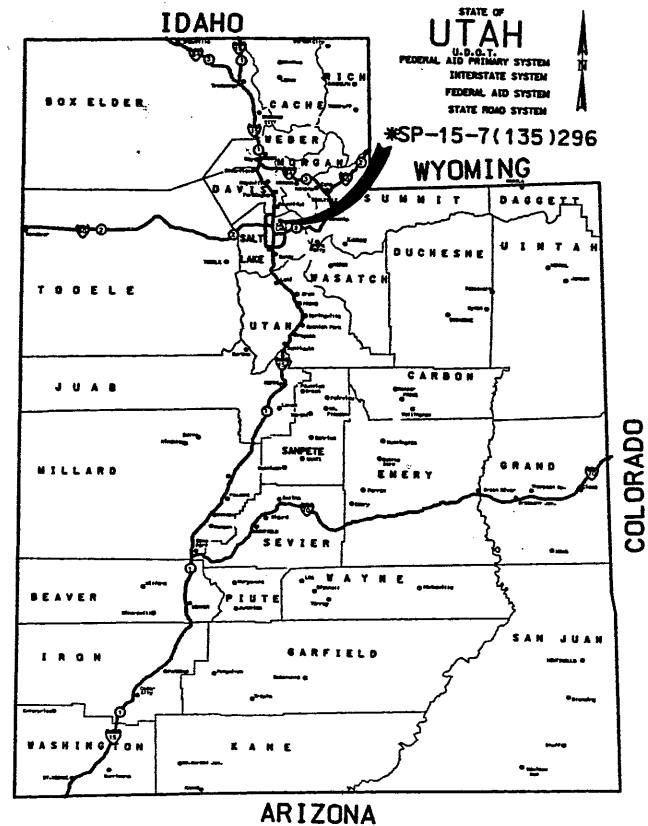


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UTAH
DEPARTMENT OF TRANSPORTATION

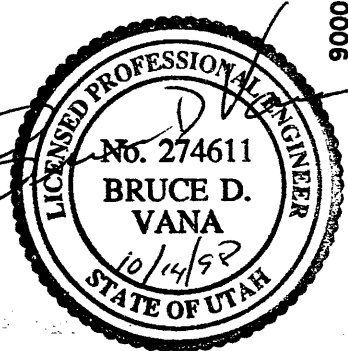
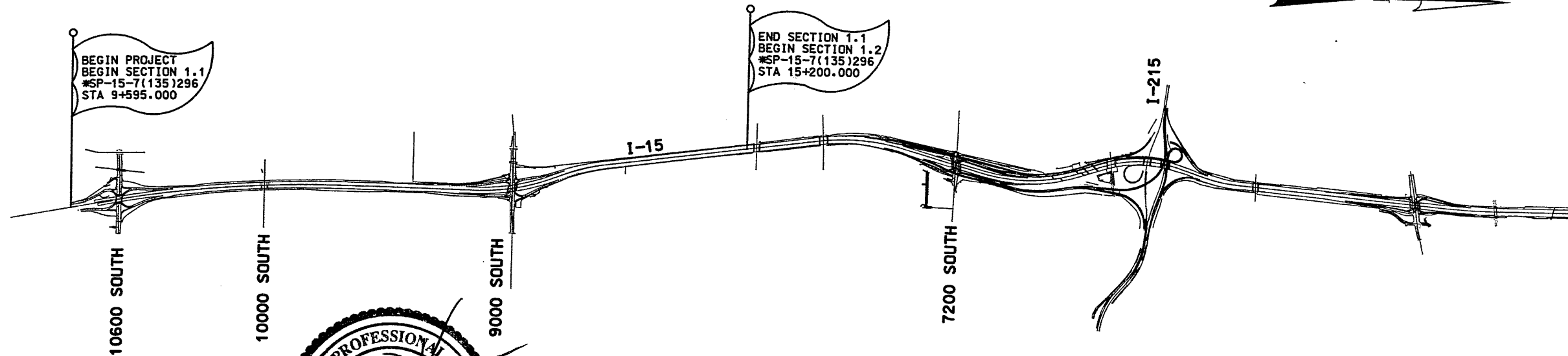
PLANS OF PROPOSED STATE ROAD
I-15

*SP-15-7(135)296
I-15 CORRIDOR RECONSTRUCTION
SALT LAKE COUNTY

DESIGN SECTION 1.1, 5.6 KILOMETERS
ROADWAY, GRADING, DRAINAGE, SIGNING,
LIGHTING, SIGNALS, PAVEMENT MARKINGS,
RETAINING WALLS, ATMS, STRUCTURES.

FED. ROAD DIST. NO.	STATE	PROJECT NO.	SHEET NO.
UTAH	UTAH	*SP-15-7(135)296	1

METRIC



WASATCH CONSTRUCTORS
OCT 22 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION	
NO.	DESCRIPTION
10/12/98	100% FULL ROADWAY

F:\114-1001-1988\1001-1988.dgn User: rnm: rfg: 10/14/98

SHEET INDEX

ROADWAY DRAWINGS	
SHEET NO.	DESCRIPTION
1.1-1	TITLE
1.1-1A	SHEET INDEX
1.1-1A.2	UDOT STD DRAWINGS
1.1-1A.3 TO 1.1-1A.4	CORRIDOR STD DRAWINGS
1.1-1B TO 1.1-1B.1	SHEET REFERENCE
1.1-1C TO 1.1-1J	SURVEY CONTROL
1.1-2A TO 1.1-2K	TYPICAL SECTIONS AND DETAILS
1.1-2L	SHEET DELETED
1.1-2M TO 1.1-2R	TYPICAL SECTIONS AND DETAILS
1.1-3A.1 TO 1.1-3C	QUANTITIES
1.1-3D	SHEET DELETED
1.1-3D.1 TO 1.1-3G.1	QUANTITIES
1.1-DT1 TO 1.1-DT37	DETAILS
1.1-DT38	SHEET DELETED
1.1-DT39 TO 1.1-DT44	DETAILS
1.1-4-1 TO 1.1-4-1E	MOT REFERENCE SHEETS
1.1-4-2 TO 1.1-4-2AL	MOT TYPICAL SECTIONS AND DETAILS
1.1-4-3 TO 1.1-4-62	MOT PLANS
1.1-4-65 TO 1.1-4-87	MOT PLANS
1.1-4-RD1 TO 1.1-4-RD42	TEMPORARY PAVING PLANS
1.1-4-PR1 TO 1.1-4-PR4	TEMPORARY PROFILES
1.1-4-DD1 TO 1.1-4-DD2	TEMPORARY DRAINAGE DETAILS
1.1-4-DR1 TO 1.1-4-DR16	TEMPORARY DRAINAGE PLANS
1.1-4-XS1 TO 1.1-4-XS4	TEMPORARY PAVING CROSS SECTIONS
1.1-TU1 TO 1.1-TU25	TOPOGRAPHY AND UTILITY PLANS
1.1-RD1 TO 1.1-RD18	ROADWAY PLANS
1.1-PR1 TO 1.1-PR43	ROADWAY PROFILES
1.1-DR1 TO 1.1-DR28	DRAINAGE PLANS
1.1-ED1 TO 1.1-ED18	EDGE DRAIN PLANS
1.1-DP1 TO 1.1-DP36	DRAINAGE PROFILES
1.1-DD1 TO 1.1-DD21	DRAINAGE DETAILS
1.1-GR1 TO 1.1-GR23	GRADING PLANS
1.1-GD1 TO 1.1-GD7	GRADING DETAILS
1.1-SS1A TO 1.1-SS98	SIGNING PLANS & DETAILS
1.1-PM1 TO 1.1-PM26	PAVEMENT MARKING PLANS
1.1-S1 TO 1.1-S9	SIGNAL PLANS
1.1-L1A TO 1.1-L31	LIGHTING PLANS
1.1-ATMS1 TO 1.1-ATMS22	ATMS PLANS
1.1-LW1 TO 1.1-LW25	LANDSCAPE PLANS
1.1-IR1 TO 1.1-IR24	IRRIGATION PLANS
1.1-XS1 TO 1.1-XS71	CROSS SECTIONS

SHEET INDEX

STRUCTURE DRAWINGS		
SHEET NO.	DESCRIPTION	SHEETS
E-1445A	DRY CREEK BOX CULVERT	7
F-609N	9000 SOUTH BRIDGE (NORTHBOUND)	29
F-609S	9000 SOUTH BRIDGE (SOUTHBOUND)	28
F-646N	10000 SOUTH BRIDGE (NORTHBOUND)	16
F-646S	10000 SOUTH BRIDGE (SOUTHBOUND)	16
F-663	10600 SOUTHBRIDGE	26

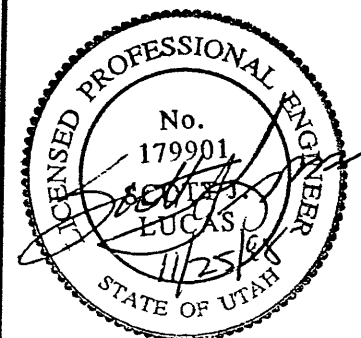
SHEET INDEX

WALL DRAWINGS	
SHEET NO.	DESCRIPTION
1.1-R342	WALL KEY PLAN
1.1-WADET.1 TO 1.1-WADET.2	WALL DETAILS
1.1R-342-1.1 TO 1.1R-342-1.5	WALL PLANS & DETAILS
1.1R-342-3.1 TO 1.1R-342-3.2	WALL PLANS & DETAILS
1.1R-342-5.1 TO 1.1R-342-5.5	WALL PLANS & DETAILS
1.1R-342-7.1 TO 1.1R-342-7.9	WALL PLANS & DETAILS
1.1R-342-8.1 TO 1.1R-342-8.13	WALL PLANS & DETAILS
1.1R-342-9.1 TO 1.1R-342-9.10	WALL PLANS & DETAILS
1.1R-342-10.1 TO 1.1R-342-10.9	WALL PLANS & DETAILS
1.1R-342-11.1 TO 1.1R-342-11.9	WALL PLANS & DETAILS
1.1R-342-12.1 TO 1.1R-342-12.9	WALL PLANS & DETAILS
1.1R-342-13.1 TO 1.1R-342-13.9	WALL PLANS & DETAILS
1.1R-342-14.1 TO 1.1R-342-14.8	WALL PLANS & DETAILS
1.1R-342-15.1 TO 1.1R-342-15.13	WALL PLANS & DETAILS
1.1R-342-16.1 TO 1.1R-342-16.13	WALL PLANS & DETAILS

GENERAL NOTES:

- ALL WORK TO BE DONE IN ACCORDANCE WITH THE UTAH DEPARTMENT OF TRANSPORTATION, I-15 CORRIDOR SPECIFICATIONS (METRIC) FOR ROAD AND BRIDGE CONSTRUCTION, AS CONTAINED IN RFP SECTION 7.1, DATED OCTOBER 1, 1996, AND AMENDED BY ADDENDUM NO. 1, DATED NOVEMBER 1, 1996, ADDENDUM NO. 3, DATED DECEMBER 2, 1996, ADDENDUM NO.4 DATED NOVEMBER 1, 1996, ADDENDUM NO. 5, DATED DECEMBER 30, 1996, ADDENDUM NO. 6 DATED FEBRUARY 14, 1997, AND BELOW, AND IN ACCORDANCE WITH THE UTAH DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS, AS CONTAINED IN RFP SECTION 7.2, DATED OCTOBER 1, 1996 AND AMENDED BY ADDENDUM NO. 3, DATED DECEMBER 2, 1996, AS MODIFIED BY THE SPECIAL PROVISIONS LISTED BELOW:
 - GENERAL SPECIAL PROVISION NO. 104.6.
- (DELETED)
- THE HORIZONTAL AND VERTICAL COORDINATE REFERENCE SYSTEM APPLICABLE TO THIS PROJECT SHALL BE THE "I-15 CORRIDOR SURVEYING AND MAPPING" SP-7 (107) 296 JULY 1995.

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UTAH DEPARTMENT OF TRANSPORTATION
H. W. LOCHNER INC.
SVERORUP/DE LEUW

APPROVAL RECORD	7/98	DATE	SCOTT J. LUCAS	DESIGN	SJL	7/97	CHECK	BDV	7/98
APPROVED	7/98	DATE	BRUCE VANA	DRAWN	PJ	7/97	CHECK	BDV	7/98
				QUANT.	N/A		CHECK	N/A	

APPROVED FOR CONSTRUCTION

NO. DATE DESCRIPTION

10/12/98 100% FULL ROADWAY

11/25/98 FINAL PACKAGE REVISIONS

I-15 CORRIDOR RECONSTRUCTION

SHEET INDEX

SECTION 1.1

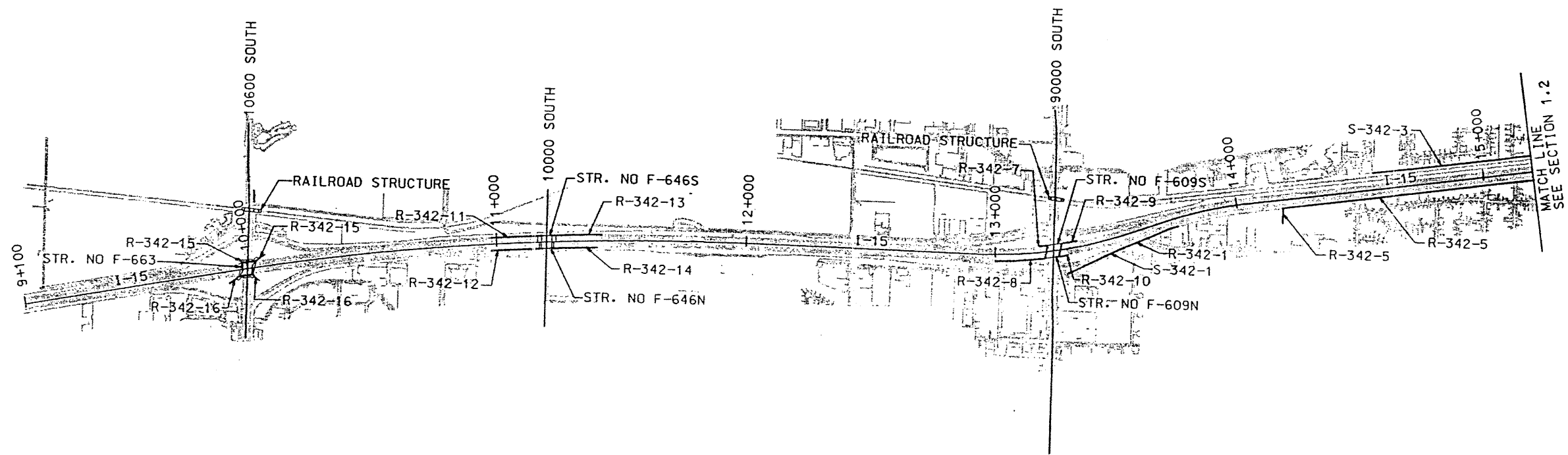
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SALT LAKE COUNTY

DWG. NO. 1.1-1A

SHT. 2 OF 832

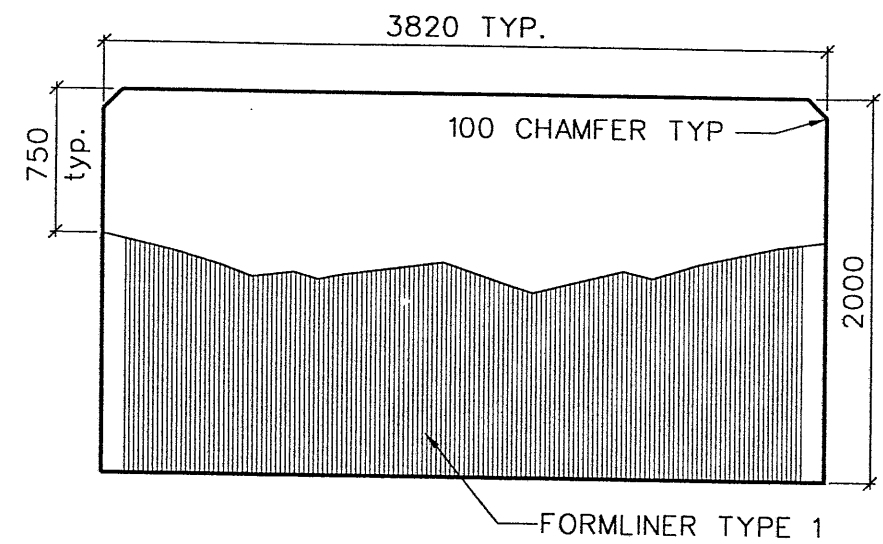
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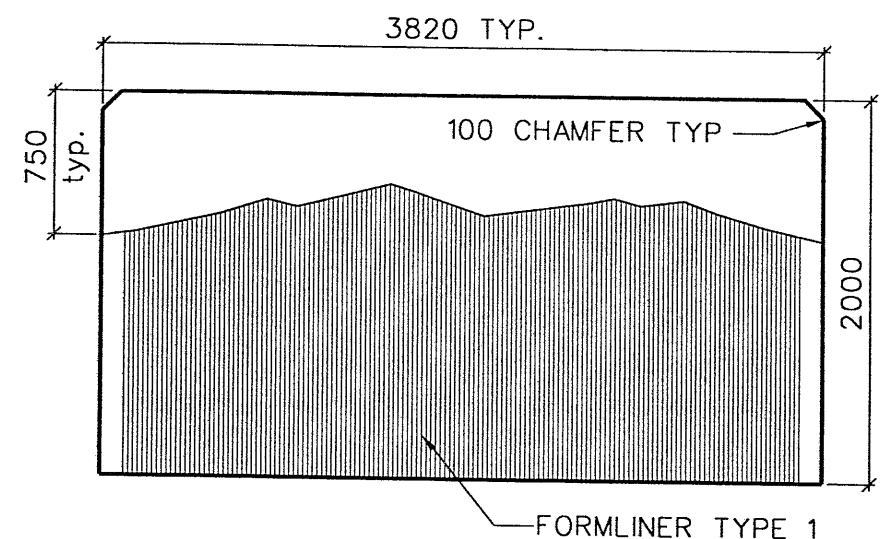
I-15 CORRIDOR RECONSTRUCTION	
RETAINING WALL KEY PLAN	
SECTION 1.1	
PROJECT NUMBER	#SP-15-7(135)296
SALT LAKE COUNTY	
DWG. NO. 1.1R-342	

UTAH DEPARTMENT OF TRANSPORTATION			
H. W. LOCHNER SVERDRUP/DE LEUW			
APPROVAL DATE	DESIGNER	CHECK	QUANT.
9/10/97	SCOTT LUCAS	BJL 9/10/97	BDV 9/10/97
APPROVED DATE	PROJECT DESIGN ENGINEER	DRAWN	CHECK
9/10/97	BRUCE YANA	LAU 9/10/97	BDV 9/10/97
	SECTION MANAGER		CHECK
			1113100

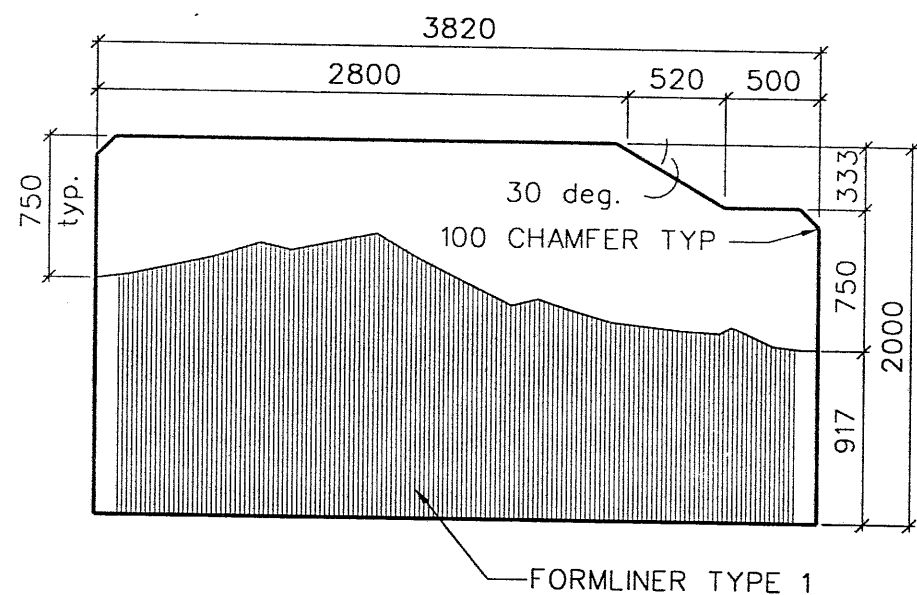
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NO.	DATE
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2	5/14/98
DESCRIPTION	
ORIGINAL RELEASE-I-15 SB GDP	
10600 SO SPUJ GDP	



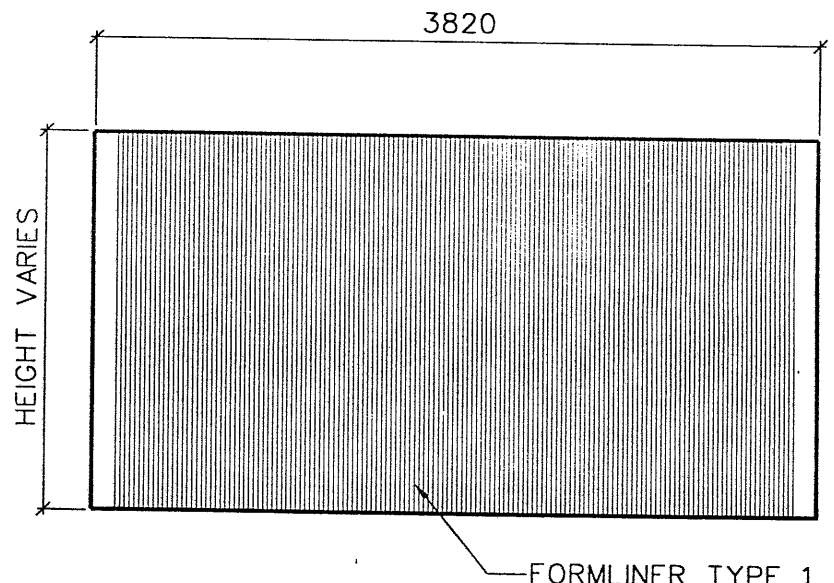
1 CAP PANEL FRONT



2 CAP PANEL BACK



3 STEP DOWN CAP PANEL (SAME BOTH SIDES)

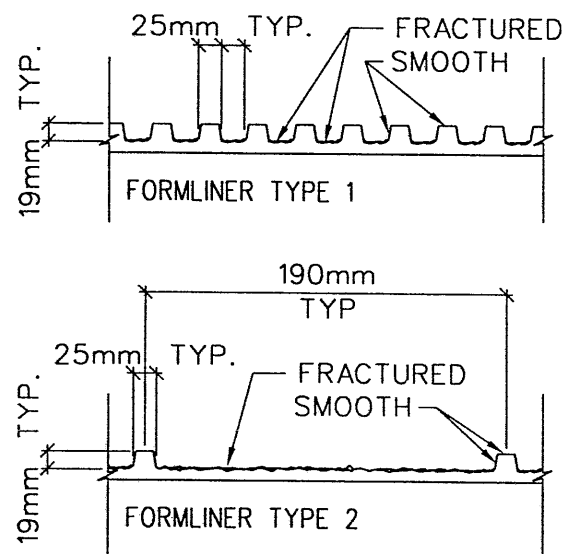


4 STANDARD NOISE WALL PANEL

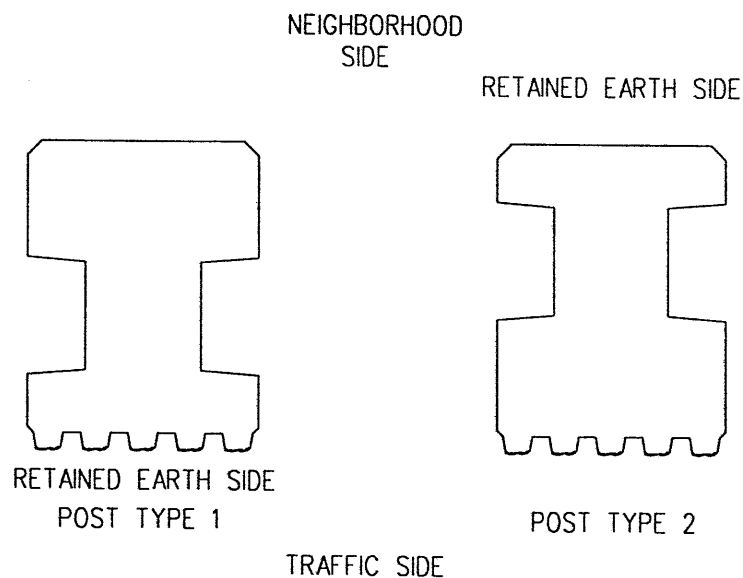
NOTES:

1. THE STANDARD NOISE WALL PANEL SHALL HAVE FRACTURED FIN TEXTURE APPLIED TO BOTH SIDES OF THE PANEL FOR THE FULL HEIGHT OF THE PANEL.
2. MOUNTAIN PATTERNS ON THE PLANS ARE FOR INFORMATION ONLY. FULL SCALE PLOTS SHALL BE ISSUED FOR A PATTERN FOR USE IN PREPARING FORMLINERS.
3. ALL POSTS SHALL HAVE THE FORMLINER TREATMENT TO THE HIGHWAY SIDE OF THE WALL. POSTS SHALL BE PLAIN ON THE NEIGHBORHOOD SIDE.
4. CAP PANEL TYPES SHALL BE PLACED RANDOMLY DURING CONSTRUCTION. CONTRACTOR SHOULD STRIVE TO LIMIT THE PLACEMENT OF PANELS TO A MAXIMUM OF 5 OF ONE TYPE IN A ROW. ALTERNATING PANELS IS NOT ACCEPTABLE.
5. I-15 COORIDOR DWG. NO. SW-72 ADDRESSES AESTHETICS ONLY FOR PRECAST POST & PANEL WALLS. ALL OTHER FEATURES SHALL BE IN CONFORMANCE WITH UDOT STD. DWG. 545-01 & 02 AND 546-01 & 02.

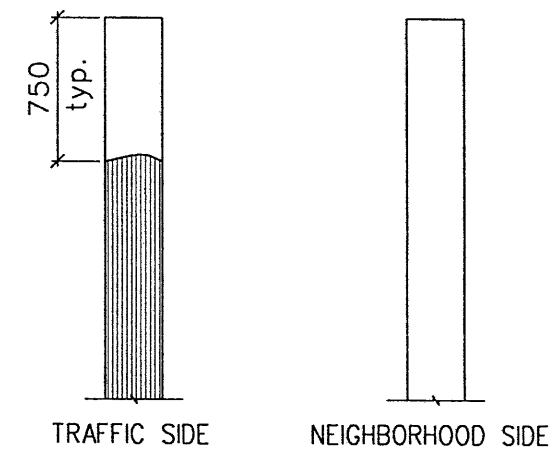
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△	6-16-97		ORIGINAL RELEASE
UTAH DEPARTMENT OF TRANSPORTATION			
H. W. LOCHNER SVERDRUP/DE LEUW			
DESIGN	SJL	6/97	CHECK
BDV	BDV	6/97	CHECK
DESIGN	SCOTT J. LUCAS	6/97	CHECK
PROJECT DESIGN ENGINEER	DATE	DATE	DATE
APPROVED	6/97	BRUCE VANA	6/97
SECTION MANAGER	DATE	SECTION MANAGER	DATE
I-15 CORRIDOR RECONSTRUCTION		RETAINING WALL DETAILS	
SECTION 1.1		PROJECT NUMBER SP-15-7(135)296	
SALT LAKE COUNTY			
DWG. NO. I.I-WADET.I			
SHT. _____ OF _____			



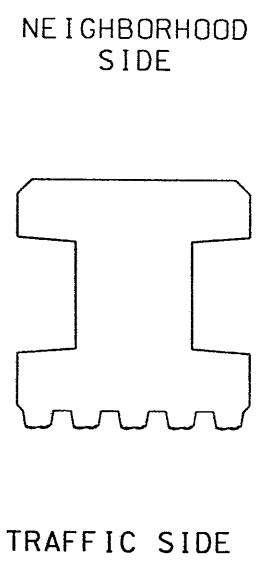
1 FORMLINER TYPES
ALL DIMENSIONS APPROXIMATE



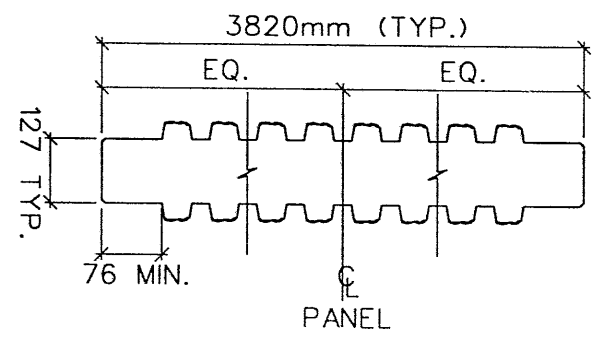
2 POST TYPES FOR RETAINING WALLS
NOTE:
FORMLINER TREATMENTS ARE IN ADDITION TO REQUIRED DIMENSIONS AS OUTLINED IN UDOT STANDARD DRAWING 545-01 & 02 AND 546-01 & 02.



3 POST ELEVATIONS TYP.



4 NOISE WALL POST



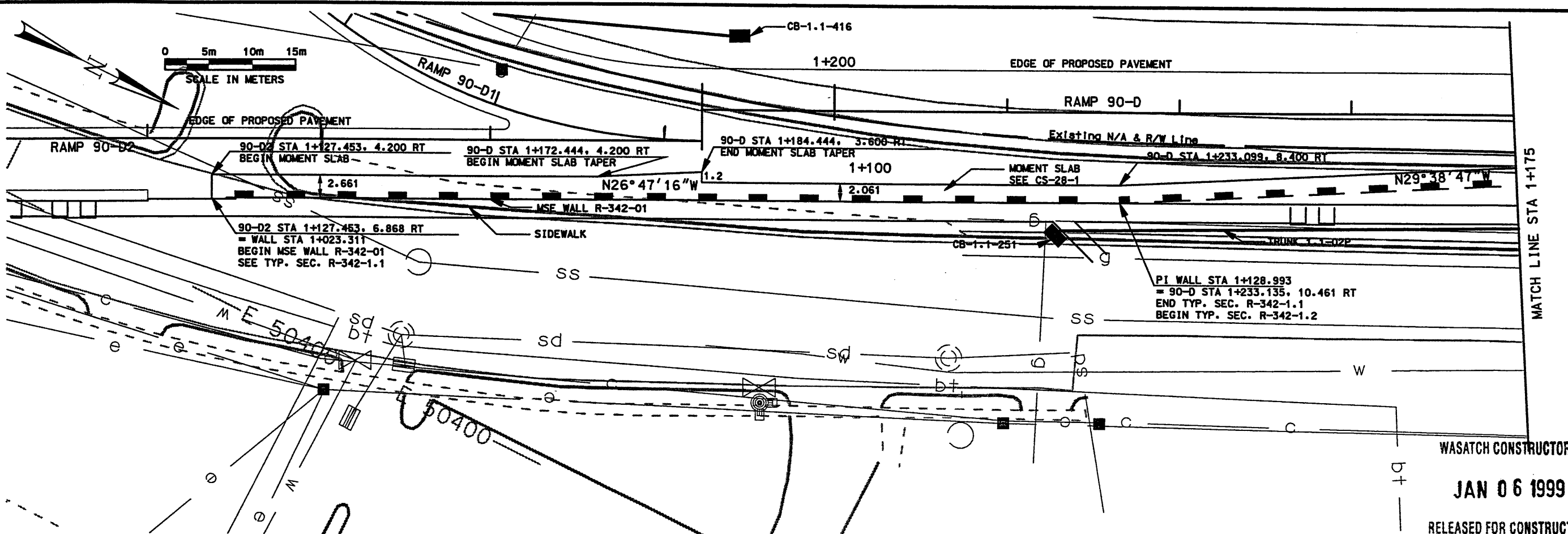
5 PANEL FORMLINER PLACEMENT

- NOTES:
- 1) CENTER THE FRACTURED FIN TEXTURE ON ALL PANELS, EITHER IN A GROOVE OR ON A FIN.
 - 2) THE INTENT OF THIS DETAIL IS TO INDICATE A CONSISTENT PLACEMENT OF THE FORMLINER IN THE FORM SO THAT ALL PANELS, ON BOTH SIDES, HAVE THE SAME GENERAL PLACEMENT OF RIDGES AND VALLEYS AND WILL ALIGN CLOSELY WHEN WALL PANELS ARE ASSEMBLED IN THE FIELD. THIS APPLIES TO BOTH THE MOUNTAIN PANELS AS WELL AS THE STANDARD PANELS.
 - 3) PLACE ANY SEAMS IN THE FORMLINER SO THAT THEY WILL NOT BE ON A RIDGE ON THE FINAL CONCRETE PANELS.

APPROVED FOR CONSTRUCTION		DATE		6-16-97		ORIGINAL RELEASE	
NO.		DATE		6-16-97		ORIGINAL RELEASE	
UTAH DEPARTMENT OF TRANSPORTATION		H. W. LOCHNER		SV ERDRUP/DE LEUW		DESIGN	
I-15 CORRIDOR RECONSTRUCTION		SCOTT J. LUCAS		PROJECT DESIGN ENGINEER		DESIGN	
RETAINING WALL DETAILS		6/97		DATE		6/97	
SECTION 1.1		6/97		DATE		6/97	
PROJECT NUMBER		SP-15-7(35)296		DATE		6/97	
SALT LAKE COUNTY		DWG. NO.		I.I-WADET.2		SHT. OF	

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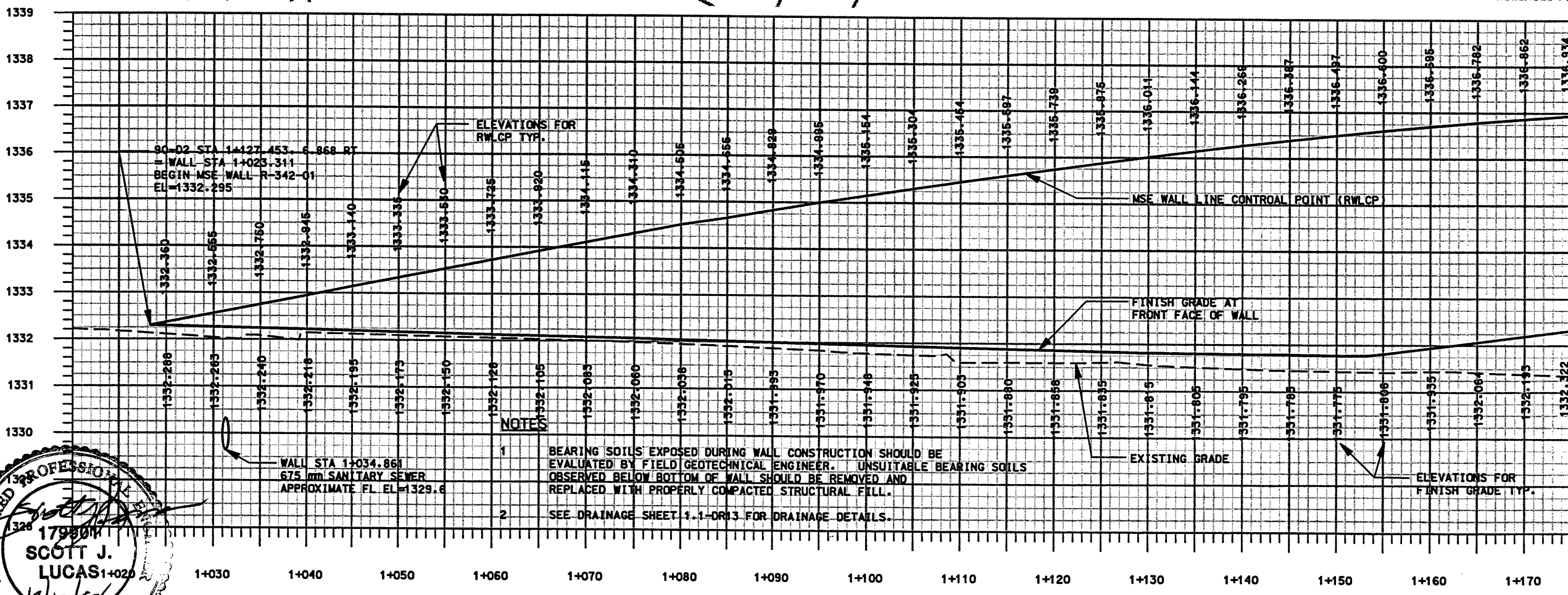


WASATCH CONSTRUCTORS
 JAN 06 1999
 RELEASED FOR CONSTRUCTION

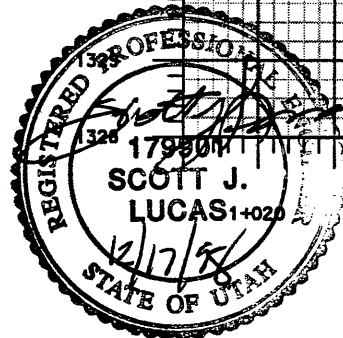
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NO.	DATE	
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UTAH DEPARTMENT OF TRANSPORTATION			
H. W. LOCHNER INC. SYNERUP/DE LEUW			
DESIGN	CHECK	DATE	BY
JHG 12/98	SL 12/98		
DRAWN	CHECK	DATE	BY
JHG 12/98	SL 12/98		
PROJECT MANAGER	DATE	DATE	DATE
BRUCE VANA			

I-15 CORRIDOR RECONSTRUCTION	
S & L RET. WALL R-342-1	SECTION 1.1
PROJECT NUMBER	PROJECT NUMBER
#SP-15-7(135)296	#SP-15-7(135)296
SALT LAKE COUNTY	SALT LAKE COUNTY
DWG. NO. 1.1R-342-1.1	DWG. NO. 1.1R-342-1.1
SHT 1 OF 6	SHT 1 OF 6



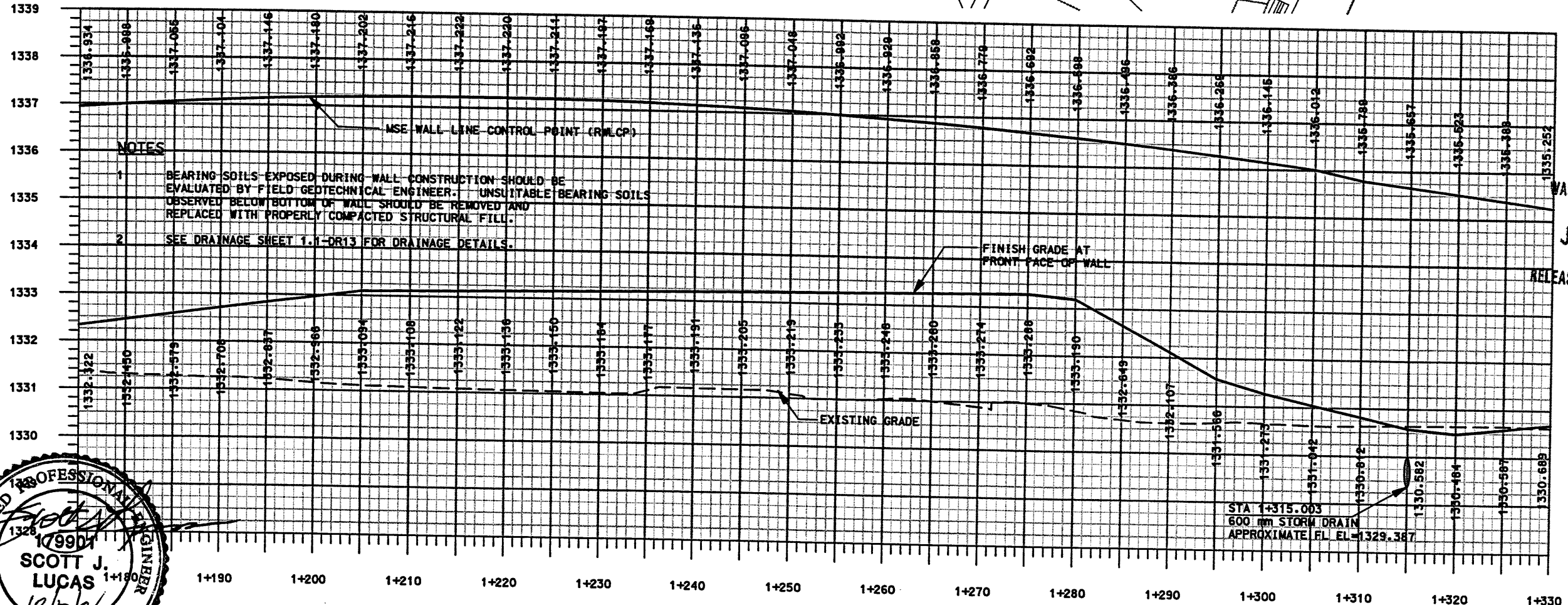
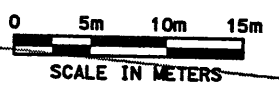
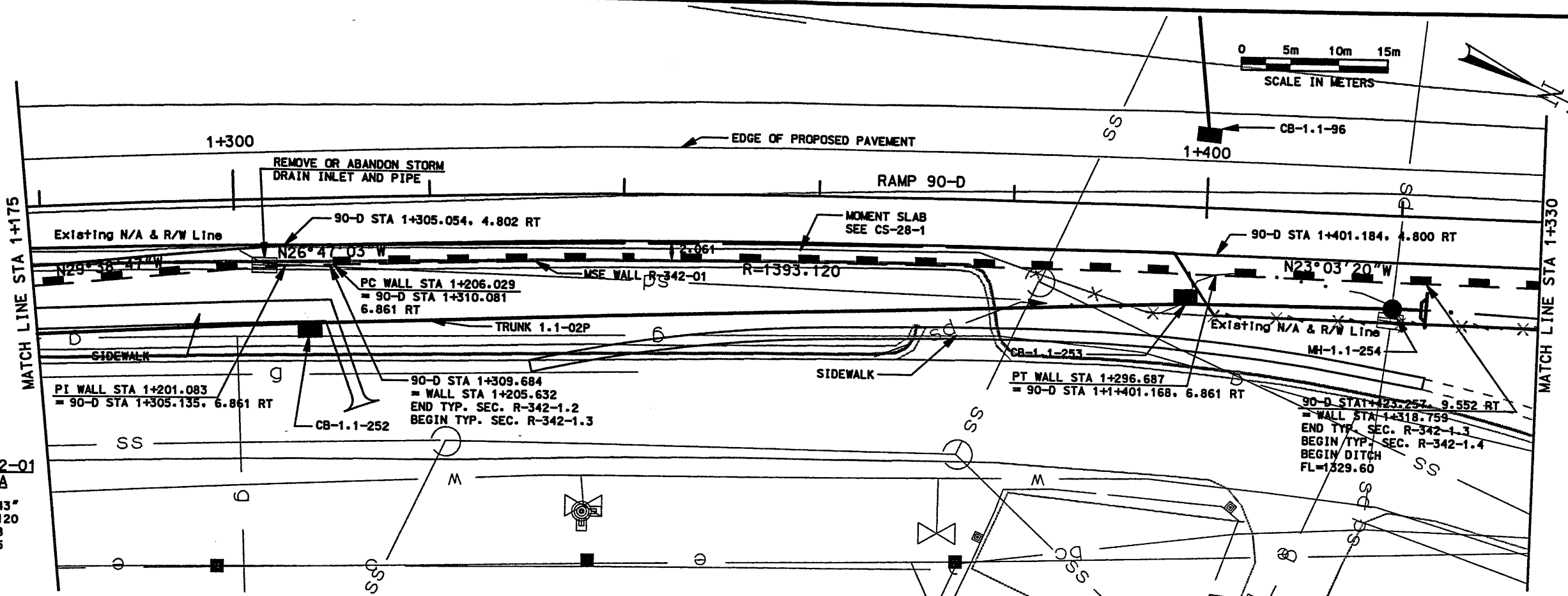
- NOTES
- BEARING SOILS EXPOSED DURING WALL CONSTRUCTION SHOULD BE EVALUATED BY FIELD GEOTECHNICAL ENGINEER. UNSUITABLE BEARING SOILS OBSERVED BELOW BOTTOM OF WALL SHOULD BE REMOVED AND REPLACED WITH PROPERLY COMPACTED STRUCTURAL FILL.
 - SEE DRAINAGE SHEET 1.1-DR13 FOR DRAINAGE DETAILS.



MSE WALL R-342-01 PROFILE

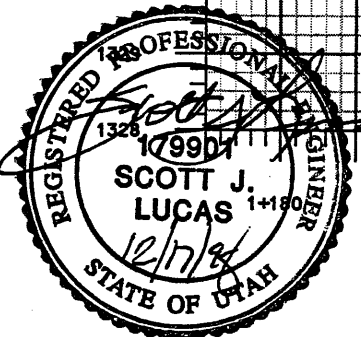
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NOTES

- BEARING SOILS EXPOSED DURING WALL CONSTRUCTION SHOULD BE EVALUATED BY FIELD GEOTECHNICAL ENGINEER. UNSUITABLE BEARING SOILS OBSERVED BELOW BOTTOM OF WALL SHOULD BE REMOVED AND REPLACED WITH PROPERLY COMPACTED STRUCTURAL FILL.
- SEE DRAINAGE SHEET 1.1-DR13 FOR DRAINAGE DETAILS.

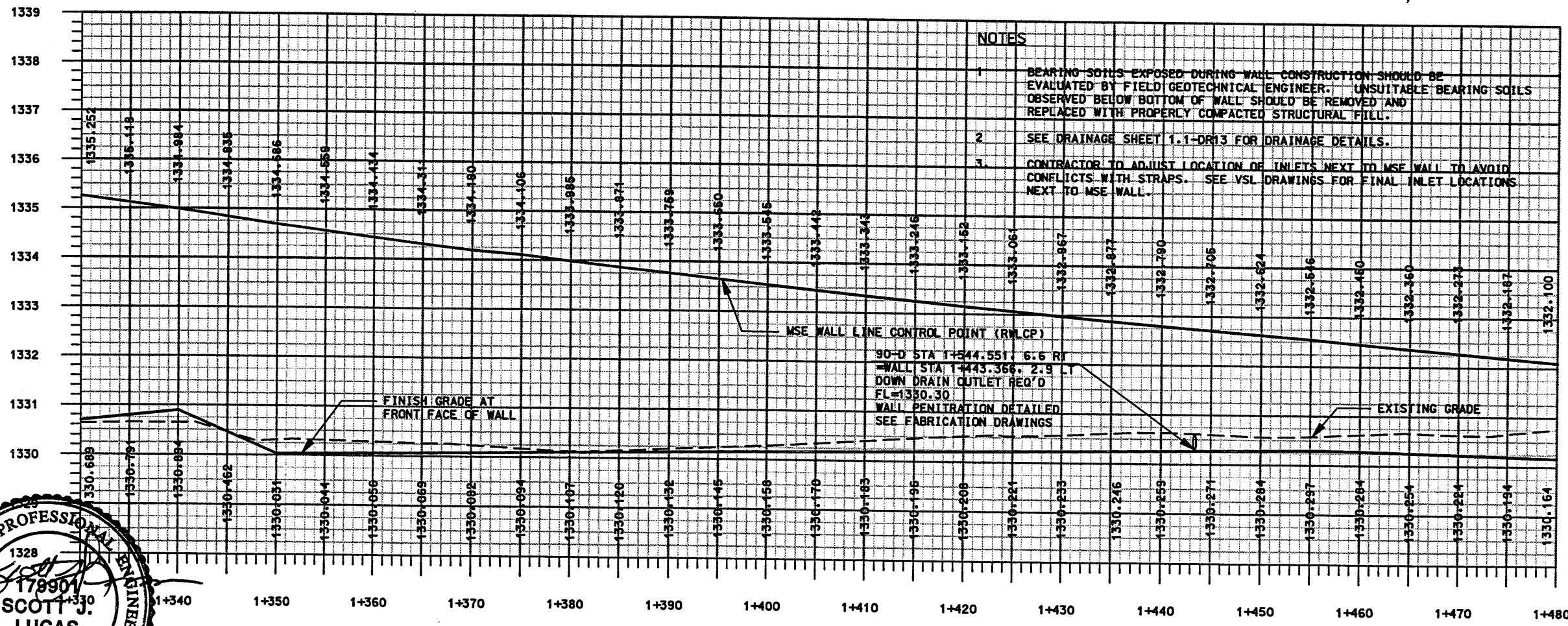
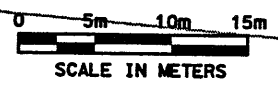
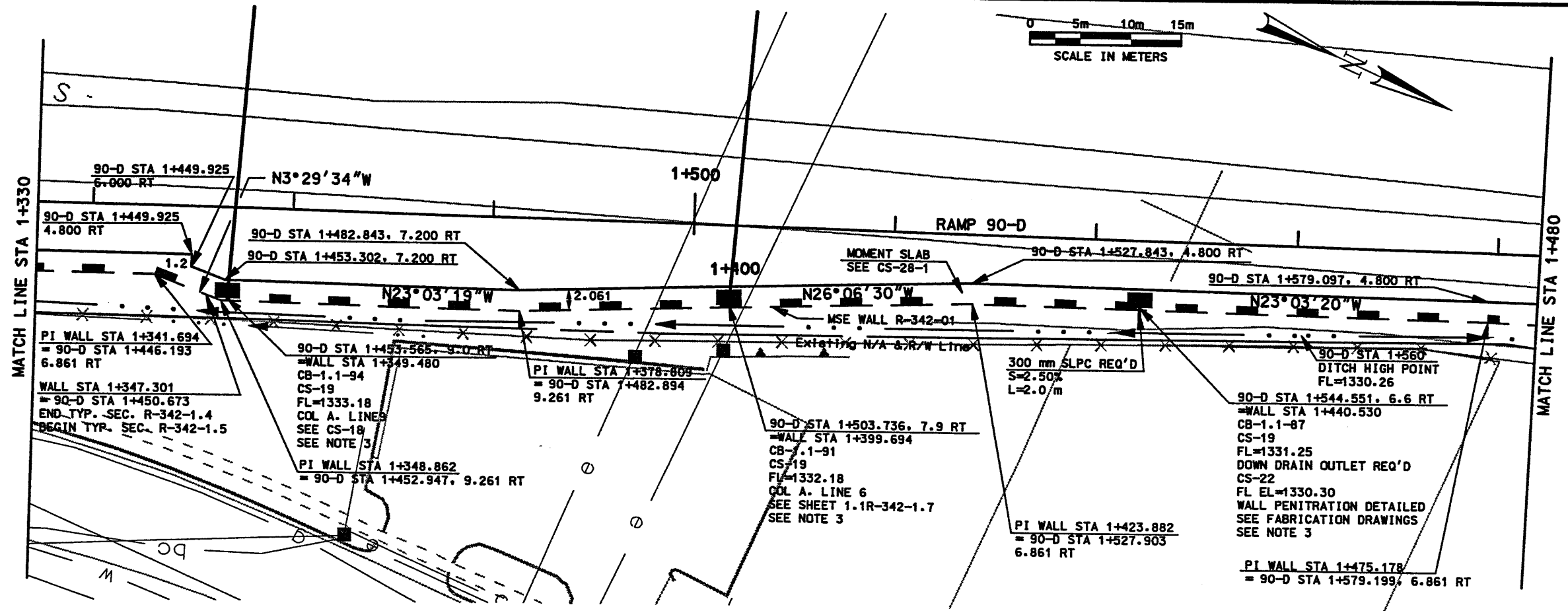


RELEASED FOR CONSTRUCTION
JAN 06 1999
WASATCH CONSTRUCTORS

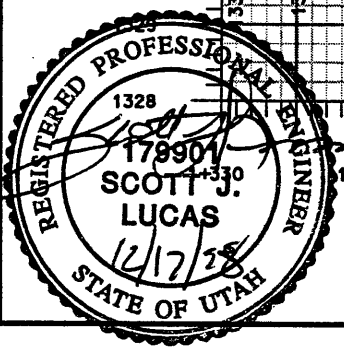
APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
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I-15 CORRIDOR RECONSTRUCTION		UTAH DEPARTMENT OF TRANSPORTATION	
S & L RET. WALL R-342-1		H. W. LOCHNER INC.	
SECTION 1.1		SVERDRUP/DE LEUW	
PROJECT NUMBER	DATE	DESIGN	CHECK
#SP-15-7(135)296	12/98	SCOTT LUCAS	JHG 12/98
	DATE	PROJECT DESIGN ENGINEER	CHECK
	12/98	BRUCE VANA	JHG 12/98
	DATE	DRAWN	CHECK
		BRUCE VANA	SD 12/98
		PROJECT MANAGER	CHECK
SALT LAKE COUNTY		COUNTY	
DWC NO. 1.1R-342-1.2		DWC NO.	
SHT. 2	OF 6		
REF.			

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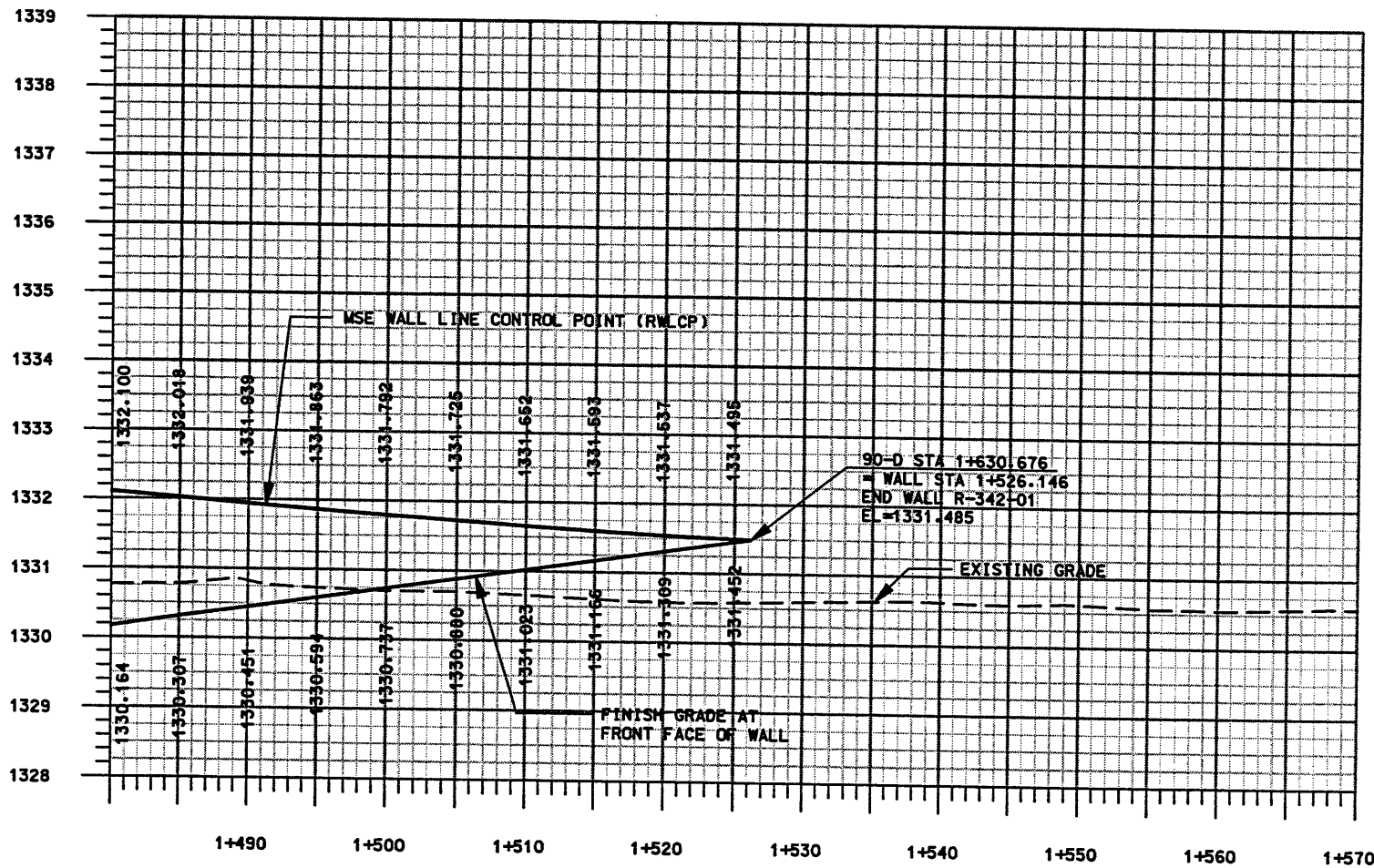
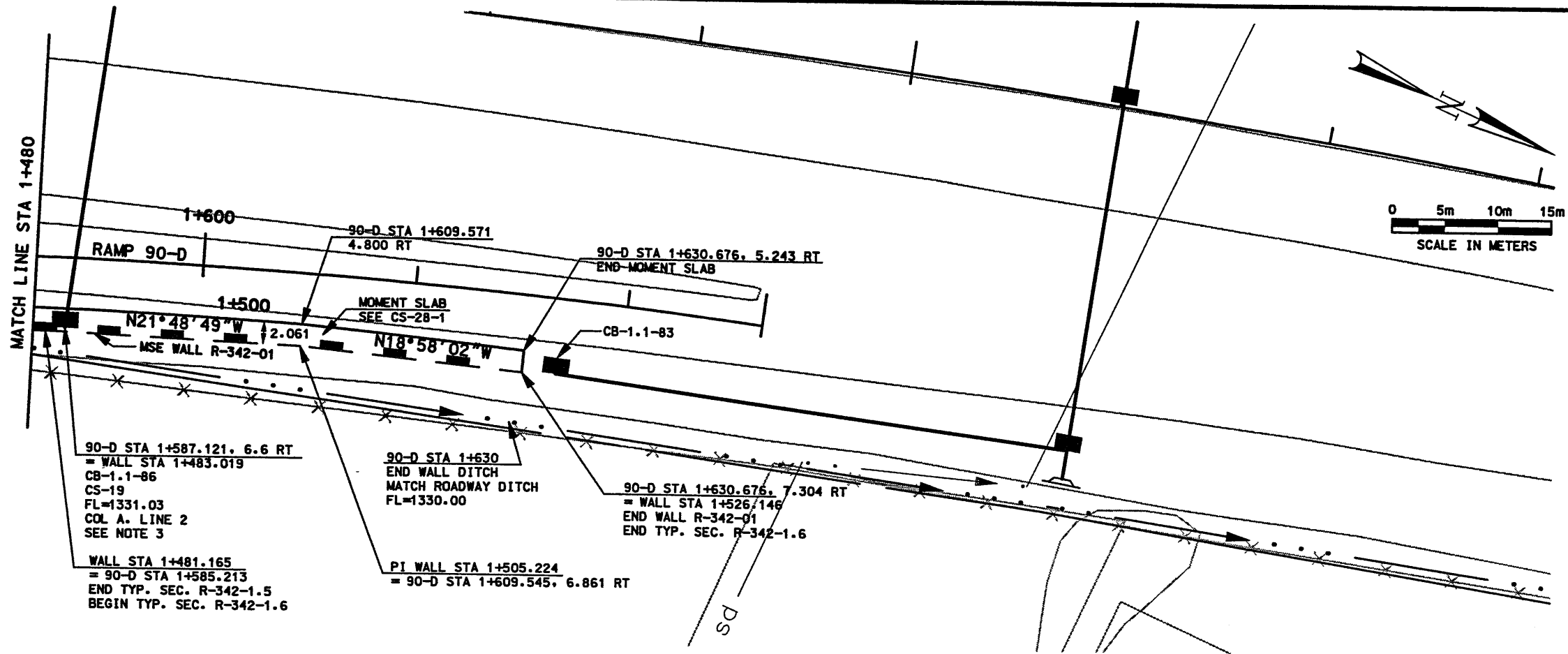


- NOTES
- BEARING SOILS EXPOSED DURING WALL CONSTRUCTION SHOULD BE EVALUATED BY FIELD GEOTECHNICAL ENGINEER. UNSUITABLE BEARING SOILS OBSERVED BELOW BOTTOM OF WALL SHOULD BE REMOVED AND REPLACED WITH PROPERLY COMPACTED STRUCTURAL FILL.
 - SEE DRAINAGE SHEET 1.1-DR13 FOR DRAINAGE DETAILS.
 - CONTRACTOR TO ADJUST LOCATION OF INLETS NEXT TO MSE WALL TO AVOID CONFLICTS WITH STRAPS. SEE VSL DRAWINGS FOR FINAL INLET LOCATIONS NEXT TO MSE WALL.



WASATCH CONSTRUCTORS
 JAN 06 1999
 RELEASED FOR CONSTRUCTION

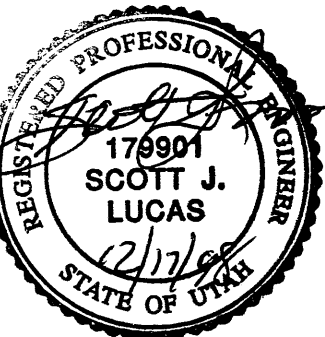
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UTAH DEPARTMENT OF TRANSPORTATION			
S & L RET. WALL R-342-1			
SECTION 1.1			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.1R-342-1.3			
SHT. 3 OF 6			
REF.			



MSE WALL 342-1 PROFILE

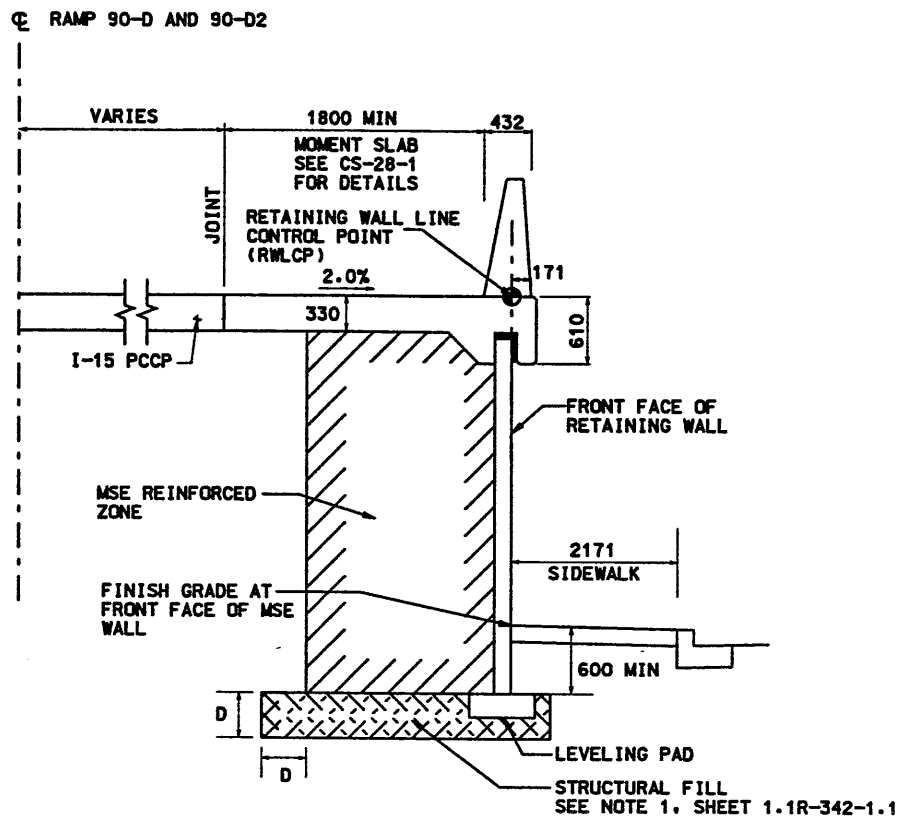
NOTES

- 1 BEARING SOILS EXPOSED DURING WALL CONSTRUCTION SHOULD BE EVALUATED BY FIELD GEOTECHNICAL ENGINEER. UNSUITABLE BEARING SOILS OBSERVED BELOW BOTTOM OF WALL SHOULD BE REMOVED AND REPLACED WITH PROPERLY COMPACTED STRUCTURAL FILL.
- 2 SEE DRAINAGE SHEET 1.1-DR13 FOR DRAINAGE DETAILS.
- 3 CONTRACTOR TO ADJUST LOCATION OF INLETS NEXT TO MSE WALL TO AVOID CONFLICTS WITH STRAPS. SEE VSL DRAWINGS FOR FINAL INLET LOCATIONS NEXT TO MSE WALL.

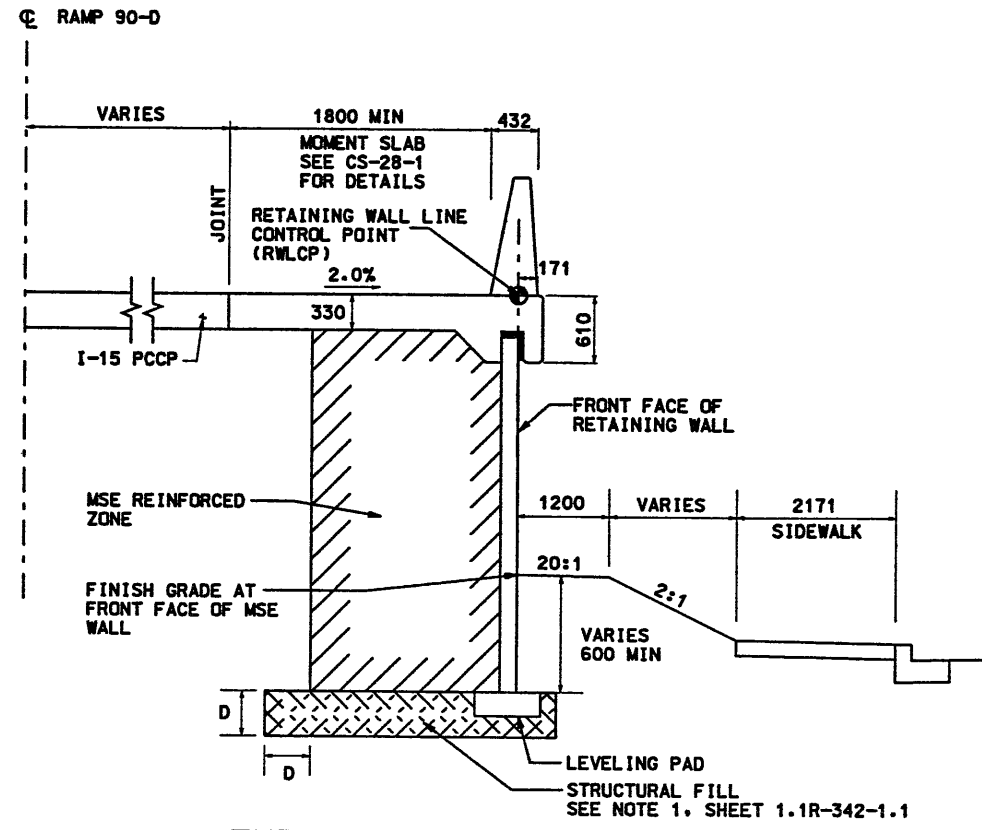


WASATCH CONSTRUCTORS
JAN 06 1999
RELEASED FOR CONSTRUCTION

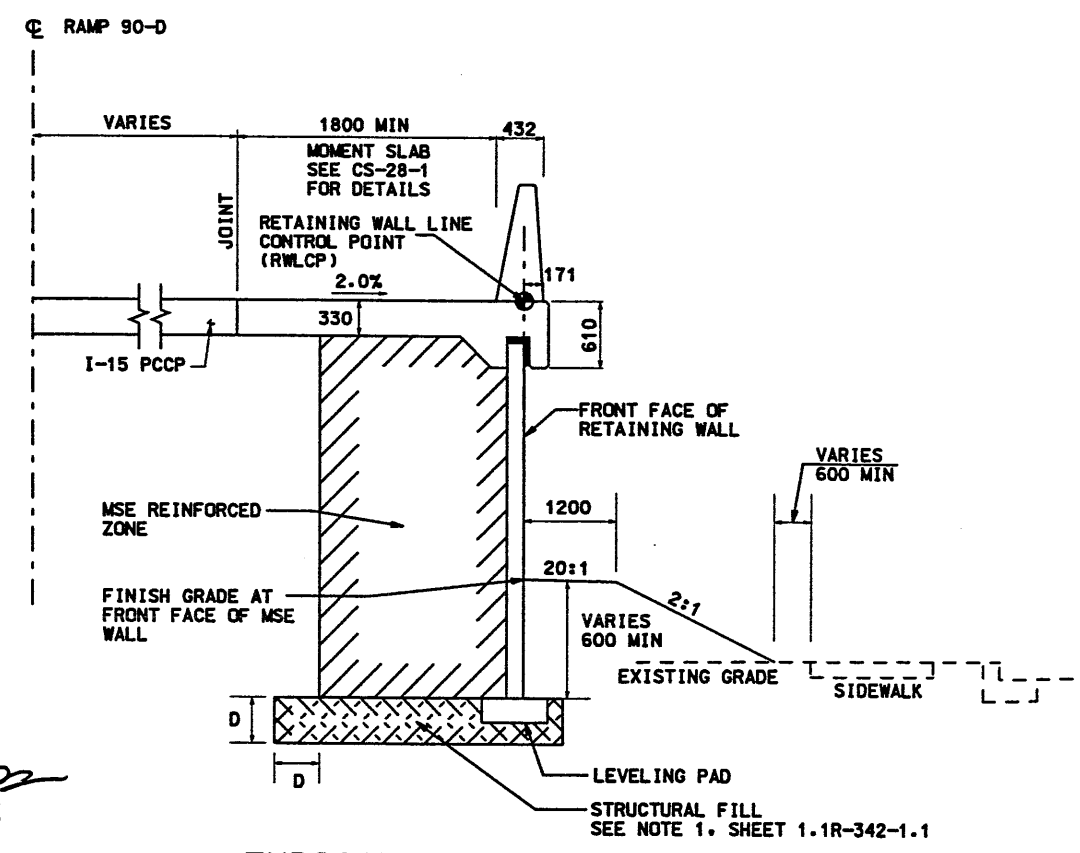
APPROVED FOR CONSTRUCTION		DESCRIPTION	
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UTAH DEPARTMENT OF TRANSPORTATION		H. W. LOCHNER, INC.	
S & L RET. WALL R-342-1		SYVERDRUP/DE LEUW	
SECTION 1.1		DESIGN	JHG 12/98
PROJECT #SP-15-7(135)296		CHECK	SE 12/98
SALT LAKE COUNTY		DATE	12/98
DWC NO. 1.1R-342-1.4		PROJECT DESIGN ENGINEER	SCOTT LUCAS
SHT. 4 OF 6		DATE	12/98
REF.		PROJECT MANAGER	BRUCE VANA



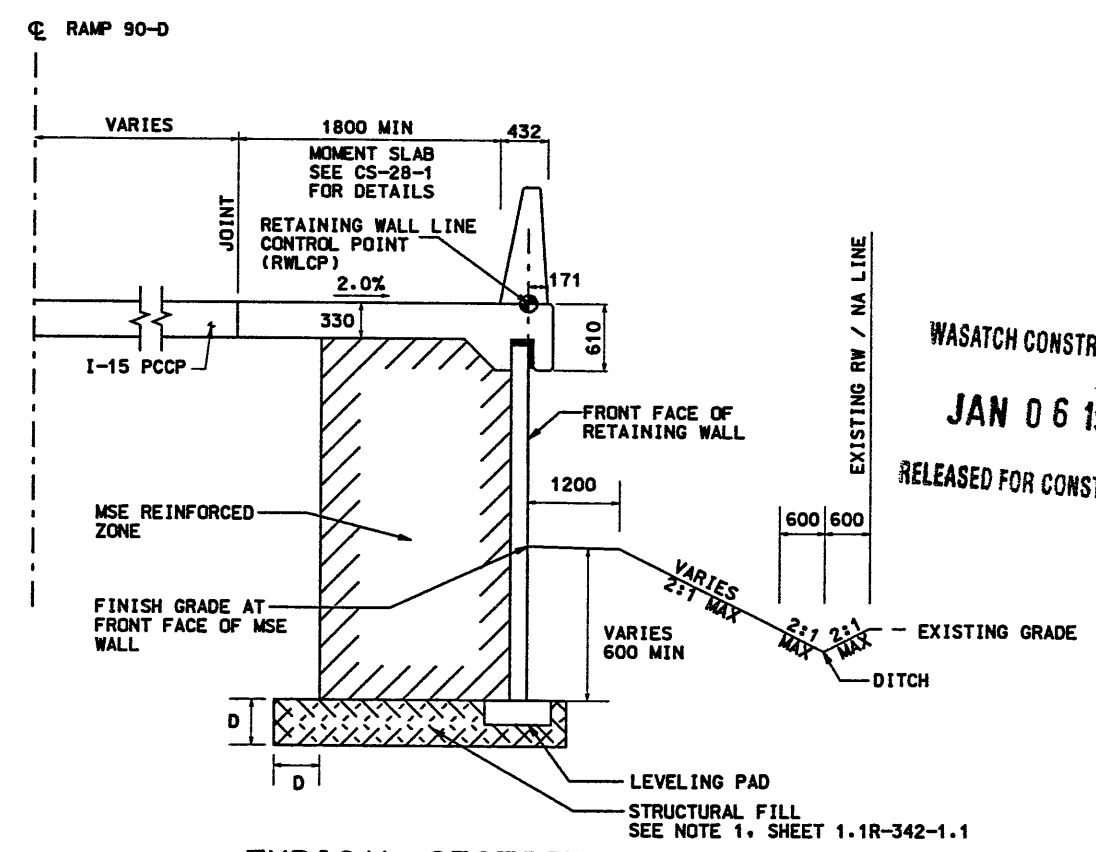
TYPICAL SECTION R-342-1.1
MSE WALL STA 1+023.311 TO
MSE WALL STA 1+128.993



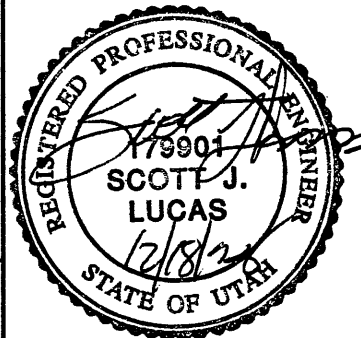
TYPICAL SECTION R-342-1.2
MSE WALL STA 1+128.993
MSE WALL STA 1+205.632



TYPICAL SECTION R-342-1.3
MSE WALL STA 1+205.632
MSE WALL STA 1+318.759



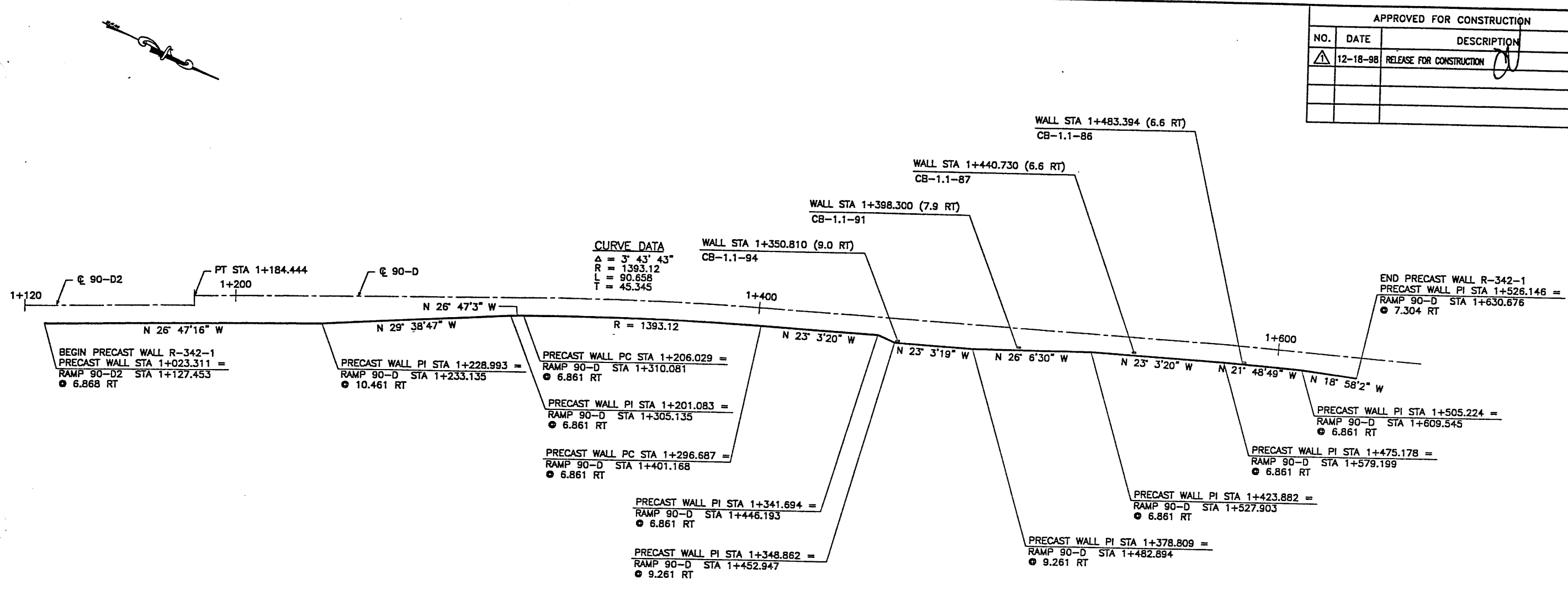
TYPICAL SECTION R-342-1.4
MSE WALL STA 1+318.759 TO
MSE WALL STA 1+347.301



WASATCH CONSTRUCTORS
JAN 06 1999
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	12/18/98	1	12/18/98
			ORIGINAL RELEASE
UTAH DEPARTMENT OF TRANSPORTATION			
H. W. LOCHNER INC. SVERDRUP/DE LEUW			
DESIGN	JHG 12/98	CHECK	SL 12/98
DRAWN	JHG 12/98	CHECK	SL 12/98
QUANT.		CHECK	
I-15 CORRIDOR RECONSTRUCTION			
S & L RET. WALL R-342-1			
SECTION 1.1			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.1R-342-1.5			
SHT. 5 OF 6			
REF.			

FINAL PLOT 12-18-98
 H:\RE_EARTH\PROJECT\239-0007\1998\90SF\190-01\RE-1.DWG
 XREF VICE (X-UTAH.DWG)



PLAN VIEW MSE WALL "R-342-1"

SCALE: 1=600 (FULL SIZE)
SCALE: 1=1200 (HALF SIZE)

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 24.23°	
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)	
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲ 12-18-98		RELEASE FOR CONSTRUCTION

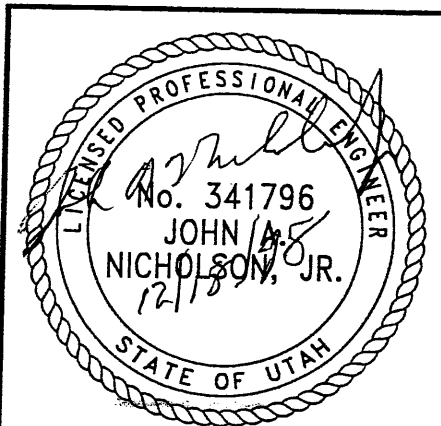
DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
MM	DSW	MM	VSL					
12-09-98	12-09-98	12-09-98						

VSL CORPORATION
 2810 Plaza Place, Suite 200
 Raleigh, NC 27617
 Tel: (919) 781-8772
 Fax: (919) 781-4089
 ATLANTA, GA / DALLAS, TX / MADISON, NC (CORPORATE OFFICE)
 MILWAUKEE, WI / SAN JOSE, CA / SPRINGFIELD, WI

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST WALL R-342-1, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTIONS
RE-3	TYPICAL CROSS SECTIONS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL R-342-1
RE-6	ELEVATION PRECAST WALL R-342-1
RE-7	ELEVATION PRECAST WALL R-342-1
RE-8	ELEVATION PRECAST WALL R-342-1
RE-9	ELEVATION PRECAST WALL R-342-1
RE-10	SPECAIL PANEL
RE-11	SPECAIL PANEL

VSL Corporation (VSL) claims a utility proprietary design for retaining walls. Dimensions and calculations shown on this drawing are based on the design criteria and assumptions set forth in the design manual. Such information is not to be used for any other project without the express written consent of VSL. VSL is not responsible for any errors or omissions in this drawing or for any consequences arising from its use.

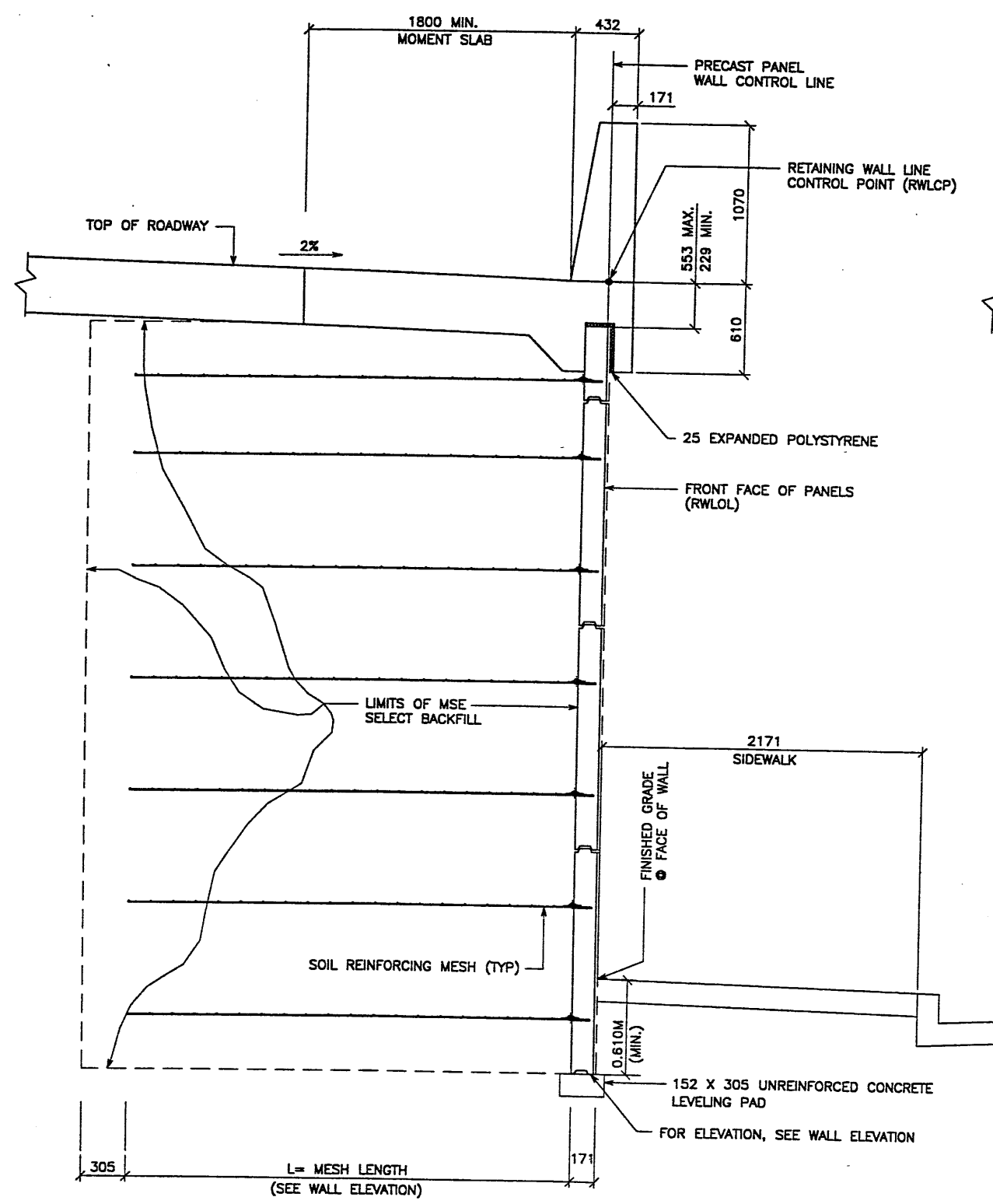
WASATCH CONSTRUCTORS
JAN 06 1999
 RELEASED FOR CONSTRUCTION
 METRIC



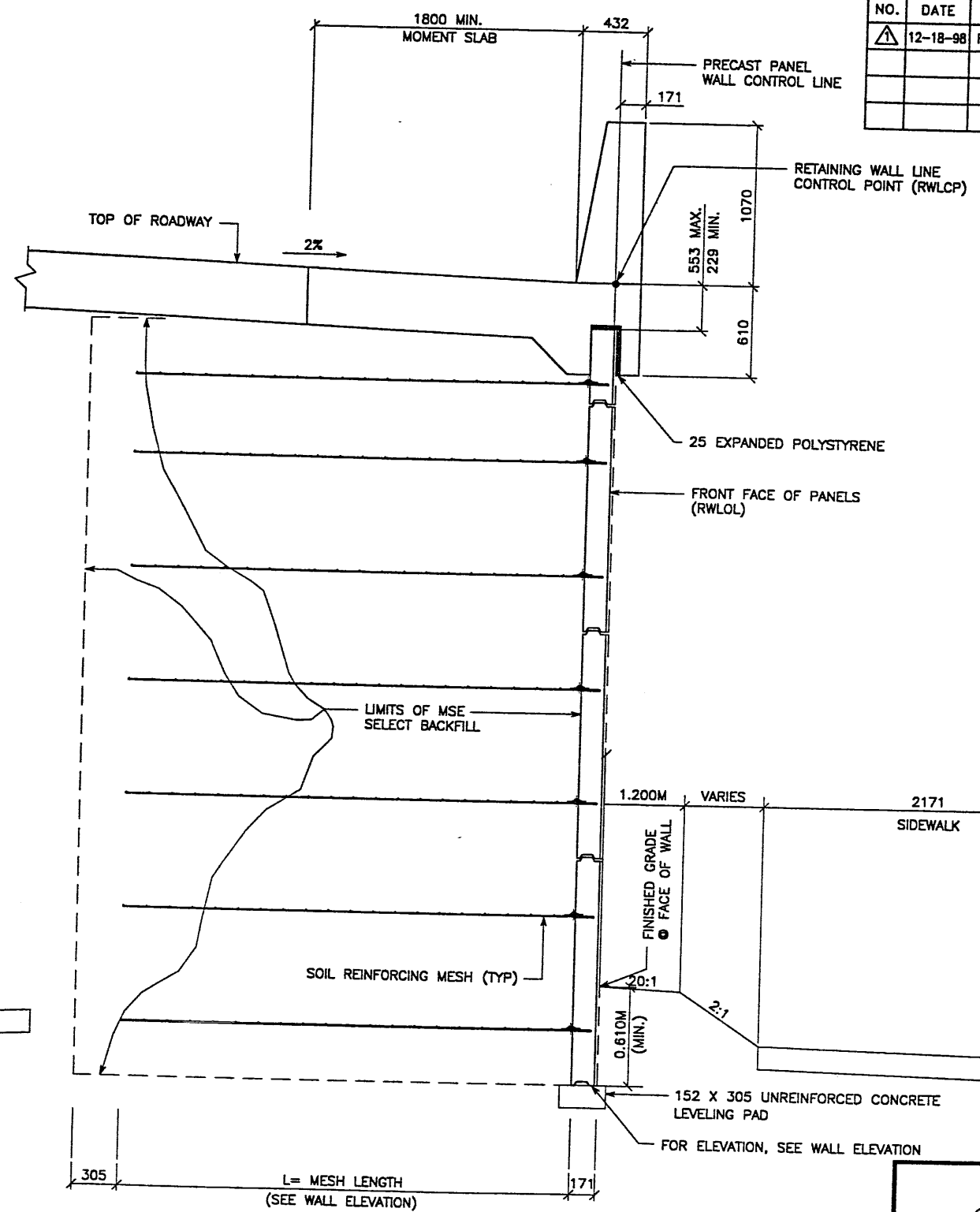
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

RETAINED EARTH™ WALLS	
PLAN VIEW MSE WALL "R-342-1"	
UTAH I-15 RECONSTRUCTION	
SALT LAKE COUNTY, UTAH	
UTAH DEPARTMENT OF TRANSP.	
DWG. NO.	1.1R-342-1.7
JOB NO.	239-0007
SHT. NO.	RE-1

H:\RE_EARTH\PROJECT\239-0007\1998\905F\1998-01\RE-2.DWG
 FINAL PLOT 12-18-98



TYPICAL CROSS SECTION - STA 1+023.311 TO 1+128.993
 (SEE DWG. NO. 2.1R-342-1.5 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 1+128.993 TO 1+205.632
 (SEE DWG. NO. 1.1R-342-1.5 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

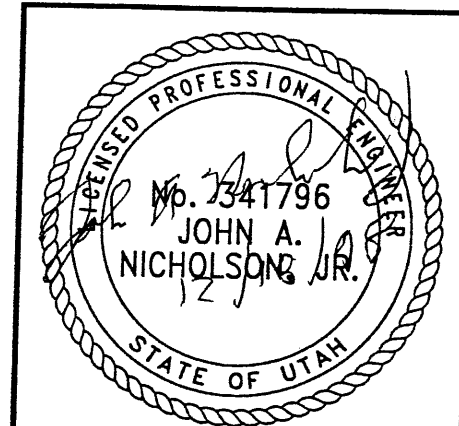
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	12-18-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

VSL CORPORATION
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 Fax: (919) 871-4889

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 PHOENIX, AZ / SAN JOSE, CA / SPRINGFIELD, VA

WASATCH CONSTRUCTORS
JAN 06 1999
 RELEASED FOR CONSTRUCTION



NOTE: STRUCTURAL FILL BELOW WALL IS NOT REQ'D. DIMENSION "D" = ZERO

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 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

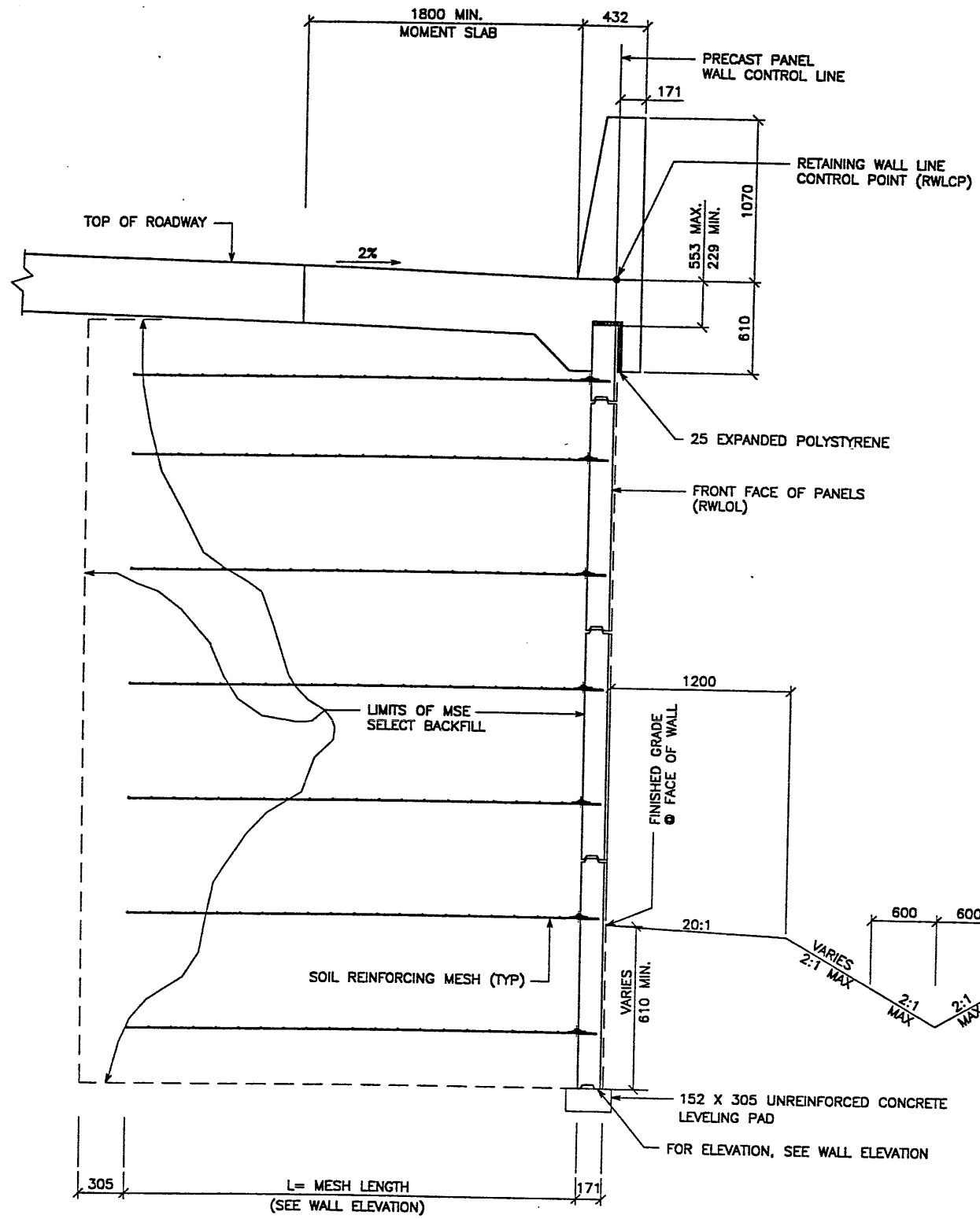
RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-1"
 TYPICAL CROSS SECTION
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.1R-342-1.8
 JOB NO.
 239-0007
 SH. NO.
 RE-2

TRENCH (X-UTAH.DWG)

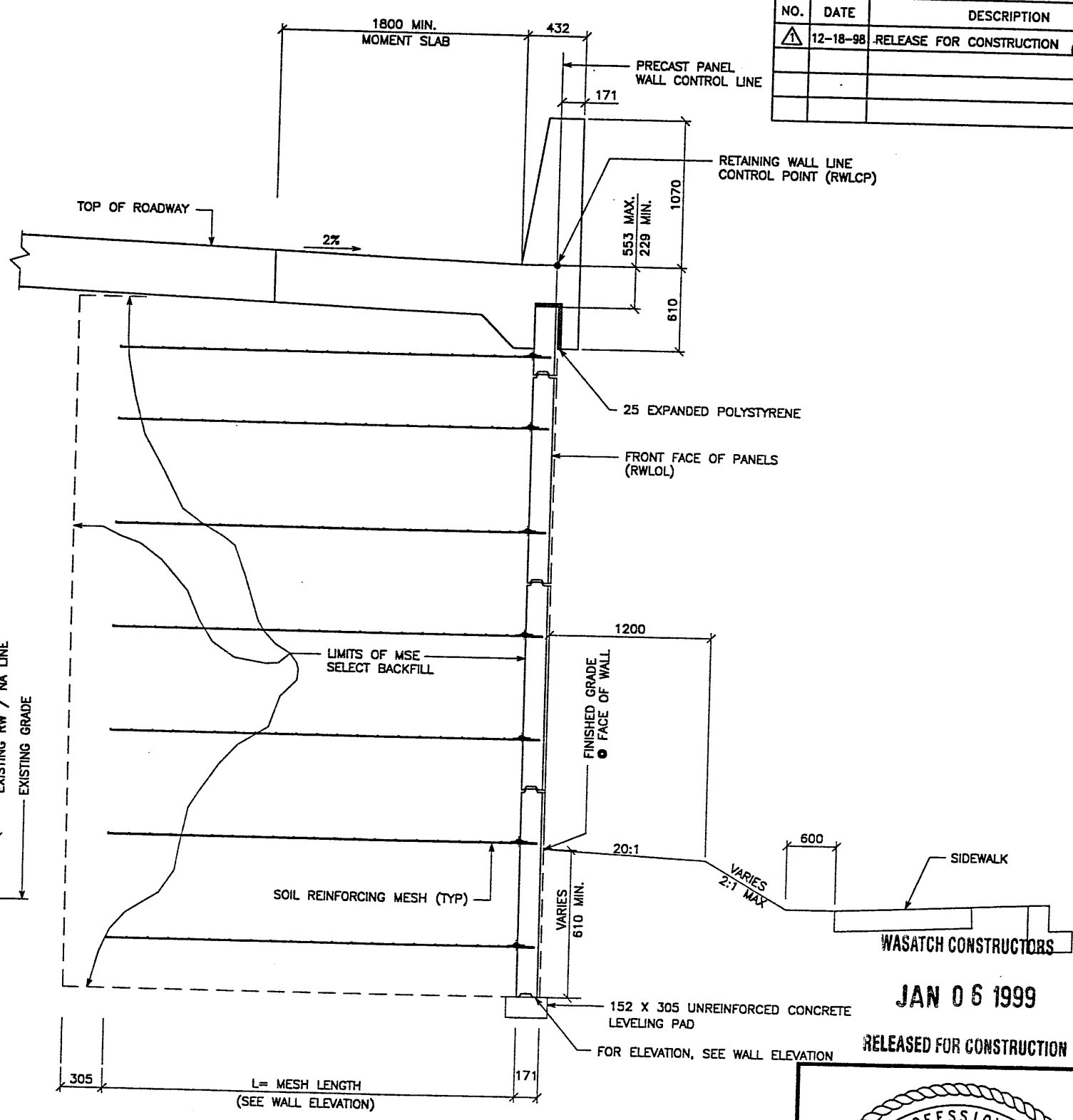
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FINAL PLOT 12-18-98



TYPICAL CROSS SECTION - STA 1+318.759 TO 1+347.301
TYPICAL CROSS SECTION - STA 1+481.165 TO 1+526.146
 (SEE DWG. NO. 1.1R-342-1.5 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

NOTE: STRUCTURAL FILL BELOW WALL IS NOT REQ'D. DIMENSION "D" = ZERO



TYPICAL CROSS SECTION - STA 1+205.632 TO 1+318.759
 (SEE DWG. NO. 1.1R-342-1.5 FOR ADDITIONAL INFORMATION)
 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
▲	12-18-98	RELEASE FOR CONSTRUCTION

DES.	MM	DSW	MM	REVISION	DATE	BY	CHK
DES. 12-09-98	MM	DSW	MM				
DRN. 12-09-98							
CHK. 12-09-98							

VSL CORPORATION
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 Raleigh, NC 27612
 Telephone: (919) 791-6272
 Fax: (919) 791-6659

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RETAINED EARTH™ WALLS
 WIRE FACED WALL™ R-342-1™
 TYPICAL CROSS SECTION

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

WASATCH CONSTRUCTORS

JAN 06 1999

RELEASED FOR CONSTRUCTION

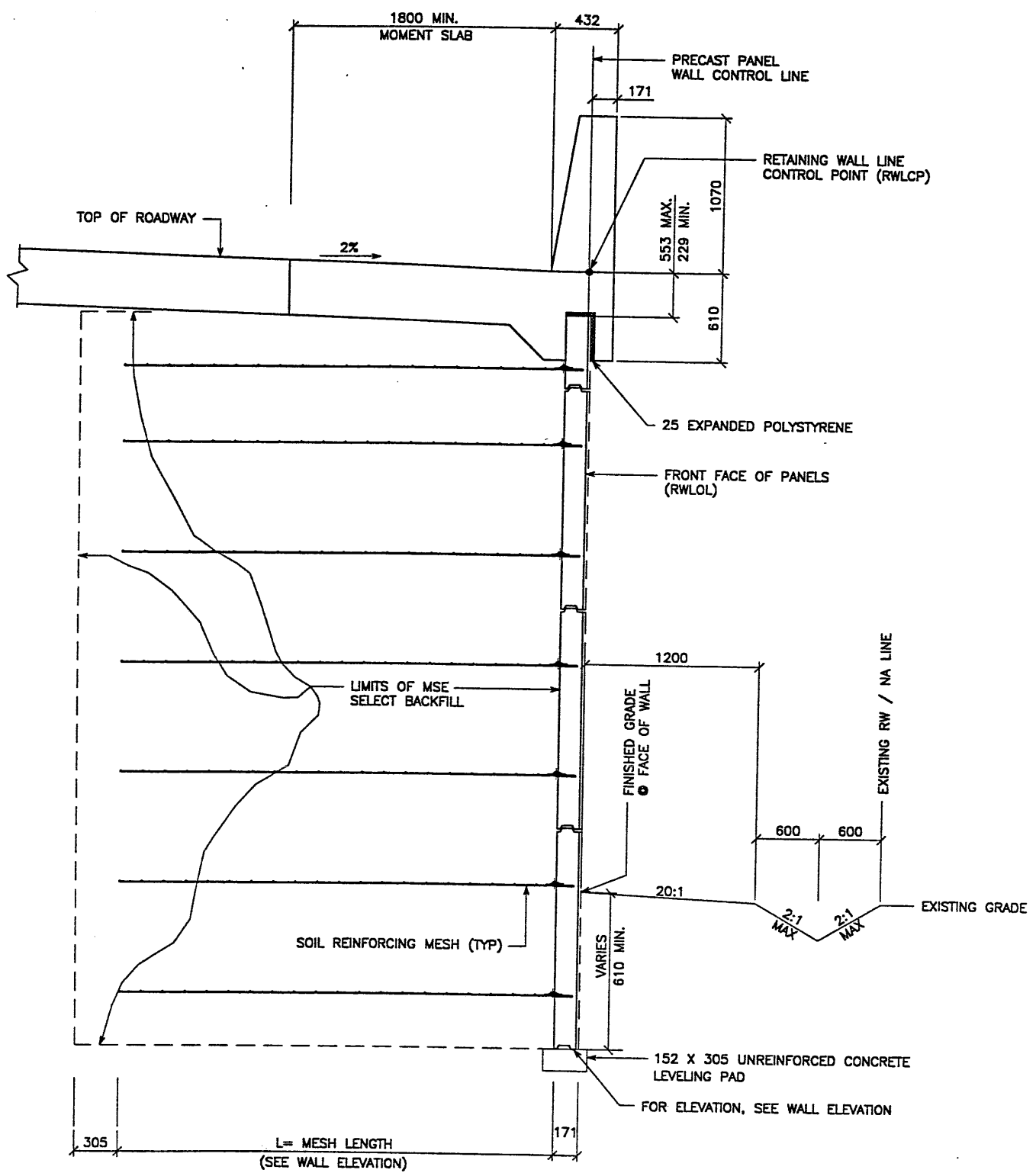
PROFESSIONAL ENGINEER
 No. 341796
JOHN A. NICHOLSON, JR.
 12/18/98
 STATE OF UTAH

DWG. NO.	1.1R-342-1.9
JOB NO.	239-0007
SHT. NO.	RE-3

XREF TO SHEET (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\90SERIFS\90-01\RE-3.DWG

FINAL PLOT 12-18-98



TYPICAL CROSS SECTION - STA 1+347.301 TO 1+481.165
 (SEE DWG. NO. 1.1R-342-1.5 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

NOTE: STRUCTURAL FILL BELOW WALL IS NOT REQ'D. DIMENSION "D" = ZERO

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	12-18-98	RELEASE FOR CONSTRUCTION

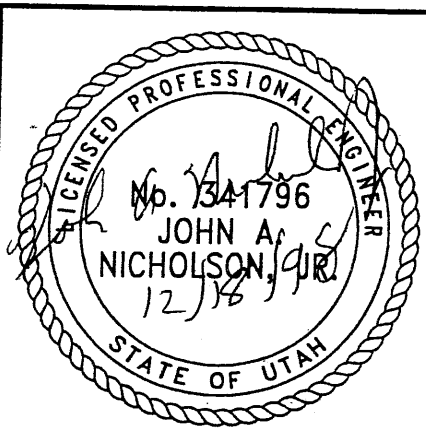
VSL CORPORATION
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 Raleigh, NC 27612
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 Fax: (919) 781-4989



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WASATCH CONSTRUCTORS
 JAN 06 1999
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-1"
 TYPICAL CROSS SECTION
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-1.10
JOB NO.	239-0007
SHT. NO.	RE-4

NO.	DATE	REVISION	CHK

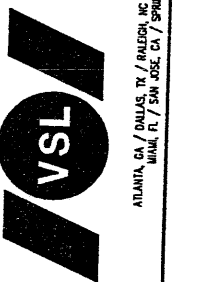
BEGIN WALL R-342-1
 WALL PT STA 1+023.311 =
 RAMP 90-D2 STA 1+127.453
 @ 6.868 RT
 NOMINAL PANEL FACE (RWLOL)

STA 1+023.311 EL. 1332.295	STA 1+025.000 EL. 1332.360	STA 1+030.000 EL. 1332.355	STA 1+035.000 EL. 1332.750	STA 1+040.000 EL. 1332.845	STA 1+045.000 EL. 1333.140	STA 1+050.000 EL. 1333.335	STA 1+055.000 EL. 1333.530	STA 1+060.000 EL. 1333.725	STA 1+065.000 EL. 1333.920	STA 1+070.000 EL. 1334.115	STA 1+075.000 EL. 1334.310
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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	12-18-98	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	DSW	CHK.	RETAINED EARTH™
DES. 12-09-98	MM	DRN. 12-09-98	DSW	CHK. 12-09-98	RETAINED EARTH™

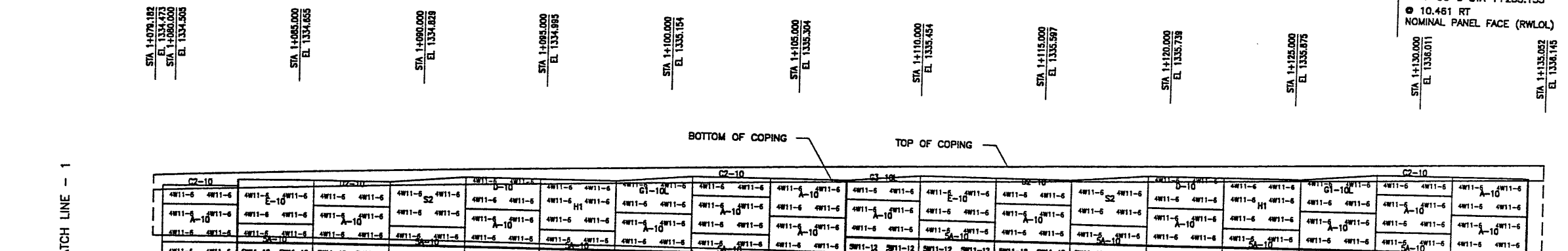
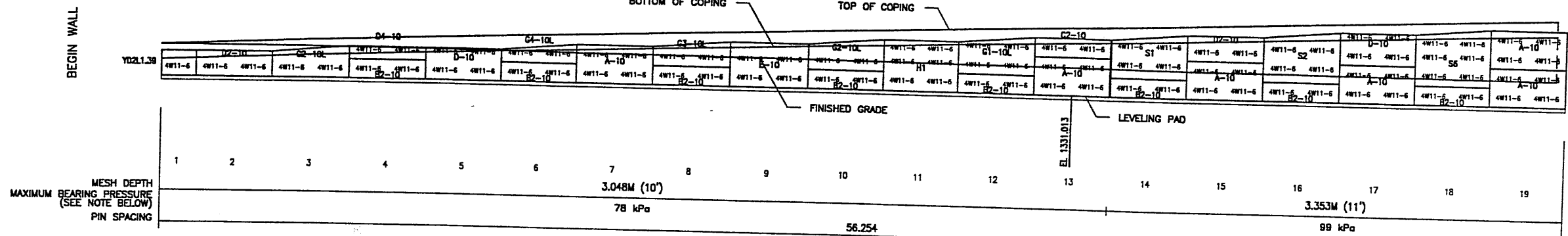
VSL CORPORATION
 2840 Rang Road, Suite 200
 Raleigh, NC 27617
 Telephone: (919) 781-6272
 Fax: (919) 781-6868



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-1"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

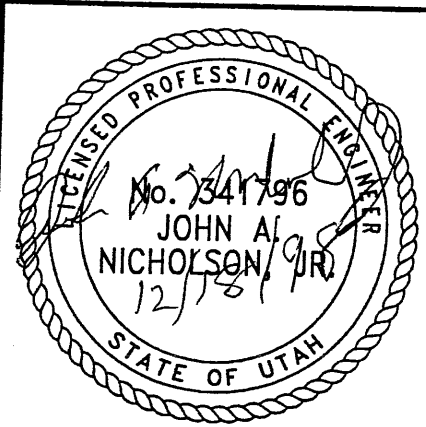
DWG. NO.	1.1R-342-1.11
JOB NO.	239-0007
SH. NO.	RE-5



ELEVATION PRECAST WALL R-342-1
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1927.58 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.

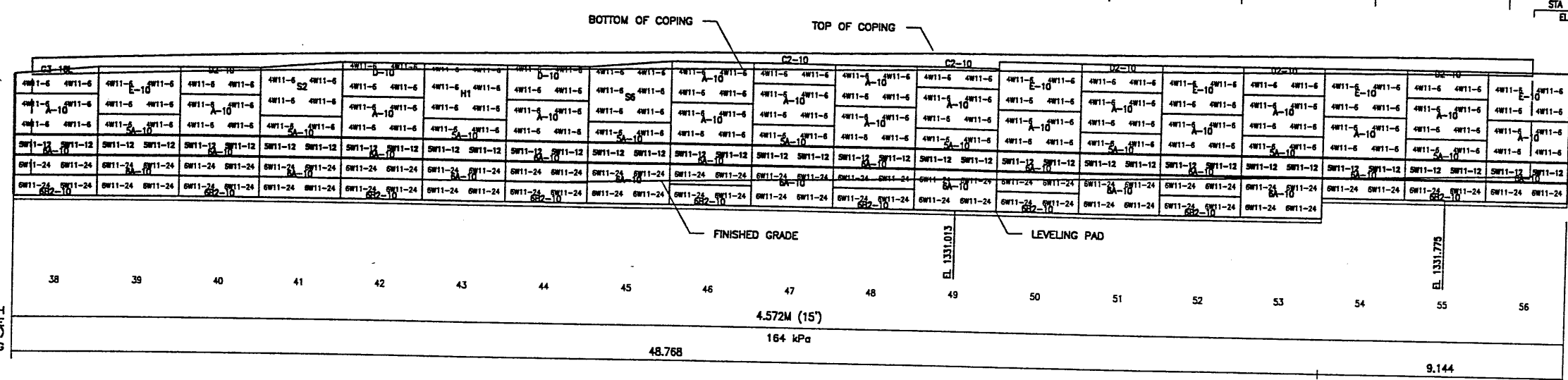


WASATCH CONSTRUCTORS
 JAN 06 1999
 RELEASED FOR CONSTRUCTION

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES (DUE TO STATIC LOAD COMBINATION) ARE INDICATED BELOW "MESH DEPTH LINE".
 REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

MATCH LINE - 2

MATCH LINE - 3

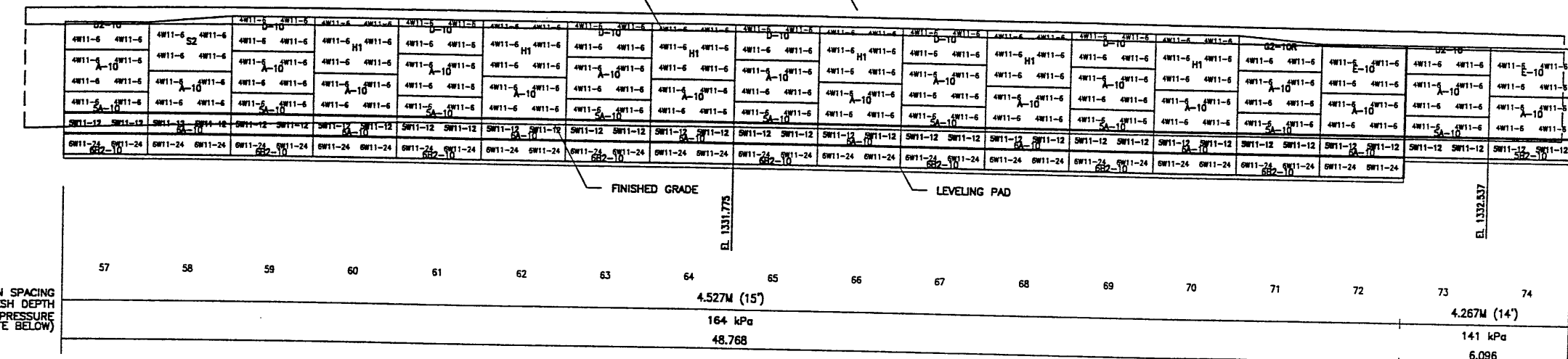


WALL R-342-1
WALL PI STA 1+201.083 =
RAMP 90-D STA 1+305.135
● 6.861 RT
NOMINAL PANEL FACE (RWLOL)

WALL R-342-1
WALL PC STA 1+206.029 =
RAMP 90-D STA 1+310.081
● 6.861 RT
NOMINAL PANEL FACE (RWLOL)

MATCH LINE - 3

MATCH LINE - 4

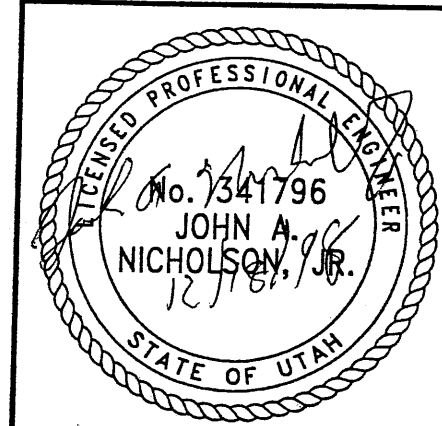


ELEVATION PRECAST WALL R-342-1
(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
(TOTAL SURFACE AREA OF PANELS = 1927.58 SM) SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES (DUE TO STATIC LOAD COMBINATION) ARE INDICATED BELOW "MESH DEPTH LINE".
REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.

METRIC

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WASATCH CONSTRUCTORS
JAN 06 1999
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-342-1"
UTAH 1-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.1R-342-1.12
JOB NO.
239-0007
SHT. NO.
RE-6

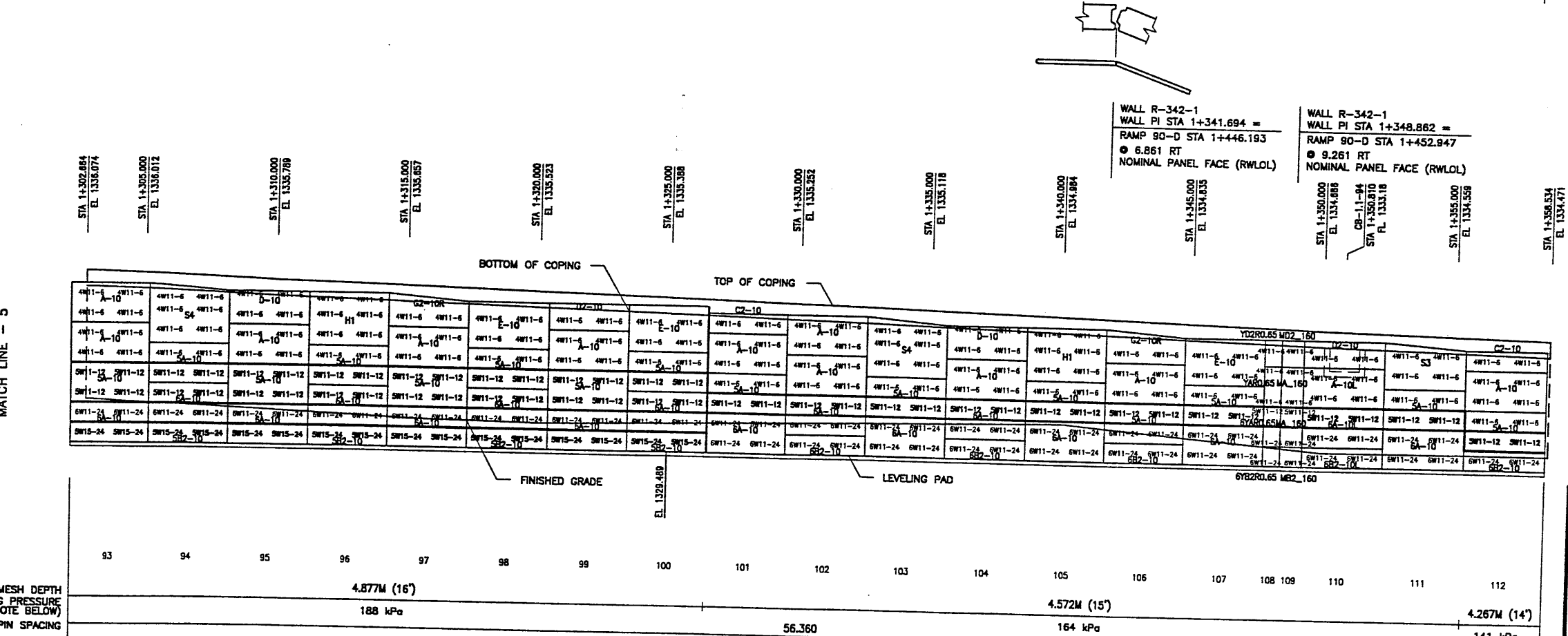
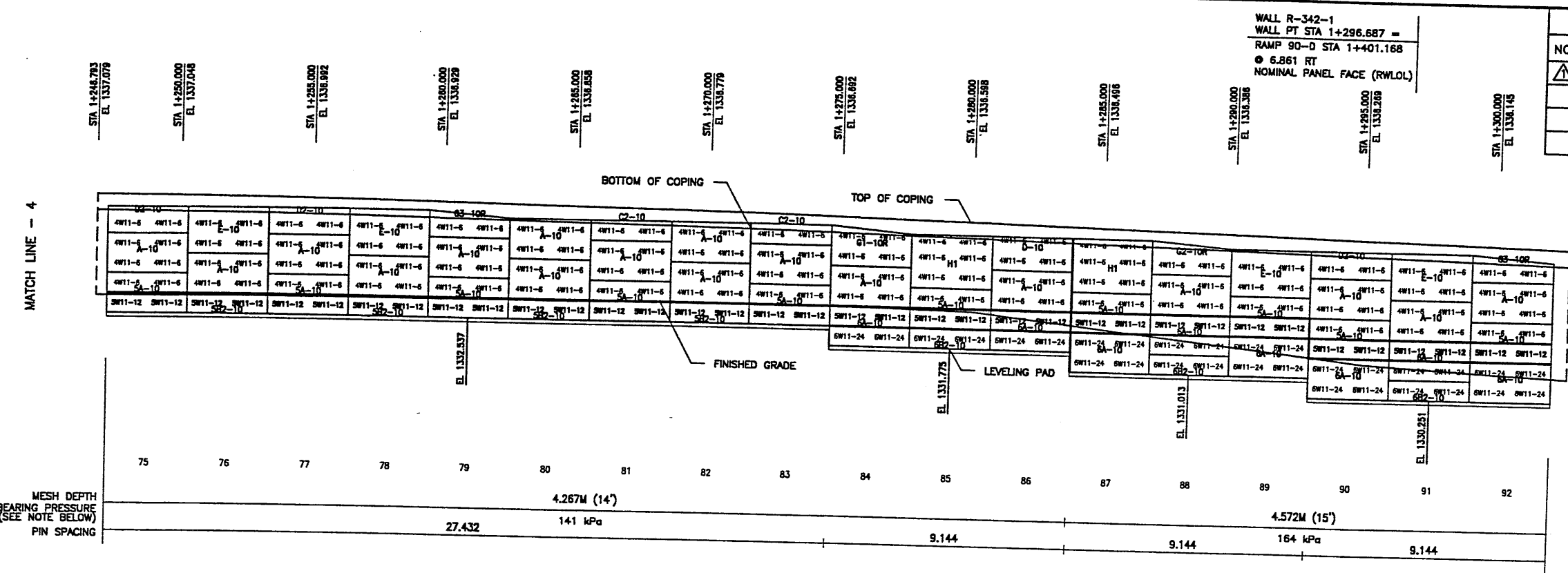
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	12-18-98	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	DSW	CHK.	MM	RETAINED EARTH™
DES. 12-09-98	MM	DRN. 12-09-98	DSW	CHK. 12-09-98	MM	<input checked="" type="checkbox"/>

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27617 761-6272
Telephone: (919) 761-4869
Fax: (919) 761-4869



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MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA



ELEVATION PRECAST WALL R-342-1
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1927.58 SM)

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.

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
12-18-98		RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY

DES. 12-09-98 MM
 DRN. 12-09-98 DSW
 CHK. 12-09-98 MM

VSL CORPORATION
 2840 Peachtree Dunwoody Rd., Suite 200
 Atlanta, GA 30328
 Telephone: (404) 761-6272
 Fax: (404) 761-6688

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WASATCH CONSTRUCTORS
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-1"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-1.13
JOB NO.	239-0007
SHT. NO.	RE-7

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	12-18-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION

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RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-1"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.1R-342-1.15

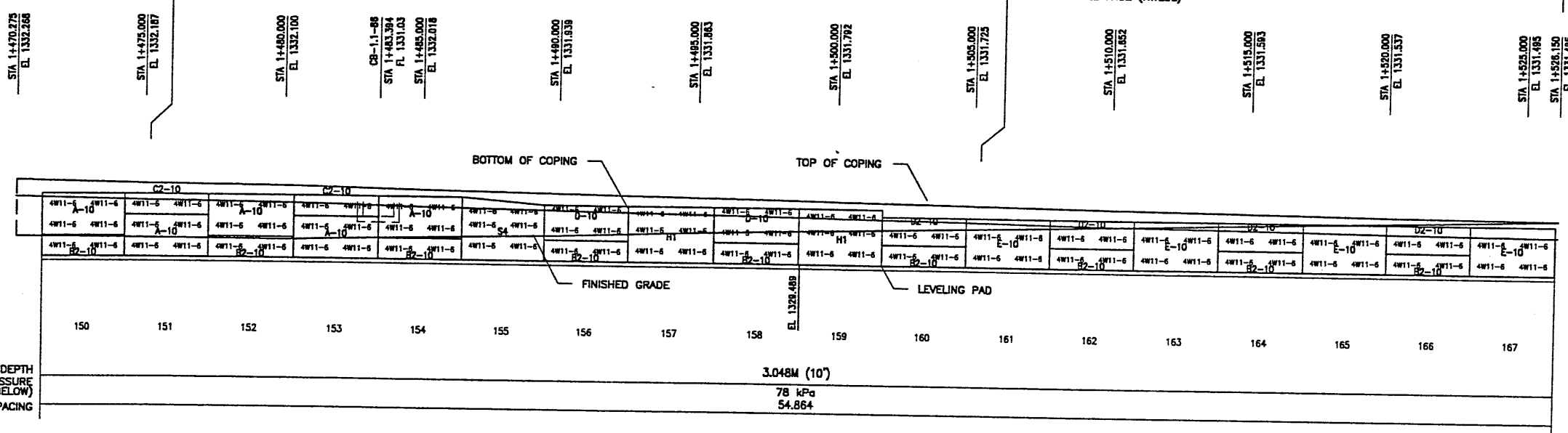
JOB NO.
239-0007

SHT. NO.
RE-9

END WALL R-342-1
 WALL STA 1+526.146
 RAMP 90 -D STA 1+630.676
 ● 7.304 RT
 NOMINAL PANEL FACE (RWLOL)

WALL R-342-1
 WALL PI STA 1+505.224 =
 RAMP 90-D STA 1+609.545
 ● 6.861 RT
 NOMINAL PANEL FACE (RWLOL)

WALL R-342-1
 WALL PI STA 1+475.178 =
 RAMP 90-D STA 1+579.199
 ● 6.861 RT
 NOMINAL PANEL FACE (RWLOL)



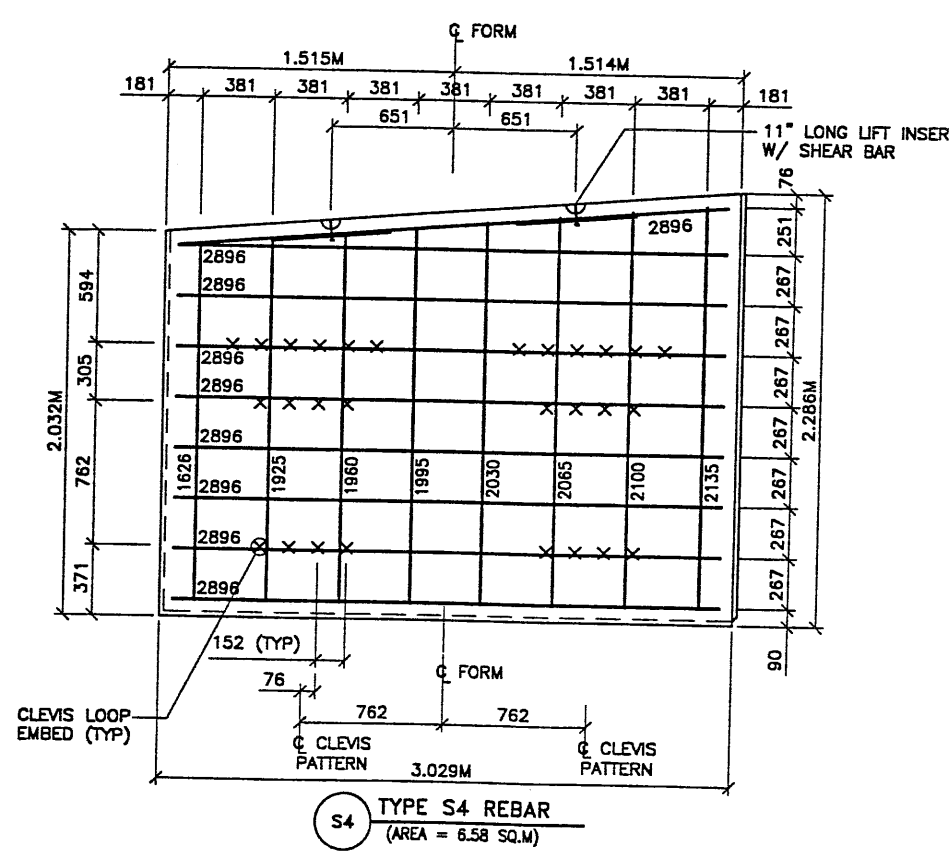
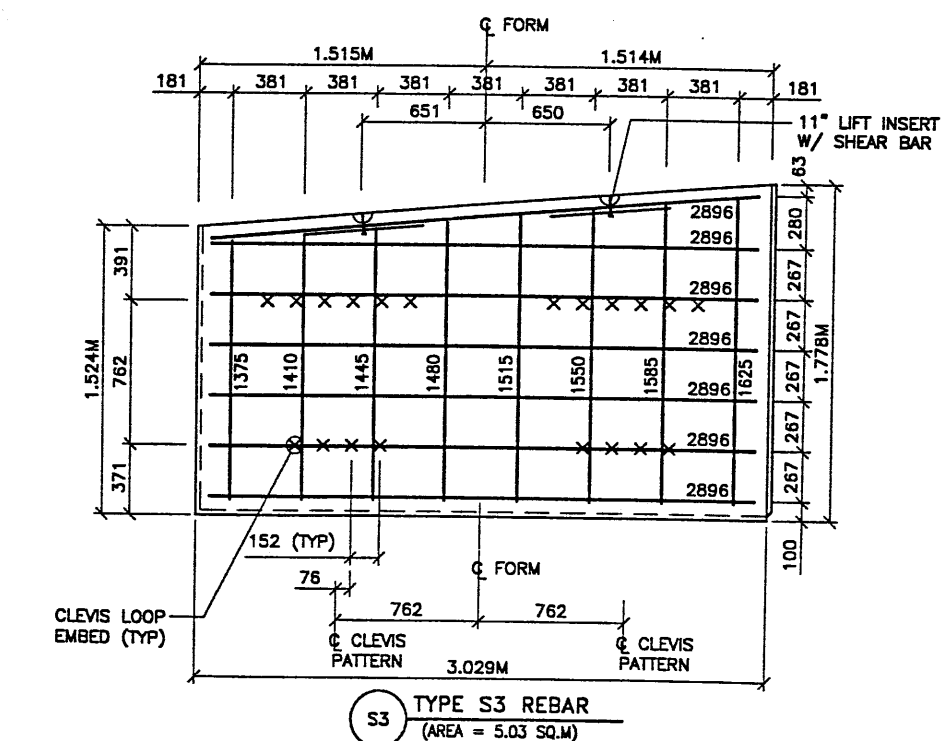
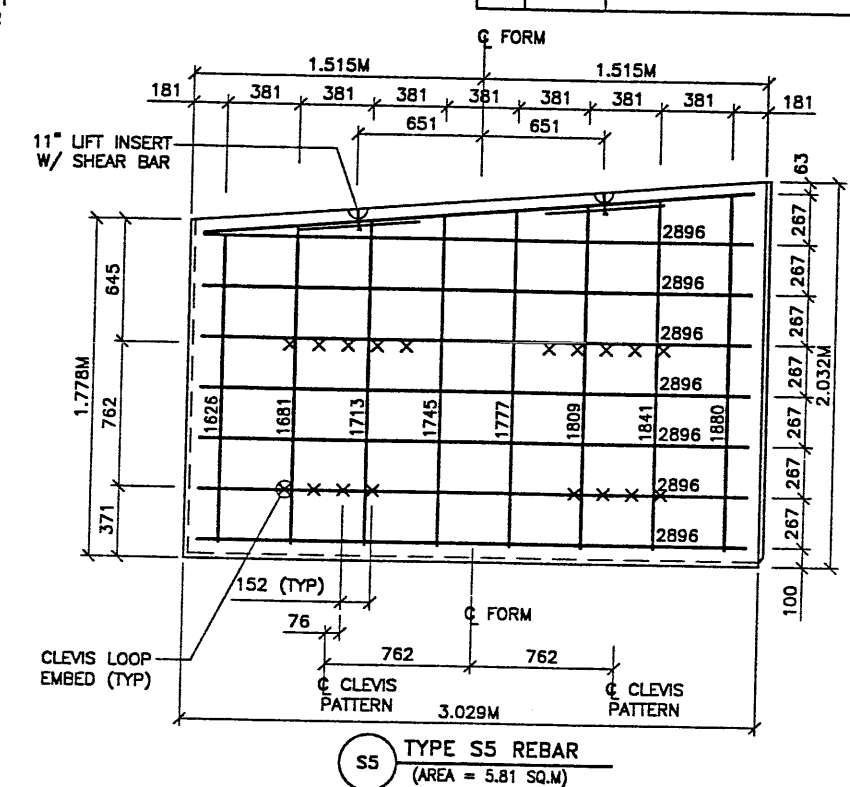
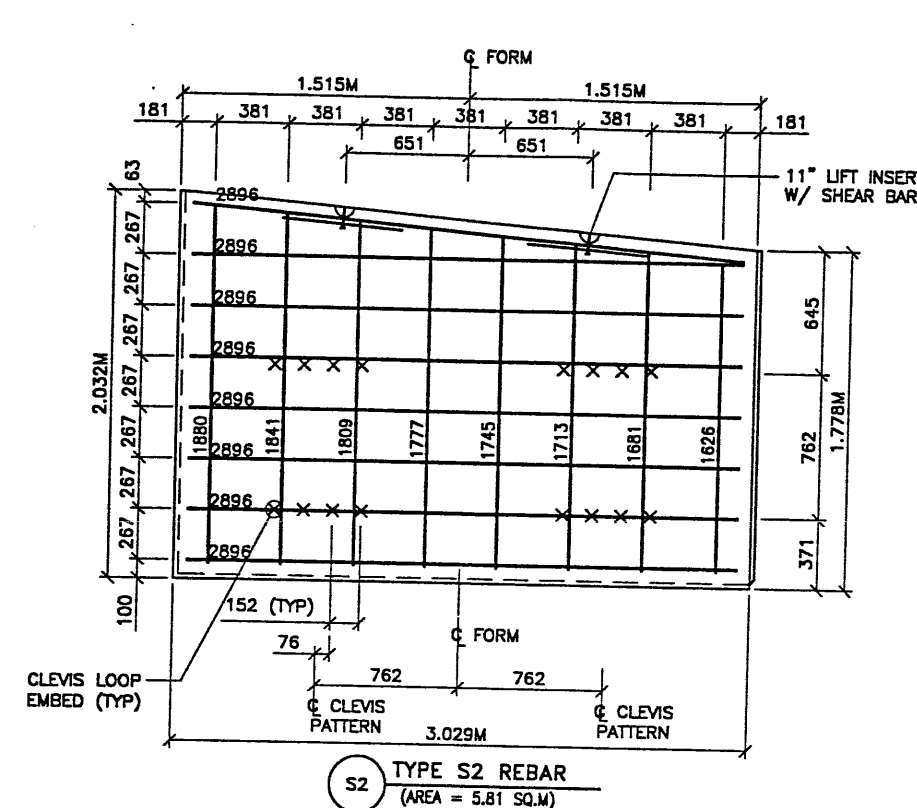
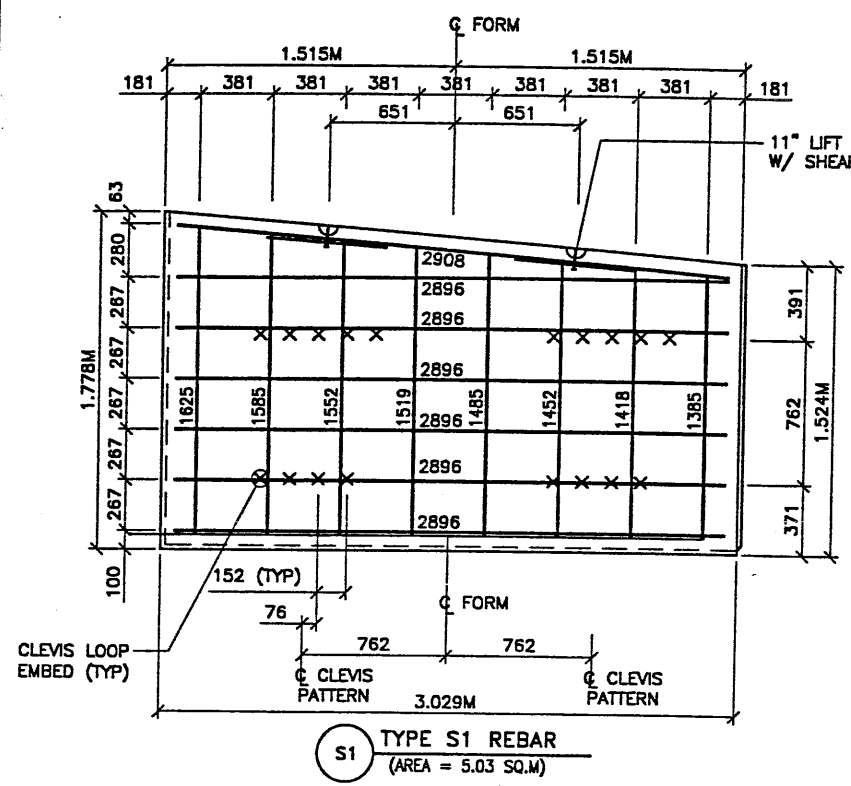
ELEVATION PRECAST WALL R-342-1
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 1927.58 SM) SCALE 1:200 (HALF SIZE)

METRIC

STATE OF UTAH
 LICENSED PROFESSIONAL ENGINEER
 No. 341796
 JOHN A. NICHOLSON, JR.

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 (DUE TO STATIC LOAD COMBINATION) ARE INDICATED BELOW "MESH DEPTH LINE".
 REFER TO VESBY MAXIMUM BEARING CAPACITY OF FOUNDATION.



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	12-18-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
 2840 Penco Place, Suite 200
 Raleigh, NC 27617, Tel: 919-877-1400
 Fax: (919) 761-1688

DES. 12-09-98 MM
 DRN. 12-09-98 DSW
 CHK. 12-09-98 MM

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

- 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 25,200 KPa.
 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mmØ 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.
 - SEE VSL STD. DRAWINGS FOR ADD'L 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
 JAN 06 1999
 RELEASED FOR CONSTRUCTION

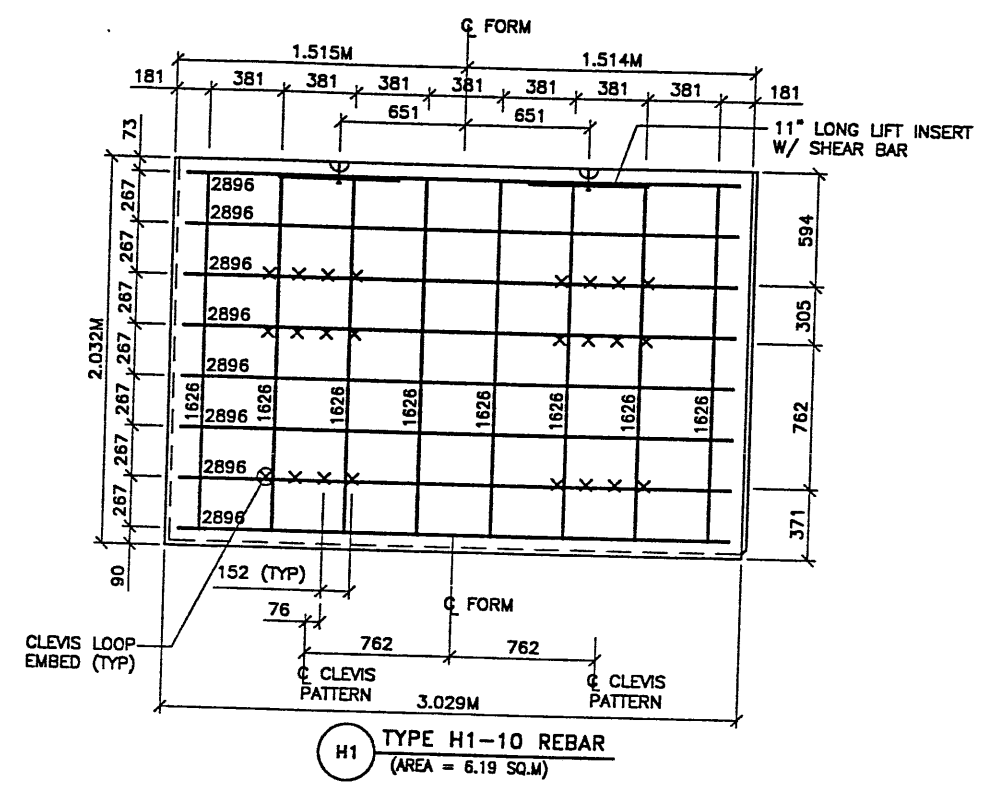
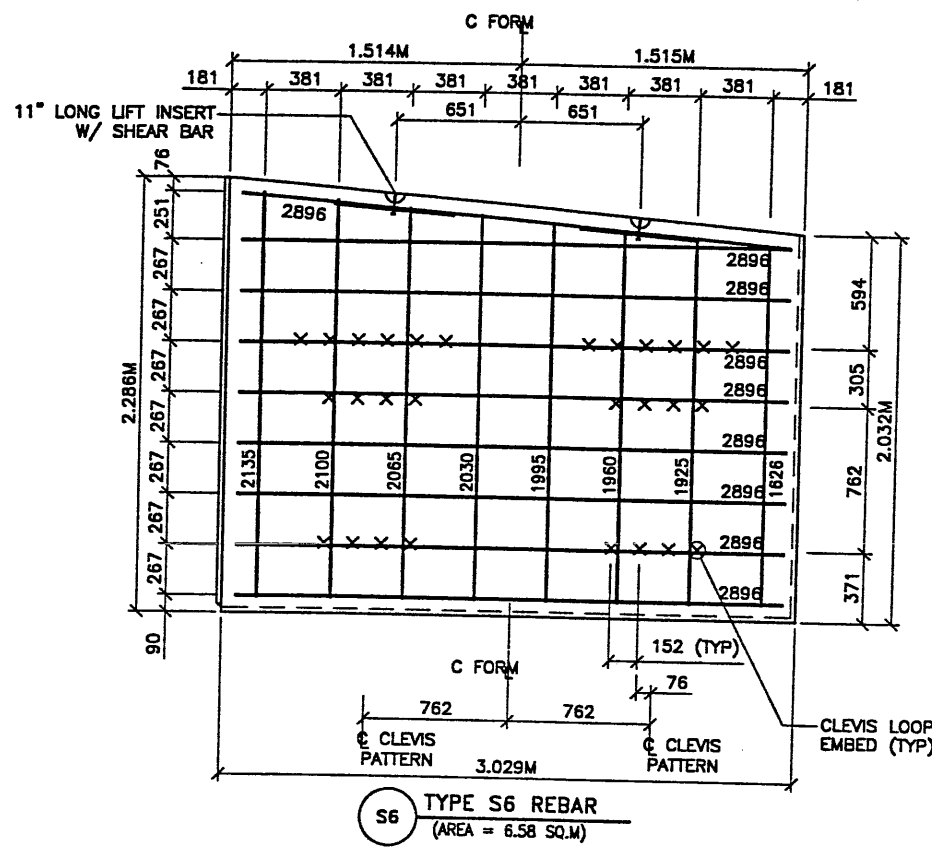
RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-1"
 SPECIAL PANEL DETAILS

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

PROFESSIONAL ENGINEER
 No. 341796
 JOHN A. NICHOLSON, P.E.
 STATE OF UTAH

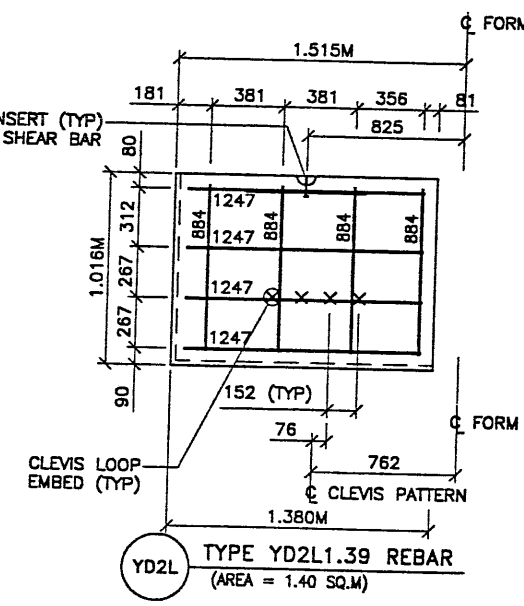
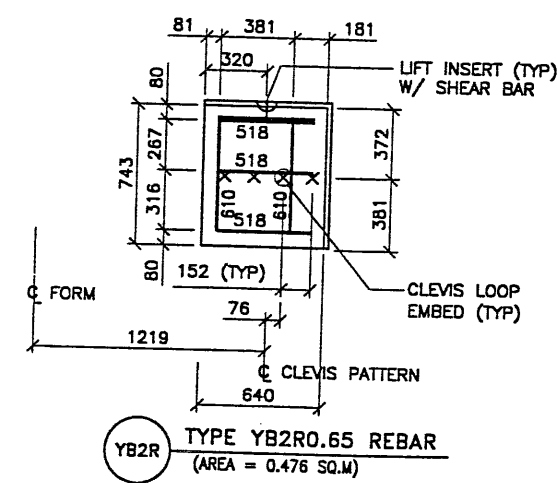
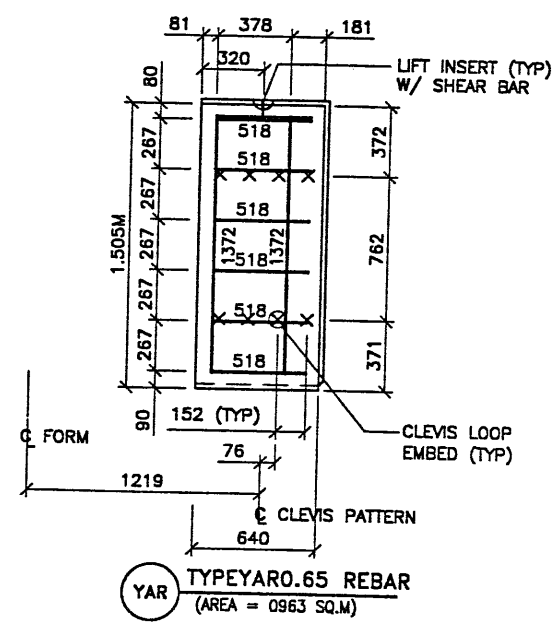
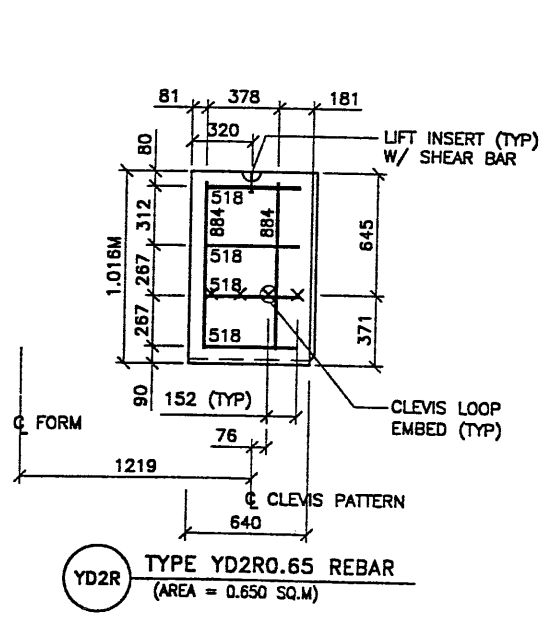
DWG. NO.	1.1R-342-1.16
JOB NO.	239-0007
SHT. NO.	RE-10

FINAL PLOT 12-18-98 H:\RE_EARTH\PROJECT\239-0007\1998\90\ES\90-01\SPECIALS.DWG



APPROVED FOR CONSTRUCTION			
NO.	DATE	DESCRIPTION	CHK
△	12-18-98	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.
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 - CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 25,200 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.
 - SEE VSL STD. DRAWINGS FOR ADD'L PANEL DETAILS.



RELEASED FOR CONSTRUCTION

WASATCH CONSTRUCTORS
JAN 06 1999

LICENSED PROFESSIONAL ENGINEER
No. 341796
JOHN A. NICHOLSON, JR.
STATE OF UTAH

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-342-1"
SPECIAL PANEL DETAILS

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

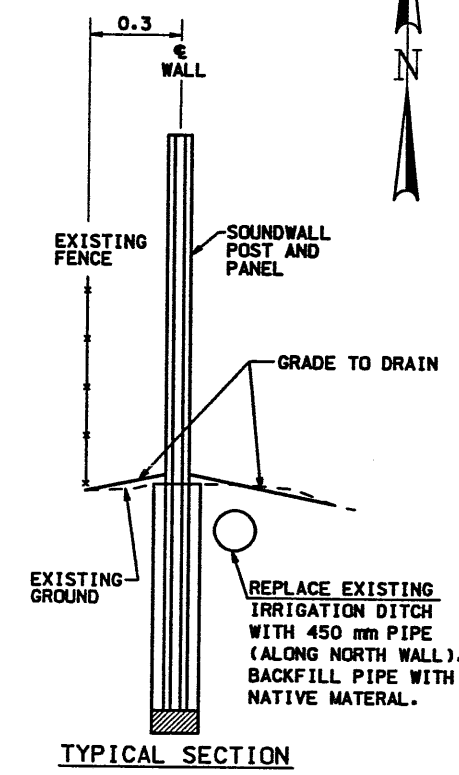
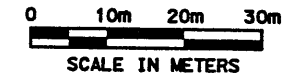
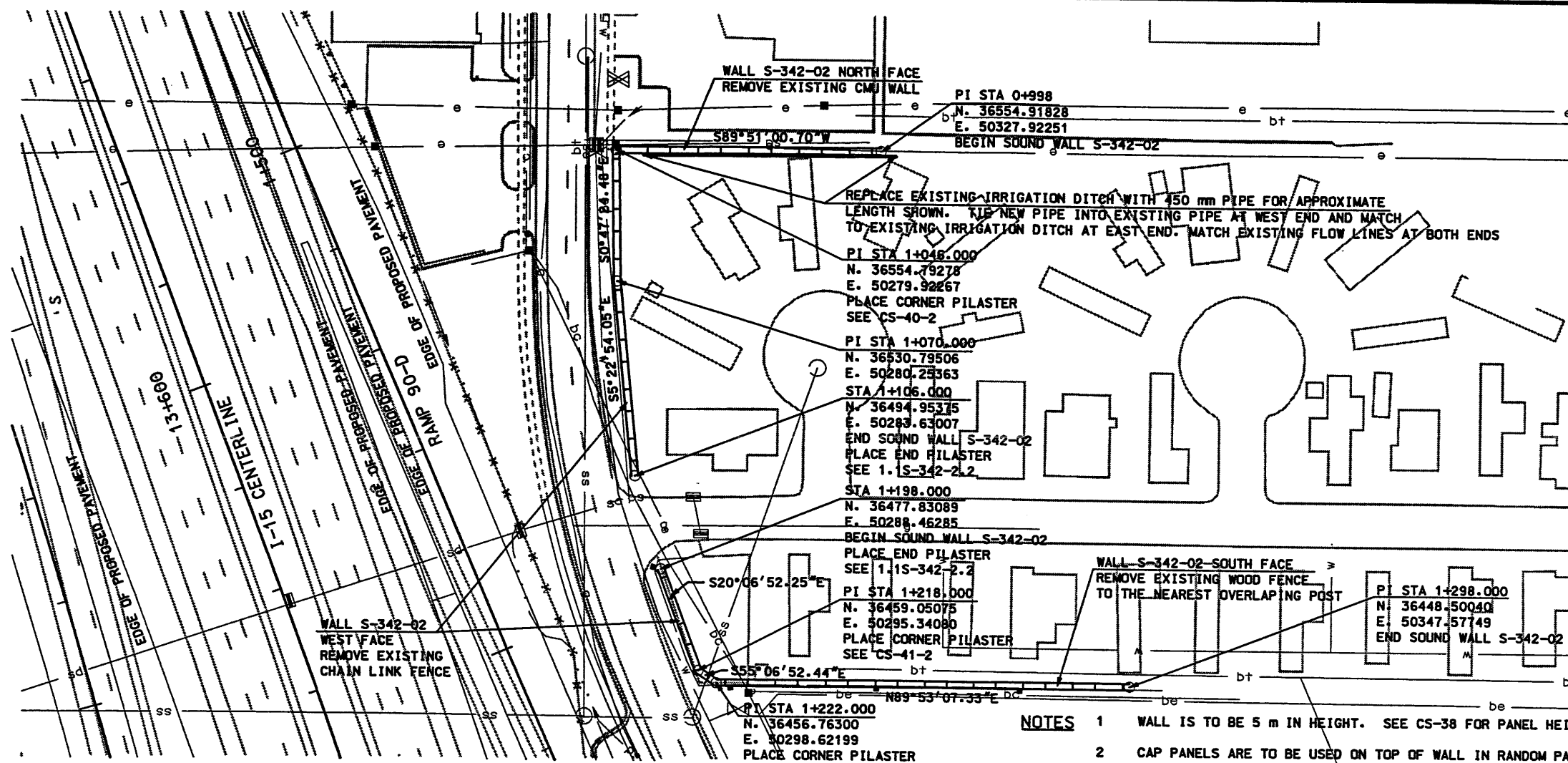
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JOB NO.	239-0007
SHT. NO.	RE-11

VSL

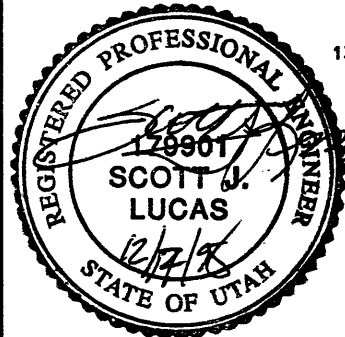
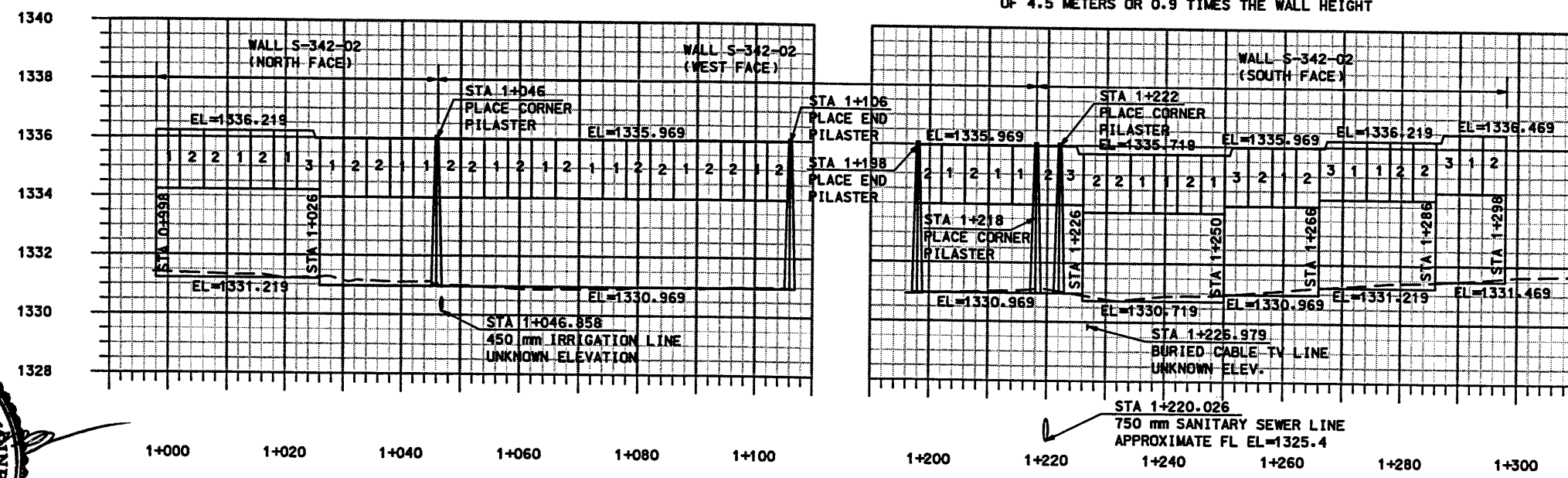
VSL CORPORATION
2640 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-6889

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

VSL Corporation (VSL) claims a U.S. Patent for its Retained Earth™ system. Such information is made available to the public for informational purposes only and is not to be construed as an offer of insurance or any other financial product. VSL does not assume any liability for the use of this information.



- NOTES**
- 1 WALL IS TO BE 5 m IN HEIGHT. SEE CS-38 FOR PANEL HEIGHT COMBINATIONS
 - 2 CAP PANELS ARE TO BE USED ON TOP OF WALL IN RANDOM PATTERN AS SHOWN. SEE CS-5 AND CS-9 AS APPLICABLE.
1 = PROFILE I CAP PANEL
2 = PROFILE II CAP PANEL
3 = 250 mm STEP DOWN PANEL
 - 3 REPLACE LANDSCAPING TO MATCH EXISTING
 - 4 ALL POSTS SUPPORTING PILASTERS MUST HAVE AN EMBEDMENT DEPTH OF 4.5 METERS OR 0.9 TIMES THE WALL HEIGHT

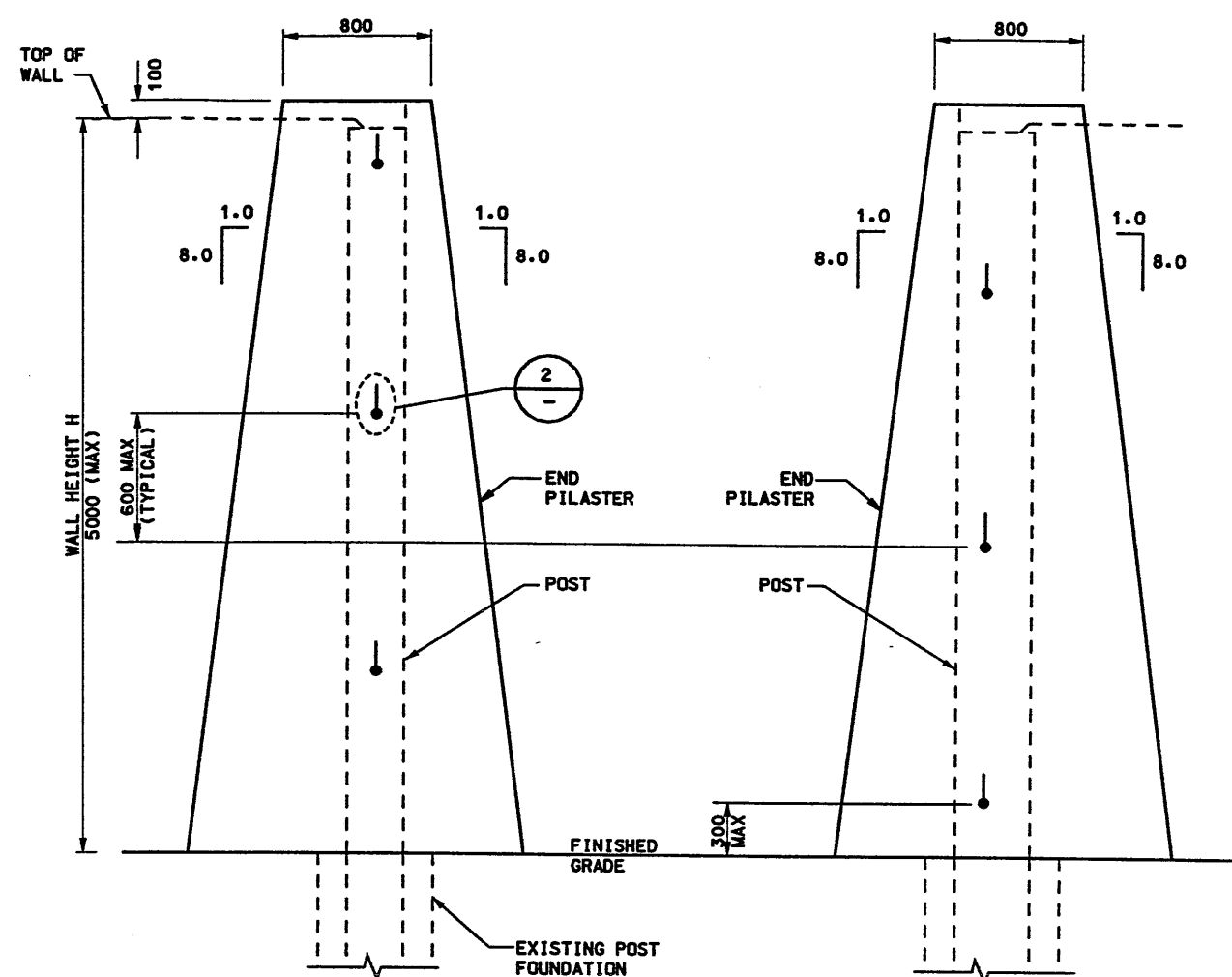


WASATCH CONSTRUCTORS
JAN 06 1999
RELEASED FOR CONSTRUCTION

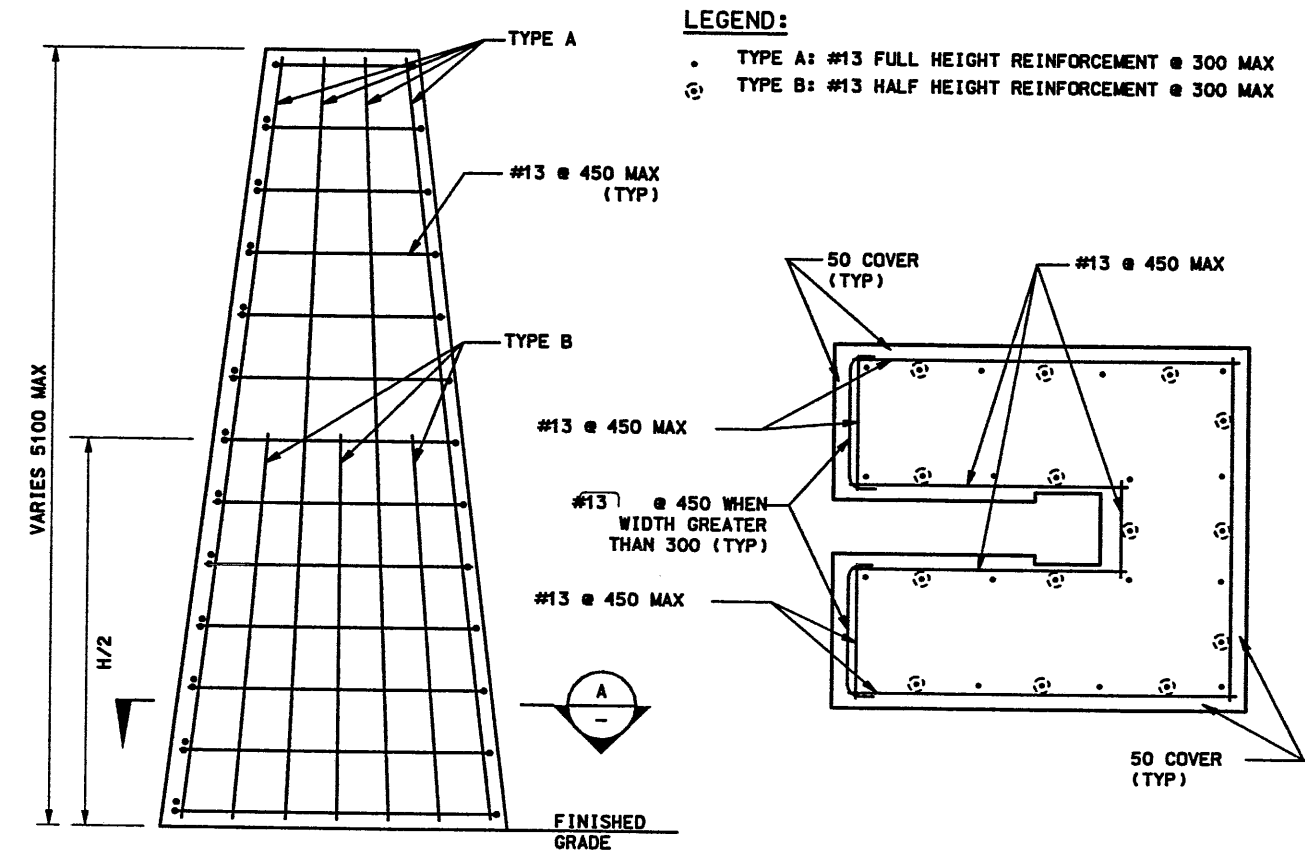
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NO.	DATE	DESCRIPTION	ORIGINAL RELEASE
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UTAH DEPARTMENT OF TRANSPORTATION			
H.W. LOCHNER, INC. SYNERGYP/DE LEUW			
DESIGN	BJL 11/98	CHECK	SJL 12/98
DRAWN	BJL 11/98	CHECK	SJL 12/98
QUANT.		CHECK	
APPROVAL	12/98	SCOTT LUCAS	PROJECT DESIGN ENGINEER
APPROVED	12/98	BRUCE VANA	PROJECT MANAGER
I-15 CORRIDOR RECONSTRUCTION			
SOUND WALL PLAN/PROFILE			
SECTION 1.1			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.1S-342-2.1			
SHT. 1 OF 2			
REF.			

Usernames gaster.jn
Date: 16-DEC-1998 Time: 12:59

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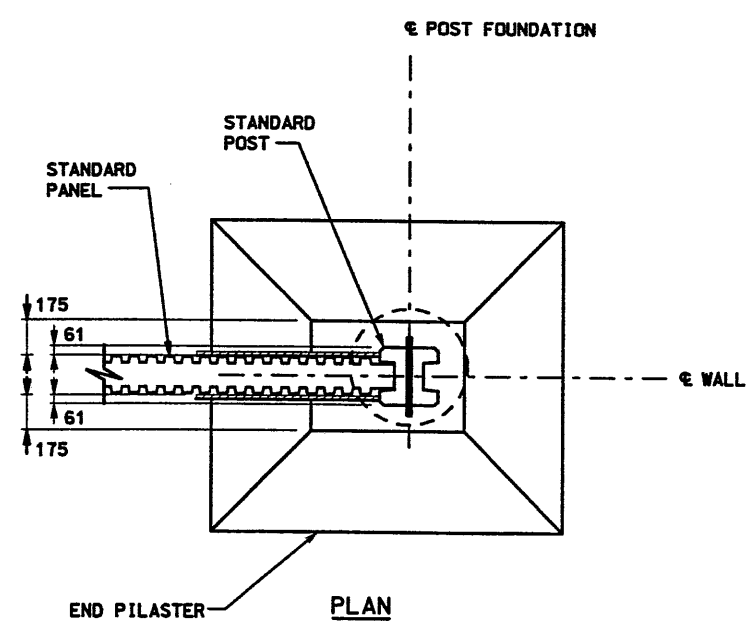
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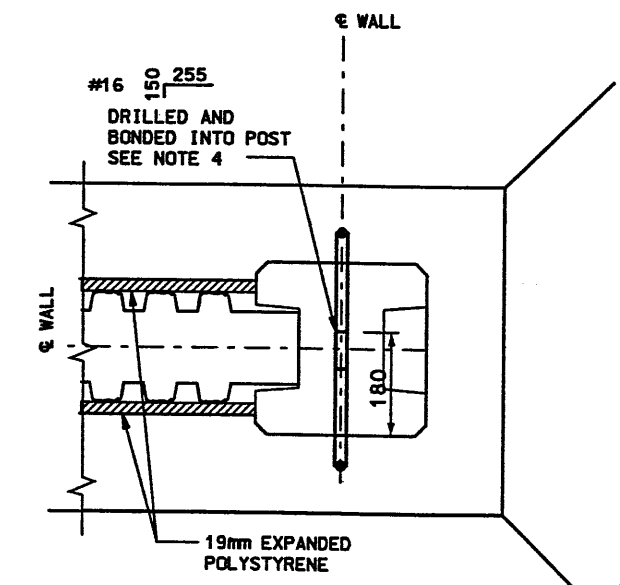
ELEVATION

SECTION A

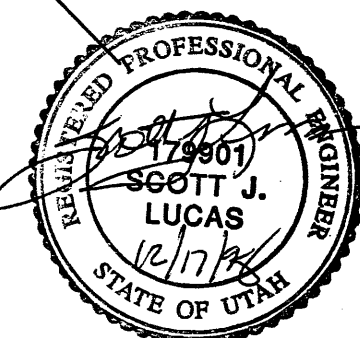
TYPICAL END PILASTER REINFORCEMENT (FOR EACH LEG)



RETAINING/SOUNDWALL END PILASTER FOR TYPE I POST



TYPICAL ANCHOR DETAIL NTS

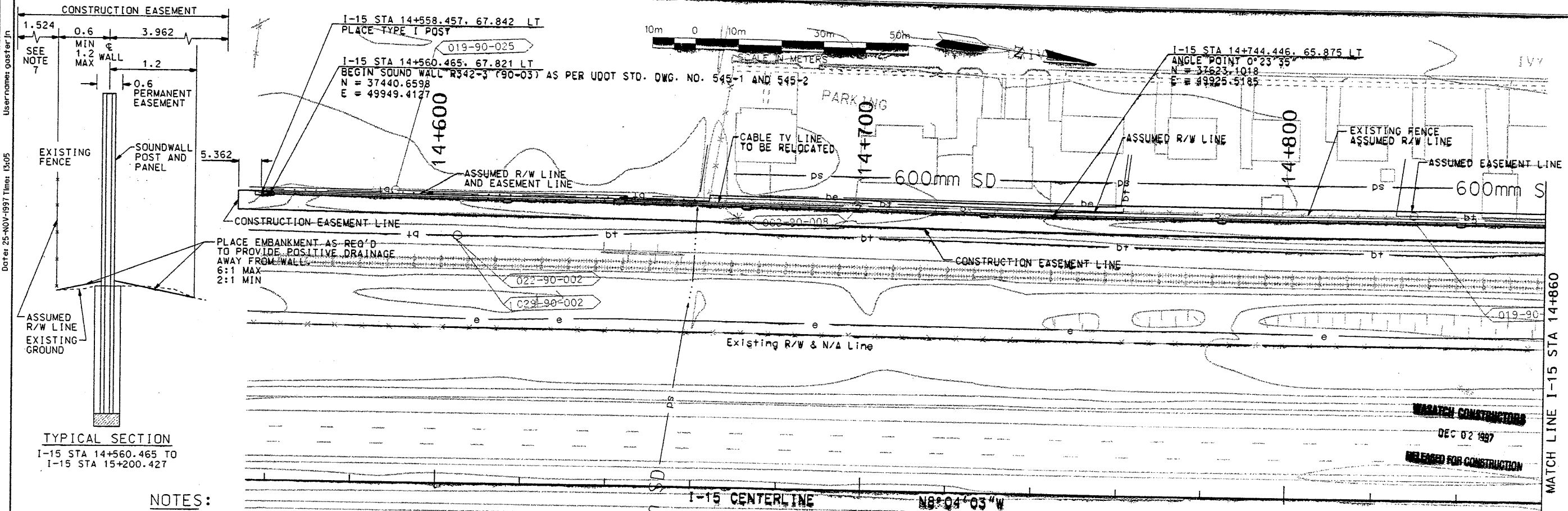


NOTES:

- 1) ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA (AE) EXCEPT WHERE OTHERWISE NOTED. $f'_c = 28 \text{ MPa}$. CHAMFER ALL EXPOSED CONCRETE CORNERS 20mm OR 13mm RADIUS. PROVIDE 50mm COVER TO REINFORCING STEEL EXCEPT WHERE SPECIFIED OTHERWISE.
- 2) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
- 3) FOR POST FOUNDATION BACKFILL, SEE UDOT STD. 546-1 & 546-2.
- 4) FOR ADDITIONAL INFORMATION ON DRILLING AND BONDING, REFER TO STANDARD SPECIFICATION (550).

WASATCH CONSTRUCTORS
JAN 06 1999
RELEASED FOR CONSTRUCTION

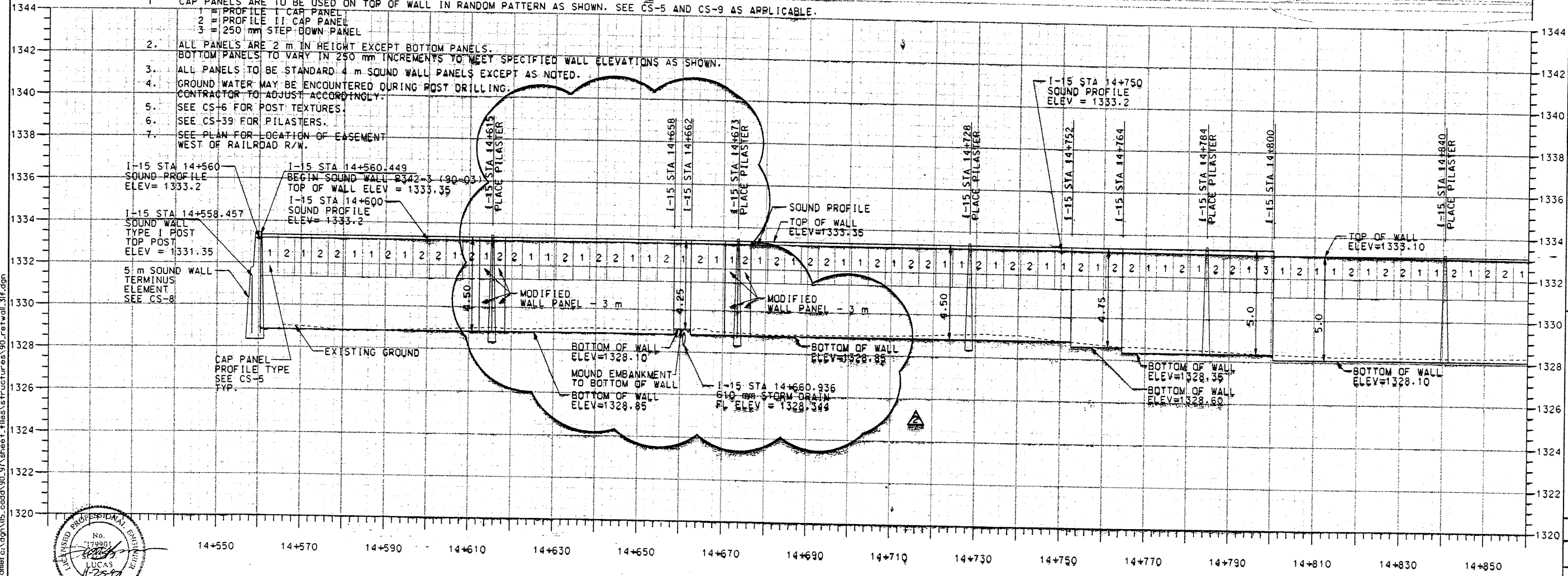
APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
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UTAH DEPARTMENT OF TRANSPORTATION			
H. W. LOCHNER INC. SVERDRUP/DE LELUW			
DESIGN	CHECK	DATE	CHECK
JHG	JHG	12/98	JHG
DRAWN	CHECK	DATE	CHECK
JHG	JHG	12/98	JHG
PROJECT	PROJECT	DATE	PROJECT
MANAGER	MANAGER	DATE	MANAGER
BRUCE VANA	BRUCE VANA	12/98	BRUCE VANA
I-15 CORRIDOR RECONSTRUCTION			
END PILASTER			
SECTION 1.1			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.15-342-2.2			
SHT. 2 OF 2			
REF.			



TYPICAL SECTION
I-15 STA 14+560.465 TO
I-15 STA 15+200.427

NOTES:

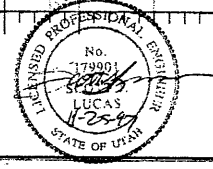
1. CAP PANELS ARE TO BE USED ON TOP OF WALL IN RANDOM PATTERN AS SHOWN. SEE CS-5 AND CS-9 AS APPLICABLE.
2. ALL PANELS ARE 2 m IN HEIGHT EXCEPT BOTTOM PANELS. BOTTOM PANELS TO VARY IN 250 mm INCREMENTS TO MEET SPECIFIED WALL ELEVATIONS AS SHOWN.
3. ALL PANELS TO BE STANDARD 4 m SOUND WALL PANELS EXCEPT AS NOTED.
4. GROUND WATER MAY BE ENCOUNTERED DURING POST DRILLING. CONTRACTOR TO ADJUST ACCORDINGLY.
5. SEE CS-6 FOR POST TEXTURES.
6. SEE CS-39 FOR PILASTERS.
7. SEE PLAN FOR LOCATION OF EASEMENT WEST OF RAILROAD R/W.



SOUND WALL

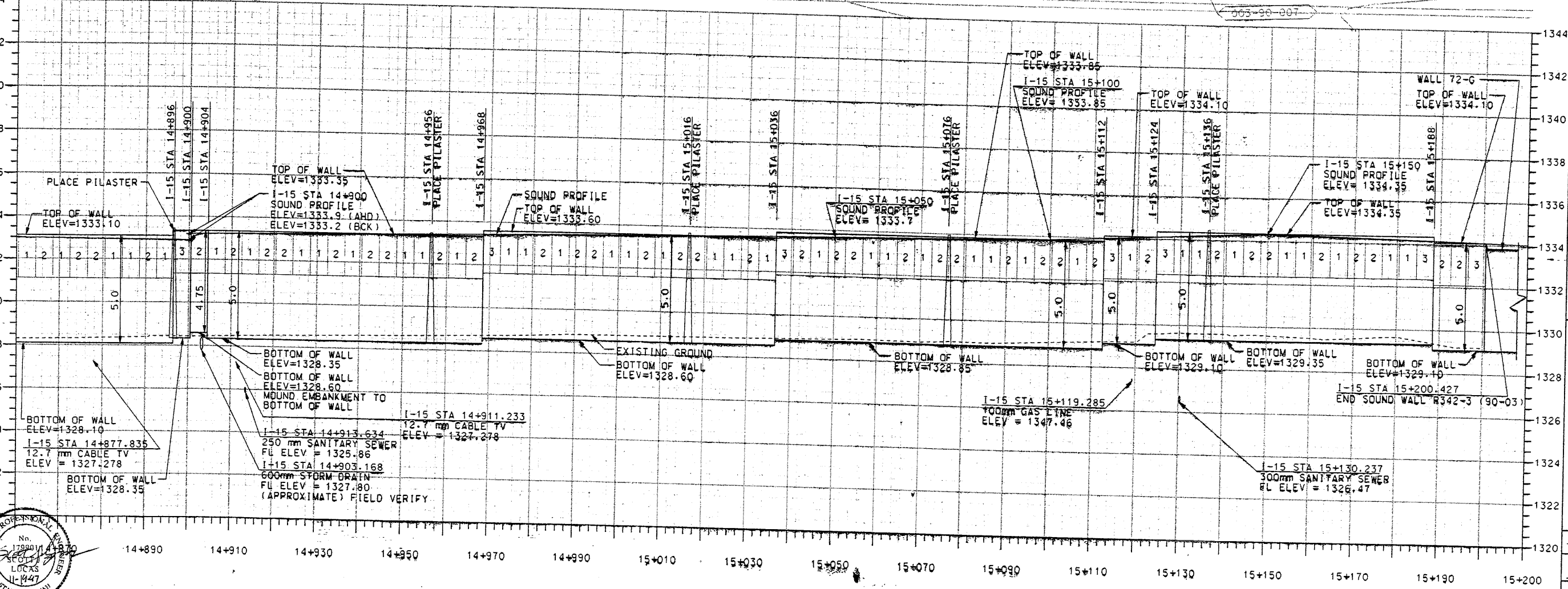
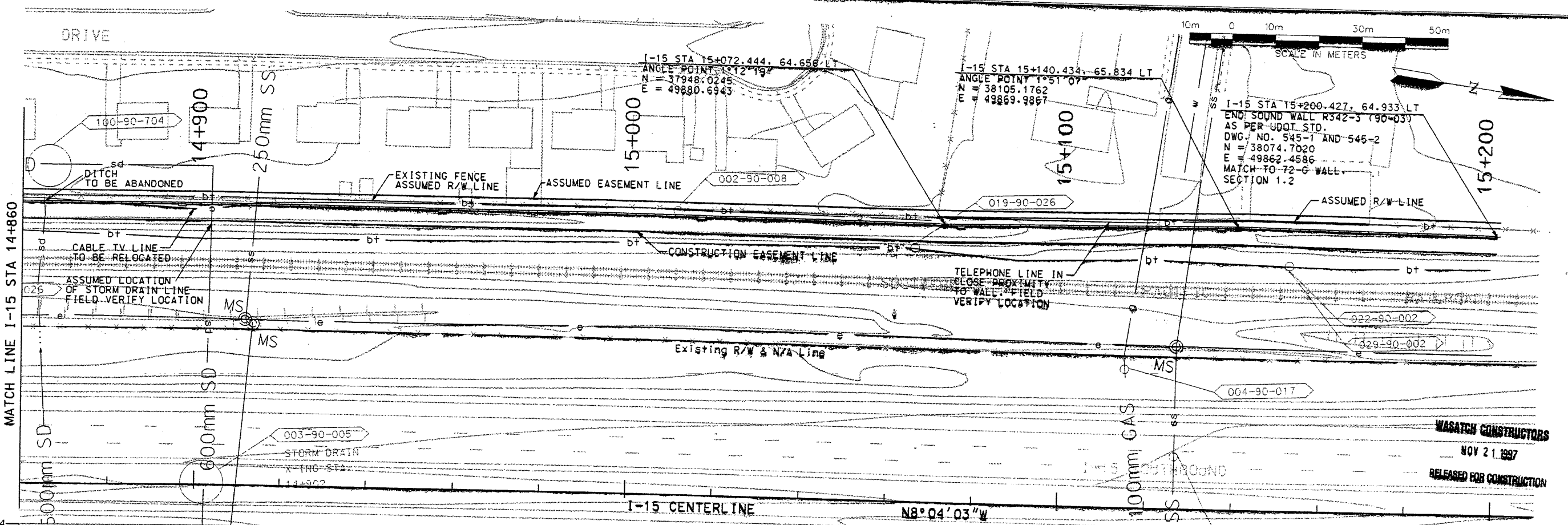
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NO.	DATE	NO.	DATE
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2	11/25/97	2	REVISED WALL SECTION
UTAH DEPARTMENT OF TRANSPORTATION		H. W. LOCHNER, INC.	
SVERDRUP/DE LEUW		DESIGN S/J	10/97
SCOTT J. LUCAS		CHECK BDV	10/97
PROJECT DESIGN ENGINEER		DATE	10/97
APPROVED 10/97		BRUCE D. VANA	11/24/03
PROJECT NUMBER		QUANT.	N/A
I-15 CORRIDOR RECONSTRUCTION		PROJECT NUMBER	*SP-15-(135)296
SOUND WALL PLAN/PROFILE		COUNTY	SALT LAKE
SECTION 1.1		DWG. NO.	1.1R-342-3.1
SHT. 1 OF 2		REF.	

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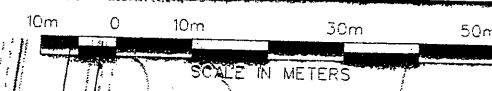
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1344
1342
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14+890 14+910 14+930 14+950 14+970 14+990 15+010 15+030 15+050 15+070 15+090 15+110 15+130 15+150 15+170 15+190 15+200



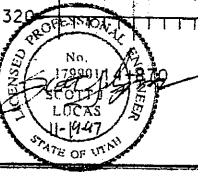
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 ANGLE POINT 1° 51' 07"
 N = 37948.0245
 E = 49880.6943

I-15 STA 15+140.434, 65.834 LT
 ANGLE POINT 1° 51' 07"
 N = 38105.1762
 E = 49869.9867

I-15 STA 15+200.427, 64.933 LT
 END SOUND WALL R342-3 (90-03)
 AS PER UDOT STD.
 DWG. NO. 545-1 AND 545-2
 N = 38074.7020
 E = 49862.4586
 MATCH TO 72-G WALL
 SECTION 1.2

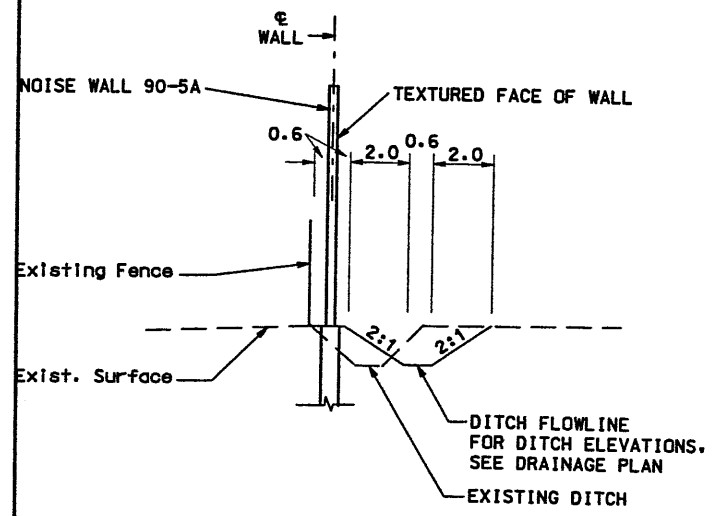
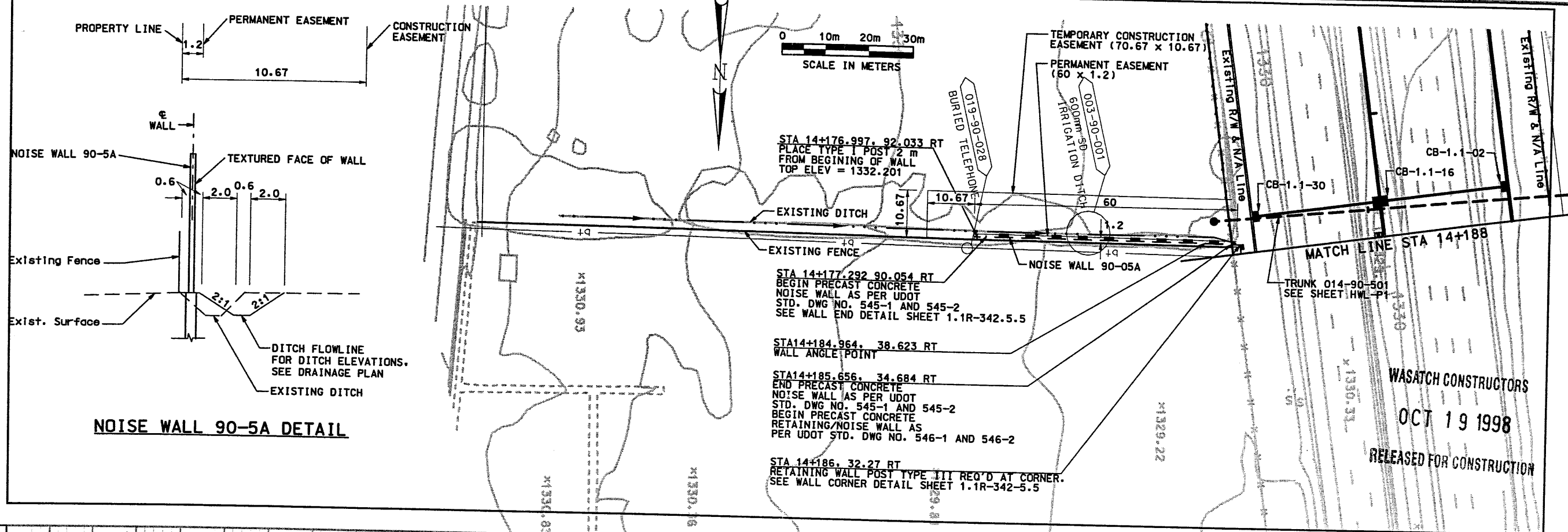
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H. W. LOCHNER, INC.		DESIGN BUL 10/97	
SVERDRUP/DE LEUW		CHECK BVD 10/97	
SCOTT J. LUCAS		DRAW BUL 10/97	
PROJECT DESIGN ENGINEER		CHECK BVD 10/97	
APPROVED 10/97		DATE	
BRUCE D. VANA		PROJECT MANAGER	
DATE		N/A	
I-15 CORRIDOR RECONSTRUCTION		SECTION 1.1	
SOUND WALL PLAN/PROFILE		#SP-15-7(135)296	
SALT LAKE COUNTY		DWG. NO. 1.1R-342-3.2	
SHT. 2 OF 2		REF.	

SOUND WALL



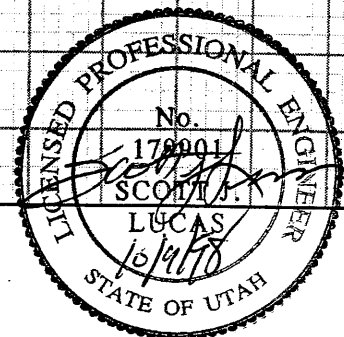
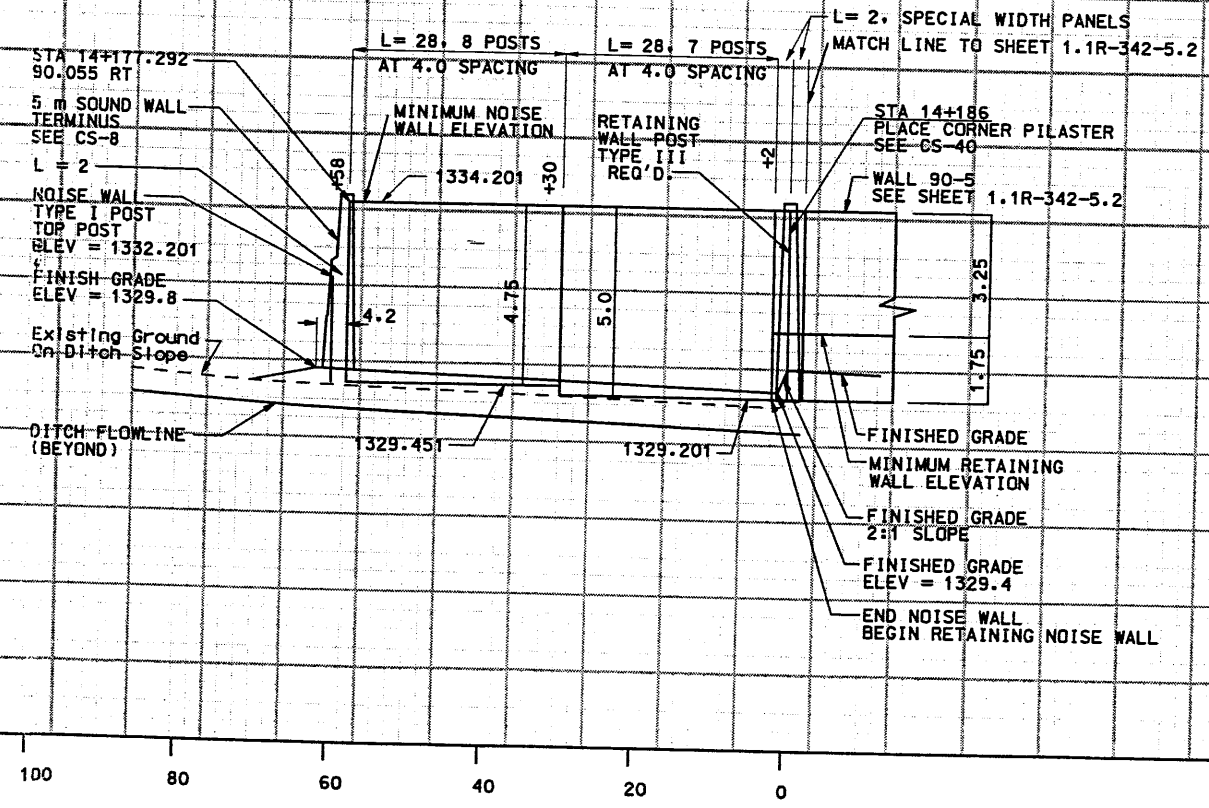
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NOISE WALL 90-5A DETAIL

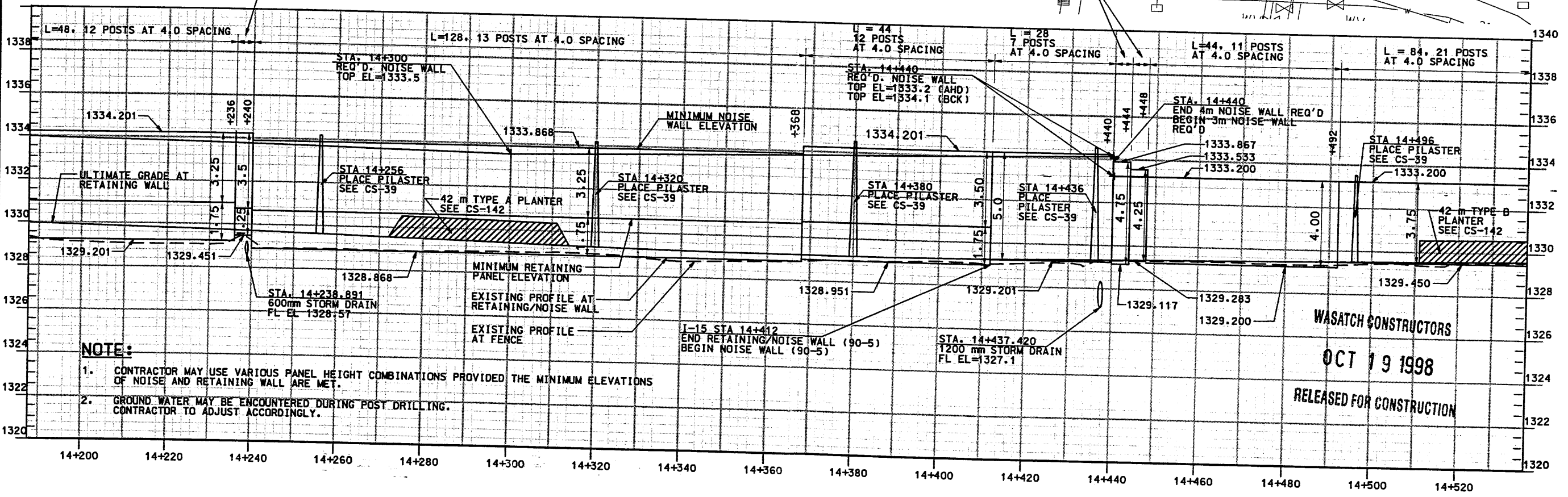
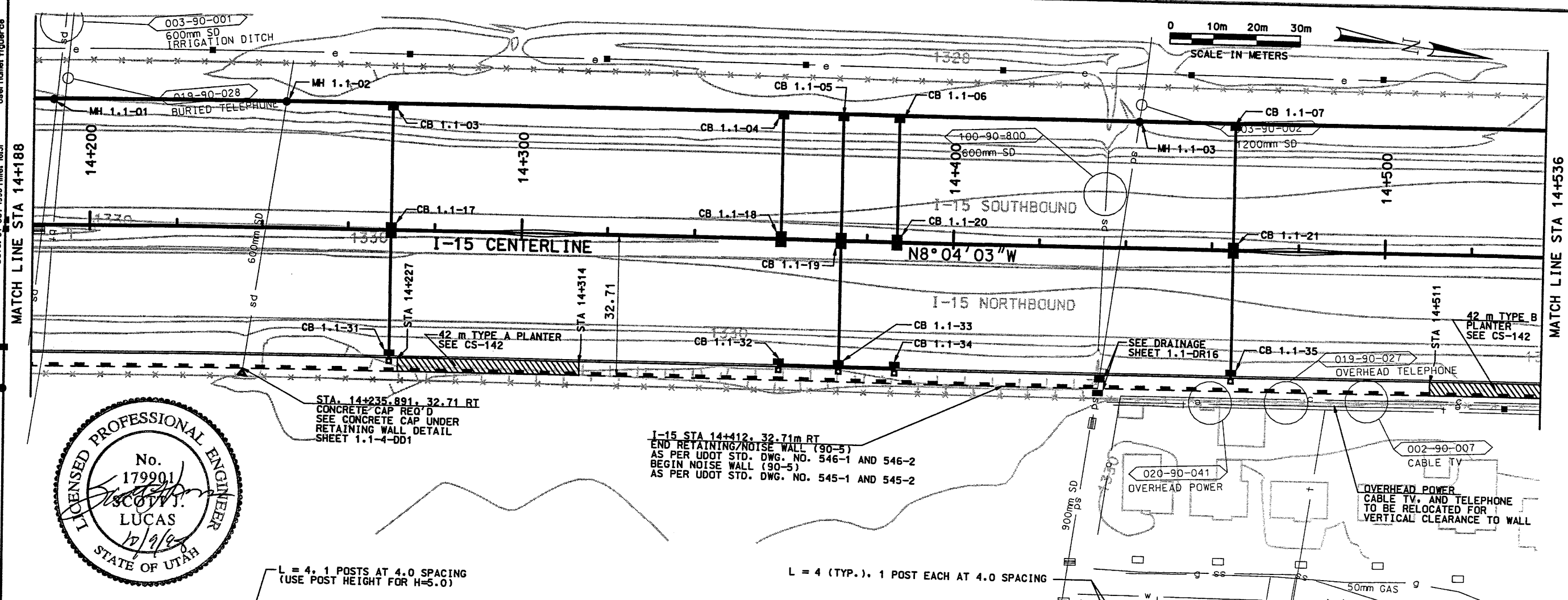
- NOTE:**
1. CONTRACTOR MAY USE VARIOUS PANEL HEIGHT COMBINATIONS PROVIDED THE MINIMUM ELEVATIONS OF NOISE AND RETAINING WALL ARE MET.
 2. GROUND WATER MAY BE ENCOUNTERED DURING POST DRILLING. CONTRACTOR TO ADJUST ACCORDINGLY.
 3. SEE SHEETS CS-5 AND CS-6 FOR AESTHETIC DETAILS.



WASATCH CONSTRUCTORS
OCT 19 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	ADDED AESTHETICS, DRAINAGE, EASEMENTS AND UPDATED UTILITIES - ENTIRE SHEET REVISED.	
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UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	CHECK
H. W. LOCHNER		SJL 6/97	BDV 6/97
SYERDRUP/DE LEUW		BJL 6/97	BDV 6/97
PROJECT MANAGER		QUANT.	CHECK
SCOTT J. LUCAS		N/A	N/A
PROJECT DESIGN ENGINEER		1180100	
DATE			
6/97			
APPROVED			
6/97			
BRUCE D. VANA			
DATE			
6/97			
PROJECT MANAGER			
I-15 CORRIDOR RECONSTRUCTION			
RETAINING/SOUND WALL PLAN/PROFILE			
SECTION 1.1			
PROJECT NUMBER			
#SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO.			
1.1R-342-5.1			
SHT. 1 OF 5			
REF.			

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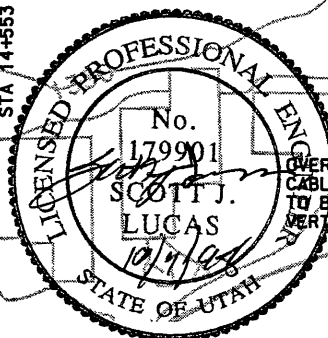
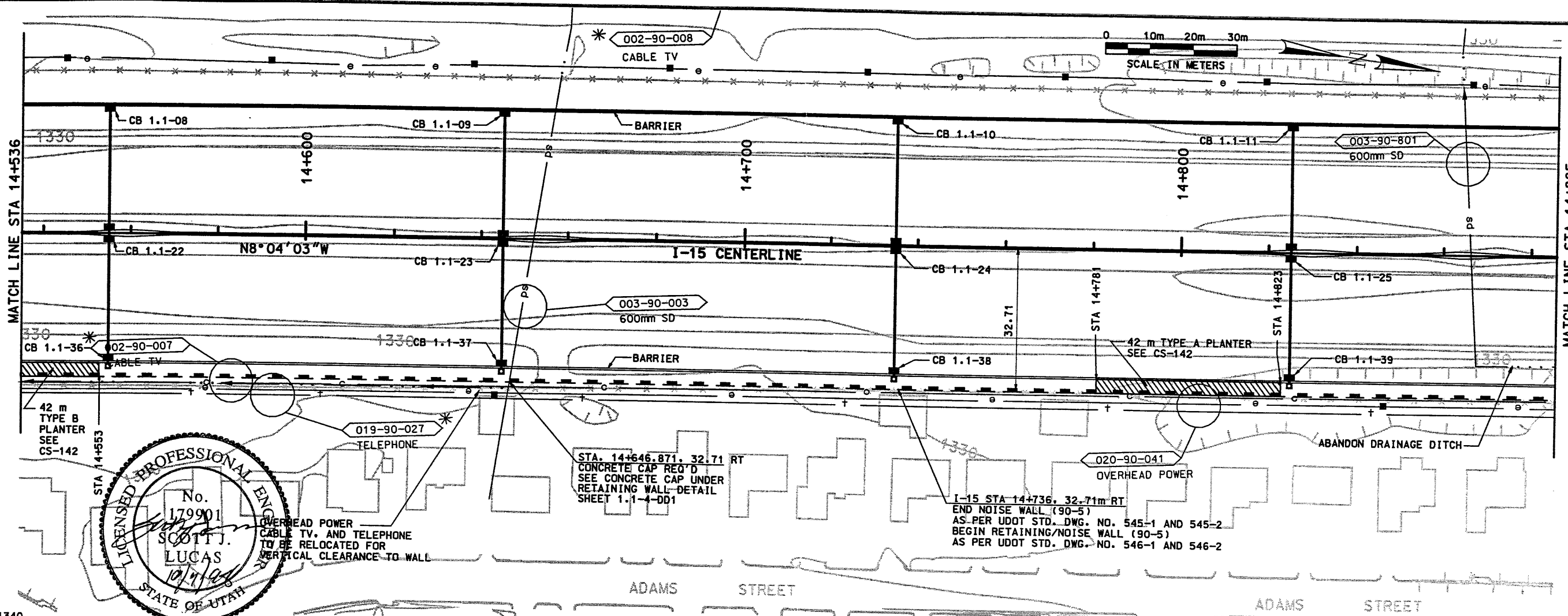
- CONTRACTOR MAY USE VARIOUS PANEL HEIGHT COMBINATIONS PROVIDED THE MINIMUM ELEVATIONS OF NOISE AND RETAINING WALL ARE MET.
- GROUND WATER MAY BE ENCOUNTERED DURING POST DRILLING. CONTRACTOR TO ADJUST ACCORDINGLY.

WASATCH CONSTRUCTORS
OCT 19 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	ADDED AESTHETICS, DRAINAGE AND PLANTERS	
1	10/12/98	- ENTIRE SHEET REVISED, 100% FULL ROADWAY	
UTAH DEPARTMENT OF TRANSPORTATION			
H. W. LOCHNER, INC.			
SVERDRUP/DE LEUW			
DESIGN	SUB	CHECK	BDV
6/97	6/97	6/97	6/97
PROJECT DESIGN ENGINEER	PROJECT DESIGN ENGINEER	CHECK	BDV
SCOTT J. LUCAS	SCOTT J. LUCAS	6/97	6/97
DATE	DATE	QUANT.	N/A
6/97	6/97	N/A	N/A
PROJECT MANAGER	PROJECT MANAGER	CHECK	N/A
BRUCE D. VANA	BRUCE D. VANA	6/97	6/97
DATE	DATE	QUANT.	N/A
6/97	6/97	N/A	N/A
I-15 CORRIDOR RECONSTRUCTION			
RETAINING/SOUND WALL PLAN/PROFILE			
SECTION 1.1			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.1R-342-5.2			
SHT. 2 OF 5			
REF.			

RETAINING WALL

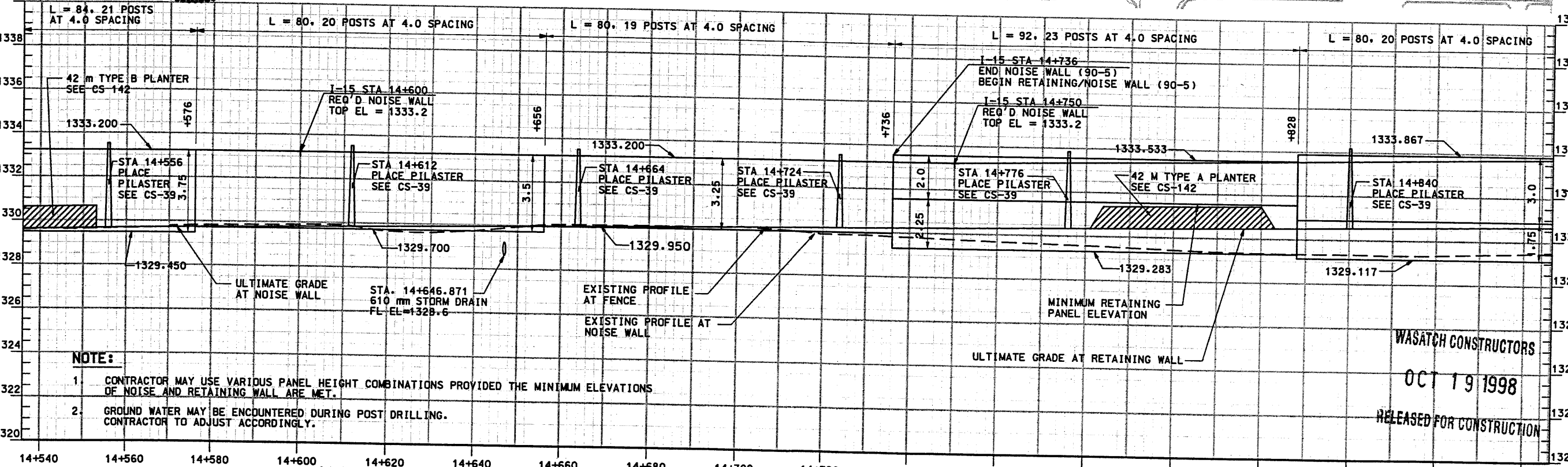
Username: figureone
Date: 07-OCT-1998 Time: 16:34



OVERHEAD POWER, CABLE TV, AND TELEPHONE TO BE RELOCATED FOR VERTICAL CLEARANCE TO WALL

STA. 14+646.871, 32.71 RT
CONCRETE CAP REQ'D
SEE CONCRETE CAP UNDER
RETAINING WALL-DETAIL
SHEET 1.1-4-DD1

I-15 STA 14+736, 32.71m RT
END NOISE WALL (90-5)
AS PER UDOT STD. DWG. NO. 545-1 AND 545-2
BEGIN RETAINING/NOISE WALL (90-5)
AS PER UDOT STD. DWG. NO. 546-1 AND 546-2



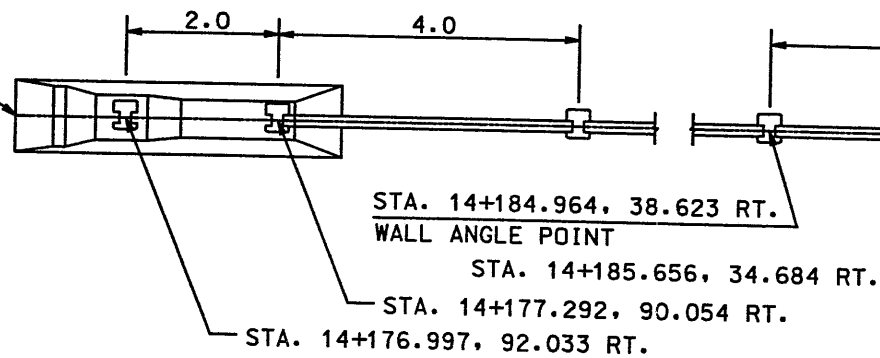
- NOTE:**
- CONTRACTOR MAY USE VARIOUS PANEL HEIGHT COMBINATIONS PROVIDED THE MINIMUM ELEVATIONS OF NOISE AND RETAINING WALL ARE MET.
 - GROUND WATER MAY BE ENCOUNTERED DURING POST DRILLING. CONTRACTOR TO ADJUST ACCORDINGLY.

RETAINING WALL

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	10/12/98 ADDED AESTHETICS, DRAINAGE, PLANTERS AND TOPOGRAPHY. SHEET NUMBER CHANGED FROM 1.1-WA905.3 - ENTIRE SHEET REVISED, 100% FULL ROADWAY	
UTAH DEPARTMENT OF TRANSPORTATION		DESIGN	BDV 6/97
H. W. LOCHNER, INC.		CHECK	BDV 6/97
SVERDRUP/DE LEUW		DATE	6/97
APPROVAL	6/97	DATE	6/97
RECONSTRUCTION	6/97	DATE	6/97
SECTION 1.1	PROJECT NUMBER	PROJECT NUMBER	#SP-15-7(135)296
SALT LAKE COUNTY		DWG. NO.	1.1R-342-5.3
SHT.	3	OF	5
REF.			

WASATCH CONSTRUCTORS
OCT 19 1998
RELEASED FOR CONSTRUCTION

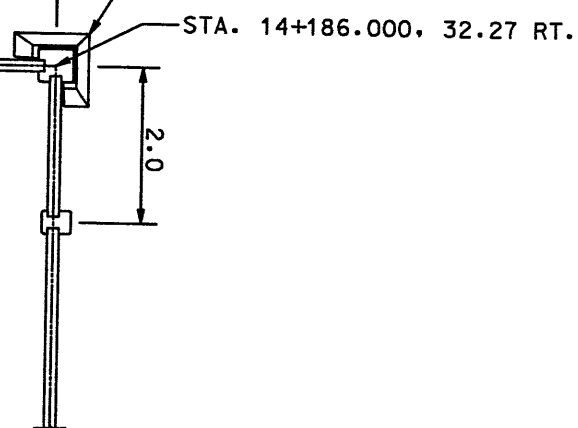
5 m TERMINUS ELEMENT
SEE CS-8



WALL TERMINUS DETAIL

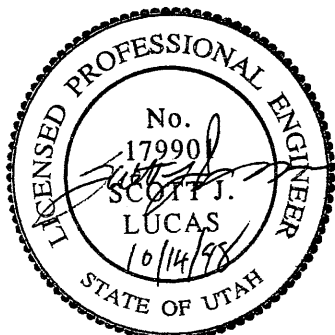
STA. 14+177.292, 90.055 RT.

CORNER PILASTER FOR TYPE III POST
SEE CS-40



WALL CORNER DETAIL

STA. 14+186.000, 32.27 RT.



WASATCH CONSTRUCTORS

OCT 19 1998

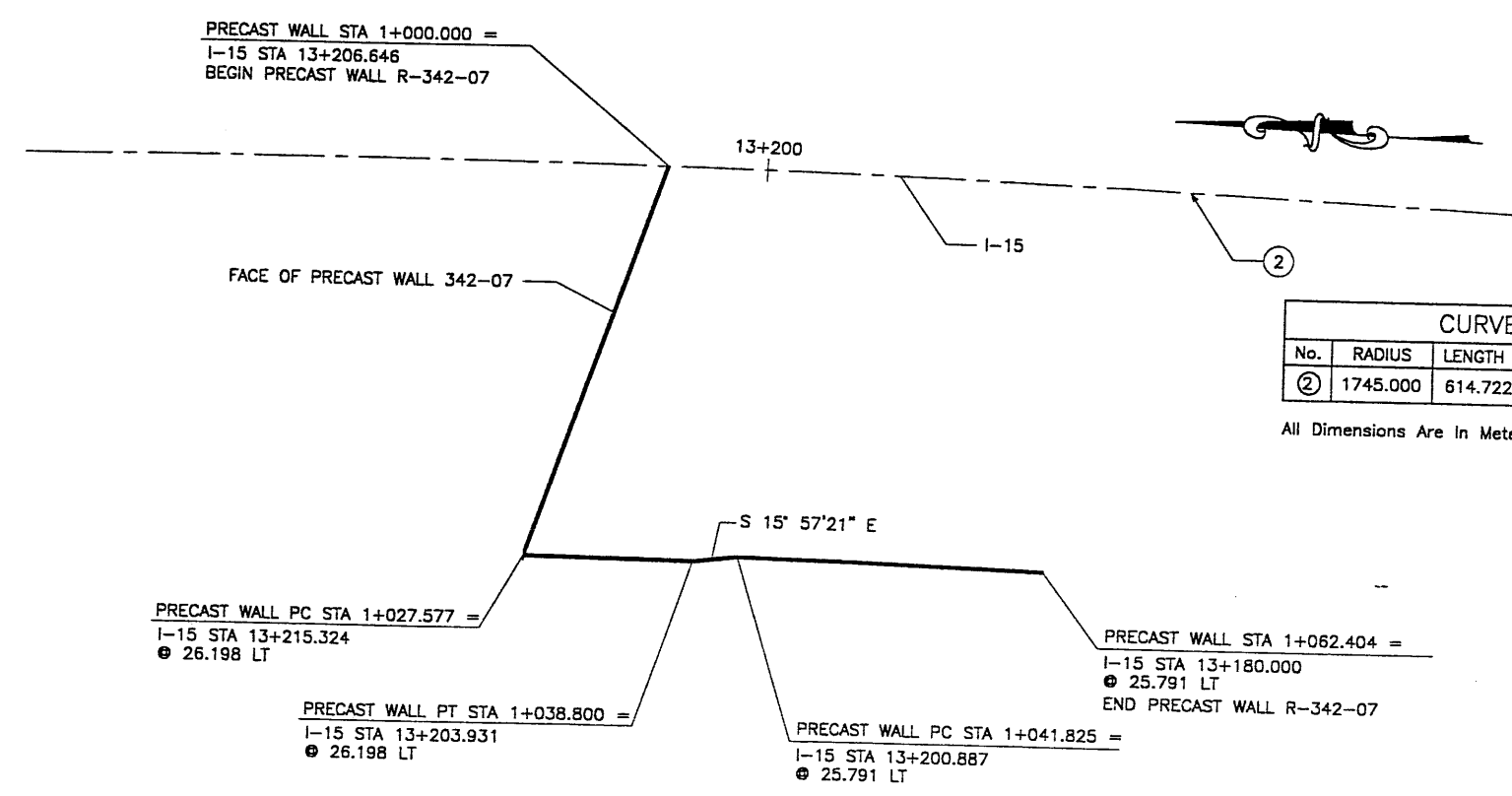
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	10/02/97	1	10/02/97
		2	10/14/98
			100% FULL ROADWAY/ENTIRE SHEET REVISED
UTAH DEPARTMENT OF TRANSPORTATION		1112100	
H.W. LOCHNER, INC.		CHECK BDV 9/97	
SVERDRUP/DE LEUW		CHECK BDV 9/97	
DESIGN: S.J.L. 9/97	CHECK: S.J.L. 9/97	QUANT.	CHECK
PROJECT DESIGN ENGINEER: SCOTT LUCAS	DATE: 9/97	SECTION MANAGER: BRUCE VANA	DATE: 9/97
I-15 CORRIDOR RECONSTRUCTION		WALL DETAILS	
SEGMENT 1.1		PROJECT NUMBER *SP-15-7(135)296	
SALT LAKE COUNTY		DWG. NO. 1.1R-342-5.5	
SHT. 5		OF 5	

REFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\90SERIES\90-07\SUBMITL-2\RE-1

FINAL PLOT 02-17-98



CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
②	1745.000	614.722	310.580	20°11'02"

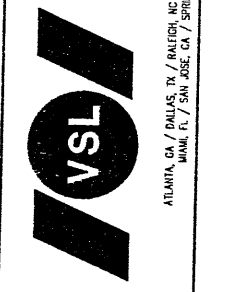
All Dimensions Are In Meters Unless Noted Otherwise

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ	02-17-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

WASATCH CONSTRUCTORS
FEB 24 1998
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VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6772
 Fax: (919) 781-1999



PLAN VIEW WALL "R-342-7"

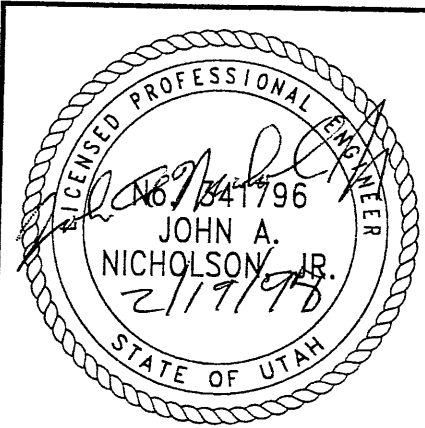
SCALE: 1=200 (FULL SIZE)
 SCALE: 1=400 (HALF SIZE)

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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 4W20-6 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 5W15-12 MESH HAS FIVE (5) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
 EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
 EXAMPLE: 4W15-6 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 6" 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 DETAIL.

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 30°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)	
TRAFFIC SURCHARGE = 250 PSF	
SEISMIC ACCELERATION COEFF. = 0.12g (TYP)	
SEISMIC ACCELERATION COEFF. = 0.32g (AT BRIDGE ABUTMENTS)	
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-342-07, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	TYPICAL CROSS SECTIONS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-342-07"
RE-6	SPECIAL PANEL DETAILS
RE-7	SPECIAL PANEL DETAILS
RE-8	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.

RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-342-07"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

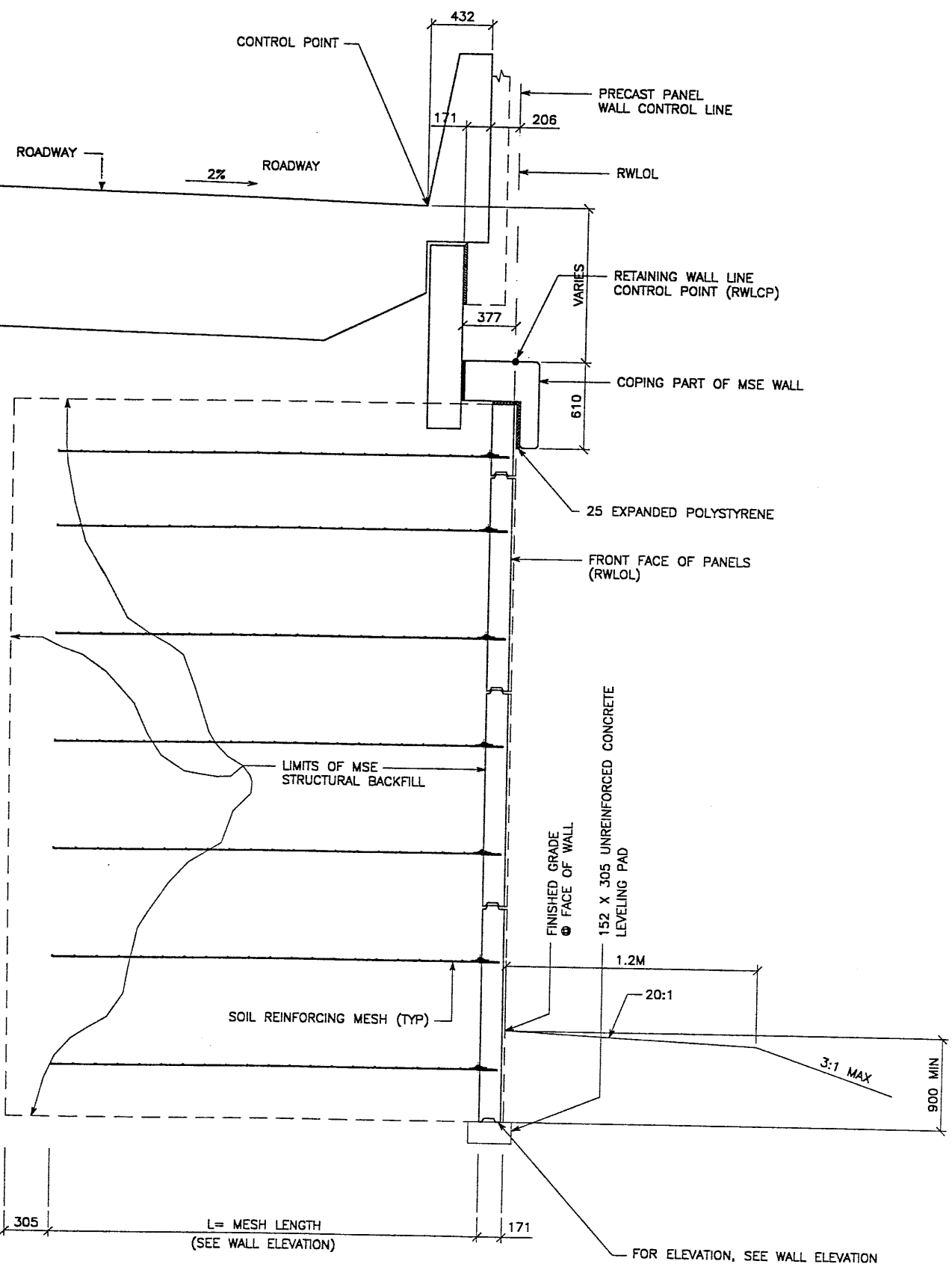
DWG. NO.	1.1R-342-7.2
JOB NO.	239-0007
SHT. NO.	RE-1

2079

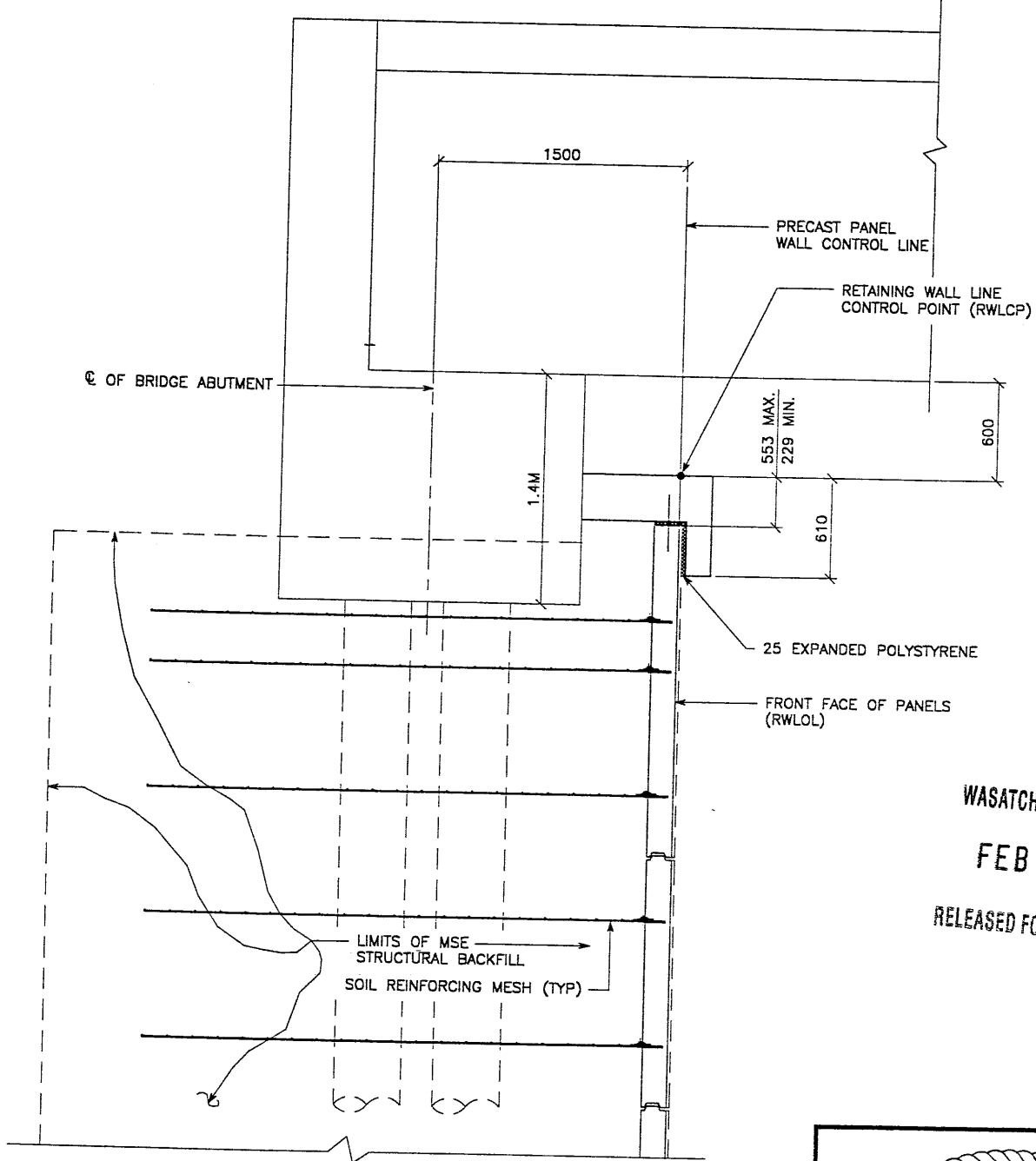
REFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\00SERIES\90-07\SUBMITL-2\RE-2

FINAL PLOT 02-17-98



TYPICAL CROSS SECTION - STA 1+027.577 TO 1+038.800
 (SEE DWG. NO. 2.1R-342-7.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 1+000.000 TO 1+027.577
 (SEE DWG. NO. 2.1R-342.7.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

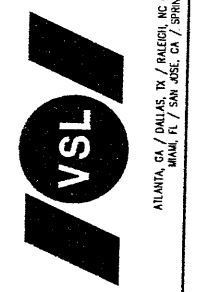
METRIC

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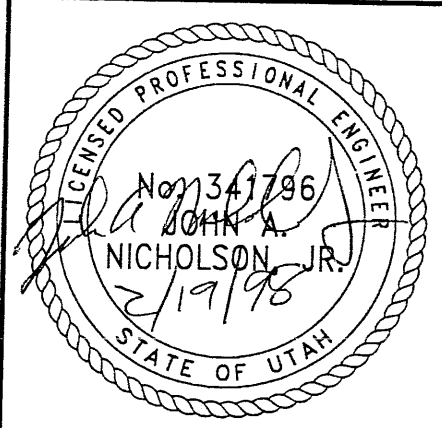
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	02-17-98	RELEASE FOR CONSTRUCTION <i>DL</i>

DES.	DRN	CHK.	NO.	DATE	REVISION	BY
DES.	DRN	CHK.	01-15-98	JL		
			01-15-98	LOP		
			01-15-98	JL		

VSL CORPORATION
 2910 Pease Place, Suite 200
 Raleigh, NC 27613
 Telephone: (919) 781-6272
 Fax: (919) 781-4869



WASATCH CONSTRUCTORS
 FEB 24 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-09"
 TYPICAL CROSS SECTION
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

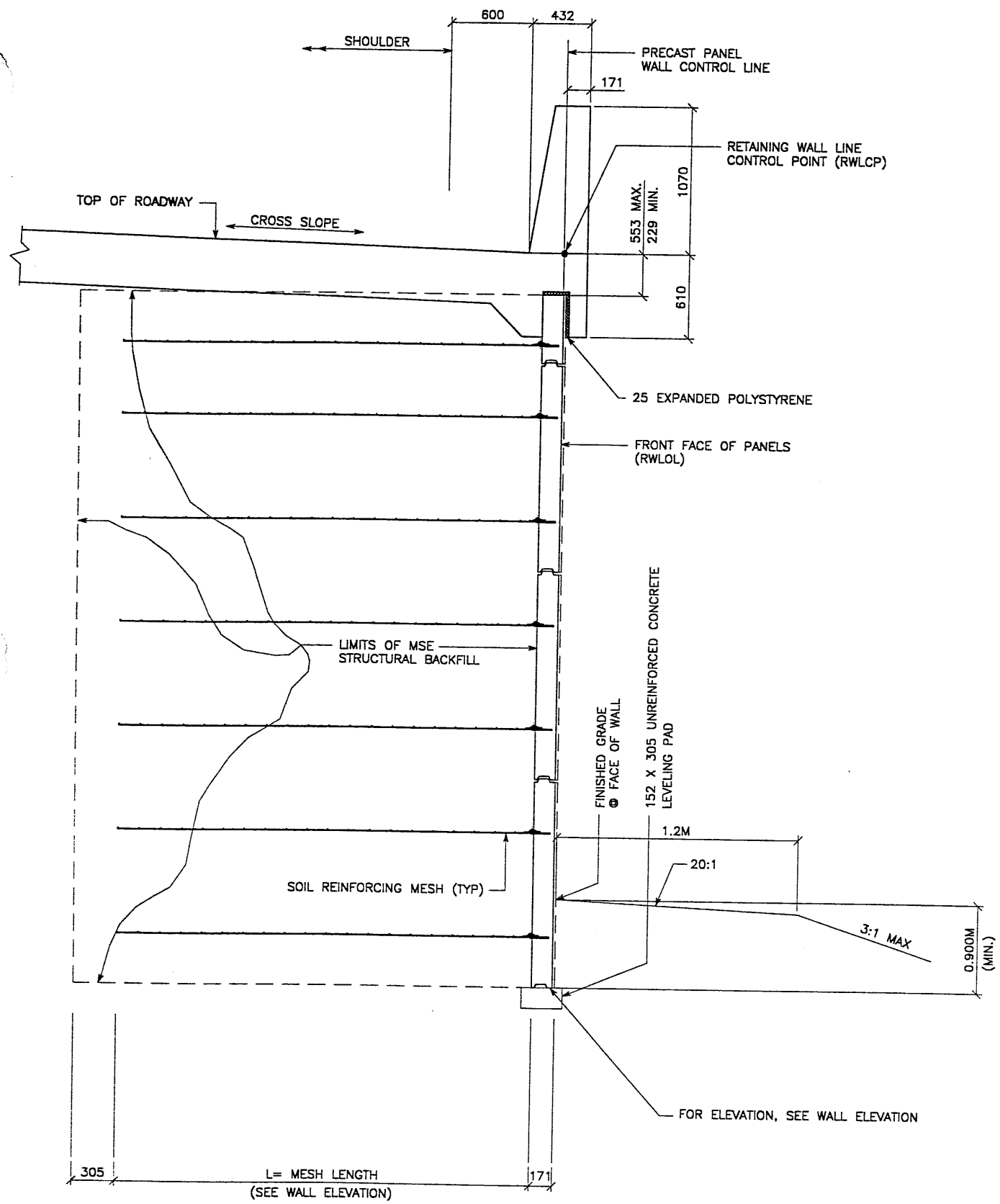
DWG. NO.	1.1R-342-7.3
JOB NO.	239-0007
SHT. NO.	RE-2

3069

REFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\90SERIES\90-07\SUBMITL-2\RE-3

FINAL PLOT 02-17-98



TYPICAL CROSS SECTION - STA 1+041.825 TO 1+062.404
 (SEE DWG. NO. 2.1R-342-7.01 FOR ADDITIONAL INFORMATION)

SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

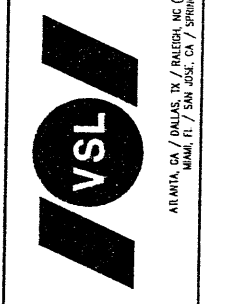
METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-17-98	RELEASE FOR CONSTRUCTION OK

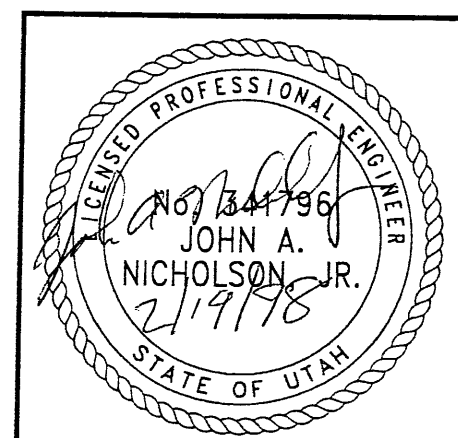
DES.	DRN.	CHK.	DATE	NO.	DATE	REVISION	CHK.
JL	LOP	JL	01-15-98	01-15-98	01-15-98		

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27617
 Telephone: (919) 781-6272
 Fax: (919) 781-4889



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WASATCH CONSTRUCTORS
 FEB 24 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 WIRE FACED WALL
 TYPICAL CROSS SECTION
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

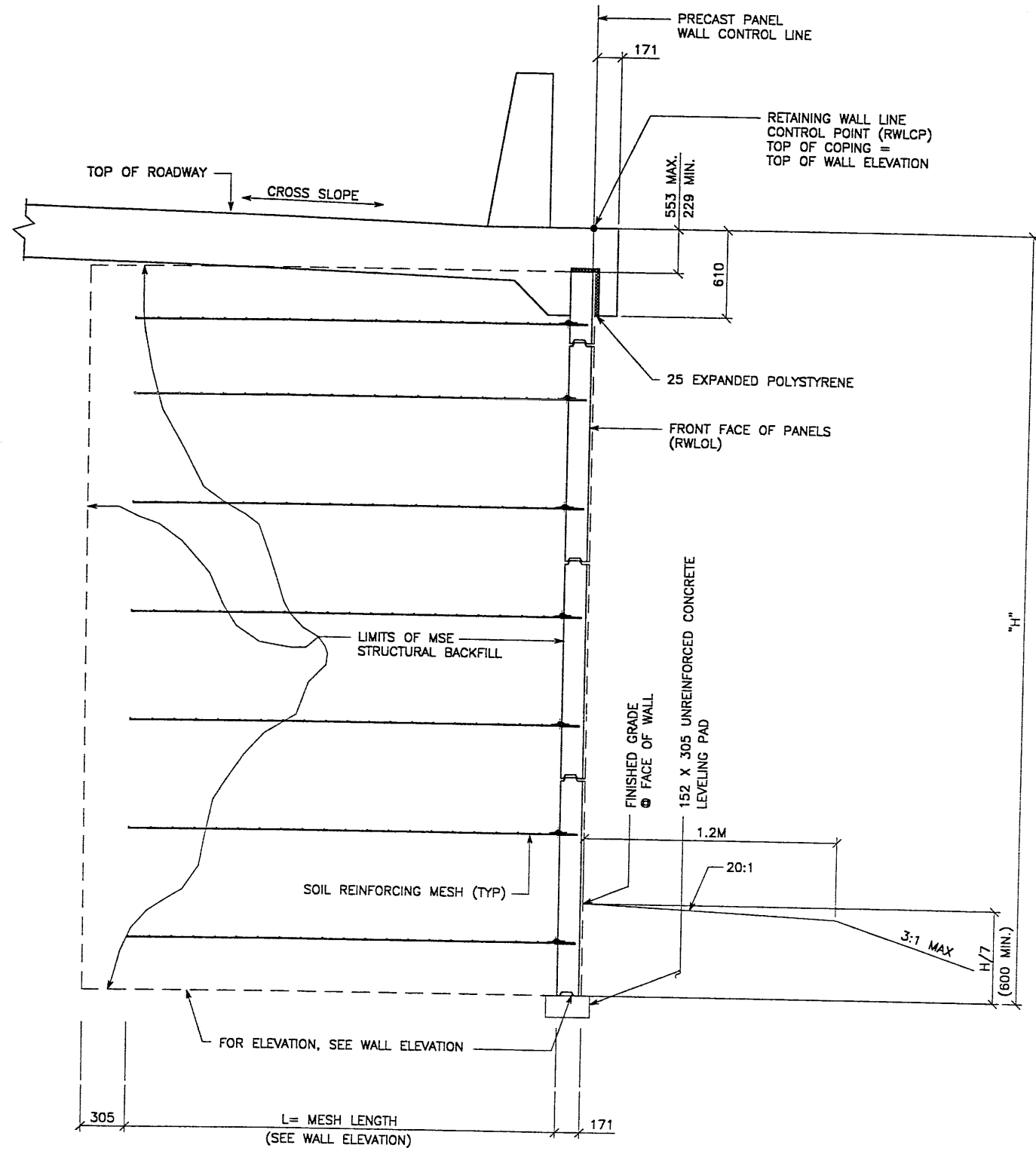
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JOB NO.	239-0007
SHT. NO.	RE-3

4029

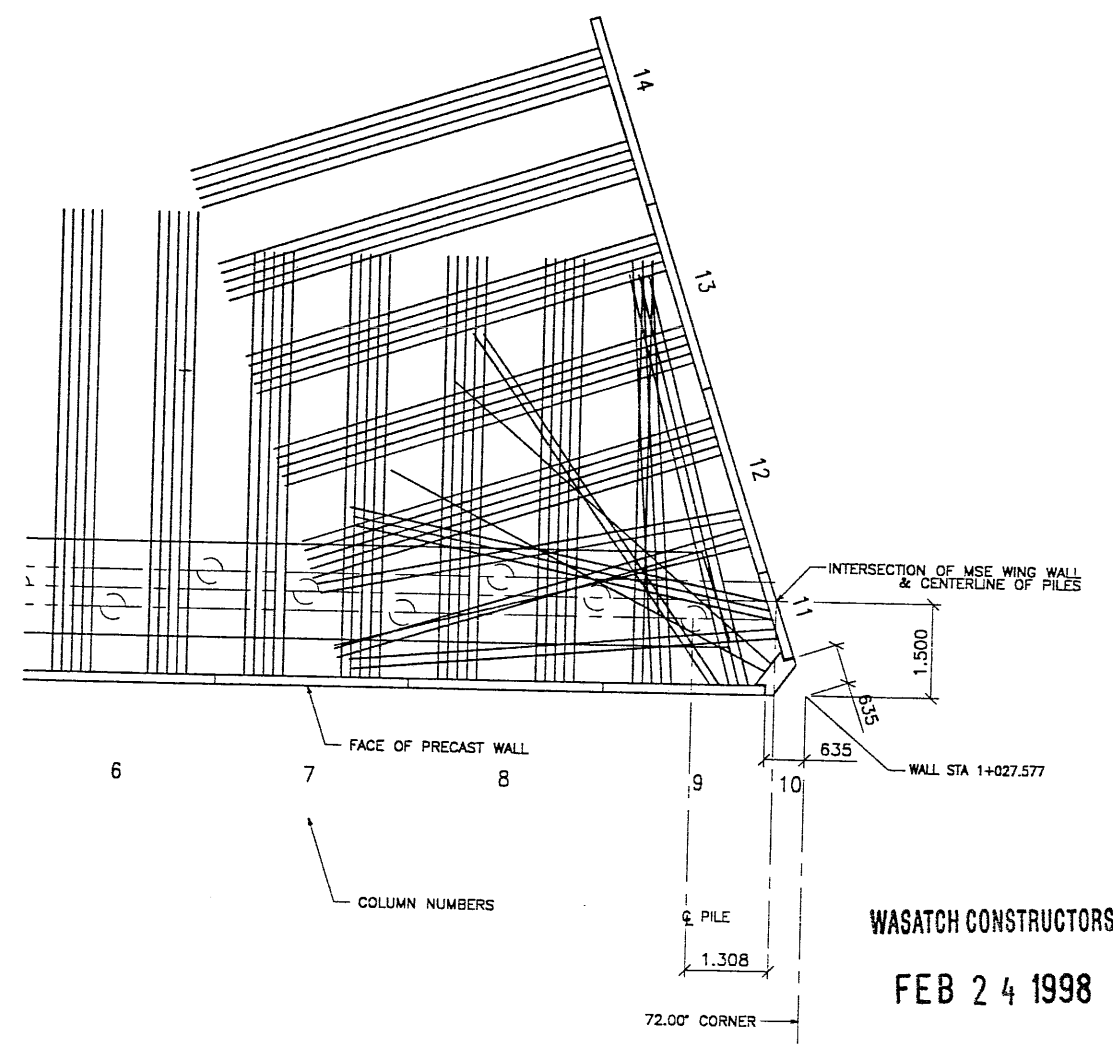
REFERENCE (X-UTAH.DWG)

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FINAL PLOT 02-17-98



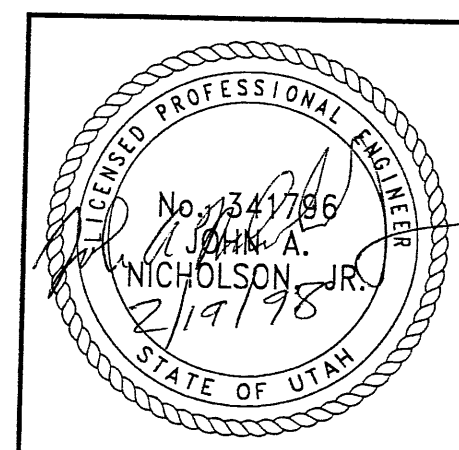
TYPICAL CROSS SECTION - STA 1+038.800 TO 1+041.825
 (SEE DWG. NO. 1.2R-342-7.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



ENLARGED DETAIL AT WALL CORNER
 SCALE: 1:50 (FULL SIZE)
 SCALE: 1:100 (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
△	02-17-98	RELEASE FOR CONSTRUCTION <i>OL</i>

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

VSL CORPORATION
 2640 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-6965

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

VSL

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

RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-07"
 TYPICAL CROSS SECTIONS

DWG. NO. 1.1R-342-7.5
 JOB NO. 239-0007
 SHT. NO. RE-4

5 of 9

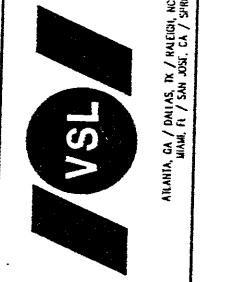
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 FIN... PLOT 04-30-98

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	02-17-98	RELEASE FOR CONSTRUCTION
▲	04-30-98	ABUTMENT ELEVS. CHANGED

WASATCH CONSTRUCTORS
JUN 22 1998
RELEASED FOR CONSTRUCTION

DES.	CHK.	DATE	NO.	DATE	REVISION	BY	CHK
JL	JL	01-15-98					
LOP	LOP	01-15-98					
JL	JL	01-15-98					

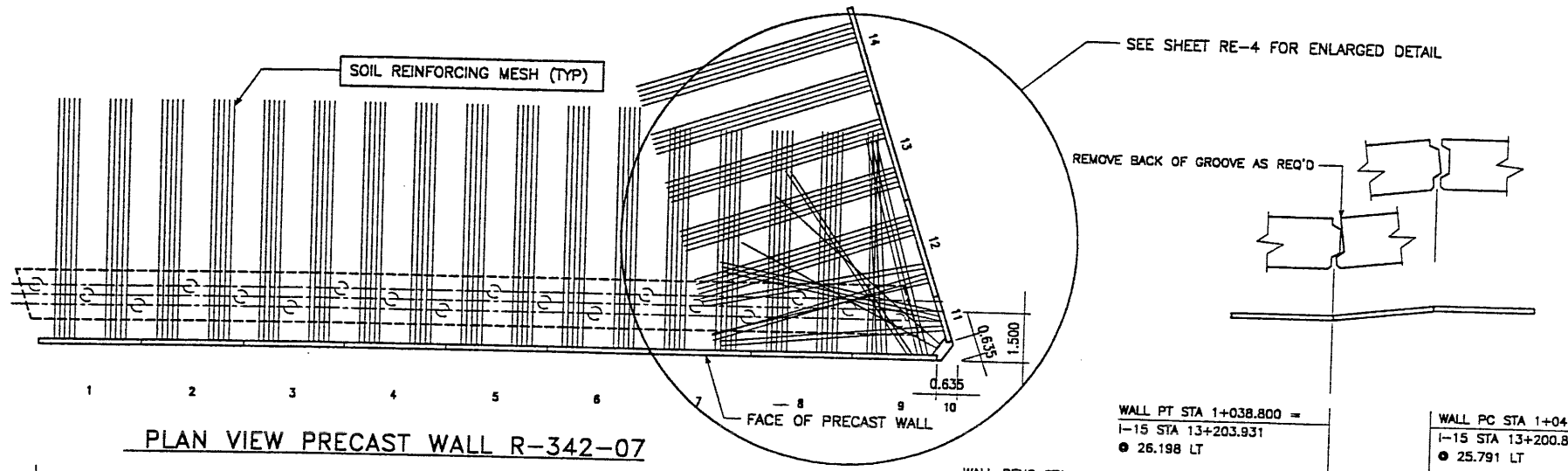
VSL CORPORATION
 2840 Pico Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-6889



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-07"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-7.6
JOB NO.	239-0007
SHT. NO.	RE-5



BEGIN WALL R-342-07
 WALL STA 1+000.000 =
 I-15 STA 13+208.646
 NOMINAL PANEL FACE (RWLOL)

WALL PT STA 1+038.800 =
 I-15 STA 13+203.931
 ● 26.198 LT

WALL PC STA 1+041.825 =
 I-15 STA 13+200.887
 ● 25.791 LT

BEND WALL R-342-07
 WALL STA 1+062.400 =
 I-15 STA 13+180.000
 ● 25.791 LT
 NOMINAL PANEL FACE (RWLOL)

BEGIN WALL
 STA 1+000.000
 EL. 1336.085

STA 1+005.000
 EL. 1338.041

STA 1+010.000
 EL. 1338.017

STA 1+015.000
 EL. 1335.983

STA 1+020.000
 EL. 1335.868

STA 1+025.000
 EL. 1335.845

STA 1+030.000
 EL. 1335.833

STA 1+035.000
 EL. 1335.833

STA 1+040.000
 EL. 1338.357

STA 1+045.000
 EL. 1338.383

STA 1+050.000
 EL. 1338.371

STA 1+055.000
 EL. 1338.372

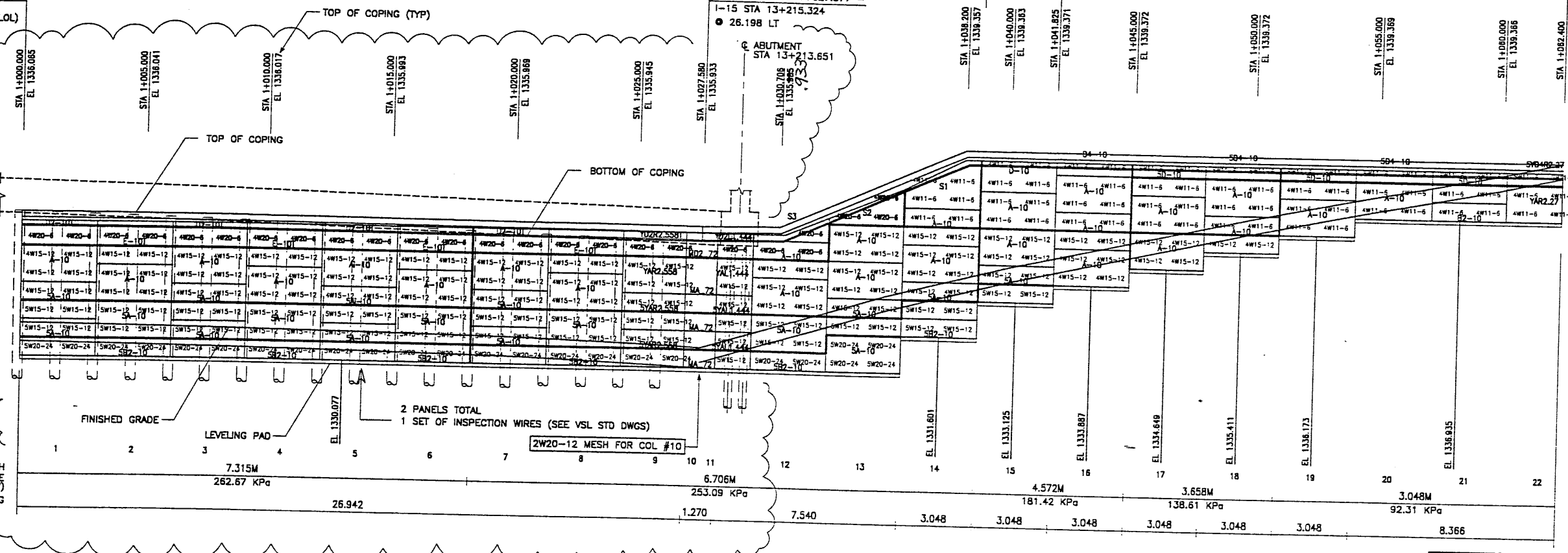
STA 1+060.000
 EL. 1339.389

STA 1+065.000
 EL. 1339.386

STA 1+070.000
 EL. 1339.383

WALL BEND STA 1+027.577 =
 I-15 STA 13+215.324
 ● 26.198 LT

ABUTMENT
 STA 13+213.651
 EL. 1335.833



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

FINISHED GRADE
 LEVELING PAD
 EL. 1330.077

2 PANELS TOTAL
 1 SET OF INSPECTION WIRES (SEE VSL STD DWGS)
 2W20-12 MESH FOR COL #10

262.67 KPa
 253.09 KPa
 181.42 KPa
 138.61 KPa
 92.31 KPa

7.315M
 6.706M
 4.572M
 3.658M
 3.048M

26.942
 1.270
 7.540
 3.048
 3.048
 3.048
 3.048
 3.048
 3.048
 8.366

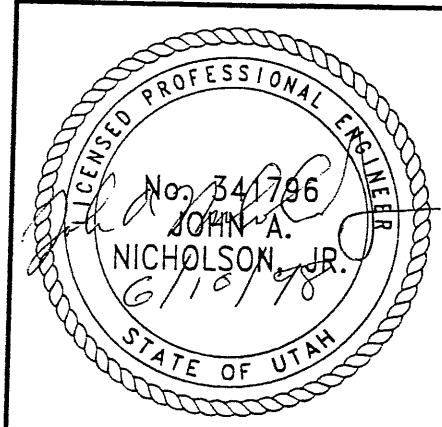
ELEVATION PRECAST WALL R-342-07
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 306.21 SM)

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

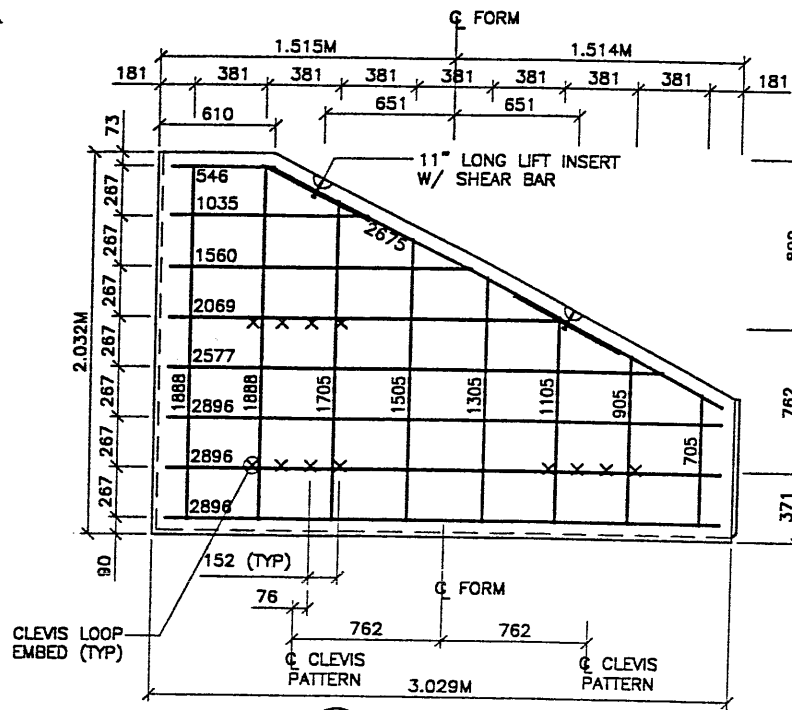
METRIC

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

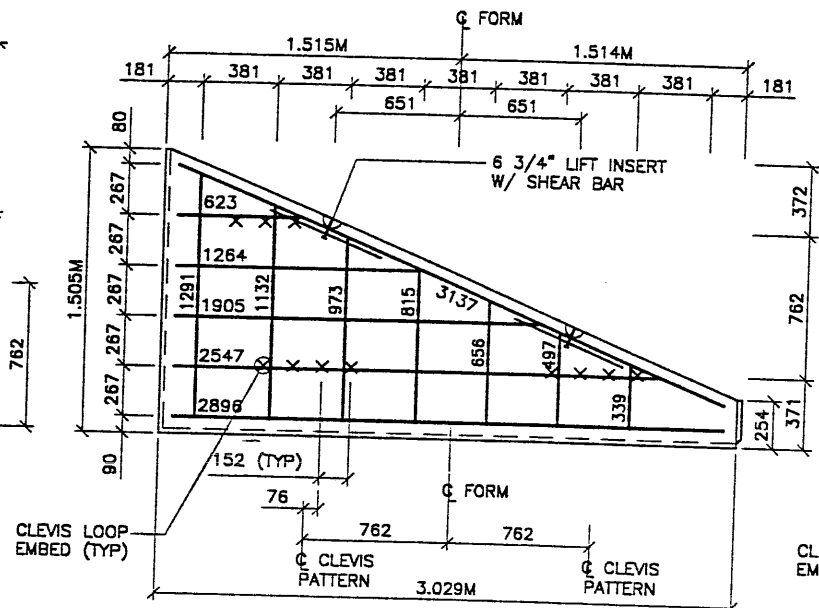
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
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 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
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 THE MANUFACTURER'S SPECIFICATION.



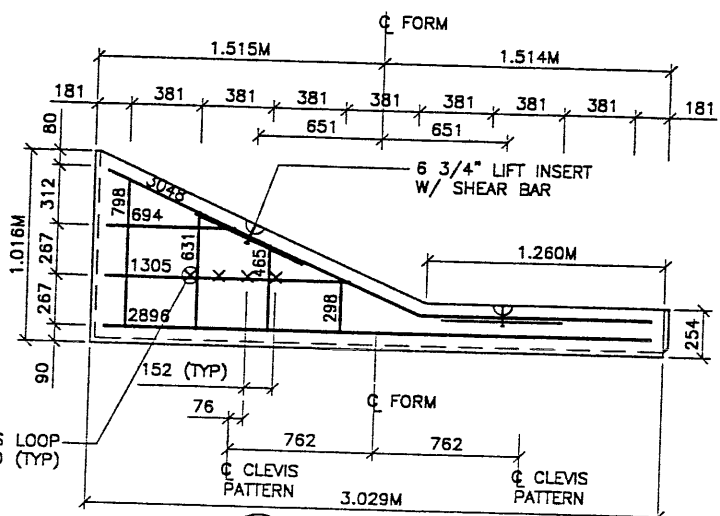
6 of 9



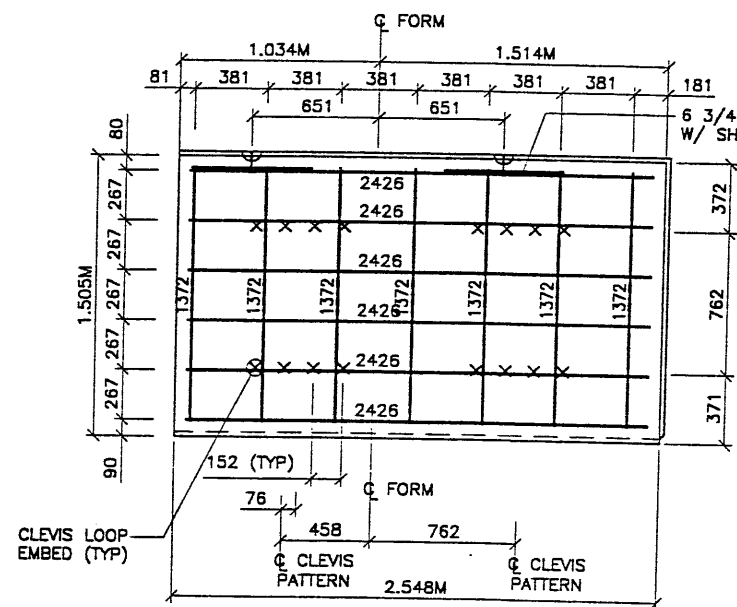
S1 TYPE S1 REBAR
(AREA = 4.65 SQ.M)



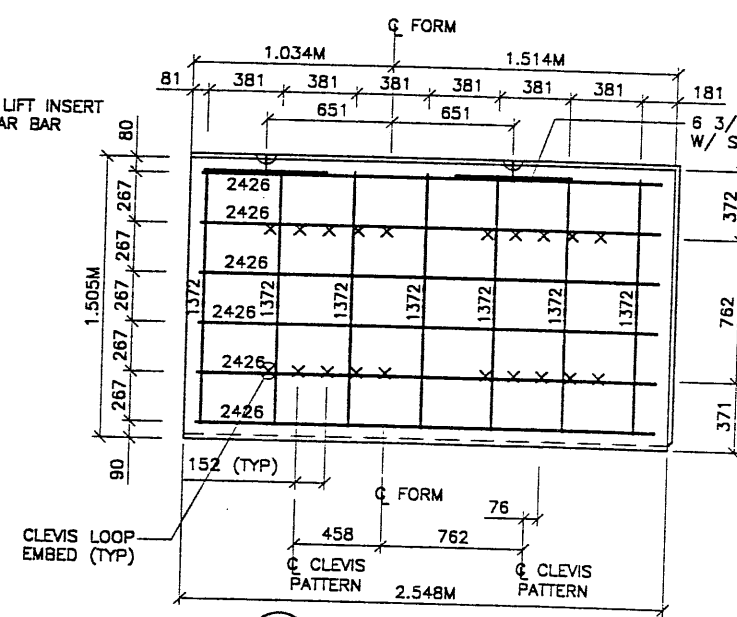
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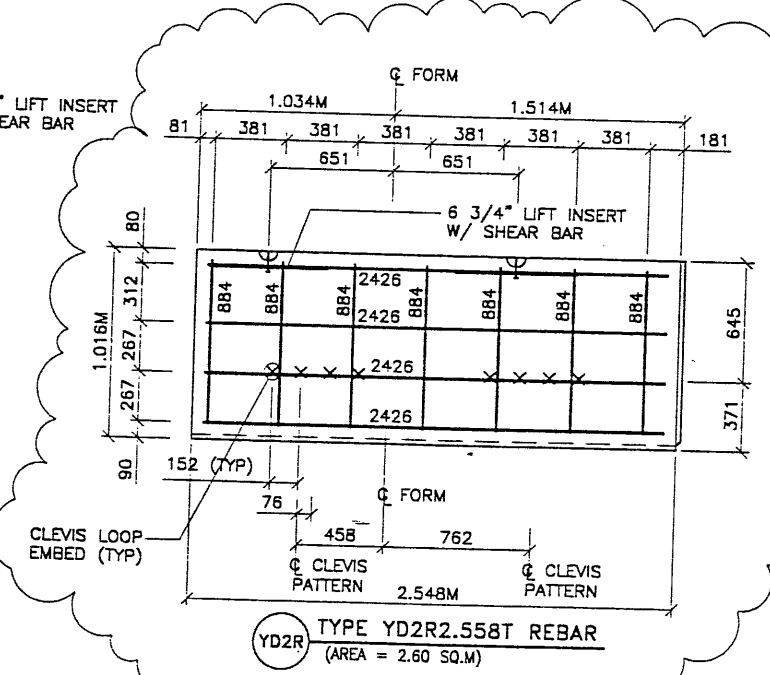
S3 TYPE S3 REBAR
(AREA = 1.44 SQ.M)



YAR TYPE YAR2.558 REBAR
(AREA = 3.90 SQ.M)



5YAR TYPE 5YAR2.558 REBAR
(AREA = 3.90 SQ.M)



YD2R TYPE YD2R2.558T REBAR
(AREA = 2.60 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 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 9.5mmØ 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.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-17-98	RELEASE FOR CONSTRUCTION
△	05-01-98	REVISE PANEL DETAILS

WASATCH CONSTRUCTORS
JUN 22 1998
RELEASED FOR CONSTRUCTION

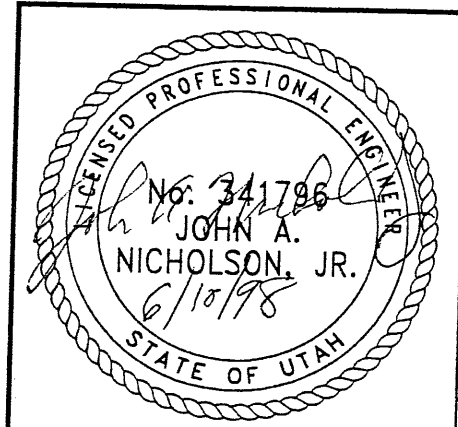
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 881-8272
Fax: (919) 781-4869

ALABAMA, CA, DALLAS, TX, FAYETTEVILLE, NC, HOUSTON, TX, MEMPHIS, TN, MIAMI, FL, SAN ANTONIO, TX, SPRINGFIELD, VA

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RETAINED EARTH™ WALLS
PRECAST WALL R-342-7
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



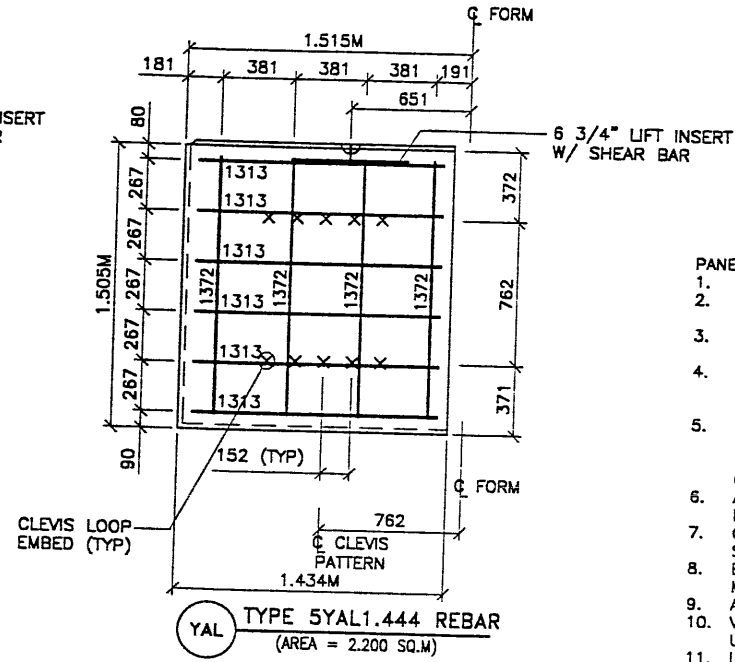
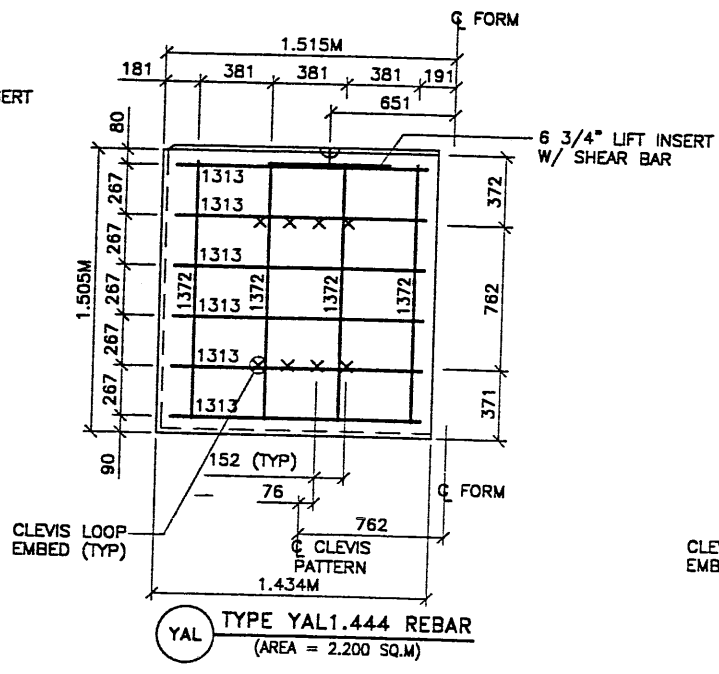
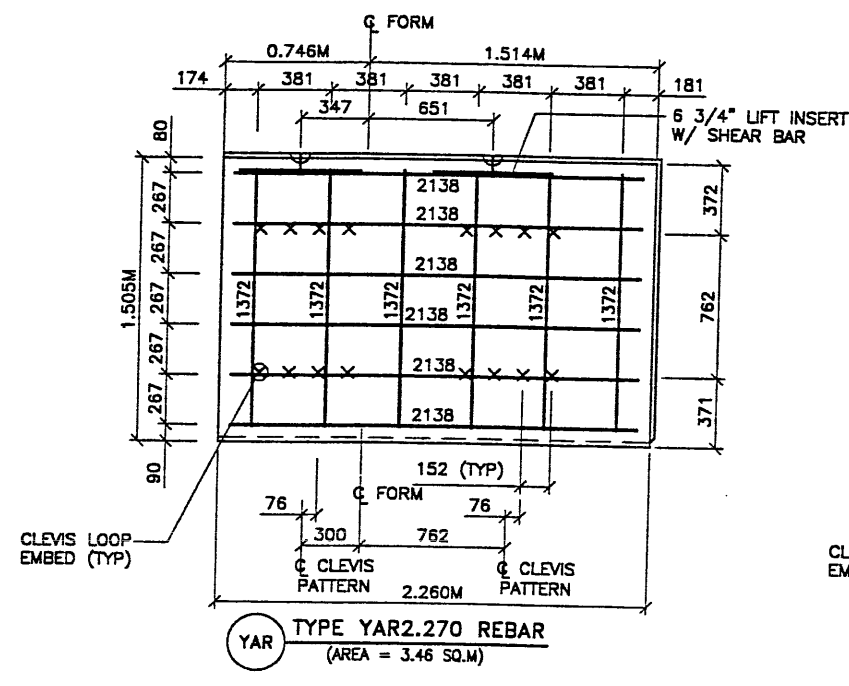
METRIC

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.

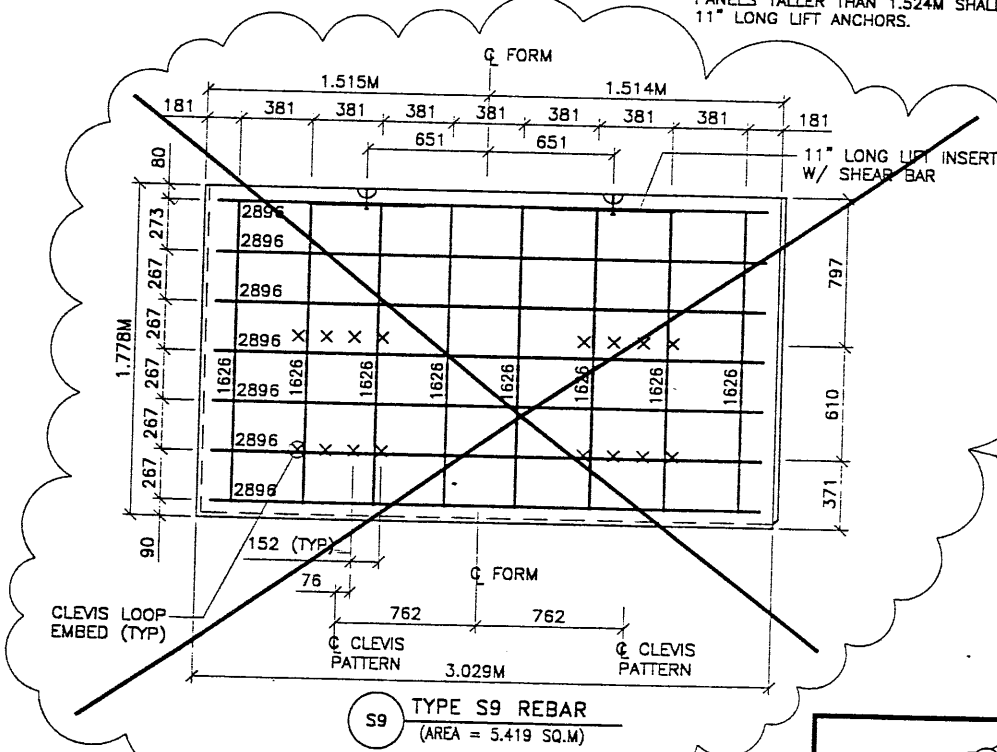
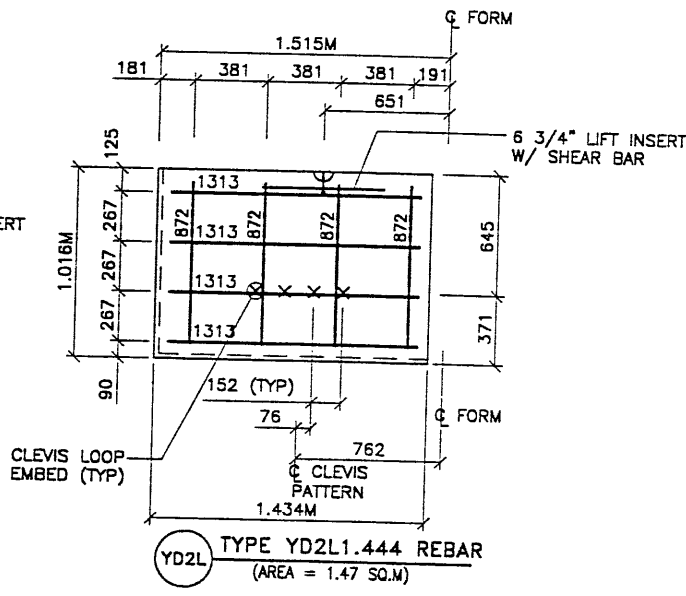
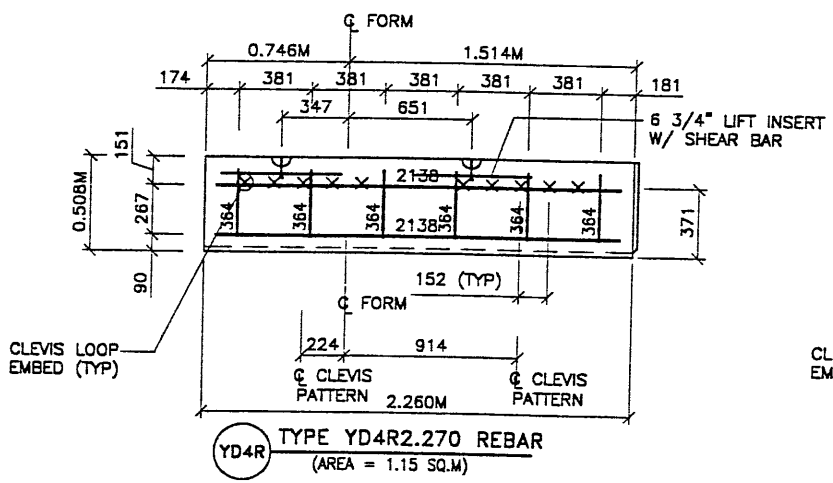
DWG. NO.	1.1R-342-7.7
JOB NO.	239-0007
SHT. NO.	RE-6

7099

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-17-98	RELEASE FOR CONSTRUCTION
△	05-01-98	OMIT PANEL S9



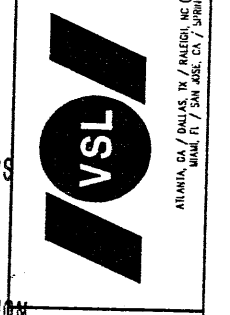
- PANEL REINFORCEMENT NOTES:**
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 - LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.



WASATCH CONSTRUCTORS
JUN 22 1998
RELEASED FOR CONSTRUCTION

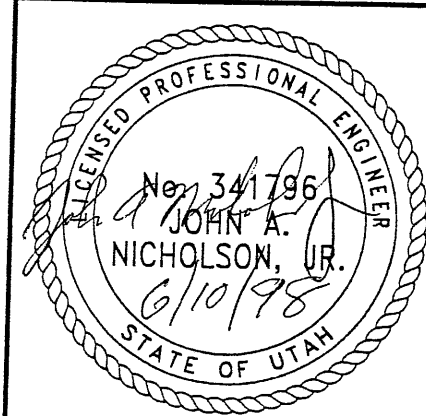
NO.	DATE	DESCRIPTION	BY	CHK

VSL CORPORATION
260 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4999



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RETAINED EARTH™ WALLS
PRECAST WALL R-342-07
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



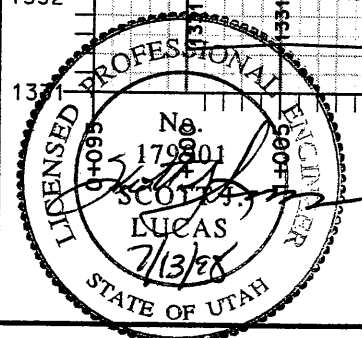
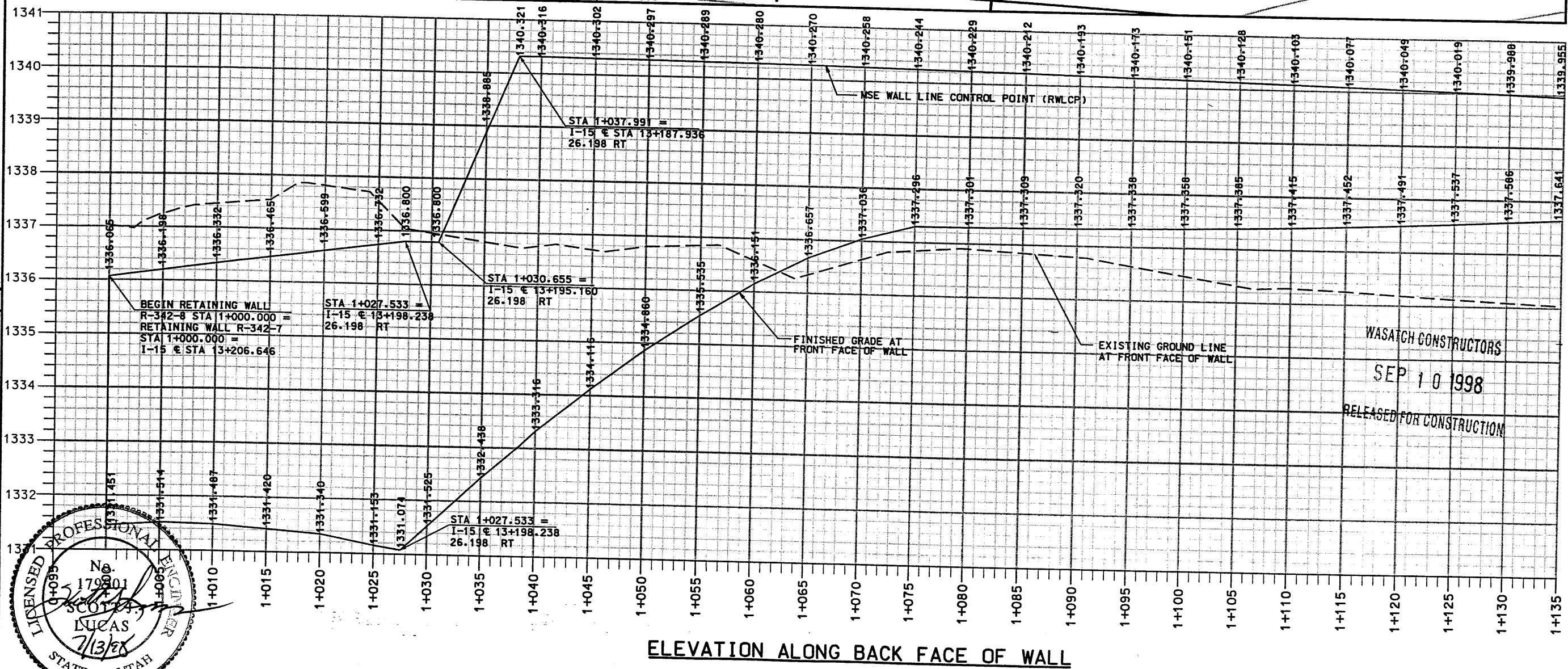
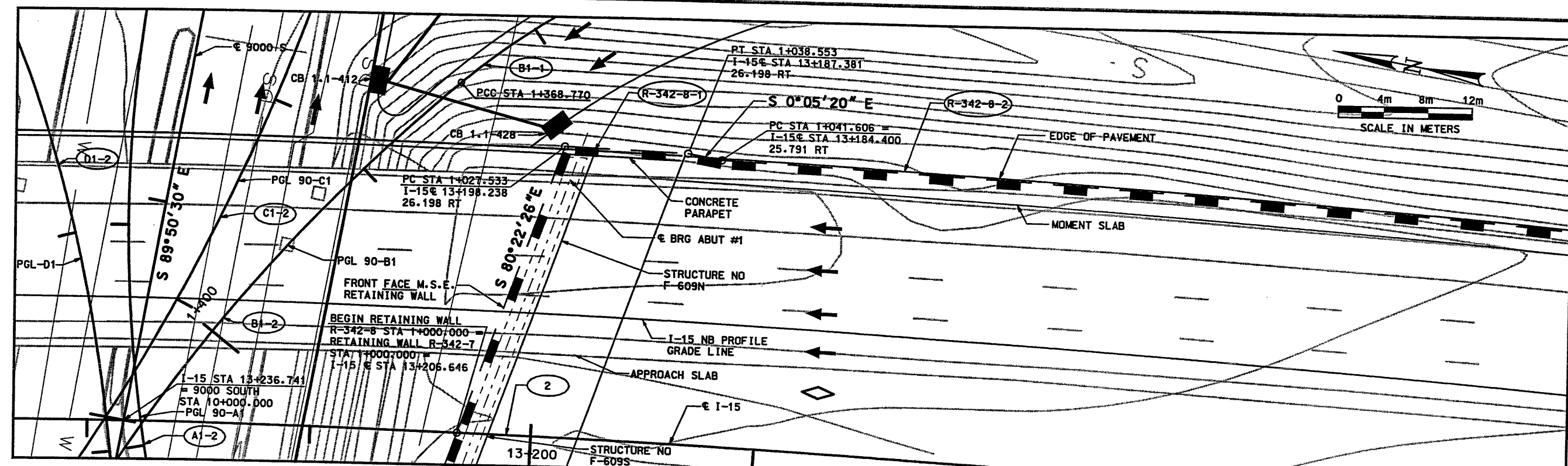
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

METRIC

DWG. NO.	1.1R-342-7.8
JOB NO.	239-0007
SHT. NO.	RE-7

8 of 9

Date: 13-JUL-1998 Time: 13:49 User: GASTERJN
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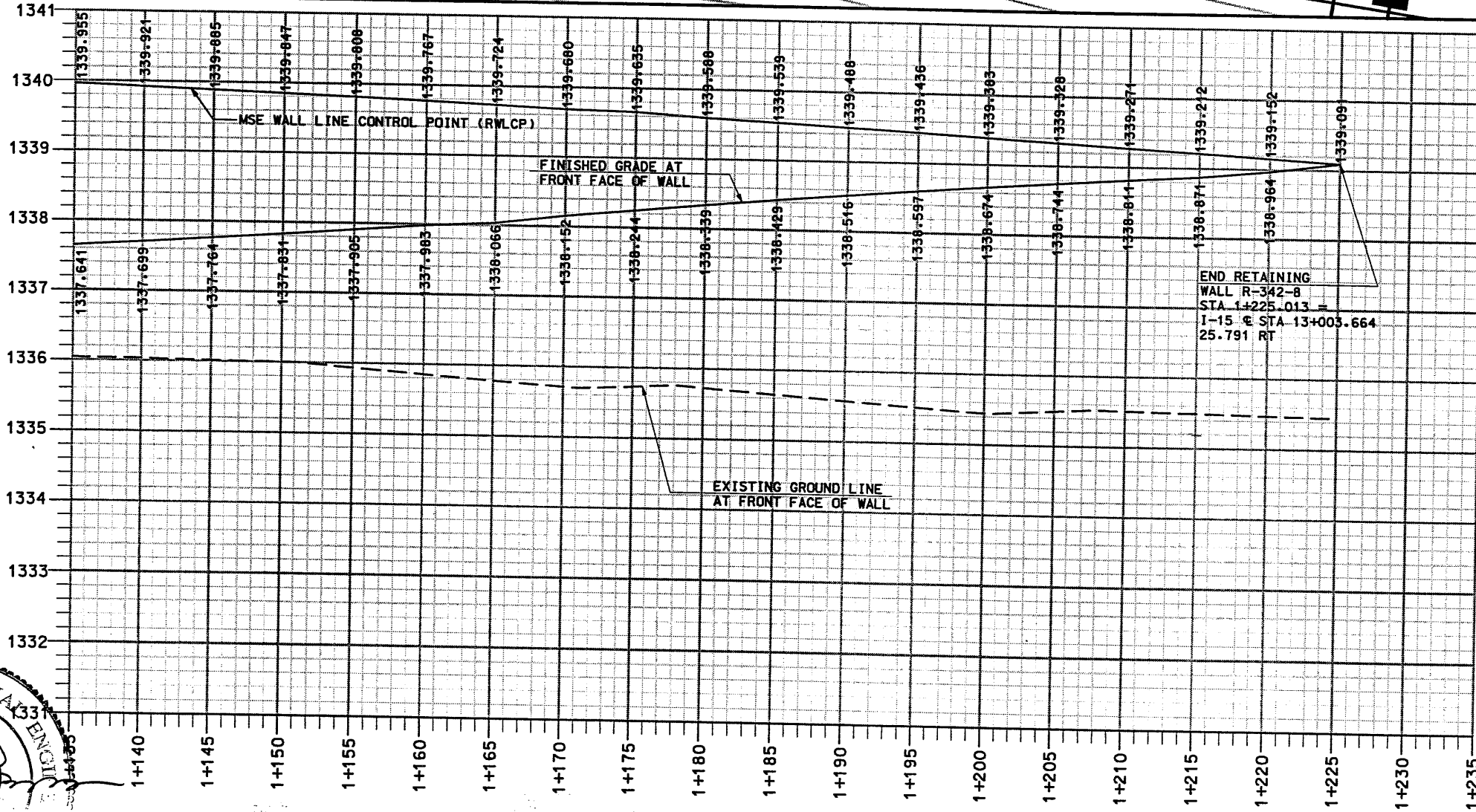
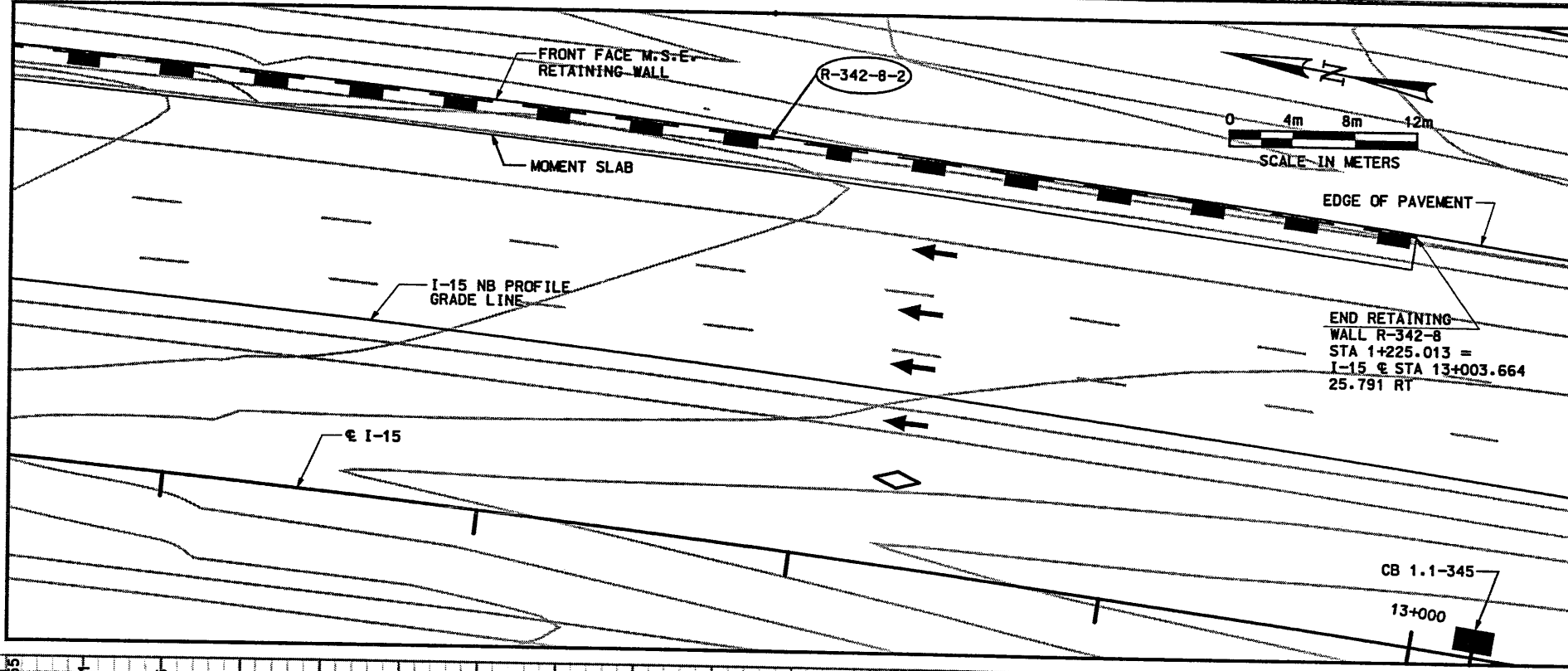
WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION

MATCH LINE STA 1+135.000 SHEET R-342-8-2

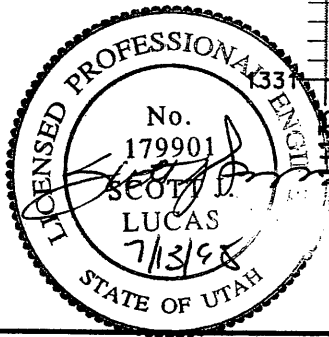
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NO.	DATE	NO.	DATE
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UTAH DEPARTMENT OF TRANSPORTATION		1113413	
H. W. LOCHNER SVRDRUP/DE LEUW		CHECK_BDV 7/98	
DESIGN: SCOTT J. LUCAS		CHECK_BDV 7/98	
PROJECT DESIGN ENGINEER		CHECK_BDV 7/98	
DRAWN: BRUCE D. VANA		CHECK	
PROJECT MANAGER			
APPROVAL RECORD: DATE 7/98		APPROVED 7/98	
PROJECT #SP-15-7(135)296			
SECTION 1.1			
SALT LAKE COUNTY			
1.1R-342-8.1			
DWG. NO.			
SHT. 1 OF 3			
90_STR_R-342-8-1LY			

ELEVATION ALONG BACK FACE OF WALL

MATCH LINE STA 1+135.000
SHEET R-342-8-1

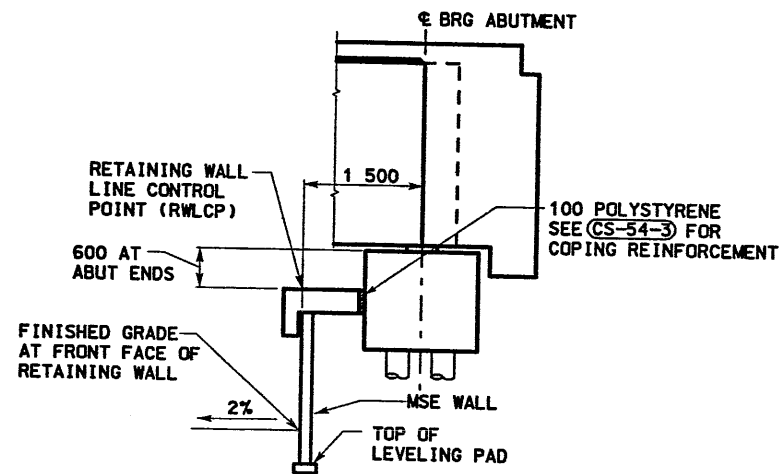


ELEVATION ALONG BACK FACE OF WALL

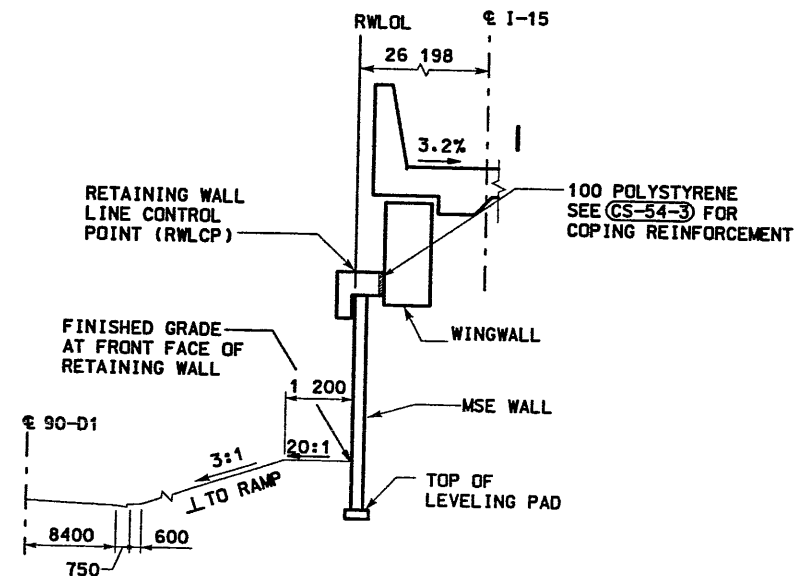


WASATCH CONSTRUCTORS
SEP 10 1998
RELEASED FOR CONSTRUCTION

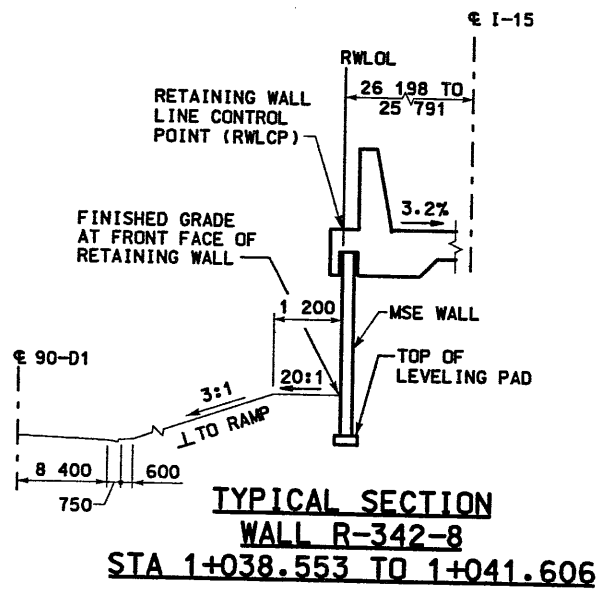
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UTAH DEPARTMENT OF TRANSPORTATION			H. W. LOCHNER SVDRUP/DE LELW		
I-15 CORRIDOR RECONSTRUCTION SITUATION & LAYOUT RET WALL R-342-8		DESIGN DATE: 7/98		CHECK_BDY: 7/98	
SECTION 1.1		DESIGN_SUL: 7/98		CHECK_BDY: 7/98	
PROJECT #SP-15-7(135)296		DRAWN: JHG 7/98		CHECK: [Signature]	
SALT LAKE COUNTY		APPROVED DATE: 7/98		PROJECT MANAGER: [Signature]	
1.1R-342-8.2		DATE: 7/98		QUANT: 1113413	
DWG. NO.		DATE		QUANT	
SHT. 2 of 3		DATE		QUANT	
90_STR_R-342-8-2LY		DATE		QUANT	
REF.		DATE		QUANT	



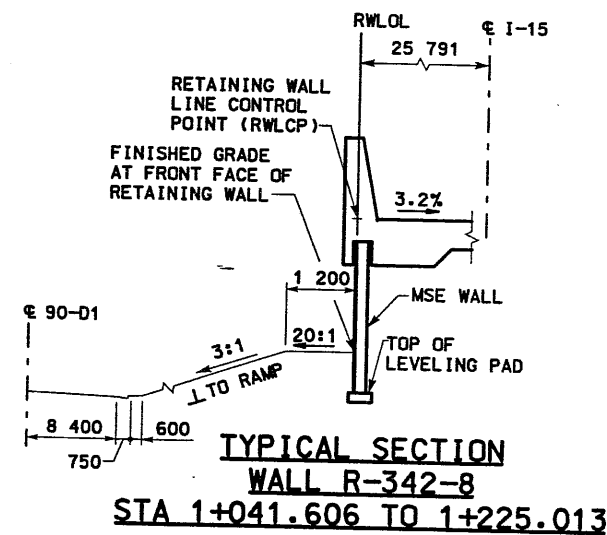
**TYPICAL SECTION
WALL R-342-8
STA 1+000.000 TO 1+027.533**



**TYPICAL SECTION
WALL R-342-8
STA 1+027.533 TO 1+038.553**



**TYPICAL SECTION
WALL R-342-8
STA 1+038.553 TO 1+041.606**



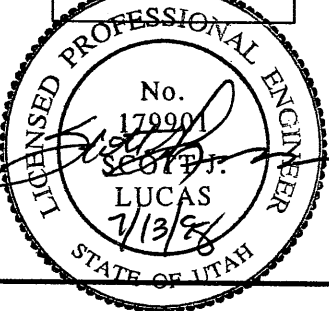
**TYPICAL SECTION
WALL R-342-8
STA 1+041.606 TO 1+225.013**

2
 $\Delta = 21^\circ 16' 32''$ LT
 $R = 1745.000$
 $L = 647.972$
 $T = 327.761$
 PI STA 13+254.636
 PC STA 12+926.875
 PT STA 13+574.848

R-342-8-1
 $\Delta = 0^\circ 21' 23''$
 $R = 1771.198$
 $L = 11.020$
 $T = 5.570$
 PC STA 1+027.533
 PT STA 1+038.553

R-342-8-2
 $\Delta = 5^\circ 56' 04''$
 $R = 1770.791$
 $L = 183.407$
 $T = 91.786$
 PC STA 1+041.606
 PT STA 1+225.013

**CURVE DATA
IN METERS**



NOTES:

1. ALL TYPICAL SECTION DIMENSIONS ARE IN MILLIMETERS EXCEPT AS NOTED.
2. ALL ALL PLAN AND PROFILE DIMENSIONS ARE IN METERS EXCEPT AS NOTED.
3. SEE (CS-224) AND (CS-227) FOR APPROACH SLAB DETAILS.
4. SEE BRIDGE PLANS FOR ABUTMENT DETAILS.
5. SEE (CS-28) FOR COPING AND MOMENT SLAB DETAILS.

WASATCH CONSTRUCTORS

SEP 10 1998

RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION

I-15 CORRIDOR RECONSTRUCTION
SITUATION & LAYOUT RET WALL R-342-8

SALT LAKE COUNTY

1.1R-342-8.3
DWG. NO.

SHT. 3 OF 13

90_STR_R-342-8LY3
REF.

NO. DATE

7/13/98 ORIGINAL RELEASE

7/98

7/98

7/98

7/98

7/98

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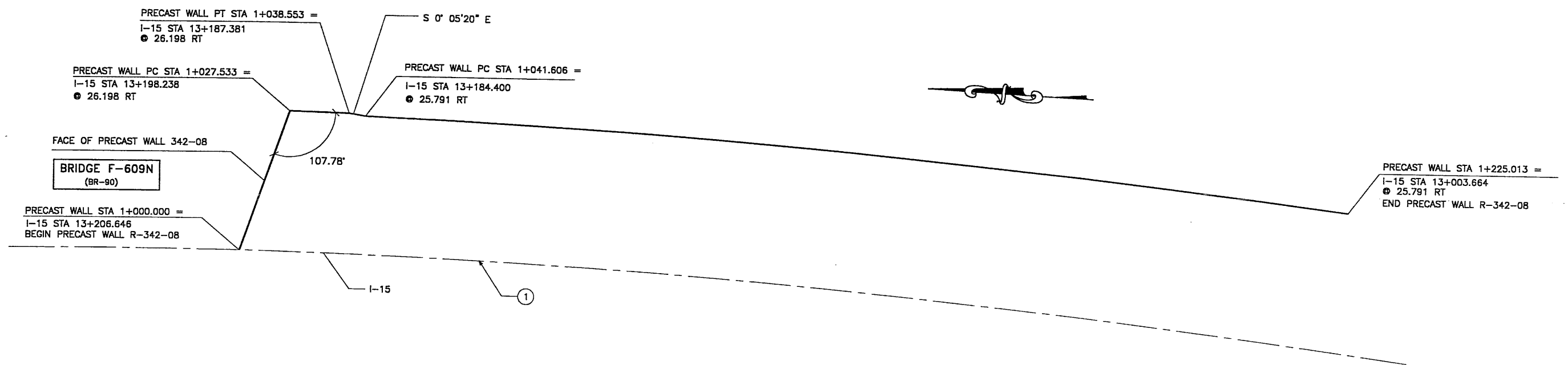
7/98

7/98

7/98

7/98

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	08-10-98	RELEASE FOR CONSTRUCTION



CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	△
①	1745.000	614.722	310.580	20°11'02"

All Dimensions Are In Meters Unless Noted Otherwise

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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W20-6 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W15-12 MESH HAS FIVE (4) W11 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W20-24 MESH HAS FIVE (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 4W15-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 6" 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 DETAIL.

PLAN VIEW WALL "R-342-8"

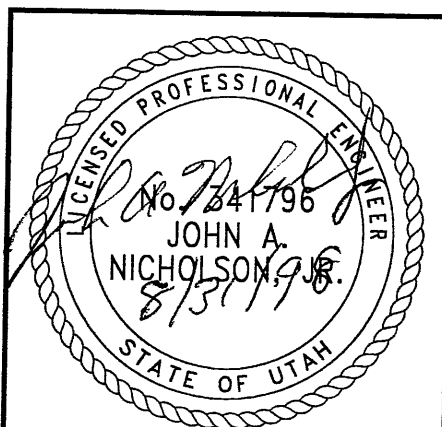
SCALE: 1=400 (FULL SIZE)
SCALE: 1=800 (HALF SIZE)

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT)	= 34°
ANGLE OF INTERNAL FRICTION (BASE)	= 30°
ANGLE OF INTERNAL FRICTION (RANDOM)	= 34°
UNIT WEIGHT BACKFILL	= 135 PCF. (21.2 KN/M ³)
TRAFFIC SURCHARGE	= 250 PSF
SEISMIC ACCELERATION COFF.	= 0.12g (TYP)
SEISMIC ACCELERATION COFF.	= 0.28g (AT BRIDGE ABUTMENTS)
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-342-08, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	TYPICAL CROSS SECTIONS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-342-08"
RE-6	ELEVATION PRECAST WALL "R-342-08"
RE-7	ELEVATION PRECAST WALL "R-342-08"
RE-8	ELEVATION PRECAST WALL "R-342-08"
RE-9	SPECIAL PANEL DETAILS
RE-10	SPECIAL PANEL DETAILS

SEP 10 1998

RELEASED FOR CONSTRUCTION



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METRIC

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-6959

VSL
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
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RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-342-08"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.
DWG. NO.
1.1R-342-8.4
JOB NO.
239-0007
SHT. NO.
RE-1

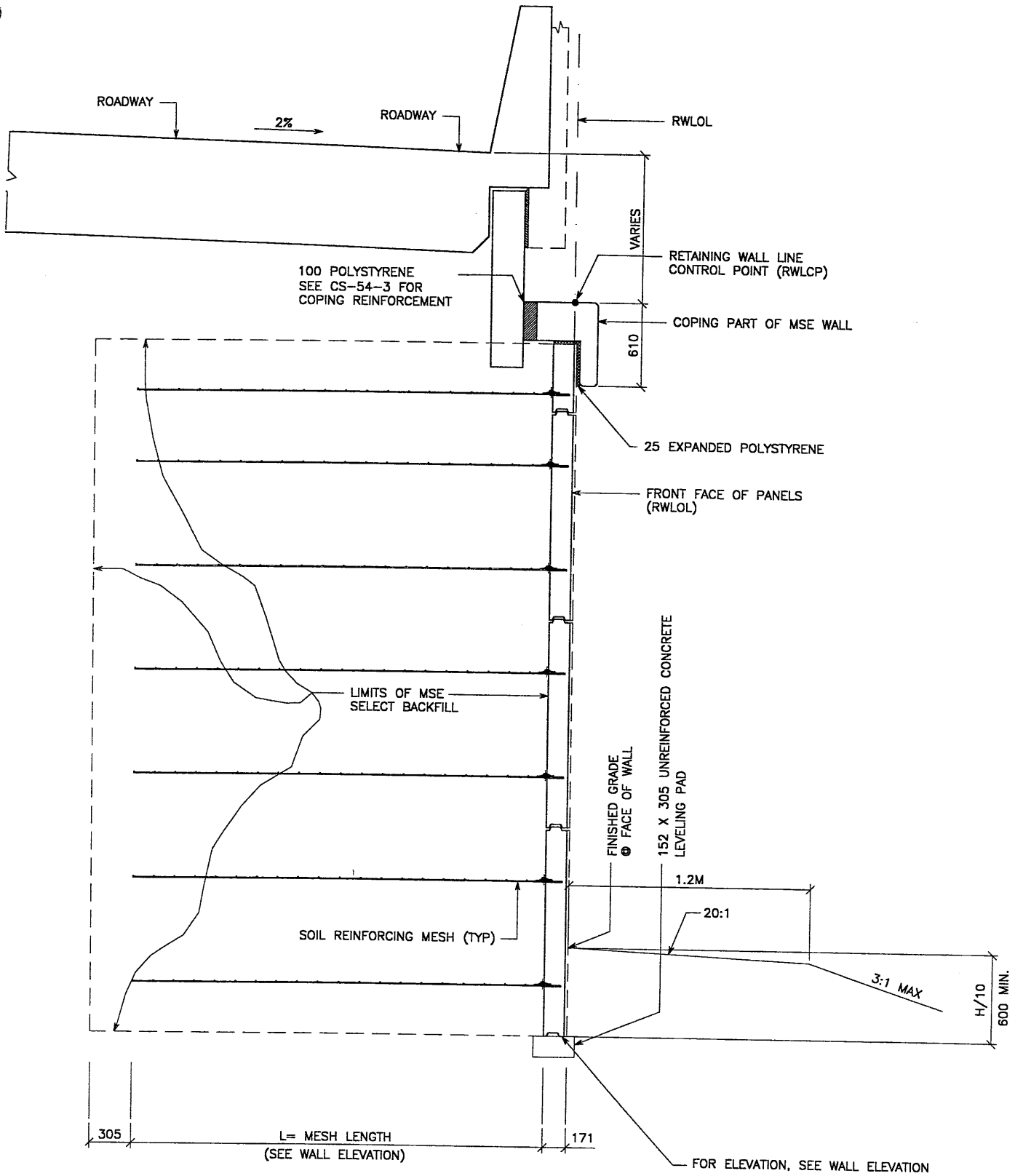
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RE (X-UTAH.DWG)

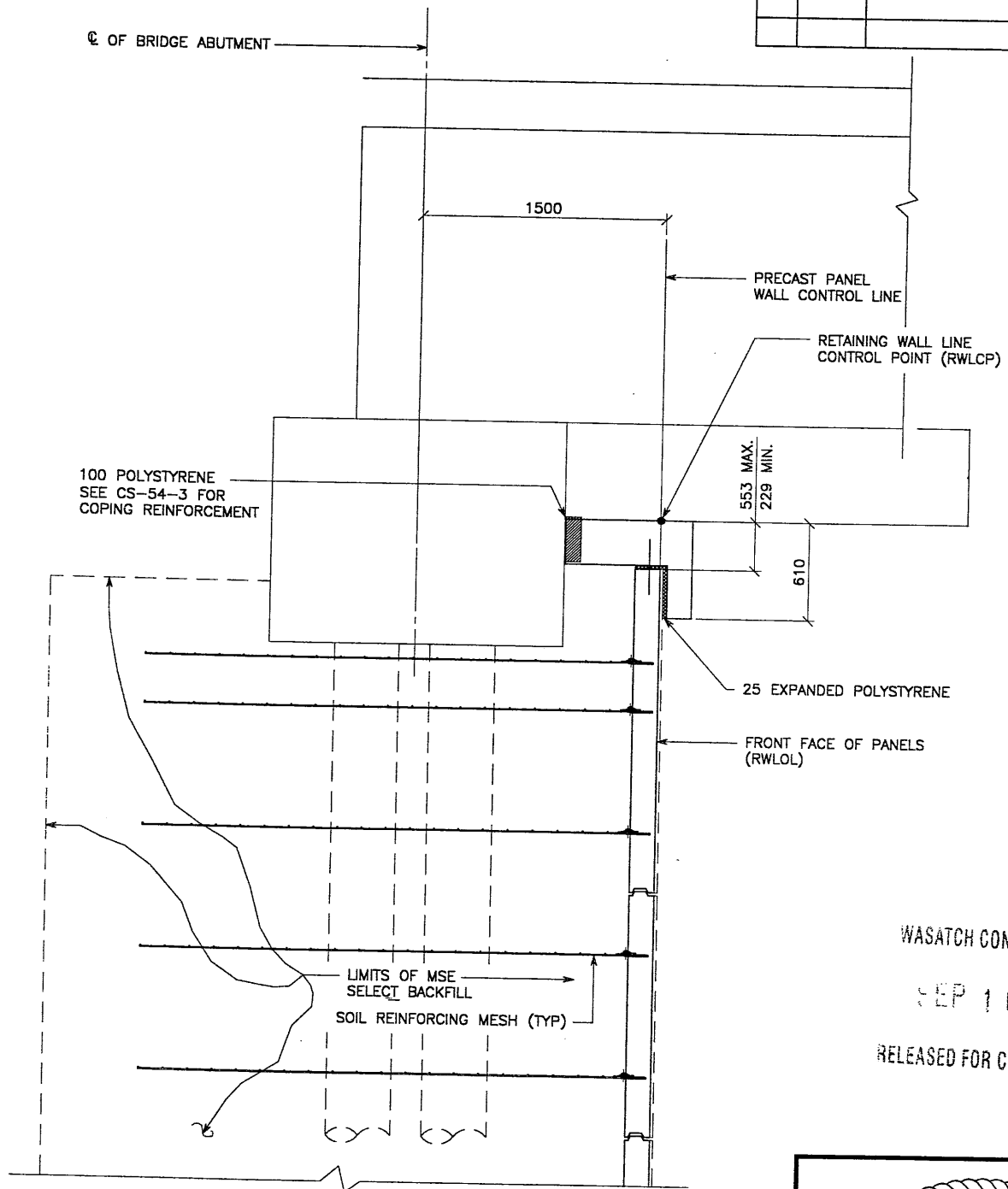
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06-10-98

FINAL



TYPICAL CROSS SECTION - STA 1+027.533 TO 1+039.533
 (SEE DWG. NO. 1.1R-342-10.X FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



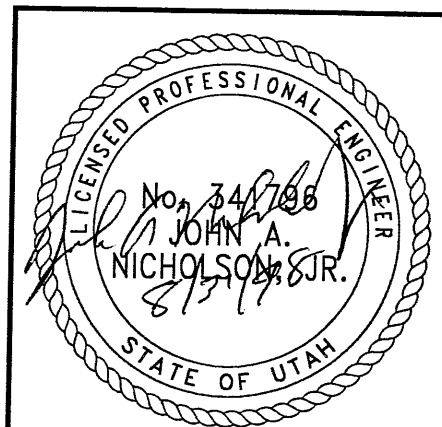
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 (SEE DWG. NO. 2.1R-342.9.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	08-10-98	RELEASE FOR CONSTRUCTION <i>JK</i>

WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION



DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
JL	RSW	JL	<input checked="" type="checkbox"/>					
06-10-98	06-10-98	06-10-98						

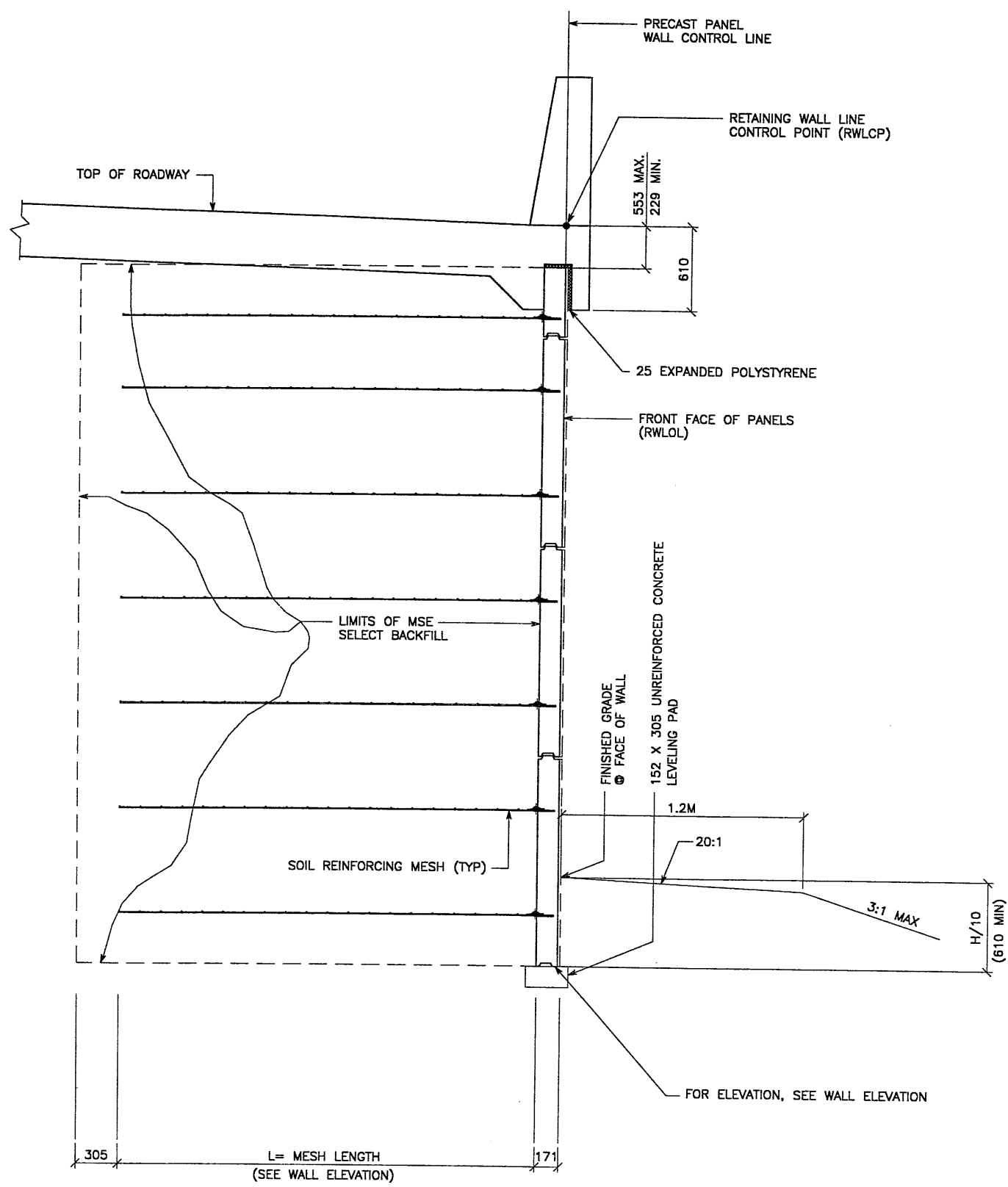
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27615
 Telephone: (919) 781-6272
 Fax: (919) 781-6859

ATLANTA, GA / DALLAS, TX / ENGLEWOOD, CO (CORPORATE OFFICE)
 MINN. R. / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-08"
 TYPICAL CROSS SECTION
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.1R-342-08.5
 JOB NO. 239-0007
 SH. NO. RE-2

5 of 13



TYPICAL CROSS SECTION - STA 1+041.606 TO 1+225.013
 (SEE DWG. NO. 1.1R-342-10.1 FOR ADDITIONAL INFORMATION)
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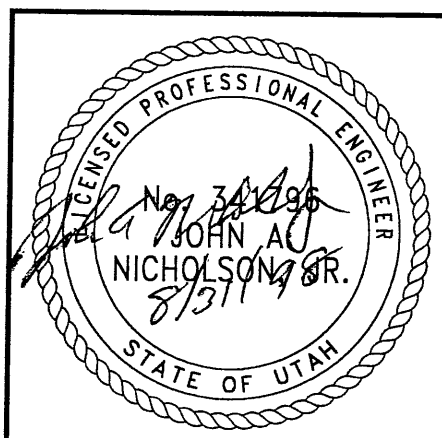
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NO.	DATE	DESCRIPTION
1	08-10-98	RELEASE FOR CONSTRUCTION

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

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

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

WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION



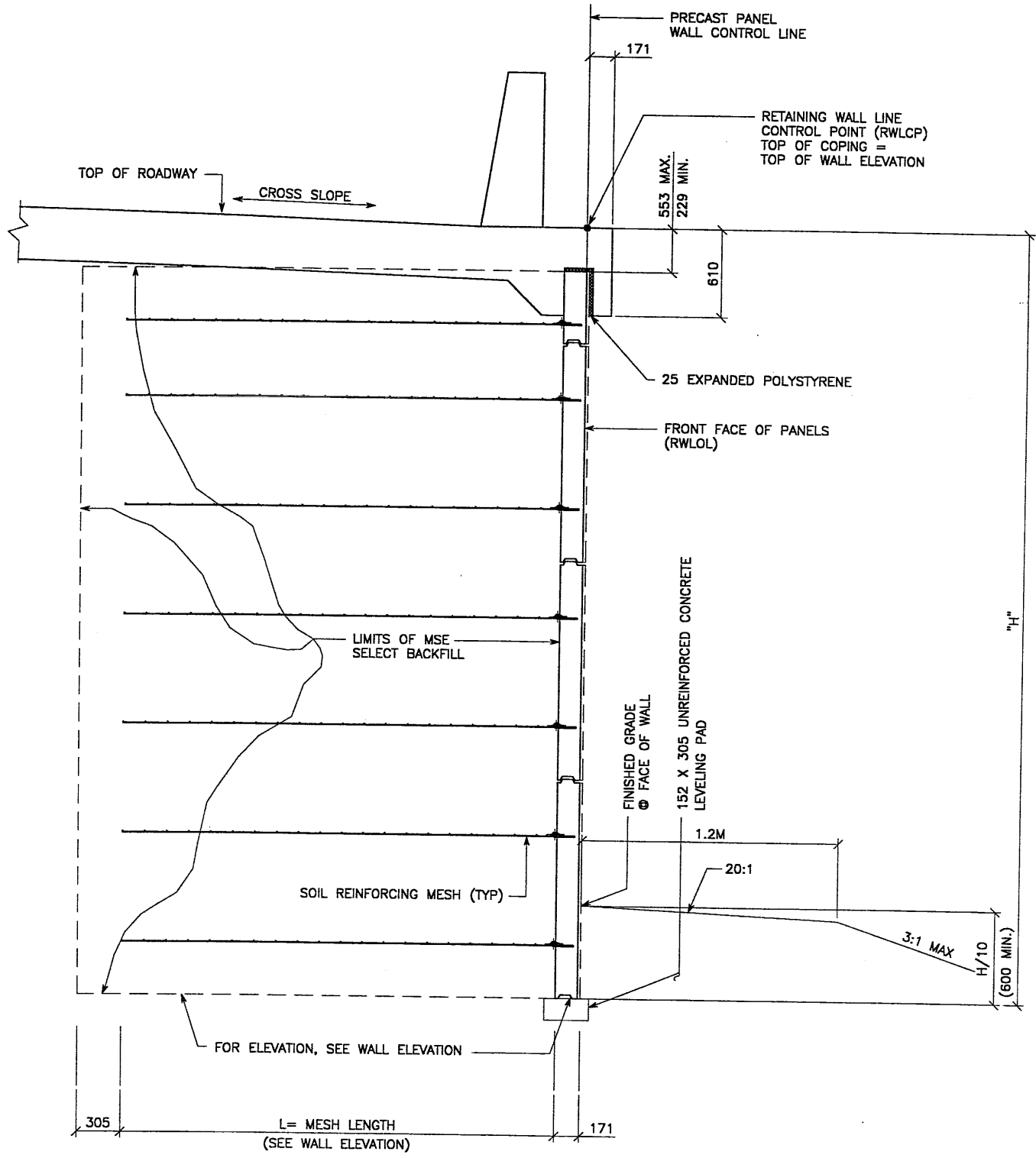
RETAINED EARTH™ WALLS
 PRECAST WALL™ R-342-08
 TYPICAL CROSS SECTION

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

DWG. NO.	1.1R-342-08.6
JOB NO.	239-0007
SHT. NO.	RE-3

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



TYPICAL CROSS SECTION - STA 1+039.533 TO 1+041.606
 (SEE DWG. NO. 1.1R-342-10.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

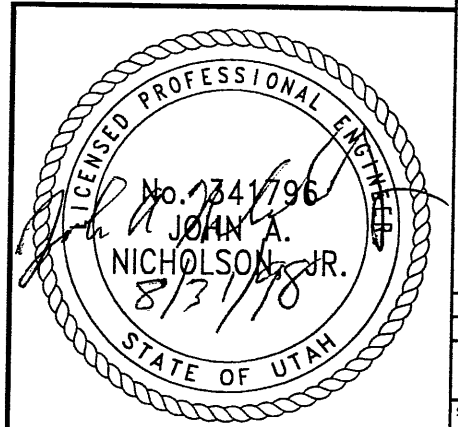
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	08-10-98	RELEASE FOR CONSTRUCTION

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

VSL CORPORATION
 2840 Pison Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 791-6272
 Fax: (919) 781-4869

VSL
 ATLANTA, GA / DENVER, TX / MILWAUKEE, WI (CORPORATE OFFICE)
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WASATCH CONSTRUCTORS
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 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
PRECAST WALL™ R-342-08™
TYPICAL CROSS SECTIONS

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

DWG. NO.	1.1R-342-08.7
JOB NO.	239-0007
SHT. NO.	RE-4

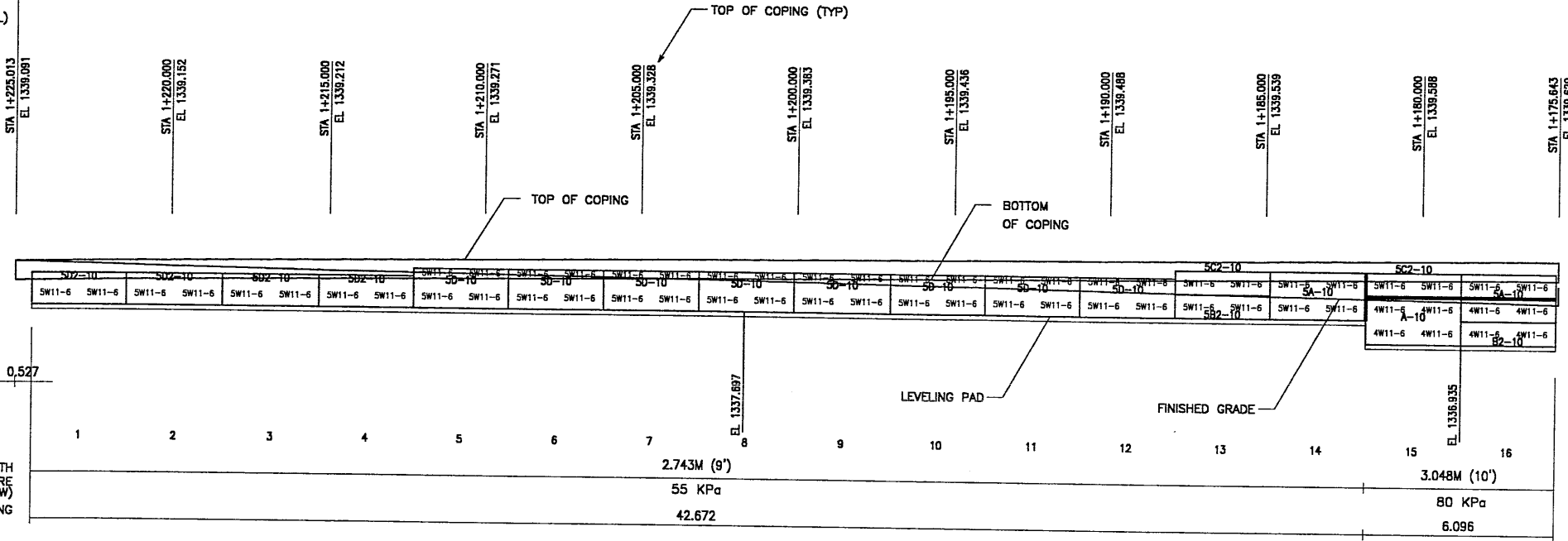
METRIC

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.

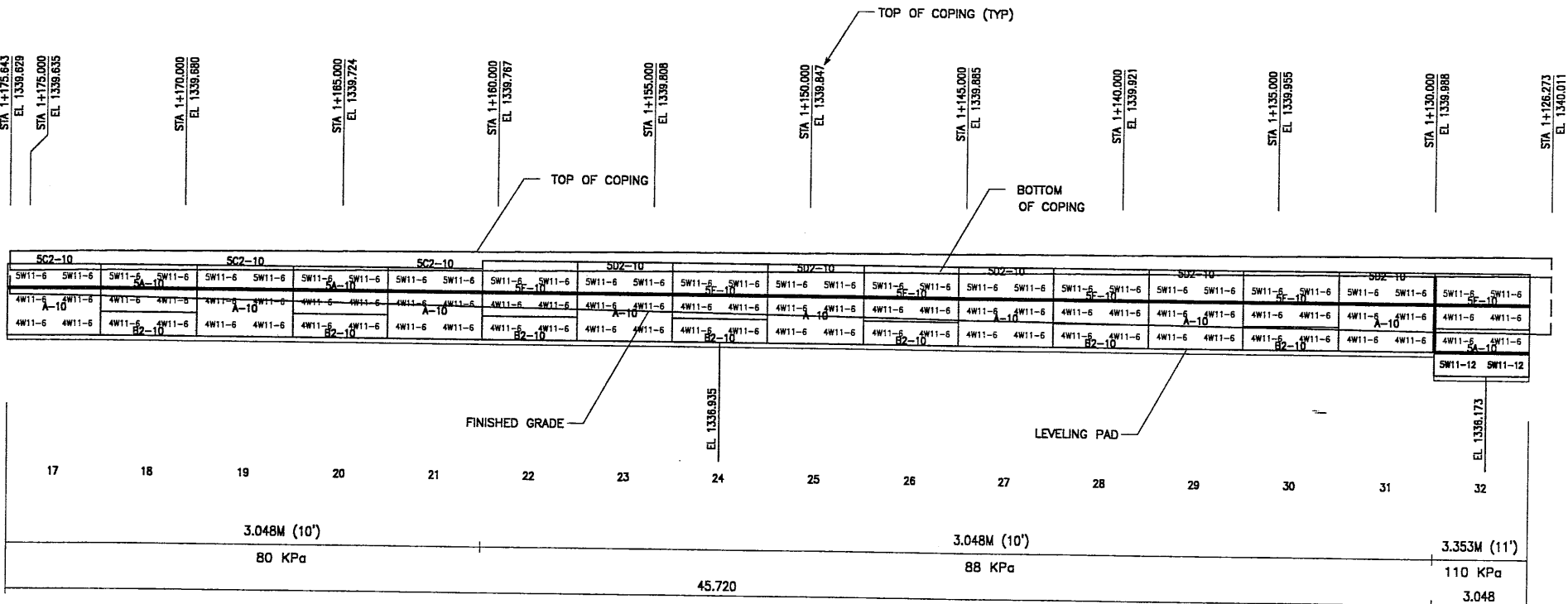
7 of 13

END WALL R-342-08
WALL STA 1+225.013 =
1-15 STA 13+003.664
NOMINAL PANEL FACE (RWLOL)

END WALL



MATCH LINE #1



MATCH LINE #1

MATCH LINE #2

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	08-10-98	RELEASE FOR CONSTRUCTION

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

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

ELEVATION PRECAST WALL R-342-08

(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 824.95 SM)

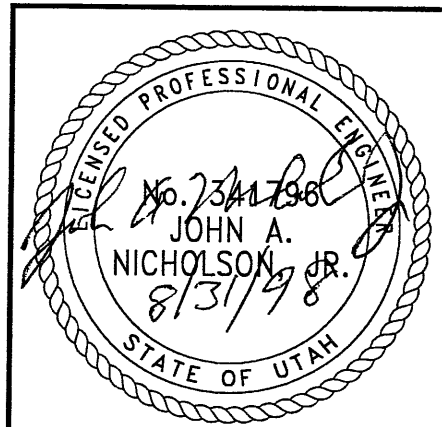
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

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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WASATCH CONSTRUCTORS
SEP 10 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
PRECAST WALL "R-342-08"
UTAH 1-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.1R-342-8.8
JOB NO.
239-0007
SHT. NO.
RE-5

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4869

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

DES. 06-19-98 JLL
DRN. 06-19-98 RSW
CHK. 06-19-98 JLL


NO. DATE REVISION BY CHK

8/29/98

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	08-10-98	RELEASE FOR CONSTRUCTION

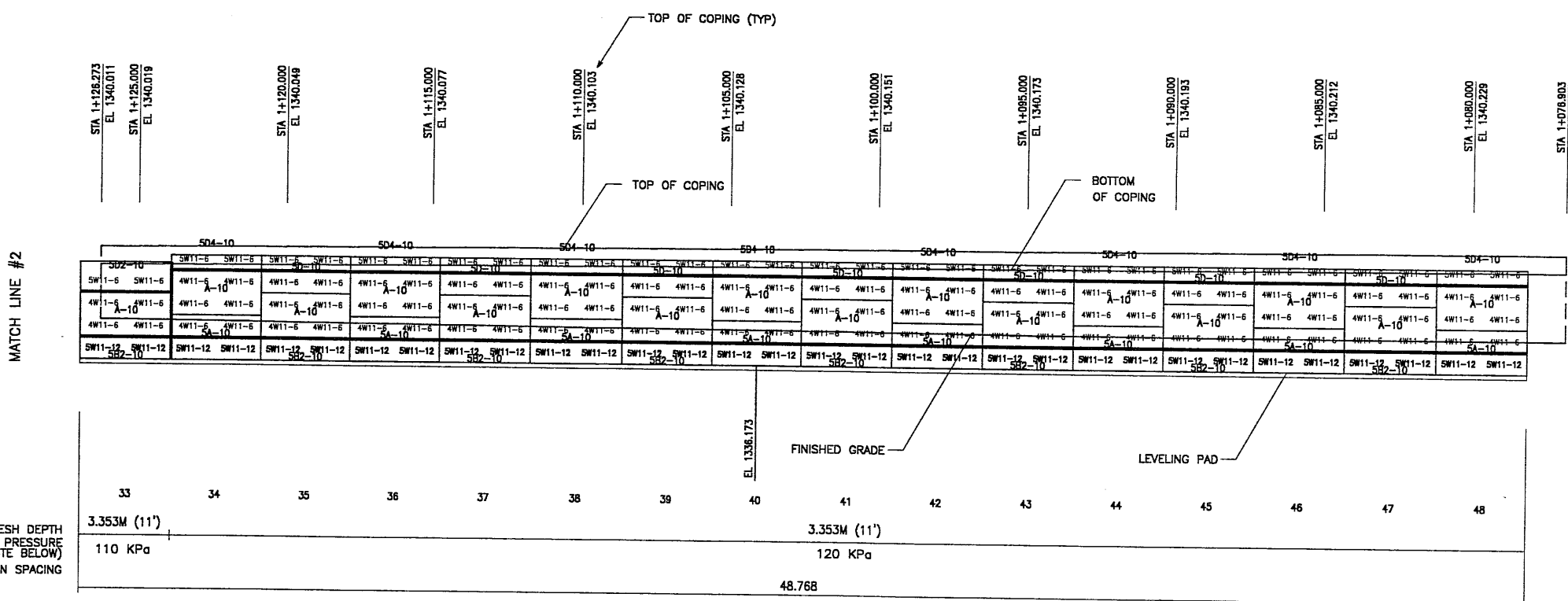
DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	CHK
JL	RSW	JL					
06-19-98	06-19-98	06-19-98					

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-6869



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 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL Corporation (VSL) owns a strict proprietary design and construction process for retaining walls and foundations. The design and construction of any structure using VSL Retained Earth™ structures is the responsibility of the engineer of record. VSL is not responsible for the design or construction of any structure using VSL Retained Earth™ structures. VSL is not responsible for the design or construction of any structure using VSL Retained Earth™ structures. VSL is not responsible for the design or construction of any structure using VSL Retained Earth™ structures.



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

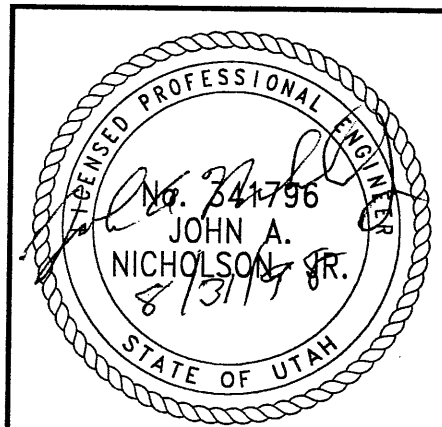
ELEVATION PRECAST WALL R-342-08
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 824.95 SM)

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.

WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS PRECAST WALL "R-342-08"
UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.1R-342-8.9
JOB NO. 239-0007
SHT. NO. RE-6

9 of 13

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1-08

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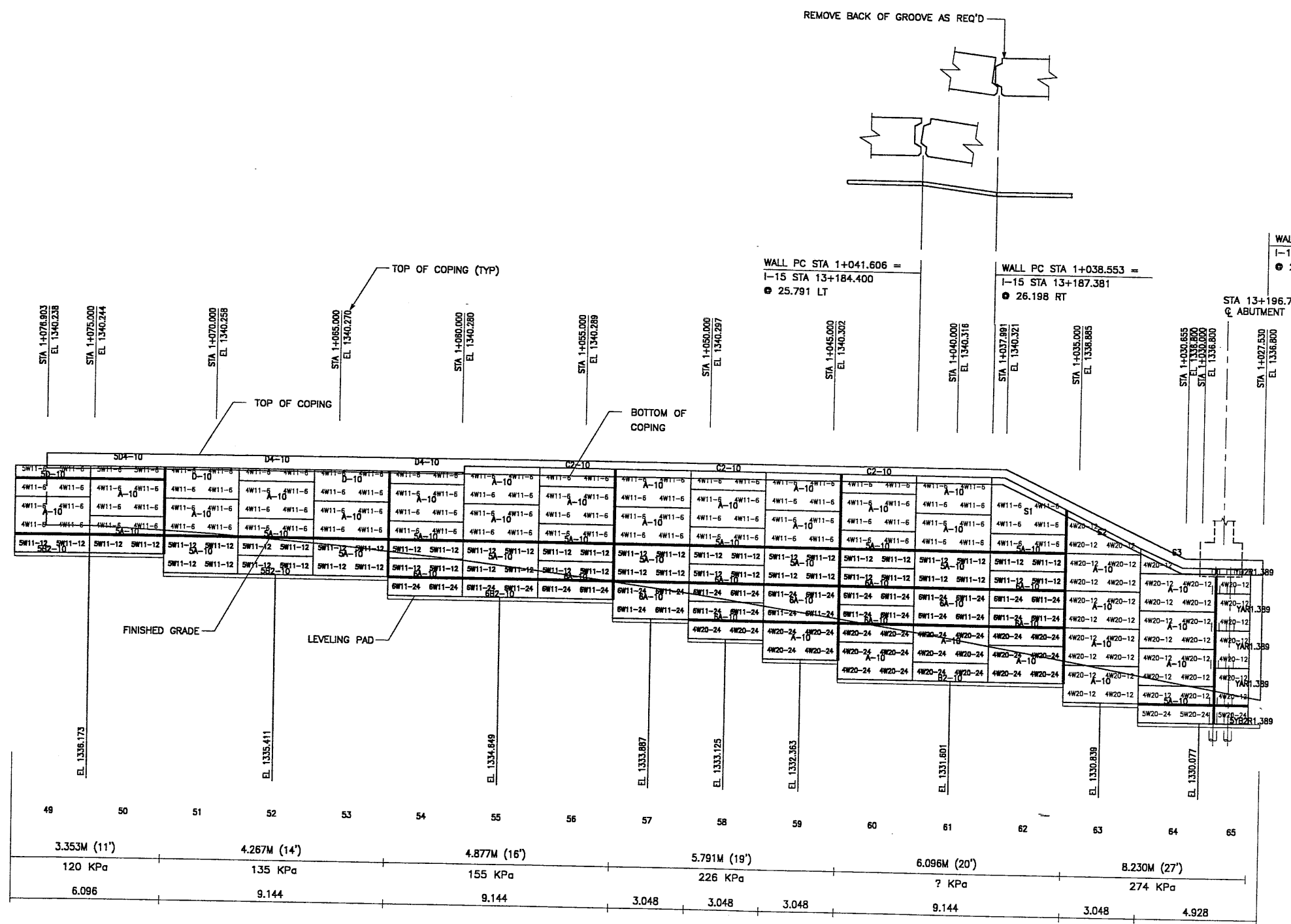
06-19-98

FINAL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△ 08-10-98		RELEASE FOR CONSTRUCTION

MATCH LINE #3

MATCH LINE #4



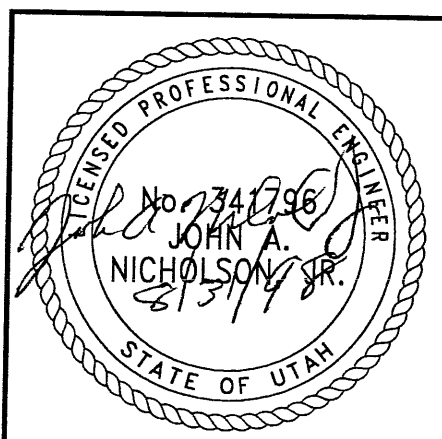
ELEVATION PRECAST WALL R-342-08

(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 824.95 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

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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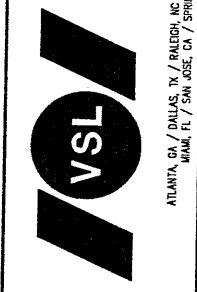


WASATCH CONSTRUCTORS
SEP 10 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-342-08"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-8.10
JOB NO.	239-0007
SHT. NO.	RE-7

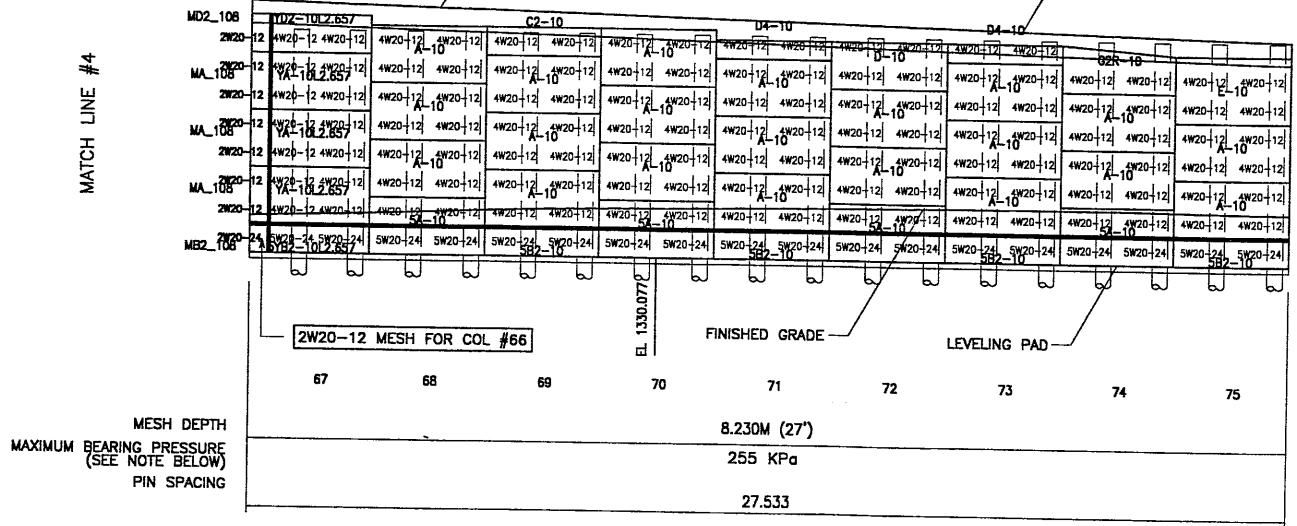
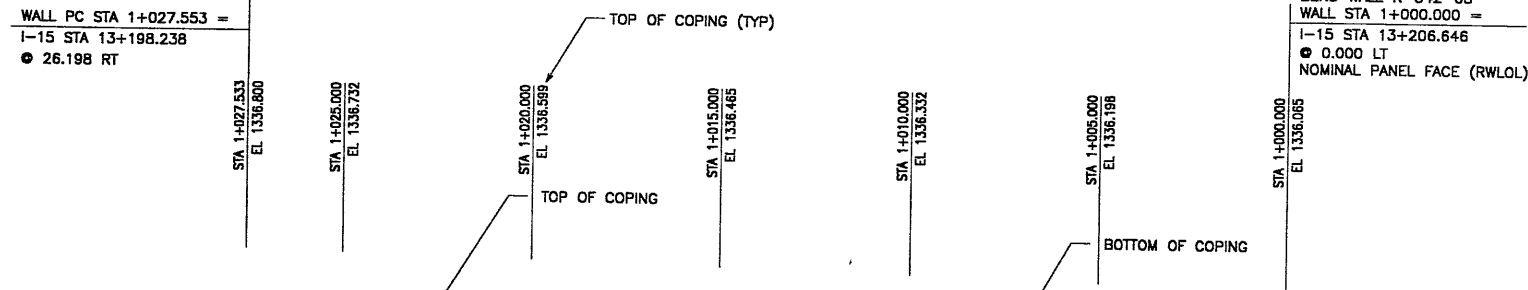
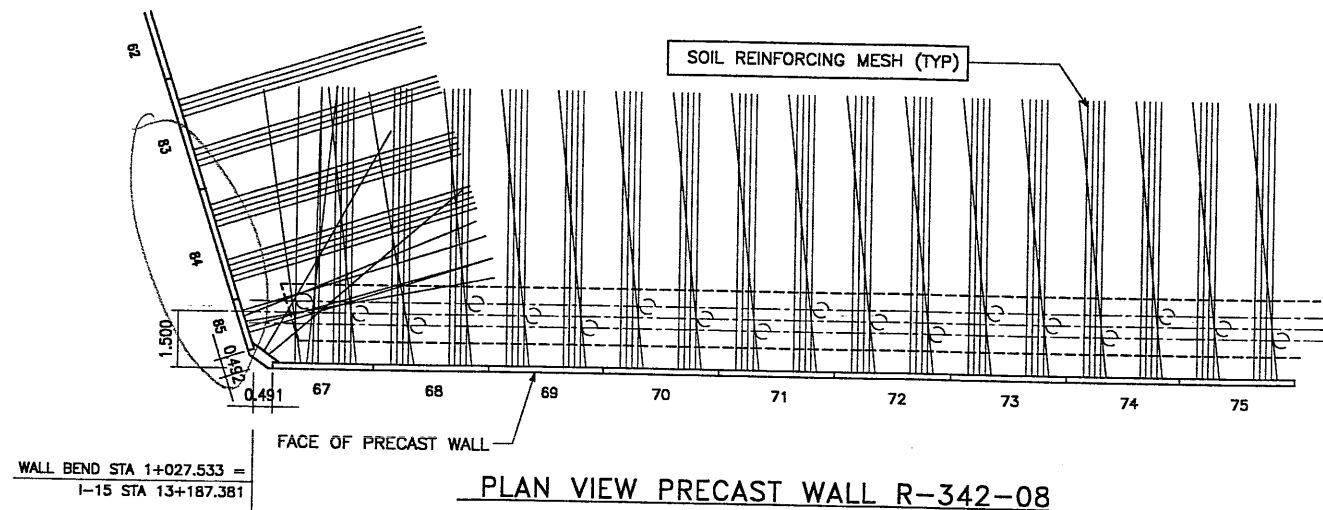
VSL CORPORATION
2840 Pines Plaza, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-6889



VSL Corporation (VSL) is a leading provider of retaining wall and foundation solutions. The use of such information is solely for the project described herein. VSL is not responsible for the design or construction of any structure based on this information. VSL is not a contractor and does not provide construction services. VSL is not responsible for the design or construction of any structure based on this information. VSL is not a contractor and does not provide construction services.

DES.	06-19-98	JL
DRN.	06-19-98	RSW
CHK.	06-19-98	JL
RETAINED EARTH™		
NO.		
DATE		
REVISION		
BY		CHK

10 00 B



ELEVATION PRECAST WALL R-342-08

(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 824.95 SM)

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

METRIC

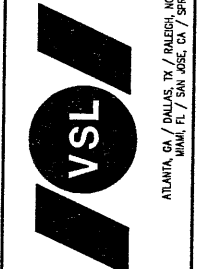
APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

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THE MANUFACTURER'S SPECIFICATION.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△ 08-10-98		RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	BY
JL	RSW	JL				CHK

VSL CORPORATION
2840 Pico Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4689

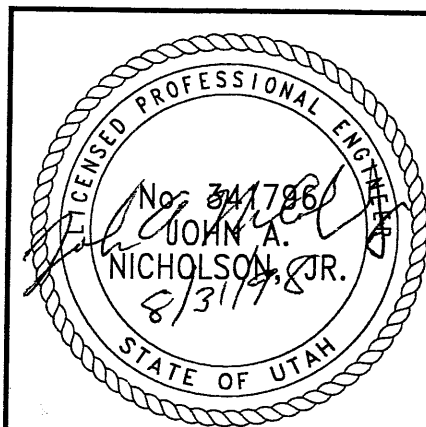


ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

WASATCH CONSTRUCTORS

SEP 10 1998

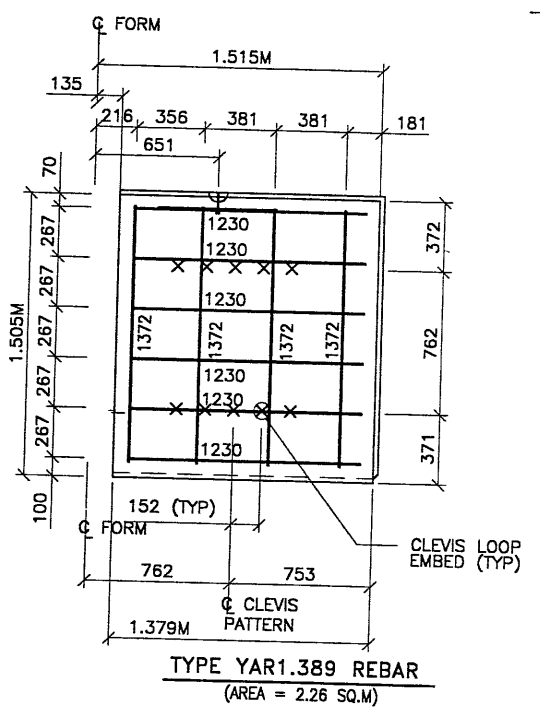
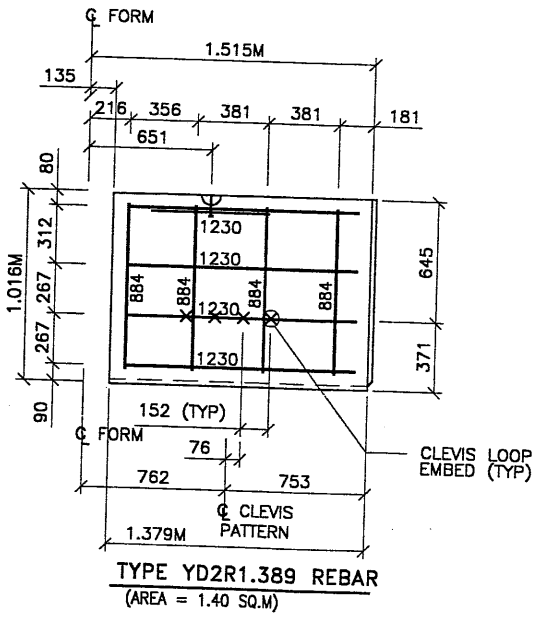
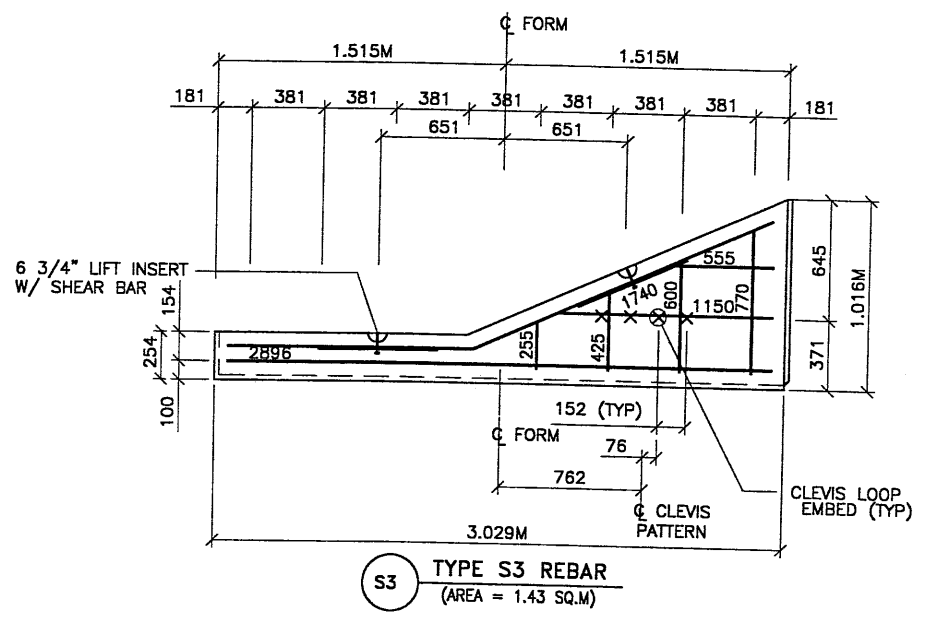
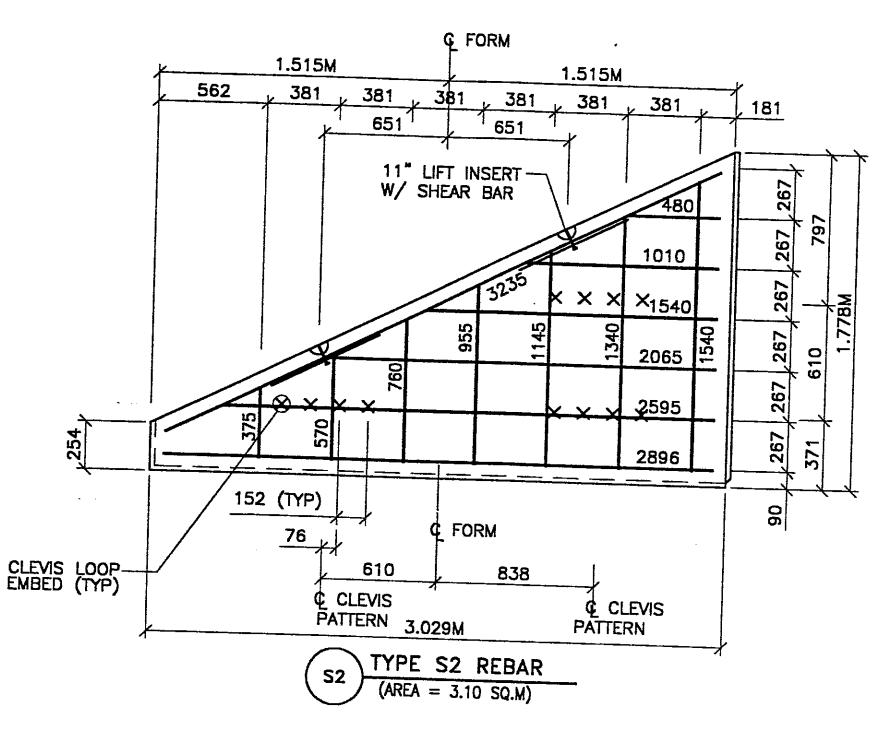
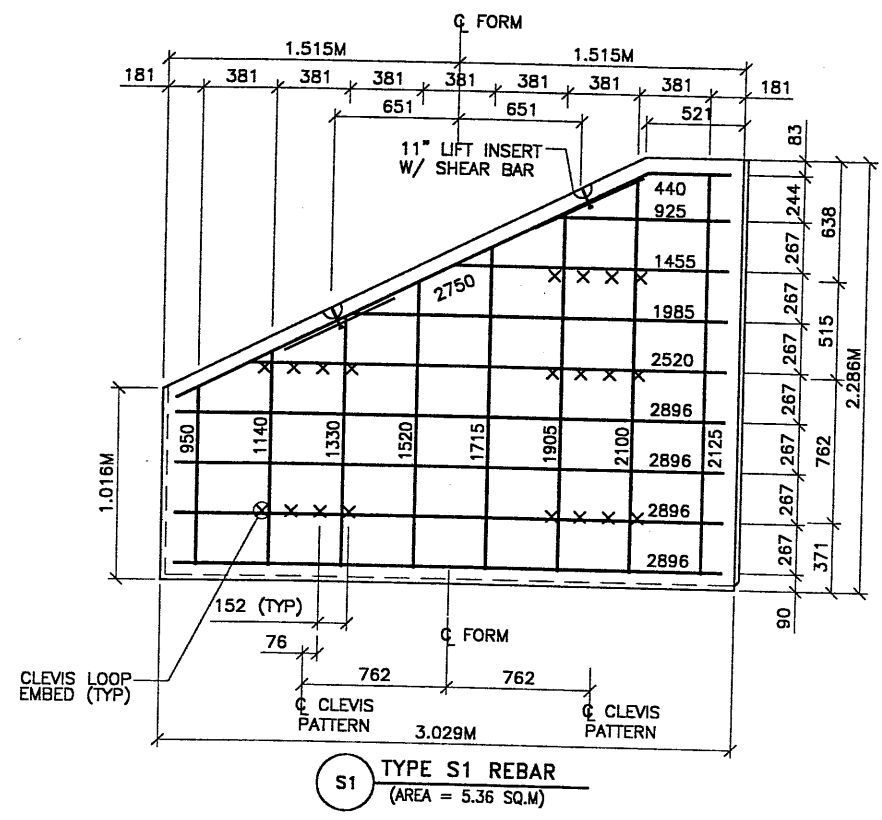
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
PRECAST WALL "R-342-08"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

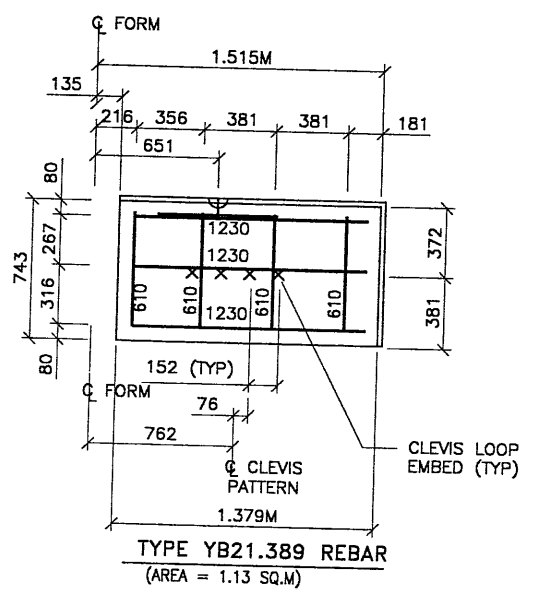
DWG. NO.	1.1R-342-8.11
JOB NO.	239-0007
SHT. NO.	RE-8

11 of 13



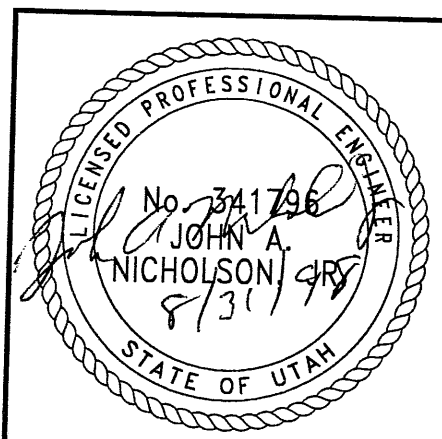
METRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	08-10-98	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 9.5mmØ 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.

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
SEP 10 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-342-8"
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

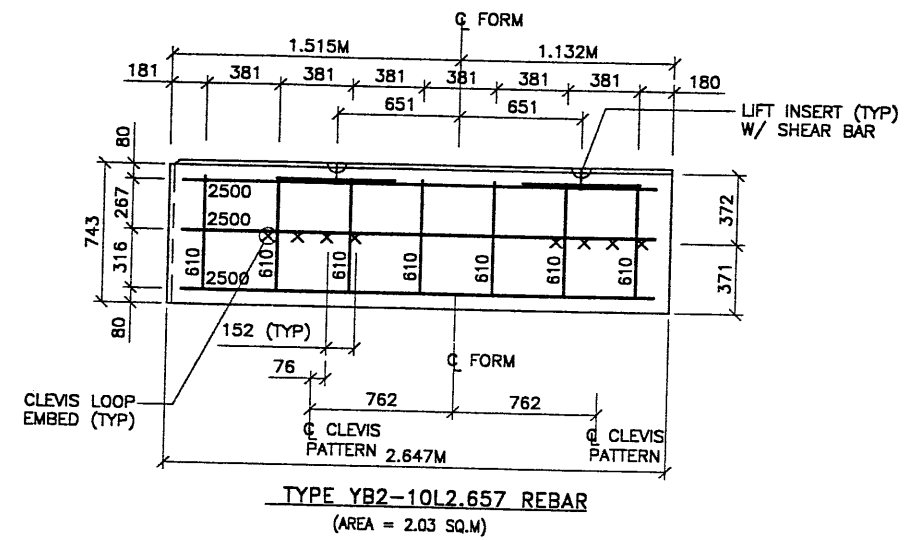
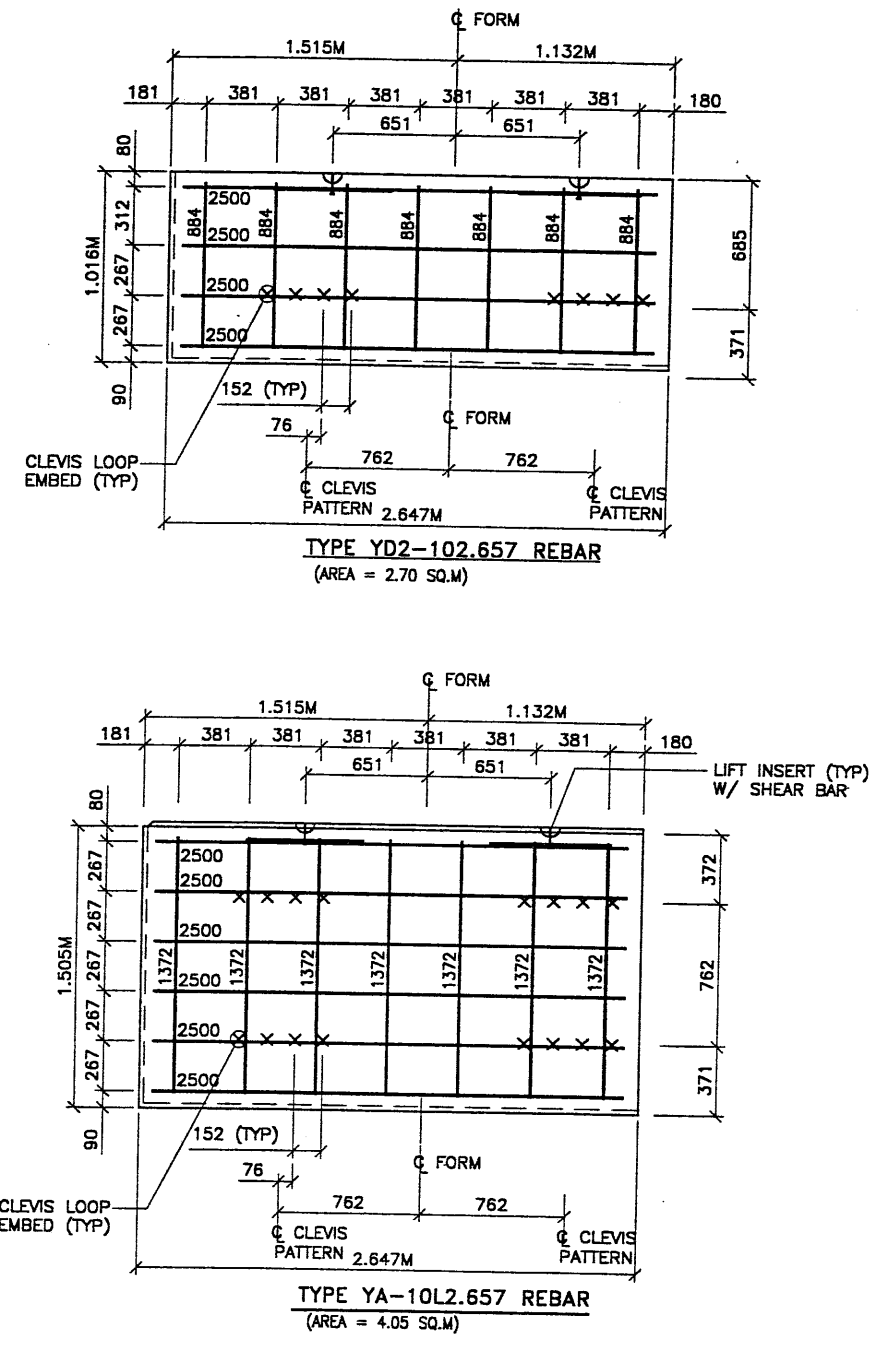
DWG. NO.
1.1R-342-8.12
JOB NO.
239-0007
SHT. NO.
RE-9

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-5272
Fax: (919) 781-4666

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

DES.	CHK.	DATE	NO.	DATE	REVISION	BY	CHK
JL	RSW	06-23-98					
JL	JL	06-23-98					

12-0-13



- 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.
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 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.

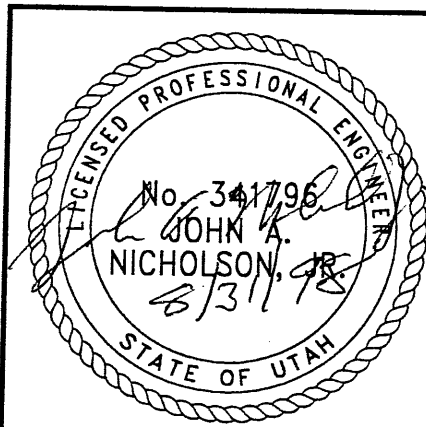
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	08-10-98	RELEASE FOR CONSTRUCTION



VSL CORPORATION
7840 Park Plaza, Suite 200
Raleigh, NC 27615
Telephone: (919) 781-6272
Fax: (919) 781-1889

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WASATCH CONSTRUCTORS
SEP 10 1998
RELEASED FOR CONSTRUCTION



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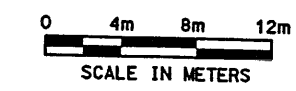
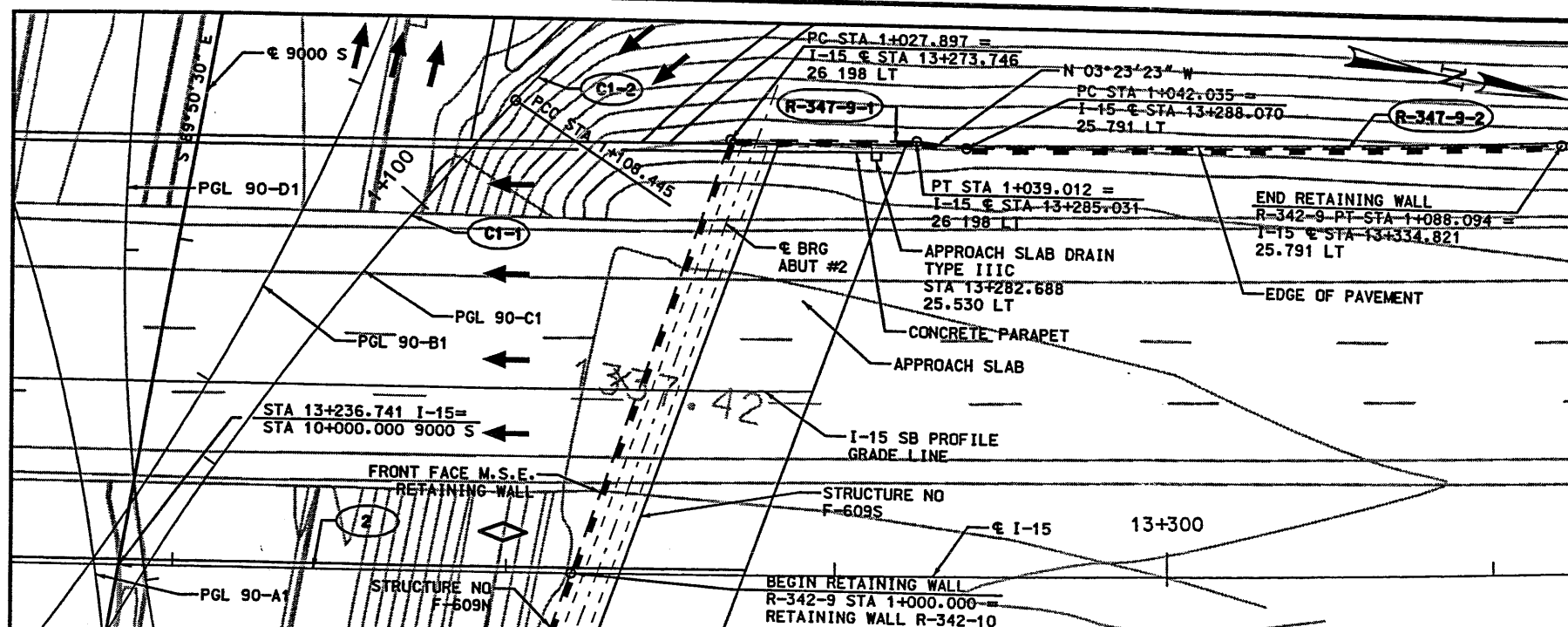
METRIC

RETAINED EARTH™ WALLS
PRECAST WALL "R-342-8"
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-8.13
JOB NO.	239-0007
SHT. NO.	RE-10

130713

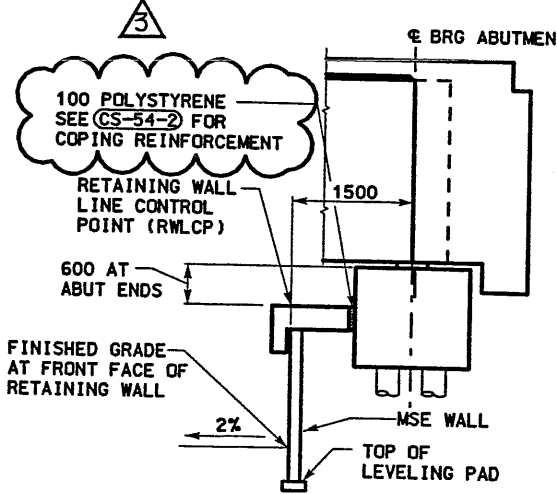
Date: 29-APR-1998 Time: 11:50 User: mto:lorkeep
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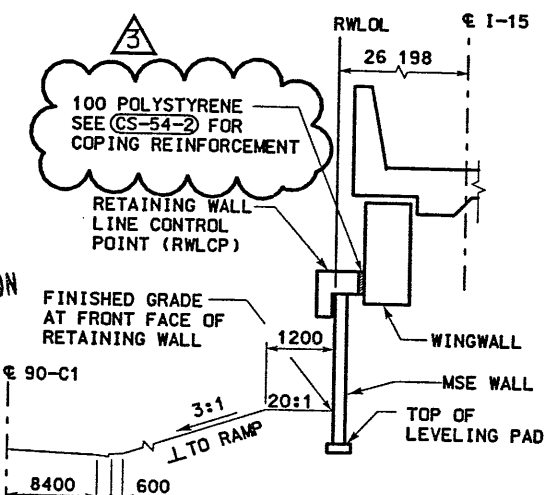
I-15
 2
 $\Delta = 21^\circ 16' 32''$
 $R = 1745.000$
 $L = 647.972$
 $T = 327.761$
 $PI\ STA\ 13+254.636$
 $PC\ STA\ 12+926.875$
 $PT\ STA\ 13+574.848$

R-342-9-1
 $\Delta = 0^\circ 22' 14''\ LT$
 $R = 1718.802$
 $L = 11.115$
 $T = 5.557$
 $PC\ STA\ 1+027.897$
 $PT\ STA\ 1+039.012$

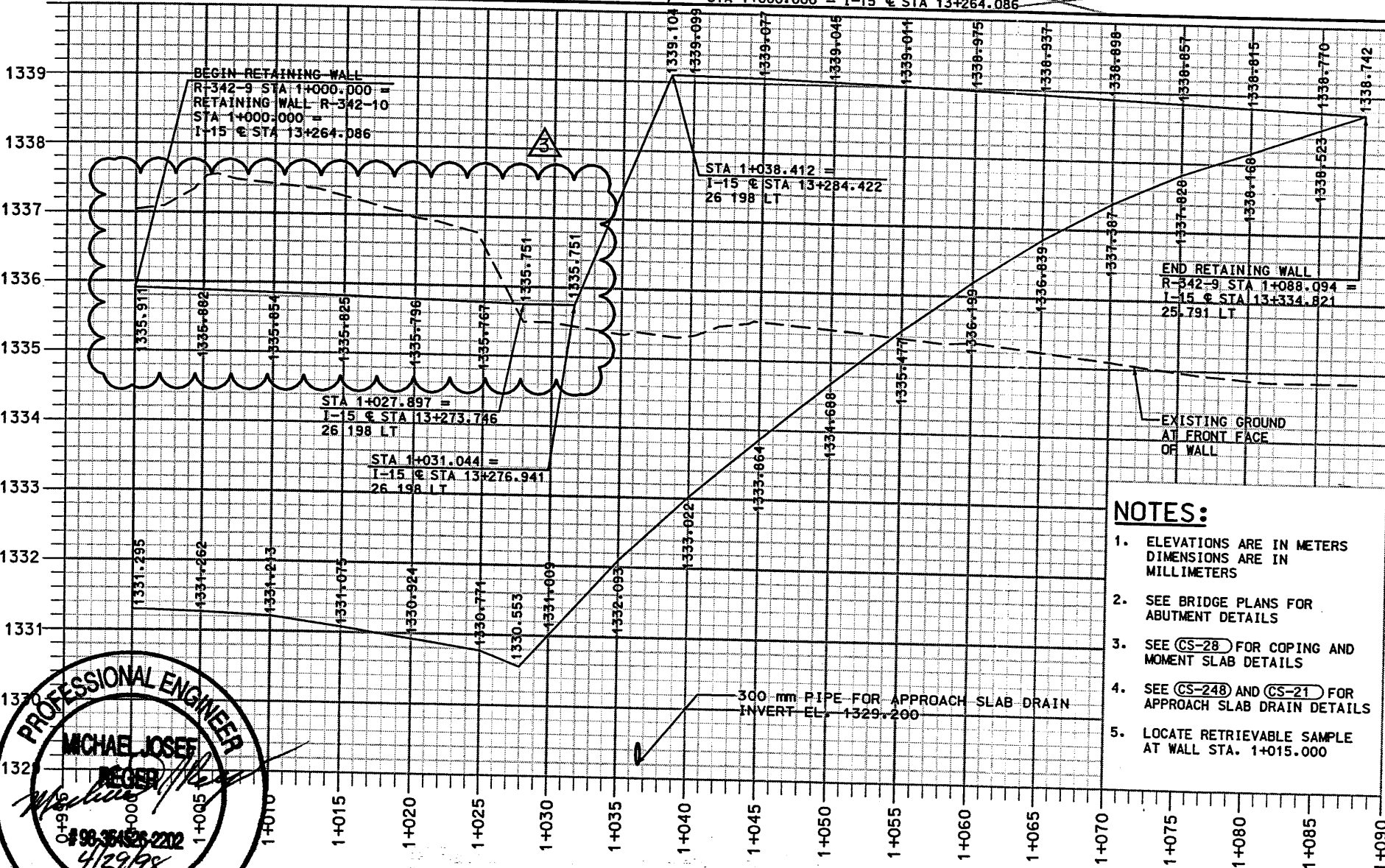
R-342-9-2
 $\Delta = 1^\circ 32' 06''\ LT$
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 $L = 46.059$
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 $PC\ STA\ 1+042.035$
 $PT\ STA\ 1+088.094$



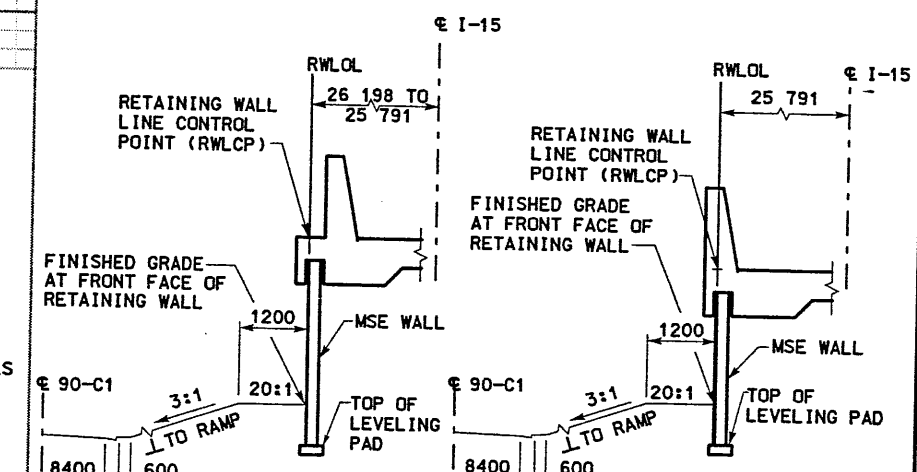
**TYPICAL SECTION
 WALL R-342-9
 STA 1+000.000 TO 1+027.897**



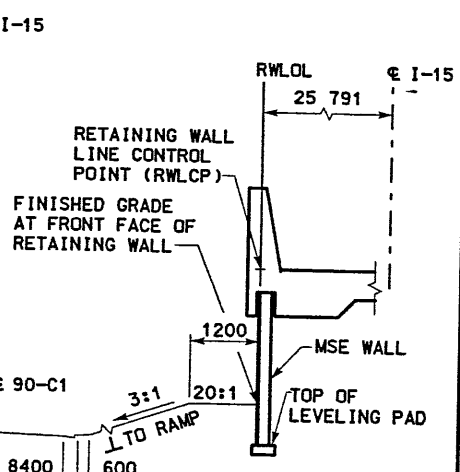
**TYPICAL SECTION
 WALL R-342-9
 STA 1+027.897 TO 1+039.012**



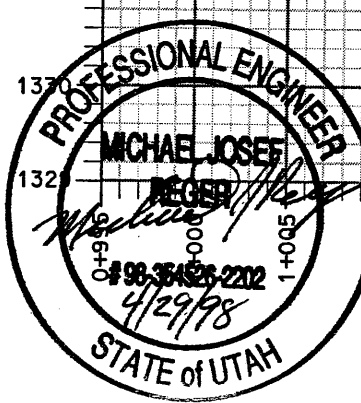
- NOTES:**
- ELEVATIONS ARE IN METERS
DIMENSIONS ARE IN
MILLIMETERS
 - SEE BRIDGE PLANS FOR
ABUTMENT DETAILS
 - SEE (CS-28) FOR COPING AND
MOMENT SLAB DETAILS
 - SEE (CS-248) AND (CS-21) FOR
APPROACH SLAB DRAIN DETAILS
 - LOCATE RETRIEVABLE SAMPLE
AT WALL STA. 1+015.000



**TYPICAL SECTION
 WALL R-342-9
 STA 1+039.012 TO
 1+042.035**



**TYPICAL SECTION
 WALL R-342-9
 STA 1+042.035 TO
 1+088.094**



ELEVATION ALONG BACK FACE OF WALL

WASATCH CONSTRUCTORS
 MAY 04 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	COPING / ABUT DETAIL
1	2/02/98		
2	2/25/98		
3	4/28/98		

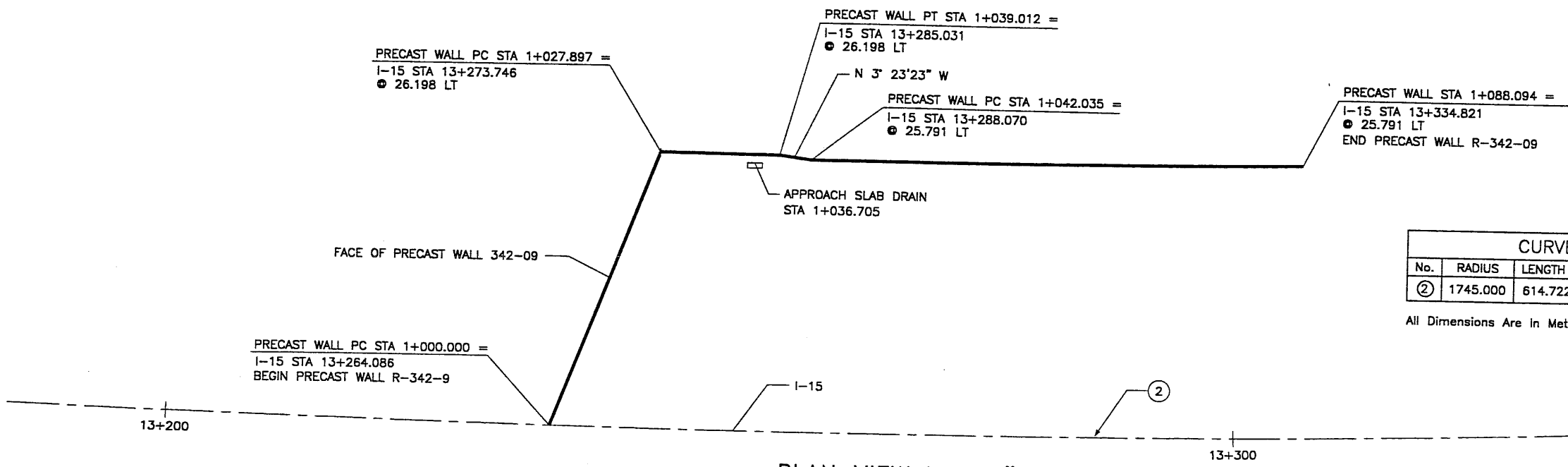
UTAH DEPARTMENT OF TRANSPORTATION		SVERDRUP/DE LEUW	
DESIGN	CHECK	DATE	QUANT.
JHM 11/97	SL 11/97		
EGC 11/97	JHM 12/97		
BRUCE VANA	PROJECT MANAGER		

I-15 CORRIDOR RECONSTRUCTION		SECTION 1.1	
SITUATION & LAYOUT RET WALL R-342-9		PROJECT #SP-15-7(135)296	
SALT LAKE COUNTY	DWG. NO. 1-1R-342-9-1	SHT. 1 OF 1	
REF. 90_STR_R-342-9LY1			

H:\RE_EARTH\PROJECT\239-0007\1998\9
 30-09\SUBMITL-2\RE-1
 02-18-98
 FINAL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-18-98	RELEASE FOR CONSTRUCTION
△	07-10-98	ADDED MINIMUM CONCRETE STRENGTH

WASATCH CONSTRUCTORS
JUL 20 1998
RELEASED FOR CONSTRUCTION



No.	RADIUS	LENGTH	TANGENT	△
②	1745.000	614.722	310.580	20°11'02"

All Dimensions Are In Meters Unless Noted Otherwise

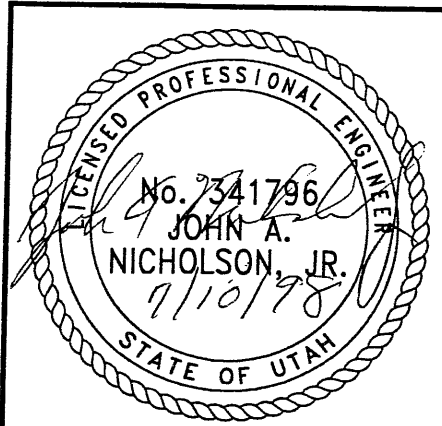
PLAN VIEW WALL "R-342-9"
 SCALE: 1=200 (FULL SIZE)
 SCALE: 1=400 (HALF SIZE)

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: 4W20-6 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
 EXAMPLE: 4W15-12 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
 EXAMPLE: 5W15-12 MESH HAS FIVE (5) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
 EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" 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 DETAIL.

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT)	= 34°
ANGLE OF INTERNAL FRICTION (BASE)	= 30°
ANGLE OF INTERNAL FRICTION (RANDOM)	= 34°
UNIT WEIGHT BACKFILL	= 135 PCF. (21.2 KN/M ³)
TRAFFIC SURCHARGE	= 250 PSF
SEISMIC ACCELERATION COFF.	= 0.12g (TYP)
SEISMIC ACCELERATION COFF.	= 0.32g (AT BRIDGE ABUTMENTS)
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING)	= 2.0
SAFETY FACTOR (SLIDING)	= 1.5
SAFETY FACTOR (PULLOUT)	= 1.5
DESIGN LIFE	= 75 YEARS
MIN. 28 DAY PRECAST PANEL CONCRETE STRENGTH = 24,000 kPa	

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-342-09, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	TYPICAL CROSS SECTIONS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-342-09"
RE-6	ELEVATION PRECAST WALL "R-342-09"
RE-7	SPECIAL PANEL DETAILS
RE-8	SPECIAL PANEL DETAILS
RE-9	SPECIAL PANEL DETAILS



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

NO.	DATE	DESCRIPTION	BY	CHK

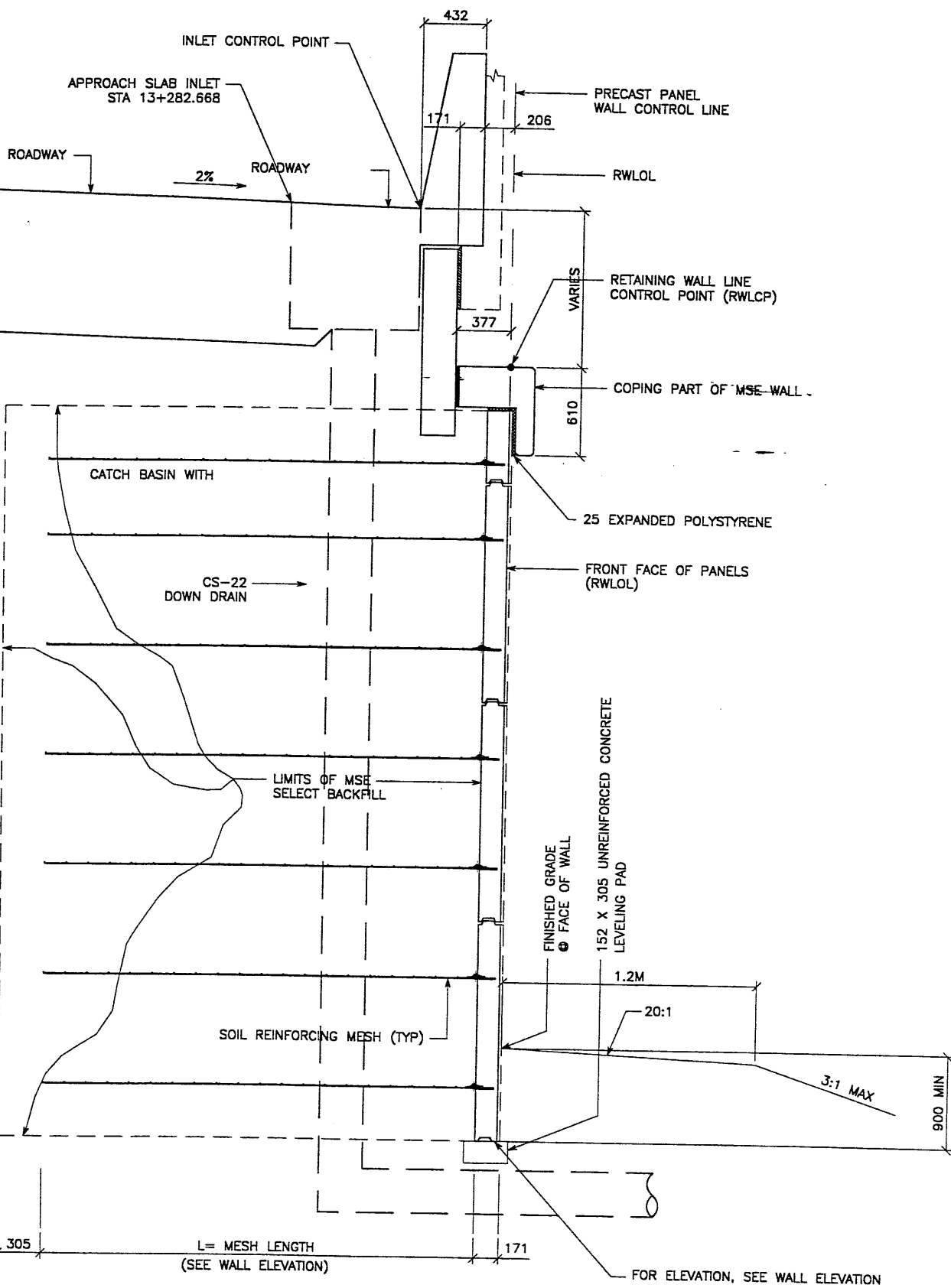
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4659

ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE) / CHICAGO, IL / DENVER, CO / HOUSTON, TX / MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, MA

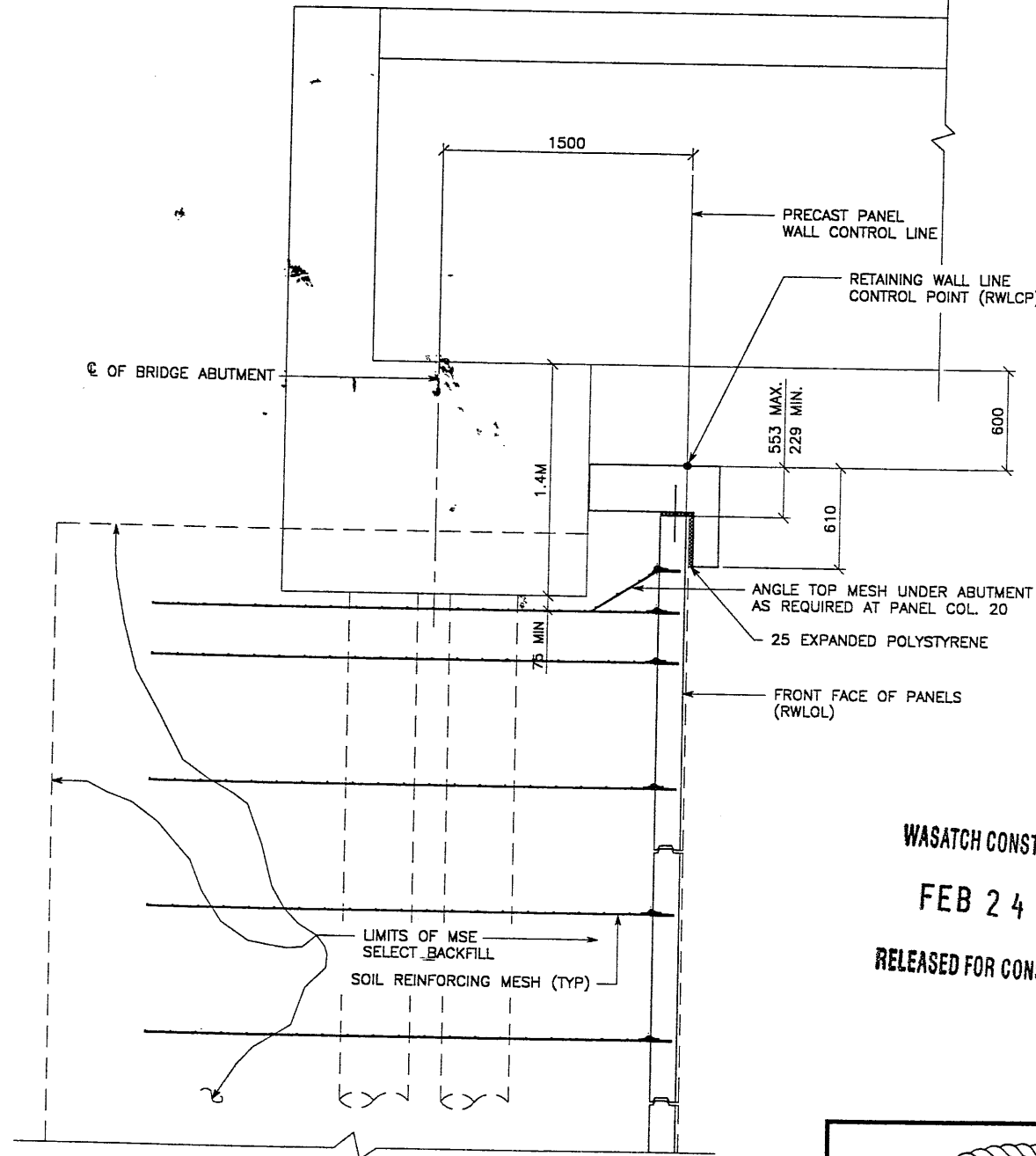
RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-342-09"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.1R-342-9.2
 JOB NO. 239-0007
 SHEET NO. RE-1

200



TYPICAL CROSS SECTION - STA 1+027.897 TO 1+039.012
 (SEE DWG. NO. 2.1R-342-9.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

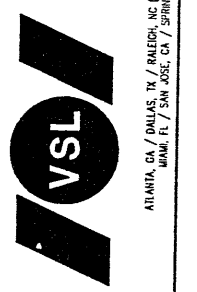


TYPICAL CROSS SECTION - STA 1+000.000 TO 1+027.897
 (SEE DWG. NO. 2.1R-342.9.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

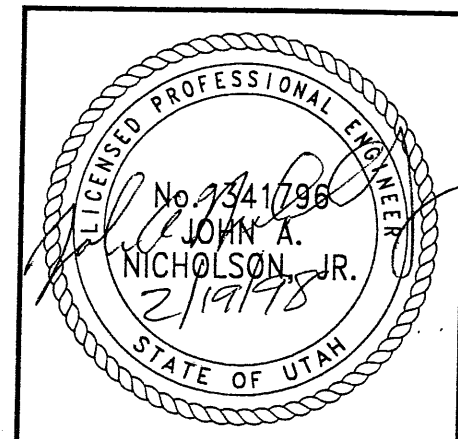
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-18-98	RELEASE FOR CONSTRUCTION

DES.	NO.	DATE	REVISION	CHK
JL	01-15-98			
LOP	01-15-98			
JL	01-15-98			

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 Fax: (919) 781-4989



WASATCH CONSTRUCTORS
FEB 24 1998
RELEASED FOR CONSTRUCTION

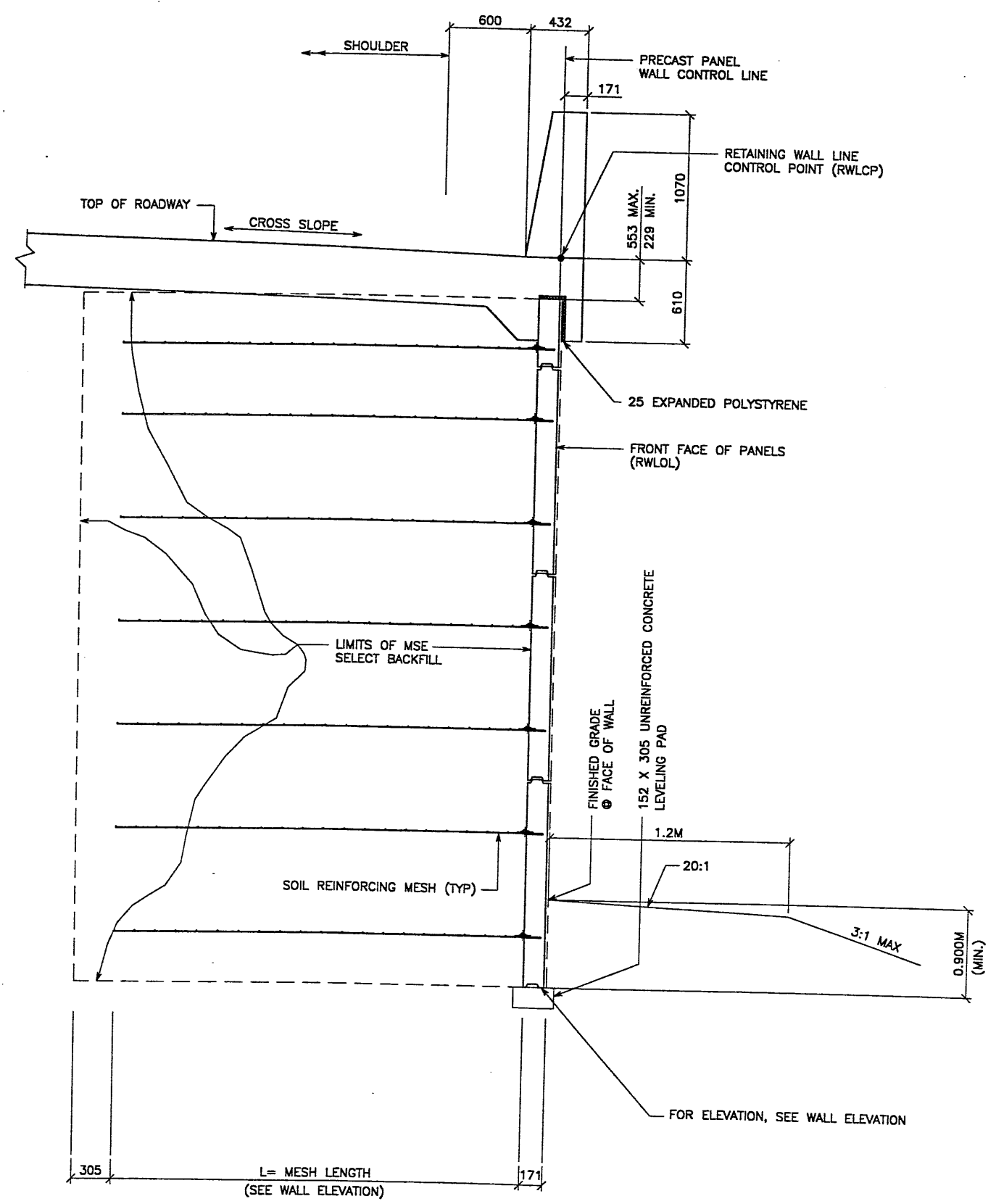


METRIC
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RETAINED EARTH™ WALLS WIRE FACED WALL "R-342-09" TYPICAL CROSS SECTION	DWG. NO. 1.1R-342-9.3
UTAH 1-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.	JOB NO. 239-0007
	SHT. NO. RE-2

3 of 10

FINAL 2-18-98 H:\RE_EARTH\PROJECT\239-0007\1998\901\09\SUBMITL-2\RE-3 XRI (X-UTAH.DWG)



TYPICAL CROSS SECTION - STA 1+042.035 TO 1+088.094
(SEE DWG. NO. 2.1R-342-9.01 FOR ADDITIONAL INFORMATION)

SCALE: 1:20 (FULL SIZE)
SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	02-18-98	RELEASE FOR CONSTRUCTION <i>OK</i>

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	CHK
JL	LOP	JL					
01-15-98	01-15-98	01-15-98					

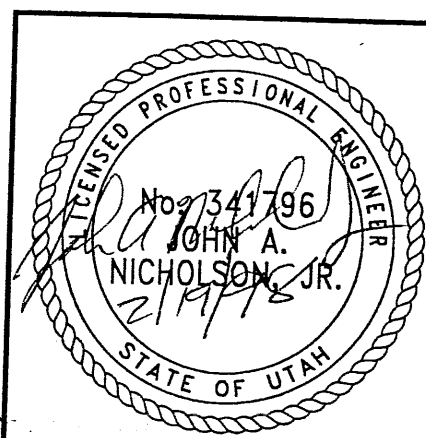
VSL CORPORATION
280 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-8999



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MIAMI, FL. / SAN JOSE, CA. / SPRINGFIELD, VA.

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WASATCH CONSTRUCTORS
FEB 24 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
WIRE FACED WALL "R-342-9"
TYPICAL CROSS SECTION
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

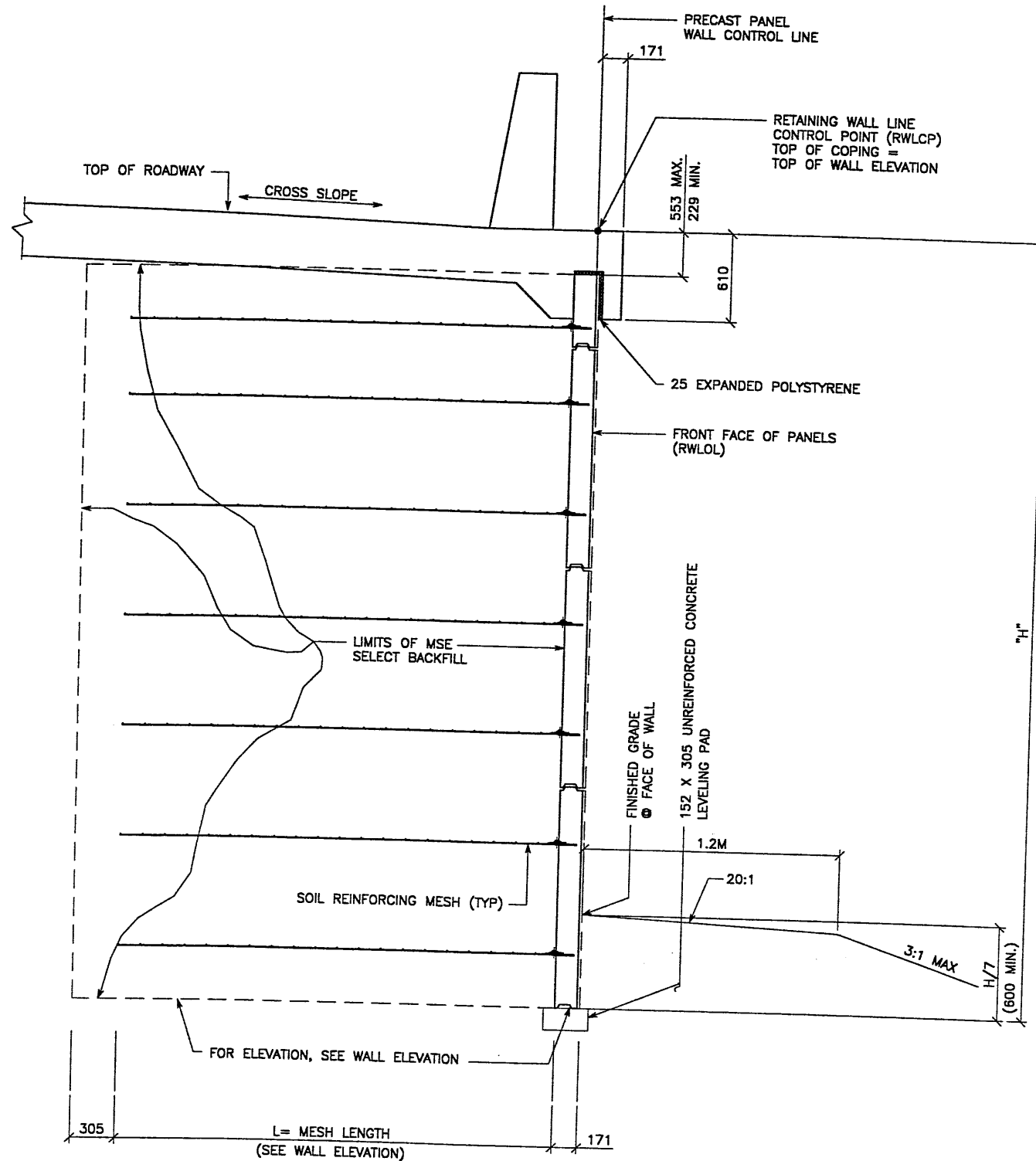
DWG. NO.	1.1R-342-9.4
JOB NO.	239-0007
SHT. NO.	RE-3

METRIC

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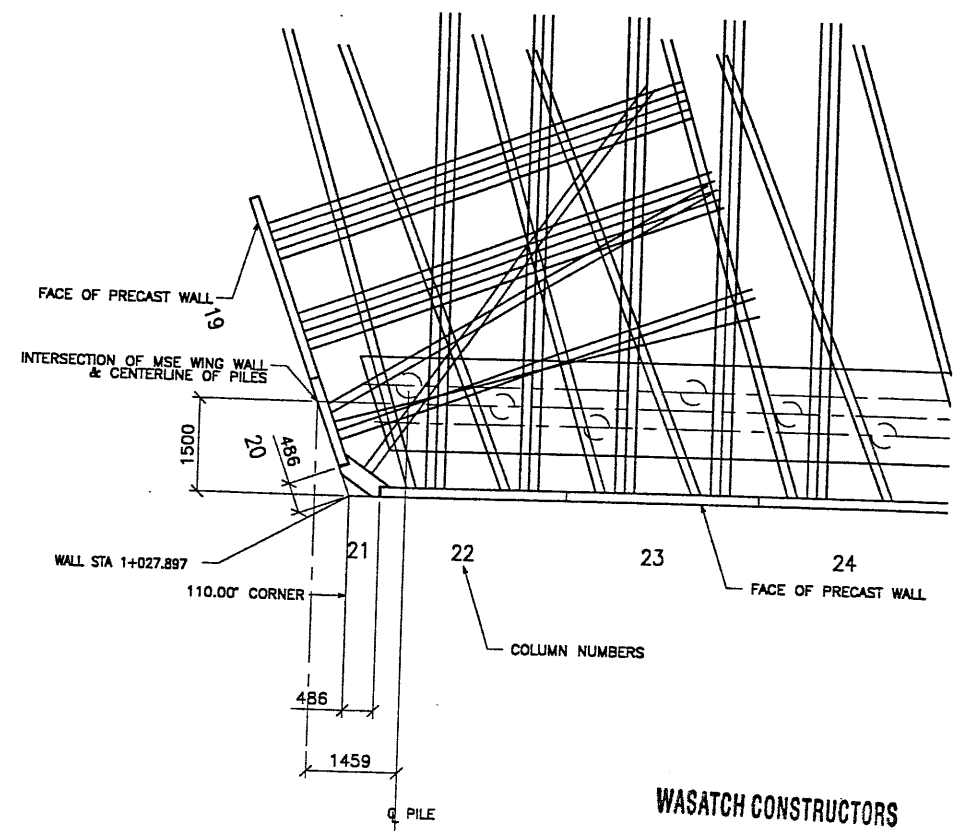
4 02-19

XREF
 H:\RE_EARTH\PROJECT\239-0007\1998\905
 2-18-98
 FINAL F



TYPICAL CROSS SECTION - STA 1+039.012 TO 1+042.035
 (SEE DWG. NO. 1.2R-342-9.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.



ENLARGED DETAIL AT WALL CORNER
 SCALE: 1:50 (FULL SIZE)
 SCALE: 1:100 (HALF SIZE)

METRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	02-18-98	RELEASE FOR CONSTRUCTION <i>ol</i>

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY	CHK
01-15-98	01-15-98	01-15-98					

VSL CORPORATION
 2810 Piedmont Place, Suite 200
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 Fax: (919) 781-6869

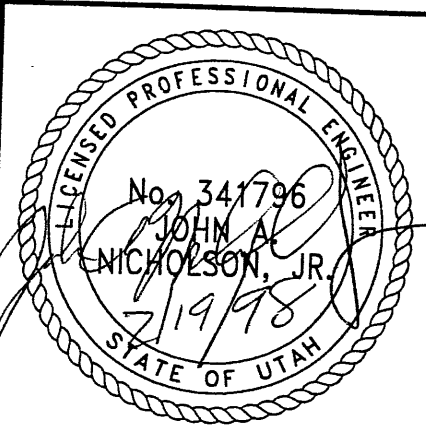
VSL
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 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

WASATCH CONSTRUCTORS
FEB 24 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-09"
 TYPICAL CROSS SECTIONS

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

DWG. NO.
 1.1R-342-9.5
 JOB NO.
 239-0007
 SH. NO.
 RE-4



VSL Corporation hereby certifies that the design of the structure shown on this plan, including but not limited to foundation and slope stability, is the responsibility of the owner. The use of the Retained Earth™ mass, methods of construction, and quality of prefabricated materials conform to the manufacturer's specification. Any other use is strictly prohibited and VSL Corporation shall not be held liable therefor.

RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-09"
 TYPICAL CROSS SECTIONS
 UTAH 1-15 RECONSTRUCTION I
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

5 of 19

FINAI PLOT 05-01-98
 H:\RE-EARTH\PROJECT\239-0007\1998\905\REV-1\90-09R
 RENCE (X-UTAILDING)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	02-18-98	RELEASE FOR CONSTRUCTION
▲	05-01-98	ABUTMENT ELEV. CHANGED

NO.	DATE	REVISION
01-15-98	JL	
01-15-98	LOP	
01-15-98	JL	

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VSL
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 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

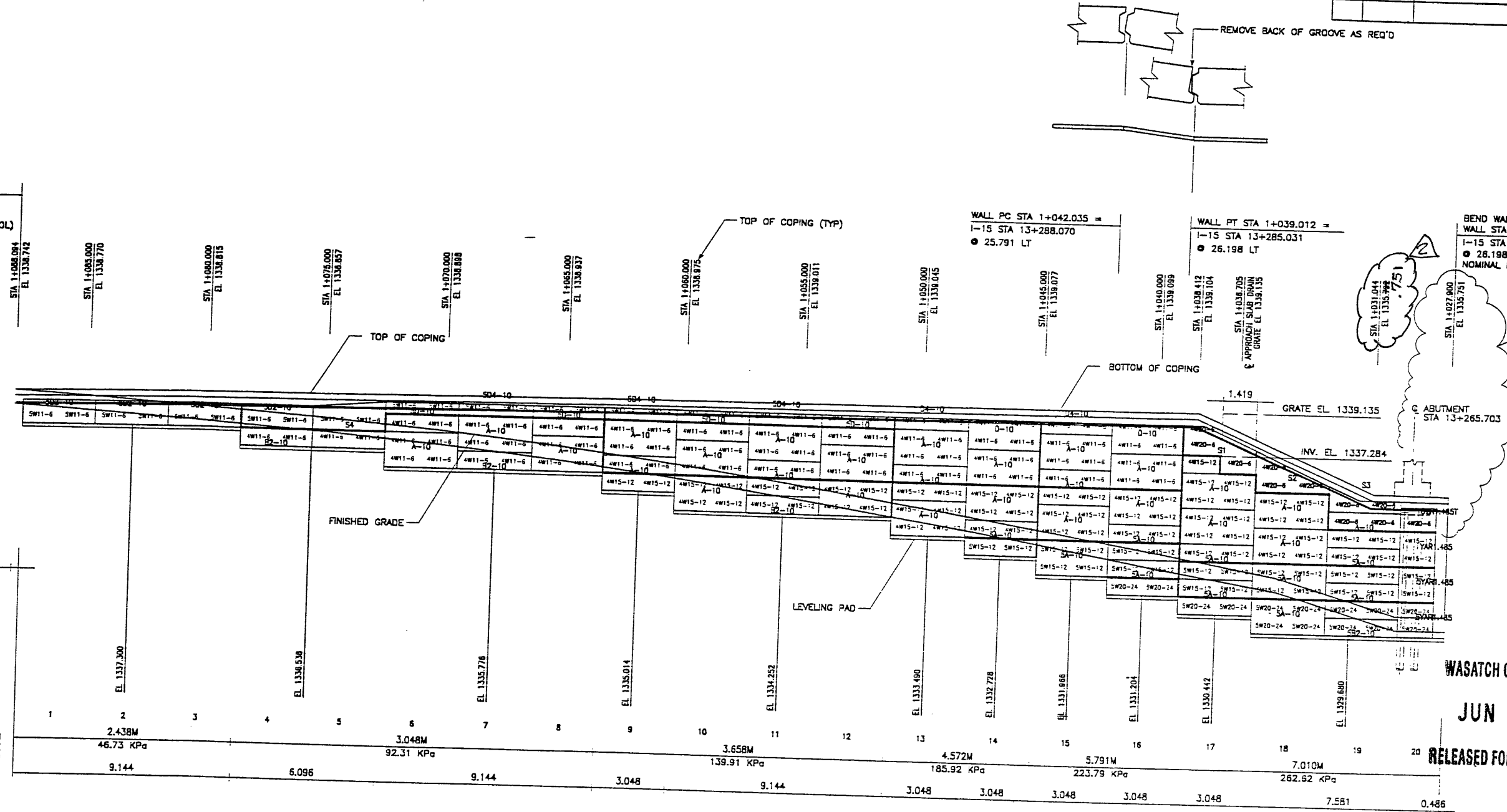
VSL Corporation (PVT) Ltd.
 is a limited liability company
 registered in England. The
 registered office is at VSL
 House, 100 Brook Hill Drive,
 Basingstoke, Hampshire,
 RG24 0BA, England. The
 company is a member of the
 VSL Group of companies.
 The VSL Group of companies
 is a group of companies
 controlled by VSL Corporation
 (PVT) Ltd.

BEGIN WALL R-342-09
 WALL STA 1+088.084 =
 I-15 STA 13+334.821
 ● 25.791 LT
 NOMINAL PANEL FACE (RWL/L)

WALL PC STA 1+042.035 =
 I-15 STA 13+288.070
 ● 25.791 LT

WALL PT STA 1+039.012 =
 I-15 STA 13+285.031
 ● 26.198 LT

BEND WALL R-342-09
 WALL STA 1+027.897 =
 I-15 STA 13+273.746
 ● 26.198 LT
 NOMINAL PANEL FACE (RWL/L)



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

Panel No.	Mesh Depth (m)	Max. Bearing Pressure (kPa)	Pin Spacing (m)
1	2.438	46.73	9.144
2	2.438	46.73	9.144
3	2.438	46.73	9.144
4	2.438	46.73	9.144
5	2.438	46.73	9.144
6	3.048	92.31	6.096
7	3.048	92.31	6.096
8	3.048	92.31	6.096
9	3.048	92.31	6.096
10	3.658	139.91	3.048
11	3.658	139.91	3.048
12	3.658	139.91	3.048
13	4.572	185.92	3.048
14	4.572	185.92	3.048
15	4.572	185.92	3.048
16	5.791	223.79	3.048
17	5.791	223.79	3.048
18	7.010	262.62	3.048
19	7.010	262.62	3.048
20	7.010	262.62	3.048

ELEVATION PRECAST WALL R-342-09
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 408.94 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

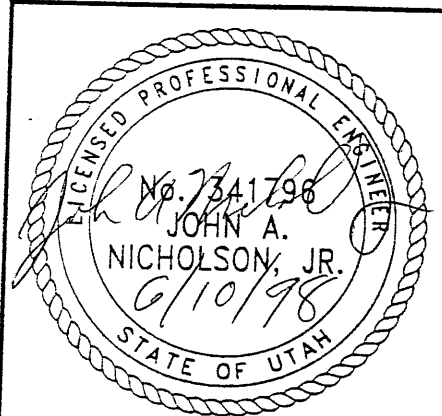
WASATCH CONSTRUCTORS
JUN 18 1998

RELEASED FOR CONSTRUCTION

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

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
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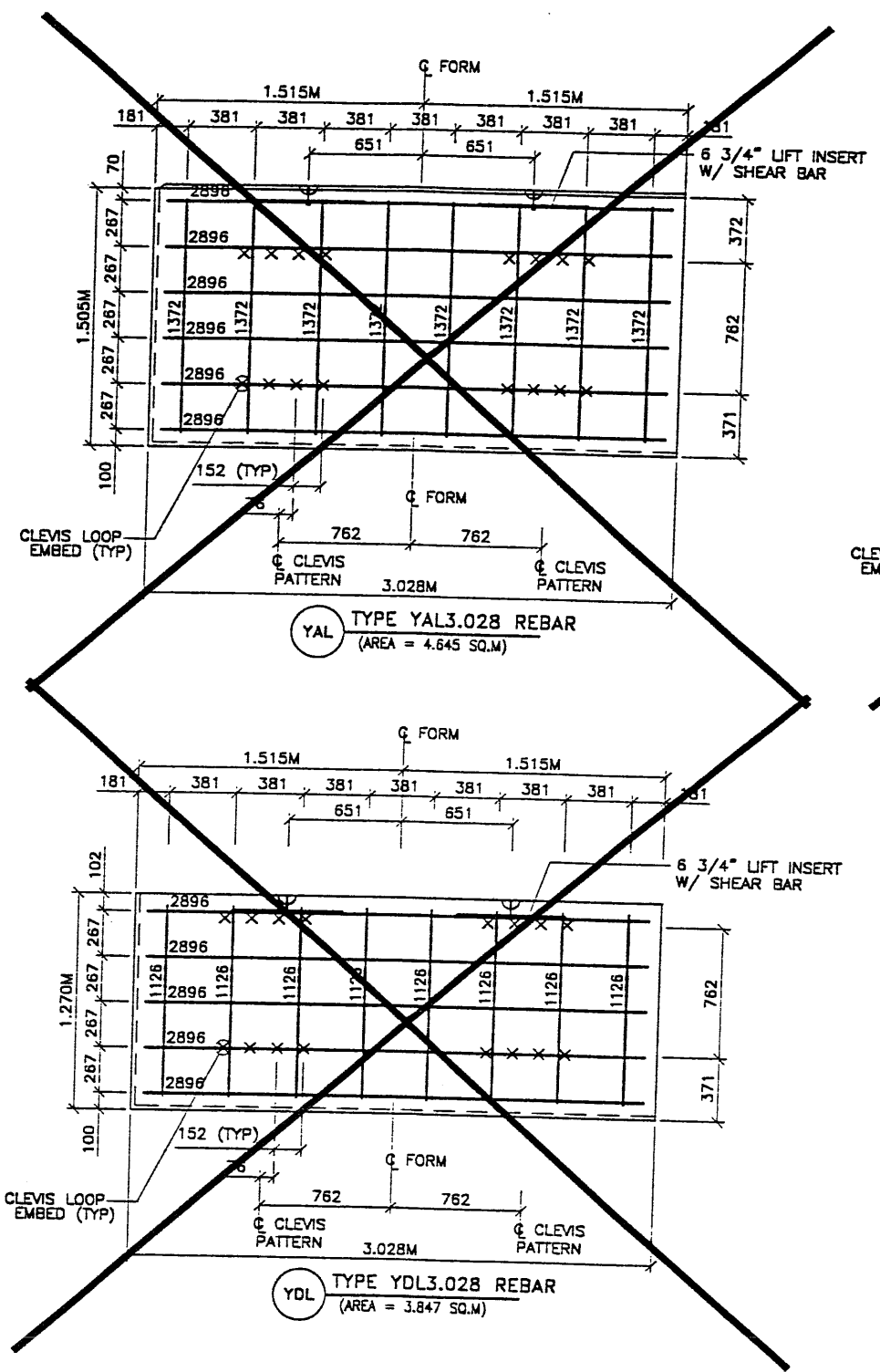


RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-09"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

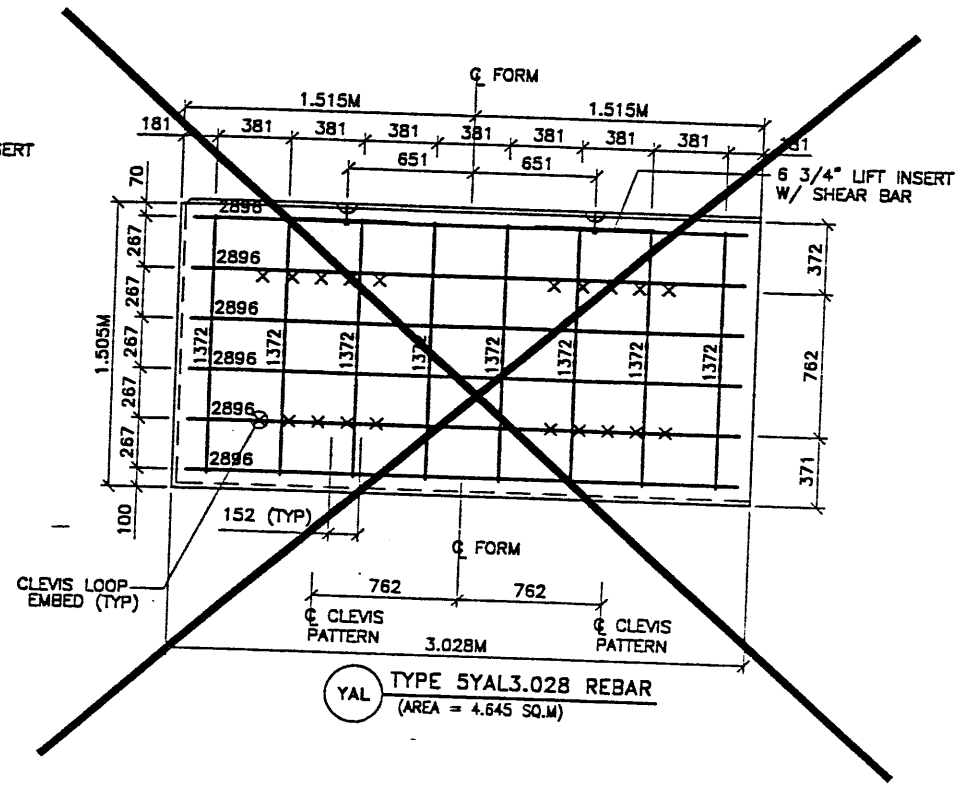
JWG NO.	1.1R-342-9.6
JOB NO.	239-0007
SHT NO.	RE-5

6/10/98

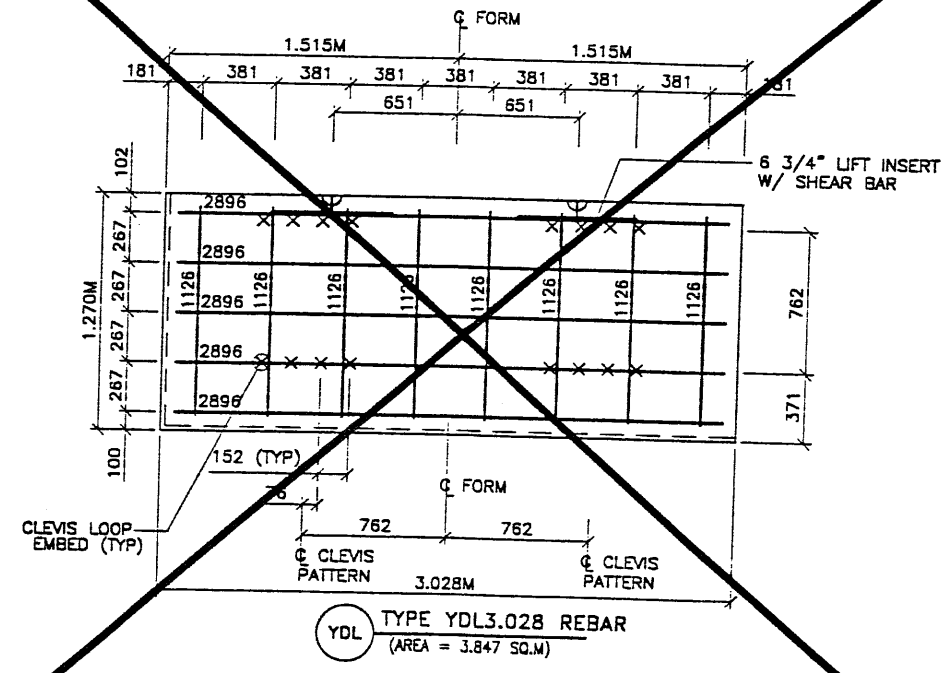
H:\RE_EARTH\PROJECT\239-0007\19' SPECIALS
 PLOT 05-01-98
 05-01-98 REV-1 SPECIALS
 REFERENCE (X-UTAH.DWG)



YAL TYPE YAL3.028 REBAR
(AREA = 4.645 SQ.M)



YAL TYPE SYAL3.028 REBAR
(AREA = 4.645 SQ.M)



YDL TYPE YDL3.028 REBAR
(AREA = 3.847 SQ.M)

2

OMIT DETAILS THIS SHEET

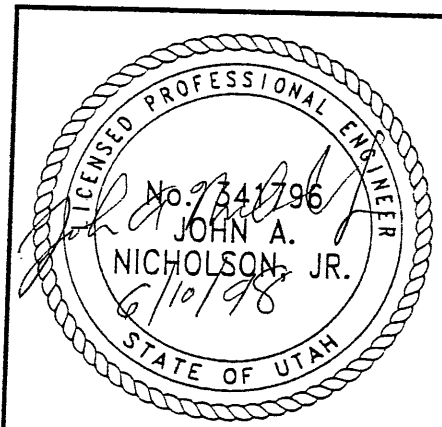
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-18-98	RELEASE FOR CONSTRUCTION
△	05-01-98	OMIT ALL DETAILS THIS SHEET <i>see</i>

- 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.



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WASATCH CONSTRUCTORS
 JUN 18 1998
 RELEASED FOR CONSTRUCTION



METRIC
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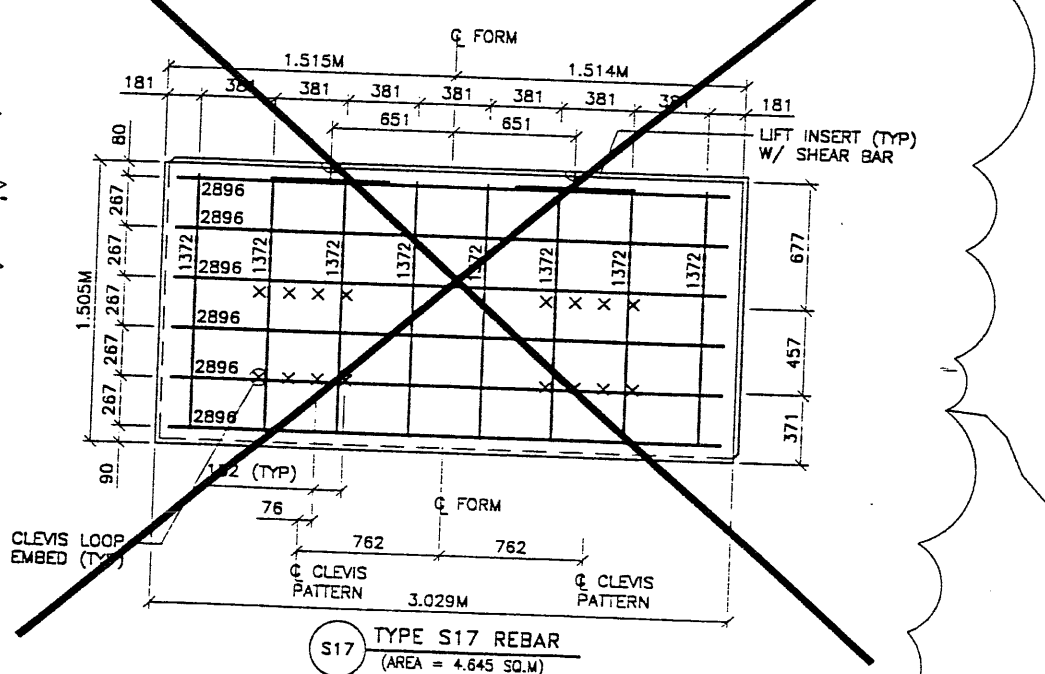
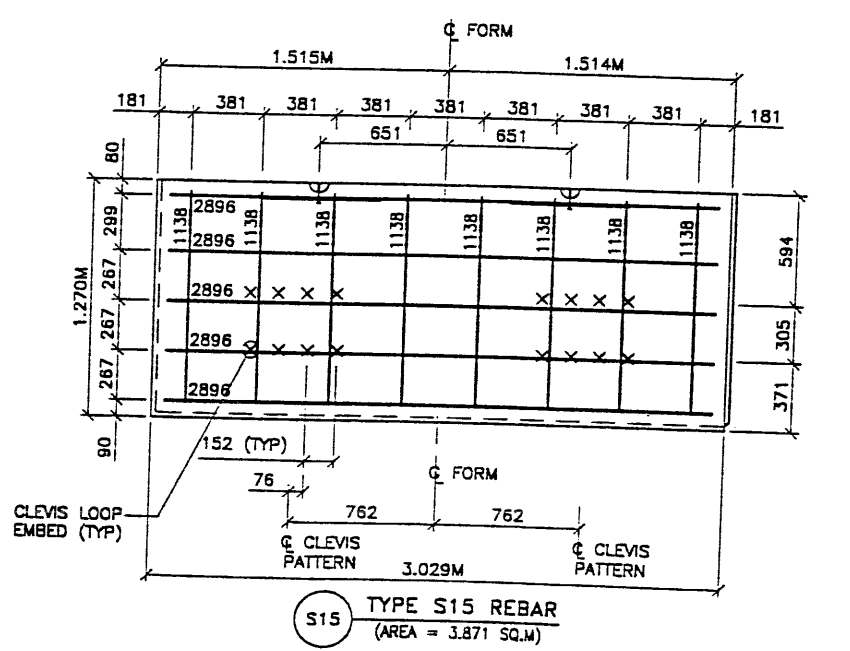
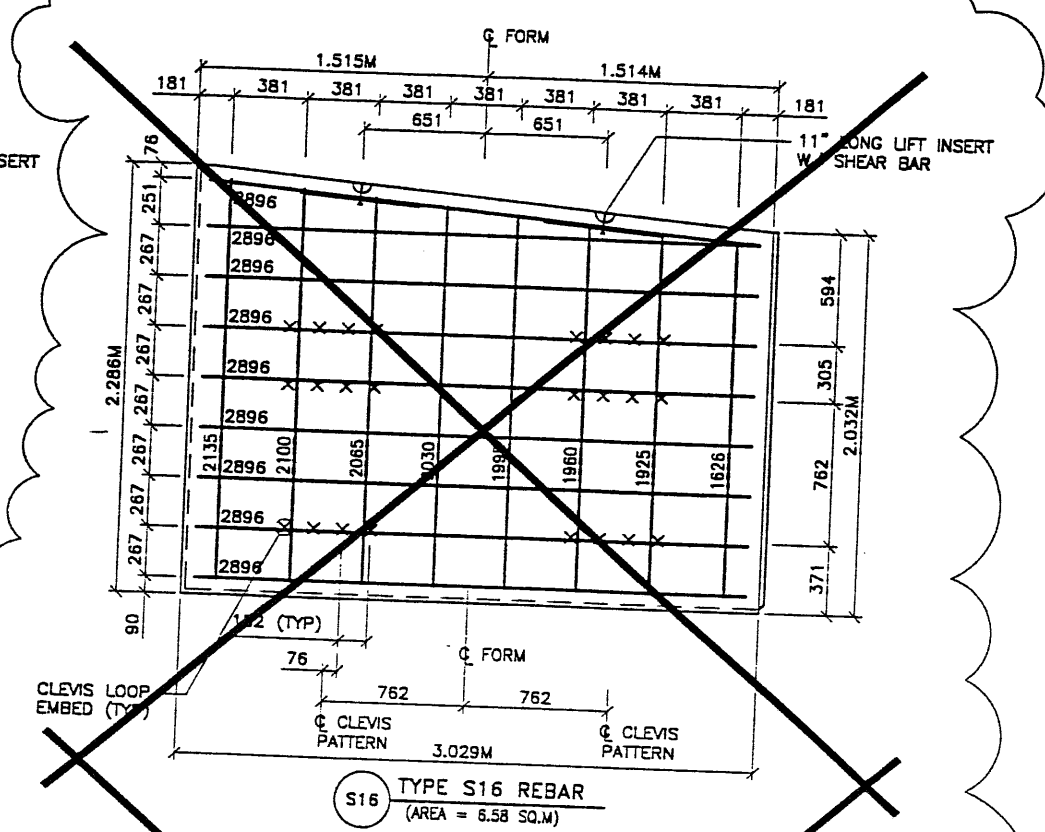
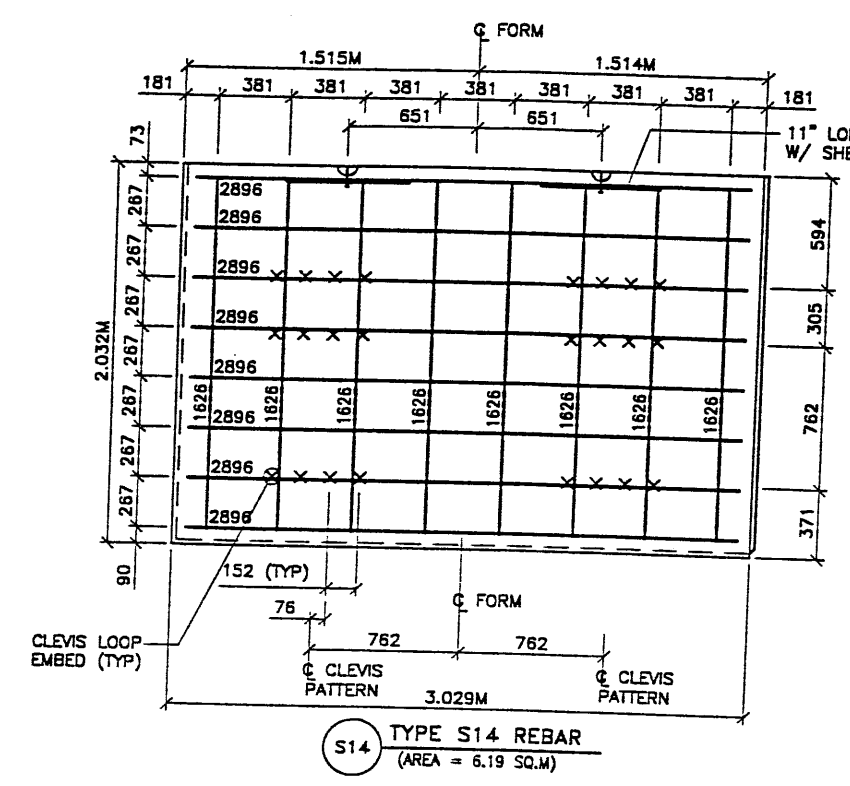
RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-9"
 SPECIAL PANEL DETAILS
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1:1R-342-9.9
JOB NO.	239-0007
SHEET NO.	RE-8

90010

FINA PLOT 05-01-98 H:\RE_EARTH\PROJECT\239-000\190\RES\90-09\REV-1\SPECIALS DENCE (X-UTAH.DWG)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	02-18-98	RELEASE FOR CONSTRUCTION
2	05-01-98	OMIT PENLS S16 & S17

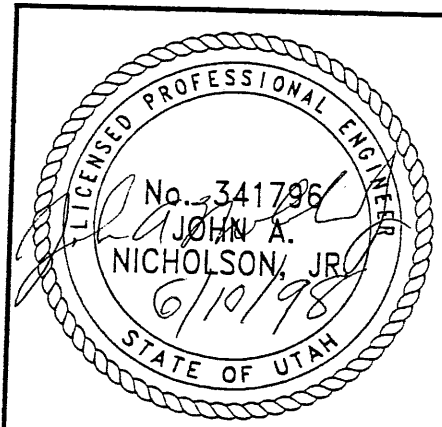


- PANEL REINFORCEMENT NOTES:**
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 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 1.
 - 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.

2
OMIT 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
JUN 18 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-342-9"
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.1R-342-9.10
JOB NO.
239-0007
SHT. NO.
RE-9

VSL CORPORATION
2840 River Bluff, Suite 200
Raleigh, NC 27617
Telephone: (919) 881 8172
Fax: (919) 881 4999

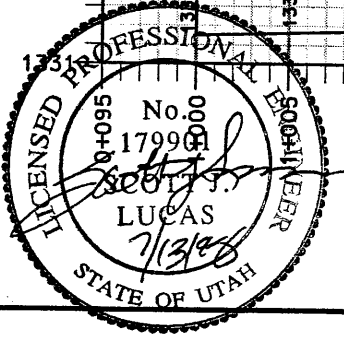
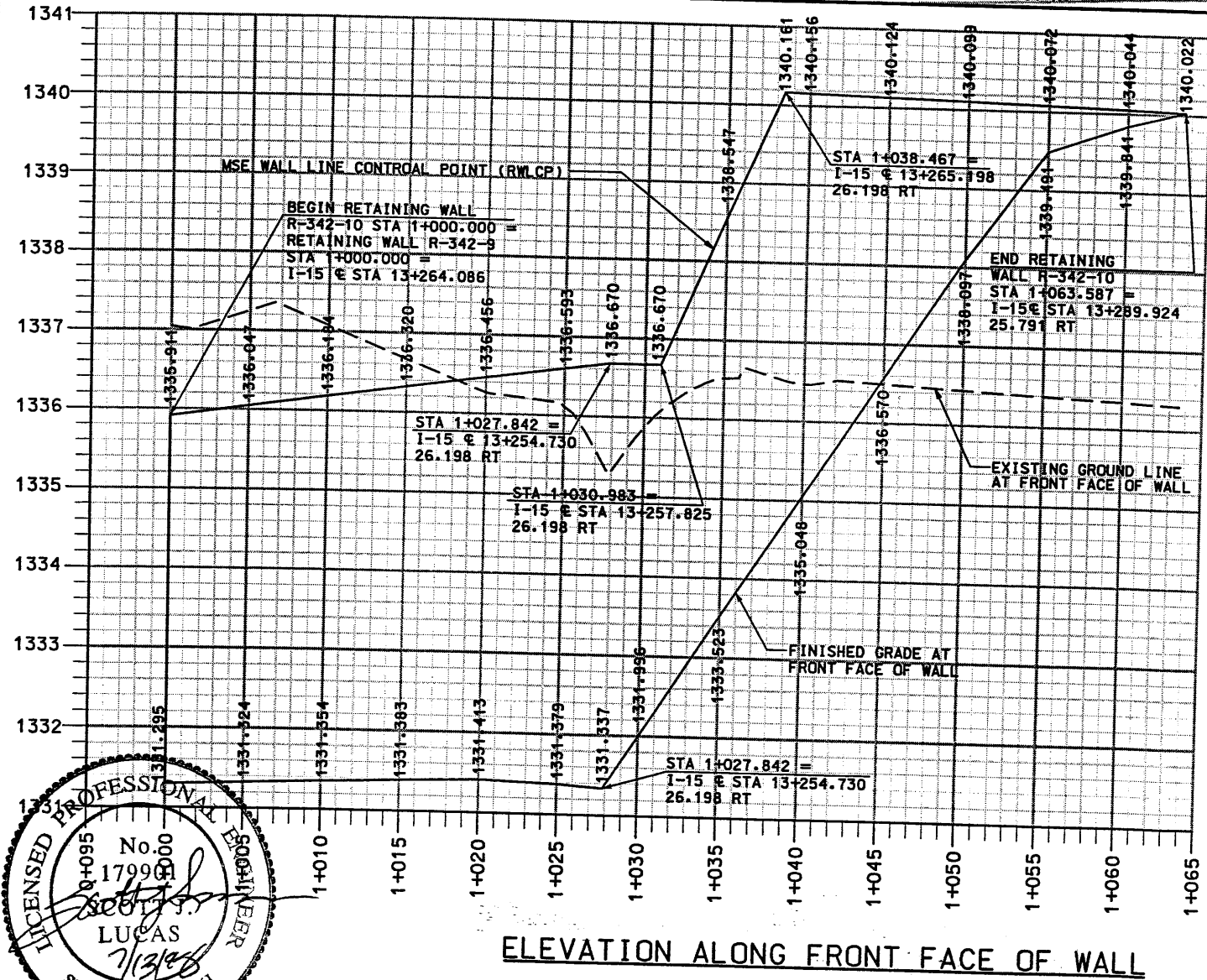
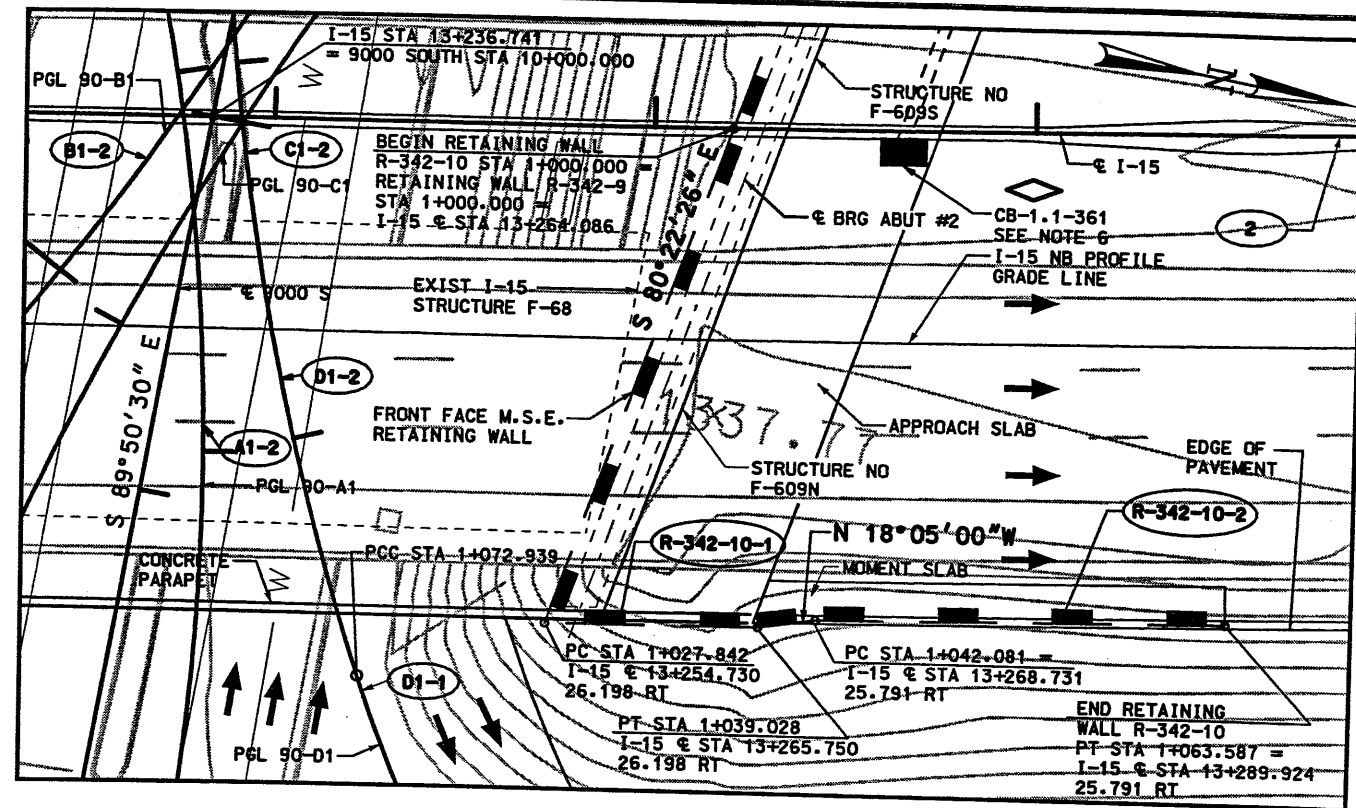
VSL
ARANDA CA / DANVAS TX / BRISBANE AUSTRALIA / LOS ANGELES CA / WASHINGTON DC

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NO.	DATE	DESCRIPTION	BY	CHK
1	02-18-98	RELEASE FOR CONSTRUCTION		
2	05-01-98	OMIT PENLS S16 & S17		

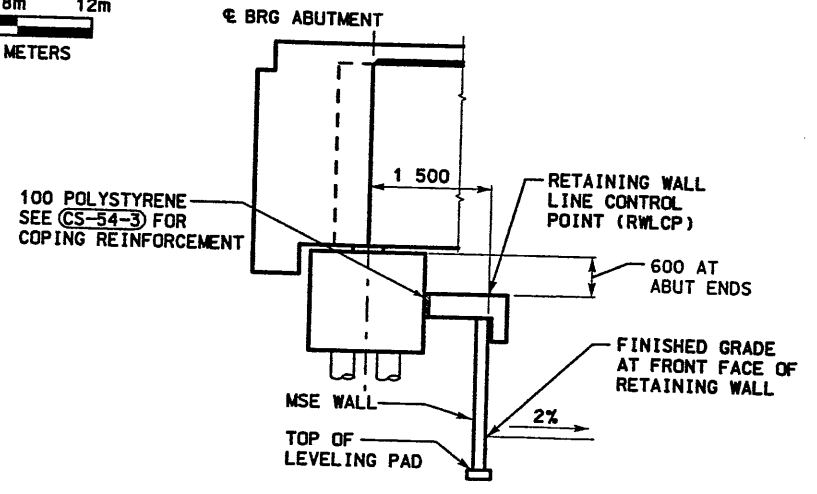
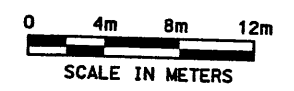
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Date: 13-JUL-1998 Time: 11:47 User: gasterin
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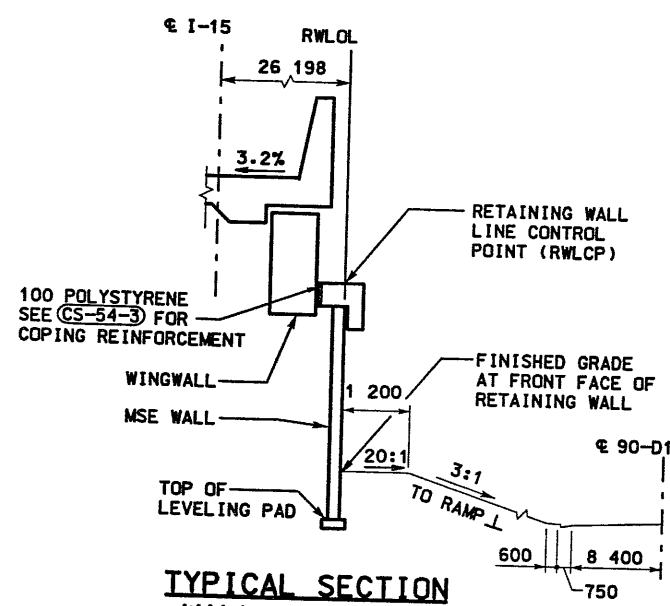


CURVE DATA IN METERS

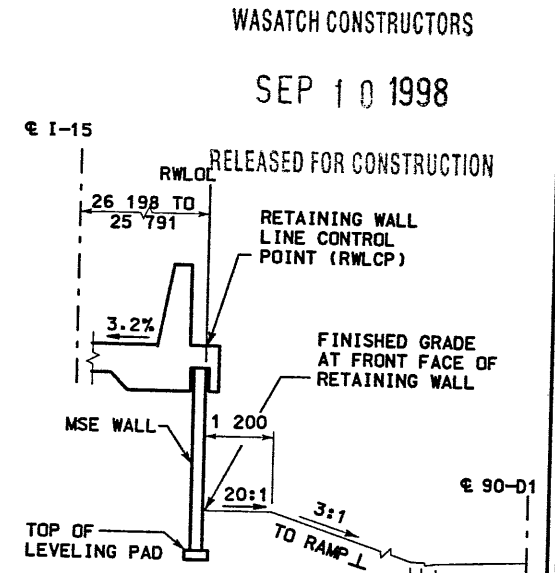
2 $\Delta = 21^{\circ}16'32''$ LT $R = 1745.000$ $L = 647.972$ $T = 327.761$ PI STA 13+254.636 PC STA 12+926.875 PT STA 13+574.848
R-342-10-1 $\Delta = 0^{\circ}21'43''$ $R = 1771.198$ $L = 11.186$ $T = 5.593$ PC STA 1+027.842 PT STA 1+039.028
R-342-10-2 $\Delta = 0^{\circ}41'45''$ $R = 1770.791$ $L = 21.506$ $T = 10.753$ PC STA 1+042.081 PT STA 1+063.587



TYPICAL SECTION WALL R-342-10 STA 1+000.000 TO 1+027.842

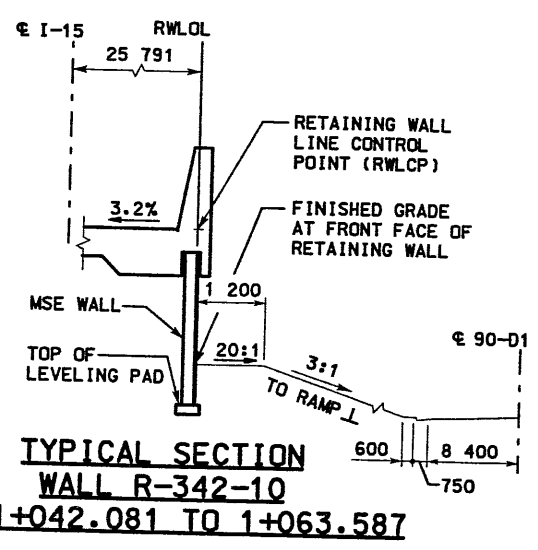


TYPICAL SECTION WALL R-342-10 STA 1+027.842 TO 1+039.208



TYPICAL SECTION WALL R-342-10 STA 1+039.208 TO 1+042.081

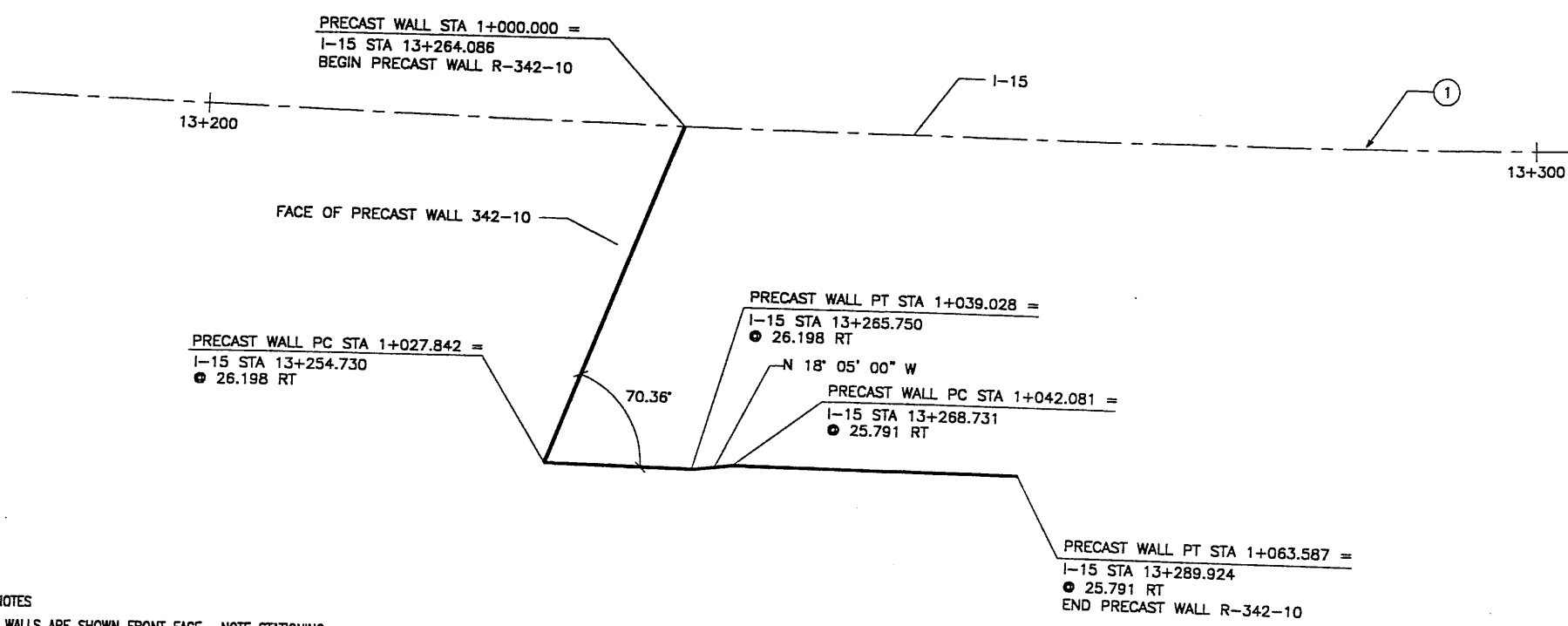
- NOTES:**
- ALL TYPICAL SECTION DIMENSIONS ARE IN MILLIMETERS EXCEPT AS NOTED.
 - ALL PLAN AND PROFILE DIMENSIONS ARE IN METERS EXCEPT AS NOTED.
 - SEE (CS-224) AND (CS-227) FOR APPROACH SLAB DETAILS
 - SEE BRIDGE PLANS FOR ABUTMENT DETAILS
 - SEE (CS-28) FOR COPING AND MOMENT SLAB DETAILS
 - CB 1.1-361 APPROACH SLAB DRAIN TYPE IV-B TABLE A, LINE 7 STA 13+273.006 0.418 RT. N 36197.111 E 50294.719 GRATE ELEV. 1339.305 FL ELEV 1337.502 SEE (CS-249)



TYPICAL SECTION WALL R-342-10 STA 1+042.081 TO 1+063.587

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	7/13/98		
		ORIGINAL RELEASE	
UTAH DEPARTMENT OF TRANSPORTATION			
DESIGN: S.J.L. 7/98		CHECK: B.D.V. 7/98	
PROJECT DESIGN ENGINEER: SCOTT J. LUCAS		PROJECT MANAGER: H. W. LOCHNER	
DATE: 7/98		DATE: 7/98	
DRAWN: J.H.G. 7/98		CHECK: B.D.V. 7/98	
DATE: 7/98		DATE: 7/98	
PROJECT NUMBER: *SP-15-7(135)296		QUANT.:	
SECTION 1.1		1113414	
SALT LAKE COUNTY			
1.1R-342-10.1			
DWG. NO.			
SHT. 1 of 4			
REF. 90_STR R-342-10LY1			

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
①	08-05-98	RELEASE FOR CONSTRUCTION



CURVE DATA			
No.	RADIUS	LENGTH	TANGENT
①	1745.000	614.722	310.580
			20°11'02"

All Dimensions Are In Meters Unless Noted Otherwise

WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION

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: 4W20-6 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
 EXAMPLE: 4W15-12 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
 EXAMPLE: 5W15-12 MESH HAS FIVE (5) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
 EXAMPLE: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" 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 DETAIL.

PLAN VIEW WALL "R-342-10"

SCALE: 1=200 (FULL SIZE)
 SCALE: 1=400 (HALF SIZE)

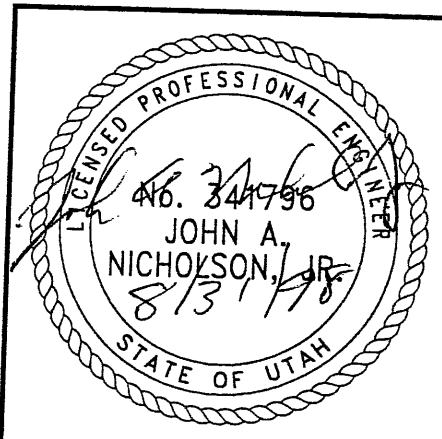
DESIGN PARAMETERS
ANGLE OF INTERNAL FRICTION (SELECT) = 34°
COEFFICIENT OF FRICTION FOR SLIDING = 0.47
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)
TRAFFIC SURCHARGE = 250 PSF
SEISMIC ACCELERATION COFF. = 0.12g (TYP)
SEISMIC ACCELERATION COFF. = 0.28g (AT BRIDGE ABUTMENTS)

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-342-10, NOTES & DESIGN CRITERIA
RE-2 TYPICAL CROSS SECTION
RE-3 TYPICAL CROSS SECTIONS
RE-4 TYPICAL CROSS SECTIONS
RE-5 ELEVATION PRECAST WALL "R-342-10"
RE-6 ELEVATION PRECAST WALL "R-342-10"
RE-7 SPECIAL PANEL DETAILS
RE-8 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.

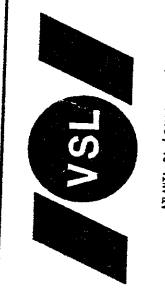


RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-342-10"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-10.2
JOB NO.	239-0007
SHT. NO.	RE-1

2 OF 9

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

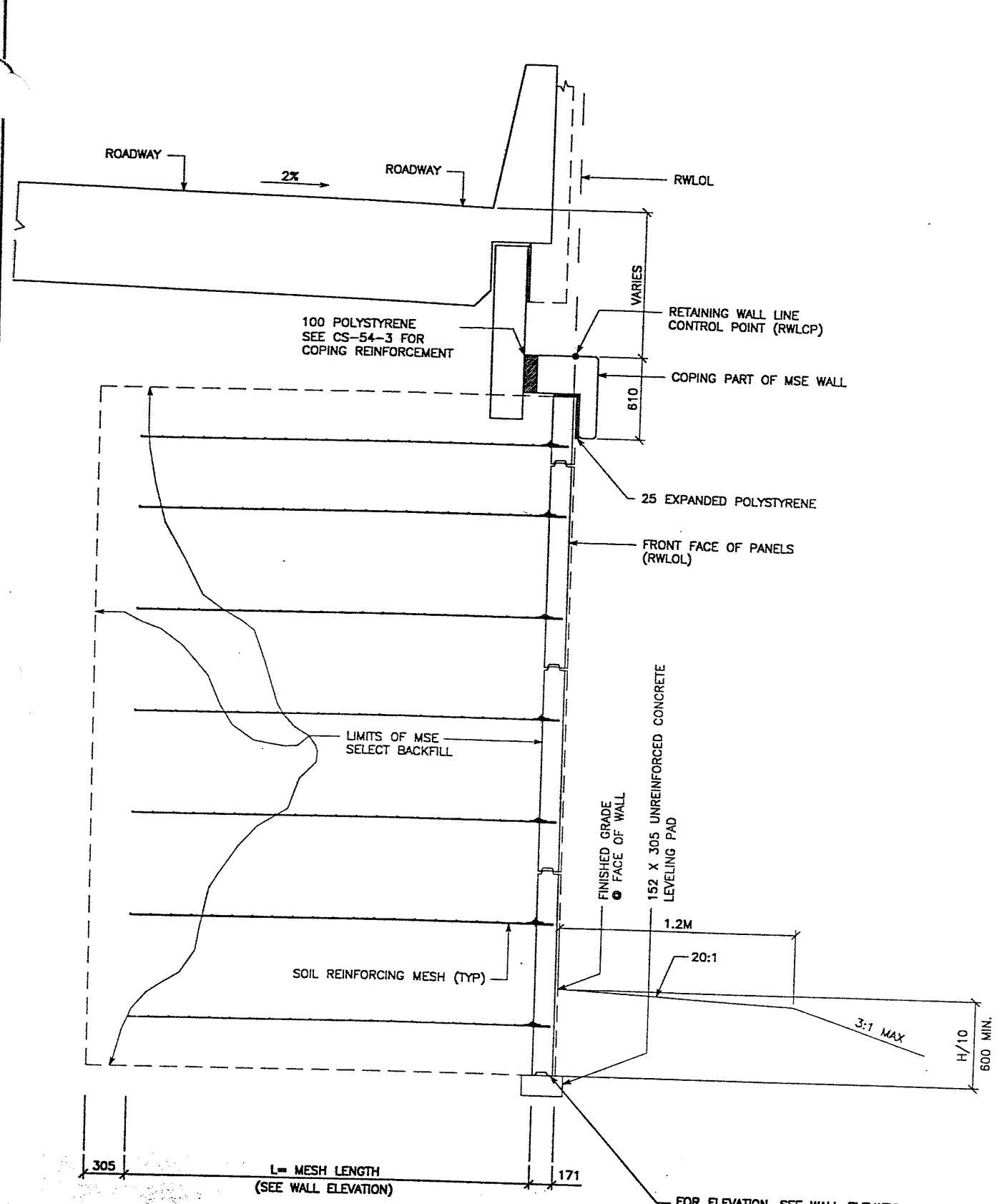


ATLANTA, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE)
 MAUI, HI / SAN JOSE, CA / SPRINGFIELD, VA

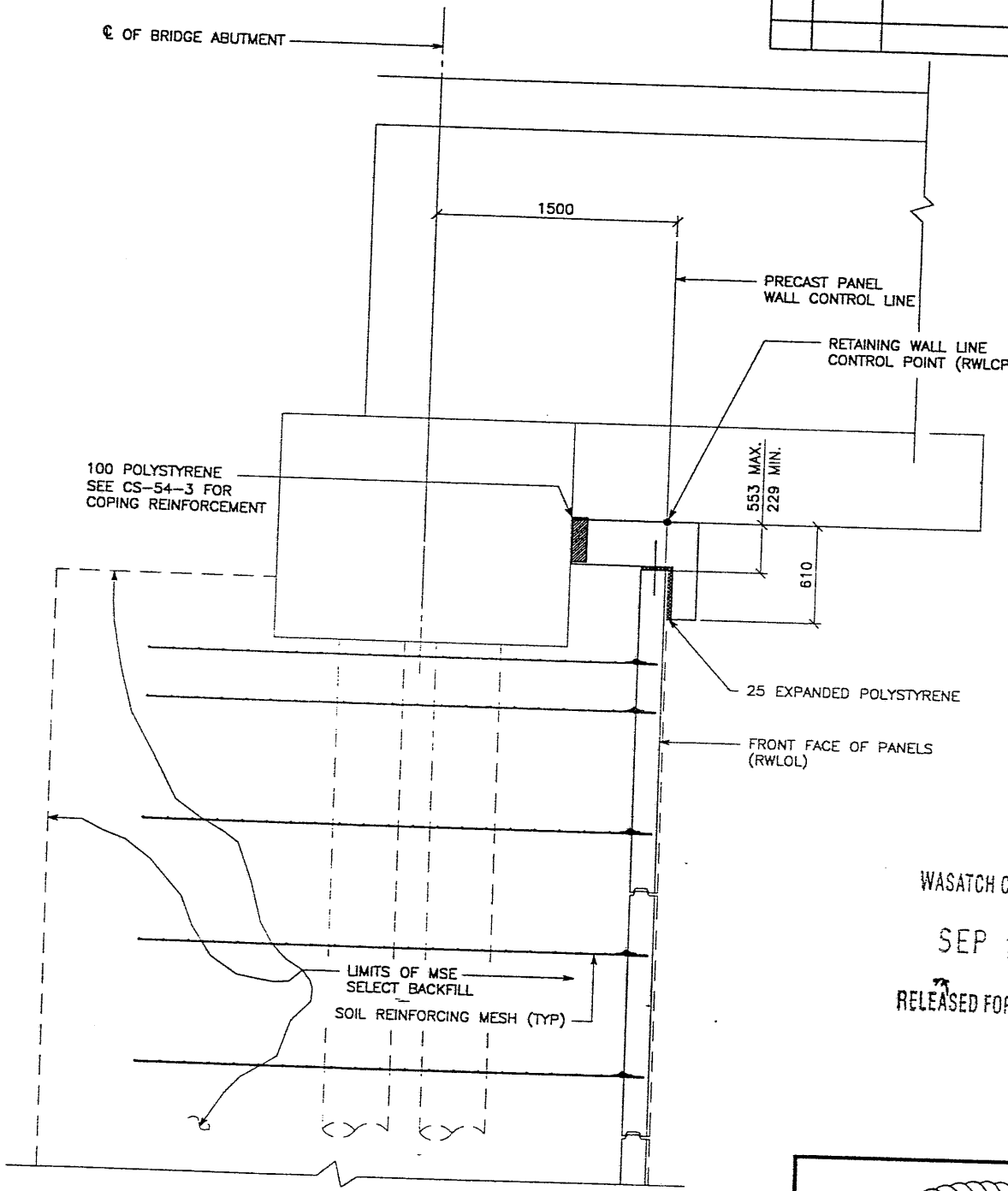
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DES.	08-05-98	JL
DRN.	08-05-98	RSW
CHK.	08-05-98	JL
RETAINED EARTH™		
NO.		
DATE		
REVISION		
BY		CHK

FINAL 07 06-10-98 H:\RE_EARTH\PROJECT\239-0007\1998\9 V\90-10\RE-2 VICE (X-UTAH.DWG)



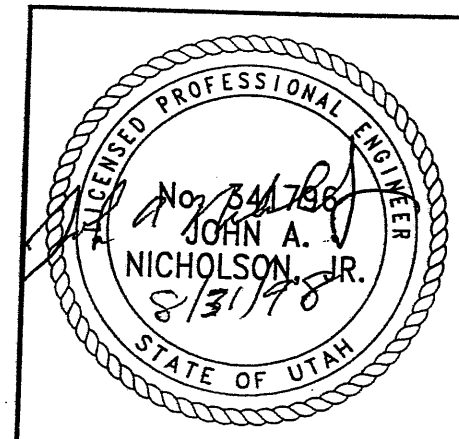
TYPICAL CROSS SECTION - STA 1+027.842 TO 1+039.208
 (SEE DWG. NO. 1.1R-342-10.X FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 1+000.000 TO 1+027.842
 (SEE DWG. NO. 2.1R-342.9.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC

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WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	08-05-98	RELEASE FOR CONSTRUCTION

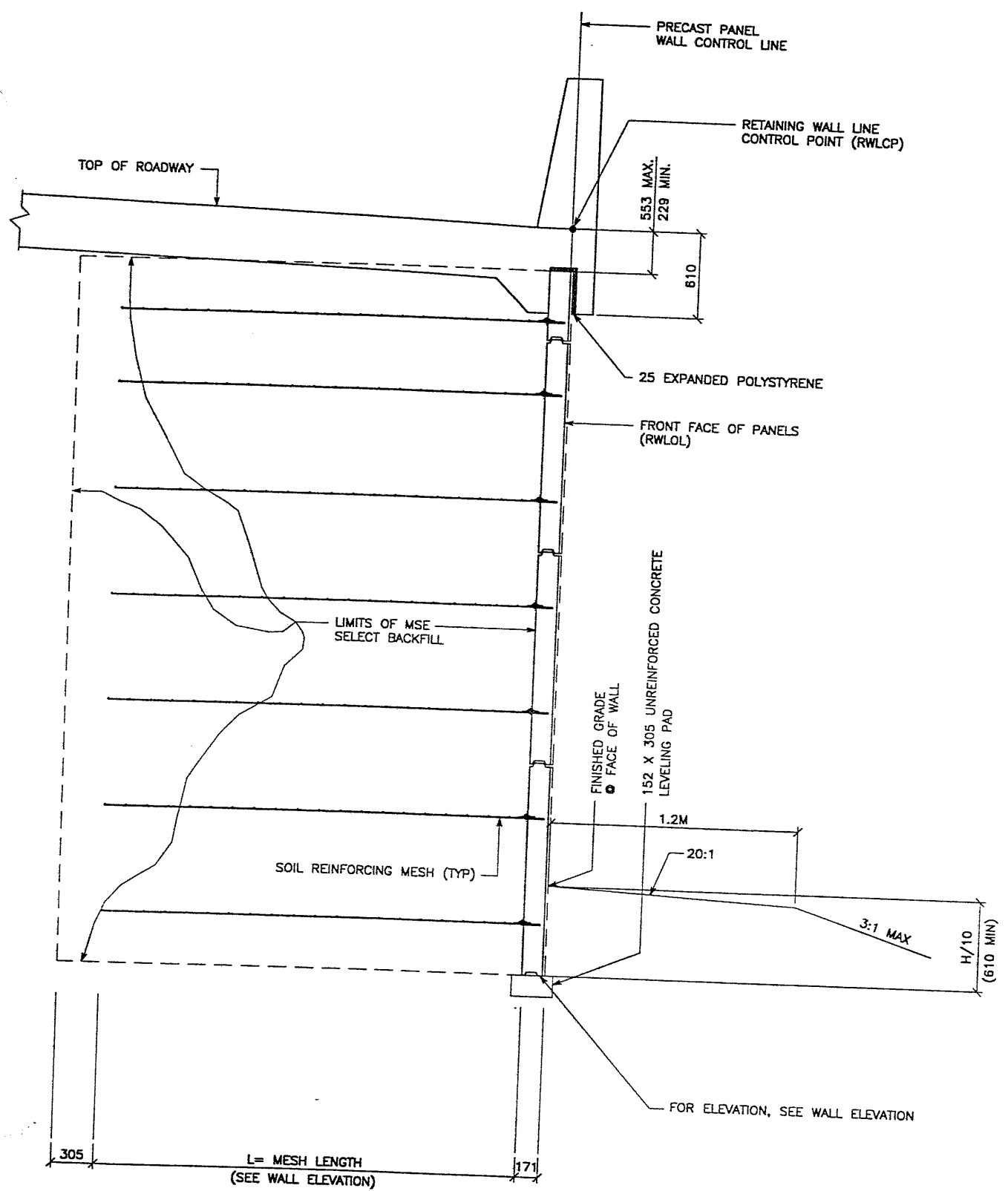
<p>VSL CORPORATION 2840 Plaza Place Raleigh, NC 27612 Telephone: (919) 781-6272 Fac: (919) 781-6859</p>		DES: 08-05-98 JL DRN: 08-05-98 RSW CHK: 08-05-98 JL	NO. DATE REVISION
RETAINED EARTH™ ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE) MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA		VSL CORPORATION 2840 Plaza Place Raleigh, NC 27612 Telephone: (919) 781-6272 Fac: (919) 781-6859	NO. DATE REVISION
RETAINED EARTH™ WALLS PRECAST WALL™ R-342-10 TYPICAL CROSS SECTION		UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.	NO. DATE REVISION
DWG. NO. 1.1R-342-10.3		JOB NO. 239-0007	SHEET NO. RE-2

3099

UTAH (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\06-10\RE-3

FINAL 06-10-98



TYPICAL CROSS SECTION - STA 1+042.081 TO 1+063.587
 (SEE DWG. NO. 1.1R-342-10.1 FOR ADDITIONAL INFORMATION)
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 SCALE: 1:40 (HALF SIZE)

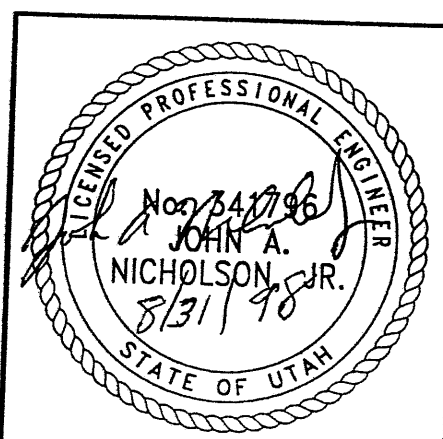
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	08-05-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
 2840 Plaza Plaza, Suite 200
 Raleigh, NC 27617
 Telephone: (919) 781-6272
 Fax: (919) 781-4869

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

WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION



METRIC

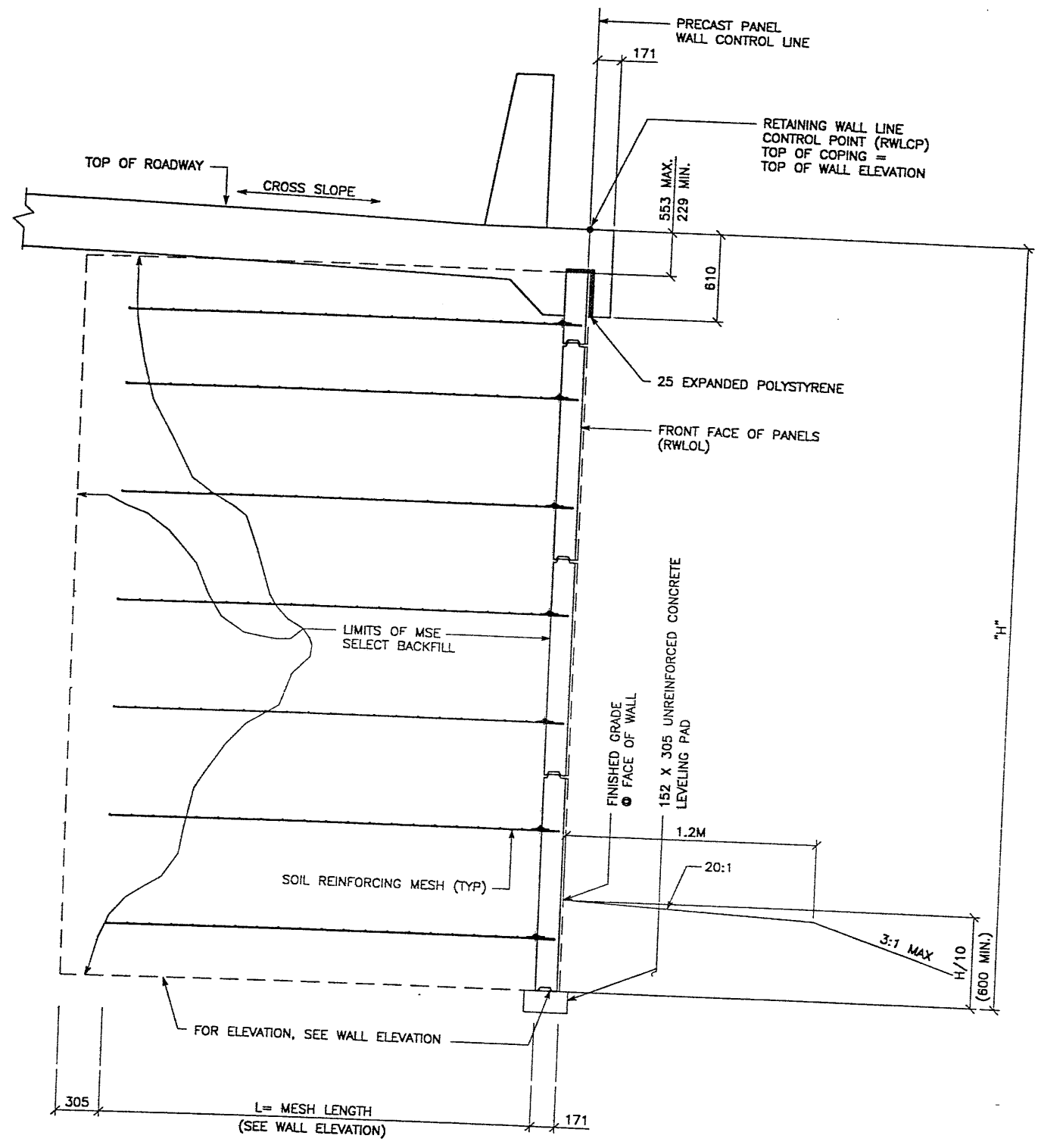
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

RETAINED EARTH™ WALLS
 PRECAST WALL™ R-342-10
 TYPICAL CROSS SECTION

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

DWG. NO.	1.1R-342-10.4
JOB NO.	239-0007
SHT. NO.	RE-3

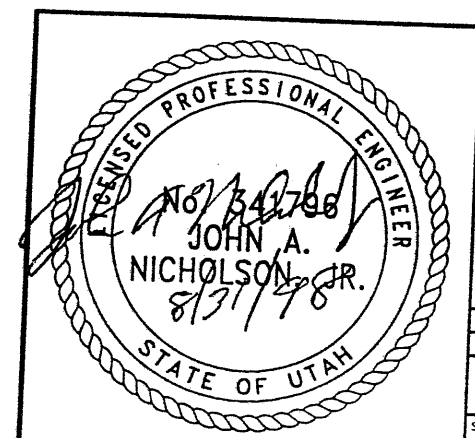
4069



TYPICAL CROSS SECTION - STA 1+039.208 TO 1+042.081
 (SEE DWG. NO. 1.1R-342-10.1 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
▲	08-05-98	RELEASE FOR CONSTRUCTION

DES.	CHK.	RETAINED EARTH™
08-05-98 JL	08-05-98 RSW	08-05-98 JL

VSL CORPORATION
 2810 Plateau Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8772
 Fax: (919) 781-1889

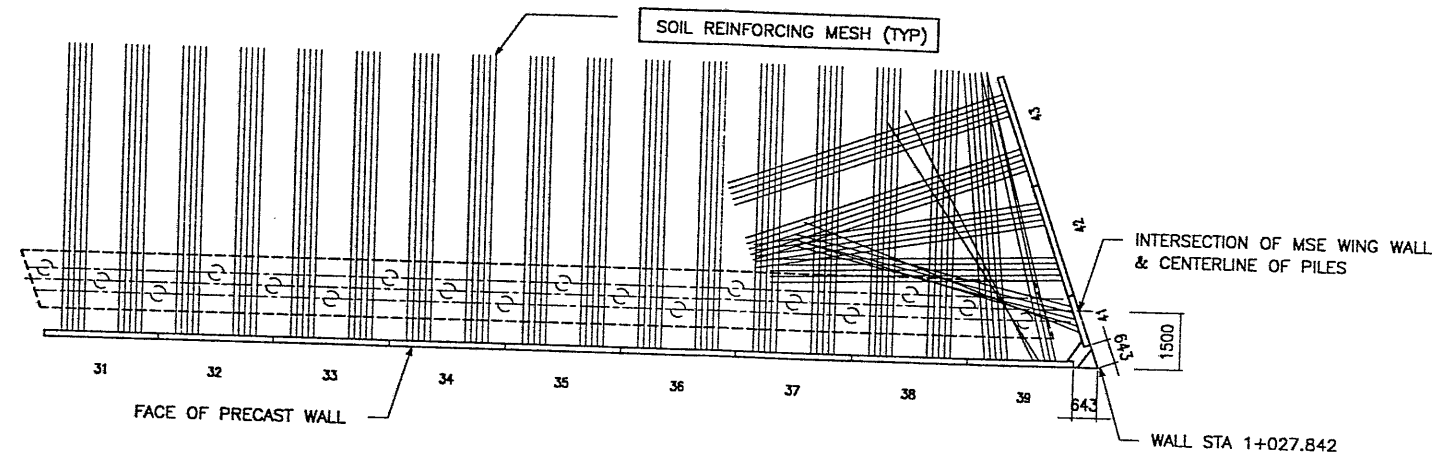


ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

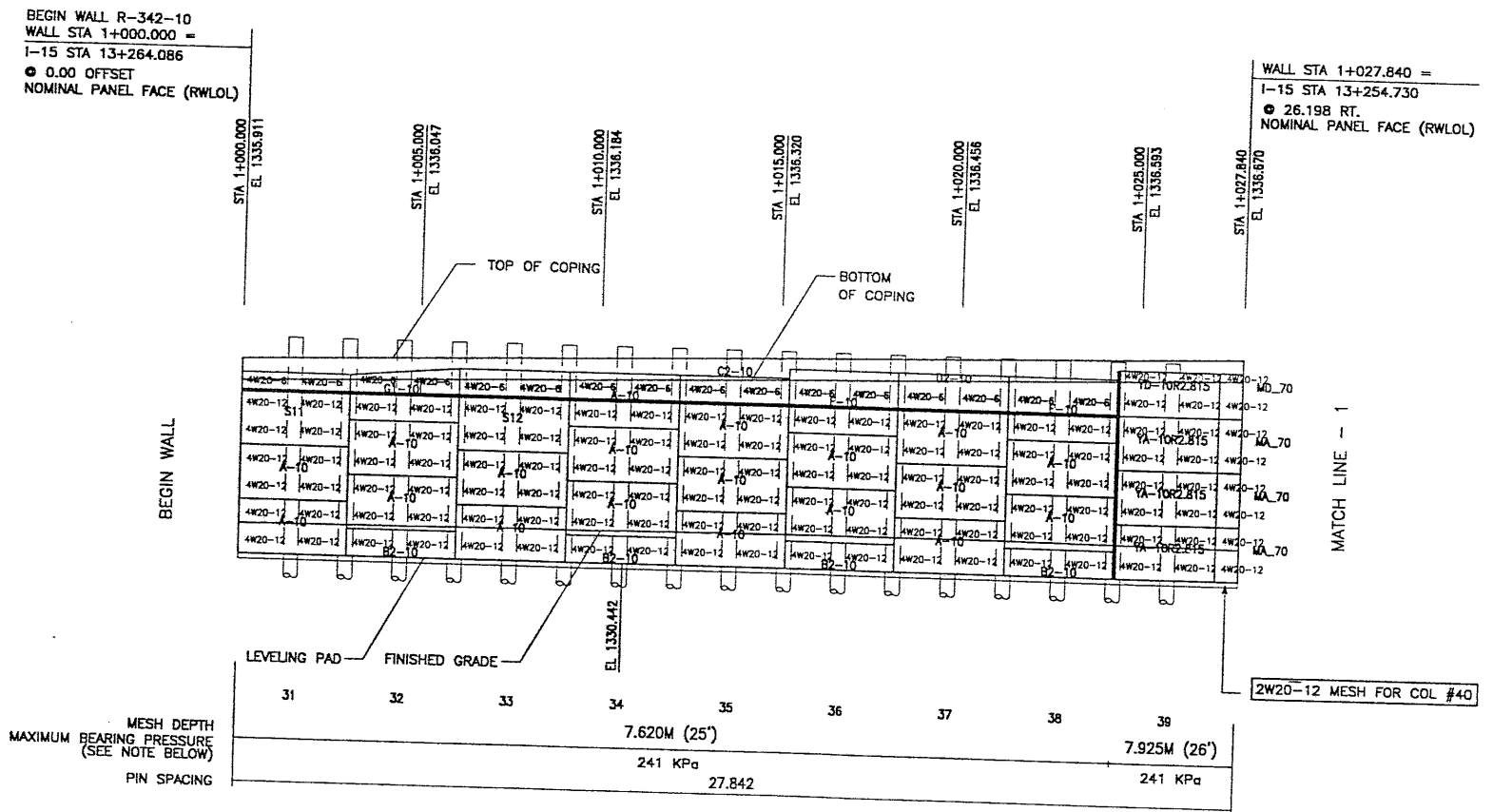
WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION -

RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-10"
 TYPICAL CROSS SECTIONS
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-10.5
JOB NO.	239-0007
SHT. NO.	RE-4



PLAN VIEW PRECAST WALL R-342-10



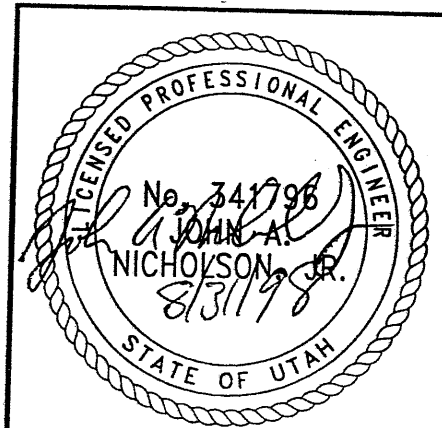
ELEVATION PRECAST WALL R-342-10 (FRONT FACE SHOWN)

(TOTAL SURFACE AREA OF PANELS = 290.83 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.

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
SEP 10 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	08-05-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	NO.	DATE	REVISION	CHK
JL	RSW	JL				

RETAINED EARTH™

VSL CORPORATION
2600 Pinta Plaza, Suite 200
Folsom, CA 95630
Tel: (916) 781-8772
Fax: (916) 781-4669

ATLANTA, GA / DALLAS, TX / PALMDALE, CA (CORPORATE OFFICE)
MINNEAPOLIS, MN / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PRECAST WALL "R-342-10"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.1R-342-10.6

JOB NO.
239-0007

SHT. NO.
RE-5

FINAI DT 06-18-98 H:\RE_EARTH\PROJECT\239-0007\1998\c S\90-10\SPECIALS DENCE (X-UTAH.DWG)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	08-05-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

VSL CORPORATION
 2410 Price Road, Suite 700
 Reston, VA 20191
 Telephone: (919) 761-6277
 Fax: (919) 761-6869

VSL
 A MEMBER OF THE VSL GROUP
 VSL GROUP INC. (CORPORATE OFFICE)
 WILMINGTON, DE 19804

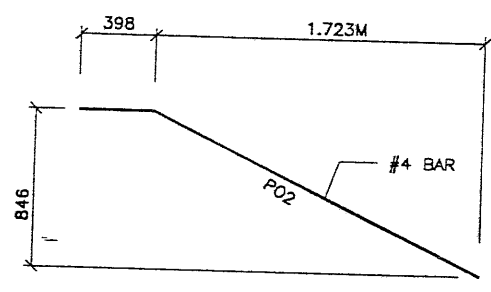
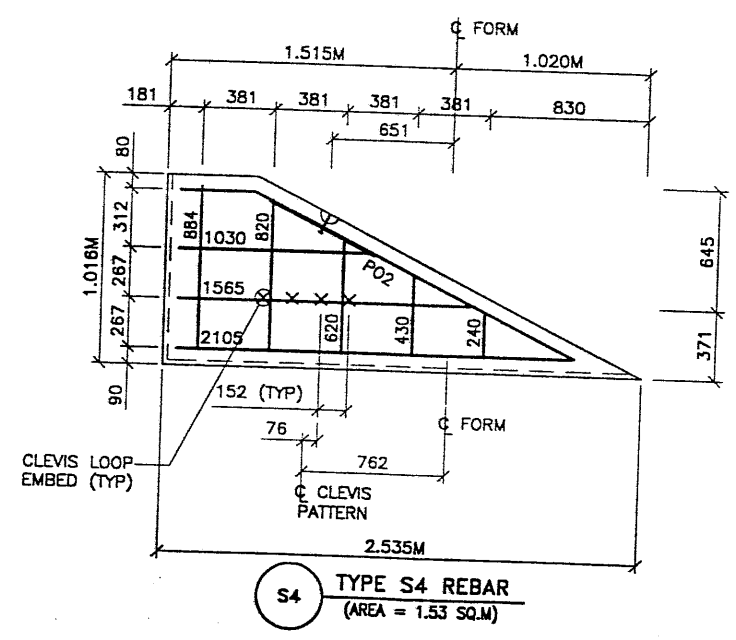
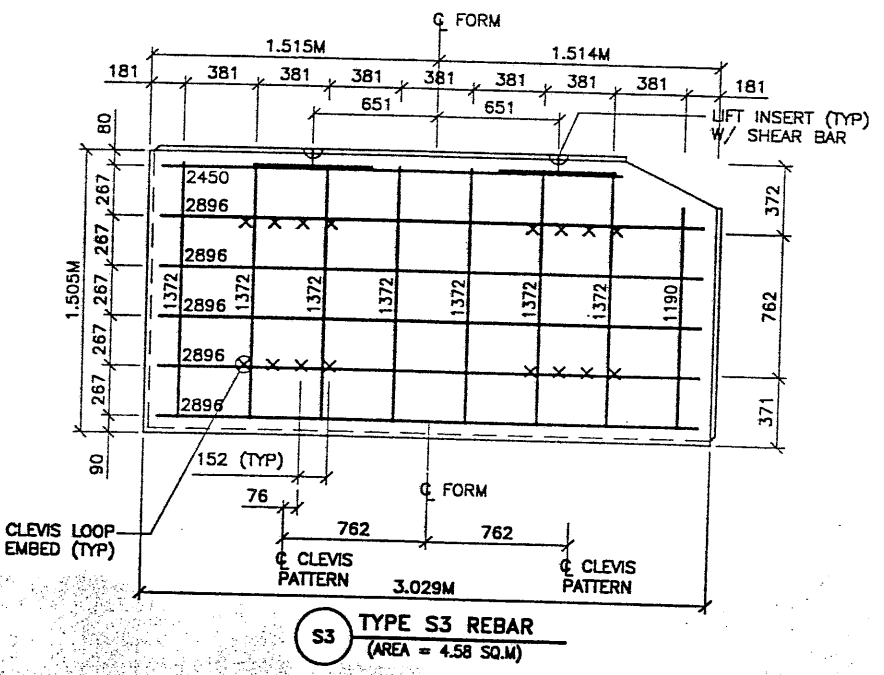
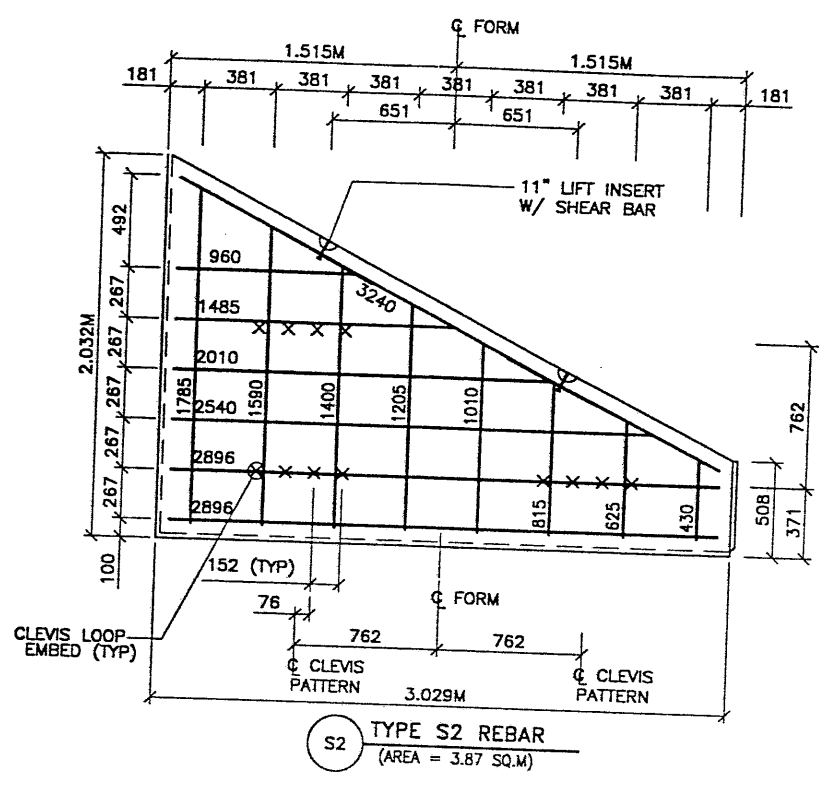
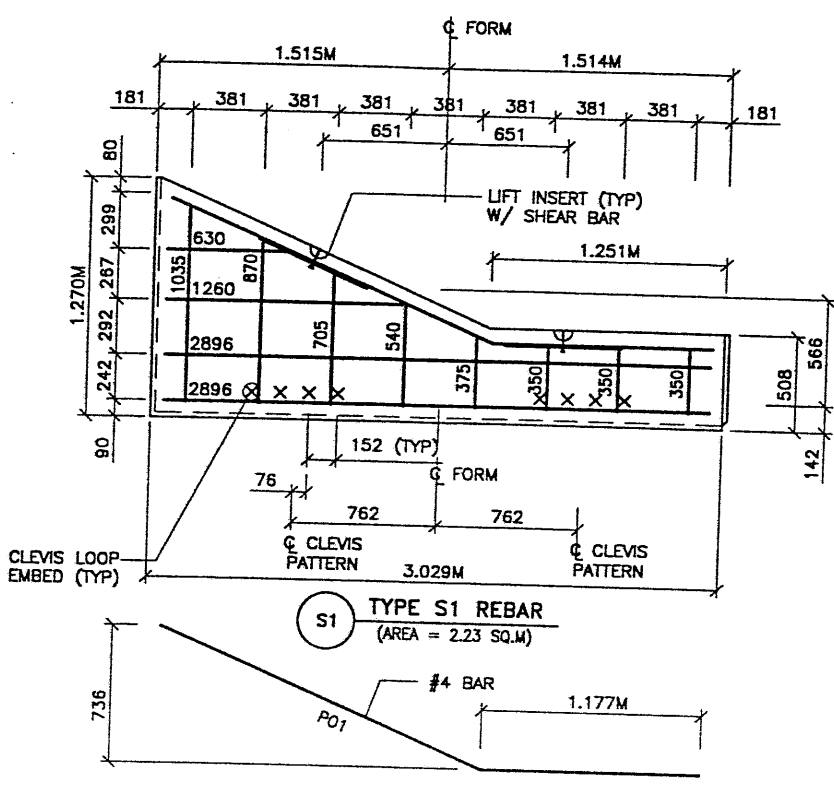
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-10"
 SPECIAL PANEL DETAILS

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

DWG. NO.
 1.1R-342-10.8
 JOB NO.
 239-0007
 SHEET NO.
 RE-7

- 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.



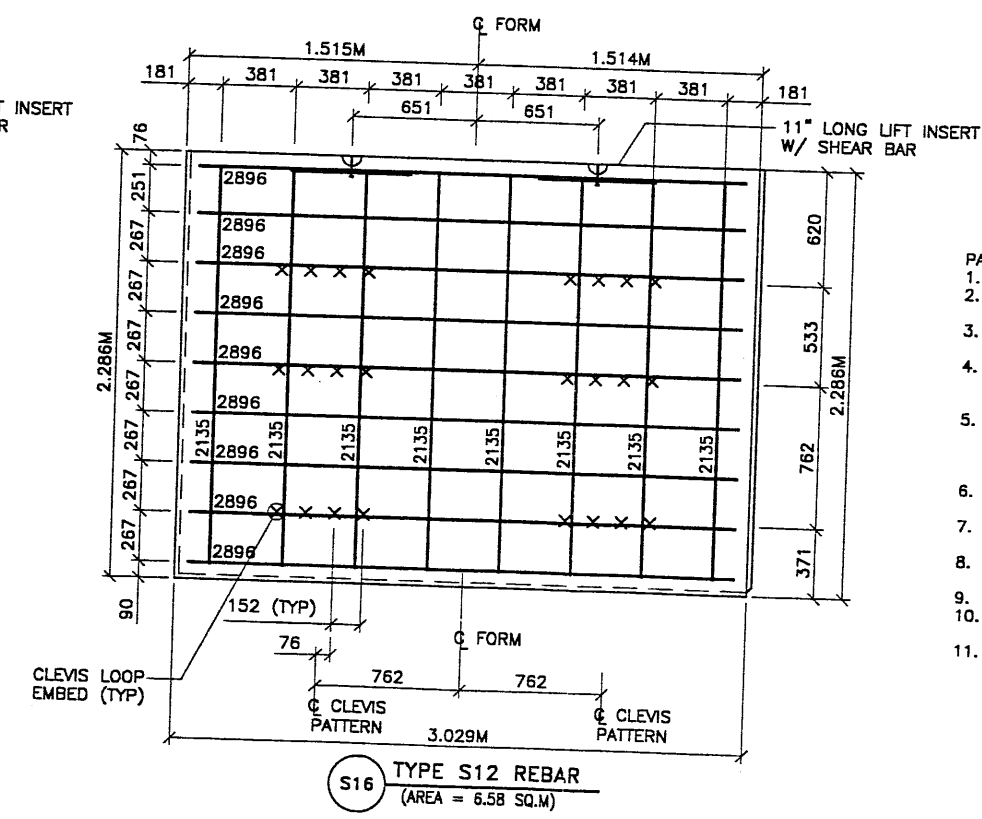
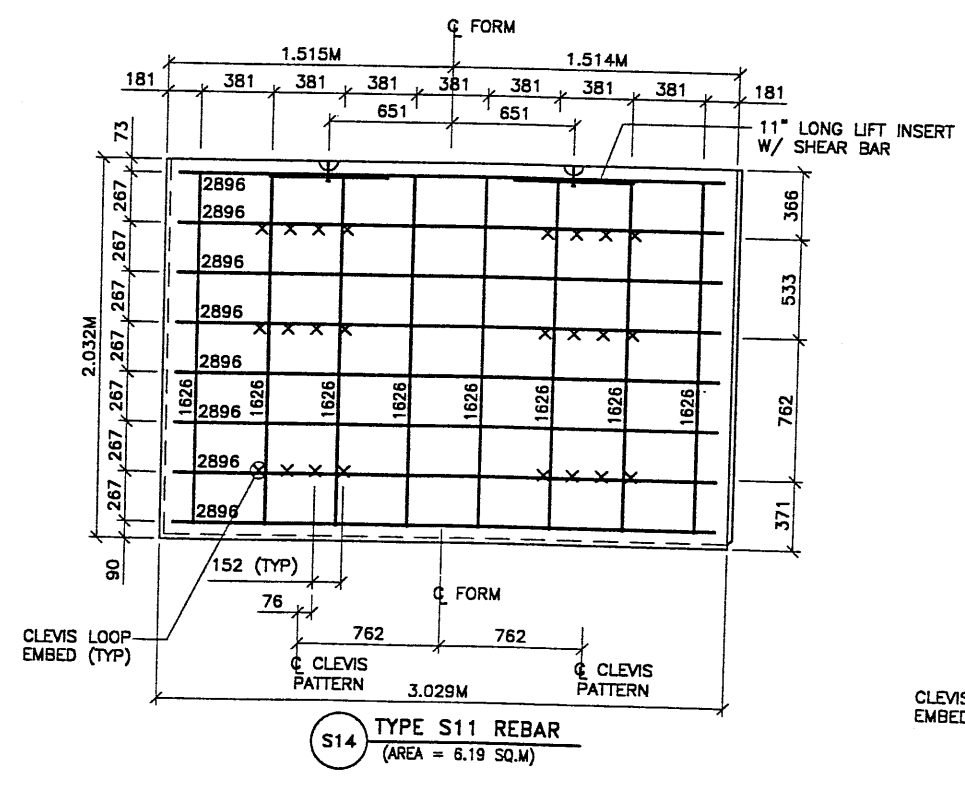
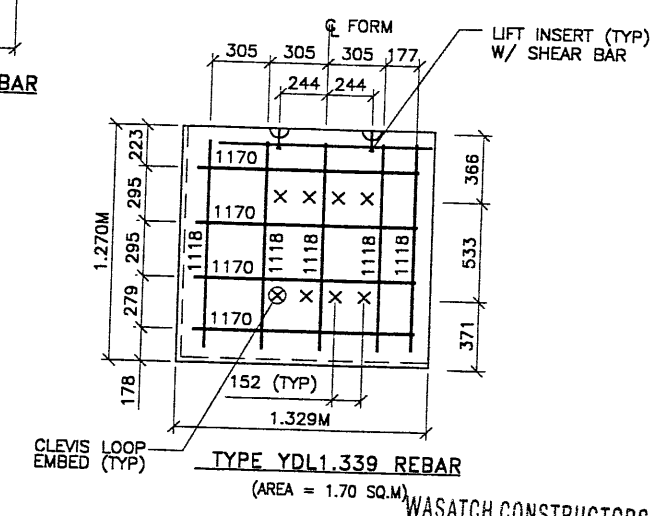
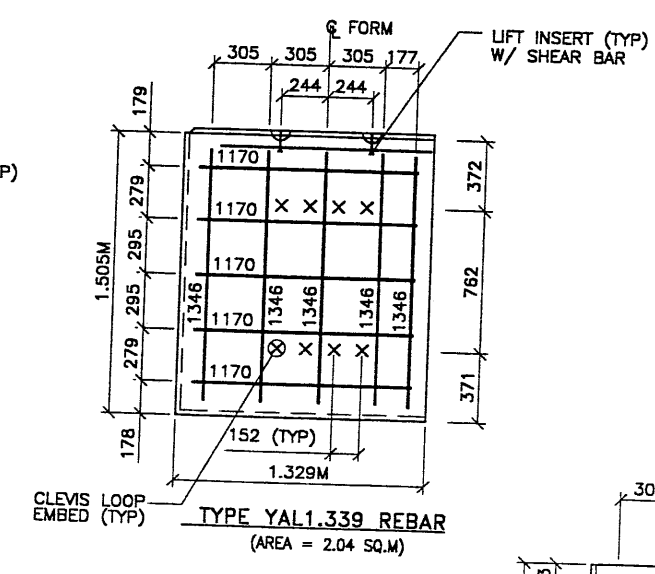
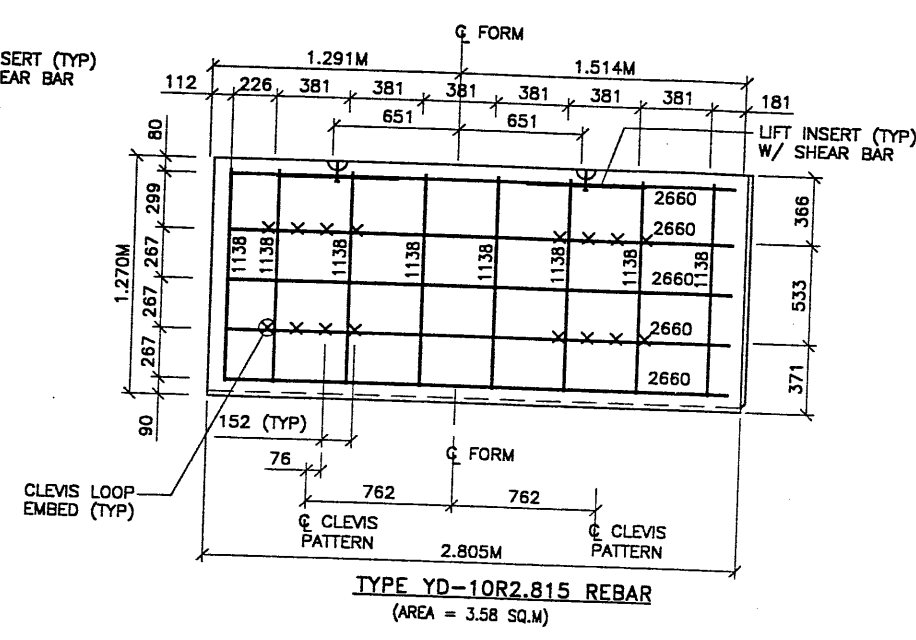
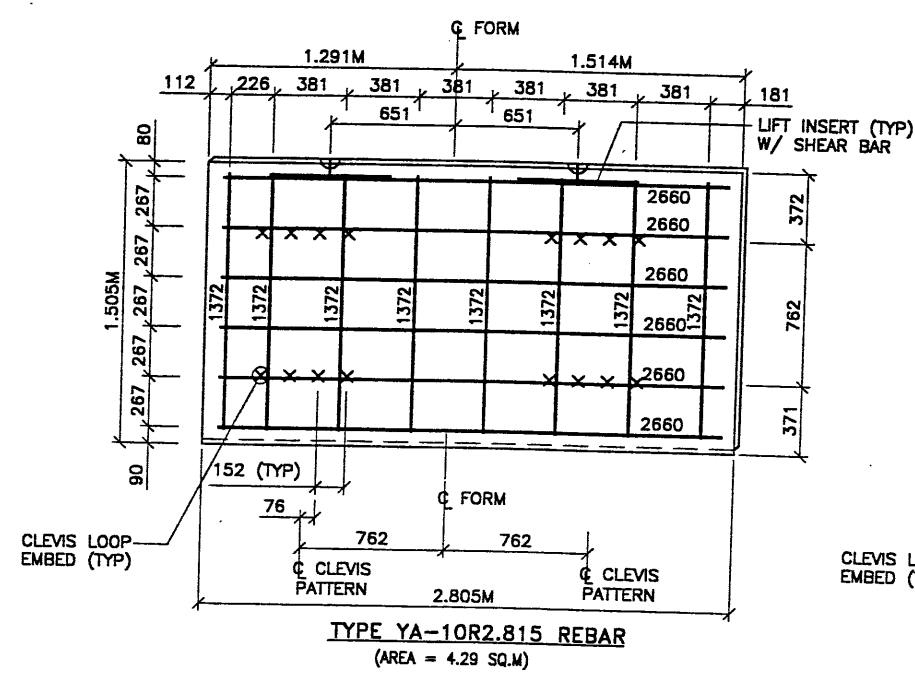
WASATCH CONSTRUCTORS
 SEP 10 1998
 RELEASED FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
 No. 341996
 JOHN A. NICHOLSON JR.
 8/31/98
 STATE OF UTAH

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

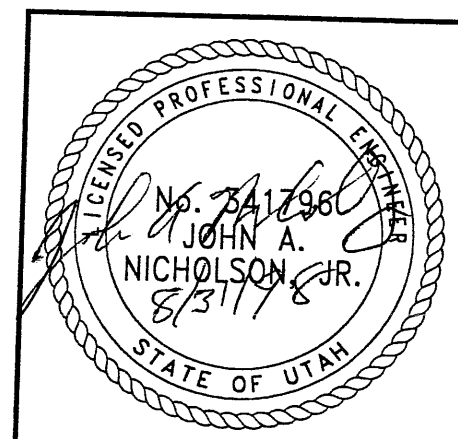
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	08-05-98	RELEASE FOR CONSTRUCTION



- PANEL REINFORCEMENT NOTES:**
- PANELS ARE SHOWN BACK FACE.
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METRIC

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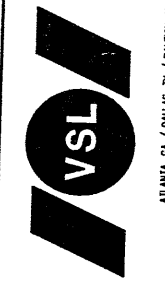


SEP 10 1998
RELEASED FOR CONSTRUCTION
WASATCH CONSTRUCTORS

NO.	DATE	DESCRIPTION	BY	CHK

DES.	08-05-98	RSW
DRN.	08-05-98	RSW
CHK.	08-05-98	JL

DWG. NO.	1.1R-342-10.9
JOB NO.	239-0007
SHT. NO.	RE-8

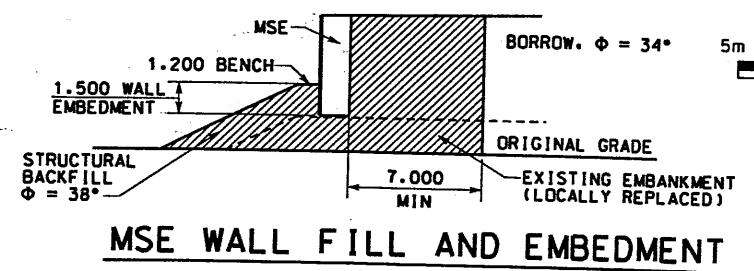
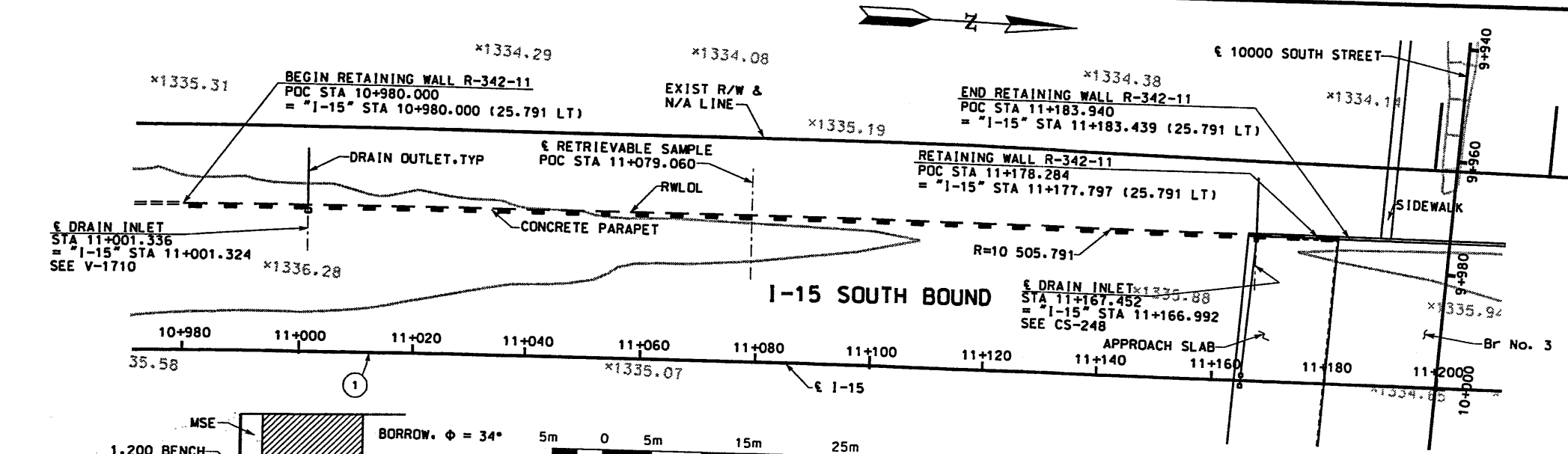


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2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4889

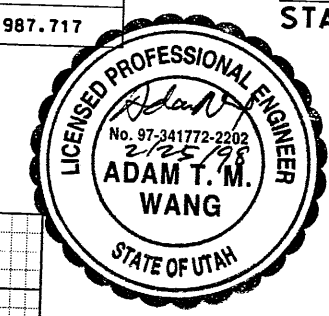
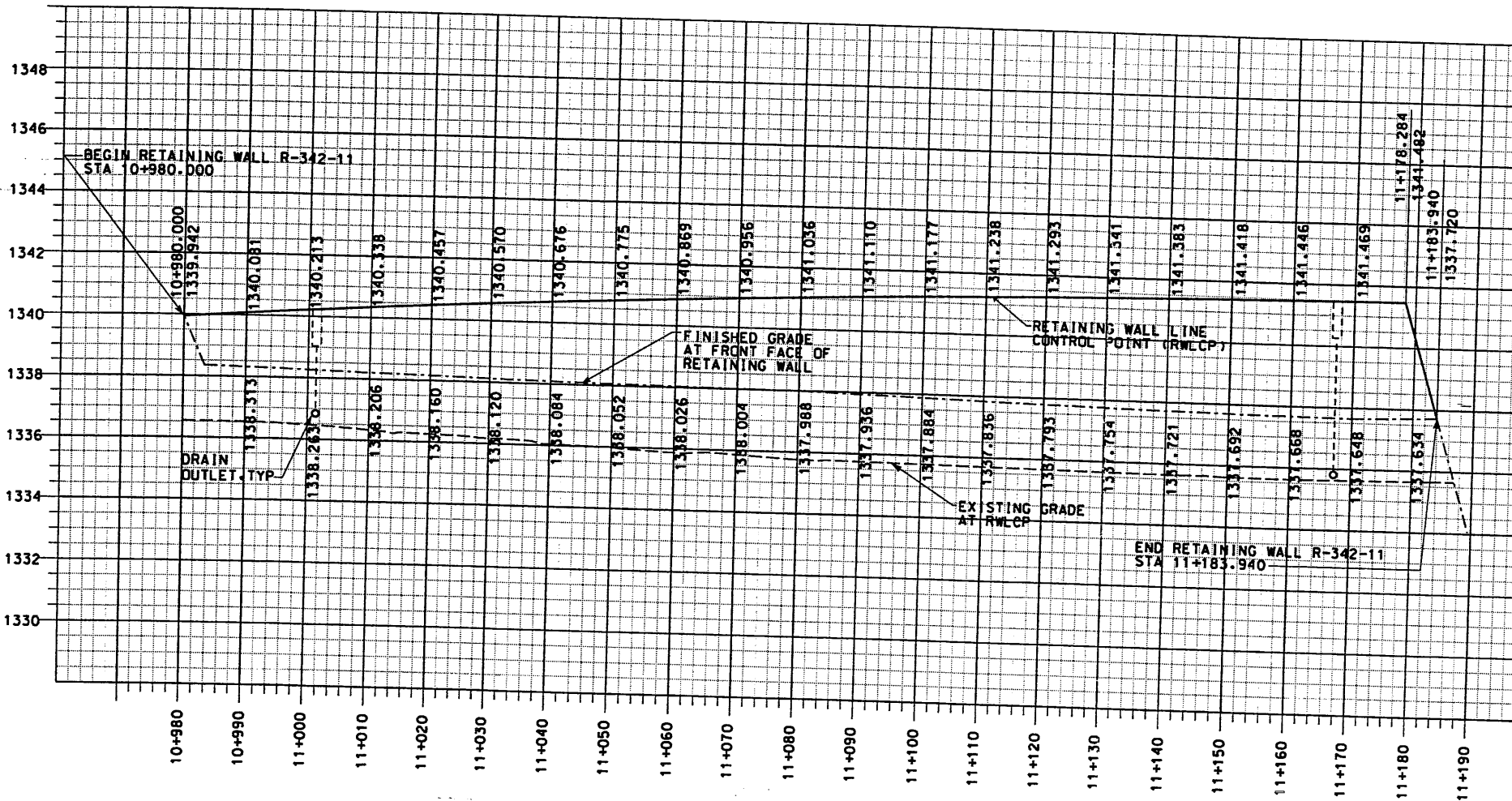
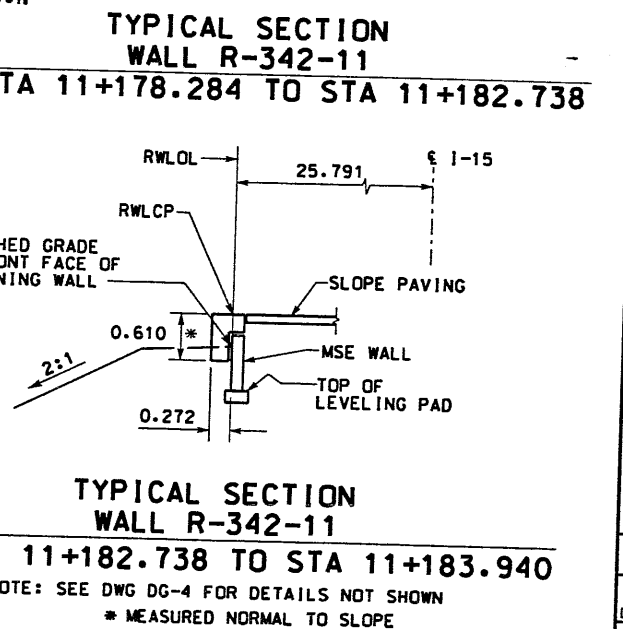
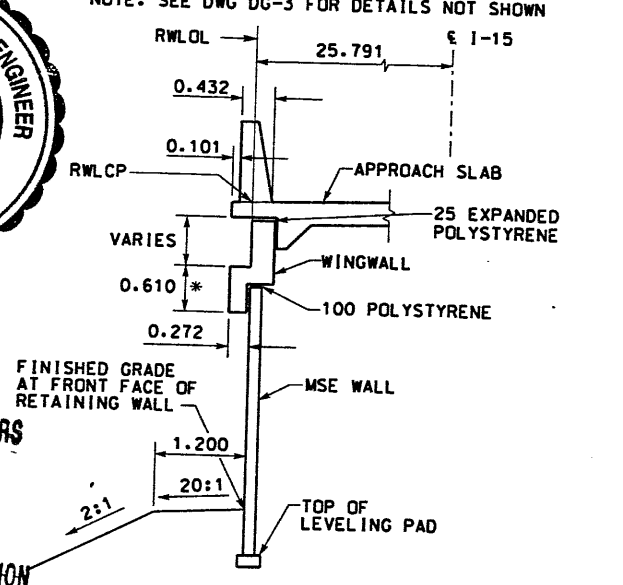
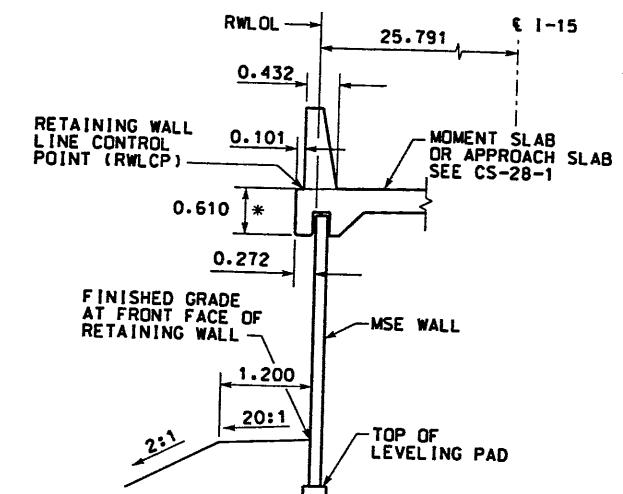
RETAINED EARTH™ WALLS
PRECAST WALL "R-342-10"
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

9 of 9

Date: 25 FEB 98 Time: 10:48:36 User: nms110148136 User: nms110148136
 File name: I:\400-07\11\2100-w423d-11.dgn



CURVE NO.	Δ	R	L	T
1	10°46'05"	10 480.000	1969.615	987.717



WASATCH CONSTRUCTORS
 MAR 05 1998
 RELEASED FOR CONSTRUCTION

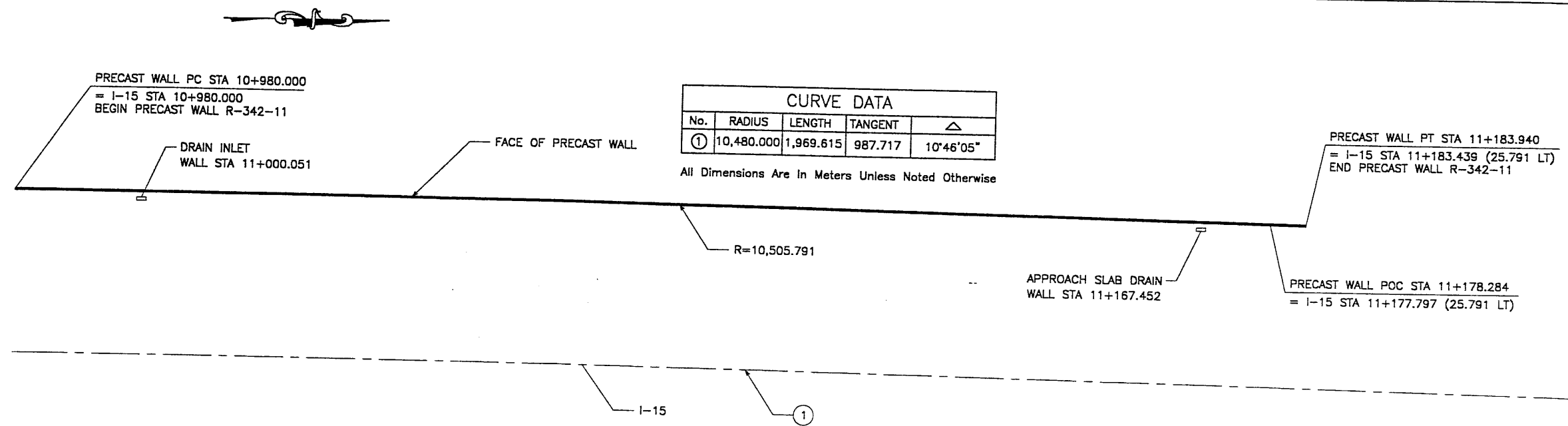
APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
	02/25/98		
UTAH DEPARTMENT OF TRANSPORTATION			
SVERDRUP/DE LEUW		DESIGN	CHECK
		11/97	11/97
		CHECK	CHECK
		11/97	11/97
		QUANT.	
SECTION 1.1		PROJECT DESIGN ENGINEER	PROJECT MANAGER
I-15 CORRIDOR RECONSTRUCTION		DATE	DATE
SITUATION & LAYOUT RET WALL R-342-11			
PROJECT #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1-342-11.01			
SHT. 1 OF 4			
REF.			

XREFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\100-SERS\100-11\SUBMITL-2\RE-1

FINAL PLOT 01-29-98

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-19-98	RELEASE FOR CONSTRUCTION



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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W15-12 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" 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 DETAIL.

PLAN VIEW WALL "R-342-11"

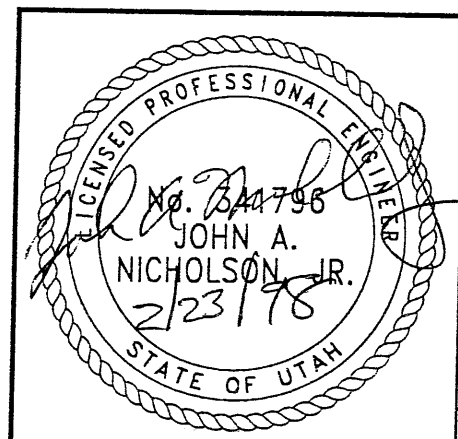
SCALE: 1=400 (FULL SIZE)
SCALE: 1=800 (HALF SIZE)

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 28°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF 21.20 KN/M ³	
TRAFFIC SURCHARGE = 250 PSF 12 KPa	
SEISMIC ACCELERATION COFF. = 0.12g (TYP)	
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)	
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-342-11, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTIONS
RE-3	TYPICAL CROSS SECTIONS
RE-4	ELEVATION PRECAST WALL "R-342-11"
RE-5	ELEVATION PRECAST WALL "R-342-11"
RE-6	ELEVATION PRECAST WALL "R-342-11"
RE-7	ELEVATION PRECAST WALL "R-342-11"
RE-8	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
MAR 05 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		NO.	DATE	REVISION	CHK
△	02-19-98				

DES.	01-29-98	JL
DRN	01-29-98	DDO
CHK.	01-29-98	JL

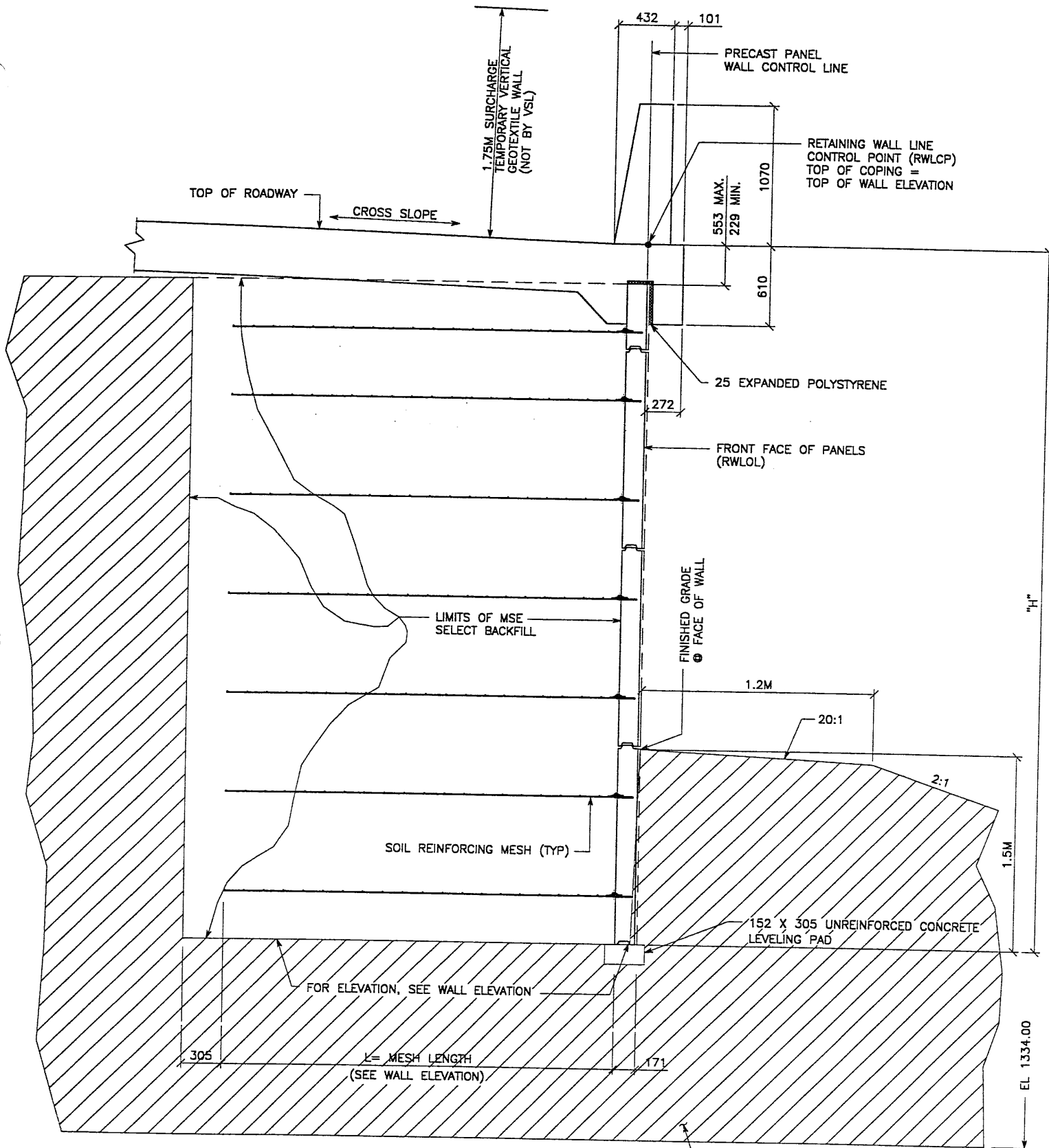
VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4969

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

RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-342-11"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-11.2
JOB NO.	239-0007
SHT. NO.	RE-1

2 OF 9



TYPICAL CROSS SECTION - STA 10+980.000 TO 11+178.284
 (SEE DWG. NO. 1.1R-342-11.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION			
NO.	DATE	DESCRIPTION	BY
1	02-19-98	RELEASE FOR CONSTRUCTION	[Signature]

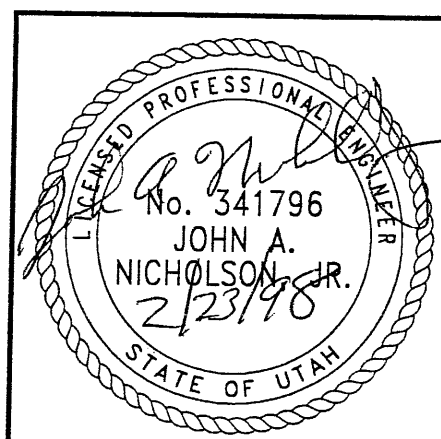
DES.	CHK.	NO.	DATE	REVISION
JL	JL			
DDO	DDO			
JL	JL			

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WASATCH CONSTRUCTORS
MAR 05 1998
RELEASED FOR CONSTRUCTION

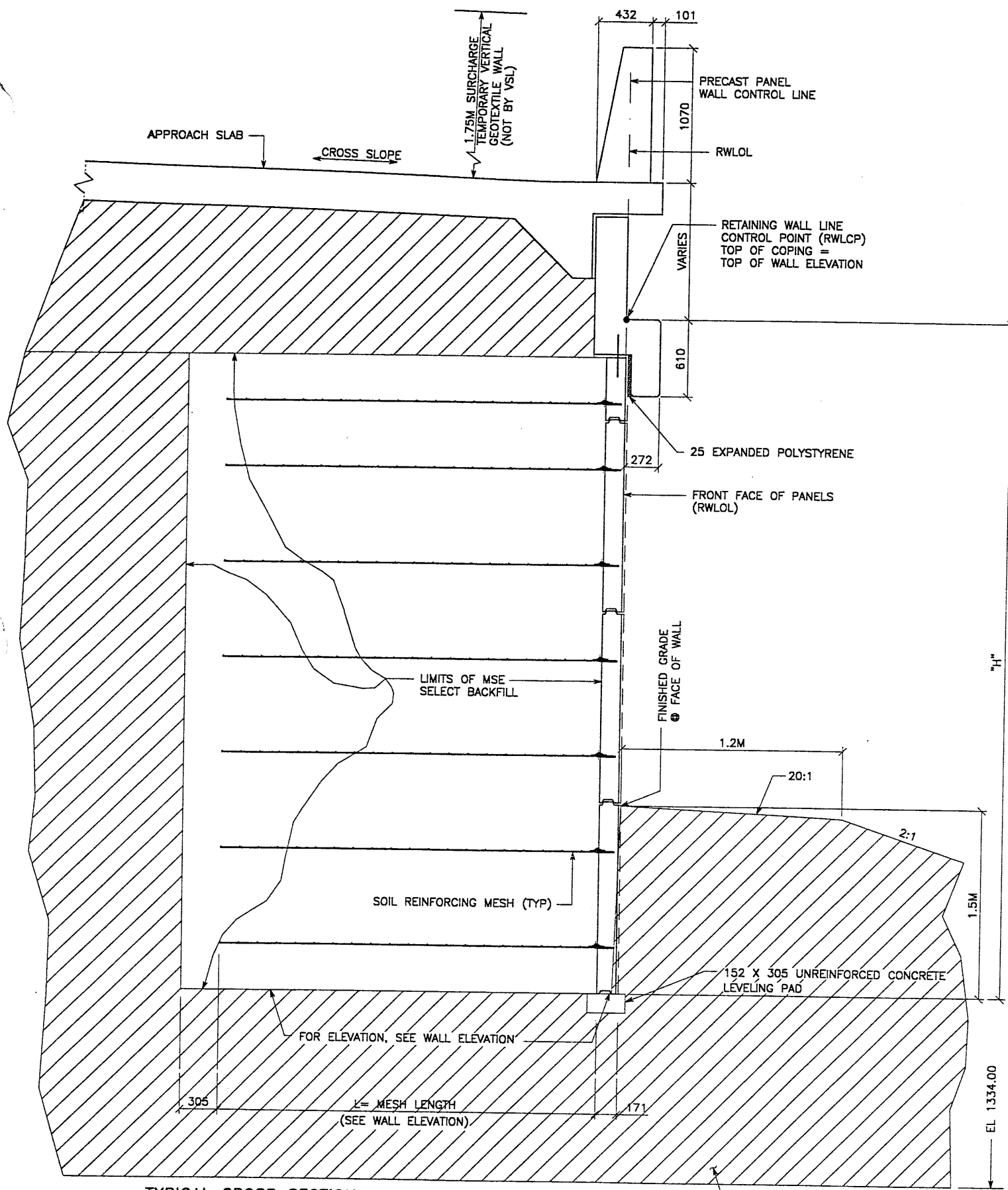


RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-11"
 TYPICAL CROSS SECTION
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

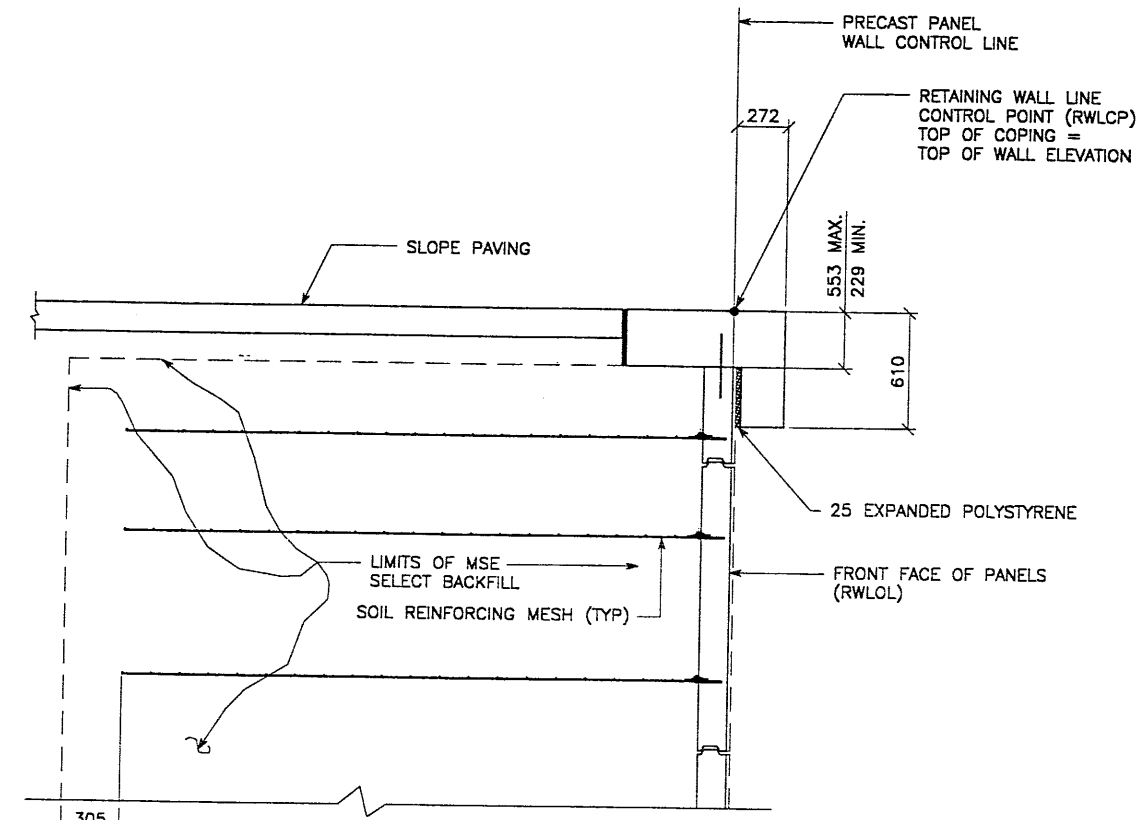
DWG. NO.	1.1R-342-11.3
JOB NO.	239-0007
SHT. NO.	RE-2

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METRIC



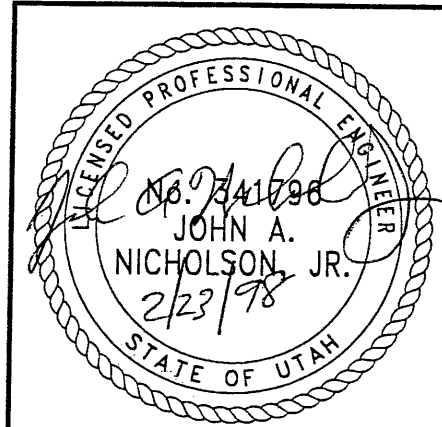
TYPICAL CROSS SECTION - STA 11+178.284 TO 11+182.738
 (SEE DWG. NO. 1.1R-342-11.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)
 STRUCTURAL BACKFILL $\phi = 38'$



TYPICAL CROSS SECTION - STA 11+182.738 TO 11+183.940
 (SEE DWG. NO. 1.1R-342-11.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC

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WASATCH CONSTRUCTORS
MAR 05 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	02-19-98	RELEASE FOR CONSTRUCTION

REVISION		NO.	DATE	BY	CHK

DES.	JL	01-29-98	JL	RETAINED EARTH™
DRN.	DDO	01-29-98	DDO	VSL
CHK.	JL	01-29-98	JL	

VSL CORPORATION	
2800 Potts Plaza, Suite 200	
Boulder, CO 80501	
Phone: (303) 440-6772	Fax: (303) 440-6669

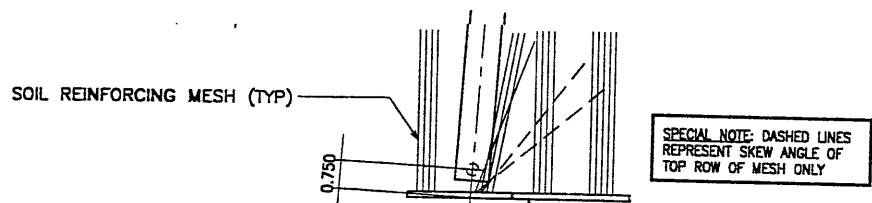
RETAINED EARTH™ WALLS	
WIRE FACED WALL "R-342-11"	
TYPICAL CROSS SECTION	
UTAH I-15 RECONSTRUCTION	
SALT LAKE COUNTY, UTAH	
UTAH DEPARTMENT OF TRANSP.	

DWG. NO.	1.1R-342-11.4
JOB NO.	239-0007
SHT. NO.	RE-3

REFERENCE (FAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\100-SER\100-11\SUBMITL-2\100-11

FINAL PLOT 02-18-98



SPECIAL NOTE: DASHED LINES REPRESENT SKEW ANGLE OF TOP ROW OF MESH ONLY

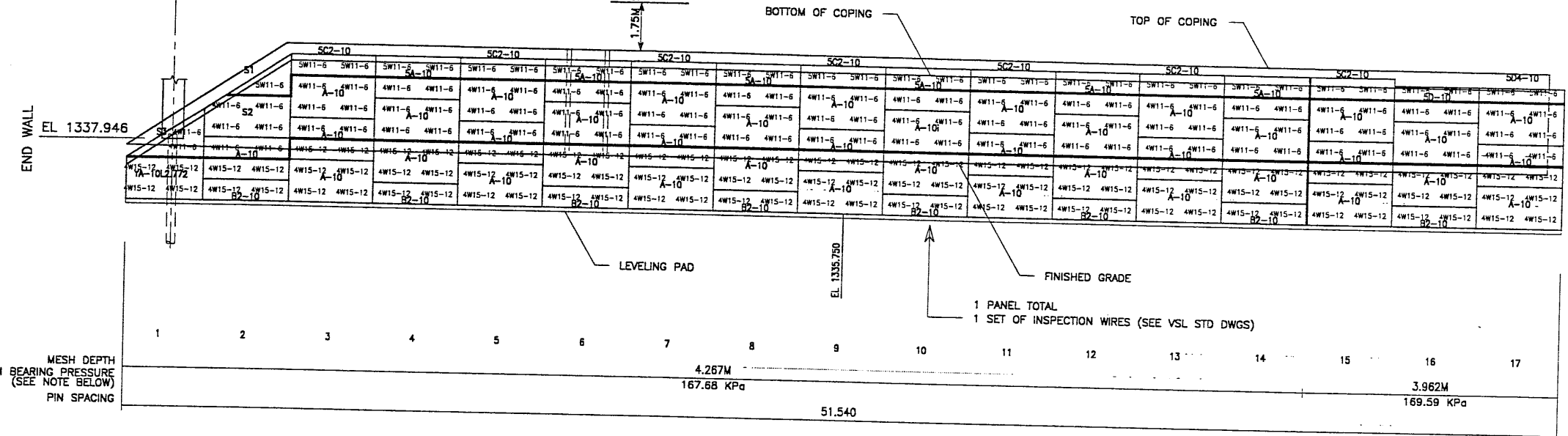
PLAN VIEW PRECAST WALL R-342-11

END WALL R-342-11
WALL PT STA 11+183.940 =
I-15 STA 11+183.439
● 25.791 LT
NOMINAL PANEL FACE (RWLOL)

ABUTMENT WALL STA 11+182.283 =
I-15 STA 11+182.287
(BR-)

WALL POC STA 11+178.284 =
I-15 STA 11+177.797
● 25.791 LT
NOMINAL PANEL FACE (RWLOL)

MATCH BRIDGE BR NO. 3



ELEVATION PRECAST WALL R-342-11

(FRONT FACE SHOWN)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)
(TOTAL SURFACE AREA OF PANELS = 899.13 SM)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	2-19-98	Original Issue

WASATCH CONSTRUCTORS
MAR 05 1998
RELEASED FOR CONSTRUCTION

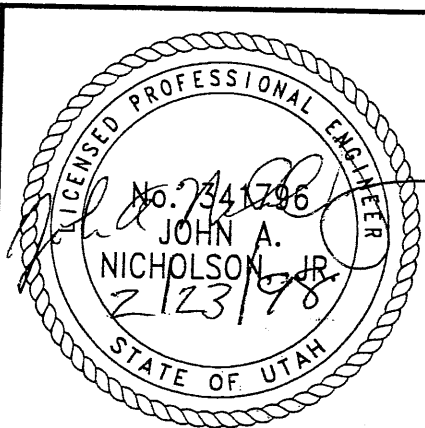
VSL CORPORATION
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Fax: (919) 781-4969



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WALLS 42'-11"
SECTION UTAH TRANSP.

RETAINED EARTH™ PRECAST WALL "R-3."
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH DEPARTMENT OF



METRIC

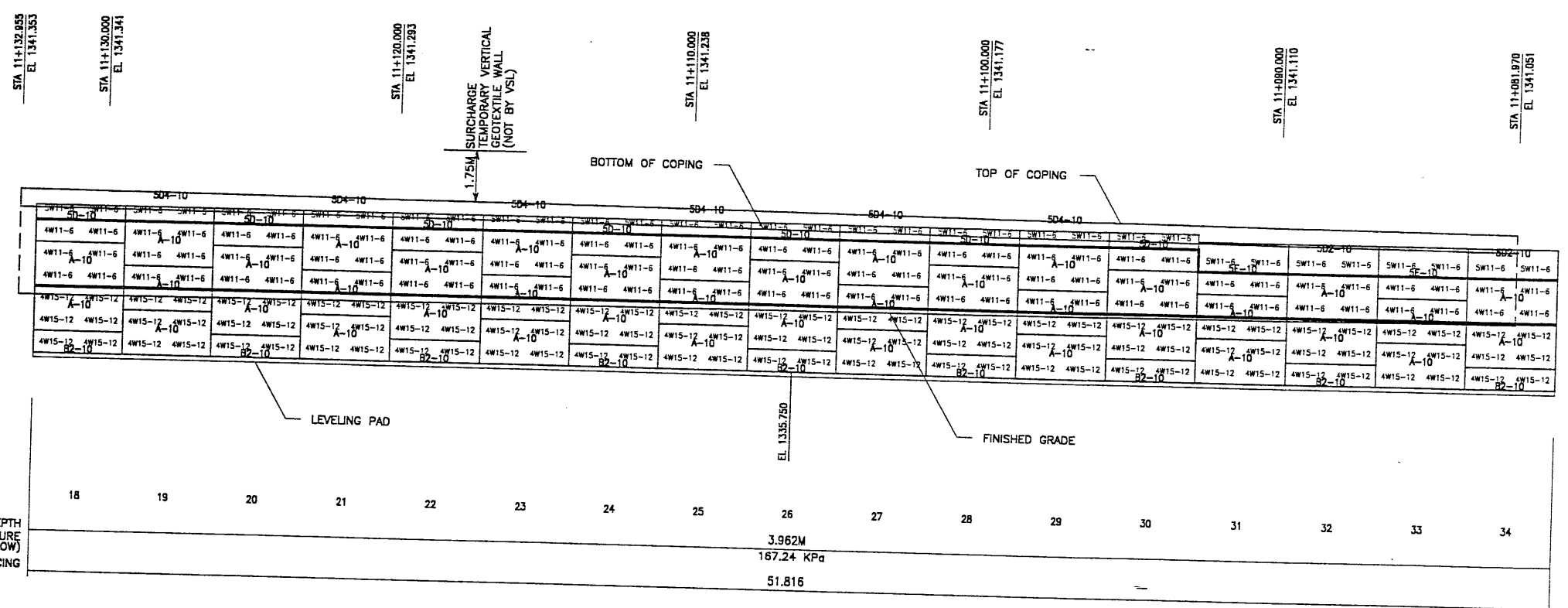
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DWG. NO.	1.1R-342-11.5
JOB NO.	239-0007
SHT. NO.	RE-4

5069

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	02-19-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
 MAR 05 1998
 RELEASED FOR CONSTRUCTION

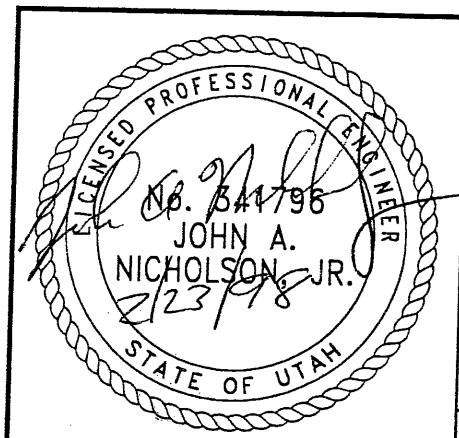


ELEVATION PRECAST WALL R-342-11
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 899.13 SM) SCALE 1:200 (HALF SIZE)

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

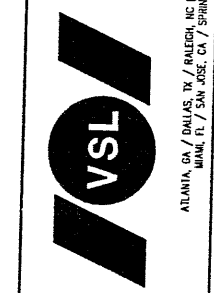
METRIC

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RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-11"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-11.6
JOB NO.	239-0007
SHT. NO.	RE-5



VSL CORPORATION
 2840 River Place, Suite 200
 Redfish, NC 28571
 Telephone: (919) 781-8272
 Fax: (919) 781-8959

DWG.	01-29-98	JL
DRN.	01-29-98	DDO
CHK.	01-29-98	JL

NO.	DATE	REVISION

6079

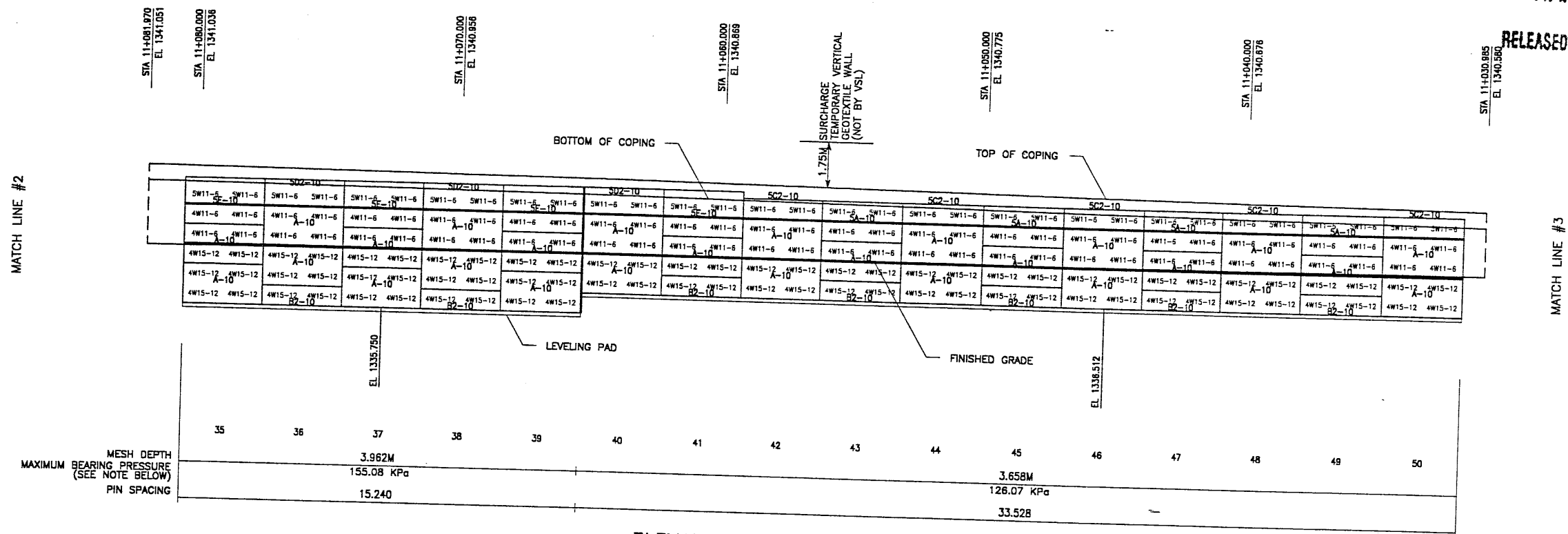
REFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\100-SERS\100-11\SUBMITL-2\100-11

FINAL PLOT 02-18-98

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-19-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
 MAR 05 1998
 RELEASED FOR CONSTRUCTION

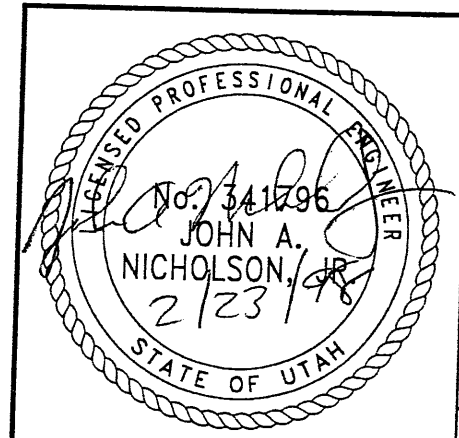


ELEVATION PRECAST WALL R-342-11
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 899.13 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

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

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-342-11"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
1.1R-342-11.7

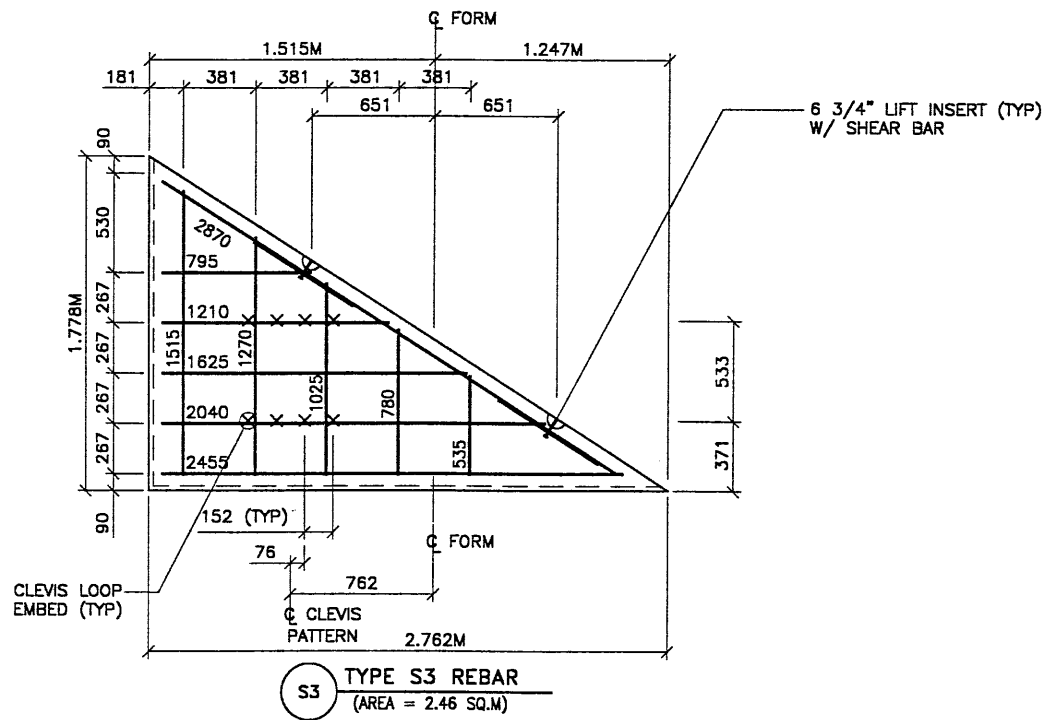
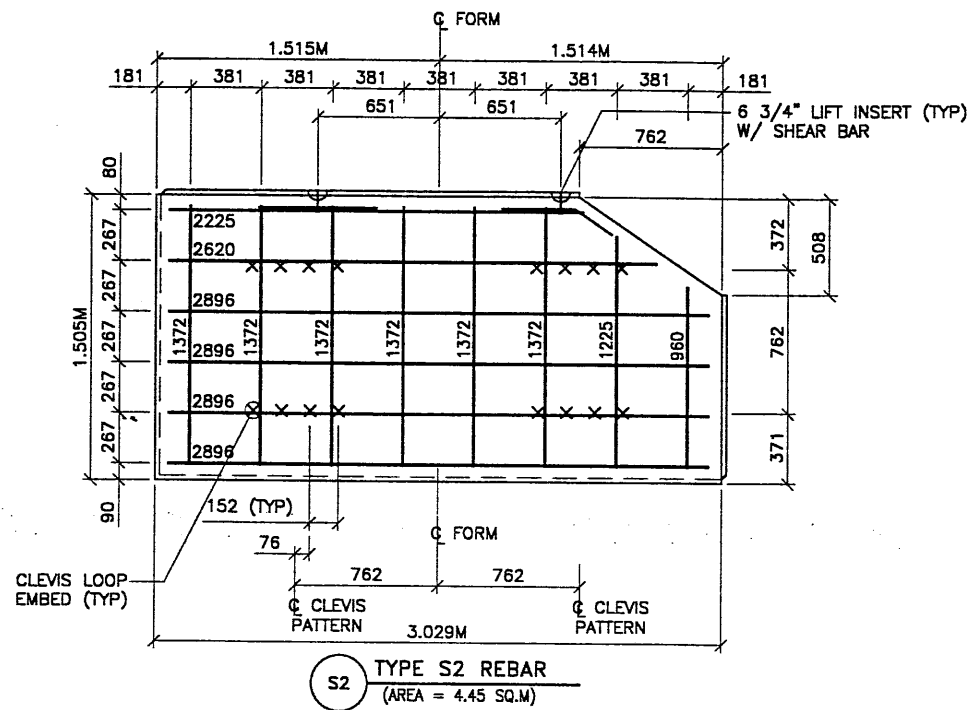
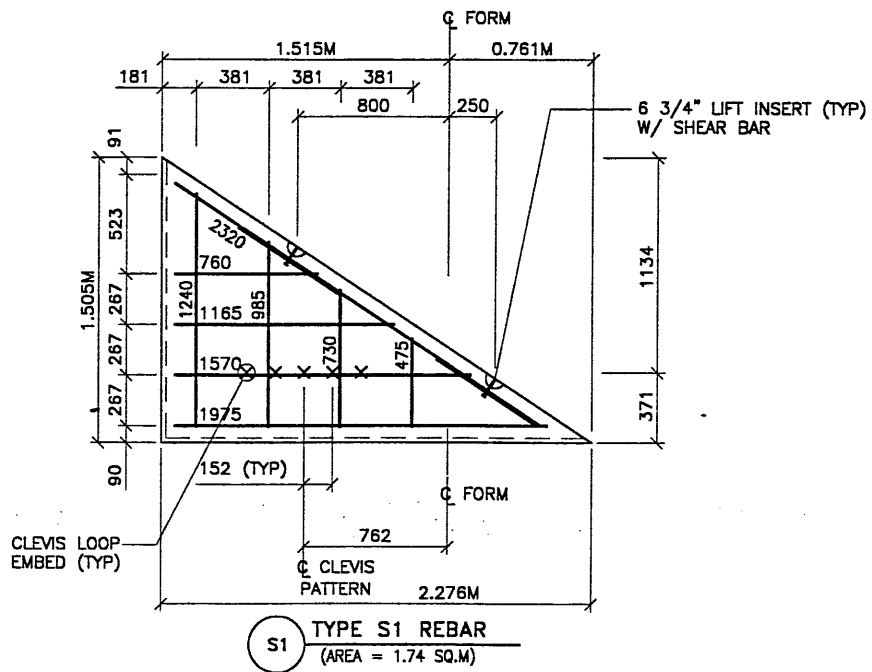
JOB NO.
239-0007

SHT. NO.
RE-6

VSL CORPORATION
 2640 Plaza Place, Suite 300
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4889

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

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	BY
01-29-98	JL	01-29-98	DDD	01-29-98	JL	



- 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 9.5mmØ CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-19-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
 MAR 05 1998
 RELEASED FOR CONSTRUCTION

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY
JL	DDO	JL				

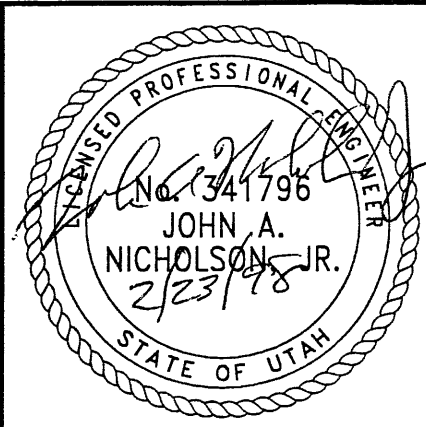
VSL CORPORATION
 2940 Flinn Place, Suite 200
 Raleigh, NC 27612
 Telephone (919) 481-5272
 Fax (919) 481-6489

ALABAMA, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE)
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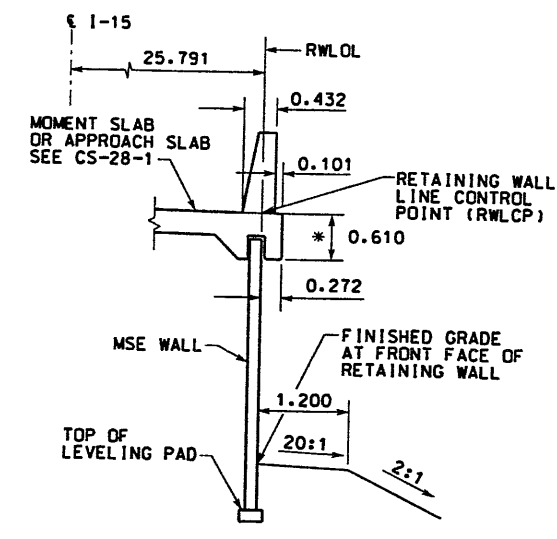
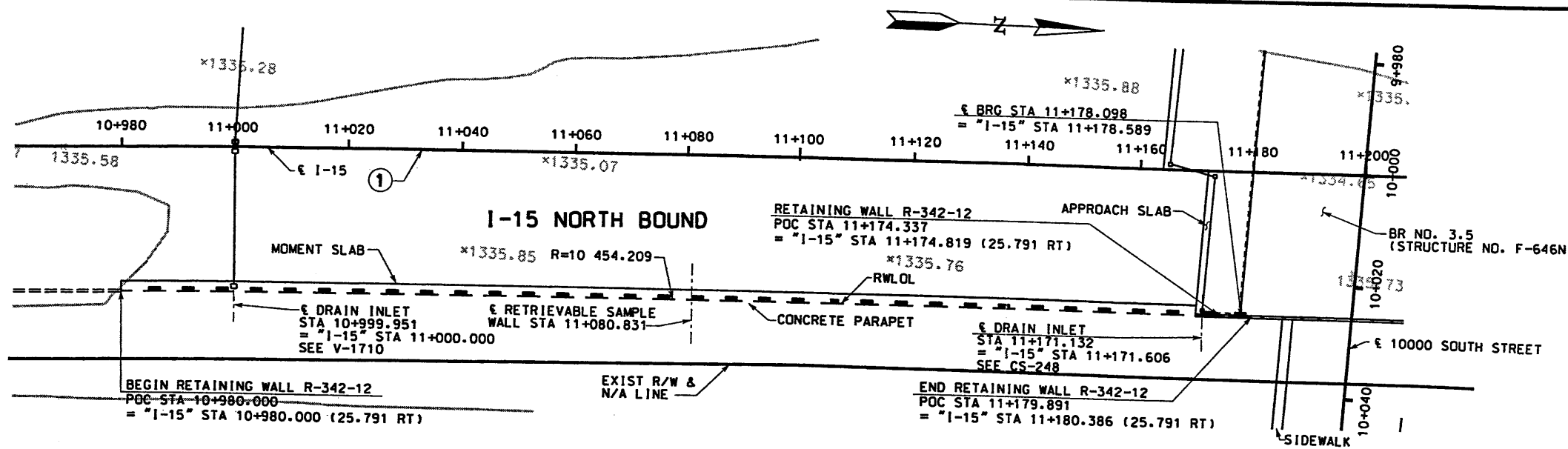
RETAINED EARTH™ WALLS
 PRECAST WALL R-342-11
 SPECIAL PANEL DETAILS

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

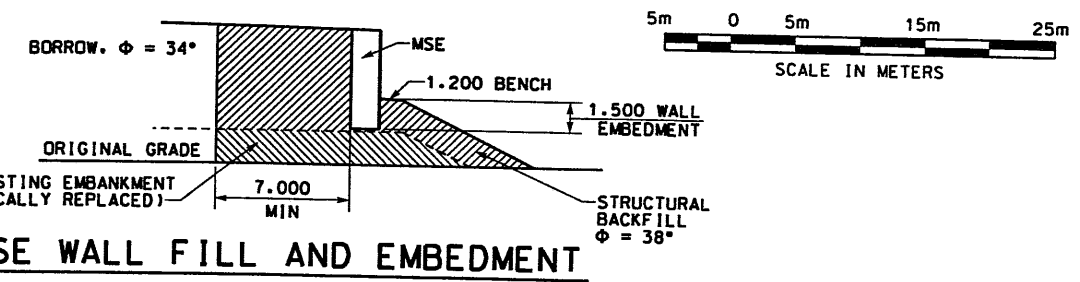


DWG. NO.	1.1R-342-11.9
JOB NO.	239-0007
SHT. NO.	RE-8

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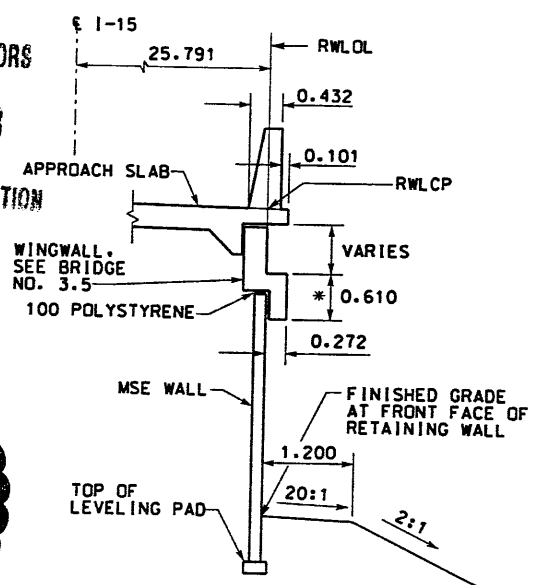
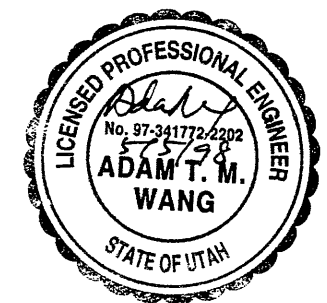
TYPICAL SECTION WALL R-342-12
STA 10+980.000 TO STA 11+174.337



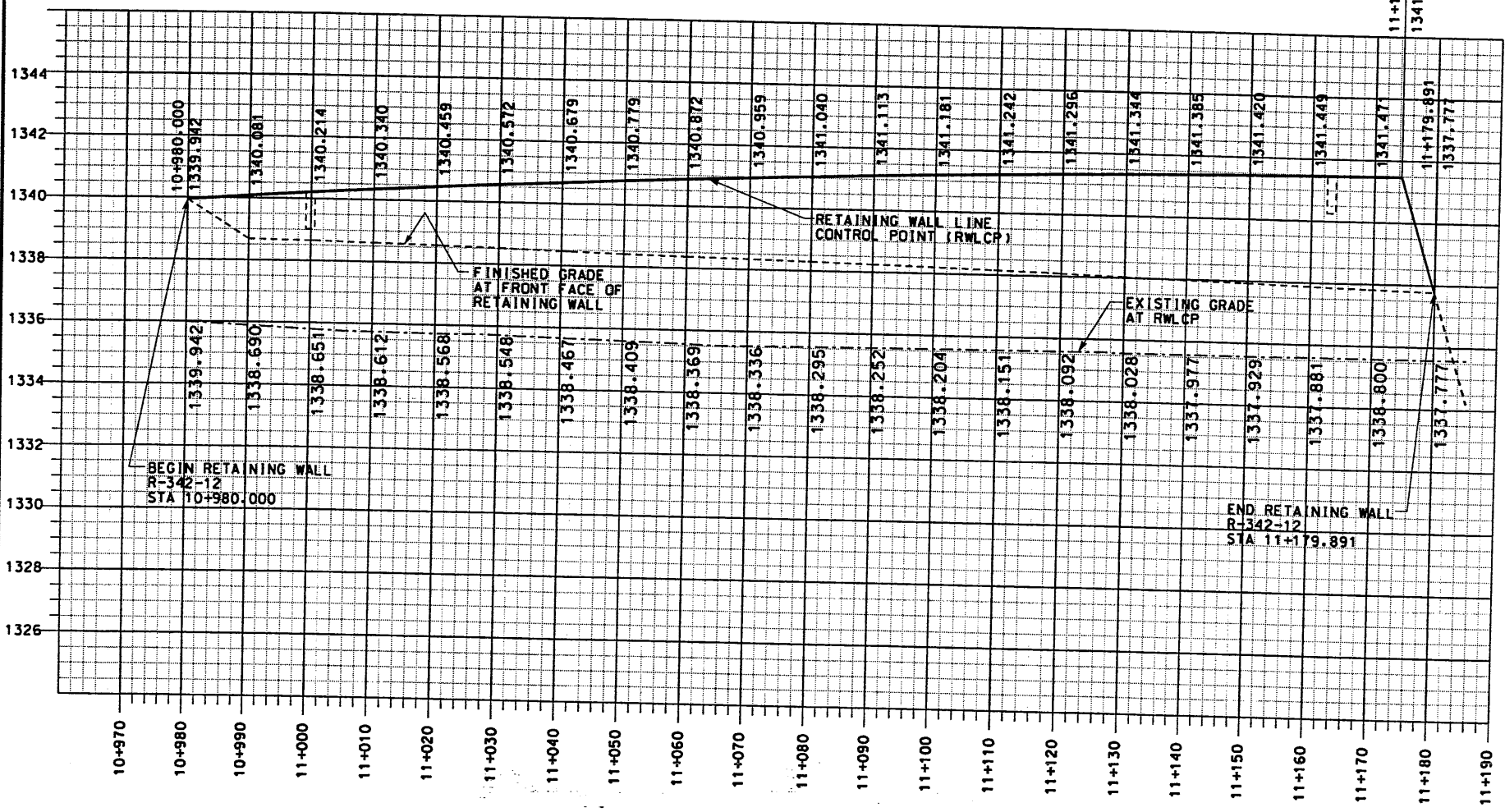
MSE WALL FILL AND EMBEDMENT

CURVE NO.	Δ	R	L	T
①	10°46'05"	10 480.000	1969.615	987.717

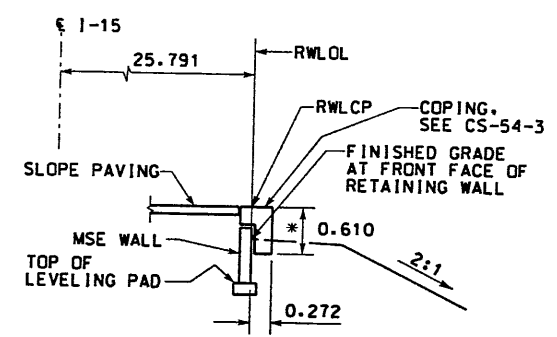
WASATCH CONSTRUCTORS
 MAY 19 1998
 RELEASED FOR CONSTRUCTION



TYPICAL SECTION WALL R-342-12
STA 11+174.337 TO STA 11+178.549



DEVELOPED ELEVATION VIEW FROM FRONT OF WALL



TYPICAL SECTION WALL R-342-12
STA 11+178.549 TO STA 11+179.891

* MEASURED NORMAL TO SLOPE

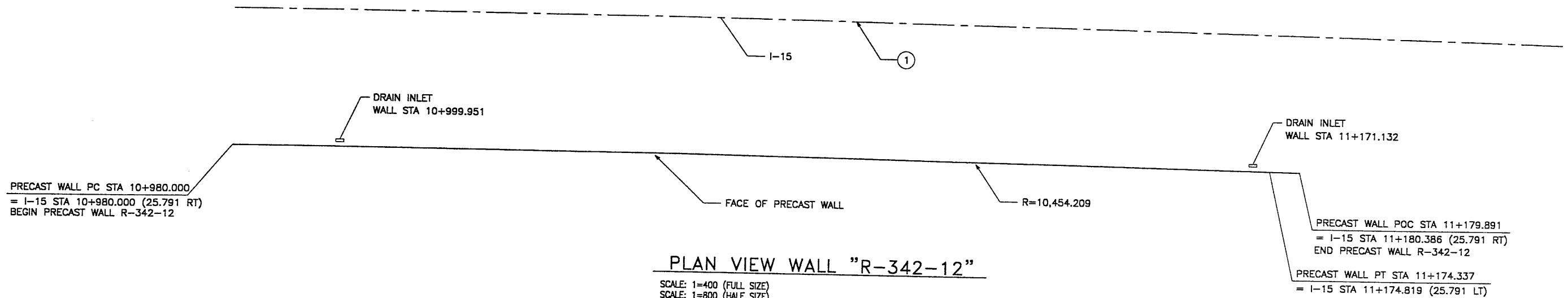
APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
Δ	05/08/98		
UTAH DEPARTMENT OF TRANSPORTATION			
SVERDRUP/DE LEUW		DESIGN	CHECK
DATE	PROJECT DESIGN ENGINEER	DATE	PROJECT MANAGER
05/08	JL	05/08	VT
05/08	JL	05/08	VT
I-15 CORRIDOR RECONSTRUCTION		SECTION 1.1	
SITUATION & LAYOUT RET WALL R-342-12		PROJECT #SP-15-7(135)296	
SALT LAKE COUNTY		DWG. NO. 1.1-R342-12.1	
SHT. 1 OF 4		REF.	

H:\RE_EARTH\APRO 9-0007\1998\100-SERS\100-12\SUBMTL-2\RE-1
 05-07-98
 FIN

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	05-07-98	RELEASE FOR CONSTRUCTION

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	△
①	10,480.000	1,969.615	987.717	10°46'05"

All Dimensions Are in Meters Unless Noted Otherwise



PLAN VIEW WALL "R-342-12"

SCALE: 1=400 (FULL SIZE)
 SCALE: 1=800 (HALF SIZE)

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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 4W15-12 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
 EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" 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 DETAIL.

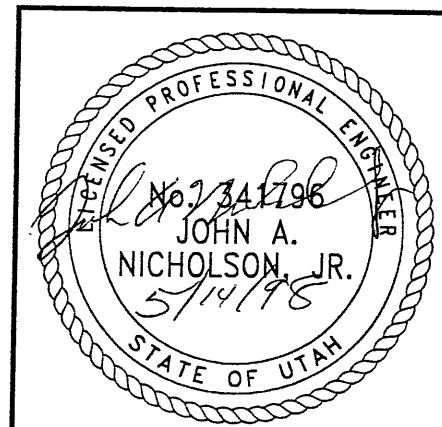
DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 38°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF 21.20 KN/M ³	
TRAFFIC SURCHARGE = 250 PSF 12 KP _a	
SEISMIC ACCELERATION COFF. = 0.12g (TYP)	
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)	
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-342-12, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTIONS
RE-3	TYPICAL CROSS SECTIONS
RE-4	ELEVATION PRECAST WALL "R-342-12"
RE-5	ELEVATION PRECAST WALL "R-342-12"
RE-6	ELEVATION PRECAST WALL "R-342-12"
RE-7	ELEVATION PRECAST WALL "R-342-12"
RE-8	SPECIAL PANEL DETAILS

WASATCH CONSTRUCTORS
MAY 19 1998
 RELEASED FOR CONSTRUCTION

METRIC

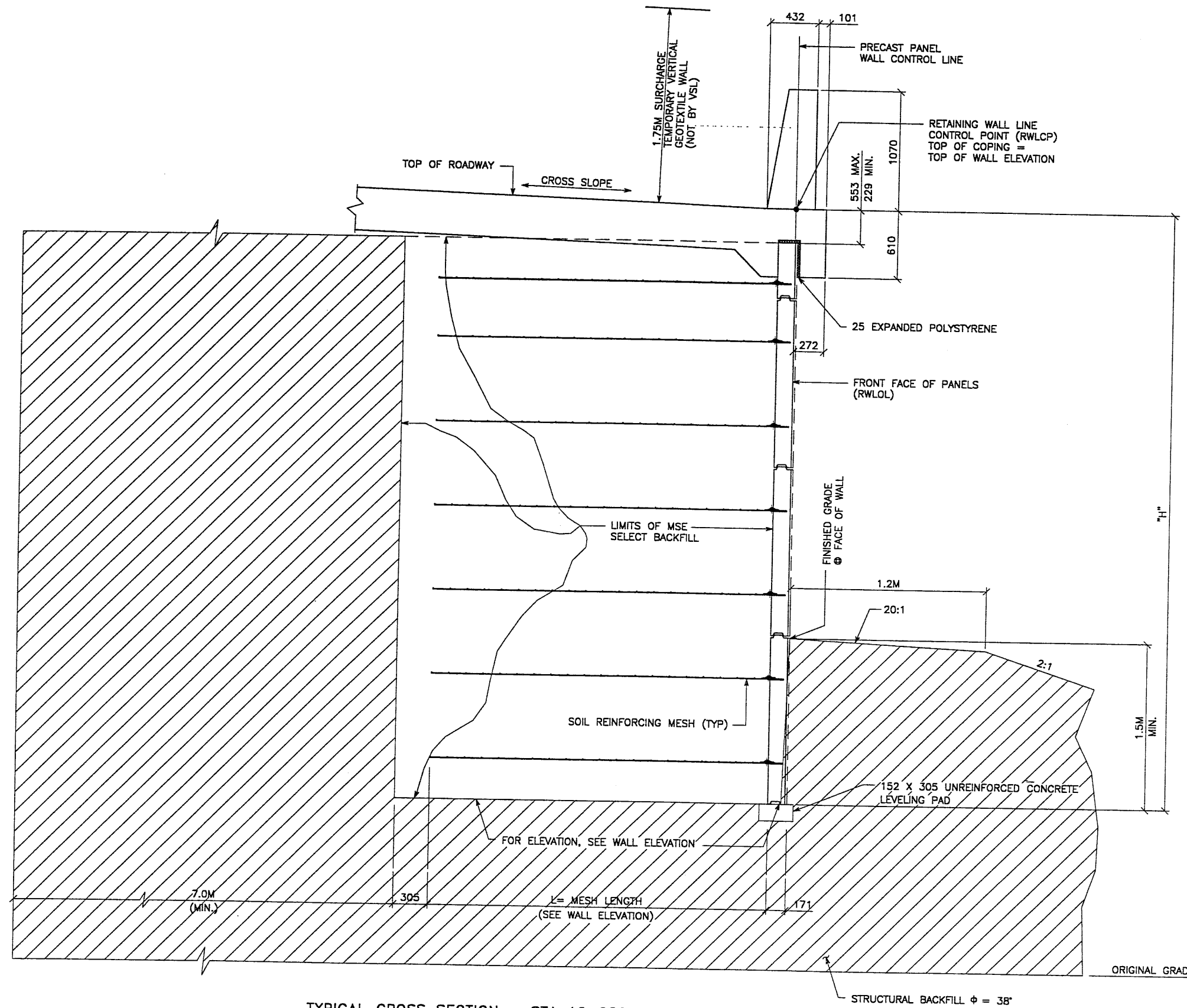
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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



VSL CORPORATION 2800 Plaza Place, Suite 200 Irving, TX 75039-1872 Tel: (972) 798-8372 Fax: (972) 798-4889	DES.	04-17-98	JL	RETAINED EARTH™ VSL	REVISION
	DRN.	04-17-98	DDL		NO.
	CHK.	04-17-98	JL		DATE
	BY				CHK
UTAH 1-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.					
DWG. NO. 1.1R-342-12.2					
JOB NO. 239-0007					
SHT. NO. RE-1					

2099

BORROW $\phi = 34^\circ$

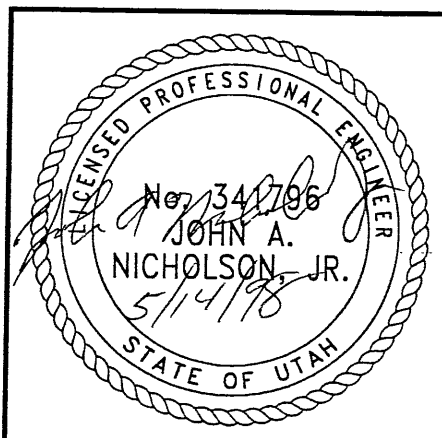


TYPICAL CROSS SECTION - STA 10+980.000 TO 11+174.337
 (SEE DWG. NO. 1.1R-342-12.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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METRIC

WASATCH CONSTRUCTORS
 MAY 19 1998
 RELEASED FOR CONSTRUCTION



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	05-07-98	RELEASE FOR CONSTRUCTION

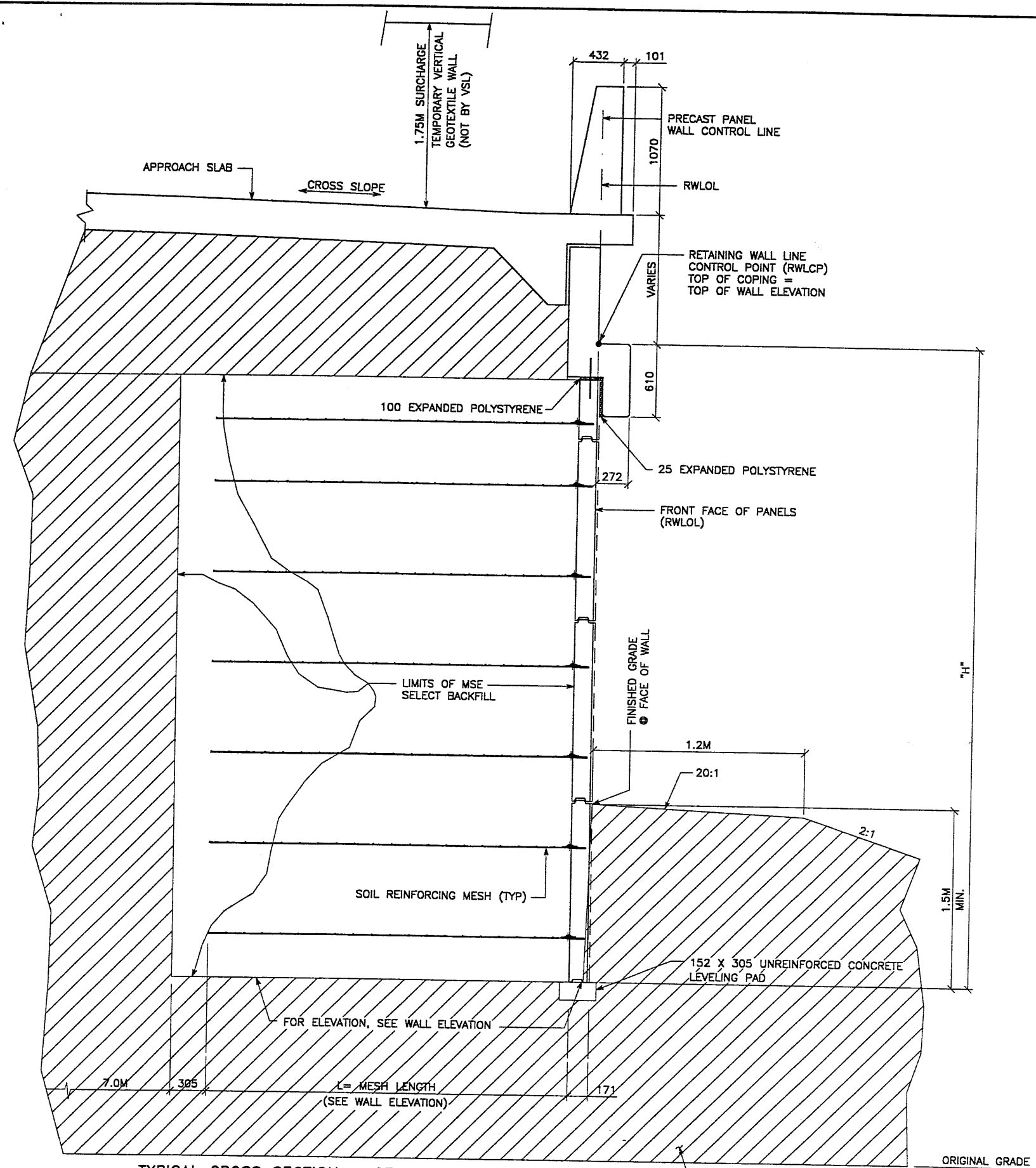
DES.	NO.	DATE	BY	REVISION
JL	04-17-98	JL		
DDL	04-17-98	DDL		
JL	04-17-98	JL		

VSL CORPORATION	2840 Plaza Place, Suite 200	Raleigh, NC 27612	Telephone: (919) 781-8272	Fax: (919) 781-9989
ALABAMA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)	MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA			

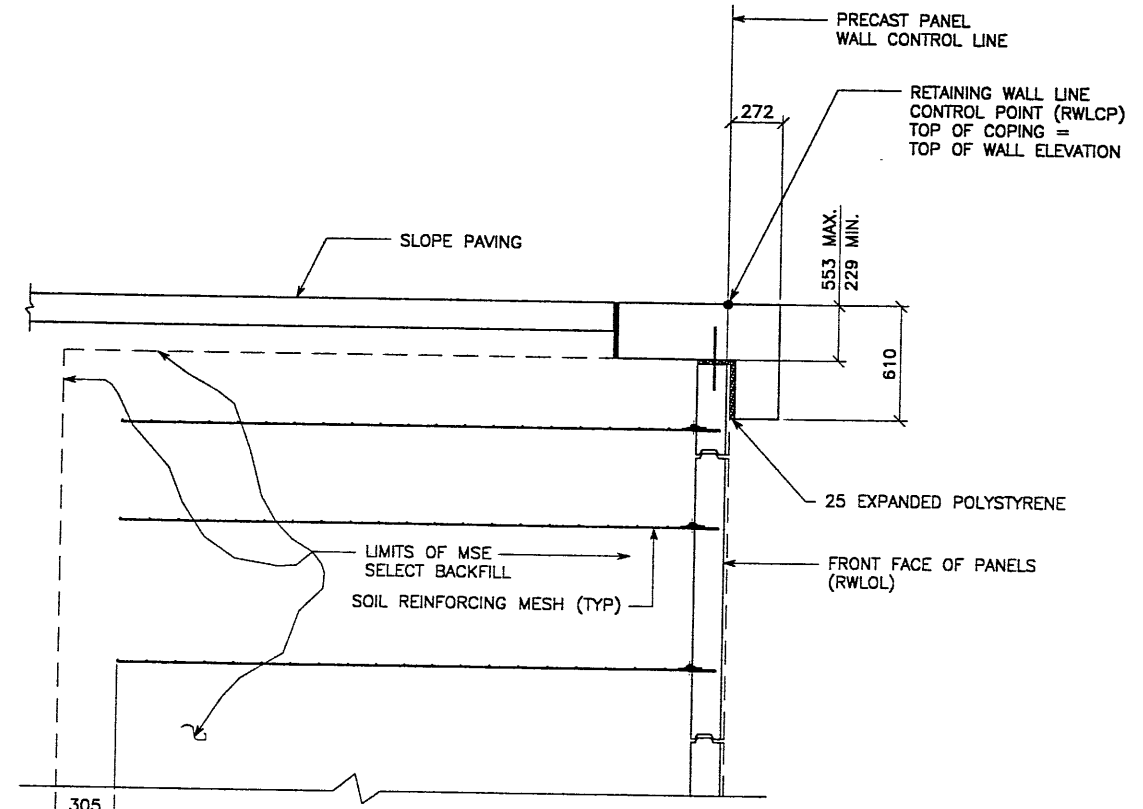
RETAINED EARTH™ WALLS	WIRE FACED WALL "R-342-12"	TYPICAL CROSS SECTION
UTAH 1-15 RECONSTRUCTION		
SALT LAKE COUNTY, UTAH		
UTAH DEPARTMENT OF TRANSP.		

DWG. NO.	1.1R-342-12.3
JOB NO.	239-0007
SHT. NO.	RE-2

H:\RE_EARTH\PROJ\9-0007\1998\100-SERS\100-12\SUBMTL-2\RE-3



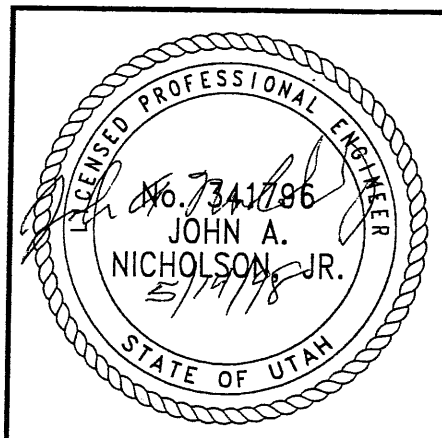
TYPICAL CROSS SECTION - STA 11+174.337 TO 11+178.549
 (SEE DWG. NO. 1.1R-342-12.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 11+178.549 TO 11+179.891
 (SEE DWG. NO. 1.1R-342-12.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC

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WASATCH CONSTRUCTORS
MAY 19 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	05-07-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
JL	DDL	JL						
04-17-98	04-17-98	04-17-98						

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-6959

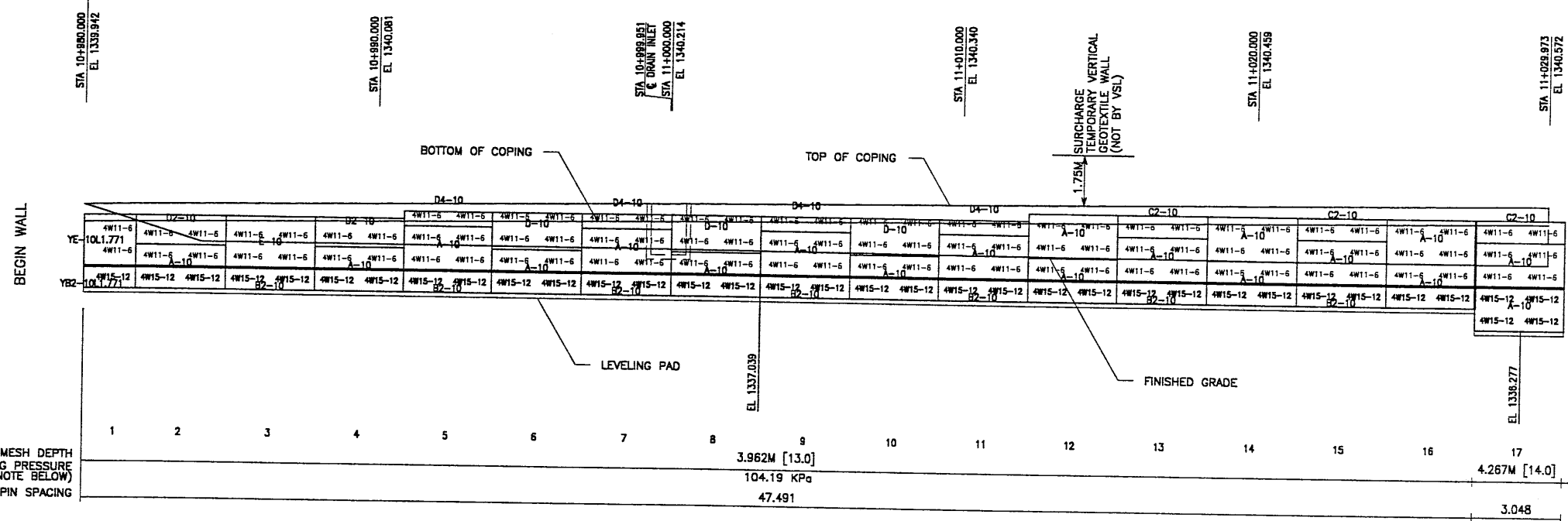
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 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-12"
 TYPICAL CROSS SECTION
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.1R-342-12.4
 JOB NO.
 239-0007
 SHT. NO.
 RE-3

4099

BEGIN WALL R-342-12
 WALL STA 10+980.000 =
 I-15 STA 10+980.000
 ● 25.781 RT
 NOMINAL PANEL FACE (RWLOL)

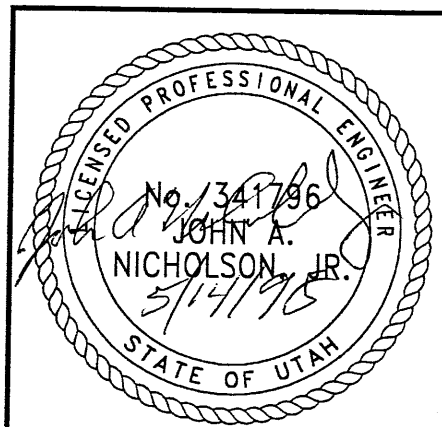


ELEVATION PRECAST WALL R-342-12
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 802.46 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

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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WASATCH CONSTRUCTORS
MAY 19 1998
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METRIC

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NO.	DATE	DESCRIPTION
△	05-07-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

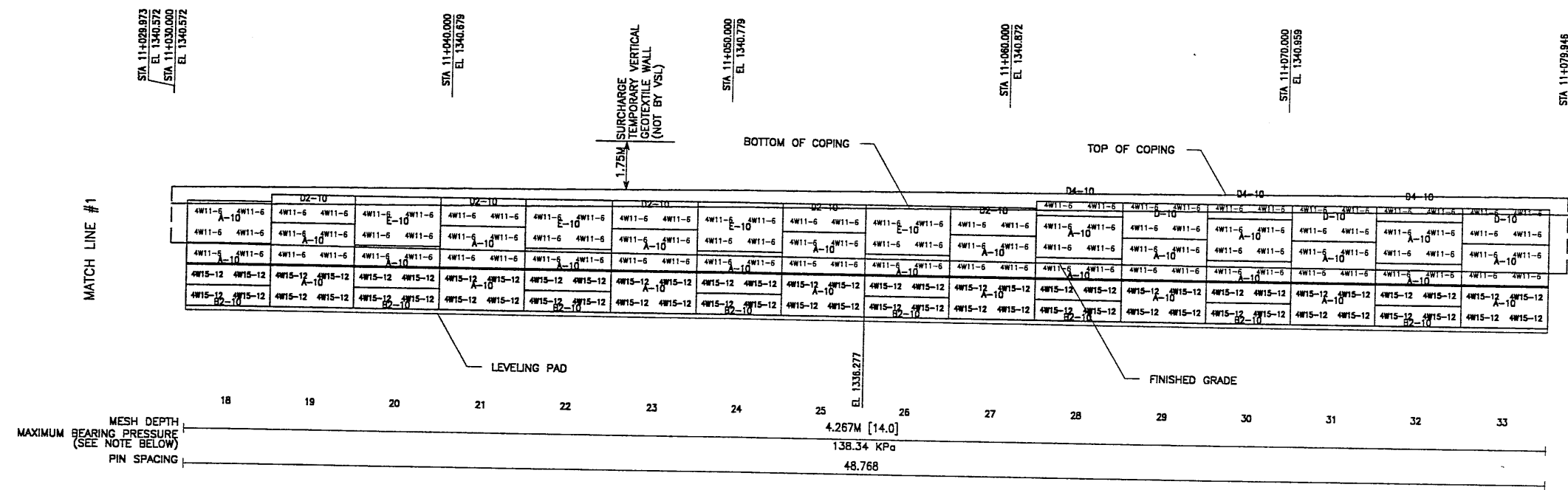
VSL CORPORATION
 2810 Plaza Place, Suite 200
 Raleigh, NC 27617 781-8272
 Telephone: (919) 781-8272
 Fax: (919) 781-6859

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 WASHINGTON, DC / SAN JOSE, CA / SPRINGFIELD, VA

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RETAINED EARTH™ WALLS PRECAST WALL "100-12"
UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.1R-342-12.5
JOB NO. 239-0007
SHT. NO. RE-4

BOFA



ELEVATION PRECAST WALL R-342-12
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 802.46 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

WASATCH CONSTRUCTORS

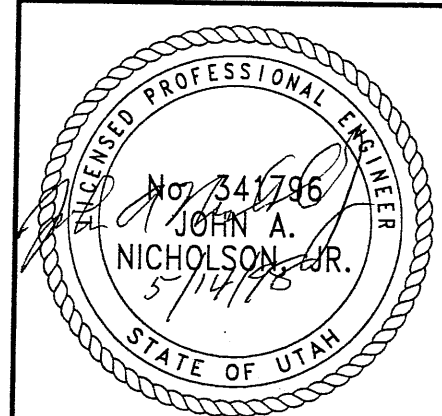
MAY 19 1998

RELEASED FOR CONSTRUCTION

METRIC

APPROVER NOTE:
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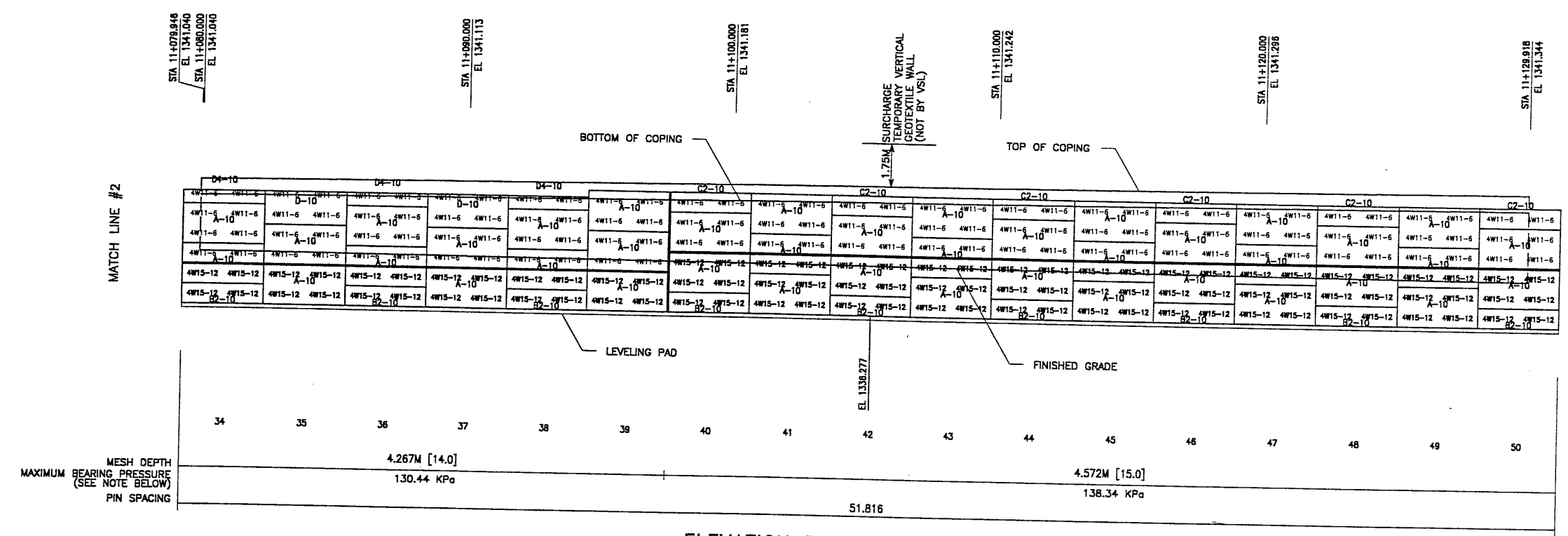


APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	05-07-98	RELEASE FOR CONSTRUCTION

DES.	04-17-98	JL	RETAINED EARTH™	NO.	DATE	CHK
DRN.	04-17-98	DDL				
CHK.	04-17-98	JL				
VSL CORPORATION 2890 Flood Place, Suite 500 Raleigh, NC 27603 781-8272 Fac: (919) 981-4869						
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE) MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA						
RETAINED EARTH™ WALLS PRECAST WALL "100-12" UTAH 1-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.						
DWG. NO. 1.1R-342-12.6						
JOB NO. 239-0007						
SH. NO. RE-5						

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 T 05-07-98
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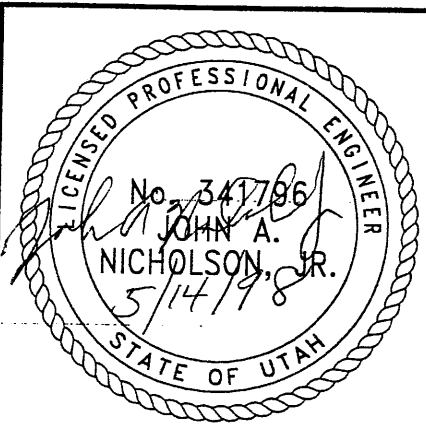


ELEVATION PRECAST WALL R-342-12
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 802.46 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
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 REVIEWER TO VERIFY MAXIMUM BEARING
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CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.



WASATCH CONSTRUCTORS
 MAY 19 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	05-07-98	RELEASE FOR CONSTRUCTION

VSL CORPORATION
 2840 Piedra Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-5272
 Fax: (919) 781-9889

VSL

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RETAINED EARTH™ WALLS
 PRECAST WALL "100-12"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

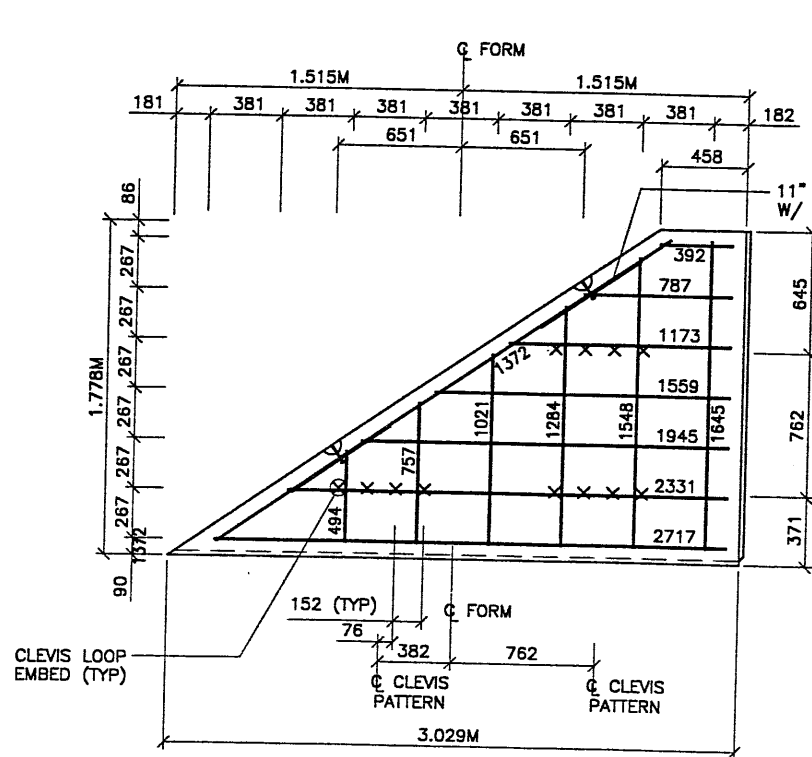
DWG. NO. 1.1R-342-12.7
 JOB NO. 239-0007
 SHI. NO. RE-6

NO. 341786
 JOHN A. NICHOLSON, JR.
 5/14/98

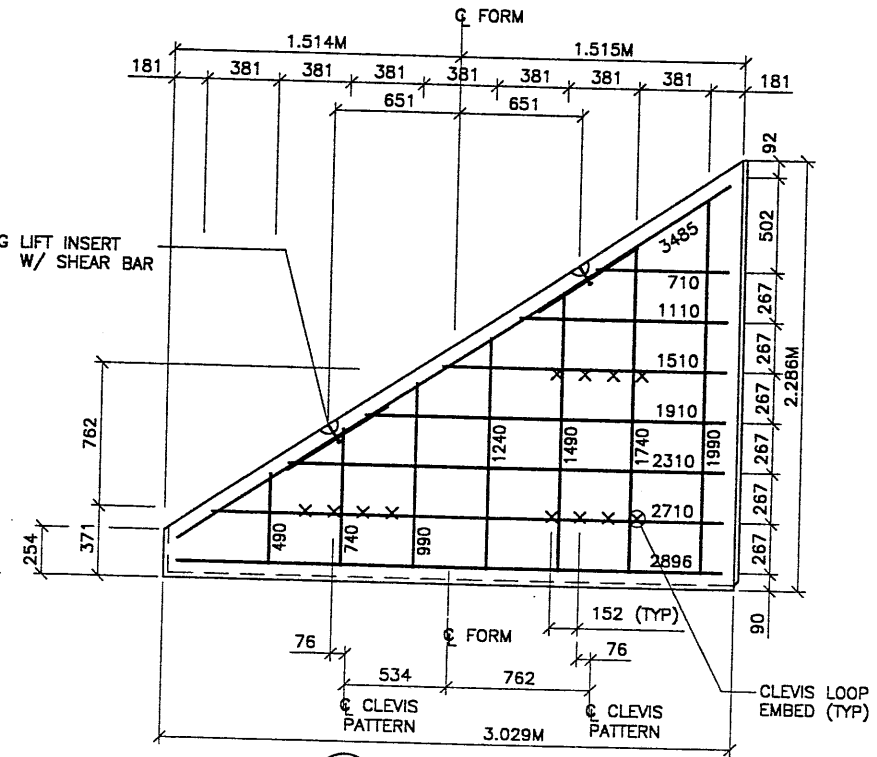
REVISION
 NO. DATE

CHK BY

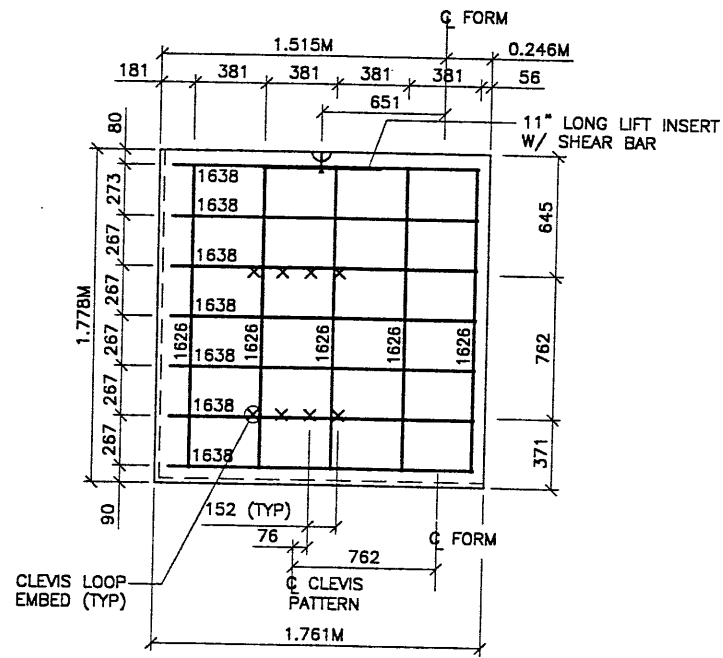
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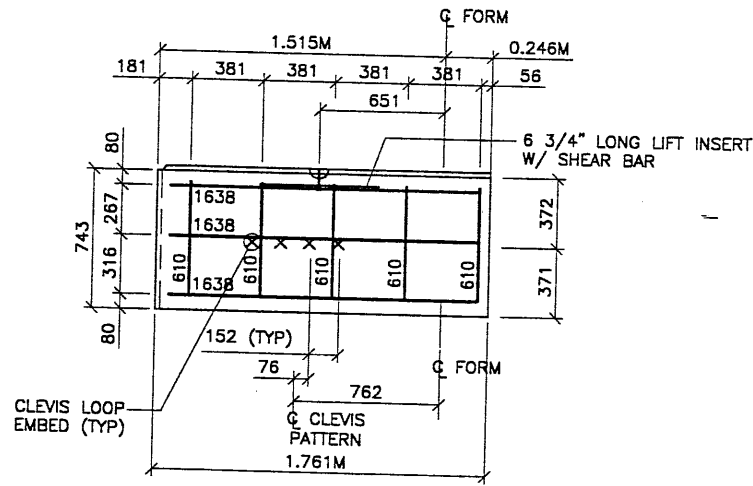
S1 TYPE S1 REBAR
(AREA = 3.12 SQ.M)



S2 TYPE S2 REBAR
(AREA = 3.87 SQ.M)



TYPE YE-10L1.771 REBAR
(AREA = 3.15 SQ.M)

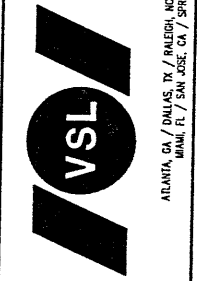


TYPE YB2-10L1.771 REBAR
(AREA = 1.35 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	05-07-98	RELEASE FOR CONSTRUCTION

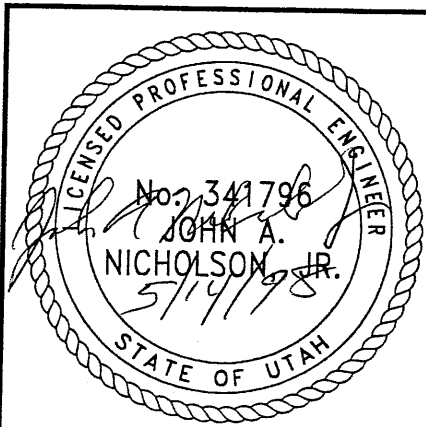
- PANEL REINFORCEMENT NOTES:**
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS 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 9.5mmØ 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.

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WASATCH CONSTRUCTORS
MAY 19 1998
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METRIC

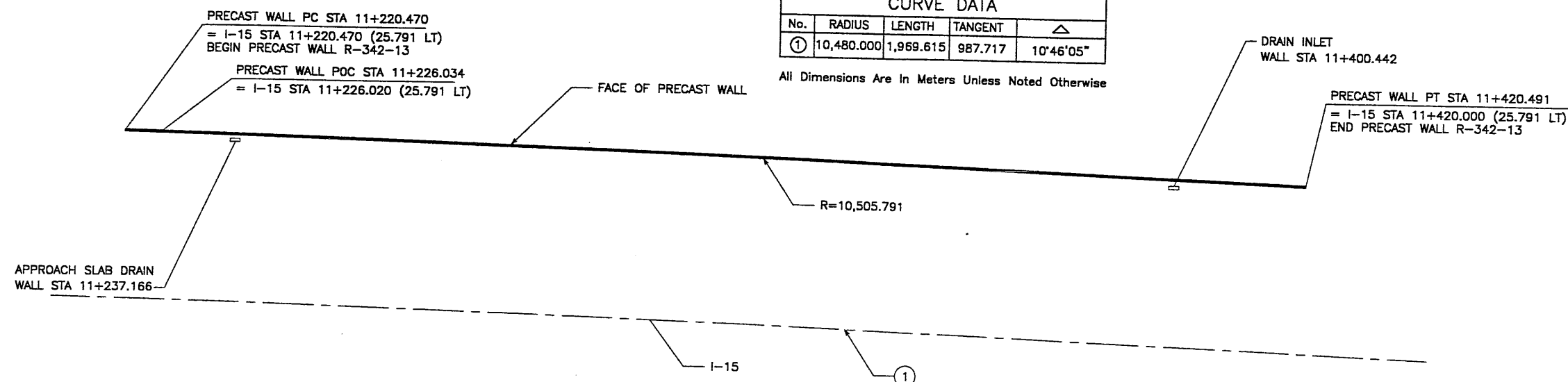
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RETAINED EARTH™ WALLS
PRECAST WALL R-342-12
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-12.9
JOB NO.	239-0007
SHT. NO.	RE-8

9089

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	02-19-98	RELEASE FOR CONSTRUCTION
▲	07-10-98	ADDED MINIMUM CONCRETE STRENGTH



CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	10,480.000	1,969.615	987.717	10°46'05"

All Dimensions Are In Meters Unless Noted Otherwise

WASATCH CONSTRUCTORS
 JUL 20 1998
 RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY

- 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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 4W15-12 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 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 DETAIL.

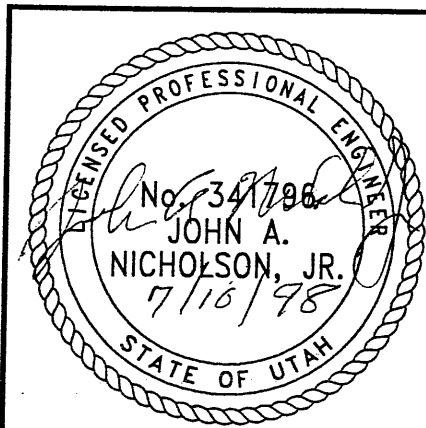
PLAN VIEW WALL "R-342-13"
 SCALE: 1=400 (FULL SIZE)
 SCALE: 1=800 (HALF SIZE)

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-342-13, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTIONS
RE-3	TYPICAL CROSS SECTIONS
RE-4	ELEVATION PRECAST WALL "R-342-13"
RE-5	ELEVATION PRECAST WALL "R-342-13"
RE-6	ELEVATION PRECAST WALL "R-342-13"
RE-7	ELEVATION PRECAST WALL "R-342-13"
RE-8	SPECIAL PANEL DETAILS

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT)	= 34°
ANGLE OF INTERNAL FRICTION (BASE)	= 28°
ANGLE OF INTERNAL FRICTION (RANDOM)	= 34°
UNIT WEIGHT BACKFILL	= 135 PCF 21.20 KN/M ³
TRAFFIC SURCHARGE	= 250 PSF 12 KPa
SEISMIC ACCELERATION COFF.	= 0.12g (TYP)
SEISMIC ACCELERATION COFF.	= 0.32g (AT BRIDGE ABUTMENTS)
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING)	= 2.0
SAFETY FACTOR (SLIDING)	= 1.5
SAFETY FACTOR (PULLOUT)	= 1.5
DESIGN LIFE	= 75 YEARS
MIN. 28 DAY PRECAST PANEL CONCRETE STRENGTH	= 22,750 kPa

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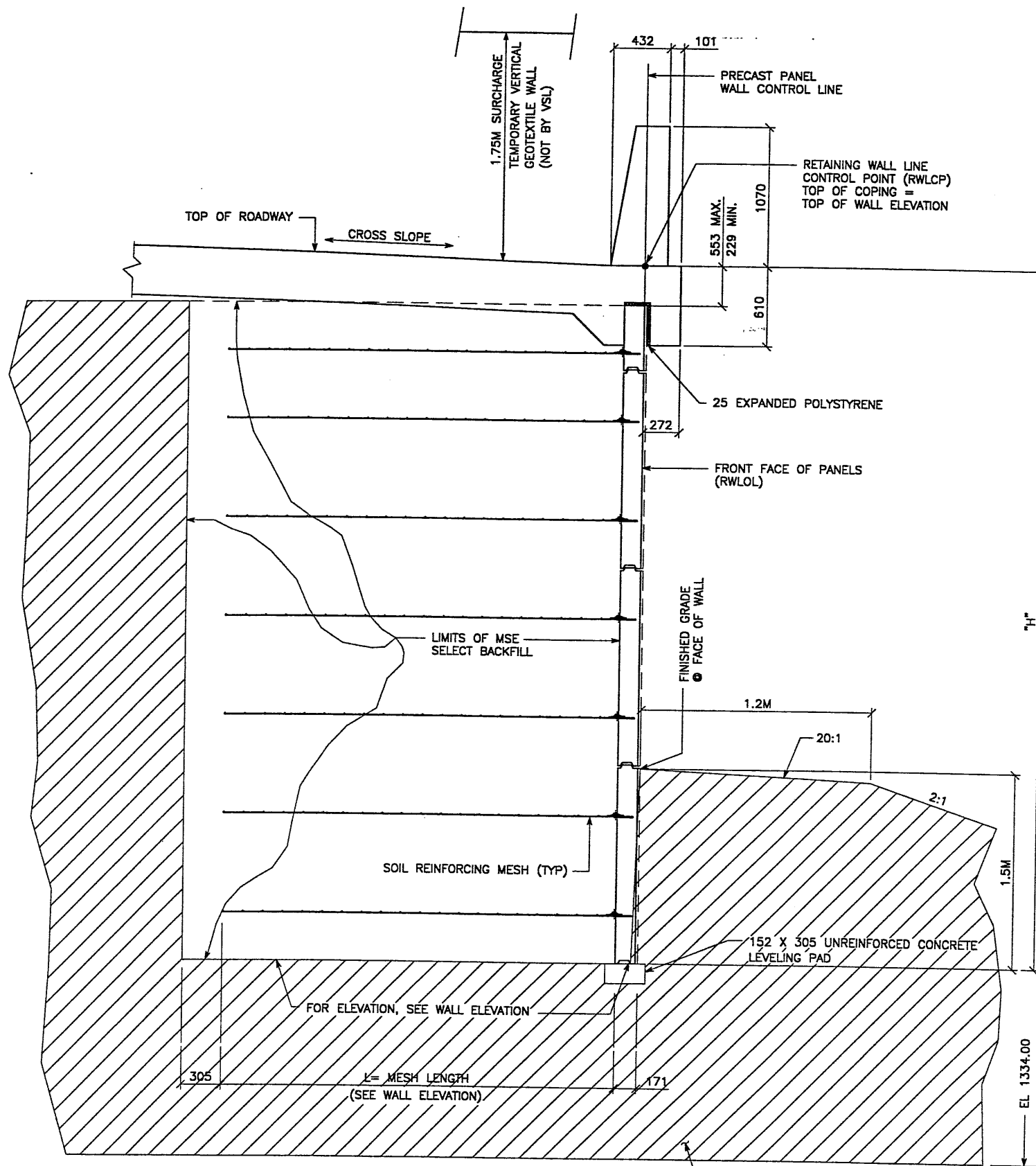
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METRIC

RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-342-13"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-13.2
JOB NO.	239-0007
SHT. NO.	RE-1

2079



TYPICAL CROSS SECTION - STA 11+226.034 TO 11+420.491
 (SEE DWG. NO. 1.1R-342-13.01 FOR ADDITIONAL INFORMATION)

SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

STRUCTURAL BACKFILL $\phi = 38^\circ$

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NO.	DATE	DESCRIPTION
△	02-19-98	RELEASE FOR CONSTRUCTION

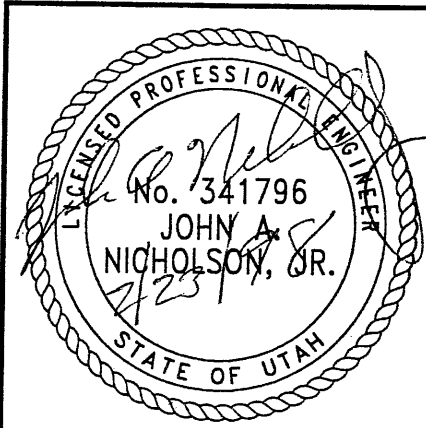
NO.	DATE	REVISION

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WASATCH CONSTRUCTORS
 MAR 05 1998
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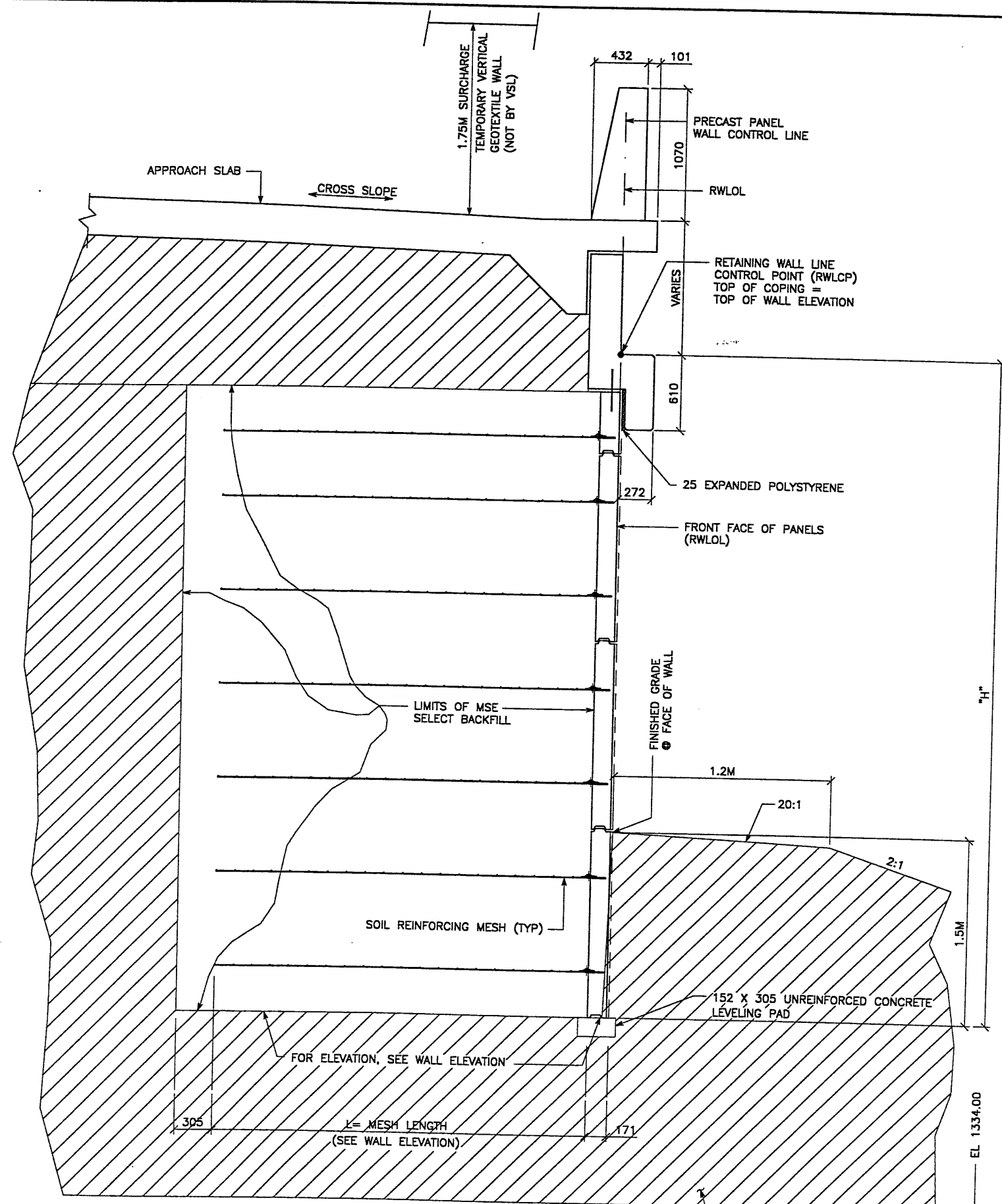
RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-13"
 TYPICAL CROSS SECTION
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-13.3
JOB NO.	239-0007
SHT. NO.	RE-2

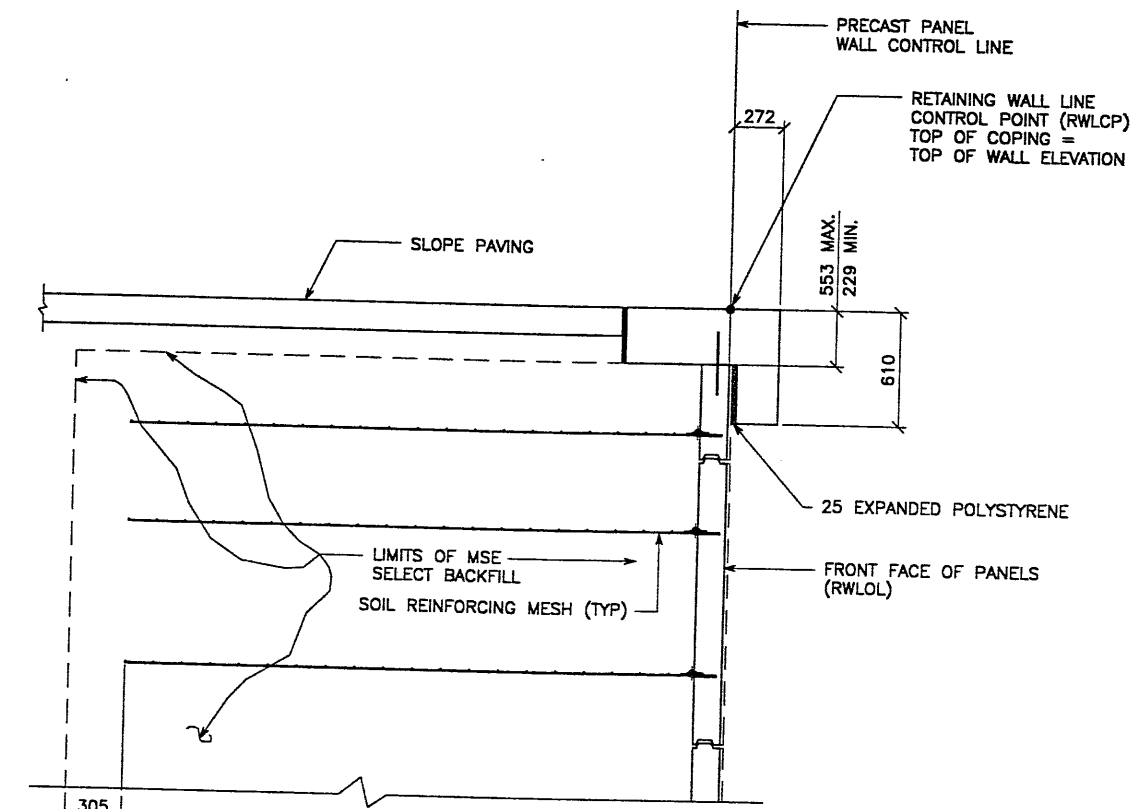
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FINAL 02-19-98 H:\RE_EARTH\PROJECT\239-0007\1998\100-13\SUBMTL-2\RE-3 E (X-UTAH.DWG)



TYPICAL CROSS SECTION - STA 11+221.663 TO 11+230.023
 (SEE DWG. NO. 1.1R-342-13.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)
 STRUCTURAL BACKFILL $\phi = 38^\circ$

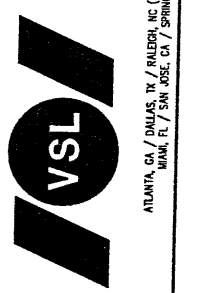


TYPICAL CROSS SECTION - STA 11+220.470 TO 11+221.663
 (SEE DWG. NO. 1.1R-342-11.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ 02-19-98		RELEASE FOR CONSTRUCTION

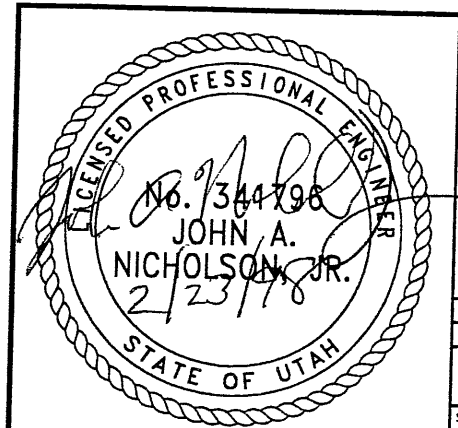
DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	CHK
JL	DDO	JL					

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 Raleigh, NC 27612
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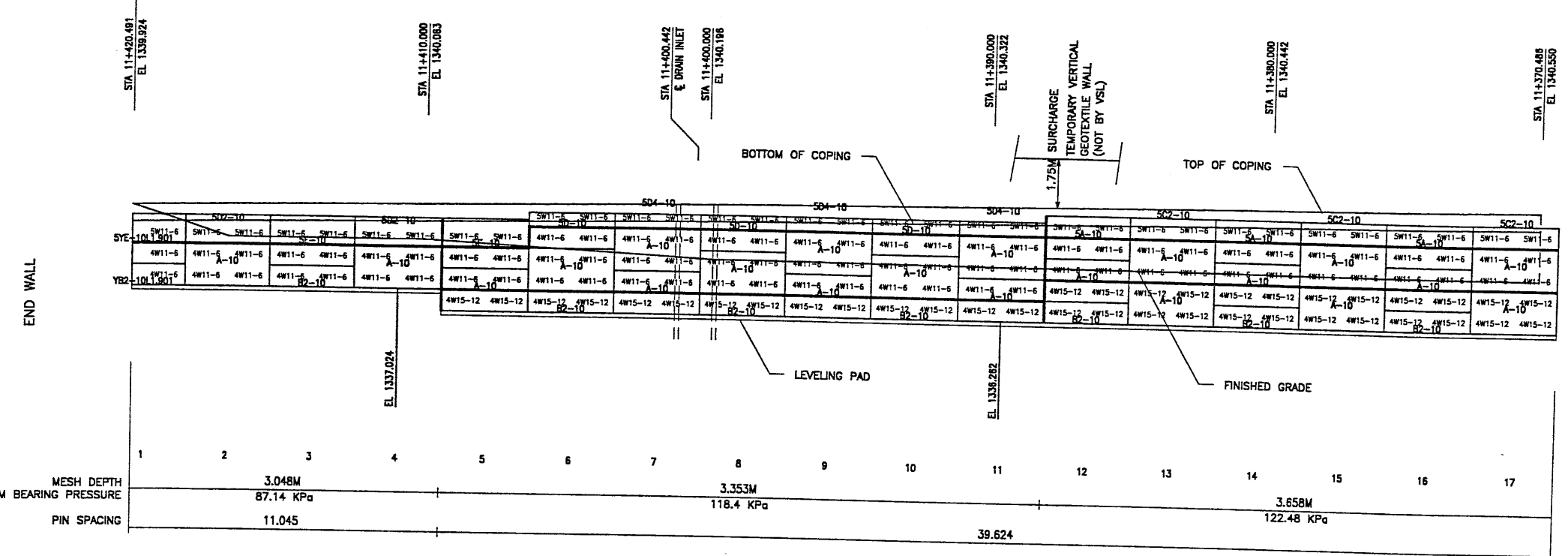
WASATCH CONSTRUCTORS
MAR 05 1998
RELEASED FOR CONSTRUCTION



METRIC
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RETAINED EARTH™ WALLS WIRE FACED WALL "R-342-13" TYPICAL CROSS SECTION
UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.1R-342-13.4
JOB NO. 239-0007
SHT. NO. RE-3

END WALL R-342-13
 WALL PT STA 11+420.491 =
 I-15 STA 11+420.000
 ● 25.791 LT
 NOMINAL PANEL FACE (RWLOL)



MESH DEPTH	3.048M			3.353M			3.658M					
MAXIMUM BEARING PRESSURE	87.14 KPa			118.4 KPa			122.48 KPa					
PIN SPACING	11.045			39.624			122.48 KPa					

ELEVATION PRECAST WALL R-342-13
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 860.18 SM) SCALE 1:200 (HALF SIZE)

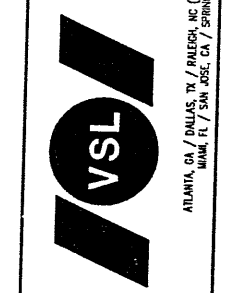
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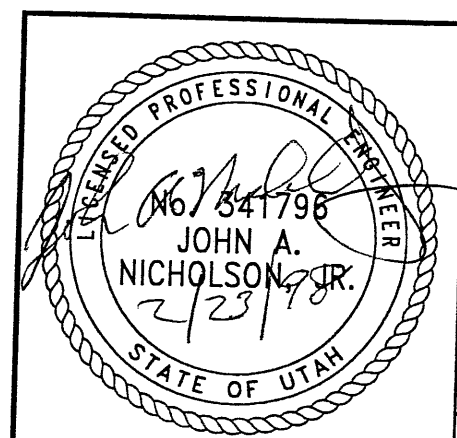
DES.	02-03-98	JL
DRN.	02-03-98	DDO
CHK.	02-03-98	JL

VSL CORPORATION
 7810 Price Plaz, Suite 200
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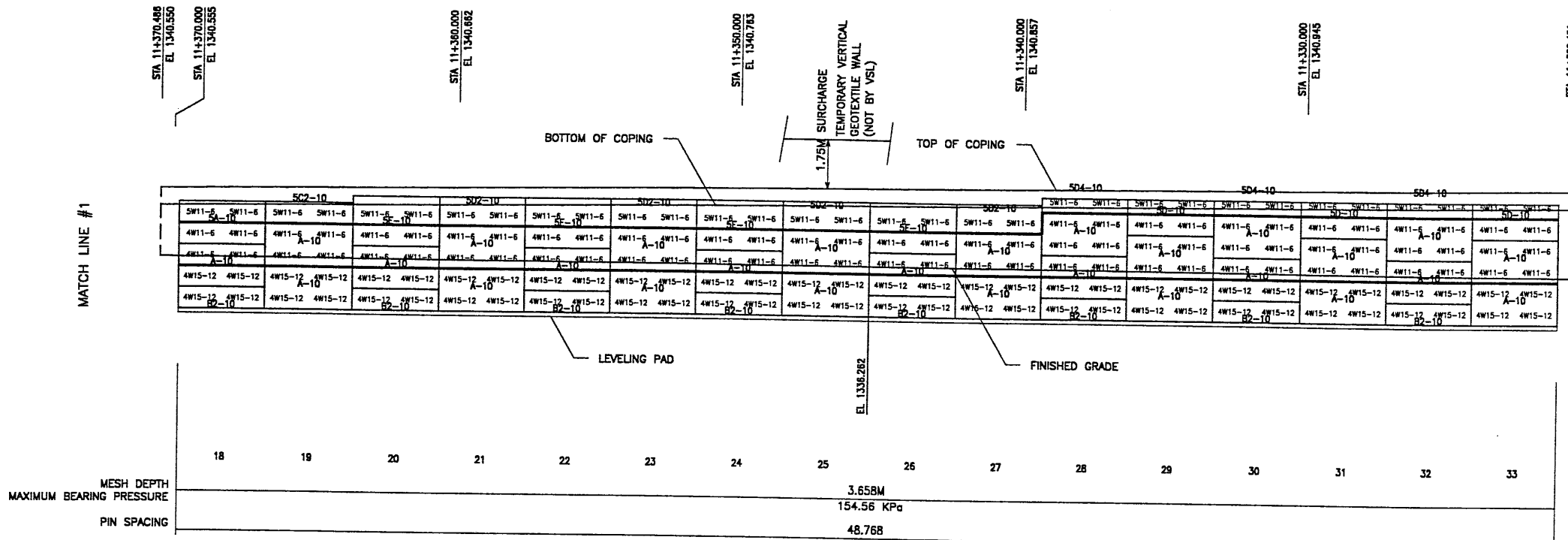
WASATCH CONSTRUCTORS
MAR 05 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-13"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-13.5
JOB NO.	239-0007
SHT. NO.	RE-4

5099



ELEVATION PRECAST WALL R-342-13
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 860.18 SM) SCALE 1:200 (HALF SIZE)

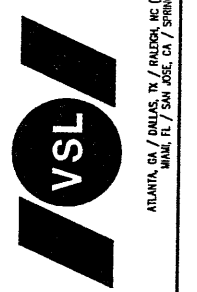
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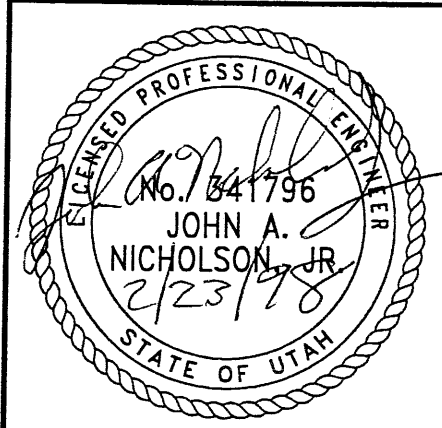
NO.	DATE	REVISION

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WASATCH CONSTRUCTORS
 MAR 05 1998
 RELEASED FOR CONSTRUCTION

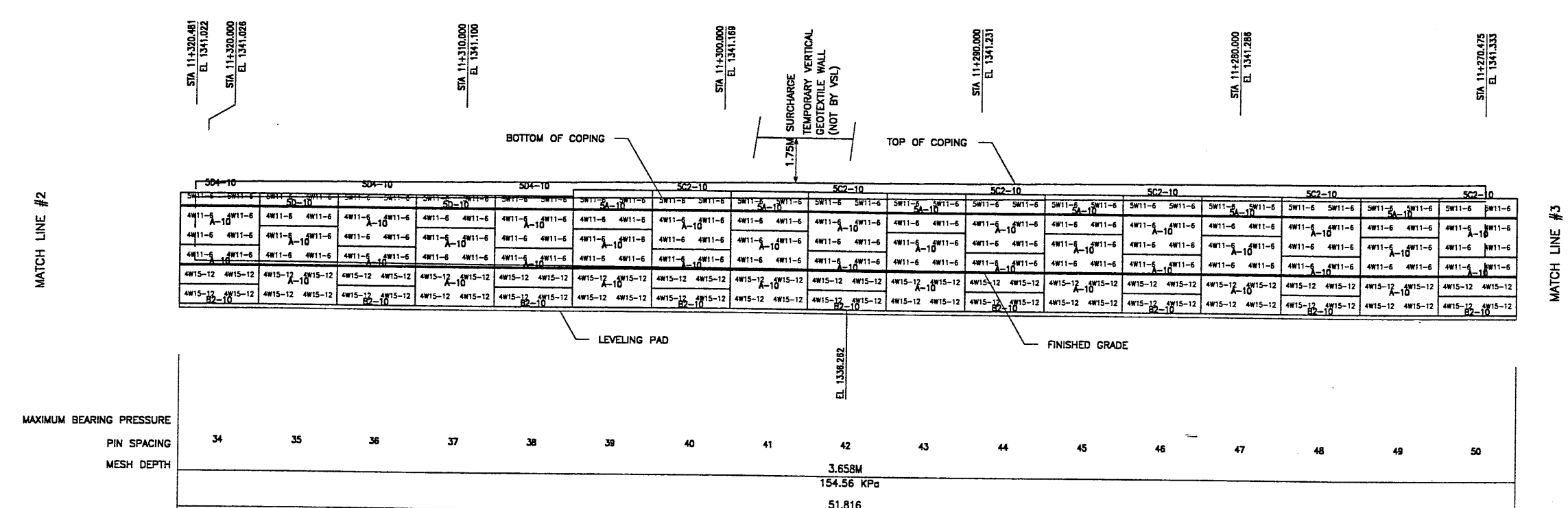


RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-13"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.1R-342-13.6
 JOB NO. 239-0007
 SHEET NO. RE-5

6019

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	02-19-98	RELEASE FOR CONSTRUCTION

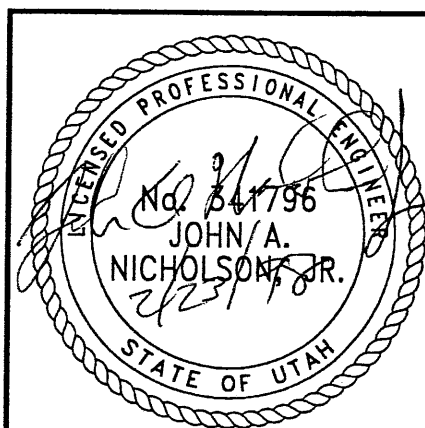


MAXIMUM BEARING PRESSURE	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
PIN SPACING	3.658M																
MESH DEPTH	154.56 KPa																
	51.816																

ELEVATION PRECAST WALL R-342-13
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 860.18 SM) 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.



WASATCH CONSTRUCTORS
 MAR 05 1998
 RELEASED FOR CONSTRUCTION

DES.	02-03-98	JL	RETAINED EARTH™
DRN.	02-03-98	DDO	
CHK.	02-03-98	JL	
NO. DATE			
REVISION			
BY CHK			

VSL CORPORATION
 280 Plaza Place, Suite 200
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-13"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.1R-342-13.7
 JOB NO. 239-0007
 SHT. NO. RE-6

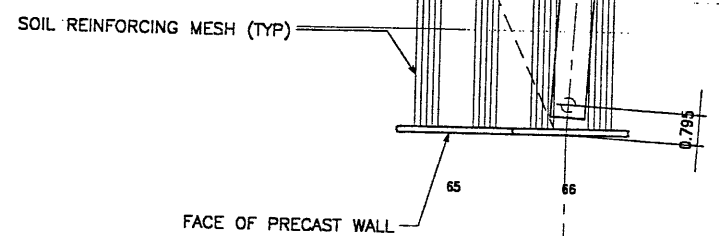
7069

REFERENCE (X-UTAH.DWG)

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FINAL PLOT 02-19-98

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲ 02-19-98		RELEASE FOR CONSTRUCTION



PLAN VIEW PRECAST WALL R-342-13

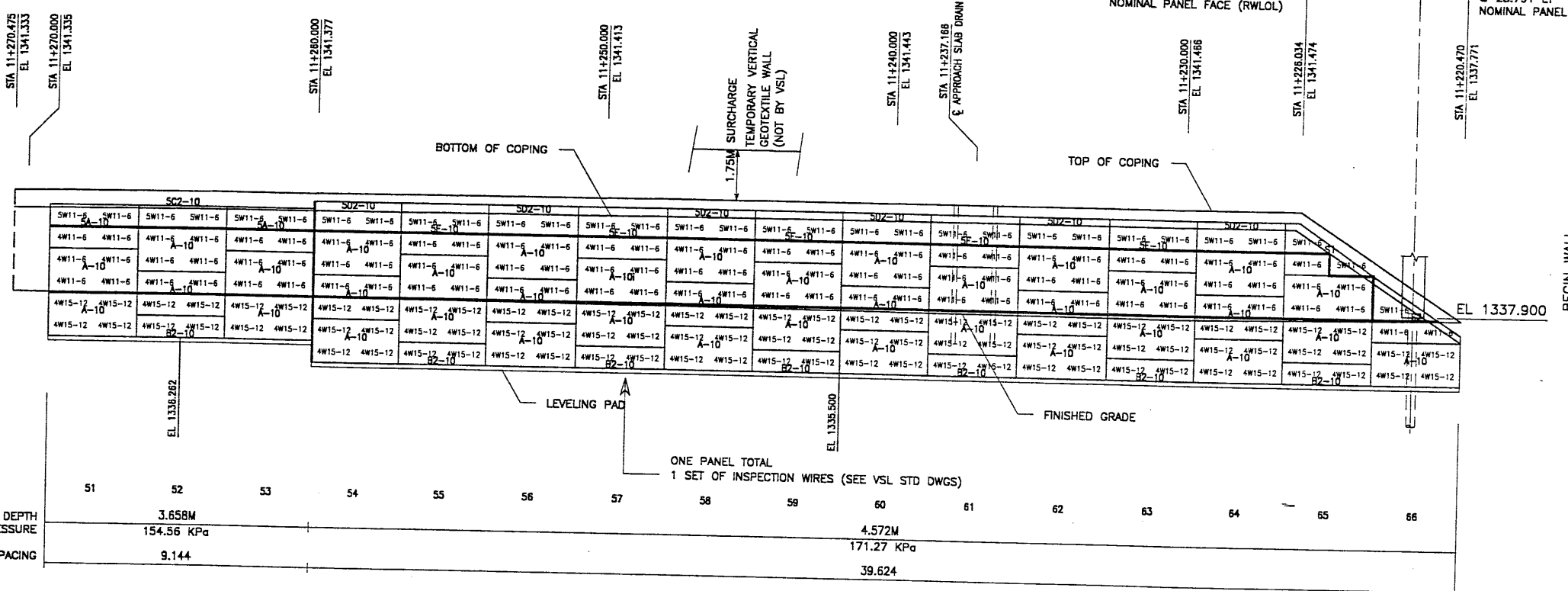
ABUTMENT
 WALL STA 11+222.118 =
 I-15 STA 11+222.114
 BRIDGE C- (BR-)

WALL POC STA 11+226.034 =
 I-15 STA 11+226.020
 ● 25.791 LT
 NOMINAL PANEL FACE (RWLOL)

BEGIN WALL R-342-13
 WALL PC STA 11+220.470 =
 I-15 STA 11+220.470
 ● 25.791 LT
 NOMINAL PANEL FACE (RWLOL)

MATCH BRIDGE
 BR NO. 3

MATCH LINE #3



ELEVATION PRECAST WALL R-342-13

(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 860.18 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

MESH DEPTH	3.658M
MAXIMUM BEARING PRESSURE	154.56 KPa
PIN SPACING	9.144

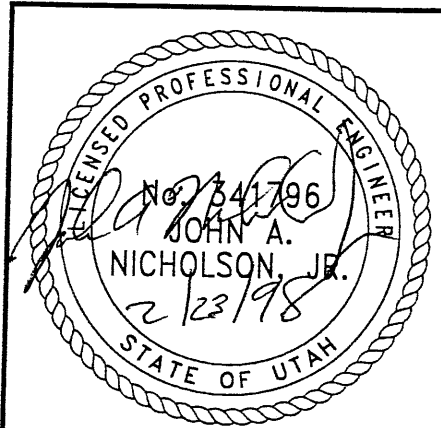
WASATCH CONSTRUCTORS

MAR 05 1998

RELEASED FOR CONSTRUCTION

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-342-13"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-13.8
JOB NO.	239-0007
SHT. NO.	RE-7

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 791-6272
 Fax: (919) 791-9509



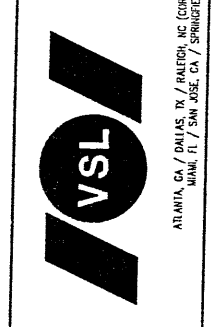
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL Corporation uses only the most advanced and reliable equipment and materials available. The use of such equipment and materials does not constitute a warranty of any kind, or any representation or assurance that the structures constructed to the design and specifications of VSL will be free from any defects or claims of any kind.

NO.	DATE	REVISION	BY

DES.	02-03-98	JL
DRN.	02-03-98	DDO
CHK.	02-03-98	JL

RETAINED EARTH™

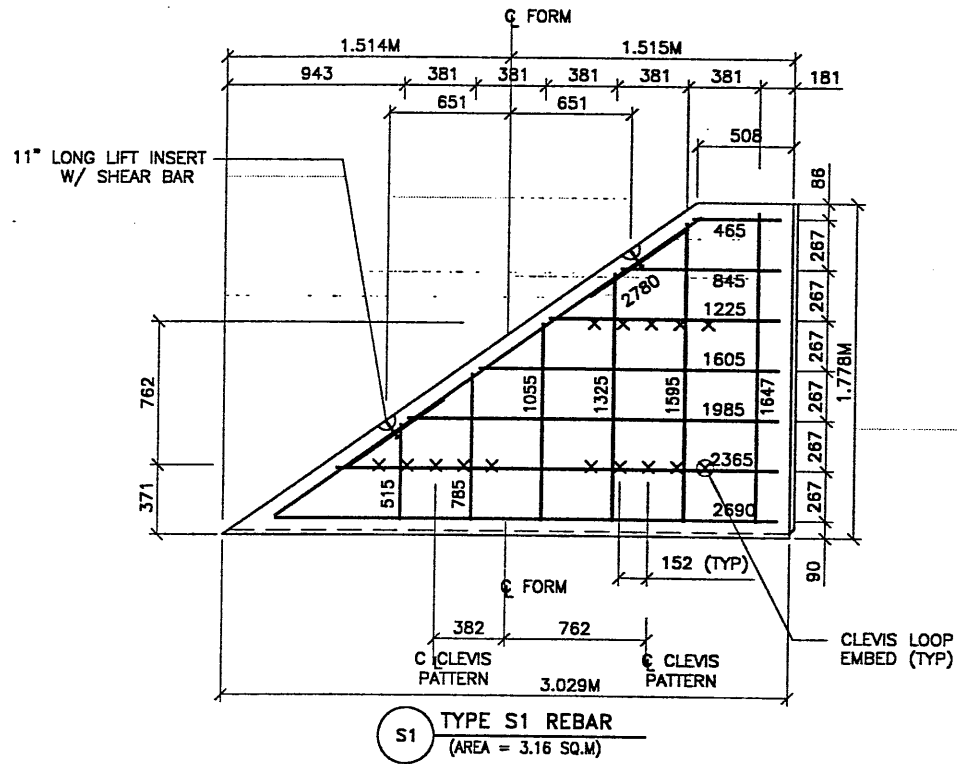


WASATCH CONSTRUCTORS
 MAR 05 1998
 RELEASED FOR CONSTRUCTION

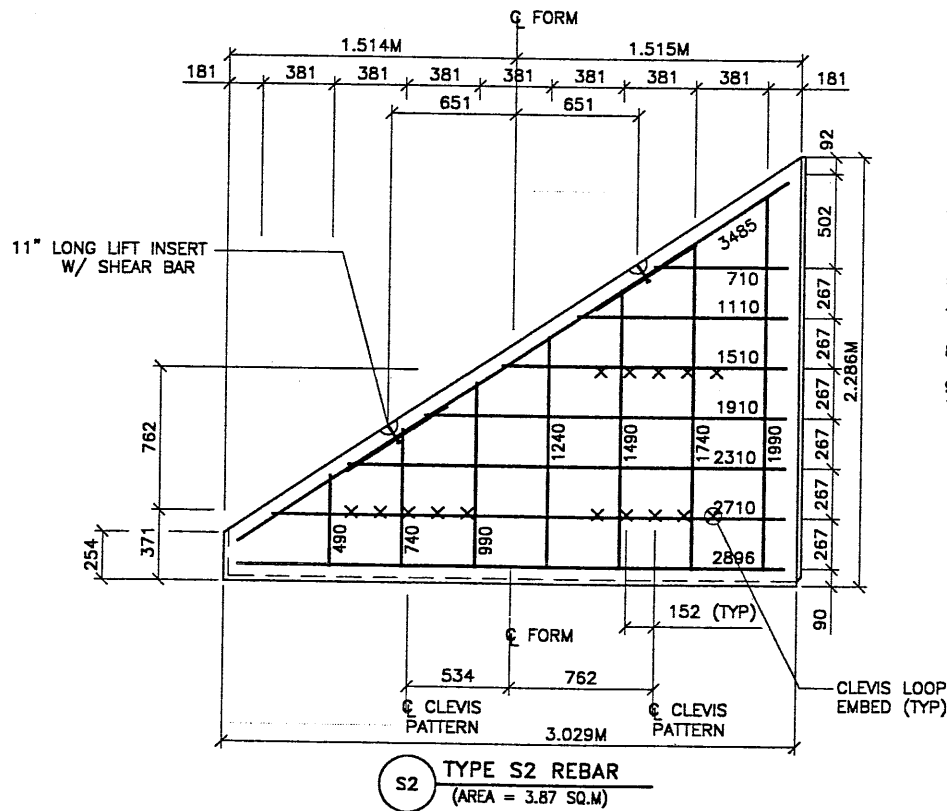
RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-13"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-13.8
JOB NO.	239-0007
SHT. NO.	RE-7

8019



S1 TYPE S1 REBAR
(AREA = 3.16 SQ.M)



S2 TYPE S2 REBAR
(AREA = 3.87 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 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.

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	02-19-98	RELEASE FOR CONSTRUCTION

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 791-8272
Fax: (919) 791-4889



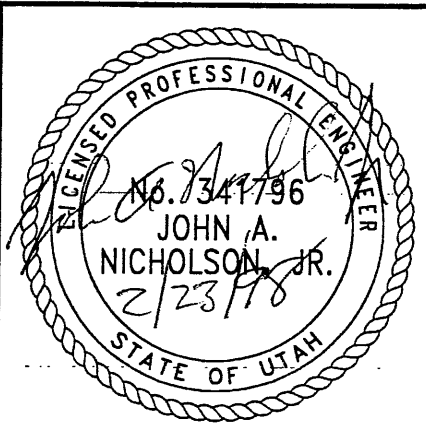
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

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WASATCH CONSTRUCTORS

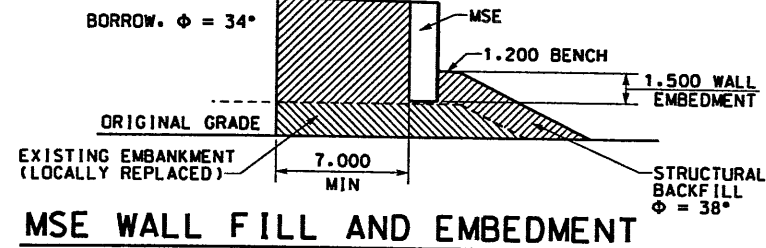
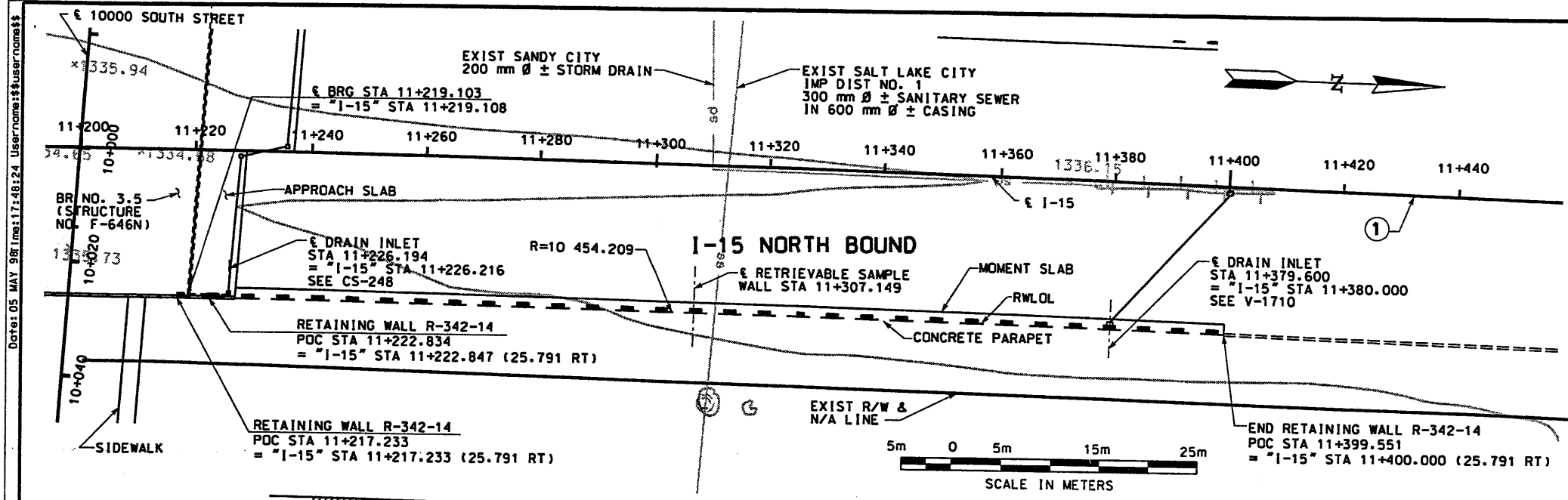
MAR 05 1998

RELEASED FOR CONSTRUCTION

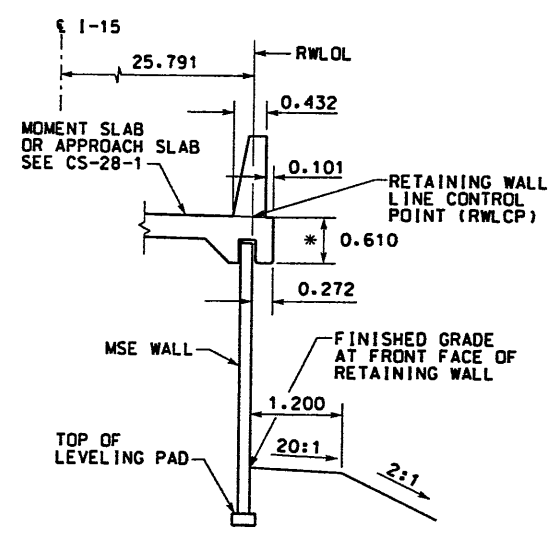
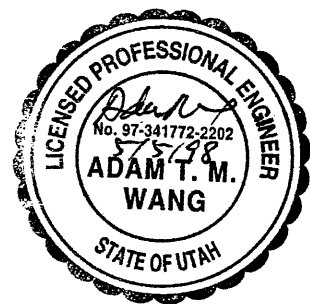


RETAINED EARTH™ WALLS PRECAST WALL R-342-13 SPECIAL PANEL DETAILS	UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.1R-342-13.9	
JOB NO: 239-0007	
SHT. NO. RE-8	

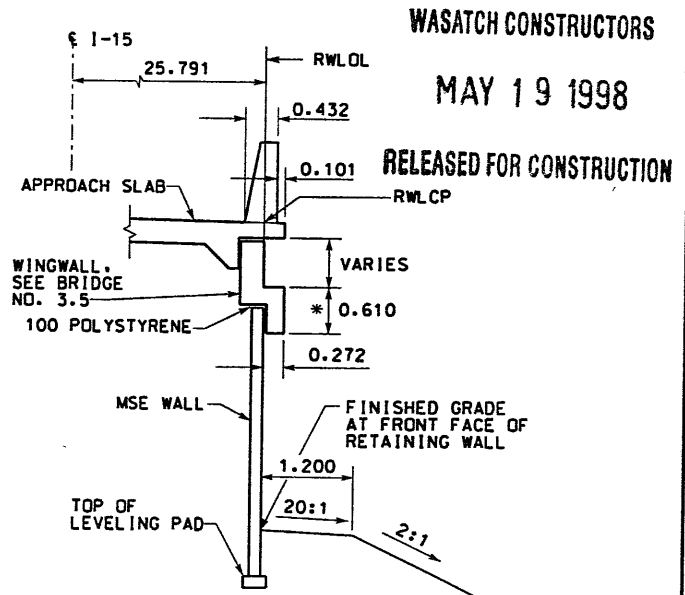
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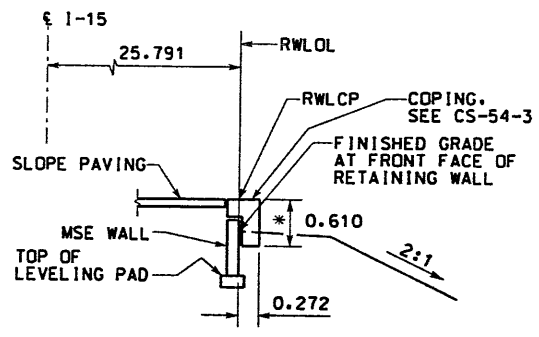
CURVE NO.	Δ	R	L	T
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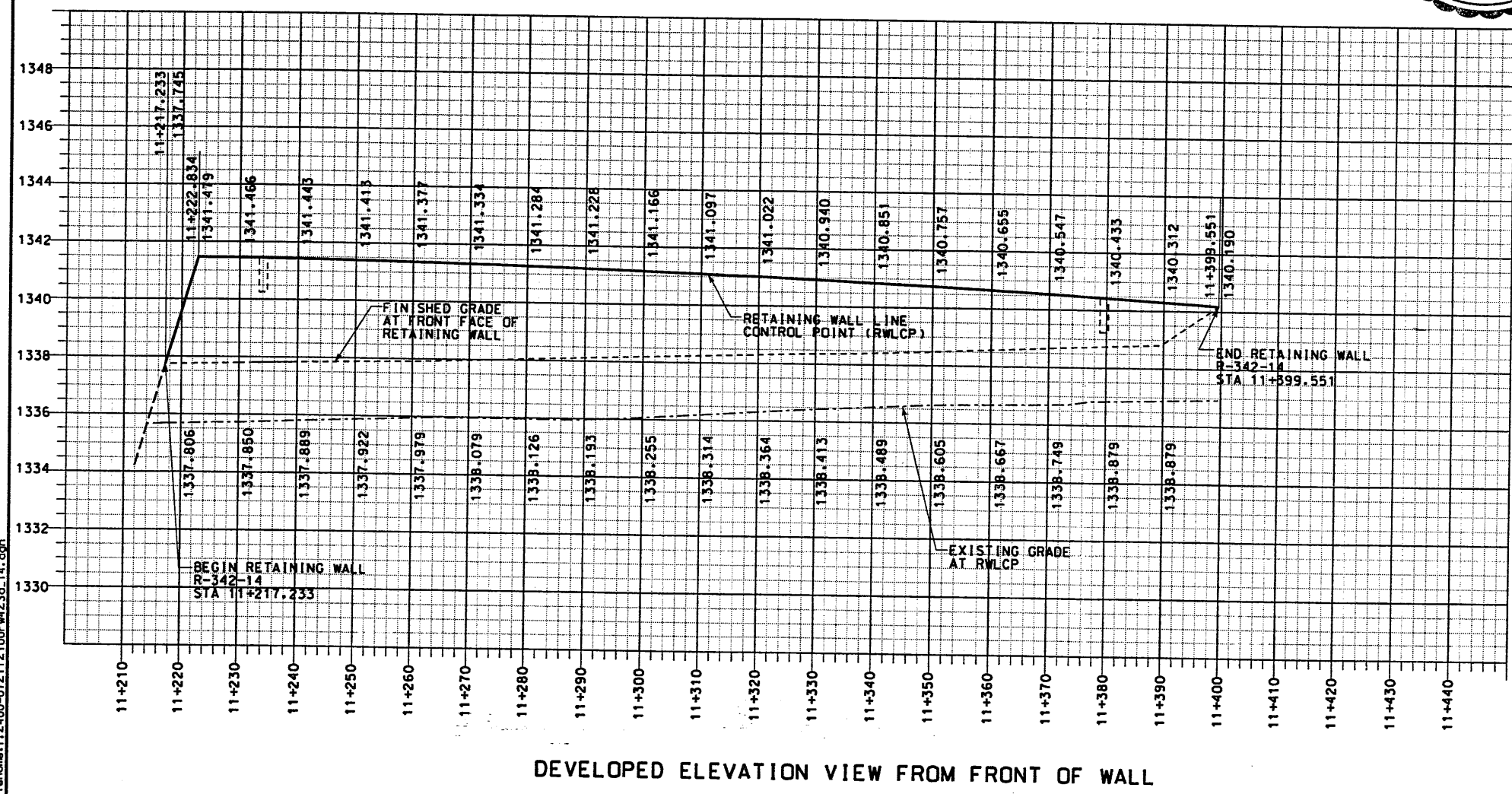
TYPICAL SECTION
WALL R-342-14
STA 11+222.834 TO STA 11+399.551



TYPICAL SECTION
WALL R-342-14
STA 11+218.653 TO STA 11+222.834



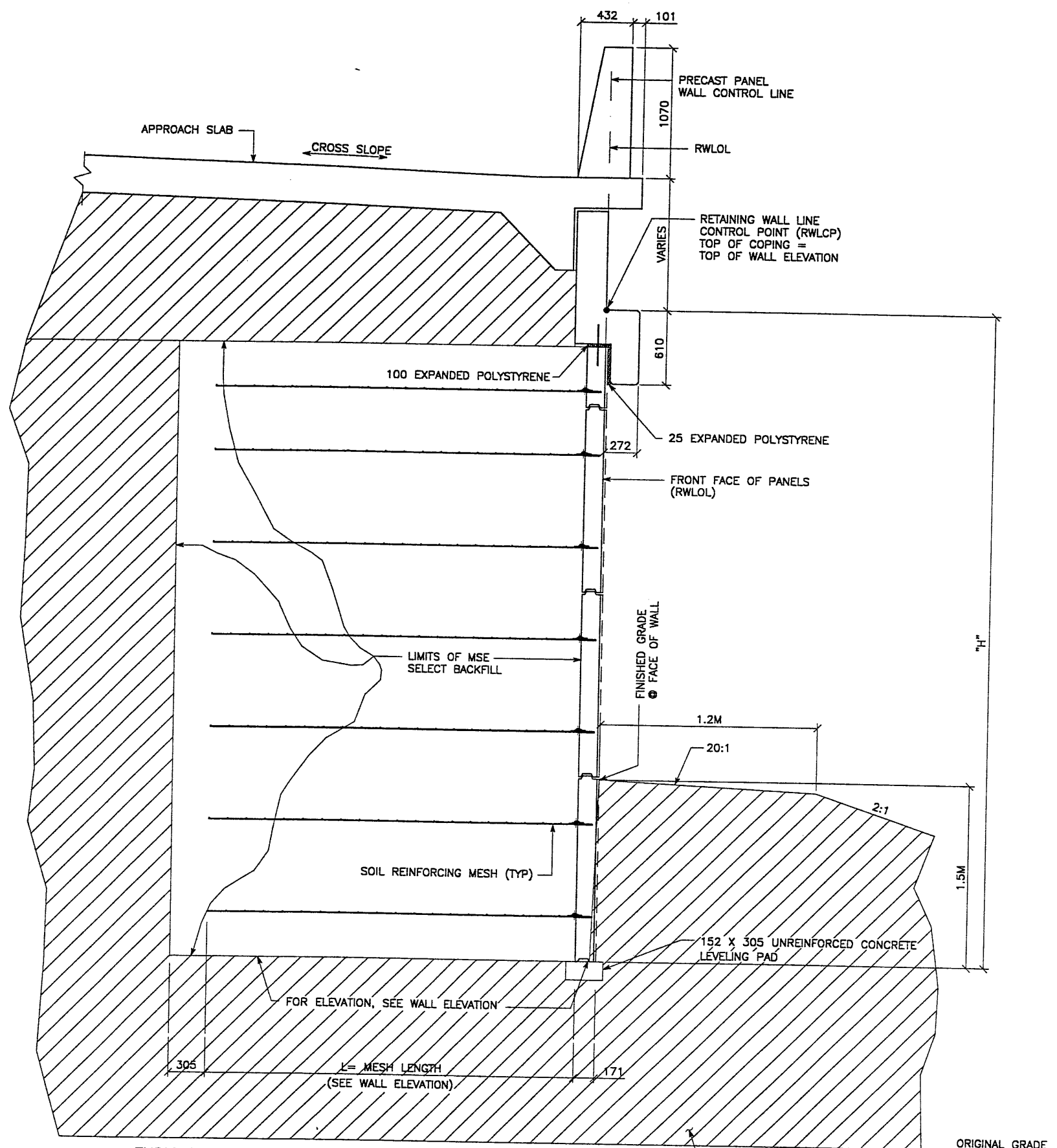
TYPICAL SECTION
WALL R-342-14
STA 11+217.233 TO STA 11+218.653
* MEASURED NORMAL TO SLOPE



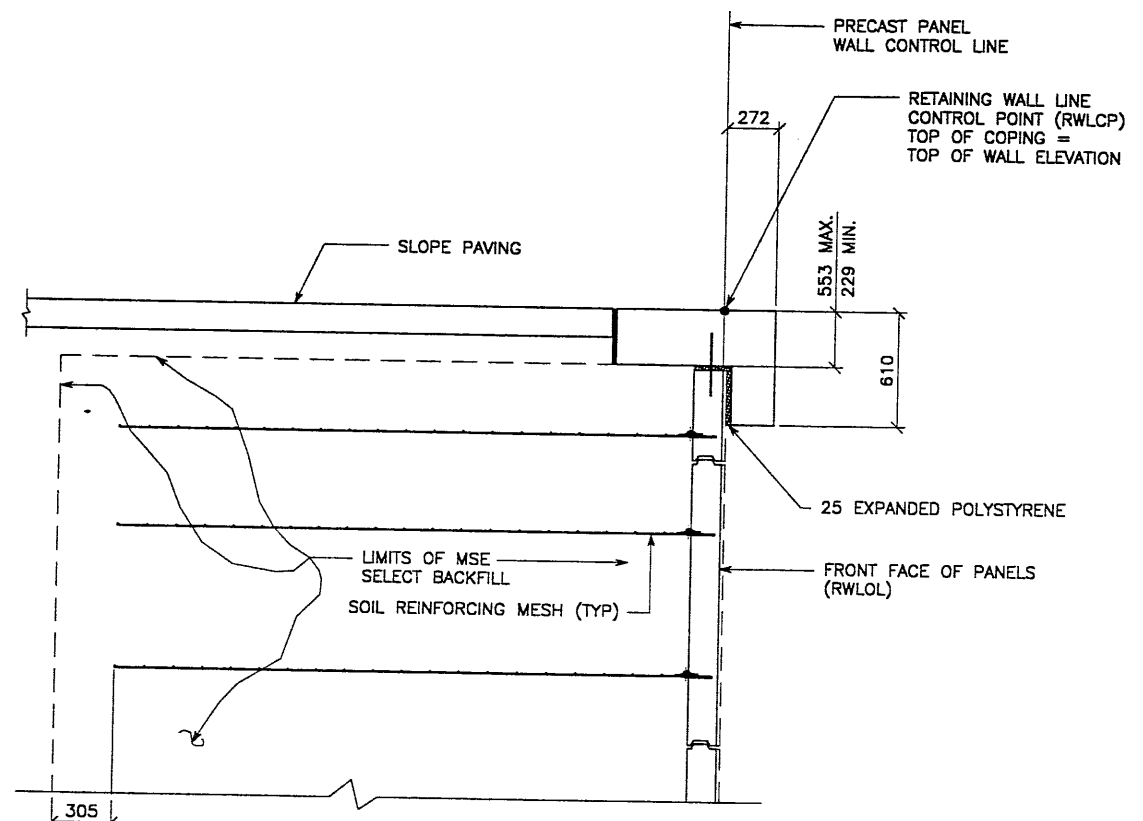
DEVELOPED ELEVATION VIEW FROM FRONT OF WALL

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
Δ	05/06/98		
UTAH DEPARTMENT OF TRANSPORTATION			
SVERDRUP/DE LEUW		DESIGN	CHECK
DATE		DATE	DATE
PROJECT DESIGN ENGINEER		PROJECT DESIGN ENGINEER	PROJECT DESIGN ENGINEER
DATE		DATE	DATE
PROJECT MANAGER		PROJECT MANAGER	PROJECT MANAGER
DATE		DATE	DATE
I-15 CORRIDOR RECONSTRUCTION			
SITUATION & LAYOUT RET WALL R-342-14			
SECTION 1-1			
PROJECT *SP-15-7(135)296			
SALT LAKE COUNTY			
1.1-R342-14.1			
DWG. NO.			
SHT. 1 OF 2			
REF.			

Date: 05 MAY 98 09:11:48:24 User: rnm:11748124 User: rnm:11748124



TYPICAL CROSS SECTION - STA 11+228.653 TO 11+222.834
 (SEE DWG. NO. 1.1R-342-14.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 11+217.233 TO 11+218.653
 (SEE DWG. NO. 1.1R-342-14.01 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC

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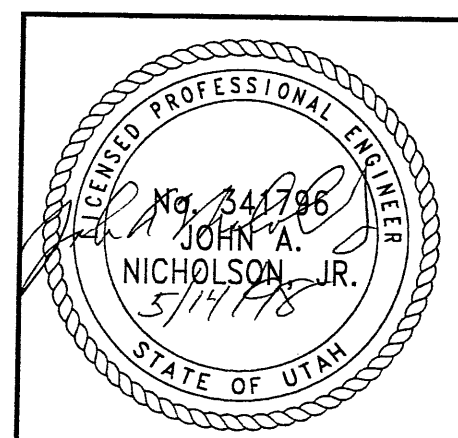
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	05-07-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	BY
JL	DDL	JL				
04-21-98	04-21-98	04-21-98				

VSL CORPORATION
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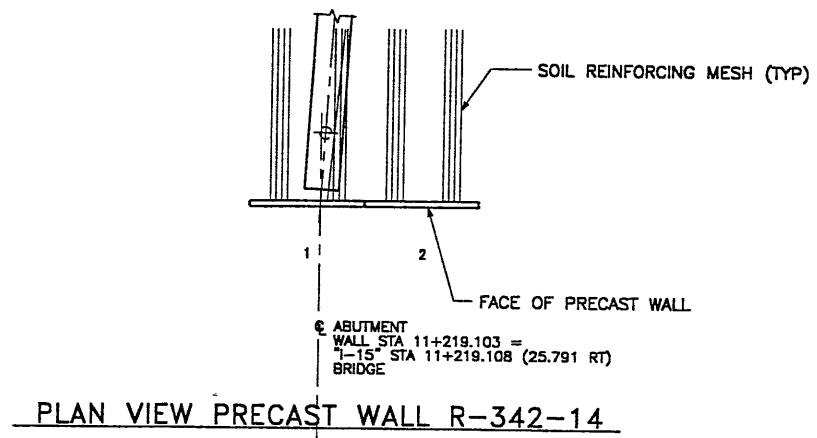
WASATCH CONSTRUCTORS
MAY 19 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-14"
 TYPICAL CROSS SECTION

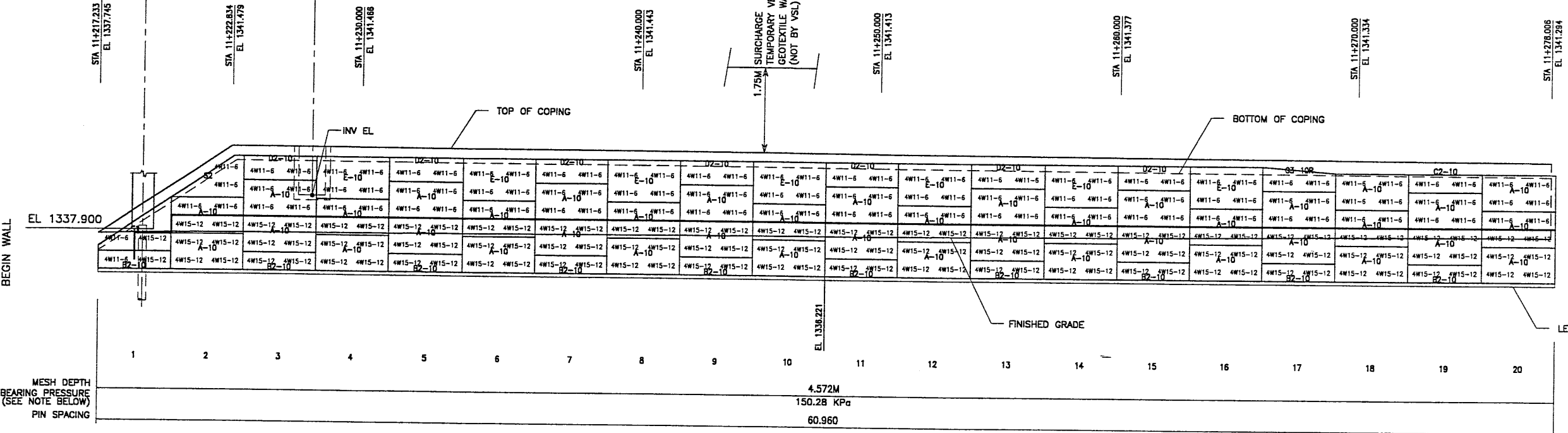
UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-14.4
JOB NO.	239-0007
SHT. NO.	RE-3



BEGIN WALL R-342-14
WALL POC STA 11+217.233 = 7-15" STA 11+217.233
25.791 RT
NOMINAL PANEL FACE (RWLOL)

WALL STA 11+226.194
7-15" STA 11+226.214
DRAIN INLET TYPE V-1710
INV EL

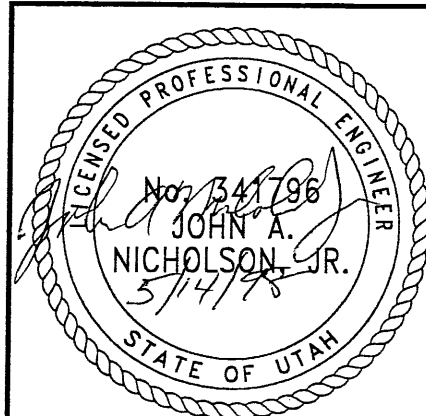


ELEVATION PRECAST WALL R-342-14
(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
(TOTAL SURFACE AREA OF PANELS = 744.83 SM) SCALE 1:200 (HALF SIZE)

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

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	05-07-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
MAY 19 1998
RELEASED FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	CHK
DL	DDL	DL					

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Raleigh, NC 27612
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Fax: (919) 781-0959

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MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

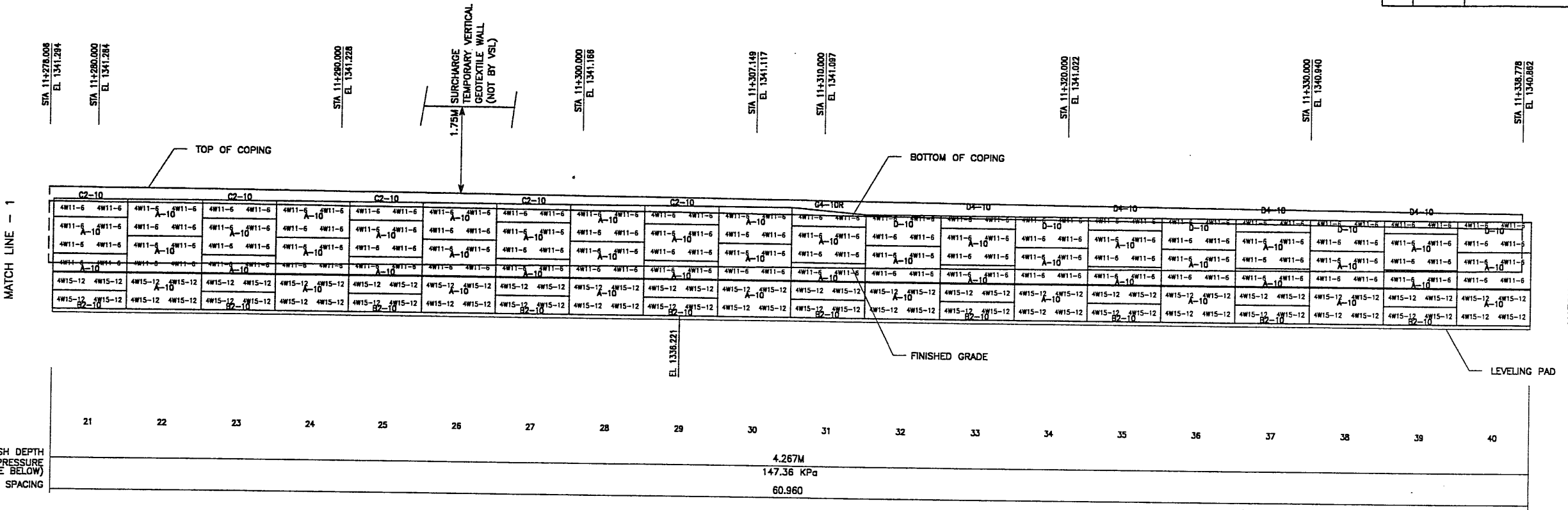
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RETAINED EARTH™ WALLS
PRECAST WALL "R-342-14"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.1R-342-14.5
JOB NO.	239-0007
SHT. NO.	RE-4

5 OF 8

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	05-07-98	RELEASE FOR CONSTRUCTION



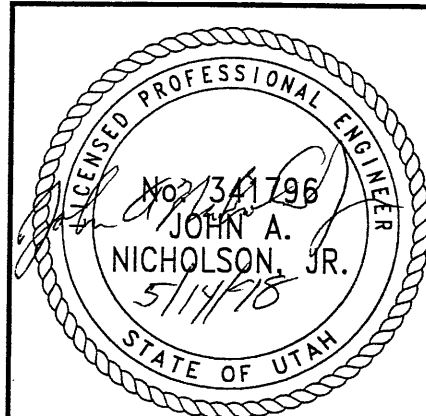
ELEVATION PRECAST WALL R-342-14
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 744.83 SM) SCALE 1:200 (HALF SIZE)

WASATCH CONSTRUCTORS
MAY 19 1998
RELEASED FOR CONSTRUCTION

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

METRIC

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NO.	DATE	DESCRIPTION	BY	CHK

DES.	JL	04-21-98	RETAINED EARTH™
DRN.	DDL	04-21-98	
CHK.	JL	04-21-98	

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 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-0959

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 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PRECAST WALL "R-342-14"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.1R-342-14.6
 JOB NO. 239-0007
 SH. NO. RE-5


6078

H:\RE_EARTH\PROJECT\107\1998\100-SERS\100-14\SUBMTL-2\100W-14
 05-07-98
 FIN

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	05-07-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY
04-21-98	JL					
04-21-98	DDL					
04-21-98	JL					

VSL CORPORATION
 2040 Plaza Place, Suite 200
 Raleigh, NC 27617-1672
 Tel: (919) 791-6272
 Fax: (919) 791-6959



ALABAMA, GA / DANIA, TX / BALDWIN, NC (CORPORATE OFFICE)
 MANILA, FT. SAN JOSE, CA / SPRINGFIELD, VA

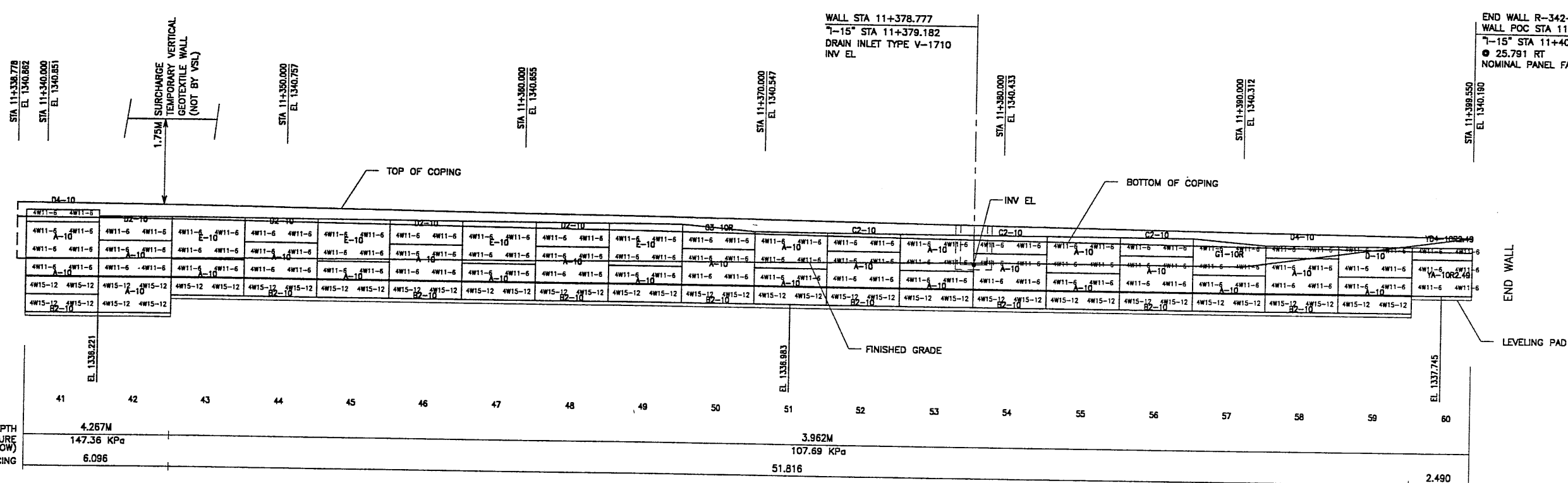
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-14"
 I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.1R-342-14.7

JOB NO.
 239-0007

SHT. NO.
 RE-6



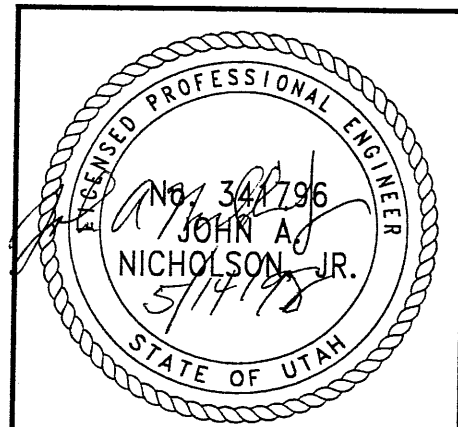
ELEVATION PRECAST WALL R-342-14
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 744.83 SM) SCALE 1:200 (HALF SIZE)

MESH DEPTH 4.267M
 MAXIMUM BEARING PRESSURE (SEE NOTE BELOW) 147.36 KPa
 PIN SPACING 6.096

FINISHED GRADE 3.962M
 107.69 KPa
 51.816

METRIC

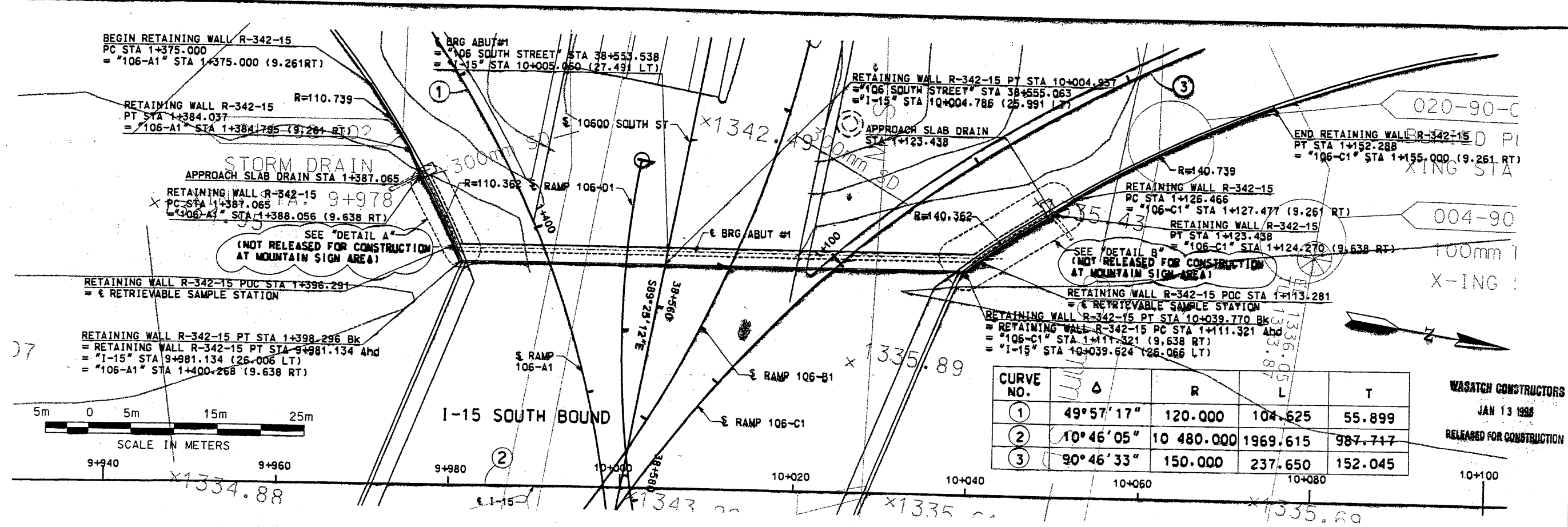
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WASATCH CONSTRUCTORS
 MAY 19 1998
 RELEASED FOR CONSTRUCTION

7088

Date: 09 JAN 98 Time: 15:55:18 User: name: \$user: name: \$
 File name: I:\400-07\Drawings\Wall\15a.dgn



CURVE NO.	Δ	R	L	T
1	49° 57' 17"	120.000	104.625	55.899
2	10° 46' 05"	10 480.000	1969.615	987.717
3	90° 46' 33"	150.000	237.650	152.045

WASATCH CONSTRUCTORS
 JAN 13 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION
 INITIAL RELEASE FOR CONSTRUCTION

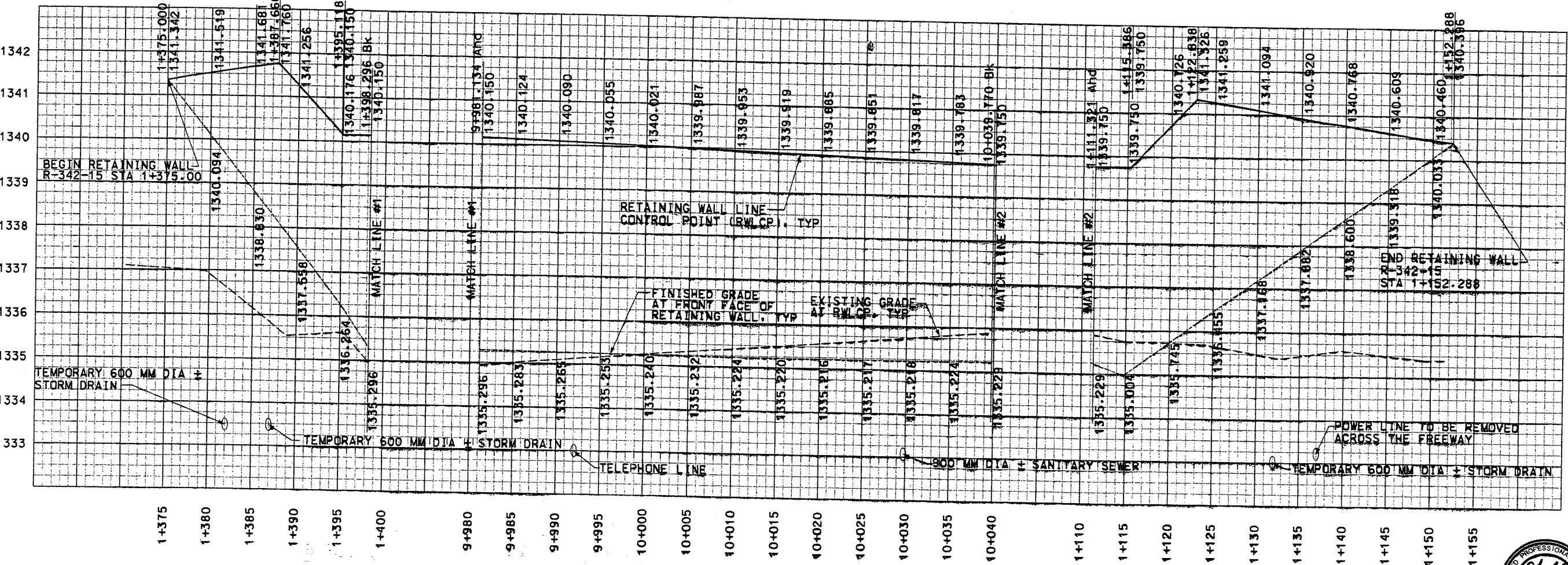
NO.	DATE	DESCRIPTION
1	1/7/98	INITIAL RELEASE FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
 SVERDRUP/DE LEUW

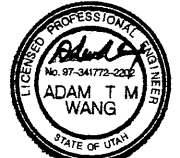
APPROVAL RECORD:	DESIGN	CHECK
PROJECT DESIGN ENGINEER	DRAWN	CHECK
DATE	APPROVED	DATE

SECTION 1.1
 PROJECT #SP-15-7(135)296
 PROJECT NUMBER

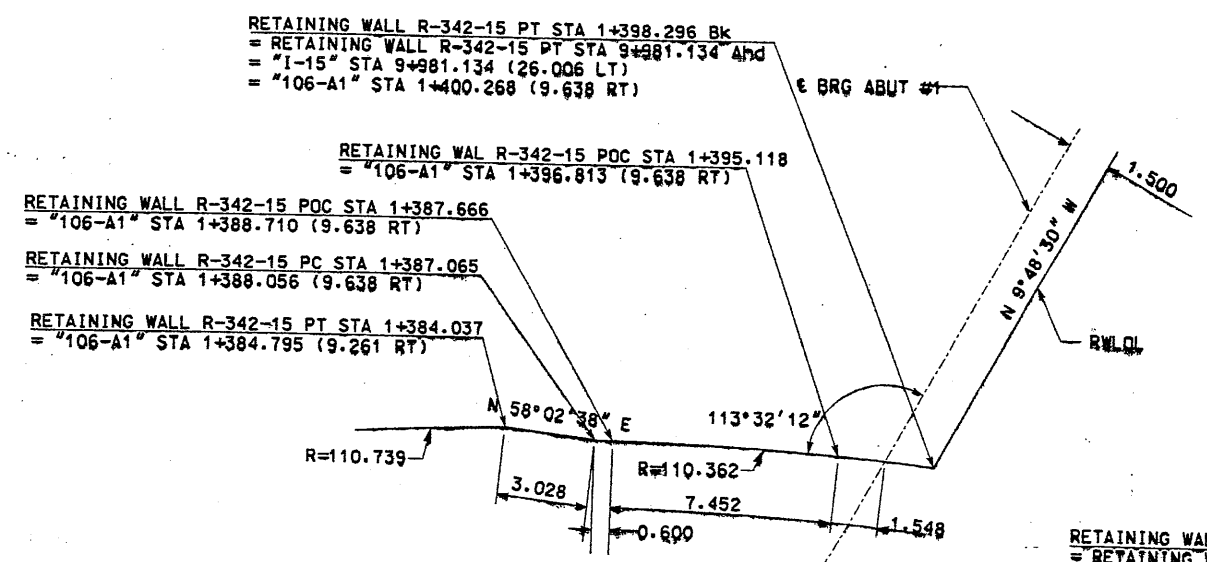
SALT LAKE COUNTY
 I.R.-342-15.01
 DWG. NO. 1-342-15.01
 SHT. 1 OF 13
 REF.



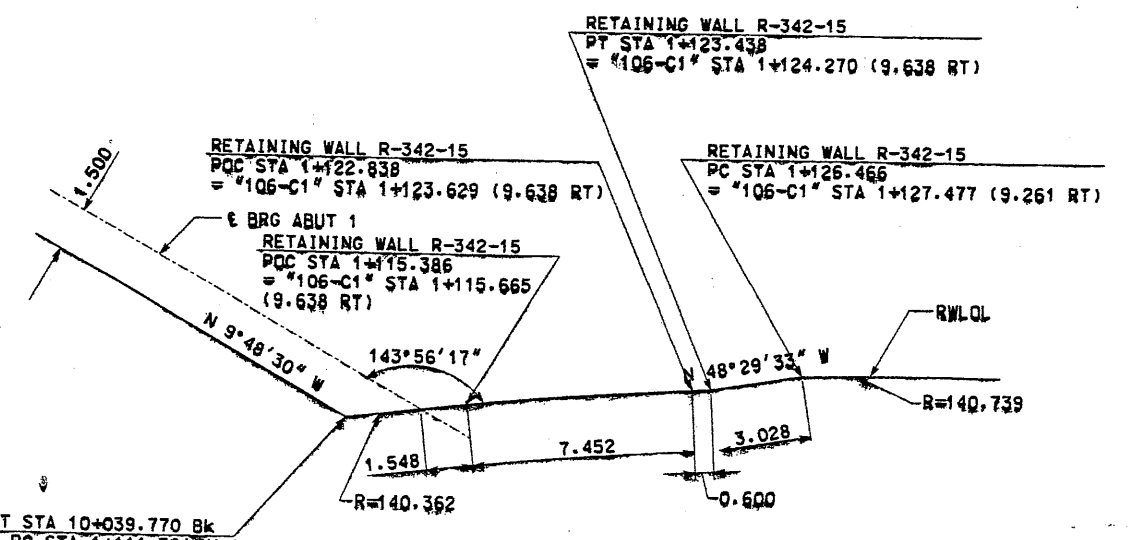
ELEVATION VIEW FROM FRONT OF WALL



Date: 09 JAN 98 Time: 15:19:03 Username: Username

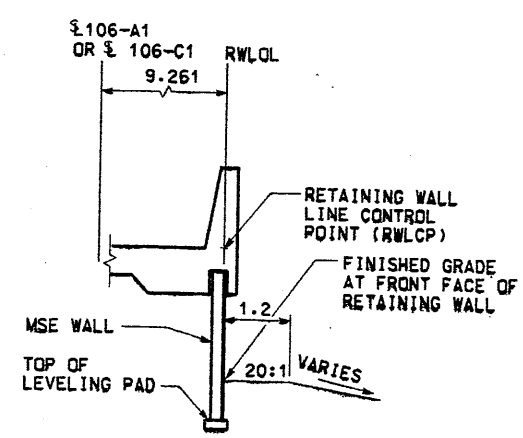


DETAIL A



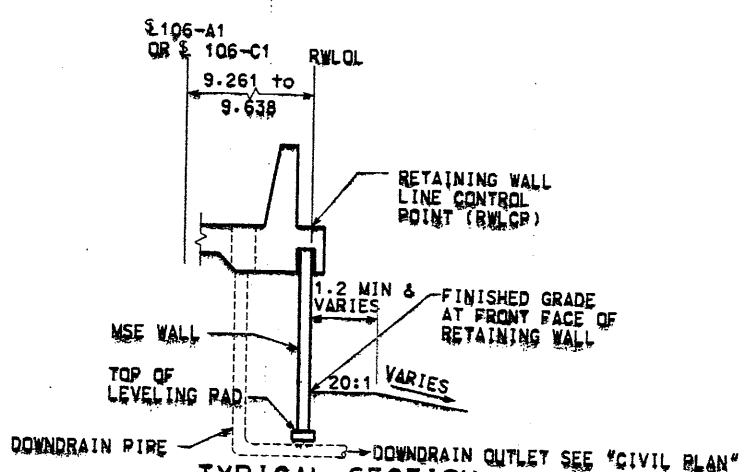
DETAIL B

WASATCH CONSTRUCTORS
JAN 13 1998
RELEASED FOR CONSTRUCTION



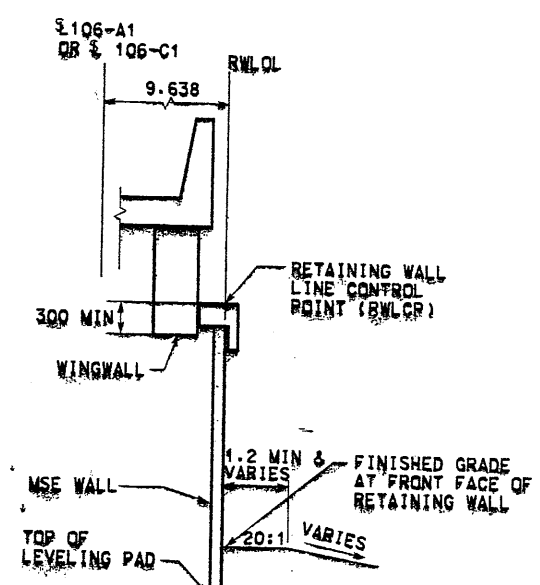
TYPICAL SECTION WALL R-342-15

STA 1+375.000 TO STA 1+384.037
STA 1+126.466 TO STA 1+152.288



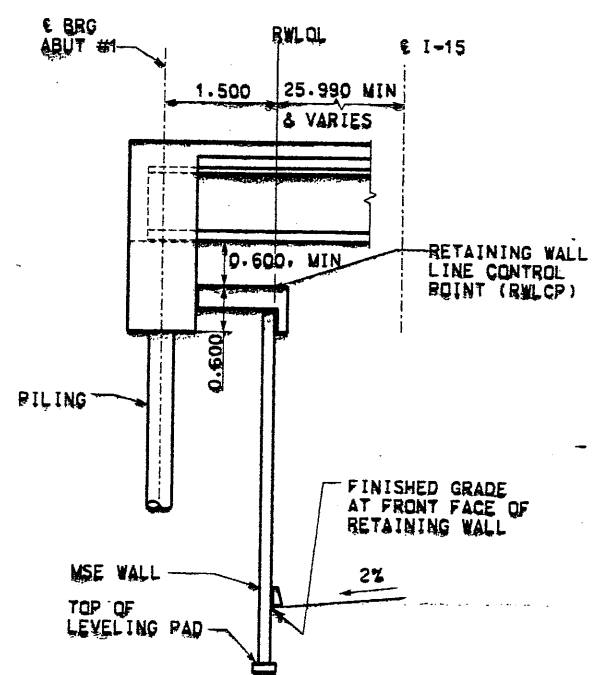
TYPICAL SECTION WALL R-342-15

STA 1+384.037 TO STA 1+387.666
STA 1+122.838 TO STA 1+126.466



TYPICAL SECTION WALL R-342-15

STA 1+387.666 TO STA 1+398.296
STA 1+111.321 TO STA 1+122.838



TYPICAL SECTION WALL R-342-15

STA 9+981.134 TO STA 10+039.770

NOTE: FOR COPING AND MOMENT SLAB DETAILS, SEE I-15 CORRIDOR STANDARD

APPROVED FOR CONSTRUCTION	
NO.	DATE
1	1/7/98
INITIAL RELEASE FOR CONSTRUCTION	

UTAH DEPARTMENT OF TRANSPORTATION	
SVERDRUP/DE LEUW	
DESIGN	CHECK
DRAWN	CHECK
QUANT.	CHECK
DATE	PROJECT DESIGN ENGINEER
DATE	PROJECT MANAGER

I-15 CORRIDOR RECONSTRUCTION	SALT LAKE COUNTY
SITUATION & LAYOUT RET WALL R-342-15	DWG. NO. 12-342-15-02
SECTION 1.1	SHT. 2 OF 13
PROJECT #SP-15-7(135)296	REF.



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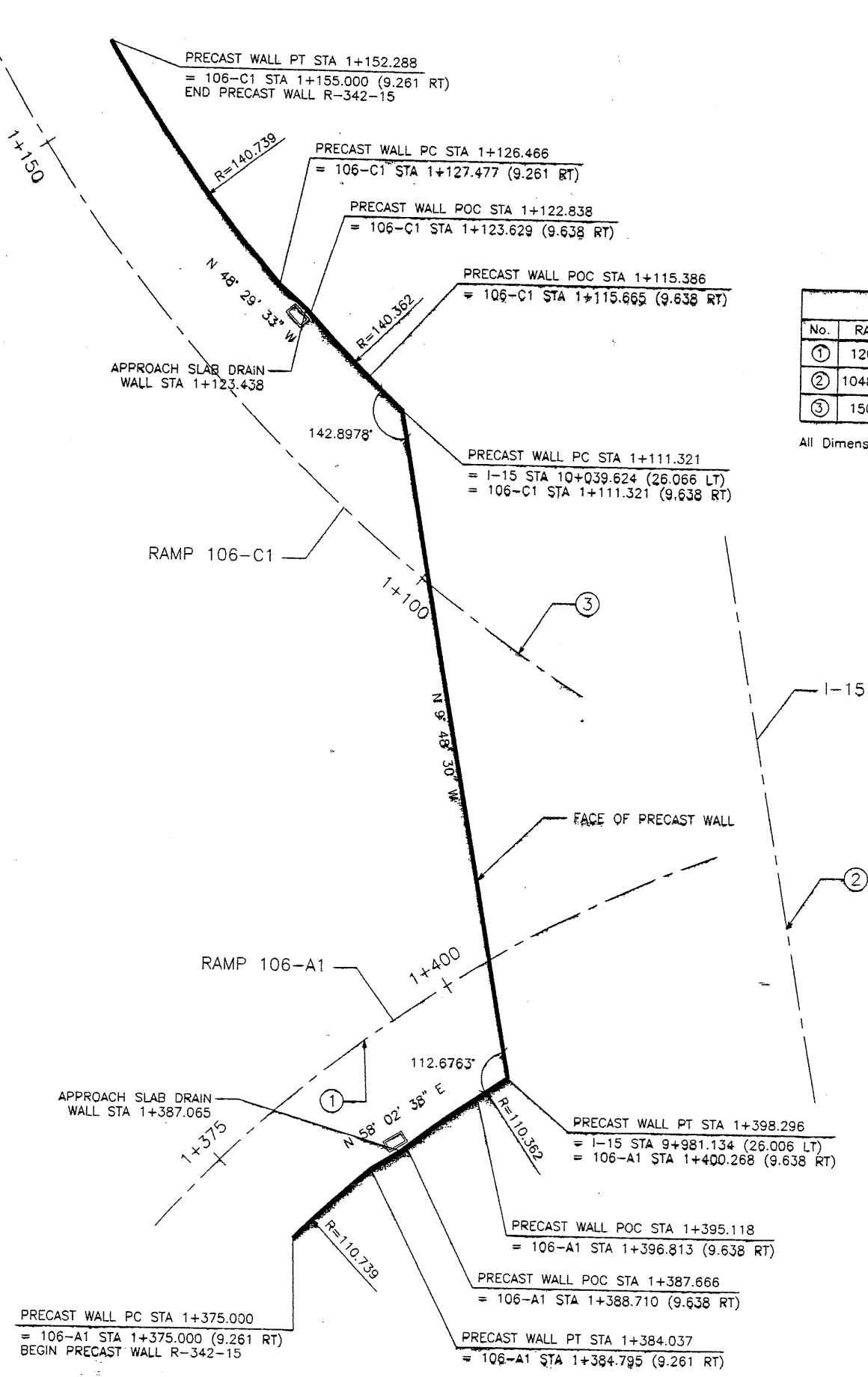
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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	12-15-97	RELEASE FOR CONSTRUCTION

DESIGN PARAMETERS
ANGLE OF INTERNAL FRICTION (SELECT) = 34°
ANGLE OF INTERNAL FRICTION (BASE) = 30°
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°
UNIT WEIGHT BACKFILL = 135 PCF.
TRAFFIC SURCHARGE = 250 PSF
SEISMIC ACCELERATION COFF. = 0.25g (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

- 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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W20-24 MESH HAS FIVE (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (4) W11 LONGITUDINAL WIRES WITH W11 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 SHEET RE-3 FOR DETAIL.



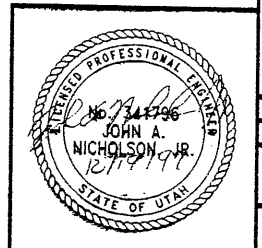
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No.	RADIUS	LENGTH	TANGENT	△
①	120.000	104.625	55.899	49°57'17" R
②	10480.000	1969.615	987.717	10°46'05" L
③	150.000	237.650	152.045	90°46'33" R

All Dimensions Are In Meters Unless Noted Otherwise

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-342-15, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	TYPICAL CROSS SECTIONS
RE-6	TYPICAL CROSS SECTIONS
RE-7	SPECIAL DETAILS
RE-8	ELEVATION PRECAST WALL "R-342-15"
RE-9	ELEVATION PRECAST WALL "R-342-15"
RE-10	ELEVATION PRECAST WALL "R-342-15"
RE-11	SPECIAL PANEL DETAILS

PLAN VIEW WALL "R-342-15"
 SCALE: 1=250 (FULL SIZE)
 SCALE: 1=500 (HALF SIZE)

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METRIC

REVISION		NO.	DATE	BY	CHK

DES. 11-26-97	MM
DRN. 11-26-97	DOO
CHK. 11-26-97	MM

RETAINED EARTH™

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 761-6272
 Fax: (919) 761-6969

**ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
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WASATCH CONSTRUCTORS
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RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-342-15"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

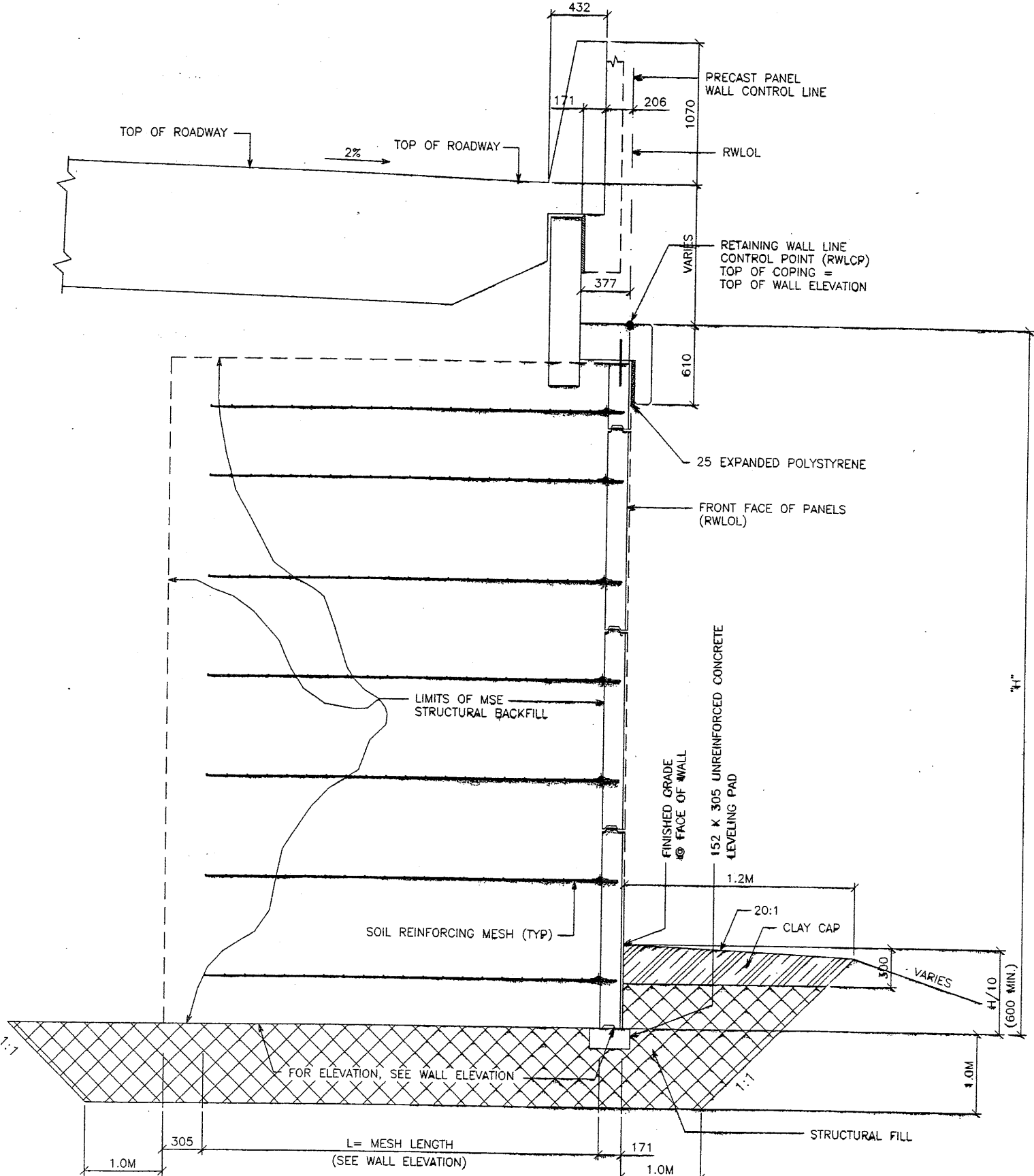
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 JOB NO:
 239-0007
 RE-1

3 OF 13

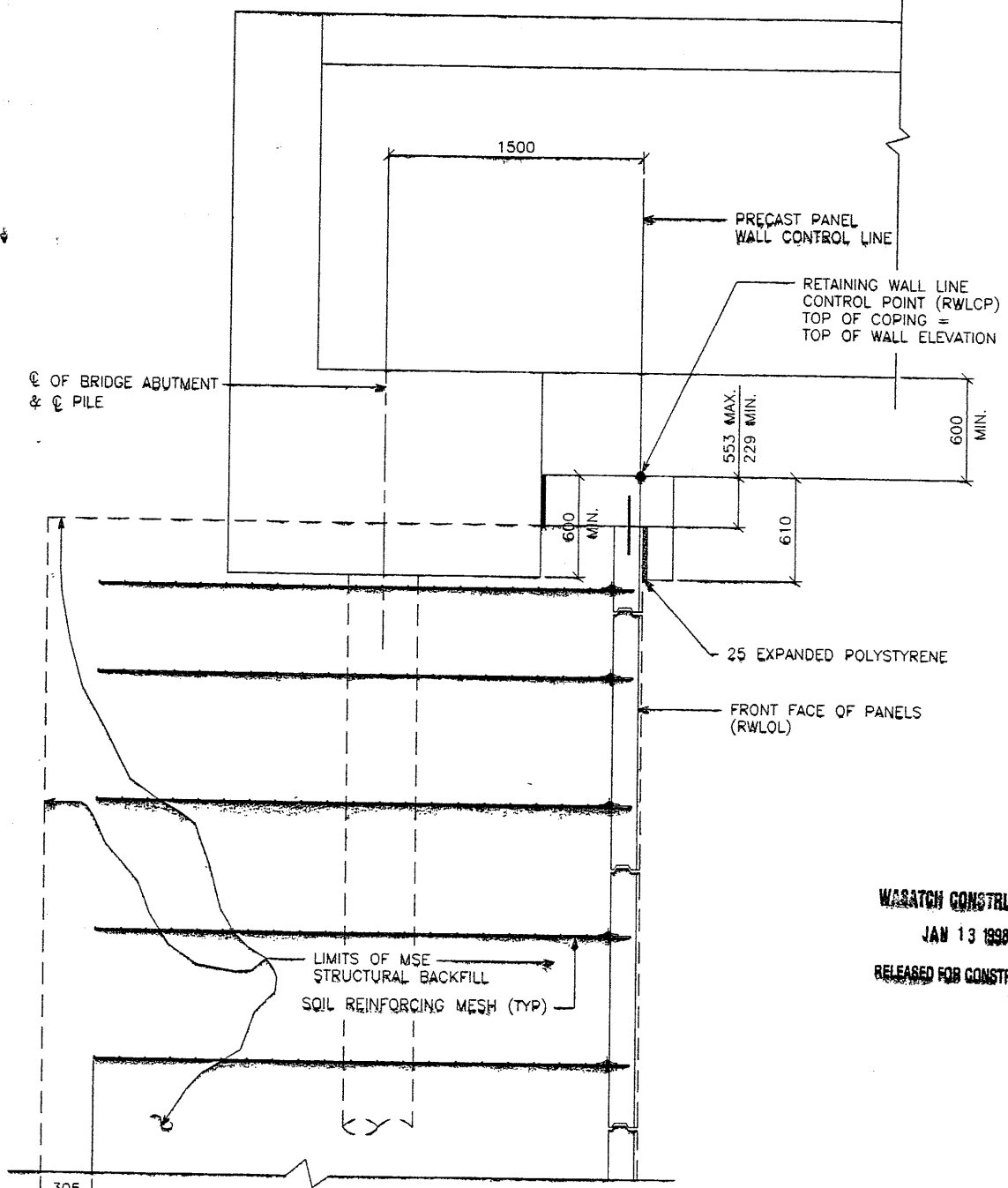
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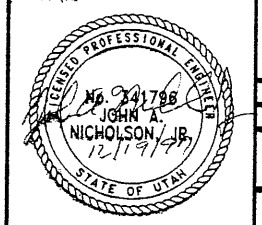


TYPICAL CROSS SECTION - STA 1+111.321 TO 1+122.838
TYPICAL CROSS SECTION - STA 1+387.666 TO 1+398.296
 (SEE DWG. NO. 1.1R-342-15.02 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 1+111.321 TO 1+398.296
 (SEE DWG. NO. 1.1R-342-15.02 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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WASATCH CONSTRUCTION
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NO.	DATE	DESCRIPTION
1	12-15-97	RELEASE FOR CONSTRUCTION

DES.	MM	11-26-97	RETAINED EARTH™	NO.		DATE		CHK	
DRN.	DDO	11-26-97							
CHK.	MM	11-26-97							

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 Fax: (919) 781-6859

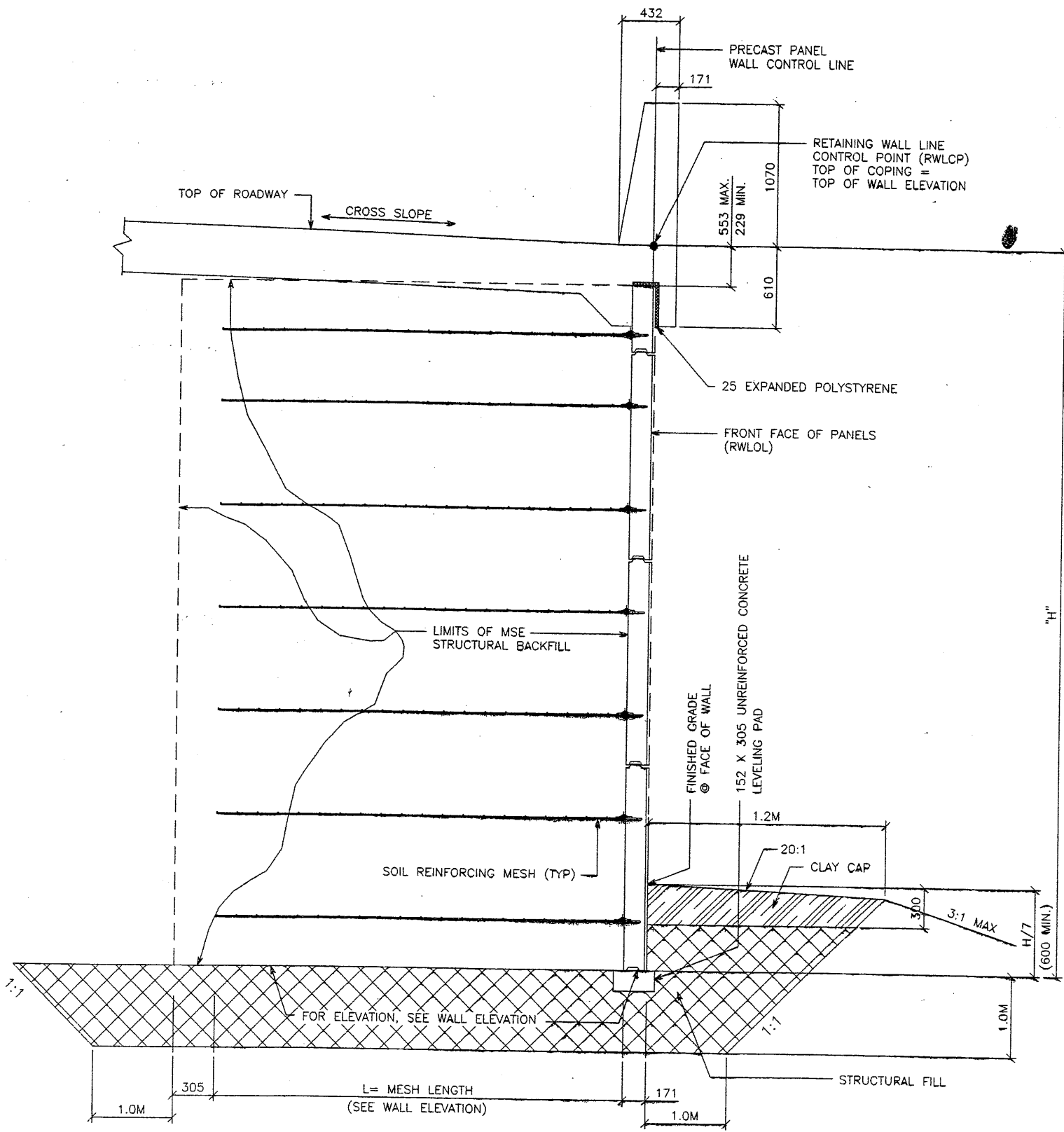
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RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-15"
 TYPICAL CROSS SECTION
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1.1R-342-15.6
 JOB NO:
 239-0007
 RE-4

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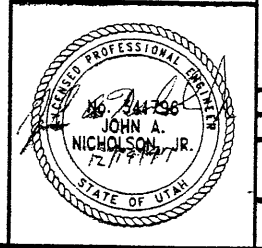
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TYPICAL CROSS SECTION - STA 1+126.466 TO 1+152.288
 TYPICAL CROSS SECTION - STA 1+375.000 TO 1+384.037
 (SEE DWG. NO. 1.1R-342+15.02 FOR ADDITIONAL INFORMATION)

SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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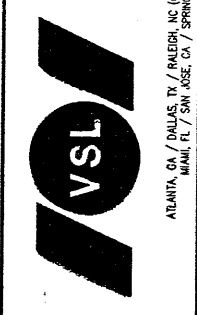
RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-15"
 TYPICAL CROSS SECTION
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
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 JOB NO:
 239-0007
 RE-5

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DES.	11-26-97							
DRN	11-26-97	DDO						
CHK	11-26-97	MM						

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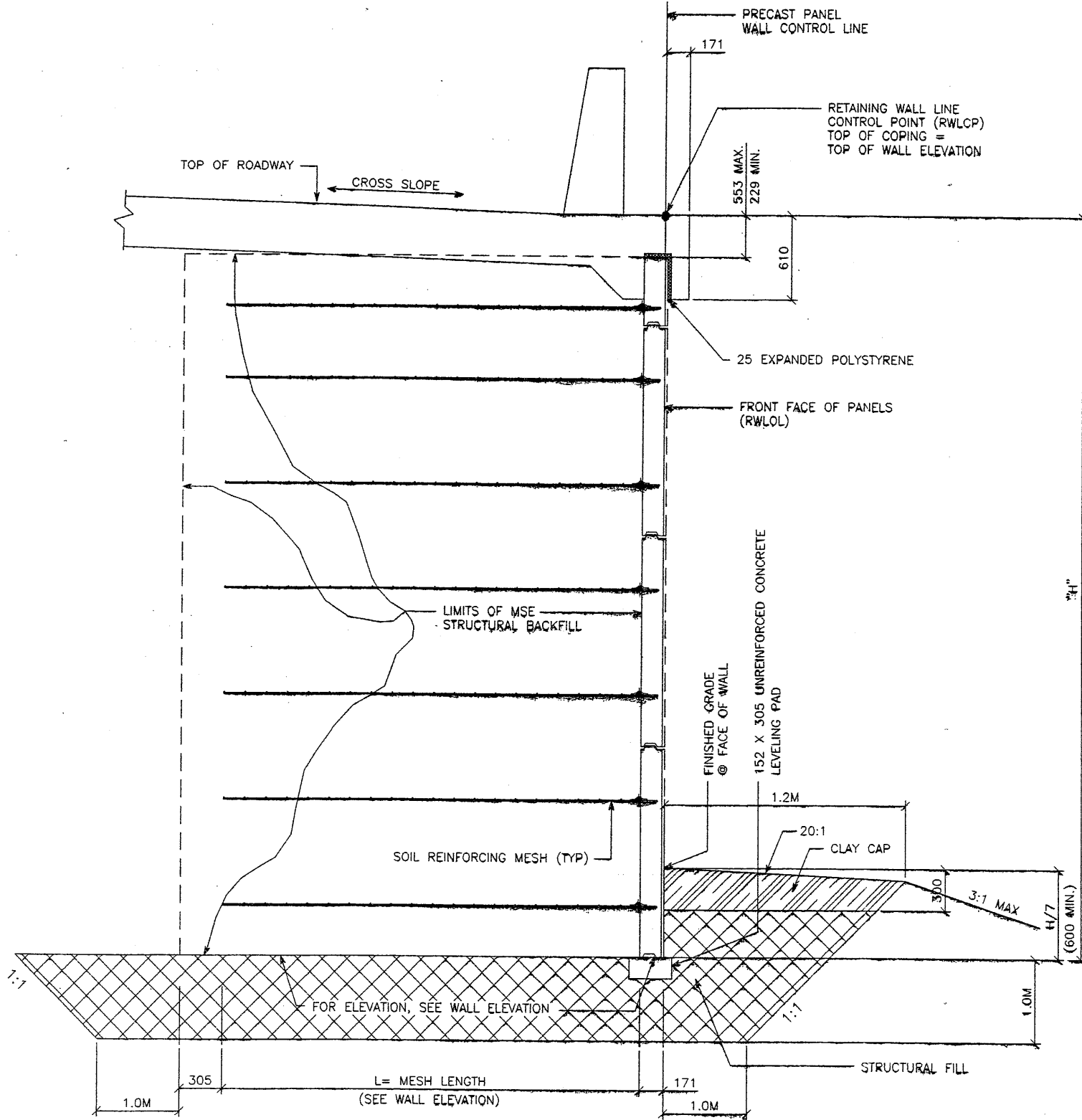


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7 OF 13

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FINAL PLOT 12-15-97



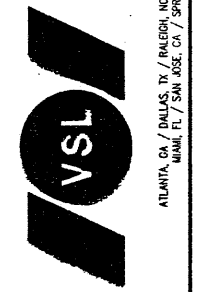
TYPICAL CROSS SECTION - STA 1+122.838 TO 1+126.466
TYPICAL CROSS SECTION - STA 1+384.037 TO 1+387.666
 (SEE DWG. NO. 1.1R-342+15.02 FOR ADDITIONAL INFORMATION)

SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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NO.	DATE	DESCRIPTION
1	12-15-97	RELEASE FOR CONSTRUCTION

DES.	MM	DDO	MM	NO.	DATE	REVISION	BY	CHK
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DRN. 11-26-97								
CHK. 11-26-97								

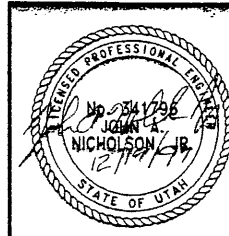
VSL CORPORATION
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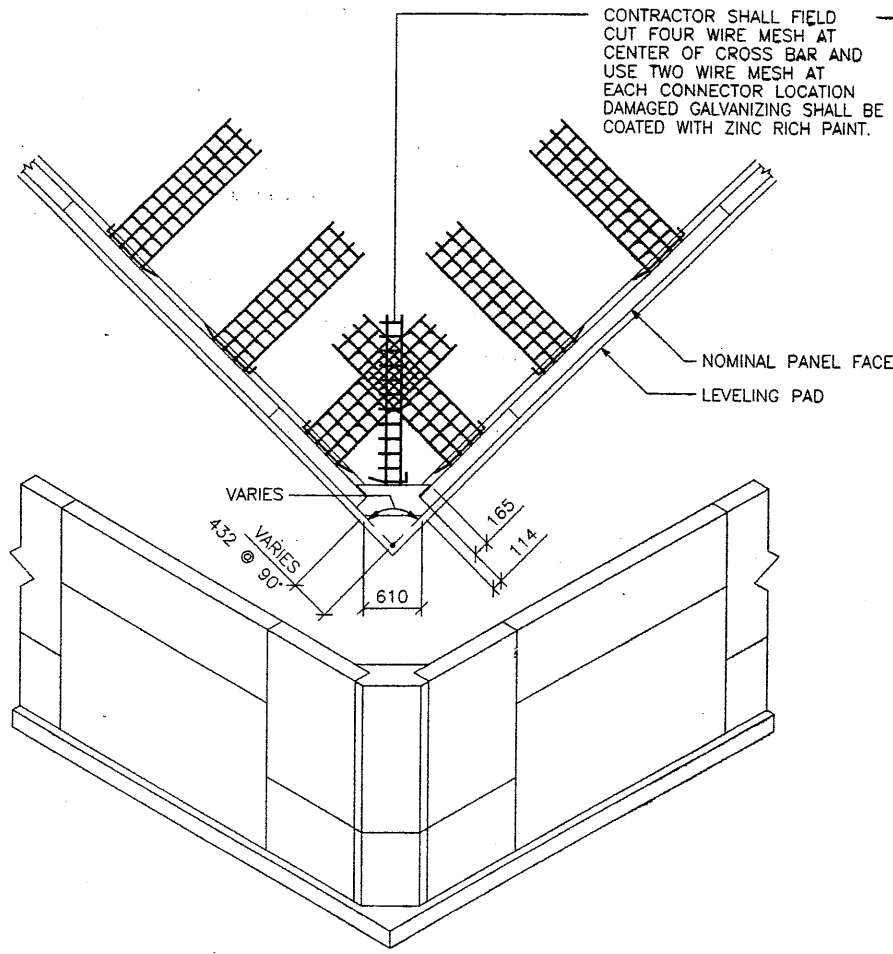


RETAINED EARTH™ WALLS
WIRE FACED WALL "R-342-15"
TYPICAL CROSS SECTION
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

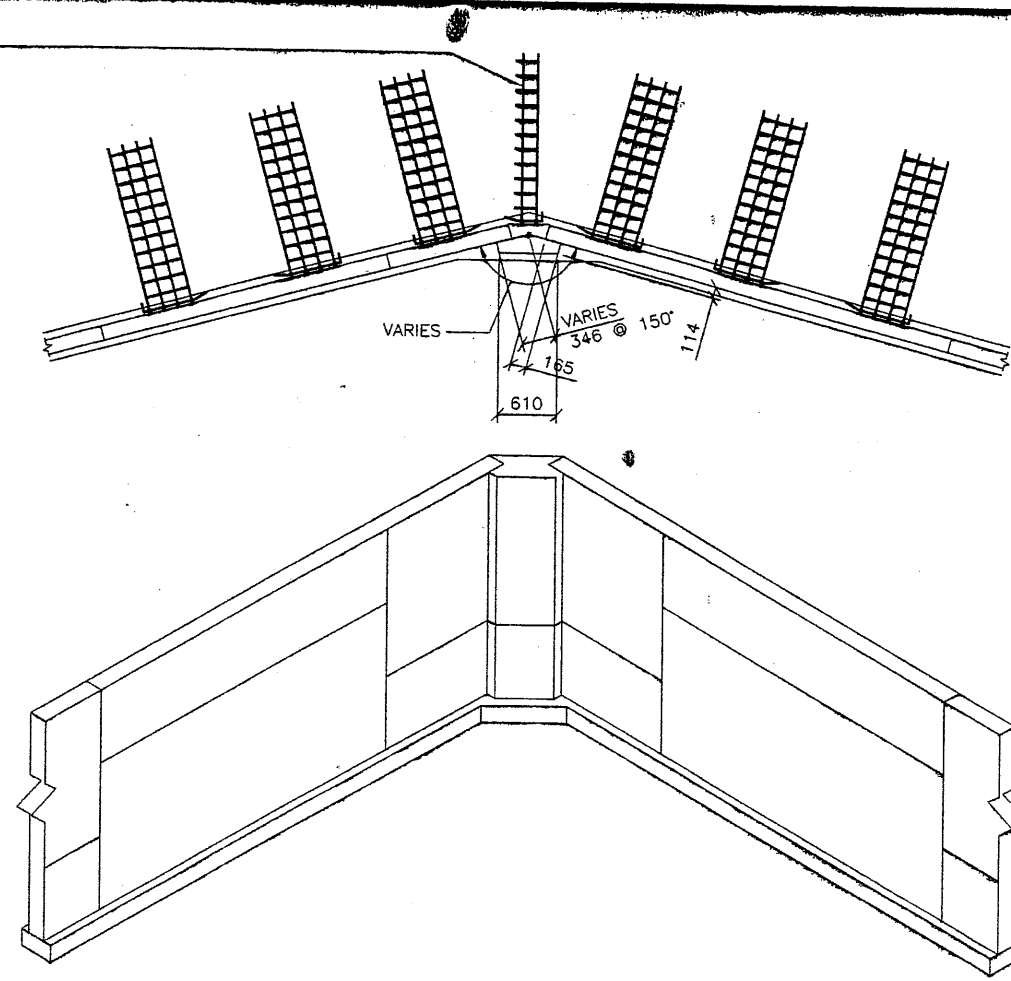
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JOB NO:	239-0007
	RE-6

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6 OF 13



80 OUTSIDE CORNER ELEMENT
PLAN VIEW / ISOMETRIC

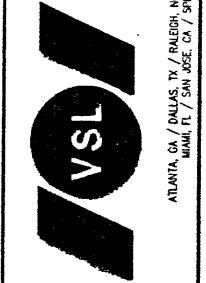


80 INSIDE CORNER ELEMENT
PLAN VIEW / ISOMETRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
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DES.	MM	DDO	MM	NO.	DATE	REVISION	CHK
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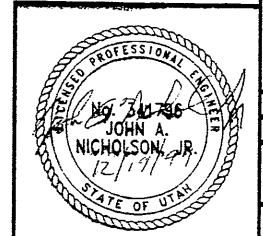
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RETAINED EARTH™ WALLS
PRECAST WALL "R-342-15"
SPECIAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

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JOB NO:	239-0007
	RE-7

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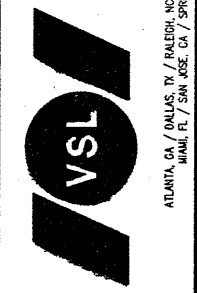
FINAL P1 12-15-97

12-15-97

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	12-15-97	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	MM	CHK.	NO.	DATE	REVISION	BY	CHK
DES. 11-26-97	MM	DRN. 11-26-97	DDO	CHK. 11-26-97					

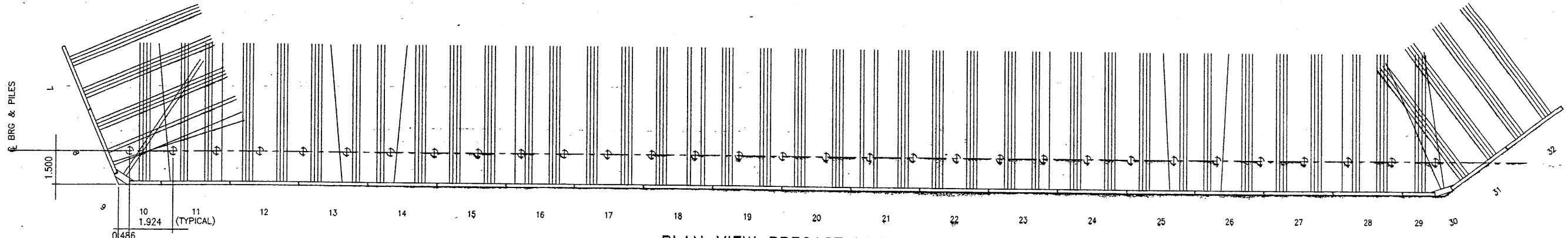
VSL CORPORATION
 2540 Pasa Plaza, Suite 200
 Raleigh, NC (919) 781-6272
 Fax (919) 781-4659



RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-15"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

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JOB NO:	239-0007
	RE-9

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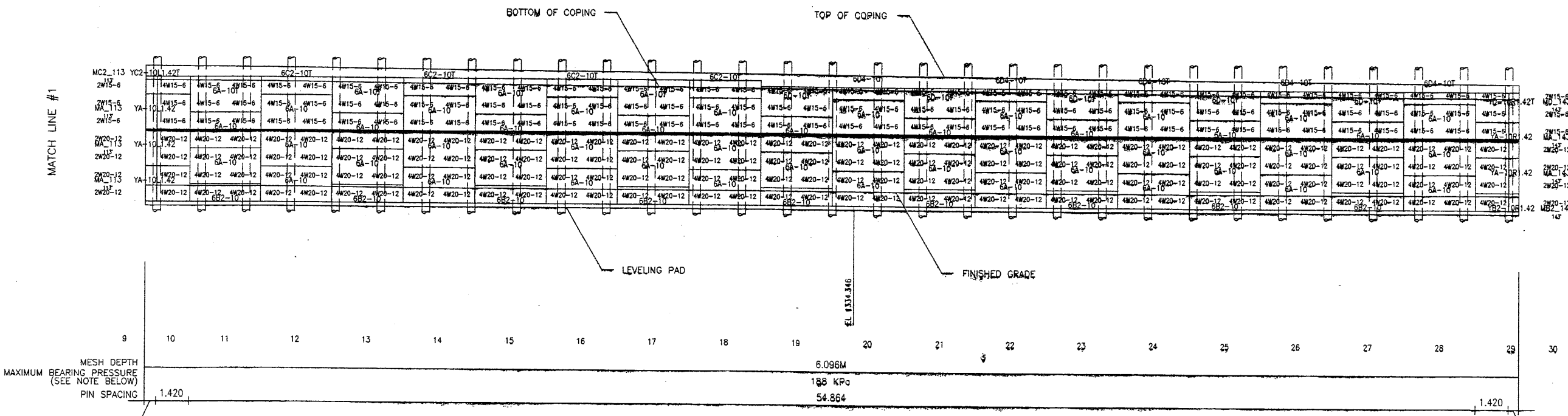
PLAN VIEW PRECAST WALL R-342-15

PRECAST WALL PT STA 1+398.296
 = 1-15 STA 9+981.134 (26.006 LT)
 = 106-A1 STA 1+400.268 (9.638 RT)
 NOMINAL PANEL FACE (RWLOL)

PRECAST WALL PT STA 1+111.321
 = 1-15 STA 10+039.624 (26.006 LT)
 = 106-A1 STA 1+111.321 (9.638 RT)
 NOMINAL PANEL FACE (RWLOL)

STA 9+981.134 EL. 1340.150	STA 9+985.000 EL. 1340.124	STA 9+990.000 EL. 1340.090	STA 9+995.000 EL. 1340.055	STA 10+000.000 EL. 1340.021	STA 10+005.000 EL. 1339.987	STA 10+010.000 EL. 1339.953	STA 10+015.000 EL. 1339.919	STA 10+020.000 EL. 1339.885	STA 10+025.000 EL. 1339.851	STA 10+030.000 EL. 1339.817	STA 10+035.000 EL. 1339.783	STA 10+039.624 EL. 1339.750
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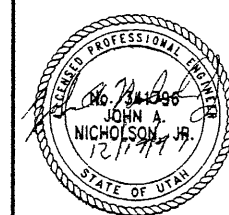
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ELEVATION PRECAST WALL R-342-15
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 572.21 SM) SCALE 1:200 (HALF SIZE)

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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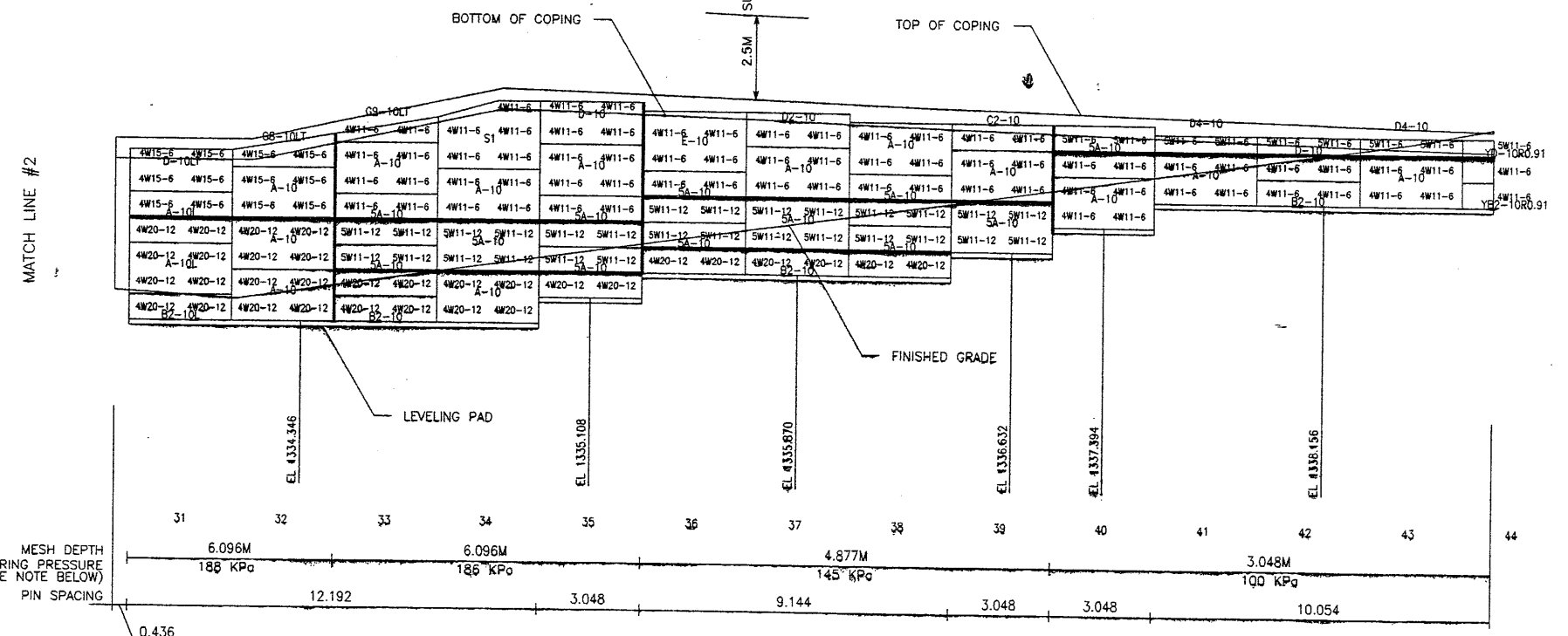
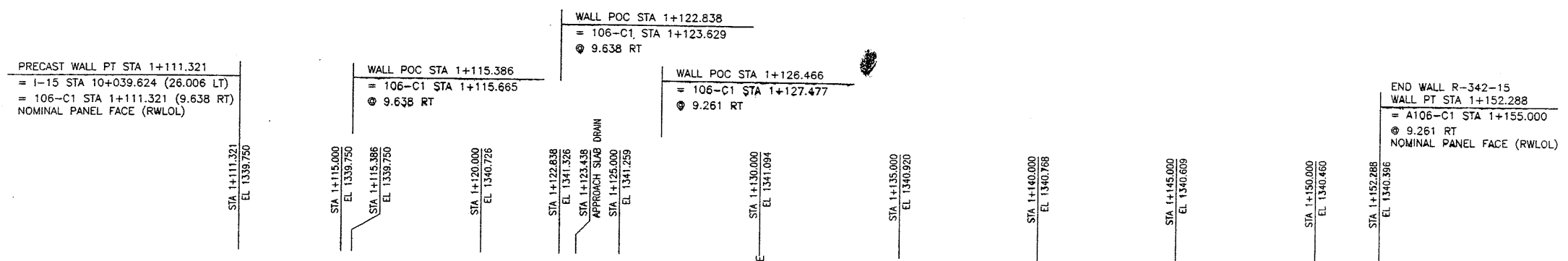
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12-15-97

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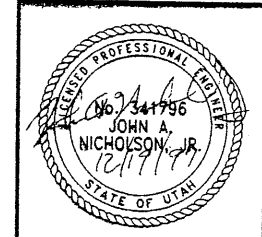
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	12-15-97	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL R-342-15
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 572.21 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

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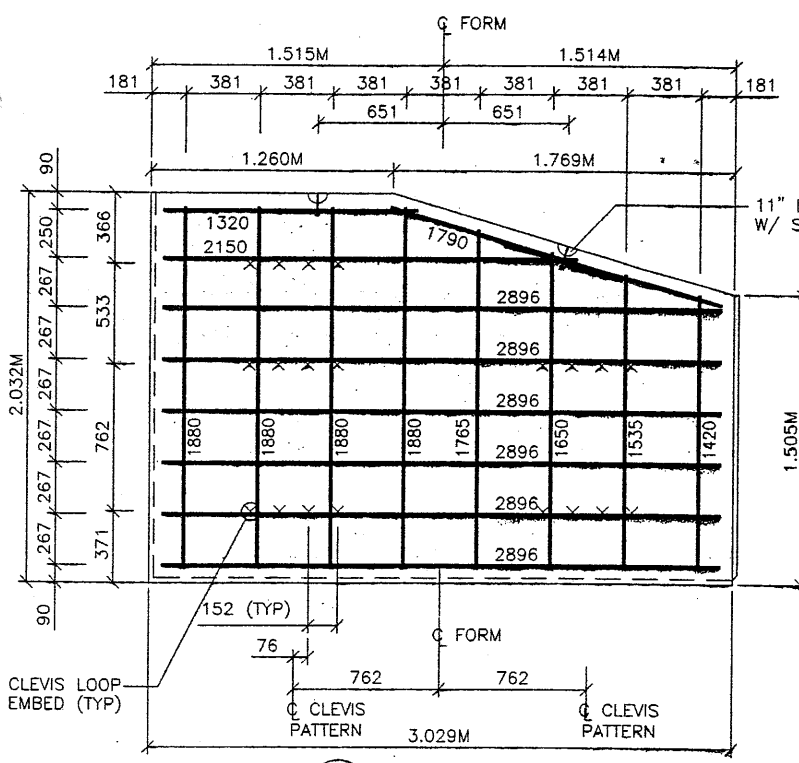


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 JAN 13 1998
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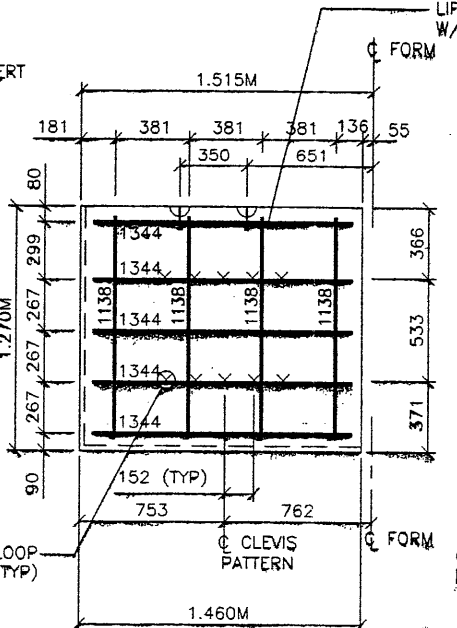
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DRN.	11-26-97	DDO					
CHK.	11-26-97	MM					
<p>VSL CORPORATION 2840 Peach Plaza, Suite 200 Raleigh, NC 27607 Telephone: (919) 761-6272 Fax: (919) 761-4869</p> <p>ALUMIA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE) MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA</p>							
<p>RETAINED EARTH™ WALLS PRECAST WALL "R-342-15" UTAH I-15 INTERCHANGE SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.</p>							
<p>SCALE: 1.1R-342-15.12 JOB NO: 239-0007 RE-10</p>							

12 OF 13

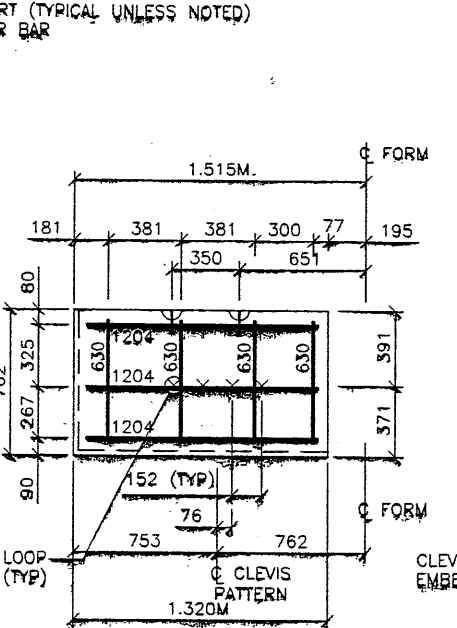
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NO.	DATE	DESCRIPTION
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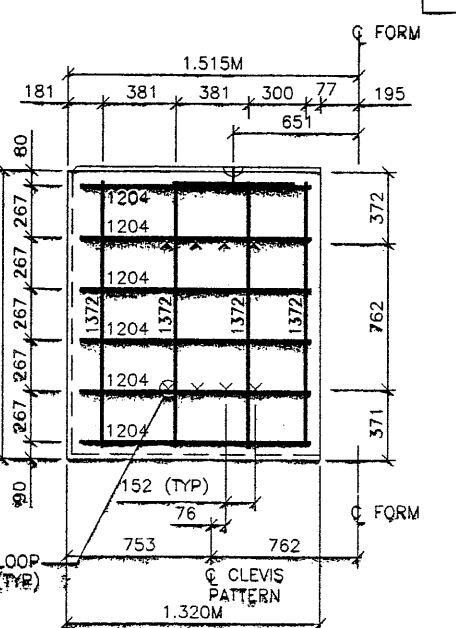
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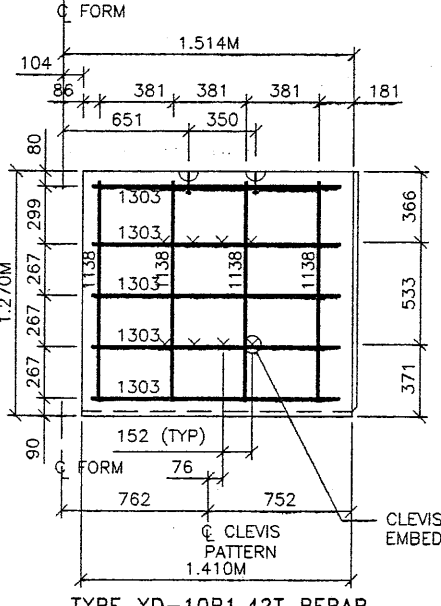
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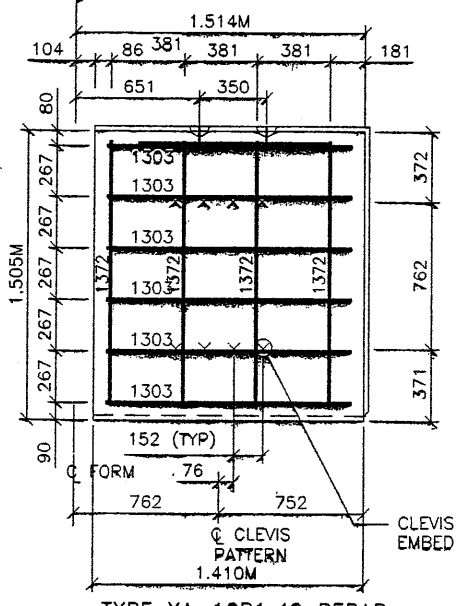
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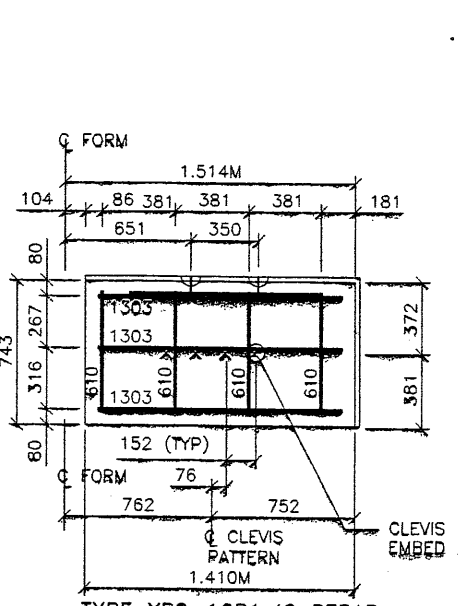
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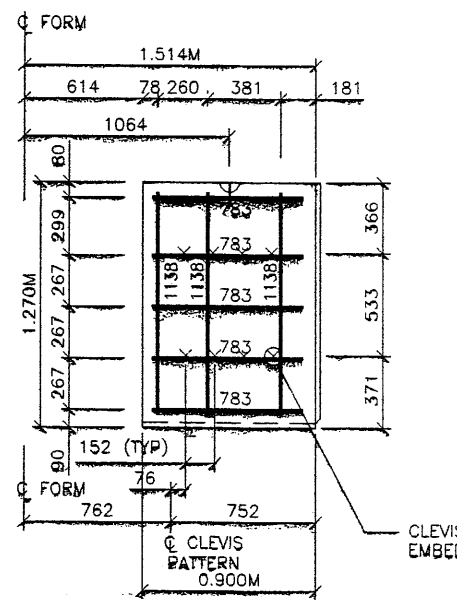
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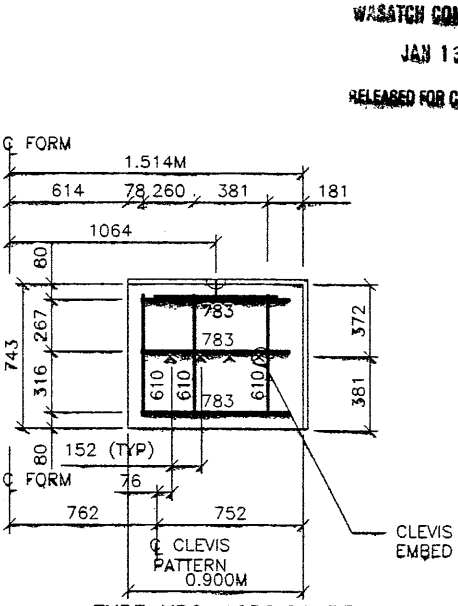
TYPE YA-10R1.42 REBAR
(AREA = 2.16 SQ.M)



TYPE YB2-10R1.42 REBAR
(AREA = 1.08 SQ.M)



TYPE YD-10R0.91 REBAR
(AREA = 1.16 SQ.M)

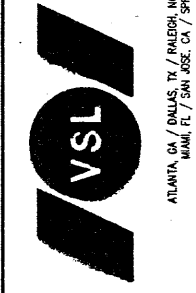


TYPE YB2-10R0.91 REBAR
(AREA = 0.69 SQ.M)

- 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.

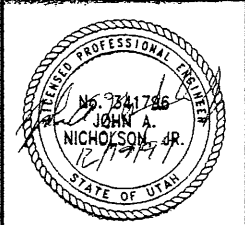
6. ALL REINFORCING STEEL TO BE GALVANIZED IN ACCORDANCE WITH ASTM 767 CLASS 1.
7. CONCRETE PANELS TO HAVE 28 DAY COMPRESSIVE STRENGTH OF 27,500 KPa.
8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
9. ALL PANELS TO USE 9.5mmØ CLEVIS LOOPS.
10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
11. SEE SHT NO. STD-1 FOR CLEVIS LOOP AND LIFT INSERT DETAILS.
12. 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
JAN 13 1998
RELEASED FOR CONSTRUCTION



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RETAINED EARTH™ WALLS
SPECIAL PANEL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



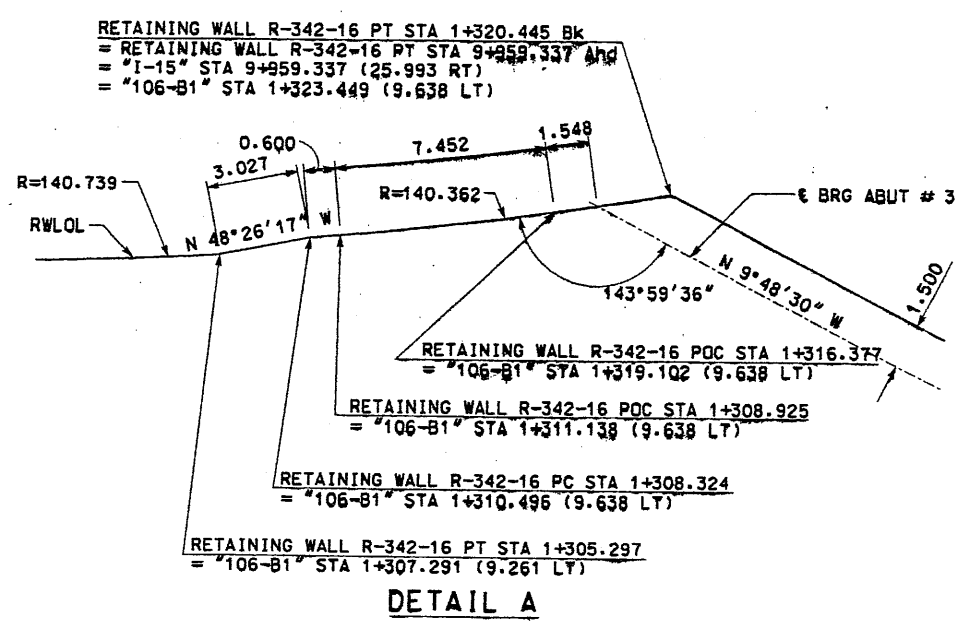
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

SCALE:	1:1R-342-15.13
JOB NO.:	239-0007
RE-11	

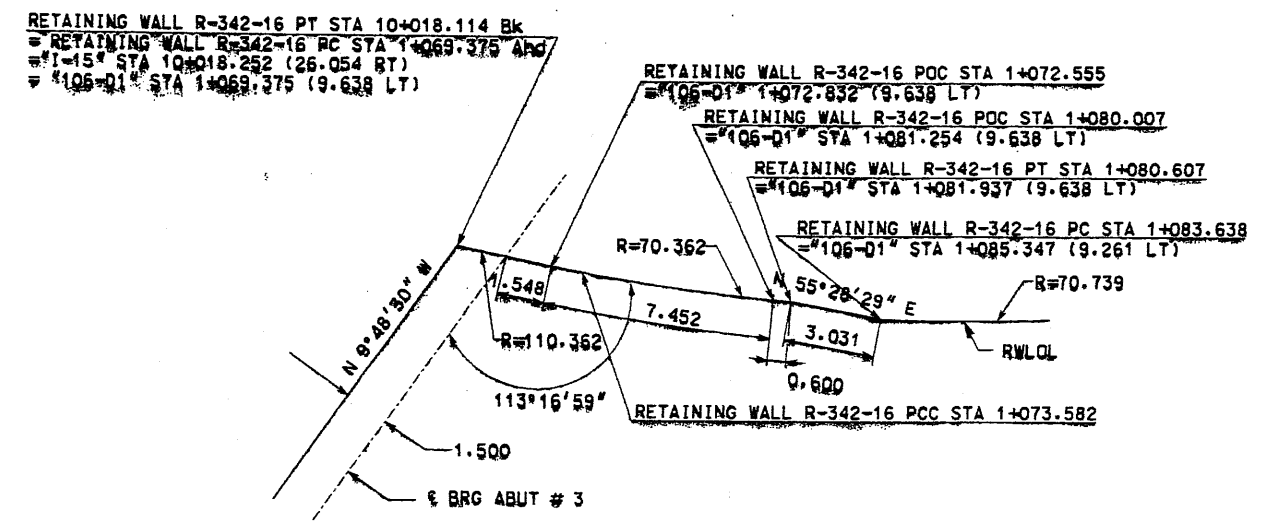
13 OF 13

Date: 08 JAN 98 Time: 15:16:59 Username: jlwang

Filename: I:\400-07\Z\mgcf\linal\wall116p.dgn

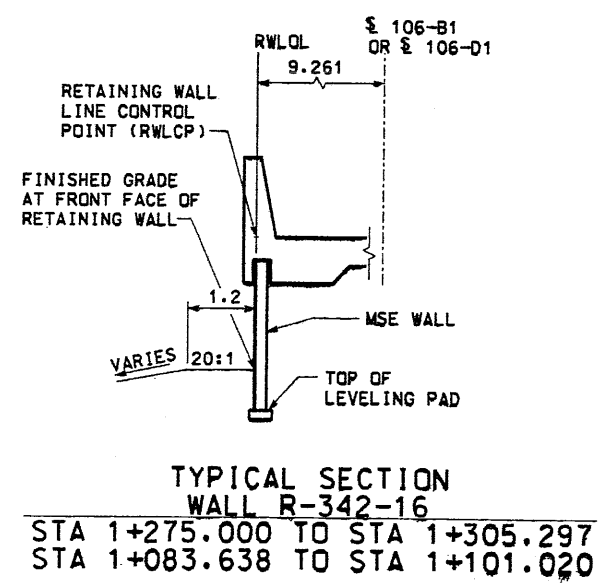


DETAIL A



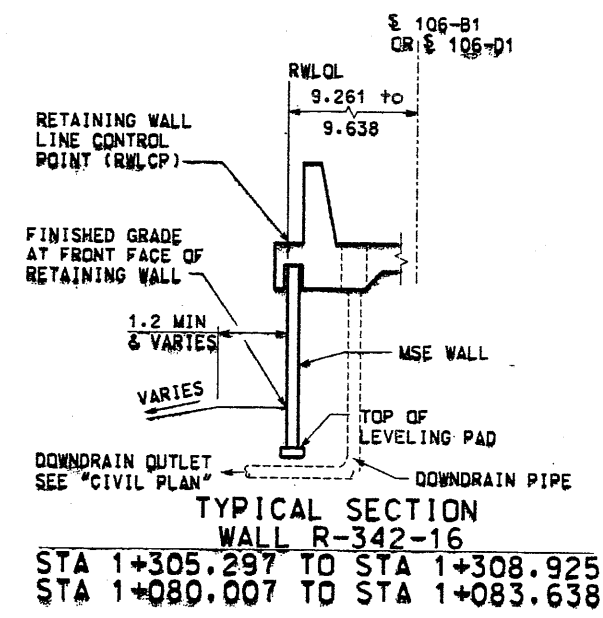
DETAIL B

WASATCH CONSTRUCTORS
JAN 13 1998
RELEASED FOR CONSTRUCTION



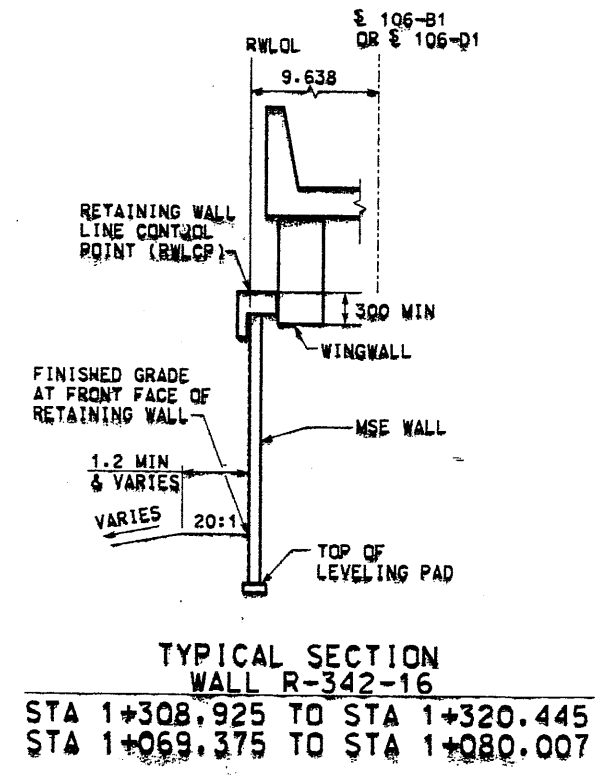
TYPICAL SECTION WALL R-342-16

STA 1+275.000 TO STA 1+305.297
STA 1+083.638 TO STA 1+101.020



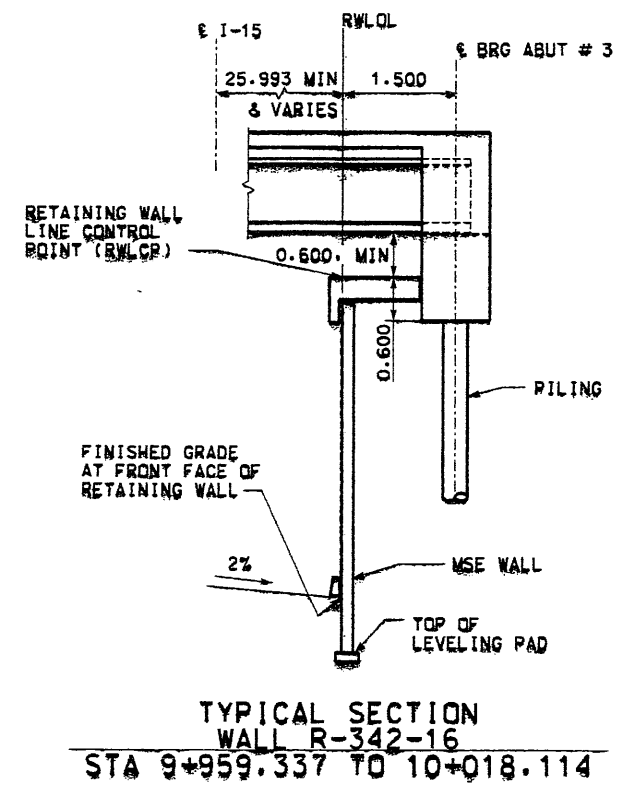
TYPICAL SECTION WALL R-342-16

STA 1+305.297 TO STA 1+308.925
STA 1+080.007 TO STA 1+083.638



TYPICAL SECTION WALL R-342-16

STA 1+308.925 TO STA 1+320.445
STA 1+069.375 TO STA 1+080.007



TYPICAL SECTION WALL R-342-16

STA 9+959.337 TO 10+018.114

NOTE: FOR COPING AND MOMENT SLAB DETAILS, SEE I-15 CORRIDOR STANDARD

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE FOR CONSTRUCTION	
1	1/7/98		
UTAH DEPARTMENT OF TRANSPORTATION			
SVERDRUP/DE LEUW		1/12/98	
DESIGN	JL	CHECK	VT
DRAWN	JL	CHECK	VT
QUANT.		CHECK	
PROJECT DESIGN ENGINEER	DATE	PROJECT DESIGN ENGINEER	DATE
PROJECT MANAGER	DATE	PROJECT MANAGER	DATE
I-15 CORRIDOR RECONSTRUCTION	SALT LAKE COUNTY		
SITUATION & LAYOUT SHEET # WALL R-342-16	112-392-16.02		
SECTION 1.1	DWG. NO. 112-392-16.02		
PROJECT #SP-15-7(135)296	SHT. 2 OF 13		
	REF.		



DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 30°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF.	
TRAFFIC SURCHARGE = 250 PSF	
SEISMIC ACCELERATION COFF. = 0.25g (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	

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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 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 SHEET RE-3 FOR DETAIL.

PRECAST WALL STA 1+320.445
= I-15 STA 9+959.337 (25.993 RT)
= 106-B1 STA 1+323.449 (9.638 LT)

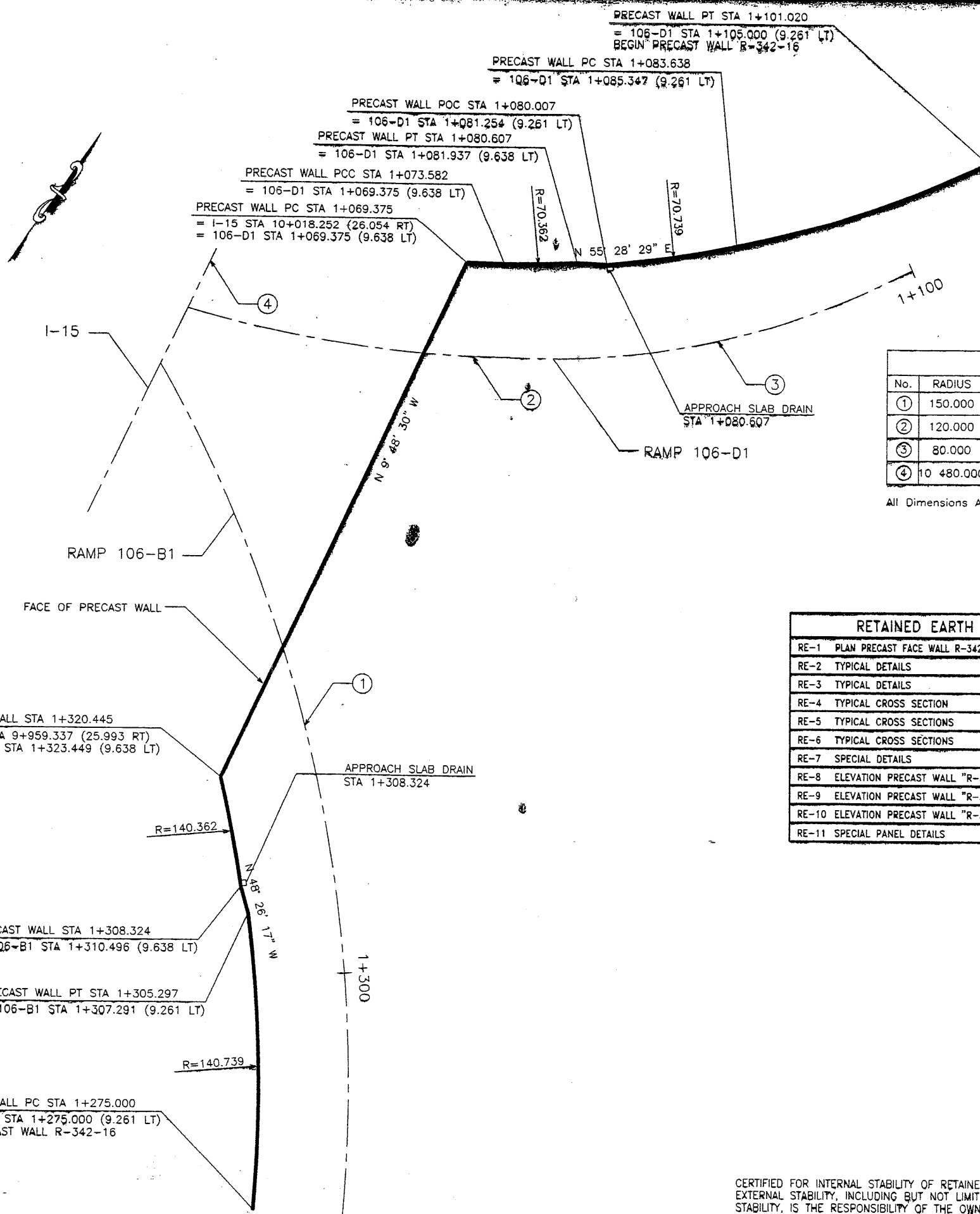
PRECAST WALL STA 1+308.324
= 106-B1 STA 1+310.496 (9.638 LT)

PRECAST WALL PT STA 1+305.297
= 106-B1 STA 1+307.291 (9.261 LT)

PRECAST WALL PC STA 1+275.000
= 106-B1 STA 1+275.000 (9.261 LT)
END PRECAST WALL R-342-16

PLAN VIEW WALL "R-342-16"

SCALE: 1=250 (FULL SIZE)
SCALE: 1=500 (HALF SIZE)



CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	150.000	236.221	150.603	90°13'48" R
②	120.000	73.950	38.191	35°18'30" R
③	80.000	110.706	66.284	79°17'14" R
④	480.000	1969.615	987.717	10°46'15" R

All Dimensions Are In Meters Unless Noted Otherwise

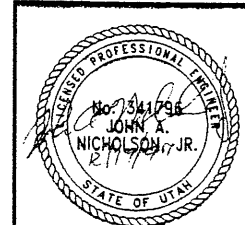
RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-342-15, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTION
RE-5	TYPICAL CROSS SECTIONS
RE-6	TYPICAL CROSS SECTIONS
RE-7	SPECIAL DETAILS
RE-8	ELEVATION PRECAST WALL "R-342-16"
RE-9	ELEVATION PRECAST WALL "R-342-16"
RE-10	ELEVATION PRECAST WALL "R-342-16"
RE-11	SPECIAL PANEL DETAILS

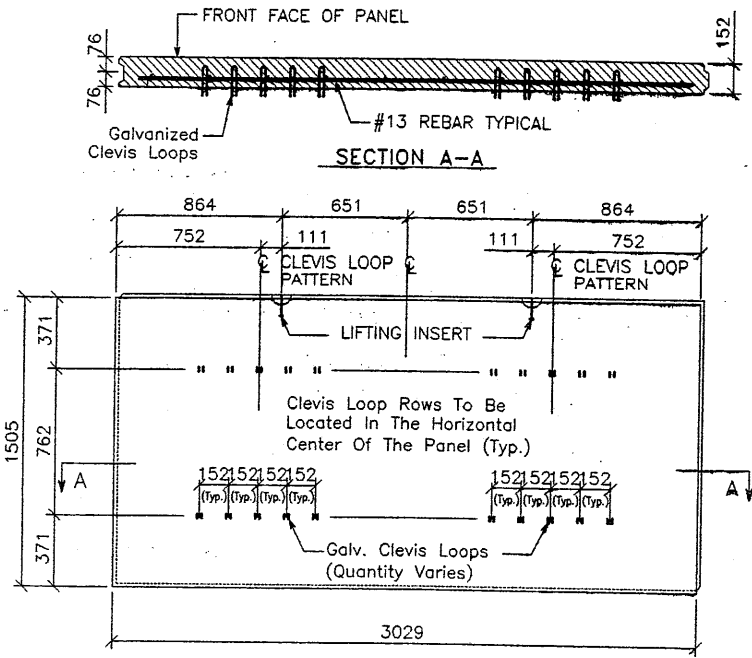
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	12-15-97	RELEASE FOR CONSTRUCTION

WATCH CONSTRUCTORS
JAN 13 1998
RELEASED FOR CONSTRUCTION

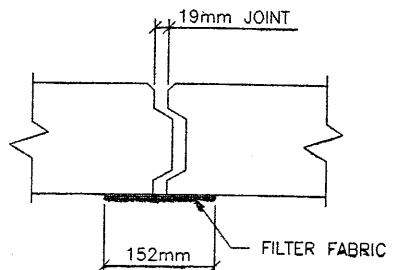
DES: 11-26-97	MM	NO.	CHK
DRN: 11-26-97	LOP	NO.	CHK
CHK: 11-26-97	MM	NO.	CHK
RETAINED EARTH™			
VSL CORPORATION 2840 Plaza Place, Suite 200 Raleigh, NC 27617 Telephone: (919) 761-6272 Facsimile: (919) 761-1669			
ATLANTA, GA / DALLAS, TX / FALCON, NC (CORPORATE OFFICE) MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA			
<p>RETAINED EARTH™ WALLS PLAN VIEW PRECAST WALL "R-342-16"</p> <p>UTAH I-15 INTERCHANGE SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.</p>			
SCALE: 1.1R-342-16.3			
JOB NO: 239-0007			
RE-1			

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.

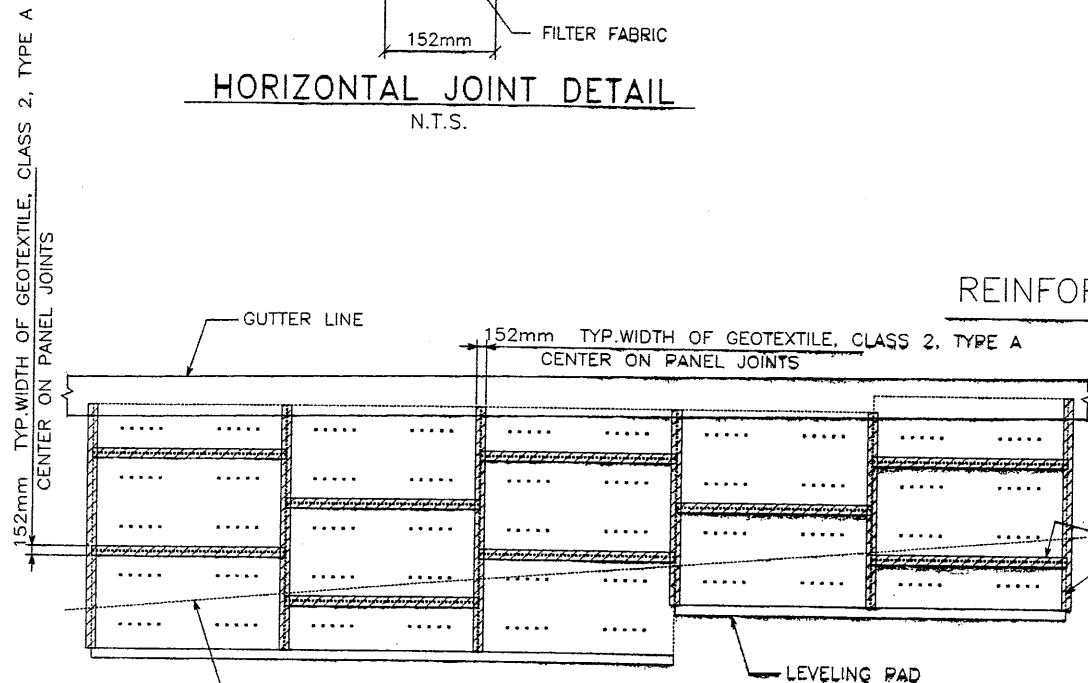




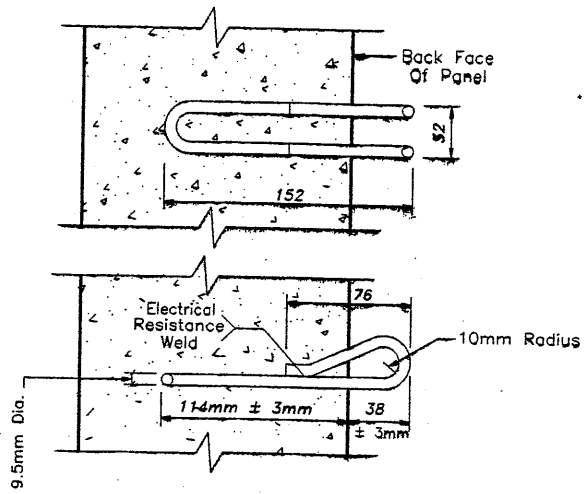
STANDARD "5A-10" PANEL Back Face View



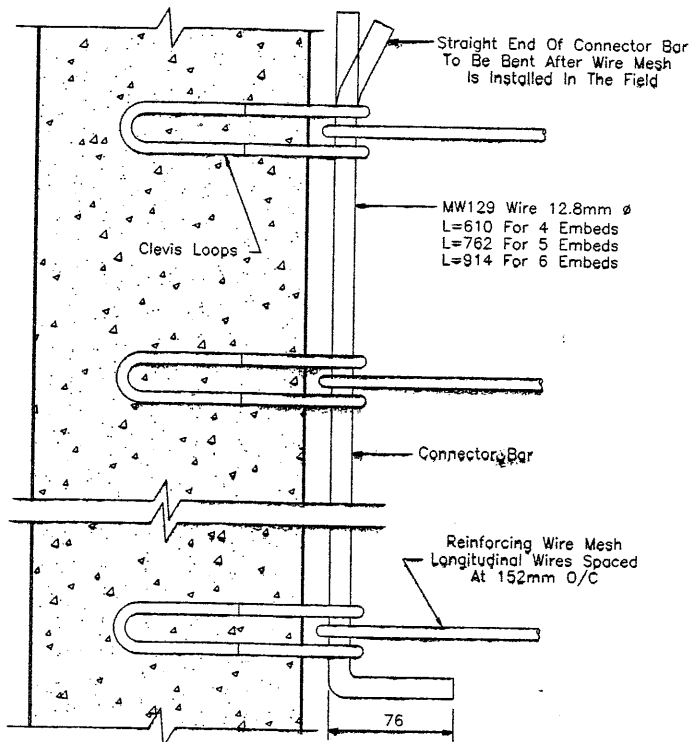
HORIZONTAL JOINT DETAIL N.T.S.



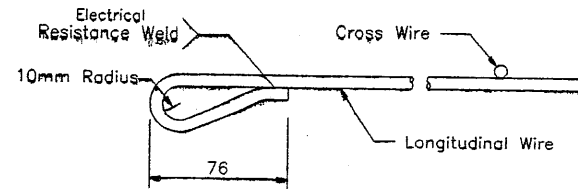
PARTIAL WALL ELEVATION



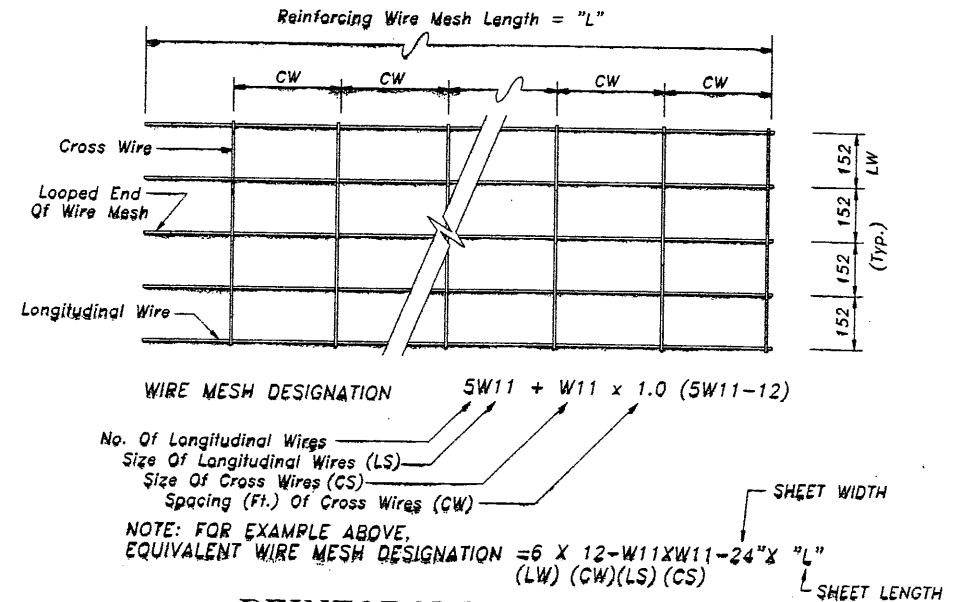
CLEVIS LOOP DETAIL N.T.S.



REINFORCING MESH CONNECTION DETAIL N.T.S.



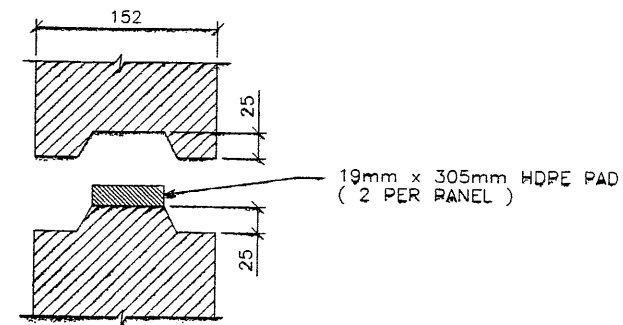
WIRE MESH LOOP DETAIL N.T.S.



NOTE: FOR EXAMPLE ABOVE, EQUIVALENT WIRE MESH DESIGNATION = 6 X 12-W11XW11-24" X "L" (LW) (CW)(LS) (CS)

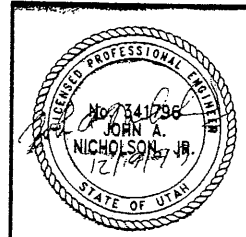
REINFORCING MESH DETAIL

NOTE: W11 (71 sq mm) And W20 (129 sq mm) Steel Wire Material And Welding Of Cross Wires And Loops Shall Conform To ASTM A82 And ASTM 185, Fy = 448 MPa. Mesh Shall Be Galvanized To ASTM A-125 To A Minimum Effective Thickness Of 0.085 mm. WABATCH CONSTRUCTORS JAN 13 1998 RELEASED FOR CONSTRUCTION



PANEL JOINT DETAIL N.T.S.

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
12-15-97		RELEASE FOR CONSTRUCTION

DES. 11-26-97 MM
 DRN. 11-26-97 LOP
 CHK. 11-26-97 MM

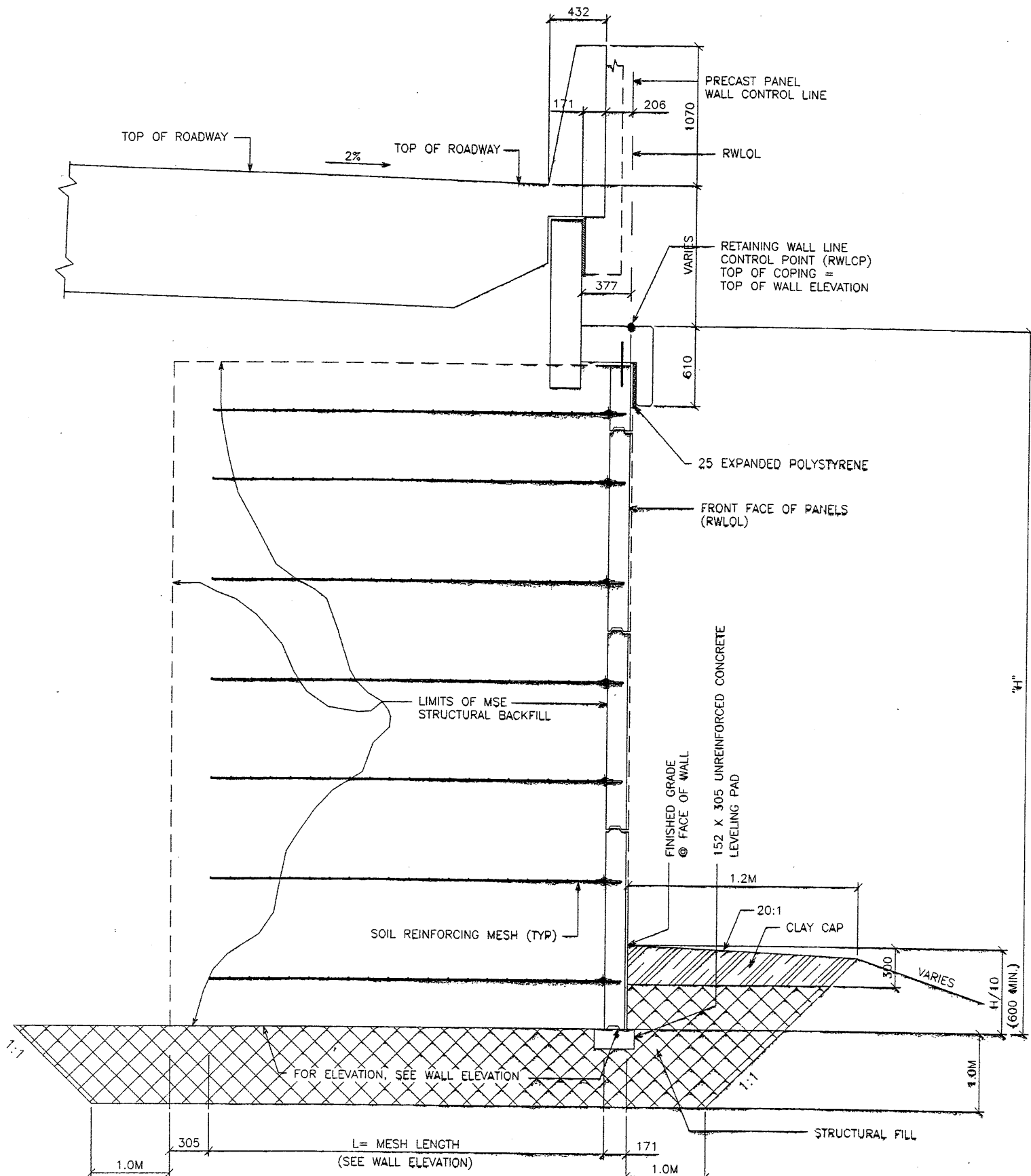
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 791-6872
 Fax: (919) 791-6869

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

RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-16"
 TYPICAL DETAILS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1.1R-342-16.4
 JOB NO:
 239-0007
 RE-2

4 OK 13

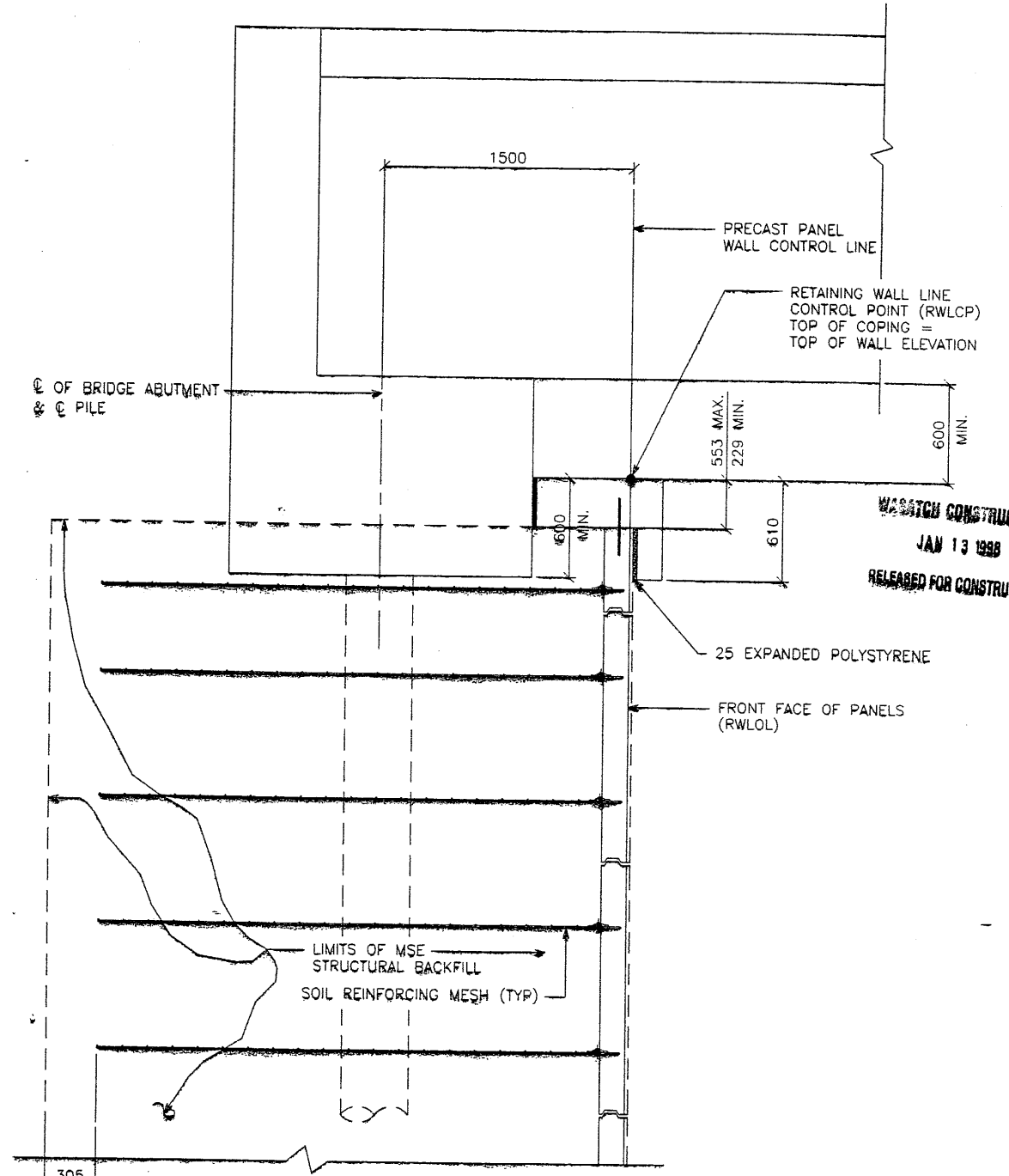


TYPICAL CROSS SECTION - STA 1+308.925 TO 1+320.445
 TYPICAL CROSS SECTION - STA 1+609.375 TO 1+080.007

(SEE DWG. NO. 1.1R-342-15.02 FOR ADDITIONAL INFORMATION)

SCALE: 1:20 (FULL SIZE)

SCALE: 1:40 (HALF SIZE)



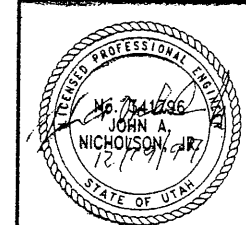
TYPICAL CROSS SECTION - STA 9+959.337 TO 10+018.114

(SEE DWG. NO. 1.1R-342-15.02 FOR ADDITIONAL INFORMATION)

SCALE: 1:20 (FULL SIZE)

SCALE: 1:40 (HALF SIZE)

METRIC

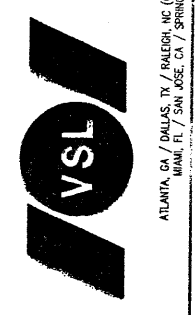


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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	12-15-97	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
11-26-97	11-26-97	11-26-97	✓					

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

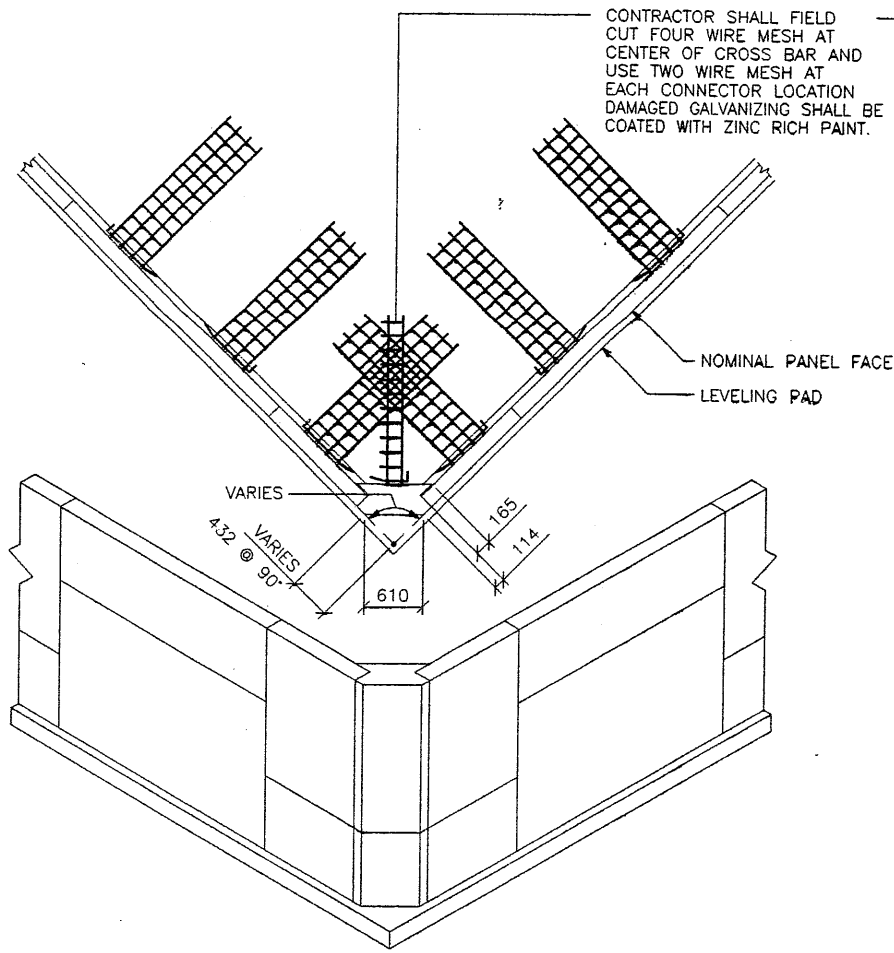


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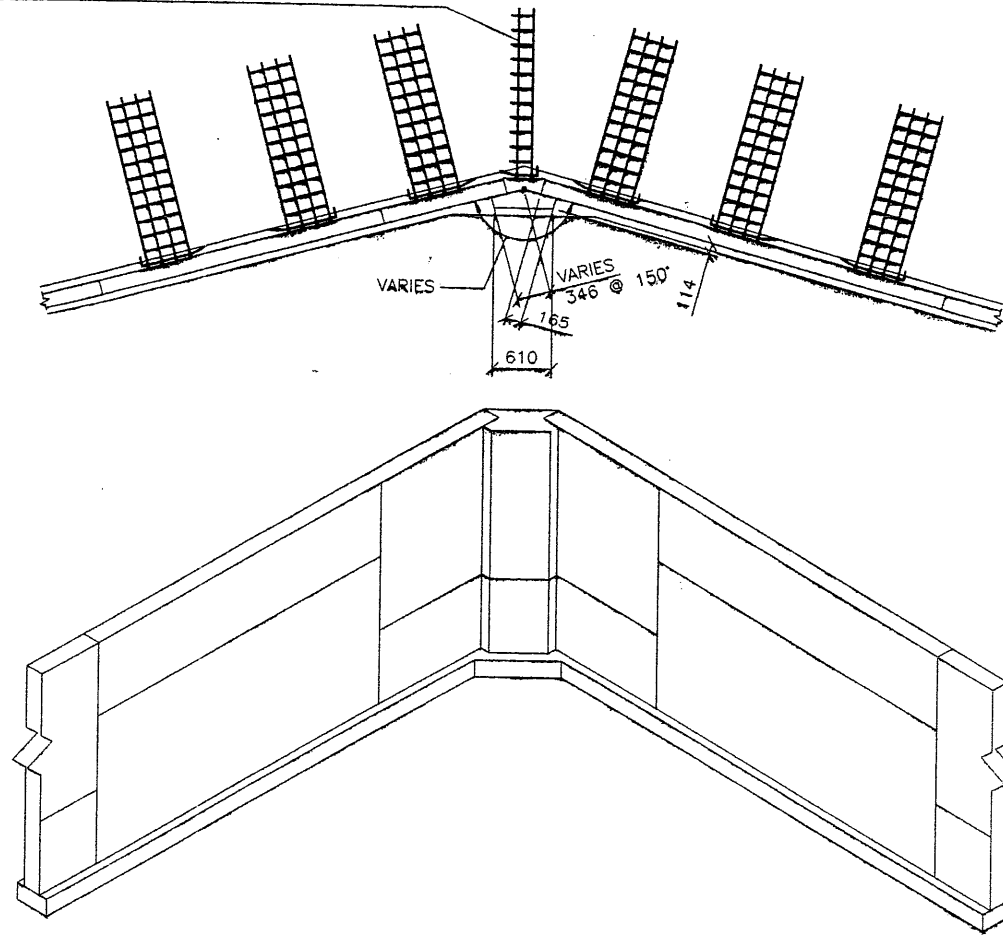
RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-342-16"
 TYPICAL CROSS SECTION
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:	1.1R-342-16.6
JOB NO:	239-0007
	RE-4

4013



80 **OUTSIDE CORNER ELEMENT**
PLAN VIEW / ISOMETRIC



80 **INSIDE CORNER ELEMENT**
PLAN VIEW / ISOMETRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	12-15-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY / CHK

VSL CORPORATION
2810 Plaza Drive, Suite 200
Raleigh, NC 27607
Telephone: (919) 781-6272
Fax: (919) 781-4869

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

VSL

WASATCH CONSTRUCTORS
JAN 13 1998
RELEASED FOR CONSTRUCTION

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RETAINED EARTH™ WALLS
PRECAST WALL "R-342-16"
SPECIAL DETAILS

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

METRIC

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SCALE: 1.1R-342-16.9

JOB NO: 239-0007

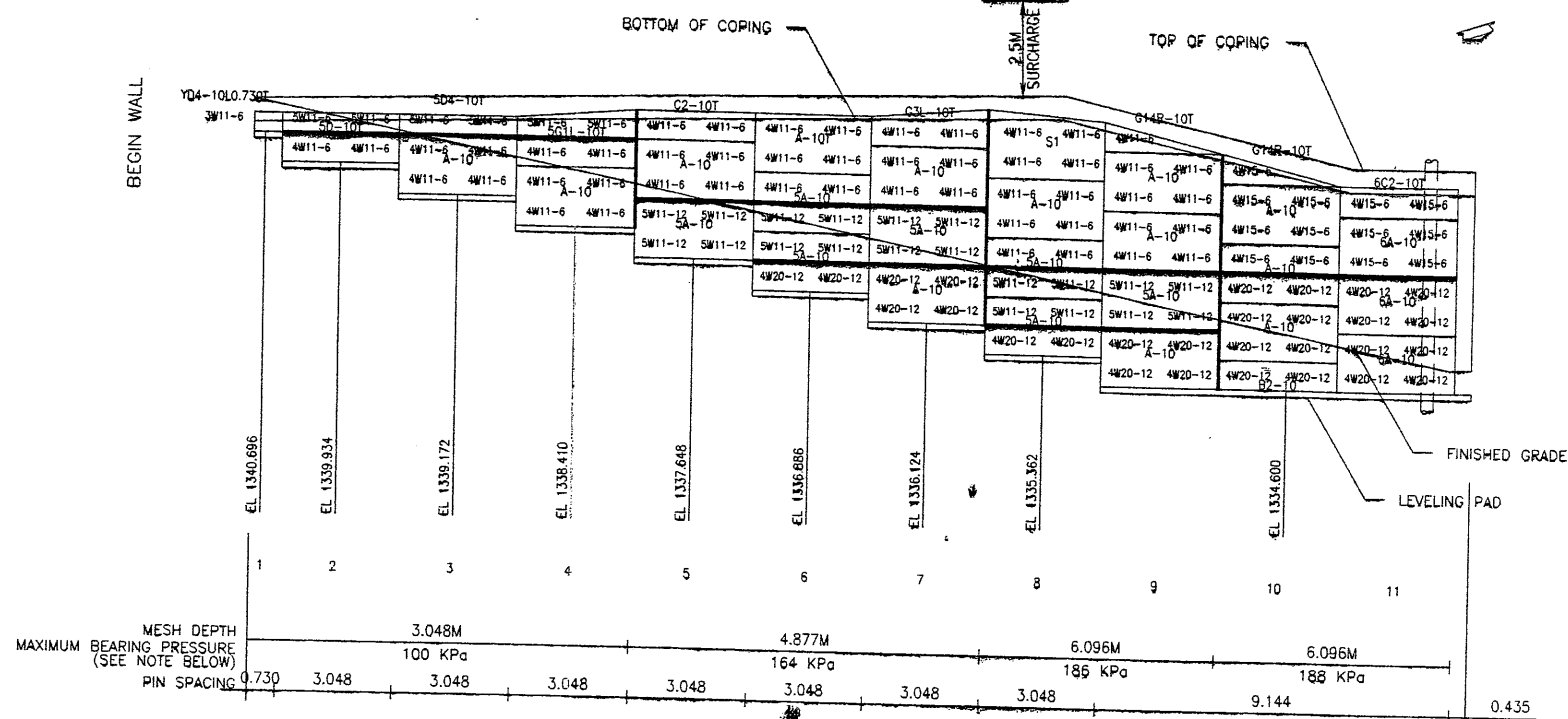
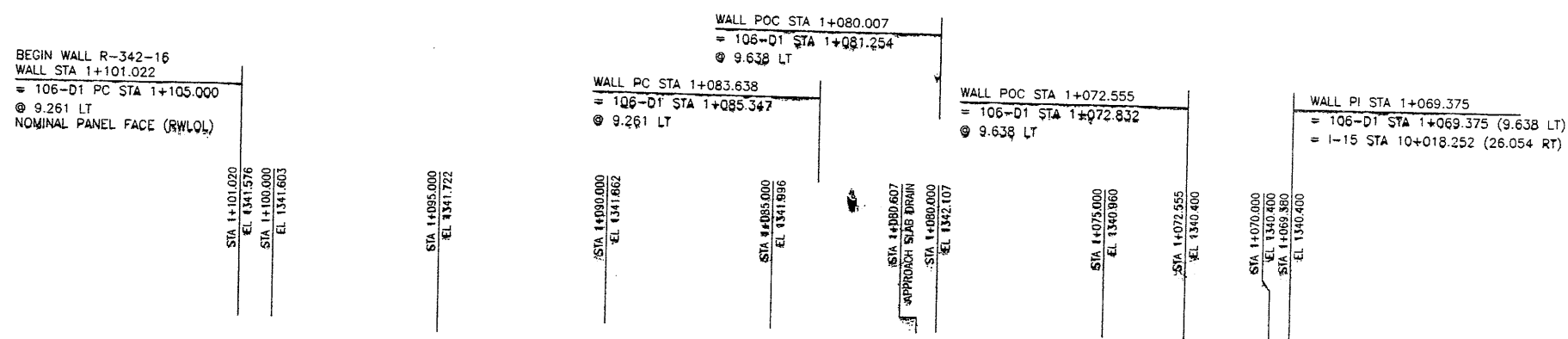
1988\90SERIES\9

H:\RE_EARTH\PROJECT\239-0007\1998\90SERIES\9

1-15-97

FINAL PL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
12-15-97		RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL R-342-16
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 874.81 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.

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.

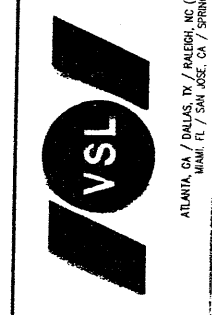
WASATCH CONSTRUCTORS
 JAN 13 1998
 RELEASED FOR CONSTRUCTION

METRIC

RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-16"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE: 1:1R-342-16.10
 JOB NO: 239-0007

VSL CORPORATION
 2650 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4669



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DES.	DRN.	CHK.	MM	LOP	MM	NO.	DATE	REVISION	BY	CHK
			11-26-97							
			11-26-97							
			11-26-97							

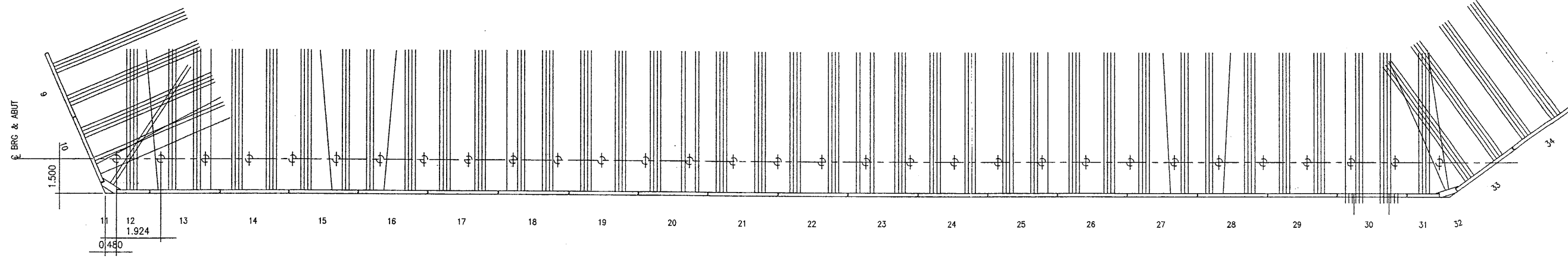
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12-15-97

FINAL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	12-15-97	RELEASE FOR CONSTRUCTION
△	04-28-98	REVISED CORNER PANELS & MESH LENGTH



WALL PI STA 1+069.375
 = 106-D1 STA 1+069.375 (9.638 LT)
 = 1-15 STA 10+018.252 (26.054 RT)

WALL PI STA 1+320.445
 = 106-B1 STA 1+323.449 (9.638 LT)
 = 1-15 STA 9+959.337 (25.993 RT)

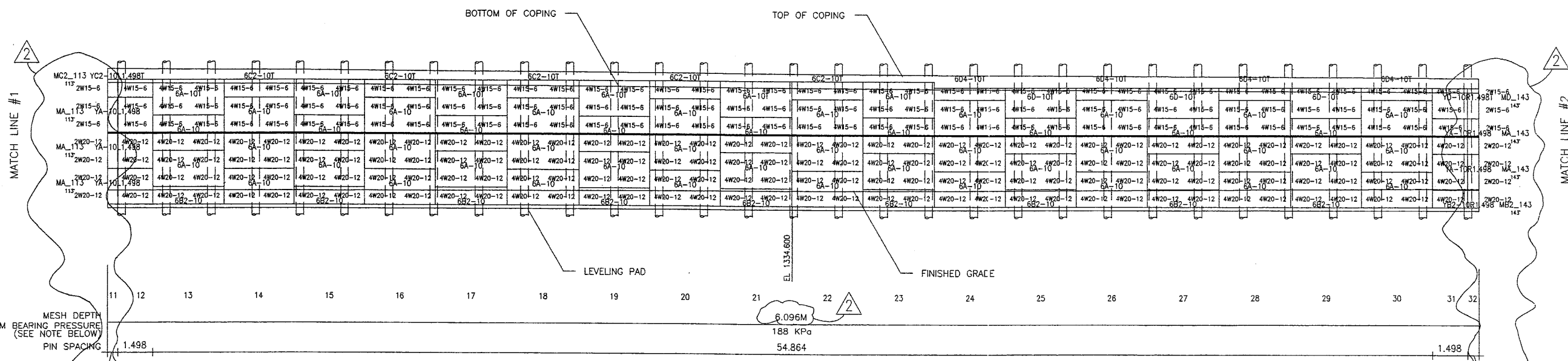
STA 10+018.114 EL. 1340.400	STA 10+015.000 EL. 1340.384	STA 10+010.000 EL. 1340.359	STA 10+005.000 EL. 1340.333	STA 10+000.000 EL. 1340.308	STA 9+995.000 EL. 1340.282	STA 9+990.000 EL. 1340.257	STA 9+985.000 EL. 1340.231	STA 9+980.000 EL. 1340.205	STA 9+975.000 EL. 1340.180	STA 9+970.000 EL. 1340.154	STA 9+965.000 EL. 1340.129	STA 9+959.340 EL. 1340.100
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WASATCH CONSTRUCTORS
 APR 29 1998
 RELEASED FOR CONSTRUCTION

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



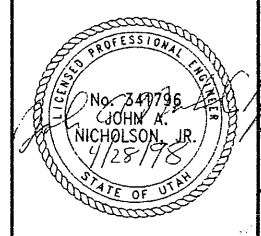
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ELEVATION PRECAST WALL R-342-16
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 874.81 SM)

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.



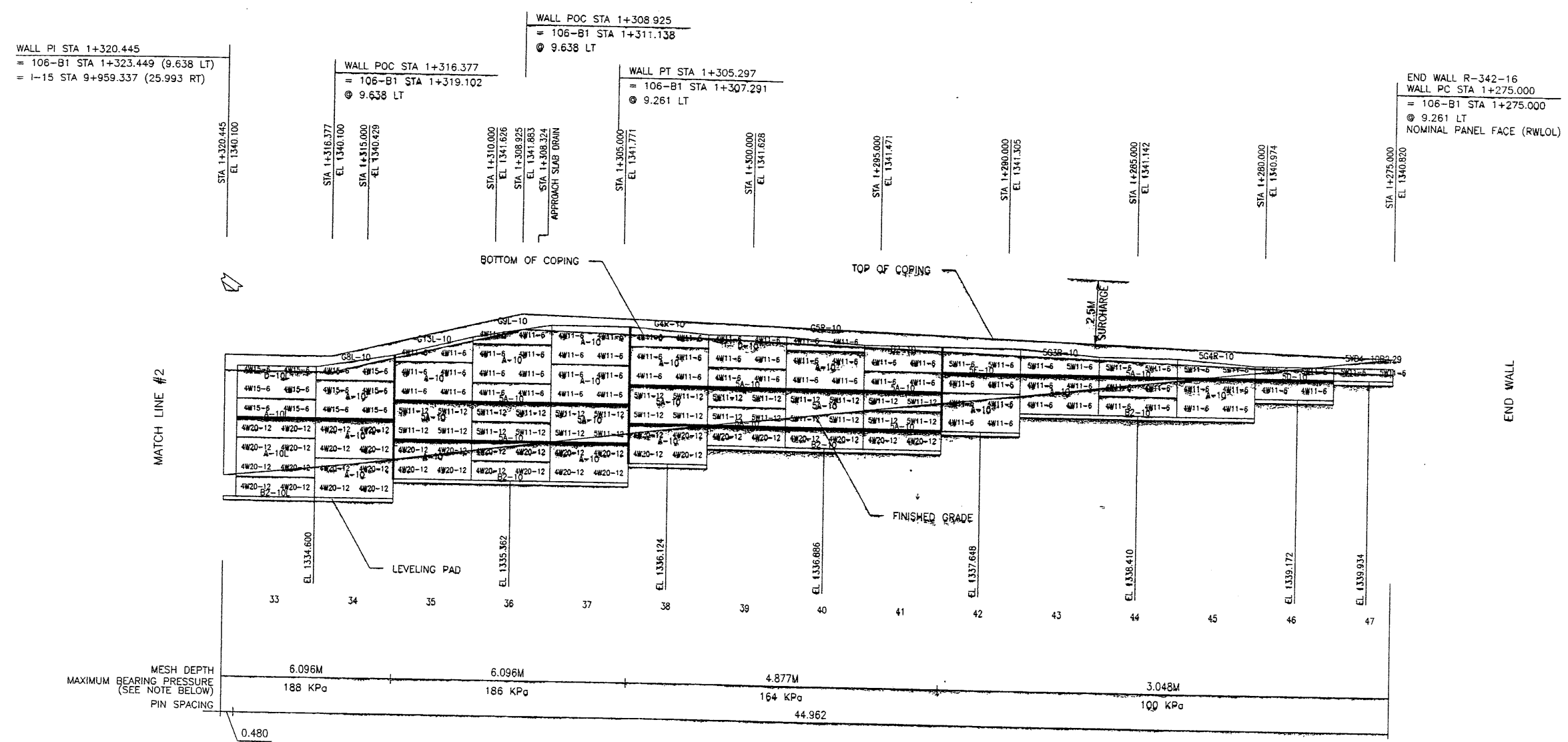
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-16"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:	1:1R-342-16.11
JOB NO:	239-0007
	RE-9

110713

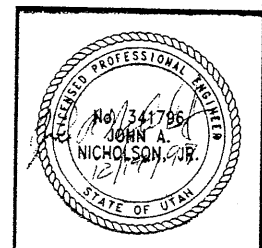
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	12-15-97	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL R-342-16
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 874.81 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.

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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WASATCH CONSTRUCTORS
 JAN 13 1998
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "R-342-16"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSPORTATION

SCALE:	1:1R-342-16.12
JOB NO.:	239-0007
	RE-10



VSL CORPORATION
 2800 Plaza Place, Suite 200
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 Telephone: (919) 781-4272
 Fax: (919) 781-4869

DEC.	MM	DD
11-26-97	11-26-97	MM
DRN	CHK	

RETAINED EARTH™

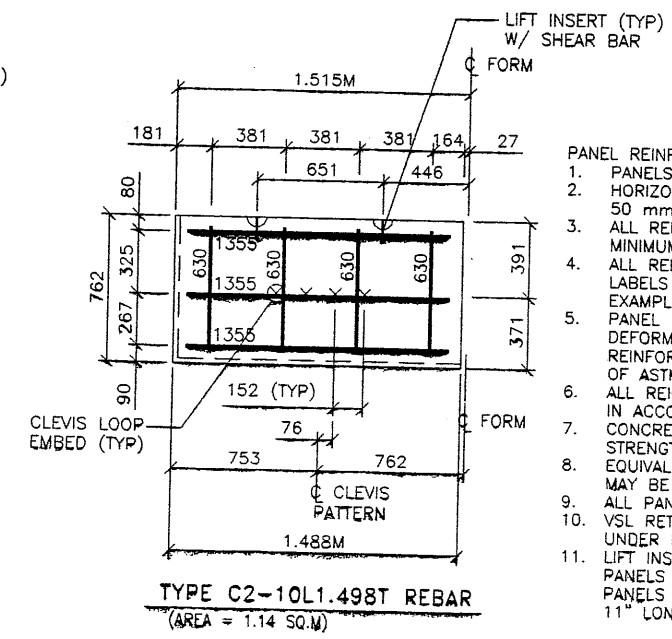
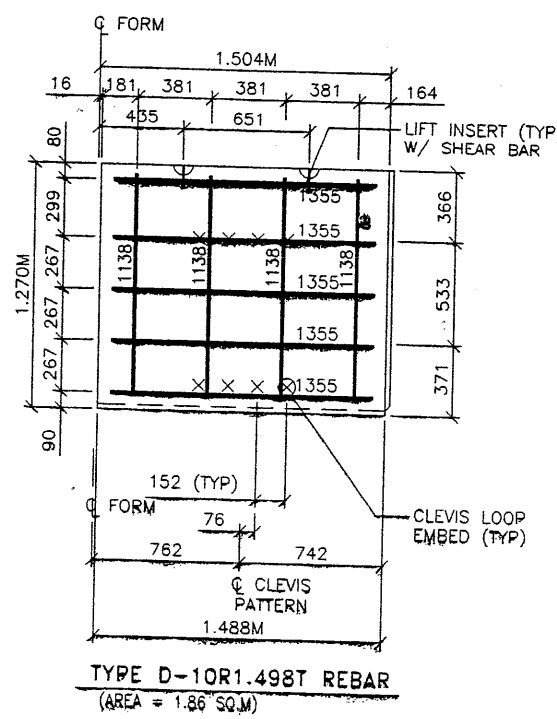
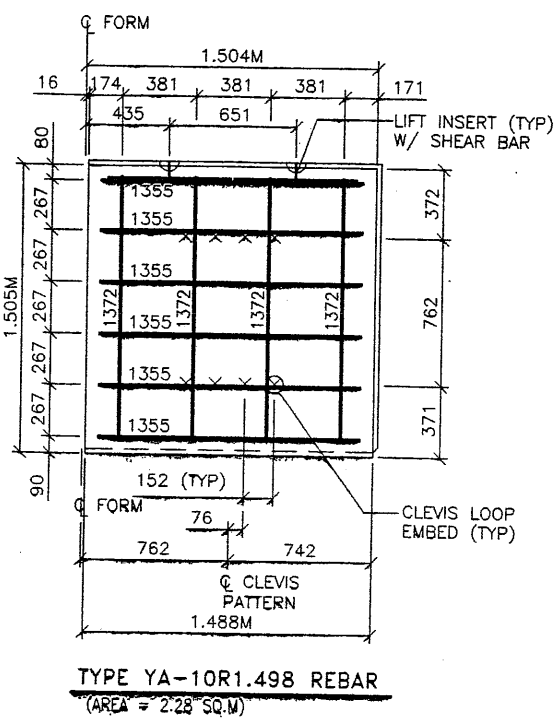
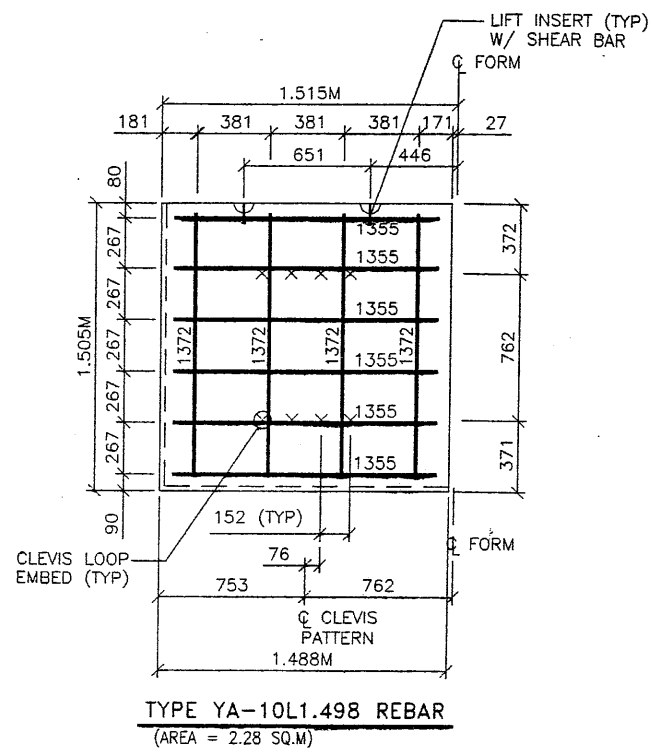
ATLANTA, GA / PHOENIX, TX / RALEIGH, NC (CORPORATE OFFICES)

12-0113

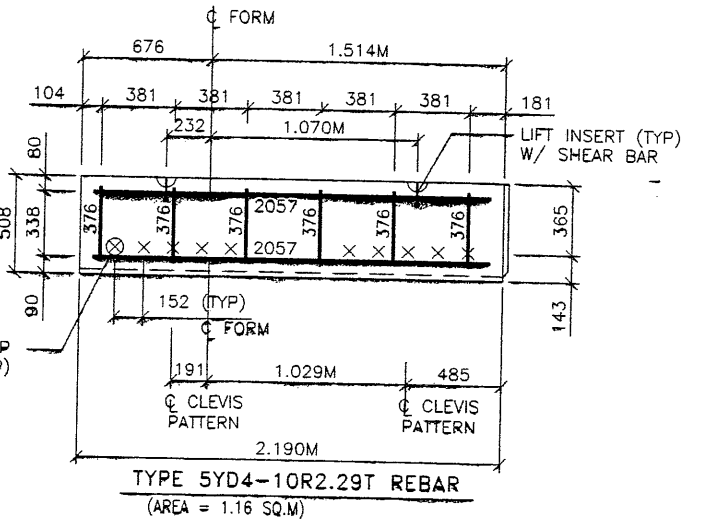
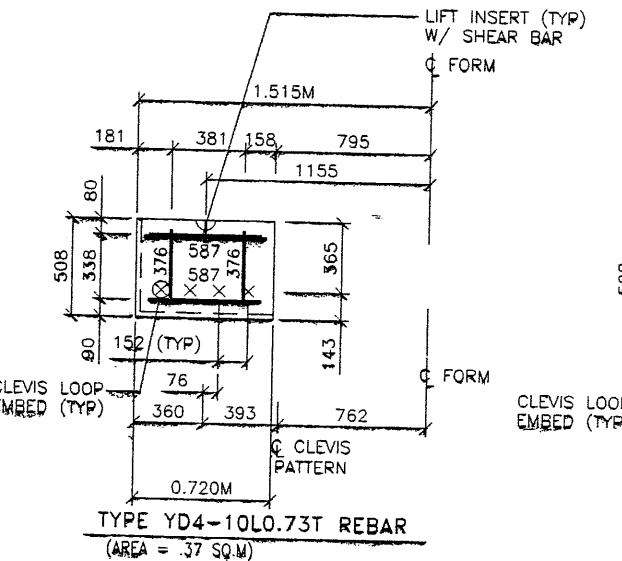
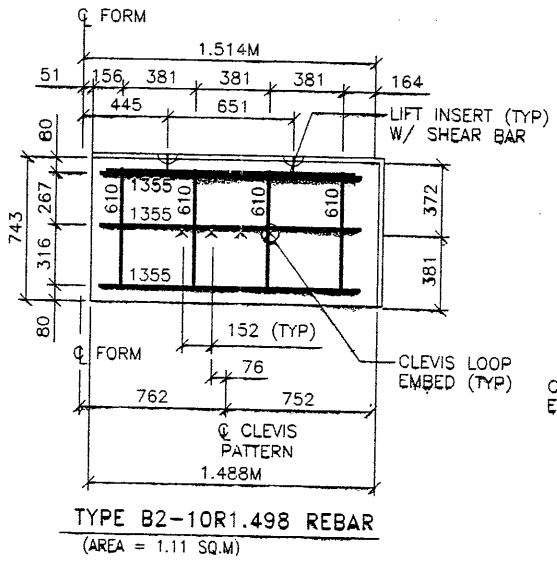
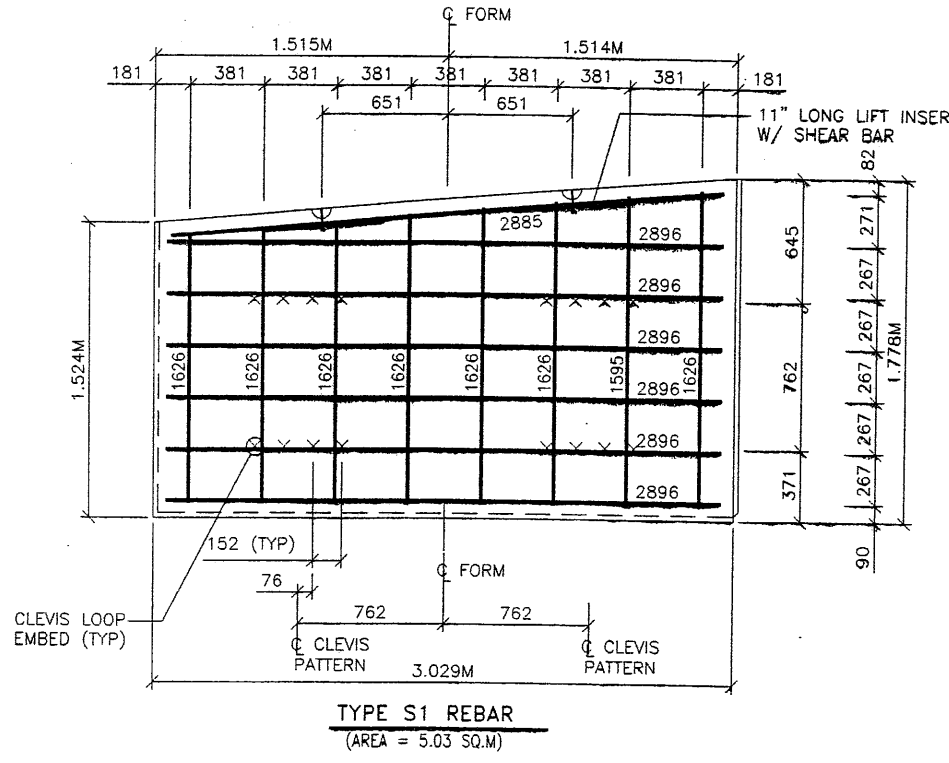
H:\RE_EARTH\PROJECT\239-0007\1998\90-16\SUBMTL-2\SPECIALS

FINAL PL 2-15-97

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	12-15-97	RELEASE FOR CONSTRUCTION



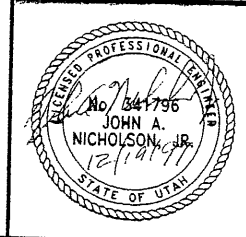
- PANEL REINFORCEMENT NOTES:
- PANELS ARE SHOWN BACK FACE.
 - HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 - ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 - ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A #13 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 9.5mmØ 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.



WASATCH CONSTRUCTORS
JAN 13 1998
RELEASED FOR CONSTRUCTION

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

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27617
Telephone: (919) 781-6272
Fax: (919) 781-4969

DES. 11-26-97 MM
DRN. 11-26-97 DDL
CHK. 11-26-97 MM
RETAINED EARTH™

SCALE:
1.1R-342-16.13
JOB NO:
239-0007
RE-11

13 OF 13