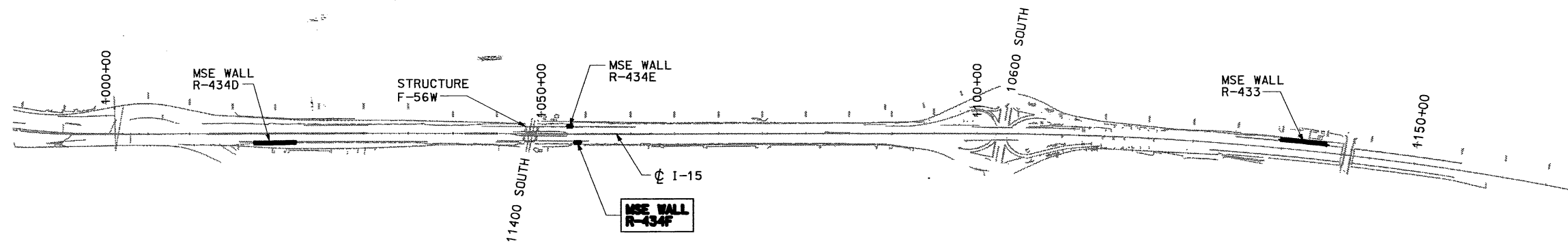


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**LOCATION PLAN**

**GENERAL NOTES:**

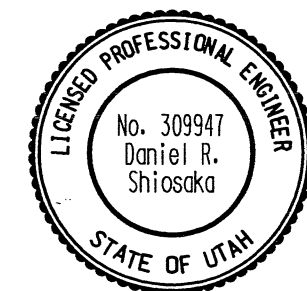
1. ALL REINFORCING STEEL SHALL BE COATED DEFORMED BILLET-STEEL BARS CONFORMING TO AASHTO M 284 OR M 111, AND M 31 GRADE 60 RESPECTIVELY.
2. CHAMFER ALL EXPOSED CONCRETE CORNERS  $\frac{3}{4}$ ". EXCEPT WHERE NOTED OTHERWISE.
3. PROVIDE 2" CONCRETE COVER TO REINFORCING STEEL EXCEPT WHERE NOTED OTHERWISE.
4. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS AA(AE).
5. ALL DIMENSIONS SHOWN ARE IN FEET-INCHES UNLESS SPECIFIED OTHERWISE. ALL STATIONS AND ELEVATIONS ARE SHOWN IN FEET.
6. CONTRACTOR RESPONSIBLE TO FIELD VERIFY ALL ELEVATIONS PRIOR TO CONSTRUCTION.

**QUANTITIES:**

ITEM	ESTIM.	UNIT	AS CONST.
MSE RETAINING WALL (R-434F) (ESTIMATED EXPOSED SURFACE AREA 344 SQ. FT.)	1	LUMP	

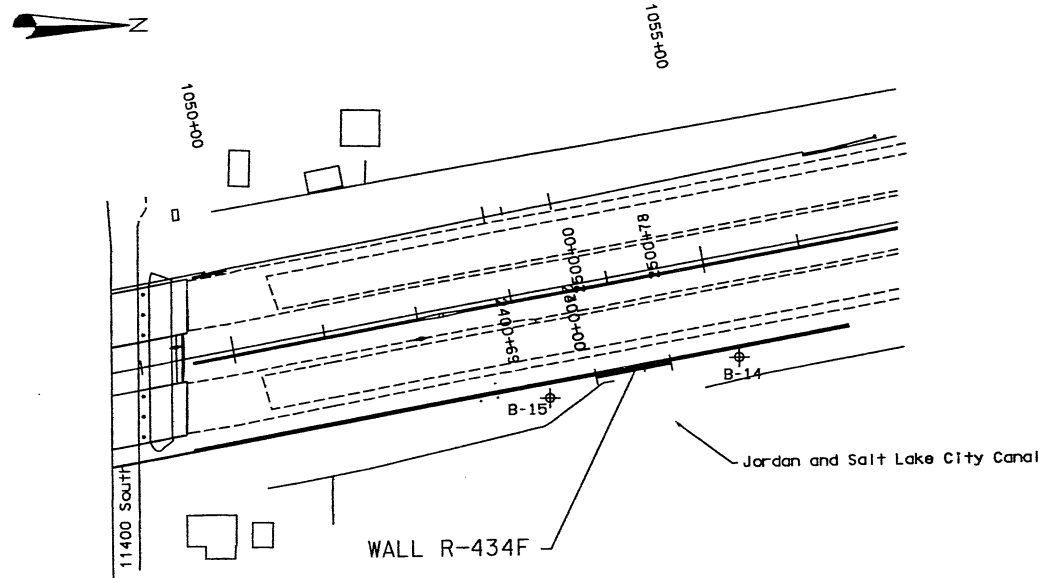
**DESIGN DATA:**

CAST-IN-PLACE CONCRETE:  $f'_c = 3650$  psi;  $f'_c = 1200$  psi;  
(FOR COPING)  $f'_s$  (REINF.) = 24,000 psi;  $n=9$



UTAH DEPARTMENT OF TRANSPORTATION SALT LAKE CITY, UTAH STRUCTURES DIVISION		DESIGN BPD_01/04	CHECK_DRS_01/04
I-15 UTAH CO. LINE TO 10600 SO. WALL R-434F		DRAWN_NRD_01/04	CHECK_DRS_01/04
SITUATION AND LAYOUT		QUANT_NRD_01/04	CHECK_DRS_01/04
PROJECT NUMBER SP-15-7(167)288		APPROVED FOR USE BY UDOT	DATE
SALT LAKE COUNTY		APPROVED FOR USE BY UDOT	DATE
R-434F DRG. NO.		BY	REVISIONS
SHT. 1 OF 5			

# BORING LOCATION PLAN



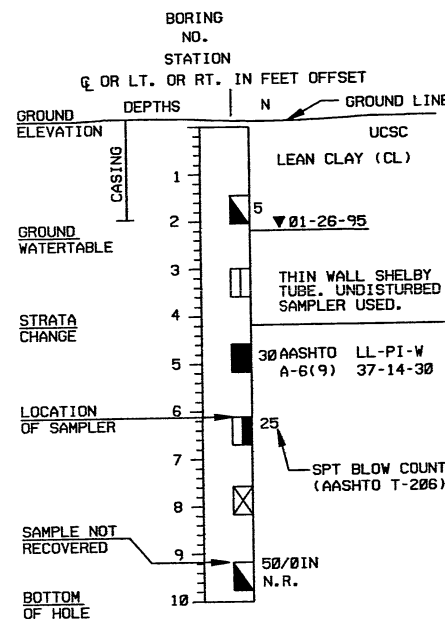
KLEINFELDER PROJECT NO. 33948.980

NO.	BY	DATE	REMARKS
REVISIONS			

## GENERAL NOTES

- THE SUBSURFACE EXPLORATIONS SHOWN WERE CONDUCTED ON AUGUST 26 AND 28, 2003 BY KLEINFELDER.
- THESE BORING LOGS REPRESENT A SYNOPSIS OF THE SOIL DEPOSITS ENCOUNTERED WITHIN EACH 8 INCH DIAMETER BORING AND ARE BASED ON SOUND GEOLOGICAL AND ENGINEERING JUDGEMENT. BECAUSE SOIL IS A COMPLEX MEDIUM, THESE BORING LOGS MAY OR MAY NOT REPRESENT THE SOIL CONDITIONS AT THIS SITE. THIS SUBSURFACE INTERPRETATION IS PRESENTED IN GOOD FAITH AND IS NOT INTENDED AS A SUBSTITUTE FOR PERSONAL INVESTIGATION AND JUDGEMENT OF THE CONTRACTOR.
- THE WATER LEVELS AND CONDITIONS INDICATED ON THE DRILL LOGS REPRESENT BORING CONDITIONS ON THE DATE SHOWN, WITH AUGER IN PLACE. IT SHOULD BE NOTED, HOWEVER, THAT AT LOCATIONS AWAY FROM THE TEST BORINGS OR AT OTHER TIMES OF THE YEAR THE WATER LEVELS AND CONDITIONS MAY VARY SIGNIFICANTLY.
- THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.
- COBBLE - A ROCK FRAGMENT WITH AN AVERAGE DIMENSION BETWEEN 3 AND 12 INCHES.
- BOULDER - A ROCK FRAGMENT WITH AN AVERAGE DIMENSION GREATER THAN 12 INCHES.
- IN ORDER TO PROVIDE MORE CONSISTENCY AND UNIFORMITY WITH GEOTECHNICAL AND CONSTRUCTION INDUSTRY STANDARDS, UDOT HAS ADOPTED THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS) USING BOTH THE USCS SYMBOLS AND MAJOR SOIL DESCRIPTION STANDARDS ON BOTH THE SOIL EXPLORATION LOGS AND IN THE REPORT'S SOIL DESCRIPTIONS. HOWEVER, THE AASHTO GROUP CLASSIFICATIONS WILL ALSO CONTINUE TO BE USED AS SHOWN HEREIN.

## LEGEND



### ABBREVIATIONS

- L.L. - LIQUID LIMIT
- P.I. - PLASTIC INDEX
- W. - NATURAL MOISTURE CONTENT IN %
- PEN. - PENETRATION
- G.W.T. - GROUND WATER TABLE
- N - SPT BLOW COUNT-BLOWS PER 12IN
- N.P. - NON PLASTIC
- AASHTO - SOIL CLASSIFICATION SYSTEM
- USCS - UNIFIED CLASSIFICATION SYSTEM
- N.V. - NO VALUE
- N.R. - NO SAMPLE RECOVERED
- E.R. - SAMPLING HAMMER ENERGY RATIO

### LOG KEY SYMBOLS


BORING  
B-14  
ELEVATION 4420.1 FEET  
STATION 1055+17.978 107.679 RT.

DEPTH (FEET)	ELEVATION (FEET)	DEPTH (FEET)	BLOWS PER FOOT (N1/160)	USCS AASHTO	SOIL CLASSIFICATION MC-LL-PI
				SC-SM A-4 (0)	SILTY CLAYEY SAND - LOOSE TO MEDIUM DENSE, SLIGHTLY MOIST TO MOIST, DARK BROWN, FINE- TO MEDIUM-GRAINED SAND 8 - 22 - 6
7.0	4413.1		9	CL A-4 (4)	LEAN CLAY WITH SAND - SOFT TO STIFF, MOIST, BROWN, FINE- TO MEDIUM-GRAINED SAND 18 - 26 - 7
13.0	4407.1		8	SM	SILTY SAND - LOOSE TO MEDIUM DENSE, MOIST, BROWN TO GREENISH GRAY WITH RUST COLORED AREAS, FINE- TO MEDIUM-GRAINED SAND
18.0	4402.1		20	ML A-4 (0)	SILT WITH SAND - VERY STIFF, MOIST, GREENISH GRAY WITH RUST COLORED AREAS
23.0	4397.1		33	SP-SM A-3 (1)	POORLY GRADED SAND WITH SILT - MEDIUM DENSE TO DENSE, MOIST, YELLOWISH GRAY TO RUSTY BROWN
30.0	4390.1	30			

## UNIFIED SOIL CLASSIFICATION SYSTEM

GRAVELS	GRAVELS	GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
COARSE-GRAINED SOILS	WITH LITTLE OR NO FINES	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
< 50% COARSE FRACTION PASSES #4 SIEVE	GRAVELS WITH > 12% FINES	GM	SILTY GRAVELS, POORLY-GRADED GRAVEL-SAND MIXTURES
< 50% COARSE FRACTION PASSES #4 SIEVE	SANDS WITH LITTLE OR NO FINES	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
< 50% COARSE FRACTION PASSES #4 SIEVE	SANDS WITH > 12% FINES	SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SM	SILTY SANDS, POORLY-GRADED SAND-GRAVEL-SILT MIXTURES
		SC	CLAYEY SANDS, POORLY-GRADED SAND-GRAVEL-CLAY MIXTURES
FINE-GRAINED SOILS	SILTS & CLAYS LIQUID LIMIT < 50	ML	INORGANIC SILT & VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY
> 50% PASSES #200 SIEVE	SILTS & CLAYS LIQUID LIMIT > 50	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & CLAYS OF LOW PLASTICITY
		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC SILTS & CLAYS OF MEDIUM-TO-HIGH PLASTICITY
		PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENT

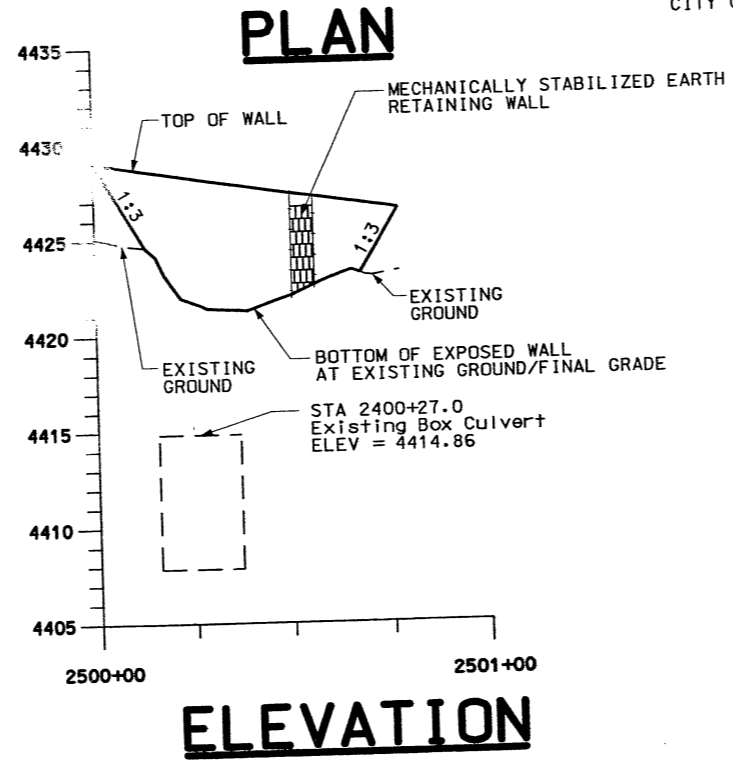
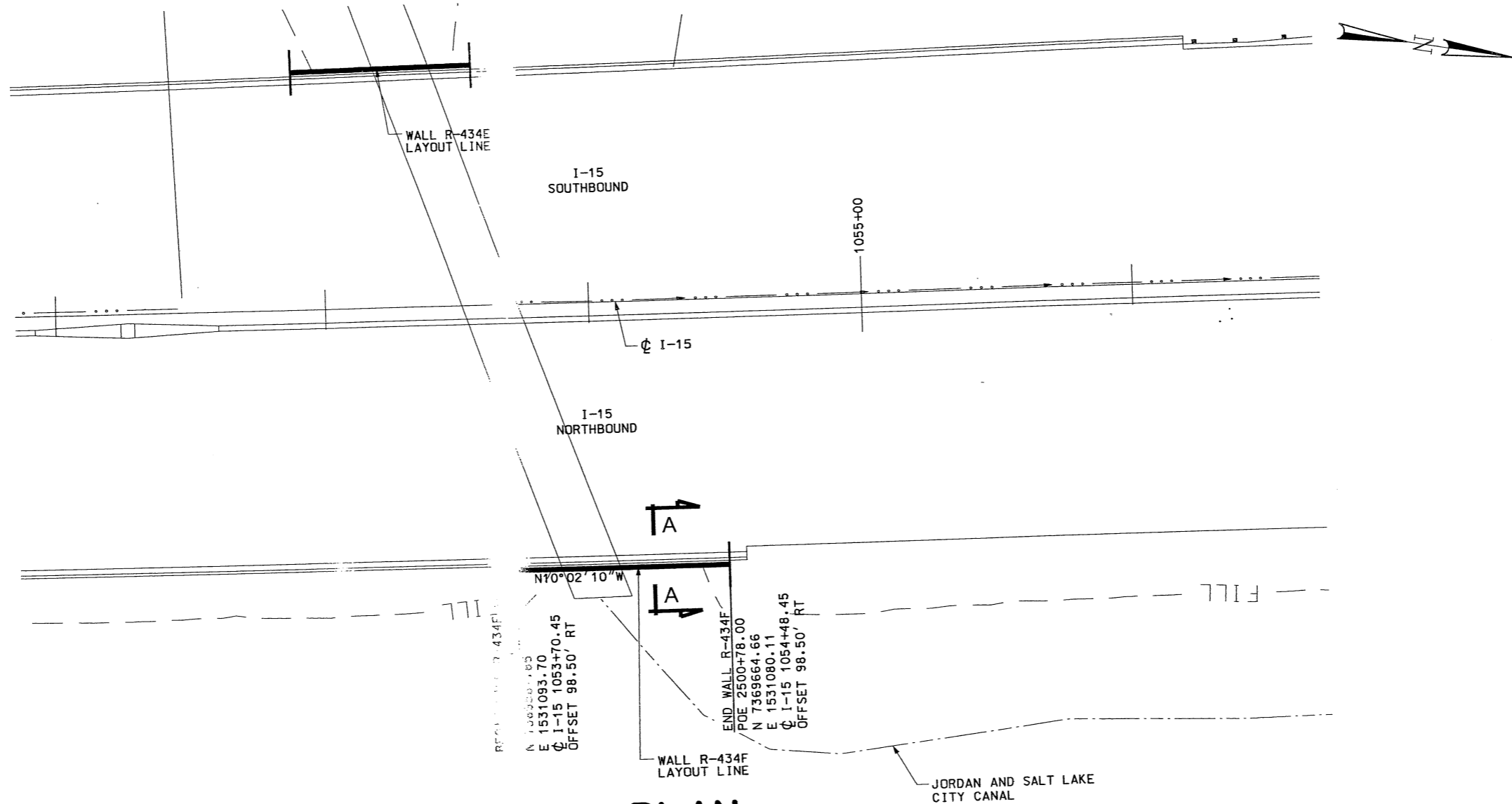
## APPARENT/RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT (* BLOWS/FT)	MODIFIED CAL SAMPLER (* BLOWS/FT)	CALIFORNIA SAMPLER (* BLOWS/FT)	RELATIVE DENSITY (%)	FIELD TEST
VERY LOOSE	< 4	< 4	< 5	0 - 15	EASILY PENETRATED WITH 1/2 IN. REINFORCING ROD PUSHED BY HAND.
LOOSE	4 - 10	4 - 12	5 - 15	15 - 35	DIFFICULT TO PENETRATE WITH 1/2 IN. REINFORCING ROD PUSHED BY HAND.
MEDIUM DENSE	10 - 30	12 - 35	15 - 40	35 - 65	EASILY PENETRATED A FOOT WITH 1/2 IN. REINFORCING ROD DRIVEN WITH 5 LB. HAMMER.
DENSE	30 - 50	36 - 60	40 - 70	65 - 85	DIFFICULT TO PENETRATE A FOOT WITH 1/2 IN. REINFORCING ROD DRIVEN WITH 5 LB. HAMMER.
VERY DENSE	> 50	> 60	> 70	85 - 100	PENETRATED ONLY A FEW INCHES WITH 1/2 IN. REINFORCING ROD DRIVEN WITH 5 LB. HAMMER.

## CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT (* BLOWS/FT)	TORVANE UNDRAINED SHEAR STRENGTH (TSF)	POCKET UNCONFINED COMPRESSIVE STRENGTH (TSF)	FIELD TEST
VERY SOFT	< 2	< 0.125	< 0.25	EASILY PENETRATED SEVERAL CENTIMETERS BY THUMB. EXCLUDES BETWEEN THUMB AND FINGERS WHEN SQUEEZED IN HAND.
SOFT	2 - 4	0.125 - 0.25	0.25 - 0.5	EASILY PENETRATED ONE INCH BY THUMB. MOLDED BY LIGHT FINGER PRESSURE.
MEDIUM STIFF	4 - 8	0.25 - 0.5	0.5 - 1.0	PENETRATED OVER 1/2 IN. BY THUMB WITH MODERATE EFFORT. MOLDED BY STRONG FINGER PRESSURE.
STIFF	8 - 15	0.5 - 1.0	1.0 - 2.0	INDENTED ABOUT 1/2 IN. BY THUMB BUT PENETRATED ONLY WITH GREAT EFFORT.
VERY STIFF	15 - 30	1.0 - 2.0	2.0 - 4.0	READILY INDENTED BY THUMBNAIL.
HARD	> 30	> 2.0	> 4.0	INDENTED WITH DIFFICULTY BY THUMBNAIL.

I-15, UTAH CO LINE TO 10600  
 SUTAH DEPARTMENT OF TRANSPORTATION  
 KLEINFELDER, INC.  
 SALT LAKE CITY, UTAH  
 SOIL DATA SHEET  
 I-15  
 R-434F  
 DRG. NO.  
 SHT. 2 OF 5  
 PROJECT NUMBER SP-15-7(167)288  
 APPROVAL RECORD: DESIGN ENGR. DATE: QUANT. CHIEF STRUCTURAL ENGR. DATE:



WALL R-434F		
STA	TOP OF WALL ELEV	BOTTOM OF EXPOSED WALL ELEV
2500+00.00	4429.03	4429.03
2500+25.00	4428.21	4421.76
2500+50.00	4427.41	4422.01
2500+75.00	4426.62	4425.53
2500+78.00	4426.53	4426.53

**UTAH DEPARTMENT OF TRANSPORTATION**  
SALT LAKE CITY, UTAH  
STRUCTURES DIVISION

**I-15 UTAH CO. LINE TO 10600 SO.**

**WALL R-434F**

**SITUATION AND LAYOUT**

PROJECT NUMBER **SP-15-7(167)288**

DESIGN	BPD_01/04	CHECK	DRS_01/04
DRAWN	NRD_01/04	CHECK	DRS_01/04
QUANT.	NRD_01/04	CHECK	DRS_01/04

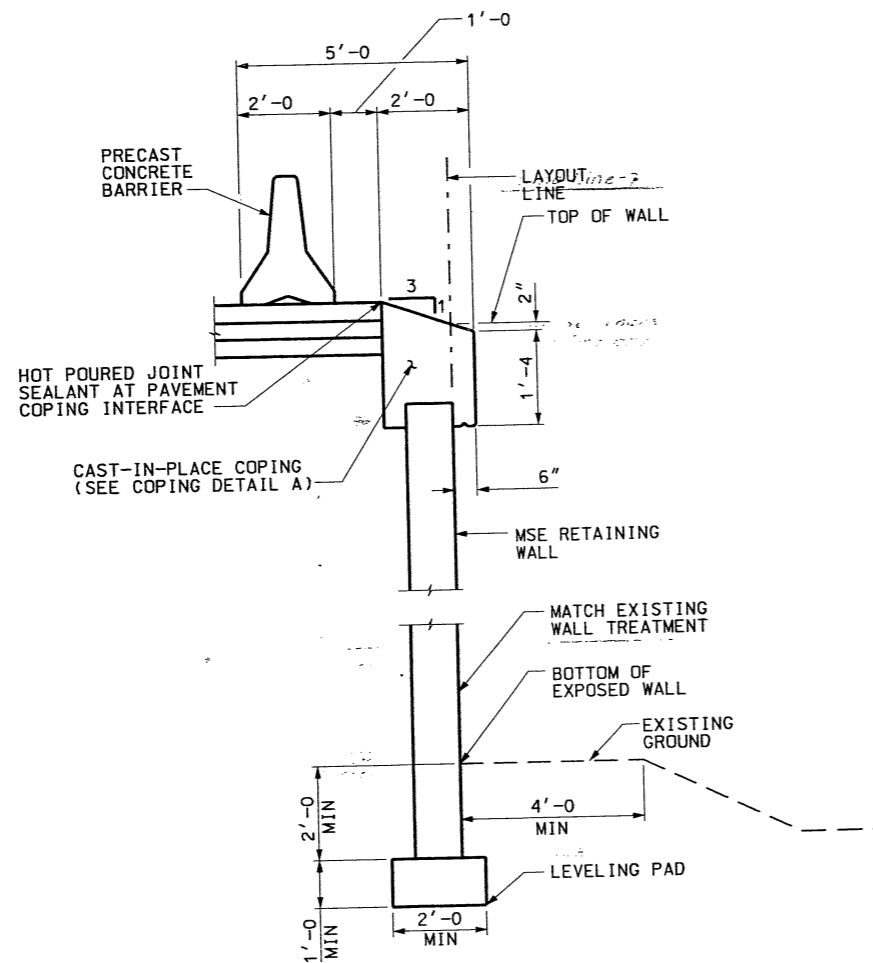
APPROVAL	1/12/04	DATE	1/12/04
RECOMM.		DATE	
FOR USE		DATE	
BY		DATE	

NO.	DATE	BY	REVISIONS	REMARKS

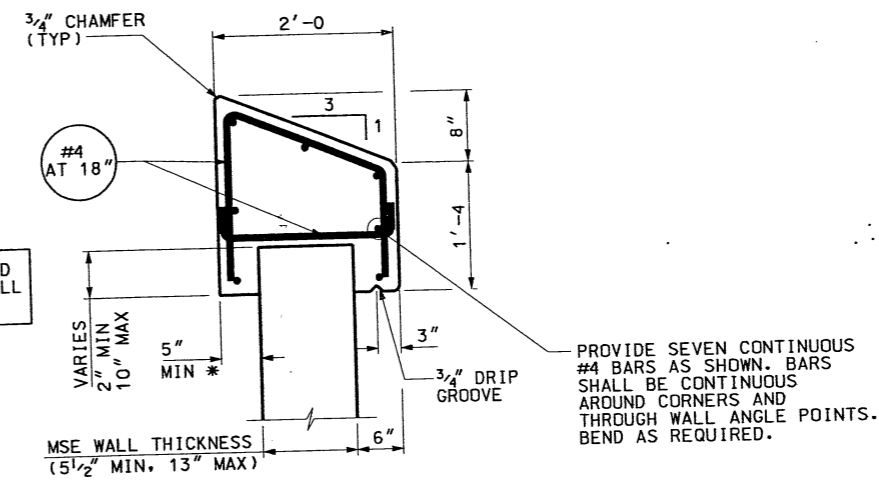
SALT LAKE COUNTY

R-434F DRG. NO.

SHT. 4 OF 5



**SECTION A-A**



**COPING DETAIL "A"**  
(ENGINEER APPROVAL REQUIRED TO MODIFY COPING DIMENSIONS)

**NOTES:**

1. CAST-IN-PLACE COPING CONTROL JOINTS TO BE SPACED AT 10 FT WITH 1/2" EXPANSION JOINTS SPACED AT 30 FT.
2. RETAINING WALL SHALL BE BUILT ENTIRELY INSIDE N/A FENCE.
3. WALLS SHALL BE DESIGNED FOR TRAFFIC SURCHARGE. CONTRACTOR SHALL SUBMIT RETAINING WALL DESIGN TO ENGINEER.
4. WALLS SHALL BE CONSTRUCTED VERTICAL.

22-JAN-2004 D:\DWG\18244\3525\_03\Structures\Wall\3525\_Wall\_R-434F.dwg

I-15 UTAH CO. LINE TO 10600 SO.		UTAH DEPARTMENT OF TRANSPORTATION	
WALL R-434F		SALT LAKE CITY, UTAH	
DETAILS		STRUCTURES DIVISION	
APPROVAL BY: UDOT	DATE: 1/12/04	CHECK DRS	DATE: 01/04
APPROVED BY: UDOT	DATE: 01/04	CHECK DRS	DATE: 01/04
PROJECT NUMBER	SP-15-7(167)288	QUANT.	DRS
SALT LAKE COUNTY		REVISIONS	
R-434F		NO.	
DRG. NO.		DATE	
SHT. 5 OF 5		BY	