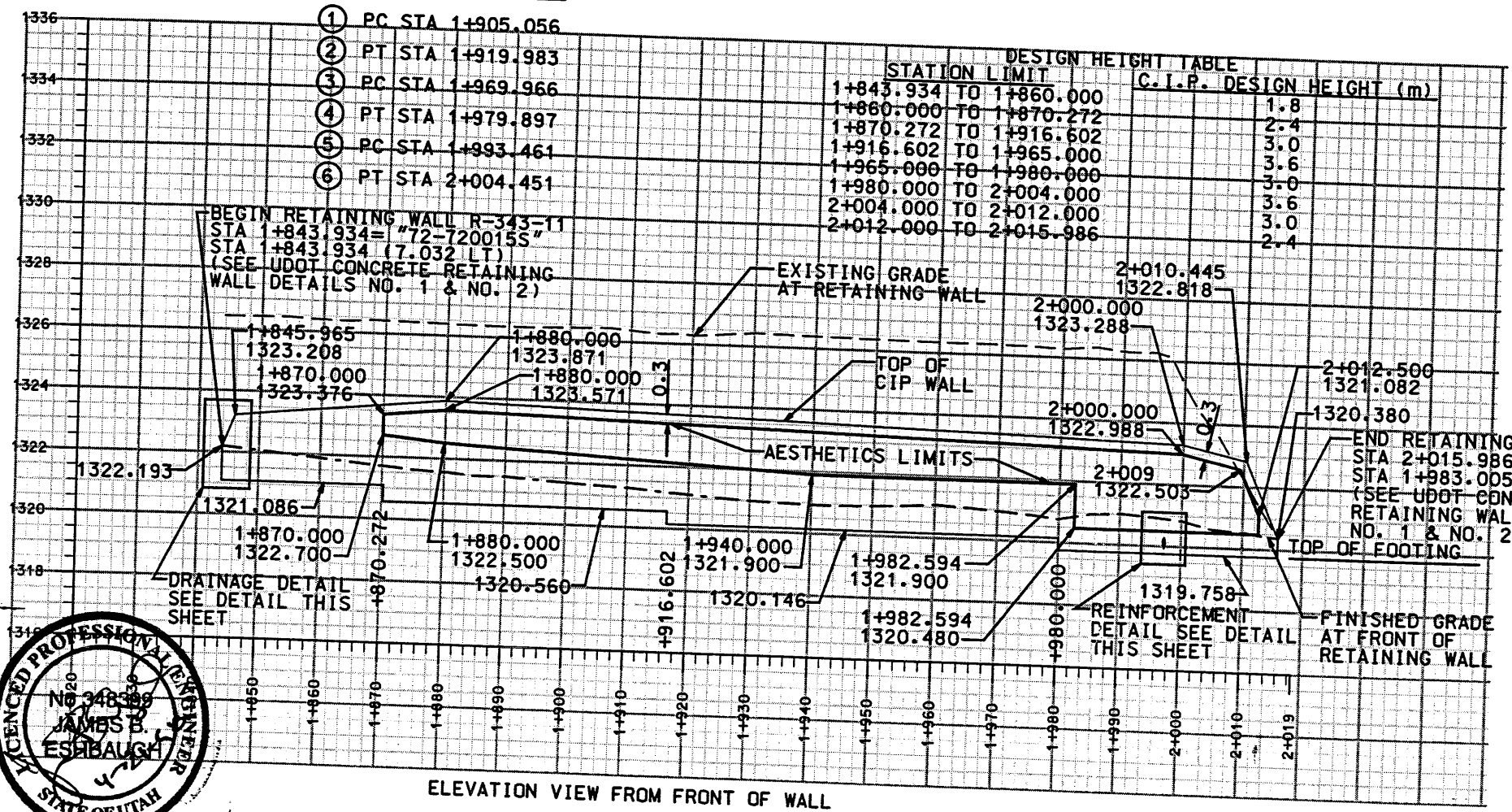
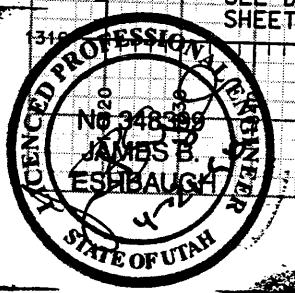
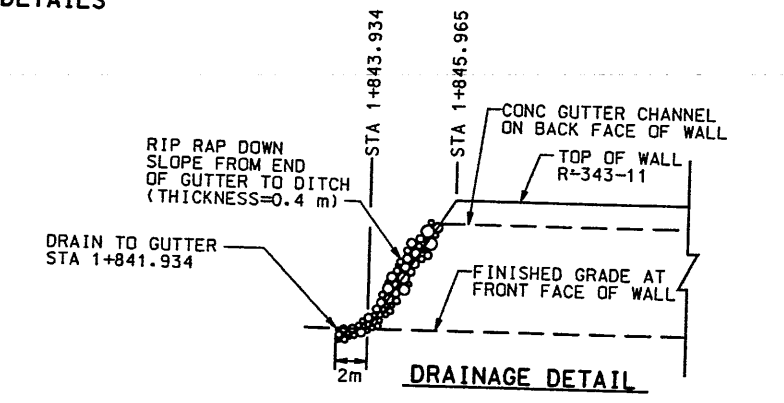
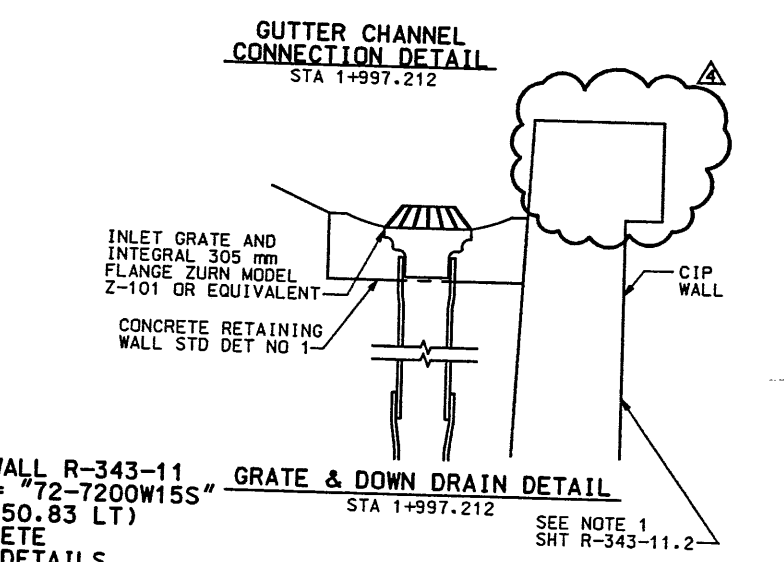
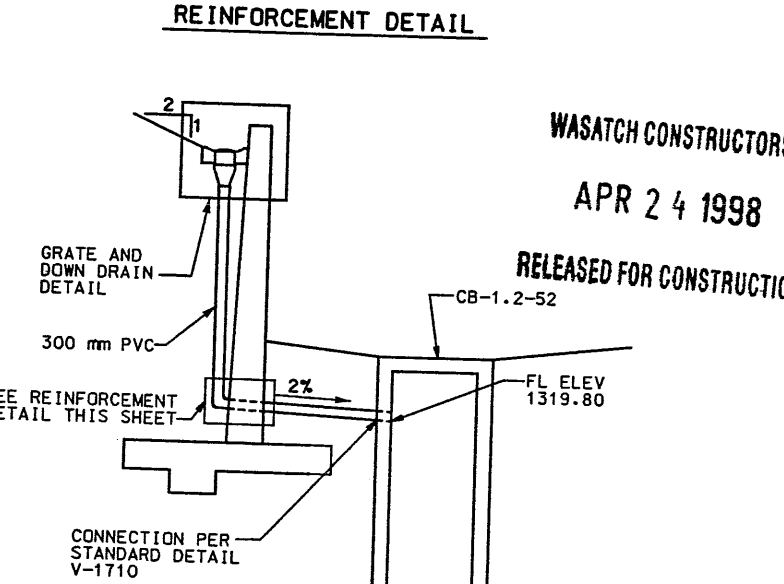
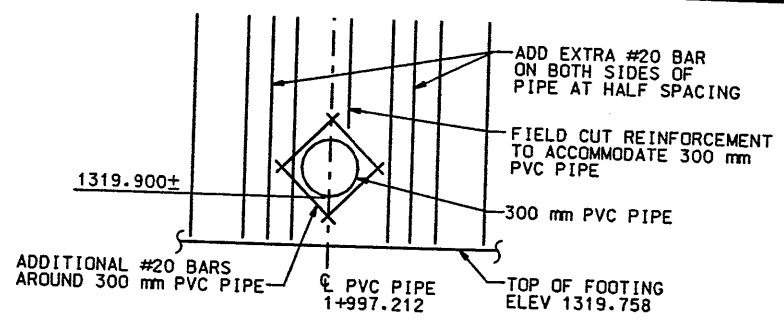


WALL R-343-11
ALIGNMENT GEOMETRY



ELEVATION VIEW FROM FRONT OF WALL



APPROVED FOR CONSTRUCTION

WASATCH CONSTRUCTORS
APR 24 1998
RELEASED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
URS Greiner
SVERDRUP/DE LEUW

NO.	DATE	DESCRIPTION
1	9-4-97	INITIAL RELEASE
2	9-30-97	TOTAL SHEET REVISION
3	4-17-98	ASTHETIC REVISION
4	4-21-98	ASTHETIC REVISION FIELD DESIGN CHANGE #1-0172

1212407

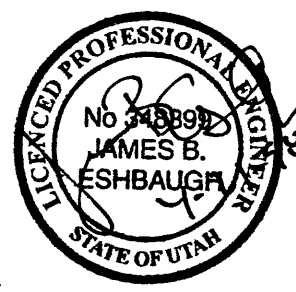
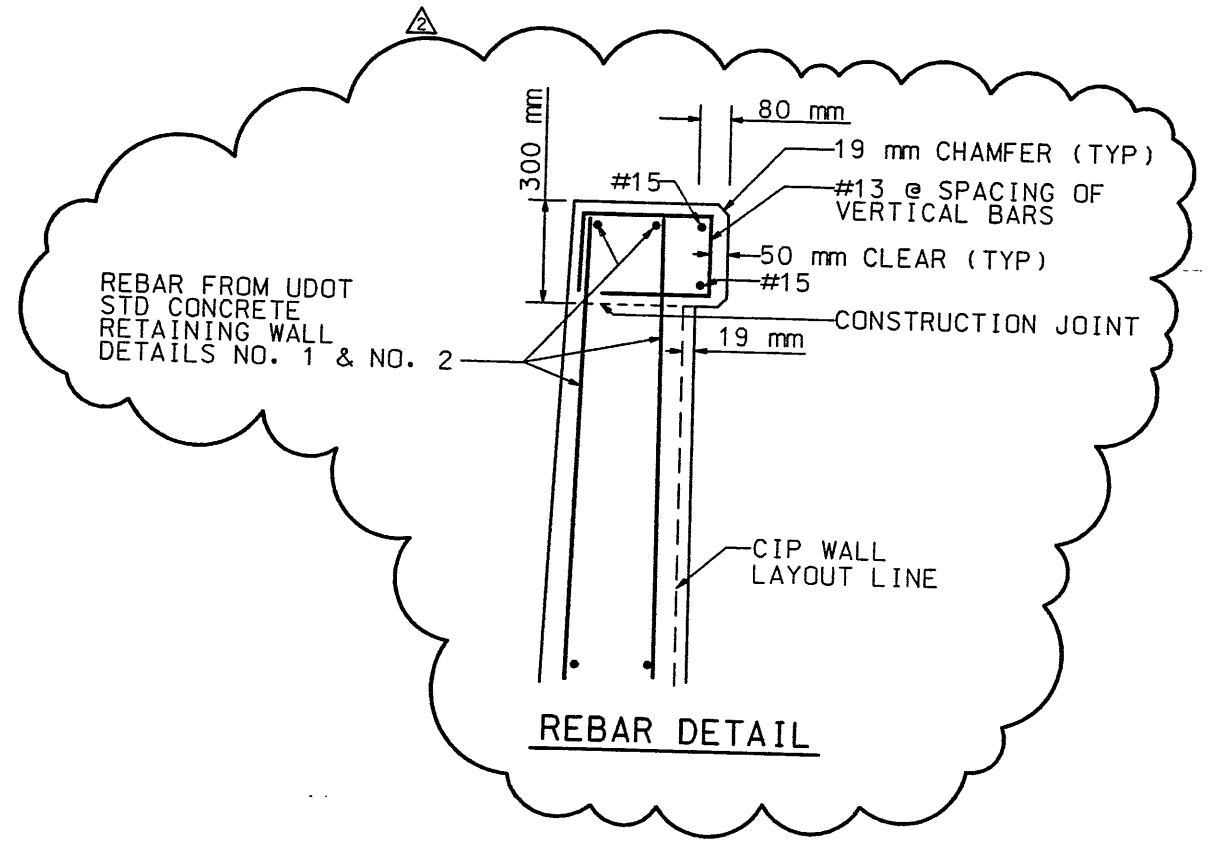
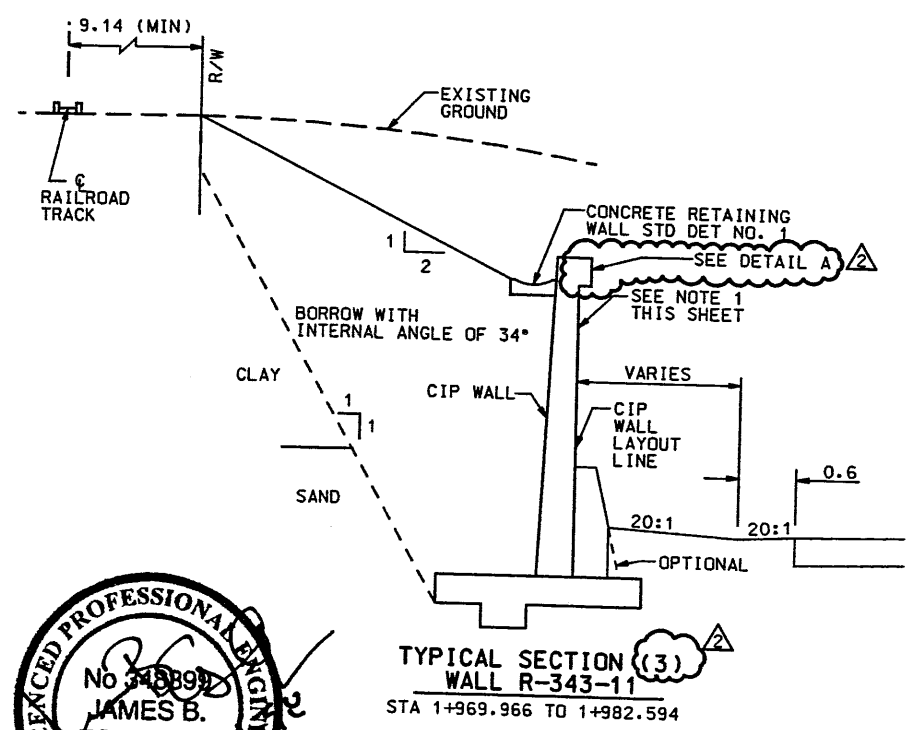
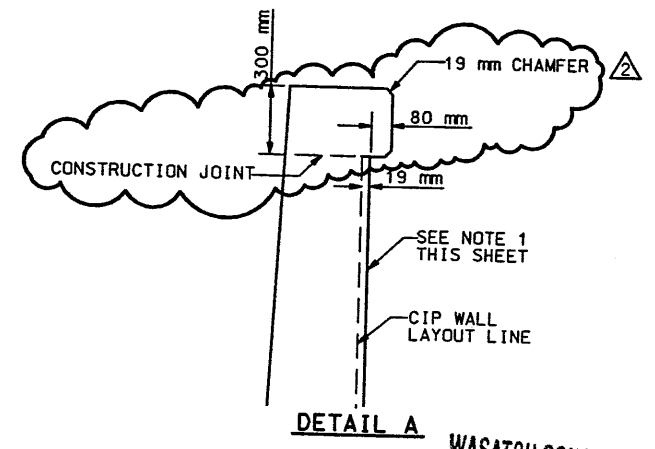
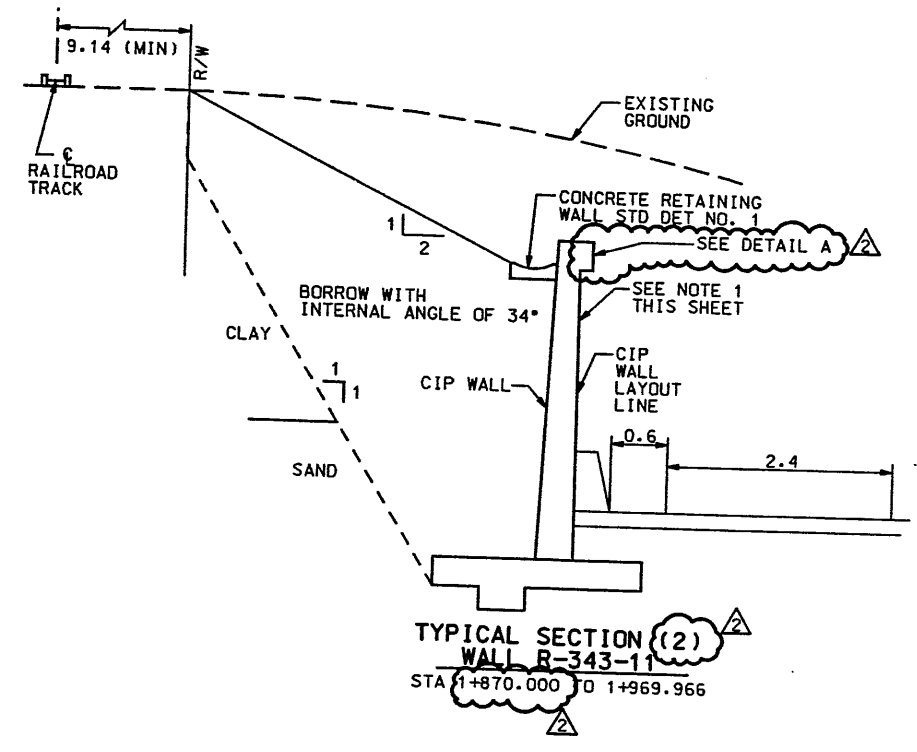
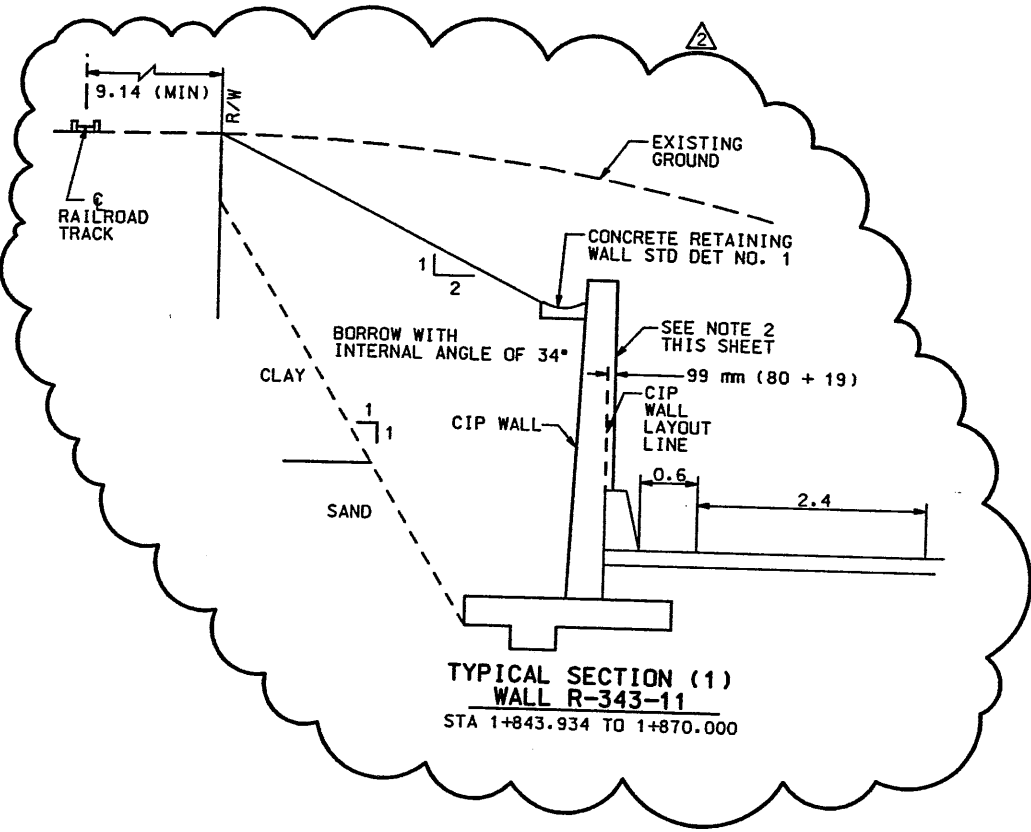
I-15 CORRIDOR RECONSTRUCTION
SITUATION/LAYOUT
RET WALL R-343-11
SECTION 1.2
PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
DWG. NO. 1.2R-343-11.1
SHT. 1 OF 5
REF.

Date: 21-Apr-1998 Time: 15:56 User: nmcocyle/jm
 File: c:\p1\15_cocd\12_97\sheet1_115\wall\12pp25.dgn

SEE OTHER TYPICAL SECTIONS ON SHEET 1.2R-343-11.2a

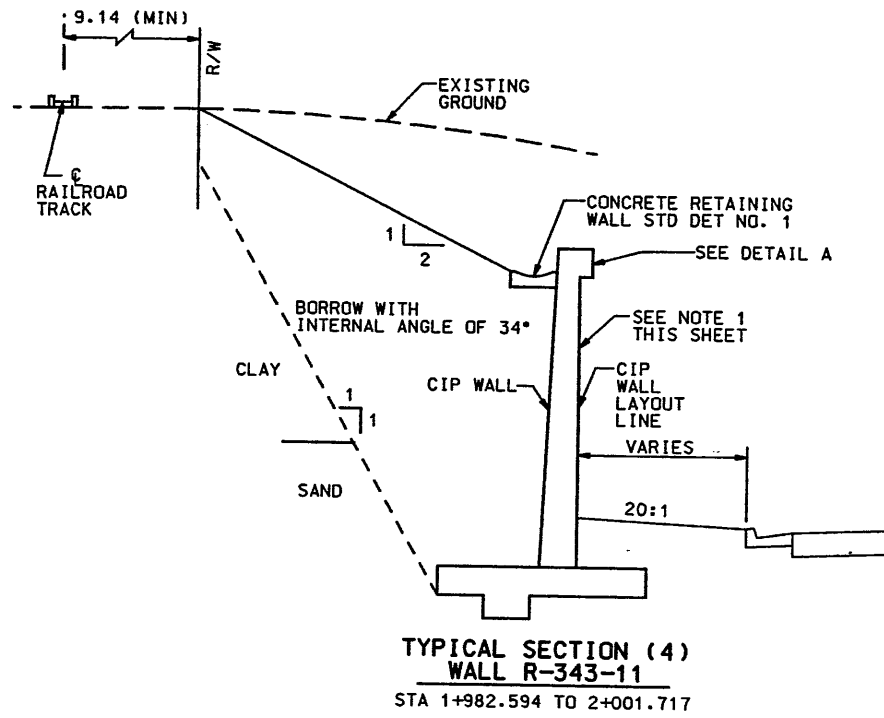
- NOTE:
- (1) CORRIDOR STANDARD PLAN RETAINING WALL AESTHETICS DWG CS-6 TEXTURE TYPE C - SEE DETAIL A
 - (2) 80 mm COPING WIDTH WILL EXTEND DOWN TO BARRIER
 - (3) 80mm COPING WIDTH WILL EXTEND DOWN TO FOOTING



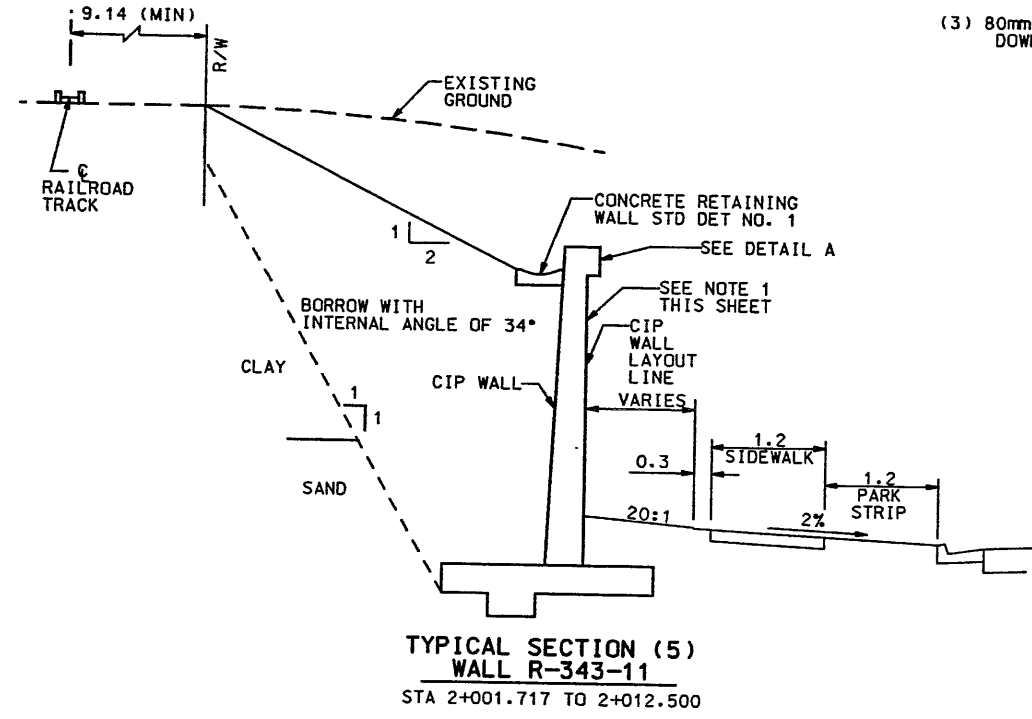
WASATCH CONSTRUCTORS
 APR 24 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIALS	RELEASE
1	9-30-97	JIM	9/30
2	4-20-98	JIM	4/20
FIELD DESIGN CHANGE # 1-0172		1212407	
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner			
SVERDRUP/DE LEUW			
DESIGN	PRV	9/97	CHECK
JIM	JIM	9/97	JIM
DRAWN	CHK	9/97	CHECK
DMK	JIM	9/97	JIM
QUANT.	DATE	DATE	CHECK
I-15 CORRIDOR RECONSTRUCTION		SECTION 1.2	
MISC DETAILS RET WALL R-343-11		PROJECT NUMBER *SP-15-7(135)296	
SALT LAKE COUNTY		DWG. NO. 1.2R-343-11.2	
SHT. 2	OF 5		

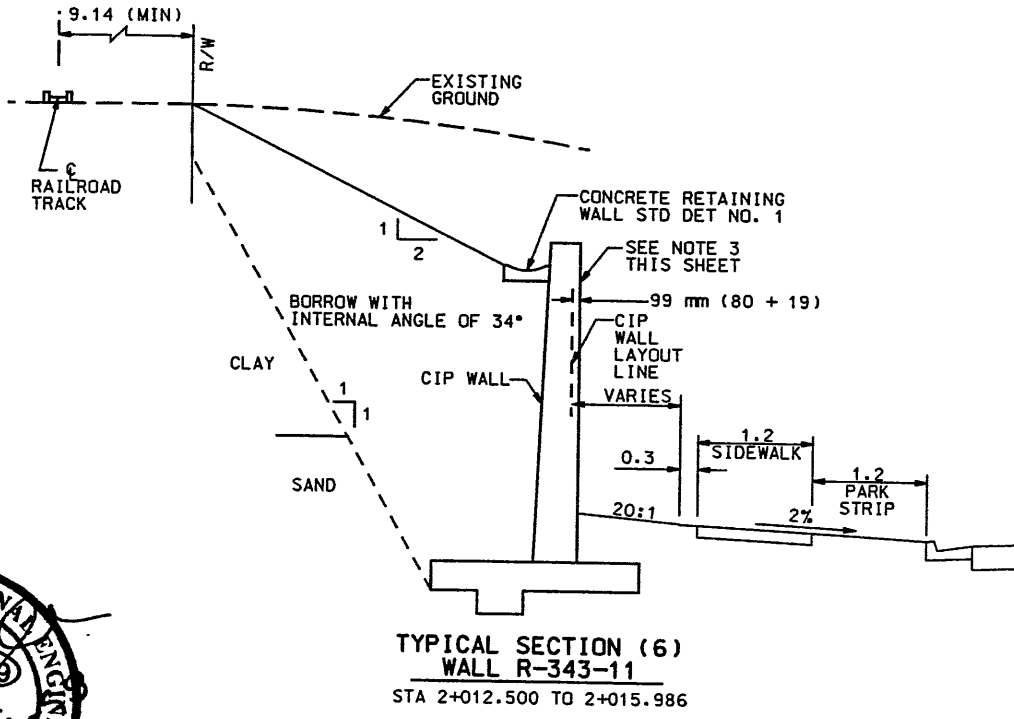
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TYPICAL SECTION (4)
WALL R-343-11
 STA 1+982.594 TO 2+001.717



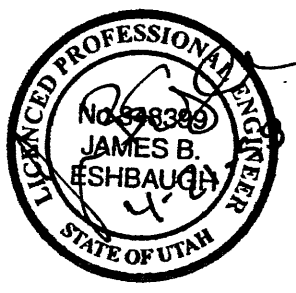
TYPICAL SECTION (5)
WALL R-343-11
 STA 2+001.717 TO 2+012.500



TYPICAL SECTION (6)
WALL R-343-11
 STA 2+012.500 TO 2+015.986

- NOTE:
- (1) CORRIDOR STANDARD PLAN RETAINING WALL AESTHETICS DWG CS-6 TEXTURE TYPE C - SEE DETAIL A
 - (2) 80 mm COPING WIDTH WILL EXTEND DOWN TO BARRIER
 - (3) 80mm COPING WIDTH WILL EXTEND DOWN TO FOOTING

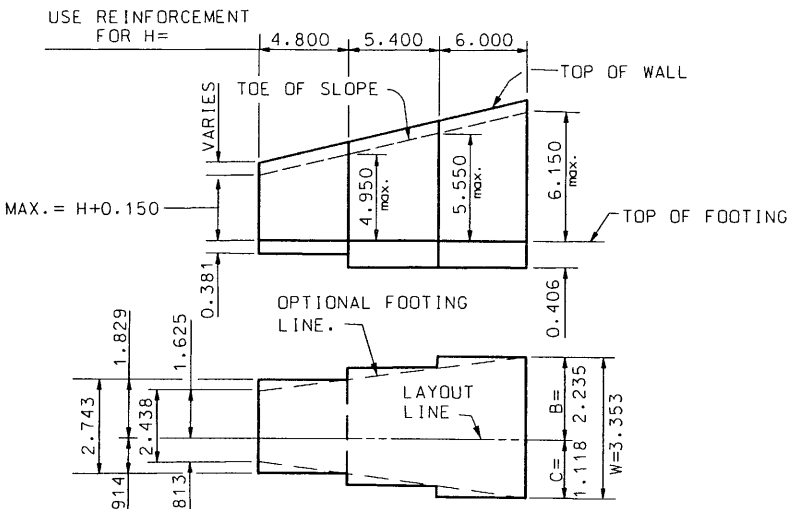
WASATCH CONSTRUCTORS
 APR 24 1998
 RELEASED FOR CONSTRUCTION



APPROVED FOR CONSTRUCTION		NO.	DATE	DESCRIPTION
			4/20/98	INITIAL RELEASE FIELD DESIGN CHANGE 1-0172
UTAH DEPARTMENT OF TRANSPORTATION		URS Greiner		
I-15 CORRIDOR RECONSTRUCTION		SYVERDRUP/DE LEUW		
MISC DETAILS RET WALL R-343-11		DESIGN - JMC	CHECK - JMC	DATE - 04/98
SECTION 1.2		PROJECT DESIGN ENGINEER	CHECK - DSA	DATE - 04/98
PROJECT NUMBER #SP-15-7(135)296		SECTION MANAGER	CHECK	QUANT.
SALT LAKE COUNTY		1212407		
DWG. NO. 1.2R-343-11.2a				
SHT. 3	OF 3			

Date: 24-FEB-1998 Time: 11:01 User: name: stottt

File: name: c:\vgn\15_cadd\2797\sheet_files\wall\y-wll4.dgn



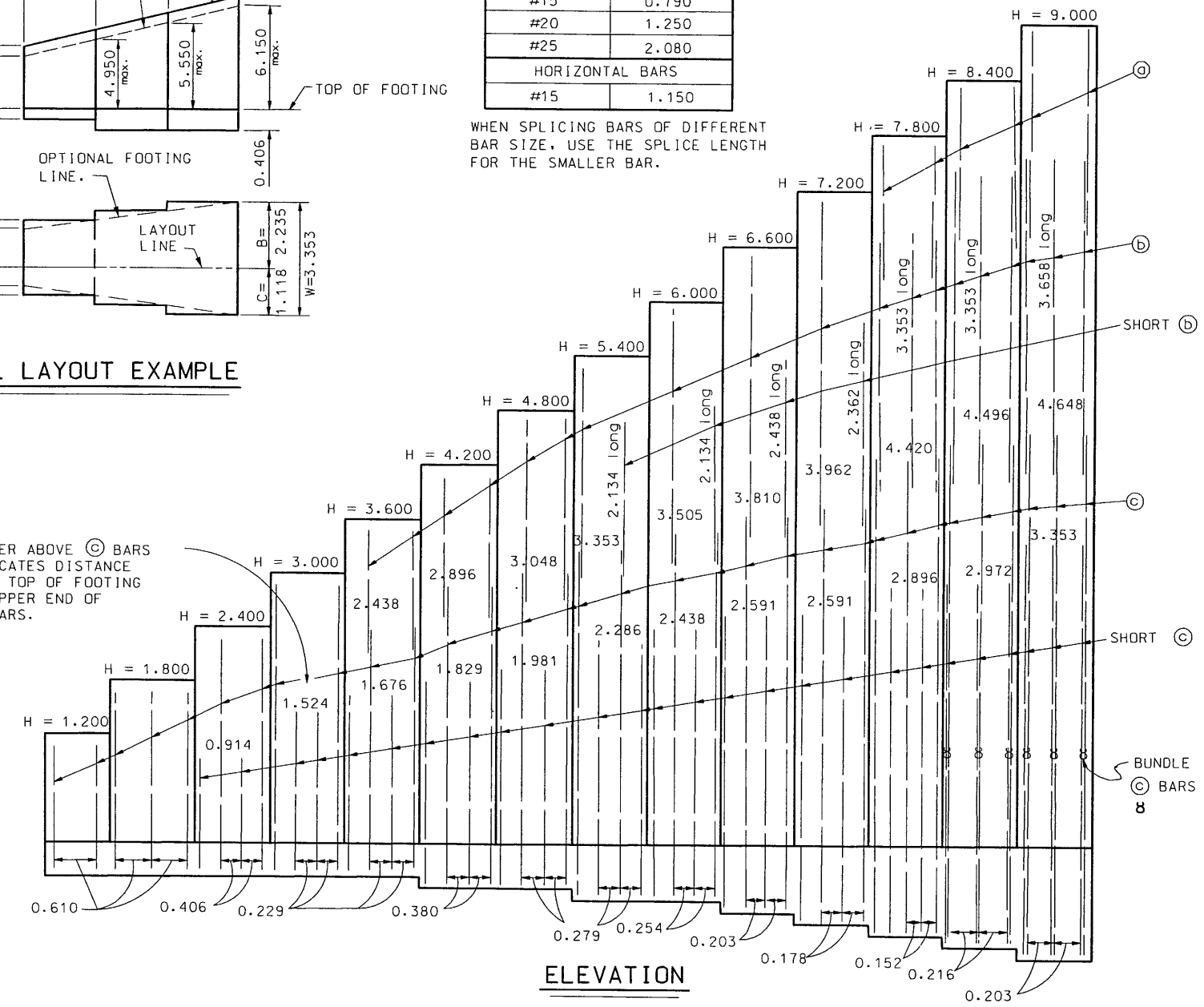
TYPICAL LAYOUT EXAMPLE

REINFORCING STEEL SPLICES	
BAR SIZE	SPLICE LENGTH
VERTICAL BARS	
#15	0.790
#20	1.250
#25	2.080
HORIZONTAL BARS	
#15	1.150

NOTE: BAR CUT-OFFS MAY BE VARIED IN INCREMENTS OF 0.150 m.

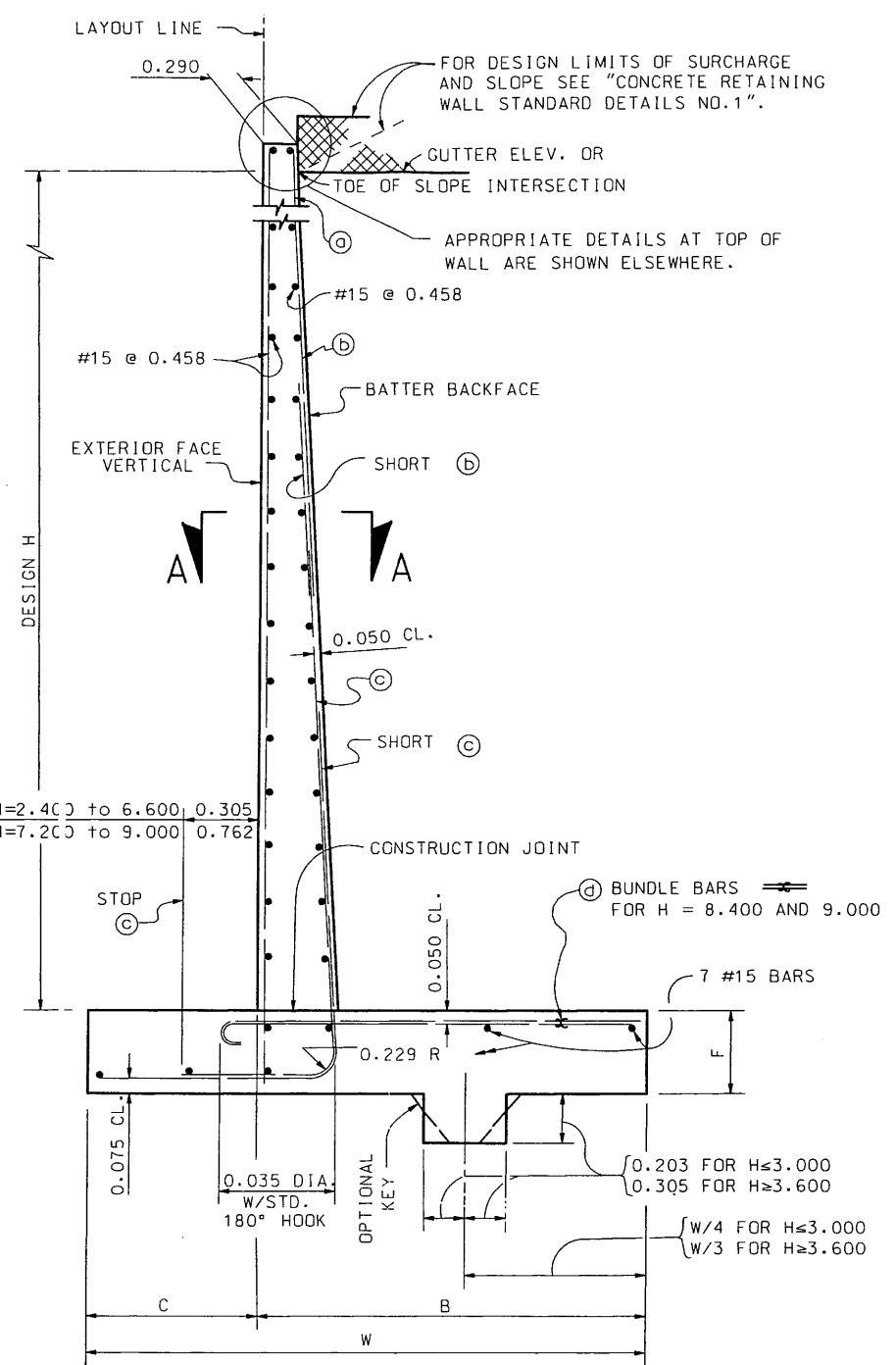
WHEN SPLICING BARS OF DIFFERENT BAR SIZE, USE THE SPLICE LENGTH FOR THE SMALLER BAR.

NUMBER ABOVE (C) BARS INDICATES DISTANCE FROM TOP OF FOOTING TO UPPER END OF (C) BARS.



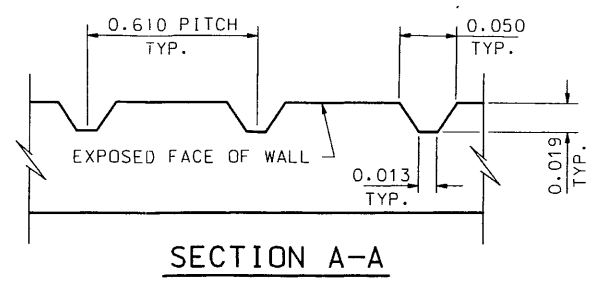
ELEVATION

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA														
DESIGN H	1.200	1.800	2.400	3.000	3.600	4.200	4.800	5.400	6.000	6.600	7.200	7.800	8.400	9.000
W	0.965	1.270	1.575	1.880	2.184	2.438	2.743	3.048	3.353	3.657	4.038	4.344	4.648	5.105
C	0.305	0.406	0.508	0.610	0.711	0.813	0.914	1.016	1.118	1.219	1.346	1.448	1.549	1.651
B	0.660	0.864	1.067	1.270	1.473	1.625	1.829	2.032	2.235	2.438	2.692	2.896	3.099	3.454
F SPREAD FTG.	0.356	0.356	0.356	0.356	0.356	0.381	0.381	0.406	0.406	0.457	0.508	0.584	0.660	0.711
BATTER	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:19	1:16	1:16	1:14
(a) BARS														
(b) BARS					#15@.458	#20@.762	#20@.558	#25@.558	#25@.508	#25@.406	#25@.356	#25@.304	#25@.216	#25@.203
(c) BARS	#15@.610	#15@.610	#15@.406	#15@.229	#20@.229	#30@.380	#30@.279	#35@.279	#35@.254	#35@.203	#35@.178	#35@.152	#35@.216	#35@.203
(d) BARS	#15@.610	#15@.610	#15@.406	#15@.229	#15@.229	#25@.380	#25@.279	#35@.279	#35@.254	#35@.203	#35@.178	#35@.152	#30@.216	#30@.203
.610 LEVEL SURCHARGE TOE PRESSURE kPa	76.6	91.0	105.3	110.1	134.1	158.0	167.6	191.5	205.9	220.3	234.6	253.8	272.9	296.9
2:1 UNLIMITED SCOPE TOE PRESSURE kPa	52.7	71.8	95.8	119.7	129.3	158.0	172.4	201.1	225.0	263.3	282.5	311.2	340.0	359.1
SPREAD FOOTING	STEEL kg/m	25	30	42	55	76	119	156	219	278	366	451	606	754
	CONC. m ³ /m	0.8	1.2	1.5	1.9	2.4	2.8	3.2	3.7	4.2	4.8	5.9	7.2	9.7



SPREAD FOOTING SECTION

- NOTES: 1. ALL DIMENSIONS SHOWN ARE IN METERS.
- 2. FOR DETAILS NOT SHOWN AND DRAINAGE NOTES SEE "CONCRETE RETAINING WALL STANDARD DETAILS NO. 1."
- 3. QUANTITIES APPLY TO DESIGN H PORTION AND EXCLUDE THE ADDED PORTION ABOVE "GUTTER ELEVATION."

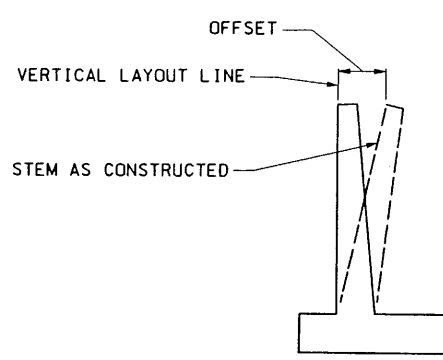


SECTION A-A

UTAH DEPARTMENT OF TRANSPORTATION SALT LAKE CITY, UTAH STRUCTURES DIVISION		DESIGN	CHECK	DATE	BY	REVISIONS	NO.	DATE	BY	REMARKS
CONCRETE RETAINING WALL STANDARD DETAILS NO. 2		GROUP LEADER	DESIGN	DATE	DATE	NO.	DATE	DATE	DATE	REMARKS
PROJECT NUMBER *SP-15-7(135)296		CHIEF STRUCTURAL ENGR.	DRAWN	DATE	DATE	NO.	DATE	DATE	DATE	REMARKS
SALT LAKE COUNTY		APPROVED	CHECK	DATE	DATE	NO.	DATE	DATE	DATE	REMARKS
1.2R-343-11.3		DATE	CHECK	DATE	DATE	NO.	DATE	DATE	DATE	REMARKS
DRG. NO.		DATE	CHECK	DATE	DATE	NO.	DATE	DATE	DATE	REMARKS
SHT. 4 OF 5		DATE	CHECK	DATE	DATE	NO.	DATE	DATE	DATE	REMARKS

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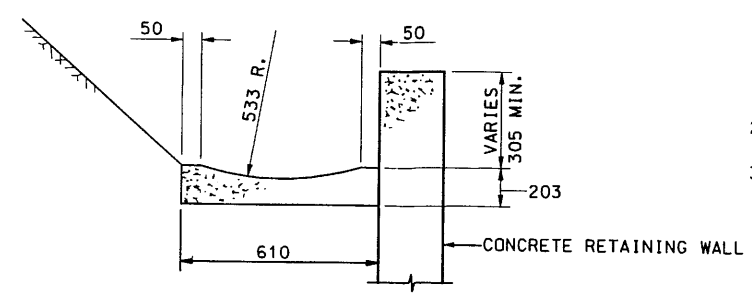


**TABLE OF OFFSETS
(IN METERS)**

H	OFF.	H	OFF.
1.200	0.006	4.800	0.032
1.800	0.010	5.400	0.038
2.400	0.013	6.000	0.044
3.000	0.016	6.600	0.050
3.600	0.019	7.200	0.057
4.200	0.025	7.800 TO 11.000	0.064

APPROXIMATE WALL OFFSET VALUES

VALUES FOR OFFSETTING FORMS TO BE DETERMINED BY THE ENGINEER



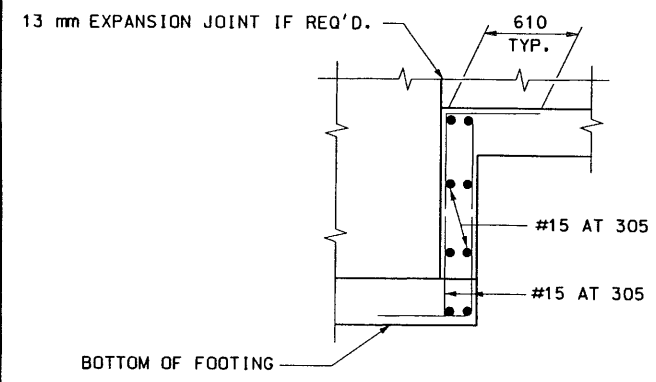
TYPICAL GUTTER DETAIL

GENERAL NOTES

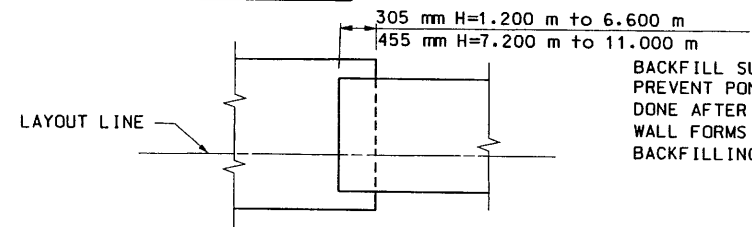
1. USE EPOXY-COATED REINFORCING STEEL CONFORMING TO AASHTO M 31M GRADE 400.
2. DESIGN H MAY BE EXCEEDED BY 150 mm BEFORE GOING TO THE NEXT SIZE.
3. ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SPECIFIED OTHERWISE.

DESIGN DATA

CAST-IN-PLACE CONCRETE: $f_c = 10 \text{ MPa}$; $f_d(\text{REINF.}) = 160 \text{ MPa}$; $n=8$.
 EARTH: UNIT DENSITY = 1920 kg/m^3
 IN CASE OF SLOPING GROUND CONDITIONS ABOVE THE TOP OF THE WALL, EARTH PRESSURE SHALL BE DETERMINED FROM THE RANKINE EQUATIONS FOR LATERAL EARTH PRESSURE WITH $\phi = 33^\circ 42'$.
 610 mm SURCHARGE: EQUIVALENT FLUID PRESSURE = 5.6 KN/m^3 MAX. FOR DETERMINATION OF THE PRESSURE.



ELEVATION

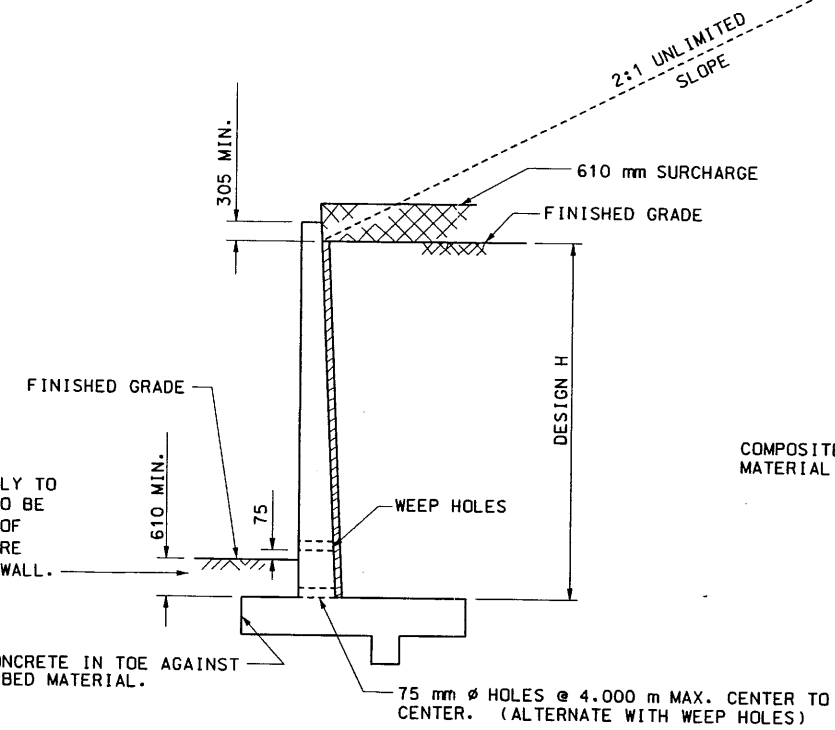


PLAN

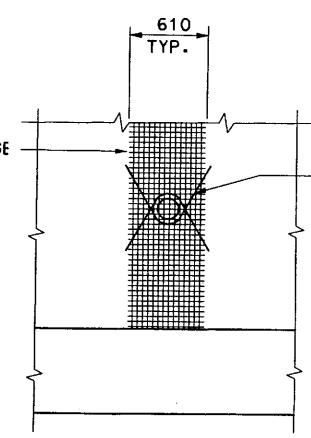
FOOTING STEP DETAILS

BACKFILL SUFFICIENTLY TO PREVENT PONDING. TO BE DONE AFTER REMOVAL OF WALL FORMS AND BEFORE BACKFILLING BEHIND WALL.

PLACE CONCRETE IN TOE AGAINST UNDISTURBED MATERIAL.

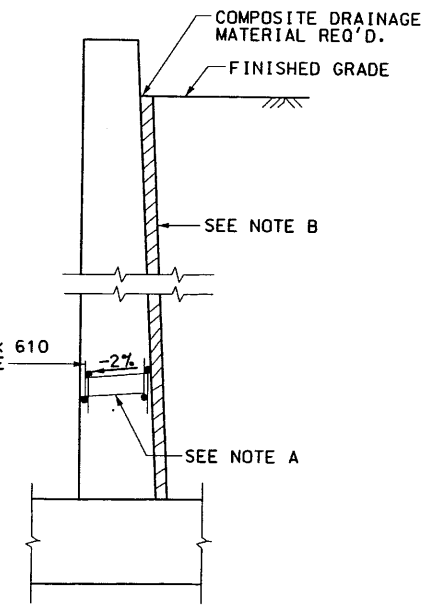


DESIGN AND DRAINAGE



PARTIAL ELEVATION

@ BACK FACE OF WALL



SECTION

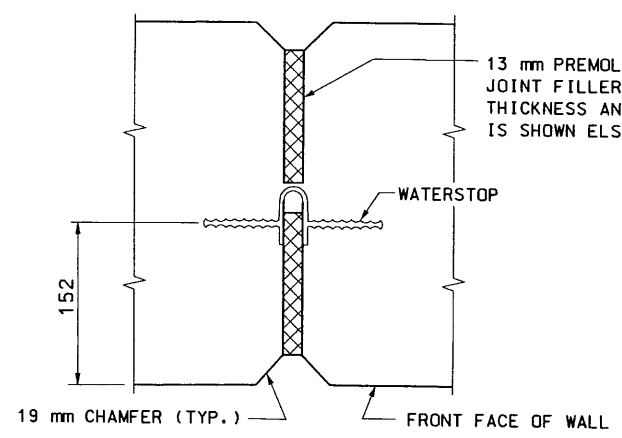
WEEP HOLE DETAIL

WATER STOP NOTES

1. WATERSTOP TO HAVE FIVE OR MORE PAIRS OF RAISED RIBS TO PROVIDE 65 mm^2 MIN. RIB CROSS-SECTIONAL AREA ON EACH HALF OF THE WATERSTOP. HEIGHT OF RIBS TO BE 2 mm M.N.
2. HOLES WILL BE PERMITTED IN THE OUTER 13 mm OF THE WEB FOR WIRE, RINGS, ETC. TIE WEB TO #10 REINFORCING BARS @ 305 mm MAX. INTERVALS TO SUPPORT THE WATERSTOP IN PROPER POSITION DURING CONCRETE PLACEMENT. ALTERNATIVE DETAIL MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

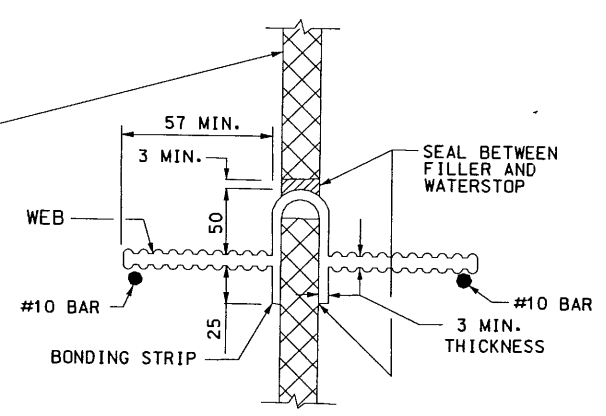
NOTES:

- A. 100 mm ϕ DRAINS @ 4.000 m MAX. CENTER TO CENTER.
- B. COMPOSITE DRAINAGE MATERIAL REQUIRED FROM BOTTOM OF WALL TO TOP OF FINISHED GRADE.



WALL EXPANSION JOINT (PLAN VIEW)

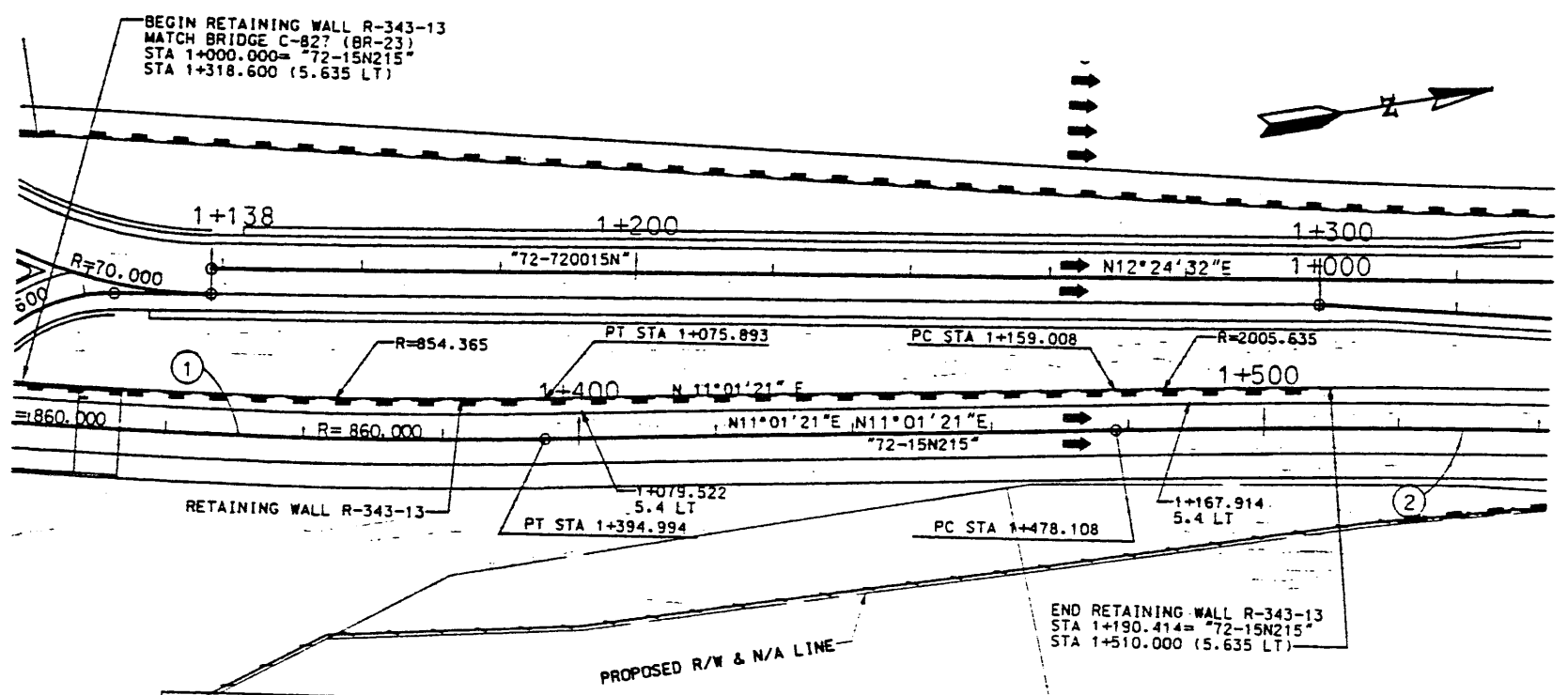
PLACE JOINTS AT 30.500 m MAX. SPACING



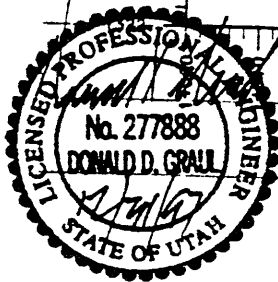
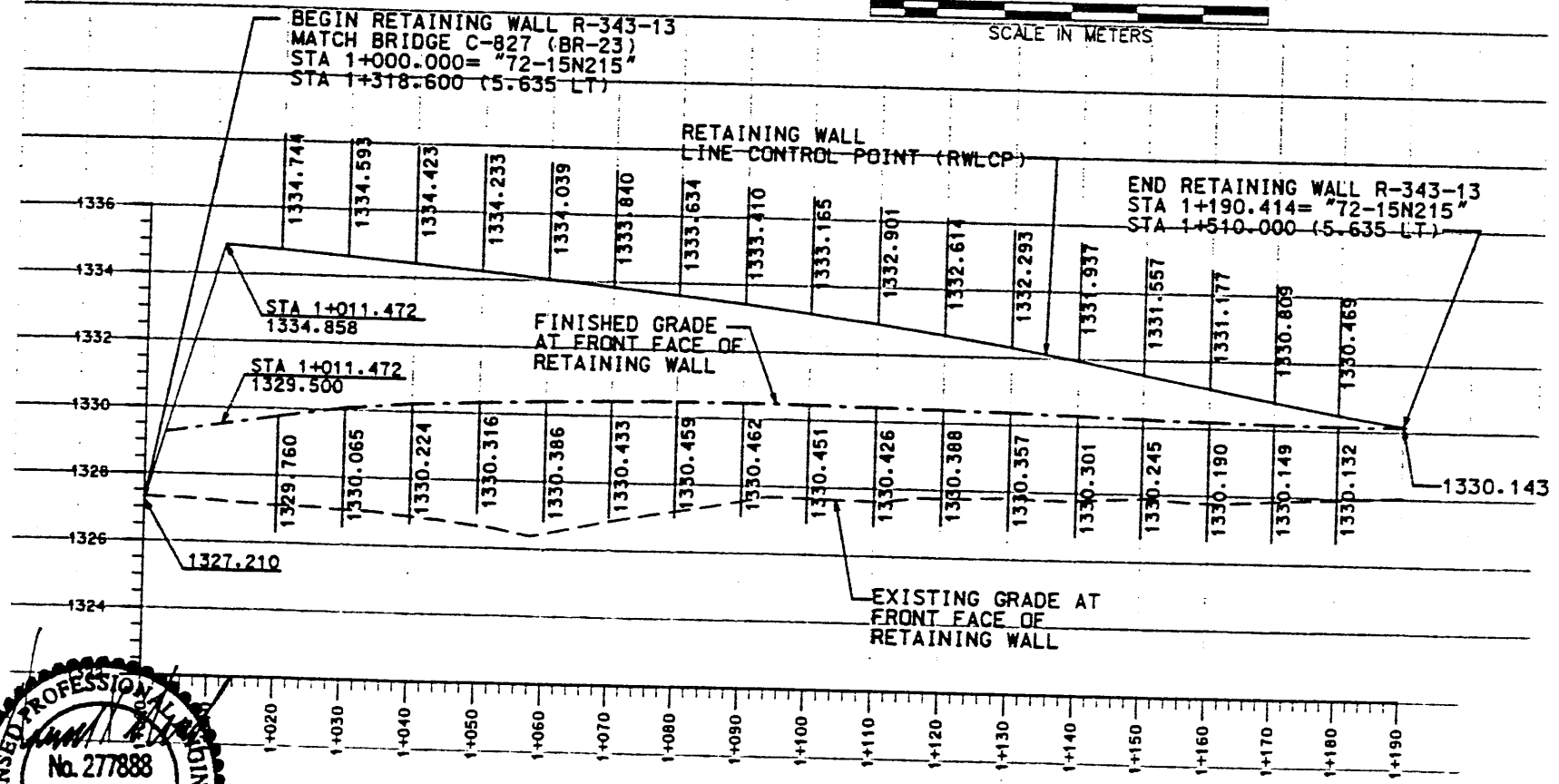
WATERSTOP DETAIL

UTAH DEPARTMENT OF TRANSPORTATION SALT LAKE CITY, UTAH STRUCTURES DIVISION	DESIGN	CHECK	DATE	BY	NO.	REVISIONS	REMARKS
CONCRETE RETAINING WALL STANDARD DETAILS NO. 1	DRAWN	CHECK	DATE	BY	NO.	REVISIONS	REMARKS
PROJECT NUMBER *SP-15-7(135)296	GROUP LEADER	CHECK	DATE	BY	NO.	REVISIONS	REMARKS
SALT LAKE COUNTY	CHIEF STRUCTURAL ENGR.	CHECK	DATE	BY	NO.	REVISIONS	REMARKS
1.2R-343-11.4	DATE	CHECK	DATE	BY	NO.	REVISIONS	REMARKS
DRG. NO.	DATE	CHECK	DATE	BY	NO.	REVISIONS	REMARKS
SHT. 51 OF 51	DATE	CHECK	DATE	BY	NO.	REVISIONS	REMARKS

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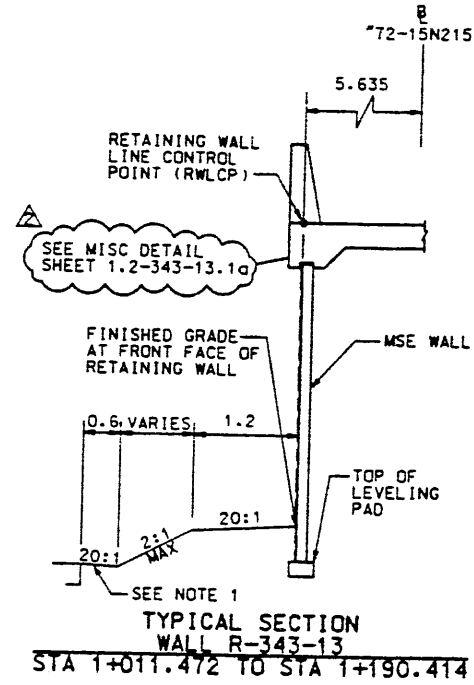
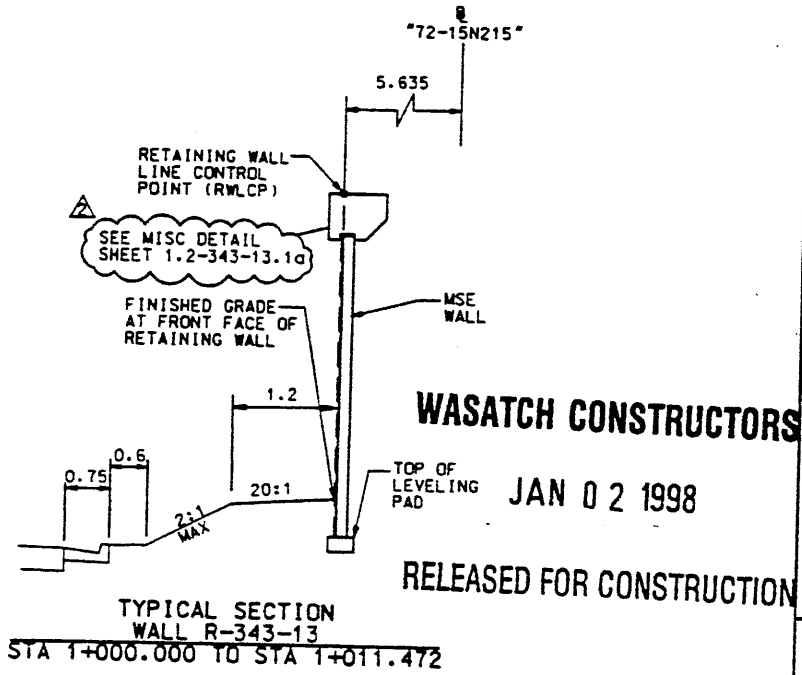
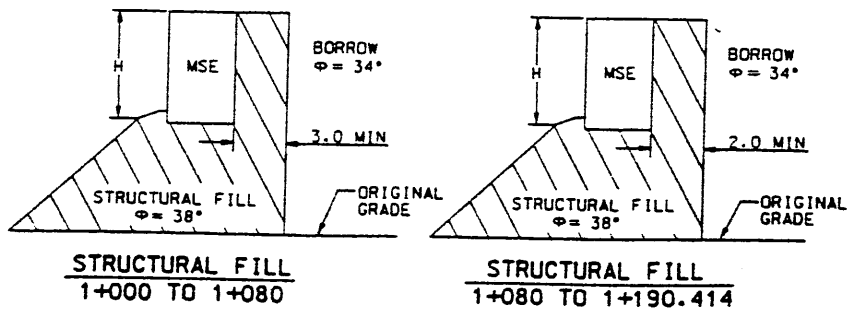


CURVE NO.	△	R	L	T
①	13°51'59"	860.000	208.131	104.576
②	3°37'22"	2000.000	126.455	63.249



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

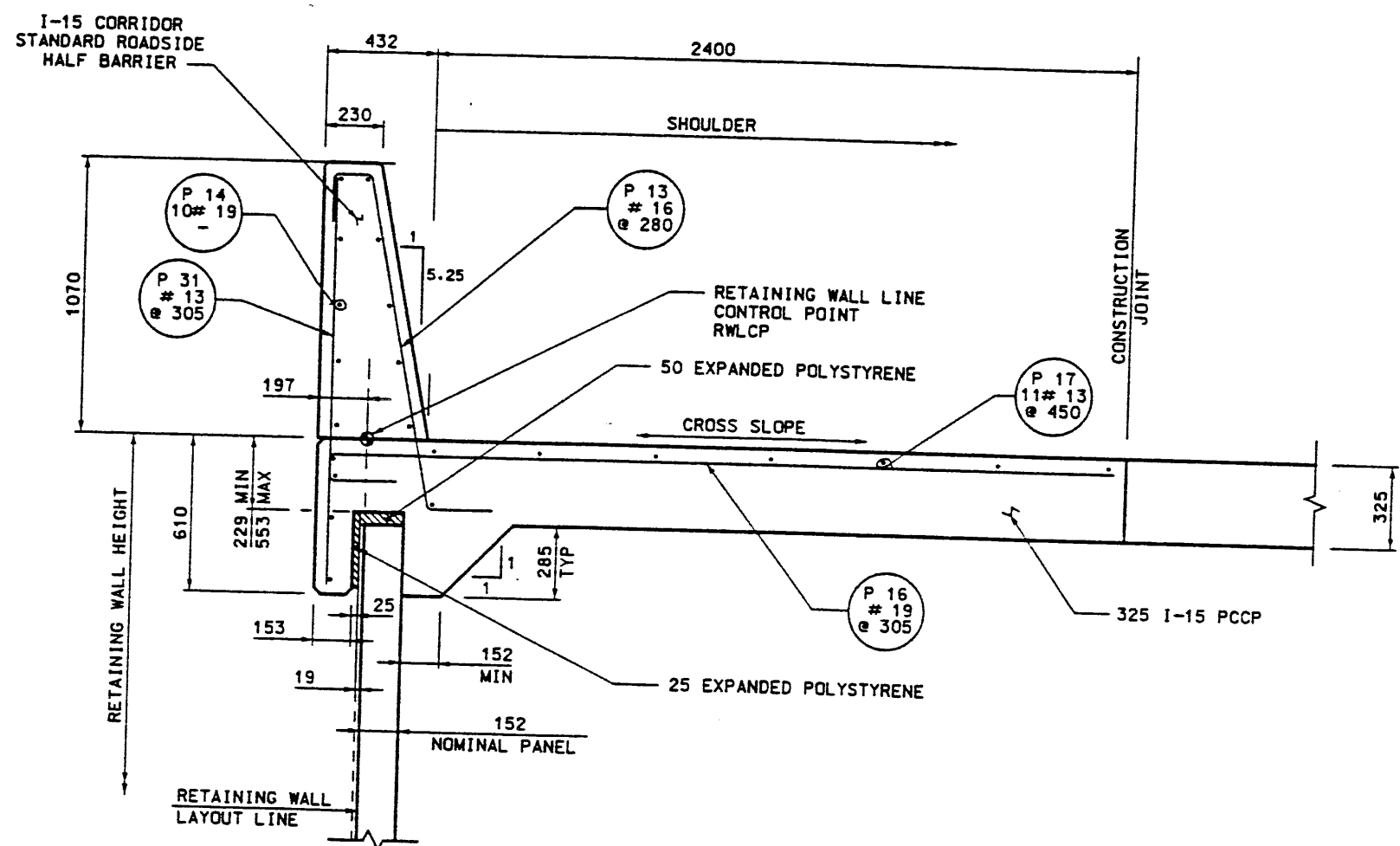
NOTE:
 ALL STRUCTURAL FILL PLACED BELOW AND BEHIND THE WALL AS SHOWN ON THE PLANS SHALL HAVE AN INTERNAL FRICTION ANGLE OF AT LEAST 38°.



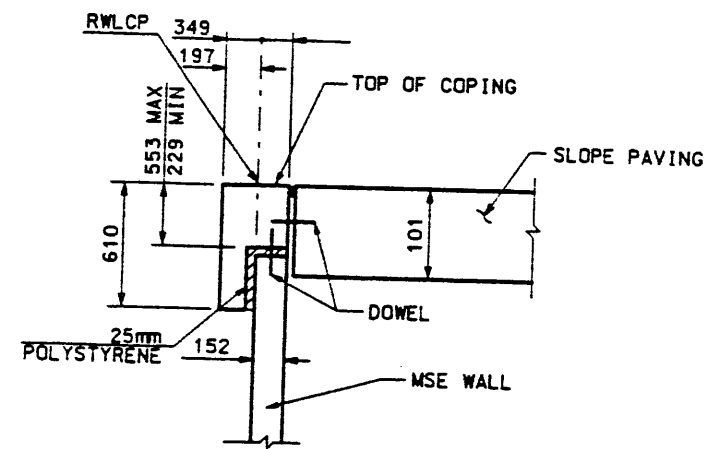
NOTE:
 1. FOR STA 1+011.472 TO STA 1+012.831 CURB AND GUTTER SECTION APPLIES PER ROADWAY PLAN

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	RELEASED FOR GPP / MOMENT S.A.B.
1	10-1-97		
2	12-31-97		
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner			
SVERDRUP/DE LEUW			
DESIGN	CHECK	DESIGN	CHECK
12/97	JAM	12/97	JAM
DATE	PROJECT DESIGN ENGINEER	DATE	PROJECT MANAGER
12/97	URS	12/97	URS
APPROVED	DATE	APPROVED	DATE
1-15 CORRIDOR RECONSTRUCTION		PROJECT NUMBER	
SITUATION/LAYOUT		#SP-15-7(135)296	
RET WALL R-343-13			
SECTION 1.2			
SALT LAKE COUNTY			
DWC NO.			
1.2R-343-13.1			
SHT. 1 of 10			
REF.			

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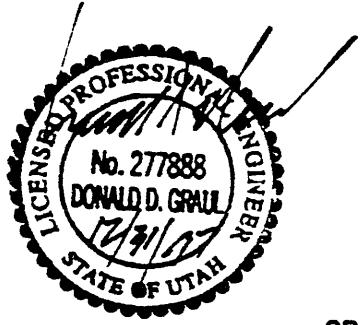
MSE SINGLE STAGE WITH BARRIER ON MOMENT SLAB
NO SCALE



CROSS SECTION C-C WITH ABUTMENT SLOPE (NON SPUI)
SLOPE PAVING / COPING DETAILS
NO SCALE

BARRIER REINFORCING STEEL SCHEDULE				
MARK	LOCATION	SIZE NO.	LENGTH	SKETCH
P13	OUTSIDE	16	1994	
P14	OUTSIDE LONGITUDINAL	19	VARIES	
P15	OUTSIDE	13	VARIES	
P16	OUTSIDE BARRIER ON MSE WALL	19	3240	
P17	OUTSIDE BARRIER ON MSE WALL	13	VARIES	
P18	OUTSIDE BARRIER	19	2340	
P30		16	2440	
P31		13	1370	
P32		19	4310 MAX	

- NOTES:**
- 50mm MINIMUM COVER OVER REINFORCING.
 - USE 325 PCCP $f'c=27.5$ MPa (4,000 PSI) FOR MOMENT SLAB.



WASATCH CONSTRUCTORS
JAN 02 1998
RELEASED FOR CONSTRUCTION

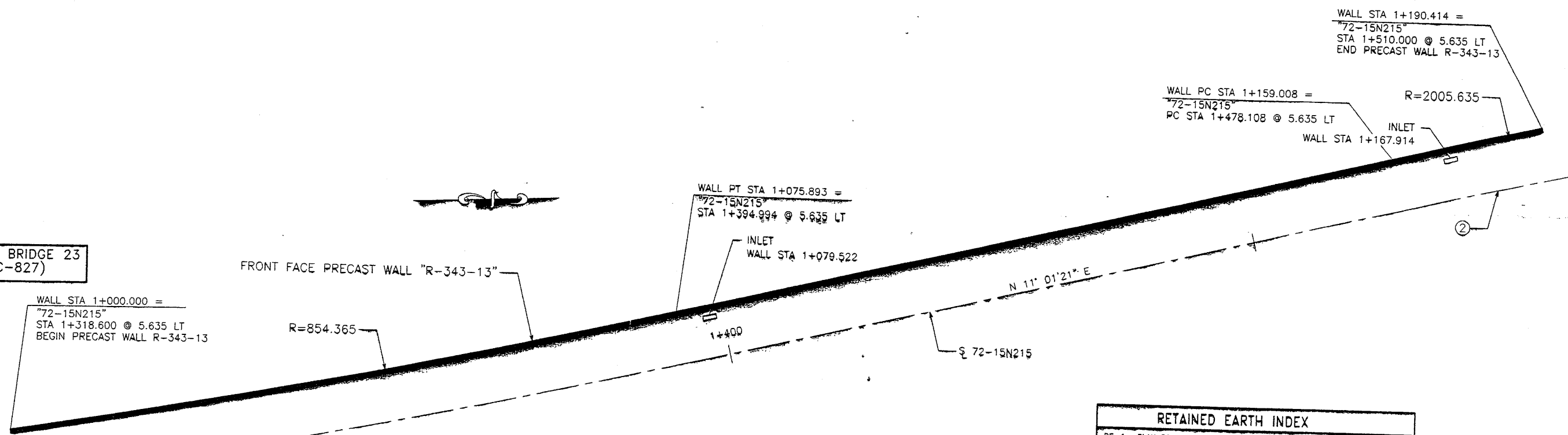
APPROVED FOR CONSTRUCTION
 UTAH DEPARTMENT OF TRANSPORTATION
 SVERDRUP/DE LEUW
 I-15 CORRIDOR RECONSTRUCTION
 MISC. DETAILS
 RET. WALL R-343-13
 SECTION 1.2
 PROJECT NUMBER #SP-15-7(135)296
 SALT LAKE COUNTY
 1.2R-343-13.1a
 SHT. 2 of 10

NO.	DATE	DESCRIPTION
1	12/31/97	RELEASED FOR DEPARTMENT BLAW
2		
3		

DESIGN	CHECK	DATE
DR	JL	12/97
PROJECT DESIGN ENGINEER	CHECK	DATE
DR	MS	12/97
SECTION MANAGER	CHECK	DATE
DR	MS	12/97

E:\PROJECT\239-0007\72SERIES\72-13A.P
 10-07-97
 FINAL P

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION



MATCH BRIDGE 23 (C-827)

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-13, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-343-13"
RE-6	ELEVATION PRECAST WALL "R-343-13"
RE-7	SPECIAL PANEL DETAILS
RE-8	SPECIAL PANEL DETAILS

PLAN VIEW WALL "R-343-13"

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

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	860.000	208.131	104.576	13°51'59"
②	2000.000	126.455	63.249	3°37'22"

All Dimensions Are In Meters Unless Noted Otherwise

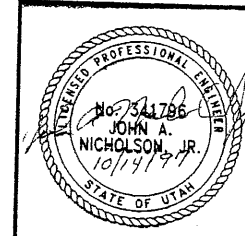
DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT)	= 38°
ANGLE OF INTERNAL FRICTION (BASE)	= 38°
ANGLE OF INTERNAL FRICTION (RANDOM)	= 38°
UNIT WEIGHT BACKFILL	= 135 PCF.
TRAFFIC SURCHARGE	= 250 PSF
SEISMIC ACCELERATION COFF.	= 0.12g (TYP)
SEISMIC ACCELERATION COFF.	= 0.32g (AT BRIDGE ABUTMENTS)
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING)	= 2.0
SAFETY FACTOR (SLIDING)	= 1.5
SAFETY FACTOR (PULLOUT)	= 1.5
DESIGN LIFE	= 75 YEARS

GENERAL NOTES

- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
- PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER SOIL REINFORCING MESH LOCATION.
 EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
 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: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
 EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
 EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
 IF NO MESH IS SHOWN, 4W11-6 MESH SHALL BE USED.
- 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.

WASATCH CONSTRUCTORS
 OCT 15 1997
 RELEASED FOR CONSTRUCTION

METRIC



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RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-343-13"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.
 SCALE: 1.2R-343-13.2
 JOB NO: 239-0007/10
 RE-1

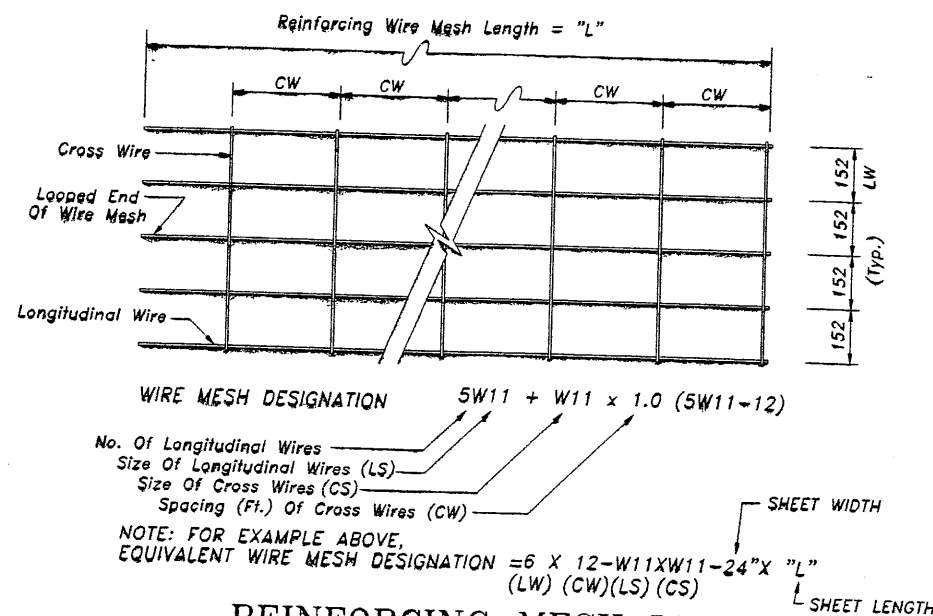
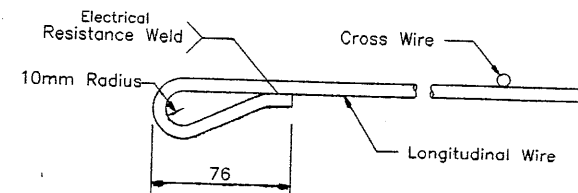
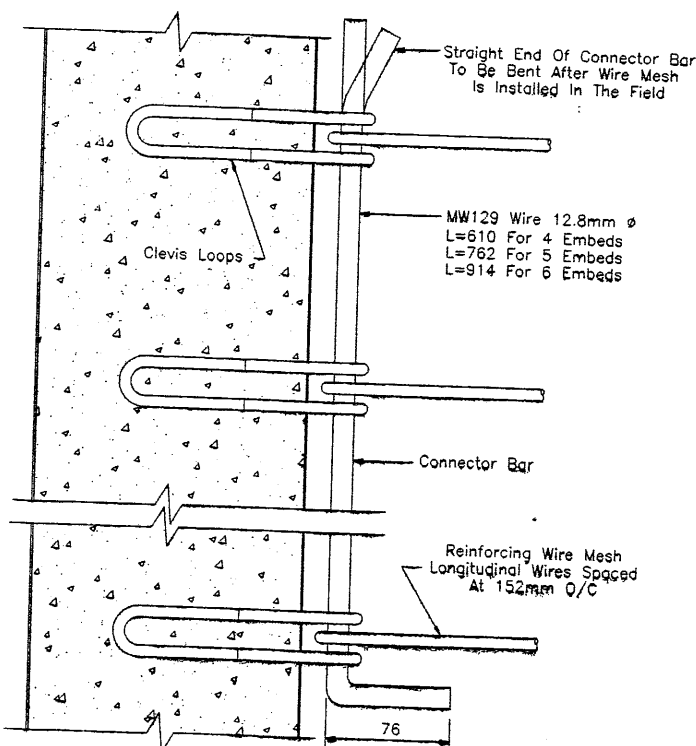
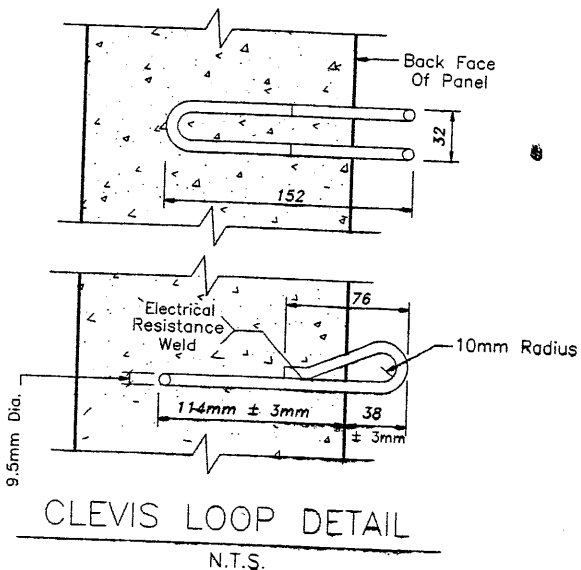
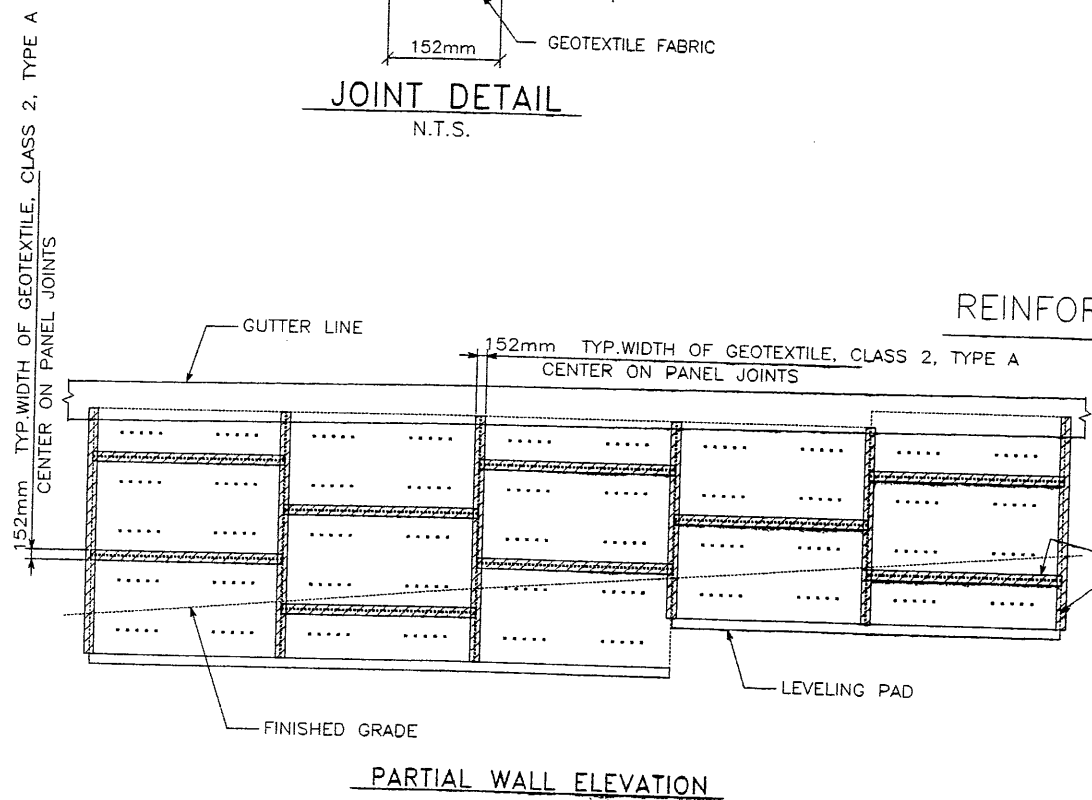
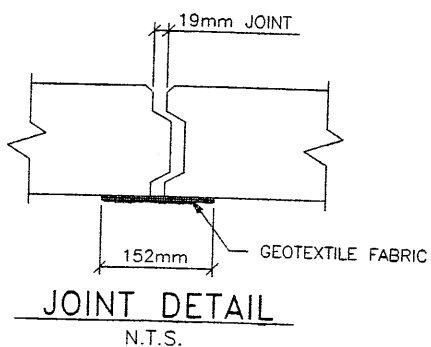
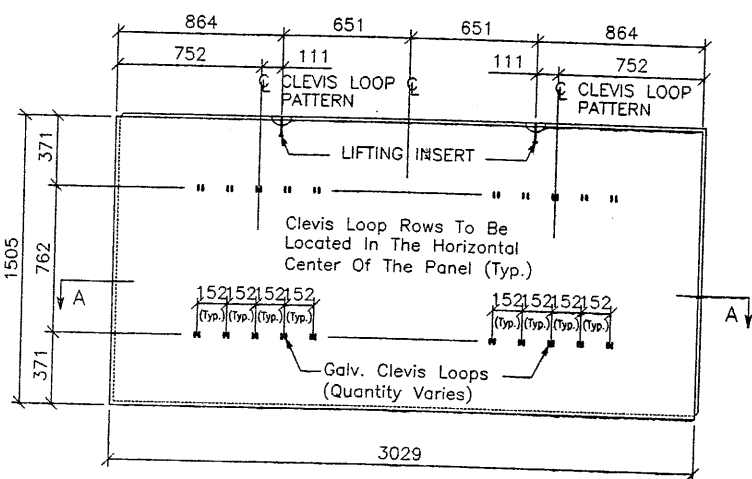
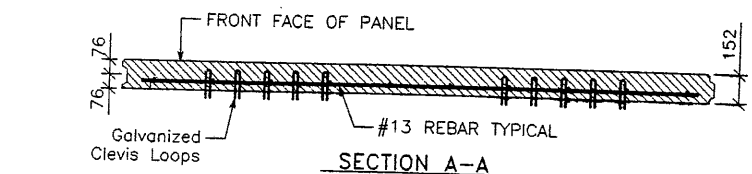
VSL CORPORATION
 2840 Roca Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4669

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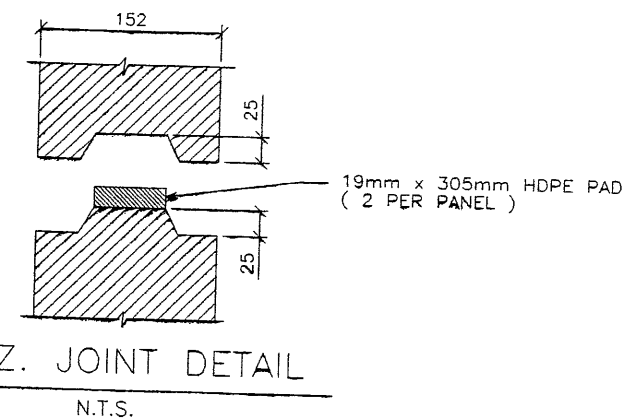
VSL
 RETAINED EARTH™

FINAL PLOT 10-07-97

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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-123 To A Minimum Effective Thickness Of 0.086 mm.

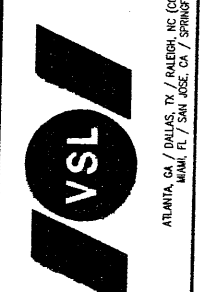


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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	DDO	CHK.	DATE	NO.	BY
09-03-97		09-03-97	DDO				CHK
							REVISION

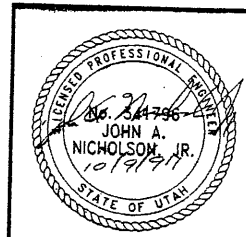
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Raleigh, NC 27612
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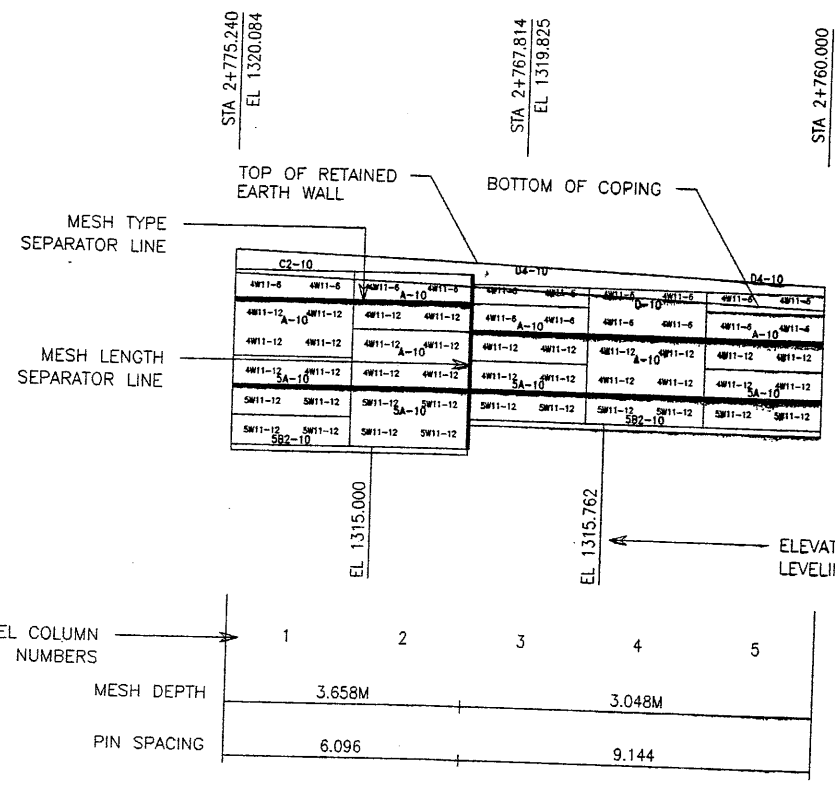
WATCH CONSTRUCTORS
OCT 15 1997
RELEASED FOR CONSTRUCTION

METRIC
SCALE: 1.2R-343-13.3
JOB NO: 239-0007
RE-2

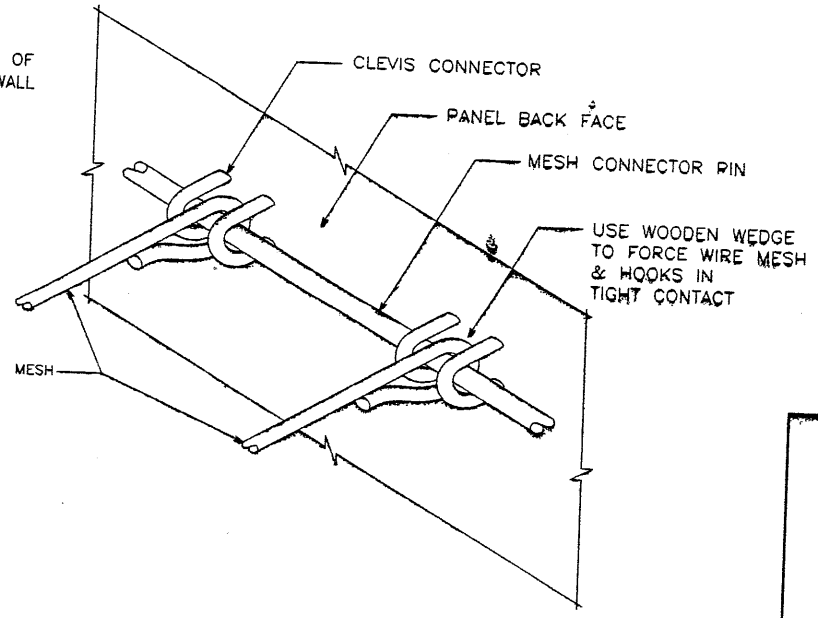
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-13"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



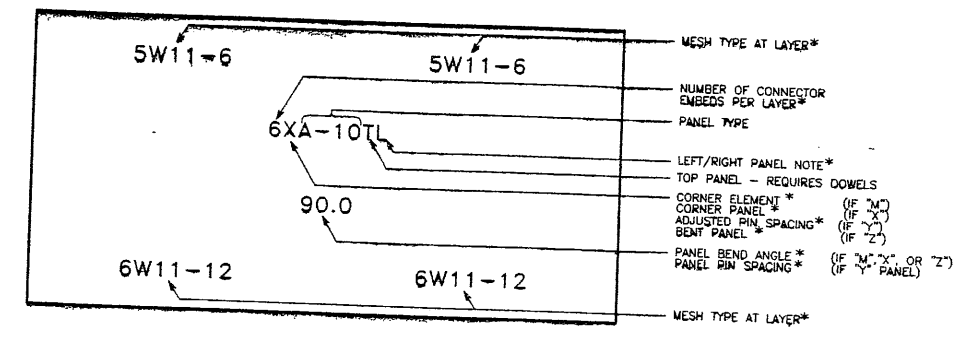
FINAL PI 0-07-97 E:\PROJECT\239-0007\2SERIES\72-13\RE-3



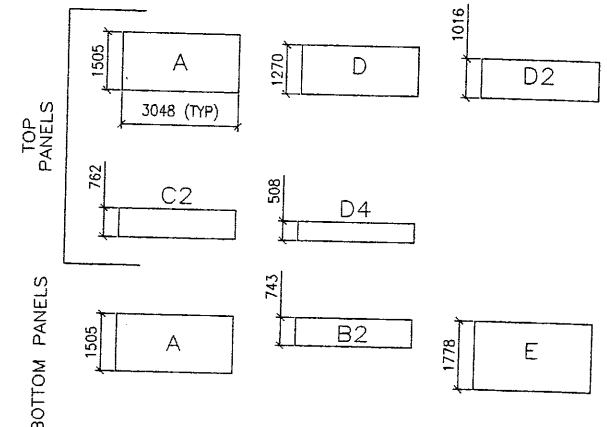
1 WALL ELEVATION KEY (FRONT FACE SHOWN)



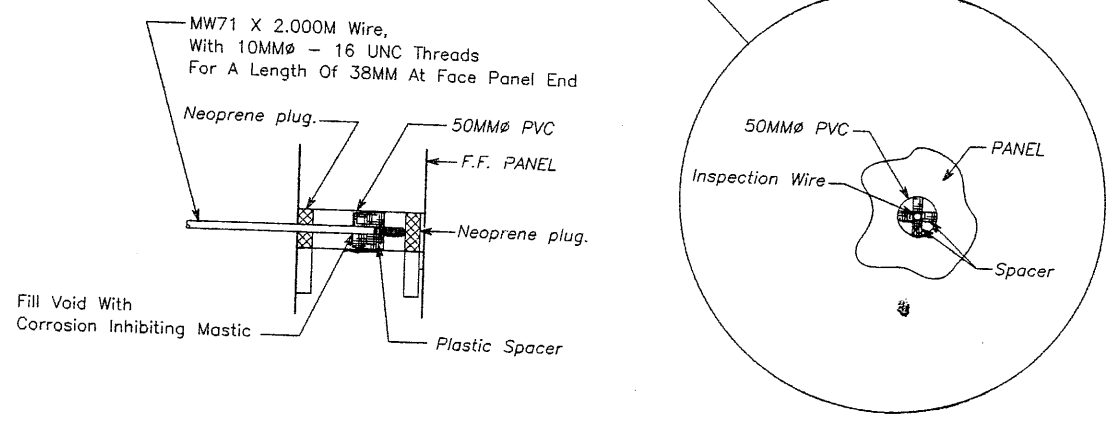
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



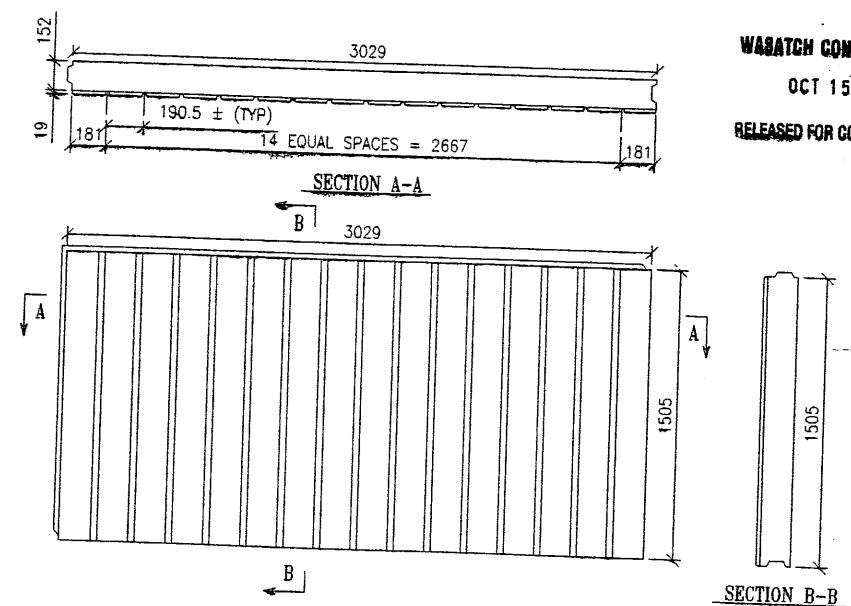
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



5 INSPECTION WIRE DETAIL (PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH (PANEL FRONT FACE SHOWN)

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

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WABATCH CONSTRUCTORS
OCT 15 1997
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-13"
TYPICAL DETAILS

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

SCALE: 1.2R-343-13.4
JOB NO: 239-0007
RE-3

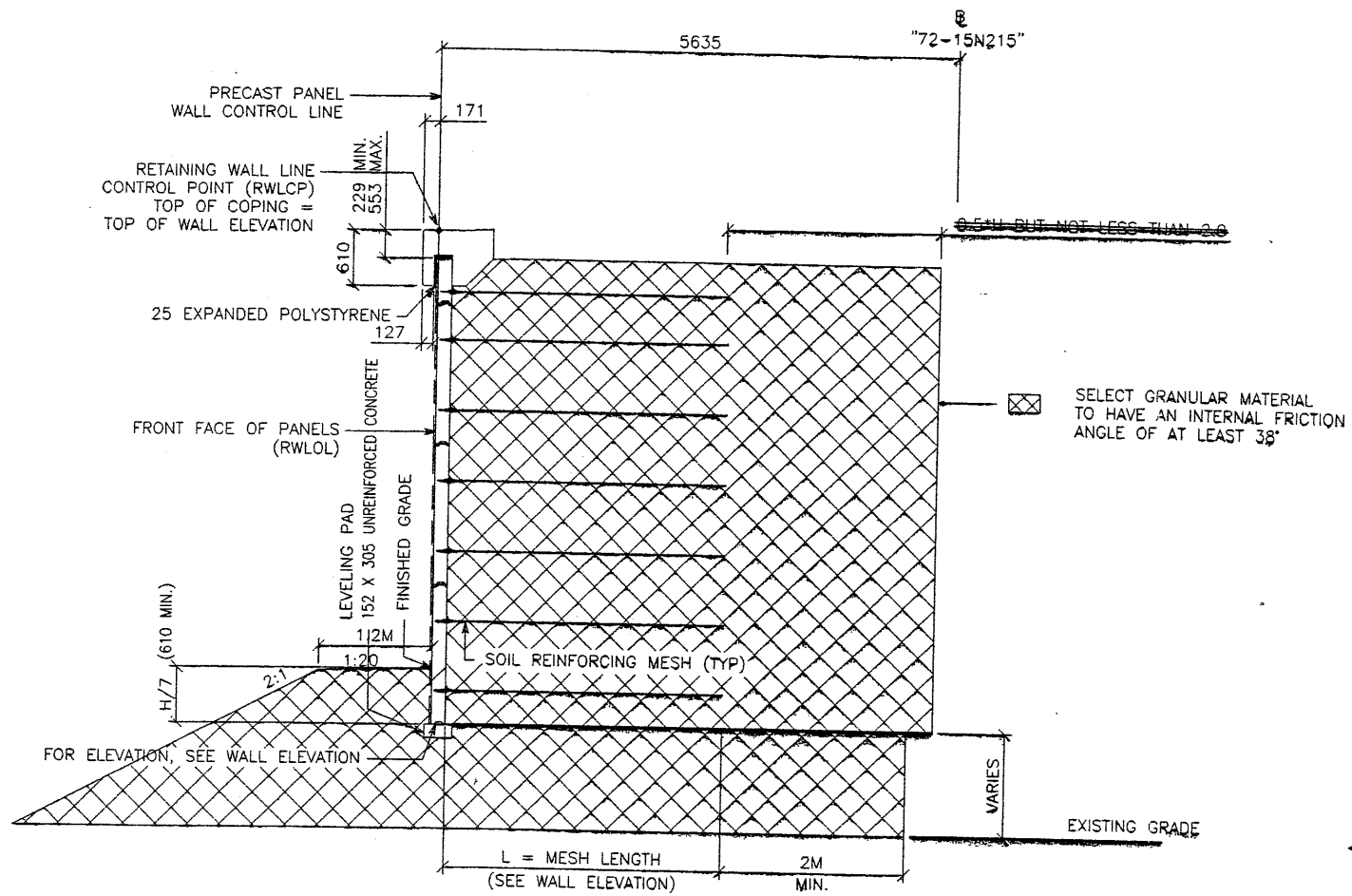
PROFESSIONAL ENGINEER
JOHN A. NICHOLSON, JR.
10/9/97
STATE OF UTAH

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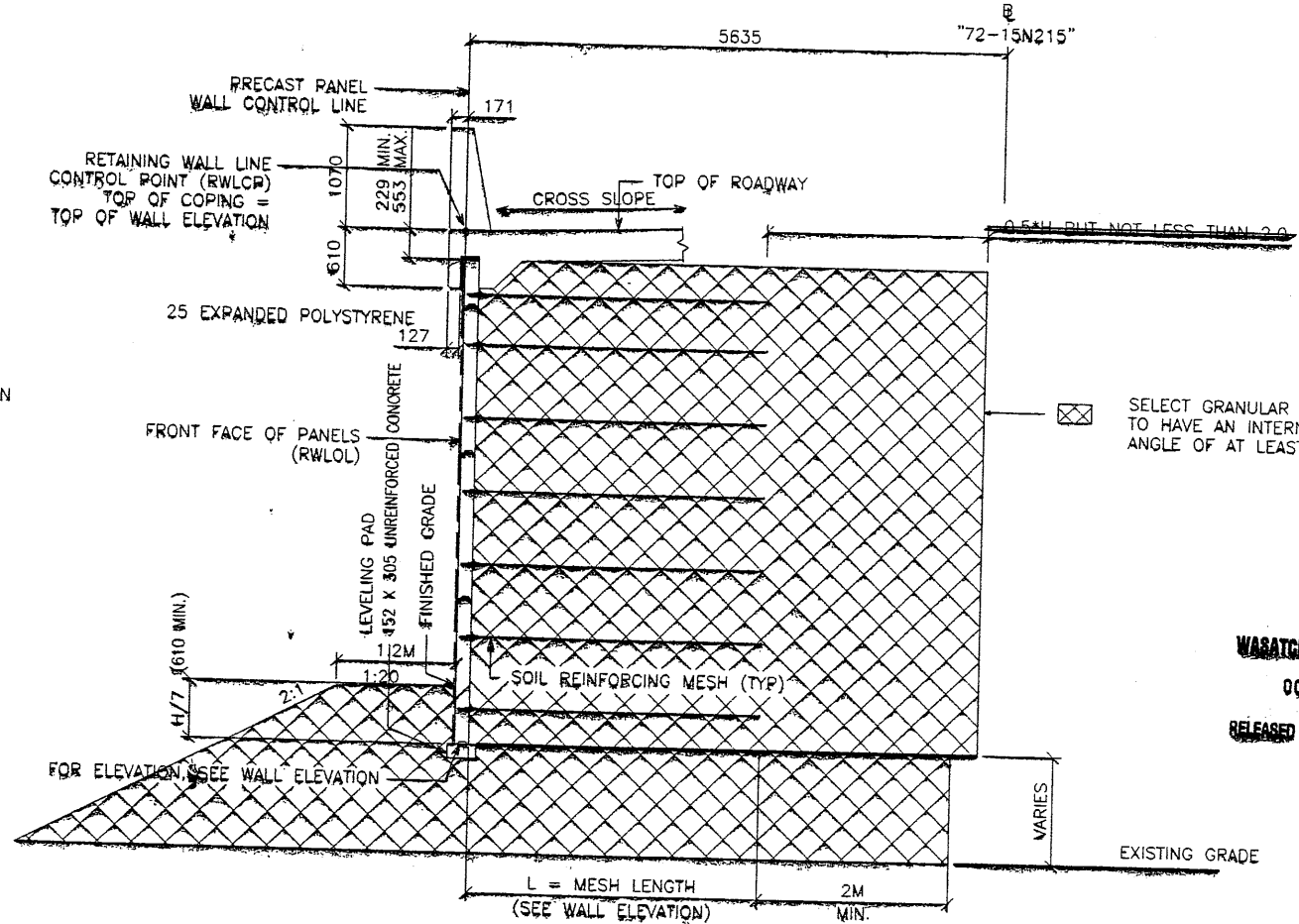
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FINAL PL 7-07-97

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NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION <i>OK</i>



TYPICAL CROSS SECTION STA 1+000.000 TO 1+011.472
 (MSE SINGLE STAGE WITH MOMENT SLAB)
 SCALE: 1:40 (FULL SIZE)
 SCALE: 1:80 (HALF SIZE)

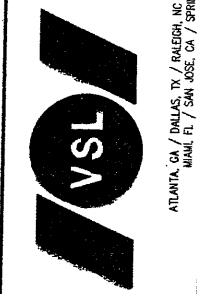


TYPICAL CROSS SECTION STA 1+011.472 TO 1+190.414
 (MSE SINGLE STAGE WITH MOMENT SLAB)
 SCALE: 1:40 (FULL SIZE)
 SCALE: 1:80 (HALF SIZE)

*Note: See S+L Sht 1.2R-343-13.1
 For limits of Structural Fill*

WARATCH CONSTRUCTORS
 OCT 15 1997
 RELEASED FOR CONSTRUCTION

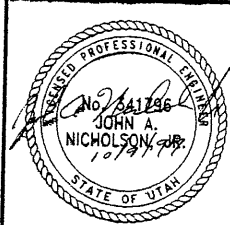
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-13"
 TYPICAL CROSS SECTIONS
 UTAH 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

METRIC



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SCALE: 1.2R-343-13.5
 JOB NO: 239-0007 6/10
 RE-4

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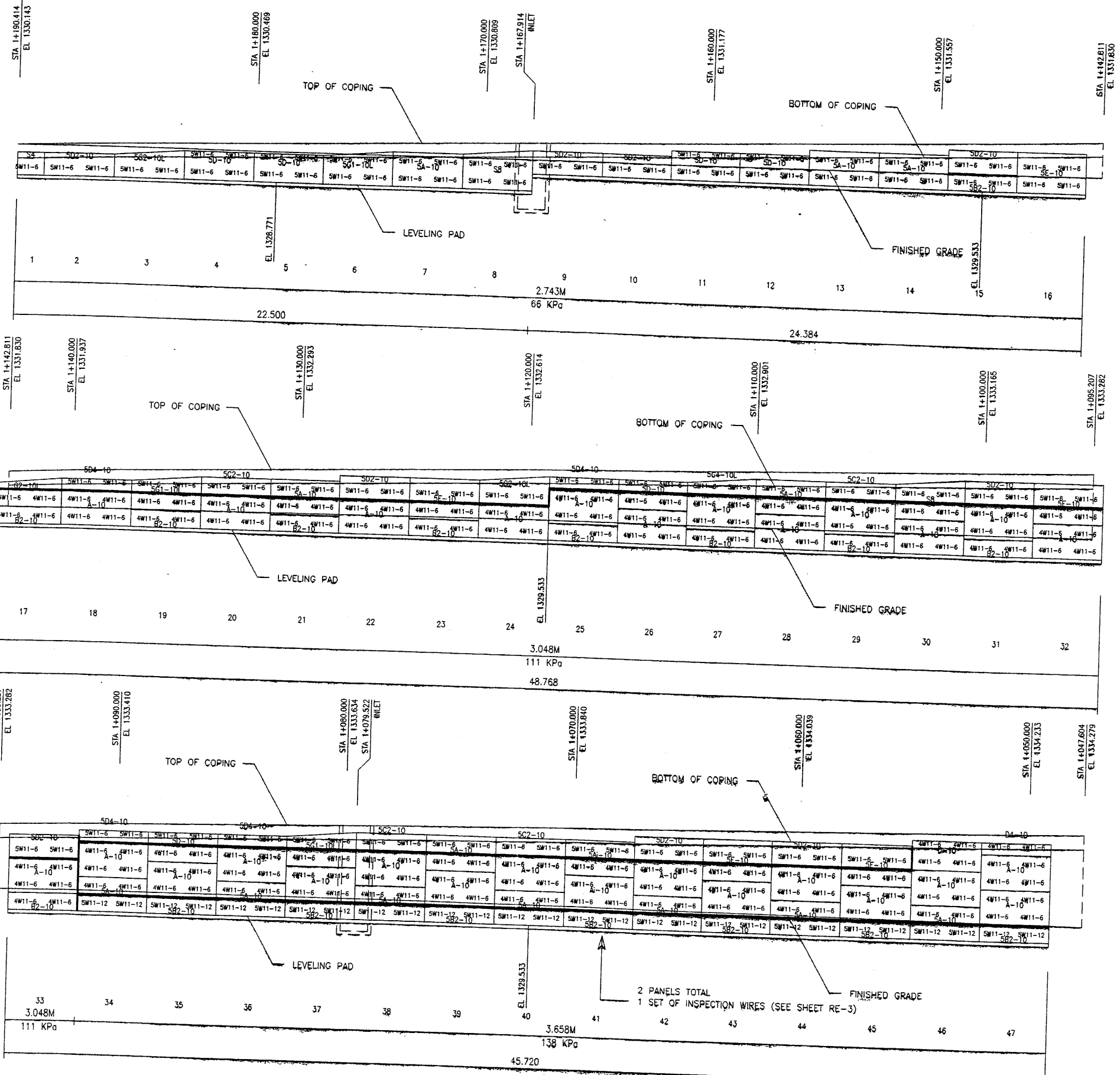
FINAL PI 0-07-97

WALL STA 1+190.414 =
"72-15N215"
STA 1+510.000 @ 5.635 LT
NOMINAL PANEL FACE (RWLOL)

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

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

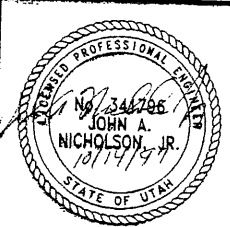
MESH DEPTH
MAXIMUM BEARING PRESSURE
(SEE NOTE BELOW)
PIN SPACING



ELEVATION PRECAST WALL R-343-13
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 206.59 SM)

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

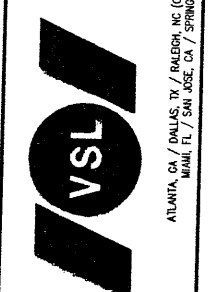
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STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
THE MANUFACTURER'S SPECIFICATION.



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
09-03-97	09-15-97	09-03-97						

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2840 Plaza Place, Suite 200
Raleigh, NC 27612
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WASATCH CONSTRUCTORS
OCT 15 1997
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-13"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:	1:2R-343-13.6
JOB NO:	239-0007/10
	RE-5

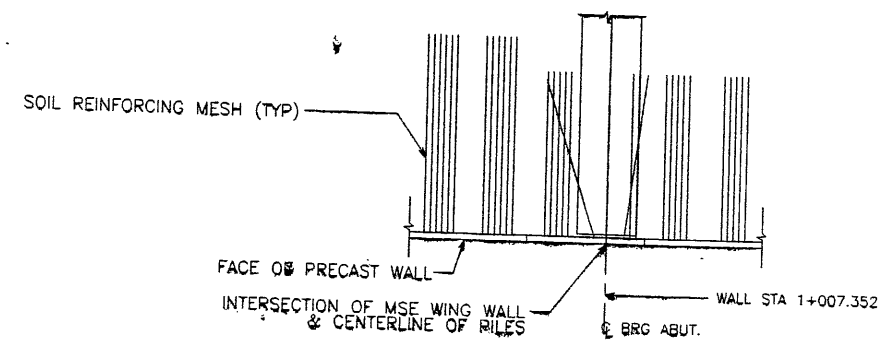
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-07-97

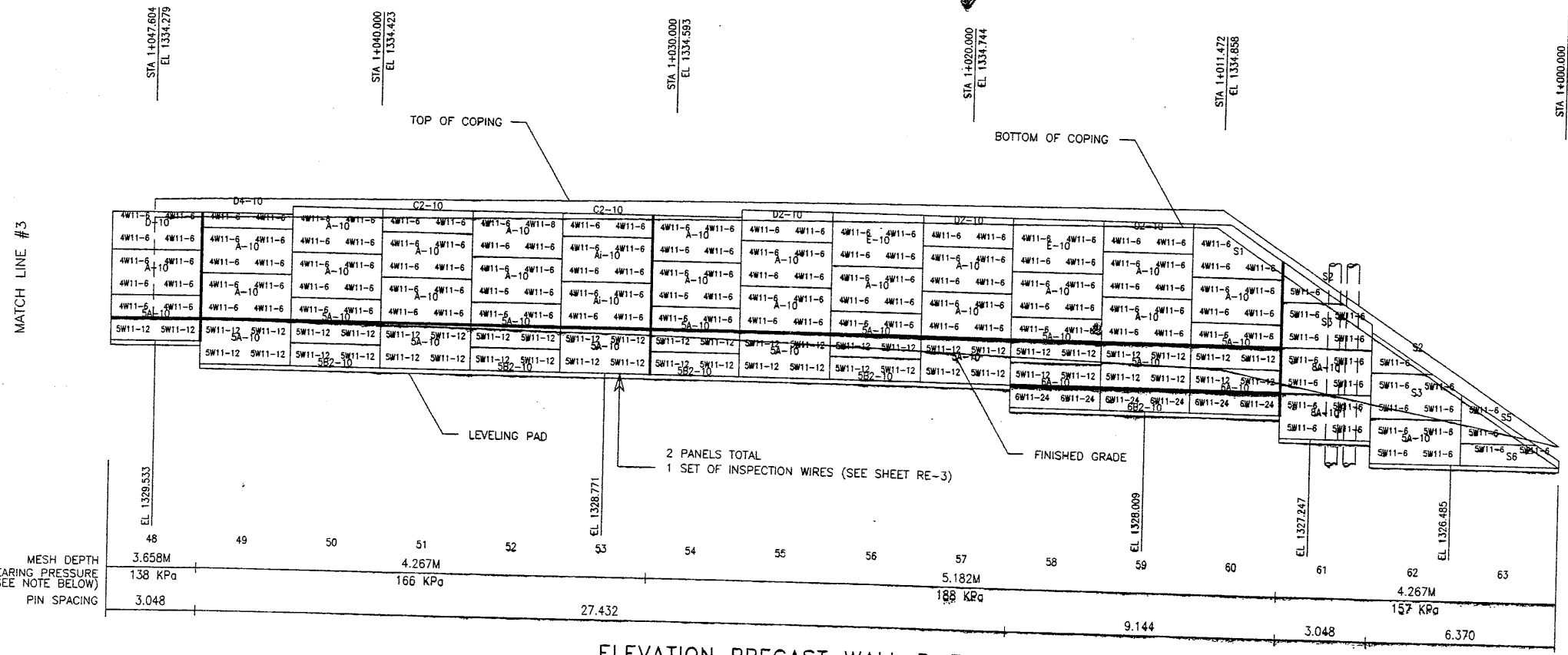
FINAL PLC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION



WALL STA 1+000.000 =
 "72-15N215"
 STA 1+318.600 @ 5.635 LT
 NOMINAL PANEL FACE (RWLOL)



MESH DEPTH	MAXIMUM UNFACTORED BEARING PRESSURE (SEE NOTE BELOW)	PIN SPACING
3.658M	138 KPa	3.048
4.267M	166 KPa	3.048

ELEVATION PRECAST WALL R-343-13
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 206.59 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

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

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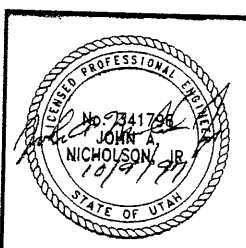
WARATCH CONSTRUCTORS
 OCT 15 1997
 RELEASED FOR CONSTRUCTION

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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-13"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

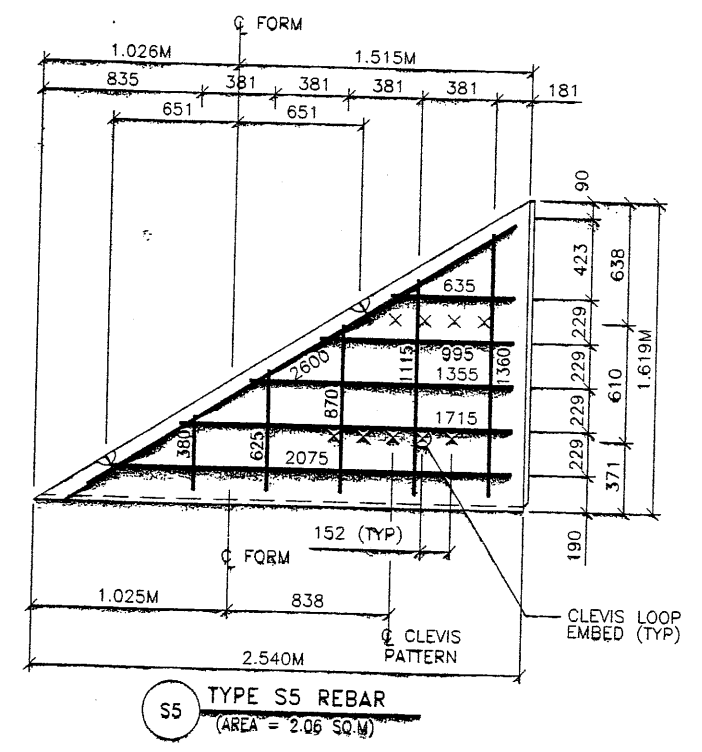
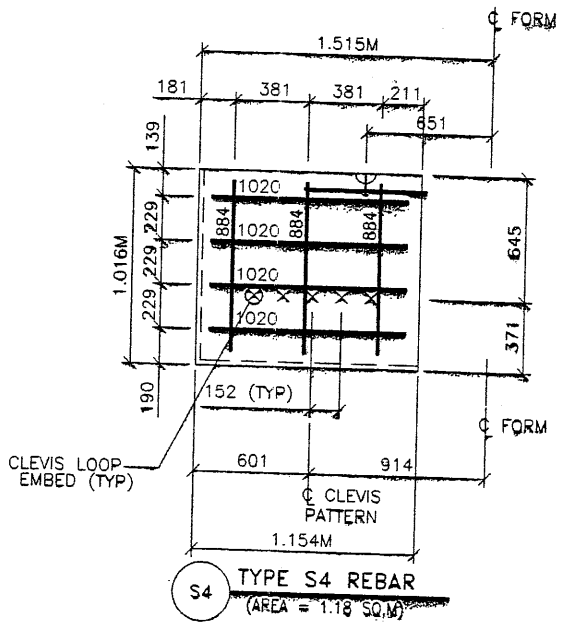
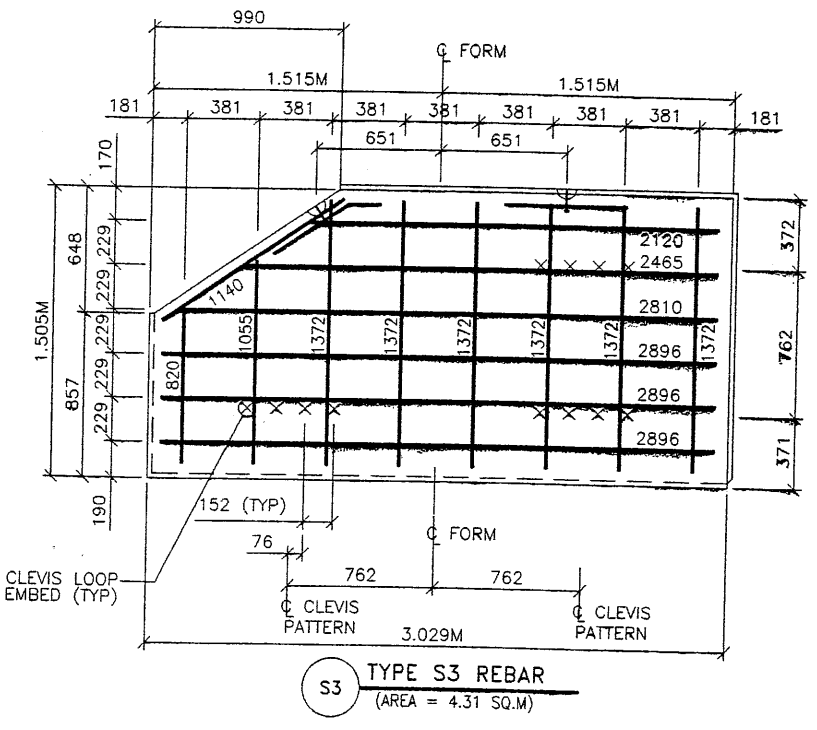
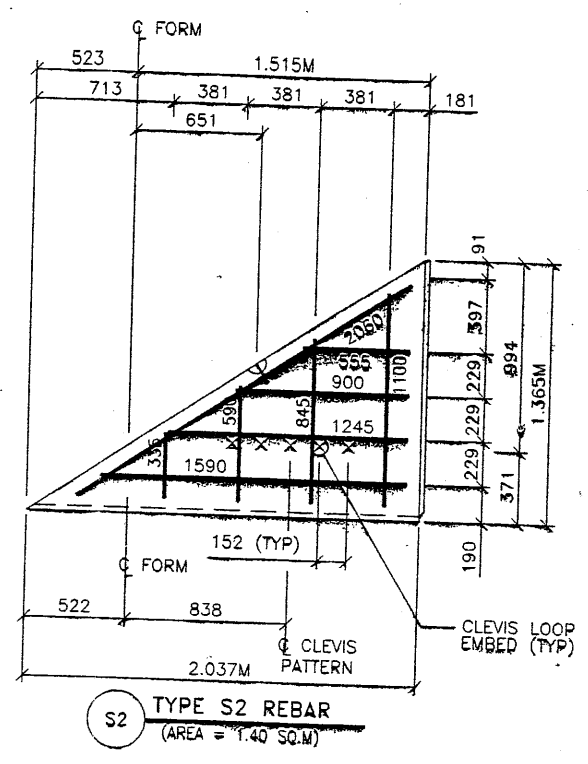
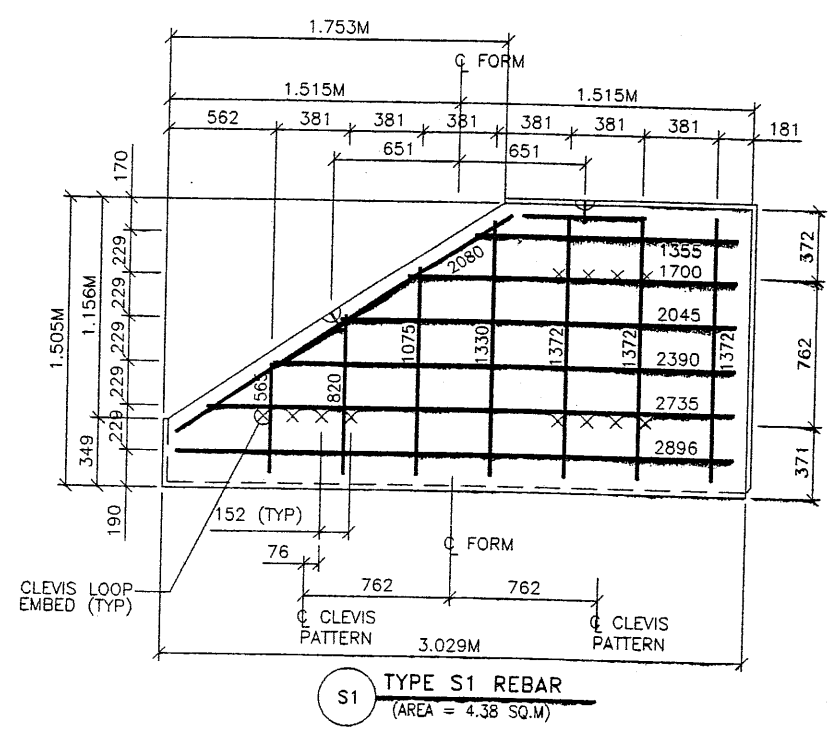


SCALE:	1.2R-343-13.7
JOB NO:	239-0007 8/10
	RE-6

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-06-97

FINAL PLOT



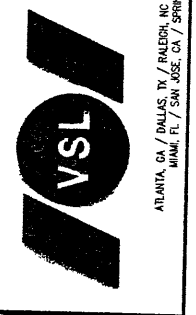
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	11-11-97	RELEASE FOR CONSTRUCTION

- 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.

WARREN CONSTRUCTORS
NOV 13 1997
RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

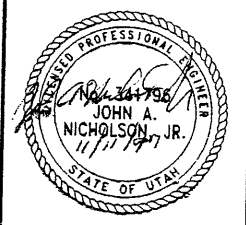
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 761-6272
 Fax: (919) 761-6969



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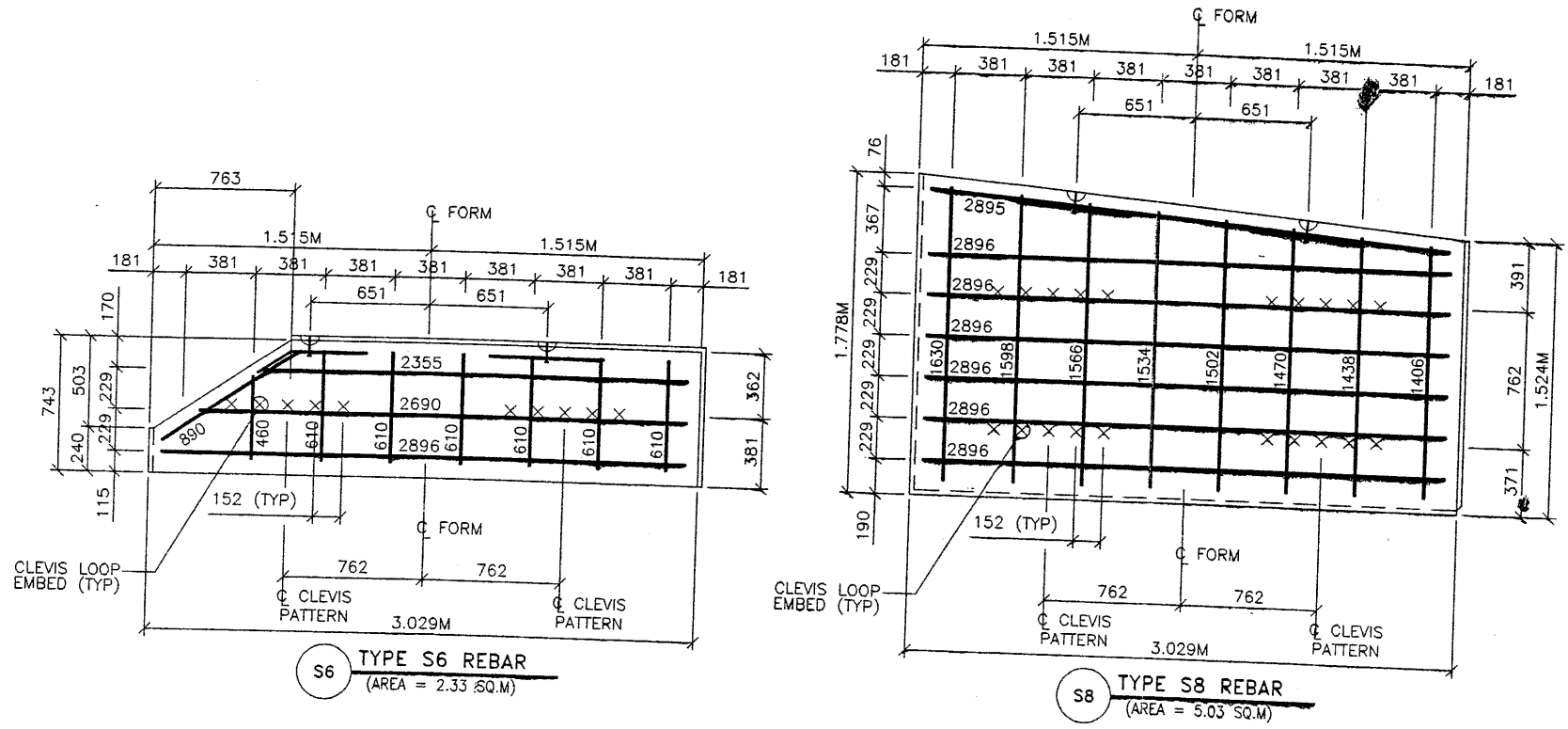
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-13"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

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.

SCALE:
 1.2R-343-13.8
 JOB NO:
 239-0007
 RE-7



S6 TYPE S6 REBAR
(AREA = 2.33 SQ.M)

S8 TYPE S8 REBAR
(AREA = 5.03 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	11-11-97	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.

NO.	DATE	REVISION	BY

WASATCH CONSTRUCTORS
NOV 13 1997

RELEASED FOR CONSTRUCTION

WASATCH CONSTRUCTORS
NOV 13 1997

RELEASED FOR CONSTRUCTION

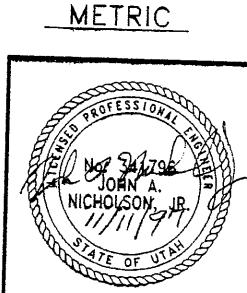
VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27617-6772
Tel: (919) 781-4672
Fax: (919) 781-4669



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

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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-13"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



METRIC

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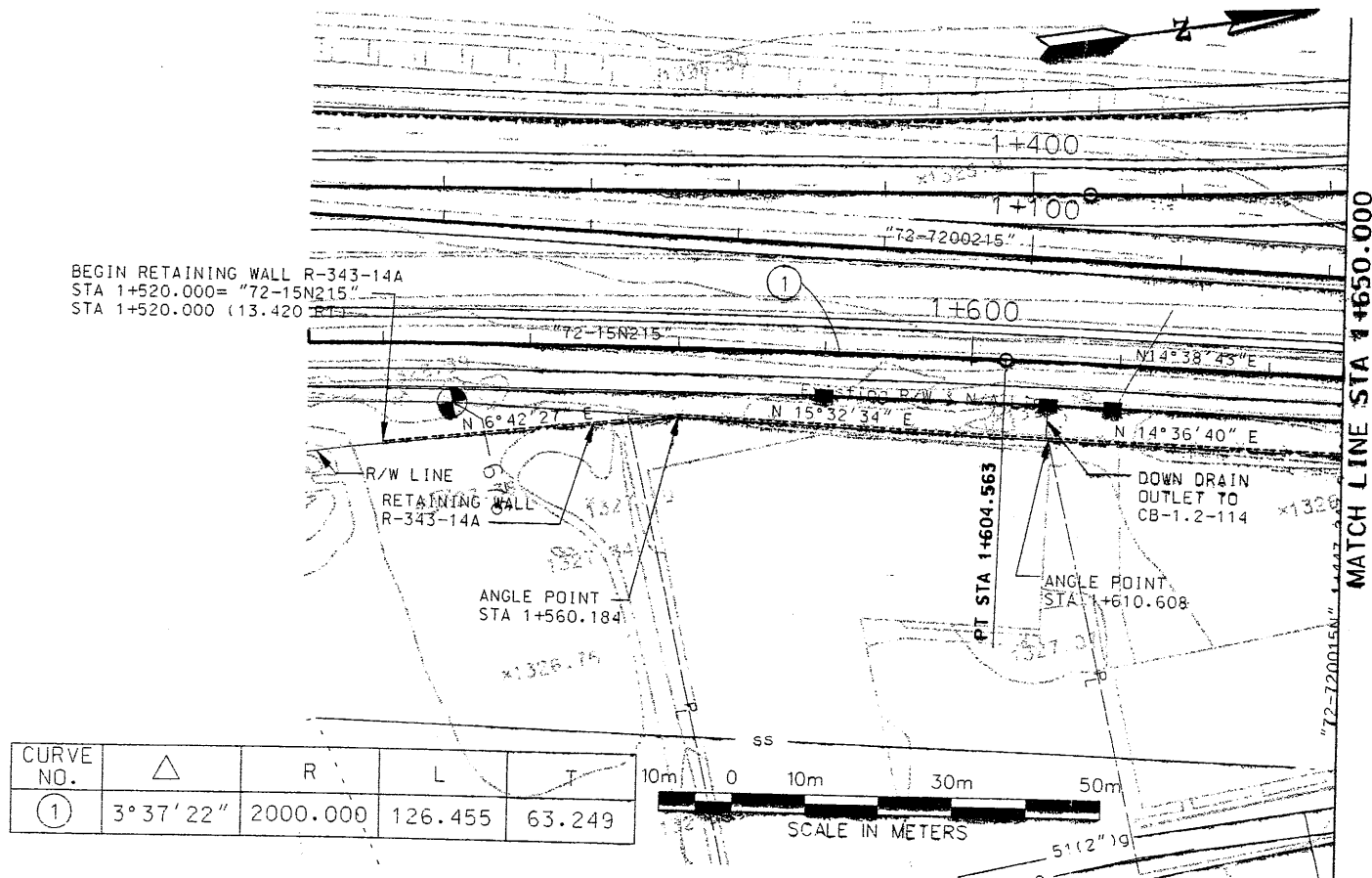
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JOB NO: 239-0007 10/10

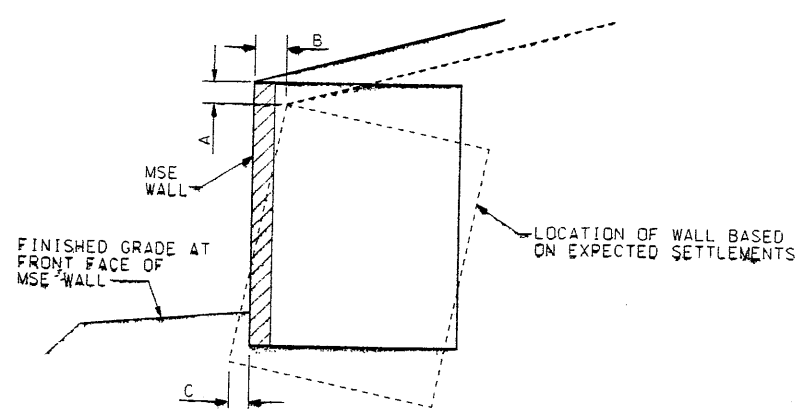
RE-8

Active File Levels(1-64)
 First Reference File Levels(1-43, 46, 47, 49, 50, 54, 60-64)
 Second Reference File Levels(1-22, 24-32, 34, 35, 37-62, 64)
 Third Reference File Levels(1-2, 4-6)

Date: 15-Oct-1997 Time: 16:43 User: ramer.fulk.jd
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 Scale: 500.000000000000
 Rotation: 0.00000000
 Pen Table: US1.PL
 Queue: \CVMS\PL\Ucc 9900 - InterPlot
 State of Utah Professional Seal
 No. 277888
 Donald D. Gault
 Licensed Professional Engineer



CURVE NO.	△	R	L	T
①		2000.000	126.455	63.249

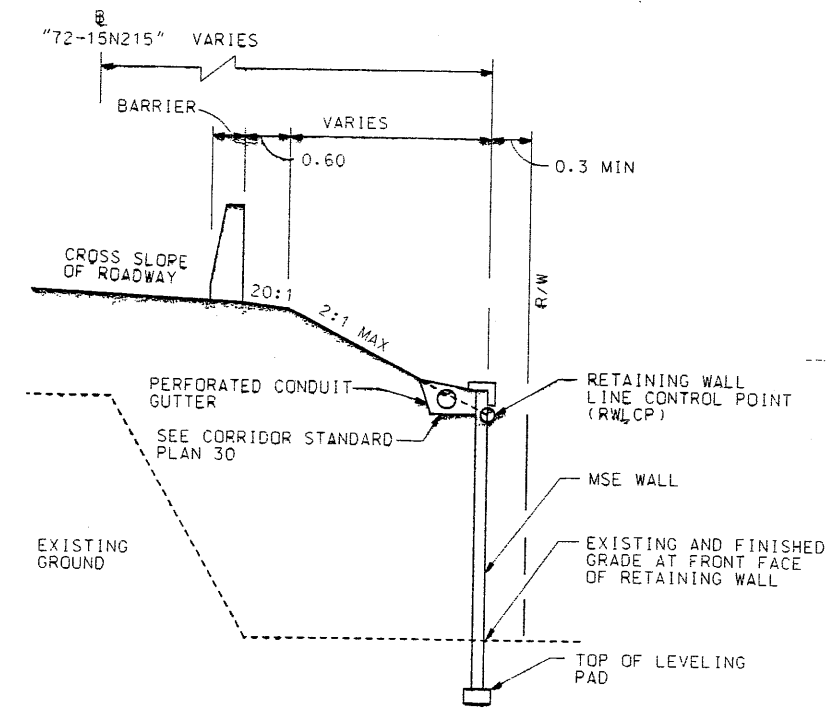
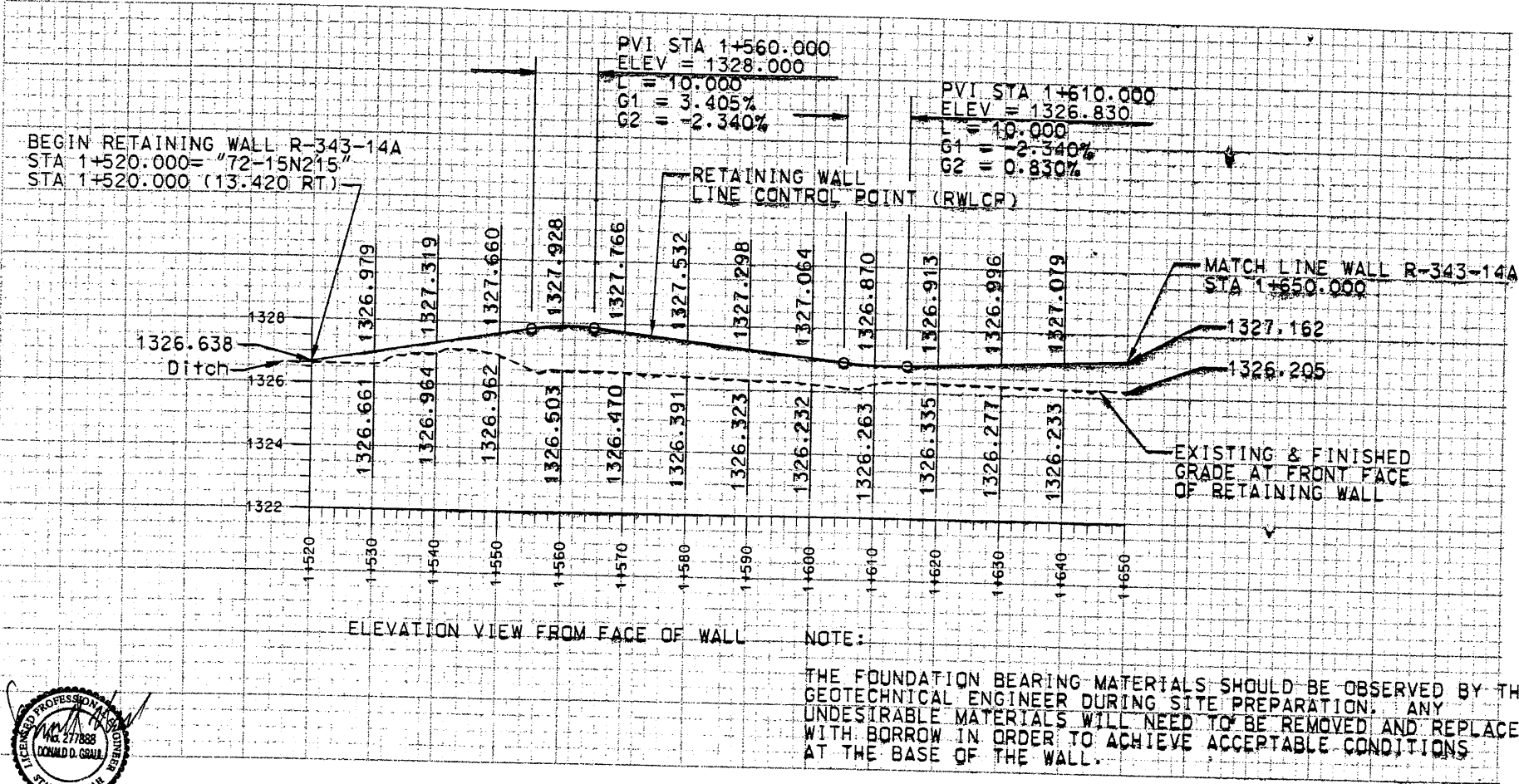


ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
		A	B	C
1+520.000 TO 1+814.715	1+770***	10 TO 30	7	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.

WASATCH CONSTRUCTORS
 OCT 20 1997
 RELEASED FOR CONSTRUCTION

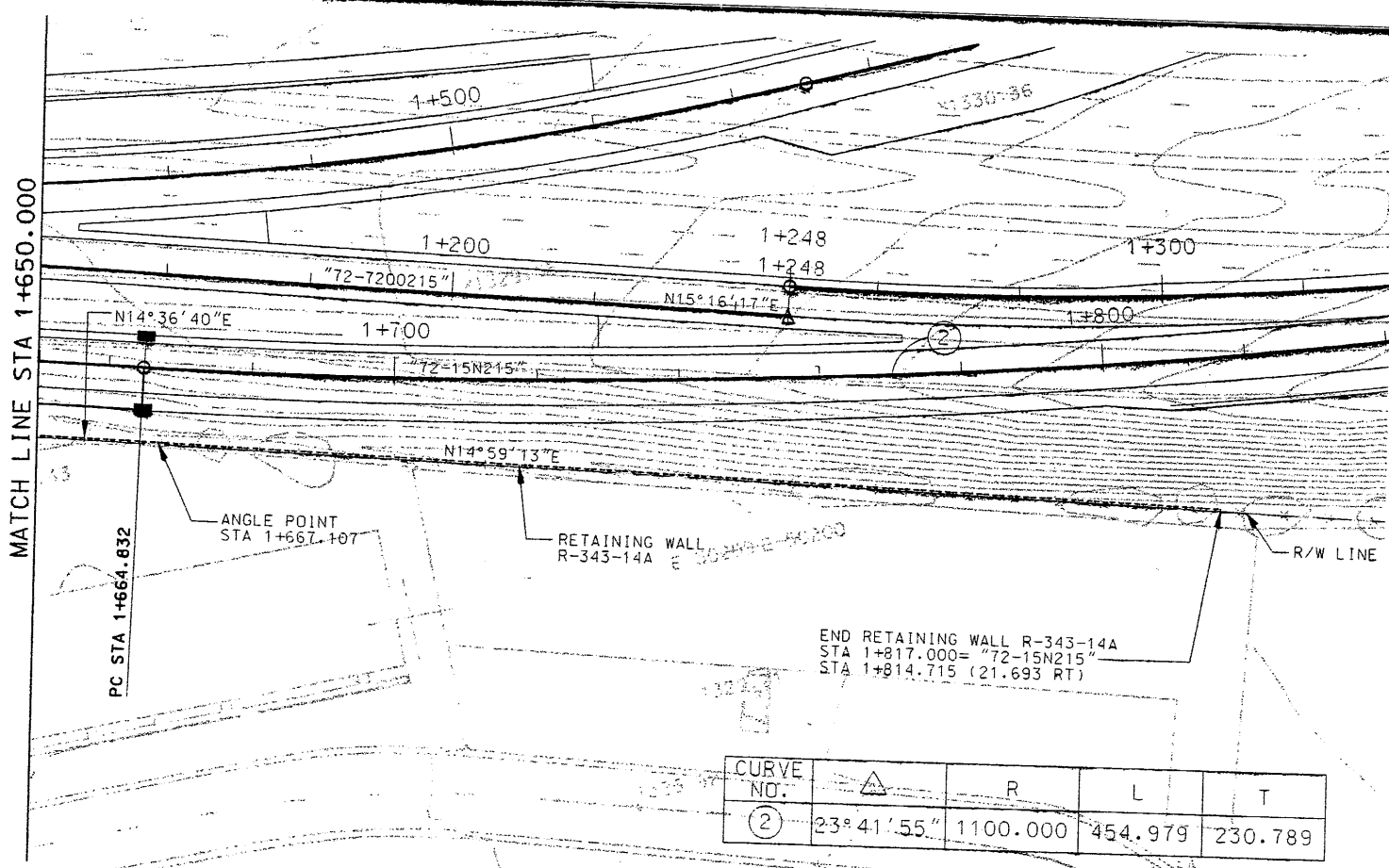


TYPICAL SECTION WALL R-343-14A
 STA 1+520.00 TO STA 1+600.000
 STA 1+620 TO STA 1+700

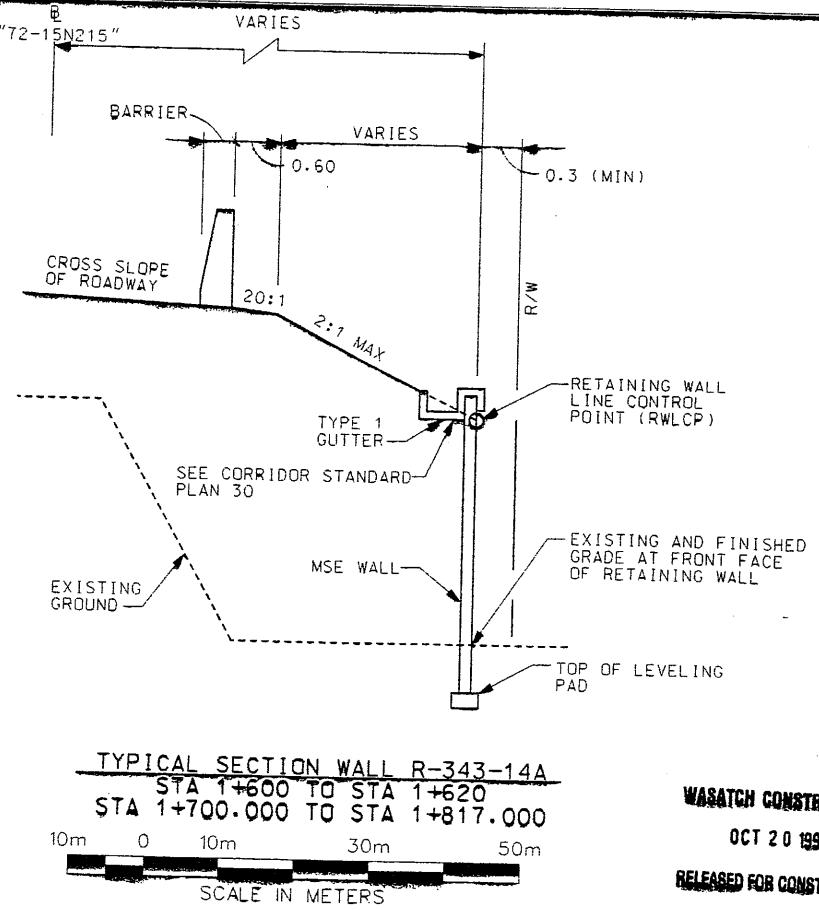
UTAH DEPARTMENT OF TRANSPORTATION		APPROVED FOR CONSTRUCTION	
URS Greiner SVERDRUP/DE LEUW		DESCRIPTION	
I-15 CORRIDOR RECONSTRUCTION SITUATION/LAYOUT RET WALL R-343-14A		DATE 10-15-97	
SECTION 1.2		INITIAL RELEASE	
PROJECT NUMBER *SP-15-7(135)296		1212405	
SALT LAKE COUNTY		DWG. NO.	
1.2R-343-14A.1		DATE	
SHT. 1 OF 13		CHECK	

Scale: 500:1
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 First Reference File Levels: (1-64)
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 Second Reference File Levels: (1-22, 24-32, 34, 35, 37-62, 64)
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Date: 15-OCT-1997 Time: 16:46 Username: falk.jdl

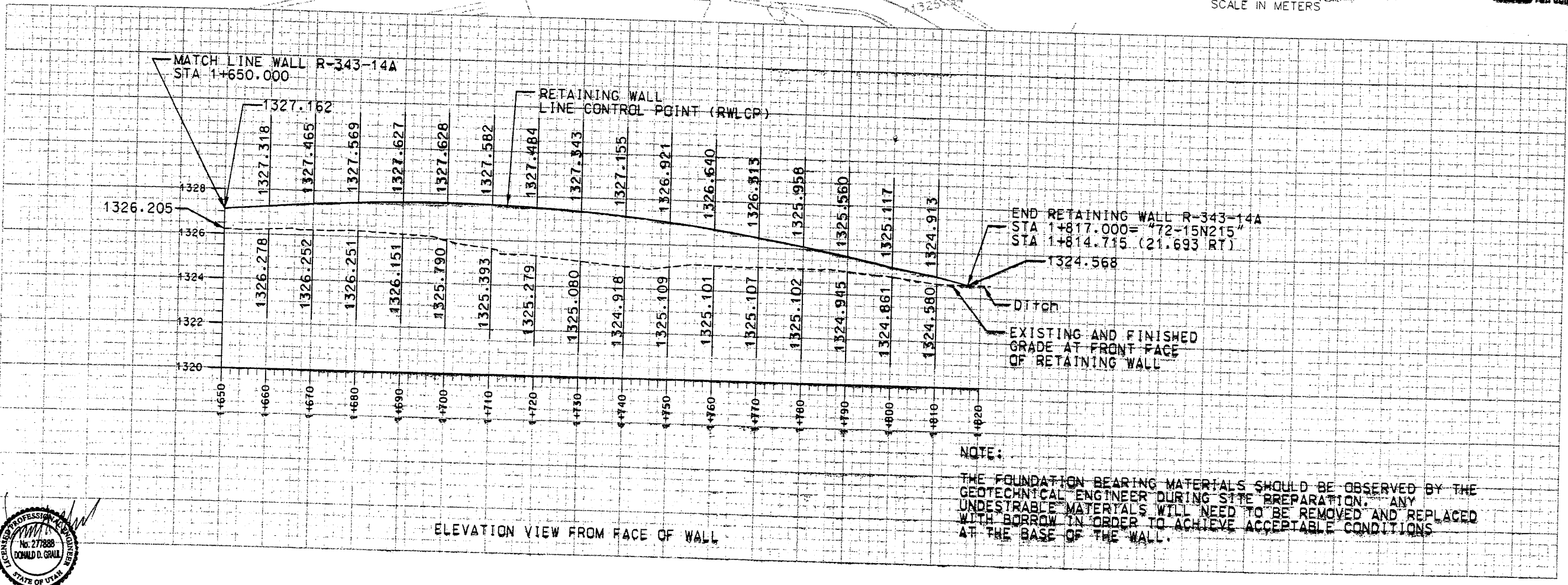


CURVE NO.	Δ	R	L	T
②	23° 41' 55"	1100.000	454.979	230.789



TYPICAL SECTION WALL R-343-14A
 STA 1+600 TO STA 1+620
 STA 1+700.000 TO STA 1+817.000
 SCALE IN METERS

WASATCH CONSTRUCTORS
 OCT 20 1997
 RELEASED FOR CONSTRUCTION



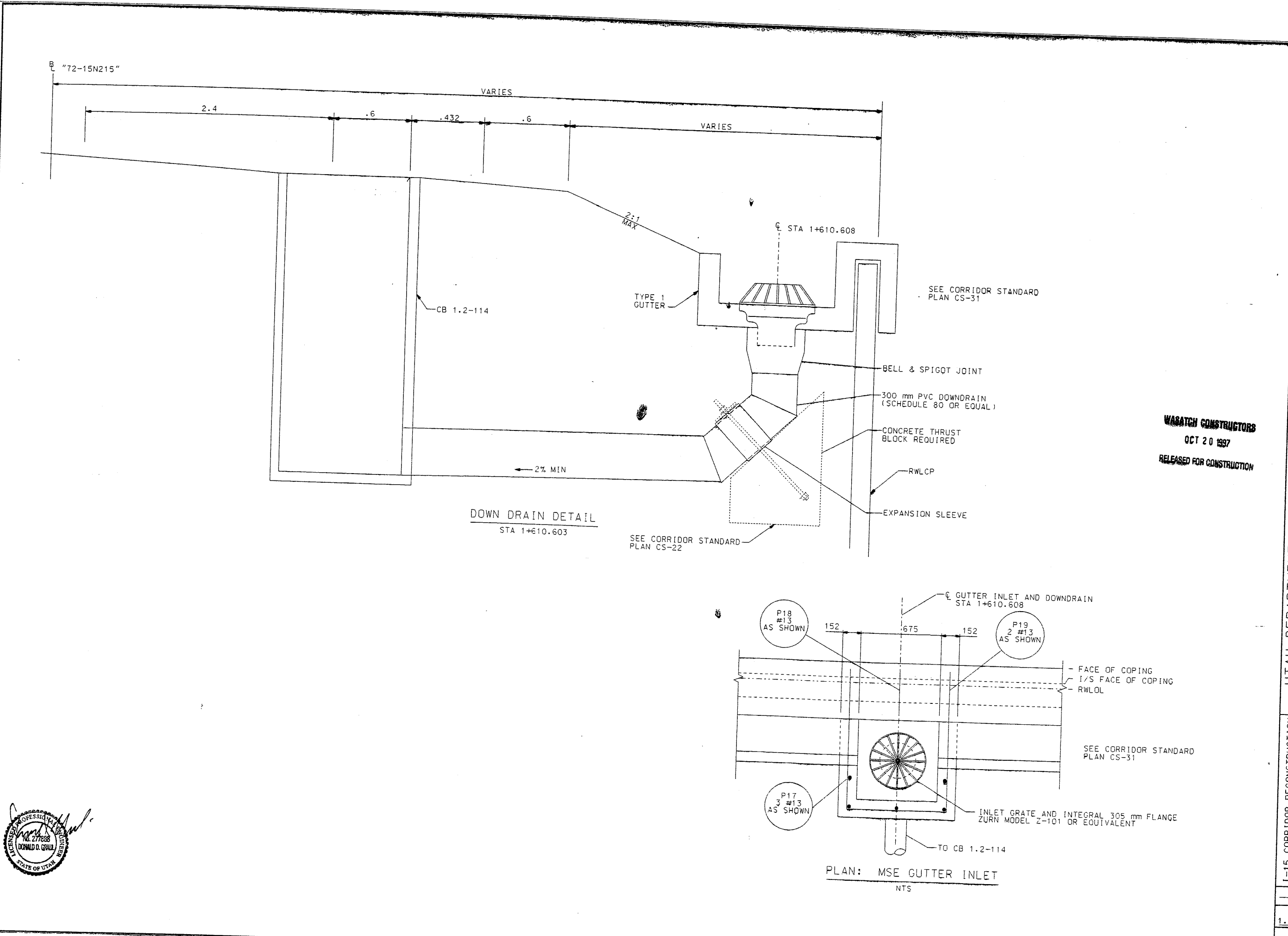
NOTE:
 THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.



APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
Δ	10-15-97		
INITIAL RELEASE			
1212405			
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner			
SVERDRUP/DE LEUW			
APPROVAL	DATE	APPROVAL	DATE
RECOMM.	9/97	RICK CHAPMAN	9/97
		PROJECT DESIGN ENGINEER	
		DRAWN	DATE
		DKM	9/97
		CHECK	DATE
		JMM	9/97
		CHECK	DATE
		JMM	9/97
		CHECK	DATE
		JMM	9/97
I-15 CORRIDOR RECONSTRUCTION		SECTION 1.2	
SITUATION/LAYOUT RET WALL R-343-14A		PROJECT NUMBER *SP-15-7(135)296	
SALT LAKE COUNTY			
1.2R-343-14A.2			
SHT. 2 OF 13			

Active File Levels: I-40, 42, 44
 First Reference Filename:
 Second Reference File Levels:
 Third Reference File Levels:
 Fourth Reference File Levels:
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 Username: fuklq1

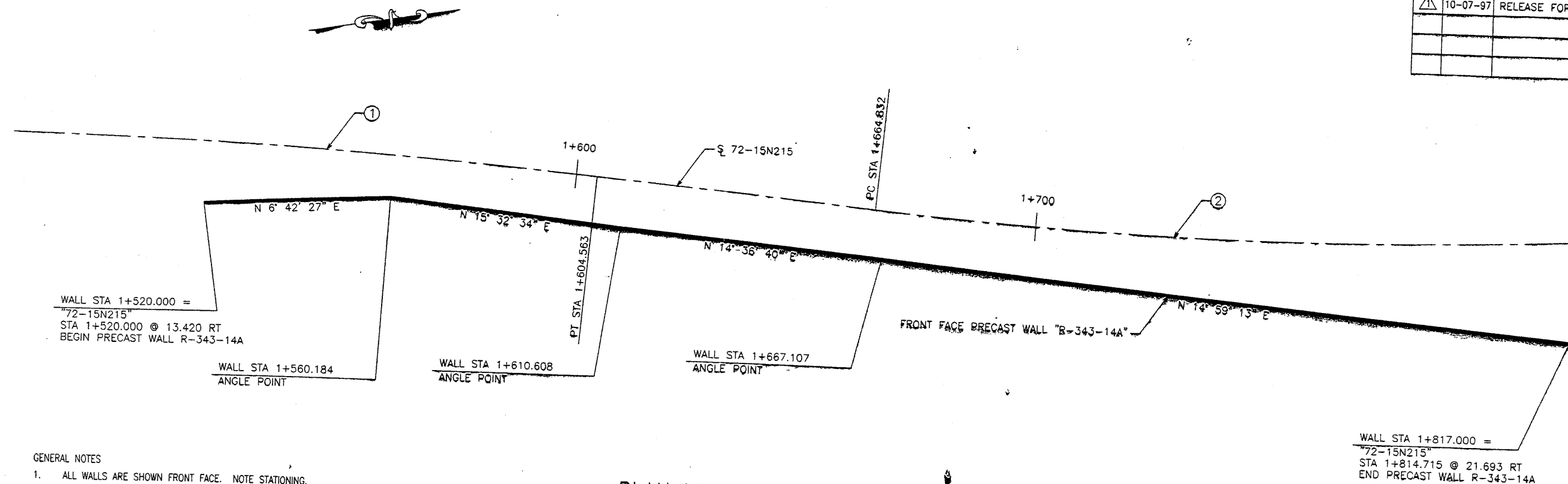


WASATCH CONSTRUCTORS
 OCT 20 1997
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	10-15-97		
			INITIAL RELEASE
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner SVERDRUP/DE LEUW			
DESIGN	DA	9/97	CHECK
DRAWN	RS	9/97	CHECK
QUANT.			CHECK
			1212402
I-15 CORRIDOR RECONSTRUCTION		DETAILS RET WALL R-343-14A	
SECTION 1.2		PROJECT NUMBER *SP-15-7(135)296	
SALT LAKE COUNTY		DWG. NO. 1.2R-343-14A.2A	
SHT. 3 OF 13		RFF	

FINAL PL -07-97 E:\PROJECT\239-0007\72SERIES\72-14A\

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-97	RELEASE FOR CONSTRUCTION <i>OK</i>



- GENERAL NOTES**
- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
 - PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER SOIL REINFORCING MESH LOCATION.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
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: 5W11-12 MESH HAS FIVE (5) 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.

PLAN VIEW WALL "R-343-14A"
SCALE: 1=500 (FULL SIZE)
SCALE: 1=1000 (HALF SIZE)

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT)	= 34°
COEFFICIENT OF FRICTION AT BASE	= 0.47
ANGLE OF INTERNAL FRICTION (RANDOM)	= 34°
UNIT WEIGHT BACKFILL	= 135 PCF.
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

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	△
①	2000.000	126.455	63.249	3°37'22"
②	1100.000	454.979	230.789	23°41'55"

All Dimensions Are in Meters Unless Noted Otherwise

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-14A, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTION
RE-5	ELEVATION PRECAST WALL "R-343-14A"
RE-6	ELEVATION PRECAST WALL "R-343-14A"
RE-7	ELEVATION PRECAST WALL "R-343-14A"
RE-8	ELEVATION PRECAST WALL "R-343-14A"
RE-9	ELEVATION PRECAST WALL "R-343-14A"
RE-10	SPECIAL PANEL DETAILS

WASATCH CONSTRUCTORS
OCT 20 1997
RELEASED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	BY	CHK

D.S.	09-18-97	MM	09-18-97	DDO	09-18-97	MM	09-18-97	MM	RETAINED EARTH™
DRN.	09-18-97	DDO	09-18-97	DDO	09-18-97	DDO	09-18-97	DDO	RETAINED EARTH™
CHK.	09-18-97	MM	09-18-97	MM	09-18-97	MM	09-18-97	MM	RETAINED EARTH™

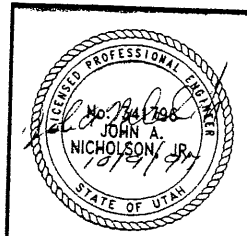
VSL CORPORATION
2840 Plaza Place, Suite 200
Eden, NC 27612
Telephone: (919) 761-6272
Fax: (919) 761-4988

VSL
ATLANTA, GA / DALLAS, TX / FAUQUIER, NC (CORPORATE OFFICE)
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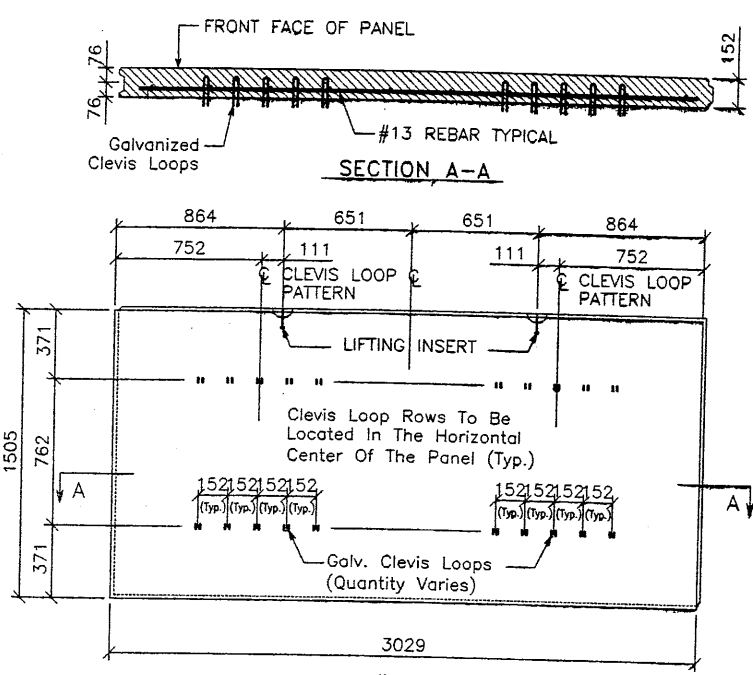
RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-14A"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE: 1:2R-343-14A.3
JOB NO: 239-0007
4/13
RE-1

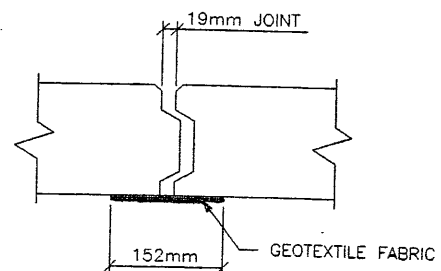
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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



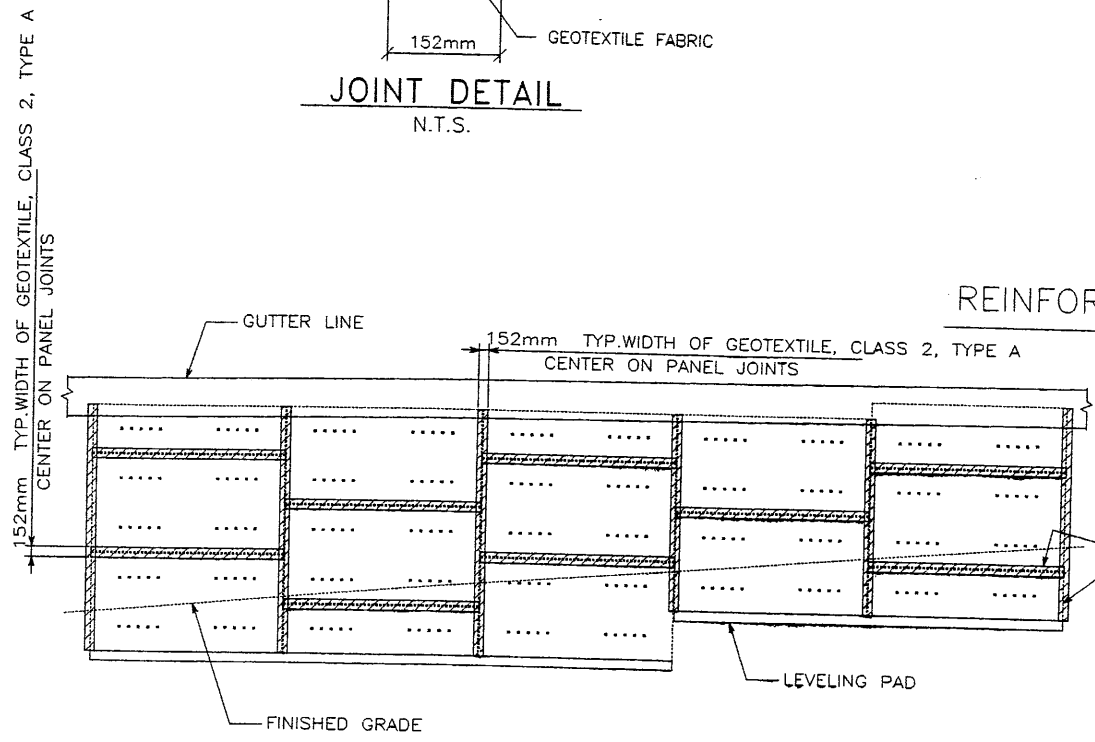
FINAL P 10-07-97 E:\PROJECT\239-0007\72SERIES\72-14A



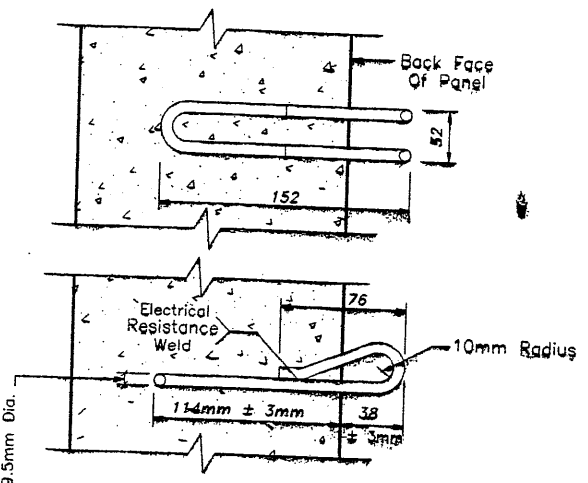
STANDARD "5A-10" PANEL
Back Face View



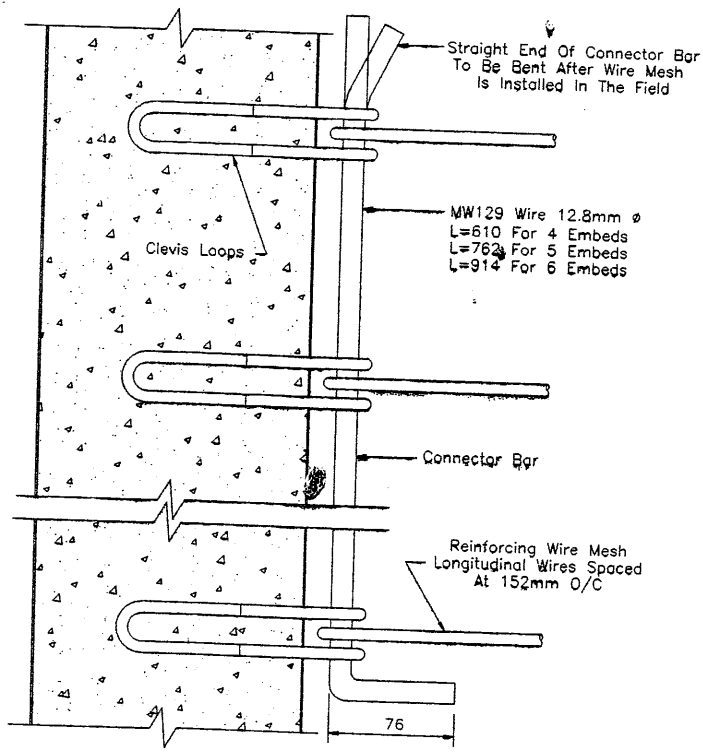
JOINT DETAIL
N.T.S.



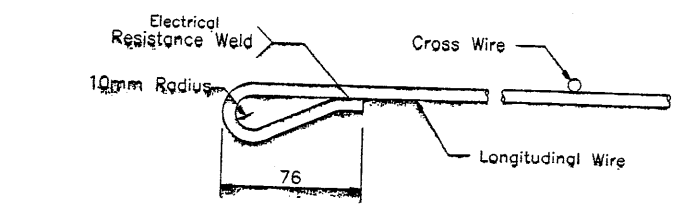
PARTIAL WALL ELEVATION



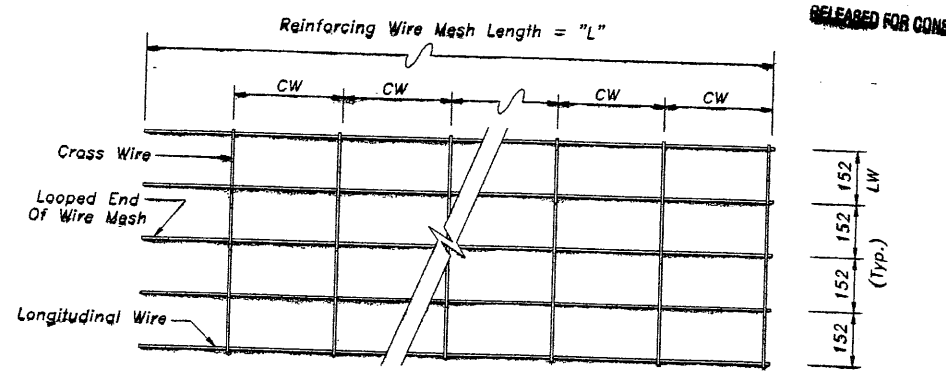
CLEVIS LOOP DETAIL
N.T.S.



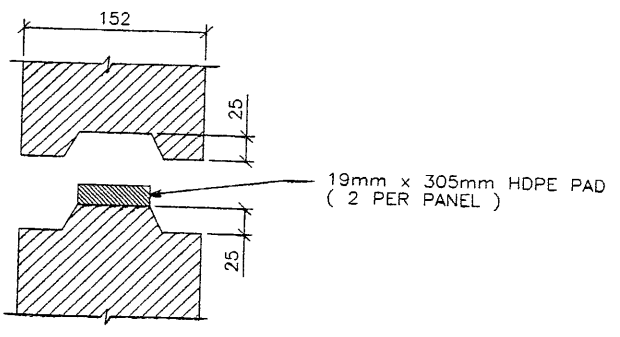
REINFORCING MESH CONNECTION DETAIL
N.T.S.



WIRE MESH LOOP DETAIL
N.T.S.



WIRE MESH DESIGNATION: 5W11 + W11 x 1.0 (5W11-12)
 No. Of Longitudinal Wires
 Size Of Longitudinal Wires (LS)
 Size Of Cross Wires (CS)
 Spacing (Ft.) Of Cross Wires (CW)
 NOTE: FOR EXAMPLE ABOVE,
 EQUIVALENT WIRE MESH DESIGNATION = 6 X 12-W11XW11-24" X "L"
 (LW) (CW)(LS) (CS)
 SHEET WIDTH
 SHEET LENGTH



HORZ. JOINT DETAIL
N.T.S.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ	10-07-97	RELEASE FOR CONSTRUCTION

WARATCH CONSTRUCTORS
OCT 20 1997
RELEASED FOR CONSTRUCTION

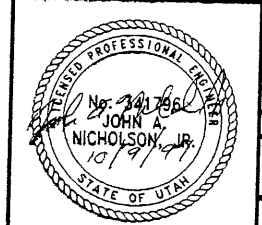
DES.	DRN.	CHK.	NO.	DATE	REVISION	BY	CHK.
09-18-97	09-18-97	09-18-97	MM	MM	MM	MM	MM

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6772
Fax: (919) 781-6993



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

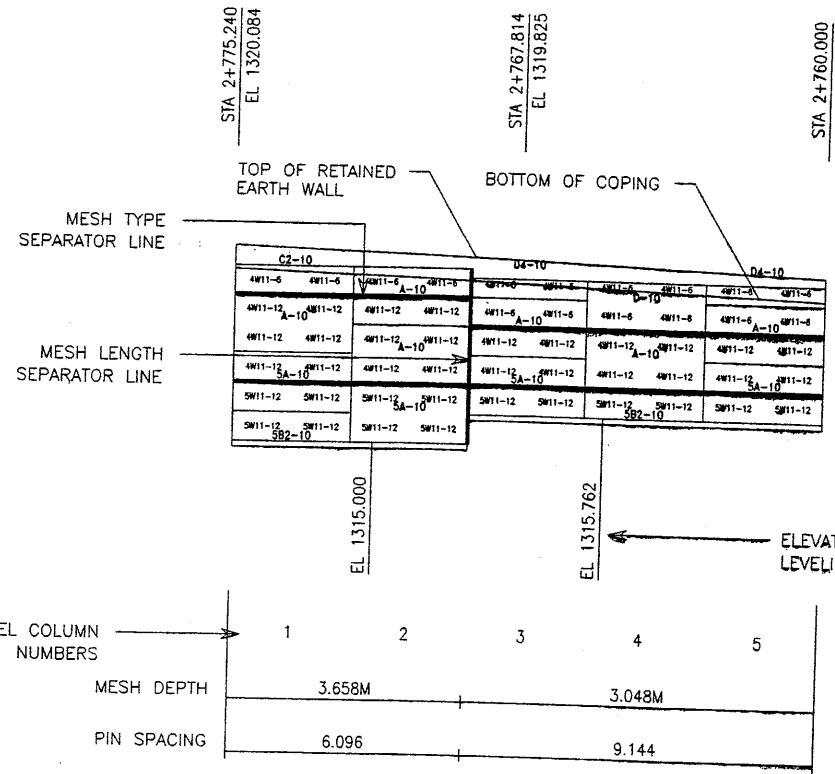
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14A"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



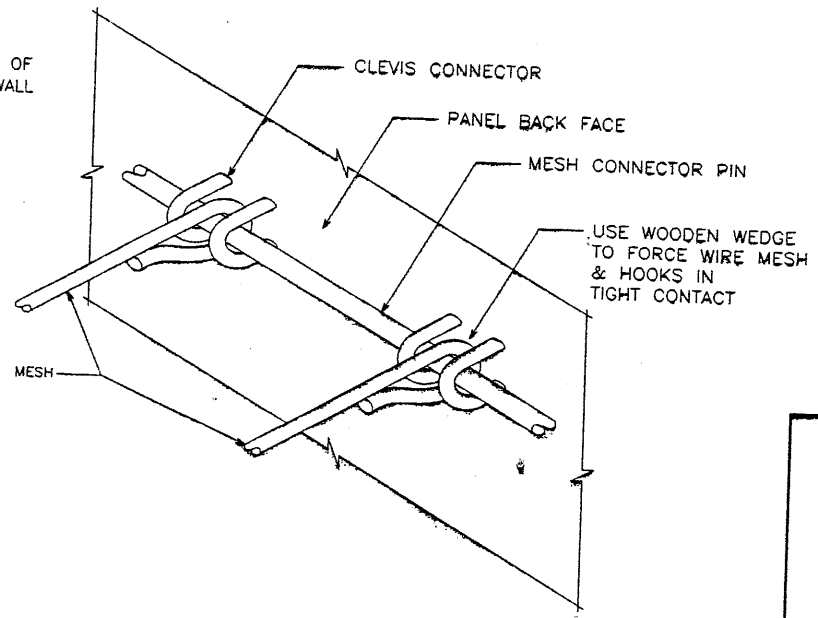
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SCALE:	1.2R-343-14A.4
JOB NO:	239-0007
DATE:	5/13
SHEET:	RE-2

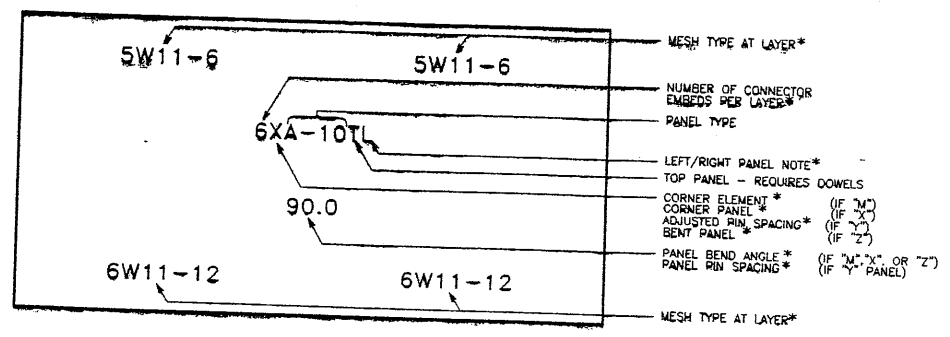
FINAL PLOT 1-07-97 E:\PROJECT\239-0007\2SERIES\72-14A\RE-3



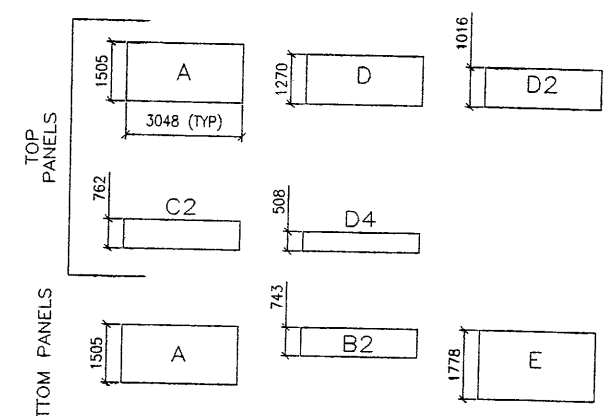
1 WALL ELEVATION KEY
(FRONT FACE SHOWN)



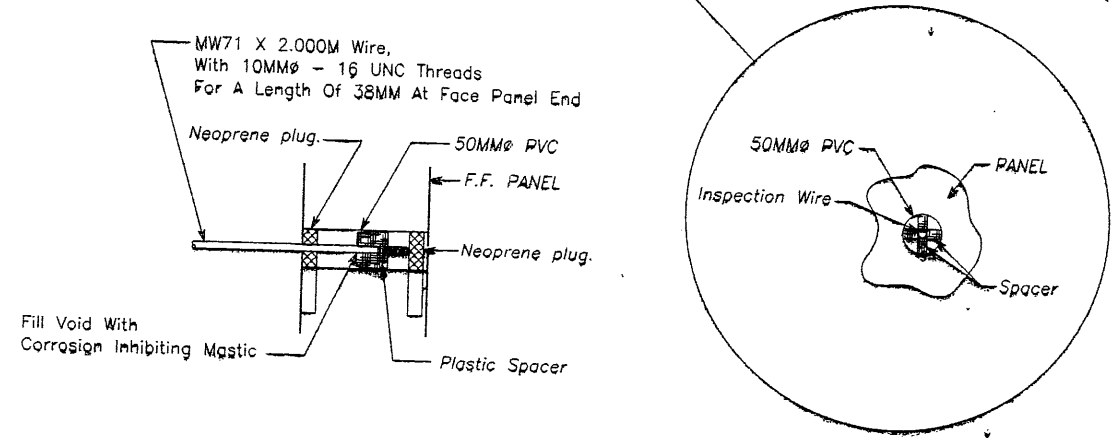
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



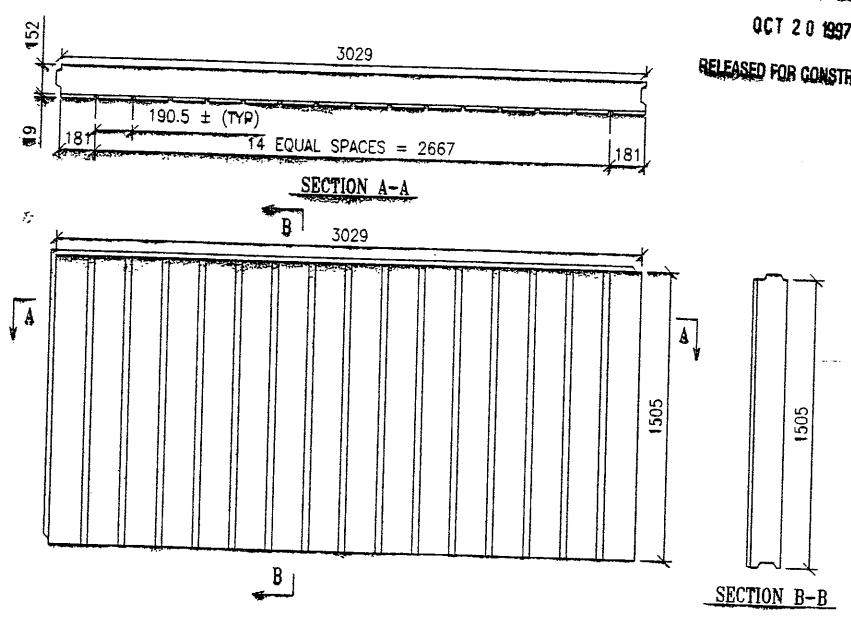
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



5 INSPECTION WIRE DETAIL
(PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH
(PANEL FRONT FACE SHOWN)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

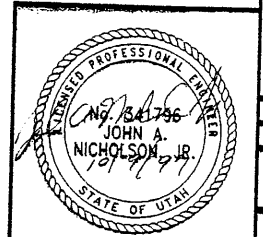
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4989

WASATCH CONSTRUCTORS
OCT 20 1997
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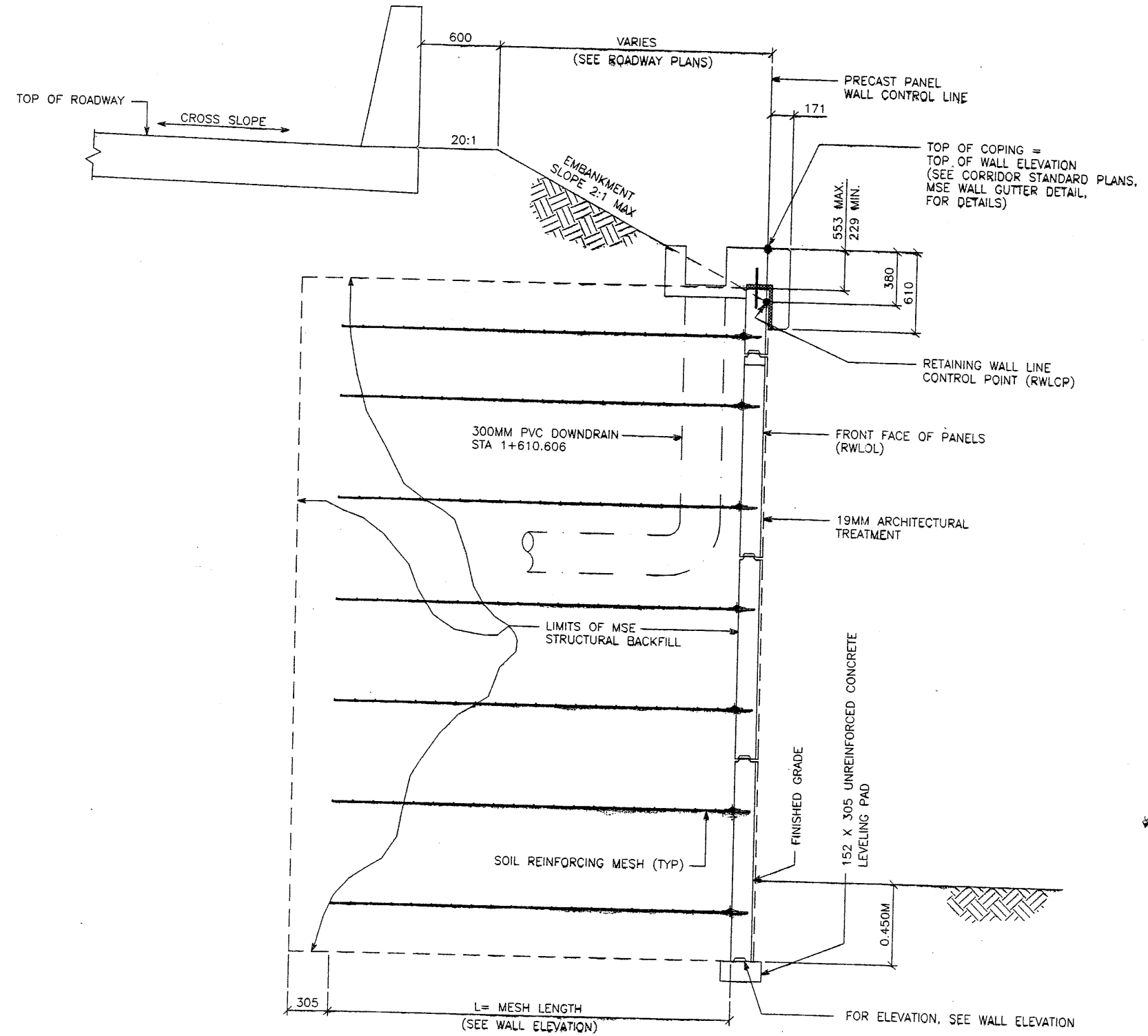
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14A"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



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:
1.2R-343-14A.5
JOB NO:
239-0007 6/13
RE-3

E:\PROJECT\239-0007\72SERIES\72-14A\RE
 0-07-97
 FINAL PL



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

NOTE: SEE SHEETS 14A.1, 14A.2, AND 14A.2A FOR GUTTER DETAILS

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NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

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

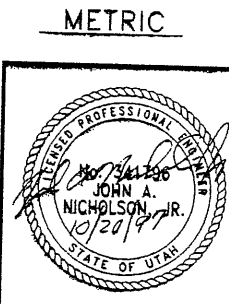


ATLANTA, GA / DALLAS, TX / INGLEWOOD, NC (CORPORATE OFFICE)
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WASATCH CONSTRUCTORS
 OCT 20 1997
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14A"
 TYPICAL CROSS SECTIONS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



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SCALE:	1.2R-343-14A.6
JOB NO:	239-0007 7/13
REVISION:	RE-4

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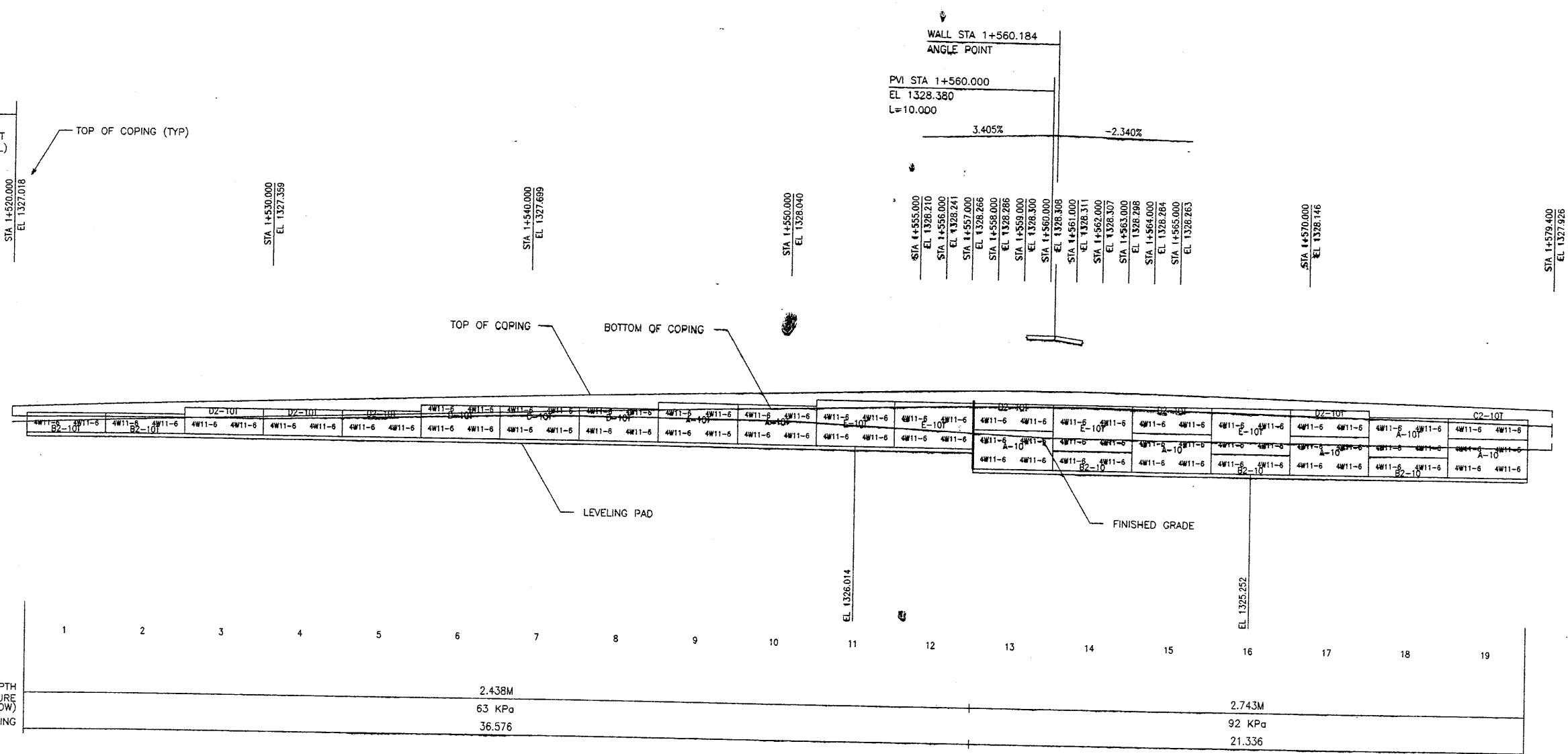
10-07-97

FINAL P

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-97	RELEASE FOR CONSTRUCTION <i>OK</i>

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

BEGIN WALL R-343-14A
WALL STA 1+520.000 =
"72-15N215"
STA 1+520.000 @ 13.420 RT
NOMINAL PANEL FACE (RWLOL)

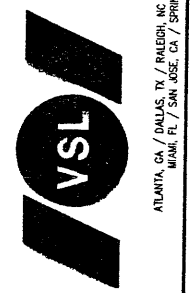


MESH DEPTH	2.438M	2.743M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	63 KPa	92 KPa
PIN SPACING	36.576	21.336

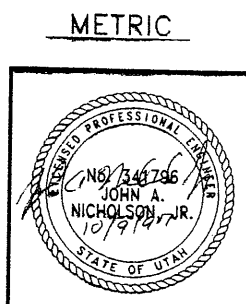
ELEVATION PRECAST WALL R-343-14A
(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
(TOTAL SURFACE AREA OF PANELS = 621.32 SM) SCALE 1:200 (HALF SIZE)

WASATCH CONSTRUCTORS
OCT 20 1997
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2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fac: (919) 781-0969



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



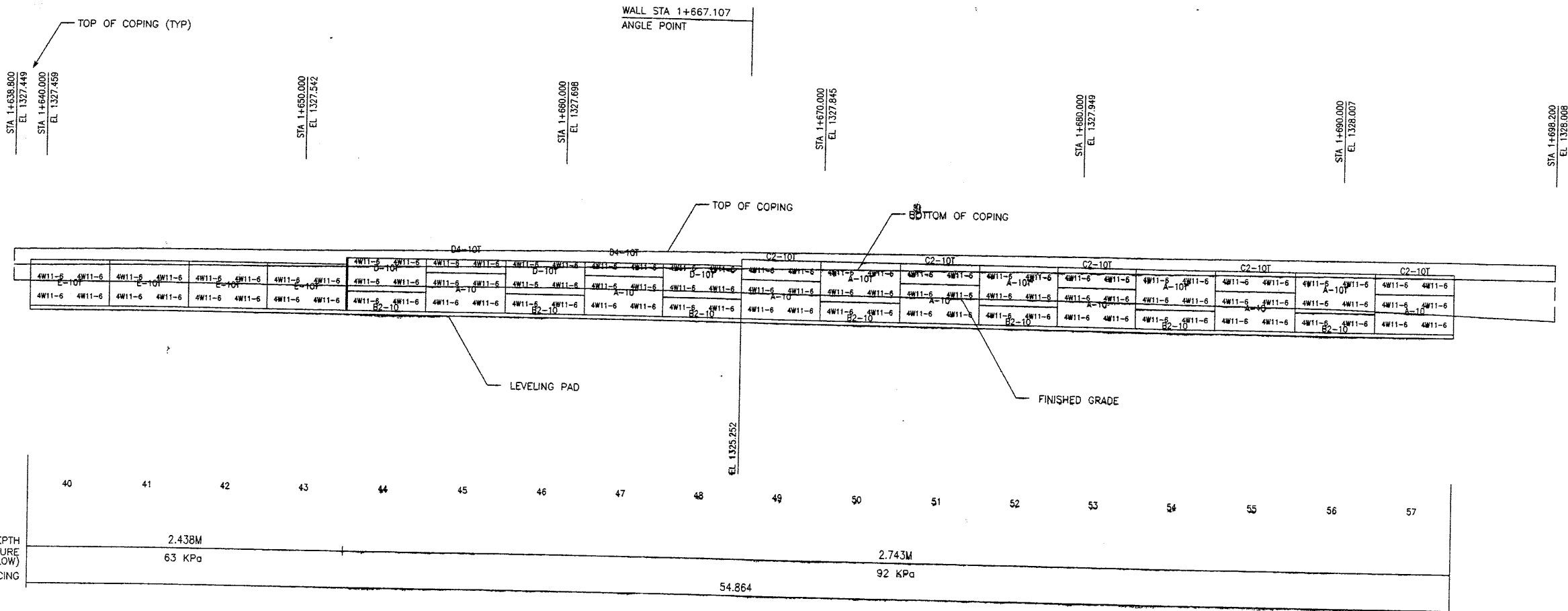
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STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14A"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1:2R-343-14A.7
JOB NO:
239-0007/13
RE-5

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION <i>dl</i>

DES.	DRN.	CHK.	NO.	DATE	BY
MM	DDO	MM			
09-18-97	09-18-97	09-18-97			



ELEVATION PRECAST WALL R-343-14A
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 683.82 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

MESH DEPTH 2.438M
 MAXIMUM BEARING PRESSURE (SEE NOTE BELOW) 63 KPa
 PIN SPACING 54.864

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

WASATCH CONSTRUCTORS
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VSL CORPORATION
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 Raleigh, NC 27604
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 Fax: (919) 781-6689

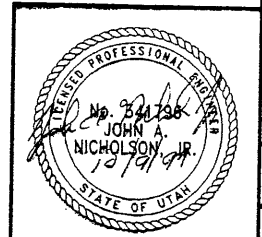


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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14A"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

METRIC



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 THE MANUFACTURER'S SPECIFICATION.

SCALE:	1.2R-343-14A.9
JOB NO.:	239-0007
REVISION:	10/13
NO.	10
DATE	10/13
BY	RE-7

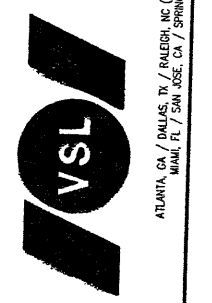
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 0-07-97
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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-97	RELEASE FOR CONSTRUCTION <i>dl</i>

WABATCH CONSTRUCTORS
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DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	CHK

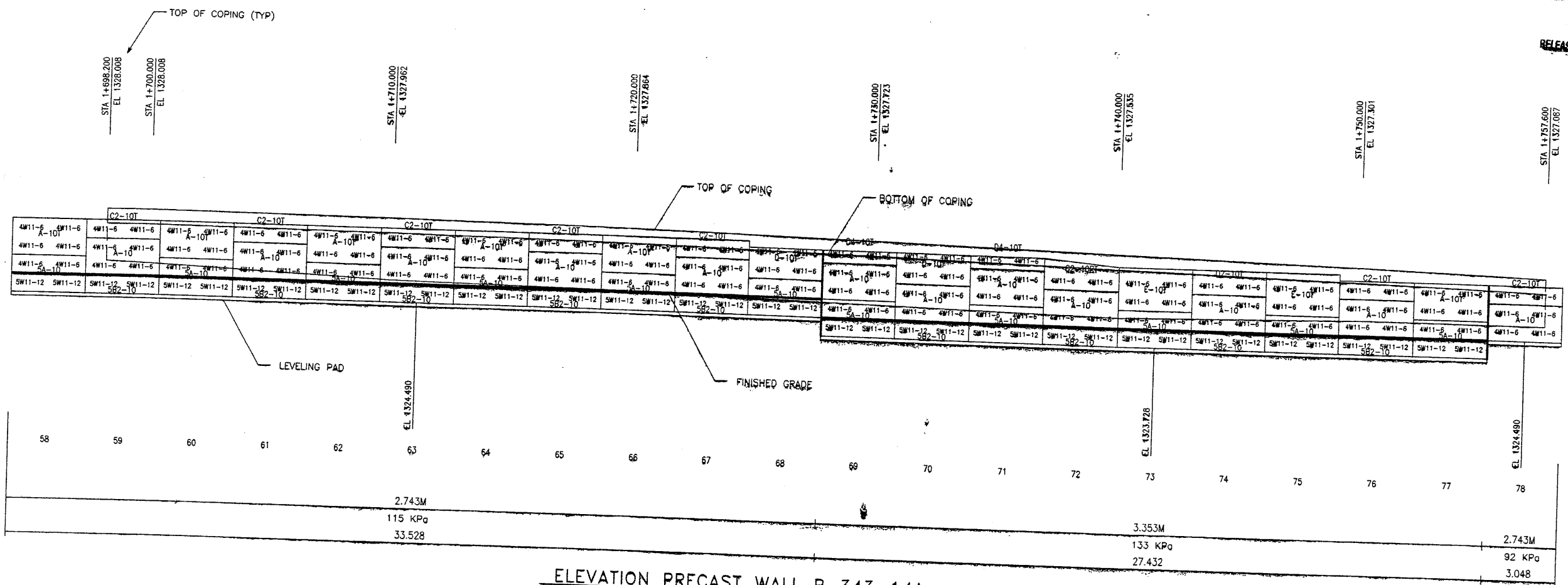
VSL CORPORATION
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14A"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

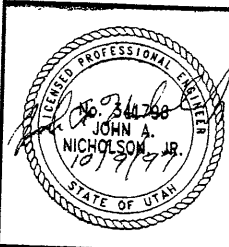
SCALE:
 1.2R-343-14A.10
 JOB NO:
 239-0007 *n/13*
RE-8



MESH DEPTH	MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	PIN SPACING
58	2.743M	33.528
59	115 KPq	
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		
70		
71		
72		
73	3.353M	27.432
74	133 KPq	
75		
76		
77		
78	2.743M	92 KPq
		3.048

ELEVATION PRECAST WALL R-343-14A
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 621.32 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

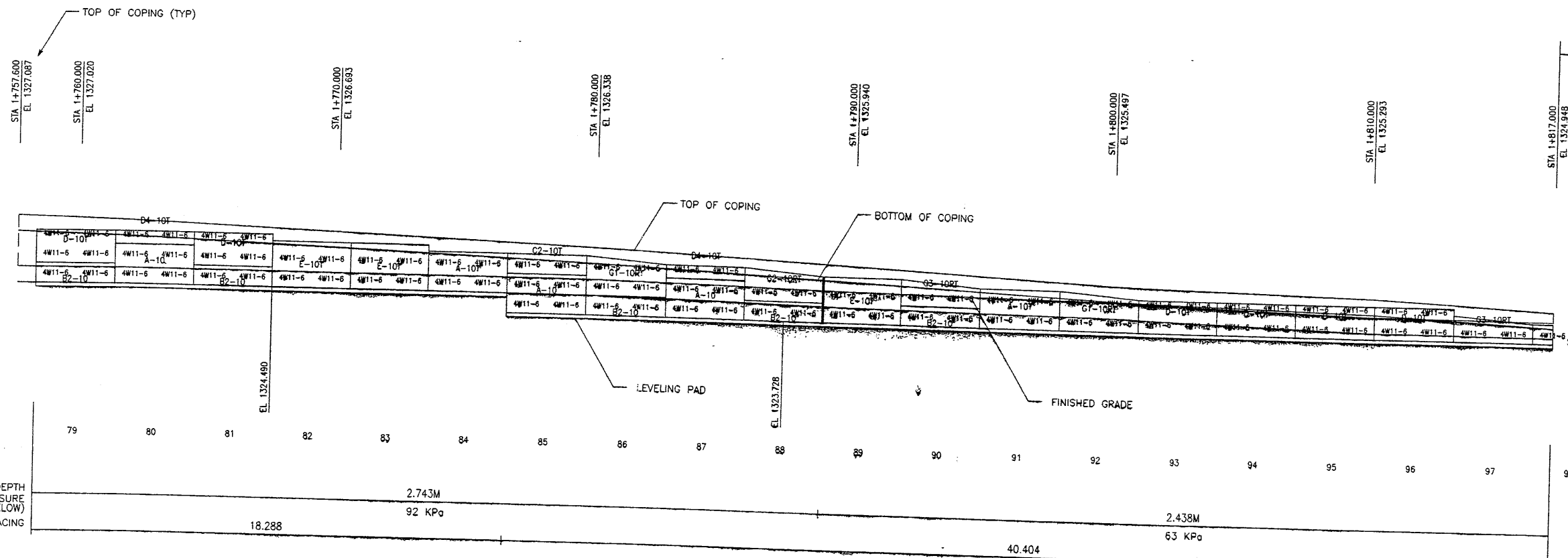
APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES ARE INDICATED BELOW "MESH DEPTH LINE". REVIEWER TO VERIFY MAXIMUM BEARING CAPACITY OF FOUNDATION.



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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	RELEASE FOR CONSTRUCTION

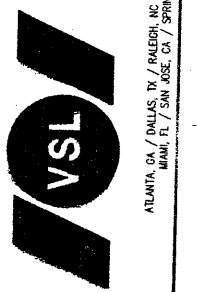
NO.	DATE	REVISION



END WALL R-343-14A
WALL STA 1+817.000 =
"72-15N215"
STA 1+814.715 @ 21.693 RT
NOMINAL PANEL FACE (RWLOL)

WATCH CONSTRUCTORS
OCT 20 1997
RELEASED FOR CONSTRUCTION

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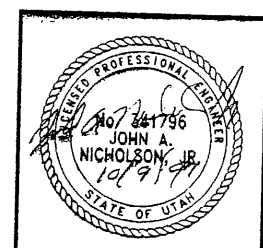
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ELEVATION PRECAST WALL R-343-14A
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 621.32 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

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

79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	
																		2.743M		
																		92 KPa		
																		2.438M		
																		63 KPa		

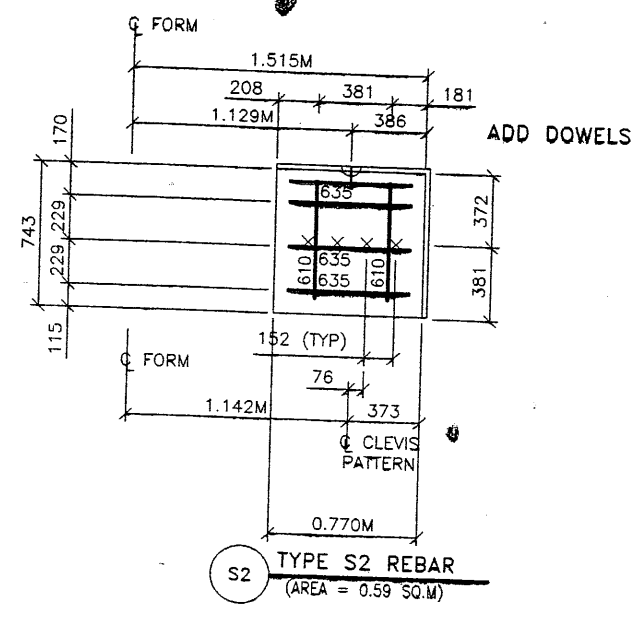
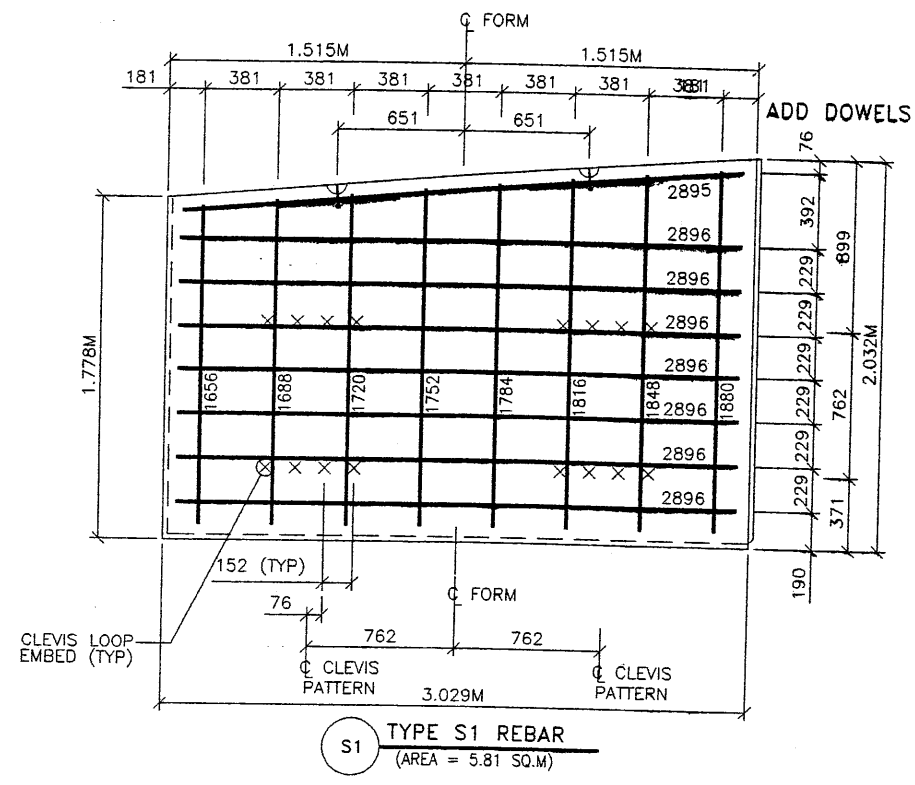
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14A"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1.2R-343-14A.11
JOB NO:
239-0007
RE-9



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-07-97	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.

WASATCH CONSTRUCTORS
 OCT 20 1997
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NO.	DATE	REVISION	BY	CHK

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 Raleigh, NC 27612
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14A"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

METRIC

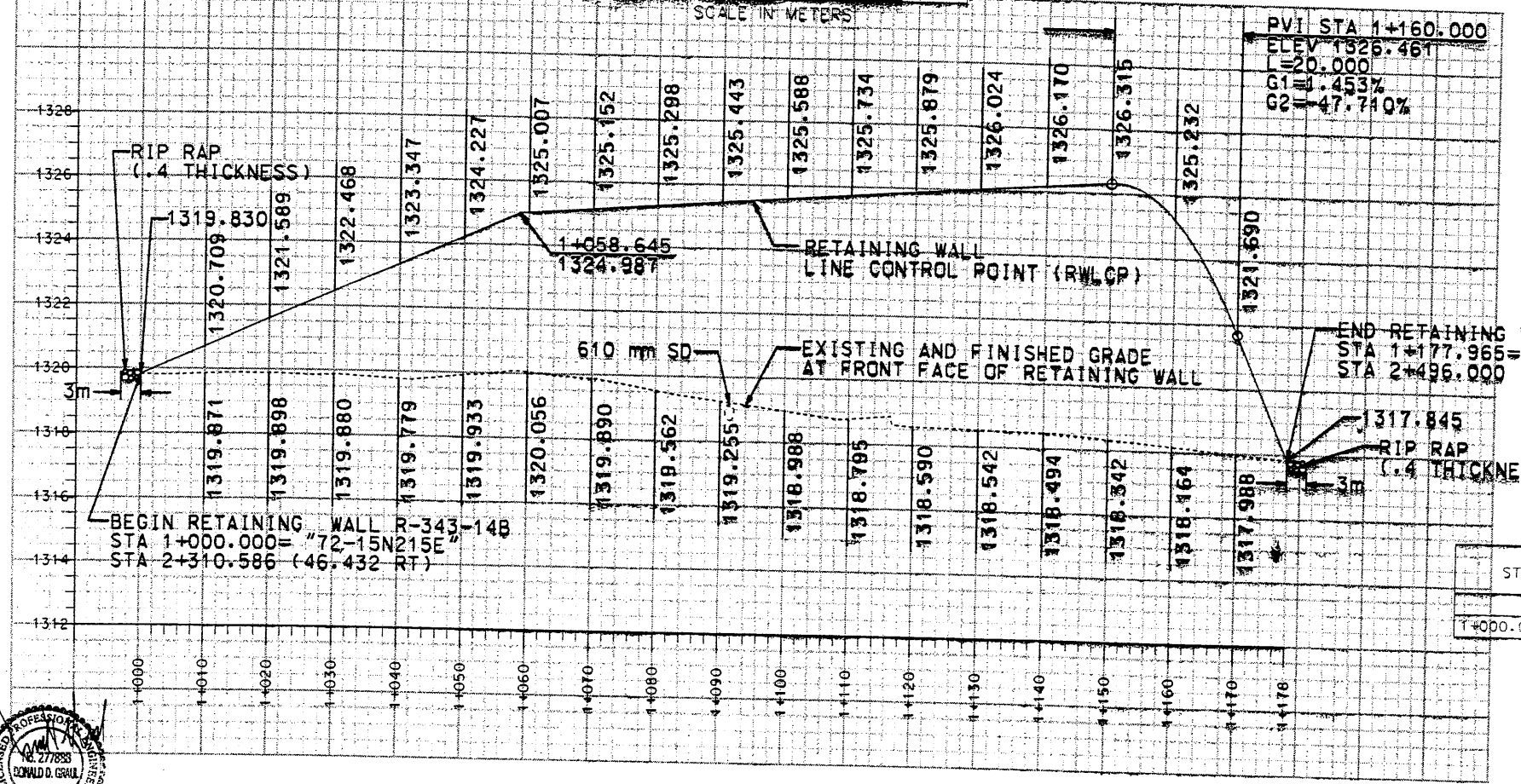
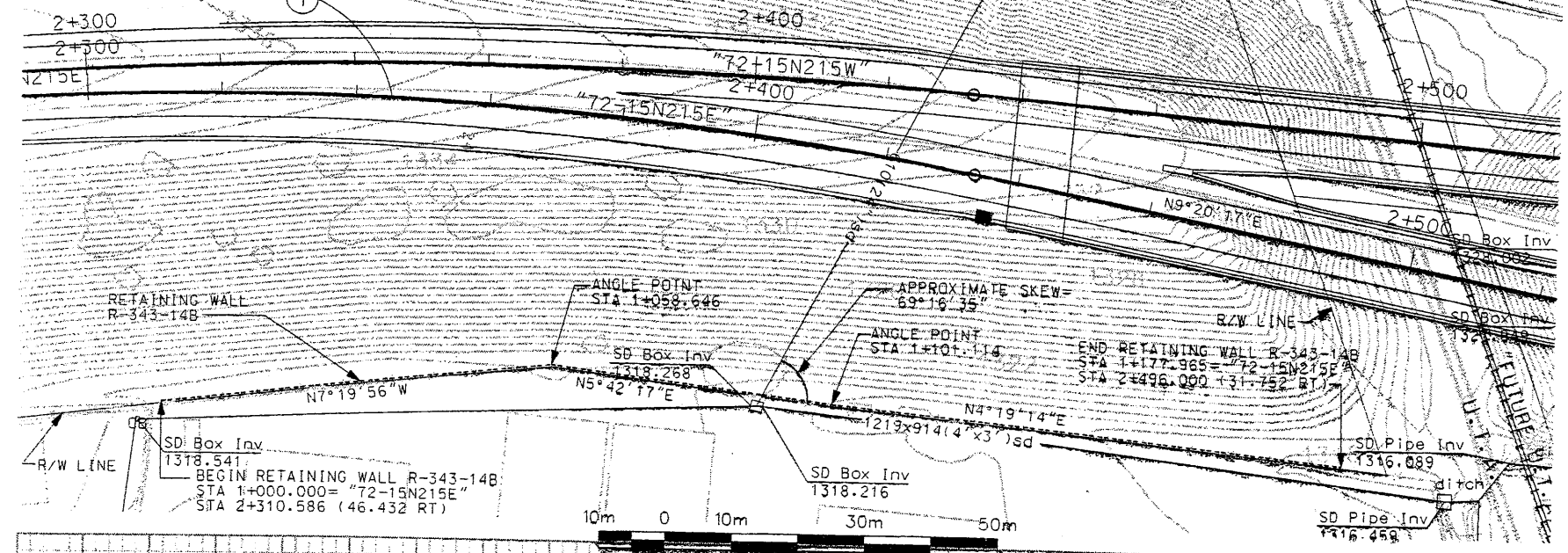
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SCALE:
 1.2R-343-14A.12
 JOB NO:
 239-0007/13
 RE-10

Date: 09-OCT-1997 Time: 11:47 User Name: fukl.cdi

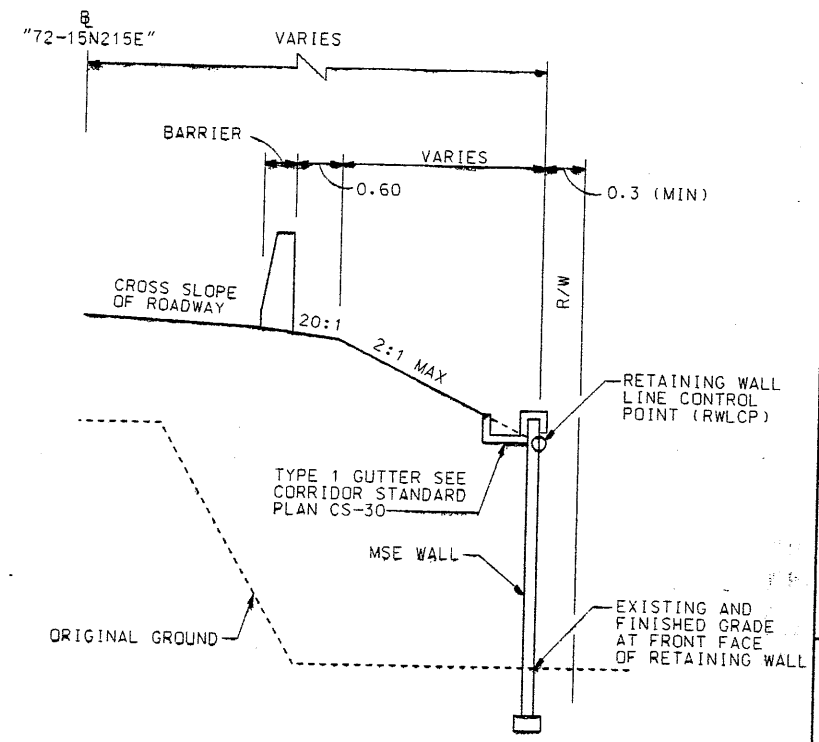
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CURVE NO.	ANGLE	R	L	T
1	15° 10' 27"	600.000	158.904	79.920

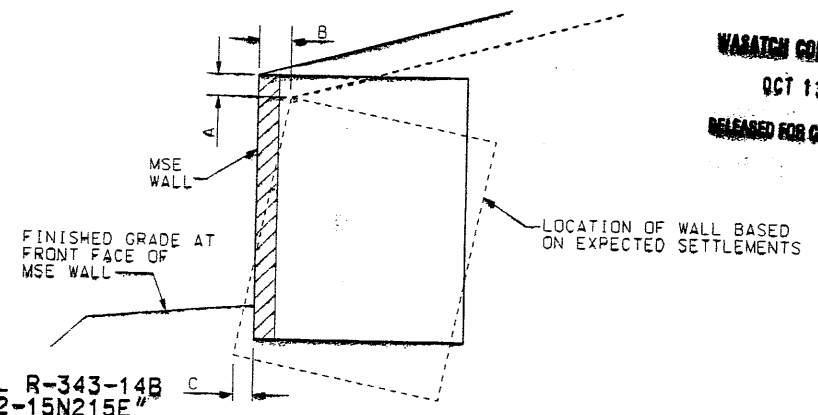


ELEVATION VIEW FROM FRONT OF WALL

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



TYPICAL SECTION RETAINING WALL R-343-14B STA 1+000.000 TO STA 1+177.965



WASATCH CONSTRUCTORS
 OCT 13 1997
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ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
1+000.000 TO 1+177.965	1+140***	30 TO 50	47	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.

UTAH DEPARTMENT OF TRANSPORTATION
 SVERDRUP/DE LEUW
 URS Greiner

NO.	DATE	DESCRIPTION
1	10-9-97	INITIAL RELEASE

DESIGN JMM 9/97 CHECK BH 9/97
 DRAWN DMK 9/97 CHECK JBE 9/97
 QUANT. / CHECK /

12.12.404

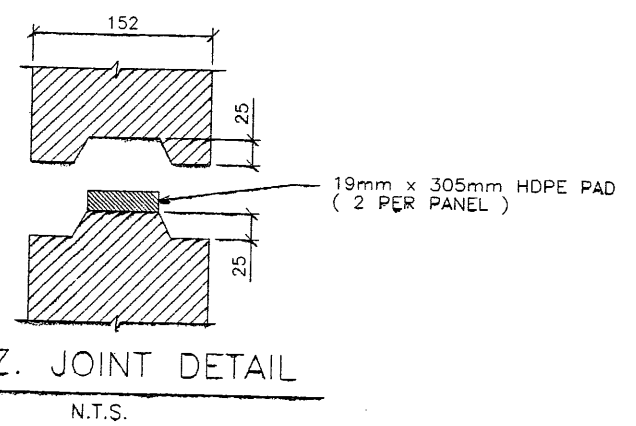
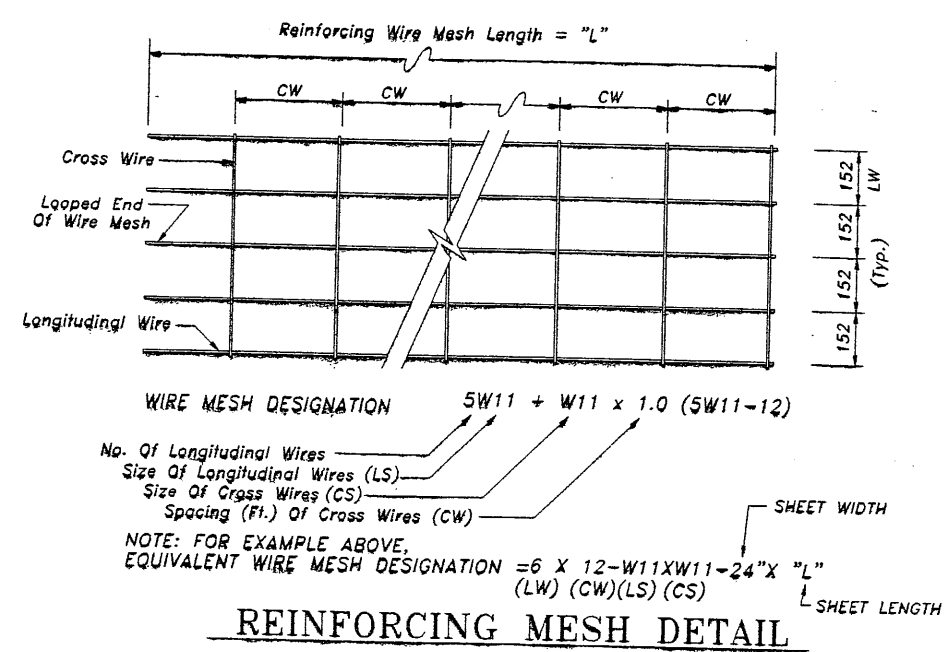
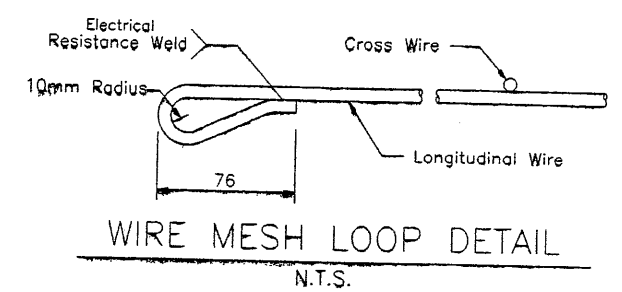
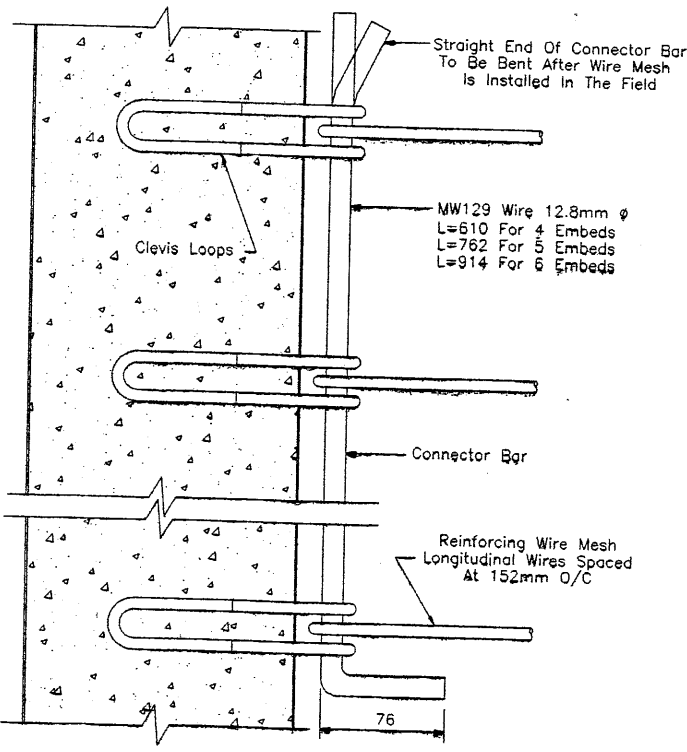
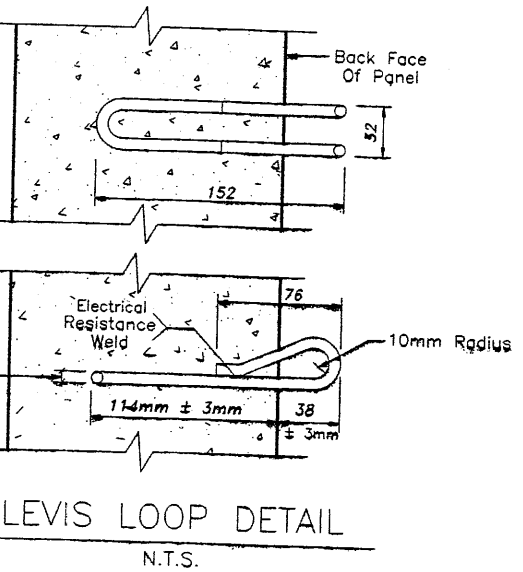
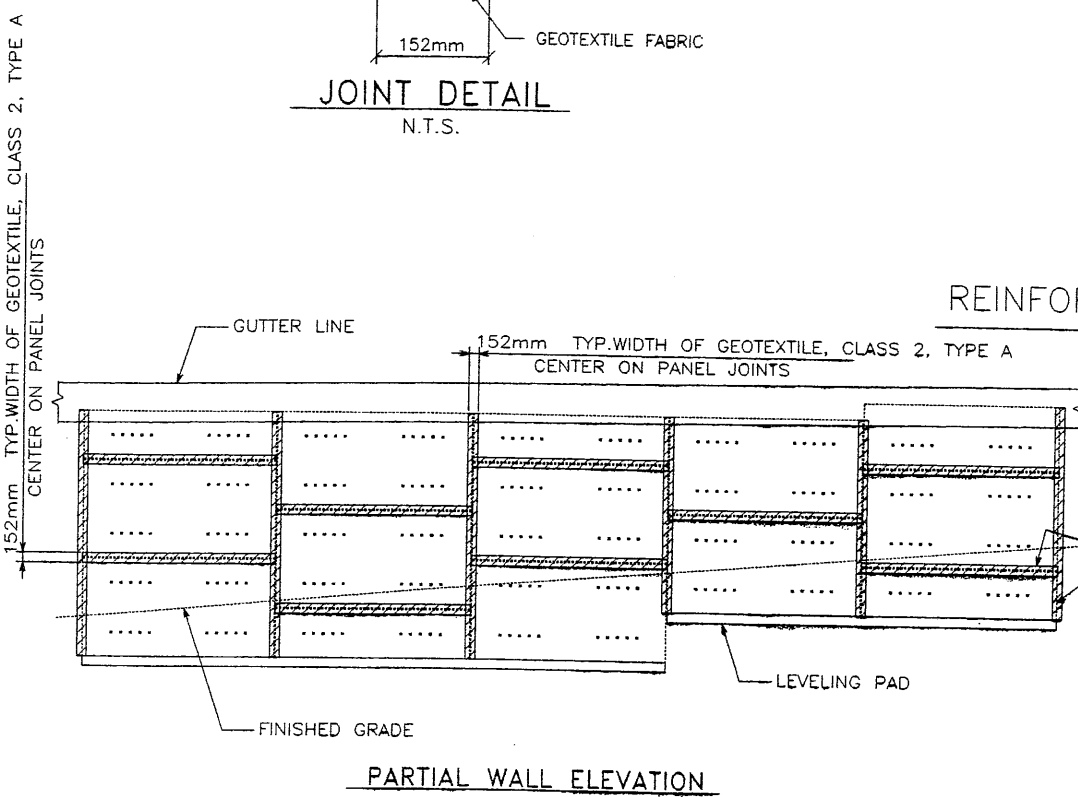
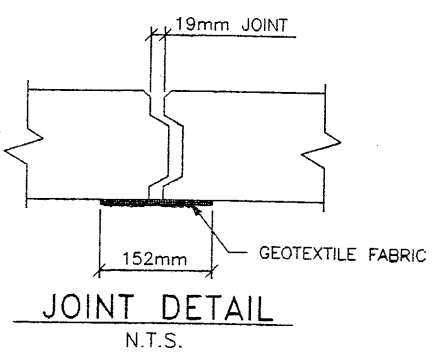
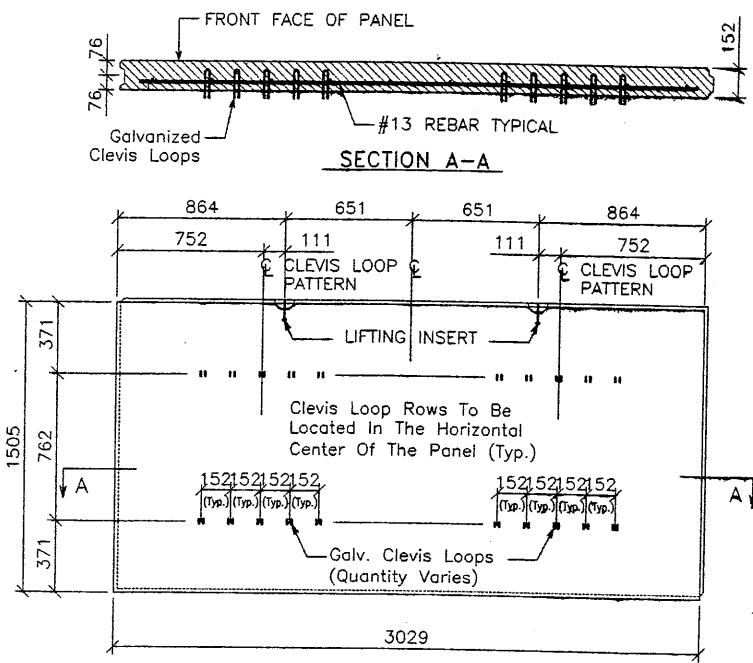
I-15 CORRIDOR RECONSTRUCTION
 SALT LAKE COUNTY
 DWG. NO. 1.2R-343-14B.1
 SECTION 1.2
 PROJECT NUMBER *SP-15-7(135)296
 SHT. 1 OF 11

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0-06-97

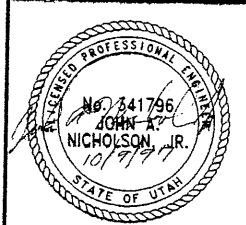
FINAL

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NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION



APPLY ADHESIVE COATING TO PANELS ONLY. DO NOT APPLY ADHESIVE TO GEOTEXTILE OR WITHIN 51mm OF JOINT (TYP.)

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WARATCH CONSTRUCTORS
OCT 13 1997
RELEASED FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK.
09-15-97	09-15-97	09-15-97						

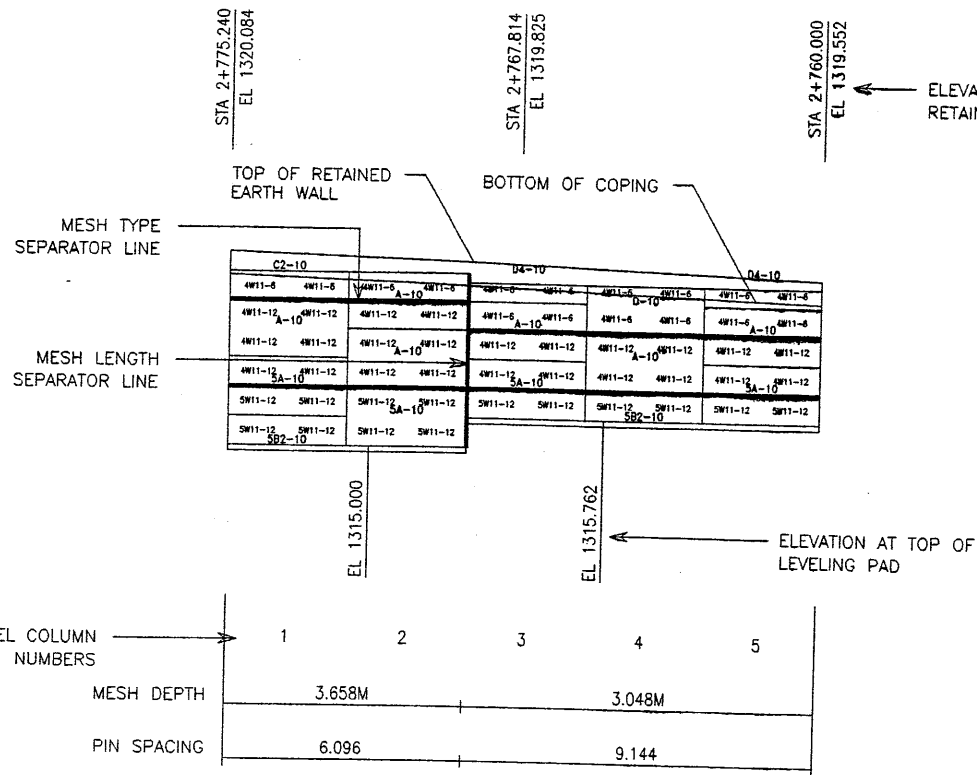
VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-6889

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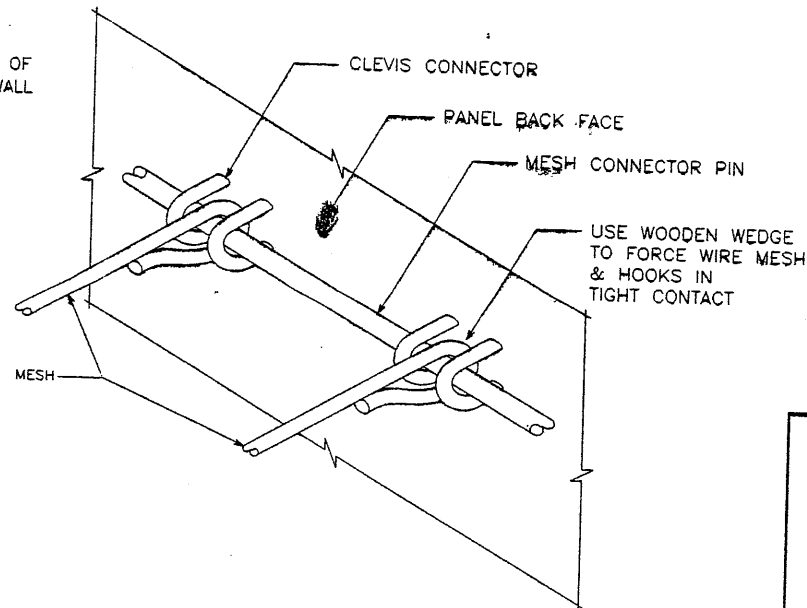
VSL

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14B"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

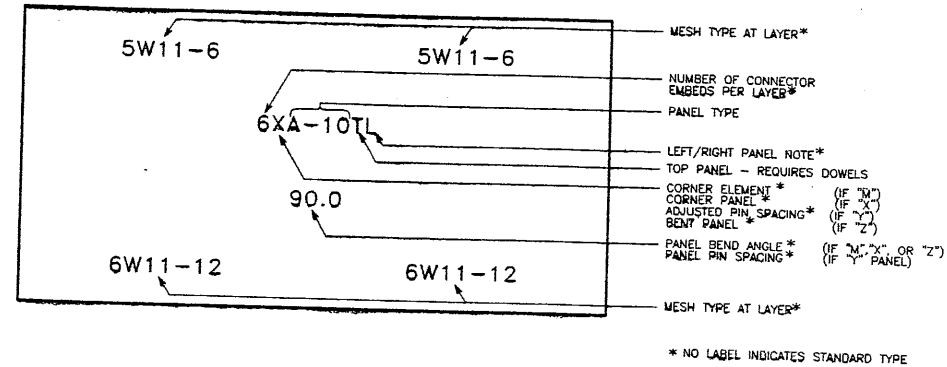
SCALE: 1.2R-343-14B.3
JOB NO: 239-0007 3/11
RE-2



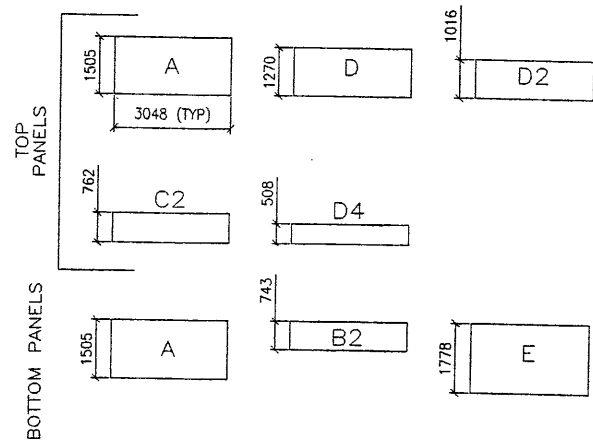
1 WALL ELEVATION KEY (FRONT FACE SHOWN)



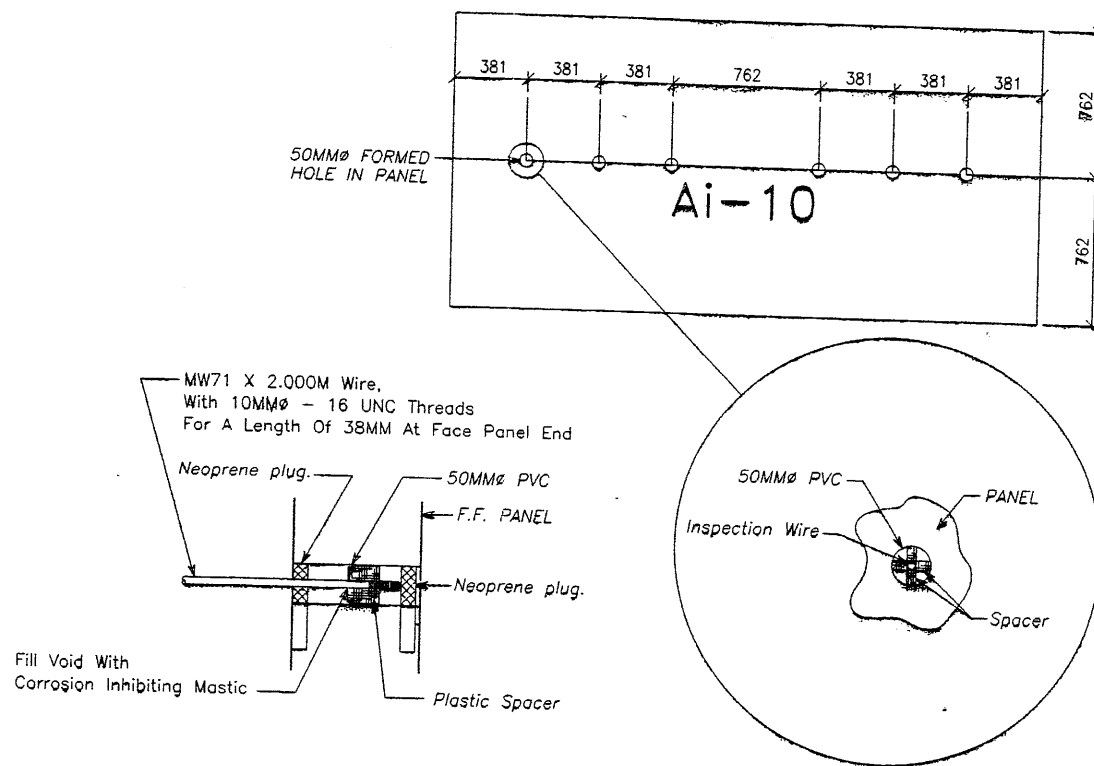
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



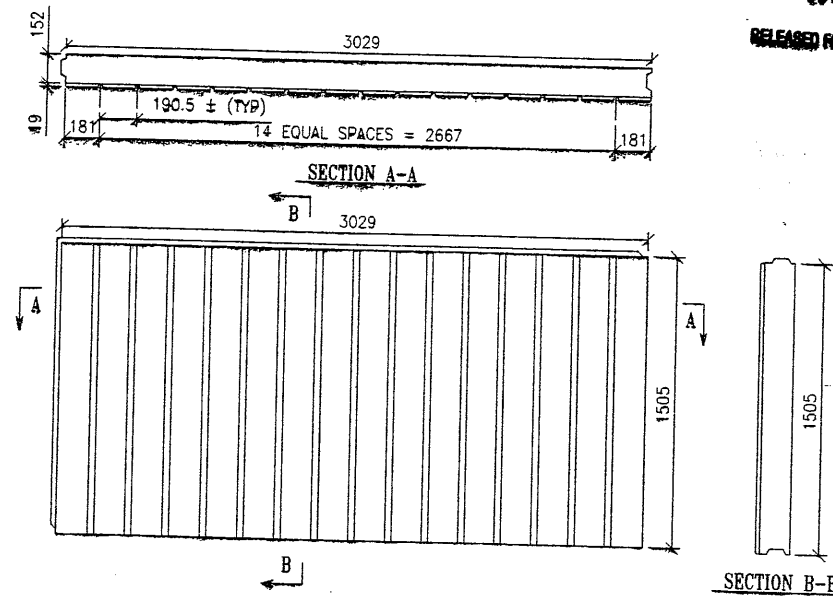
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



5 INSPECTION WIRE DETAIL (PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH (PANEL FRONT FACE SHOWN)

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	10-06-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Pike Road, Suite 200
Baldwin, MD 21013
Telephone: (410) 781-6272
Fax: (410) 781-6889

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

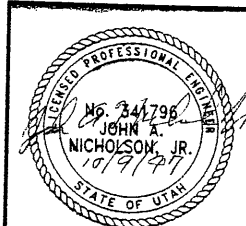
WASATCH CONSTRUCTORS
OCT 13 1997
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14B"
TYPICAL DETAILS

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



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SCALE: 1.2R-343-14B.4

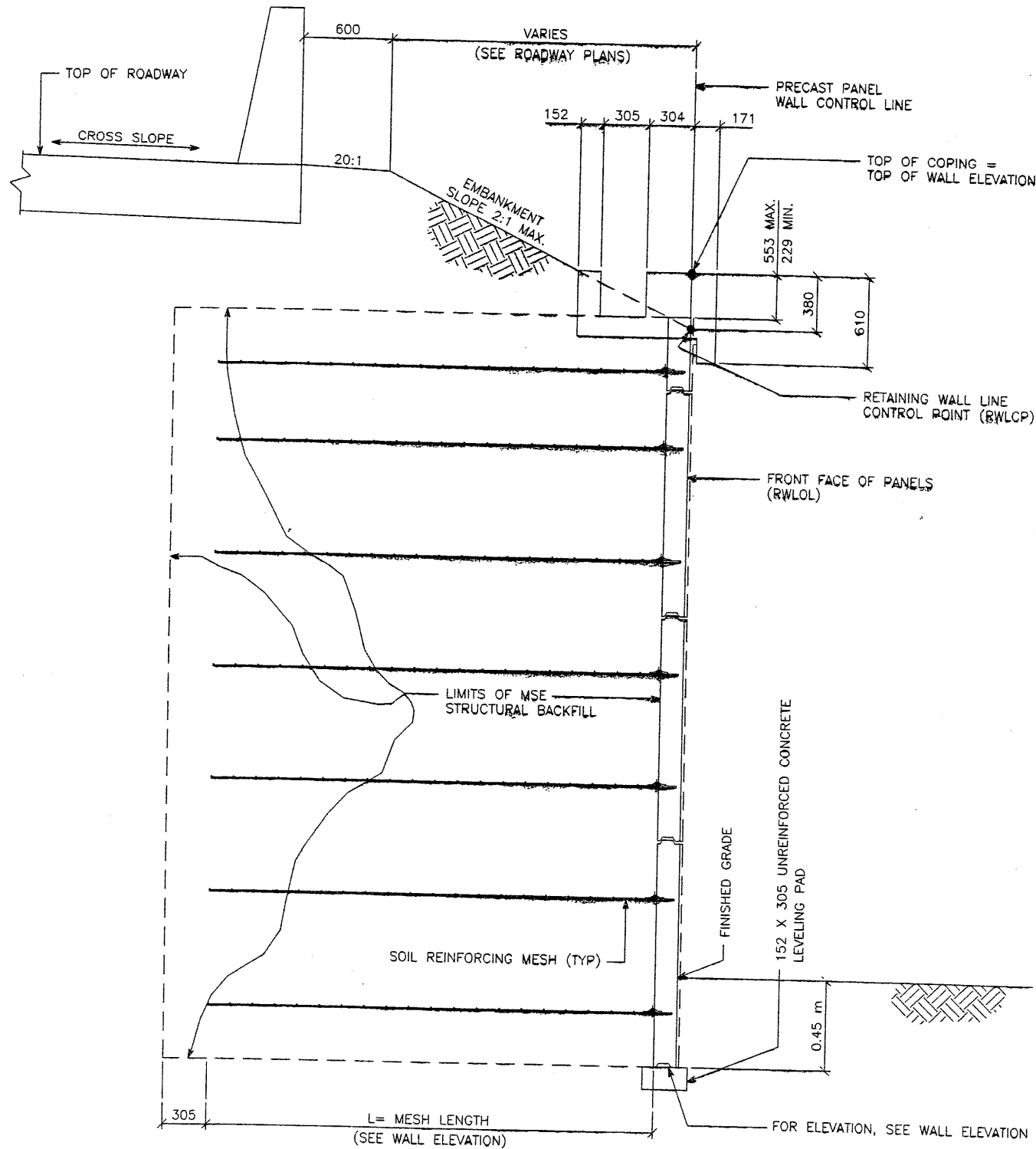
JOB NO: 239-0007

RE-3

E:\PROJECT\239-0007\SERIES\72-14B\RE-4

0-06-97

FINAL



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

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION

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

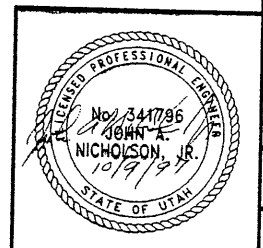
VSL CORPORATION
 2800 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6772
 Fax: (919) 781-6965

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WASATCH CONSTRUCTORS
 OCT 13 1997
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14B"
 TYPICAL CROSS SECTIONS
 UTAH 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



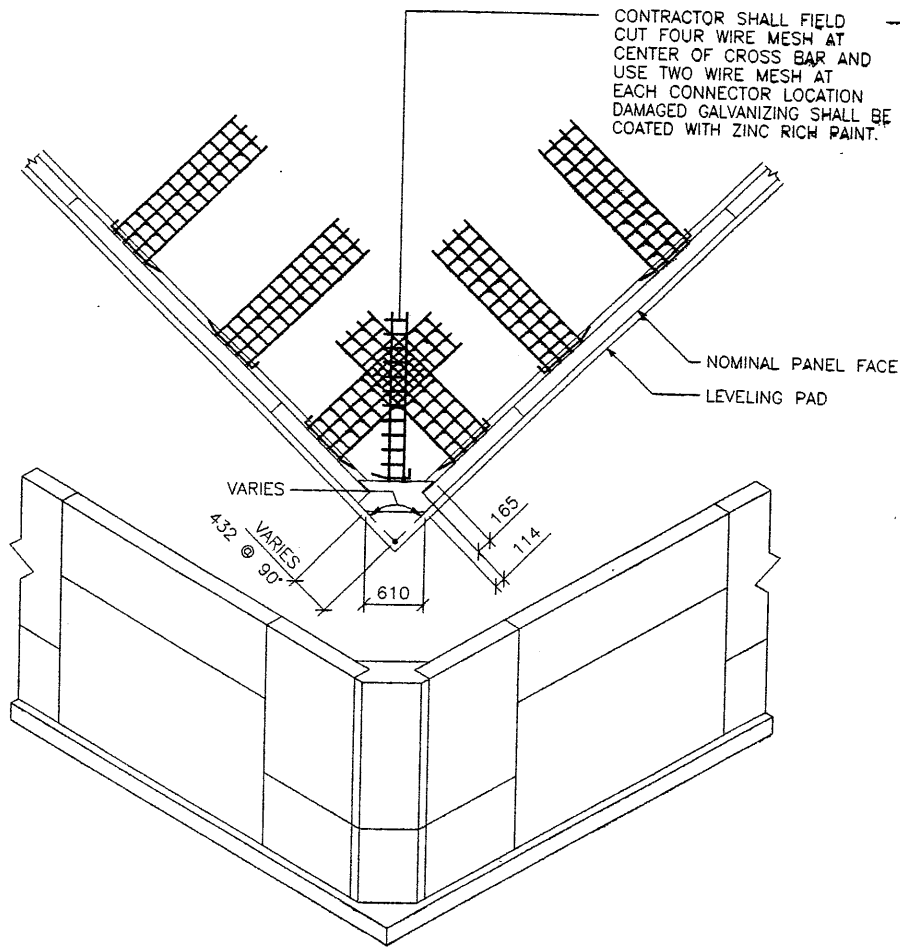
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SCALE:	1.2R-343-14B.5
JOB NO.:	239-0007 5/11
	RE-4

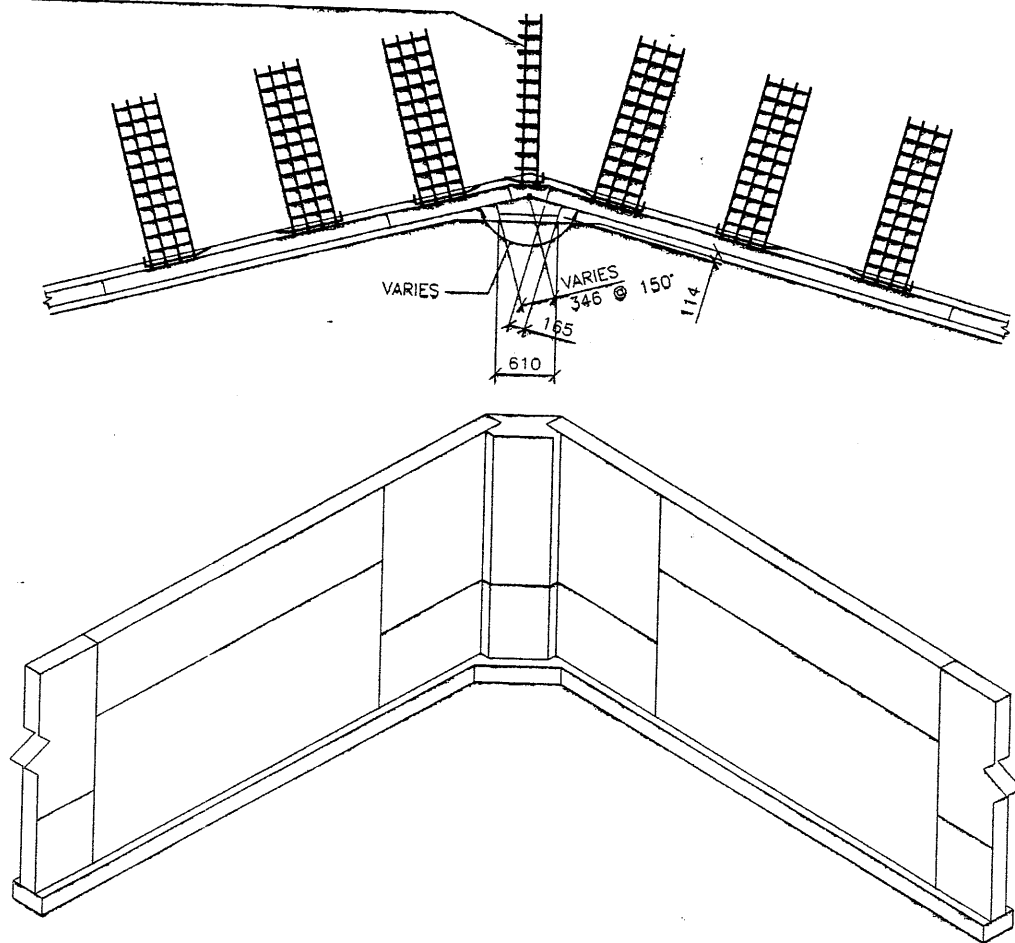
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3-06-97

FINAL

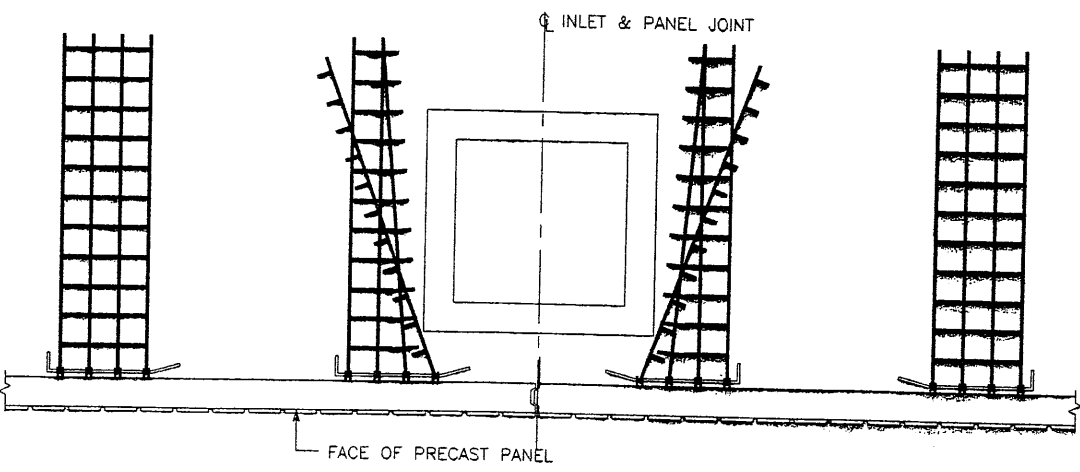


80 OUTSIDE CORNER ELEMENT
PLAN VIEW / ISOMETRIC



80 INSIDE CORNER ELEMENT
PLAN VIEW / ISOMETRIC

INLET/MANHOLE SHALL BE CENTERED ON CENTERLINE OF CLOSEST OBSTRUCTED PANEL JOINT.
SEE WALL ELEVATIONS FOR LOCATION.
FIELD CUT & SKEW SOIL REINFORCING TO AVOID INLET. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.



100 INLET OBSTRUCTION DETAIL

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2640 Plaza Place, Suite 200
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Fax: (919) 781-4995



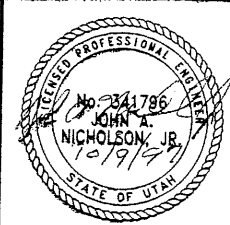
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WASATCH CONSTRUCTORS
OCT 13 1997
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14B"
SPECIAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

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.

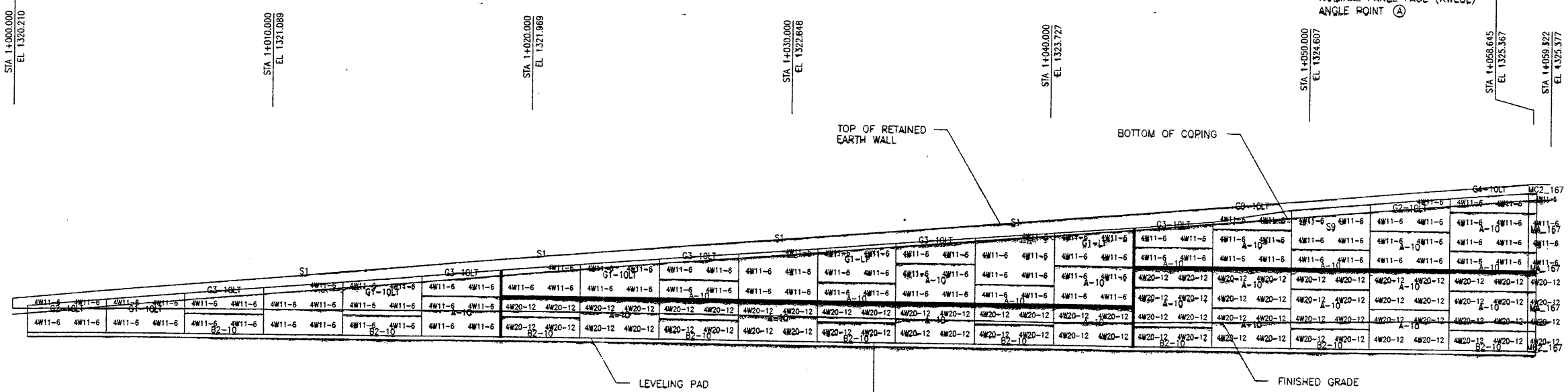
SCALE:
1.2R-343-14B.6
JOB NO:
239-0007 6/11
RE-5

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 0-06-97
 FINAL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-06-97	RELEASE FOR CONSTRUCTION

WALL STA 1+000.000
 "72-15N215E" STA 2+310.586
 @ 46.432 RT
 NOMINAL PANEL FACE (RWLOL)
 BEGIN WALL R-343-14B

WALL STA 1+058.645
 "72-15N215E" STA 2+373.115
 @ 38.332 RT
 NOMINAL PANEL FACE (RWLOL)
 ANGLE POINT (A)

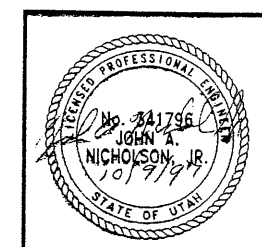


MESH DEPTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	2.438			136 KPa							3.658					4.267				
	58.222																			

ELEVATION PRECAST WALL 72-14B
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1,061.14 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

WASATCH CONSTRUCTORS
 OCT 13 1997
 RELEASED FOR CONSTRUCTION

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.
 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.

DES.	MM	DRN.	JPS	CHK.	MM	NO.	DATE	REVISION	CHK
09-15-97		09-15-97		09-15-97					

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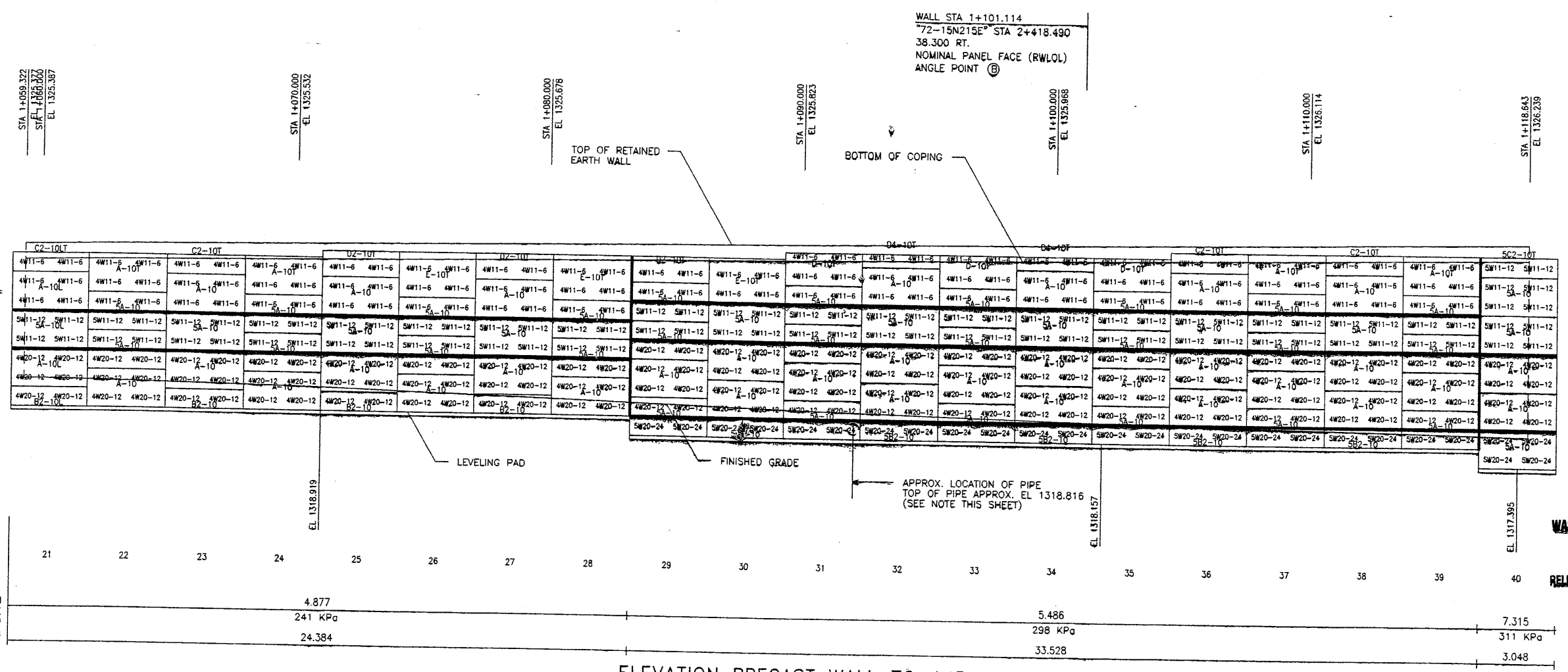
VSL

UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSPORTATION

SCALE:
 1:2R-343-14B.7
 JOB NO:
 239-0007/7/h
 RE-6

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	10-06-97	RELEASE FOR CONSTRUCTION

NO.		REVISION
NO.	DATE	REVISION



ELEVATION PRECAST WALL 72-14B
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1,061.14 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

CONTRACTOR NOTE:
 CONTRACTOR PLEASE VERIFY PIPE LOCATION (VERTICAL AND HORIZONTAL). FIELD CUT PANEL AS REQUIRED TO FIT AROUND PIPE. NOTIFY VSL IF PIPE INTERFERES WITH SOIL REINFORCING MESH.

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

WASATCH CONSTRUCTORS
 OCT 13 1997
 RELEASED FOR CONSTRUCTION

METRIC

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 2840 Plaza Place, Suite 200
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RETAINED EARTH™ WALLS
PRECAST WALL "72-14B"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1.2R-343-14B.8
 JOB NO:
 239-0007
 RE-7

REVISIONS

NO.	DATE	REVISION

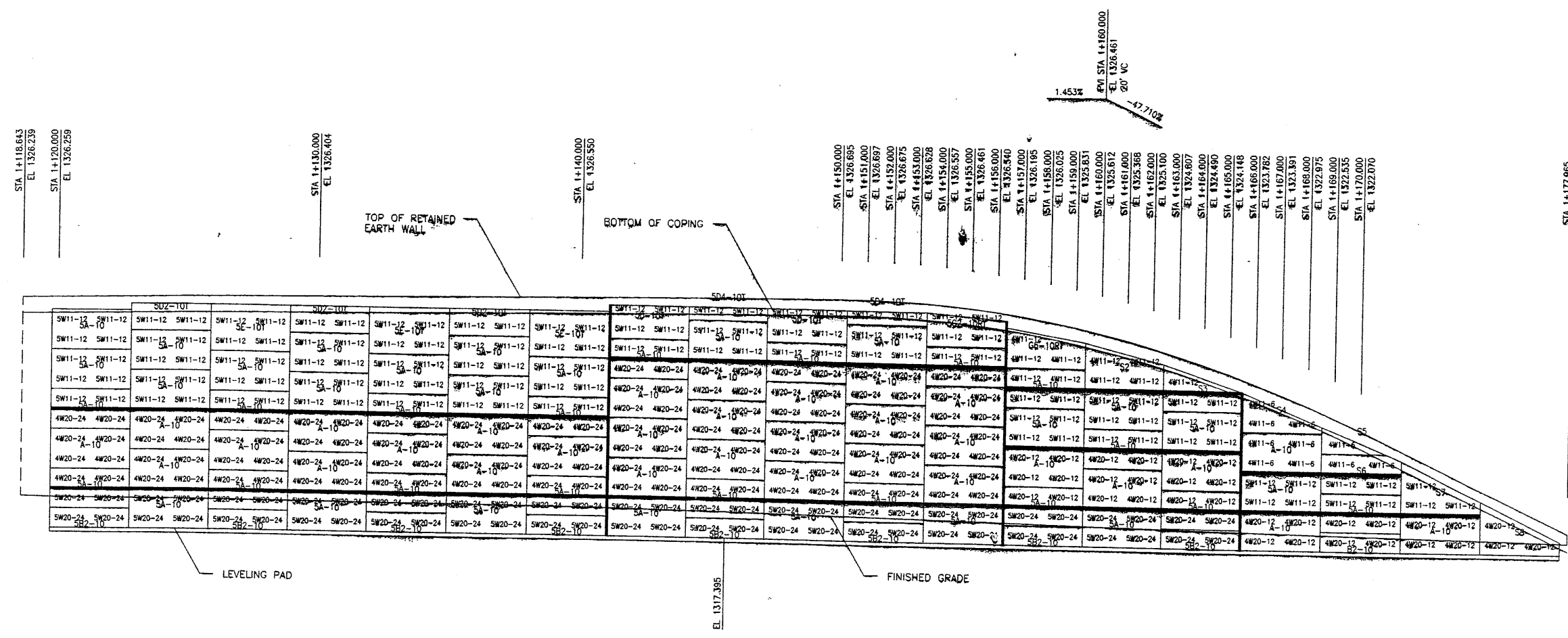
DES. 09-15-97 MM
 DRN. 09-15-97 JPS
 CHK. 09-15-97 MM

RETAINED EARTH™

FINAL PLAN 10-06-97

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-06-97	RELEASE FOR CONSTRUCTION



41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
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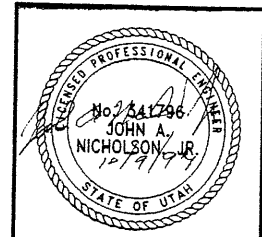
MESH DEPTH	7.315	9.144	6.096	4.267	0.292
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	311 KPa	304 KPa	310 KPa	207 KPa	
PIN SPACING		57.912			

ELEVATION PRECAST WALL 72-14B
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1,061.14 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.

WALL STA 1+177.965
 "72-15N215E" STA 2+496.000
 @ 31.752 RT
 NOMINAL PANEL FACE (RWL/L)
 END WALL R-343-14B

METRIC



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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
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RETAINED EARTH™ WALLS
PRECAST WALL "72-14B"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

VSL CORPORATION
 2640 Plaza Place, Suite 200
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 Fax: (919) 761-4889

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

DES: 09-15-97
 DRN: 09-15-97
 CHK: 09-15-97

NO. DATE REVISION

NO. DATE

RETAINED EARTH™

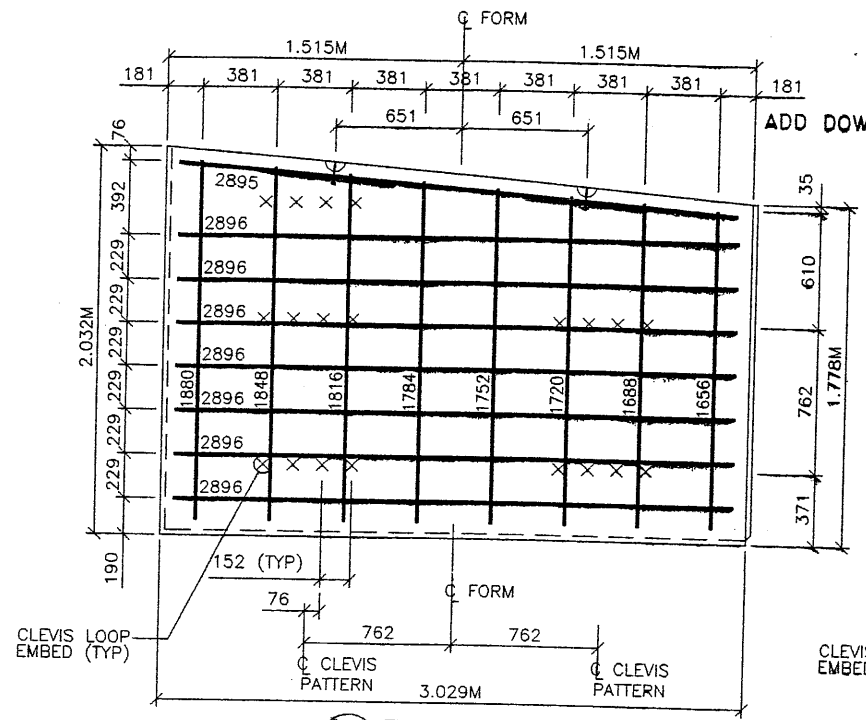
BY: CHK

SCALE:
 1:2R-343-14B.9
 JOB NO:
 239-0007
 RE-8

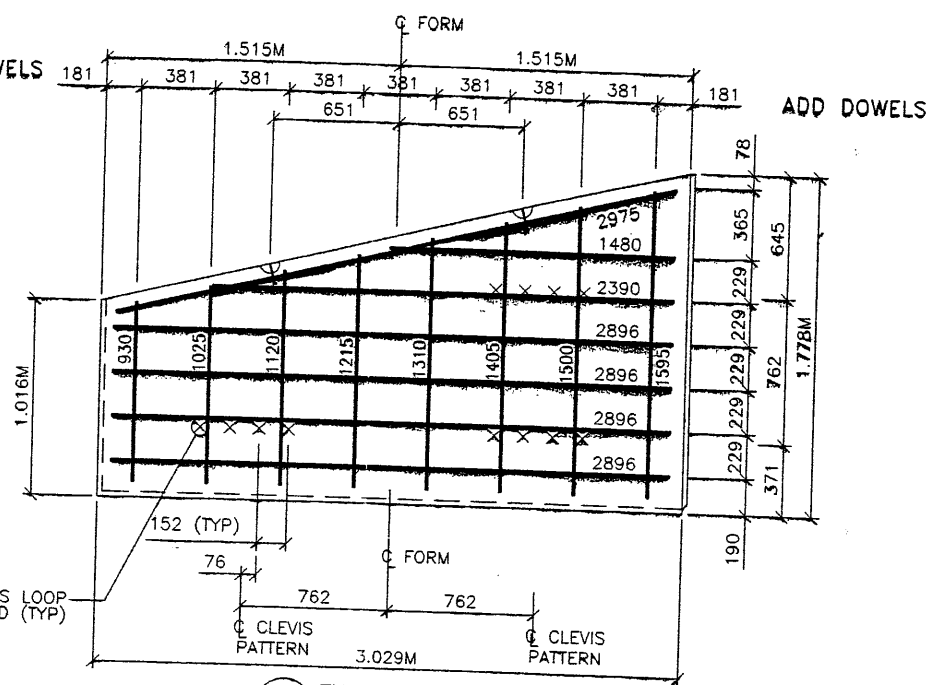
WASATCH CONSTRUCTORS
 OCT 13 1997
 RELEASED FOR CONSTRUCTION

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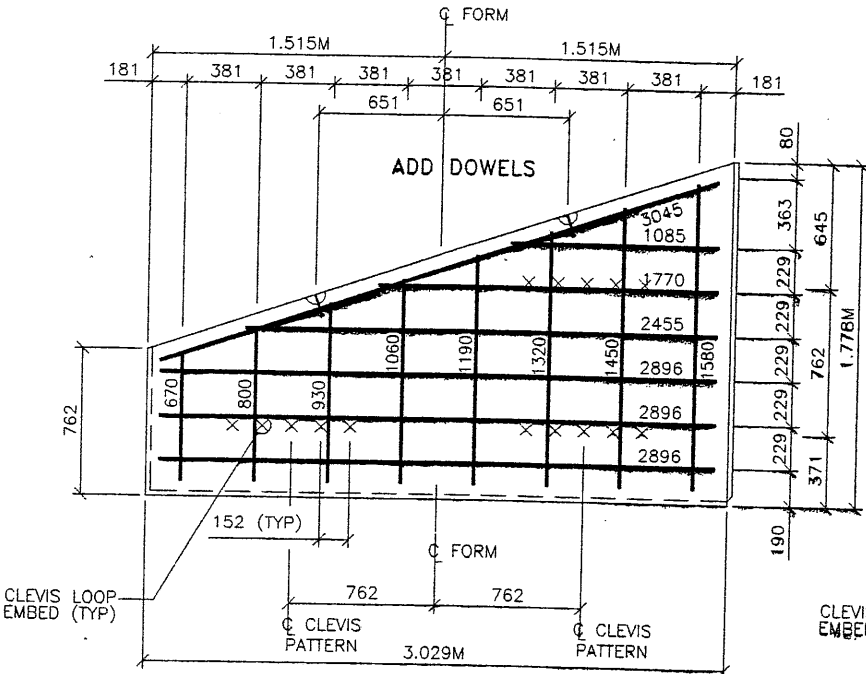
FINAL PL 0-06-97



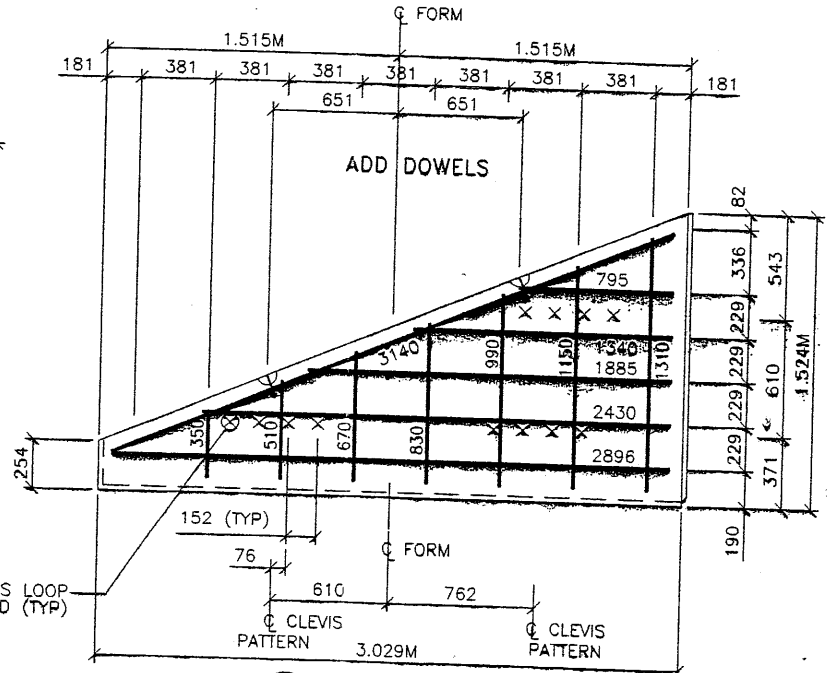
S1 TYPE S1 REBAR
(AREA = 5.81 SQ.M)



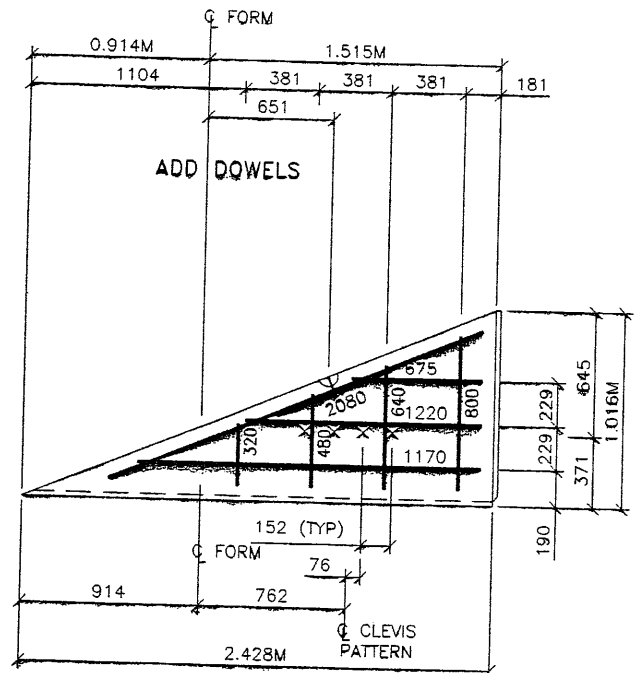
S2 TYPE S2 REBAR
(AREA = 4.26 SQ.M)



S3 TYPE S3 REBAR
(AREA = 3.87 SQ.M)



S4 TYPE S4 REBAR
(AREA = 2.71 SQ.M)



S5 TYPE S5 REBAR
(AREA = 1.24 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-06-97	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.

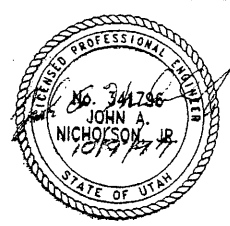
VSL CORPORATION
2940 Plaza Place, Suite 200
Raleigh, NC 27607-6272
Tel: (919) 781-4888
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WASATCH CONSTRUCTORS
OCT 13 1997
RELEASED FOR CONSTRUCTION

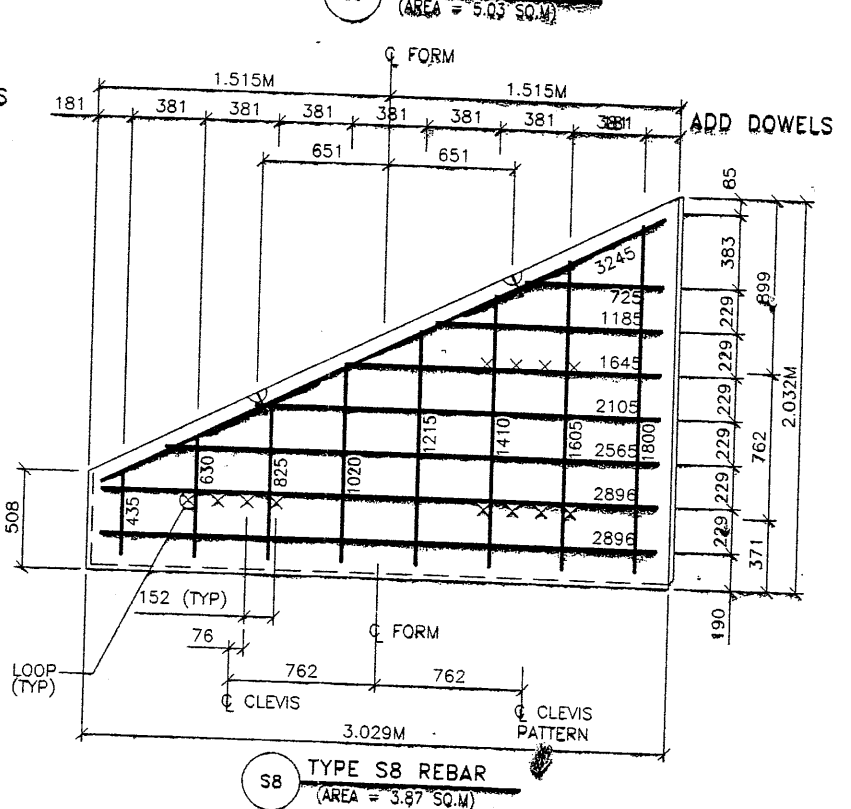
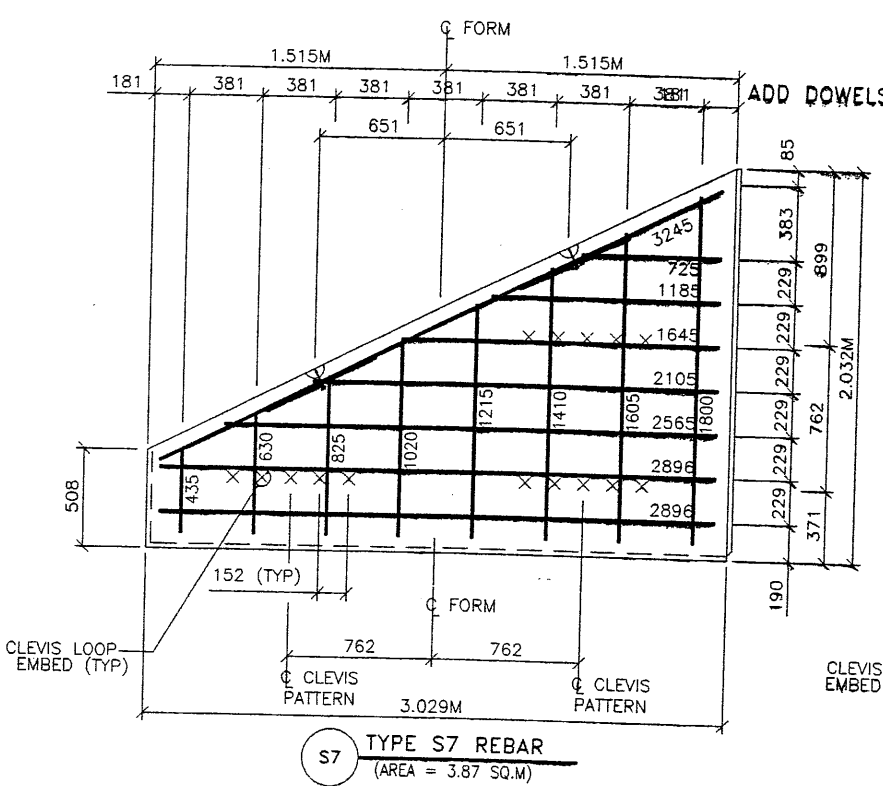
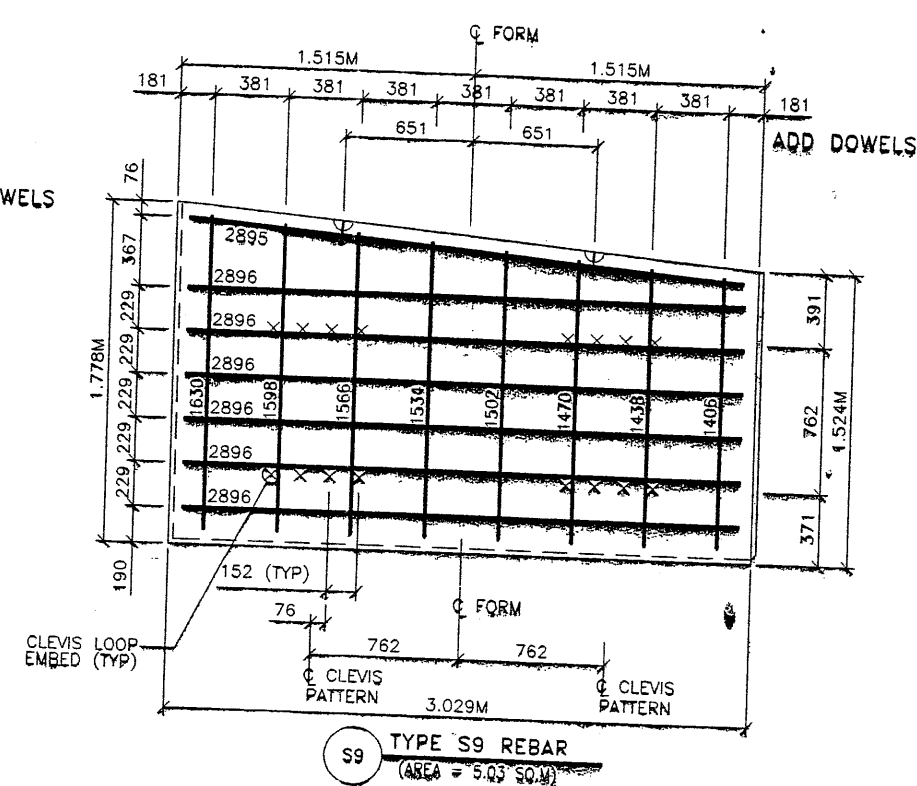
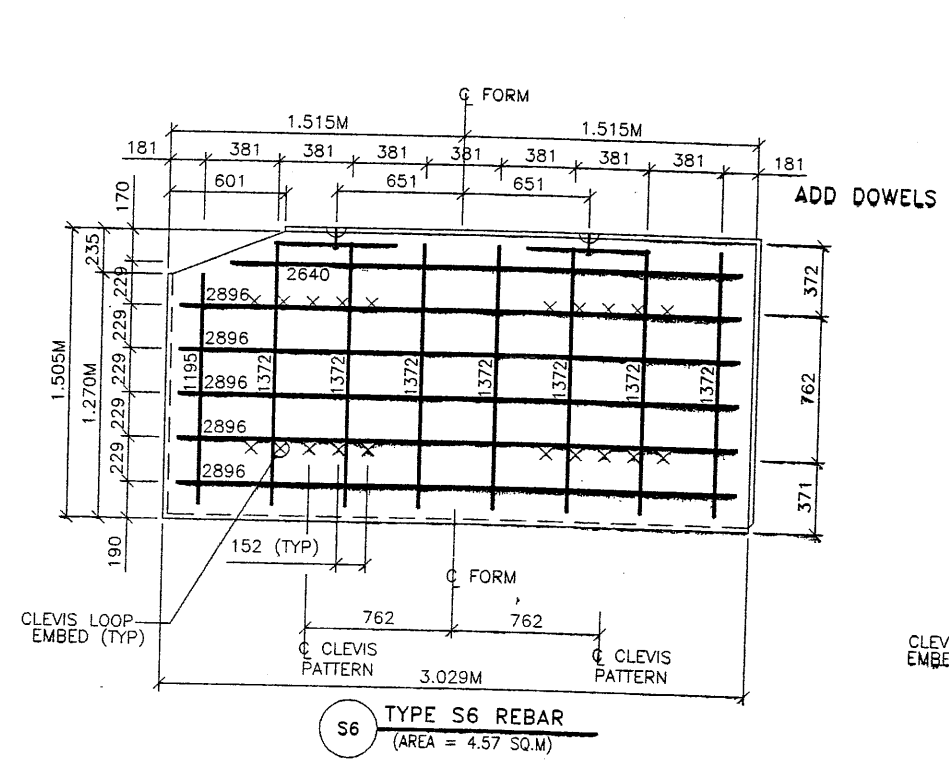
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-14B"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



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:
1.2R-343-14B.10
JOB NO:
239-0007
RE-9

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 3-06-97
 FINAL



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-26-97	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 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 Ø CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

WASATCH CONSTRUCTORS
 OCT 13 1997
 RELEASED FOR CONSTRUCTION

DES:	JUN	NO.	
DRN:	DOO	DATE	
CHK:	JUN	REVISION	

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4969

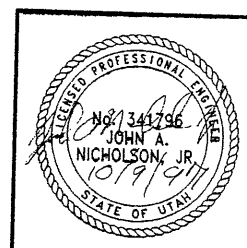
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-14B"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

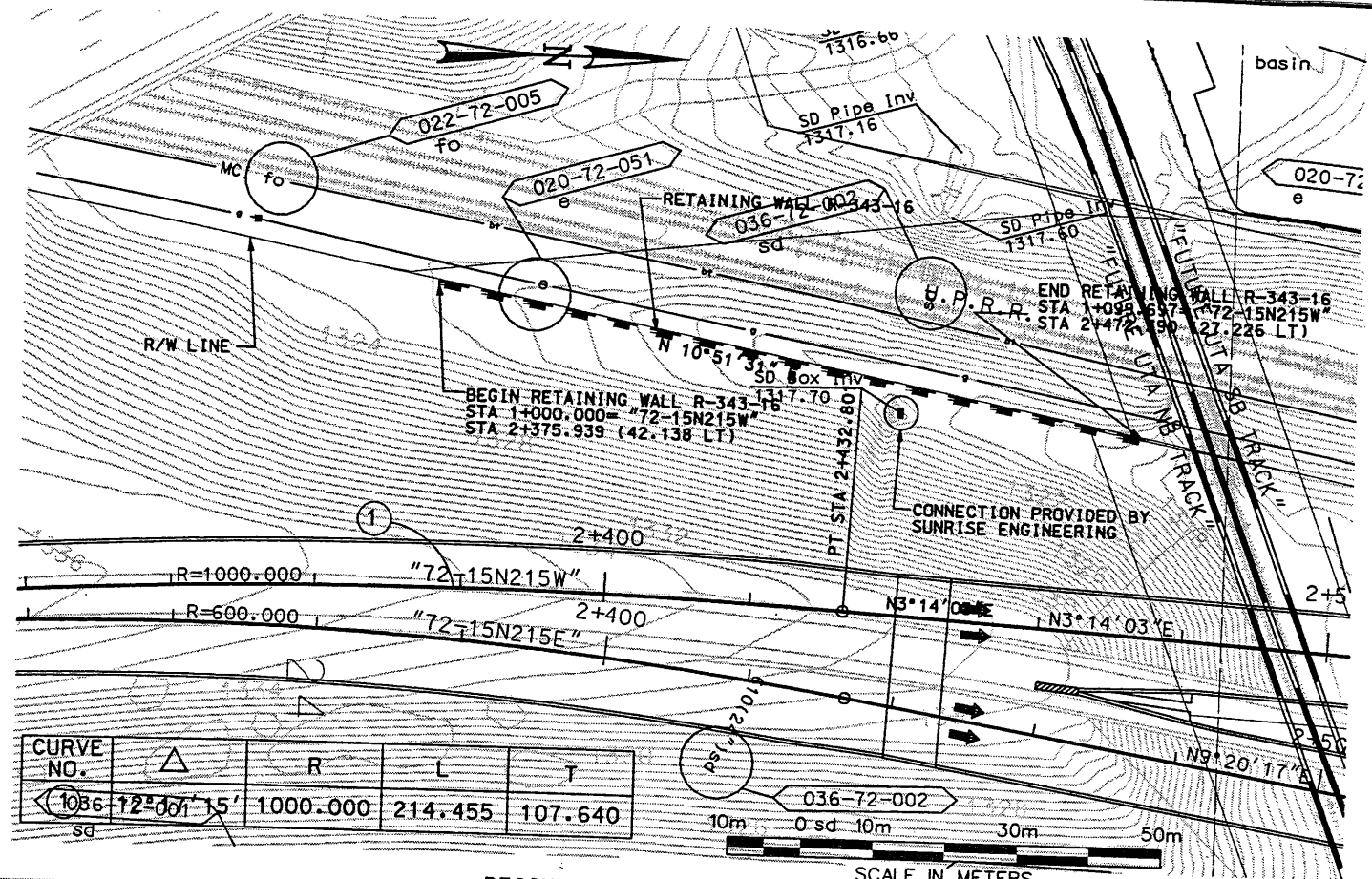
SCALE:
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 JOB NO:
 239-0007/II
 RE-10

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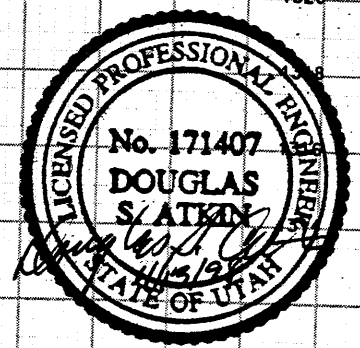
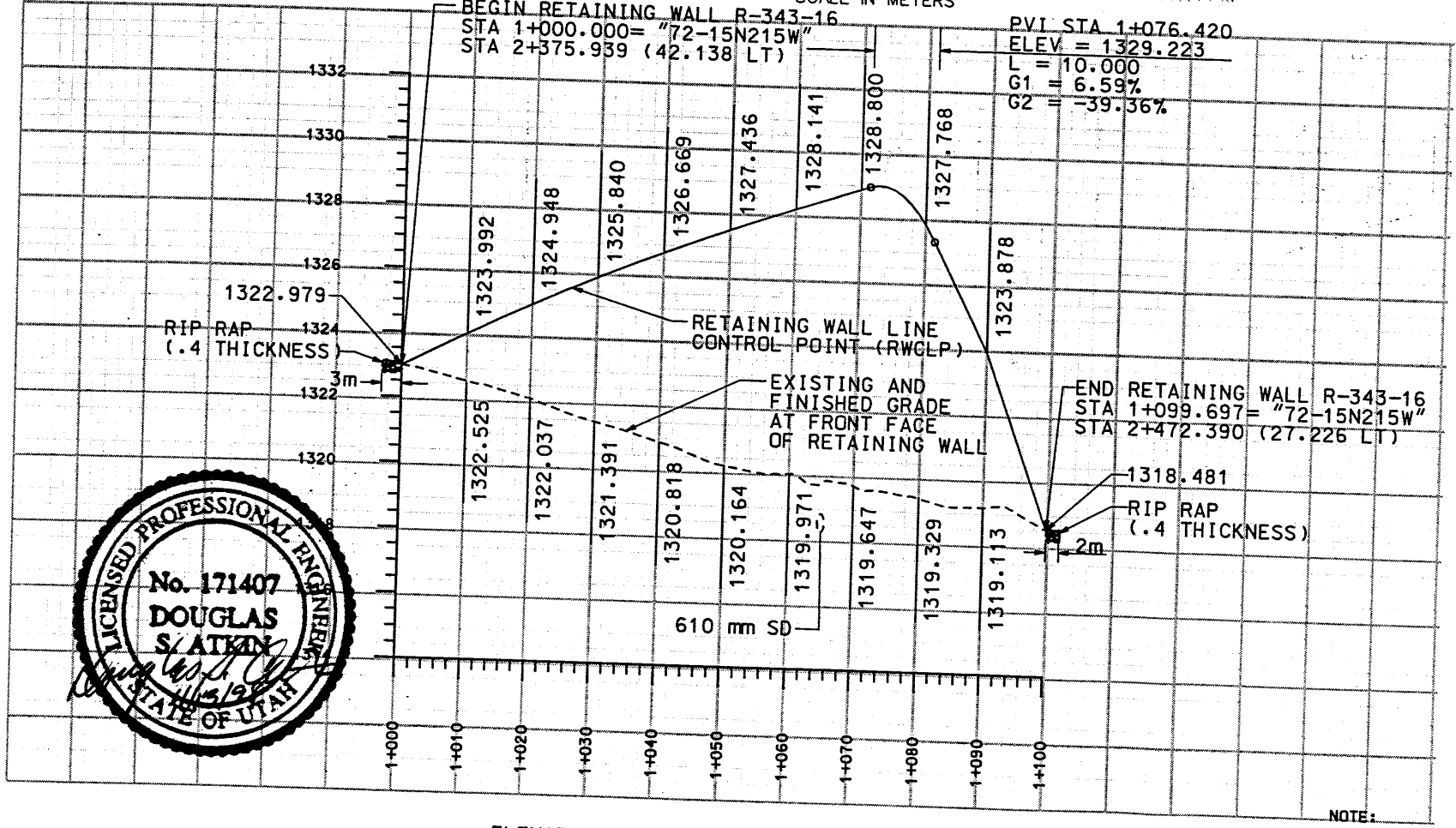
METRIC

Date: 13-NOV-1998 Time: 18:22 User: ramer mockkk



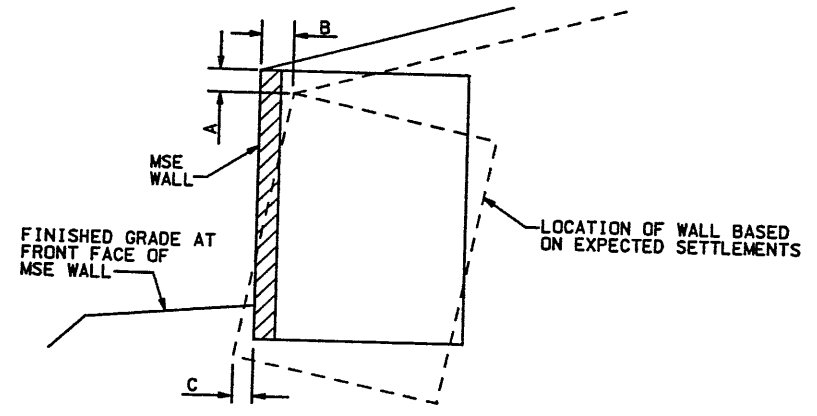
CURVE NO.	Δ	R	L	T
1036-72-001	15'	1000.000	214.455	107.640

SCALE IN METERS



ELEVATION VIEW FROM BACK OF WALL

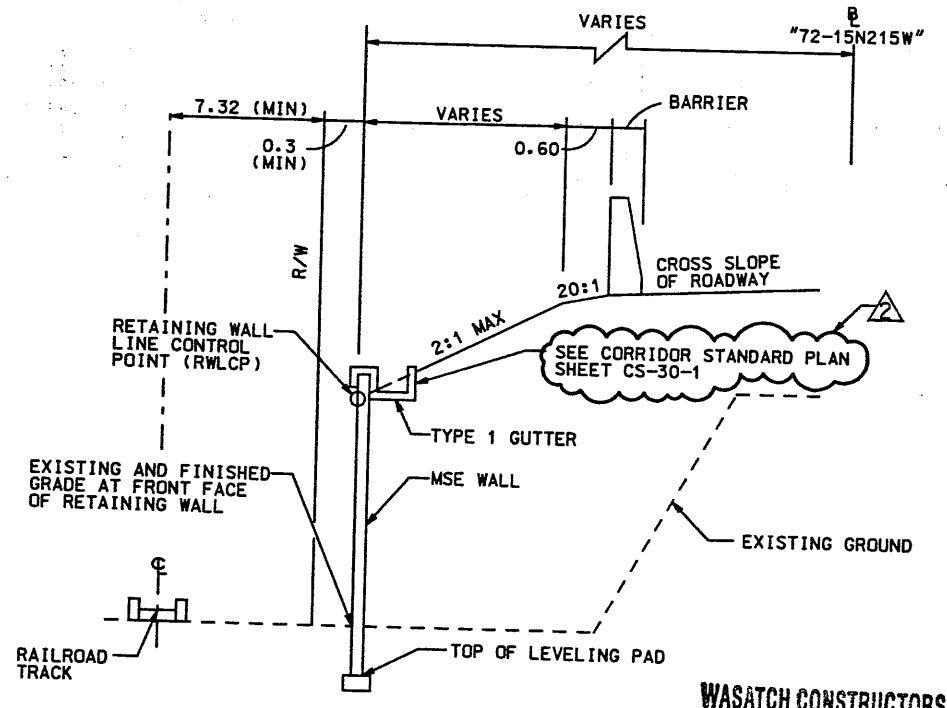
NOTE: THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.



ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
1+000.000 TO 1+099.697	1+078***	A	B	C
		30 TO 50	47	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION: ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.



TYPICAL SECTION WALL R-343-16 STA 1+000.000 TO STA 1+099.697

WASATCH CONSTRUCTORS
 NOV 24 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
 URS Greiner
 SVERDRUP/DE LEUW

1-15 CORRIDOR RECONSTRUCTION	SALT LAKE COUNTY
SITUATION/LAYOUT RET WALL R-343-16	DWG. NO. 1.2R-343-16.1
SECTION 1.2	SHT. 1 OF 10
PROJECT NUMBER #SP-15-7(135)296	REF. 20

NO.	DATE	DESCRIPTION
1	10-1-97	INITIAL RELEASE
2	11-13-98	NDC-0284

DESIGN	CHECK	DATE
JMM	KJM	9/97
DMK	DMR	9/97
QUANT.	CHECK	DATE

1214000

E:\PROJECT\239-0007\72SERIES\72-16

3-23-97

FINAL

WALL STA 1+000.000 =
72-15N215W
STA 2+375.939 @ 42.138 LT
BEGIN PRECAST WALL R-343-16

FRONT FACE PRECAST WALL "R-343-16"

WALL STA 1+099.697 =
72-15N215W
STA 2+472.390 @ 27.226 LT
END PRECAST WALL R-343-16

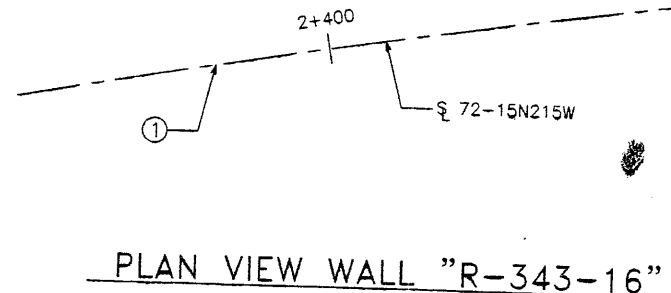
N 10° 51' 31" E

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	△
①	1000.000	214.455	107.640	12°17'15"

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 SOIL REINFORCING MESH LOCATION.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
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: 4W11-12 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-24 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" 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: 6W20-24 MESH HAS SIX (6) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" 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.



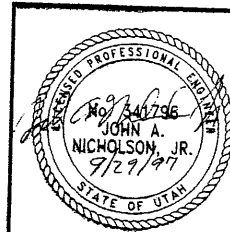
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SCALE: 1=500 (HALF SIZE)

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.
TRAFFIC SURCHARGE	= 250 PSF
SEISMIC ACCELERATION COFF.	= 0.13g (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

ALLOWABLE BEARING CAPACITY = 260 kPa

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-16, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-343-16"
RE-6	ELEVATION PRECAST WALL "R-343-16"
RE-7	SPECIAL PANEL DETAILS
RE-8	SPECIAL PANEL DETAILS
RE-9	SPECIAL PANEL DETAILS

METRIC



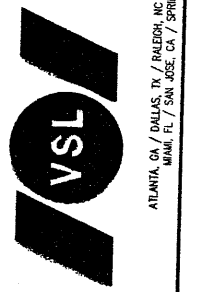
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DES.	MM	DRN.	DDO	CHK.	MM	NO.	DATE	BY	CHK
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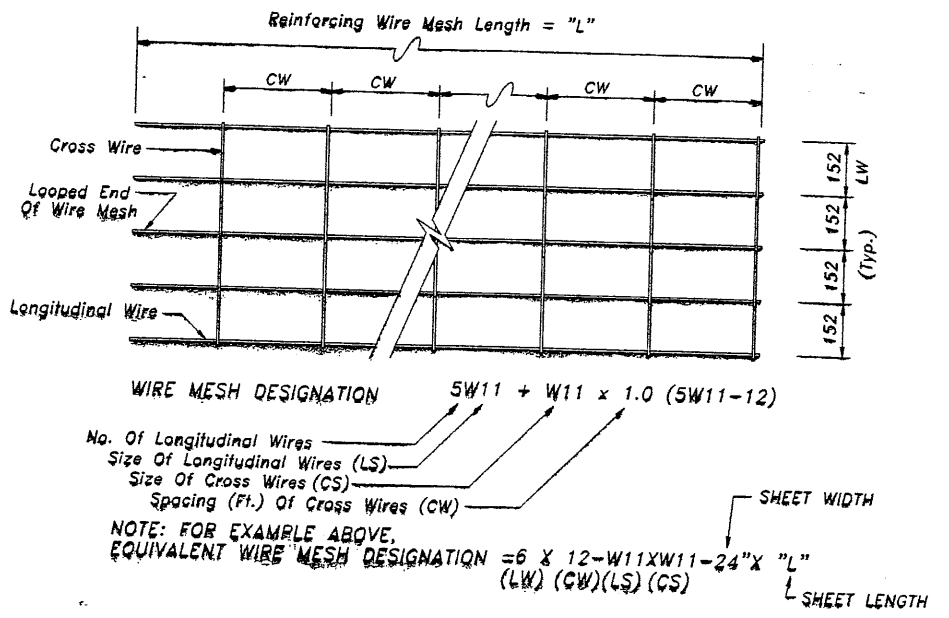
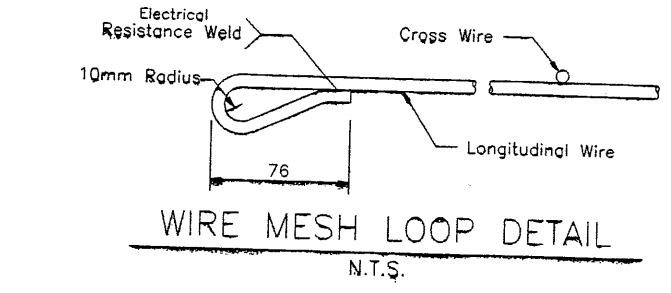
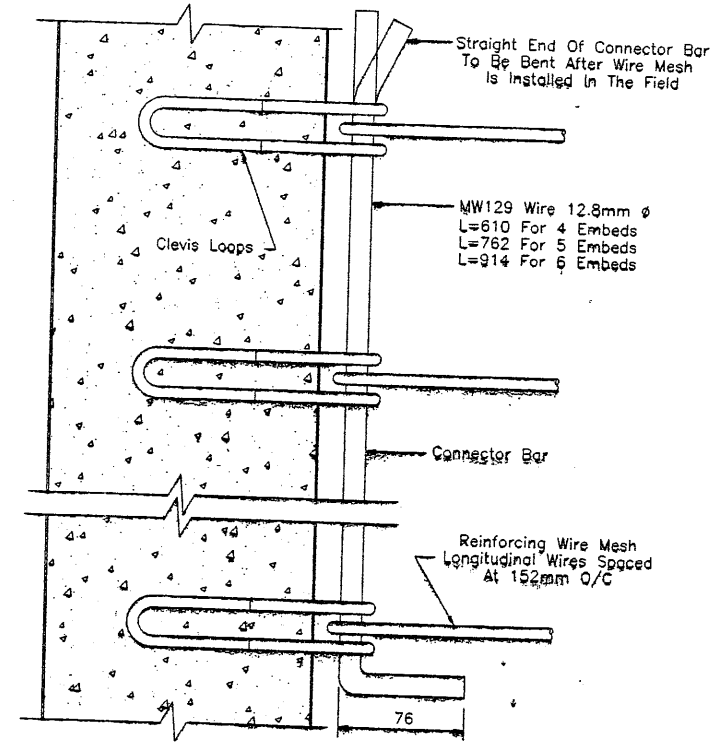
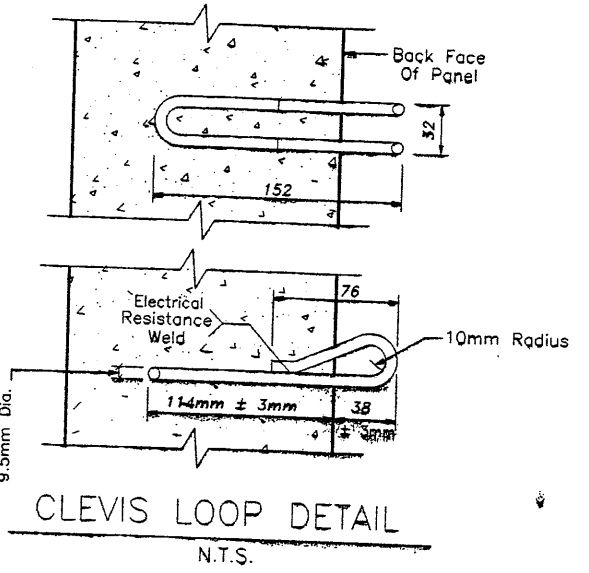
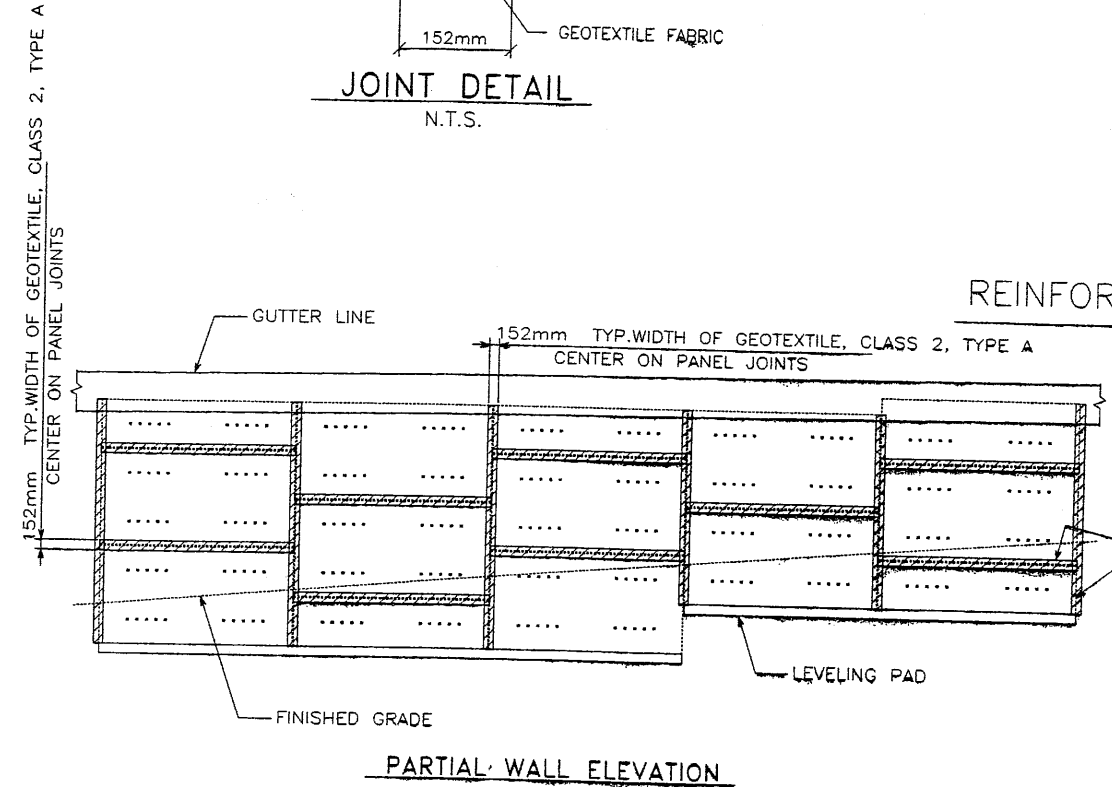
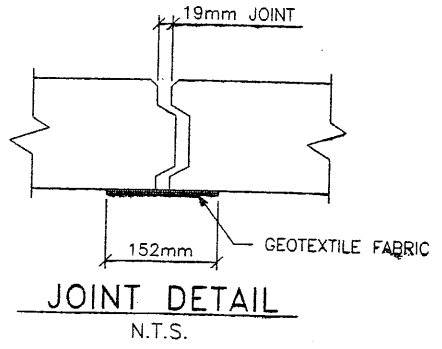
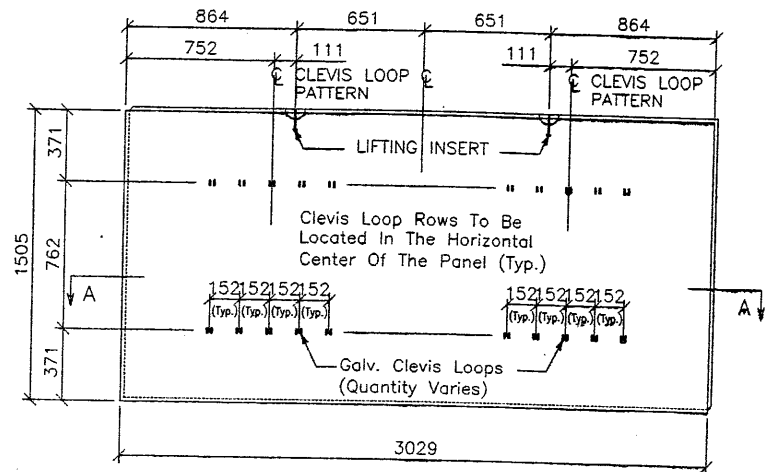
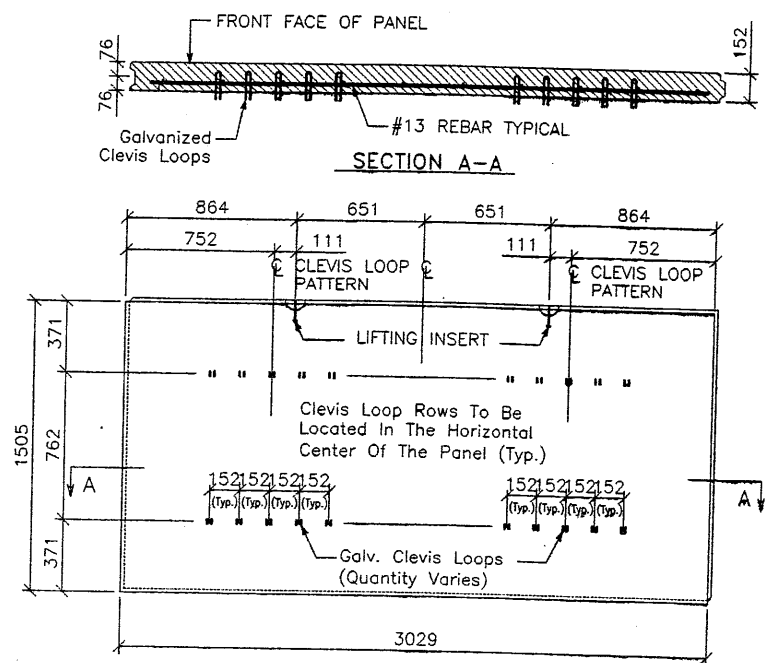
RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-16"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-16.2
JOB NO:	239-0007
	2/10
	RE-1

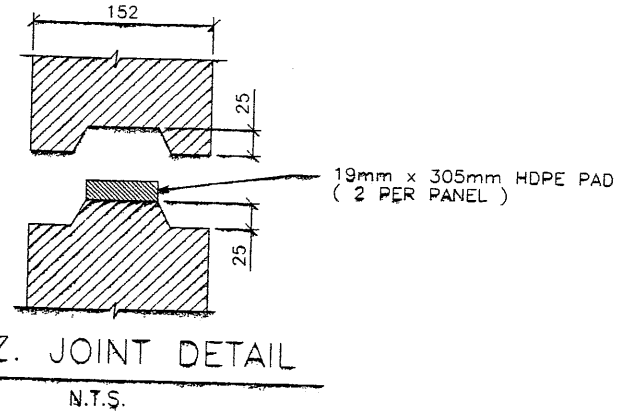
9-22-97

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FINAL P.



NOTE: W11 (71 sq mm) And W20 (129 sq mm) Steel Wire Material And Welding Of Cross Wires And Loops Shall Conform To ASTM A62 And ASTM 185. $F_y = 448$ MPa. Mesh Shall Be Galvanized To ASTM A-123 To A Minimum Effective Thickness Of 0.086 mm.



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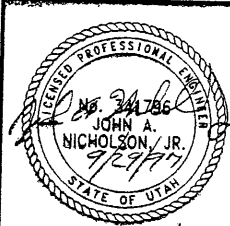
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
TYPICAL DETAILS

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

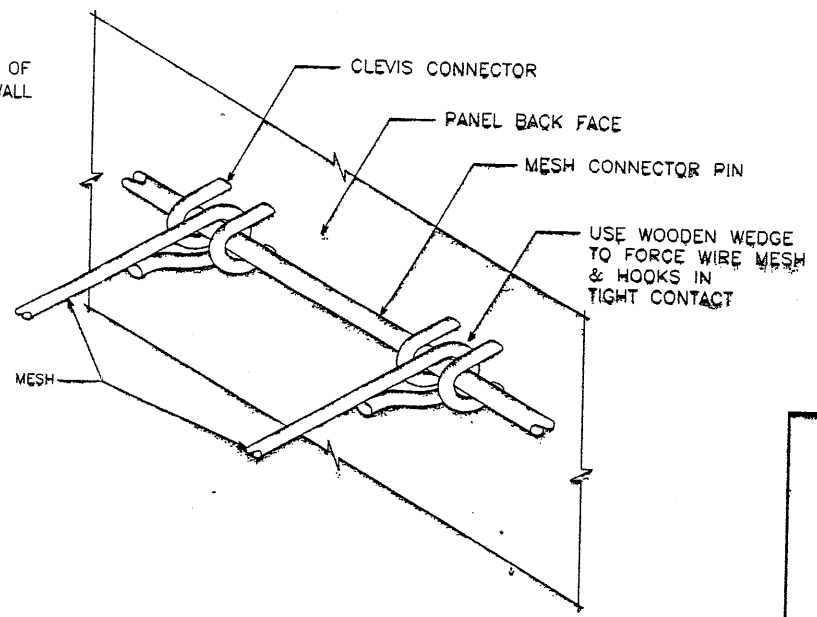
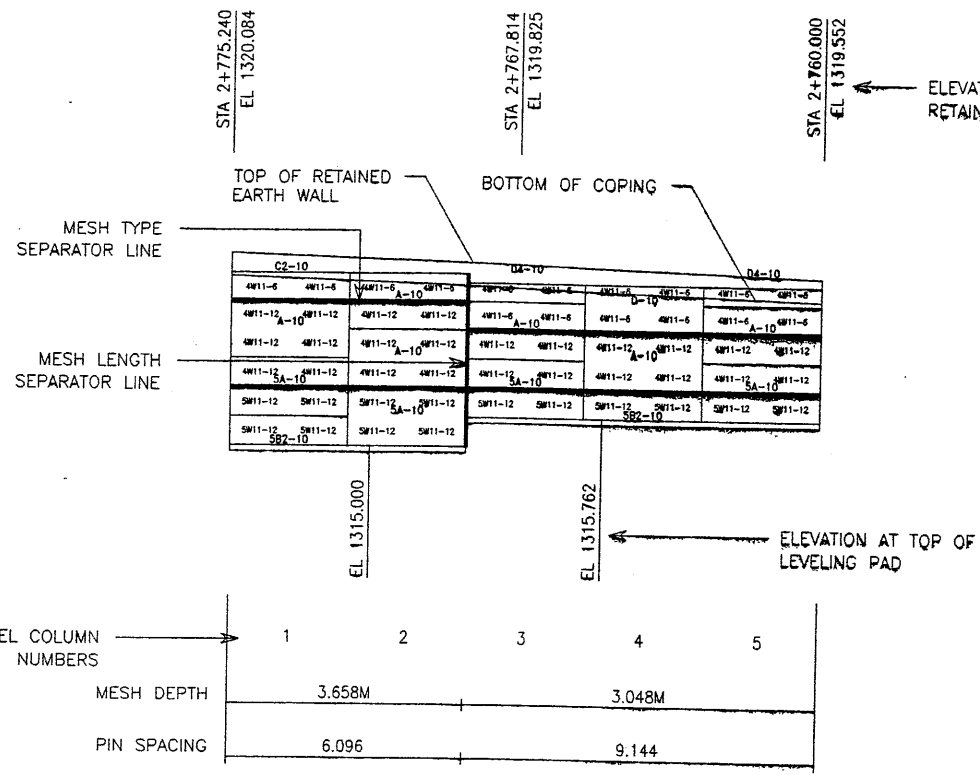
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JOB NO:
239-0007/3/10

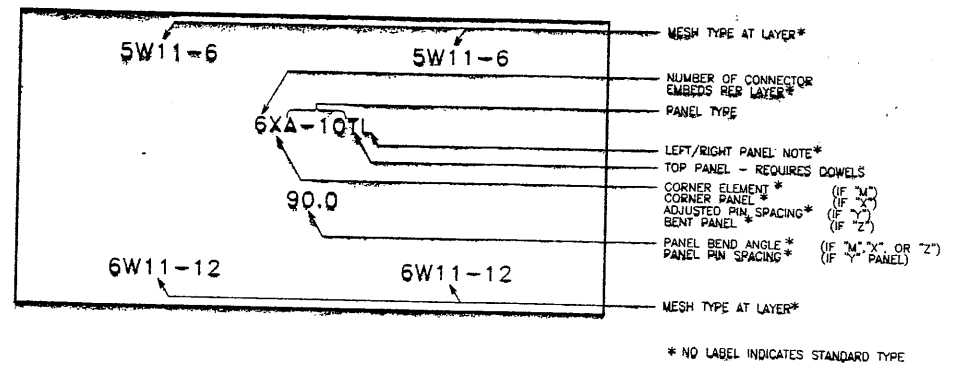
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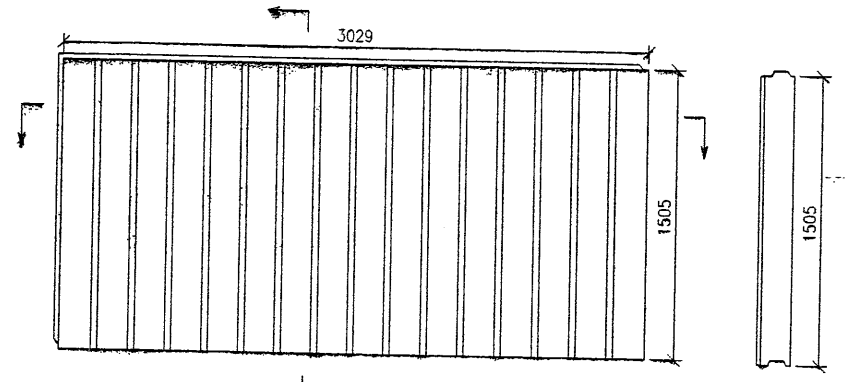
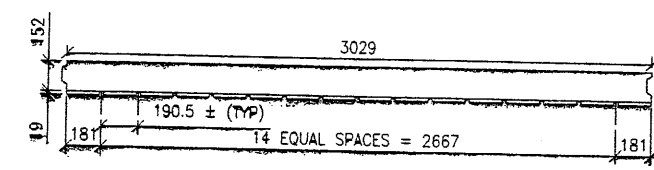
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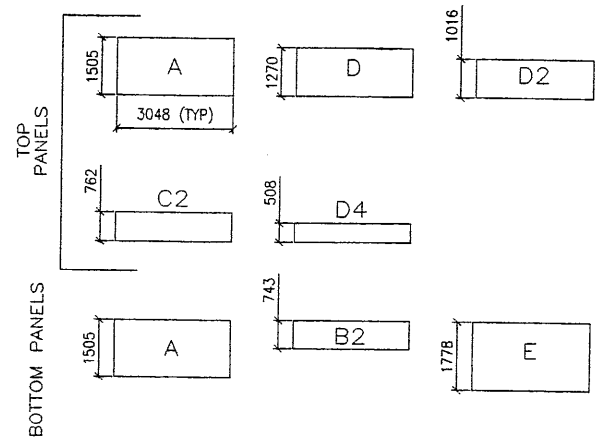
2 VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.



3



6



4 ALL DIMENSIONS ARE IN MILLIMETERS

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NO.	DATE	REVISION	CHK

DES.	MM	DOO	MM	RETAINED EARTH™
09-15-97		09-15-97		
09-15-97		09-15-97		

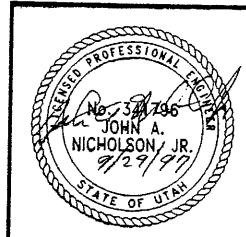
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-16.4
JOB NO:	239-0007
	4/10
	RE-3

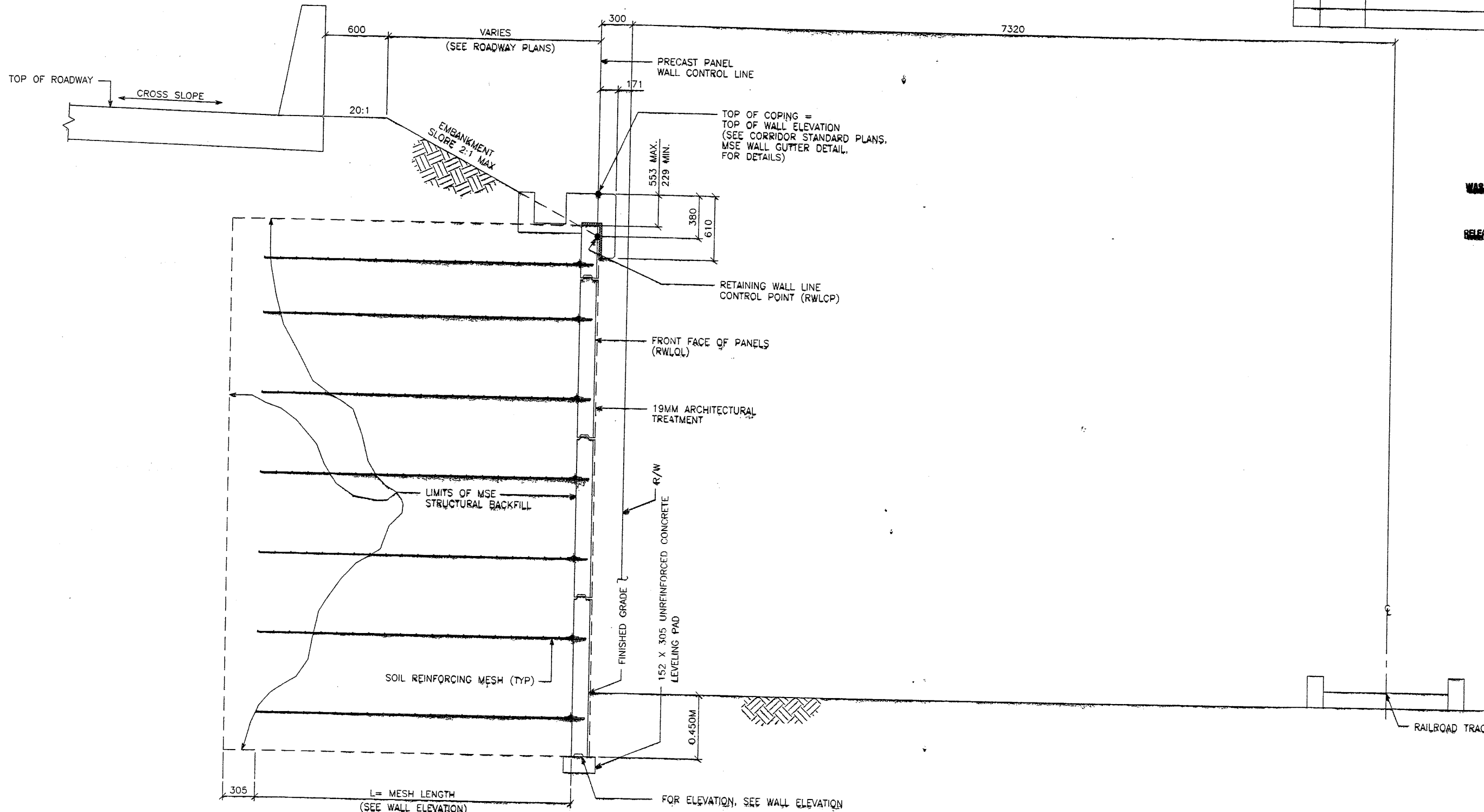


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1-22-97

FINAL P



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

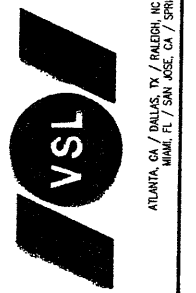
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NO.	DATE	DESCRIPTION
▲	9-23-97	RELEASE FOR CONSTRUCTION ✓

WATCH CONSTRUCTORS
OCT 08 1997
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NO.	DATE	REVISION	CHK

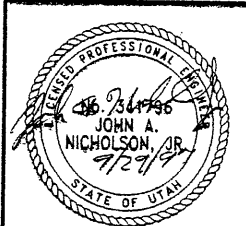
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
TYPICAL CROSS SECTIONS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
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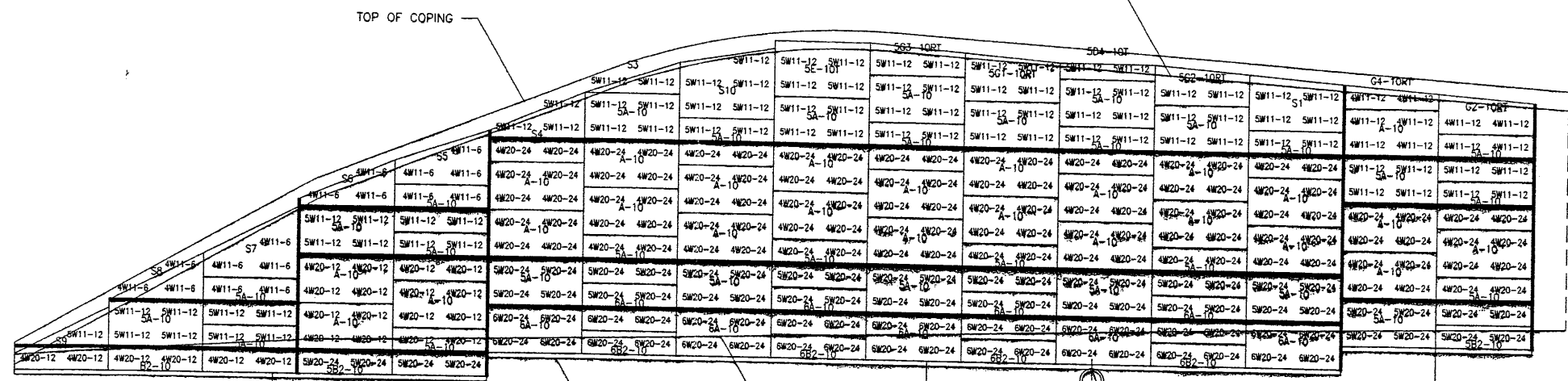
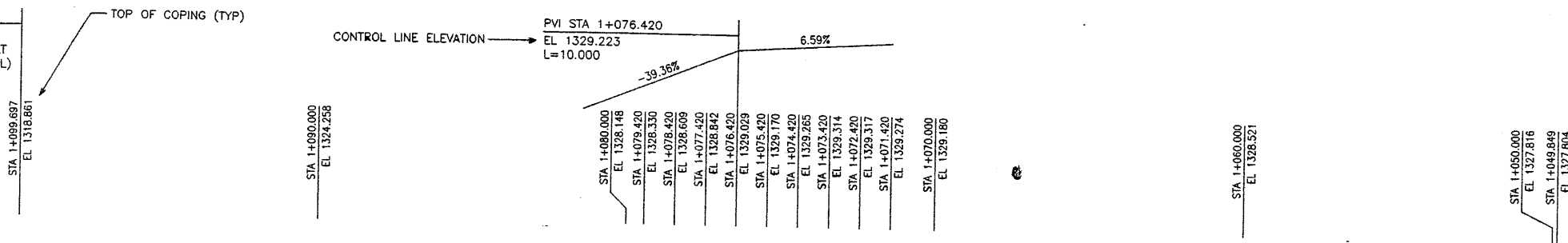
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JOB NO:	239-0007 5/10
	RE-4

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9-22-97

FINAL

END WALL R-343-16
WALL STA 1+099.697 =
"72-15N215W"
STA 2+472.390 @ 27.226 LT
NOMINAL PANEL FACE (RWLOL)

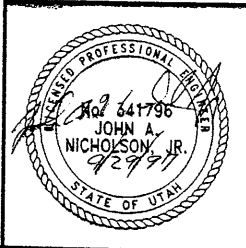


	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
MESH DEPTH		4.267M		5.486M					8.534M							6.706M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)		170 KPa		299 KPa					366 KPa							303 KPa
PIN SPACING			15.240						27.432							6.096

ELEVATION PRECAST WALL R-343-16
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



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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-16.6
JOB NO:	239-0007 6/10
	RE-5

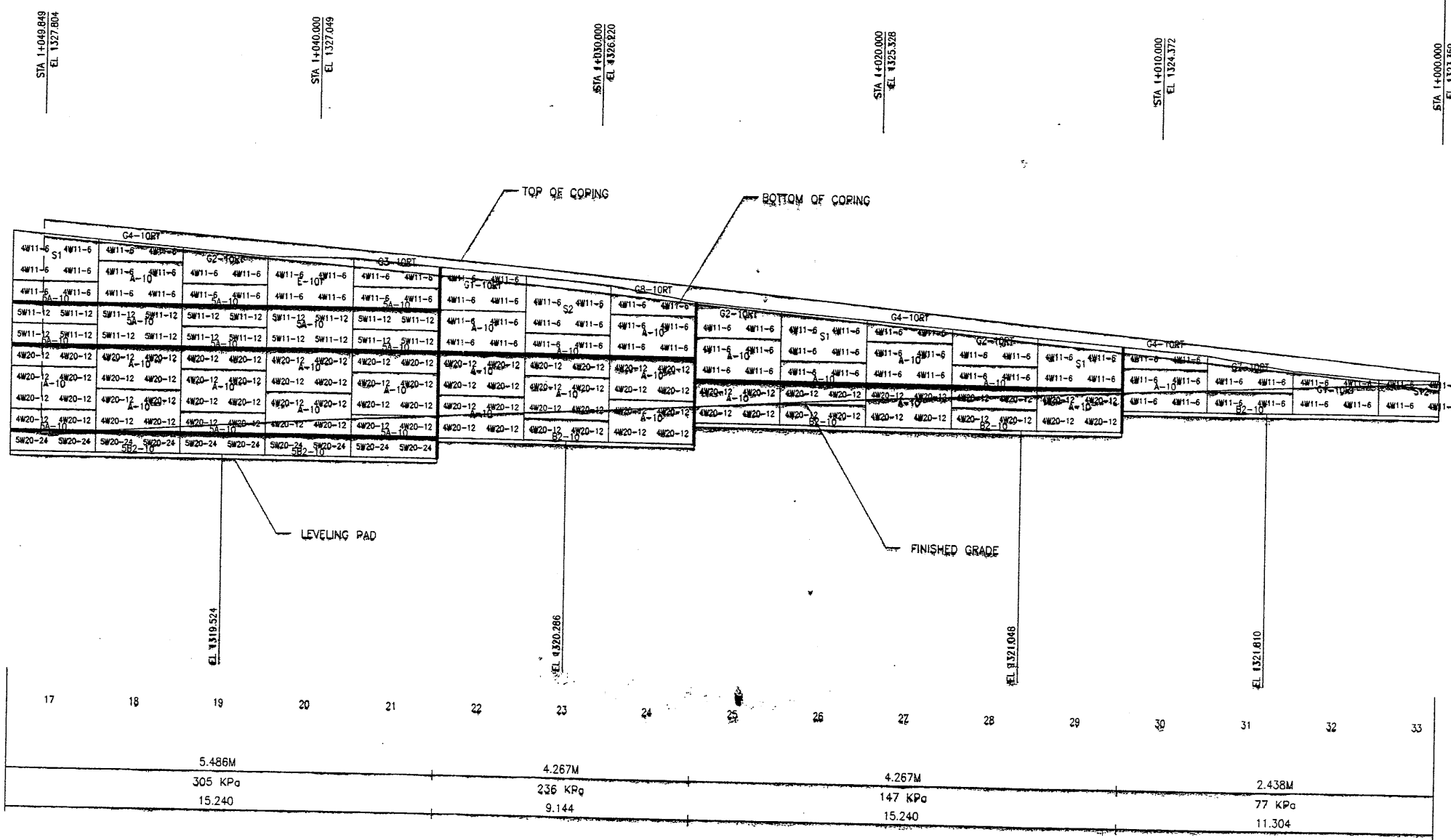
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1-22-97

FINAL P

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
9-23-97		RELEASE FOR CONSTRUCTION

BEGIN WALL R-343-16
WALL STA 1+000.000 =
"72-15N215W"
STA 2+375.939 @ 42.138 LT
NOMINAL PANEL FACE (RWLOL)



ELEVATION PRECAST WALL R-343-16
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

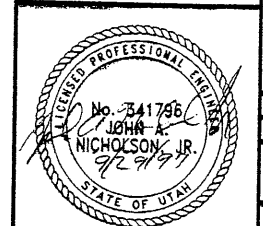
APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

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OCT 08 1997
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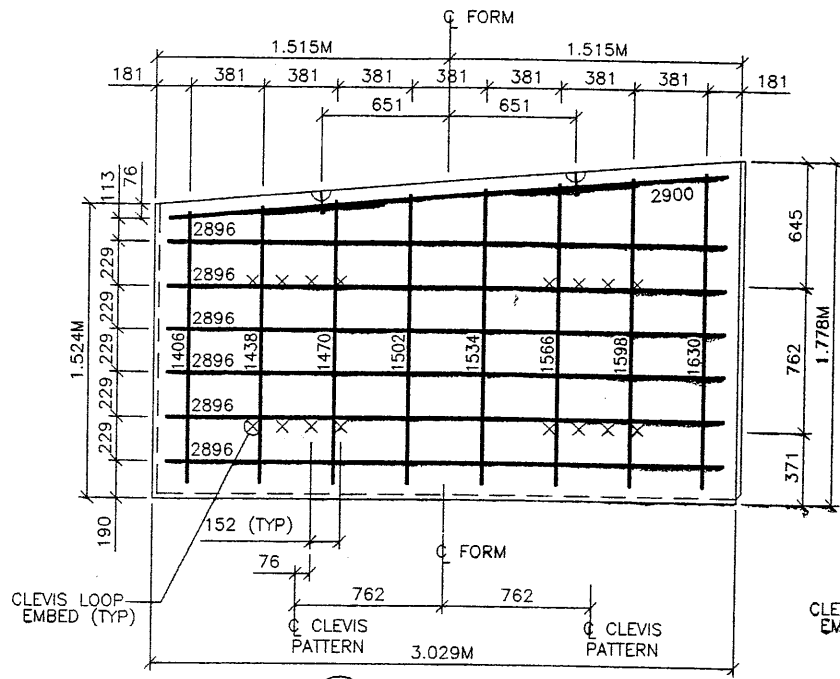
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
UTAH 1-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-16.7
JOB NO:	239-0007 7/10
REVISION	RE-6

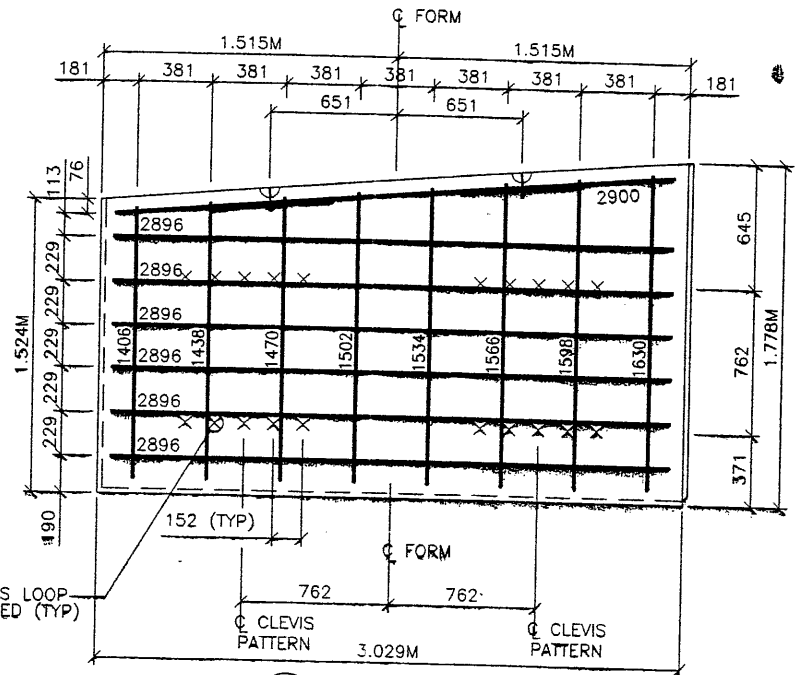
DES.	DRN.	CHK.	NO.	DATE	BY	CHK.
09-15-97	MM					
09-15-97	DDO					
09-15-97	MM					

FINAL P' 1-23-97

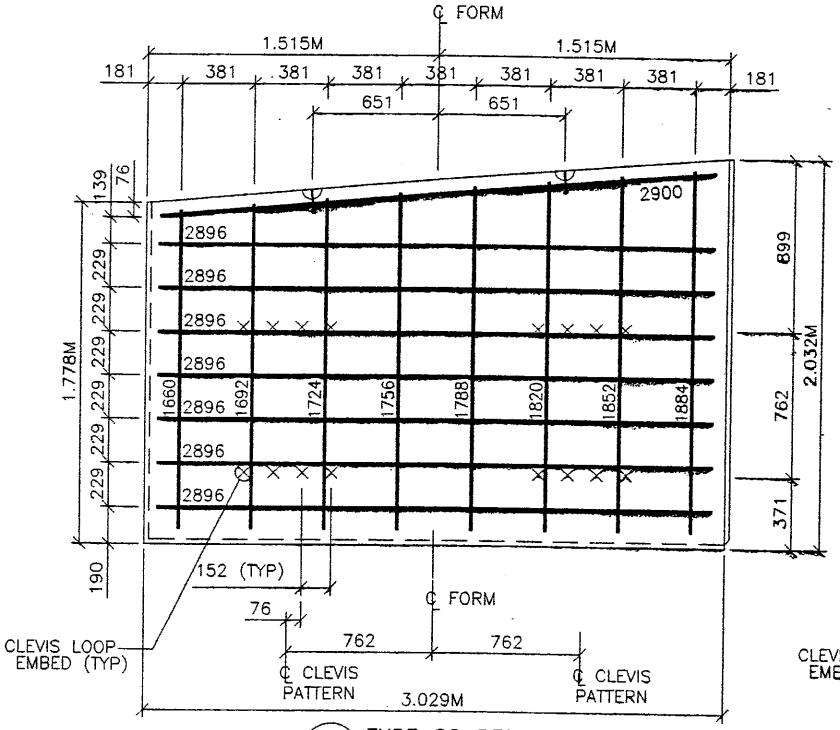
E:\PROJECT\239-0007\72SERIES\72-16\5'



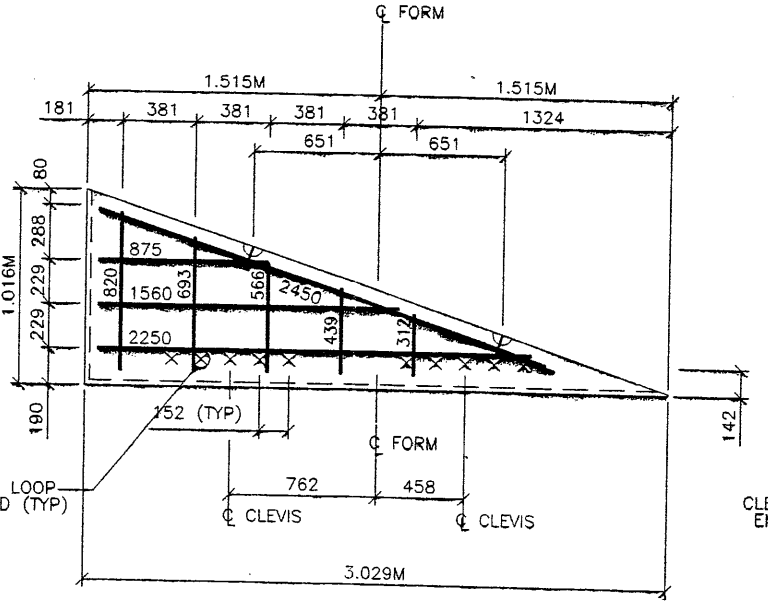
S1 TYPE S1 REBAR
(AREA = 5.03 SQ.M)



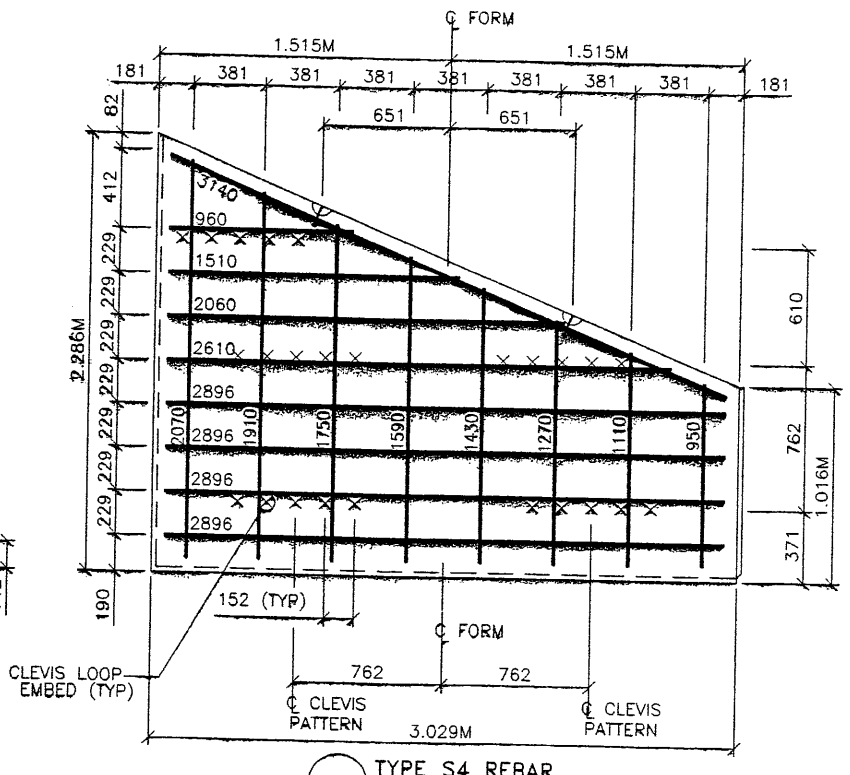
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(AREA = 5.03 SQ.M)



S2 TYPE S2 REBAR
(AREA = 5.81 SQ.M)



S3 TYPE S3 SHOWN
(AREA = 1.55 SQ.M)



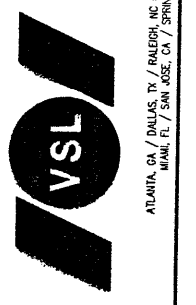
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(AREA = 5.03 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ	9-23-97	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.
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 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mm Ø CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

NO.	DATE	DESCRIPTION

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Facsimile: (919) 781-6965

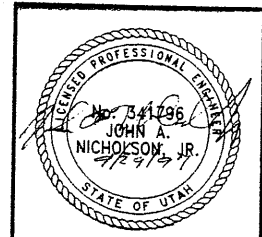


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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

RELEASED FOR CONSTRUCTION
OCT 08 1997

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.

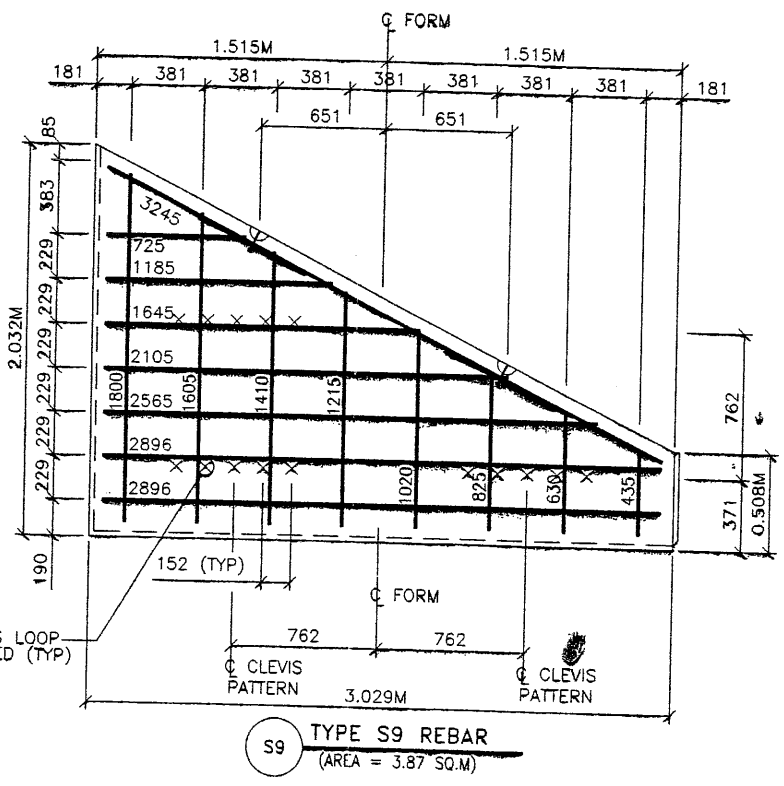
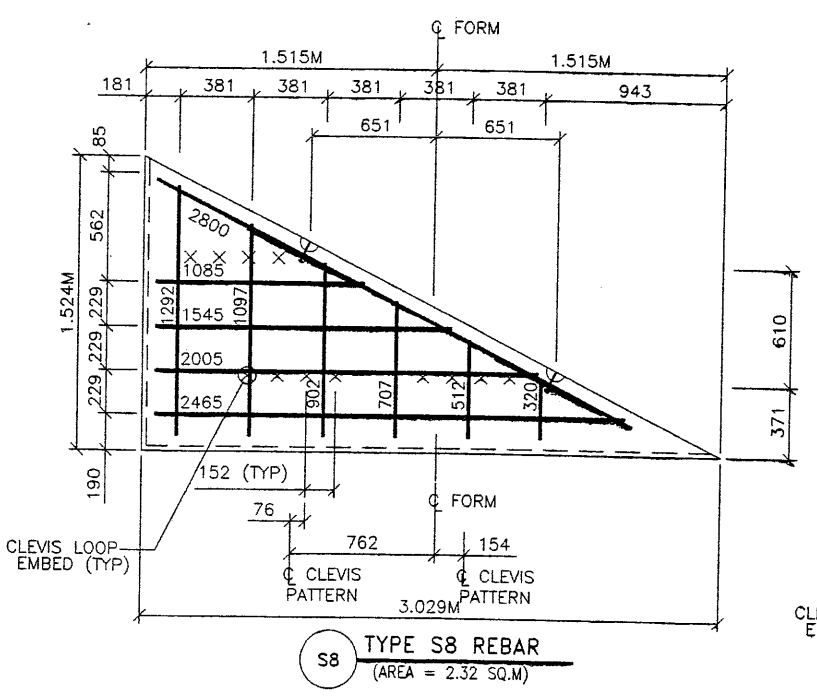
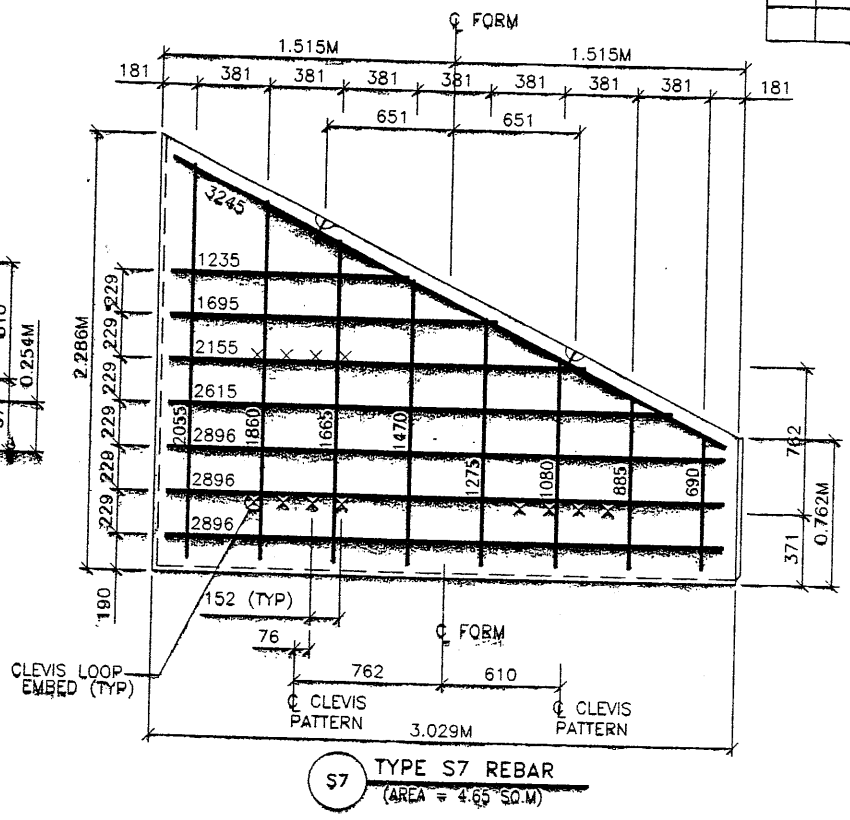
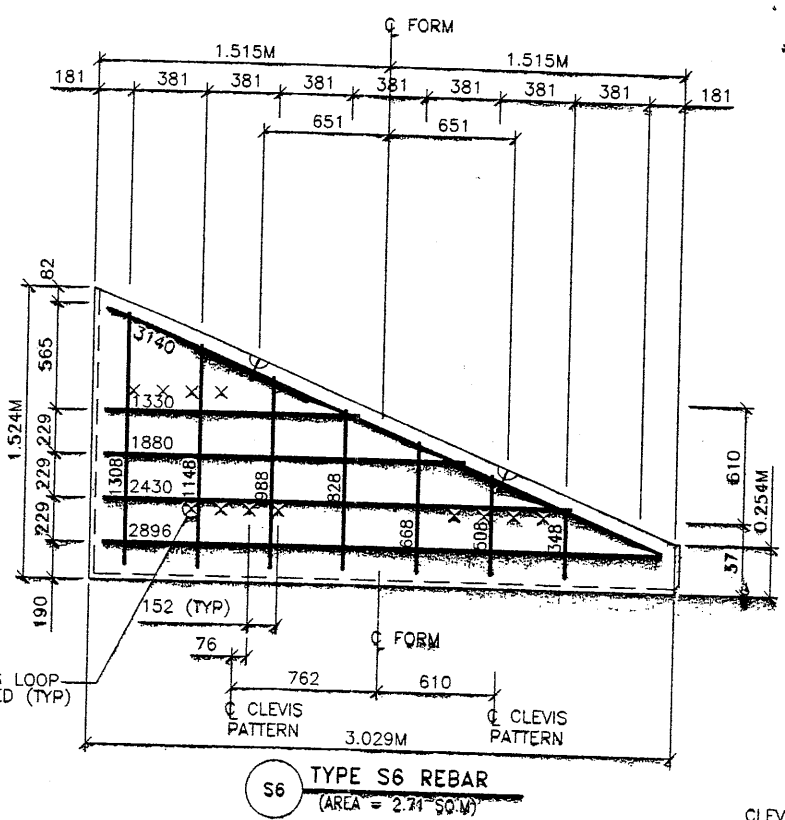
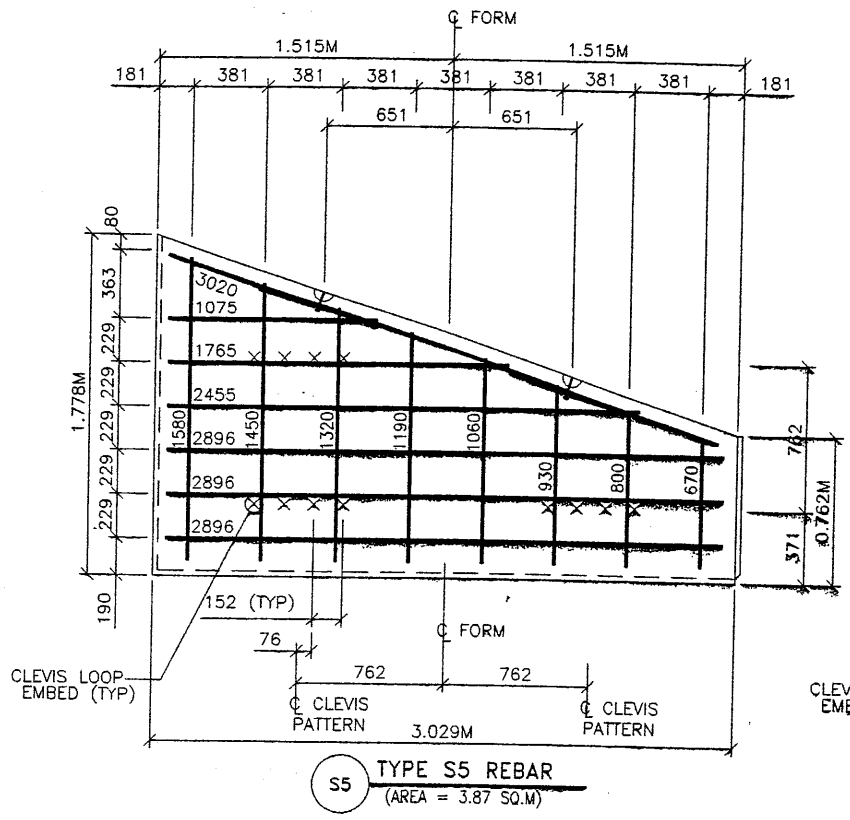
SCALE:	1.2R-343-16.8
JOB NO:	239-0007
DATE:	8/10
REVISION:	RE-7

E:\PROJECT\239-0007\72SERIES\72-16

9-23-97

FINAL

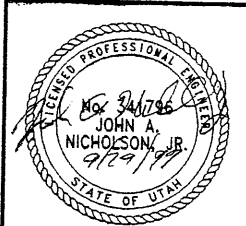
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	9-23-97	RELEASE FOR CONSTRUCTION



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 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

WATCH CONSTRUCTORS
OCT 08 1997
RELEASED FOR CONSTRUCTION

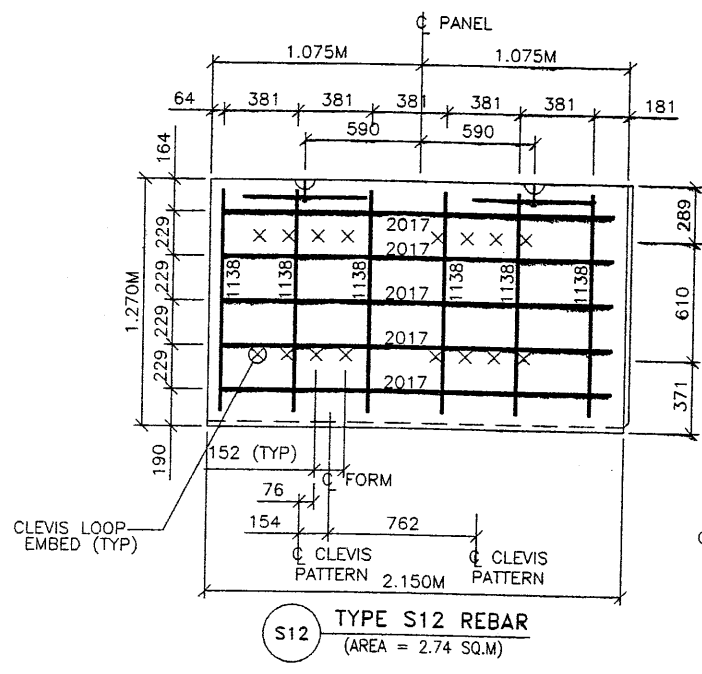
METRIC



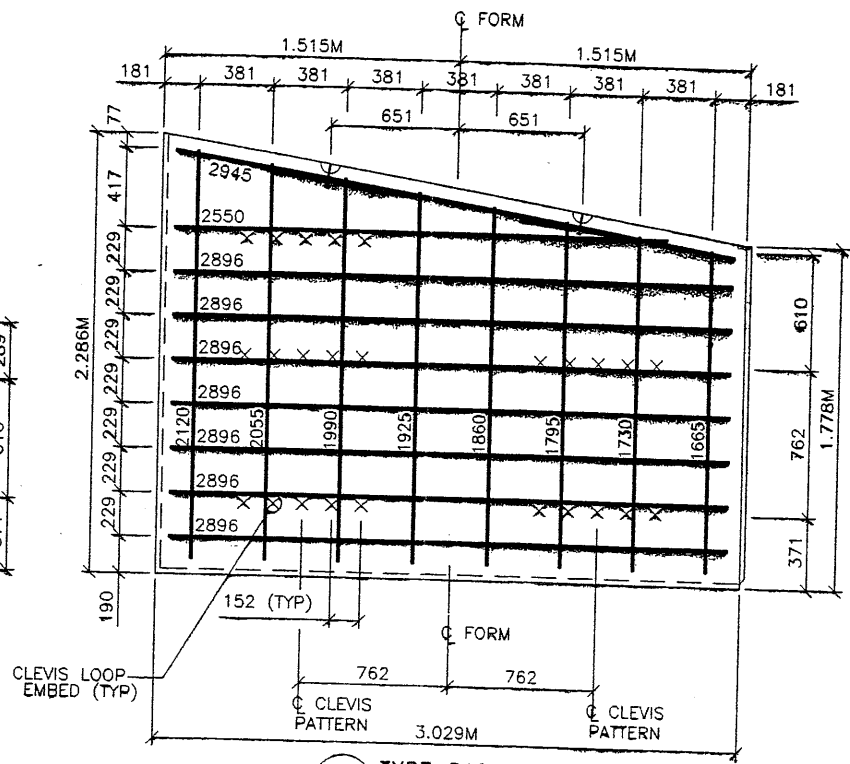
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VSL CORPORATION 2840 Floro Place, Suite 200 Raleigh, NC 27612 Telephone: (919) 781-6272 Fax: (919) 781-4969		DES. 09-23-97 JUN	DRN. 09-23-97 000	CHK. 09-23-97 JUN	RETAINED EARTH™	NO. DATE	REVISION	BY	CHK
<p>ATLANTA, GA / DALLAS, TX / DANESH, NC (CORPORATE OFFICE) MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA</p>		<p>UTAH 1-15 INTERCHANGE SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.</p>			SCALE:	1.2R-343-16.9	JOB NO:	239-0007 9/10	RE-8
		<p>RETAINED EARTH™ WALLS PRECAST WALL "R-343-16" SPECIAL PANEL REINFORCEMENT</p>			<p>SCALE:</p>		<p>JOB NO:</p>		<p>RE-8</p>

FINAL F 9-23-97 E:\PROJECT\239-0007\72SERIES\72-16



S12 TYPE S12 REBAR
(AREA = 2.74 SQ.M)



S10 TYPE S10 REBAR
(AREA = SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	9-23-97	RELEASE FOR CONSTRUCTION

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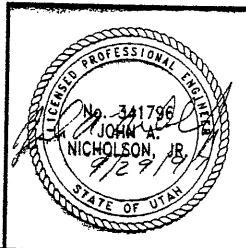
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6772
Fax: (919) 781-6969

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

WARREN CONSTRUCTORS
OCT 08 1997
RELEASED FOR CONSTRUCTION

METRIC



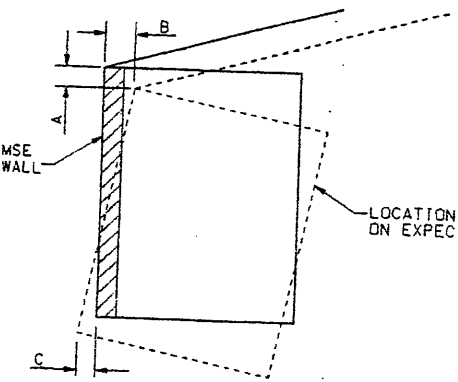
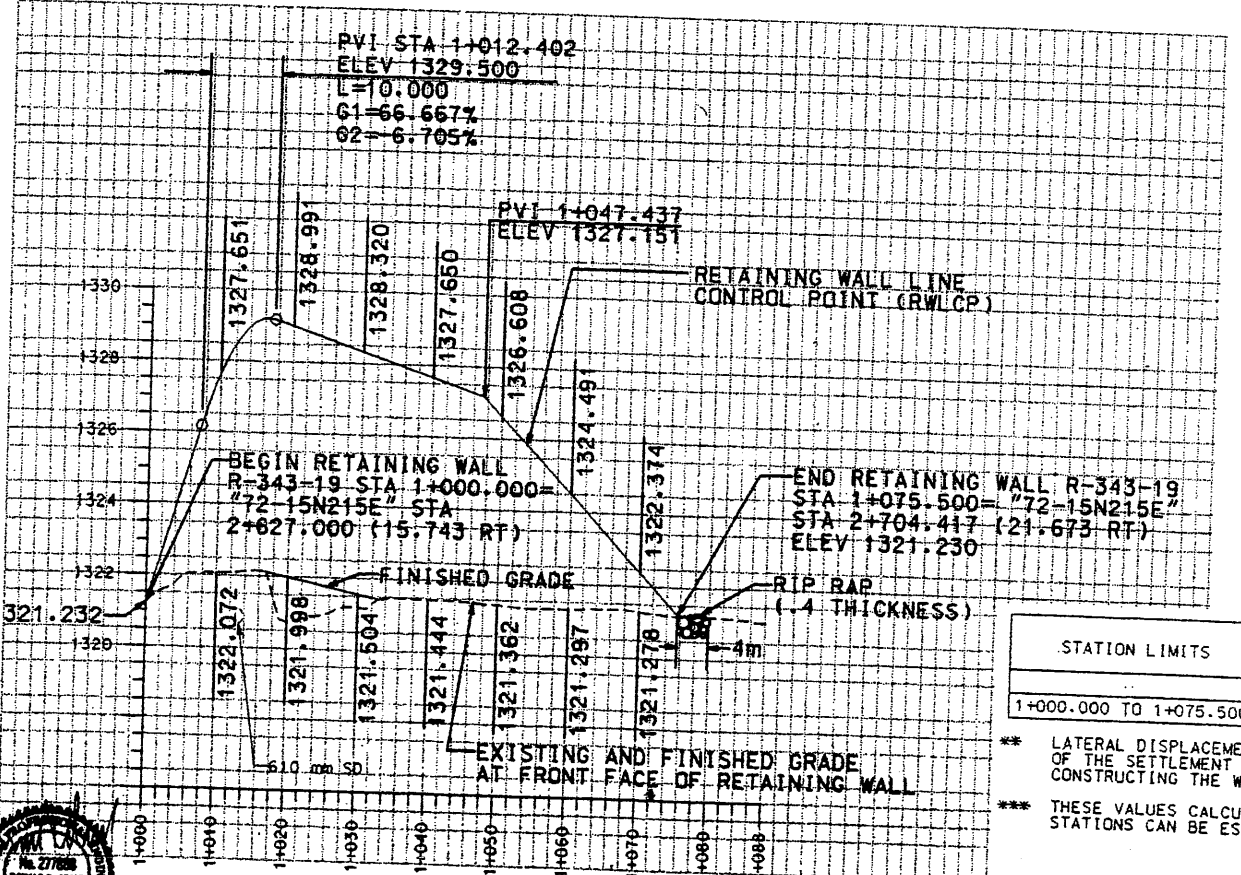
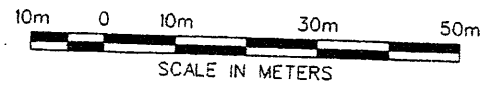
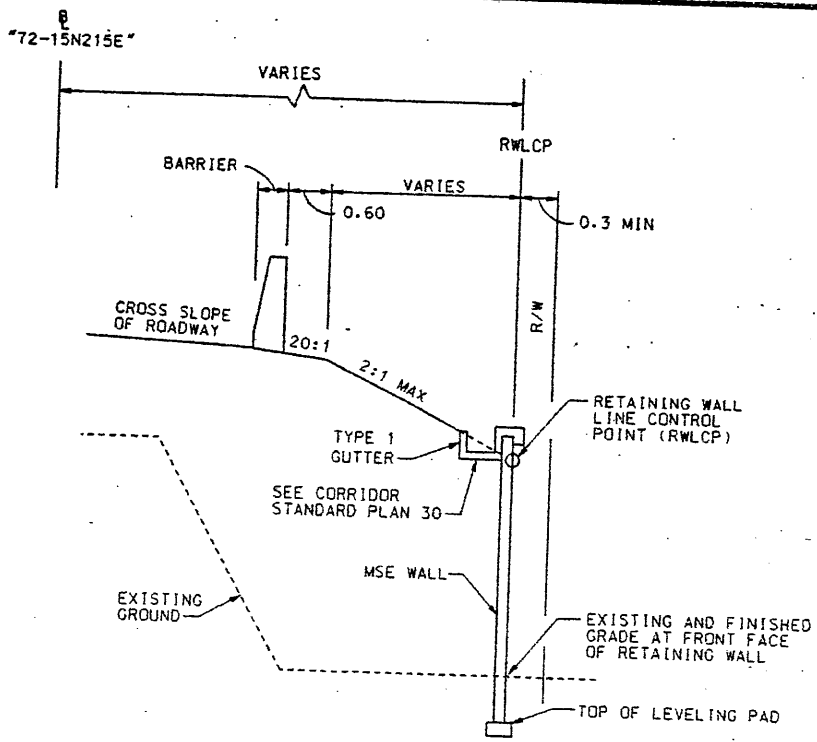
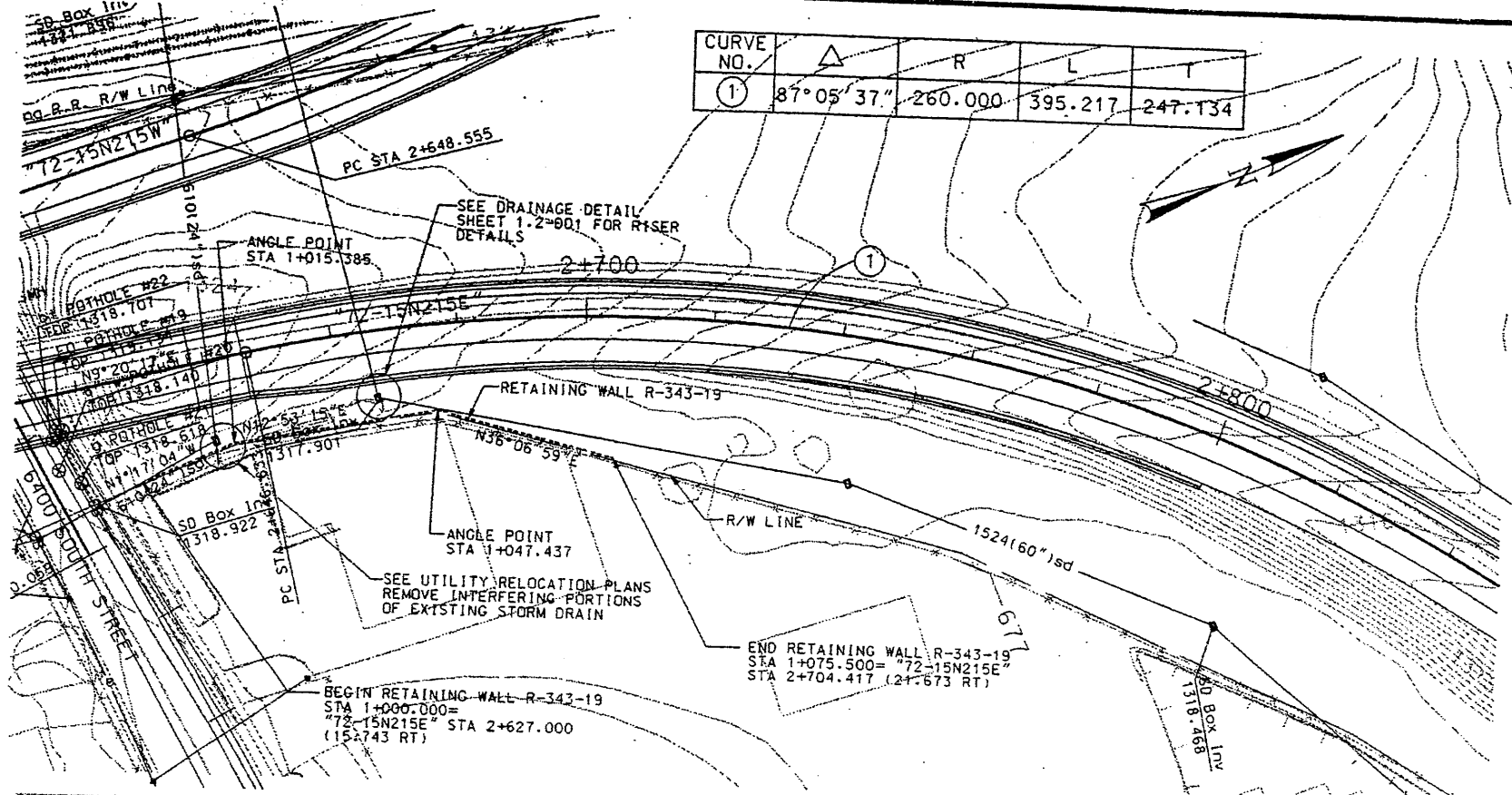
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-16"
SPECIAL PANEL REINFORCEMENT

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

SCALE: 1:2R-343-16.10
JOB NO: 239-0007 10/10
RE-9

CURVE NO.	Δ	R	L	T
1	87°05'37"	260.000	395.217	247.134

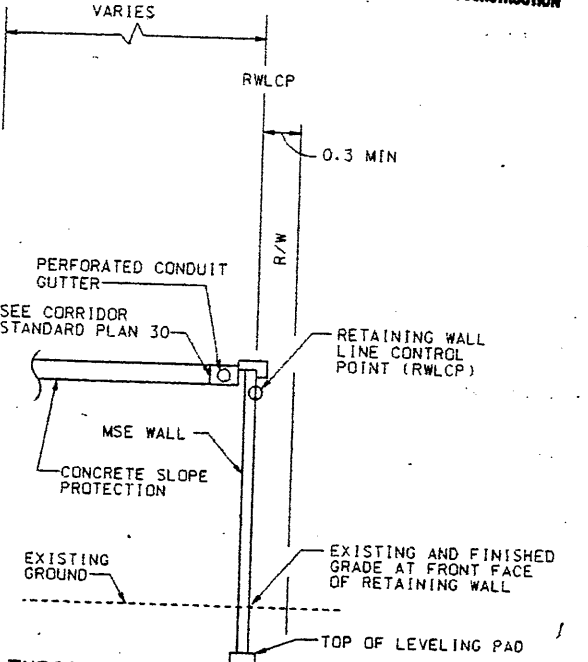


ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
1+000.000 TO 1+075.500	1+012.402***	A	B	C

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.

*** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.



RELEASED FOR CONSTRUCTION
OCT 27 1997
MARATCH CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION
URS Greiner
SVERDRUP/DE LEUW

APPROVED FOR CONSTRUCTION

NO. DATE DESCRIPTION

10-21-97 INITIAL RELEASE

DESIGN CHECK DATE 10/97

DRAWN DATE 10/97

QUANT. 1212420

1-15 CORRIDOR RECONSTRUCTION
SITUATION/LAYOUT
RET WALL R-343-19
SECTION 1.2
PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
DWG. NO. 1.2R-343-19.1
SHT. 1 OF 11
REF.

Scale: 500.0000/4000.0000
Rotations: 90.000000
Pen: Tabular VE, PLOT, TUCES4000.shn
Output: CHMSP2.TUCES4000.tbl

File names: c:\p01\115_cadd\12_27\sheet_115.tbl; vba\12p31r.ev.dgn

Reference File Levels (1-6, 8-25, 27-57, 59-64)
Second Reference File Level: c:\p01\115_cadd\12_27\sheet_115.tbl; vba\12p31r.ev.dgn
Third Reference File Levels:



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7-17-97
FINAL PLOT

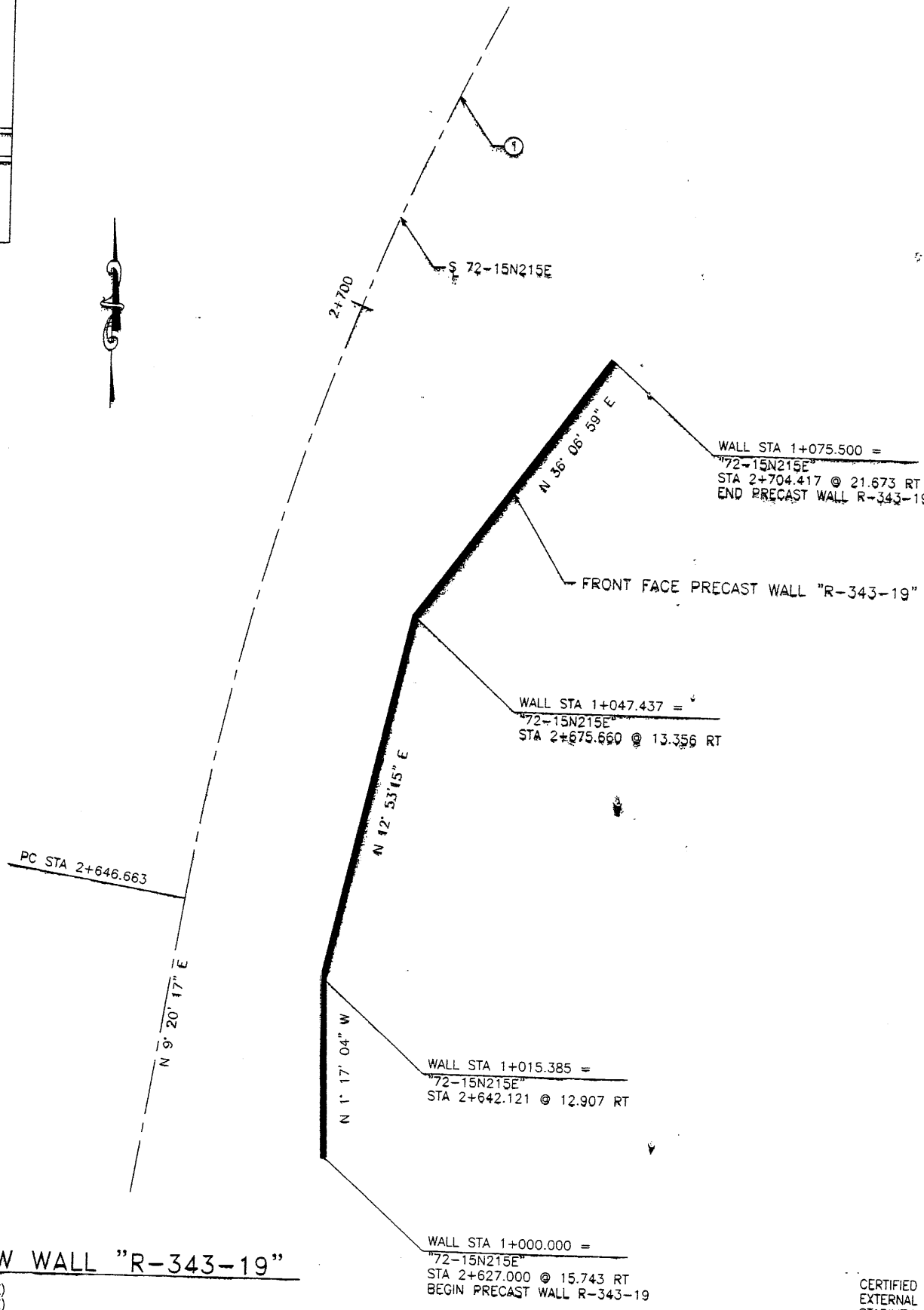
DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 30°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF.	
TRAFFIC SURCHARGE = 250 PSF	
SEISMIC ACCELERATION COFF. = 0.13g (TYP)	
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	260.000	395.217	247.134	87°05'37"

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 SOIL REINFORCING MESH LOCATION.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
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: 4W20-24 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W20-24 MESH HAS SIX (6) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" 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.



PLAN VIEW WALL "R-343-19"

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

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
①	10-08-97	RELEASE FOR CONSTRUCTION

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-19, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-343-19"
RE-6	ELEVATION PRECAST WALL "R-343-19"
RE-7	SPECIAL DETAILS
RE-8	SPECIAL PANEL DETAILS
RE-9	SPECIAL PANEL DETAILS
RE-10	SPECIAL PANEL DETAILS

WARATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION

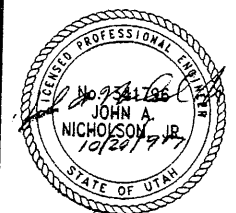
VSL CORPORATION
2840 River Place, Suite 200
Raleigh, NC 27603
Telephone: (919) 781-8272
Fax: (919) 781-4869



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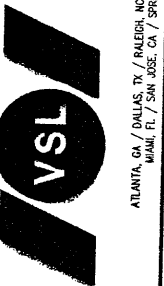
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RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-19"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

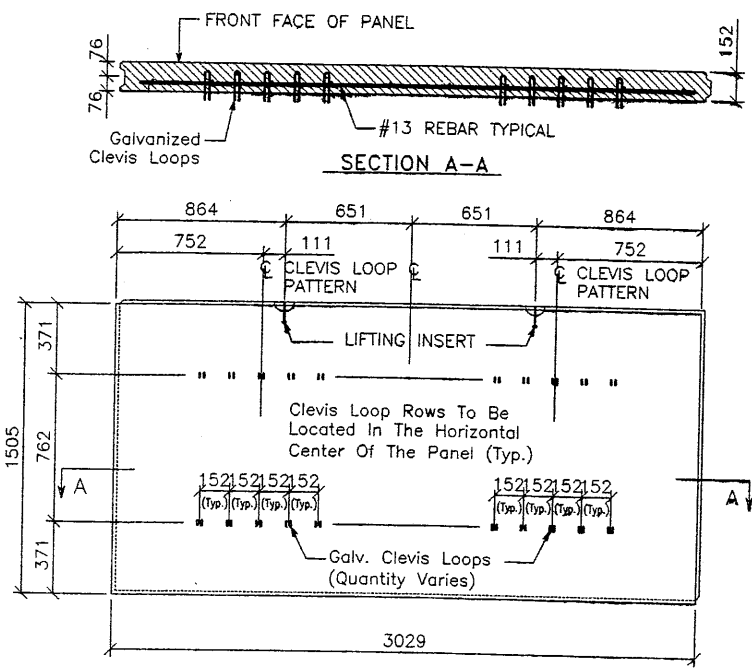
SCALE: 1.2R-343-19.2
JOB NO: 239-0007
RE-1

NO.	DATE	DESCRIPTION	BY	CHK

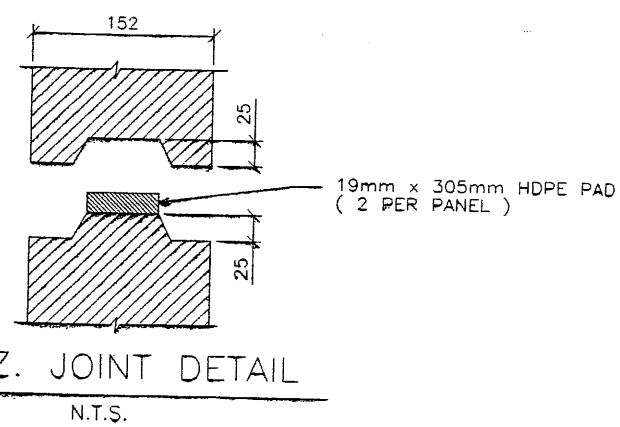
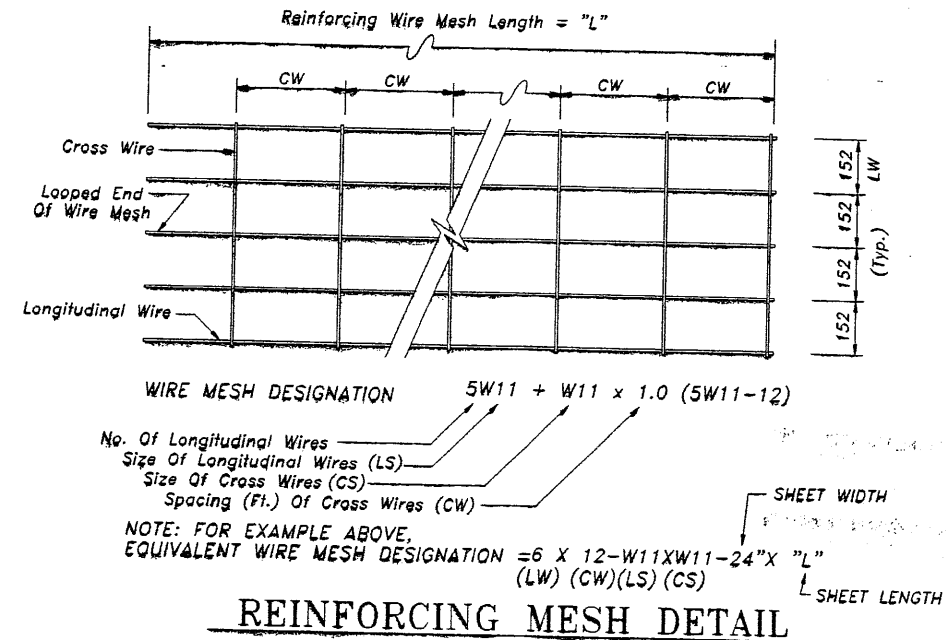
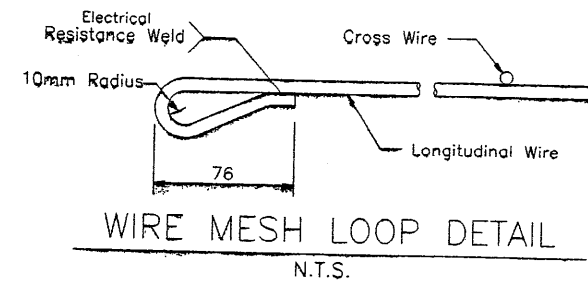
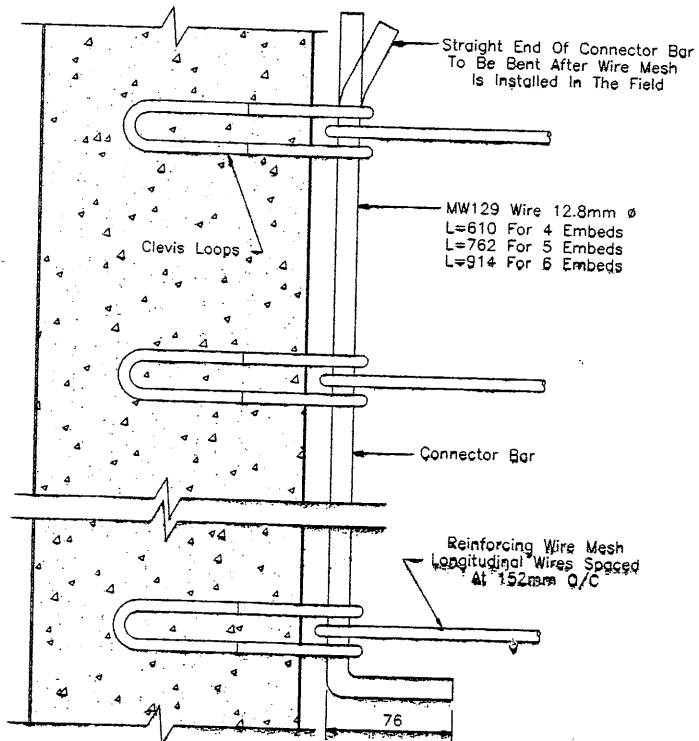
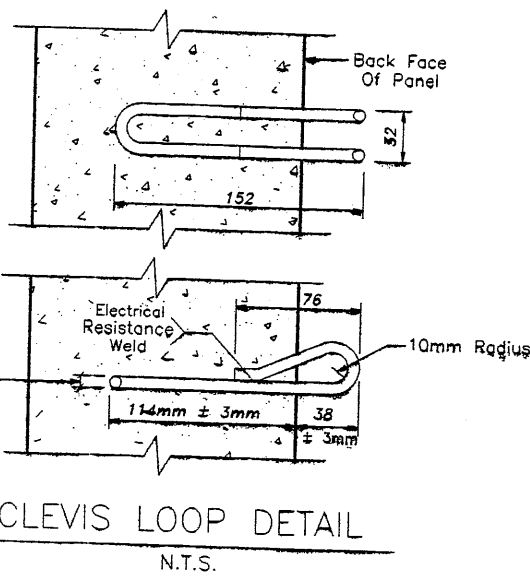
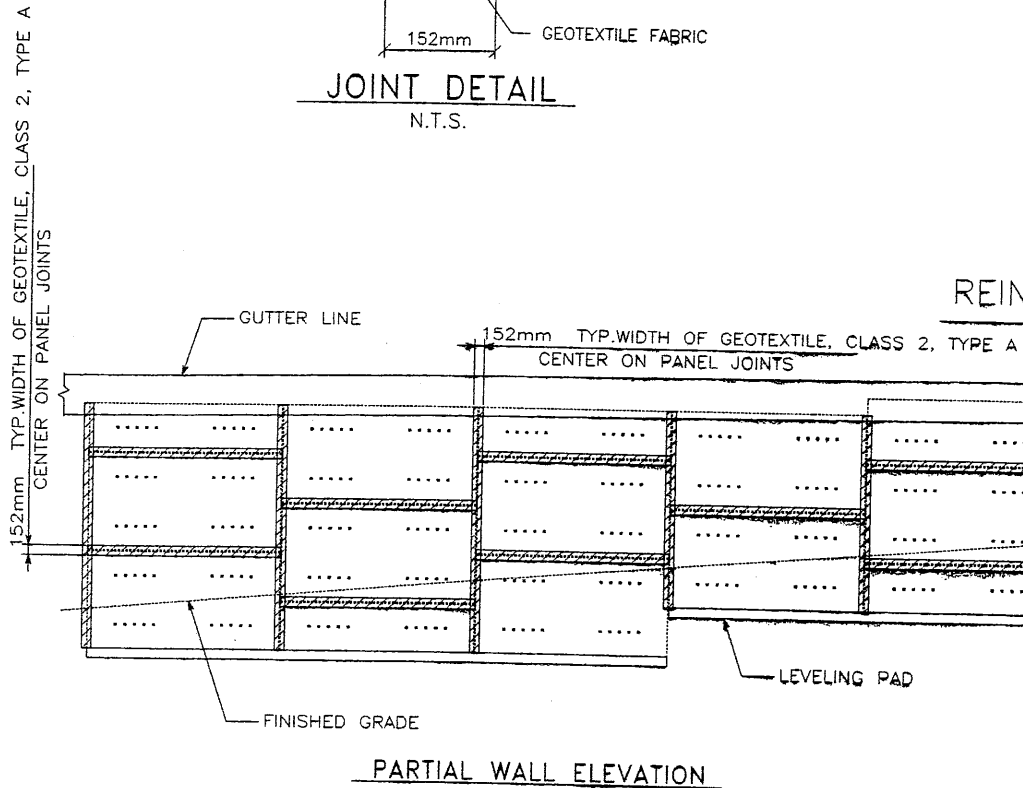
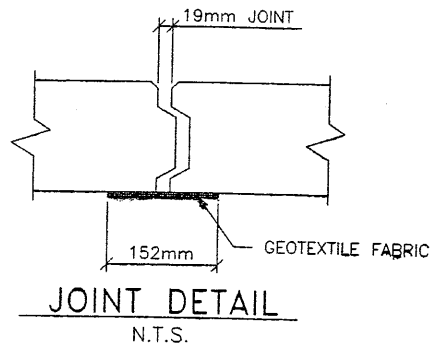
DES: 09-17-97
DRN: 09-17-97
CHK: 09-17-97



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STANDARD "5A-10" PANEL
Back Face View

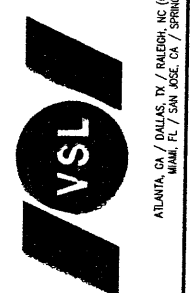


CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-08-97	RELEASE FOR CONSTRUCTION

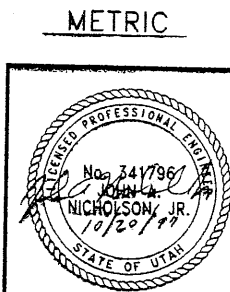
DES.	MM	DRN.	DDO	MM	CHK.	NO.	DATE	REVISION	BY	CHK
09-17-97		09-17-97								

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4989



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WATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
PRECAST WALL "R-343-19"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSPORTATION

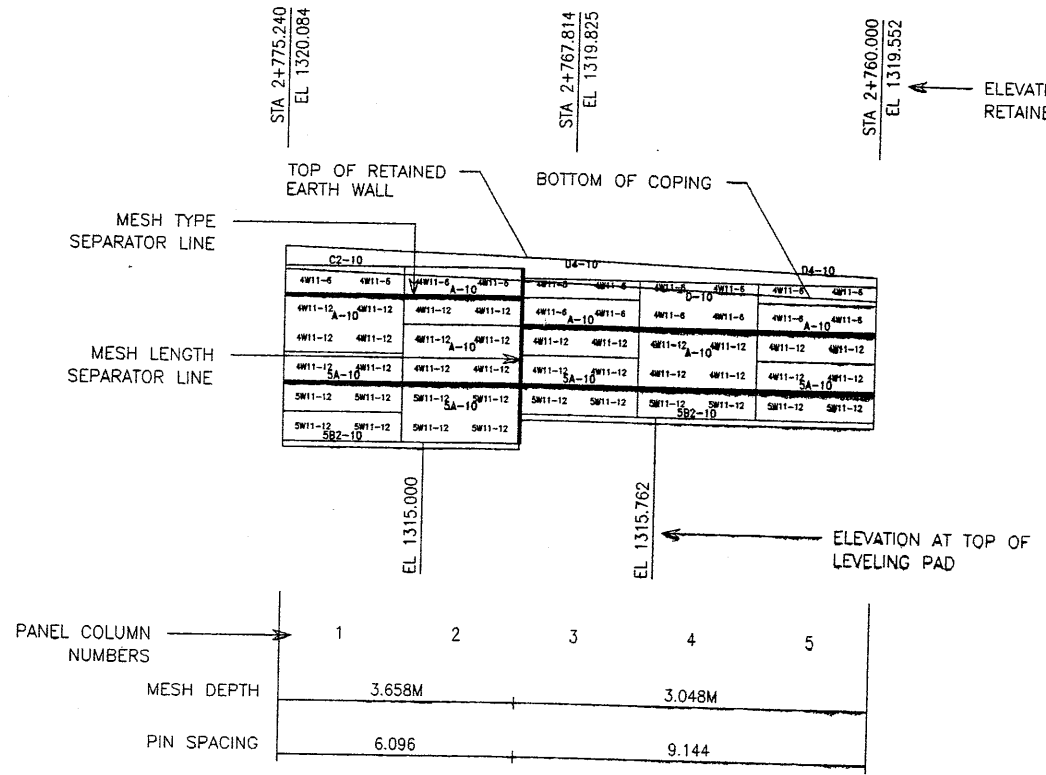
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JOB NO: 239-0007/3/11

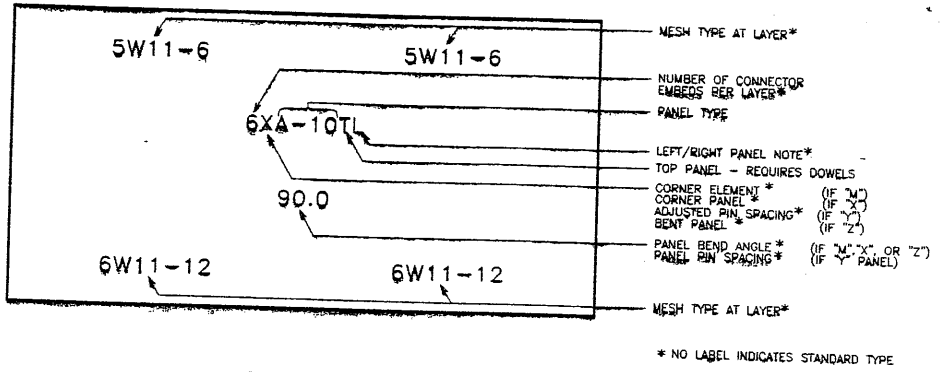
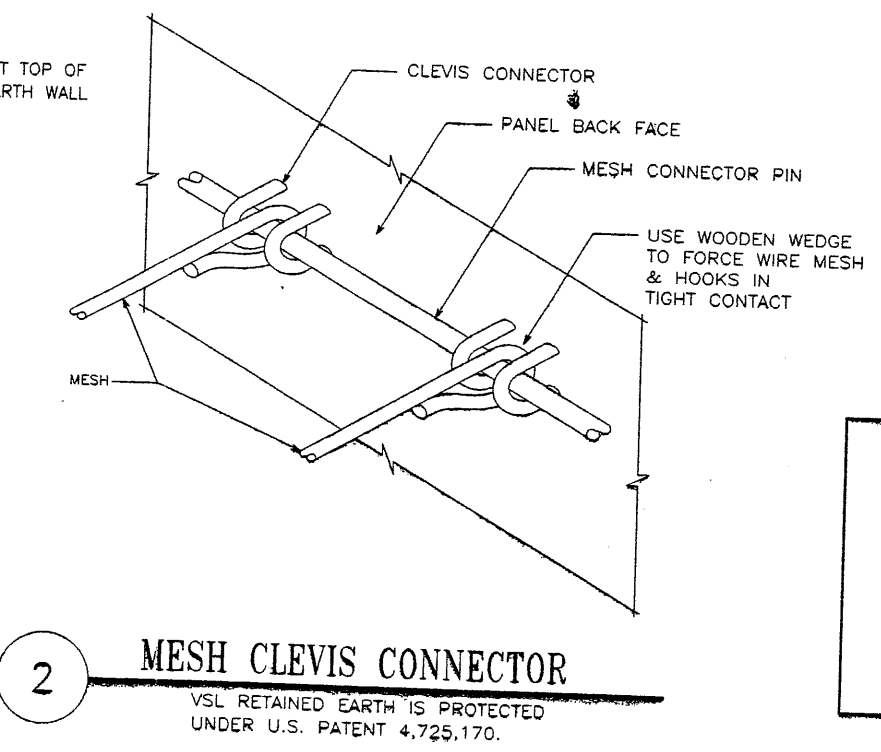
RE-2

FINAL PLOT 7-08-97 E:\PROJECT\239-0007\72SERIES\72-19\RE-3

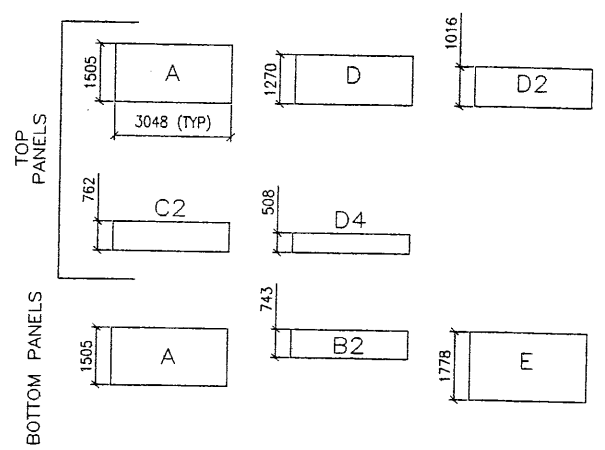
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△ 10-08-97		RELEASE FOR CONSTRUCTION <i>OK</i>



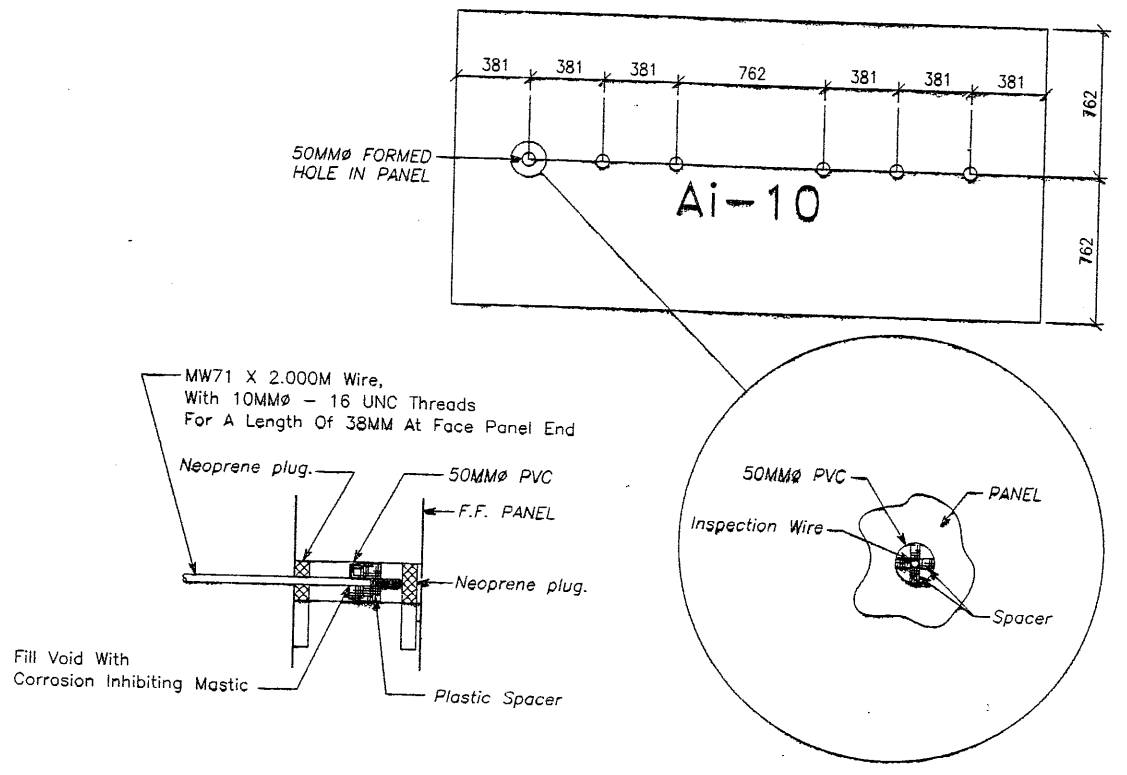
1 WALL ELEVATION KEY
(FRONT FACE SHOWN)



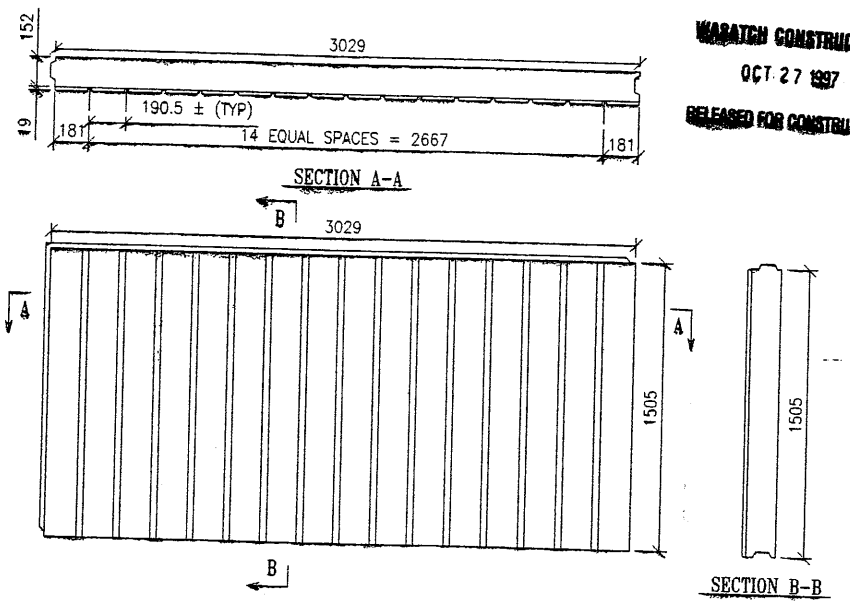
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



5 INSPECTION WIRE DETAIL
(PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH
(PANEL FRONT FACE SHOWN)

WARATCH CONSTRUCTORS
 OCT 27 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

DES. 09-17-97 MM
 DRN. 09-17-97 DDO
 CHK. 09-17-97 MM
 VSL CORPORATION
 2800 Plaza Place, Suite 200
 Houston, TX 77057
 Tel: (813) 937-6272
 Fax: (813) 937-6889
 ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
 PRECAST WALL™ R-343-19.4
 TYPICAL DETAILS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

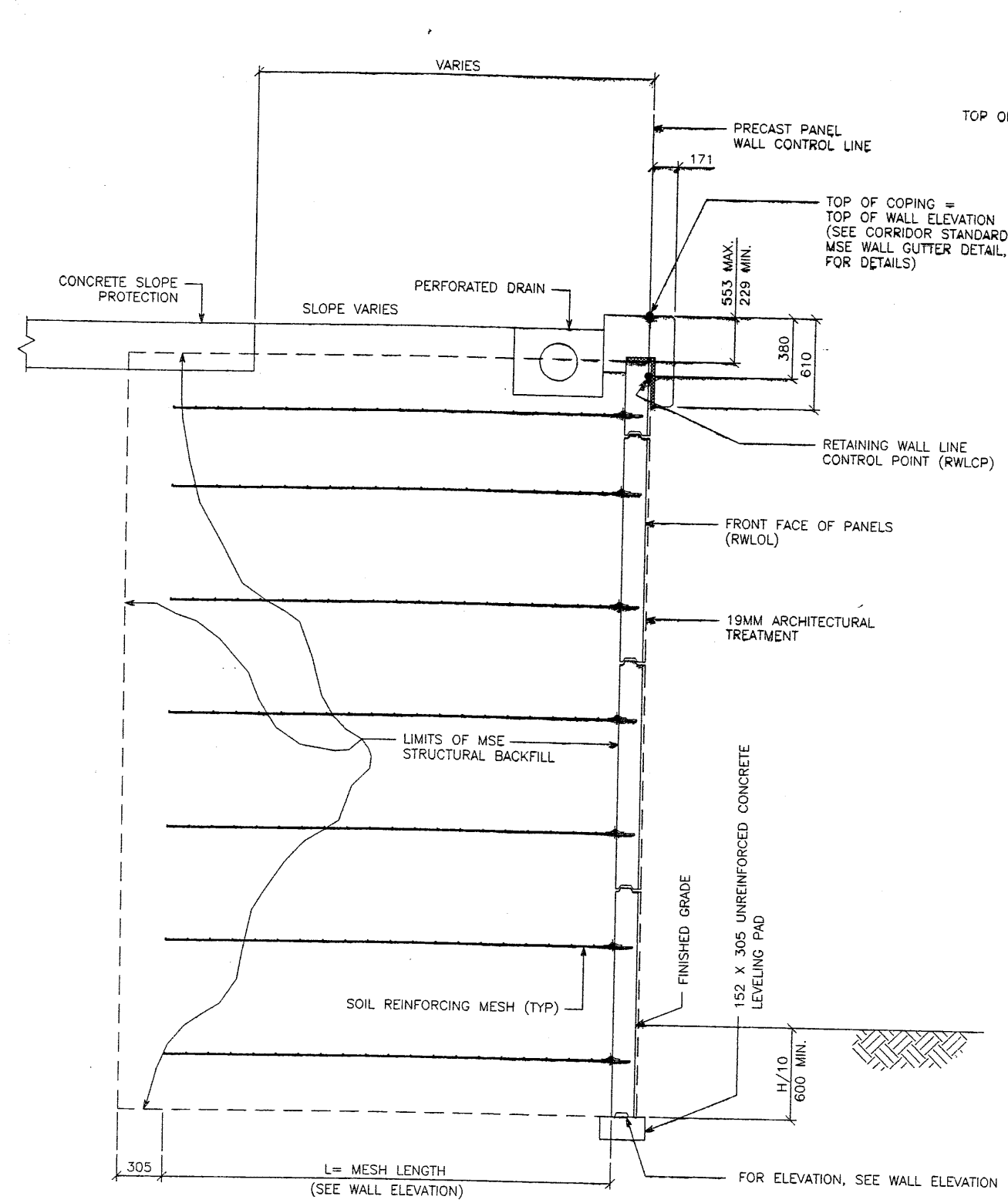
SCALE: 1:2R-343-19.4
 JOB NO: 239-0007
 RE-3

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™ WALLS CONFORMS TO THE MANUFACTURER'S SPECIFICATION.

NICHOLSON, JR.
 10/20/97
 STATE OF UTAH

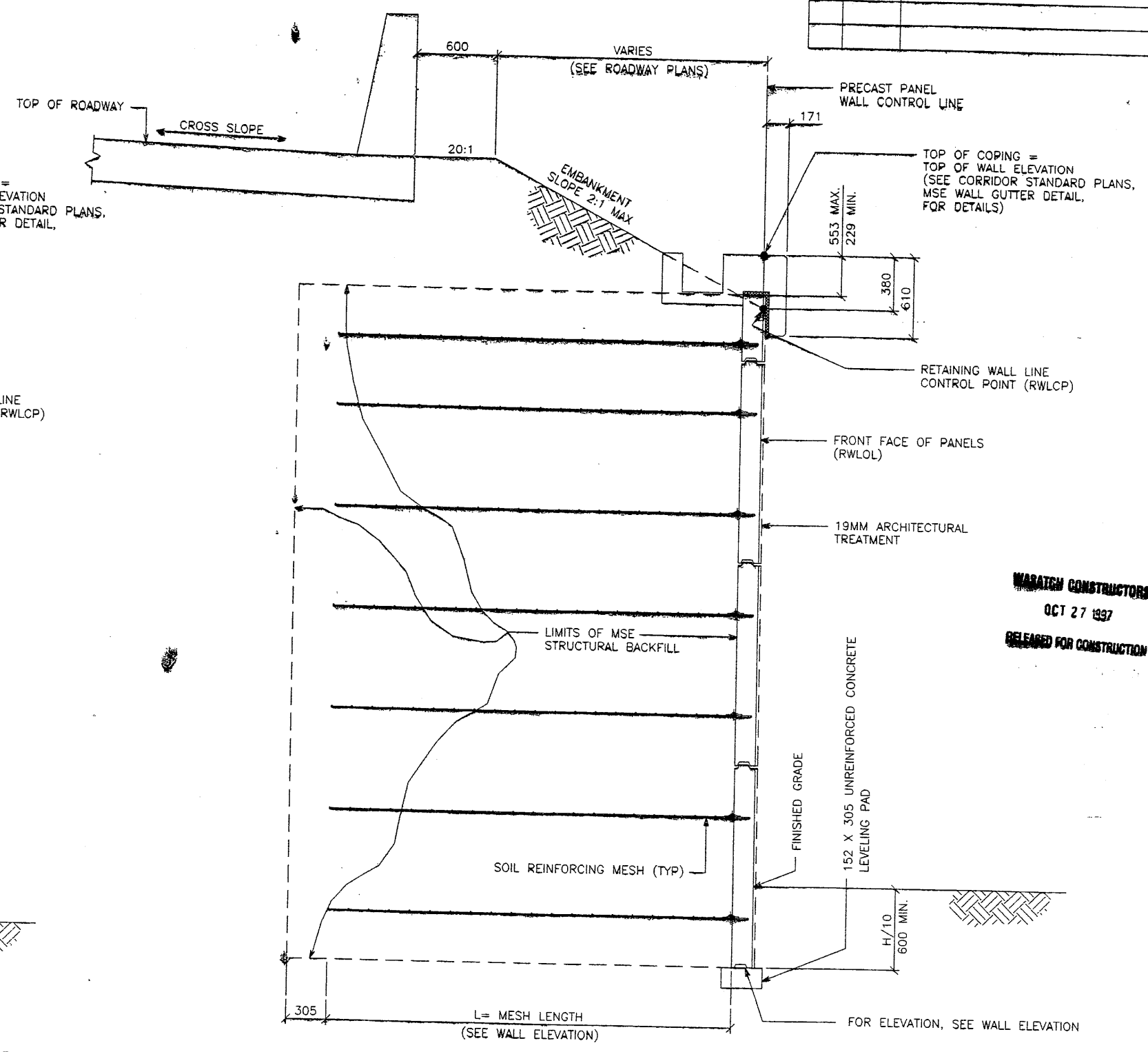
E:\PROJECT\239-0007\2SERIES\72-19.dwg
 0-08-97
 FINAL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-08-97	RELEASE FOR CONSTRUCTION



TYPICAL CROSS SECTION STA 1+000.000 TO 1+047.437

(SEE DWG. NO. 1.2R-343-19.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

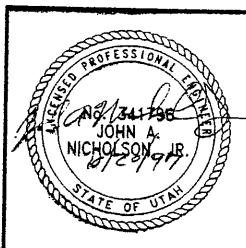


TYPICAL CROSS SECTION STA 1+047.437 TO 1+075.500

(MSE SINGLE STAGE WITH GUTTER DETAIL)
 (SEE DWG. NO. 1.2R-343-19.1 FOR ADDITIONAL INFORMATION)

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

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WARREN CONSTRUCTORS
 OCT 27 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	BY	CHK

DES.	09-17-97	MM		
DRN.	09-17-97	DDO		
CHK.	09-17-97	MM		

VSL CORPORATION	
2840 Plaza Place, Suite 200	
Raleigh, NC 27612	
Telephone: (919) 781-6272	
Fax: (919) 781-4669	

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

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-19"
 TYPICAL CROSS SECTIONS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSPORTATION

SCALE:	1.2R-343-19.5
JOB NO.:	239-0007 5/11
	RE-4

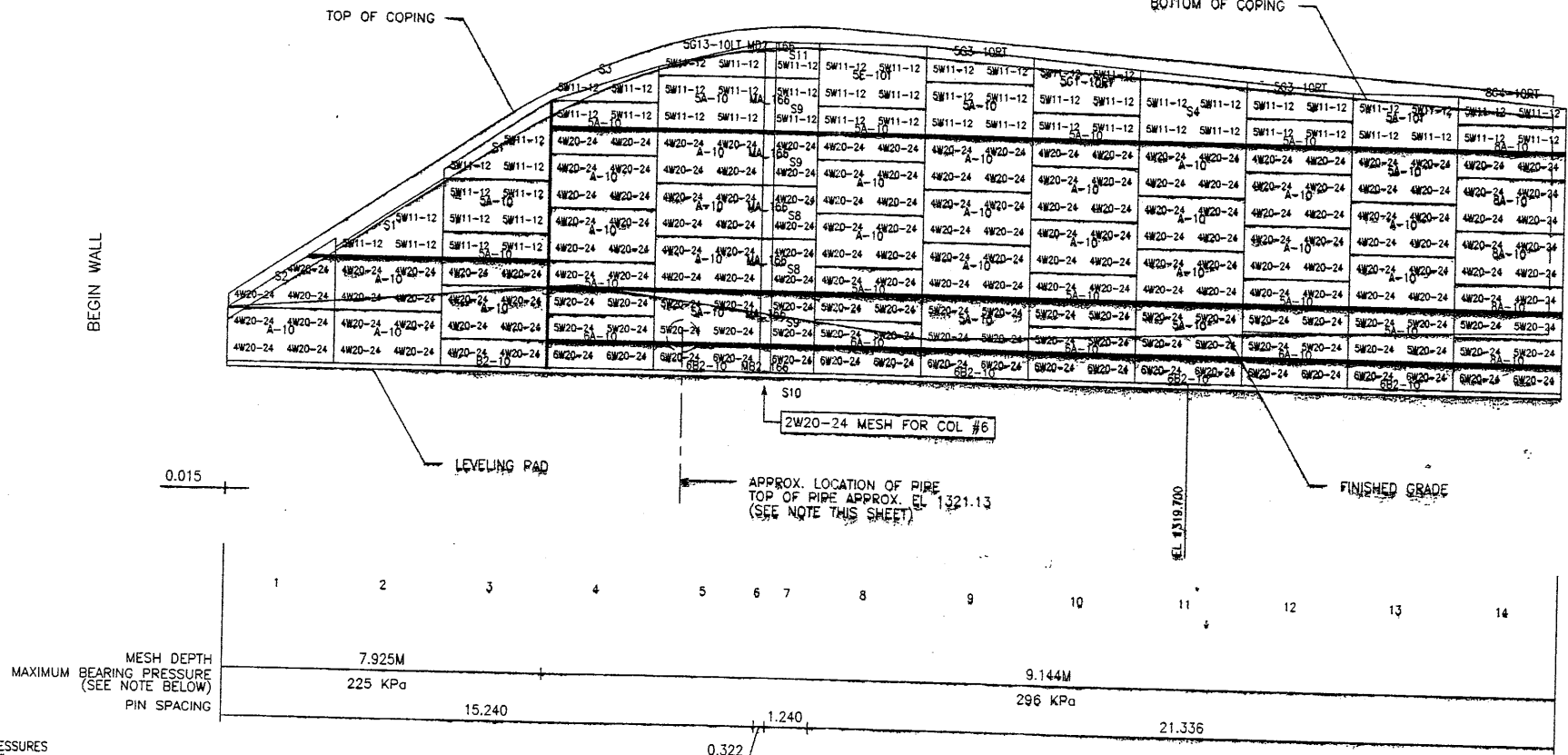
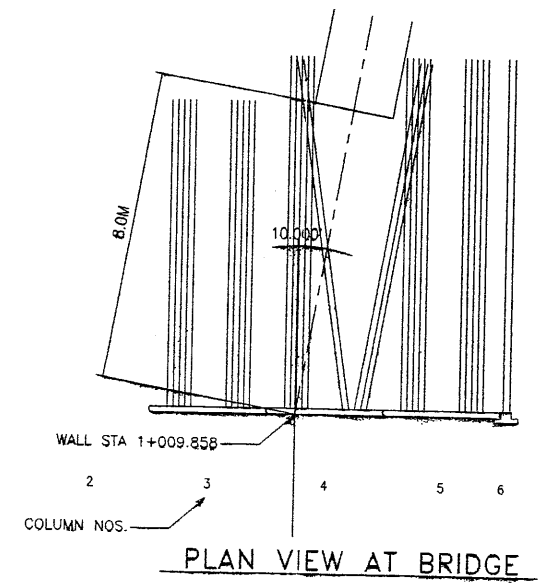
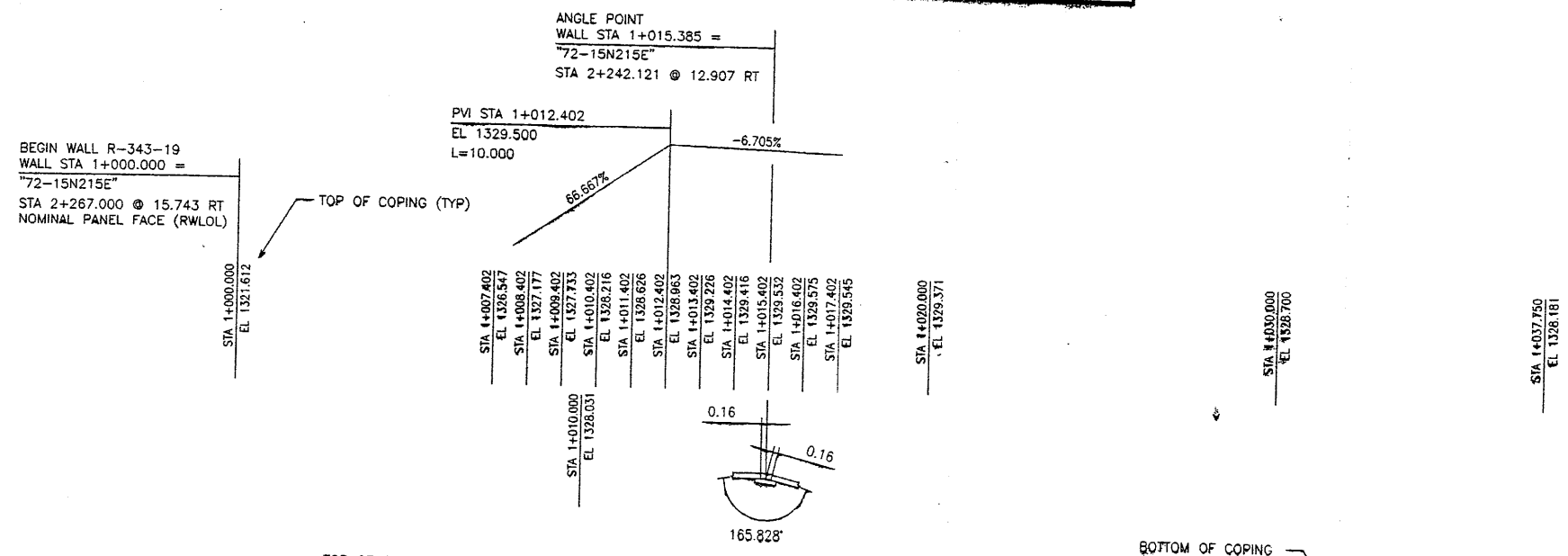
E:\PROJECT\239-0007\2SERIES\72-19\W72-19

0-16-97

FINAL P.

MEET BRIDGE

NOTE: CONTRACTOR TO COORDINATE MESH PLACEMENT WITH PILES AT BRIDGE ABUTMENT



MESH DEPTH	7.925M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	225 KPa
PIN SPACING	15.240

ELEVATION PRECAST WALL R-343-19

(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
(TOTAL SURFACE AREA OF PANELS = 471.63 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.

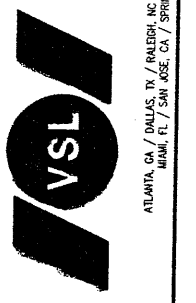
CONTRACTOR NOTE:
CONTRACTOR PLEASE VERIFY PIPE LOCATION (VERTICAL AND HORIZONTAL). FIELD CUT PANEL AS REQUIRED TO FIT AROUND PIPE. NOTIFY VSL IF PIPE INTERFERES WITH SOIL REINFORCING MESH.

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION

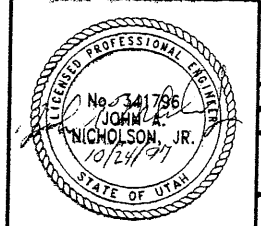
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2810 Plaza Place, Suite 200
Raleigh, NC 27604
Tel: (919) 781-4872
Fax: (919) 781-4869



UTAH DEPARTMENT OF TRANSPORTATION
SALT LAKE COUNTY, UTAH
UTAH 1-15 INTERCHANGE
PRECAST WALL "R-343-19"

METRIC

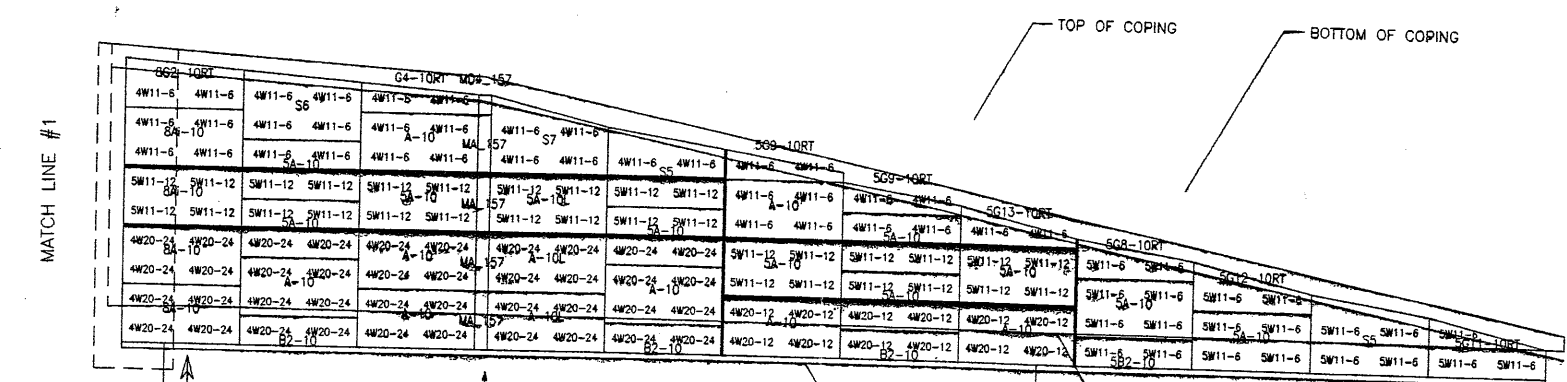
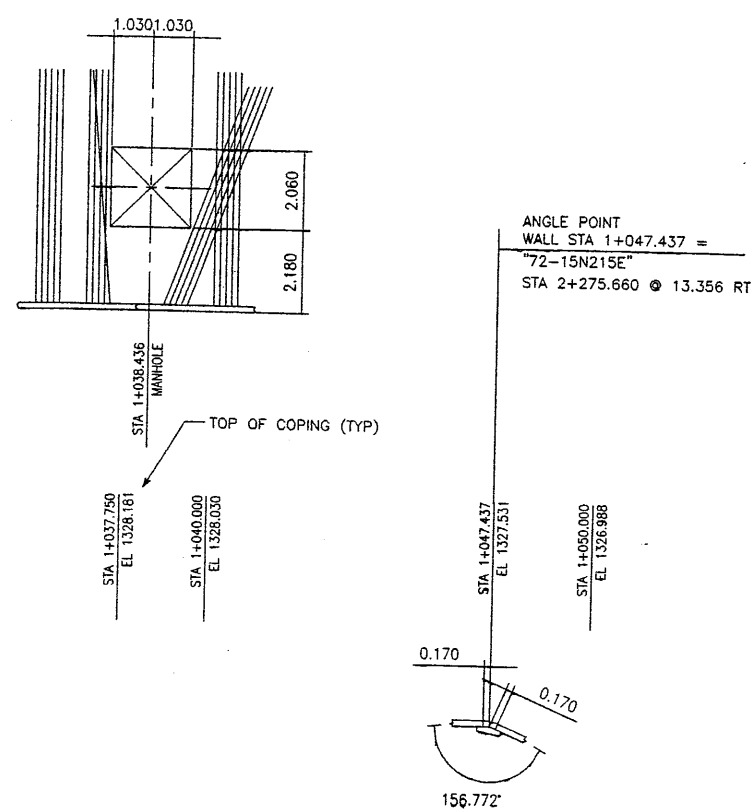


SCALE:	1:2R-343-19.6
JOB NO:	239-0007
	6/11
	RE-5

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0-16-97

FINAL

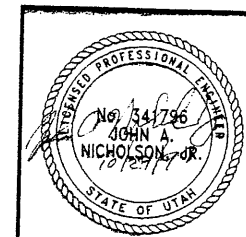


STATION	15	16	17	18	19	20	21	22	23	24	25	26	27	0+460
MESH DEPTH					6.096M			4.267M				2.438M		
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)					233 KPa			185 KPa				118 KPa		
PIN SPACING	9.144							27.432						

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

ELEVATION PRECAST WALL R-343-19
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 471.63 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

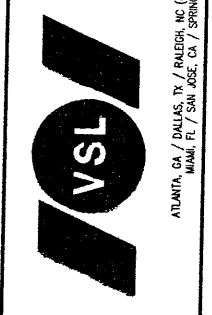
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
 EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE
 STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED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



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION

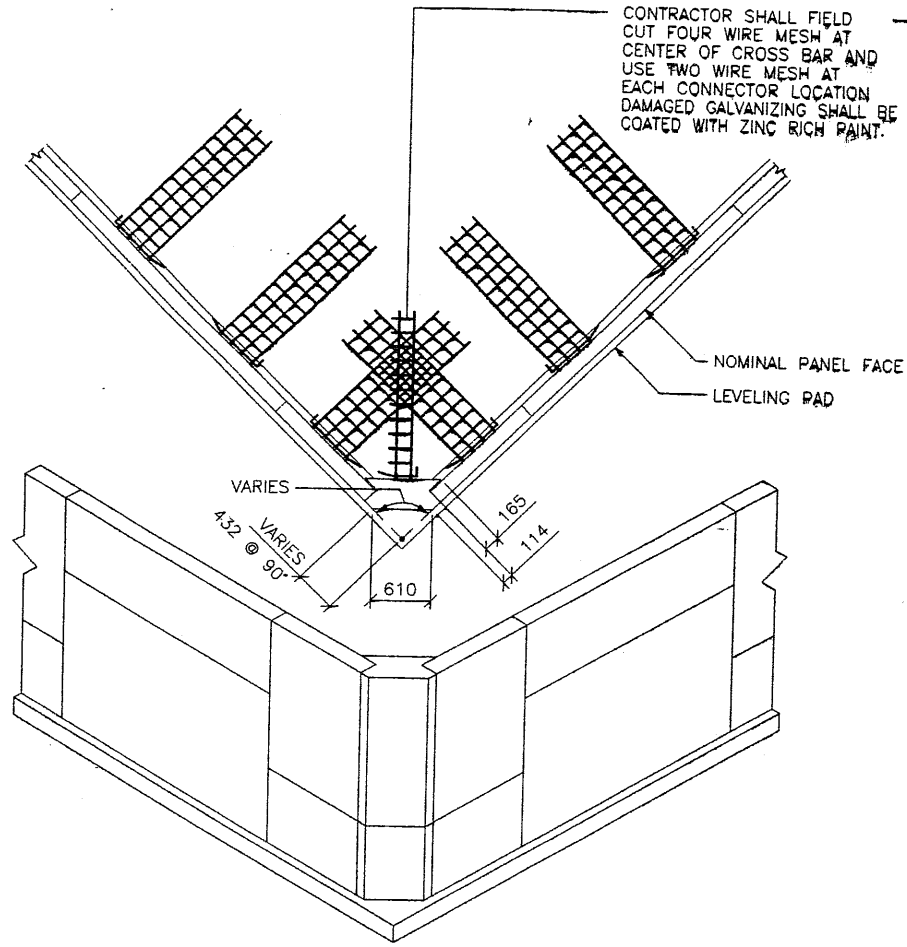
DES.	MM.	DDO	MM	NO.	DATE	REVISION	CHK
09-17-97							
09-17-97							
09-17-97							

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 791-4272
 Fax: (919) 791-4669

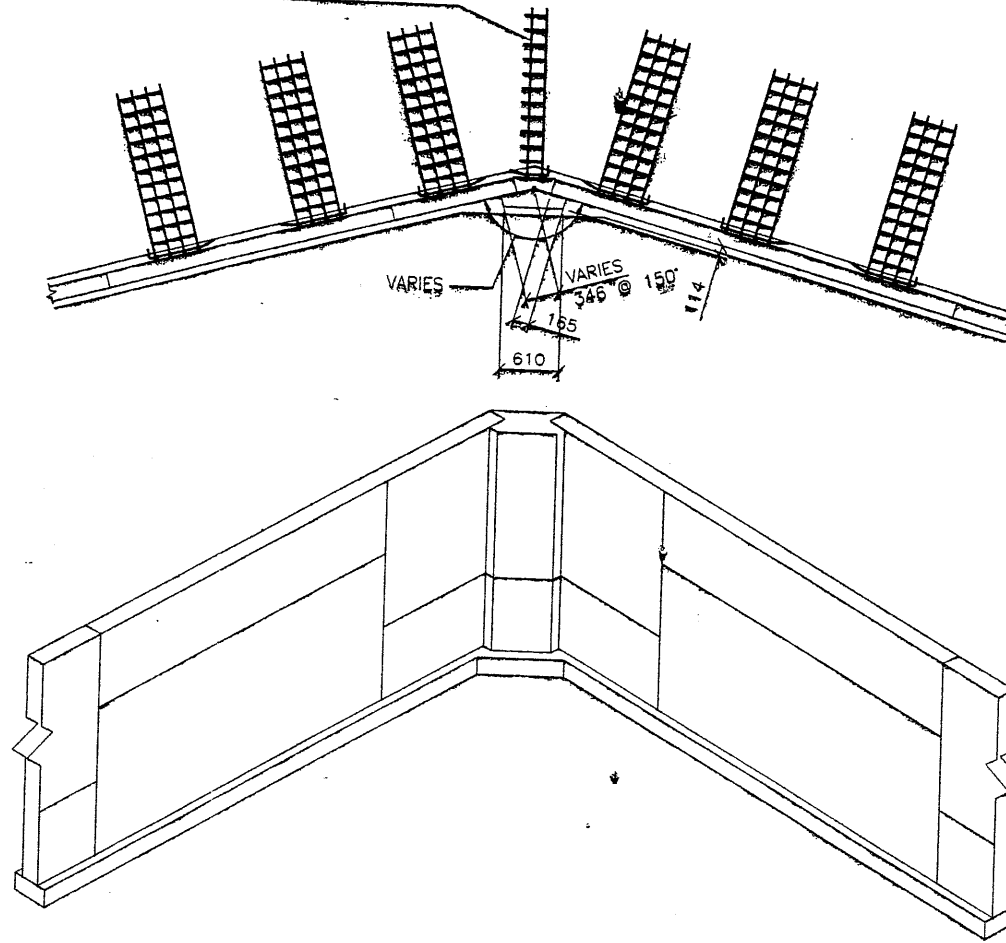


RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-19"
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:	1.2R-343-19.7
JOB NO:	239-0007
REVISION:	RE-6



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



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

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	10-08-97	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY

VSL CORPORATION
2840 Piedmont, Suite 200
Atlanta, GA 30345
Tel: (404) 911-6272
Fax: (404) 911-4868

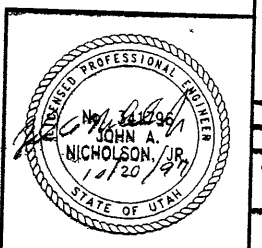
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA



WARATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION

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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-19"
SPECIAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



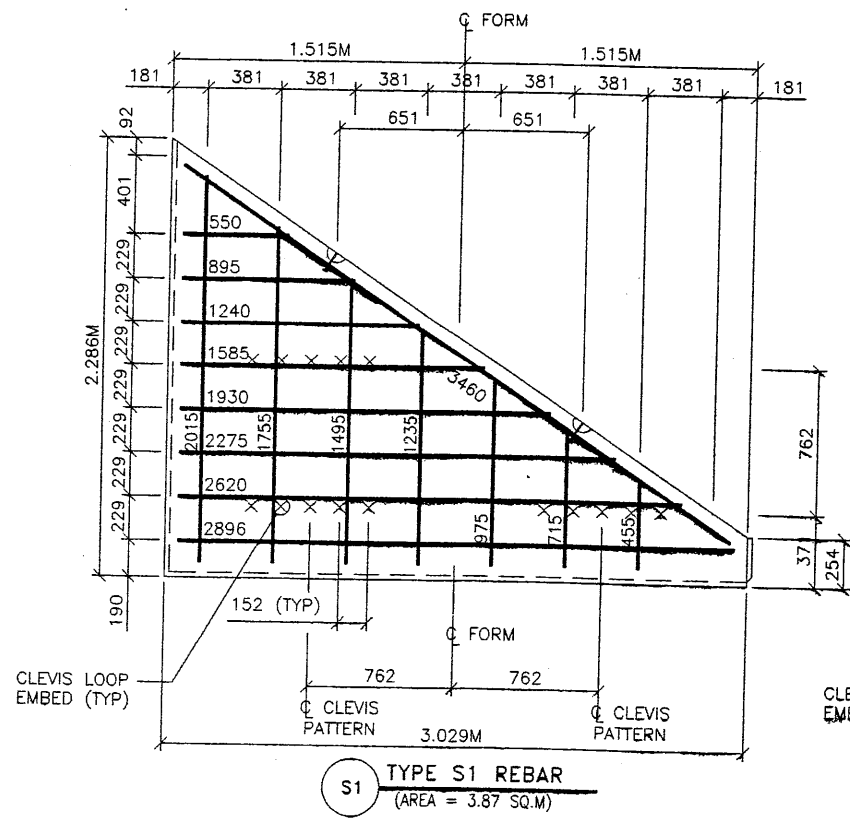
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

SCALE:	1:2R-343-19.8
JOB NO:	239-0007
DATE:	8/11
REVISION:	RE-7

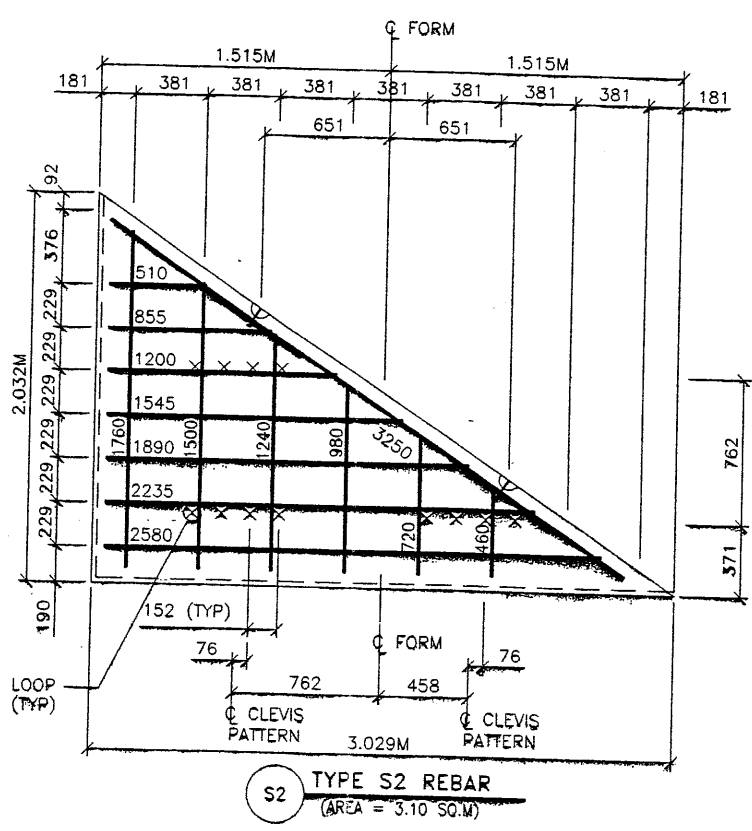
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7-16-97

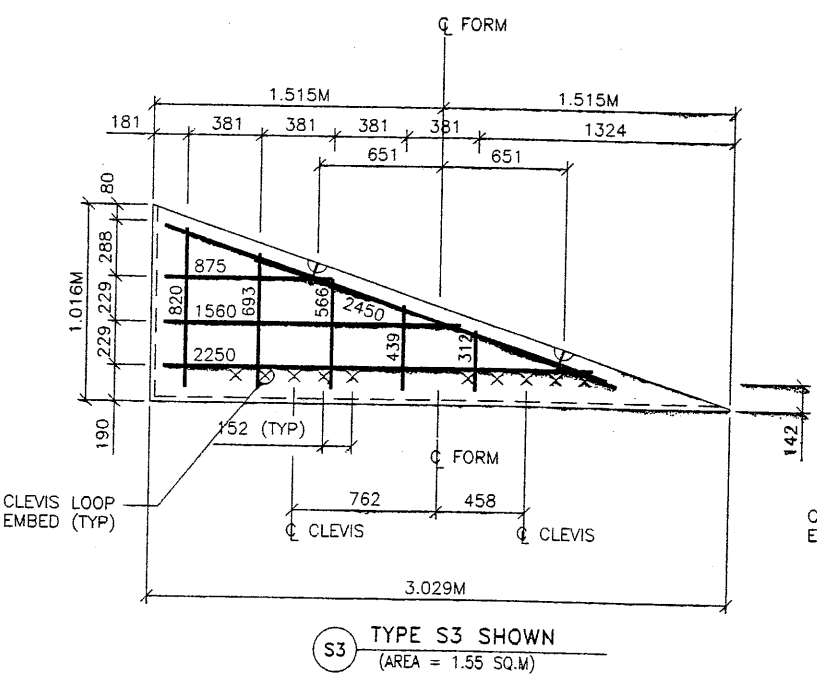
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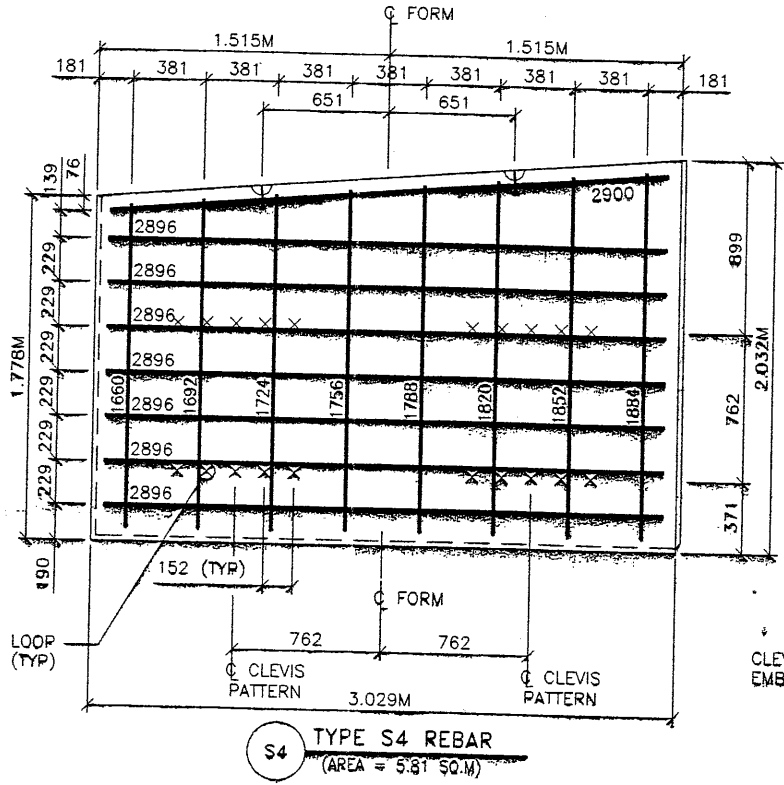
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(AREA = 3.87 SQ.M)



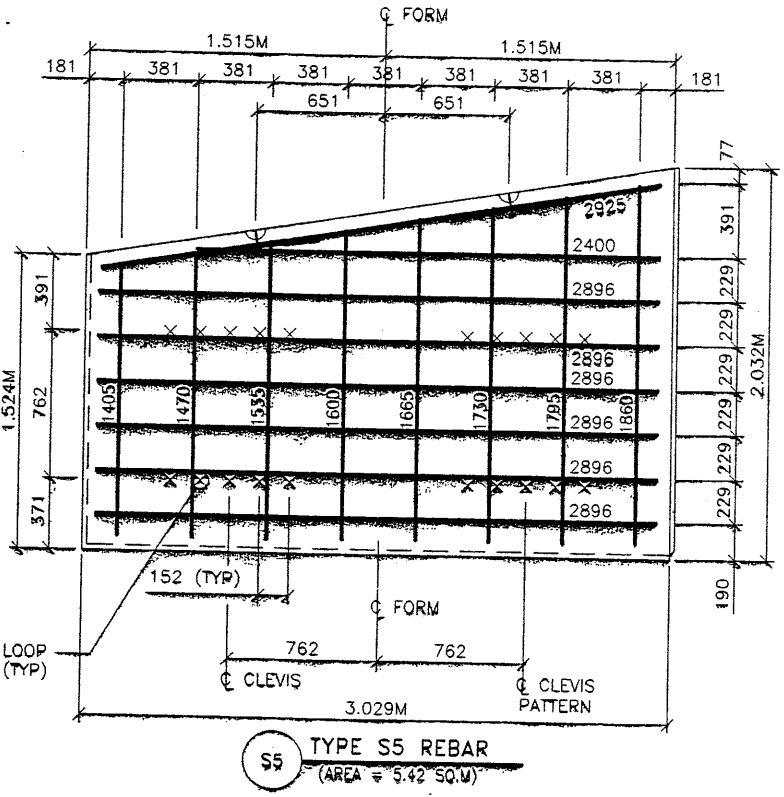
S2 TYPE S2 REBAR
(AREA = 3.10 SQ.M)



S3 TYPE S3 SHOWN
(AREA = 1.55 SQ.M)



S4 TYPE S4 REBAR
(AREA = 5.81 SQ.M)



S5 TYPE S5 REBAR
(AREA = 5.42 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-16-97	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 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.

WASATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	NO.	DATE	BY

VSL CORPORATION
2840 Plaza Place, Suite 600
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4863

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

VSL

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-19"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP

SCALE:
1.2R-343-19.9
JOB NO:
239-0007
RE-8

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.



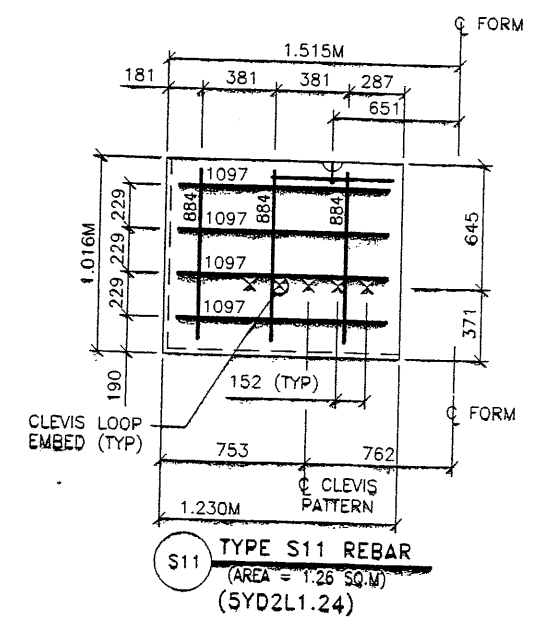
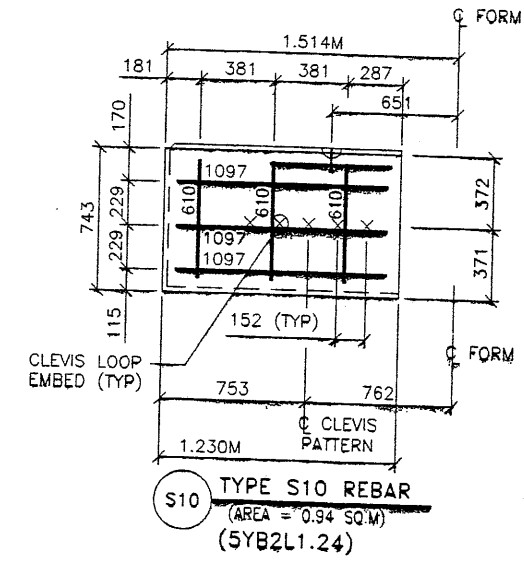
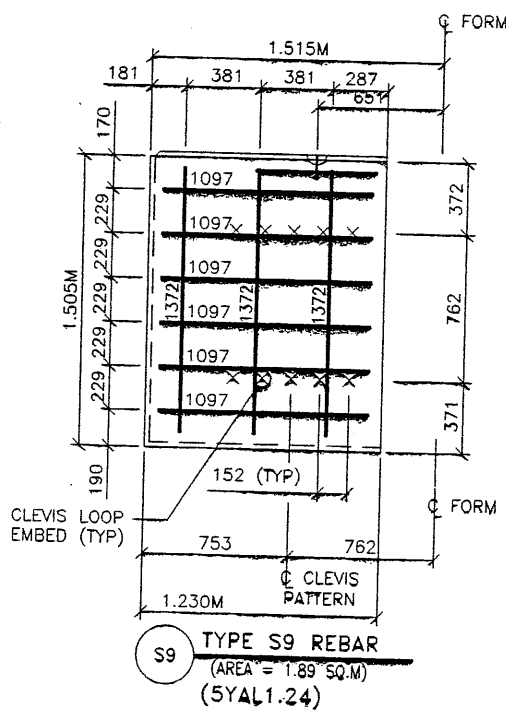
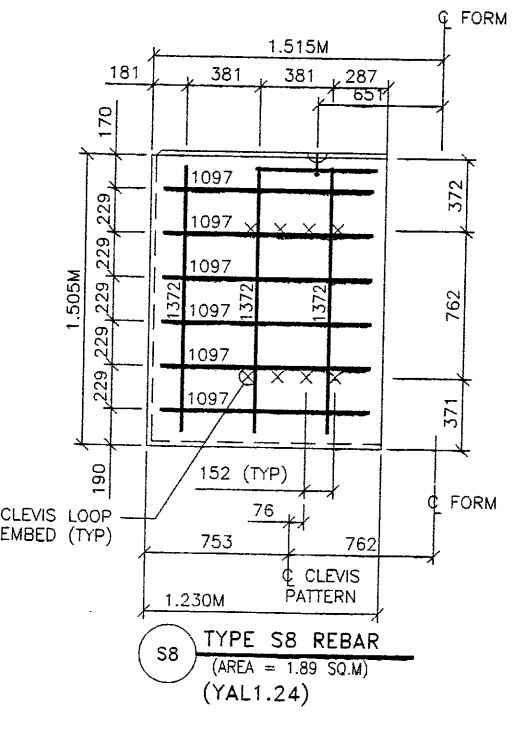
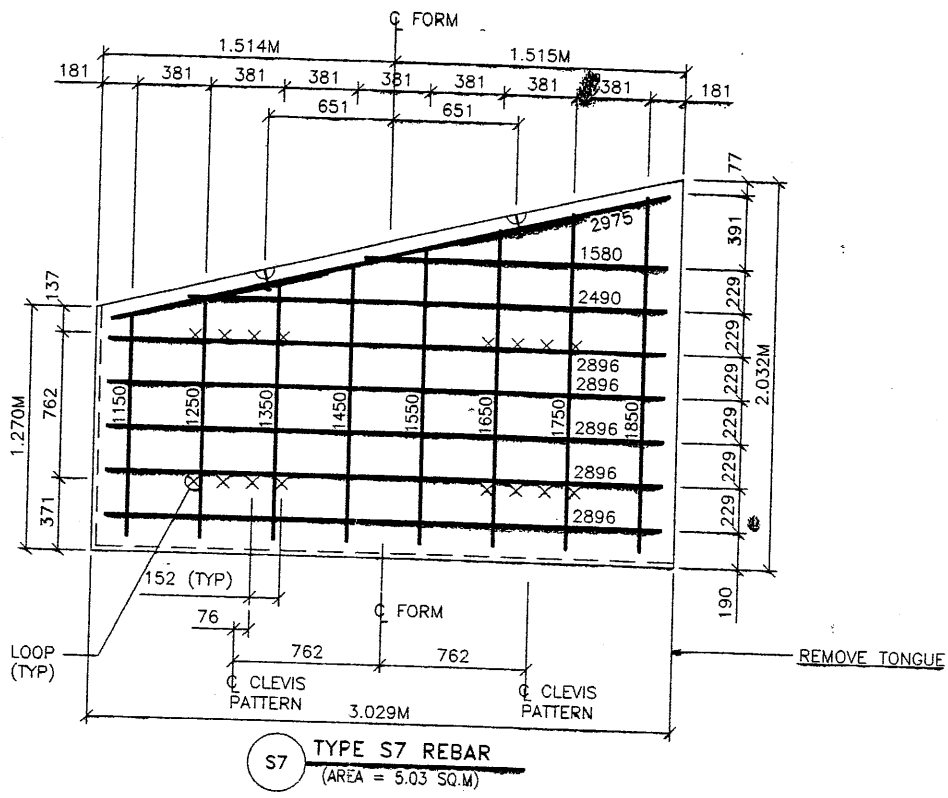
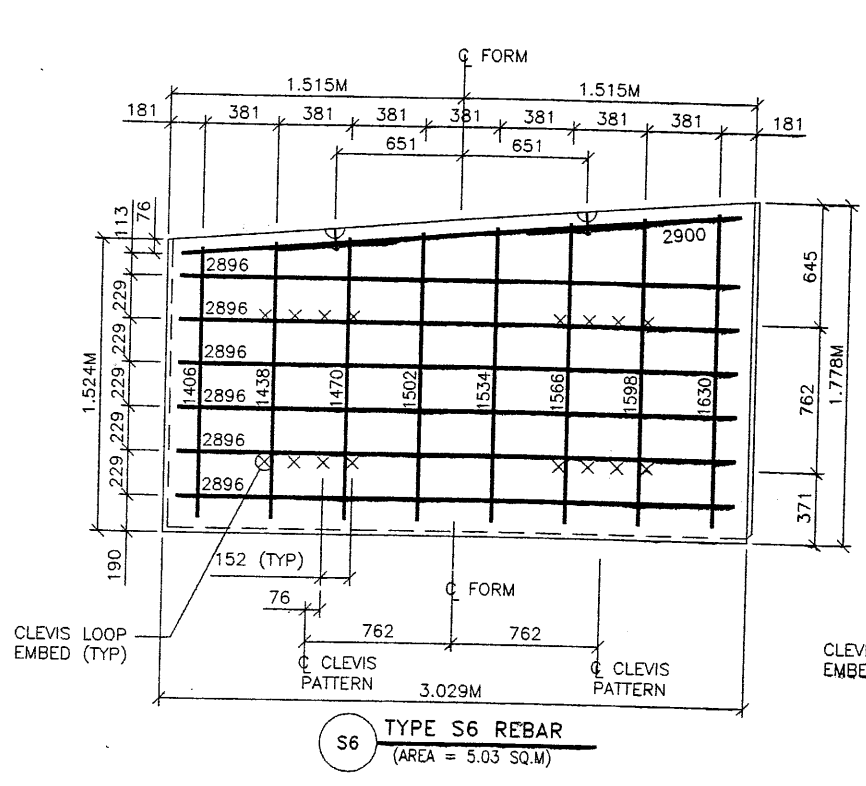
METRIC

FINAL PL -16-97

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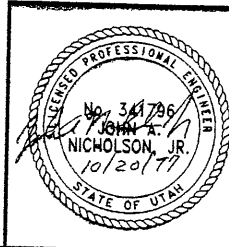
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-16-97	RELEASE FOR CONSTRUCTION

- 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.



WATCH CONSTRUCTORS
OCT 27 1997
RELEASED FOR CONSTRUCTION

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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-19"
SPECIAL PANEL REINFORCEMENT
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1.2R-343-19.10
JOB NO:
239-0007
10/11
RE-9

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6772
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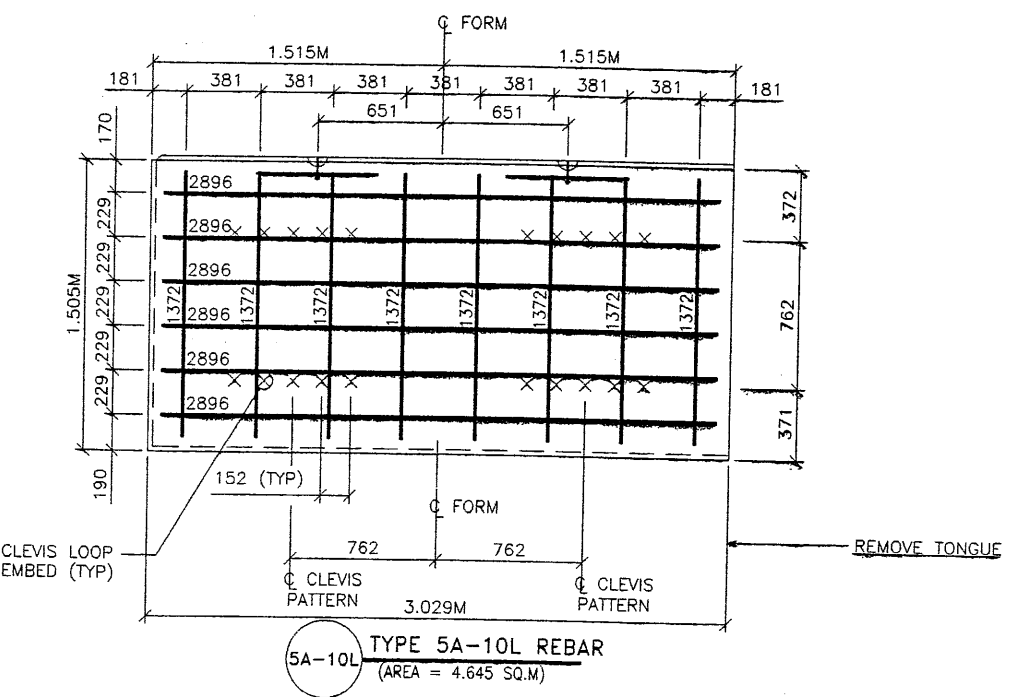
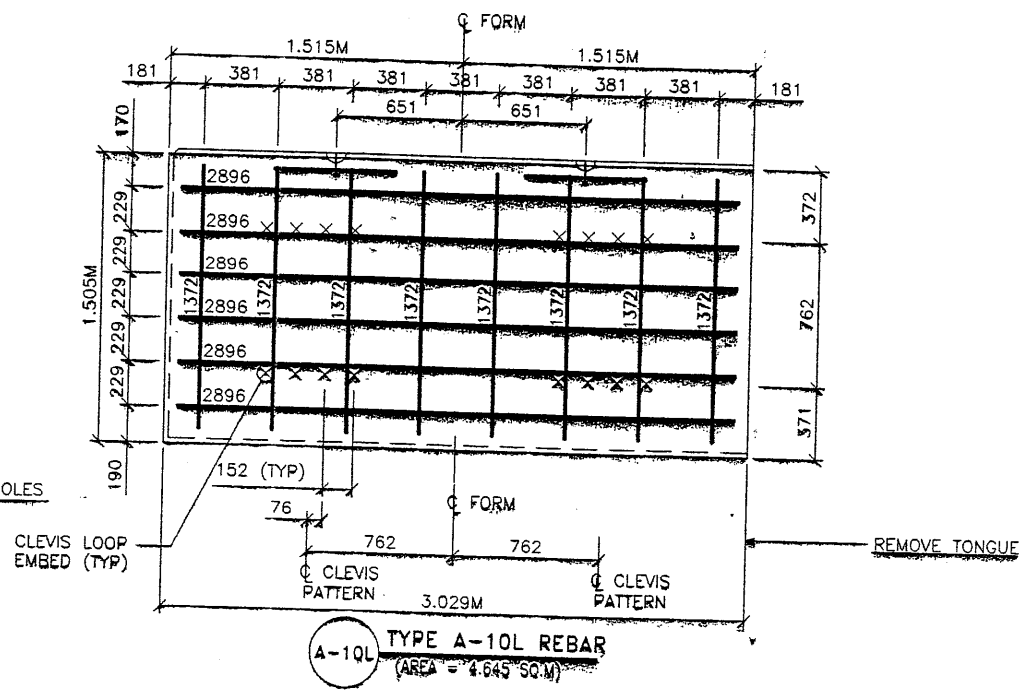
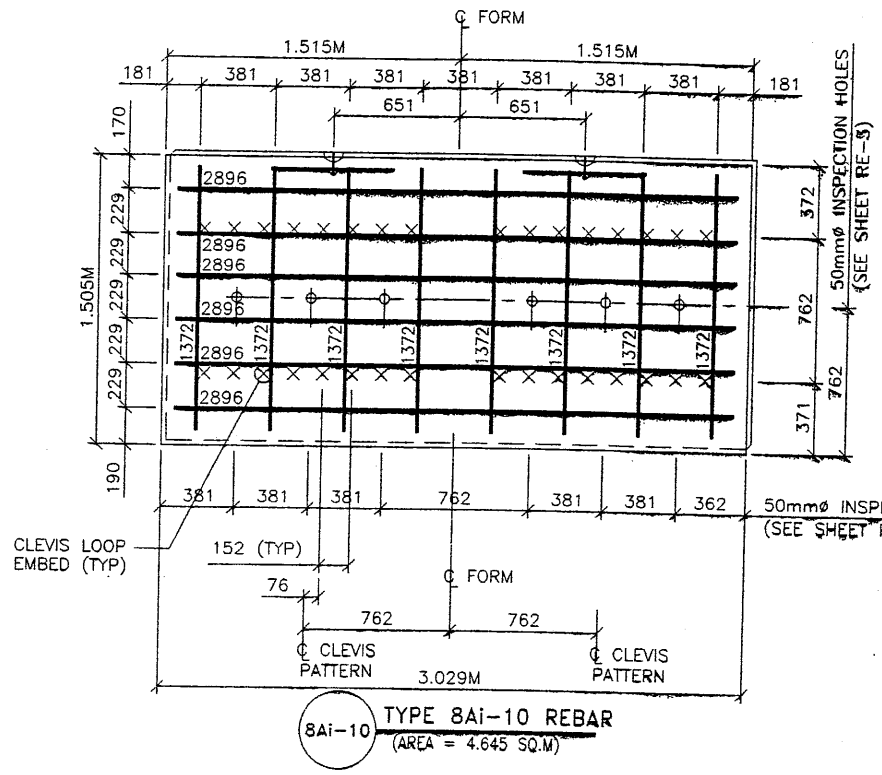
ATLANTA, GA / DALLAS, TX / HALDOLN, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

NO.	DATE	DESCRIPTION	NO.	DATE	BY
1	10-16-97	RELEASE FOR CONSTRUCTION			

E:\PROJECT\239-0007\72SERIES\72-19\SP

7-16-97

FINAL PL

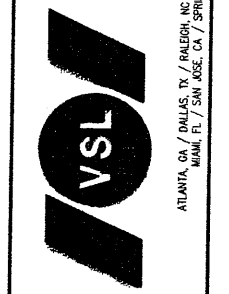


APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	10-16-97	RELEASE FOR CONSTRUCTION

- 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 9.5mm INSPECTION HOLES.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

NO.	DATE	DESCRIPTION
1	10-16-97	RELEASE FOR CONSTRUCTION

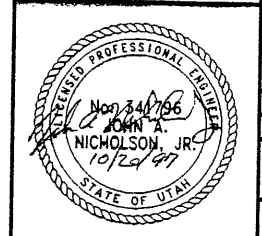
VSL CORPORATION
 2810 Plaza Blvd, Suite 200
 Redwood City, CA 94061
 Telephone: (415) 781-6272
 Fax: (415) 781-6869



WATCH CONSTRUCTORS
 OCT 27 1997
 RELEASED FOR CONSTRUCTION

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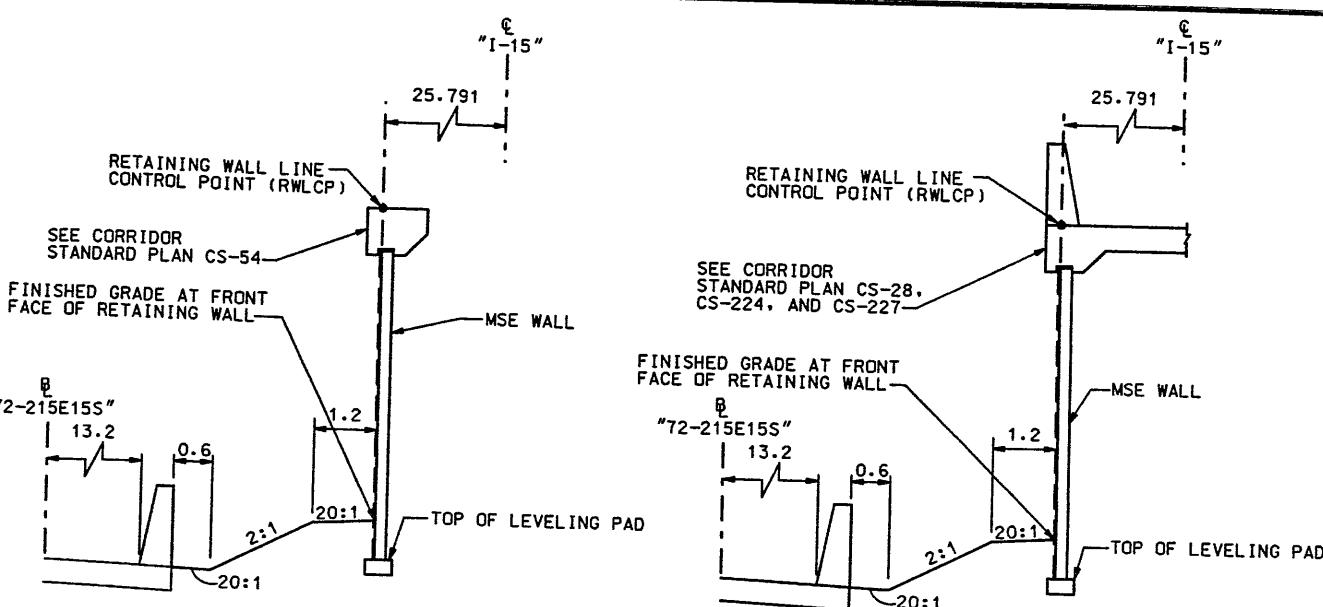
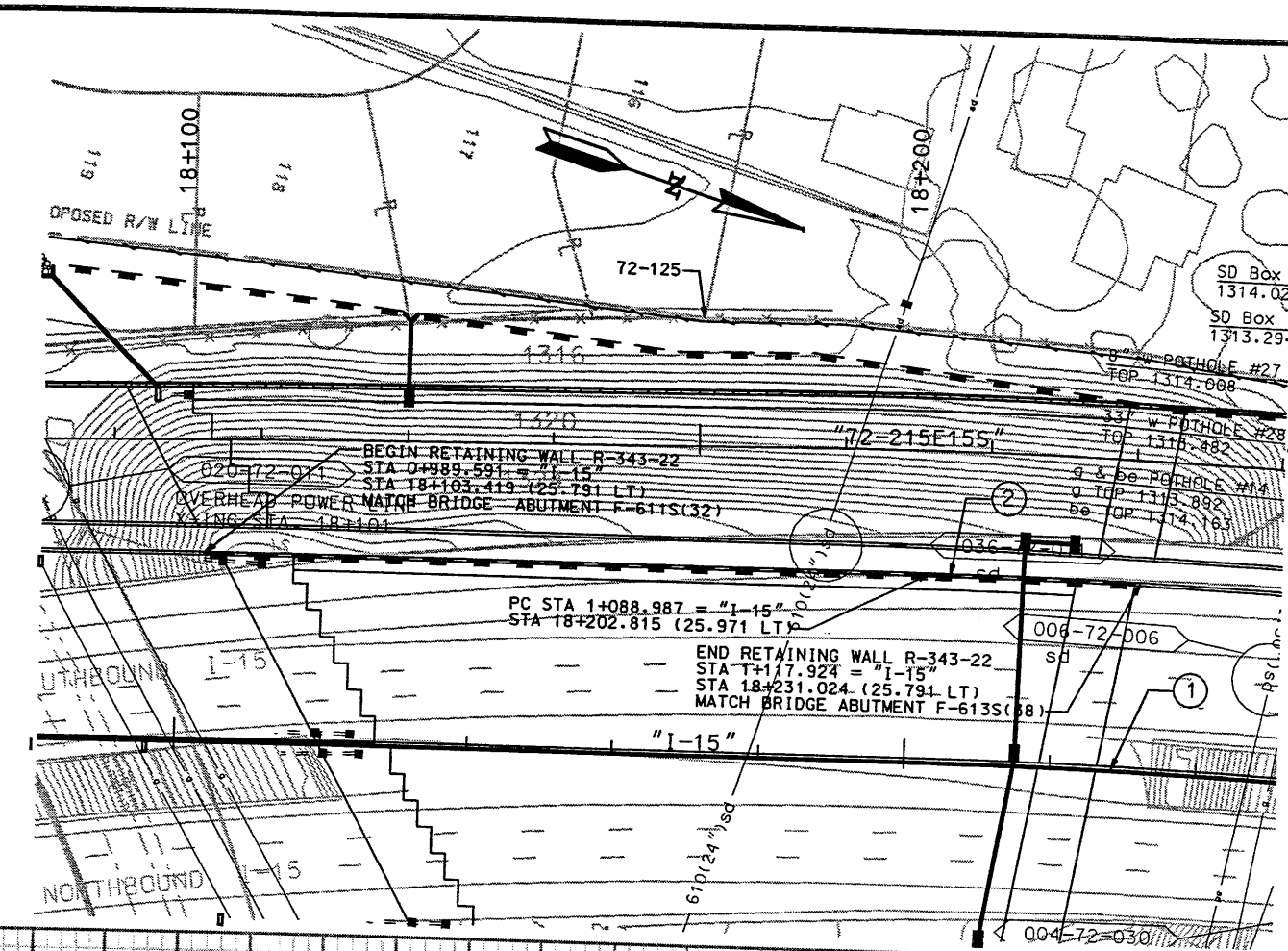
RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-19"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



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: 1:2R-343-19.11
 JOB NO: 239-0007
 RE-10

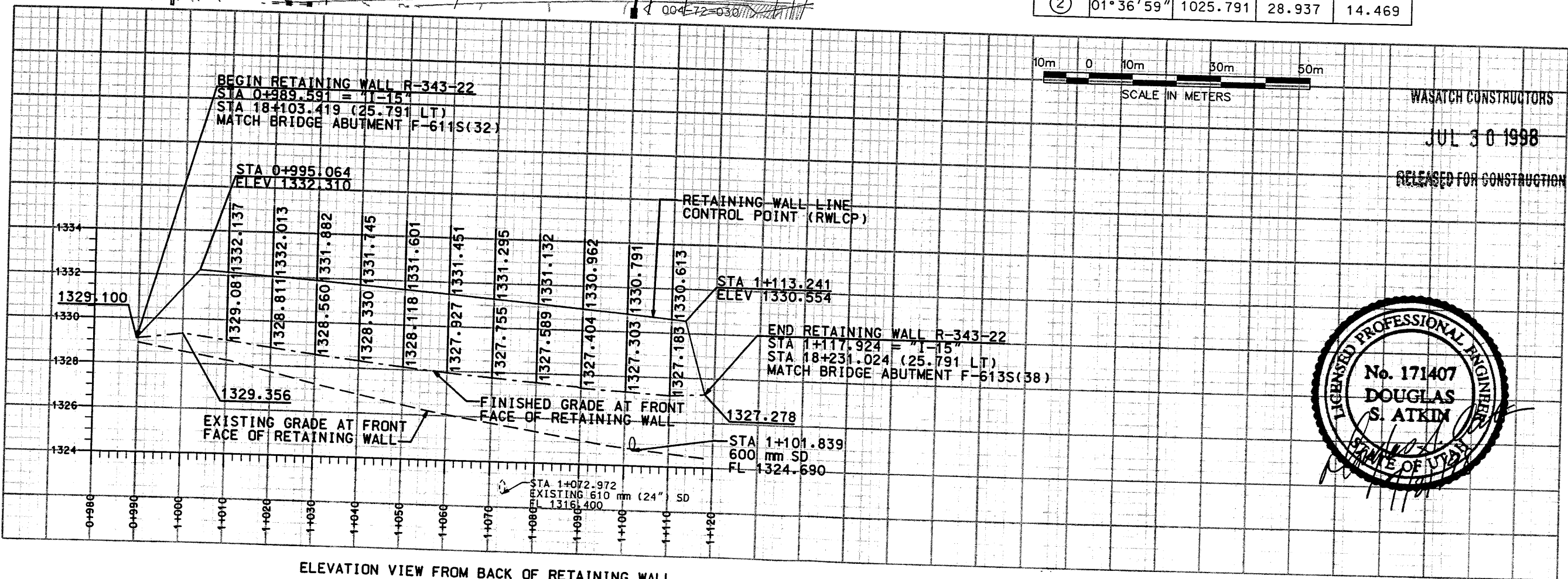
Filename: c:\dgn\15_cadd\72.37\sheet_files\wals\72_retwall-22.dgn
 Date: 20-JUL-1998 Time: 16:20 Username: huffahn



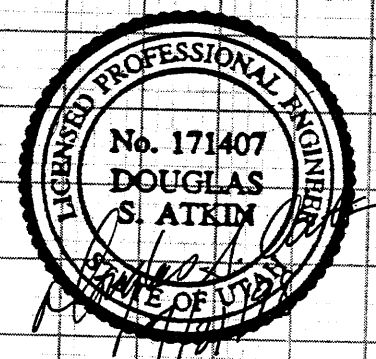
TYPICAL SECTION WALL R-343-22
 STA 0+989.591 TO STA 0+995.064
 STA 1+113.241 TO STA 1+117.924

TYPICAL SECTION RETAINING WALL R-343-22
 STA 0+995.064 TO STA 1+113.241

CURVE NO.	Δ	R	L	T
①	35° 08' 59"	1000.000	613.479	316.736
②	01° 36' 59"	1025.791	28.937	14.469



ELEVATION VIEW FROM BACK OF RETAINING WALL



WASATCH CONSTRUCTORS
 JUL 30 1998
 RELEASED FOR CONSTRUCTION

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

UTAH DEPARTMENT OF TRANSPORTATION
 SVERDRUP/DE LEUW

APPROVED FOR CONSTRUCTION

DESIGNER: RICK CHAPMAN
 PROJECT DESIGN ENGINEER: DON GRALL
 PROJECT MANAGER: [Signature]

DESIGN DATE: 11/97
 DRAWN DATE: 11/97
 CHECK DATE: 11/97
 QUANT. /

I-15 CORRIDOR RECONSTRUCTION
 SITUATION/LAYOUT
 RETAINING WALL R-343-22
 SECTION 1-2
 PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
 DWG. NO. 1.2R-343-22.1
 SHT. 1 OF 6
 REF.

PRECAST WALL STA 0+989.591 =
I-15 STA 18+103.419
● 25.791 LT
BEGIN PRECAST WALL R-343-22

FACE OF PRECAST WALL 343-22

PRECAST WALL PC STA 1+088.987 =
I-15 STA 18+202.815
● 25.791 LT

PRECAST WALL STA 1+117.924 =
I-15 STA 18+231.024
● 25.791 LT
END PRECAST WALL R-343-22

BRIDGE F-611S(32)

BRIDGE F-613S(38)

I-15

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	1000.000	613.479	316.736	35°08'59"
②	1025.791	28.937	14.469	01°36'59"

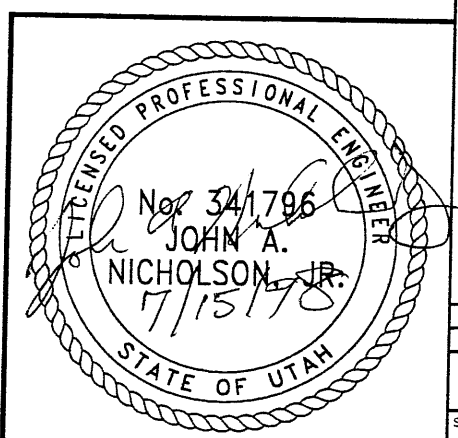
All Dimensions Are In Meters Unless Noted Otherwise

PLAN VIEW WALL "R-343-22"

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

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 31°	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)	
TRAFFIC SURCHARGE = 250 PSF (12 KPa)	
SEISMIC ACCELERATION COFF. = 0.12g (TYP)	
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-343-22, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	ELEVATION PRECAST WALL "R-343-22"
RE-4	ELEVATION PRECAST WALL "R-343-22"
RE-5	SPECIAL PANEL DETAILS



METRIC

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

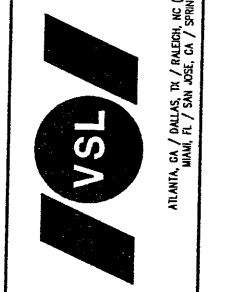
GENERAL NOTES

- 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: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
- SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
- CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
- HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
- CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
- BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
- VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
- ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH. SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	07-06-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Riva Plaza, Suite 200
Raleigh, NC 27617
Telephone: (919) 781-6272
Fax: (919) 781-4669

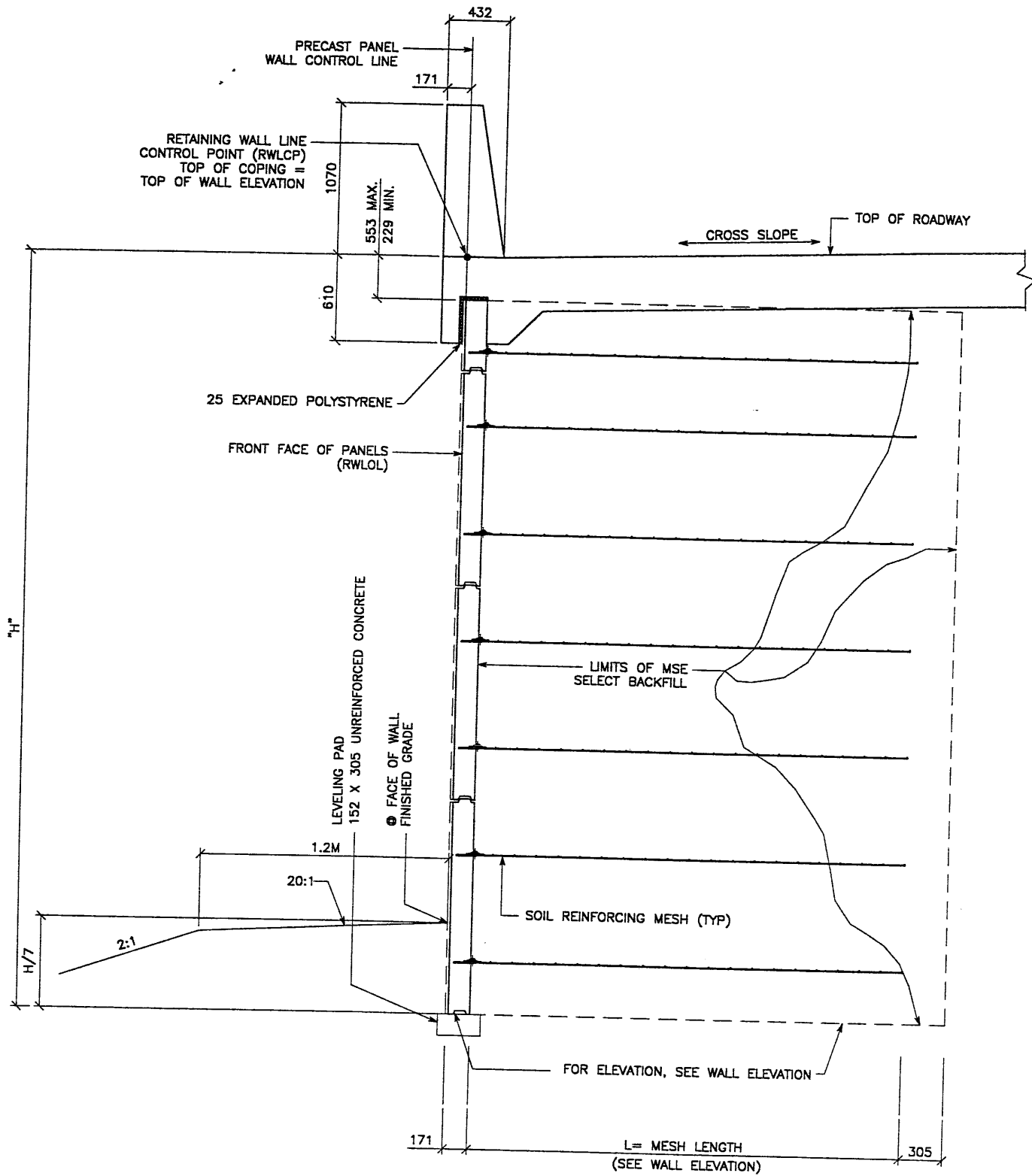


WASATCH CONSTRUCTORS
JUL 30 1998
RELEASED FOR CONSTRUCTION

VSL Corporation ("VSL") owns a direct proprietary interest in the design, construction, and maintenance of retaining walls. VSL is not responsible for the design, construction, or maintenance of any retaining wall that is not designed, constructed, or maintained in accordance with the VSL Retained Earth System. VSL is not responsible for the design, construction, or maintenance of any retaining wall that is not designed, constructed, or maintained in accordance with the VSL Retained Earth System. VSL is not responsible for the design, construction, or maintenance of any retaining wall that is not designed, constructed, or maintained in accordance with the VSL Retained Earth System.

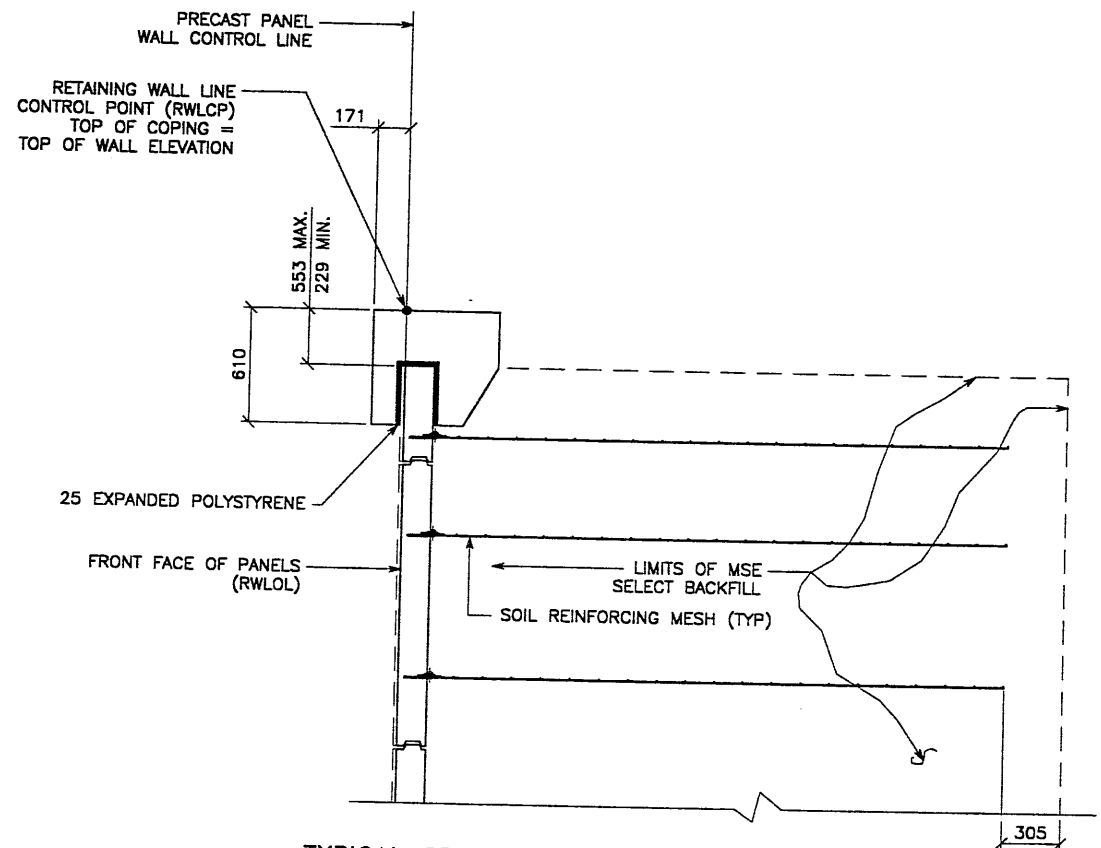
RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-22"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-22.2
JOB NO.	239-0007 7/6
SHT. NO.	RE-1



TYPICAL CROSS SECTION - STA 0+995.064 TO STA 1+113.241
 (SEE DWG. NO. 1.2R-343-22.1 FOR ADDITIONAL INFORMATION)

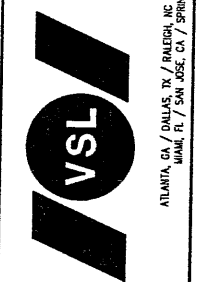
SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 0+989.591 TO 0+995.064
 STA 1+113.241 TO 1+117.924
 (SEE DWG. NO. 1.2R-343-22.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	07-06-98	RELEASE FOR CONSTRUCTION

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8772
 Fax: (919) 781-8889

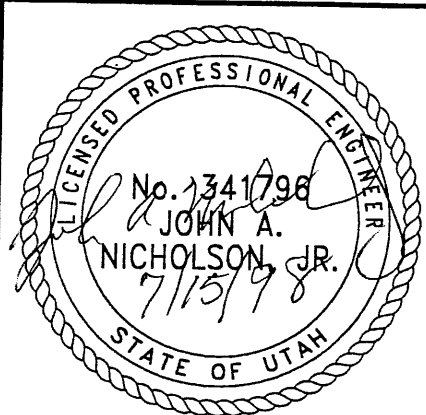


VSL CORPORATION'S VSL EARTH WALLS SYSTEM is a registered trademark of VSL Corporation. The use of this system for any other project without the express written consent of VSL Corporation is prohibited. VSL Corporation is not responsible for any claims or damages resulting from the use of this system for any other project without the express written consent of VSL Corporation.

WASATCH CONSTRUCTORS

JUL 30 1998

RELEASED FOR CONSTRUCTION



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

METRIC

RETAINED EARTH™ WALLS
 PRECAST WALL R-343-22
 TYPICAL CROSS SECTION
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

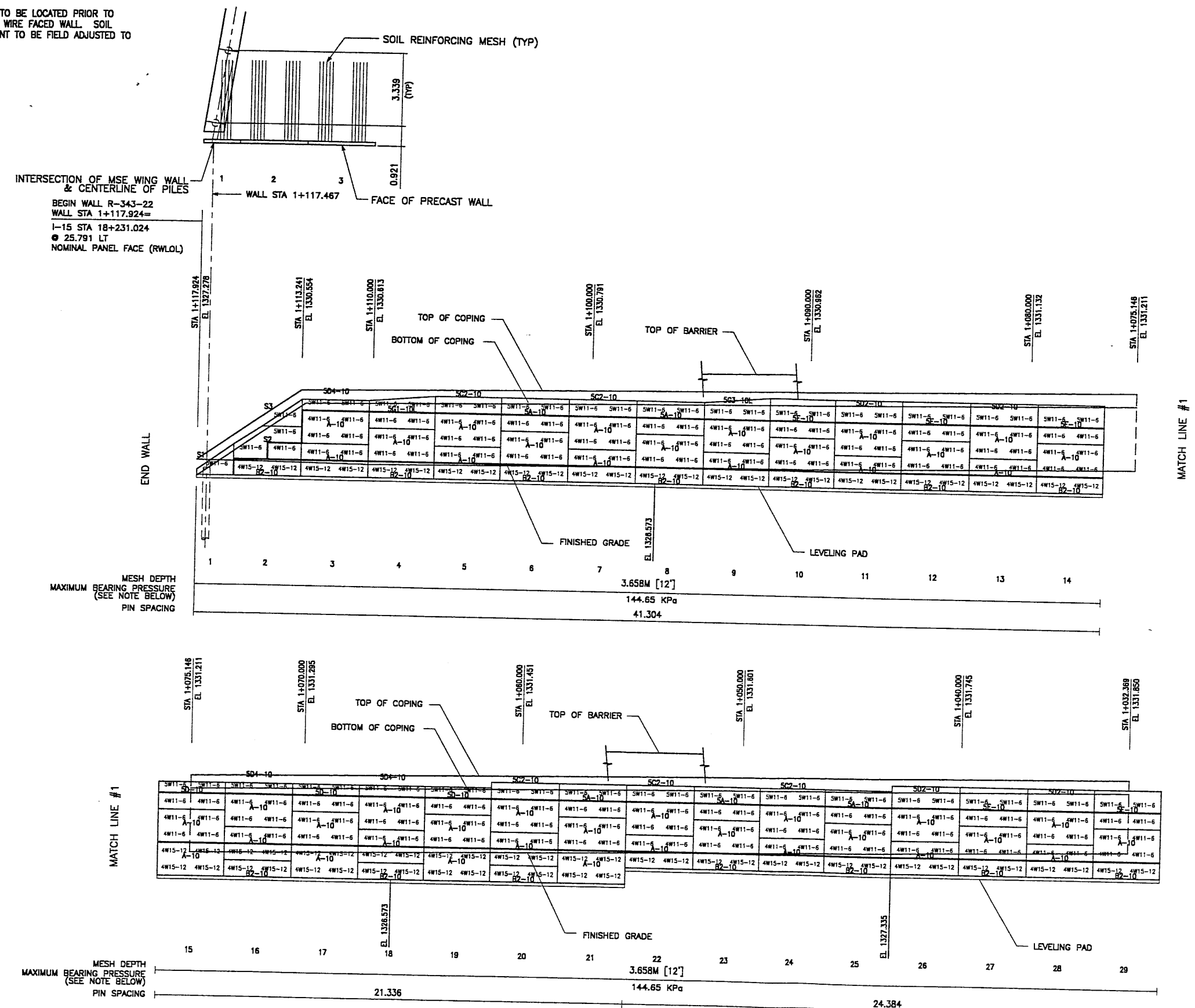
DWG. NO.	1.2R-343-22.3
JOB NO.	239-0007/3/6
SHT. NO.	RE-2

XR-REFERENCE (X-UTRHDWG)

H:\RE_EARTH\PROJECT\339-0007\1998\72SERIES\SUBMIT-2\72-22.DWG

FINAL JT 06-10-98

NOTE: PILES TO BE LOCATED PRIOR TO ERECTION OF WIRE FACED WALL. SOIL REINFORCEMENT TO BE FIELD ADJUSTED TO AVOID PILES.



INTERSECTION OF MSE WING WALL & CENTERLINE OF PILES
 BEGIN WALL R-343-22
 WALL STA 1+117.924=
 I-15 STA 18+231.024
 @ 25.791 LT
 NOMINAL PANEL FACE (RWLWL)

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

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

ELEVATION PRECAST WALL R-343-22

(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 493.74 SM)

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

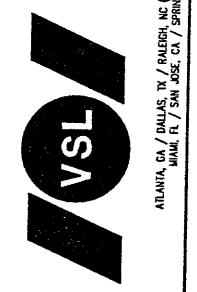
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

METRIC

APPROVED FOR CONSTRUCTION			
NO.	DATE	DESCRIPTION	CHK
▲	07-06-98	RELEASE FOR CONSTRUCTION	

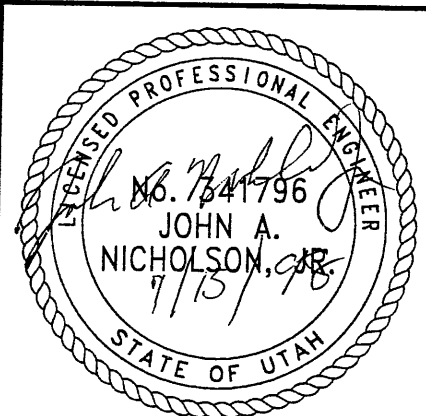
DES.	DRN.	CHK.	NO.	DATE	REVISION	BY
JL	DDL	JL				

VSL CORPORATION
 7800 Plaza Drive, Suite 200
 Boulder, Colorado 80501
 Telephone: (303) 781-8272
 Fac: (303) 781-8689



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

WASATCH CONSTRUCTORS
 JUL 30 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-22"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.2R-343-22.4
 JOB NO.
 239-0007 4/6
 SHT. NO.
 RE-3

NOTE: PILES TO BE LOCATED PRIOR TO ERECTION OF WIRE FACED WALL. SOIL REINFORCEMENT TO BE FIELD ADJUSTED TO AVOID PILES.

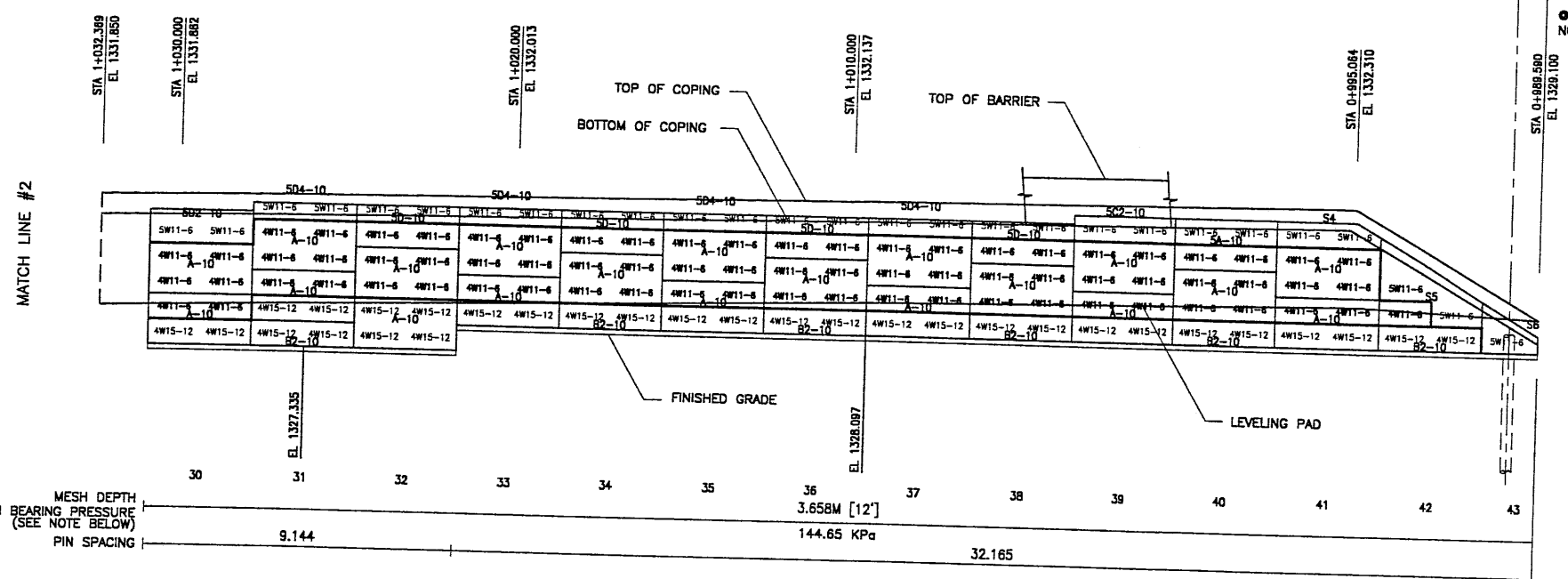
SOIL REINFORCING MESH (TYP)

FACE OF PRECAST WALL

INTERSECTION OF MSE WING WALL & CENTERLINE OF PILES

WALL STA 0+990.443

END WALL R-343-22
WALL STA 0+989.591 =
I-15 STA 18+103.419
● 25.791 LT
NOMINAL PANEL FACE (RWLOL)



ELEVATION PRECAST WALL R-343-22

(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 493.74 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.

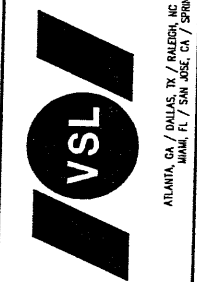
METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	07-06-98	RELEASE FOR CONSTRUCTION

DES.	MM	06-10-98
DRW. <td>RSW <td>06-10-98</td> </td>	RSW <td>06-10-98</td>	06-10-98
CHK. <td>MM <td>06-10-98</td> </td>	MM <td>06-10-98</td>	06-10-98

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-8869

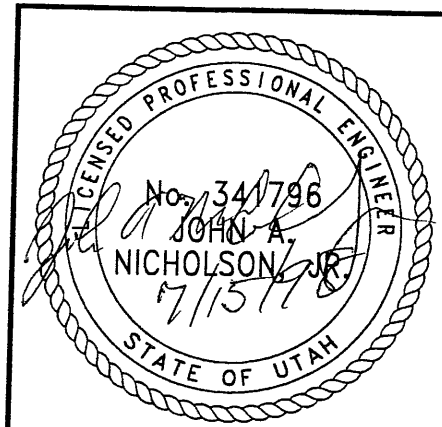


WASATCH CONSTRUCTORS

JUL 30 1998

RELEASED FOR CONSTRUCTION

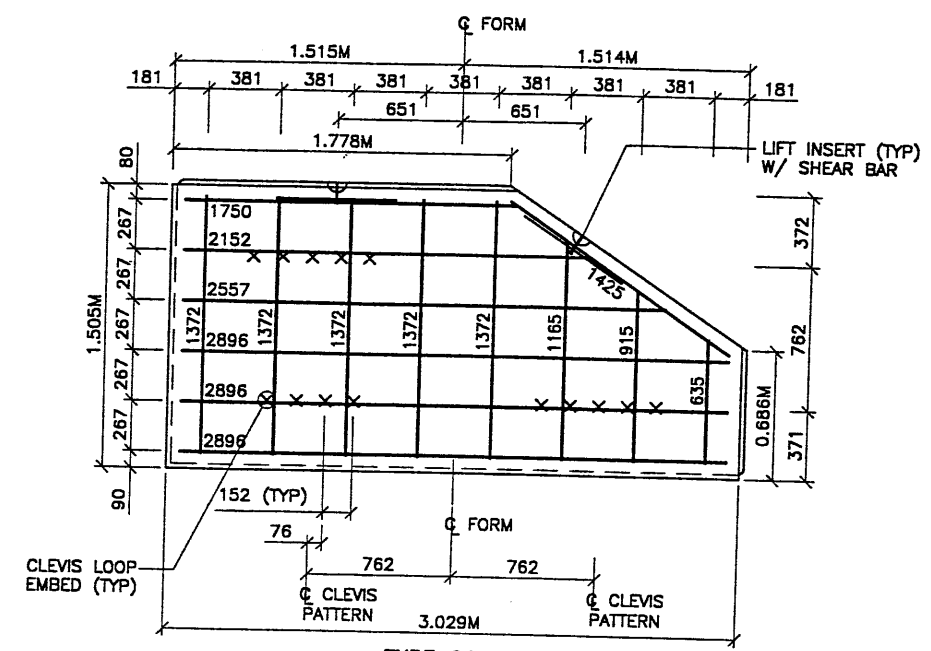
VSL Corporation hereby certifies that this drawing, specification, or information set forth on this sheet, the use of which in part, or in whole, in any project, is in accordance with the design and construction shown, and that it was prepared and used in accordance with the provisions of the contract documents. THE USER ASSUMES ALL LIABILITY THEREFOR.



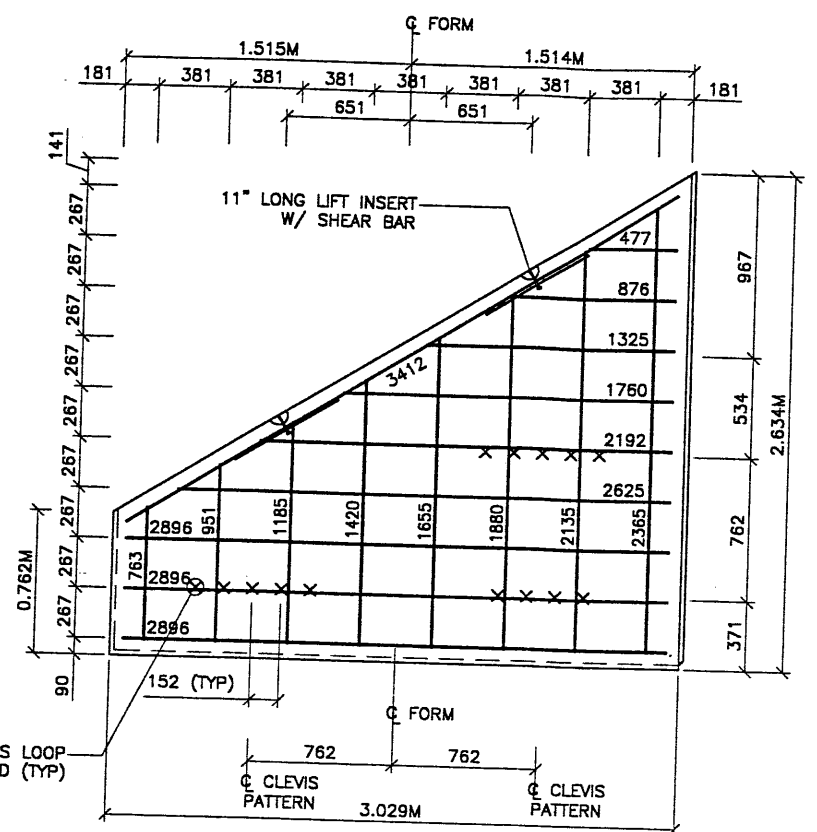
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-22"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-22.5
JOB NO.	239-0007
SHT. NO.	RE-4

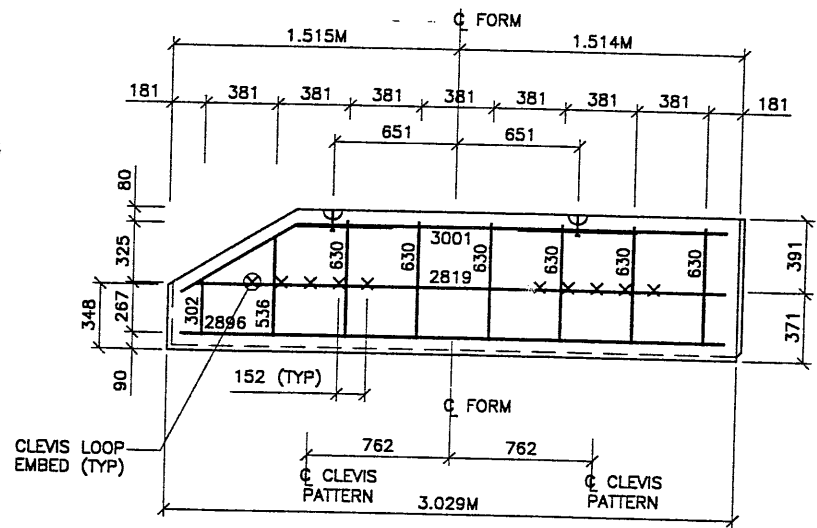
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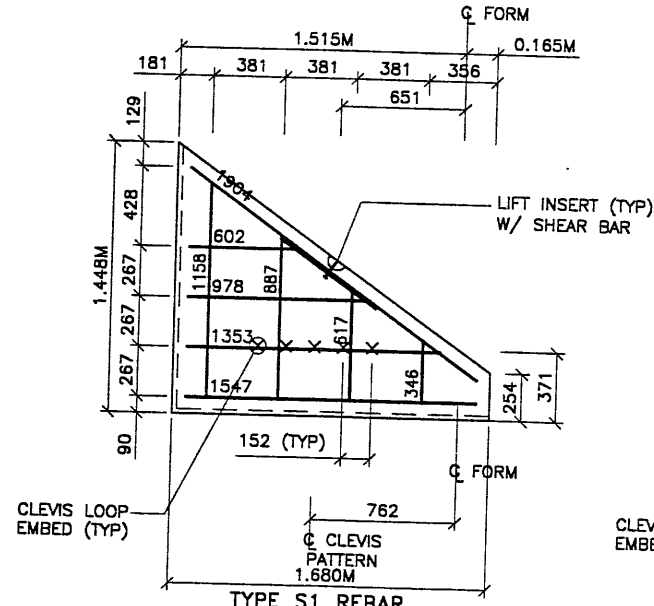
TYPE S2 REBAR
(AREA = 4.11 SQ.M)



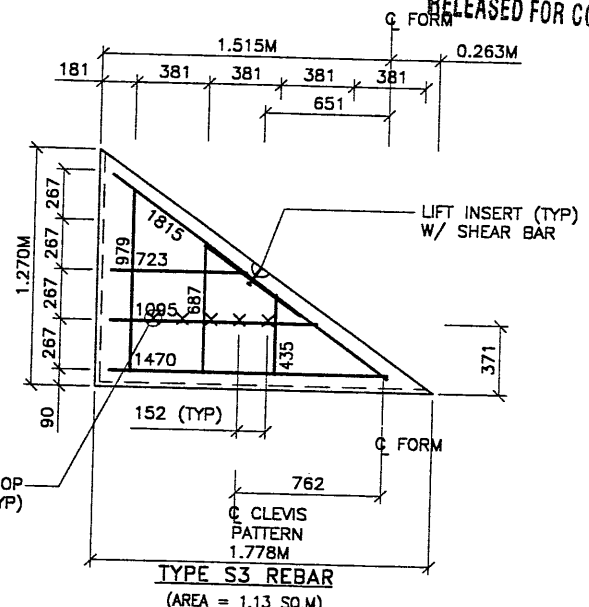
TYPE S5 REBAR
(AREA = 5.21 SQ.M)



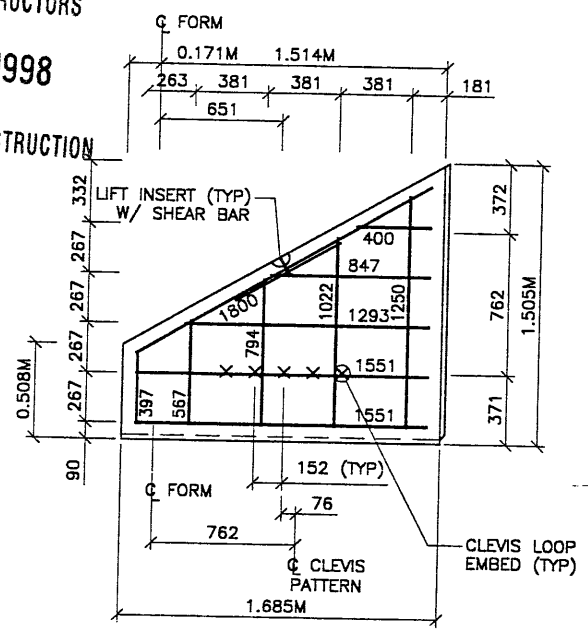
TYPE S4 REBAR
(AREA = 2.17 SQ.M)



TYPE S1 REBAR
(AREA = 1.43 SQ.M)



TYPE S3 REBAR
(AREA = 1.13 SQ.M)

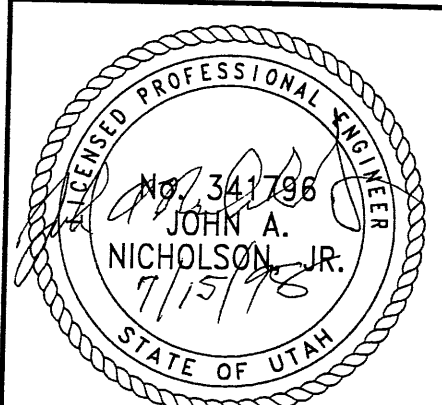


TYPE S6 REBAR
(AREA = 1.71 SQ.M)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	07-06-98	RELEASE FOR CONSTRUCTION <i>al</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.
 - EQUVALENT 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
JUL 30 1998
 RELEASED FOR CONSTRUCTION



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

METRIC

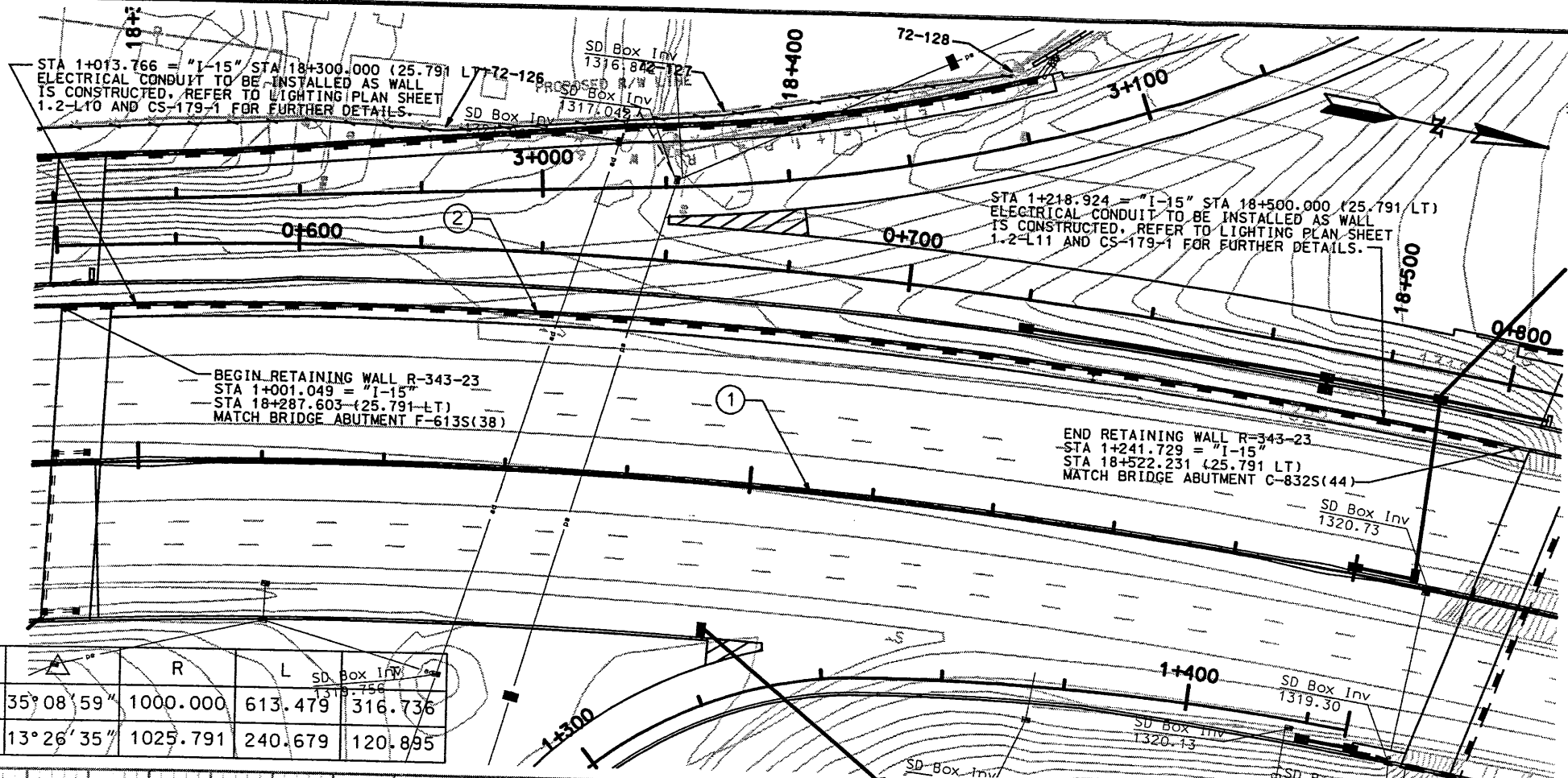
REVISION		NO.	DATE	BY	CHK

VSL CORPORATION
 2840 Plaza Pkwy, Suite 200
 Raleigh, NC 27617
 Telephone: (919) 781-8272
 Fax: (919) 781-6869

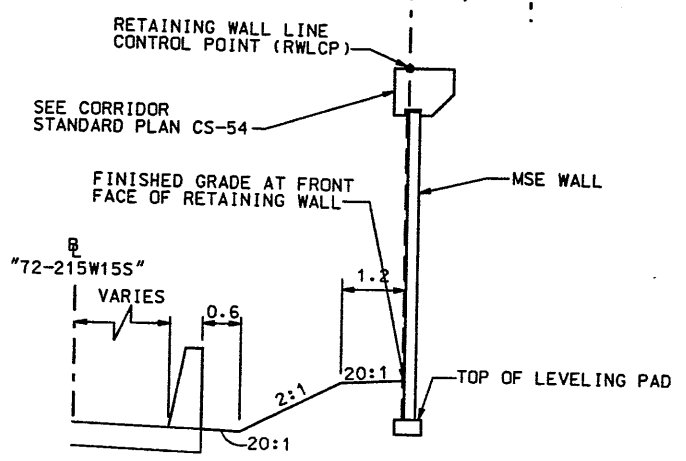
VSL
 ALBUQUERQUE, NM / DALLAS, TX / RENO, NV (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-22"
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

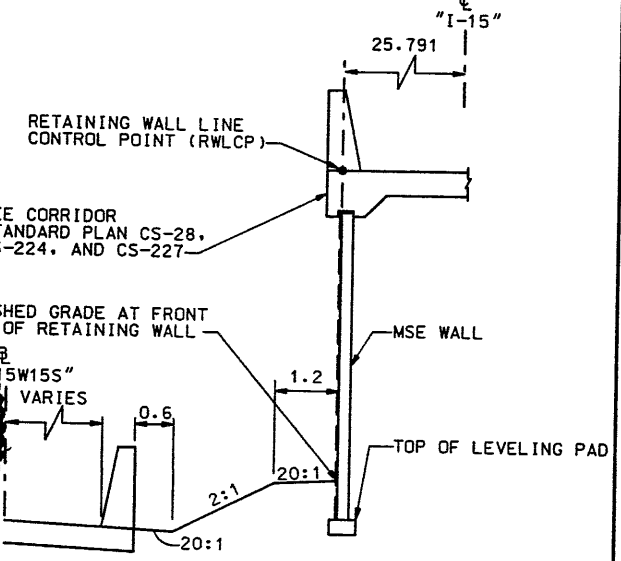
DWG. NO. 1.2R-343-22.6
 JOB NO. 239-0007/6
 SHE. NO. RE-5



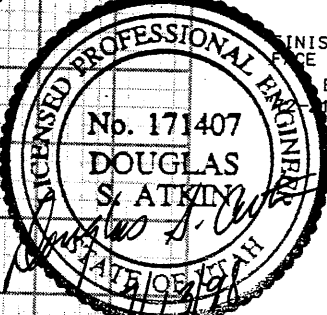
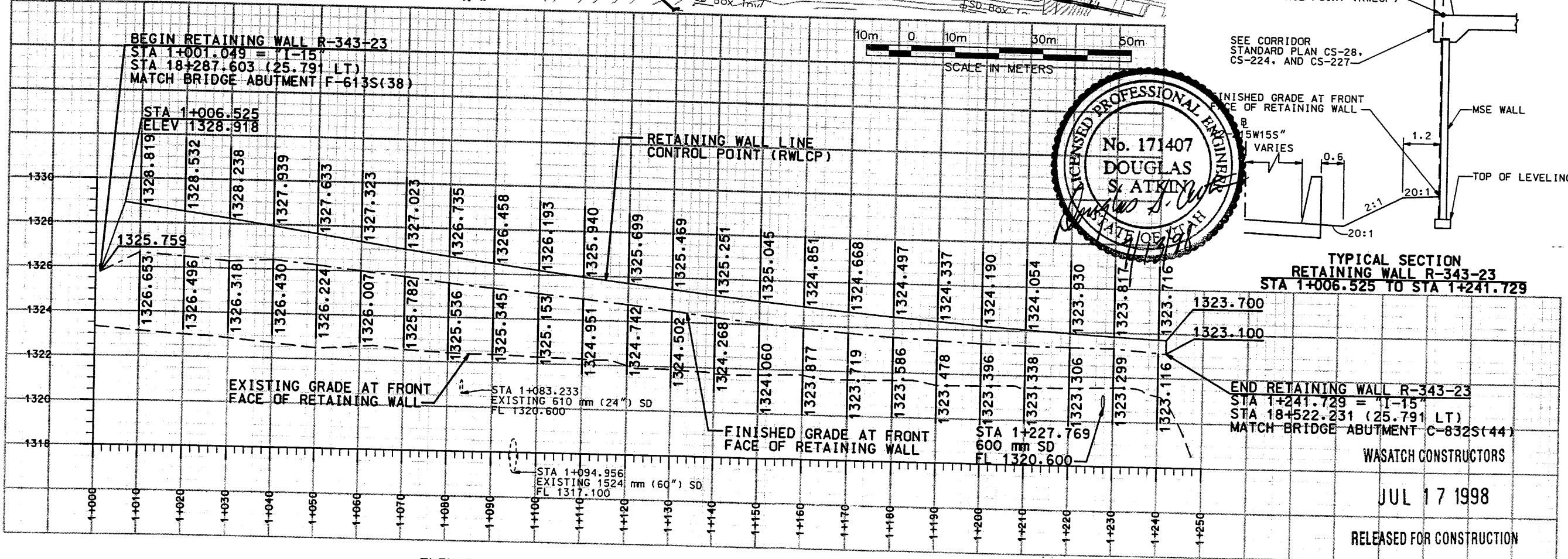
CURVE NO.	Δ	R	L	SD Box Inv
①	35° 08' 59"	1000.000	613.479	316.736
②	13° 26' 35"	1025.791	240.679	120.895



TYPICAL SECTION
RETAINING WALL R-343-23
STA 1+001.049 TO STA 1+006.525



TYPICAL SECTION
RETAINING WALL R-343-23
STA 1+006.525 TO STA 1+241.729



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

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
Δ	7-13-98		
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner SVERDRUP/DE LEUW			
DESIGN	CHKD	DATE	QUANT.
11/97	11/97	11/97	11/97
RICK CHAPMAN	PROJECT DESIGN ENGINEER	DOM GRULL	PROJECT MANAGER
11/97	11/97	11/97	11/97
I-15 CORRIDOR RECONSTRUCTION			
SITUATION/LAYOUT			
RETAINING WALL R-343-23			
SECTION 1-2			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.2R-343-23.1			
SHT. 1 OF 6			
REF.			

NCE (X-UTAH)JWG

3\72-23\RE-1

H:\RE_EARTH\PROJECT\239-0007\1998\

YT 06-03-98

FINA

WALL STA 1+001.049 =
"I-15"
STA 18+287.603 @ 25.791 LT
BEGIN PRECAST WALL 343-23

FRONT FACE PRECAST WALL "343-23"

BRIDGE F-613S(38)

18+300

①

18+400

② I-15

WALL STA 1+241.729=
"I-15"
STA 18+522.231 @ 25.791 LT
END PRECAST WALL 343-23

BRIDGE C-832S(44)

18+500

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	1000.000	613.479	316.736	35°08'59"
②	1025.791	240.679	120.895	13°26'35"

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: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
- SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
- CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
- HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
- CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
- BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
- VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
- ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

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

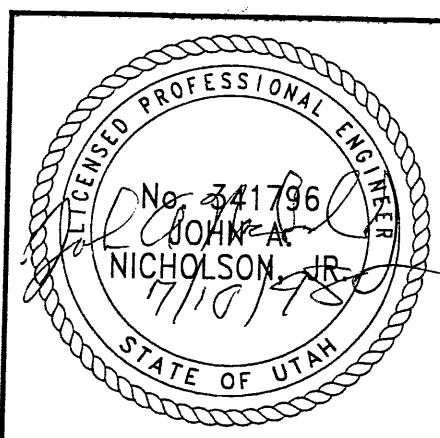
RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-23, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTION
RE-3	ELEVATION PRECAST WALL "R-343-23"
RE-4	ELEVATION PRECAST WALL "R-343-23"
RE-5	SPECIAL PANEL DETAILS

PLAN VIEW WALL "R-343-23"

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

METRIC

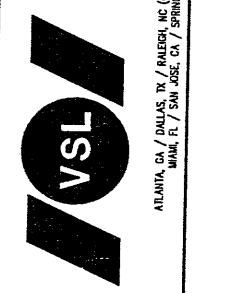
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	7-02-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	JL	RSW	JL	NO.	DATE	REVISION	BY	CHK
06-03-98	06-03-98	06-03-98	JL	RSW	JL					

VSL CORPORATION
2500 Plaza Place, Suite 200
Durham, NC 27707
Tel: (919) 286-8177
Fax: (919) 286-4889



WASATCH CONSTRUCTORS

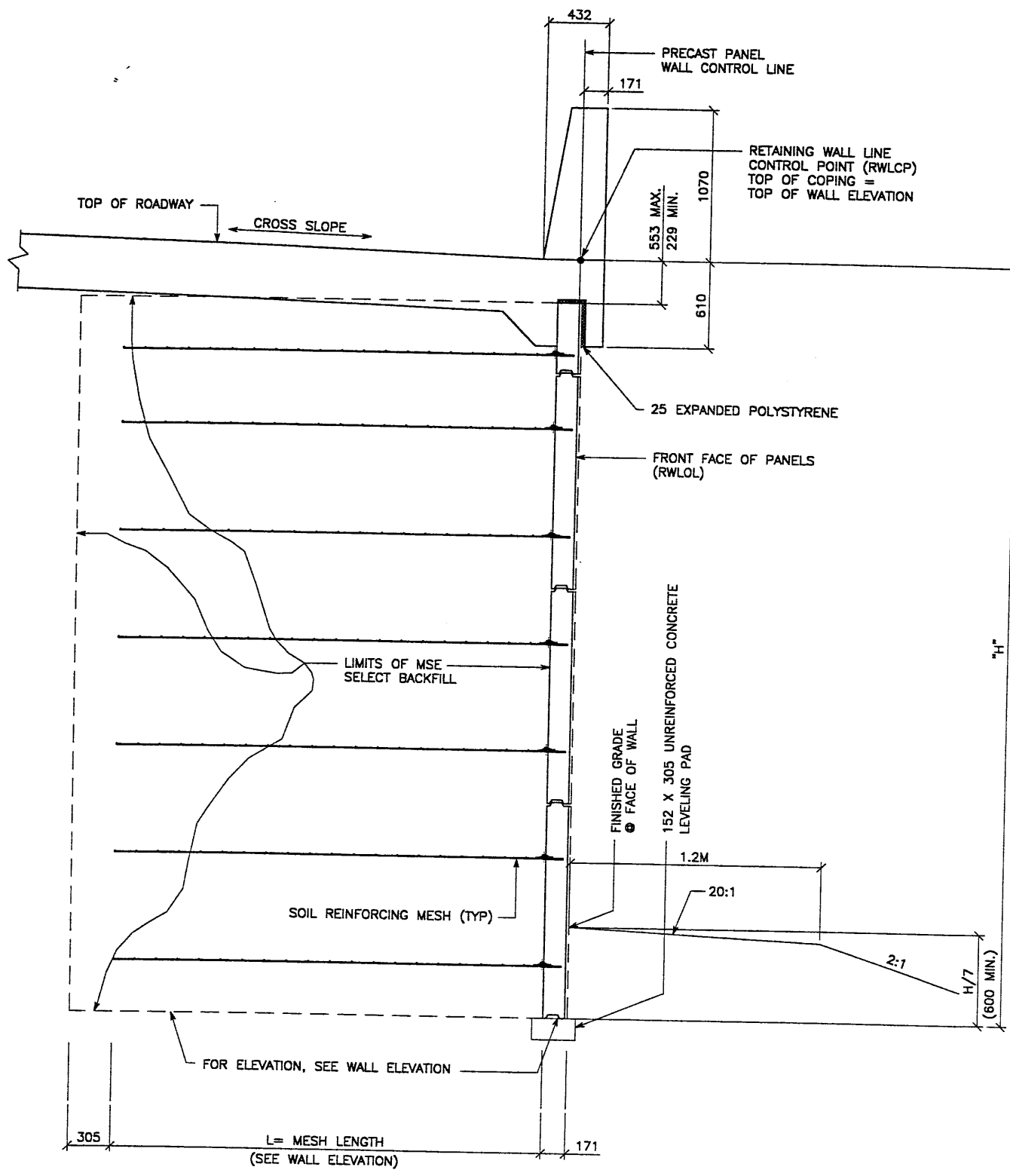
JUL 17 1998

RELEASED FOR CONSTRUCTION

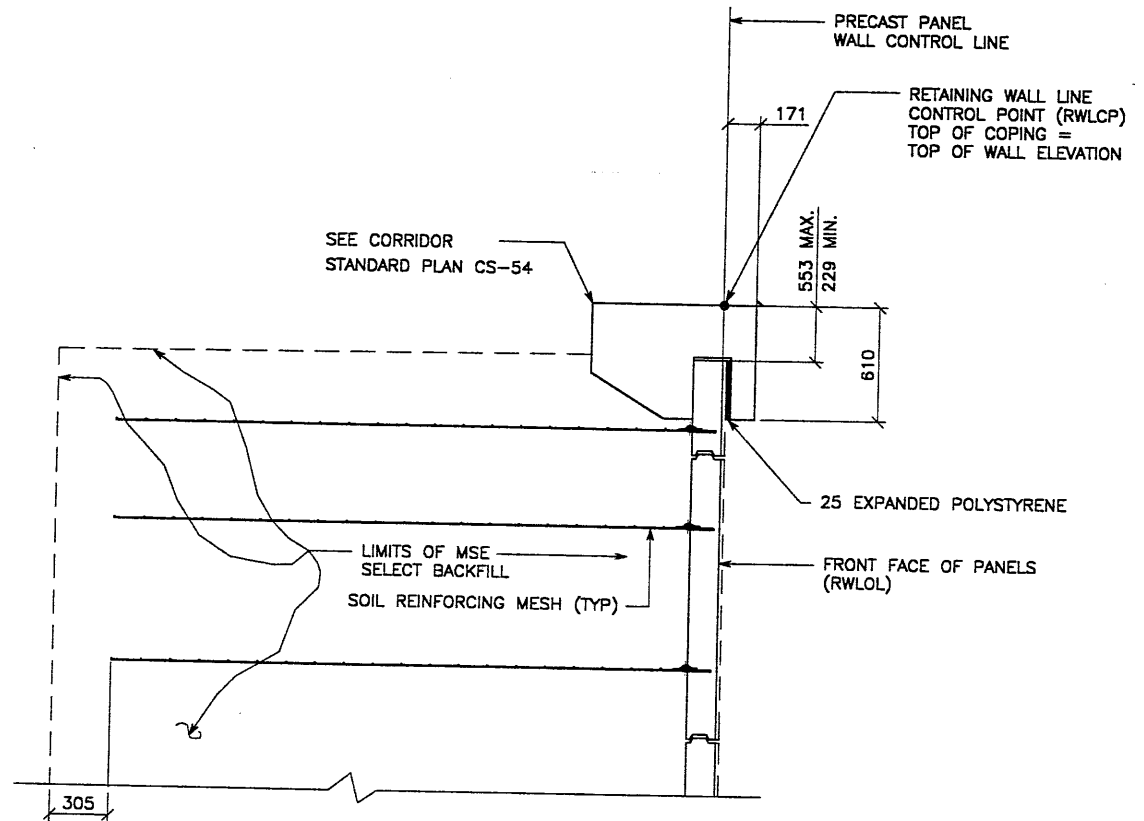
RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-23"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-23.2
JOB NO.	239-0007
SHT. NO.	RE-1

H:\RE_EARTH\PROJECT\239-0007\1998\7
 T 06-03-98
 FINAI
 V\72-23\RE-2
 NCE (X-UTAH.DWG)



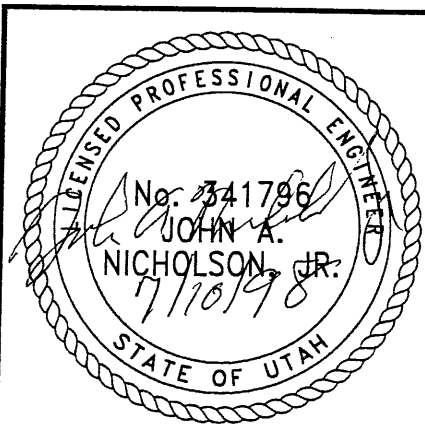
TYPICAL CROSS SECTION - STA 1+006.525 TO STA 1+241.729
 (SEE DWG. NO. 1.2R-343-23.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 1+001.049 TO 1+006.525
 (SEE DWG. NO. 1.2R-343-23.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	07-02-98	RELEASE FOR CONSTRUCTION

WASATCH CONSTRUCTORS
JUL 17 1998
RELEASED FOR CONSTRUCTION



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

METRIC

DES.	DRN.	CHK.	DATE	BY	REVISION
JL	RSW	JL	06-04-98		
			06-04-98		
			06-04-98		

VSL CORPORATION
 2640 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-6959

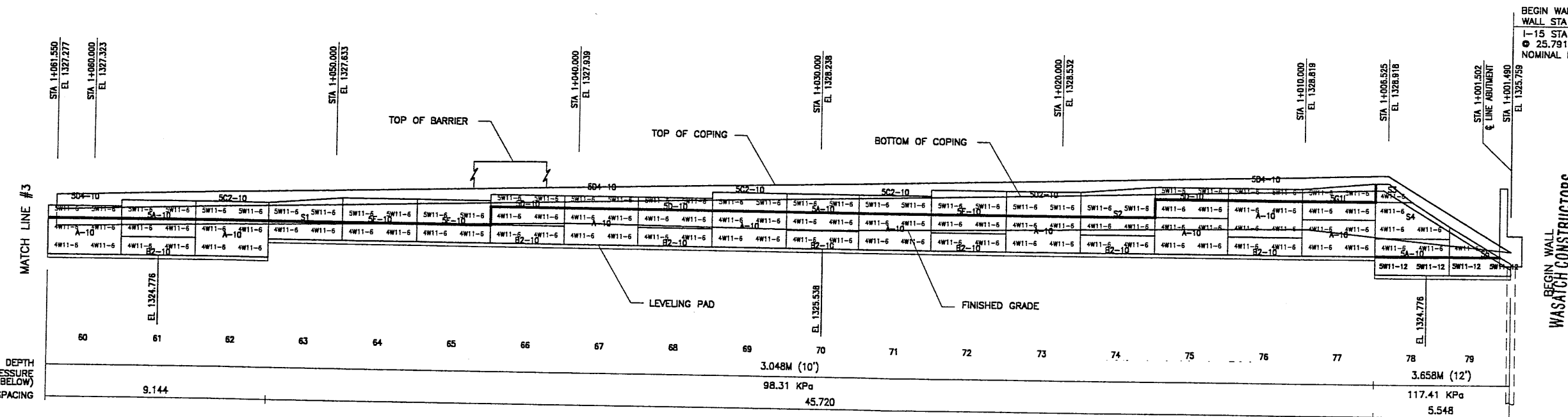
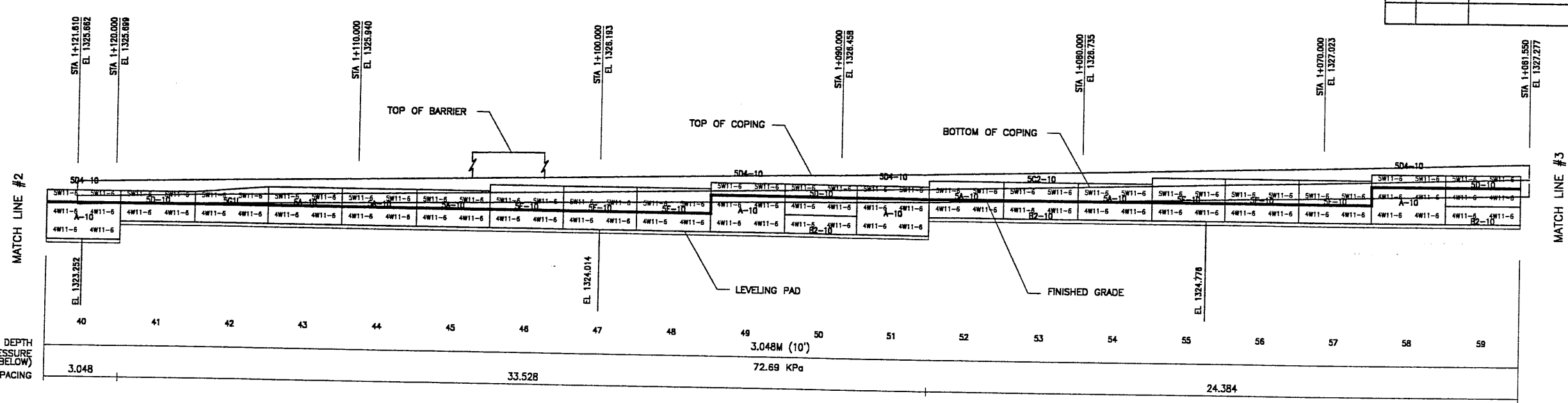
VSL
 ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-23"
TYPICAL CROSS SECTION
UTAH 1-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.2R-343-23.3
 JOB NO. 239-0007 3/6
 SHI. NO. RE-2

H:\RE_EARTH\PROJECT\239-0007\199. JES\72-23\72-23.DWG 06-05-98 FINA

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
7-02-98		RELEASE FOR CONSTRUCTION



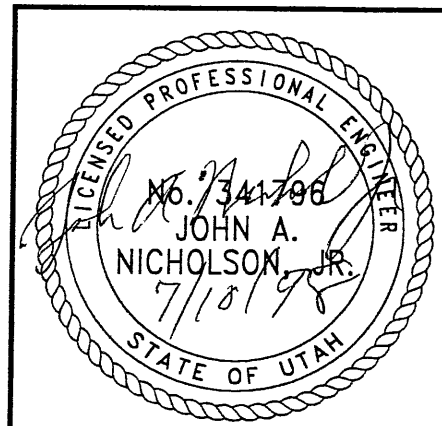
APPROVER NOTE:
 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

ELEVATION PRECAST WALL R-343-23

(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 419.08 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

METRIC

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BEGIN WALL R-343-23
 WALL STA 1+001.490 =
 I-15 STA 18+287.603
 @ 25.791 LT
 NOMINAL PANEL FACE (RWLOL)

WASATCH CONSTRUCTORS
 JUL 17 1998
 RELEASED FOR CONSTRUCTION

DES.	06-05-98	JL
DRW.	06-05-98	RSW
CHK.	06-05-98	JL

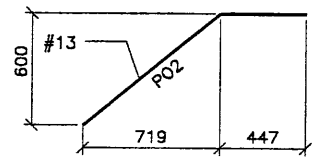
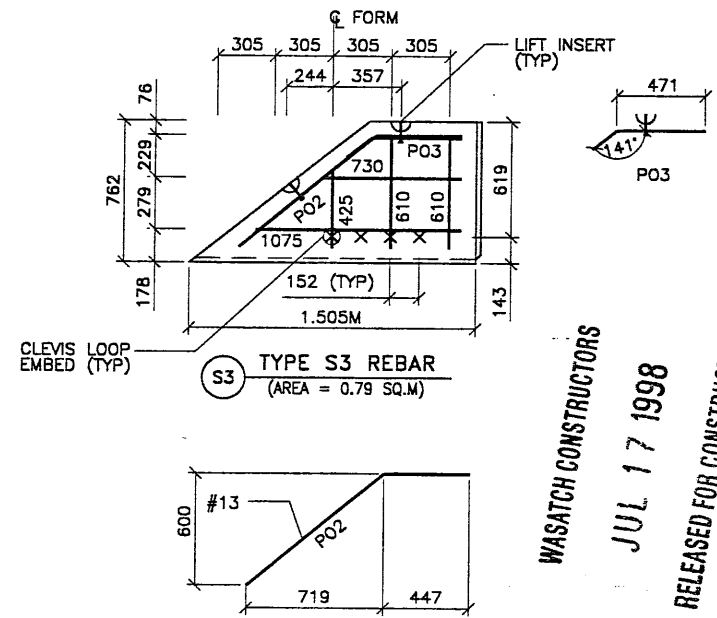
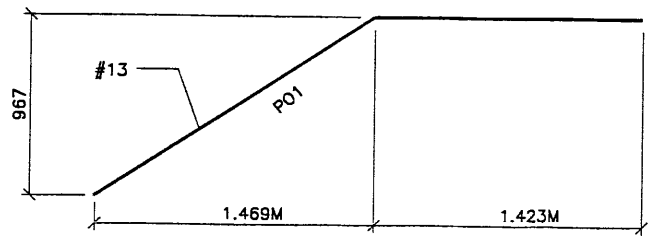
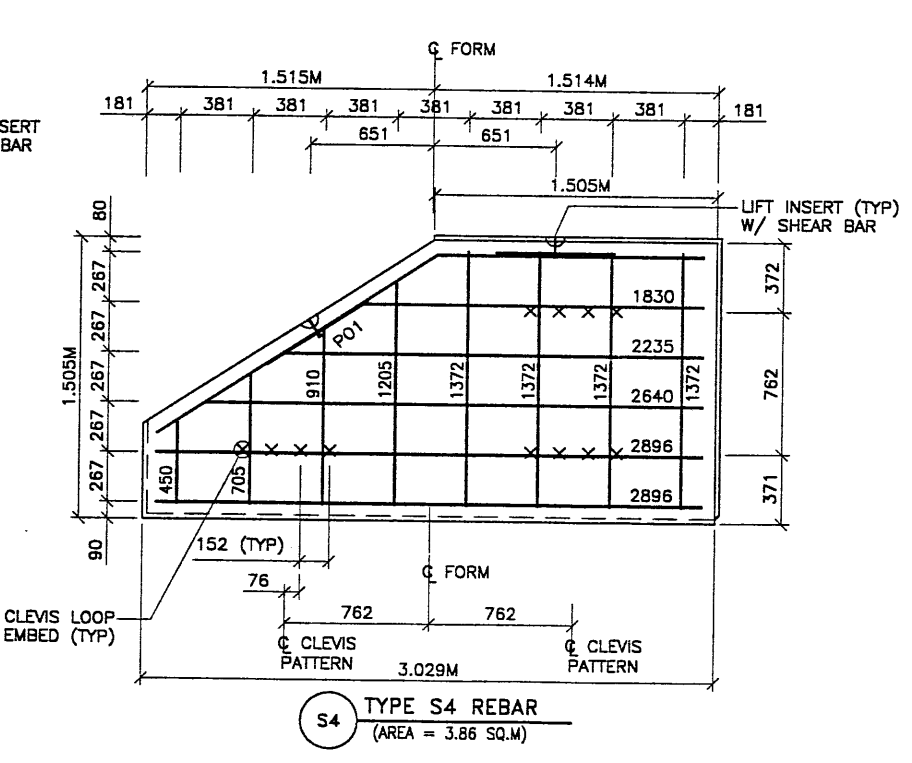
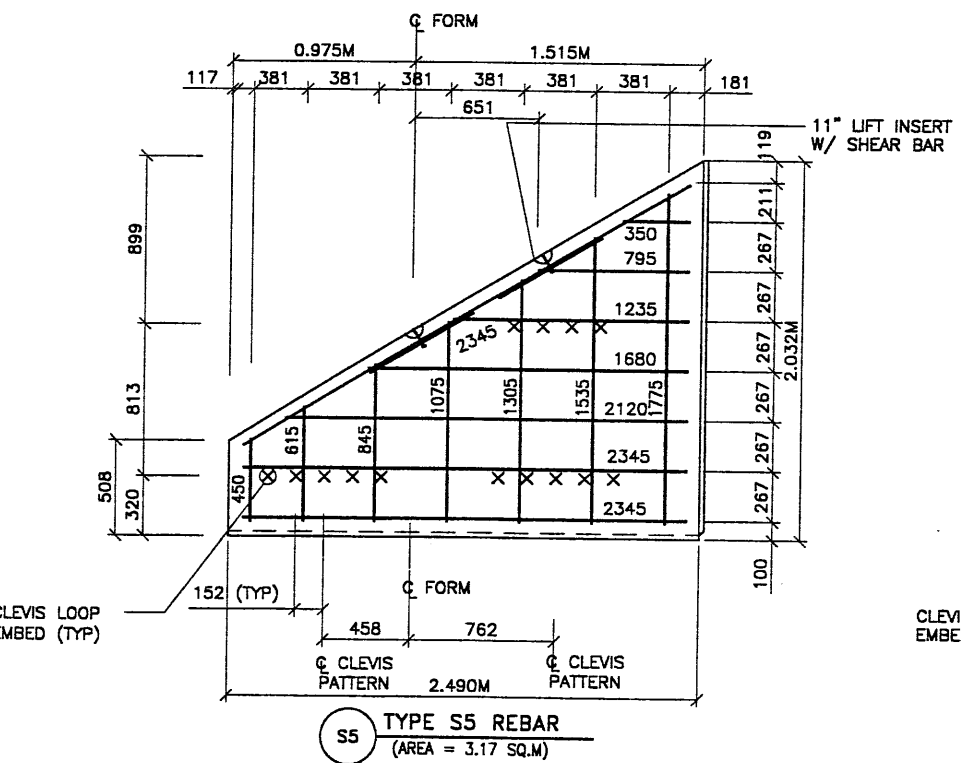
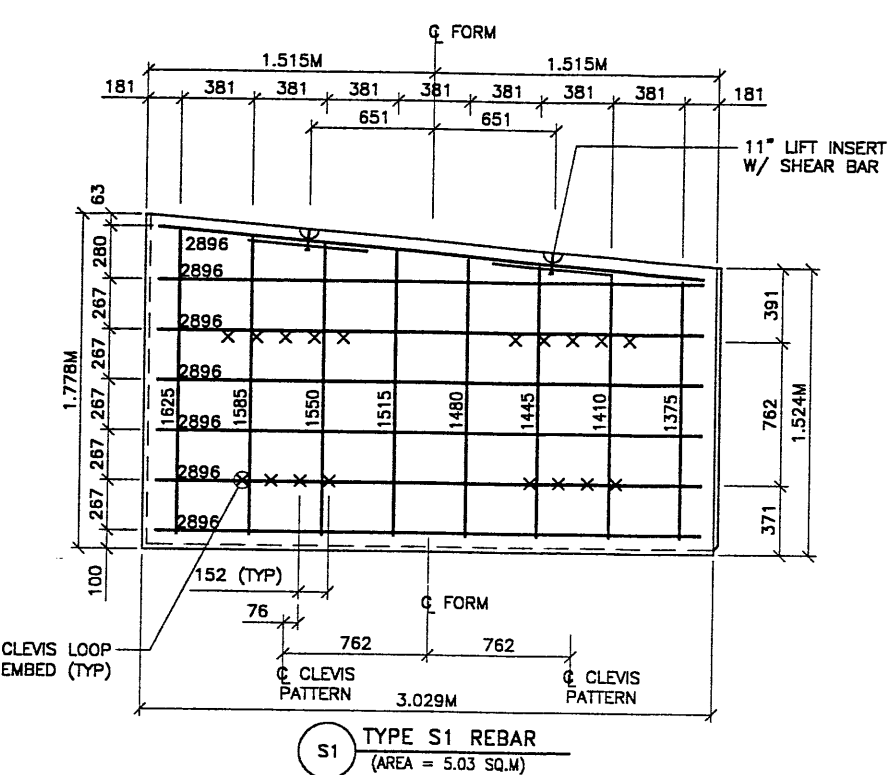
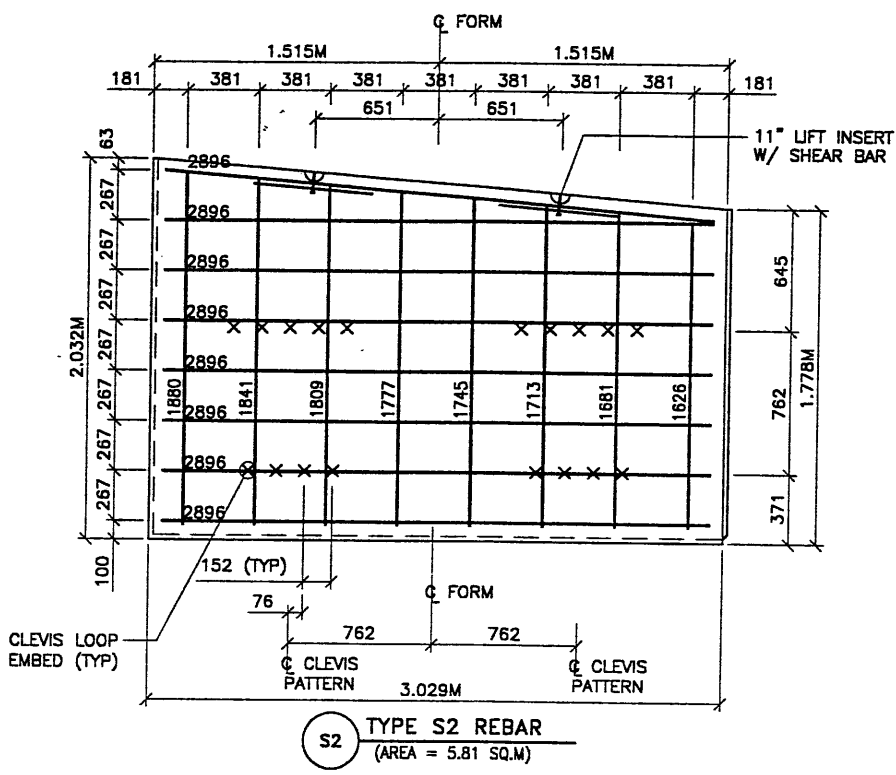
RETAINED EARTH™

VSL CORPORATION
 2840 Piedmont Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-6669

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

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-23"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

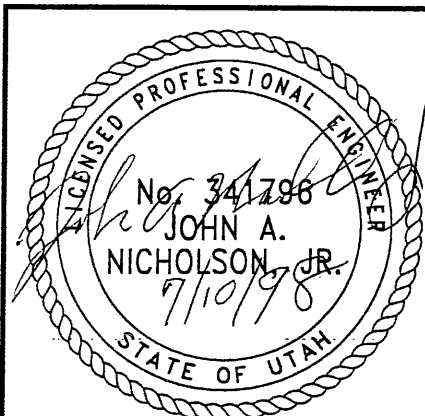
DWG. NO.
 1.2R-343-23.5
 JOB NO.
 239-0007 5/6
 SHT. NO.
 RE-4



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	07-02-98	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 787 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#9 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
JUL 17 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
2840 Ross Plaza, Suite 200
Raleigh, NC 27613
Telephone: (919) 781-8272
Fax: (919) 781-8559

ALABAMA, GA / DALLAS, TX / SALEM, NC (CORPORATE OFFICE)
MINN. IL / SAN JOSE, CA / SPRINGFIELD, VA

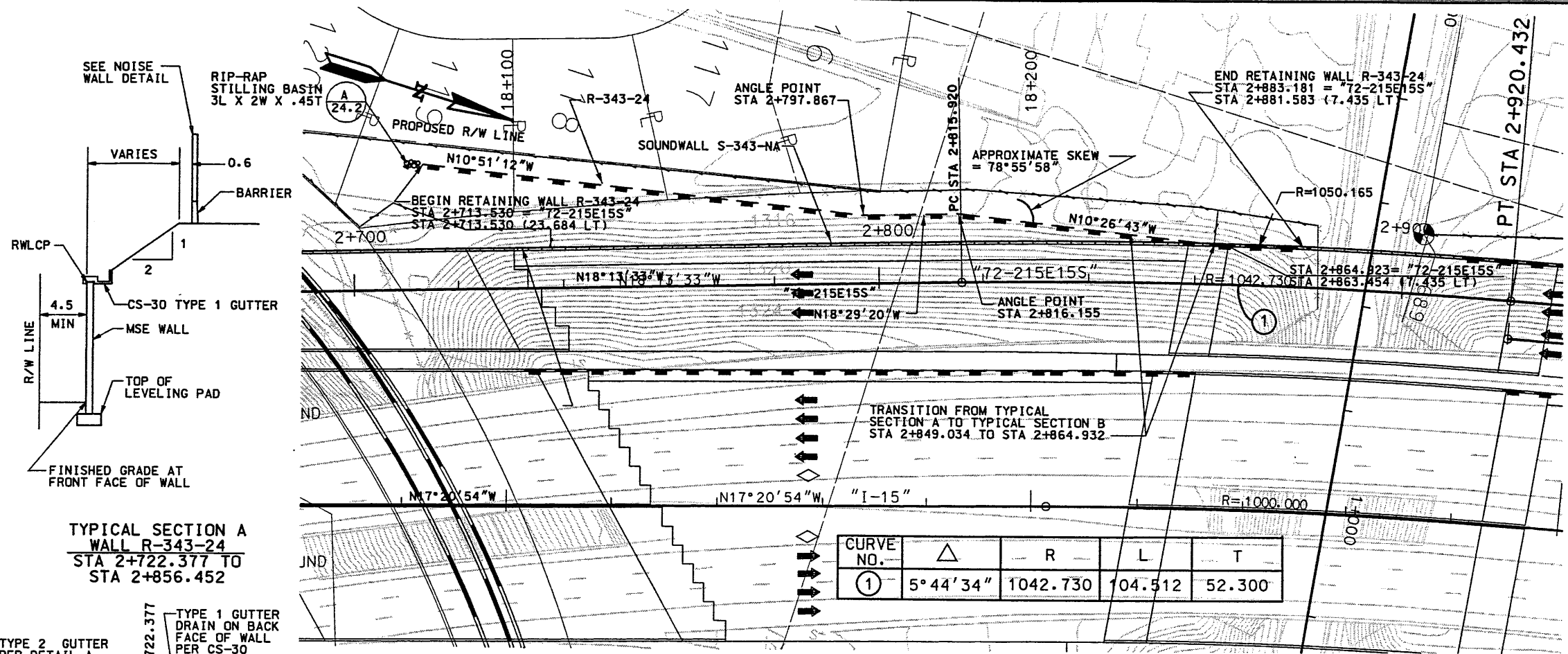
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-23"
SPECIAL PANEL DETAILS

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

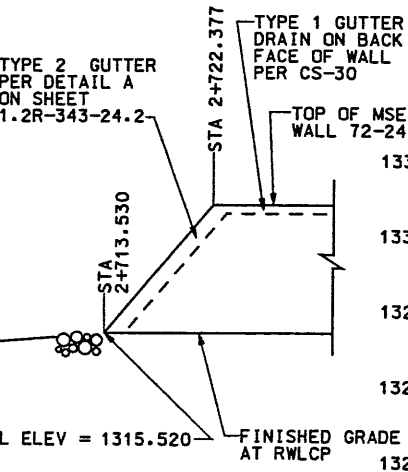
DWG. NO.	1.2R-343-23.6
JOB NO.	239-0007
SHT. NO.	RE-5

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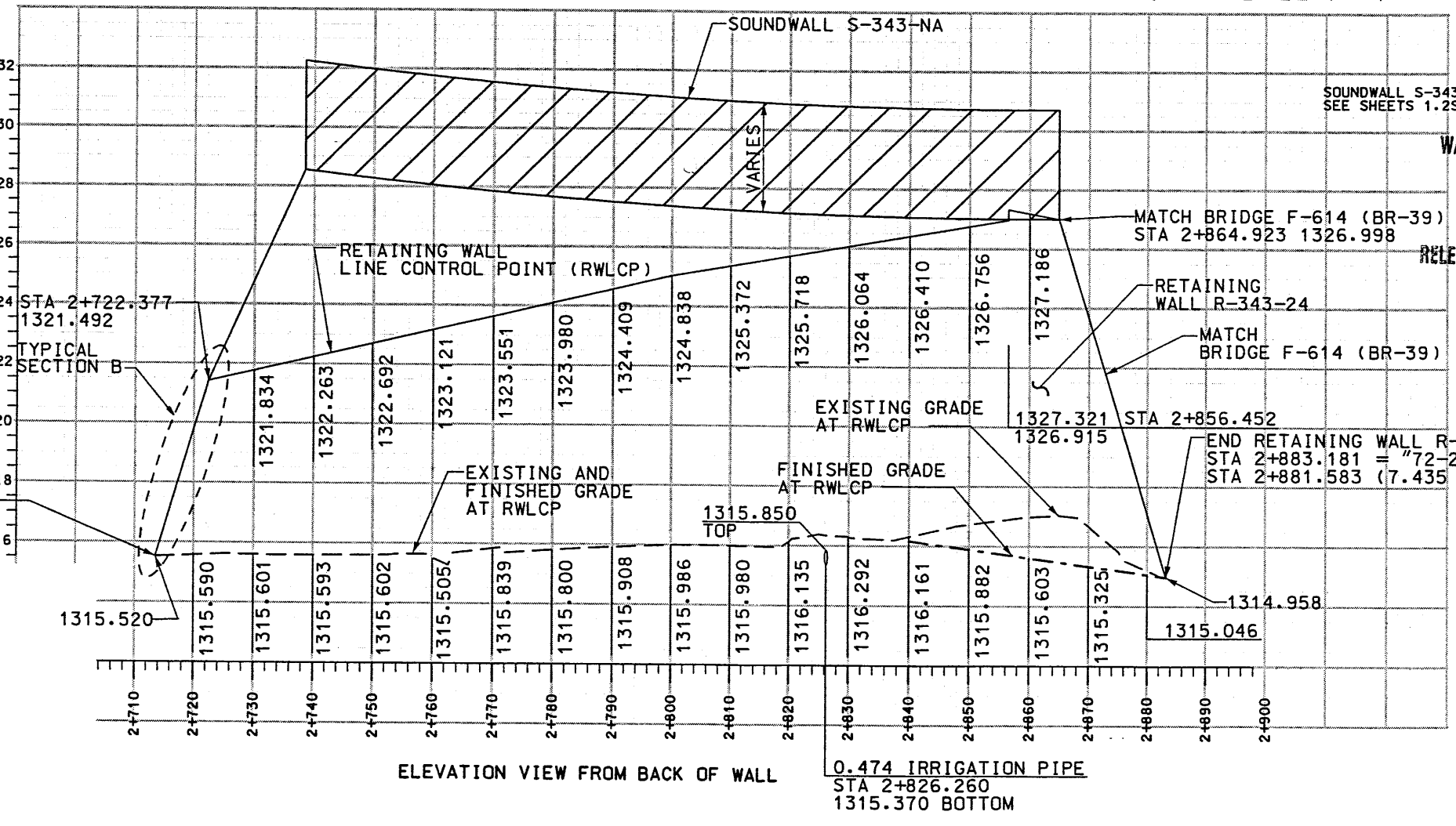
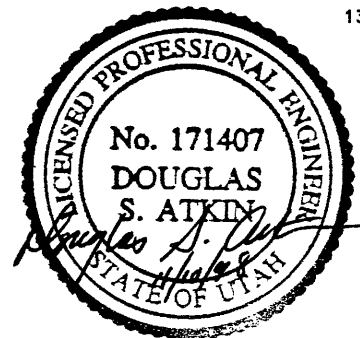


TYPICAL SECTION A
WALL R-343-24
STA 2+722.377 TO
STA 2+856.452

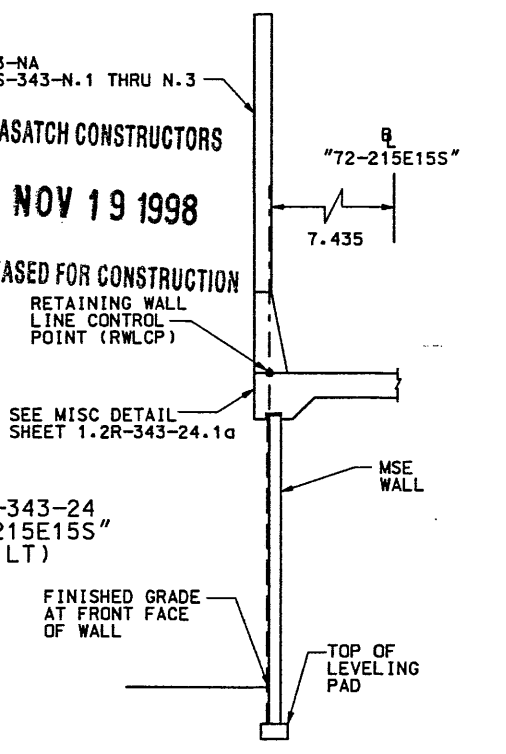


TYPICAL SECTION B
WALL R-343-24
STA 2+713.530 TO
STA 2+722.377

BEGIN RETAINING WALL R-343-24 STA 2+713.530 = "72-215E15S" STA 2+713.530 (23.684 LT)



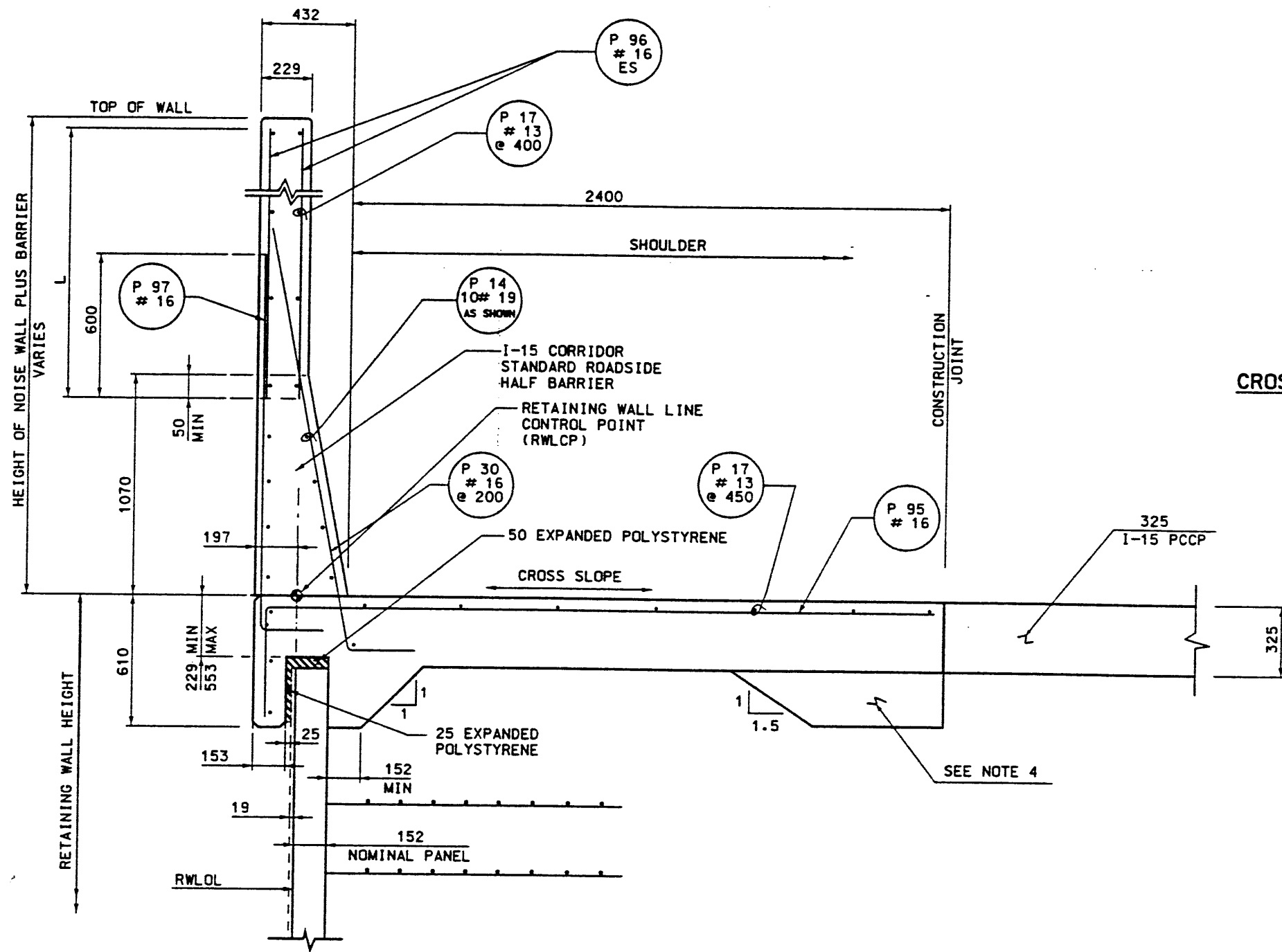
ELEVATION VIEW FROM BACK OF WALL



TYPICAL SECTION C
WALL R-343-24
STA 2+864.923 TO
2+883.181

TYPICAL SECTION B
WALL R-343-24
STA 2+864.923

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	RELEASED FOR GDP / MOMENT SLAB
1	9-9-97		
2	12-31-97		
3	03-24-98		FIELD DESIGN CHANGE 1-0103
4	11-10-98		REFERENCED SOUNDWALL
UTAH DEPARTMENT OF TRANSPORTATION		1212310	
URS Greiner		DESIGN EIR 8/97	
SVERDRUP/DE LEUW		CHECK KJM 8/97	
NOV 19 1998		CHECK EIR 8/97	
RELEASED FOR CONSTRUCTION		CHECK /	
RETAINING WALL LINE CONTROL POINT (RWLCP)		CHECK /	
SEE MISC DETAIL SHEET 1.2R-343-24.1a		CHECK /	
MSE WALL		CHECK /	
FINISHED GRADE AT FRONT FACE OF WALL		CHECK /	
TOP OF LEVELING PAD		CHECK /	
SECTION 1-2		PROJECT NUMBER	
#SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO.			
1.2R-343-24.1			
SHT. 1 OF 14			
REF.			

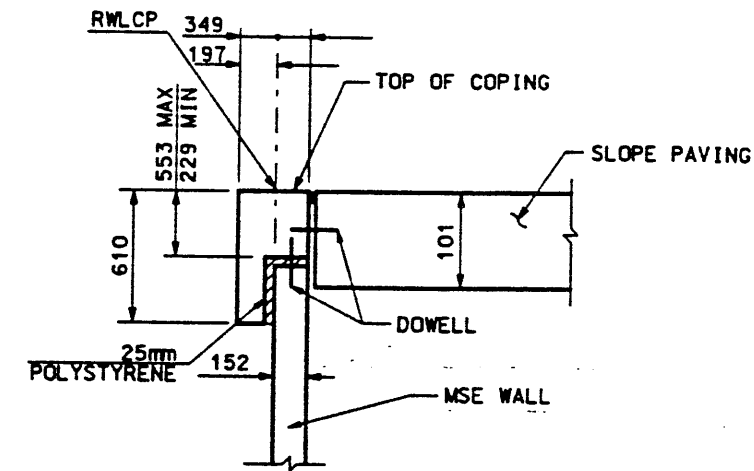


MSE SINGLE STAGE WITH SOUNDWALL AND BARRIER ON MOMENT SLAB

NO SCALE

NOTES:

- 50mm MINIMUM COVER OVER REINFORCING.
- USE 325 PCCP $f'c=27.5 \text{ MPa}$ (4,000 PSI) FOR MOMENT SLAB.
- TOE OF BARRIER/EDGE OF SHOULDER IS 235mm INSIDE RETAINING WALL LAYOUT LINE (RWLOL).
- ADD COUNTERWEIGHT FOR NOISE WALL PLUS BARRIER HEIGHT GREATER THAN 4.3m HIGH.



CROSS SECTION C-C WITH ABUTMENT SLOPE (NON SPUI)
SLOPE PAVING / COPING DETAILS

NO SCALE

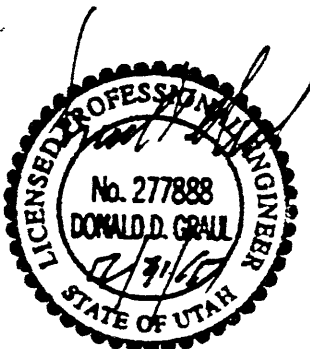
WASATCH CONSTRUCTORS

JAN 02 1998

RELEASED FOR CONSTRUCTION

NOISE WALL/BARRIER REINFORCING STEEL SCHEDULE		
HEIGHT OF NOISE WALL PLUS BARRIER (m)	BAR SIZE AND SPACING	
5	#16 @ 230	
4	#16 @ 300	
3	#16 @ 300	
MARK	LENGTH	SKETCH
P95	3010	
P96	L	
P97	2200	
P98	4310	

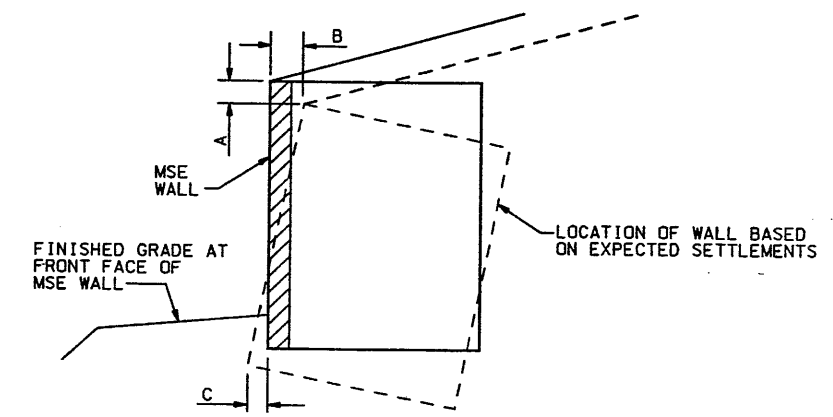
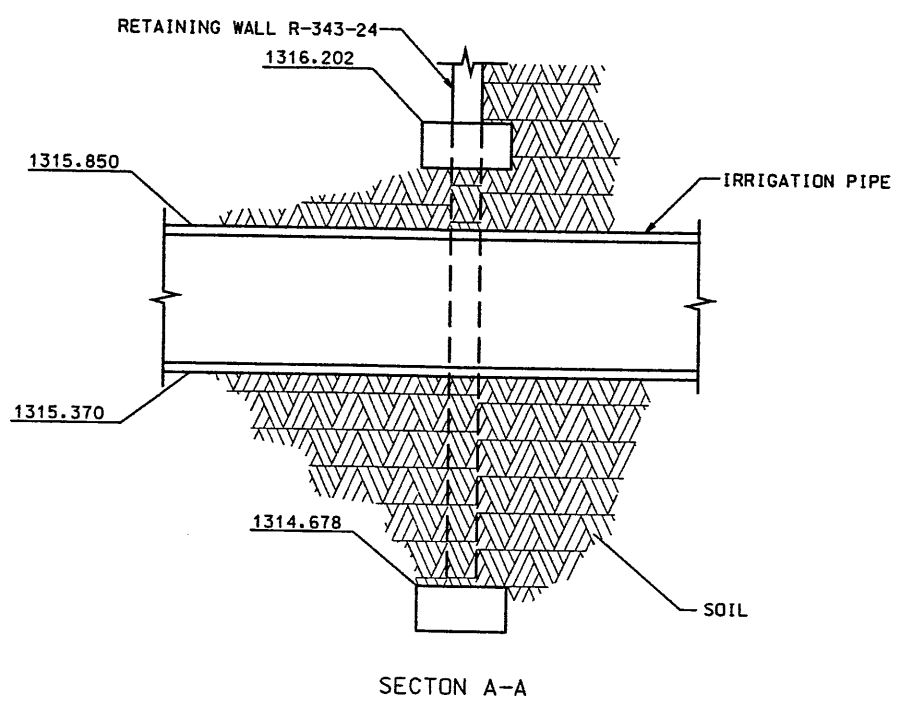
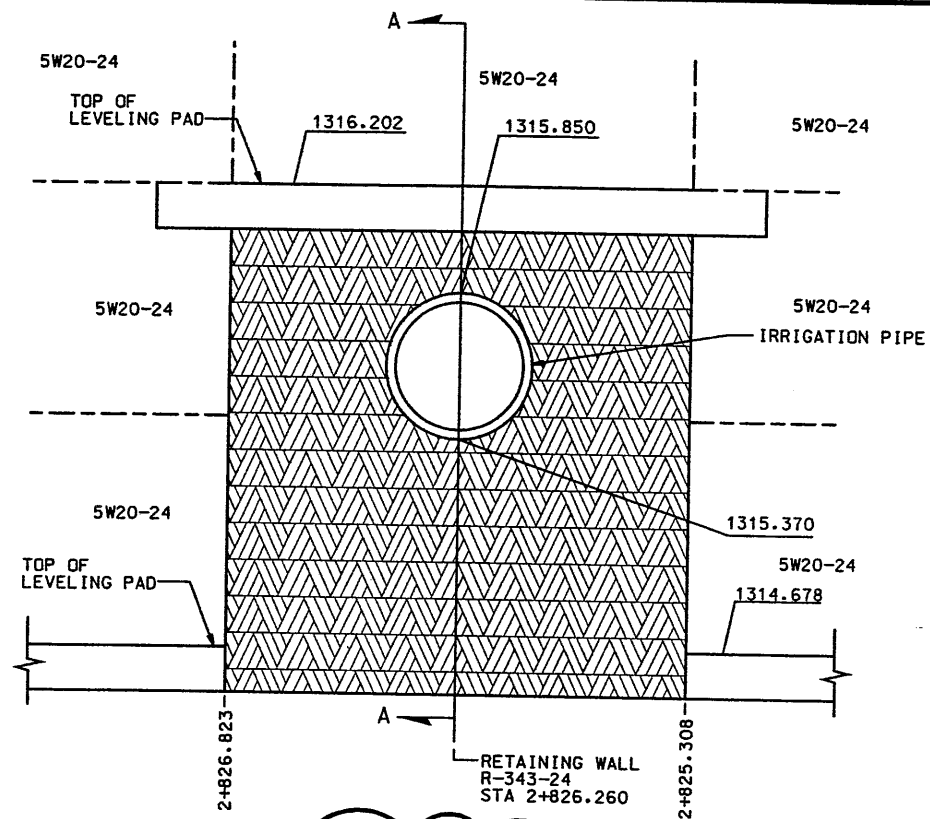
* BASED UPON 1086 MAX FROM BACK OF BARRIER TO OUTSIDE FACE OF COPING.



APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
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RELEASED FOR CONSTRUCTION			
UTAH DEPARTMENT OF TRANSPORTATION		SVERDRUP/DE LEUW	
DESIGN	MC	CHECK	JE
DATE	12/31/97	CHECK	JE
DRAWN	RS	CHECK	JE
DATE	12/31/97	CHECK	JE
QUANT.		CHECK	
			1212310
I-15 CORRIDOR RECONSTRUCTION			
MISC DETAILS			
RET. WALL R-343-24			
SECTION 1.2			
PROJECT NUMBER #SP-15-7(135)206			
SALT LAKE COUNTY			
DWC. NO.			
1.2R-343-24.1a			
SHT. 2 OF 14			

User: nmae coylejm
 Date: 25-MAR-1998 Times: 11:33
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WASATCH CONSTRUCTORS
APR - 9 1998
RELEASED FOR CONSTRUCTION

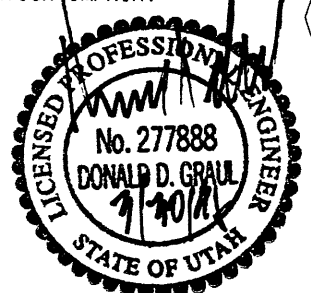
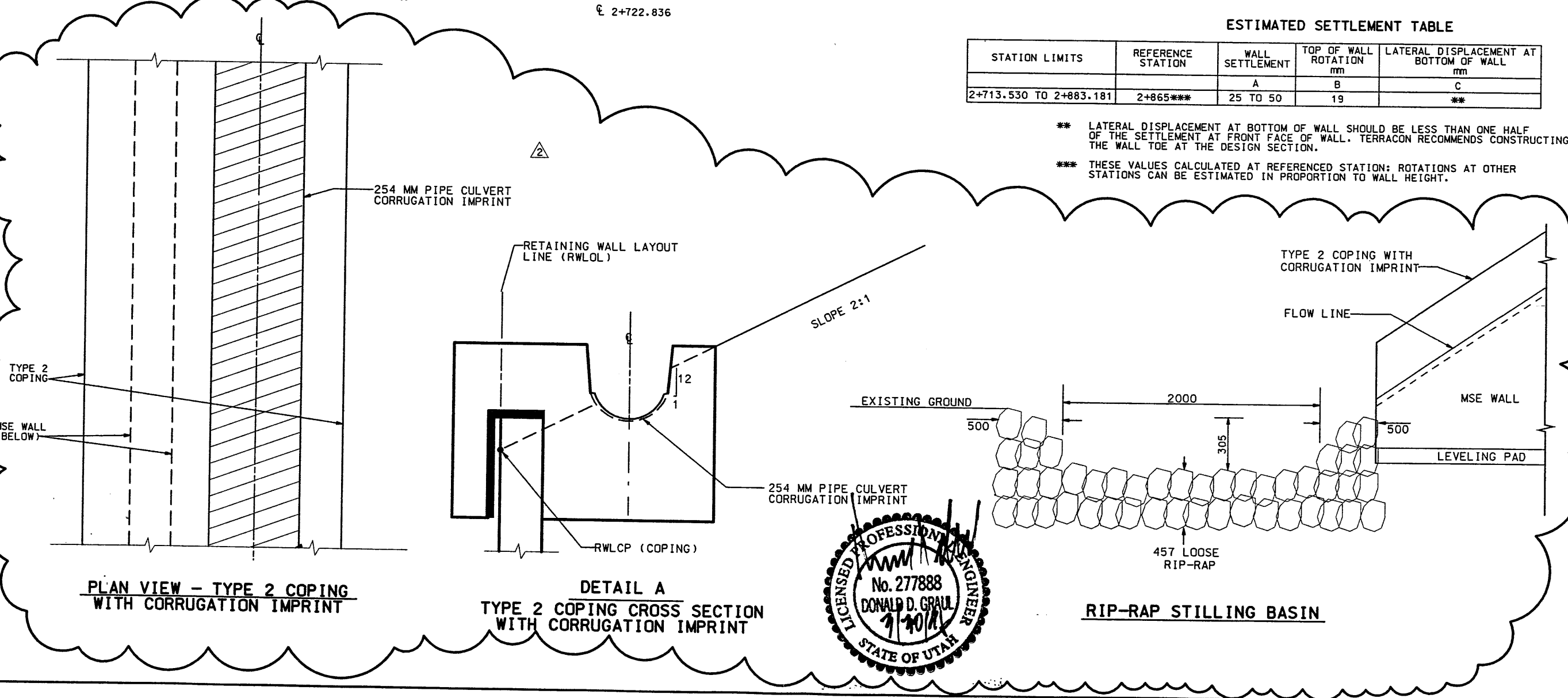


2+722.836

ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
2+713.530 TO 2+883.181	2+865***	25 TO 50	19	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN SECTION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.



APPROVED FOR CONSTRUCTION
 DESCRIPTION
 DATE 9-9-97 INITIAL RELEASE
 NO. 03-24-98 FIELD DESIGN CHANGE 1-0103
 1212402

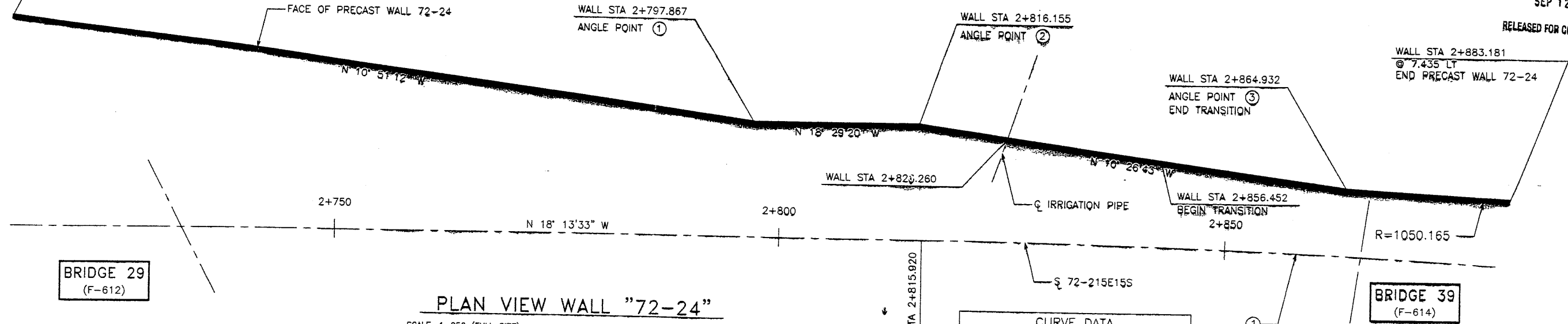
UTAH DEPARTMENT OF TRANSPORTATION
 URS Greiner
 SVERDRUP/DE LEUW

DESIGN DA	9/97	CHECK JC	9/97
DRAWN RS	9/97	CHECK DA	9/97
PROJECT MANAGER		CHECK	

I-15 CORRIDOR RECONSTRUCTION
 MSC DETAILS WALL R-343-24
 SECTION 1.3
 PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
 DWG. NO. 1.2R-343-24.2
 SHT. 3 OF 14

WALL STA 2+713.530 =
72-215E15S
STA 2+713.530 @ 23.684 LT
BEGIN PRECAST WALL 72-24



PLAN VIEW WALL "72-24"
SCALE: 1=250 (FULL SIZE)
SCALE: 1=500 (HALF SIZE)

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	1042.730	104.512	52.300	5°44'34"

All Dimensions Are in Meters Unless Noted Otherwise

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL 72-24, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "72-24"
RE-6	ELEVATION PRECAST WALL "72-24"
RE-7	ELEVATION PRECAST WALL "72-24"
RE-8	TYPICAL PANEL REINFORCEMENT
RE-9	"G" PANEL REINFORCEMENT
RE-10	SPECIAL PANEL DETAILS
RE-11	SPECIAL PANEL DETAILS

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. = 0.12g (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	

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 IS A "B2" 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: 4W11-12 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-24 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-24 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 24" CENTERS.
EXAMPLE: 5W20-24 MESH HAS FIVE (5) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W11-6 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 6W11-24 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 24" CENTERS.
EXAMPLE: 6W20-24 MESH HAS SIX (6) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 24" CENTERS.

IF NO MESH IS SHOWN, 4W20-24 MESH SHALL BE USED.
- 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.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
①	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

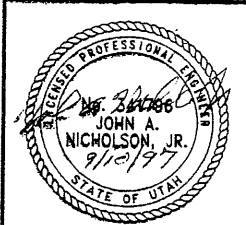
DES.	MM	DD	MM	NO.	DATE	BY	CHK
09-03-97	09-03-97	09-03-97	09-03-97				

VSL CORPORATION
2840 Pinedale Plaza, Suite 200
Boulder, CO 80501
Telephone: (303) 440-6772
Fax: (303) 440-4669

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

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

DWG. NO.
1.2R-343-24.3
JOB NO.
239-0007
SHT. NO.
RE-1

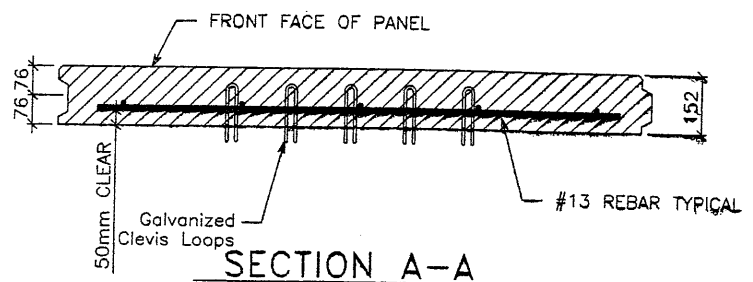


CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

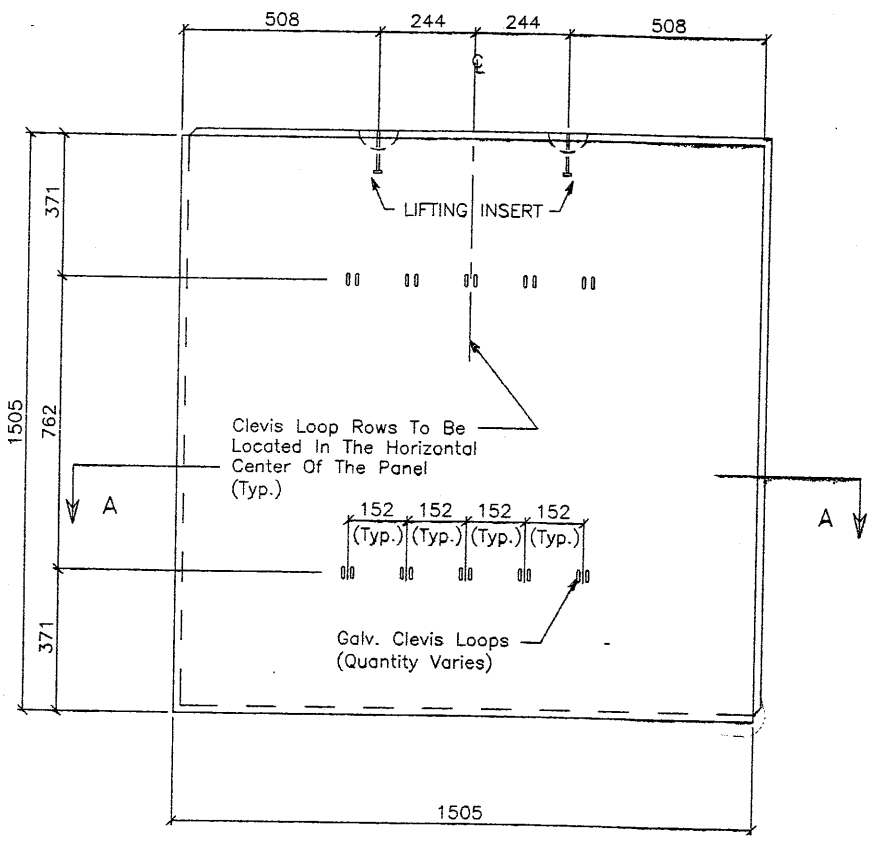
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E:\PROJECT\239-0007\RIES\72-24\RE-2

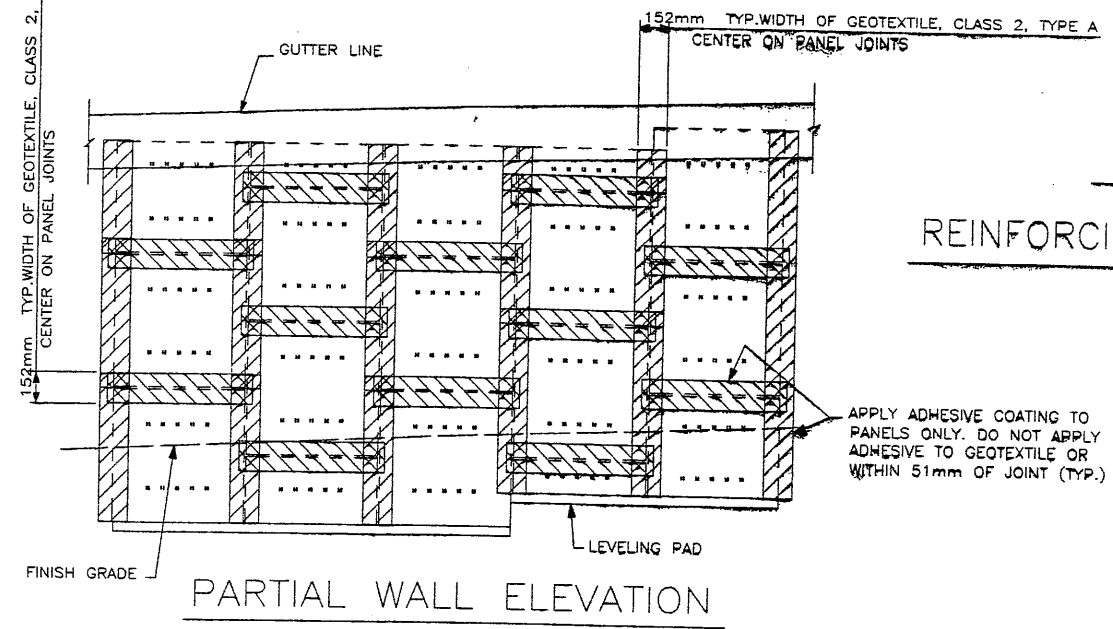
FINAL PLO 03-97



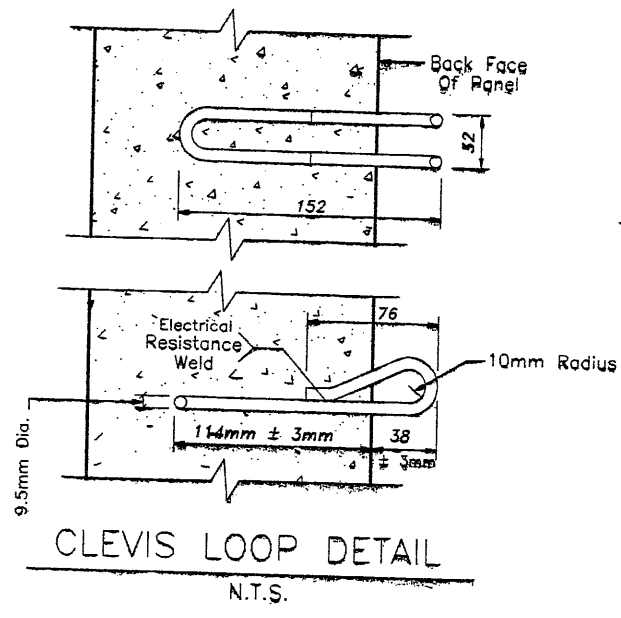
SECTION A-A



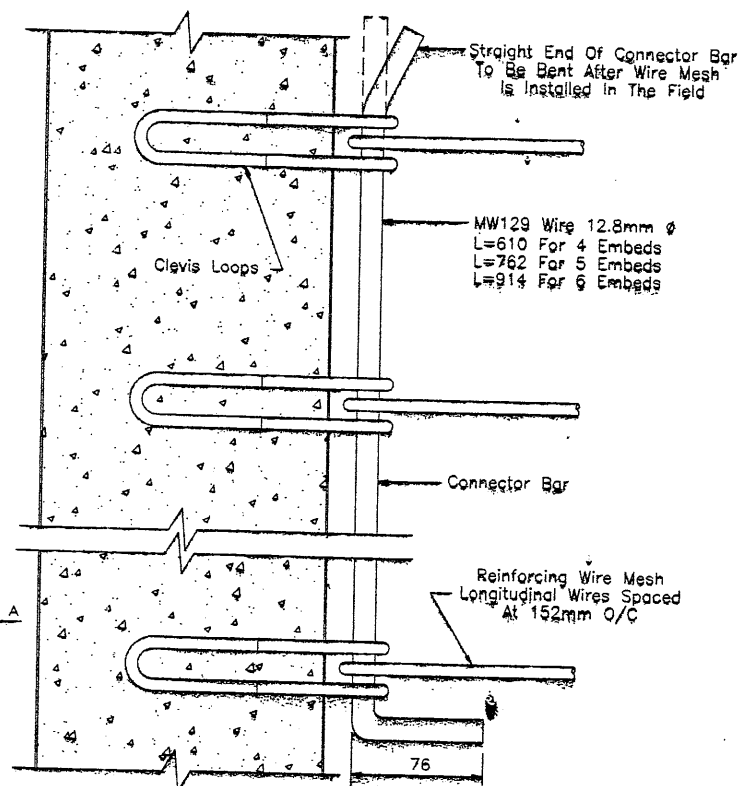
STANDARD "5A" PANEL
Back Face View



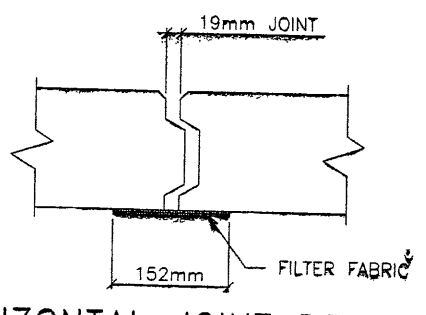
PARTIAL WALL ELEVATION



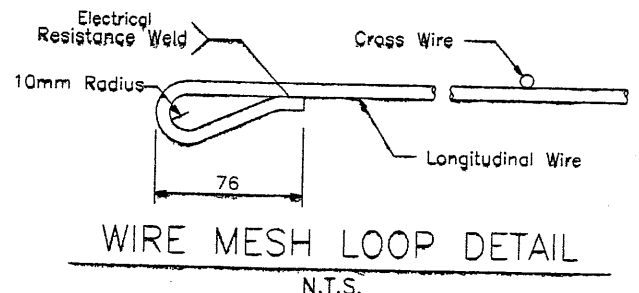
CLEVIS LOOP DETAIL
N.T.S.



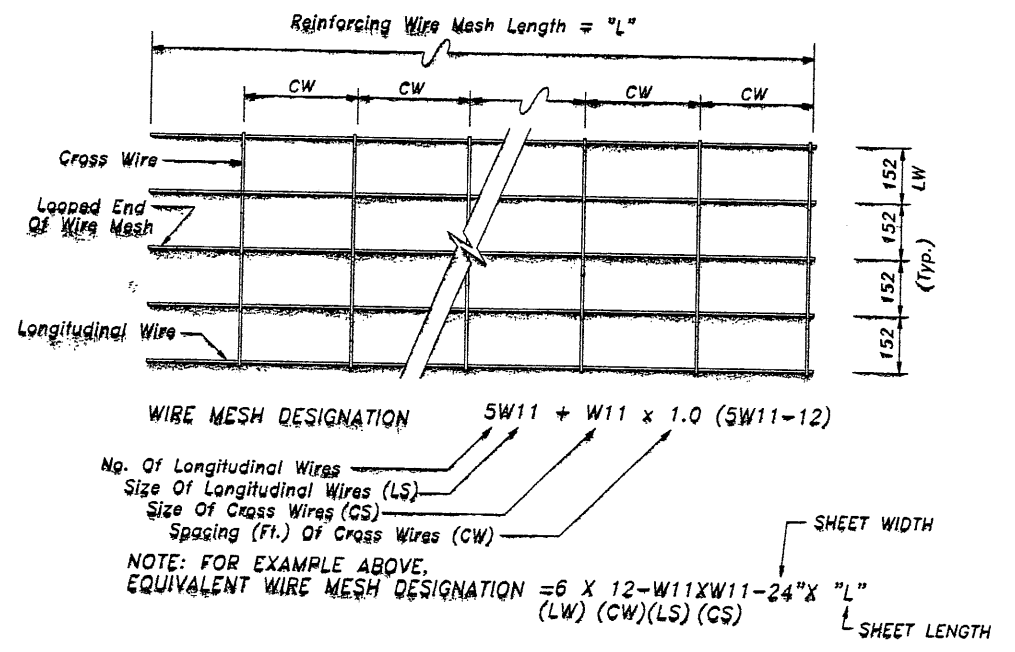
REINFORCING MESH CONNECTION DETAIL
N.T.S.



HORIZONTAL JOINT DETAIL
N.T.S.

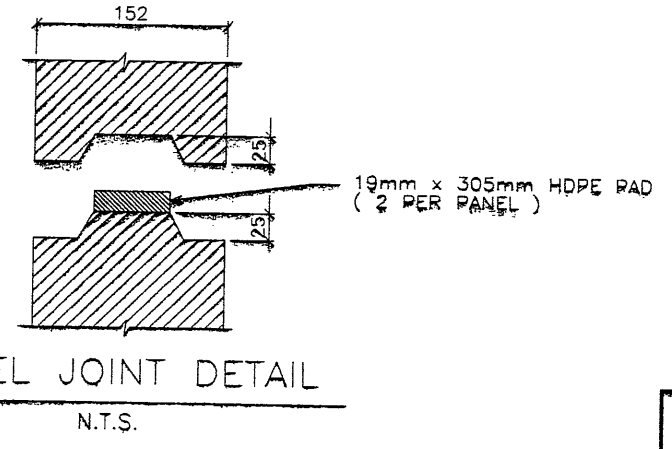


WIRE MESH LOOP DETAIL
N.T.S.



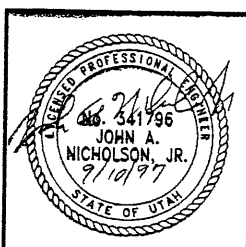
WIRE MESH DESIGNATION 5W11 + W11 x 1.0 (5W11-12)
 No. Of Longitudinal Wires
 Size Of Longitudinal Wires (LS)
 Size Of Cross Wires (CS)
 Spacing (Ft.) Of Cross Wires (CW)
 SHEET WIDTH
 SHEET LENGTH
 NOTE: FOR EXAMPLE ABOVE,
 EQUIVALENT WIRE MESH DESIGNATION = 6 X 12-W11XW11-24" X "L"
 (LW) (CW)(LS) (CS)

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-123 To A Minimum Effective Thickness Of 0.086 mm.



PANEL JOINT DETAIL
N.T.S.

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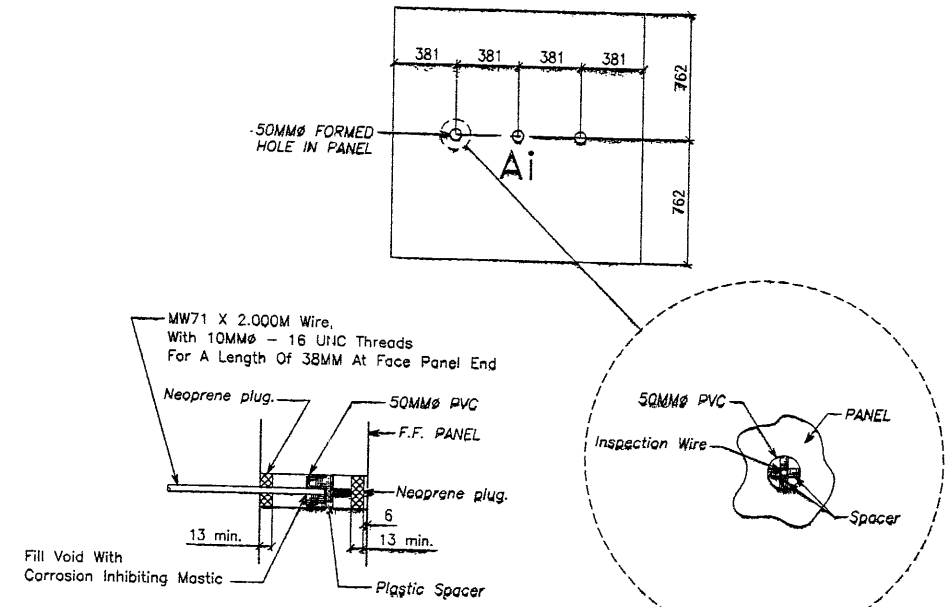
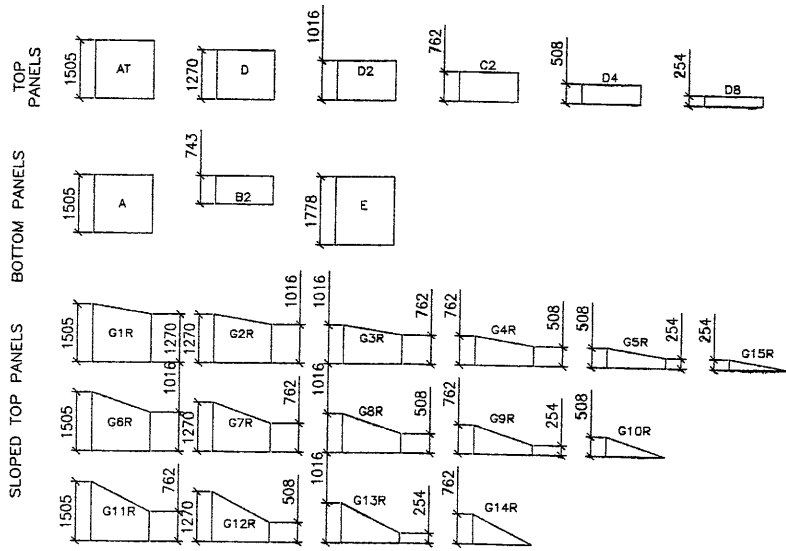
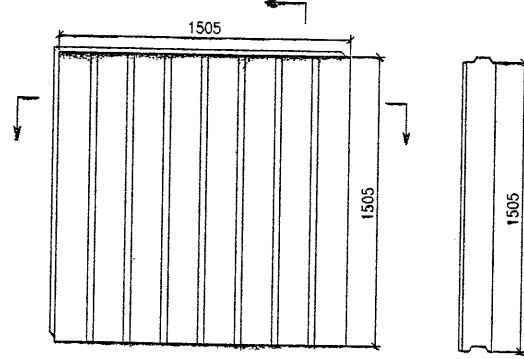
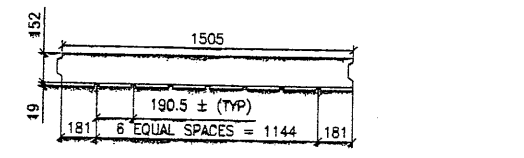
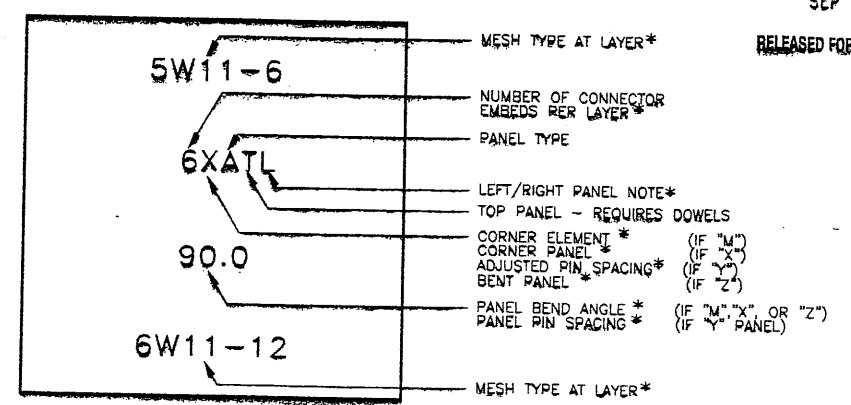
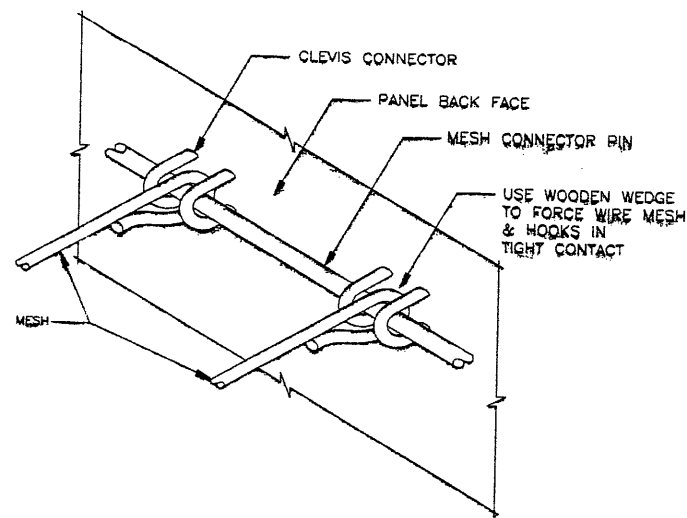
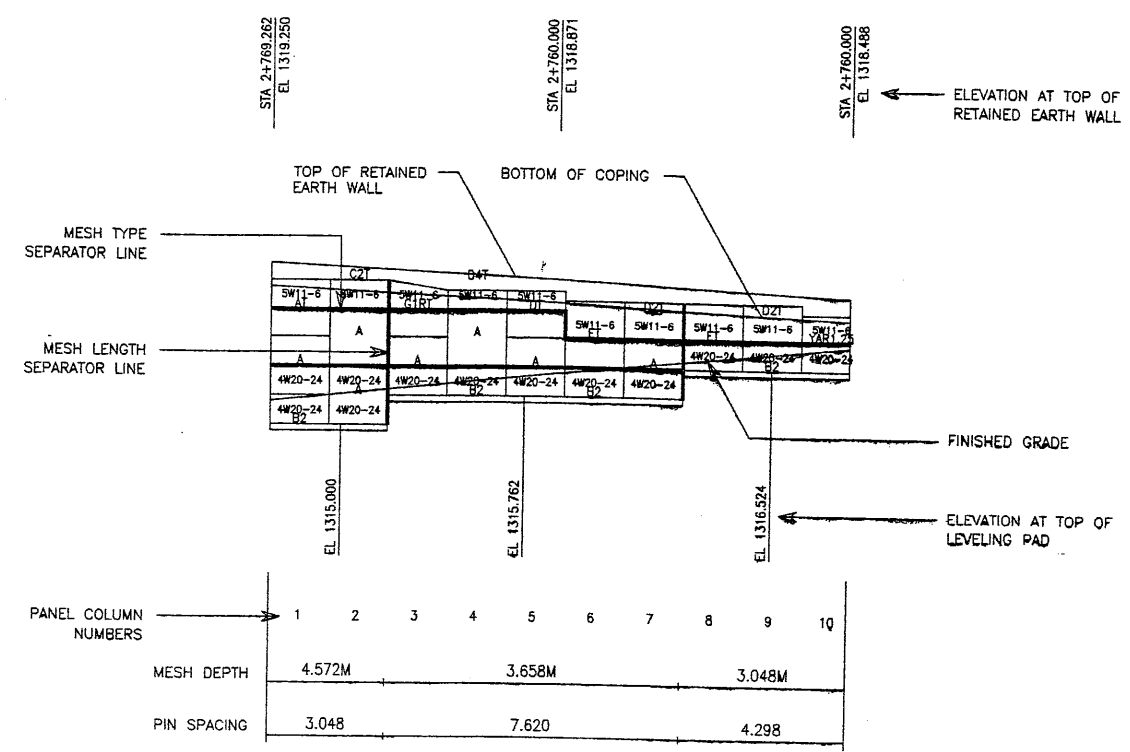
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
 SEP 12 1997
 RELEASED FOR CONSTRUCTION

DES. 09-03-97	MM	DRN. 09-03-97	DDO	CHK. 09-03-97	MM	NO.	DATE	BY	CHK
VSL CORPORATION 2800 Plaza Place, Suite 200 Raleigh, NC 27612 Phone: (919) 781-6272 Fax: (919) 781-4685						 ATLANTA, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE) MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA			
RETAINED EARTH™ WALLS PRECAST WALL "72-24" TYPICAL DETAILS UTAH 1-15 INTERCHANGE SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.									
DWG. NO.		1.2R-343-24.4							
JOB NO.		239-0007/14							
SHT. NO.		RE-2							

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
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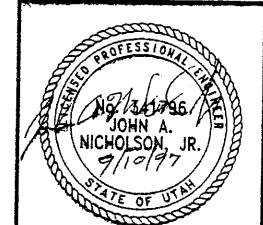
WASATCH CONSTRUCTORS
 SEP 12 1997
 RELEASED FOR CONSTRUCTION



4 ALL DIMENSIONS ARE IN MILLIMETERS

5

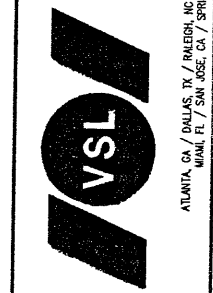
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RETAINED EARTH™ WALLS
 PRECAST WALL "72-24"
 TYPICAL DETAILS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-24.5
JOB NO.	239-0007
SHT. NO.	RE-3

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612 704-672-4272
 Telegrams: (919) 761-4672
 Fax: (919) 761-4669



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03-97

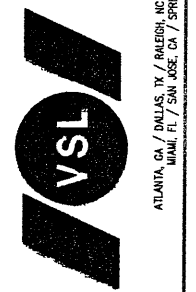
FINAL PLOT

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
 SEP 12 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

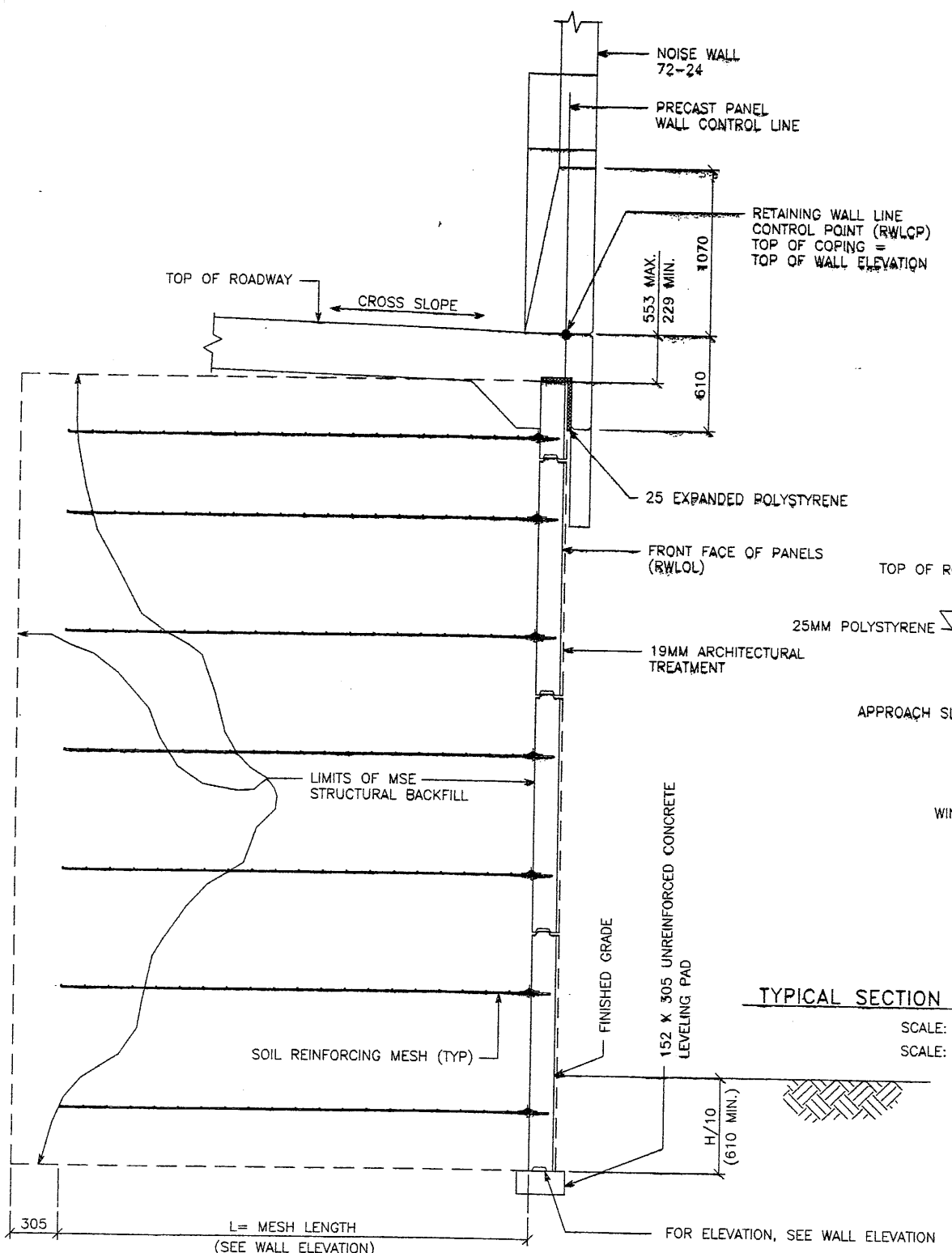
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4669



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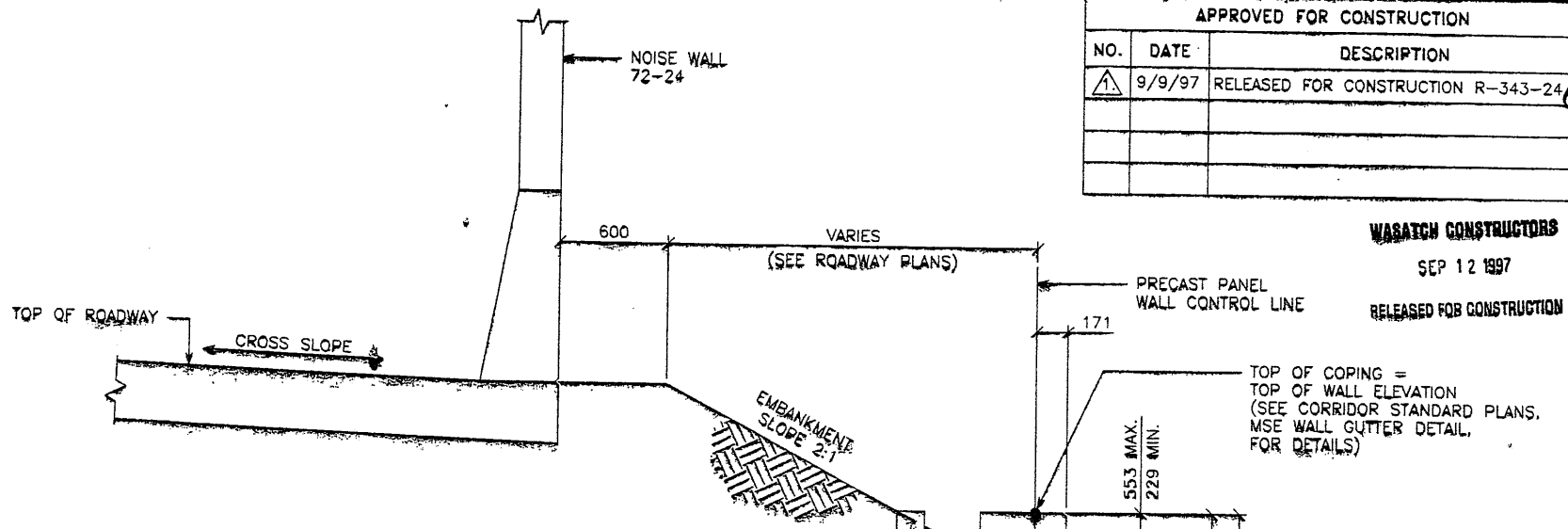
RETAINED EARTH™ WALLS
 PRECAST WALL "72-24"
 TYPICAL CROSS SECTIONS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.2R-343-24.6
 JOB NO. 239-0007
 SHEET NO. RE-4



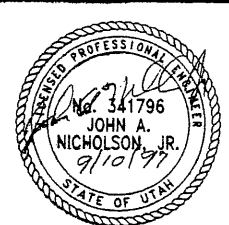
TYPICAL SECTION - STA 2+864.923 TO 2+883.181
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

TYPICAL CROSS SECTION - STA 2+864.923 (MSE SINGLE STAGE WITH MOMENT SLAB)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

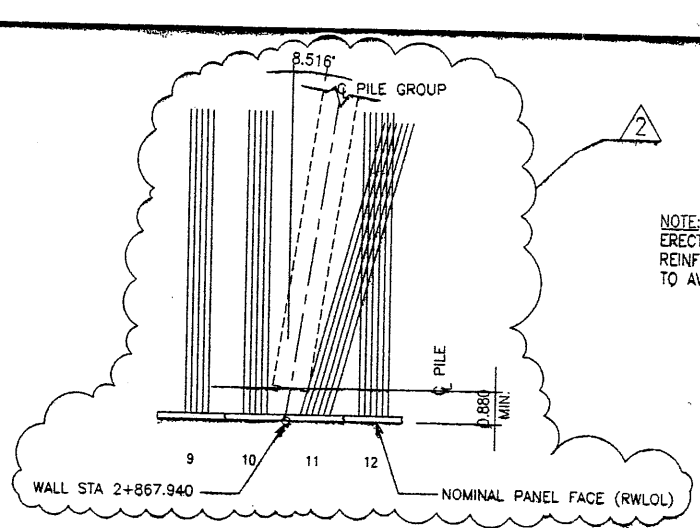


TYPICAL CROSS SECTION - STA 2+713.530 TO 2+843.794 (MSE SINGLE STAGE WITH GUTTER DETAIL)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

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13-97
FINAL PLOT



NOTE: PILES TO BE LOCATED PRIOR TO ERECTION OF MSE WALL. SOIL REINFORCEMENT TO BE FIELD ADJUSTED TO AVOID PILES.

SPECIAL NOTE: PANEL CONNECTIONS AT ABUTMENT TO BE DETERMINED IN THE FUTURE.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	9/9/97	RELEASED FOR CONSTRUCTION R-343-24
△	11-13-97	WALL/BRG. INTERFACE REVISIONS

END WALL STA 2+883.181 = § "72-215E15S"
STA 2+881.583 (7.435 LT)
NOMINAL PANEL FACE (RWLOL)

STA 2+883.181
EL. 1314.958

WALL STA 2+864.932 = § "72-215E15S"
STA 2+863.454 (7.435 LT)
NOMINAL PANEL FACE (RWLOL)

STA 2+867.940
EL. 1325.014

STA 2+864.932
EL. 1326.998

STA 2+860.000
EL. 1327.186

STA 2+856.452
EL. 1327.321

STA 2+850.000
EL. 1327.162

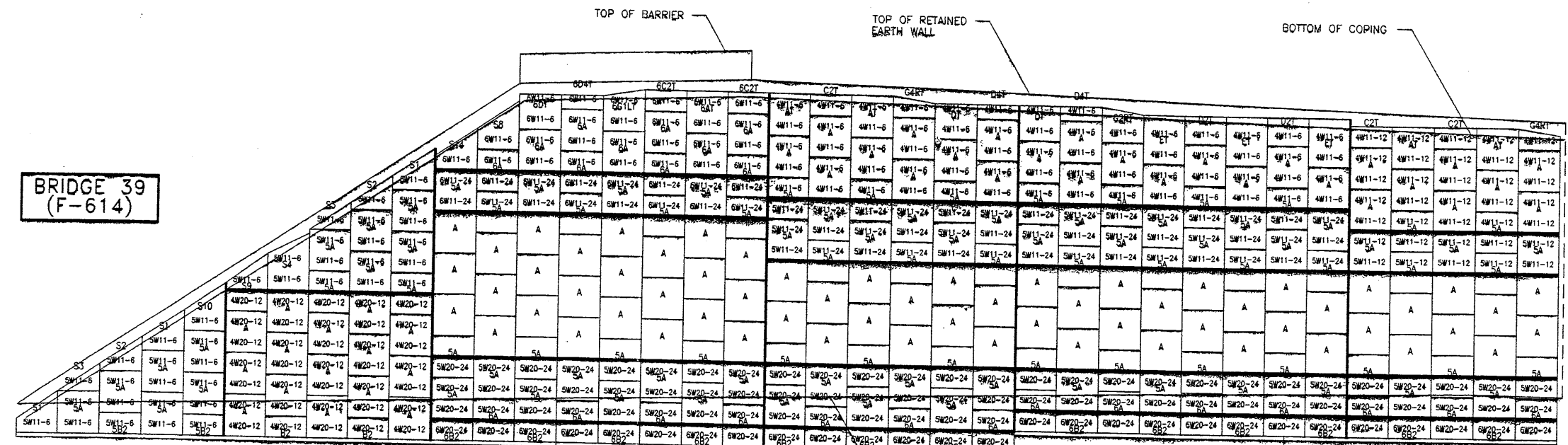
STA 2+840.000
EL. 1326.816

STA 2+830.000
EL. 1326.470

STA 2+826.631
EL. 1326.353

WARATCH CONSTRUCTORS
NOV 25 1997
RELEASED FOR CONSTRUCTION

BRIDGE 39
(F-614)

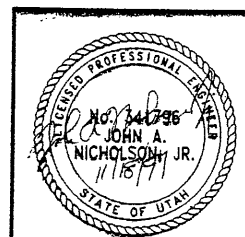


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MESH DEPTH		4.267		7.925		10.363		9.754		9.144		8.534																									
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)		138 KPa		280 KPa		368 KPa		382 KPa		364 KPa		368 KPa																									
PIN SPACING		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576		36.576	

ELEVATION PRECAST WALL 72-24
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 1,560.43 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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DES.	MM	DDO	MM	NO.	DATE	REVISION	CHK
09-02-97	09	02-97	09				
09-02-97	09	02-97	09				
09-02-97	09	02-97	09				

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

VSL

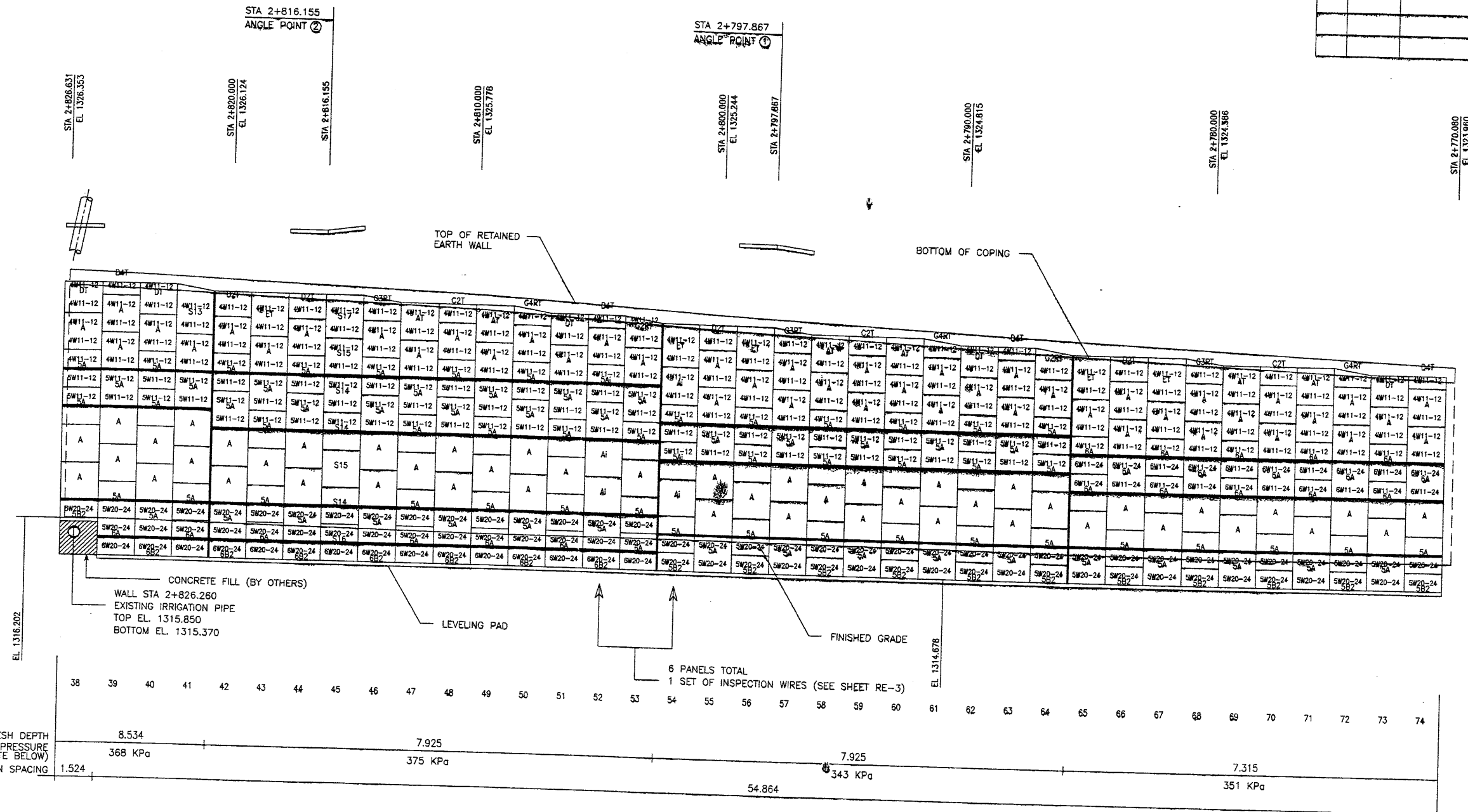
ALUMINA, GA / DANLUS, TX / RALEIGH, NC (CORPORATE OFFICE)
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RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE:
1:2R-343-24.7
JOB NO:
239-0007
RE-5

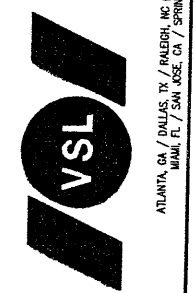
FINAL PLO -02-97

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24



WARATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

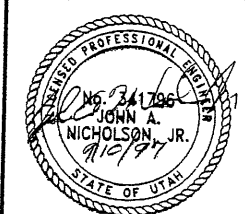
VSL CORPORATION
2840 Pines Bluff, Suite 200
Raleigh, NC 27613
Telephone: (919) 781-8272
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RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-24.8
JOB NO.	239-0007
SHT. NO.	RE-6



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.

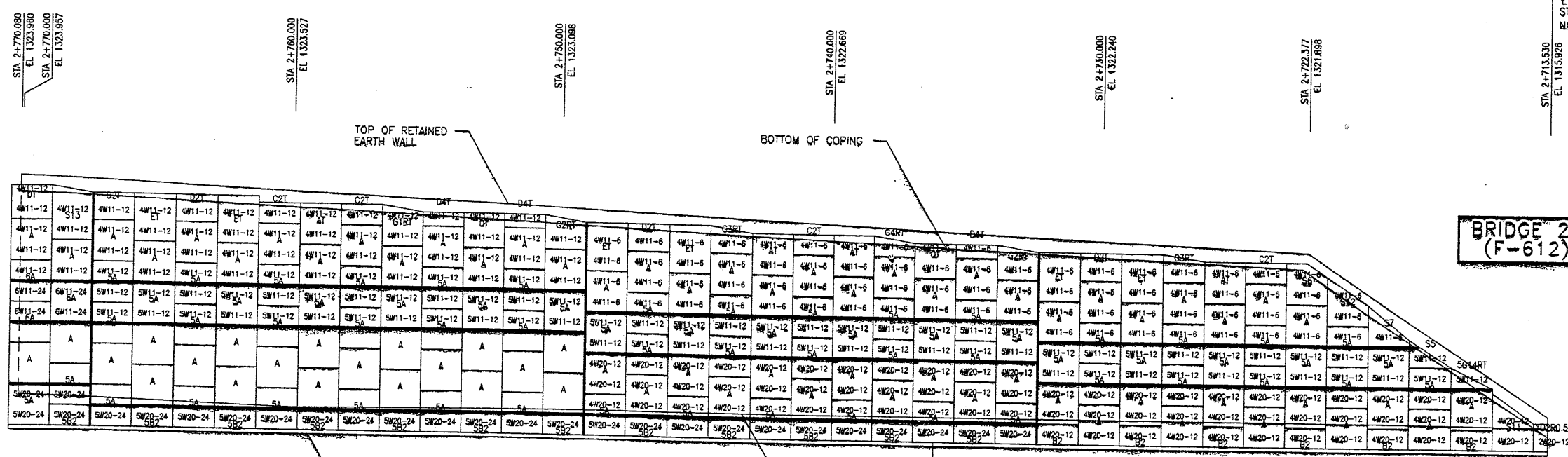
METRIC

ELEVATION PRECAST WALL 72-24
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

BEGIN WALL STA 2+713.530 =
 "72-215E15S"
 STA 2+713.530 (23.684 LT)
 NOMINAL PANEL FACE (RWLOL)

WASATCH CONSTRUCTORS
 SEP 12 1997
 RELEASED FOR CONSTRUCTION



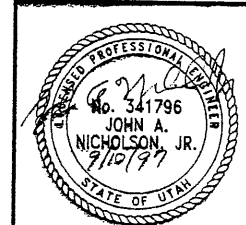
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7.315					6.706										6.096					5.486																	
351 KPa					324 KPa										291 KPa					268 KPa																	

ELEVATION PRECAST WALL 72-24
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

BRIDGE 29
(F-612)

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

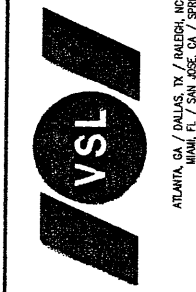
METRIC



CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.

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

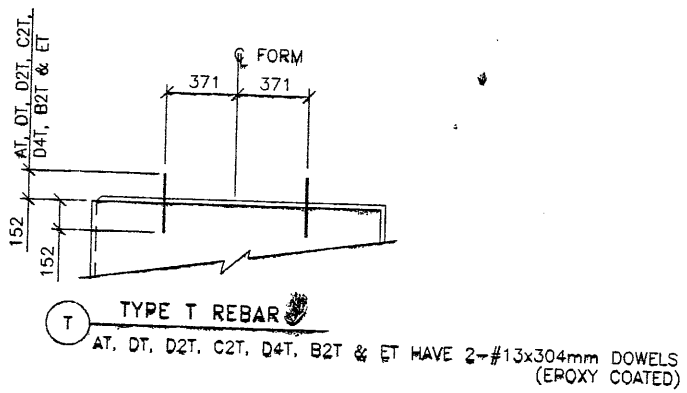
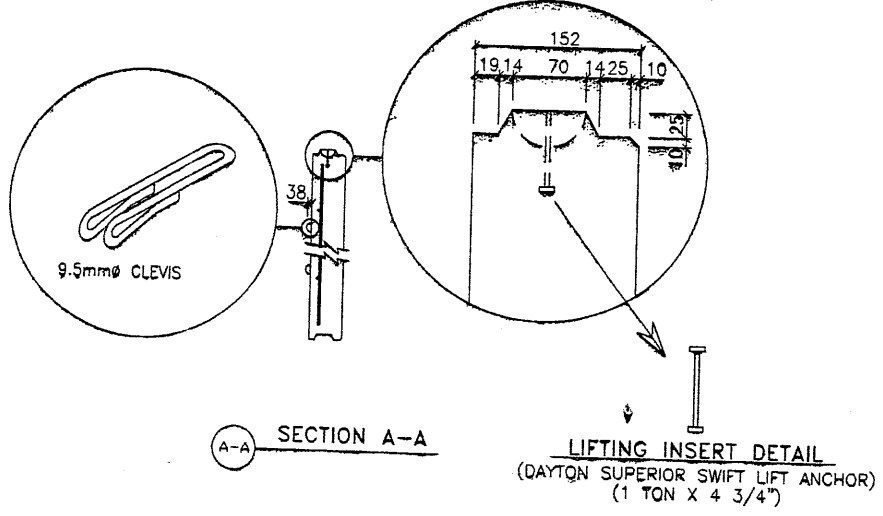
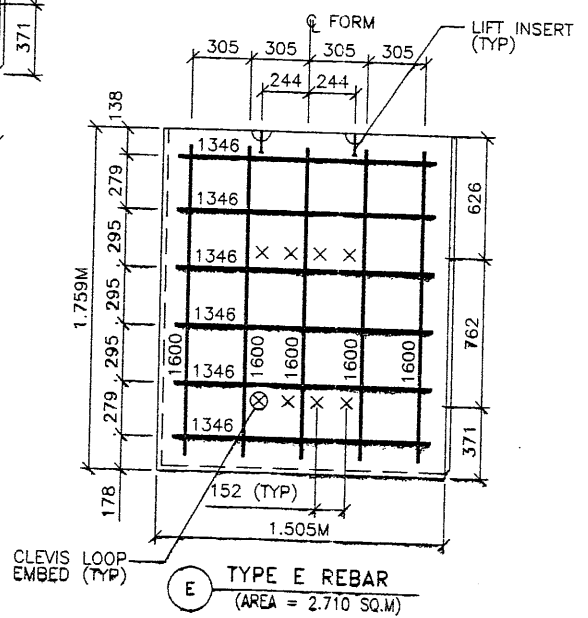
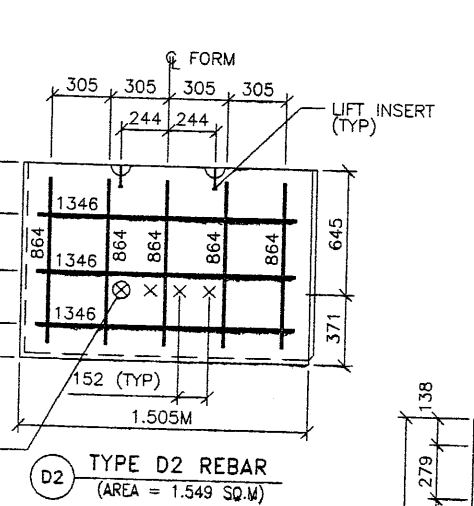
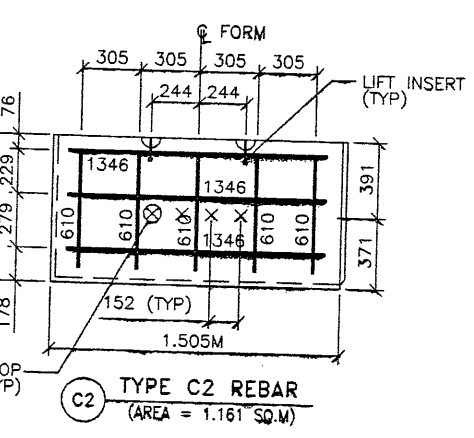
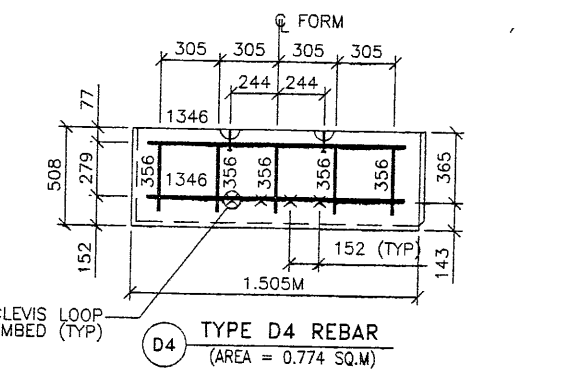
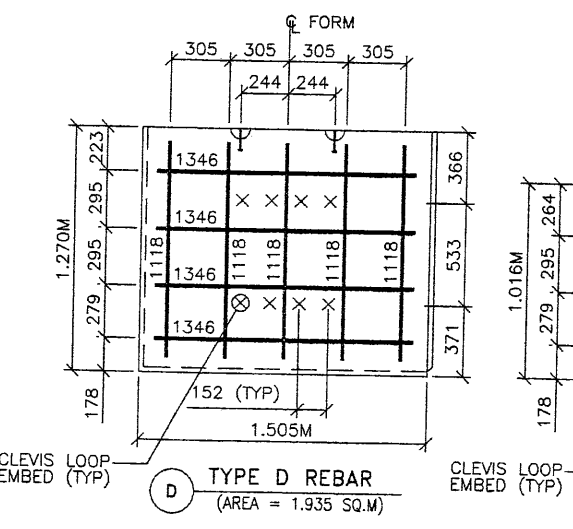
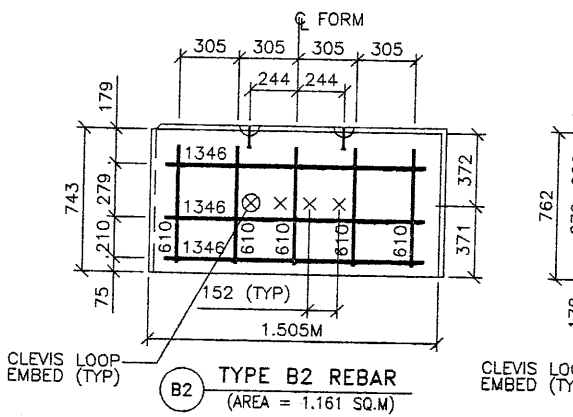
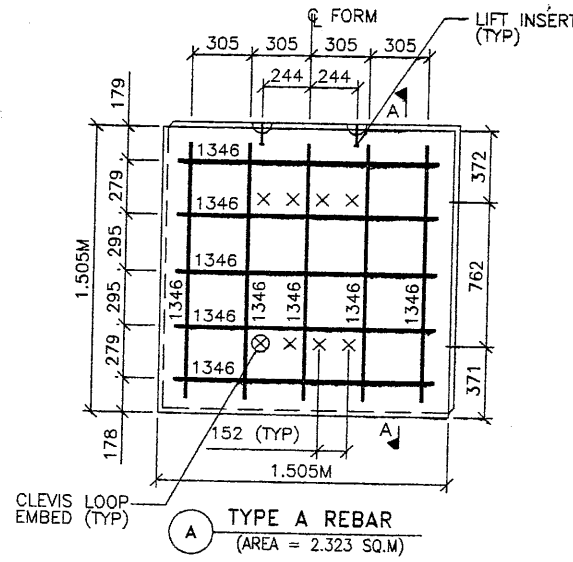
DWG. NO.	1.2R-343-24.9
JOB NO.	239-0007
SHT. NO.	RE-7

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK.
MM	DDO	MM						
09-02-97	09-02-97	09-02-97						

H:\RE_EARTH\PROJECT\239-0007\REBAR\BAR

03-97

FINAL PLO



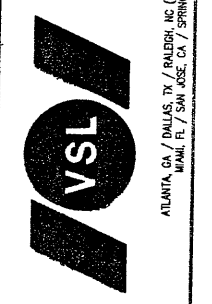
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

- 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 EPOXY COATED TO 0.5mm THICKNESS. REFER TO SPECIAL PROVISIONS, SECTION 508.
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 - 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.

WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

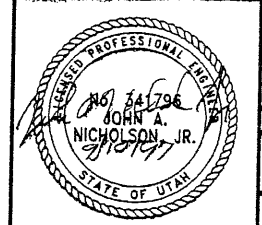
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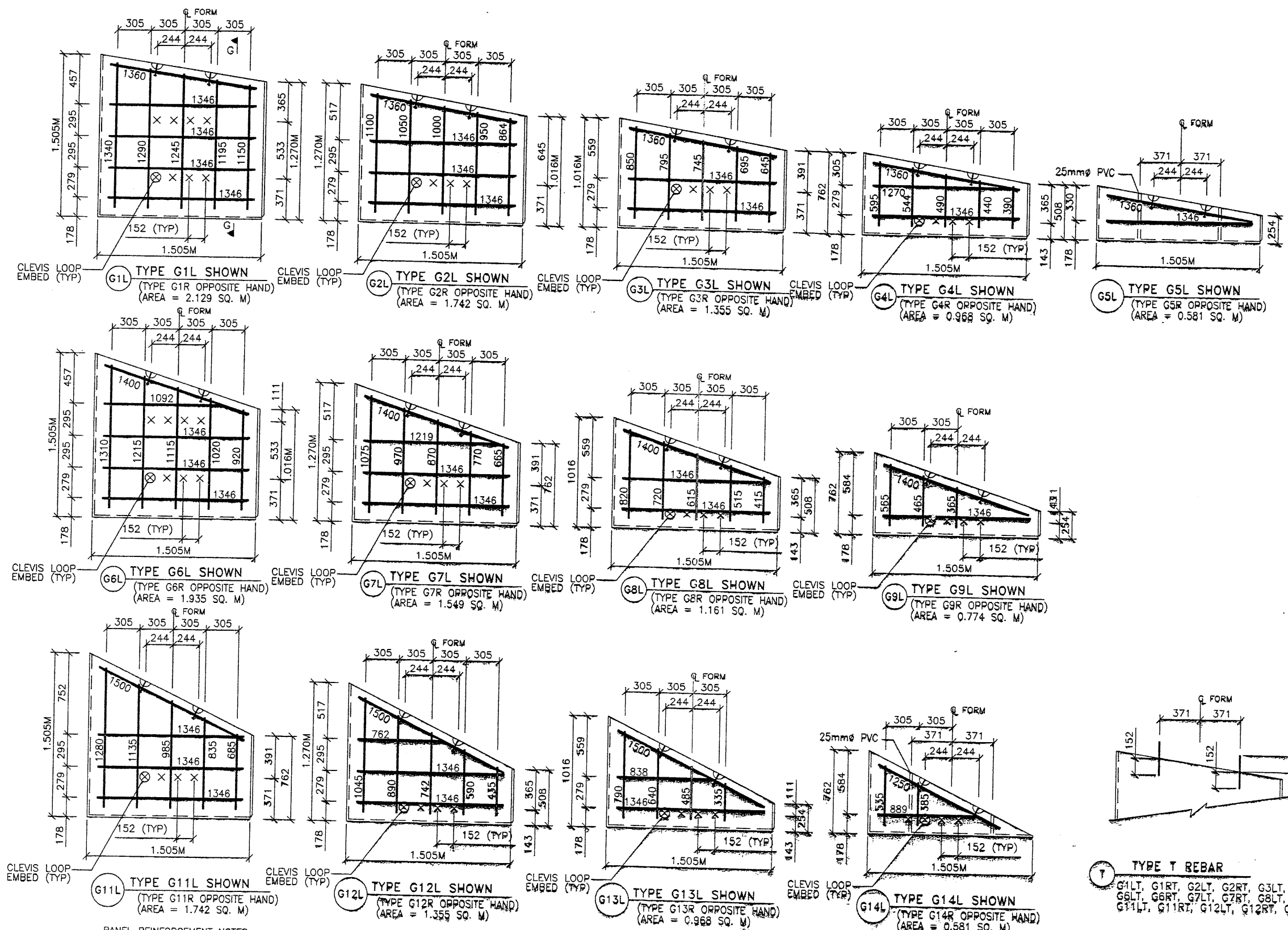
RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
PANEL REINFORCEMENT 1.524M x 1.524M
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

METRIC



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DWG. NO. 1.2R-343-24.10
JOB NO. 239-0007/14
SHT. NO. RE-8



- PANEL REINFORCEMENT NOTES:**
- PANELS ARE SHOWN BACK FACE.
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 - EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 - ALL PANELS TO USE 9.5mm Ø CLEVIS LOOPS.
 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
9/9/97		RELEASED FOR CONSTRUCTION R-343-24

WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

DES.	MM	DDO	MM	NO.	DATE	REVISION	CHK
09-03-97							
09-03-97							
09-03-97							

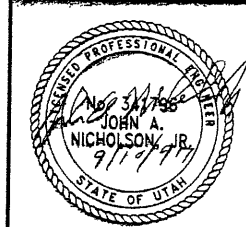
VSL CORPORATION
2840 Plaza Floor, Suite 200
Raleigh, NC 27612
Telephone: (919) 761-6772
Fax: (919) 761-4989



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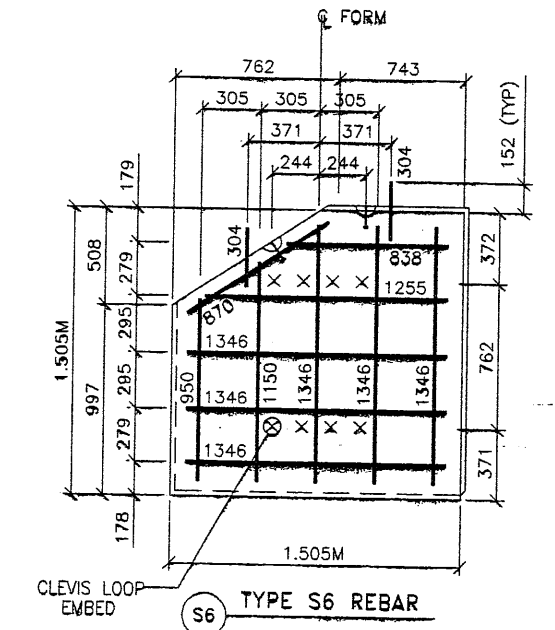
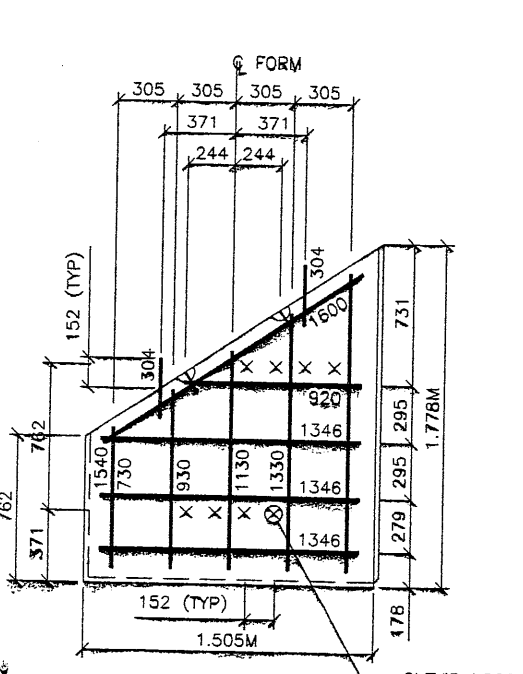
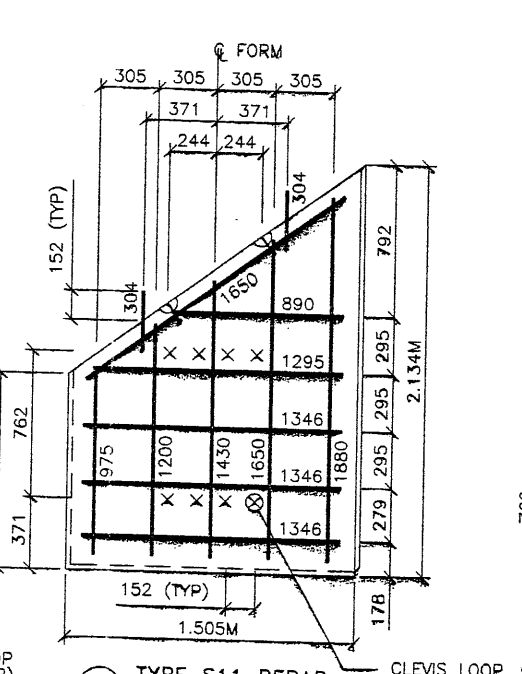
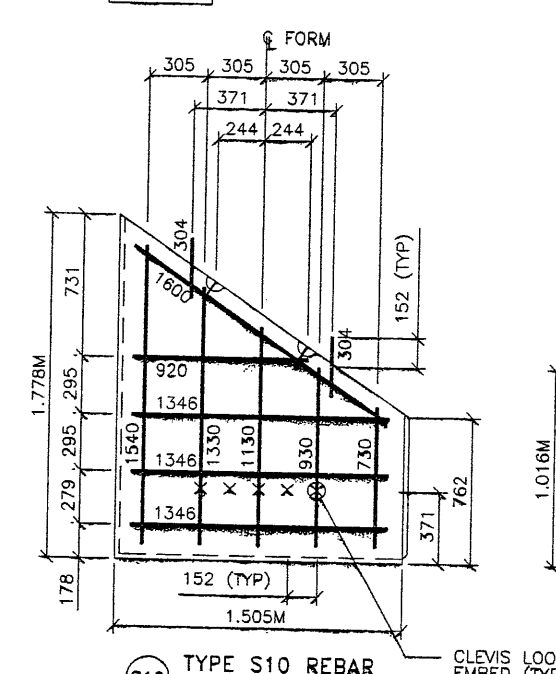
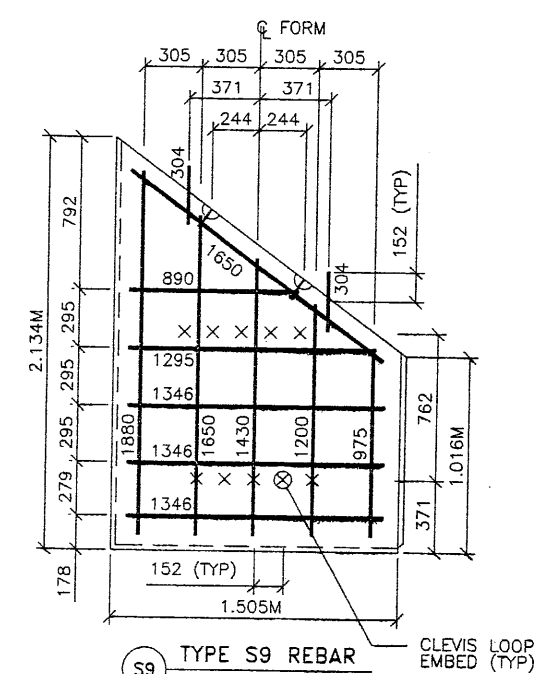
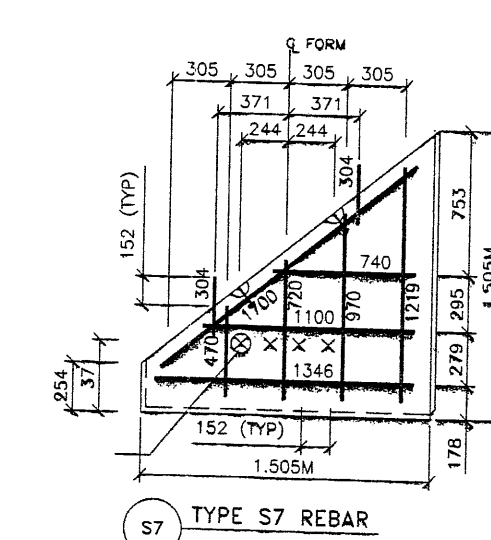
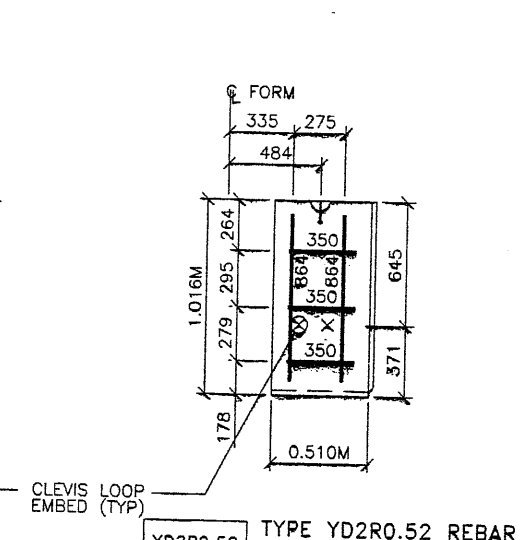
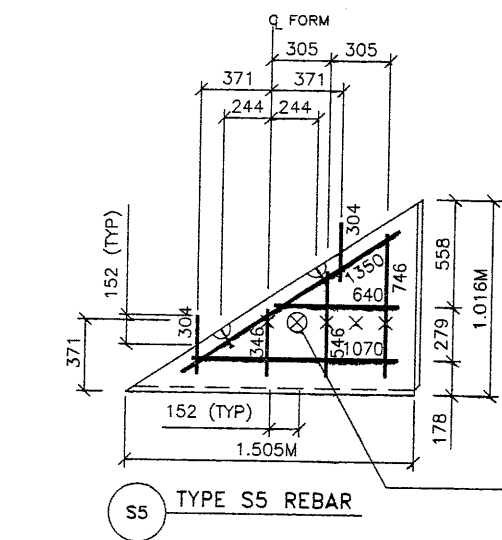
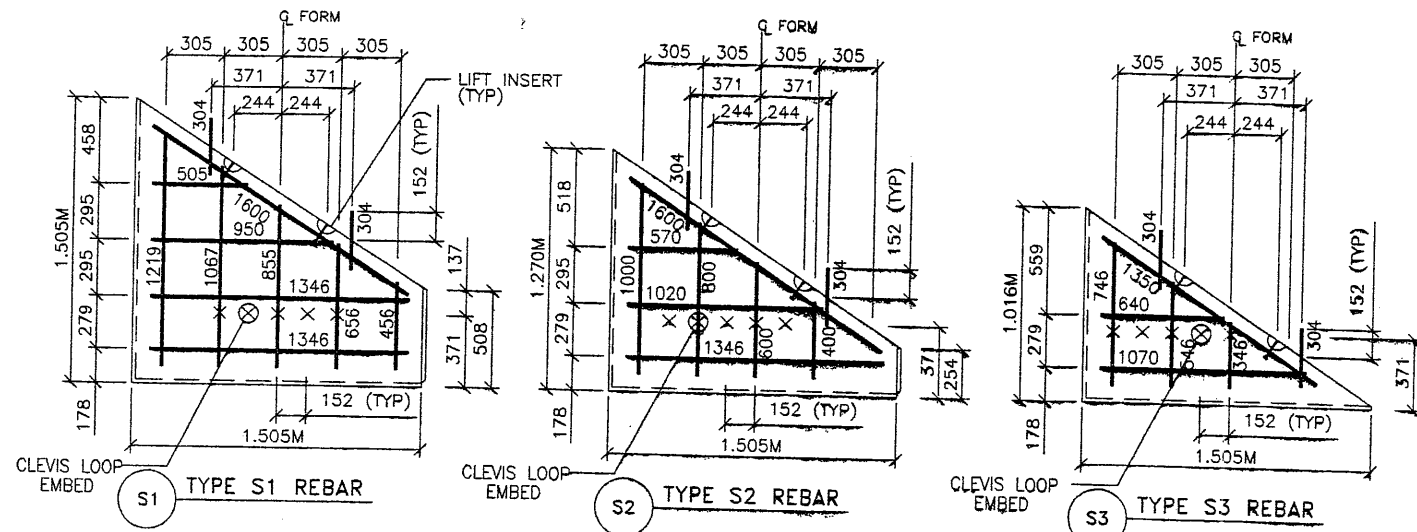
RETAINED EARTH™ WALLS
PRECAST WALL "72-24"
"G" PANEL REINFORCEMENT 1.524M x 1.524M
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

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.	1.2R-343-24.11
JOB NO.	239-0007
SHT. NO.	RE-9



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

- 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.
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 6. ALL REINFORCING STEEL TO BE EPOXY COATED TO 0.5mm THICKNESS. REFER TO SPECIAL PROVISIONS, SECTION 508.
 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.

WASATCH CONSTRUCTORS
 SEP 12 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION	REVISION	BY	CHK

DES:	09-03-97	MM
DRN:	09-03-97	DDO
CHK:	09-03-97	MM

RETAINED EARTH™

VSL

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 2810 Peachtree Plaza, Suite 200
 Atlanta, GA 30328
 Telephone: (404) 761-6772
 Fax: (404) 761-6869

ATLANTA, GA / DALLAS, TX / WAASHINGTON, DC (CORPORATE OFFICE)
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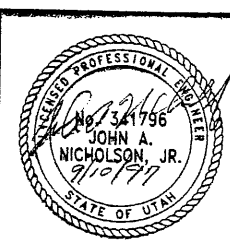
RETAINED EARTH™ WALLS
 PRECAST WALL "72-24"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.2R-343-24.12

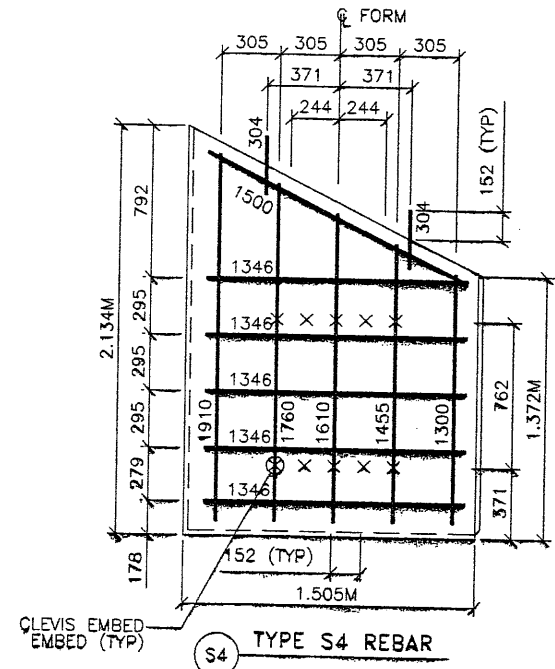
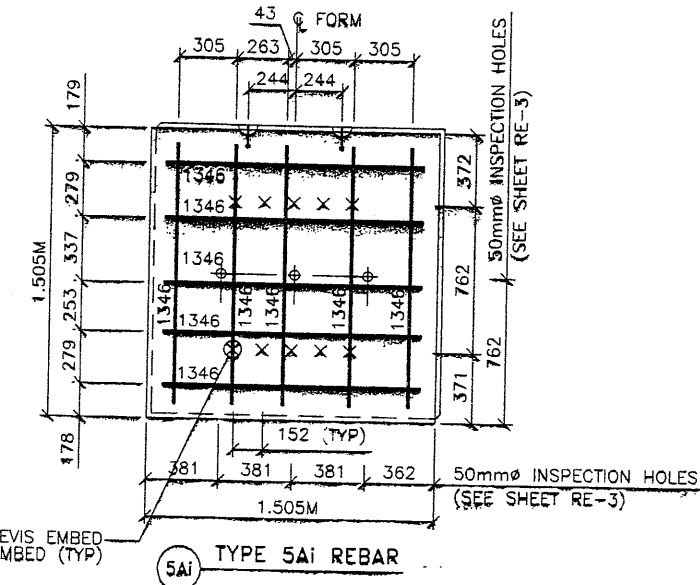
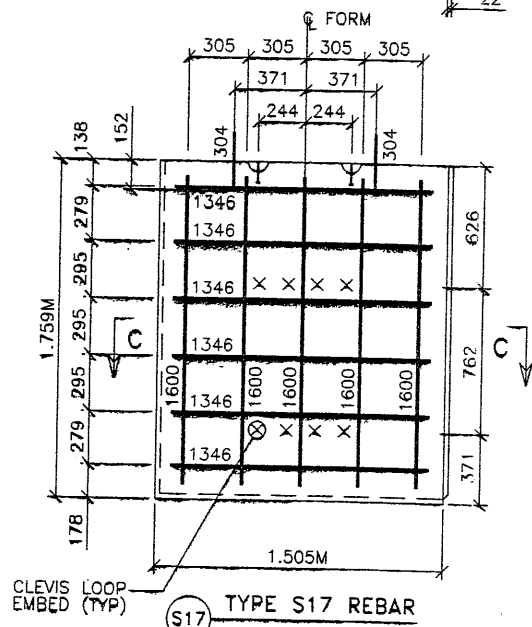
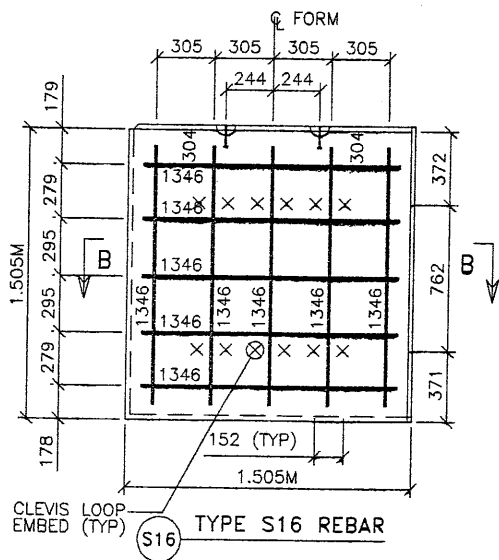
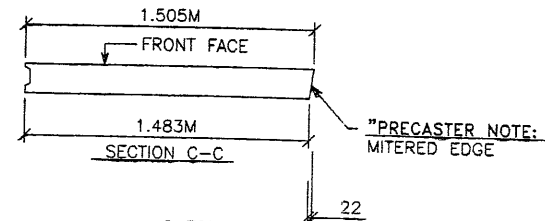
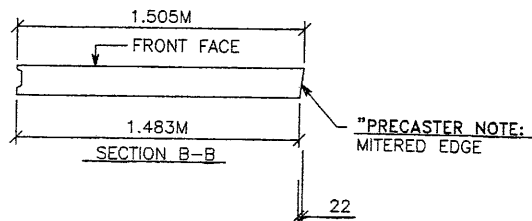
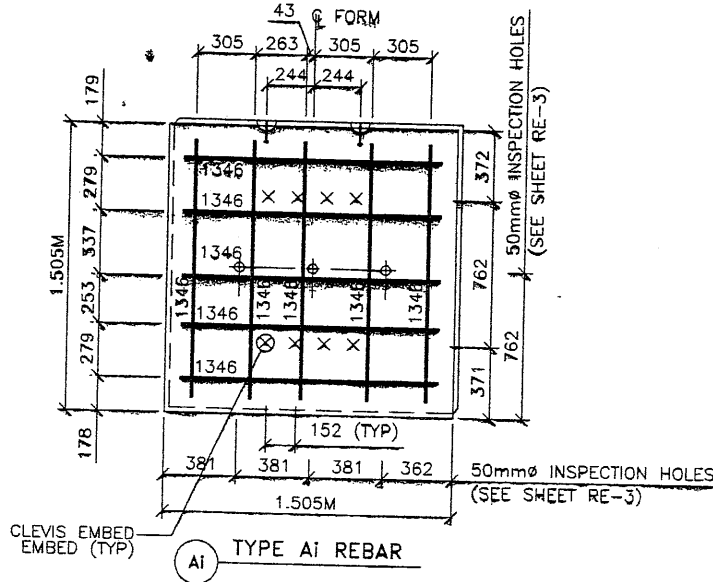
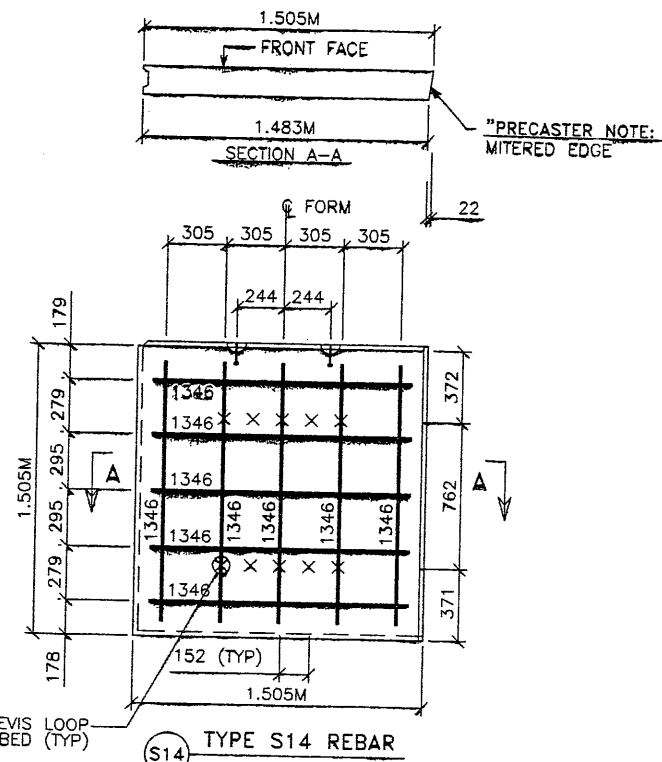
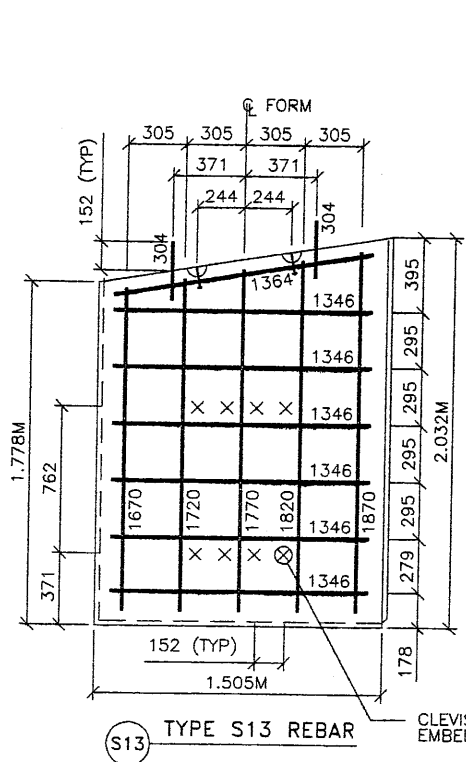
JOB NO.
 239-0007

SHT. NO.
 RE-10

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METRIC



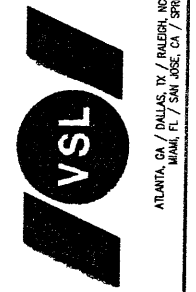
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WASATCH CONSTRUCTORS
SEP 12 1997
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/9/97	RELEASED FOR CONSTRUCTION R-343-24

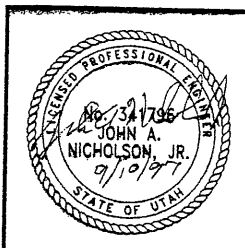
DES.	DRN.	CHK.	MM	DDO	MM	NO.	DATE

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone (919) 781-6772
Fax: (919) 781-6885



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

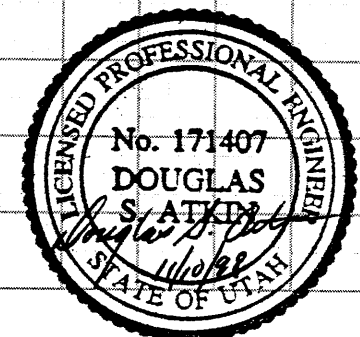
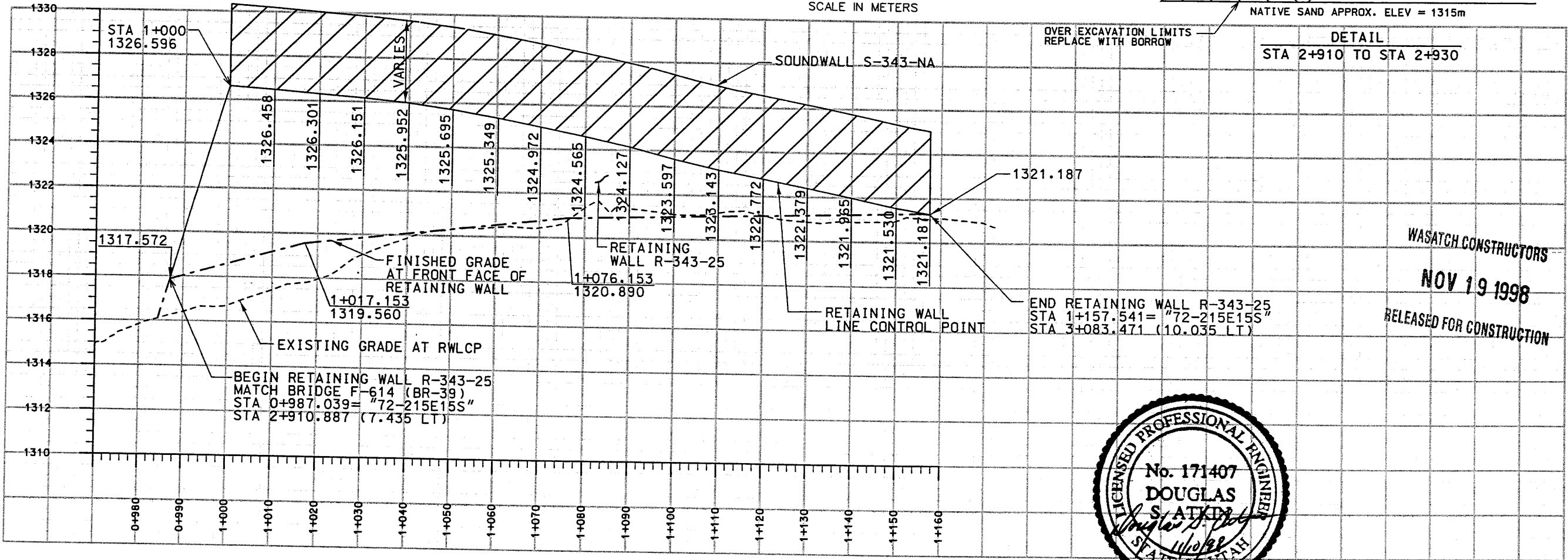
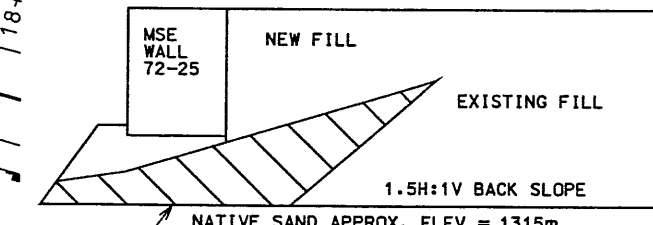
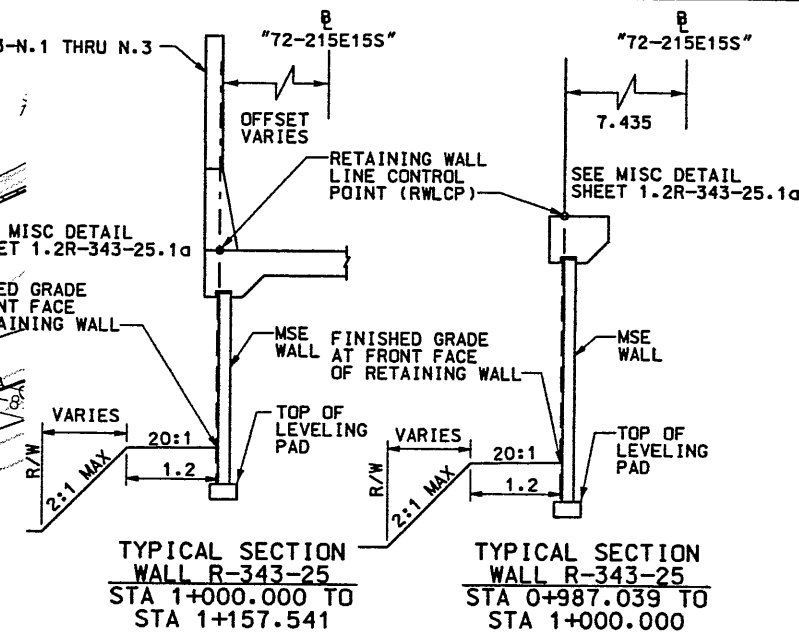
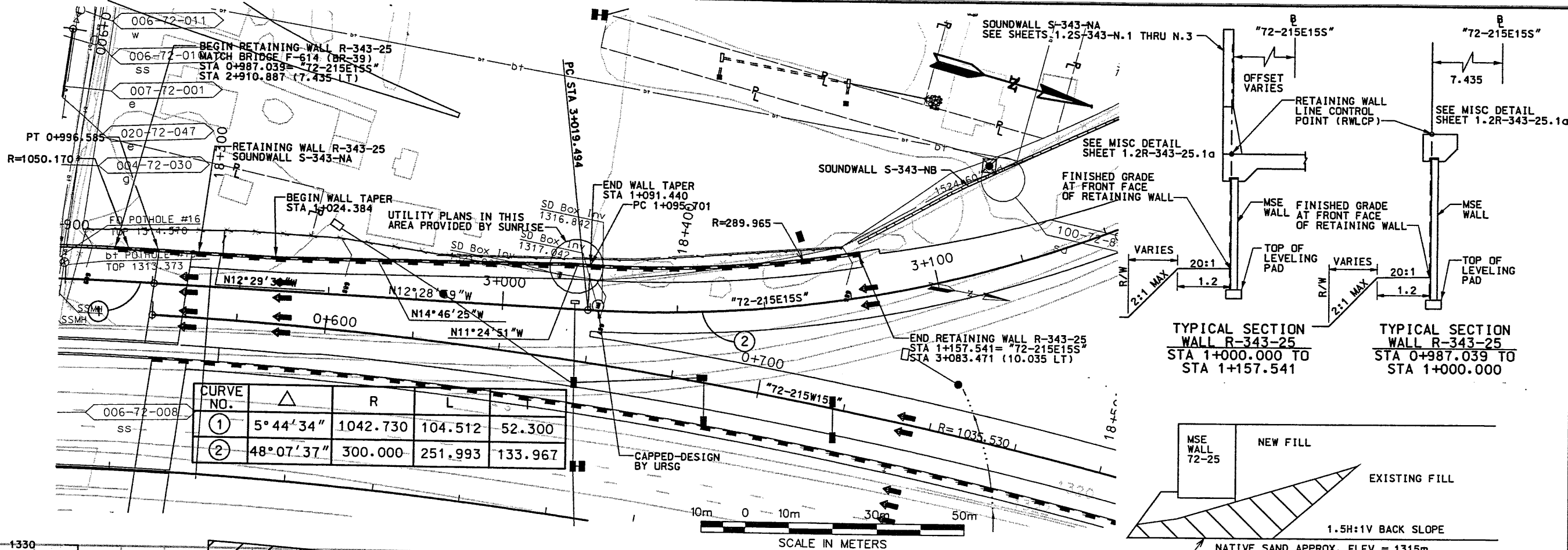


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DWG. NO. 1.2R-343-24.13
JOB NO. 239-0007
SHT. NO. RE-11

Userrname: mackkw
Date: 10-NOV-1998 Time: 16:48

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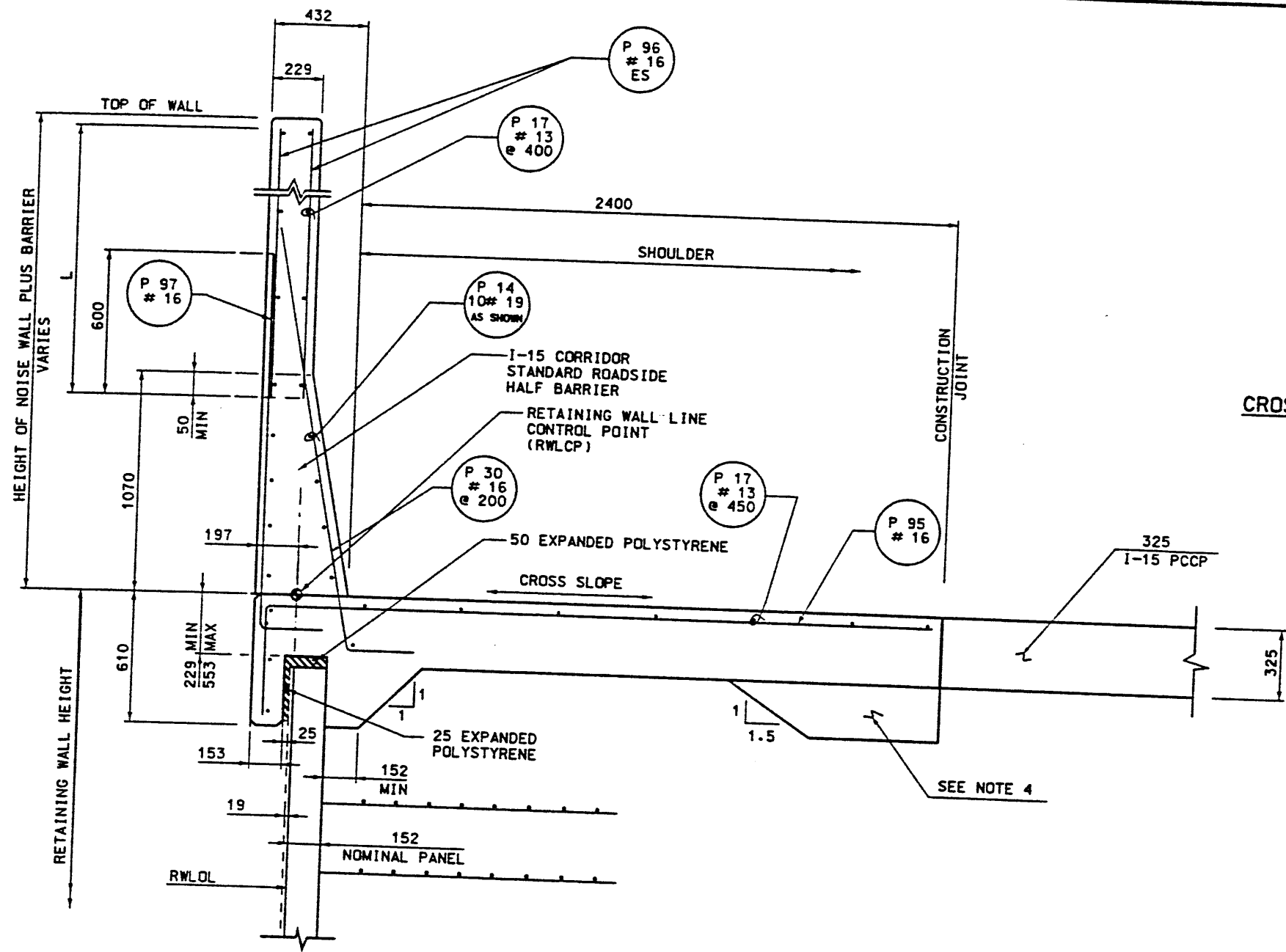


APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	RELEASED FOR CONSTRUCTION
1	9-17-97		
2	12-31-97		
3	11-10-98		

UTAH DEPARTMENT OF TRANSPORTATION		SVERDRUP/DE LEUW	
DESIGN	CHK	DATE	QUANT.
1212310			

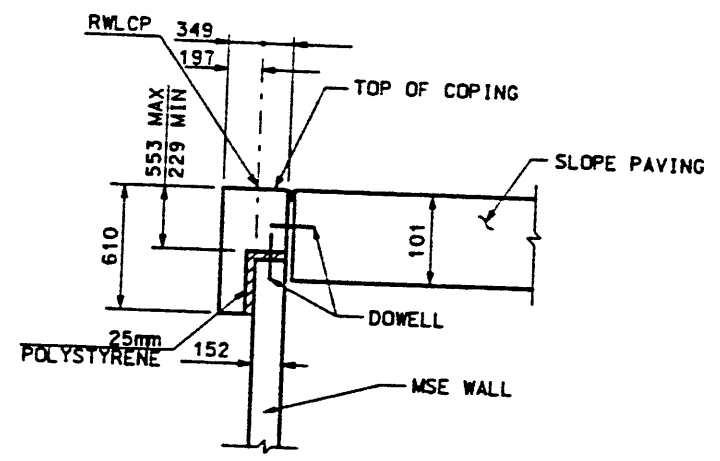
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SITUATION/LAYOUT	SECTION 1.2	DWG. NO.	1.2R-343-25.1
PROJECT NUMBER	#SP-15-7(135)296	SHT.	1 OF 13
		REF.	1 12

Dot: 30-DEC-1997 11:04:26 User: noma (sottr)



MSE SINGLE STAGE WITH SOUNDWALL AND BARRIER ON MOMENT SLAB
NO SCALE

- NOTES:
- 50mm MINIMUM COVER OVER REINFORCING.
 - USE 325 PCCP $f'c=27.5$ MPa (4,000 PSI) FOR MOMENT SLAB.
 - TOE OF BARRIER/EDGE OF SHOULDER IS 235mm INSIDE RETAINING WALL LAYOUT LINE (RWLOL).
 - ADD COUNTERWEIGHT FOR NOISE WALL PLUS BARRIER HEIGHT GREATER THAN 4.3m HIGH.

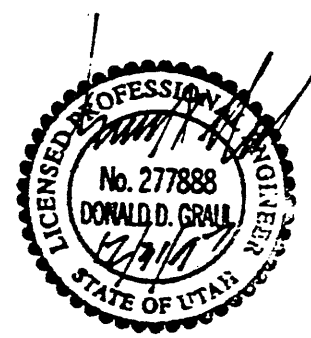


CROSS SECTION C-C WITH ABUTMENT SLOPE (NON SPUI)
SLOPE PAVING / COPING DETAILS
NO SCALE

WASATCH CONSTRUCTORS
JAN 02 1998
RELEASED FOR CONSTRUCTION

NOISE WALL/BARRIER REINFORCING STEEL SCHEDULE		
HEIGHT OF NOISE WALL PLUS BARRIER (m)	BAR SIZE AND SPACING	
5	#16 @ 230	
4	#16 @ 300	
3	#16 @ 300	
MARK	LENGTH	SKETCH
P95	3010	
P96	L	
P97	2200	
P98	4310	

* BASED UPON 1086 MAX FROM BACK OF BARRIER TO OUTSIDE FACE OF COPING.



APPROVED FOR CONSTRUCTION

UTAH DEPARTMENT OF TRANSPORTATION

SYVERDRUP/DE LEUW

1-15 CORRIDOR RECONSTRUCTION
MISC DETAILS
RET. WALL R-343-25
SECTION 1.2
PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY
DWG. NO. 1.2R-343-25.1a

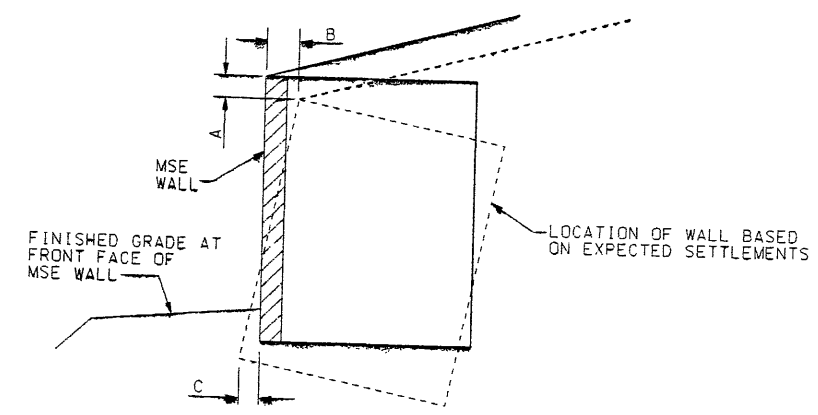
SHT. 2 of 19

NO.	DATE	DESCRIPTION
1	12/17/97	RELEASED FOR DEPARTMENT SLAB
2	12/17/97	CHECK
3	12/17/97	CHECK
4	12/17/97	CHECK

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 First Reference File Levels:
 Second Reference File Levels:
 Third Reference File Levels:
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WASATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION



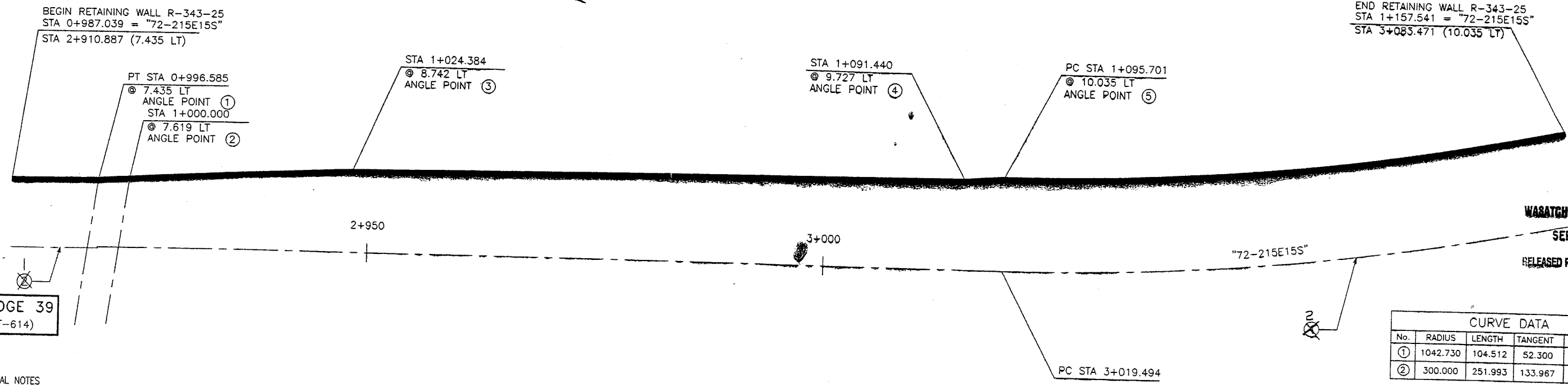
ESTIMATED SETTLEMENT TABLE

STATION LIMITS	REFERENCE STATION	WALL SETTLEMENT mm	TOP OF WALL ROTATION mm	LATERAL DISPLACEMENT AT BOTTOM OF WALL mm
0+987.039 TO 1+157.541	0+987***	40 TO 60	25	**

** LATERAL DISPLACEMENT AT BOTTOM OF WALL SHOULD BE LESS THAN ONE HALF OF THE SETTLEMENT AT FRONT FACE OF WALL. TERRACON RECOMMENDS CONSTRUCTING THE WALL TOE AT THE DESIGN LOCATION.
 *** THESE VALUES CALCULATED AT REFERENCED STATION; ROTATIONS AT OTHER STATIONS CAN BE ESTIMATED IN PROPORTION TO WALL HEIGHT.

I-15 CORRIDOR RECONSTRUCTION		UTAH DEPARTMENT OF TRANSPORTATION		APPROVED FOR CONSTRUCTION	
MISC. DETAILS RET WALL R-343-25		URS Greiner		DESCRIPTION	
SECTION 1.2		SVERDRUP/DE LEUW		NO. Δ	
PROJECT NUMBER *SP-15-7(135)296		DESIGN: EMR 8/97		DATE 9-17-97	
		DRAWN: RS 8/97		INITIAL RELEASE <i>CR</i>	
		CHECK: KMM 8/97		DATE	
		PROJECT DESIGN ENGINEER		CHECK: JRB 8/97	
		DATE 8/97		CHECK: JRB 8/97	
		PROJECT MANAGER		QUANT. 1212403	
		DATE		CHECK	
SALT LAKE COUNTY		DWG. NO. 1.2R-343-25.2		SHT. 3 OF 13	

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	9/16/97	RELEASE FOR CONSTRUCTION <i>OK</i>



END RETAINING WALL R-343-25
STA 1+157.541 = "72-215E15S"
STA 3+083.471 (10.035 LT)

WARATCH CONSTRUCTORS
SEP 19 1997
RELEASED FOR CONSTRUCTION

CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	1042.730	104.512	52.300	5°44'34"
②	300.000	251.993	133.967	48°07'37"

All Dimensions Are In Meters Unless Noted Otherwise

BRIDGE 39
(F-614)

- 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 IS A "B2" 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: 4W11-12 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
EXAMPLE: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.

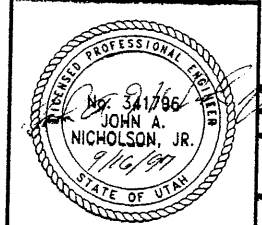
IF NO MESH IS SHOWN, 4W20-12 MESH SHALL BE USED.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH 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.

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-25, NOTES & DESIGN CRITERIA
RE-2	TYPICAL DETAILS
RE-3	TYPICAL DETAILS
RE-4	TYPICAL CROSS SECTIONS
RE-5	ELEVATION PRECAST WALL "R-343-25"
RE-6	ELEVATION PRECAST WALL "R-343-25"
RE-7	ELEVATION PRECAST WALL "R-343-25"
RE-8	TYPICAL PANEL REINFORCEMENT
RE-9	"G" PANEL REINFORCEMENT
RE-10	SPECIAL PANEL DETAILS

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 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

METRIC



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DES	DRN	CHK	RETAINED EARTH™	NO.	DATE	BY	CHK
09-10-97	09-10-97	09-10-97	VSL				

VSL CORPORATION
2840 Plaza Place, Suite 200
Coppell, TX 75019
Tel: (972) 781-6272
Fax: (972) 781-6689

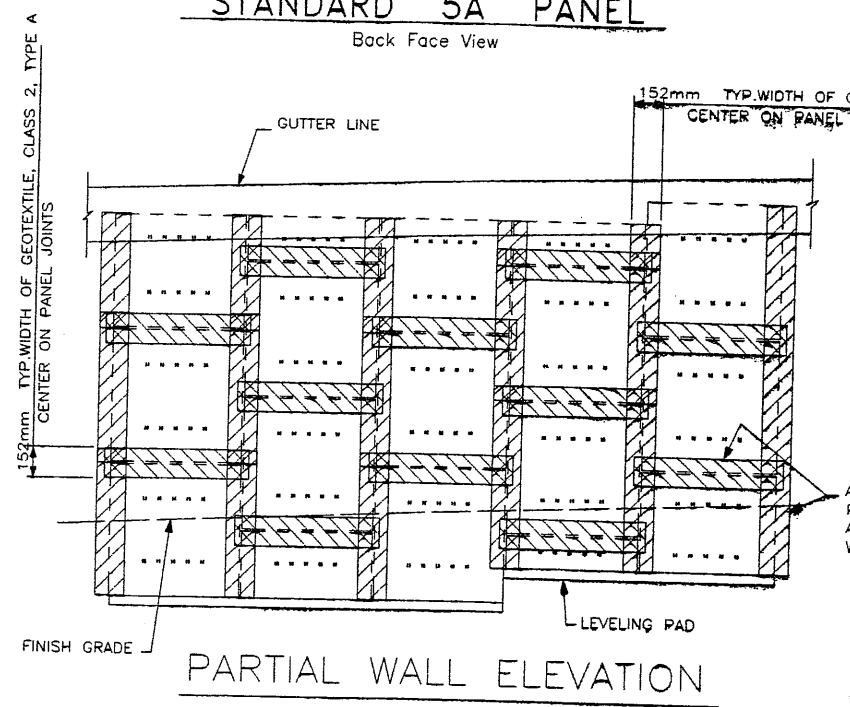
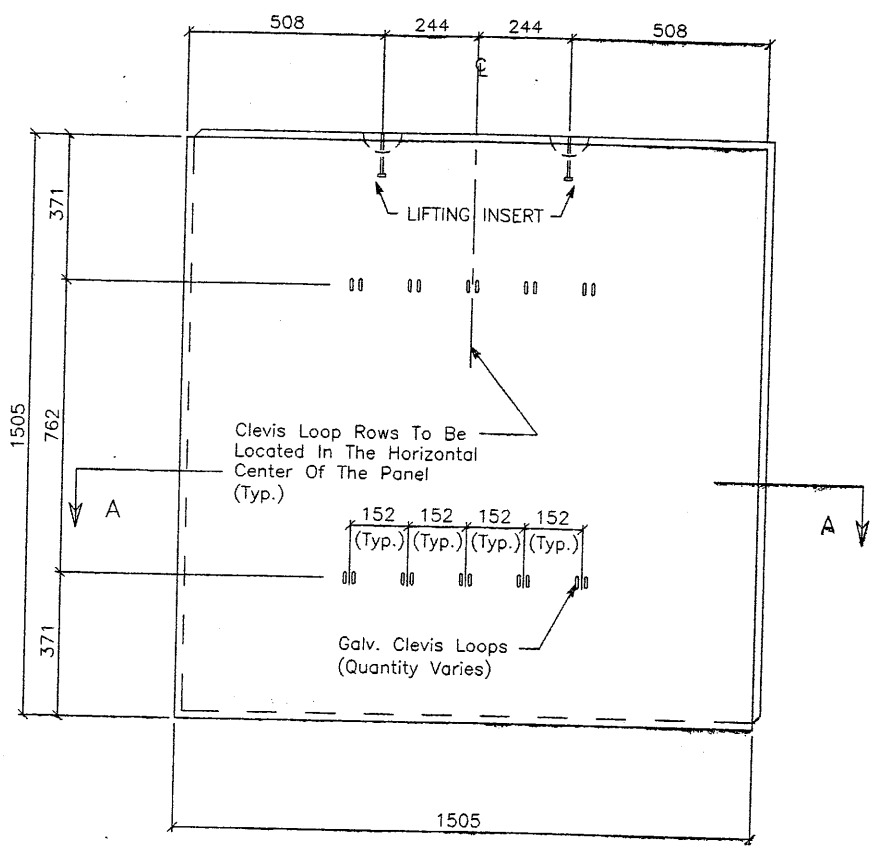
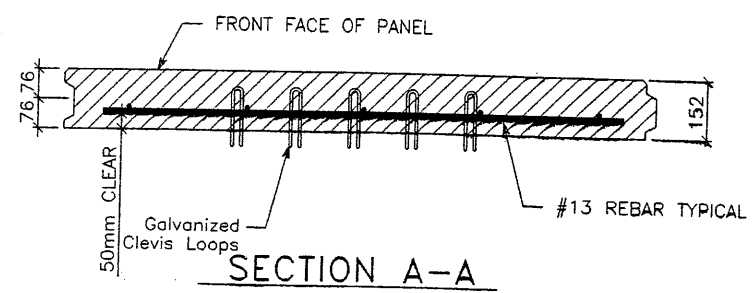
ATLANTA, GA / DALLAS, TX / BALDWIN, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PLAN VIEW WALL "R-343-25"
I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP

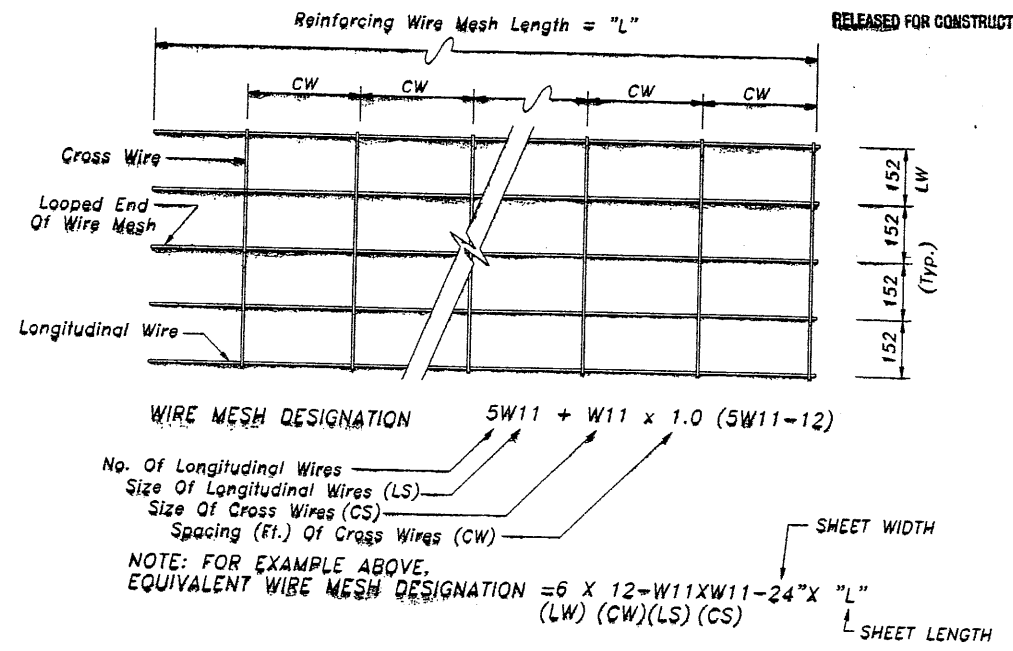
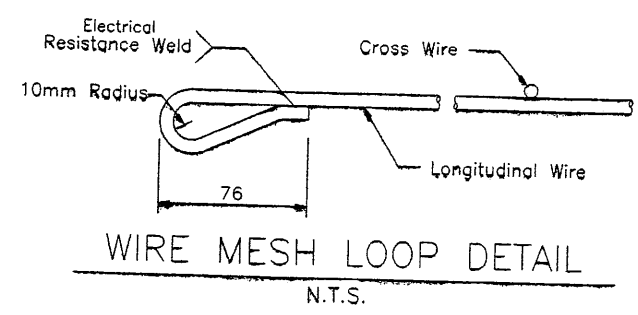
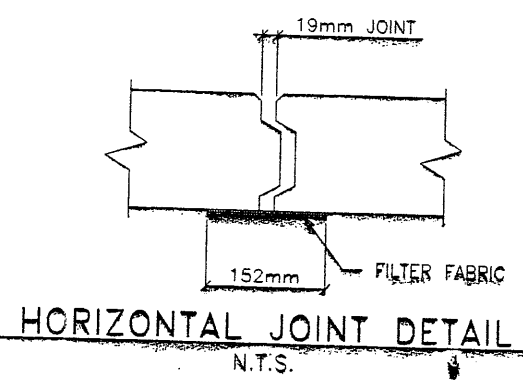
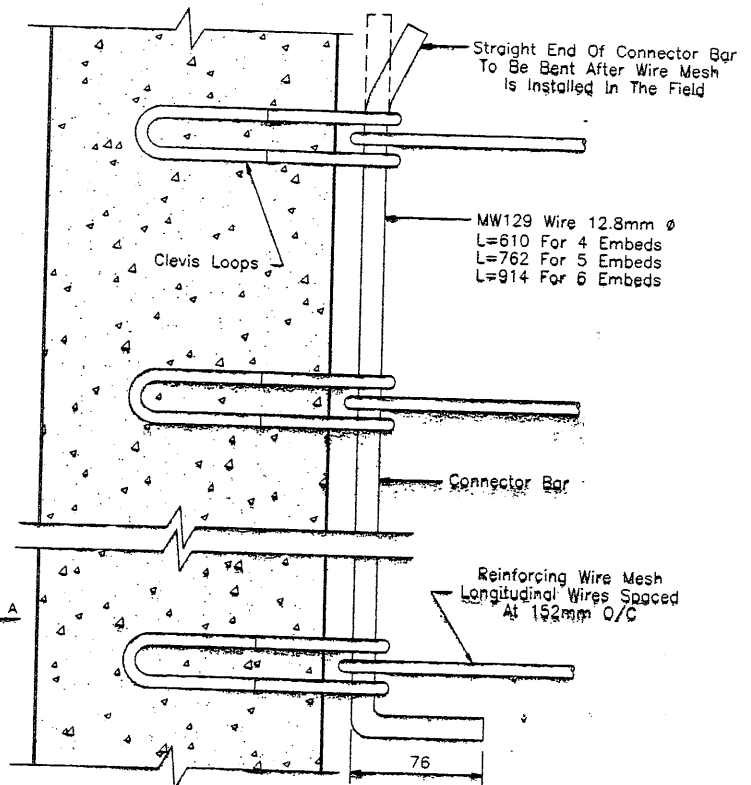
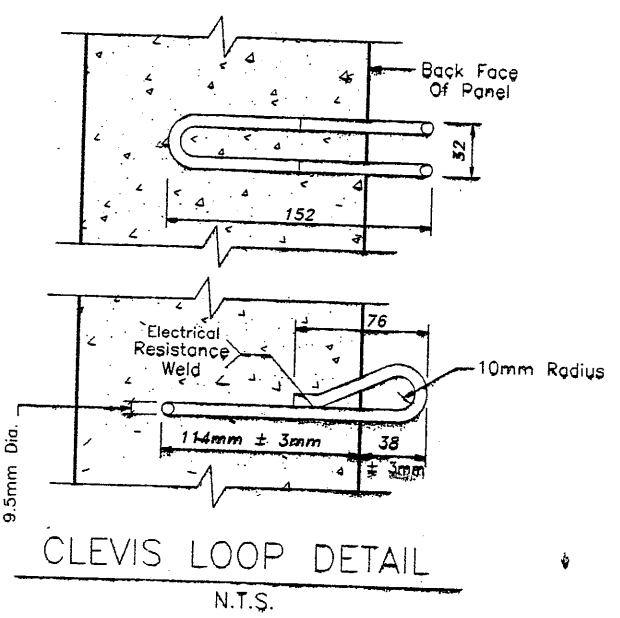
DWG. NO.
1.2R-343-25.3
JOB NO.
239-0007
SHT. NO.
RE-1

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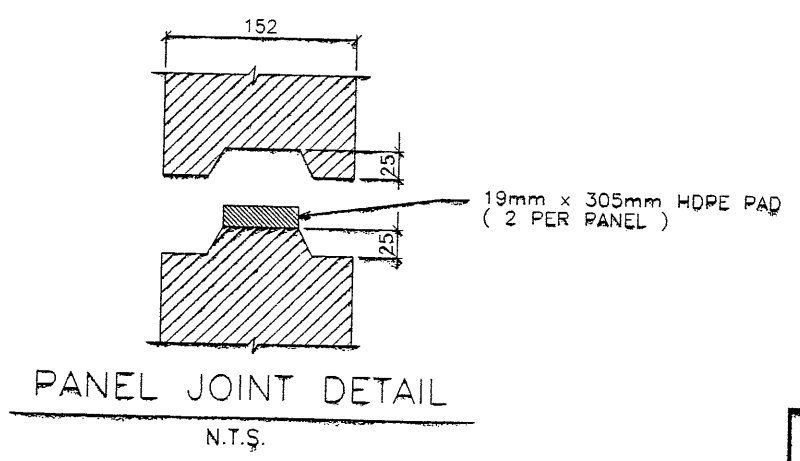
FINAL PL 7-10-97



APPLY ADHESIVE COATING TO PANELS ONLY. DO NOT APPLY ADHESIVE TO GEOTEXTILE OR WITHIN 51mm OF JOINT (TYP.)



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, $F_y = 448$ MPa. Mesh Shall Be Galvanized To ASTM A-123 To A Minimum Effective Thickness Of 0.086 mm.



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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	9/16/97	RELEASE FOR CONSTRUCTION <i>du</i>

WASATCH CONSTRUCTORS
SEP 19 1997
RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-0969

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

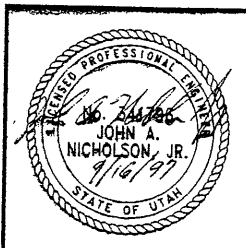
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RETAINED EARTH™ WALLS
PRECAST WALL "72-25"
TYPICAL DETAILS

UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSPORTATION

DWG. NO. 1:2R-343-25.4
JOB NO. 239-0007
SHT. NO. RE-2

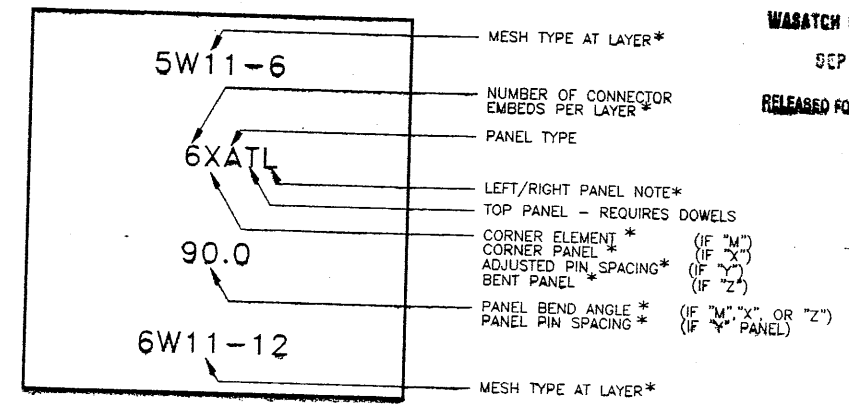
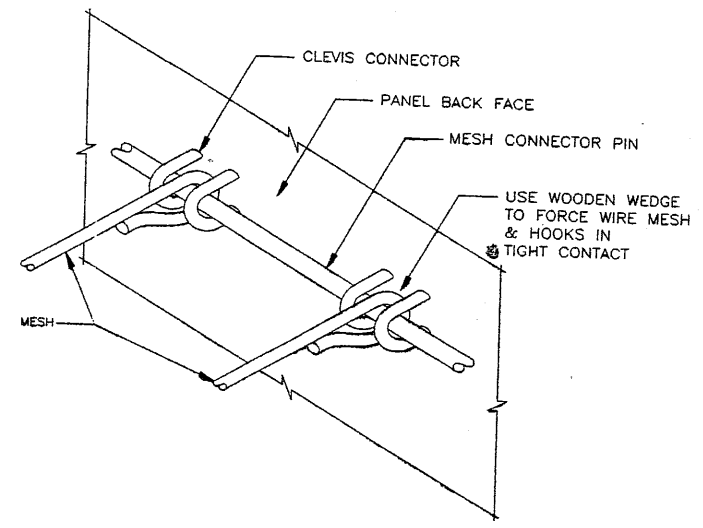
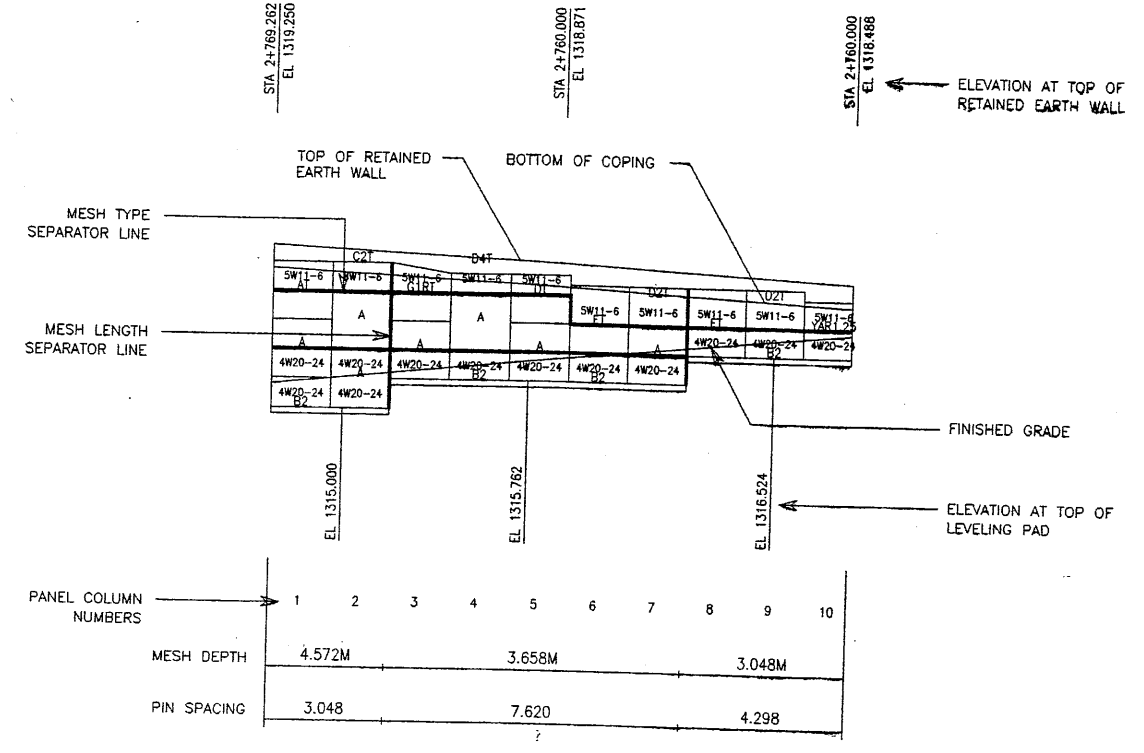
10-24-97
JOHN A. NICHOLSON, JR.
9/16/97
STATE OF UTAH



METRIC

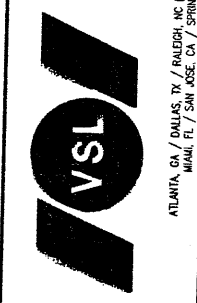
FINAL PL 7-10-97 E:\PROJECT\239-0007\72-25\RE-3

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/16/97	RELEASE FOR CONSTRUCTION



WASATCH CONSTRUCTORS
SEP 19 1997
RELEASED FOR CONSTRUCTION

VSL CORPORATION
2940 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4969



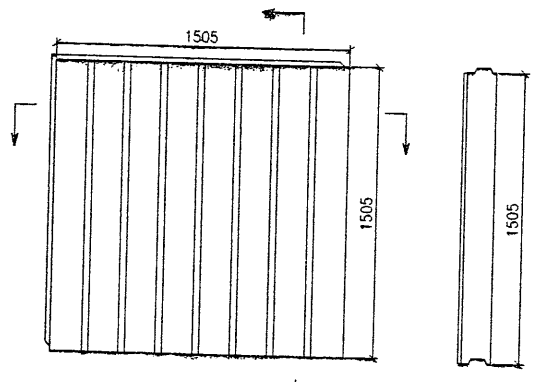
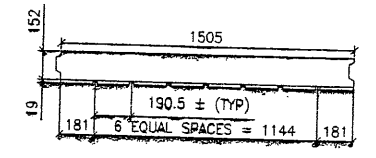
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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-25"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

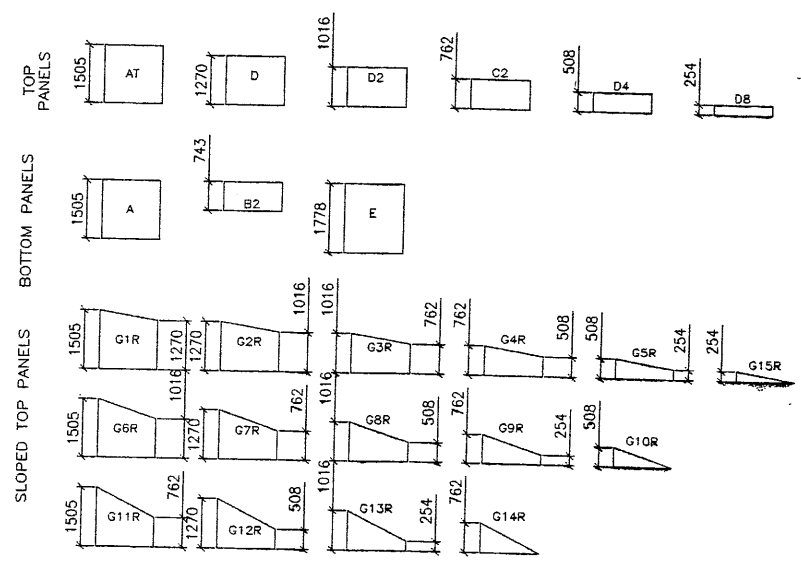
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JOB NO. 239-0007/13
SHT. NO. RE-3

2 VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.

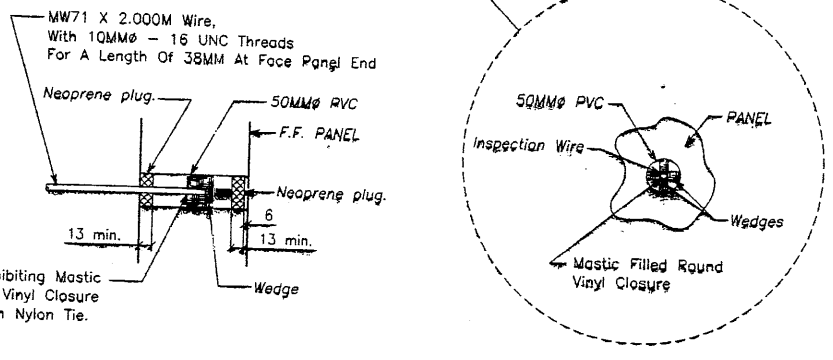
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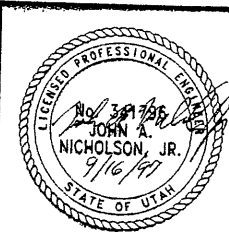


4 ALL DIMENSIONS ARE IN MILLIMETERS



5

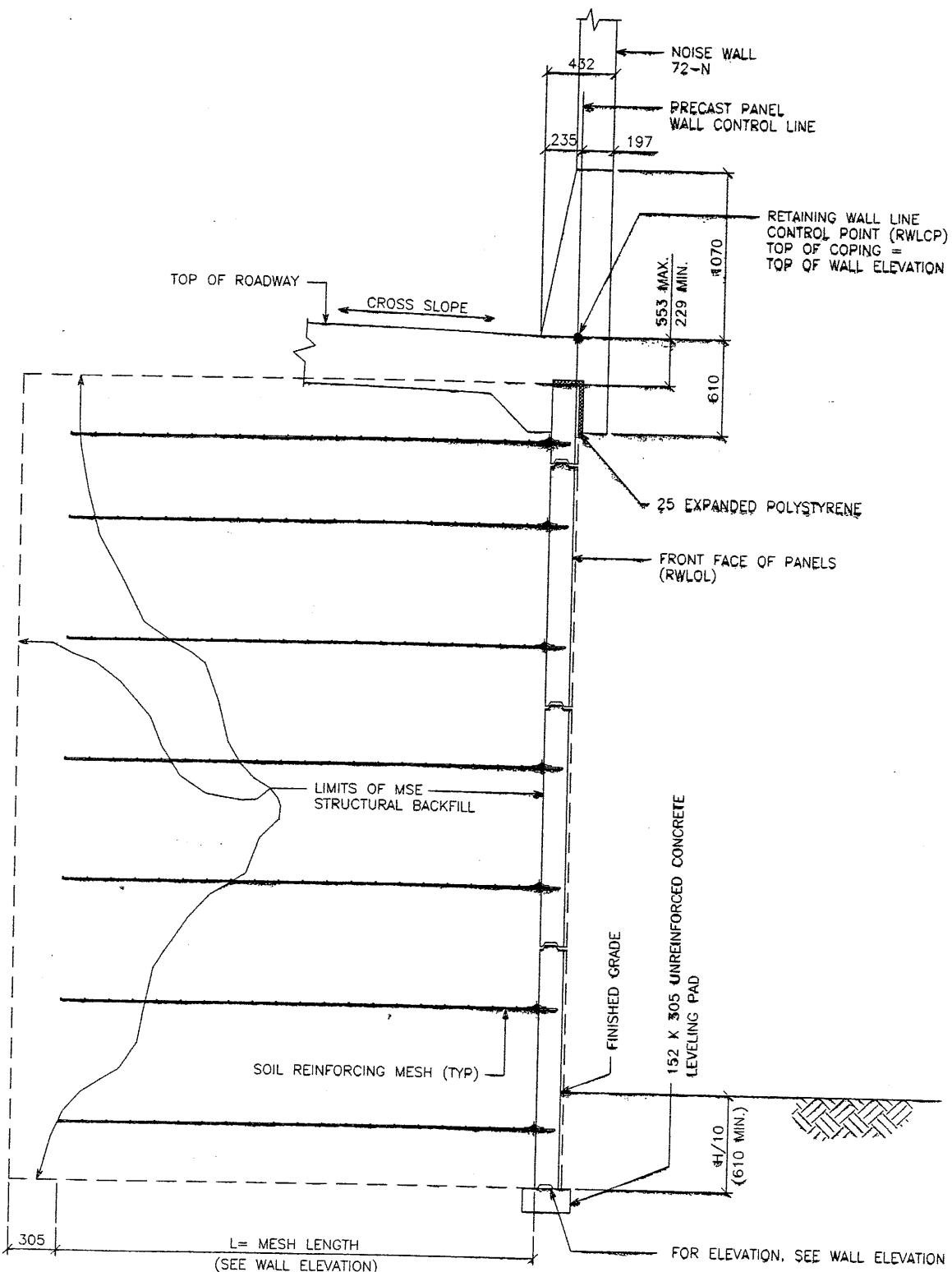
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3-10-97

FINAL PL



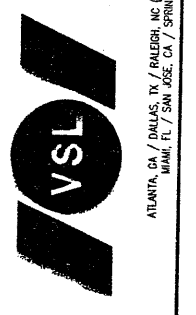
TYPICAL CROSS SECTION
 (MSE SINGLE STAGE WITH MOMENT SLAB)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/16/97	RELEASE FOR CONSTRUCTION <i>OK</i>

WARATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION

DES.	MM	NO.	DATE	BY	CHK
DES. 09-10-97	MM				
DRN. 09-10-97	DDO				
CHK. 09-10-97	MM				

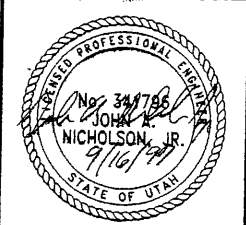
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4669



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-25"
 TYPICAL CROSS SECTION
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

METRIC

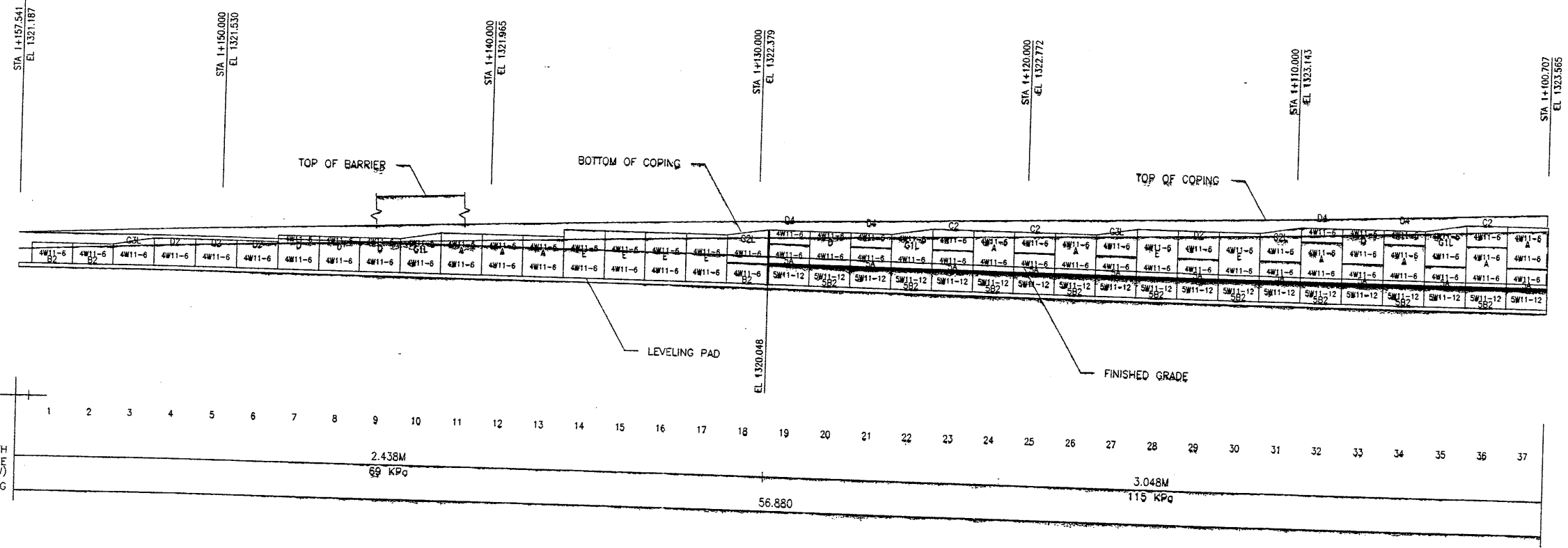


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DWG. NO.	1.2R-343-25.6
JOB NO.	239-0007 <i>7/13</i>
SHT. NO.	RE-4

FINAL PL 3-10-97

END WALL R-343-25
STA 1+157.541 (10.035 LT.)
72-215E15S
NOMINAL FACE OF PANEL (RWLOL)



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

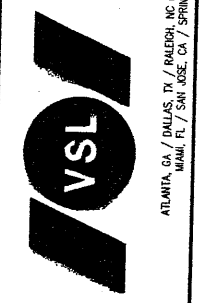
APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	9/16/97	RELEASE FOR CONSTRUCTION <i>SV</i>

WARATCH CONSTRUCTORS
SEP 19 1997
RELEASED FOR CONSTRUCTION

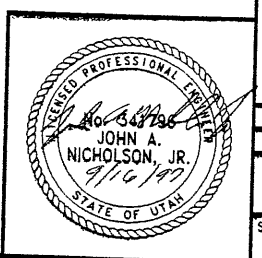
NO.	DATE	REVISION	BY	CHK

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4889



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

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-25"
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.

DWG. NO.
1.2R-343-25.7
JOB NO.
239-0007 8/13
SHT. NO.
RE-5

METRIC

FINAL PL 9-10-97

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	9/16/97	RELEASE FOR CONSTRUCTION
▲	10-22-97	ADDED DETAIL FOR SKEWING MESH @ ABUT. PILE

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY	CHK
09-10-97	09-10-97	09-10-97	VSL					

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4969

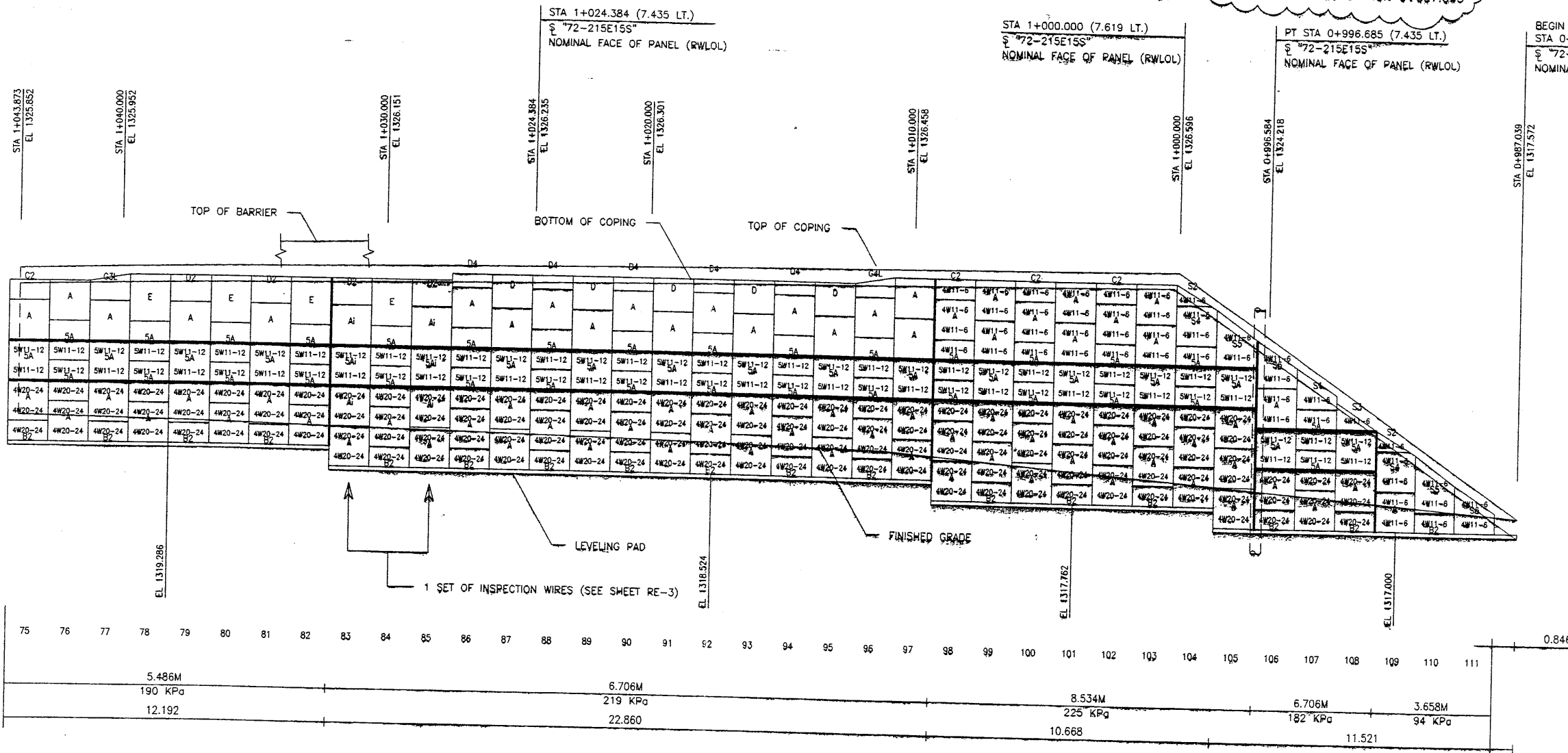
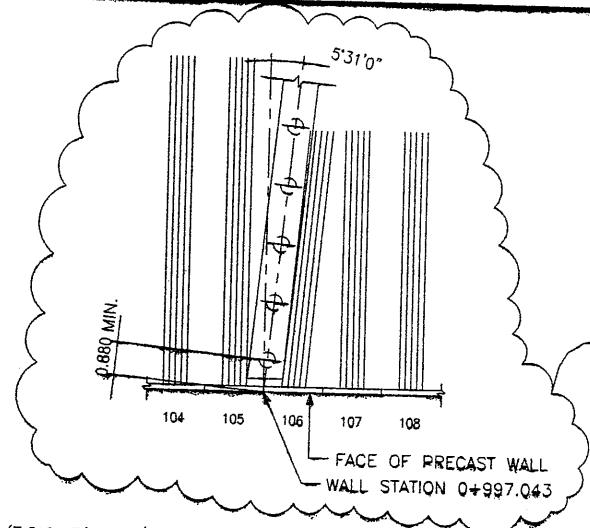
VSL
 ATLANTA, GA / DALLAS, TX / PALMDALE, CA (CORPORATE OFFICE)
 MIAMI, FL / SPRINGFIELD, VA

WASATCH CONSTRUCTORS
 OCT 27 1997
 RELEASED FOR CONSTRUCTION

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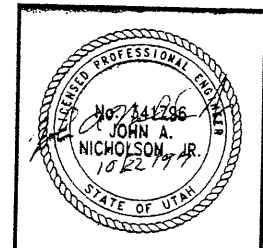
RETAINED EARTH™ WALLS
PRECAST WALL "R-343-25"
I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-25.9
JOB NO.	239-0007 10/13
SHT. NO.	RE-7



ELEVATION PRECAST WALL R-343-25
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 747.36 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

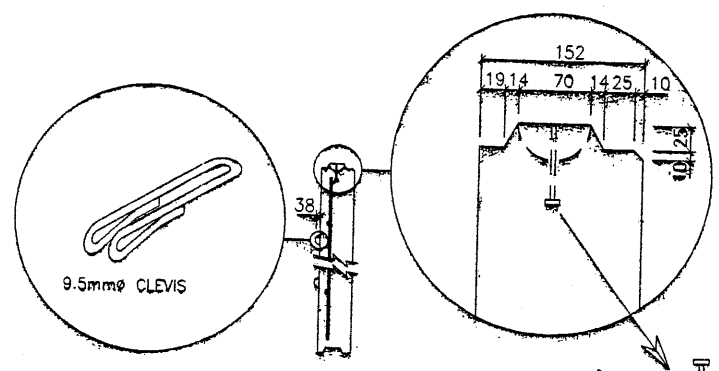
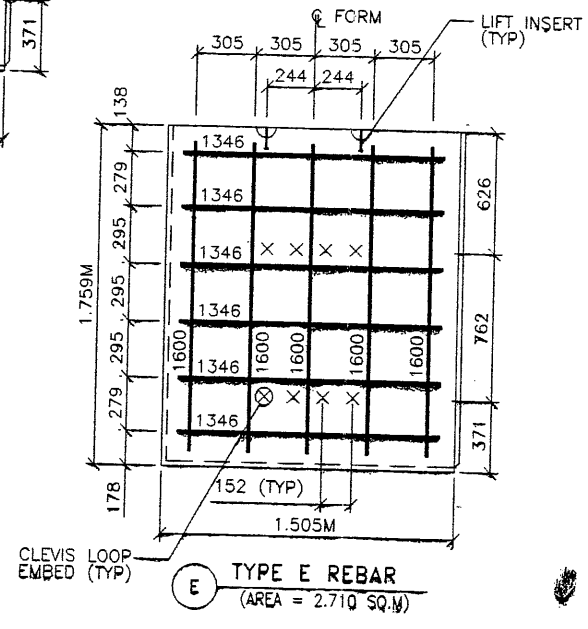
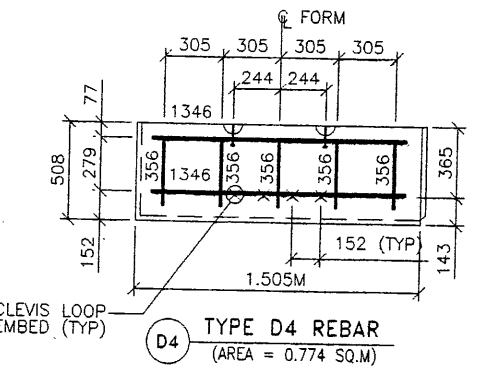
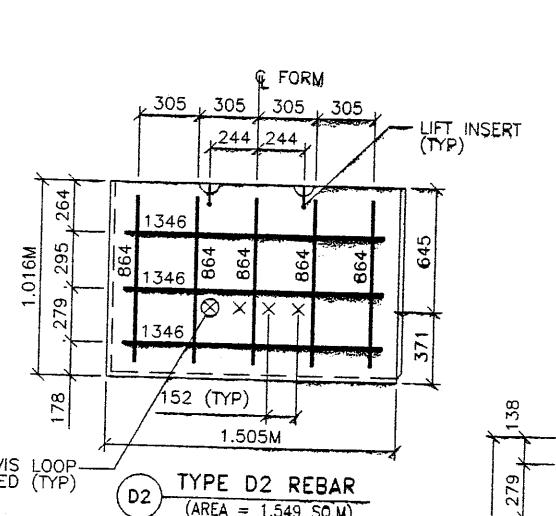
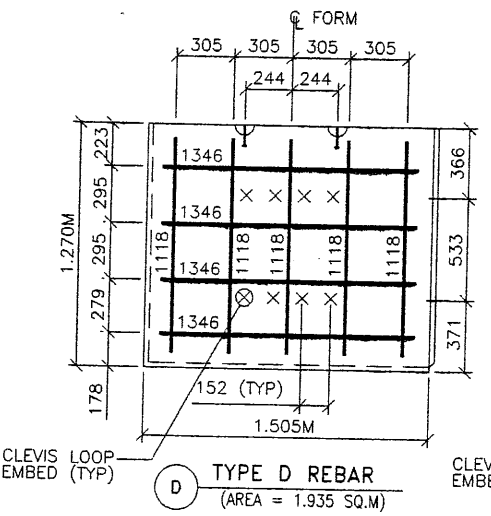
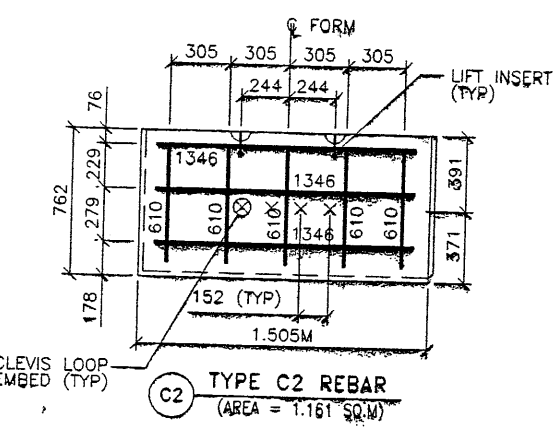
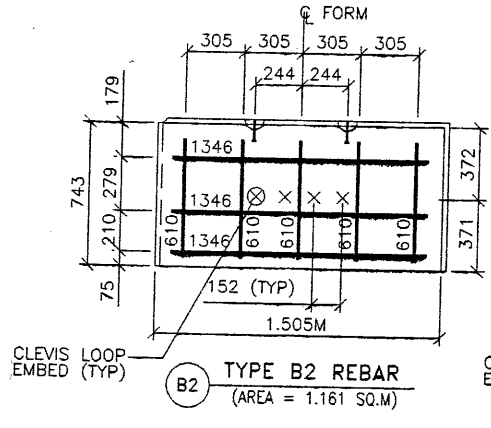
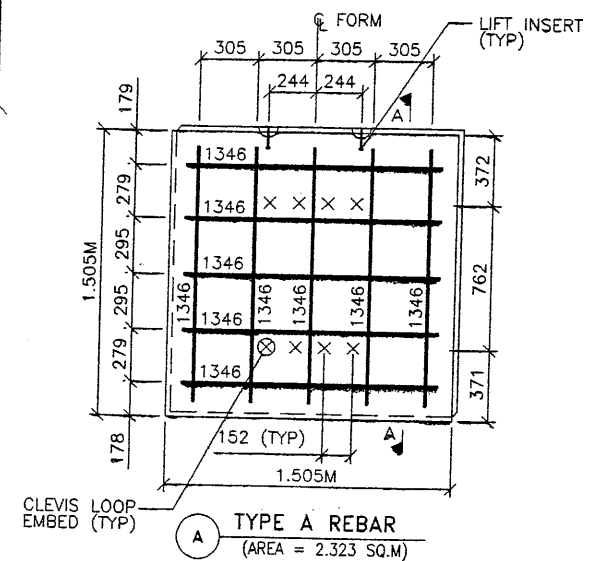
METRIC



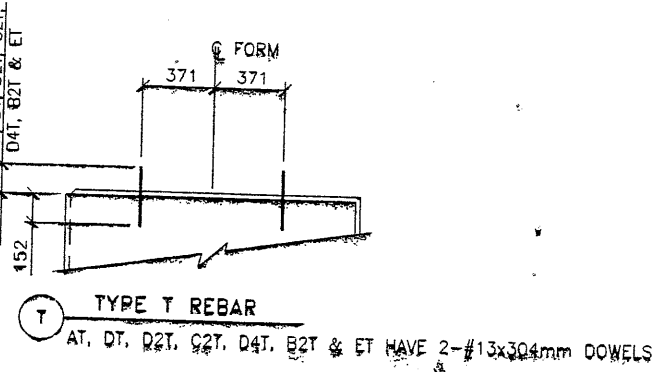
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

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

MESH DEPTH	5.486M	6.706M	8.534M	6.706M	3.658M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	190 KPa	219 KPa	225 KPa	182 KPa	94 KPa
PIN SPACING	12.192	22.860	10.668	11.521	



SECTION A-A

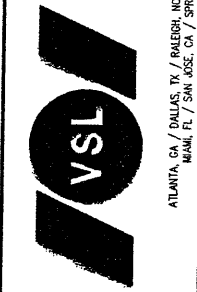


APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	9/16/97	RELEASE FOR CONSTRUCTION

- 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 EPOXY COATED TO 0.5mm THICKNESS. REFER TO SPECIAL PROVISIONS, SECTION 508.
 - 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.

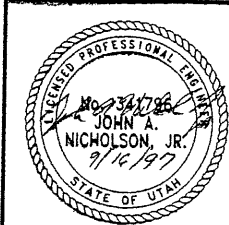
WASATCH CONSTRUCTORS
SEP 19 1997
RELEASED FOR CONSTRUCTION

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6772
Fax: (919) 781-6959



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RETAINED EARTH™ WALLS
PRECAST WALL "R-343-25"
PANEL REINFORCEMENT 1.524M x 1.524M
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.



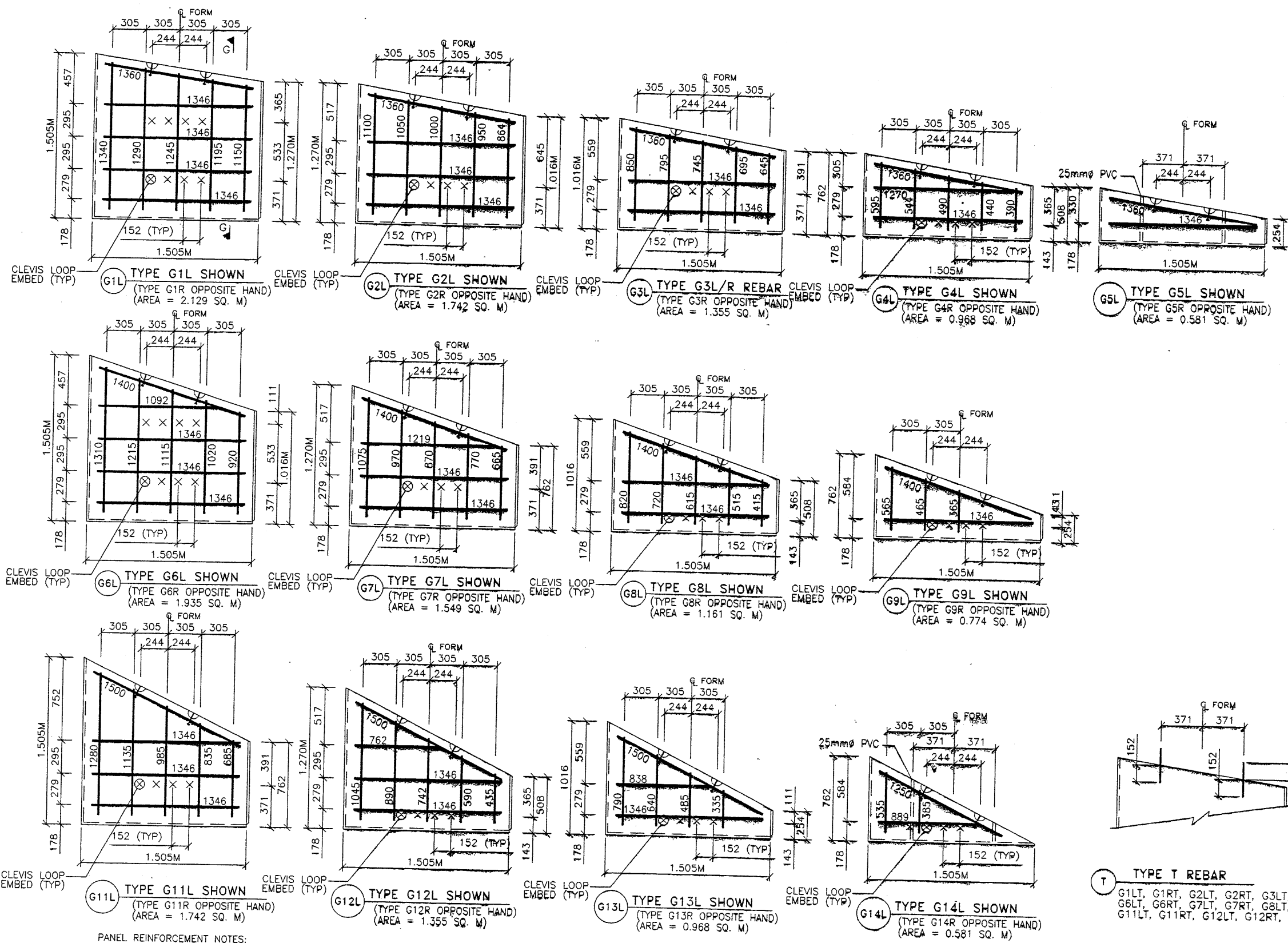
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

DWG. NO.	1.2R-343-25.10
JOB NO.	239-0007 11/3
SHT. NO.	RE-8

NO.	DATE	REVISION	BY

H:\RE_EARTH\PROJECT\239-0007\REBAR

FINAL P: 1-10-97



G1L TYPE G1L SHOWN (TYPE G1R OPPOSITE HAND) (AREA = 2.129 SQ. M)
 G2L TYPE G2L SHOWN (TYPE G2R OPPOSITE HAND) (AREA = 1.742 SQ. M)
 G3L TYPE G3L/R REBAR (TYPE G3R OPPOSITE HAND) (AREA = 1.355 SQ. M)
 G4L TYPE G4L SHOWN (TYPE G4R OPPOSITE HAND) (AREA = 0.968 SQ. M)
 G5L TYPE G5L SHOWN (TYPE G5R OPPOSITE HAND) (AREA = 0.581 SQ. M)

G6L TYPE G6L SHOWN (TYPE G6R OPPOSITE HAND) (AREA = 1.935 SQ. M)
 G7L TYPE G7L SHOWN (TYPE G7R OPPOSITE HAND) (AREA = 1.549 SQ. M)
 G8L TYPE G8L SHOWN (TYPE G8R OPPOSITE HAND) (AREA = 1.161 SQ. M)
 G9L TYPE G9L SHOWN (TYPE G9R OPPOSITE HAND) (AREA = 0.774 SQ. M)

G11L TYPE G11L SHOWN (TYPE G11R OPPOSITE HAND) (AREA = 1.742 SQ. M)
 G12L TYPE G12L SHOWN (TYPE G12R OPPOSITE HAND) (AREA = 1.355 SQ. M)
 G13L TYPE G13L SHOWN (TYPE G13R OPPOSITE HAND) (AREA = 0.968 SQ. M)
 G14L TYPE G14L SHOWN (TYPE G14R OPPOSITE HAND) (AREA = 0.581 SQ. M)

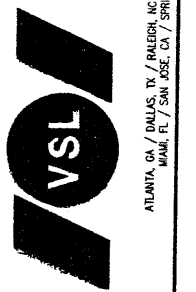
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 - ALL PANELS TO USE 9.5mm Ø CLEVIS LOOPS. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/16/97	RELEASE FOR CONSTRUCTION

WABATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

DES: 09-10-97
 DRN: 09-10-97
 CHK: 09-10-97



G-G SECTION G-G

T TYPE T REBAR
 G11L, G11RT, G12L, G12RT, G13L, G13RT, G14L, G14RT, G6L, G6RT, G7L, G7RT, G8L, G8RT, G9L, G9RT, G11LT, G11RT, G12LT, G12RT, G13LT & G13RT HAVE 2-#13x304mm DOWELS

METRIC



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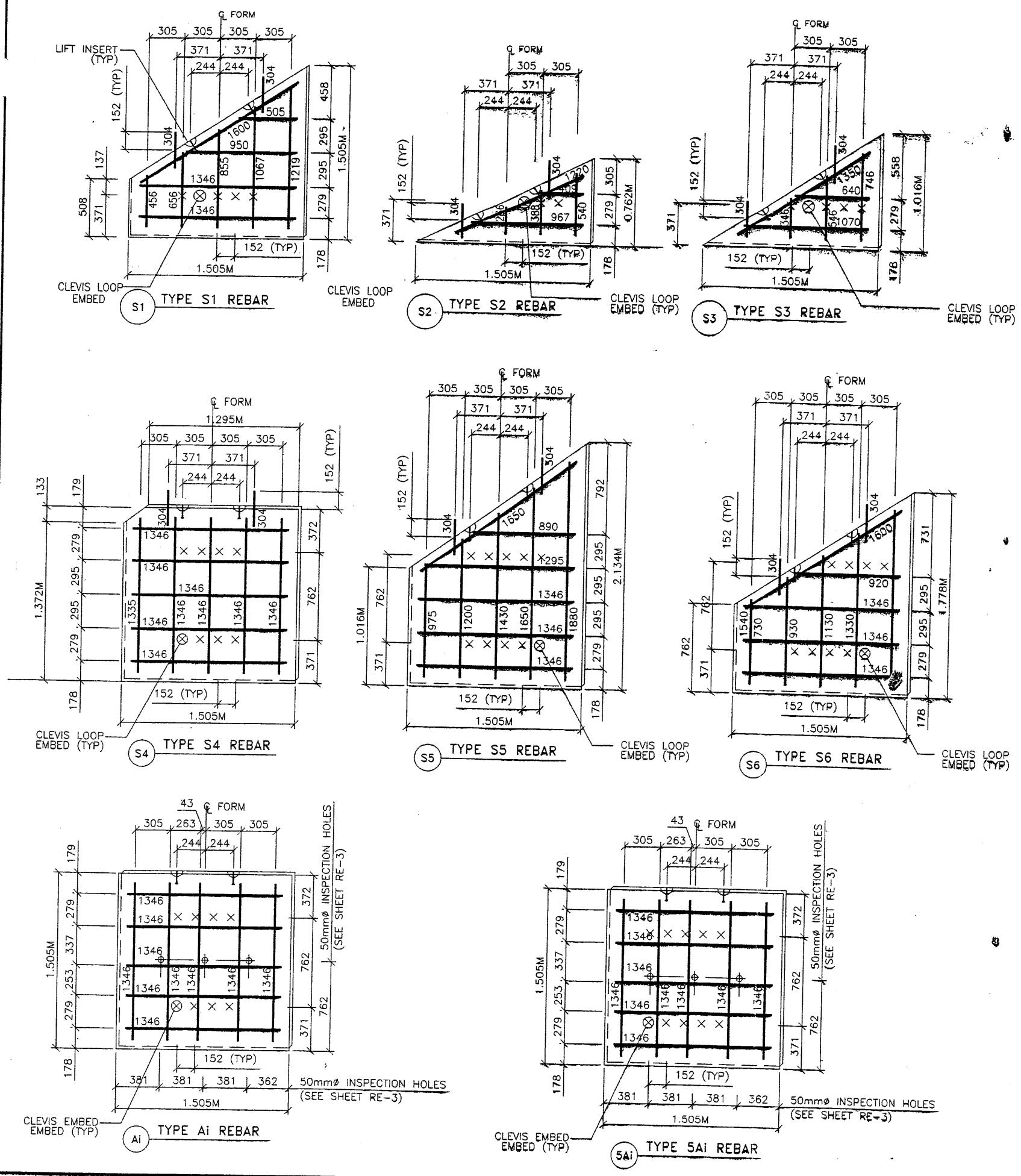
RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-25"
 "G" PANEL REINFORCEMENT 1.524M x 1.524M
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-25.11
JOB NO.	239-0007
SHT. NO.	RE-9

E:\APROJECT\239-0007\SERIES\72-25\SPECIALS

-10-97

FINAL PLC

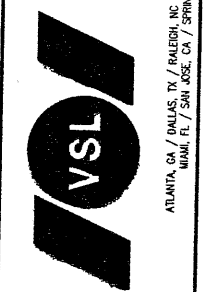


APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	9/16/97	RELEASE FOR CONSTRUCTION

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 - VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.

WASATCH CONSTRUCTORS
 SEP 19 1997
 RELEASED FOR CONSTRUCTION

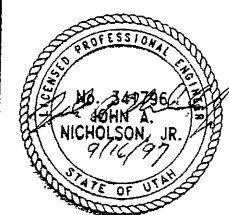
VSL CORPORATION
 2940 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6272
 Fax: (919) 781-4989



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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-25"
 SPECIAL PANEL REINFORCEMENT
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

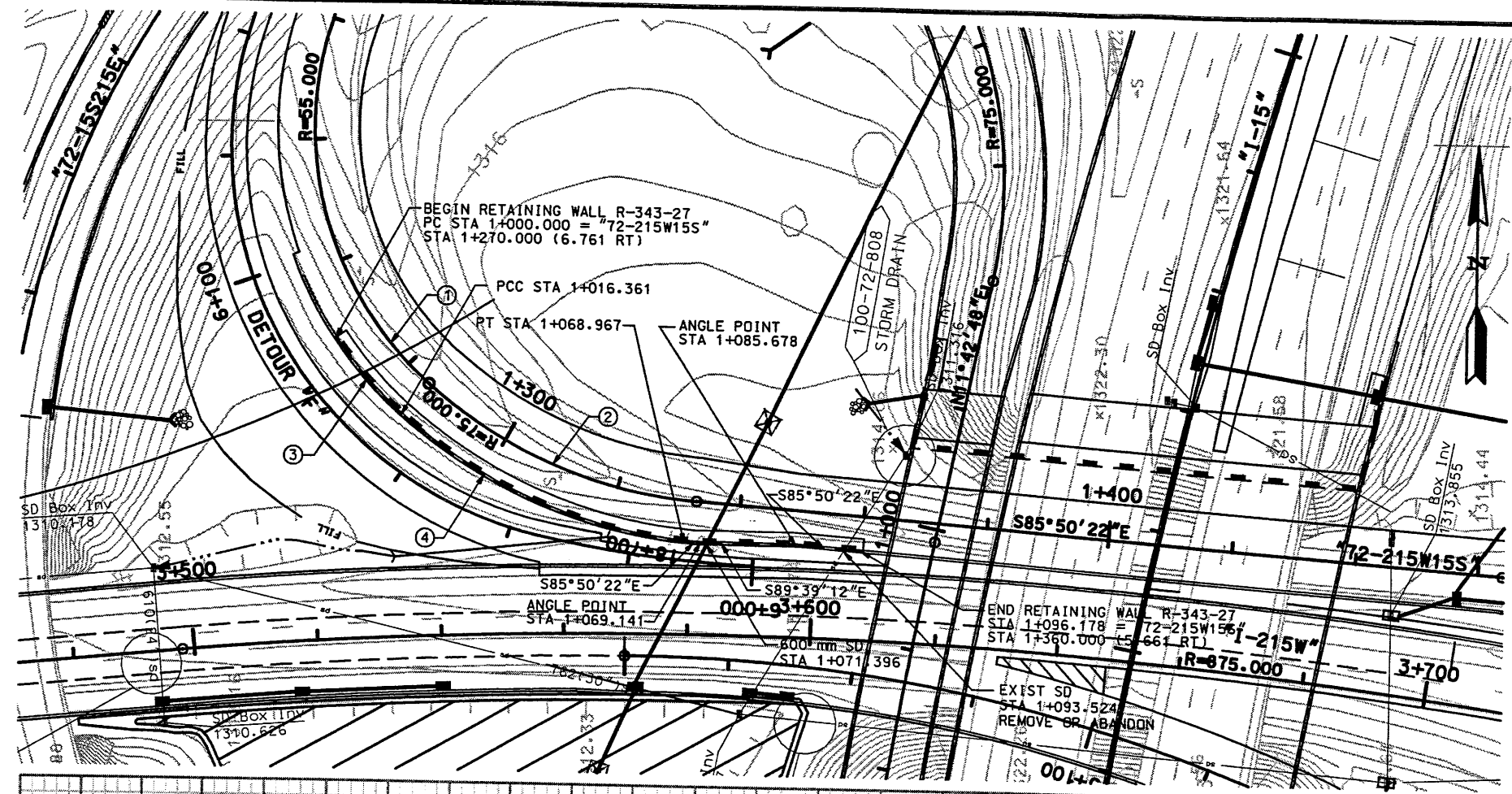
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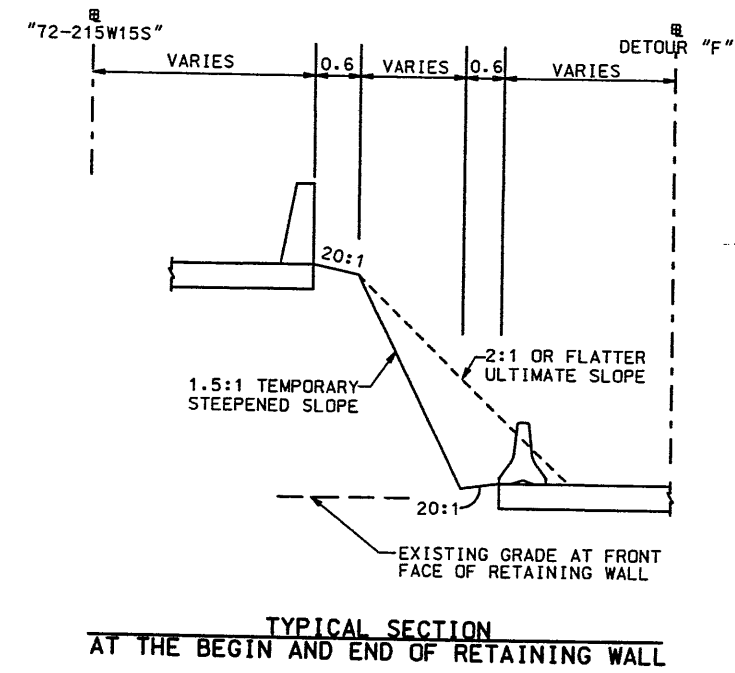
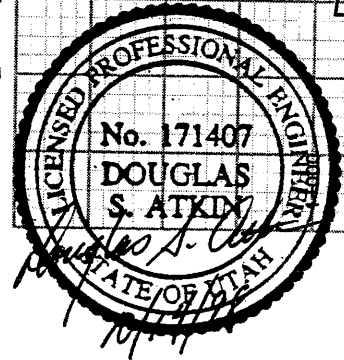
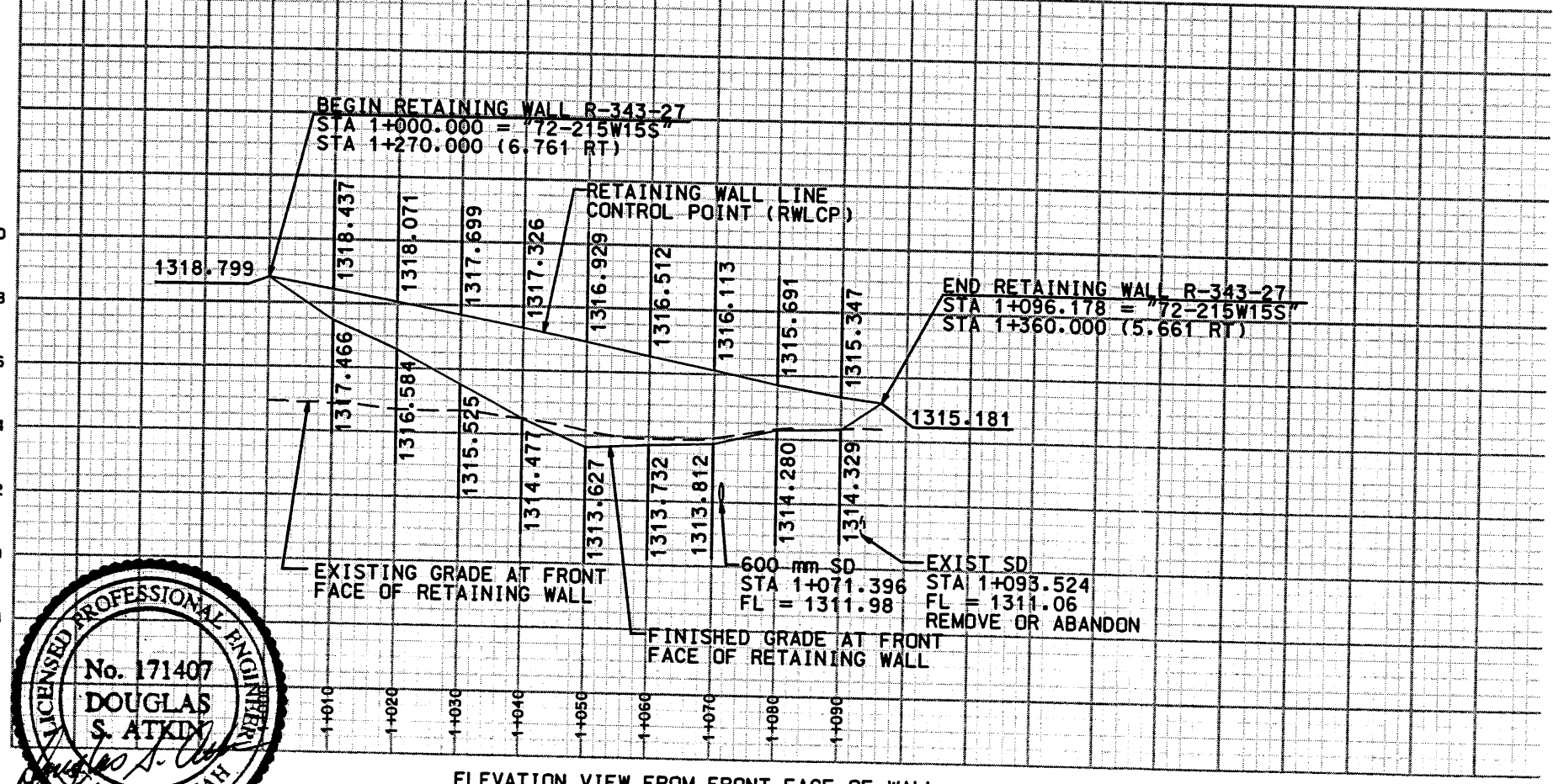
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

DWG. NO.	1.2R-343-25.12
JOB NO.	239-0007
SHT. NO.	RE-10

User: doug.s.atkin Date: 14-OCT-1998 Time: 07:44
 File: c:\dgn\15-cadd\12-97\sheet-files\wall-72-ret-wall-27.dgn



CURVE NO.	Δ	R	L	T
①	205°40'45"	55.000	197.438	
②	36°51'52"	75.000	48.256	24.996
③	15°10'41"	61.761	16.361	8.229
④	36°51'54"	81.761	52.606	27.250



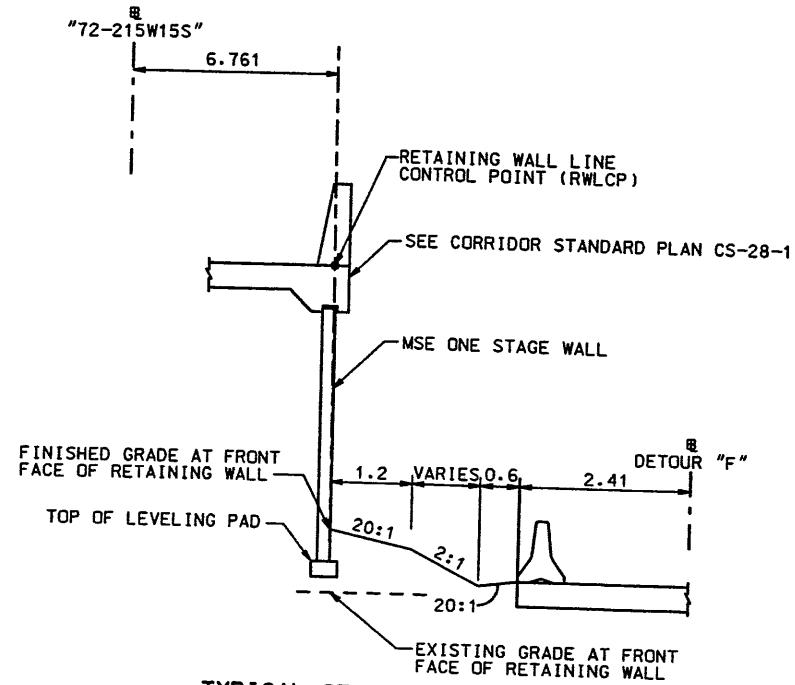
NOTE:
 THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.

WASATCH CONSTRUCTORS
 OCT 19 1998
 RELEASED FOR CONSTRUCTION

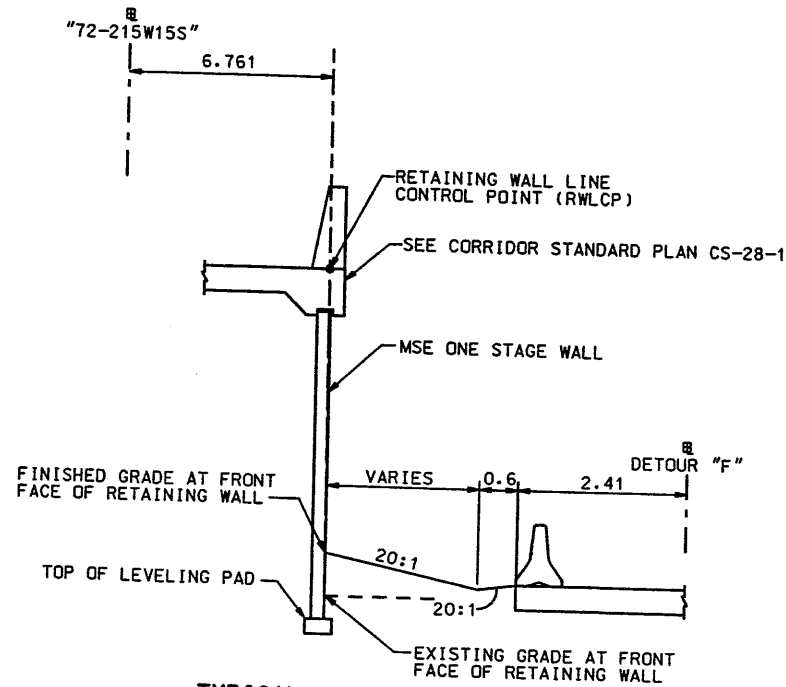
APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	
A	10-14-98	SK	
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner SVERDRUP/DE LEU			
DESIGN	CHECK	DATE	
KWM	KWM	7/98	7/98
DRAWN	CHECK	DATE	
CJ	CJ	7/98	7/98
PROJECT NUMBER			
#SP-15-7(135)296			
PROJECT MANAGER			
1212424			
SALT LAKE COUNTY			
DWG. NO.			
1.2R-343-27.1			
SHT. 1 OF 8			
REF.			

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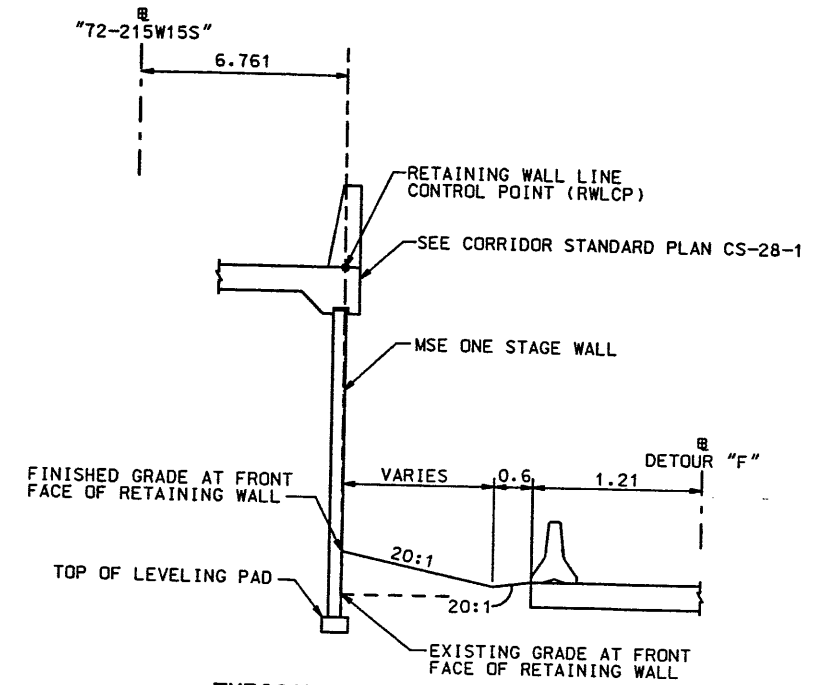
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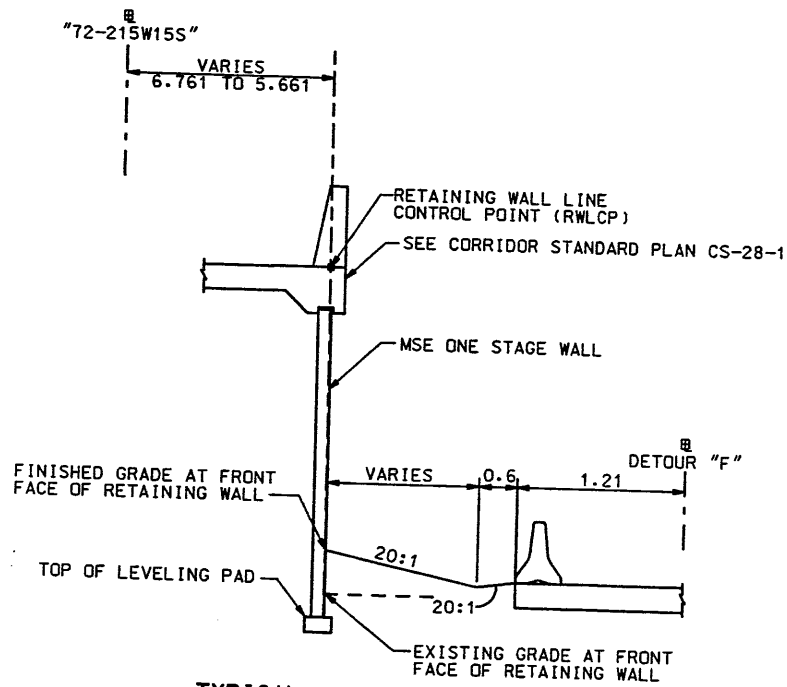
TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+000.000 TO STA 1+045.000



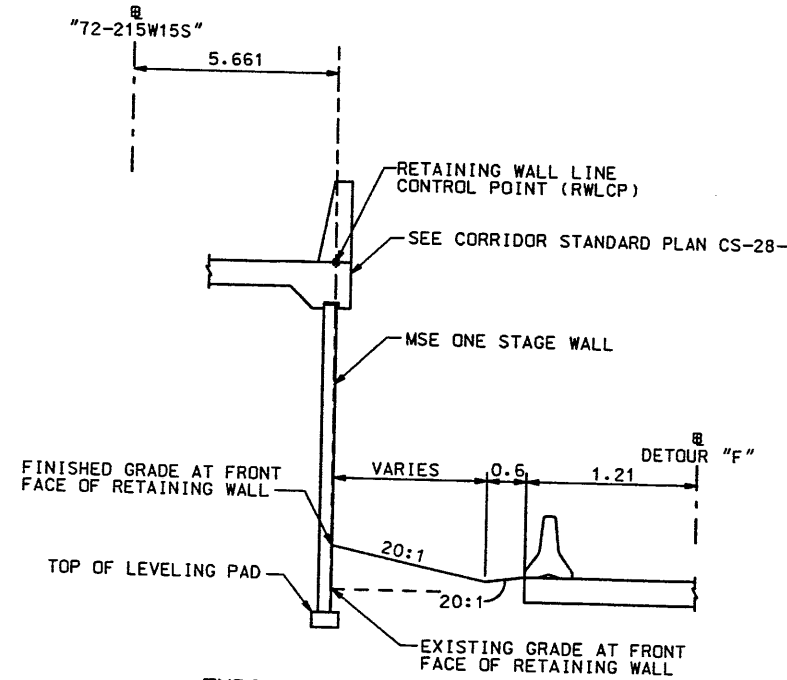
TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+045.000 TO STA 1+054.466



TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+054.466 TO STA 1+069.141

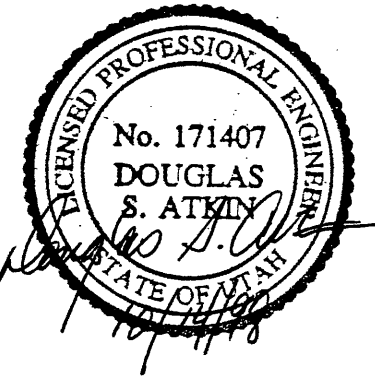


TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+069.141 TO STA 1+085.678



TYPICAL SECTION
RETAINING WALL R-343-27
STA 1+085.678 TO STA 1+096.178

WASATCH CONSTRUCTORS
OCT 19 1998
RELEASED FOR CONSTRUCTION



APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	10-14-98		
INITIAL RELEASE			
1212424			
UTAH DEPARTMENT OF TRANSPORTATION			
URS Grøiner			
SYNERGUP/DE LEUW			
DESIGN	CHK	DATE	BY
KW	JBE	7/98	JBE
DRAWN	CHK	DATE	BY
CJ	JBE	7/98	JBE
QUANT.	CHK	DATE	BY
I-15 CORRIDOR RECONSTRUCTION			
DETAILS			
RETAINING WALL R-343-27			
SECTION 1.2			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.2R-343-27.2			
SHT. 2 OF 8			
REF.			

H:\RE_EARTH\PROJECT\239-0007\1998\6S
 6S-46 (RE-1)
 09-17-98
 FINAL

BEGIN PRECAST WALL R-343-27
 PRECAST WALL PC STA. 1+000.000=
 "72-215W15S" STA. 1+270.000
 ● 6.761 RT

CURVE DATA
 R= 61.761
 Δ= 15°10'41"
 L= 16.361
 T= 8.229

PRECAST WALL PCC STA. 1+016.361

FRONT FACE PRECAST WALL R-343-27

CURVE DATA
 R= 81.761
 Δ= 36°51'54"
 L= 52.606
 T= 27.250

PRECAST WALL PT STA. 1+068.967

S 85°50'22" E

ANGLE POINT

PRECAST WALL STA. 1+069.141

S 89°39'12" E

€72-215W15S

1+350

S 85°50'22" E

PRECAST WALL STA. 1+085.678

600mm SD
PRECAST WALL STA. 1+071.396

END PRECAST WALL R-343-27
 PRECAST WALL STA. 1+096.1780=
 "72-215W15S" STA. 1+360.000
 ● 5.661 RT

EXIST SD
 PRECAST WALL STA. 1+093.524
 REMOVE OR ABANDON

PLAN VIEW WALL "R-343-27"

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

RETAINED EARTH INDEX	
RE-1	PLAN PRECAST FACE WALL R-343-27, NOTES & DESIGN CRITERIA
RE-2	TYPICAL CROSS SECTIONS
RE-3	TYPICAL CROSS SECTIONS
RE-4	ELEVATION PRECAST WALL "R-343-27"
RE-5	ELEVATION PRECAST WALL "R-343-27"
RE-6	SPECIAL PANEL DETAILS

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-02-98	RELEASE FOR CONSTRUCTION

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

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

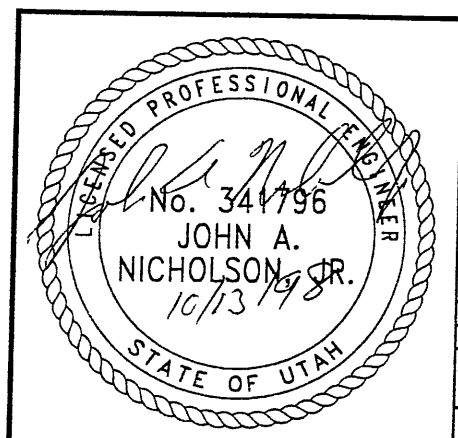
WASATCH CONSTRUCTORS
 OCT 19 1998
 RELEASED FOR CONSTRUCTION

- 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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 4W15-6 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W15-6 MESH HAS FIVE (5) 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 DETAILS.
 - GEOTECHNICAL ENGINEER TO FIELD VERIFY FOUNDATION CONDITIONS AND EXTENT OF STRUCTURAL FILL.

DESIGN PARAMETERS	
ANGLE OF INTERNAL FRICTION (SELECT) = 34°	
ANGLE OF INTERNAL FRICTION (BASE) = 24° 13' 40"	
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°	
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)	
TRAFFIC SURCHARGE = 250 PSF (12 KPa)	
SEISMIC ACCELERATION COEFF. = 0.11g (TYP)	
DESIGN CRITERIA	
SAFETY FACTOR (OVERTURNING) = 2.0	
SAFETY FACTOR (SLIDING) = 1.5	
SAFETY FACTOR (PULLOUT) = 1.5	
DESIGN LIFE = 75 YEARS	

METRIC

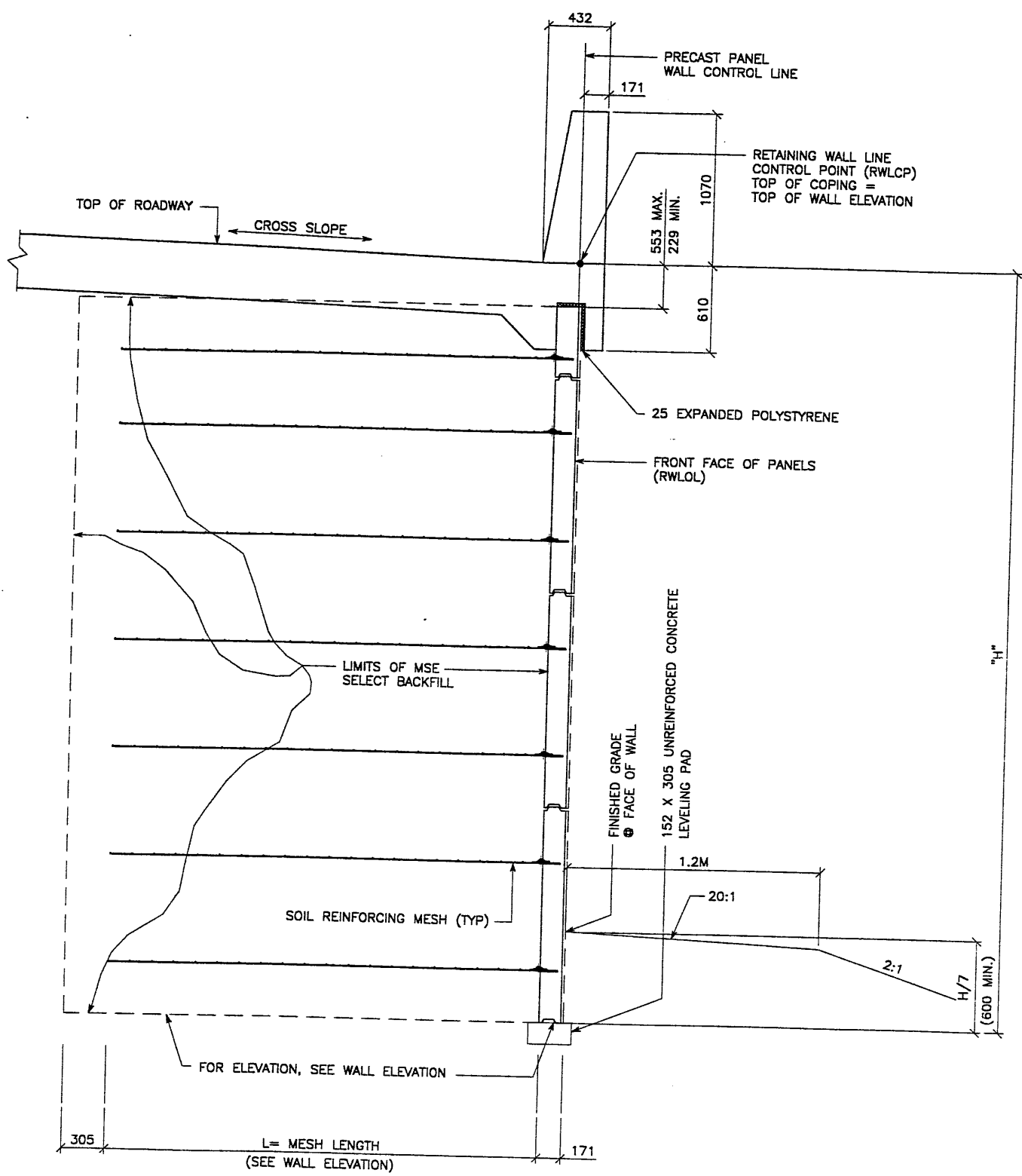
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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



RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-343-27"
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.2R-343-27.3
 JOB NO. 239-0007 3/8
 SH. NO. RE-1

10-02-98
 FINAL
 H:\RE_EARTH\PROJECT\239-0007\1998\72-27\RE-2
 CE (X-UTAH.DWG)



TYPICAL CROSS SECTION - STA 1+000.000 TO STA 1+045.000
 (SEE DWG. NO. 1.2R-343-27.2 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

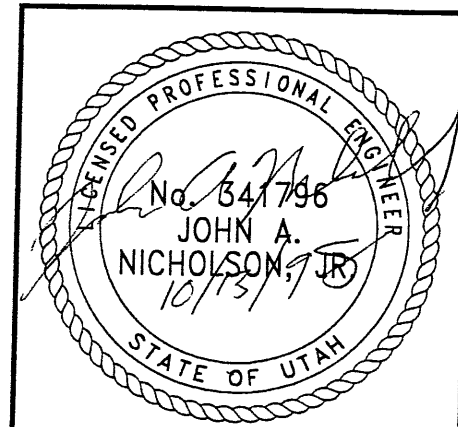
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

VSL CORPORATION
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 Raleigh, NC 27617
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 Fax: (919) 791-4669

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WASATCH CONSTRUCTORS
OCT 19 1998
 RELEASED FOR CONSTRUCTION



RETAINED EARTH WALLS
 PRECAST WALL "R-343-27"
 TYPICAL CROSS SECTION

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

DWG. NO.
 1.2R-343-27.4
 JOB NO:
 239-0007
 SHEET NO.
 RE-2

METRIC


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J:\239-0007\1998\72SERIES\72-27\72-27.dwg
 10-07-98
 FINAL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	10-07-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY	CHK.
JL	JL	JL					
08-17-98	08-17-98	09-17-98					

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 Raleigh, NC 27612
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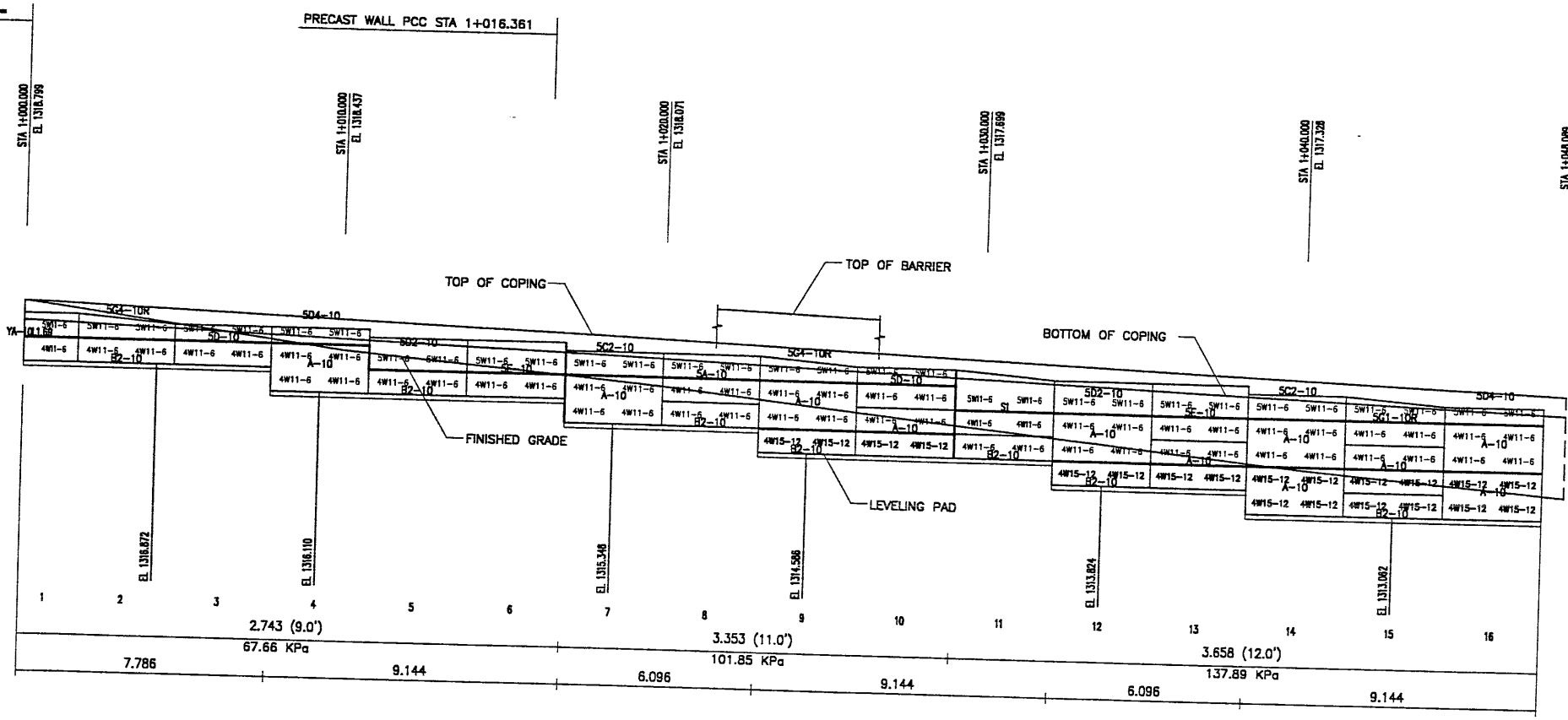
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-27"
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.
 1.2R-343-27.6
 JOB NO.
 239-0007/8
 SHT. NO.
 RE-4

BEGIN WALL R-343-27
 PRECAST WALL STA 1+000.000 =
 "72-215W15S" STA 1+270.000
 ● 6.761 RT
 NOMINAL PANEL FACE (RWLQL)



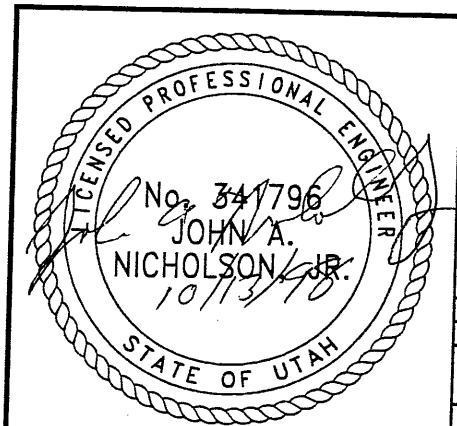
MESH DEPTH
 MAXIMUM BEARING PRESSURE
 (SEE NOTE BELOW)
 PIN SPACING

ELEVATION PRECAST WALL R-343-27
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 253.15 SM)

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

METRIC

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

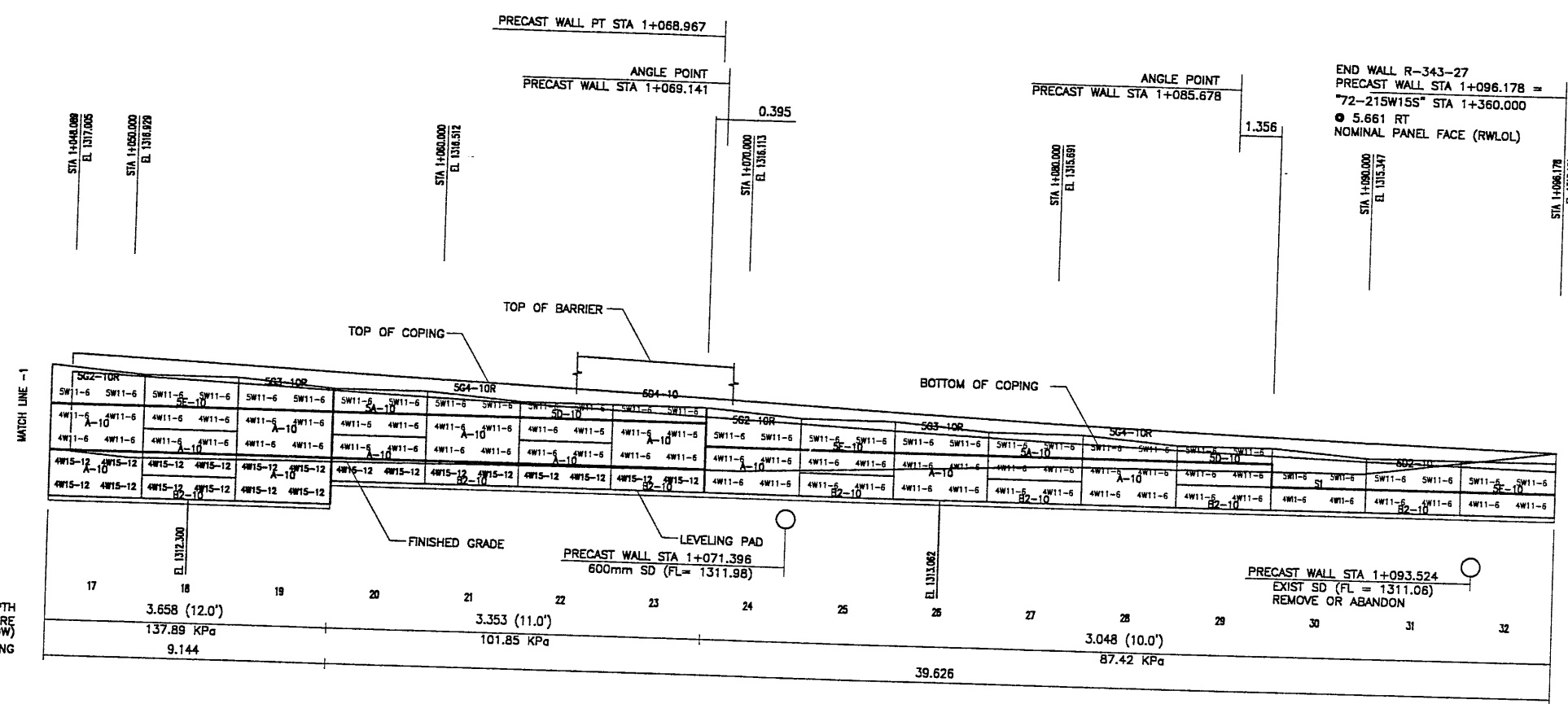
ACE (X-UTAH.DWG)

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T 10-07-98

FINAL

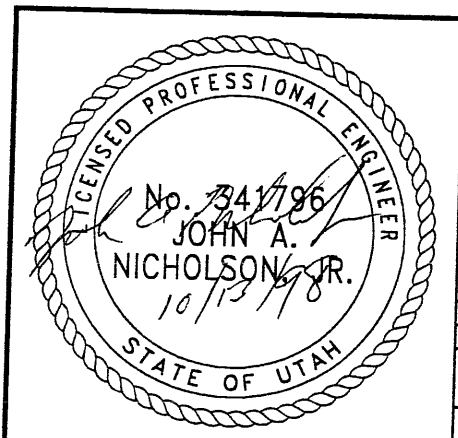
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	10-07-98	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL R-343-27
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 253.15 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

METRIC

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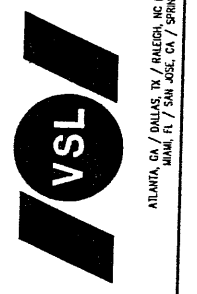


WASATCH CONSTRUCTORS
OCT 19 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-27"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 1.2R-343-27.7
 JOB NO. 239-0007
 SHEET NO. RE-5

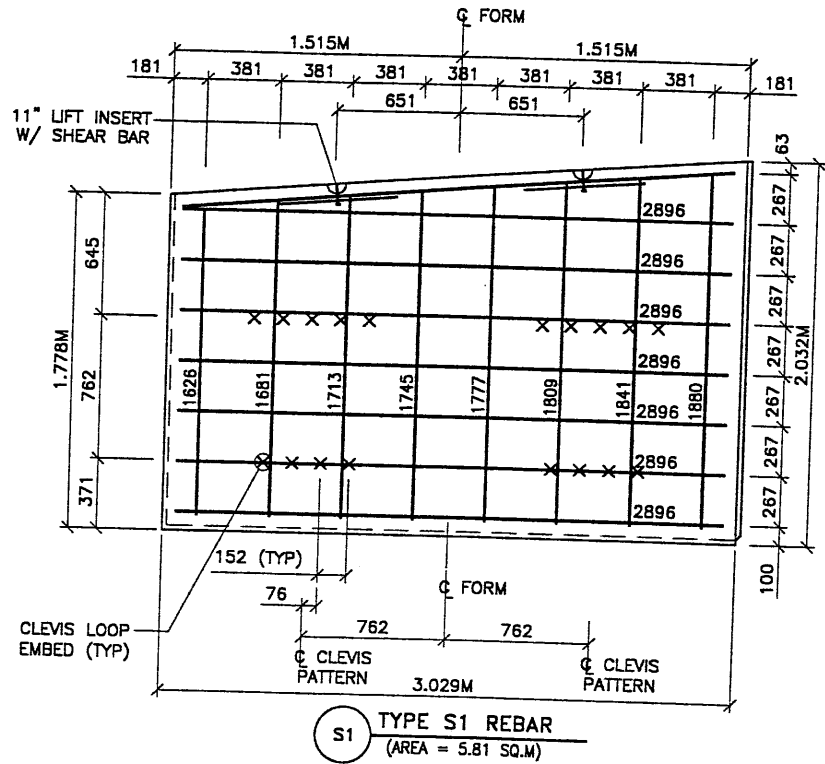
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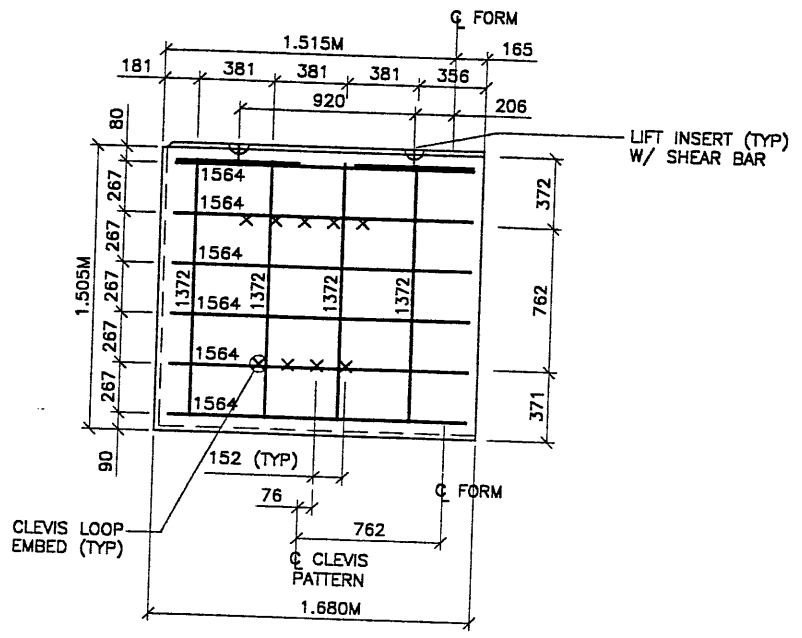
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 THEREFOR.

NO.	DATE	DESCRIPTION	BY	CHK

NO.	DATE	DESCRIPTION	BY	CHK



S1 TYPE S1 REBAR
(AREA = 5.81 SQ.M)



TYPE YA-10L1.69 REBAR
(AREA = 2.58 SQ.M)

APPROVED FOR CONSTRUCTION			
NO.	DATE	DESCRIPTION	CHK
1	10-02-98	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 20,700 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.

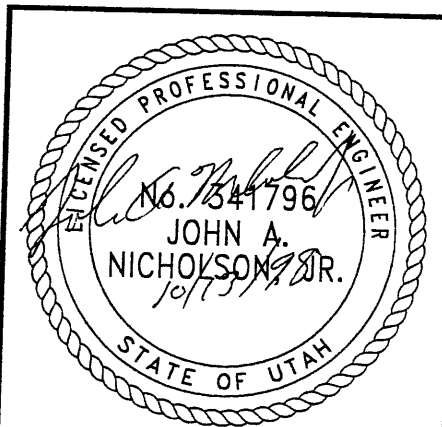
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OCT 19 1998
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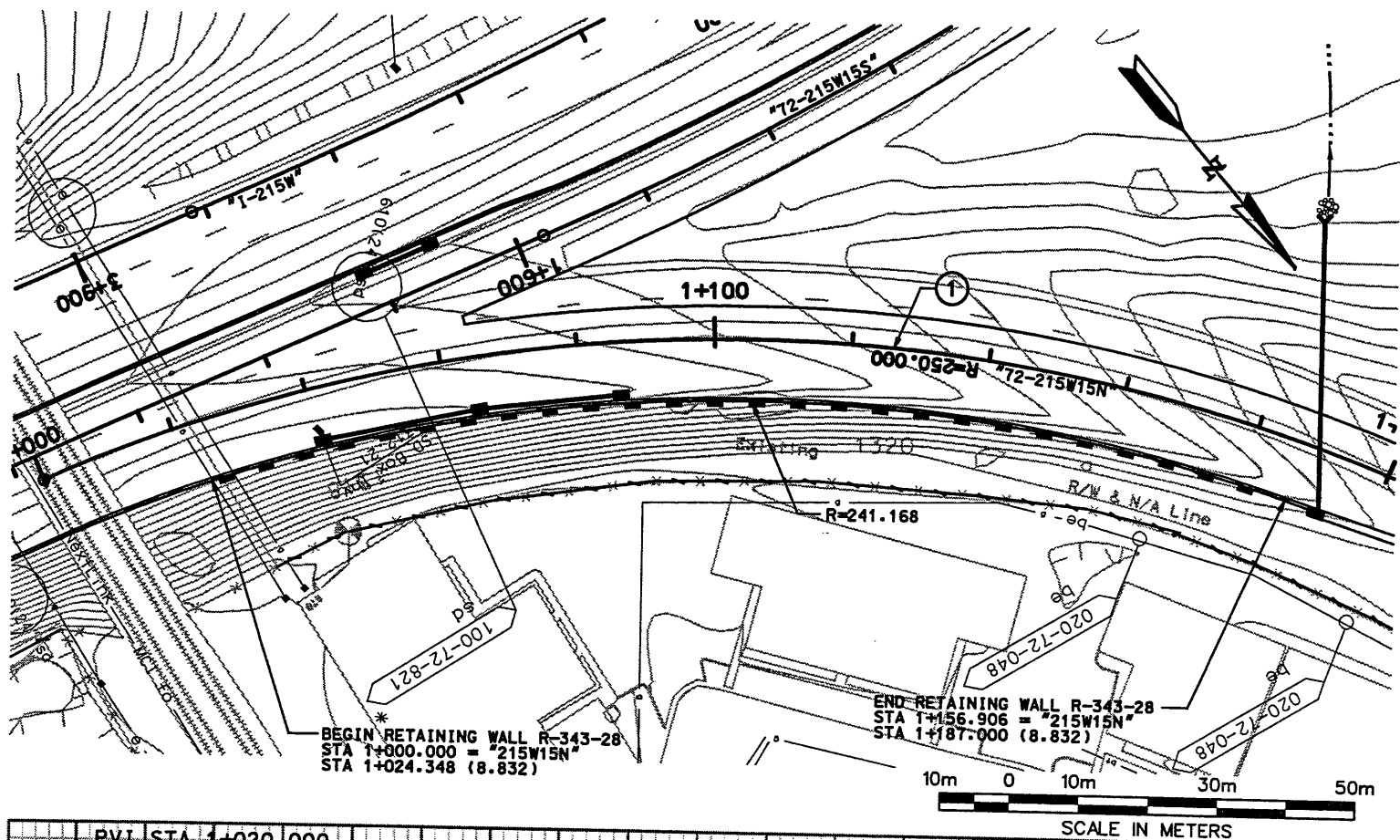


METRIC

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RETAINED EARTH™ WALLS PRECAST WALL "R-353-27" SPECIAL PANEL DETAILS	UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 3.2-R-353-27.8	JOB NO.: 239-0007
SHT. NO. RE-6	DATE: 10/18/98

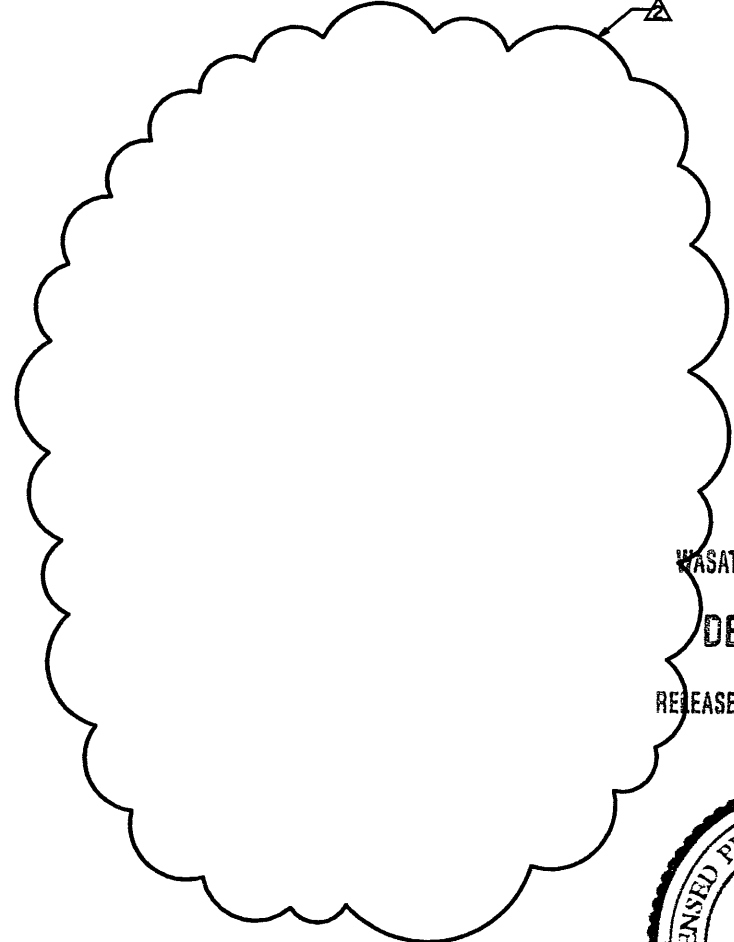
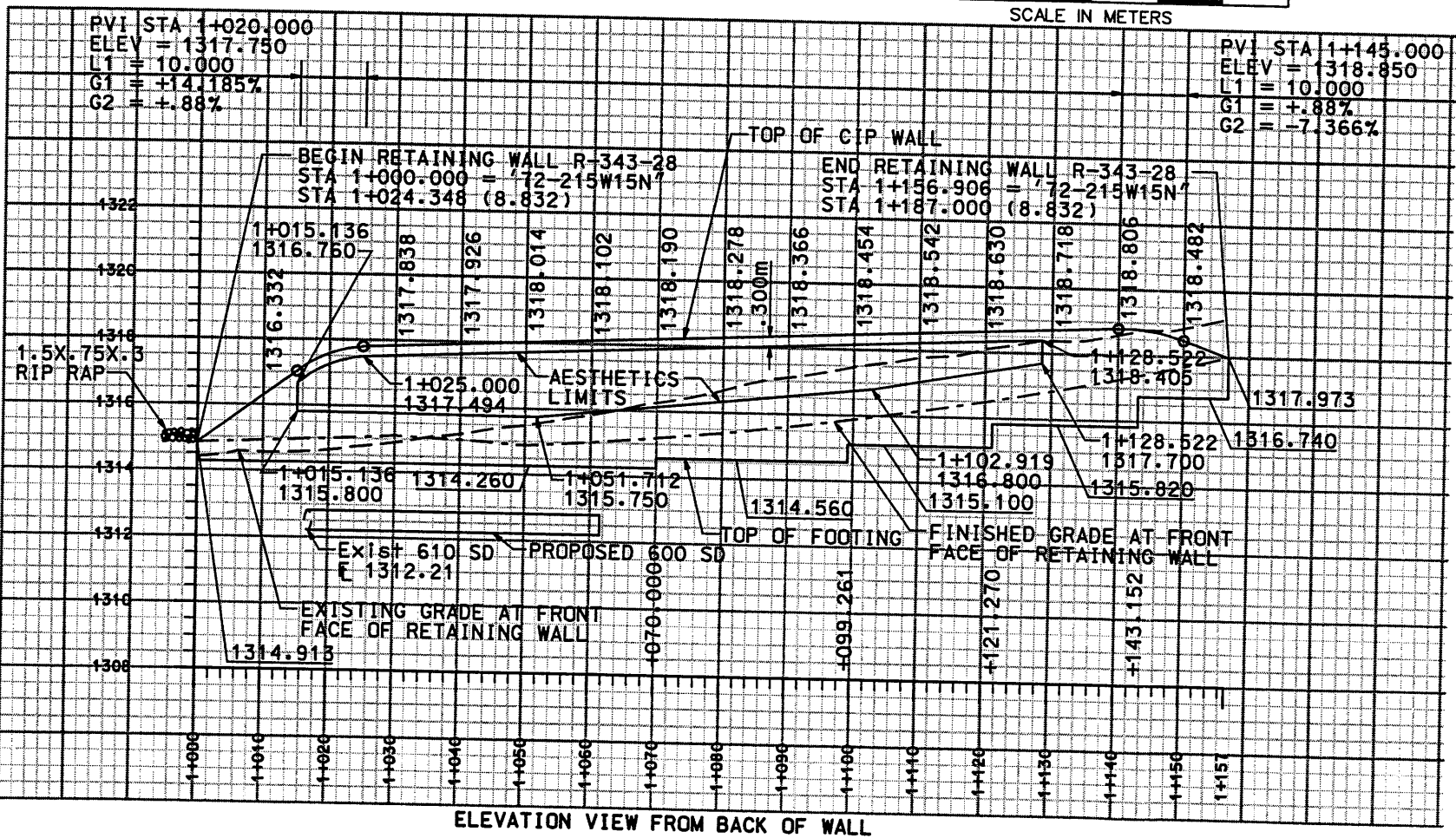
Date: 09-NOV-1998 Times: 16:37 User: name: coyle jm



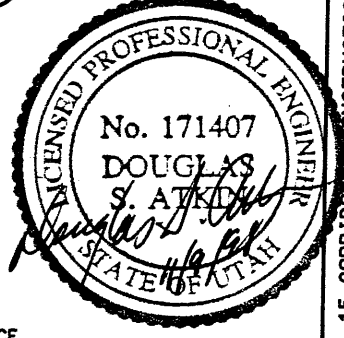
CURVE NO.	Δ	R	L	T
①	$73^\circ 46' 44''$	250.000	321.921	187.633

DESIGN HEIGHT TABLE

STATION LIMIT	C.I.P. DESIGN HEIGHT (m)
1+000.000 TO 1+006.006	1.2
1+006.006 TO 1+010.234	1.8
1+010.234 TO 1+014.464	2.4
1+014.464 TO 1+020.000	3.0
1+020.000 TO 1+067.159	3.6
1+067.159 TO 1+070.000	4.2
1+070.000 TO 1+121.207	3.6
1+121.207 TO 1+143.152	3.0
1+143.152 TO 1+156.906	1.8

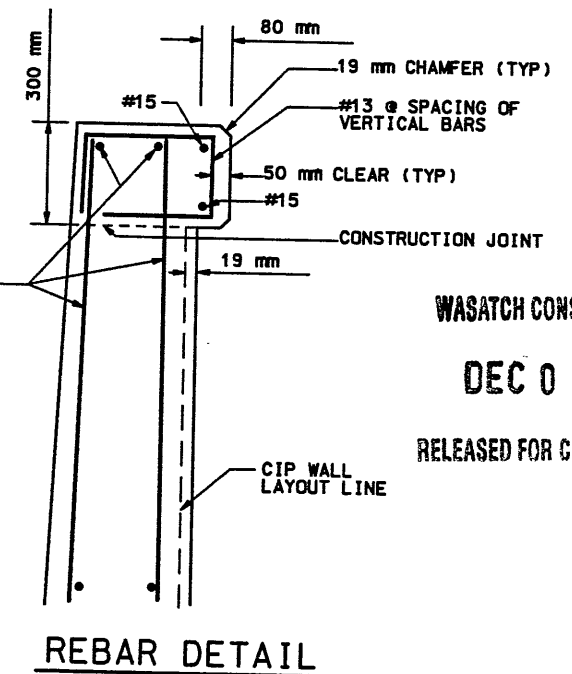
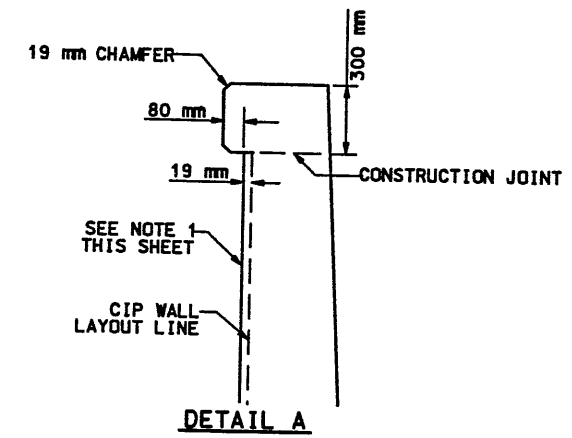
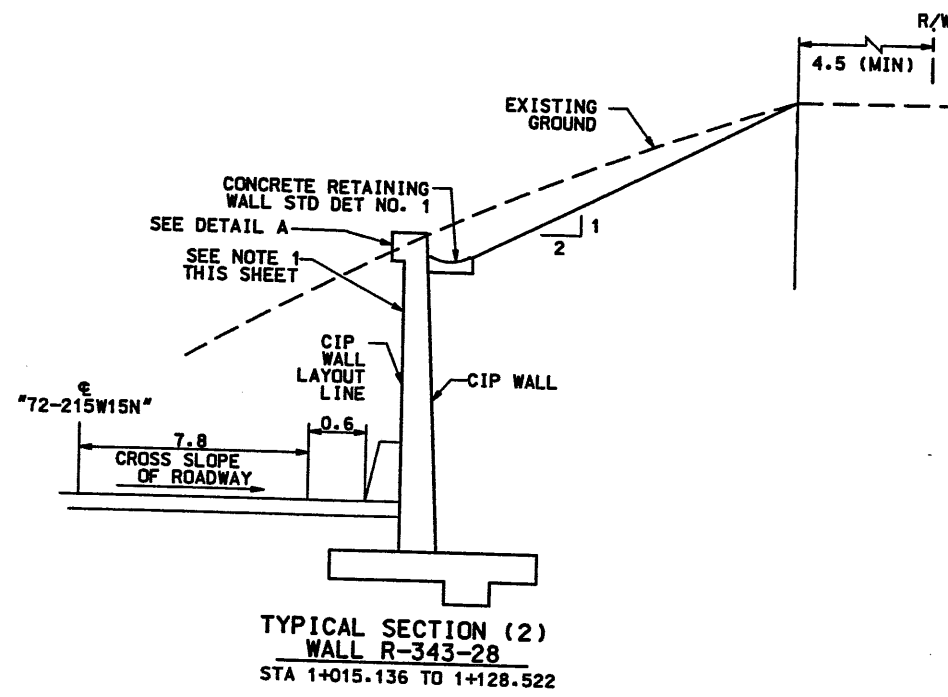
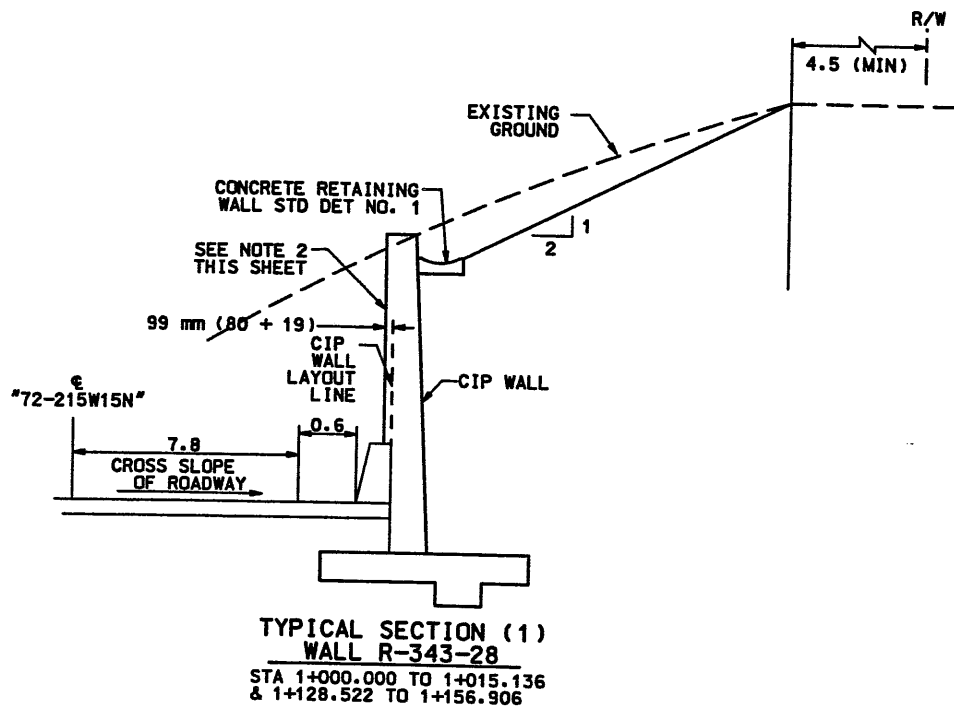


- NOTES:
- CORRIDOR STANDARD PLAN RETAINING WALL AESTHETICS DRAWING CS-6 TEXTURE TYPE A - SEE DETAIL A
 - CAST IN PLACE RETAINING WALL SHALL BE BUILT IN CONFORMANCE WITH UDOT CONCRETE RETAINING WALL STANDARD DETAILS NO.1 AND NO. 2.
 - THE FOUNDATION BEARING MATERIALS SHOULD BE OBSERVED BY THE GEOTECHNICAL ENGINEER DURING SITE PREPARATION. ANY UNDESIRABLE MATERIALS WILL NEED TO BE REMOVED AND REPLACED WITH BORROW IN ORDER TO ACHIEVE ACCEPTABLE CONDITIONS AT THE BASE OF THE WALL.
 - TEXTURE TYPE A SUPERSEEDS TEXTURE TYPE AA SHEET 1.2R-343-28.2

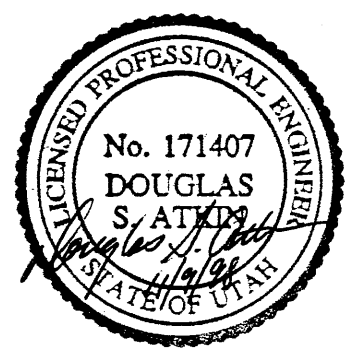


APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
4	1-98	INITIAL RELEASE	
11	09-98	NDC-0230	
UTAH DEPARTMENT OF TRANSPORTATION			
SVERDRUP/DE LEUW			
DESIGN		CHECK	
1/98	1/98	1/98	1/98
DRAWN		CHECK	
1/98	1/98	1/98	1/98
PROJECT NUMBER			
#SP-15-7(135)296			
SECTION 1.2			
SIT./LAYOUT RET WALL R-343-28			
COUNTY			
SALT LAKE			
DWG. NO.			
1.2R-343-28.1			
SHT. 1 OF 14		REF.	

Date: 09-NOV-1998 Time: 16:33 User: nmcocylejm
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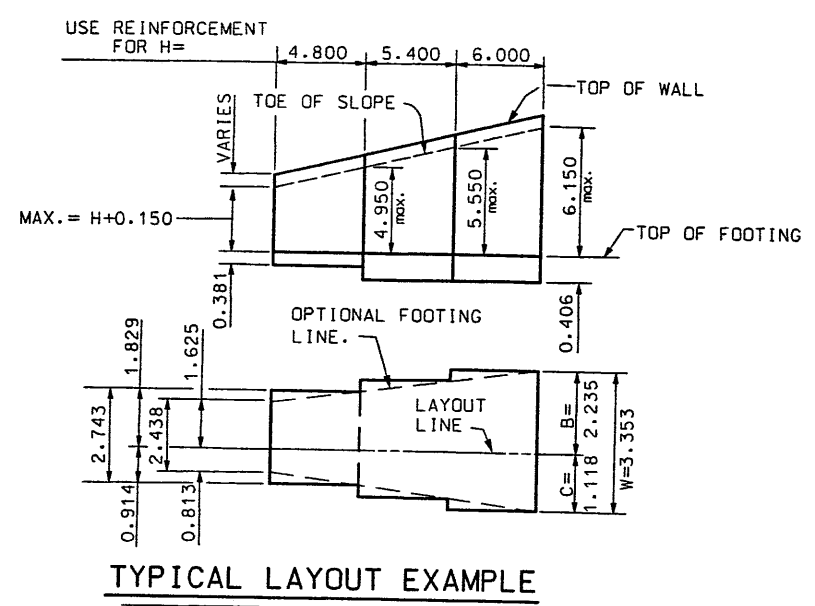
- NOTE:**
- (1) CORRIDOR STANDARD PLAN RETAINING WALL AESTHETICS DWG CS-6 TEXTURE TYPE A - SEE DETAIL A
 - (2) 80 mm COPING WIDTH WILL EXTEND DOWN TO BARRIER



WASATCH CONSTRUCTORS
DEC 0 2 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
A	11-09-98		
UTAH DEPARTMENT OF TRANSPORTATION URS Greiner SVERDRUP/DE LEUW			
DESIGN	CHK	DESIGN	CHK
PRY	9/97	CHK	JMM
DATE	9/97	DATE	9/97
PROJECT DESIGN ENGINEER		PROJECT DESIGN ENGINEER	
JTM		JTM	
DATE	9/97	DATE	9/97
DRWN	DMK	DRWN	DMK
DATE	9/97	DATE	9/97
SECTION MANAGER		SECTION MANAGER	
QUANT.		QUANT.	
I-15 CORRIDOR RECONSTRUCTION MISC DETAILS RET WALL R-343-28 SECTION 1.2 PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.2R-343-28.1A			
SHT. 2A of 4A			

Dortch 31-MAR-98 Time:1:59 User:ame:huffain

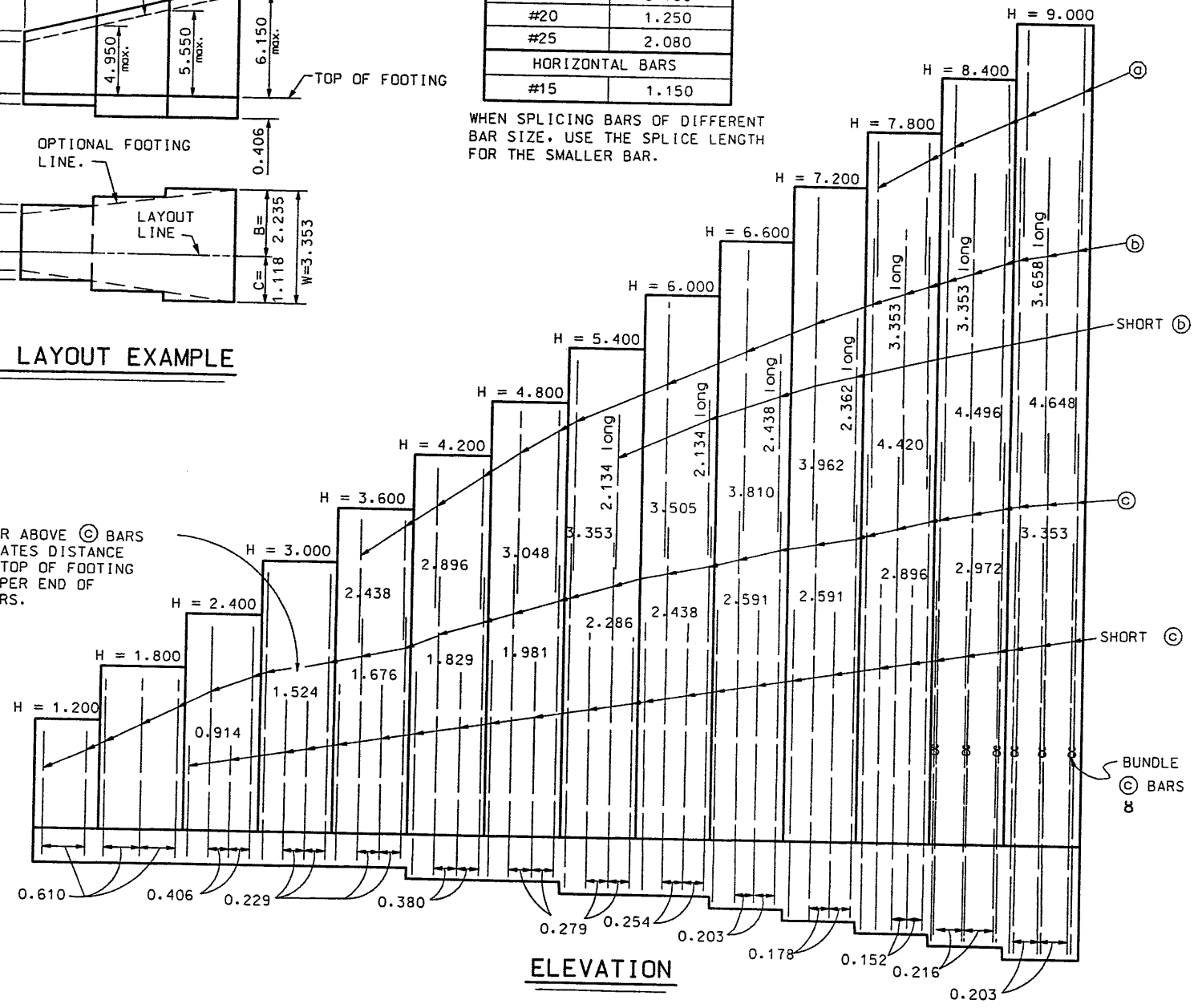


REINFORCING STEEL SPLICES	
BAR SIZE	SPLICE LENGTH
VERTICAL BARS	
#15	0.790
#20	1.250
#25	2.080
HORIZONTAL BARS	
#15	1.150

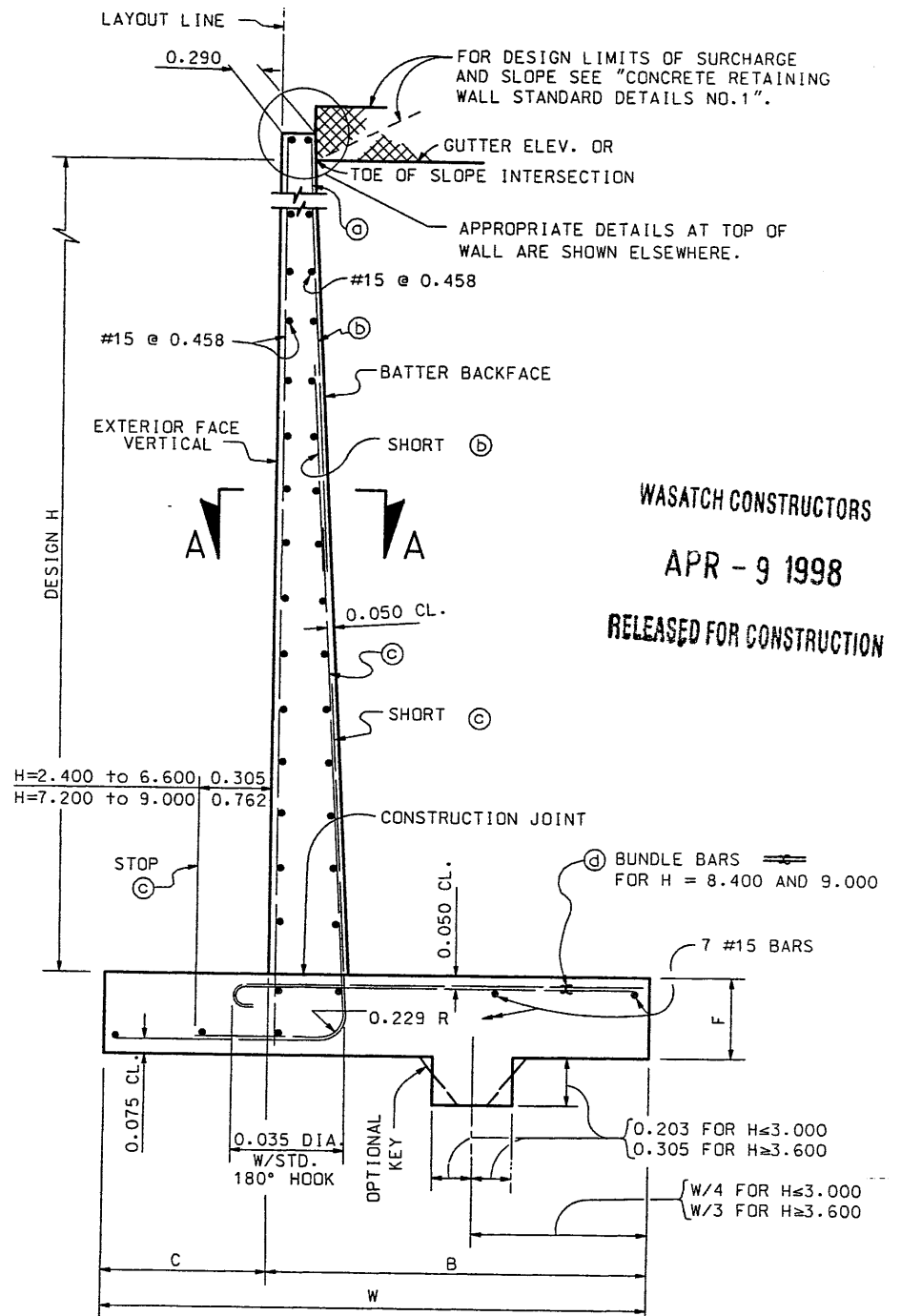
NOTE:
BAR CUT-OFFS MAY BE VARIED
IN INCREMENTS OF 0.150 m.

WHEN SPLICING BARS OF DIFFERENT
BAR SIZE, USE THE SPLICE LENGTH
FOR THE SMALLER BAR.

NUMBER ABOVE © BARS
INDICATES DISTANCE
FROM TOP OF FOOTING
TO UPPER END OF
© BARS.

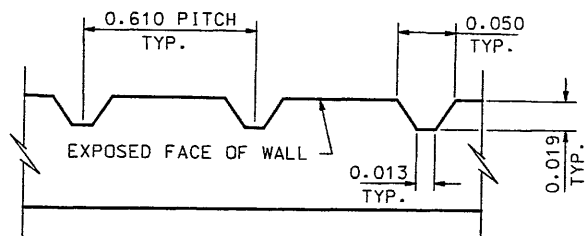


ELEVATION



SPREAD FOOTING SECTION

- NOTES: 1. ALL DIMENSIONS SHOWN ARE IN METERS.
2. FOR DETAILS NOT SHOWN AND DRAINAGE NOTES SEE "CONCRETE RETAINING WALL STANDARD DETAILS NO. 1."
3. QUANTITIES APPLY TO DESIGN H PORTION AND EXCLUDE THE ADDED PORTION ABOVE "GUTTER ELEVATION."



SECTION A-A

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA														
DESIGN H	1.200	1.800	2.400	3.000	3.600	4.200	4.800	5.400	6.000	6.600	7.200	7.800	8.400	9.000
W	0.965	1.270	1.575	1.880	2.184	2.438	2.743	3.048	3.353	3.657	4.038	4.344	4.648	5.105
C	0.305	0.406	0.508	0.610	0.711	0.813	0.914	1.016	1.118	1.219	1.346	1.448	1.549	1.651
B	0.660	0.864	1.067	1.270	1.473	1.625	1.829	2.032	2.235	2.438	2.692	2.896	3.099	3.454
F SPREAD FTG.	0.356	0.356	0.356	0.356	0.356	0.381	0.381	0.406	0.406	0.457	0.508	0.584	0.660	0.711
BATTER	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:24	1:19	1:16	1:16	1:14
© BARS														
© BARS														
© BARS	#15@.610	#15@.610	#15@.406	#15@.229	#20@.229	#30@.380	#30@.279	#35@.279	#35@.254	#35@.203	#35@.178	#35@.152	#35@.216 8	#35@.203 8
© BARS	#15@.610	#15@.610	#15@.406	#15@.229	#15@.229	#25@.380	#25@.279	#35@.279	#35@.254	#35@.203	#35@.178	#35@.152	#30@.216 8	#30@.203 8
.610 LEVEL SURCHARGE TOE PRESSURE kPa	76.6	91.0	105.3	110.1	134.1	158.0	167.6	191.5	205.9	220.3	234.6	253.8	272.9	296.9
2:1 UNLIMITED SCOPE TOE PRESSURE kPa	52.7	71.8	95.8	119.7	129.3	158.0	172.4	201.1	225.0	263.3	282.5	311.2	340.0	359.1
SPREAD FOOTING STEEL kg/m	25	30	42	55	76	119	156	219	278	366	451	606	668	754
CONC. m³/m	0.8	1.2	1.5	1.9	2.4	2.8	3.2	3.7	4.2	4.8	5.9	7.2	8.2	9.7

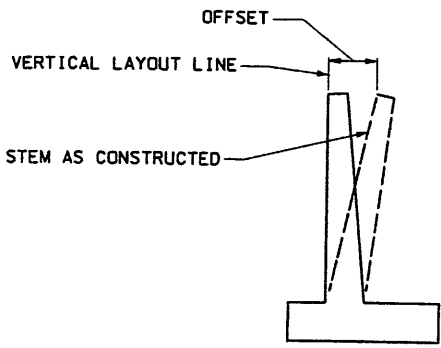
UTAH DEPARTMENT OF TRANSPORTATION
 SALT LAKE COUNTY, UTAH
 STRUCTURES DIVISION
 PROJECT NUMBER *SP-15-7(135)296
 STANDARD DETAILS NO. 2
 CONCRETE RETAINING WALL
 SALT LAKE COUNTY
 1.2R-343-28.2
 DRG. NO.
 SHT. 3 of 4

WASATCH CONSTRUCTORS
 APR - 9 1998
 RELEASED FOR CONSTRUCTION

4/7/98
 3/22/95

User name: huffdabn Date: 31-MAR-1998 Time: 12:01

Filename: c:\vgm\115_cadd\12_97\sheet_1_files\walla\k282.dgn

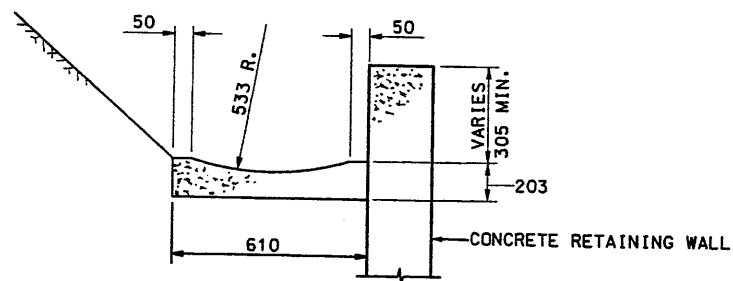


**TABLE OF OFFSETS
(IN METERS)**

H	OFF.	H	OFF.
1.200	0.006	4.800	0.032
1.800	0.010	5.400	0.038
2.400	0.013	6.000	0.044
3.000	0.016	6.600	0.050
3.600	0.019	7.200	0.057
4.200	0.025	7.800 TO 11.000	0.064

APPROXIMATE WALL OFFSET VALUES

VALUES FOR OFFSETTING FORMS TO BE DETERMINED BY THE ENGINEER



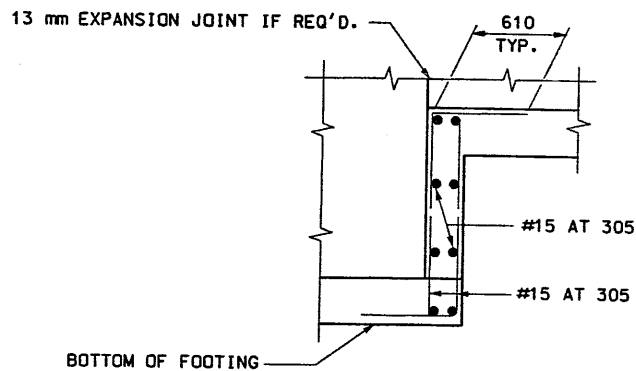
TYPICAL GUTTER DETAIL

GENERAL NOTES

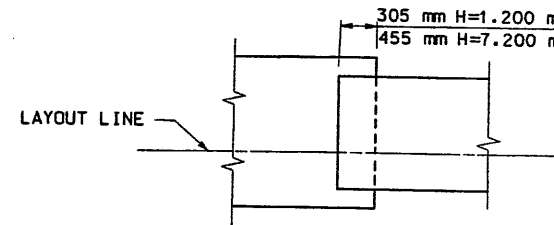
1. USE EPOXY-COATED REINFORCING STEEL CONFORMING TO AASHTO M 31M GRADE 400.
2. DESIGN H MAY BE EXCEEDED BY 150 mm BEFORE GOING TO THE NEXT SIZE.
3. ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SPECIFIED OTHERWISE.

DESIGN DATA

CAST-IN-PLACE CONCRETE: $f_c = 10 \text{ MPa}$; $f_a(\text{REINF.}) = 160 \text{ MPa}$; $n=8$.
 EARTH: UNIT DENSITY = 1920 kg/m^3
 IN CASE OF SLOPING GROUND CONDITIONS ABOVE THE TOP OF THE WALL. EARTH PRESSURE SHALL BE DETERMINED FROM THE RANKINE EQUATIONS FOR LATERAL EARTH PRESSURE WITH $\phi = 33^\circ 42'$.
 610 mm SURCHARGE: EQUIVALENT FLUID PRESSURE = 5.6 kN/m^3 MAX. FOR DETERMINATION OF THE PRESSURE.



ELEVATION

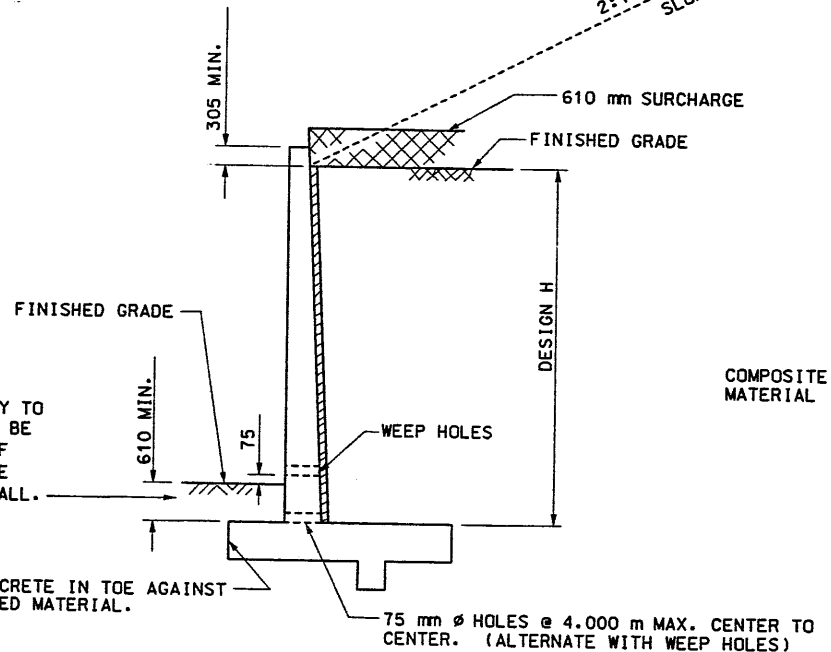


PLAN

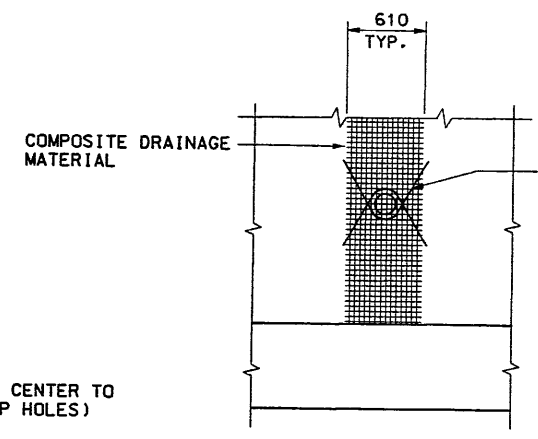
FOOTING STEP DETAILS

BACKFILL SUFFICIENTLY TO PREVENT PONDING. TO BE DONE AFTER REMOVAL OF WALL FORMS AND BEFORE BACKFILLING BEHIND WALL.

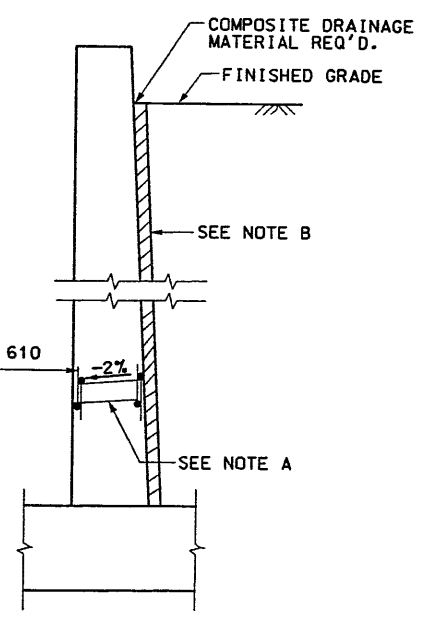
PLACE CONCRETE IN TOE AGAINST UNDISTURBED MATERIAL.



DESIGN AND DRAINAGE



PARTIAL ELEVATION
@ BACK FACE OF WALL



SECTION

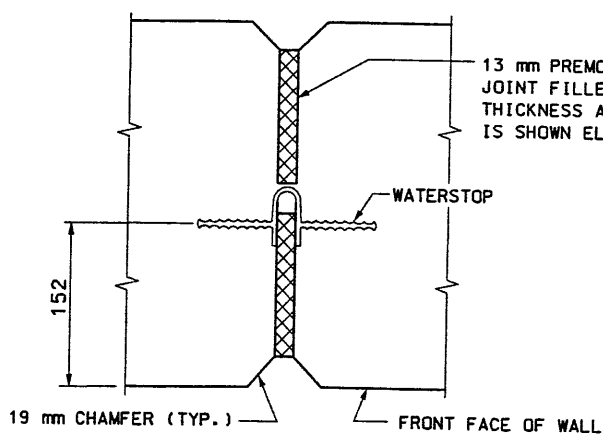
WEEP HOLE DETAIL

WATER STOP NOTES

1. WATERSTOP TO HAVE FIVE OR MORE PAIRS OF RAISED RIBS TO PROVIDE 65 mm^2 MIN. RIB CROSS-SECTIONAL AREA ON EACH HALF OF THE WATERSTOP. HEIGHT OF RIBS TO BE 2 mm MIN.
2. HOLES WILL BE PERMITTED IN THE OUTER 13 mm OF THE WEB FOR WIRE, RINGS, ETC. TIE WEB TO #10 REINFORCING BARS @ 305 mm MAX. INTERVALS TO SUPPORT THE WATERSTOP IN PROPER POSITION DURING CONCRETE PLACEMENT. ALTERNATIVE DETAIL MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

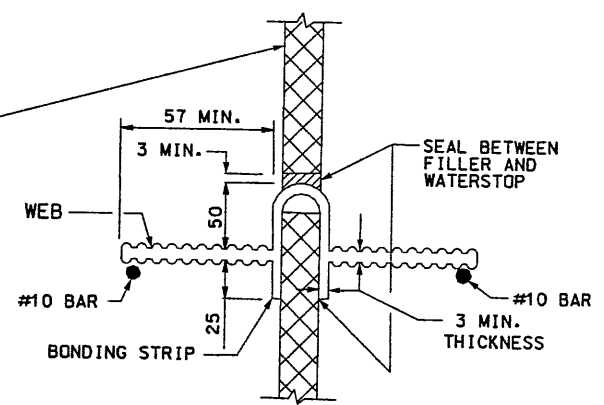
NOTES:

- A. 100 mm ϕ DRAINS @ 4.000 m MAX. CENTER TO CENTER.
- B. COMPOSITE DRAINAGE MATERIAL REQUIRED FROM BOTTOM OF WALL TO TOP OF FINISHED GRADE.



WALL EXPANSION JOINT (PLAN VIEW)

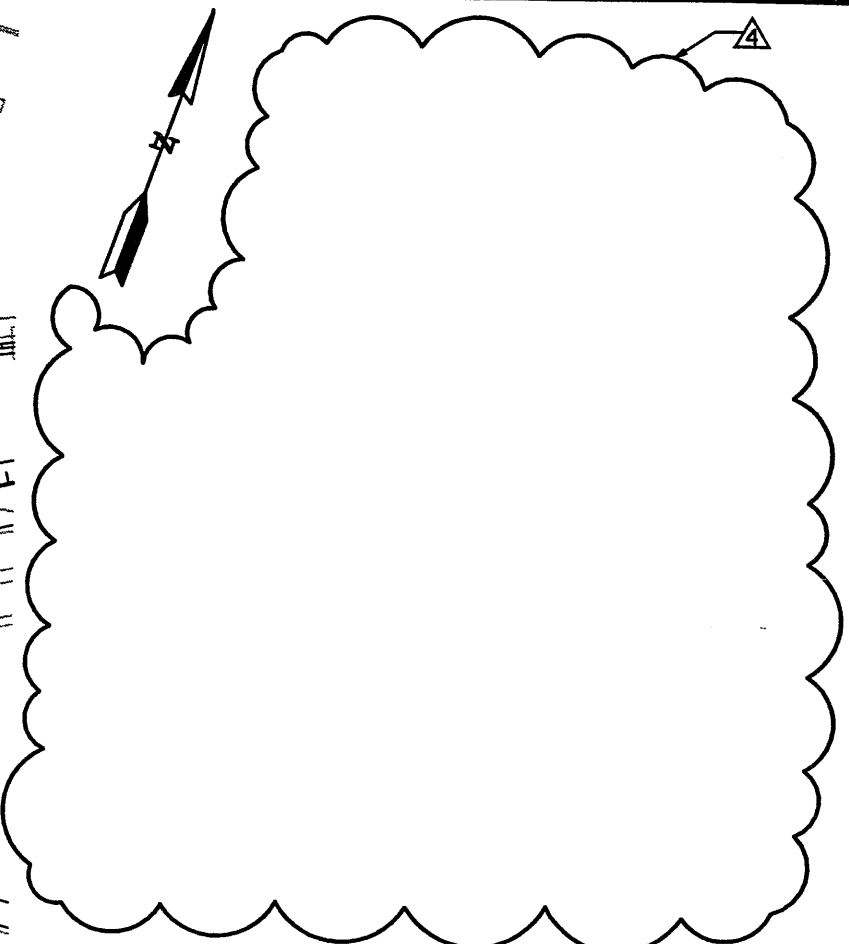
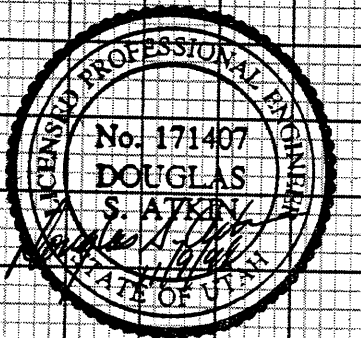
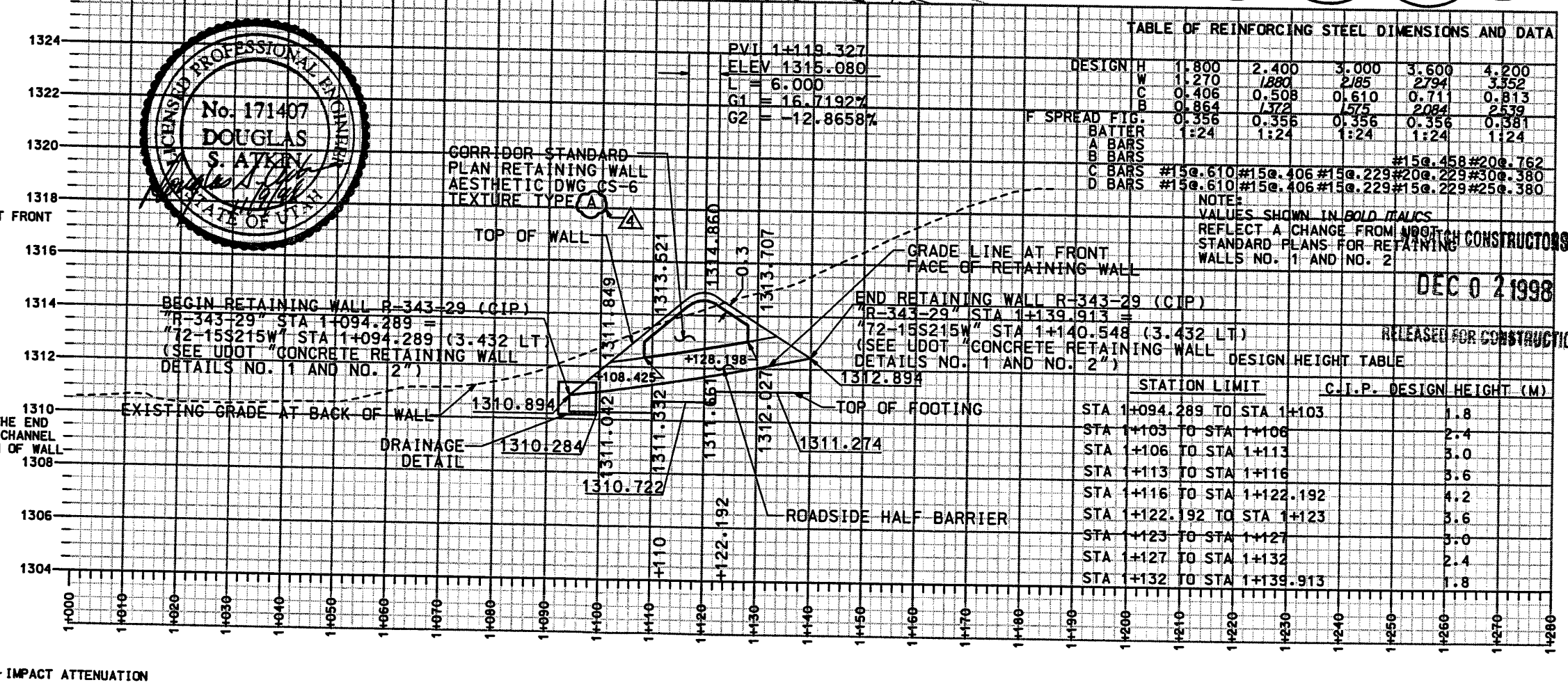
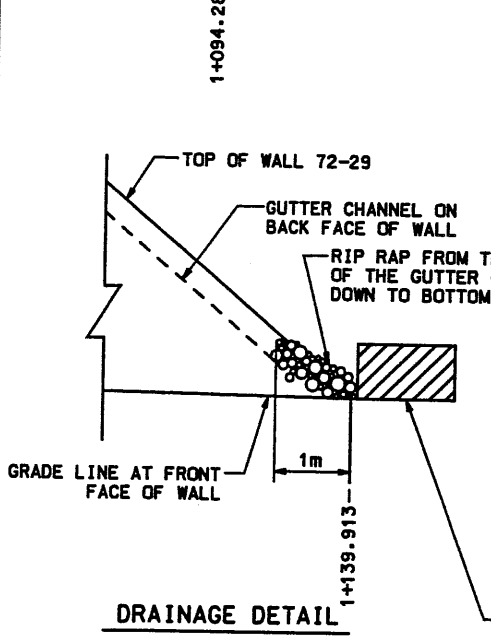
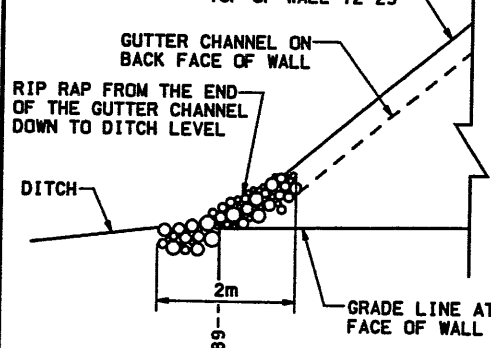
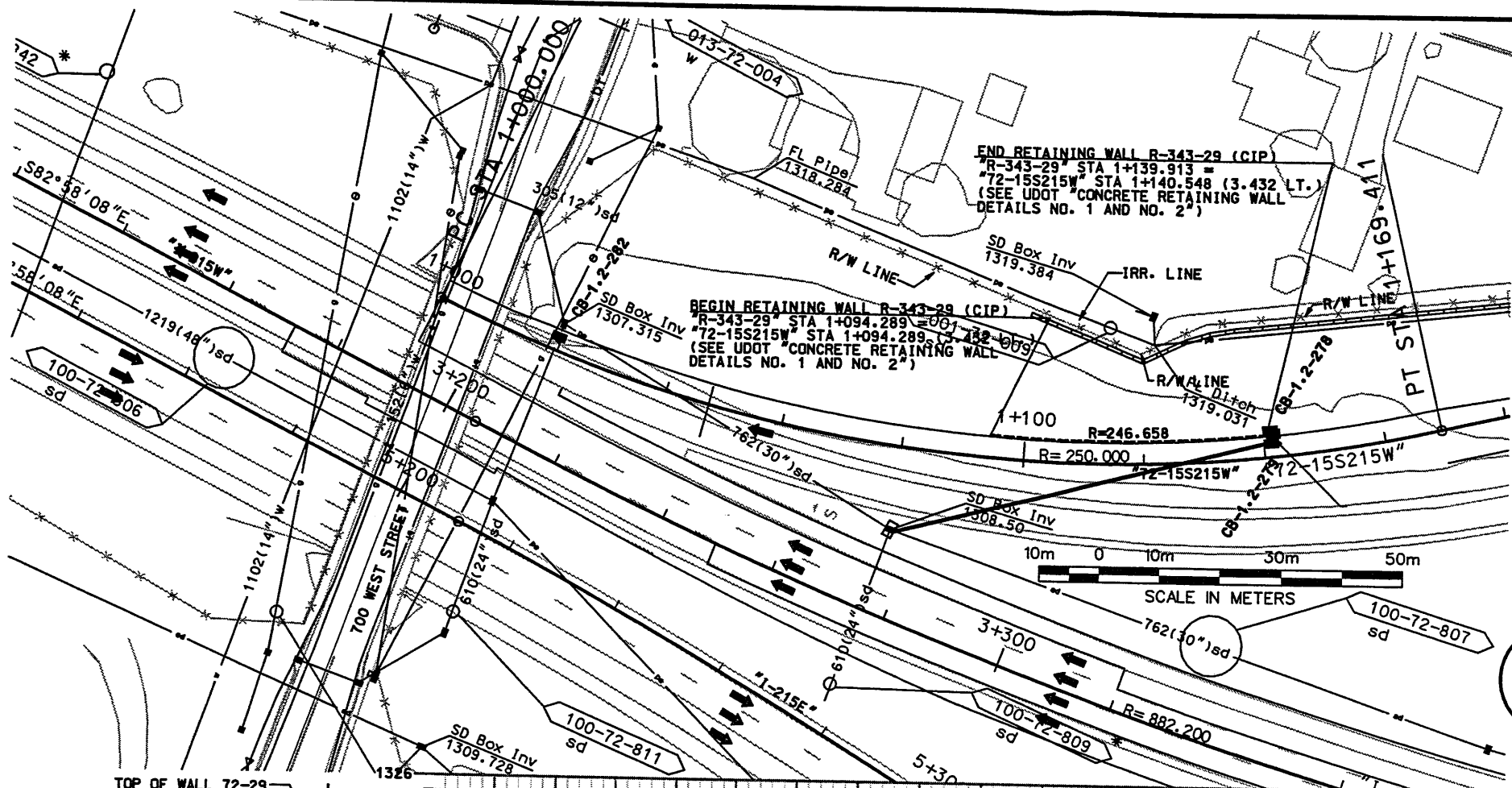
PLACE JOINTS AT 30.500 m MAX. SPACING



WATERSTOP DETAIL

UTAH DEPARTMENT OF TRANSPORTATION SALT LAKE CITY, UTAH STRUCTURES DIVISION	DESIGN	DRAWN	QUANT.	CHECK	CHECK	CHECK	REVISIONS
CONCRETE RETAINING WALL STANDARD DETAILS NO. 1	DATE	GROUP LEADER	DATE	DATE	DATE	DATE	REMARKS
PROJECT NUMBER *SP-15-7(135)296	APPROVAL	APPROVED	DATE	DATE	DATE	DATE	DATE
SALT LAKE COUNTY	1.2R-343-28.3	DRG. NO.	48	of	48	SHT.	3/22/95

Usernames: coy1ejm
 Date: 09-NOV-1998 Time: 16:41
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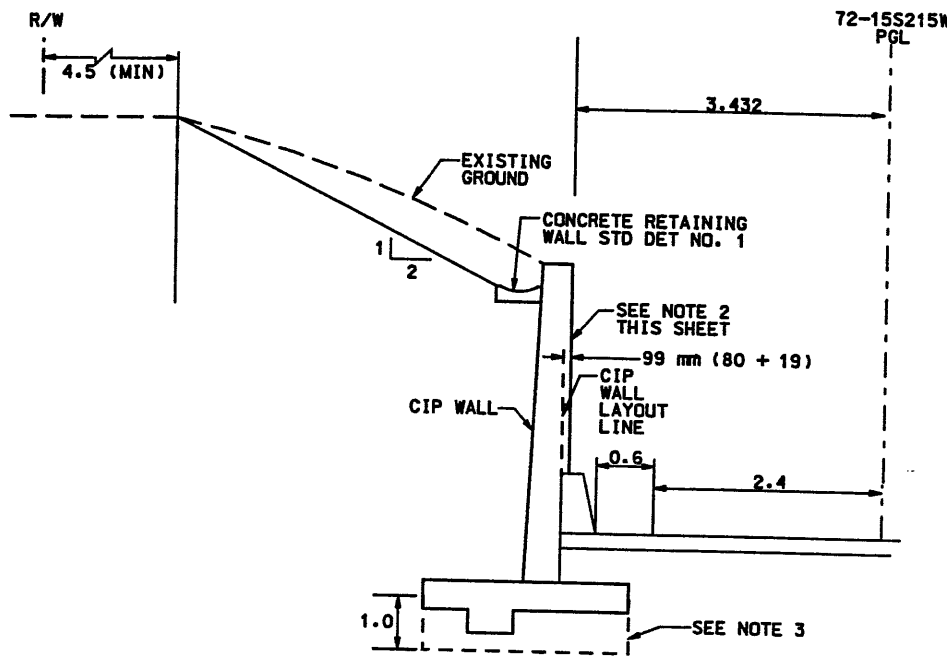


UTAH DEPARTMENT OF TRANSPORTATION
 I-15 CORRIDOR RECONSTRUCTION
 SITUATION/LAYOUT
 RETAINING WALL R-343-29
 SECTION 1.2
 PROJECT NUMBER #SP-15-711351296

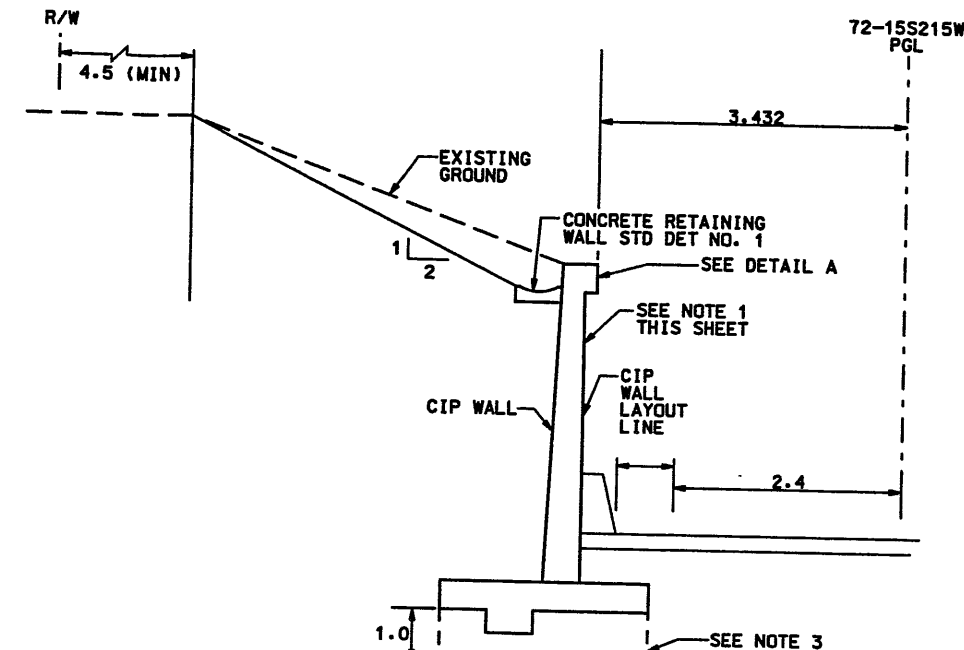
APPROVED FOR CONSTRUCTION
 DATE 8-28-97 INITIAL RELEASE
 DATE 10-8-97 TOTAL REVISION
 DATE 4-17-98 AESTHETIC REVISION
 DATE 11-09-98 NOC 0230 CORP'G

URS Greiner
 SVERDRUP/DE LEUW
 DESIGN PRV S/P/T CHECK RC S/P/T
 DRAWN CJ S/P/T CHECK PRV S/P/T
 QUANT. / CHECK /
 APPROVAL RECORD: S/P/T DATE PROJECT DESIGN ENGINEER
 APPROVED S/P/T DATE RICK CHAPMAN PROJECT MANAGER

SALT LAKE COUNTY
 DWG. NO. 1.2R-343-29.1
 SHT. 1 OF 4
 REF.

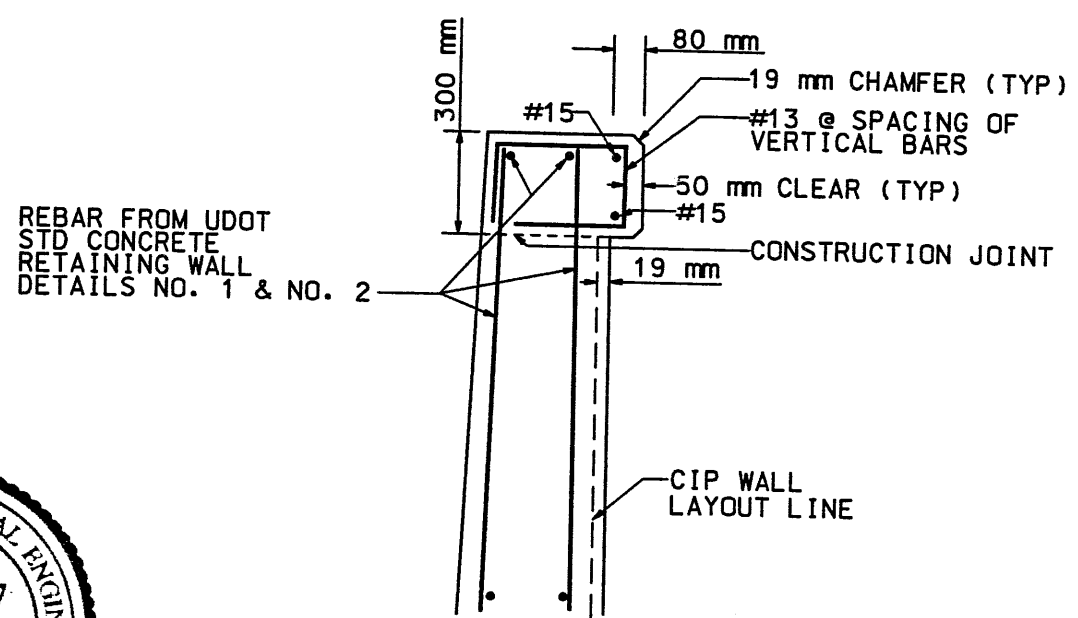


TYPICAL SECTION (1)
WALL R-343-29
STA 1+094.289 TO 1+108.425
STA 1+128.198 TO 1+139.913

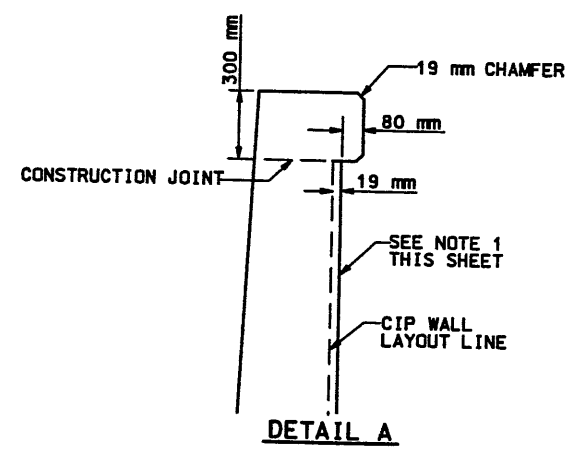


TYPICAL SECTION (2)
WALL R-343-29
STA 1+108.425 TO 1+128.198

- NOTE:
- (1) CORRIDOR STANDARD PLAN RETAINING WALL AESTHETICS DWG CS-6 TEXTURE TYPE A - SEE DETAIL A
 - (2) 80 mm COPING WIDTH WILL EXTEND DOWN TO BARRIER
 - (3) FOR DESIGN HEIGHT WALL LOCATIONS OF 3.5 AND 4.2 METERS, OVEREXCAVATE 1 METER BELOW FOOTING AND REPLACE WITH BORROW WITH AN INTERNAL FRICTION ANGLE OF AT LEAST 34°

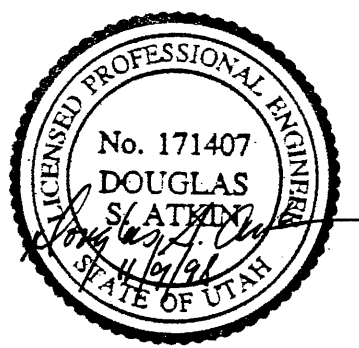


REBAR DETAIL



DETAIL A

WASATCH CONSTRUCTORS
DEC 0 2 1998
RELEASED FOR CONSTRUCTION



APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
Δ	11-09-98	NO. 0230	COPING
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner SVERDRUP/DE LEUW			
DESIGN	PRY	DATE	CHECK
JIM EMBALUM		9/87	JIM
PROJECT DESIGN ENGINEER			
DRAWN	DATE	CHECK	DATE
BOB BRADY		JIM	9/87
SECTION MANAGER		QUANT.	
APPROVAL RECORD	DATE	APPROVED	DATE
JIM EMBALUM			
I-15 CORRIDOR RECONSTRUCTION			
MISC DETAILS RET WALL R-343-29			
SECTION 1.2			
PROJECT NUMBER #SP-15-7(135)296			
SALT LAKE COUNTY			
DWG. NO. 1.2R-343-29.1A			
SHT.	OF		4

Date: 24-FEB-1998 Time: 11:44 Username: mstott

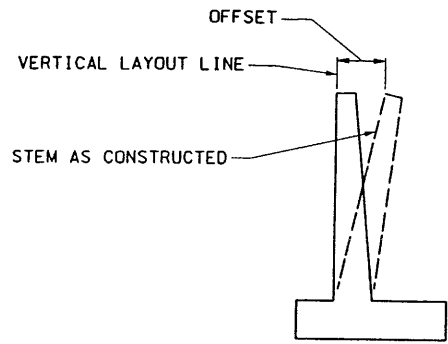
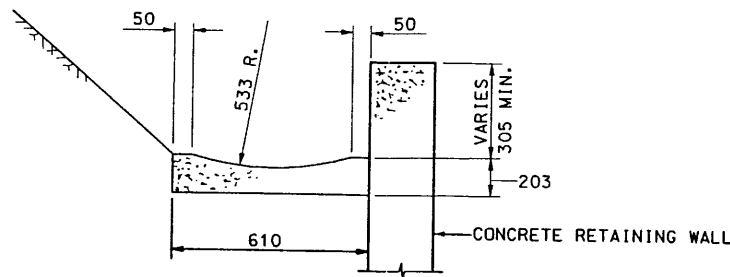


TABLE OF OFFSETS
(IN METERS)

H	OFF.	H	OFF.
1.200	0.006	4.800	0.032
1.800	0.010	5.400	0.038
2.400	0.013	6.000	0.044
3.000	0.016	6.600	0.050
3.600	0.019	7.200	0.057
4.200	0.025	7.800 TO 11.000	0.064

APPROXIMATE WALL OFFSET VALUES

VALUES FOR OFFSETTING FORMS TO BE DETERMINED BY THE ENGINEER



TYPICAL GUTTER DETAIL

GENERAL NOTES

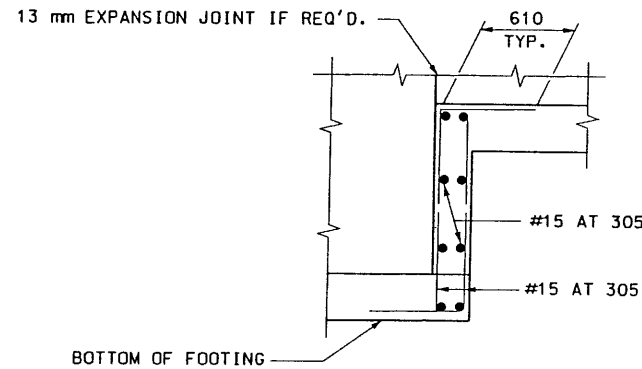
1. USE EPOXY-COATED REINFORCING STEEL CONFORMING TO AASHTO M 31M GRADE 400.
2. DESIGN H MAY BE EXCEEDED BY 150 mm BEFORE GOING TO THE NEXT SIZE.
3. ALL DIMENSIONS SHOWN ARE IN METERS UNLESS SPECIFIED OTHERWISE.

DESIGN DATA

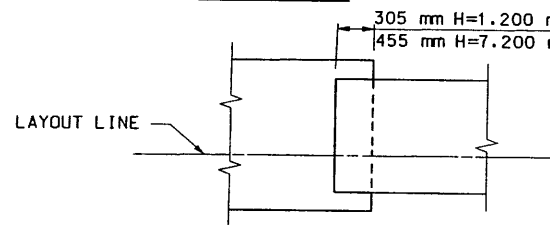
CAST-IN-PLACE CONCRETE: $f_c = 10 \text{ MPa}$; $f_o(\text{REINF.}) = 160 \text{ MPa}$; $n=8$.
EARTH: UNIT DENSITY = 1920 kg/m^3

IN CASE OF SLOPING GROUND CONDITIONS ABOVE THE TOP OF THE WALL. EARTH PRESSURE SHALL BE DETERMINED FROM THE RANKINE EQUATIONS FOR LATERAL EARTH PRESSURE WITH $\phi = 33^\circ 42'$.

610 mm SURCHARGE: EQUIVALENT FLUID PRESSURE = 5.6 kN/m^3 MAX. FOR DETERMINATION OF THE PRESSURE.



ELEVATION

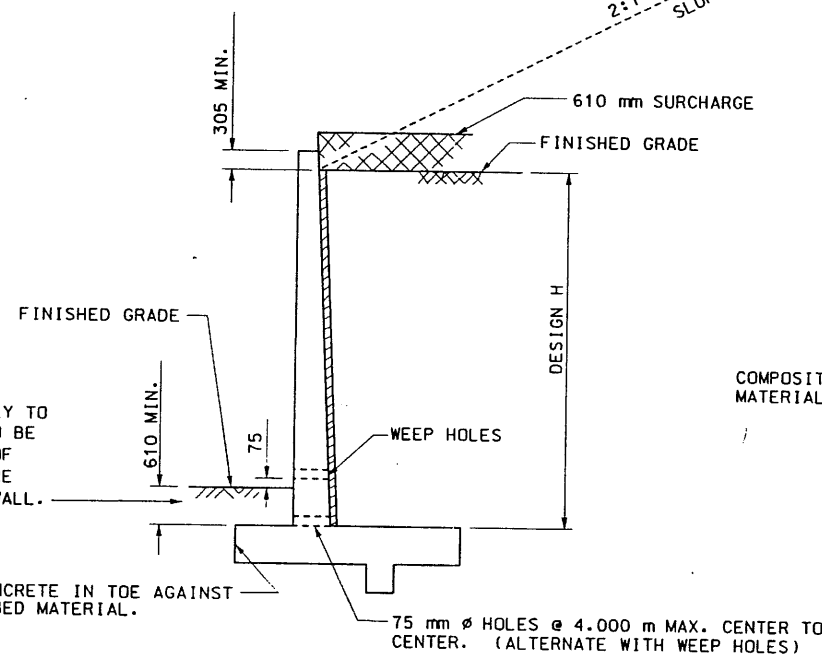


PLAN

FOOTING STEP DETAILS

BACKFILL SUFFICIENTLY TO PREVENT PONDING. TO BE DONE AFTER REMOVAL OF WALL FORMS AND BEFORE BACKFILLING BEHIND WALL.

PLACE CONCRETE IN TOE AGAINST UNDISTURBED MATERIAL.



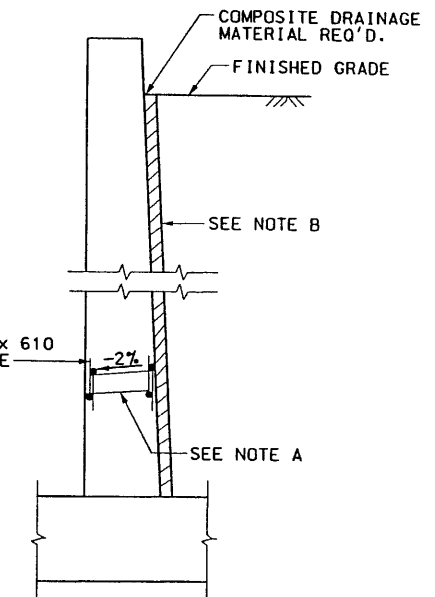
DESIGN AND DRAINAGE

COMPOSITE DRAINAGE MATERIAL

TWO #15 x 610 EACH FACE

PARTIAL ELEVATION

@ BACK FACE OF WALL



SECTION

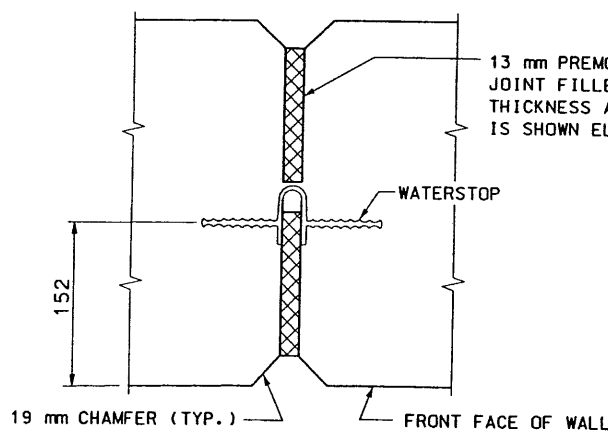
WEEP HOLE DETAIL

WATER STOP NOTES

1. WATERSTOP TO HAVE FIVE OR MORE PAIRS OF RAISED RIBS TO PROVIDE 65 mm^2 MIN. RIB CROSS-SECTIONAL AREA ON EACH HALF OF THE WATERSTOP. HEIGHT OF RIBS TO BE 2 mm MIN.
2. HOLES WILL BE PERMITTED IN THE OUTER 13 mm OF THE WEB FOR WIRE, RINGS, ETC. TIE WEB TO #10 REINFORCING BARS @ 305 mm MAX. INTERVALS TO SUPPORT THE WATERSTOP IN PROPER POSITION DURING CONCRETE PLACEMENT. ALTERNATIVE DETAIL MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

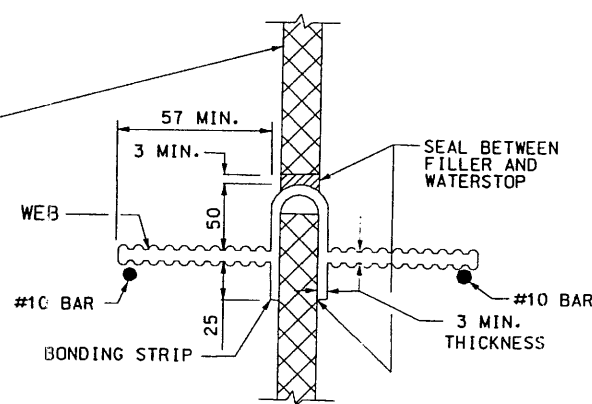
NOTES:

- A. 100 mm ϕ DRAINS @ 4.000 m MAX. CENTER TO CENTER.
- B. COMPOSITE DRAINAGE MATERIAL REQUIRED FROM BOTTOM OF WALL TO TOP OF FINISHED GRADE.



WALL EXPANSION JOINT (PLAN VIEW)

PLACE JOINTS AT 30.500 m MAX. SPACING



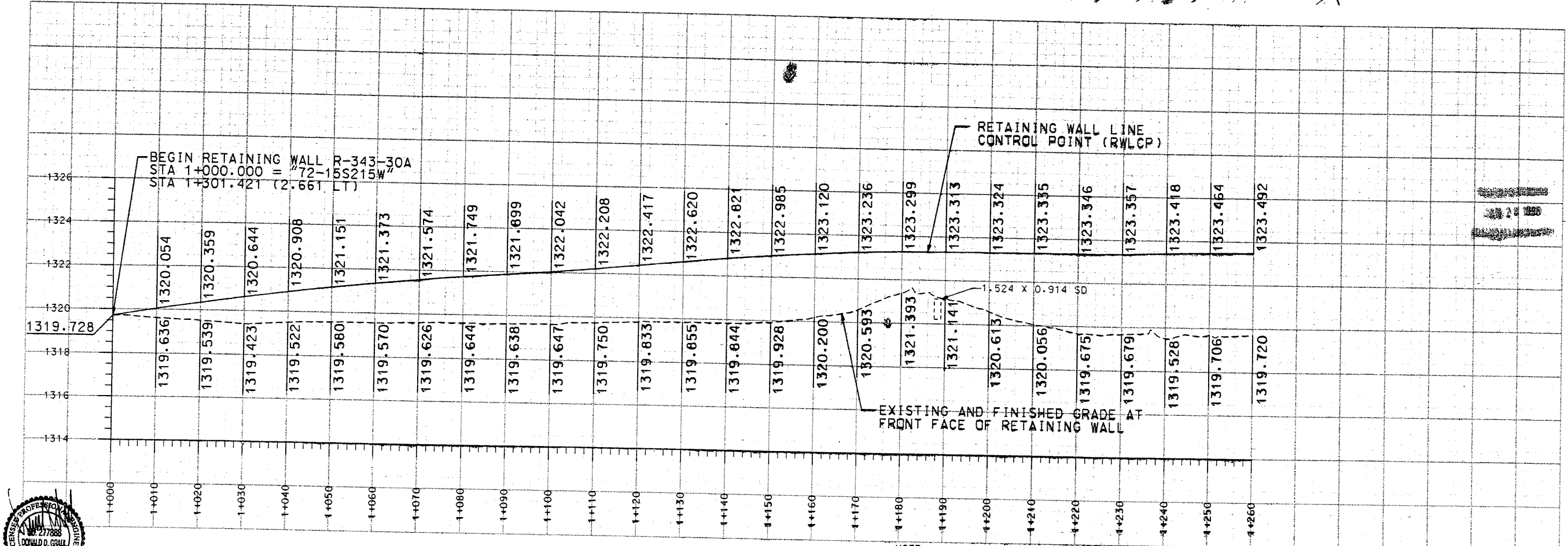
WATERSTOP DETAIL

UTAH DEPARTMENT OF TRANSPORTATION SALT LAKE CITY, UTAH STRUCTURES DIVISION		CHECK CHECK CHECK
DESIGN	DRAWN	QUANT.
DATE	DATE	DATE
PERSONAL RECORD	GROUP LEADER	CHIEF STRUCTURAL ENGR.
APPROVED	DATE	DATE
CONCRETE RETAINING WALL STANDARD DETAILS NO. 1		PROJECT NUMBER *SP-15-7(135)296
SALT LAKE COUNTY		1.2R-343-29.3 DRG. NO.
SHT. 4 OF 4		REVISIONS NO. DATE BY
3/22/95		REMARKS

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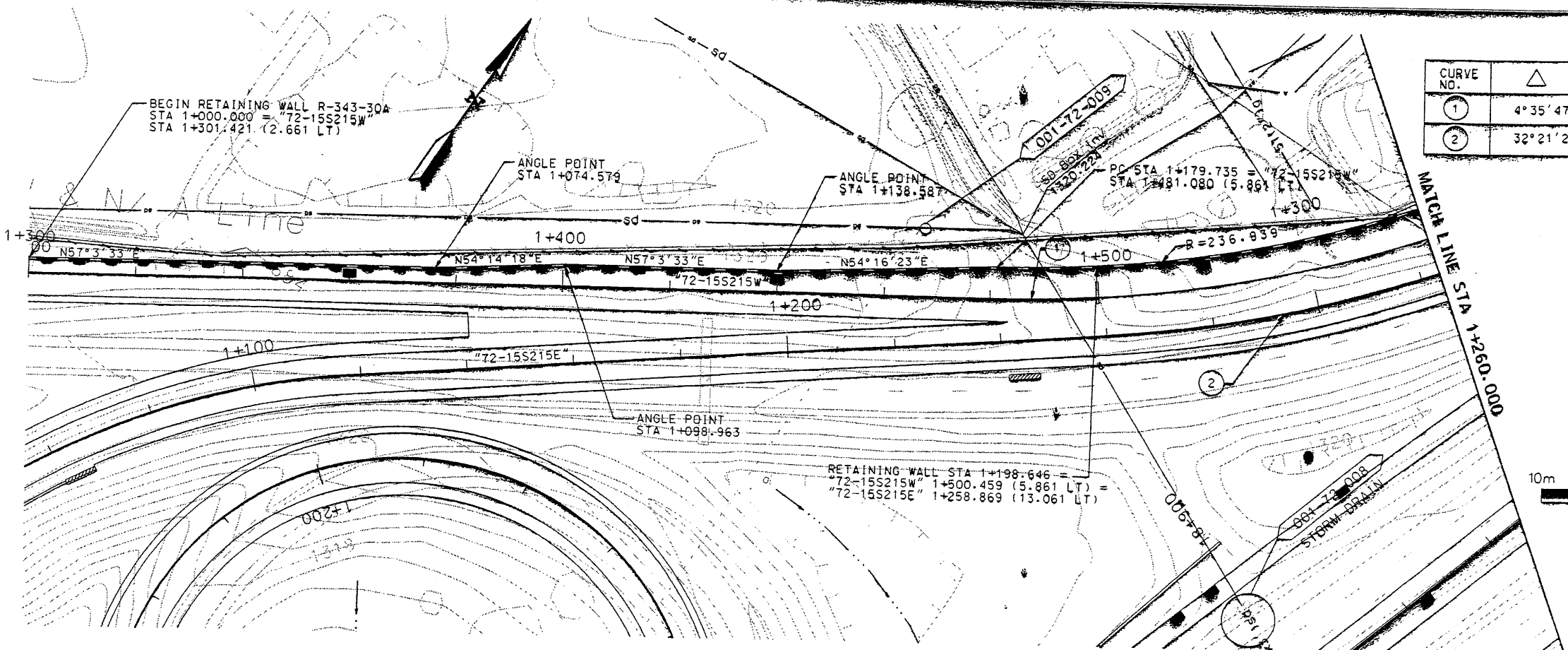
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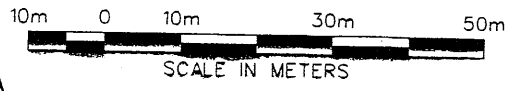


ELEVATION VIEW FROM BACK OF WALL

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



CURVE NO.	△	R	L	T
①	4°35'47"	242.800	19.478	9.744
②	32°21'27"	250.000	141.186	72.531



UTAH DEPARTMENT OF TRANSPORTATION
 URS Greiner
 SVERDRUP/DE LEUW

I-15 CORRIDOR RECONSTRUCTION
 SITUATION/LAYOUT
 RET WALL R-343-30A
 SECTION 1.2
 PROJECT NUMBER *SP-15-7(135)296

SALT LAKE COUNTY
 DWG. NO. 1.2R-343-30A&B.1

SHT. 1 OF 18

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
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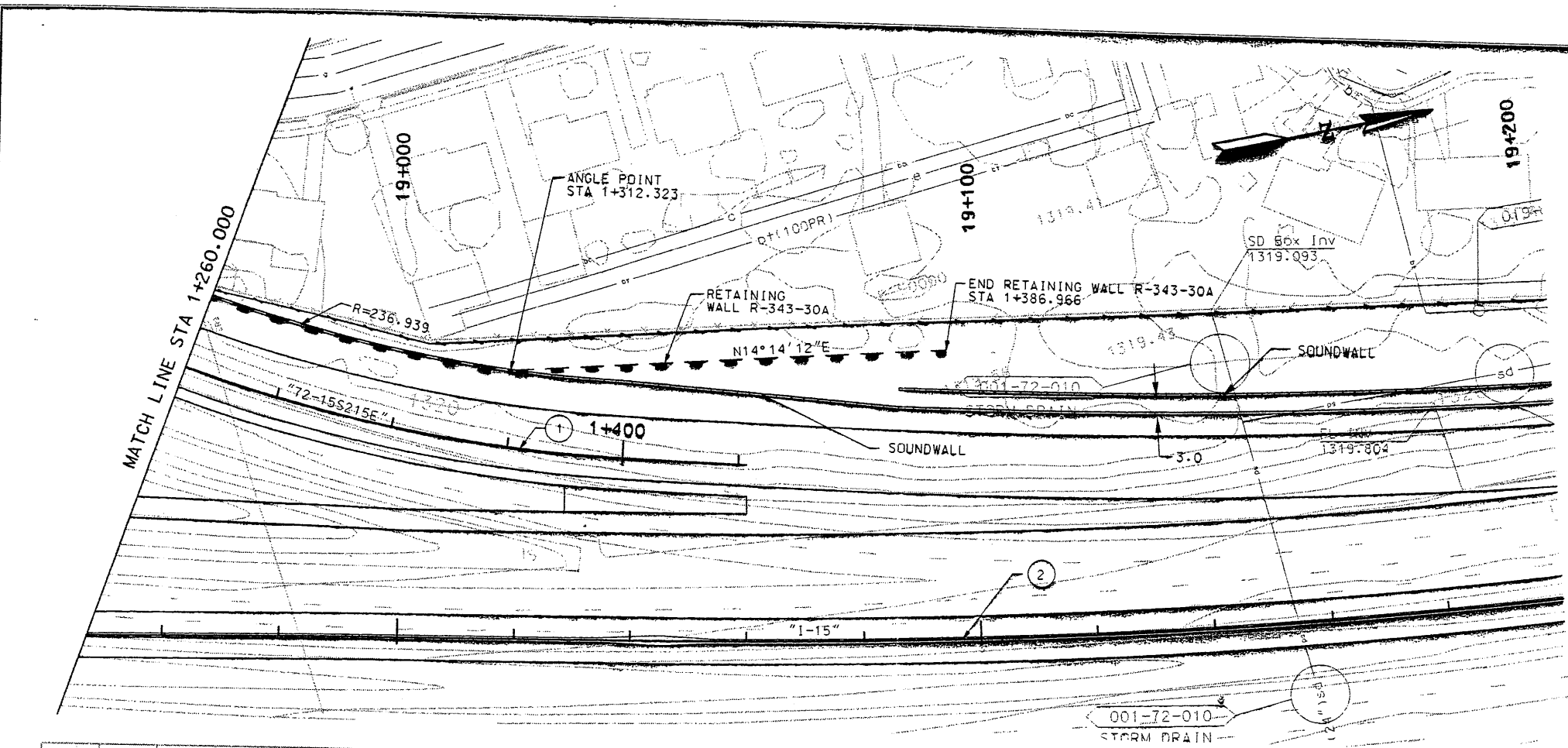
DESIGN: RICK CHAPMAN
 PROJECT DESIGN ENGINEER: URS Greiner
 DRAWN: DON GRULL
 PROJECT MANAGER: URS Greiner

APPROVAL RECORD:
 10/97: RICK CHAPMAN (DESIGN)
 10/97: DON GRULL (DRAWN)
 10/97: DON GRULL (PROJECT DESIGN ENGINEER)
 10/97: DON GRULL (PROJECT MANAGER)

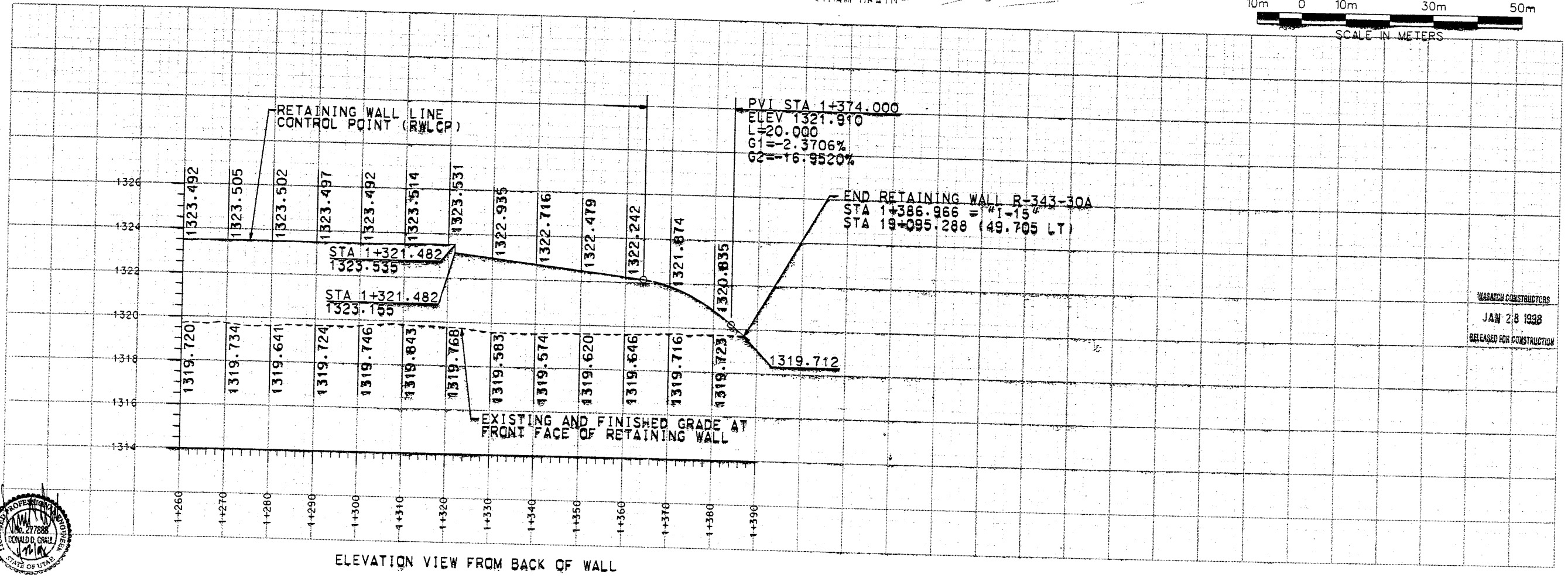
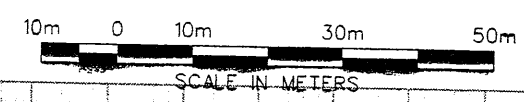
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 User: jamisocw
 Date: 22-JAN-1998 Time: 16:01



CURVE NO.	△	R	L	T
①	32°21'27"	250.000	141.186	72.531
②	13°7'13"	1165.000	266.778	133.975



ELEVATION VIEW FROM BACK OF WALL



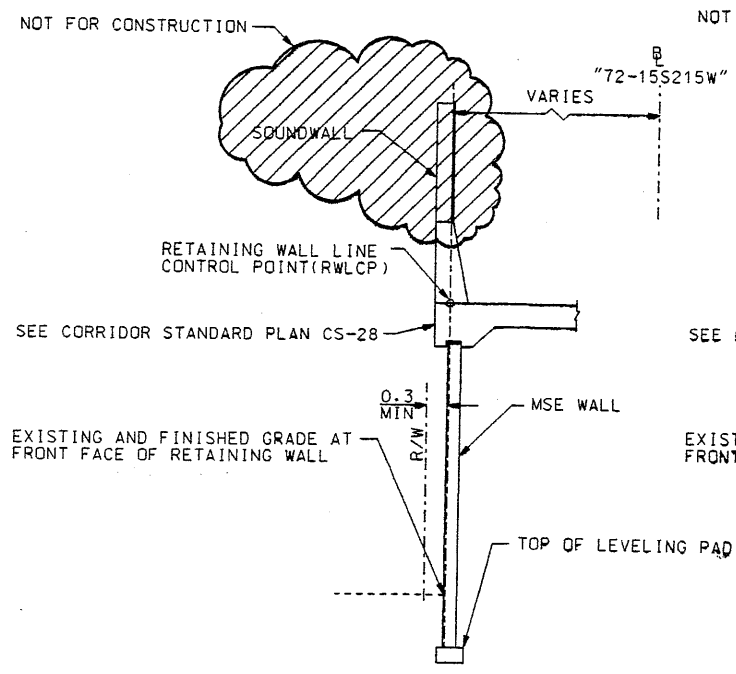
WASATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		INITIAL RELEASE	
NO.	DATE	NO.	DATE
△	1-20-98		

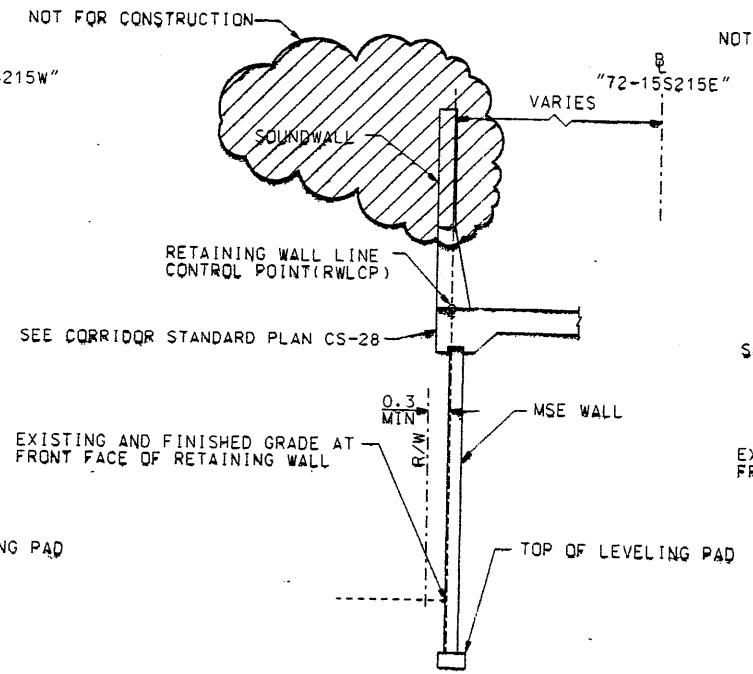
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URS Greiner		DESIGN	REV	10/97	10/97
SVERORUP/DE LEUW		DATE	PROJECT DESIGN ENGINEER	DATE	PROJECT MANAGER
		10/97	RICK CHAPMAN	10/97	1212425
		DATE	DON GRAUL	DATE	
		APPROVED	10/97	DATE	

I-15 CORRIDOR RECONSTRUCTION		PROJECT NUMBER	
SITUATION/LAYOUT		#SP-15-7(135)296	
RET WALL R-343-30A			
SECTION 1.2			
SALT LAKE COUNTY			
DWG. NO.			
1.2R-343-30A&B.2			
SHT. 2 OF 18			

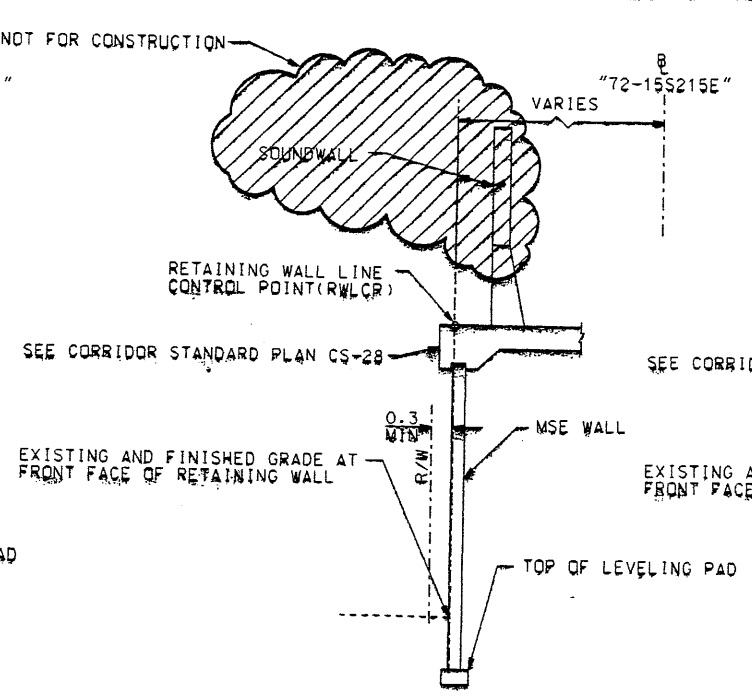
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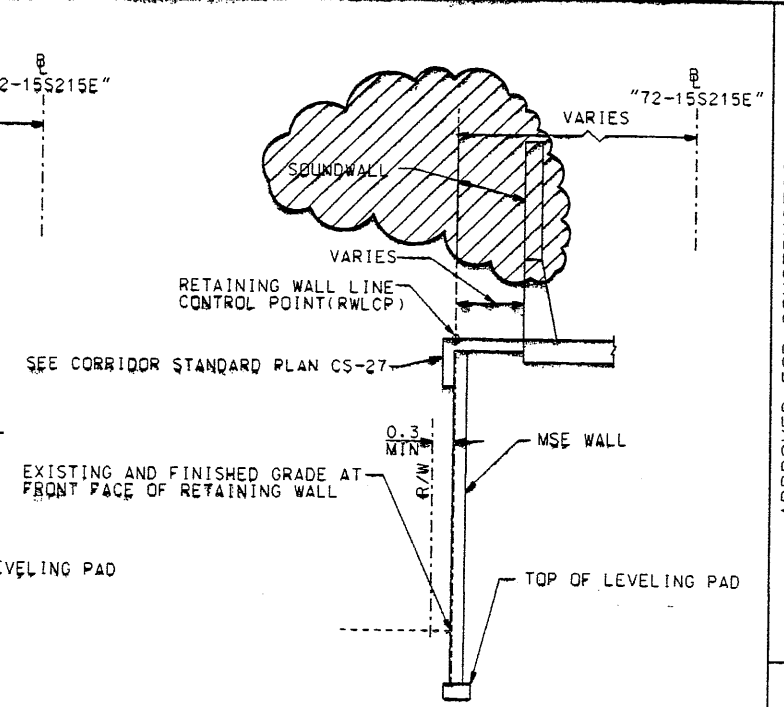
TYPICAL SECTION
 RETAINING WALL R-343-30A
 STA 1+000.000 TO STA 1+198.646



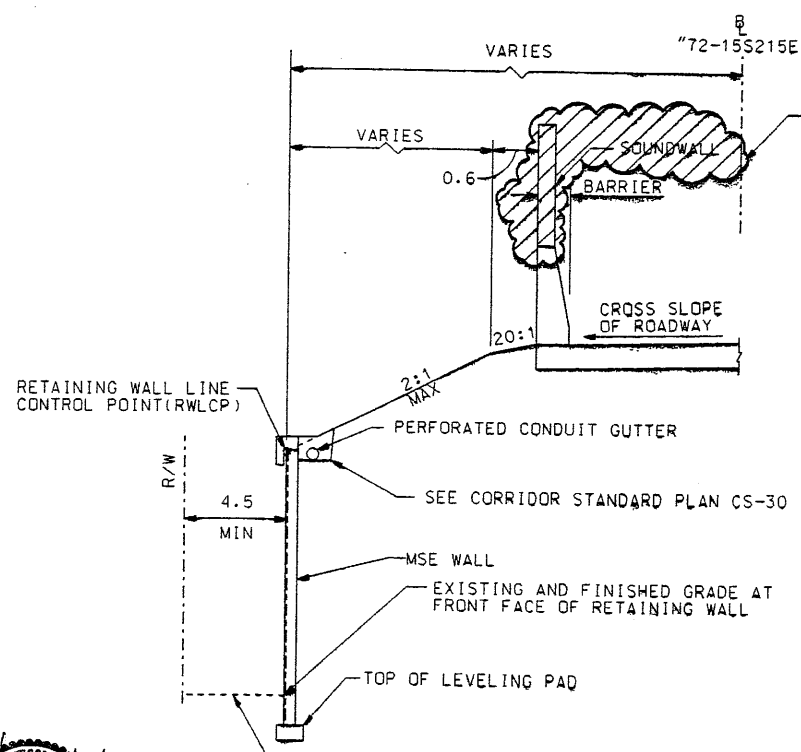
TYPICAL SECTION
 RETAINING WALL R-343-30A
 STA 1+198.646 TO STA 1+312.323



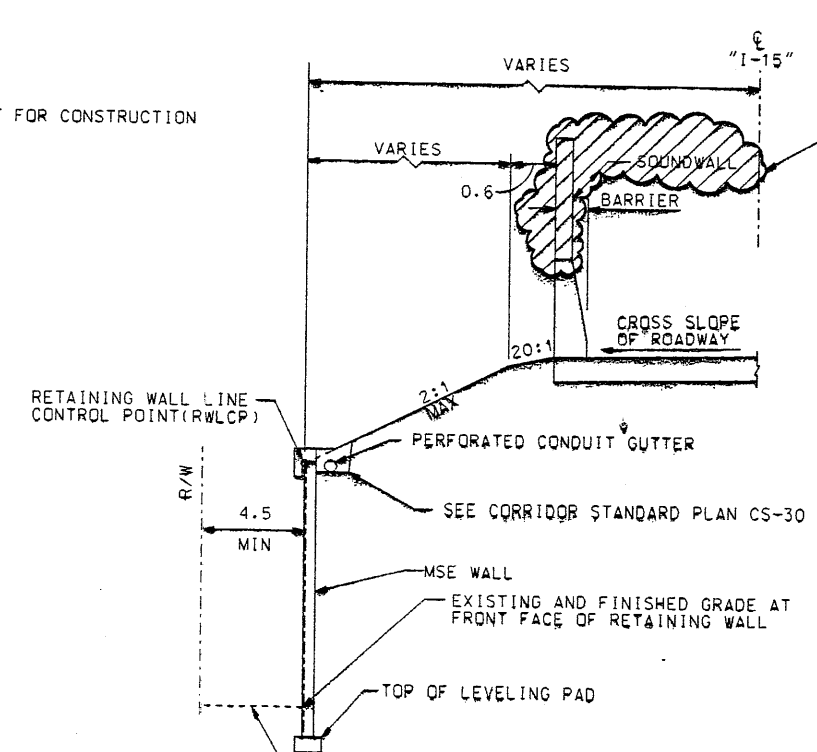
TYPICAL SECTION
 RETAINING WALL R-343-30A
 STA 1+312.323 TO STA 1+314.110



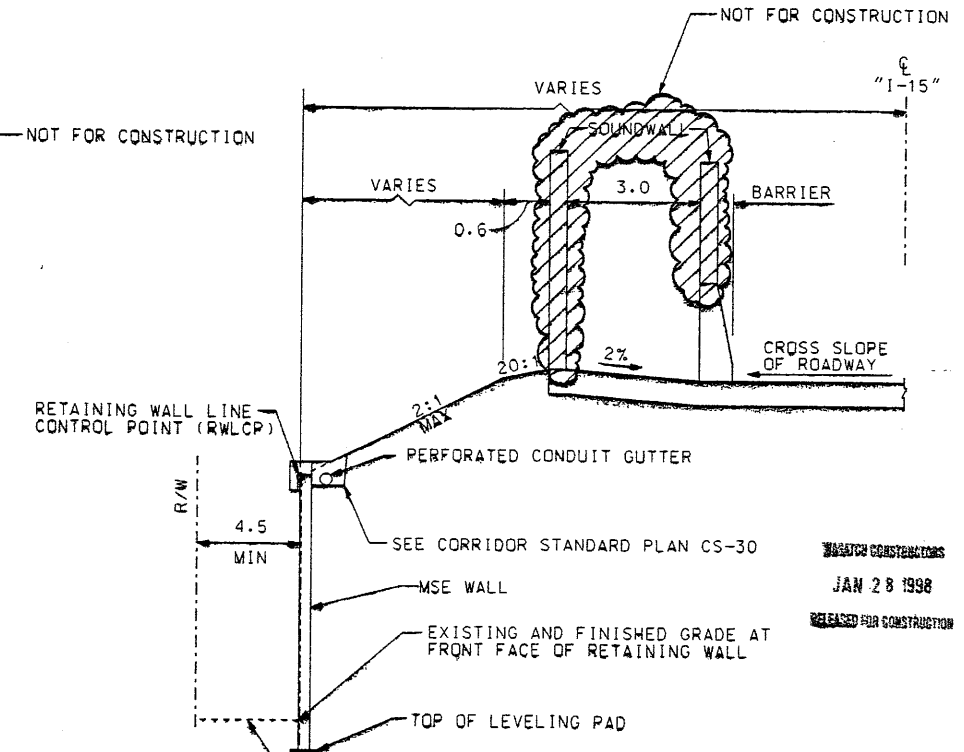
TYPICAL SECTION
 RETAINING WALL R-343-30A
 STA 1+314.110 TO STA 1+321.482



TYPICAL SECTION
 RETAINING WALL R-343-30A
 STA 1+321.482 TO STA 1+352.193



TYPICAL SECTION
 RETAINING WALL R-343-30A
 STA 1+352.193 TO STA 1+379.200



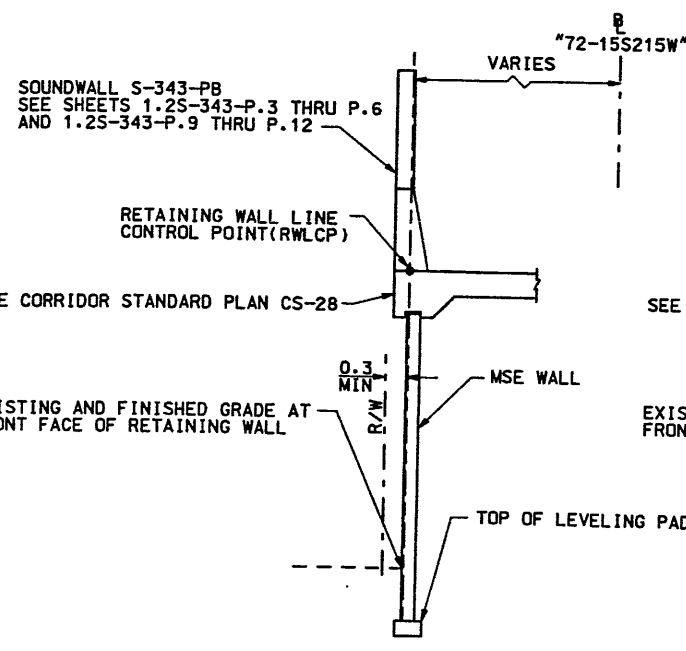
TYPICAL SECTION
 RETAINING WALL R-343-30A
 STA 1+379.200 TO STA 1+386.966



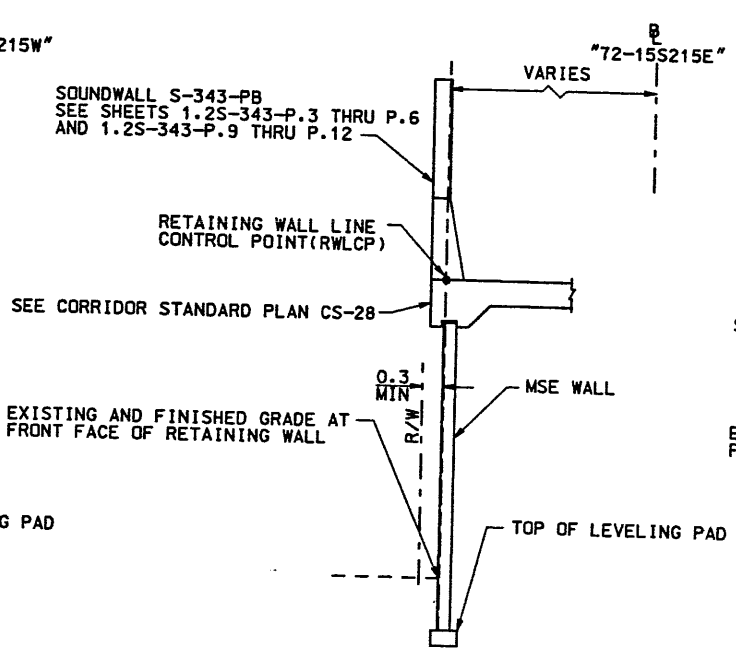
APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL	RELEASE
1	1-20-98		
UTAH DEPARTMENT OF TRANSPORTATION			
URS Greiner			
SVERDRUP/DE LEUW			
DESIGN	PRV	CHECK	DATE
JBE	10/97	JBE	10/97
DRWN	PRV	CHECK	DATE
JBE	10/97	JBE	10/97
QUANT.	1212425		
PROJECT NUMBER	#SP-15-7(135)296		
SECTION	SECTION 1.2		
DETAIL SHEET	RET WALL R-343-30A		
RECONSTRUCTION	I-15 CORRIDOR RECONSTRUCTION		
DATE	JAN 28 1998		
STATUS	RELEASED FOR CONSTRUCTION		
COUNTY	SALT LAKE		
DWG. NO.	1.2R-343-30A&B.3		
SHT.	3 OF 18		
REF.			

Username: mockkv
Date: 10-NOV-1998 Time: 15:52

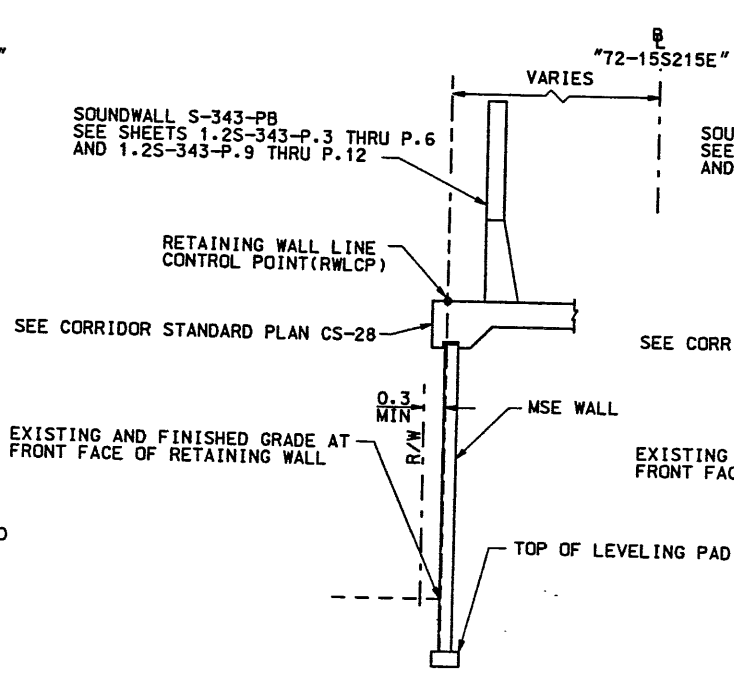
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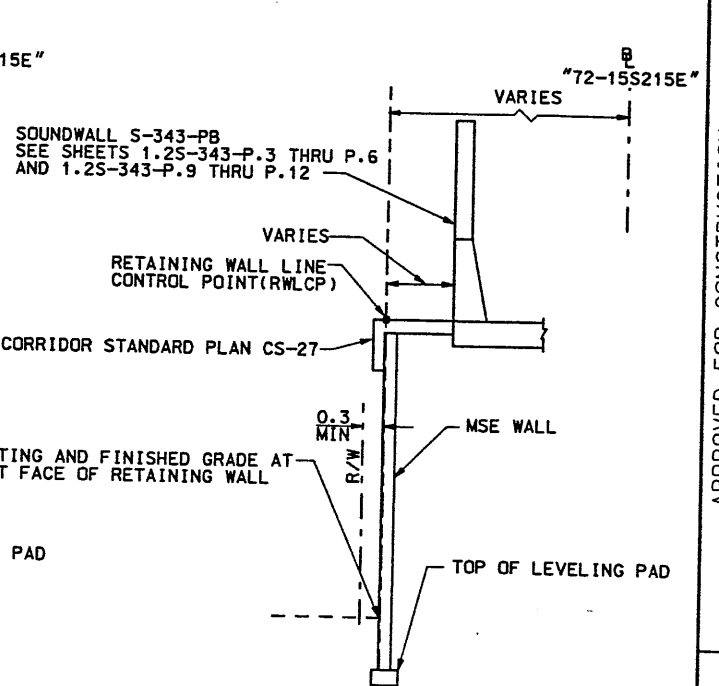
TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+000.000 TO STA 1+198.646



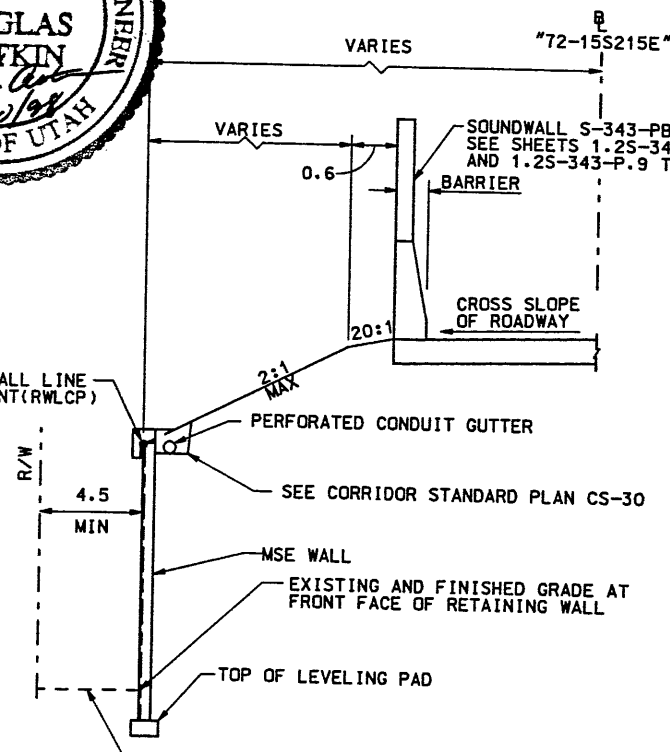
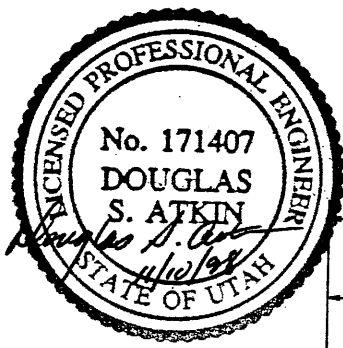
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RETAINING WALL R-343-30A
STA 1+198.646 TO STA 1+312.323



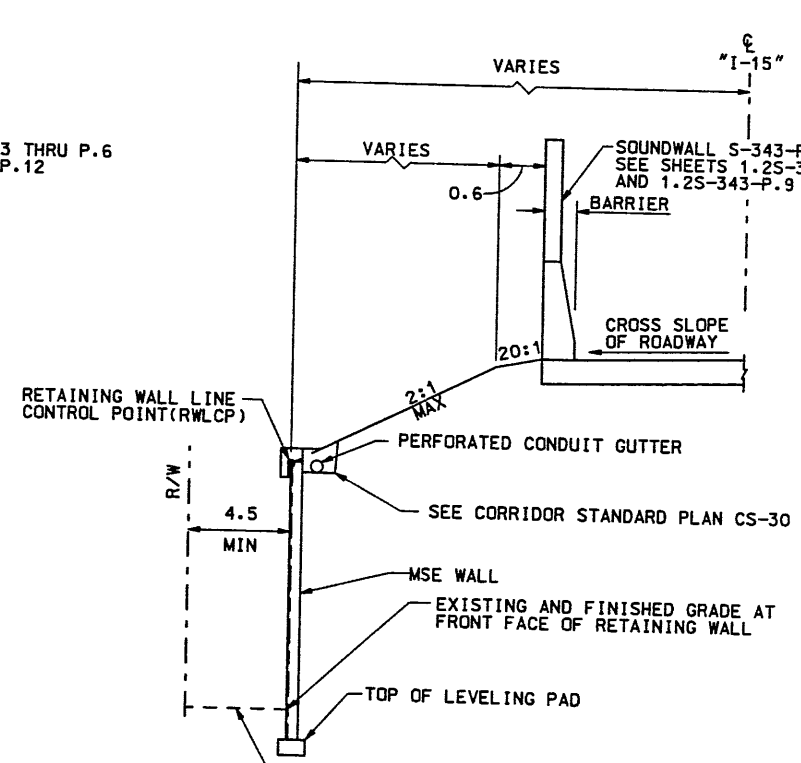
TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+312.323 TO STA 1+314.110



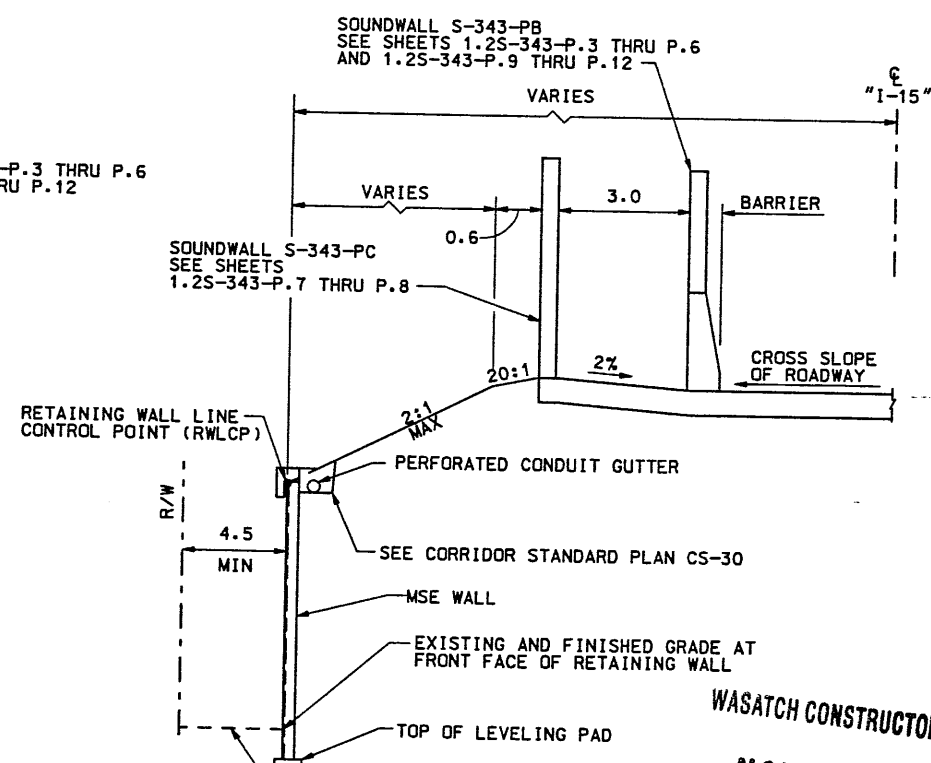
TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+314.110 TO STA 1+321.482



TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+321.482 TO STA 1+352.193



TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+352.193 TO STA 1+379.200

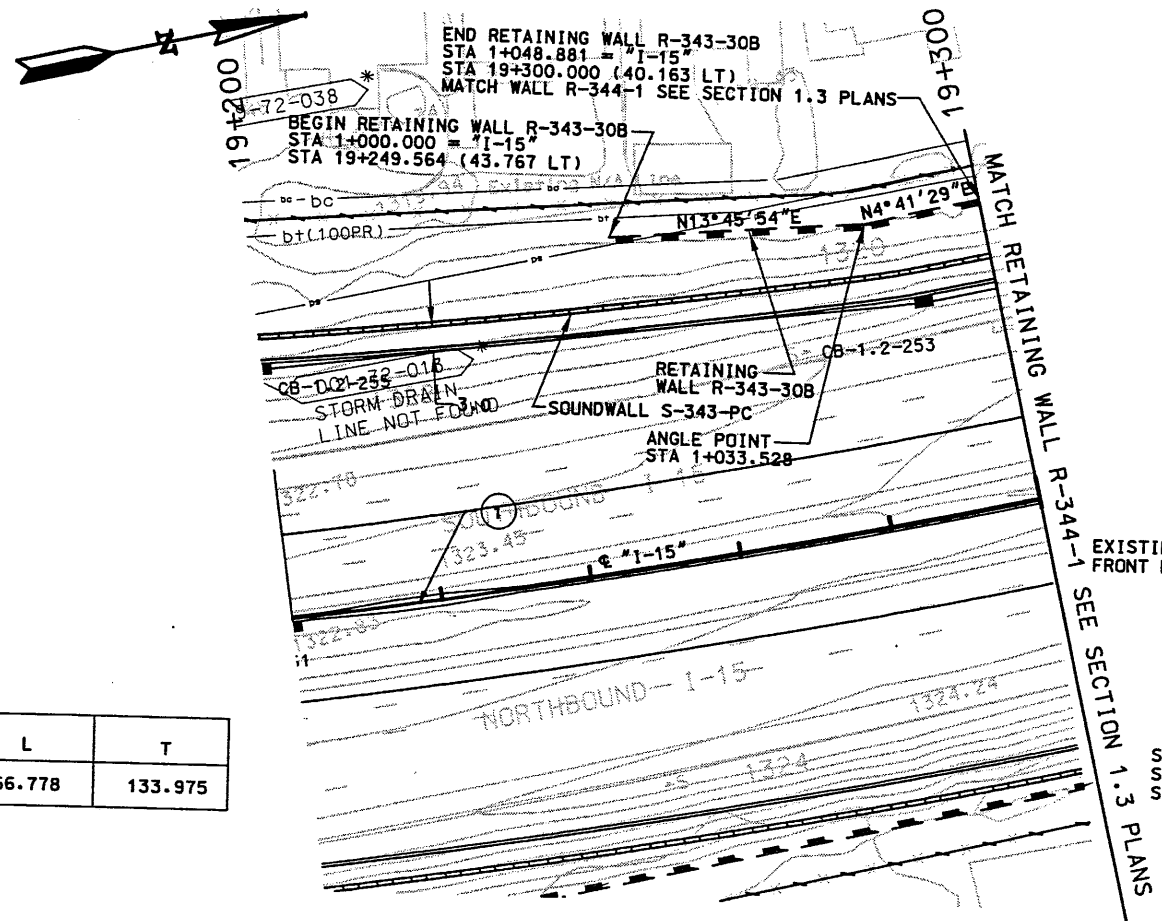


TYPICAL SECTION
RETAINING WALL R-343-30A
STA 1+379.200 TO STA 1+386.966

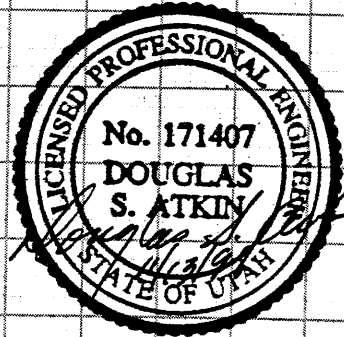
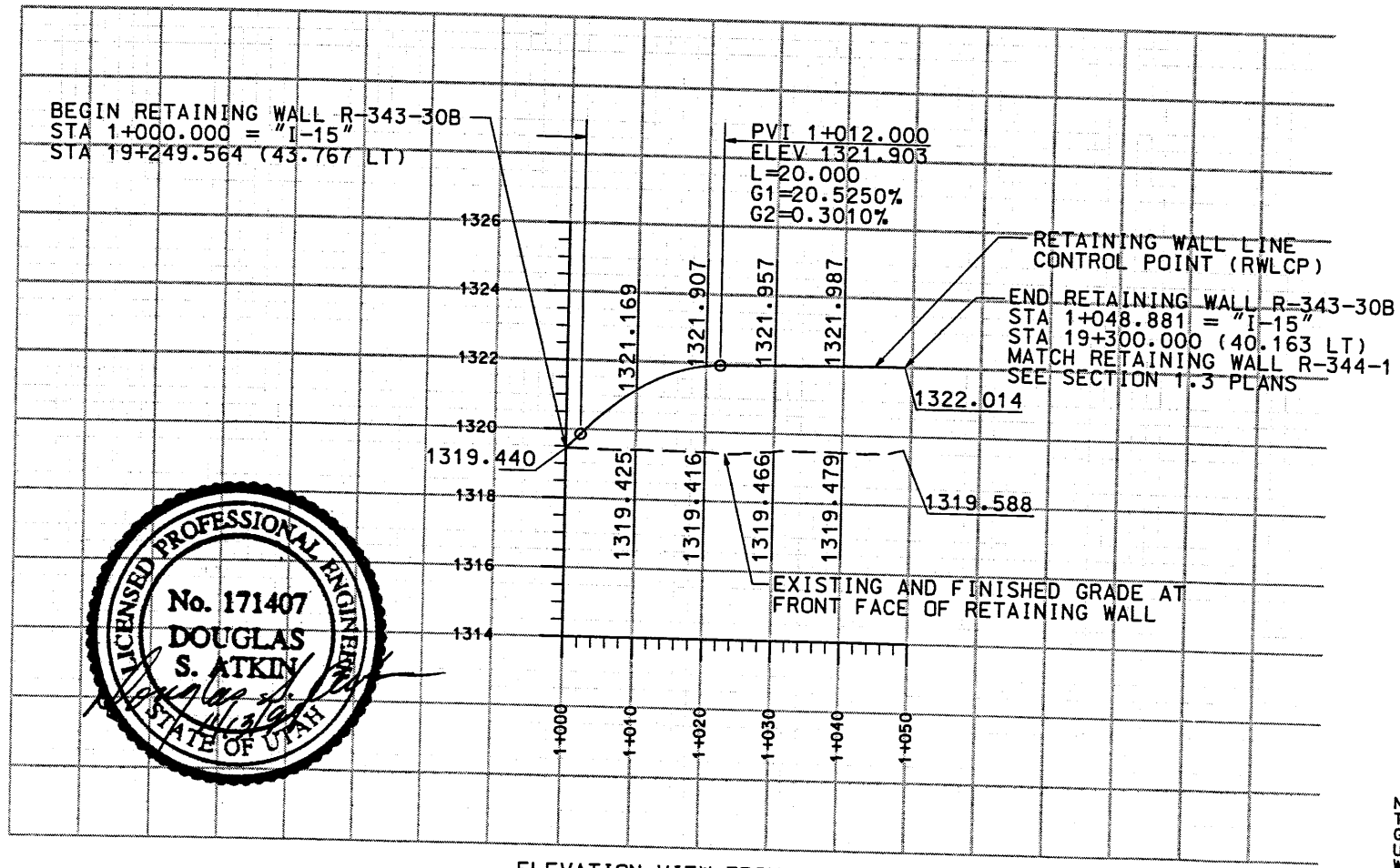
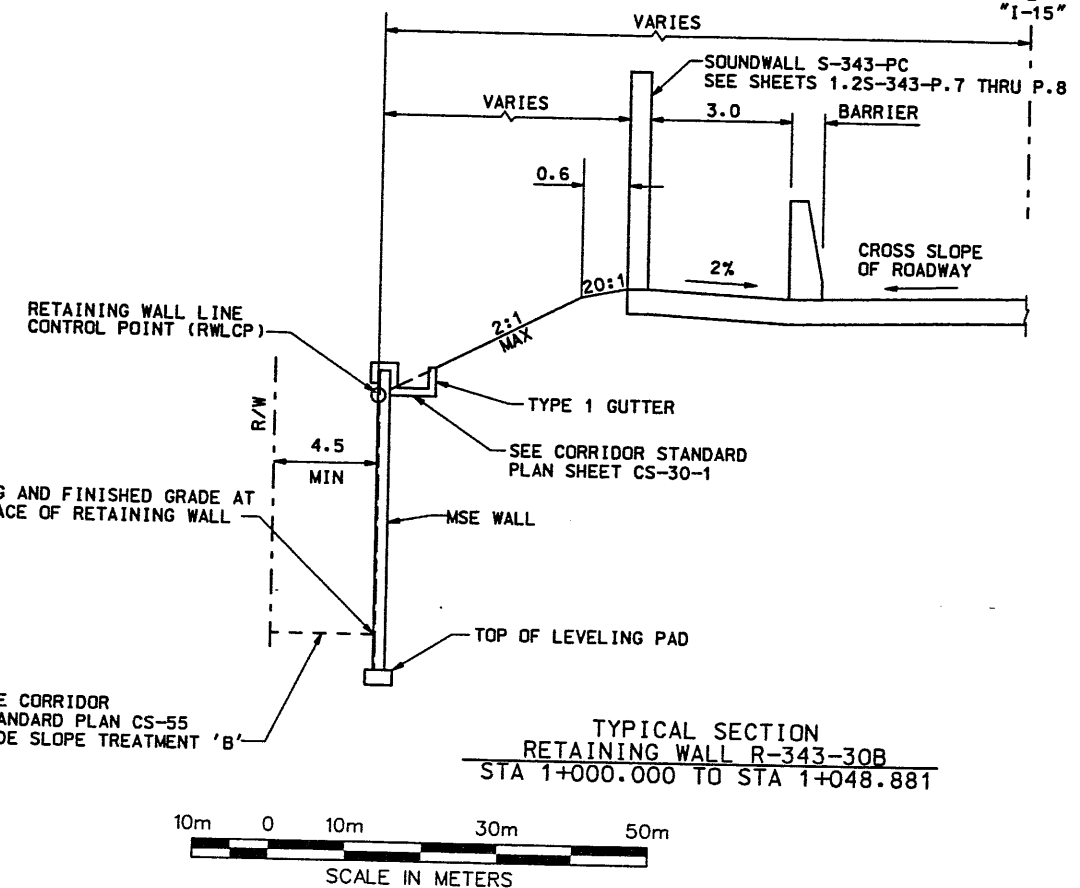
WASATCH CONSTRUCTORS
NOV 19 1998

RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	REFERENCED SOUNDWALL
A	1-20-98		
A	11-10-98		
UTAH DEPARTMENT OF TRANSPORTATION		URS Greiner	
SVENDRUP/DE LEUW		PROJECT NUMBER	
1-15 CORRIDOR RECONSTRUCTION		1212425	
DETAIL SHEET		SECTION 1.2	
RET WALL R-343-30A		#SP-15-7(135)296	
COUNTY		SALT LAKE	
DWG. NO.		1.2R-343-30A&B.3c	
SHT.		42 OF 18	
REF.			



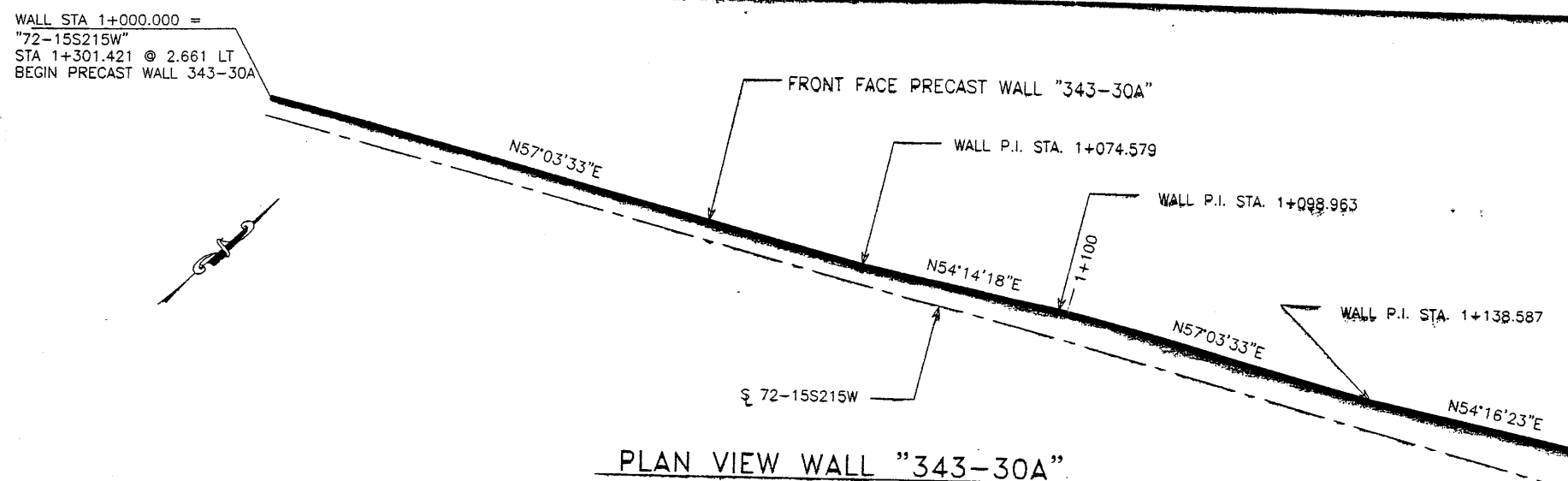
CURVE NO.	△	R	L	T
1	13° 7' 13"	1165.000	266.778	133.975



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

WASATCH CONSTRUCTORS
 NOV 24 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	INITIAL RELEASE	REFERENCED SOUNDWALL
1	1-22-98	JBE	
2	11-13-98	NOG-0234	
UTAH DEPARTMENT OF TRANSPORTATION		PROJECT NUMBER 1214000	
SITUATION/LAYOUT RET WALL R-343-30B		DESIGNER: URS Greiner	
SECTION 1.2		DRAWN BY: SVERDRUP/DE LEUW	
PROJECT NUMBER #SP-15-7(135)296		CHECKED BY: JBE	
SALT LAKE COUNTY		DATE: 10/97	
DWG. NO. 1.2R-343-30A&B.4		DATE: 10/97	
SHT. 54 OF 18		DATE: 10/97	
REF.		PROJECT MANAGER	

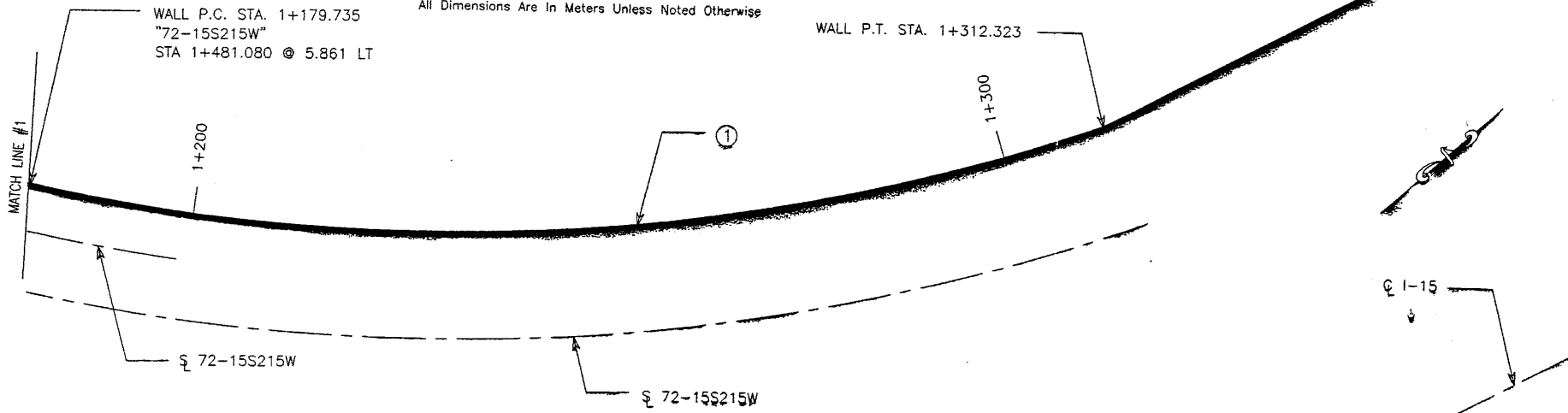


PLAN VIEW WALL "343-30A"

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

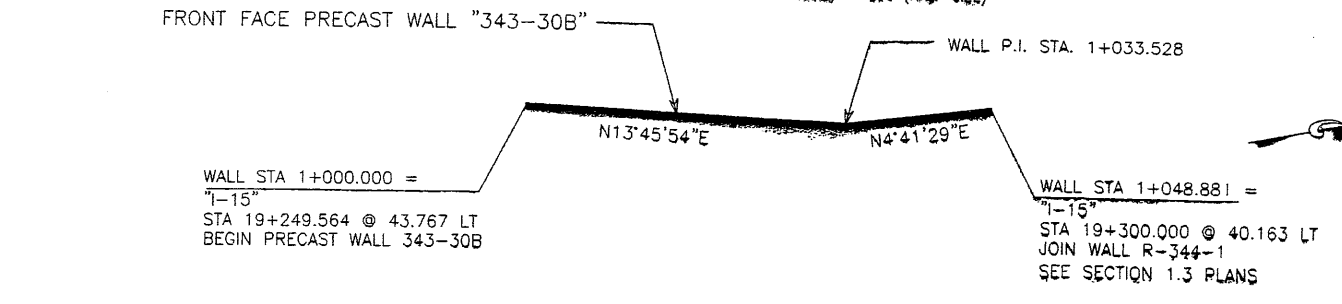
CURVE DATA				
No.	RADIUS	LENGTH	TANGENT	Δ
①	236.939	132.588	68.080	32°03'43"

All Dimensions Are In Meters Unless Noted Otherwise



PLAN VIEW WALL "343-30A"

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



PLAN VIEW WALL "343-30B"

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

RETAINED EARTH INDEX	
RE-1	PLAN WALLS 343-30A, 343-30B, 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	ELEVATION PRECAST WALL "343-30A"
RE-8	ELEVATION PRECAST WALL "343-30A"
RE-9	ELEVATION PRECAST WALL "343-30A"
RE-10	ELEVATION PRECAST WALL "343-30A"
RE-11	ELEVATION PRECAST WALL "343-30B"
RE-12	SPECIAL PANEL DETAILS
RE-13	SPECIAL PANEL DETAILS

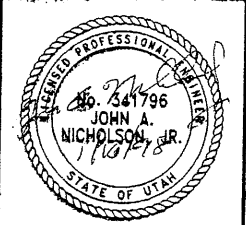
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION

GENERAL NOTES

- ALL WALLS ARE SHOWN FRONT FACE. NOTE STATIONING.
- PANEL TYPE IS DESIGNATED ON EACH PANEL. CONNECTOR LABELS INDICATE NUMBER OF CONNECTORS PER SOIL REINFORCING MESH LOCATION.
EXAMPLE: 5B2-10 IS A "B2-10" PANEL WITH FIVE (5) CONNECTORS PER SOIL REINFORCING MESH LOCATION.
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: 5W11-6 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 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.

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. = 0.12g (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	

METRIC



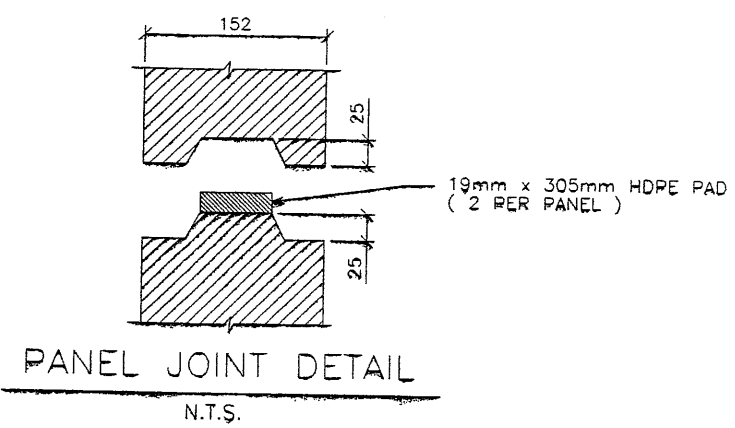
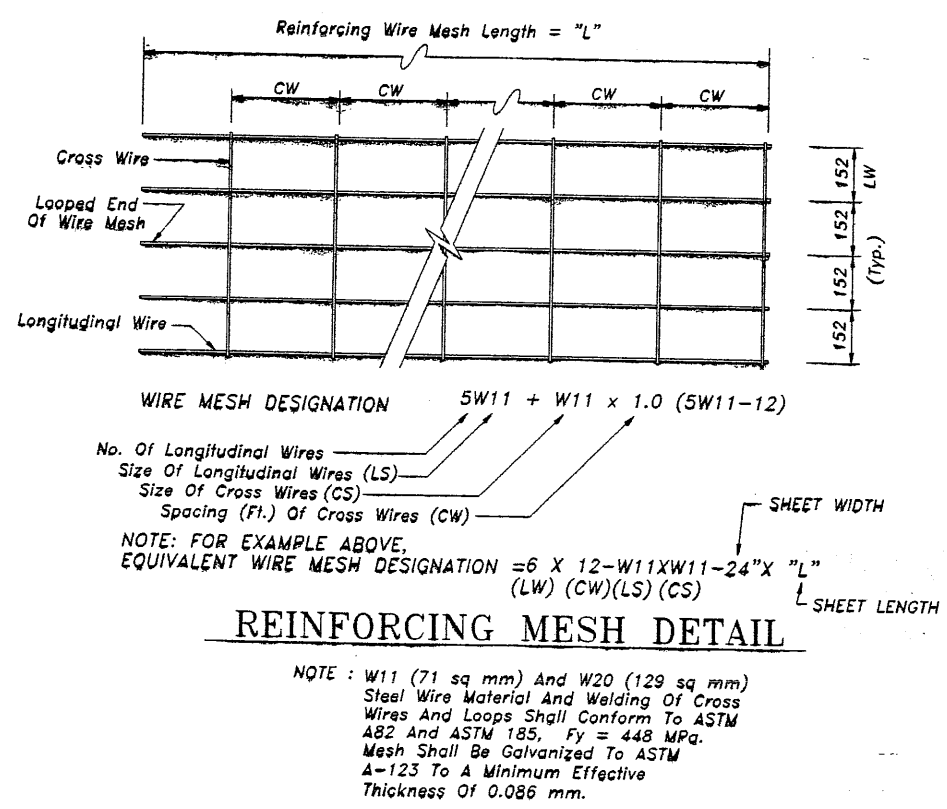
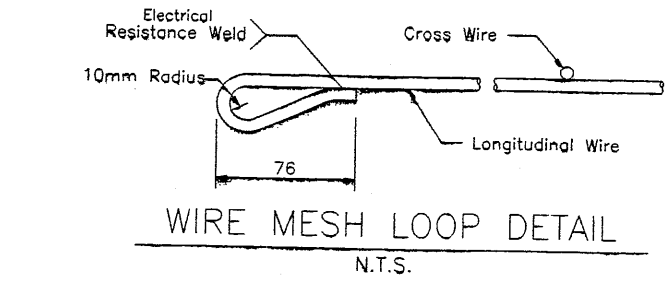
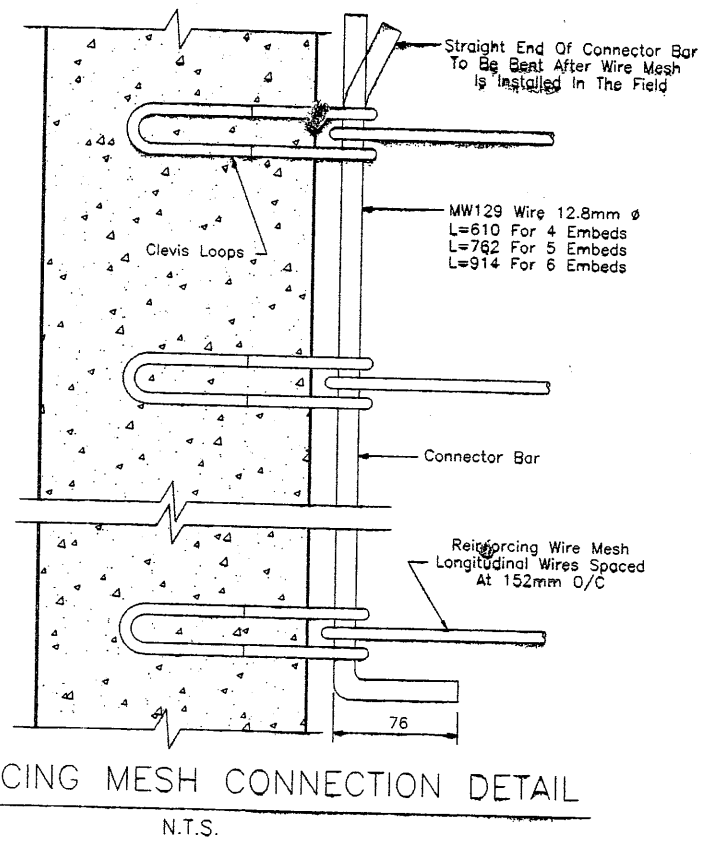
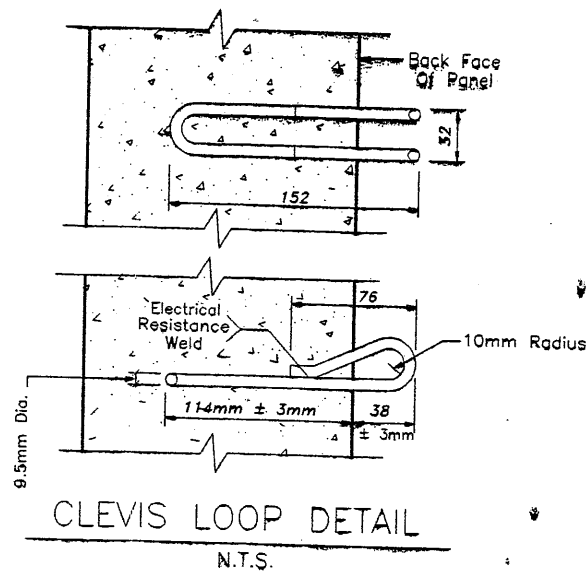
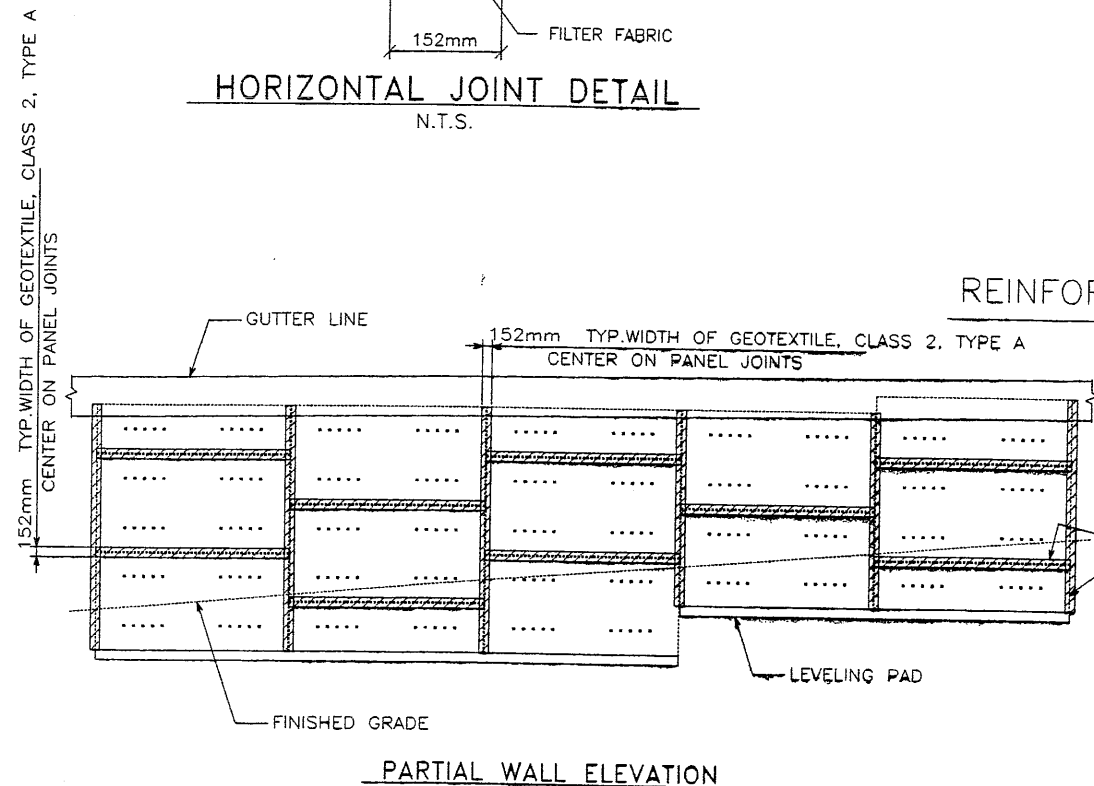
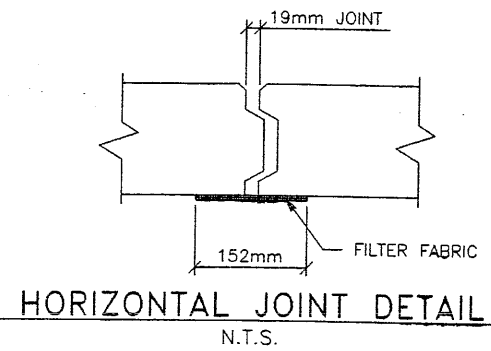
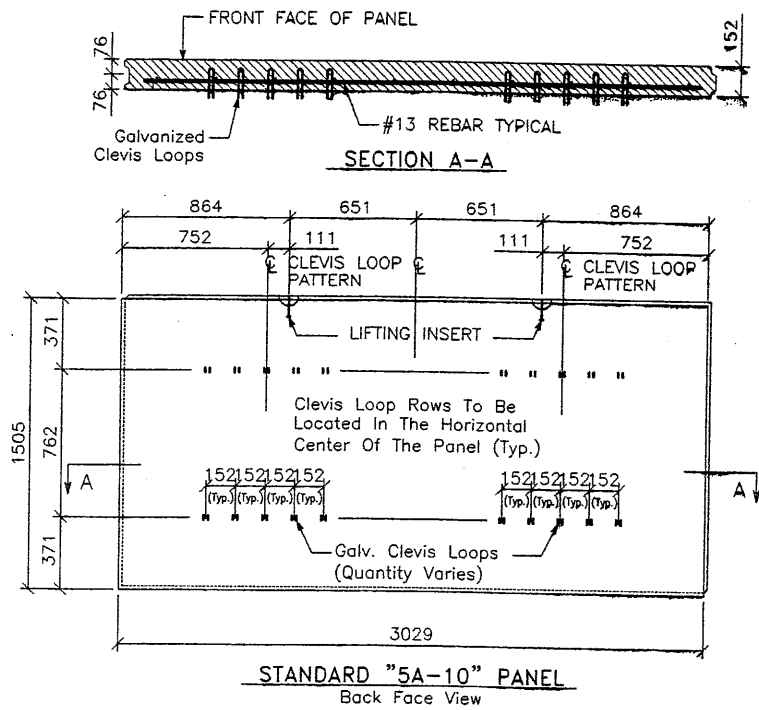
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

VSL CORPORATION
8840 Plaza Place, Suite 200
Rocky Hill, CT 06154
Telephone: (919) 781-6272
Fax: (919) 781-4689

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

RETAINED EARTH™ WALLS
PLAN WALLS "343-30A" & "343-30B"
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

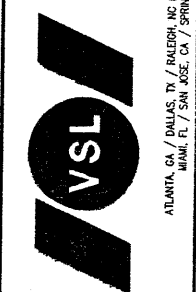
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JOB NO: 239-0007/1/18
RE-1



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	BY	CHK

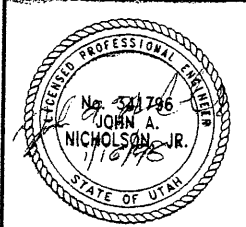
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27617
 Telephone: (919) 781-6772
 Fax: (919) 781-4989



VSL Corporation hereby warrants that the design and construction of the retaining wall shown on this sheet is in accordance with the design and construction details shown on this sheet. The use of the design and construction details shown on this sheet is at the user's discretion. VSL Corporation is not responsible for any failure or damage to the retaining wall or any other structure which may result from the use of the design and construction details shown on this sheet. VSL Corporation's liability is limited to the amount of the contract price for the design and construction of the retaining wall shown on this sheet.

RETAINED EARTH™ WALLS
 PRECAST WALLS "343-30A" & "343-30B"
 TYPICAL DETAILS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

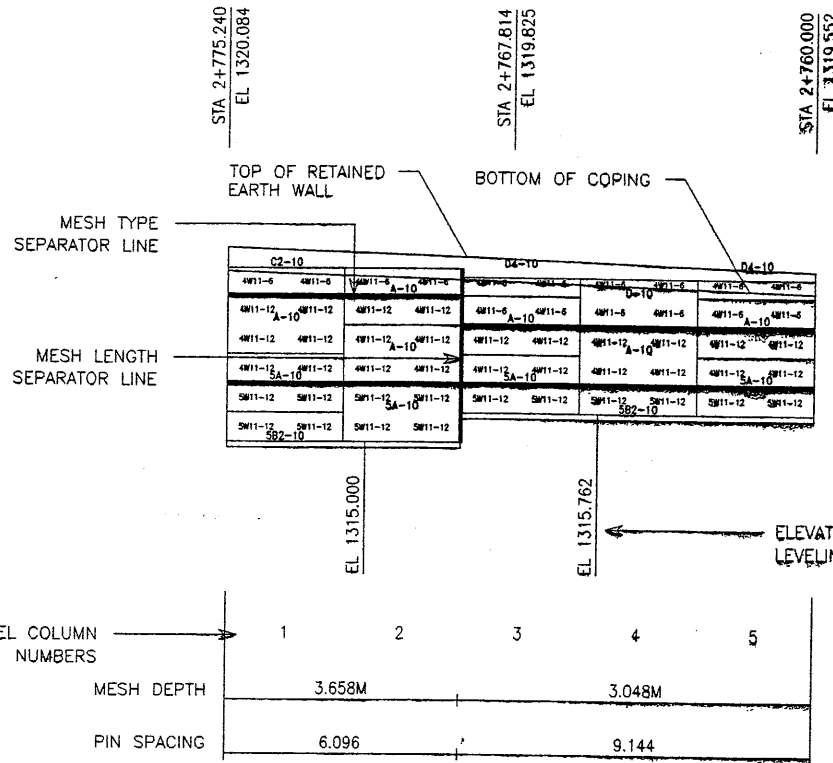
WASATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION



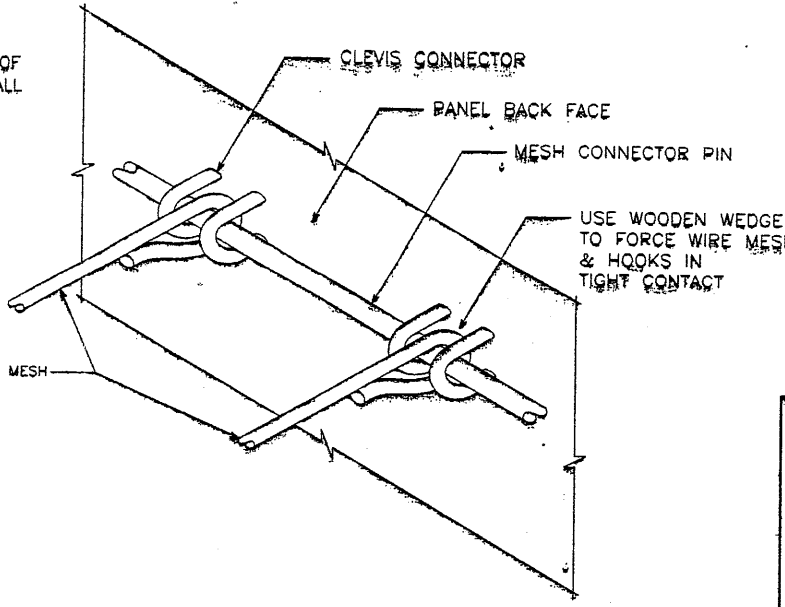
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

SCALE:
 1:2R-343-30.6
 JOB NO:
 239-0007 7/18
 RE-2

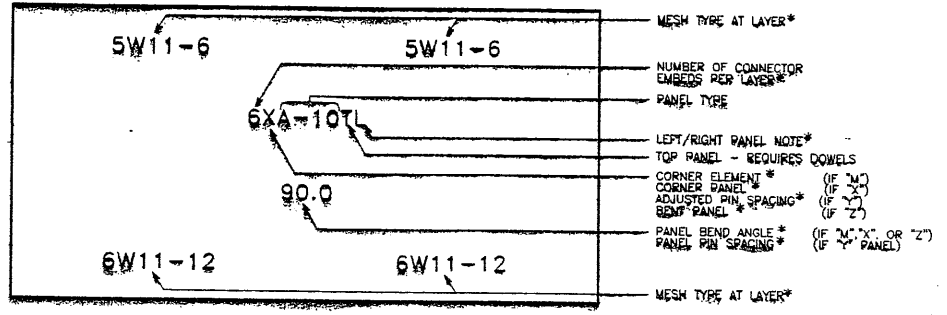
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION



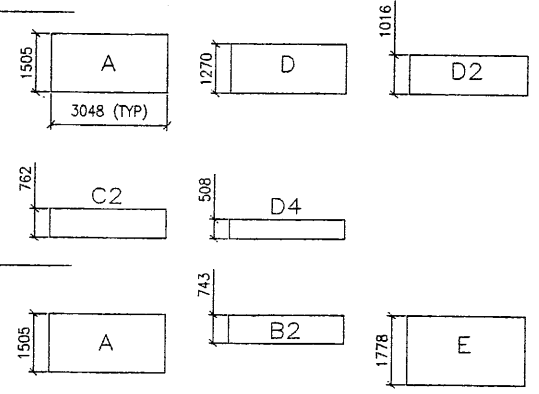
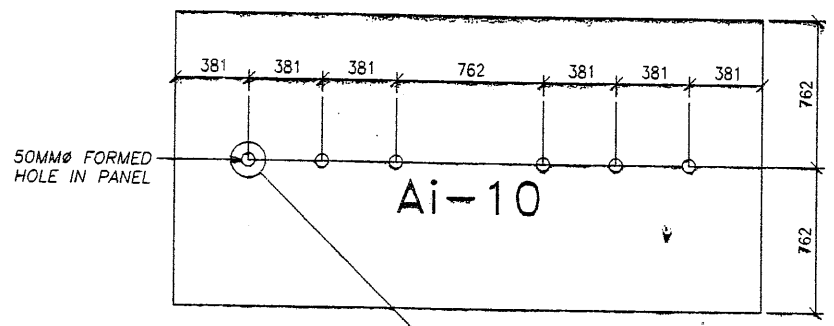
1 WALL ELEVATION KEY
(FRONT FACE SHOWN)



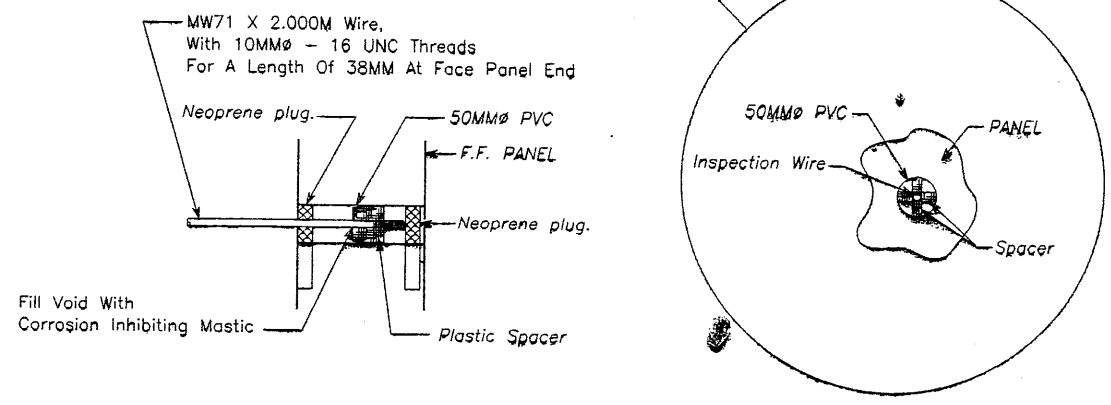
2 MESH CLEVIS CONNECTOR
VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,120



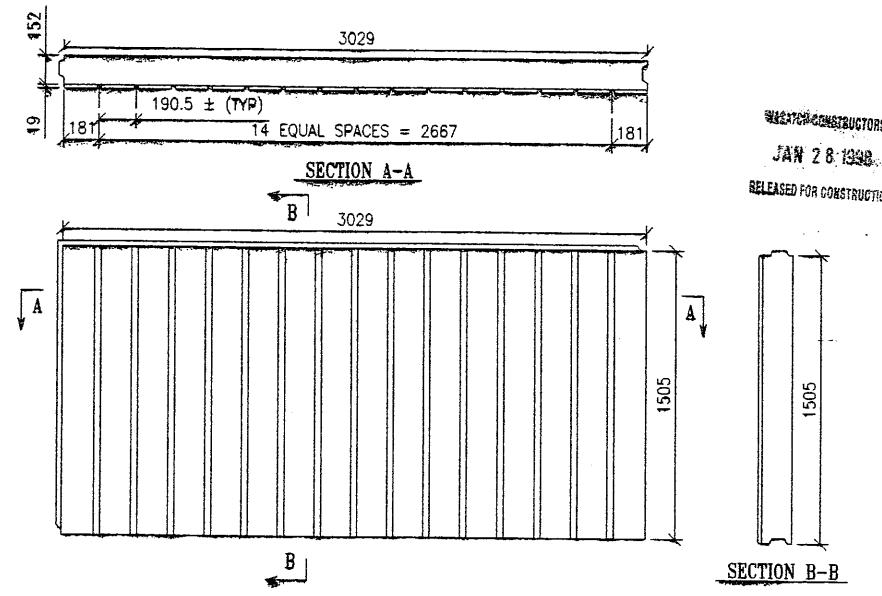
3 PANEL LABELS



4 PANEL TYPES
ALL DIMENSIONS ARE IN MILLIMETERS



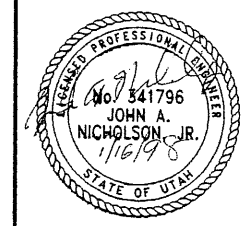
5 INSPECTION WIRE DETAIL
(PANEL FRONT FACE SHOWN)



6 ARCHITECTURAL PANEL FINISH
(PANEL FRONT FACE SHOWN)

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
2840 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-6272
Fax: (919) 781-4969

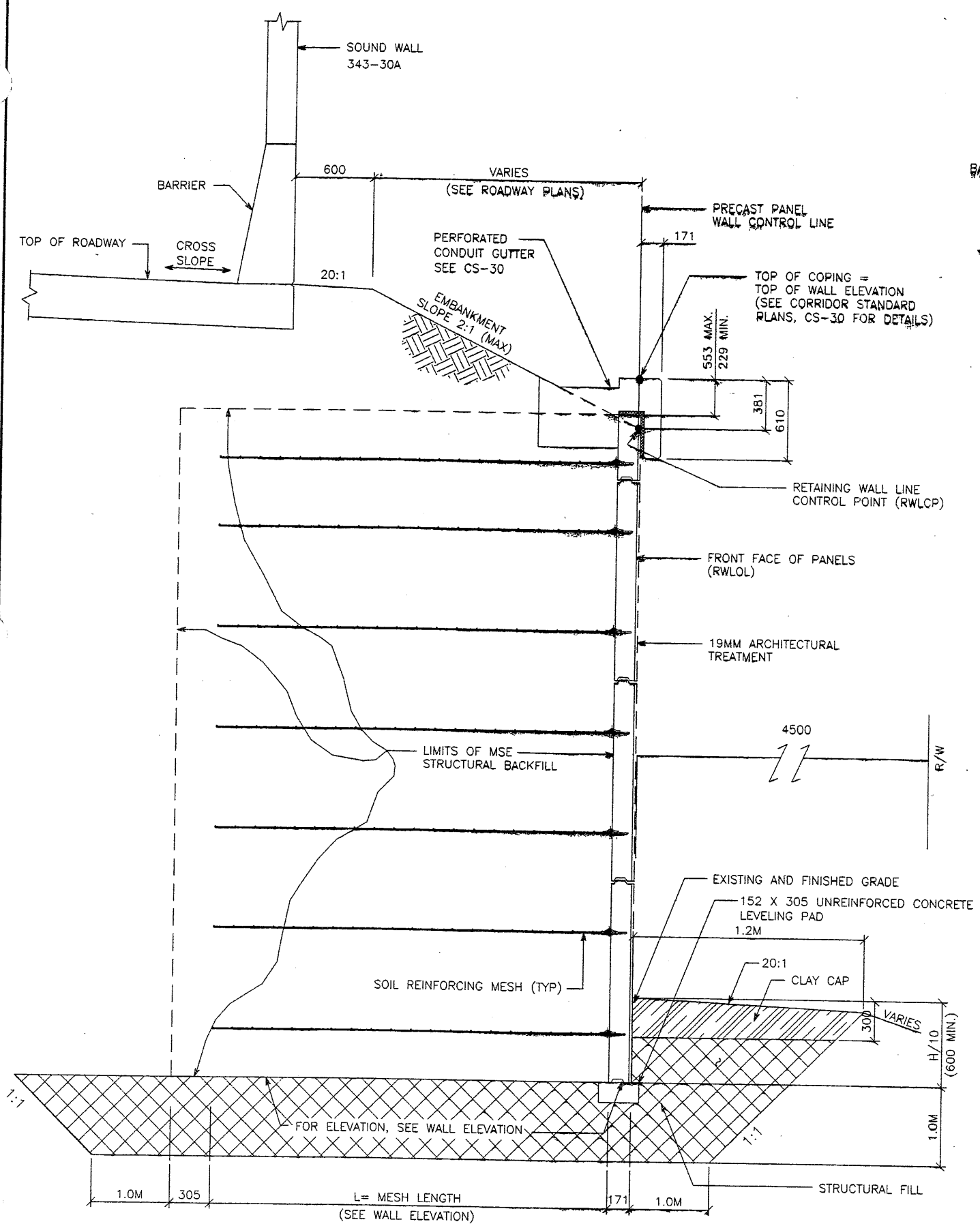
ATLANTA, GA / DALLAS, TX / FALCON, NC (CORPORATE OFFICE)
MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
PRECAST WALLS "343-30A" & "343-30B"
TYPICAL DETAILS
UTAH I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

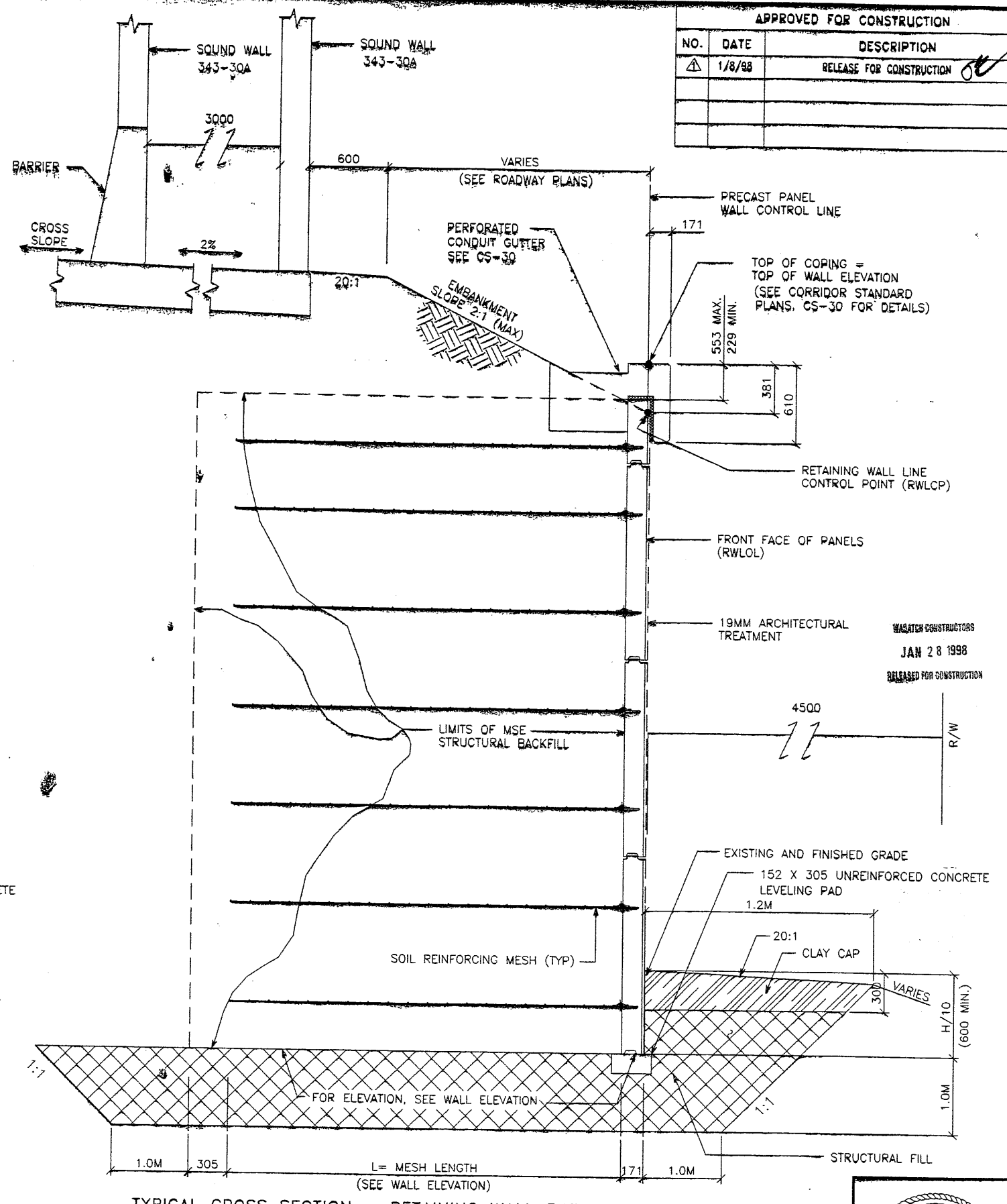
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JOB NO: 239-0007/8/98
RE-3

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FINAL PLOT 1-98

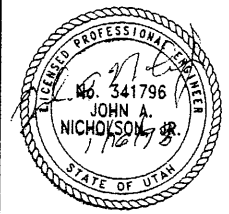


TYPICAL CROSS SECTION - RETAINING WALL 343-30A
STA. 1+321.482 TO STA. 1+379.200
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - RETAINING WALL 343-30A
STA. 1+379.200 TO STA. 1+386.966
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

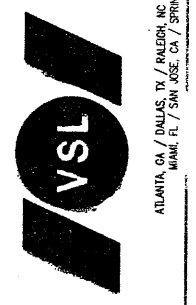
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
Δ	1/8/98	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	MM	CHK.	MM	NO.	DATE	BY	CHK
	1-8-98		1-8-98		1-8-98				

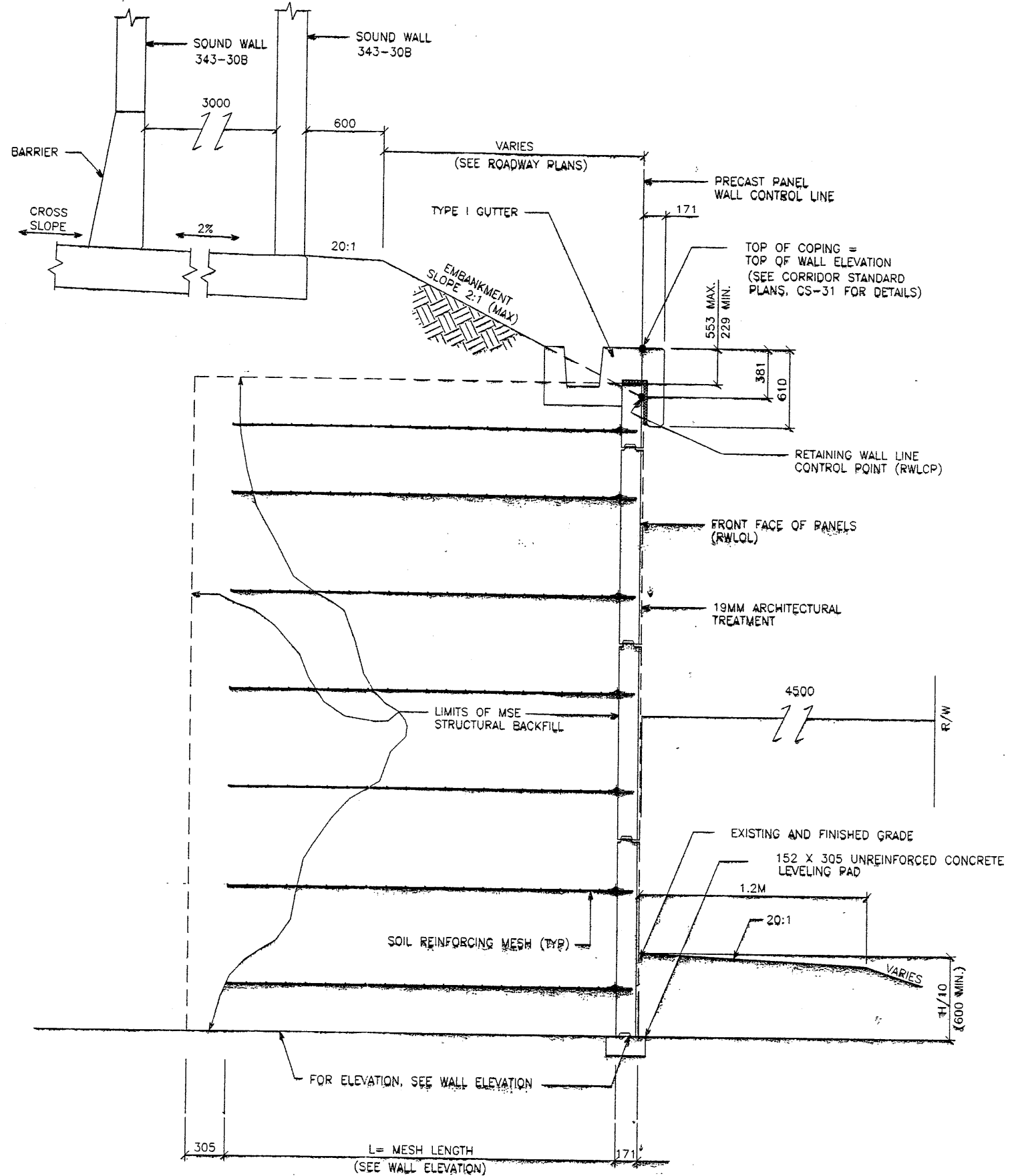
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6772
 Fax: (919) 781-6969



WATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 TYPICAL CROSS SECTIONS
 UTAH I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE: 1:20-343-30.9
 JOB NO: 239-0007
 RE-5



TYPICAL CROSS SECTION - RETAINING WALL 343-30B
 STA. 1+000.000 TO STA. 1+048.881

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

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

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION

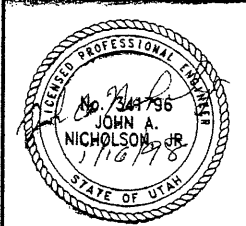
DES.	MM	DRN.	RSW	CHK.	MM	NO.	DATE	REVISION	BY	CHK
	1-8-98									
	1-8-98									
	1-8-98									

VSL CORPORATION
 2840 Plaza Place, Suite 200
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 Fax: (919) 781-6889

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 LOS ANGELES, CA / SPRINGFIELD, VA

WASATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

METRIC



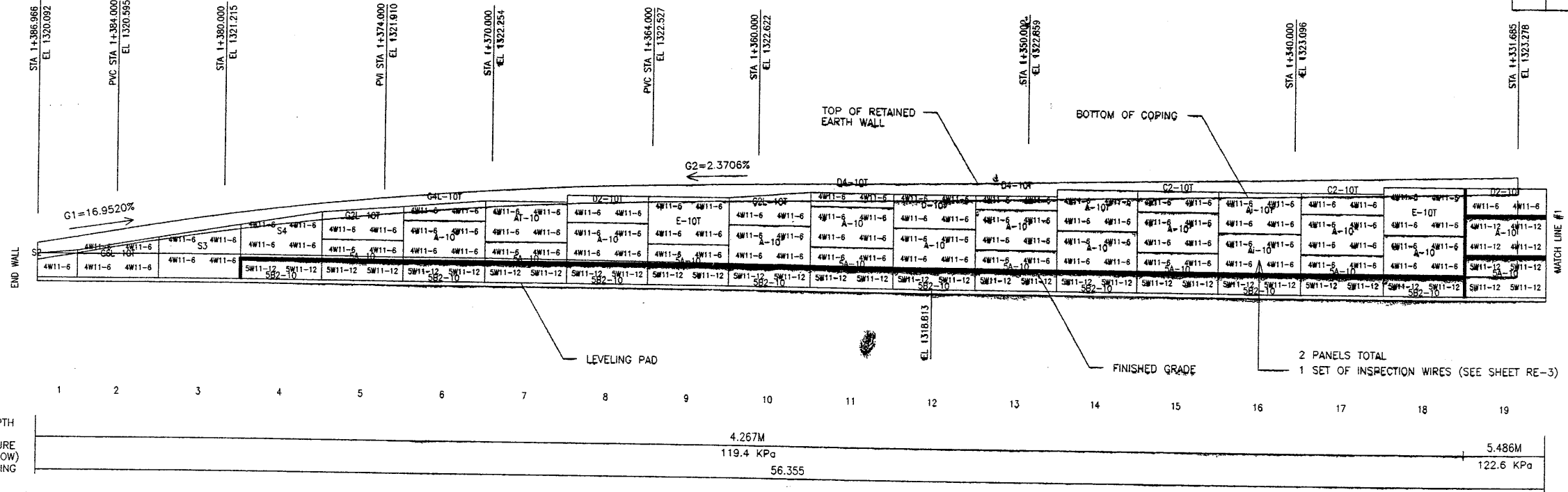
RETAINED EARTH™ WALLS
 PRECAST WALL 343-30B
 TYPICAL CROSS SECTIONS

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

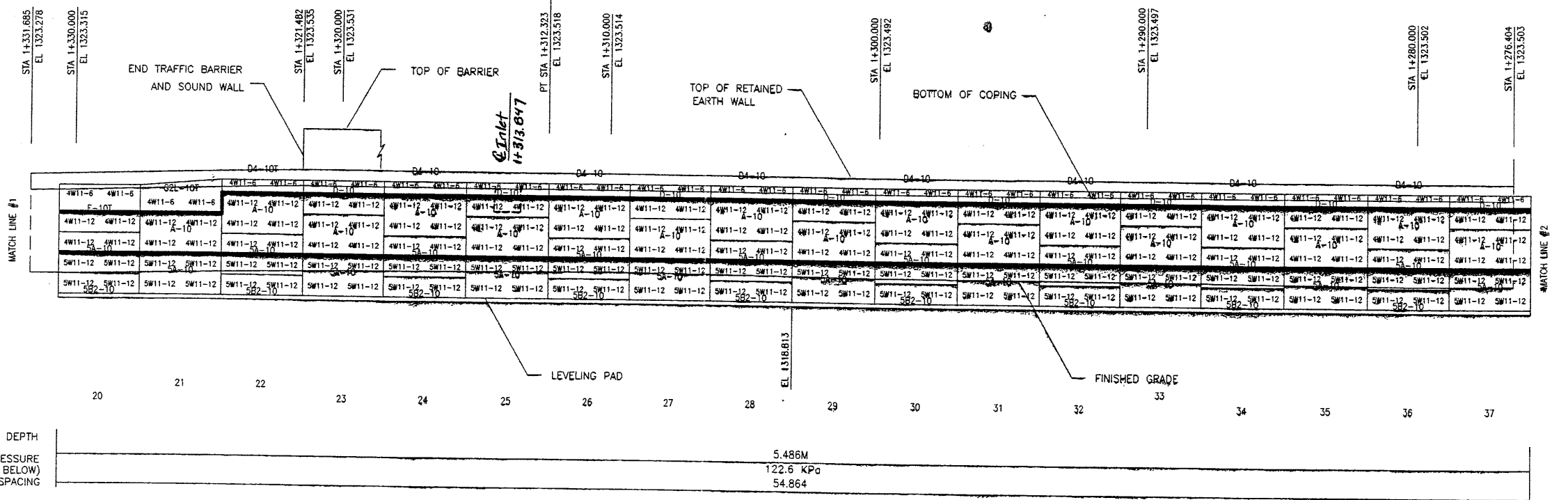
SCALE:
 1:2R-343-30.10
 JOB NO:
 239-0007/118
 RE-6

WALL STA 1+386.966
 "1-15" STA 19+095.288
 (49.795 LT)
 FRONT FACE OF WALL

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL 343-30A



ELEVATION PRECAST WALL 343-30A

(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 1241.03 SM) 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.



REVISION		NO.	DATE	BY	CHK

DES.	1-8-98	MM
DRN.	1-8-98	RSW
CHK.	1-8-98	MM

VSL CORPORATION
 8840 Pardo Drive, Suite 200
 Dallas, TX 75243
 Telephone: (972) 761-6272
 Fax: (972) 761-4869

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VSL

RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

WASATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

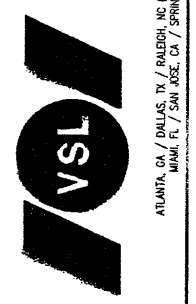
METRIC

SCALE:
 1.2R-343-30.11
 JOB NO:
 239-0007/18
 RE-7

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

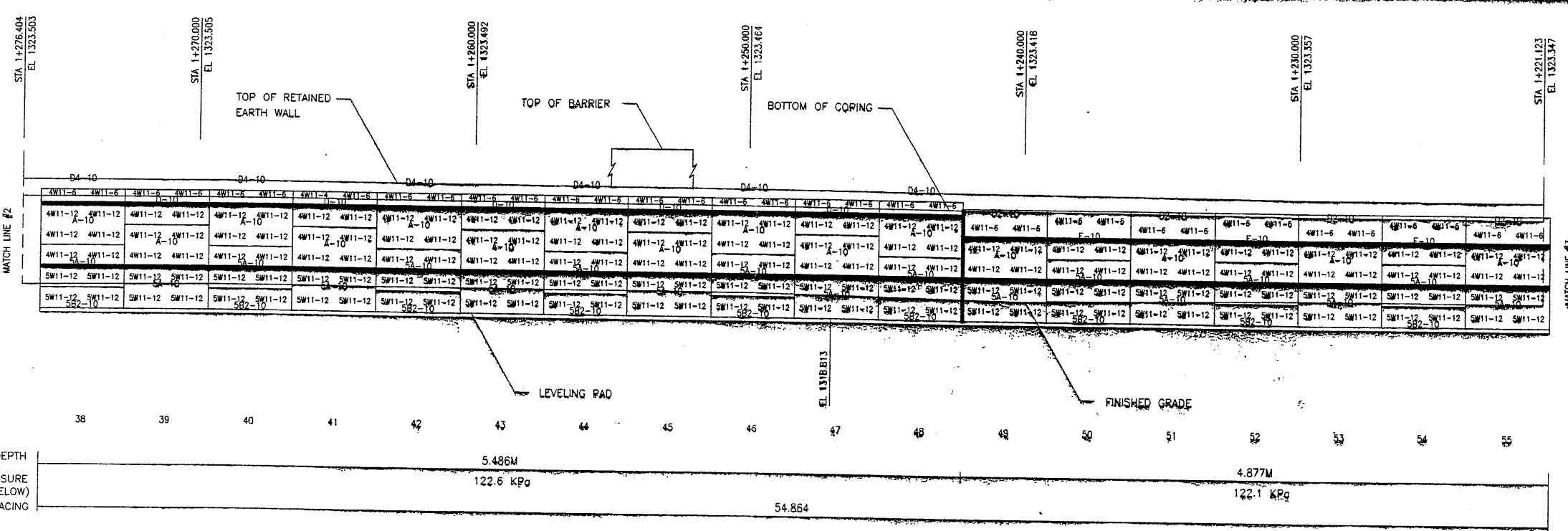
VSL CORPORATION
2840 Plaza Place, Suite 200
Folsom, CA 95630
Telephone: (916) 781-6772
Fac: (916) 781-6969



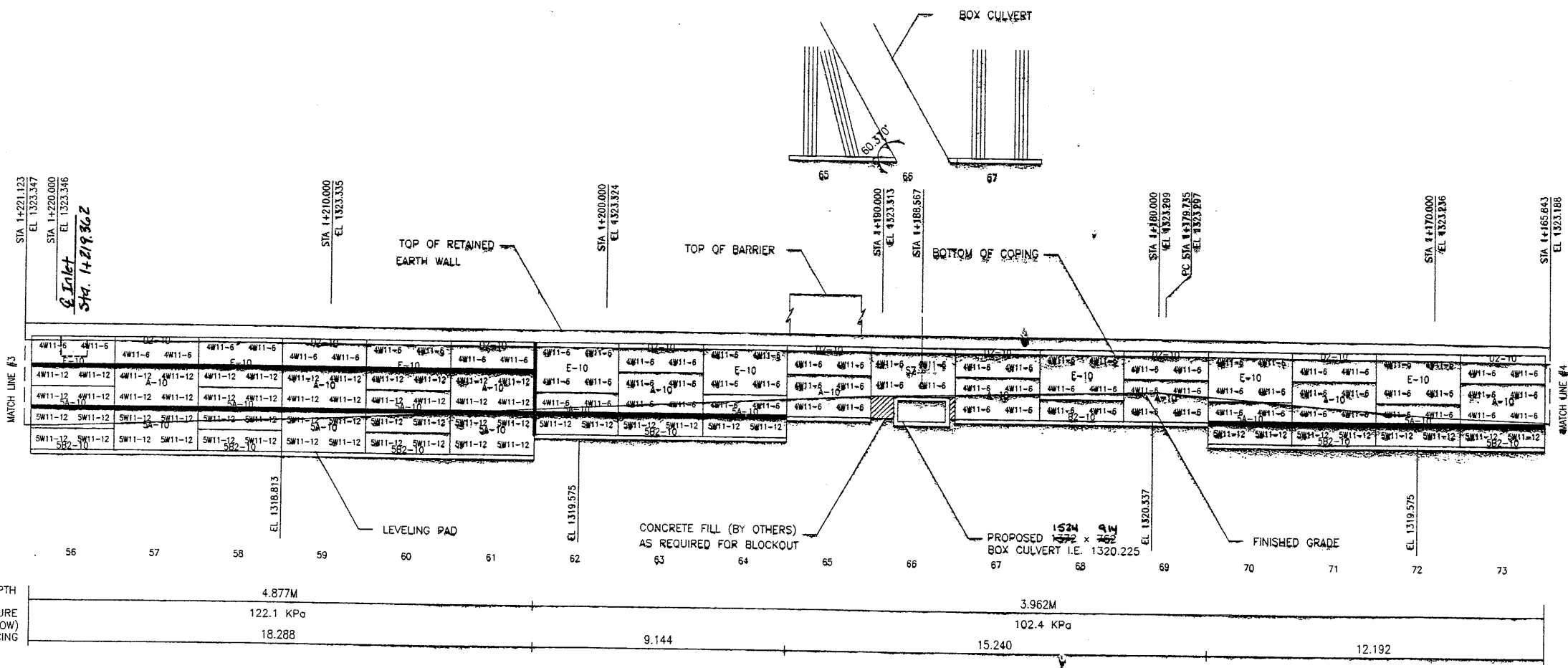
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RETAINED EARTH™ WALLS
PRECAST WALL "343-30A"
I-15 INTERCHANGE
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

SCALE: 1:2R-343-30.12
JOB NO: 239-0007
RE-8



ELEVATION PRECAST WALL 343-30A



ELEVATION PRECAST WALL 343-30A

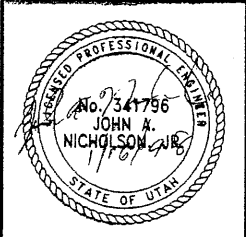
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 1241.03 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

MESH DEPTH	5.486M	4.877M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	122.6 kPa	122.1 kPa
PIN SPACING	54.864	122.1 kPa

MESH DEPTH	4.877M	3.962M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	122.1 kPa	102.4 kPa
PIN SPACING	18.288	15.240

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

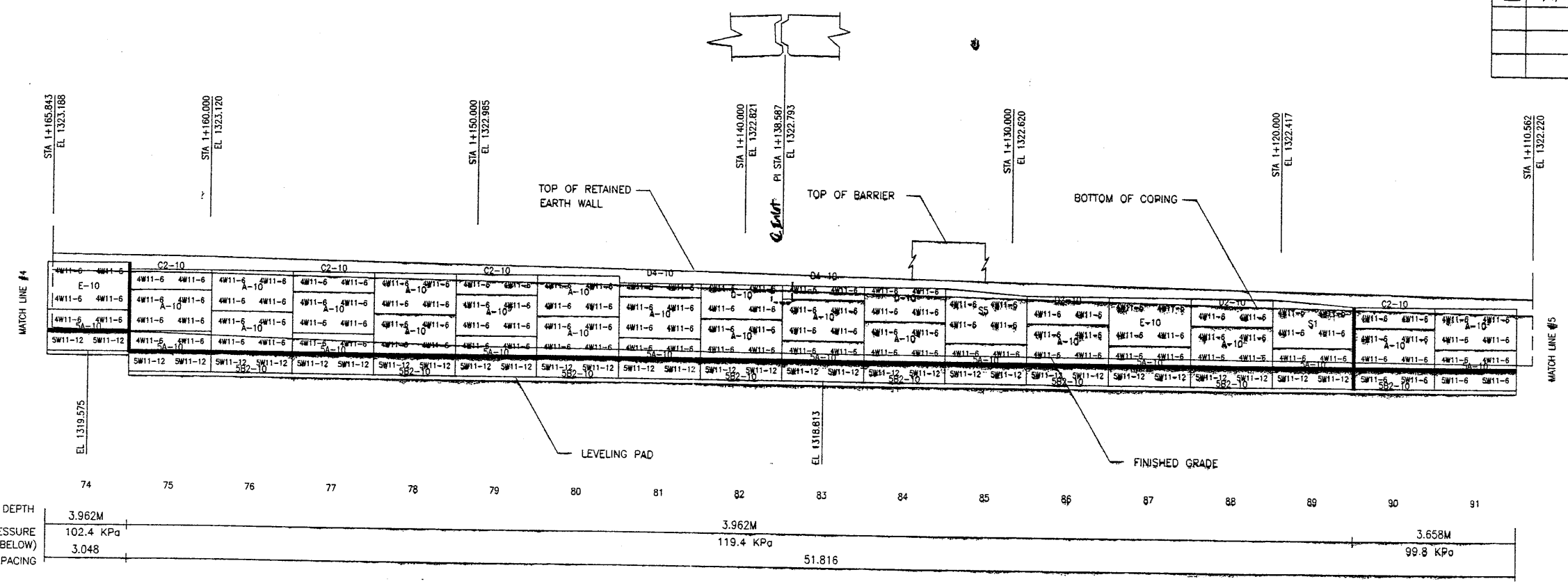
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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



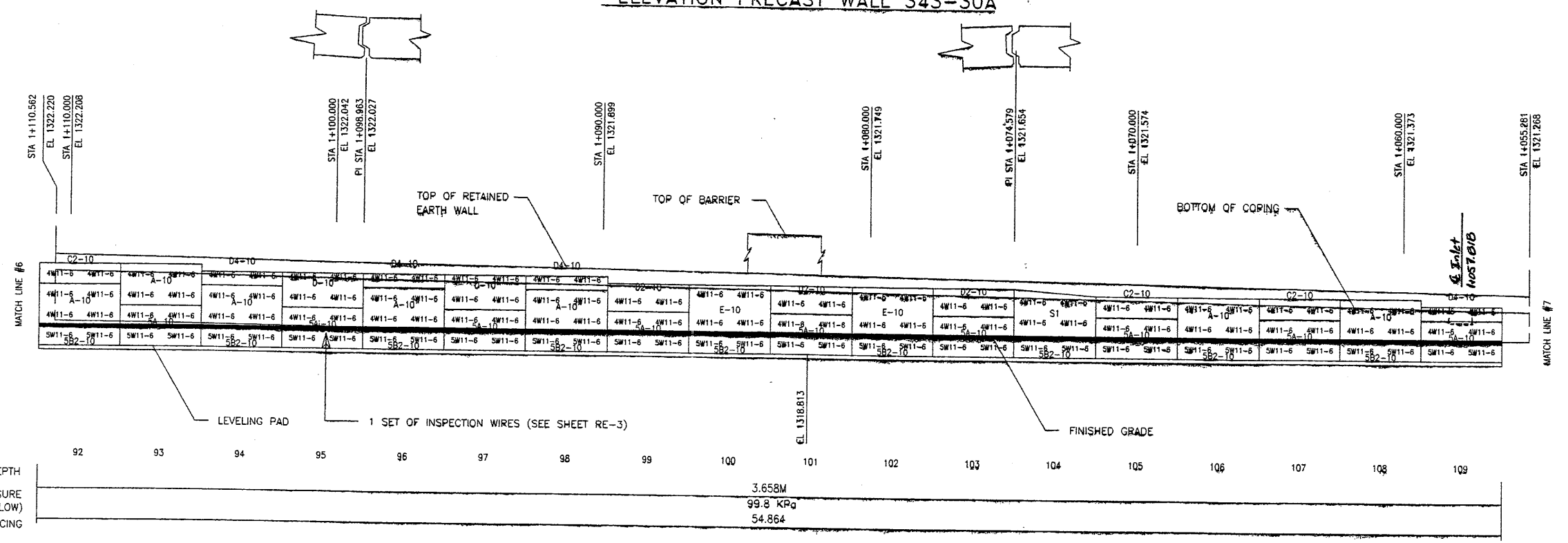
WASATCH CONSTRUCTORS
JAN 28 1998
RELEASED FOR CONSTRUCTION

METRIC

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION <i>ol</i>



ELEVATION PRECAST WALL 343-30A

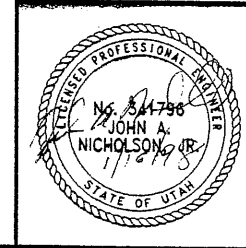


ELEVATION PRECAST WALL 343-30A

(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 1241.03 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

APPROVER NOTE:
 MAXIMUM 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.



WABATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

METRIC

NO.	DATE	DESCRIPTION	BY	CHK

DES.	MM	RETAINED EARTH™
1-8-98	RSW	
1-8-98	MM	
1-8-98		

VSL CORPORATION
 2510 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-4272
 Fax: (919) 781-4889

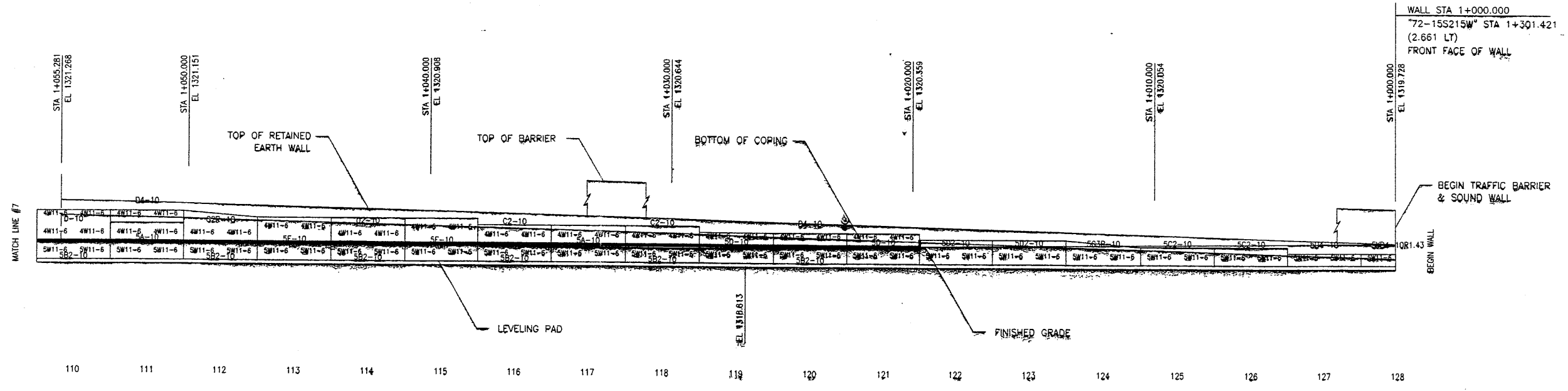
ATLANTA, GA / DALLAS, TX / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 I-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1:2R-343-30.13
 JOB NO:
 239-0007/18
 RE-9

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION <i>W</i>

NO.	DATE	REVISION



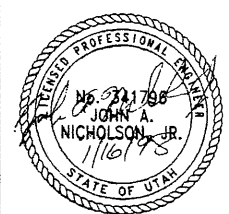
MESH DEPTH	3.658M
MAXIMUM BEARING PRESSURE (SEE NOTE BELOW)	99.8 KPa
PIN SPACING	56.294

ELEVATION PRECAST WALL 343-30A
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 1241.03 SM) SCALE 1:200 (HALF SIZE)

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

DESIGNED BY
 RELEASED FOR CONSTRUCTION
 JAN 28 1998

METRIC



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VSL CORPORATION
 8840 Pines Plaza, Suite 200
 Raleigh, NC 27612 781-6272
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RETAINED EARTH™ WALLS
 PRECAST WALL "343-30A"
 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.


SCALE:	1:2R-343-30.14
JOB NO:	239-0007 <i>15/18</i>
	RE-10

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	1/8/98	RELEASE FOR CONSTRUCTION

DES.	MM	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	BY	CHK.
	1-8-98	1-8-98	1-8-98	VSL				

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

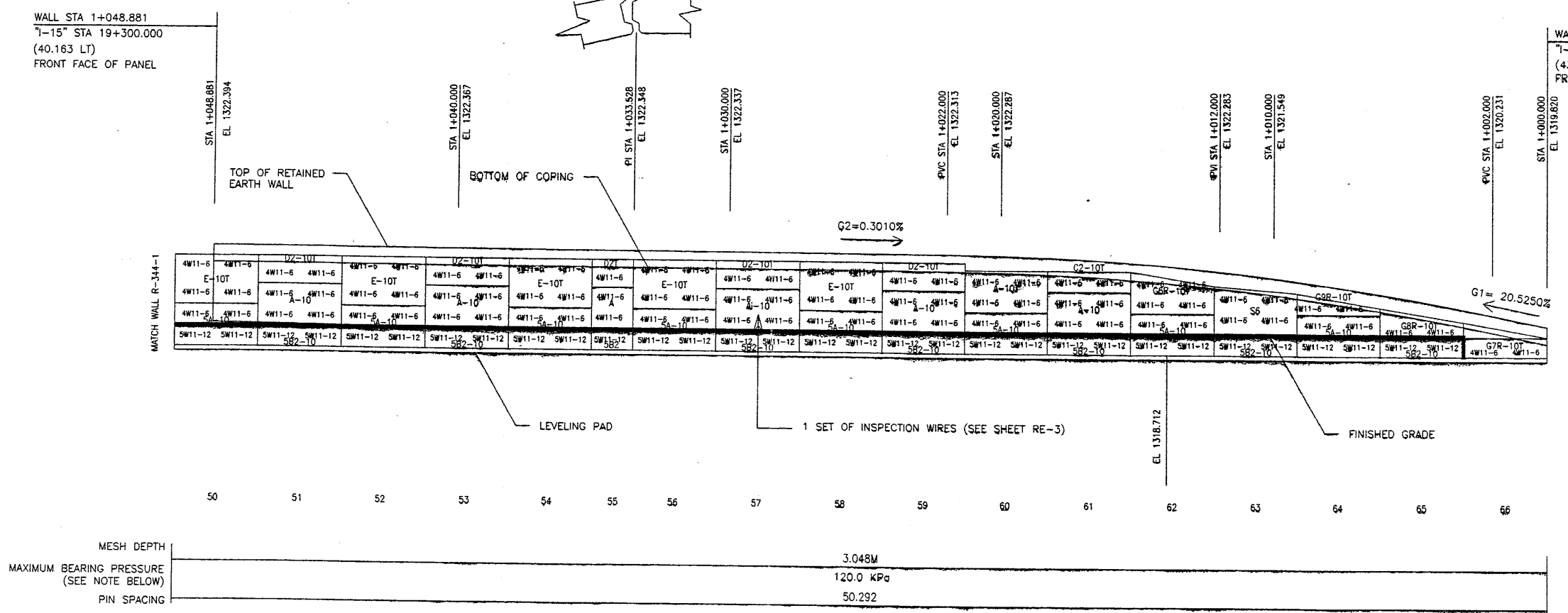
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RETAINED EARTH™ WALLS
PRECAST WALL "343-30B"
 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

SCALE:
 1:2R-343-30.15
 JOB NO:
 239-0007 16/18
RE-11

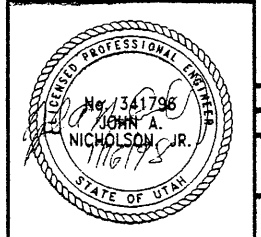


ELEVATION PRECAST WALL 343-30B
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 144.00 SM) SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

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

WAGATCH CONSTRUCTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

METRIC

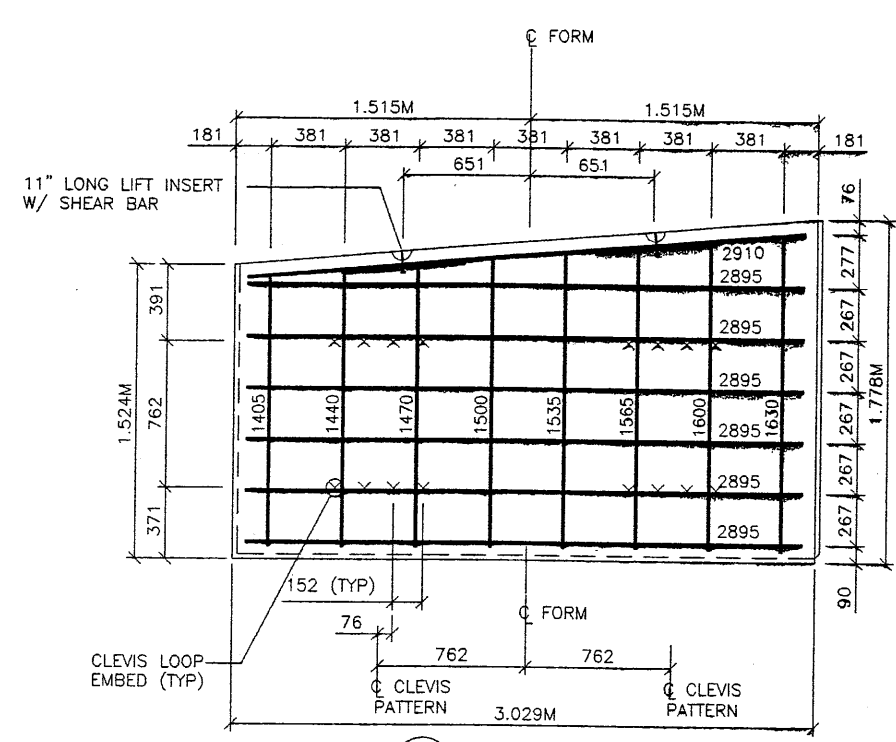


CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

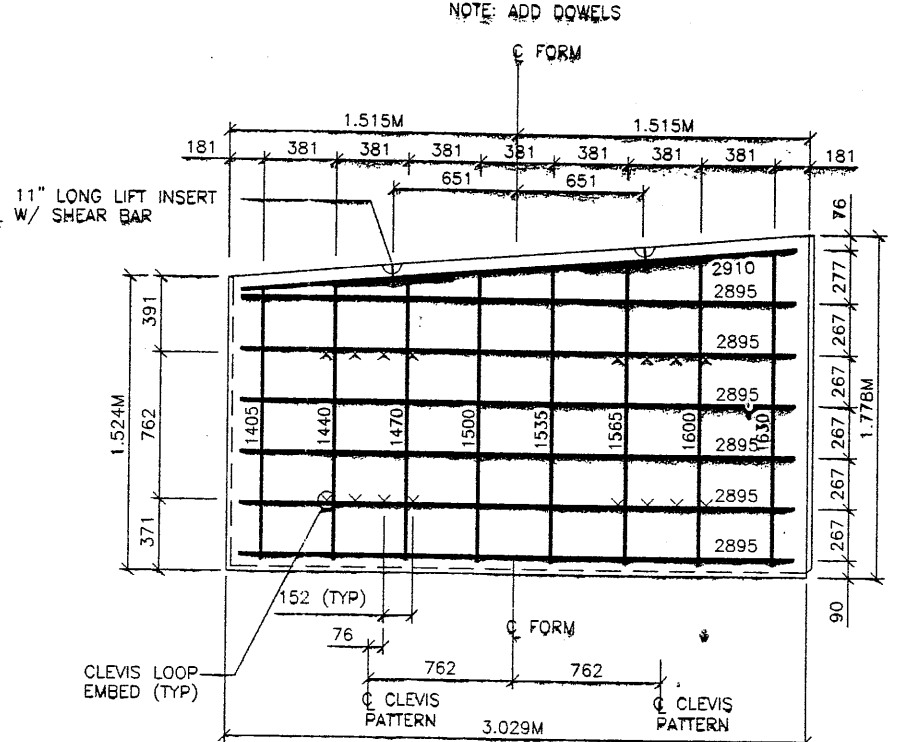
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FINAL PLO 1-98

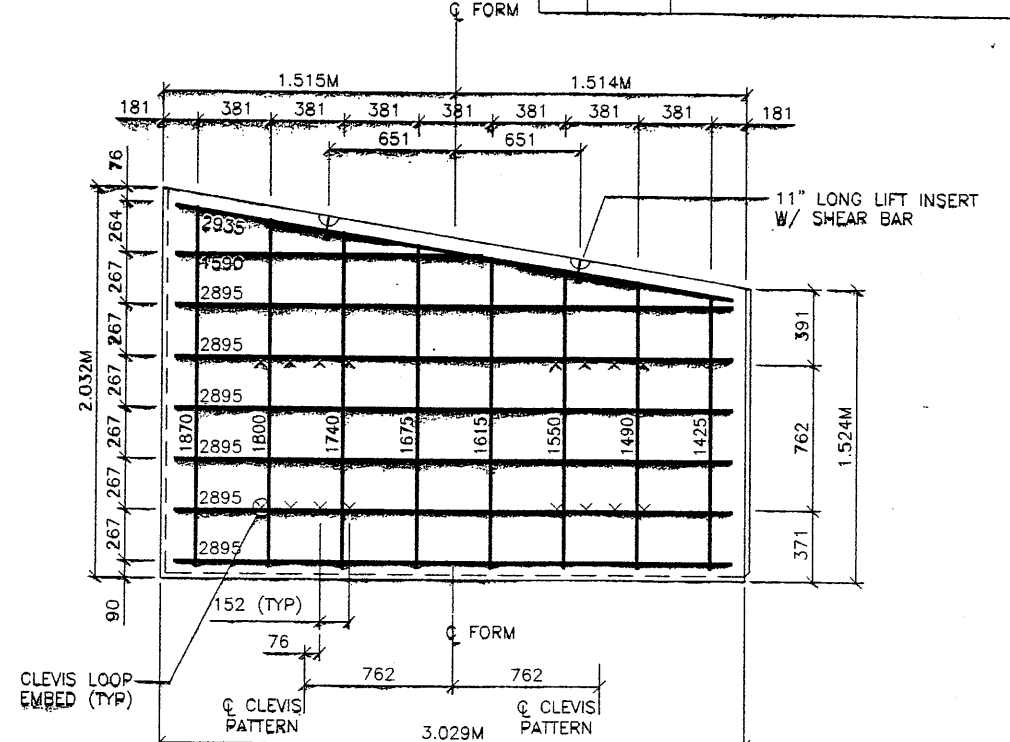
APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	1/8/98	RELEASE FOR CONSTRUCTION



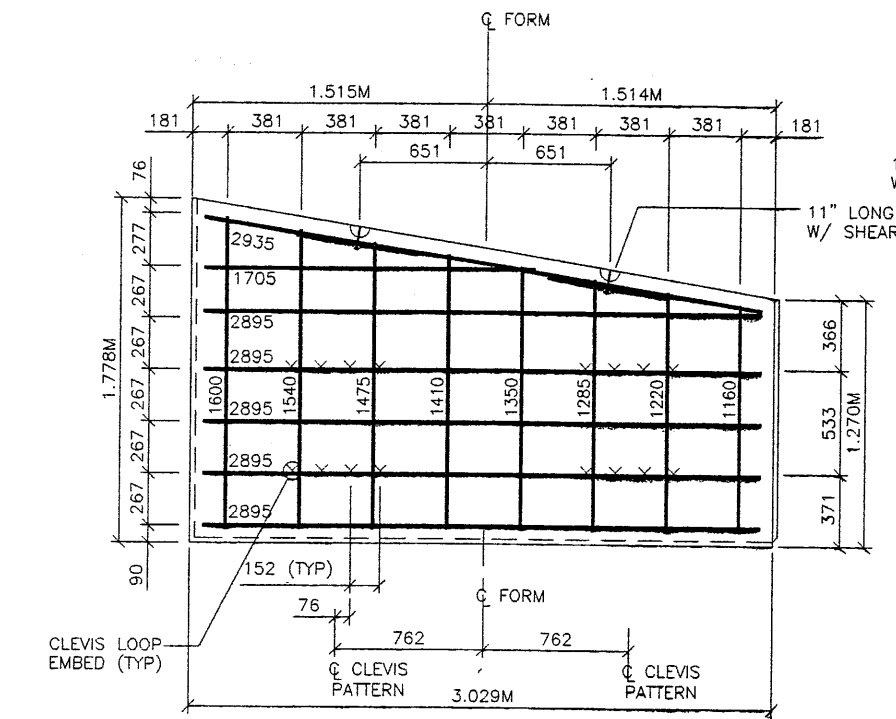
S1 TYPE S1 REBAR
(AREA = 5.032 SQ.M)



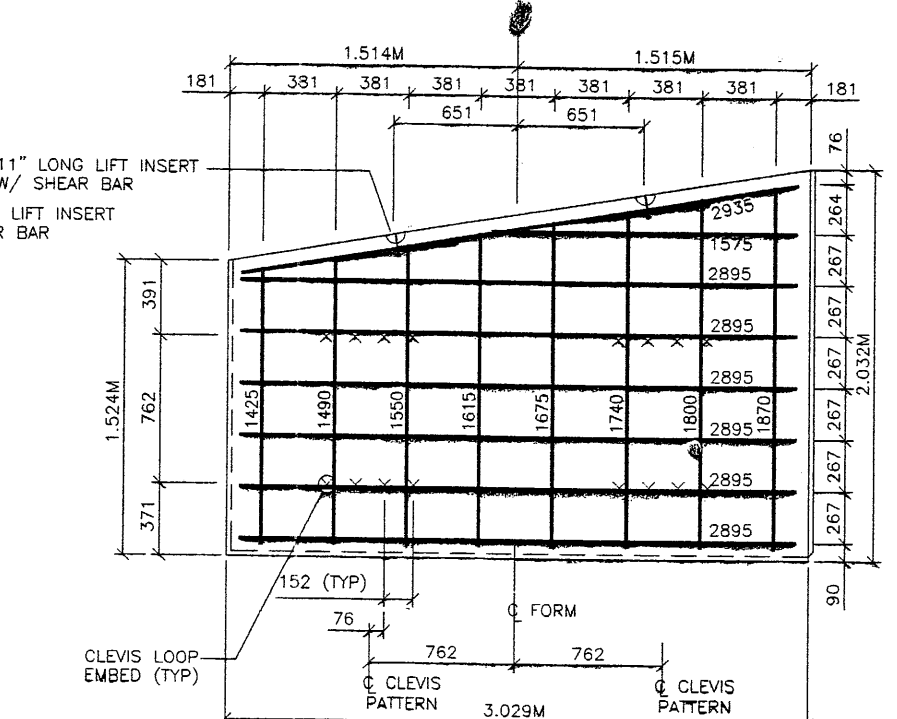
S6 TYPE S6 REBAR
(AREA = 5.032 SQ.M)



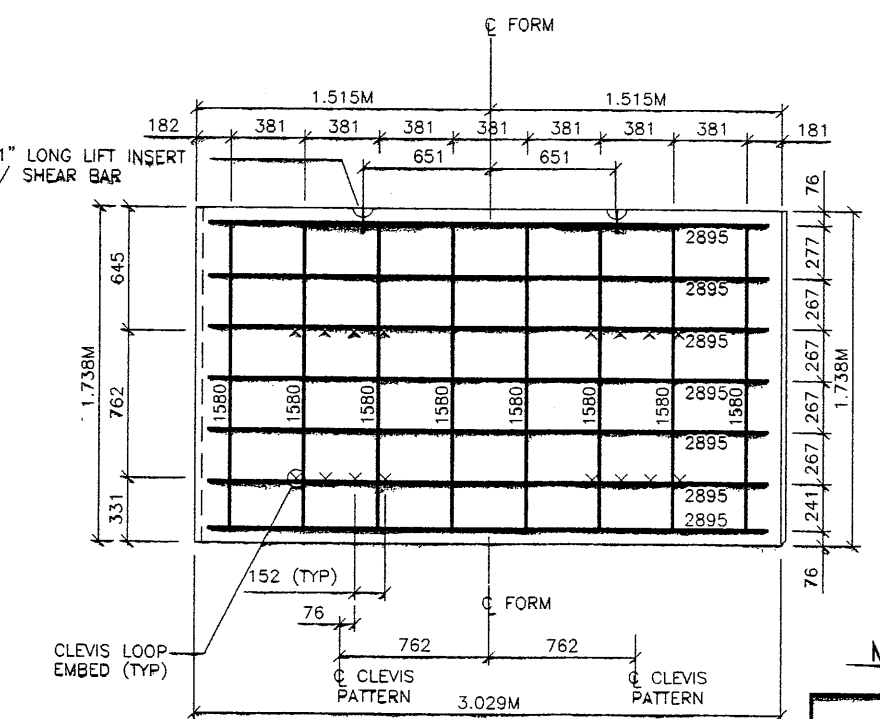
S3 TYPE S3 REBAR
(AREA = 5.419 SQ.M)



S4 TYPE S4 REBAR
(AREA = 4.645 SQ.M)

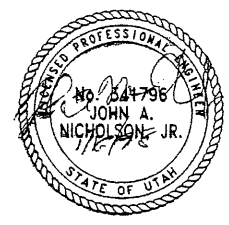


S5 TYPE S5 REBAR
(AREA = 5.419 SQ.M)



S7 TYPE S7 REBAR
(AREA = 5.264 SQ.M)

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WASATCH CONSTRUCTORS
JAN 28 1998
RELEASED FOR CONSTRUCTION

METRIC

NO.	DATE	DESCRIPTION	BY	CHK

DES:	1-8-98	MM
DRN:	1-8-98	RSW
CHK:	1-8-98	MM

RETAINED EARTH™

VSL CORPORATION
2840 Plaza Place, Suite 200
Raleigh, NC 27617 761-6772
Telephone: (919) 761-4872
Fax: (919) 761-4869

ATLANTA, GA / DALLAS, TX / PALM BEACH, FL / SAN JOSE, CA / SPRINGFIELD, VA

VSL

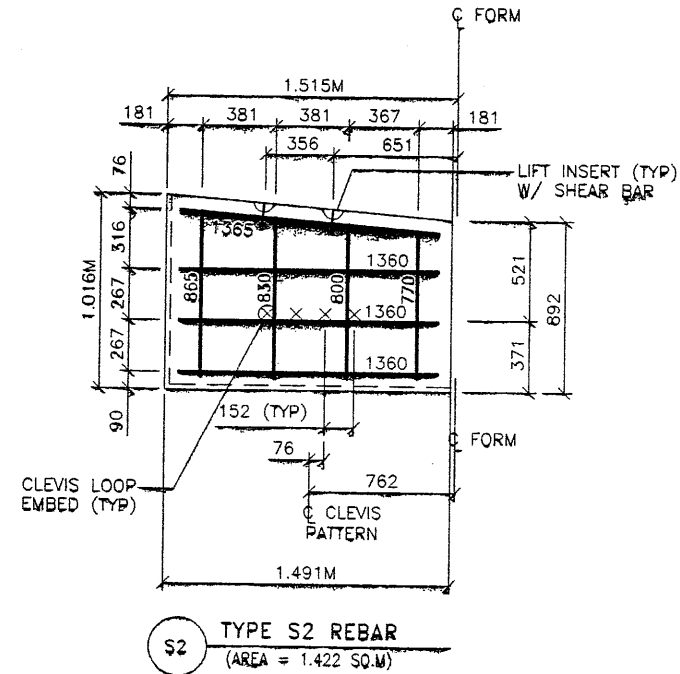
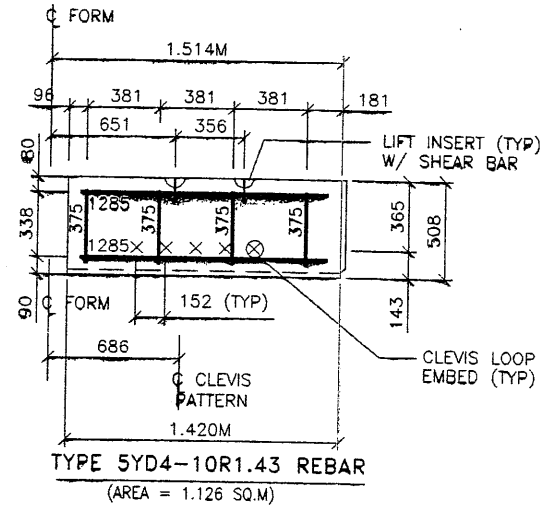
RETAINED EARTH™ WALLS
SPECIAL PANEL DETAILS

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

SCALE:
1.2R-343-30.16

JOB NO:
239-0007 17/18

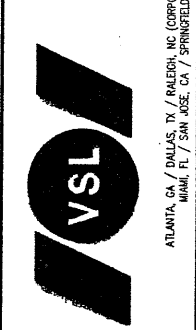
RE-12



APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	1/8/98	RELEASE FOR CONSTRUCTION <i>de</i>

DES.	MM	RSW	MM	NO.	DATE	REVISION	BY	CHK
1-8-98	1-8-98	1-8-98	1-8-98					

VSL CORPORATION
 2840 Pines Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-4272
 Fax: (919) 781-4609

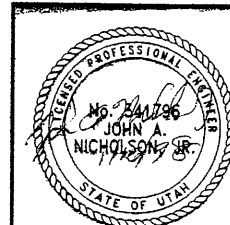


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RETAINED EARTH™ WALLS
 STANDARD DRAWING
 "G" PANEL REINFORCEMENT 1.524M x 3.048M
 UTAH 1-15 INTERCHANGE
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

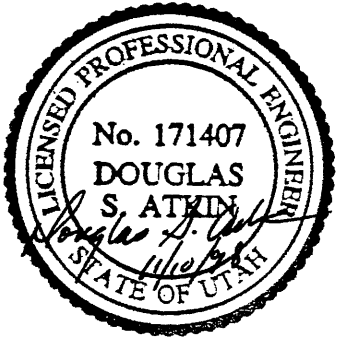
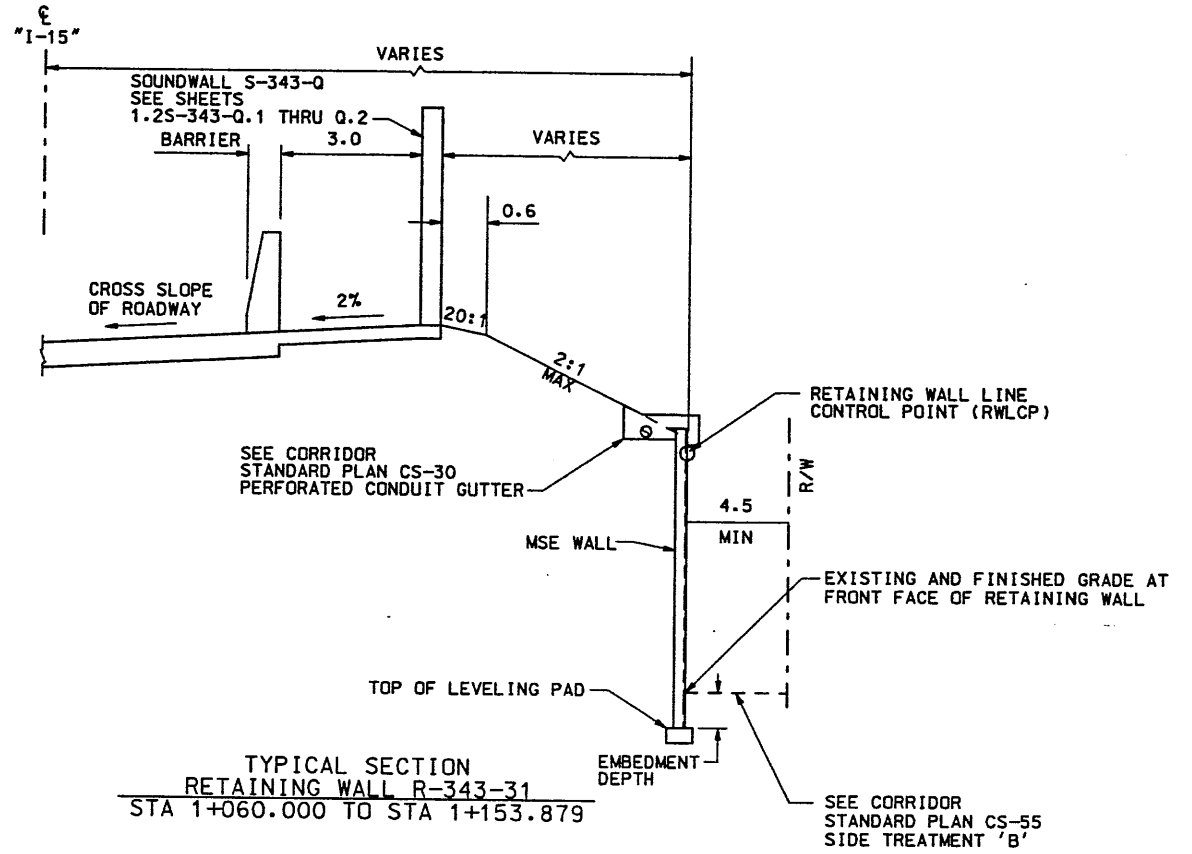
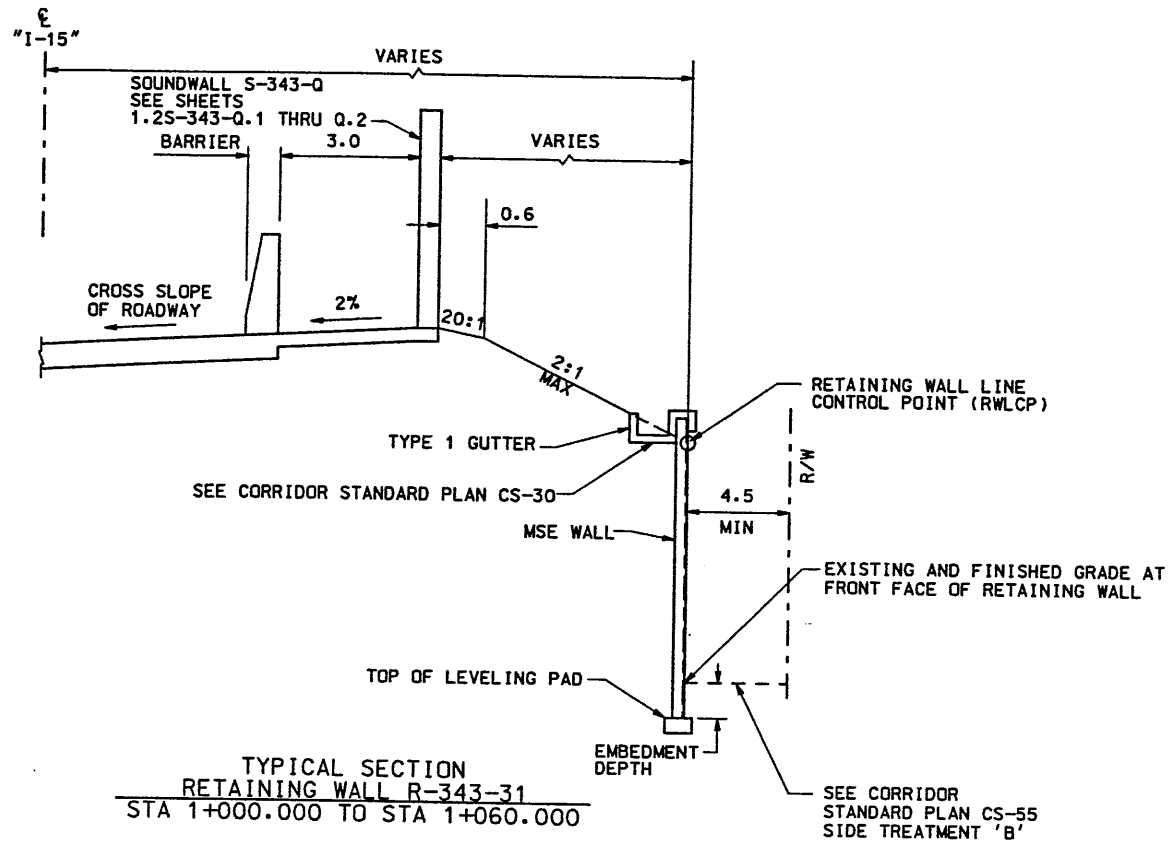
SEALING CONTRACTORS
 JAN 28 1998
 RELEASED FOR CONSTRUCTION

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.

SCALE:
 1.2R-343-30.17
 JOB NO:
 239-0007 18/18
 RE-13



WASATCH CONSTRUCTORS
NOV 19 1998
RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	3-23-98	INITIAL RELEASE
Δ	Δ	11-10-98	REFERENCED SOUNDWALL
UTAH DEPARTMENT OF TRANSPORTATION		URS Greiner	
SVERDRUP/DE LEUW		DESIGN	PRV 1/98
		DRAWN	PRV 1/98
		QUANT.	/
		CHECK	JBE 1/98
		CHECK	JBE 1/98
		CHECK	/
		PROJECT NUMBER	1213404
I-15 CORRIDOR RECONSTRUCTION		TYPICAL SECTIONS	
RETAINING WALL R-343-31		SECTION 1.2	
		PROJECT NUMBER #SP-15-7(135)296	
SALT LAKE COUNTY		DWG. NO.	
		1.2R-343-31.1a	
SHT. 2 OF 7		REF.	

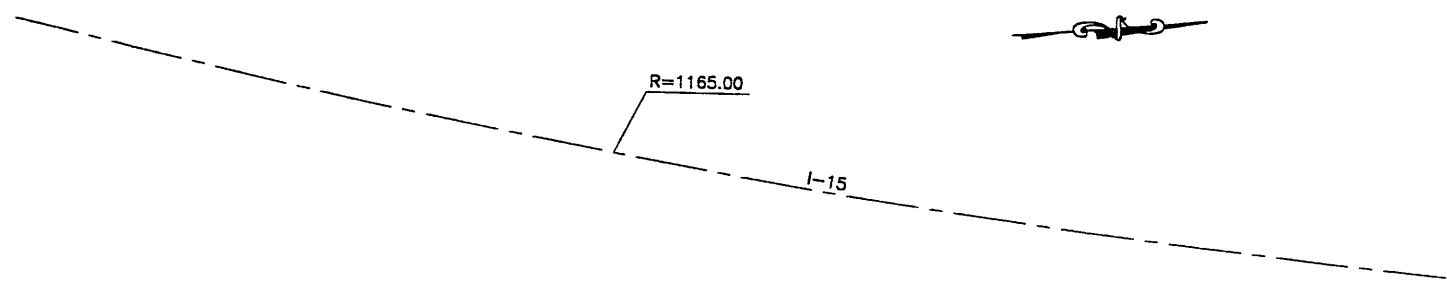
FACE (X-UTAH) (DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\725\72-31\RE-1

FINAL PLOT 02-25-98

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

DES.	DRN.	CHK.	NO.	DATE	REVISION	BY
02-23-98	02-23-98	02-23-98				



PRECAST WALL STA 1+000.000 =
I-15 STA 19+151.978
⊙ 49.339 RT
BEGIN PRECAST WALL R-343-31

FACE OF PRECAST WALL 343-31

N 5° 4' 42\"/>

PRECAST WALL STA 1+153.879 =
I-15 STA 19+300.000
⊙ 38.580 RT
BEGIN PRECAST WALL R-343-31

WASATCH CONSTRUCTORS
MAR 27 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: 4W11-6 MESH HAS FOUR (4) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

DESIGN PARAMETERS
ANGLE OF INTERNAL FRICTION (SELECT) = 34°
ANGLE OF INTERNAL FRICTION (BASE) = 30°
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

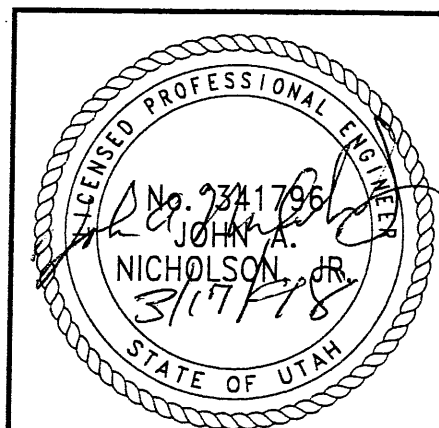
RETAINED EARTH INDEX
RE-1 PLAN PRECAST FACE WALL R-343-31, NOTES & DESIGN CRITERIA
RE-2 TYPICAL CROSS SECTION
RE-3 ELEVATION PRECAST WALL "R-343-31"
RE-4 ELEVATION PRECAST WALL "R-343-31"
RE-5 SPECIAL PANEL DETAILS

PLAN VIEW WALL "R-343-31"

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



VSL CORPORATION
2610 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 881-5272
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VSL

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

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RETAINED EARTH™ WALLS
PLAN VIEW PRECAST WALL "R-343-31"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

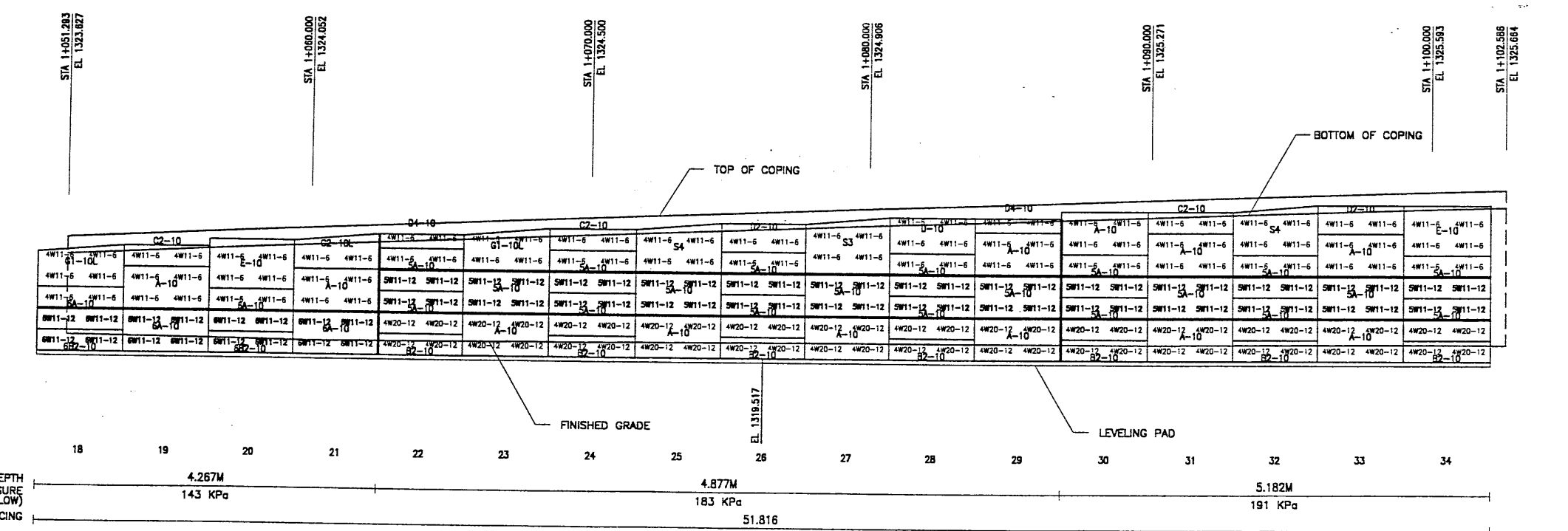
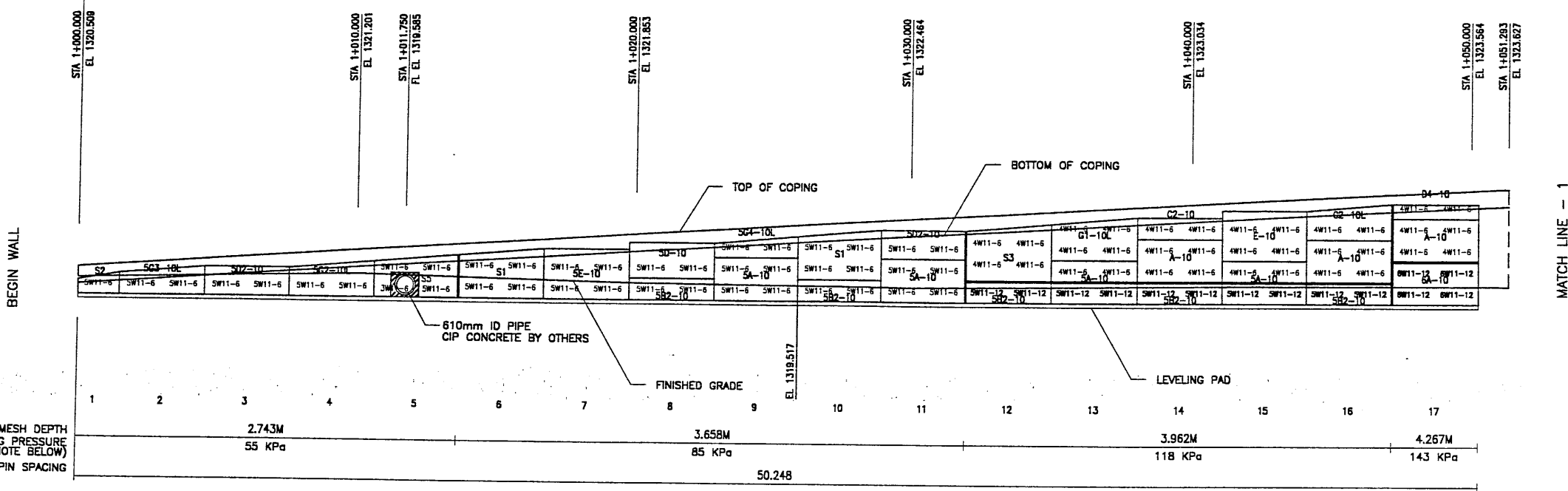
DWG. NO.	1.2R-343-31.2
JOB NO.	239-0007/3/7
SHT. NO.	RE-1

H:\RE_EARTH\PROJECT\239-0007\1998\2SERIES\71-2-31
 FINAL PI 02-19-98

BEGIN WALL R-343-31
 WALL STA 1+000.000 =
 I-15 STA 19+151.978
 @ 49.339 RT
 NOMINAL PANEL FACE (RWLOL)

APPROVED FOR CONSTRUCTION

NO.	DATE	DESCRIPTION
1	03-16-98	RELEASE FOR CONSTRUCTION



ELEVATION PRECAST WALL R-343-31
 (FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 678.41 SM)
 SCALE 1:100 (FULL SIZE)
 SCALE 1:200 (HALF SIZE)

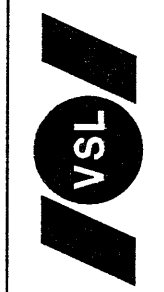
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 MAXIMUM FINAL UNFACTORED BEARING PRESSURES
 ARE INDICATED BELOW "MESH DEPTH LINE"
 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

METRIC

CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY.
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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.

MATCH LINE - 2

MATCH LINE - 1

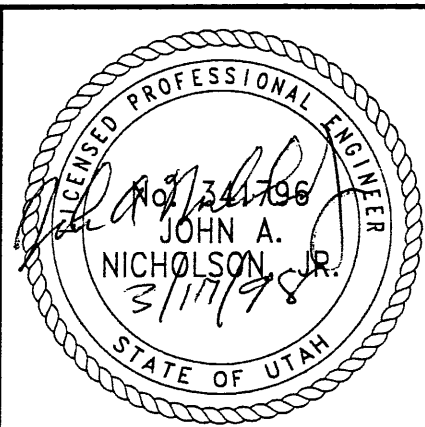


VSL CORPORATION
 7840 Plaza Place, Suite 200
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 Telephone: (919) 781-6272
 Fax: (919) 781-6559

DES.	DRN.	CHK.	RETAINED EARTH™
02-24-98	02-24-98	02-24-98	MM

NO.	DATE	REVISION	BY	CHK
1	03-16-98			

WASATCH CONSTRUCTORS
MAR 27 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-31"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

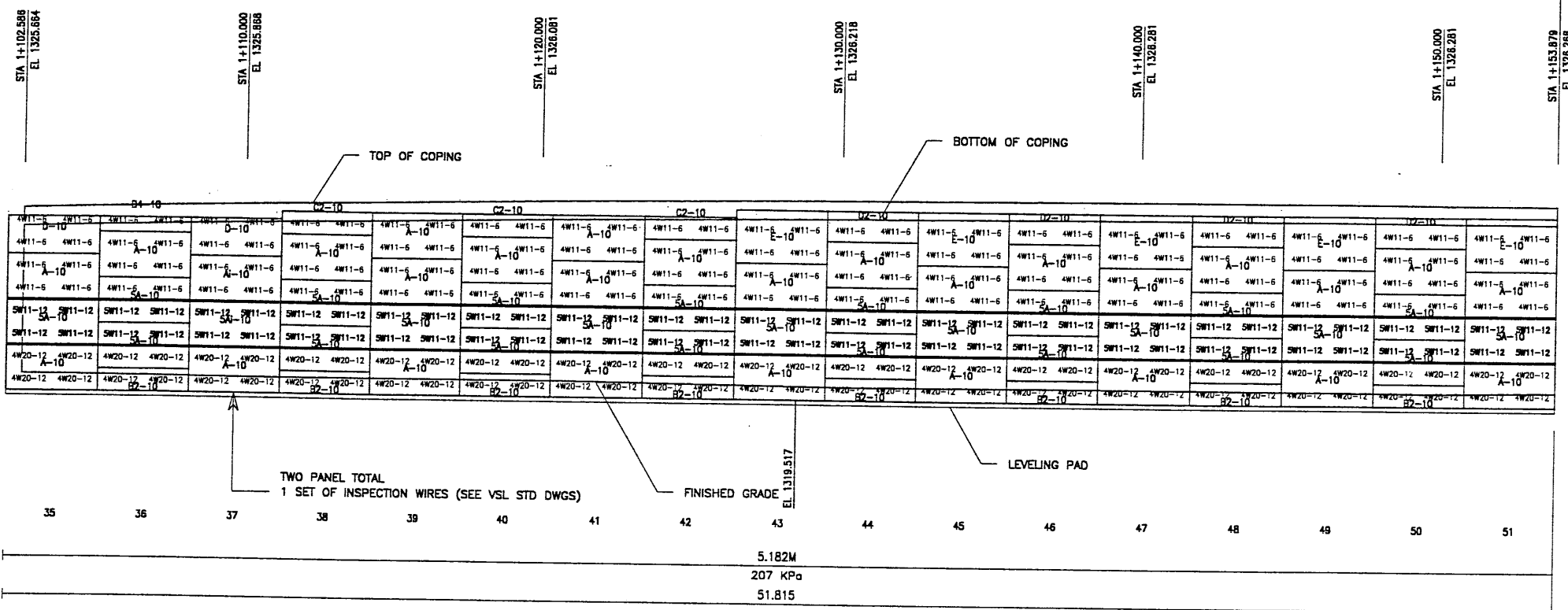
DWG. NO.	1.2R-343-31.4
JOB NO.	239-0007
SHT. NO.	RE-3

XP REFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\2SERIES\72-31\72-31

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	03-16-98	RELEASE FOR CONSTRUCTION

END WALL R-343-31
 WALL STA 1+153.879 =
 I-15 STA 19+300.000
 ● 38.580 RT
 NOMINAL PANEL FACE (RWLOL)

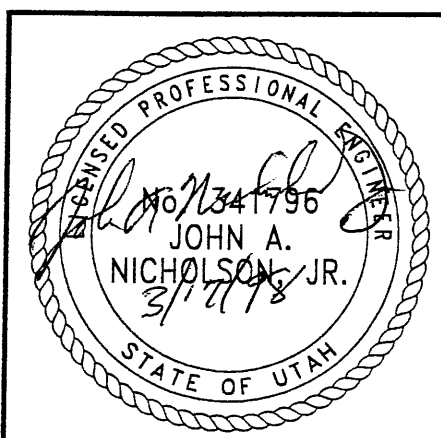


ELEVATION PRECAST WALL R-343-31
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 678.41 SM) SCALE 1:200 (HALF SIZE)

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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WASATCH CONSTRUCTORS
 MAR 27 1998
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-31"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-31.5
JOB NO.	239-0007/7
SHT. NO.	RE-4

VSL CORPORATION
 2840 Rice Place, Suite 200
 Raleigh, NC 27617
 Telephone: (919) 781-6272
 Fax: (919) 781-4669

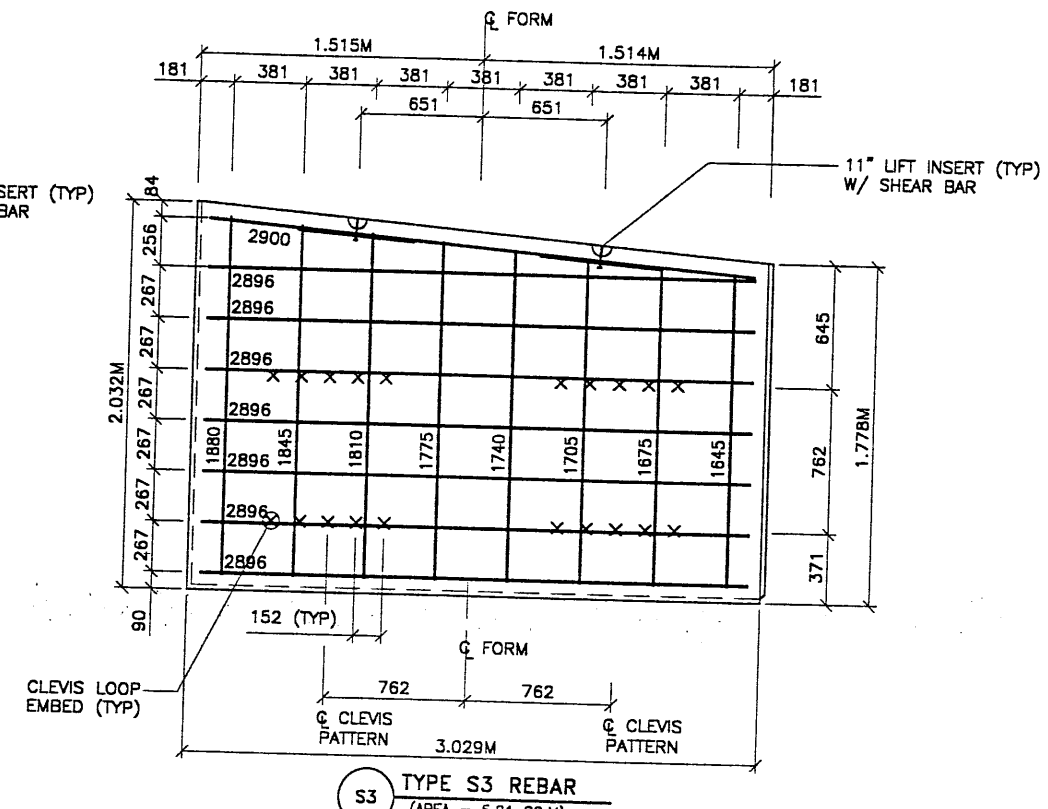
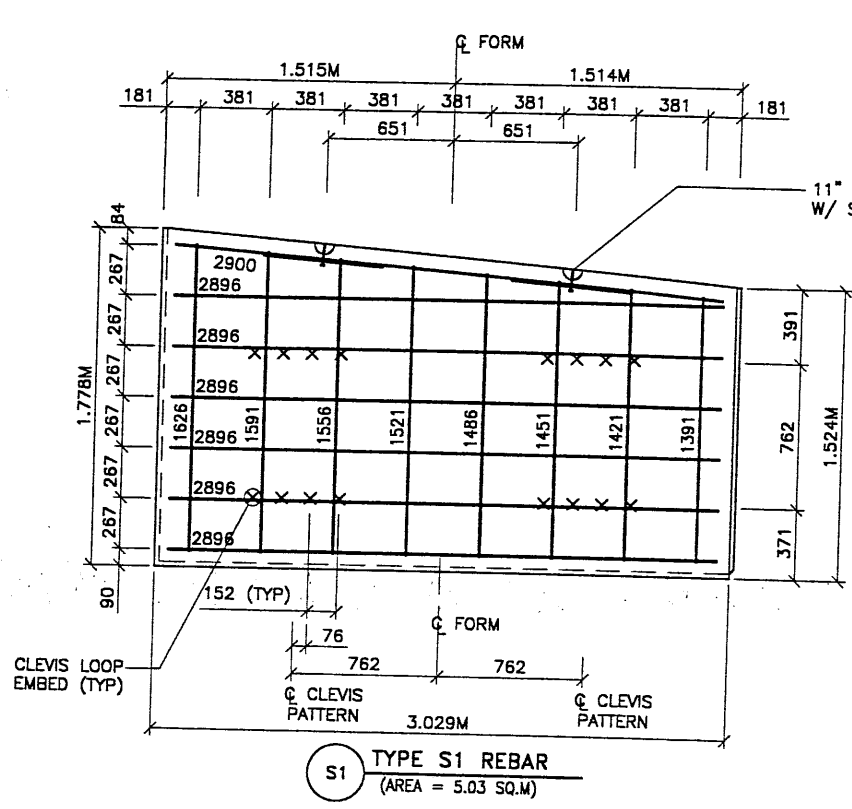
ALABAMA, CA / OMAHA, IA / RALEIGH, NC (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

NO.	DATE	DESCRIPTION	REVISION	BY	CHK

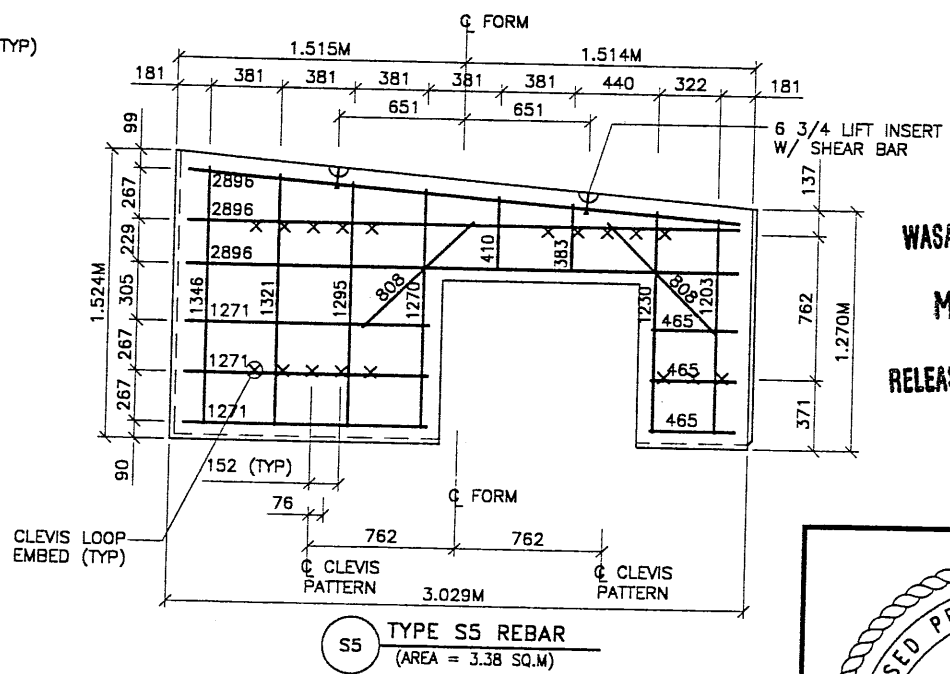
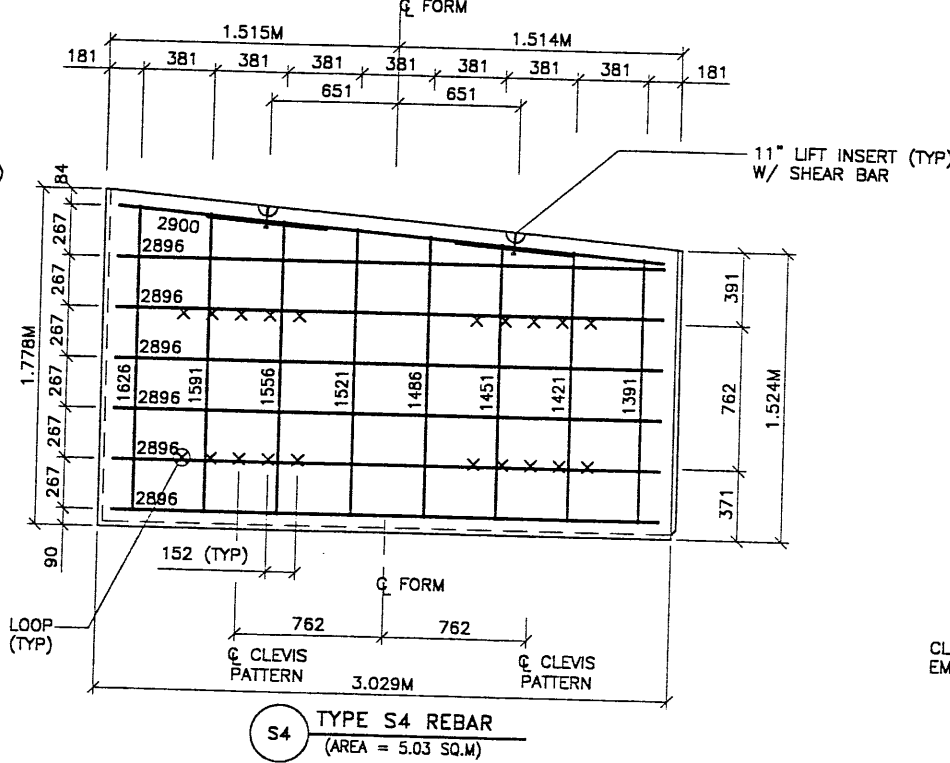
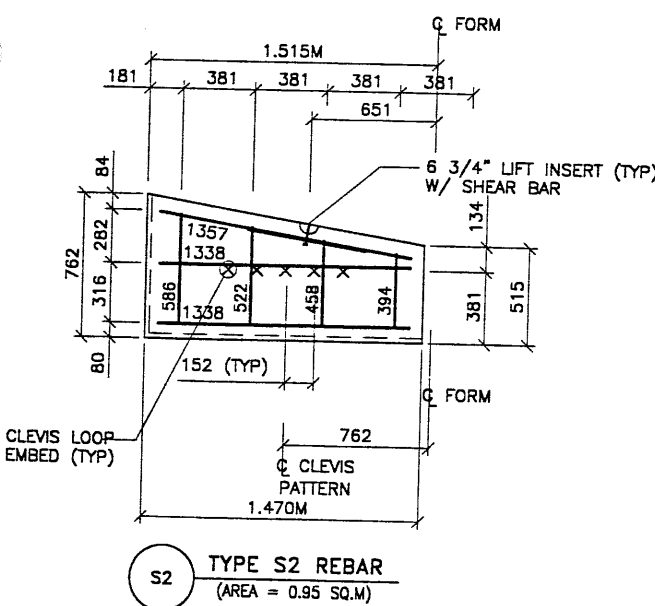
FINAL PLOT 02-23-98 H:\RE_EARTH\PROJECT\239-0007\1998\72S-72-31\SPECIALS

DATE (X-UTAH:DWG)

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

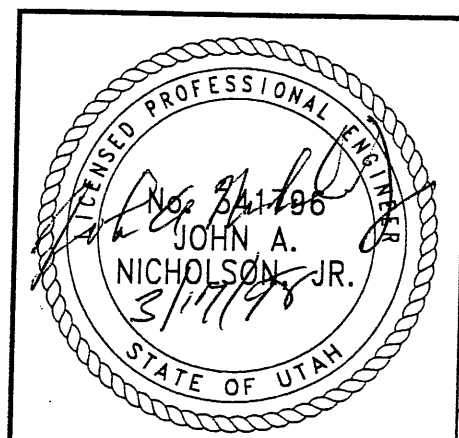


- PANEL REINFORCEMENT NOTES:
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS A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



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 27 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
PRECAST WALL "R-343-31"
SPECIAL PANEL DETAILS
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.	1.2R-343-31.6
JOB NO.	239-0007/7
SHT. NO.	RE-5

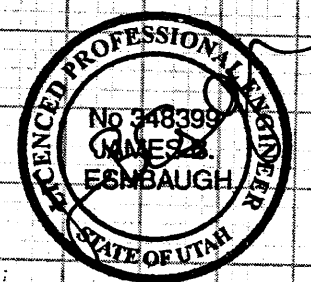
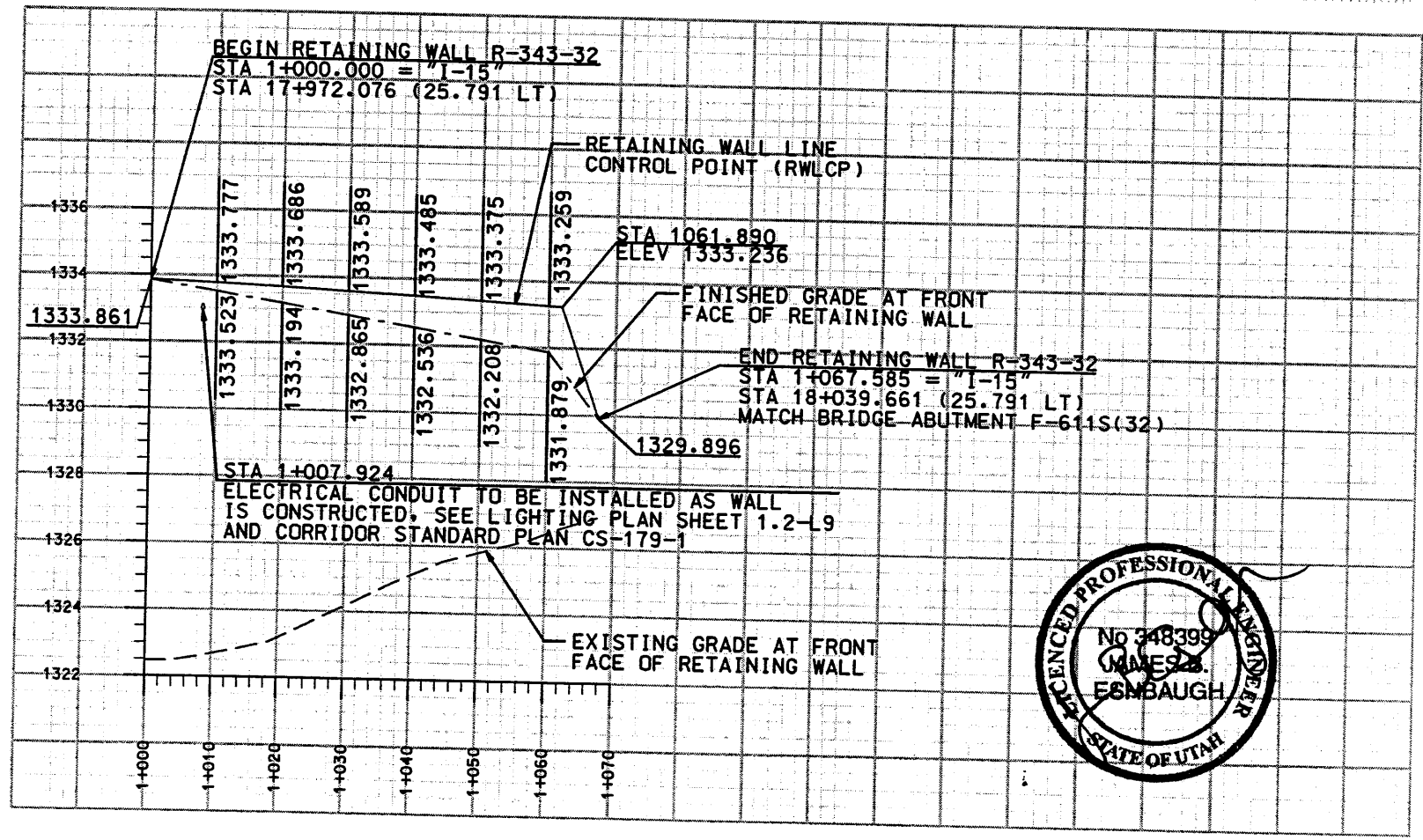
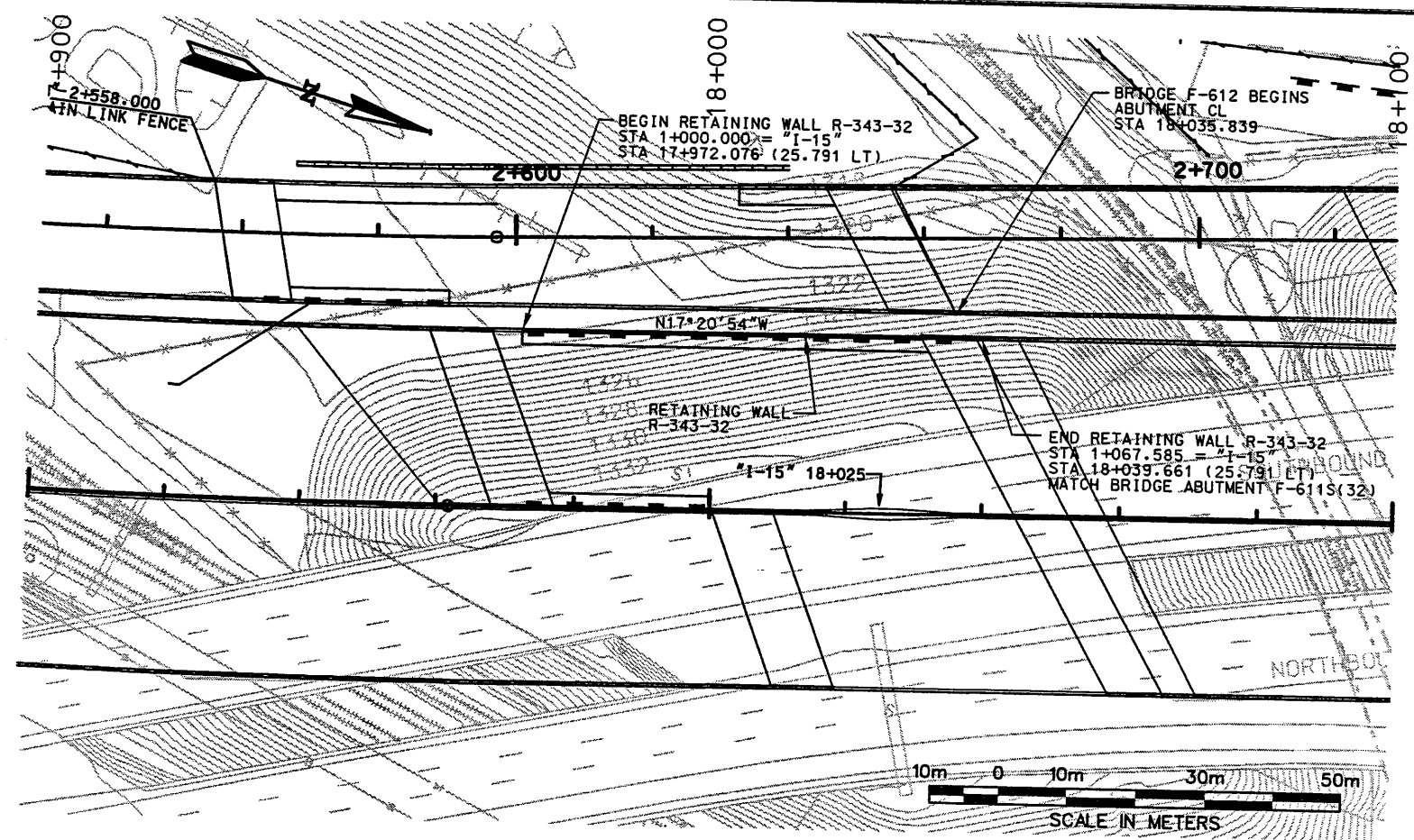
VSL CORPORATION
2840 Plano Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4889

ATLANTA, GA / DALLAS, TX / BALTIMORE, MD (CORPORATE OFFICE)
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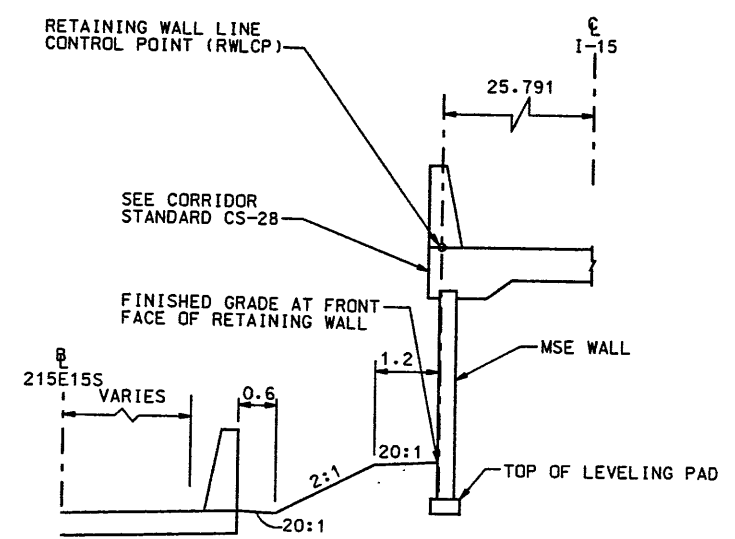
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Uerrname: STOTTRJ

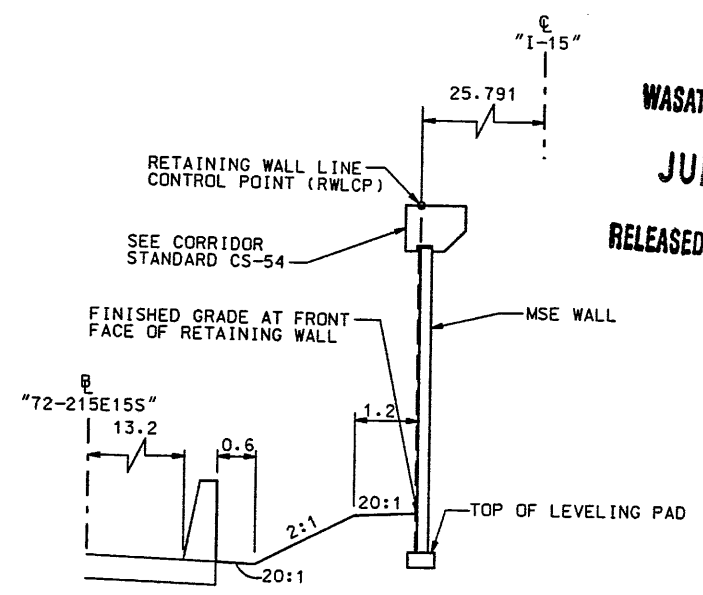
Date: 12-JUN-1998 Time: 09:06



ELEVATION VIEW FROM BACK OF RETAINING WALL



TYPICAL SECTION WALL R-343-32 STA 1+000.000 TO STA 1+061.890



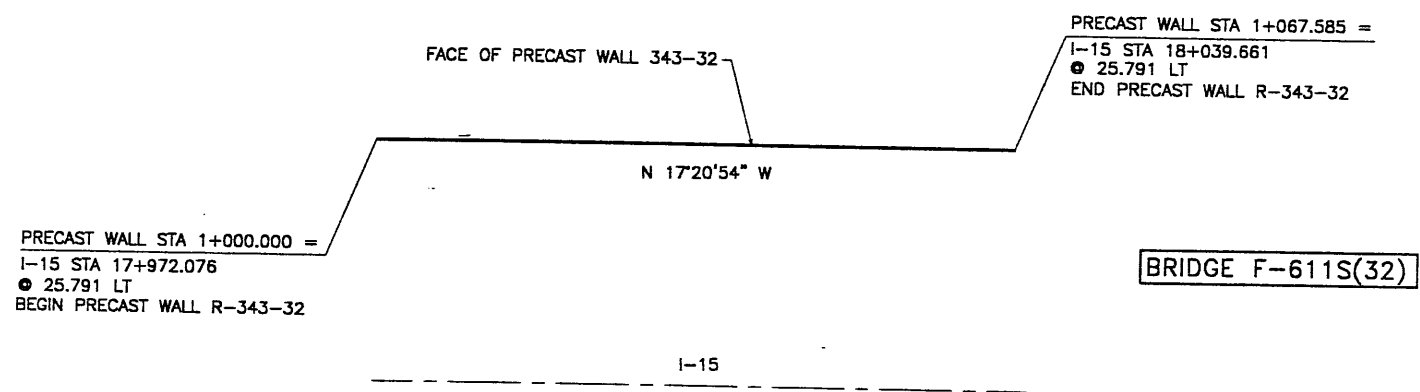
TYPICAL SECTION WALL R-343-32 STA 1+061.890 TO STA 1+067.585

WASATCH CONSTRUCTORS
 JUN 16 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		DESCRIPTION	
NO.	DATE	NO.	DATE
1	6-09-98		
UTAH DEPARTMENT OF TRANSPORTATION		1212401	
SITUATION/LAYOUT		DESIGN PRV 11/97	
RETAINING WALL R-343-32		CHECK JBE 11/97	
SECTION 1.2		DRAWN PRV 11/97	
PROJECT NUMBER		CHECK JBE 11/97	
#SP-15-7(135)296		QUANT. /	
SALT LAKE COUNTY		PROJECT MANAGER	
DWG. NO. 1.2R-343-32.1		SVERDRUP/DE LEUW	
SHT. 1 OF 5		APPROVAL RECORD:	
REF.		DATE PROJECT DESIGN ENGINEER	
		11/97 RICK CHAPMAN	
		DATE DON GRULL	
		11/97	

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

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
▲	06-05-98	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: 5W11-12 MESH HAS FIVE (5) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 6W11-12 MESH HAS SIX (6) W11 LONGITUDINAL WIRES WITH W11 CROSSBARS AT 12" CENTERS.
EXAMPLE: 4W20-12 MESH HAS FOUR (4) W20 LONGITUDINAL WIRES WITH W20 CROSSBARS AT 12" CENTERS.
- SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
- CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
- HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
- CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
- BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
- VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
- ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

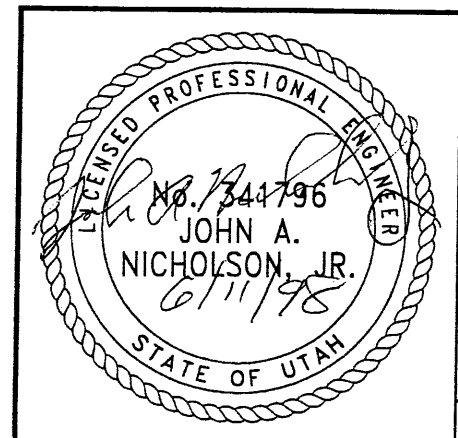
DESIGN PARAMETERS
ANGLE OF INTERNAL FRICTION (SELECT) = 34°
ANGLE OF INTERNAL FRICTION (BASE) = 34°
ANGLE OF INTERNAL FRICTION (RANDOM) = 34°
UNIT WEIGHT BACKFILL = 135 PCF. (21.2 KN/M ³)
TRAFFIC SURCHARGE = 250 PSF (12 KPa)
SEISMIC ACCELERATION COFF. = 0.12g (TYP)
SEISMIC ACCELERATION COFF. = 0.32g (AT BRIDGE ABUTMENTS)
DESIGN CRITERIA
SAFETY FACTOR (OVERTURNING) = 2.0
SAFETY FACTOR (SLIDING) = 1.5
SAFETY FACTOR (PULLOUT) = 1.5
DESIGN LIFE = 75 YEARS

PLAN VIEW WALL "R-343-32"
 SCALE: 1=250 (FULL SIZE)
 SCALE: 1=500 (HALF SIZE)

RETAINED EARTH INDEX
RE-1 PLAN PRECAST FACE WALL R-343-32, NOTES & DESIGN CRITERIA
RE-2 TYPICAL CROSS SECTION
RE-3 ELEVATION PRECAST WALL "R-343-32"
RE-4 SPECIAL PANEL DETAILS

METRIC

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WASATCH CONSTRUCTORS
 JUN 16 1998
 RELEASED FOR CONSTRUCTION

VSL CORPORATION 2840 Phyllis Drive, Suite 200 Boulder, CO 80501 Telephone: (303) 781-6272 Fac: (303) 781-4669	DES.	JL	05-20-98	RETAINED EARTH™ 	NO.	DATE	BY	CHK
	DRN.	RSW	05-20-98					
		CHK.	JL	05-20-98				
								REVISION
								NO.
								DATE

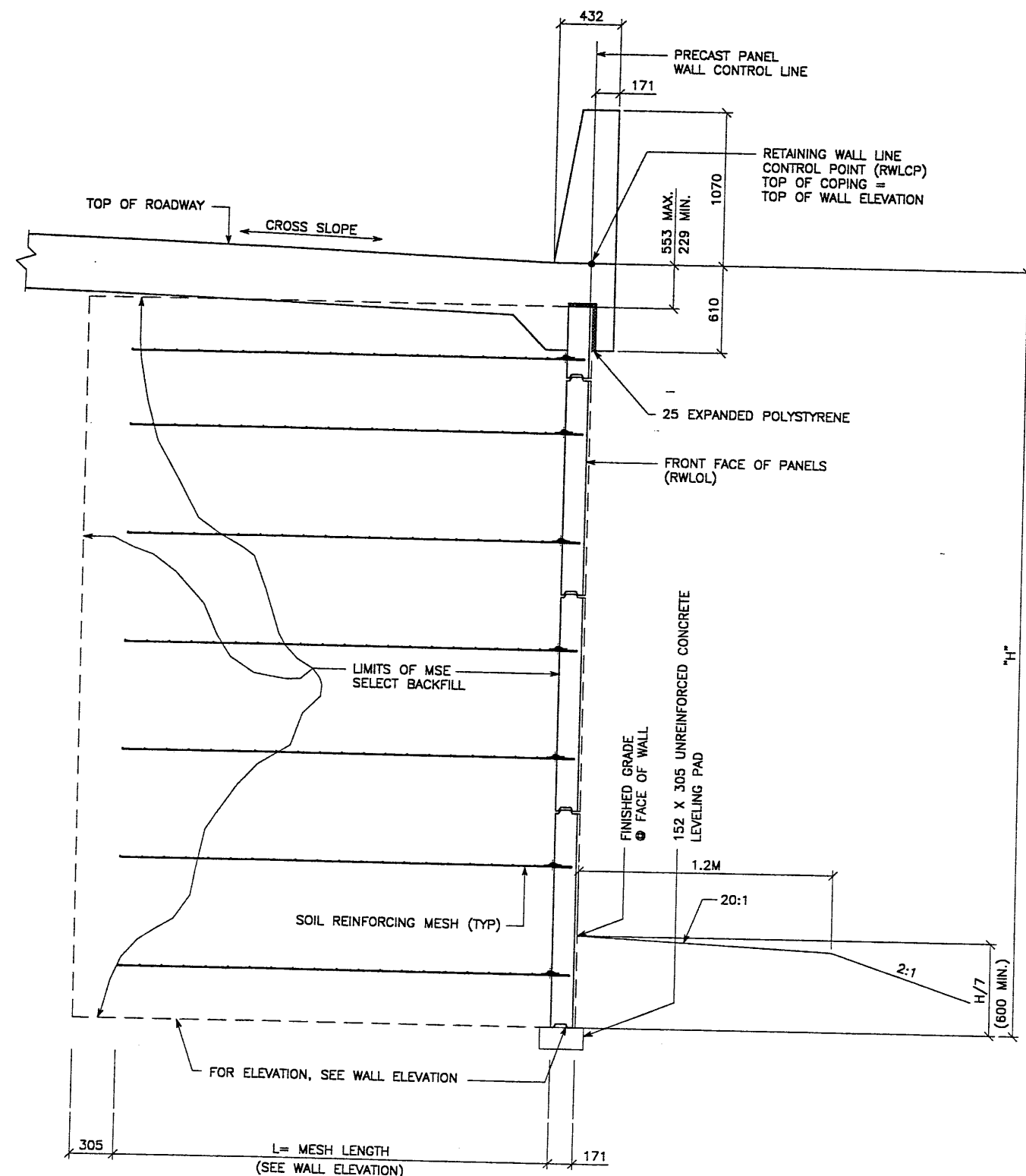
ALABAMA, GA. / DALLAS, TX. / BALTIMORE, MD. (CORPORATE OFFICE)
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RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-343-32"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

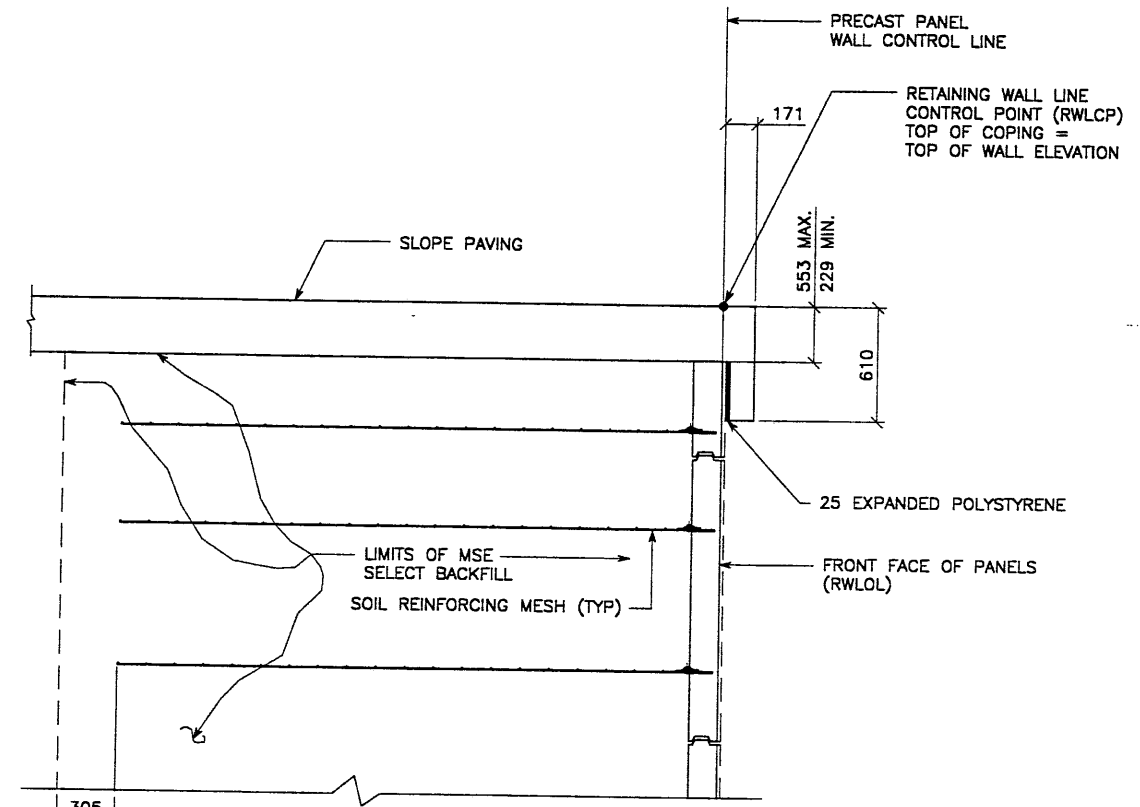
DWG. NO.
1.2R-343-32.2

JOB NO.
239-0007

SHT. NO.
RE-1



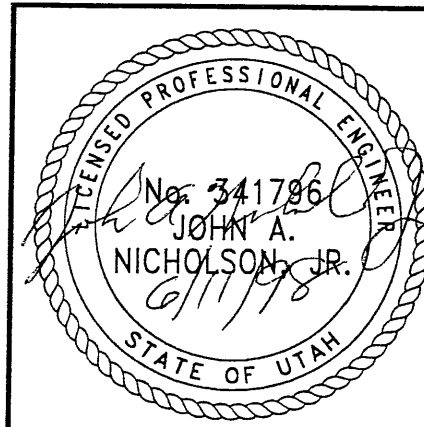
TYPICAL CROSS SECTION - STA 1+000.000 TO STA 1+065.616
 (SEE DWG. NO. 1.2R-343-32.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)



TYPICAL CROSS SECTION - STA 1+065.616 TO 1+067.585
 (SEE DWG. NO. 1.2R-343-32.1 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

METRIC

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APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
△	06-05-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	RETAINED EARTH™	NO.	DATE	REVISION	BY
JL	RSW	JL					CHK
05-20-98	05-20-98	05-20-98					

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

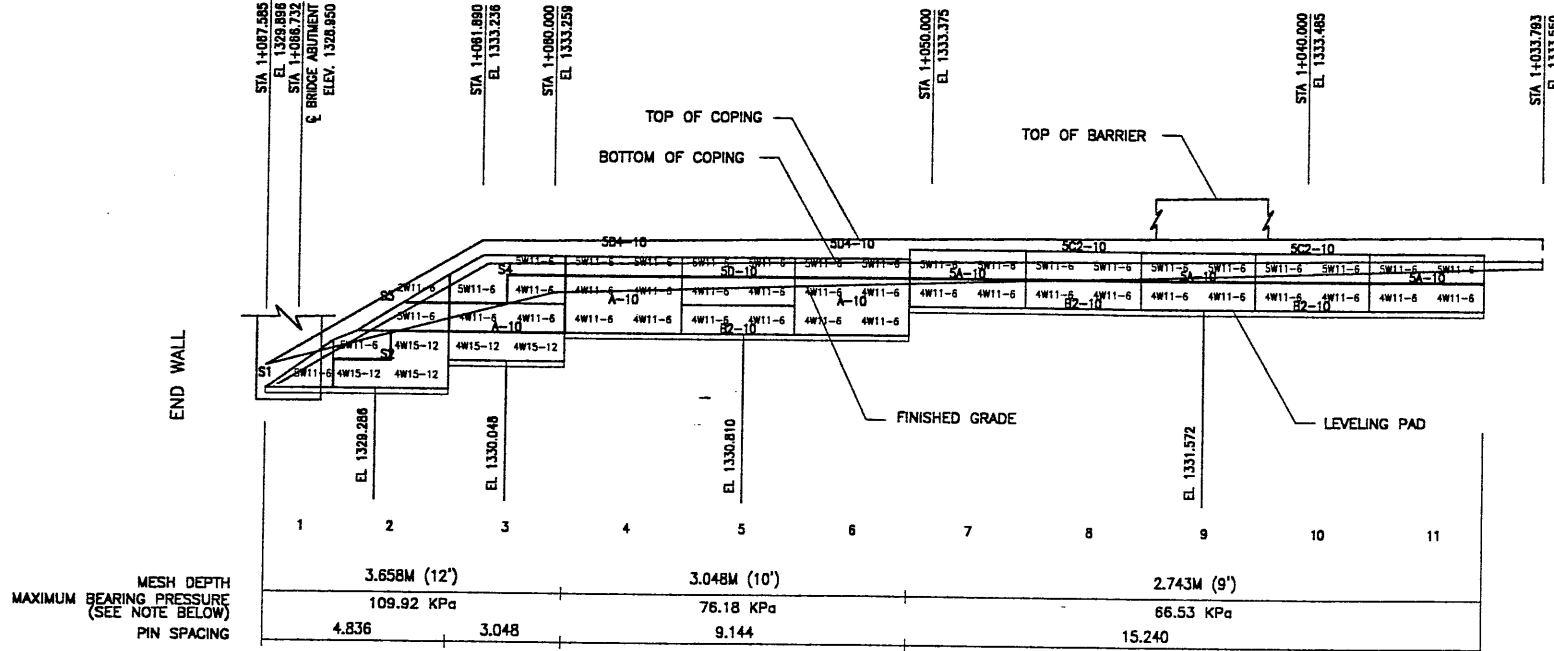
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WASATCH CONSTRUCTORS
JUN 16 1998
RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS PRECAST WALL "R-343-32" TYPICAL CROSS SECTION	UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP.
DWG. NO. 1.2R-343-32.3	JOB NO. 239-0007/3/5
	SH. NO. RE-2

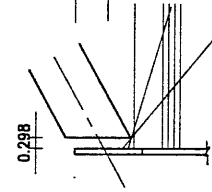
END WALL R-343-32
 WALL STA 1+067.585 =
 I-15 STA 18+039.661
 @ 25.791 LT
 NOMINAL PANEL FACE (RWL/L)



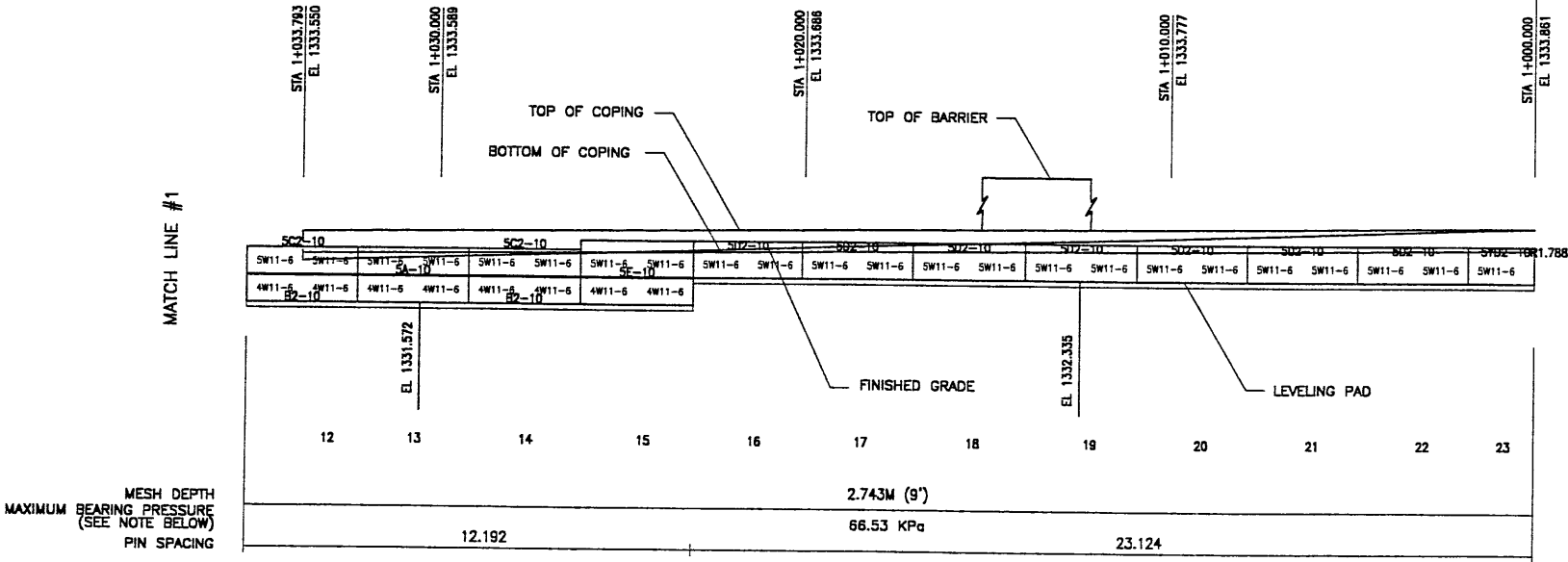
MATCH LINE #1

END WALL R-343-32
 WALL STA 1+067.585 =
 I-15 STA 18+039.661

BRIDGE ABUTMENT
 WALL STA 1+066.732 =
 I-15 STA 18+038.808



BEGIN WALL R-343-32
 WALL STA 1+000.000 =
 I-15 STA 17+972.076
 @ 25.791 LT
 NOMINAL PANEL FACE (RWL/L)



BEGIN WALL

ELEVATION PRECAST WALL R-343-32

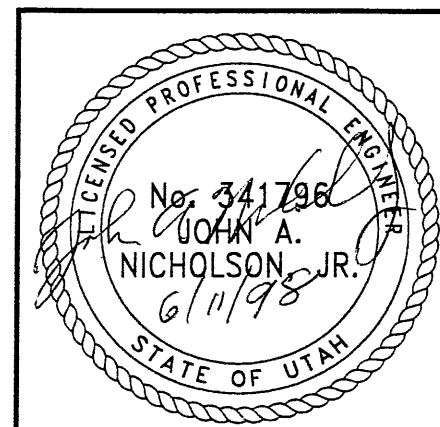
(FRONT FACE SHOWN)
 (TOTAL SURFACE AREA OF PANELS = 100.55 SM)

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

METRIC

APPROVER NOTE:
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 REVIEWER TO VERIFY MAXIMUM BEARING
 CAPACITY OF FOUNDATION.

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 OF CONSTRUCTION, AND QUALITY OF PREFABRICATED MATERIALS CONFORM TO
 THE MANUFACTURER'S SPECIFICATION.

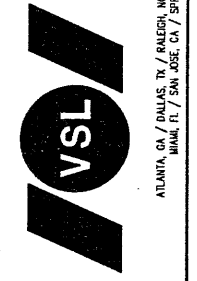


WASATCH CONSTRUCTORS
 JUN 16 1998
 RELEASED FOR CONSTRUCTION

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	6-05-98	RELEASE FOR CONSTRUCTION

DES.	DRN.	CHK.	REVISION	DATE	BY
JL	RSW	JL			

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



RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-32"

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

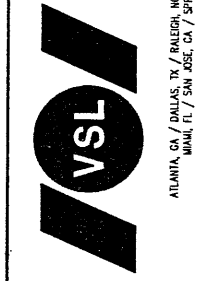
DWG. NO.	1.3R-343-32.4
JOB NO.	239-0007 4/5
SHT. NO.	RE-3

APPROVED FOR CONSTRUCTION		
NO.	DATE	DESCRIPTION
1	06-05-98	RELEASE FOR CONSTRUCTION

NO.	DATE	REVISION	CHK

- 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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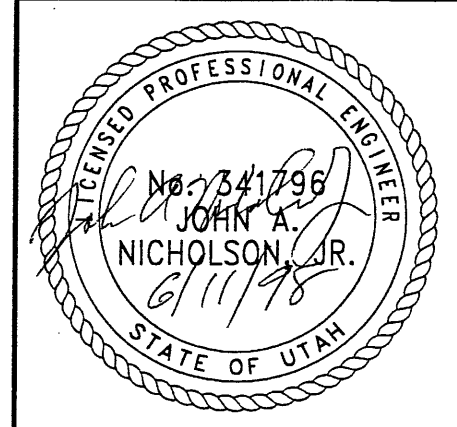


ATLANTA, GA / DANIEL, TN / BANGOR, ME (CORPORATE OFFICE)
 MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA

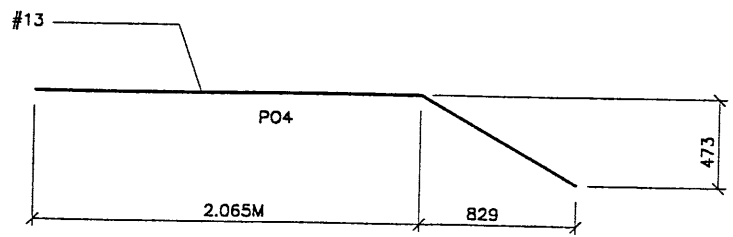
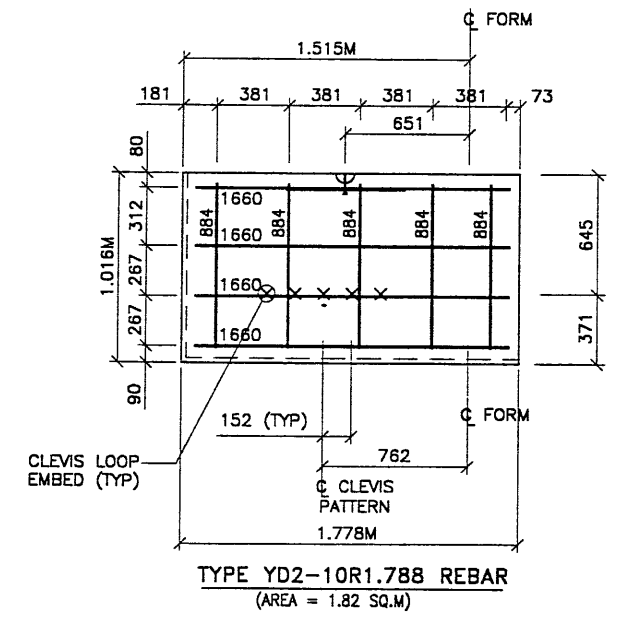
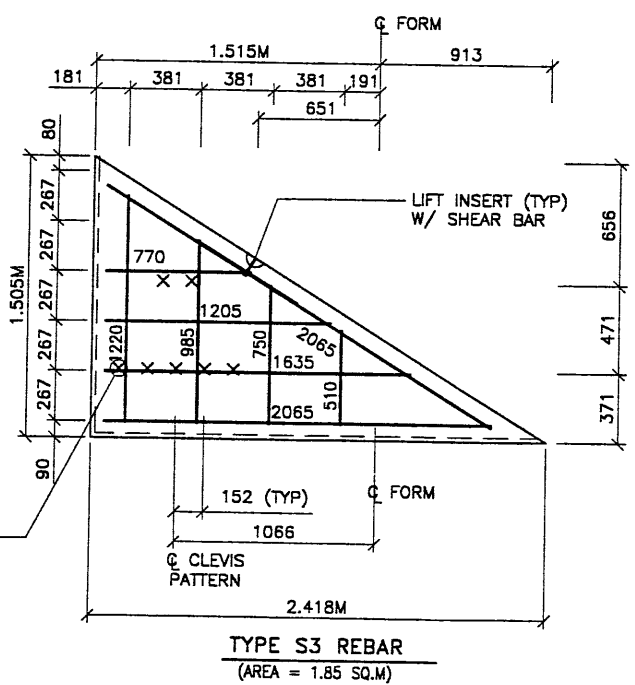
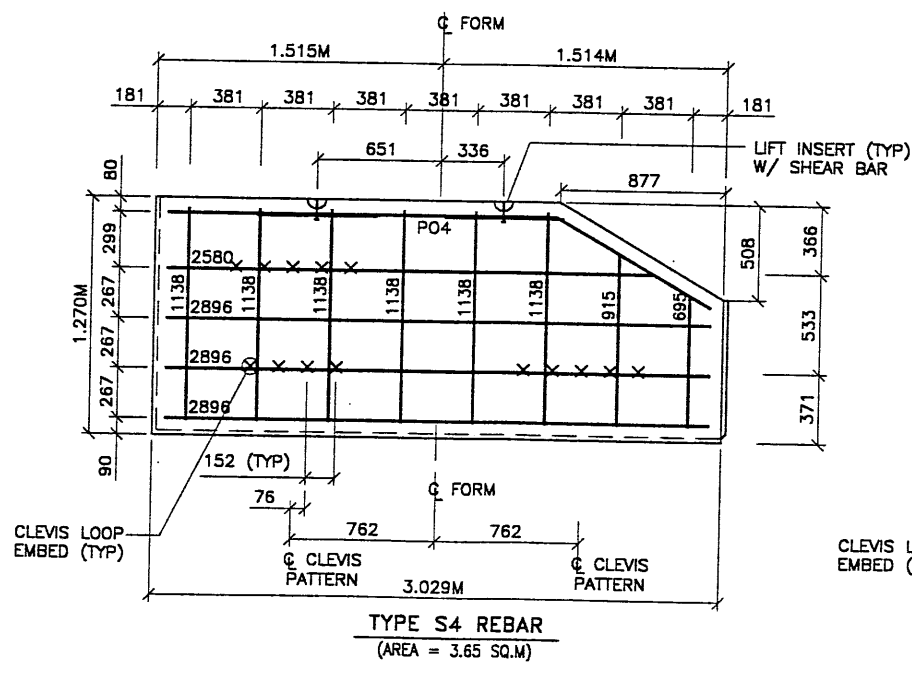
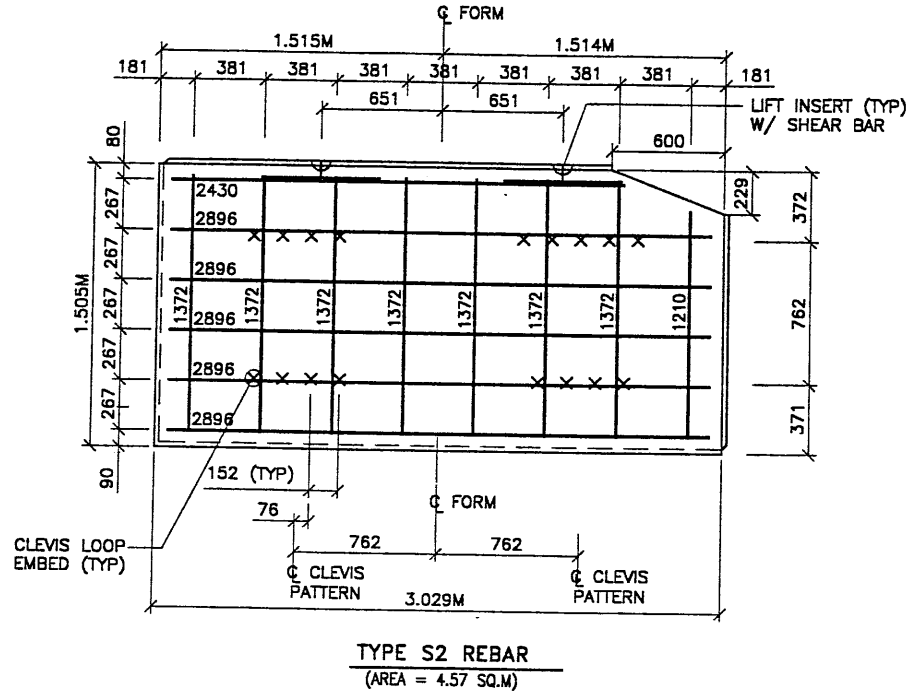
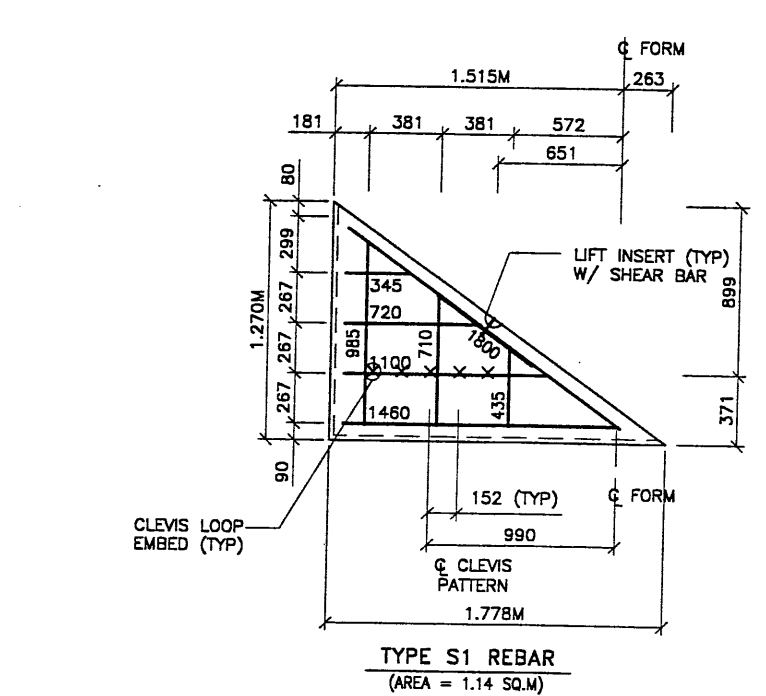
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WASATCH CONSTRUCTORS
 JUN 16 1998
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 PRECAST WALL "R-343-32"
 SPECIAL PANEL DETAILS
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.



DWG. NO.	1.2R-343-32.5
JOB NO.	239-0007/5/5
SHT. NO.	RE-4



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