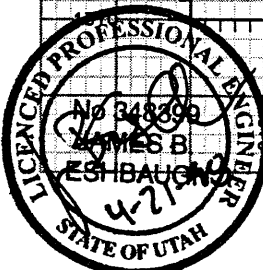
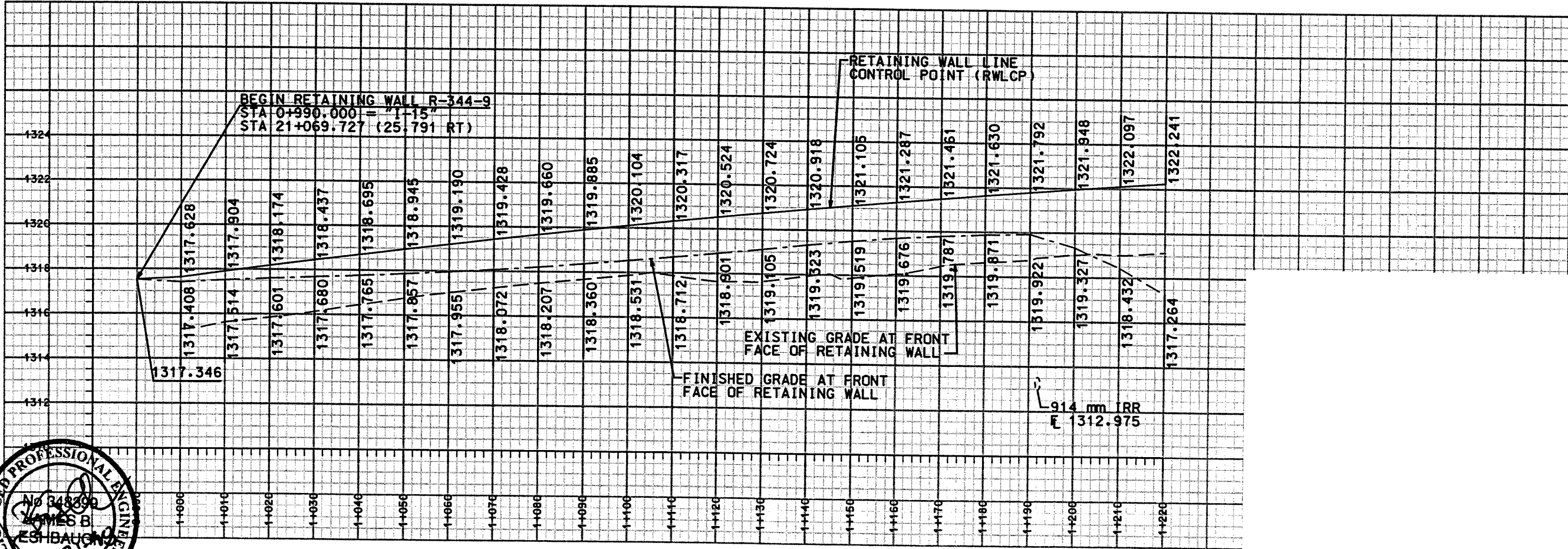
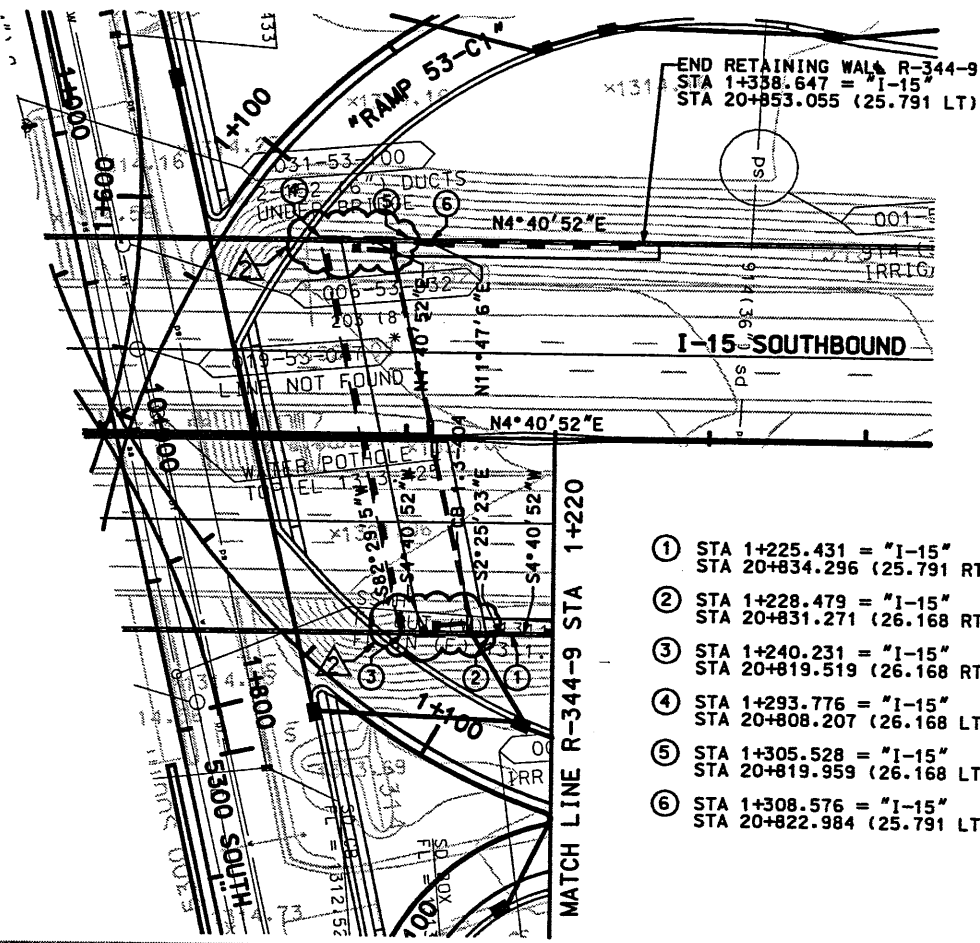


WASATCH CONSTRUCTORS
 APR 24 1998
 RELEASED FOR CONSTRUCTION

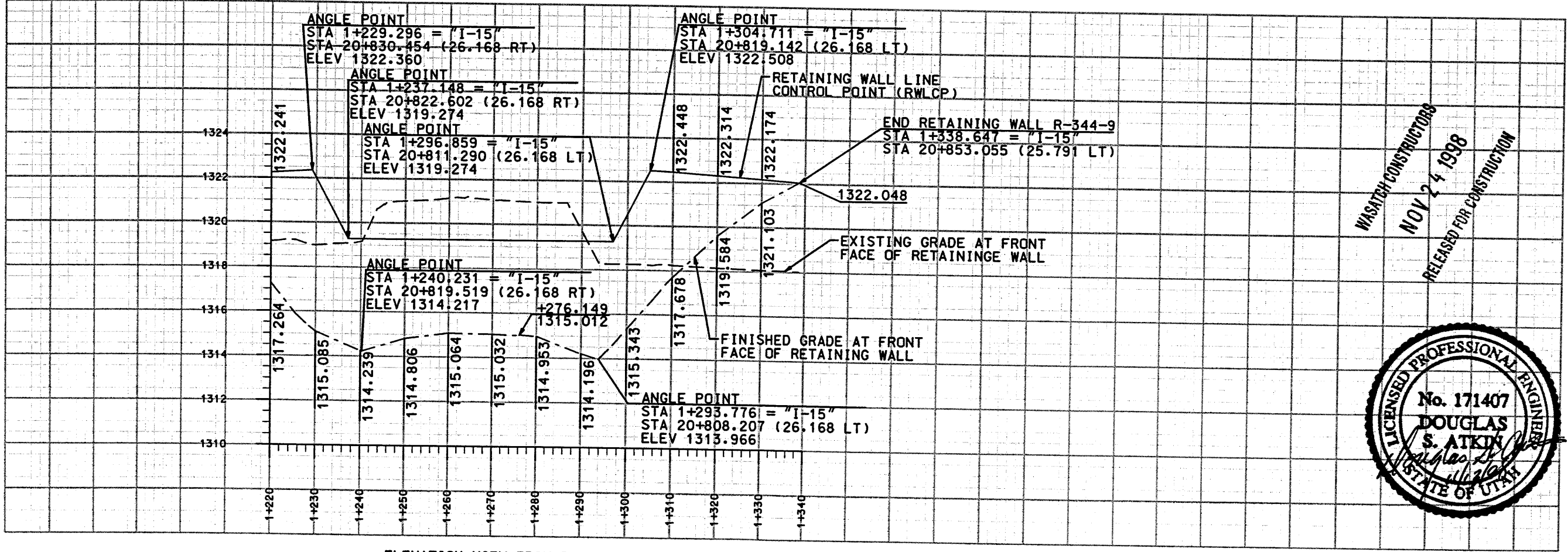
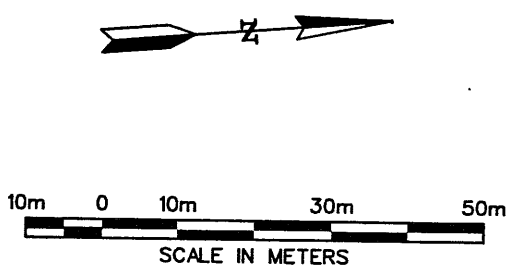
SCALE IN METERS
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APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
A	4-21-98		
INITIAL RELEASE			
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner			
SYVERDRUP/DE LEUW			
DESIGN	CHKD	DATE	BY
PRV	1/98		
DRAWN	CHKD	DATE	BY
PRV	1/98		
QUANT.	CHKD	DATE	BY
			1313401
I-15 CORRIDOR RECONSTRUCTION		SECTION 1.3	
SITUATION/LAYOUT		RETAINING WALL R-344-9	
PROJECT NUMBER		#SP-15-(7135)296	
SALT LAKE COUNTY		DWG. NO. 1.3R-344-9.1	
SHT.	1	OF	19
REF.			

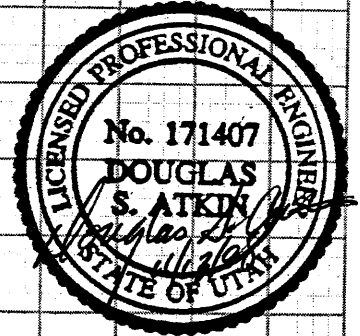


- ① STA 1+225.431 = "I-15"
STA 20+834.296 (25.791 RT)
- ② STA 1+228.479 = "I-15"
STA 20+831.271 (26.168 RT)
- ③ STA 1+240.231 = "I-15"
STA 20+819.519 (26.168 RT)
- ④ STA 1+293.776 = "I-15"
STA 20+808.207 (26.168 LT)
- ⑤ STA 1+305.528 = "I-15"
STA 20+819.959 (26.168 LT)
- ⑥ STA 1+308.576 = "I-15"
STA 20+822.984 (25.791 LT)



ELEVATION VIEW FROM BACK FACE OF WALL

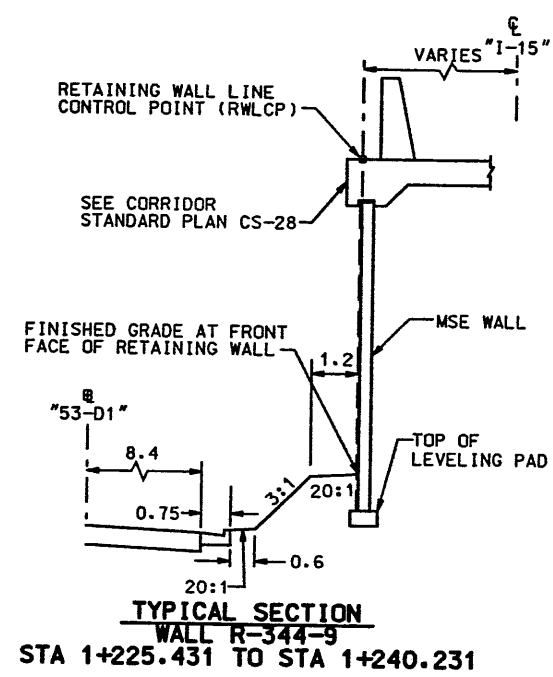
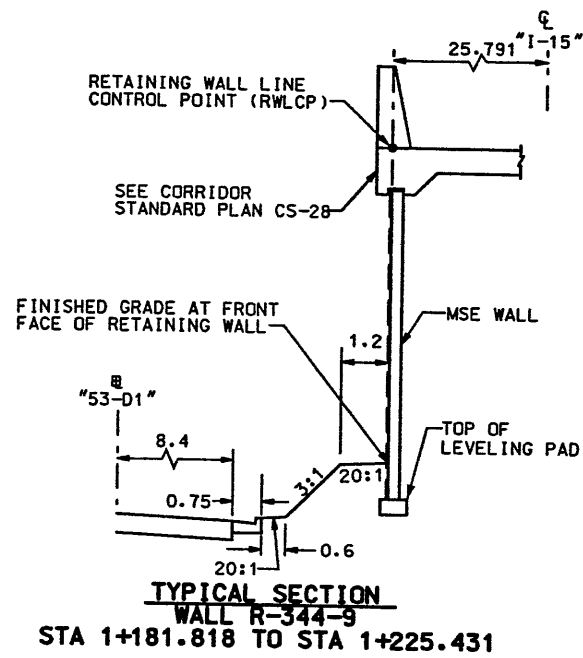
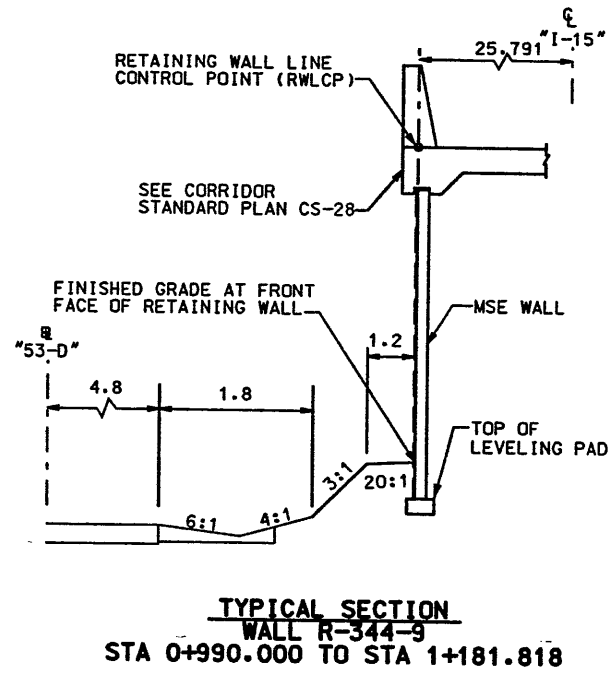
WASATCH CONSTRUCTORS
 NOV 24 1998
 RELEASED FOR CONSTRUCTION



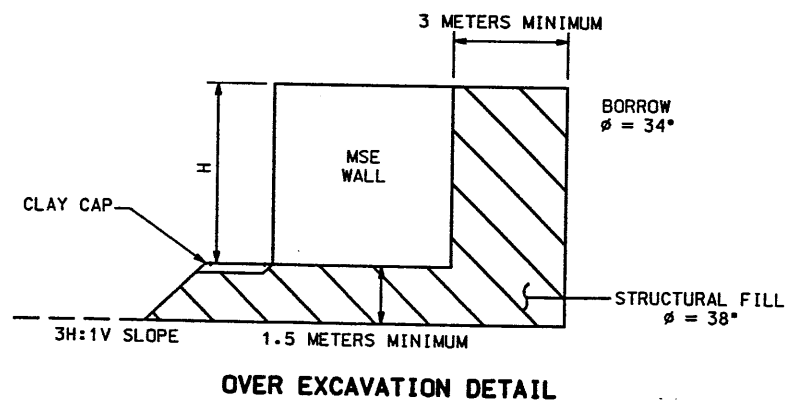
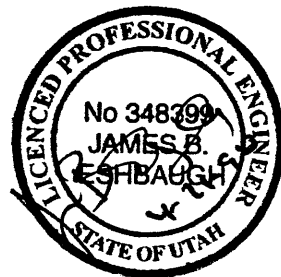
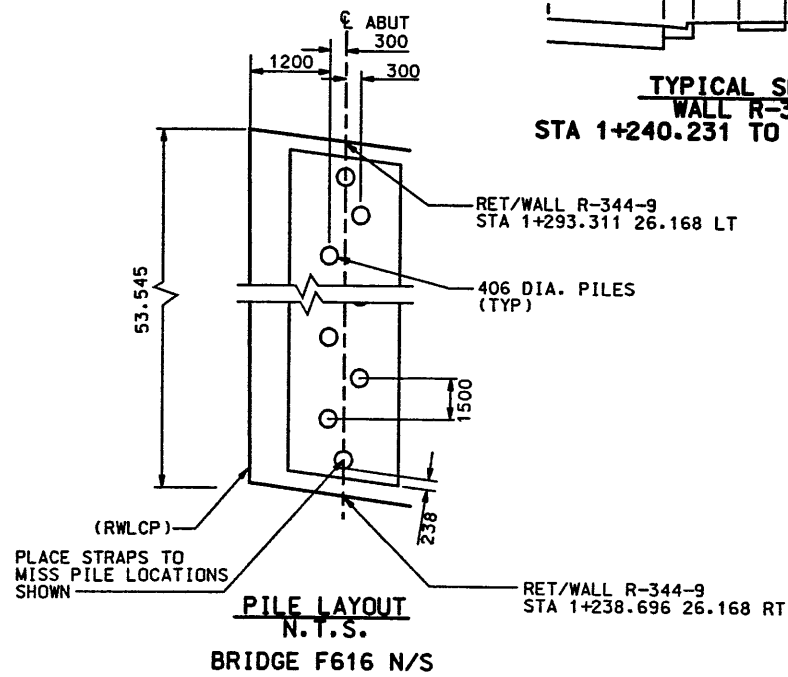
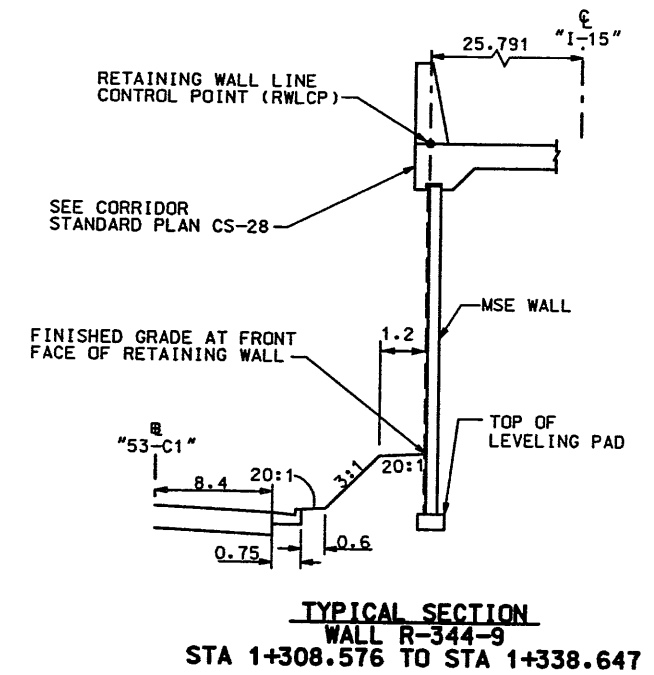
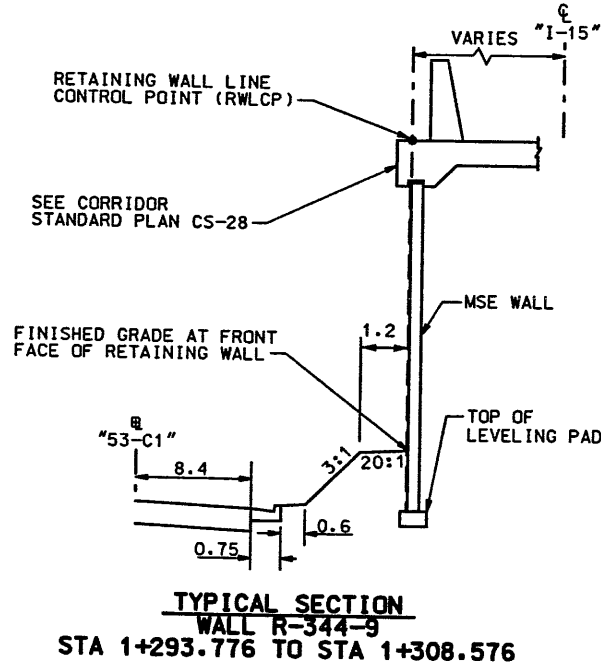
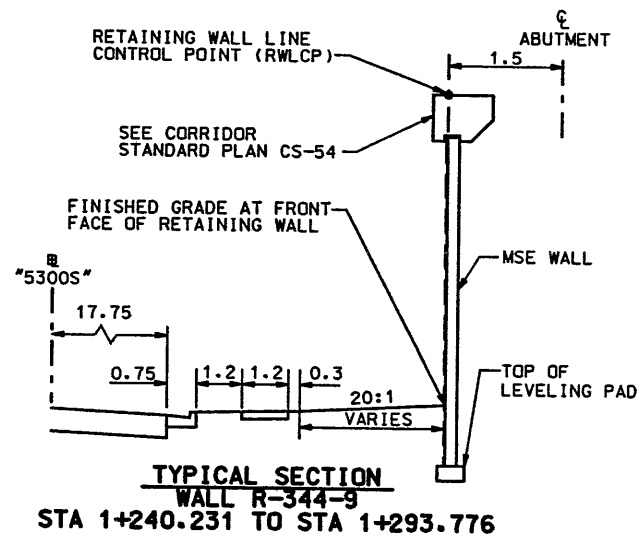
UTAH DEPARTMENT OF TRANSPORTATION		APPROVED FOR CONSTRUCTION	
DESIGNER	CHECK	DATE	DESCRIPTION
URS Greiner	SVERDRUP/DE LEUW	4-21-98	INITIAL RELEASE
DESIGN	CHECK	11-13-98	NOC-0191
PROJECT DESIGN ENGINEER	PROJECT CHECK		
DON ORALL	QUANT.		
DATE	PROJECT MANAGER		
			1314000
I-15 CORRIDOR RECONSTRUCTION		SECTION 1.3	
SITUATION/LAYOUT		PROJECT NUMBER	
RETAINING WALL R-344-9		#SP-15-711351296	
COUNTY		SALT LAKE	
DWG. NO.		1.3R-344-9.2	
SHT. 2 OF 2			
REF.			

Username: stottrj

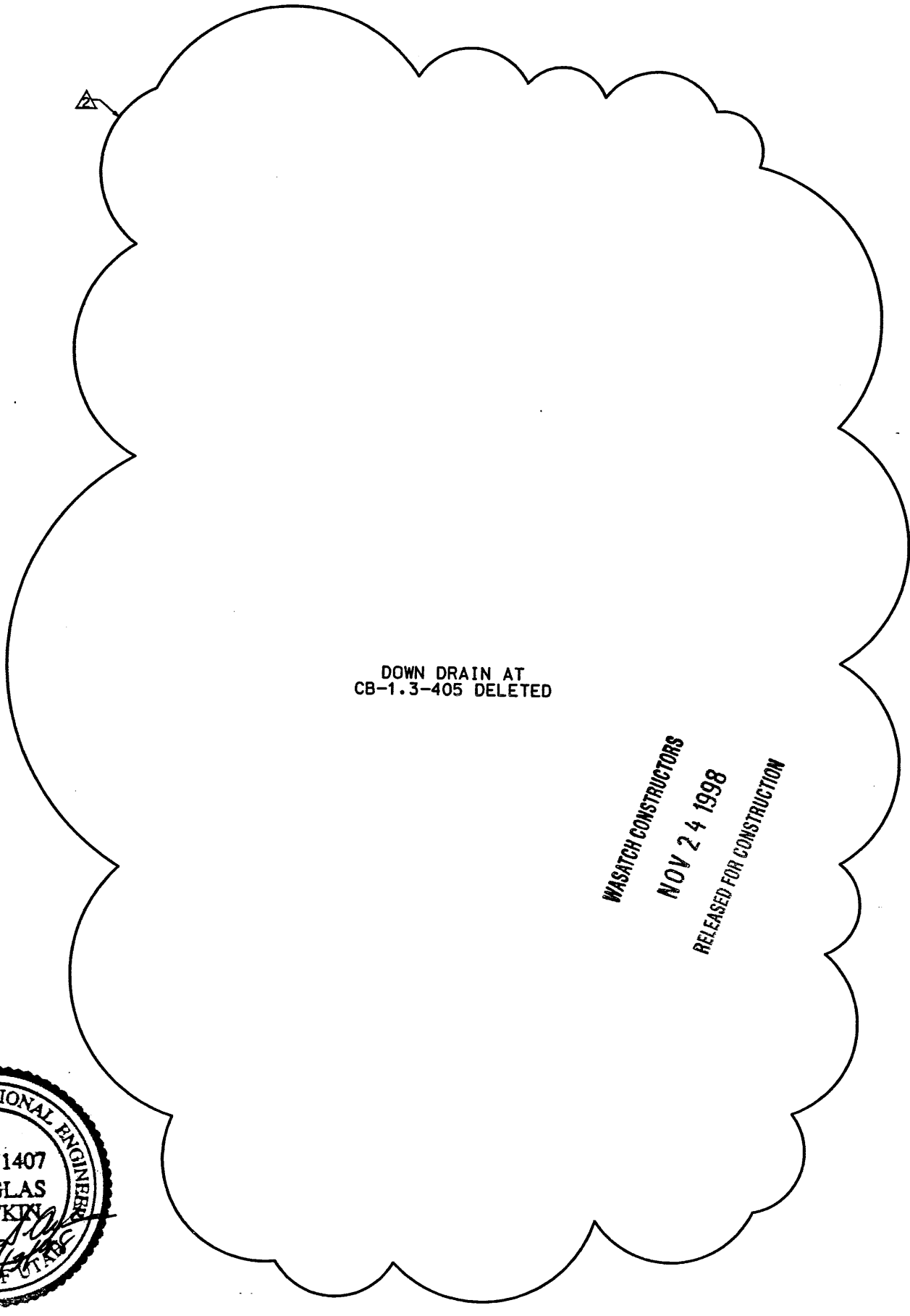
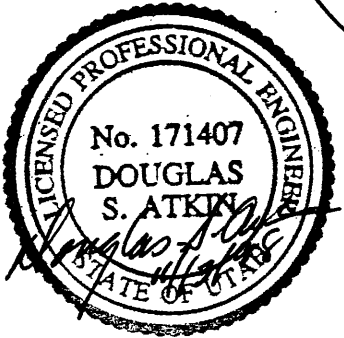
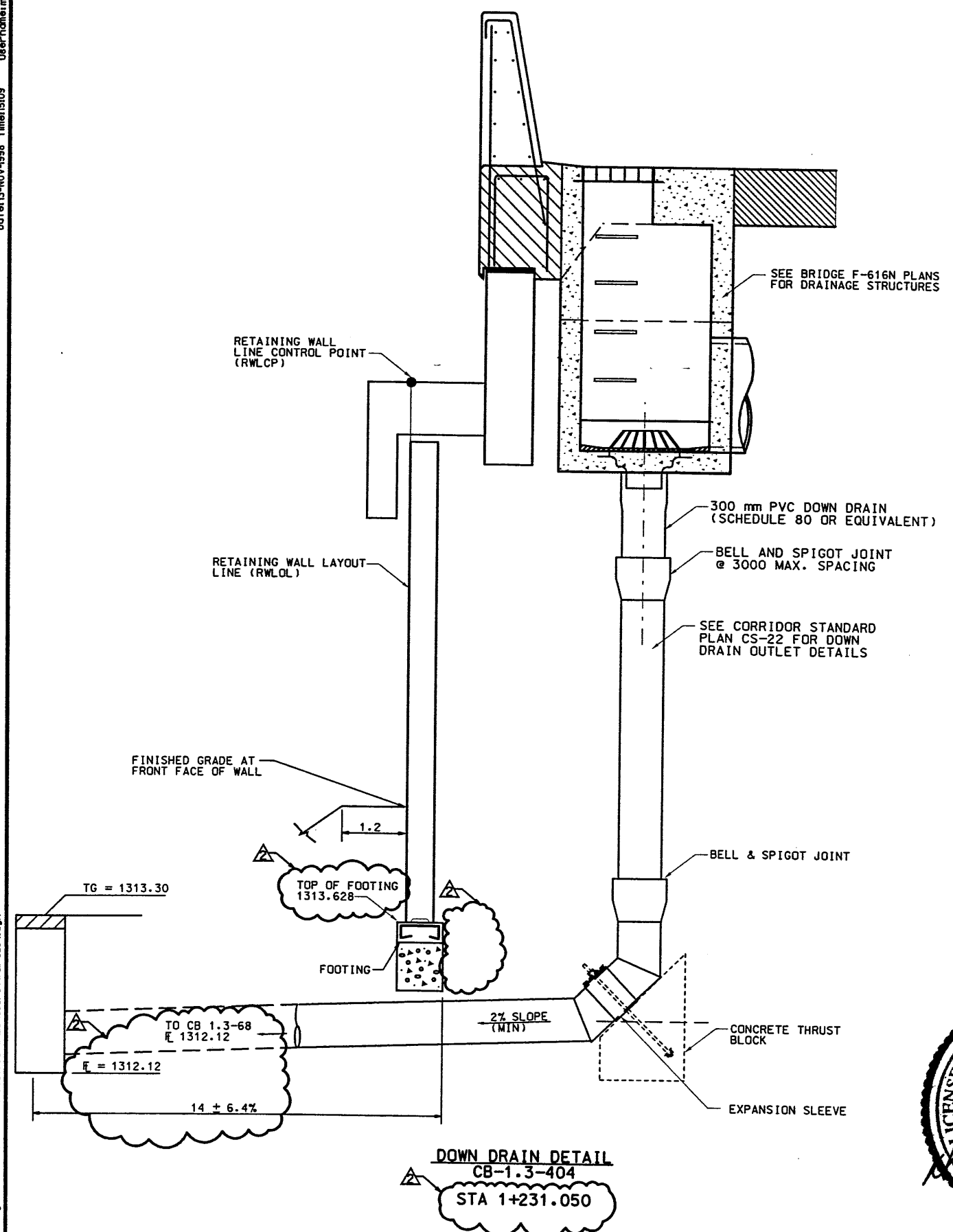
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WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION

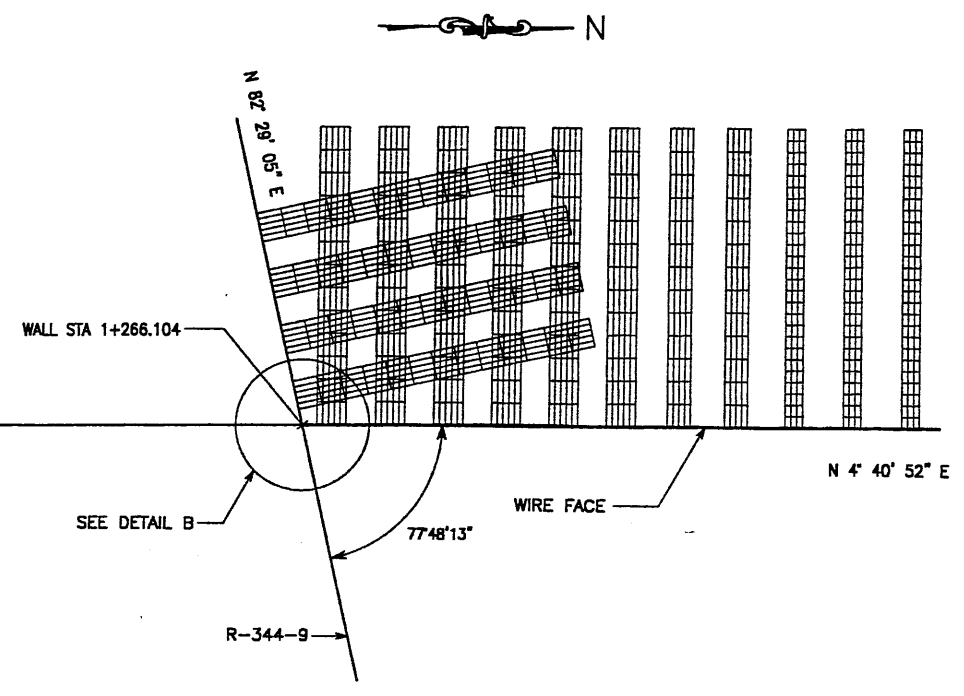


APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
Δ	4-21-98		
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner			
SVERDRUP/DE LEUW			
DESIGN	CHK	1/98	1/98
DRAWN	CHK	1/98	1/98
QUANT.	CHK		
PROJECT NUMBER	1313401		
1-15 CORRIDOR RECONSTRUCTION			
DETAIL SHEET			
RETAINING WALL R-344-9			
SECTION 1.3			
PROJECT #SP-15-(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.3R-344-9.3			
SHT. 3 OF 18			
REF.			

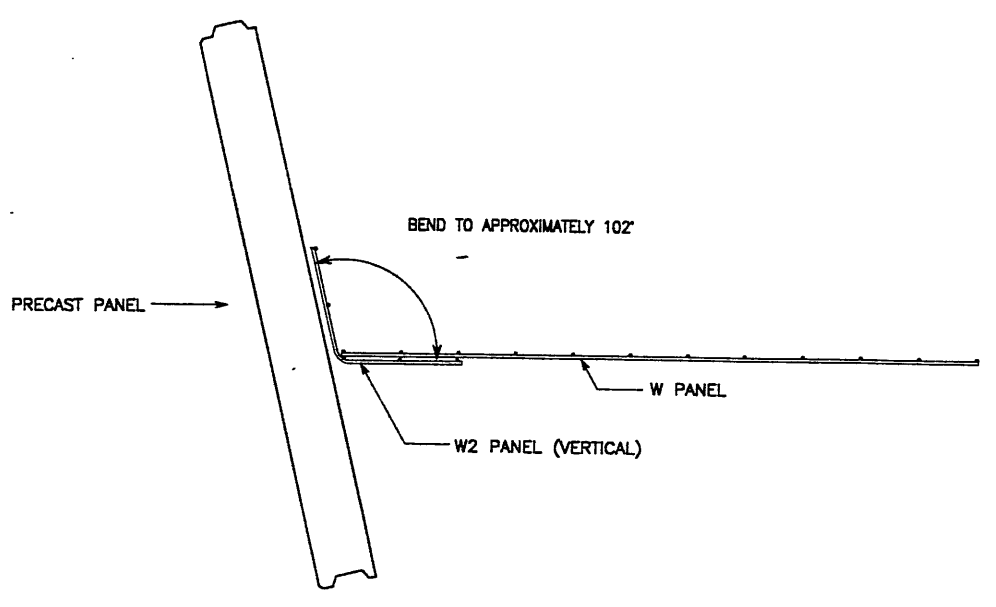


I-15 CORRIDOR RECONSTRUCTION		UTAH DEPARTMENT OF TRANSPORTATION	
MISC DETAILS RET/WALL R-344-9		URS Greiner SVERDRUP/DE LEUW	
SECTION 1.3		DESIGN PV 2/98	CHECK JBE 2/98
PROJECT NUMBER #SP-15-7(135)296		DRAWN PV 2/98	CHECK JBE 2/98
SALT LAKE COUNTY		APPROVAL RECOMM. DATE 2/98	SECTION MANAGER
DWG. NO. 1.3R-344-9.4		APPROVED DATE 2/98	QUANT. /
SHT. 4 OF 19		1314000	
APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
A	4-21-98		
A	11-13-98		

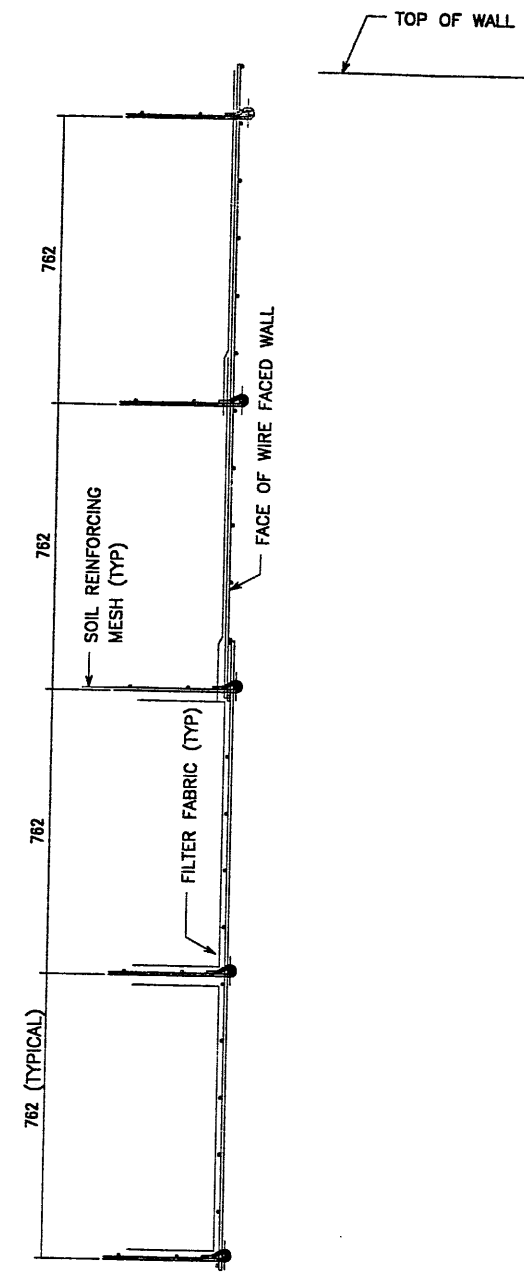
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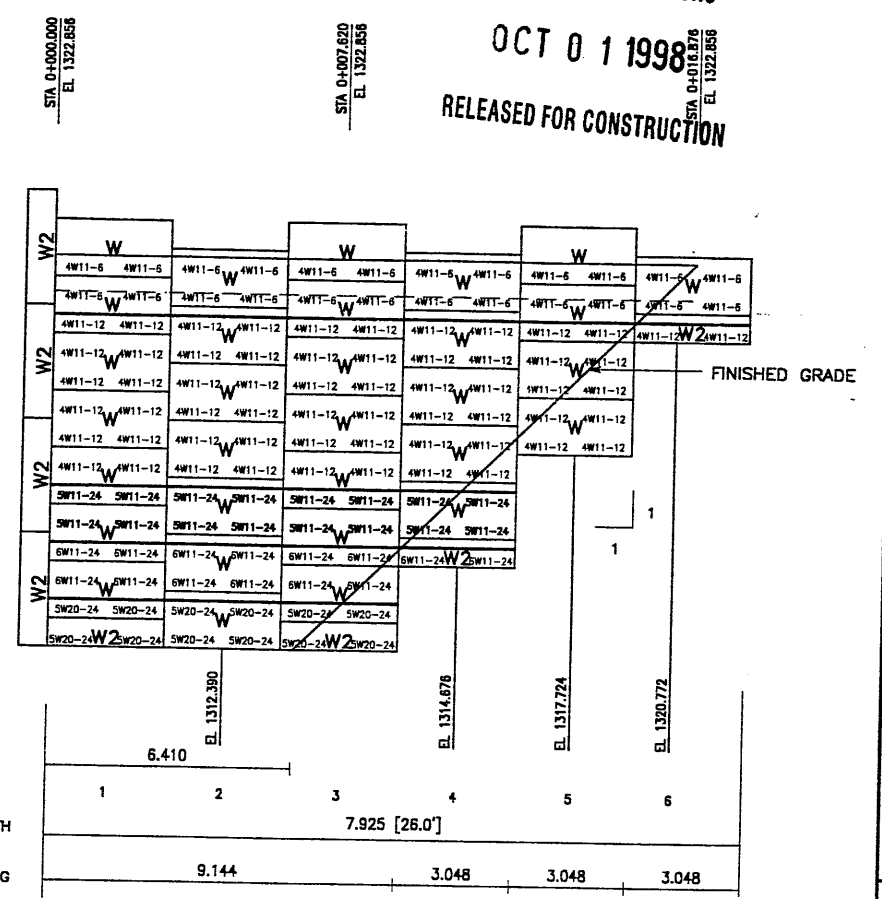
PLAN



DETAIL B

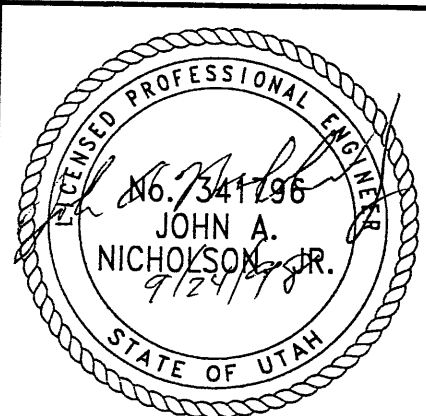


SECTION AT WIRE FACE PANEL TYPE "W"



RETAINING WALL "R-344-9" - TEMP. WIRE FACED WALL
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF FACING = 162.71 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

METRIC



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	9-21-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
 OCT 01 1998
 RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

DES.	09-08-98	JN
DRN.	09-08-98	RSW
CHK.	09-08-98	JN

RETAINED EARTH™
 VSL

VSL CORPORATION
 2540 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4889

ATLANTA, GA / DALLAS, TX / FALCON, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
 WALL "R-344-9" - TEMP. WIRE FACED WALL
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.3R-344-9.1A

JOB NO.
 239-0007

SHT. NO.
 RE-15/R

(X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\SERIES\53-09\RE-1

3-12-98

.VAL

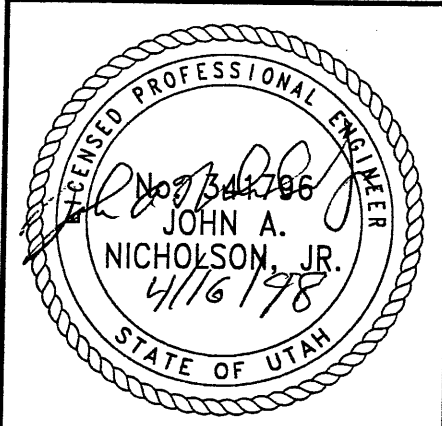
DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 38°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 38°	
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)	
TRAFFIC SURCHARGE = 250 PSF (12 KPa)	
SEISMIC ACCELERATION COFF. = 0.27g (TYP)	
SEISMIC ACCELERATION COFF. = 0.65g (AT BRIDGE ABUTMENTS)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

PLAN VIEW MSE WALL "R-344-9"

SCALE: 1=500 (FULL SIZE)
SCALE: 1=1000 (HALF SIZE)

METRIC

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RETAINED EARTH INDEX	
RE-1	PLAN PRECAST WALL R-344-9, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	TYPICAL CROSS SECTION
RE-4	TYPICAL CROSS SECTION
RE-5	TYPICAL CROSS SECTION
RE-6	TYPICAL CROSS SECTION
RE-7	PRECAST WALL R-344-9
RE-8	PRECAST WALL R-344-9
RE-9	PRECAST WALL R-344-9
RE-10	PRECAST WALL R-344-9
RE-11	PRECAST WALL R-344-9
RE-12	SPECIAL DETAILS
RE-13	SPECIAL DETAILS
RE-14	SPECIAL DETAILS

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	4-06-97	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	MM	RSW	MM	REVISION
03-12-98	03-12-98	03-12-98				

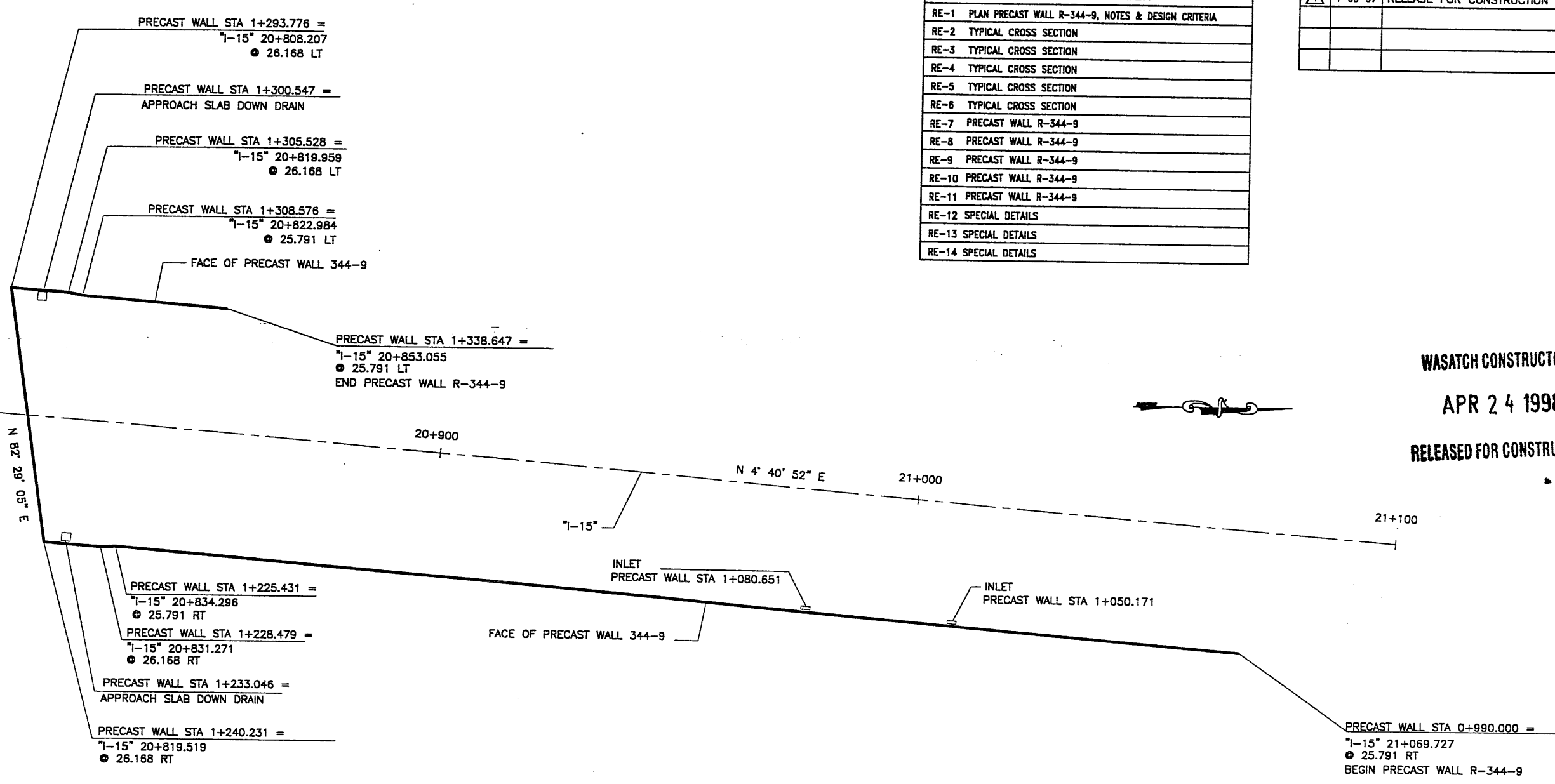
WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION

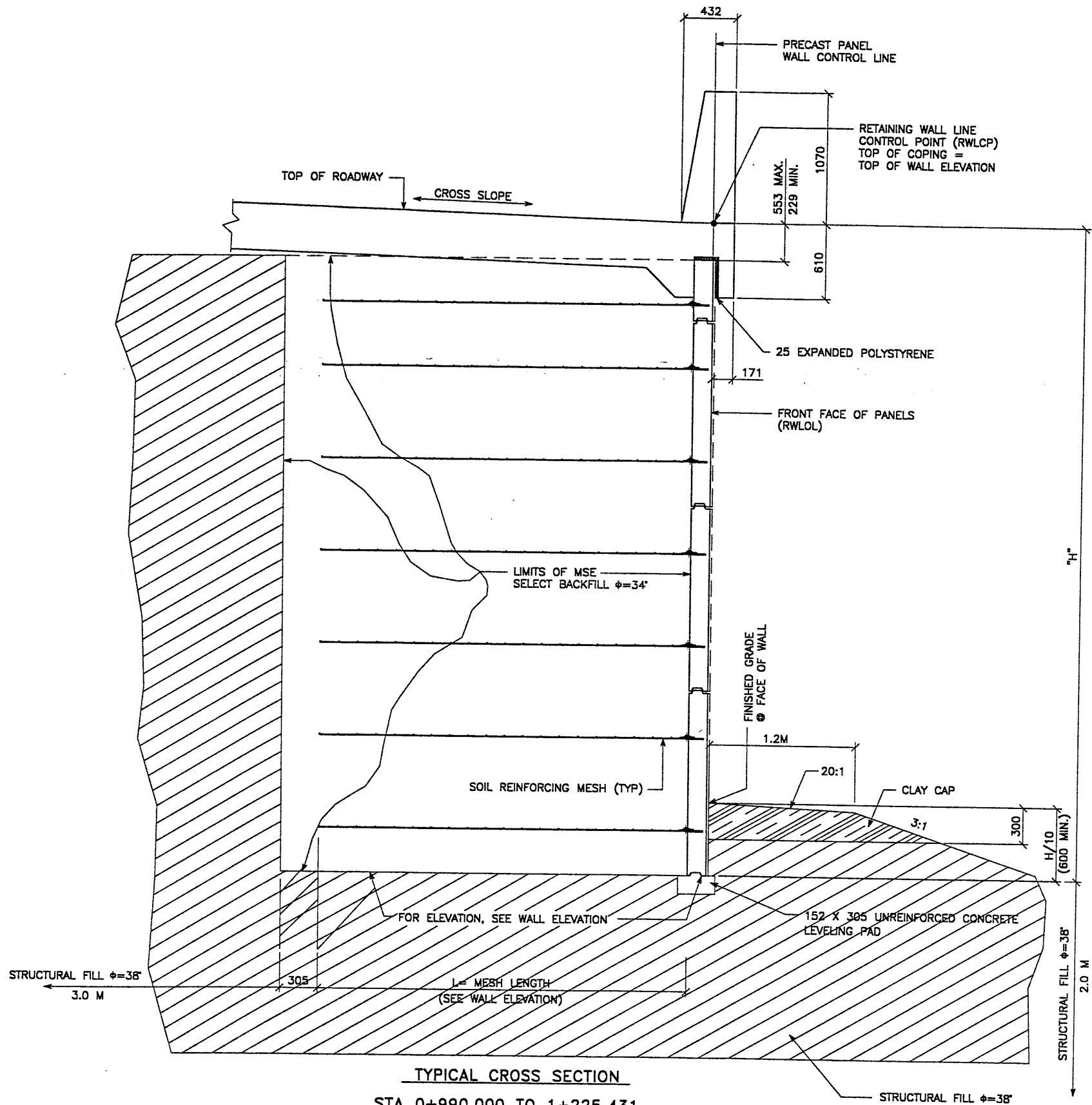
VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-1669

ALBANY, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE)
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RETAINED EARTH™ WALLS
PLAN VIEW MSE WALL "R-344-9"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.3R-344-9.5
JOB NO. 239-0007
SHT. NO. RE-1 ⁶ /19





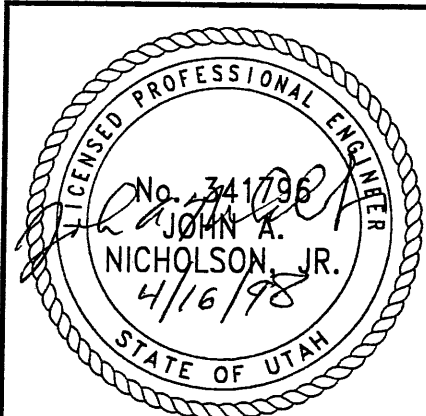
TYPICAL CROSS SECTION
 STA 0+990.000 TO 1+225.431
 STA 1+308.576 TO 1+338.647
 (SEE DWG. NO. 1.3R-344-9.3 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

METRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	4-06-97	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
 APR 24 1998
 RELEASED FOR CONSTRUCTION



NO.	DATE	DESCRIPTION	BY	CHK

DES.	03-13-98	MM
DRN.	03-13-98	RSW
CHK.	03-13-98	MM

RETAINED EARTH™

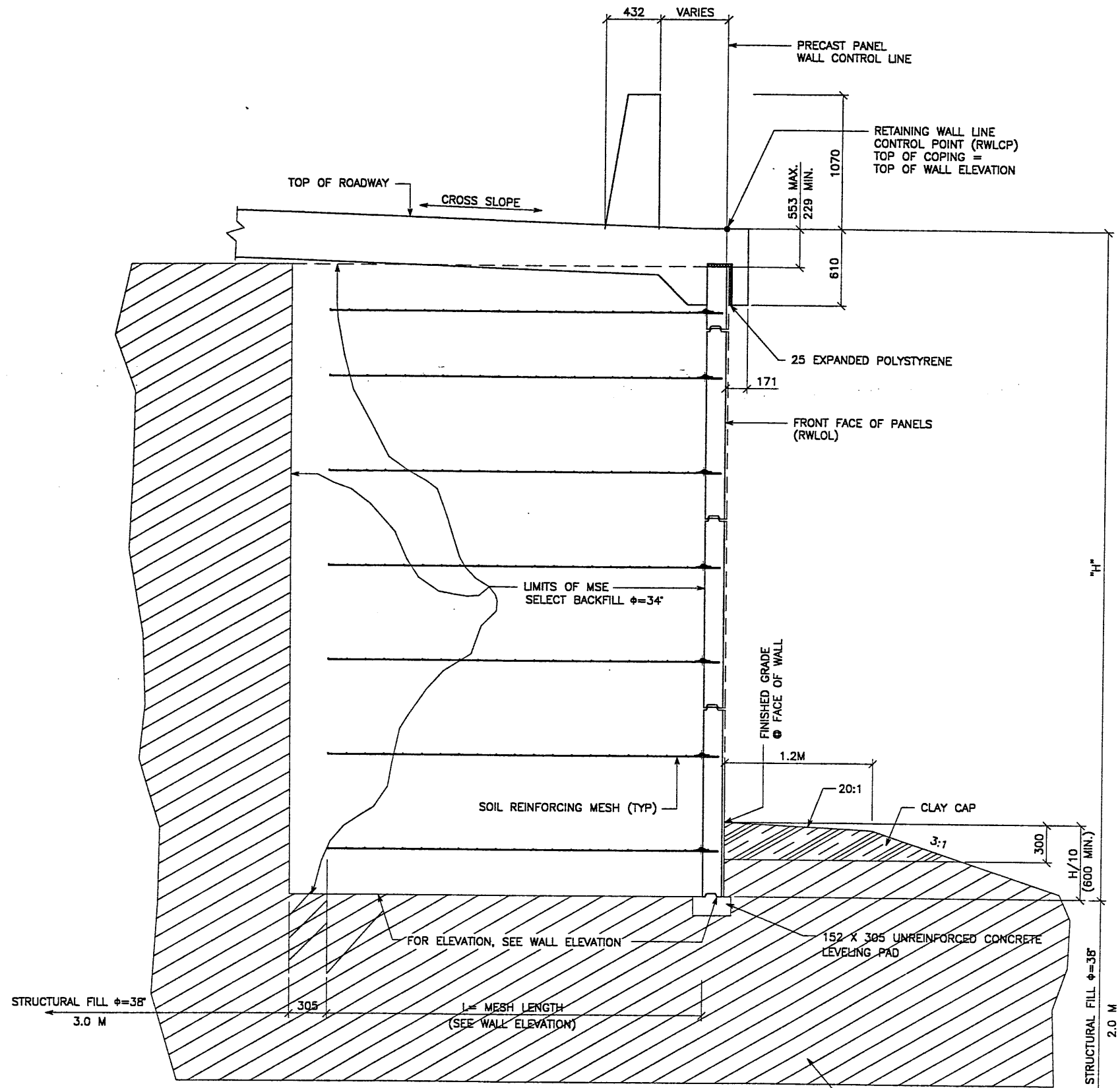
VSL CORPORATION
 2910 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4989

ATLANTA, GA / DALLAS, TX / FALCON, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.3R-344-9.6
 JOB NO.
 239-0007
 SHEET NO.
 RE-27/19



TYPICAL CROSS SECTION
 STA 1+225.431 TO 1+240.231
 STA 1+293.776 TO 1+308.576
 (SEE DWG. NO. 1.3R-344-9.3 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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METRIC

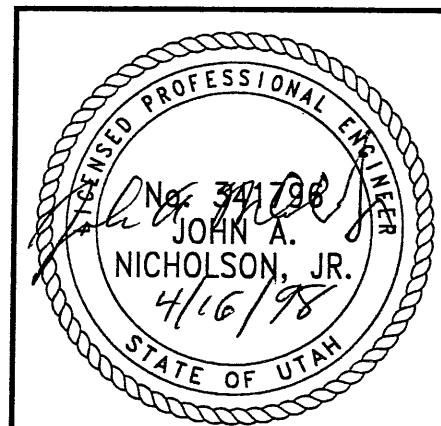
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	4-06-97	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	RSW	CHK.	MM	NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
 2510 Plaza Place, Suite 500
 San Jose, CA 95131
 Telephone: (415) 781-8772
 Fax: (415) 781-4069

ATLANTA, GA / DALLAS, TX / HALDOL, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

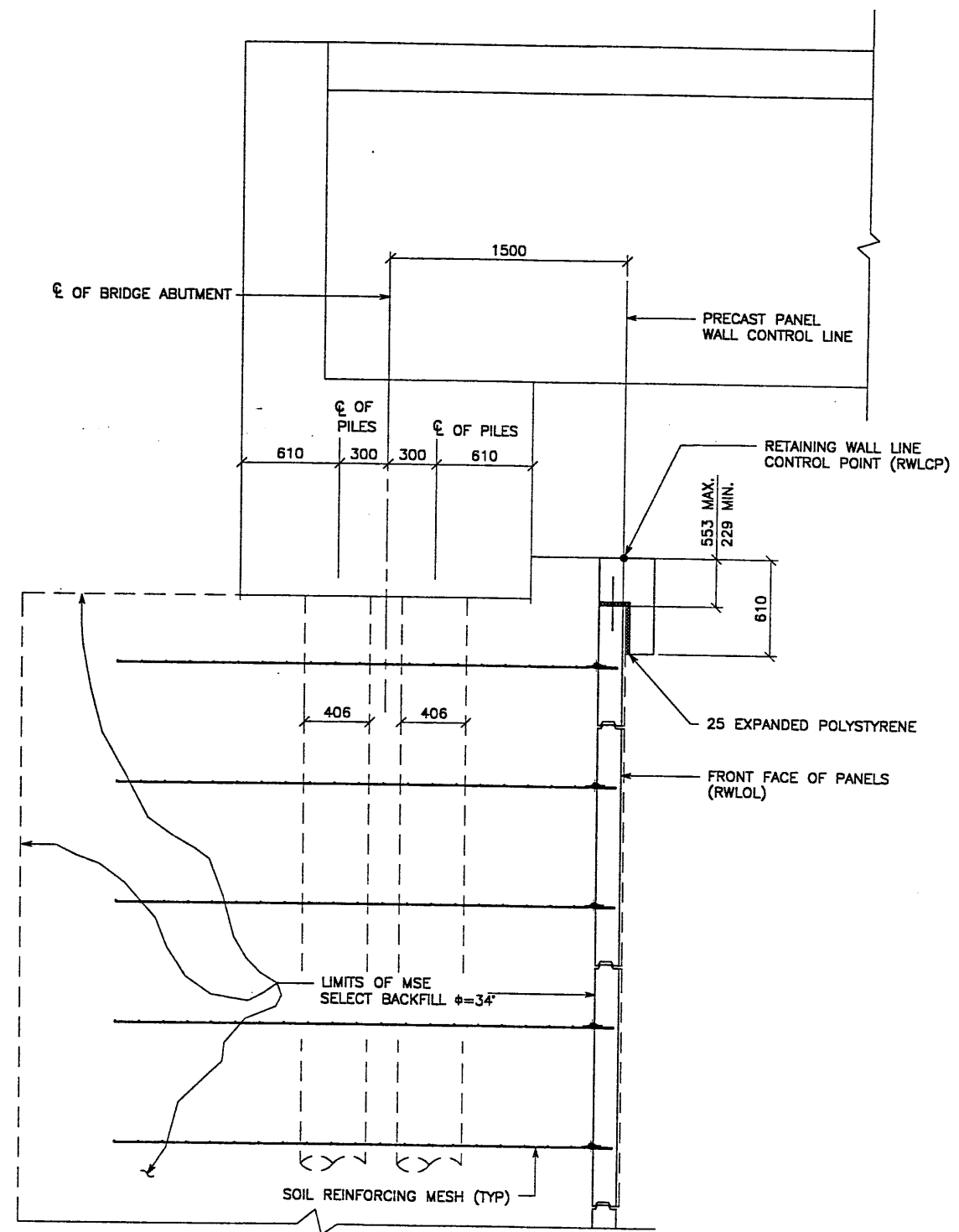
WASATCH CONSTRUCTORS
 APR 24 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 PRECAST WALL™ R-344-9
 TYPICAL CROSS SECTION

UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.3R-344-9.7
JOB NO.	239-0007
SHT. NO.	RE-3 8/19

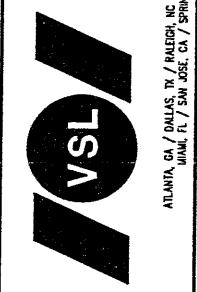


TYPICAL CROSS SECTION - STA 1+240.231 TO 1+293.776
 (SEE DWG. NO. 1.3R-344-9.3 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
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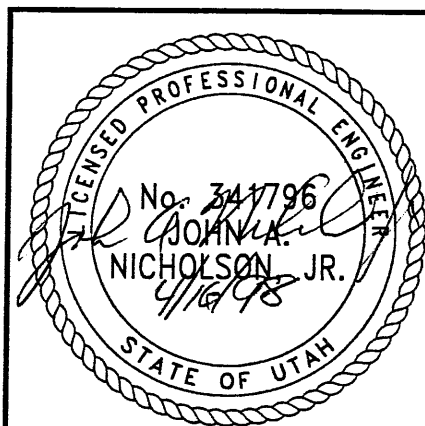
DES.	MM	DRN.	RSW	CHK.	MM	RETAINED EARTH™
03-13-98		03-13-98		03-13-98		

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 81-4869



ATLANTA, GA / DALLAS, TX / HALDEN, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

METRIC

RETAINED EARTH™ WALLS
 PRECAST WALL "R-344-9"
 TYPICAL CROSS SECTION
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.3R-344-9.8
JOB NO.	239-0007
SHT. NO.	RE-4 9/19

(X-UTAH.DWG)

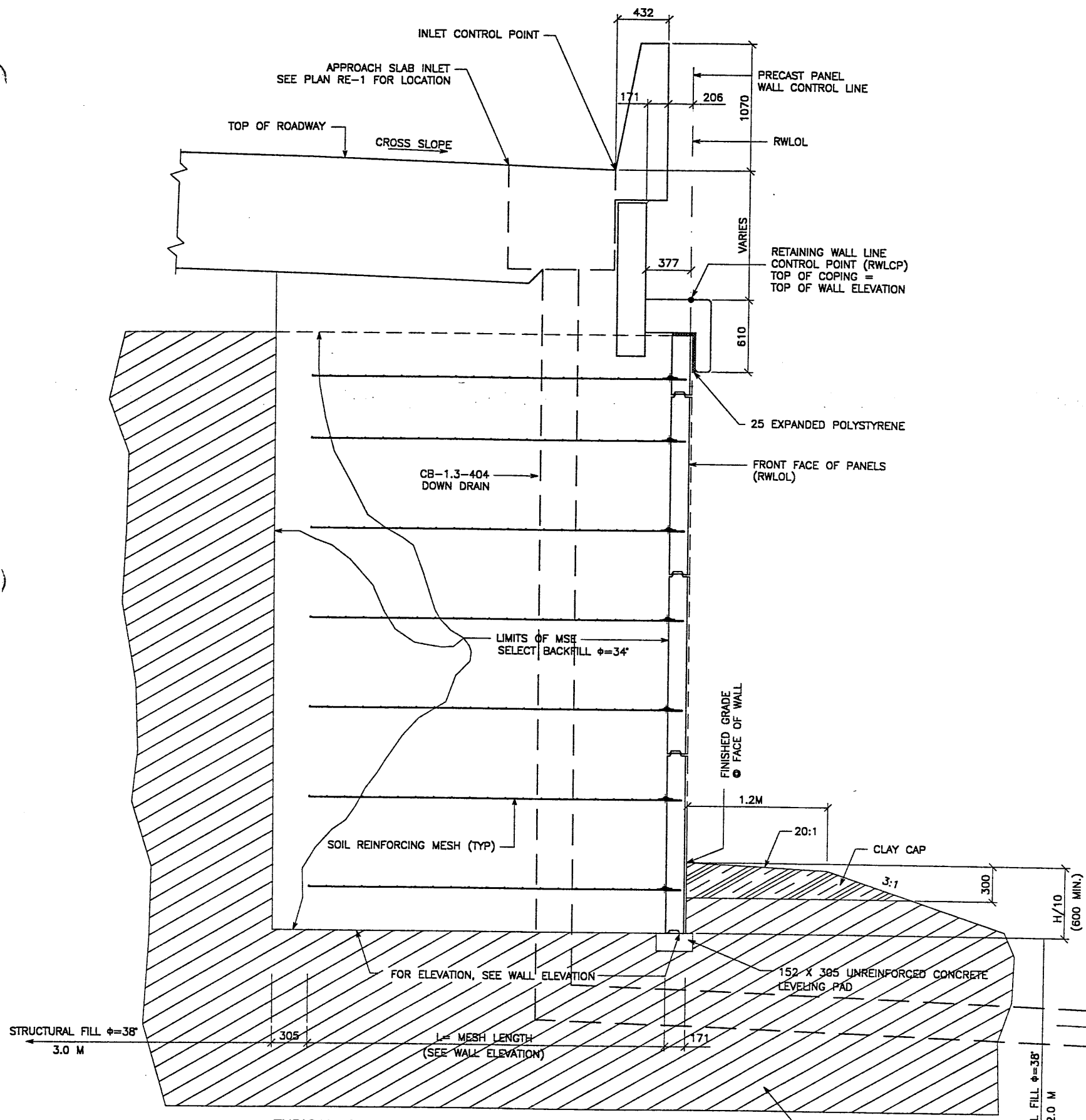
XF

SERIES\53-09\RE-5

H:\RE_EARTH\PROJECT\239-0007

3-13-98

FINAL



TYPICAL CROSS SECTION AT CB-1.3-404 DOWN DRAIN

STA 1+233.046
 (SEE DWG. NO. 1.3R-344-9.3 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

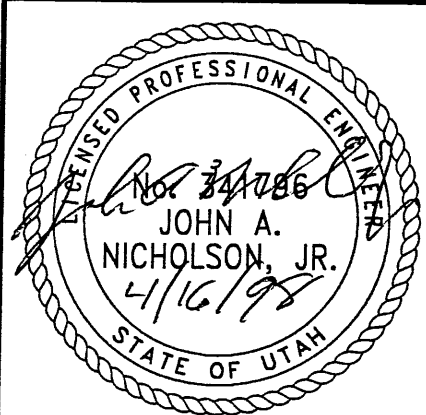
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	4-06-97	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY	CHK
03-13-98	03-13-98	03-13-98					
MM	RSW	MM					

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Tel: (919) 791-9272
 Fax: (919) 791-4669

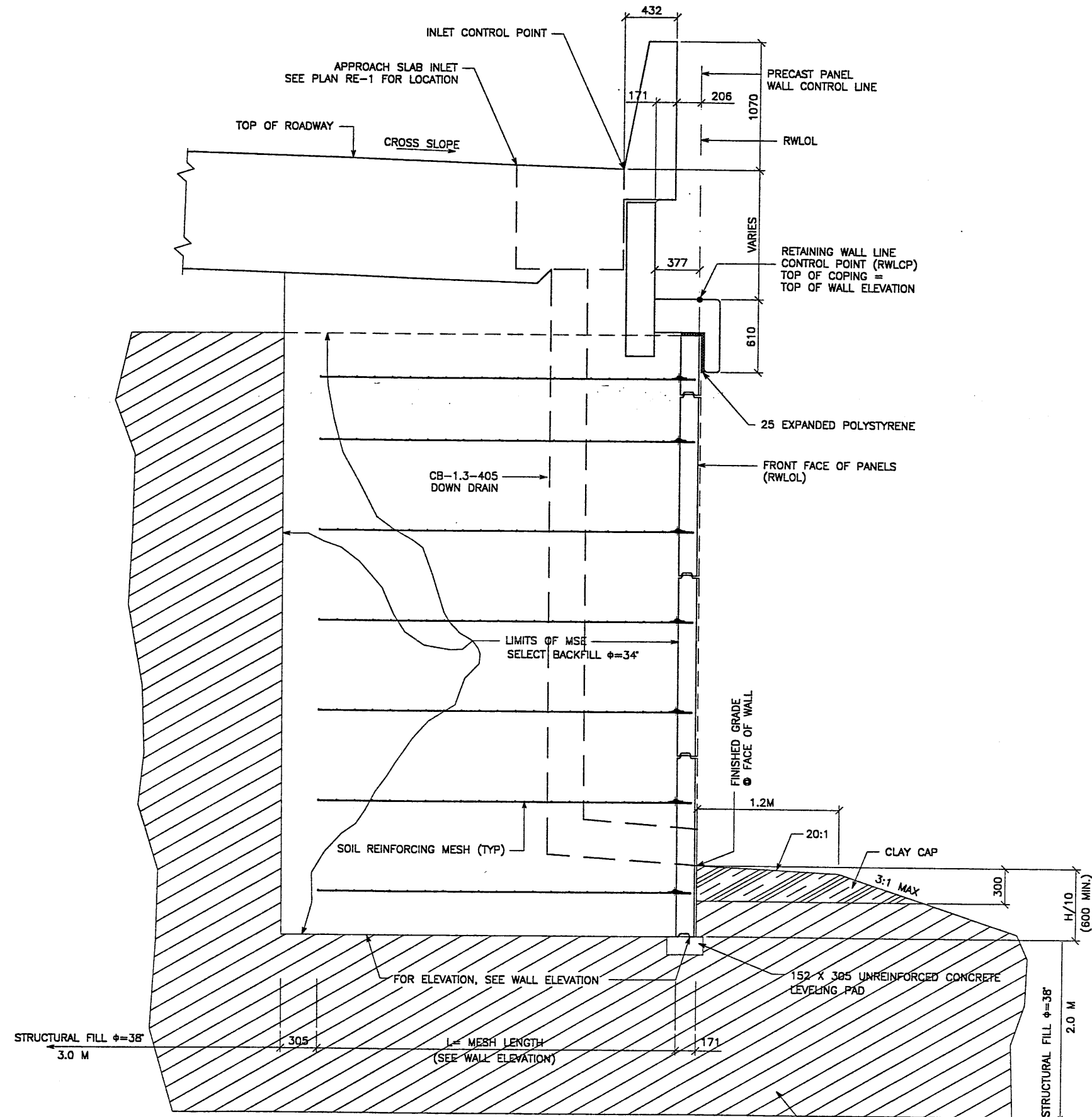
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

WASATCH CONSTRUCTORS
 APR 24 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS PRECAST WALL "R-344-9" TYPICAL CROSS SECTION
UTAH I-15 INTERCHANGE SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.3R-344-9.9
JOB NO. 239-0007
SHT. NO. RE-510/9

METRIC



TYPICAL CROSS SECTION AT CB-1.3 405 DOWN DRAIN

STA 1+300.547
 (SEE DWG. NO. 1.3R-344-9.3 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

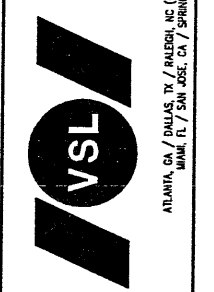
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

METRIC

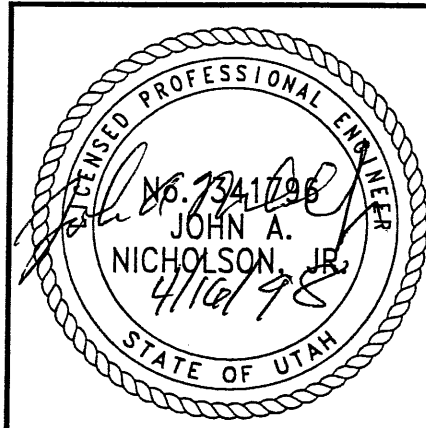
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	4-06-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4889



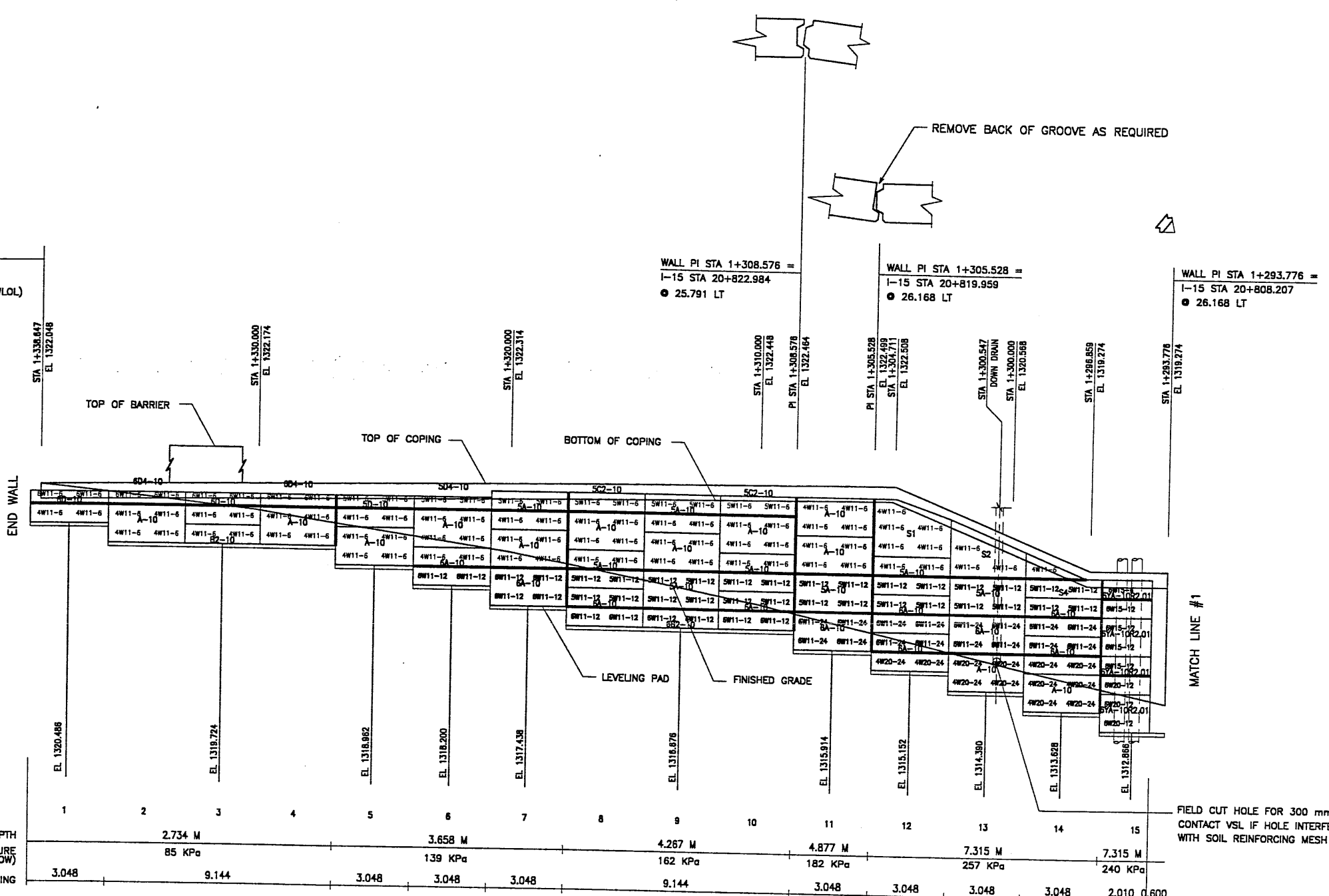
WASATCH CONSTRUCTORS
 APR 24 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 PRECAST WALL "R-344-9"
 TYPICAL CROSS SECTION
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.3R-344-9.10
JOB NO.	239-0007
SHT. NO.	RE-6 11/9

END WALL R-343-9
 WALL STA 1+338.647 =
 I-15 STA 20+853.055
 ● 25.791 LT
 NOMINAL PANEL FACE (RWLOL)



ELEVATION VIEW WALL R-344-9
 (FRONT FACE SHOWN)

(TOTAL SURFACE AREA OF PANELS = 1149.37 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

MESH DEPTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)		85 KPa				139 KPa			162 KPa		182 KPa		257 KPa		240 KPa
PIN SPACING	3.048		9.144		3.048	3.048	3.048	9.144	3.048	3.048	3.048	3.048	3.048	3.048	2.010 1.600

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

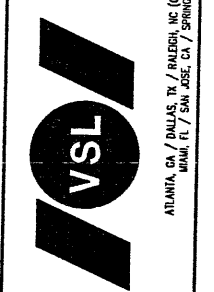
METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
 EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE
 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
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 THE MANUFACTURER'S SPECIFICATION.

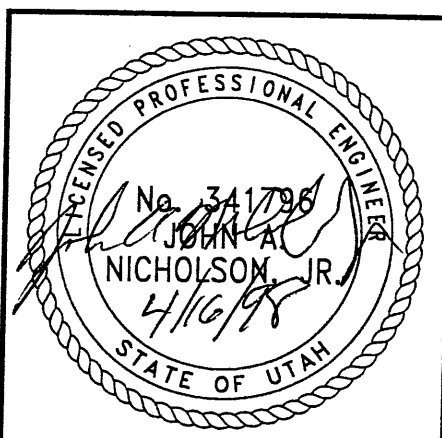
APPROVED FOR CONSTRUCTION			
NO.	DATE	DESCRIPTION	BY
▲	4-06-97	RELEASE FOR CONSTRUCTION	

DES.	MM
03-16-98	MM
DRN.	RSW
03-16-98	MM
CHK.	MM
03-16-98	MM

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-6859



WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS PRECAST WALL "R-344-9" UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.3R-344-9.11
JOB NO. 239-0007
SHT. NO. RE-712/11

XP (X-UTAHDWG)

H:\RE_EARTH\PROJECT\239-0007\1998\53SERIES\53-C

5-16-98

FINAL

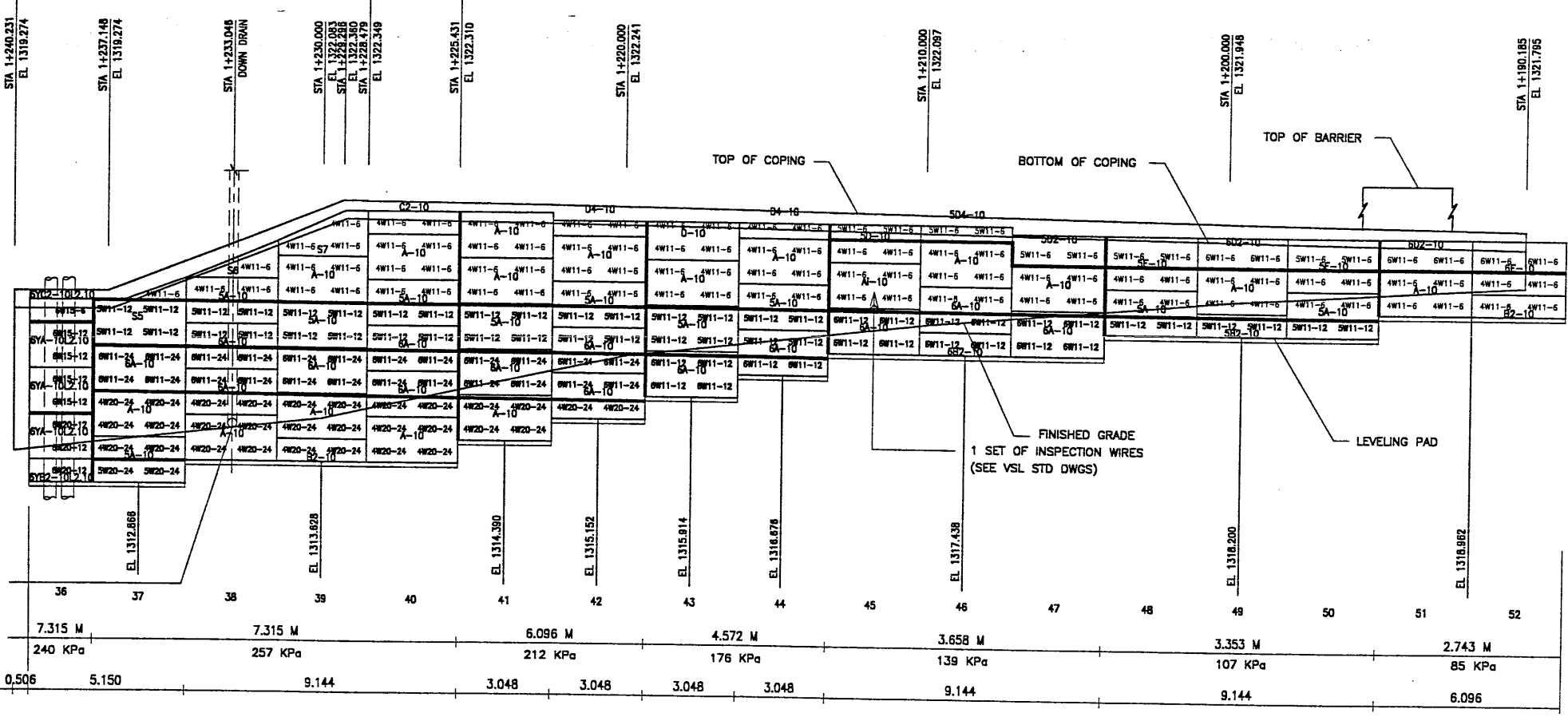
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	4-06-97	RELEASE FOR CONSTRUCTION

REMOVE BACK OF GROOVE AS REQUIRED

WALL PI STA 1+240.231 =
I-15 STA 20+819.519
● 26.168 RT

WALL PI STA 1+228.479 =
I-15 STA 20+831.271
● 26.168 RT

WALL PI STA 1+225.431 =
I-15 STA 20+834.296
● 25.791 RT



FIELD CUT HOLE FOR 300 mm PVC PIPE
CONTACT VSL IF HOLE INTERFERES
WITH SOIL REINFORCING MESH

MESH DEPTH
MAXIMUM BEARING PRESSURE
(SEE NOTE BELOW)

PIN SPACING

ELEVATION VIEW WALL R-344-9

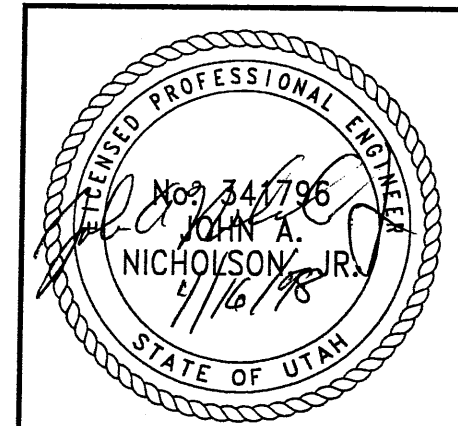
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 1149.37 SM)

SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

MATCH LINE #3

WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION



APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

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THE MANUFACTURER'S SPECIFICATION.

RETAINED EARTH™ WALLS
PRECAST WALL "R-344-9"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.3R-344-9.13
JOB NO.
239-0007
SHT. NO.
RE-9 14/A

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4989




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for any other purpose and is
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of any kind. VSL BE-1
THE REFERENCE.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	4-06-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

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 7840 River Plaza, Suite 200
 Raleigh, NC 27615
 Telephone: (919) 781-6272
 Fax: (919) 781-6689



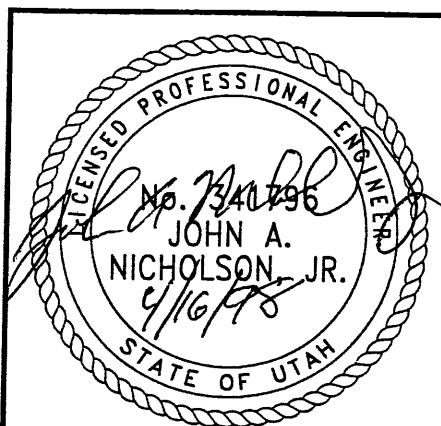
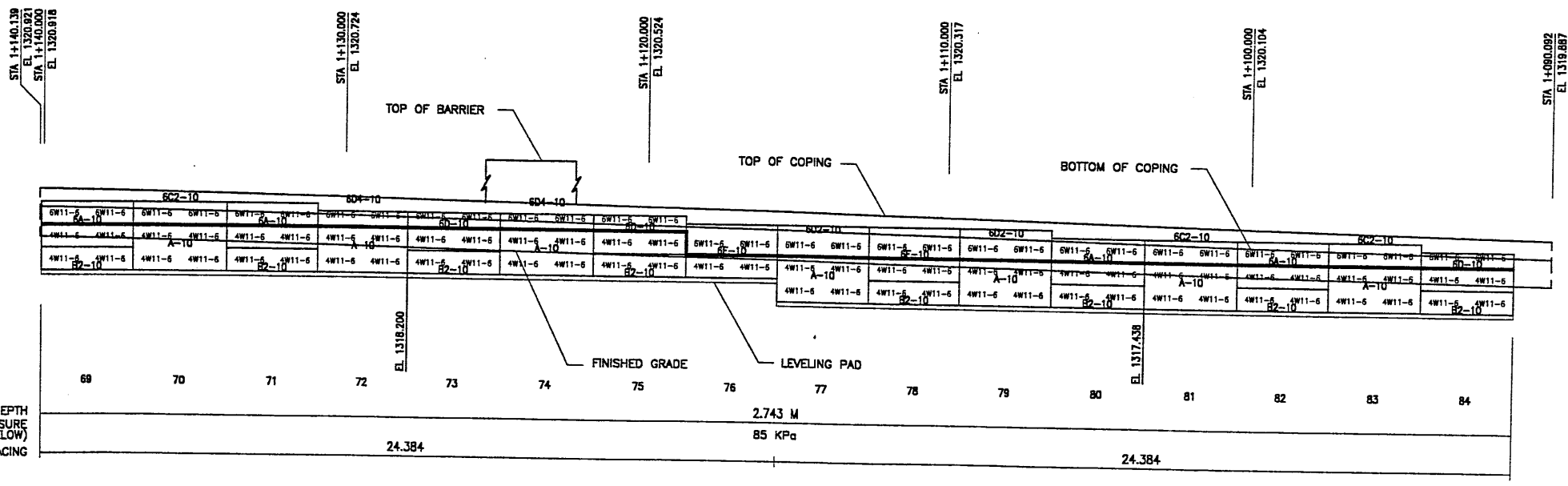
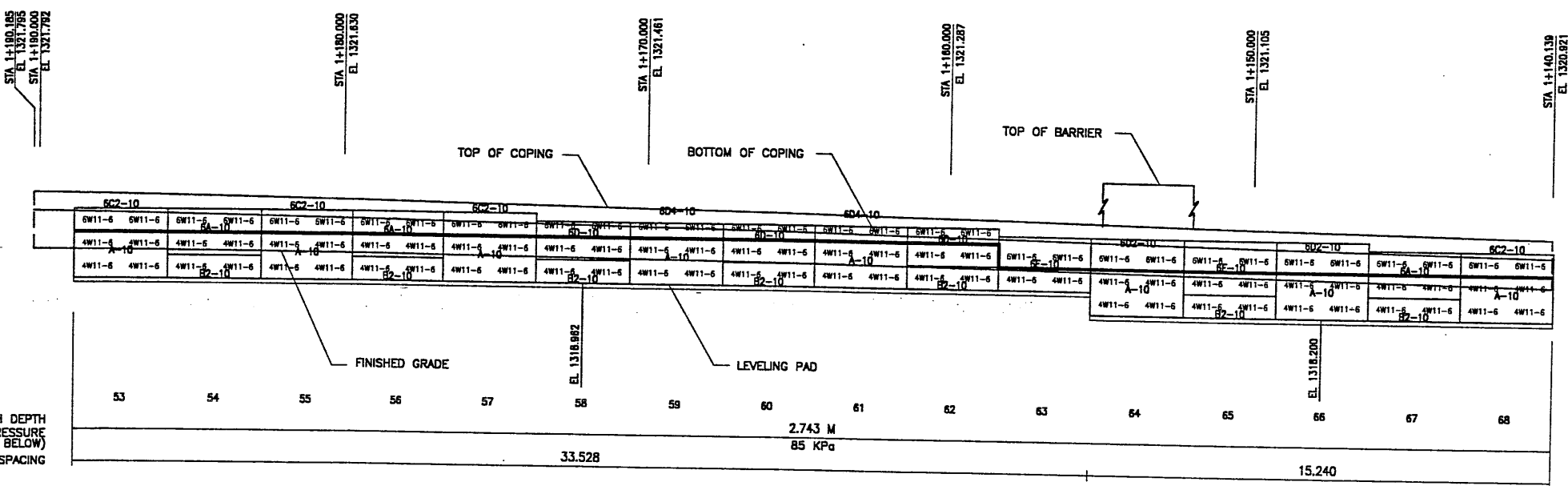
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RETAINED EARTH™ WALLS
PRECAST WALL "R-344-9"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.3R-344-9.14
 JOB NO. 239-0007
 SH. NO. RE-10¹⁵/₁₉

WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION

MESH DEPTH
 MAXIMUM BEARING PRESSURE
 (SEE NOTE BELOW)
 PIN SPACING

MESH DEPTH
 MAXIMUM BEARING PRESSURE
 (SEE NOTE BELOW)
 PIN SPACING

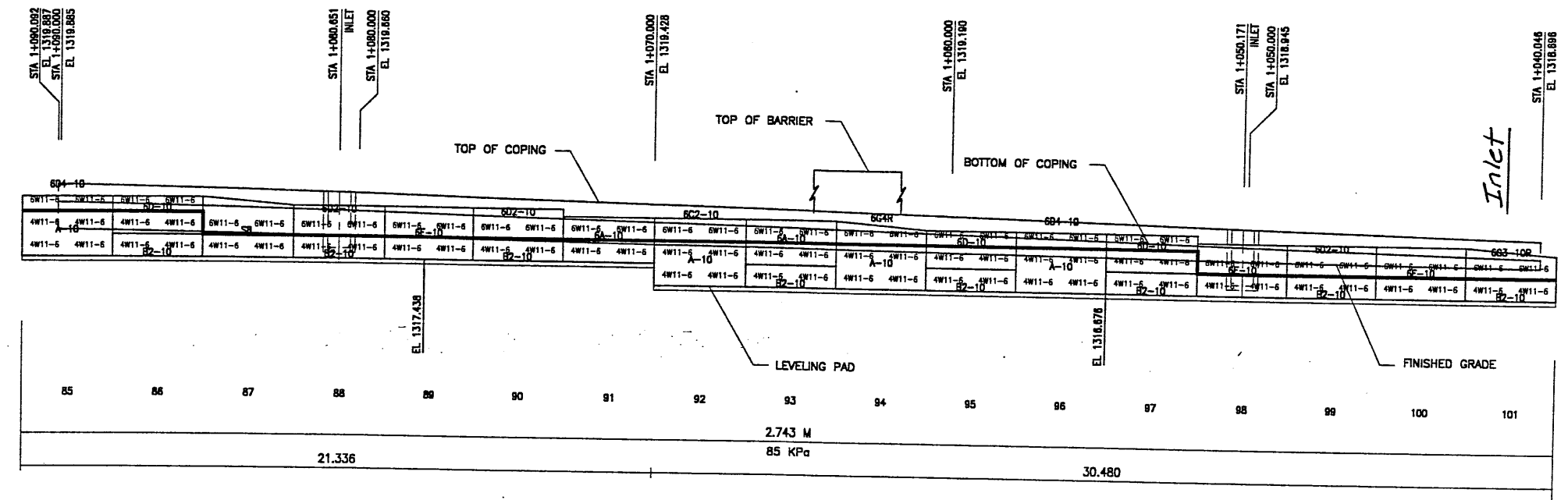
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 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
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 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

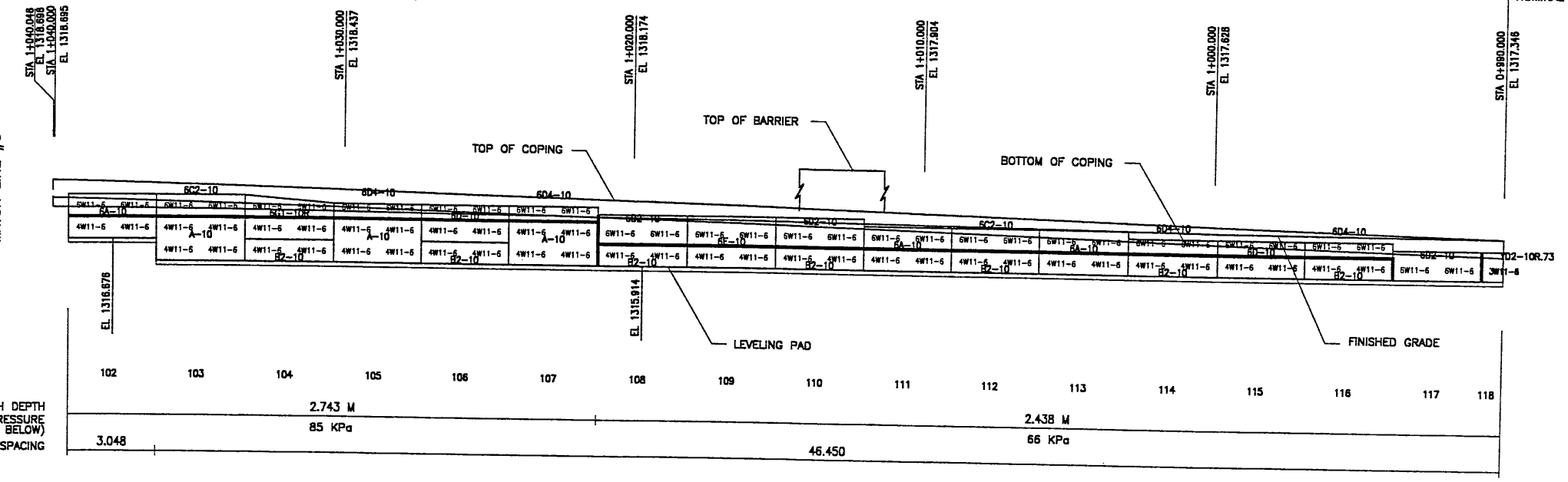
METRIC

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 THE MANUFACTURER'S SPECIFICATION.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	4-06-97	RELEASE FOR CONSTRUCTION



ELEVATION VIEW WALL R-344-9



ELEVATION VIEW WALL R-344-9

(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 1149.37 SM)

SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

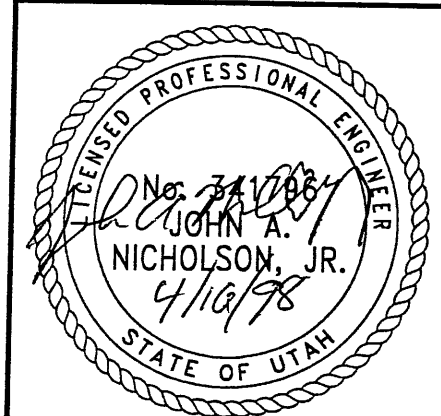
APPROVER NOTE:
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BEGIN WALL R-343-9
WALL STA 0+990.000 =
1-15 STA 21+069.727
● 25.791 RT
NOMINAL PANEL FACE (RWLOL)

BEGIN WALL

WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
PRECAST WALL "R-344-9"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.3R-344-9.15
JOB NO.
239-0007
SHT. NO.
RE-1116/19

VSL CORPORATION
2810 Plaza Place, Suite 200
Raleigh, NC 27617
Tel: (919) 781-6372
Fax: (919) 781-4888

ATLANTA, GA / DANIAS, TX / FALCON, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY	CHK
03-16-98	MM	03-16-98	RSW	03-16-98	MM		

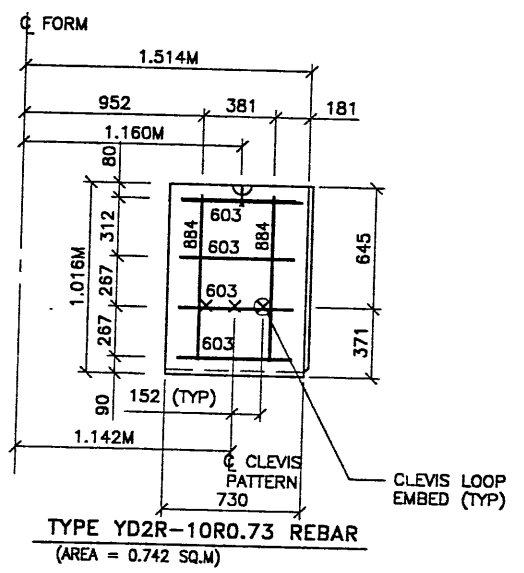
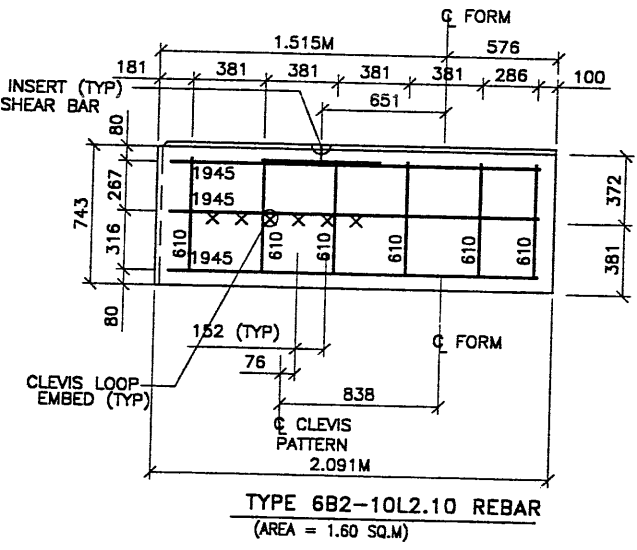
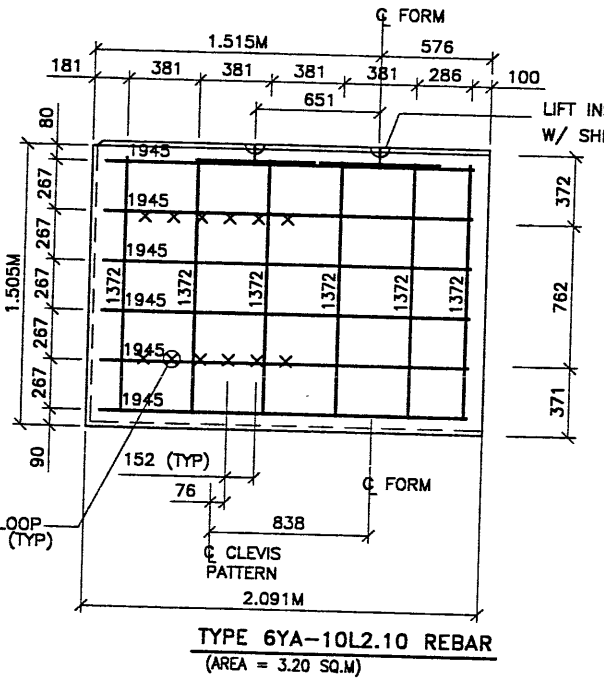
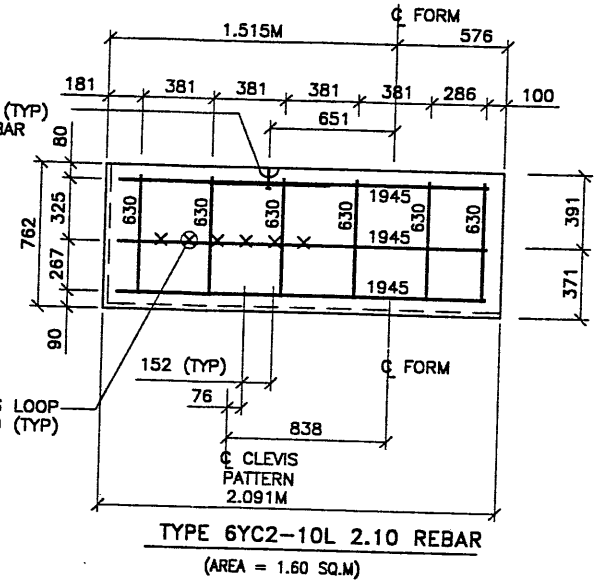
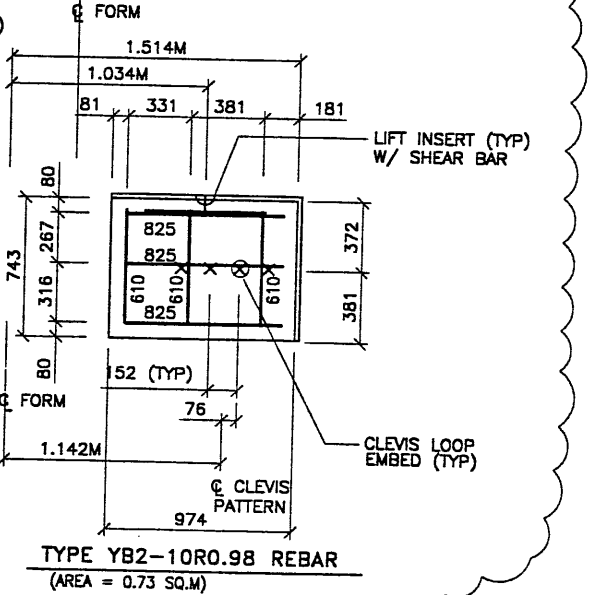
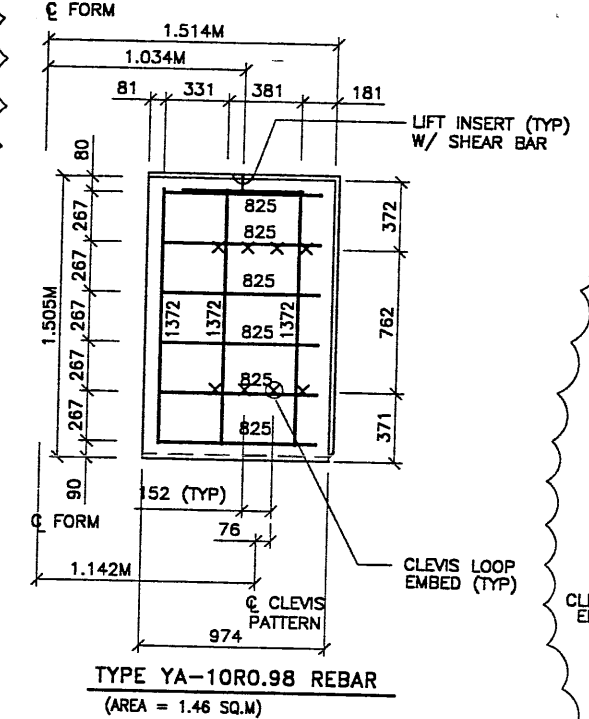
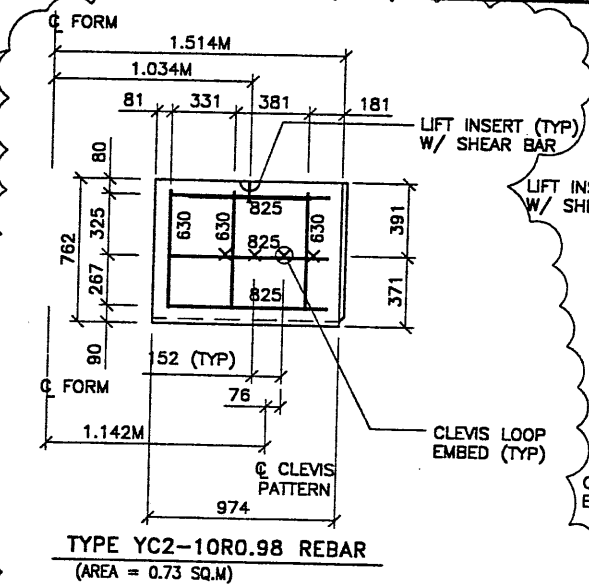
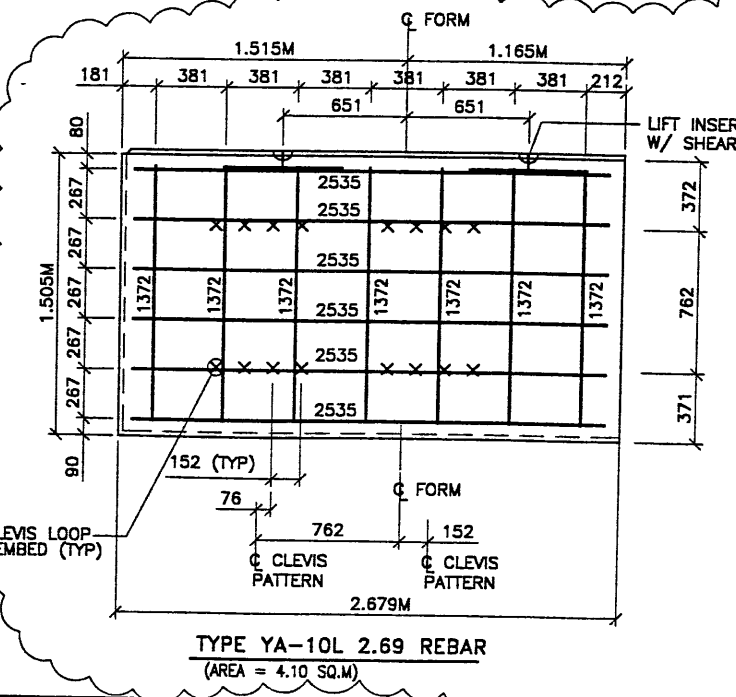
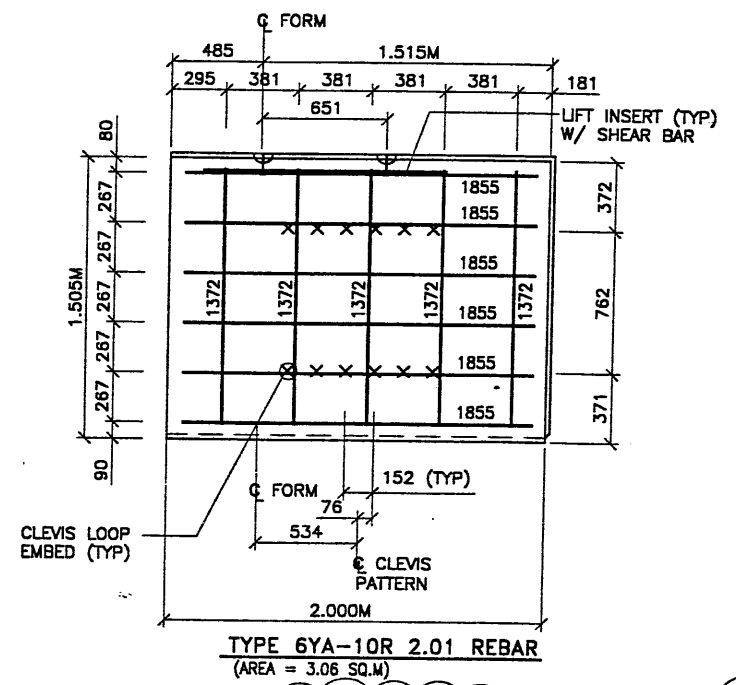
UTAH DIVISION OF HIGHWAYS

YSP/EC

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FIN - JT 09-08-98

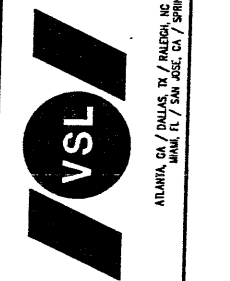
- PANEL REINFORCEMENT NOTES:
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mm# CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 11. LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
4-06-98		RELEASE FOR CONSTRUCTION
9-08-98		CHANGED Y PANELS

DES.	MM	DRN.	RSW	CHK.	MM	NO.	DATE	REVISION
03-13-98		03-13-98						
03-13-98		03-13-98						

VSL CORPORATION
2840 Pico Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-6669



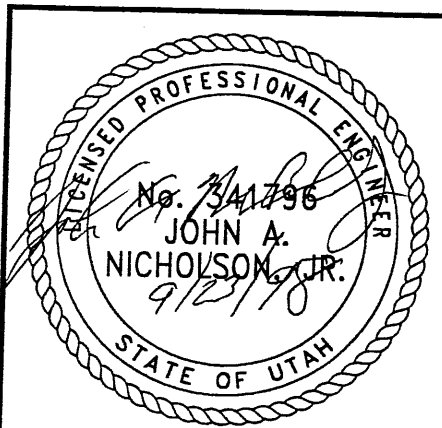
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RETAINED EARTH™ WALLS
PRECAST WALL "R-344-9"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

WASATCH CONSTRUCTORS
SEP 28 1998
RELEASED FOR CONSTRUCTION

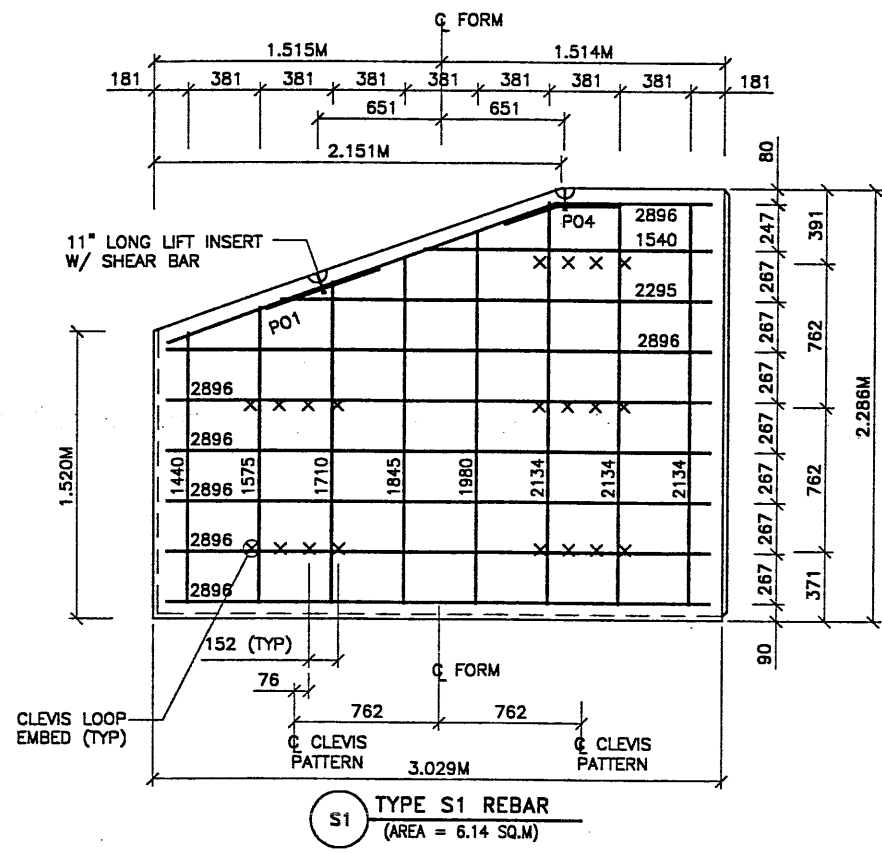
METRIC

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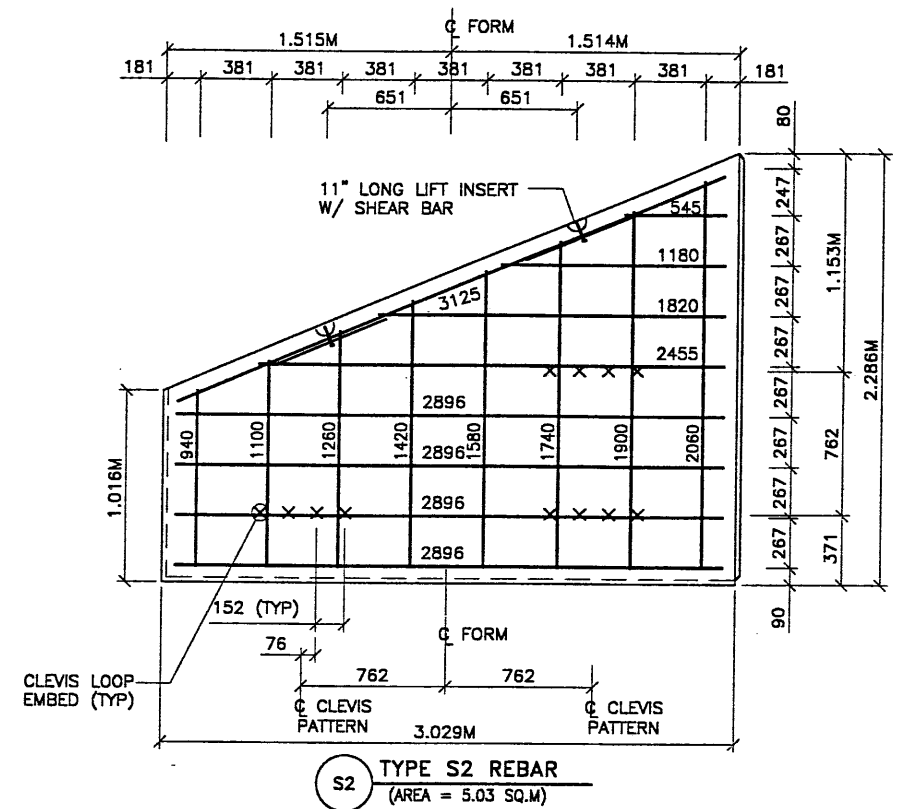
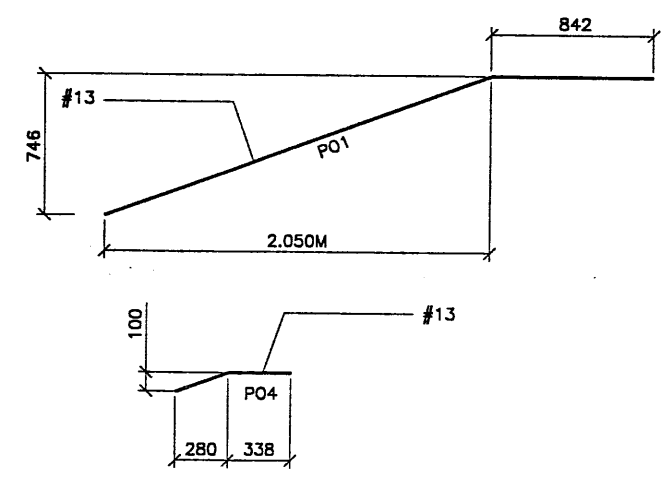


DWG. NO.	1.3R-344-9.16
JOB NO.	239-0007
SHT. NO.	RE-1217/9

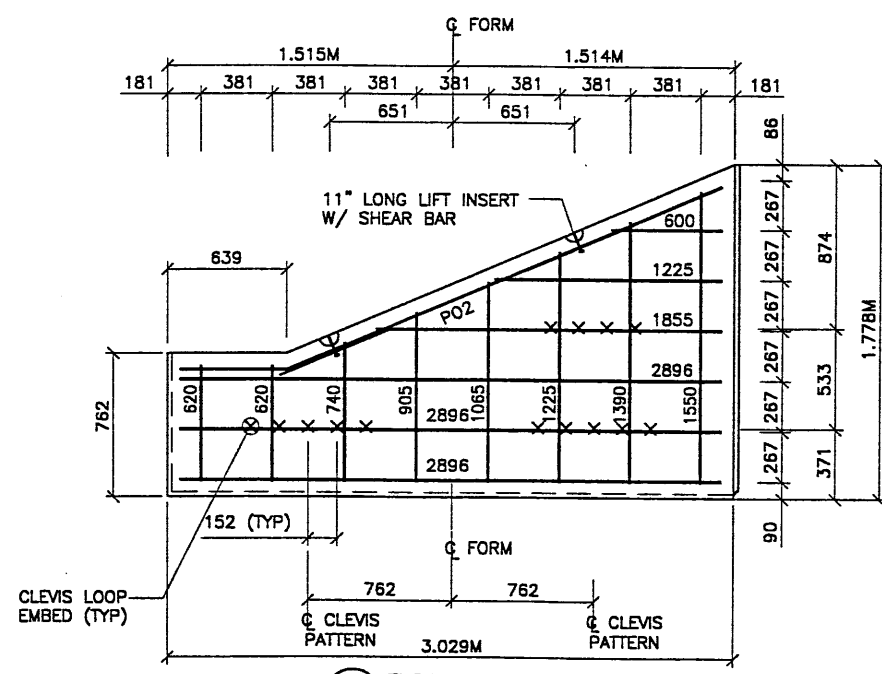
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	4-06-97	RELEASE FOR CONSTRUCTION



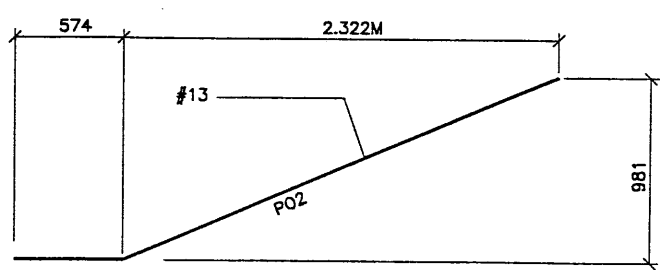
S1 TYPE S1 REBAR
(AREA = 6.14 SQ.M)



S2 TYPE S2 REBAR
(AREA = 5.03 SQ.M)



S3 TYPE S4 REBAR
(AREA = 3.55 SQ.M)

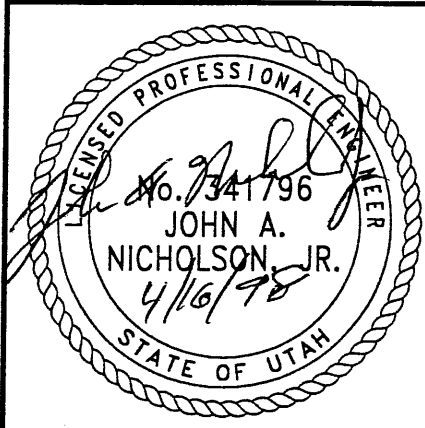


- PANEL REINFORCEMENT NOTES:**
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
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 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
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METRIC

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WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION



NO.	DATE	REVISION	BY	CHK

DES.	03-12-98	MM
DRN.	03-12-98	RSW
CHK.	03-12-98	MM

RETAINED EARTH™

VSL CORPORATION
2540 Plaza Place, Suite 200
Raleigh, NC 27617
Telephone: (919) 781-6272
Fax: (919) 781-6888

ALANTA, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

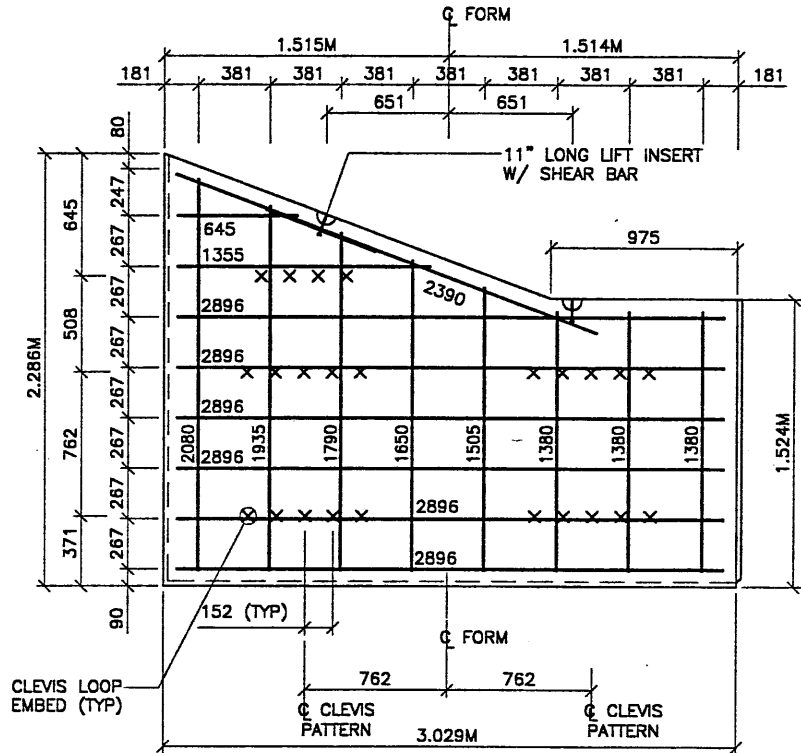
RETAINED EARTH™ WALLS
PRECAST WALL "R-344-9"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.3R-344-9.17

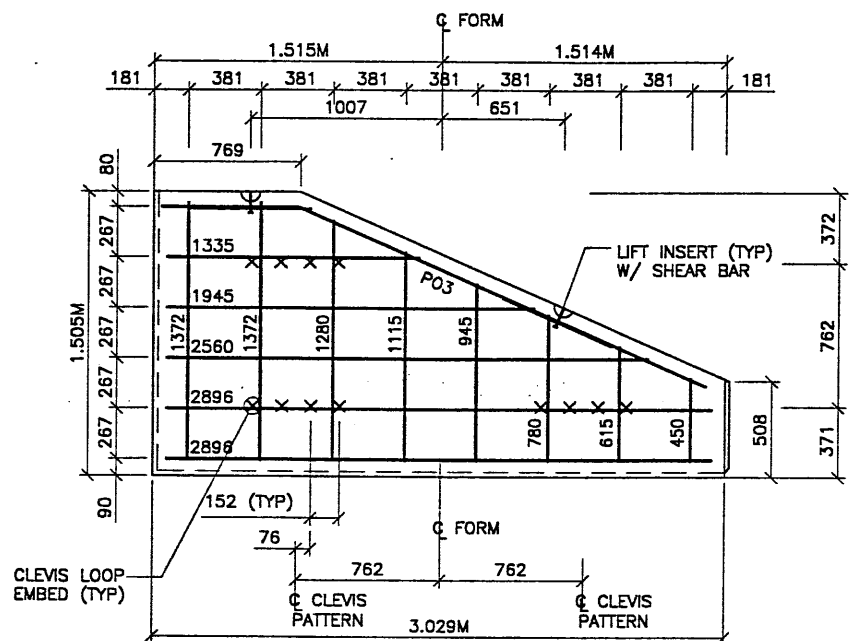
JOB NO:
239-0007

SHT. NO.
RE-13/A

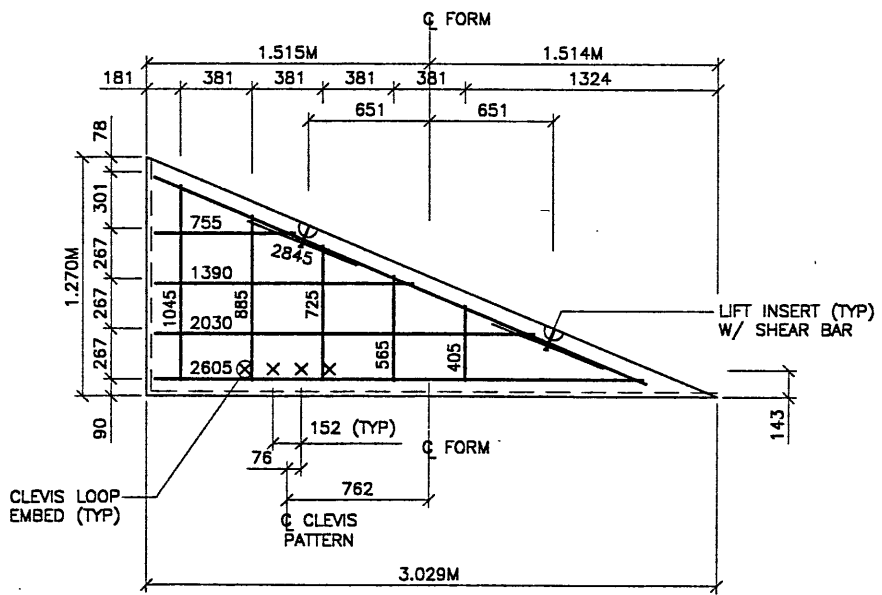
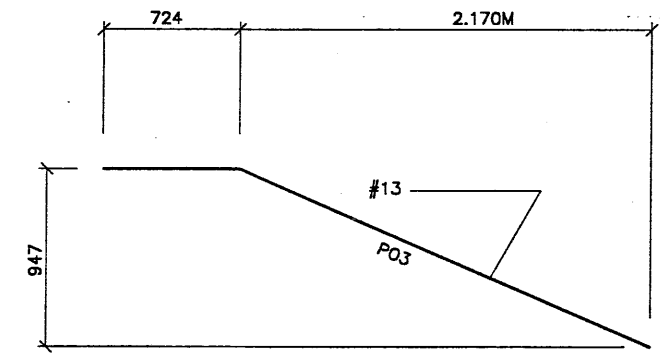
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	4-06-97	RELEASE FOR CONSTRUCTION



S5 TYPE S5 REBAR
(AREA = 5.44 SQ.M)



S7 TYPE S7 REBAR
(AREA = 3.49 SQ.M)

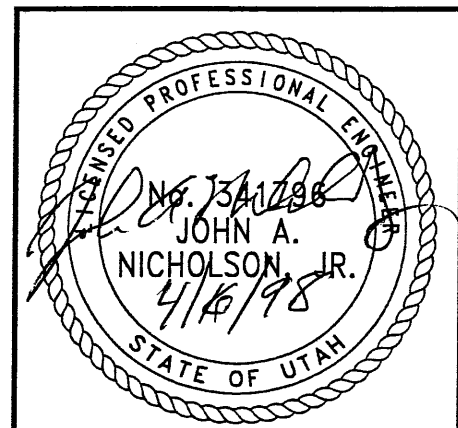


S6 TYPE S6 REBAR
(AREA = 1.94 SQ.M)

- PANEL REINFORCEMENT NOTES:**
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS 1.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 11. LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION				NO.	DATE	REVISION	BY
NO.	DATE	DESCRIPTION	CHK				
▲	4-06-97	RELEASE FOR CONSTRUCTION					

DES.	03/12/98	MM
DRN.	03/12/98	RSW
CHK.	03/12/98	MM

VSL CORPORATION
2840 Pines Place, Suite 200
Raleigh, NC 27617
Telephone: (919) 781-4272
Fax: (919) 781-4869

VSL
ATLANTA, GA / DALLAS, TX / FALCON, NC (CORPORATE OFFICE)
JAN 15 / SAN JOSE, CA / PRINCETON, NJ

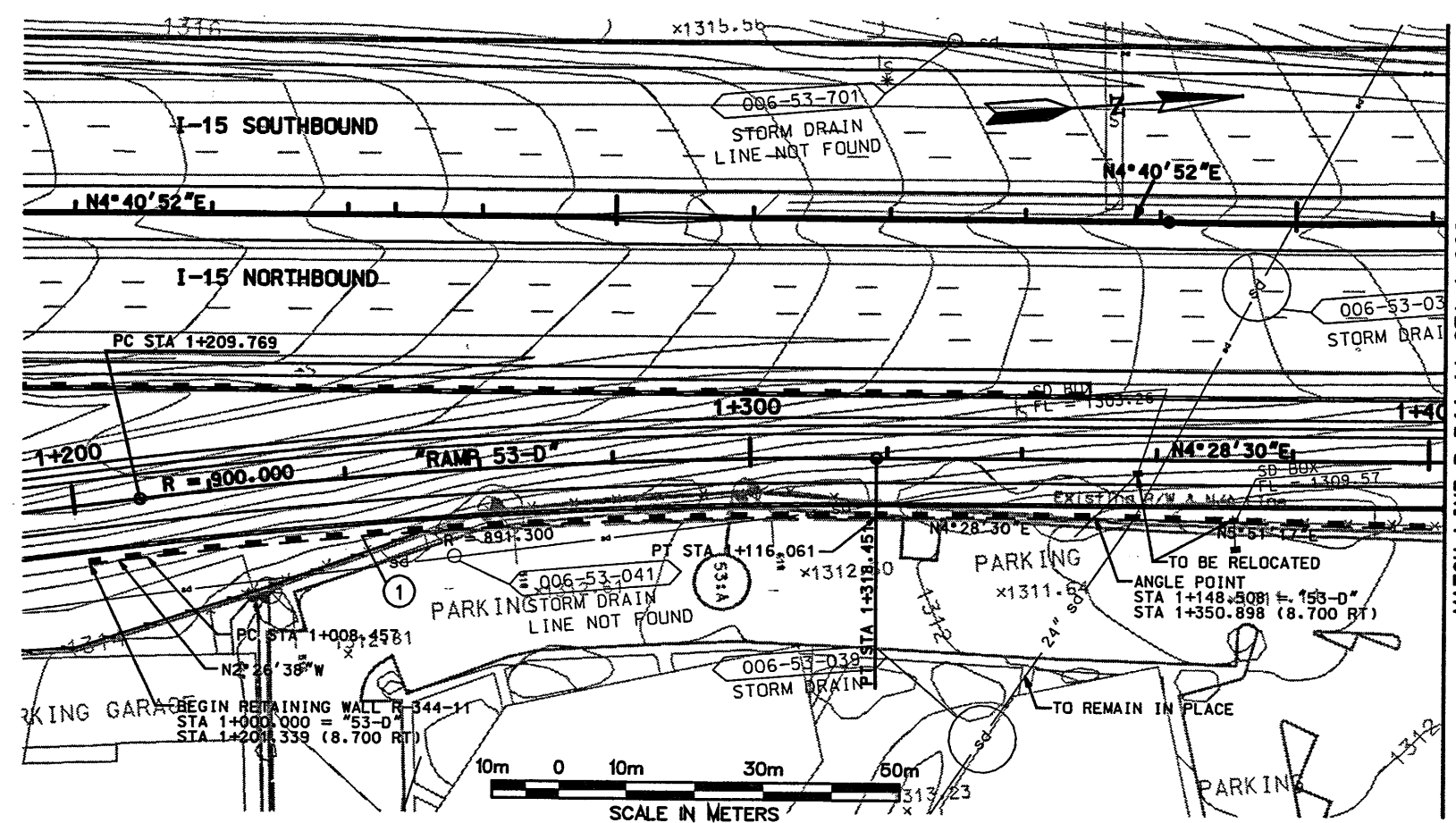
RETAINED EARTH™ WALLS
PRECAST WALL "344-9"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.3R-344-9.1B

JOB NO.
239-0007

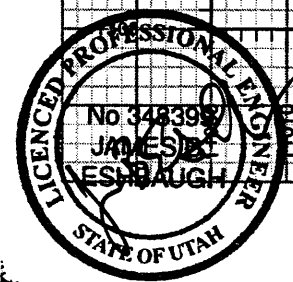
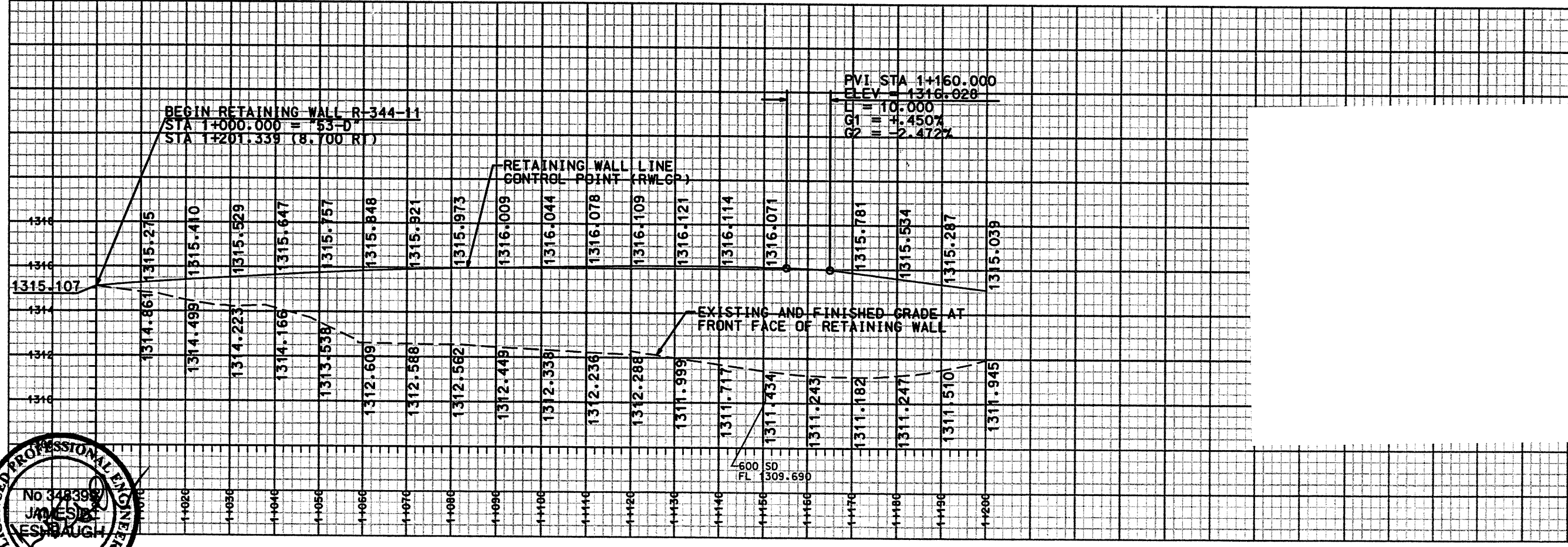
SHT. NO.
RE-14 1/4

Date: 04-MAY-1998 Time: 09:08 Username: stottrj
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CURVE NO.	△	R	L	T
①	6°55'02"	891.300	107.605	53.868

WASATCH CONSTRUCTORS
 MAY 05 1998
 RELEASED FOR CONSTRUCTION



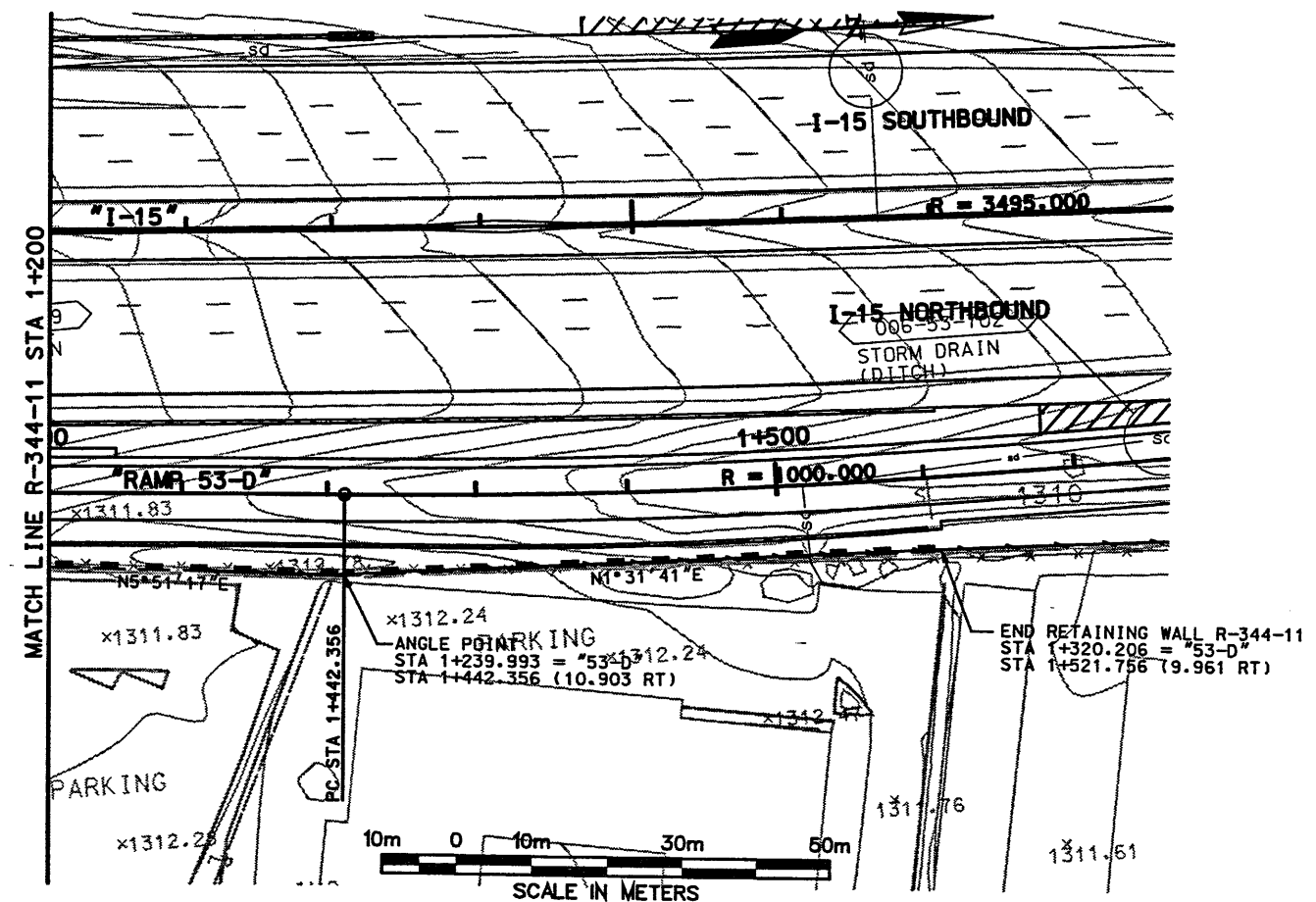
ELEVATION VIEW FROM FRONT FACE OF WALL

NOTE:
 THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.

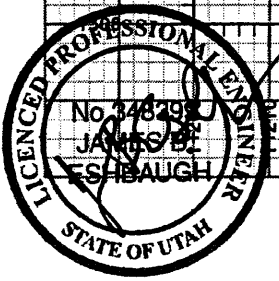
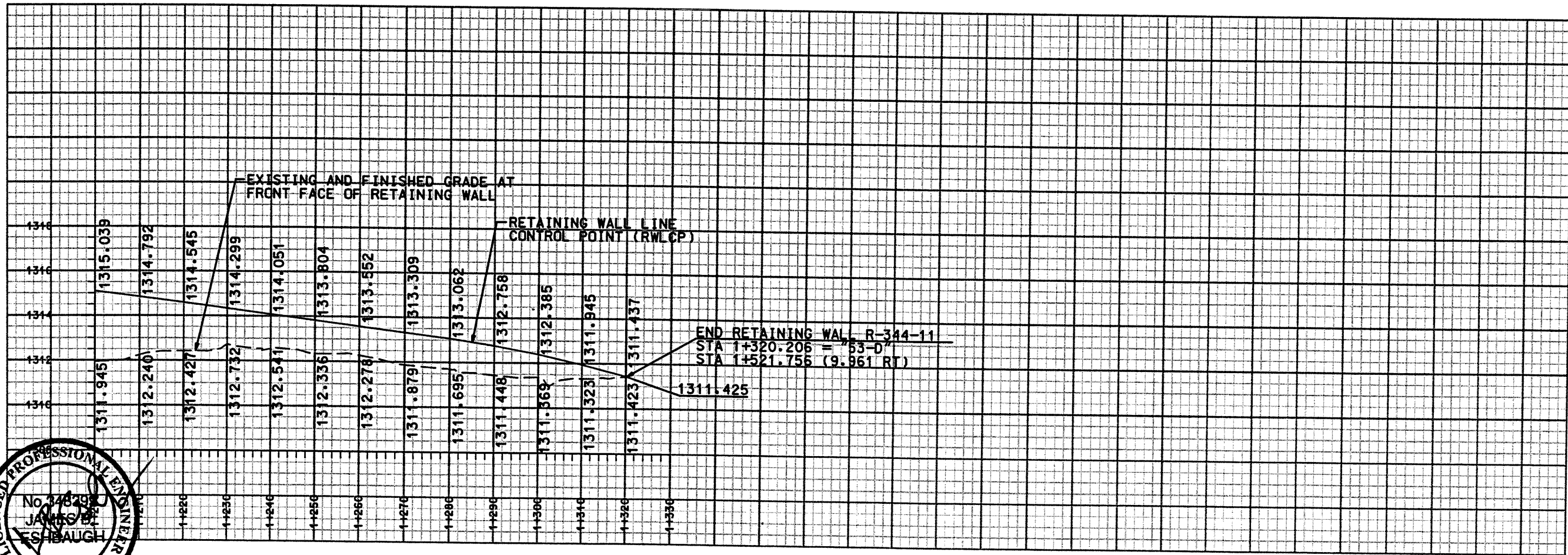
APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
△	5-4-98		
UTAH DEPARTMENT OF TRANSPORTATION		1313406	
URS Greiner		DESIGN PRV 12/97	
SVENDRUP/DE LEUW		DRAW PRV 12/97	
1/98 RICK CHAPMAN		CHECK JBE 12/97	
DATE PROJECT DESIGN ENGINEER		CHECK JBE 12/97	
APPROVED 1/98 DON GRAY		CHECK /	
DATE PROJECT MANAGER		CHECK /	
I-15 CORRIDOR RECONSTRUCTION		SECTION 1.3	
SITUATION/LAYOUT		#SP-15-7(135)296	
RETAINING WALL R-344-11		PROJECT NUMBER	
SALT LAKE COUNTY		DWG. NO.	
1.3R-344-11.1		SHT. 1 OF 10	
REF.			

Users: names.stotttrj

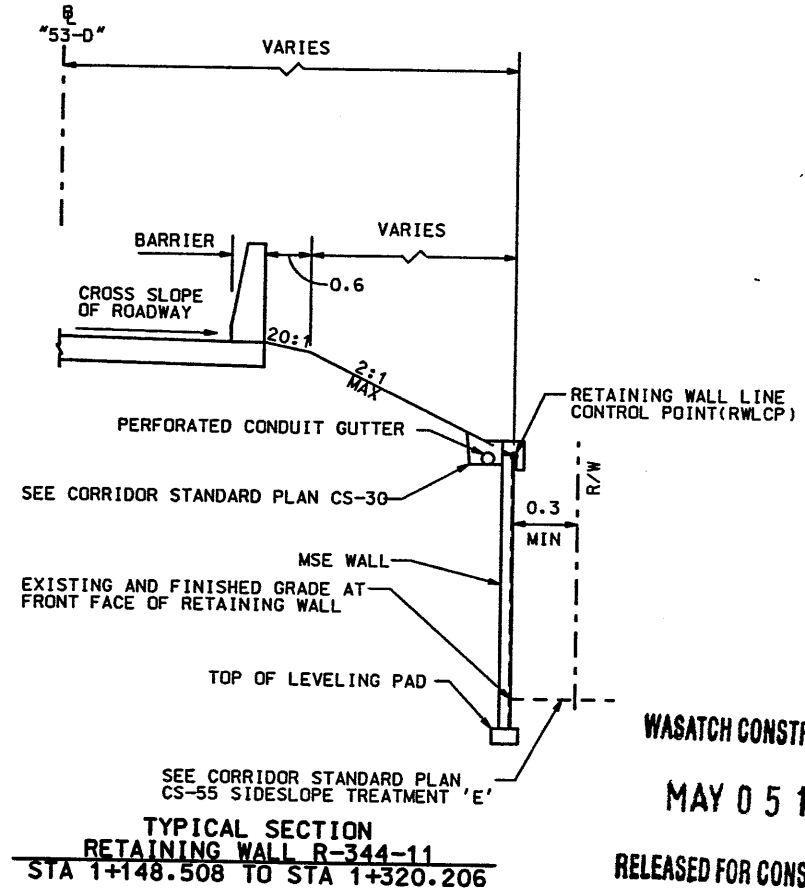
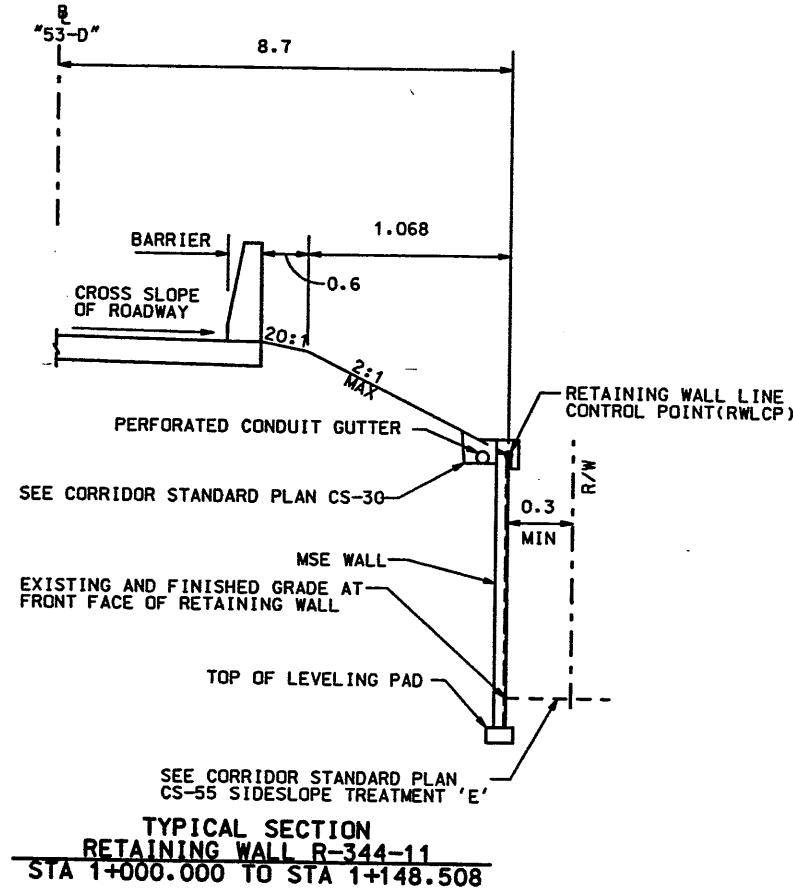
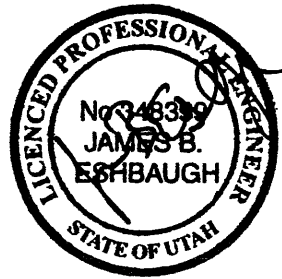
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WASATCH CONSTRUCTORS
MAY 05 1998
RELEASED FOR CONSTRUCTION



APPROVED FOR CONSTRUCTION		DATE: 5-4-98		INITIAL RELEASE	
UTAH DEPARTMENT OF TRANSPORTATION		DESIGN: RY / 12/97		CHECK: JRE / 12/97	
URS Greiner		DRAWN: RY / 12/97		CHECK: JRE / 12/97	
SVERDRUP/DE LEUW		QUANT. /		CHECK: /	
I-15 CORRIDOR RECONSTRUCTION		DATE: 1/98		PROJECT DESIGN ENGINEER	
SITUATION/LAYOUT		DATE: 1/98		PROJECT MANAGER	
RETAINING WALL R-344-11		DATE: 1/98		PROJECT MANAGER	
SECTION 1.3		DATE: 1/98		PROJECT MANAGER	
PROJECT NUMBER #SP-15-7(135)296		DATE: 1/98		PROJECT MANAGER	
SALT LAKE COUNTY		DATE: 1/98		PROJECT MANAGER	
DWG. NO. 1.3R-344-11.2		DATE: 1/98		PROJECT MANAGER	
SHT. 2 OF 10		DATE: 1/98		PROJECT MANAGER	
REF.		DATE: 1/98		PROJECT MANAGER	



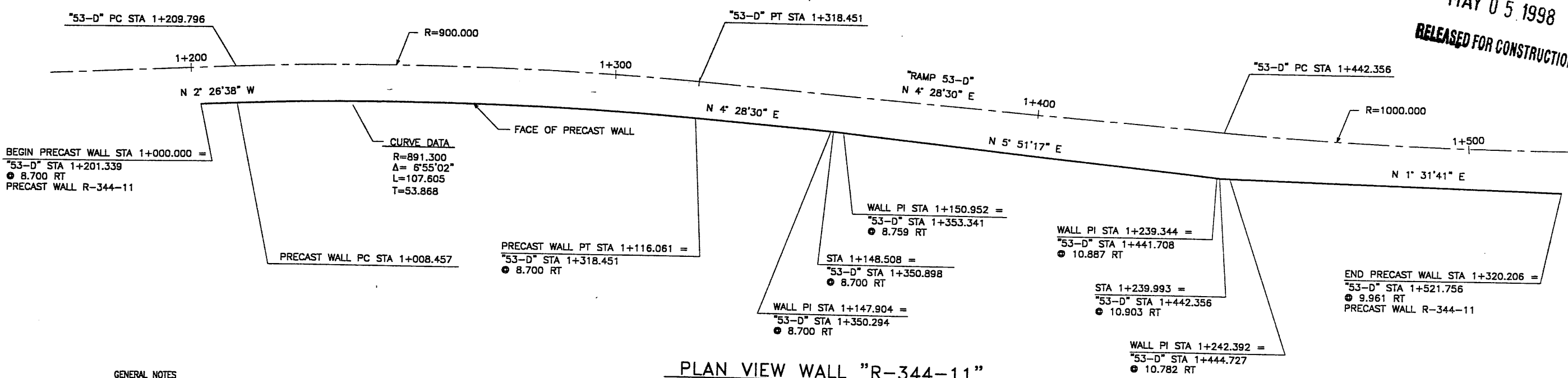
WASATCH CONSTRUCTORS
MAY 05 1998
RELEASED FOR CONSTRUCTION

I-15 CORRIDOR RECONSTRUCTION		UTAH DEPARTMENT OF TRANSPORTATION		APPROVED FOR CONSTRUCTION	
SITUATION/LAYOUT RETAINING WALL R-344-11		URS Greiner SVDRUP/DE LEUW		NO. DATE	
SECTION 1.3		DESIGN		5-4-98 INITIAL RELEASE	
PROJECT NUMBER #SP-15-7(135)296		1/98	RICK CHAPMAN	12/97	CHECK
SALT LAKE COUNTY		DATE	PROJECT DESIGN ENGINEER	12/97	CHECK
DWG. NO. 1.3R-344-11.3		1/98	DOM ORRAL	12/97	CHECK
SHT. 3 OF 10		DATE	PROJECT MANAGER	12/97	CHECK
REF.				1313406	

H:\RE_EARTH\APRO\19-0007\1998\53SERIES\53-11\SUBMTL-2\RE-11
 FIN I 04-29-98

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	04-29-98	RELEASE FOR CONSTRUCTION <i>SW</i>

WASATCH CONSTRUCTORS
MAY 05 1998
RELEASED FOR CONSTRUCTION



PLAN VIEW WALL "R-344-11"

SCALE: 1=500 (FULL SIZE)
 SCALE: 1=1000 (HALF SIZE)

GENERAL NOTES

1. ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
2. PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER ROW.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER ROW.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
3. SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE.
EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W15-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
4. SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
5. CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
6. HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
7. CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
8. BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
9. VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
10. ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.
11. GEOTECHNICAL ENGINEER TO FIELD VERIFY FOUNDATION CONDITIONS AND EXTENT OF STRUCTURAL FILL.

DESIGN PARAMETERS

ANGLE OF INTERNAL FRICTION (SELECT) = 34°
ANGLE OF INTERNAL FRICTION (BASE) = 31°
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)
TRAFFIC SURCHARGE = 250 PSF (12 KPa)
SEISMIC ACCELERATION COFF. = 0.12g (TYP)

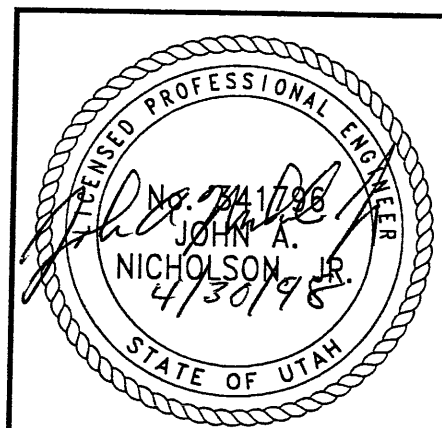
DESIGN CRITERIA

SAFETY FACTOR (OVERTURNING) = 2.0
SAFETY FACTOR (SLIDING) = 1.5
SAFETY FACTOR (PULLOUT) = 1.5
DESIGN LIFE = 75 YEARS

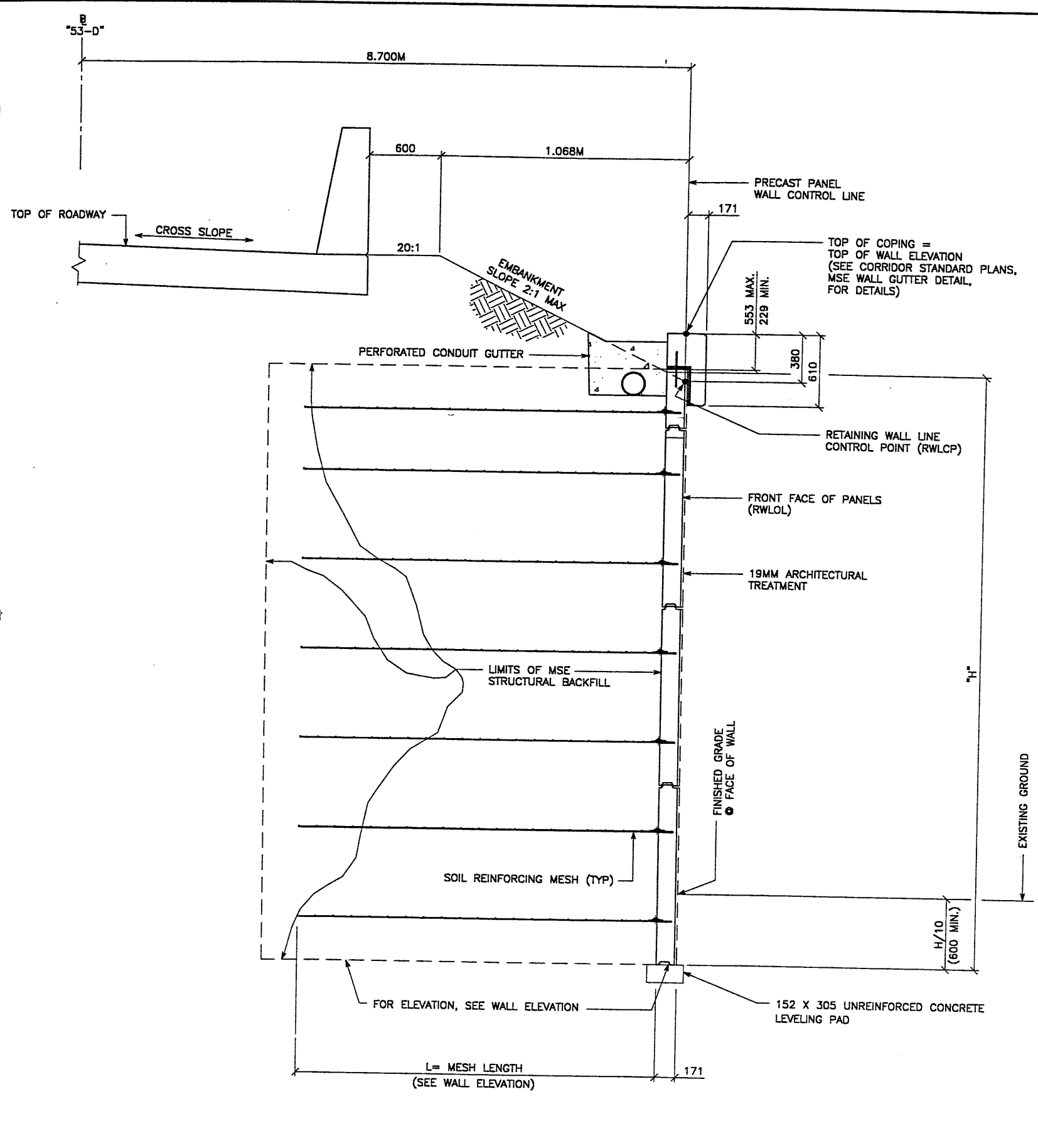
RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-344-11, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	TYPICAL CROSS SECTION
RE-4	ELEVATION PRECAST WALL "R-344-11"
RE-5	ELEVATION PRECAST WALL "R-344-11"
RE-6	ELEVATION PRECAST WALL "R-344-11"
RE-7	SPECIAL PANEL DETAILS

METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



 VSL CORPORATION <small>2810 Plaza Place, Suite 200 Raleigh, NC 27612 Phone: (919) 851-8272 Fax: (919) 781-6889</small>	<small>ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE) MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA</small>	<small>DES. 03-24-98</small> <small>DRN. 03-24-98</small> <small>CHK. 03-24-98</small>	<small>RETAINED EARTH™</small> <small>NO. DATE</small>	<small>REVISION</small> <small>BY</small>	<small>NO. DATE</small>	<small>BY</small>	<small>CHK</small>
RETAINED EARTH™ WALLS PLAN VIEW PRECAST WALL "R-344-11" UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.							
<small>DWG. NO.</small> 1.3R-344-11.4							
<small>JOB NO.</small> 239-0007							
<small>SHT. NO.</small> RE-14/10							



TYPICAL CROSS SECTION - STA 1+000.000 TO STA 1+148.508
 (SEE DWG. NO. 1.3R-344-11.3 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	04-29-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
MAY 05 1998
RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY

VSL CORPORATION
 2610 Pecos Place, Suite 200
 Denver, CO 80202
 Telephone: (303) 751-6272
 Facsimile: (303) 751-4669

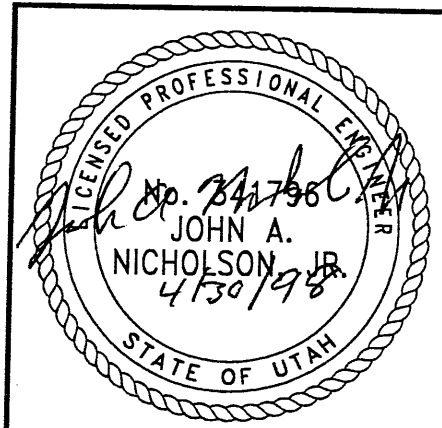
VSL

ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MANASSAS, VA / SAN JOSE, CA / SPRINGFIELD, VA

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RETAINED EARTH™ WALLS
WIRE FACED WALL "R-344-11"
TYPICAL CROSS SECTION

UTAH 1-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

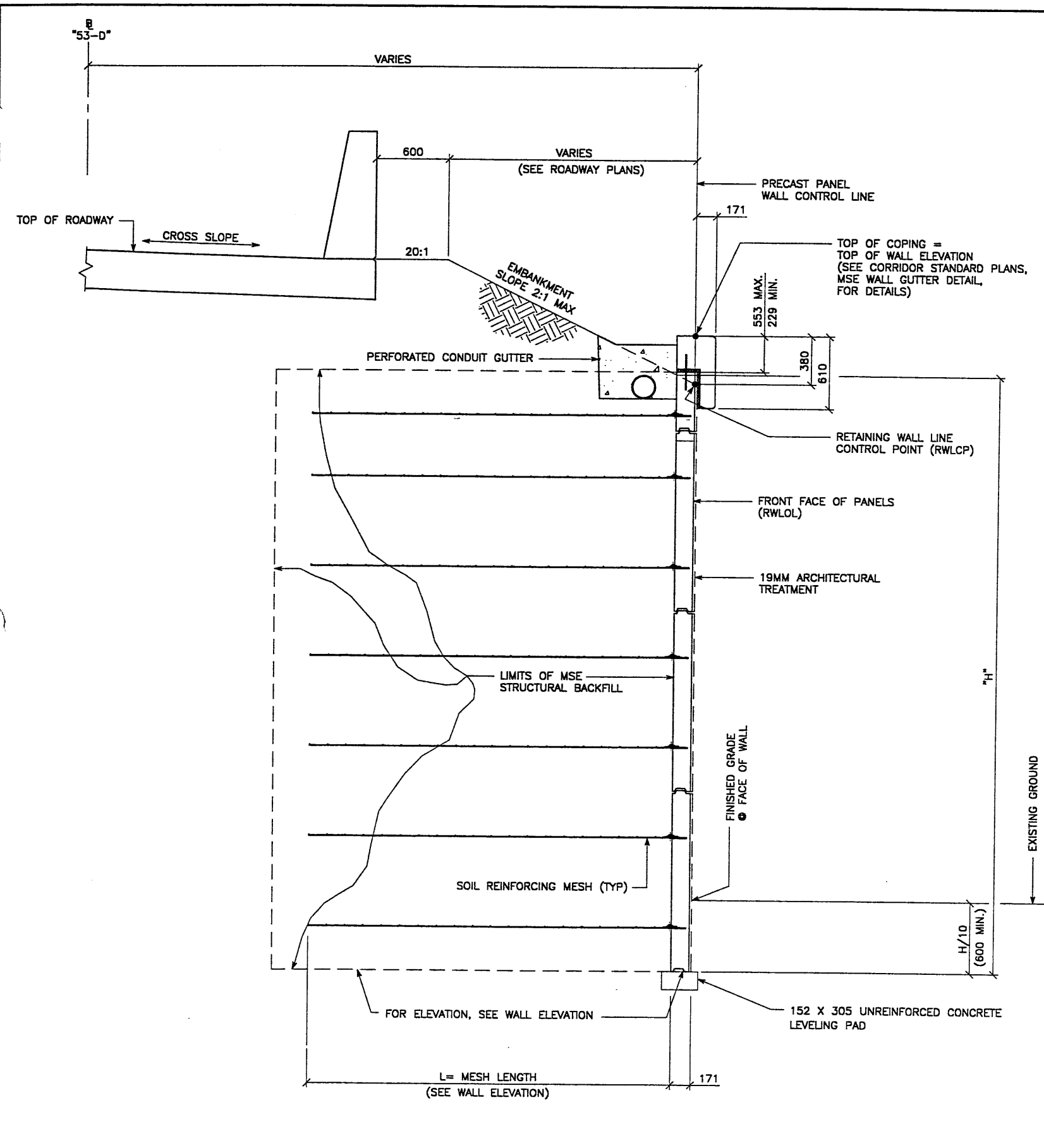


METRIC

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DWG. NO.	1.3R-344-11.5
JOB NO.	239-0007
SHT. NO.	RE-2 5/10

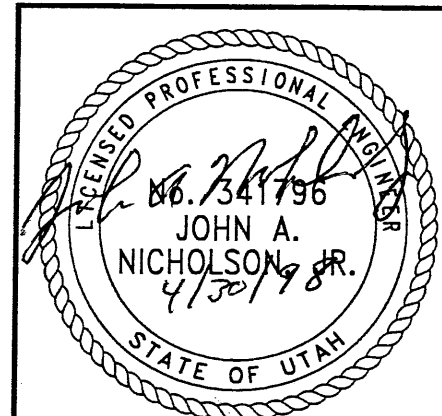
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 T 04-29-98
 FIN



TYPICAL CROSS SECTION - STA 1+148.508 TO STA 1+320.206
 (SEE DWG. NO. 1.3R-344-11.3 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	04-29-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
 MAY 05 1998
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CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

METRIC

DES.	03-24-98	JL	RETAINED EARTH™
DRN.	03-24-98	DDL	
CHK.	03-24-98	JL	

VSL CORPORATION
 2840 Plaza Project, Suite 300
 Phoenix, AZ 85016
 Telephone: (602) 781-6272
 Fax: (602) 781-6869

ALUMINUM, GA. / DANLUS, TX. / RILEY, MO. (CORPORATE OFFICE)
 MIAMI, FL. / SAN JOSE, CA. / SPRINGFIELD, VA.

RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-344-11"
 TYPICAL CROSS SECTION

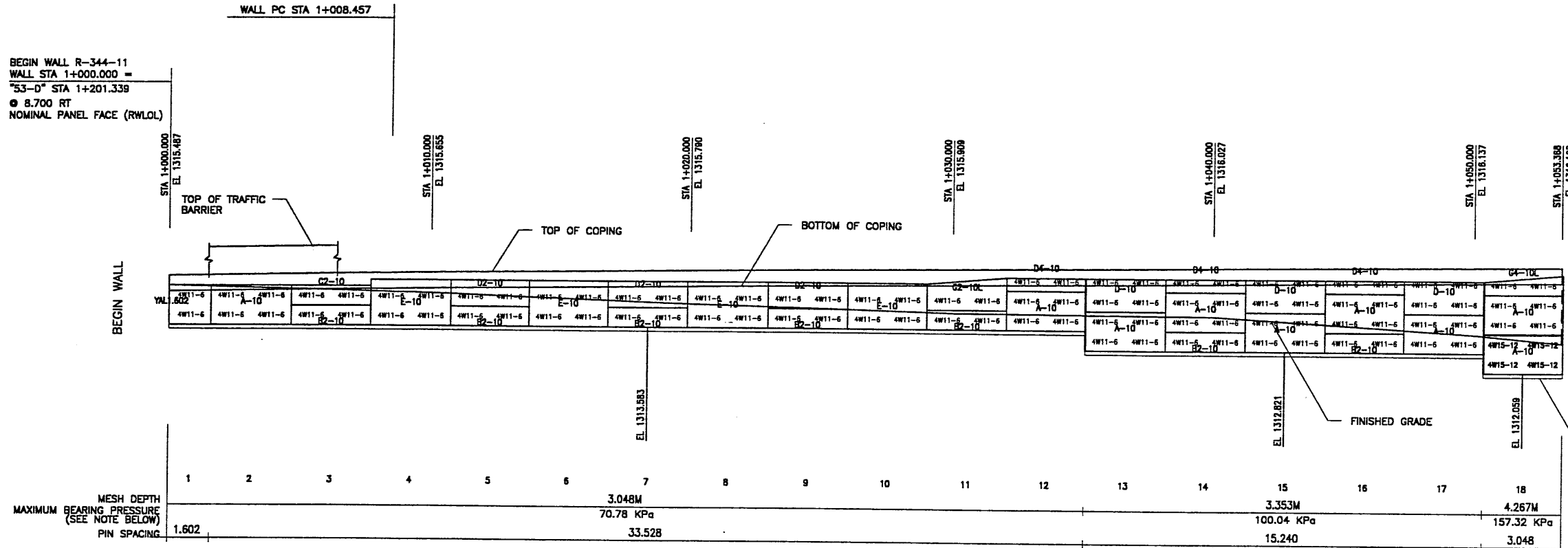
UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
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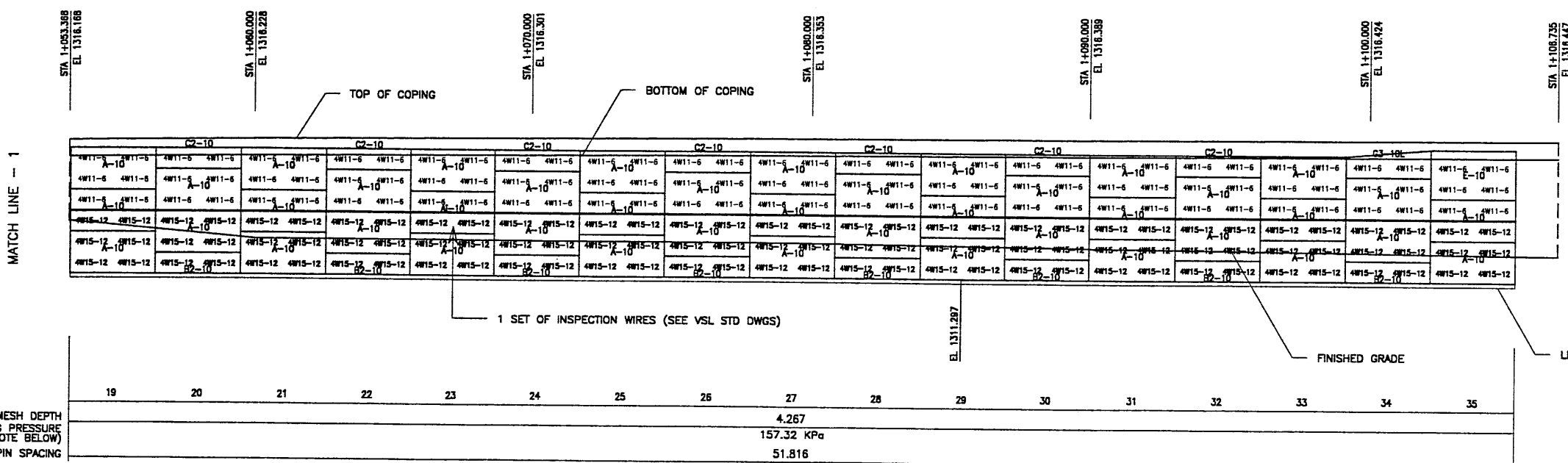
JOB NO:
 239-0007

SHT. NO.
 RE-36/10

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	04-29-98	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL R-344-11
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 1167.24 SM) SCALE 1:200 (HALF SIZE)



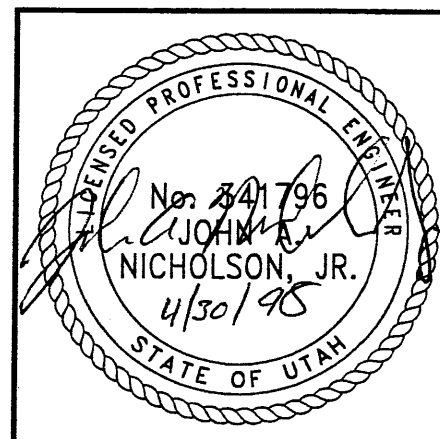
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 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 1167.24 SM) SCALE 1:200 (HALF SIZE)

METRIC

* INDICATES SOIL REINFORCING TYPE MESH TO BE USED ON ADDITIONAL WIRE WALL FACING ADDED AFTER SETTLEMENT.

NOTE: THE INDICATED MAXIMUM BEARING PRESSURES AT FINAL STAGE FOR STATIC LOAD CONDITION.

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



WASATCH CONSTRUCTORS
 MAY 05 1998
 RELEASED FOR CONSTRUCTION
WASATCH CONSTRUCTORS
 1998
 RELEASED FOR CONSTRUCTION

VSL CORPORATION
 3500 Piedmont Place, Suite 500
 Raleigh, NC 27603
 Telephone: (919) 781-8272
 Fax: (919) 781-4869

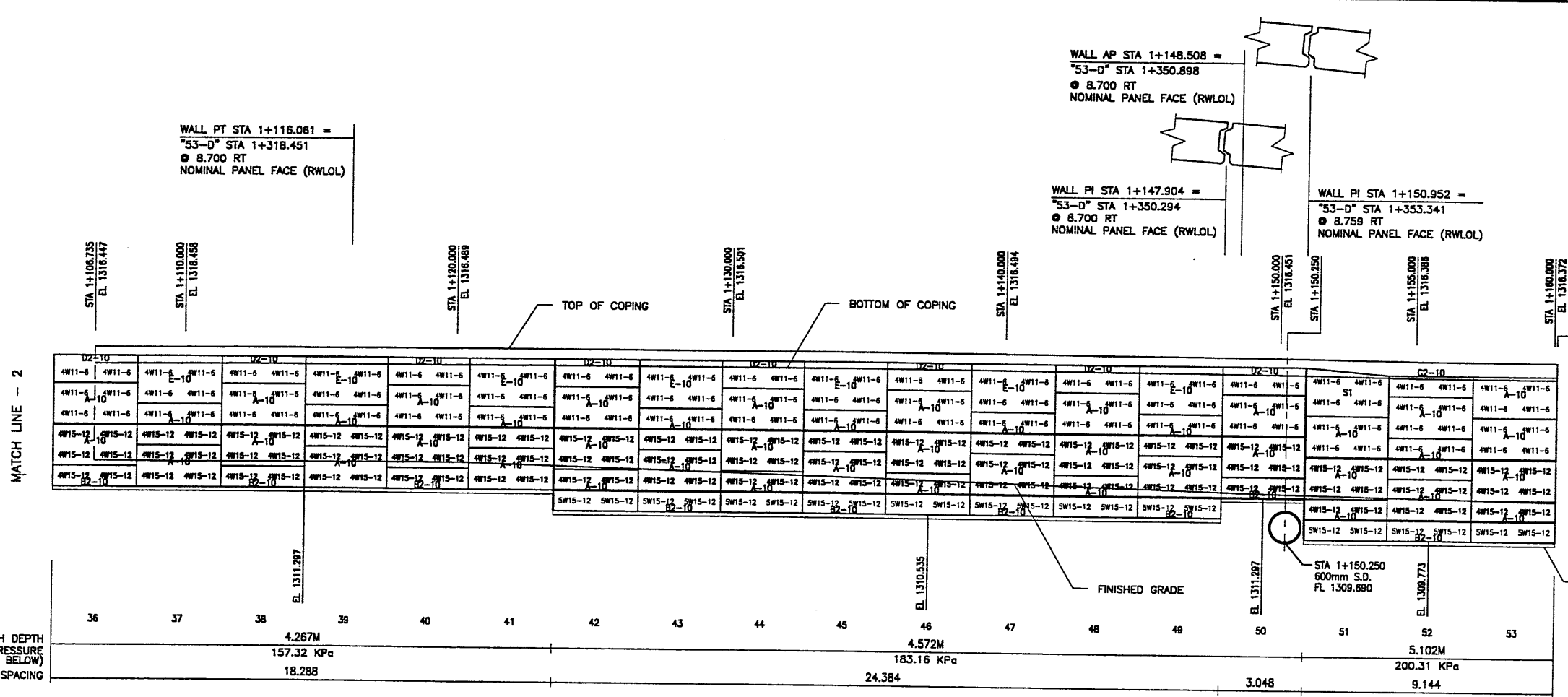
ATLANTA, GA / DALLAS, TX / HALOHI, HI (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

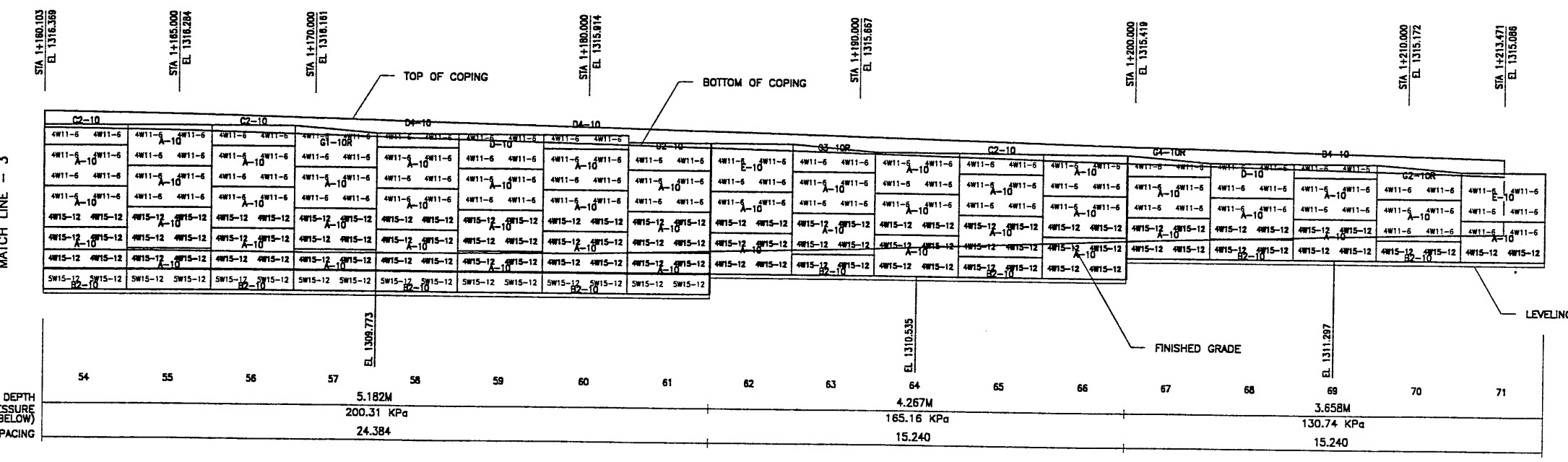
RETAINED EARTH™ WALLS
 PRECAST WALL "R-344-11"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.3R-344-11.7
JOB NO.	239-0007
SHT. NO.	RE-47/10

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 FIN T 04-29-98



ELEVATION PRECAST WALL R-344-11
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1167.24 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)



ELEVATION PRECAST WALL R-344-11
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1167.24 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

METRIC

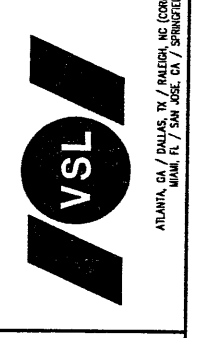
* INDICATES SOIL REINFORCING TYPE
 MESH TO BE USED ON ADDITIONAL
 WIRE WALL FACING ADDED AFTER
 SETTLEMENT.
 NOTE:
 THE INDICATED MAXIMUM BEARING PRESSURES
 AT FINAL STAGE FOR STATIC LOADING CONDITION.

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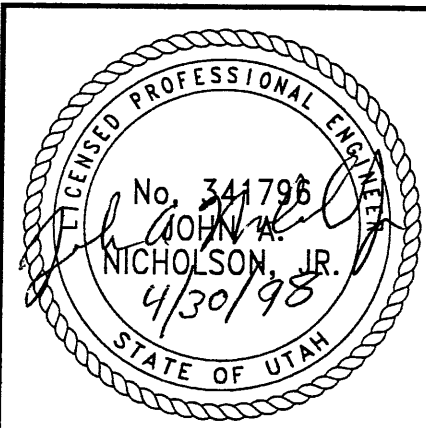
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△ 04-29-98		RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

VSL CORPORATION
 2810 Foothill Place, Suite 200
 Irvine, CA 92614
 Telephone: (949) 781-9272
 Fax: (949) 781-6888

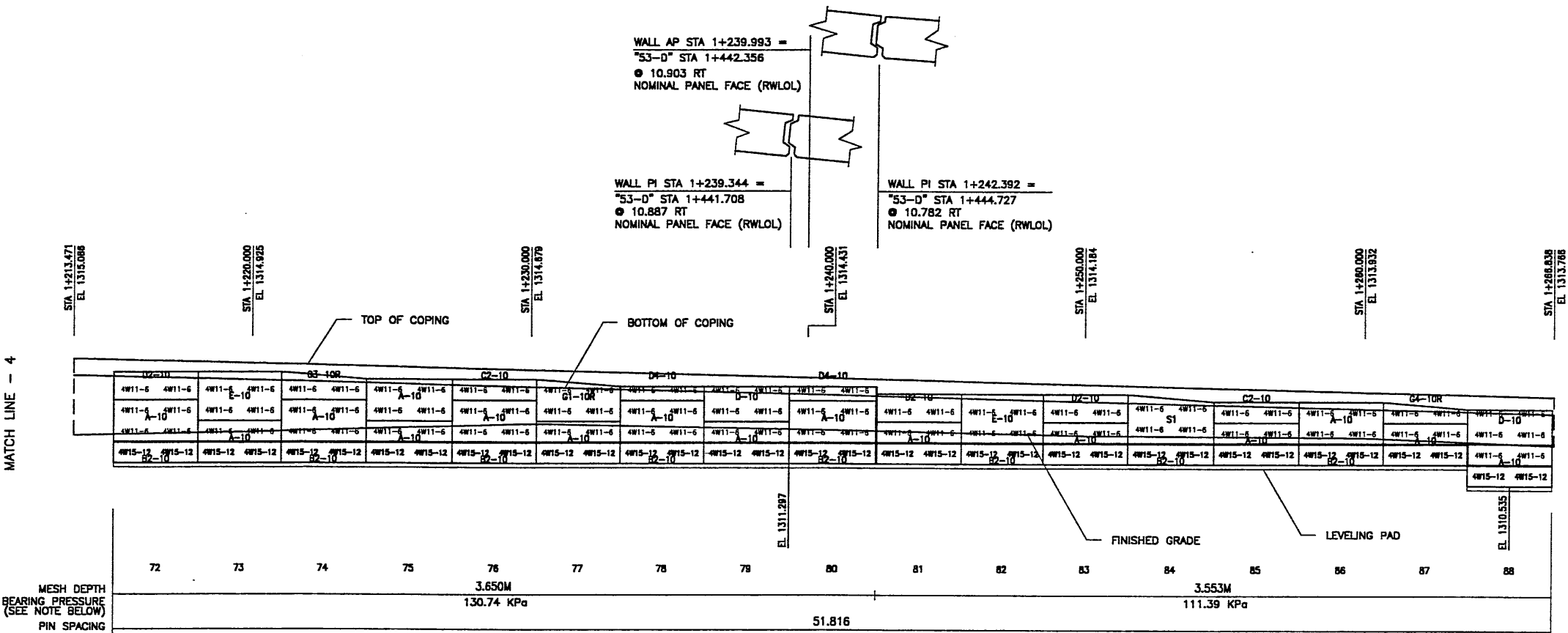


WASATCH CONSTRUCTORS
MAY 05 1998
RELEASED FOR CONSTRUCTION



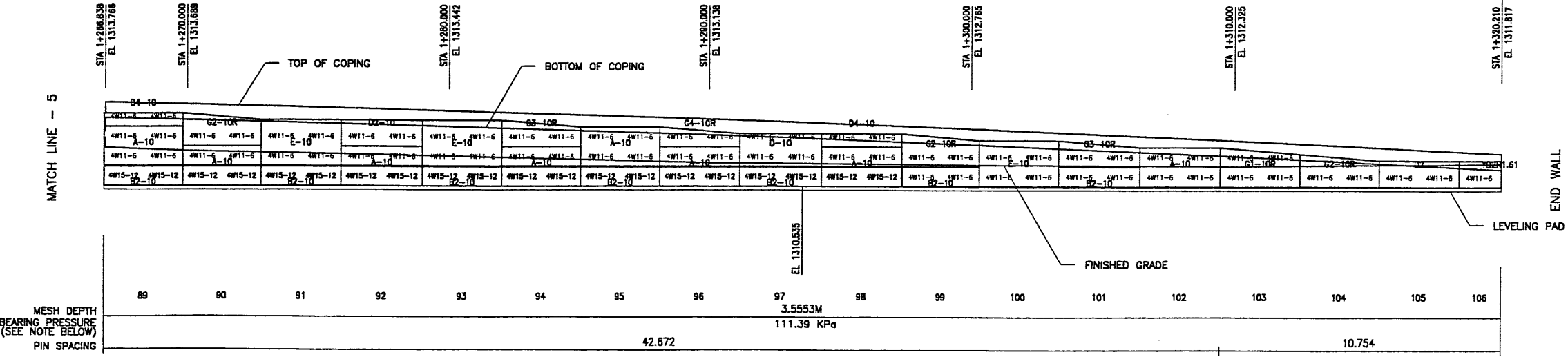
RETAINED EARTH™ WALLS
 PRECAST WALL "R-344-11"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.3R-344-11.8
 JOB NO.
 SHT. NO. RE-58/10



ELEVATION PRECAST WALL R-344-11
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 1167.24 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

END WALL R-344-11
WALL STA 1+320.206 =
"S3-D" STA 1+521.756
● 9.961 RT
NOMINAL PANEL FACE (RWLOL)



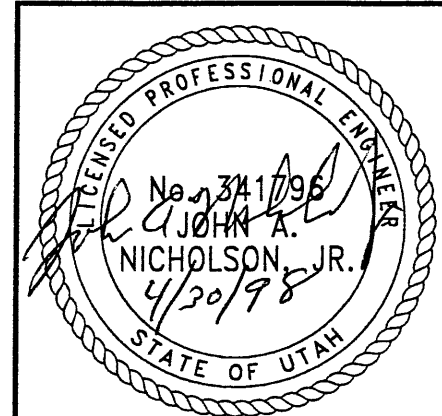
ELEVATION PRECAST WALL R-344-11
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 1167.24 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

* INDICATES SOIL REINFORCING TYPE
MESH TO BE USED ON ADDITIONAL
WIRE WALL FACING ADDED AFTER
SETTLEMENT.

NOTE:
THE INDICATED MAXIMUM BEARING PRESSURES
AT FINAL STAGE FOR STATIC LOAD CONDITION.

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE
STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
THE MANUFACTURER'S SPECIFICATION.

METRIC

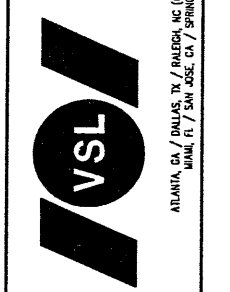


WASATCH CONSTRUCTORS
MAY 05 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	04-29-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY
JL	DDL	JL					CHK

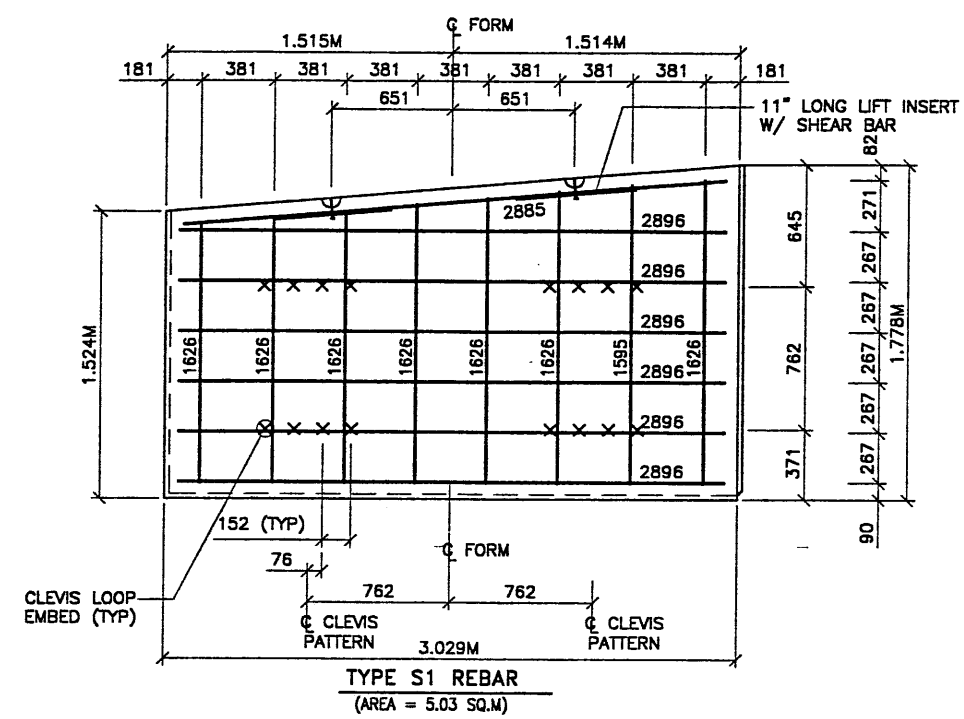
VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4889



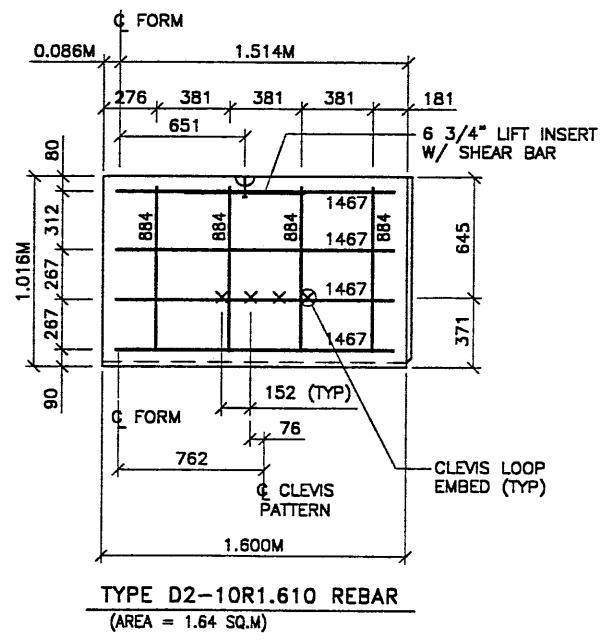
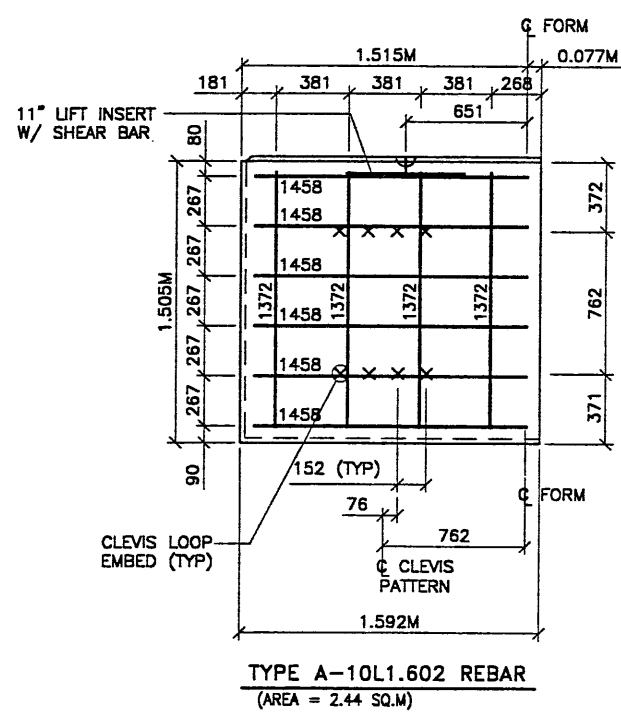
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RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.3R-344-11.9
JOB NO.	239-0007
SHT. NO.	RE-6%



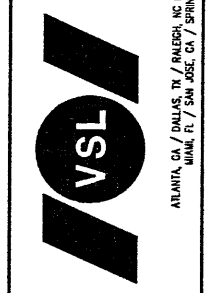
- PANEL REINFORCEMENT NOTES:
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mm# CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 11. LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ	04-29-98	RELEASE FOR CONSTRUCTION <i>SW</i>

DES.	DRN.	CHK.	RETAINED EARTH™
JL	JL	JL	JL

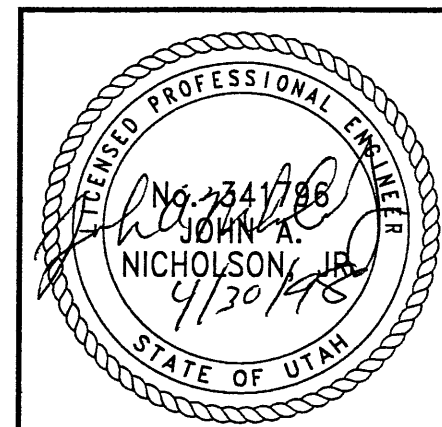
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4659



WASATCH CONSTRUCTORS
 MAY 05 1998
 RELEASED FOR CONSTRUCTION

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RETAINED EARTH™ WALLS
 PRECAST WALL "R-344-11"
 SPECIAL PANEL DETAILS
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



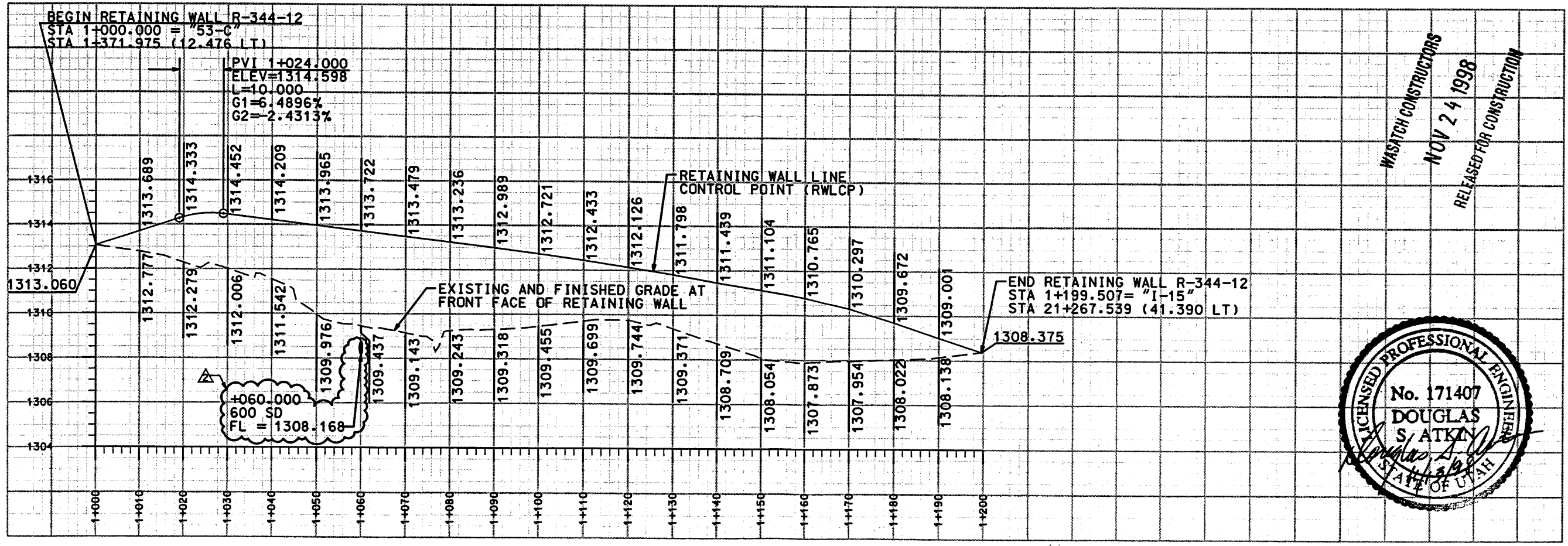
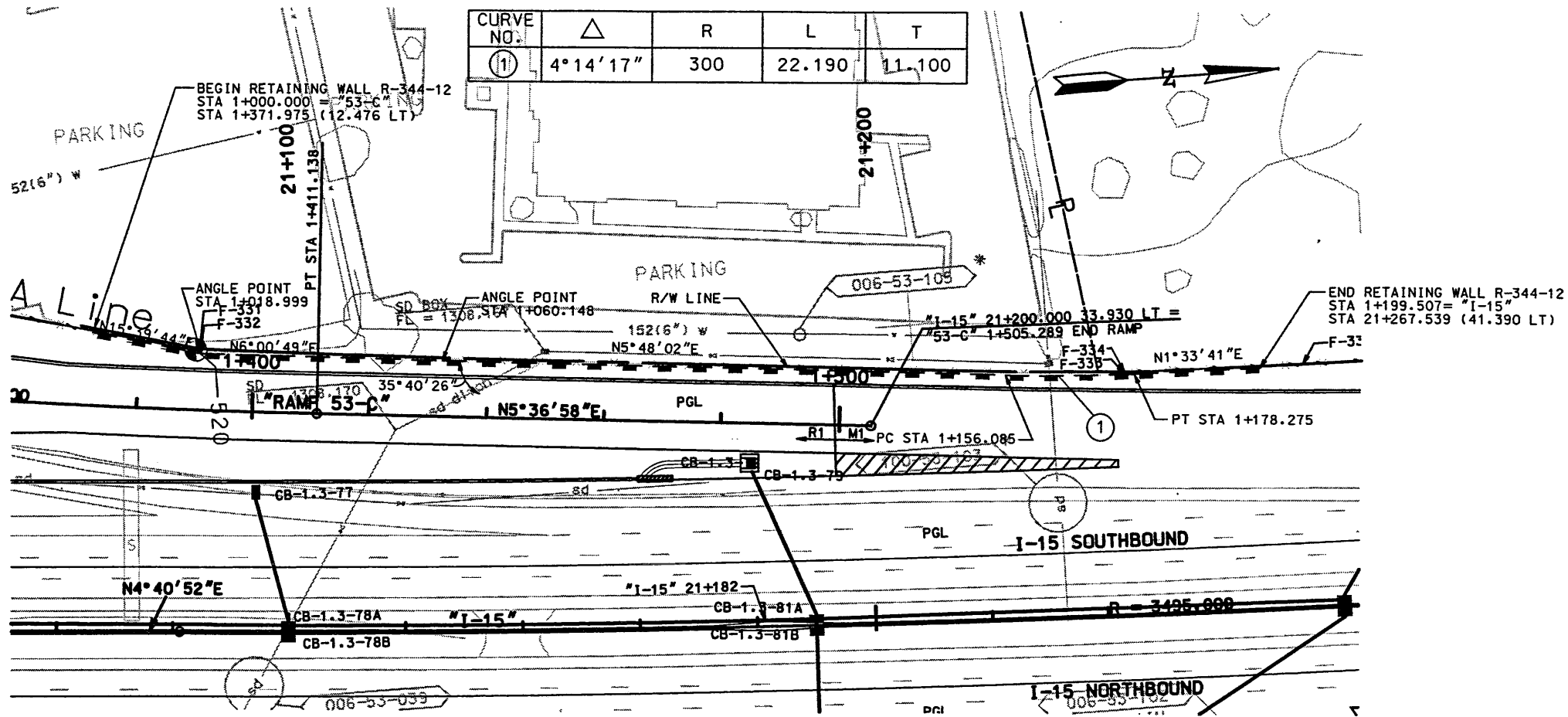
DWG. NO.	2.7R-344-11.10
JOB NO.	239-0007
SHT. NO.	RE-7 10/10

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

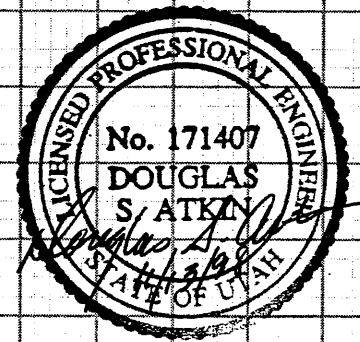
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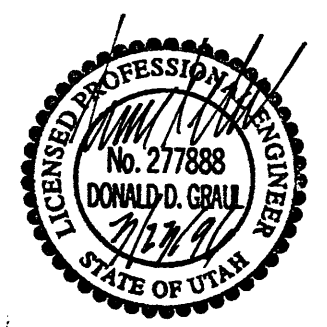
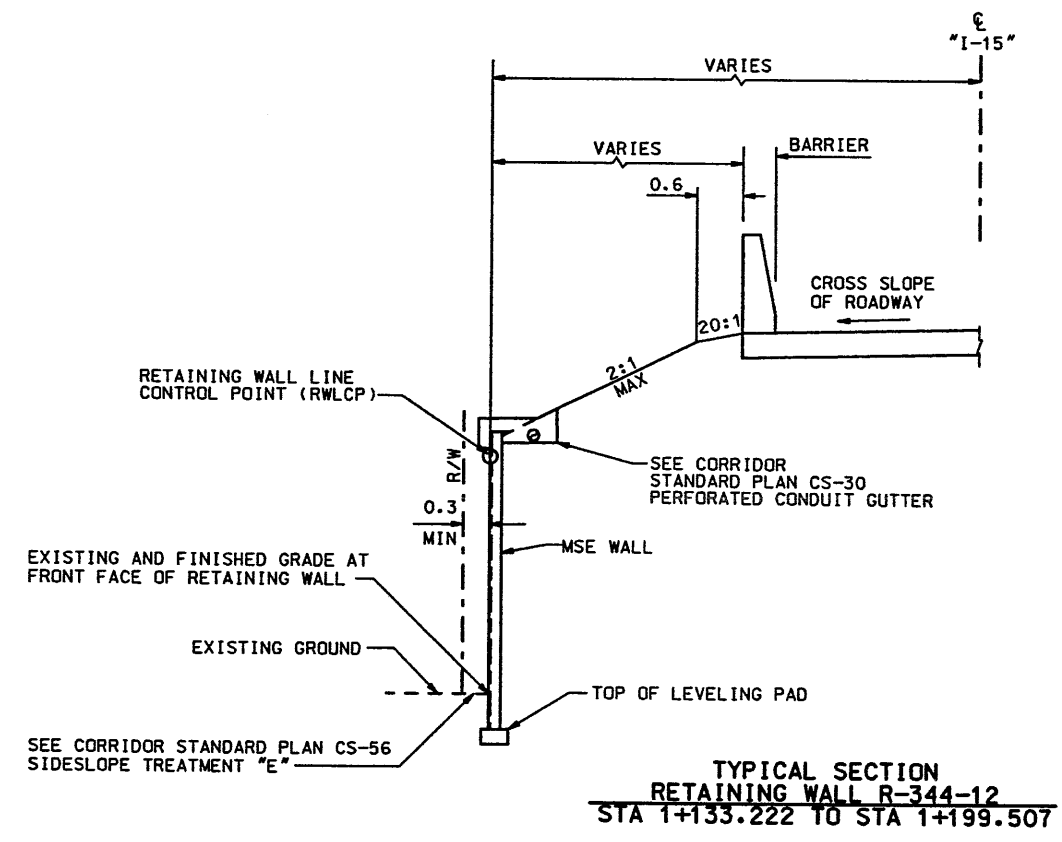
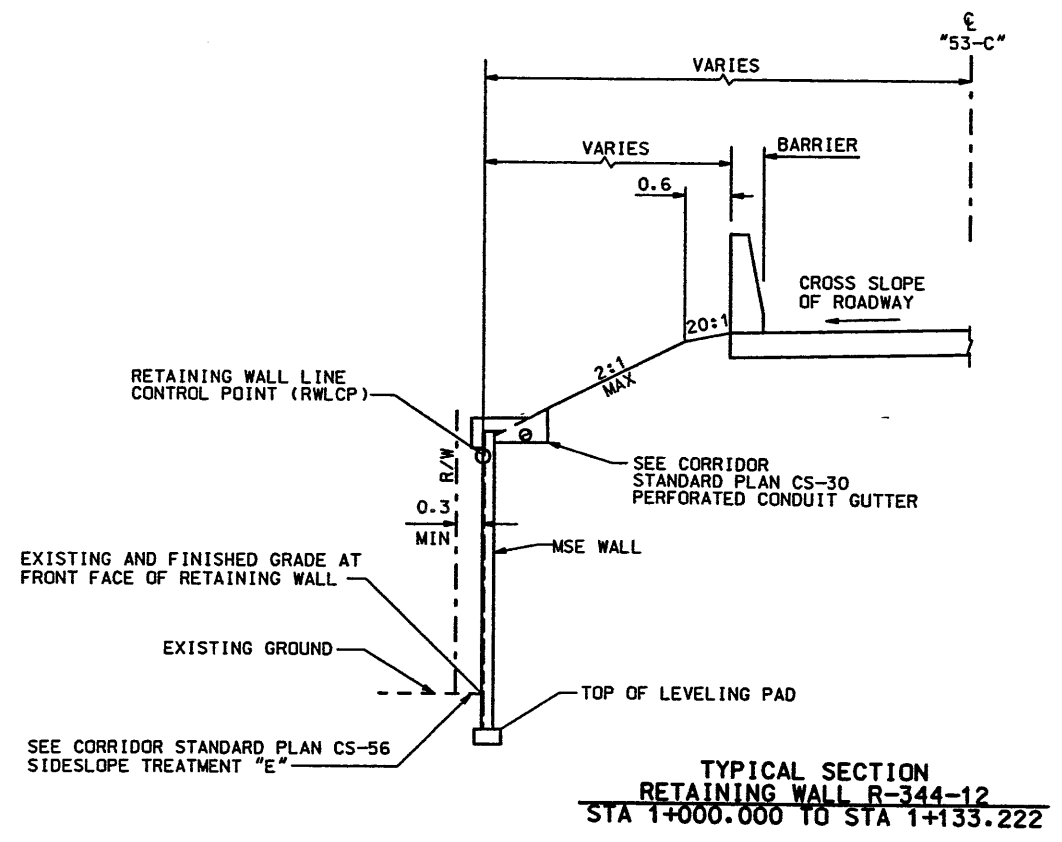


ELEVATION VIEW FROM BACK OF WALL



WASATCH CONSTRUCTORS
 NOV 24 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
3-23-98	11-13-98	INITIAL RELEASE	MOC-0231
I-15 CORRIDOR RECONSTRUCTION		UTAH DEPARTMENT OF TRANSPORTATION	
SITUATION/LAYOUT		URS Greiner SVERRORUP/DE LEUW	
SECTION 1.3		DESIGN BY: 11/97 CHECK BY: 11/97	
PROJECT NUMBER		DRAWN BY: 11/97 CHECK BY: 11/97	
#SP-15-7(135)296		QUANT. 1314000	
SALT LAKE COUNTY		DWG. NO. 1.3R-344-12.1	
SHT. 1 OF 7		REF.	



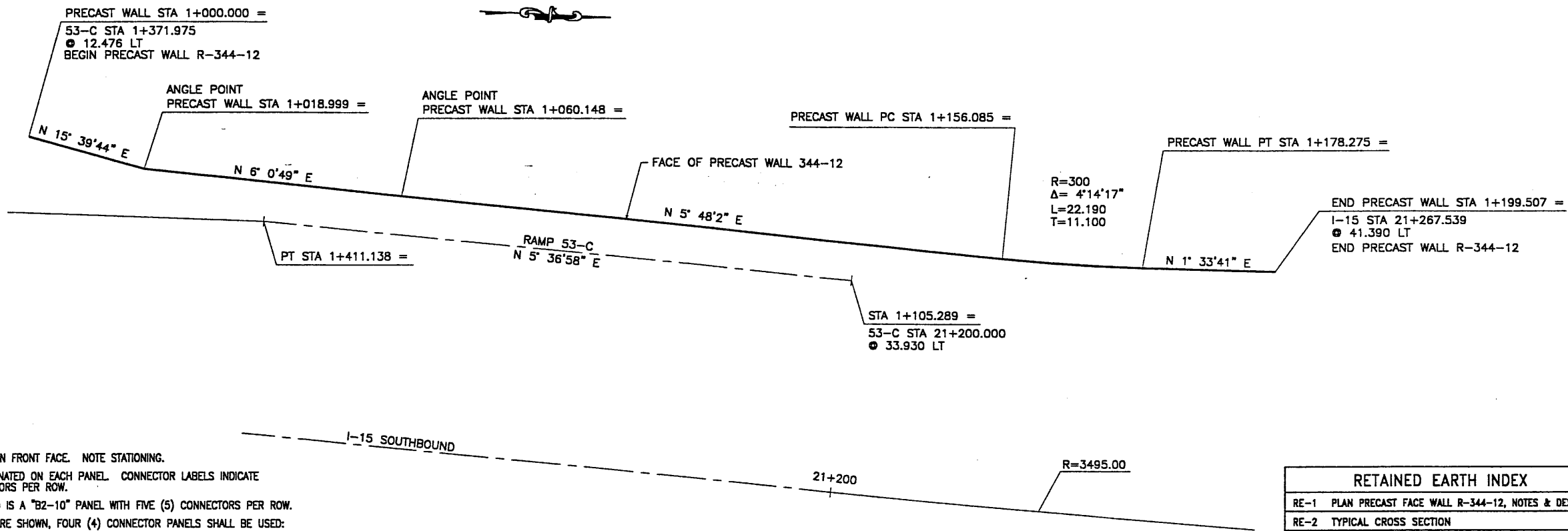
NOTE:
THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.

WASATCH CONSTRUCTORS
APR - 1 1998
RELEASED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION		URS Greiner		SVERDRUP/DE LEUW		NO.	DA
				DESIGN	CHECK	DATE	3-4
		DATE	DATE	DATE	DATE		
		APPROVAL	APPROVAL	APPROVAL	APPROVAL		
		DATE	DATE	DATE	DATE		
		PROJECT	PROJECT	PROJECT	PROJECT		
		MANAGER	MANAGER	MANAGER	MANAGER		
							1313403
I-15 CORRIDOR RECONSTRUCTION		TYPICAL SECTIONS		RETAINING WALL R-344-12			
		SECTION 1.3					
		PROJECT NUMBER		#SP-15-7(135)296			
SALT LAKE COUNTY		DWG. NO.		1.3R-344-12.2			
SHT. 2 OF 7		REF.					

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	03-16-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION



- GENERAL NOTES
- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
 - PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER ROW.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER ROW.
IF NO CONNECTORS ARE SHOWN, FOUR (4) CONNECTOR PANELS SHALL BE USED:
 - SOIL REINFORCING MESH TYPE IS DESIGNATED ON EACH PANEL. MESH LABELS INDICATE WIRE SIZE AND SPACING. LONGITUDINAL WIRE AND CROSSBAR SIZES ARE THE SAME UNLESS NOTED OTHERWISE:
EXAMPLE: 5W15-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W15-12 MESH HAS FIVE (5) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W15-12 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W20-12 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

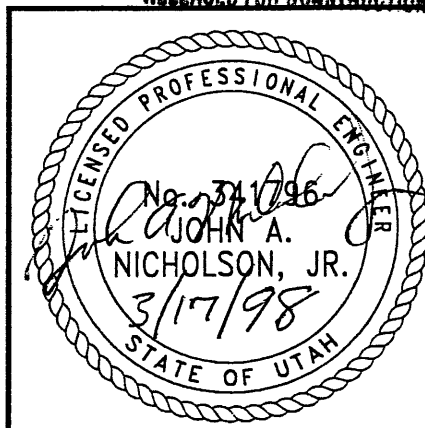
DESIGN PARAMETERS
ANGLE OF INTERNAL FRICTION (SELECT) = 34°
ANGLE OF INTERNAL FRICTION (BASE) = 25.38°
ANGLE OF INTERNAL FRICTION (RANDOM) = 25.38°
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)
TRAFFIC SURCHARGE = 250 PSF (12 KPa)
SEISMIC ACCELERATION COFF. = 0.12g (TYP)
DESIGN CRITERIA
SAFETY FACTOR (OVERTURNING) = 2.0
SAFETY FACTOR (SLIDING) = 1.5
SAFETY FACTOR (PULLOUT) = 1.5
DESIGN LIFE = 75 YEARS

PLAN VIEW WALL "R-344-12"
SCALE: 1=250 (FULL SIZE)
SCALE: 1=500 (HALF SIZE)

RETAINED EARTH INDEX
RE-1 PLAN PRECAST FACE WALL "R-344-12, NOTES & DESIGN CRITERIA
RE-2 TYPICAL CROSS SECTION
RE-3 ELEVATION PRECAST WALL "R-344-12"
RE-4 ELEVATION PRECAST WALL "R-344-12"
RE-5 SPECIAL PANEL DETAILS

METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



WASATCH CONSTRUCTORS
APR - 1 1998

RELEASED FOR CONSTRUCTION

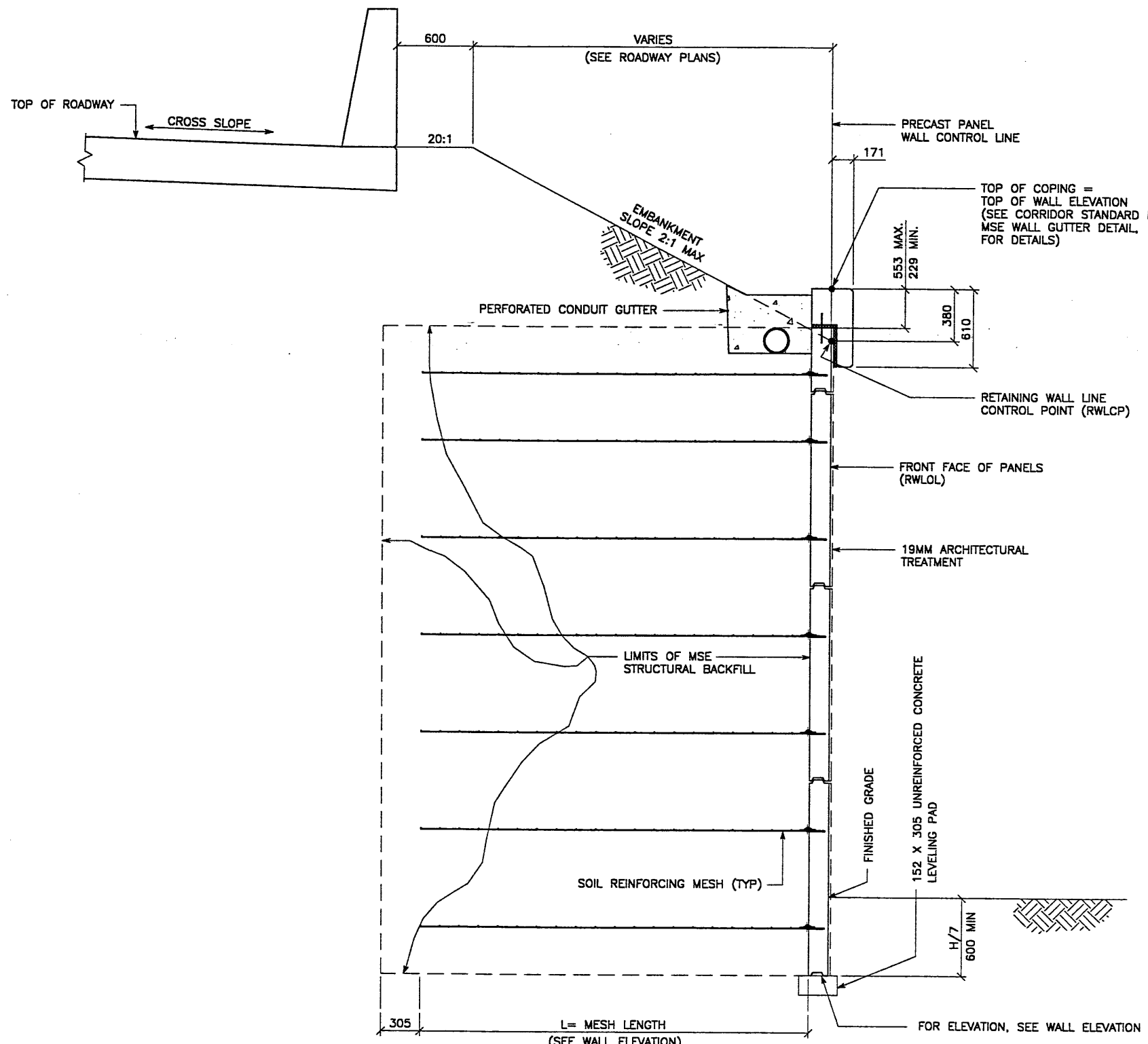
VSL CORPORATION
ROAD BRIDGE PLACE, Suite 200
EAST PITTSBURGH, PA 15120
Telephone: (412) 781-8772
Fax: (412) 781-8889

ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-344-12"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.3R-344-12.3
JOB NO.	239-0007
SHT. NO.	RE-13/7

FINAL 02-19-98 H:\RE_EARTH\PROJECT\239-0007\1998\5-12\RE-3 VSL CORPORATION (X-UTAH.DWG)



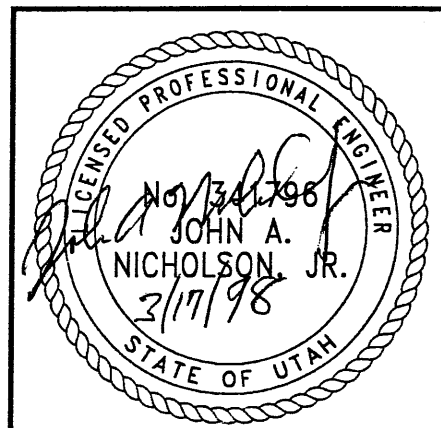
TYPICAL CROSS SECTION
(MSE SINGLE STAGE WITH GUTTER DETAIL)
SCALE: 1:20 (FULL SIZE)
SCALE: 1:40 (HALF SIZE)

METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	03-16-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
APR - 1 1998
RELEASED FOR CONSTRUCTION



DES.	02-23-98	JL	RETAINED EARTH™	NO.		BY	CHK
DRN.	02-23-98	LOP		DATE			
CHK.	02-23-98	JL		REVISION			

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 81-4889

ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
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VSL

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RETAINED EARTH™ WALLS
WIRE FACED WALL "R-344-12"
TYPICAL CROSS SECTION

UTAH 1-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.3R-344-12.4

JOB NO.
239-0007

SHT. NO.
RE-24/7


BEGIN WALL R-344-12
WALL STA 1+199.507 =
I-15 STA 21+267.539
@ 41.390 LT
NOMINAL PANEL FACE (RWLOL)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	03-16-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY

DES.	02-23-98	JL
DRN.	02-23-98	LOP
CHK.	02-23-98	JL

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-8989



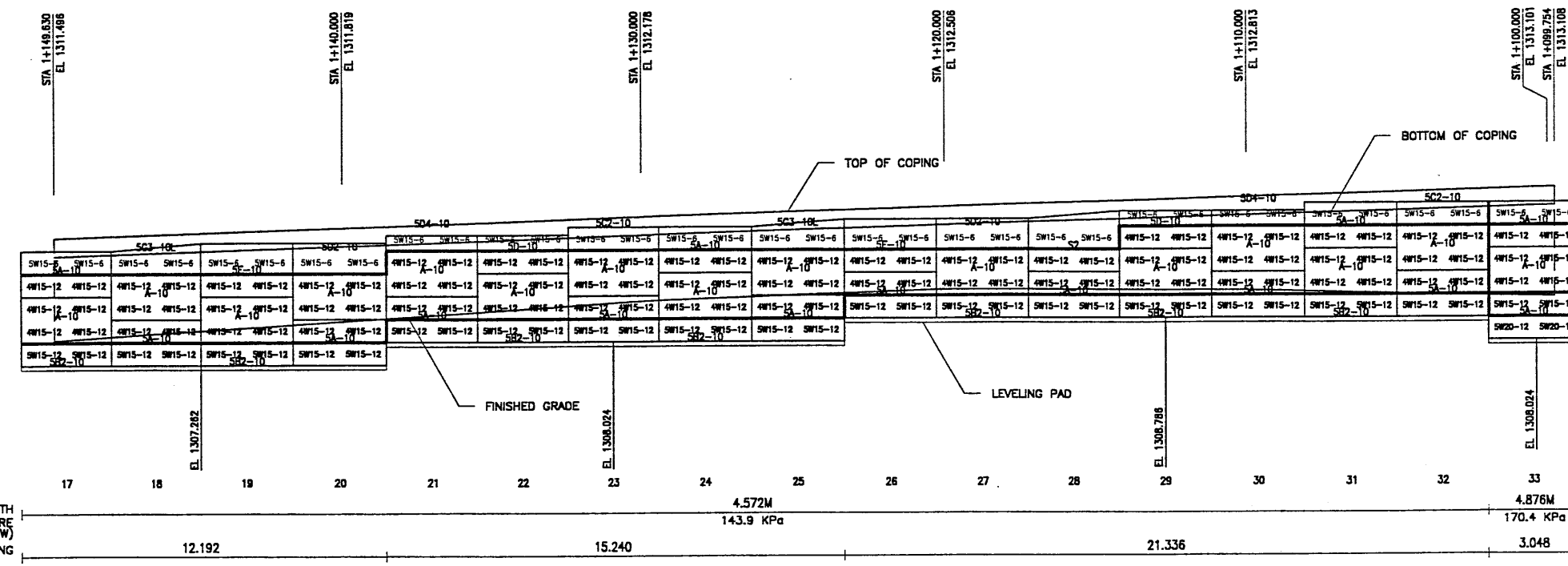
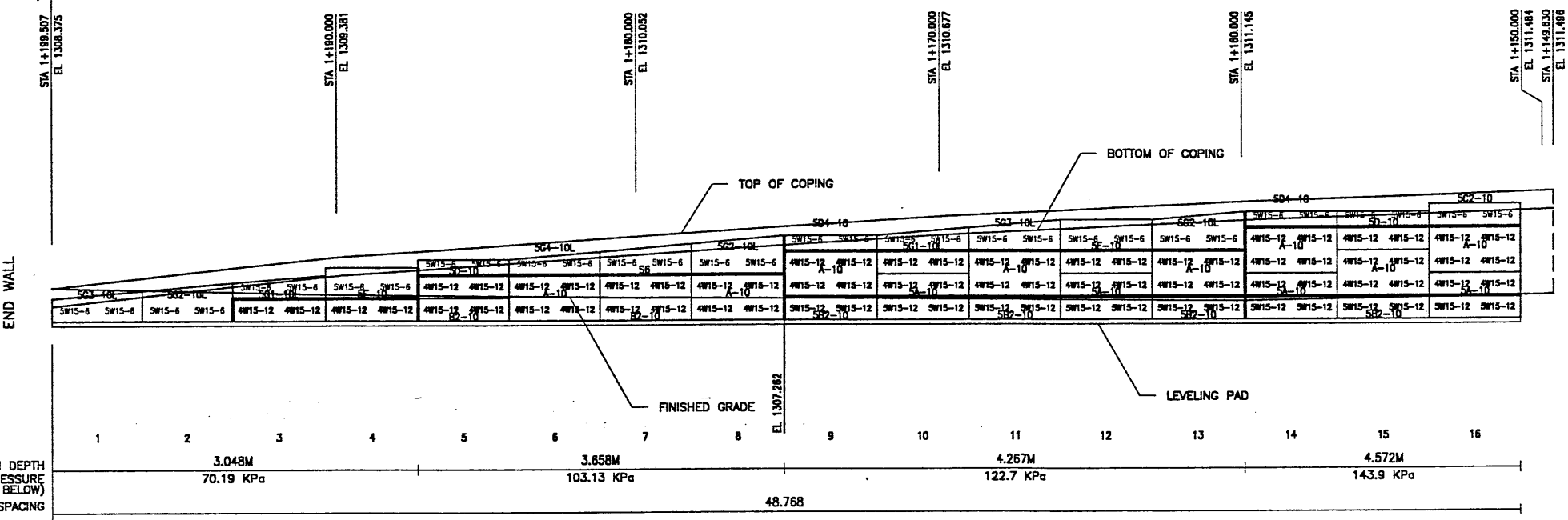
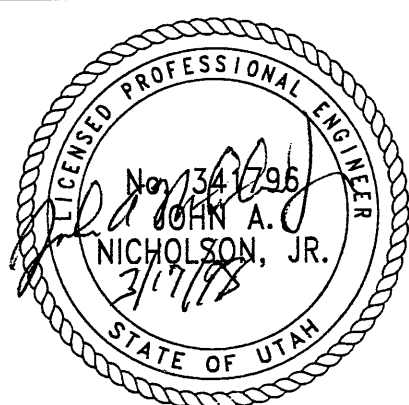
ALUMINA, GA / DALLAS, TX / DENVER, CO (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPANISH WATERS, VA

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WASATCH CONSTRUCTORS
APR - 1 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-344-12"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.3R-344-12.5
JOB NO.	239-0007
SHT. NO.	RE-3 5/7



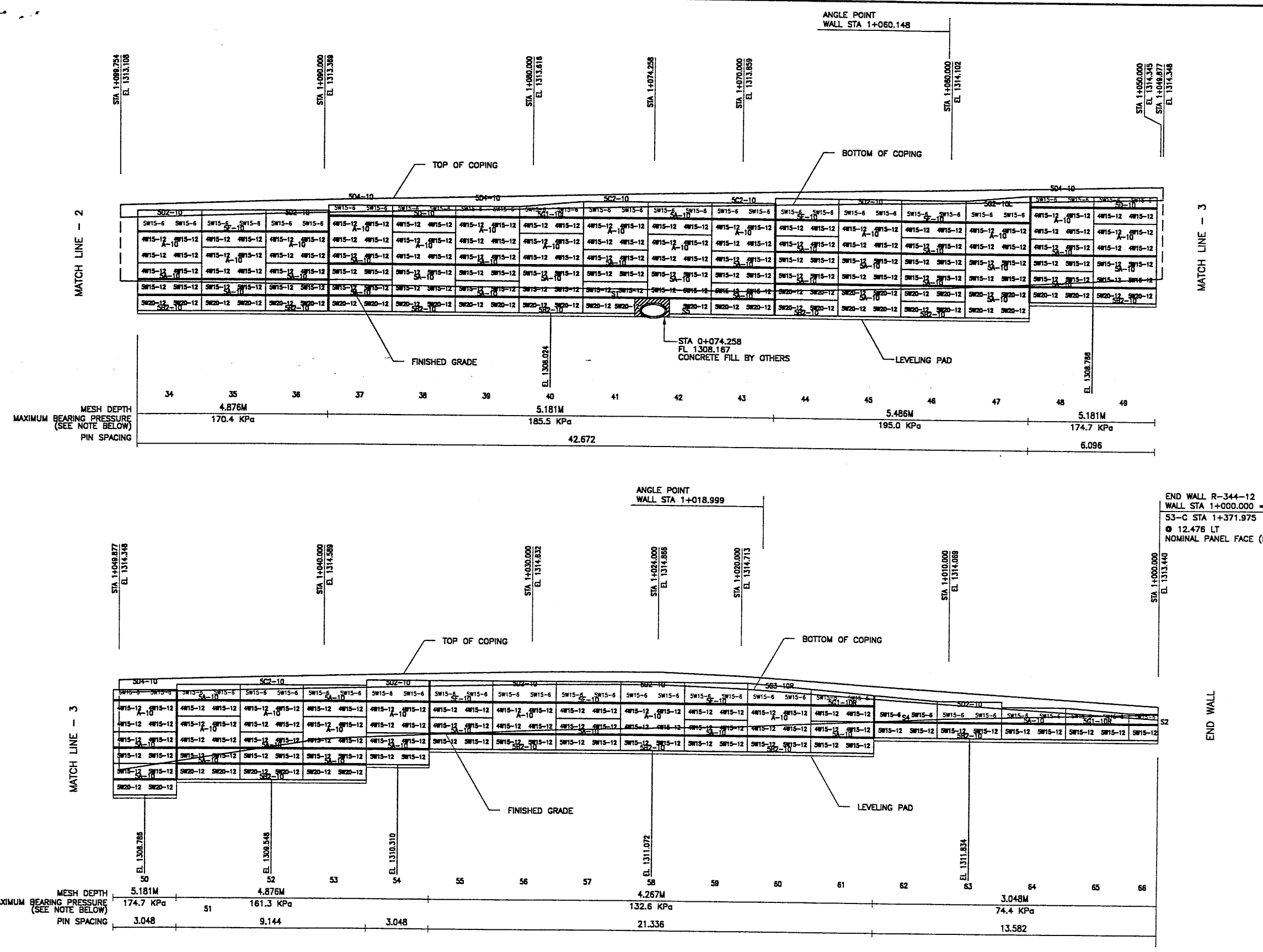
ELEVATION PRECAST WALL R-344-12
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 736.55 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE". REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

H:\RE_EARTH\PROJECT\239-0007\1998\53SERIES\13-12



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	03-16-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION

VSL CORPORATION
 2800 Plaza Place, Suite 200
 Raleigh, NC 27617
 Phone: (919) 781-8372
 Fax: (919) 781-0889

ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

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WASATCH CONSTRUCTORS
APR - 1 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-344-12"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

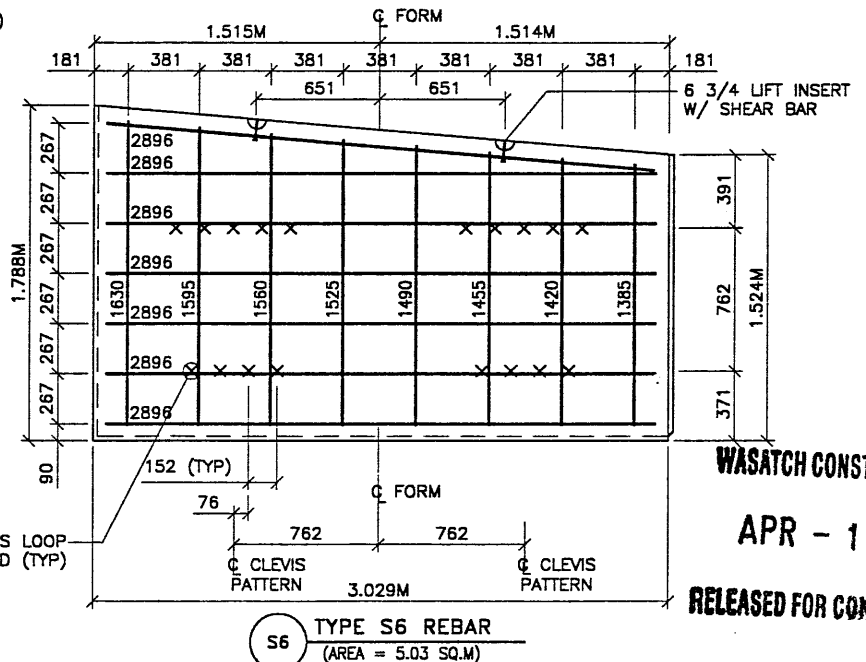
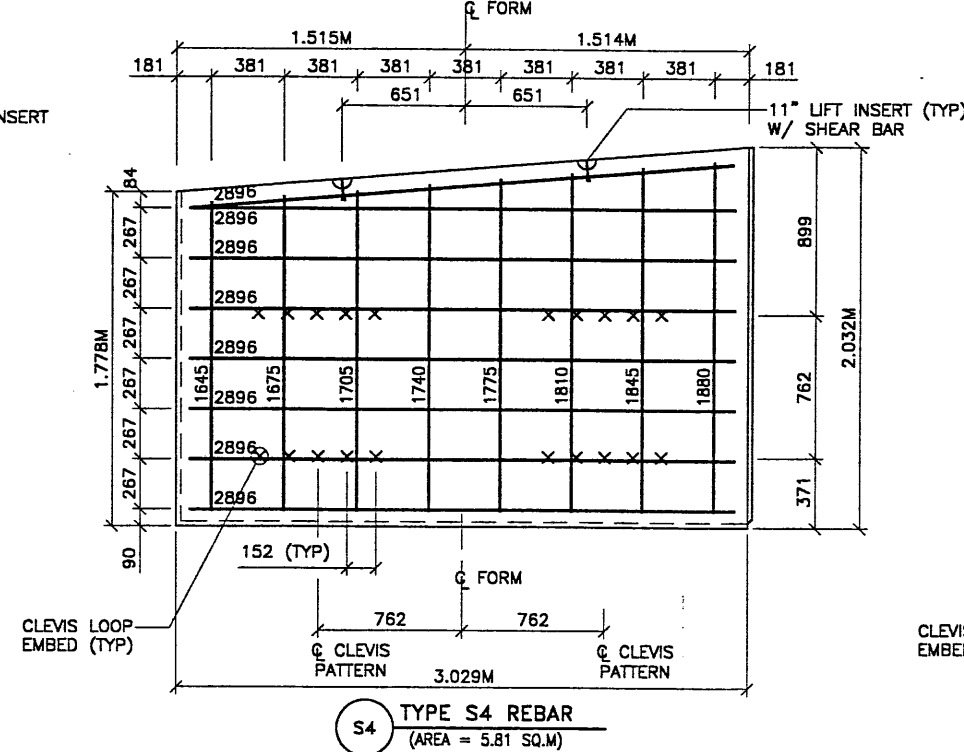
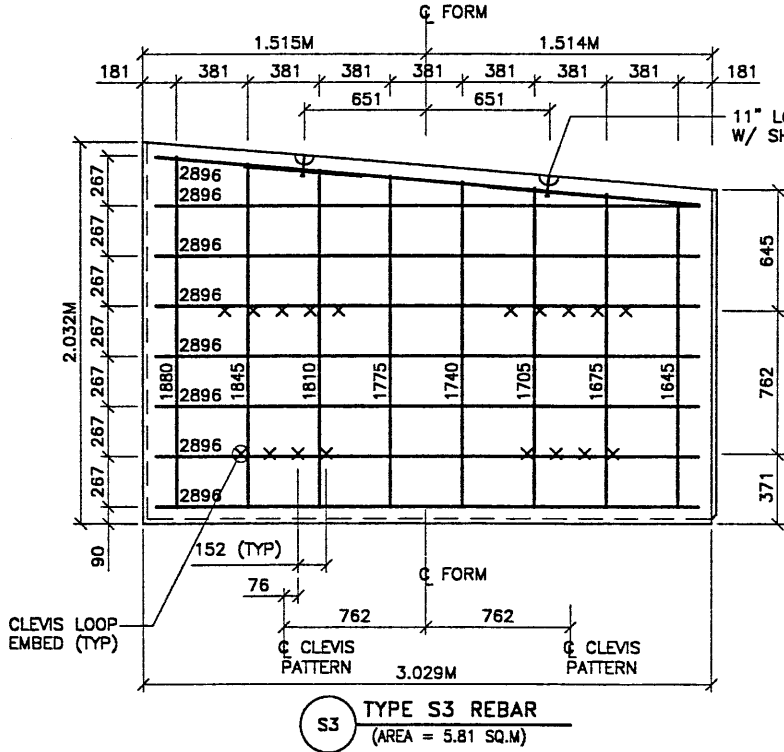
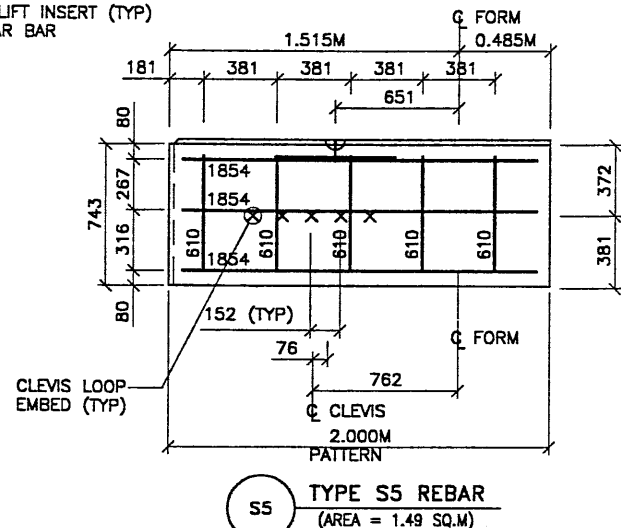
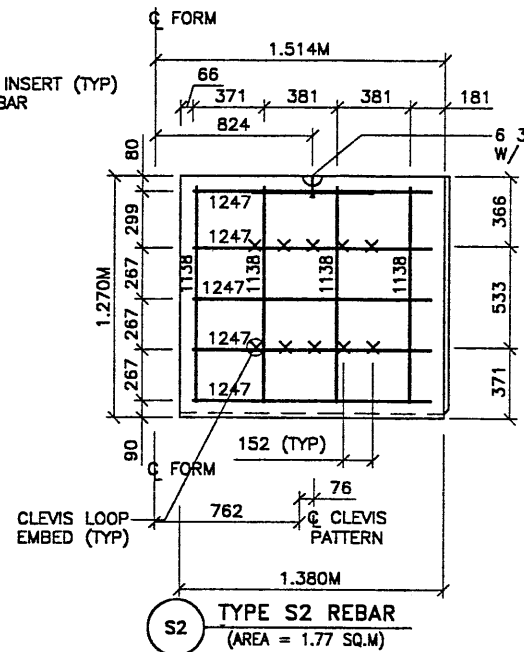
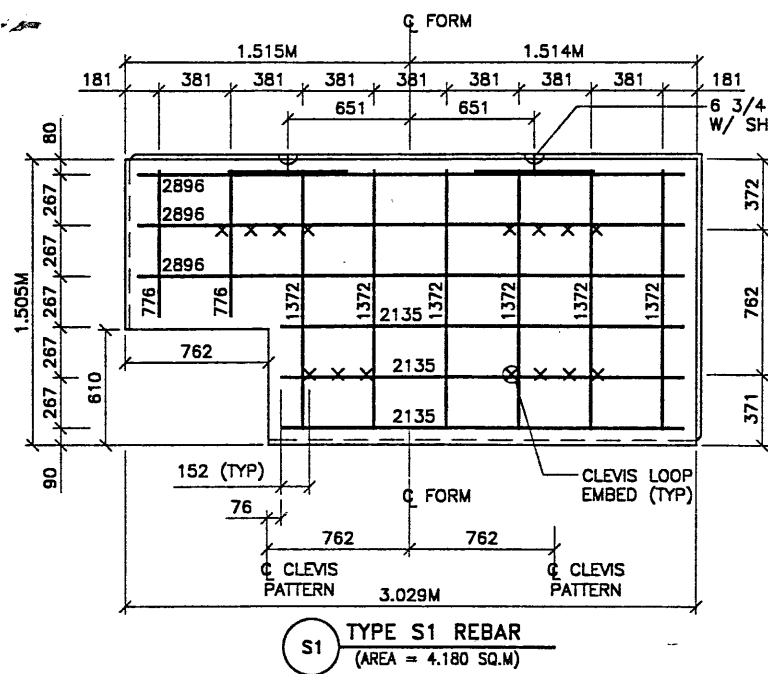
DWG. NO.	1.3R-344-12.6
JOB NO.	239-0007
SHT. NO.	RE-4 6/7

ELEVATION PRECAST WALL R-344-12
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 736.55 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE". REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

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METRIC



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
03-16-98		RELEASE FOR CONSTRUCTION

- PANEL REINFORCEMENT NOTES:
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 - PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 - ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPA.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mm# CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 - LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

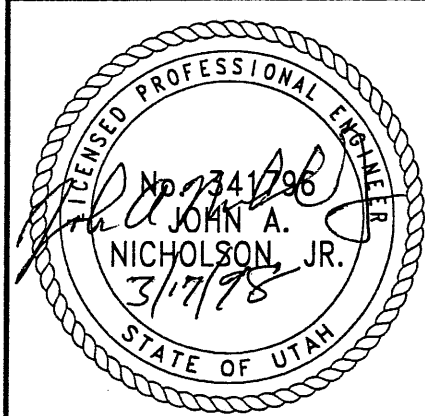
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
 7810 Ring Road, Suite 200
 Redwood City, CA 94061
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 Fax: (919) 781-4869

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WASATCH CONSTRUCTORS
APR - 1 1998
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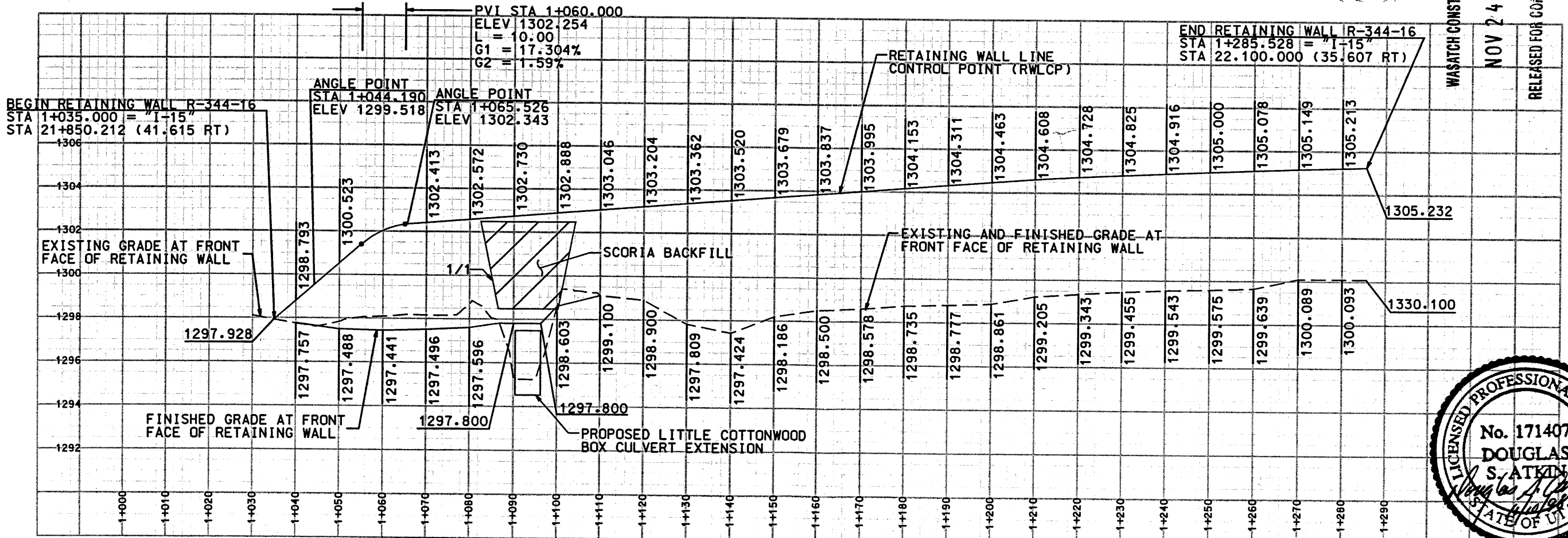
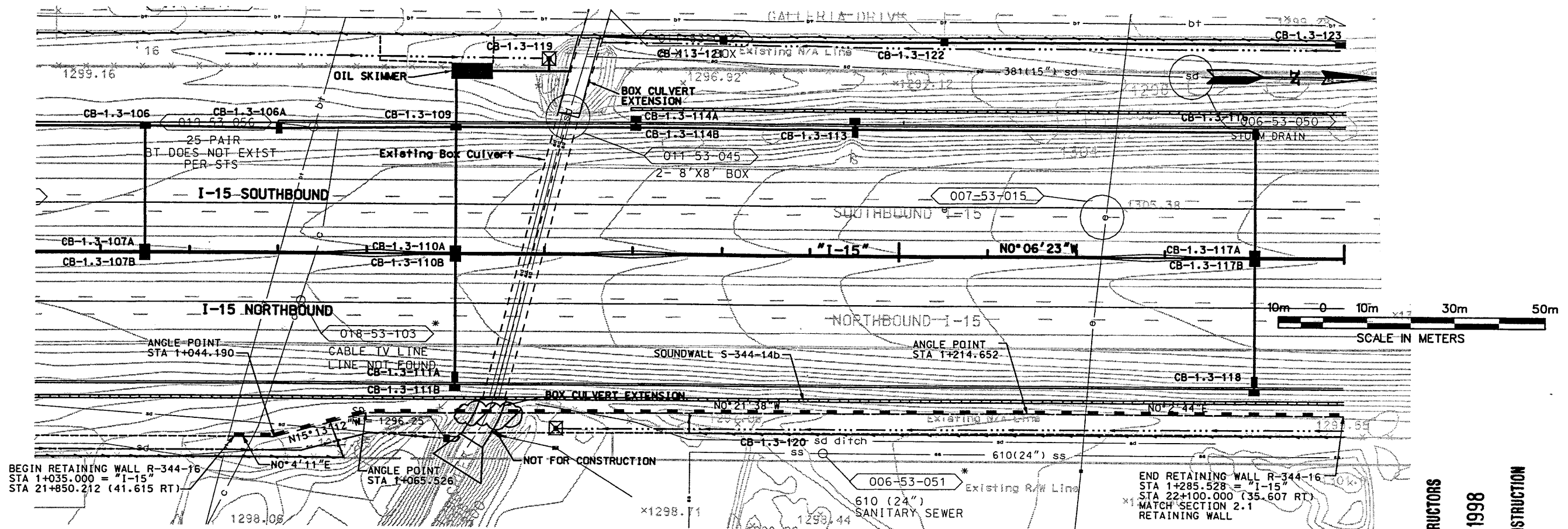
METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

RETAINED EARTH™ WALLS PRECAST WALL "R-344-12" SPECIAL PANEL DETAILS	DWG. NO. 1.3R-344-12.7
UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.	JOB NO. 239-0007
	SHT. NO. RE-57/7

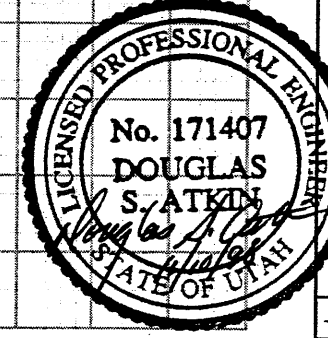
Date: 10-NOV-1998 Time: 15:53 Username: mackkv

Filename: P:\115_cadd\115_cadd\115_97\sheet_files\wall\16_0k.dgn



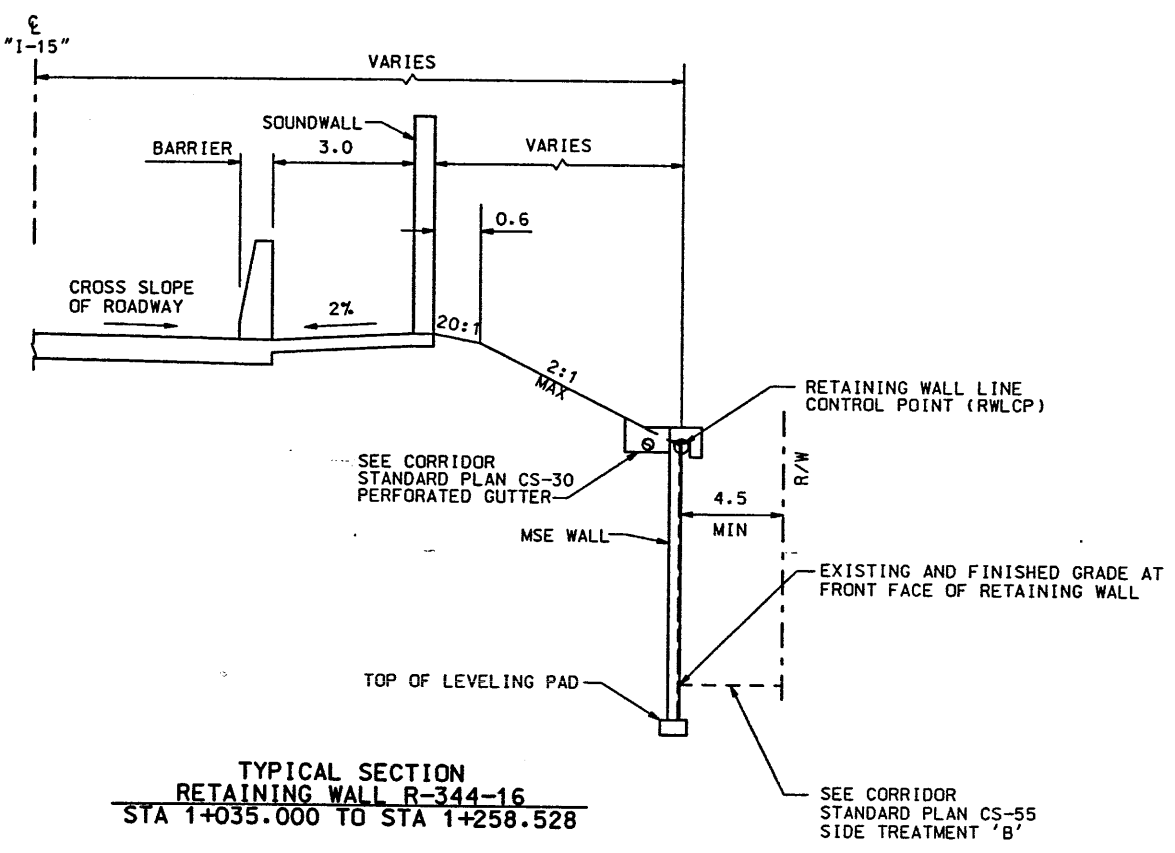
ELEVATION VIEW FROM FRONT FACE OF WALL

NOTE: THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.

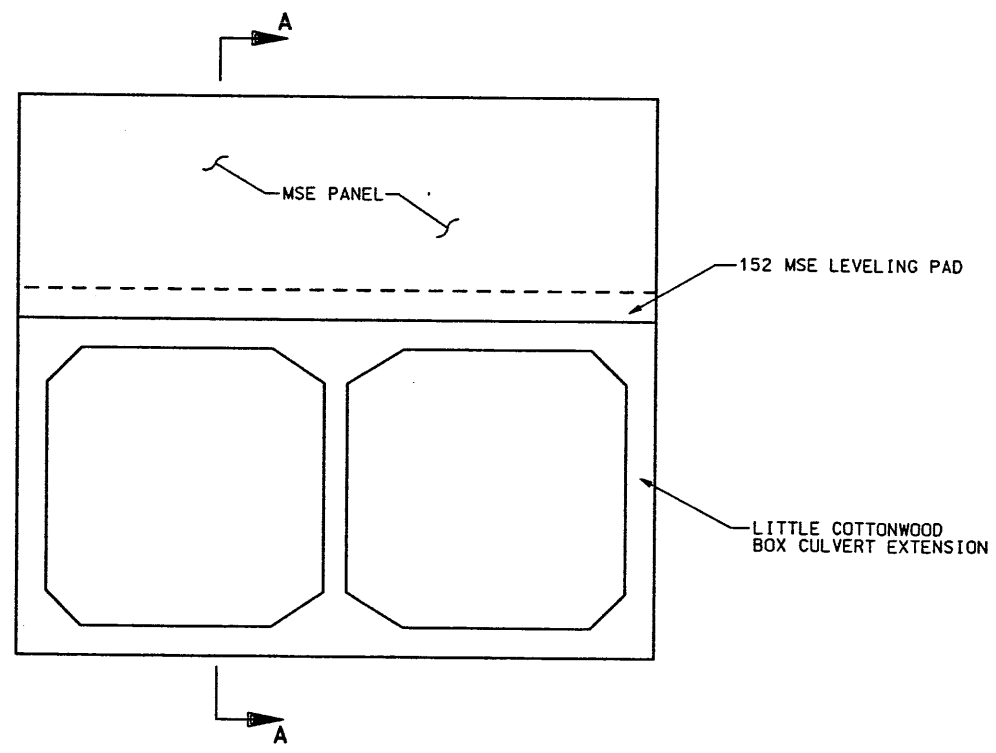


WATCH CONSTRUCTORS
NOV 24 1998
RELEASED FOR CONSTRUCTION

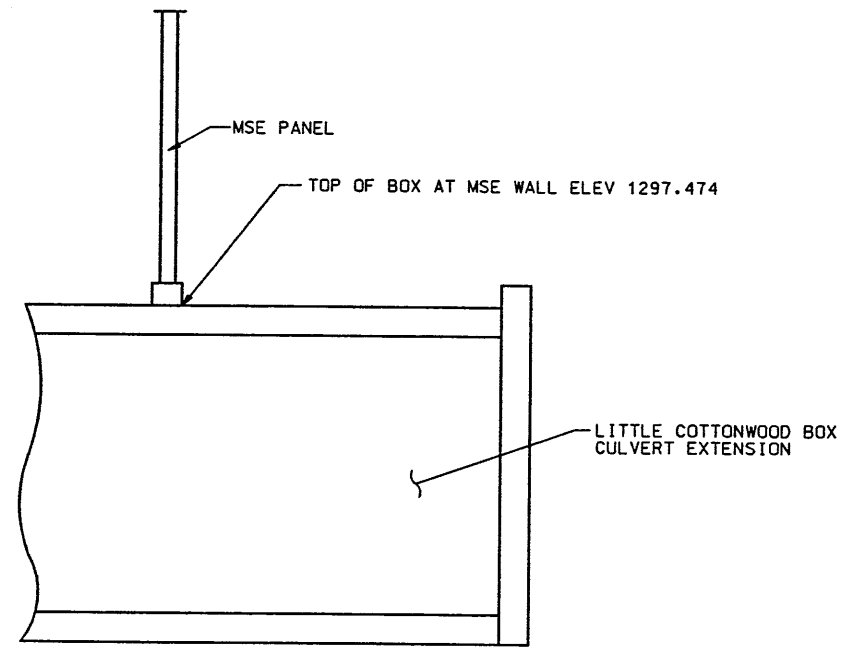
UTAH DEPARTMENT OF TRANSPORTATION		URS Greiner		SVERDRUP/DE LEUW	
NO.	DATE	CHECK	JOB	CHECK	JOB
A	5-6-98 IN				
A	11-9-98 ST				
PROJECT NUMBER #SP-15-7(135)296		PROJECT MANAGER		QUANT.	
SALT LAKE COUNTY		DESIGN PRV 1/98		CHECK 1/98	
1.3R-344-16.1		DRAWN PRV 1/98		CHECK 1/98	
SHT. 1 OF 9		DATE 1/98		CHECK 1/98	
REF.		PROJECT NUMBER		1313404	



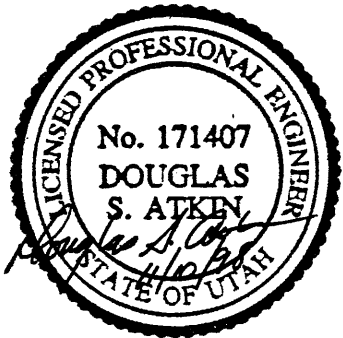
TYPICAL SECTION
RETAINING WALL R-344-16
STA 1+035.000 TO STA 1+258.528



LITTLE COTTONWOOD BOX CULVERT/MSE WALL INTERFACE.



SECTION A-A

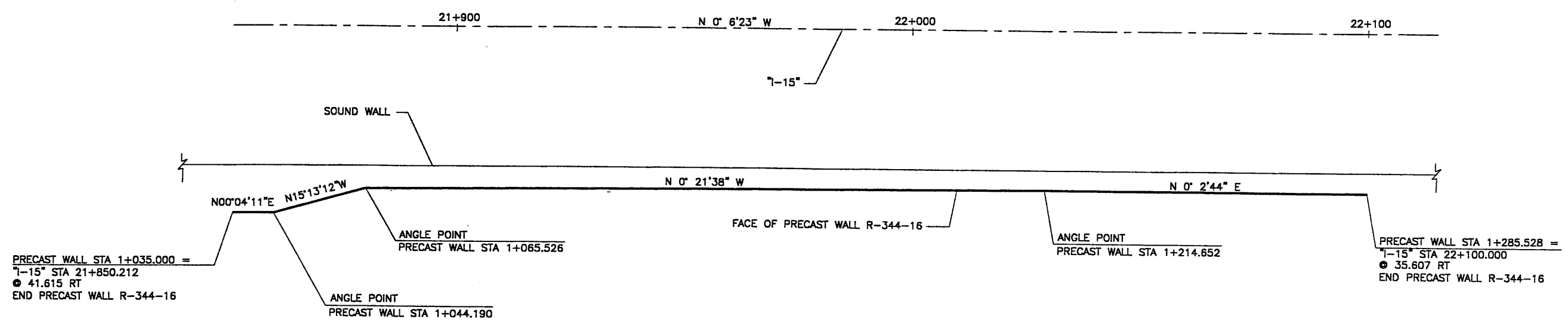


WASATCH CONSTRUCTORS
NOV 24 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	5-6-98	INITIAL RELEASE
A	A	11-9-98	SCORIA BACKFILL OVER BOX
UTAH DEPARTMENT OF TRANSPORTATION		1313404	
URS Greiner		CHECK	JOB
SYERORUP/DE LEUW		1/98	1/98
DESIGN	PRV	1/98	1/98
DRAWN	PRV	1/98	1/98
DATE	DATE	QUANT.	CHECK
1/98	1/98		
RICK CHAPMAN	PROJECT DESIGN ENGINEER		
PROJECT NUMBER			
#SP-15-7(135)296			
I-15 CORRIDOR RECONSTRUCTION		SALT LAKE COUNTY	
MISC. DETAILS		DWC. NO.	
RETAINING WALL R-344-16		1.3R-344-16.2	
SECTION 1.3		SHT. 2 OF 9	
PROJECT NUMBER		REF.	

H:\RE_EARTH\PROJECT\239-0007\1998\53-16\SUBMTL-2\RE-1
 FIN 04-09-98
 VICE (X-UTAH.DWG)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	04-09-98	RELEASE FOR CONSTRUCTION



PLAN VIEW WALL "R-344-16"

SCALE: 1=500 (FULL SIZE)
SCALE: 1=1000 (HALF SIZE)

WASATCH CONSTRUCTORS
MAY 08 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-344-16, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	ELEVATION PRECAST WALL "R-344-16"
RE-4	ELEVATION PRECAST WALL "R-344-16"
RE-5	ELEVATION PRECAST WALL "R-344-16"
RE-6	SPECIAL PANEL REINFORCEMENT
RE-7	SPECIAL PANEL REINFORCEMENT

DESIGN PARAMETERS

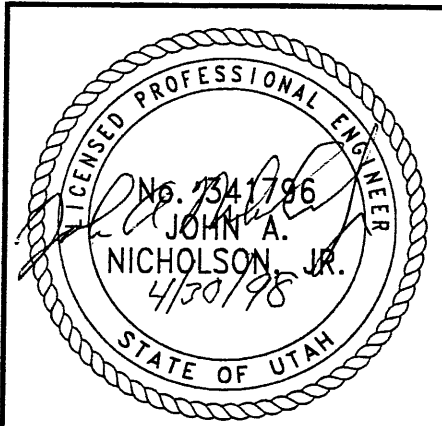
STANDARD BACKFILL	LIGHTWEIGHT BACKFILL ● CULVERT
ANGLE OF INTERNAL FRICTION (SELECT) = 34° ANGLE OF INTERNAL FRICTION (BASE) = 31° ANGLE OF INTERNAL FRICTION (RANDOM) = 34° UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³) TRAFFIC SURCHARGE = 250 PSF (12 KPa) SEISMIC ACCELERATION COFF. = 0.13g (TYP)	ANGLE OF INTERNAL FRICTION (SELECT) = 34° ANGLE OF INTERNAL FRICTION (BASE) = 21.8° ANGLE OF INTERNAL FRICTION (RANDOM) = 34° UNIT WEIGHT BACKFILL = 75 PCF. (11.78 KN/M ³) TRAFFIC SURCHARGE = 250 PSF (12 KPa) SEISMIC ACCELERATION COFF. = 0.13g (TYP)

DESIGN CRITERIA

SAFETY FACTOR (OVERTURNING) = 2.0 SAFETY FACTOR (SLIDING) = 1.5 SAFETY FACTOR (PULLOUT) = 1.5 DESIGN LIFE = 75 YEARS

METRIC

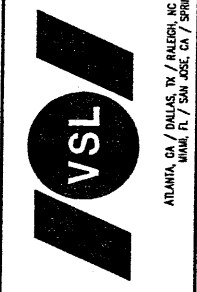
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-344-16"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

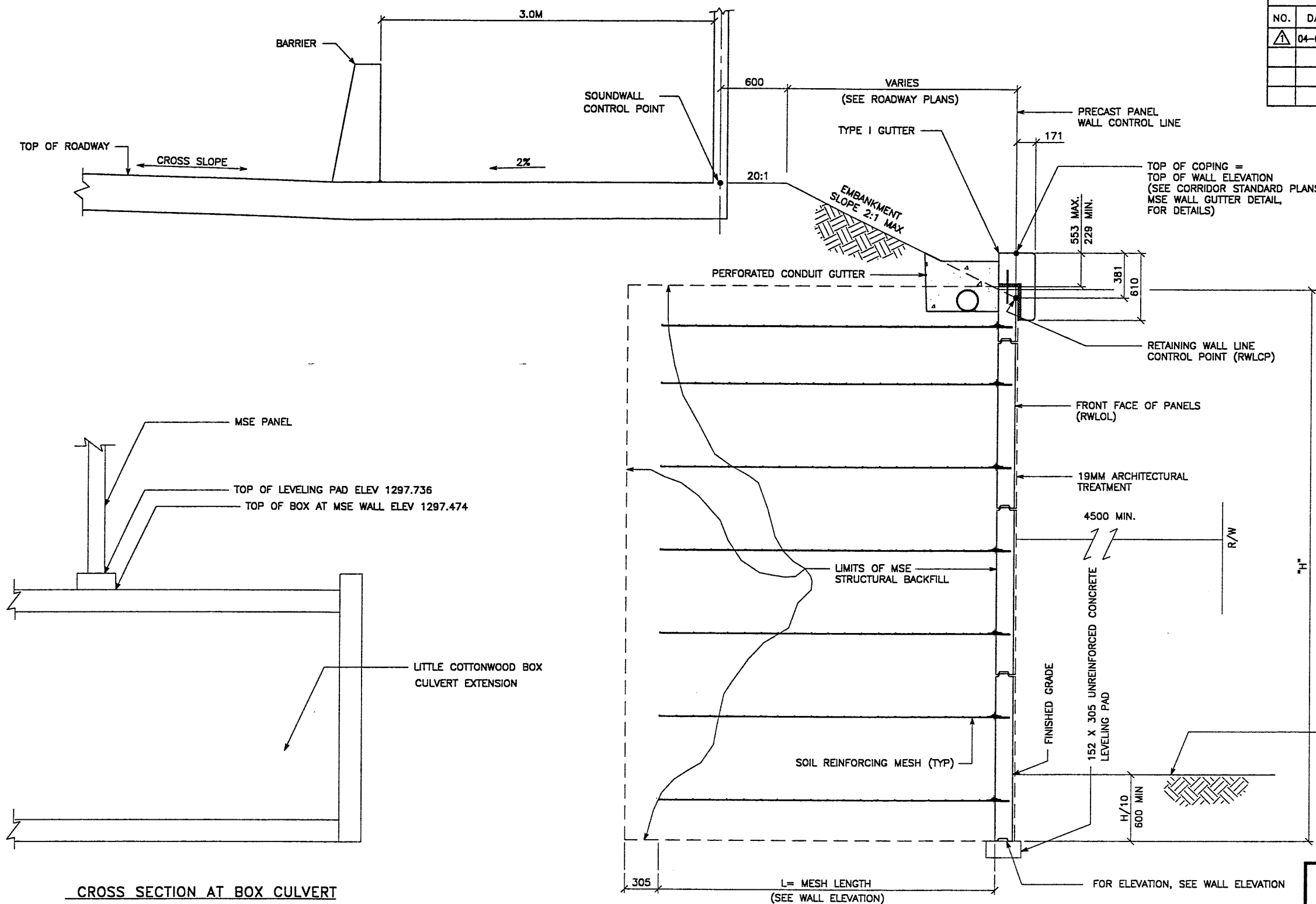
DWG. NO.	1.3R-344-16.3
JOB NO.	239-0007
SHT. NO.	RE-1 3/9

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DES.	CHK.	DATE	NO.	DATE	BY
JL	JL	03-23-98			
RSW	RSW	03-23-98			
LOP	LOP	03-23-98			
JL	JL	03-23-98			



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	04-09-98	RELEASE FOR CONSTRUCTION

DES.	CHK.	NO.	DATE	REVISION	BY	CHK.
JL	JL					
RSW	RSW					
LOP	LOP					
JL	JL					

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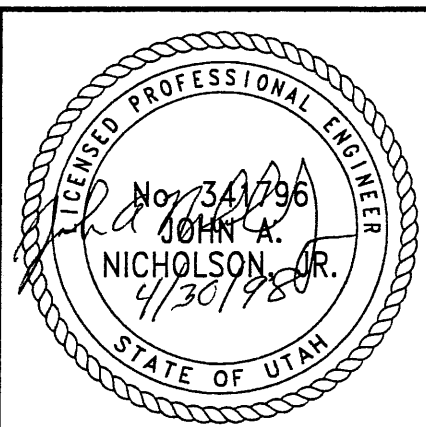
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-344-16"
 TYPICAL CROSS SECTION

UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

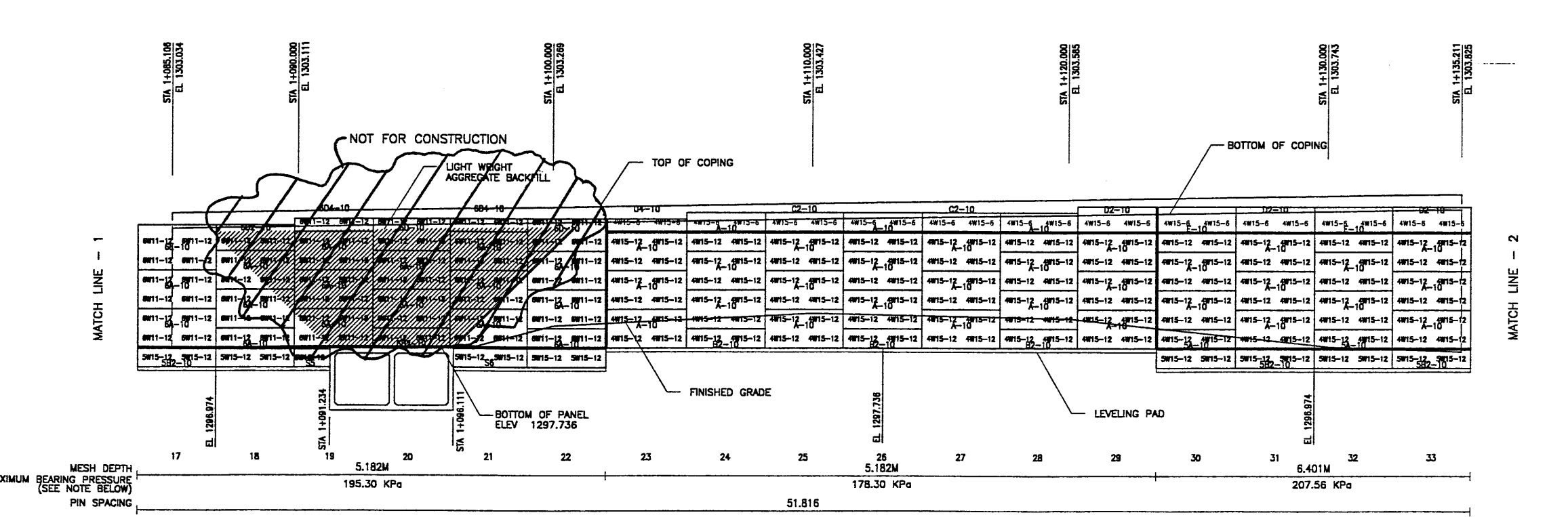
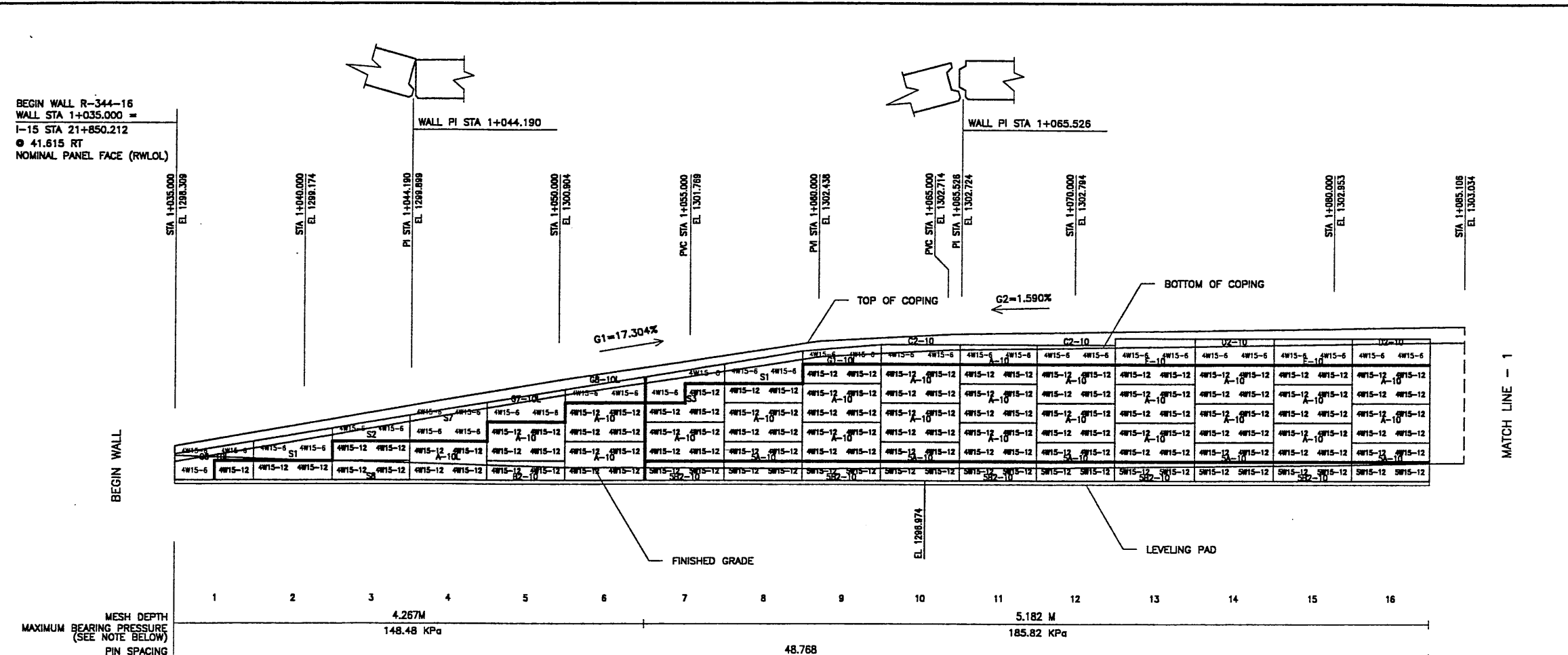
TYPICAL CROSS SECTION
 STA 1+035.000 TO STA 1+285.528
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.

DWG. NO.	1.3R-344-16.4
JOB NO.	239-0007
SHT. NO.	RE-24/a

H:\RE-EARTH\PROJECT\239-0007\1998\33SEF
 SUBMITL-2\53-16
 04-09-98
 FIN



ELEVATION PRECAST WALL R-344-16
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1442.70 SM)

- APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.
- PLEASE VERIFY THE LOCATION OF THE BOX CULVERT.

SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

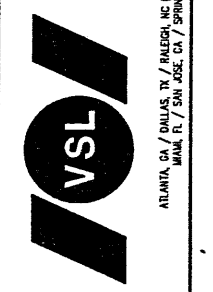
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
 EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE
 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
 ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.

METRIC

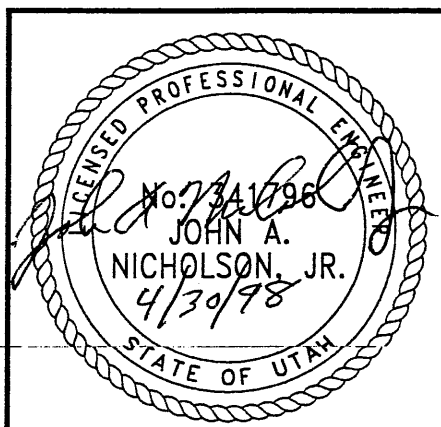
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	04-09-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION

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WASATCH CONSTRUCTORS
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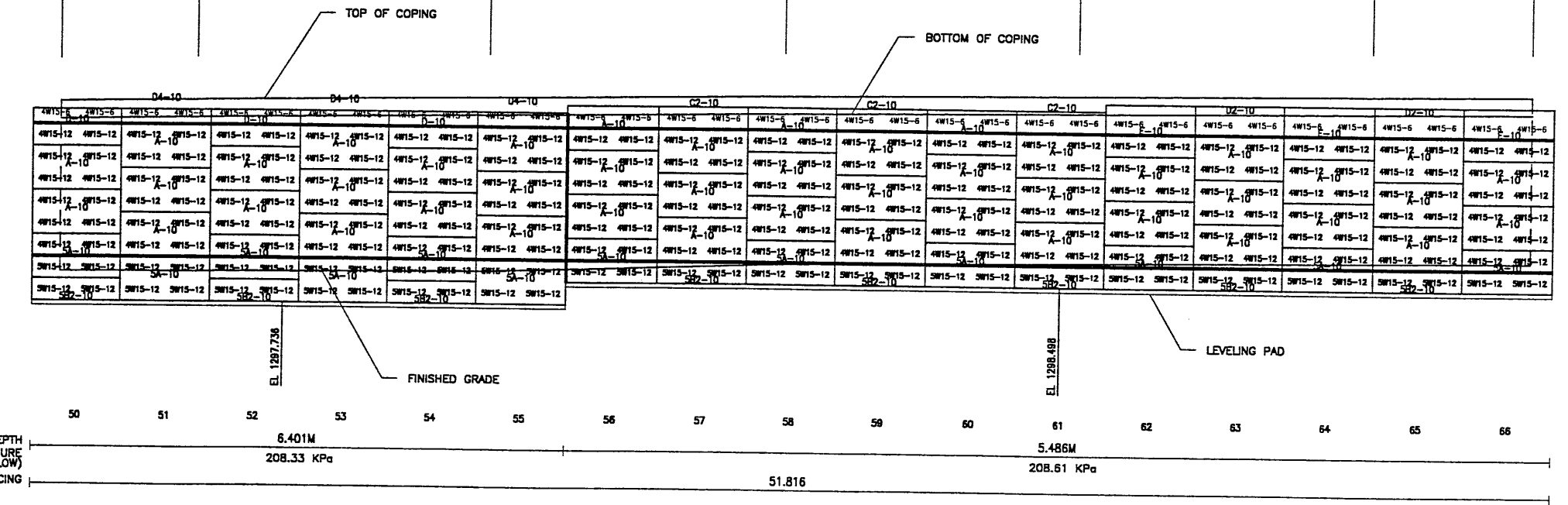
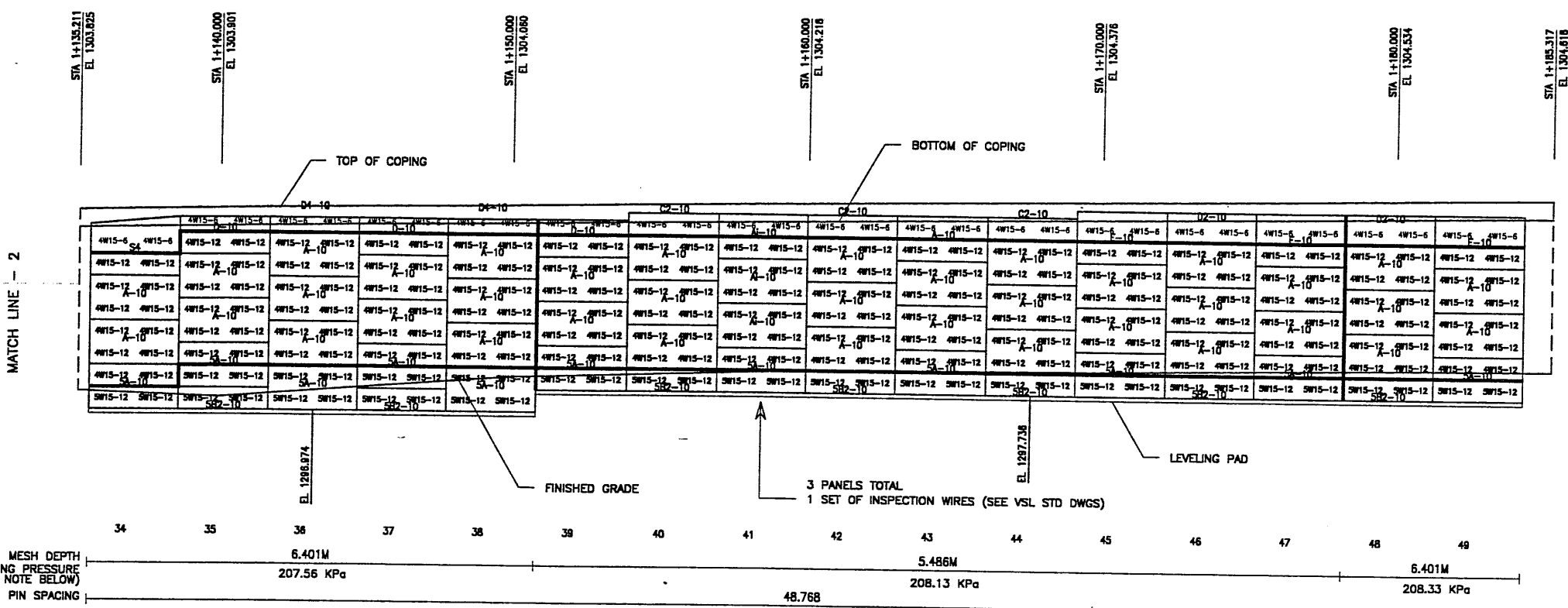
RETAINED EARTH™ WALLS
 PRECAST WALL "R-344-16"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	13R-344-16.5
JOB NO.	239-0007
SHT. NO.	RE-359

FIN 04-09-98 H:\RE_EARTH\PROJECT\239-0007\1998\53SET SUBMITL-2\53-16 ENCE (X-UTAH.DWG)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	04-09-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK



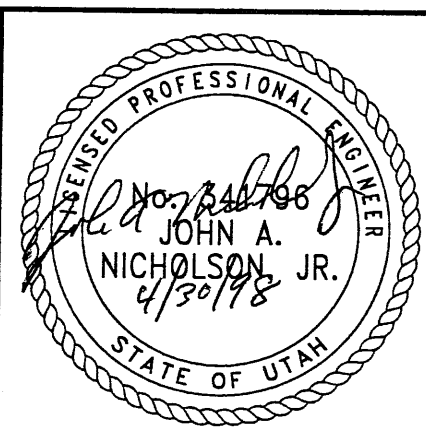
ELEVATION PRECAST WALL R-344-16
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1442.79 SM)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE". REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

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METRIC

WASATCH CONSTRUCTORS
MAY 08 1998
 RELEASED FOR CONSTRUCTION



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-344-16"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.3R-344-16.6
JOB NO.	239-0007
SHT. NO.	RE-464

FINCE (X-UTM.DWG)

SUBMIT--253-16

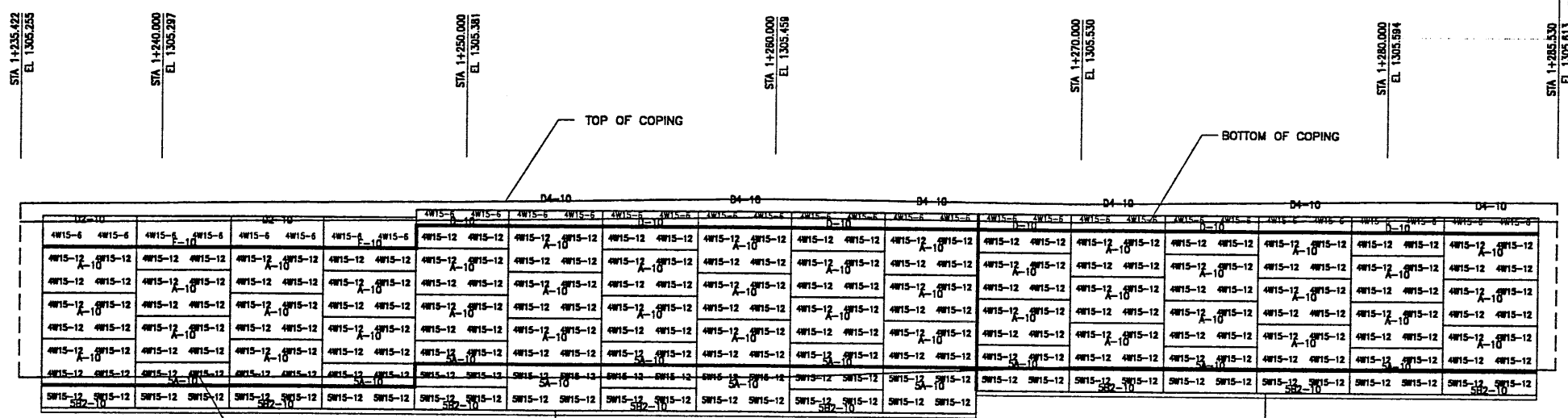
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04-09-98

FIN

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	04-09-98	RELEASE FOR CONSTRUCTION

END WALL R-344-16
 WALL STA 1+285.528 =
 I-15 STA 22+100.000
 @ 35.607 RT
 NOMINAL PANEL FACE (RWLOL)



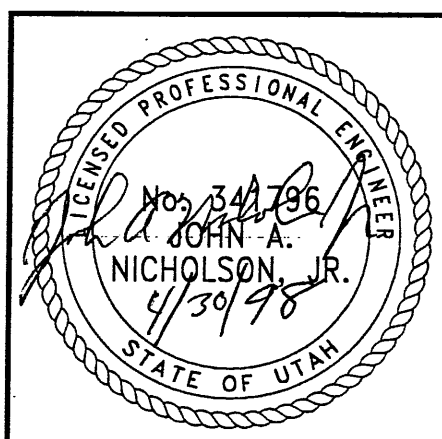
MESH DEPTH	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	6.096M					208.10 KPa					48.768					
PIN SPACING	6.096M					208.10 KPa					48.768					

ELEVATION PRECAST WALL R-344-16
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1442.79 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
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METRIC



WASATCH CONSTRUCTORS
 MAY 08 1998
 RELEASED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	NO.	DATE	REVISION	BY	CHK

DES.	03-24-98	JL	RSW	LOP	RETAINED EARTH™
DRN.	03-24-98	JL			
CHK.	03-24-98	JL			

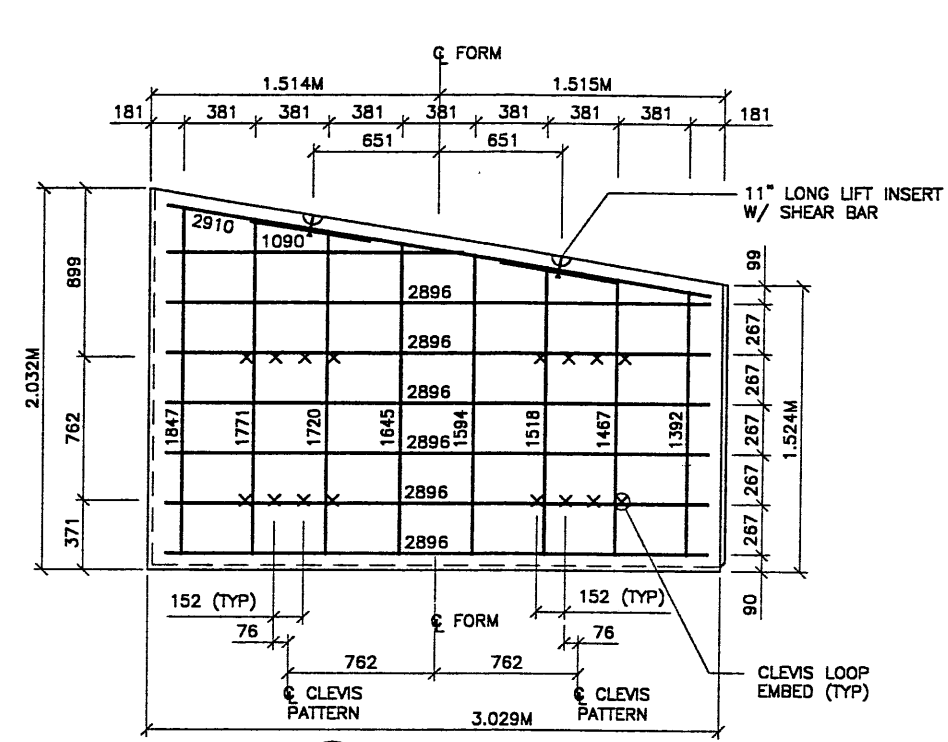
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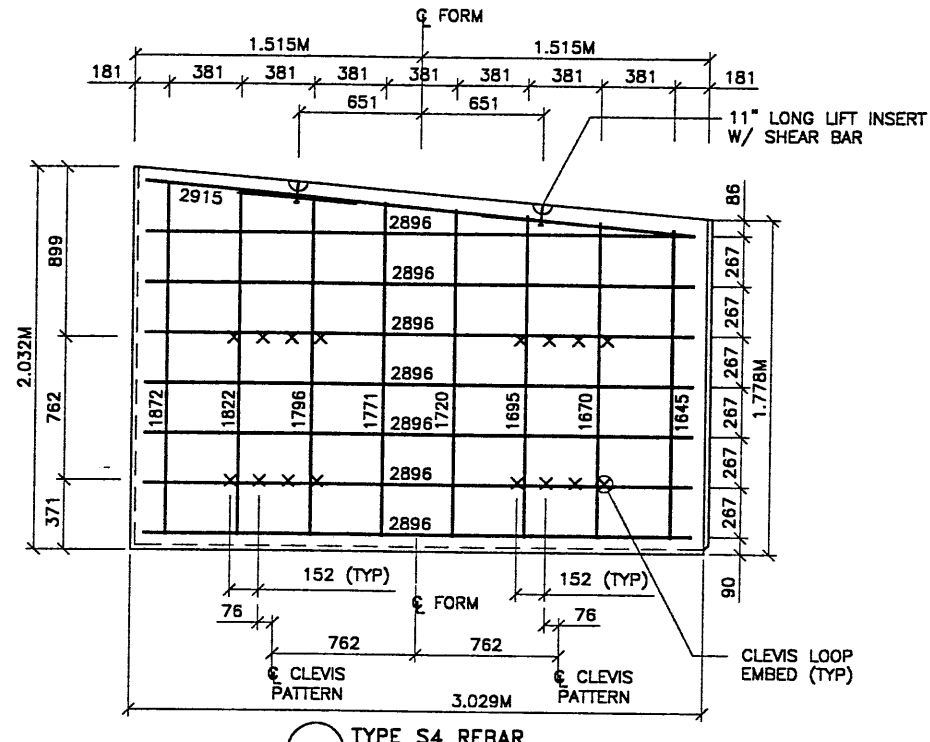
RETAINED EARTH™ WALLS
 PRECAST WALL "344-16"
 I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.3R-344-16.7
 JOB NO.
 239-0007
 SHEET NO.
 RE-57A

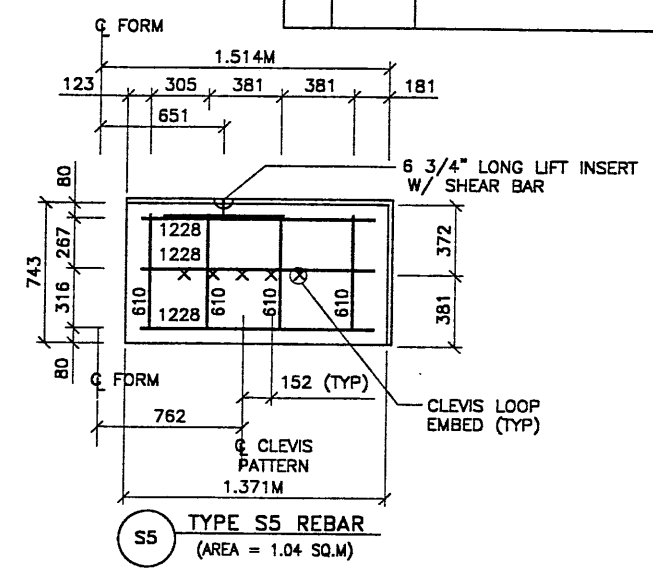
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△ 04-09-98		RELEASE FOR CONSTRUCTION



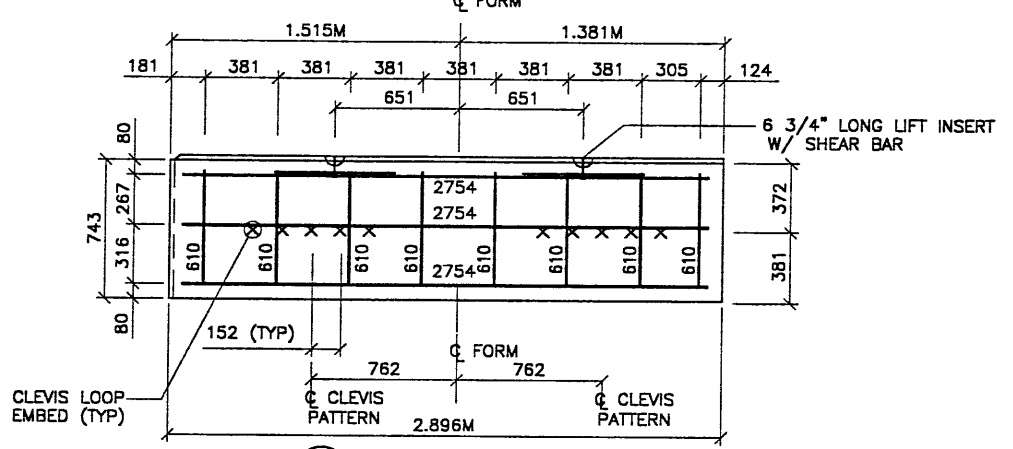
S1 TYPE S1 REBAR
(AREA = 5.42 SQ.M)



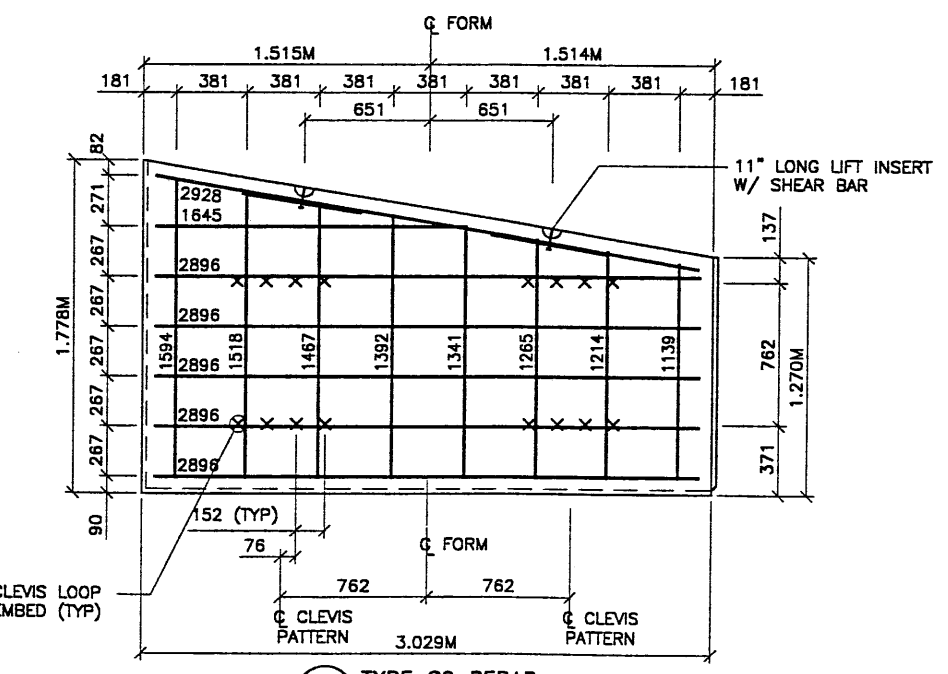
S4 TYPE S4 REBAR
(AREA = 3.10 SQ.M)



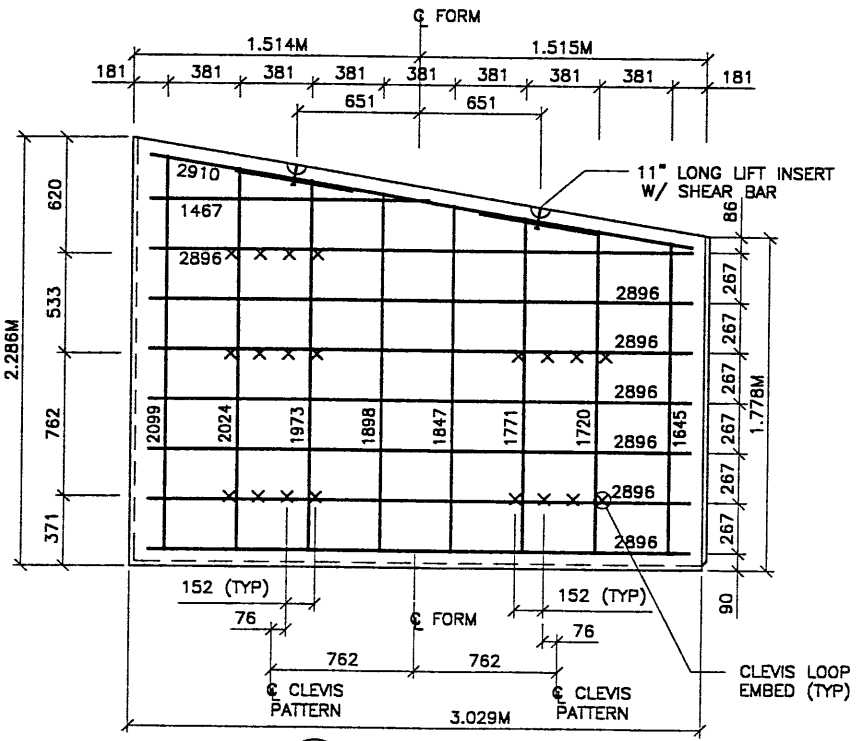
S5 TYPE S5 REBAR
(AREA = 1.04 SQ.M)



S6 TYPE S6 REBAR
(AREA = 2.21 SQ.M)



S2 TYPE S2 REBAR
(AREA = 4.65 SQ.M)

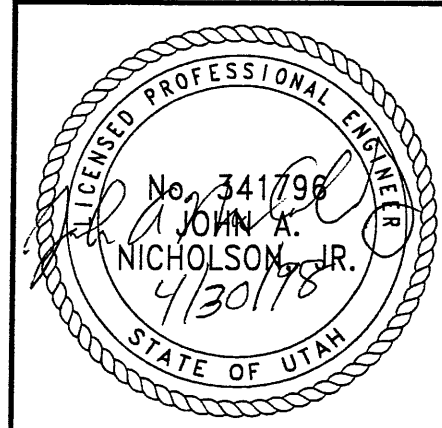


S3 TYPE S3 REBAR
(AREA = 6.19 SQ.M)

- PANEL REINFORCEMENT NOTES:**
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 60.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS 1.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mm# CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 11. LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO THE MANUFACTURER'S SPECIFICATION.



RETAINED EARTH™ WALLS
PRECAST WALL R-344-16
SPECIAL PANEL DETAILS

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

WASATCH CONSTRUCTORS
MAY 08 1998
RELEASED FOR CONSTRUCTION

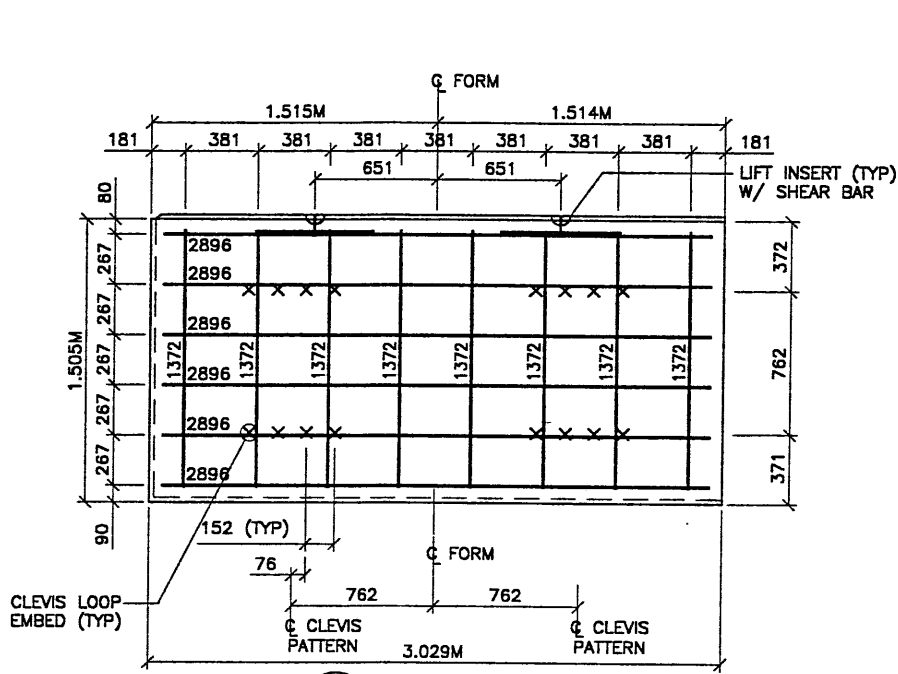
DWG. NO.	1.3R-344-16.8
JOB NO.	239-0007
SHT. NO.	RE-6 8/9

VSL CORPORATION
2810, P.O. Box 2702, Suite 200
Riverside, CA 92503
Telephone: (951) 781-8272
Fax: (951) 781-4869

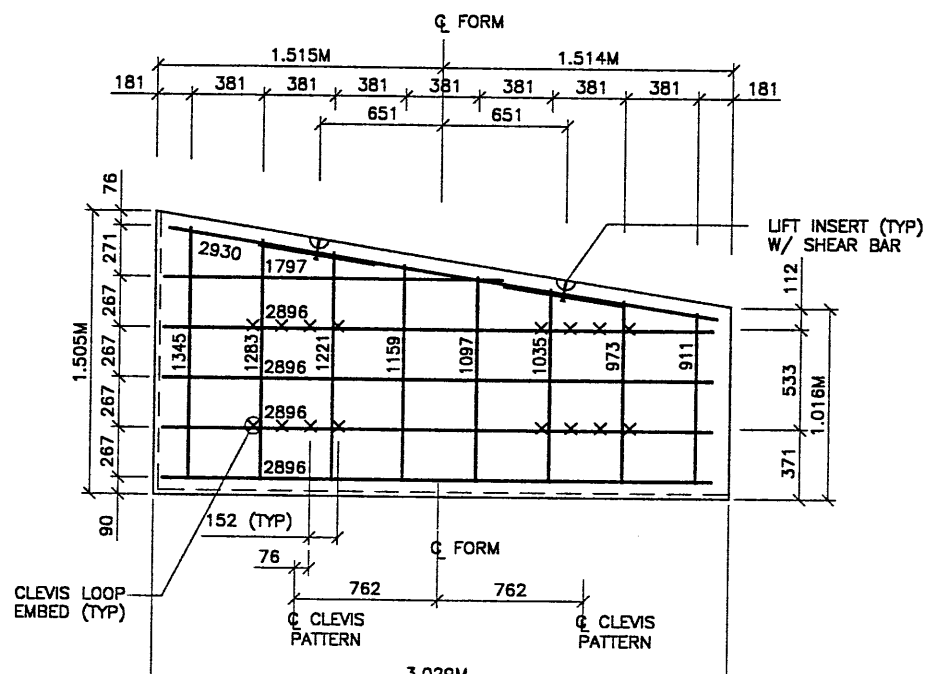
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MINN. (T) / SAN JOSE, CA / SPRINGFIELD, VA

VSL

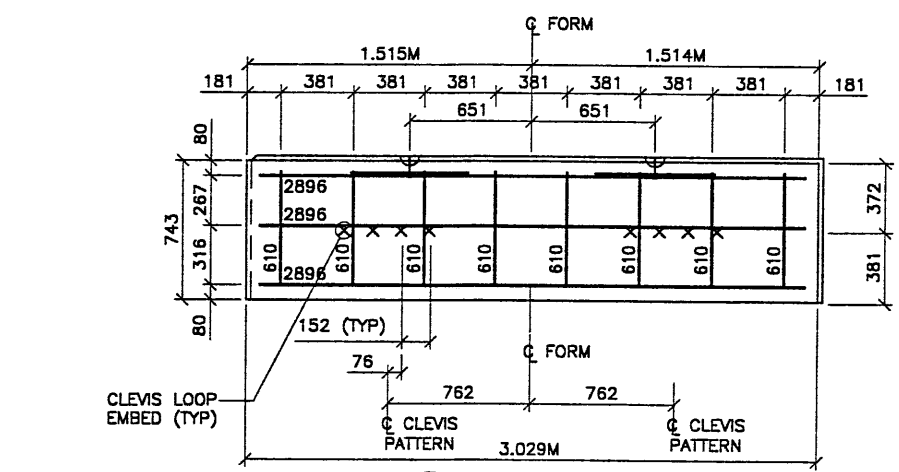
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	04-09-98	RELEASE FOR CONSTRUCTION



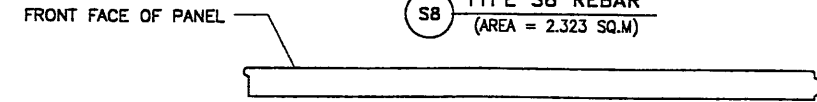
A-10L TYPE A-10L REBAR
(AREA = 4.645 SQ.M)



S7 TYPE S7 SHOWN
(AREA = 3.869 SQ.M)

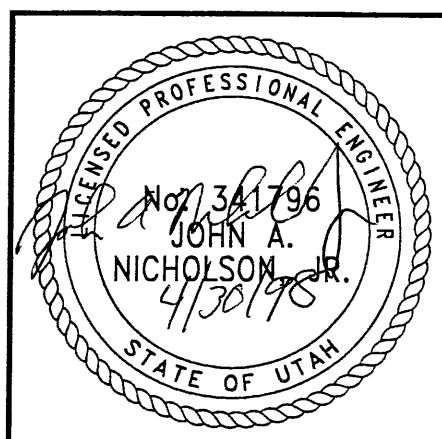


S8 TYPE S8 REBAR
(AREA = 2.323 SQ.M)



- PANEL REINFORCEMENT NOTES:**
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 BAR 1345 mm LONG.
 5. PANEL REINFORCEMENT BARS SHALL BE DEFORMED BILLET STEEL BARS FOR CONCRETE REINFORCEMENT CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION A615, GRADE 80.
 6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS I.
 7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mm# CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 11. LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

WASATCH CONSTRUCTORS
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METRIC

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
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Fax: (919) 781-4869

VSL
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PRECAST WALL R-344-16
SPECIAL PANEL DETAILS

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.3R-344-16.9
JOB NO. 239-0007
SHT. NO. RE-7 1/4