CONTRACT: C202618 _ TIP PROJECT: X-0002CB*

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

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LINE	STATION	PLAN	PROFILE
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-YRPB-	0+00 TO 7+42	9-11	69-70
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-Y8REV-	10+44 TO 12+92	13-14	64
-Y9-	11+90 TO 15+03	23-24	65
-Y11-	7+62 TO 8+20	27	66
-Y11-	13+01 TO 13+22	31	66
-Y14-	10+00 TO 10+60	27	67
-Y12RPB-	0+00 TO 8+64	22-24	75-76
-Y12RPBI-	7+27 TO 8+49	24	77
-Y12RPC-	0+00 TO 9+04	22-24	78-80
-Y12RPCI-	7+01 TO 8+10	24	81

LINE	STATION	XSECT
-L-	97+40 TO 98+20	82-83
-L-	101+20 TO 102+60	84-86
-L-	125+40 TO 135+20	87-96
-L-	138+60 TO 140+80	97-102
-L-	141+60 TO 144+00	103-107
-YRPB-	0+45 TO 1+25	82-83
-YRPC-	0+20 TO 1+01	82-83
-YLPB-	0+19 TO 1+01	84-86
-YLPB-	1+20 TO 1+80	111
-Y9-	12+00 TO 12+40	108
-Y9-	13+60 TO 14+80	109-110
-Y12RPB-	0+40 TO 2+60	97-102
-Y12RPB-	3+40 TO 5+80	103-107
-Y12RPC-	0+60 TO 2+80	97-102
-Y12RPC-	3+60 TO 6+00	103-107

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

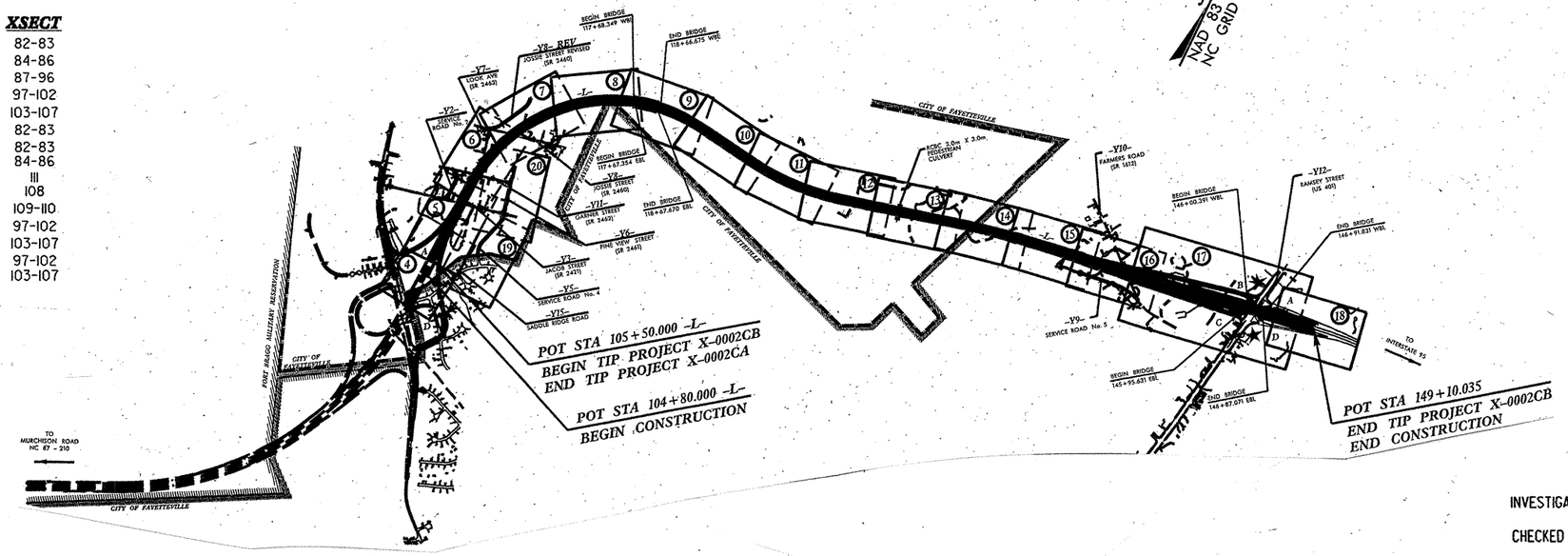
ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 35196.1.2 (X-0002C)* F.A. PROJ. NHF-DPR-0100(002)

COUNTY CUMBERLAND

PROJECT DESCRIPTION FAYETTEVILLE OUTER LOOP FROM 2.09KM EAST OF NC 87-210 TO US 401

INVENTORY



* This inventory is for X-0002C, which includes X-0002CA and X-0002CB. Please refer to the respective portions for your needs.

DRAWN BY: C. M. KENT

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - BY HAVING REQUESTED THIS INFORMATION THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

METRIC

ALL DIMENSIONS IN THESE PLANS ARE IN METERS UNLESS OTHERWISE SHOWN

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	X-0002CB *	1	111

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
35196.1.2	NHF-DPR-0100(002)	P.E.
35196.2.4		ROW & UTIL
35196.3.20	NHF-0100(20)	CONST.

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.

PERSONNEL

J. L. STONE

W. N. CHERRY

L. W. DAIL

R. E. SMITH

K. B. QUICK

S & ME PERSONNEL

MACTEC PERSONNEL

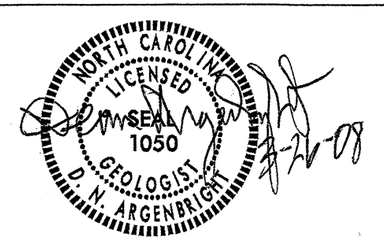
TRIGON PERSONNEL

INVESTIGATED BY F. M. WESCOTT III

CHECKED BY D. N. ARGENBRIGHT

SUBMITTED BY D. N. ARGENBRIGHT

DATE MARCH, 2008



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	2

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 30 CM 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 MN	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 (kN/m^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	<25
	SOFT	2 TO 4	25 TO 50
	MEDIUM STIFF	4 TO 8	50 TO 100
	STIFF	8 TO 15	100 TO 200
	VERY STIFF	15 TO 30	200 TO 400
	HARD	>30	>400

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
w - 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
- [X] BK-51
- [X] CME-45C
- [X] CME-550
- [X] CME-850
- [X] CME-458
- [X] GO- TRACT

ADVANCING TOOLS:
- [X] CLAY BITS
- [X] 152mm CONTINUOUS FLIGHT AUGER
- [X] 203mm HOLLOW AUGERS
- [X] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 75 mm STEEL TEETH
- [ ] TRICONE ____ mm TUNG.-CARB.
- [ ] CORE BIT
- [ ] ____

HAMMER TYPE:
- [X] AUTOMATIC [X] MANUAL

CORE SIZE:
- [ ] -B-
- [ ] -N-
- [ ] -H-

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] HAND AUGER
- [X] 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 3 CM 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 30 CM 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 BLOWS PER 30 CM*
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 BLOWS PER 30 CM*
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 6 MM 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 13 MM DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 25 MM 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 25 MM OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM	SPACING
VERY WIDE	MORE THAN 3 M
WIDE	3 TO 10 M
MODERATELY CLOSE	30 TO 100 CM
CLOSE	5 TO 30 CM
VERY CLOSE	LESS THAN 5 CM

BEDDING

TERM	THICKNESS
VERY THICKLY BEDDED	> 1 M
THICKLY BEDDED	0.5 - 1 M
THINLY BEDDED	0.05 - 0.5 M
VERY THINLY BEDDED	10 - 50 MM
THICKLY LAMINATED	2.5 - 10 MM
THINLY LAMINATED	< 2.5 MM

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 10 CM 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 (N) OF A 63.5 KG HAMMER FALLING 0.76 M REQUIRED TO PRODUCE A PENETRATION OF 30 CM INTO SOIL WITH A 5 CM OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 3 CM 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 10 CM DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.

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

BENCH MARK: _____

ELEVATION: _____ M

NOTES:
-

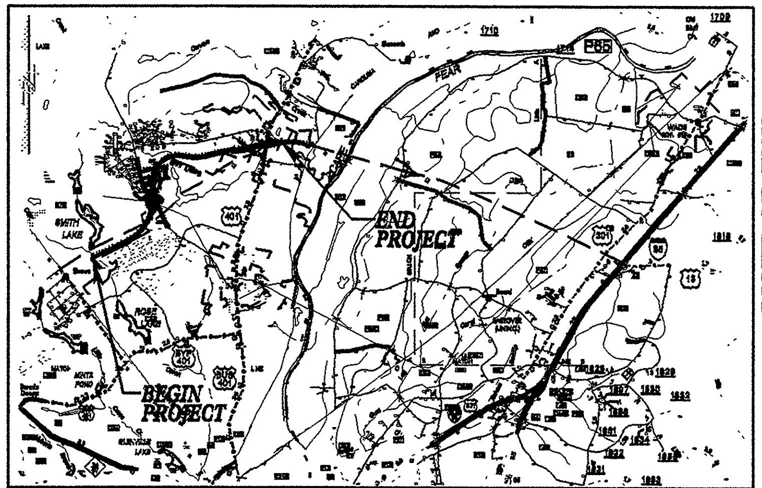
APPROXIMATE LIMITS OF ORGANIC SOILS

REVISED 02/23/06

TIP PROJECT: X-0002C

CONTRACT:

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

RIGHT OF WAY

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY

METRIC

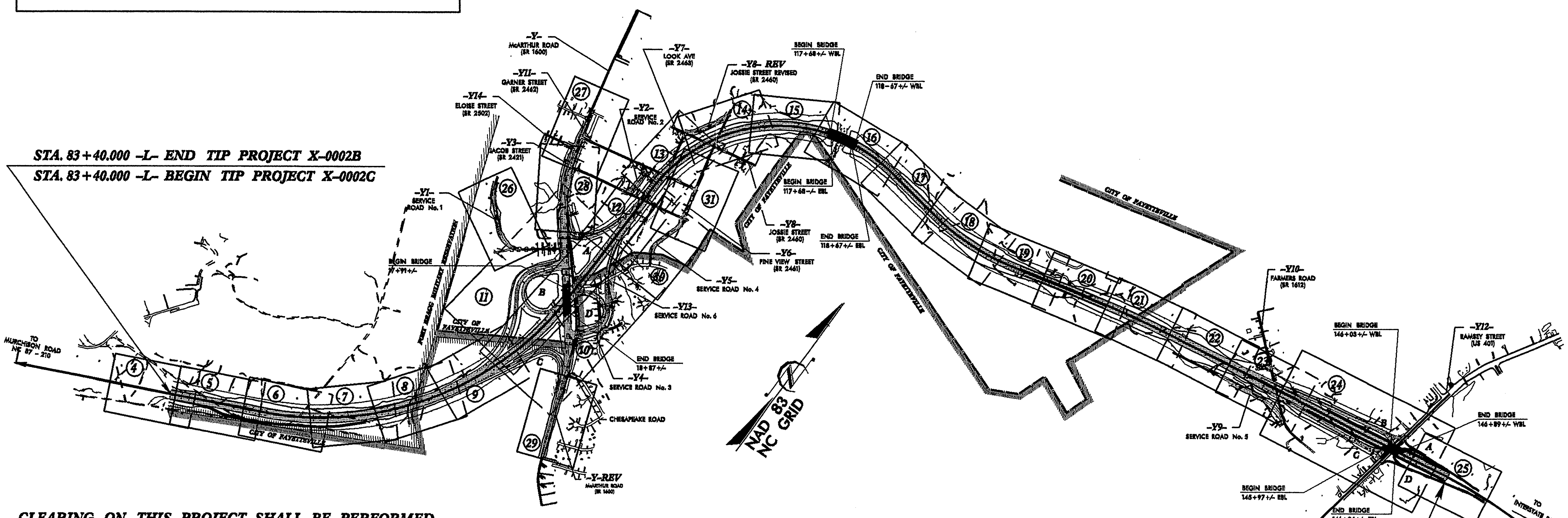
ALL DIMENSIONS IN THESE PLANS ARE IN METERS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	X-0002C	2A	111

STATE PROJ.NO.	F.A.PROJ.NO.	DESCRIPTION
35196.1.2	NHF-DPR-0100(002)	PE
35196.2.4		ROW; Util

LOCATION: FAYETTEVILLE OUTER LOOP FROM 2.09km EAST OF NC87-NC210 TO US401

TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING, SIGNALS AND STRUCTURES



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

A PORTION OF THE PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF THE CITY OF FAYETTEVILLE.

THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS LIMITED TO INTERCHANGES

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

GRAPHIC SCALES

5 0 10
PLANS

5 0 10
PROFILE (HORIZONTAL)

1 0 2
PROFILE (VERTICAL)

DESIGN DATA

ADT 2008	=	34,700
ADT 2030	=	59,600
DHV	=	9 %
D	=	55 %
T	=	10 % *
V	=	11 km/h
* (TTST 4 %		DUAL 6 %)
FUNC. CLASS	=	INTERSTATE

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT X-0002C	=	6.385 km
LENGTH STRUCTURES TIP PROJECT X-0002C	=	0.185 km*
TOTAL LENGTH OF TIP PROJECT X-0002C	=	6.570 km

* NOTE: LENGTH BASED ON WBL BRIDGES

Prepared In the Office of:
MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4869 FAX

2002 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
MAY 31, 2006

LETTING DATE:
MAY 20, 2008

T.R. REID, P.E.
PROJECT ENGINEER

T.E. HUFFMAN, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

P.E.
STATE HIGHWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

March 26, 2008

STATE PROJECT: 35196.1.2 X-0002C
F. A. PROJECT: NHF-DPR-0100 (002)
COUNTY: Cumberland
DESCRIPTION: Fayetteville Outer Loop From 2.09km East of NC 87-210 to US 401

SUBJECT: Geotechnical Report – Inventory

Project Description

The project consists of constructing a four lane divided facility along a new location. The project begins approximately 2.09 kilometers east of NC 87-210 and proceeds 6.4 kilometers in an easterly direction to US 401. The western terminus ties in with project X-0002B and the eastern terminus ties in with project X-0002DA. The geotechnical investigation of subsurface conditions was confined to the corridor of proposed new construction.

The following base line were investigated for this project:

Line	Station(±)
-L-	83+40 to 149+10
-Y-	9+75 to 11+20
-Y-	22+57 to 25+60
-YREV-	11+20 to 22+57
-YRPA-	0+00 to 4+00
-YRPB-	0+00 to 7+42
-YLPB-	0+00 to 4+86
-YRPC-	0+00 to 5+06
-YRPD-	0+00 to 6+45
-YLPD-	0+00 to 4+45
-Y1-	11+62 to 15+20
-Y2-	12+55 to 14+45
-Y4-	10+14 to 10+82

ADDRESS:
REGIONAL OFFICE
IICAL ENGINEERING UNIT
ERVICE CENTER
27699-1570

TELEPHONE: 919-662-4710
FAX: 919-662-3095

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
3301 JONES SAUSAGE RD., SUITE 100
GARNER, NC 27529-9489

-Y5-	10+47 to 12+70
-Y6-	10+00 to 11+59
-Y7-	11+59 to 12+10
-Y8REV-	10+44 to 12+92
-Y9-	11+90 to 15+03
-Y11-	7+62 to 8+20
-Y11-	13+01 to 13+22
-Y14-	10+00 to 10+60
-Y12RPB-	0+00 to 8+64
-Y12RPB1-	7+27 to 8+49
-Y12RPC-	0+00 to 9+04
-Y12RPC1-	7+01 to 8+10

Areas of Special Geotechnical Interest

1) The following sections contain cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

Line	Station (±)
-L-	83+40 to 85+65
-L-	87+70 to 88+33
-L-	97+71 to 98+31
-L-	101+39 to 103+11
-L-	104+03 to 106+90
-L-	107+63 to 108+50
-L-	110+70 to 111+30
-L-	113+80 to 119+33
-L-	125+25 to 130+82
-L-	131+75 to 135+37
-L-	135+74 to 136+22
-L-	136+39 to 149+10
-YREV-	17+64 to 18+87
-Y1-	13+08 to 13+63
-Y6-	10+00 to 11+21
-Y9-	11+90 to 15+03
-YRPA-	0+87 to 3+32
-YRPB-	6+51 to 7+42
-YLPB-	0+00 to 1+95
-YLPB-	3+90 to 4+86
-YRPD-	1+07 to 1+38
-YRPD-	2+50 to 3+06
-Y12RPB-	0+00 to 5+20
-Y12RPB-	5+68 to 6+50
-Y12RPB1-	7+60 to 8+49
-Y12RPC-	0+00 to 6+48
-Y12RPC1-	7+70 to 8+10

2) The following section contain relatively soft organic soils which have the potential for subgrade problems during construction:

Line	Station(±)
-L-	141+57 to 141+70
-L-	143+15 to 143+65
-L-	144+25 to 144+70
-Y1-	13+07 to 13+63
-Y12RPB-	5+16 to 5+33
-Y12RPC-	5+30 to 5+50

Physiography, Geology and Ground Water

The project is located in the Coastal Plain Physiographic Province. Topography at the site is nearly flat to moderately sloping. Elevations along the proposed new location range from 36± to 78± meters.

The geology of the project consists of Recent age coastal plain sediments overlying marine deposits of Cretaceous age. The project lies within the Cape Fear River Drainage system. Drainage along the project is provided by McPherson Creek and small branches that flow into the Cape Fear River. Surface drainage is generally good in areas with moderate relief and fair to poor in low lying portions of the project.

Ground water data was collected primarily from December 2005 to June 2006 during above average rainfall conditions. Typically, ground water levels were measured at depths of 1± to 9± meters below the natural ground surface. Ground water levels should fall 1± meter or more during dry summer conditions.

Soils

Soils encountered during this investigation are separated into four major categories based on origin and occurrence. These categories are surficial soils, undivided coastal plain soils, organic soils and Cretaceous age marine deposits.

Surficial soils are found in the top 1 to 2 meters of the soil profile. Typically, they consist of very loose to medium dense sand (A-2-4, A-3). The granular material generally exhibits good to excellent engineering properties.

The undivided coastal plain soils generally underlie the surficial soils at depths up to 11± meters. These deposits typically consist of loose to dense sand (A-2-4, A-2-6, A-3) and very soft to stiff sandy and silty clay (A-6, A-7-6). Moisture content of tested cohesive samples ranged from 16 to 42 percent. The granular soils typically exhibit good to excellent engineering properties. However, the cohesive soils generally have poor engineering properties due to a very soft consistency, relatively high moisture contents, medium to high plasticity indices and 50 percent or more passing the 75 μm sieve. These soils have the potential to cause subgrade stability problems or embankment stability/settlement problems.

Organic deposits were found along areas on the eastern end of the project. Soils within the areas consisted of very soft to medium stiff sandy silt and clay with little organic matter, muck and peat. Organic content of tested samples ranged from 9 to 34 percent. Moisture content of tested organic samples ranged from 102 to 262 percent. These soils have poor engineering properties and have the potential to cause subgrade stability problems or embankment stability/settlement problems.

The Cretaceous age Cape Fear Formation underlies the coastal plain soils at elevations ranging from 48 to 56 meters. Cohesive soils within this formation typically consist of beds of stiff to hard silty and sandy clay (A-6, A-7-6) and clayey silt (A-4, A-5). These soils exhibit fair to poor engineering properties. Granular soils within this formation typically consist of beds of medium dense to very dense sand (A-2-4, A-3). These soils exhibit good to excellent engineering properties. Due to its depth of occurrence, the Cape Fear Formation should not affect the roadway portion of this project.

Culvert at -L- Station 105+03 and –RPD- Station 2+05

Based on the Culvert Survey and Hydraulic Design Report dated May 10, 2006, a dual 1.8m x 2.1m RCBC is proposed for -L- over a Tributary to McPherson Creek at -L- station 105+03 and -RPD- station 2+05. An SPT boring performed at the proposed culvert site shows up to 3.5 meters of very loose to medium dense sand (A-2-4, A-3) underlain by alternating layers of stiff to hard sandy and silty clay (A-6, A-7-6) and medium dense to very dense sand (A-2-4, A-3) at the site. Ground water was measured at elevations ranging from 58.0± to 58.4± meters.

Pedestrian Culvert at –L- Station 130+30

A pedestrian culvert is proposed for -L- at station 130+30. An SPT boring performed near the proposed culvert site shows 5.2 meters of loose to medium dense sand and clayey sand (A-1-b, A-2-4, A-2-6) underlain by stiff to very stiff silt (A-4) and silty clay (A-7-6) at the site. Ground water was measured at an elevation of 59.2± meters.

Culvert at -YREV- Station 14+14

Based on the Culvert Survey and Hydraulic Design Report dated May 26, 2006, a dual 1.8m x 2.1m RCBC is proposed for -YREV- over a Tributary to McPherson Creek at station 14+14. An auger boring performed near the proposed culvert site shows up to 4.5 meters of loose to medium dense sand (A-1-b, A-2-4) at the site. Ground water was measured at an elevation of 63± meters.

Culvert at -YRPA- Station 2+98

Based on the Culvert Survey and Hydraulic Design Report dated May 10, 2006, a dual 1.8m x 2.1m RCBC is proposed for -YRPA- over a Tributary to McPherson Creek at station 2+98. An SPT boring performed at the proposed culvert site shows up to 5.2 meters of very loose to medium dense sand (A-2-4). A 1.4 meter thick very soft clayey silt layer was encountered at elevation 60.6 meters. Ground water was measured at an elevation of 61.5± meters.

Prepared by:

Fred M Wescott III
Project Geological Engineer

3-C

EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

PROJECT **X-0002CB** (ONLY) COUNTY Cumberland DATE 10/26/2010 SHEET 1 OF 2 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMBANK. 25%	BORROW	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
L	105+50.000	111+00.000	41,058	0	0	0	41,058	27,792	0	27,792	34,740	0	6,318	0	6,318
INCLUDES RAMP D @ YREV															
YRPA	0+00.000	2+70.000	428	0	0	0	428	6,096	0	6,096	7,620	7,192	0	0	0
Y2	12+55.000	14+45.275	2,000	0	0	0	2,000	0	0	0	0	0	2,000	0	2,000
Y5	10+49.918	12+67.220	1,946	0	0	0	1,946	21	0	21	26	0	1,920	0	1,920
Y6	10+03.175	11+60.000	530	0	0	0	530	0	0	0	0	0	530	0	530
125mm EXTRA MAT'L FROM GRADING ONLY								2,970	0	2,970	3,713	3,713	0	0	0
SUBTOTAL SUMMARY No. 1			45,962	0	0	0	45,962	36,879	0	36,879	46,099	10,905	10,768	0	10,768
L	111+00.000	117+68.349	75,306	0	0	0	75,306	48,557	0	48,557	60,696	0	14,610	0	14,610
		(BEGIN BRIDGE, WBL)													
Y7	11+59.686	12+07.443	175	0	0	0	175	0	0	0	0	0	175	0	175
Y8REV	10+44.315	12+92.574	3,460	0	0	0	3,460	740	0	740	925	0	2,535	0	2,535
125mm EXTRA MAT'L FROM GRADING ONLY								3,609	0	3,609	4,511	4,511	0	0	0
SUBTOTAL SUMMARY No. 2			78,941	0	0	0	78,941	52,906	0	52,906	66,132	4,511	17,320	0	17,320
L	118+66.675	128+60.000	177,195	0	2,852	128,340	48,855	48,578	0	45,726	60,723	11,868	0	131,192	131,192
(END BRIDGE, WBL)															
125mm EXTRA MAT'L FROM GRADING ONLY								5,364	0	5,364	6,705	6,705	0	0	0
SUBTOTAL SUMMARY No. 3			177,195	0	2,852	128,340	48,855	53,942	0	51,090	67,428	18,573	0	131,192	131,192
L	128+60.000	138+60.000	123,634	0	6,172	69,921	53,713	208,857	0	202,685	261,071	207,358	0	76,093	76,093
125mm EXTRA MAT'L FROM GRADING ONLY								5,400	0	5,400	6,750	6,750	0	0	0
SUBTOTAL SUMMARY No. 4			123,634	0	6,172	69,921	53,713	214,257	0	208,085	267,821	214,108	0	76,093	76,093
L	138+60.000	146+40.000	83,568	0	4,246	66,274	17,294	238,883	0	234,637	298,604	281,310	0	70,520	70,520
INCLUDES Y12 RAMPS AND UNDERCUT															
Begin Bridge Sta 146+00.391, ramp extends to 146+4															
Y9	11+90.000	15+03.789	6,920	0	1,735	5,734	1,186	2,267	0	532	2,834	1,648	0	7,469	7,469
125mm EXTRA MAT'L FROM GRADING ONLY								3,998		3,998	4,998	4,998	0	0	0
SUBTOTAL SUMMARY No. 5			90,488	0	5,981	72,008	18,480	245,148	0	239,167	306,436	287,956	0	77,989	77,989

* This Earthwork Balance Sheet is for X-0002CB. This inventory is for X-0002C, which includes X-0002CA and X-0002CB. Please refer to the respective portions for your needs

3-D

EARTHWORK BALANCE SHEET

Volumes in Cubic Meters

PROJECT X-0002CB COUNTY Cumberland DATE 10/26/2010 SHEET 2 OF 2 SHEETS

LINE	STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	EMBANK. 25%	BORROW	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
L	146+91.681	149+10.035	503	0	0	0	503	20,251	0	20,251	25,314	24,811	0	0	0
(END BRIDGE WBL)															
125mm EXTRA MAT'L FROM GRADING ONLY								1,179	0	1,179	1,474	1,474	0	0	0
SUBTOTAL SUMMARY No. 6			503	0	0	0	503	21,430	0	21,430	26,788	26,285	0	0	0
SUBTOTAL SUMMARIES 1 THRU 6			516,723	0	15,005	270,269	246,454	624,562	0	609,557	780,704	562,338	28,088	285,274	313,362
ADDITIONAL UNDERCUT					4,650			4,650		4,650	5,813	5,813		4,650	4,650
SHOULDER MATERIAL								4,460		4,460	5,575	5,575			
WASTE IN LIEU OF BORROW												-28,088	-28,088		-28,088
LOSS DUE TO CLEARING AND GRUBBING			-15,000				-15,000					15,000			
MATERIAL FOR EARTH BERMS								271		271	339	339			
SELECT MAT'L CLASS II OR III - IN LIEU OF BORROW											-15,655	-15,655			
SELECT MAT'L CLASS III - IN LIEU OF BORROW											-26,100	-26,100			
ADD'L MAT'L FOR PRELOADING								60,110		60,110	75,138	75,138			
REMOVAL OF PRELOADING MAT'L			60,110				60,110						60,110		60,110
PROJECT TOTALS			561,833	0	19,655	270,269	291,564	694,053	0	679,048	825,814	594,360	60,110	289,924	350,034
EST 5% TO REPLACE TOP SOIL ON BORROW PIT												29,718			
GRAND TOTALS			561,833	0	19,655	270,269	291,564	694,053	0	679,048	825,814	624,078	60,110	289,924	350,034
SAY TOTALS			**561,900**		**19,700**							**624,100**			

ESTIMATED DDE	11,400 M3
PAVEMENT STRUCTURE VOLUME (-Y8-REV & -Y9-)	2,500 M3
SHALLOW UNDERCUT (CONTINGENCY)	400 M3
GRADE POINT UNDERCUT	4,000 M3
SUBGRADE UNDERCUT (CONTINGENCY)	650 M3
SELECT GRANULAR MAT'L, (CLASS II OR CLASS III)	15,655 M3 (TO BE USED AS BACKFILL IN SUBGRADE UNDERCUT AREAS, PER GEOTECH)
SELECT GRANULAR MAT'L, CLASS III	26,100 M3 (TO BE USED AS DRAINAGE BLANKET FOR PRELOADING, PER GEOTECH)
SUBGRADE STAB - STABILIZER AGGREGATE	5,800 MTNS
CLASS IV SUBGRADE STABILIZATION	900 MTNS

* This Earthwork Balance Sheet is for X-0002CB. This inventory is for X-0002C, which includes X-0002CA and X-0002CB. Please refer to the respective portions for your needs.

*** EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.**

REVISIONS

8/17/99

METRIC
5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	4
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15869 ENGINEER T. A. REID
PRELIMINARY PLANS NOT TO BE USED FOR CONSTRUCTION

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 ENGINEER W. HENRY WELLS, JR.

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4696 FAX

SDG Surgate Design Group, P.A.
510 A James Drive Rd. Wilson, NC. 27896

NAD 83 NC GRID

WOODS

81+00

FUTURE R/W & C/A FENCE (X-0002B)

FUTURE DITCH (X-0002B)

FUTURE SLOPE STAKE LINE (X-0002B)

30' SOIL

U/G GAS LINE

WOODS

N 64° 56' 54.8" E

WOODS

FUTURE CONSTRUCTION UNDER CONTRACT X-0002B

- L -

FAYETTEVILLE OUTER LOOP

FUTURE CONSTRUCTION UNDER CONTRACT X-0002B

1

THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION

83+00

STA 83+40 TO 83+80 -L- LT

BERM DITCH

+40 -L- 55m LT (180.446')

LAT 'A' DITCH
STA 83+89 TO STA 84+56 -L- LT
SEE DETAIL #1

PROP. R/W & C/A

BEGIN 84" C.L. FENCE w/ 3-STRAND BARBED WIRE

FUTURE DITCH (X-0002B)

STA 83+40.000 END TIP PROJECT X-0002B
STA 83+40.000 BEGIN TIP PROJECT X-0002C

PROP. SLOPE STAKE LINE

025

PROP. CABLE GUIDERAIL

MATCHLINE STA 84+00 SEE SHEET 5

55.0m
3.4m FDHS
7.2m
1.2m FDHS
7.0m
1.2m FDHS
7.0m
10.8m
3.4m FDHS
55.0m

BEGIN EXPRESSWAY GUTTER -L- STA 83+20 RT

BEGIN SOUND BARRIER WALL -L- STA 83+24 RT

WLB

PROP. GUARDRAIL

PROP. SLOPE STAKE LINE

PROP. R/W & C/A

+40 -L- 55m RT (180.446')

BEGIN 48" WW FENCE

FUTURE DITCH (X-0002B)

FUTURE SLOPE STAKE LINE (X-0002B)

FUTURE DITCH (X-0002B)

WOODS

30' SOIL

600 mm CM

FORT BRAGG MILITARY RESERVATION

1800 mm CHL

1800 mm WD

1500 mm CHL

1200 mm CHL

1200 mm CHL

1800 mm WD

1200 mm CHL

1200 mm CHL

26.51ft S62°20'42"W

21.336 1200 mm CHL

46.83ft S62°20'42"W

15.00ft S62°09'21"W

S27°39'38"E

LAT 0.6m BASE DITCH
STA 83+40 TO STA 83+76 -L- RT
SEE DETAIL #6

CL 'B' RIP RAP +/- 3 MTONS

DAYLIGHT

FUTURE R/W & C/A FENCE (X-0002B)

CONC

ARTHUR DOOLEY
DB 4467 PG 633
PB 56 PG 24

JANET HERRING
DB 3772 PG 826
PB 56 PG 24

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 32

x0002c_rdy_pst04.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	5
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA — PRELIMINARY PLANS — SEAL 15869 — ENGINEER T. E. REID

HYDRAULICS ENGINEER — NORTH CAROLINA — PRELIMINARY PLANS — SEAL 9334 — ENGINEER W. HAYWAY WELLS III

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27604, (919) 781-4626 VOICE, (919) 781-4699 FAX

SDG Sungate Design Group, P.A. — 510-A Jones Franklin Rd, Raleigh, NC 27606

REVISIONS

8/17/09

PREFORMED SCOUR HOLE w/ LEVEL SPREADER APRON (PFSH)

Station	B (M)	D (M)	WPSR (M)	d (M)	Class I Rip Rap (MTNS)	DDE (CU.M.)	Filter Fabric (SQ. M.)
84+45/-L-/LT	1.2	0.4	1.3	0.15	4	2.8	7.8

NAD 83 NC GRID

MATCHLINE STA. 84+00 SEE SHEET 4

MATCHLINE STA. 87+00 SEE SHEET 6

1 THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION

PROP. 84" C.L. FENCE w/ 3-STRAND BARBED WIRE

PROP. R/W & C/A

PFSH SEE SPECIAL DETAIL SHEET 2-T

LAT 'A' DITCH STA 83+80 TO STA 84+50 -L- LT SEE DETAIL #1

REMOVE

400 CSP W/ELBOWS ROD AND LUG CONNECTORS W/SLEEVE GASKET

BEGIN EXPRESSWAY GUTTER -L- STA 84+45 LT

PROP. SLOPE STAKE LINE

CL 'A' RIP RAP

PROP. GUARDRAIL

END EXPRESSWAY GUTTER -L- STA 85+60 LT

GRAU 350

2GI W/PLATE GRATE

PROP. CABLE GUIDERAIL

FAYETTEVILLE OUTER LOOP N 64°56'54.8" E

PROP. SOUND BARRIER WALL

END EXPRESSWAY GUTTER -L- STA 84+60 RT

+00 -L- 24m RT

+86 -L- 50m RT

CL 'B' RIP RAP

450 GSP W/ELBOW

BERM DITCH STA 84+20 TO STA 87+00 -L- RT

LAT 0.6m BASE DITCH STA 84+40 TO STA 85+00 -L- RT SEE DETAIL #2

BERM DITCH STA 85+00 TO STA 85+60 -L- RT

PROP. 48" WW FENCE

CL 'A' RIP RAP

TOE PROTECTION STA 84+15 TO STA 84+42 -L- RT SEE DETAIL #3

FORT BRAGG MILITARY RESERVATION

EXISTING R/W

JOSE RIVERA DB 3712 PG 831 PG 56 PG 24

BOBBY ETHERIDGE DB 5774 PG 771 PB 56 PG 24

VONDA MORRIS DB 5299 PG 653 PB 49 PG 45

A. T. HAYNES DB 4231 PG 121 PB 49 PG 45

JACQUELINE HICKS-REDD DB 5237 PG 507 PB 49 PG 45

HELEN EVANS DB 4662 PG 411 PB 49 PG 45

LEROY JOHNSON DB 2848 PG 463 PB 49 PG 45

MCELWEE BELLAMY DB 5414 PG 303 PB 49 PG 45

NATASHA MOORE DB 5859 PG 1 PB 49 PG 45

VICKI JOHNSON DB 6601 PG 229 PB 49 PG 45

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 32

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PROJECT REFERENCE NO.	SHEET NO.
X-0002C	6
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 15889 ENGINEER T. P. REID — PRELIMINARY PLANS NOT FOR CONSTRUCTION OR RECORDATION

HYDRAULICS ENGINEER: NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR. — PRELIMINARY PLANS NOT FOR CONSTRUCTION OR RECORDATION

METRIC 5 0 10

CONST.REV.

R/W REV.

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, (919) 781-4626 VOICE, (919) 781-4865 FAX

SDG Sungate Design Group, P.A. — 510-A James Pringle Rd., Rutherfordton, NC 28139

REVISIONS

(1) THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION

NAD 83 NC GRID

-L- TS 87+08.975

-L- SC 87+69.975

+69.975 -L- 55m LT (180.446')

+08.975 -L- 55m LT (180.446')

CHORD

PROP.84" C.L.FENCE w/ 3-STRAND BARBED WIRE

PROP.R/W & C/A

PROP.SLOPE STAKE LINE

88+00

89+00

MATCHLINE STA. 87+00 SEE SHEET 5

MATCHLINE STA. 90+00 SEE SHEET 7

FAYETTEVILLE OUTER LOOP

PROP.CABLE GUIDERAIL

450 CSP W/ELBOW

BERM DITCH STA 88+40 TO 89+20 -L- RT

+41.848 -L- EX. PL

+74 -L- 50 RT

+30 -L- 35m RT (180.446')

+34.800 -L- 54.650 RT

PROP.SOUND BARRIER WALL

PROP.48" WW FENCE

PROP.SLOPE STAKE LINE

FORT BRAGG MILITARY RESERVATION

CHARLES LUCAS	TOMMIE L. PURIFIE	ANTHONY NETTEY-MARBELL	SAMUEL DAVIS	KWAMI B. TUPRAH	JAMES BLUE JR.	MERLE MILLER	DORIS HEARTFIELD	BARBARA MCNEILL-PHASON	JAMES PURCELL	FRANK JACKSON JR.	GWENDOLYN LAWRENCE
DB 5943 PG 397	DB 4127 PG 839	DB 5844 PG 816	DB 5117 PG 550	DB 3425 PG 356	DB 3628 PG 428	DB 4080 PG 776	DB 3373 PG 821	DB 5500 PG 429	DB 4508 PG 398	DB 4319 PG 343	DB 5936 PG 606
PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45	PB 49 PG 45

EXISTING R/W

-L-

Pls Sta 87+49.642	Pl Sta 95+94.173
Θs = 1°14'53.6"	Δ = 60°58'18.3" (LT)
Ls = 61.000	L = 1,489.821
LT = 40.668	T = 824.198
ST = 20.334	R = 1,400.000
	SE = 0.045
	RO = 61.000
	DS = 110 kph

FOR -L- PROFILE SEE SHEET 33

0002c_rdy_pshl05.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	7
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER — PRELIMINARY PLANS NOT FOR CONSTRUCTION SEAL 15869 ENGINEER R. REID

HYDRAULICS ENGINEER — SEAL 9334 ENGINEER W. HENRY WELLS, IV

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4609 FAX

SDG Sungate Design Group, P.A. — 116-A James Drive East, Raleigh, NC. 27604

REVISIONS

8/17/99

NAD 83 NC GRID

(1)

THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION

9+00

92+00

PROP.84" C.L.FENCE w/ 3-STRAND BARBED WIRE

PROP.R/W & C/A

+25 -L- 55m LT (180.446')

CL 'I' RIP RAP

1050mm RCP LOCATED ALONG MATCHLINE

BEGIN EXPRESSWAY GUTTER -L- STA 92+60 LT

PROP. GUARDRAIL

PROP.SLOPE STAKE LINE

2GI W/FLAT GRATE

CAT-I

MATCHLINE STA. 90+00 SEE SHEET 6

MATCHLINE STA. 93+00 SEE SHEET 8

55.0m

3.6m FDPS

7.2m

7.0m

1.2m RPS

10.8m

045

375

1050

FS 2GI

-L- PROP.CABLE GUIDERAIL

FAYETTEVILLE OUTER LOOP

GRAU 350

PROP. GUARDRAIL

JB W/MH

RETAIN 750 RCP

+45 -L- 48m RT

PROP.SLOPE STAKE LINE

PROP.SOUND BARRIER WALL

PROP.48" WW FENCE

END SOUND BARRIER WALL +10 -L- 36m RT

PROP.R/W & C/A

+25 -L- 55m LT (180.446')

N 11° 23' 23.90" E

N 62° 20' 54.5" E

26.189 N62°41'08"E

23.431 N62°10'38"E

23.605 N61°48'08"E

26.517 S62°21'39"W

27.432 S62°21'38"W

26.517 S62°21'39"W

27.404 S62°21'41"W

26.489 N62°21'16"E

23.642

QUINTIN HODGE DB 3875 PG 295 PB 49 PG 45

FANNIE COLLINS DB 4930 PG 204 PB 49 PG 45

THOMAS BLACKSHEAR DB 2897 PG 705 PB 49 PG 45

JAMES PURCELL DB 4160 PG 347 PB 49 PG 45

JOSE ABUDO DB 3944 PG 379 PB 49 PG45

EDWARD TIMMONS DB 3091PG 766 PB 49 PG 45

GEORGE WRIGHT DB 3870 PG 705 PB 49 PG 45

TYRONE ALLEN DB 2933 PG 169 PB 49 PG 45

FORT BRAGG MILITARY RESERVATION

EXISTNG R/W

+03.327 -L- 109.502 (RT)

PINC 1+89.039

BL-2

-L-
PI Sta 95+94.173
Δ = 60° 58' 18.3" (LT)
L = 1,489.821
T = 824.198
R = 1,400.000
SE = 0.045
RD = 81.000
DS = 110 kph

FOR -L- PROFILE SEE SHEET 33

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PROJECT REFERENCE NO.	SHEET NO.
X-0002C	8
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA — SEAL 15869 — ENGINEER R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA — SEAL 9334 — ENGINEER W. HENRY WELLS, JR.

PRELIMINARY PLANS NOT TO BE USED FOR CONSTRUCTION

METRIC — 5 0 10

CONST.REV.

R/W REV.

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, (919) 781-4626 VOICE, (919) 781-4669 FAX

SDG Sungate Design Group, P.A. — 110-A James Pringle Rd., Parkin, NC. 27605

REVISIONS

8/17/95

NAD 83 NC GRID

1 THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION

94+00

95+00

WLB

FORT BRAGG MILITARY RESERVATION

CITY OF FAYETTEVILLE

CL 'A' RIP RAP

PROP.WW FENCE

PROP.R/W & C/A

1050mm PIPE LOCATED ALONG MATCHLINE

CL 'B' RIP RAP

DEED GAP

SOIL

PROP. GUARDRAIL

PROP.SLOPE STAKE LINE

END EXPRESSWAY GUTTER -L- STA 93+80

2GI W/FLAT GRATE

GRAU 350

N 23° 43' 17.8" E

+55.00 17.8

PROP.CABLE GUIDERAIL

FAYETTEVILLE OUTER LOOP

MATCHLINE STA. 93+00 SEE SHEET 7

MATCHLINE 96+00 SEE SHEET 9

BL-3 PING 94+68.43

N 11° 23' 43.9" E

CAT-1 +50.31 -L- 15.087 RT

CLASS 'B' RIP RAP

TOE PROTECTION STA 93+00 TO STA 93+40 -L- RT

SPECIAL LAT 0.6m BASE DITCH STA 94+72 TO STA 95+60 -L- RT SEE DETAIL #4

PROP.SLOPE STAKE LINE

PROP.WW FENCE

FORT BRAGG MILITARY RESERVATION

DEED GAP

PROP.R/W & C/A

1 THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION

-L-

PI Sta 95+94.173
Δ = 60° 58' 18.3" (LT)
L = 1,489.821
T = 824.198
R = 1,400.000
SE = 0.045
RC = 61.000
DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 34

x0002c_rdy_pst08.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	9
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA — SEAL 15589 — ENGINEER T. R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA — SEAL 9334 — ENGINEER W. HENRY WELLS JR.

PRELIMINARY PLANS — NOT FOR CONSTRUCTION

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609 — (919) 781-4626 VOICE — (919) 781-4628 FAX

SDG Sungate Design Group, P.A. — 930-A Jones Franklin Rd. Raleigh, NC 27606

REVISIONS

-Y- RAMP B

Pls Sta 0+53.904
Es = 1 51' 35.3"
Es = 7 09' 45.7"
Ls = 90.000
LT = 53.904
ST = 36.270

Pl Sta 2+42.595
Δ = 45° 56' 30.8" (LT)
L = 288.661
T = 152.595
R = 360.000
SE = 0.08
RO = 90.000
DS = 80 kph

-Y- RAMP C

Pls Sta 0+30.003
Es = 1 49' 06.7"
Ls = 90.000
LT = 60.003
ST = 30.003

NAD 83
NC GRID

1

THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION

WLB

BL-1
PINC 12-58-049

+93.589 -L-
55m LT
(180.446')

-Y- RAMP B CS 0+00.000 =
-L- POC 96+93.589 (14.200m LT)

PROP. 84" CL. FENCE
w/ 3-STRAND
BARBED WIRE

+35.218 -L-
36.964 LT

N 23° 43' 17.8" E

PROP. SLOPE
STAKE LINE

CL 'B' RIP RAP
EST +/- 3 mTONS

CHORD

+90 -Y-RAMP B
39m LT
(127.952')

-Y- RAMP B SC 0+90.000

+36 -Y-RAMP B
32m LT
(104.987')

PROP. R/W
& C/A

CHORD

N 26° 10' 09.3" E

MATCHLINE STA. 96+00 SEE SHEET 8

MATCHLINE STA. 2+00 -Y- RAMP B

MATCHLINE STA. 99+00 SEE SHEET 10

-Y- RAMP B

FAYETTEVILLE OUTER LOOP

PROP. CABLE GUIDERAIL

-Y- RAMP C

N 27° 03' 58.9" E

PROP. SLOPE
STAKE LINE

PROP. 48" WW
FENCE

+00 -Y-RAMP C
37.291 RT
(122.346')

-Y- RAMP C CS 0+00.000 =
-L- POC 97+20.000 (17.800m RT)

PROP. R/W
& C/A

+90.000 -Y- RAMP C
25m RT
(82.021')

-Y- RAMP C ST 0+90.000

SPECIAL DITCH GRADE
STA 1+62 - 1+82 -Y- RAMP C RT
SEE PROFILE FOR GRADE

MATCHLINE STA. 1+80 -Y- RAMP C

-L-

Pl Sta 95+94.173
Δ = 60° 58' 18.3" (LT)
L = 1,489.821
T = 824.198
R = 1,400.000
SE = 0.045
RO = 61.000
DS = 110 kph

1

THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION

FOR -L- PROFILE SEE SHEET 34
FOR -Y- RAMP B PROFILE SEE SHEET 45
FOR -Y- RAMP C PROFILE SEE SHEET 47

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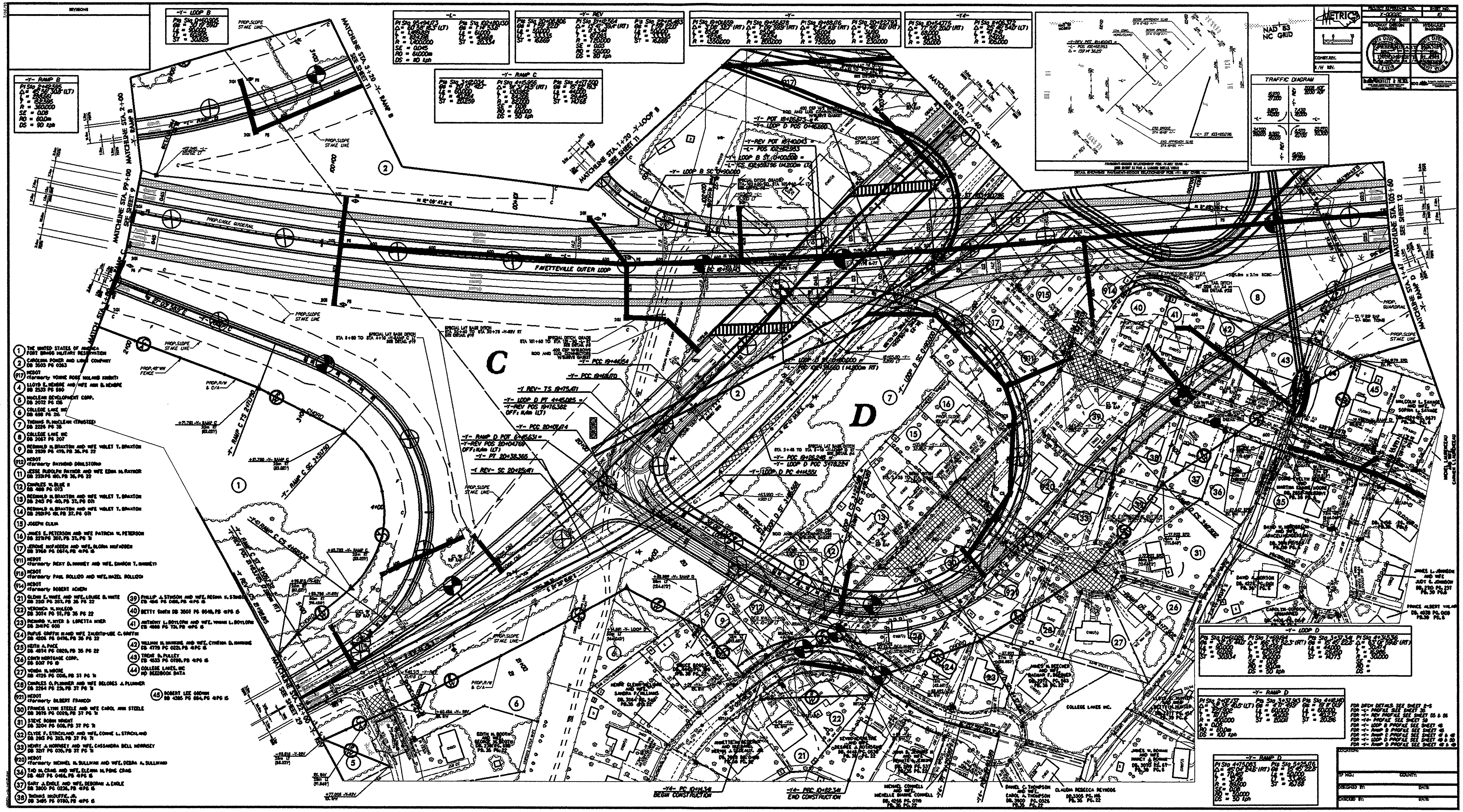
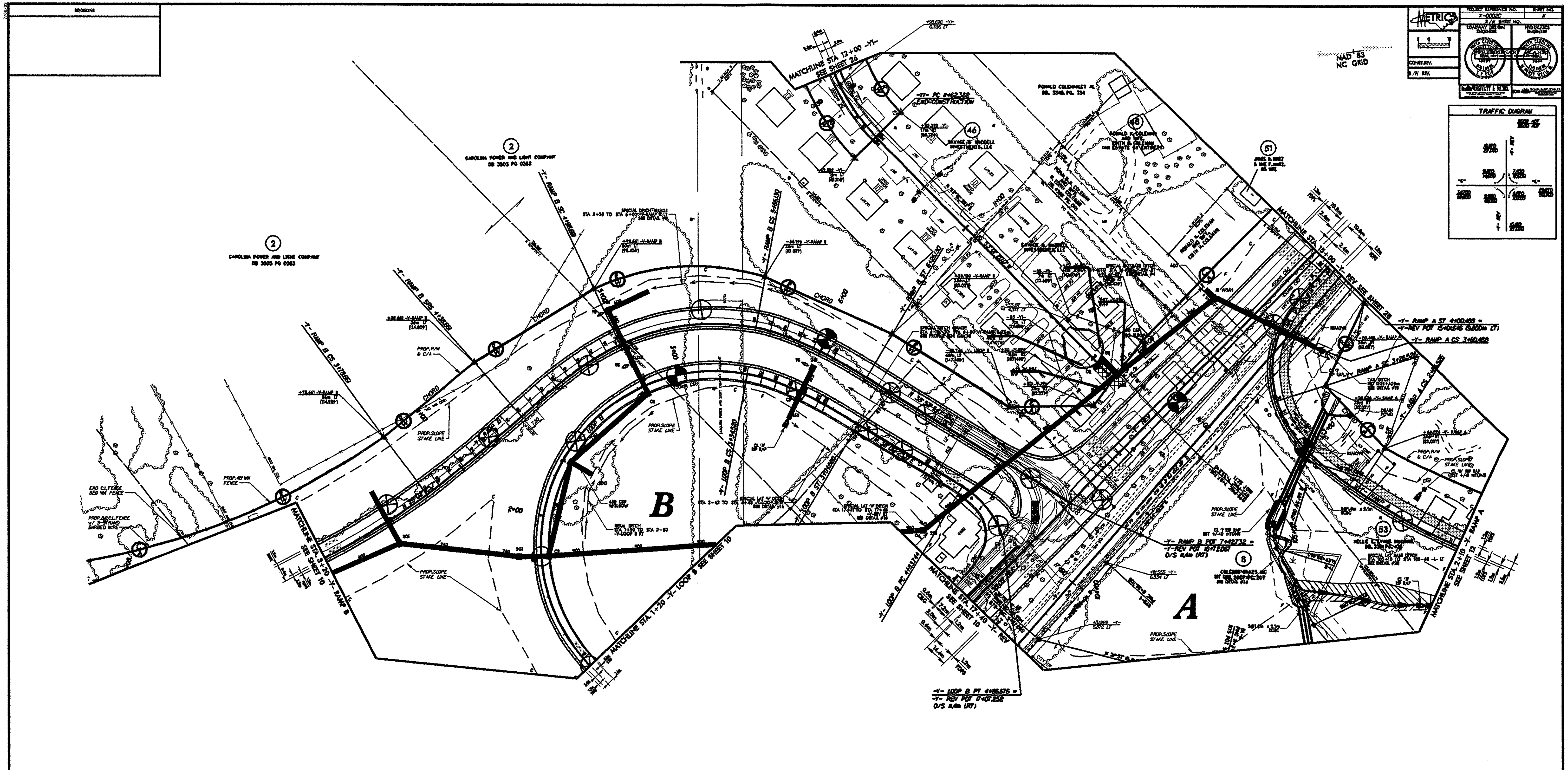

REVISIONS
-Y- LOOP B
PIs Sta 0+60.905
θs = 3°01'17.59.0"
Ls = 50.000
LT = 60.925
ST = 30.625
-Y- RAMP B
PI Sta 2+42.595
Δ = 45°56'30.8" (LT)
L = 288.661
T = 152.595
R = 360.000
SE = 0.08
RO = 60.0m
DS = 90 kph
-L-
PI Sta 95+94.173
Δ = 60°56'16.3" (LT)
L = 1,489.621
T = 824.198
R = 1,400.000
SE = 0.045
RO = 64.000m
DS = 110 kph
PIs Sta 102+80.130
θs = 1°14'53.6"
Ls = 61.000
LT = 40.668
ST = 20.334
-Y- REV
PIs Sta 20+06.806
θs = 1°59'22.0"
Ls = 50.000
LT = 33.335
ST = 16.669
PI Sta 21+12.564
Δ = 15°47'39.4" (RT)
L = 113.344
T = 87.093
R = 720.000
SE = 0.03
RO = 50.000
DS = 80 kph
PIs Sta 22+15.483
θs = 1°59'22.0"
Ls = 50.000
LT = 33.335
ST = 16.669
-Y-
PI Sta 19+01.659
Δ = 3°06'32.2" (RT)
L = 85.011
T = 42.516
R = 1,550.000
PI Sta 19+56.678
Δ = 7°09'55.5" (RT)
L = 25.016
T = 12.524
R = 200.000
PI Sta 19+88.116
Δ = 2°34'16.5" (RT)
L = 36.004
T = 18.006
R = 750.000
PI Sta 20+22.793
Δ = 7°46'16.5" (RT)
L = 31.190
T = 15.619
R = 230.000
-Y4-
PI Sta 10+54.775
Δ = 77°55'20.0" (RT)
L = 68.000
T = 40.433
R = 50.000
PI Sta 11+06.372
Δ = 25°42'54.0" (LT)
L = 47.241
T = 24.014
R = 105.000
-Y- RAMP C
PIs Sta 3+12.034
θs = 20°01'42.1"
Ls = 60.000
LT = 40.284
ST = 20.259
PI Sta 4+15.956
Δ = 91°31'14.5" (RT)
L = 130.968
T = 84.206
R = 82.000
SE = 0.08
RO = 60.000
DS = 50 kph
PIs Sta 4+77.500
θs = 15°22'19.3"
Ls = 44.000
LT = 29.445
ST = 14.766
NAD 83
NC GRID
METRIC
PROJECT REFERENCE NO. X-0002C
SHEET NO. 10
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
CONST. REV.
R/W REV.
TRAFFIC DIAGRAM
2008 ADT
2030 ADT
DETAIL SHOWING PAVEMENT-BRIDGE RELATIONSHIP FOR -Y- REV OVER -L-
-Y-REV POT 18+10.043 =
-L- POS 102+62.953
Δ = 133°14'36.25"
BEGIN APPROACH SLAB STA 17+83 +/-
BEGIN BRIDGE STA 17+91 +/-
END BRIDGE STA 18+87 +/-
END APPROACH SLAB STA 18+95 +/-
-L- ST 103+20.796
MATCHLINE STA. 3+20 -Y- RAMP B SEE SHEET 11
MATCHLINE STA. 2+00 -Y- RAMP B
MATCHLINE STA. 99+00 SEE SHEET 9
MATCHLINE STA. 1+20 -Y-LOOP B SEE SHEET 11
MATCHLINE STA. 17+40 -Y- REV SEE SHEET
MATCHLINE STA. 105+60 SEE SHEET 12
MATCHLINE STA. 1+47 -Y- RAMP D
MATCHLINE STA. 22+00 -Y- REV SEE SHEET 29
PROP. SLOPE STAKE LINE
PROP. CABLE GUIDERAIL
FAYETTEVILLE OUTER LOOP
PROP. 48" WW FENCE
PROP. R/W & C/A
PROP. GUARDRAIL
C
D
-Y- POT 18+26.573 =
-Y- LOOP D POS 0+46.560
-Y-REV POT 18+40.043 =
-L- POS 102+62.953
-Y- LOOP B ST 0+00.000 =
-L- CS 102+59.796 (4,200m LT)
-Y- LOOP B SC 0+90.000
-Y- PCC 19+44.154
-Y- PCC 19+69.170
-Y REV- TS 19+75.471
-Y- LOOP D PT 4+45.025 =
-Y-REV POS 19+76.382
OFF: 11.4m (LT)
-Y- PCC 20+01.174
-Y- RAMP D POT 6+45.631 =
-Y-REV POS 20+04.769
OFF: 11.4m (LT)
-Y- PT 20+38.365
-Y REV- SC 20+25.471
-Y- POC 19+26.248 =
-Y- LOOP D POC 3+78.224
-Y- LOOP D PC 4+14.551
-Y- RAMP C TS 2+71.750
-Y- RAMP C SC 3+31.750
-Y- RAMP C CS 4+46.112
-Y- RAMP C ST 5+06.112
-Y- REV POC 21+63.765
-Y- REV CS 21+98.095
BEGIN EXPRESSWAY GUTTER
END EXPRESSWAY GUTTER
COLLEGE LAKES INC.
-Y4- PC 10+14.341
BEGIN CONSTRUCTION
-Y4- PRC 10+62.341
END CONSTRUCTION
1 THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION
2 CAROLINA POWER AND LIGHT COMPANY DB 3503 PG 0063
917 NCDOT (formerly YONNE ROSE HOLAND KNIGHT)
4 LLOYD E. NEMBRE AND WIFE ANN B. NEMBRE DB 2533 PG 590
5 McCLEAN DEVELOPMENT CORP. DB 2072 PG 136
6 COLLEGE LAKE INC DB 498 PG 26
7 THOMAS R. McCLEAN (TRUSTEE) DB 2226 PG 35
8 COLLEGE LAKE INC DB 2067 PG 207
9 REGINALD H. BRAXTON AND WIFE VIOLET T. BRAXTON DB 2539 PG 479, PB 36, PG 22
912 NCDOT (formerly RAYMOND DONLSTONE)
11 JESSE RUDOLPH RAYNOR AND WIFE EDNA M. RAYNOR DB 233 PG 180, PB 36, PG 22
12 CHARLES W. BLUE II DB 480 PG 073
13 REGINALD H. BRAXTON AND WIFE VIOLET T. BRAXTON DB 243 PG 40, PB 37, PG 071
14 REGINALD H. BRAXTON AND WIFE VIOLET T. BRAXTON DB 2821 PG 181, PB 37, PG 071
15 JOSEPH CLIJA
16 JAMES E. PETERSON AND WIFE PATRICIA W. PETERSON DB 2271 PG 307, PB 37, PG 71
17 JEROME McFADDEN AND WIFE GLORIA McFADDEN DB 3760 PG 0674, PB 41 PG 15
911 NCDOT (formerly RICKY D. HANNEY AND WIFE SHARON T. HANNEY)
915 NCDOT (formerly PAUL ROLLIZO AND WIFE HAZEL ROLLIZO)
914 NCDOT (formerly ROBERT ACHER)
21 GLENN E. WHITE AND WIFE LOUISE B. WHITE DB 2213 PG 287, PB 36 PG 22
22 VERONICA W. McLEOD DB 3074 PG 97, PB 36 PG 22
23 RICHARD V. MYER & LORETTA MYER DB 2141 PG 608
24 RUFUS GRIFFIN III AND WIFE ZAUDITU-LEE C. GRIFFIN DB 4206 PG 0476, PB 36 PG 22
25 KEITH A. PACE DB 4674 PG 0820, PB 36 PG 22
26 CONTI MORTGAGE CORP. DB 5017 PG 10
27 VONDA M. MOORE DB 4726 PG 0016, PB 31 PG 71
28 CHARLES O. PLUMMER AND WIFE DELORES J. PLUMMER DB 2264 PG 231, PB 37 PG 71
921 NCDOT (formerly ALBERT FRANCO)
30 FRANCIS LYNN STEELE AND WIFE CAROL ANN STEELE DB 3676 PG 0029, PB 37 PG 71
31 STEVE ROBIN WRIGHT DB 3204 PG 608, PB 37 PG 71
32 CLYDE F. STRICKLAND AND WIFE CONNIE L. STRICKLAND DB 2813 PG 353, PB 37 PG 71
33 HENRY J. MORRISEY AND WIFE CASSANDRA BELL MORRISEY DB 3217 PG 036, PB 37 PG 71
920 NCDOT (formerly MICHAEL M. SULLIVAN AND WIFE DEBRA A. SULLIVAN)
36 TAO M. CRAIG AND WIFE ELEANA M. PONG CRAIG DB 4637 PG 0464, PB 41 PG 15
37 GARY J. ENGLE AND WIFE DEBORAH J. ENGLE DB 3800 PG 0236, PB 41 PG 15
38 THOMAS McDUFFIE, JR. DB 3486 PG 0780, PB 41 PG 15
39 PHILLIP J. STINSON AND WIFE REGINA K. STINSON DB 4616 PG 0180, PB 41 PG 15
40 BETTY SMITH DB 3507 PG 0540, PB 41 PG 15
41 ANTHONY L. BOYLORN AND WIFE VIVIAN L. BOYLORN DB 4868 PG 731, PB 41 PG 15
42 WILLIAM H. HAWKINS AND WIFE CYNTHIA D. HAWKINS DB 4779 PG 0221, PB 41 PG 15
43 TRENT B. PULLEY DB 4533 PG 0780, PB 41 PG 15
44 COLLEGE LAKES, INC NO DEEDBOOK DATA
45 ROBERT LEE GODWIN DB 4385 PG 884, PB 41 PG 15
-Y- LOOP D
PIs Sta 0+61.026
θs = 32°13'44.0"
Ls = 90.000
LT = 60.026
ST = 30.034
PI Sta 7+69.194
Δ = 166°33'52.3" (RT)
L = 232.566
T = 679.194
R = 80.000
SE = 0.08
RO = 50.0m
DS = 50 kph
PIs Sta 3+37.341
θs = 15°45'22.5"
Ls = 44.000
LT = 29.450
ST = 14.773
PI Sta 4+31.536
Δ = 65°07'59.6" (RT)
L = 30.414
T = 16.986
R = 30.000
-Y- RAMP D
PI Sta 2+02.137
Δ = 32°38'40.5" (LT)
L = 227.902
T = 117.137
R = 400.000
e = 0.05
RO = 60.0m
DS = 100 kph
PIs Sta 3+37.913
θs = 4°17'49.5"
Ls = 60.000
LT = 40.002
ST = 20.011
PIs Sta 4+18.140
θs = 19°11'01.9"
Ls = 60.000
LT = 40.237
ST = 20.216
-Y- RAMP D
PI Sta 4+75.083
Δ = 45°04'24.6" (RT)
L = 70.487
T = 37.181
R = 89.600
SE = 0.08
RO = 50.000
DS = 50 kph
PIs Sta 5+25.176
θs = 15°45'22.5"
Ls = 50.000
LT = 33.466
ST = 16.768
FOR DITCH DETAILS SEE SHEET 2-5
FOR -L- PROFILE SEE SHEET 36
FOR -Y- REV PROFILE SEE SHEET 55 & 56
FOR -Y4- PROFILE SEE SHEET 58
FOR -Y- LOOP B PROFILE SEE SHEET 46
FOR -Y- RAMP B PROFILE SEE SHEET 45
FOR -Y- RAMP C PROFILE SEE SHEET 47 & 48
FOR -Y- LOOP D PROFILE SEE SHEET 49 & 50
FOR -Y- RAMP D PROFILE SEE SHEET 48 & 49
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
DATE:
CHECKED BY:
DATE:



-Y- LOOP B

PIs Sta 0+60.905	PI Sta 7+28.019	PIs Sta 3+54.760
θs = 30° 19' 59.0"	Δ = 164° 49' 22.5" (RT)	θs = 20° 13' 19.3"
Ls = 90.000	L = 244.520	Ls = 60.000
LT = 60.905	T = 638.019	LT = 40.264
ST = 30.825	R = 85.000	ST = 20.240
	e = 0.05	
	RO = 60.0m	
	DS = 50 kph	

-Y/-

PI Sta 4+70.987
Δ = 41° 55' 49.4" (RT)
L = 32.932
T = 17.243
R = 45.000
e = 0.08
RO = 34.0m
DS = 40 kph

-Y- RAMP B

PI Sta 2+42.595	PIs Sta 3+96.675	PIs Sta 4+75.824	PI Sta 5+33.536	PIs Sta 5+86.371
Δ = 45° 56' 30.8" (LT)	θs = 4° 46' 25.1"	θs = 15° 54' 55.6"	Δ = 35° 47' 36.2" (RT)	θs = 20° 13' 19.3"
L = 288.661	Ls = 60.000	Ls = 60.000	L = 67.469	Ls = 60.000
T = 152.585	LT = 40.015	LT = 40.163	T = 34.876	LT = 40.264
R = 360.000	ST = 20.013	ST = 20.148	R = 108.000	ST = 20.240
e = 0.06			e = 0.08	
RO = 60.0 m			RO = 60.0m	
DS = 90 kph			DS = 50 kph	

-Y- RAMP A

PIs Sta 3+05.217	PI Sta 3+44.192	PIs Sta 3+74.026
θs = 4° 35' 53.5"	Δ = 36° 55' 03.4" (RT)	θs = 22° 55' 05.3"
θs = 34° 37' 10.1"	L = 32.959	Ls = 40.000
Ls = 60.000	T = 17.665	LT = 26.884
LT = 38.690	R = 50.000	ST = 13.540
ST = 23.478	e = 0.08	
	RO = 50.0m	
	DS = 40 kph	

FOR DITCH DETAILS SEE SHEET 2-8
FOR -Y- REV PROFILE SEE SHEET 55
FOR -Y/- PROFILE SEE SHEET 57
FOR -Y- RAMP A PROFILE SEE SHEET 44
FOR -Y- RAMP B PROFILE SEE SHEET 45 & 46
FOR -Y- LOOP B PROFILE SEE SHEET 46 & 47

LOCATION:	
TIP NO.:	COUNTY:
DESIGNED BY:	DATE:
CHECKED BY:	DATE:

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

PRELIMINARY PLANS — DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

MOFFATT & NICHOL

SDG Sungate Design Group, P.A.

REVISIONS

DATE: 8-3-2006 - PARCEL 58 AND 60 REVISED PARCEL NUMBER TO 913
DATE: 8-3-2006 - PARCEL 913 REVISED PARCEL NAME TO EUREKA CHAPEL BAPTIST CHURCH
DATE: 8-3-2006 - PARCEL 59 REVISED PARCEL NAME TO BENJAMIN J. EVANS HEIRS

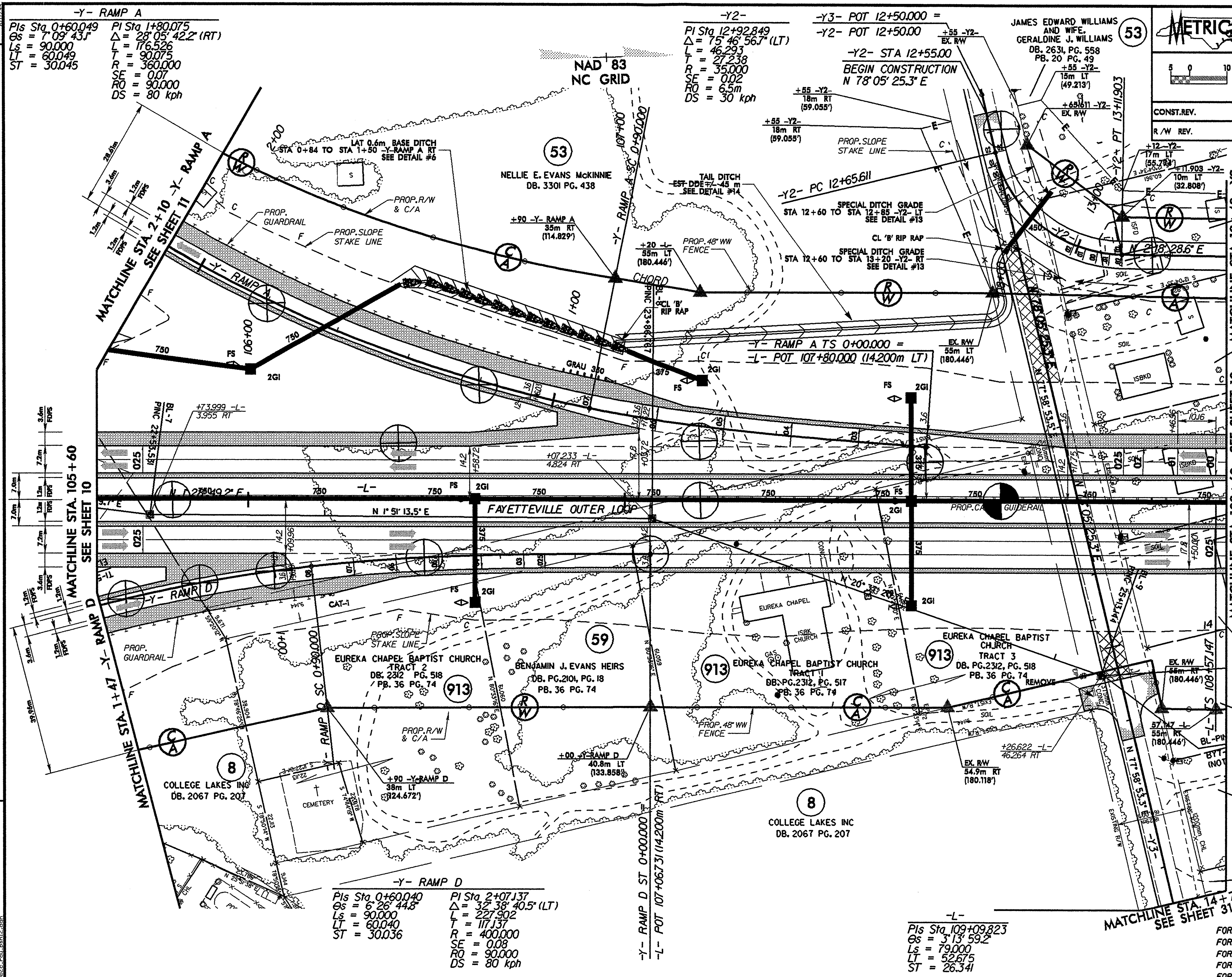
-Y- RAMP A

PIs Sta 0+60.049
Θs = 7° 09' 43.1"
Ls = 90.000
LT = 60.049
ST = 30.045

PI Sta 1+80.075
Δ = 28° 05' 42.2" (RT)
L = 176.526
T = 90.075
R = 360.000
SE = 0.07
RO = 90.000
DS = 80 kph

-Y2-

PI Sta 12+92.849
Δ = 75° 46' 56.7" (LT)
L = 46.293
T = 27.238
R = 35.000
SE = 0.02
RO = 6.5m
DS = 30 kph



-Y- RAMP D

PIs Sta 0+60.040
Θs = 6° 26' 44.8"
Ls = 90.000
LT = 60.040
ST = 30.036

PI Sta 2+07.137
Δ = 32° 38' 40.5" (LT)
L = 227.902
T = 117.137
R = 400.000
SE = 0.08
RO = 90.000
DS = 80 kph

-L-

PIs Sta 109+09.823
Θs = 3° 13' 59.2"
Ls = 79.000
LT = 52.675
ST = 26.341

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 36
FOR -Y- RAMP A PROFILE SEE SHEET 44
FOR -Y- RAMP D PROFILE SEE SHEET 48
FOR -Y2- PROFILE SEE SHEET 57

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	13
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 9334 ENGINEER W. HENRY WEITZ JR.

PRELIMINARY PLANS NOT TO BE USED FOR CONSTRUCTION

METRIC 5 0 10

CONST.REV.

R/W REV.

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, (919) 781-4626 VOICE (919) 781-4865 FAX

SDG Sungate Design Group, P.A. — 1616 Jones Franklin Rd. Raleigh, NC. 27606

NAD 83 NC GRID

-Y2-
PI Sta 14+26.594
Δ = 104° 15' 40.1" (LT)
L = 63.690
T = 45.009
R = 35.000
SE = 0.04
RO = 6.5m
DS = 30 kph

-Y8- REV
PI Sta 10+80.579
Δ = 48° 46' 10.0" (LT)
L = 68.095
T = 36.264
R = 80.000
SE = 0.04
RO = 20.0m
DS = 30 kph

-Y2- POT 14+49.866 =
-Y11- POT 10+50.000
-Y2- PT 14+45.275
END CONSTRUCTION

-Y8- POT 10+44.315 (LB) =
-Y8- REV PC 10+44.315 (LA)
BEGIN CONSTRUCTION

-Y7- POT 12+10.702 =
-Y8- REV POC 10+62.913

-Y8- REV
MATCHLINE STA. 10+90
SEE SHEET 14

MATCHLINE STA. 13+40 -Y2-
SEE SHEET 12

MATCHLINE STA. 108+60
SEE SHEET 12

MATCHLINE STA. 111+60
SEE SHEET 14

MATCHLINE STA. 12+80 -Y11-
SEE SHEET 31

-L-
PIs Sta 109+09.823
θs = 3° 13' 59.2"
Ls = 79.000
LT = 52.675
ST = 26.341

PI Sta 116+37.531
Δ = 90° 06' 47.2" (RT)
L = 1,100.939
T = 701.383
R = 700.000
SE = 0.08
RO = 79.000
DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 36
FOR -Y2- PROFILE SEE SHEET 57
FOR -Y7- PROFILE SEE SHEET 59
FOR -Y8- REV PROFILE SEE SHEET 59

REVISIONS

8/17/99

x0002c_rdy_psh13.dgn

-Y8- REV

PI Sta 10+80.579
Δ = 48° 46' 10.0" (LT)
L = 68.095
T = 36.264
R = 80.000
SE = 0.04
D0 = 20.000
DS = 50 kph

PI Sta 12+65.351
Δ = 40° 48' 45.6" (LT)
L = 56.985
T = 29.762
R = 80.000
SE = 0.04
D0 = 20.000
DS = 50 kph

-Y8- REV PT 12+92.574 = -Y6- POT STA 15+81.000 END CONSTRUCTION

-Y6- REV POT 15+25.483

+90 -Y8-REV RW

+12.410 -Y8-REV 10m LT (32.808')

+36 -Y8-REV 17m LT (55.774')

+35.589 -Y8-REV 10m LT (32.808')

+92.574 -Y8-REV EX. R/W 10m LT (32.808')

+54.312 -L- 110.903 LT

+83 -Y8-REV EX. R/W

+40 -L- R/W

EX. R/W 55m LT (180.447')

-Y8- REV PC 12+35.589

N 29° 25' 40.5" E -Y8- REV

N 7° 04' 50.2" E

N 74° 07' 59.2" E

MATCHLINE STA. 10+90 -Y8- REV SEE SHEET 13

MATCHLINE STA. 111+60 SEE SHEET 13

MATCHLINE STA. 114+60 SEE SHEET 15

NAD 83 NC GRID

LAT 1.2m BASE DITCH STA 114+30 TO STA 116+60 -L- LT SEE DETAIL #7

SPECIAL DITCH GRADE STA 11+00 TO STA 11+89 -Y8-REV LT SEE DETAIL #13

SPECIAL DITCH GRADE STA 11+00 TO STA 11+89 -Y8-REV RT SEE DETAIL #13

TAIL DITCH EST DIS +/-360 m SEE DETAIL #15

PROP. SLOPE STAKE LINE

PROP. 48" WW FENCE

PROP. R/W & C/A

PROP. CABLE GUIDERAIL

CL 'B' RIP RAP

CL 'I' RIP RAP

CL 'B' RIP RAP EST +/-3 mTONS

800 CSP W/ELBOW

FAYETTEVILLE OUTER LOOP

REMOVE

EXIST. R/W

EXISTING R/W

REBAR

SOIL

70 MAXWELL AND JOSEPH GRIFFEN DB. 780 PG. 407

76 J.D. ELLIOT AND WIFE, SUE ELLIOT DB. 3260 PG. 749

77 NORMAN ANTONIO WHITTED DB. 4613 PG. 448

78 JULIUS D. ELLIOT AND WIFE, SUE C. ELLIOT

69 CHERYL EVANS DB. 4346 PG. 0342 PB. 36 PG. 71

81 HUGH M. MACKEY AND WIFE, THELMA T. MACKEY DB. 2280 PG. 429

83 MASCO McLEAN AND WIFE, ELIZA JANE McCLEAN DB. 4921 PG. 0337

80 E.R. McKEITHAN AND WIFE, RUTH B. McKEITHAN DB. 727 PG. 173

82 BETTY LOU ARMSTRONG 2256 PG 575

84 JOHN THORN DB. 2089 PG. 33

85 MASCO McLEAN AND WIFE, ELIZA JANE McCLEAN DB. 2017 PG. 523

86 MASCO McLEAN AND WIFE, ELIZA JANE McCLEAN DB. 2006 PG. 365

87 EDITH EVANS MELVIN DB. 4613 PG. 446

79 CHARLIE C. MIMS AND WIFE GLORIA V. MIMS DB. 2862 PG. 151 PB. 32 PG. 39

NELLIE THOMAS NICHOLS WASHINGTON DB. 2197 PG. 249 PB. 32 PG. 39

-Y8- POT 12+04.244 = -Y6- POT 13+45.941

-L-
PI Sta 116+37.531
Δ = 90° 06' 47.2" (RT)
L = 1,100.939
T = 701.383
R = 700.000
SE = 0.08
RO = 79.000
DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 37
FOR -Y8- REV PROFILE SEE SHEET 59

METRIC

5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	14
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER

PRELIMINARY SEAL NOT USED FOR CONSTRUCTION
NORTH CAROLINA ENGINEER 15869 T. R. REID

HYDRAULICS ENGINEER

NORTH CAROLINA SEAL 9334 M. WHITNEY WELLS JR. ENGINEER

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27604
(919) 781-4626 VOICE (919) 781-4865 FAX

SDG Sungate Design Group, P.A.
510-A James Drayton Rd.
Raleigh, NC 27606

REVISIONS

8/17/09

x0002c-rdy_pah14.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	15
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER HENRY WELLS JR.

PRELIMINARY PLANS NOT TO BE USED FOR CONSTRUCTION

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27604
(919) 781-4626 VOICE (919) 781-4658 FAX

SDG Sungate Design Group, P.A.
910-A James Dr. North Ext.
Raleigh, N.C. 27609

REVISIONS

8/17/99

NAD 83 NC GRID

MATCHLINE STA. 114+60 SEE SHEET 14

MATCHLINE STA. 117+40 SEE SHEET 16

-L- PROP. CABLE GUIDERAIL

FAYETTEVILLE OUTER LOOP

78 JULIUS D. ELLIOT AND WIFE, SUE C. ELLIOT

88 JULIUS.D. ELLIOT AND WIFE, SUE C. ELLIOT DB. 4251 PG. 0240

89 ANDREWS ROAD CO. DB 2226 PG 559

77 NORMAN ANTONIO WHITTED DB. 4613 PG. 448

87 EDITH EVANS MELVIN DB, 4613 PG. 446

89 ANDREWS ROAD CO. DB 2226 PG 559

LAT 1:2m BASE DITCH STA 114+30 TO STA 116+60 -L- LT SEE DETAIL #7

LAT 1.2m BASE DITCH STA 116+60 TO STA 117+68 -L- LT SEE DETAIL #8

BERM DITCH STA 115+60 TO STA 116+20 -L- RT

BEG EXPRESSWAY GUTTER -L- STA 117+20 RT

ROD AND LUG W/SLEEVE GASKET

PROP. GUARDRAIL

PROP. SLOPE STAKE LINE

PROP. R/W & C/A

PROP. 48" WW FENCE

CL 'B' RIP RAP

400 CSP W/ELBOW

2GI W/ FLAT GRATE

TYPE M350GI

CITY OF FAYETTEVILLE (FROM GIS)

EVILLE (FROM GIS)

-L-
PI Sta 116+37.531
Δ = 90° 06' 47.2" (RT)
L = 1,100.939
T = 701.383
R = 700.000
SE = 0.08
RO = 79.000
DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 37

x0002c_rdu_psh15.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	16
R/W SHEET NO.	

METRIC

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS — DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

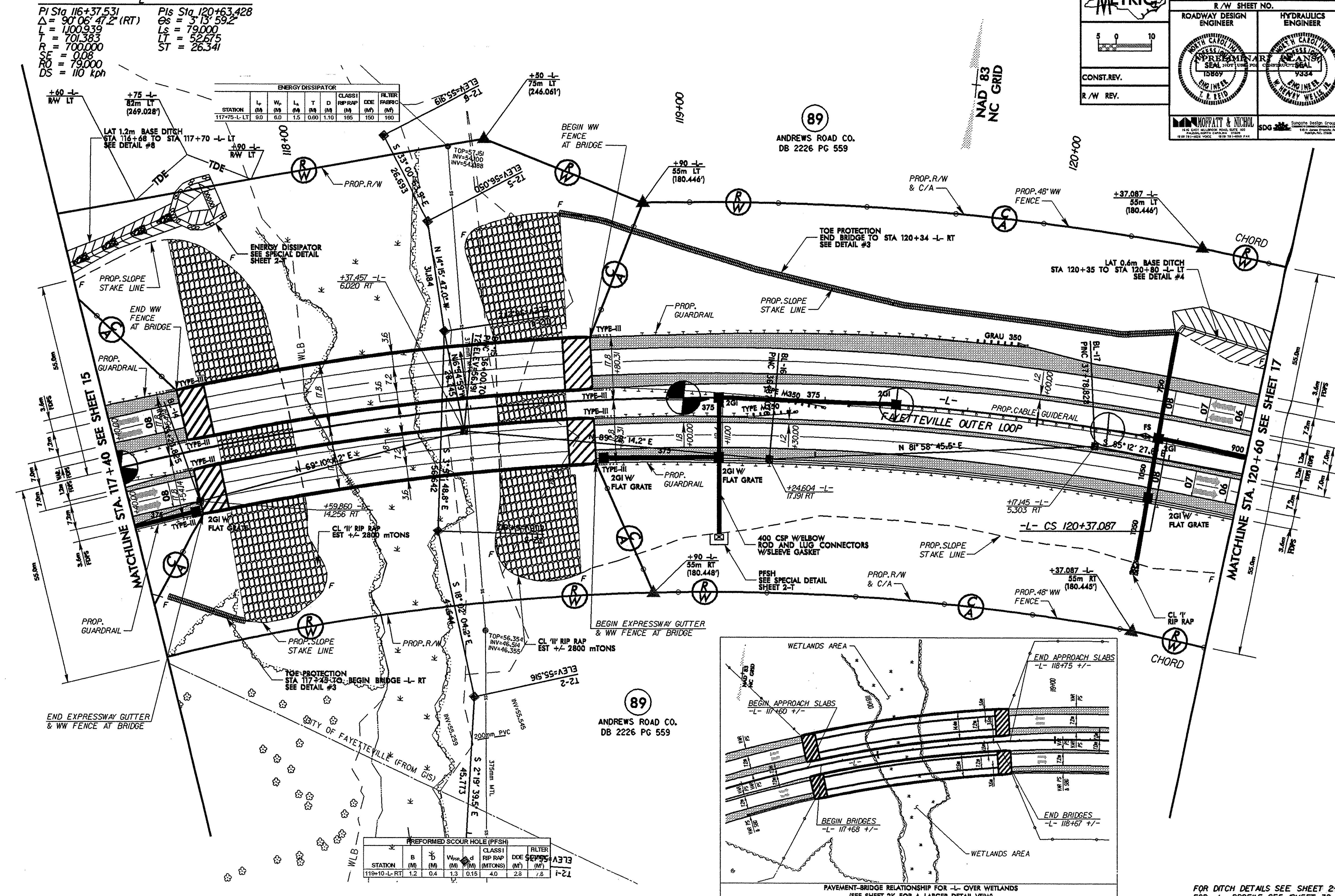
MOFFATT & NICHOL — SDG Sungate Design Group, P.A.

-L-

PI Sta 116+37.531
Δ = 90° 06' 47.2" (RT)
L = 1,100.939
T = 701.383
R = 700.000
SE = 0.08
RO = 79.000
DS = 110 kph

PIs Sta 120+63.428
Θs = 3° 13' 59.2"
Ls = 79.000
LT = 52.675
ST = 26.341

ENERGY DISSIPATOR								
STATION	L_p (M)	W_p (M)	L_s (M)	T (M)	D (M)	CLASS I RIP RAP (M)	DDE (M^2)	FILTER FABRIC (M^2)
117+75 -L- LT	9.0	6.0	1.5	0.60	1.10	165	150	160



PREFORMED SCOUR HOLE (PFSH)							
STATION	B (M)	D (M)	W_{PSR} (M)	d (M)	CLASS I RIP RAP (MTONS)	DDE (M^3)	FILTER FABRIC (M^2)
119+10 -L- RT	1.2	0.4	1.3	0.15	4.0	2.8	7.8

REVISIONS

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 38

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	17
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA SEAL 10869 ENGINEER R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA SEAL 9334 ENGINEER W. HENRY WELLS, JR.

PRELIMINARY PLANS NOT FOR CONSTRUCTION

CONST.REV.

R/W REV.

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, (919) 781-4626 VOICE, (919) 781-4699 FAX

SDG Sungate Design Group, P.A. — 510-A Jones Franklin Rd, Raleigh, N.C. 27606

REVISIONS

9/17/20

89
ANDREWS ROAD CO.
DB 2226 PG 559

-L- ST 121+16.087

-L- TS 123+29.217

NAD 83 NC GRID

121+00

122+00

123+00

LAT 0.6m BASE DITCH
STA 120+35 TO STA 120+80 -L- LT
SEE DETAIL #4

+16.087 -L-
55m LT
(180.446')

PROP.48" WW FENCE

BERM DITCH
STA 120+80 TO STA 122+20 -L- LT

PROP.R/W & C/A

+29.217 -L-
55m LT
(180.446')

CHORD

PROP.SLOPE STAKE LINE

BL-18
PNC 39+75.48

+13.941 -L-
3.026 LT

S 85° 40' 25" E

S 81° 56' 25" E

PROP.CABLE GUIDERAIL

PROP.CABLE GUARDRAIL

FAYETTEVILLE OUTER LOOP

MATCHLINE STA. 120+60 SEE SHEET 16

MATCHLINE STA. 123+60 SEE SHEET 18

55.0m

3.6m FDPS
7.2m
1.2m FDPS
7.0m
7.0m
1.2m FDPS
7.2m
3.6m FDPS

05 04 03 02 01 00 01 02 025

CAT-1

PROP. GUARDRAIL

END SBG -L-
STA 121+20 RT

CL 'B' RIP RAP
EST +/- 3 mTONS

TOE PROTECTION
STA 121+35 TO STA 121+70 -L- RT
SEE DETAIL #3

PROP.48" WW FENCE

PROP.R/W & C/A

PROP.SLOPE STAKE LINE

+16.087 -L-
55m RT
(180.446')

+29.217 -L-
55m RT
(180.446')

89
ANDREWS ROAD CO.
DB 2226 PG 559

-L-

PIs Sta 120+63.428	PIs Sta 123+71.219
θs = 3° 13' 59.2"	θs = 1° 40' 44.0"
Ls = 79.000	Ls = 63.000
LT = 52.675	LT = 42.002
ST = 26.341	ST = 21.002

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 39

x0002c_rdy_psh17.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	18
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WEITS JR.

PRELIMINARY PLANS NOT FOR CONSTRUCTION

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4629 FAX

SDG Sungate Design Group, P.A.
510-A James Kenneth Rd.
Matthews, NC. 28105

REVISIONS

8/17/00

-L- SC 123+92.217

MATCHLINE STA. 123+60 SEE SHEET 17

MATCHLINE STA. 126+60 SEE SHEET 19

124+00

125+00

126+00

NAD 83 NC GRID

89
ANDREWS ROAD CO.
DB 2226 PG 559

BERM DITCH
STA 124+03 TO STA 124+33 -L- LT

+92.217 -L-
55m LT
(180.446')

CHORD

PROP. 48" WW FENCE

SPECIAL DITCH GRADE
STA 124+18 TO STA 124+60 -L- LT
SEE DETAIL #5

PROP. R/W & C/A

PROP. SLOPE STAKE LINE

BL-19
PINC 42+03.245

BL-20
PINC 43+99.149

+41.535 -L-
16.497 LT

+42.477 -L-
14.638 LT

800 CSP W/ELBOW

BDO

2GI

FS

SPECIAL DITCH GRADE
STA 124+18 TO STA 124+40 -L- MED
SEE PROFILE FOR GRADE

S 85° 40' 22.5" E

N 87° 51' 20.5" E

-L-

PROP. CABLE GUIDERAIL

FAYETTEVILLE OUTER LOOP

400 CSP W/ELBOW

SPECIAL DITCH GRADE
STA 124+18 TO STA 124+80 -L- RT
SEE DETAIL #5

BERM DITCH
STA 124+18 TO STA 126+00 -L- RT

+92.217 -L-
55m RT
(180.446')

PROP. R/W & C/A

PROP. 48" WW FENCE

PROP. SLOPE STAKE LINE

89
ANDREWS ROAD CO.
DB 2226 PG 559

-L-

PIs Sta 123+71.219	PI Sta 125+68.836
θs = 1° 40' 44.0"	Δ = 18° 39' 37.3" (LT)
Ls = 63.000	L = 350.111
LT = 42.002	T = 176.620
ST = 21.002	R = 1,075.000
	SE = 0.055
	RO = 63.000
	DS = 110 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 39

x0002c_rdy_pshl8.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	19
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WEITZEL JR.

PRELIMINARY PLANS NOT TO BE USED FOR CONSTRUCTION

METRIC 5 0 10

CONST.REV.

R/W REV.

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27604, (919) 781-4626 VOICE, (919) 781-4658 FAX

SDG Sungate Design Group, P.A. — 110-A James Brandon Rd., Raeford, NC. 28376

REVISIONS

8/17/99

NAD 83 NC GRID

90
CUMBERLAND COUNTY BOARD OF EDUCATION
DB 2218 PG 581
DB 2233 PG 241

900mm BST

1800 mm CHL

-L- CS 127+42.328

-L- ST 128+05.328

127+00

128+00

129+00

1800 CHL

GATE

GUY

LT

W/LT

30' SOIL

SOIL

PROP.R/W & C/A

PROP.48" WW FENCE

PROP.SLOPE STAKE LINE

+21.403 -L- PL

+34.287 -L- PL

+42.328 -L- PL

+05.328 -L- PL

+98.608 -L- 9.367 LT

+88.998 -L- 8.737 LT

BL-87 PINC 44+55.978

BL-86 PINC 45+45.732

2GI FS

N 88° 45' 47.0" E

N 78° 12' 00.6" E

N 78° 16' 09.1" E

N 76° 02' 29.5" E

450 600 -L- 600 600 600 750 750

FAYETTEVILLE OUTER LOOP

P.CABLE GUIDERAIL

055 050 04 03 02 01 00 01 02 025 375

CAT

GRAU 350

11.5

+05.33

PROP. GUARDRAIL

BEGIN EXPRESSWAY GUTTER -L- STA 129+20 RT

CHORD

PROP.R/W & C/A

PROP.48" WW FENCE

+42.328 -L- 55m RT (180.446')

+05.328 -L- 55m RT (180.446')

89
ANDREWS ROAD CO.
DB 2226 PG 559

MATCHLINE STA. 126+60 SEE SHEET 18

MATCHLINE STA. 129+40 SEE SHEET 20

55.0m

3.6m RDWY

7.2m

1.2m RDWY

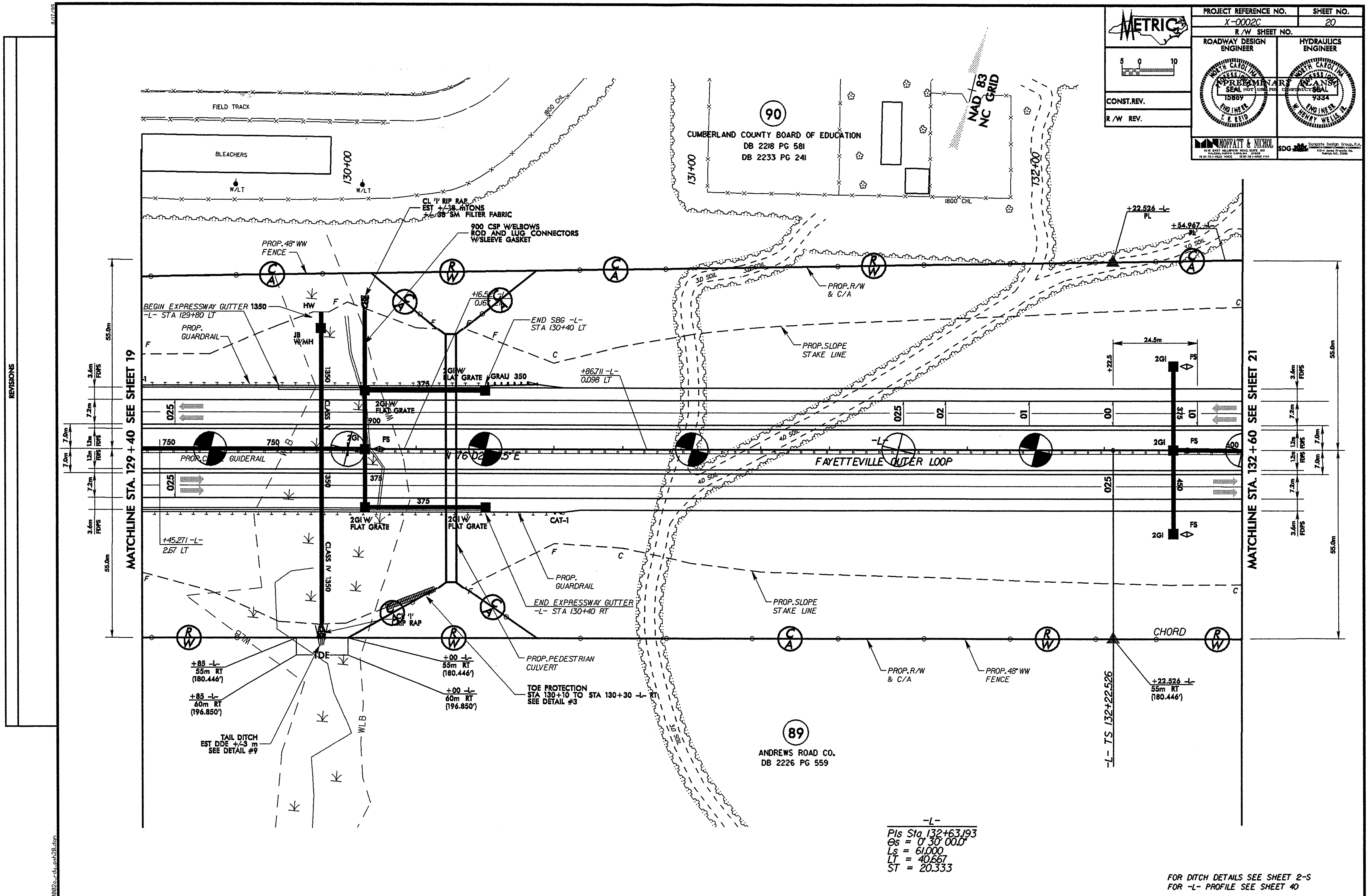
7.0m

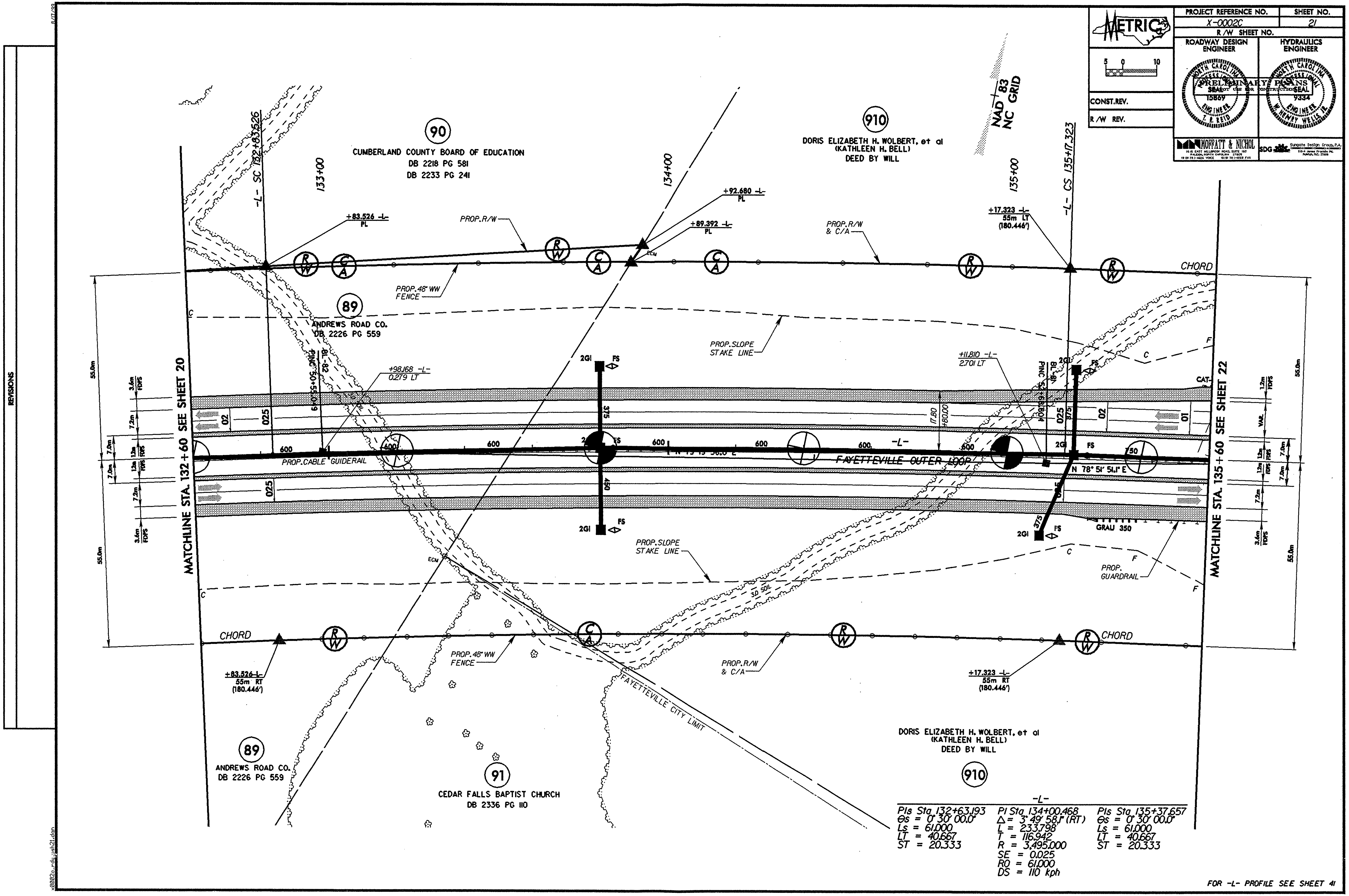
-L-

PI Sta 125+68.836	PIs Sta 127+63.330
Δ = 18° 39' 37.3" (LT)	θs = 1° 40' 44.0"
L = 350.111	Ls = 63.000
T = 176.620	LT = 42.002
R = 1,075.000	ST = 21.002
SE = 0.065	
RO = 63.000	
DS = 110 kph	

FOR -L- PROFILE SEE SHEET 40

x0002c_rdy_psh19.dgn


METRIC
PROJECT REFERENCE NO.
X-0002C
SHEET NO.
20
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST.REV.
R/W REV.
MOFFATT & NICHOL
SDG Sungate Design Group, P.A.
REVISIONS
FIELD TRACK
BLEACHERS
W/LT
130+00
131+00
132+00
1800 CHL
90
CUMBERLAND COUNTY BOARD OF EDUCATION
DB 2218 PG 581
DB 2233 PG 241
NAD 83
NC GRID
CL 'I' RIP RAP
EST +/-18 mTONS
+/-38 SM FILTER FABRIC
900 CSP W/ELBOWS
ROD AND LUG CONNECTORS
W/SLEEVE GASKET
PROP. 48" WW FENCE
BEGIN EXPRESSWAY GUTTER 1350
-L- STA 129+80 LT
PROP. GUARDRAIL
HW
JB W/MH
+16.52 -L-
0.161 LT
END SBG -L-
STA 130+40 LT
2GI W/ FLAT GRATE
GRAU 350
+86.711 -L-
0.098 LT
PROP. SLOPE STAKE LINE
PROP. R/W & C/A
+22.526 -L-
PL
+54.967 -L-
3.0 SOIL
24.5m
2GI
FS
MATCHLINE STA. 129+40 SEE SHEET 19
MATCHLINE STA. 132+60 SEE SHEET 21
55.0m
3.6m FDPS
7.2m
7.0m
1.2m
PROP. CABLE GUIDERAIL
N 76°02'.5" E
FAYETTEVILLE OUTER LOOP
-L-
CLASS IV 1350
CAT-1
+45.271 -L-
2.67 LT
PROP. GUARDRAIL
END EXPRESSWAY GUTTER
-L- STA 130+40 RT
PROP. SLOPE STAKE LINE
CL 'I' RIP RAP
CHORD
+85 -L-
55m RT
(180.446')
+85 -L-
60m RT
(196.850')
+00 -L-
55m RT
(180.446')
+00 -L-
60m RT
(196.850')
TDE
PROP. PEDESTRIAN CULVERT
TOE PROTECTION
STA 130+10 TO STA 130+30 -L- RT
SEE DETAIL #3
TAIL DITCH
EST DDE +/-3 m
SEE DETAIL #9
WLB
PROP. R/W & C/A
PROP. 48" WW FENCE
-L- TS 132+22.526
+22.526 -L-
55m RT
(180.446')
89
ANDREWS ROAD CO.
DB 2226 PG 559
-L-
PIs Sta 132+63.193
θs = 0°30'00.0"
Ls = 61.000
LT = 40.667
ST = 20.333
FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 40


PROJECT REFERENCE NO.
X-0002C
SHEET NO.
21
R/W SHEET NO.
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
METRIC
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
CONST. REV.
R/W REV.
MOFFATT & NICHOL
SDG
REVISIONS
NAD 83
NC GRID
90
CUMBERLAND COUNTY BOARD OF EDUCATION
DB 2218 PG 581
DB 2233 PG 241
910
DORIS ELIZABETH H. WOLBERT, et al
(KATHLEEN H. BELL)
DEED BY WILL
89
ANDREWS ROAD CO.
DB 2226 PG 559
91
CEDAR FALLS BAPTIST CHURCH
DB 2336 PG 110
-L- SC 132+83.526
-L- CS 135+17.323
133+00
134+00
135+00
+83.526 -L-
PL
+92.680 -L-
PL
+89.392 -L-
PL
+17.323 -L-
55m LT
(180.446')
+83.526 -L-
55m RT
(180.446')
+17.323 -L-
55m RT
(180.446')
+98.168 -L-
0.279 LT
+11.810 -L-
2.701 LT
PROP. R/W
PROP. R/W & C/A
PROP. 48" WW FENCE
PROP. SLOPE STAKE LINE
PROP. CABLE GUIDERAIL
PROP. GUARDRAIL
GRAU 350
CHORD
FAYETTEVILLE OUTER LOOP
FAYETTEVILLE CITY LIMIT
N 78° 51' 51.1" E
MATCHLINE STA. 132+60 SEE SHEET 20
MATCHLINE STA. 135+60 SEE SHEET 22
55.0m
-L-
PIs Sta 132+63.193
Θs = 0° 30' 00.0"
Ls = 61.000
LT = 40.667
ST = 20.333
PI Sta 134+00.468
Δ = 3° 49' 58.1" (RT)
L = 233.798
T = 116.942
R = 3,495.000
SE = 0.025
RO = 61.000
DS = 110 kph
PIs Sta 135+37.657
Θs = 0° 30' 00.0"
Ls = 61.000
LT = 40.667
ST = 20.333
FOR -L- PROFILE SEE SHEET 41

ENERGY DISSIPATOR								
STATION	L_P (M)	W_P (M)	L_A (M)	T (M)	D (M)	CLASS I RIP RAP (M)	DDE (M^3)	FILTER FABRIC (M^2)
136+80 -L- LT	7.5	5.0	1.5	0.60	0.90	130	105	125
136+90 -L- RT	9.5	6.0	3.5	0.75	1.10	235	200	185

-Y12- RAMP B
Pls Sta 0+40.001
Θs = 0° 58' 56.0"
Ls = 60.000
LT = 40.001
ST = 20.001

METRIC
5 0 10

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	22
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL — PRELIMINARY PLANS NOT FOR CONSTRUCTION OR RIGHT-OF-WAY PURPOSES — INCOMPLETE PLANS — NOT TO BE USED FOR R/W OR CONSTRUCTION

T. R. REID — HENRY WELLING

CONST.REV.

R/W REV.

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27604, (919) 781-4626 VOICE, (919) 781-4609 FAX

SDG Sungate Design Group, P.A. — 1904 Jones Franklin Rd., Raleigh, NC 27606

REVISIONS
—PARCEL 910 - ADDED NCDOT TO OWNER
—PARCEL 96 - CHANGED TO 93

910 — 93 — 94 MARVIN N. HADDOCK DB 3066 PG 529 — 95

+30 -L- 90m LT (295.276') — +70 -L- 90m LT (295.276') — 137+00

+78.323 -L- 55m LT (180.446') — 136+00

ENERGY DISSIPATOR SEE SPECIAL DETAIL SHEET 2-T

HEAD DITCH EST DDE +/-14 m³ SEE DETAIL #9

LAT 0.6m BASE DITCH STA 136+71 TO STA 138+20 -L- LT SEE DETAIL #6

+50 -L- 55m LT (180.448') — +20 -L- 55m LT (180.448') — 138+00

-Y12- RAMP B ST 0+00.000 = -L- POT 138+20.000 (14.200 LT)

STA 138+20 TO STA 139+30 -L- LT — BERM DITCH

CHORD — 3D SOIL — 4D SOIL

24.34 — BL-80 PINC 54+49.630 — BL-78 PINC 54+31.858 — BL-73 PINC 55+04.309

2GI W/ FLAT GRATE — 450 CSP W/ELBOWS ROD AND LUG CONNECTORS W/SLEEVE GASKETS

GRAU 350

FAYETTEVILLE OUTER LOOP — -L- — N 78° 51' 51.1" E — N 80° 52' 27.6" E — N 83° 21' 55.5" E — N 80° 00' 39.6" E

2GI — FS

MATCHLINE STA. 135+60 SEE SHEET 21 — MATCHLINE STA. 138+60 -Y12- RAMP B SEE SHEET 23

-L- ST 135+78.323 — -Y9- POT 9+11.725

CLASS IV W/METHOD 'B' INSTALLATION — 1000 CSP W/ELBOWS ROD AND LUG CONNECTORS W/SLEEVE GASKETS

PLACE 1 FT SILL AT OUTLET 1500 RCP

+27 -L- 55m RT (180.446') — +48 -L- 55m RT (180.446')

10+00 — 11+00 — PROP. GRAVEL DRIVE

CL 'I' RIP RAP — ENERGY DISSIPATOR SEE SPECIAL DETAIL SHEET 2-T

+80 -Y9- 21m RT (68.898') — +20 -Y9- 21m RT (68.898')

TAIL DITCH EST DDE +/-19 m³ SEE DETAIL #9

MATCHLINE STA. 0+60 -Y12- RAMP C — MATCHLINE STA. 11+92 -Y9-

-Y12- RAMP C POT 0+00.000 = -L- POT 138+00.000 (114.200 RT)

+48 -L- 80m RT (262.467')

-Y9- STA 11+90.00 BEGIN CONSTRUCTION

-L-
Pls Sta 135+37.657
Θs = 0° 30' 00.0"
Ls = 61.000
LT = 40.667
ST = 20.333

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 41
FOR -Y9- PROFILE SEE SHEET 59
FOR -12- RAMP B PROFILE SEE SHEET 51
FOR -Y12- RAMP C PROFILE SEE SHEET 52

NAD 83 NC GRID

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-Y9-

PI Sta 12+80.154
Δ = 2° 15' 00.0" (RT)
L = 137.248
T = 68.633
R = 3,495.000
SE = 0.02
RO = 35.000
DS = 100 kph

PI Sta 14+34.395
Δ = 35° 47' 03.8" (RT)
L = 143.648
T = 74.253
R = 230.000
SE = 0.05
RO = 35.000
DS = 60 kph

-Y12- RAMP B

PIs Sta 0+40.001
Θs = 0° 58' 56.0"
Ls = 60.000
LT = 40.001
ST = 20.001

PI Sta 0+76.454
Δ = 1° 04' 38.5" (LT)
L = 32.906
T = 16.454
R = 1,750.000
SE = 0.03
RO = 60.000
DS = 110 kph

PIs Sta 1+12.907
Θs = 0° 58' 56.0"
Ls = 60.000
LT = 40.001
ST = 20.001

METRIC
5 0 10

CONST.REV.
R /W REV.

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	23
R /W SHEET NO.	

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS — NOT FOR CONSTRUCTION — INCOMPLETE PLANS — NOT FOR R/W ACQUISITION OR UTILITY WORK

MOFFATT & NICHOL — SDG Sungate Design Group, P.A.

REVISIONS
12/15/06 -PARCEL 96 - CHANGED TO 93

MATCHLINE STA. 0+40 -Y12- RAMP B SEE SHEET 22
MATCHLINE STA. 0+60 -Y12- RAMP C SEE SHEET 22
MATCHLINE 11+92 -Y9- -Y12- RAMP C
MATCHLINE STA. 3+40 -Y12- RAMP B SEE SHEET 24
MATCHLINE STA. 3+60 -Y12- RAMP C SEE SHEET 24
MATCHLINE STA. 14+60 -Y10-
MATCHLINE STA. 14+60 -Y9-

93 94 95 97 98 99 100 101 102 103 104 105 106 107 108

EDWIN G. OSTENDORF DB 3968 PG 325

MAD 83 NC GRID

EX. R/W -L- 81.298 m LT (266.727')
EX. R/W -Y12-RAMP B 35m LT (114.829')
EX. R/W -L- 55m LT (180.446')
EX. R/W -L- 57 m LT (187.008')
PL -L- 55m LT (180.446')
PL -L- 80m RT (262.467')

PROP. R/W & C/A
PROP. 48" WW FENCE
PROP. GR DRIVE
PROP. SLOPE STAKE LINE
PROP. GUARDRAIL
PROP. CABLE GUIDERAIL
PROP. R/W

BERM DITCH STA 138+20 TO STA 139+20 -L- LT
SPECIAL DITCH GRADE STA 12+00 TO STA 13+00 -Y9- LT SEE DETAIL #5
SPECIAL LAT 'V' DITCH STA 13+00 TO STA 13+43 -Y9- LT SEE DETAIL #16
BEGIN SBG -L- STA 139+60 RT
END SBG -L- STA 140+40 RT
TAIL DITCH EST DDE +/-16 m SEE DETAIL #17
CL 'B' RIP RAP EST +/-3 mTONS

+79.305 -L- 55m LT (180.446')
+11.469 -L- 55m LT (180.446')
+01.063 -L- 0.092 RT
+02.883 -L- 1.338 RT
+69.046 -L- 0.241 LT

-Y10- PC 13+07.464
-Y9- PC 12+11.521
-Y9- PT 13+48.770
-Y9- PC 13+60.141
-Y10- PT 13+26.810

N 80° 07' 19.8" E
N 80° 37' 45.8" E
N 80° 52' 27.6" E
N 83° 07' 27.6" E
N 77° 49' 57.7" E
S 50° 08' 17.7" E

FAYETTEVILLE OUTER LOOP
-Y12- RAMP B
-Y12- RAMP C N 83° 07' 27.6" E
-Y10-
-Y9-

APPROXIMATE LIMITS OF ORGANIC SOILS

450 CSP W/ELBOWS
600 CSP W/ELBOWS ROD AND LUG CONNECTORS W/SLEEVE GASKETS
750mm C&G
2GI W/ FLAT GRATE
2GI
CAT-1
FS
BDO
ISPD
ISBLKD

FOR DITCH DETAILS SEE SHEET 2-S
FOR -L- PROFILE SEE SHEET 42
FOR -Y9- PROFILE SEE SHEET 59 & 60
FOR -Y12- RAMP B PROFILE SEE SHEET 51
FOR -Y12- RAMP C PROFILE SEE SHEET 52

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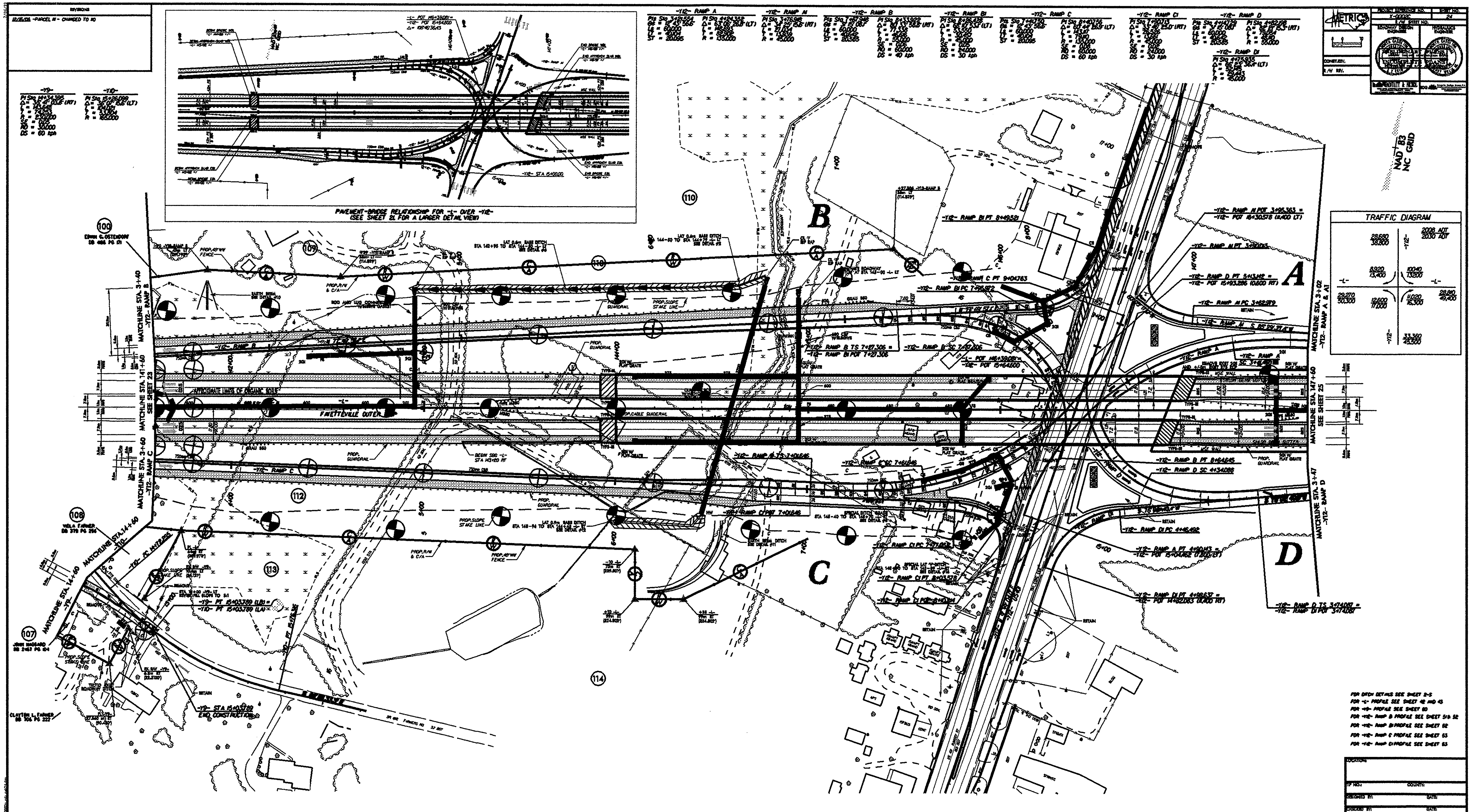

PAVEMENT-BRIDGE RELATIONSHIP FOR -L- OVER -Y12-
(SEE SHEET 21 FOR A LARGER DETAIL VIEW)
NAD 83
NC GRID
TRAFFIC DIAGRAM
2008 ADT
2030 ADT
-L-
-Y12-
28,680
38,800
8,920
13,400
10040
13200
29,270
50,300
12,600
17,000
11,020
16,300
28,810
49,400
33,360
45,500
A
B
C
D
FAYETTEVILLE OUTER
MATCHLINE STA. 141+60
SEE SHEET 23
MATCHLINE STA. 147+60
SEE SHEET 25
MATCHLINE STA. 3+02
-Y12- RAMP A & A1
MATCHLINE STA. 3+47
-Y12- RAMP D
MATCHLINE STA. 3+40
-Y12- RAMP B
MATCHLINE STA. 3+60
-Y12- RAMP C
MATCHLINE STA. 14+60
-Y10-
LOCATION:
TIP NO.:
COUNTY:
DESIGNED BY:
DATE:
CHECKED BY:
DATE:

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	25
R/W SHEET NO.	

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 13868 J. R. REID — PRELIMINARY PLANS NOT FOR CONSTRUCTION OR R/W PURPOSES — INCOMPETE PLANS 9334 JOHNNY WELLS IV

METRIC 5 0 10

CONST. REV.

R/W REV.

MOFFATT & NICHOL 1616 EAST MILLBROOK ROAD, SUITE 160 RALEIGH, NORTH CAROLINA 27609 (919) 781-4626 VOICE (919) 781-4609 FAX

SDG Sungate Design Group, P.A. 516-A Jones Franklin Rd. Raleigh, NC 27606

REVISIONS

8/17/09

MATCHLINE STA. 147+60
SEE SHEET 24

MATCHLINE STA. 3+02
-Y12- RAMP A & A1

MATCHLINE STA. 3+47
-Y12- RAMP D

-Y12- RAMP A TS 2+81.450 =
-Y12- RAMP A1 POT 2+81.450 (3.600 RT)

-Y12- RAMP A

PIs Sta 3+21.554	PIs Sta 1+45.135	PI Sta 0+57.579
θs = 12° 43' 56.6"	θs = 1° 06' 23.7"	Δ = 2° 49' 52.3" (LT)
Ls = 60.000	Ls = 90.000	L = 115.134
LT = 40.104	LT = 60.001	T = 57.579
ST = 20.095	ST = 30.001	R = 2,330.000

NAD 83 NC GRID

148+00 149+00 150+00 151+00

-Y12- RAMP A ST 2+05.134

END SBG -L- STA 148+80 LT

STA 149+10.035 END TIP PROJECT X-0002C
END CONSTRUCTION

-Y12- RAMP A CS 1+15.134

-Y12- RAMP A PC 0+00.000 =
-L- POC 150+60.000 (14.200 LT)

S 85° 29' 27.4" W

-Y12- RAMP A & A1

PROP. GUARDRAIL

20.3m

MSE WALL

GRAD 350

2GLW FLAT GRATE

ADJUST

RETAIN

PROP. CABLE GUIDERAIL

N 80° 52' 27.6" E

375

-L-

FAYETTEVILLE OUTER LOOP

FS

2GI

2GLW FLAT GRATE

EXIST

RETAIN

450 PVC

PROP. GUARDRAIL

-L- TS 148+49.035

MSE WALL

S 76° 02' 40.6" W

-Y12- RAMP D

-Y12- RAMP D ST 1+34.213

-Y12- RAMP D SC 0+60.000

-Y12- RAMP D CS 0+74.213

-L- SC 149+10.035

END SBG -L- STA 149+00 RT

-Y12- RAMP D ST 0+00.000 =
-L- POC 151+09.062 (14.200 RT)

CLYDE A. CULBRETH
DB 3195 PG 198

375 PVC

750 PVC

450 PVC

900 CONC.

-L-

PIs Sta 148+89.702	PI Sta 153+82.341
θs = 0° 45' 00.0"	Δ = 22° 55' 04.4" (RT)
Ls = 61.000	L = 931.983
LT = 40.667	T = 472.306
ST = 20.334	R = 2,330.000
	SE = 0.025
	RO = 61.000
	DS = 110 kph

-Y12- RAMP D

PIs Sta 0+36.841	PI Sta 0+67.107	PIs Sta 0+94.222
θs = 0° 44' 31.7"	Δ = 1° 51' 48.5" (LT)	θs = 3° 56' 00.1"
θs = 3° 56' 00.4"	L = 14.213	Ls = 60.000
Ls = 60.000	T = 7.107	LT = 40.010
LT = 36.841	R = 437.000	ST = 20.009
ST = 23.189		

FOR -L- PROFILE SEE SHEET 43

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PROJECT REFERENCE NO.	SHEET NO.
X-0002C	26
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PRELIMINARY PLANS SEAL NOT FOR CONSTRUCTION 15869 ENGINEER T. R. REID	NORTH CAROLINA PRELIMINARY PLANS SEAL NOT FOR CONSTRUCTION 9334 ENGINEER HENRY WELLS JR.

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4865 FAX

SDG Sungate Design Group, P.A.
910-A Jones Franklin Rd.
Raleigh, NC 27606

REVISIONS

8/17/99

NAD 83 NC GRID

ENRICO W. TONET III AND WIFE DIANNE S. TONNET DB. 3068 PG. 391

INGRESS & EGRESS EASEMENT DB. 3409 PG. 0354

CAROLINA POWER AND LIGHT COMPANY EASEMENT

THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION

(115) TRACT 3 FINAL FOUR ASSOCIATES DB. 3584 PG. 131

(45) TRACT 2 FINAL FOUR ASSOCIATES DB. 3584 PG. 131

(116) RONALD COLEMAN, ET AL DB. 3348, PG. 734

(1) THE UNITED STATES OF AMERICA FORT BRAGG MILITARY RESERVATION

-Y1- PT 13+01.073

-Y1- PC 14+28.223

-Y1- PT 14+92.976

-Y1- STA 15+20.00 END CONSTRUCTION

-Y1- POT 15+42.446

END 600mm VALLEY GUTTER -Y1- STA 13+01.073 RT/LT

ELECTR. SUBSTATION

PROP. R/W

PROP. SLOPE STAKE LINE

PROP. GUARDRAIL

CL 'B' RIP RAP

CL 'I' RIP RAP

CAT-1

GRAU-350

N 47° 30' 48.6" W -Y1-

MILITARY RESERVATION FORT BRAGG CITY OF FAYETTEVILLE

MATCHLINE STA 12+00 -Y1- SEE SHEET 11

SPECIAL DITCH GRADE STA 12+20 TO STA 12+80 -Y1- RT SEE DETAIL #13

SPECIAL LAT 'V' DITCH STA 12+80 TO STA 13+43 -Y1- RT SEE DETAIL #16

LAT 'V' DITCH STA 13+40 TO STA 13+73 -Y1- RT SEE DETAIL #27

LAT 'V' DITCH STA 14+11 TO STA 14+60 -Y1- LT SEE DETAIL #1

SPECIAL LAT 'V' DITCH STA 14+60 TO STA 15+00 -Y1- LT SEE DETAIL #16

SPECIAL DITCH GRADE STA 15+00 TO STA 15+20 -Y1- LT SEE DETAIL #13

PI Sta 14+61.235
Δ = 27° 28' 54.1" (RT)
L = 64.752
T = 33.011
R = 135.000
SE = 0.06
RO = 36.000
DS = 60 kph

PI Sta 12+45.498
Δ = 79° 27' 51.2" (RT)
L = 138.691
T = 83.116
R = 100.000
SE = 0.06
RO = 36.000
DS = 50 kph

+01.073 -Y1- 15m LT (49.213')
+01.073 -Y1- 17m RT (55.774')
+40 -Y1- 17m RT (55.774')
+55 -Y1- 15m LT (49.213')
+75 -Y1- 27m RT (88.582')
+00 -Y1- 27m RT (88.582')
+28.223 -Y1- 15m RT (49.213')
+85 -Y1- 24m LT (78.740')
+28.223 -Y1- 27m LT (88.582')
+92.976 -Y1- 15m RT (49.213')
+92.976 -Y1- 16m LT (52.493')
+20 -Y1- 10m RT (32.808')
+20 -Y1- 10m LT (32.808')

FOR DITCH DETAILS SEE SHEET 2-S
FOR -Y1- PROFILE SEE SHEET 57

x0002c-rdy_psh26.dgn

8/17/99

REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	27
R/W SHEET NO.	

METRIC 5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER — SEAL 15869 — ENGINEER — C. R. REID

HYDRAULICS ENGINEER — SEAL 9334 — ENGINEER — W. HENRY WEITS, III

PRELIMINARY PLANS — NOT FOR CONSTRUCTION

MOFFATT & NICHOL — 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609 — (919) 781-4626 VOICE (919) 781-4609 FAX

SDG Sungate Design Group, P.A. — 510-A Jones Franklin Rd. Raleigh, NC. 27606

NAD 83 NC GRID

-Y-
PI Sta 9+24.882
Δ = 1° 34' 47.4" (LT)
L = 27.573
T = 13.787
R = 1,000.000

PI Sta 11+13.563
Δ = 1° 23' 41.6" (LT)
L = 170.064
T = 85.036
R = 6,985.515

-Y11-
PI Sta 8+09.408
Δ = 1° 26' 31.2" (LT)
L = 25.168
T = 12.585
R = 1,000.000

-Y- POT 9+75.000
BEGIN CONSTRUCTION

-Y- PC 9+11.094

-Y- PT 9+38.667

-Y- PC 10+28.527

-Y11- POC 8+20.000
END CONSTRUCTION

-Y11- PT 8+21.991

-Y11- PC 7+96.823

-Y- TS 11+56.618

-Y REV- TS 11+56.618

-Y- REV SEE SHEET 28

MATCHLINE STA. 12+00 -Y- REV

-Y14- POT 10+00.135 =
-Y-REV POS 11+63.632

-Y14- POT 10+60.000
END CONSTRUCTION

-Y11- POT 7+62.319 =
-Y- POC 11+09.186

POC 11+20.000 (LB) =
-Y- REV- POT 11+20.000 (LB)

HARRIET KING
DB 658 PG 27
PB 96 PG 53

RIET KING
658 PG 27
96 PG 53

117 W. C. COLEMAN
DB 4253 PG 130
PB 15 PG 8

118 JUDITH DYER MERCER
DB. 3562 PG. 539
PB. 15 PG. 08

119 MABEL LOUISE COOPER WILLIAMS
DB. 2756 PG. 117
PB. 20 PG. 49

120 EDGARDO F. JOSE
DB. 4080 PG. 0855

121 JOE D. JONES
DB. 2850 PG.173

122 ANNIE LOU BROCK
DB 4204 PG 795
PB 17 PG 51

123 CAROLINA TELEPHONE AND TELEGRAPH CO.
DB. 4242 PG. 451
PB. 18 PG. 40

124 ANNIE R. HASSAN
DB. 5532 PG. 892
PB. 18 PG. 40

125 JAN J. STREK AND WIFE, FREIDA STREK
DB. 814 PG. 76

JO ANN CAPPS
DB 4204 PG 781
PB 17 PG 51

EDWARD SMITH
DB 3072 PG 825
PB 17 PG 51

-Y- REV
PIs Sta 11+89.954
θs = 2° 10' 13.5"
Ls = 50.000
LT = 33.336
ST = 16.669

FOR -Y- PROFILE SEE SHEET 54
FOR -Y- REV PROFILE SEE SHEET 54
FOR -Y11- PROFILE SEE SHEET 60
FOR -Y14- PROFILE SEE SHEET 61

x0002c-rdu_pah27.dgn

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	28
R/W SHEET NO.	

METRIC

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 15869 ENGINEER T. R. REID

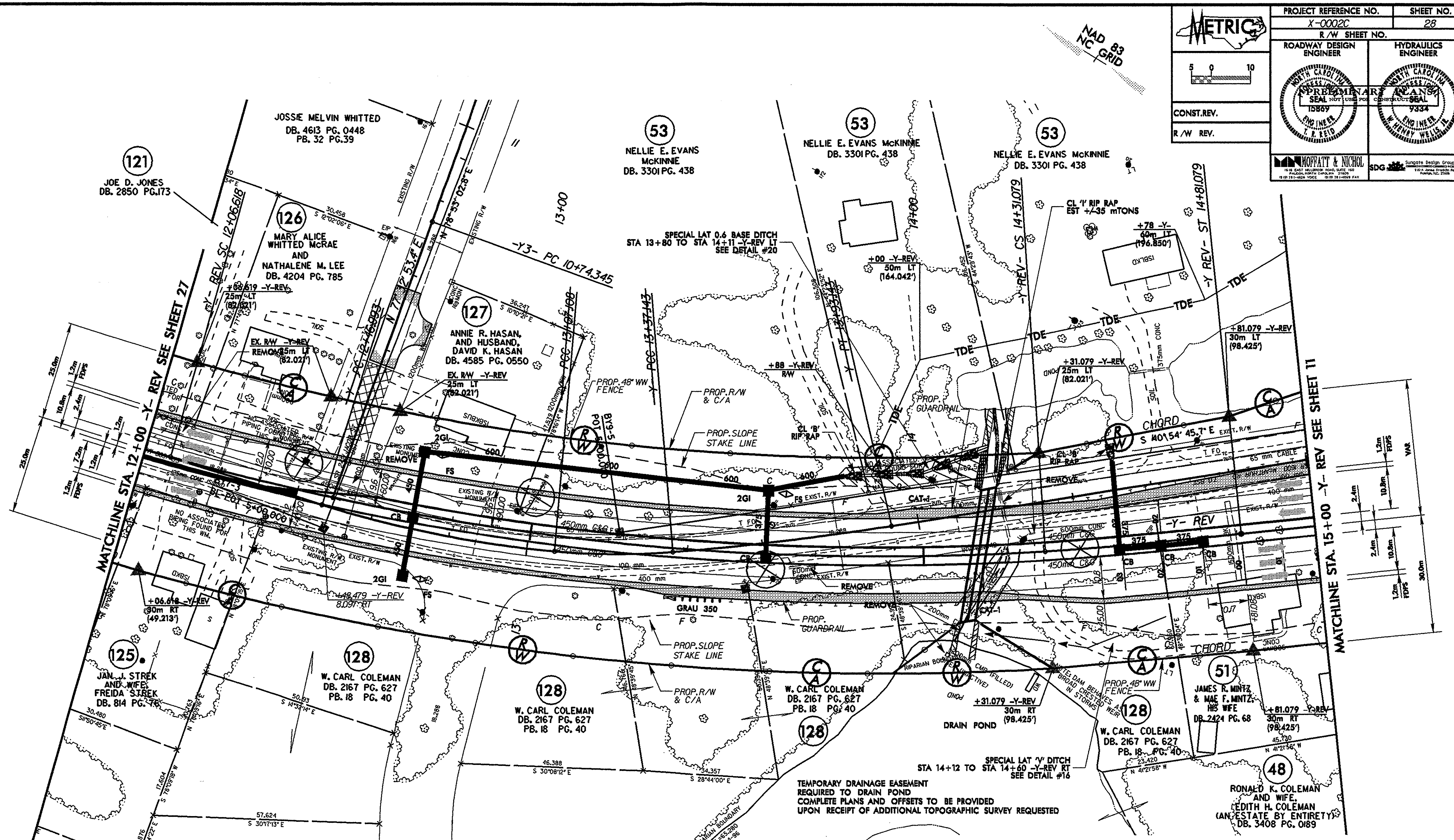
HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS JR.

PRELIMINARY PLANS — NOT USE FOR CONSTRUCTION

MOFFATT & NICHOL, 1616 EAST MILLBROOK ROAD, SUITE 160, RALEIGH, NORTH CAROLINA 27609, (919) 781-4626 VOICE (919) 781-4869 FAX

SDG Sungate Design Group, P.A., 915-A Jones Franklin Rd., Raleigh, N.C. 27606

REVISIONS



-Y-

PI Sta 12+77.166	PI Sta 13+22.160	PI Sta 13+65.157
Δ = 12° 18' 04.6" (LT)	Δ = 9° 33' 37.4" (LT)	Δ = 4° 31' 45.4" (LT)
L = 60.115	L = 30.035	L = 56.000
T = 30.174	T = 15.052	T = 28.015
R = 280.000	R = 180.000	R = 708.405

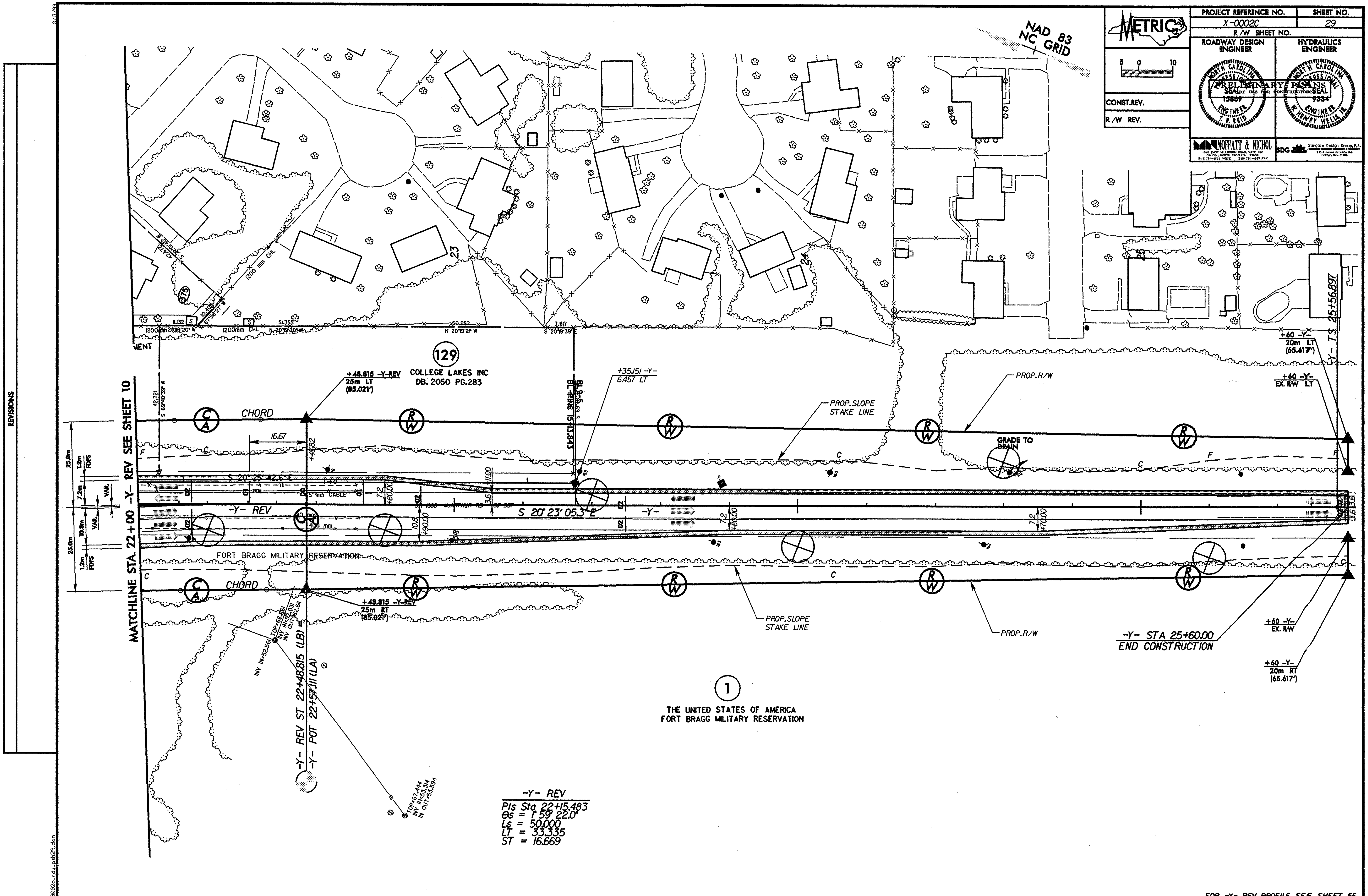
-Y3-

PI Sta 11+16.055
Δ = 0° 30' 40.3" (RT)
L = 83.419
T = 41.710
R = 9,350.000

-Y- REV

PIs Sta 11+89.954	PI Sta 13+19.943	PIs Sta 14+47.748
Θs = 2° 10' 13.1"	Δ = 19° 29' 09.1" (LT)	Θs = 2° 10' 13.1"
Ls = 50.000	L = 224.461	Ls = 50.000
LT = 33.336	T = 113.325	LT = 33.336
ST = 16.669	R = 660.000	ST = 16.669
	SE = 0.003	
	RO = 50.000	
	DS = 80 kph	

FOR DITCH DETAILS SEE SHEET 2-S
FOR -Y- REV PROFILE SEE SHEET 54 & 55


PROJECT REFERENCE NO.
X-0002C
SHEET NO.
29
R/W SHEET NO.
METRIC
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
CONST. REV.
R/W REV.
MOFFATT & NICHOL
SDG
NAD 83 NC GRID
REVISIONS
MATCHLINE STA. 22+00 -Y- REV SEE SHEET 10
129
COLLEGE LAKES INC
DB. 2050 PG.283
CHORD
PROP. SLOPE STAKE LINE
PROP. R/W
GRADE TO DRAIN
-Y- REV
S 20°23'05.3" E
-Y-
FORT BRAGG MILITARY RESERVATION
+48.815 -Y-REV
25m LT
(85.021')
+48.815 -Y-REV
25m RT
(85.021')
+35.151 -Y-
6.457 LT
+60 -Y-
20m LT
(65.617')
+60 -Y-
EX. R/W LT
+60 -Y-
EX. R/W
+60 -Y-
20m RT
(65.617')
-Y- TS 25+56.897
-Y- STA 25+60.00
END CONSTRUCTION
-Y- REV ST 22+48.815 (LB)
-Y- POT 22+57.111 (LA)
1
THE UNITED STATES OF AMERICA
FORT BRAGG MILITARY RESERVATION
-Y- REV
PIs Sta 22+15.483
Θs = 1°59'22.0"
Ls = 50.000
LT = 33.335
ST = 16.669
FOR -Y- REV PROFILE SEE SHEET 56

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	30
R/W SHEET NO.	

METRIC

5 0 10

CONST.REV.

R/W REV.

ROADWAY DESIGN ENGINEER

NORTH CAROLINA — SEAL 15869 — ENGINEER — T. R. REID

HYDRAULICS ENGINEER

NORTH CAROLINA — PRELIMINARY PLANS — NOT FOR CONSTRUCTION — SEAL 9334 — ENGINEER — HENRY WELLS JR.

MOFFATT & NICHOL
1616 EAST MILLBROOK ROAD, SUITE 160
RALEIGH, NORTH CAROLINA 27609
(919) 781-4626 VOICE (919) 781-4865 FAX

SDG Sungate Design Group, P.A.
Engineers • Surveyors • Planners • Landscape Architects
110-A Jones Franklin Rd.
Raleigh, N.C. 27606

REVISIONS

NAD 83
NC GRID

8 COLLEGE LAKES INC

130 JESSIE E. AVERY AND HUSBAND, ROCHESTER AVERY

DOUGLAS J. MATHEWS AND WIFE, BEVERLY A. MATHEWS

MICHEL LAURENT AND WIFE CARMEN I. LAURENCE

RONALD J. STARKINGS, AND WIFE KAREN STARKINGS

JERRY R. SHELMAN AND WIFE BRENDA S. SHELMAN

ROGER S. NICE AND WIFE SUN CHA NICE

GARY D. YATES AND WIFE GWYNETH A. YATES

DONALD DOERING AND WIFE, JANICE SM. DOERING

GLADYS M. TEARRY

CHARLES BARNES

THOMAS G. McDOWELL AND WIFE, SHAHLA McDOWELL

HENRY W. CAVER, SR. AND WIFE MARY G. CAVER

CITY OF FAYETTEVILLE

PARABOLIC SWALE STA 10+51.10 -Y5- RT STA 12+20 -Y5- RT SEE DETAIL #22

-Y5- PT 11+17.571

-Y5- PC 12+16.788

-Y5- PC 10+47.560 BEGIN CONSTRUCTION

PL -Y5- 15m LT (49.213')

+50.035 -Y5- EX. R/W LT

+00 -Y5- 15m LT (49.213')

+17.571 -Y5- 7.620 m LT (25.000')

+16.788 -Y5- 7.620 m LT (25.000')

PL -Y5- 15m RT (49.213')

+50.035 -Y5- EX. R/W RT

+00 -Y5- 15m RT (49.213')

+17.571 -Y5- 7.620 m RT (25.000')

+16.788 -Y5- 7.620 m RT (25.000')

PROP. SLOPE STAKE LINE

PROP. R/W

2GI W/NARROW GRATE

600mm VG

11+00

12+00

MATCHLINE STA. 12+20 -Y5- SEE SHEET 31

-Y5-

PI Sta 10+84.985	PI Sta 12+38.789
Δ = 50° 08' 29.1" (RT)	Δ = 30° 45' 15.5" (LT)
L = 70.011	L = 42.941
T = 37.425	T = 22.001
R = 80.000	R = 80.000
SE = 0.04	SE = 0.02
RO = 20.000	RO = 10.000
DS = 60 kph	DS = 40 kph

FOR DITCH DETAILS SEE SHEET 2-S
FOR -Y5- PROFILE SEE SHEET 58

x0002c_rdy_sst30.dgn

METRIC

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	31
R/W SHEET NO.	

CONST. REV.

R/W REV.

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

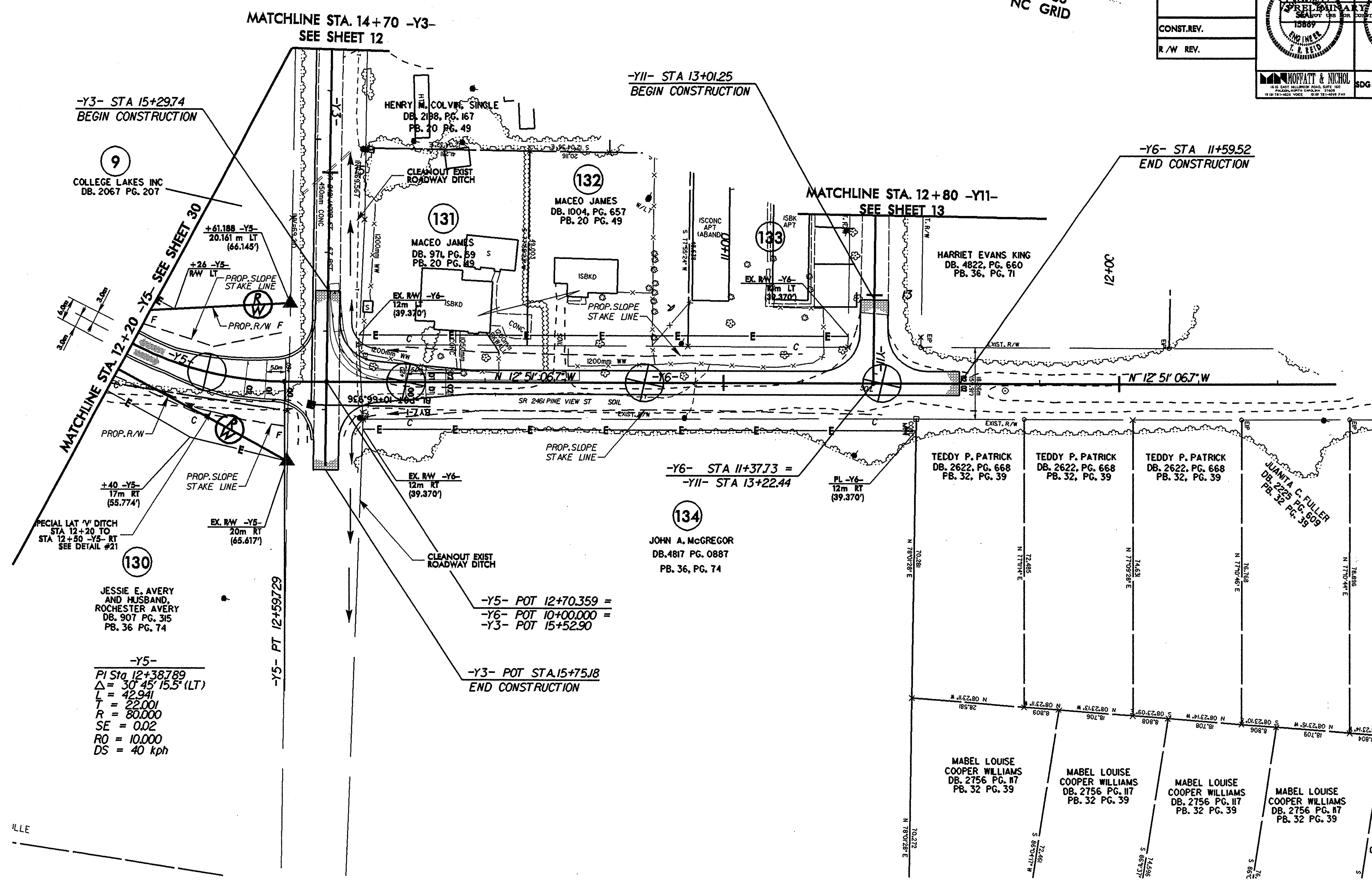
NORTH CAROLINA PROFESSIONAL SEAL 15889 ENGINEER T. R. REID

NORTH CAROLINA PROFESSIONAL SEAL 9334 ENGINEER W. HENRY WELLS, JR.

MOFFATT & NICHOL

SDG Sungate Design Group, P.A.

NAD 83 NC GRID



REVISIONS

FOR DITCH DETAILS SEE SHEET 2-S
FOR -Y5- PROFILE SEE SHEET 58
FOR -Y6- PROFILE SEE SHEET 58

PROJECT REFERENCE NO.	SHEET NO.
X0002C	32

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

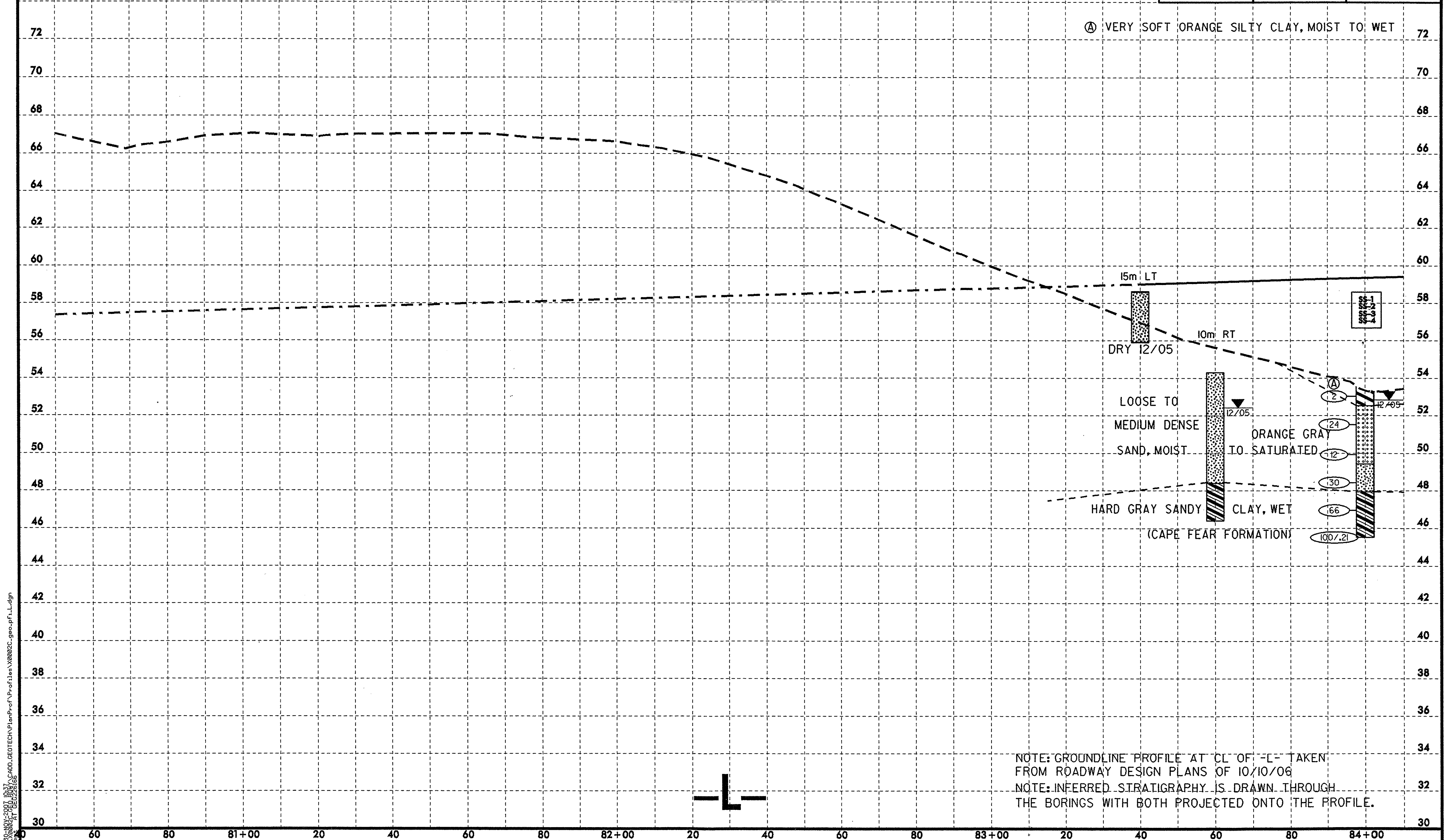
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-1	CL	84+00	0.00-0.45	A-7-5(35)	67	35	7.4	7.4	25.1	60.1	100	95	86	-	-
SS-2	CL	84+00	1.50-1.95	A-3(0)	19	NP	55.3	39.3	1.4	4.0	100	66	7	-	-
SS-3	CL	84+00	4.60-5.05	A-2-4(0)	23	8	81.6	6.2	3.2	9.0	100	33	13	-	-
SS-4	CL	84+00	6.10-6.55	A-6(3)	34	17	15.2	42.9	9.8	32.1	100	98	43	-	-



PROJECT REFERENCE NO.	SHEET NO.
X0002C	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

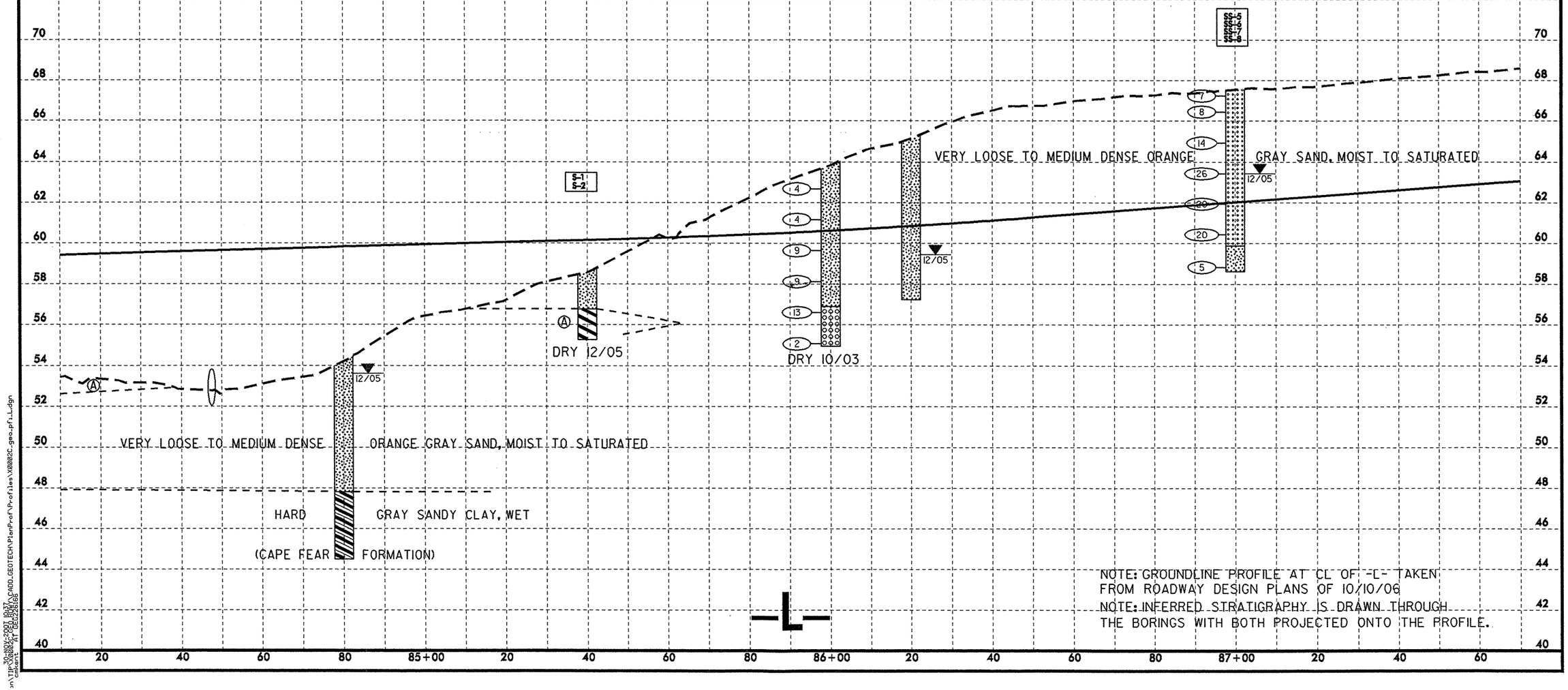
CONST.REV.

R/W REV.

5 0 10

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-1	CL	85+40	0.00-1.80	A-2-4(0)	17	NP	62.5	22.4	1.0	14.0	99	59	15	-	-
S-2	CL	85+40	1.80-3.30	A-7-6(34)	68	39	12.8	7.6	23.4	56.1	99	59	15	38.4	-
SS-5	CL	87+00	0.00-0.45	A-3(0)	16	NP	68.5	22.5	2.9	6.0	100	55	10	-	-
SS-6	CL	87+00	2.30-2.75	A-3(0)	19	NP	70.8	24.3	2.8	2.0	100	53	6	-	-
SS-7	CL	87+00	5.30-5.75	A-3(0)	22	NP	58.8	32.2	2.0	7.0	100	51	10	-	-
SS-8	CL	87+00	8.40-8.85	A-2-4(0)	22	NP	38.0	49.0	4.0	9.0	97	76	14	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

5/01/93

PROJECT REFERENCE NO.	SHEET NO.
X0002C	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

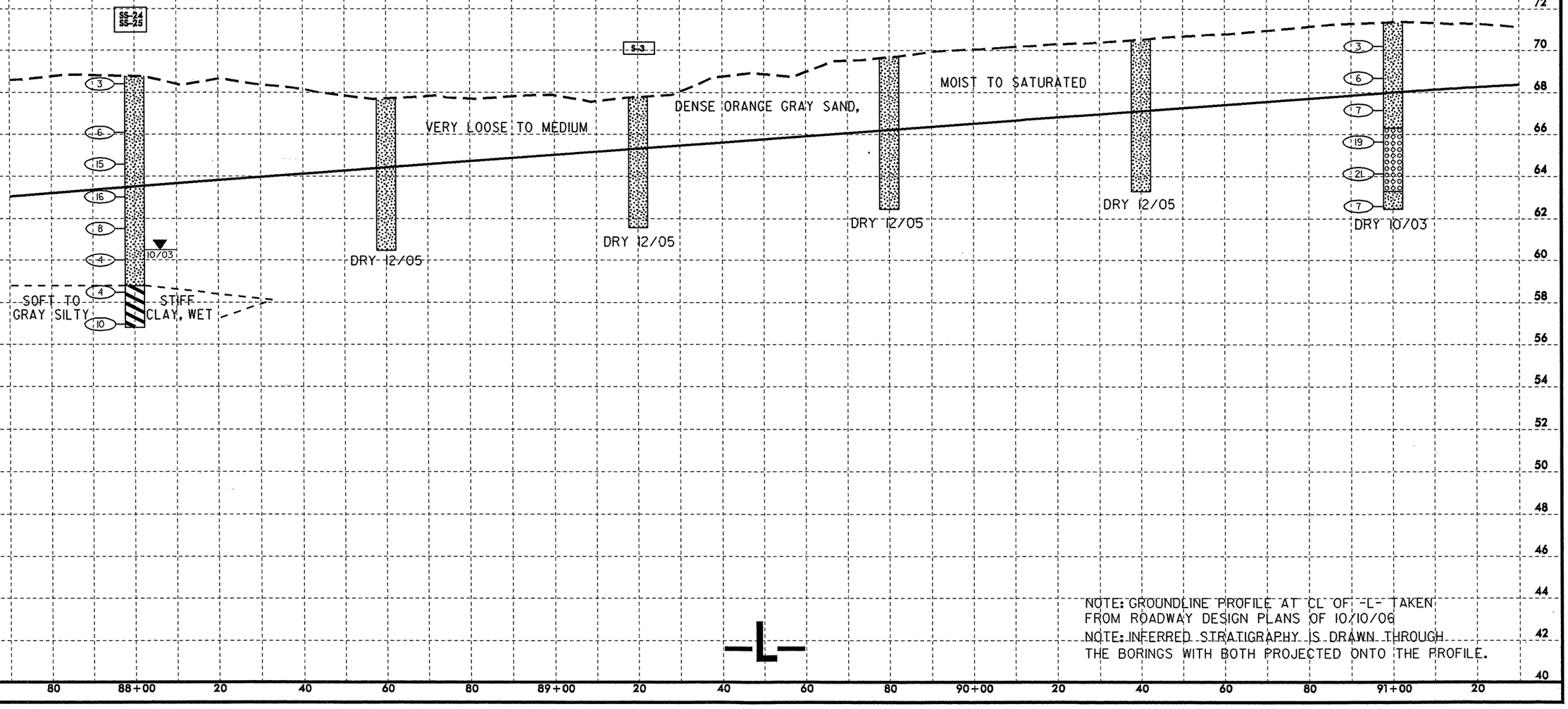
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-24	CL	88+00	2.32-2.77	A-2-4(0)	24	4	49.4	34.2	2.3	14.0	100	69	18	-	-
SS-25	CL	88+00	9.92-10.37	A-7-6(12)	45	23	25.3	11.6	14.9	48.1	95	81	61	-	-
S-3	CL	89+20	0.00-6.20	A-2-4(0)	20	NP	57.7	29.3	5.0	8.0	100	63	14	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	35

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

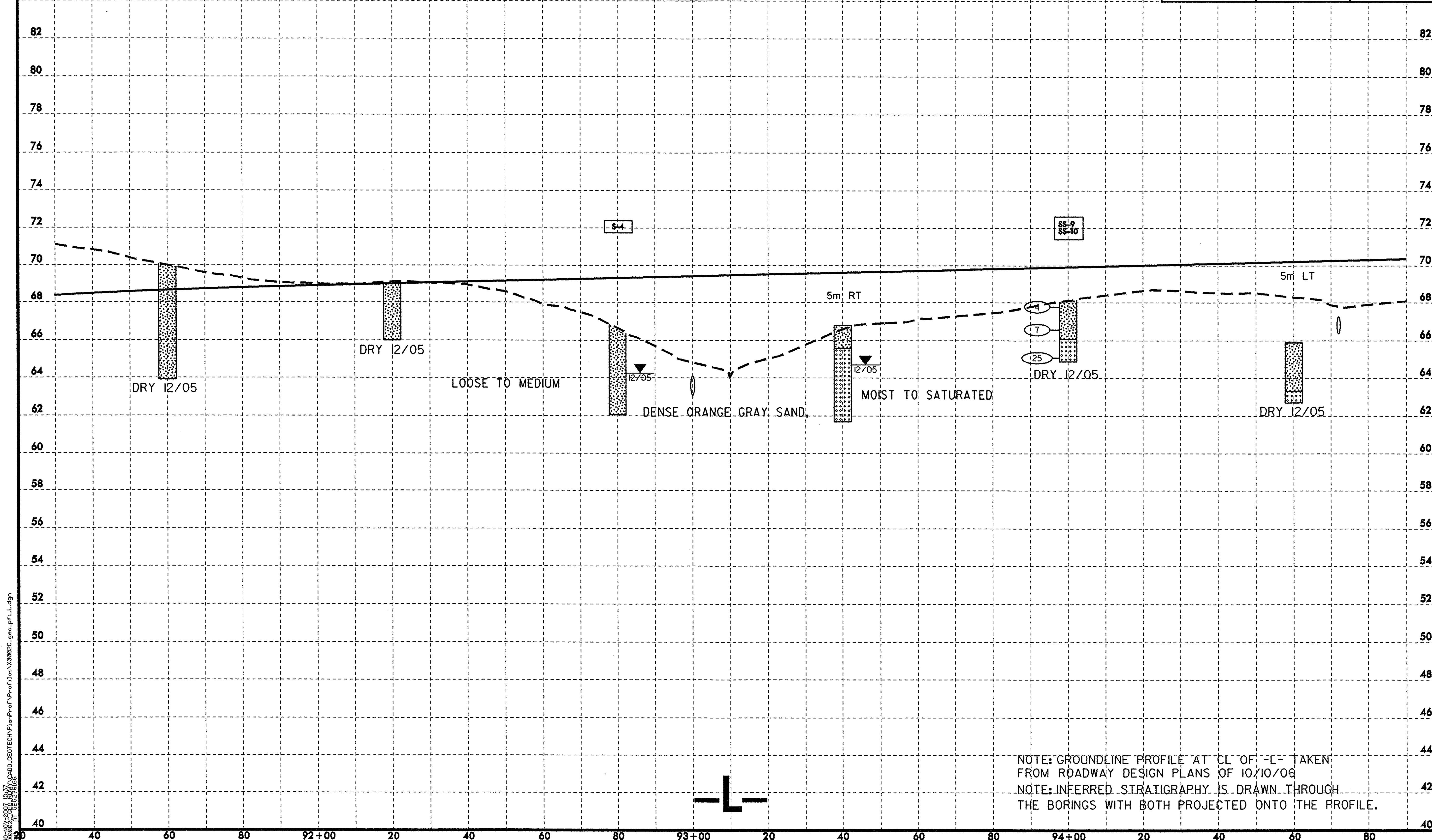
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-4	CL	92+80	0.00-4.60	A-2-4(0)	20	NP	62.1	24.0	1.8	12.0	100	56	15	-	-
SS-9	OL	94+00	0.00-0.45	A-2-4(0)	15	NP	46.6	38.8	7.6	7.0	100	74	18	-	-
SS-10	CL	94+00	2.70-3.15	A-3(0)	21	NP	55.0	38.1	1.9	5.0	100	65	7	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

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-23	-L-	98+00	0.74-1.19	A-6(1)	33	13	23.5	41.7	6.7	28.1	100	86	39	-	-

METRIC

5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	36
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Ⓐ MEDIUM STIFF ORANGE GRAY SANDY CLAY, MOIST

10m RT

12m LT

15m RT

LOOSE TO DENSE ORANGE GRAY SAND, MOIST TO SATURATED

DRY 12/05

DRY 12/05

DRY 12/05

DRY 12/05

DRY 12/05

DRY 12/05

SS-23

7

19

24

23

32

Ⓐ

DRY 10/03

DRY 1/06

-L-

NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

90 88 86 84 82 80 78 76 74 72 70 68 66 64 62 60 58 56 54 52 50 48 46 44 42 40

95+00 20 40 60 80 96+00 20 40 60 80 97+00 20 40 60 80 98+00 20 40

6.01.03

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PROJECT REFERENCE NO.	SHEET NO.
X0002C	37

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

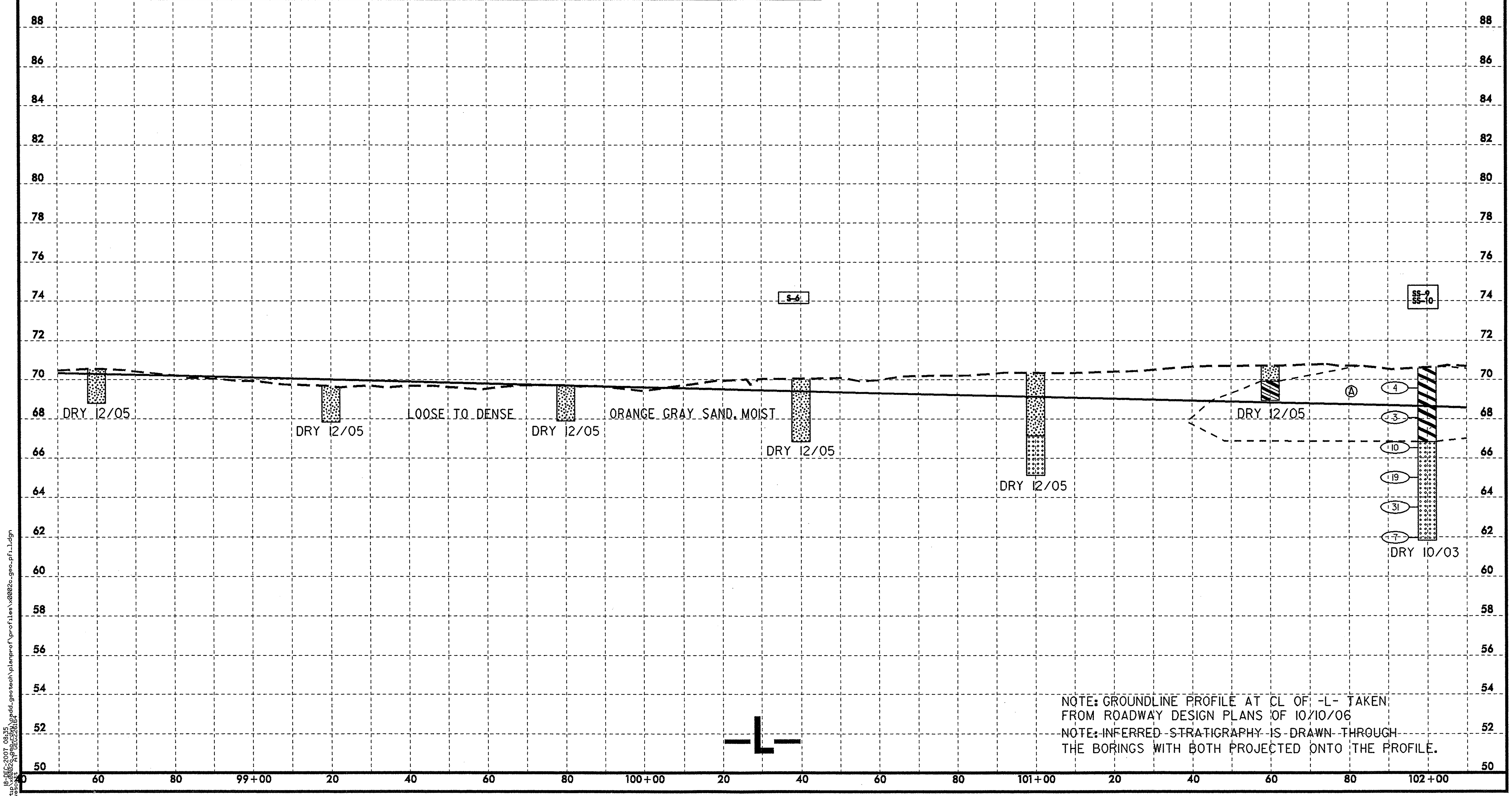
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-6	CL	100+40	0.00-3.20	A-2-4(0)	17	NP	44.1	41.3	2.6	12.0	100	75	16	-	-
SS-9	CL	102+00	0.72-1.17	A-7-6(6)	42	27	30.3	32.2	8.4	29.1	100	84	41	-	-
SS-10	CL	102+00	3.76-4.21	A-3(0)	23	NP	53.6	43.4	1.0	2.0	100	70	16	-	-



PROJECT REFERENCE NO.	SHEET NO.
X0002C	38

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

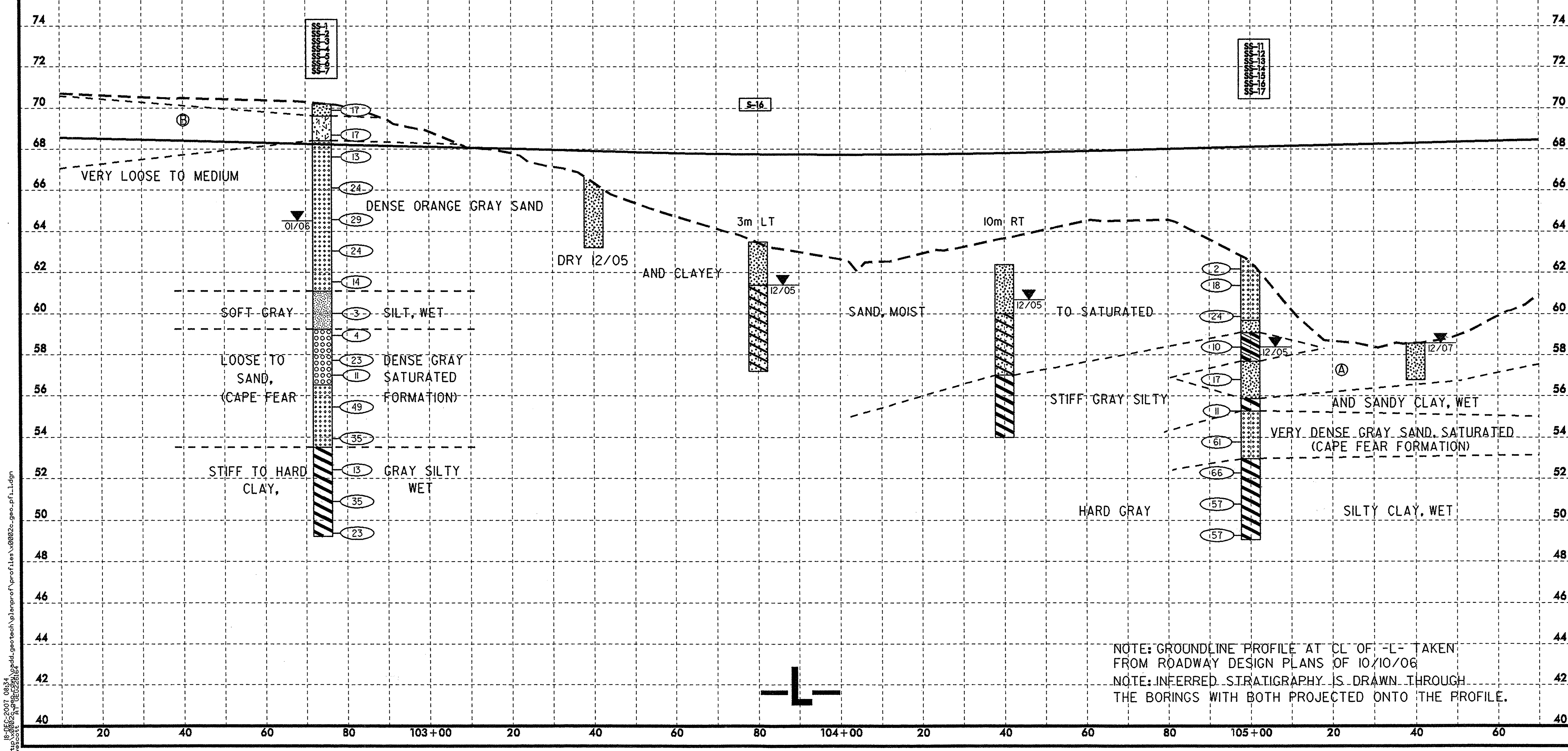
CONST. REV.

R/W REV.

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-16	3 LT	103+80	2.10-6.30	A-2-4(0)	19	2	33.1	44.1	8.8	14.0	99	83	30	-	-
~~SS-1~~	~~CL~~	~~102+74~~	~~1.22-1.67~~	~~A-5(7)~~	~~50~~	~~9~~	~~9.5~~	~~29.5~~	~~12.4~~	~~48.5~~	~~100~~	~~95~~	~~63~~	~~13.9~~	-
SS-2	CL	102+74	2.29-2.74	NOT ENOUGH SAMPLE											
SS-3	CL	102+74	6.85-7.30	A-3(0)	21	NP	70.8	25.9	1.3	2.0	99	56	4	-	-
SS-4	CL	102+74	9.89-10.34	A-4(1)	28	7	28.7	35.2	17.9	18.2	99	85	46	14.4	-
SS-5	CL	102+74	10.97-11.42	A-1-b(0)	23	NP	90.4	7.3	0.3	2.0	83	13	2	-	-
SS-6	CL	102+74	14.45-14.90	A-3(0)	19	NP	75.0	20.6	0.3	4.0	99	53	6	-	-
SS-7	CL	102+74	17.64-18.09	A-7-5(12)	42	12	4.9	14.8	25.8	54.6	100	97	85	14.4	-
~~SS-11~~	~~CL~~	~~105+00~~	~~0.00-0.45~~	~~A-3(0)~~	~~23~~	~~NP~~	~~40.6~~	~~53.5~~	~~1.9~~	~~4.0~~	~~97~~	~~74~~	~~7~~	-	-
SS-12	CL	105+00	2.30-2.75	A-2-4(0)	21	NP	34.5	48.5	5.0	12.0	100	81	19	-	-
SS-13	CL	105+00	3.80-4.25	A-6(10)	38	14	2.2	33.5	22.2	42.1	100	99	76	-	-
SS-14	CL	105+00	5.40-5.85	A-2-4(0)	23	NP	57.7	32.3	2.0	8.0	97	58	11	-	-
SS-15	CL	105+00	6.90-7.35	A-7-6(48)	69	43	2.2	3.6	22.0	72.1	100	98	96	-	-
SS-16	CL	105+00	8.40-8.85	A-3(0)	20	NP	29.9	61.1	1.0	8.0	100	95	10	-	-
SS-17	CL	105+00	10.40-10.85	A-7-6(32)	55	34	3.8	14.0	22.0	60.1	100	98	88	-	-

Ⓐ MEDIUM DENSE GRAY SAND, SATURATED
~~Ⓑ VERY STIFF GRAY SANDY SILTY CLAY~~ AND SANDY CLAYEY SILT, MOIST



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-L-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	39

METRIC

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

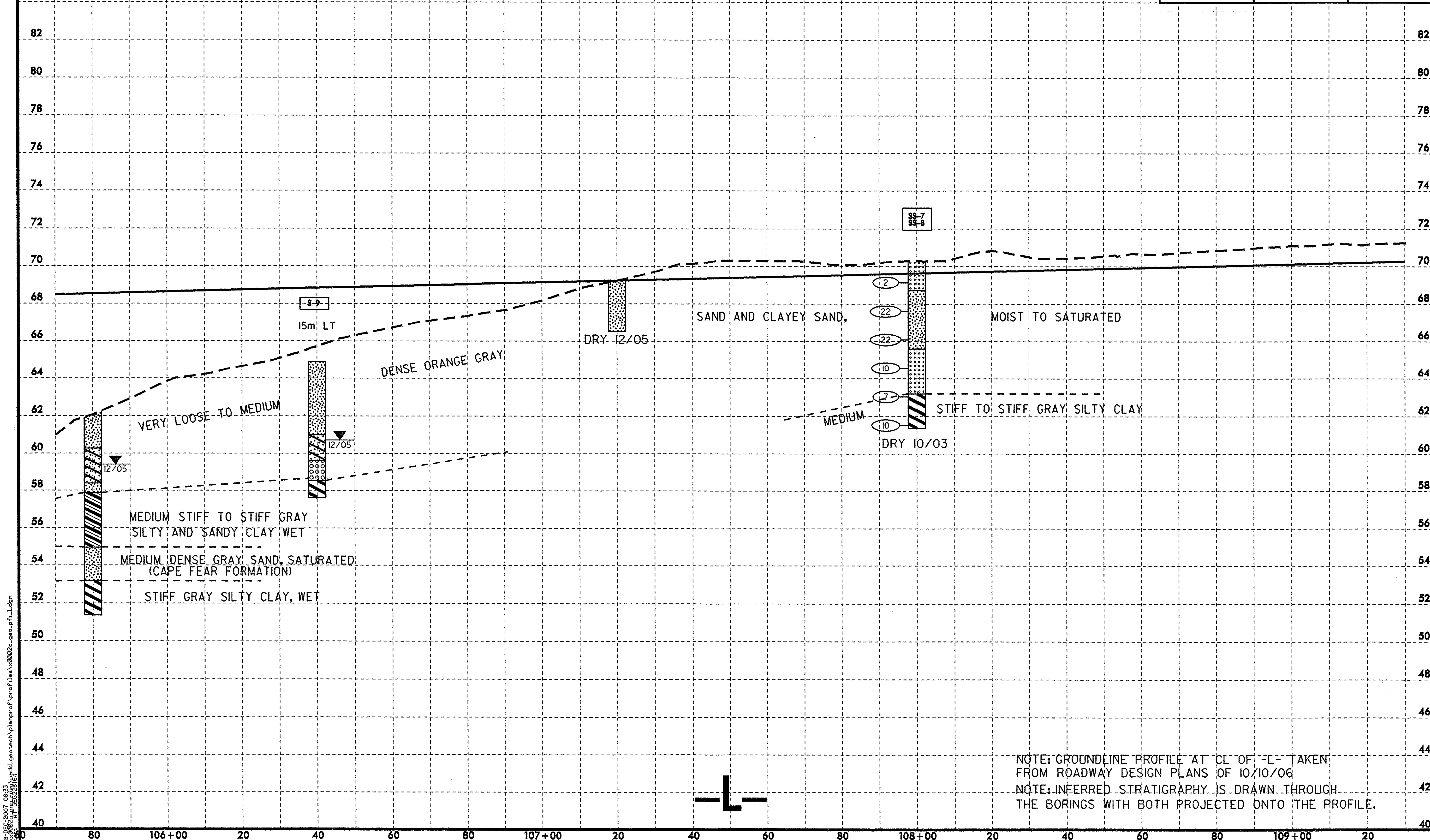
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-9	15 LT	106+40	3.90-5.30	A-2-6(1)	30	15	39.9	27.7	8.4	24.0	93	65	32	-	-
SS-7	CL	108+00	5.34-5.79	A-3(0)	24	NP	15.8	81.0	1.1	2.0	99	93	4	-	-
SS-8	CL	108+00	6.86-7.31	A-7-6(20)	46	23	2.0	21.1	24.8	52.2	100	99	82	41.5	-



PROJECT REFERENCE NO.	SHEET NO.
X0002C	40

METRIC

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

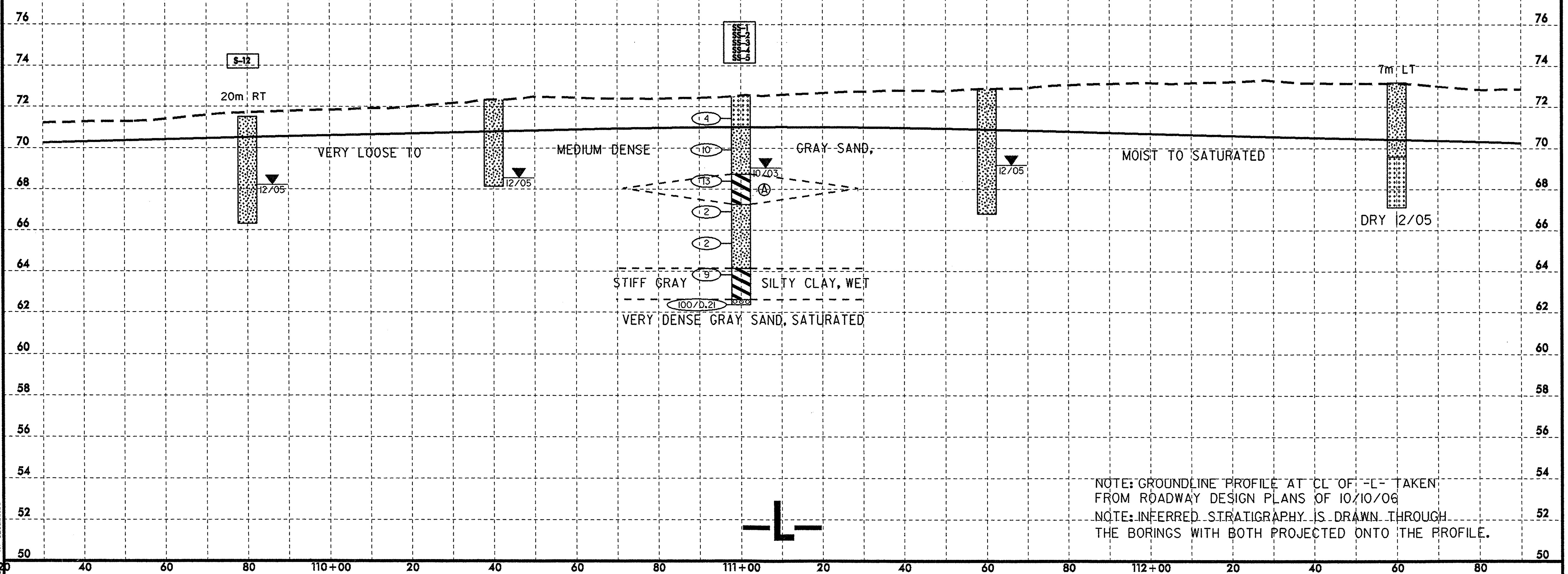
CONST.REV.

R/W REV.

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	20 RT	109+80	0.00-5.30	A-2-4(0)	17	NP	58.5	30.1	3.4	8.0	100	72	13	-	-
SS-1	CL	111+00	0.80-1.25	A-3(0)	17	NP	64.7	29.9	3.4	2.0	100	65	8	-	-
SS-2	CL	111+00	2.32-2.87	A-2-4(0)	26	8	57.8	19.6	3.6	19.1	100	70	24	-	-
SS-3	CL	111+00	3.84-4.29	A-7-5(52)	85	54	10.6	6.2	12.9	70.2	100	94	85	-	-
SS-4	CL	111+00	5.36-5.81	A-2-4(0)	22	NP	67.8	22.6	2.6	7.0	100	65	11	-	-
SS-5	CL	111+00	8.40-8.85	A-7-6(33)	61	41	8.0	15.4	18.4	58.2	100	96	78	-	-

Ⓐ STIFF GRAY SILTY CLAY, WET



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	41

METRIC

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

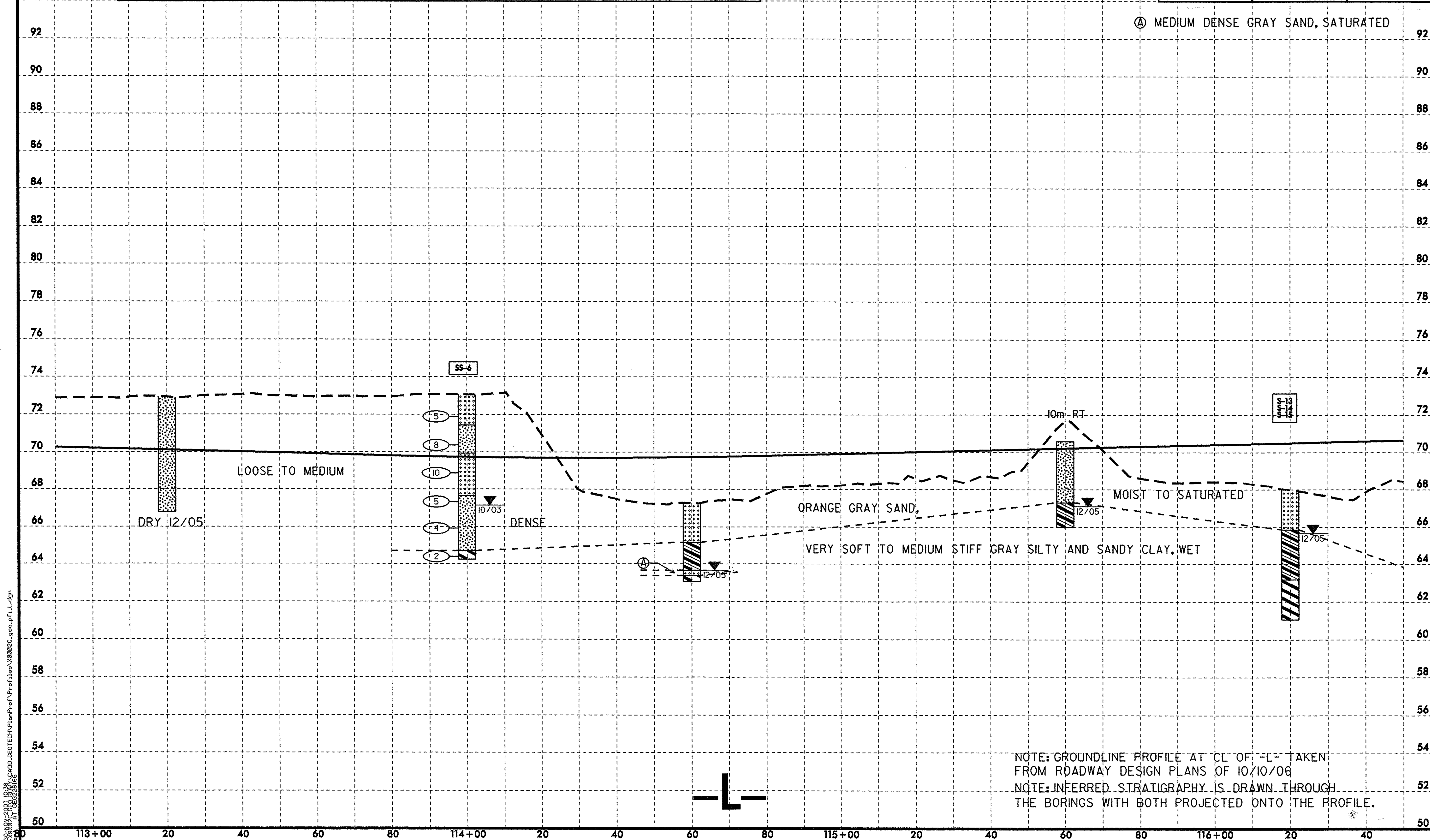
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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
SS-6	CL	114+00	8.35-8.80	A-7-6(45)	68	44	3.4	3.6	24.8	68.2	98	95	93	-	-
S-13	CL	116+20	0.00-2.10	A-3(0)	18	NP	53.1	38.1	0.8	8.0	95	71	9	-	-
S-14	CL	116+20	2.10-4.80	A-6(5)	35	16	27.1	25.9	14.6	32.4	99	82	52	-	-
S-15	CL	116+20	4.80-7.60	A-7-6(28)	61	35	18.4	8.1	24.9	48.6	98	82	76	-	-

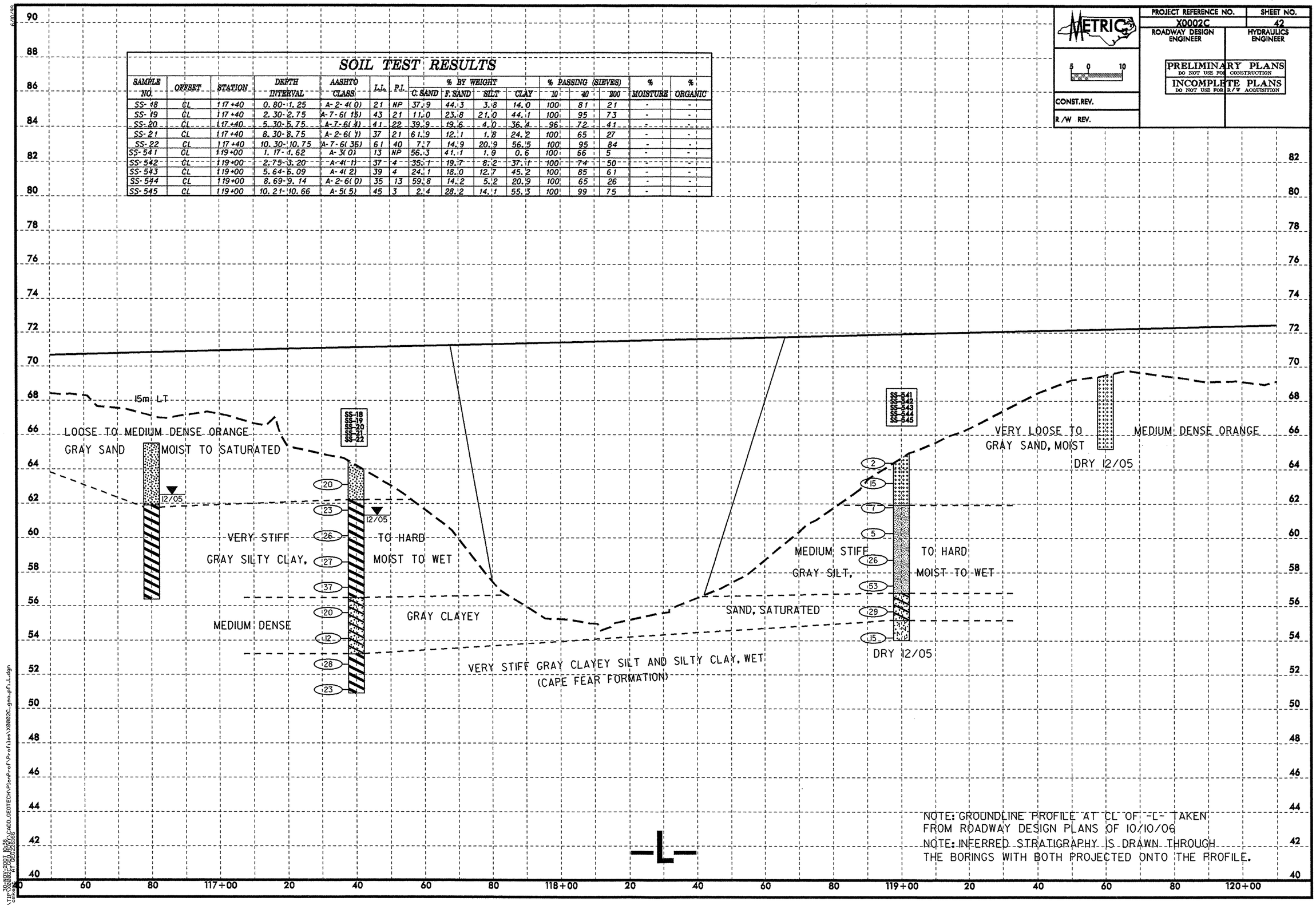


NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS	LL	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-18	CL	117+40	0.80-1.25	A-2-4(0)	21	NP	37.9	44.3	3.8	14.0	100	81	21	-	-
SS-19	CL	117+40	2.30-2.75	A-7-6(15)	43	21	11.0	23.8	21.0	44.1	100	95	73	-	-
SS-20	CL	117+40	5.30-5.75	A-7-6(41)	41	22	39.9	19.6	4.0	36.4	96	72	41	-	-
SS-21	CL	117+40	8.30-8.75	A-2-6(1)	37	21	61.9	12.1	1.8	24.2	100	65	27	-	-
SS-22	CL	117+40	10.30-10.75	A-7-6(35)	61	40	7.7	14.9	20.9	56.5	100	95	84	-	-
SS-541	CL	119+00	1.17-1.62	A-3(0)	13	NP	56.3	41.1	1.9	0.6	100	66	5	-	-
SS-542	CL	119+00	2.75-3.20	A-4(1)	37	4	35.1	19.7	8.2	37.1	100	74	50	-	-
SS-543	CL	119+00	5.64-6.09	A-4(2)	39	4	24.1	18.0	12.7	45.2	100	85	61	-	-
SS-544	CL	119+00	8.69-9.14	A-2-6(0)	35	13	59.8	14.2	5.2	20.9	100	65	26	-	-
SS-545	CL	119+00	10.21-10.66	A-5(5)	45	3	2.4	28.2	14.1	55.3	100	99	75	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	43

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

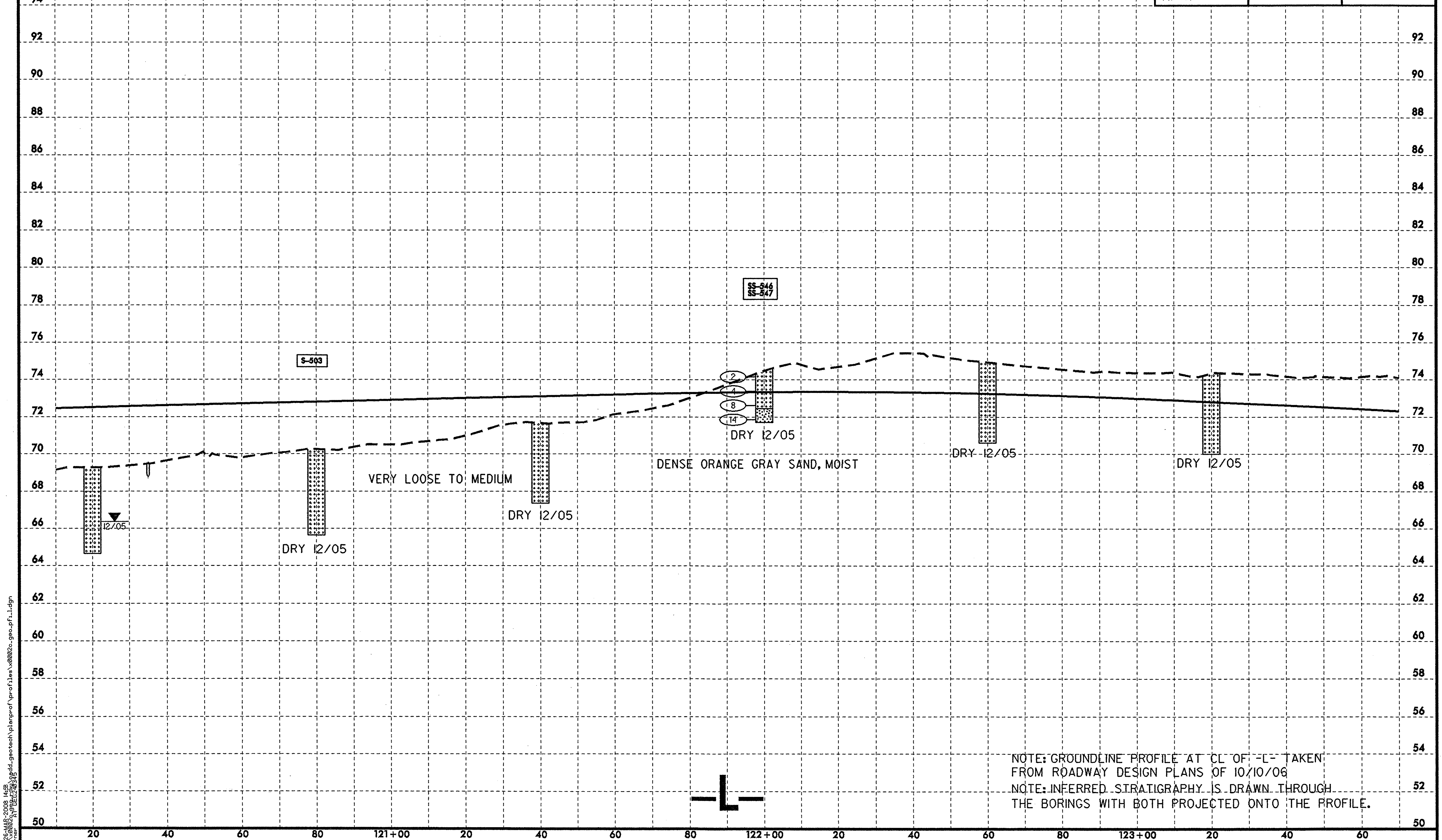
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-503~~	~~CL~~	~~120+80~~	~~0.30-4.60~~	~~A-3(0)~~	~~14~~	~~NP~~	~~63.2~~	~~33.0~~	~~1.1~~	~~2.6~~	~~100~~	~~65~~	~~5~~	-	-
SS-546	CL	122+00	0.76-1.21	A-3(0)	18	NP	52.5	41.3	1.5	4.7	100	75	8	-	-
SS-547	CL	122+00	2.29-2.74	A-2-4(0)	30	5	58.6	25.7	0.9	14.8	100	64	18	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

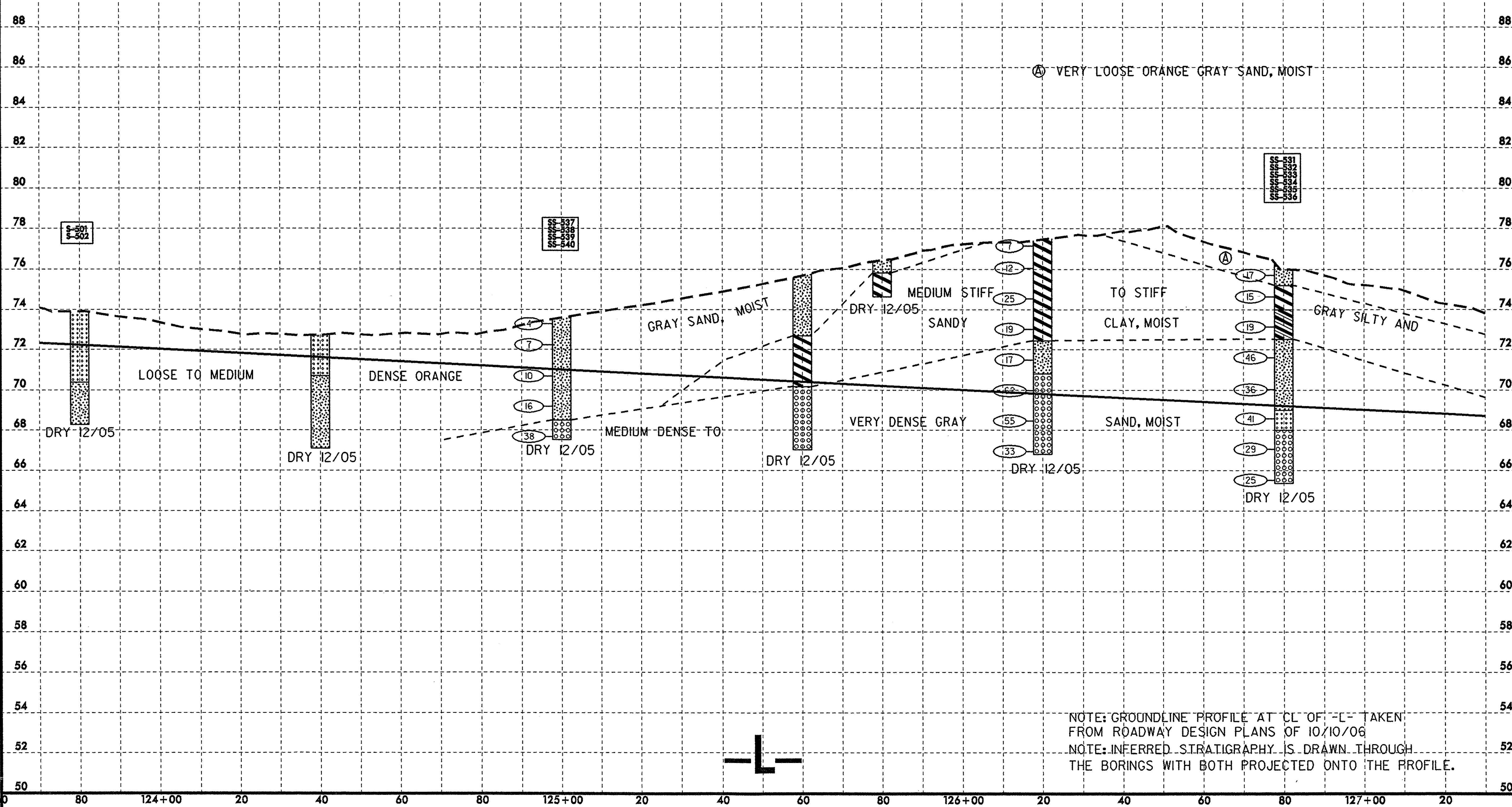
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-501	CL	123+80	0.30-3.50	A-3(0)	18	NP	56.6	37.4	0.9	5.1	100	72	9	-	-
S-502	CL	123+80	3.50-5.62	A-2-4(0)	20	NP	43.8	42.0	0.9	13.3	100	78	18	-	-
SS-537	CL	125+00	0.30-0.45	A-2-4(0)	14	NP	51.8	36.5	5.6	6.1	100	74	18	-	-
SS-538	CL	125+00	1.06-1.51	A-2-4(0)	22	NP	47.9	32.6	3.2	16.3	100	74	24	-	-
SS-539	CL	125+00	4.10-4.55	A-2-4(0)	24	4	33.7	45.5	4.5	16.3	99	83	28	-	-
SS-540	CL	125+00	5.62-6.07	A-1-b(0)	19	NP	77.7	16.8	1.5	4.0	99	48	7	-	-
SS-531	CL	126+80	0.30-0.45	A-2-4(0)	15	NP	39.7	44.9	10.4	5.1	100	80	27	-	-
SS-532	CL	126+80	1.06-1.51	A-7-6(8)	44	22	23.4	32.8	7.0	36.7	100	87	52	-	-
SS-533	CL	126+80	2.58-3.03	A-6(10)	39	22	15.3	39.6	10.5	34.7	100	92	58	-	-
SS-534	CL	126+80	4.10-4.55	A-2-4(0)	17	NP	37.4	44.5	9.9	8.2	100	82	27	-	-
SS-535	CL	126+80	7.14-7.59	A-3(0)	21	NP	69.4	23.2	0.3	7.0	100	63	9	-	-
SS-536	CL	126+80	8.66-9.11	A-1-b(0)	19	NP	85.3	9.6	1.0	4.0	100	31	6	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	45

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

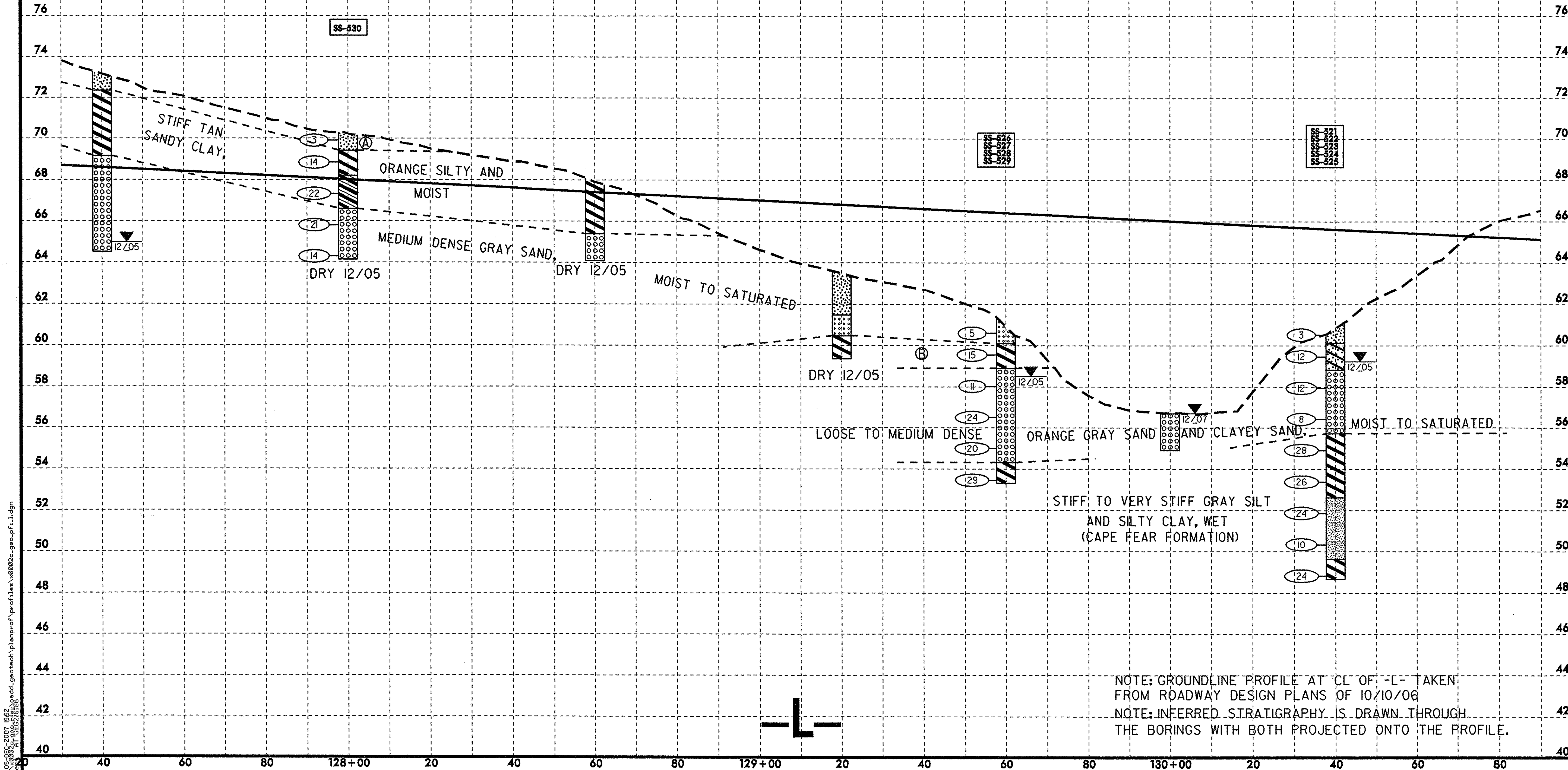
CONST. REV. ________

R/W REV. ________

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-530	CL	128+00	1.06-1.51	A-7-6(10)	52	34	31.4	30.4	5.6	32.6	98	79	45	-	-
SS-526	CL	129+60	0.30-0.45	A-3(0)	21	NP	49.3	43.0	3.6	4.1	75	52	8	-	-
SS-527	CL	129+60	1.06-1.51	A-7-6(14)	49	23	5.5	33.2	16.4	44.9	100	97	65	-	-
SS-528	CL	129+60	2.58-3.03	A-1-b(0)	23	NP	76.9	17.4	0.6	5.1	99	46	7	-	-
SS-529	CL	129+60	7.14-7.59	A-7-6(28)	56	32	4.1	18.6	18.2	59.1	100	98	83	-	-
SS-521	CL	130+40	1.06-1.51	A-2-6(0)	31	14	50.5	24.1	6.1	19.4	91	60	25	-	-
SS-522	CL	130+40	2.58-3.03	A-1-b(0)	20	NP	79.0	14.7	1.3	5.0	100	46	8	-	-
SS-523	CL	130+40	5.62-6.07	A-7-6(40)	65	40	4.1	9.0	13.6	73.4	100	98	90	-	-
SS-524	CL	130+40	8.66-9.11	A-4(0)	21	7	33.4	35.0	13.3	18.3	100	80	39	-	-
SS-525	CL	130+40	11.70-12.15	A-7-6(11)	46	29	24.6	26.3	11.4	37.7	100	88	51	-	-

Ⓐ VERY LOOSE ORANGE GRAY SAND, MOIST
Ⓑ STIFF GRAY SILTY CLAY, MOIST



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

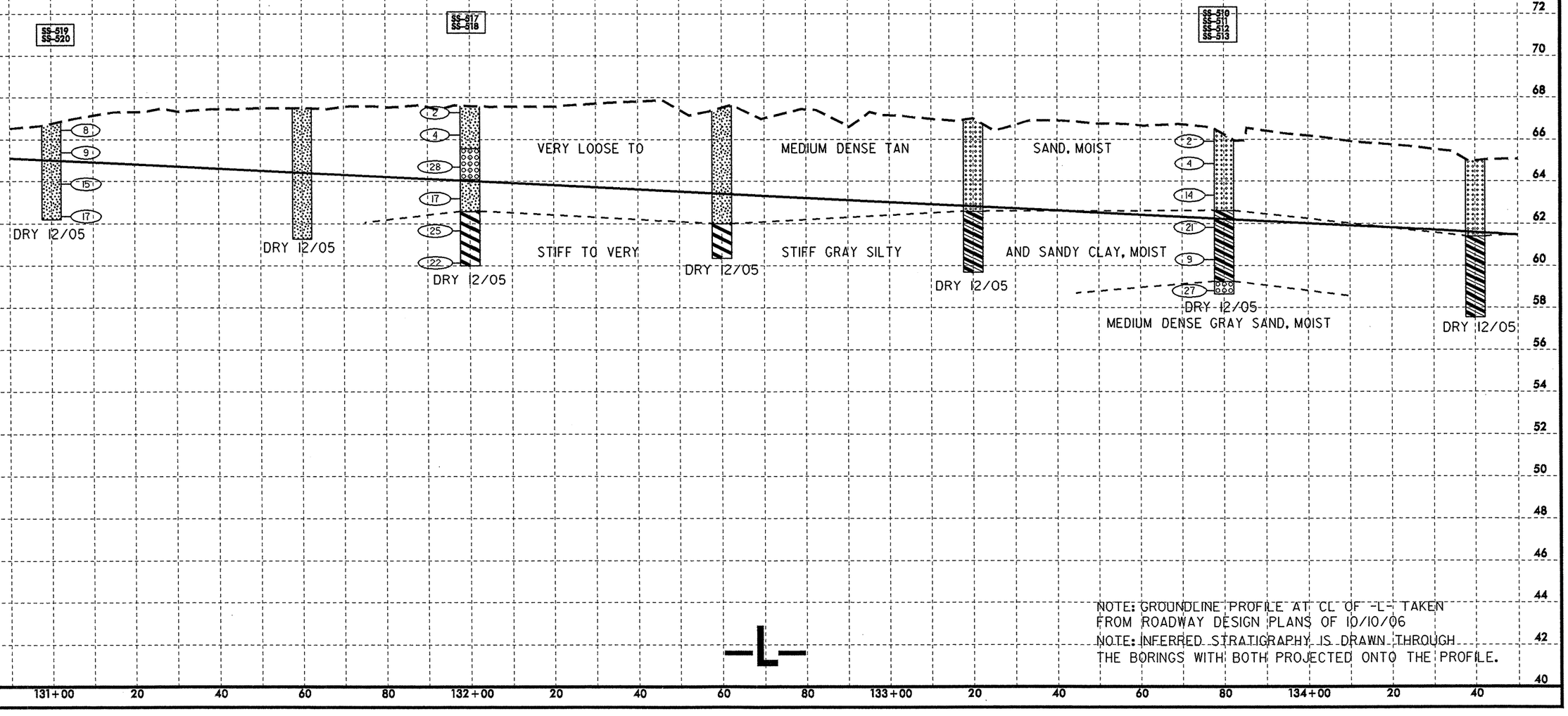
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-519	CL	131+00	0.30-0.45	A-2-4(0)	17	NP	65.7	21.9	4.2	8.2	99	54	15	-	-
SS-520	CL	131+00	2.88-3.33	A-2-4(0)	19	NP	66.6	22.2	1.0	10.2	97	57	12	-	-
SS-517	CL	132+00	5.62-6.07	A-7-6(26)	58	30	5.3	11.6	24.0	59.1	93	91	80	-	-
SS-518	CL	132+00	7.14-7.59	A-7-6(11)	47	23	30.0	13.7	13.6	42.8	98	84	57	-	-
SS-510	CL	133+80	0.30-0.45	A-3(0)	17	NP	60.6	31.7	3.7	4.1	100	72	10	-	-
SS-511	CL	133+80	2.58-3.03	A-3(0)	24	NP	55.8	41.2	1.0	2.0	98	85	4	-	-
SS-512	CL	133+80	4.10-4.55	A-6(1)	32	15	35.4	26.1	6.9	31.6	90	84	36	-	-
SS-513	CL	133+80	7.14-7.59	A-1-b(0)	20	NP	81.3	11.3	0.2	7.1	100	44	8	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	47

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

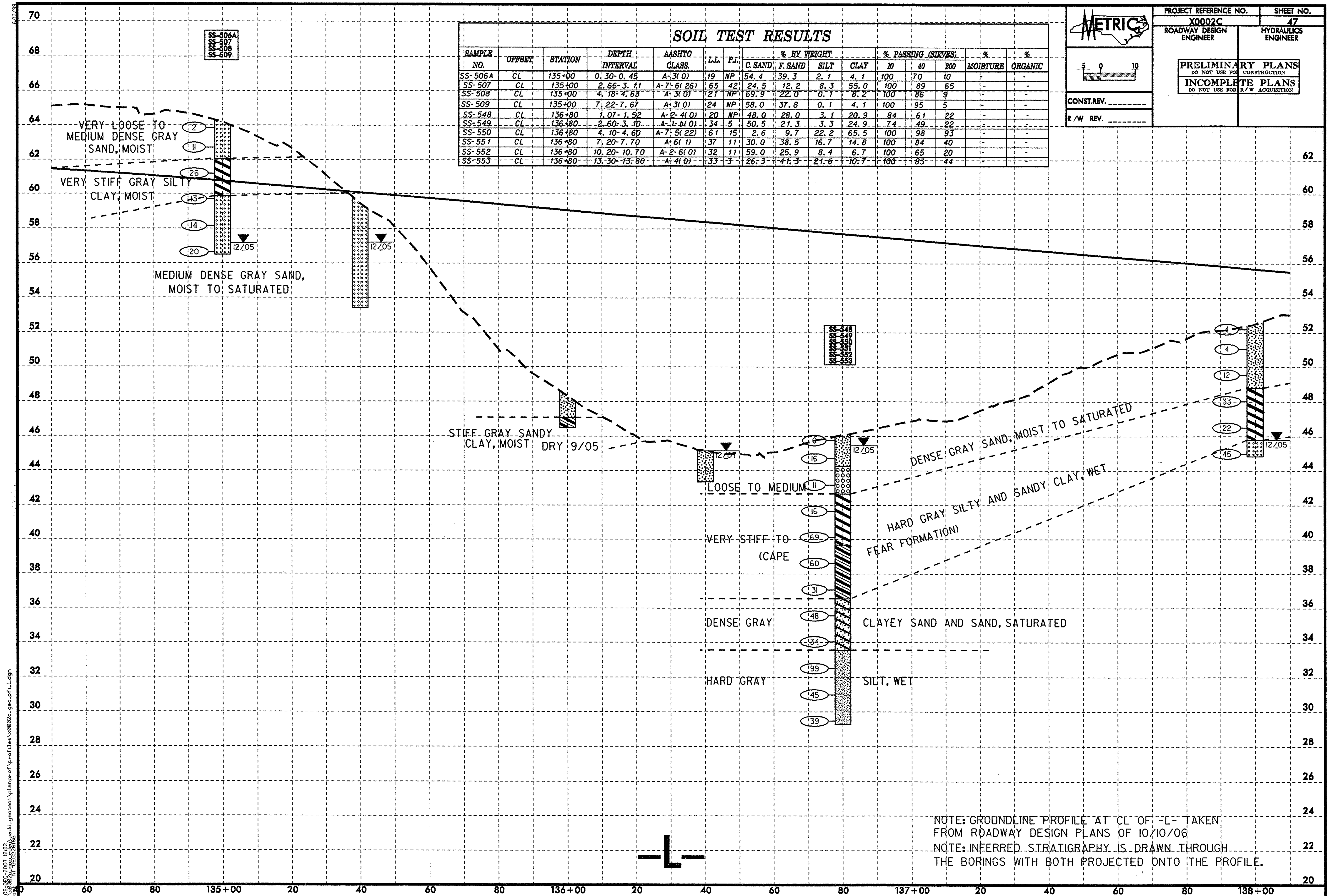
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV. ________

R/W REV. ________

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-506A	CL	135+00	0.30-0.45	A-3(0)	19	NP	54.4	39.3	2.1	4.1	100	70	10	-	-
SS-507	CL	135+00	2.66-3.11	A-7-6(26)	65	42	24.5	12.2	8.3	55.0	100	89	65	-	-
SS-508	CL	135+00	4.18-4.63	A-3(0)	21	NP	69.9	22.0	0.1	8.2	100	86	9	-	-
SS-509	CL	135+00	7.22-7.67	A-3(0)	24	NP	58.0	37.8	0.1	4.1	100	95	5	-	-
SS-548	CL	136+80	1.07-1.52	A-2-4(0)	20	NP	48.0	28.0	3.1	20.9	84	61	22	-	-
SS-549	CL	136+80	2.60-3.10	A-1-b(0)	34	5	50.5	21.3	3.3	24.9	74	49	22	-	-
SS-550	CL	136+80	4.10-4.60	A-7-5(22)	61	15	2.6	9.7	22.2	65.5	100	98	93	-	-
SS-551	CL	136+80	7.20-7.70	A-6(1)	37	11	30.0	38.5	16.7	14.8	100	84	40	-	-
SS-552	CL	136+80	10.20-10.70	A-2-6(0)	32	11	59.0	25.9	8.4	6.7	100	65	20	-	-
SS-553	CL	136+80	13.30-13.80	A-4(0)	33	3	26.3	41.3	21.6	10.7	100	83	44	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	48

METRIC

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

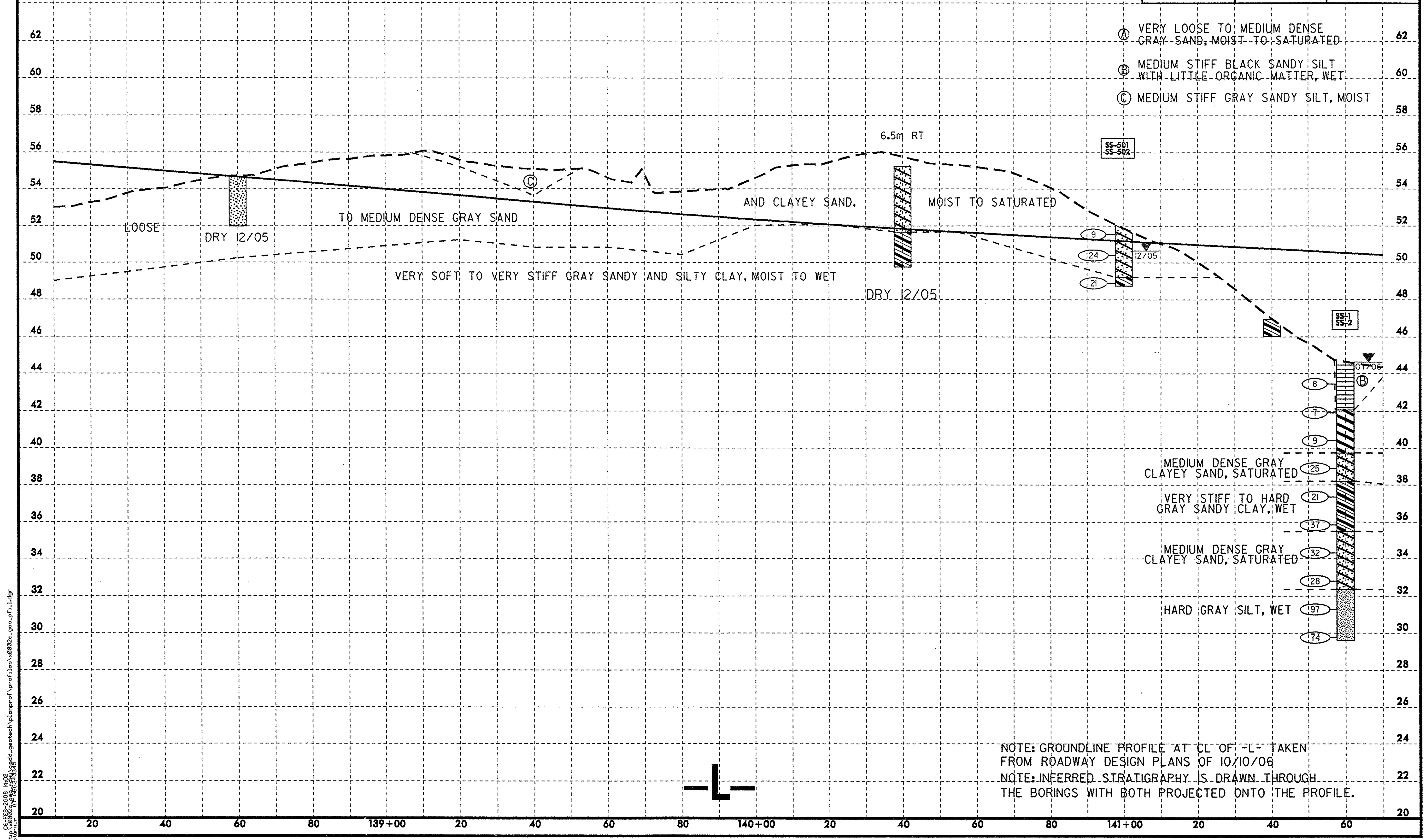
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-501	CL	141+00	0.30-0.45	A-2-6(1)	33	18	45.1	30.7	2.9	21.4	100	72	28		
SS-502	CL	141+00	2.66-3.11	A-6(4)	38	18	25.1	36.1	16.4	22.4	100	87	45		
SS-1	CL	141+60	0.89-1.34	NOT ENOUGH TO SAMPLE										102.5	11.5
SS-2	CL	141+60	5.45-5.90	A-2-7(6)	41	27	47	37	9	7	99	71	52		



PROJECT REFERENCE NO.	SHEET NO.
X0002C	49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

CONST. REV.

R/W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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-6	CL	142+20	5.77-6.22	A-2-4(0)	23	NP	54.9	28.0	2.0	16.0	100	66	46	-	-
SS-9	CL	142+80	2.61-3.06	A-2-4(0)	22	14	41.0	38.0	4.0	11.0	96	76	57	-	-
SS-14	9.5 LT	144+44	5.76-6.21	NOT ENOUGH SAMPLE										262.7	34.3
SS-22	CL	145+20	4.61-5.06	A-7-6(16)	45	31	5.0	23.0	40.0	32.0	100	96	95	-	-

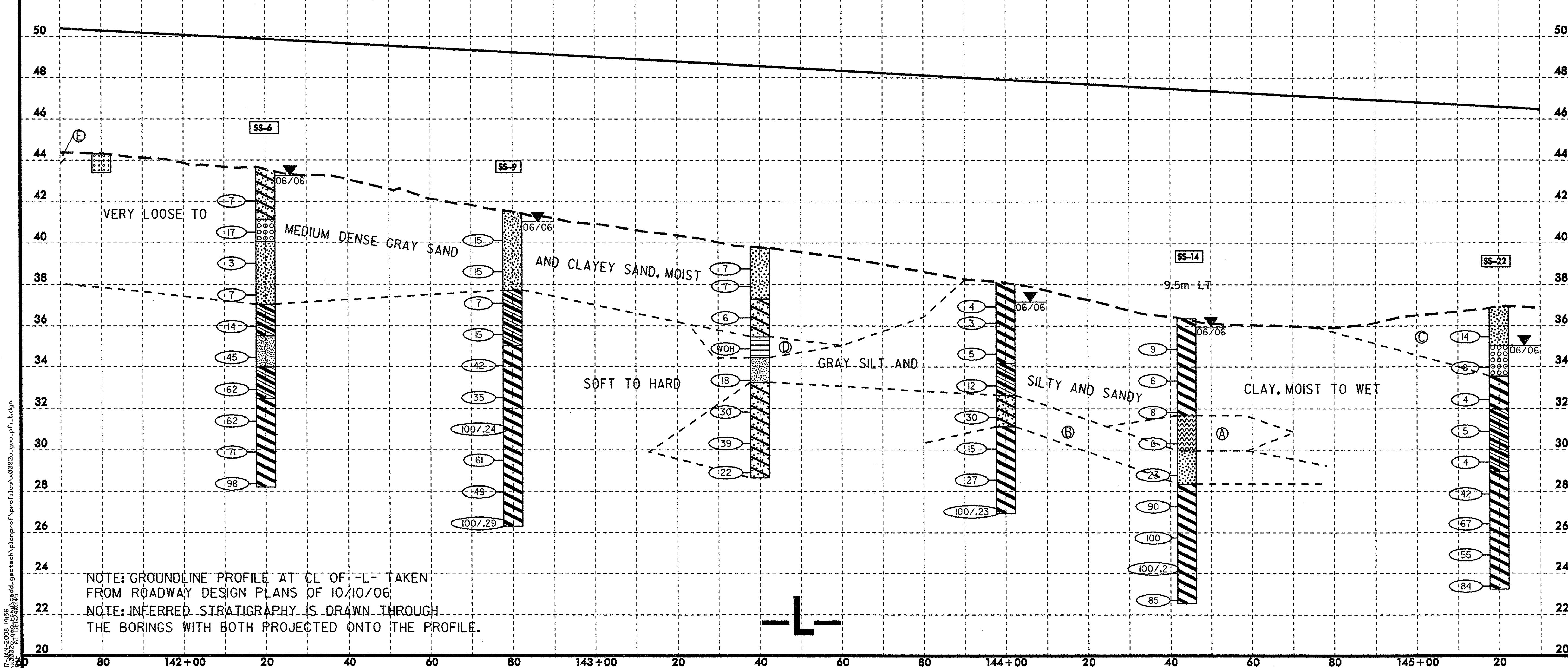
Ⓐ MEDIUM STIFF DARK BROWN PEAT, WET

Ⓑ MEDIUM DENSE GRAY SAND AND CLAYEY SAND, SATURATED

Ⓒ LOOSE TO MEDIUM DENSE GRAY SAND, MOIST TO SATURATED

Ⓓ MEDIUM STIFF BROWN SILTY CLAY WITH LITTLE ORGANIC MATTER, WET

Ⓔ MEDIUM STIFF BLACK SANDY SILT WITH LITTLE ORGANIC MATTER, WET



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-L-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	50

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION

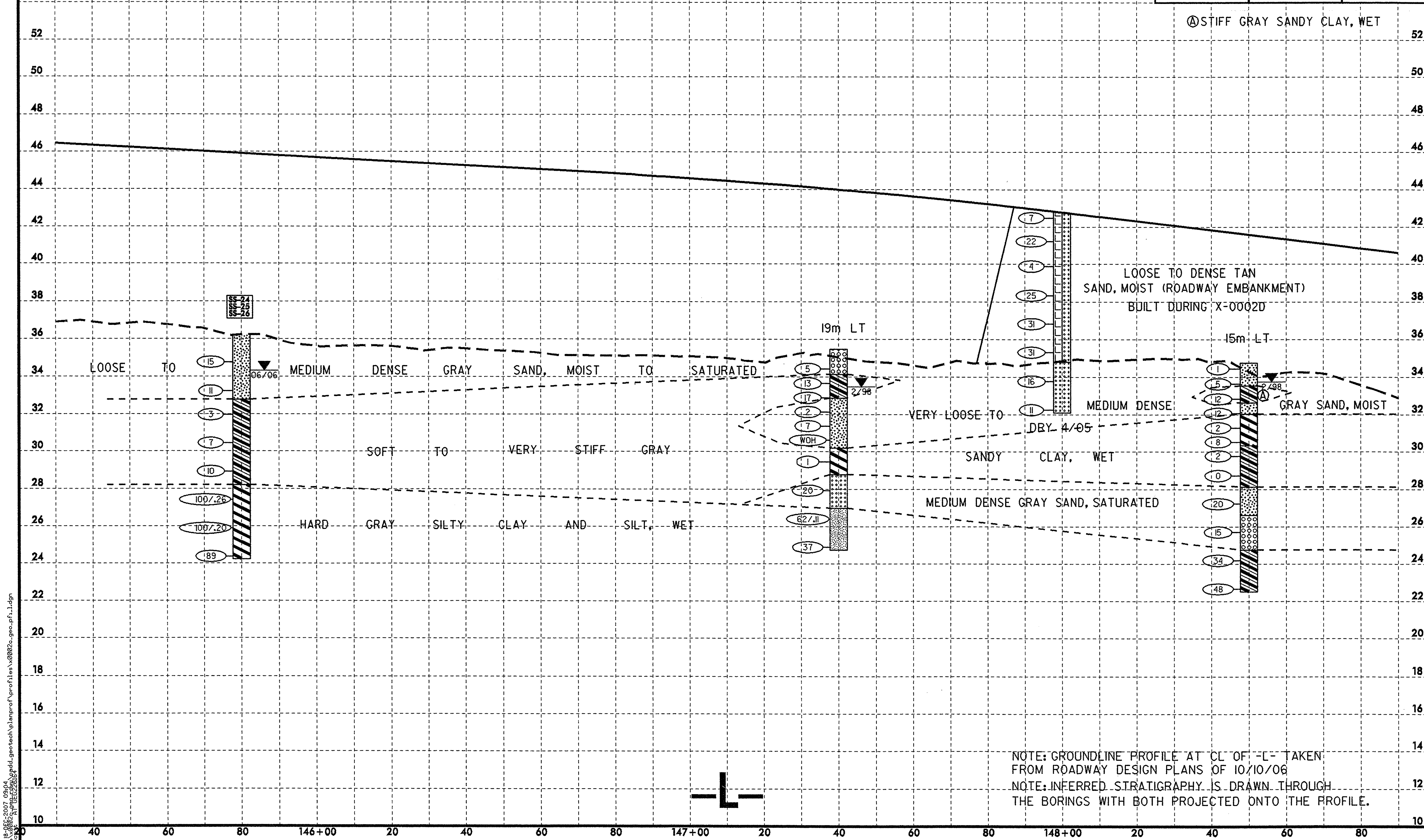
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

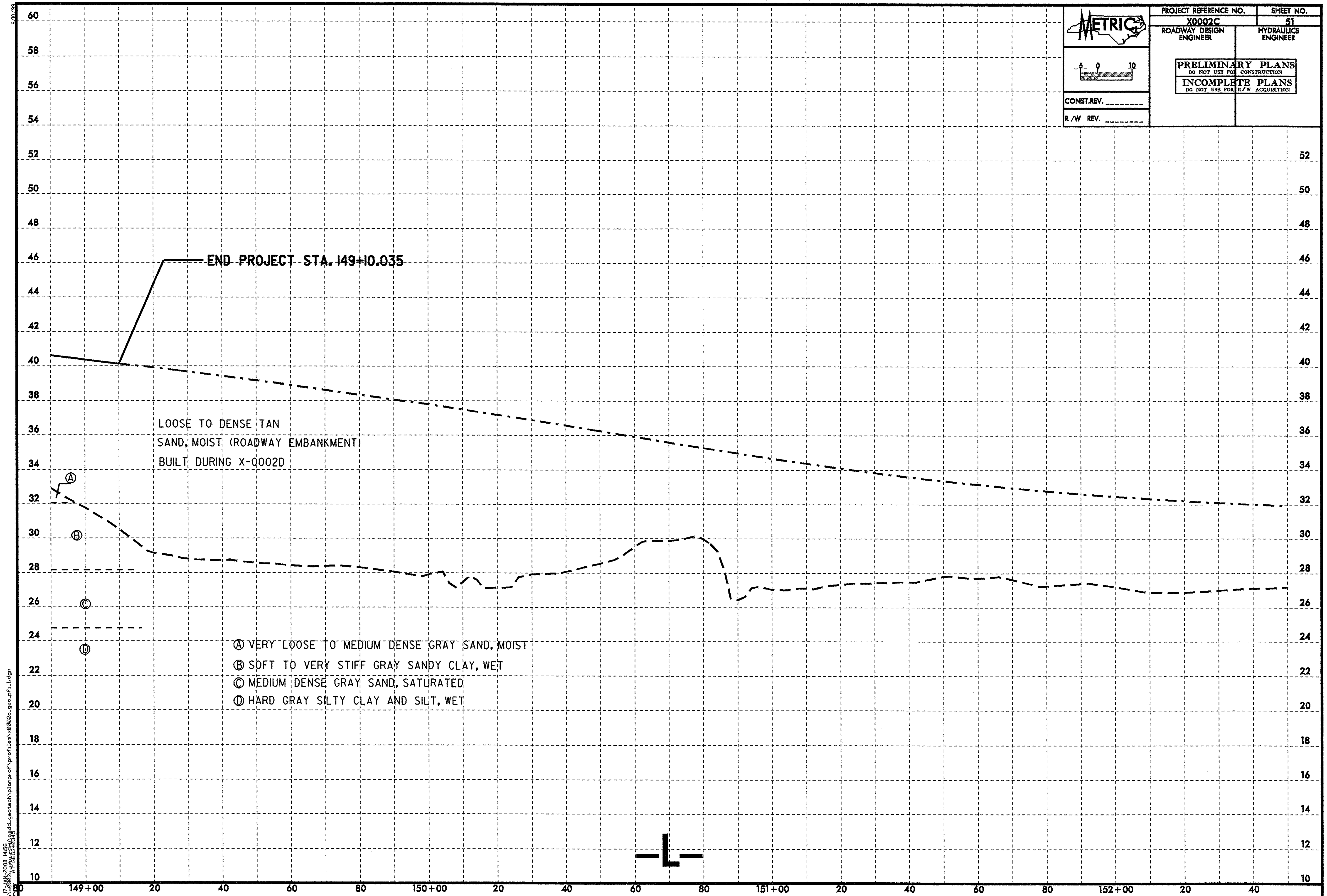
SOIL TEST RESULTS

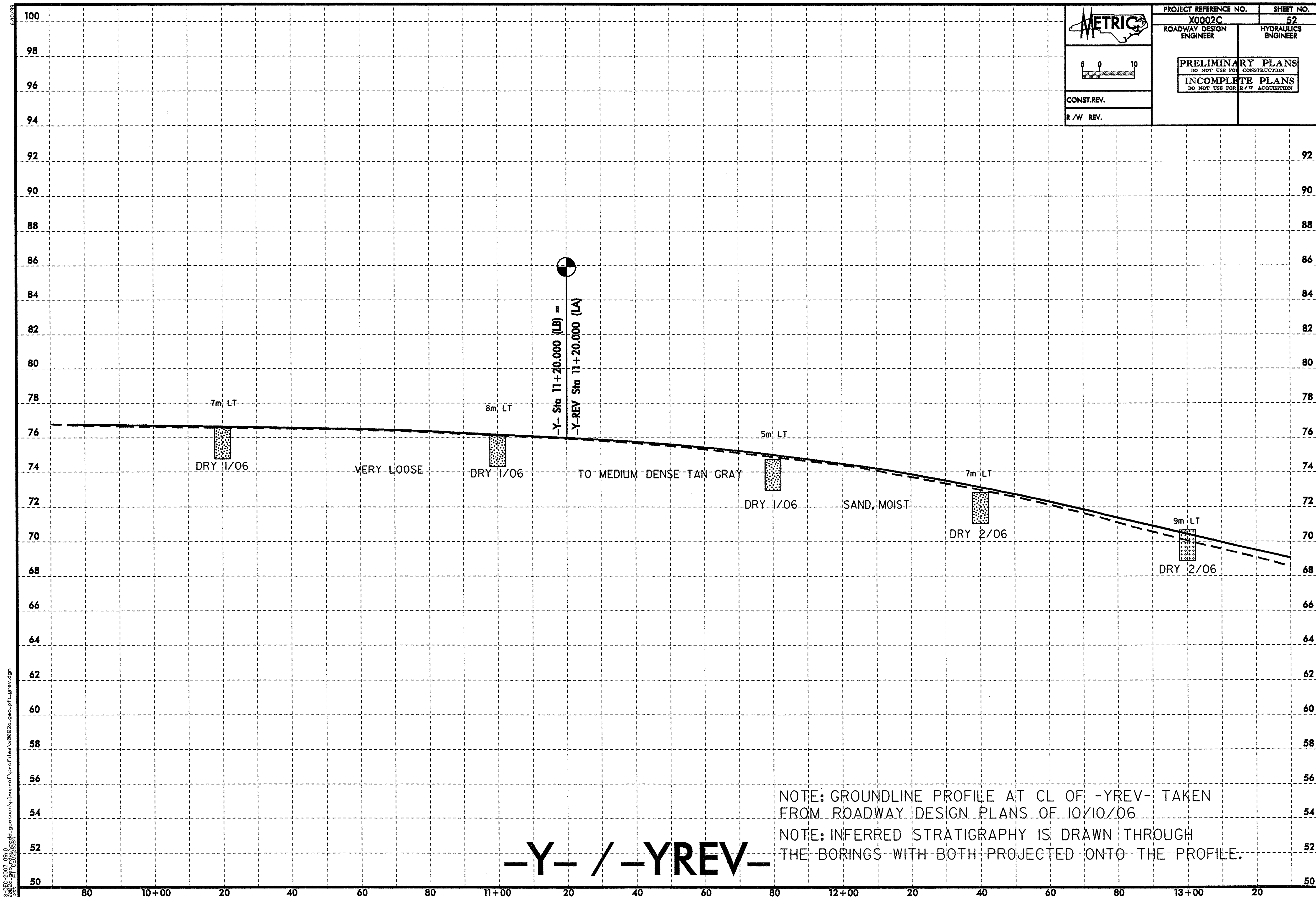
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
							C. SAND	F. SAND	SILT	CLAY	10	40	200		
SS-24	CL	145+80	2.67-3.15	A-2-4(0)	18	15	49	33	4	14	100	68	52	-	-
SS-25	CL	145+80	5.46-5.91	A-6(18)	40	22	0	11	47	42	100	100	100	27.3	-
SS-26	CL	145+80	10.02-10.22	A-7-6(19)	45	25	4	12	53	31	100	98	96	19.5	-



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.


METRIC
PROJECT REFERENCE NO.
X0002C
SHEET NO.
51
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
CONST.REV.
R/W REV.
END PROJECT STA. 149+10.035
LOOSE TO DENSE TAN
SAND, MOIST (ROADWAY EMBANKMENT)
BUILT DURING X-0002D
Ⓐ VERY LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
Ⓑ SOFT TO VERY STIFF GRAY SANDY CLAY, WET
Ⓒ MEDIUM DENSE GRAY SAND, SATURATED
Ⓓ HARD GRAY SILTY CLAY AND SILT, WET
-L-
149+00
150+00
151+00
152+00


METRIC
PROJECT REFERENCE NO.
X0002C
SHEET NO.
52
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
CONST.REV.
R/W REV.
-Y- Sta 11+20.000 (LB) =
-Y-REV Sta 11+20.000 (LA)
7m LT
8m LT
5m LT
7m LT
9m LT
DRY 1/06
DRY 1/06
DRY 1/06
DRY 2/06
DRY 2/06
VERY LOOSE
TO MEDIUM DENSE TAN GRAY
SAND, MOIST
NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.
-Y- / -YREV-
80
10+00
20
40
60
80
11+00
20
40
60
80
12+00
20
40
60
80
13+00
20

PROJECT REFERENCE NO.	SHEET NO.
X0002C	53

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

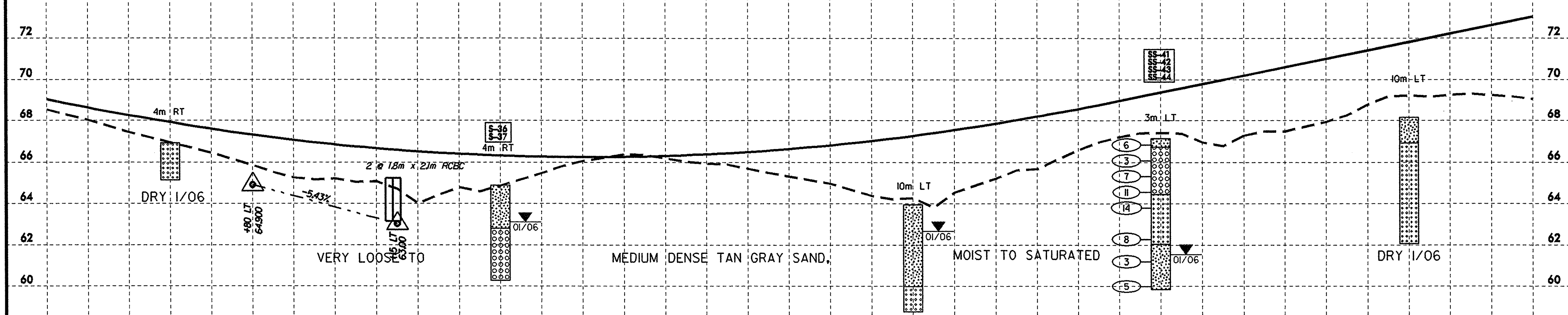
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-36	4 m Rt	14+40	0.30-2.10	A-2-4(0)	19	NP	16.7	62.4	2.8	18.1	100	87	23	-	-
S-37	4 m Rt	14+40	2.10-4.60	A-1-b(0)	18	NP	88.7	7.8	1.4	2.0	65	12	2	-	-
SS-41	3m Lt	16+00	0.76-1.21	A-1-b(0)	16	NP	88.6	7.5	1.9	2.0	100	24	4	-	-
SS-42	3m Lt	16+00	3.05-3.50	A-3(0)	13	NP	56.0	42.7	1.3	0.0	97	66	2	-	-
SS-43	3m Lt	16+00	5.43-5.88	A-2-4(0)	23	NP	35.6	52.8	3.5	8.1	98	78	14	-	-
SS-44	3m Lt	16+00	6.86-7.31	A-2-4(0)	26	8	73.8	12.7	3.3	10.1	65	26	9	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-YREV-

40 60 80 14+00 20 40 60 80 15+00 20 40 60 80 16+00 20 40 60 80

PROJECT REFERENCE NO.	SHEET NO.
X0002C	54

ROADWAY DESIGN ENGINEER — HYDRAULICS ENGINEER

METRIC

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

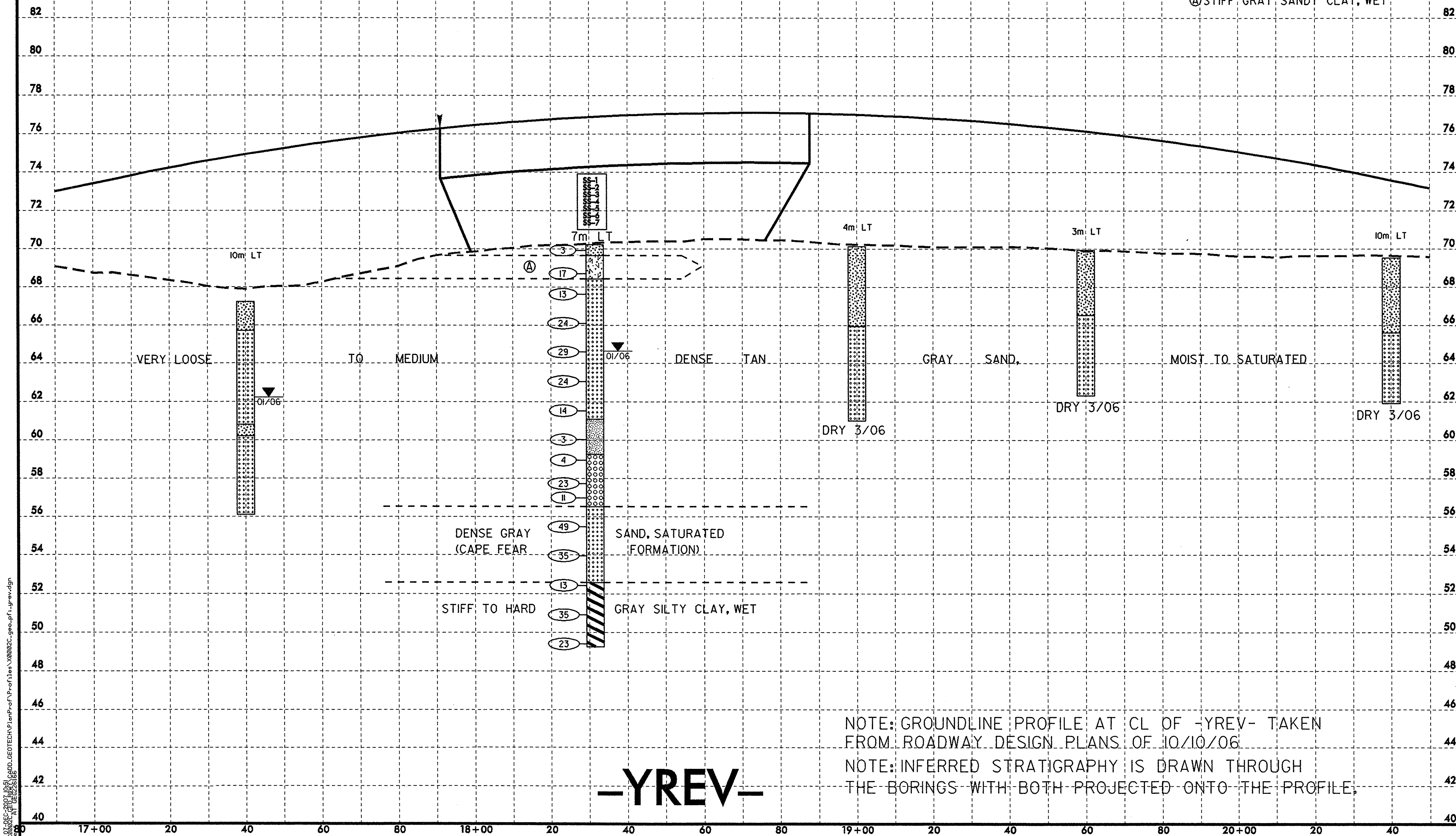
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-1	7m LT	18+32	1.22-1.67	A-5(7)	50	9	9.5	29.5	12.4	48.5	100	95	63	13.9	-
SS-2	7m LT	18+32	2.29-2.74	NOT	ENOUGH		SAMPLE								
SS-3	7m LT	18+32	6.85-7.30	A-3(0)	21	NP	70.8	25.9	1.3	2.0	99	56	4	-	-
SS-4	7m LT	18+32	9.89-10.34	A-4(1)	28	7	28.7	35.2	17.9	18.2	99	85	46	14.4	-
SS-5	7m LT	18+32	10.97-11.24	A-1-b(0)	23	NP	90.4	7.3	0.3	2.0	83	13	2	-	-
SS-6	7m LT	18+32	14.45-14.90	A-3(0)	19	NP	75.0	20.6	0.3	4.0	99	53	6	-	-
SS-7	7m LT	18+32	17.64-17.94	A-7-5(12)	42	12	4.9	14.8	25.8	54.6	100	97	85	14.4	-



-YREV-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	55

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

METRIC

CONST.REV.

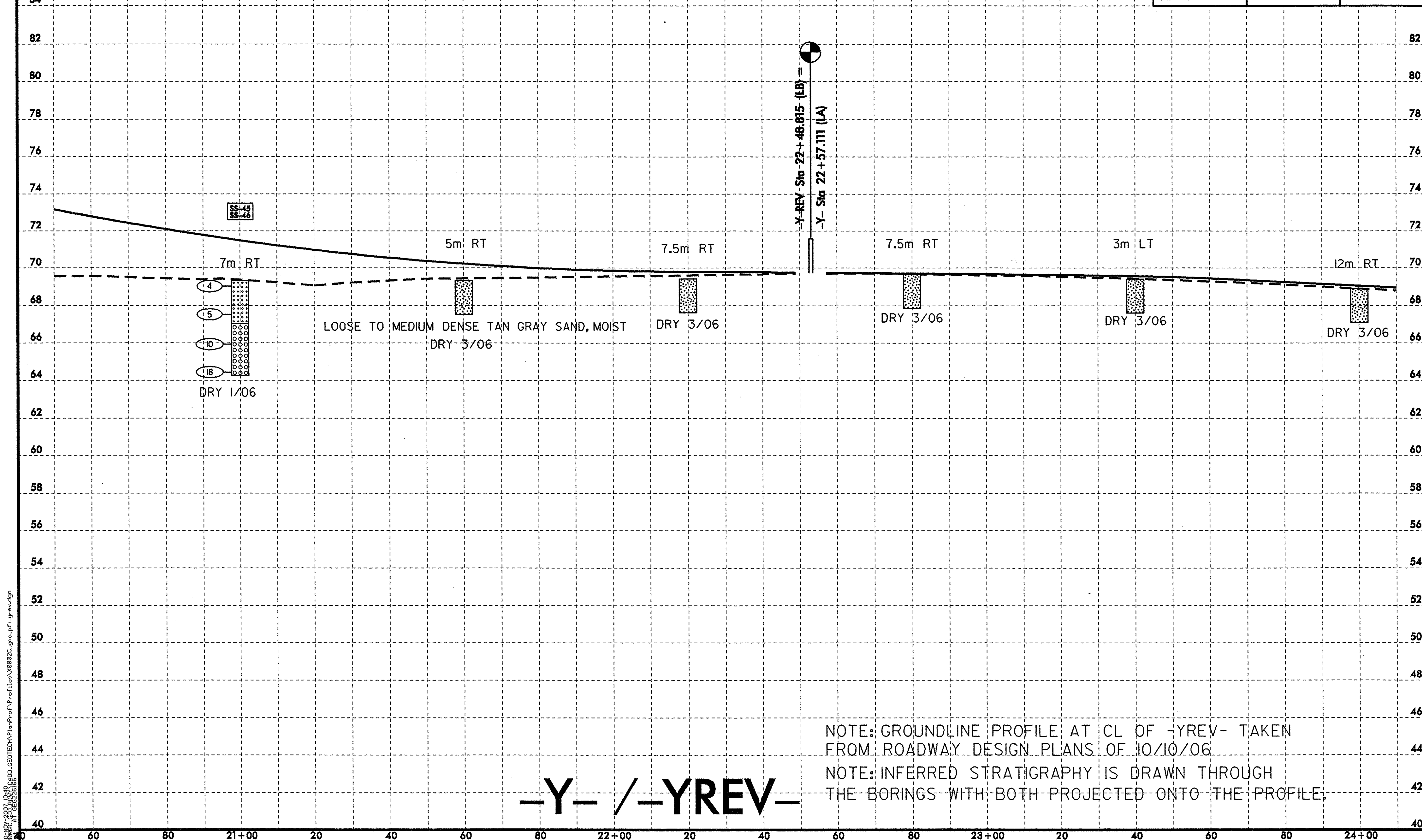
R /W REV.

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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
SS-45	7 m Rt	21+00	0.30-0.45	A-3(0)	13	NP	67.0	25.4	3.6	4.0	100	55	9	-	-
SS-46	7 m Rt	21+00	3.10-3.55	A-1-b(0)	22	NP	80.5	13.7	1.8	4.0	100	42	6	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y- /-YREV-

6/10/33

METRIC

5 0 10

PROJECT REFERENCE NO.	SHEET NO.
X0002C	56

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

90 88 86 84 82 80 78 76 74 72 70 68 66 64 62 60 58 56 54 52 50 48 46 44 42 40

13m LT

15m RT

DRY 3/06

DRY 3/06

LOOSE TO MEDIUM DENSE TAN GRAY SAND, MOIST

-Y-

NOTE: GROUNDLINE PROFILE AT CL OF -YREV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

20 40 60 80 25+00 20 40 60 80 26+00 20 40 60 80 27+00 20 40 60

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$$USER$$

PROJECT REFERENCE NO.	SHEET NO.
X0002C	57
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

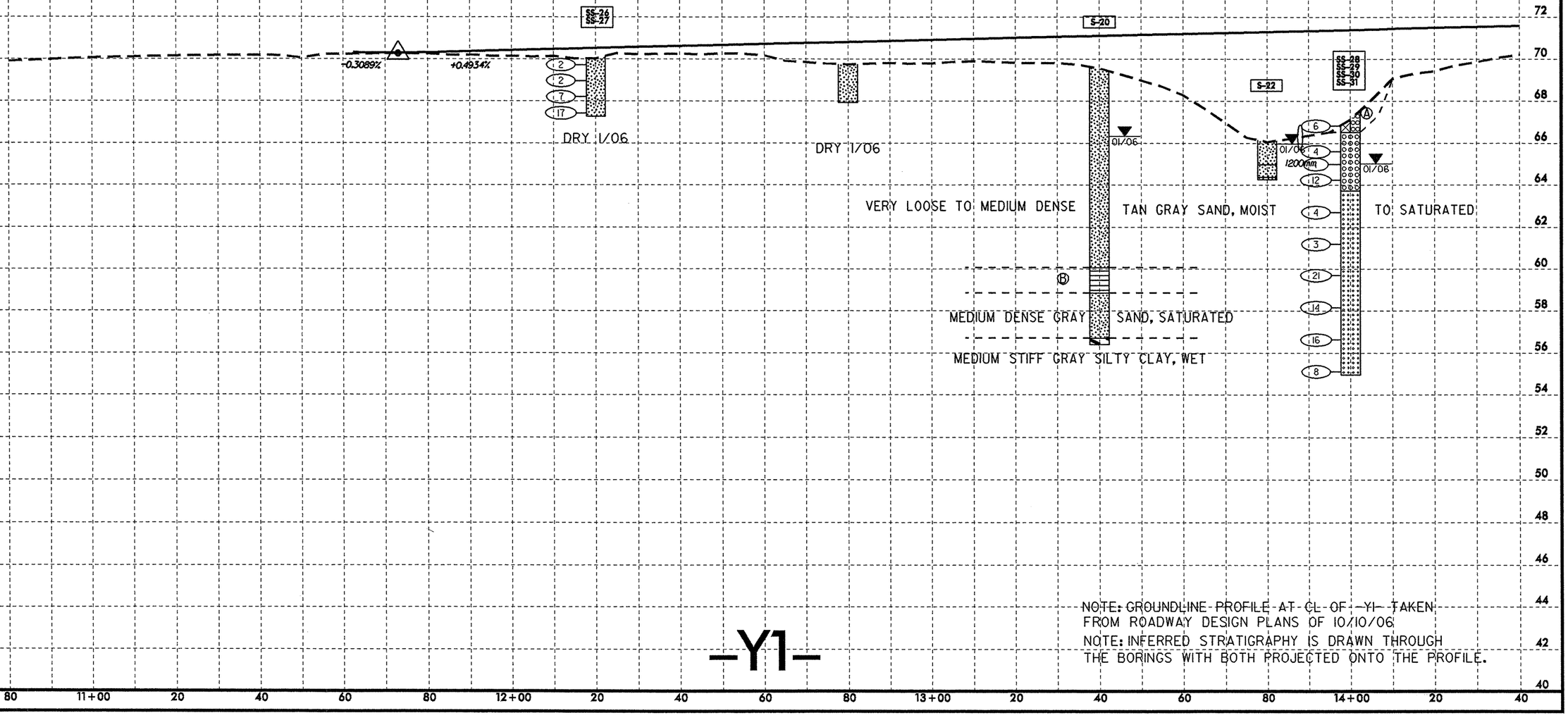
CONST.REV.

R/W REV.

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-26	CL	12+20	0.76-1.21	A-2-4(0)	16	NP	44.5	44.1	2.5	8.9	100	79	14	-	-
SS-27	CL	12+20	2.29-2.74	A-2-4(0)	26	5	49.5	27.6	5.9	16.9	100	68	24	-	-
S-20	CL	13+40	9.45-10.67	A-4(2)	28	9	33.4	17.9	13.6	35.1	98	74	54	-	-
S-22	CL	13+80	1.07-1.68	A-2-5(0)	45	NP	35.7	44.4	9.3	10.6	100	75	22	-	-
SS-28	CL	14+00	0.30-0.45	A-1-b(0)	27	NP	65.7	24.4	5.1	4.8	85	50	10	-	-
SS-29	CL	14+00	1.83-2.28	NOT ENOUGH SAMPLE										-	-
SS-30	CL	14+00	2.59-3.04	A-1-b(0)	17	NP	95.9	3.2	0.1	0.8	99	14	1	-	-

Ⓐ LOOSE TAN SAND, MOIST (ARTIFICIAL FILL)
Ⓑ VERY SOFT SILT WITH MODERATE AMOUNTS OF ORGANICS, WET



NOTE: GROUNDLINE PROFILE AT CL OF -Y1- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y1-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

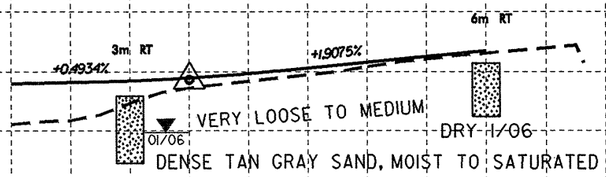
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

100 98 96 94 92 90 88 86 84 82 80 78 76 74 72 70 68 66 64 62 60 58 56 54 52 50

40 60 80 15+00 20 40



-Y1-

NOTE: GROUNDLINE PROFILE AT CL OF -Y1- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	59

METRIC

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

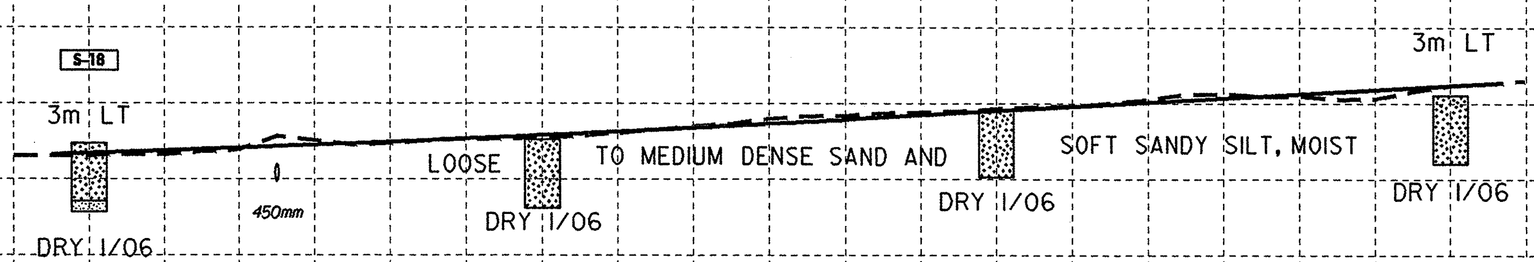
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.

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-18	3m Lt	12+60	1.50-1.80	A-4(0)	24	NP	33.0	31.6	6.4	29.0	100	86	37	-	-

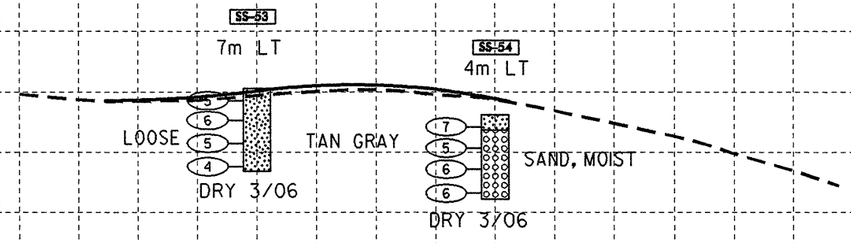


-Y2-

NOTE: GROUNDLINE PROFILE AT CL OF -Y2- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	X0002C	60
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



SOIL TEST RESULTS

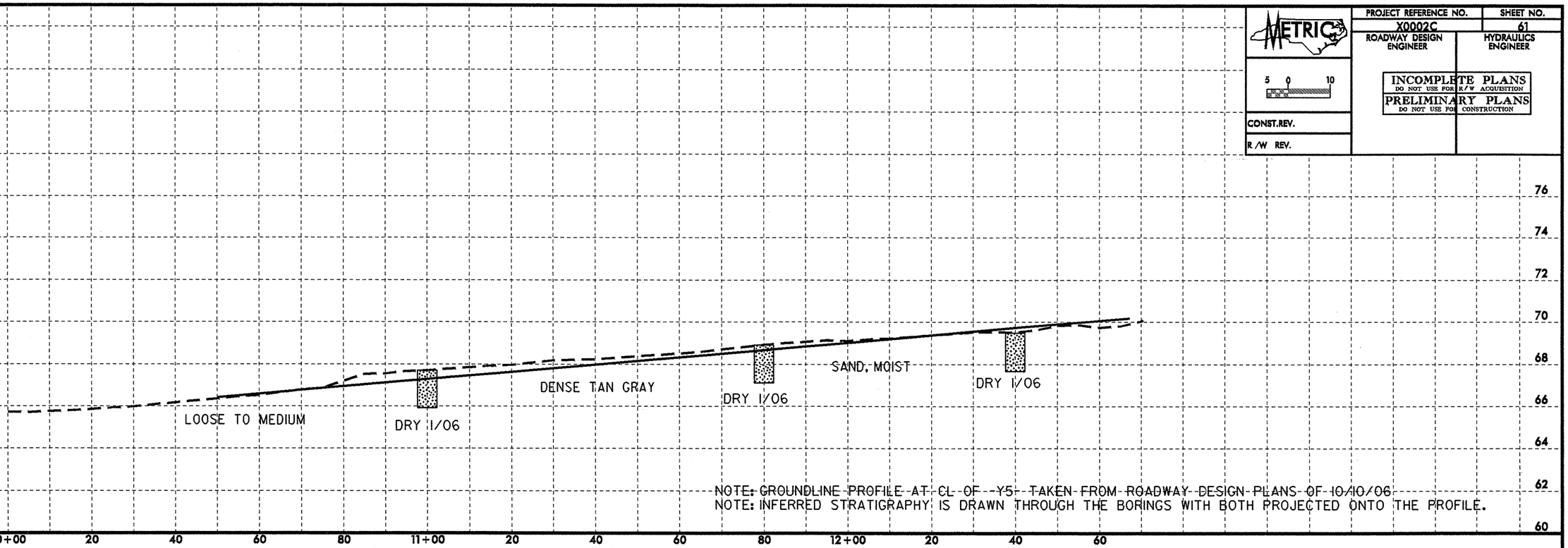
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-53	7m Lt	10+40	0.80-1.25	A-2-4(0)	17	NP	58.5	29.7	7.4	4.4	99	62	13	-	-
SS-54	4m Lt	10+80	0.80-1.25	A-1-b(0)	19	NP	74.5	16.4	6.6	2.4	96	43	9	-	-

NOTE: GROUNDLINE PROFILE AT CL OF -Y4- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

74 72 70 68 66 64 62 60 58 56 54 52 50

10+00 20 40 60 80 11+00 20 40

-Y4-



NOTE: GROUNDLINE PROFILE AT CL OF -Y5- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y5-

5/03/33

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-17	GL	10+20	1.50-1.80	A-4(4)	39	3	9.4	11.4	25.8	53.4	100	96	81	---	---

METRIC

5 0 10

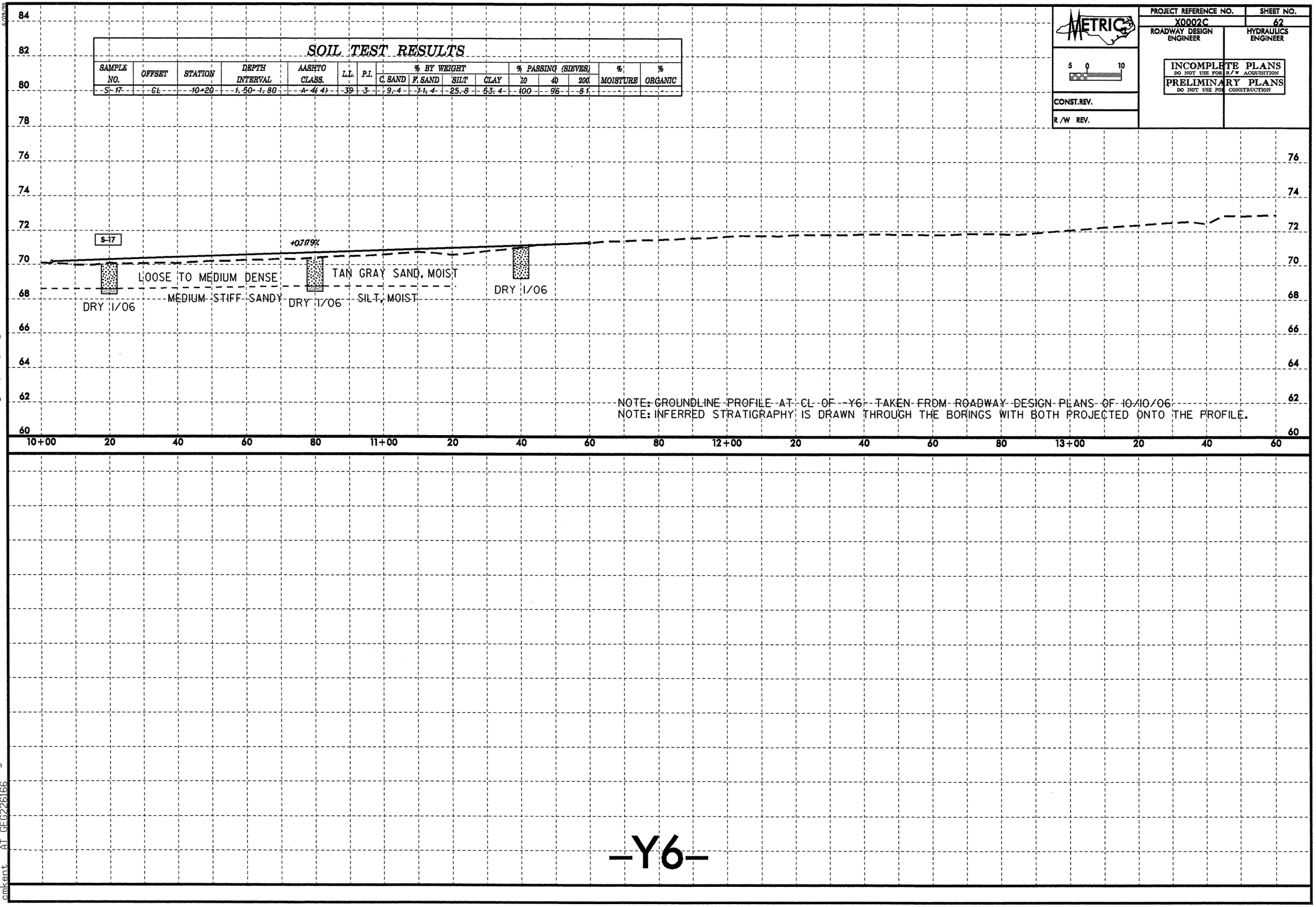
CONST.REV.

R/W REV.

PROJECT REFERENCE NO. X0002C | SHEET NO. 62

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

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



NOTE: GROUNDLINE PROFILE AT CL OF -Y6- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y6-

30-NOV-2007 10:39
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cmkent AT GEG226166

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	X0002C	63
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R /W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

84
82
80
78
76
74
72
70
68
66
64
62
60

5m RT

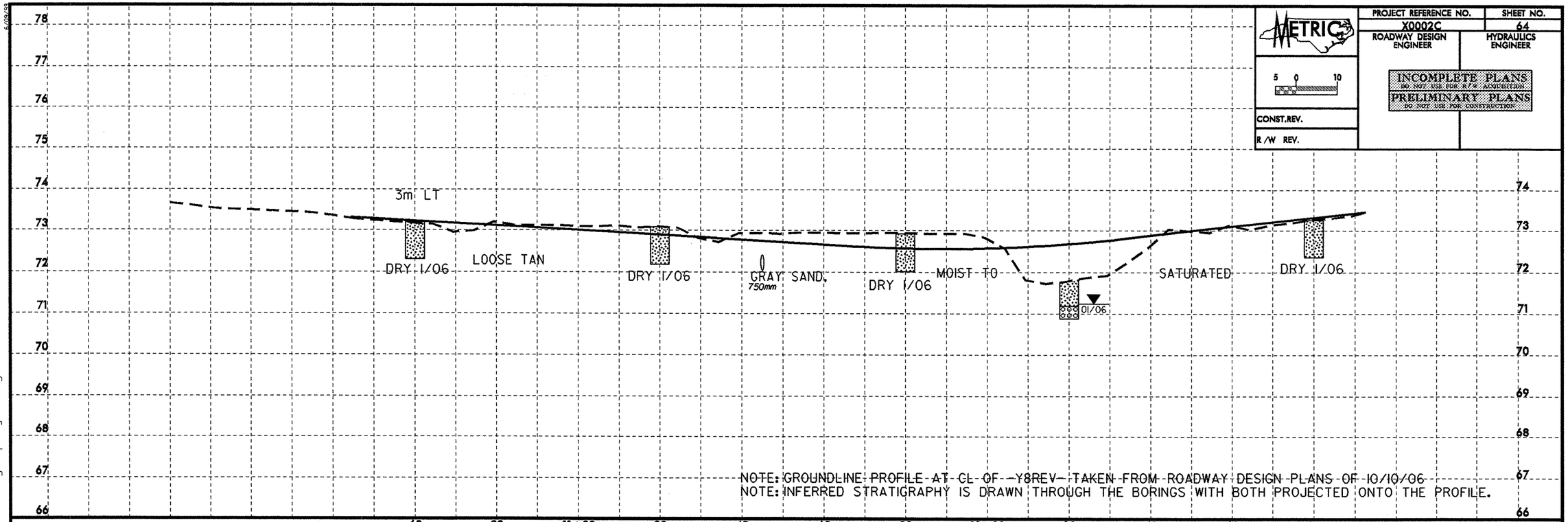
LOOSE TAN GRAY SAND, MOIST
DRY 1/06

NOTE: GROUNDLINE PROFILE AT CL OF -Y7- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

10+00 20 40 60 80 11+00 20 40 60 80 12+00

-Y7-

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	X0002C	64
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION. PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



NOTE: GROUNDLINE PROFILE AT CL OF -Y8REV- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y8REV-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	65
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

5 0 10

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

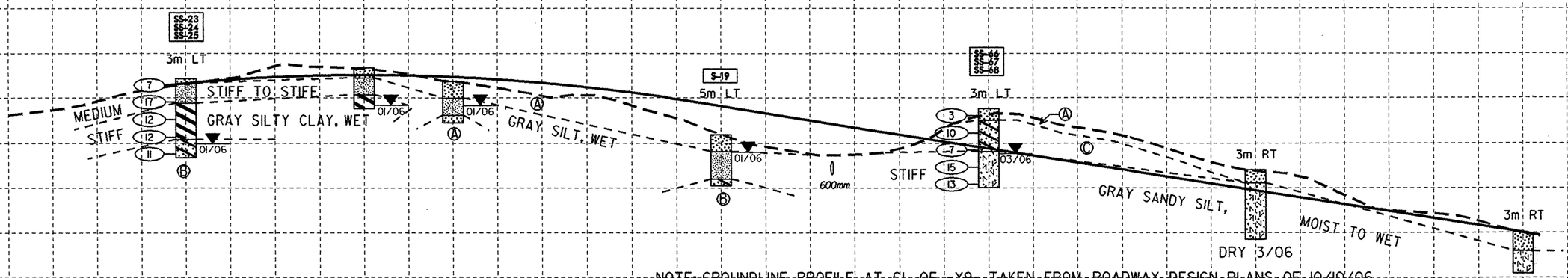
CONST.REV.

R/W REV.

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-23	3m Lt	12+00	0.76-1.21	A-4(0)	29	2	39.9	25.2	8.0	27.0	100	75	38	-	-
SS-24	3m Lt	12+00	1.52-1.97	A-7-6(15)	48	27	20.1	19.7	17.0	43.1	100	88	64	-	-
SS-25	3m Lt	12+00	3.05-3.50	A-2-6(1)	33	16	50.4	17.3	9.4	23.0	100	69	34	-	-
S-19	5m Lt	13+20	1.22-1.98	A-4(0)	25	NP	35.7	26.1	9.3	29.0	96	75	39	-	-
SS-66	3m Lt	13+80	0.30-0.45	A-2-4(0)	17	NP	43.1	45.7	8.8	2.4	90	68	16	-	-
SS-67	3m Lt	13+80	0.80-1.25	A-2-6(0)	37	13	40.7	30.3	6.6	22.4	93	71	29	-	-
SS-68	3m Lt	13+80	2.30-2.75	A-5(12)	53	10	5.6	18.0	21.8	54.5	100	97	80	-	-

Ⓐ LOOSE TAN SAND, MOIST
Ⓑ MEDIUM DENSE GRAY CLAYEY SAND, SATURATED
Ⓒ LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST



NOTE: GROUNDLINE PROFILE AT CL OF -Y9- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE. DRY 3/06

64 62 60 58 56 54 52 50 48 46 44 42 40

60 80 12+00 20 40 60 80 13+00 20 40 60 80 14+00 20 40 60 80 15+00

-Y9-

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	X0002C	66
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

10m LT
3m RT
DRY I/06
DRY I/06
LOOSE TAN GRAY SAND, MOIST

NOTE: GROUNDLINE PROFILE AT CL OF -Y11- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

2m LT
LOOSE TAN GRAY SAND, MOIST
DRY I/06

-Y11-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	67
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

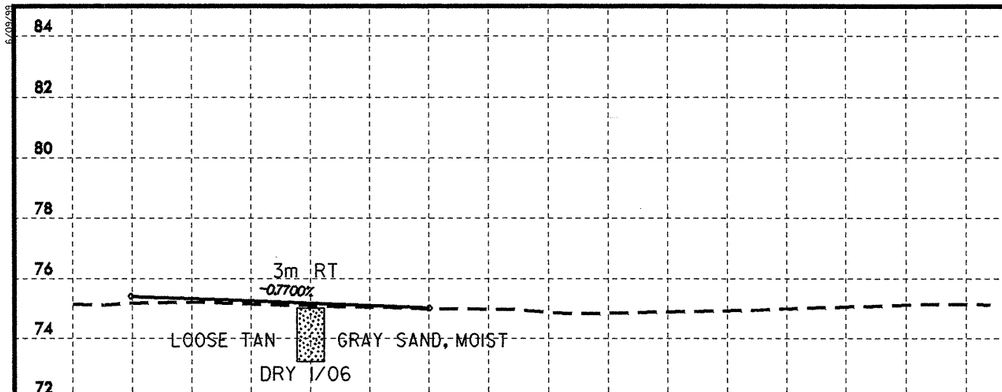
METRIC

5 0 10

CONST.REV.

R/W REV.

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



NOTE: GROUNDLINE PROFILE AT CL OF -Y14- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y14-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	68
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

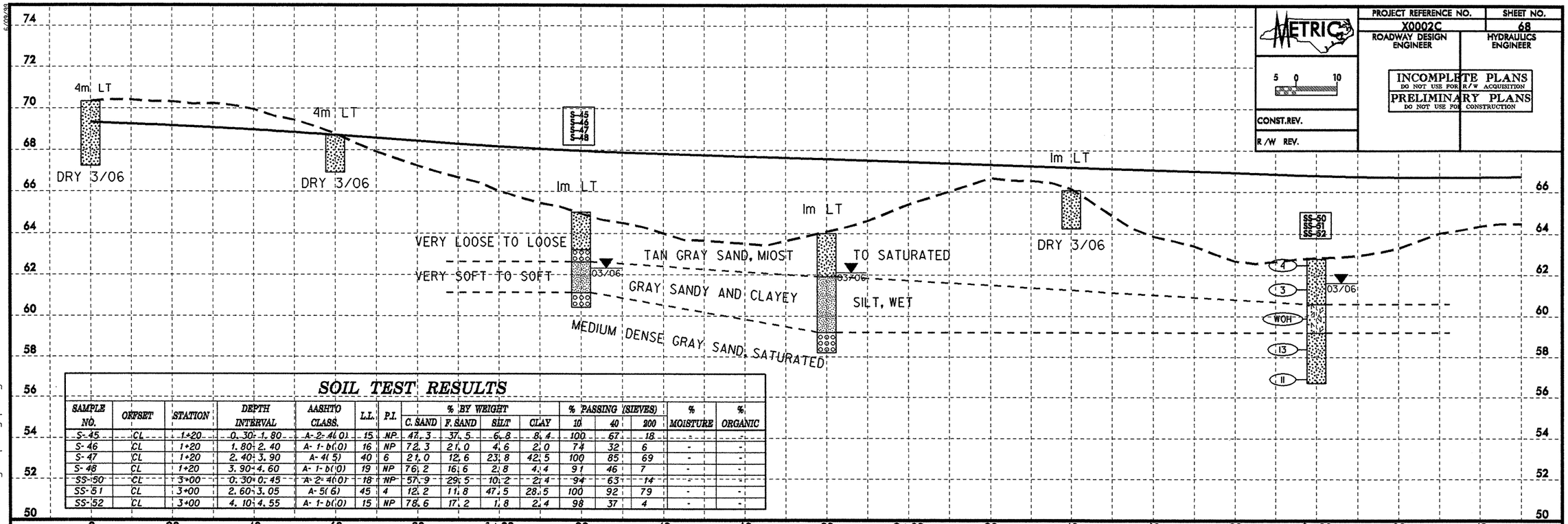
5 0 10

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

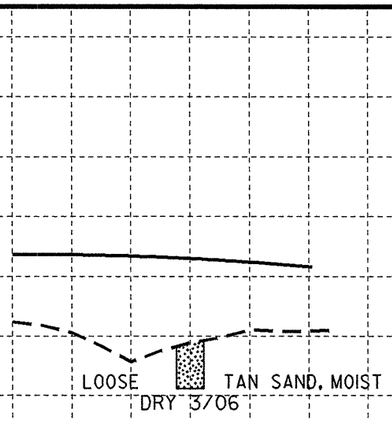
CONST.REV.

R/W REV.



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-45	CL	1+20	0.30-1.80	A-2-4(0)	15	NP	47.3	37.5	6.8	8.4	100	67	18	-	-
S-46	CL	1+20	1.80-2.40	A-1-b(0)	16	NP	72.3	21.0	4.6	2.0	74	32	6	-	-
S-47	CL	1+20	2.40-3.90	A-4(5)	40	6	21.0	12.6	23.8	42.5	100	85	69	-	-
S-48	CL	1+20	3.90-4.60	A-1-b(0)	19	NP	76.2	16.6	2.8	4.4	91	46	7	-	-
SS-50	CL	3+00	0.30-0.45	A-2-4(0)	18	NP	57.9	29.5	10.2	2.4	94	63	14	-	-
SS-51	CL	3+00	2.60-3.05	A-5(6)	45	4	12.2	11.8	47.5	28.5	100	92	79	-	-
SS-52	CL	3+00	4.10-4.55	A-1-b(0)	15	NP	78.6	17.2	1.8	2.4	98	37	4	-	-



-YRPA-

NOTE: GROUNDLINE PROFILE AT CL OF -YRPA- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	69
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

CONST.REV.

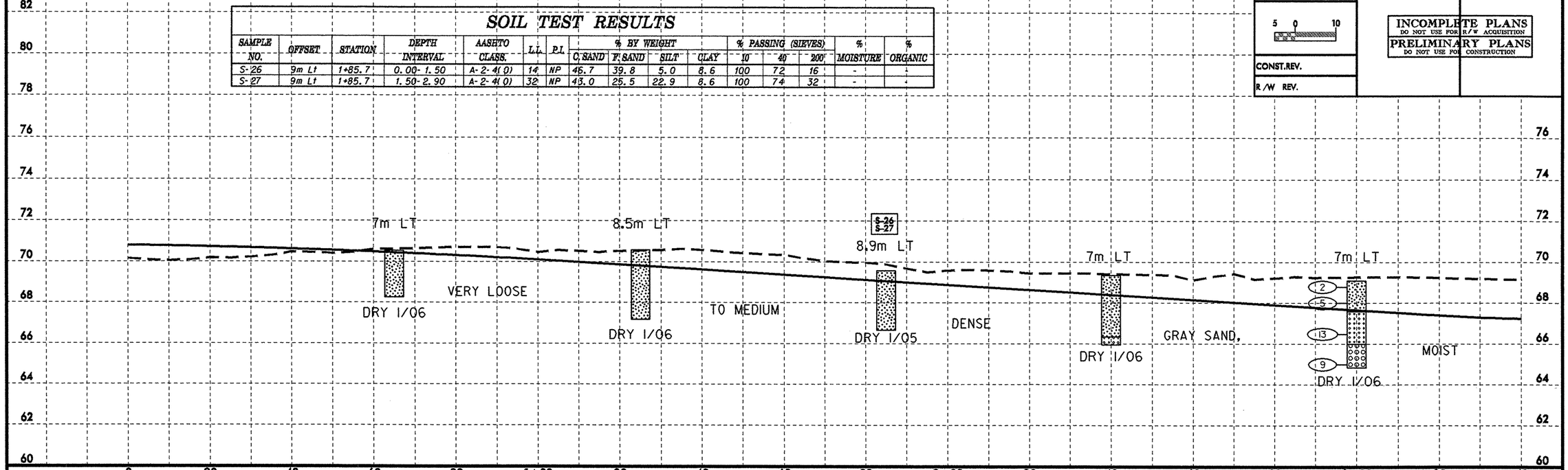
R/W REV.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

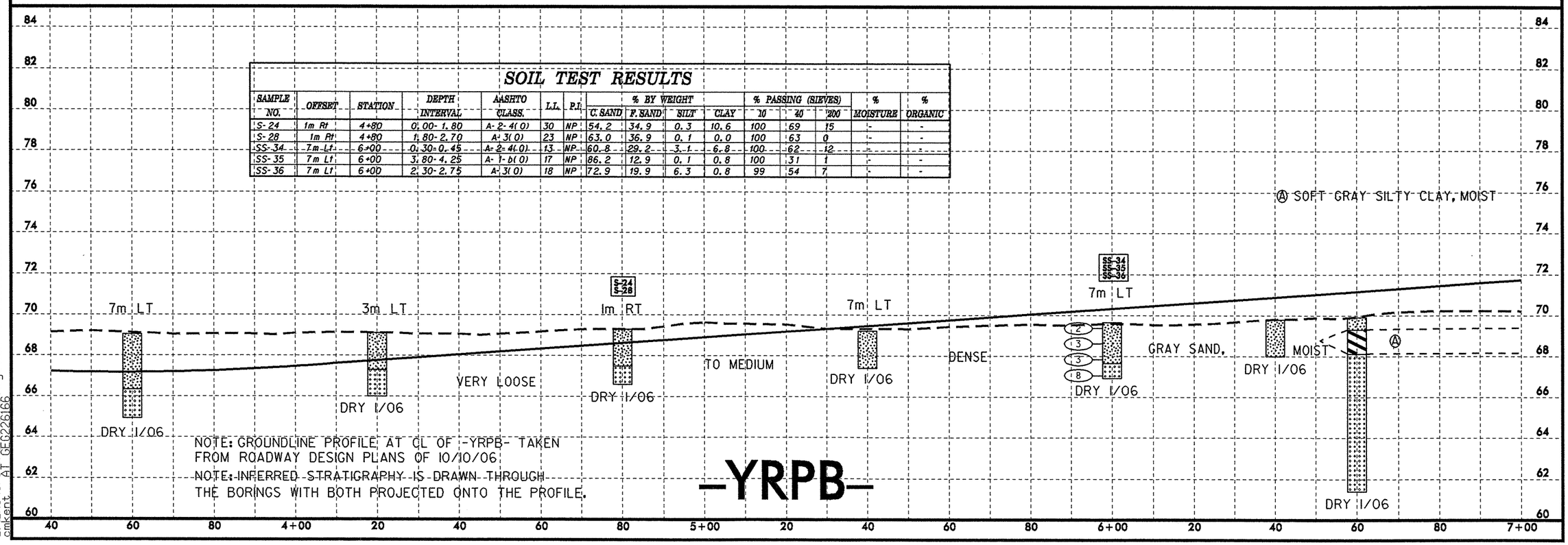
SOIL TEST RESULTS

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-26	9m Lt	1+85.7	0.00- 1.50	A-2-4(0)	14	NP	46.7	39.8	5.0	8.6	100	72	16	-	-
S-27	9m Lt	1+85.7	1.50- 2.90	A-2-4(0)	32	NP	43.0	25.5	22.9	8.6	100	74	32	-	-



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-24	1m Rt	4+80	0.00- 1.80	A-2-4(0)	30	NP	54.2	34.9	0.3	10.6	100	69	15	-	-
S-28	1m Rt	4+80	1.80- 2.70	A-3(0)	23	NP	63.0	36.9	0.1	0.0	100	63	0	-	-
SS-34	7m Lt	6+00	0.30- 0.45	A-2-4(0)	13	NP	60.8	29.2	3.1	6.8	100	62	12	-	-
SS-35	7m Lt	6+00	3.80- 4.25	A-1-b(0)	17	NP	86.2	12.9	0.1	0.8	100	31	1	-	-
SS-36	7m Lt	6+00	2.30- 2.75	A-3(0)	18	NP	72.9	19.9	6.3	0.8	99	54	7	-	-



NOTE: GROUNDLINE PROFILE AT CL OF -YRPB- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-YRPB-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	70

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

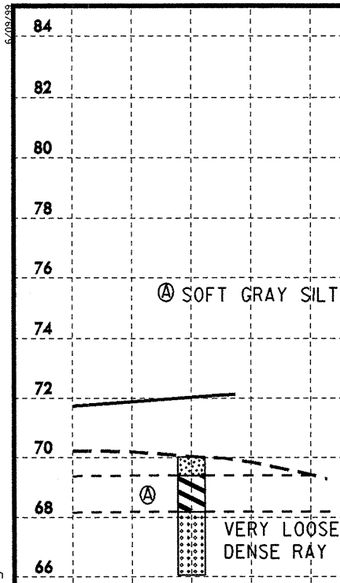
5 0 10

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.



NOTE: GROUNDLINE PROFILE AT CL OF -YRPB- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

84 82 80 78 76 74 72 70 68 66 64 62 60

7+00 20 40

-YRPB-

PROJECT REFERENCE NO.	SHEET NO.
X0002C	71
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

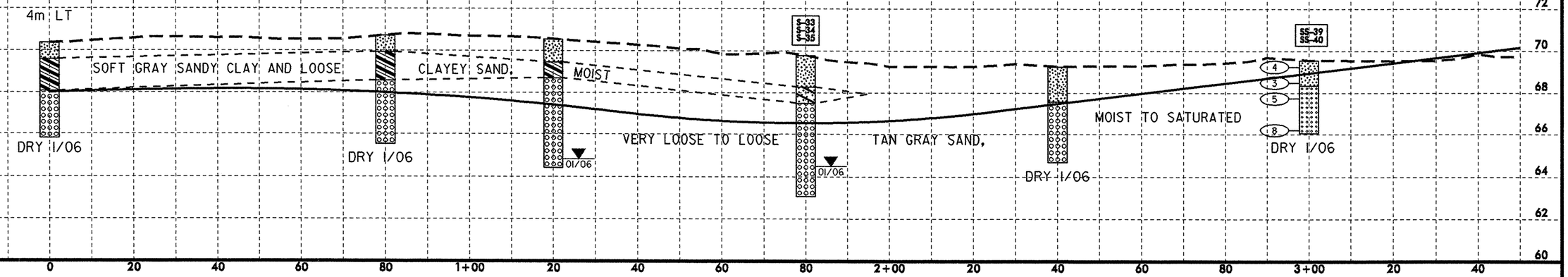
INCOMPLETE PLANS
NO PROJECT R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R /W REV.

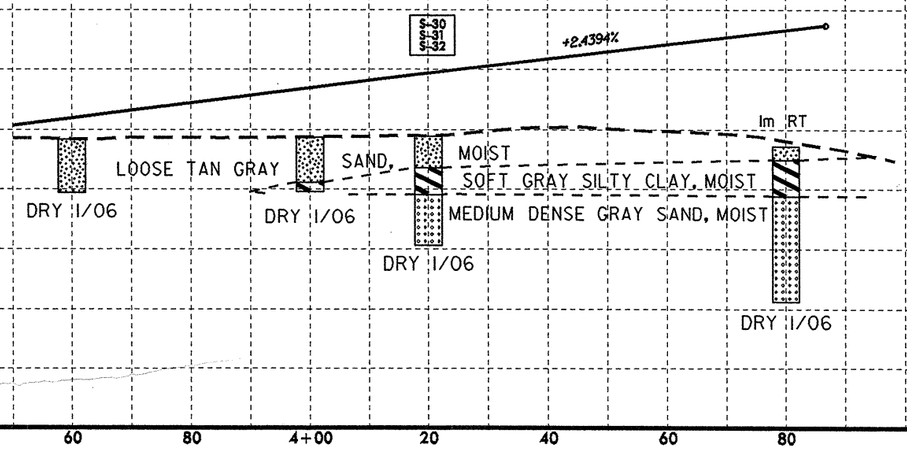
SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-33	CL	1+80	0. 30- 1. 52	A-2-4(0)	20	4	45. 1	37. 4	7. 4	10. 1	99	72	19	-	-
S-34	CL	1+80	1. 52- 2. 29	A-2-6(1)	39	14	39. 0	30. 7	10. 0	20. 2	100	77	31	-	-
S-35	CL	1+80	2. 29- 6. 71	A-1-b(0)	20	NP	74. 0	24. 3	1. 7	0. 0	99	45	2	-	-
SS-39	CL	3+00	0. 76- 1. 21	A-2-4(0)	16	NP	45. 9	45. 1	0. 9	8. 1	100	74	11	-	-
SS-40	CL	3+00	1. 52- 1. 97	A-3(0)	16	NP	58. 0	39. 8	0. 1	2. 0	100	66	3	-	-



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-30	CL	4+20	0. 00- 1. 07	A-2-4(0)	13	NP	43. 7	45. 3	7. 0	4. 0	100	75	14	-	-
S-31	CL	4+20	1. 07- 1. 98	A-7-6(2)	43	15	29. 5	35. 0	7. 2	28. 3	97	80	37	-	-
S-32	CL	4+20	1. 98- 3. 66	A-3(0)	21	NP	53. 4	37. 4	1. 1	6. 1	100	62	8	-	-



-YLPB-

NOTE: GROUNDLINE PROFILE AT CL OF -YLPB- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-29	CL	1+80	0.00-1.80	A-2-4(0)	14	NP	36.9	50.6	4.0	8.6	100	79	15	-	-
S-25	CL	1+80	0.60-1.80	A-2-4(0)	24	NP	30.0	41.6	7.6	20.8	100	81	31	-	-
SS-37	CL	3+00	0.80-1.25	A-2-4(0)	29	9	40.1	31.0	8.0	20.9	100	75	31	-	-
SS-38	CL	3+00	0.30-0.45	A-2-4(0)	15	NP	48.1	40.5	8.6	2.8	100	73	14	-	-

METRIC

5 0 10

CONST.REV.

R /W REV.

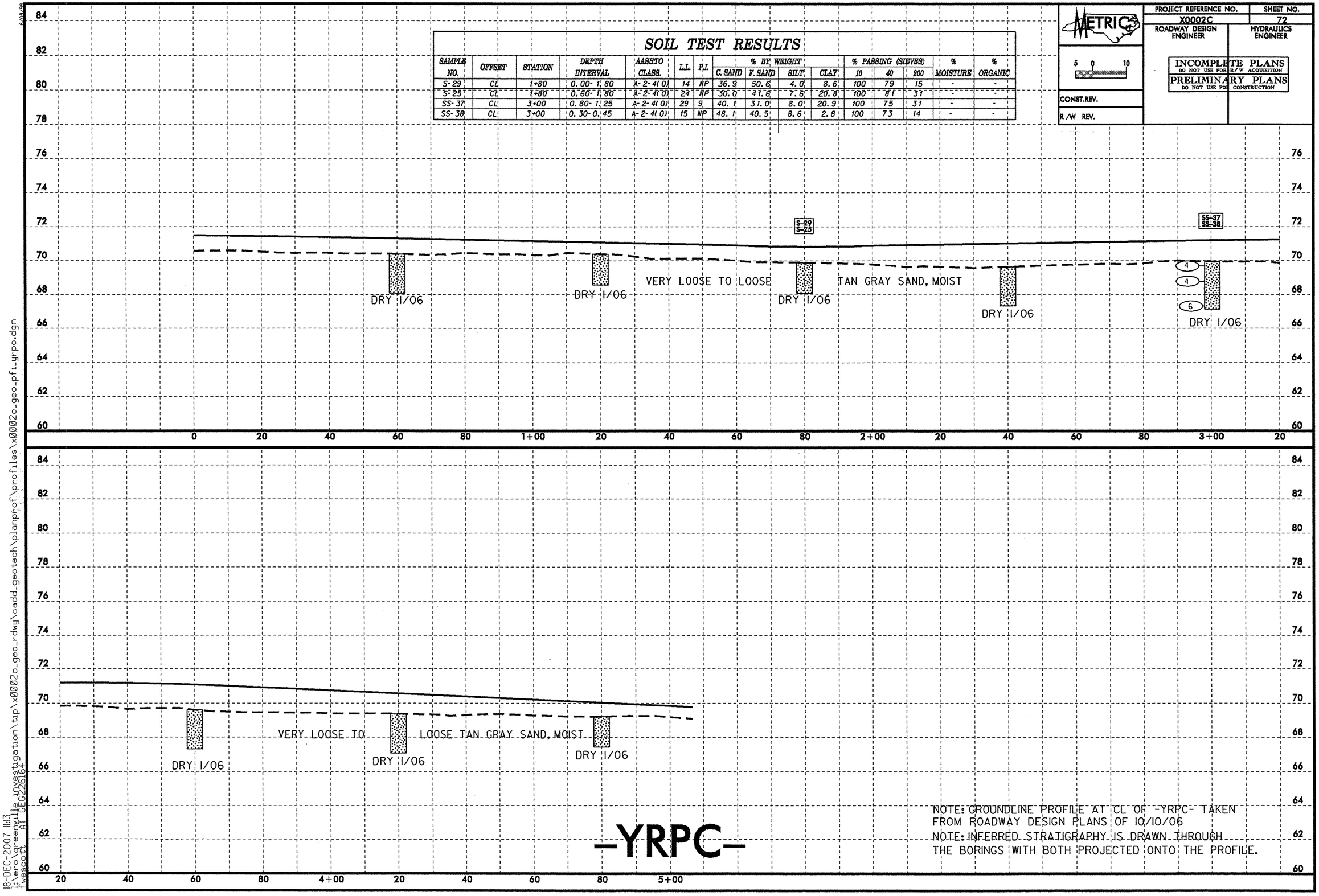
PROJECT REFERENCE NO.	SHEET NO.
X0002C	72

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



-YRPC-

NOTE: GROUNDLINE PROFILE AT CL OF -YRPC- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	73
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

5 0 10

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

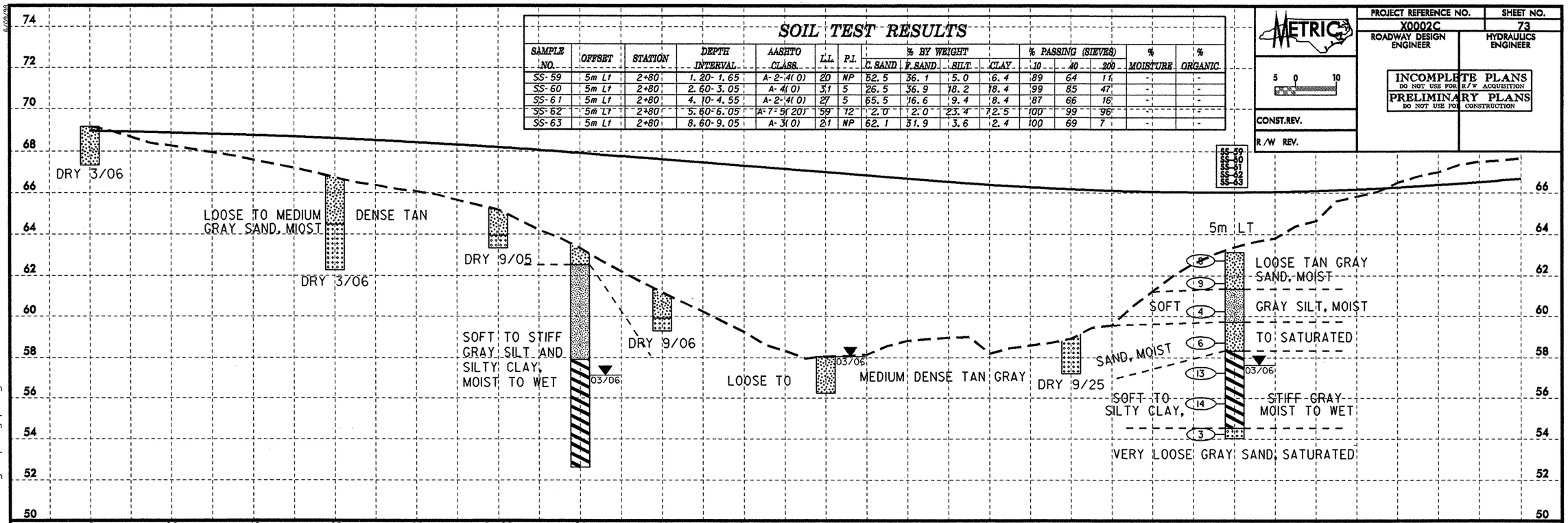
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.

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-59	5m Lt	2+80	1.20-1.65	A-2-4(0)	20	NP	62.5	36.1	5.0	6.4	89	64	11	-	-
SS-60	5m Lt	2+80	2.60-3.05	A-4(0)	31	5	26.5	36.9	18.2	18.4	99	85	47	-	-
SS-61	5m Lt	2+80	4.10-4.55	A-2-4(0)	27	5	65.5	16.6	9.4	8.4	87	66	16	-	-
SS-62	5m Lt	2+80	5.60-6.05	A-7-5(20)	59	12	2.0	2.0	23.4	72.5	100	99	96	-	-
SS-63	5m Lt	2+80	8.60-9.05	A-3(0)	21	NP	62.1	31.9	3.6	2.4	100	69	7	-	-

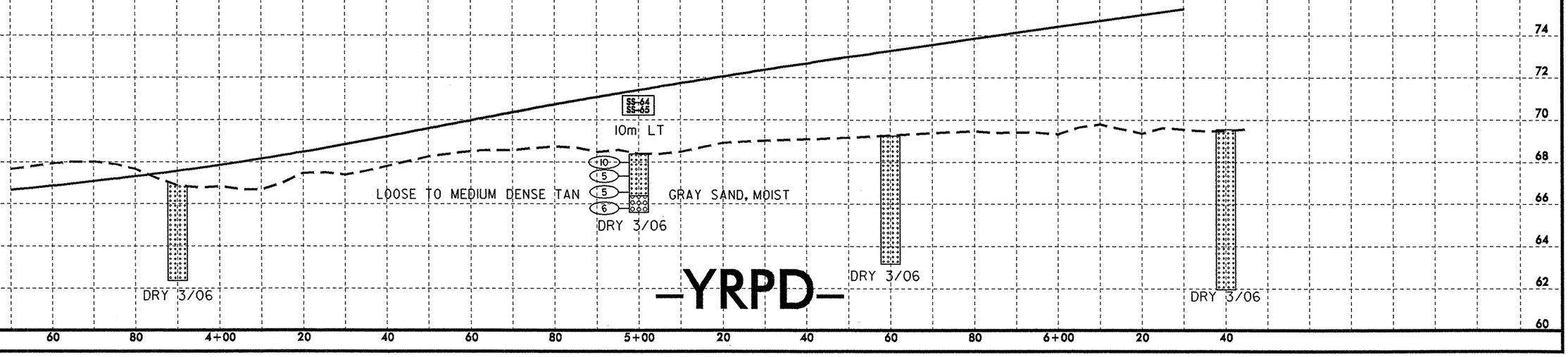


SOIL TEST RESULTS

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-64	10m Lt	5+00	0.70-1.15	A-3(0)	13	NP	65.3	27.1	5.2	2.4	100	58	9	-	-
SS-65	10m Lt	5+00	2.70-3.15	A-1-b(0)	18	NP	69.5	24.2	3.8	2.4	95	49	6	-	-

NOTE: GROUNDLINE PROFILE AT CL OF -YRPD- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.



6/09/23

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			%	%
							C. SAND	F. SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-57	3m Lt	3+00	0.30-0.45	A-1-b(0)	16	NP	72.7	15.4	7.4	4.4	100	46	13	-	-
SS-58	3m Lt	3+00	1.52-1.97	A-1-b(0)	14	NP	78.4	16.0	5.2	0.4	98	41	6	-	-

METRIC

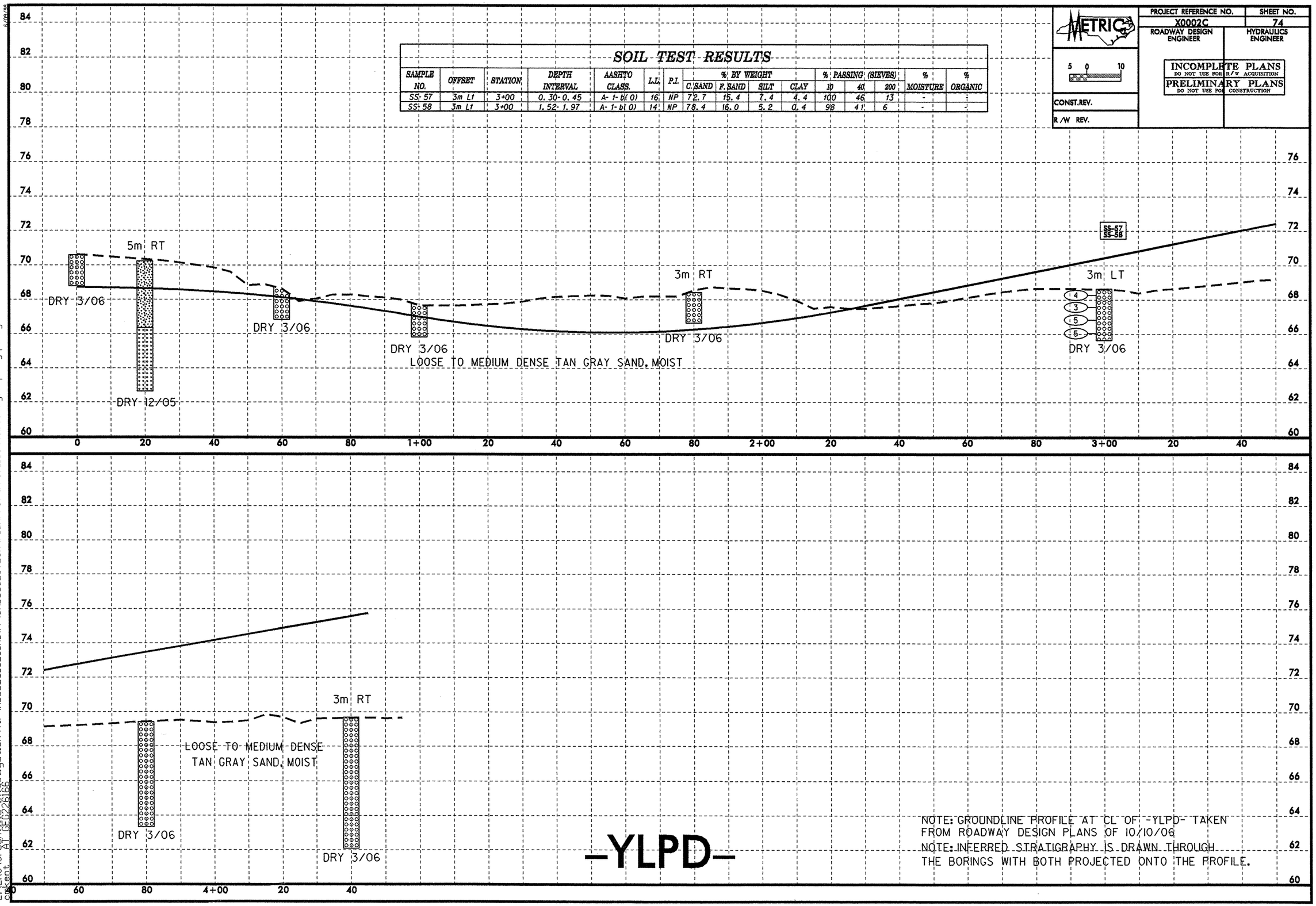
5 0 10

CONST.REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
X0002C	74
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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



NOTE: GROUNDLINE PROFILE AT CL OF -YLPD- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
X0002C	75
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

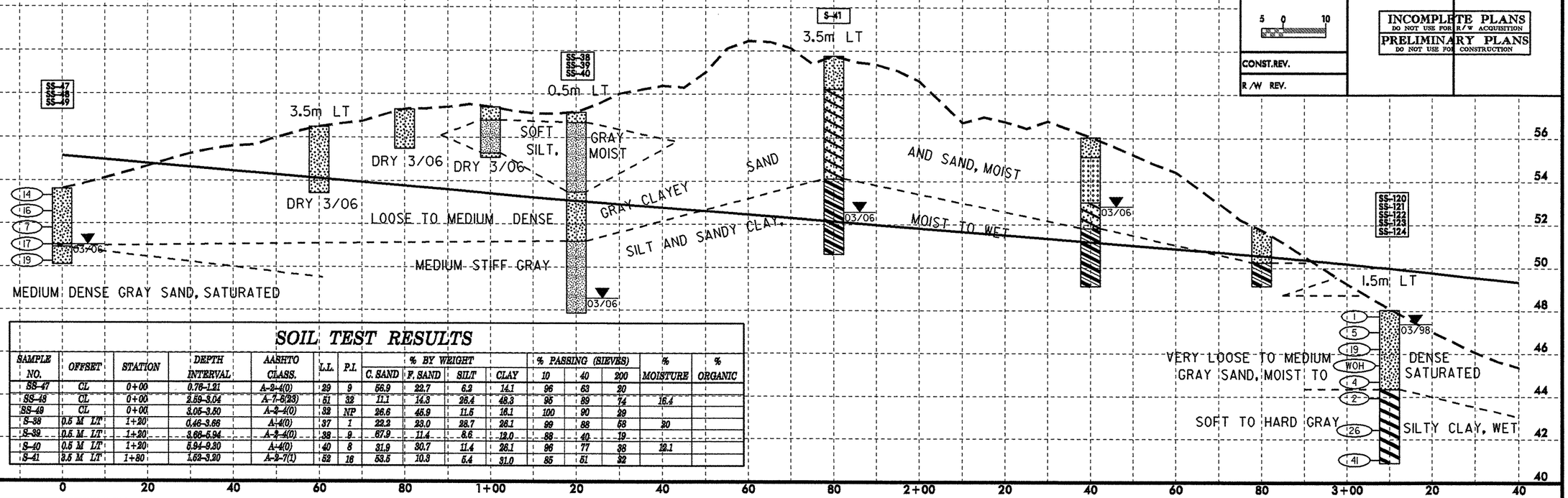
5 0 10

CONST.REV.

R /W REV.

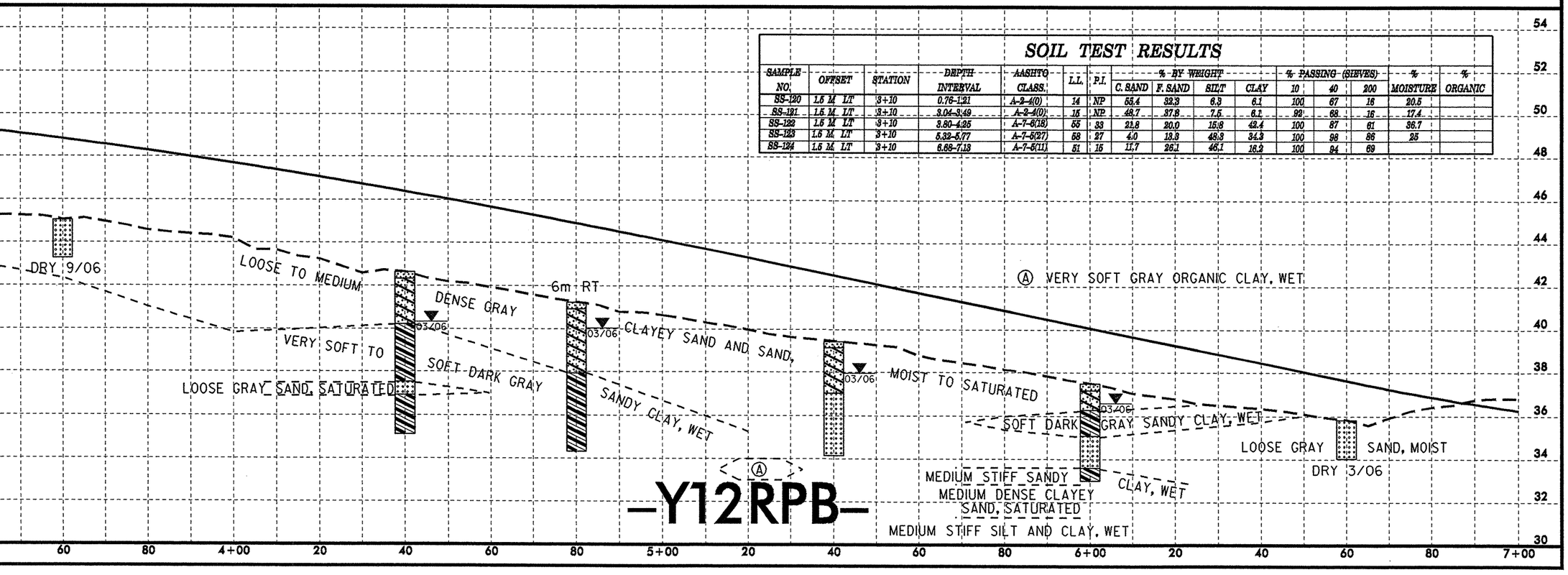
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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-47	CL	0+00	0.76-1.21	A-2-4(0)	29	9	56.9	22.7	6.2	14.1	96	63	20		
SS-48	CL	0+00	2.59-3.04	A-7-6(23)	51	32	11.1	14.3	26.4	48.3	95	89	74	16.4	
SS-49	CL	0+00	3.05-3.50	A-2-4(0)	32	NP	26.6	45.9	11.5	16.1	100	90	29		
S-38	0.5 M LT	1+20	0.46-3.66	A-1-b(0)	37	1	22.3	23.0	28.7	26.1	99	88	68	30	
S-39	0.5 M LT	1+20	3.66-5.94	A-3-a(0)	38	9	67.9	11.4	8.6	12.0	88	40	19		
S-40	0.5 M LT	1+20	5.94-9.30	A-4(0)	40	8	31.9	30.7	11.4	26.1	96	77	38	19.1	
S-41	3.5 M LT	1+80	1.52-3.20	A-2-7(1)	52	16	53.5	10.3	5.4	31.0	85	61	32		



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-120	1.5 M LT	3+10	0.76-1.21	A-2-4(0)	14	NP	55.4	32.3	6.3	6.1	100	67	16	20.5	
SS-121	1.5 M LT	3+10	3.04-3.49	A-2-4(0)	15	NP	48.7	37.8	7.5	6.2	92	68	16	17.4	
SS-122	1.5 M LT	3+10	3.80-4.25	A-7-6(18)	55	33	21.8	20.0	15.8	42.4	100	87	61	36.7	
SS-123	1.5 M LT	3+10	5.32-5.77	A-7-5(27)	58	27	4.0	13.3	48.3	34.3	100	98	86	25	
SS-124	1.5 M LT	3+10	6.66-7.13	A-7-6(11)	51	15	11.7	26.1	46.1	16.2	100	94	69		

6/09/98

PROJECT REFERENCE NO.	SHEET NO.
X0002C	76
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

METRIC

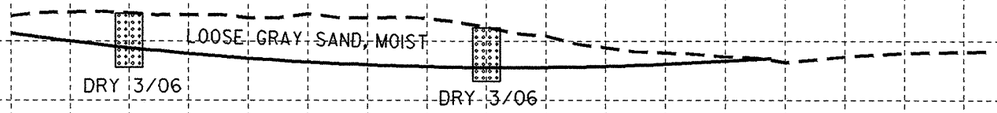
5 0 10

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

CONST.REV.

R/W REV.



44 42 40 38 36 34 32 30 28 26 24 22 20

7+00 20 40 60 80 8+00 20 40 60

-Y12RPB-

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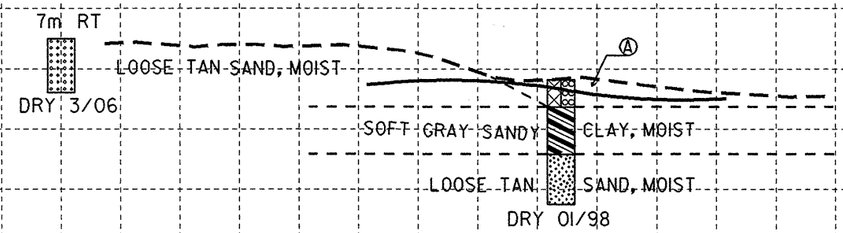
5/8/2008

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	X0002C	77
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



Ⓐ LOOSE SAND, SATURATED (ARTIFICIAL FILL)

NOTE: GROUNDLINE PROFILE AT CL OF -Y12RPB1- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

44 42 40 38 36 34 32 30 28 26 24 22 20

20 40 60 80 8+00 20 40

-Y12RPB1-

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PROJECT REFERENCE NO.	SHEET NO.
X0002C	78

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

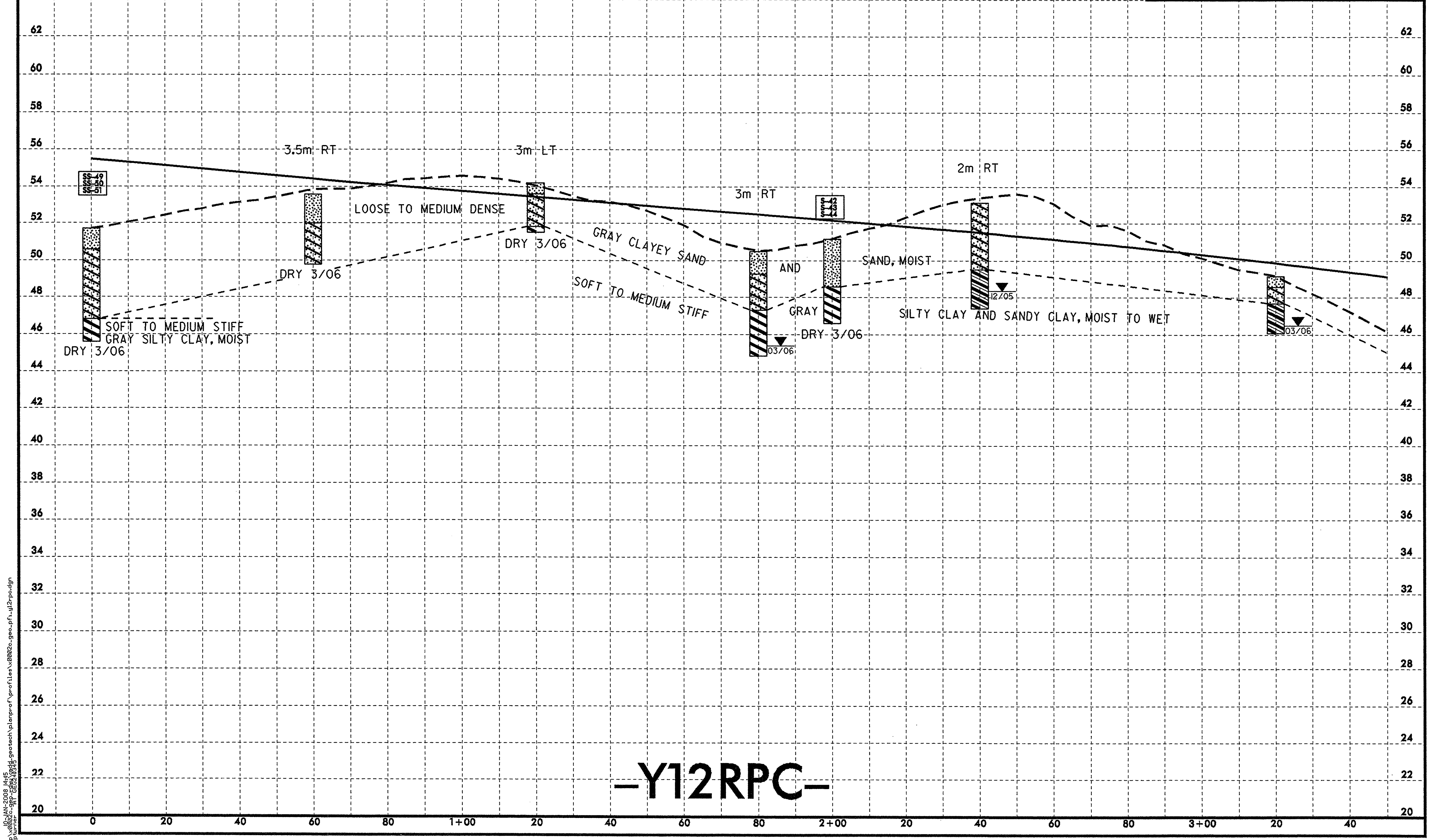
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

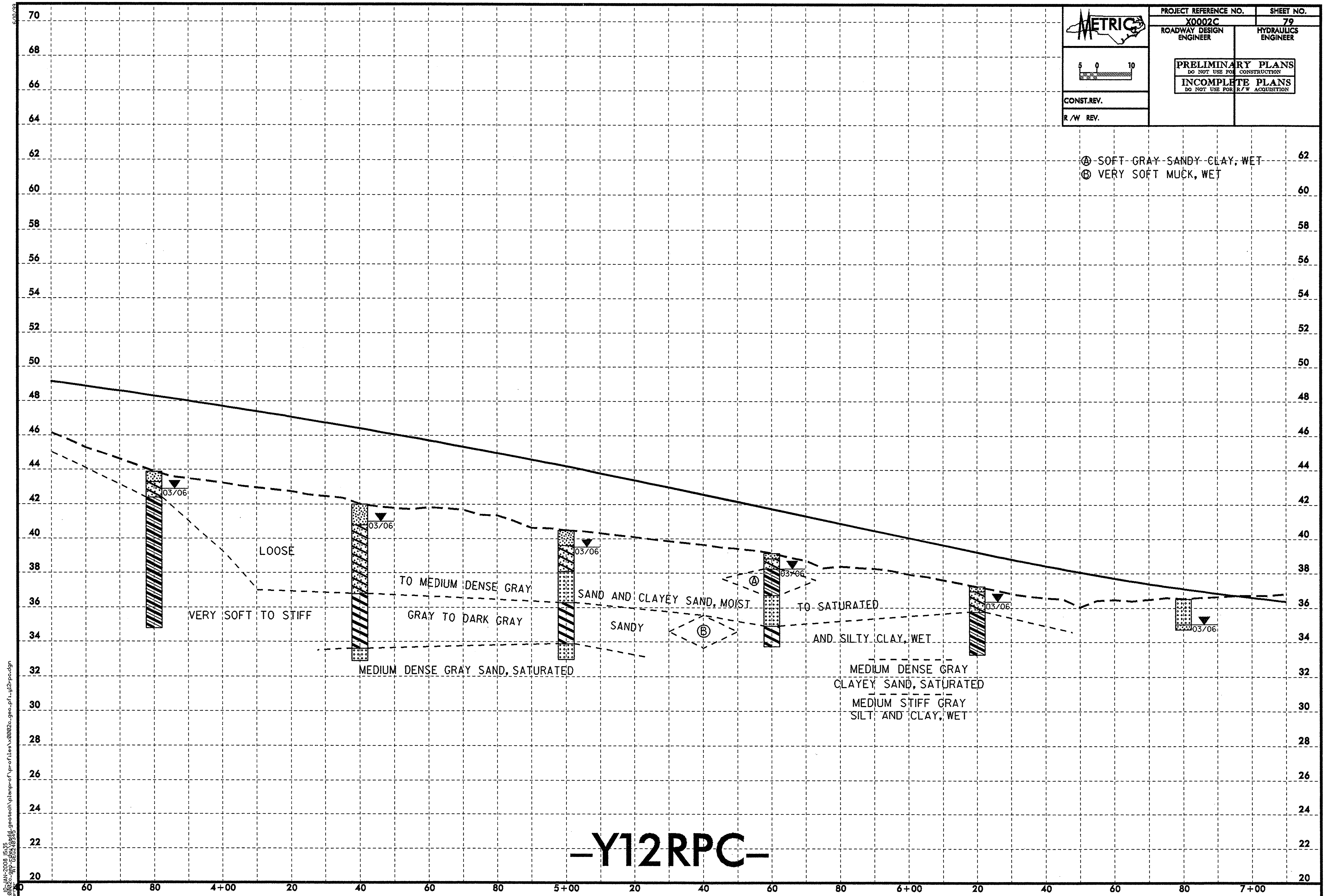
CONST.REV.

R/W REV.

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-49	CL	0+00	0.30-1.10	A-2-4(0)	24	6	58.5	20.6	8.4	12.4	89	55	21	-	-
S-50	CL	0+00	1.10-4.90	A-2-6(0)	35	11	51.3	22.4	7.8	18.4	96	67	27	-	-
~~S-51~~	~~CL~~	~~0+00~~	~~4.90-6.10~~	~~A-4(-1)~~	~~34~~	~~10~~	~~30.5~~	~~32.1~~	~~19.0~~	~~18.4~~	~~100~~	~~80~~	~~42~~	~~-~~	~~-~~
S-42	CL	2+00	0.30-1.37	A-2-4(0)	17	NP	39.6	43.7	6.6	10.1	98	78	22	-	-
S-43	CL	2+00	1.37-2.59	A-2-4(0)	36	5	45.1	24.3	10.5	20.1	96	70	31	-	-
S-44	CL	2+00	2.59-4.57	A-7-5(14)	59	14	17.5	9.7	20.5	52.3	100	88	75	-	-




PROJECT REFERENCE NO.
X0002C
SHEET NO.
79
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
METRIC
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
CONST.REV.
R/W REV.
Ⓐ SOFT GRAY SANDY CLAY, WET
Ⓑ VERY SOFT MUCK, WET
LOOSE
TO MEDIUM DENSE GRAY
SAND AND CLAYEY SAND, MOIST
TO SATURATED
VERY SOFT TO STIFF
GRAY TO DARK GRAY
SANDY
AND SILTY CLAY, WET
MEDIUM DENSE GRAY SAND, SATURATED
MEDIUM DENSE GRAY
CLAYEY SAND, SATURATED
MEDIUM STIFF GRAY
SILT AND CLAY, WET
03/06
-Y12RPC-
4+00
5+00
6+00
7+00

PROJECT REFERENCE NO.	SHEET NO.
X0002C	80

ROADWAY DESIGN ENGINEER

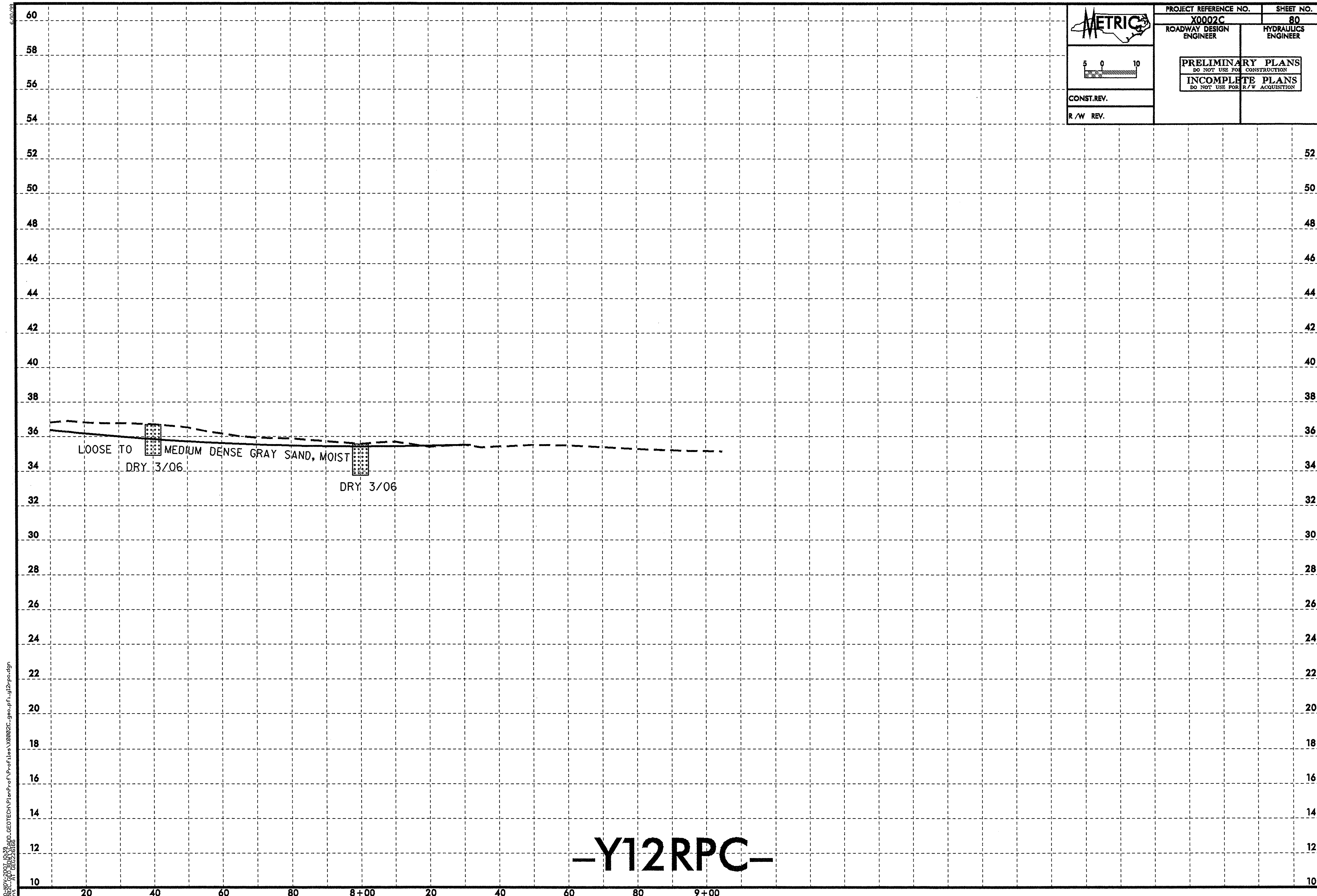
HYDRAULICS ENGINEER

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

CONST.REV.

R/W REV.



-Y12RPC-

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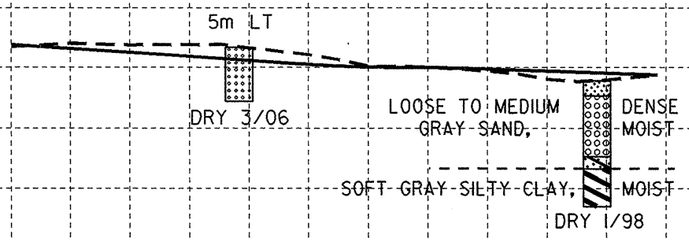
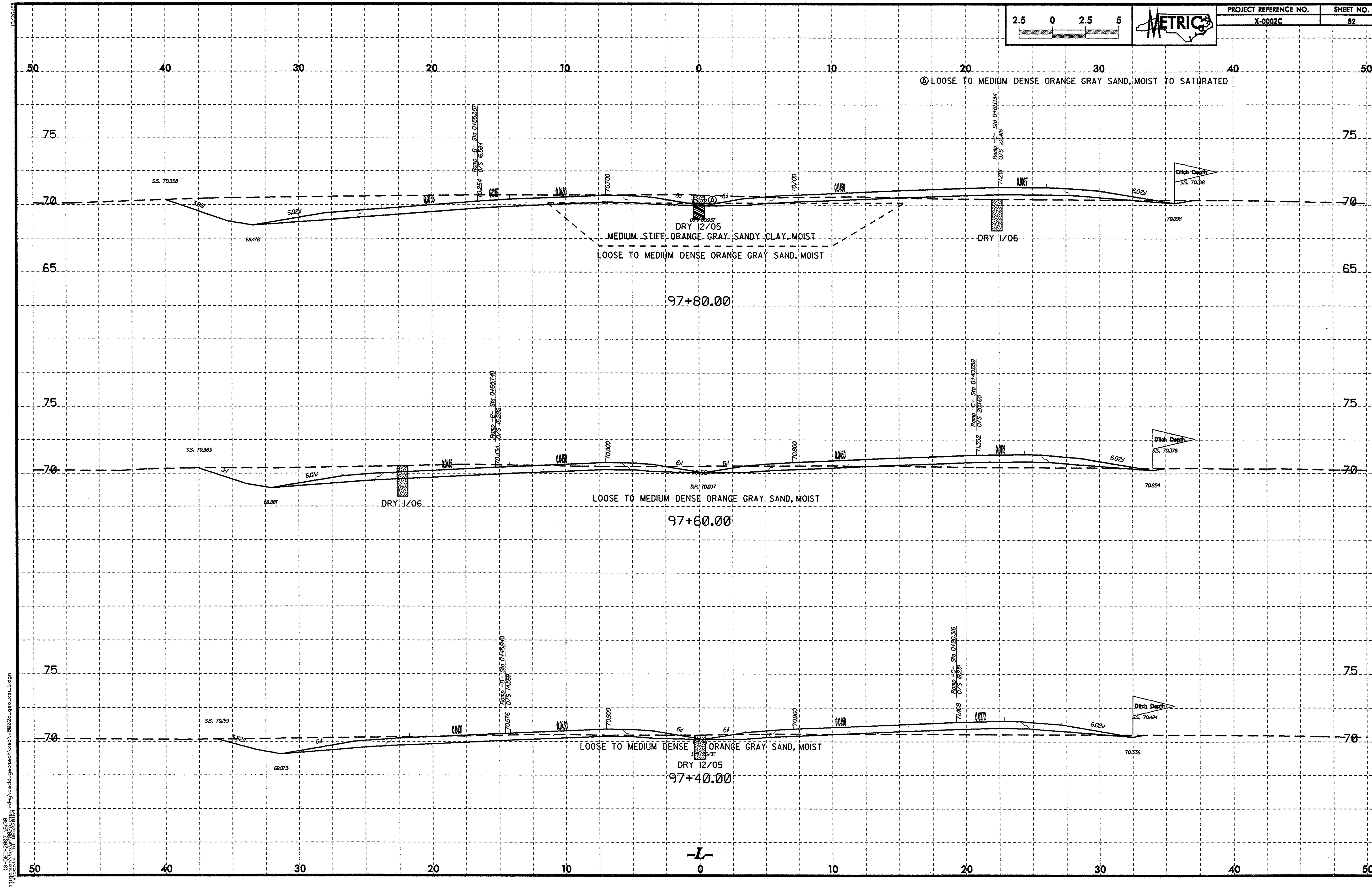
cmkent AT GEG226166

METRIC	PROJECT REFERENCE NO.	SHEET NO.
5 0 10	X0002C	81
CONST.REV.	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
R/W REV.	INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



NOTE: GROUNDLINE PROFILE AT CL OF -Y12RPC1- TAKEN FROM ROADWAY DESIGN PLANS OF 10/10/06
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

-Y12RPC1-



PROJECT REFERENCE NO.
X-0002C
SHEET NO.
82
METRIC
2.5 0 2.5 5
Ⓐ LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST TO SATURATED
MEDIUM STIFF ORANGE GRAY SANDY CLAY, MOIST
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
DRY 12/05
DRY 1/06
Ditch Depth
97+80.00
DRY 1/06
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
Ditch Depth
97+60.00
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
DRY 12/05
Ditch Depth
97+40.00
-L-
50 40 30 20 10 0 10 20 30 40 50
75
70
65

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

75

70

Ramp B Sta 14+25.339
O/S 21.511

Ramp C Sta 14+01.823
O/S 26.883

S.S. 70.147

3.04%

6.09%

67.960

DRY 1/06

6.04%

S.S. 70.155

6.04%

69.847

D.P.: 69.737

MEDIUM STIFF ORANGE GRAY SANDY CLAY, MOIST

LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST

98+20.00

Ramp B Sta 14+05.415
O/S 18.652

Ramp C Sta 13+81.451
O/S 24.268

S.S. 70.291

3.02%

6.05%

68.208

SS-23

6.03%

S.S. 70.262

6.03%

69.956

MEDIUM STIFF ORANGE GRAY SANDY CLAY, MOIST

LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST

DRY 10/03

98+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
SS-23	-GL-	98+00	0.7'-4.1'-19'	A-6(11)	33	13	23.5	41.7	6.7	28.1	100	86	39		

-L-

50 40 30 20 10 0 10 20 30 40 50

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	84

2.5 0 2.5 5 METRIC

50 40 30 20 10 0 10 20 30 40 50

75

70

LOOSE TO DENSE ORANGE & GRAY SAND, MOIST

SOFT ORANGE GRAY SANDY AND SILTY CLAY, MOIST

DRY 12/05 6d

VERY LOOSE TO LOOSE TAN GRAY SAND, MOIST TO SATURATED

101+60.00

4.947d 6.257 67.629 7.412d 6d 0.045 0.045 6d 6d 3d 68.250 D.P. 68.037

1000 -B- Sta 140.940 O/S 33.029

S.S. 70.431

15 67.246

24

A SOFT ORANGE GRAY SANDY AND SILTY CLAY, MOIST

70

LOOSE TO DENSE ORANGE GRAY SAND, MOIST

65

101+40.00

4d 4d 4d 6d 6d 6d 6d 3d 68.547 D.P. 68.347 0.045 0.045 68.800 68.800 70.167 70.142 66.654 67.540

S.S. 70.375

70

LOOSE TO DENSE ORANGE GRAY SAND, MOIST

101+20.00

4d 3d 6d 6d 6d 6d 3d 68.441 D.P. 68.237 0.045 0.045 68.800 68.800 67.540

S.S. 70.363 S.S. 70.428 S.S. 70.173

70

-L-

50 40 30 20 10 0 10 20 30 40 50

10/26/98

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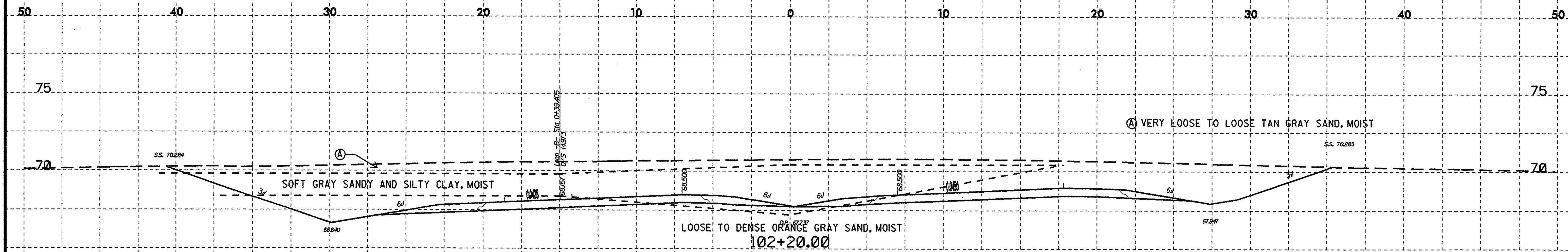
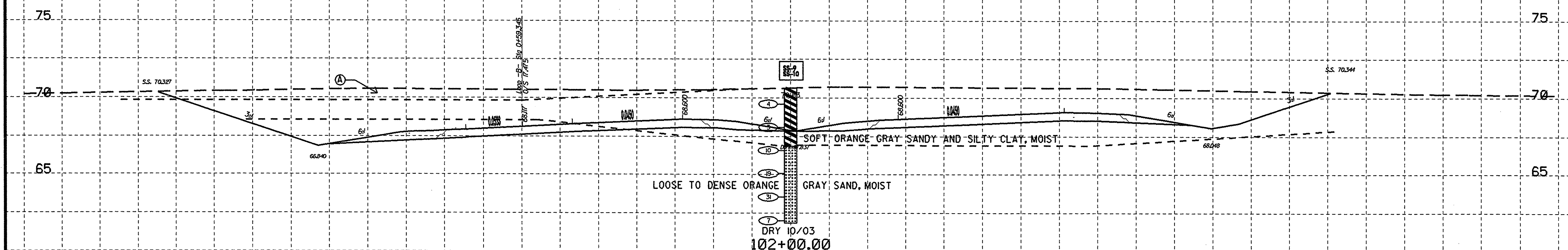
cpierson

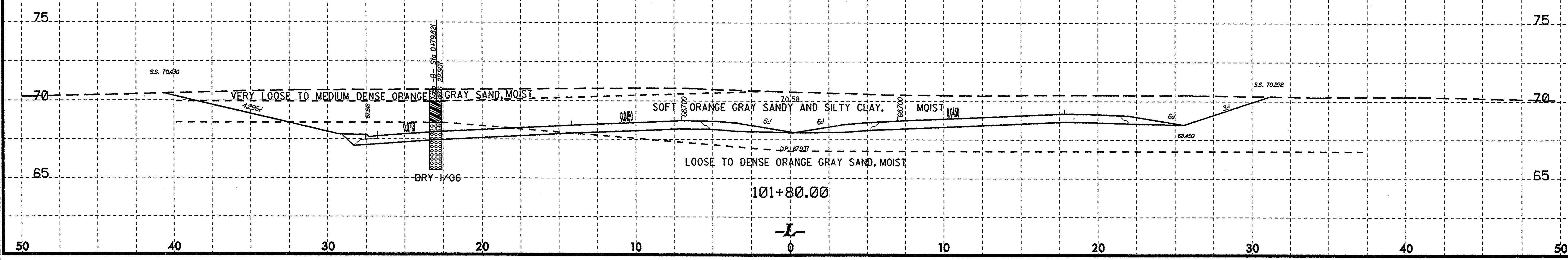
METRIC



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-9	CL	102+00	0.72-1.17	A-7-6(6)	42	27	30.3	32.2	8.4	29.1	100	84	41	-	-
SS-10	CL	102+00	3.76-4.21	A-3(0)	23	NP	53.6	43.4	1.0	2.0	100	70	16	-	-





2.5 0 2.5 5

METRIC

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	86

50 40 30 20 10 0 10 20 30 40 50

75

70

65

Ⓐ VERY LOOSE TO LOOSE TAN GRAY SAND, MOIST

Loop -B- Sta 0+19.595
0'S 14.225

Loop -D- Sta 0+20.654
0'S 14.255

S.S. 70.238

Ⓐ

3:1

SOFT GRAY SANDY AND SILTY CLAY, MOIST

6:1

0.04%

66.760

68.308

6:1

P.I. 67.32

6:1

68.300

0.04%

68.615

0.04%

S.S. 69.738

6:1

3:1

67.657

VERY LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST

P.I. 67.537

DRY 1/06

DRY 12/05

102+60.00

Loop -B- Sta 0+19.595
0'S 14.225

Loop -D- Sta 0+00.444
0'S 14.200

S.S. 70.168

Ⓐ

3:1

SOFT GRAY SANDY AND SILTY CLAY, MOIST

6:1

0.04%

66.700

68.093

6:1

P.I. 67.48

6:1

68.400

0.04%

68.400

0.04%

S.S. 70.216

6:1

3:1

67.646

VERY LOOSE TO MEDIUM DENSE ORANGE GRAY SAND AND CLAYEY SAND, MOIST

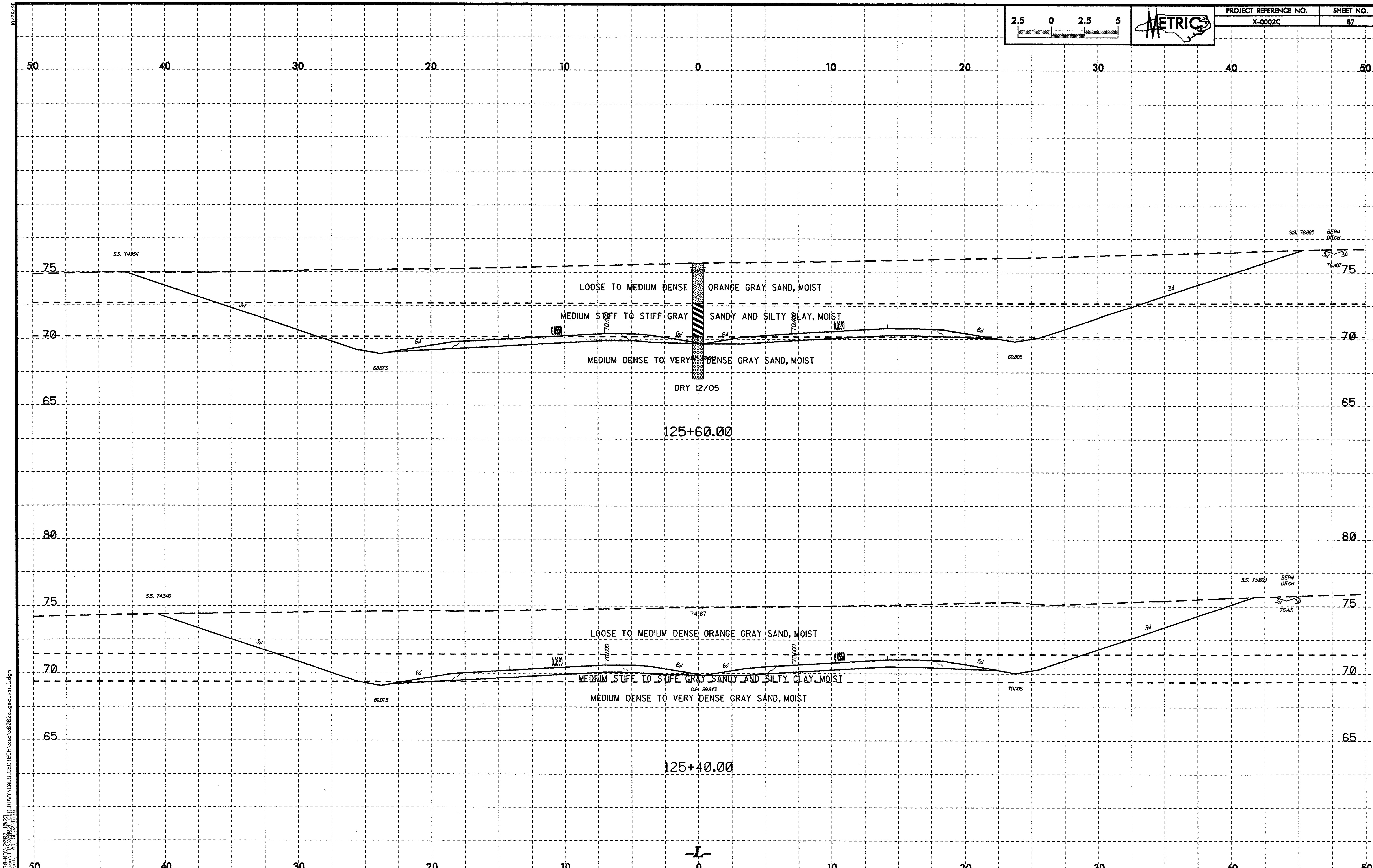
P.I. 67.637

DRY 3/06

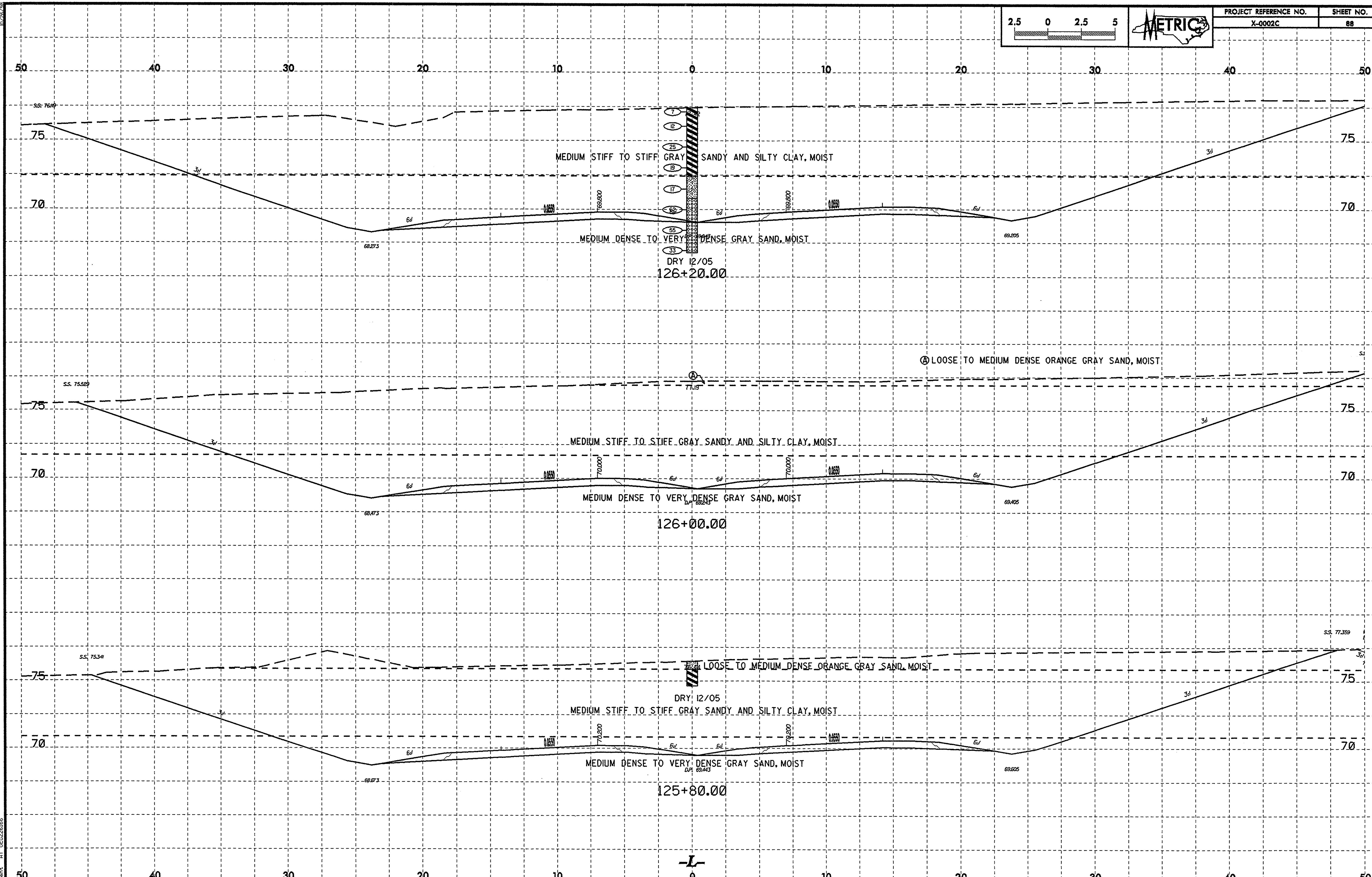
102+40.00

-L-

50 40 30 20 10 0 10 20 30 40 50


PROJECT REFERENCE NO.
X-0002C
SHEET NO.
87
METRIC
2.5 0 2.5 5
S.S. 74.954
S.S. 76.665
BERM DITCH
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST
MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST
DRY 12/05
125+60.00
S.S. 74.346
S.S. 75.869
LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST
MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST
MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST
125+40.00
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	88



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cmkent AT GEO226166

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	89

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

S. 76578

LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST

75

MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST

70

MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST

3:1 6:1 6:1 6:1 6:1 3:1

68.400 68.400

DA 68.643

67.873 68.895

126+60.00

S. 76.288

LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST

77.87

75

MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST

70

MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST

3:1 6:1 6:1 6:1 6:1 3:1

68.600 68.600

DA 68.843

68.073 69.005

126+40.00

-L-

50 40 30 20 10 0 10 20 30 40 50

10/26/08

30-NOV-2007 08:24
User:cmcdonald
Instant Optimum
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PROJECT REFERENCE NO.	SHEET NO.
X-0002C	90

2.5 0 2.5 5

50 40 30 20 10 0 10 20 30 40 50

75
70

SS. 74539

2d

6d

0.65%

68.800

6d

6d

68.800

0.65%

6d

3d

SS. 73352

D.P. 68.043

67.213

68.205

LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST

MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST

MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST

127+20.00

SS. 75154

3d

6d

0.65%

69.000

6d

6d

69.000

0.65%

6d

3d

SS. 74366

D.P. 68.243

67.473

68.405

LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST

MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST

MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST

127+00.00

85
80

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-531	CL	126+80	0.30-0.45	A-2-4(0)	15	NP	39.7	44.9	10.4	5.1	100	80	27	-	-
SS-532	CL	126+80	1.06-1.51	A-7-6(8)	44	22	23.4	32.8	7.0	36.7	100	87	52	-	-
SS-533	CL	126+80	2.58-3.03	A-6(10)	39	22	15.3	39.6	10.5	34.7	100	92	58	-	-
SS-534	CL	126+80	4.10-4.55	A-2-4(0)	17	NP	37.4	44.5	9.9	8.2	100	82	27	-	-
SS-535	CL	126+80	7.14-7.59	A-3(0)	21	NP	69.4	23.2	0.3	7.0	100	63	9	-	-
SS-536	CL	126+80	8.66-9.11	A-1-b(0)	19	NP	85.3	9.6	1.0	4.0	100	31	6	-	-

SS. 75701

SS. 75544

LOOSE TO MEDIUM DENSE ORANGE GRAY SAND, MOIST

MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST

MEDIUM DENSE TO VERY DENSE GRAY SAND, MOIST

17
15
19
46
36
41
29
25

3d

6d

0.65%

69.200

6d

6d

69.200

0.65%

6d

3d

68.443

67.673

68.505

DRY 12/05

126+80.00

-L-

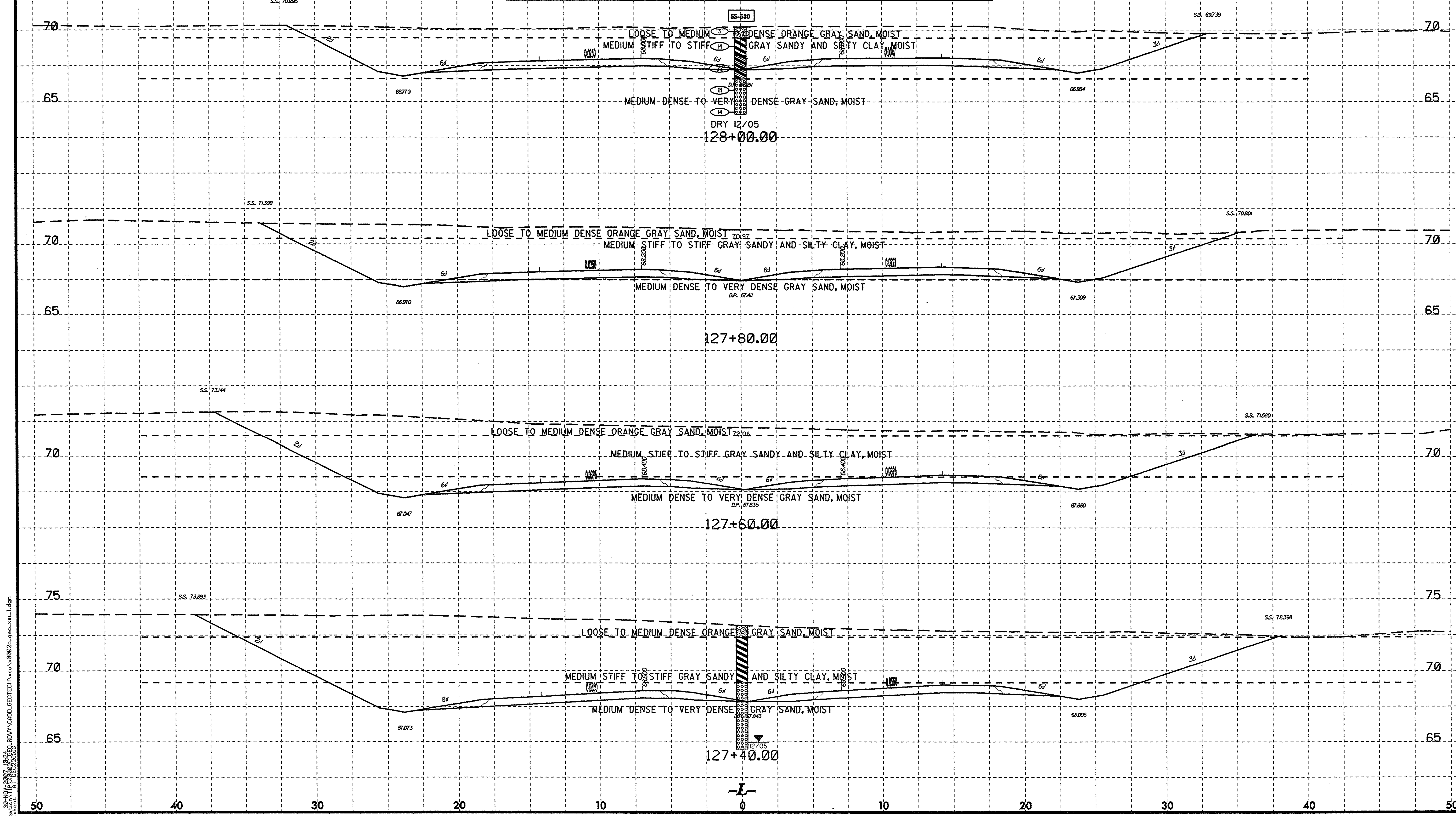
65

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	91

METRIC

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-530	CL	128+00	1.06-1.51	A-7-6(10)	52	34	31.4	30.4	5.6	32.6	98	79	45	-	-



PROJECT REFERENCE NO.	SHEET NO.
X-0002C	92

2.5 0 2.5 5

50 40 30 20 10 0 10 20 30 40 50

65

S.S. 66.845

6d 6d

67.200

0.025

6d 6d

67.200

0.025

6d

MEDIUM STIFF TAN ORANGE SILT AND SANDY CLAY, MOIST

65.970

66.87

MEDIUM DENSE GRAY SAND, MOIST TO SATURATED

65.955

65

128+80.00

65

S.S. 67.849

3d

6d

67.400

0.025

6d 6d

67.400

0.025

6d

S.S. 66.888

6d

MEDIUM STIFF TAN ORANGE SILT AND SANDY CLAY, MOIST

66.870

66.87

MEDIUM DENSE GRAY SAND, MOIST TO SATURATED

66.870

65

DRY 12/05

128+60.00

65

70

S.S. 68.574

3d

6d

67.600

0.025

6d 6d

67.600

0.025

6d

S.S. 67.792

3d

MEDIUM STIFF TAN ORANGE SILT AND SANDY CLAY, MOIST

66.370

68.87

MEDIUM DENSE GRAY SAND, MOIST TO SATURATED

66.370

65

128+40.00

70

S.S. 68.265

3d

6d

67.600

0.025

6d 6d

67.600

0.025

6d

3d

S.S. 68.891

Ⓐ MEDIUM DENSE GRAY SAND, MOIST

Ⓐ

MEDIUM STIFF TAN ORANGE SILT AND SANDY CLAY, MOIST

66.570

68.87

MEDIUM DENSE GRAY SAND, MOIST TO SATURATED

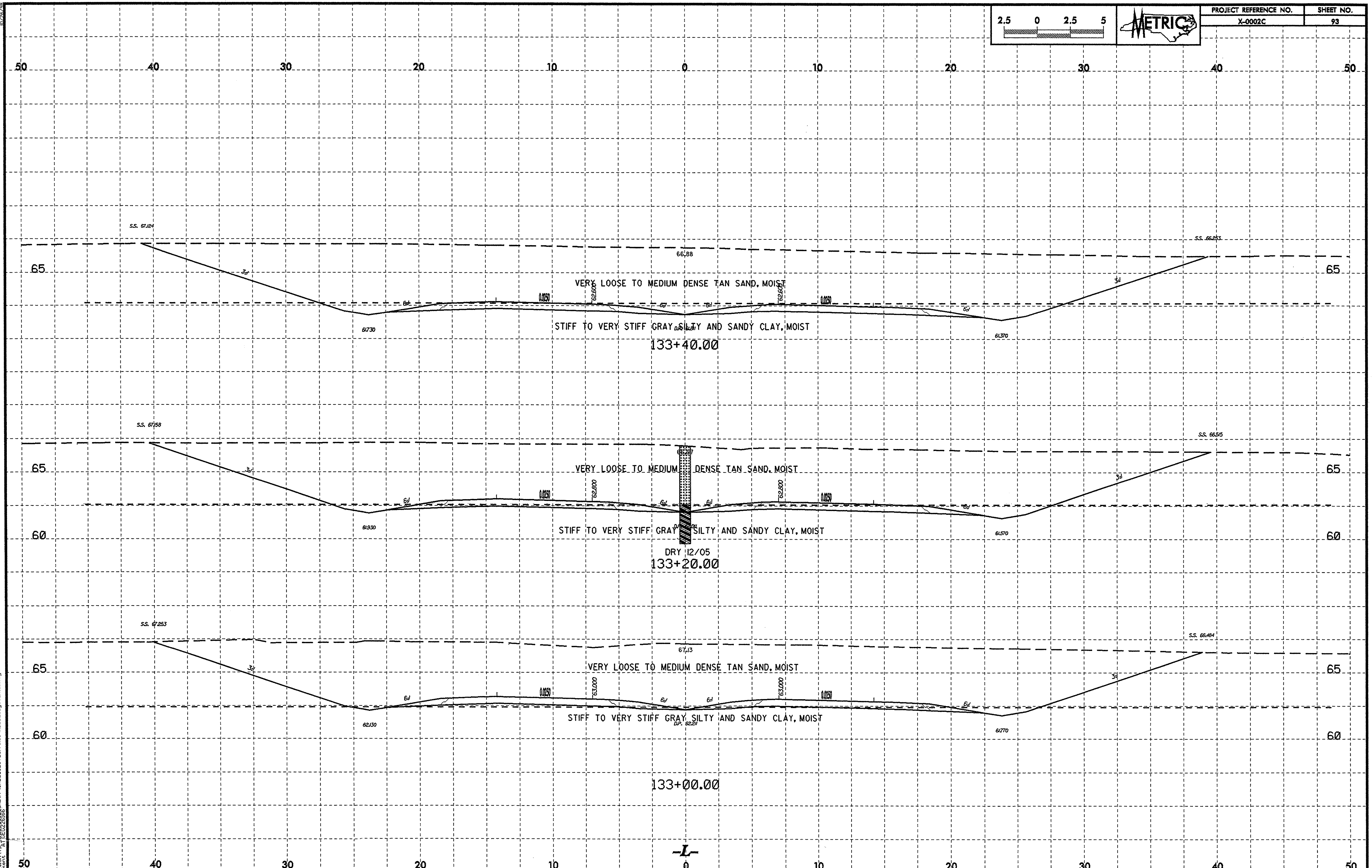
66.658

70

128+20.00

-L-

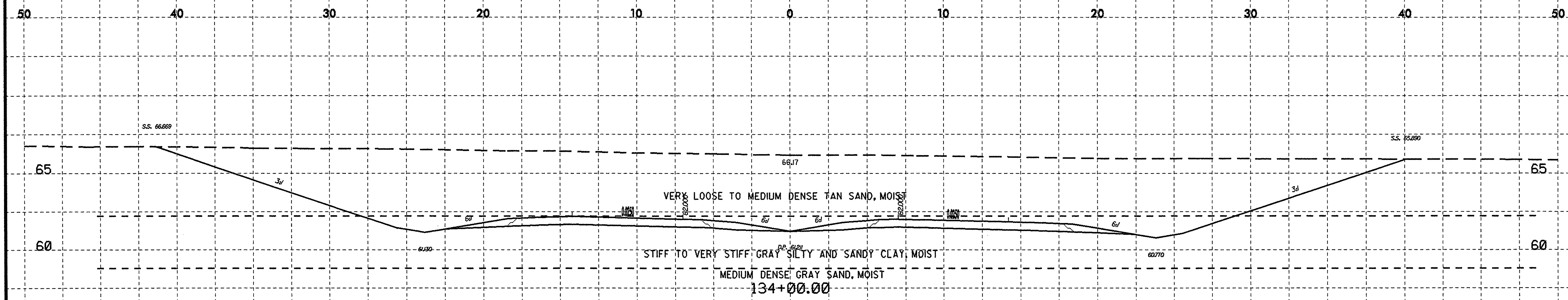
50 40 30 20 10 0 10 20 30 40 50


PROJECT REFERENCE NO.
X-0002C
SHEET NO.
93
METRIC
2.5 0 2.5 5
VERY LOOSE TO MEDIUM DENSE TAN SAND, MOIST
STIFF TO VERY STIFF GRAY SILTY AND SANDY CLAY, MOIST
133+40.00
VERY LOOSE TO MEDIUM DENSE TAN SAND, MOIST
STIFF TO VERY STIFF GRAY SILTY AND SANDY CLAY, MOIST
DRY 12/05
133+20.00
VERY LOOSE TO MEDIUM DENSE TAN SAND, MOIST
STIFF TO VERY STIFF GRAY SILTY AND SANDY CLAY, MOIST
133+00.00
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	94

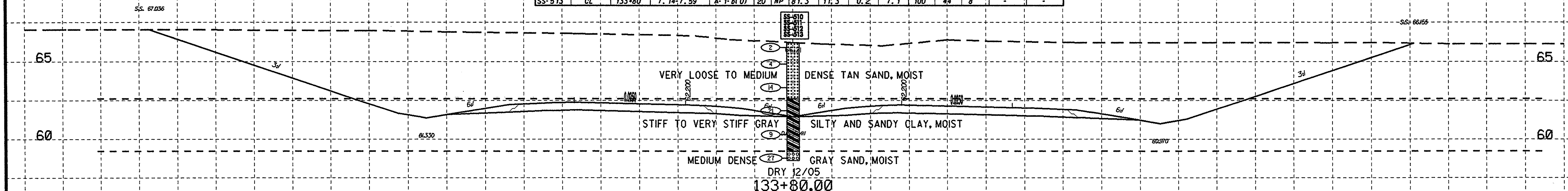
METRIC

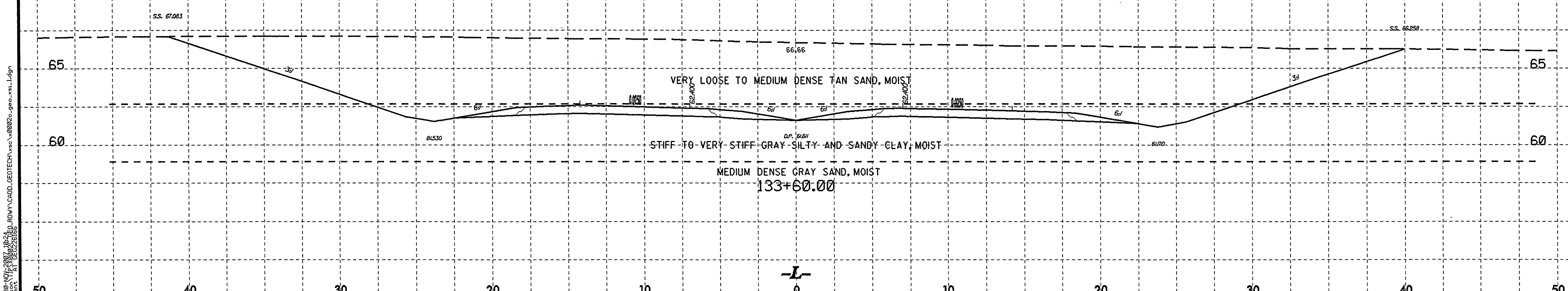
2.5 0 2.5 5



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-510	CL	133+80	0.30-0.45	A-3(0)	17	NP	60.6	31.7	3.7	4.1	100	72	10	-	-
SS-511	CL	133+80	2.58-3.03	A-3(0)	24	NP	55.8	41.2	1.0	2.0	98	85	4	-	-
SS-512	CL	133+80	4.10-4.55	A-6(1)	32	15	35.4	26.1	6.9	31.6	90	84	36	-	-
SS-513	CL	133+80	7.14-7.59	A-1-b(0)	20	NP	81.3	11.3	0.2	7.1	100	44	8	-	-





PROJECT REFERENCE NO.	SHEET NO.
X-0002C	95

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

65
60

S.S. 64.839
64.63
S.S. 63.445
3:1
6:1
0.05
6.05
VERY LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
VERY STIFF GRAY SILTY CLAY, MOIST
B.P. 60.264
60.83
59.823
MEDIUM DENSE GRAY SAND, MOIST TO SATURATED
134+80.00

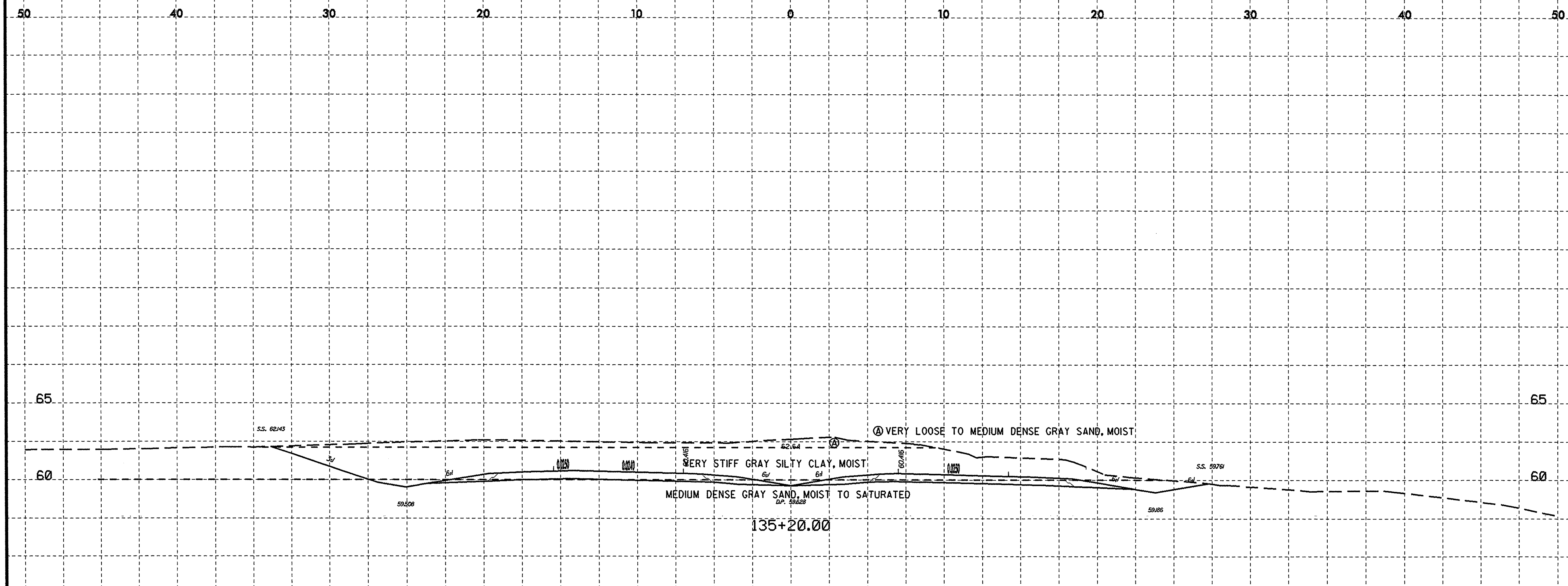
S.S. 65.49
65.16
S.S. 64.449
60.459
B.P. 60.054
60.099
VERY LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
VERY STIFF GRAY SILTY CLAY, MOIST
134+60.00

S.S. 65.465
64.939
S.S. 65.76
60.720
60.360
VERY LOOSE TO MEDIUM DENSE TAN SAND, MOIST
STIFF TO VERY STIFF GRAY SILTY AND SANDY CLAY, MOIST
DRY 12/05
134+40.00

S.S. 65.65
65.74
S.S. 65.655
60.930
B.P. 60.04
60.570
VERY LOOSE TO MEDIUM DENSE TAN SAND, MOIST
STIFF TO VERY STIFF GRAY SILTY AND SANDY CLAY, MOIST
134+20.00

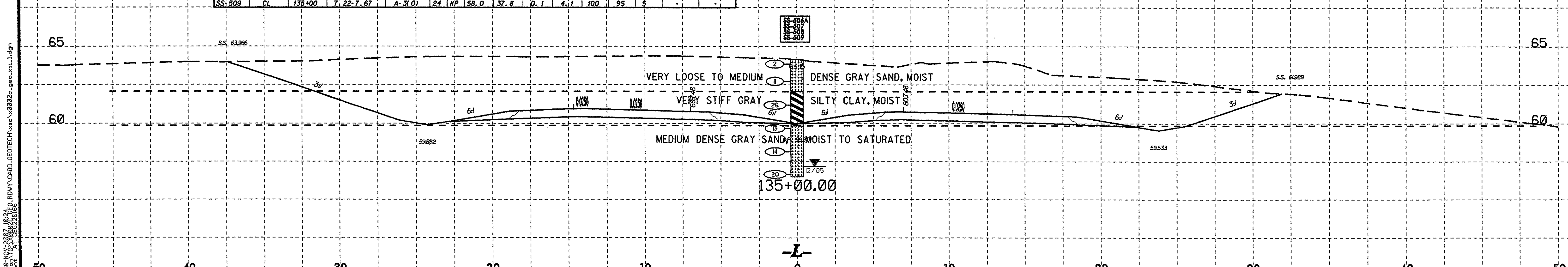
-L-

50 40 30 20 10 0 10 20 30 40 50



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-506A	CL	135+00	0.30-0.45	A-3(0)	19	NP	54.4	39.3	2.1	4.1	100	70	10	-	-
SS-507	CL	135+00	2.66-3.11	A-7-6(26)	65	42	24.5	12.2	8.3	55.0	100	89	65	-	-
SS-508	CL	135+00	4.18-4.63	A-3(0)	21	NP	69.9	22.0	0.1	8.2	100	86	9	-	-
SS-509	CL	135+00	7.22-7.67	A-3(0)	24	NP	58.0	37.8	0.1	4.1	100	95	5	-	-



PROJECT REFERENCE NO.	SHEET NO.
X-0002C	97

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

65 60 55

3d 6d 6d 6d 3d

-Y2- RAMP B
Sta 0+40.00
O/S 14.00

-Y2- RAMP C
Sta 1+00.77
O/S 18.29

55.81

DRY 3706

LOOSE TO MEDIUM DENSE GRAY SAND, MOIST

DP. 53.77

MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST

139+00.00

SS. 58.53

-Y2- RAMP B
Sta 0+40.02
O/S 14.43

-Y2- RAMP C
Sta 0+80.62
O/S 14.43

55.41

DRY 3706

LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST

DP. 53.56

MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST

138+80.00

SS. 57.01

-Y2- RAMP B
Sta 0+40.00
O/S 14.30

-Y2- RAMP C
Sta 0+40.46
O/S 16.57

DRY 1205

DRY 3706

LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST

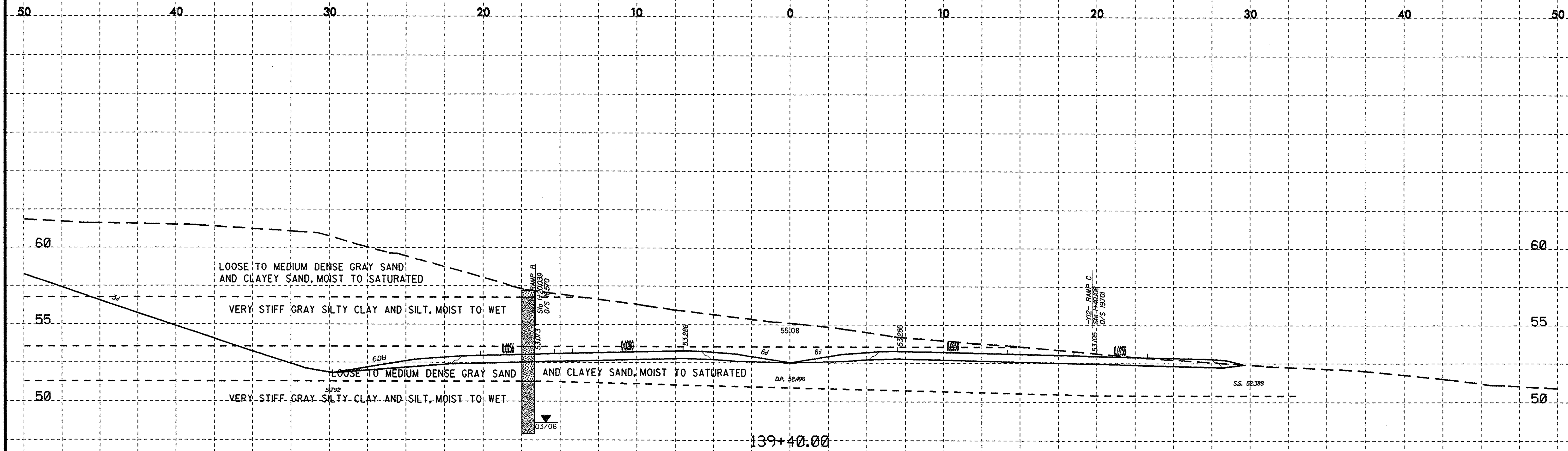
DP. 53.56

MEDIUM STIFF TO STIFF GRAY SANDY AND SILTY CLAY, MOIST

138+60.00

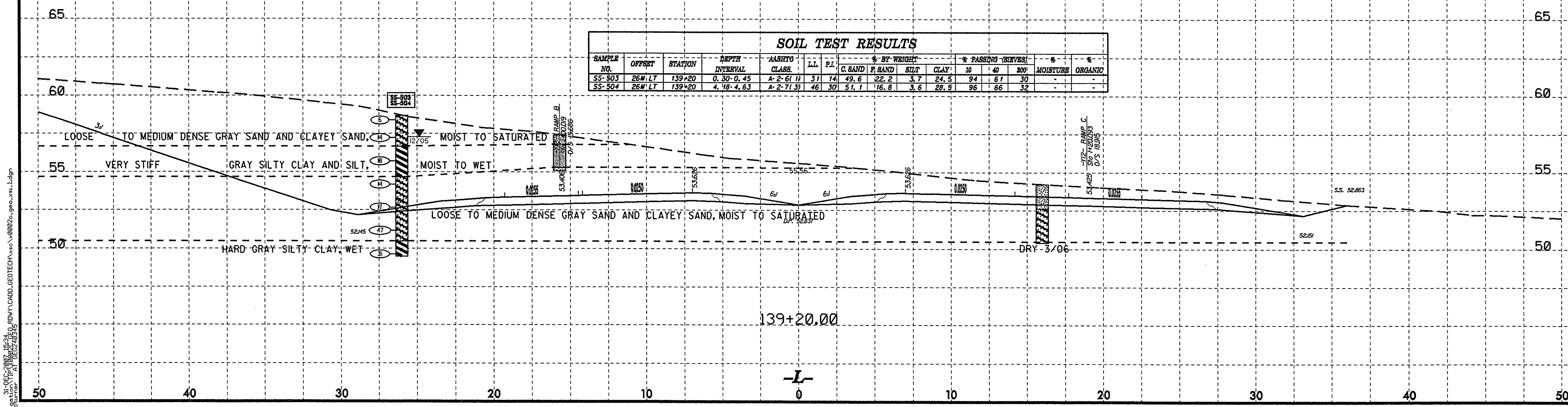
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	98



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
SS-503	26M LT	139+20	0.30-0.45	A-2-6(1)	31	14	49.6	22.2	3.7	24.5	94	61	30	-	-
SS-504	26M LT	139+20	4.18-4.63	A-2-7(3)	46	30	51.1	16.8	3.6	28.5	96	66	32	-	-



PROJECT REFERENCE NO.	SHEET NO.
X-0002C	99

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

60

55

50

LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST

SOFT GRAY SILT, MOIST

LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST

MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET

3H

6.0%

0.057

52.759

Y-1 - RAMP B
Sta 140+06.98
0/S 17.590

0.028

52.950

54.62

6H

6H

52.950

0.028

52.785

Y-2 - RAMP C
Sta 140+23
0/S 20.486

0.025

3H

51.442

DP. 52.161

S.S. 51.079

139+60.00

-L-

50 40 30 20 10 0 10 20 30 40 50

60

55

50

2.5 0 2.5 5

METRIC

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	100

50 40 30 20 10 0 10 20 30 40 50

90 85 80 75 70 65 60 55 50 45 40

LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST

MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET

3:1

6:1

5:1

6:1

3:1

1½" RAMP B
SN 760082
OS 18539

1½" RAMP C
SN 760139
OS 2272

52.445

52.634

53.83

52.634

52.465

0.055

0.050

0.050

0.055

0.055

6.0H

5.0H

DP. 51.846

55. 49.418

03/06

139+80.00

-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	101

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

55

LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST

3:1

6.0H

50.273

MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET

-Y12- RAMP A
SN 2430177
O/S 21927

51.504

0.057

51.632

6:1

55.81

B.P. 51.043

DRY 12/05

-Y12- RAMP C
SN 2440185
O/S 23630

51.499

0.055

S.S. 51.318

50.256

DRY 12/05

140+40.00

55

LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST

3:1

6.0H

50.529

MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET

-Y12- RAMP B
SN 2400149
O/S 20765

51.807

0.058

52.075

6:1

55.47

B.P. 51.287

-Y12- RAMP C
SN 2430177
O/S 22344

51.824

0.055

3:1

S.S. 50.833

140+20.00

60

55

LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST

3:1

6.0H

50.809

MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET

03/06

-Y12- RAMP B
SN 2480120
O/S 19702

52.132

0.050

52.343

6:1

54.159

B.P. 51.554

-Y12- RAMP C
SN 2400154
O/S 22058

52.145

0.055

3:1

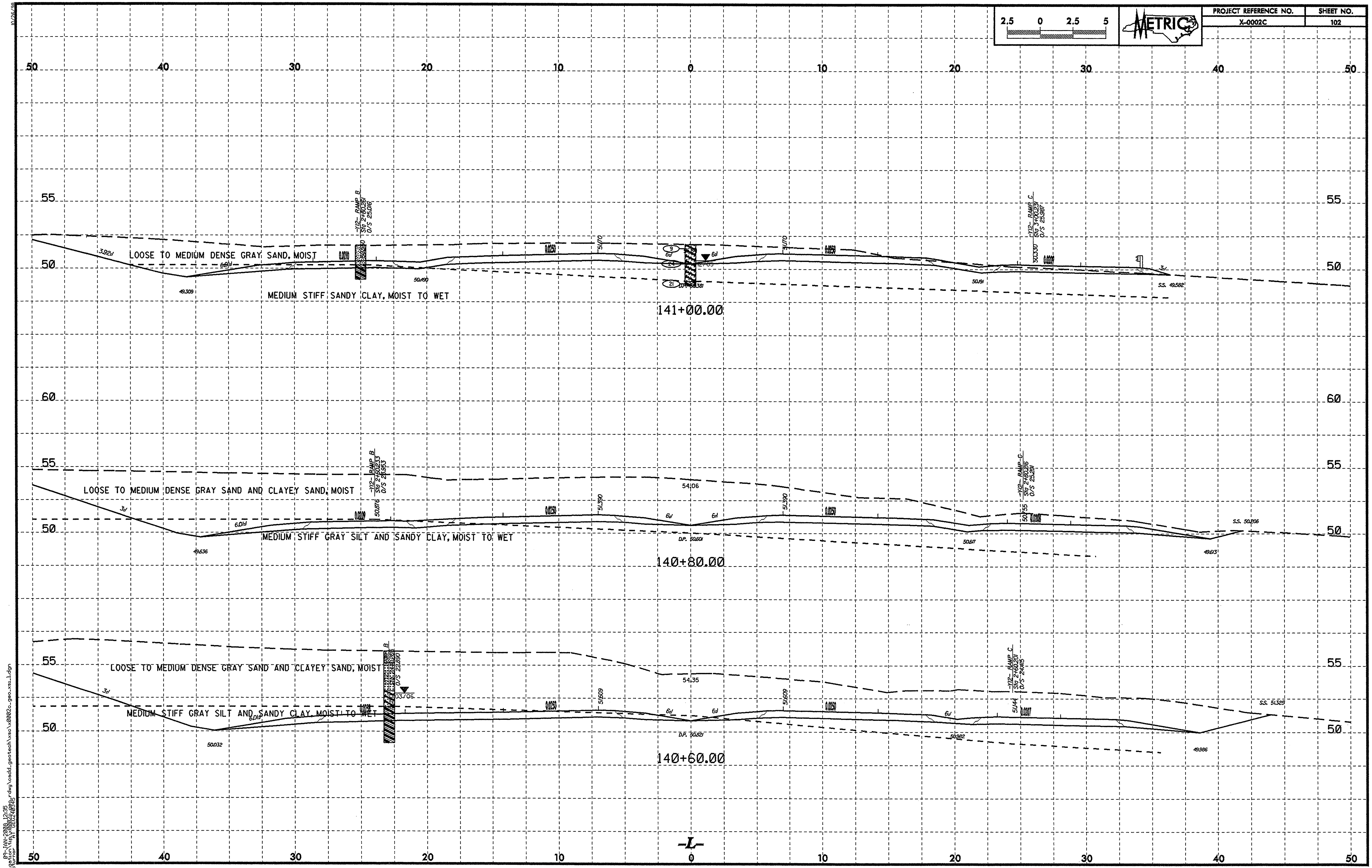
S.S. 49.234

DRY 3/06

140+00.00

-L-

50 40 30 20 10 0 10 20 30 40 50


PROJECT REFERENCE NO.
X-0002C
SHEET NO.
102
METRIC
2.5 0 2.5 5
LOOSE TO MEDIUM DENSE GRAY SAND, MOIST
MEDIUM STIFF SANDY CLAY, MOIST TO WET
-Y12- RAMP B
-Y12- RAMP C
141+00.00
LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST
MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET
140+80.00
LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST
MEDIUM STIFF GRAY SILT AND SANDY CLAY, MOIST TO WET
140+60.00
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	103

2.5 0 2.5 5

METRIC

VERY LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST TO SATURATED

SOFT TO HARD GRAY SILT AND SILTY AND SANDY CLAY, WET

142+00.00

VERY LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST TO SATURATED

SOFT TO HARD GRAY SILT AND SILTY AND SANDY CLAY, WET

141+80.00

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
SS-1	CL	141+60	0.69- 1.34	NOT ENOUGH SAMPLE										102.5	11.5
SS-2	CL	141+60	5.49- 5.90	A-2-7(0)	41	14	41.0	37.0	8.0	7.0	99	71	21	47.9	5.2
SS-3	SS; Sa LT	141+66	1.09- 1.54	NOT ENOUGH SAMPLE										22.8	
SS-4	SS; Sa LT	141+66	14.90- 15.35	A-6(3)	40	11	25.0	34.0	29.0	12.0	100	86	49		
SS-5	Sa= RT	141+60	10, 12- 10.37	A-2-6(0)	33	12	56.0	30.0	7.0	7.0	98	64	18		

Ⓐ VERY LOOSE GRAY SAND, MOIST

141+66

SS-1 SS-2

SS-5

MEDIUM STIFF TO GRAY SANDY SILT

LOOSE TO MEDIUM DENSE GRAY CLAYEY SAND, SATURATED

MEDIUM DENSE TO VERY DENSE GRAY CLAYEY

VERY STIFF TO HARD, GRAY SANDY

AND SILTY CLAY, MOIST TO WET

SAND, SATURATED

AND SILTY CLAY AND SILT, WET

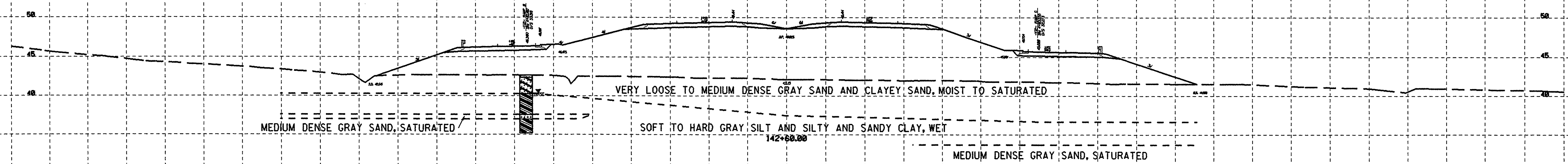
141+60.00

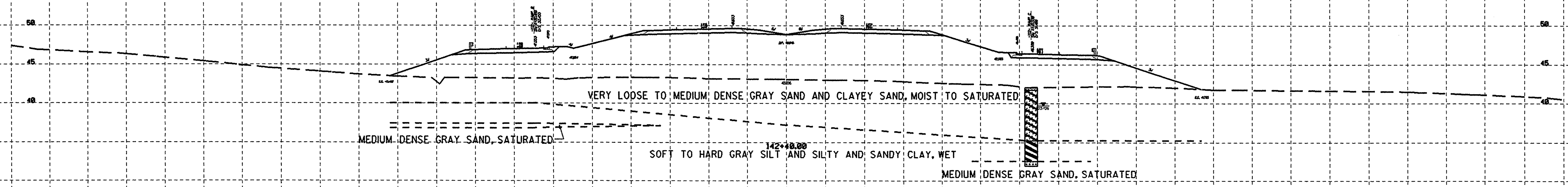
-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	104

METRIC

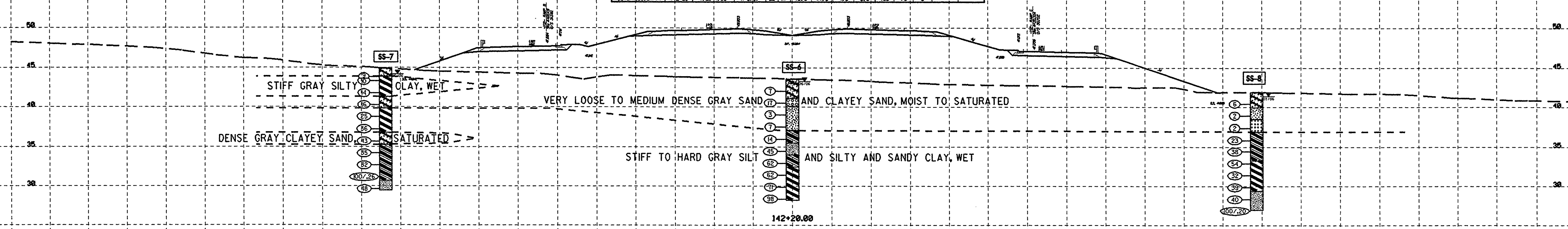
2.5 0 2.5 5





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-6	CL	142+20	5.77-6.22	A-2-4(0)	21	5	54.0	28.0	2.0	16.0	100	66	20		
SS-7	51.9m LT	142+20	10.39-10.84	A-6(5)	39	15	18.0	35.0	30.0	17.0	100	90	53	16.8	
SS-8	59.3m RT	142+20	4.20-4.65	A-3(0)	23	NP	49.0	44.0	1.0	6.0	100	79	8		



-L-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	105

2.5 0 2.5 5

METRIC

VERY LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST TO SATURATED

STIFF TO HARD GRAY SILT AND SILTY AND SANDY CLAY, WET

143+20.00

MEDIUM DENSE GRAY SAND, SATURATED

VERY LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST TO SATURATED

STIFF TO HARD GRAY SILT AND SILTY AND SANDY CLAY, WET

143+00.00

MEDIUM DENSE GRAY SAND, SATURATED

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT: C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES): 10	40	200	% MOISTURE	% ORGANIC
SS-9	CL	142+80	0.67- 3.05	A-2-4(0)	26	8	44.0	38.0	4.0	17.0	96	76	23		
SS- 10	59m LT	142+40	13.72- 14.24	A-7-5(7)	49	15	22.0	29.0	32.0	17.0	100	86	57	25.2	
SS- 11	63. 1m RT	142+85	1.60- 2.05	A-2-4(0)	23	8	50.0	28.0	13.0	9.0	99	72	24		

MEDIUM STIFF GRAY SILTY CLAY, MOIST TO WET

DENSE GRAY SAND, SATURATED

VERY LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST TO SATURATED

STIFF TO HARD GRAY SILT AND SILTY AND SANDY CLAY, WET

142+80.00

142+85

-L-

2.5 0 2.5 5

METRIC

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	106

100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100

55 50 45 40 35 30

Ⓑ MEDIUM DENSE GRAY CLAYEY SAND, SATURATED

VERY COARSE TO MEDIUM DENSE GRAY SAND, MOIST

SOFT TO HARD GRAY SILT AND SILTY AN SANDY CLAY MOIST TO WET

STIFF TO HARD GRAY SILTY AND SANDY CLAY

143+80.00

VERY LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST TO SATURATED

MEDIUM STIFE GRAY SANDY CLAY, WET

VERY SOFT TO HARD GRAY SILTY CLAY AND SILT, WET

143+60.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	PI	% BY WEIGHT G. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 20	40	200	% MOISTURE	% ORGANIC
SS-12	58.0m,LT	143+40	2, 16-7, 59	A-4										115.1	5.3
SS-13	56.1m,RT	143+40	4, 16-5.06	A-4										121.6	24.3

Ⓐ VERY SOFT TO MEDIUM STIFF GRAY ORGANIC CLAY AND MUCK, WET

SS-12

MEDIUM STIFF GRAY SILTY CLAY, MOIST

VERY LOOSE TO MEDIUM DENSE GRAY SAND AND CLAYEY SAND, MOIST TO SATURATED

VERY SOFT TO HARD GRAY SILTY CLAY AND SILT, WET

143+40.00

SS-13

MEDIUM DENSE GRAY CLAYEY SAND, SATURATED

HARD GRAY SILTY CLAY, WET

-L-

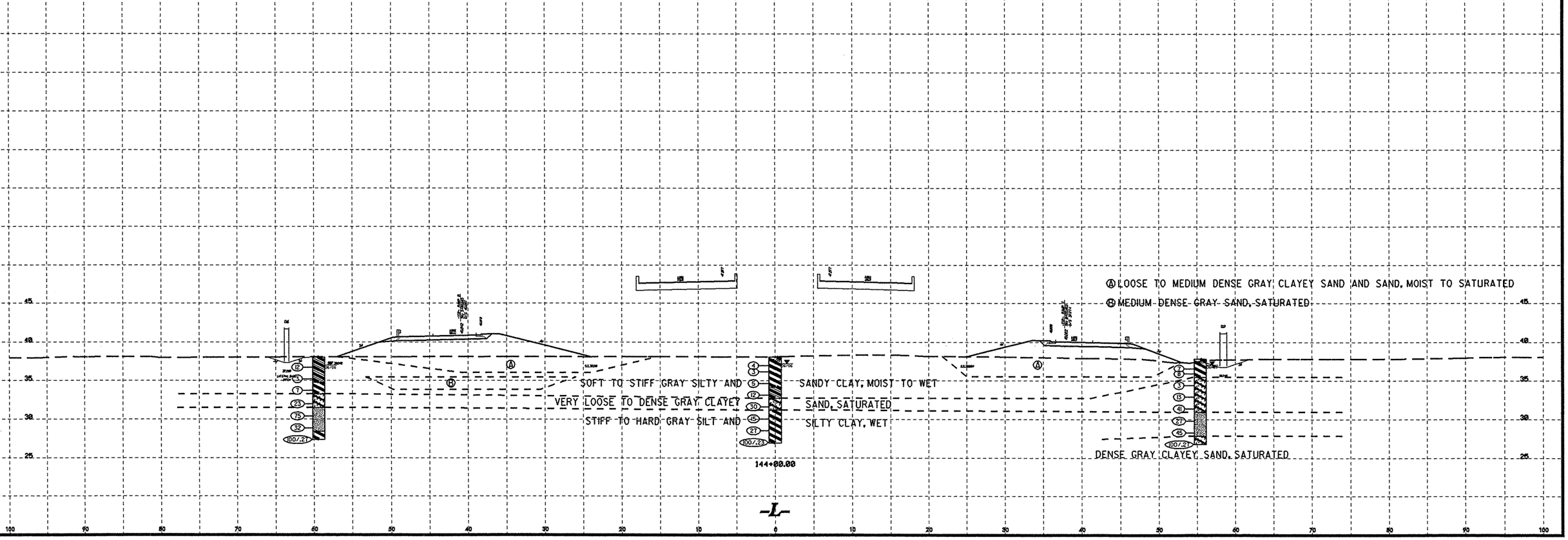
PROJECT REFERENCE NO.	SHEET NO.
X-0002C	107

2.5 0 2.5 5

METRIC

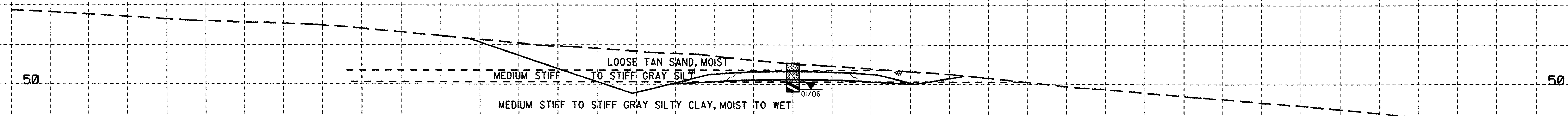
Ⓐ LOOSE TO MEDIUM DENSE GRAY CLAYEY SAND AND SAND, MOIST TO SATURATED

Ⓑ MEDIUM DENSE GRAY SAND, SATURATED

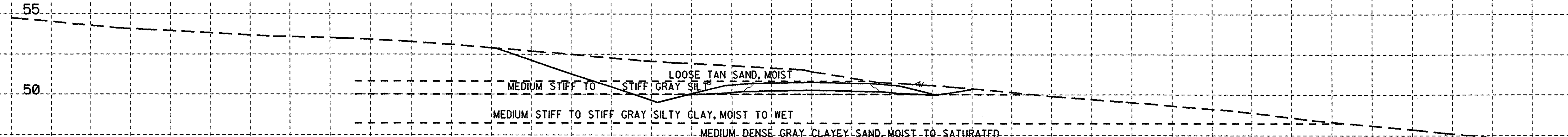


2.5 0 2.5 5

METRIC



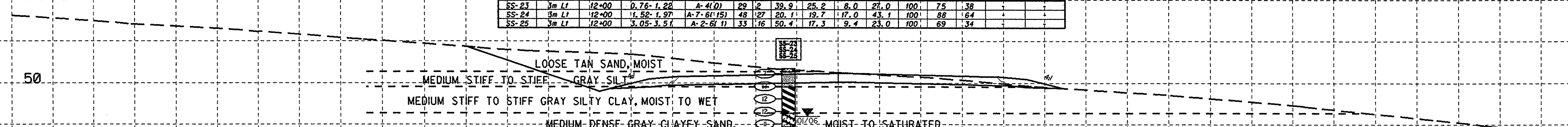
12+40.00



12+20.00

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-23	3m Lt	12+00	0.76-1.22	A-4(0)	29	2	39.9	25.2	8.0	27.0	100	75	38	-	-
SS-24	3m Lt	12+00	1.52-1.97	A-7-6(15)	48	27	20.1	19.7	17.0	43.1	100	88	64	-	-
SS-25	3m Lt	12+00	3.05-3.51	A-2-6(1)	33	16	50.4	17.3	9.4	23.0	100	69	34	-	-

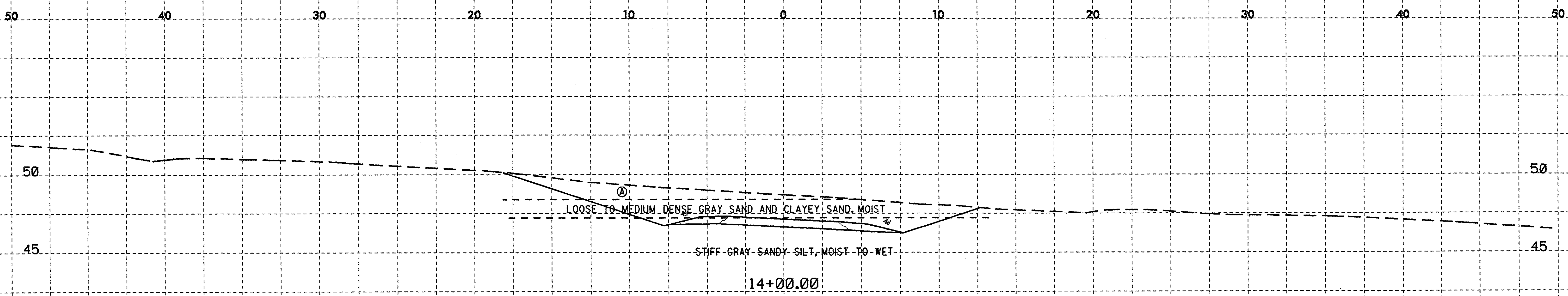


12+00.00

-Y9-

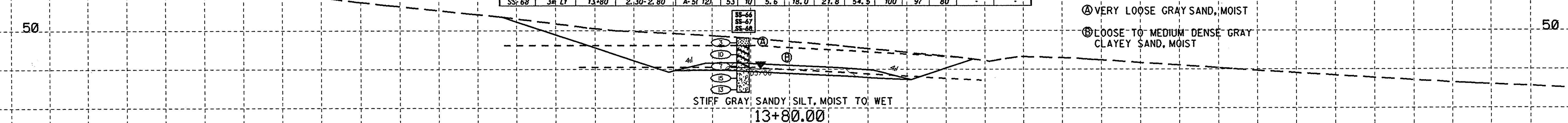
PROJECT REFERENCE NO.	SHEET NO.
X-0002C	109

METRIC



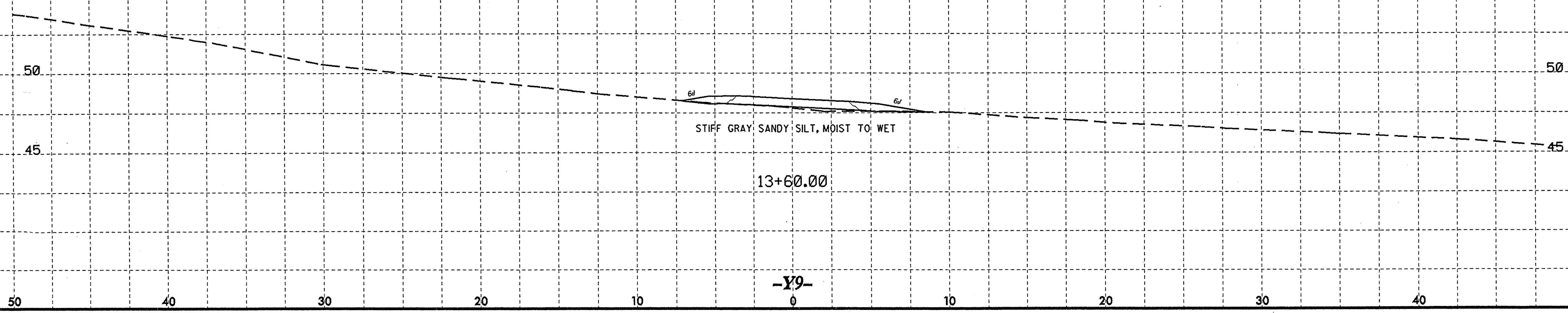
SOIL TEST RESULTS

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-66	3m Lt	13+80	0.30-0.50	A-2-4(0)	17	NP	43.1	45.7	8.8	2.4	90	68	16	-	-
SS-67	3m Lt	13+80	0.80-1.30	A-2-6(0)	37	13	40.7	30.3	6.6	22.4	93	71	29	-	-
SS-68	3m Lt	13+80	2.30-2.80	A-5(12)	53	10	5.6	18.0	21.8	54.5	100	97	80	-	-



Ⓐ VERY LOOSE GRAY SAND, MOIST

Ⓑ LOOSE TO MEDIUM DENSE GRAY CLAYEY SAND, MOIST

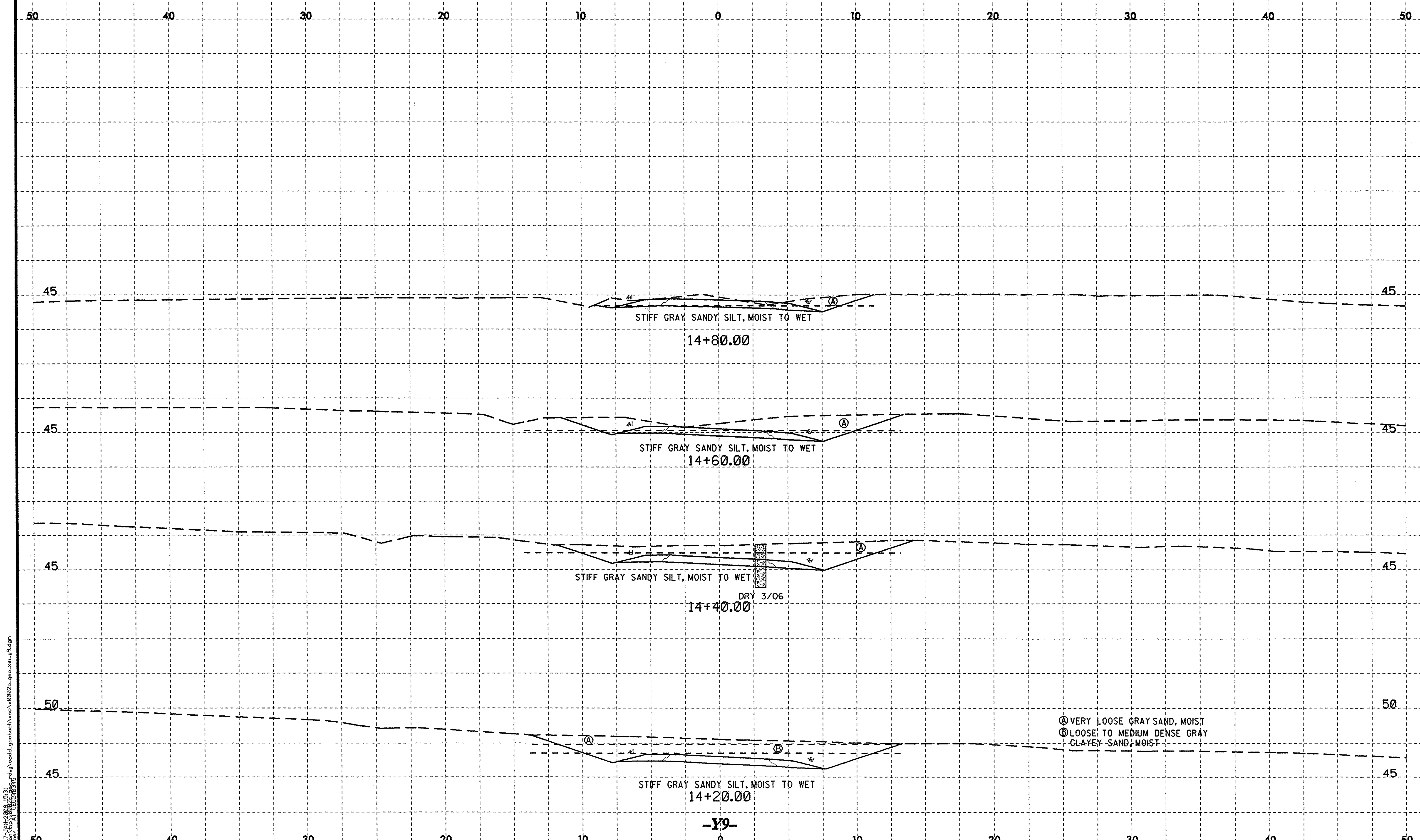


-Y9-

PROJECT REFERENCE NO.	SHEET NO.
X-0002C	110

METRIC

2.5 0 2.5 5



PROJECT REFERENCE NO.	SHEET NO.
X0002C	111

2.5 0 2.5 5

METRIC

50 40 30 20 10 0 10 20 30 40 50

70 65

S.S. 69.330

S.S. 69.957

VERY LOOSE TO LOOSE GRAY CLAYEY SAND, MOIST

VERY LOOSE TO LOOSE TAN GRAY SAND MOIST TO SATURATED

1+80.00

S.S. 70.041

VERY LOOSE TAN GRAY SAND, MOIST

SOFT GRAY SANDY CLAY, MOIST

LOOSE TAN GRAY SAND, MOIST TO SATURATED

1+60.00

S.S. 70.065

VERY LOOSE TAN GRAY SAND, MOIST

SOFT GRAY SANDY CLAY, MOIST

LOOSE TAN GRAY SAND, MOIST TO SATURATED

1+40.00

S.S. 70.324

VERY LOOSE TAN GRAY SAND, MOIST

SOFT GRAY SANDY CLAY, MOIST

LOOSE TAN GRAY SAND, MOIST TO SATURATED

1+20.00

-YLPB-

17-JAN-2008 15:33
ATWELL-HICKS