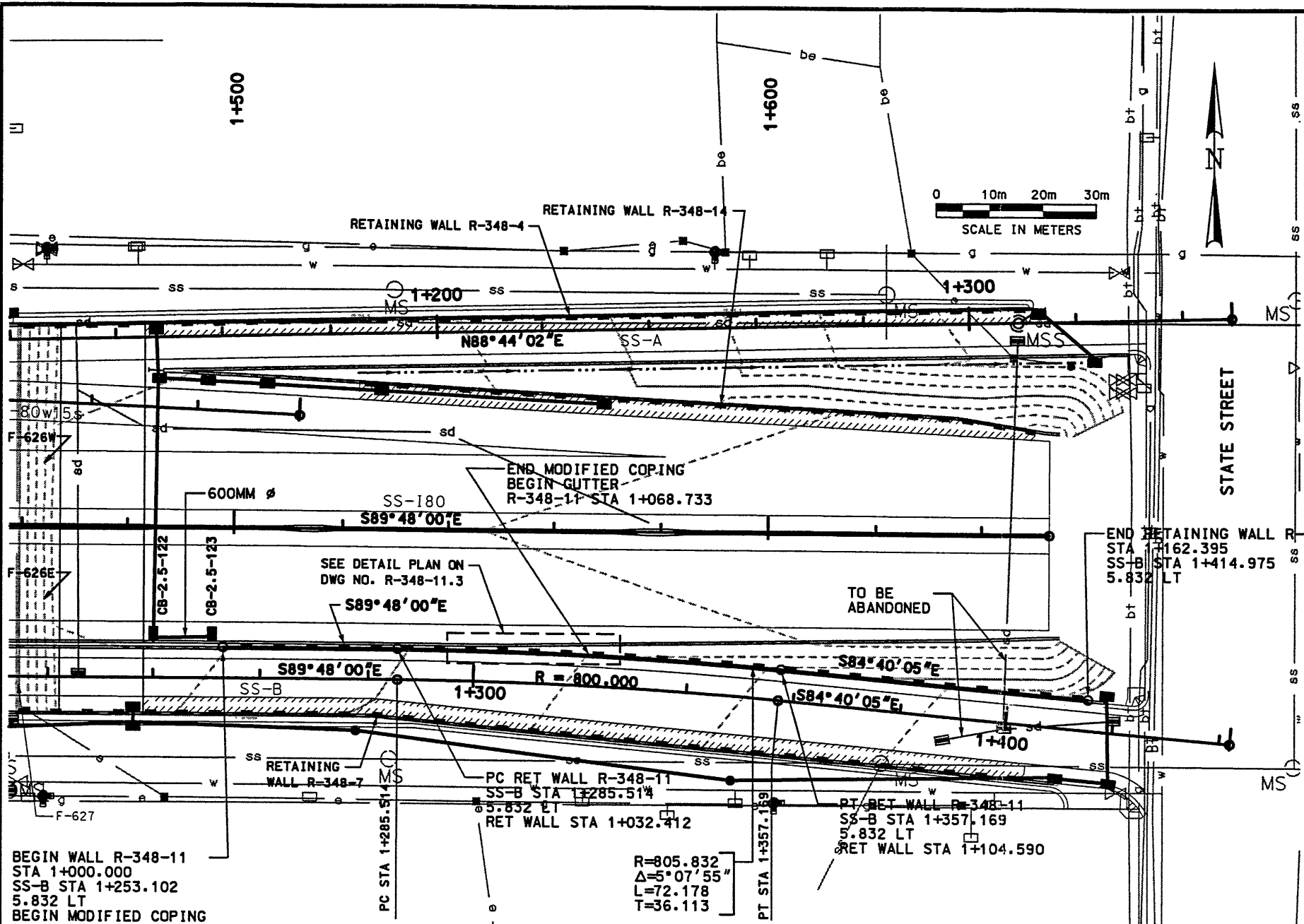


Date: 09-NOV-1998 Time: 16:44 User Name: frcamptrd

Filename: P:\15_cadd\15_cadd\15_sht\sheet_37\sheet_files\walla.vaa.wall.dgn



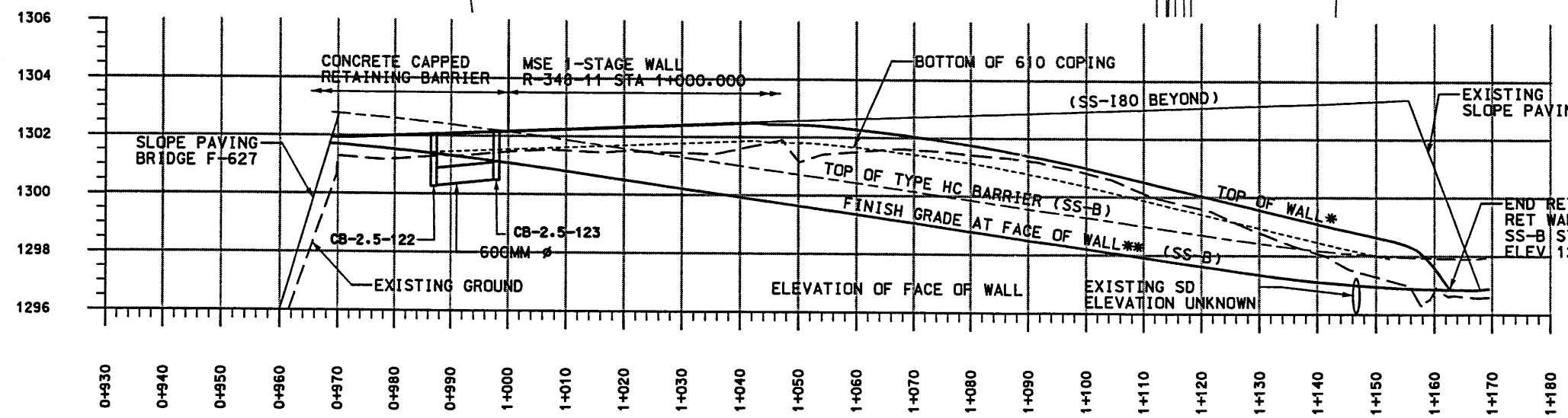
BEGIN WALL R-348-11
 STA 1+000.000
 SS-B STA 1+253.102
 5.832 LT
 BEGIN MODIFIED COPING

R=805.832
 $\Delta=5^{\circ}07'55''$
 L=72.178
 T=36.113

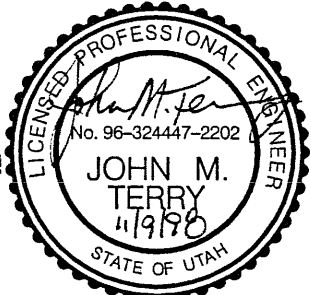
END RETAINING WALL R-348-11
 STA 1+162.395
 SS-B STA 1+414.975
 5.832 LT

| CATCH BASIN/DRAINAGE DATA | | | | |
|---------------------------|-------------------|-------------------------|---------|--------|
| ID NO. | STATION SS-180 | OFFSET TO CONTROL PT | FL ELEV | TYPE |
| CB-2.5-122 | 1+485.000 | 21.330 | 1300.27 | V-1710 |
| CB-2.5-123 | 1+496.000 | 21.330 | 1300.52 | V-1710 |

| RET WALL R-348-11 | | |
|-------------------|------------------------|-----------------------|
| R-348-11 STA | * ELEVATION AT FACE | * ELEVATION AT TOP |
| 1+000.000 | 1301.081 | 1302.159 |
| 1+010.000 | 1300.800 | 1302.238 |
| 1+020.000 | 1300.511 | 1302.317 |
| 1+030.000 | 1300.221 | 1302.396 |
| 1+040.000 | 1299.933 | 1302.474 |
| 1+050.000 | 1299.646 | 1302.430 |
| 1+060.000 | 1299.359 | 1302.280 |
| 1+070.000 | 1299.071 | 1302.050 |
| 1+080.000 | 1298.784 | 1301.759 |
| 1+090.000 | 1298.497 | 1301.404 |
| 1+100.000 | 1298.210 | 1300.988 |
| 1+110.000 | 1297.921 | 1300.520 |
| 1+120.000 | 1297.631 | 1300.044 |
| 1+130.000 | 1297.345 | 1299.569 |
| 1+140.000 | 1297.108 | 1299.094 |
| 1+150.000 | 1296.947 | 1298.641 |
| 1+160.000 | 1296.857 | 1297.605 |



WASATCH CONSTRUCTORS
 NOV 11 1998
 RELEASED FOR CONSTRUCTION



- NOTES:
- REFER TO DRAINAGE PLANS TO CONFIRM FINAL LOCATION OF DRAINAGE STRUCTURES (DWG NO. 2.5-DR3).
 - FOR CATCH BASIN DETAILS SEE CS-18-1.

APPROVED FOR CONSTRUCTION

NO. DATE 11/9/98 INITIAL RELEASE

TRACKING NO. 2513403

UTAH DEPARTMENT OF TRANSPORTATION

SVERDRUP/DE LEUW

DESIGN MEN 6/98 CHECK MSC 11/98

DRAWN MEN 6/98 CHECK MSC 11/98

QUANT. CHECK

APPROVAL RECORD: 6/98 MARGARET STIMMONS-CROSS

DATE PROJECT DESIGN ENGINEER: 11/98 JOHN TERRY

DATE SECTION MANAGER:

I-15 CORRIDOR RECONSTRUCTION

SITUATION & LAYOUT R-348-11

SECTION 2.5

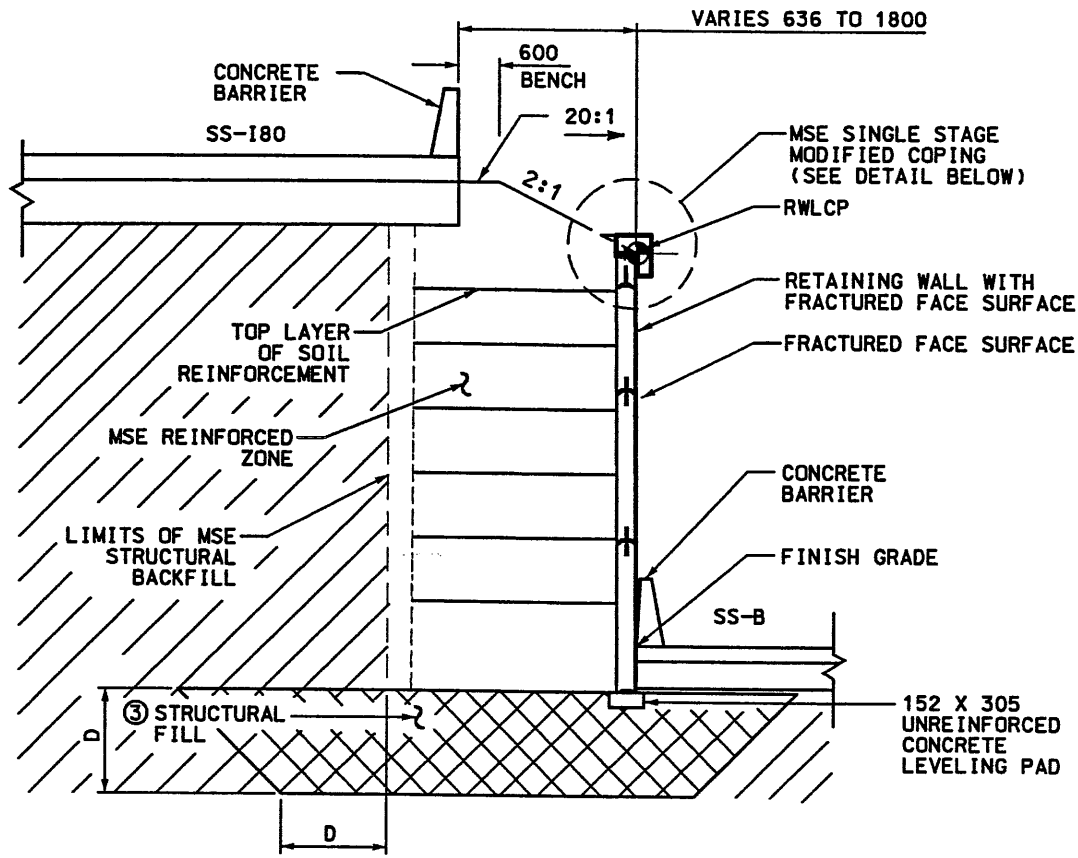
PROJECT NUMBER #SP-15-7(135)296

SALT LAKE COUNTY

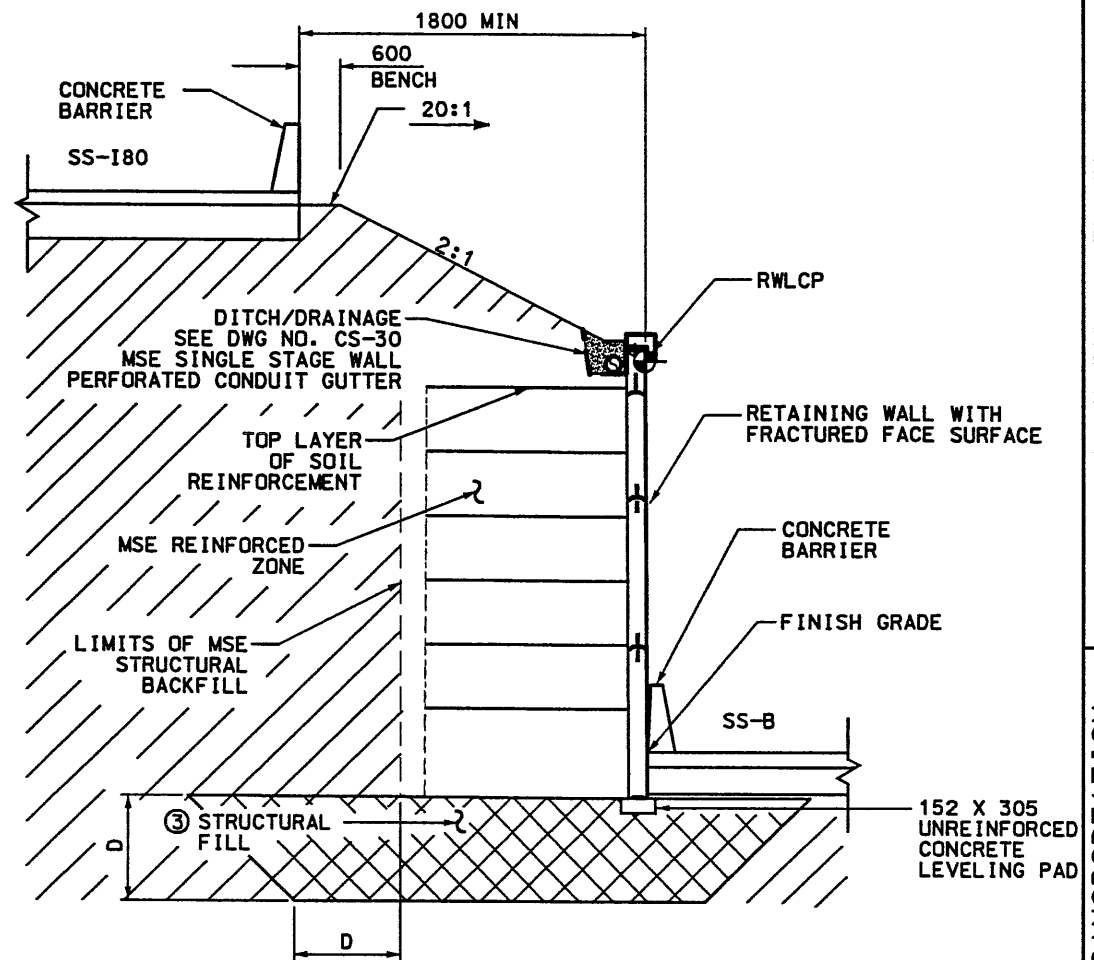
DWG. NO. R-348-11.1

SHT. 1 of 9

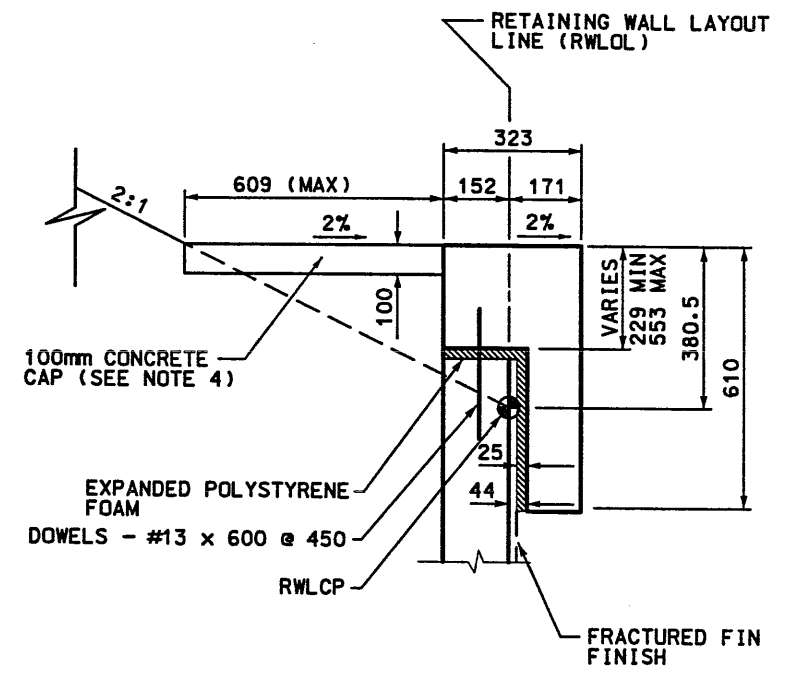
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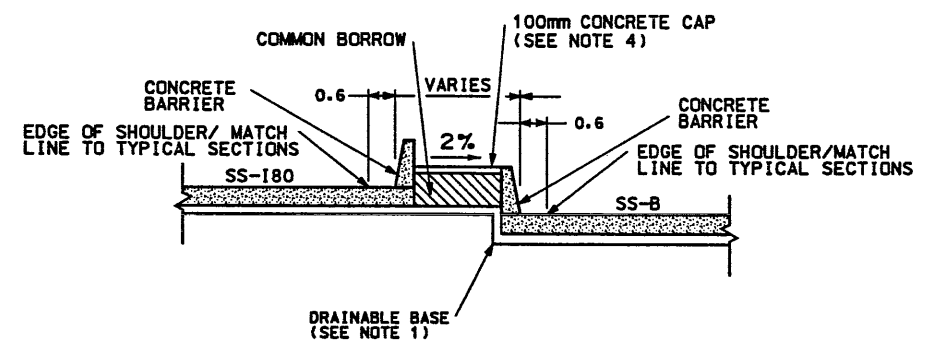
MSE SINGLE STAGE WALL BETWEEN ROADWAYS
RET WALL R-348-11 STA 1+000.000 TO 1+068.733
NTS



MSE SINGLE STAGE WALL BETWEEN ROADWAYS
RET WALL R-348-11 STA 1+068.733 TO 1+162.395
NTS

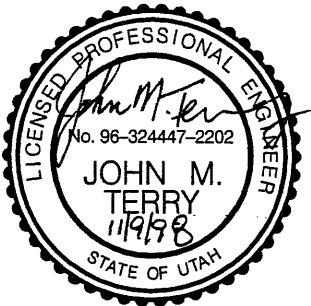


② DETAIL MSE SINGLE STAGE MODIFIED COPING
NTS

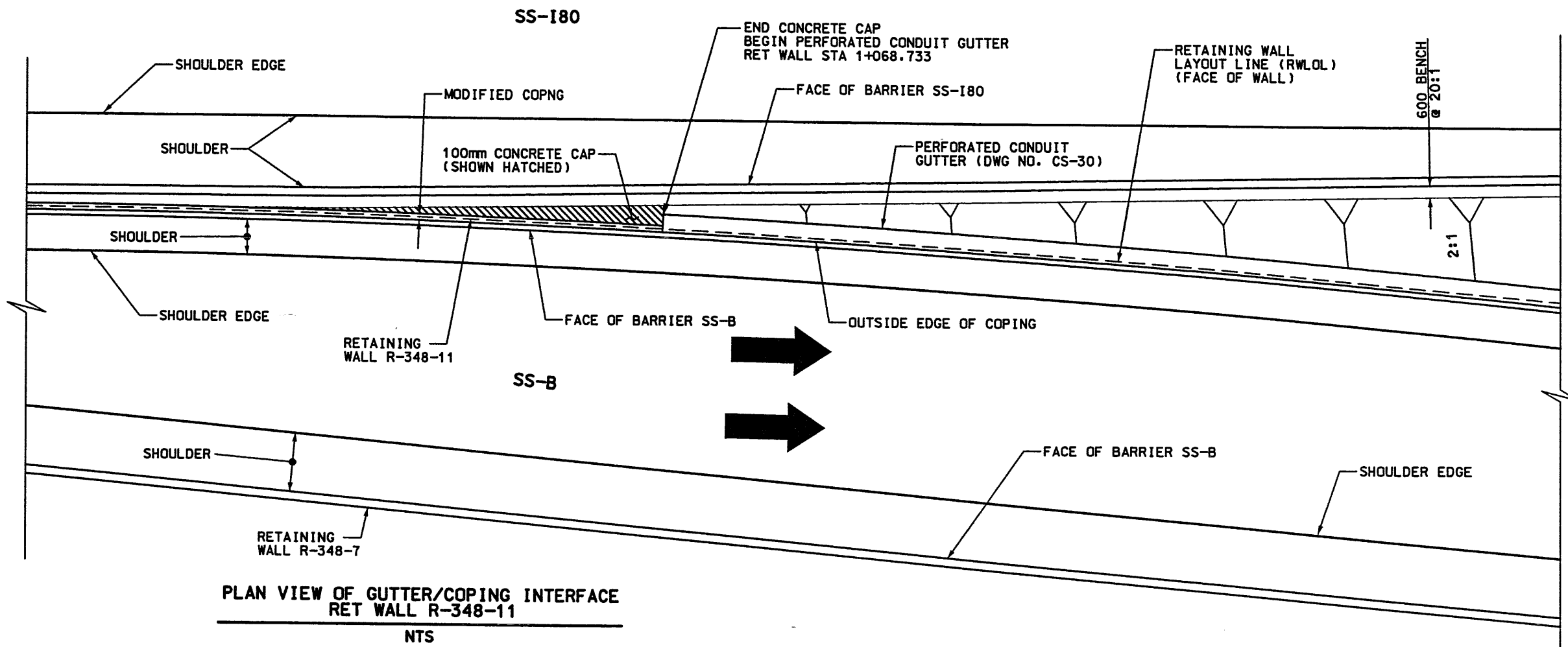


CONCRETE CAPPED RETAINING BARRIER
NTS

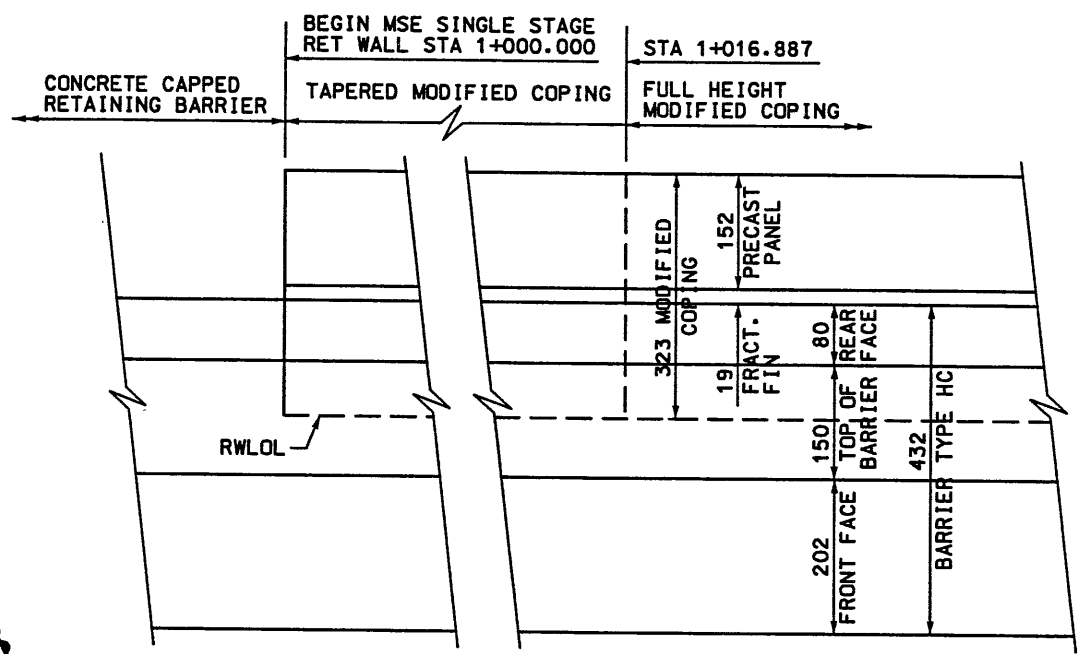
- NOTES:
1. SEE EDGE DRAIN PLANS FOR ADDITIONAL DETAILS.
 2. SEE DWG NO. CS-30 MSE SINGLE STAGE WALL PERFORATED CONDUIT GUTTER FOR REINFORCING DETAILS.
 3. REFER TO VSL SHOP DRAWINGS FOR STRUCTURAL FILL LIMITS.
 4. CONSTRUCT CONCRETE CAP PER CS SPEC 601.



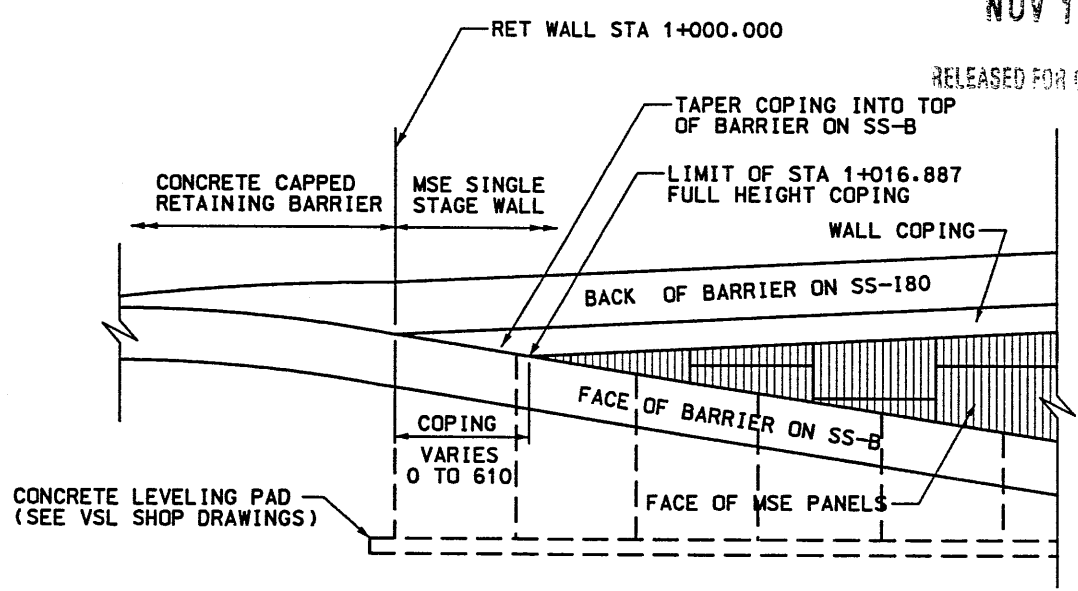
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| APPROVED FOR CONSTRUCTION | | DESCRIPTION | |
| NO. | DATE | INITIAL | RELEASE |
| 1 | 11/9/98 | | SK |
| UTAH DEPARTMENT OF TRANSPORTATION | | DESIGN | TRUCKING NO. |
| VERDRUP/DE LEUW | MEH | 11/98 | 2513403 |
| DESIGN | MEH | 11/98 | |
| CHECK | MSC | 11/98 | |
| DRAWN | MEH | 11/98 | |
| QUANT. | | | |
| APPROVAL | DATE | PROJECT DESIGN ENGINEER | SECTION MANAGER |
| APPROVED | 11/98 | JOHN TERRY | |
| I-15 CORRIDOR RECONSTRUCTION | | SALT LAKE COUNTY | |
| SITUATION & LAYOUT R-348-11 | | DWC, NO. | |
| SECTION 2.5 | | 2.5-R-348-11.2 | |
| PROJECT NUMBER | | #SP-15-7(135)296 | |
| SHT. 2 | | of 9 | |



**PLAN VIEW OF GUTTER/COPING INTERFACE
RET WALL R-348-11**
NTS



**PLAN AT COPING/BARRIER INTERFACE
RET WALL R-348-11**
NTS



**ELEVATION AT COPING/BARRIER INTERFACE
RET WALL R-348-11**
NTS



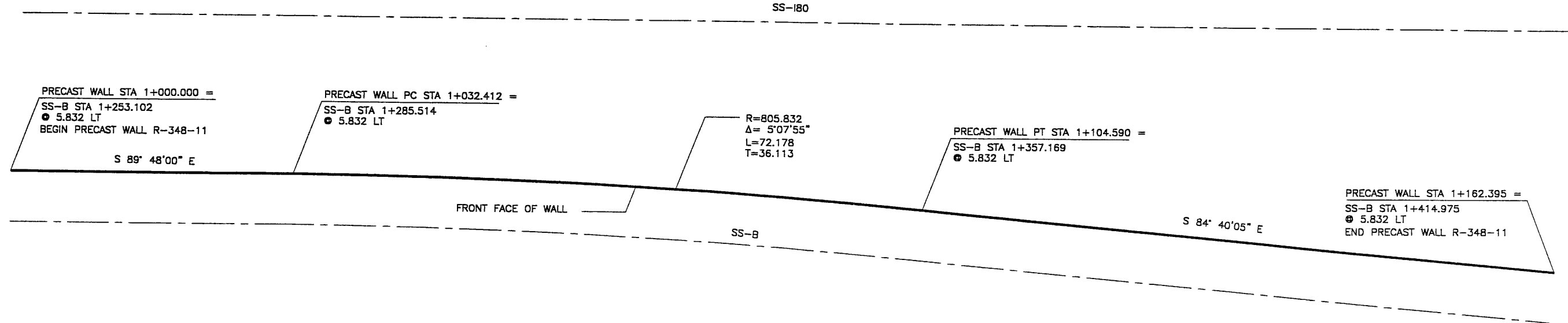
WASATCH CONSTRUCTORS
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| APPROVED FOR CONSTRUCTION | | DESCRIPTION | |
| NO. | DATE | INITIAL | RELEASE |
| 1 | 11/9/98 | | |
| UTAH DEPARTMENT OF TRANSPORTATION | | | |
| SVERDRUP/DE LEUW | | DESIGN | MEH |
| | | CHECK | MSC |
| | | DATE | 11/98 |
| | | TRACKING NO. | 2513403 |
| | | DRAWN | MEH |
| | | CHECK | MSC |
| | | DATE | 11/98 |
| | | QUANT. | |
| | | SECTION MANAGER | JOHN TERRY |
| | | DATE | |
| I-15 CORRIDOR RECONSTRUCTION | | SITUATION & LAYOUT R-348-11 | |
| SECTION 2.5 | | PROJECT NUMBER #SP-15-7(135)296 | |
| SALT LAKE COUNTY | | DWG. NO. 2.5-R-348-11.3 | |
| SHT. | 3 | OF | 4 |

FIN: 11-05-98
 H:\RE_EARTH\PROJECT\239-0007\1998\SS-11\RE-1
 S:\SS-11\RE-1
 WCE (X-UTAH.DWG)



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| NO. | DATE | DESCRIPTION |
| △ | 11-05-98 | RELEASE FOR CONSTRUCTION |
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| NO. | DATE | REVISION |
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WASATCH CONSTRUCTORS
NOV 11 1998
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| 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 COEFF. = 0.27g (TYP) |
| DESIGN CRITERIA |
| SAFETY FACTOR (OVERTURNING) = 2.0 SAFETY FACTOR (SLIDING) = 1.5 SAFETY FACTOR (PULLOUT) = 1.5 DESIGN LIFE = 75 YEARS |

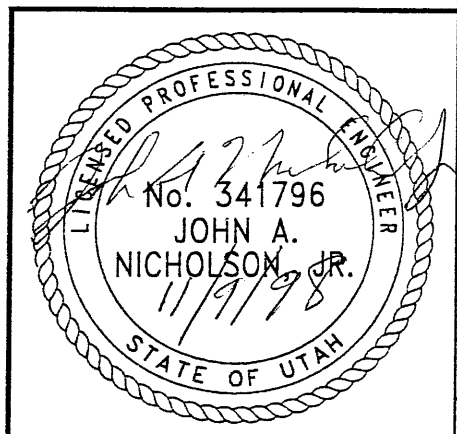
| RETAINED EARTH INDEX |
|---|
| RE-1 PLAN PRECAST FACE WALL R-348-11, NOTES & DESIGN CRITERIA |
| RE-2 TYPICAL CROSS SECTION |
| RE-3 TYPICAL CROSS SECTION |
| RE-4 ELEVATION PRECAST WALL "R-348-11" |
| RE-5 ELEVATION PRECAST WALL "R-348-11" |
| RE-6 SPECIAL PANEL DETAILS |

- 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: 4W15-6 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 6" CENTERS.
EXAMPLE: 5W15-12 MESH HAS FOUR (4) W15 LONGITUDINAL WIRES WITH W15 CROSSBARS AT 12" CENTERS.
 - SEE RETAINED EARTH INSTALLATION MANUAL FOR PROPER WALL ERECTION PROCEDURES AND GUIDELINES.
 - CONSTRUCTION PROCEDURES SHALL PREVENT BACKFILL SATURATION AND PONDING.
 - HEAVY EQUIPMENT SHALL NOT BE USED WITHIN ONE METER OF THE BACK OF THE RETAINED EARTH PANELS. HAND COMPACTORS SHALL BE USED IN THIS AREA.
 - CARE SHALL BE TAKEN TO PREVENT DAMAGE TO GALVANIZING. DAMAGED GALVANIZING SHALL BE COATED WITH ZINC RICH PAINT.
 - BEARING PADS AND FILTER FABRIC ARE NOT REQUIRED BETWEEN THE LEVELING PAD AND THE FIRST ROW OF PANELS. TEMPORARY WEDGES MAY BE USED TO PROVIDE PROPER ALIGNMENT.
 - VSL RETAINED EARTH IS PROTECTED UNDER U.S. PATENT 4,725,170.
 - ALL PANELS SHALL HAVE AN ARCHITECTURAL FINISH, SEE VSL STANDARD SHEET STD-7 FOR DETAILS.

PLAN VIEW WALL "R-348-11"
 SCALE: 1=250 (FULL SIZE)
 SCALE: 1=500 (HALF SIZE)

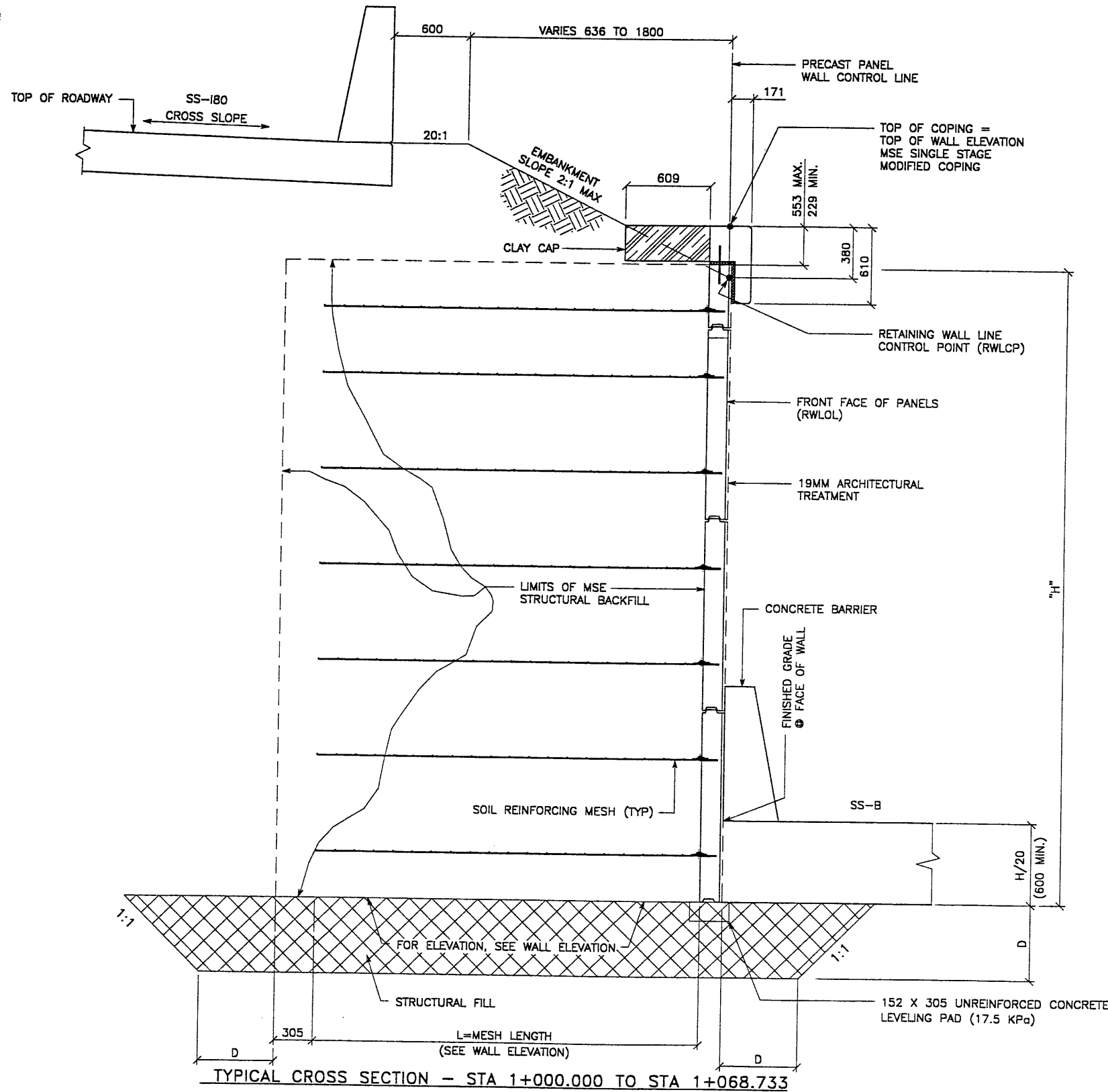
METRIC

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.



RETAINED EARTH™ WALLS
 PLAN VIEW PRECAST WALL "R-348-11"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

2.5 DWG. NO.
 R-348-11.4
 JOB NO:
 239-0007
 SHT. NO.
 RE-1



TYPICAL CROSS SECTION - STA 1+000.000 TO STA 1+068.733

(SEE DWG. NO. 2.5R-348-11.X FOR ADDITIONAL INFORMATION)
SCALE: 1:20 (FULL SIZE)
SCALE: 1:40 (HALF SIZE)

| STATION | D |
|----------------|------|
| 1+000 TO 1+100 | 600 |
| 1+100 TO 1+162 | 1000 |

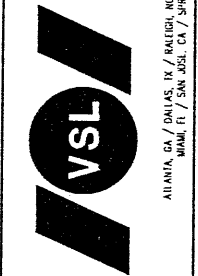
METRIC

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| APPROVED FOR CONSTRUCTION | | |
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| NO. | DATE | DESCRIPTION |
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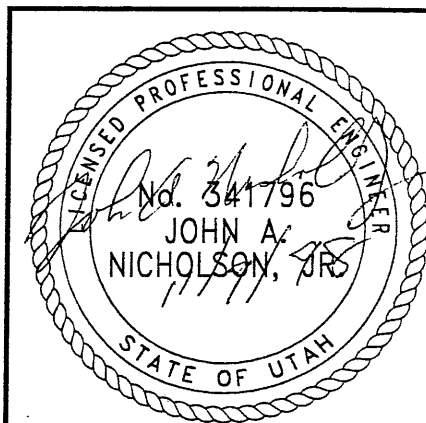
| NO. | DATE | REVISION | CHK |
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Baltimore, MD 21286
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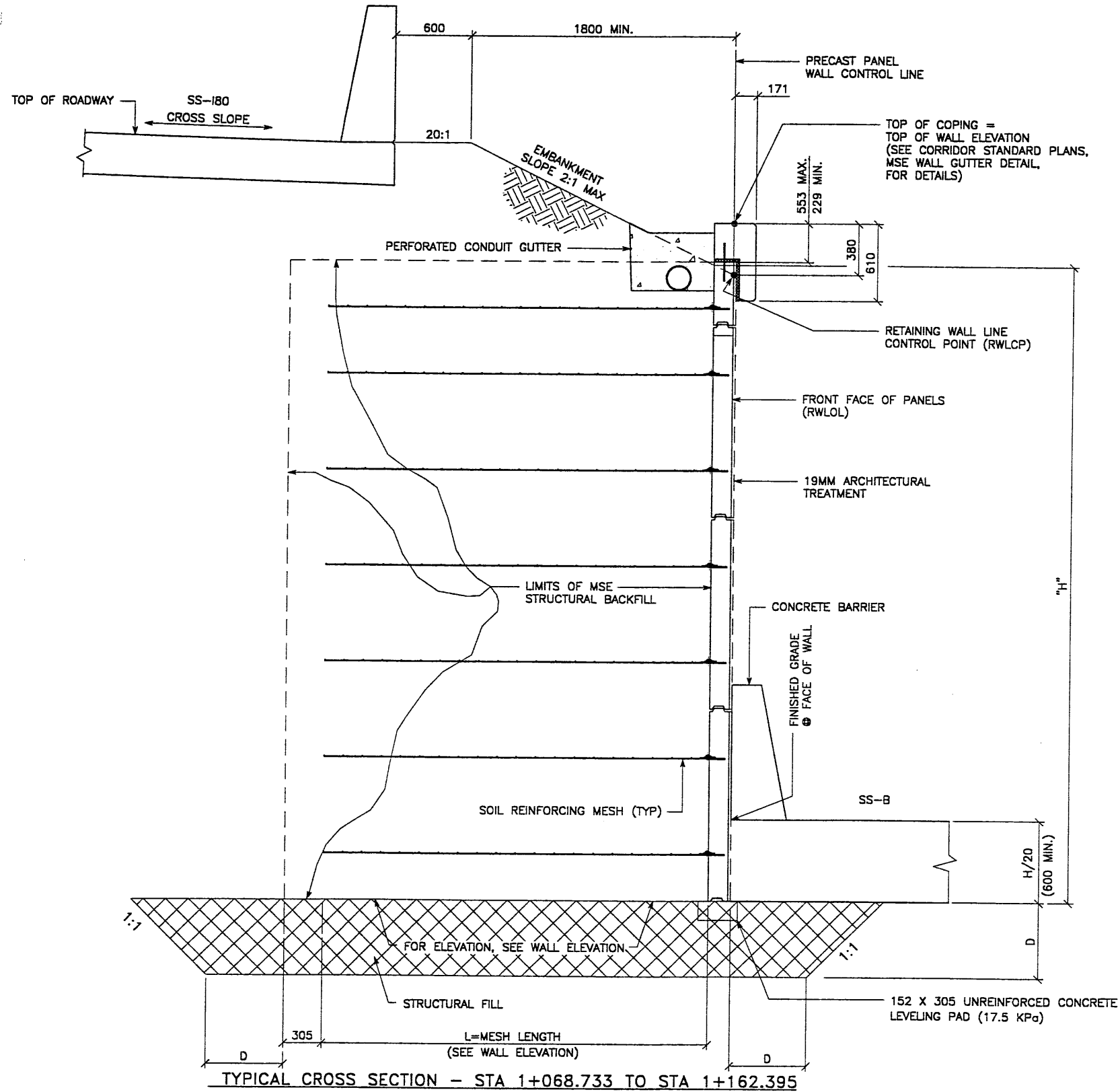
WASATCH CONSTRUCTORS
NOV 11 1998
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RETAINED EARTH™ WALLS
WIRE FACED WALL "R-348-11"
TYPICAL CROSS SECTION
UTAH 1-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

| | |
|----------|------------|
| DWG. NO. | R-348-11.5 |
| JOB NO. | 239-0007 |
| SHT. NO. | RE-2 |

NCE (X-UTAH.DWG)
 S\SS-11\RE-2
 H:\RE_EARTH\PROJECT\239-0007\1998
 DT 11-05-98
 FIN



TYPICAL CROSS SECTION - STA 1+068.733 TO STA 1+162.395

(SEE DWG. NO. 2.5R-348-11.2 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

| STATION | D |
|----------------|------|
| 1+000 TO 1+100 | 600 |
| 1+100 TO 1+162 | 1000 |

METRIC

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| DES. | CHK. | NO. | DATE | REVISION |
|------|------|-----|------|----------|
| JN | JN | | | |
| RSW | RSW | | | |
| JN | JN | | | |

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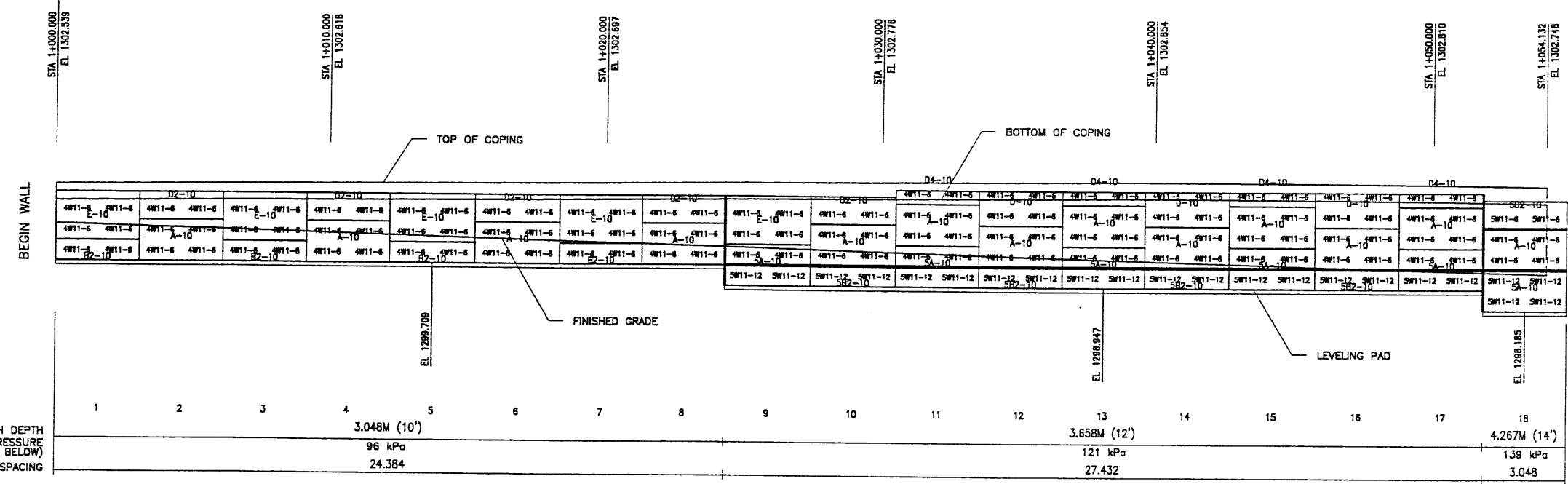
WASATCH CONSTRUCTORS
 NOV 11 1998
 RELEASED FOR CONSTRUCTION

RETAINED EARTH™ WALLS
 WIRE FACED WALL "R-348-11"
 TYPICAL CROSS SECTION
 UTAH 1-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

2.5 DWG. NO.
 R-348-11.6
 JOB NO:
 239-0007
 SHL. NO.
 RE-3

FIN: DT 11-05-98 H:\RE_EARTH\PROJECT\239-0007\1998\SS-W\SS-11 VCE (X-UTAH.DWG)

BEGIN WALL R-348-11
 WALL STA 1+000.000 =
 SS-B STA 1+253.102
 ● 5.832 LT
 NOMINAL PANEL FACE (RWLOL)



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| ▲ | 11-05-98 | RELEASE FOR CONSTRUCTION |
| | | |
| | | |

| DES. | DRN. | CHK. | RETAINED EARTH™ | NO. | DATE | BY |
|------|------|------|-----------------|-----|------|----|
| JN | RSW | JN | | | | |
| | | | | | | |

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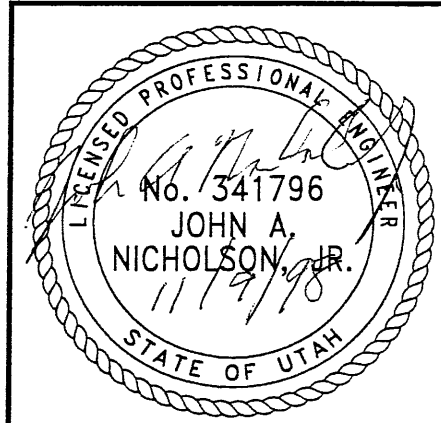
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ELEVATION PRECAST WALL R-348-11
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 369.45 SM) SCALE 1:200 (HALF SIZE)

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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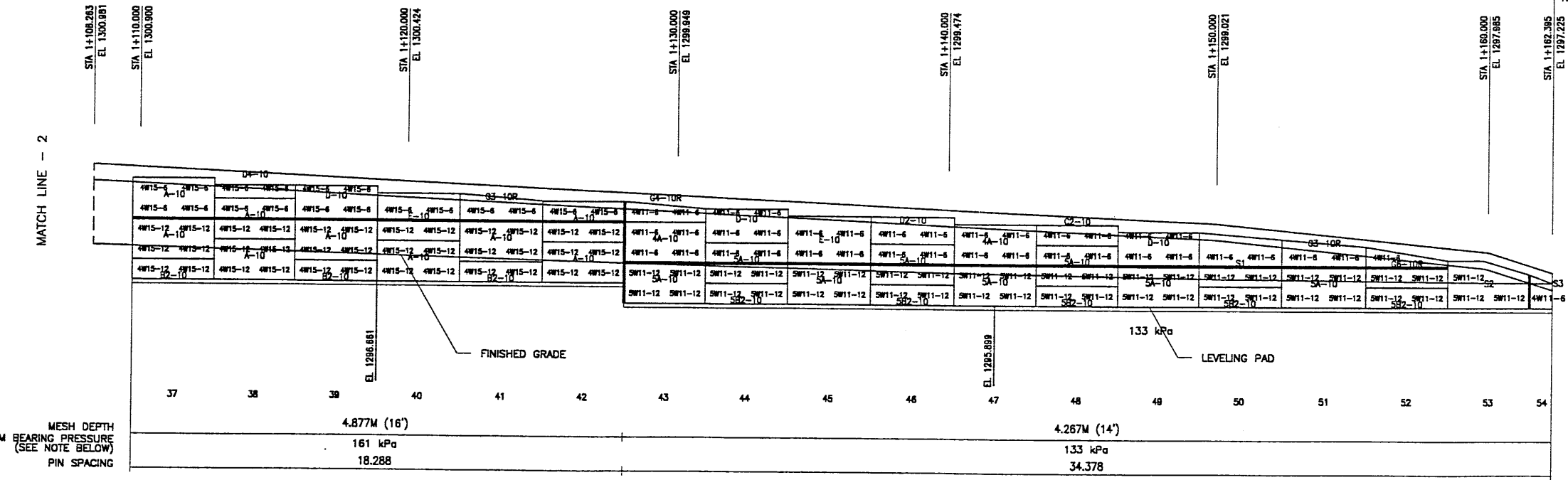
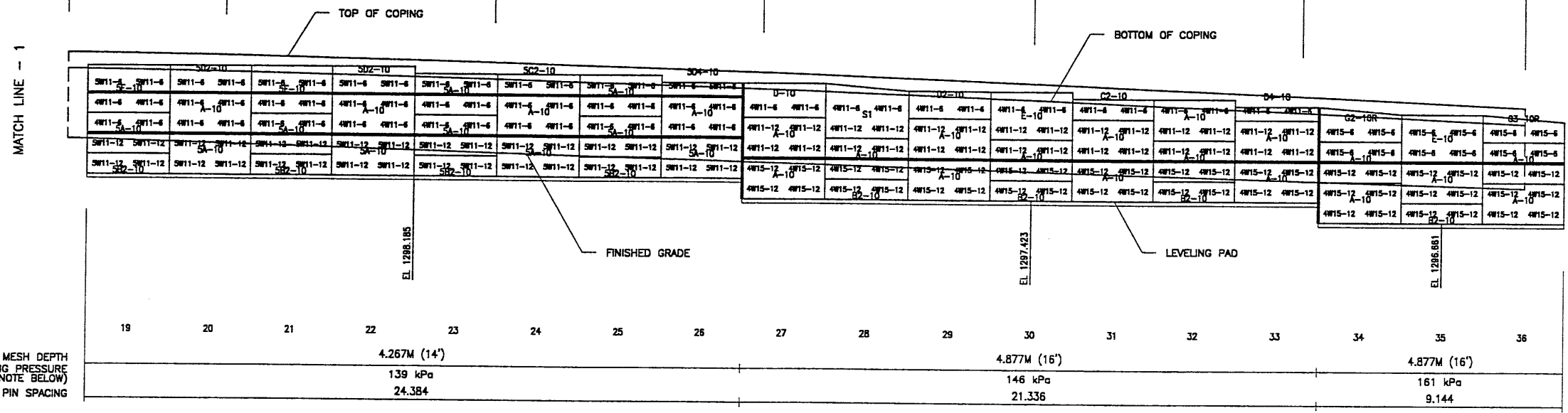


WASATCH CONSTRUCTORS
NOV 11 1998
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RETAINED EARTH™ WALLS
 PRECAST WALL "R-348-11"
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

| | |
|----------|---------------|
| DWG. NO. | 2.5R-348-11.7 |
| JOB NO. | 239-0007 |
| SHT. NO. | RE-4 |

FIN: 11-05-98 PROJECT: 239-0007 1998 SS-W



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| NO. | DATE | DESCRIPTION |
| 1 | 11-05-98 | RELEASE FOR CONSTRUCTION |
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| NO. | DATE | REVISION | BY | CHK |
|-----|------|----------|----|-----|
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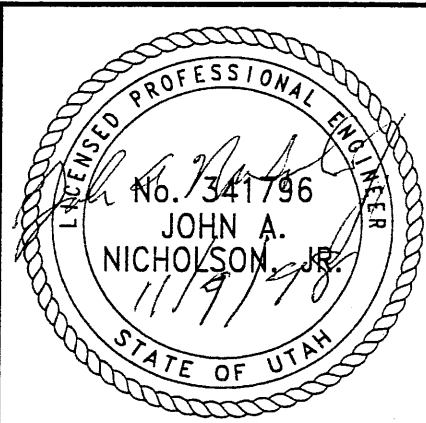
MESH DEPTH
MAXIMUM BEARING PRESSURE
(SEE NOTE BELOW)
PIN SPACING

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

END WALL R-348-11
WALL STA 1+162.395 =
SS-B STA 1+414.975
5.832 LT
NOMINAL PANEL FACE (RWLOL)

END WALL

WASATCH CONSTRUCTORS
NOV 11 1998
RELEASED FOR CONSTRUCTION



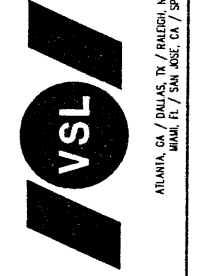
APPROVER NOTE:
MAXIMUM FINAL UNFACTORED BEARING PRESSURES
ARE INDICATED BELOW "MESH DEPTH LINE"
REVIEWER TO VERIFY MAXIMUM BEARING
CAPACITY OF FOUNDATION.

ELEVATION PRECAST WALL R-348-11
(FRONT FACE SHOWN)
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

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Fax: (919) 781-4989

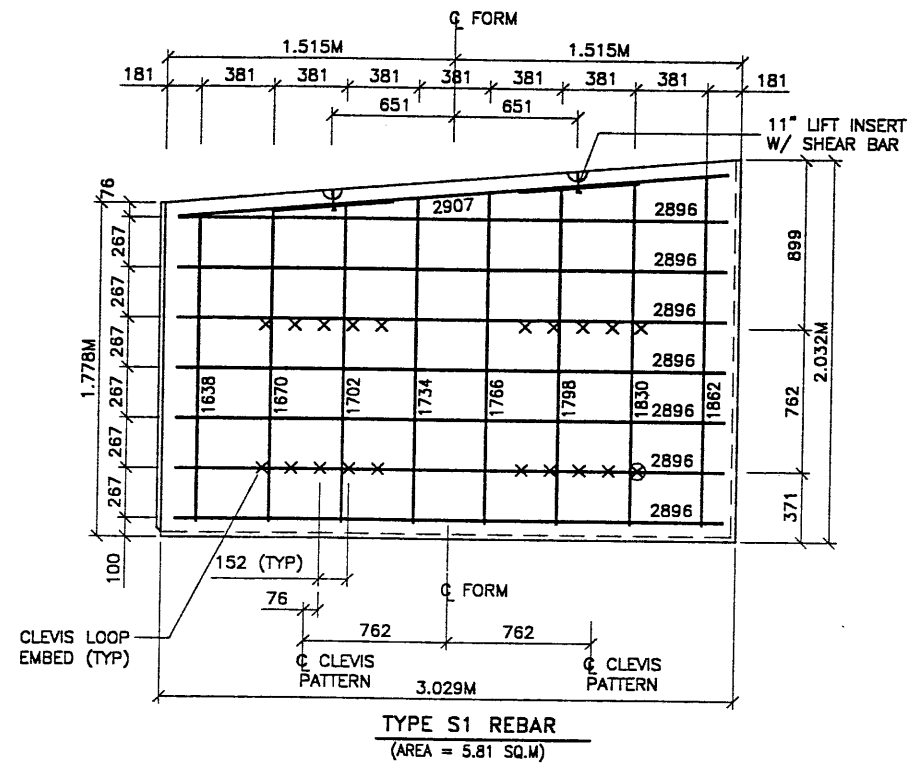


VSL Corporation (VSL) is a leading provider of precast concrete solutions for infrastructure projects worldwide. The company's expertise spans from design and engineering to construction and maintenance services. VSL is committed to providing high-quality, innovative solutions that meet the needs of its clients and contribute to the development of sustainable infrastructure.

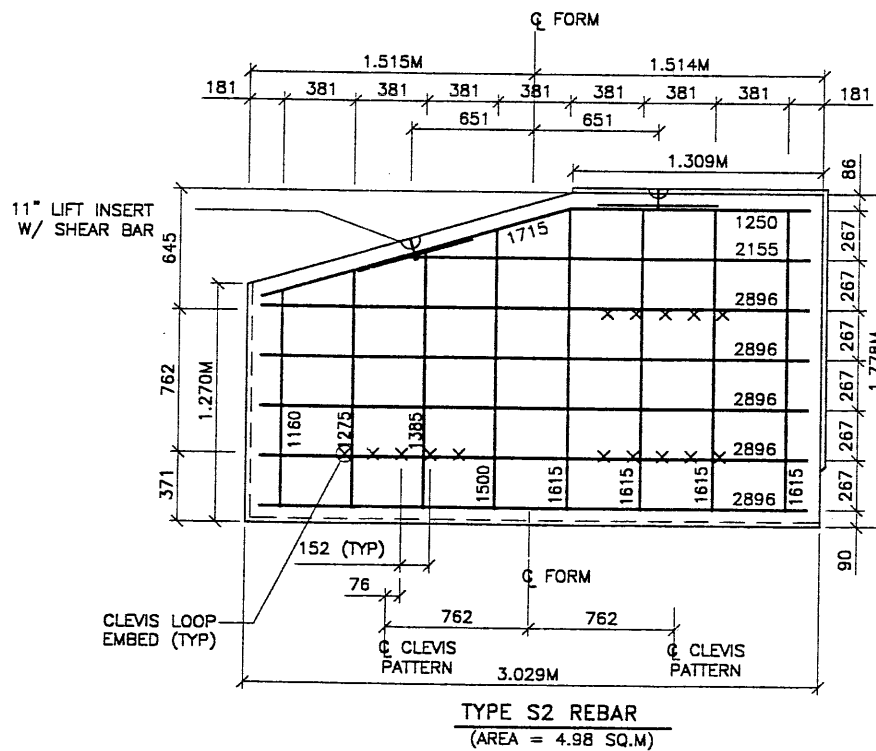
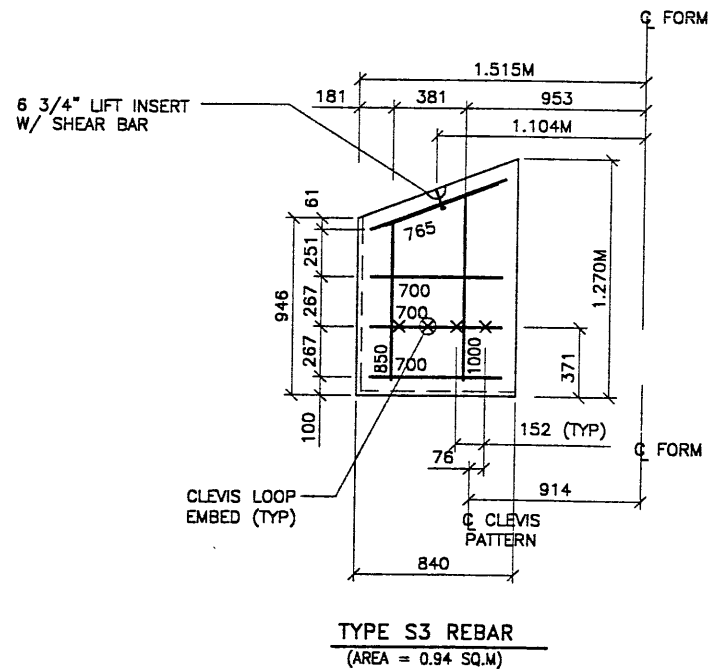
RETAINED EARTH™ WALLS
PRECAST WALL "R-348-11"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO.
2.5R-348-11.8
JOB NO.
239-0007
Sht. NO.
RE-5

FIN 01 11-05-98 H:\RE_EARTH\PROJECT\2 7\1998\SS-WALLS\SS-11\SPECIALS.DWG INCE (X-UTAH.DWG)



- 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 20,700 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.
 12. SEE FOSTER GEOTECHNICAL STD. DRAWINGS FOR ADDITIONAL PANEL DETAILS.



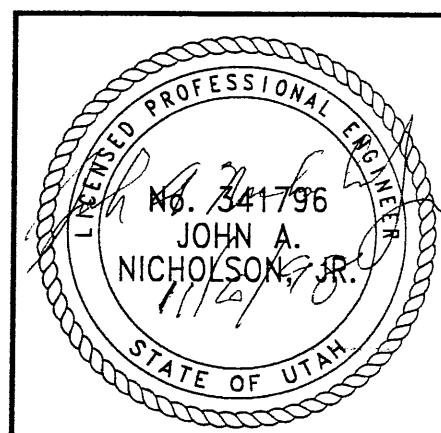
| APPROVED FOR CONSTRUCTION | | |
|---------------------------|----------|--------------------------|
| NO. | DATE | DESCRIPTION |
| △ | 11-05-98 | RELEASE FOR CONSTRUCTION |
| | | |
| | | |

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

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

VSL Corporation ("VSL") warrants that the drawings, specifications, and calculations prepared by VSL for the project shown on this sheet, the use of which is intended to be for the construction of the structure shown hereon, shall be in accordance with the requirements of the contract documents, and VSL shall not be liable for any errors or omissions in the drawings, specifications, and calculations, or for any consequences arising therefrom, whether or not such errors or omissions are caused by negligence or otherwise.

WASATCH CONSTRUCTORS
NOV 11 1998
RELEASED FOR CONSTRUCTION



RETAINED EARTH™ WALLS
PRECAST WALL "R-348-11"
SPECIAL PANEL DETAILS

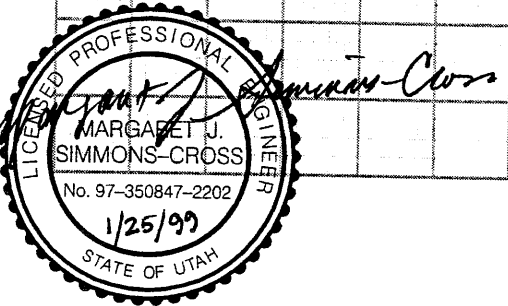
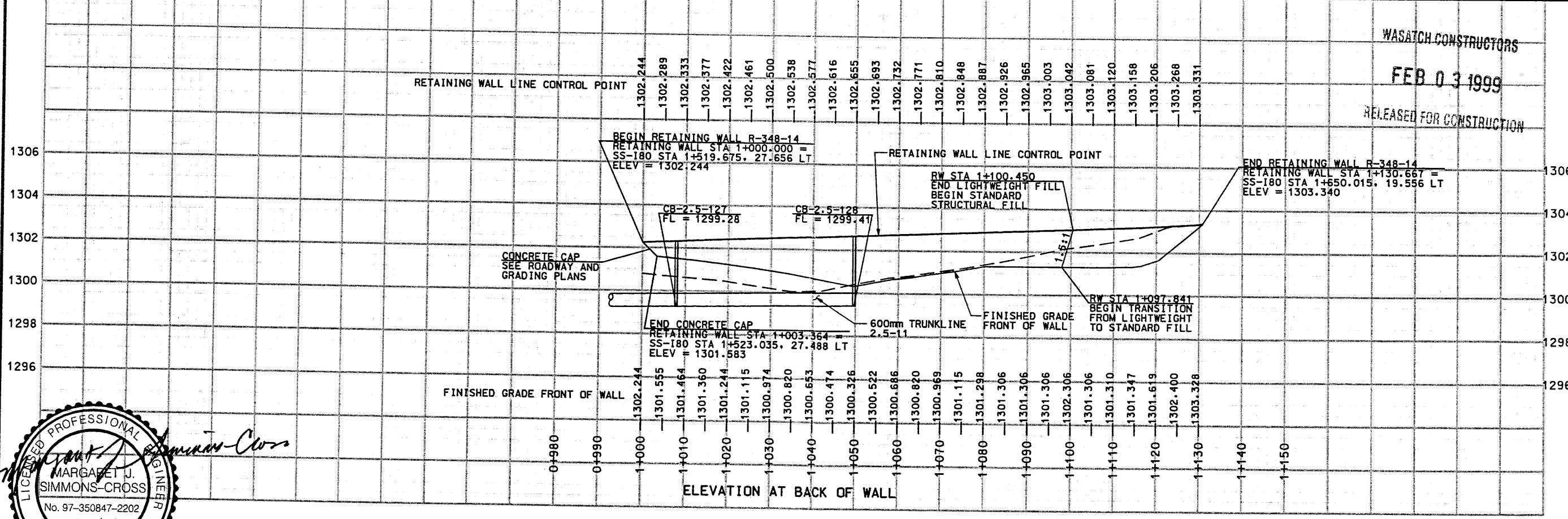
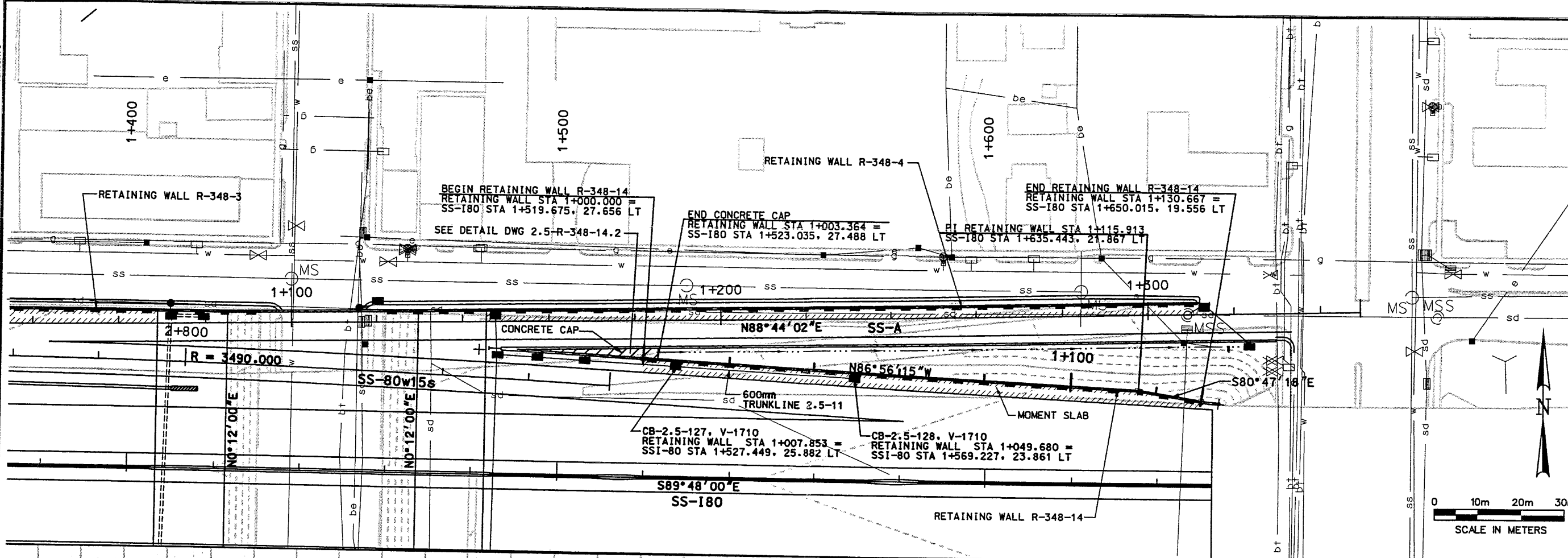
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

| | |
|-----------|---------------|
| DWG. NO. | 2.5R-348-11.9 |
| JOB NO. | 239-0007 |
| SHEET NO. | RE-6 |

METRIC

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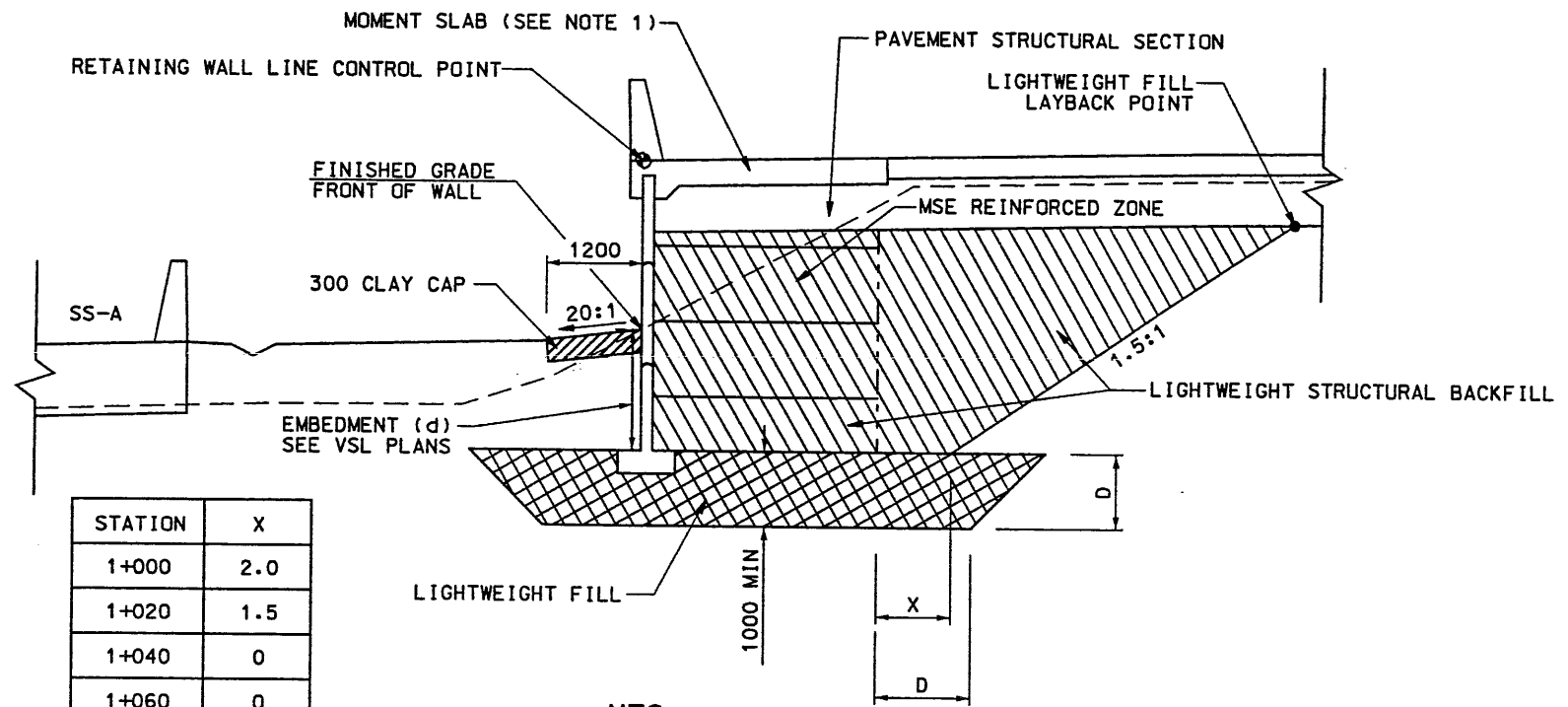
Date: 25-JAN-1999 Time: 09:03 User: ruihan@ntte
 File name: c:\dgn\15_codd\ss_97\sheet_files\wall\ss_wal14.dgn



RETAINING WALL R-348-14

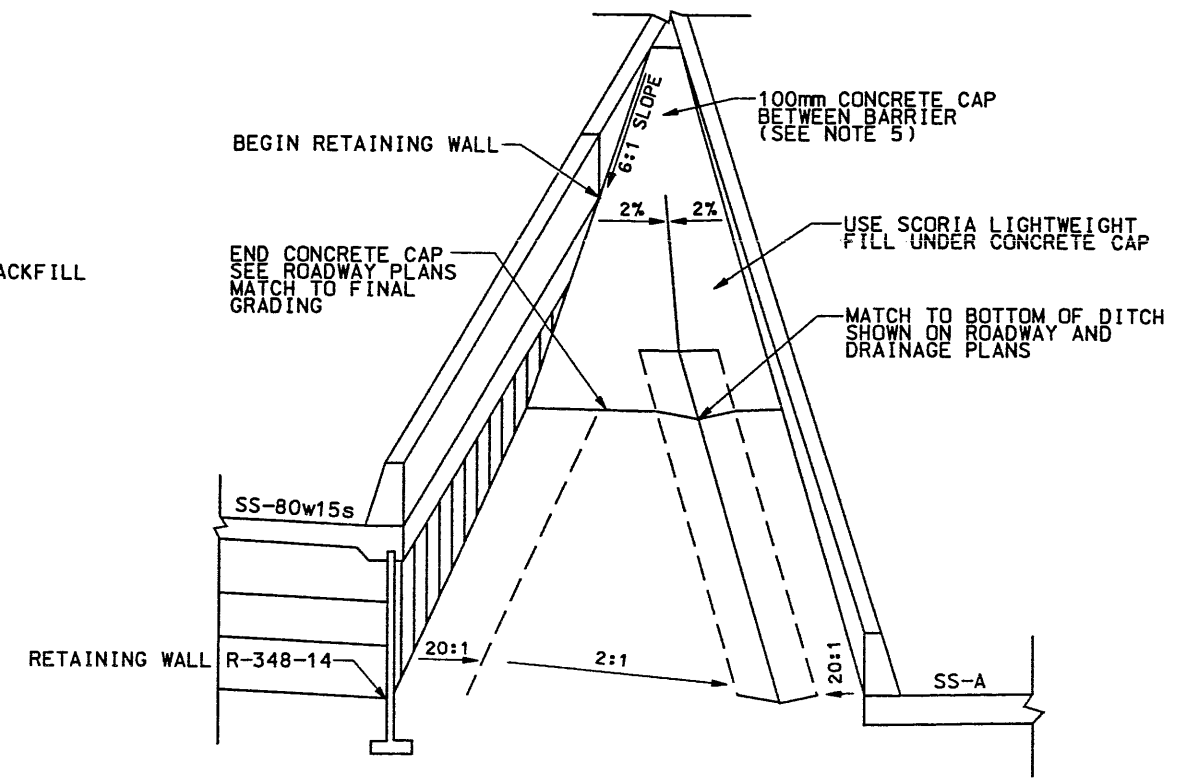
| | | | |
|-----------------------------------|---------|-------------------------|---|
| APPROVED FOR CONSTRUCTION | | DESCRIPTION | |
| NO. | DATE | 1/7/98 | RELEASE FOR GEOFOAM AND WALL CONSTRUCTION |
| 2 | 1/25/99 | | TOTAL SHEET REVISION FDM 2-0313 |
| UTAH DEPARTMENT OF TRANSPORTATION | | TRACKING NO. | 2512408 |
| SVERDRUP/DE LEUW | | CHECK MSC | 12/98 |
| I-15 CORRIDOR RECONSTRUCTION | | CHECK MSC | 12/98 |
| RETAINING WALL R-348-14 | | CHECK | |
| SECTION 2.5 | | DESIGN TECH | 10/97 |
| PROJECT NUMBER *SP-15-7(135)296 | | DRAWN TECH | 10/97 |
| | | QUANT. | |
| | | APPROVAL DATE | 12/7/98 |
| | | RECORD DATE | 12/7/98 |
| | | PROJECT DESIGN ENGINEER | MARGARET SIMMONS-CROSS |
| | | DATE | 1/25/99 |
| | | SECTION MANAGER | JOHN TERRY |
| | | DATE | |
| SALT LAKE COUNTY | | | |
| DWG. NO. | | 2.5-R-348-14.1 | |
| SHT. 1 | OF 2 | | |

User: name: hnsonte Date: 25-JAN-1999 Time: 09:13



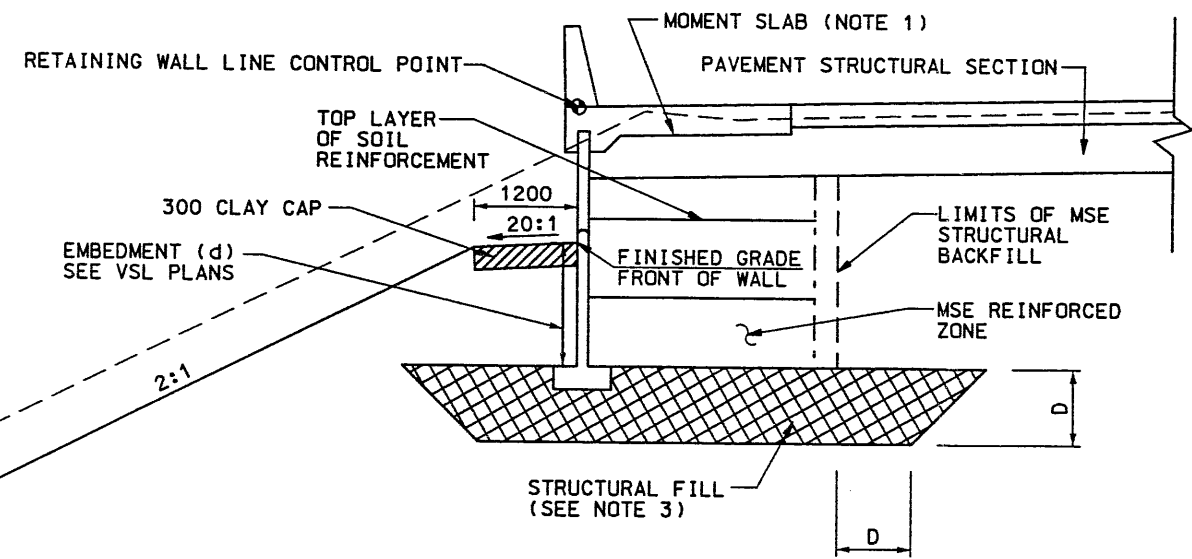
| STATION | X |
|-----------|-----|
| 1+000 | 2.0 |
| 1+020 | 1.5 |
| 1+040 | 0 |
| 1+060 | 0 |
| 1+080 | 0 |
| 1+097.841 | 0 |

NTS
MSE 1-STAGE R-348-14 SECTION
 RW STA 1+000.000 TO 1+100.450



CONCRETE CAP AT R-348-14
 NTS

WASATCH CONSTRUCTORS
 FEB 03 1999
 RELEASED FOR CONSTRUCTION



NTS
MSE 1-STAGE R-348-14 SECTION
 RW STA 1+100.450 TO 1+130.667

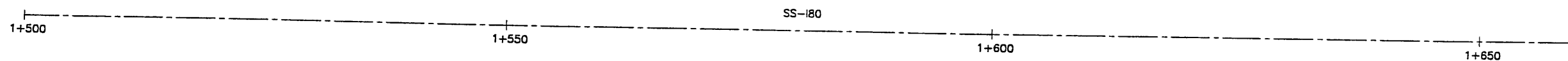
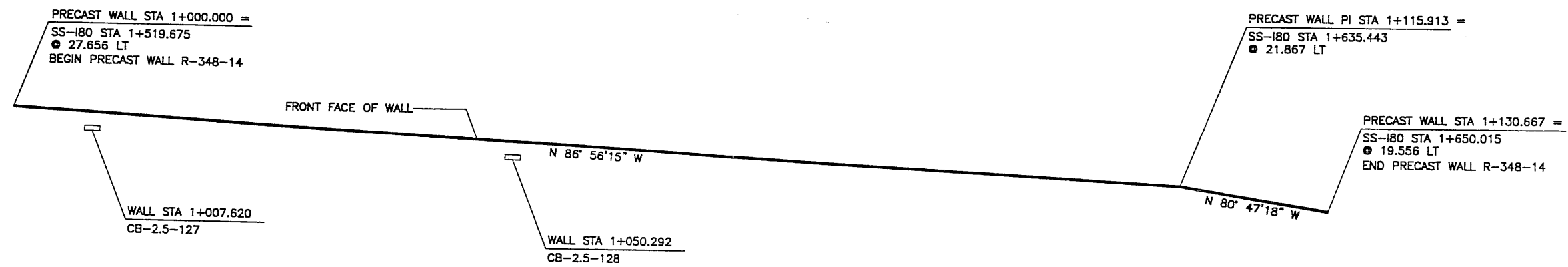
- NOTE:**
1. REFER TO CS-28-1 FOR MOMENT SLAB DETAILS.
 2. ALL DIMENSIONS ON THIS DRAWING ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
 3. DIMENSION (D) FOR STRUCTURAL FILL TO BE DETERMINED BY THE FIELD GEOTECHNICAL ENGINEER.
 4. CONTRACTOR TO ADJUST LOCATION OF INLETS NEXT TO MSE WALL TO MISS MSE STRAPS. SEE VSL DRAWINGS FOR INLET LOCATION NEXT TO MSE WALL.
 5. CONCRETE IN CAP TO CONFORM TO CS SPEC 601.



| | | | |
|-----------------------------------|-------------------------|-----------------|---------|
| APPROVED FOR CONSTRUCTION | | DESCRIPTION | |
| NO. | DATE | NO. | DATE |
| | 1/25/99 | | |
| INITIAL RELEASE PER FDM 2-0313 | | | |
| UTAH DEPARTMENT OF TRANSPORTATION | | TRACKING NO. | |
| SVERDRUP/DE LEUW | | 2512408 | |
| DESIGN | TEH | CHECK | MSC |
| 12/7/98 | 11/98 | 12/98 | 12/98 |
| DATE | DATE | DATE | DATE |
| APPROVAL | RECOMM. | DATE | DATE |
| 12/7/98 | MARGARET SIMMONS-CROSS | 12/7/98 | 12/7/98 |
| DATE | PROJECT DESIGN ENGINEER | DATE | DATE |
| | JOHN TERRY | | |
| | SECTION MANAGER | | |
| I-15 CORRIDOR RECONSTRUCTION | | PROJECT NUMBER | |
| RETAINING WALL R-348-14 | | #SP-15-(135)296 | |
| SECTION 2.5 | | | |
| SALT LAKE COUNTY | | DWG. NO. | |
| | | 2.5-R-348-14.2 | |
| SHT. 2 | | OF 2 | |

XP FENCE (X-UTAH.DWG)

| APPROVED FOR CONSTRUCTION | | |
|---------------------------|----------|--------------------------|
| NO. | DATE | DESCRIPTION |
| 1 | 01-21-99 | RELEASE FOR CONSTRUCTION |
| | | |
| | | |



| STANDARD BACKFILL | SCORIA |
|--|---|
| 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. = 0.27g (TYP) | ANGLE OF INTERNAL FRICTION (SELECT) = 26° ANGLE OF INTERNAL FRICTION (BASE) = 26° ANGLE OF INTERNAL FRICTION (RANDOM) = 26° UNIT WEIGHT BACKFILL = 52 TO 60 PCF. (8.2 TO 9.4 KN/M ³) TRAFFIC SURCHARGE = 250 PSF (12 KPa) SEISMIC ACCELERATION COFF. = 0.27g (50 YR) |

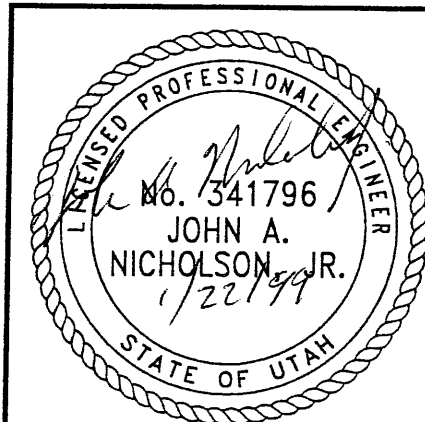
| DESIGN CRITERIA |
|---|
| SAFETY FACTOR (OVERTURNING) = 2.0 SAFETY FACTOR (SLIDING) = 1.5 SAFETY FACTOR (PULLOUT) = 1.5 DESIGN LIFE = 75 YEARS |

| RETAINED EARTH INDEX |
|---|
| RE-1 PLAN PRECAST FACE WALL R-348-14, NOTES & DESIGN CRITERIA |
| RE-2 TYPICAL CROSS SECTION |
| RE-3 TYPICAL CROSS SECTION |
| RE-4 ELEVATION PRECAST WALL "R-348-14" |
| RE-5 ELEVATION PRECAST WALL "R-348-14" |
| RE-6 SPECIAL PANEL DETAILS |

PLAN VIEW WALL "R-348-14"
 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.

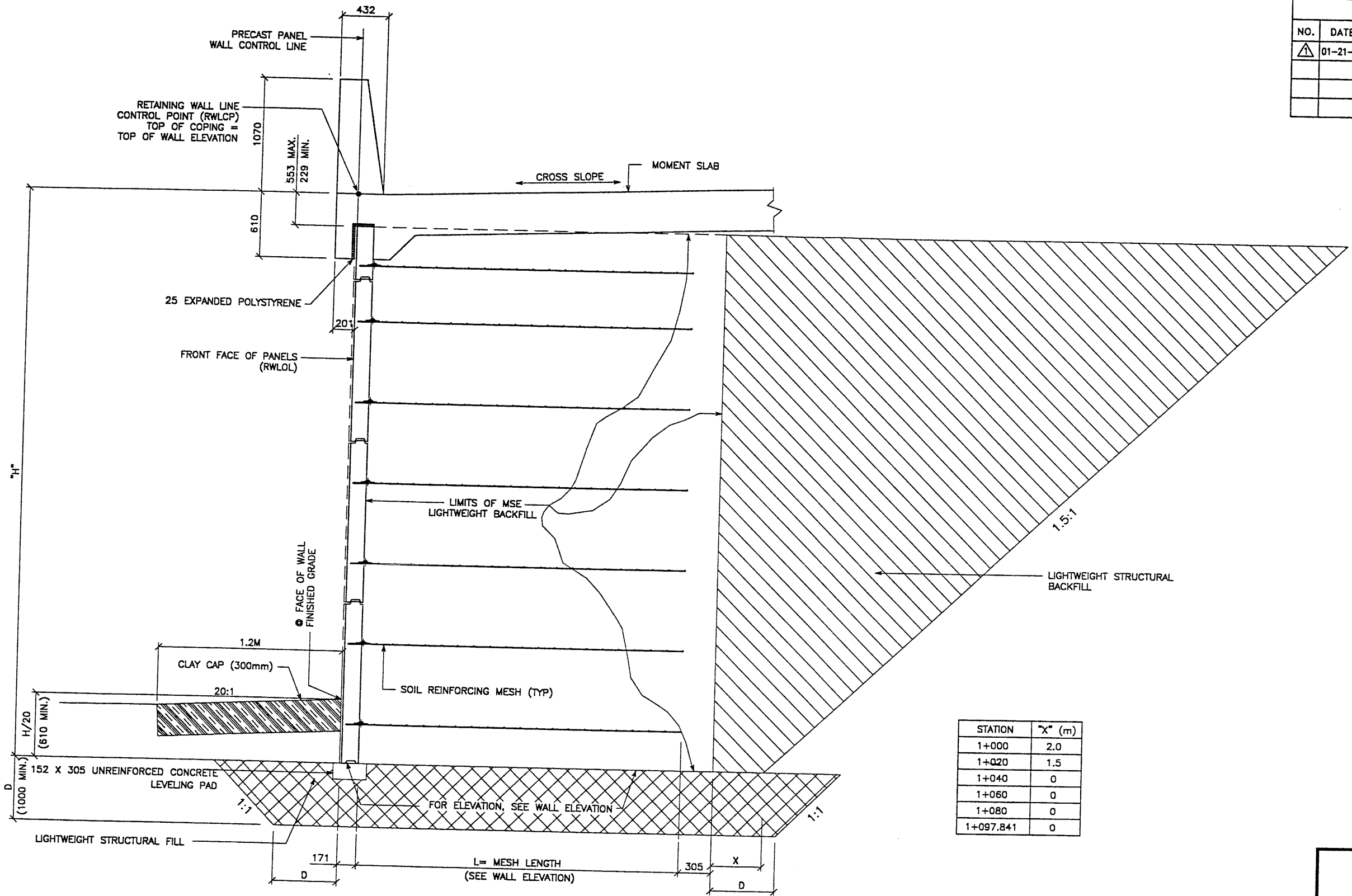


| | | | | | |
|--|-----|------|-------------|----|-----|
| DES. 12-11-98 JN DRN. 12-11-98 DSW CHK. 12-11-98 JN VSL RETAINED EARTH™ | NO. | DATE | DESCRIPTION | BY | CHK |
| | | | | | |
| | | | | | |
| | | | | | |
| VSL CORPORATION 2840 Plaza Place, Suite 200 Raleigh, NC 27612 Telephone: (919) 781-8272 Fax: (919) 781-4669 | | | | | |
| | | | | | |
| ATLANTA, GA / DALLAS, TX / DENVER, CO (CORPORATE OFFICE) MIAMI, FL / SAN JOSE, CA / SPRINGFIELD, VA | | | | | |
| RETAINED EARTH™ WALLS PLAN VIEW PRECAST WALL "R-348-14" UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP. | | | | | |
| DWG. NO. 25R-348-14.3 | | | | | |
| JOB NO. 239-0007 | | | | | |
| SHEET NO. RE-1 | | | | | |

RELEASED FOR CONSTRUCTION
 FEB 03 1999
 WASATCH CONSTRUCTORS

FINAL PLOT 01-22-99

FINAL PLOT 01-22-99 H:\RE_EARTH\PROJECT\239-0007\1998\SS-WALLS\SS-14\RE-3 REFERENCE (X-UTAH.DWG)



| STATION | "X" (m) |
|-----------|---------|
| 1+000 | 2.0 |
| 1+020 | 1.5 |
| 1+040 | 0 |
| 1+060 | 0 |
| 1+080 | 0 |
| 1+097.841 | 0 |

TYPICAL CROSS SECTION - STA 1+000.000 TO STA 1+100.450

(SEE DWG. NO. 2.5R-348-14.2 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

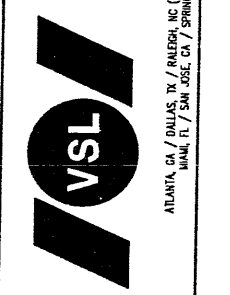
METRIC

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

| APPROVED FOR CONSTRUCTION | | |
|---------------------------|----------|--------------------------|
| NO. | DATE | DESCRIPTION |
| △ | 01-21-99 | RELEASE FOR CONSTRUCTION |
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| | | |

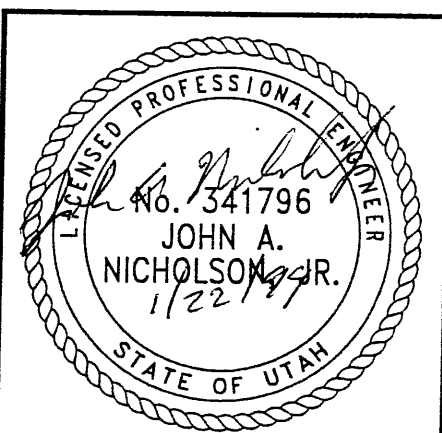
| DES. | DRN. | CHK. | RETAINED EARTH™ | NO. | DATE | REVISION | BY |
|------|------|------|-----------------|-----|------|----------|----|
| JN | DSW | JN | | | | | |
| | | | | | | | |

VSL CORPORATION
 2940 Plaza Place, Suite 200
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WASATCH CONSTRUCTORS
 FEB 03 1999
 RELEASED FOR CONSTRUCTION



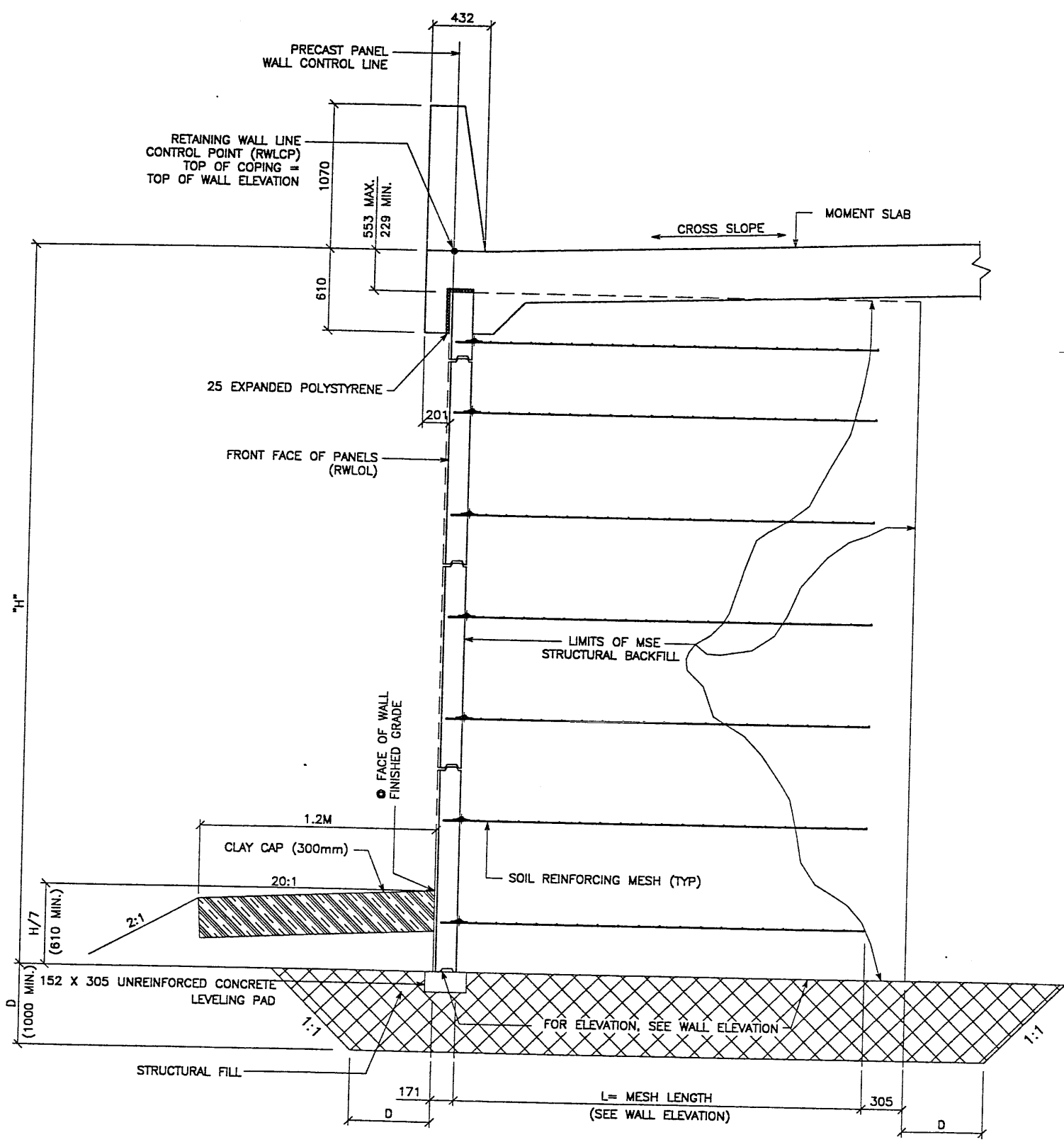
RETAINED EARTH™ WALLS
 PRECAST MSE WALL "R-348-14"
 TYPICAL CROSS SECTION
 UTAH I-15 RECONSTRUCTION
 SALT LAKE COUNTY, UTAH
 UTAH DEPARTMENT OF TRANSP.

DWG. NO. 2.5R-348-14.4
 JOB NO. 239-0007
 SHF. NO. RE-2

XREFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\SS-WALLS\SS-14\RE-2

FINAL PLOT 01-22-99



TYPICAL CROSS SECTION - STA 1+100.450 TO STA 1+130.667
 (SEE DWG. NO. 2.5R-348-14.3 FOR ADDITIONAL INFORMATION)
 SCALE: 1:20 (FULL SIZE)
 SCALE: 1:40 (HALF SIZE)

| APPROVED FOR CONSTRUCTION | | |
|---------------------------|----------|--------------------------|
| NO. | DATE | DESCRIPTION |
| 1 | 01-21-99 | RELEASE FOR CONSTRUCTION |
| | | |
| | | |

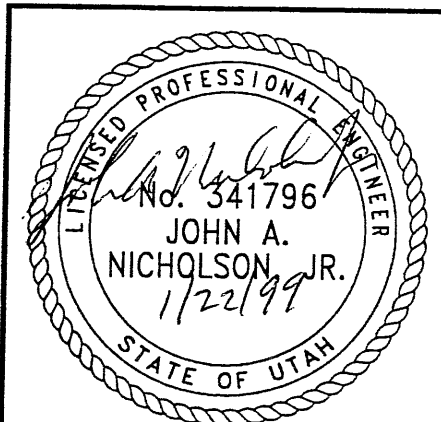
VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-8272
 Fax: (919) 781-4669



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

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 specifications of the retaining wall system as shown on this sheet. The use of the retaining wall system shown on this sheet is not intended to be used in any other application without the written consent of VSL. Any other use is strictly prohibited, and VSL, its officers, directors, employees, agents, and representatives shall not be held liable therefor.

WASATCH CONSTRUCTORS
 FEB 03 1999
 RELEASED FOR CONSTRUCTION



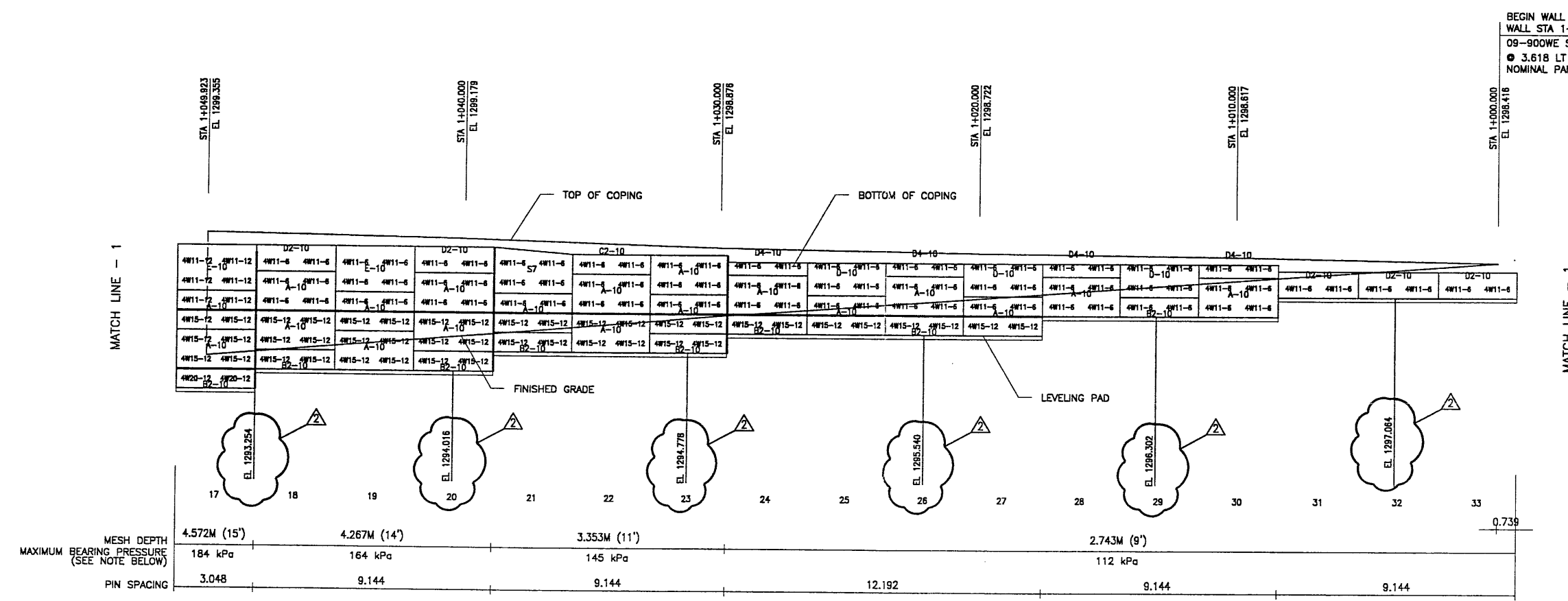
METRIC
 CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION,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

| |
|--|
| RETAINED EARTH™ WALLS PRECAST MSE WALL "R-348-14" TYPICAL CROSS SECTION |
| UTAH 1-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP. |
| DWG. NO. 2.5R-348-14.5 |
| JOB NO. 239-0007 |
| SHT. NO. RE-3 |

H:\RE_EARTH\PROJECT\2: 007\1998\9WSERIES\9W-14\9W-14 XRE E (X-UTAH.DWG) FINAL PI 11-20-98

| APPROVED FOR CONSTRUCTION | | |
|---------------------------|----------|----------------------------|
| NO. | DATE | DESCRIPTION |
| △ | 11-20-98 | RELEASE FOR CONSTRUCTION |
| △ | 02-07-00 | REVISED LEVELING PAD ELEV. |
| | | |
| | | |

| DES. | DRN. | CHK. | RETAINED EARTH™ | NO. | DATE | BY |
|----------|----------|----------|-----------------|-----|------|----|
| JN | RSW | JN | | | | |
| 11-29-98 | 11-29-98 | 11-29-98 | | | | |



BEGIN WALL R-349-14
WALL STA 1+000.000 =
09-900WE STA 1+041.893
3.618 LT
NOMINAL PANEL FACE (RWLOL)

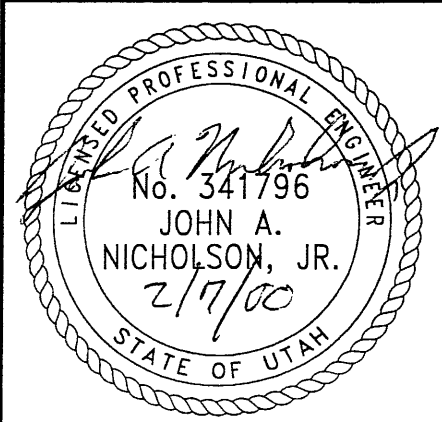
ELEVATION PRECAST WALL R-349-14
(FRONT FACE SHOWN)
(TOTAL SURFACE AREA OF PANELS = 453.72 SM)
SCALE 1:100 (FULL SIZE)
SCALE 1:200 (HALF SIZE)

METRIC

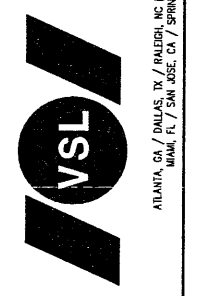
CERTIFIED FOR INTERNAL STABILITY OF RETAINED EARTH™ STRUCTURES ONLY. EXTERNAL STABILITY, INCLUDING BUT NOT LIMITED TO FOUNDATION AND SLOPE STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE ASSUMPTION THAT THE MATERIAL WITHIN THE RETAINED EARTH™ MASS, METHODS OF CONSTRUCTION, AND QUALITY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

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

WASATCH CONSTRUCTORS
MAR 08 2000
RELEASED FOR CONSTRUCTION



VSL CORPORATION
2940 Plaza Place, Suite 200
Raleigh, NC 27612
Telephone: (919) 781-8272
Fax: (919) 781-4689



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RETAINED EARTH™ WALLS
PRECAST WALL "R-349-14"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

| | |
|----------|---------------|
| DWG. NO. | 2.7R-349-14.6 |
| JOB NO. | 239-0007 |
| SHT. NO. | RE-5 |

RFC After Final Approval

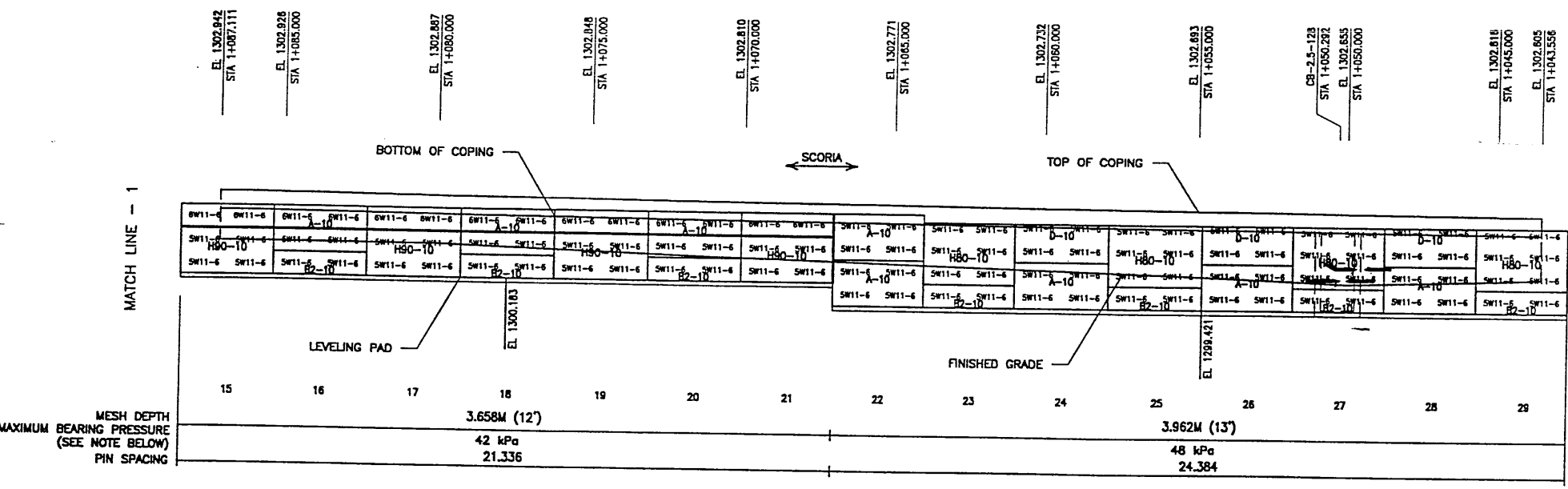
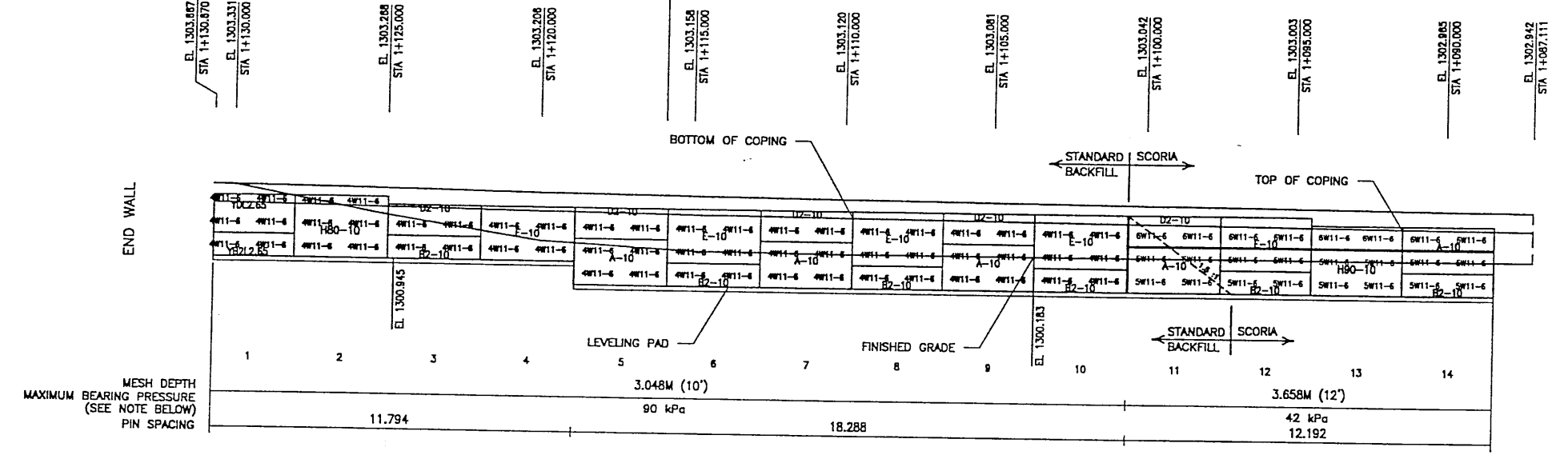
XREFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\SS-WALLS\SS-14\SS-14

FINAL PLOT 01-22-99

END WALL R-348-14
WALL STA 1+130.667 =
SS-180 STA 1+650.015
● 19.556 LT
NOMINAL PANEL FACE (RWLOL)

WALL STA 1+115.913 =
SS-180 STA 1+635.443
● 21.867 LT
NOMINAL PANEL FACE (RWLOL)



ELEVATION PRECAST WALL R-348-14
(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
(TOTAL SURFACE AREA OF PANELS = 302.02 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.

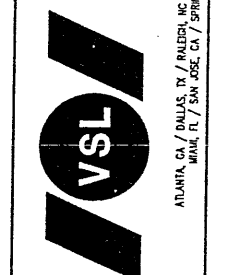
METRIC

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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 |
| △ | 01-21-99 | RELEASE FOR CONSTRUCTION |
| | | |
| | | |

| DES. | DRN. | CHK. | NO. | DATE | REVISION | BY | CHK |
|----------|----------|----------|-----|------|----------|----|-----|
| JN | DSW | JN | | | | | |
| 12-11-98 | 12-11-98 | 12-11-98 | | | | | |

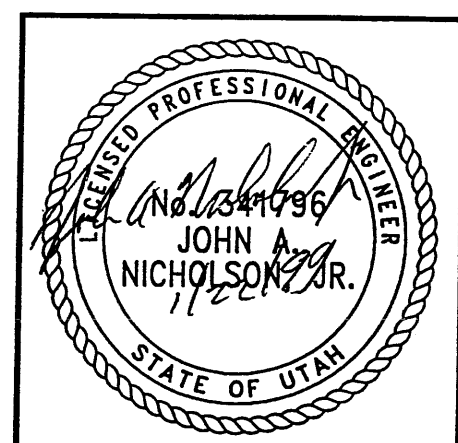
VSL CORPORATION
2800 Plaza Pkwy, Suite 200
Raleigh, NC 27617
Telephone: (919) 781-6272
Fac: (919) 781-6869



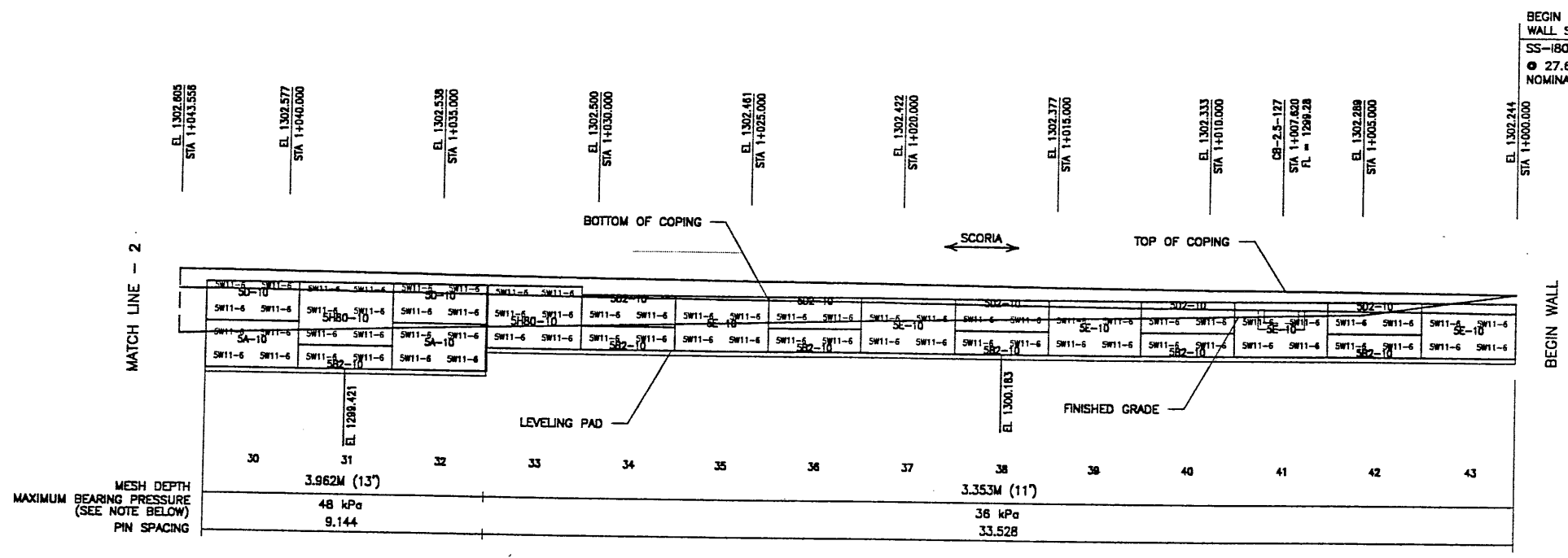
ATLANTA, GA / DALLAS, TX / PALMDALE, CA (CORPORATE OFFICE)
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RETAINED EARTH™ WALLS
PRECAST WALL "R-348-14"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

DWG. NO. 2.5R-348-14.6
JOB NO. 239-0007
SHEET NO. RE-4



FINAL PLOT 02-22-99 H:\RE_EARTH\PROJECT\239-0007\1998\SS-WALL\SS-14\SS-14 PRENCE (X-UTAH.DWG)

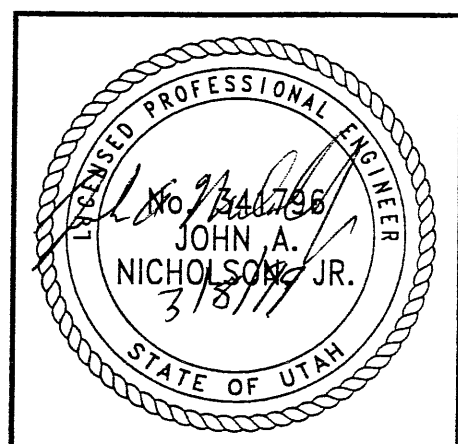


ELEVATION PRECAST WALL R-348-14
 (FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
 (TOTAL SURFACE AREA OF PANELS = 302.02 SM) SCALE 1:200 (HALF SIZE)

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

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

METRIC



WASATCH CONSTRUCTORS
 MAR 15 1999
 RELEASED FOR CONSTRUCTION

| APPROVED FOR CONSTRUCTION | | |
|---------------------------|----------|-------------------------------------|
| NO. | DATE | DESCRIPTION |
| △ | 01-21-99 | RELEASE FOR CONSTRUCTION |
| △ | 02-22-99 | WALL PANEL CLEVIS DESIGNATION ADDED |

VSL CORPORATION
 2840 Plaza Place, Suite 200
 Raleigh, NC 27612
 Telephone: (919) 781-6772
 Fax: (919) 781-6699

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

DES. 12-11-98 JUN
 DRN. 12-11-98 DSW
 CHK. 12-11-98 JUN

RETAINED EARTH™

NO. DATE

REVISION

BY CHK

DWG. NO. 2.5R-348-14.7
 JOB NO. 239-0007
 SH. NO. RE-5

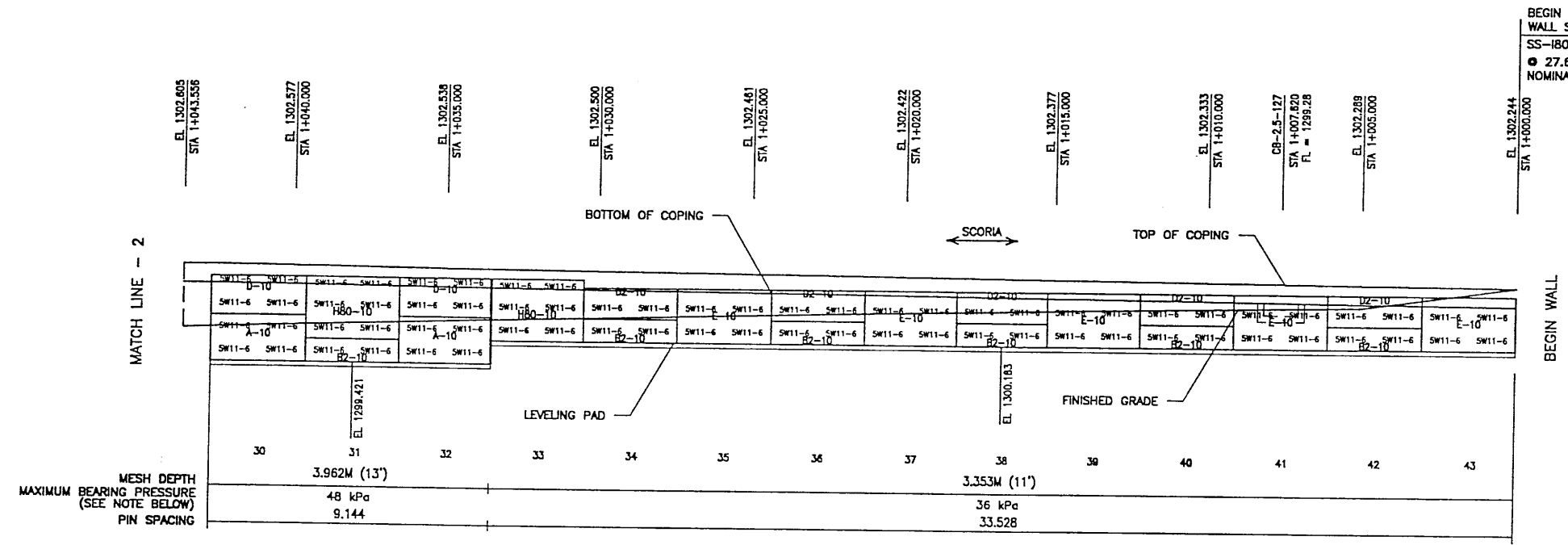
RFC After Final Approval

XREFERENCE (X-UTAH.DWG)

H:\RE_EARTH\PROJECT\239-0007\1998\SS-WALLS\SS-14\SS-14

FINAL PLOT 01-22-99

| APPROVED FOR CONSTRUCTION | | |
|---------------------------|----------|--------------------------|
| NO. | DATE | DESCRIPTION |
| △ | 01-21-99 | RELEASE FOR CONSTRUCTION |
| | | |
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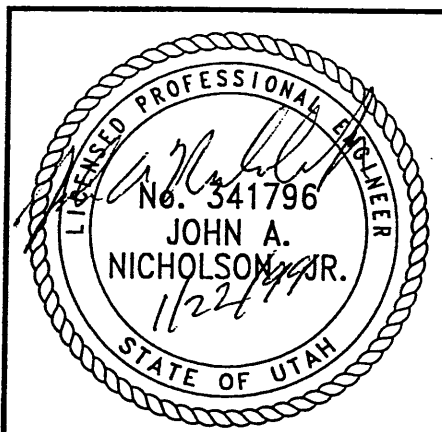
BEGIN WALL R-348-14
WALL STA 1+000.000 =
SS-180 STA 1+519.675
● 27.656 LT
NOMINAL PANEL FACE (RWLOL)

ELEVATION PRECAST WALL R-348-14
(FRONT FACE SHOWN) SCALE 1:100 (FULL SIZE)
(TOTAL SURFACE AREA OF PANELS = 302.02 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

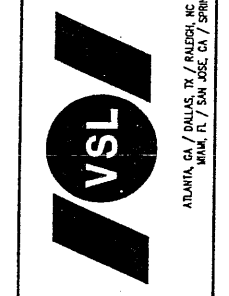
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STABILITY, IS THE RESPONSIBILITY OF THE OWNER. DESIGN IS BASED ON THE
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RETAINED EARTH™ WALLS
PRECAST WALL "R-348-14"
UTAH I-15 RECONSTRUCTION
SALT LAKE COUNTY, UTAH
UTAH DEPARTMENT OF TRANSP.

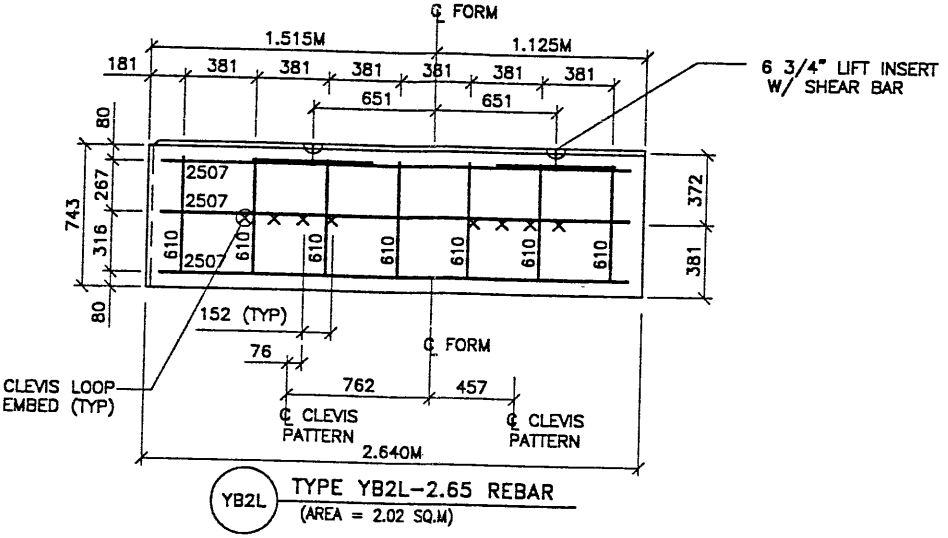
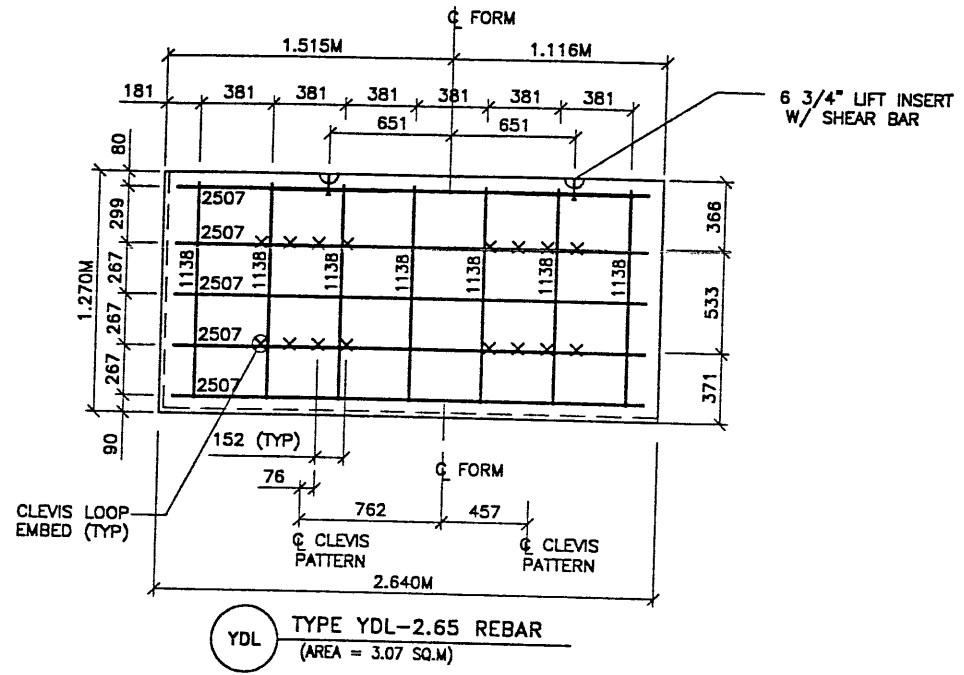
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|----------|---------------|
| DWG. NO. | 2.5R-348-14.7 |
| JOB NO. | 239-0007 |
| SHT. NO. | RE-5 |

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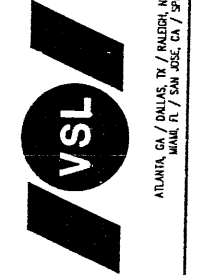
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|----------|------|------|-----|------|----------|----|-----|
| 12-11-98 | JN | | | | | | |
| 12-11-98 | DSW | | | | | | |
| 12-11-98 | JN | | | | | | |



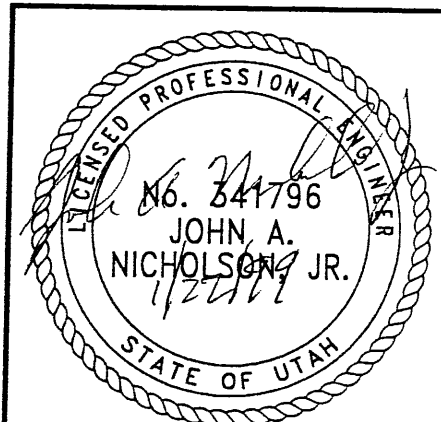
- PANEL REINFORCEMENT NOTES:**
1. PANELS ARE SHOWN BACK FACE.
 2. HORIZONTAL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE BACK FACE.
 3. ALL REINFORCEMENT SHALL HAVE 50 mm MINIMUM COVER TO THE SIDES.
 4. ALL REINFORCING BARS ARE #13 METRIC. LABELS ON EACH BAR INDICATE LENGTH. EXAMPLE: 1345 IS 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 25,200 KPa.
 8. EQUIVALENT WELDED WIRE FABRIC MAY BE USED.
 9. ALL PANELS TO USE 9.5mm# CLEVIS LOOPS.
 10. VSL RETAINED EARTH™ IS PROTECTED UNDER PATENT 4,725,170.
 11. LIFT INSERTS ARE 6 3/4" LONG IN ALL PANELS LESS THAN 1.524M TALL. PANELS TALLER THAN 1.524M SHALL HAVE 11" LONG LIFT ANCHORS.

| APPROVED FOR CONSTRUCTION | | |
|---------------------------|----------|--------------------------|
| NO. | DATE | DESCRIPTION |
| 1 | 01-21-99 | RELEASE FOR CONSTRUCTION |
| | | |
| | | |

| DES. | DRN. | CHK. | NO. | DATE |
|----------|----------|----------|-----|------|
| 12-11-98 | 12-11-98 | 12-11-98 | JN | DSW |
| | | | | |



WASATCH CONSTRUCTORS
 FEB 03 1999
 RELEASED FOR CONSTRUCTION



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METRIC

| |
|--|
| RETAINED EARTH™ WALLS PRECAST WALL "R-348-14" SPECIAL PANEL DETAILS |
| UTAH I-15 RECONSTRUCTION SALT LAKE COUNTY, UTAH UTAH DEPARTMENT OF TRANSP. |
| DWG. NO. 2.5R-348-14.8 |
| JOB NO. 239-0007 |
| SHT. NO. RE-6 |

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