DEER CREEK	WALL INDEX SHEET
WALL PLAN	PROJECT NUMBER *NH-0189 (12) 14
WASATCH COUNTY	R-WALL DRG. NO.
SHT. 1 of 1	REVISIONS

NOTES:

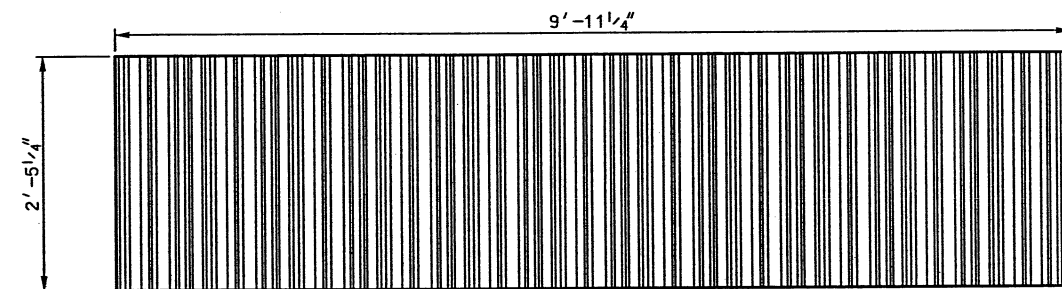
1. PROVIDE CLASS AA-(AE) CONCRETE WITH $f'c = 3.65$ ksi
2. USE STRUCTURAL STEEL CONFORMING TO AASHTO M270 GRADE 36.
3. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE RESPECTIVELY.
4. CHAMFER ALL EXPOSED CONCRETE CORNERS $\frac{3}{4}$ " EXCEPT WERE NOTED OTHERWISE.
5. PROVIDE 2" CONCRETE COVER TO ALL REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
6. IF VARIABLE PANEL DEPTH IS EQUAL TO OR LESS THAN $2'-5\frac{5}{8}"$ THAN DO NOT USE THE UPPER FRACTURED FIN SECTION
7. FOR FRACTURED FIN LINER USE A DIFFERENT AND DISTINCT RANDOM PATTERNS FOR BOTH THE TOP PORTION AND THE LOWER PORTION OF THE PANELS.
8. SEE DRAWING R-420 FOR PANEL JOINT AT SOLDIER PILE WALL



FULL DEPTH PANEL DETAIL*

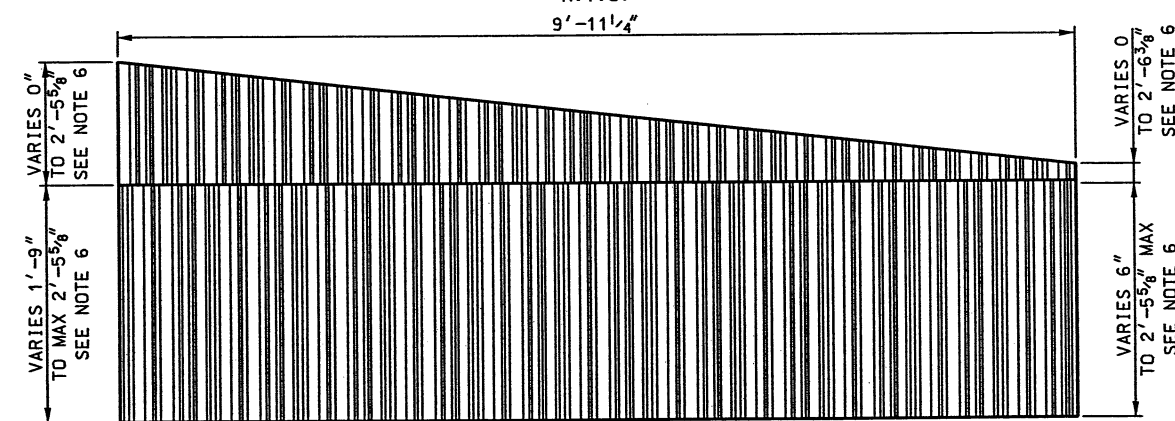
* SEE NOTE 7

N.T.S.



HALF DEPTH PANEL DETAIL

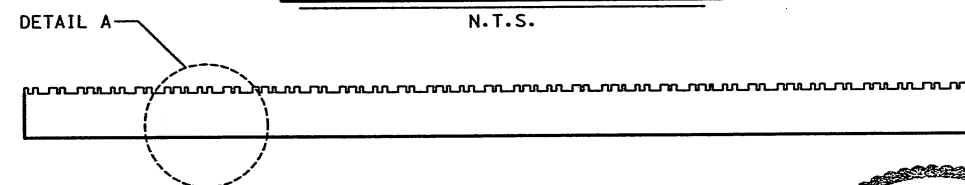
N.T.S.



VARIABLE DEPTH PANEL DETAIL*

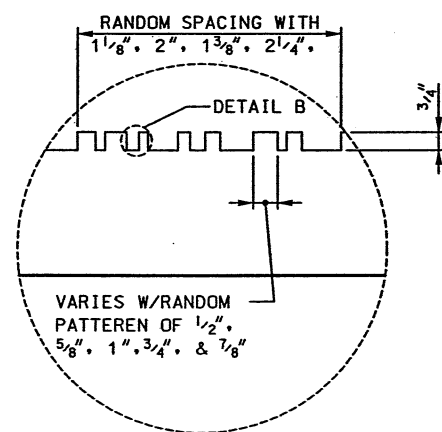
* SEE NOTE 7

N.T.S.

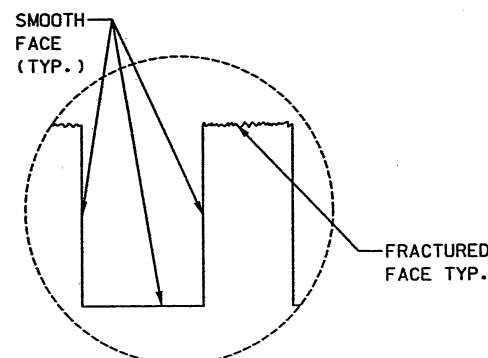


FRACTURED FIN FINISH DETAILS

N.T.S.



DETAIL "A"

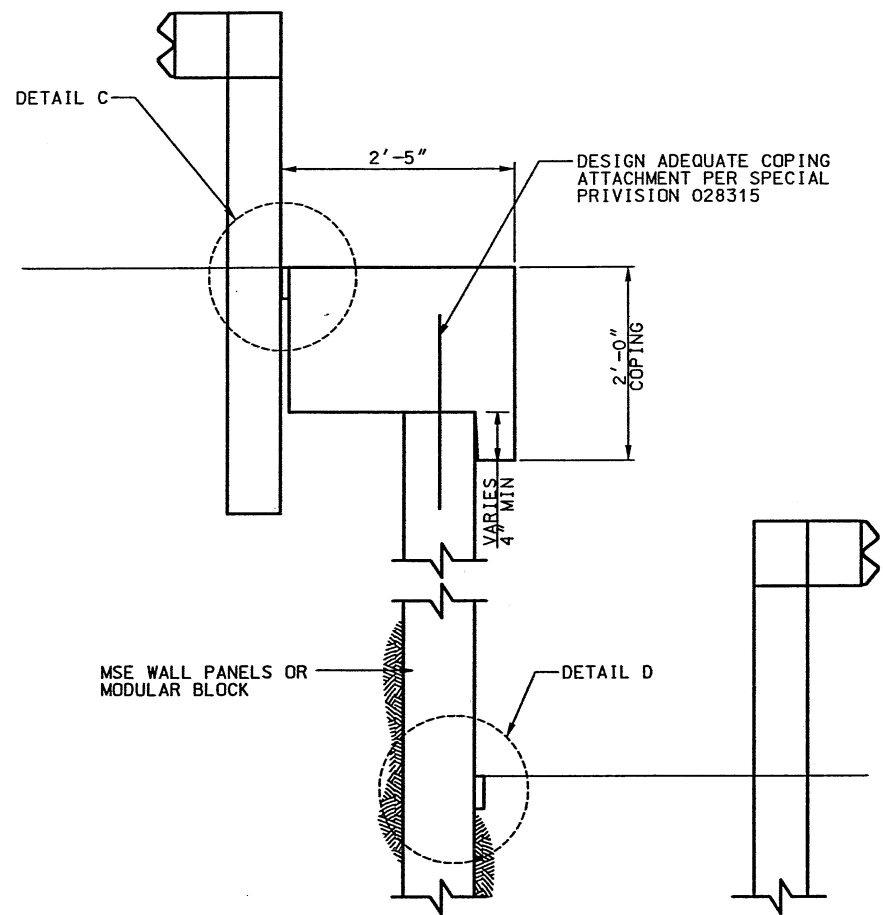


DETAIL "B"

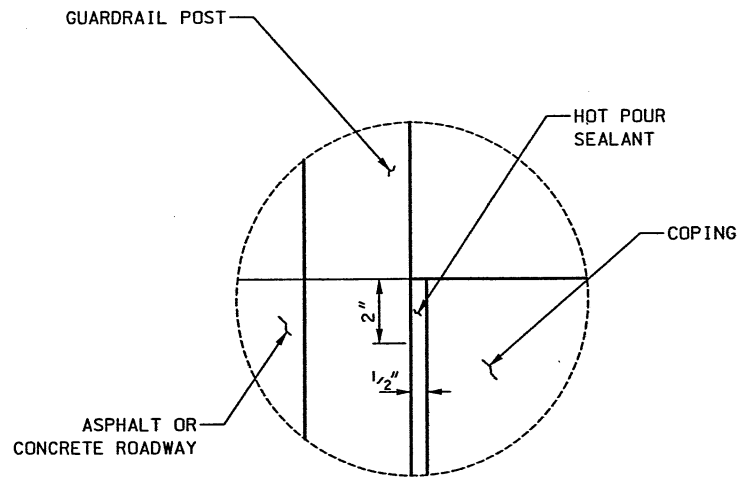


UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	10/03_SJB	CHECK	10/03_D.J.C.
STRUCTURES		DRAWN	10/03_SJB	CHECK	10/03_D.J.C.
MSE WALL		QUANT.	10/03_SJB	CHECK	10/03_D.J.C.
PANEL DETAILS		DATE		BY	
PROJECT NUMBER		*NH-0189 (12) 14			
COUNTY		WASATCH			
DRG. NO.		R-419			
SHT.		1 of 2			

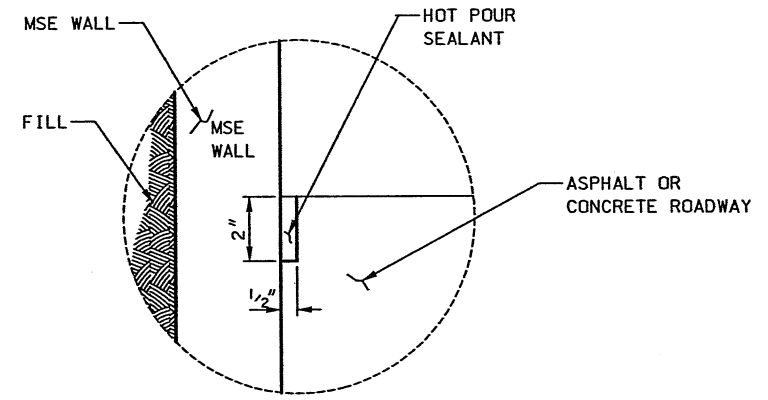
02/13/2004 c:\projects\122572a_msewall\cadd\final\wall\14487.dwg p=419-01.dwg



COPING DETAIL
N.T.S.

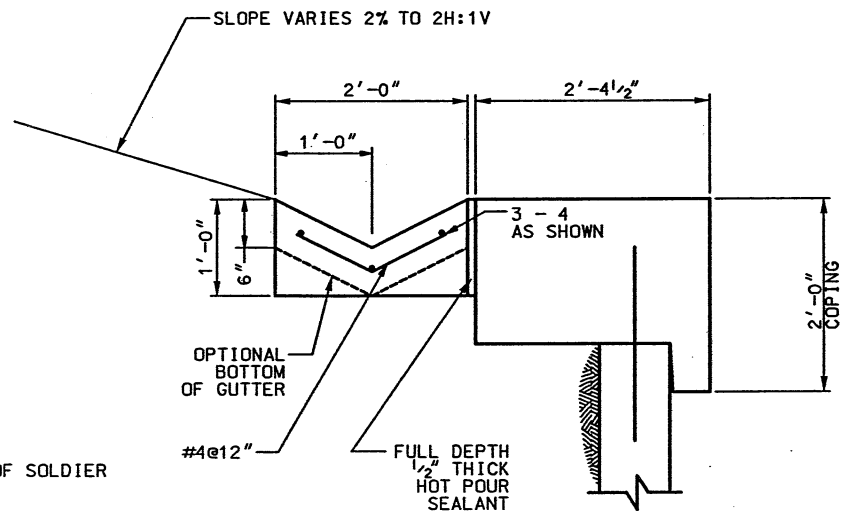


ASPHALT/CONCRETE JOINT SEAL DETAIL "C"
N.T.S.

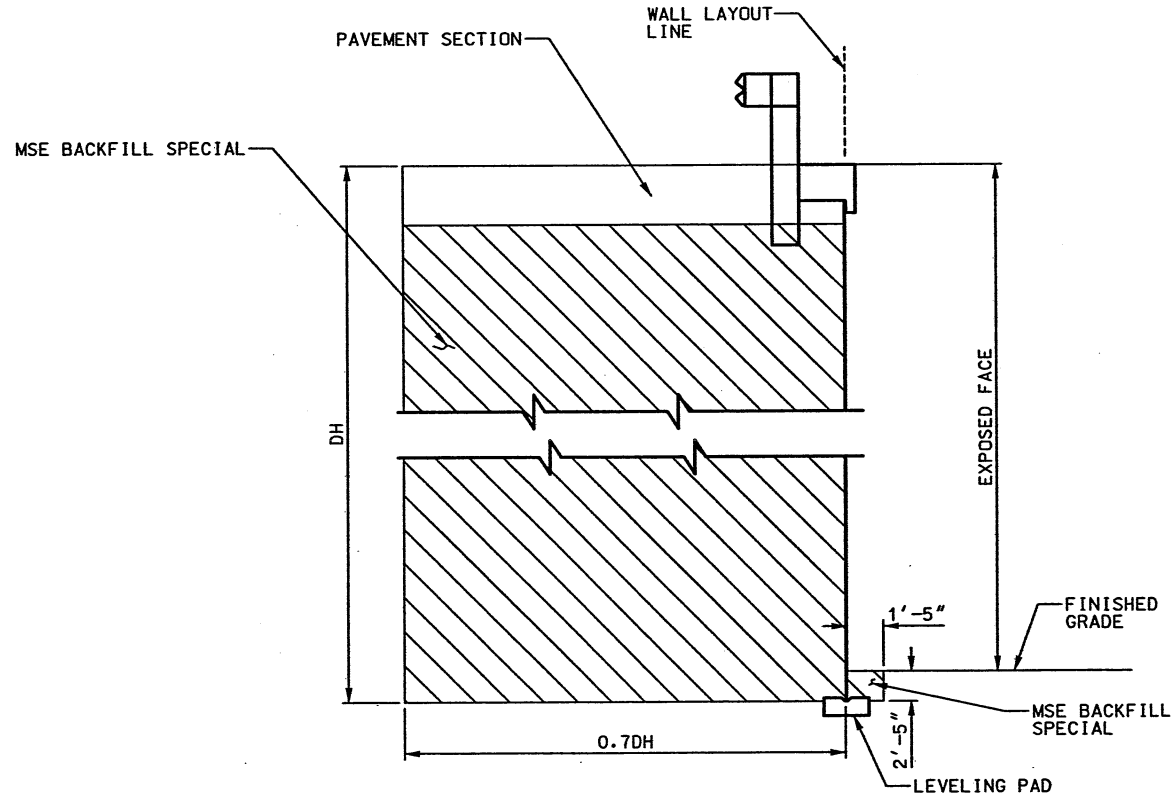


ASPHALT/CONCRETE JOINT SEAL DETAIL "D"
N.T.S.

- COPING NOTES:**
1. COPING FOR WALLS R-419 TO MATCH DIMENSIONS OF SOLDIER PILE WALL COPING.
 2. USE COATED REINFORCING PER SECTION 03211.
 3. USE CLASS AA (AE) CONCRETE.



GUTTER COPING DETAIL
N.T.S.



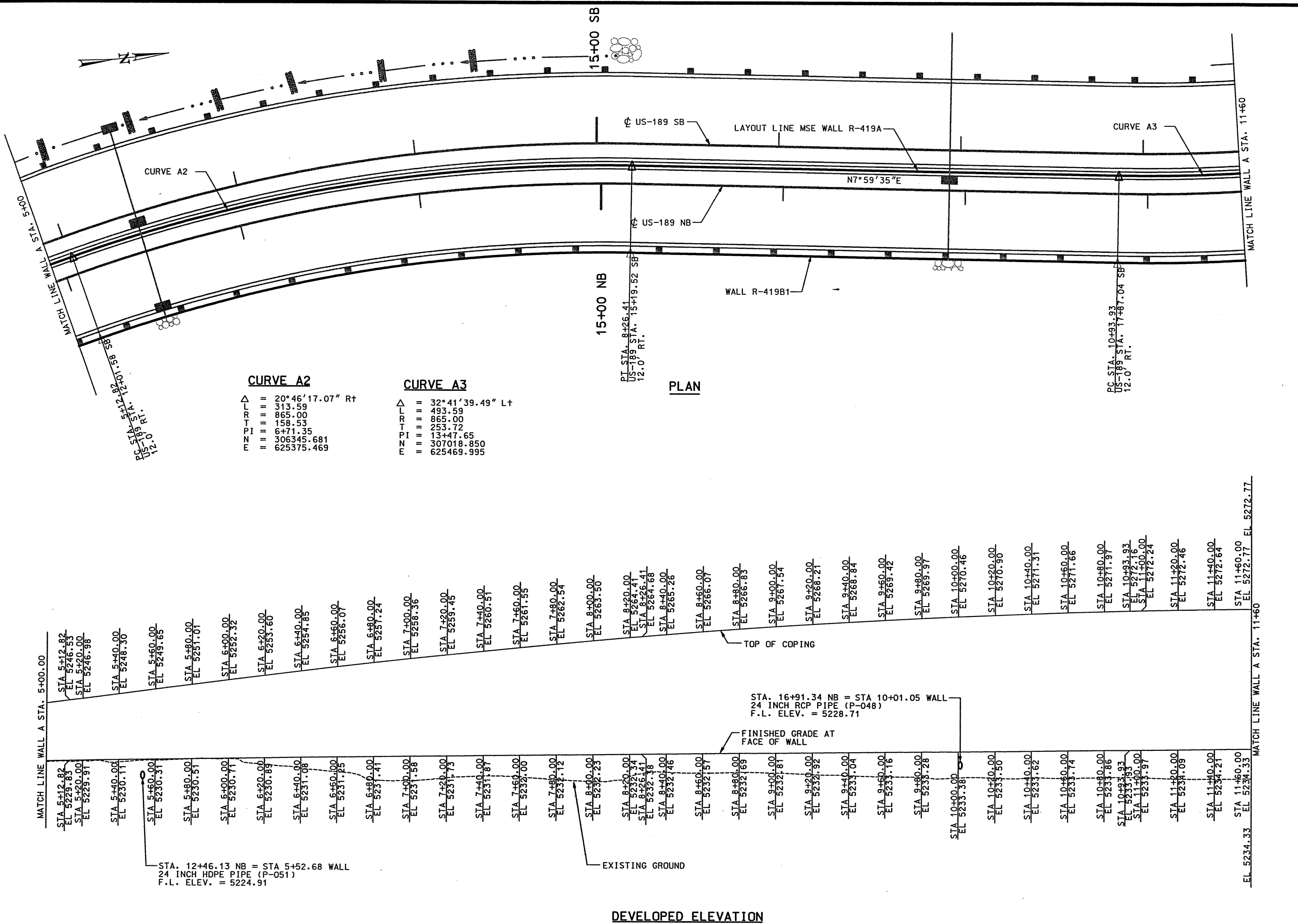
MSE BACKFILL QUANTITIES GUIDELINE
N.T.S.

- MSE BACKFILL NOTES:**
1. DH = EXPOSED WALL HEIGHT + 2.5'
 2. FOR INFORMATION ONLY, NOT INTENDED TO BE USED FOR DESIGN. WALL MANUFACTURER TO DETERMINE LIMITS OF MSE WALL BACKFILL SPECIAL.

UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	10/03	STB	CHECK	10/03	D.J.C.
STRUCTURES		DRAWN	10/03	STB	CHECK	10/03	D.J.C.
SR-189 WILDWOOD TO DEER CREEK		APPROVED	DATE	BY	DATE	BY	REVISIONS
MSE WALL		APPROVED	DATE	BY	DATE	BY	REVISIONS
COPING & MISC. DETAILS		APPROVED	DATE	BY	DATE	BY	REVISIONS
PROJECT NUMBER		*NH-0189 (12) 14					
SHT.		2 of 2					

02/13/2004

C:\Users\j225727\Documents\Projects\031672 - File\Drawings\031672.dwg



CURVE A2		CURVE A3	
Δ	= 20°46'17.07" Rt	Δ	= 32°41'39.49" Lt
Γ	= 313.59	Γ	= 493.59
J	= 865.00	J	= 865.00
T	= 158.53	T	= 253.72
PI	= 6+71.35	PI	= 13+47.65
MZ	= 306345.681	MZ	= 307018.850
F	= 625375.469	F	= 625469.995

PLAN

MATCH LINE WALL A STA. 5+00.00

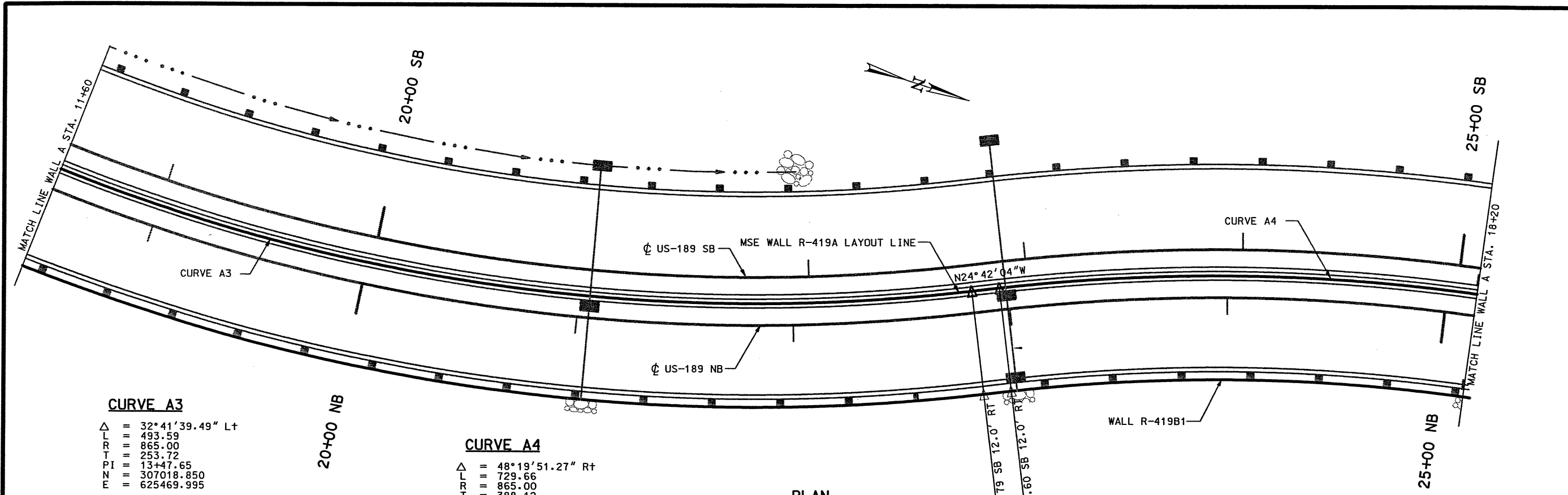
STA 5+12.82
EL 5229.83
STA 5+20.00
EL 5229.91
STA 5+40.00
EL 5230.11
STA 5+60.00
EL 5230.31
STA 5+80.00
EL 5230.51
STA 6+00.00
EL 5230.71
STA 6+20.00
EL 5230.89
STA 6+40.00
EL 5231.08
STA 6+60.00
EL 5231.25
STA 6+80.00
EL 5231.41
STA 7+00.00
EL 5231.58
STA 7+20.00
EL 5231.73
STA 7+40.00
EL 5231.87
STA 7+60.00
EL 5232.00
STA 7+80.00
EL 5232.12
STA 8+00.00
EL 5232.23
STA 8+20.00
EL 5232.34
STA 8+26.41
EL 5232.38
STA 8+40.00
EL 5232.46
STA 8+60.00
EL 5232.57
STA 8+80.00
EL 5232.69
STA 9+00.00
EL 5232.81
STA 9+20.00
EL 5232.92
STA 9+40.00
EL 5233.04
STA 9+60.00
EL 5233.16
STA 9+80.00
EL 5233.28
STA 10+00.00
EL 5233.38
STA 10+20.00
EL 5233.50
STA 10+40.00
EL 5233.62
STA 10+60.00
EL 5233.74
STA 10+80.00
EL 5233.86
STA 10+93.93
EL 5233.93
STA 11+00.00
EL 5233.97
STA 11+20.00
EL 5234.09
STA 11+40.00
EL 5234.21
STA 11+60.00
EL 5234.33

STA. 12+46.13 NB = STA 5+52.68 WALL
24 INCH HDPE PIPE (P-051)
F.L. ELEV. = 5224.91

STA. 16+91.34 NB = STA 10+01.05 WALL
24 INCH RCP PIPE (P-048)
F.L. ELEV. = 5228.71

DEVELOPED ELEVATION

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION	
MSE RETAINING WALL R-419A		STRUCTURES	
SITUATION AND LAYOUT		PARSONS BRINCKERHOFF	
PROJECT NUMBER	*NH-0189 (12) 14	DESIGN	DRM 04/03
		CHECK	WLS 04/03
		DESIGN	DRM 04/03
		CHECK	WLS 04/03
		QUANT.	DRM 04/03
		CHECK	STB 12/03
		DATE	
		BY	
		REVISIONS	
		NO.	
		DATE	
		BY	
		REMARKS	

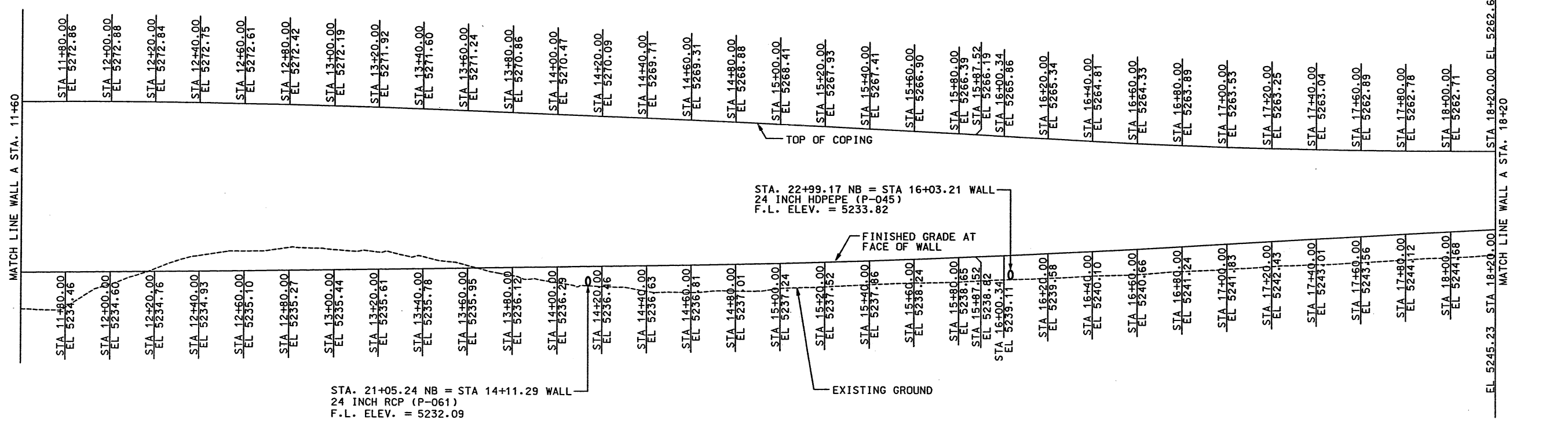


CURVE A3
 Δ = 32°41'39.49" Lt
 R = 493.59
 T = 865.00
 L = 253.72
 PI = 13+47.65
 M = 307018.850
 E = 625469.995

CURVE A4
 Δ = 48°19'51.27" Rt
 R = 729.66
 T = 865.00
 L = 388.12
 PI = 19+88.46
 M = 307613.603
 E = 625196.425

PLAN

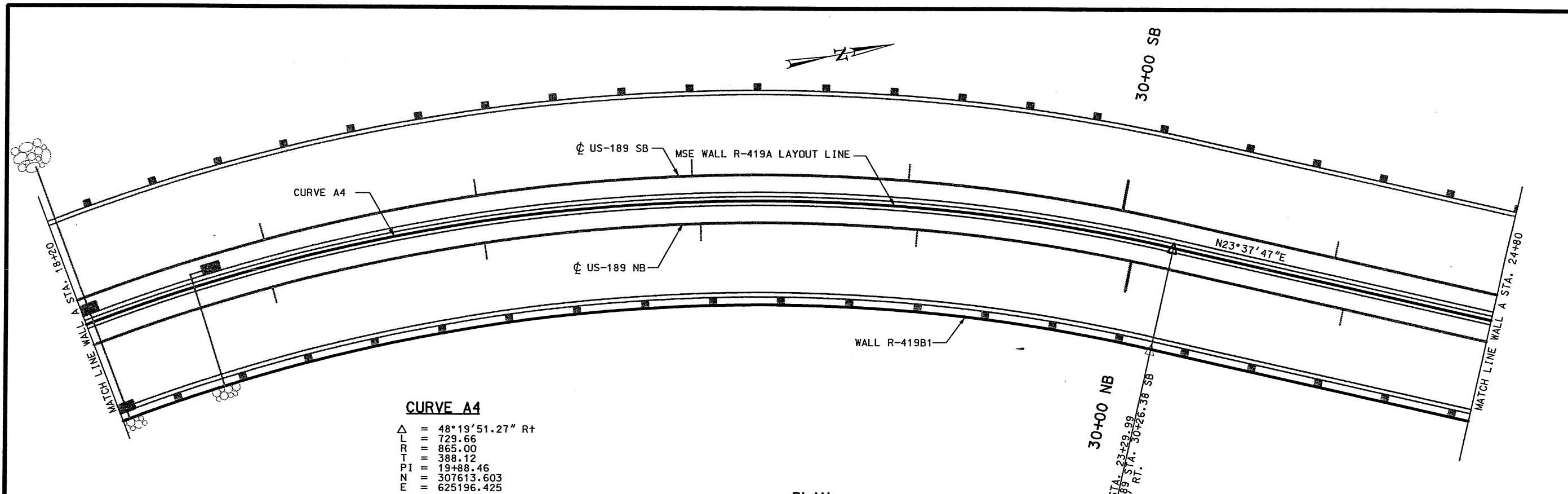
PT STA. 15+81.52
 US-189 STA. 22+73.79 SB 12.0' RT
 PC STA. 16+00.34
 US-189 STA. 22+86.60 SB 12.0' RT



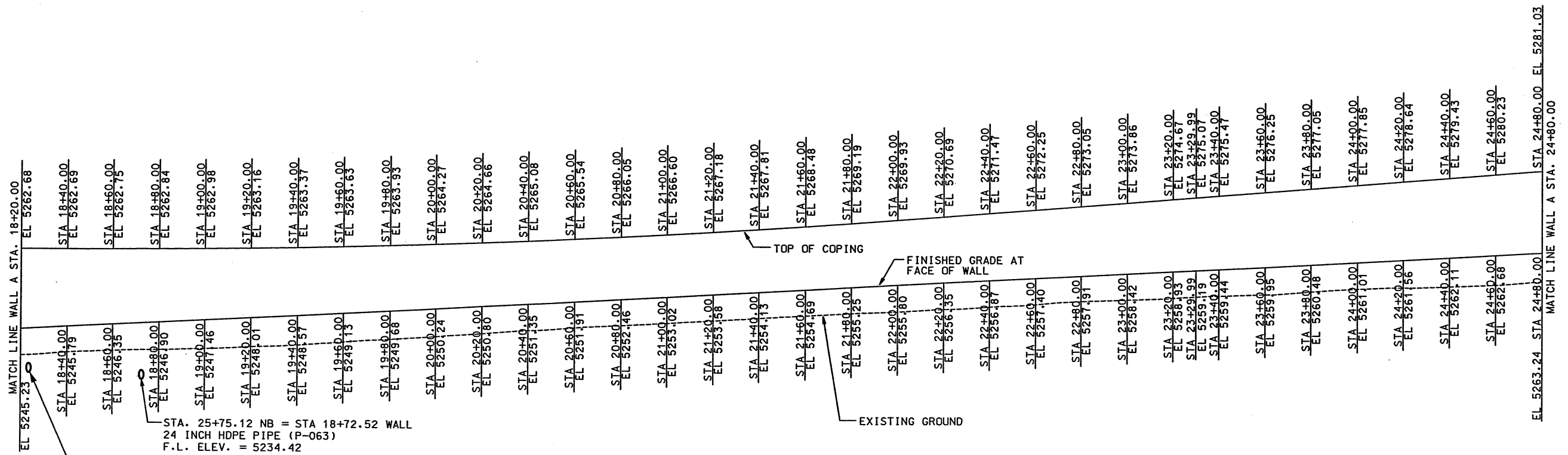
DEVELOPED ELEVATION

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION	
MSE RETAINING WALL R-419A		STRUCTURES	
SITUATION AND LAYOUT		PB PARSONS BRINKERHOFF	
PROJECT NUMBER	*NH-0189 (12) 14	DESIGN	DRM_04/03
		CHECK	WLS_04/03
		DRAWN	DRM_04/03
		CHECK	WLS_04/03
		QUANT.	DRM_04/03
		CHECK	STB_12/03
		NO.	
		DATE	
		BY	
		REVISIONS	
		REMARKS	
WASATCH COUNTY			
R-419A			
DRG. NO.			
SHT. 3 of 7			

C:\Users\j25277\Documents\2004\SR-189\Drawings\WALL\11-11-04.dwg



PLAN



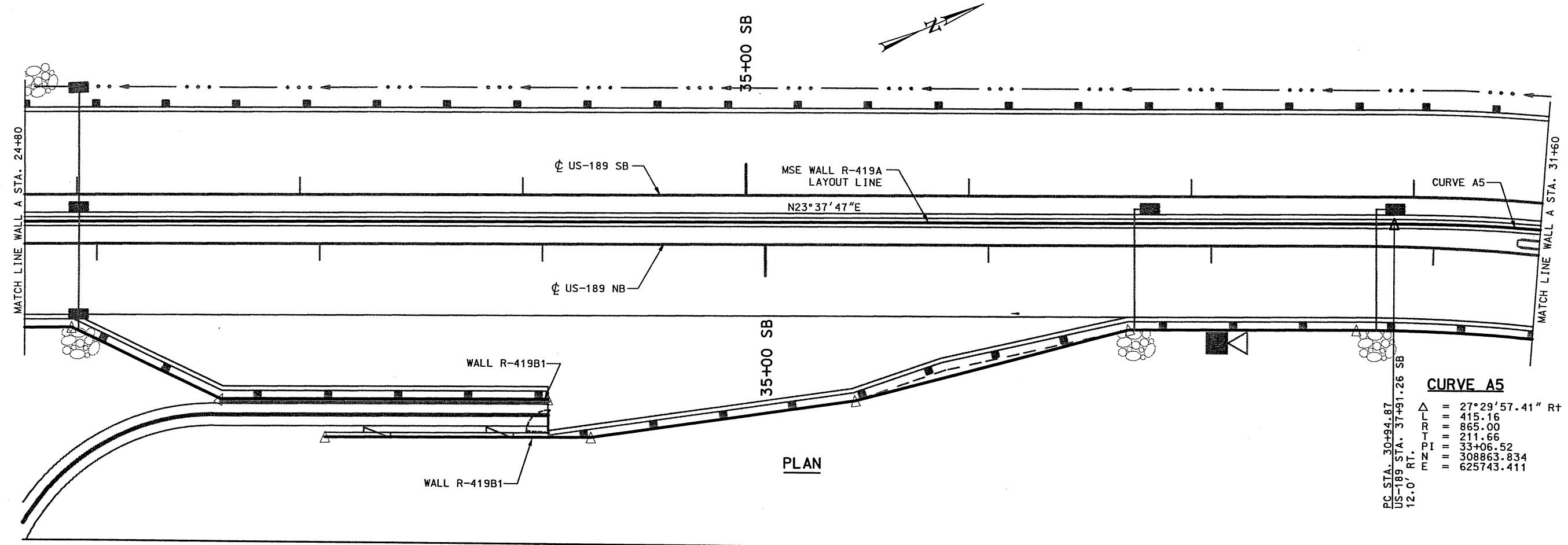
DEVELOPED ELEVATION

STA. 25+75.12 NB = STA 18+72.52 WALL
 24 INCH HDPE PIPE (P-063)
 F.L. ELEV. = 5234.42

STA. 25+16.92 NB = STA 18+23.51 WALL
 36 INCH HDPE PIPE (P-044A)
 F.L. ELEV. = 5235.77

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION			
MSE RETAINING WALL R-419A		STRUCTURES			
SITUATION AND LAYOUT		PARSONS BRINCKERHOFF			
APPROVED BY: <i>[Signature]</i>	DATE: 3/16/04	DESIGN: DRM_04/03	CHECK: WLS_04/03	DESIGN: DRM_04/03	CHECK: WLS_04/03
PROJECT NUMBER: *NH-0189 (12) 14		DRAWN: DRM_04/03	CHECK: WLS_04/03	WANT: DRM_04/03	CHECK: STB_12/03
WASATCH COUNTY	R-419A	REVISIONS			
DRG. NO.		NO.			
		DATE			
		BY			
		REMARKS			
SHT. 4 of 7					

02/15/2004



Station	Top of Coping Elevation	Finished Grade at Face of Wall Elevation	Existing Ground Elevation
STA 25+00.00	EL 5281.82	EL 5263.80	
STA 25+20.00	EL 5282.61	EL 5264.36	
STA 25+40.00	EL 5283.41	EL 5264.93	
STA 25+60.00	EL 5284.18	EL 5265.49	
STA 25+80.00	EL 5284.95	EL 5266.02	
STA 26+00.00	EL 5285.70	EL 5266.50	
STA 26+20.00	EL 5286.43	EL 5267.95	
STA 26+40.00	EL 5287.17	EL 5267.36	
STA 26+60.00	EL 5287.91	EL 5267.73	
STA 26+80.00	EL 5288.64	EL 5268.07	
STA 27+00.00	EL 5289.36	EL 5268.36	
STA 27+20.00	EL 5290.05	EL 5268.61	
STA 27+40.00	EL 5290.70	EL 5268.82	
STA 27+60.00	EL 5291.31	EL 5269.00	
STA 27+80.00	EL 5291.90	EL 5269.15	
STA 28+00.00	EL 5292.45	EL 5269.22	
STA 28+20.00	EL 5292.96	EL 5269.28	
STA 28+40.00	EL 5293.44	EL 5269.30	
STA 28+60.00	EL 5293.87	EL 5269.27	
STA 28+80.00	EL 5294.25	EL 5269.21	
STA 29+00.00	EL 5294.58	EL 5269.11	
STA 29+20.00	EL 5294.87	EL 5269.97	
STA 29+40.00	EL 5295.13	EL 5268.79	
STA 29+60.00	EL 5295.35	EL 5268.57	
STA 29+80.00	EL 5295.55	EL 5268.31	
STA 30+00.00	EL 5295.70	EL 5268.05	
STA 30+20.00	EL 5295.82	EL 5267.81	
STA 30+40.00	EL 5295.92	EL 5267.57	
STA 30+60.00	EL 5296.01	EL 5267.36	
STA 30+80.00	EL 5296.11	EL 5267.14	
STA 30+94.87	EL 5296.17	EL 5266.98	
STA 31+00.00	EL 5296.20	EL 5266.93	
STA 31+20.00	EL 5296.29	EL 5266.74	
STA 31+40.00	EL 5296.38	EL 5266.55	
STA 31+60.00	EL 5296.40	EL 5266.40	

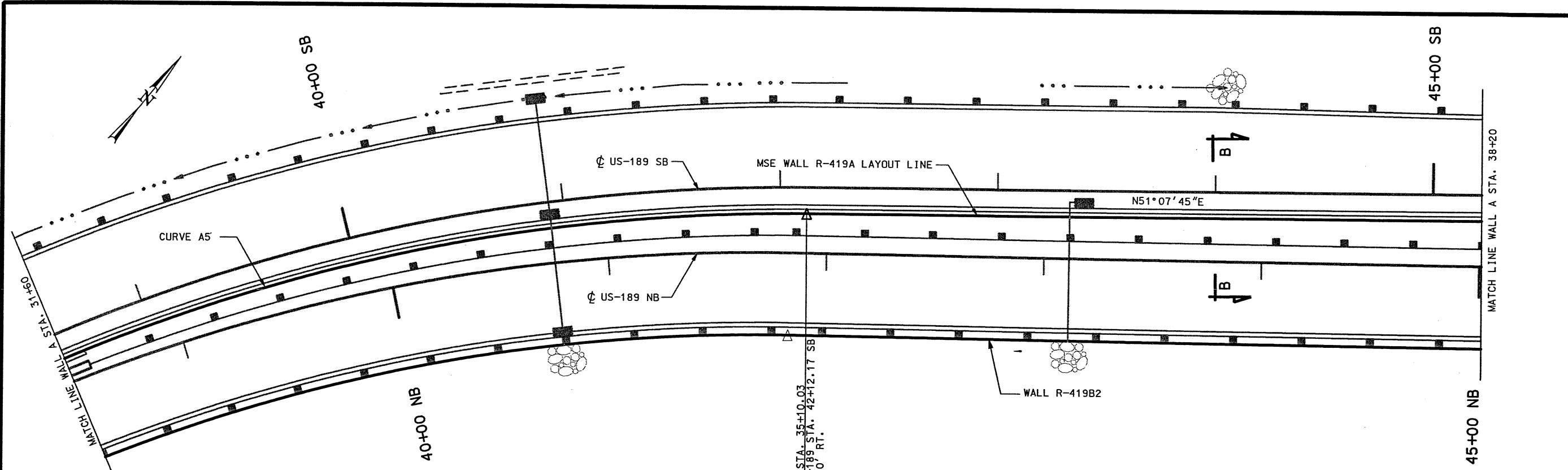
STA. 31+92.00 NB = STA 25+04.49 WALL
24 INCH HDPE PIPE (P-041)
F.L. ELEV. = 5258.47

EXISTING GROUND
STA. 36+72.83 NB = STA 29+78.01 WALL
24 INCH HDPE PIPE (P-039)
F.L. ELEV. = 5262.76

STA. 37+82.45 NB = STA 30+86.61 WALL
24 INCH HDPE PIPE (P-064)
F.L. ELEV. = 5261.13

DEVELOPED ELEVATION

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION	
MSE RETAINING WALL R-419A		STRUCTURES	
SITUATION AND LAYOUT		PARSONS BRINCKERHOFF	
PROJECT NUMBER	*NH-0189 (12) 14	DESIGN ORM	04/03
		CHECK WLS	04/03
		DRAIN ORM	04/03
		CHECK WLS	04/03
		QUANT. ORM	04/03
		CHECK STB	12/03
		NO.	BY
		DATE	
		REVISIONS	



CURVE A5
 △ P = 27° 29' 57.41" Rt
 L = 415.16
 Δ = 865.00
 E = 211.66
 P1 = 33+06.52
 P2 = 308863.834
 M = 625743.411

PLAN

STA	ELEVATION	STA	ELEVATION
31+60.00	EL 5296.48	37+40.00	EL 5296.52
31+80.00	EL 5296.59	37+60.00	EL 5296.27
32+00.00	EL 5296.71	37+80.00	EL 5296.02
32+20.00	EL 5296.84	38+00.00	EL 5295.76
32+40.00	EL 5296.99	38+20.00	EL 5295.51
32+60.00	EL 5297.14		
32+80.00	EL 5297.30		
33+00.00	EL 5297.45		
33+20.00	EL 5297.60		
33+40.00	EL 5297.75		
33+60.00	EL 5297.91		
33+80.00	EL 5298.06		
34+00.00	EL 5298.22		
34+20.00	EL 5298.39		
34+40.00	EL 5298.56		
34+60.00	EL 5298.68		
34+80.00	EL 5298.76		
35+00.00	EL 5298.88		
35+10.03	EL 5298.79		
35+20.00	EL 5298.79		
35+40.00	EL 5298.76		
35+60.00	EL 5298.72		
35+80.00	EL 5298.62		
36+00.00	EL 5298.47		
36+20.00	EL 5298.04		
36+40.00	EL 5297.79		
36+60.00	EL 5297.54		
36+80.00	EL 5297.28		
37+00.00	EL 5297.03		
37+20.00	EL 5296.78		
37+40.00	EL 5296.52		
37+60.00	EL 5296.27		
37+80.00	EL 5296.02		
38+00.00	EL 5295.76		

PT. STA. 35+10.03
US-189 STA. 42+12.17 SB
12.0' RT.

DEVELOPED ELEVATION

MATCH LINE WALL A STA. 31+60.00 EL 5266.36	EL 5266.16 STA 31+80.00	EL 5265.94 STA 32+00.00	EL 5265.72 STA 32+20.00	EL 5265.48 STA 32+40.00	EL 5265.25 STA 32+60.00	EL 5265.03 STA 32+80.00	EL 5264.84 STA 33+00.00	EL 5264.71 STA 33+20.00	EL 5264.61 STA 33+40.00	EL 5264.55 STA 33+60.00	EL 5264.51 STA 33+80.00	EL 5264.50 STA 34+00.00	EL 5264.52 STA 34+20.00	EL 5264.57 STA 34+40.00	EL 5264.65 STA 34+60.00	EL 5264.77 STA 35+00.00	EL 5264.84 STA 35+10.03	EL 5264.84 STA 35+20.00	EL 5264.92 STA 35+40.00	EL 5265.15 STA 35+60.00	EL 5265.38 STA 35+80.00	EL 5265.69 STA 36+00.00	EL 5266.08 STA 36+20.00	EL 5266.51 STA 36+40.00	EL 5266.99 STA 36+60.00	EL 5267.5 STA 36+80.00	EL 5268.07 STA 37+00.00	EL 5268.67 STA 37+20.00	EL 5269.27 STA 37+40.00	EL 5269.90 STA 37+60.00	EL 5270.55 STA 37+80.00	EL 5271.21 STA 38+00.00	EL 5271.92 STA 38+20.00	MATCH LINE WALL A STA. 38+20.00 EL 5295.51
---	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	---------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	---

STA. 40+75.62 NB = STA 33+92.80 WALL
24 INCH HDPE PIPE (P-037)
F.L. ELEV. = 5251.54

STA. 43+17.63 NB = STA 36+30.96 WALL
24 INCH HDPE PIPE (P-035)
F.L. ELEV. = 5259.22

UTAH DEPARTMENT OF TRANSPORTATION PARSONS BRINCKERHOFF STRUCTURES	DESIGN DRM. 04/03 CHECK M.L.S. 04/03 DRAWN DRM. 04/03 CHECK M.L.S. 04/03 QUANT. DRM. 04/03 CHECK STB. 12/03
SR-189 WILDWOOD TO DEER CREEK MSE RETAINING WALL R-419A SITUATION AND LAYOUT	PROJECT NUMBER *NH-0189 (12) 14
WASATCH COUNTY	R-419A DRG. NO.
SHT. 6 of 7	

STA 46.22.66 NB = STAT 39+20.52 WALL
 24 INCH HDPE PIPE (P-034A)
 F.L.L. ELEV. = 5272.13

Station	Top of Coping	Existing Ground
MATCH LINE WALL A STA. 38+20.00	EL 5295.51	
STA 38+40.00	EL 5273.41	EL 5274.15
STA 38+60.00	EL 5295.76	EL 5274.85
STA 38+80.00	EL 5295.00	EL 5274.89
STA 39+00.00	EL 5294.75	EL 5275.64
STA 39+20.00	EL 5294.49	EL 5276.38
STA 39+40.00	EL 5294.24	EL 5277.12
STA 39+60.00	EL 5293.99	EL 5277.86
STA 39+74.42	EL 5293.73	EL 5278.42
STA 39+74.42	EL 5293.73	EL 5278.42
STA 39+80.00	EL 5293.48	EL 5278.74
STA 40+00.00	EL 5293.23	EL 5279.41
STA 40+20.00	EL 5292.98	EL 5280.09
STA 40+40.00	EL 5292.73	EL 5280.79
STA 40+60.00	EL 5292.47	EL 5281.46
STA 40+80.00	EL 5292.20	EL 5282.12
STA 41+00.00	EL 5291.93	EL 5282.76
STA 41+20.00	EL 5291.65	EL 5283.36
STA 41+40.00	EL 5291.35	EL 5283.92
STA 41+60.00	EL 5291.06	EL 5284.43
STA 41+80.00	EL 5290.77	EL 5284.89
STA 42+00.00	EL 5290.47	EL 5285.32
STA 42+20.00	EL 5290.18	EL 5285.70
STA 42+40.00	EL 5289.89	EL 5286.04
STA 42+60.00	EL 5289.60	EL 5286.46
END WALL A STA. 42+76.67	EL 5289.35	

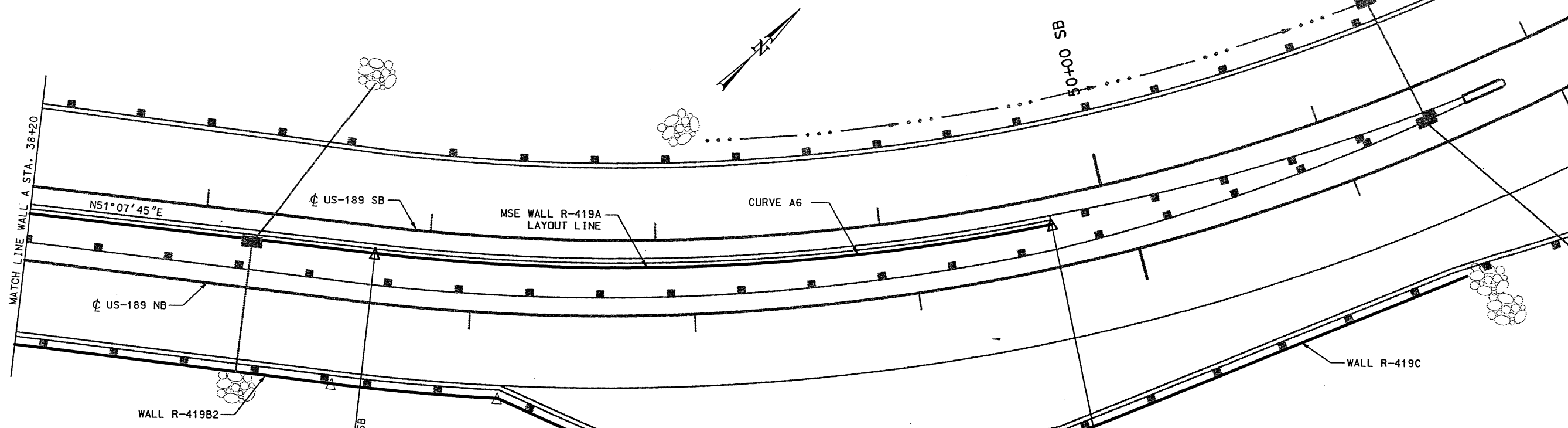
CURVE A6

Δ	=	18°13'45.51" Lt
P	=	302.25
T	=	950.00
R	=	152.41
M	=	41+26.83
E	=	309383.751
N	=	626388.420

PC STA. 39+74.42
 US-189 STA. 46+76.56 SB
 12.0' RT.

END WALL A STA. 42+76.67
 US-189 STA. 49+75.00 SB
 12.0' RT.

PLAN



UTAH DEPARTMENT OF TRANSPORTATION
STRUCTURES
PARSONS BRINCKERHOFF

SR-189 WILDWOOD TO DEER CREEK
 MSE RETAINING WALL R-419A
 SITUATION AND LAYOUT
 PROJECT NUMBER *NH-0189 (12) 14

APPROVAL: *[Signature]* DATE: *[Date]*
 PREPARED BY: *[Name]* FOR USE: *[Date]*
 CHECKED BY: *[Name]* DATE: *[Date]*

DESIGN	DRM	DRM	QUANT.	DRM	DRM	DRM	DRM	DRM
WLS	04/03	04/03	04/03	04/03	04/03	04/03	04/03	04/03
CHECK	WLS	04/03	CHECK	WLS	04/03	CHECK	WLS	04/03

REVISIONS: _____

NO. _____ DATE _____ BY _____

REMARKS: _____

WASATCH COUNTY
 R-419A
 DRG. NO.
 SHT. 7 of 7

GENERAL NOTES

- USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
- CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
- PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
- USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
- SEE DRAINAGE DRAWINGS FOR PIPE DETAILS
- USE MODULAR BLOCK WALL THAT MATCHES EXISTING WALLS ALONG THE PROVO RIVER.
- ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
- MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
- EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

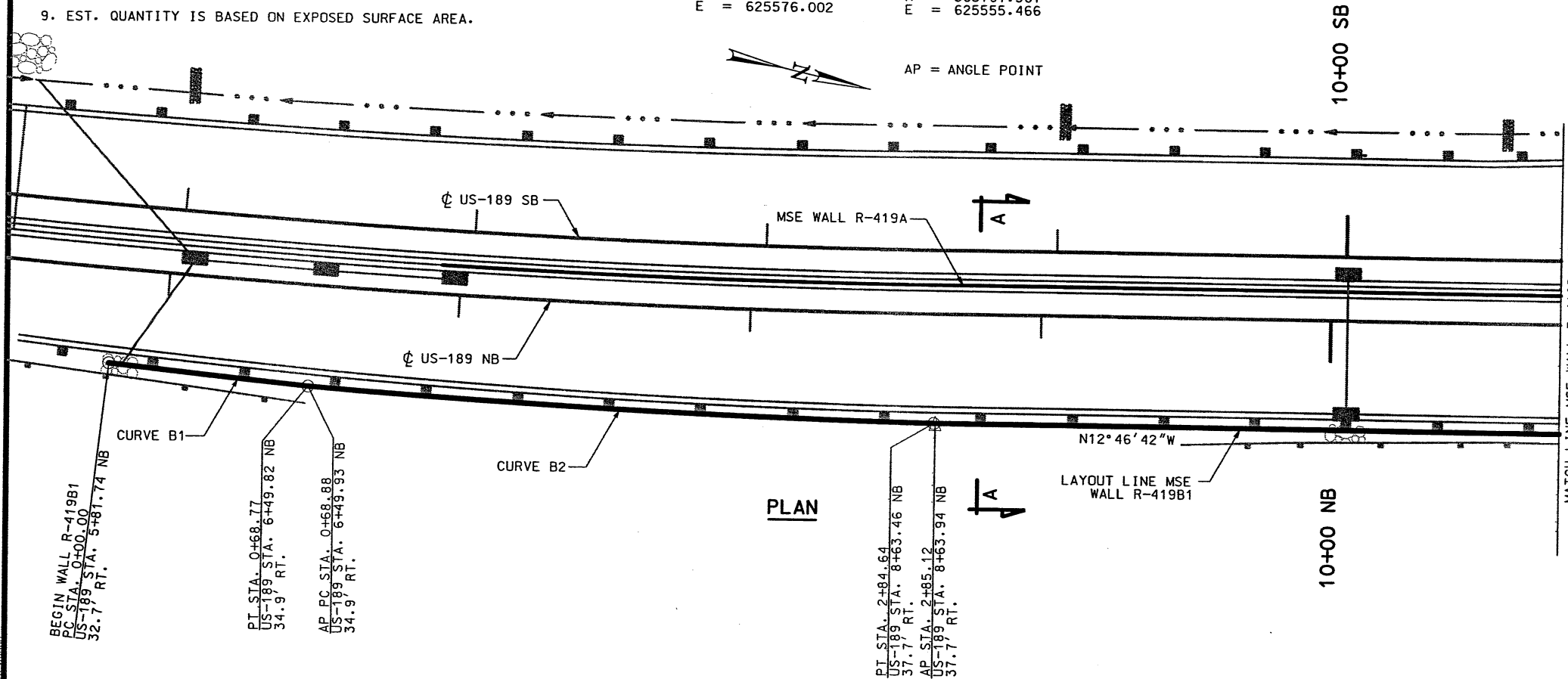
HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
 CAST-IN-PLACE CONCRETE: Fc = 1400 PSI
 Fs = 24,000 PSI, n=8
 DESIGN SPEED: = 50 M.P.H.

CURVE B1-1

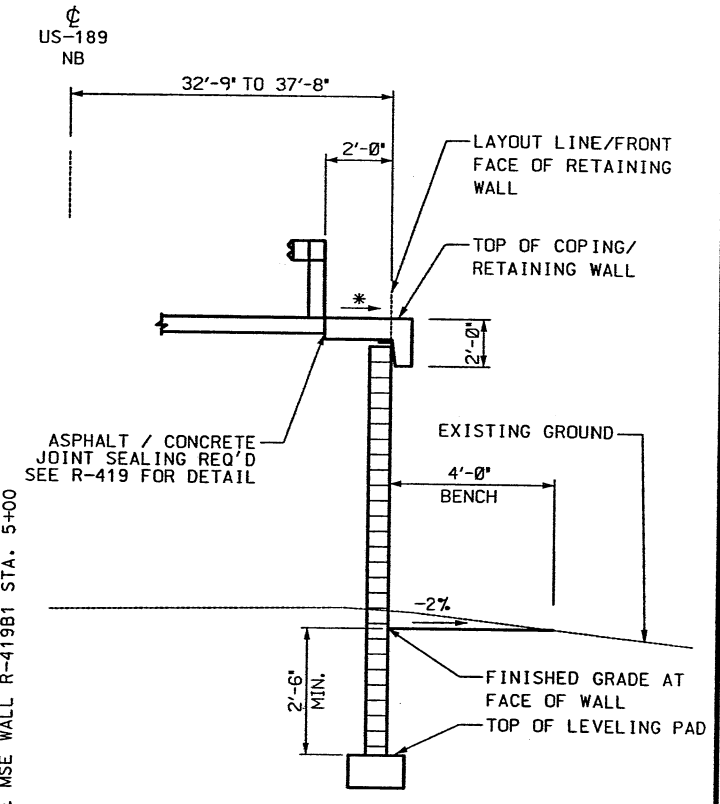
Δ = 1°06'55.58" L+
 L = 68.77
 R = 3532.39
 T = 34.39
 PI = 0+34.39
 N = 305620.392
 E = 625576.002

CURVE B1-2

Δ = 3°29'10.43" L+
 L = 215.76
 R = 3545.95
 T = 107.91
 PI = 1+76.79
 N = 305761.307
 E = 625555.466



PLAN



SECTION A-A

STA. 0+00.00 TO STA. 28+07.01

* MATCH CROSS-SLOPE OF US-189

STA.	EXISTING GROUND	FINISHED GRADE AT FACE OF WALL	TOP OF COPING
BEGIN WALL B STA. 0+00.00	EL 5223.67		
STA. 0+20.00	EL 5224.19		
STA. 0+40.00	EL 5224.33		
STA. 0+60.00	EL 5224.53		
STA. 0+80.00	EL 5224.77		
STA. 1+00.00	EL 5224.98		
STA. 1+20.00	EL 5224.32		
STA. 1+40.00	EL 5224.45		
STA. 1+60.00	EL 5224.84		
STA. 1+80.00	EL 5224.83		
STA. 2+00.00	EL 5224.13		
STA. 2+20.00	EL 5225.01		
STA. 2+40.00	EL 5225.07		
STA. 2+60.00	EL 5225.05		
STA. 2+80.00	EL 5224.91		
STA. 3+00.00	EL 5224.84		
STA. 3+20.00	EL 5224.65		
STA. 3+40.00	EL 5224.77		
STA. 3+60.00	EL 5224.80		
STA. 3+80.00	EL 5224.49		
STA. 4+00.00	EL 5224.97		
STA. 4+20.00	EL 5223.88		
STA. 4+40.00	EL 5224.00		
STA. 4+60.00	EL 5223.97		
STA. 4+80.00	EL 5223.88		
STA. 5+00.00	EL 5224.00		

DEVELOPED ELEVATION

STA. 10+05.70 NB = STA 4+26.88 WALL 24 INCH HDPE PIPE (P-054) F.L. ELEV. = 5224.36



QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL B1 (EST. EXPOSED FACE 20,650 SF.)	1	LUMP	

UTAH DEPARTMENT OF TRANSPORTATION
STRUCTURES
 SR-189 WILWOOD TO DEER CREEK
 MSE RETAINING WALL R-419B1
 SITUATION AND LAYOUT
 PROJECT NUMBER *NH-0189 (12) 14

DESIGN: WLS_04/03
 CHECK: WLS_04/03
 DRAWN: WLS_04/03
 CHECK: WLS_04/03
 QUANT.: DRM_04/03
 CHECK: STB_12/03

APPROVAL: 3/1/04
 FOR USE: [Signature]
 DATE: 3/1/04
 BY: [Signature]
 TITLE: [Signature]

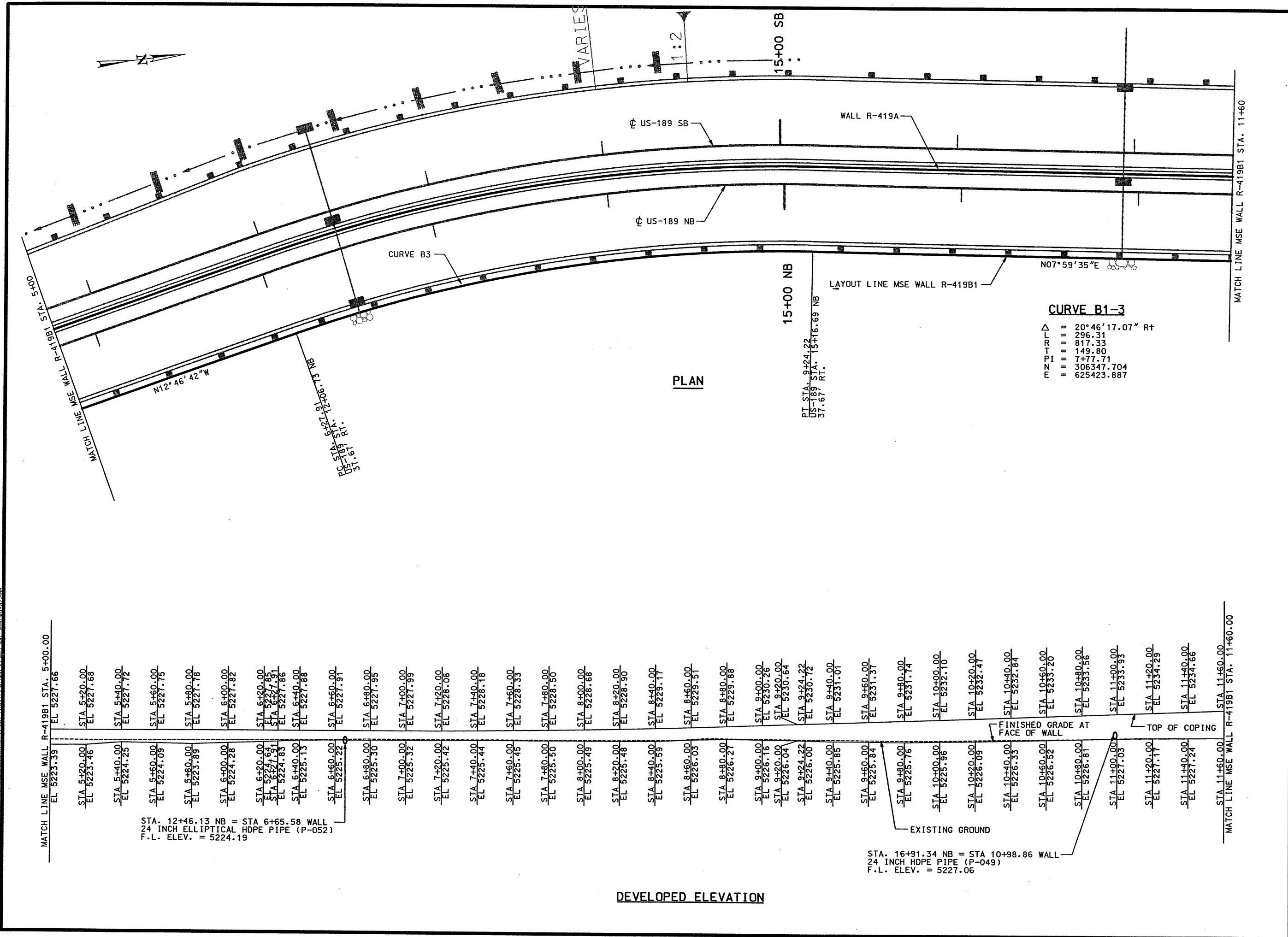
REVISIONS

NO. DATE BY

WASATCH COUNTY
 R-419B1
 DRG. NO.

SHT. 1 of 5

D:\Projects\228777 - new - 04/03\11160\11160.dwg



CURVE B1-3

Δ		20° 46' 17.07" Rt
Γ		296.31
Γ		817.33
Γ		149.80
Γ		7+77.71
Π		306347.704
Π		625423.887

Station	Developed Elevation	Existing Ground	Top of Coping
MATCH LINE MSE WALL R-419B1 STA. 5+00.00	EL 5223.39		
STA 5+20.00	EL 5223.46		
STA 5+40.00	EL 5224.25		
STA 5+60.00	EL 5224.09		
STA 5+80.00	EL 5225.89		
STA 6+00.00	EL 5224.28		
STA 6+20.00	EL 5224.83		
STA 6+40.00	EL 5225.13		
STA 6+60.00	EL 5225.22		
STA 6+80.00	EL 5225.30		
STA 7+00.00	EL 5225.32		
STA 7+20.00	EL 5225.42		
STA 7+40.00	EL 5225.44		
STA 7+60.00	EL 5225.45		
STA 7+80.00	EL 5225.50		
STA 8+00.00	EL 5225.49		
STA 8+20.00	EL 5225.48		
STA 8+40.00	EL 5225.59		
STA 8+60.00	EL 5226.03		
STA 8+80.00	EL 5226.27		
STA 9+00.00	EL 5226.16		
STA 9+20.00	EL 5226.04		
STA 9+40.00	EL 5226.00		
STA 9+60.00	EL 5225.84		
STA 9+80.00	EL 5225.76		
STA 10+00.00	EL 5225.96		
STA 10+20.00	EL 5226.09		
STA 10+40.00	EL 5226.33		
STA 10+60.00	EL 5226.52		
STA 10+80.00	EL 5226.81		
STA 11+00.00	EL 5227.03		
STA 11+20.00	EL 5227.17		
STA 11+40.00	EL 5227.24		
STA 11+60.00	EL 5227.39		
MATCH LINE MSE WALL R-419B1 STA. 11+60.00			

STA. 12+46.13 NB = STA 6+65.58 WALL
24 INCH ELLIPTICAL HDPE PIPE (P-052)
F.L. ELEV. = 5224.19

STA. 16+91.34 NB = STA 10+98.86 WALL
24 INCH HDPE PIPE (P-049)
F.L. ELEV. = 5227.06

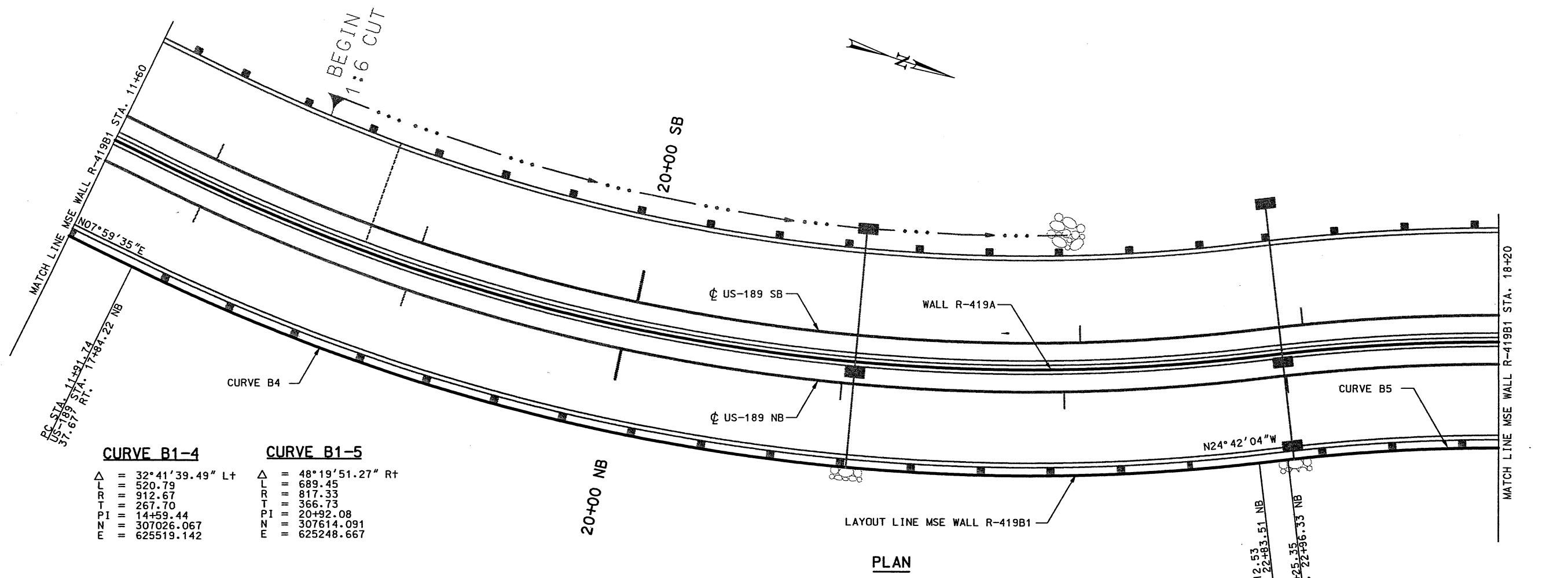
DEVELOPED ELEVATION

UTAH DEPARTMENT OF TRANSPORTATION	
STRUCTURES	PB PARSONS BRINKERHOFF
APPROVED RECORD DATE: 2/18/04	DESIGN GRM: 04/03 CHECK: NLS: 04/03
APPROVED BY: [Signature]	DRAWN GRM: 04/03 CHECK: NLS: 04/03
PROJECT NUMBER: *NH-0189 (12) 14	QUANT. GRM: 04/03 CHECK: STB: 12/03
REVISIONS	
NO.	DATE
BY	REMARKS

P:\Projects\22677A_msc\csm\03\487_04\sheet_1.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_2.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_3.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_4.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_5.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_6.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_7.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_8.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_9.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_10.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_11.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_12.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_13.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_14.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_15.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_16.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_17.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_18.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_19.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_20.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_21.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_22.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_23.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_24.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_25.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_26.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_27.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_28.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_29.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_30.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_31.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_32.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_33.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_34.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_35.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_36.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_37.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_38.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_39.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_40.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_41.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_42.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_43.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_44.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_45.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_46.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_47.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_48.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_49.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_50.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_51.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_52.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_53.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_54.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_55.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_56.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_57.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_58.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_59.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_60.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_61.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_62.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_63.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_64.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_65.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_66.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_67.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_68.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_69.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_70.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_71.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_72.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_73.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_74.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_75.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_76.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_77.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_78.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_79.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_80.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_81.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_82.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_83.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_84.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_85.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_86.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_87.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_88.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_89.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_90.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_91.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_92.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_93.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_94.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_95.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_96.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_97.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_98.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_99.dwg
 P:\Projects\22677A_msc\csm\03\487_04\sheet_100.dwg

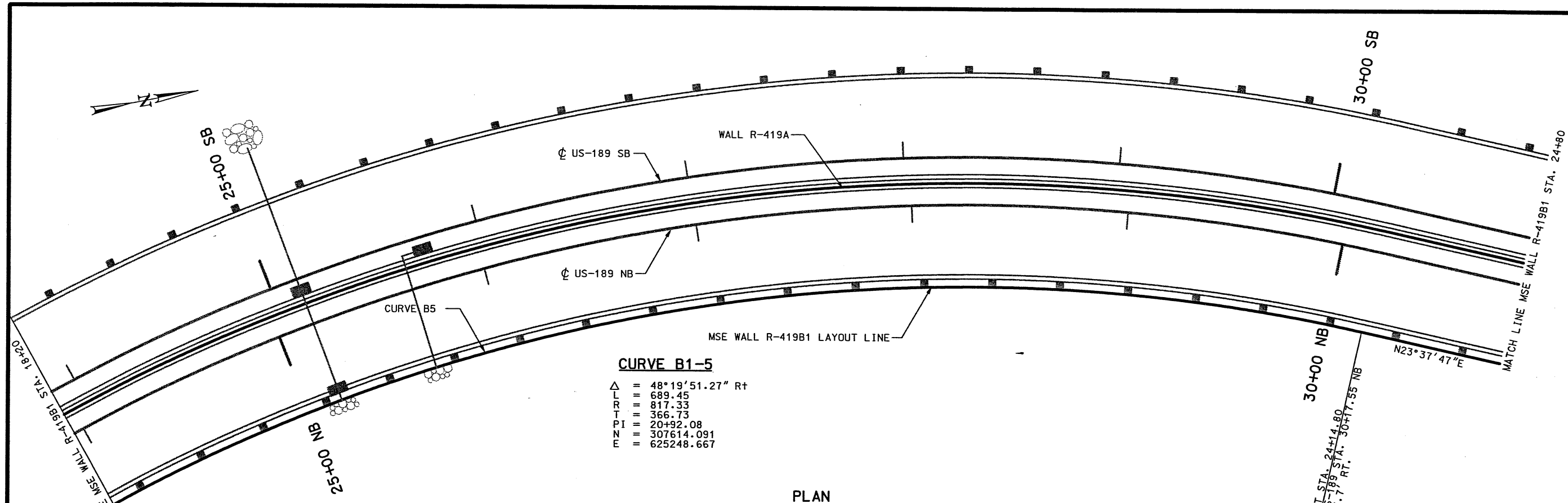
MATCH LINE MSE WALL R-419B1 STA. 11+60.00		MATCH LINE MSE WALL R-419B1 STA. 18+20.00	
EL 5237.33	STA 11+80.00 EL 5227.56	STA 18+00.00 EL 5239.06	STA 18+20.00 EL 5234.23
STA 11+91.74 EL 5235.60	STA 12+20.00 EL 5227.88	STA 17+40.00 EL 5238.92	
STA 12+40.00 EL 5228.26	STA 12+40.00 EL 5228.44	STA 17+80.00 EL 5238.96	
STA 12+60.00 EL 5228.43	STA 12+60.00 EL 5228.80	STA 18+00.00 EL 5239.06	
STA 12+80.00 EL 5228.51	STA 12+80.00 EL 5229.10		
STA 13+00.00 EL 5228.73	STA 13+00.00 EL 5229.36		
STA 13+20.00 EL 5229.05	STA 13+20.00 EL 5229.57		
STA 13+40.00 EL 5229.29	STA 13+40.00 EL 5229.74		
STA 13+60.00 EL 5229.57	STA 13+60.00 EL 5229.90		
STA 13+80.00 EL 5229.44	STA 13+80.00 EL 5230.06		
STA 14+00.00 EL 5229.79	STA 14+00.00 EL 5230.23		
STA 14+20.00 EL 5230.08	STA 14+20.00 EL 5230.39		
STA 14+40.00 EL 5230.35	STA 14+40.00 EL 5230.55		
STA 14+60.00 EL 5230.76	STA 14+60.00 EL 5230.71		
STA 14+80.00 EL 5231.34	STA 14+80.00 EL 5230.87		
STA 15+00.00 EL 5231.76	STA 15+00.00 EL 5230.93		
STA 15+20.00 EL 5231.93	STA 15+20.00 EL 5231.19		
STA 15+40.00 EL 5232.17	STA 15+40.00 EL 5231.36		
STA 15+60.00 EL 5231.88	STA 15+60.00 EL 5231.52		
STA 15+80.00 EL 5231.09	STA 15+80.00 EL 5231.65		
STA 16+00.00 EL 5230.95	STA 16+00.00 EL 5231.68		
STA 16+20.00 EL 5230.40	STA 16+20.00 EL 5231.61		
STA 16+40.00 EL 5230.37	STA 16+40.00 EL 5231.48		
STA 16+60.00 EL 5230.59	STA 16+60.00 EL 5231.30		
STA 16+80.00 EL 5230.85	STA 16+80.00 EL 5231.15		
STA 17+00.00 EL 5232.30	STA 17+00.00 EL 5231.04		
STA 17+12.53 EL 5232.61	STA 17+12.53 EL 5230.99		
STA 17+20.00 EL 5232.80	STA 17+20.00 EL 5230.96		
STA 17+25.35 EL 5232.81	STA 17+25.35 EL 5230.95		
STA 17+40.00 EL 5232.85	STA 17+40.00 EL 5230.92		
STA 17+60.00 EL 5234.01	STA 17+60.00 EL 5230.92		
STA 17+80.00 EL 5234.78	STA 17+80.00 EL 5230.96		
STA 18+00.00 EL 5234.23	STA 18+00.00 EL 5239.06		
STA 18+20.00 EL 5234.23	STA 18+20.00 EL 5239.06		

CURVE B1-4		CURVE B1-5	
Δ	32° 41' 39.49" Lt	Δ	48° 19' 51.27" Rt
L	520.79	L	689.45
R	912.67	R	817.33
T	267.70	T	366.73
P	14+59.44	P	20+92.08
Z	307026.067	Z	307614.091
E	625519.142	E	625248.667



PLAN

UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	DRM_04/03	CHECK	WLS_04/03
STRUCTURES		DRAWN	DRM_04/03	CHECK	WLS_04/03
SR-189 WILDWOOD TO DEER CREEK		QUANT.	DRM_04/03	CHECK	STB_12/03
MSE RETAINING WALL R-419B		REVISIONS			
SITUATION AND LAYOUT		NO.	DATE	BY	REMARKS
PROJECT NUMBER	*NH-0189 (12) 14				
WASATCH COUNTY		APPROVED			
R-419B1		DATE			
DRG. NO.		BY			
SHT. 3 of 5		DATE			



CURVE B1-5
 Δ = 48°19'51.27" Rt
 LR = 689.45
 RT = 817.33
 PI = 366.73
 PN = 20+92.08
 EN = 307614.091
 E = 625248.667

PLAN

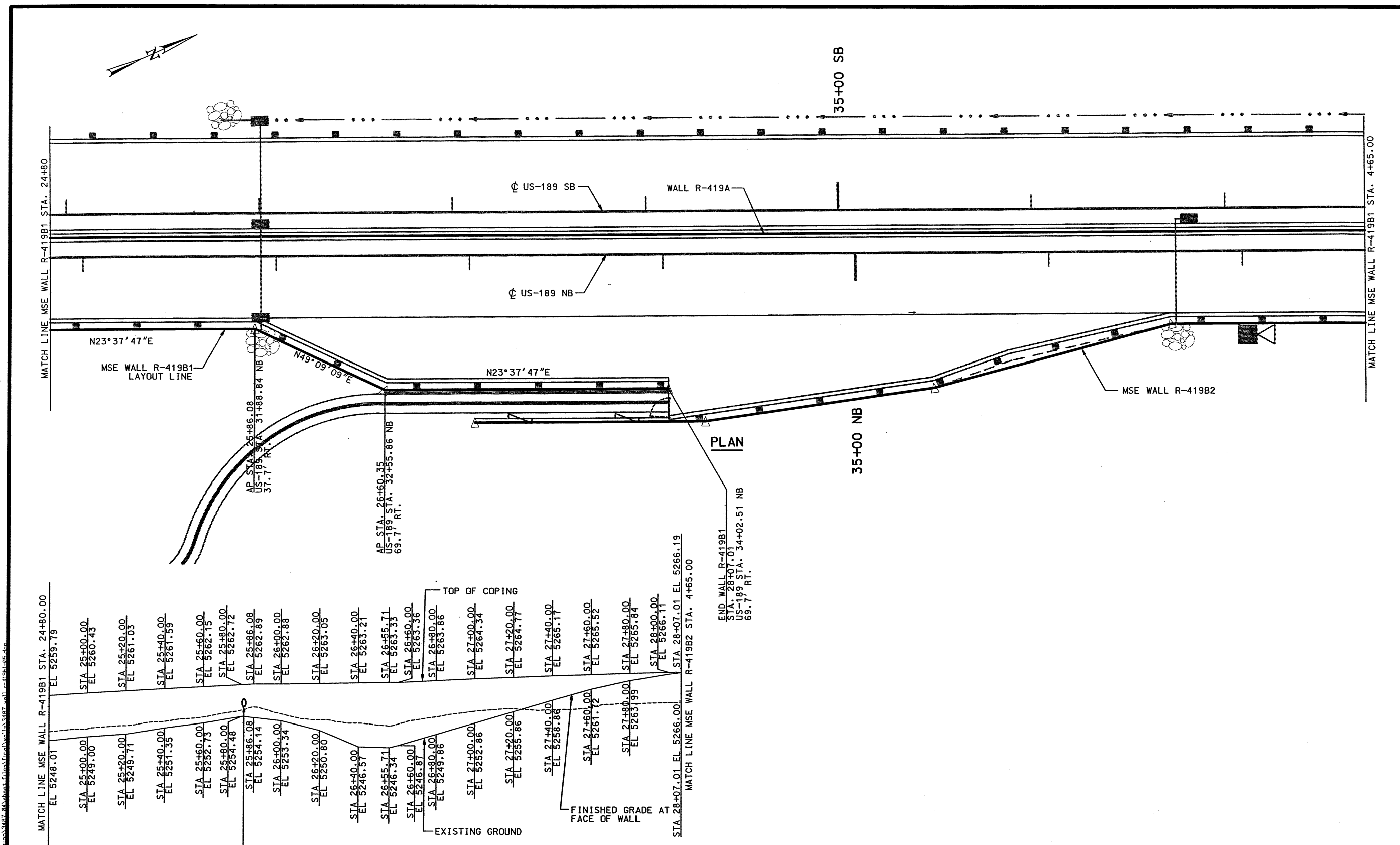
Station	Existing Ground Elevation	Top of Coping Elevation	Finished Grade at Face of Wall Elevation
STA. 18+40.00	EL 5232.22	EL 5239.71	EL 5239.71
STA. 18+60.00	EL 5231.66	EL 5240.23	EL 5240.23
STA. 18+80.00	EL 5231.23	EL 5240.82	EL 5240.82
STA. 19+00.00	EL 5231.29	EL 5241.41	EL 5241.41
STA. 19+20.00	EL 5231.07	EL 5241.99	EL 5241.99
STA. 19+40.00	EL 5230.97	EL 5242.58	EL 5242.58
STA. 19+60.00	EL 5231.72	EL 5243.17	EL 5243.17
STA. 19+80.00	EL 5233.11	EL 5243.76	EL 5243.76
STA. 20+00.00	EL 5233.14	EL 5244.35	EL 5244.35
STA. 20+20.00	EL 5231.17	EL 5244.94	EL 5244.94
STA. 20+40.00	EL 5230.49	EL 5245.53	EL 5245.53
STA. 20+60.00	EL 5230.24	EL 5246.11	EL 5246.11
STA. 20+80.00	EL 5230.12	EL 5246.70	EL 5246.70
STA. 21+00.00	EL 5230.87	EL 5247.29	EL 5247.29
STA. 21+20.00	EL 5231.96	EL 5247.88	EL 5247.88
STA. 21+40.00	EL 5233.30	EL 5248.47	EL 5248.47
STA. 21+60.00	EL 5234.07	EL 5249.06	EL 5249.06
STA. 21+80.00	EL 5234.76	EL 5249.65	EL 5249.65
STA. 22+00.00	EL 5235.78	EL 5250.24	EL 5250.24
STA. 22+20.00	EL 5237.09	EL 5250.82	EL 5250.82
STA. 22+40.00	EL 5237.94	EL 5251.41	EL 5251.41
STA. 22+60.00	EL 5238.73	EL 5252.00	EL 5252.00
STA. 22+80.00	EL 5239.68	EL 5252.59	EL 5252.59
STA. 23+00.00	EL 5241.00	EL 5253.20	EL 5253.20
STA. 23+20.00	EL 5242.36	EL 5253.85	EL 5253.85
STA. 23+40.00	EL 5243.38	EL 5254.56	EL 5254.56
STA. 23+60.00	EL 5244.24	EL 5255.31	EL 5255.31
STA. 23+80.00	EL 5245.03	EL 5256.08	EL 5256.08
STA. 24+00.00	EL 5245.68	EL 5256.86	EL 5256.86
STA. 24+14.80	EL 5246.20	EL 5257.44	EL 5257.44
STA. 24+20.00	EL 5246.38	EL 5257.63	EL 5257.63
STA. 24+40.00	EL 5246.52	EL 5258.38	EL 5258.38
STA. 24+60.00	EL 5246.72	EL 5259.11	EL 5259.11
STA. 24+80.00	EL 5246.72	EL 5259.11	EL 5259.11

STA. 25+16.92 NB = STA 19+36.22 WALL
 36 INCH HDPE PIPE (P-044B)
 F.L. ELEV. = 5232.68

STA. 25+65.37 NB = STA 19+82.54 WALL
 24 INCH HDPE PIPE (P-063)
 F.L. ELEV. = 5234.25

DEVELOPED ELEVATION

UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	DRM	04/03	CHECK	WLS	04/03
STRUCTURES		DRAWN	DRM	04/03	CHECK	WLS	04/03
SR-189 WILDWOOD TO DEER CREEK		APPROVAL	DATE	BY	DATE	NO.	REVISIONS
MSE RETAINING WALL R-419B		APPROVED BY: <i>[Signature]</i> DATE: 3/16/04 APPROVED BY: <i>[Signature]</i> DATE: 3/16/04					
SITUATION AND LAYOUT		PROJECT NUMBER: *NH-0189 (12) 14					
WASATCH COUNTY		SHT. 4 of 5					
R-419B1		DRG. NO.					



PLAN

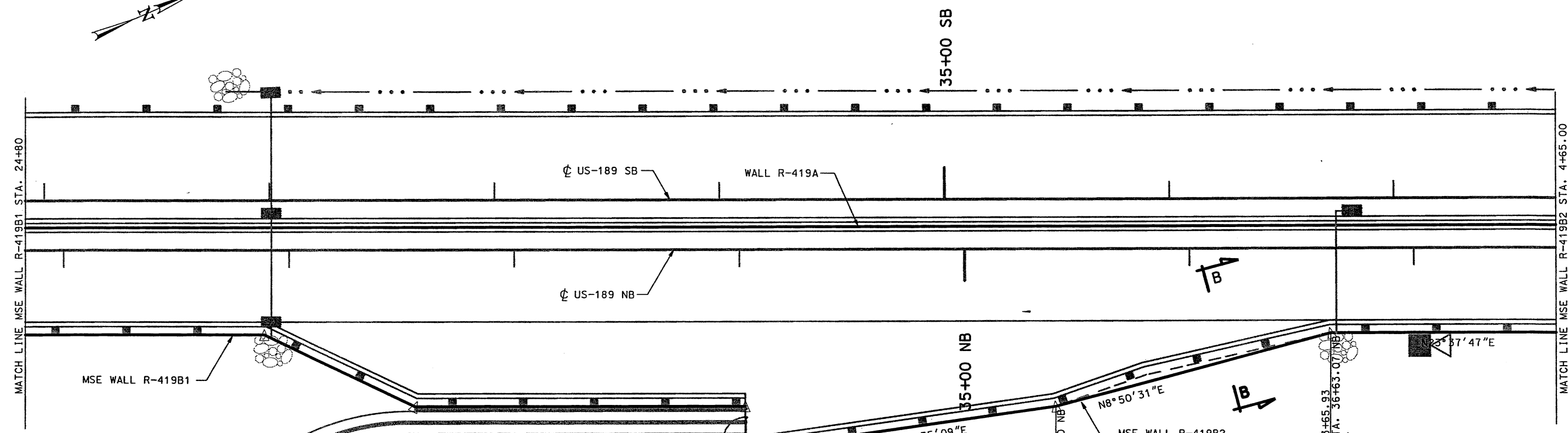
STA. 31+92.00 NB = STA 25+89.08 WALL
 24 INCH HDPE PIPE (P-042)
 T.L. ELEV. = 5256.98

DEVELOPED ELEVATION

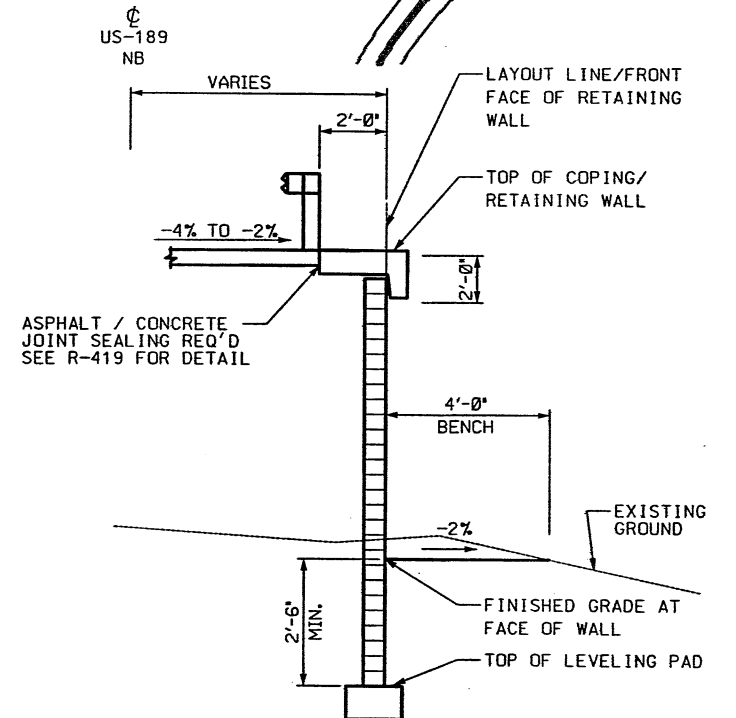
Station	Existing Ground Elevation	Top of Coping Elevation
STA 24+80.00	EL 5248.01	EL 5259.79
STA 25+00.00	EL 5249.00	EL 5260.43
STA 25+20.00	EL 5249.71	EL 5261.03
STA 25+40.00	EL 5251.35	EL 5261.59
STA 25+60.00	EL 5252.73	EL 5262.15
STA 25+80.00	EL 5254.48	EL 5262.72
STA 25+86.08	EL 5254.14	EL 5262.89
STA 26+00.00	EL 5255.34	EL 5262.88
STA 26+20.00	EL 5250.80	EL 5263.05
STA 26+40.00	EL 5246.57	EL 5263.21
STA 26+55.71	EL 5246.34	EL 5263.33
STA 26+60.00	EL 5246.87	EL 5263.36
STA 26+80.00	EL 5249.86	EL 5263.86
STA 27+00.00	EL 5252.86	EL 5264.34
STA 27+20.00	EL 5255.86	EL 5264.77
STA 27+40.00	EL 5258.86	EL 5265.17
STA 27+60.00	EL 5261.72	EL 5265.52
STA 27+80.00	EL 5263.99	EL 5265.84
STA 28+00.00	EL 5266.00	EL 5266.11
STA 28+07.01	EL 5266.00	EL 5266.19

END WALL R-419B1
 STA. 28+07.01
 US-189 STA. 34+02.51 NB
 69.7' RT.

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION	
MSE RETAINING WALL R-419B		STRUCTURES	
SITUATION AND LAYOUT		PARSONS BRINCKERHOFF	
PROJECT NUMBER	*NH-0189 (12) 14	DESIGN	DRM_04/03
		CHECK	WLS_04/03
		DRAWN	DRM_04/03
		CHECK	WLS_04/03
		QUANT.	DRM_04/03
		CHECK	STB_12/03
WASATCH COUNTY		REVISIONS	
R-419B1		NO.	
DRG. NO.		DATE	
SHT. 5 of 5		BY	
		REMARKS	



PLAN



SECTION B-B

STA. 0+00.00
TO STA. 14+53.74
* MATCH CROSS-SLOPE OF US-189

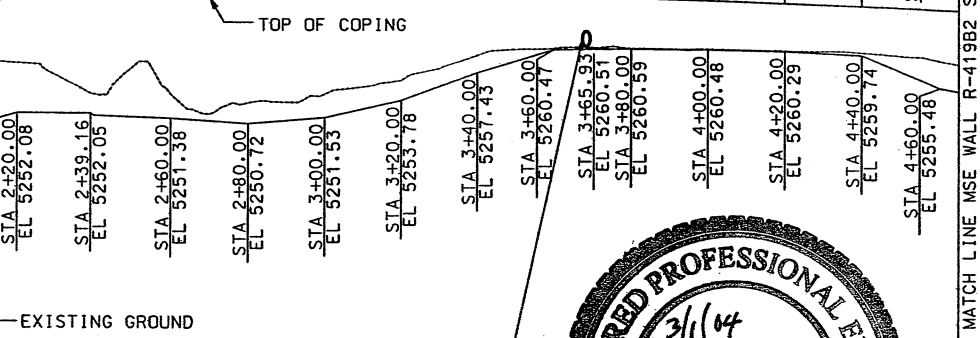
DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
CAST-IN-PLACE CONCRETE: $F_c = 1400$ PSI
 $F_s = 24,000$ PSI, $n=8$
DESIGN SPEED: = 50 M.P.H.

STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.
0+05.43	5250.85	0+20.00	5251.21	0+40.00	5251.31	0+60.00	5250.53	0+80.00	5249.71	1+00.00	5247.26	1+19.27	5248.47	1+40.00	5252.05
0+00.00	5253.57	0+20.00	5256.57	0+40.00	5259.57	0+60.00	5262.25	0+80.00	5264.30	1+00.00	5265.72	1+19.27	5265.73	1+40.00	5266.03
1+60.00	5266.30	1+80.00	5266.51	2+00.00	5266.69	2+20.00	5266.83	2+39.16	5266.93	2+60.00	5267.09	2+80.00	5267.21	3+00.00	5267.29
3+20.00	5267.33	3+40.00	5267.35	3+60.00	5267.31	3+65.93	5267.42	3+80.00	5267.22	4+00.00	5266.90	4+20.00	5266.53	4+40.00	5266.13
4+60.00	5265.68														

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS $\frac{3}{4}$ " EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. SEE DRAINAGE DRAWINGS FOR PIPE DETAILS.
6. USE MODULAR BLOCK WALL THAT MATCHES EXISTING WALLS ALONG PROVO RIVER..
7. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
8. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
9. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.



DEVELOPED ELEVATION

STA. 36+65.57 NB = STA 3+68.43 WALL
24 INCH HDPE PIPE (P-039)
F.L. ELEV. = 5260.89



QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL B2 (EST. EXPOSED FACE 18,937 SF.)	1	LUMP	

UTAH DEPARTMENT OF TRANSPORTATION
STRUCTURES **PB PARSONS BRINCKERHOFF**

SR-189 WILDWOOD TO DEER CREEK
MSE RETAINING WALL R-419B
SITUATION AND LAYOUT

PROJECT NUMBER: ***NH-0189 (12) 14**

DATE: **3/1/04**

DESIGN: WLS_04/03 CHECK: STB_04/03
DRAWN: WLS_04/03 CHECK: STB_04/03
QUANT: WLS_04/03 CHECK: STB_12/03

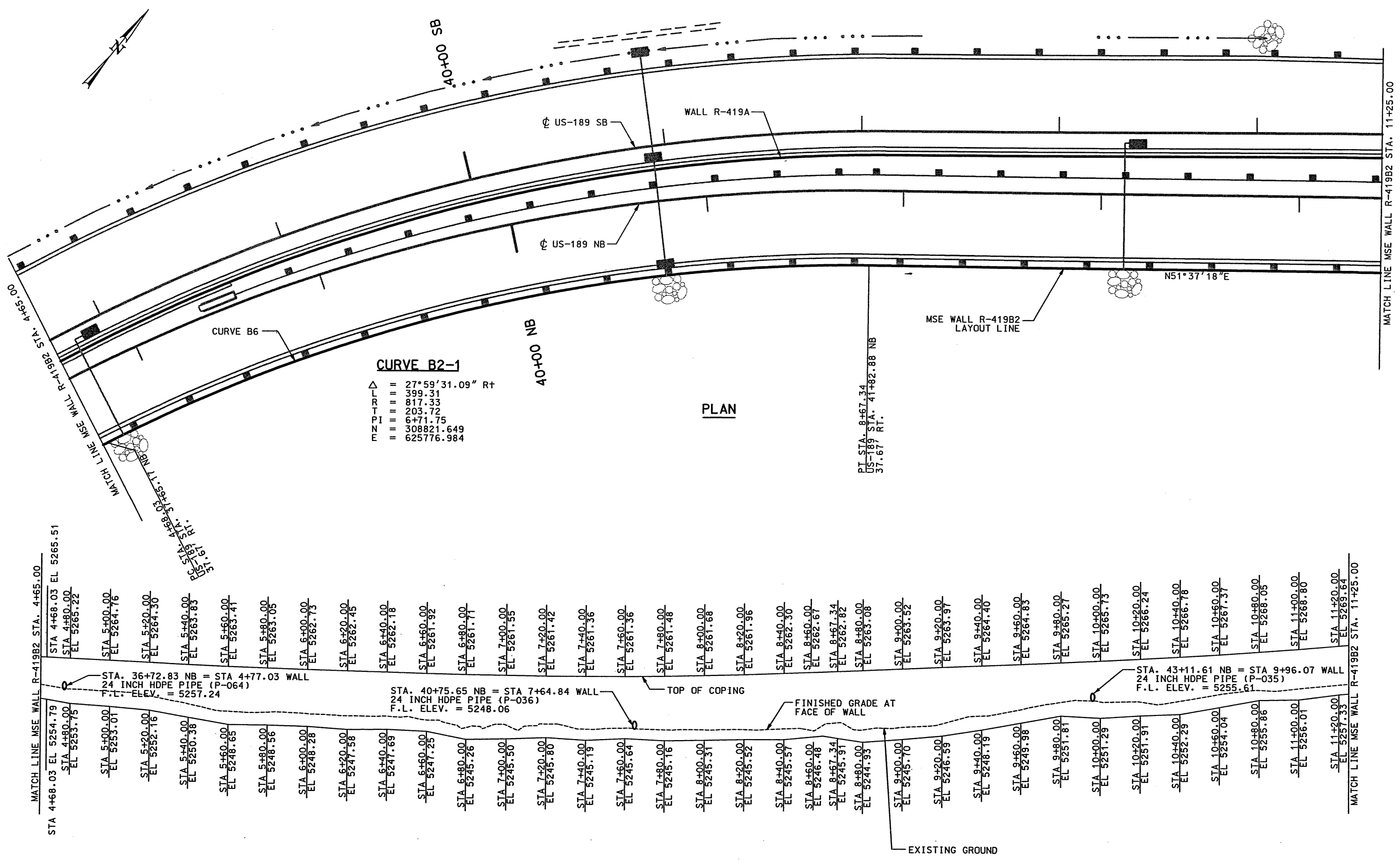
APPROVED: **Travis William Winters**
BY: **[Signature]**
DATE: **3/1/04**

REVISIONS: NO. DATE BY REMARKS

WASATCH COUNTY
R-419B2
DRG. NO.

SHT. **1 of 3**

C:\Users\j252577\Documents\Projects\SR-189\Drawings\Structures\Walls\W-419B2.dwg
 02/15/2004



Station	Elevation	Station	Elevation
STA 4+68.03	EL 5254.79	STA 9+40.00	EL 5264.40
STA 4+80.00	EL 5253.75	STA 9+60.00	EL 5264.85
STA 5+00.00	EL 5253.01	STA 10+00.00	EL 5265.75
STA 5+20.00	EL 5252.16	STA 10+20.00	EL 5266.24
STA 5+40.00	EL 5250.38	STA 10+40.00	EL 5266.78
STA 5+60.00	EL 5248.65	STA 10+60.00	EL 5267.37
STA 5+80.00	EL 5248.56	STA 10+80.00	EL 5268.05
STA 6+00.00	EL 5248.28	STA 11+00.00	EL 5268.80
STA 6+20.00	EL 5247.58	STA 11+20.00	EL 5269.64
STA 6+40.00	EL 5247.69		
STA 6+60.00	EL 5247.25		
STA 6+80.00	EL 5245.26		
STA 7+00.00	EL 5245.50		
STA 7+20.00	EL 5245.80		
STA 7+40.00	EL 5245.19		
STA 7+60.00	EL 5245.64		
STA 7+80.00	EL 5245.16		
STA 8+00.00	EL 5245.31		
STA 8+20.00	EL 5245.52		
STA 8+40.00	EL 5245.57		
STA 8+60.00	EL 5246.48		
STA 8+67.34	EL 5245.91		
STA 8+80.00	EL 5244.93		
STA 9+00.00	EL 5245.70		
STA 9+20.00	EL 5246.59		
STA 9+40.00	EL 5248.19		
STA 9+60.00	EL 5249.98		
STA 9+80.00	EL 5251.81		
STA 10+00.00	EL 5251.29		
STA 10+20.00	EL 5251.91		
STA 10+40.00	EL 5252.29		
STA 10+60.00	EL 5254.04		
STA 10+80.00	EL 5255.86		
STA 11+00.00	EL 5256.01		
STA 11+20.00	EL 5257.33		

MATCH LINE MSE WALL R-419B2 STA. 4+65.00
 STA 4+68.03 EL 5254.79
 STA 4+80.00 EL 5253.75
 STA 5+00.00 EL 5253.01
 STA 5+20.00 EL 5252.16
 STA 5+40.00 EL 5250.38
 STA 5+60.00 EL 5248.65
 STA 5+80.00 EL 5248.56
 STA 6+00.00 EL 5248.28
 STA 6+20.00 EL 5247.58
 STA 6+40.00 EL 5247.69
 STA 6+60.00 EL 5247.25
 STA 6+80.00 EL 5245.26
 STA 7+00.00 EL 5245.50
 STA 7+20.00 EL 5245.80
 STA 7+40.00 EL 5245.19
 STA 7+60.00 EL 5245.64
 STA 7+80.00 EL 5245.16
 STA 8+00.00 EL 5245.31
 STA 8+20.00 EL 5245.52
 STA 8+40.00 EL 5245.57
 STA 8+60.00 EL 5246.48
 STA 8+67.34 EL 5245.91
 STA 8+80.00 EL 5244.93
 STA 9+00.00 EL 5245.70
 STA 9+20.00 EL 5246.59
 STA 9+40.00 EL 5248.19
 STA 9+60.00 EL 5249.98
 STA 9+80.00 EL 5251.81
 STA 10+00.00 EL 5251.29
 STA 10+20.00 EL 5251.91
 STA 10+40.00 EL 5252.29
 STA 10+60.00 EL 5254.04
 STA 10+80.00 EL 5255.86
 STA 11+00.00 EL 5256.01
 STA 11+20.00 EL 5257.33
 MATCH LINE MSE WALL R-419B2 STA. 11+25.00

STA. 36+72.83 NB = STA 4+77.03 WALL
 24 INCH HDPE PIPE (P-064)
 F.L. ELEV. = 5257.24

STA. 40+75.65 NB = STA 7+64.84 WALL
 24 INCH HDPE PIPE (P-036)
 F.L. ELEV. = 5248.06

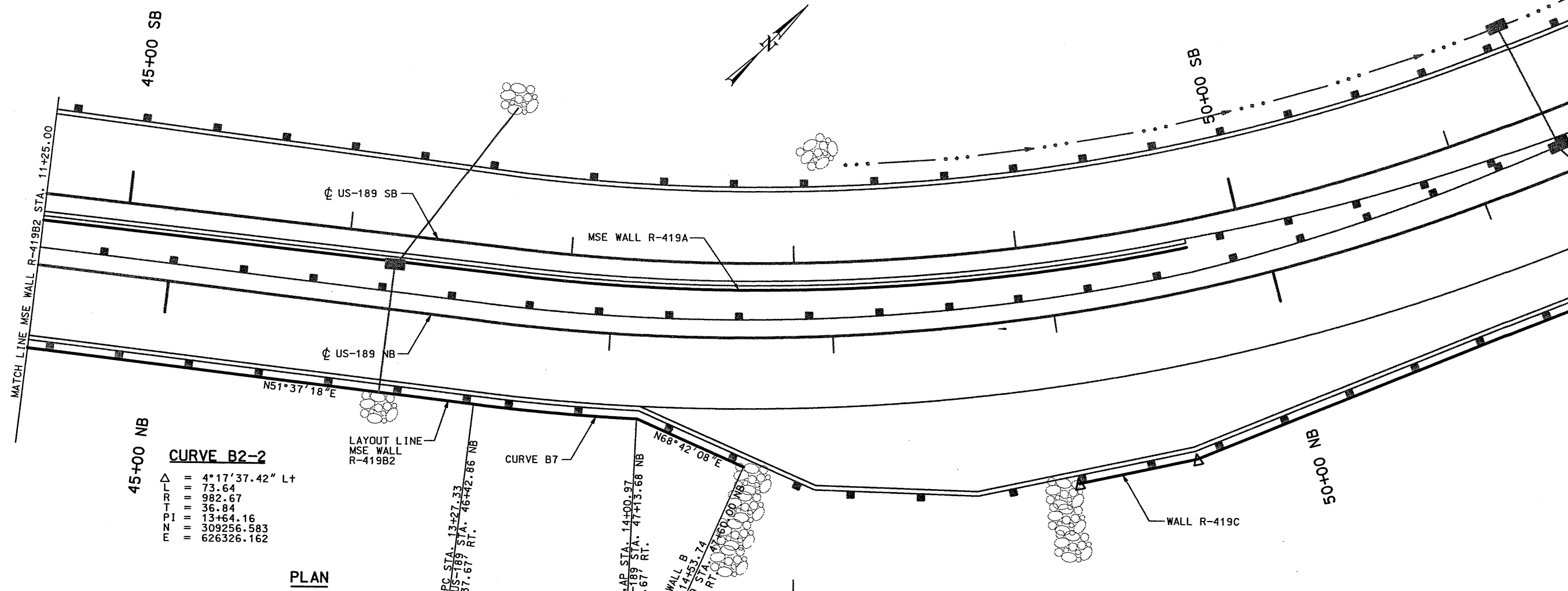
STA. 43+11.61 NB = STA 9+96.07 WALL
 24 INCH HDPE PIPE (P-035)
 F.L. ELEV. = 5255.61

TOP OF COPING
 FINISHED GRADE AT FACE OF WALL
 EXISTING GROUND

DEVELOPED ELEVATION

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION	
MSE RETAINING WALL R-419B		STRUCTURES	
SITUATION AND LAYOUT		PARSONS BRINKERHOFF	
PROJECT NUMBER	*NH-0189 (12) 14	DESIGN W.S.	04/03
		CHECK STB	04/03
		DATE	
		APPROVED BY	
		DATE	
		QUANT.	W.S. 04/03
		CHECK STB	12/03
		NO.	
		BY	
		DATE	
		REVISIONS	

02/13/2004 10:22:37Z ...



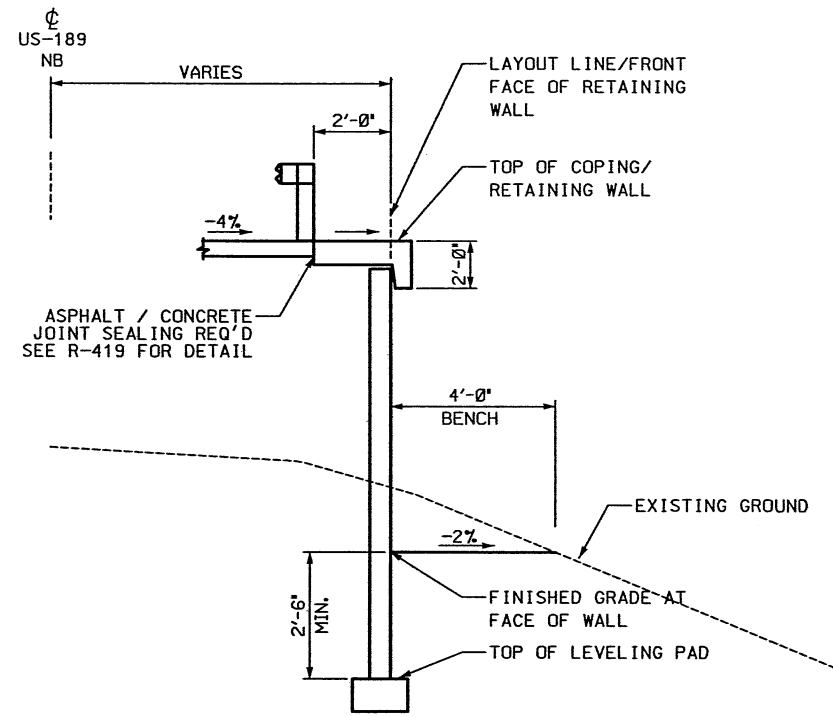
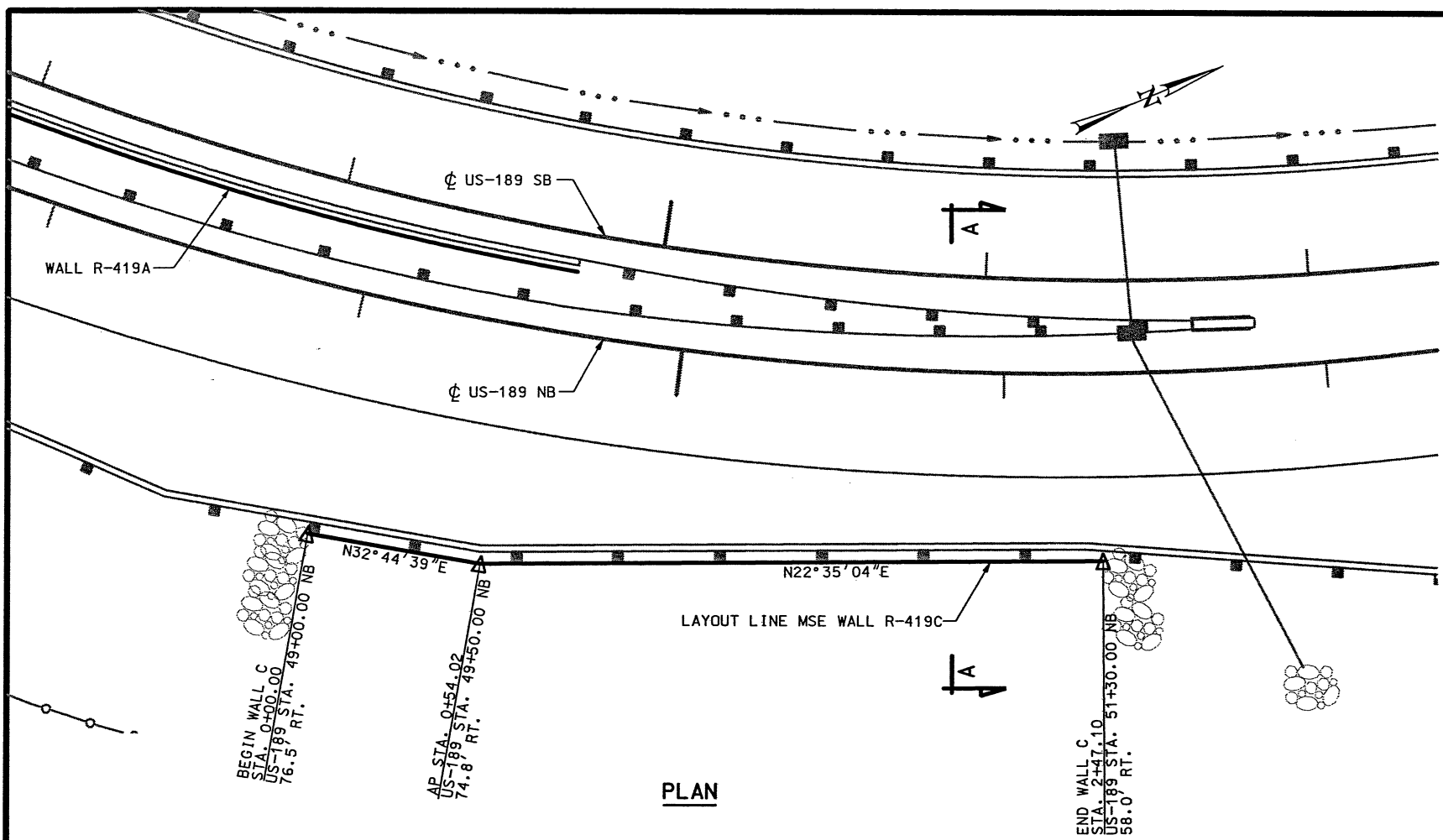
DEVELOPED ELEVATION

Station	Existing Ground	Top of Coping	Finished Grade at Face of Wall
STA 11+40.00	EL 5258.19	EL 5270.56	
STA 11+60.00	EL 5260.00	EL 5271.53	
STA 11+80.00	EL 5261.37	EL 5272.54	
STA 12+00.00	EL 5262.05	EL 5273.57	
STA 12+20.00	EL 5262.81	EL 5274.60	
STA 12+40.00	EL 5263.55	EL 5275.65	
STA 12+60.00	EL 5264.65	EL 5276.65	
STA 12+80.00	EL 5265.68	EL 5277.68	
STA 13+00.00	EL 5266.95	EL 5278.71	
STA 13+20.00	EL 5268.23	EL 5279.74	
STA 13+27.33	EL 5268.79	EL 5280.11	
STA 13+40.00	EL 5269.77	EL 5280.74	
STA 13+60.00	EL 5269.39	EL 5281.72	
STA 13+80.00	EL 5271.60	EL 5282.69	
STA 14+00.97	EL 5274.67	EL 5283.64	
STA 14+20.00	EL 5275.29	EL 5283.54	
STA 14+40.00	EL 5277.13	EL 5283.92	
STA 14+53.74	EL 5284.00	EL 5284.11	

STA. 46+00.00 NB = STA 12+16.444 WALL
24 INCH HDPE PIPE (P-034B)
T.L. ELEV. = 5271.57

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION	
MSE RETAINING WALL R-419B		STRUCTURES	
SITUATION AND LAYOUT		PARSONS BRINCKERHOFF	
PROJECT NUMBER	*NH-0189 (12) 14	DESIGN	WLS_04/03
		DRAWN	WLS_04/03
		QUANT.	WLS_04/03
		CHECK	STB_04/03
		CHECK	STB_04/03
		CHECK	STB_12/03
		NO.	
		DATE	
		BY	
		REVISIONS	

APPROVAL: *[Signature]* DATE: 2/16/04
 DESIGNER: *[Signature]* DATE: 2/16/04
 CHECKER: *[Signature]* DATE: 2/16/04
 QUANTITY ENGINEER: *[Signature]* DATE: 2/16/04
 SURVEYOR: *[Signature]* DATE: 2/16/04
 UTILITY ENGINEER: *[Signature]* DATE: 2/16/04



SECTION A-A
WALL STA. 0+00.00 TO STA. 2+47.10
* MATCH CROSS-SLOPE OF US-189

STA	EL	FINISHED GRADE AT FACE OF WALL	TOP OF COPING	EXISTING GROUND
BEGIN WALL C STA. 0+00.00	EL 5290.47			
STA 0+00.00	EL 5290.00			
STA 0+20.00	EL 5290.73			
STA 0+40.00	EL 5290.98			
STA 0+54.02	EL 5291.13			
STA 0+60.00	EL 5291.16			
STA 0+80.00	EL 5291.21			
STA 1+00.00	EL 5291.26			
STA 1+20.00	EL 5291.27			
STA 1+40.00	EL 5291.27			
STA 1+60.00	EL 5291.24			
STA 1+80.00	EL 5291.19			
STA 2+00.00	EL 5291.13			
STA 2+20.00	EL 5291.03			
STA 2+40.00	EL 5290.92			
STA 2+47.10	EL 5290.87			
END WALL C STA. 2+47.10				

DEVELOPED ELEVATION

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
CAST-IN-PLACE CONCRETE: F_c = 1400 PSI
DESIGN SPEED: F_s = 24,000 PSI, n=8 = 50 M.P.H.

GENERAL NOTES

- USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
- CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
- PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
- USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
- SEE DRAINAGE DRAWINGS FOR PIPE DETAILS.
- USE MODULAR BLOCK WALL THAT MATCHES EXISTING WALLS ALONG PROVO RIVER.
- ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
- MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
- EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL C (EST. EXPOSED FACE 2,136 SF.)	1	LUMP	



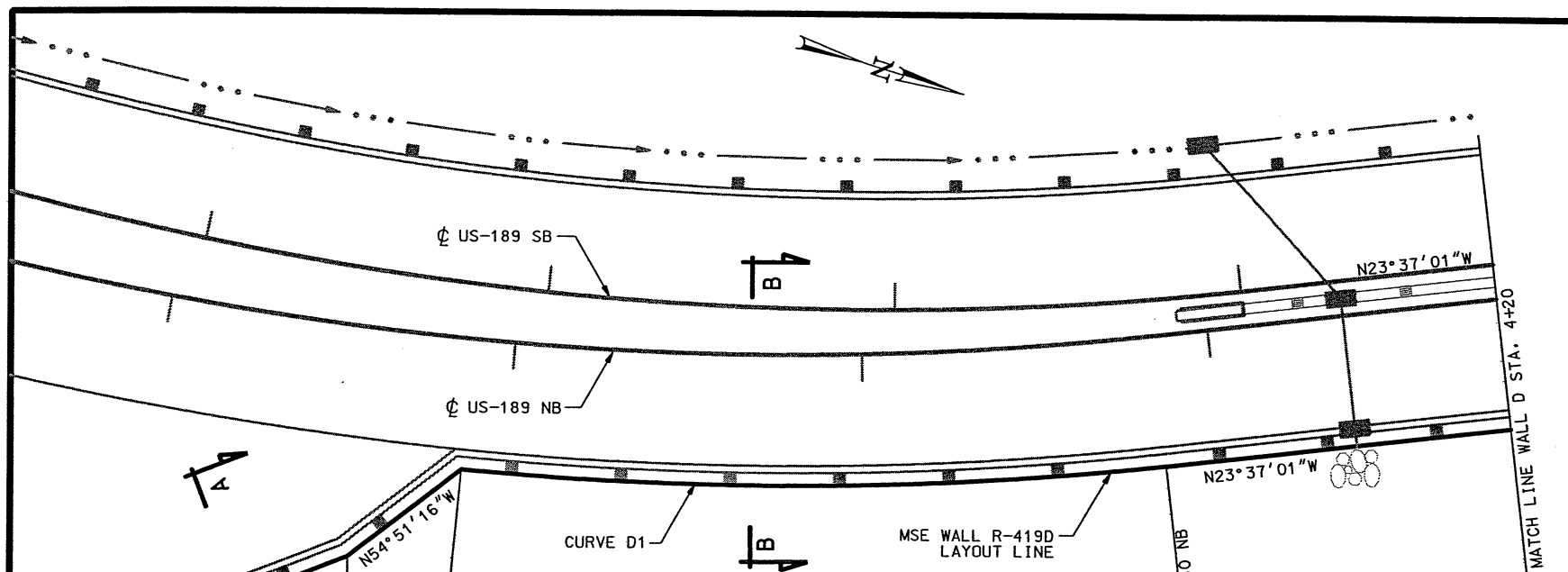
UTAH DEPARTMENT OF TRANSPORTATION
STRUCTURES
MSE RETAINING WALL R-419C
SITUATION AND LAYOUT
PROJECT NUMBER *NH-0189 (12) 14

DESIGN: ORM_04/03 CHECK: WLS_04/03
DRAWN: ORM_04/03 CHECK: WLS_04/03
QUANT.: ORM_04/03 CHECK: STB_12/03

APPROVAL: *[Signature]*
REGISTERED PROFESSIONAL ENGINEER
DANIEL J. CHURCH
2/16/64
STATE OF UTAH

WASATCH COUNTY
R-419C
DRG. NO.

SHT. 1 of 1



CURVE D1

Δ	11°51'52.53" Lt
T	203.49
R	982.67
T	102.11
P	2+18.67
M	310304.173
M	626628.464

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. SEE DRAINAGE DRAWINGS FOR PIPE DETAILS.
6. USE MODULAR BLOCK WALL THAT MATCHES EXISTING WALLS ALONG PROVO RIVER.
7. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
8. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
9. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

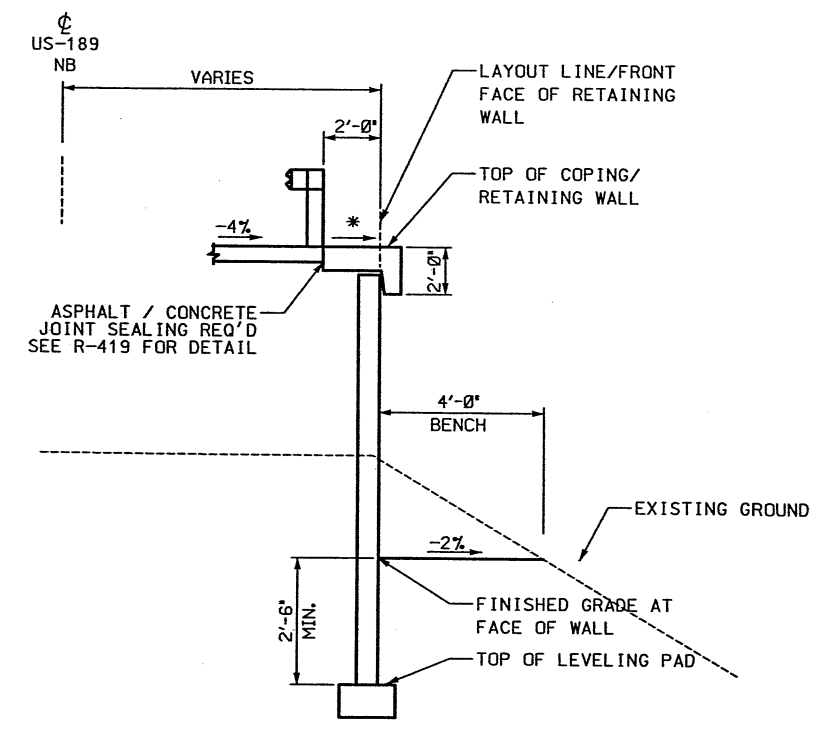
DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
 CAST-IN-PLACE CONCRETE: $f_c = 1400$ PSI
 $f_s = 24,000$ PSI, $n=8$
 DESIGN SPEED: 50 M.P.H.

STATION	ELEVATION	STATION	ELEVATION
BEGIN WALL D STA. 0+00.00		STA. 2+20.00	EL. 5285.98
STA. 0+01.66	EL. 5280.98	STA. 2+25.00	EL. 5275.19
STA. 0+20.00	EL. 5283.94	STA. 2+40.00	EL. 5273.43
STA. 0+20.00	EL. 5279.38	STA. 2+60.00	EL. 5271.01
STA. 0+40.00	EL. 5284.54	STA. 2+80.00	EL. 5268.74
STA. 0+60.00	EL. 5284.83	STA. 3+00.00	EL. 5267.09
STA. 0+75.36	EL. 5285.05	STA. 3+20.05	EL. 5265.82
STA. 0+80.00	EL. 5285.16	STA. 3+40.00	EL. 5264.57
STA. 1+00.00	EL. 5285.63	STA. 3+60.00	EL. 5263.42
STA. 1+16.56	EL. 5286.58	STA. 3+80.00	EL. 5262.66
STA. 1+16.56	EL. 5286.58	STA. 4+00.00	EL. 5262.79
STA. 1+40.00	EL. 5288.43	STA. 4+20.00	EL. 5262.60
STA. 1+60.00	EL. 5286.31		
STA. 1+80.00	EL. 5286.18		
STA. 2+00.00	EL. 5285.98		
STA. 2+20.00	EL. 5285.74		
STA. 2+40.00	EL. 5285.41		
STA. 2+60.00	EL. 5285.04		
STA. 2+80.00	EL. 5284.65		
STA. 3+00.00	EL. 5284.25		
STA. 3+20.05	EL. 5283.85		
STA. 3+40.00	EL. 5283.48		
STA. 3+60.00	EL. 5283.14		
STA. 3+80.00	EL. 5282.85		
STA. 4+00.00	EL. 5282.60		
STA. 4+20.00	EL. 5282.60		

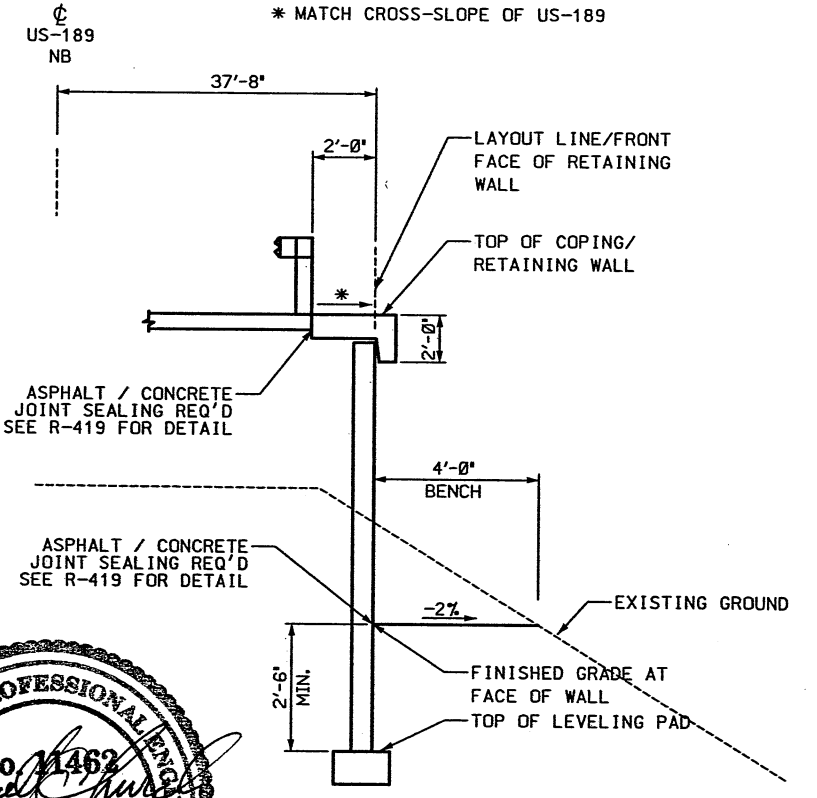
DEVELOPED ELEVATION

STA. 59+39.44 NB = STA 3+75.77 WALL
 24 INCH HDPE PIPE (P-032)
 F.L. ELEV. = 5271.80



SECTION A-A

WALL STA. 0+00.00 TO STA. 11+16.56
 * MATCH CROSS-SLOPE OF US-189



SECTION B-B

WALL STA. 1+16.56 TO STA. 9+60.00
 * MATCH CROSS-SLOPE OF US-189



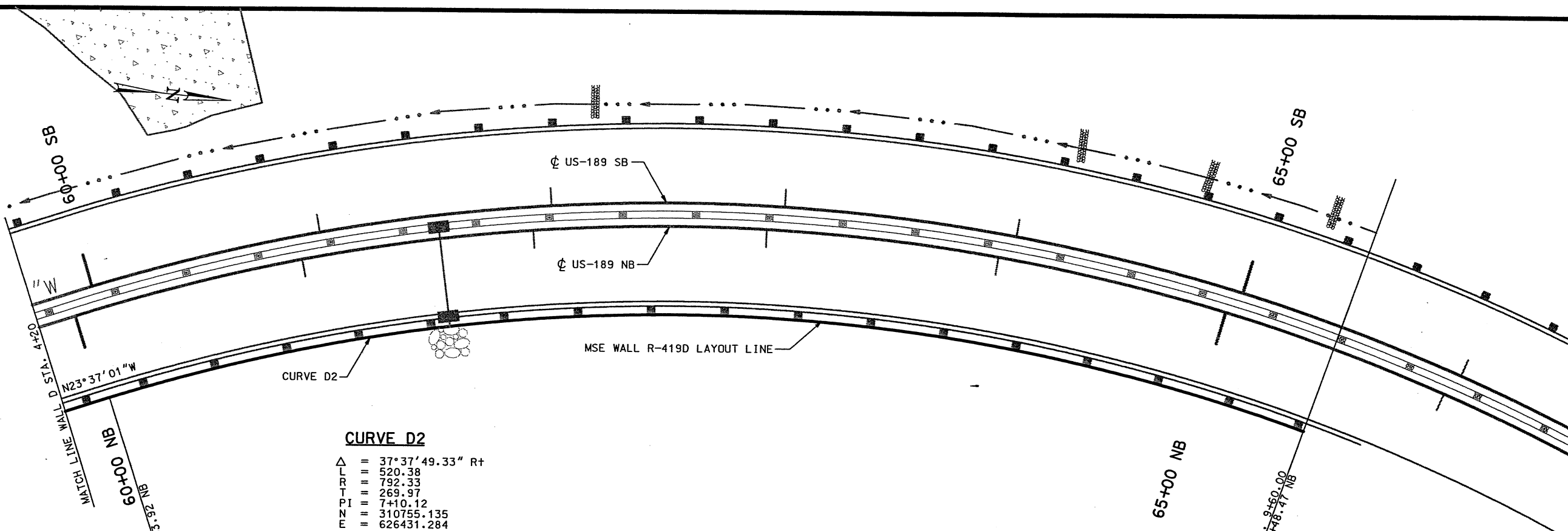
QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL D (EST. EXPOSED FACE 11,742 SF.)	1	LUMP	

UTAH DEPARTMENT OF TRANSPORTATION
 STRUCTURES **PB BRINKERHOFF**
 SR-189 WILDWOOD TO DEER CREEK
 MSE RETAINING WALL R-419D
 SITUATION AND LAYOUT
 PROJECT NUMBER *NH-0189 (12) 14
 WASATCH COUNTY
 R-419D DRG. NO.
 SHT. 1 of 2

DESIGN	DRM	04/03	CHECK	WLS	04/03
DRAWN	DRM	04/03	CHECK	WLS	04/03
QUANT.	DRM	04/03	CHECK	STB	12/03

APPROVED FOR USE: *[Signature]* DATE: 2/16/04
 PROJECT ENGINEER: *[Signature]* DATE: 2/16/04
 UNIT BRIDGE ENGINEER: *[Signature]* DATE: 2/16/04



CURVE D2
 Δ = 37° 37' 49.33" R+
 T = 520.38
 P = 792.33
 M = 269.97
 PI = 7+10.12
 PZ = 310755.135
 PC = 626431.284

PLAN

STATION	ELEVATION	STATION	ELEVATION
MATCH LINE WALL D STA. 4+20.00	EL 5282.39	STA 4+40.00	EL 5282.22
STA 4+40.16	EL 5282.22	STA 4+60.00	EL 5282.09
STA 4+60.00	EL 5282.09	STA 4+80.00	EL 5282.00
STA 4+80.00	EL 5282.00	STA 5+00.00	EL 5281.96
STA 5+00.00	EL 5281.96	STA 5+20.00	EL 5282.03
STA 5+20.00	EL 5282.03	STA 5+40.00	EL 5282.23
STA 5+40.00	EL 5282.23	STA 5+60.00	EL 5282.54
STA 5+60.00	EL 5282.54	STA 5+80.00	EL 5282.96
STA 5+80.00	EL 5282.96	STA 6+00.00	EL 5283.45
STA 6+00.00	EL 5283.45	STA 6+20.00	EL 5283.97
STA 6+20.00	EL 5283.97	STA 6+40.00	EL 5284.55
STA 6+40.00	EL 5284.55	STA 6+60.00	EL 5285.17
STA 6+60.00	EL 5285.17	STA 6+80.00	EL 5285.83
STA 6+80.00	EL 5285.83	STA 7+00.00	EL 5286.54
STA 7+00.00	EL 5286.54	STA 7+20.00	EL 5287.30
STA 7+20.00	EL 5287.30	STA 7+40.00	EL 5288.10
STA 7+40.00	EL 5288.10	STA 7+60.00	EL 5288.95
STA 7+60.00	EL 5288.95	STA 7+80.00	EL 5289.84
STA 7+80.00	EL 5289.84	STA 8+00.00	EL 5290.78
STA 8+00.00	EL 5290.78	STA 8+20.00	EL 5291.77
STA 8+20.00	EL 5291.77	STA 8+40.00	EL 5292.80
STA 8+40.00	EL 5292.80	STA 8+60.00	EL 5293.87
STA 8+60.00	EL 5293.87	STA 8+80.00	EL 5295.00
STA 8+80.00	EL 5295.00	STA 9+00.00	EL 5296.16
STA 9+00.00	EL 5296.16	STA 9+20.00	EL 5297.38
STA 9+20.00	EL 5297.38	STA 9+40.00	EL 5298.63
STA 9+40.00	EL 5298.63	STA 9+60.00	EL 5299.94
STA 9+60.00	EL 5299.94		

STA. 61+60.00 NB = STA. 5+89.16 WALL
 24 INCH HDPE PIPE (P-0588)
 F.L. ELEV. = 5273.03

DEVELOPED ELEVATION

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION	
MSE RETAINING WALL R-419-D		STRUCTURES	
SITUATION AND LAYOUT		PARSONS BRINCKERHOFF	
PROJECT NUMBER	*NH-0189 (12) 14	DESIGN	WLS_04/03
		DRAWN	WLS_04/03
		QUANT.	STB_12/03
		CHECK	STB_12/03
		DATE	
		BY	
		NO.	
		REVISIONS	
		REMARKS	
WASATCH COUNTY		R-419-D	
R-419-D		DRG. NO.	
SHT. 2 of 2			

GENERAL NOTES

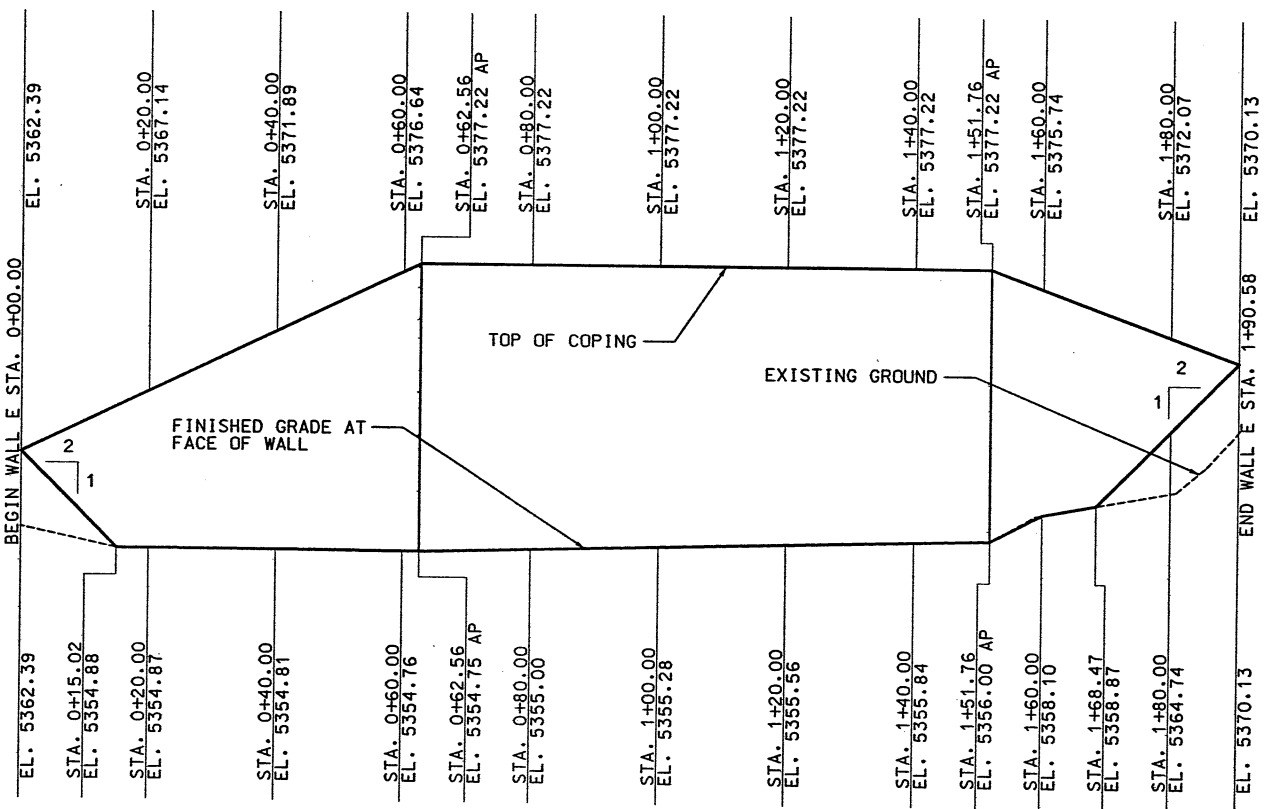
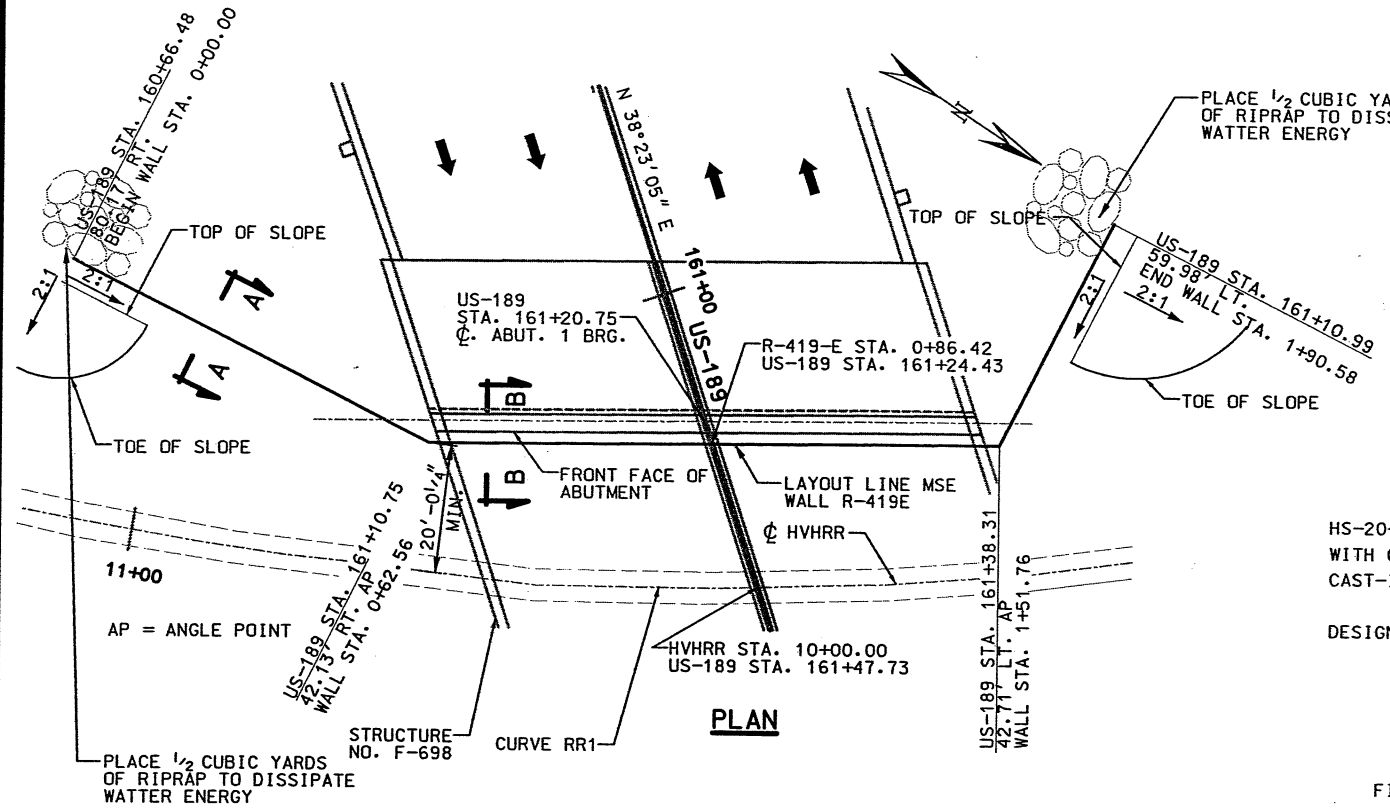
1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
6. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
7. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
8. PROVIDE 1/2cy OF RIP RAP AT EACH END OF WALL GUTTER. TOP OF RIP RAP MUST BE FLUSH WITH TOP OF GUTTER.
9. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

CURVE DATA

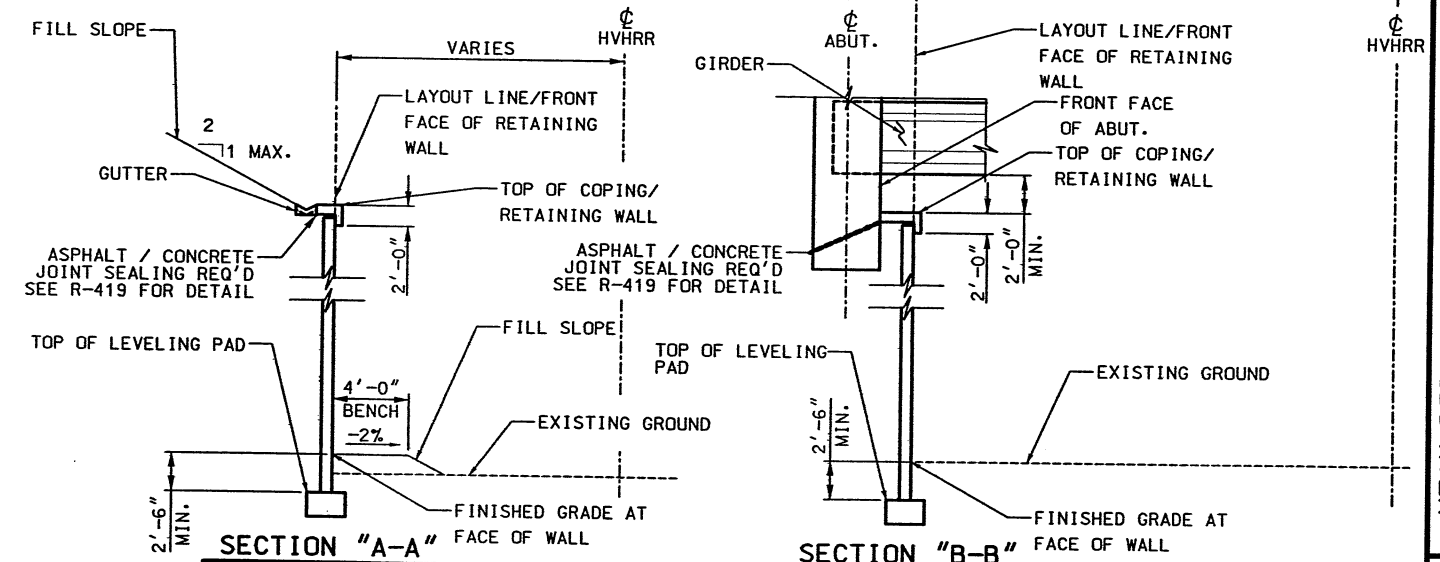
CURVE NO. RR1
 $\Delta = 48^{\circ}19'47"$
 L = 604.44 ft
 R = 681.13 ft
 T = 349.43 ft
 PI = 11+037.18
 N = 317530.74
 E = 632044.67

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
 CAST-IN-PLACE CONCRETE: $F_c = 1400 \text{ PSI}$
 $F_s(\text{REINF.}) = 24,000 \text{ PSI}$, $n=8$
 DESIGN SPEED: = 50 M.P.H.

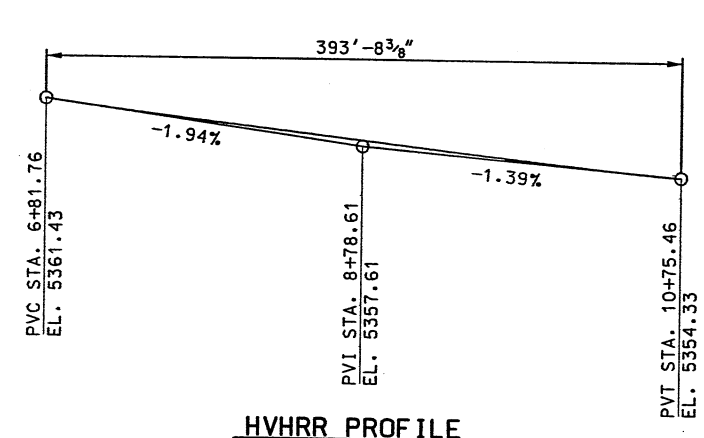


DEVELOPED ELEVATION

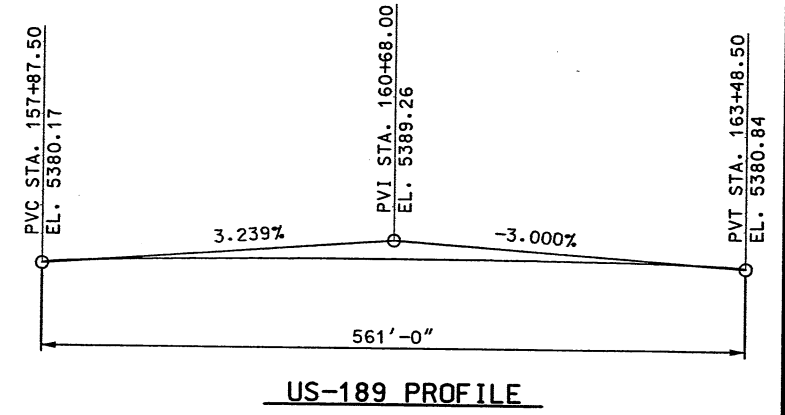


SECTION "A-A"

SECTION "B-B"



HVHRR PROFILE



US-189 PROFILE

QUANTITIES

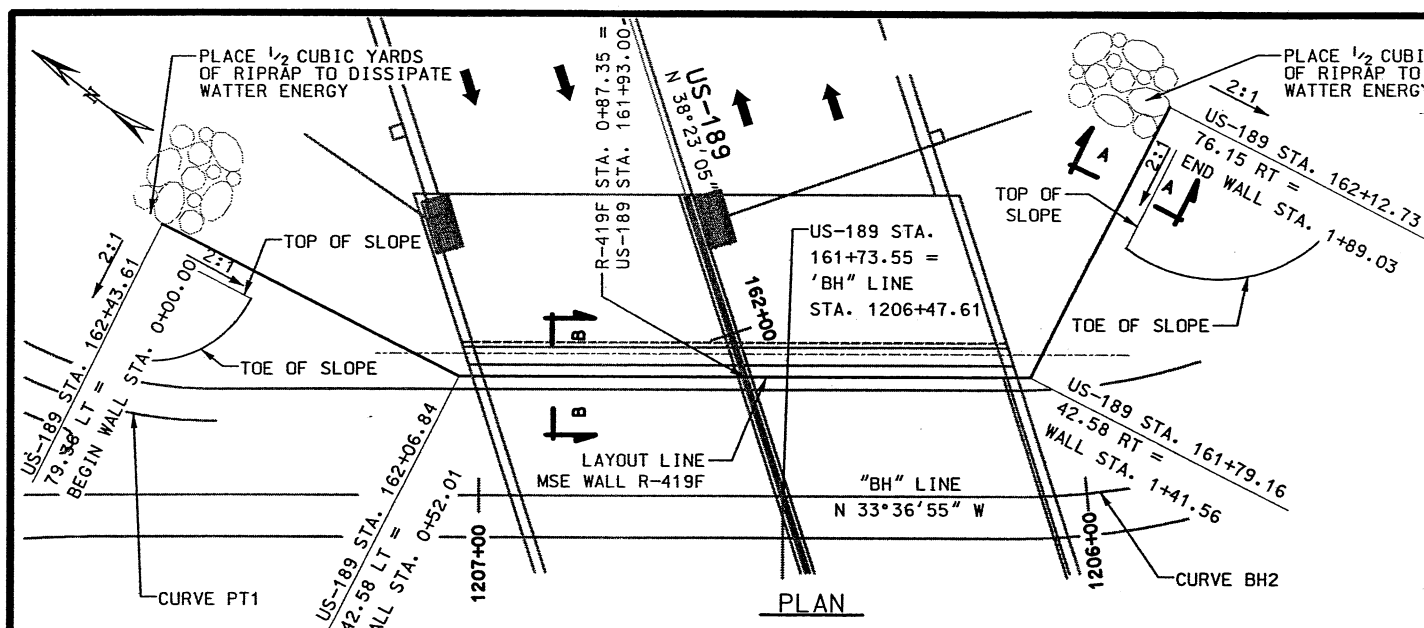
ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL E (EST. EXPOSED FACE 3,301 SF.)	1	LUMP	

UTAH DEPARTMENT OF TRANSPORTATION
PARSONS BRINCKERHOFF
 STRUCTURES
 SR-189 WILDWOOD TO DEER CREEK
 MSE RETAINING WALL R-419E
 SITUATION AND LAYOUT
 PROJECT NUMBER: *NH-0189 (12) 14

DESIGN	03/03	CHECK DJC	03/03
DRAWN	03/03	CHECK DJC	03/03
DATE	03/03	QUANT. DRG.	03/03
NO.		BY	
		DATE	
		REVISIONS	
		REMARKS	

WASATCH COUNTY
R-419E
 DRG. NO.
 SHT. 1 of 1





GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
6. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
7. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
8. PROVIDE 1/2cy OF RIP RAP AT EACH END OF WALL GUTTER. TOP OF RIP RAP MUST BE FLUSH WITH TO OF GUTTER.
9. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
 CAST-IN-PLACE CONCRETE: $F_c = 1400$ PSI
 $F_s(\text{REINF.}) = 24,000$ PSI, $n=8$
 DESIGN SPEED: = 50 M.P.H.

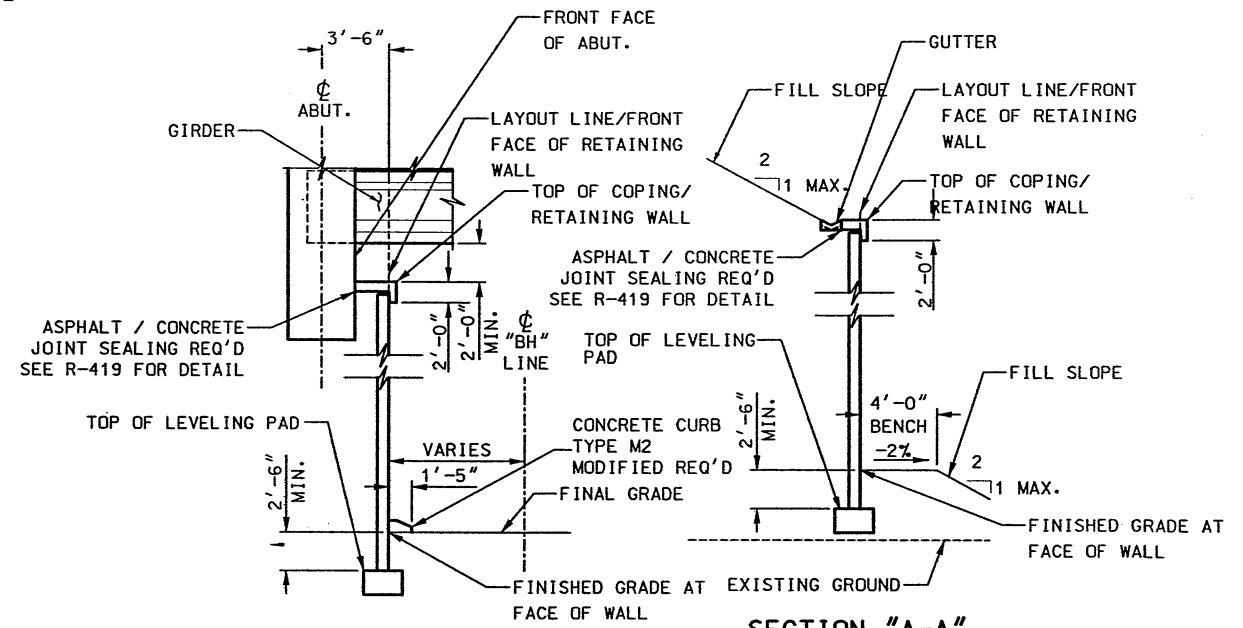


CURVE DATA

CURVE PT1
 $\Delta = 78^\circ 19' 33$ Rt
 $L = 95.69$
 $R = 70.00$
 $T = 57.015$
 $PI = 1052+23.27$
 $N = 317711.02$
 $E = 631545.21$

CURVE DATA

CURVE BH2
 $\Delta = 110^\circ 16' 48$ Rt
 $L = 211.72$
 $R = 110.00$
 $T = 157.92$
 $PI = 12005+57.69$
 $N = 317421.69$
 $E = 631723.74$

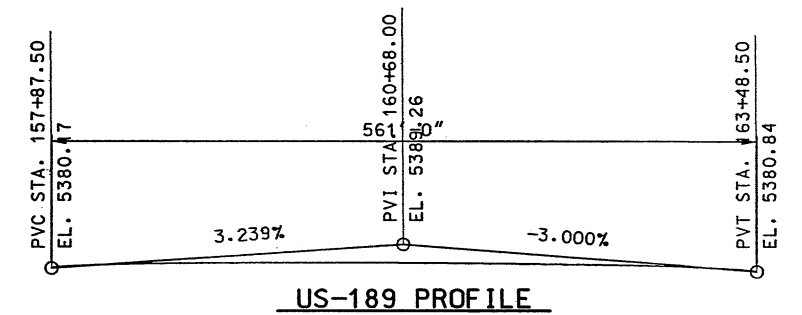
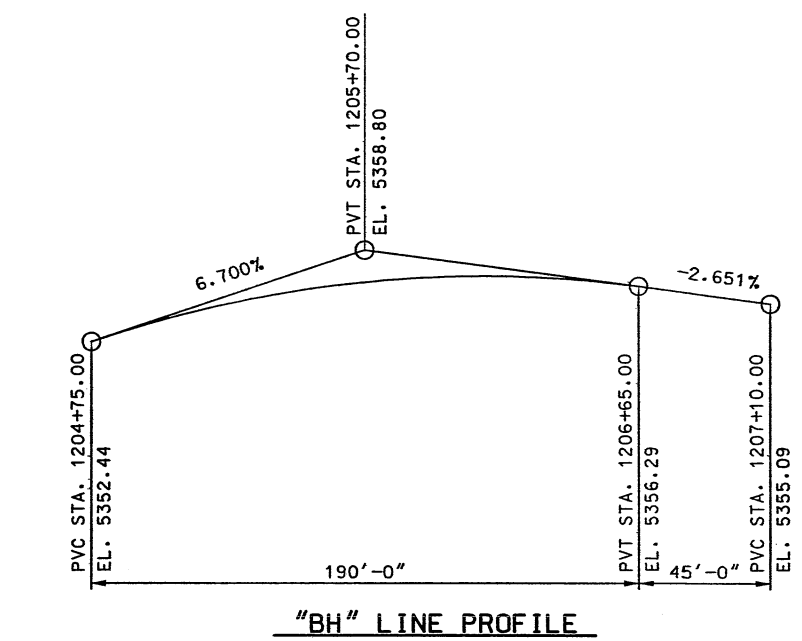


SECTION "A-A"

WALL STATIONS
 0+00 TO 0+52.01
 1+41.56 TO 1+89.03

SECTION "B-B"

WALL STATIONS
 0+52.01 TO 1+41.56



QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL F (EST. EXPOSED FACE 3,343 SF.)	1	LUMP	

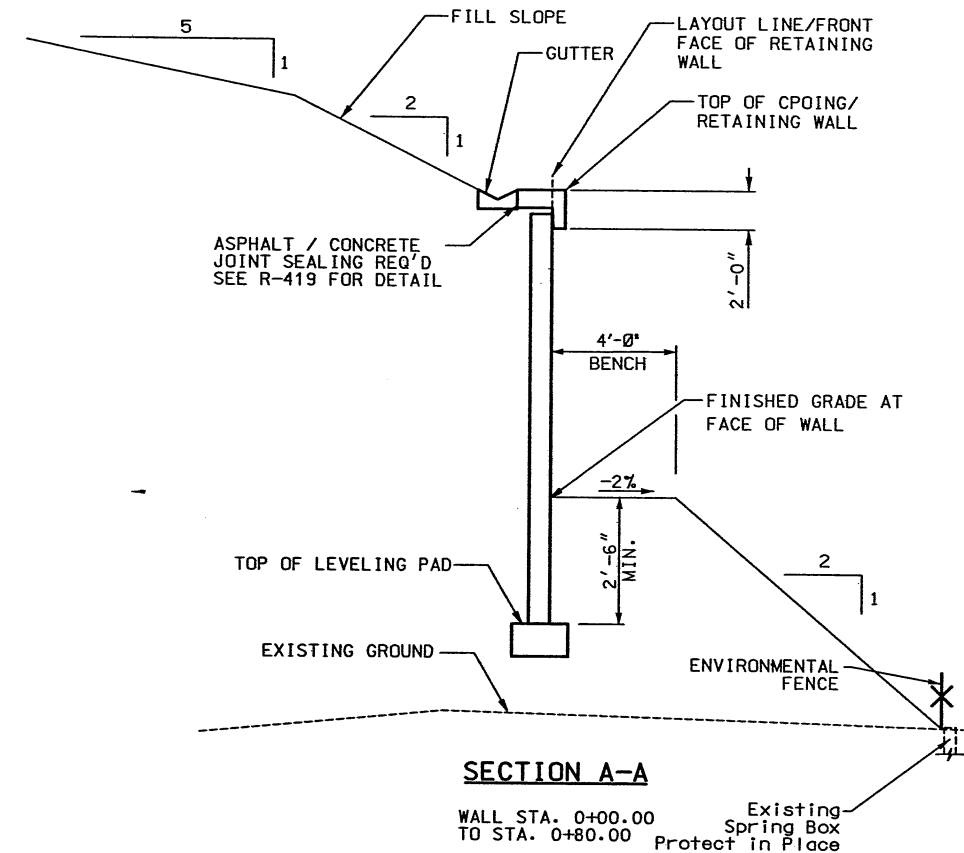
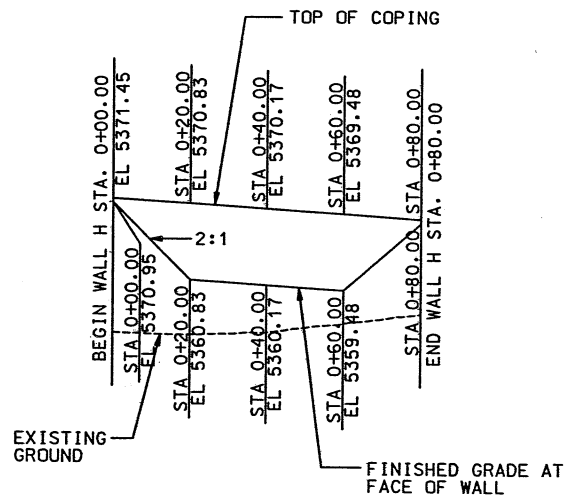
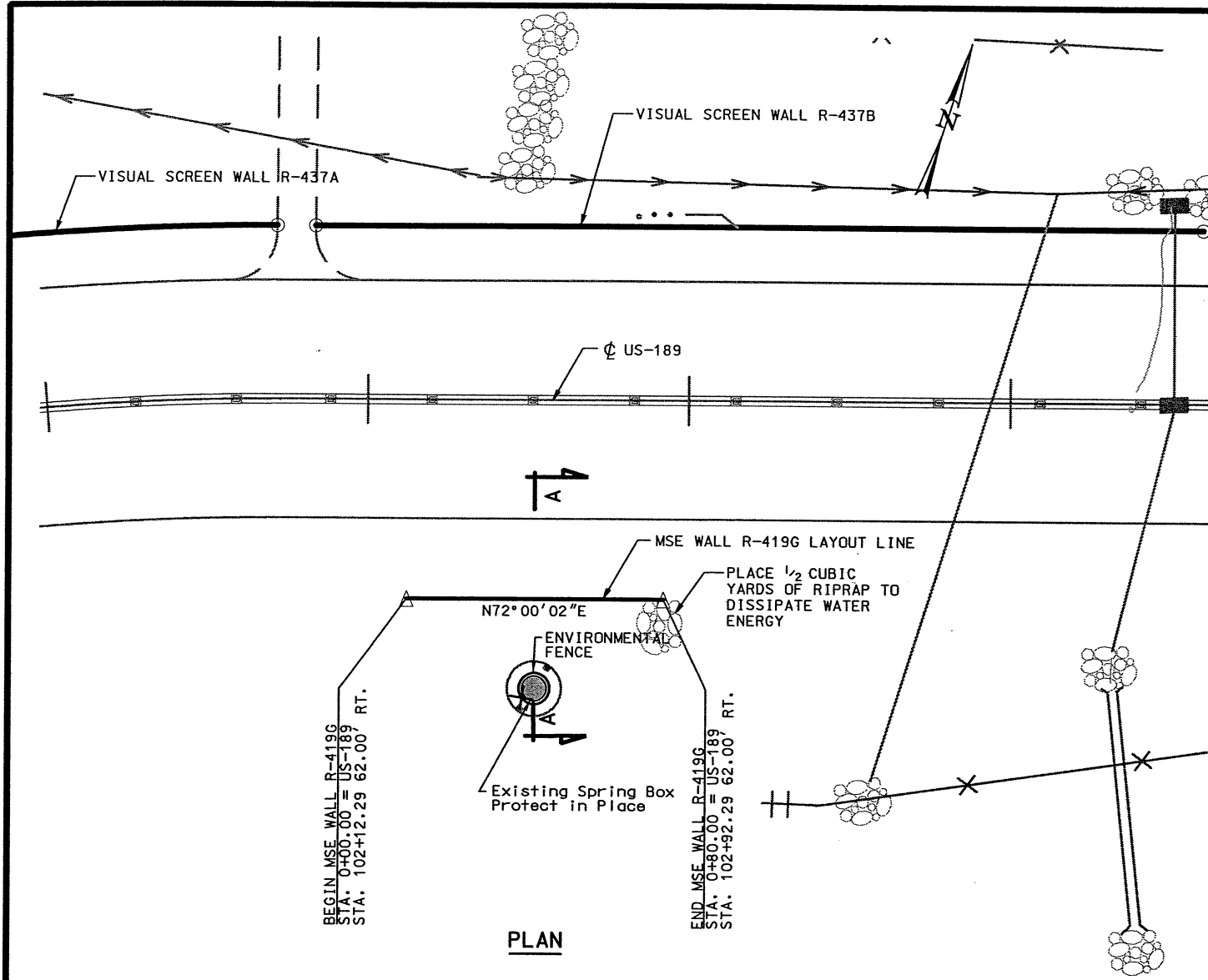
STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.	STA.	EL.
0+00.00	5364.01	0+00.00	5364.01	0+40.00	5374.38	0+80.00	5376.44	1+20.00	5376.44	1+40.00	5376.44	1+80.00	5368.87	1+89.03	5366.84
0+17.66	5354.52	0+20.00	5369.19	0+52.01	5376.44	0+60.00	5376.44	1+00.00	5376.44	1+41.56	5376.44	1+60.00	5373.36		
0+20.00	5354.53	0+40.00	5374.38	0+60.00	5376.44	0+80.00	5376.44	1+00.00	5376.44	1+41.56	5376.44	1+60.00	5373.36		
0+40.00	5374.38	0+52.01	5376.44	0+60.00	5376.44	0+80.00	5376.44	1+00.00	5376.44	1+41.56	5376.44	1+60.00	5373.36		
0+60.00	5376.44	0+80.00	5376.44	1+00.00	5376.44	1+20.00	5376.44	1+40.00	5376.44	1+60.00	5373.36	1+80.00	5368.87	1+89.03	5366.84
0+80.00	5376.44	1+00.00	5376.44	1+20.00	5376.44	1+40.00	5376.44	1+60.00	5373.36	1+80.00	5368.87	1+89.03	5366.84		
1+00.00	5376.44	1+20.00	5376.44	1+40.00	5376.44	1+60.00	5373.36	1+80.00	5368.87	1+89.03	5366.84				
1+20.00	5376.44	1+40.00	5376.44	1+60.00	5373.36	1+80.00	5368.87	1+89.03	5366.84						
1+40.00	5376.44	1+60.00	5373.36	1+80.00	5368.87	1+89.03	5366.84								
1+60.00	5373.36	1+80.00	5368.87	1+89.03	5366.84										
1+80.00	5368.87	1+89.03	5366.84												
1+89.03	5366.84														

DEVELOPED ELEVATION

UTAH DEPARTMENT OF TRANSPORTATION
PARSONS BRINCKERHOFF
 STRUCTURES
 SR-189 WILDWOOD TO DEER CREEK
 MSE RETAINING WALL R-419F
 SITUATION AND LAYOUT
 PROJECT NUMBER: *NH-0189 (12) 14
 SHEET: 1 of 1

NO.	DATE	BY	REVISIONS	REMARKS

DESIGN STB 03/03 CHECK DJC 03/03
 DRAWN STB 03/03 CHECK DJC 03/03
 QUANT. DRM 03/03 CHECK STB 12/03



GENERAL NOTES

- USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
- CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
- PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
- USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
- ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
- MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
- PROVIDE 1/2cy OF RIP RAP AT LOW END OF WALL GUTTER. TOP OF RIP RAP MUST BE FLUSH WITH TO OF GUTTER.
- USE MODULAR BLOCK WALL THAT MATCHES EXISTING WALLS ALONG PROVE RIVER.
- EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
 CAST-IN-PLACE CONCRETE: Fc = 1400 PSI
 FS = 24,000 PSI, n=8
 DESIGN SPEED: = 50 M.P.H.

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL G (EST. EXPOSED FACE 610 SF.)	1	LUMP	



UTAH DEPARTMENT OF TRANSPORTATION

STRUCTURES **PB PARSONS BRINCKERHOFF**

SR-189 WILDWOOD TO DEER CREEK

MSE RETAINING WALL R-419G

SITUATION AND LAYOUT

PROJECT NUMBER *NH-0189 (12) 14

NO.	DATE	BY	REVISIONS

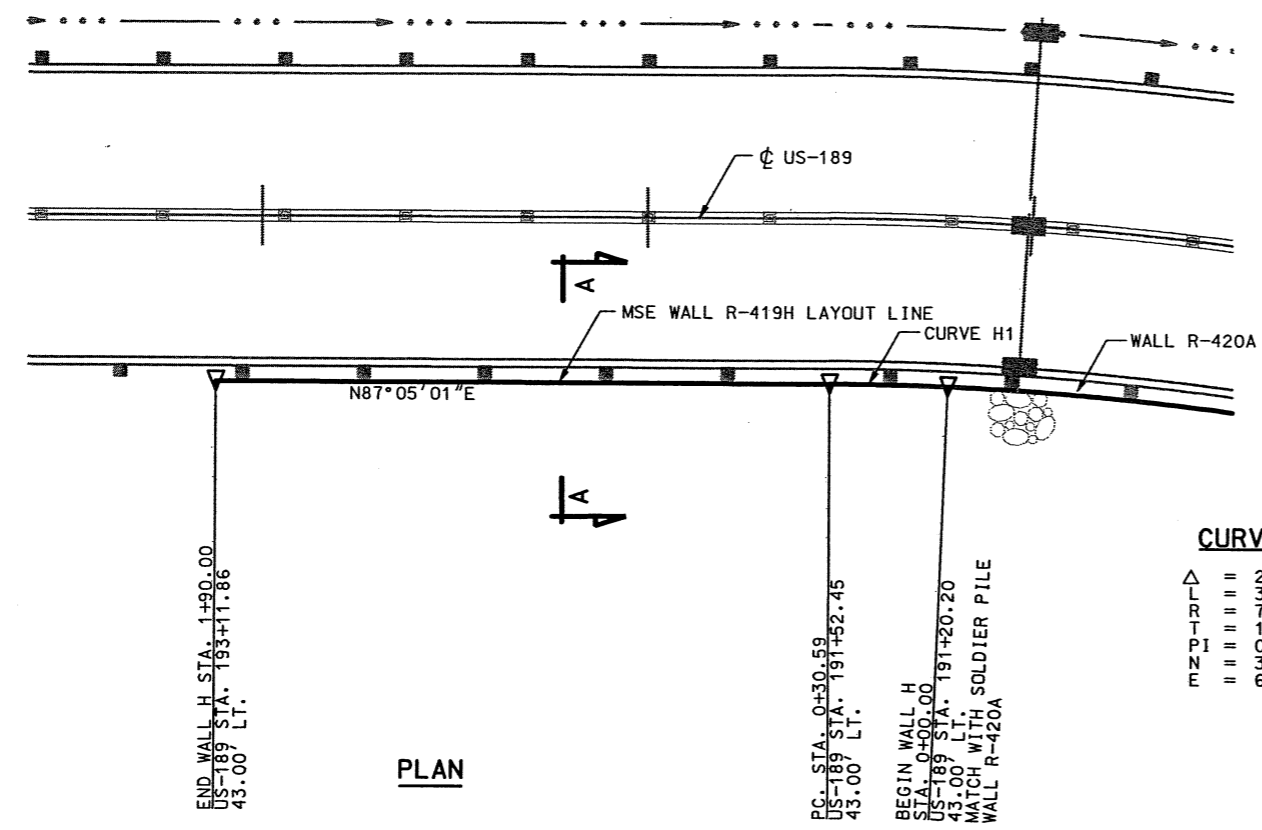
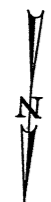
DESIGN: WLS 04/03 CHECK: STB 04/03
 DRAWN: WLS 04/03 CHECK: STB 04/03
 QUANT.: WLS 04/03 CHECK: STB 12/03

WASATCH COUNTY

R-419G

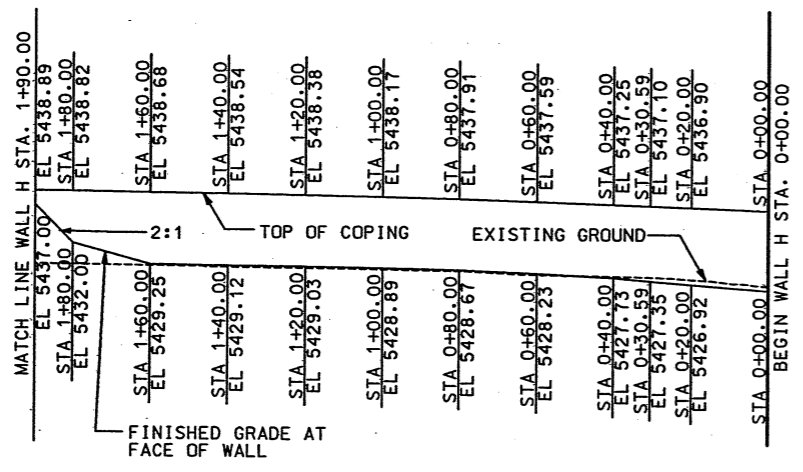
DRG. NO.

SHT. 1 of 1

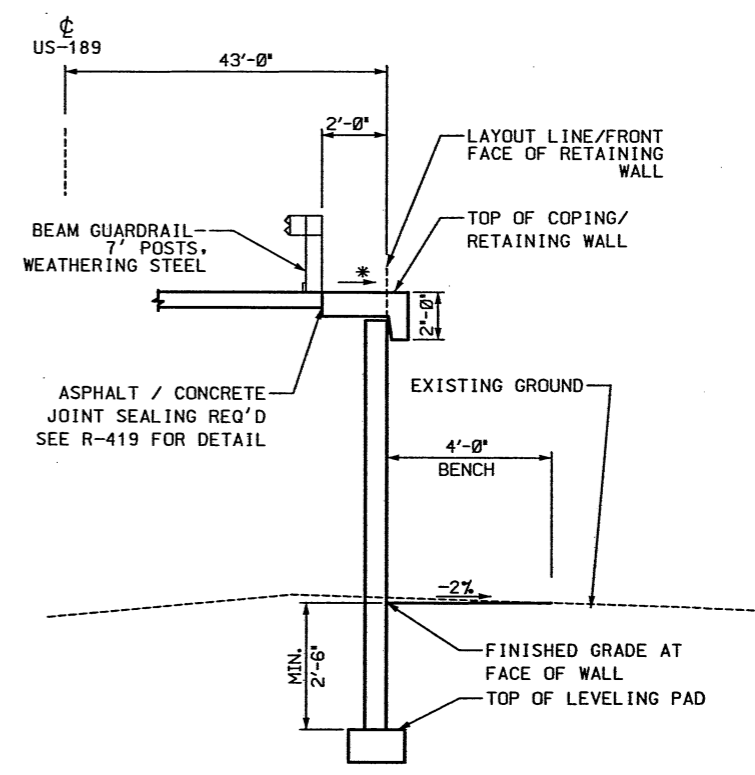


CURVE H1

Δ	=	2°12'47.84" Lt
L	=	30.59
R	=	792.00
T	=	15.30
PI	=	0+15.30
E	=	318726.378
	=	633761.306



DEVELOPED ELEVATION



SECTION A-A

WALL STA. 0+00.00
TO STA. 1+90.00
* MATCH CROSS-SLOPE OF US-189

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
6. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
7. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
8. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
CAST-IN-PLACE CONCRETE: Fc = 1400 PSI
DESIGN SPEED: Fs = 24,000 PSI, n=8
= 50 M.P.H.

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL H (EST. EXPOSED FACE 1,721 SF.)	1	LUMP	



UTAH DEPARTMENT OF TRANSPORTATION
STRUCTURES **PB PARSONS**
BRINKERHOFF

SR-189 WILDWOOD TO DEER CREEK
MSE RETAINING WALL R-419H
SITUATION AND LAYOUT

PROJECT NUMBER *NH-0189 (12) 14

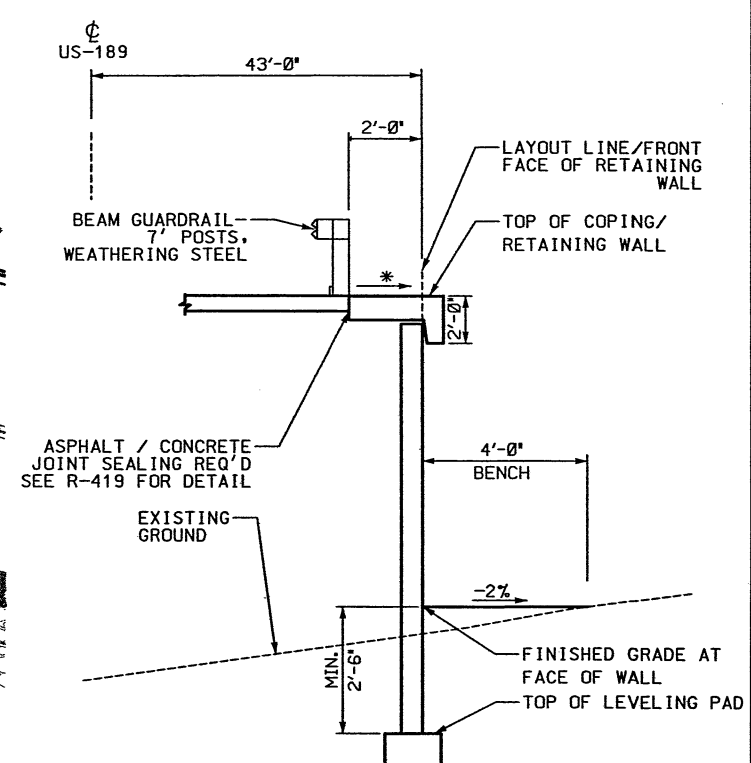
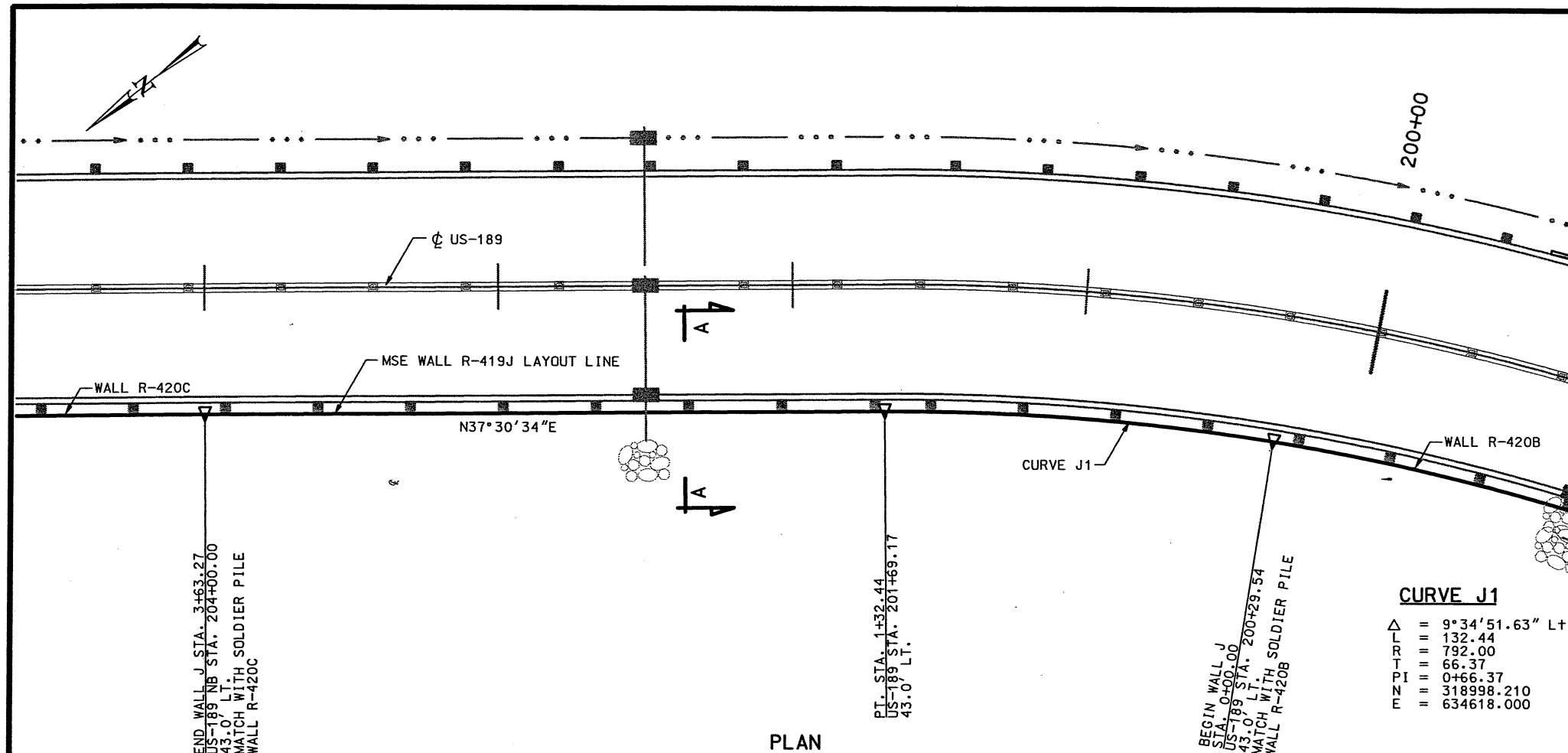
DESIGN	DRM	04/03	CHECK	WLS	04/03
DRAWN	DRM	04/03	CHECK	WLS	04/03
QUANT.	DRM	04/03	CHECK	STB	12/03

APPROVED FOR JOB: *[Signature]*
DATE: 2/16/04
REGISTERED PROFESSIONAL ENGINEER
STATE OF UTAH
No. 12462
DANIEL J. CHURCH
2/16/04

REVISIONS

NO.	DATE	BY	REMARKS

WASATCH COUNTY
R-419H
DRG. NO.
SHT. 1 of 1



CURVE J1

Δ	9°34'51.63" Lt
R	132.44
T	792.00
P	66.37
MZ	0+66.37
E	318998.210
NZ	634618.000

WALL STA. 0+00.00 TO STA. 3+63.27

* MATCH CROSS-SLOPE OF US-189

DEVELOPED ELEVATION

STATION	TOP OF COPING	EXISTING GROUND	FINISHED GRADE AT FACE OF WALL
END WALL J STA. 3+63.27	EL 5451.07		
STA 3+40.00	EL 5443.50	EL 5450.51	
STA 3+20.00	EL 5443.21	EL 5450.04	
STA 3+00.00	EL 5442.89	EL 5449.58	
STA 2+80.00	EL 5442.70	EL 5449.14	
STA 2+60.00	EL 5442.50	EL 5448.71	
STA 2+40.00	EL 5442.21	EL 5448.30	
STA 2+20.00	EL 5441.76	EL 5447.86	
STA 2+00.00	EL 5441.64	EL 5447.41	
STA 1+80.00	EL 5441.59	EL 5446.90	
STA 1+60.00	EL 5441.56	EL 5446.36	
STA 1+40.00	EL 5441.36	EL 5445.80	
STA 1+32.44	EL 5441.25	EL 5445.60	
STA 1+20.00	EL 5441.07	EL 5445.25	
STA 1+00.00	EL 5440.85	EL 5444.69	
STA 0+80.00	EL 5440.63	EL 5444.15	
STA 0+60.00	EL 5440.48	EL 5443.64	
STA 0+40.00	EL 5440.21	EL 5443.21	
STA 0+20.00	EL 5439.86	EL 5442.86	
STA 0+00.00		EL 5442.50	
BEGIN WALL J STA. 0+00.00			

STA. 202+50.00 = STA 2+13.63 WALL 24 INCH HDPE PIPE (P-010)
F.L. ELEV. = 5440.46

- GENERAL NOTES
- USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
 - CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
 - PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
 - USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
 - SEE DRAINAGE DRAWINGS FOR PIPE DETAILS.
 - USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
 - ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
 - MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
 - EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

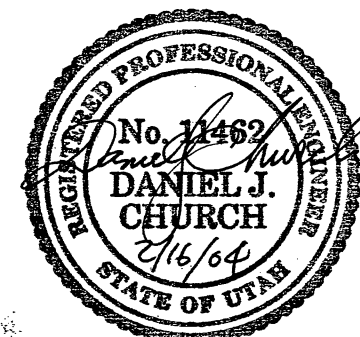
HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.

CAST-IN-PLACE CONCRETE: F_c = 1400 PSI
F_s = 24,000 PSI, n=8

DESIGN SPEED: = 50 M.P.H.

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL J (EST. EXPOSED FACE 1.861 SF.)	1	LUMP	



UTAH DEPARTMENT OF TRANSPORTATION

STRUCTURES PB PARSONS BRINCKERHOFF

SR-189 WILDWOOD TO DEER CREEK

MSE RETAINING WALL R-419J

SITUATION AND LAYOUT

PROJECT NUMBER *NH-0189 (12) 14

WASATCH COUNTY

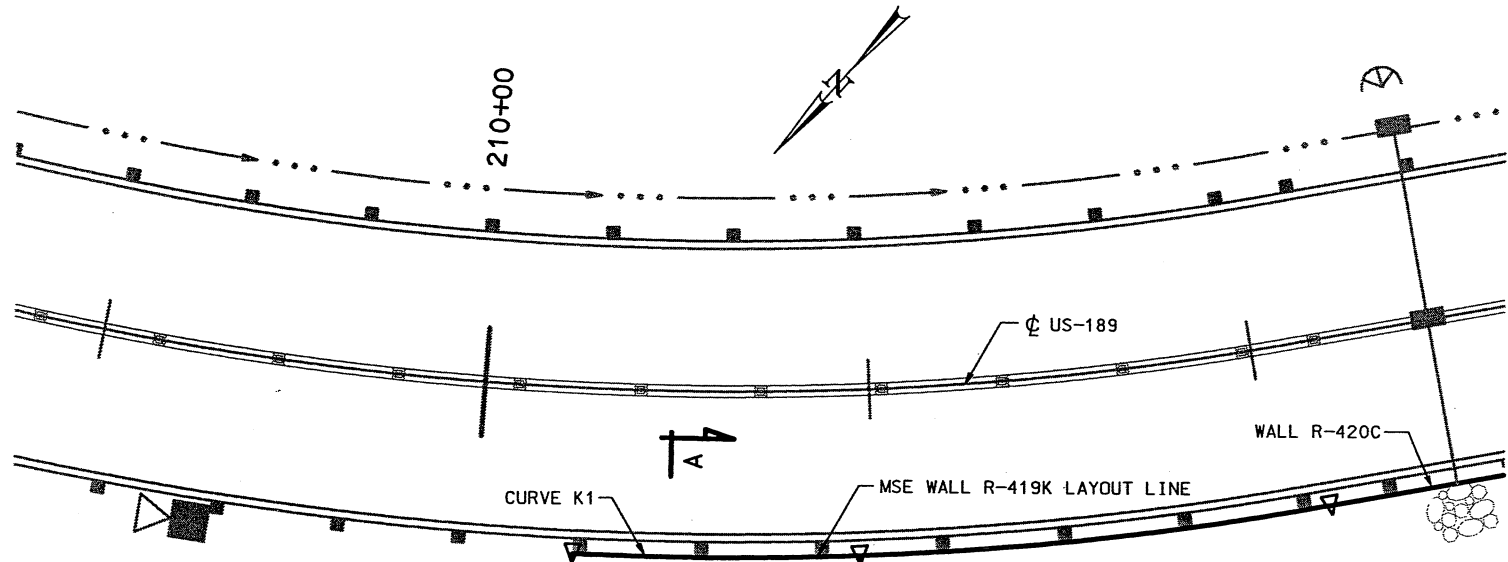
R-419J

DRG. NO.

SHT. 1 of 1

NO.	DATE	BY	REVISIONS

DESIGN ORN. 04/03 CHECK WLS. 04/03
DRAWN ORN. 04/03 CHECK WLS. 04/03
Q.M.T. ORN. 04/03 CHECK STB 12/03



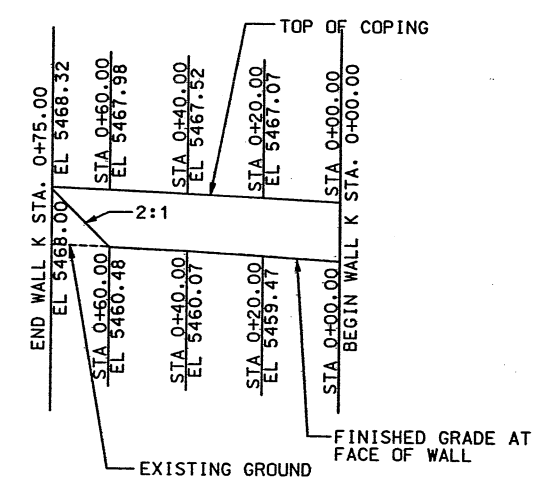
CURVE K1

Δ	4°53'39.48" Rt
L	75.00
R	878.00
T	37.52
PI	0+37.52
N	319659.236
E	635142.911

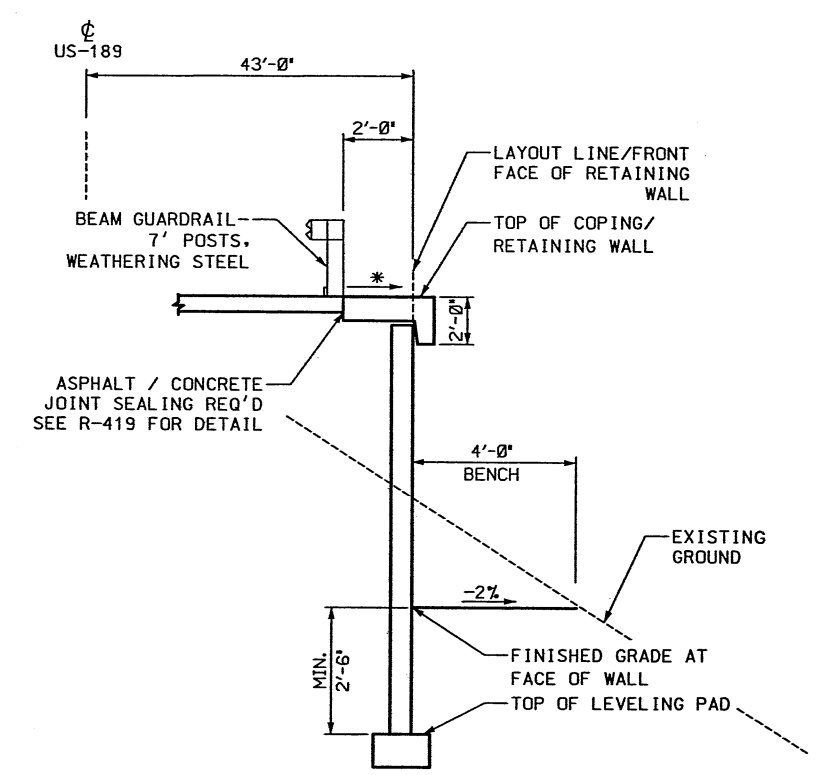
END WALL K
STA. 0+00.00
US-189 STA. 209+75.31
43.0' LT.

BEGIN WALL K
STA. 0+00.00
US-189 STA. 209+03.96
43.0' LT. WITH SOLDIER PILE
WALL R-420C

PLAN



DEVELOPED ELEVATION



SECTION A-A

WALL STA. 0+00.00 TO STA. 0+75.00
* MATCH CROSS-SLOPE OF US-189

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
6. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
7. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
8. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
CAST-IN-PLACE CONCRETE: $F_c = 1400$ PSI
DESIGN SPEED: $F_s = 24,000$ PSI, $n=8 = 50$ M.P.H.

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL K (EST. EXPOSED FACE 512 SF.)	1	LUMP	



UTAH DEPARTMENT OF TRANSPORTATION
STRUCTURES **PARSONS BRINKERHOFF**

SR-189 WILDWOOD TO DEER CREEK
MSE RETAINING WALL R-419K
SITUATION AND LAYOUT

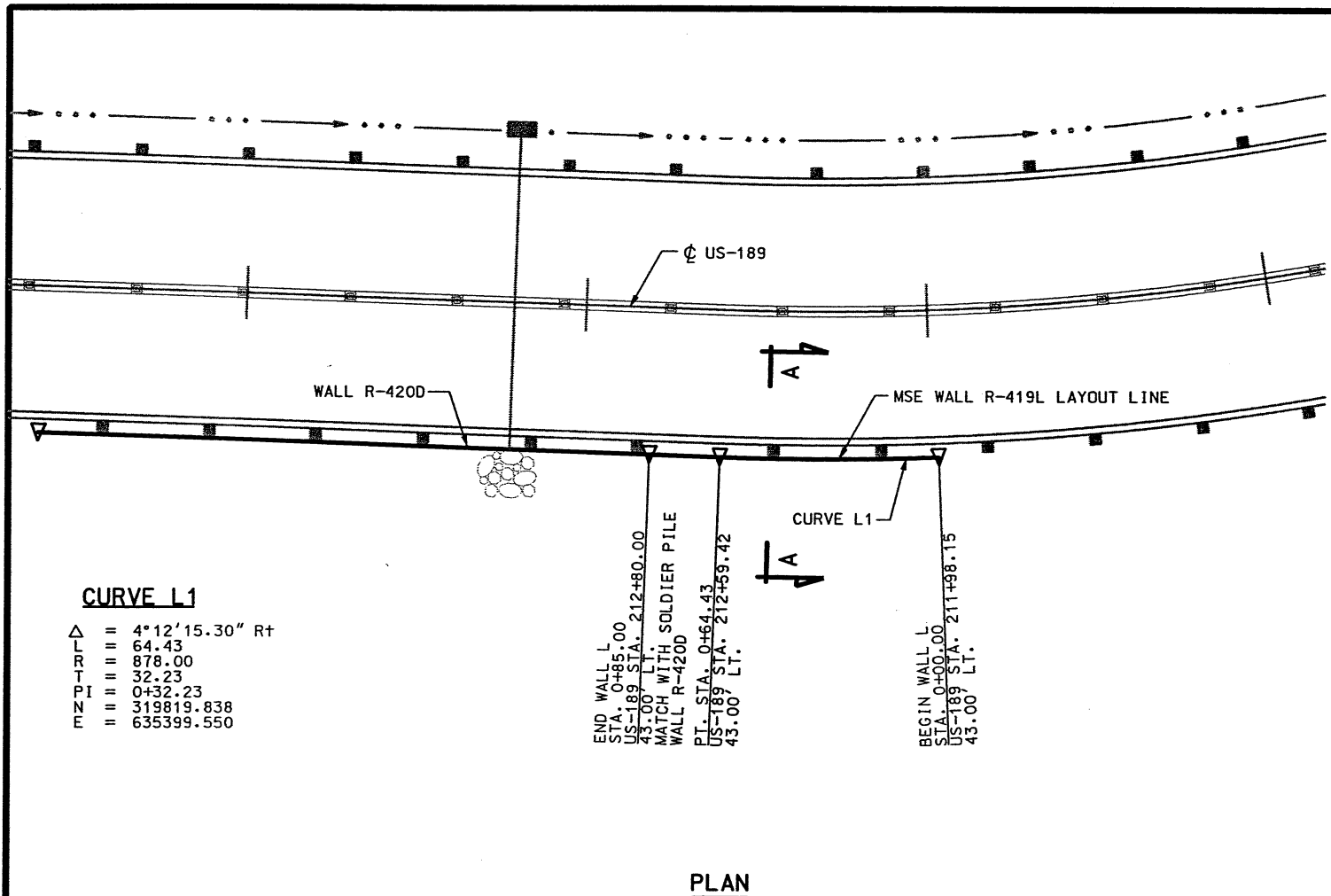
PROJECT NUMBER: *NH-0189 (12) 14

WASATCH COUNTY
R-419K
DRG. NO.

SHT. 1 of 1

NO.	DATE	BY	REVISIONS

DESIGN: WLS_04/03
CHECK: WLS_04/03
DRAWN: DRM_04/03
CHECK: WLS_04/03
SCALE: DRM_04/03
CHECK: STB_12/03



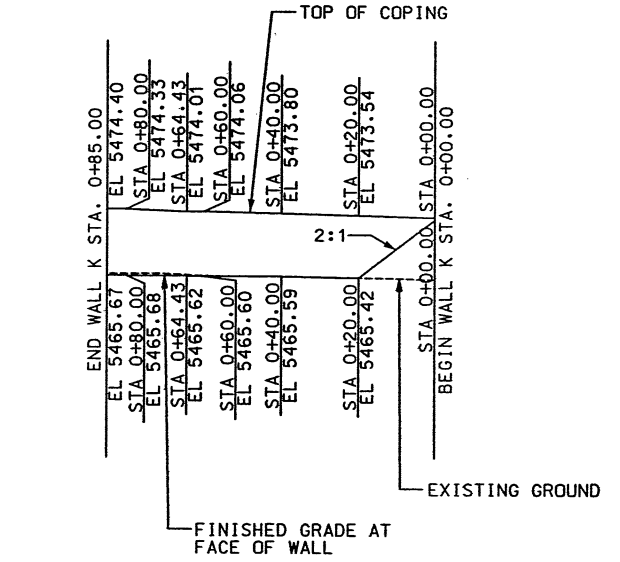
CURVE L1

Δ	4°12'15.30" Rt
L	64.43
R	878.00
T	32.23
P	0+32.23
I	319819.838
N	635399.550
E	

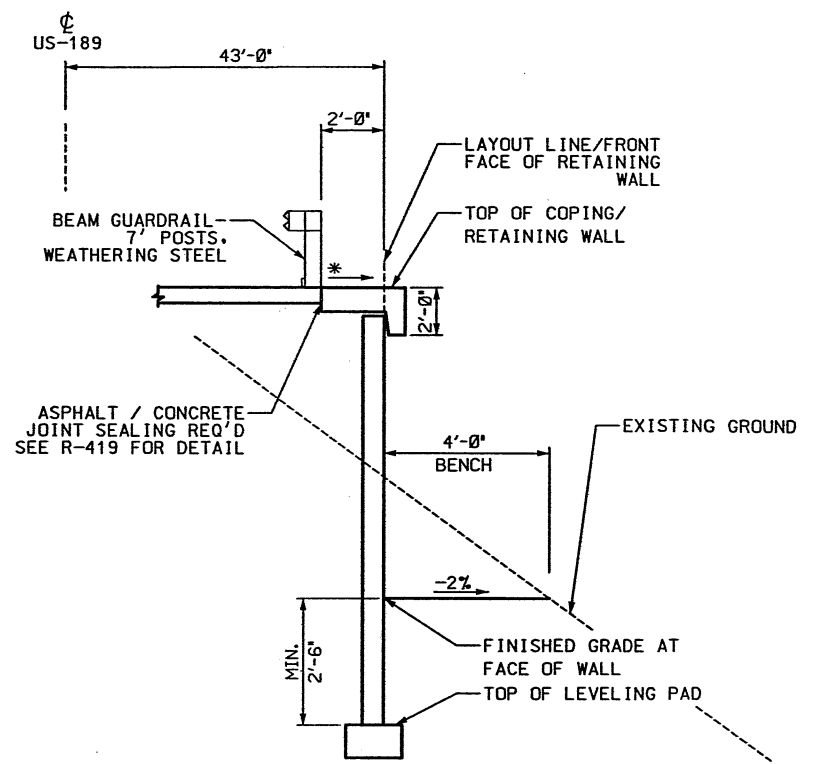
END WALL L
STA. 0+85.00
US-189 STA. 212+80.00
MATCH WITH SOLDIER PILE
WALL R-420D
PT. STA. 0+64.43
US-189 STA. 212+59.42
43.00' LT.

BEGIN WALL L
STA. 0+00.00
US-189 STA. 211+98.15
43.00' LT.

PLAN



DEVELOPED ELEVATION



SECTION A-A

WALL STA. 0+00.00 TO STA. 0+85.00
* MATCH CROSS-SLOPE OF US-189

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
6. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
7. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
8. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
CAST-IN-PLACE CONCRETE: $F_c = 1400$ PSI
 $F_s = 24,000$ PSI, $n=8$
DESIGN SPEED: = 50 M.P.H.

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL L (EST. EXPOSED FACE 627 SF.)	1	LUMP	



UTAH DEPARTMENT OF TRANSPORTATION
STRUCTURES **PB PARSONS BRINCKERHOFF**

SR-189 WILDWOOD TO DEER CREEK
MSE RETAINING WALL R-419L
SITUATION AND LAYOUT

PROJECT NUMBER *NH-0189 (12) 14

DESIGN	DRM	04/03	CHECK	MLS	04/03
DRAWN	DRM	04/03	CHECK	MLS	04/03
QUANT.	DRM	04/03	CHECK	STB	12/03

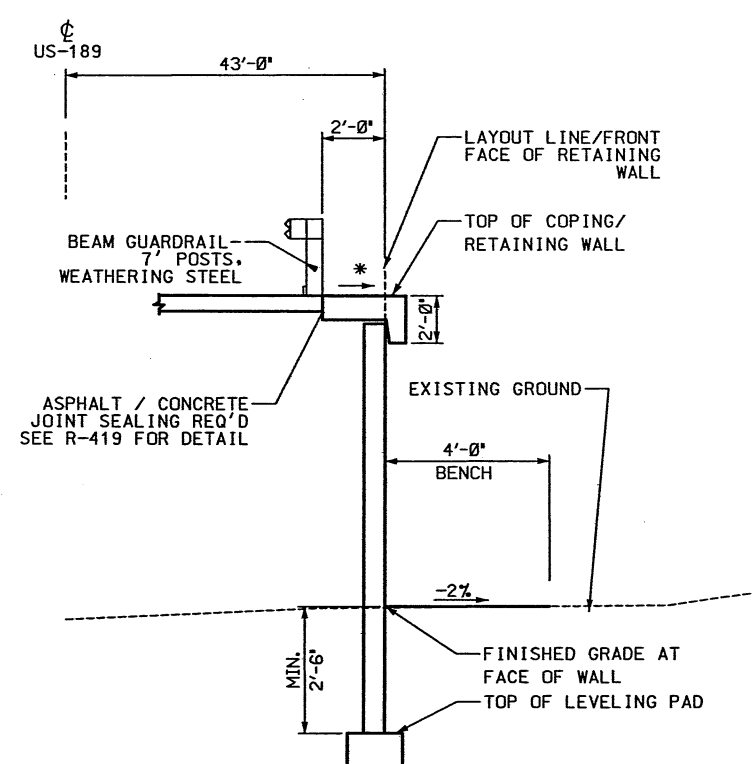
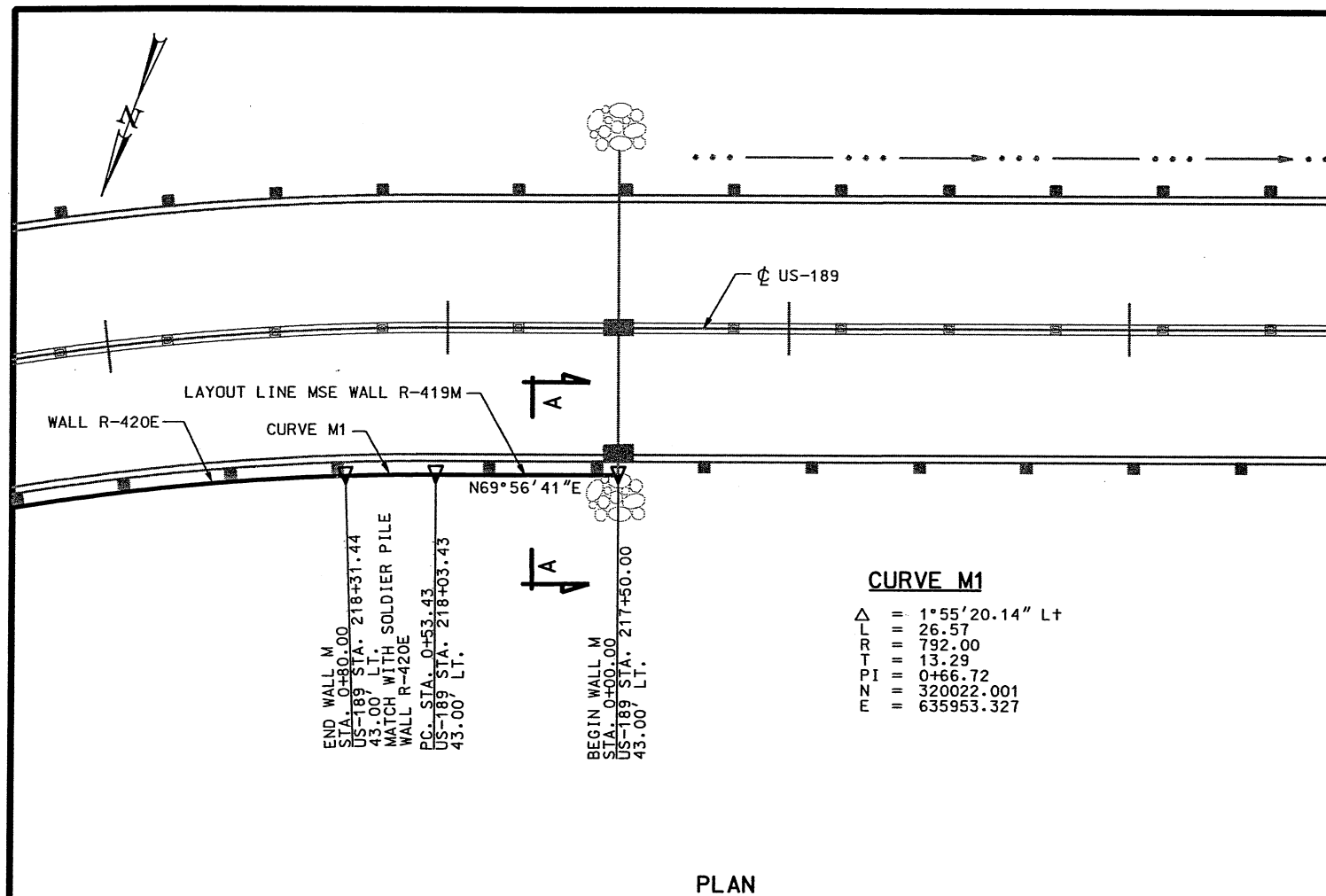
APPROVED BY: *[Signature]* DATE: 2/16/04
BY: *[Signature]* DATE: 2/16/04

REVISIONS

NO.	DATE	BY	REMARKS

WASATCH COUNTY
R-419L
DRG. NO.
SHT. 1 of 1

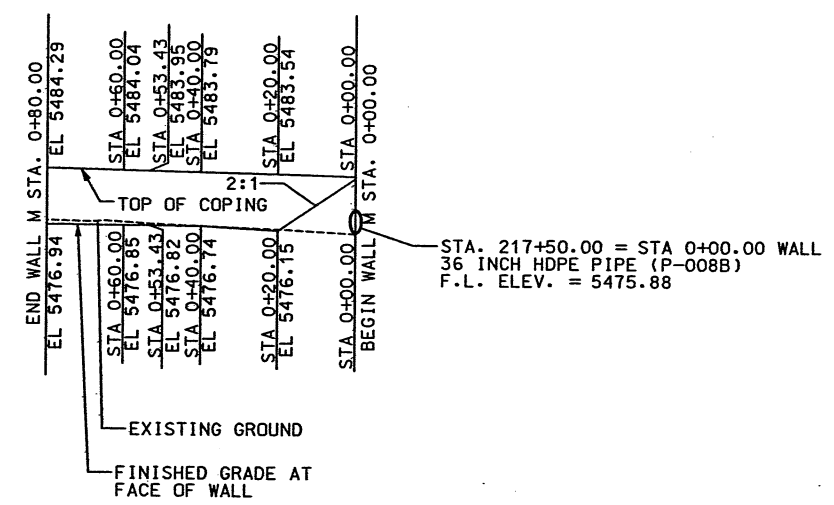
02/16/2004 P:\projects\22577A_Peoples_Creation\3487_BAS\Sheet_E\US-189\WALL R-419L-01.dwg



SECTION A-A

WALL STA. 0+00.00 TO STA. 0+80.00

* MATCH CROSS-SLOPE OF US-189



DEVELOPED ELEVATION

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. SEE DRAINAGE DRAWINGS FOR PIPE DETAILS.
6. USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
7. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
8. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
9. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
 CAST-IN-PLACE CONCRETE: Fc = 1400 PSI
 Fs = 24,000 PSI, n=8
 DESIGN SPEED: = 50 M.P.H.

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL M (EST. EXPOSED FACE 508 SF.)	1	LUMP	



UTAH DEPARTMENT OF TRANSPORTATION
 STRUCTURES **PB PARSONS BRINKERHOFF**
 SR-189 WILDWOOD TO DEER CREEK
 MSE RETAINING WALL R-419M
 SITUATION AND LAYOUT
 PROJECT NUMBER *NH-0189 (12) 14

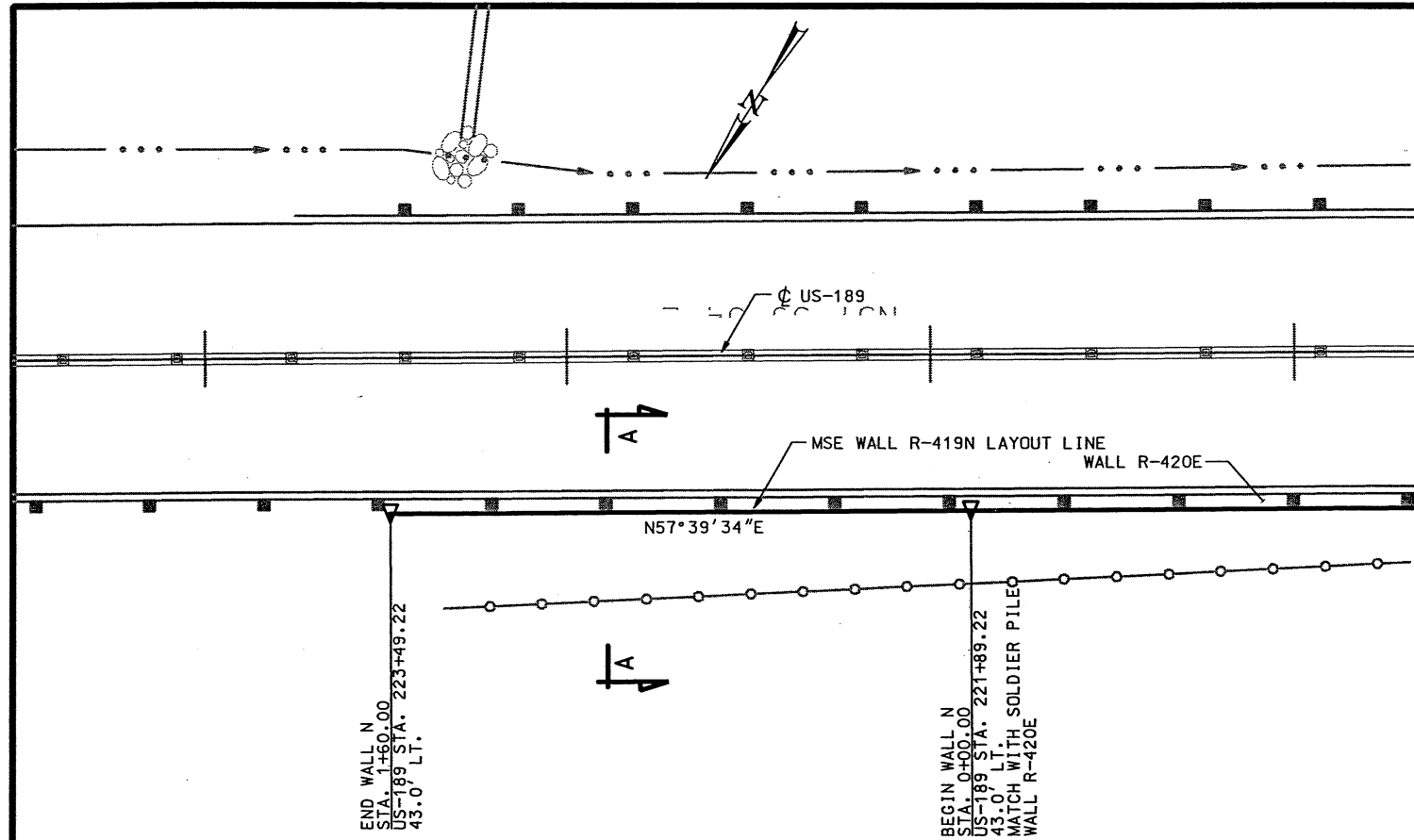
DESIGN	ORIN	04/03	CHECK	WLS	04/03
DRAWN	ORIN	04/03	CHECK	WLS	04/03
QUANT.	ORIN	04/03	CHECK	STB	12/03

APPROVED BY: [Signature] DATE: 2/16/04
 REGISTERED PROFESSIONAL ENGINEER
 No. 11462
 DANIEL J. CHURCH
 2/16/04
 STATE OF UTAH

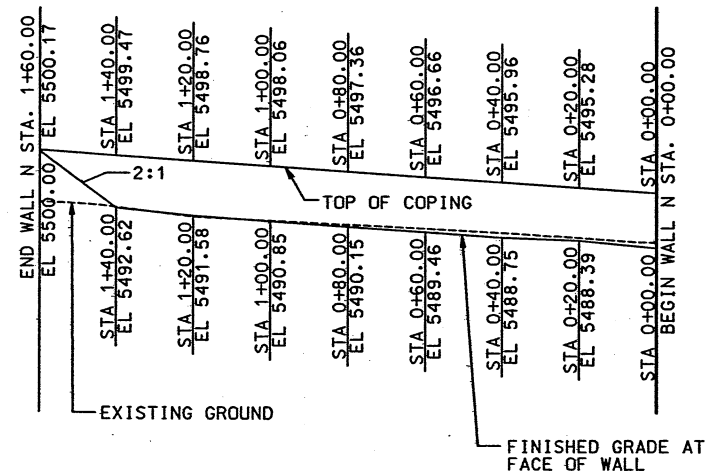
REVISIONS

NO.	DATE	BY	REMARKS

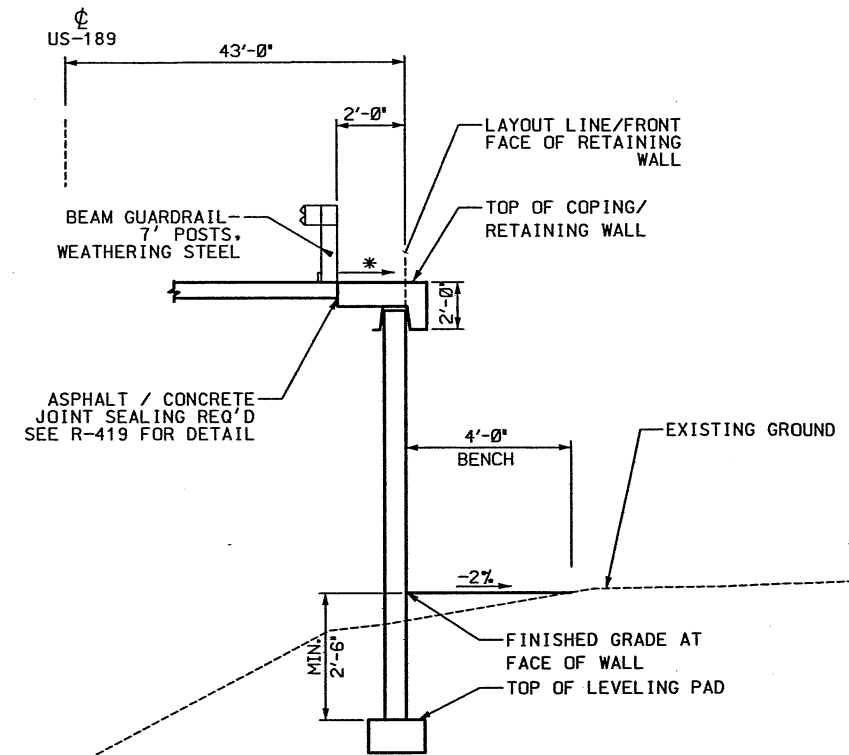
WASATCH COUNTY
 R-419M
 DRG. NO.
 SHT. 1 of 1



PLAN



DEVELOPED ELEVATION



SECTION A-A

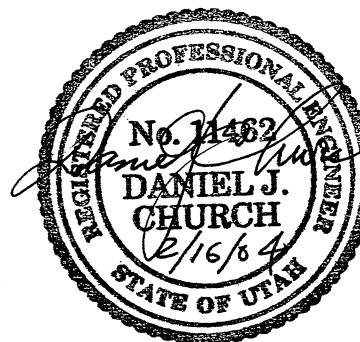
WALL STA 0+00.00 TO STA. 1+60.00
* MATCH CROSS-SLOPE OF US-189

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
6. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
7. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
8. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

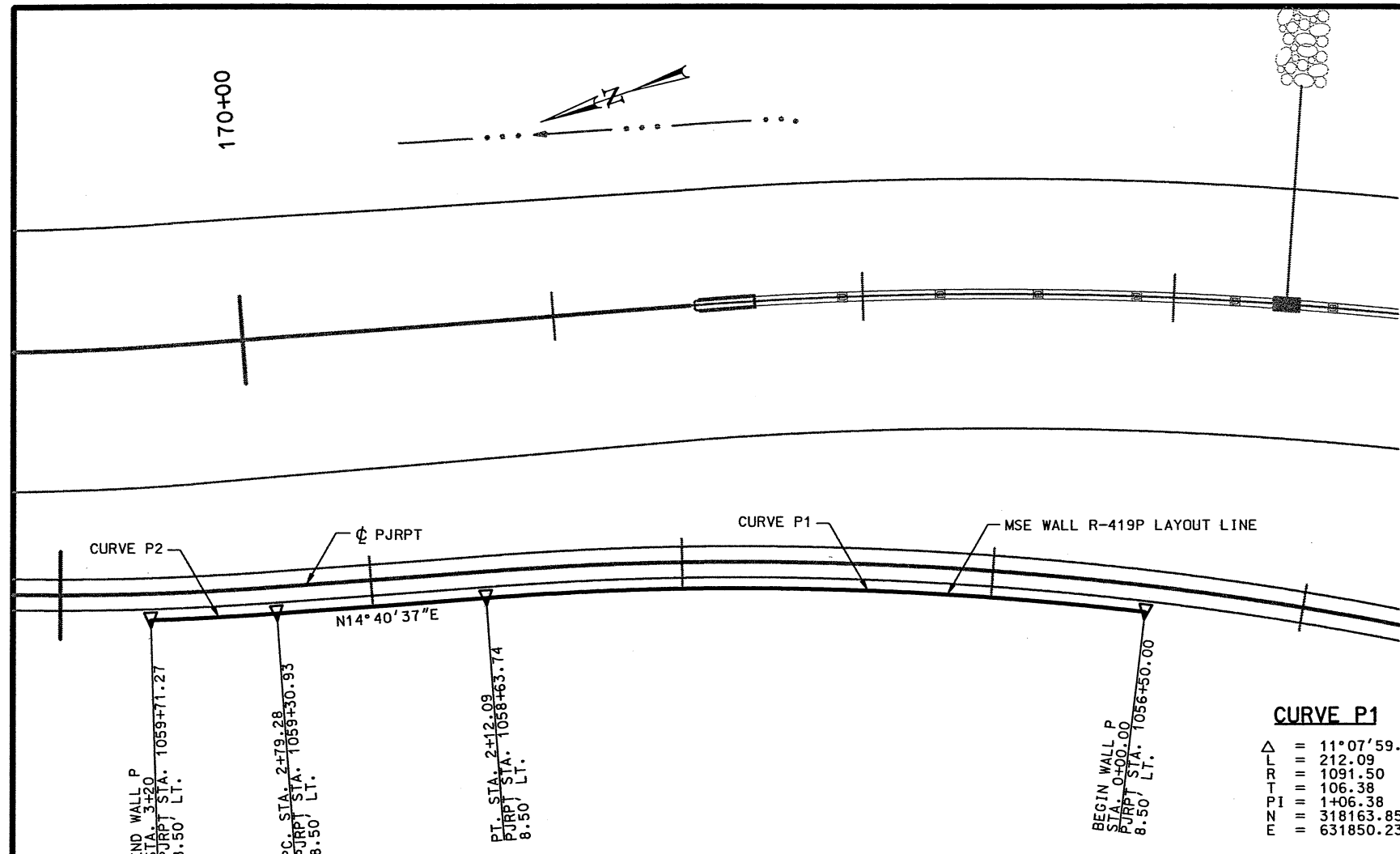
HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
CAST-IN-PLACE CONCRETE: Fc = 1400 PSI
Fs = 24,000 PSI, n=8
DESIGN SPEED: = 50 M.P.H.



QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL N (EST. EXPOSED FACE 1,068 SF.)	1	LUMP	

UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	DRM	04/03	CHECK	WLS	04/03
STRUCTURES		DRAWN	DRM	04/03	CHECK	WLS	04/03
SR-189 WILDWOOD TO DEER CREEK		QUANT.	DRM	04/03	CHECK	STB	12/03
MSE RETAINING WALL R-419N		APPROVAL	DATE	BY	DATE	NO.	REVISIONS
SITUATION AND LAYOUT		RECORDED	DATE	BY	DATE	NO.	REMARKS
PROJECT NUMBER *NH-0189 (12) 14		BY	DATE	NO.	DATE	NO.	REMARKS
WASATCH COUNTY							
R-419N							
DRG. NO.							
SHT. 1 of 1							

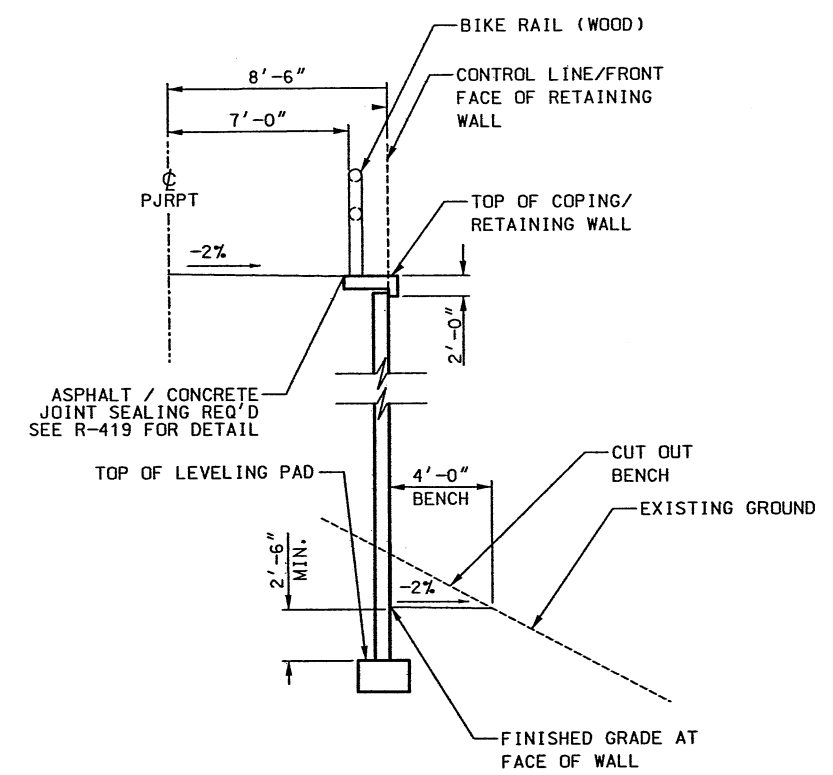


CURVE P1

Δ = 11°07'59.49" Lt
 L = 212.09
 R = 1091.50
 T = 106.38
 PI = 1+06.38
 N = 318163.855
 E = 631850.233

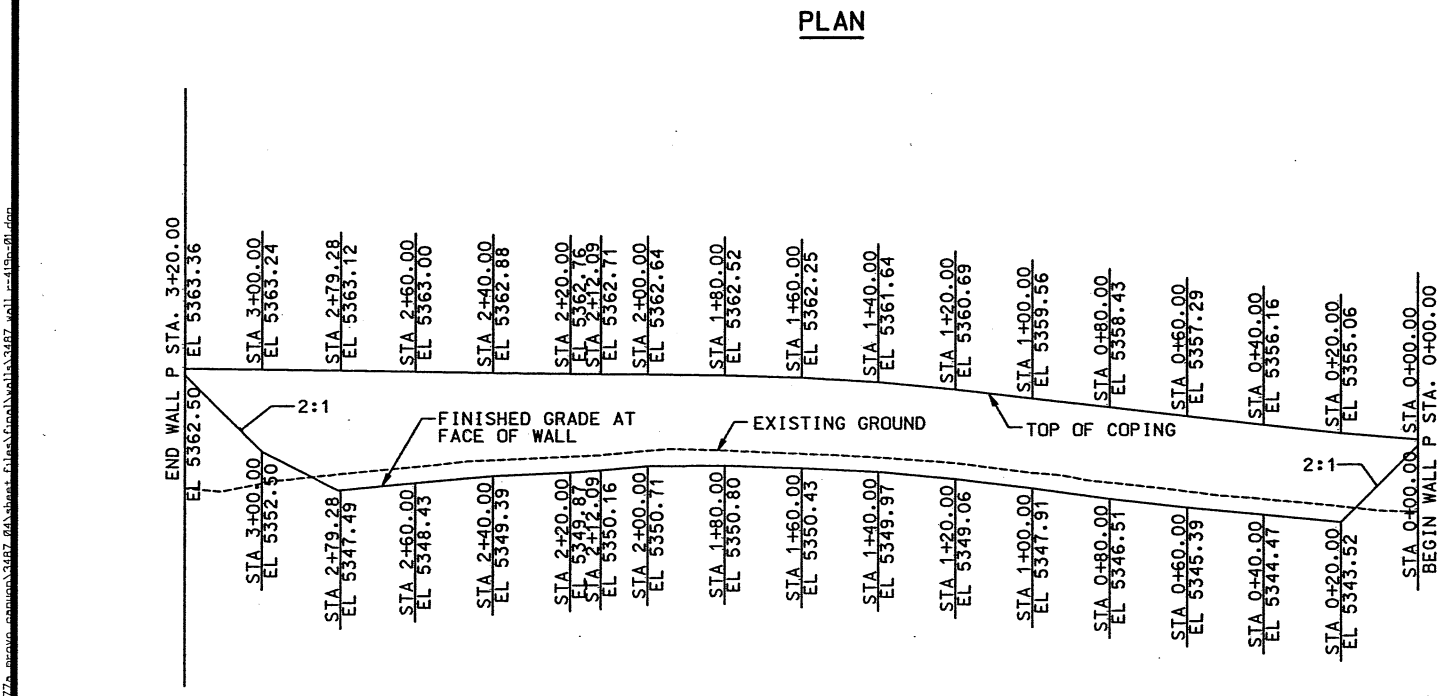
CURVE P2

Δ = 2°34'05.03" Rt
 L = 40.72
 R = 908.50
 T = 20.36
 PI = 2+99.64
 N = 318351.460
 E = 631899.369



TYPICAL SECTION

WALL STA. 0+00.00 TO STA. 3+20.00



DEVELOPED ELEVATION

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. USE FRACTURED FIN FORM LINER AS PER DETAILS ON SHEET R-419.
6. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
7. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
8. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
 CAST-IN-PLACE CONCRETE: Fc = 1400 PSI
 DESIGN SPEED: Fs = 24,000 PSI, n=8 = 50 M.P.H.

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL P (EST. EXPOSED FACE 3,716 SF.)	1	LUMP	



UTAH DEPARTMENT OF TRANSPORTATION

STRUCTURES **PB BRINKERHOFF**

SR-189 WILDWOOD TO DEER CREEK

MSE RETAINING WALL R-419P

SITUATION AND LAYOUT

PROJECT NUMBER *NH-0189 (12) 14

WASATCH COUNTY

R-419P

DRG. NO.

SHT. 1 of 1

NO.	DATE	BY	REVISIONS

DESIGN: DRB 04/03 CHECK: WLS 04/03
 DRAWN: DRB 04/03 CHECK: WLS 04/03
 QUANT.: DRB 04/03 CHECK: STB 12/03

APPROVED: *[Signature]* 2/16/04
 BY: *[Signature]* 2/16/04
 DATE: 2/16/04
 TITLE: PROJECT ENGINEER

GENERAL NOTES

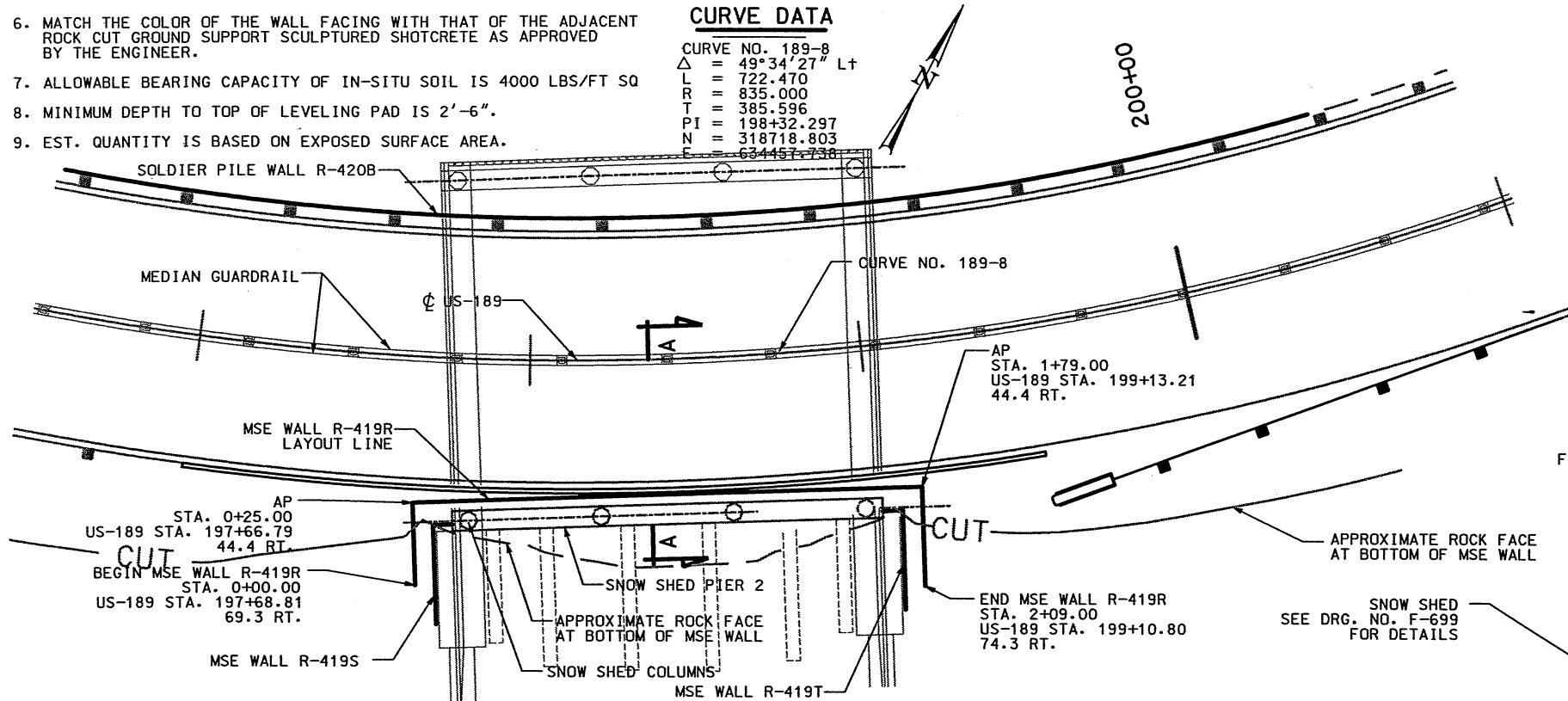
1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. THE BEGINNING AND END STATIONS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY.
6. MATCH THE COLOR OF THE WALL FACING WITH THAT OF THE ADJACENT ROCK CUT GROUND SUPPORT SCULPTURED SHOTCRETE AS APPROVED BY THE ENGINEER.
7. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
8. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
9. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

DESIGN DATA

SEE LOADING DIAGRAM ON DWG. NO. R-419R SHEET 2 OF 2 WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS. FOR THE DESIGN OF MSE WALLS AVALANCHE LOADS ARE TO BE CONSIDERED AN EXTREME EVENT. CAST-IN-PLACE CONCRETE: Fc = 1400 PSI, Fs = 24,000 PSI, n=8
 DESIGN SPEED: = 50 M.P.H.

CURVE DATA

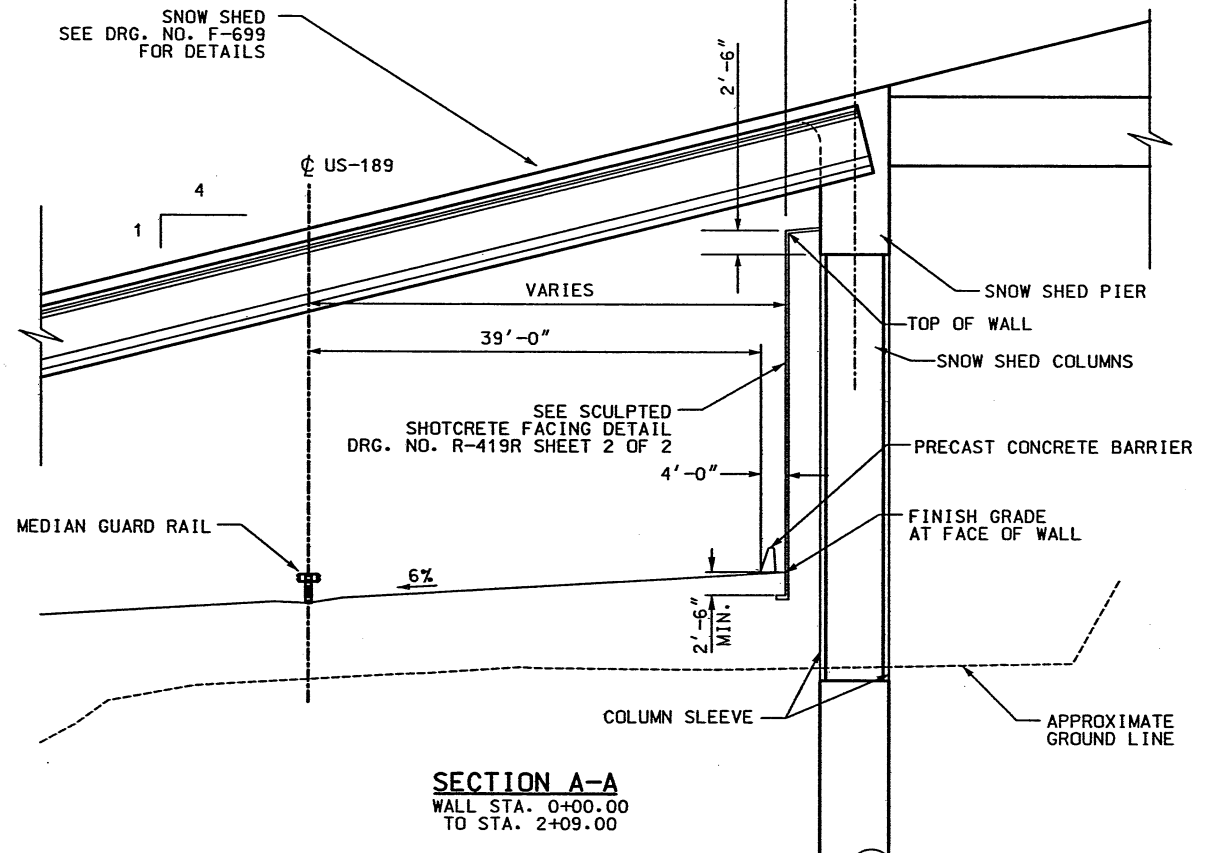
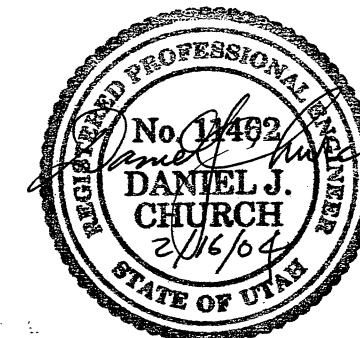
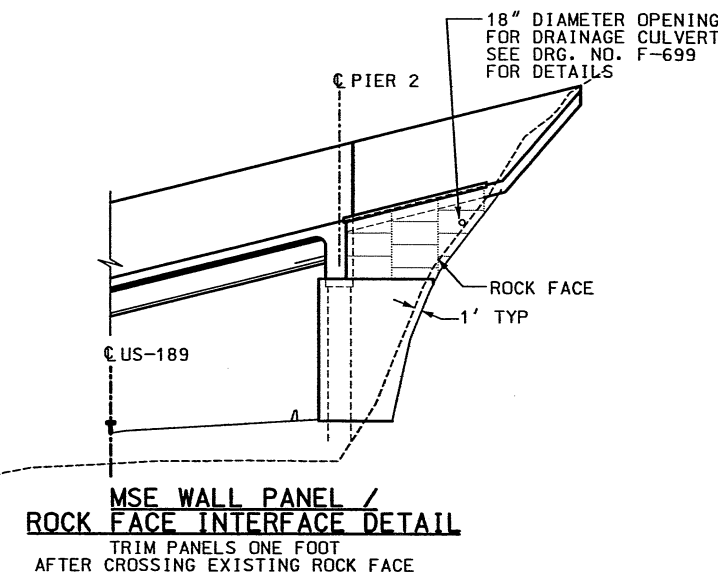
CURVE NO. 189-8
 Δ = 49°34'27" Lt
 L = 722.470
 R = 835.000
 T = 385.596
 PI = 198+32.297
 N = 318718.803
 E = 634457.238



STATION	ELEVATION	STATION	ELEVATION
STA 0+12.50	EL 5445.58	STA 1+20.00	EL 5446.04
STA 0+19.50	EL 5445.50	STA 1+40.00	EL 5446.21
STA 0+25.00	EL 5445.59	STA 1+60.00	EL 5446.41
STA 0+45.00	EL 5445.64	STA 1+79.00	EL 5446.69
STA 0+65.00	EL 5445.71	STA 1+88.00	EL 5446.80
STA 0+85.00	EL 5445.81	STA 2+00.27	EL 5447.00
STA 1+00.00	EL 5445.90		
STA 1+20.00	EL 5446.04		
STA 1+40.00	EL 5446.21		
STA 1+60.00	EL 5446.41		
STA 1+79.00	EL 5446.69		
STA 1+88.00	EL 5446.80		
STA 2+00.27	EL 5447.00		

DEVELOPED ELEVATION

WALL STA. 0+00.00 TO STA. 2+09.00



QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL R (EST. EXPOSED FACE 5,298 SF.)	1	LUMP	

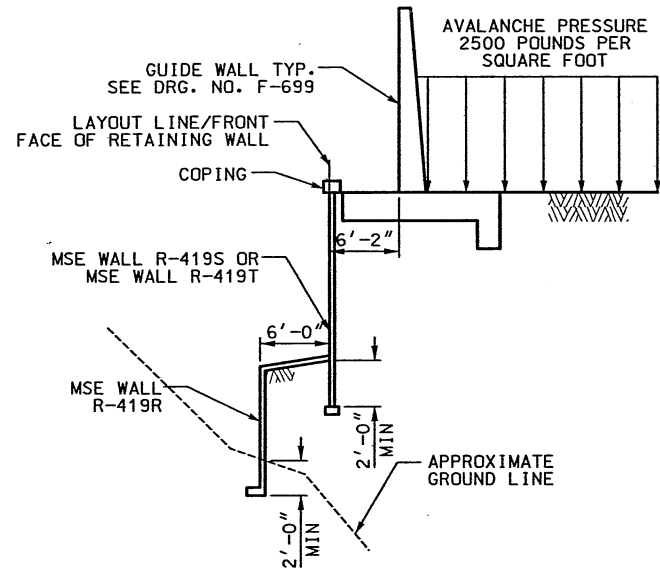
UTAH DEPARTMENT OF TRANSPORTATION
 STRUCTURES
 SR-189 WILDWOOD TO DEER CREEK
 MSE RETAINING WALL R-419R
 SITUATION AND LAYOUT
 PROJECT NUMBER *NH-0189 (12) 14

DESIGN: DJC 09/03
 CHECK: DJC 09/03
 DRAWN: DJC 09/03
 QUANT.: DJC 09/03
 DATE: DJC 09/03

APPROVED BY: [Signature]
 DATE: 2/16/04

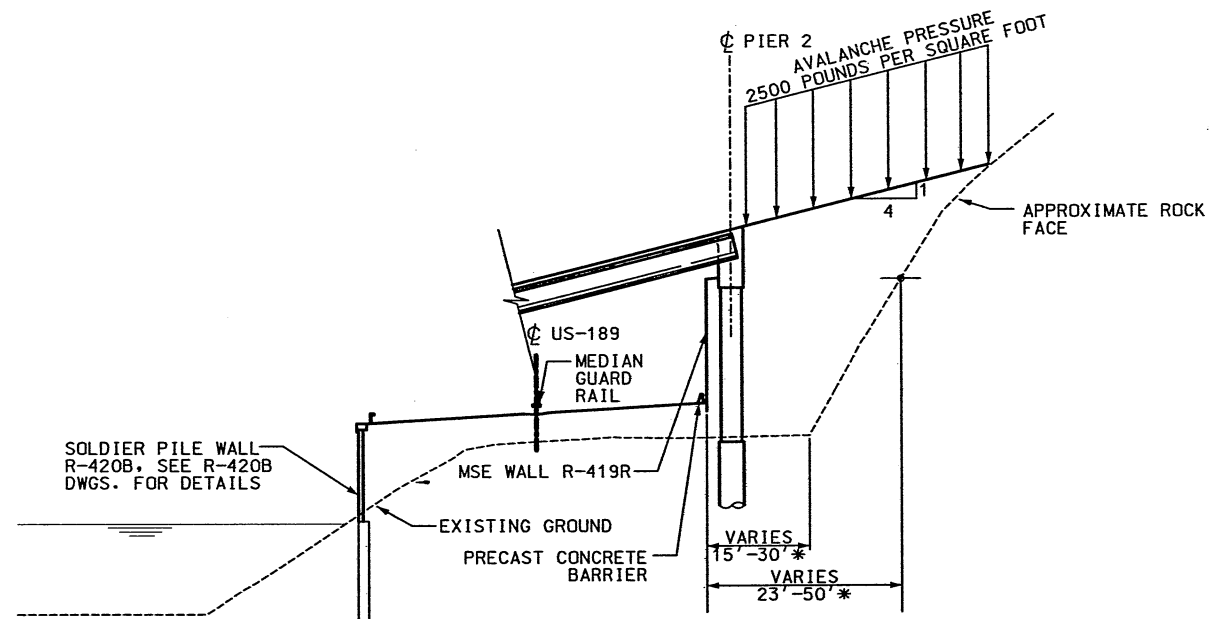
REVISIONS

WASATCH COUNTY
 R-419R
 DRG. NO.
 SHT. 1 of 2



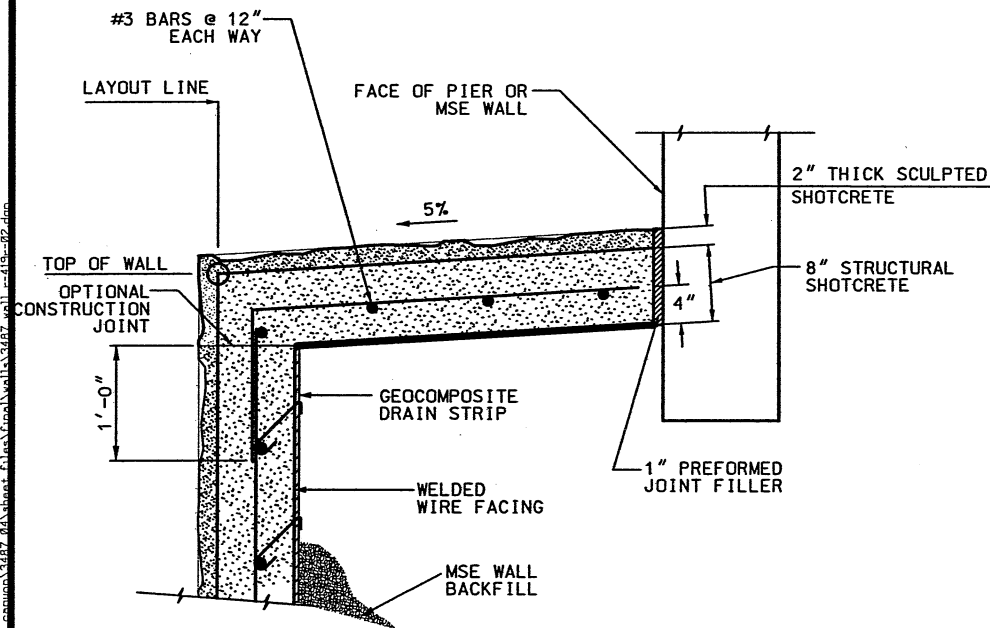
MSE WALL R-419R LOADING DIAGRAM

STA. 0+00.00 - 0+19.50
STA. 1+81.00 - 1+99.00

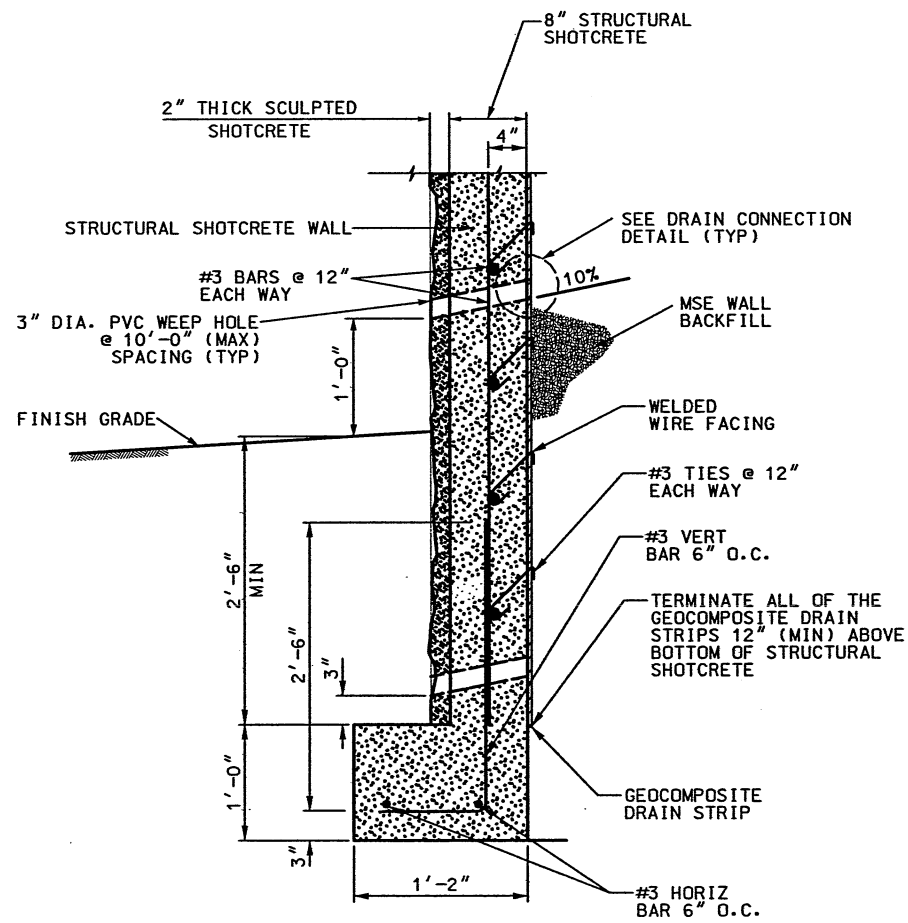


MSE WALL R-419R LOADING DIAGRAM

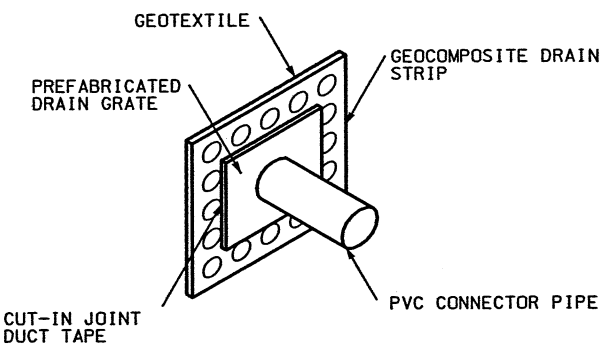
STA. 0+19.50 - 1+81.00
* CONTRACTOR TO FIELD VERIFY LOCATIONS OF ROCK FACE



TOP OF WALL DETAIL



WALL FOOTING, AND SCULPTED SHOTCRETE FACING DETAIL



DRAIN CONNECTION DETAILS - ISOMETRIC VIEW

#3 TIE DETAIL

NOTES:

- DO NOT DISRUPT GEOTEXTILE WITH DRAIN INSTALLATION.
- PROVIDE MINIMUM 12" LAP (1d MIN) FOR #3 BARS.

UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	DN	09/03	CHECK	DJC	09/03
STRUCTURES		DESIGN	DN	09/03	CHECK	DJC	09/03
SR-189 WILDWOOD TO DEER CREEK		APPROVAL	DATE	DATE	DATE	DATE	DATE
MSE RETAINING WALL R-419R		BY	DATE	DATE	DATE	DATE	DATE
LOADING DIAGRAMS		BY	DATE	DATE	DATE	DATE	DATE
PROJECT NUMBER		BY	DATE	DATE	DATE	DATE	DATE
*NH-0189 (12) 14		BY	DATE	DATE	DATE	DATE	DATE
SHT. 2 of 2		REVISIONS	NO.	DATE	BY	DATE	REMARKS
WASATCH COUNTY							
R-419R							
DRG. NO.							

GENERAL NOTES

- USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
- CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
- PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
- USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
- THE BEGINNING AND END STATIONS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY.
- PROVIDE CONTROL JOINT AT EVERY PANEL JOINT.

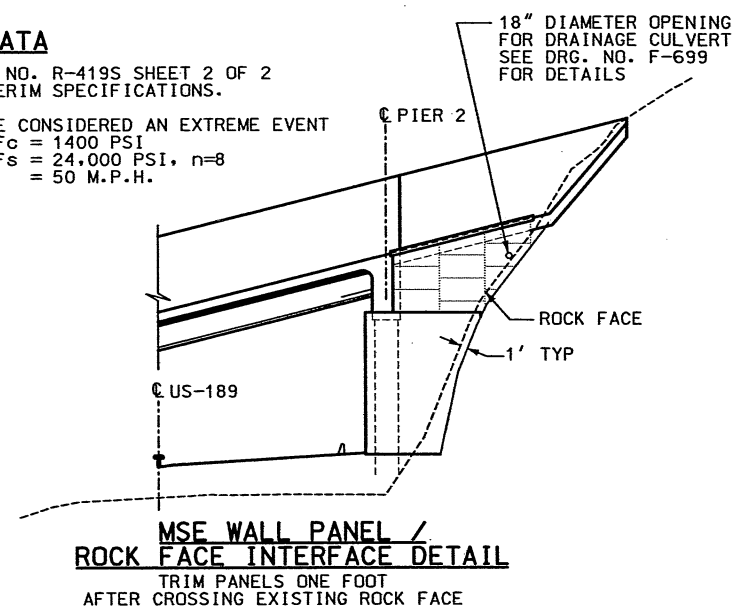
- DESIGN AND DETAIL GRADE BEAM FOR ROCK INTERFACE USE AN ULTIMATE BEARING CAPACITY OF 10 KSF FOR THE ROCK.
- FORM LINERS SHALL BE #1501 LARGE SANDSTONE ASHLAR BY CUSTOM ROCK INTERNATIONAL OR SIMILAR APPROVED BY ENGINEER.
- MATCH THE COLOR OF THE WALL FACING WITH THAT OF THE ADJACENT ROCK CUT GROUND SUPPORT SCULPTURED SHOTCRETE AS APPROVED BY THE ENGINEER.
- ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
- MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".

DESIGN DATA

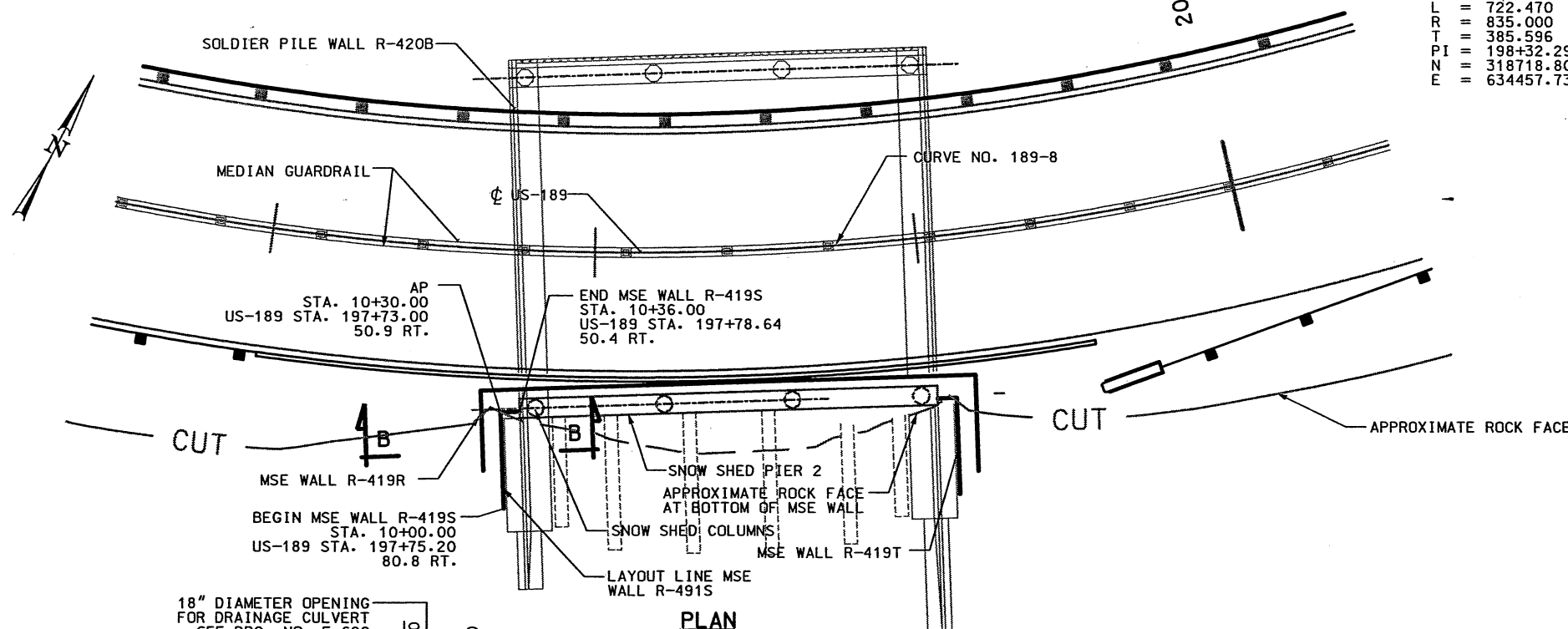
SEE LOADING DIAGRAM ON DRG. NO. R-419S SHEET 2 OF 2 WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS. FOR THE DESIGN OF MSE WALLS AVALANCHE LOADINGS ARE TO BE CONSIDERED AN EXTREME EVENT
 CAST-IN-PLACE CONCRETE: $F_c = 1400$ PSI
 $F_s = 24,000$ PSI, $n=8$
 DESIGN SPEED: = 50 M.P.H.

CURVE DATA

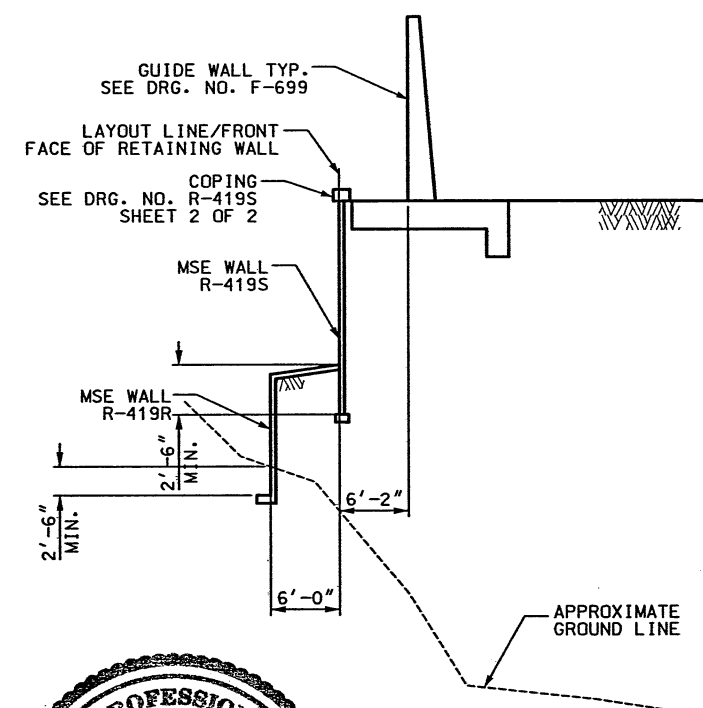
CURVE NO. 189-8
 $\Delta = 49^\circ 34' 27''$ L+
 $L = 722.470$
 $R = 835.000$
 $T = 385.596$
 $PI = 198+32.297$
 $N = 318718.803$
 $E = 634457.738$



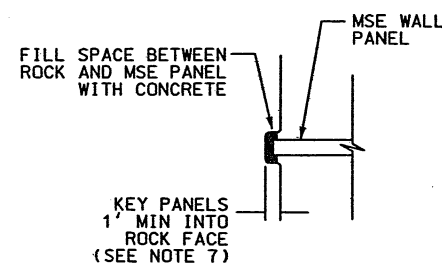
MSE WALL PANEL / ROCK FACE INTERFACE DETAIL
 TRIM PANELS ONE FOOT AFTER CROSSING EXISTING ROCK FACE



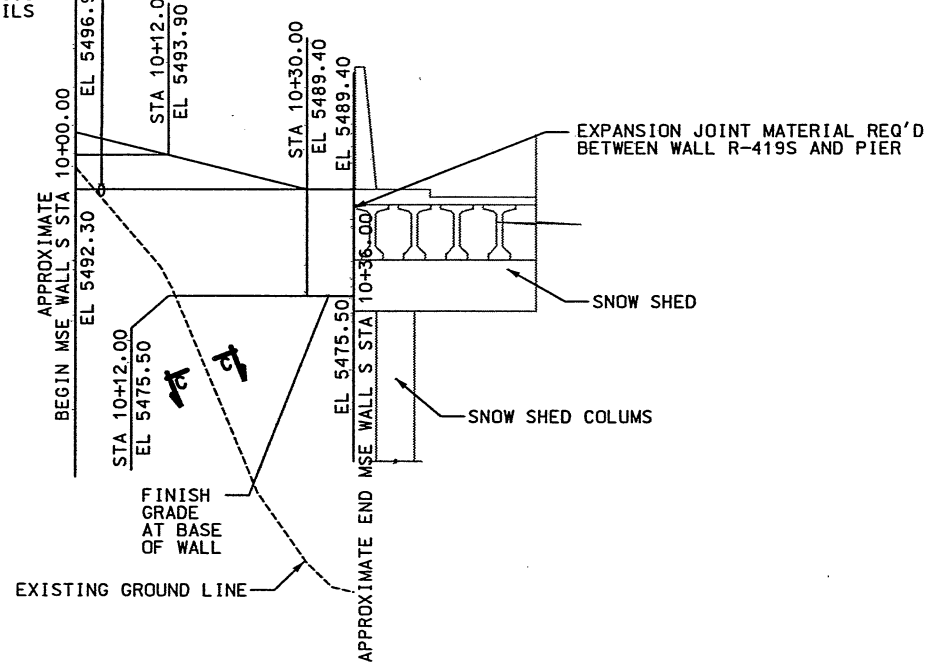
PLAN



SECTION B-B



SECTION C-C (GRADE BEAM)



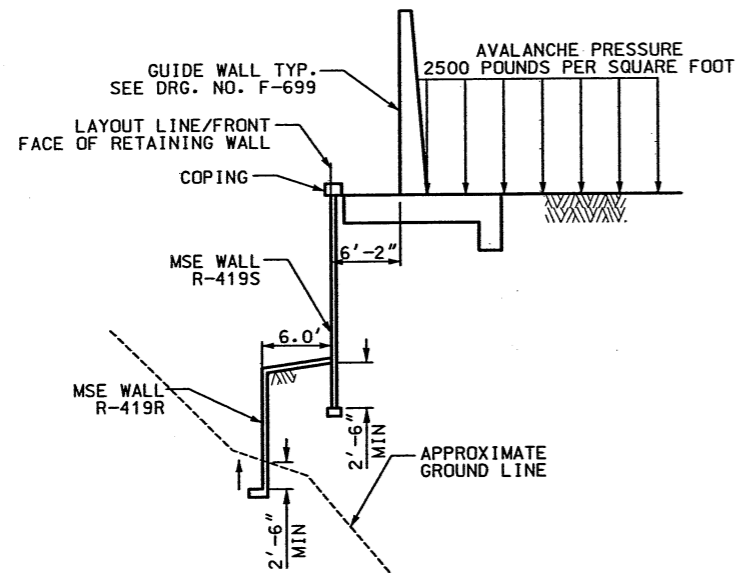
DEVELOPED ELEVATION
 NOT TO SCALE



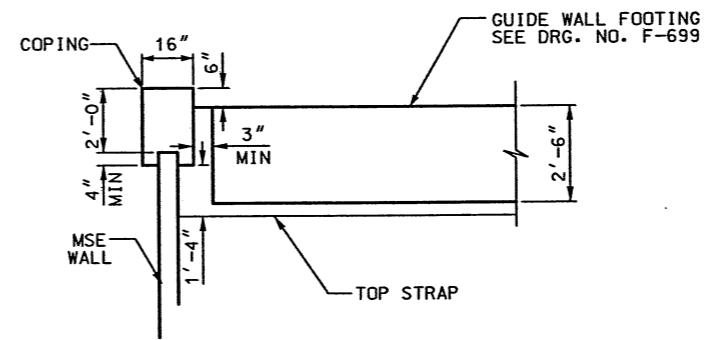
QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL S (EST. EXPOSED FACE 496 SF.)	1	LUMP	

UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	DN	09/03	CHECK	DJC	09/03
STRUCTURES		DRAWN	DN	09/03	CHECK	DJC	09/03
SR-189 WILDWOOD TO DEER CREEK		APPROVED	BY	DATE	QUANT.	DN	09/03
MSE RETAINING WALL R-419S		BY			CHECK	STB	12/03
SITUATION AND LAYOUT		REVISIONS					
PROJECT NUMBER *NH-0189 (12) 14		NO.					
WASATCH COUNTY		BY					
R-419S		DATE					
DRG. NO.		NO.					
SHT. 1 of 2		REVISIONS					



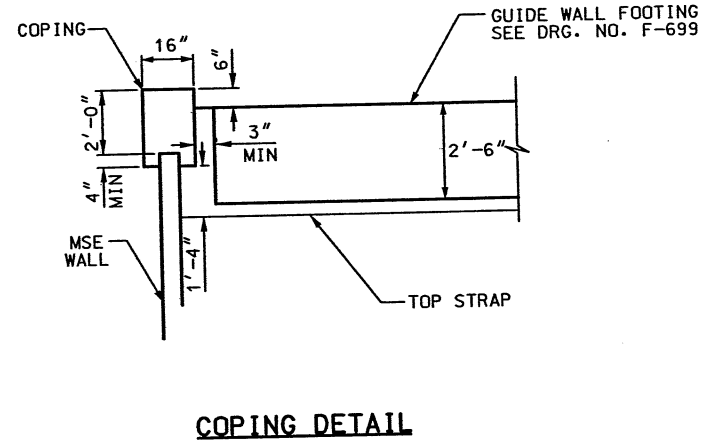
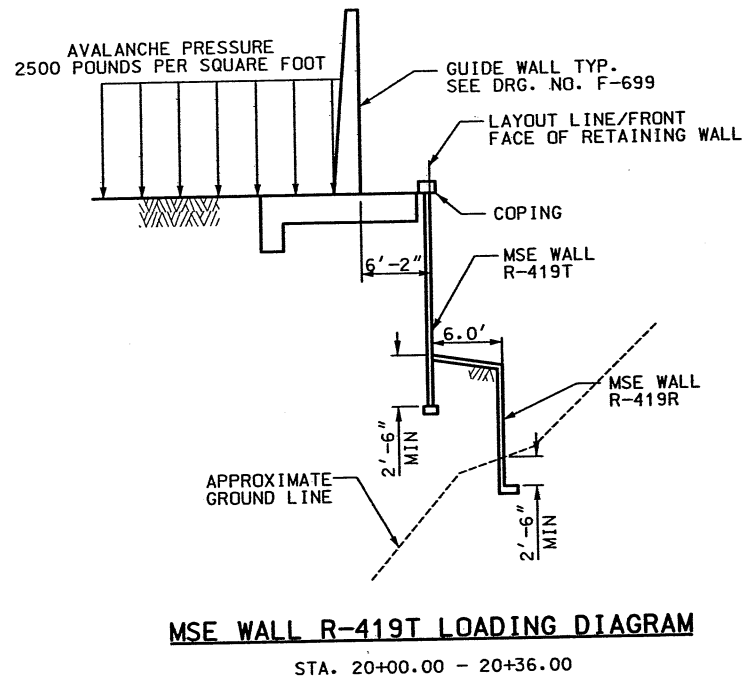
WALL R-419S LOADING DIAGRAM
STA. 10+00.00 - 10+36.00



COPING DETAIL

SR-189 WILDWOOD TO DEER CREEK		UTAH DEPARTMENT OF TRANSPORTATION	
MSE RETAINING WALL R-419S		STRUCTURES	
LOADING DIAGRAMS		PARSONS BRINCKERHOFF	
PROJECT NUMBER *NH-0189 (12) 14		DESIGN DN 09/03	CHECK DJC 09/03
		DRAWN DN 09/03	CHECK DJC 09/03
		WARRANT. DN 09/03	CHECK STB 12/03
WASATCH COUNTY		REVISIONS	
R-419S DRG. NO.		NO.	DATE
SHT. 2 of 2		BY	REMARKS

02/13/2004 c:\pwworking\parsons\project\189\189-0189\189-0189-14.dwg



SR-189 WILDWOOD TO DEER CREEK
 MSE RETAINING WALL R-419T
 LOADING DIAGRAMS
 PROJECT NUMBER NH-0189 (12) 14
WASATCH
 COUNTY
R-419T
 DRG. NO.
 SHT. 2 of 2

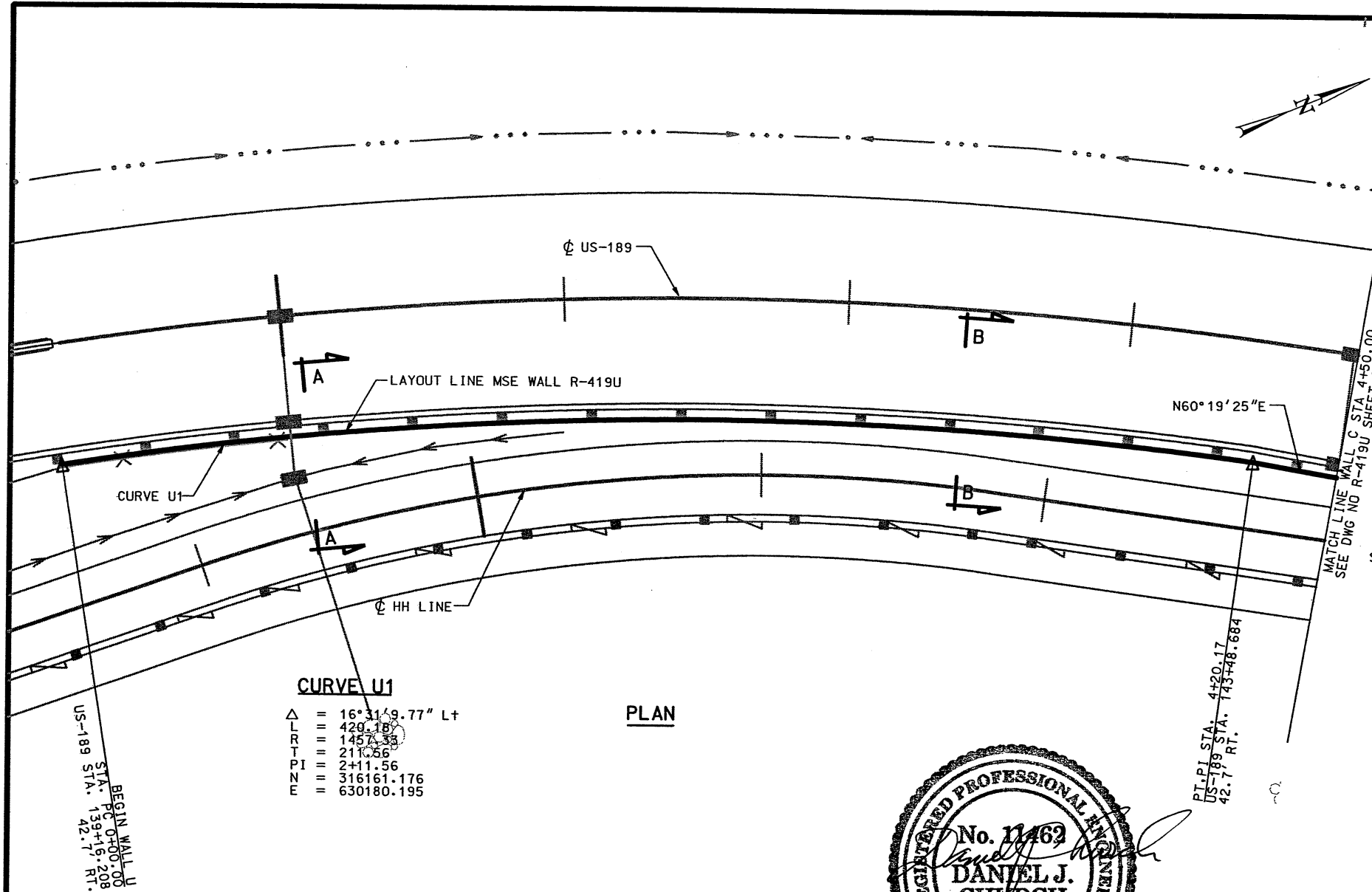
UTAH DEPARTMENT OF TRANSPORTATION

STRUCTURES
P. BRINGKHOFF

APPROVAL	DATE	DESIGN	DN	CHECK	DJC	09/03
RECORD	3/16/04	DRAWN	DN	CHECK	DJC	09/03
APPROVED	DATE	QUANT.	DN	CHECK	STB	12/03
BY	3/16/04		DN			
BY			DN			
BY			DN			
BY			DN			
BY			DN			
BY			DN			
BY			DN			
BY			DN			
BY			DN			
BY			DN			
BY			DN			

REVISIONS
 NO. DATE BY
 1. 09/03
 2. 09/03
 3. 12/03

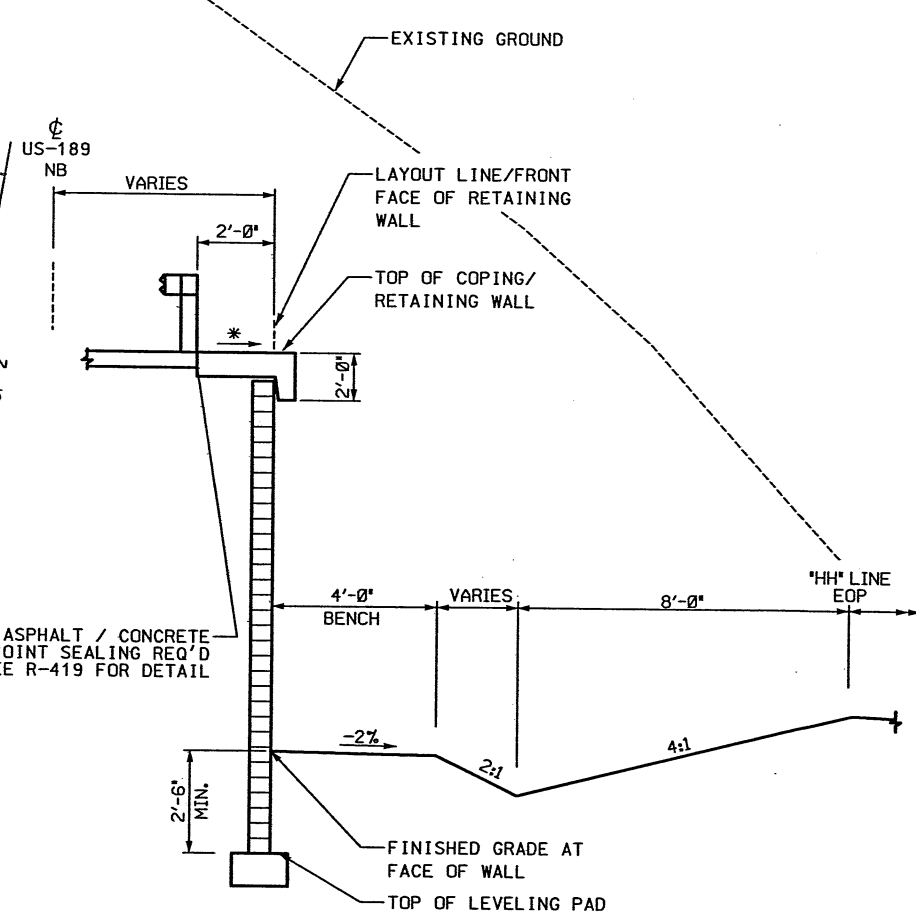
REMARKS



CURVE U1

Δ	16°31'29.77" L+
	429.78
	1457.33
	2110.56
	3161.176
	6301.80.195

PLAN



SECTION A-A

WALL STA. 0+00.00
TO STA. 2+62.30

* MATCH CROSS-SLOPE OF US-189

SECTION B-B

WALL STA. 2+62.30
TO STA. 4+51.80
WALL STA. 8+43.91
TO STA. 9+00.00

SEE DRG. NO. R-419U
SHEET 2 OF 2 FOR SECTION

GENERAL NOTES

1. USE COATED DEFORMED BILLET-STEEL REINFORCING BARS CONFORMING TO AASHTO M 284 OR M 111 AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER EXPOSED CONCRETE CORNERS 3/4" EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" OF COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. USE CLASS AA(AE) CONCRETE EXCEPT WHERE SPECIFIED OTHERWISE.
5. SEE DRAINAGE DRAWINGS FOR PIPE DETAILS
6. USE MODULAR BLOCK WALL THAT MATCHES EXISTING WALLS ALONG PROV D RIVER.
7. ALLOWABLE BEARING CAPACITY OF IN-SITU SOIL IS 4000 LBS/FT SQ
8. MINIMUM DEPTH TO TOP OF LEVELING PAD IS 2'-6".
9. EST. QUANTITY IS BASED ON EXPOSED SURFACE AREA.

STA.	EL.	TOP OF COPING	EL.	FINISHED GRADE AT FACE OF WALL	EL.	EXISTING GROUND	EL.
BEGIN WALL U	0+00.00						
	0+00.00						
	0+20.00						
	0+40.00						
	0+60.00						
	0+80.00						
	1+00.00						
	1+20.00						
	1+40.00						
	1+60.00						
	1+80.00						
	2+00.00						
	2+20.00						
	2+40.00						
	2+60.00						
	2+80.00						
	3+00.00						
	3+20.00						
	3+40.00						
	3+60.00						
	3+80.00						
	4+00.00						
	4+20.00						
	4+40.00						
	4+50.00						

DESIGN DATA

HS-20-44 OR INTERSTATE ALTERNATIVE LOADING IN ACCORDANCE WITH CURRENT AASHTO AND INTERIM SPECIFICATIONS.
CAST-IN-PLACE CONCRETE: F_c = 1400 PSI
DESIGN SPEED: F_s = 24,000 PSI, n=8 = 50 M.P.H.

DEVELOPED ELEVATION

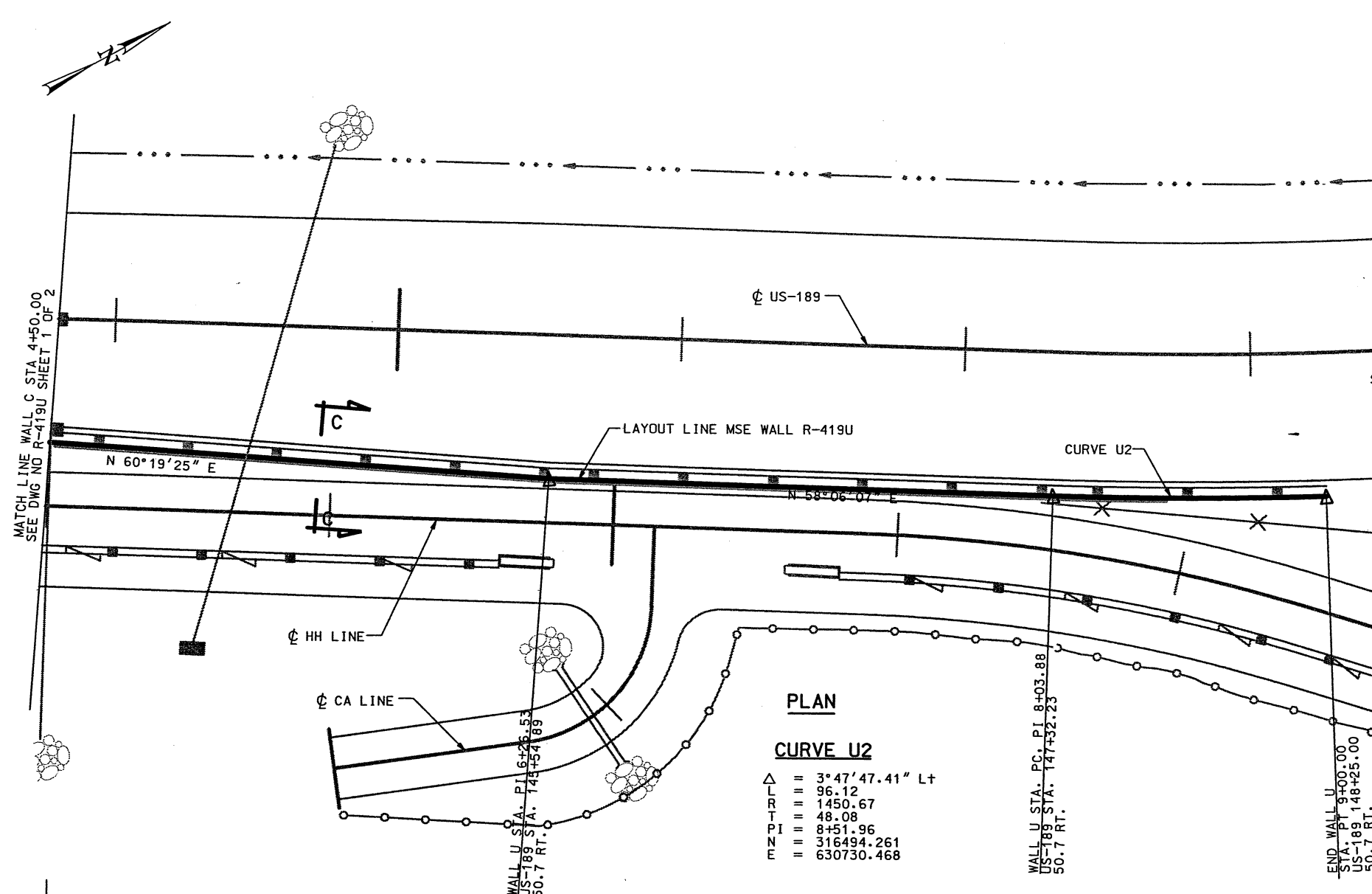
STA. 143+78.77 = STA. 4+48.72 WALL 36
24 INCH HDPE PIPE (P-021B)
F.L. ELEV. = 5338.14

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL U (EST. EXPOSED FACE 7,115 SF.)	1	LUMP	

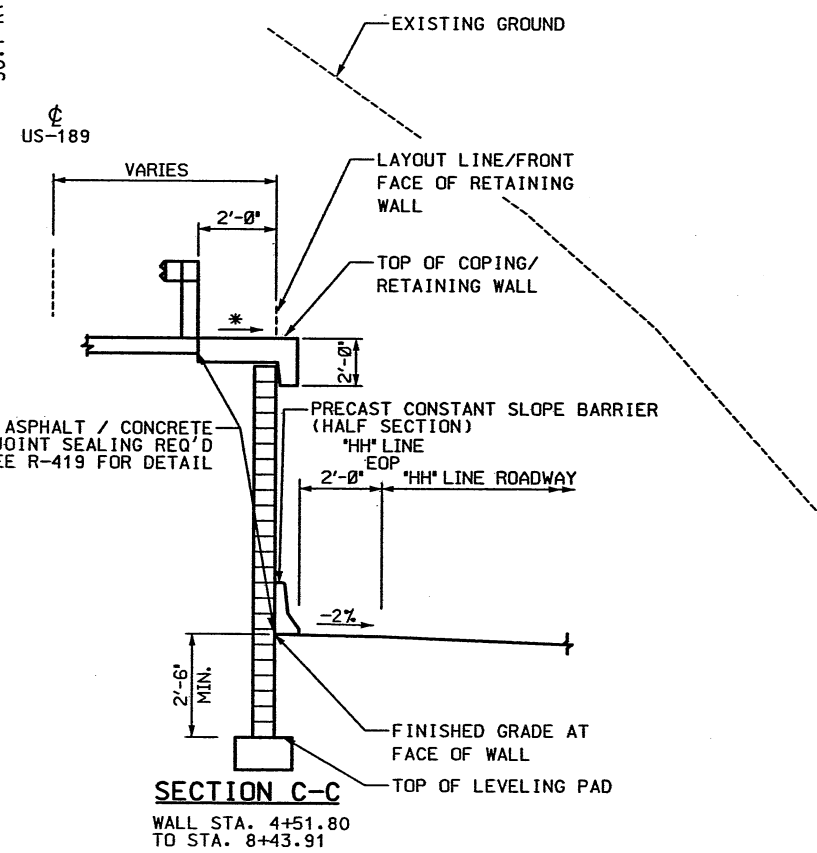
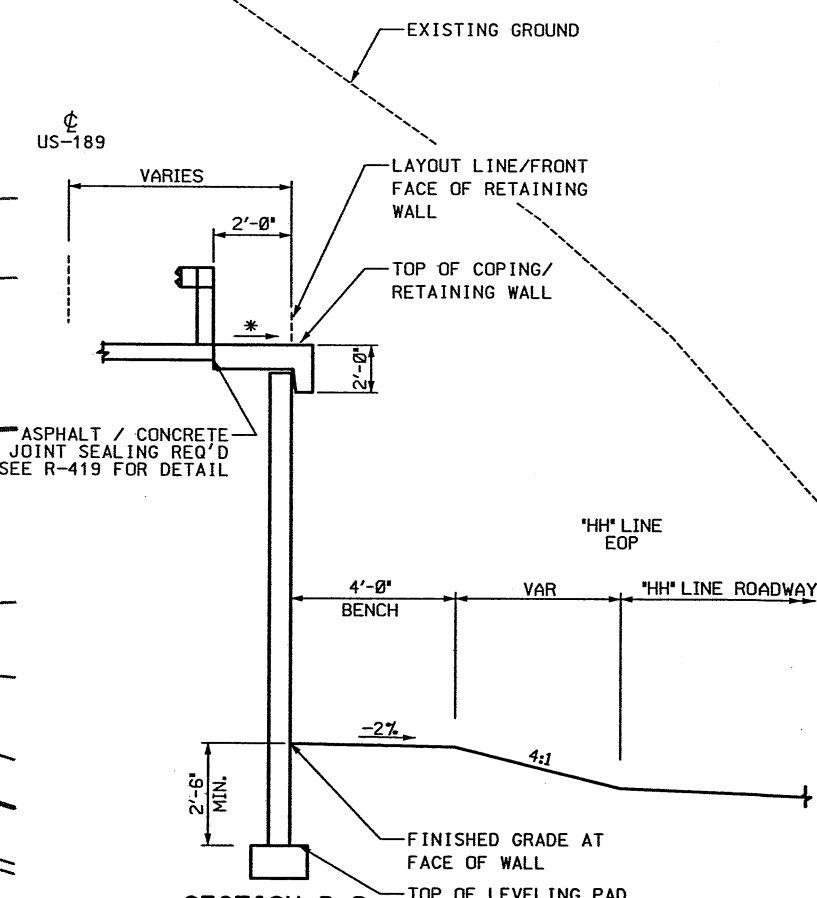
UTAH DEPARTMENT OF TRANSPORTATION		STRUCTURES		DESIGN		CHECK	
SR-189 WILDWOOD TO DEER CREEK		MSE RETAINING WALL R-419C		WLS 01/04		DJC 01/04	
SITUATION AND LAYOUT		PROJECT NUMBER		DRAWN		CHECK	
*NH-0189 (12) 14		DATE		WLS 01/04		DJC 01/04	
COUNT		DATE		WLS 01/04		DJC 01/04	
REVISIONS		DATE		BY		REMARKS	
NO.		DATE		BY		REMARKS	

WASATCH COUNTY
R-419U
DRG. NO.



CURVE U2

Δ	3°47'47.41" Lt
	96.12
	1450.67
	48.08
	8+51.96
	316494.261
	630730.468



DEVELOPED ELEVATION

STA 4+50.00 EL 5344.56	STA 4+50.00 EL 5351.70	STA 4+80.00 EL 5344.56	STA 4+80.00 EL 5351.85	STA 5+00.00 EL 5344.54	STA 5+00.00 EL 5352.03	STA 5+20.00 EL 5344.54	STA 5+20.00 EL 5352.22	STA 5+40.00 EL 5344.54	STA 5+40.00 EL 5352.45	STA 5+60.00 EL 5344.52	STA 5+60.00 EL 5352.70	STA 5+80.00 EL 5344.52	STA 5+80.00 EL 5352.97	STA 6+00.00 EL 5344.55	STA 6+00.00 EL 5353.26	STA 6+20.00 EL 5344.55	STA 6+20.00 EL 5353.58	STA 6+26.53 EL 5344.55	STA 6+26.53 EL 5353.69	STA 6+40.00 EL 5344.55	STA 6+40.00 EL 5353.92	STA 6+60.00 EL 5344.44	STA 6+60.00 EL 5354.27	STA 6+80.00 EL 5344.44	STA 6+80.00 EL 5354.65	STA 7+00.00 EL 5344.45	STA 7+00.00 EL 5355.04	STA 7+20.00 EL 5344.48	STA 7+20.00 EL 5355.46	STA 7+40.00 EL 5344.48	STA 7+40.00 EL 5355.89	STA 7+60.00 EL 5344.48	STA 7+60.00 EL 5356.34	STA 7+80.00 EL 5344.40	STA 7+80.00 EL 5356.81	STA 8+00.00 EL 5344.46	STA 8+00.00 EL 5357.29	STA 8+03.88 EL 5344.46	STA 8+03.88 EL 5357.88	STA 8+20.00 EL 5344.46	STA 8+20.00 EL 5357.77	STA 8+40.00 EL 5344.14	STA 8+40.00 EL 5358.25	STA 8+60.00 EL 5344.14	STA 8+60.00 EL 5358.71	STA 8+80.00 EL 5344.14	STA 8+80.00 EL 5359.19	STA 8+80.00 EL 5354.80	STA 8+80.00 EL 5359.65	END WALL U STA. 9+00.00 EL 5358.21	END WALL U STA. 9+00.00
---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------	---------------------------------------	-------------------------

QUANTITIES

ITEM	ESTIM.	UNIT	AS CONST.
MSE WALL U (EST. QTY. 7,115 SF.)	1	LUMP	

UTAH DEPARTMENT OF TRANSPORTATION

STRUCTURES **PARSONS BRINCKERHOFF**

SR-189 WILDWOOD TO DEER CREEK

MSE RETAINING WALL R-419C

SITUATION AND LAYOUT

PROJECT NUMBER ***NH-0189 (12) 14**

WASATCH COUNTY

R-419U

DRG. NO.

SHT. 2 of 2

NO.	DATE	BY	REVISIONS

DESIGN: WLS_01/04
CHECK: DJC_04/03
DRAWN: WLS_01/04
CHECK: DJC_01/04
QUANT.: WLS_01/04
CHECK: STB_01/04

APPROVED BY: [Signature]
DATE: 2/16/04

APPROVED BY: [Signature]
DATE: 2/16/04