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CONTRACT: ID: U-2412A

NOTE: SEE SHEET 2A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *34802.1.1 (U-2412A)* F.A. PROJ. *STP-4121(1)*

COUNTY *GUILFORD*

PROJECT DESCRIPTION *GREENSBORO/HIGH POINT - SR 4121 (GREENSBORO/HIGH POINT RD.) FROM THE PROPOSED US 311 BYPASS TO SR 1480 (VICKERY CHAPEL ROAD)*

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	34802.1.1 (U-2412A)	1	90

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
U-2412A	STP-4121(1)	P.E.
		R/W & UTIL.

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION, AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NCDOT PERSONNEL

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CHECKED BY *N. T. ROBERSON*

SUBMITTED BY *N. T. ROBERSON*

DATE *NOVEMBER, 2008*

NORTH CAROLINA LICENSED GEOLOGIST SEAL 2424 NATHAN DANIEL MOHS 12/25/08

DRAWN BY: *N. D. MOHS, W. D. FIELDS*

PROJECT REFERENCE NO.	SHEET NO.
34802.1.1 (U-2412A)	2

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION

SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)							SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1		A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2 A-3	A-4, A-5 A-6, A-7	
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6			
SYMBOL														
% PASSING #10	50 MX											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	10 MX	35 MX	35 MX	35 MX	35 MX	36 MX	36 MN	36 MN	36 MN			
LIQUID LIMIT	6 MX		NP	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PLASTIC INDEX				10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
GROUP INDEX	0		0	0		4 MX		8 MX	12 MX	16 MX	No MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND	SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD							FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTENCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH ($TONS/FT^2$)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE	<4	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	>30	>4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE	4	10	40	60	200	270
OPENING (MM)	4.76	2.00	0.42	0.25	0.075	0.053

BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F SD.)	SILT (SL.)	CLAY (CL.)

GRAIN SIZE	MM	305	75	2.0	0.25	0.05	0.005
	IN.	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
LL — LIQUID LIMIT		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL — SHRINKAGE LIMIT		
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

GRADATION

WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
HIGHLY	35% AND ABOVE

GROUND WATER

- WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
- STATIC WATER LEVEL AFTER 24 HOURS
- PW — PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
- SPRING OR SEEP

MISCELLANEOUS SYMBOLS

- ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION
- SOIL SYMBOL
- ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT
- INFERRED SOIL BOUNDARY
- INFERRED ROCK LINE
- ALLUVIAL SOIL BOUNDARY
- 25/025 — DIP & DIP DIRECTION OF ROCK STRUCTURES
- SOUNDING ROD
- SPT CPT DPT DMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS

- S - BULK SAMPLE
- SS - SPLIT SPOON SAMPLE
- ST - SHELBY TUBE SAMPLE
- RS - ROCK SAMPLE
- RT - RECOMPACTED TRIAXIAL SAMPLE
- CBR - CALIFORNIA BEARING RATIO SAMPLE

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL. - CLAY
CPT - CONE PENETRATION TEST
CSE. - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS. - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HI. - HIGHLY
MED. - MEDIUM
MICA. - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
#- MOISTURE CONTENT
V - VERY
VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [X] MOBILE B- 57
- [ ] BK-51
- [X] CME-45C
- [ ] CME-550
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [X] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [ ] AUTOMATIC [X] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [ ] HAND AUGER
- [ ] SOUNDING ROD
- [ ] VANE SHEAR TEST
- [ ] _____

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.
ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:

WEATHERED ROCK (WR)	NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
CRYSTALLINE ROCK (CR)	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
NON-CRYSTALLINE ROCK (NCR)	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.
COASTAL PLAIN SEDIMENTARY ROCK (CP)	COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.
VERY SLIGHT (V SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.
SLIGHT (SLI.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS SPT N VALUES < 100 BPF*
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.
SOFT	CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 10 FEET
WIDE	3 TO 10 FEET
MODERATELY CLOSE	1 TO 3 FEET
CLOSE	0.16 TO 1 FEET
VERY CLOSE	LESS THAN 0.16 FEET

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 4 FEET
THICKLY BEDDED	1.5 - 4 FEET
THINLY BEDDED	0.16 - 1.5 FEET
VERY THINLY BEDDED	0.03 - 0.16 FEET
THICKLY LAMINATED	0.008 - 0.03 FEET
THINLY LAMINATED	< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER - A WATER BEARING FORMATION OR STRATA.

ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.

ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.

CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.

DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.

LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.

LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.

MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.

PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.

SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: _____

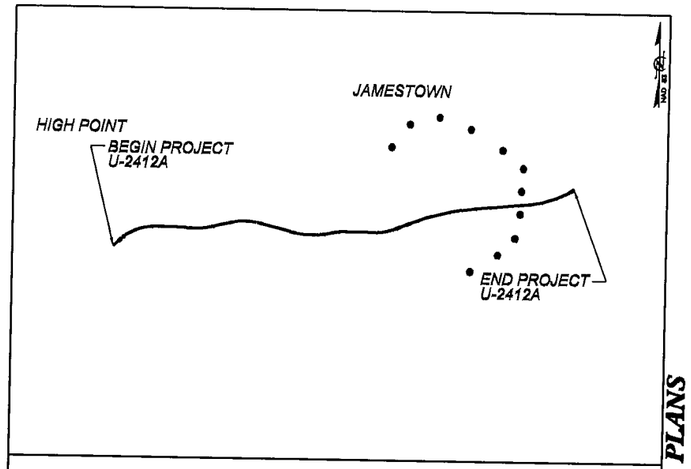
ELEVATION: _____ FT.

NOTES:

REVISED 02/23/06

TIP PROJECT: U-2412A

CONTRACT:



VICINITY MAP

DETOUR FOR OAKDALE ROAD BRIDGE CONSTRUCTION

25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

GUILFORD COUNTY

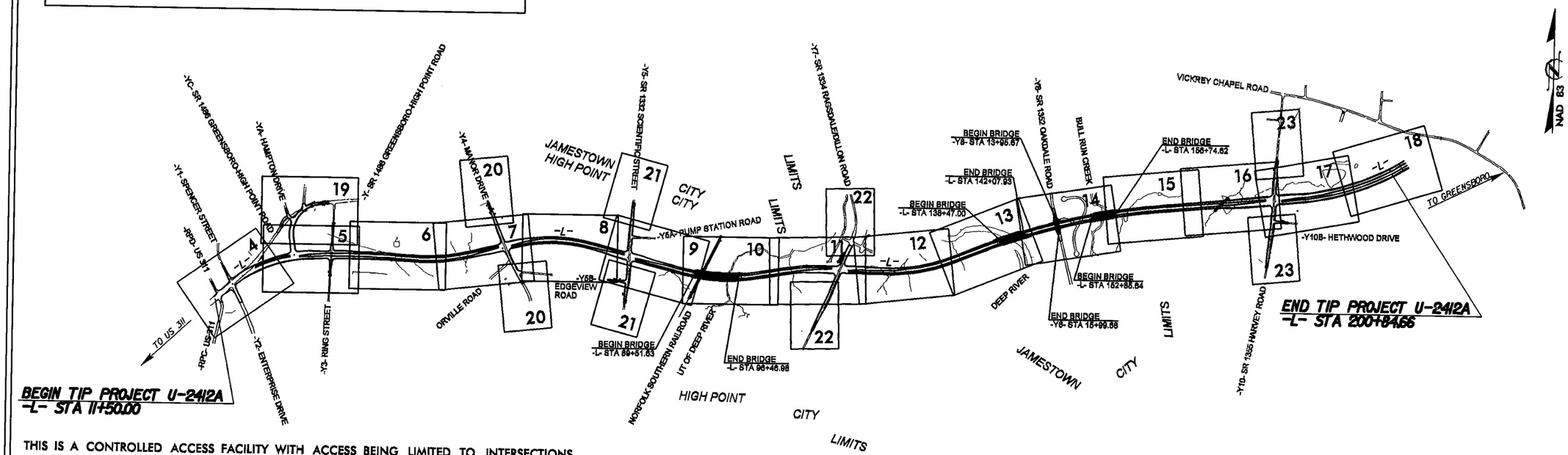
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2412A	2A	90
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34802.1.1	STP-4121(1)	PE	

LOCATION: ***GREENSBORO/HIGH POINT ROAD FROM PROPOSED US 311 BYPASS TO WEST OF SR 1480 (VICKREY CHAPEL ROAD)***

TYPE OF WORK: ***GRADING, DRAINAGE, PAVING, STRUCTURES, AND GUARDRAIL***

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION



BEGIN TIP PROJECT U-2412A
-L- STA 11+50.00

END TIP PROJECT U-2412A
-L- STA 200+84.66

THIS IS A CONTROLLED ACCESS FACILITY WITH ACCESS BEING LIMITED TO INTERSECTIONS.
THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF HIGH POINT AND JAMESTOWN.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III
NCDOT CONTACT: B. DOUG TAYLOR, P.E. ENGINEERING COORDINATION, ROADWAY DESIGN UNIT

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2011	=	31,530
ADT 2031	=	48,870
DHV	=	11%
D	=	55%
T	=	3% *
V	=	60 MPH

* (TTST 1% + DUAL 2%)

FUNC CLASS: ARTERIAL

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT	U-2412A	= 3.312	MILES
LENGTH STRUCTURES TIP PROJECT	U-2412A	= .274	MILES
TOTAL LENGTH OF TIP PROJECT	U-2412A	= 3.586	MILES

Prepared In the Office of:
GIBSON ENGINEERS, PC
PO BOX 700
FUQUAY VARINA, N.C. 27526
PHONE 919-552-2253
FAX 919-552-2284
GIBSON ENGINEERS, PC
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEBRUARY 20, 2009

LETTING DATE:
OCTOBER 18, 2011

GLENDA M. GIBSON, PE
PROJECT ENGINEER

MICHAEL PEKAREK, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

P.E.
SIGNATURE:

ROADWAY DESIGN ENGINEER

P.E.
SIGNATURE:

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

$$DATE$$
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nmohs AT GEJ226154

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

Michael F. Easley
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

Lyndo Tippett
SECRETARY

November 20, 2008

STATE PROJECT: 34802.1.1 (U-2412A)
FEDERAL PROJECT: STP-4121(1)
COUNTY: Guilford

DESCRIPTION: SR 4121 (Greensboro-High Point Road) from proposed US 311 Bypass to West of SR 1480 (Vickery Chapel Road)

SUBJECT: Geotechnical Report – Inventory

Project Description

This project consists of a new four lane roadway (-L-, SR 4121, Greensboro-High Point Road) beginning to the east of High Point, and passing south of Jamestown. The project begins near the intersection of US 311 and Greensboro-High Point Rd. (SR 4121) south of High Point and extends 3.6 miles eastward toward Jamestown where it meets U-2412B toward Greensboro. The proposed realignment will begin at the intersection of Greensboro-High Point Rd (-L-), and Enterprise Dr. (-Y2-). An intersections is proposed with existing Greensboro-High Point Rd. (-Y-) at -L- 25+69. Additional intersections are planned at Enterprise DR. (-Y1-), Manor Dr. (-Y4-), Scientific St. (SR 1332, -Y5-), Dillon Rd. (SR 1334, -Y7-), and Harvey Rd. (-Y10-). Four Bridges are proposed on the alignment. These bridges will be at: -L- 89+52, over the Norfolk-Southern Railroad and an unnamed tributary to Deep River, -L- 138+47, over Deep River, -L- 152+85, over Bull Run Creek, and -Y8- 13+96, over -L-. One retaining wall is planned on -Y7- (Dillon Rd.) at 18+50.

The geotechnical field investigation was conducted during September 2008. Two Trigon/Kleinfelder drill crews were contracted to assist in investigating the subsurface. NCDOT Geotechnical Engineering Unit geologists sampled and logged the borings. ATV-mounted CME-45, and B-57 drill machines were used during field investigation. Standard Penetration Tests were performed in selected borings and additional borings were advanced using continuous flight augers. Representative soil samples were collected for visual classification in the field and submitted for laboratory analysis by NCDOT's Materials and Tests Unit.

The following alignments, totaling 5.0 miles, were investigated. Subsurface soil profiles, or cross-sections, of these alignments are included in this report:

Line	Station		
-L-	11+50	to	201+65
-Y-	10+00	to	22+00
-Y3-	10+50	to	19+00
-Y5-	10+25	to	26+00
-Y7-	17+00	to	31+75

-Y8-	12+25	to	17+50
-Y10-	14+65	to	32+00
-Y10B-	10+00	to	12+50

Areas of Special Geotechnical Interest

1) Highly Plastic Clay Soils: Occurrences of highly plastic clay soil (Plasticity Index greater than 25) are noted below:

Alignment	Station	Offset
-L-	18+75	65 RT
-L-	29+00	CL
-L-	33+50	CL
-L-	36+50	CL
-L-	54+00	CL
-L-	58+50	CL
-L-	61+50	CL
-L-	64+00	CL
-L-	67+00	CL
-L-	73+00	CL
-L-	75+50	CL
-L-	78+00	80 RT
-L-	87+00	CL
-L-	90+00	20 RT
-L-	102+50	80 RT
-L-	104+00	CL
-L-	106+50	CL
-L-	111+50	CL
-L-	152+80	55 RT
-L-	166+00	CL
-L-	167+50	CL
-L-	179+00	100 RT
-L-	183+00	CL
-L-	186+00	CL
-L-	194+50	CL
-L-	197+00	CL
-Y-	12+00	CL
-Y-	15+00	55 LT
-Y3-	17+50	25 LT
-Y5-	15+00	40 RT
-Y5-	22+00	35 RT
-Y7-	20+00	42 RT

2) Crystalline Rock: Crystalline rock was encountered in the following continuous intervals:

Alignment	Station		
-L-	126+00	to	130+50
-L-	143+50	to	149+00
-L-	161+00	to	166+00

-L-	176+50	to	177+50

Additionally, crystalline rock was encountered in the following borings:

Alignment	Station	Offset
-L-	37+90	50 LT
-L-	40+30	35 RT
-L-	84+00	CL
-L-	90+00	CL
-L-	106+50	CL
-L-	109+00	80 RT
-L-	111+50	CL
-L-	116+50	40 LT
-L-	122+00	CL
-L-	138+00	20 LT
-L-	142+50	20 RT
-L-	152+80	55 RT
-L-	156+90	55 LT
-L-	160+00	CL
-L-	173+50	25 LT
-L-	199+00	CL

3) Artificial Fill: Artificial fill soil occurs in a landfill at the following location:

Alignment	Station		
-L-	81+25	to	85+00

Additionally, Artificial Fill was encountered in the following borings:

Alignment	Station	Offset
-L-	130+00	CL
-L-	130+50	50 RT
-L-	131+30	CL
-L-	142+50	20 RT

4) Shallow Groundwater: Shallow groundwater, which may cause problems during construction, was encountered in the following area:

Alignment	Station		
-L-	165+50	to	167+50

Physiography and Geology

The project is located in the central Piedmont area of North Carolina. A mixture of woods, pastures, ponds, and agricultural fields are located along the project corridor. Single-family homes and businesses are located adjacent to the corridor. The terrain is moderately rolling with several steep slopes adjacent to several large creeks and Deep River that flow from left to right across the -L- alignment.

The entire project is underlain by metamorphosed granite of the Carolina Slate Belt. This granite is resistant to weathering and is often present very near the ground surface. Much of the rolling terrain along the project is due to north-south trending ridges of crystalline rock.

Soil Properties

Soils encountered at the project site include artificial fill, alluvial, roadway embankment, and residual soils.

Alluvial soil was encountered in one boring adjacent to a ditch line along -Y10-. This soil is present beneath proposed roadway embankment, and consists of gray, moist to wet, soft, silty clay (A-7-6).

Roadway embankment soil is present beneath the existing -L- and-Y- alignments. The embankment soil is generally less than three feet in thickness.

Artificial fill soil occurs within a landfill along the -L- alignment. The fill soil was sampled in 3 locations, and consists of 2 to 26 feet of brown, moist, stiff, sandy clay, silty clay and sandy silt (A-6, A-7-6, A-4). The landfill contains some construction debris, such as wood, cobble to boulder size concrete, and metal scraps. Other wood debris from tree stumps was also encountered. Other occurrences of artificial fill, (-L-, 130+00 to 131+50) are in areas of backfill over newly constructed sewer lines. These soils consist of brown, moist, stiff, sandy silt and sandy clay (A-4, A-6)

Residual soils are derived from the in-place weathering of the underlying granitic bedrock and are generally sandy and silty clays with good engineering properties. Silty clay (A-7-6) is the most common soil in the project area. Sandy soils are generally moist, loose to medium dense, silty sand (A-2-4) and coarse sand (A-1-b). Brown and tan, stiff to very stiff, sandy silt (A-4) is also present. Residual, highly plastic "cap" clays occur at the ground surface over several areas of the project. Areas containing highly plastic soils (plasticity indices of greater than 25) are listed above in the section "Areas of Special Geotechnical Interest".

Rock Properties

Weathered rock and crystalline rock occur throughout the project. The weathered rock is derived from the underlying granite bedrock and ranges from inches to 10 feet or more in thickness. Crystalline rock occasionally occurs within five feet or more of the ground surface.

Groundwater

Groundwater was encountered in few borings completed on this project. Groundwater, when encountered, was variable across the project, ranging from 1.1 feet to 28.0 feet below the ground surface. Most groundwater occurrs in low areas which will be covered by roadway embankment during construction. The shallow groundwater located in a cut section at -L- 165+50 to 167+50 may cause problems during construction.

Prepared by,

Nathan Mohs, LG
Engineering Geologist

PROJECT REFERENCE NO.	SHEET NO.
34802.1.1 (U-2412A)	3B

EARTHWORK BALANCE SHEET

PROJECT REFERENCE	SHEET NO.
U-2412A	4

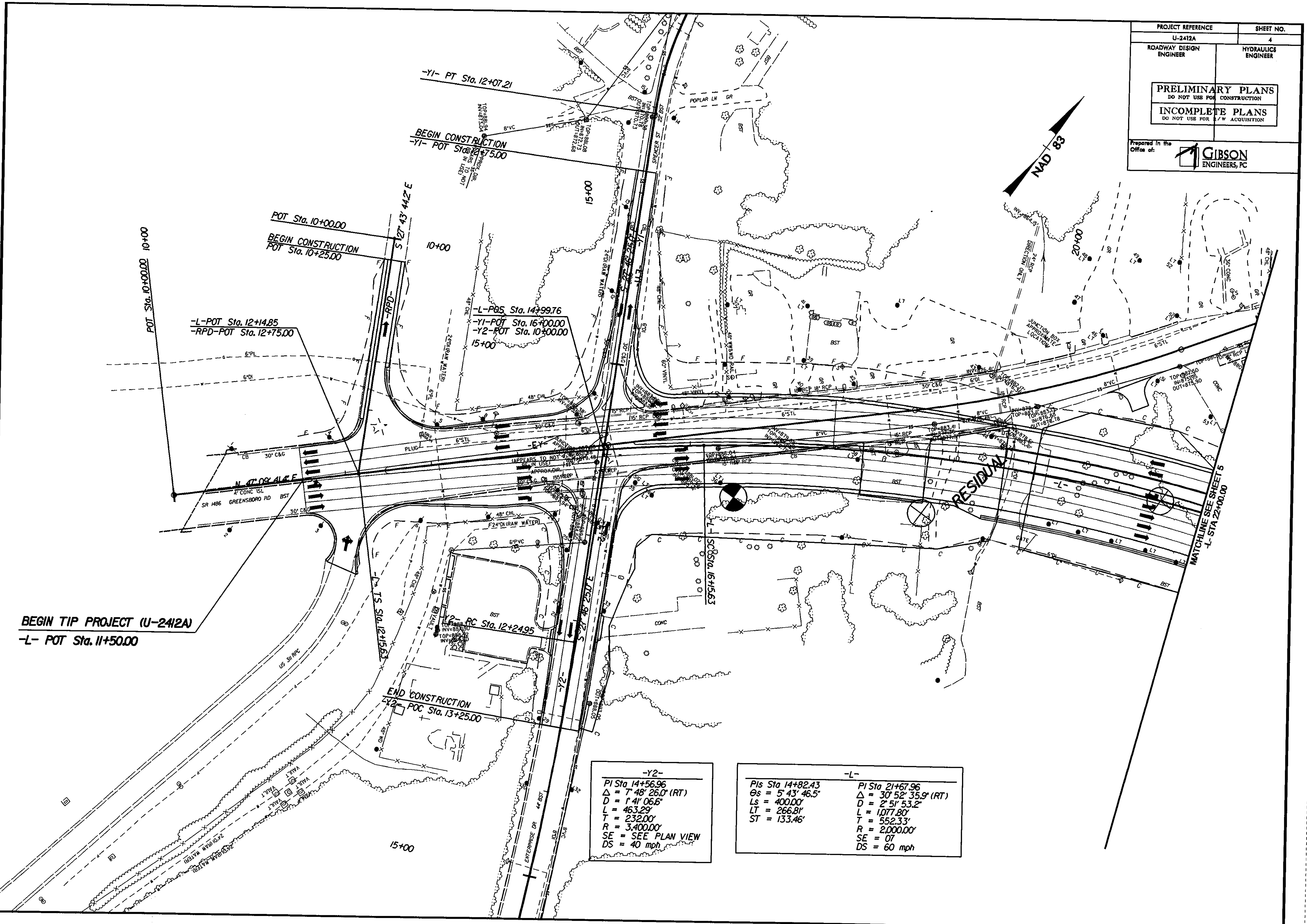
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC



-Y2-
PI Sta 14+56.96
Δ = 7° 48' 26.0" (RT)
D = 1° 41' 06.6"
L = 463.29'
T = 232.00'
R = 3,400.00'
SE = SEE PLAN VIEW
DS = 40 mph

-L-	
PIs Sta 14+82.43	PI Sta 21+67.96
θs = 5° 43' 46.5"	Δ = 30° 52' 35.9" (RT)
Ls = 400.00'	D = 2° 51' 53.2"
LT = 266.81'	L = 1,077.80'
ST = 133.46'	T = 552.33'
	R = 2,000.00'
	SE = 07
	DS = 60 mph

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PROJECT REFERENCE	SHEET NO.
U-2412A	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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MATCHLINE SEE SHEET 19
-Y- STA 12+50.00

MATCHLINE SEE SHEET 19
-Y3- STA 13+00.00

MATCHLINE SEE SHEET 4
-L- STA 22+00.00

MATCHLINE SEE SHEET 6
-L- STA 35+00.00

NAD 83

-L-POT Sta. 31+59.18
-Y3-POT Sta. 15+50.00

GRADE POINT SHIFT
STA. 34+36.27

-L-POC Sta. 25+69.00
-Y-POT Sta. 10+00.00

-L- CS Sta. 26+93.42

-L- ST Sta. 30+93.42

-L- PT Sta. 32+93.42

-Y3- POT Sta. 19+00.00
END CONSTRUCTION

RESIDUAL

RESIDUAL

N 57° 10' W

N 89° 29' E

-L-		
PI Sta 21+67.96	PIs Sta 28+26.88	PI Sta 37+10.69
Δ = 30° 52' 35.9" (RT)	θs = 5° 43' 46.5"	Δ = 3° 58' 58.7" (RT)
D = 2° 51' 53.2"	Ls = 400.00'	D = 0° 28' 38.9"
L = 1,077.80'	LT = 266.81'	L = 834.19'
T = 552.33'	ST = 133.46'	T = 417.26'
R = 2,000.00'		R = 12,000.00'
SE = 0%		SE = NC
DS = 60 mph		DS = 60 mph

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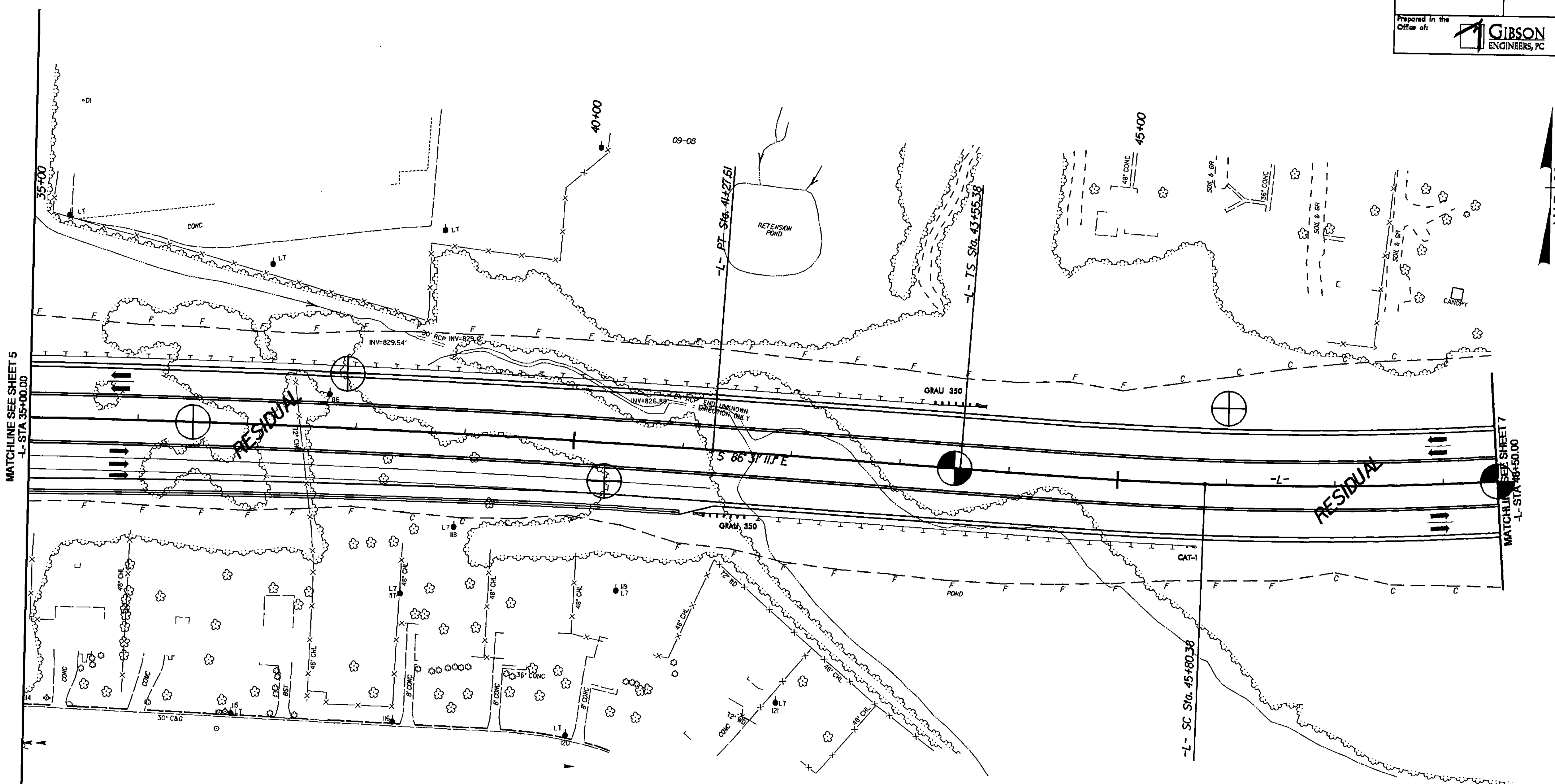
PROJECT REFERENCE	SHEET NO.
U-2412A	6
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC



-L-

PI Sta 37+10.69	PIs Sta 45+05.39	PI Sta 49+09.57
Δ = 3° 58' 58.7" (RT)	Θs = 2° 13' 21.7"	Δ = 12° 57' 07.6" (LT)
D = 0° 28' 38.9"	Ls = 225.00'	D = 1° 58' 32.6"
L = 834.19'	LT = 150.01'	L = 655.56'
T = 417.26'	ST = 75.01'	T = 329.19'
R = 12,000.00'		R = 2,900.00'
SE = NC		SE = .055
DS = 60 mph		DS = 60 mph

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wfields AT GEI248339

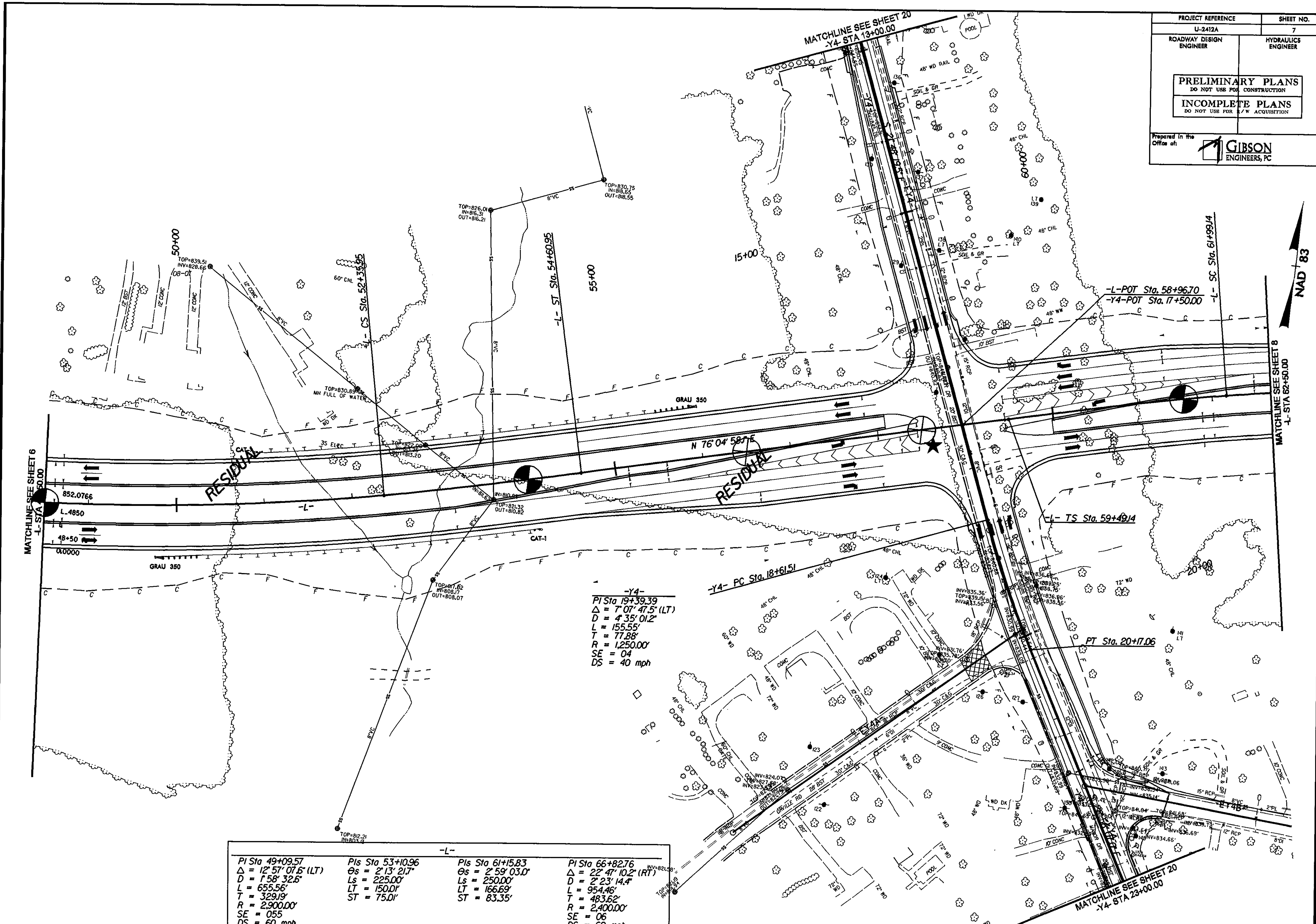
PROJECT REFERENCE	SHEET NO.
U-2412A	7

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC



-Y4-
PI Sta 19+39.39
Δ = 7° 07' 47.5" (LT)
D = 4° 35' 01.2"
L = 155.55'
T = 77.88'
R = 1,250.00'
SE = .04
DS = 40 mph

-L-

PI Sta 49+09.57	PIs Sta 53+10.96	PIs Sta 61+15.83	PI Sta 66+82.76
Δ = 12° 57' 07.6" (LT)	θs = 2° 13' 21.7"	θs = 2° 59' 03.0"	Δ = 22° 47' 10.2" (RT)
D = 1° 58' 32.6"	Ls = 225.00'	Ls = 250.00'	D = 2° 23' 14.4"
L = 655.56'	LT = 150.01'	LT = 166.69'	L = 954.46'
T = 329.19'	ST = 75.01'	ST = 83.35'	T = 483.62'
R = 2,900.00'			R = 2,400.00'
SE = .055			SE = .06
DS = 60 mph			DS = 60 mph

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wdfields AT GEI248339

PROJECT REFERENCE	SHEET NO.
U-2412A	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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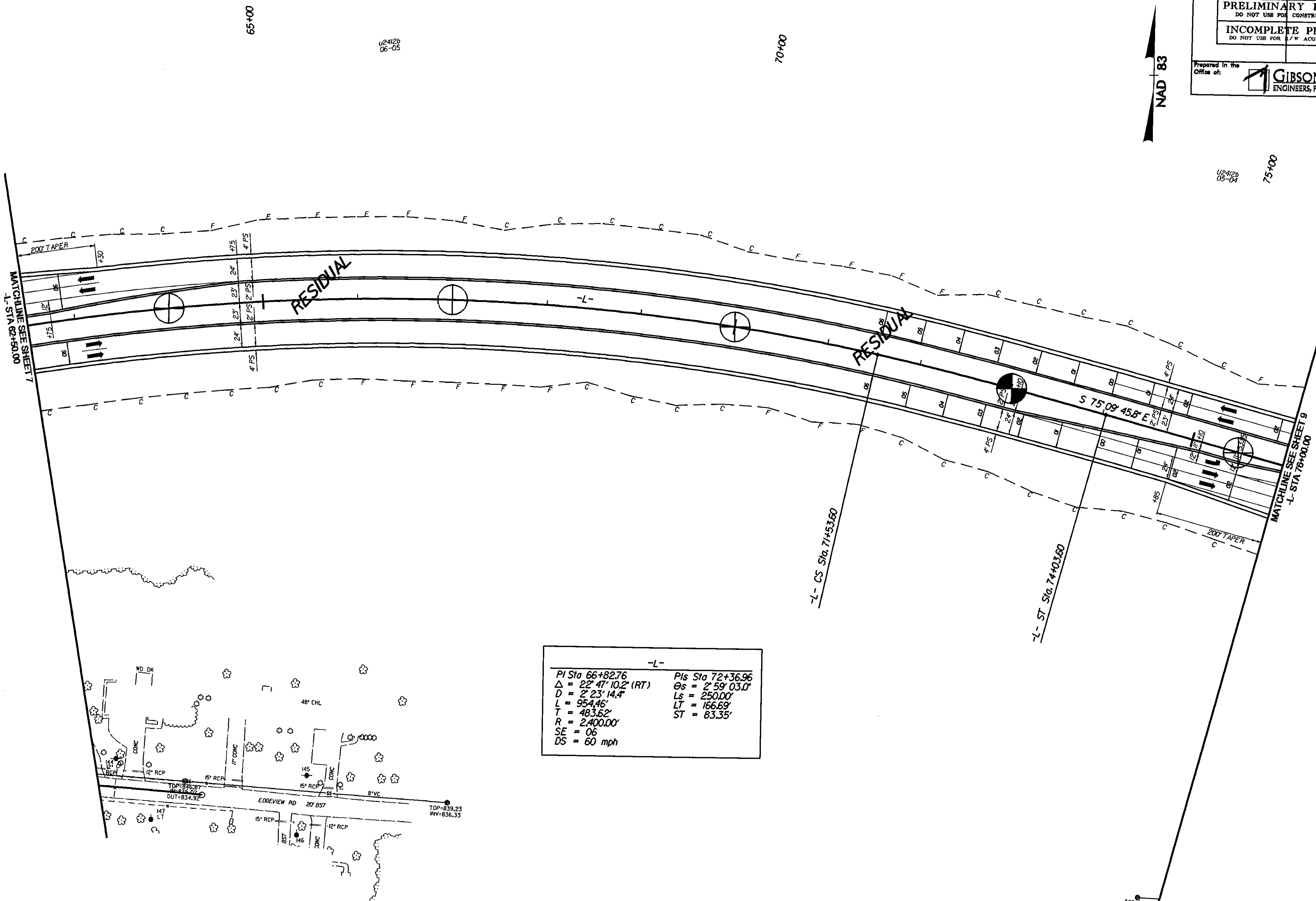

-L-	
PI Sta 66+82.76	PIs Sta 72+36.96
Δ = 22° 47' 10.2" (RT)	θs = 2° 59' 03.0"
D = 2° 23' 14.4"	Ls = 250.00'
L = 954.46'	LT = 166.69'
T = 483.62'	ST = 83.35'
R = 2,400.00'	
SE = 06	
DS = 60 mph	

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wdfields AT GEJ248339

PROJECT REFERENCE	SHEET NO.
U-2412A	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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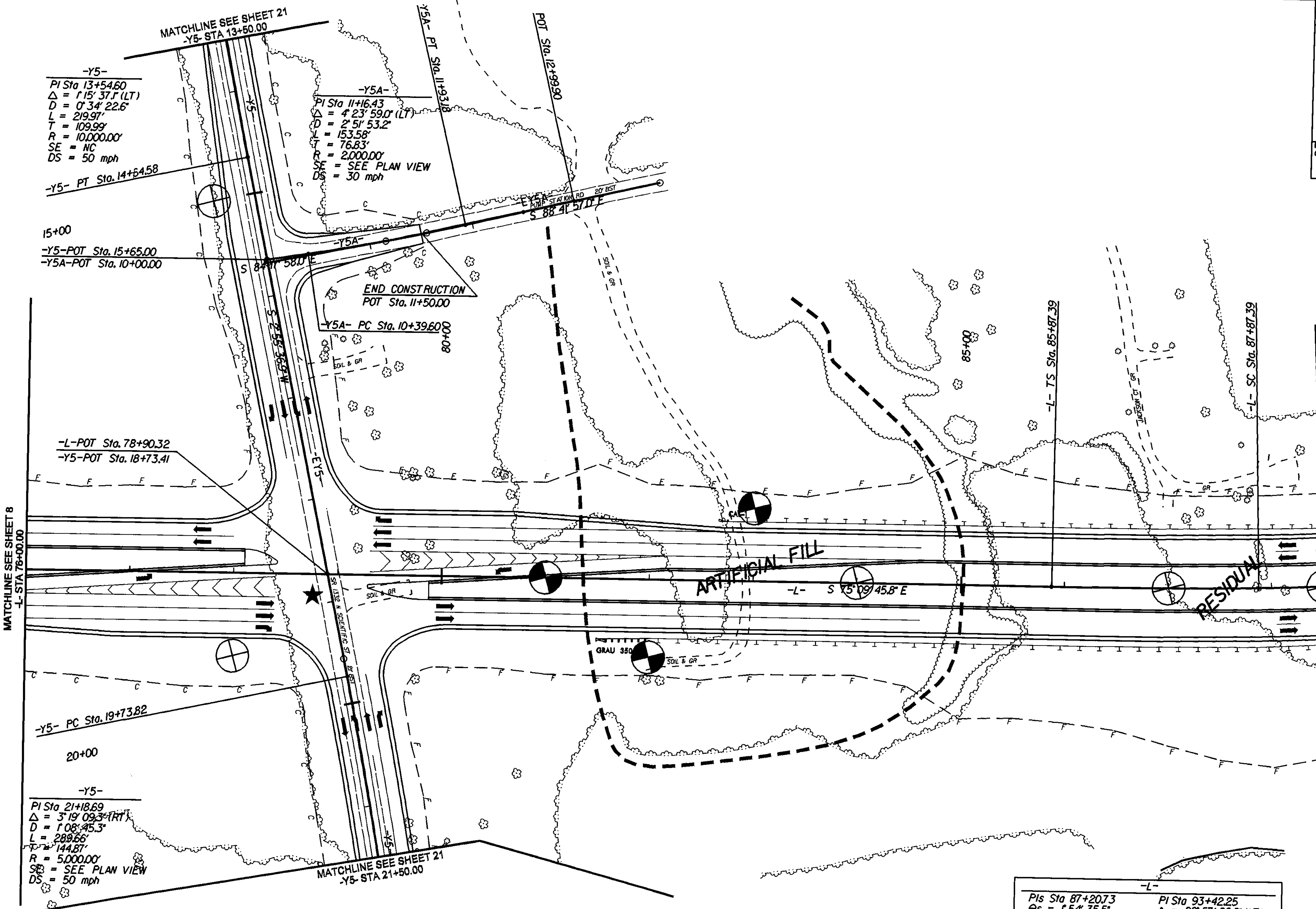

-Y5-

PI Sta 13+54.60	PI Sta 21+18.69
Δ = 1°15' 37.5" (LT)	Δ = 3°19' 09.3" (RT)
D = 0°34' 22.6"	D = 1°08' 45.3"
L = 219.97'	L = 289.66'
T = 109.99'	T = 144.87'
R = 10,000.00'	R = 5,000.00'
SE = NC	SE = SEE PLAN VIEW
DS = 50 mph	DS = 50 mph

-Y5A-

PI Sta 11+16.43
Δ = 4°23' 59.0" (LT)
D = 2°51' 53.2"
L = 153.58'
T = 76.83'
R = 2,000.00'
SE = SEE PLAN VIEW
DS = 30 mph

-L-

PIs Sta 87+20.73	PI Sta 93+42.25
Θs = 1°54' 35.5"	Δ = 20°57' 26.2" (LT)
Ls = 200.00'	D = 1°54' 35.5"
LT = 133.34'	L = 1,097.32'
ST = 66.67'	T = 554.86'
	R = 3,000.00'
	SE = 05
	DS = 60 mph

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mmohs AT RE-J226154

PROJECT REFERENCE	SHEET NO.
U-2412A	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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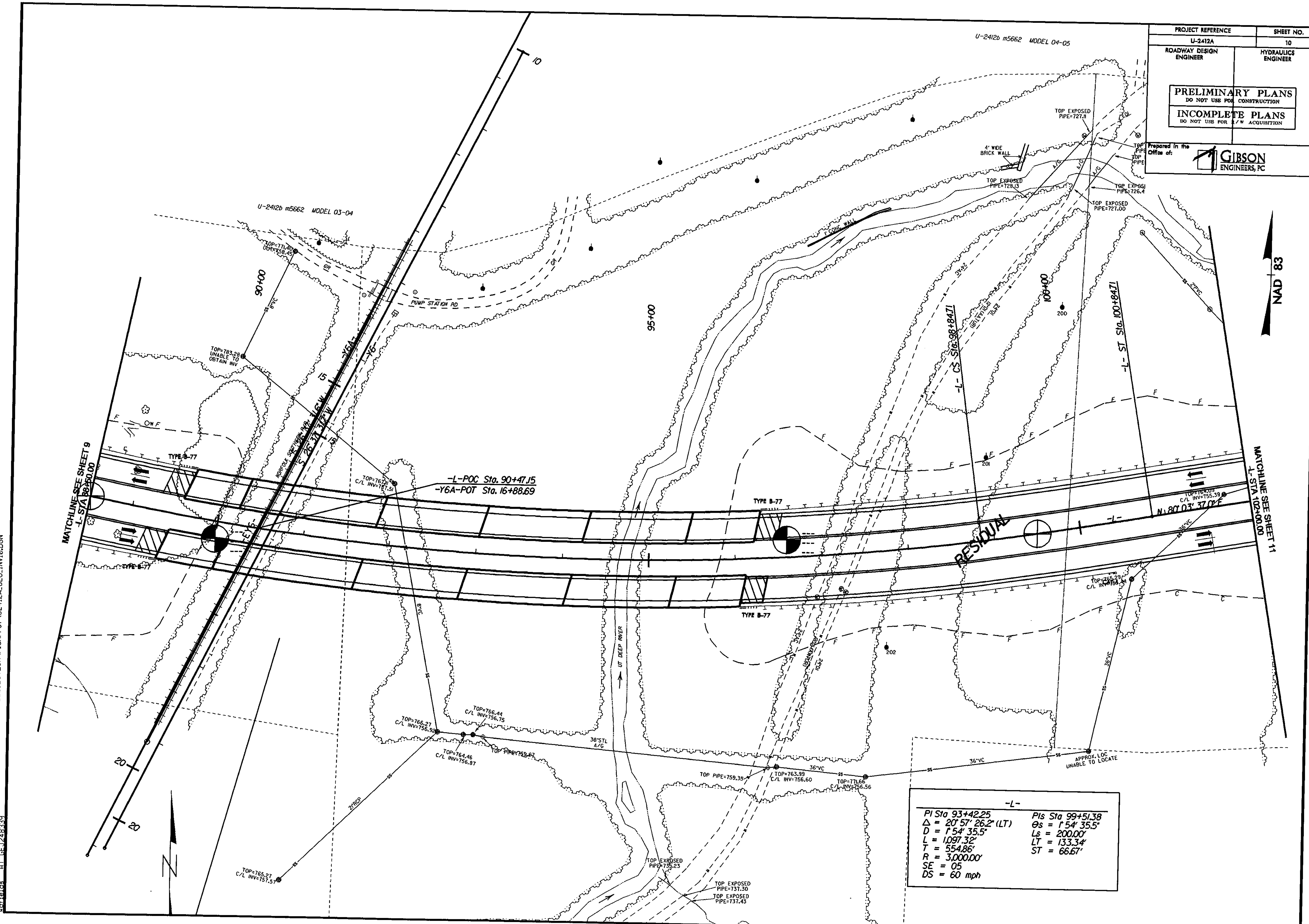

-L-	
PI Sta 93+42.25	PIs Sta 99+51.38
Δ = 20° 57' 26.2" (LT)	Θs = 1° 54' 35.5"
D = 1° 54' 35.5"	Ls = 200.00'
L = 1,097.32'	LT = 133.34'
T = 554.86'	ST = 66.67'
R = 3,000.00'	
SE = .05	
DS = 60 mph	

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PROJECT REFERENCE	SHEET NO.
U-2412A	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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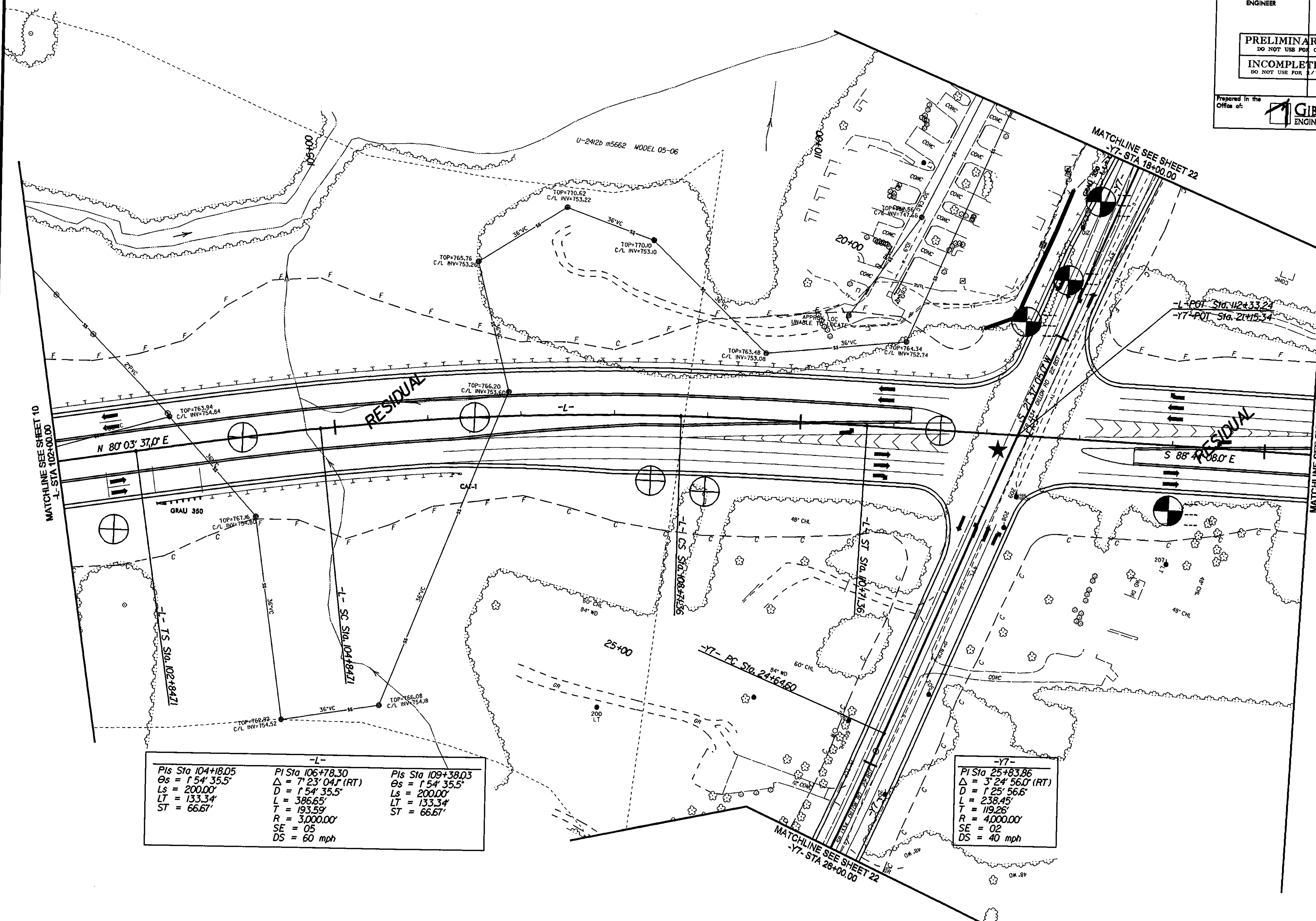

-L-		
PIs Sta 104+18.05	PI Sta 106+78.30	PIs Sta 109+38.03
θs = 1° 54' 35.5"	Δ = 7° 23' 04.1" (RT)	θs = 1° 54' 35.5"
Ls = 200.00'	D = 1° 54' 35.5"	Ls = 200.00'
LT = 133.34'	L = 386.65'	LT = 133.34'
ST = 66.67'	T = 193.59'	ST = 66.67'
	R = 3,000.00'	
	SE = 05	
	DS = 60 mph	

-Y7-
PI Sta 25+83.86
Δ = 3° 24' 56.0" (RT)
D = 1° 25' 56.6"
L = 238.45'
T = 119.26'
R = 4,000.00'
SE = 02
DS = 40 mph

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kfields AT GEI248339

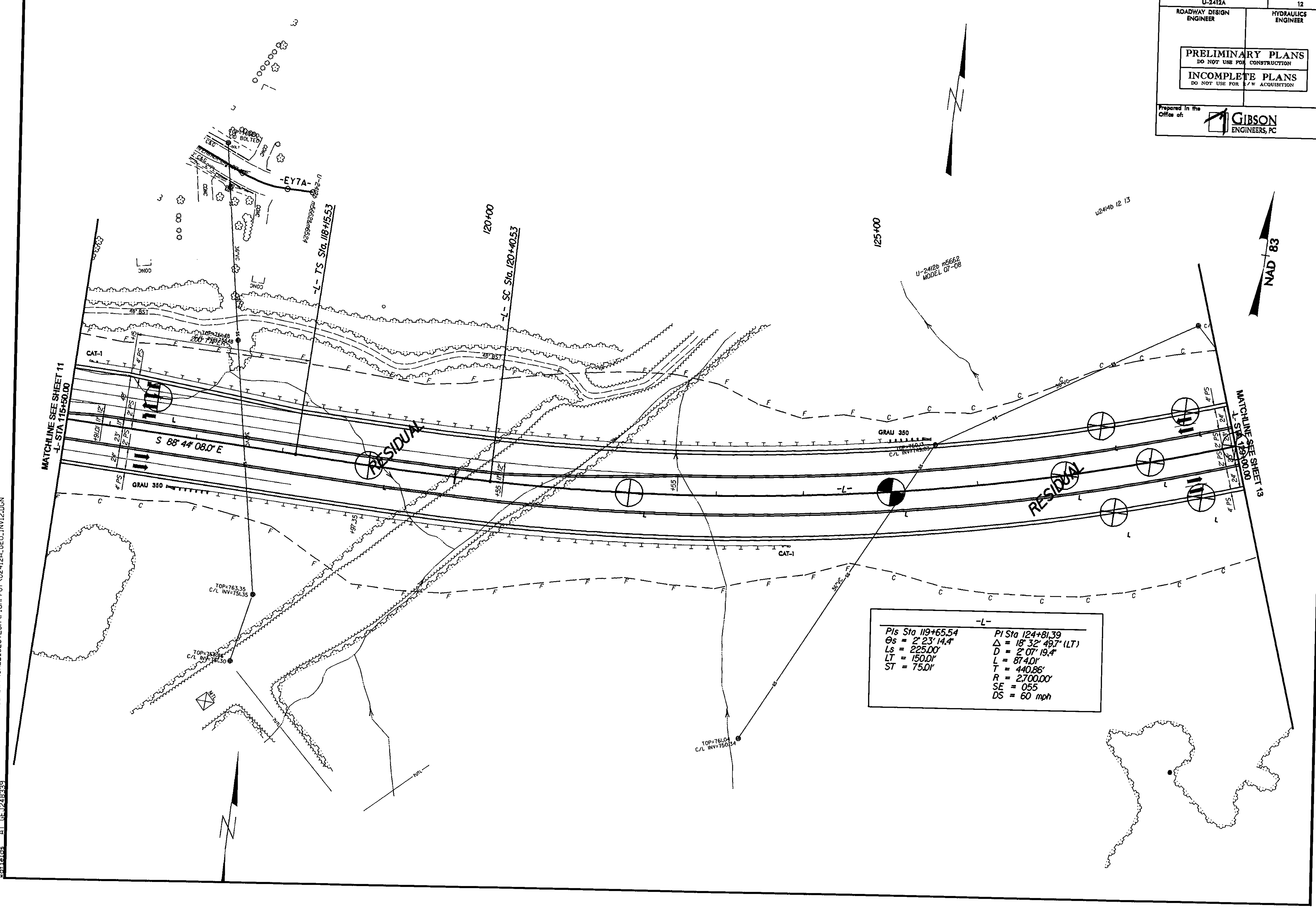
PROJECT REFERENCE	SHEET NO.
U-2412A	12

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC



-L-	
PIs Sta 119+65.54	PI Sta 124+81.39
Θs = 2° 23' 14.4"	Δ = 18° 32' 49.7" (LT)
Ls = 225.00'	D = 2° 07' 19.4"
LT = 150.01'	L = 874.01'
ST = 75.01'	T = 440.86'
	R = 2,700.00'
	SE = 055
	DS = 60 mph

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wdfields AT GEJ248339

PROJECT REFERENCE	SHEET NO.
U-2412A	13
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

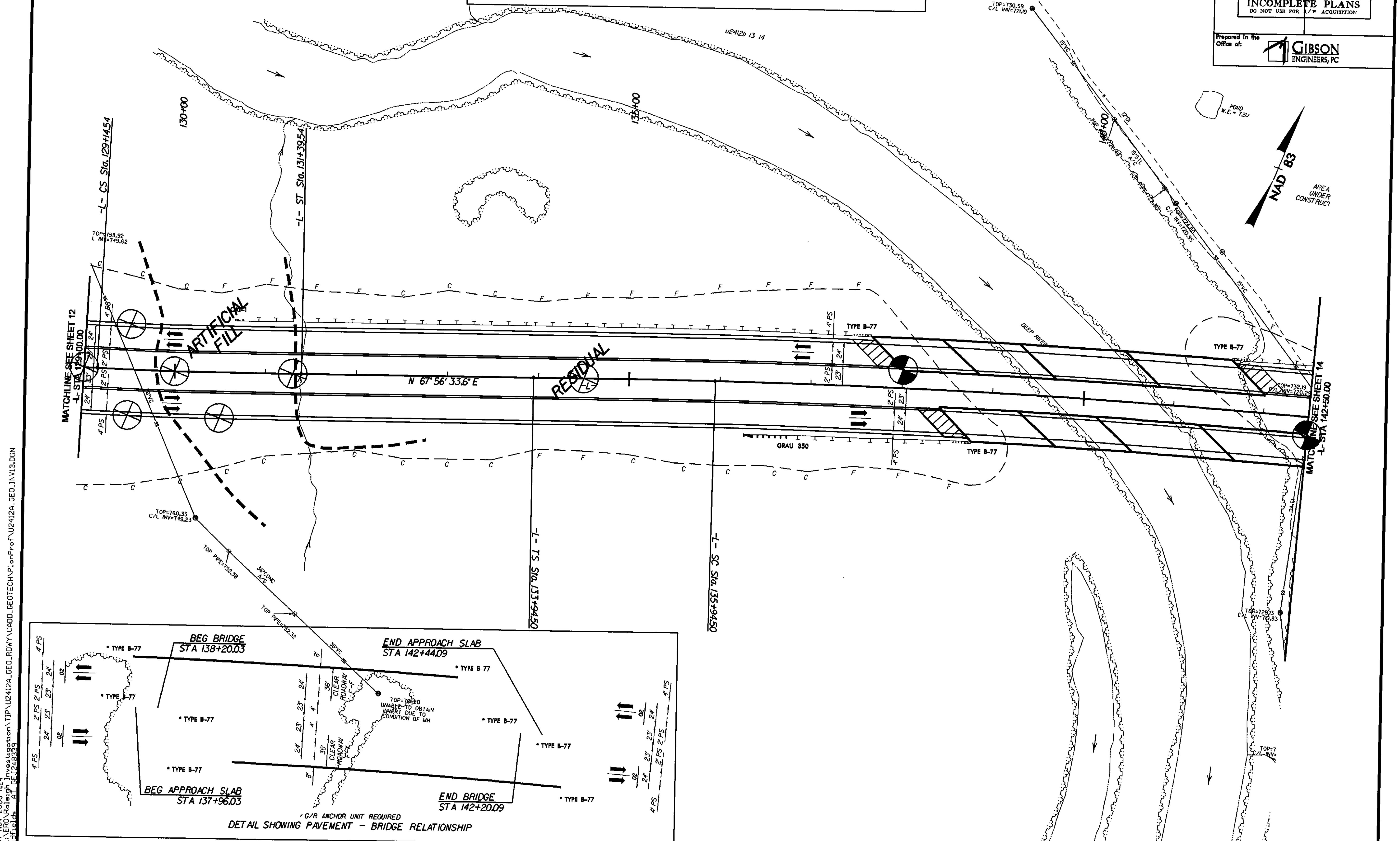
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC

-L-

PI Sta 124+81.39	PIs Sta 129+89.55	PIs Sta 135+27.83	PI Sta 149+31.07
Δ = 18° 32' 49.7" (LT)	θs = 2° 23' 14.4"	θs = 0° 35' 04.7"	Δ = 15° 31' 57.9" (RT)
D = 2° 07' 19.4"	Ls = 225.00'	Ls = 200.00'	D = 0° 35' 04.7"
L = 874.01'	LT = 150.01'	LT = 133.33'	L = 2,656.76'
T = 440.86'	ST = 75.01'	ST = 66.67'	T = 1,336.57'
R = 2,700.00'			R = 9,800.00'
SE = .055			SE = .02
DS = 60 mph			DS = 60 mph



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PROJECT REFERENCE	SHEET NO.
U-2412A	14
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC

NAD 83

-Y8- PC Sta. 11+05.76

-Y8-
PI Sta 11+83.37
Δ = 6° 20' 46.0" (LT)
D = 4° 05' 33.2"
L = 155.06'
T = 77.61'
R = 1,400.00'
SE = SEE PLAN VIEW
DS = 40 mph

BEGIN CONSTRUCTION
-Y8- POC Sta. 12+25.00

-Y8- PT Sta. 12+60.82

-L- PI Sta 149+31.07
Δ = 15° 31' 57.9" (RT)
D = 0° 35' 04.7"
L = 2,656.76'
T = 1,336.57'
R = 9,800.00'
SE = 02
DS = 60 mph

-L-POC Sta. 147+48.15
-Y8-POT Sta. 14+97.65

END CONSTRUCTION
-Y8- POT Sta. 17+50.00

-L- POT Sta. 147+48.15
-Y8- POT Sta. 14+97.65

DETAIL SHOWING PAVEMENT - BRIDGE RELATIONSHIP
* G/R ANCHOR UNIT REQUIRED

BEG BRIDGE
STA 13+95.67

END BRIDGE
STA 15+99.68

BEG APPROACH SLAB
STA 13+71.67

END APPROACH SLAB
STA 16+23.68

MATCHLINE SEE SHEET 13
-L- STA 142+50.00

MATCHLINE SEE SHEET 15
-L- STA 156+00.00

RESIDUAL

AREA UNDER CONSTRUCTION

BULL RUN CREEK

GRAU 350

TYPE B-77

10+00 | 145+00 | 150+00 | 155+00 | 20+00

$$DATE$$
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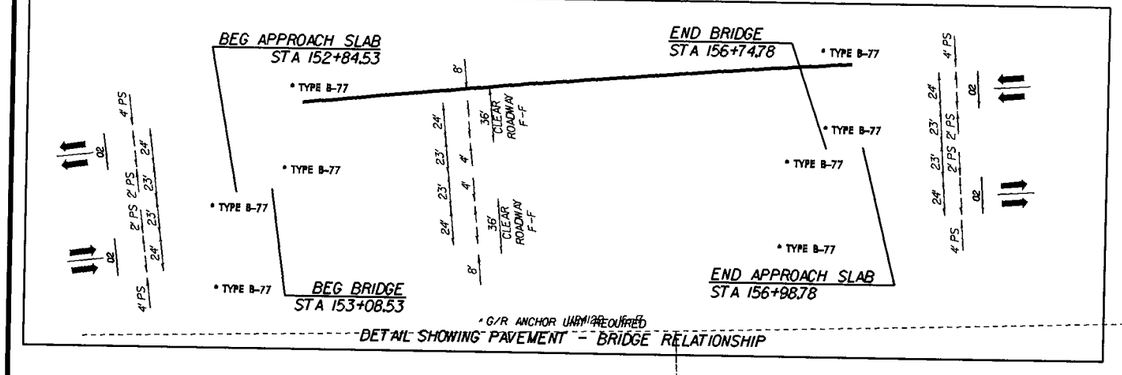
wdfields AT GEU248339

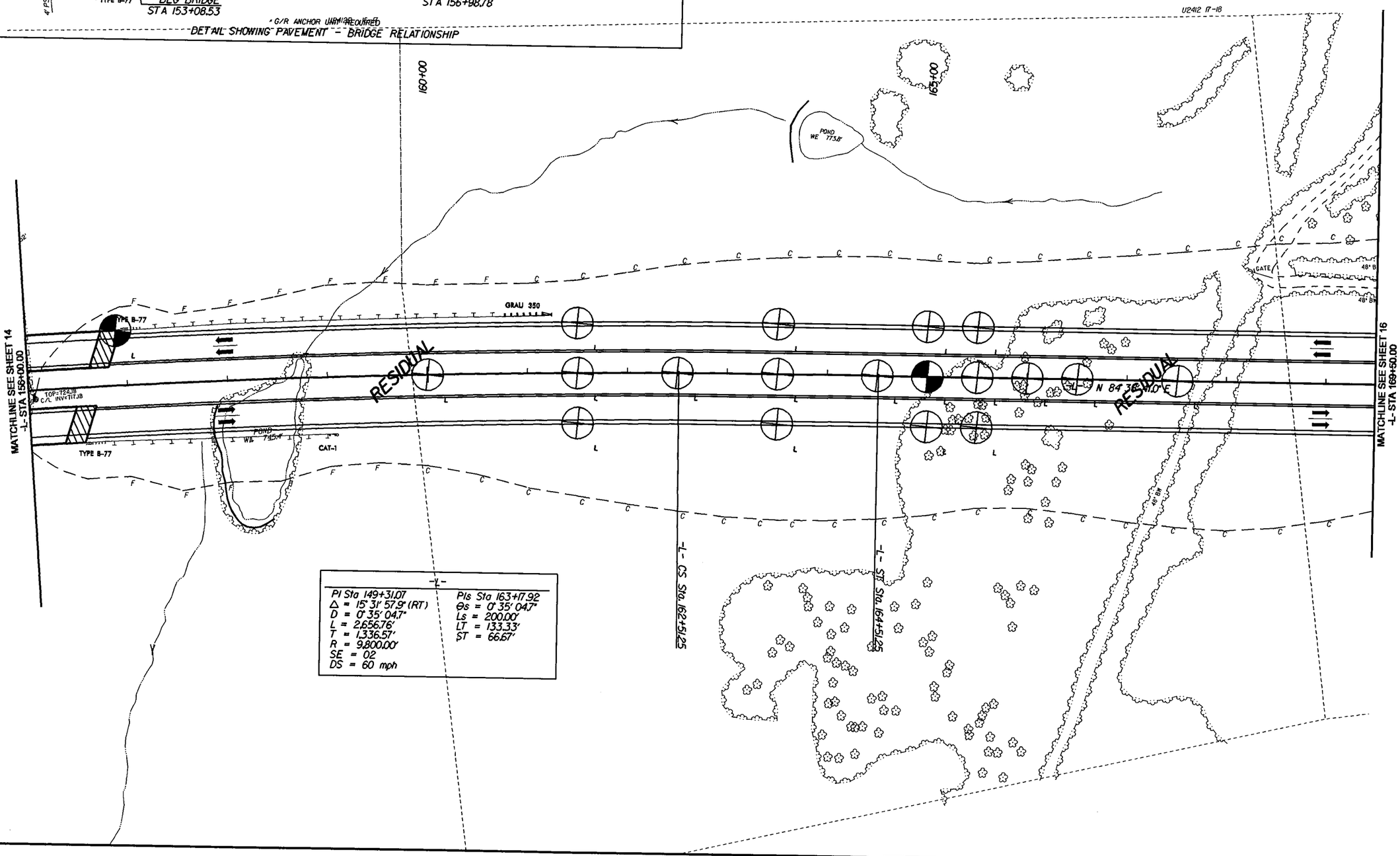
PROJECT REFERENCE	SHEET NO.
U-2412A	15
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC





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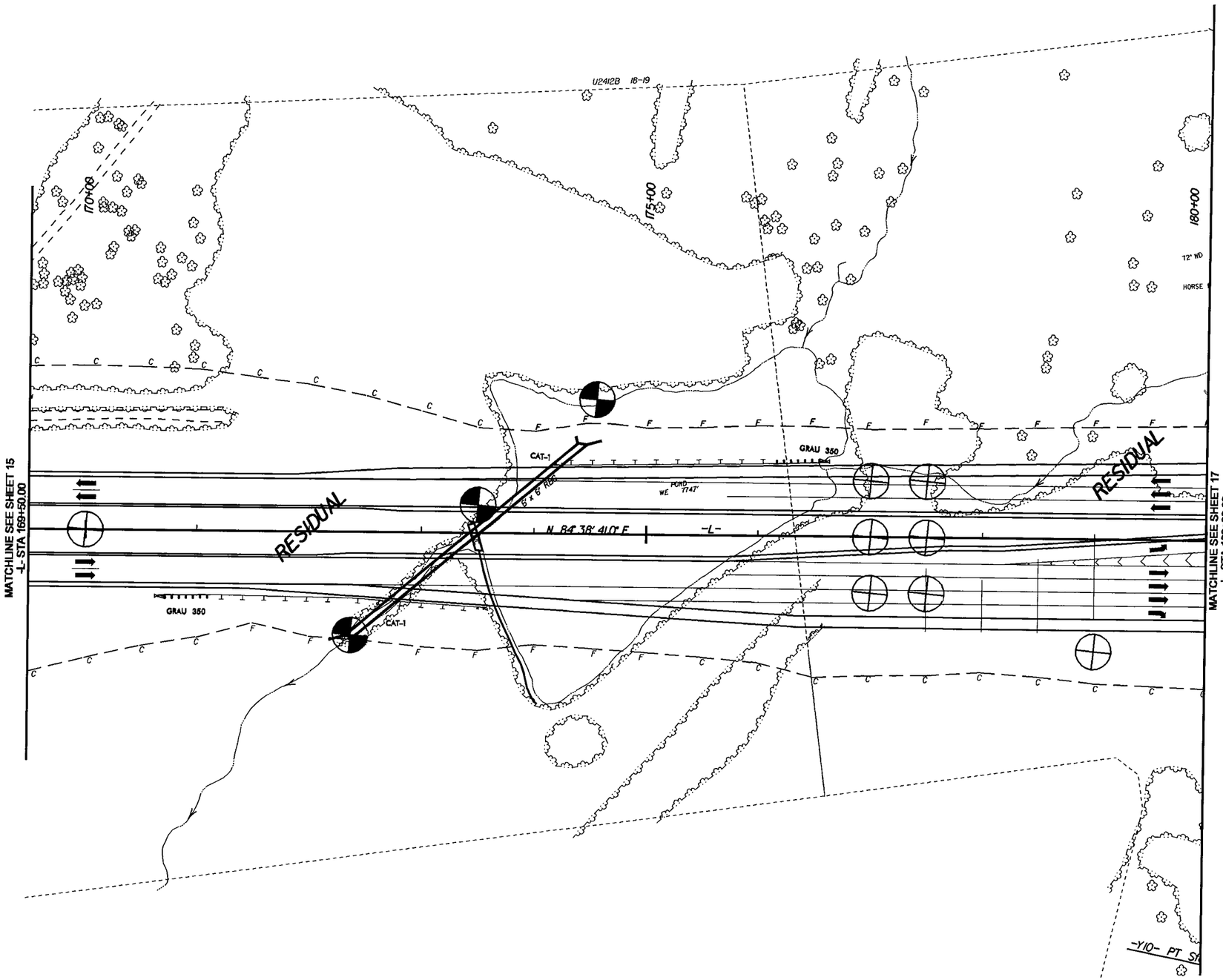
mdfields AT GE1248339

PROJECT REFERENCE	SHEET NO.
U-2412A	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC



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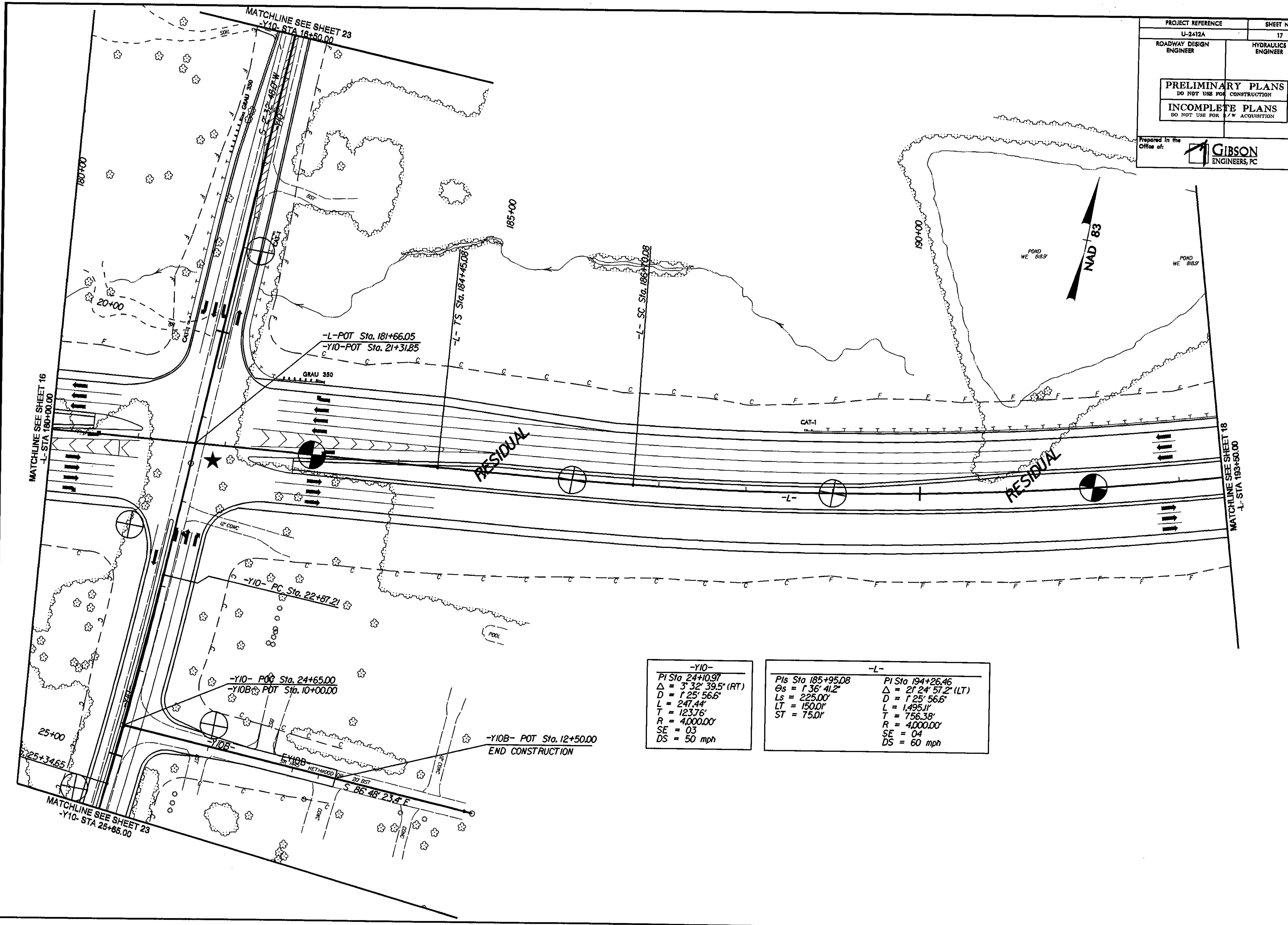
mfields AT GE1248339

PROJECT REFERENCE	SHEET NO.
U-2412A	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC



-Y10-
PI Sta 24+10.97
Δ = 3° 32' 39.5" (RT)
D = 1° 25' 56.6"
L = 247.44'
T = 123.76'
R = 4,000.00'
SE = 03
DS = 50 mph

-L-	
PIs Sta 185+95.08	PI Sta 194+26.46
Θs = 1° 36' 41.2"	Δ = 21° 24' 57.2" (LT)
Ls = 225.00'	D = 1° 25' 56.6"
LT = 150.01'	L = 1,495.11'
ST = 75.01'	T = 756.38'
	R = 4,000.00'
	SE = 04
	DS = 60 mph

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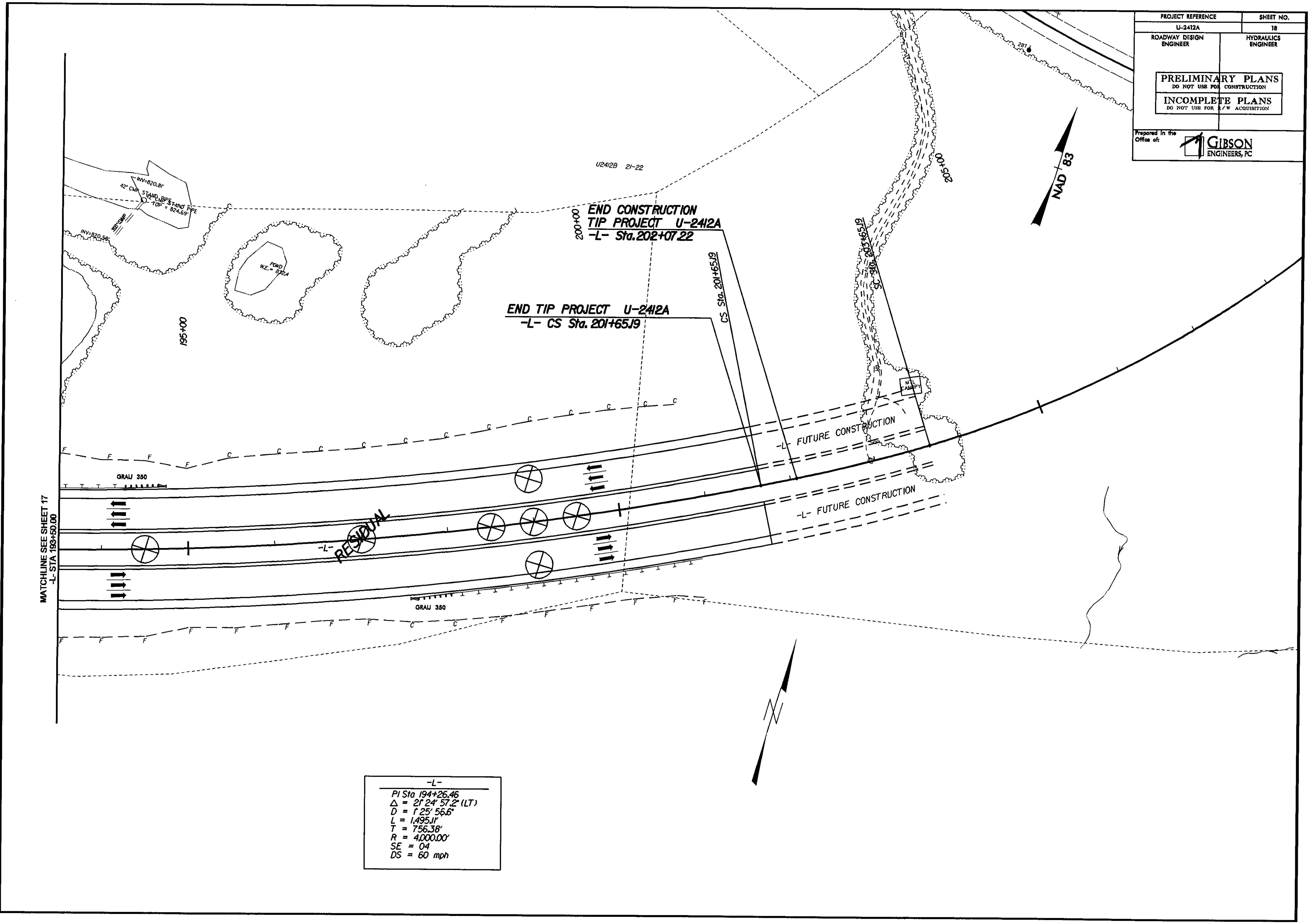

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xdfields AT GEJ24839

PROJECT REFERENCE	SHEET NO.
U-2412A	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

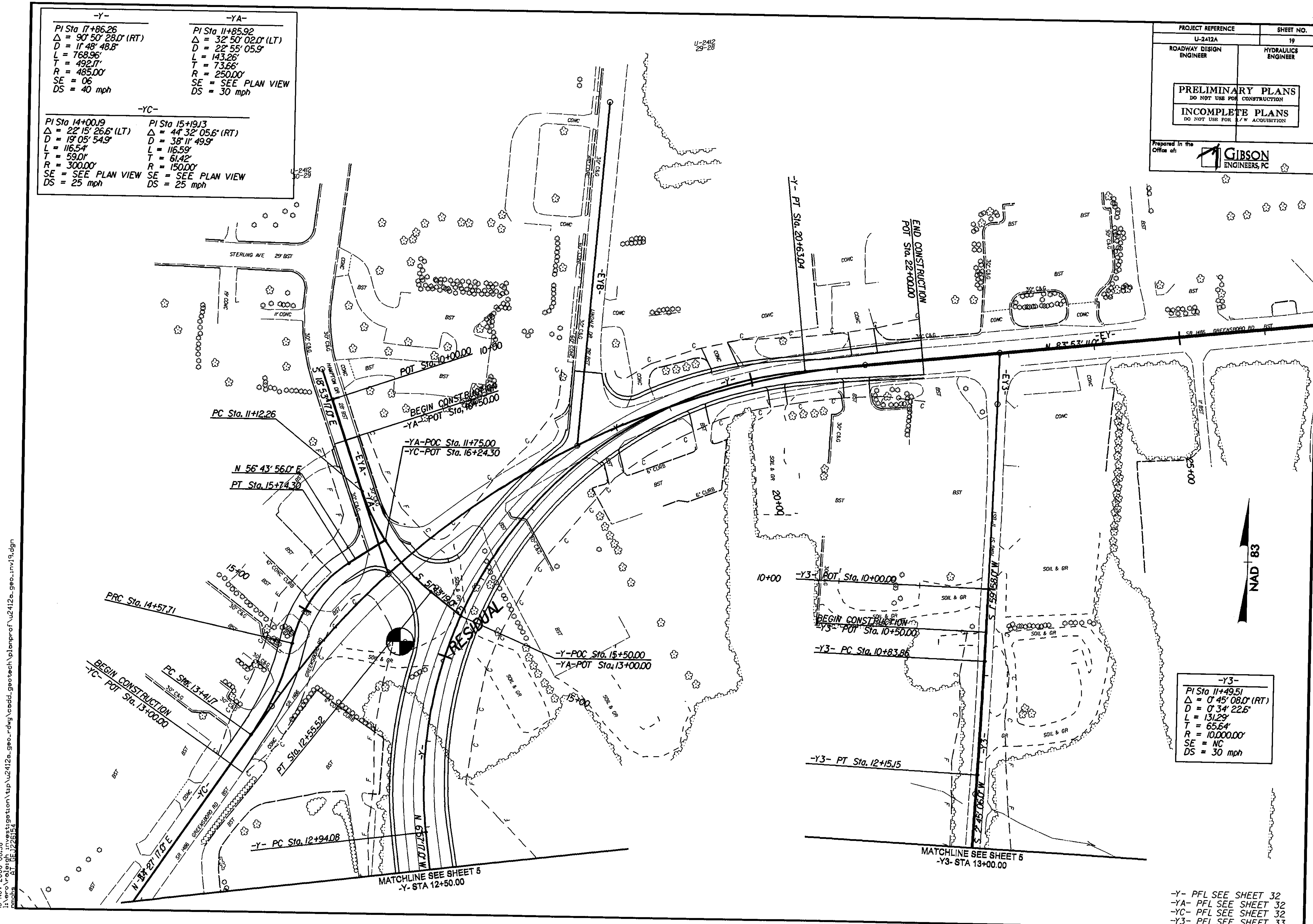
Prepared in the Office of: GIBSON ENGINEERS, PC

-Y-
PI Sta 17+86.26
Δ = 90° 50' 28.0" (RT)
D = 11° 48' 48.8"
L = 768.96'
T = 492.17'
R = 485.00'
SE = .06
DS = 40 mph

-YA-
PI Sta 11+85.92
Δ = 32° 50' 02.0" (LT)
D = 22° 55' 05.9"
L = 143.26'
T = 73.66'
R = 250.00'
SE = SEE PLAN VIEW
DS = 30 mph

-YC-
PI Sta 14+00.19
Δ = 22° 15' 26.6" (LT)
D = 19° 05' 54.9"
L = 116.54'
T = 59.01'
R = 300.00'
SE = SEE PLAN VIEW
DS = 25 mph

PI Sta 15+19.13
Δ = 44° 32' 05.6" (RT)
D = 38° 11' 49.9"
L = 116.59'
T = 61.42'
R = 150.00'
SE = SEE PLAN VIEW
DS = 25 mph



-Y3-
PI Sta 11+49.51
Δ = 0° 45' 08.0" (RT)
D = 0° 34' 22.6"
L = 131.29'
T = 65.64'
R = 10,000.00'
SE = NC
DS = 30 mph

-Y- PFL SEE SHEET 32
-YA- PFL SEE SHEET 32
-YC- PFL SEE SHEET 32
-Y3- PFL SEE SHEET 33

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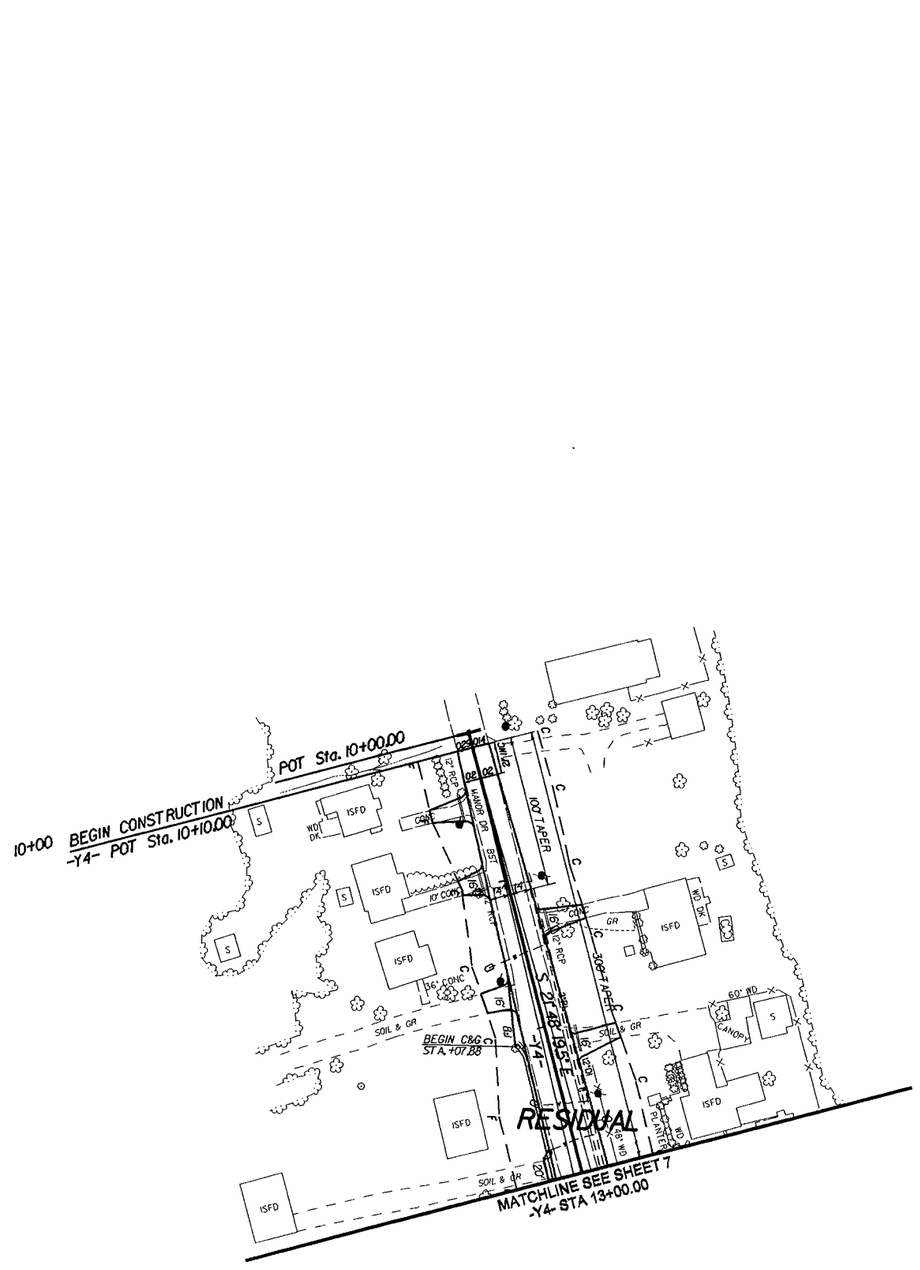
PROJECT REFERENCE	SHEET NO.
U-2412A	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC

NAD 83



NAD 83

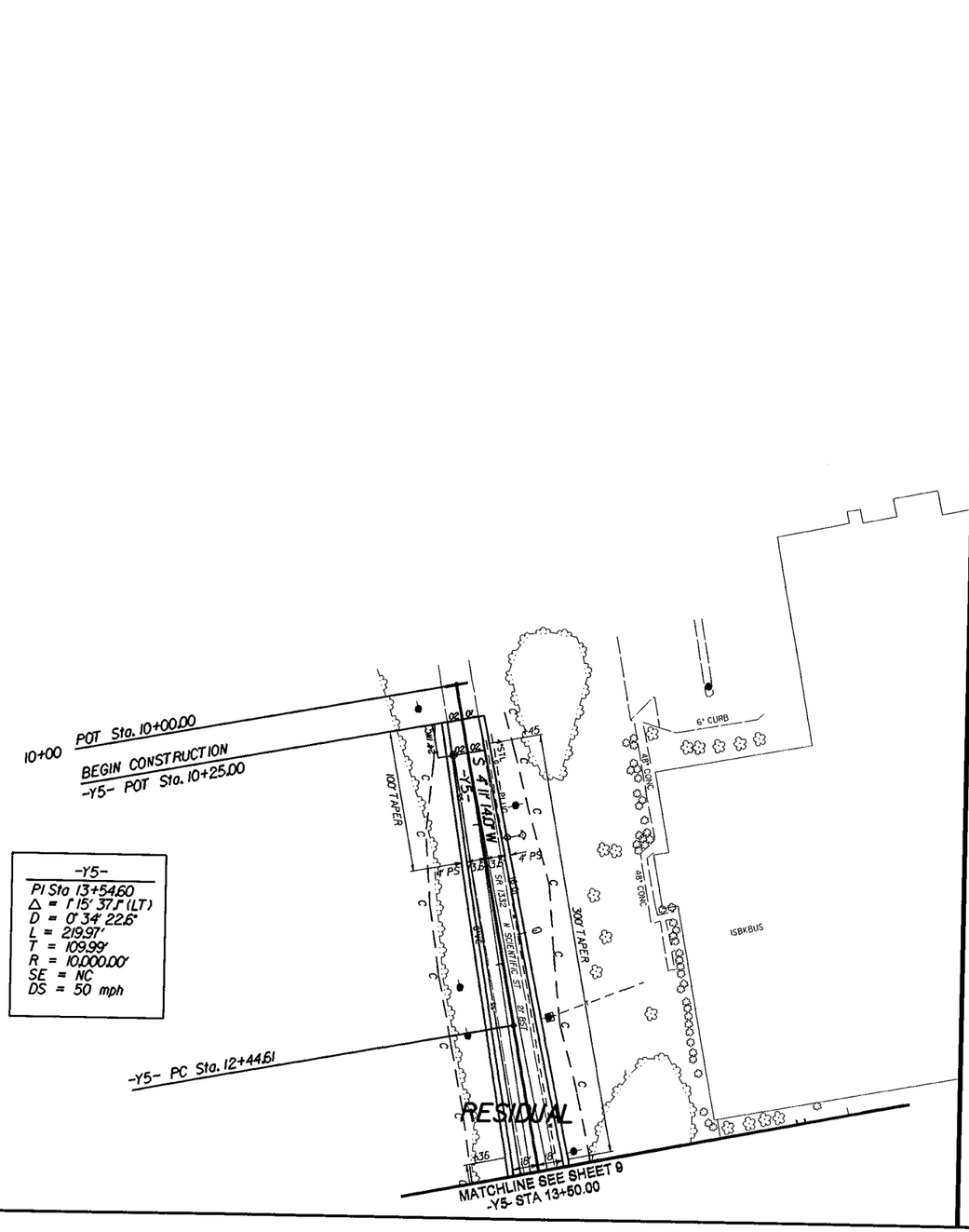
PROJECT REFERENCE	SHEET NO.
U-2412A	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

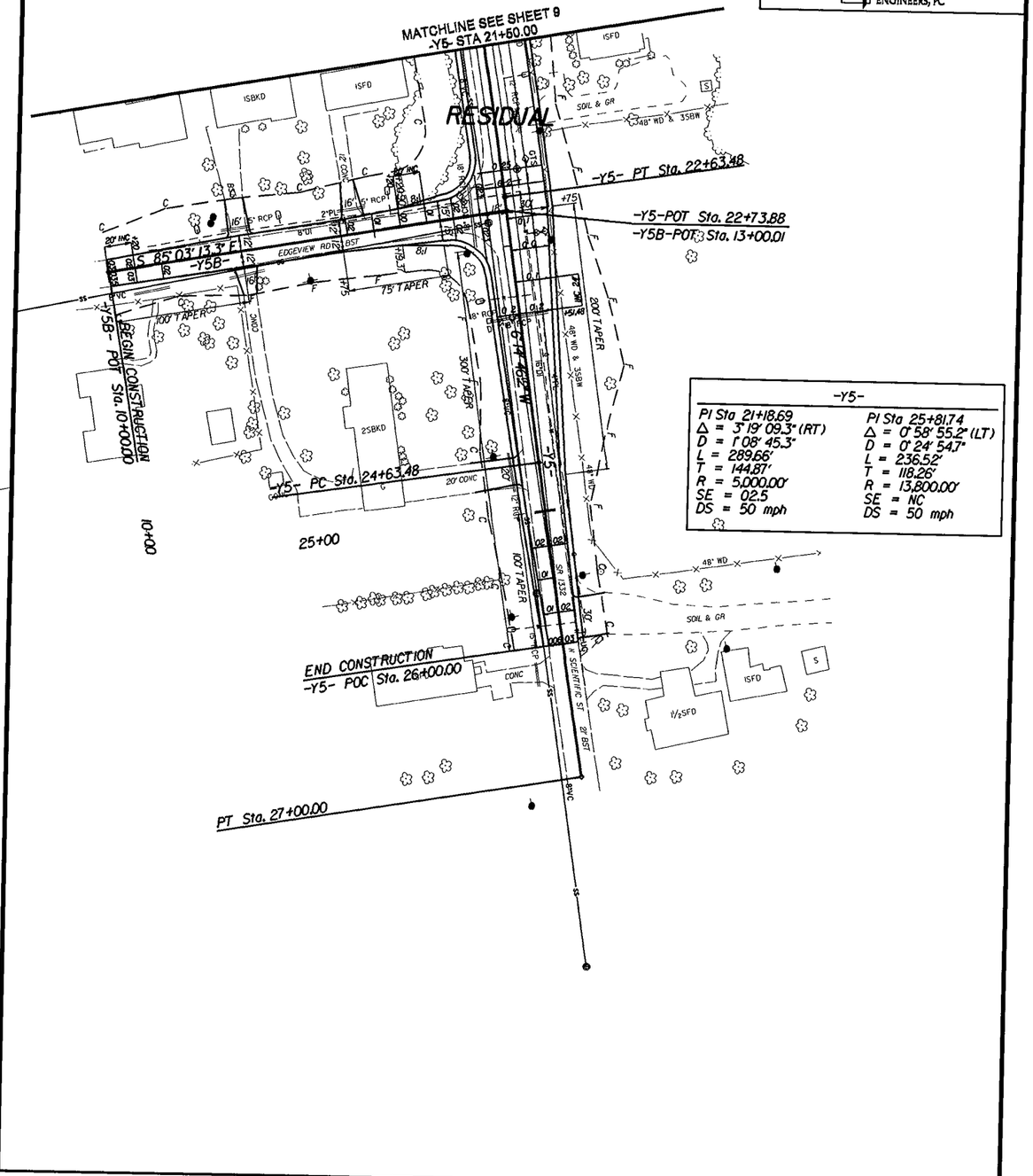
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Prepared in the Office of: GIBSON ENGINEERS, PC

NAD 83





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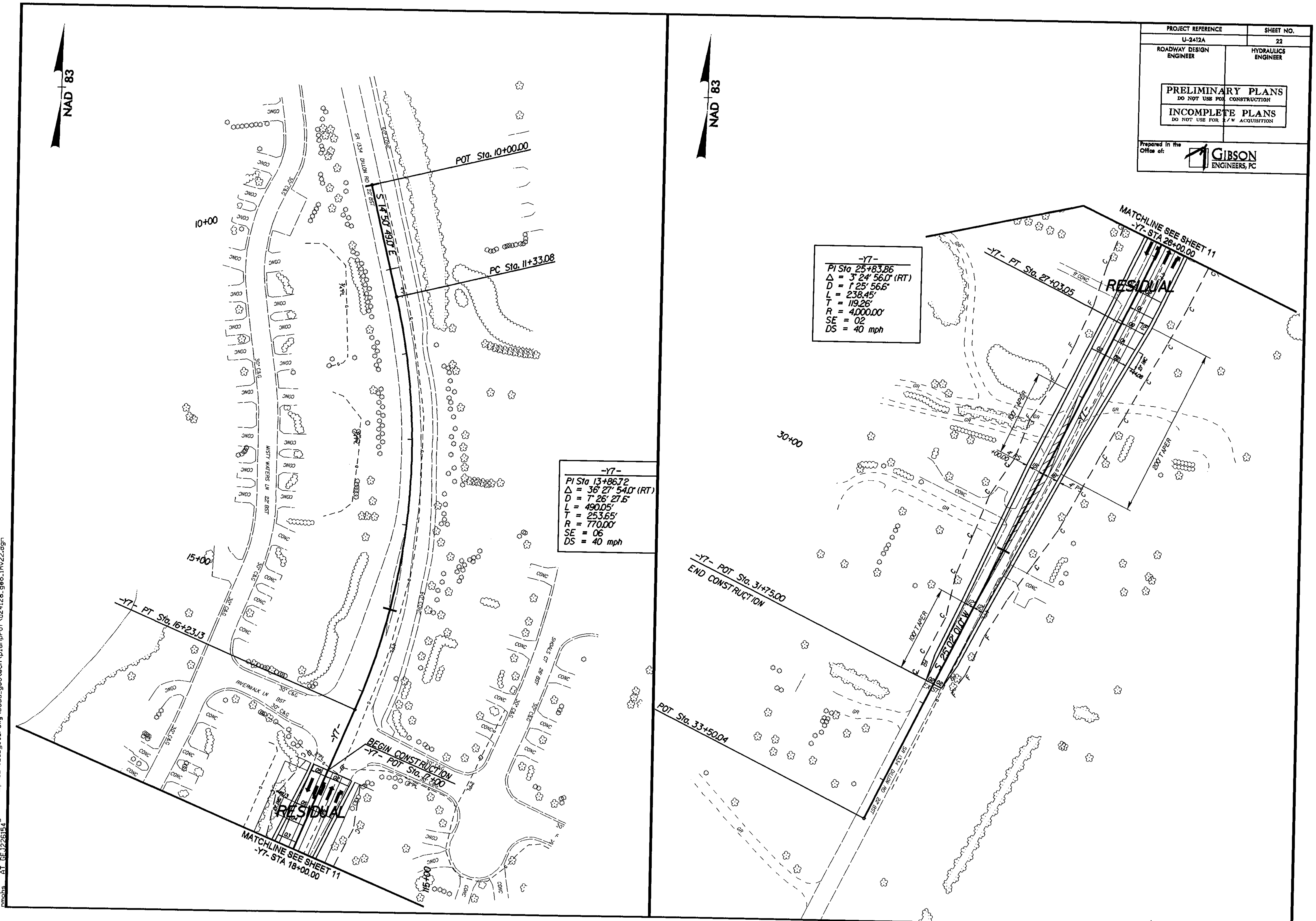
PROJECT REFERENCE
SHEET NO.
U-2412A
22
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
Prepared in the Office of:
GIBSON ENGINEERS, PC
NAD 83
NAD 83
POT Sta. 10+00.00
S 14° 50' 49.0" E
PC Sta. 11+33.08
10+00
15+00
-Y7- PT Sta. 16+23.13
-Y7-
PI Sta 13+86.72
Δ = 36° 27' 54.0" (RT)
D = 7° 26' 27.6"
L = 490.05'
T = 253.65'
R = 770.00'
SE = 06
DS = 40 mph
MISTY WATERS LN 22' BST
RIVERWALK LN
BST
30' C&G
BEGIN CONSTRUCTION
-Y7- POT Sta. 17+00
RESIDUAL
MATCHLINE SEE SHEET 11
-Y7- STA 18+00.00
MATCHLINE SEE SHEET 11
-Y7- STA 28+00.00
RESIDUAL
-Y7-
PI Sta 25+83.86
Δ = 3° 24' 56.0" (RT)
D = 1° 25' 56.6"
L = 238.45'
T = 119.26'
R = 4,000.00'
SE = 02
DS = 40 mph
-Y7- PT Sta. 27+03.05
30+00
100' TAPER
200' TAPER
-Y7- POT Sta. 31+75.00
END CONSTRUCTION
S 25° 02' 01.0" W
POT Sta. 33+50.04
$$DATE$$
13-NOV-2008 08:42

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13-NOV-2008 08:43
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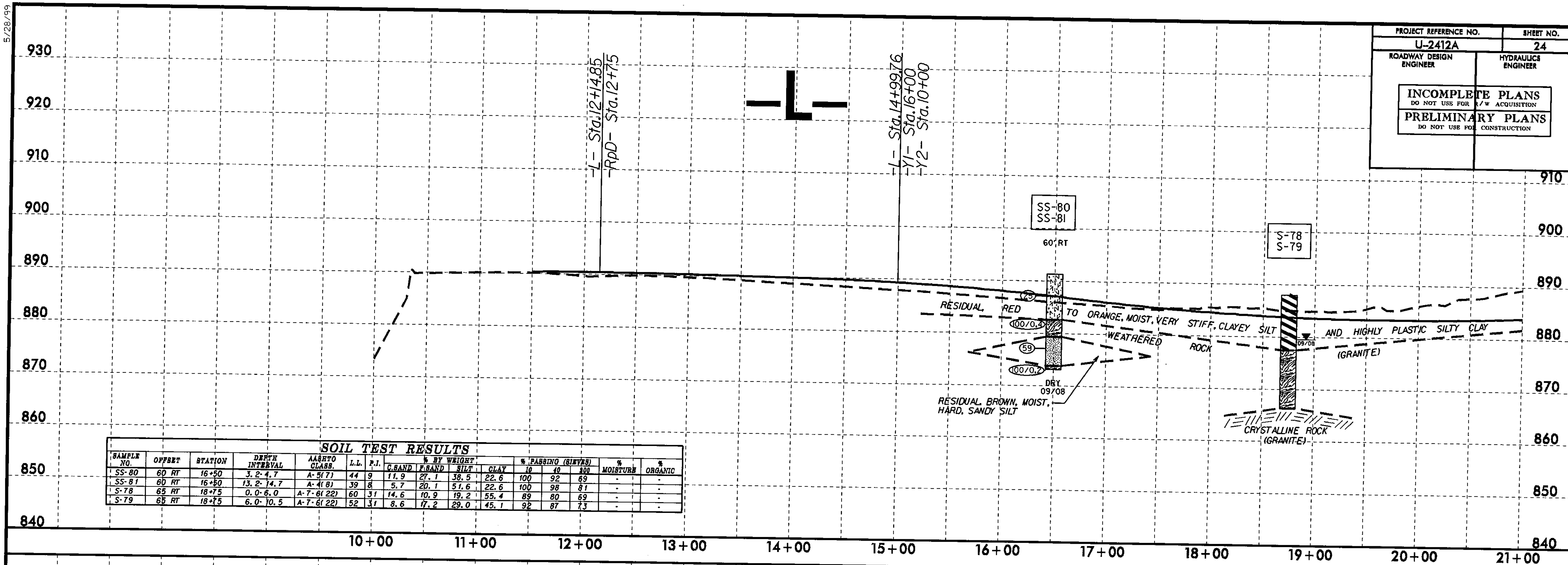
PROJECT REFERENCE NO.	SHEET NO.
U-2412A	24
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

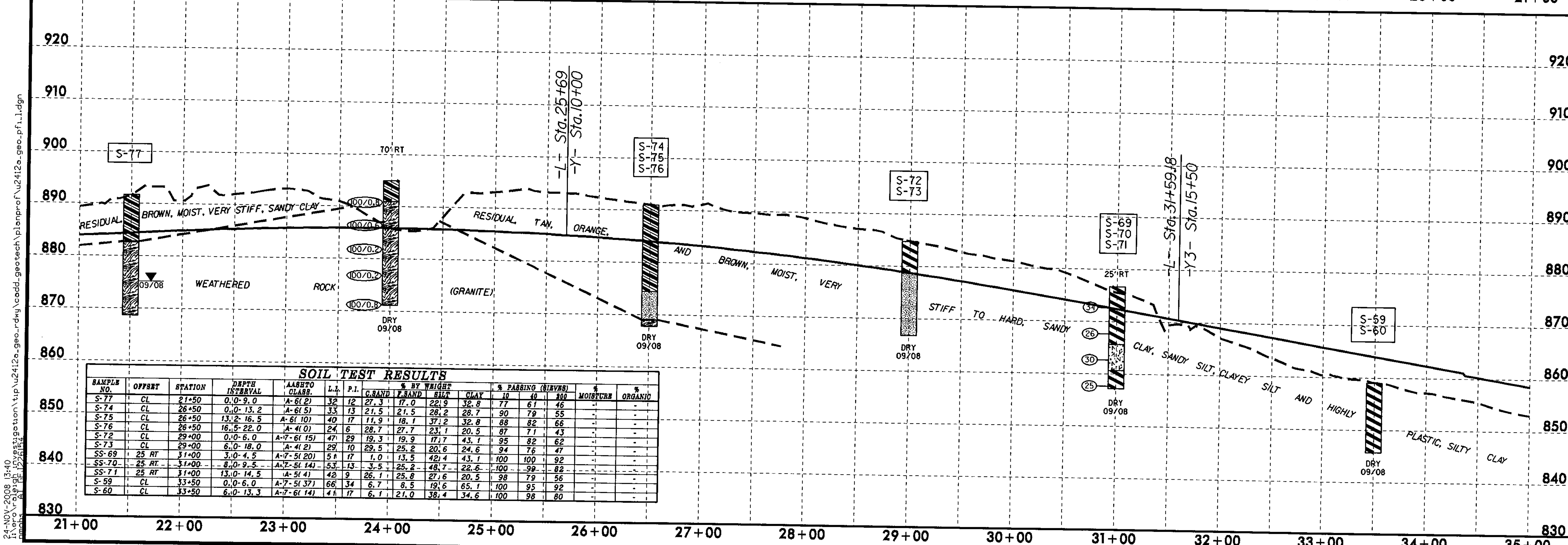
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-80	60 RT	16+50	3.2-4.7	A-5(7)	44	9	11.9	27.1	38.5	22.6	100	92	69	-	-
SS-81	60 RT	16+50	13.2-14.7	A-4(8)	39	8	5.7	20.1	51.6	22.6	100	98	81	-	-
S-78	65 RT	18+75	0.0-6.0	A-7-6(22)	60	31	14.6	10.9	19.2	55.4	89	80	69	-	-
S-79	65 RT	18+75	6.0-10.5	A-7-6(22)	52	31	8.6	17.2	29.0	45.1	92	87	73	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-77	CL	21+50	0.0-9.0	A-6(2)	32	12	27.3	17.0	22.9	32.8	77	61	46	-	-
S-74	CL	26+50	0.0-13.2	A-6(5)	33	13	21.5	21.5	28.2	28.7	90	79	55	-	-
S-75	CL	26+50	13.2-16.5	A-6(10)	40	17	11.9	18.1	37.2	32.8	88	82	66	-	-
S-76	CL	26+50	16.5-22.0	A-4(0)	24	6	28.7	27.7	23.1	20.5	87	71	43	-	-
S-72	CL	29+00	0.0-6.0	A-7-6(15)	47	29	19.3	19.9	17.7	43.1	95	82	62	-	-
S-73	CL	29+00	6.0-18.0	A-4(2)	29	10	29.5	25.2	20.6	24.6	94	76	47	-	-
SS-69	25 RT	31+00	3.0-4.5	A-7-5(20)	51	17	1.0	13.5	42.4	43.1	100	100	92	-	-
SS-70	25 RT	31+00	8.0-9.5	A-7-5(14)	53	13	3.5	25.2	48.7	22.6	100	99	82	-	-
SS-71	25 RT	31+00	13.0-14.5	A-5(4)	42	9	26.1	25.8	27.6	20.5	98	79	56	-	-
S-59	CL	33+50	0.0-6.0	A-7-5(37)	66	34	6.7	8.5	19.6	65.1	100	95	92	-	-
S-60	CL	33+50	6.0-13.3	A-7-6(14)	41	17	6.1	21.0	38.4	34.6	100	98	80	-	-

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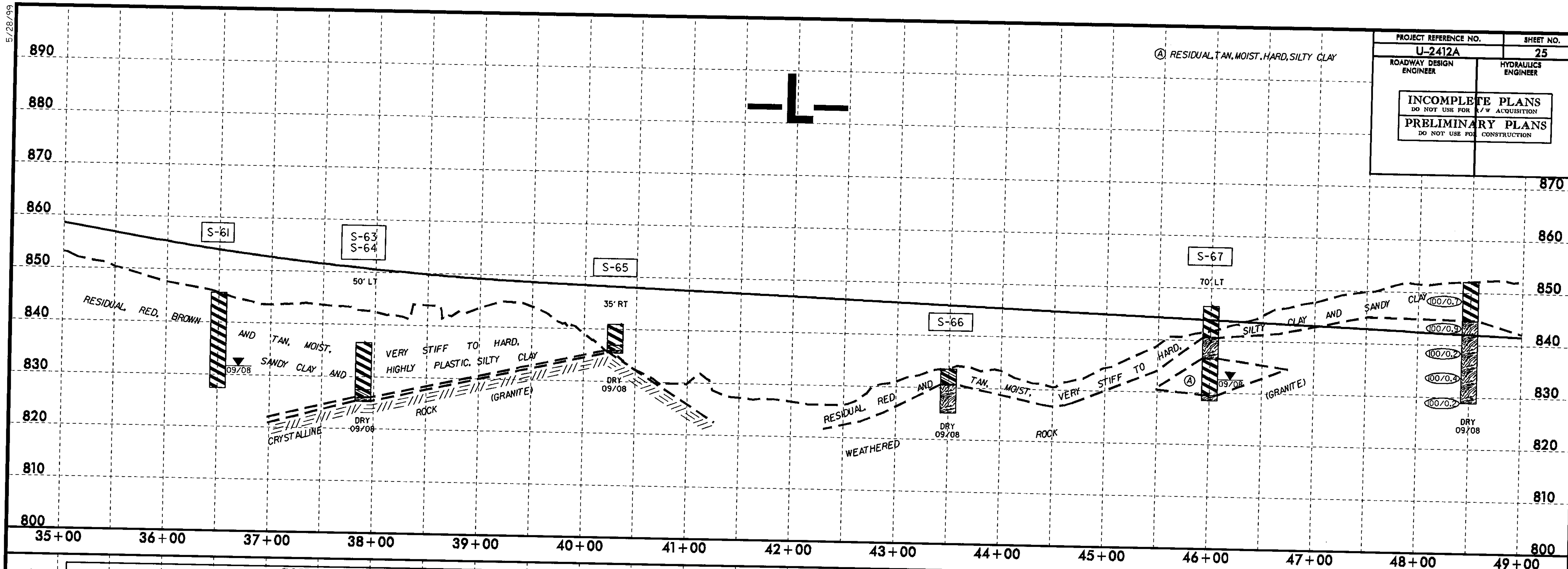
PROJECT REFERENCE NO.	SHEET NO.
U-2412A	25
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

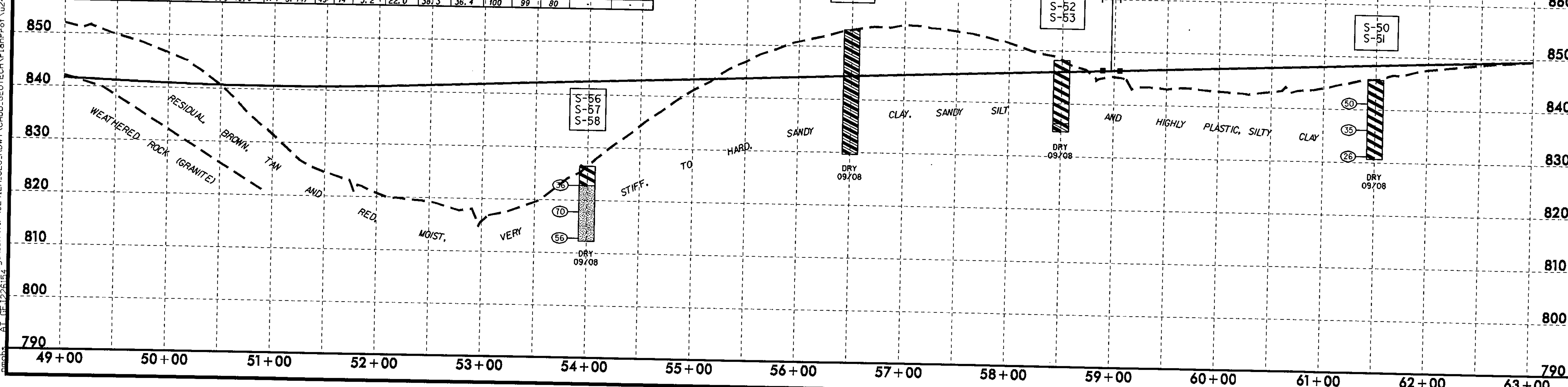
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

-L-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-61	CL	36+50	0.0-16.0	A-7-5(31)	72	38	12.0	12.2	16.8	59.0	95	87	75	-	-
S-63	50 LT	37+90	0.0-9.0	A-7-6(14)	53	24	19.7	18.1	17.4	44.8	95	82	63	-	-
S-64	50 LT	37+90	9.0-10.5	A-6(6)	39	15	21.0	16.5	34.1	28.5	87	75	57	-	-
S-65	35 RT	40+30	0.0-4.0	A-7-6(15)	42	20	9.2	14.9	31.2	44.8	96	91	77	-	-
S-66	CL	43+50	0.0-3.0	A-6(11)	35	15	5.5	21.6	40.4	32.6	100	98	80	-	-
S-67	70 LT	46+00	0.0-6.0	A-7-6(16)	43	18	4.9	17.9	38.6	38.7	99	96	83	-	-
SS-56	CL	54+00	2.7-3.7	A-7-6(19)	52	28	9.3	21.2	29.0	40.4	91	86	69	-	-
SS-57	CL	54+00	7.7-9.2	A-4(1)	28	7	16.1	41.8	30.0	12.1	92	85	48	-	-
SS-58	CL	54+00	12.7-14.2	A-4(0)	29	NP	7.1	47.0	35.7	10.2	100	99	56	-	-
S-54	CL	56+50	0.0-13.5	A-6(9)	37	17	12.5	22.6	30.4	34.4	93	86	66	-	-
S-55	CL	56+50	13.5-23.5	A-6(11)	40	18	11.7	20.6	35.3	32.4	94	88	69	-	-
S-52	CL	58+50	0.0-12.0	A-7-6(21)	53	28	8.3	15.0	30.2	46.5	93	88	75	-	-
S-53	CL	58+50	12.0-13.5	A-6(5)	31	12	6.7	34.8	30.2	28.3	94	88	61	-	-
SS-50	CL	61+50	0.0-0.0	A-7-5(15)	66	29	20.6	11.5	17.3	50.6	80	67	56	-	-
SS-51	CL	61+50	8.5-10.0	A-7-5(14)	49	14	3.2	22.0	38.3	36.4	100	99	80	-	-



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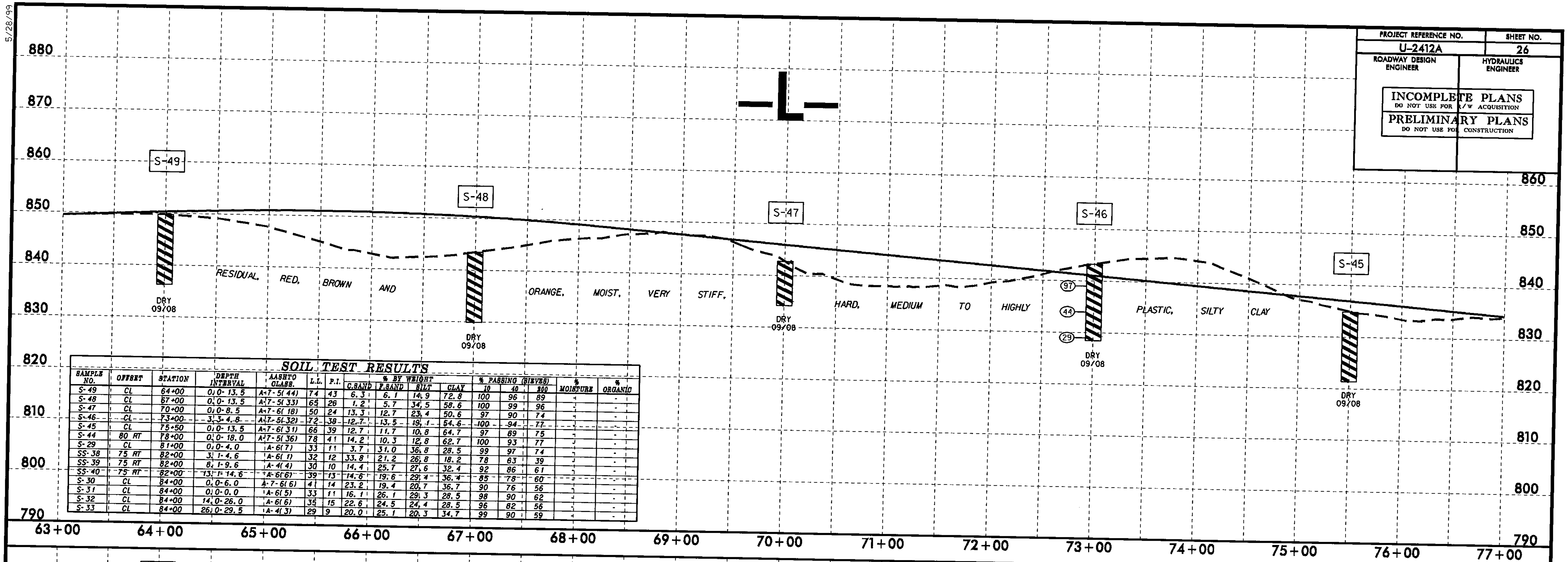
PROJECT REFERENCE NO.	SHEET NO.
U-2412A	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

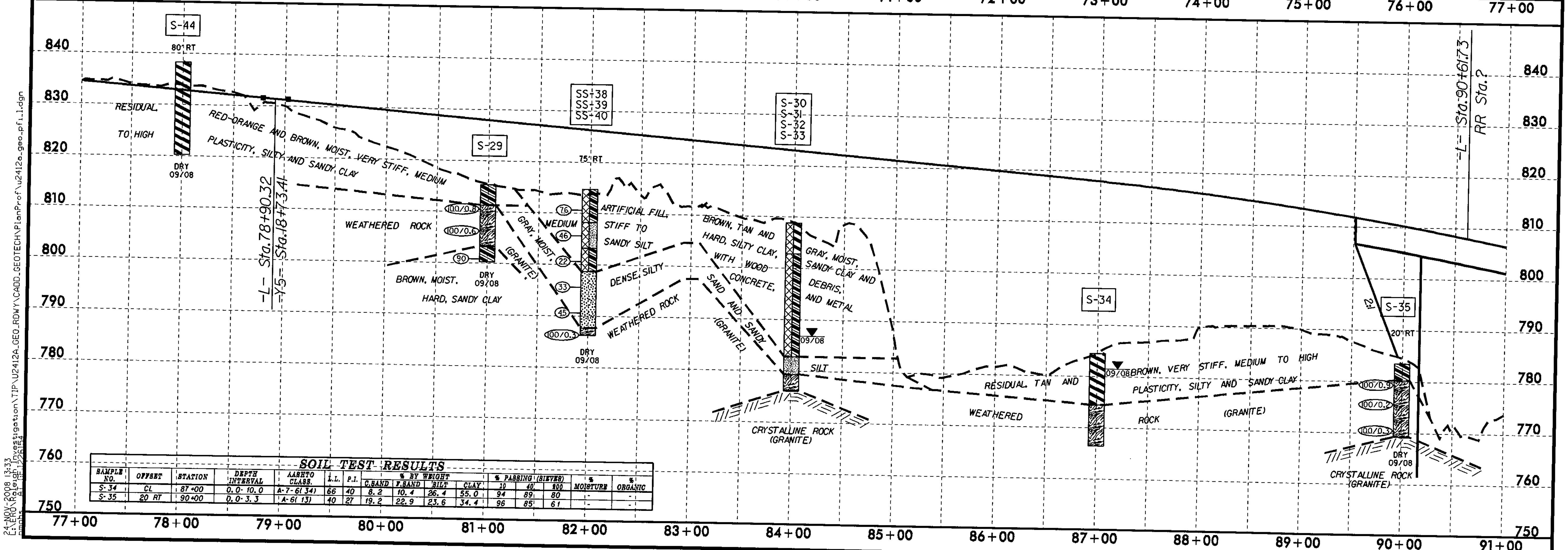
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-49	CL	64+00	0.0-13.5	A-7-5(44)	74	43	6.3	6.1	14.9	72.8	100	96	89	-	-
S-48	CL	67+00	0.0-13.5	A-7-5(33)	65	26	1.2	5.7	34.5	58.6	100	99	96	-	-
S-47	CL	70+00	0.0-8.5	A-7-6(18)	50	24	13.3	12.7	23.4	50.6	97	90	74	-	-
S-46	CL	73+00	3.3-4.8	A-7-5(32)	72	38	12.7	13.5	19.1	54.6	100	94	77	-	-
S-45	CL	75+50	0.0-13.5	A-7-6(31)	66	39	12.7	11.7	10.8	64.7	97	89	75	-	-
S-44	80 RT	78+00	0.0-18.0	A-7-5(36)	78	41	14.2	10.3	12.8	62.7	100	93	77	-	-
S-29	CL	81+00	0.0-4.0	A-6(7)	33	11	3.7	31.0	36.8	28.5	99	97	74	-	-
SS-38	75 RT	82+00	3.1-4.6	A-6(1)	32	12	33.8	21.2	26.8	18.2	78	63	39	-	-
SS-39	75 RT	82+00	8.1-9.6	A-4(4)	30	10	14.4	25.7	27.6	32.4	92	86	61	-	-
SS-40	75 RT	82+00	13.1-14.6	A-6(6)	39	13	14.6	19.6	29.4	36.4	85	78	60	-	-
S-30	CL	84+00	0.0-6.0	A-7-6(6)	41	14	23.2	19.4	20.7	36.7	90	76	56	-	-
S-31	CL	84+00	0.0-0.0	A-6(5)	33	11	16.1	26.1	29.3	28.5	98	90	62	-	-
S-32	CL	84+00	14.0-26.0	A-6(6)	35	15	22.6	24.5	24.4	28.5	96	82	56	-	-
S-33	CL	84+00	26.0-29.5	A-4(3)	29	9	20.0	25.1	20.3	34.7	99	90	59	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-34	CL	87+00	0.0-10.0	A-7-6(34)	66	40	8.2	10.4	26.4	55.0	94	89	80	-	-
S-35	20 RT	90+00	0.0-3.3	A-6(13)	40	27	19.2	22.9	23.6	34.4	96	85	61	-	-

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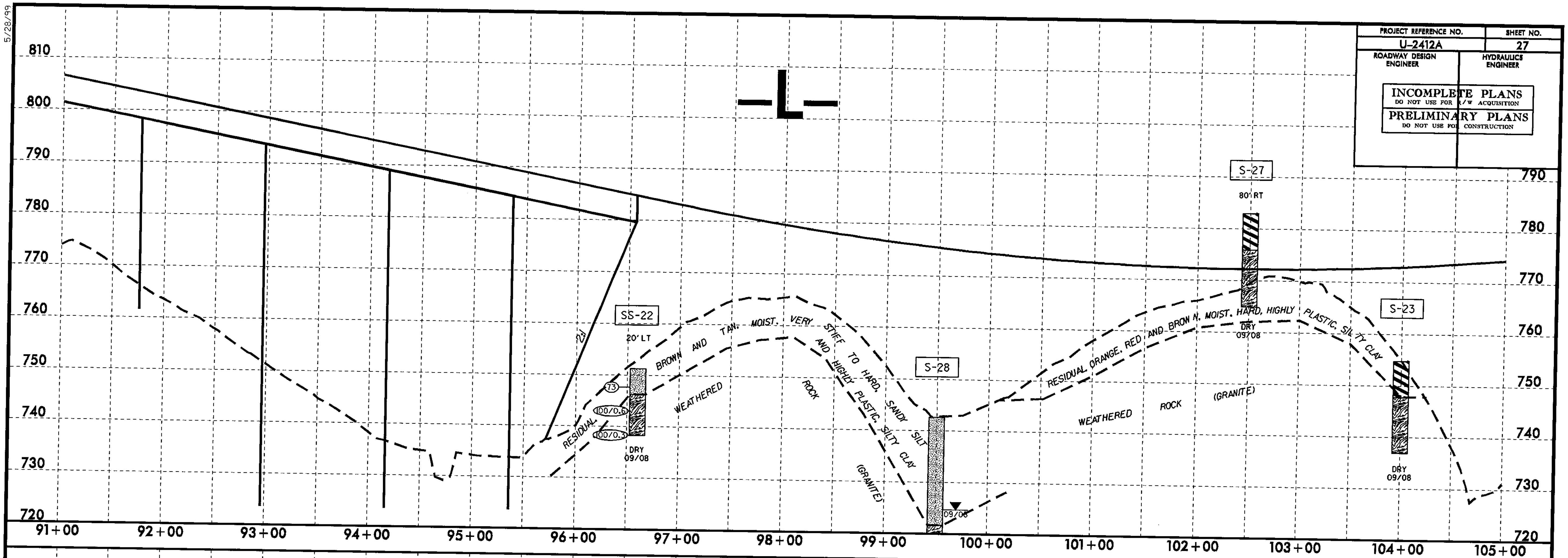
PROJECT REFERENCE NO.	SHEET NO.
U-2412A	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

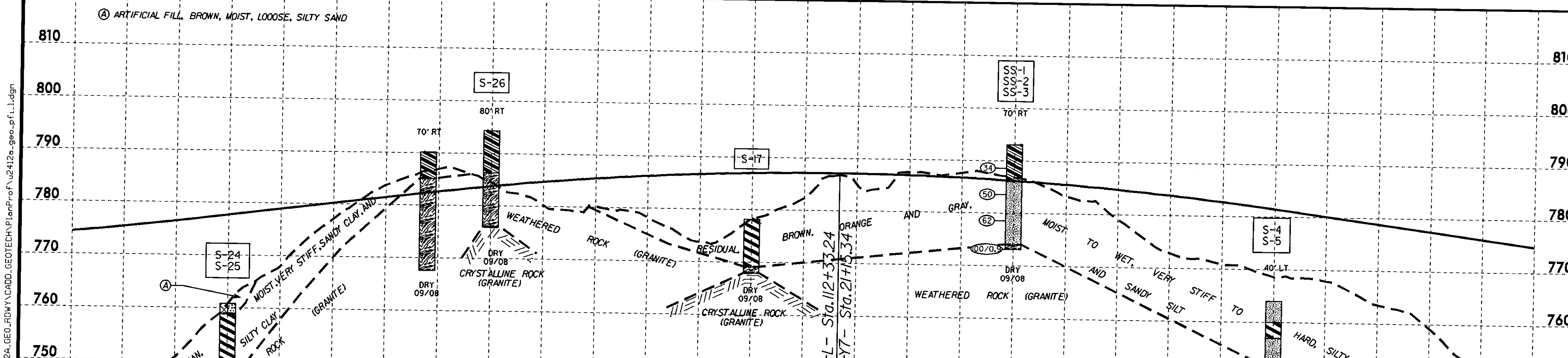
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-



Ⓐ ARTIFICIAL FILL, BROWN, MOIST, LOOOSE, SILTY SAND



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-22	20 LT	96+60	2.6-4.1	A-4(3)	31	9	16.5	33.4	29.7	20.4	100	93	57	-	-
S-28	CL	99+50	0.0-21.0	A-4(0)	21	3	34.0	31.8	19.9	14.3	96	76	38	-	-
S-27	80 RT	102+50	0.0-7.0	A-7-6(33)	62	37	6.7	13.0	23.1	57.1	98	94	82	-	-
S-23	CL	104+00	0.0-7.0	A-7-6(27)	58	33	11.0	13.5	20.5	55.0	100	93	79	-	-
S-24	CL	106+50	0.0-2.0	A-2-4(0)	21	4	38.5	27.1	20.1	14.3	89	65	35	-	-
S-25	CL	106+50	2.0-14.0	A-7-6(23)	57	31	15.1	14.5	21.5	48.9	98	88	73	-	-
S-26	80 RT	109+00	0.0-8.0	A-6(5)	32	12	23.4	20.2	23.8	32.6	97	82	59	-	-
S-17	CL	111+50	0.0-9.0	A-7-6(17)	54	27	14.2	16.8	24.4	44.6	92	84	67	-	-
SS-1	70 RT	114+00	3.5-5.0	A-6(8)	38	12	15.0	23.1	41.6	20.3	100	91	70	-	-
SS-2	70 RT	114+00	8.5-10.0	A-4(0)	25	NP	38.5	25.7	33.7	2.0	93	67	40	-	-
SS-3	70 RT	114+00	13.5-15.0	A-4(6)	39	9	7.3	24.9	55.6	12.2	100	97	71	-	-
S-4	40 LT	116+50	0.0-4.0	A-4(0)	21	6	30.4	31.6	21.8	16.2	91	75	39	-	-
S-5	40 LT	116+50	4.0-7.0	A-7-6(12)	44	17	13.8	18.6	33.1	34.4	100	93	72	-	-

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2412A	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

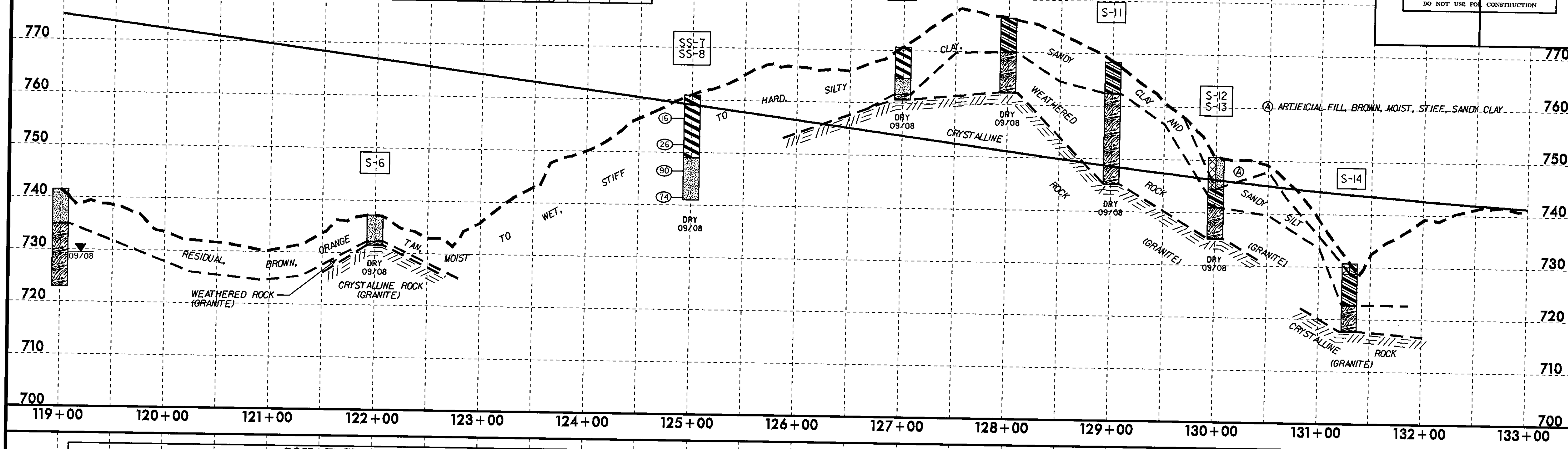
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-L-

SOIL TEST RESULTS

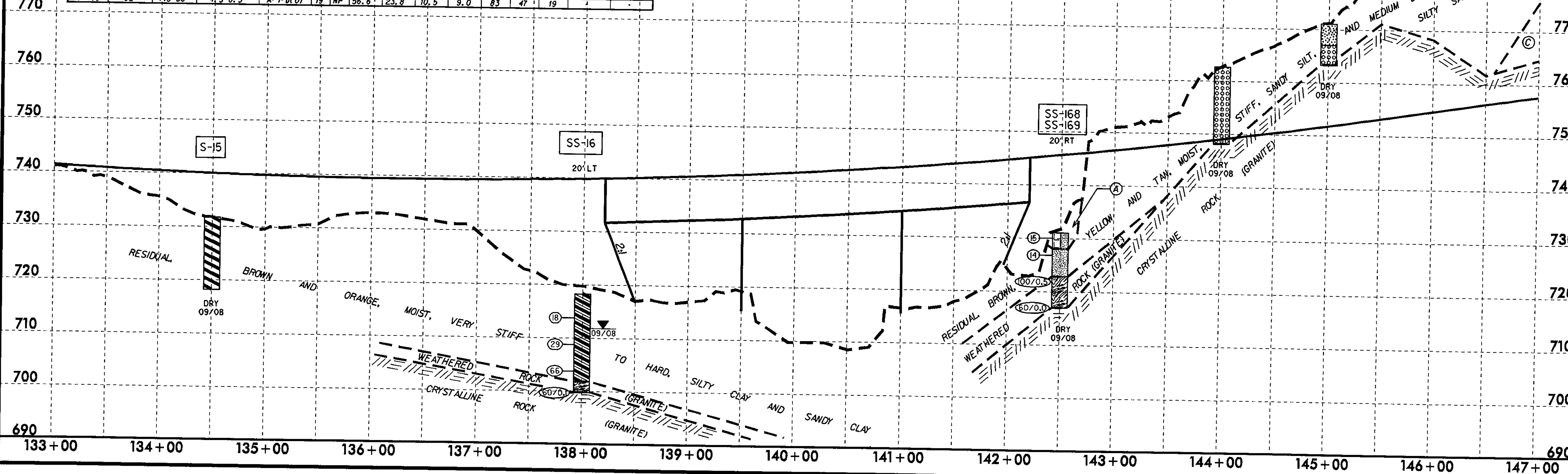
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-6	CL	122+00	0.0-5.0	A-4(0)	26	6	31.4	27.6	20.8	20.3	98	81	45	-	-
SS-7	CL	125+00	3.5-5.0	A-7-6(11)	46	17	10.7	26.1	32.7	30.4	97	90	68	-	-
SS-8	CL	125+00	13.5-15.0	A-4(0)	26	5	30.2	30.6	33.1	6.1	89	72	41	-	-
S-9	CL	127+00	0.0-6.0	A-7-6(14)	42	15	2.6	18.0	40.8	38.5	100	100	86	-	-
S-10	CL	128+00	0.0-6.5	A-6(6)	35	12	16.8	19.7	25.0	38.5	96	87	65	-	-
S-11	CL	129+00	0.0-6.0	A-6(5)	35	15	26.3	22.9	24.4	26.3	96	79	53	-	-
S-12	CL	130+00	0.0-6.0	A-4(1)	26	6	23.9	27.8	32.1	16.2	93	80	51	-	-
S-13	CL	130+00	6.0-9.5	A-6(5)	30	11	12.4	22.7	36.6	28.4	89	83	62	-	-
S-14	CL	131+50	2.0-8.0	A-6(3)	31	11	21.5	25.3	28.9	24.3	90	79	53	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-15	CL	134+50	0.0-13.5	A-7-6(8)	44	22	31.0	19.7	14.9	34.4	97	78	51	-	-
SS-16	20 LT	138+00	3.5-5.0	A-6(5)	33	13	18.2	25.1	28.3	28.4	94	83	58	-	-
SS-168	20 RT	142+50	0.0-1.5	A-4(2)	28	9	28.1	23.0	24.8	24.0	95	76	51	-	-
SS-169	20 RT	142+50	3.2-4.7	A-4(2)	29	9	29.9	22.0	24.0	24.0	95	74	50	-	-
S-164	CL	145+00	1.0-3.0	A-2-4(0)	18	NP	41.6	37.2	15.2	6.0	97	75	26	-	-
S-165	CL	145+00	4.5-6.5	A-1-b(0)	19	NP	56.6	23.8	10.5	9.0	83	47	19	-	-

Ⓐ ARTIFICIAL FILL, BROWN, MOIST, STIFF, SANDY SILT
Ⓑ RESIDUAL, YELLOW-TAN, MOIST, STIFF, SILTY CLAY
Ⓒ WEATHERED ROCK (GRANITE)



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PROJECT REFERENCE NO.	SHEET NO.
U-2412A	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-157	60 RT	149+50	1.0-3.0	A-7-6(18)	43	20	28.3	19.2	10.4	42.1	98	81	55	-	-
S-158	60 RT	149+50	5.0-7.0	A-6(1)	31	12	43.4	19.7	12.8	24.0	98	68	40	-	-
S-159	60 RT	149+50	16.0-18.0	A-2-4(0)	25	7	57.7	16.5	10.7	15.0	91	47	26	-	-
SS-156	55 RT	152+80	0.0-0.0	A-7-6(14)	48	26	22.4	17.6	11.8	48.1	99	83	62	-	-
SS-154	55 LT	156+90	0.0-1.5	A-2-4(0)	26	NP	47.3	25.6	15.1	12.0	92	61	29	-	-
SS-155	55 LT	156+90	3.5-5.0	A-2-4(0)	25	4	49.5	23.9	13.5	13.0	93	60	29	-	-
S-150	CL	160+00	0.0-2.0	A-2-4(0)	21	7	36.8	21.8	19.0	22.4	88	49	31	-	-
S-151	CL	160+00	2.0-4.0	A-7-6(13)	48	23	23.2	11.8	14.1	50.9	96	79	64	-	-

Ⓐ RESIDUAL, YELLOW AND TAN, MOIST, MEDIUM DENSE, SILTY SAND, AND HARD, SANDY SILT

Ⓐ RESIDUAL, YELLOW-TAN, MOIST, MEDIUM DENSE TO DENSE, CLAYEY SAND

Ⓑ RESIDUAL, BROWN AND GRAY, MOIST, DENSE, SILTY SAND

-L- Sta. 147+48.15
-Y8- Sta. 14+97.65

S-157
S-158
S-159
60' RT

RESIDUAL, BROWN, YELLOW, AND TAN, MOIST, MEDIUM STIFF TO VERY STIFF, SANDY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

DRY 09/08

RESIDUAL, TAN-BROWN, MOIST, DENSE TO VERY DENSE, SILTY SAND

SS-156
55' RT

HIGHLY PLASTIC, SANDY SILT AND SILTY CLAY

CRYSTALLINE ROCK (GRANITE)

BULL RUN CREEK

SS-154
SS-155
55' LT

RESIDUAL, BROWN, MOIST, MEDIUM DENSE, SILTY SAND

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

S-150
S-151

STIFF, TO VERY STIFF, SANDY SILT AND CLAY

TAN AND BROWN, MOIST, SILTY

S-47
S-48

S-149

SS-135
SS-136

S-145
S-146

S-142
S-143
S-144

S-137
S-138
S-139
S-140
S-141

S-130
S-131
S-132
S-133
S-134

S-127
S-128
S-129
92' RT

25' LT

SS-126
120' LT

RESIDUAL, YELLOW, TAN AND BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY CLAY AND SANDY SILT

CRYSTALLINE ROCK (GRANITE)

TAN AND BROWN, MOIST, HARD, SANDY CLAY AND SANDY SILT

MOIST TO SATURATED, MEDIUM DENSE TO DENSE, SILTY SAND AND SILTY ROCK

WEATHERED ROCK (GRANITE)

RESIDUAL, TAN AND BROWN, MOIST, MEDIUM STIFF TO VERY STIFF, SANDY SILT

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-147	CL	162+50	1.0-3.0	A-7-6(16)	46	22	12.4	18.1	18.6	50.9	100	93	73	-	-
S-148	CL	162+50	4.0-6.0	A-4(1)	27	10	31.1	32.6	13.9	22.4	100	85	41	-	-
S-149	CL	163+50	5.0-7.0	A-6(3)	27	12	18.7	33.2	19.6	28.5	100	93	53	-	-
SS-135	CL	165+00	0.0-1.5	A-7-5(11)	51	20	21.6	21.4	16.2	40.8	100	86	61	-	-
SS-136	CL	165+00	4.5-6.0	A-2-6(0)	37	11	41.8	28.3	15.6	14.3	98	72	34	-	-
S-145	CL	166+00	5.0-7.0	A-7-6(14)	47	25	16.9	24.8	23.7	34.6	99	90	63	-	-
S-146	CL	166+00	18.6-25.0	A-4(2)	30	10	26.9	30.9	19.8	22.4	100	96	48	-	-
S-142	CL	166+50	13.0-15.0	A-4(3)	33	9	20.1	22.0	29.4	28.5	92	79	58	-	-
S-143	CL	166+50	22.0-24.0	A-2-4(0)	26	8	57.8	15.3	12.7	14.2	70	35	21	-	-
S-144	CL	166+50	26.0-29.0	A-6(2)	33	15	43.9	17.5	16.2	22.4	90	58	38	-	-

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5/28/99

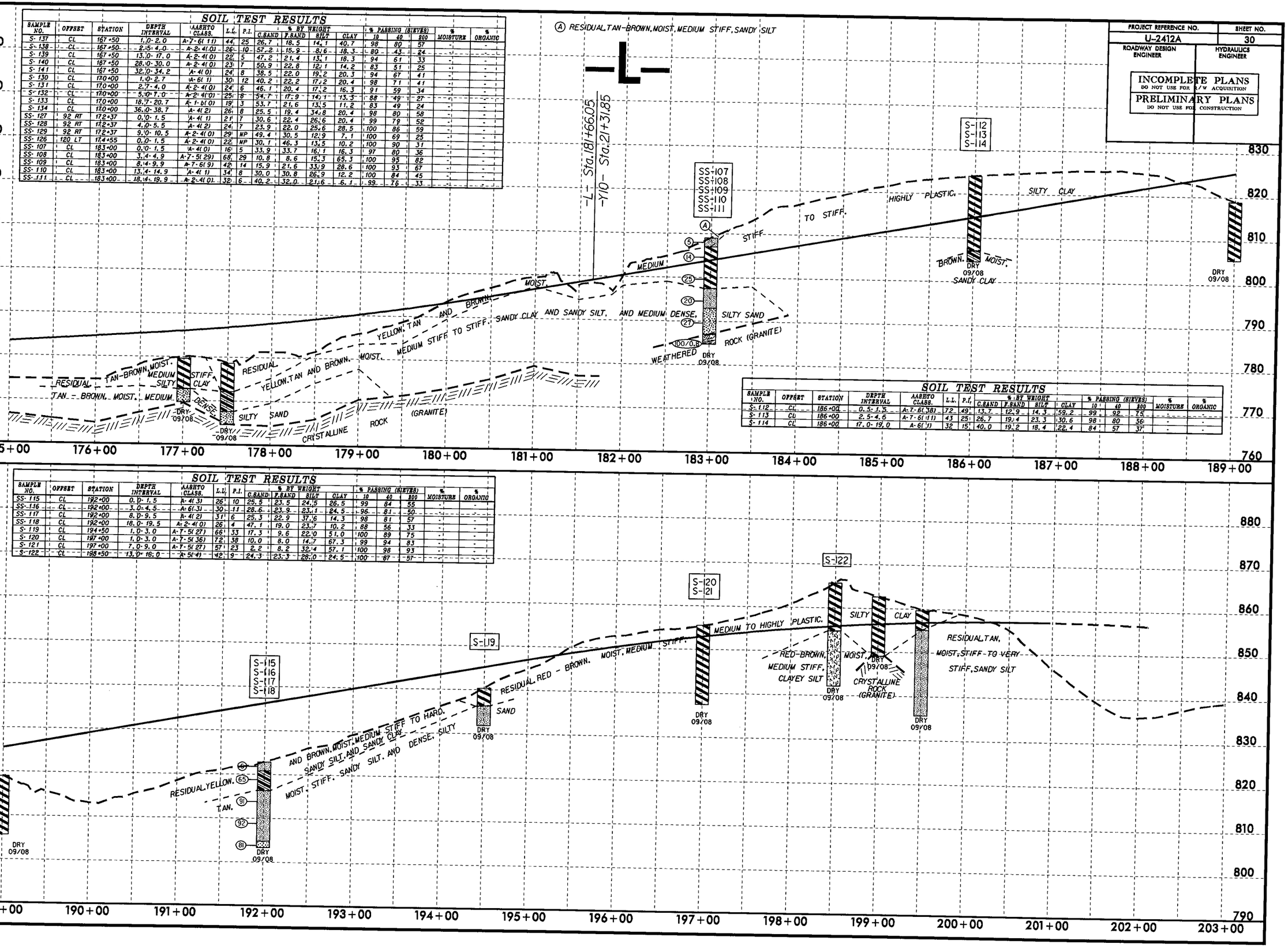
PROJECT REFERENCE NO.	SHEET NO.
U-2412A	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT G.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-137	CL	167+50	1.0- 2.0	A-7-6(11)	44	25	26.7	18.5	14.1	40.7	98	80	57	-	-
S-138	CL	167+50	2.5- 4.0	A-2-4(0)	26	10	57.2	15.9	8.6	18.3	80	43	24	-	-
S-139	CL	167+50	13.0- 17.0	A-2-4(0)	22	5	47.2	21.4	13.1	18.3	94	61	33	-	-
S-140	CL	167+50	28.0- 30.0	A-2-4(0)	23	7	50.9	22.8	12.1	14.2	83	51	25	-	-
S-141	CL	167+50	32.0- 34.2	A-4(0)	24	8	38.5	22.0	19.2	20.3	94	67	41	-	-
S-130	CL	170+00	1.0- 2.7	A-6(1)	30	12	40.2	22.2	17.2	20.4	98	71	41	-	-
S-131	CL	170+00	2.7- 4.0	A-2-4(0)	24	6	46.1	20.4	17.2	16.3	91	59	34	-	-
S-132	CL	170+00	5.0- 7.0	A-2-4(0)	25	8	54.7	17.9	14.1	13.3	88	49	27	-	-
S-133	CL	170+00	18.7- 20.7	A-1-b(0)	19	3	53.7	21.6	13.5	11.2	83	49	24	-	-
S-134	CL	170+00	36.0- 38.7	A-4(2)	26	8	25.5	19.4	34.8	20.4	98	80	58	-	-
SS-127	92 RT	172+37	0.0- 1.5	A-4(1)	21	7	30.6	22.4	26.6	20.4	99	79	52	-	-
SS-128	92 RT	172+37	4.0- 5.5	A-4(2)	24	7	23.9	22.0	25.6	28.5	100	86	59	-	-
SS-129	92 RT	172+37	9.0- 10.5	A-2-4(0)	29	NP	49.4	30.5	12.9	7.1	100	69	25	-	-
SS-126	120 LT	174+55	0.0- 1.5	A-2-4(0)	22	NP	30.1	46.3	13.5	10.2	100	90	31	-	-
SS-107	CL	183+00	0.0- 1.5	A-4(0)	16	5	33.9	33.7	16.1	16.3	97	80	36	-	-
SS-108	CL	183+00	3.4- 4.9	A-7-5(29)	68	29	10.8	8.6	15.3	65.3	100	95	82	-	-
SS-109	CL	183+00	8.4- 9.9	A-7-6(9)	42	14	15.9	21.6	33.9	28.6	100	93	67	-	-
SS-110	CL	183+00	13.4- 14.9	A-4(1)	34	8	30.0	30.8	26.9	12.2	100	84	45	-	-
SS-111	CL	183+00	18.4- 19.9	A-2-4(0)	32	6	40.2	32.0	21.6	6.1	99	76	33	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-112	CL	186+00	0.5- 1.5	A-7-6(36)	72	49	13.7	12.9	14.3	59.2	99	92	75	-	-
S-113	CL	186+00	2.5- 4.6	A-7-6(11)	43	25	26.7	19.4	23.3	30.6	98	80	56	-	-
S-114	CL	186+00	17.0- 19.0	A-6(1)	32	15	40.0	19.2	18.4	22.4	84	57	37	-	-

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-115	CL	192+00	0.0- 1.5	A-4(3)	26	10	25.5	23.5	24.5	26.5	99	84	55	-	-
SS-116	CL	192+00	3.0- 4.5	A-6(3)	30	11	28.6	23.9	23.1	24.5	96	81	50	-	-
SS-117	CL	192+00	8.0- 9.5	A-4(2)	31	6	25.3	22.9	37.6	14.3	98	81	57	-	-
SS-118	CL	192+00	18.0- 19.5	A-2-4(0)	26	4	47.1	19.0	23.7	10.2	88	56	33	-	-
S-119	CL	194+50	1.0- 3.0	A-7-5(27)	66	33	17.3	9.6	22.0	51.0	100	89	75	-	-
S-120	CL	197+00	1.0- 3.0	A-7-5(36)	72	38	10.0	8.0	14.7	67.3	99	94	83	-	-
S-121	CL	197+00	7.0- 9.0	A-7-5(27)	57	23	2.2	8.2	32.4	57.1	100	98	93	-	-
S-122	CL	198+50	13.0- 16.0	A-5(4)	42	9	24.3	23.3	26.0	24.5	100	87	57	-	-

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PROJECT REFERENCE NO.	SHEET NO.
U-2412A	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

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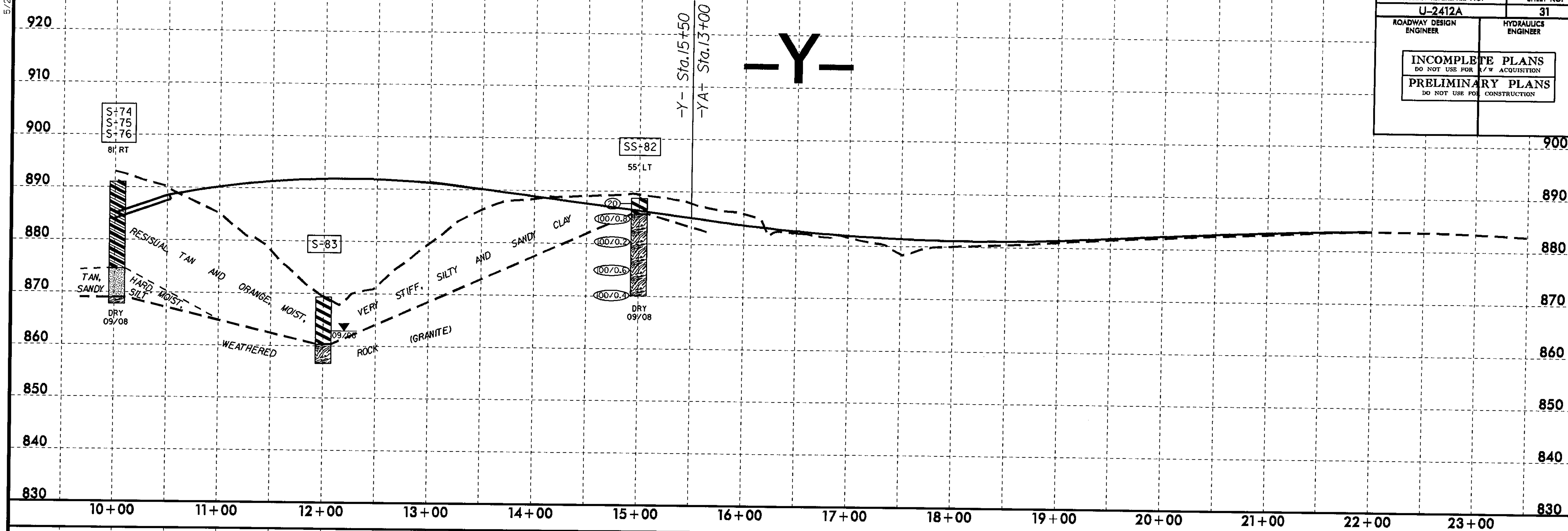

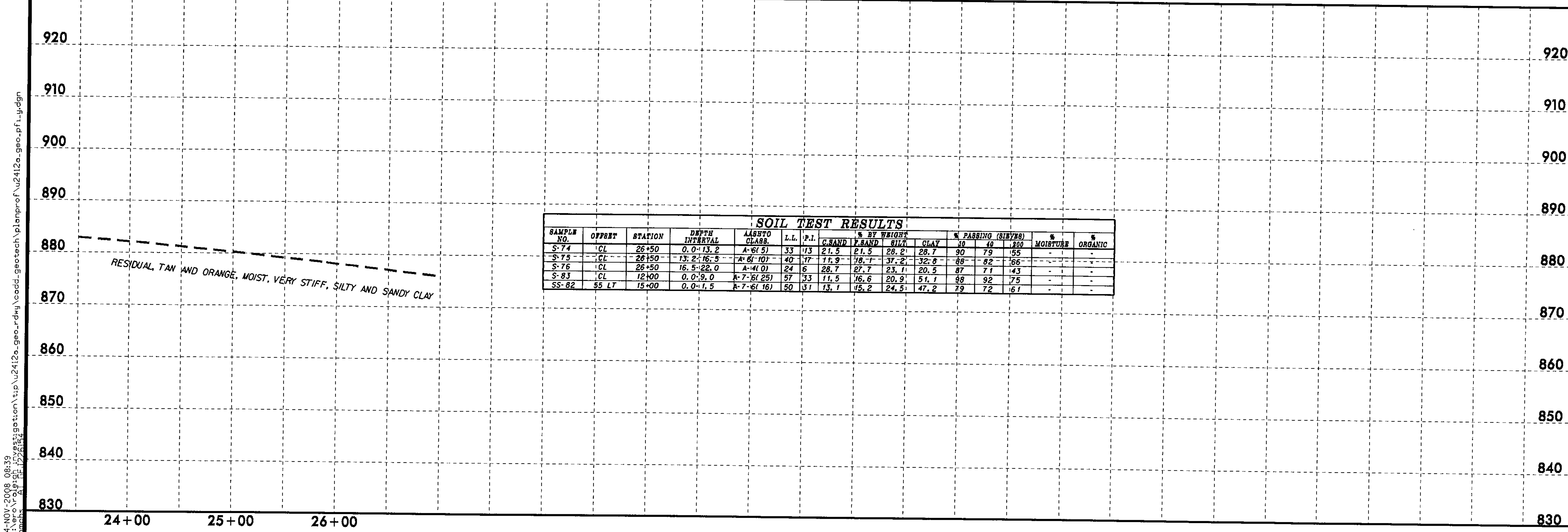

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-74	CL	26+50	0.0-13.2	A-6(5)	33	13	21.5	21.5	28.2	28.7	90	79	55	-	-
S-75	CL	26+50	13.2-16.5	A-6(10)	40	17	11.9	18.1	37.2	32.8	88	82	66	-	-
S-76	CL	26+50	16.5-22.0	A-4(0)	24	6	28.7	27.7	23.1	20.5	87	71	43	-	-
S-83	CL	12+00	0.0-9.0	A-7-6(25)	57	33	11.5	16.6	20.9	51.1	98	92	75	-	-
SS-82	55 LT	15+00	0.0-1.5	A-7-6(16)	50	31	13.1	15.2	24.5	47.2	79	72	61	-	-

5/28/99

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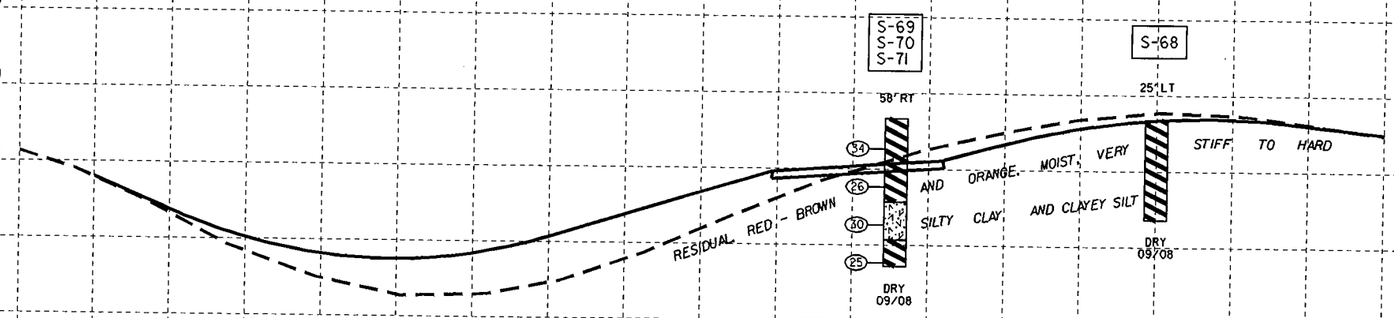
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2412A	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y3-



910 900 890 880 870 860 850 840 830 820

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-69	58 RT	31+00	3.0-4.5	A-7-5(20)	51	17	1.0	13.5	42.4	43.1	100	100	92	-	-
SS-70	58 RT	31+00	8.0-9.5	A-7-5(14)	53	13	3.5	25.2	48.7	22.6	100	99	82	-	-
SS-71	58 RT	31+00	13.0-14.5	A-5(4)	42	9	26.1	25.8	27.6	20.5	98	79	56	-	-
S-68	25 LT	17+50	0.0-13.2	A-7-6(35)	63	36	4.3	12.5	27.8	55.4	100	98	87	-	-

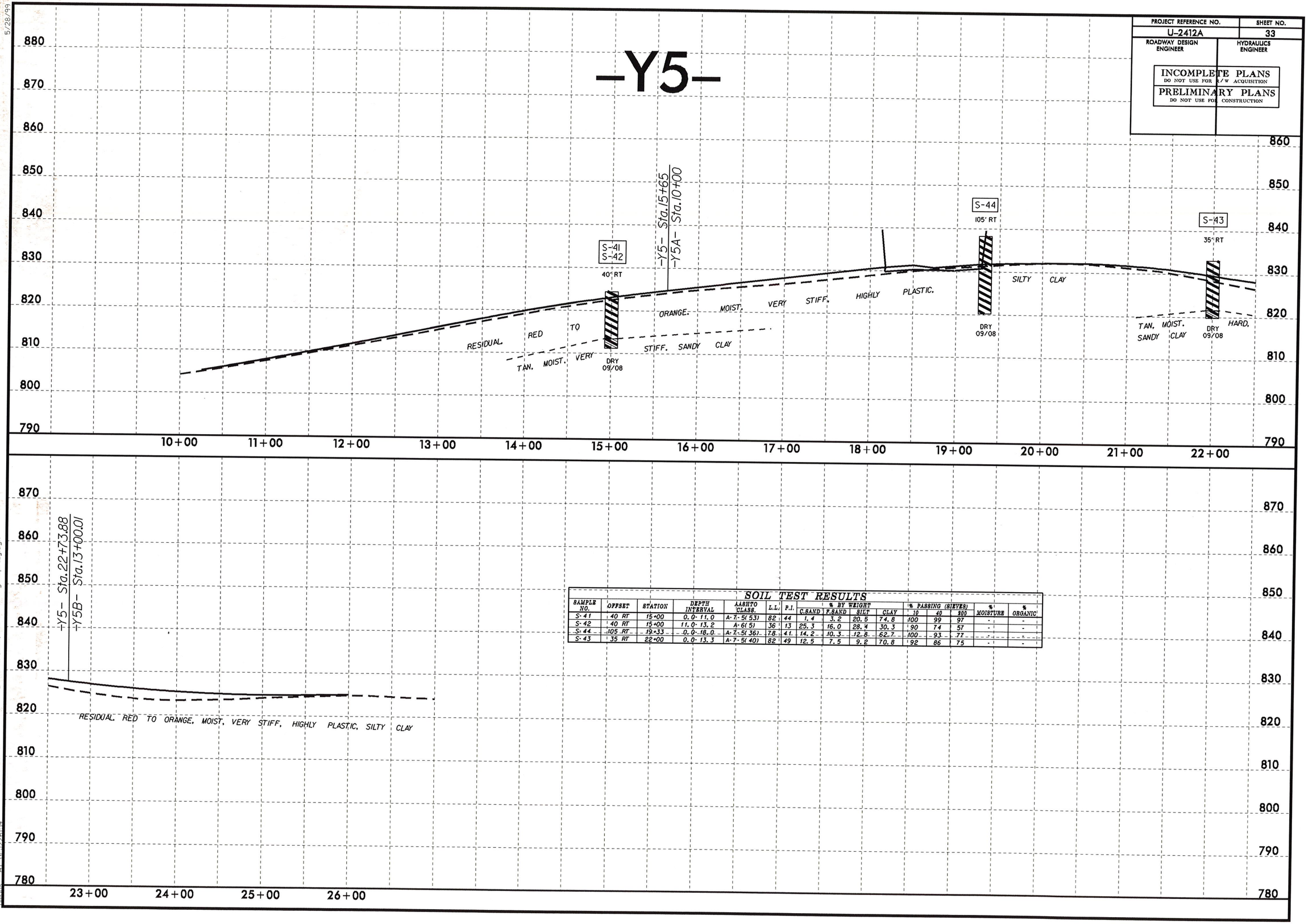
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2412A	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y5-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-41	40 RT	15+00	0.0-11.0	A-7-5(53)	82	44	1.4	3.2	20.5	74.8	100	99	97	-	-
S-42	40 RT	15+00	11.0-13.2	A-6(5)	36	13	25.3	16.0	28.4	30.3	90	74	57	-	-
S-44	105 RT	19+33	0.0-18.0	A-7-5(36)	78	41	14.2	10.3	12.8	62.7	100	93	77	-	-
S-43	35 RT	22+00	0.0-13.3	A-7-5(40)	82	49	12.5	7.5	9.2	70.8	92	86	75	-	-

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PROJECT REFERENCE NO.	SHEET NO.
U-2412A	34

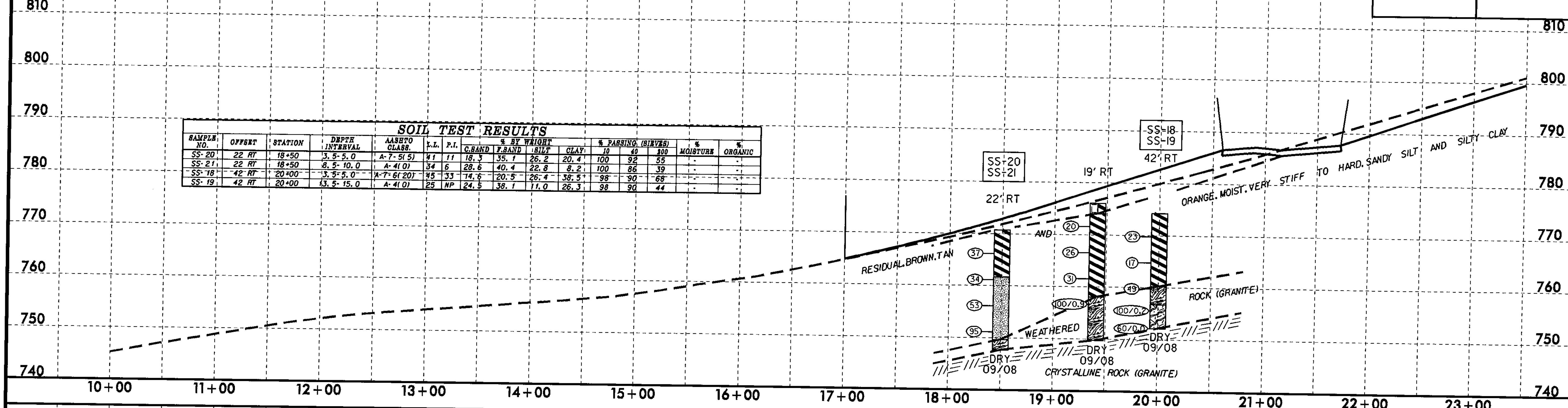
ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

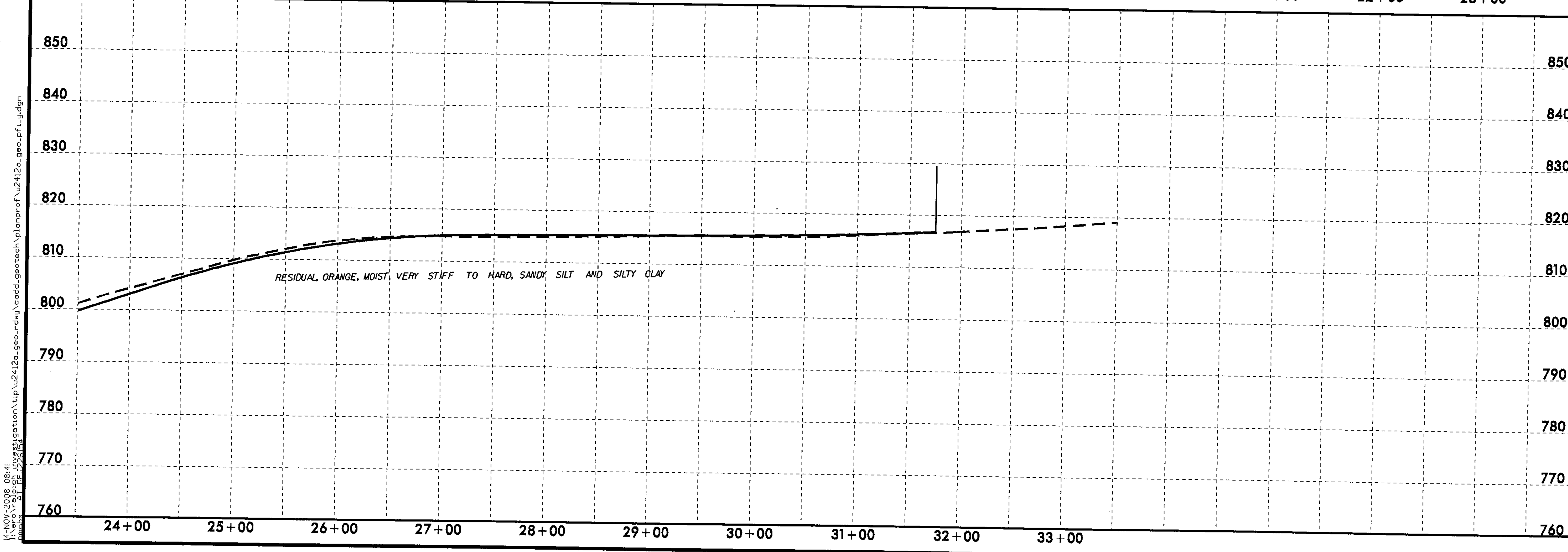
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y7-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-20	22 RT	18+50	3.5-5.0	A-7-5(5)	41	11	18.3	35.1	26.2	20.4	100	92	55	-	-
SS-21	22 RT	18+50	8.5-10.0	A-4(0)	34	6	28.6	40.4	22.8	8.2	100	86	39	-	-
SS-18	42 RT	20+00	3.5-5.0	A-7-6(20)	45	33	14.6	20.5	26.4	38.5	98	90	68	-	-
SS-19	42 RT	20+00	13.5-15.0	A-4(0)	25	NP	24.5	38.1	11.0	26.3	98	90	44	-	-

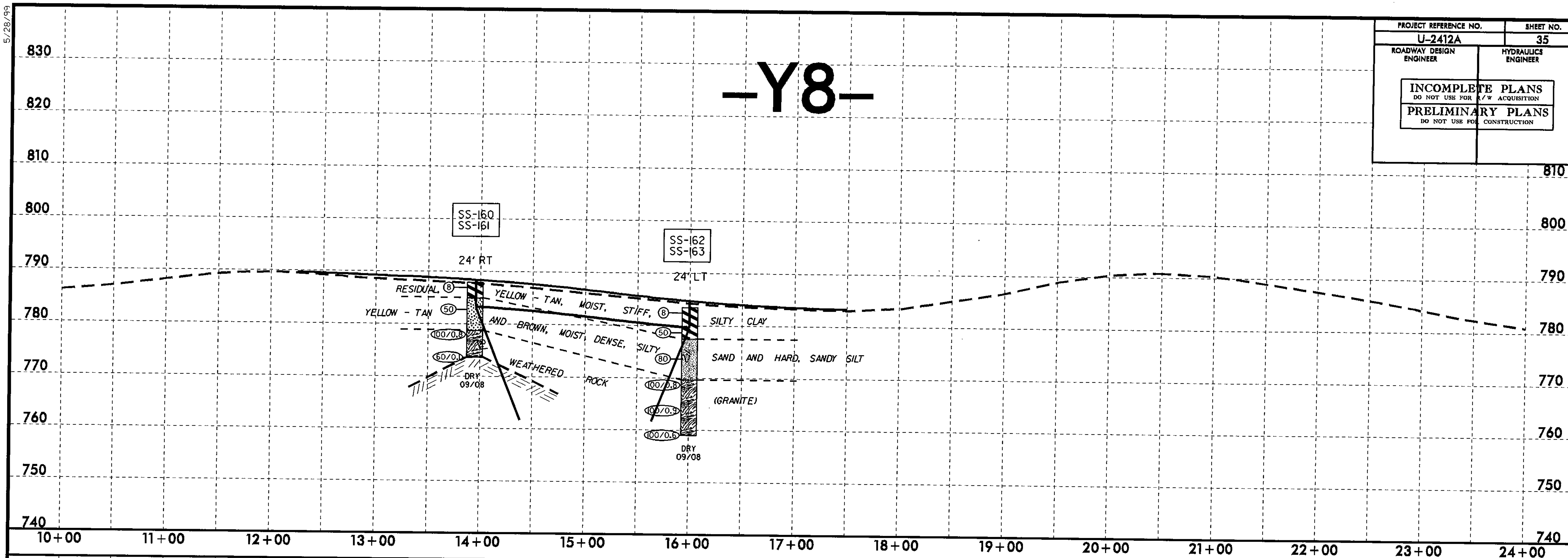


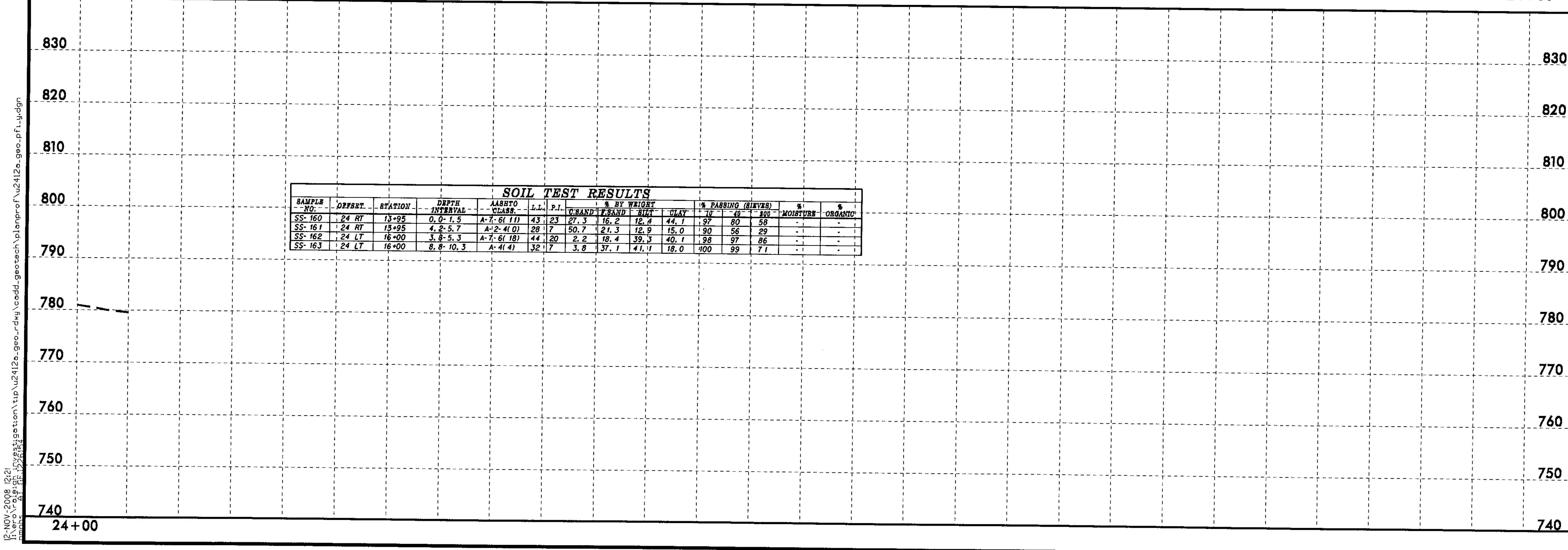
PROJECT REFERENCE NO.	SHEET NO.
U-2412A	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y8-





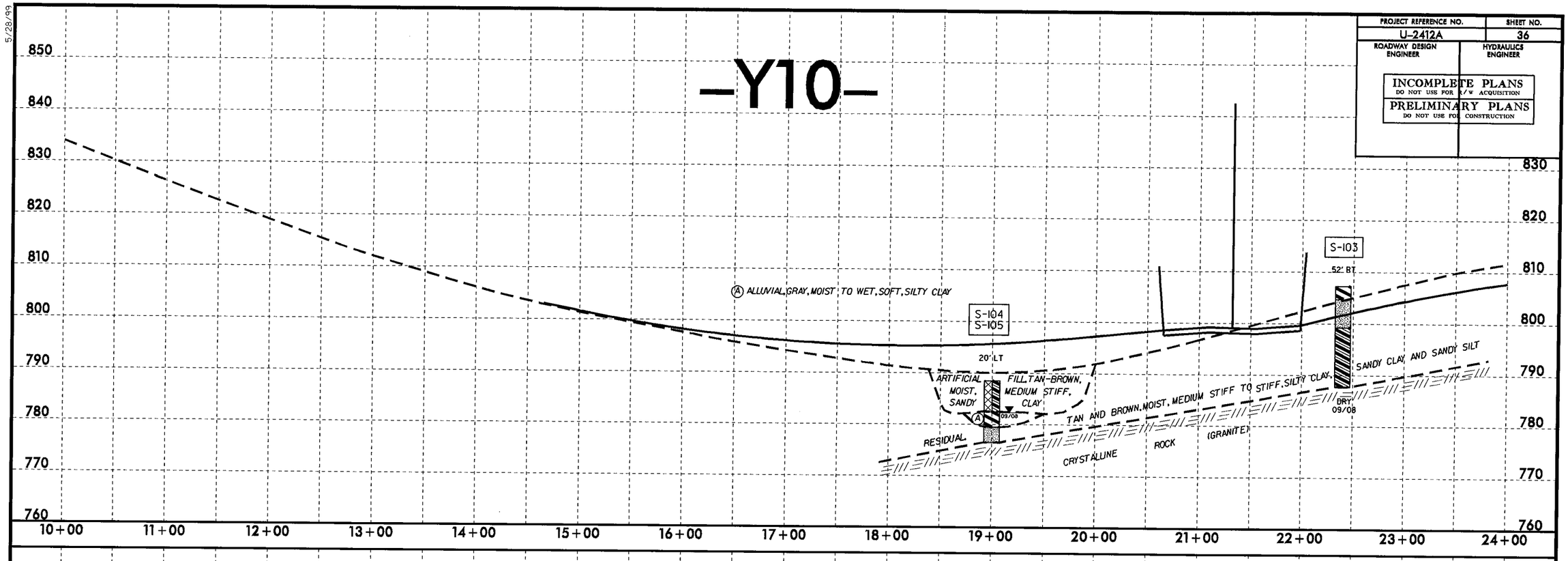
SOIL TEST RESULTS															
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-160	24 RT	13+95	0.0-1.5	A-7-6(11)	43	23	27.3	16.2	12.4	44.1	97	80	58	-	-
SS-161	24 RT	13+95	4.2-5.7	A-2-4(0)	28	7	50.7	21.3	12.9	15.0	90	56	29	-	-
SS-162	24 LT	16+00	3.8-5.3	A-7-6(18)	44	20	2.2	18.4	39.3	40.1	98	97	86	-	-
SS-163	24 LT	16+00	8.8-10.3	A-4(4)	32	7	3.8	37.1	41.1	18.0	100	99	71	-	-

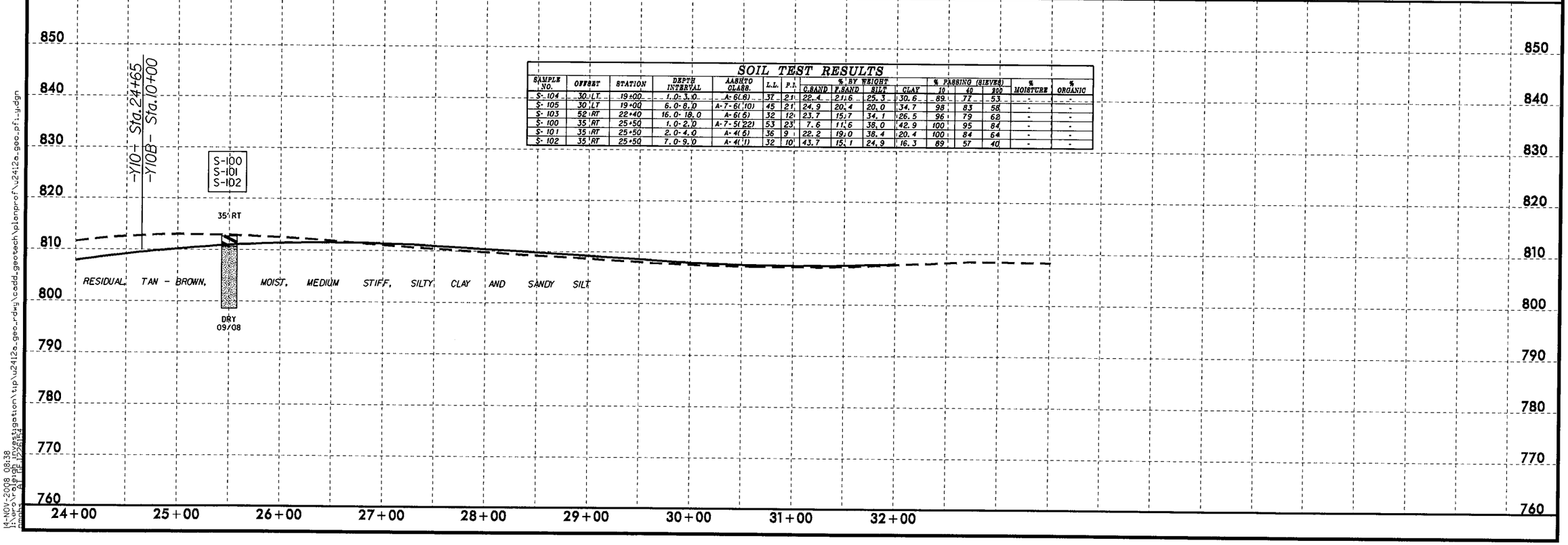
5/28/99

PROJECT REFERENCE NO.	SHEET NO.
U-2412A	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-Y10-





SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-104	30' LT	19+00	1.0-3.0	A-6(6)	37	21	22.4	21.6	25.3	30.6	89	77	53	-	-
S-105	30' LT	19+00	6.0-8.0	A-7-6(10)	45	21	24.9	20.4	20.0	34.7	98	83	58	-	-
S-103	52' RT	22+40	16.0-18.0	A-6(6)	32	12	23.7	15.7	34.1	26.5	96	79	62	-	-
S-100	35' RT	25+50	1.0-2.0	A-7-5(22)	53	23	7.6	11.6	38.0	42.9	100	95	84	-	-
S-101	35' RT	25+50	2.0-4.0	A-4(6)	36	9	22.2	19.0	38.4	20.4	100	84	64	-	-
S-102	35' RT	25+50	7.0-9.0	A-4(1)	32	10	43.7	15.1	24.9	16.3	89	57	40	-	-

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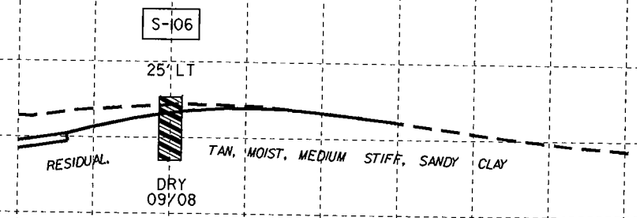
PROJECT REFERENCE NO.	SHEET NO.
U-2412A	37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	#10	#40	#200		
S-106	25' LT	11+00	1.5-3.0	A-6(7)	35	13	15.1	24.7	33.7	26.5	99	92	64		



850 840 830 820 810 800 790 780 770 760

10+00 11+00 12+00 13+00 14+00

830 820 810 800 790 780 770 760

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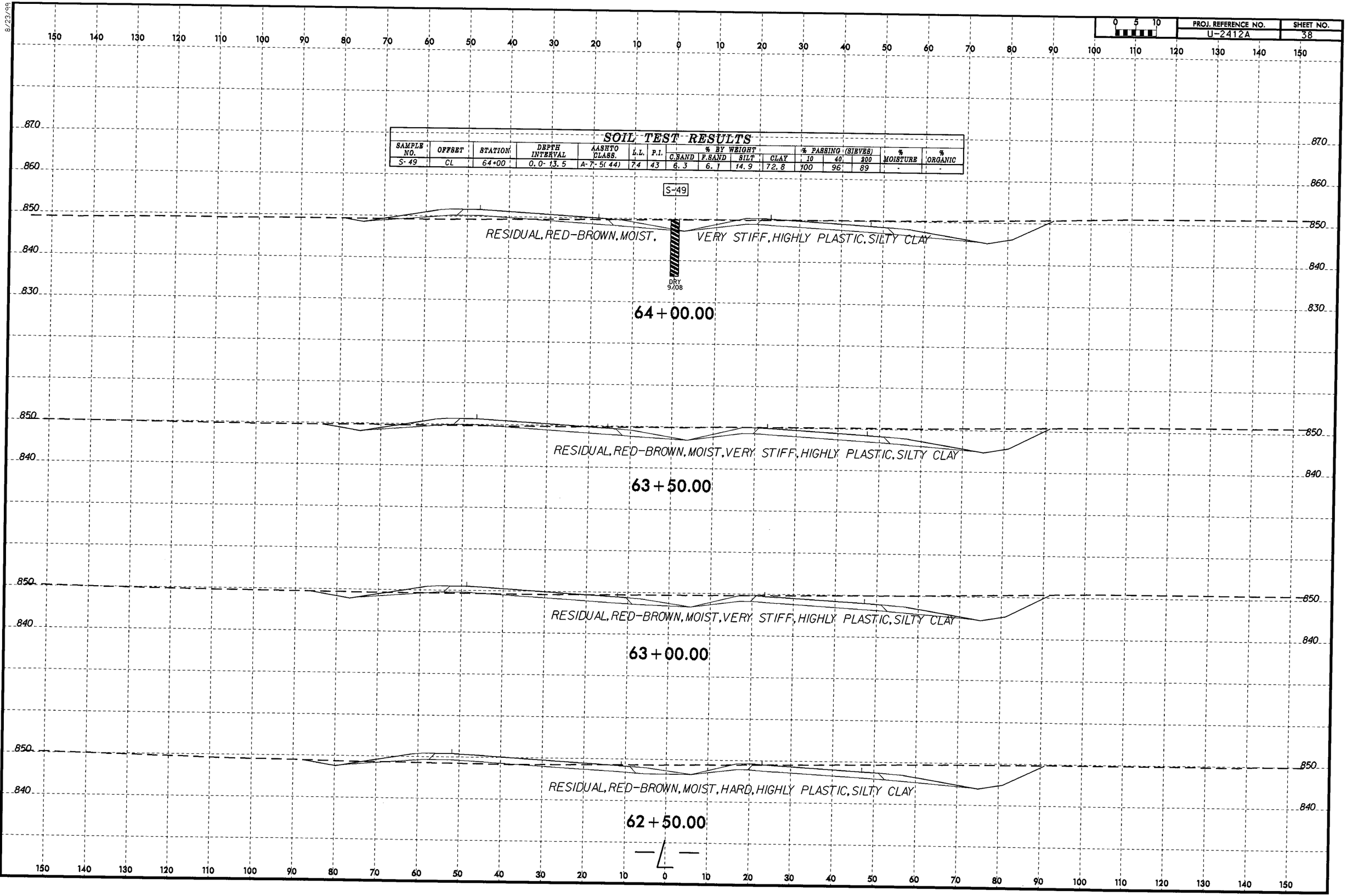
PROJ. REFERENCE NO.	SHEET NO.
U-2412A	38

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-49	CL	64+00	0.0-13.5	A-7-5(44)	74	43	6.3	6.1	14.9	72.8	100	96	89	-	-



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	39

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

850
840
830

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

66+00.00

850
840
830

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

65+50.00

850
840
830

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

65+00.00

850
840
830

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

64+50.00

—L—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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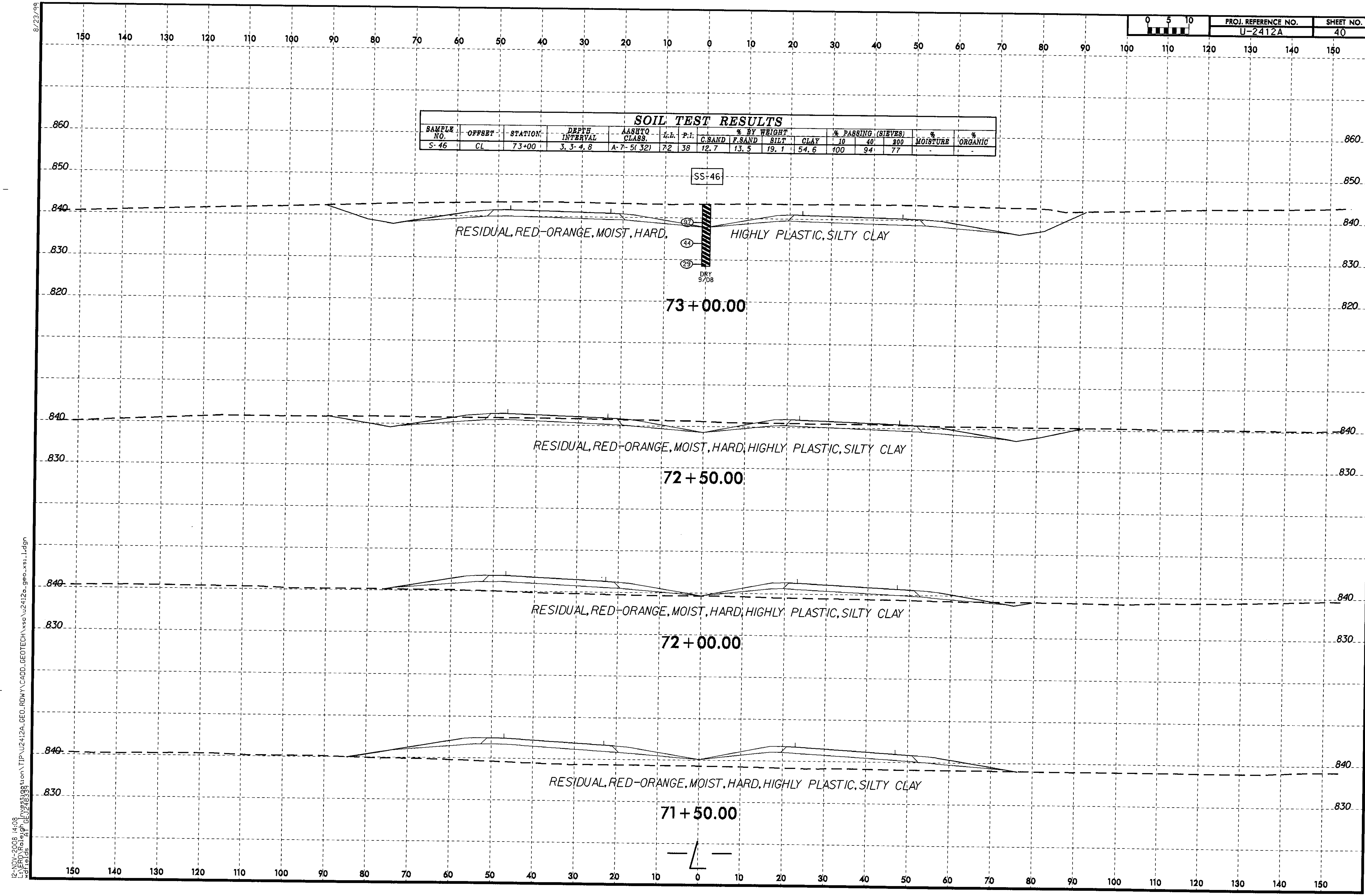
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-46	CL	73+00	3.3-4.8	A-7-5(32)	72	38	12.7	13.5	19.1	54.6	100	94	77	-	-



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	41

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

840
830
820

RESIDUAL, RED-ORANGE, MOIST, HARD, HIGHLY PLASTIC, SILTY CLAY

75+00.00

840
830

RESIDUAL, RED-ORANGE, MOIST, HARD, HIGHLY PLASTIC, SILTY CLAY

74+50.00

850
840
830

RESIDUAL, RED-ORANGE, MOIST, HARD, HIGHLY PLASTIC, SILTY CLAY

74+00.00

840
830

RESIDUAL, RED-ORANGE, MOIST, HARD, HIGHLY PLASTIC, SILTY CLAY

73+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	42

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

840
830
820

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

76+50.00

840
830
820

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

76+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-45	CL	75+50	0.0-13.5	A-7-6(31)	66	39	12.7	11.7	10.8	64.7	97	89	75	-	-

840
830
820
810

S-45

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

DRY
9/08

75+50.00

850
840
830
820
810

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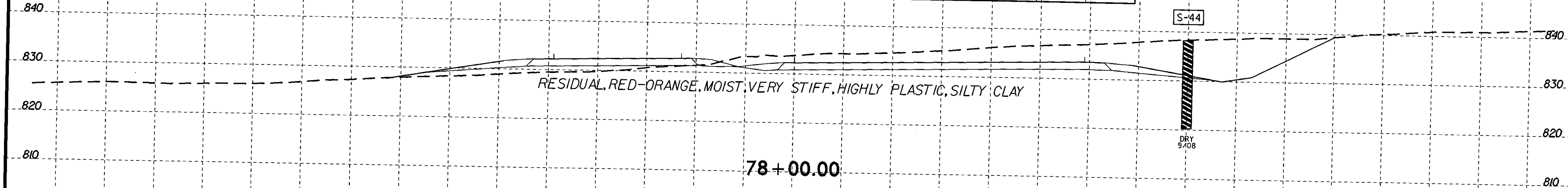
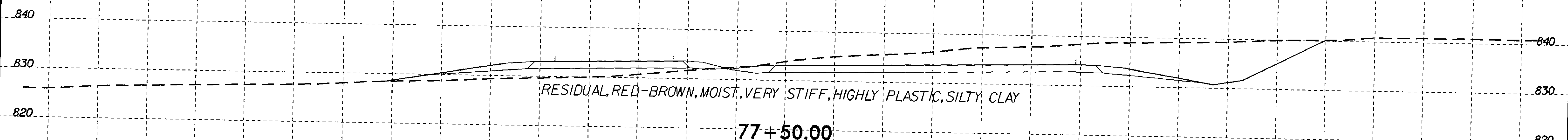
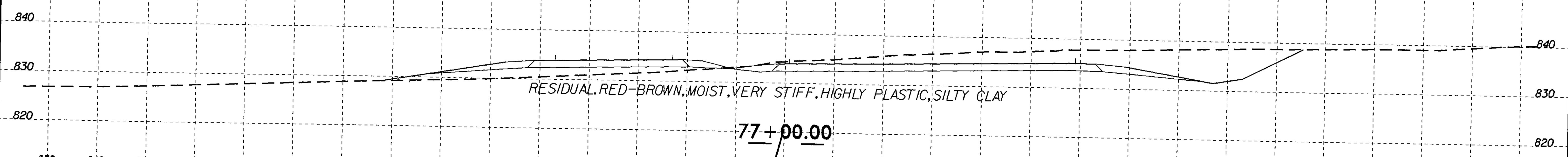
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-44	80 RT	78+00	0.0-18.0	A-7-5(36)	78	41	14.2	10.3	12.8	62.7	100	93	77	-	-







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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	44

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

830
820
810

RESIDUAL, RED-ORANGE, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

79+50.00

830
820
810

RESIDUAL, RED-ORANGE, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

79+00.00

840
830
820

RESIDUAL, RED-ORANGE, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

78+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	45

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

830
820
810

ARTIFICIAL FILL, BROWN, MOIST, HARD, SANDY CLAY AND SANDY SILT WITH GRAVEL AND WOOD DEBRIS

RESIDUAL, GRAY, MOIST, DENSE, SAPROLITIC, SILTY SAND

WEATHERED ROCK (GRANITE)

81+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-29	CL	81+00	0.0-4.0	A-6(7)	33	11	3.7	31.0	36.8	28.5	99	97	74		

840
830
820
810
800

S-29

RESIDUAL, BROWN, MOIST, VERY STIFF, SANDY CLAY

WEATHERED ROCK (GRANITE)

RESIDUAL, BROWN, MOIST, HARD, SANDY CLAY

100/0.8

100/0.6

90

DRY 9/08

81+00.00

840
830
820
810
800

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2412A	46

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

820 810 800

ARTIFICIAL FILL, BROWN, MOIST, HARD, SANDY CLAY WITH GRAVEL AND WOOD DEBRIS

RESIDUAL, GRAY, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (GRANITE)

82+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-38	75 RT	82+00	3.1-4.6	A-6(11)	32	12	33.8	21.2	26.8	18.2	78	63	39	-	-
SS-39	75 RT	82+00	8.1-9.6	A-4(4)	30	10	14.4	25.7	27.6	32.4	92	86	61	-	-
SS-40	75 RT	82+00	13.1-14.6	A-6(6)	39	13	14.6	19.6	29.4	36.4	85	78	60	-	-
M-40	75 RT	82+00	13.1-14.6				0.0	0.0	0.0	0.0		0	0	17.1%	-

SS-38
SS-39
SS-40
M-40

ARTIFICIAL FILL, BROWN, MOIST, VERY STIFF TO HARD, SANDY CLAY AND SANDY SILT, WITH GRAVEL AND WOOD DEBRIS

RESIDUAL, GRAY, MOIST, DENSE, SAPROLITIC, SILTY SAND

WEATHERED ROCK (GRANITE)

76 46 22 33 45 100/0.3

DRY 9/08

82+00.00

860 850 840 830 820 810 800 790

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8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2412A	47

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

820 810 800 790 780

ARTIFICIAL FILL, BROWN, MOIST, HARD, SANDY CLAY WITH GRAVEL AND WOOD DEBRIS

RESIDUAL, GRAY, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (GRANITE)

83+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-36	70 LT	83+00	3.5-5.0	A-6(1)	32	11	27.7	23.9	28.2	20.2	69	56	37	-	-
SS-37	70 LT	83+00	8.5-10.0	A-2-4(0)	26	6	43.8	26.7	17.4	12.1	94	67	32	-	-

SS+36
SS+37

32
59
100/0.8
DRY
9/08

ARTIFICIAL FILL, BROWN, MOIST, HARD, SANDY CLAY WITH GRAVEL AND WOOD DEBRIS

RESIDUAL, GRAY, MOIST, DENSE, SILTY SAND

WEATHERED ROCK (GRANITE)

83+00.00

840 830 820 810 800 790

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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AT GEJ248339

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PROJ. REFERENCE NO.	SHEET NO.
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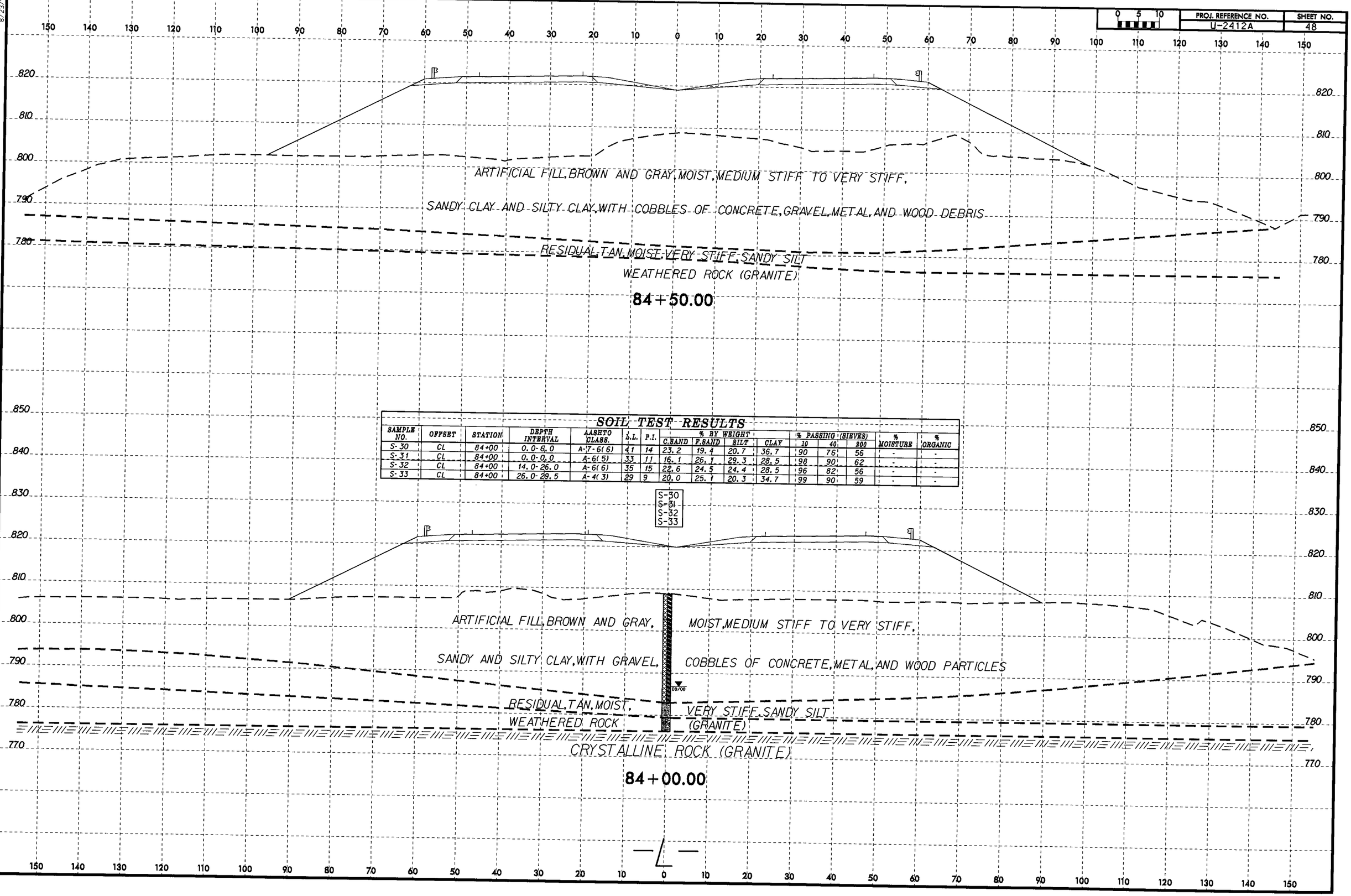

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-30	CL	84+00	0.0-6.0	A-7-6(6)	41	14	23.2	19.4	20.7	36.7	90	76	56	-	-
S-31	CL	84+00	0.0-0.0	A-6(5)	33	11	16.1	26.1	29.3	28.5	98	90	62	-	-
S-32	CL	84+00	14.0-26.0	A-6(6)	35	15	22.6	24.5	24.4	28.5	96	82	56	-	-
S-33	CL	84+00	26.0-29.5	A-4(3)	29	9	20.0	25.1	20.3	34.7	99	90	59	-	-

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	49

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

830 820 810 800 790 780 770 760

RESIDUAL, BROWN, MOIST, VERY STIFF,

WEATHERED ROCK (GRANITE)

HIGHLY PLASTIC, SILTY CLAY

85+50.00

ARTIFICIAL FILL, BROWN AND GRAY, MOIST, MEDIUM STIFF TO STIFF, SANDY AND SILTY CLAY, WITH CONCRETE, METAL, AND WOOD DEBRIS

RESIDUAL, GRAY, MOIST, VERY STIFF, SANDY SILT

WEATHERED ROCK (GRANITE)

85+00.00

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	50

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

780
770
760
750
740
730

RESIDUAL, ORANGE, HARD, HIGHLY PLASTIC, SILTY CLAY

WEATHERED ROCK (GRANITE)

101+00.00

770
760
750
740
730
720

RESIDUAL, ORANGE, HARD, HIGHLY PLASTIC, SILTY CLAY

WEATHERED ROCK (GRANITE)

100+50.00

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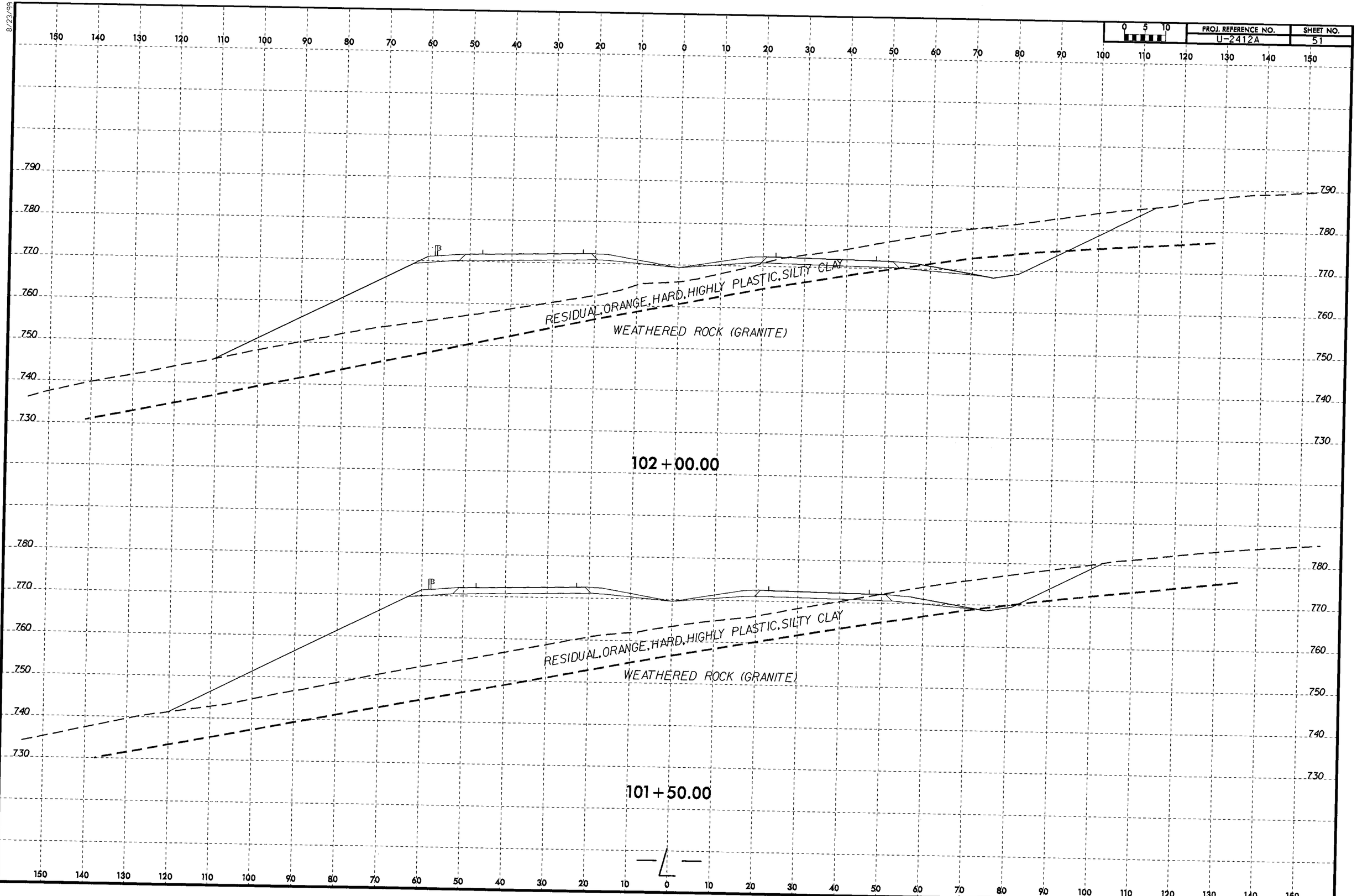

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	52

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

780 770 760 750 740 730

RESIDUAL, ORANGE, HARD, HIGHLY PLASTIC, SILTY CLAY

WEATHERED ROCK (GRANITE)

103+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-27	80 RT	102+50	0.0-7.0	A-7-6(33)	62	37	6.7	13.0	23.1	57.1	98	94	82	-	-

S-27

DRY
9/08

790 780 770 760 750 740 730

RESIDUAL, ORANGE, HARD, HIGHLY PLASTIC, SILTY CLAY

WEATHERED ROCK (GRANITE)

102+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	53

0 5 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTEHVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-23	CL	104+00	0.0-7.0	A-7-6(27)	58	33	11.0	13.5	20.5	55.0	100	93	79	-	-

S-23

VERY STIFF, SILTY CLAY

RESIDUAL, RED-BROWN, MOIST,

WEATHERED ROCK (GRANITE)

DRY
9/08

104+00.00

RESIDUAL, ORANGE, HARD, HIGHLY PLASTIC, SILTY CLAY

WEATHERED ROCK (GRANITE)

103+50.00

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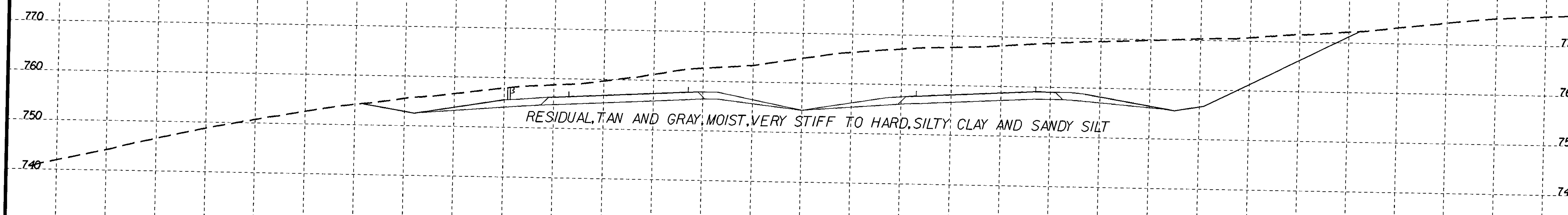
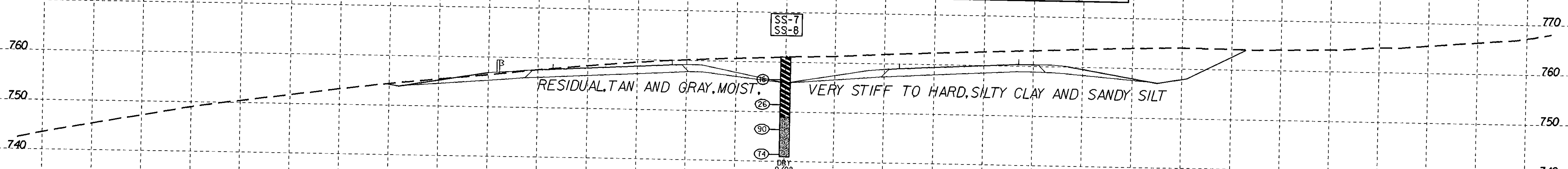


125+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-7	CL	125+00	3.5-5.0	A-7-6(11)	46	17	10.7	26.1	32.7	30.4	97	90	68	-	-
SS-8	CL	125+00	13.5-15.0	A-4(0)	26	5	30.2	30.6	33.1	6.1	89	72	41	-	-



125+00.00

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2412A	55

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

780
770
760
750
740

RESIDUAL TAN AND GRAY, MOIST, VERY STIFF TO HARD, SILTY CLAY AND SANDY SILT

CRYSTALLINE ROCK (GRANITE)

126+50.00

780
770
760
750
740
730

RESIDUAL TAN AND GRAY, MOIST, VERY STIFF TO HARD, SILTY CLAY AND SANDY SILT

CRYSTALLINE ROCK (GRANITE)

126+00.00

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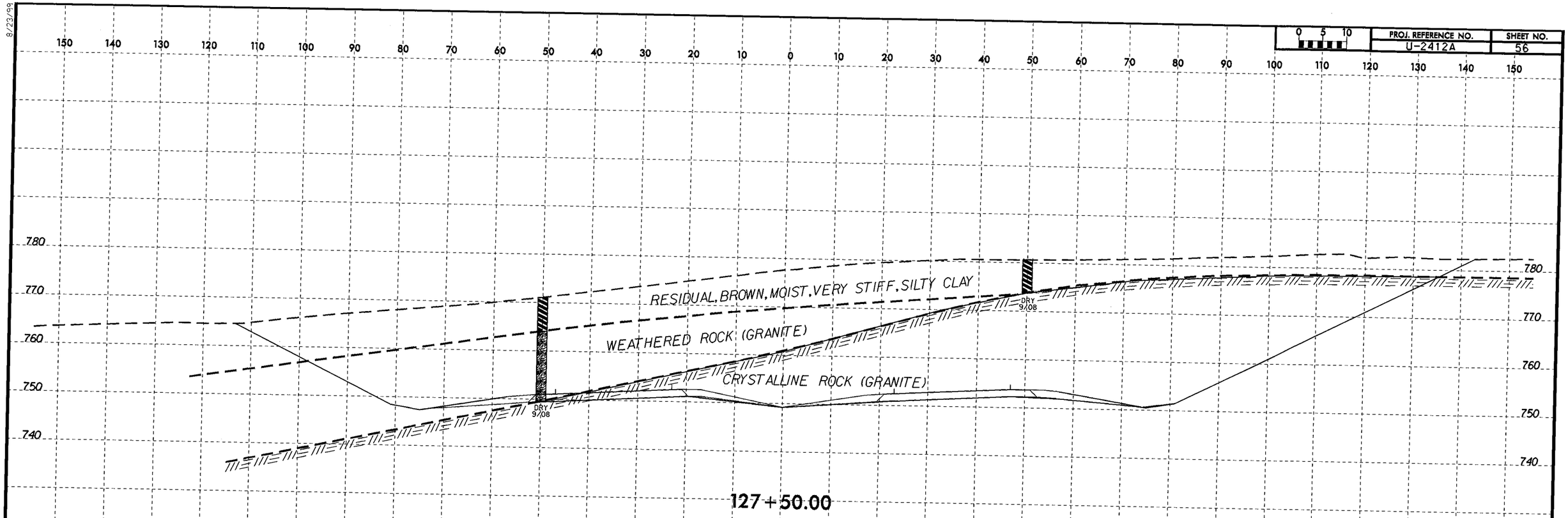
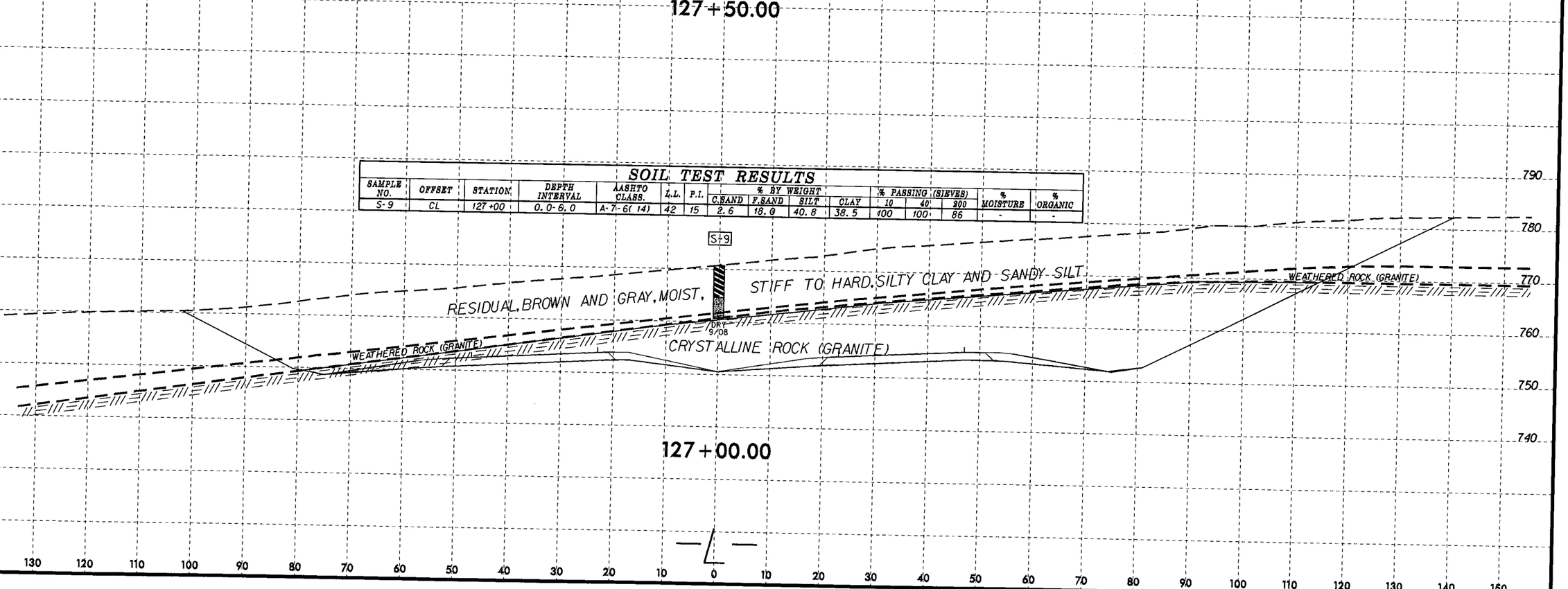
	U-2412A	56



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-9	CL	127+00	0.0-6.0	A-7-6(14)	42	15	2.6	18.0	40.8	38.5	100	100	86	-	-



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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	57

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

780 770 760 750 740 730

RESIDUAL, BROWN, MOIST, VERY STIFF, SANDY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

DRY 9/08

DRY 9/08

128+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-10	CL	128+00	0.0-6.5	A-6(6)	35	12	16.8	19.7	25.0	38.5	96	87	65	-	-

S-10

790 780 770 760 750 740

RESIDUAL, BROWN, MOIST, STIFF, SANDY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

DRY 9/08

128+00.00

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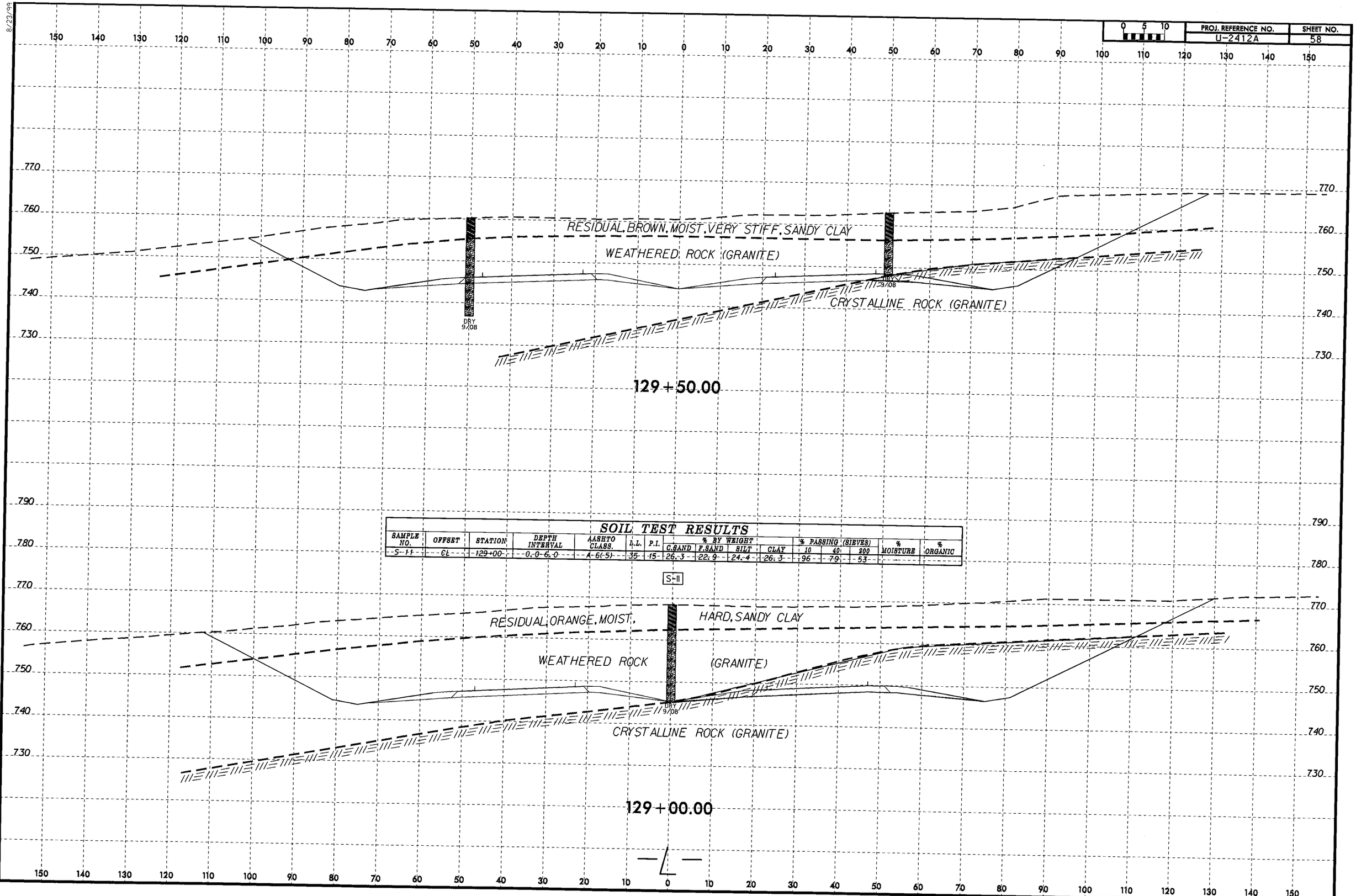
PROJ. REFERENCE NO.	SHEET NO.
U-2412A	58



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-11	Cℓ	129+00	0.0-6.0	A-6(5)	35	15	26.3	22.9	24.4	26.3	96	79	53	—	—

S-11

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	59

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

740 730 720

ARTIFICIAL FILL, BROWN, MOIST, HARD, SANDY SILT

RESIDUAL, BROWN, MOIST, HARD, SANDY CLAY

WEATHERED ROCK (GRANITE)

131+00.00

760 750 740 730

ARTIFICIAL FILL, BROWN, MOIST, HARD, SANDY SILT

RESIDUAL, BROWN, MOIST, HARD, SANDY CLAY

WEATHERED ROCK (GRANITE)

DRY 9/08

130+50.00

770 760 750 740 730 720

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-12	CL	130+00	0.0-6.0	A-4(1)	26	6	23.9	27.8	32.1	16.2	93	80	51	-	-
S-13	CL	130+00	6.0-9.5	A-6(5)	30	11	12.4	22.7	36.6	28.4	89	83	62	-	-

S-12
S-13

ARTIFICIAL FILL, BROWN, MOIST, HARD, SANDY CLAY

HARD, SANDY SILT WITH BOULDERS AND WOOD

RESIDUAL, BROWN, MOIST, HARD, SANDY CLAY

WEATHERED ROCK (GRANITE)

DRY 9/08

CRYSTALLINE ROCK (GRANITE)

130+00.00

770 760 750 740 730 720

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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	U-2412A	60

RESIDUAL, YELLOW-TAN, MOIST, MEDIUM DENSE, SAND

CRYSTALLINE ROCK (GRANITE)

144+50.00

RESIDUAL, YELLOW-TAN, MOIST, MEDIUM DENSE, SAND

DRY 9-08

CRYSTALLINE ROCK (GRANITE)

144+00.00

RESIDUAL, YELLOW-TAN, MOIST, MEDIUM DENSE, SAND

CRYSTALLINE ROCK (GRANITE)

143+50.00

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	61

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

780
770
760
750

RESIDUAL, YELLOW-TAN, MOIST, STIFF, SANDY SILT

RESIDUAL, YELLOW, TAN AND BROWN, MOIST, MEDIUM DENSE, SAND

CRYSTALLINE ROCK (GRANITE)

145+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-164	CL	145+00	1.0-3.0	A-2-4(0)	18	NP	41.6	37.2	15.2	6.0	97	75	26	-	-
S-165	CL	145+00	4.5-6.5	A-1-b(0)	19	NP	56.6	23.8	10.5	9.0	83	47	19	-	-
S-166	50 LT	145+00	1.0-3.0	A-4(0)	21	2	41.1	26.9	16.0	16.0	99	73	36	-	-

S-166 DRY 9/08

S-164 S-165 DRY 9/08

DRY 9/08

RESIDUAL, YELLOW-TAN, MOIST, STIFF, SANDY SILT

TAN-BROWN, MOIST, MEDIUM DENSE, SAND

CRYSTALLINE ROCK (GRANITE)

145+00.00

800
790
780
770
760
750

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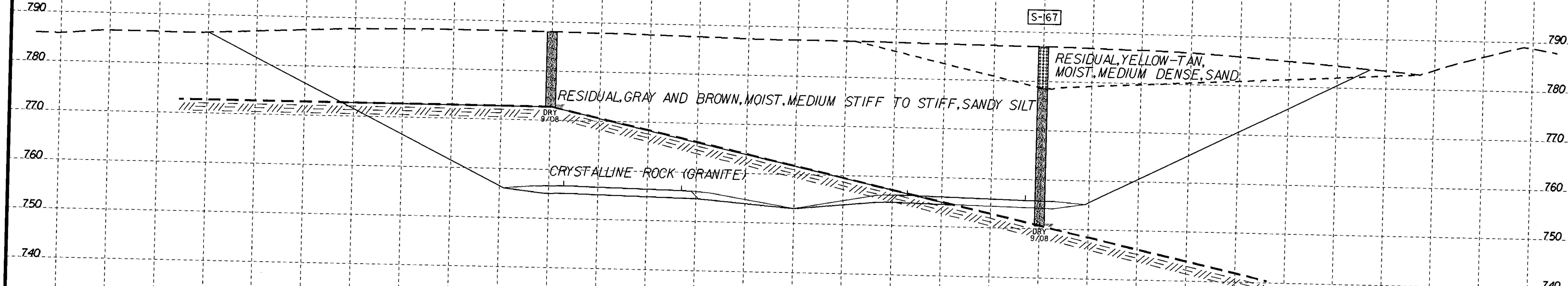
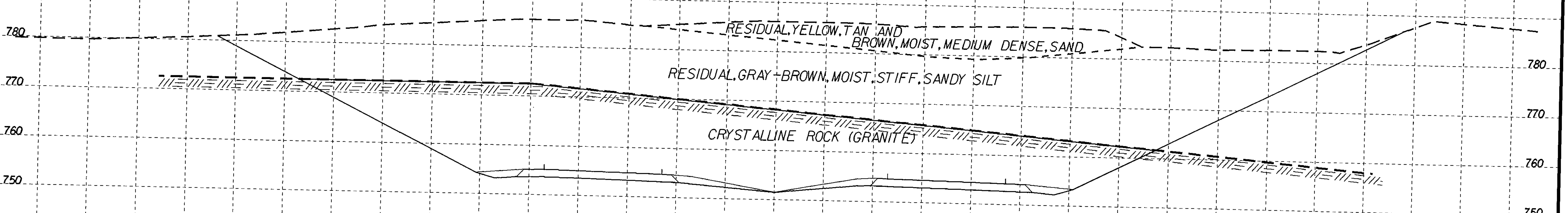
PROJ. REFERENCE NO.	SHEET NO.
U-2412A	62

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-167	50 RT	146+50	9.0-11.0	A-4(3)	28	8	17.2	24.4	36.3	22.0	98	88	64	-	-



146+50.00



146+00.00

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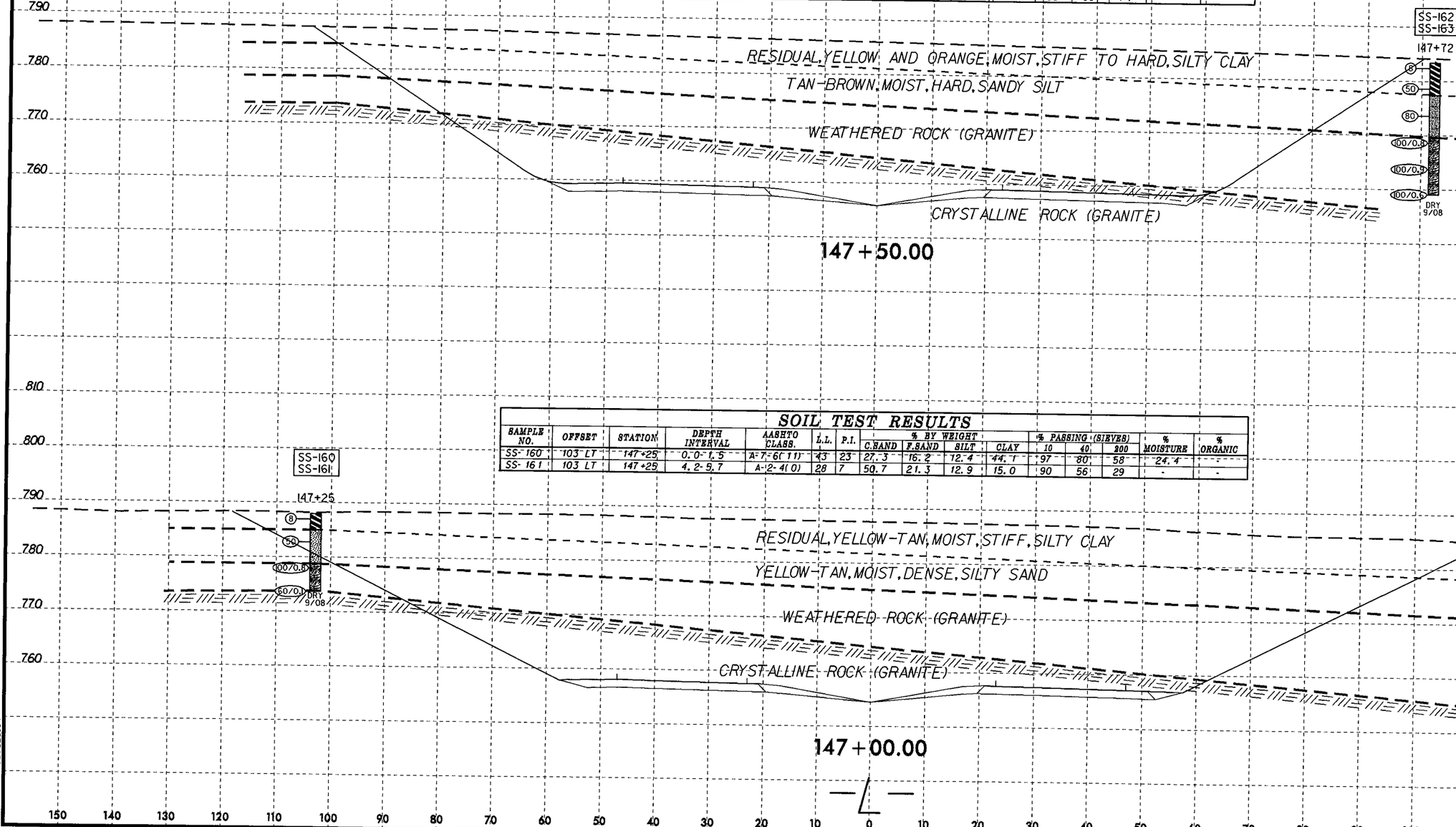
PROJ. REFERENCE NO.	SHEET NO.
U-2412A	63

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-162	103 RT	147+72	3.8-5.3	A-7-6(18)	44	20	2.2	18.4	39.3	40.1	98	97	86	-	-
SS-163	103 RT	147+72	8.8-10.3	A-4(4)	32	7	3.8	37.1	41.1	18.0	100	99	71	-	-



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-160	103 LT	147+25	0.0-1.5	A-7-6(11)	43	23	27.3	16.2	12.4	44.1	97	80	58	24.4	-
SS-161	103 LT	147+25	4.2-5.7	A-2-4(0)	28	7	50.7	21.3	12.9	15.0	90	56	29	-	-

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	64

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

770
760
750

RESIDUAL, YELLOW-BROWN, MOIST, MEDIUM STIFF TO STIFF, SILTY CLAY AND SANDY CLAY

TAN-BROWN, MOIST, DENSE TO VERY DENSE, SILTY SAND

CRYSTALLINE ROCK (GRANITE)

149+00.00

780
770
760
750

RESIDUAL, YELLOW-BROWN, MOIST, MEDIUM STIFF TO STIFF, SILTY CLAY AND SANDY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

148+50.00

780
770
760
750

RESIDUAL, YELLOW AND ORANGE, MOIST, STIFF TO HARD, SILTY CLAY

WEATHERED ROCK (GRANITE)

CRYSTALLINE ROCK (GRANITE)

148+00.00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	65

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-157	60 RT	149+50	1.0-3.0	A-7-6(8)	43	20	28.3	19.2	10.4	42.1	98	81	55	-	-
S-158	60 RT	149+50	5.0-7.0	A-6(1)	31	12	43.4	19.7	12.8	24.0	98	68	40	-	-
S-159	60 RT	149+50	16.0-18.0	A-2-4(0)	25	7	57.7	16.5	10.7	15.0	91	47	26	-	-

S-157
S-158
S-159

RESIDUAL, YELLOW-BROWN, MOIST, MEDIUM STIFF TO STIFF, SILTY CLAY AND SANDY CLAY

TAN-BROWN, MOIST, DENSE TO VERY DENSE, SILTY SAND

TAN-BROWN, MOIST, HARD, SANDY CLAY

DRY
9-08

149+50.00

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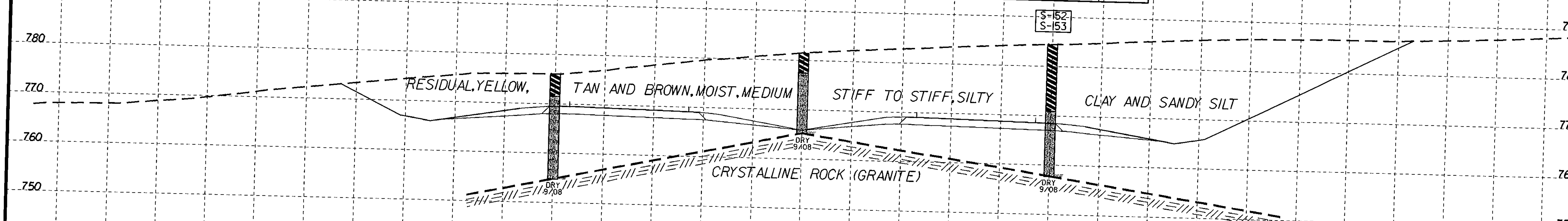
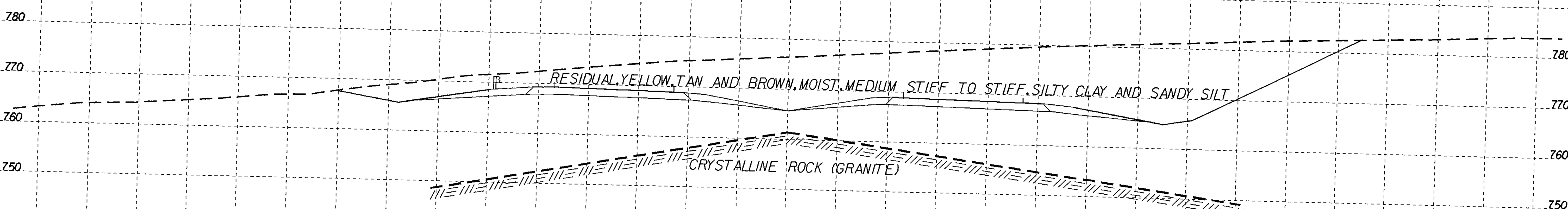
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S- 152	50 RT	161+50	8.5- 11.0	A-7-6(7)	41	21	29.7	22.4	19.4	28.5	98	79	51	-	-
S- 153	50 RT	161+50	16.0- 18.5	A- 4(1)	27	10	34.4	24.6	16.6	24.4	98	76	44	-	-



161+50.00



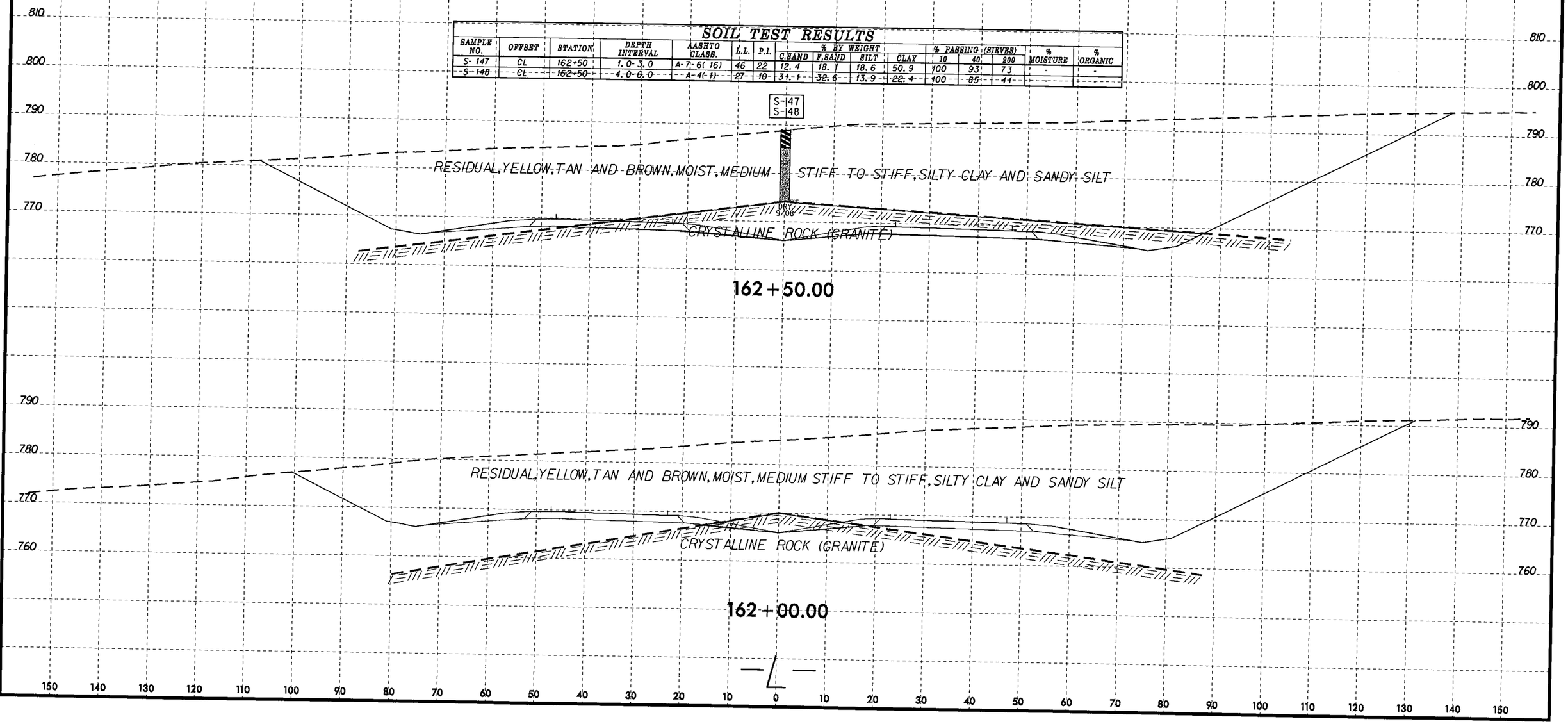
161+00.00

8/23/99

PROJ. REFERENCE NO.	SHEET NO.
U-2412A	67

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-147	CL	162+50	1.0-3.0	A-7-6(16)	46	22	12.4	18.1	18.6	50.9	100	93	73	-	-
S-148	CL	162+50	4.0-6.0	A-4(1)	27	10	31.1	32.6	13.9	22.4	100	85	41		



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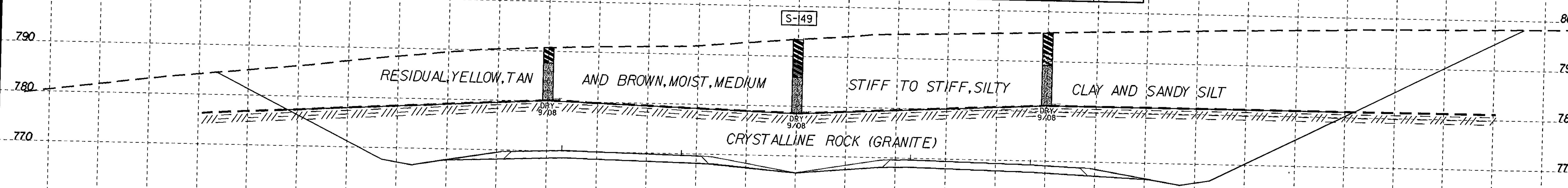
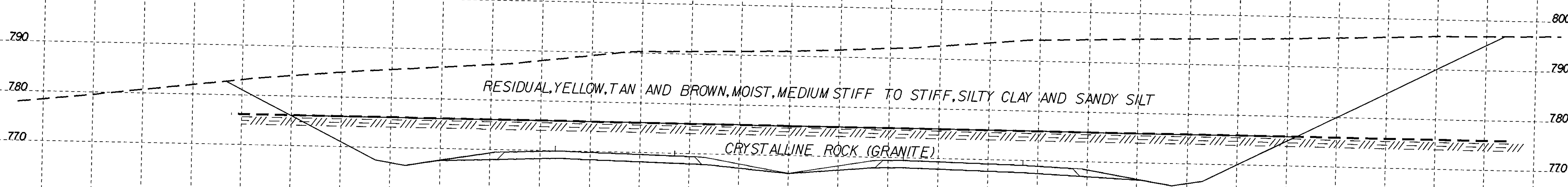
PROJ. REFERENCE NO.	SHEET NO.
U-2412A	68

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-149	CL	163+50	5.0-7.0	A-6(3)	27	12	18.7	33.2	19.6	28.5	100	93	53	-	-



163+50.00



163+00.00

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	69

0 5 10

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800
790
780
770

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF TO STIFF, SILTY CLAY

YELLOW-TAN, MOIST, MEDIUM DENSE TO DENSE, CLAYEY SAND

DRY 9/08

CRYSTALLINE ROCK (GRANITE)

164+50.00

800
790
780
770

RESIDUAL, YELLOW, TAN AND BROWN, MOIST, MEDIUM STIFF TO STIFF, SILTY CLAY AND SANDY SILT

CRYSTALLINE ROCK (GRANITE)

164+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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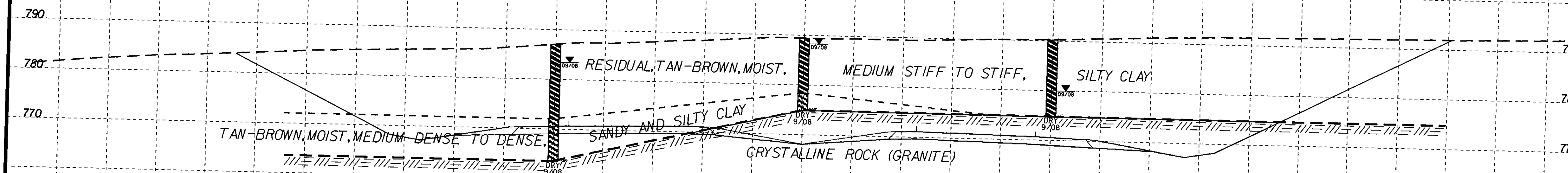
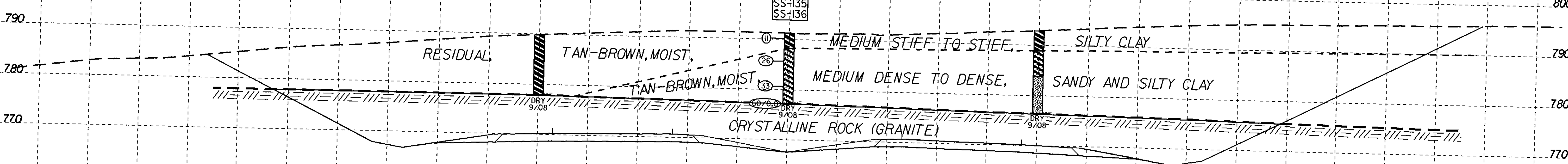


165+50.00

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
SS-135	CL	165+00	0.0-1.5	A-7-5(11)	51	20	21.6	21.4	16.2	40.8	100	86	61	-	-
SS-136	CL	165+00	4.5-6.0	A-2-6(0)	37	11	41.8	28.3	15.6	14.3	98	72	34	-	-



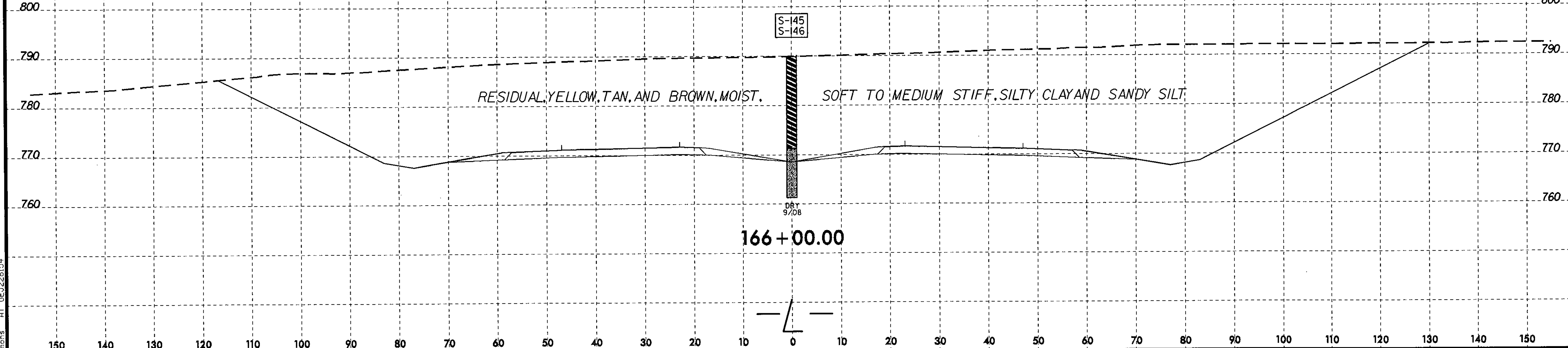
165+00.00

-L-

PROJ. REFERENCE NO.	SHEET NO.
U-2412A	71

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S- 145	CL	166+00	5.0-7.0	A-7-6(14)	47	25	16.9	24.8	23.7	34.6	99	90	63	28.9	-
S- 146	CL	166+00	18.6-25.0	A-4(2)	30	10	26.9	30.9	19.8	22.4	100	96	48	-	-



166+00.00

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	72

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

790
780
770
760

RESIDUAL TAN-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

TAN-BROWN, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND

CRYSTALLINE ROCK (GRANITE)

176+00.00

790
780
770
760

780
770
760

RESIDUAL TAN-BROWN, MOIST, MEDIUM STIFF, SILTY CLAY

TAN-BROWN, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND

CRYSTALLINE ROCK (GRANITE)

175+50.00

780
770

TAN-BROWN, MOIST, MEDIUM DENSE TO DENSE, SILTY SAND

CRYSTALLINE ROCK (GRANITE)

175+00.00

780
770

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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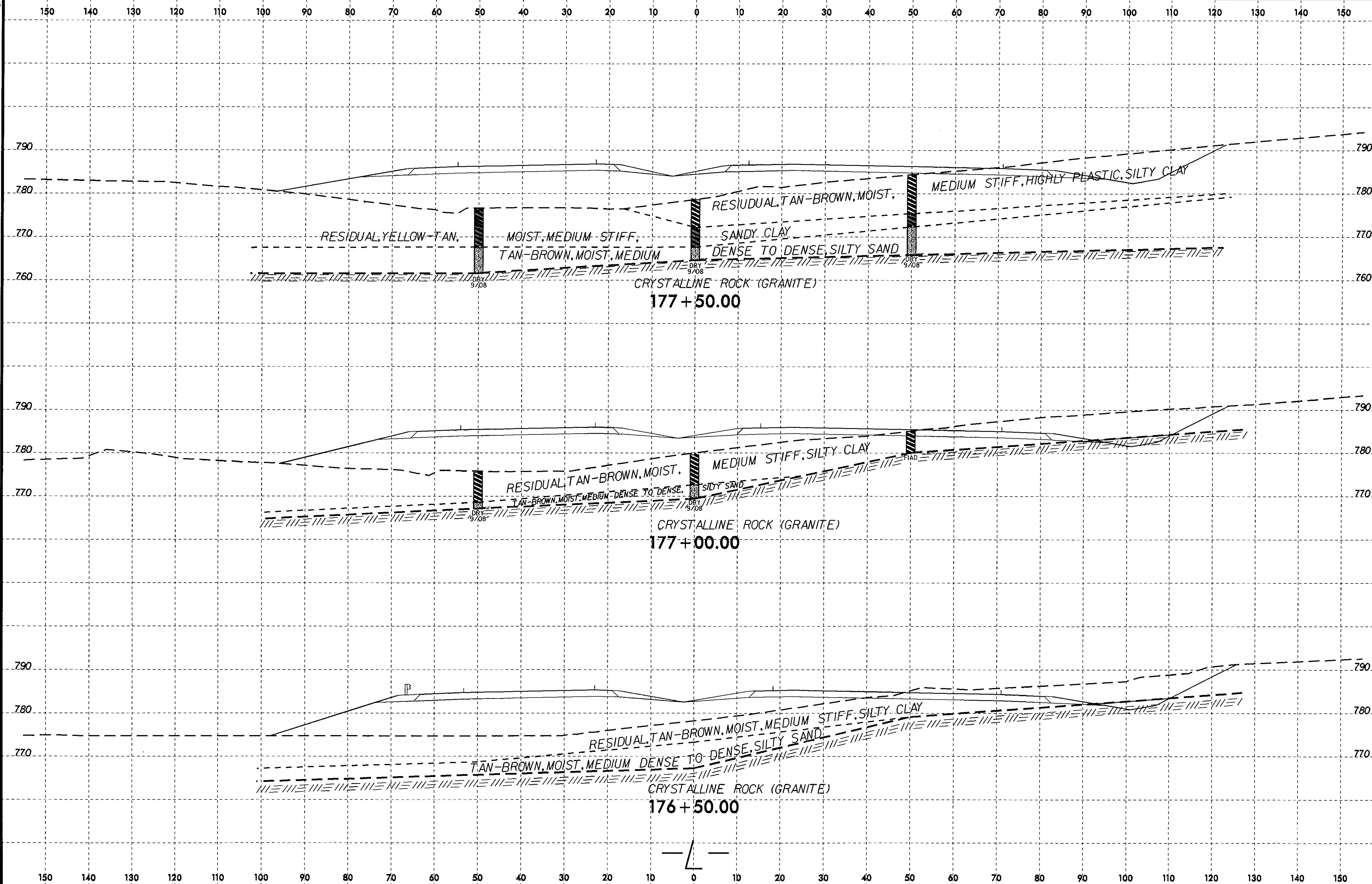
PROJ. REFERENCE NO.	SHEET NO.
U-2412A	73



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	74

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800
790
780
770
760

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

RESIDUAL, YELLOW-TAN, MOIST, MEDIUM STIFF, SANDY CLAY

TAN-BROWN, MOIST, MEDIUM DENSE, SILTY SAND

CRYSTALLINE ROCK (GRANITE)

178+50.00

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

RESIDUAL, YELLOW-TAN, MOIST, MEDIUM STIFF, SANDY CLAY

TAN-BROWN, MOIST, MEDIUM DENSE, SILTY SAND

CRYSTALLINE ROCK (GRANITE)

178+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	75

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

800
790
780
770
760

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

RESIDUAL, YELLOW-TAN, MOIST, MEDIUM STIFF, SANDY CLAY

CRYSTALLINE ROCK (GRANITE)

179+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
S-123	100 RT	179+00	1.0-3.0	A-7-5(39)	78	46	15.1	9.8	13.9	61.2	100	92	77	-	-
S-124	100 RT	179+00	6.0-8.0	A-6(4)	38	12	28.1	25.1	18.2	28.5	100	85	51	-	-
S-125	100 RT	179+00	11.0-13.0	A-2-4(0)	29	6	40.6	29.0	14.1	16.3	100	76	35	-	-

S-123
S-124
S-125

PLASTIC, SILTY CLAY

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, HIGHLY

RESIDUAL, YELLOW-TAN, MOIST, MEDIUM STIFF, SANDY CLAY

BROWN, MOIST, MEDIUM DENSE, SILTY SAND

DRY
9/08

CRYSTALLINE ROCK (GRANITE)

179+00.00

800
790
780
770
760
810
800
790
780
770
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	76

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

810
800
790
780
770

RESIDUAL,TAN-BROWN,MOIST,MEDIUM STIFF,HIGHLY PLASTIC,SILTY CLAY

RESIDUAL,YELLOW-TAN,MOIST,MEDIUM STIFF,SANDY CLAY

CRYSTALLINE ROCK (GRANITE)

180+50.00

800
790
780
770
760

RESIDUAL,TAN-BROWN,MOIST,MEDIUM STIFF,HIGHLY PLASTIC,SILTY CLAY

RESIDUAL,YELLOW-TAN,MOIST,MEDIUM STIFF,SANDY CLAY

CRYSTALLINE ROCK (GRANITE)

180+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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PROJ. REFERENCE NO.	SHEET NO.
U-2412A	77

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

810
800
790
780
770

RESIDUAL YELLOW-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN, GRAY AND BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY SILT AND SANDY CLAY

CRYSTALLINE ROCK (GRANITE)

181+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-103	100 RT	181+00	16.0-18.0	A-6(5)	32	12	23.7	15.7	34.1	26.5	96	79	62	- -	- -

S-103

RESIDUAL BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN, GRAY AND BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY SILT AND SANDY CLAY

DRY 9/08

CRYSTALLINE ROCK (GRANITE)

181+00.00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	78

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

810
800
790
780

RESIDUAL, YELLOW-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY

YELLOW, TAN, AND BROWN, MOIST, MEDIUM DENSE, SILTY SAND, AND VERY STIFF, SANDY SILT

WEATHERED ROCK (GRANITE)

182 + 50.00

810
800
790

RESIDUAL, YELLOW-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN, GRAY AND BROWN, MOIST, MEDIUM STIFF TO STIFF, SANDY SILT AND SANDY CLAY

182 + 00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	79

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

820
810
800
790

RESIDUAL, YELLOW-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY

YELLOW, TAN, AND BROWN, MOIST, MEDIUM DENSE, SILTY SAND, AND VERY STIFF, SANDY SILT

WEATHERED ROCK (GRANITE)

183+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-107	CL	183+00	0.0-1.5	A-4(0)	16	5	33.9	33.7	16.1	16.3	97	80	36	-	-
SS-108	CL	183+00	3.4-4.9	A-7-5(29)	68	29	10.8	8.6	15.3	65.3	100	95	82	34.0	-
SS-109	CL	183+00	8.4-9.9	A-7-6(9)	42	14	15.9	21.6	33.9	28.6	100	93	67	-	-
SS-110	CL	183+00	13.4-14.9	A-4(1)	34	8	30.0	30.8	26.9	12.2	100	84	45	-	-
SS-111	CL	183+00	18.4-19.9	A-2-4(0)	32	6	40.2	32.0	21.6	6.1	99	76	33	-	-

840
830
820
810
800
790

SS-107
SS-108
SS-109
SS-110
SS-111

(5) (14) (25) (20) (27) (100/0.8)

RESIDUAL, TAN-BROWN, MOIST, MEDIUM STIFF, SANDY SILT

YELLOW-BROWN, MOIST, STIFF, HIGHLY PLASTIC, SILTY CLAY

YELLOW, TAN, AND BROWN, MOIST, MEDIUM DENSE, SILTY SAND, AND VERY STIFF, SANDY SILT

WEATHERED ROCK (GRANITE)

DBY 9/08

183+00.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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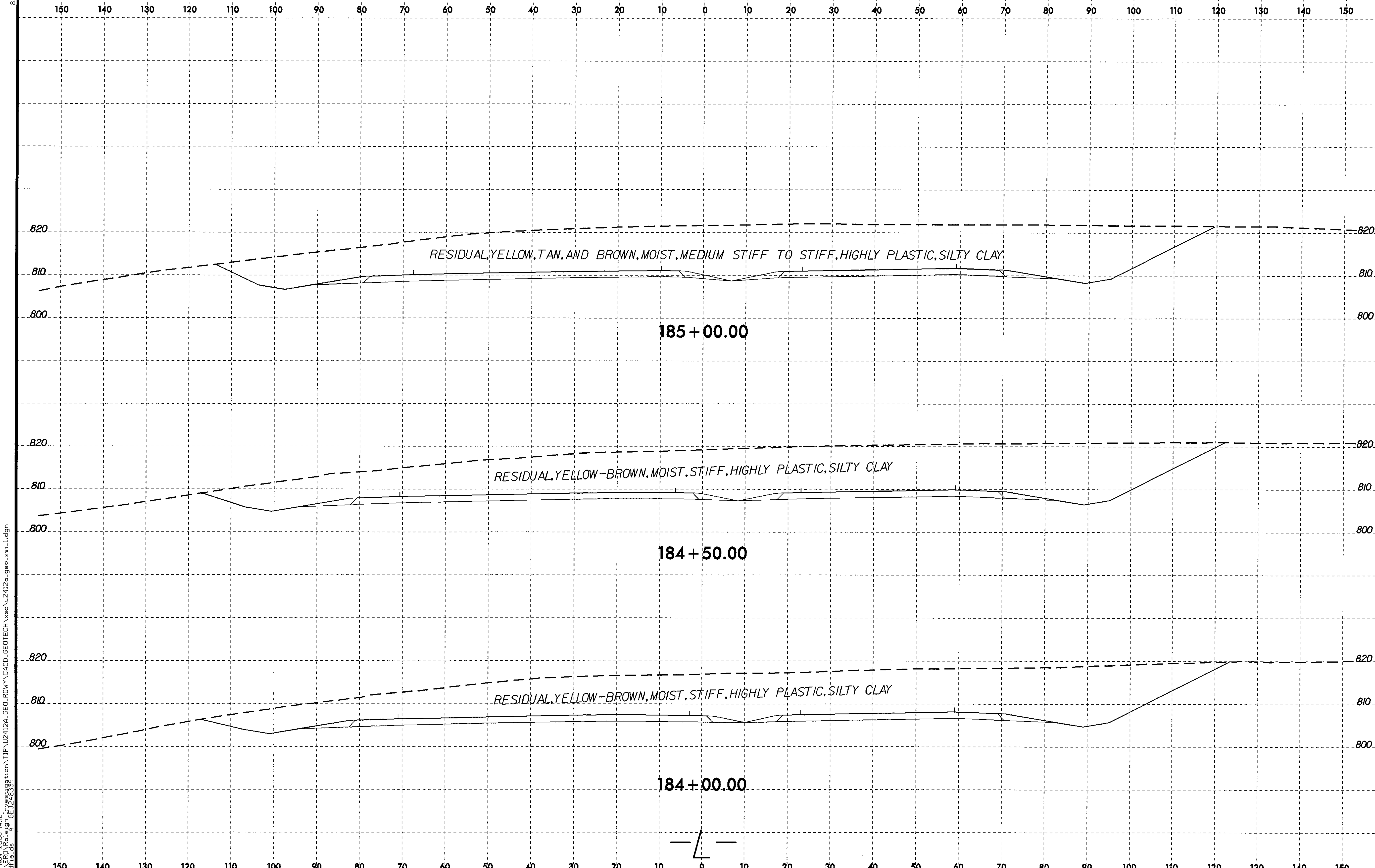
	U-2412A	80



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	81

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

820
810

RESIDUAL, YELLOW, TAN, AND BROWN, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY

186+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C.SAND	F.SAND	SILT	CLAY	10	40	200		
S-112	CL	186+00	0.5-1.5	A-7-6(38)	72	49	13.7	12.9	14.3	59.2	99	92	75	-	-
S-113	CL	186+00	2.5-4.5	A-7-6(11)	43	25	26.7	19.4	23.3	30.6	98	80	56	-	-
S-114	CL	186+00	17.0-19.0	A-6(1)	32	15	40.0	19.2	18.4	22.4	84	57	37	-	-

850
840
830
820
810

S-112
S-113
S-114

YELLOW, TAN, AND BROWN, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY

BROWN, MOIST, STIFF, SANDY CLAY

DRY
9/08

186+00.00

820
810
800

RESIDUAL, YELLOW, TAN, AND BROWN, MOIST, MEDIUM STIFF TO STIFF, HIGHLY PLASTIC, SILTY CLAY

185+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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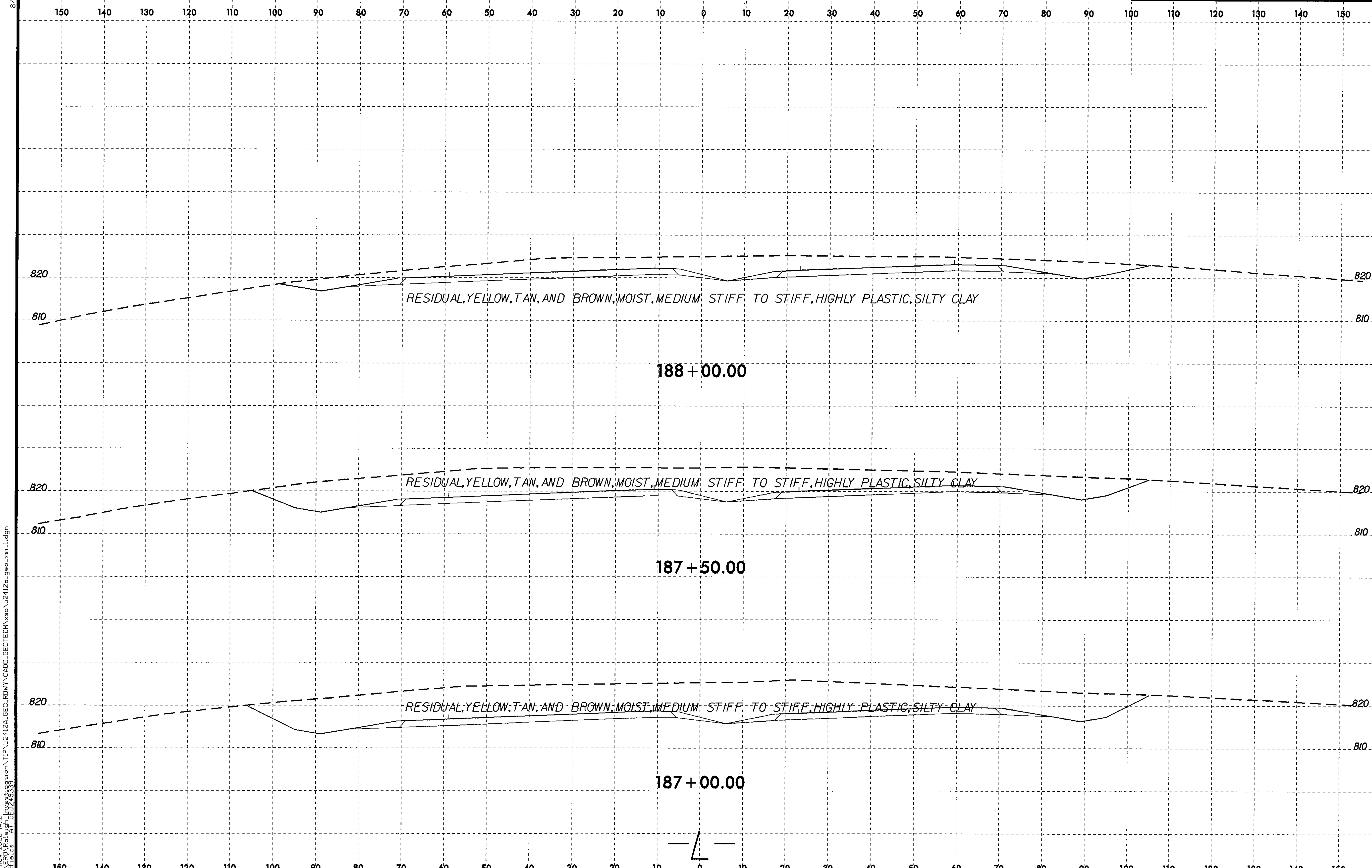
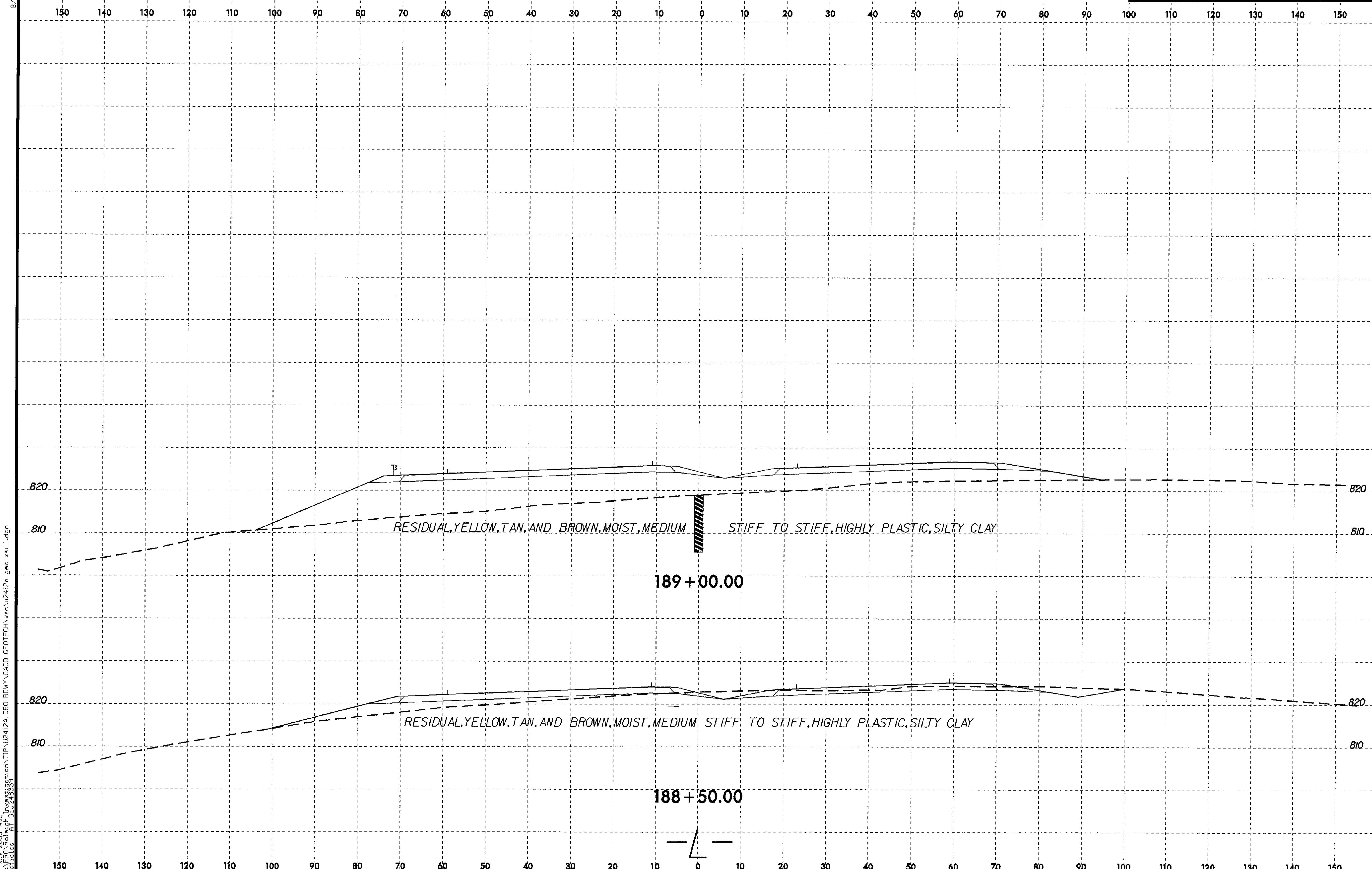
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	82



PROJ. REFERENCE NO.	SHEET NO.
U-2412A	83



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	84

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

850

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

850

196+00.00

850

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

850

840

840

195+50.00

850

850

840

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

840

195+00.00

860

860

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-119	CL	194+50	1.0-3.0	A-7-5(27)	66	33	17.3	9.6	22.0	51.0	100	89	75	-	-

850

S-119

840

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN, MOIST, STIFF, SANDY SILT

DRY 9/08

830

850

840

830

194+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	85

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

860
850
840

RESIDUAL, RED-BROWN, MOIST, MEDIUM DENSE, HIGHLY PLASTIC, SILTY CLAY

RED-BROWN, MOIST, MEDIUM STIFF, CLAYEY SILT

198+00.00

860
850

RESIDUAL, RED-BROWN, MOIST, MEDIUM DENSE, HIGHLY PLASTIC, SILTY CLAY

197+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-120	CL	197+00	1.0-3.0	A-7-5(36)	72	38	10.0	8.0	14.7	67.3	99	94	83	-	-
S-121	CL	197+00	7.0-9.0	A-7-5(27)	57	23	2.2	8.2	32.4	57.1	100	98	93	-	-

870
860
850
840

S-120
S-121

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

DRY
9/08

197+00.00

850

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

196+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	86

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

870
860
850
840
830

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY
RED-BROWN, MOIST, MEDIUM STIFF, CLAYEY SILT
PLASTIC, SILTY CLAY
CRYTALLINE ROCK (GRANITE)
DRY 9/08
DRY 9/08
DRY 9/08

199+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-122	CL	198+50	13.0- 16.0	A-5(4)	42	9	24.3	23.3	28.0	24.5	100	87	57	-	-

880
870
860
850
840

S-122

RESIDUAL, RED-BROWN, MOIST, MEDIUM DENSE, HIGHLY PLASTIC, SILTY CLAY
RED-BROWN, MOIST, MEDIUM STIFF, CLAYEY SILT
DRY 9/08

198+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	87

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

860
850
840
830

TAN, MOIST, STIFF TO VERY STIFF, SANDY SILT

200+00.00

RESIDUAL, RED-BROWN, MOIST, MEDIUM STIFF, HIGHLY PLASTIC, SILTY CLAY

TAN, MOIST, STIFF TO VERY STIFF, SANDY SILT

DRY
9/08

199+50.00

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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nmohs
AT DE:2226154

8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	88

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

880 875 870

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

17+00.00

880 875 870

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

16+50.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-69	58 RT	15+78	3.0-4.5	A-7-5(20)	51	17	1.0	13.5	42.4	43.1	100	100	92	-	-
SS-70	58 RT	15+78	8.0-9.5	A-7-5(14)	53	13	3.5	25.2	48.7	22.6	100	99	82	-	-
SS-71	58 RT	15+78	13.0-14.5	A-5(4)	42	9	26.1	25.8	27.6	20.5	98	79	56	-	-

890 885 880 875 870 865 860 855

SS-69
SS-70
SS-71

5+78

34
26
30
14

DRY
9/08

RESIDUAL, ORANGE AND TAN, MOIST, VERY STIFF TO HARD, SILTY CLAY AND CLAYEY SILT

16+00.00

-Y3-

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8/23/99

0 2.5 5	PROJ. REFERENCE NO.	SHEET NO.
	U-2412A	89

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

875
870

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

19+00.00

875
870

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

18+50.00

875

RESIDUAL, RED-BROWN, MOIST, VERY STIFF, HIGHLY PLASTIC, SILTY CLAY

18+00.00

890
885
880
875
870
865
860

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	% BY WEIGHT F.SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
S-68	25 LT	17+50	0.0-13.2	A-7-6(35)	63	36	4.3	12.5	27.8	55.4	100	98	87	-	-

S-68

RESIDUAL, RED-BROWN, ~~MOIST, VERY STIFF, HIGHLY PLASTIC~~, SILTY CLAY

DRY
9/08

17+50.00

-Y3-

875
870
865
860

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75

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nmohs AT DE/226154

PROJECT REFERENCE NO.	SHEET NO.
U-2412A	90
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

REVISIONS

8/17/99

BEGIN CONSTRUCTION
-Y7- POT Sta. 17+00

-L- POT Sta. 112+

-L- POT Sta. 115+00

-Y7- PT Sta. 16+23.13

-Y7- PC Sta. 24+64.60

-L- ST Sta. 110+71.36

-L- CS Sta. 108+71.36

-Y7- PT Sta. 27+03.05

16+00

20+00

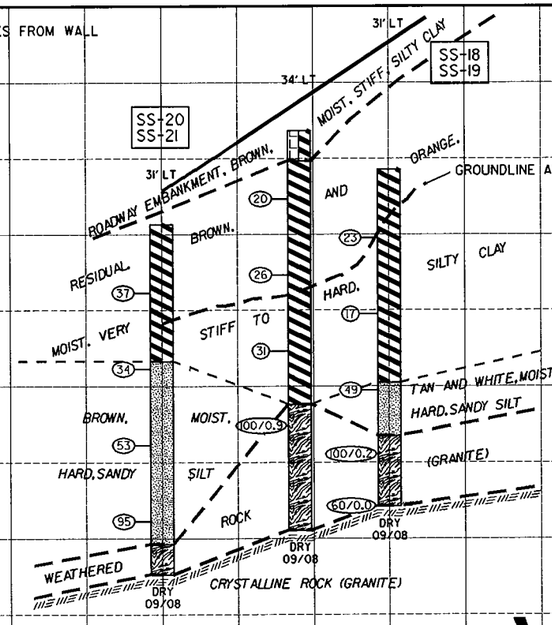
30+00

BEGIN WALL 18+50.00

END WALL 20+23.50

GRAU 380

NOTE- OFFSET DISTANCES FROM WALL



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C.SAND	F.SAND	SILT	CLAY	% PASSING (SIEVES) #10	#40	#200	% MOISTURE	% ORGANIC
SS-20	22 RT	18+50	3.5-5.0	A-7-5(5)	41	11	18.3	35.1	26.2	20.4	100	92	55	-	-
SS-21	22 RT	18+50	8.5-10.0	A-4(0)	34	6	28.6	40.4	22.8	8.2	100	86	39	-	-
SS-18	42 RT	20+00	3.5-5.0	A-7-6(20)	45	33	14.6	20.5	26.4	38.5	98	90	68	-	-
SS-19	42 RT	20+00	13.5-15.0	A-4(0)	25	NP	24.5	38.1	11.0	26.3	98	90	44	-	-

780 770 760 750 740

16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00

-WALL ON Y7-

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