

NOTE: SEE SHEET 1A FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4407	1	65
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34236.1.1	IMS-73(8)	PE	
34236.2.1	NHS-0220(31)	RW & UTIL	
34236.3.1	NHS-0220(36)	CONST.	

CONTENTS

LINE	STATION	PLAN	PROFILE	XSECT
-L-	14+00.00 to 343+29.23	4-28	35-47	
-L2-	343+29.23 to 394+60.36	28-31	47-48	
-L3-	343+29.23 to 394+75.88	28-31	49-50	
-LI-	10+00.00 to 48+50.00	31-34	50-52	
-RAMP1A-	10+00.00 to 19+88.86	6, 5	52	
-RAMPBI-	10+00.00 to 19+81.52	5	53	
-RAMPPI-	10+00.00 to 21+01.04	5	53	
-RAMPDI-	10+00.00 to 20+26.97	6, 5	54	
-RAMP2-	10+00.00 to 22+33.55	20, 19	54	
-RAMPB2-	10+00.00 to 20+36.40	18-19	55	
-RAMP2-	10+00.00 to 21+96.68	18-19	55	
-RAMPD2-	10+00.00 to 22+74.17	20, 19	56	
-64RAMPB-	10+00.00 to 13+20.00	23	56	
-64RAMP-	10+00.00 to 12+50.00	23	57	
-64RAMPD-	10+00.00 to 11+45.81	24	57	
-64LOOPA-	10+00.00 to 11+99.00	23-24	58	
-64LOOPB-	10+00.00 to 11+33.00	23	58	
-64LOOPC-	10+00.00 to 11+70.75	23	58	
-64LOOPD-	10+00.00 to 11+39.53	24	58	
-I713RAMP-	10+00.00 to 19+04.77	25, 24	58	
-I713RAMPD-	10+00.00 to 18+66.18	25, 24	59	
-RAMPB3-	10+00.00 to 23+85.57	28-29	59	
-RAMP3-	10+00.00 to 21+55.47	28-29	60	
-RAMP4-	10+00.00 to 21+57.39	31, 30	60	
-RAMPD4-	10+00.00 to 21+40.06	31, 30	61	
-RAMP5-	10+00.00 to 22+21.29	34, 33	61	
-RAMPB5-	10+00.00 to 24+33.79	32-33	62	
-RAMP5-	10+00.00 to 23+26.18	32-33	63	
-RAMPD5-	10+00.00 to 21+86.36	34, 33	63	

SAMPLE DATA SHEETS 64,65

ROADWAY
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 34236.1.1 (I-4407) F.A. PROJ. IMS-73(8)
COUNTY RANDOLPH
PROJECT DESCRIPTION US 220 (FUTURE I-73/74) FROM SOUTH OF NC 134-US 220 BUSINESS TO NORTH OF SR 1462 (PARK DRIVE EXT.)

INVENTORY

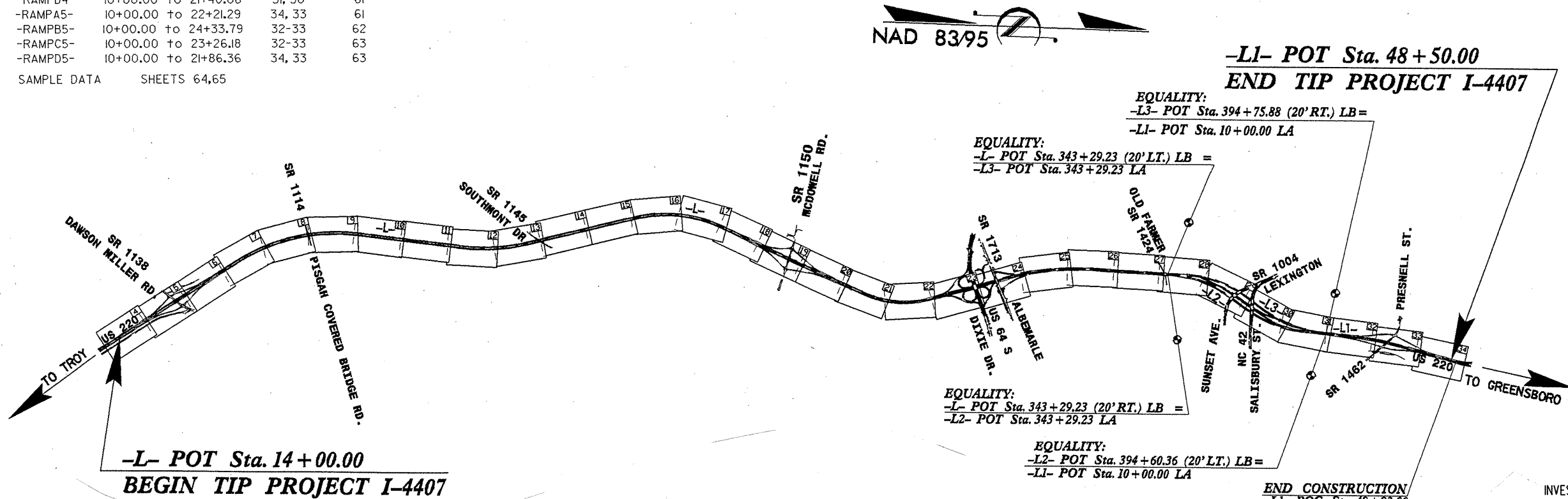
CAUTION NOTICE

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.

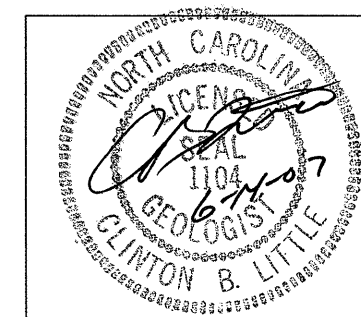
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT 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.

CONTRACT: C202472 ID: I-4407



PERSONNEL
C.C. MURRAY
J.E. ESTEP
L.N. HARPER

INVESTIGATED BY C.C. MURRAY
CHECKED BY C.B. LITTLE
SUBMITTED BY C.B. LITTLE
DATE _____



DRAWN BY: J.K. McClure

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT 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.

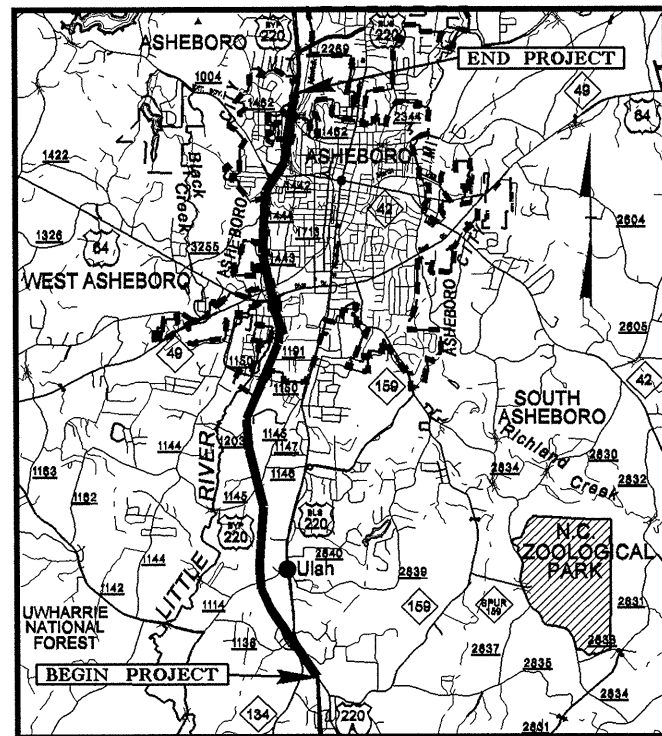
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I-4407	1A	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34236.1.1	IMS-73(8)	PE	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

RANDOLPH COUNTY

LOCATION: US 220 (FUTURE I-73/74) FROM SOUTH OF
NC 134-US 220 BUSINESS TO NORTH
OF SR 1462 (PARK DRIVE EXT.)

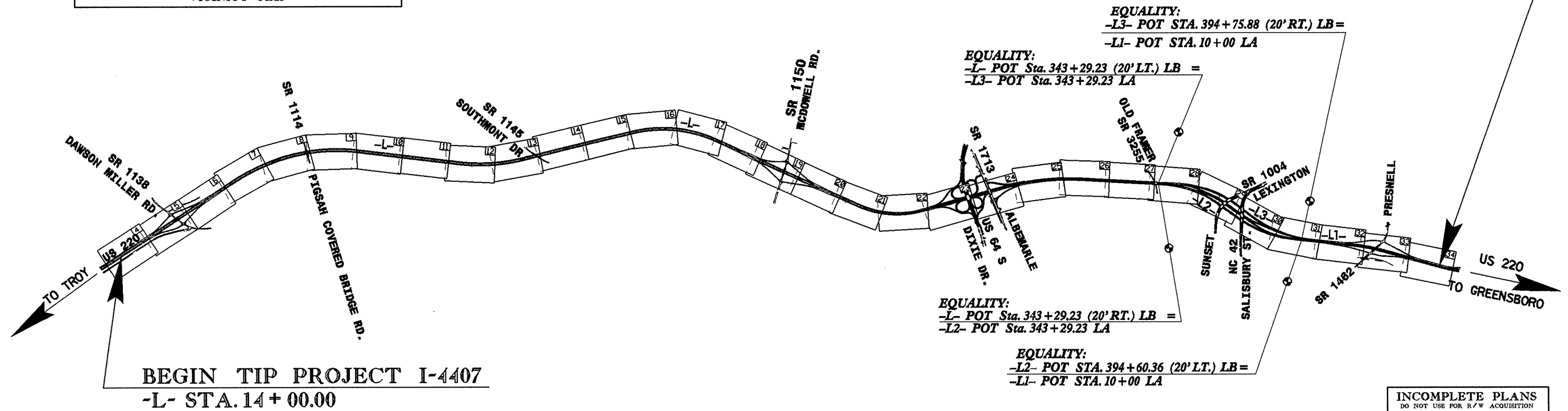
TYPE OF WORK: SAFETY IMPROVEMENTS - GRADING, DRAINAGE, PAVING, AND GUARDRAIL



VICINITY MAP



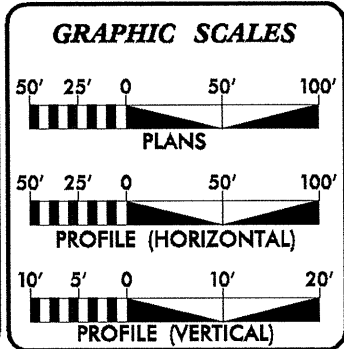
END TIP PROJECT I-4407
-L1- STA. 48 + 50.00



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

TIP PROJECT: I-4407

CONTRACT:



DESIGN DATA

ADT 2006 = 25556-55800
ADT 2030 = 25200-83000

DHV = 10 %
D = 60 %
T = 20 % *
V = 70 MPH

* TTST 14% DUAL 6%

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT I-4407 = 7.941 MILES

TOTAL LENGTH OF TIP PROJECT I-4407 = 7.941 MILES

Prepared In the Office of:
DIVISION OF HIGHWAYS
1000 Birch Ridge Dr., Raleigh NC, 27610

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOT AUTHORIZED

LETTING DATE:
FEBRUARY 17, 2009

ROGER D. THOMAS, P.E.
PROJECT ENGINEER

MICHAEL W. LITTLE, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE HIGHWAY DESIGN ENGINEER P.E.

19-MAR-2007 13:32 d:\projects\14407_geo_rdw-randolph\cadd\geotech\planproj\14407_geo_inv_001a_rdytsh.dgn imc\lure AT GEH21410

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS					
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HARD PLASTIC, A-7-6</i>		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.		HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:		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 DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRODUCED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCRC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.					
GENERAL CLASS. GRANULAR MATERIALS (<= 35% PASSING #200) SILT-CLAY MATERIALS (> 35% PASSING #200) ORGANIC MATERIALS		MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.		WEATHERED ROCK (WR) NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED. CRYSTALLINE ROCK (CR) FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC. NON-CRYSTALLINE ROCK (NCR) FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD 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.		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 DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRODUCED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (IN OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SCRC) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.					
SOIL LEGEND AND AASHTO CLASSIFICATION		MINERALOGICAL COMPOSITION		WEATHERING		TERMS AND DEFINITIONS					
GROUP CLASS. A-1, A-1-b, A-3, A-2-4, A-2-5, A-2-6, A-2-7, A-4, A-5, A-6, A-7, A-7-5, A-7-6, A-1, A-2, A-3, A-4, A-5, A-6, A-7		COMPRESSIBILITY		FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE. VERY SLIGHT (V SLI) ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE. SLIGHT (SLI) ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE (MOD) SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK. MODERATELY SEVERE (MOD. SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL. SEVERE (SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF. VERY SEVERE (V SEV.) ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF. COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.		PERCENTAGE OF MATERIAL		ROCK HARDNESS		BENCH MARK:	
% PASSING: 10, 20, 40, 60, 100		ORGANIC MATERIAL GRANULAR SOILS SILT-CLAY SOILS OTHER MATERIAL		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN. MODERATELY HARD CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS. MEDIUM HARD CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY SOFT CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.		GROUND WATER		TERM SPACING		BEDDING	
USUAL TYPES OF MAJOR MATERIALS		TRACE OF ORGANIC MATTER 2-3% LITTLE ORGANIC MATTER 3-5% MODERATELY ORGANIC 5-10% HIGHLY ORGANIC >10%		WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING STATIC WATER LEVEL AFTER 24 HOURS PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA SPRING OR SEEP		VERY WIDE MORE THAN 10 FEET WIDE 3 TO 10 FEET MODERATELY CLOSE 1 TO 3 FEET CLOSE 0.16 TO 1 FEET VERY CLOSE LESS THAN 0.16 FEET		VERY THICKLY BEDDED > 4 FEET THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET			
CONSISTENCY OR DENSENESS		MISCELLANEOUS SYMBOLS		HAMMER TYPE: AUTOMATIC MANUAL		INDURATION		ELEVATION: FT.			
PRIMARY SOIL TYPE COMPACTNESS OR CONSISTENCY RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE) RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)		ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT INFERRED SOIL BOUNDARY INFERRED ROCK LINE ALLUVIAL SOIL BOUNDARY DIP & DIP DIRECTION OF ROCK STRUCTURES SOUNDING ROD		TEST BORING AUGER BORING CORE BORING MONITORING WELL PIEZOMETER INSTALLATION SLOPE INDICATOR INSTALLATION SPT N-VALUE SPT REFUSAL		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.		NOTES:			
TEXTURE OR GRAIN SIZE		ABBREVIATIONS		CORE SIZE: -B, -N, -H		HAND TOOLS: POST HOLE DIGGER, HAND AUGER, SOUNDING ROD, VANE SHEAR TEST		ELEVATION: FT.			
U.S. STD. SIEVE SIZE OPENING (MM)		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		HL - 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 _u - UNIT WEIGHT γ _d - DRY UNIT WEIGHT		ELEVATION: FT.			
BOULDER (BLDR.) COBBLE (COB.) GRAVEL (GR.) COARSE SAND (CSE, SD.) FINE SAND (F SD.) SILT (SL.) CLAY (CL.)		SOIL MOISTURE - CORRELATION OF TERMS		EQUIPMENT USED ON SUBJECT PROJECT		INDURATION		ELEVATION: FT.			
GRAIN SIZE		SOIL MOISTURE SCALE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION		DRILL UNITS: MOBILE B-, BK-51, CME-45C, CME-550, PORTABLE HOIST		INDURATION		ELEVATION: FT.			
LL LIQUID LIMIT PL PLASTIC LIMIT OM OPTIMUM MOISTURE SL SHRINKAGE LIMIT		- SATURATED - (SAT.) USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE - WET - (W) SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE		ADVANCING TOOLS: CLAY BITS, 6" CONTINUOUS FLIGHT AUGER, 8" HOLLOW AUGERS, HARD FACED FINGER BITS, TUNG-CARBIDE INSERTS, CASING w/ ADVANCER, TRICONE STEEL TEETH, TRICONE TUNG-CARB., CORE BIT		INDURATION		ELEVATION: FT.			
PLASTICITY INDEX (PI)		PLASTICITY		PLASTICITY INDEX (PI) DRY STRENGTH		INDURATION		ELEVATION: FT.			
NONPLASTIC LOW PLASTICITY MED. PLASTICITY HIGH PLASTICITY		COLOR		PLASTICITY INDEX (PI) DRY STRENGTH		INDURATION		ELEVATION: FT.			
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.		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.		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.		INDURATION		ELEVATION: FT.			

-L- 261+00 to 265+00

The following borings had high P. I. but were isolated. The sample locations are listed individually:

-L-
 59+00/65Rt.
 71+50/65Lt.
 122+50/Lt.
 171+00/65Rt.
 199+00/65Lt.
 205+00/65Rt.
 273+50/65Lt.

-RampC5- 16+00/15Lt.
 -RampB5- 23+00/10Lt

PHYSIOGRAPHY AND GEOLOGY

The project is located in the heart of the Carolina Slate Belt. There are only poor exposures of outcrops anywhere along the project. From the State Geologic Map (NC Geologic Survey, 1985), the soils are derived from metamudstones and meta-argillites. These rock types contain much silica that weathers slowly and creates shallow soils. The project cuts through gently rolling hills. The existing slopes have remained stable with minor erosion when left unprotected.

SOIL PROPERTIES

Residual soils

The soils on the project are predominantly silty clays (A-7) and clayey sandy silts (A-4, A-5). These soils often are moderately to highly plastic with moisture content above the plastic limit. The source rocks for the residual soils are not fully known due to poor exposure. Inspection of soil samples along with the published geologic mapping indicates metamudstones and meta-argillites of the Eastern Slate Belt.

Alluvial Soils

There were no significant areas of alluvial soils noted during the investigation.

Artificial Roadway Embankment Soils

Roadway embankment soils make up much of the project. They appear to be

derived from nearby residual soils. The soils on the project are predominantly silty clays (A-7) and clayey sandy silts (A-4, A-5). These soils often are moderately to highly plastic and above optimum moisture.

Rock/Weathered Rock

Rock was encountered at several areas listed below. As the grade of the existing road is not going to be changed, the rock was considered to be below grade.

The following auger refusal borings were in residual soils and should be considered rock.

-L- 110+00/65Rt. @ 12.5'
 -L- 112+50/65Lt. @ 3.2'
 -RAMPD2- 15+00/20Rt. @ 8.2'

The following auger refusal borings are most likely to be a boulder in the roadway embankment soils.

-L-
 163+00/65Lt. @ 3.0'
 186+50/65Rt. @ 3.1'
 216+50/65Rt. @ 2.3'
 -RAMPC1-15+00/20Rt @ 11.8'

Groundwater: Groundwater was found in only one boring, in alluvial soils at Station 110+50/65'Rt., at a depth of 6.5'.

Respectfully submitted,



Clint Little
 Regional Geological Engineer

EARTHWORK BALANCE SHEET - FINAL ESTIMATE

Volumes in Cubic Yards

PROJECT: I-4407

COUNTY: Randolph

DATE: 2/17/2010

ROCK SWELL: N/A

SHEET 3B OF 65 SHEETS

LINE	STATION	STATION	EXCAVATION				EMBANKMENT			BORROW	WASTE					
			TOTAL UNLCASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK		EARTH	EMBANK. 15%	ROCK	SUITABLE	UNSUIT.	TOTAL
-L- LT	14+00.00	33+29.50	4,470				4,470	72		72	83			4,387		4,387
-L- MED	14+00.00	33+29.50	712				712	712		712	819	107				
-L- RT	14+00.00	33+29.50	948				948	177		177	204			744		744
-RAMPB1-	14+13.23	19+74.29	118				118	271		271	312	194				
-RAMPC1-	13+67.35	20+86.14	145				145	218		218	251	106				
SUBTOTAL 1			6,393				6,393	1,450		1,450	1,669	407		5,131		5,131
-L- LT	34+76.41	65+00.00	1,546				1,546	974		974	1,120			426		426
-L- MED	34+76.41	65+00.00	1,023				1,023	1,023		1,023	1,176	153				
-L- RT	34+76.41	65+00.00	1,285				1,285	1,174		1,174	1,350	65				
-RAMPA1-	13+14.48	19+81.40	385				385	11		11	13			372		372
-RAMPD1-	13+94.35	20+14.15	343				343	17		17	20			323		323
SUBTOTAL 2			4,582				4,582	3,199		3,199	3,679	218		1,121		1,121
-L- LT	65+00.00	95+00.00	1,130				1,130	137		137	158			972		972
-L- MED	65+00.00	95+00.00	1,517				1,517	1,517		1,517	1,745	228				
-L- RT	65+00.00	95+00.00	948				948	186		186	214			734		734
SUBTOTAL 3			3,595				3,595	1,840		1,840	2,117	228		1,706		1,706
-L- LT	95+00.00	125+00.00	889				889	127		127	146			743		743
-L- MED	95+00.00	125+00.00	866				866	866		866	996	130				
-L- RT	95+00.00	125+00.00	1,001				1,001	183		183	210			791		791
SUBTOTAL 4			2,756				2,756	1,176		1,176	1,352	130		1,534		1,534
-L- LT	125+00.00	155+00.00	678				678	200		200	230			448		448
-L- MED	125+00.00	155+00.00	1,320				1,320	1,320		1,320	1,518	198				
-L- RT	125+00.00	155+00.00	1,075				1,075	66		66	76			999		999
SUBTOTAL 5			3,073				3,073	1,586		1,586	1,824	198		1,447		1,447

EARTHWORK BALANCE SHEET - FINAL ESTIMATE

Volumes in Cubic Yards

PROJECT: I-4407

COUNTY: Randolph

DATE: 2/17/2010

ROCK SWELL: N/A

SHEET 34 OF 65 SHEETS

LINE	STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE					
			TOTAL UNLCASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMBANK. 15%	ROCK	SUITABLE	UNSUIT.	TOTAL	
-L- LT	155+00.00	185+00.00	745				745	519		519	597			148			148
-L- MED	155+00.00	185+00.00	889				889	889		889	1,022	133					
-L- RT	155+00.00	185+00.00	679				679	584		584	672			7			7
SUBTOTAL 6			2,313				2,313	1,992		1,992	2,291	133		155			155
-L- LT	185+00.00	215+00.00	985				985	3,600		3,600	4,140	3,155					
-L- MED	185+00.00	215+00.00	810				810	810		810	932	122					
-L- RT	185+00.00	215+00.00	830				830	423		423	486			344			344
SUBTOTAL 7			2,625				2,625	4,833		4,833	5,558	3,277		344			344
-L- LT	215+00.00	245+00.00	1,320				1,320	155		155	178			1,142			1,142
-L- MED	215+00.00	245+00.00	1,382				1,382	1,382		1,382	1,589	207					
-L- RT	215+00.00	245+00.00	1,762				1,762	317		317	365			1,397			1,397
-RAMPA2-	14+12.50	22+26.75	359				359	30		30	35			324			324
-RAMPB2-	13+94.08	20+32.60	109				109	209		209	240	131					
-RAMPC2-	14+71.94	21+92.28	107				107	255		255	293	186					
-RAMPD2-	14+00.94	22+65.50	435				435	9		9	10			425			425
SUBTOTAL 8			5,474				5,474	2,357		2,357	2,710	524		3,288			3,288
-L- LT	245+00.00	275+00.00	1,464				1,464	519		519	597			867			867
-L- MED	245+00.00	275+00.00	2,129			1,428	701	20		20	23			678	1,428		2,106
-L- RT	245+00.00	275+00.00	1,676				1,676	401		401	461			1,215			1,215
SUBTOTAL 9			5,269			1,428	3,841	940		940	1,081			2,760	1,428		4,188
-L- LT	275+00.00	305+00.00	2,856				2,856	312		312	359			2,497			2,497
-L- MED	275+00.00	305+00.00	2,957			2,957									2,957		2,957
-L- RT	275+00.00	305+00.00	2,162				2,162	588		588	676			1,486			1,486
SUBTOTAL 10			7,975			2,957	5,018	900		900	1,035			3,983	2,957		6,940

EARTHWORK BALANCE SHEET - FINAL ESTIMATE

Volumes in Cubic Yards

PROJECT: I-4407

COUNTY: Randolph

DATE: 2/17/2010

ROCK SWELL: N/A

SHEET 30 OF 65 SHEETS

LINE	STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE					
			TOTAL UNLCASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMBANK. 15%	ROCK	SUITABLE	UNSUIT.	TOTAL	
-L- LT	305+00.00	335+00.00	1,979				1,979	16		16	18			1,961			1,961
-L- MED	305+00.00	335+00.00	2,982			2,982									2,982		2,982
-L- RT	305+00.00	335+00.00	2,134				2,134	1,706		1,706	1,962			172			172
SUBTOTAL 11			7,095			2,982	4,113	1,722		1,722	1,980			2,133	2,982		5,115
-L- LT	335+00.00	341+54.54	414				414	6		6	7			407			407
-L- MED	335+00.00	341+54.54	692			692								692			692
-L- RT	335+00.00	341+54.54	419				419	10		10	12			407			407
SUBTOTAL 12			1,525			692	833	16		16	19			814	692		1,506
-L-	343+04.32	343+29.23	114			26	88							88	26		114
-L2-	343+29.23	388+25.64	7,586			177	7,409	298		298	343			7,066	177		7,243
-L2-	388+25.64	394+60.36	745				745	415		415	477			268			268
-RAMPC3-	13+95.62	16+70.00	262				262	182		182	209			53			53
-RAMPD4-	13+58.24	19+48.00	463				463	232		232	267			196			196
SUBTOTAL 13			9,170			203	8,967	1,127		1,127	1,296			7,671	203		7,874
-L3-	343+29.23	349+08.96	857			231	626	1		1	1			625	231		856
-L3-	349+08.96	394+75.88	10,565				10,565	162		162	186			10,379			10,379
-RAMPB3-	13+25.31	18+80.00	363				363	114		114	131			232			232
RAMPA4-	15+03.01	19+27.00	257				257	445		445	512	255					
SUBTOTAL 14			12,042			231	11,811	722		722	830	255		11,236	231		11,467
-L1- LT	10+00.00	48+50.00	5,181				5,181	47		47	54			5,127			5,127
-L1- MED	10+00.00	48+50.00	3,791			3,791								3,791			3,791
-L1- RT	10+00.00	48+50.00	4,698				4,698	938		938	1,079			3,619			3,619
-RAMPA5	13+40.71	22+17.83	197				197	582		582	669	472					
-RAMPB5-	14+75.47	24+23.96	206				206	95		95	109			97			97
-RAMPC5-	15+30.14	23+20.17	219				219	1,870		1,870	2,151	1,932					
-RAMPD5-	14+08.22	21+86.36	190				190	235		235	270	80					
SUBTOTAL 15			14,482			3,791	10,691	3,767		3,767	4,332	2,484		8,843	3,791		12,634

EARTHWORK BALANCE SHEET - FINAL ESTIMATE

Volumes in Cubic Yards

PROJECT: I-4407

COUNTY: Randolph

DATE: 2/17/2010

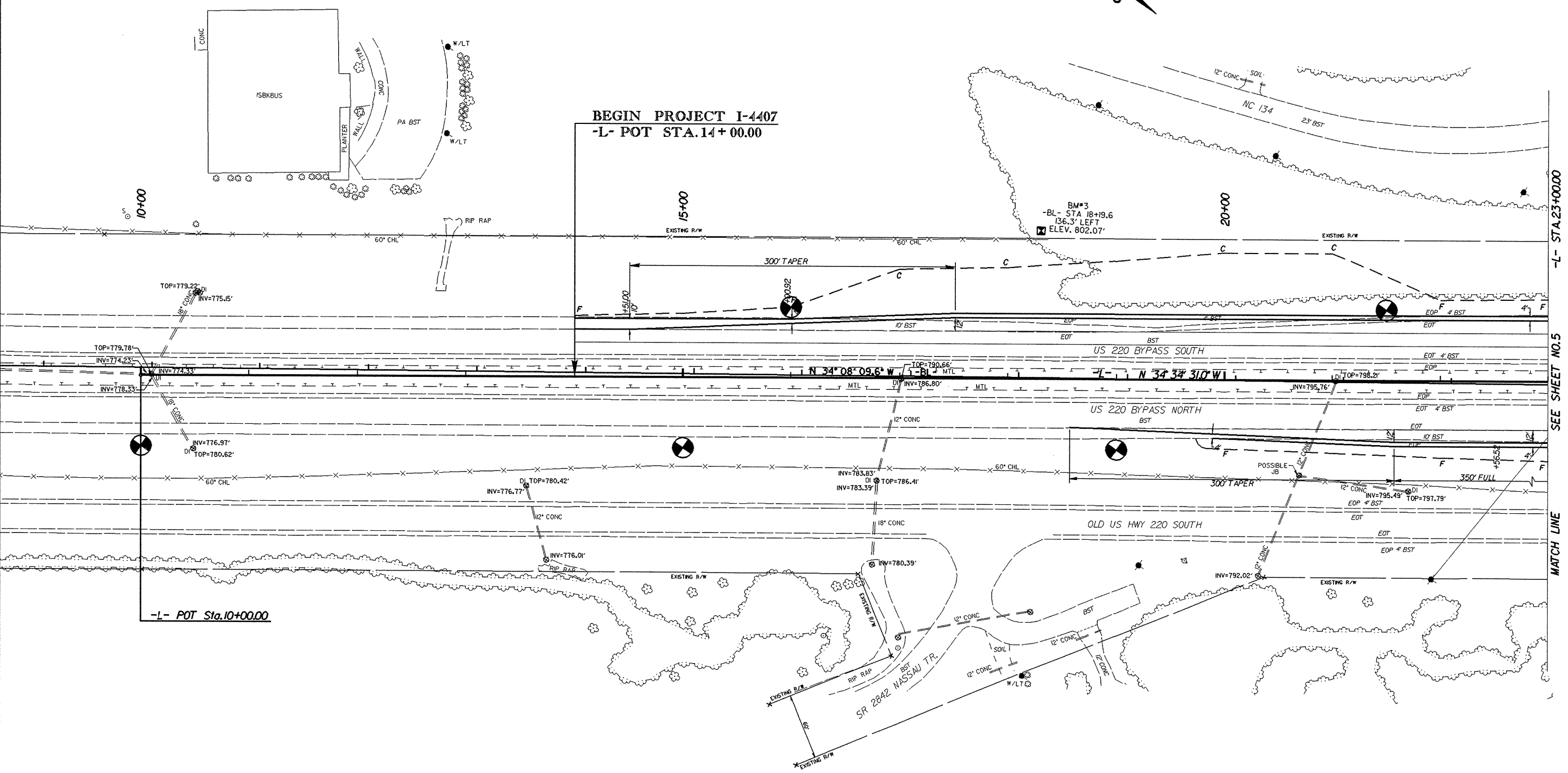
ROCK SWELL: N/A

SHEET 3E OF 65 SHEETS

LINE	STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE				
			TOTAL UNLCASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMBANK. 15%	ROCK	SUITABLE	UNSUIT.	TOTAL
PROJECT SUBTOTAL			88,369			12,284	76,085	27,627		27,627	31,773	7,854		52,166	12,284	64,450
LOSS DUE TO CLEARING & GRUBBING WASTE IN LIEU OF BORROW			-1,700				-1,700							-1,700		-1,700
PROJECT TOTAL			86,669	0	0	12,284	74,385	27,627	0	27,627	31,773	0	0	42,612	12,284	54,896
GRAND TOTAL			86,669													
SAY			87,000													
ADDITIONAL UNDERCUT = 3,000 CY																
EST. DDE = 240 CY																
SHALLOW UNDERCUT = 21,600 CY																
SHOULDER BORROW = 21,600 CY																

*** 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.**

PROJECT REFERENCE NO. I-4407	SHEET NO. 4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



- NOTES: (1) SEE SHEET 35 FOR -L- PROFILE
 (2) GUARDRAIL OFFSET BLOCKS SHOULD BE INSPECTED AND REPLACED AS NECESSARY
 (3) UPGRADE ANCHOR UNITS TO CURRENT STANDARDS
 (4) 30' OF SAFETY CLEARING IS REQUIRED

REVISIONS

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SEE SHEET NO. 5 MATCH LINE

PROJECT REFERENCE NO.	SHEET NO.
1-4407	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

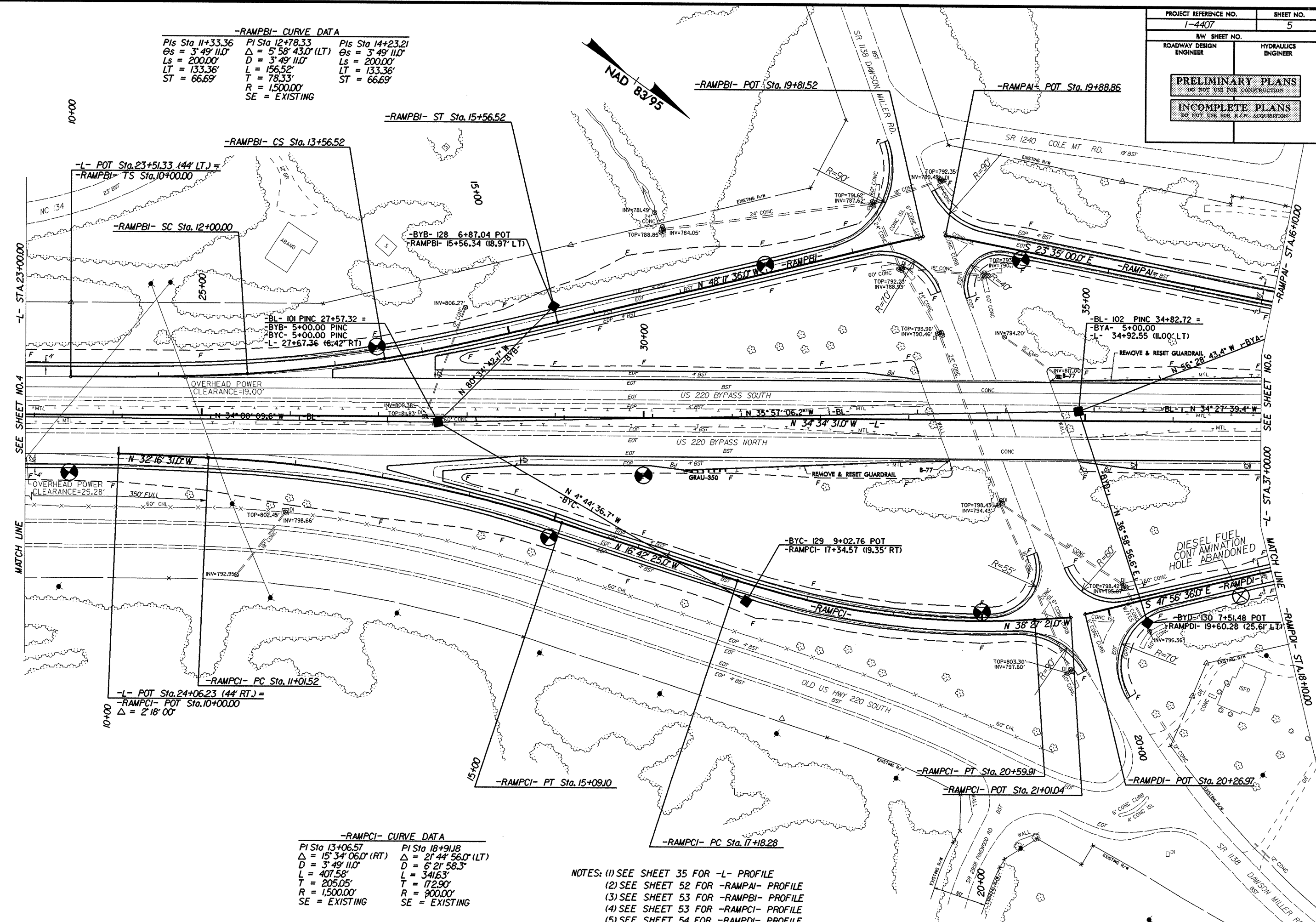
-RAMPBI- CURVE DATA

PIs Sta 11+33.36	PI Sta 12+78.33	PIs Sta 14+23.21
$\theta_s = 3^\circ 49' 11.0''$	$\Delta = 5^\circ 58' 43.0''$ (LT)	$\theta_s = 3^\circ 49' 11.0''$
$L_s = 200.00'$	$D = 3^\circ 49' 11.0''$	$L_s = 200.00'$
$LT = 133.36'$	$L = 156.52'$	$LT = 133.36'$
$ST = 66.69'$	$T = 78.33'$	$ST = 66.69'$
	$R = 1,500.00'$	
	$SE = \text{EXISTING}$	

-RAMPCI- CURVE DATA

PI Sta 13+06.57	PI Sta 18+91.8
$\Delta = 15^\circ 34' 06.0''$ (RT)	$\Delta = 2^\circ 44' 56.0''$ (LT)
$D = 3^\circ 49' 11.0''$	$D = 6^\circ 21' 58.3''$
$L = 407.58'$	$L = 341.63'$
$T = 205.05'$	$T = 172.90'$
$R = 1,500.00'$	$R = 900.00'$
$SE = \text{EXISTING}$	$SE = \text{EXISTING}$

NOTES: (1) SEE SHEET 35 FOR -L- PROFILE
 (2) SEE SHEET 52 FOR -RAMPBI- PROFILE
 (3) SEE SHEET 53 FOR -RAMPBI- PROFILE
 (4) SEE SHEET 53 FOR -RAMPCI- PROFILE
 (5) SEE SHEET 54 FOR -RAMPDI- PROFILE



REVISIONS

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SEE SHEET NO. 4

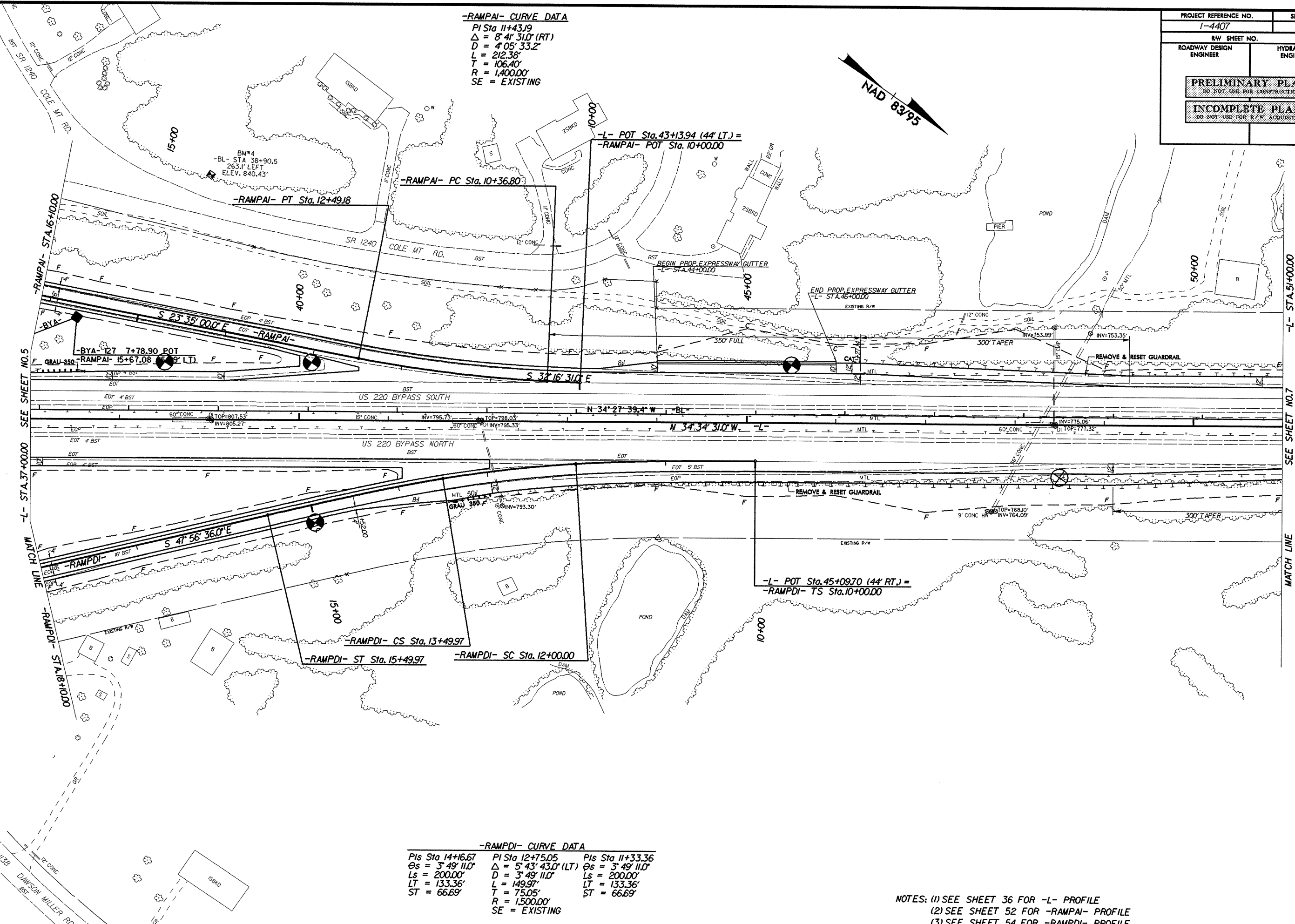
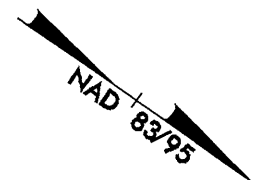
MATCH LINE

SEE SHEET NO. 6

MATCH LINE

PROJECT REFERENCE NO.	SHEET NO.
1-4407	6
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

-RAMPAI- CURVE DATA
 PI Sta 11+43.9
 $\Delta = 8' 41' 31.0''$ (RT)
 $D = 4' 05' 33.2''$
 $L = 212.38'$
 $T = 106.40'$
 $R = 1,400.00'$
 SE = EXISTING



-RAMPDI- CURVE DATA

PIs Sta 14+16.67	PI Sta 12+75.05	PIs Sta 11+33.36
$\theta_s = 3' 49' 11.0''$	$\Delta = 5' 43' 43.0''$ (LT)	$\theta_s = 3' 49' 11.0''$
$L_s = 200.00'$	$D = 3' 49' 11.0''$	$L_s = 200.00'$
$LT = 133.36'$	$L = 149.97'$	$LT = 133.36'$
$ST = 66.69'$	$T = 75.05'$	$ST = 66.69'$
	$R = 1,500.00'$	
	SE = EXISTING	

NOTES: (1) SEE SHEET 36 FOR -L- PROFILE
 (2) SEE SHEET 52 FOR -RAMPAI- PROFILE
 (3) SEE SHEET 54 FOR -RAMPDI- PROFILE

REVISIONS

01-MAY-2007 14:47:17 C:\pwworkspace\14407-geo_rdwj-randolph\cadd\geotech\planproj\14407_CED_in_v_006_psh6.dgn

SEE SHEET NO. 5

SEE SHEET NO. 6

SEE SHEET NO. 7

SEE SHEET NO. 8

SEE SHEET NO. 9

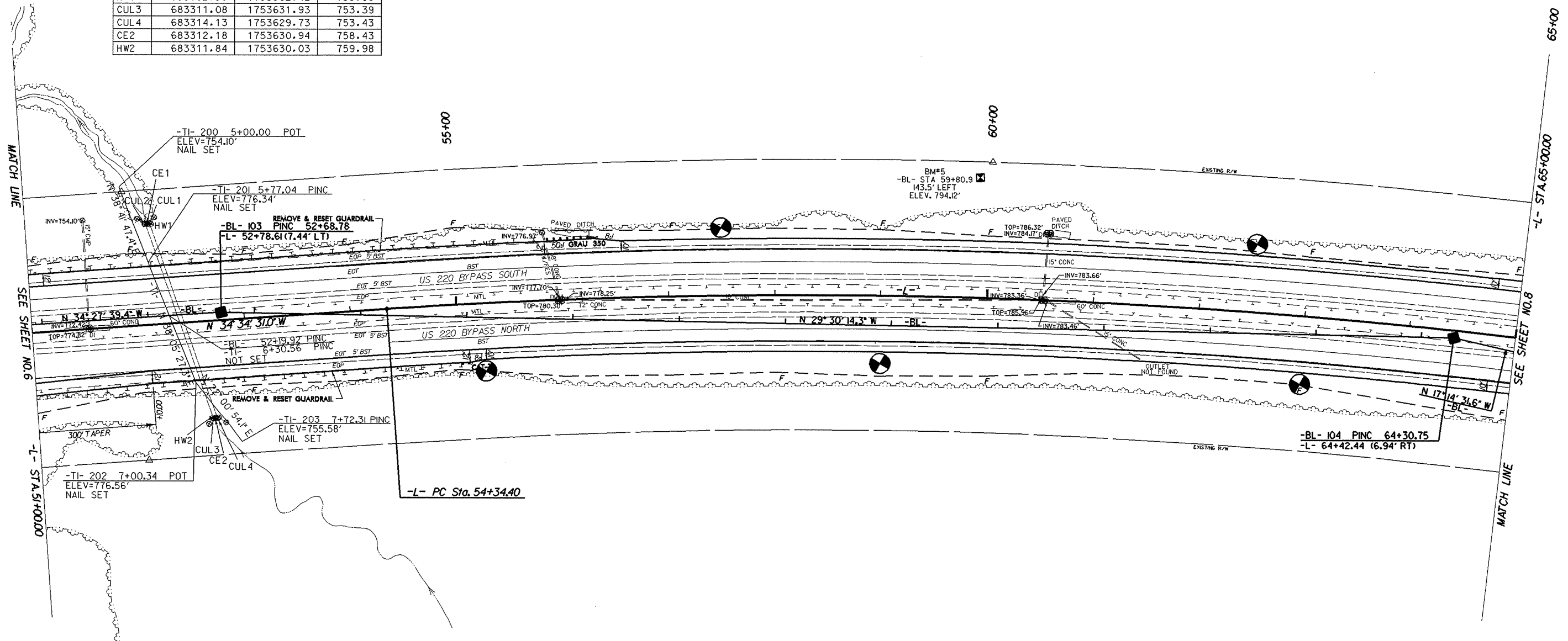
SEE SHEET NO. 10

DAWSON MILLER RD.



CULVERT #1
ONE BARREL

	NORTH	EAST	ELEV.
CUL1	683163.29	1753500.84	751.40
CUL2	683159.97	1753503.10	751.46
CE1	683161.76	1753502.07	756.46
HW1	683162.56	1753502.42	758.06
CUL3	683311.08	1753631.93	753.39
CUL4	683314.13	1753629.73	753.43
CE2	683312.18	1753630.94	758.43
HW2	683311.84	1753630.03	759.98



REVISIONS

01-MAY-2007 14:48
c:\documents\gd\settings\cburris\my documents\14407-geo_rndolph\cedd\geotech\plan\14407_GEO.inv.007_pah7.dgn
AT GEH226157
cburris

-L- CURVE DATA
 PI Sta 75+16.94
 $\Delta = 39^{\circ}56'48.4''$ (RT)
 $D = 0^{\circ}59'59.7''$
 $L = 3,994.97'$
 $T = 2,082.54'$
 $R = 5,730.00'$
 SE = EXISTING

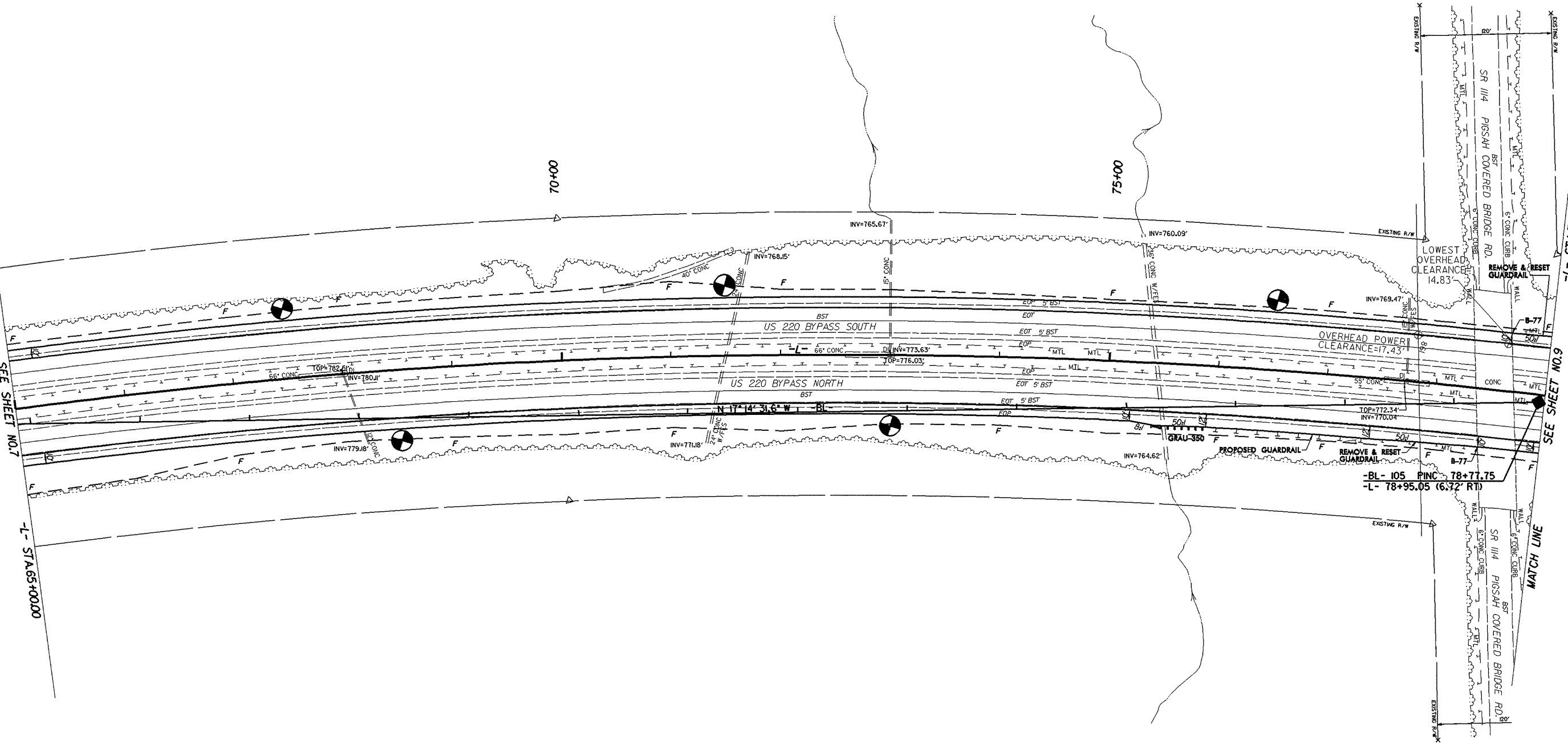
NOTE: SEE SHEET 36 FOR -L- PROFILE

PROJECT REFERENCE NO. I-4407		SHEET NO. 8	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			



REVISIONS
 MATCH LINE
 SEE SHEET NO.7
 -L- STA.65+00.000
 65+000

MATCH LINE
 SEE SHEET NO.9
 -L- STA.79+00.000

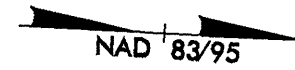


-L- CURVE DATA
 PI Sta 75+16.94
 $\Delta = 39^\circ 56' 48.4''$ (RT)
 $D = 0^\circ 59' 59.7''$
 $L = 3,994.97'$
 $T = 2,082.54'$
 $R = 5,730.00'$
 SE = EXISTING

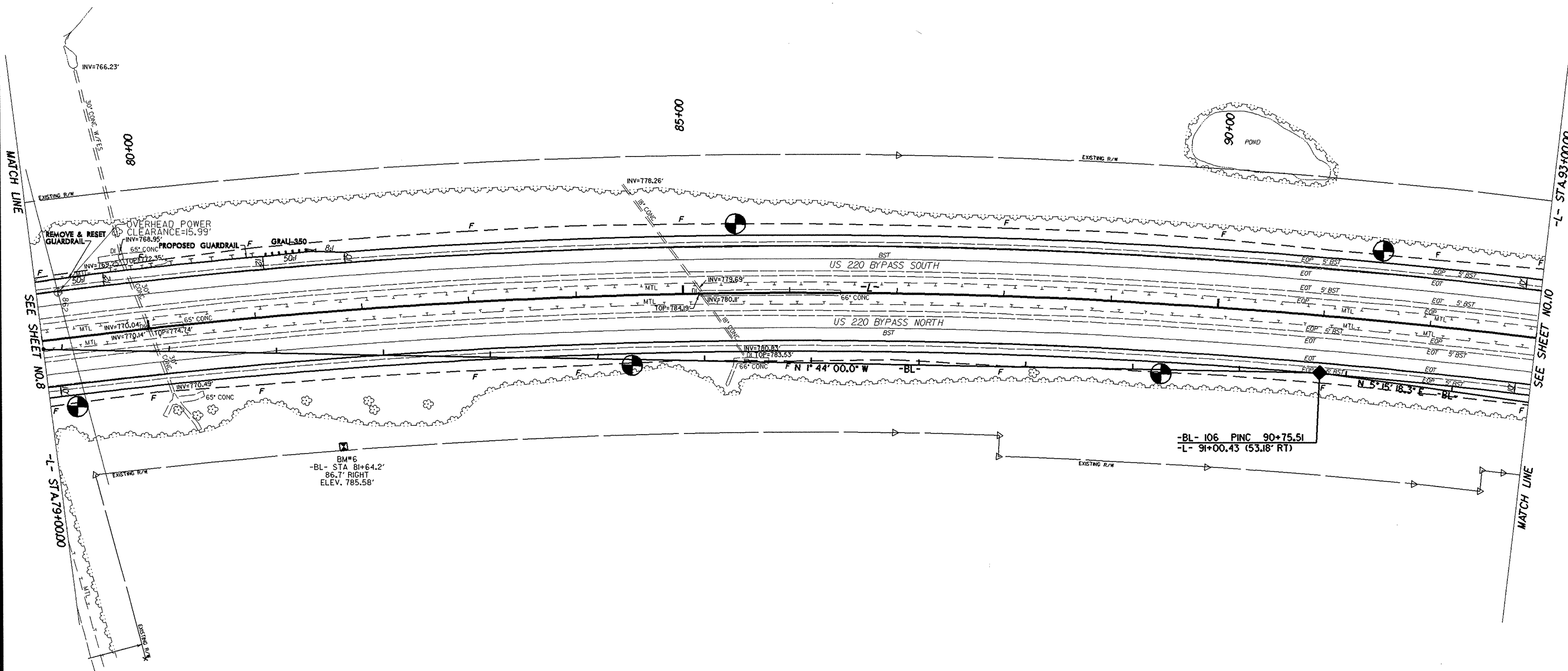
NOTE: SEE SHEET 37 FOR -L- PROFILE

08-JUN-2007 09:05
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 CLT:dlc

PROJECT REFERENCE NO. 1-4407		SHEET NO. 9
RW SHEET NO.		
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION		
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION		



REVISIONS
 08-JUN-2007 09:08
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 AT GETZ26183

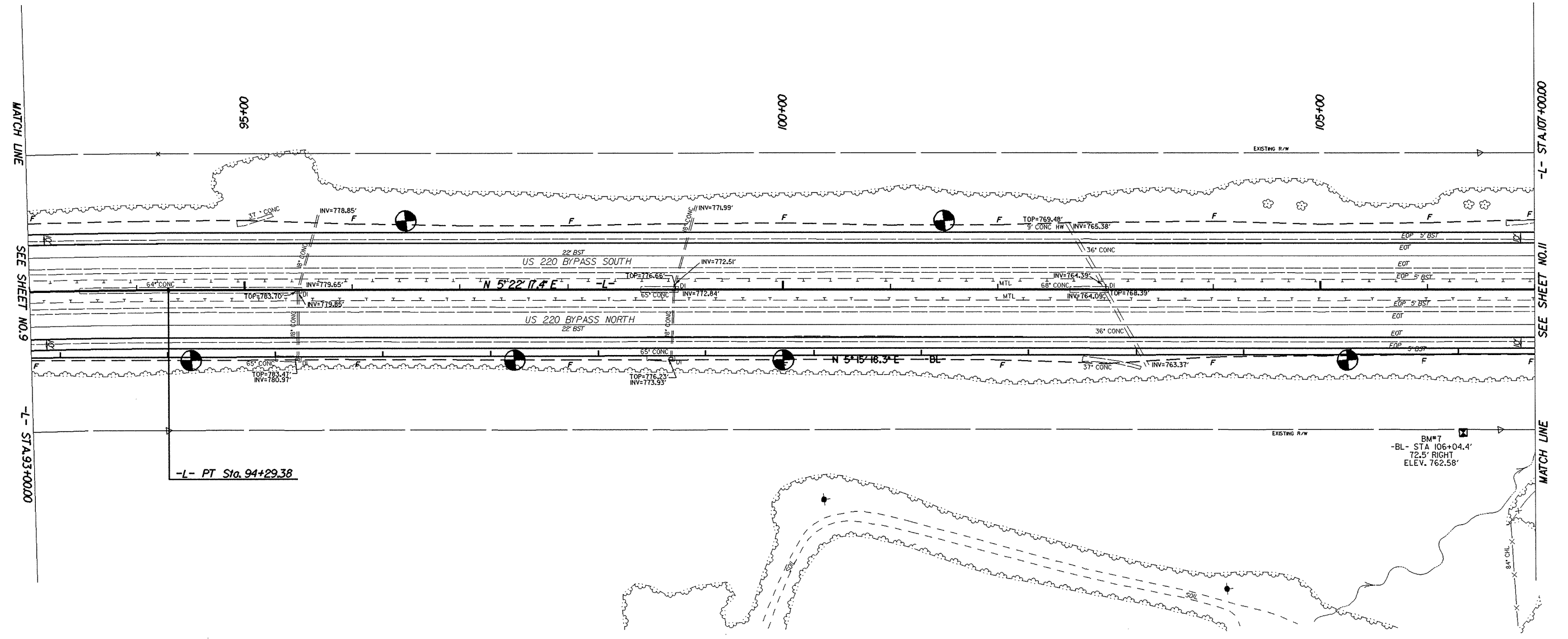


-L- CURVE DATA
 PI Sta 75+16.94
 $\Delta = 39^{\circ} 56' 48.4''$ (RT)
 $D = 0^{\circ} 59' 59.7''$
 $L = 3,994.97'$
 $T = 2,082.54'$
 $R = 5,730.00'$
 SE = EXISTING

NOTE: SEE SHEET 37 FOR -L- PROFILE

PROJECT REFERENCE NO. 1-4407		SHEET NO. 10	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			

NAD 83/95



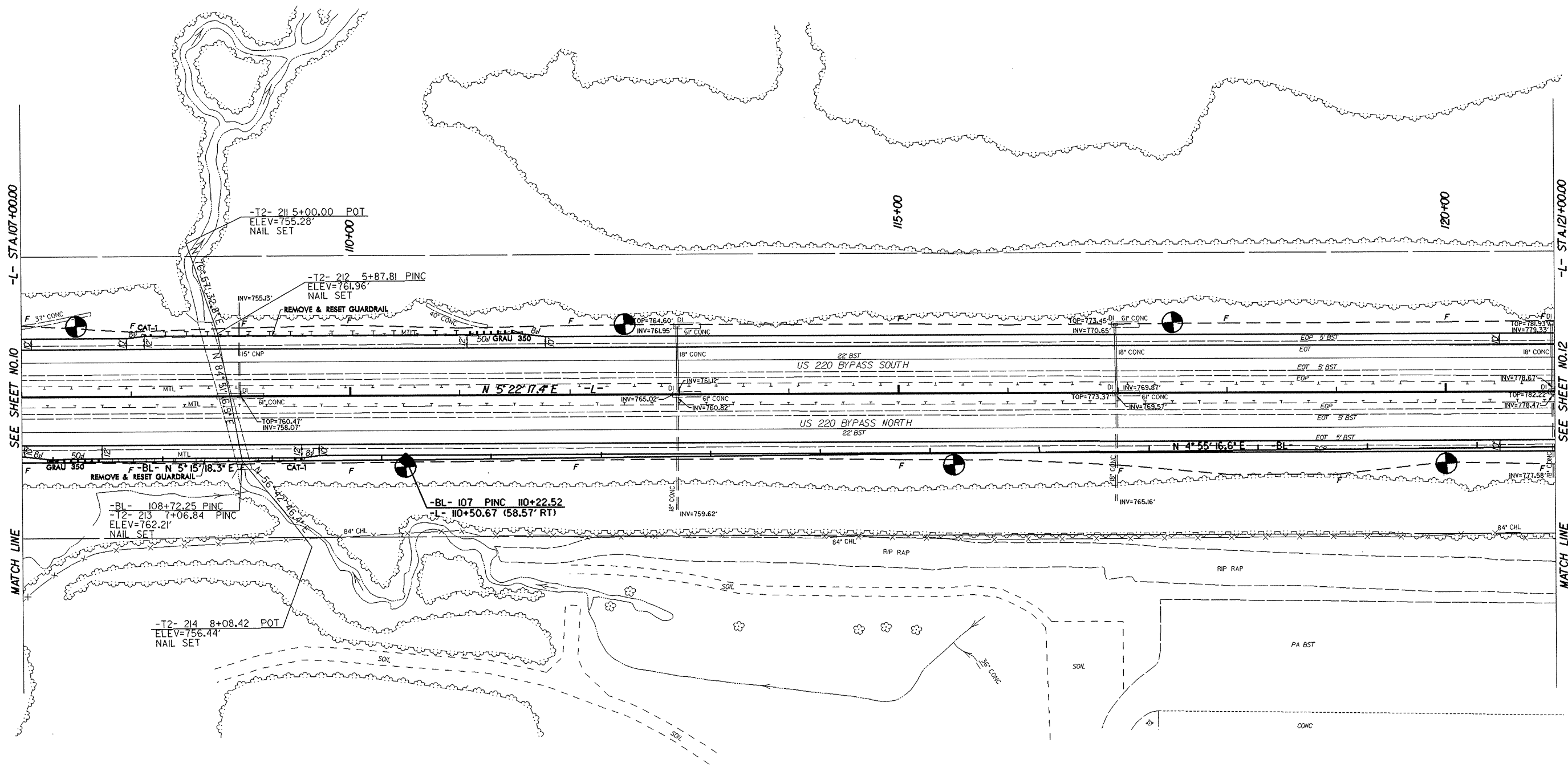
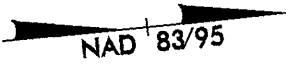
-L- CURVE DATA
 PI Sta 75+16.94
 Δ = 39°56'48.4" (RT)
 D = 0°59'59.7"
 L = 3,994.97'
 T = 2,082.54'
 R = 5,730.00'
 SE = EXISTING

NOTE: SEE SHEET 38 FOR -L- PROFILE

08-JUN-2007 09:10
 \\geh22109\proj\14407-geo-rwy-ranch\ph\cadd\geotech\planprof\14407-geo_rwy_010_psh10.dgn
 AT GEH226163

REVISIONS

PROJECT REFERENCE NO. 1-4407		SHEET NO. 11	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			



REVISIONS

-L- STA 107+00.00

SEE SHEET NO.10

MATCH LINE

120+00

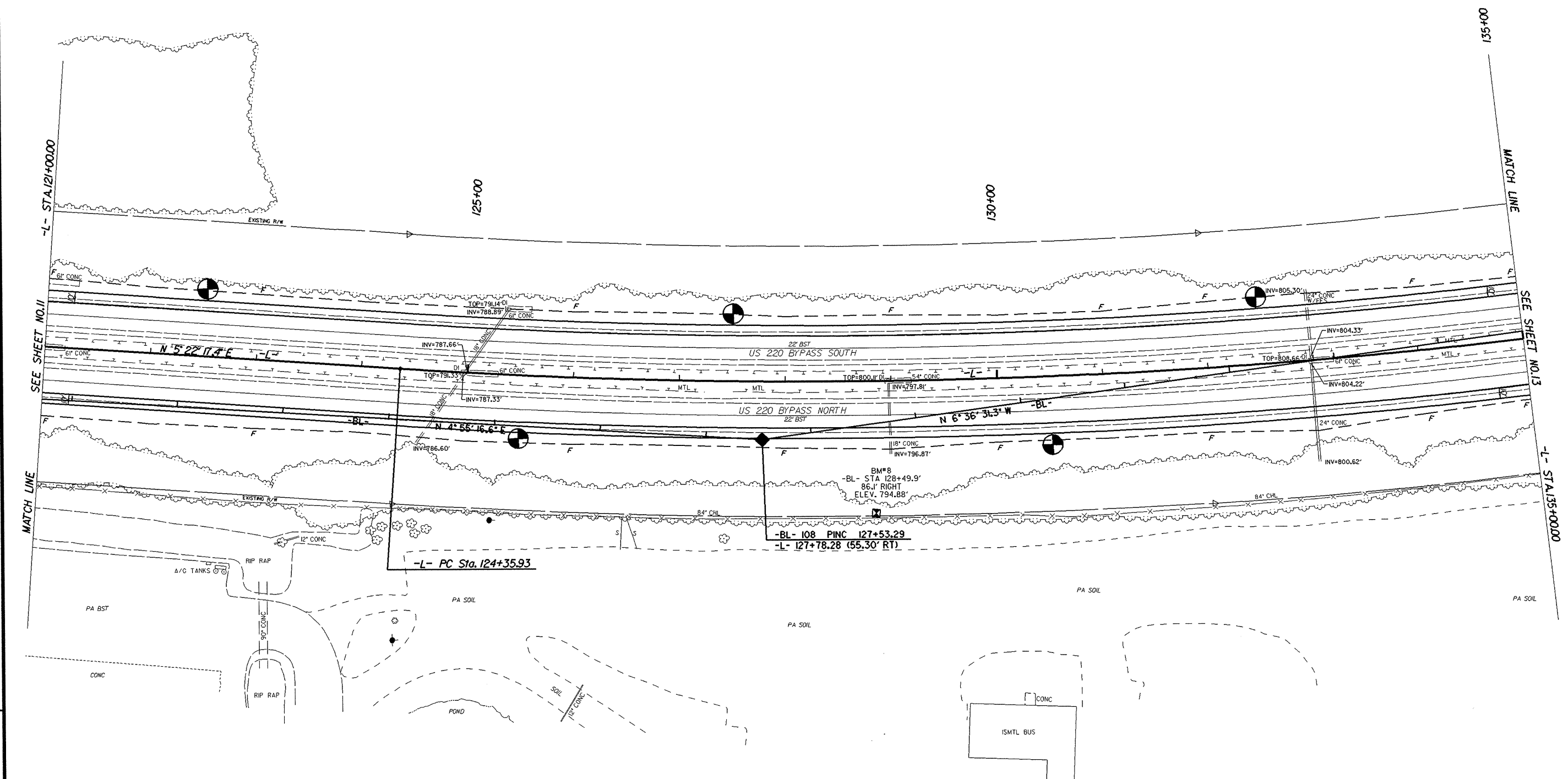
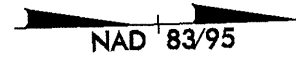
SEE SHEET NO.12

MATCH LINE

19-MAR-2007 08:11
d:\projects\4407\dwg\add\geotech\temp\prof\14407_CEO.rvw.011.psh11.dgn
14407
1221416

NOTE: SEE SHEET 38 FOR -L- PROFILE

PROJECT REFERENCE NO. 1-4407	SHEET NO. 12
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



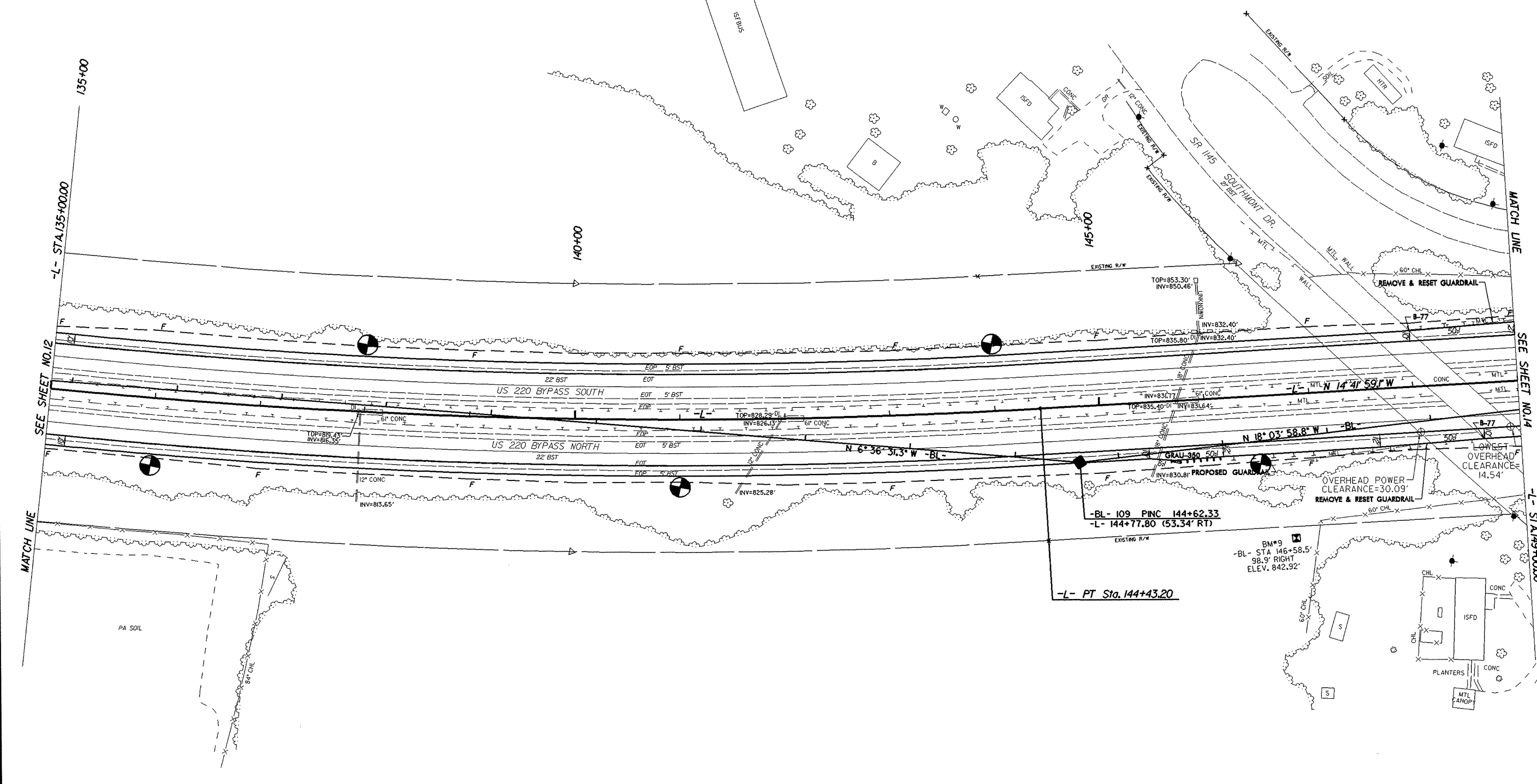
REVISIONS

19-MAR-2007 08:12
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 incclosure AT BEH21410

-L- CURVE DATA
 PI Sta 134+49.95
 $\Delta = 20^{\circ} 04' 16.4''$ (LT)
 $D = 0^{\circ} 59' 59.7''$
 $L = 2,007.27'$
 $T = 1,014.03'$
 $R = 5730.00'$
 SE = EXISTING

NOTE: SEE SHEET 39 FOR -L- PROFILE

PROJECT REFERENCE NO. 1-4407		SHEET NO. 13	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			



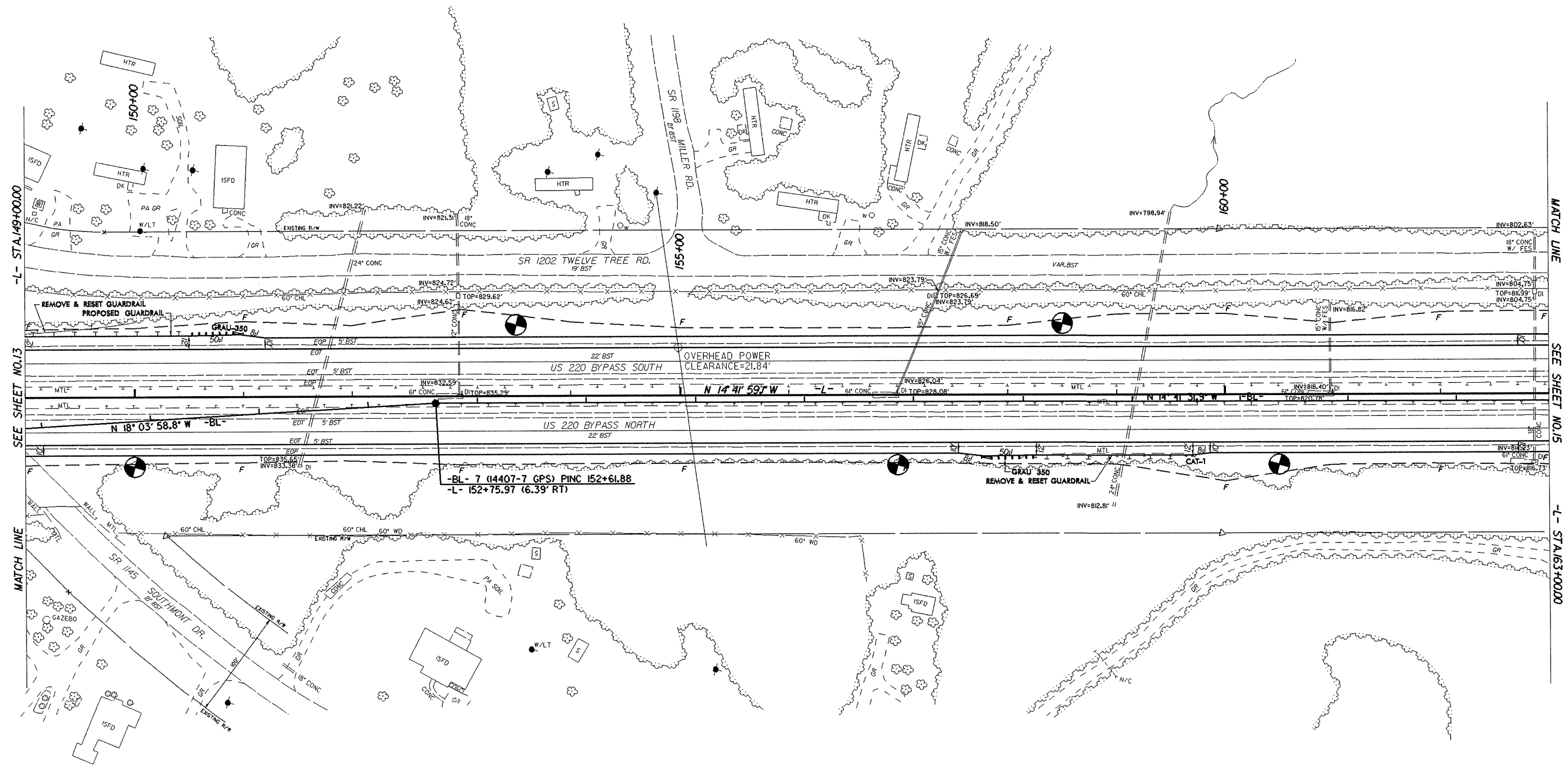
REVISIONS

19-MAR-2007 09:47:47 c:\projects\14407\GEO\inv\013_pah13.dgn
 di:\projects\14407\GEO\inv\013_pah13.dgn
 14407

-L- CURVE DATA
 PI Sta 134+49.95
 $\Delta = 20^{\circ}04'16.4" (LT)$
 $D = 0^{\circ}59'59.7"$
 $L = 2,007.27'$
 $T = 1,014.03'$
 $R = 5,730.00'$
 SE = EXISTING

NOTE: SEE SHEET 39 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
1-4407	14
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R.O.C. ACQUISITION	



REVISIONS

-L- STA 149+00.00

SEE SHEET NO. 13

MATCH LINE

MATCH LINE

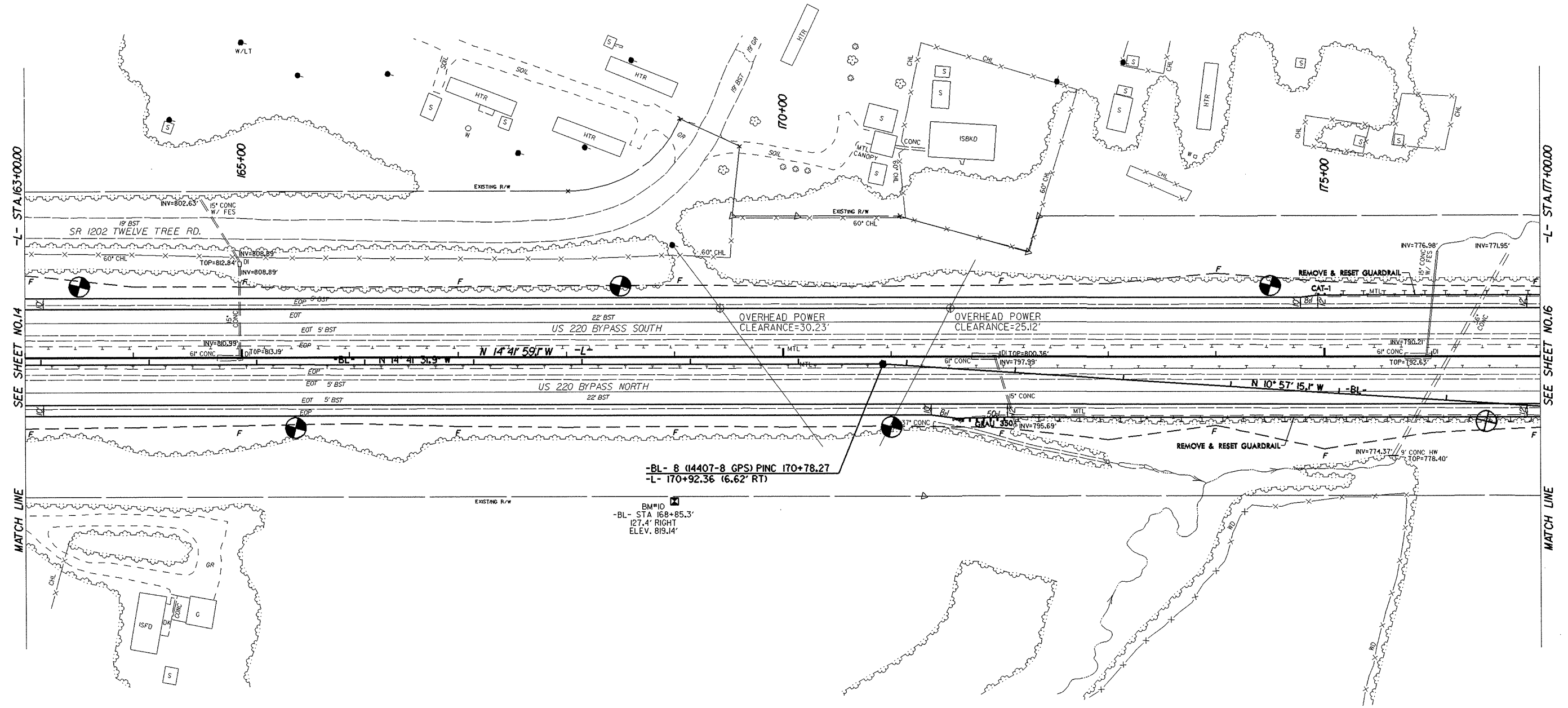
SEE SHEET NO. 15

-L- STA 163+00.00

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 imc\lure AT 6EH221410

NOTE: SEE SHEET 40 FOR -L- PROFILE

PROJECT REFERENCE NO. 1-4407		SHEET NO. 15	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			

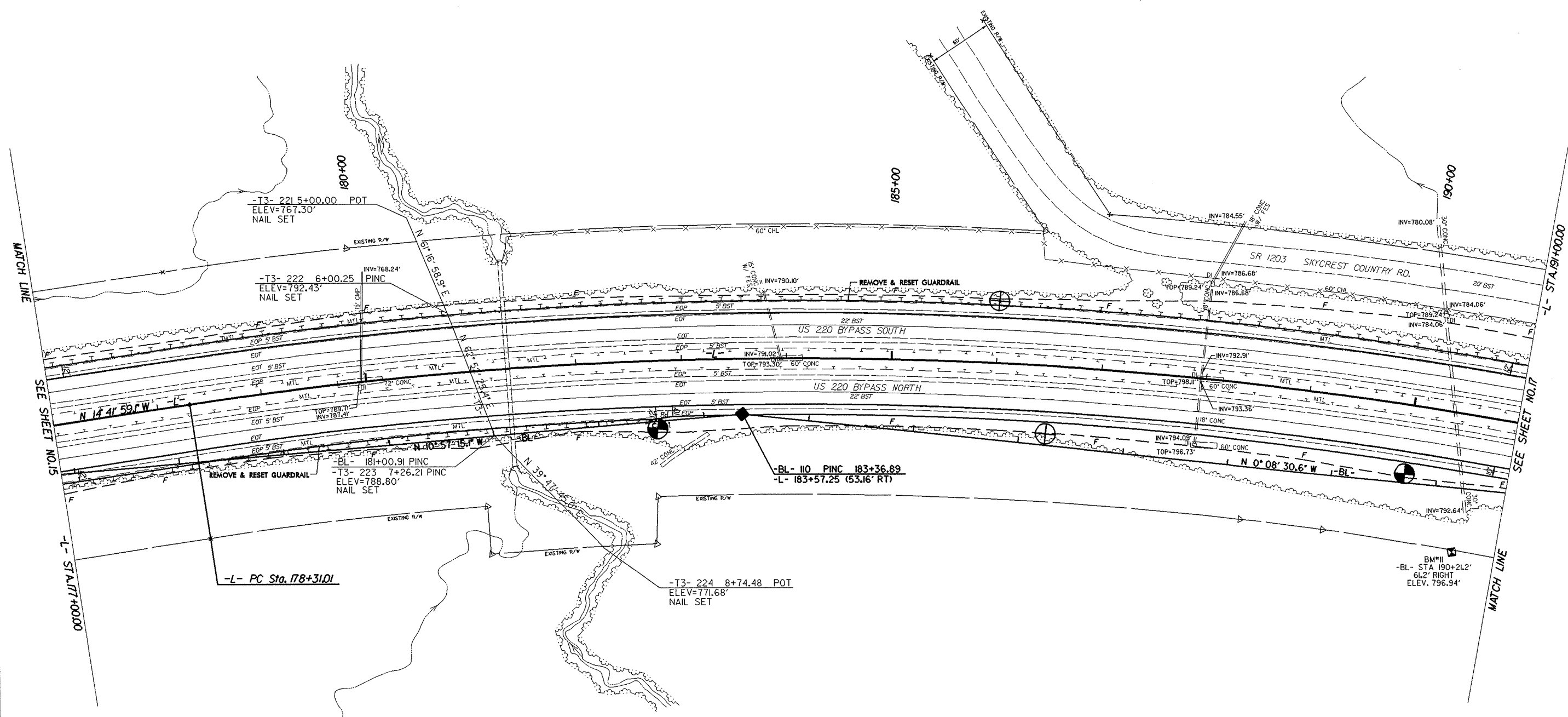
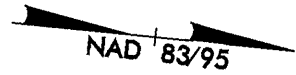


REVISIONS

19-MAR-2007 08:17 24107_220_rdw_randolph\cadd-geo\tech\plm\proj\14407_GEO_rwy_015_psh15.dgn
 Time: 06:21:40

NOTE: SEE SHEET 40 FOR -L- PROFILE

PROJECT REFERENCE NO. 1-4407		SHEET NO. 16	
RAW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			



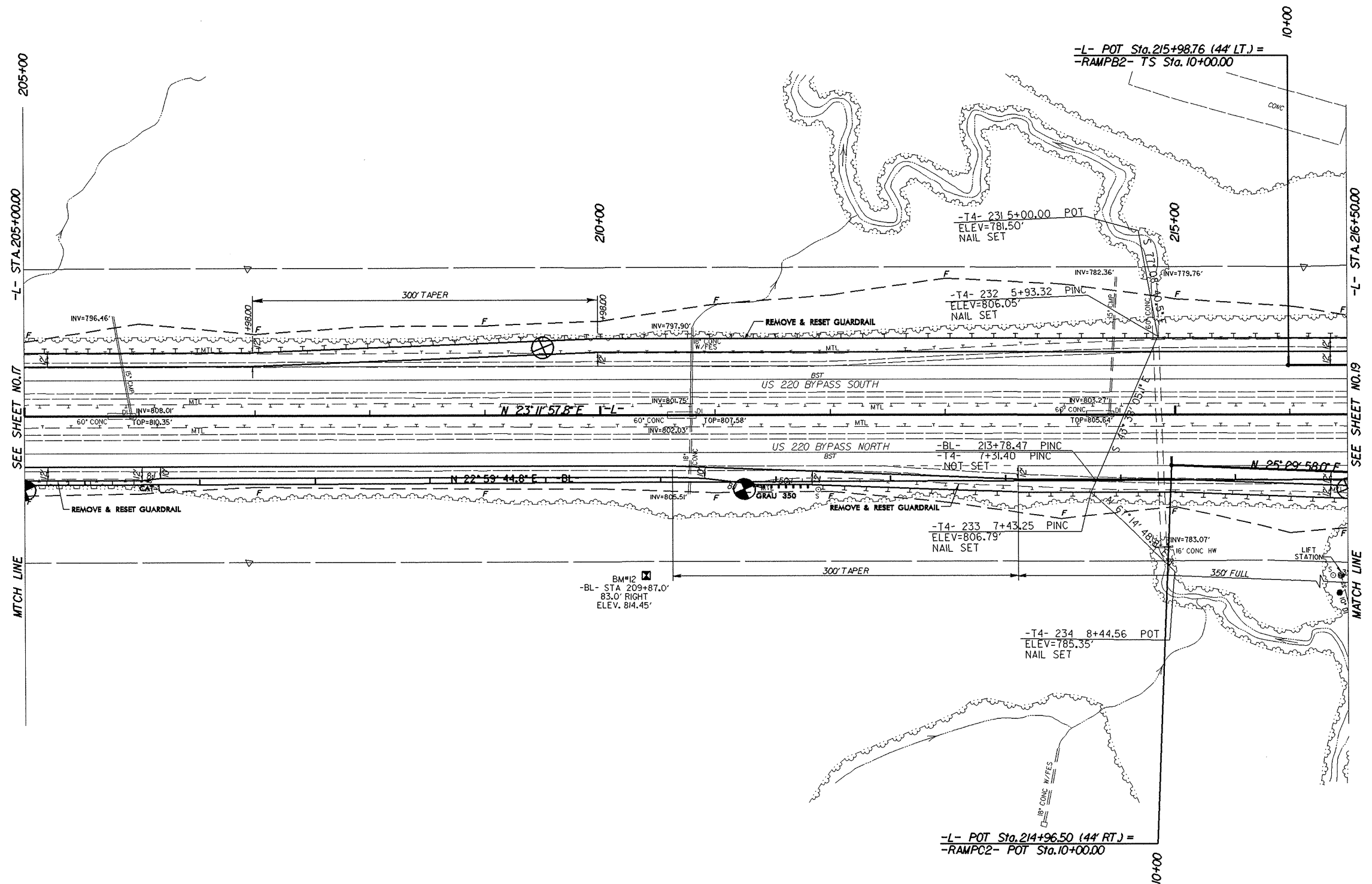
REVISIONS

19-MAR-2007 09:48
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 imc\lure AT GEH221410

-L- CURVE DATA
 PI Sta 191+42.58
 $\Delta = 37^\circ 53' 56.9''$ (RT)
 $D = 129' 59.6''$
 $L = 2,526.80'$
 $T = 1,311.57'$
 $R = 3,820.00'$
 SE = EXISTING

NOTE: SEE SHEET 41 FOR -L- PROFILE

PROJECT REFERENCE NO. 1-4407	SHEET NO. 18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



REVISIONS

19-MAR-2007 08:23
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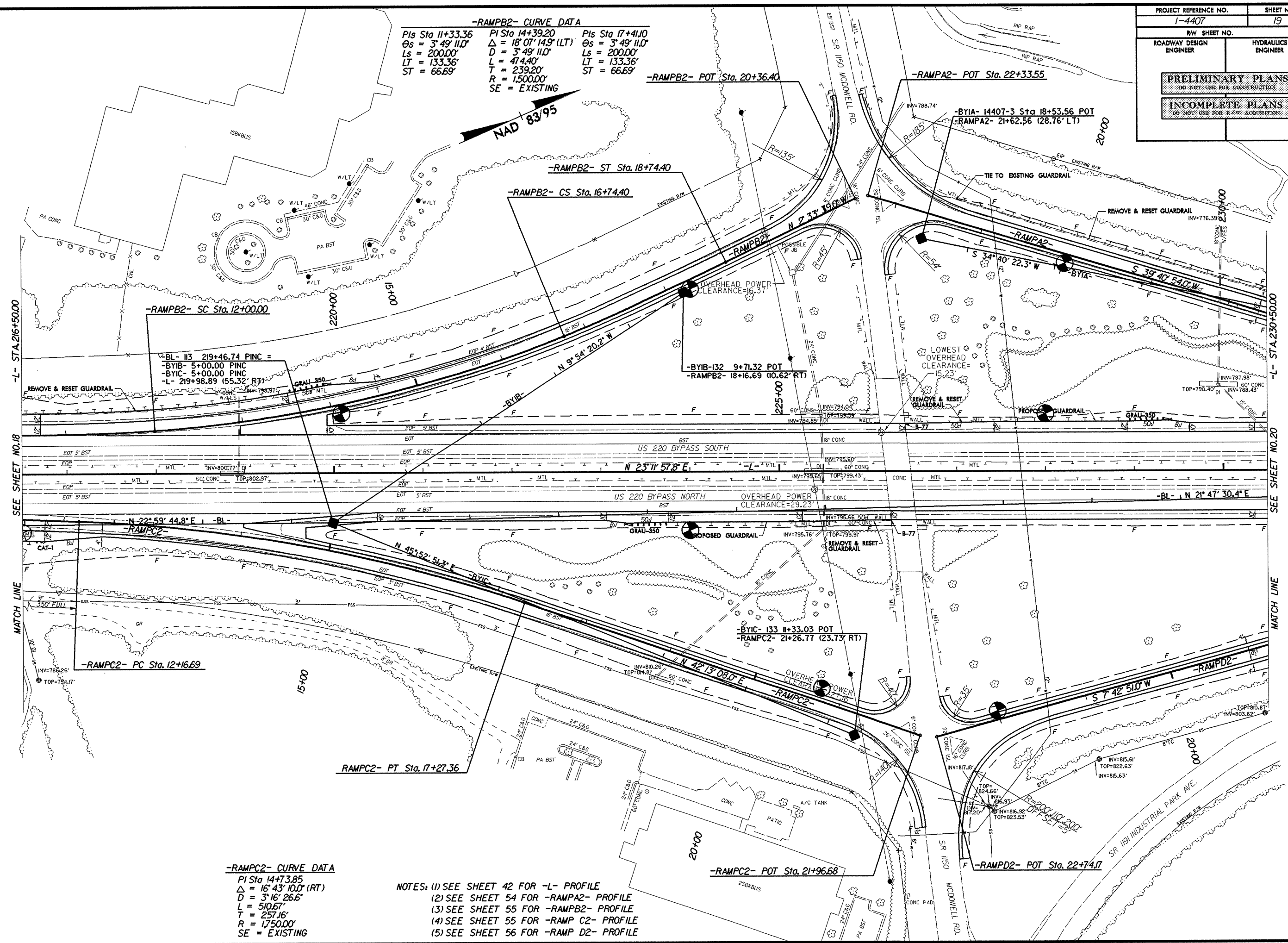
NOTES: (1) SEE SHEET 42 FOR -L- PROFILE
 (2) SEE SHEET 55 FOR -RAMPB2- PROFILE
 (3) SEE SHEET 55 FOR -RAMP2- PROFILE

PROJECT REFERENCE NO. 1-4407	SHEET NO. 19
RAW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

-RAMPB2- CURVE DATA
 PIs Sta 11+33.36 PI Sta 14+39.20 PIs Sta 17+41.0
 Os = 3° 49' 11.0" Δ = 18° 07' 14.9" (LT) Os = 3° 49' 11.0"
 Ls = 200.00' D = 3° 49' 11.0" Ls = 200.00'
 LT = 133.36' L = 474.40' LT = 133.36'
 ST = 66.69' T = 239.20' ST = 66.69'
 R = 1,500.00'
 SE = EXISTING

-RAMPC2- CURVE DATA
 PI Sta 14+73.85
 Δ = 16° 43' 10.0" (RT)
 D = 3° 16' 26.6"
 L = 510.67'
 T = 257.16'
 R = 1,750.00'
 SE = EXISTING

NOTES: (1) SEE SHEET 42 FOR -L- PROFILE
 (2) SEE SHEET 54 FOR -RAMPA2- PROFILE
 (3) SEE SHEET 55 FOR -RAMPB2- PROFILE
 (4) SEE SHEET 55 FOR -RAMPC2- PROFILE
 (5) SEE SHEET 56 FOR -RAMPD2- PROFILE



REVISIONS

SEE SHEET NO. 18

MATCH LINE

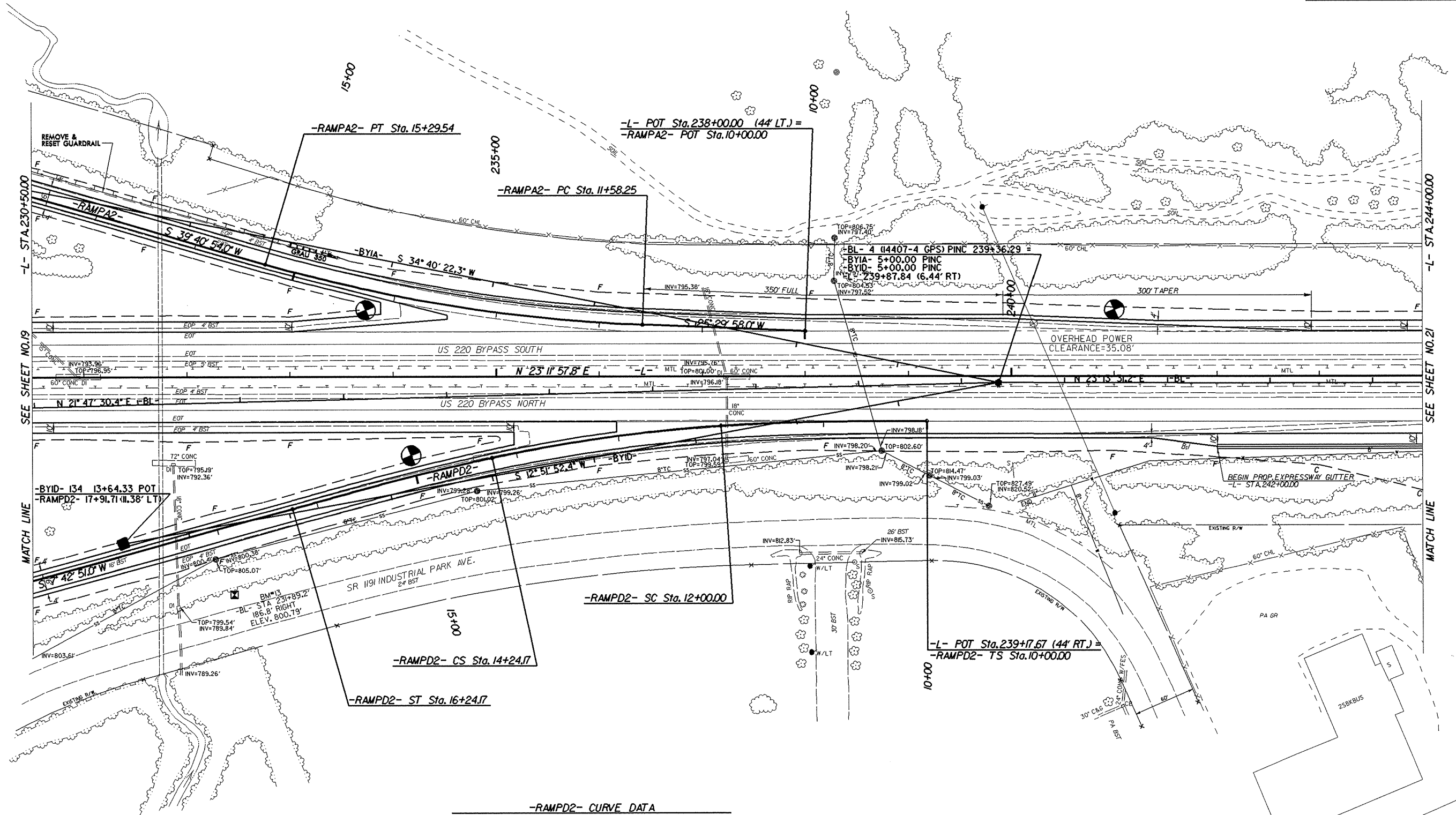
SEE SHEET NO. 20

MATCH LINE

19-MAR-2007 09:24 c:\mar-2007\14407-geo\plmproj\14407-geo\inv_019_psh19.dgn

-RAMPA2- CURVE DATA

PI Sta 13+44.85
 $\Delta = 14^{\circ} 10' 56.0''$ (RT)
 $D = 3^{\circ} 49' 11.0''$
 $L = 371.29'$
 $T = 186.60'$
 $R = 1,500.00'$



-RAMPD2- CURVE DATA

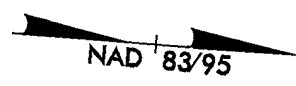
PIs Sta 14+90.86	PI Sta 13+12.28	PIs Sta 11+33.36
$\Theta_s = 3^{\circ} 38' 57.9''$	$\Delta = 8^{\circ} 10' 51.1''$ (LT)	$\Theta_s = 3^{\circ} 38' 57.9''$
$L_s = 200.00'$	$D = 3^{\circ} 38' 57.9''$	$L_s = 200.00'$
$LT = 133.36'$	$L = 224.77'$	$LT = 133.36'$
$ST = 66.69'$	$T = 112.28'$	$ST = 66.69'$
	$R = 1,570.00'$	
	SE = EXISTING	

NOTES: (1) SEE SHEET 43 FOR -L- PROFILE
 (2) SEE SHEET 54 FOR -RAMPA2- PROFILE
 (3) SEE SHEET 56 FOR -RAMPD2- PROFILE

REVISIONS

19-MAR-2007 08:26
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 imccleure

PROJECT REFERENCE NO. 1-4407	SHEET NO. 22
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	



-LLT- CURVE DATA
 PI Sta 18+73.57
 $\Delta = 33^{\circ} 38' 14.6''$ (LT)
 $D = 1^{\circ} 58' 57.2''$
 $L = 1696.67'$
 $T = 873.57'$
 $R = 2890.00'$
 SE = EXISTING

-L- CURVE DATA
 PI Sta 261+31.66
 $\Delta = 34^{\circ} 06' 48.1''$ (LT)
 $D = 2^{\circ} 00' 00.0''$
 $L = 1705.67'$
 $T = 878.95'$
 $R = 2864.79'$
 SE = EXISTING

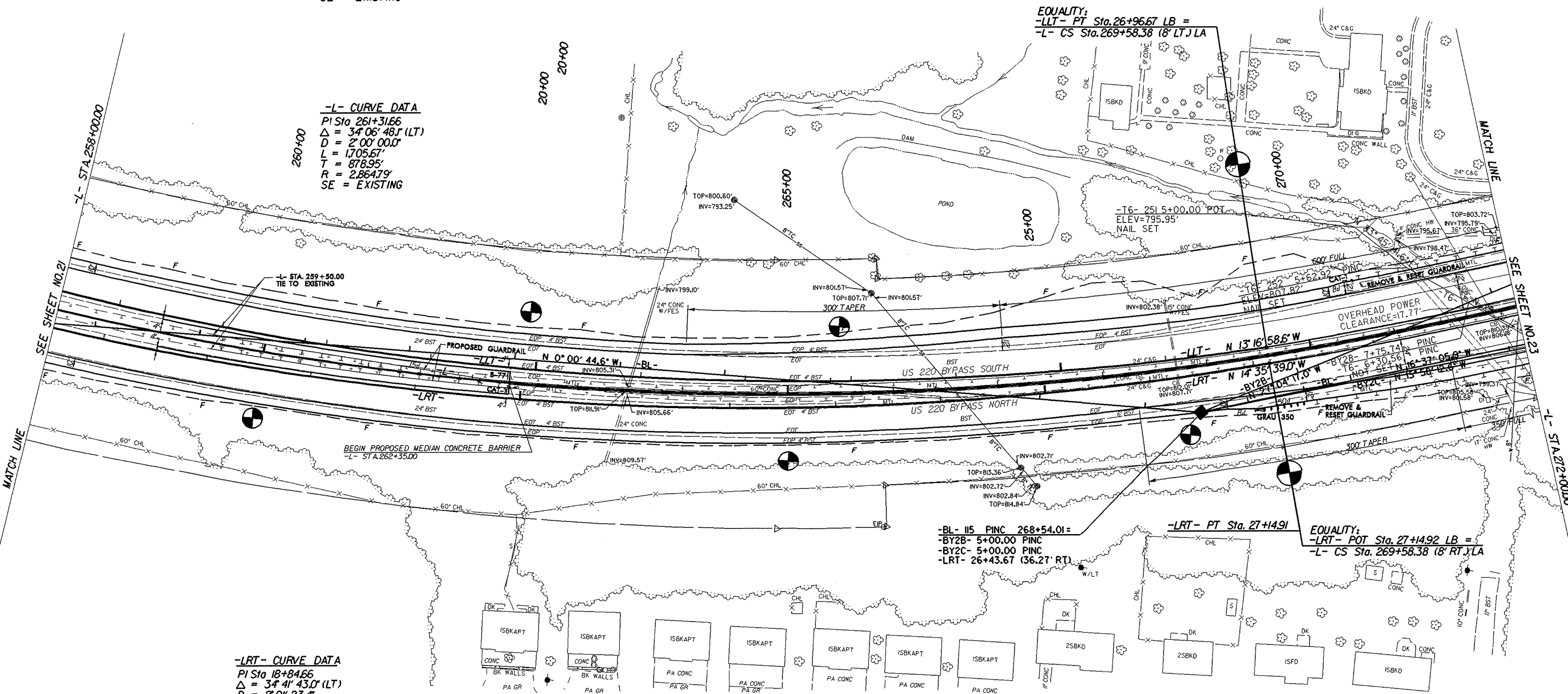
-LRT- CURVE DATA
 PI Sta 18+84.66
 $\Delta = 34^{\circ} 41' 43.0''$ (LT)
 $D = 2^{\circ} 01' 23.4''$
 $L = 1714.91'$
 $T = 884.65'$
 $R = 2832.00'$
 SE = EXISTING

EQUALITY:
 -LLT- PT Sta. 26+96.67 LB =
 -L- CS Sta. 269+58.38 (8' LT) LA

EQUALITY:
 -LRT- PT Sta. 27+14.91
 -LRT- POT Sta. 27+14.92 LB =
 -L- CS Sta. 269+58.38 (8' RT) LA

-L- SPIRAL DATA
 PIs Sta 270+58.40
 $\theta_s = 3^{\circ} 00' 00.0''$
 $L_s = 300.00'$
 $LT = 200.03'$
 $ST = 100.03'$

NOTE: SEE SHEET 44 FOR -L- PROFILE



REVISIONS

19-MAR-2007 08:28
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 imcclure

-64RAMPB- CURVE DATA

PIs Sta 11+33.49 Os = 8° 33' 05.8" Ls = 200.00' LT = 133.49' ST = 66.81'	PI Sta 13+39.05 Δ = 23° 26' 58.2" (LT) D = 8° 33' 05.8" L = 274.21' T = 139.05' SE = EXISTING	PIs Sta 15+41.02 Os = 8° 33' 05.8" Ls = 200.00' LT = 133.49' ST = 66.81'	PI Sta 18+05.78 Δ = 21° 47' 30.0" (RT) D = 10° 58' 34.3" L = 198.54' T = 100.48' SE = EXISTING
--	--	--	---

-64RAMPB- PC Sta. 17+05.29
-64RAMPB- ST Sta. 16+74.21
-64RAMPB- PT Sta. 19+03.63
-BY2B- 137 17+85.40 POT
-64RAMPB- 18+58.34 (34.6' LT)

-64LOOPB- CURVE DATA

PI Sta 10+68.18 Δ = 30° 30' 40.2" (RT) D = 22° 55' 05.9" L = 133.13' T = 68.18' R = 250.00' SE = EXISTING

-L- POT Sta. 282+77.48 (32' LT) =
-64LOOPB- PC Sta. 10+00.00

-L- POT Sta. 283+02.12 (32' RT) =
-64LOOPC- PC Sta. 10+00.00

-64LOOPC- CURVE DATA

PI Sta 10+87.93 Δ = 33° 44' 08.8" (LT) D = 19° 45' 25.8" L = 170.75' T = 87.93' R = 290.00' SE = EXISTING

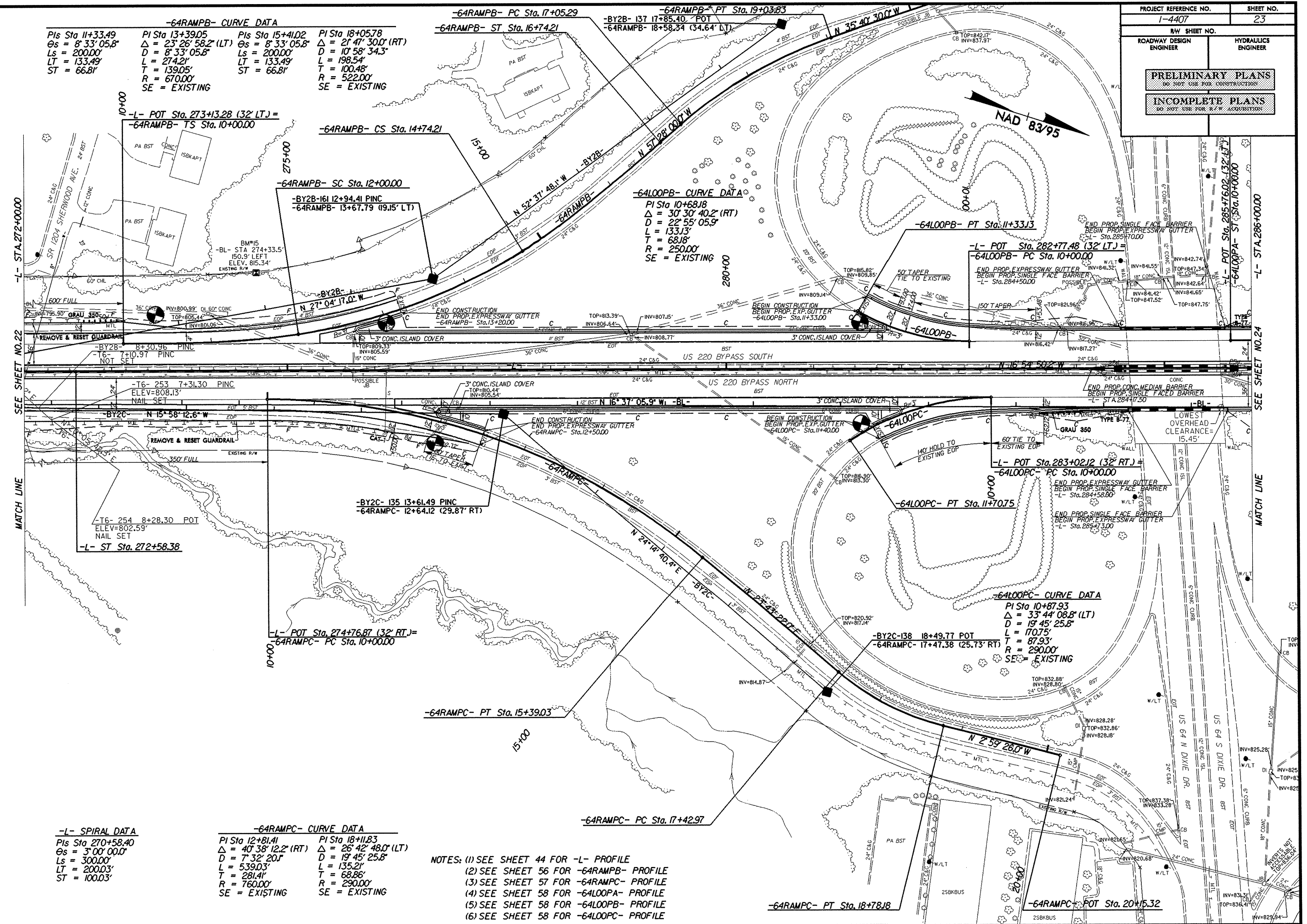
-L- SPIRAL DATA

PIs Sta 270+58.40 Os = 3° 00' 00.0" Ls = 300.00' LT = 200.03' ST = 100.03'
--

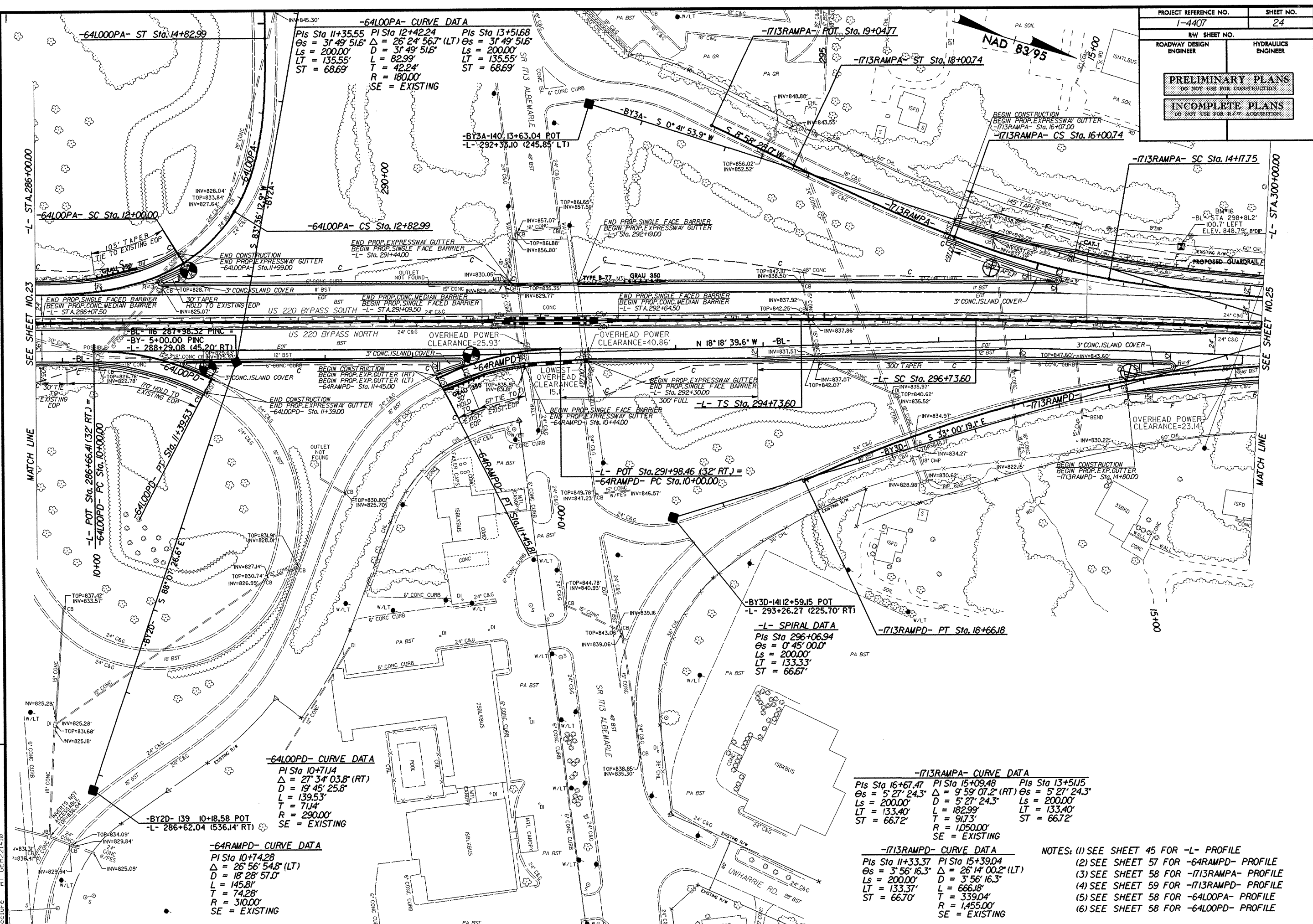
-64RAMPC- CURVE DATA

PI Sta 12+81.41 Δ = 40° 38' 12.2" (RT) D = 7° 32' 20.1" L = 539.03' T = 281.41' R = 760.00' SE = EXISTING	PI Sta 18+11.83 Δ = 26° 42' 48.0" (LT) D = 19° 45' 25.8" L = 135.21' T = 68.86' R = 290.00' SE = EXISTING
---	---

NOTES: (1) SEE SHEET 44 FOR -L- PROFILE
 (2) SEE SHEET 56 FOR -64RAMPB- PROFILE
 (3) SEE SHEET 57 FOR -64RAMPC- PROFILE
 (4) SEE SHEET 58 FOR -64LOOBA- PROFILE
 (5) SEE SHEET 58 FOR -64LOOPB- PROFILE
 (6) SEE SHEET 58 FOR -64LOOPC- PROFILE



13-MAR-2007 09:37
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 imc\jclure



-64LOOPA- CURVE DATA
 PIs Sta 11+35.55 PI Sta 12+42.24 PI Sta 13+51.68
 Os = 31° 49' 51.6" Δ = 26° 24' 56.7" (LT) Os = 31° 49' 51.6"
 Ls = 200.00' D = 31° 49' 51.6" Ls = 200.00'
 LT = 135.55' L = 82.99' LT = 135.55'
 ST = 68.69' T = 42.24' ST = 68.69'
 R = 180.00'
 SE = EXISTING

-64LOOPD- CURVE DATA
 PI Sta 10+71.14
 Δ = 27° 34' 03.8" (RT)
 D = 19° 45' 25.8"
 L = 139.53'
 T = 71.14'
 R = 290.00'
 SE = EXISTING

-64RAMPD- CURVE DATA
 PI Sta 10+74.28
 Δ = 26° 56' 54.8" (LT)
 D = 18° 28' 57.0"
 L = 145.81'
 T = 74.28'
 R = 310.00'
 SE = EXISTING

-1713RAMPA- CURVE DATA
 PIs Sta 16+67.47 PI Sta 15+09.48 PI Sta 13+51.15
 Os = 5° 27' 24.3" Δ = 9° 59' 07.2" (RT) Os = 5° 27' 24.3"
 Ls = 200.00' D = 5° 27' 24.3" Ls = 200.00'
 LT = 133.40' L = 182.99' LT = 133.40'
 ST = 66.72' T = 91.73' ST = 66.72'
 R = 1050.00'
 SE = EXISTING

-1713RAMPD- CURVE DATA
 PIs Sta 11+33.37 PI Sta 15+39.04
 Os = 3° 58' 16.3" Δ = 26° 14' 00.2" (LT)
 Ls = 200.00' D = 3° 58' 16.3" Ls = 200.00'
 LT = 133.37' L = 666.18'
 ST = 66.70' T = 339.04'
 R = 1,455.00'
 SE = EXISTING

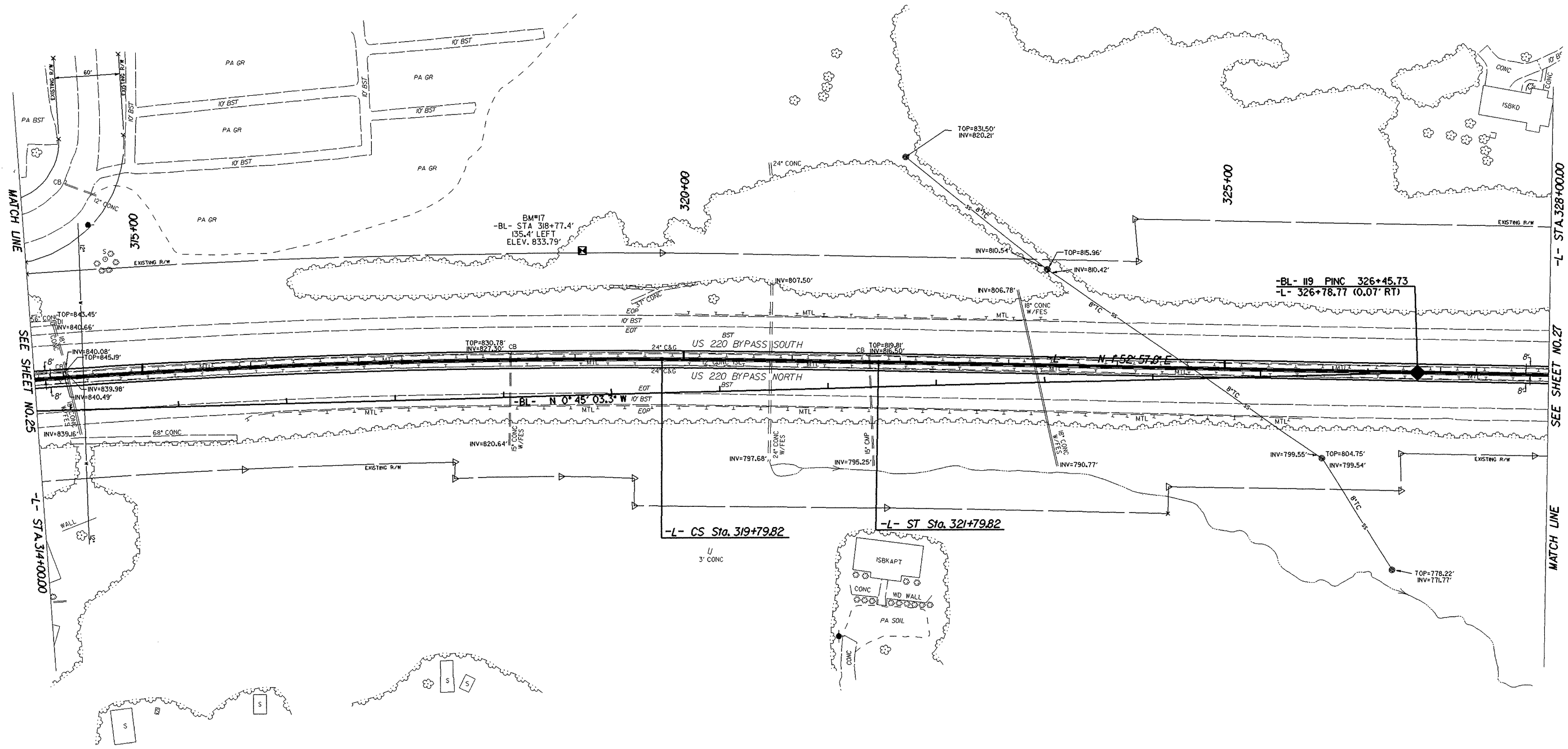
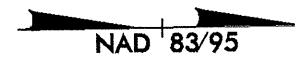
- NOTES: (1) SEE SHEET 45 FOR -L- PROFILE
 (2) SEE SHEET 57 FOR -64RAMPD- PROFILE
 (3) SEE SHEET 58 FOR -1713RAMPA- PROFILE
 (4) SEE SHEET 59 FOR -1713RAMPD- PROFILE
 (5) SEE SHEET 58 FOR -64LOOPA- PROFILE
 (6) SEE SHEET 58 FOR -64LOOPD- PROFILE

REVISIONS

SEE SHEET NO. 23

SEE SHEET NO. 25

19-MAR-2007 08:33
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REVISIONS

MATCH LINE

SEE SHEET NO.25

-L- STA 314+00.00

-L- STA 328+00.00

SEE SHEET NO.27

MATCH LINE

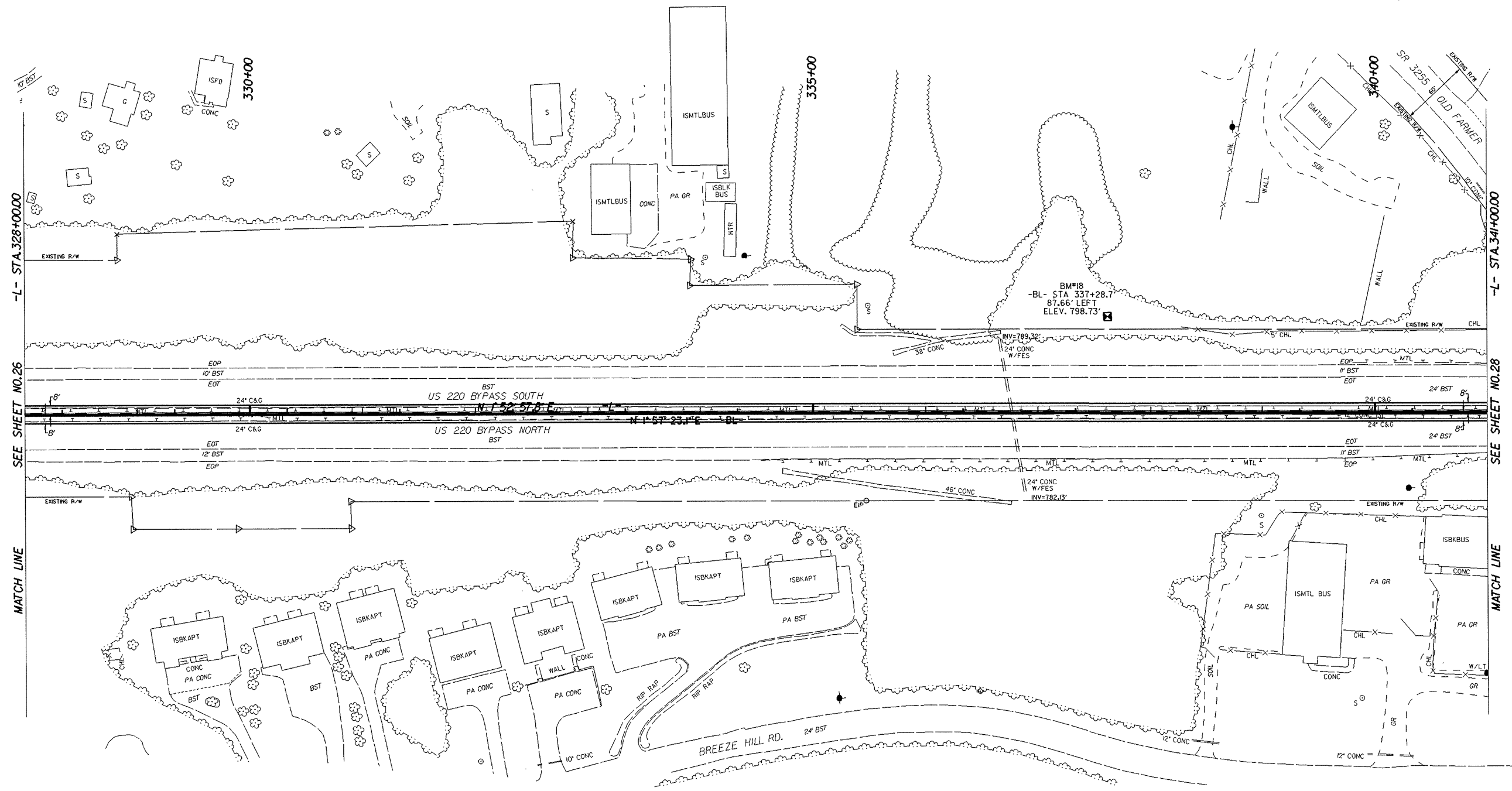
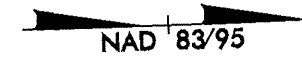
19-MAR-2007 08:36
 d:\projects\14407\14407.dwg_rondo\p\cadd-geo\tech\p\lmp\prof\14407_GEO_inv_026_psh.26.dgn
 imedure AI 08121410

-L- CURVE DATA

PI Sta 308+35.55	PIs Sta 320+46.49
$\Delta = 17^{\circ} 17' 48.0''$ (RT)	$\Theta_s = 0^{\circ} 45' 00.0''$
$D = 0^{\circ} 45' 00.0''$	$L_s = 200.00'$
$L = 2,306.22'$	$LT = 133.33'$
$T = 1,161.95'$	$ST = 66.67'$
$R = 7,639.44'$	
$SE = \text{EXISTING}$	

NOTE: SEE SHEET 46 FOR -L- PROFILE

PROJECT REFERENCE NO. I-4407		SHEET NO. 27	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION			
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			

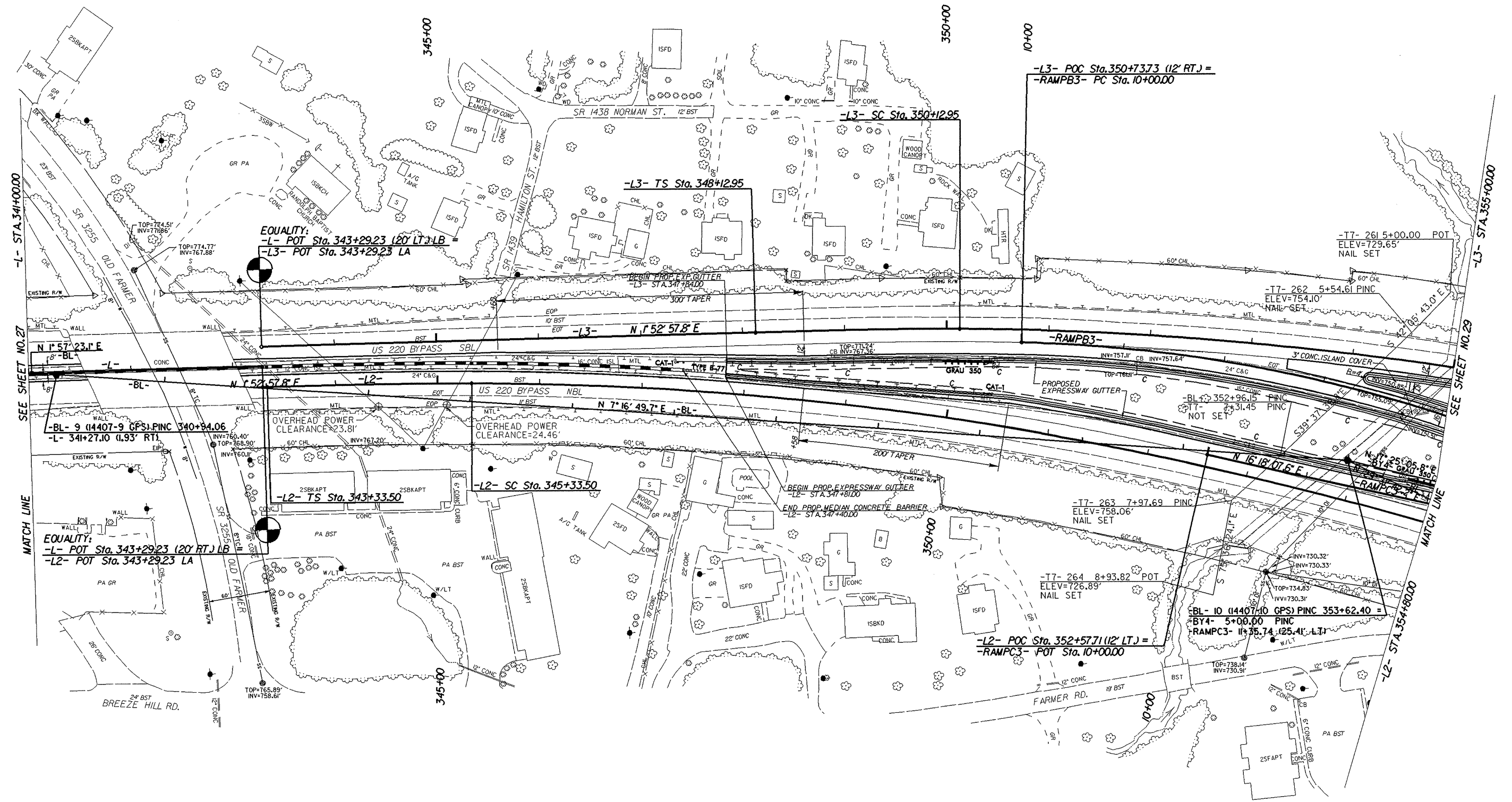
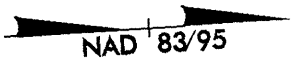


REVISIONS

19-MAR-2007 09:38
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 imcclore AT 6/11/07

NOTE: SEE SHEET 46 FOR -L- PROFILE

-L3- CURVE DATA
 PIs Sta 349+46.29 PI Sta 359+24.85
 $\Delta = 1^{\circ}44'58.2''$ $\Delta = 31^{\circ}07'07.3''$ (RT)
 $L_s = 200.00'$ $D = 1^{\circ}44'58.2''$
 $L_T = 133.34'$ $L = 1778.73'$
 $ST = 66.67'$ $T = 911.89'$
 $R = 3,275.00'$
 SE = EXISTING



-L2- CURVE DATA
 PIs Sta 344+66.84 PI Sta 353+84.00
 $\Delta = 1^{\circ}44'58.2''$ $\Delta = 29^{\circ}06'55.6''$ (RT)
 $L_s = 200.00'$ $D = 1^{\circ}44'58.2''$
 $L_T = 133.34'$ $L = 1664.22'$
 $ST = 66.67'$ $T = 850.49'$
 $R = 3,275.00'$
 SE = EXISTING

- NOTES: (1) SEE SHEET 47 or 49 FOR -L- PROFILE
 (2) SEE SHEET 47 FOR -L2- PROFILE
 (3) SEE SHEET 49 FOR -L3- PROFILE
 (4) SEE SHEET 59 FOR -RAMPB3- PROFILE
 (5) SEE SHEET 60 FOR -RAMPC3- PROFILE

REVISIONS

19-MAR-2007 09:40
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 G:\projects\14407\14407.GEO\planprof\14407.GEO.mv_028.psh28.dgn

-RAMPB3- CURVE DATA

PI Sta 12+31.79 Δ = 18° 48' 06.3" (RT) D = 4' 05" 33.2" L = 459.41' T = 231.79' R = 1,400.00' SE = EXISTING	PI Sta 18+59.14 Δ = 1° 20' 50.0" (LT) D = 1' 38" 13.3" L = 82.30' T = 41.5' R = 3,500.00' SE = EXISTING	PI Sta 21+36.32 Δ = 10° 54' 49.0" (RT) D = 5' 35" 23.4" L = 195.24' T = 97.92' R = 1,025.00' SE = EXISTING
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-L3- CURVE DATA

PI Sta 359+24.85 Δ = 31° 07' 07.3" (RT) D = 1' 44" 58.2" L = 177.673' T = 91.89' R = 3,275.00' SE = EXISTING	PIs Sta 368+58.36 Os = 1' 44" 58.2" Ls = 200.00' LT = 133.34' ST = 66.67'
--	---

-RAMP3- CURVE DATA

PI Sta 17+94.51 Δ = 16° 42' 19.4" (RT) D = 3' 34" 51.6" L = 466.50' T = 234.92' R = 1,600.00' SE = EXISTING

-L2- CURVE DATA

PI Sta 353+84.00 Δ = 29° 06' 55.6" (RT) D = 1' 44" 58.2" L = 1664.22' T = 850.49' R = 3,275.00' SE = EXISTING	PIs Sta 362+64.40 Os = 1' 44" 58.2" Ls = 200.00' LT = 133.34' ST = 66.67'
---	---



NOTES: (1) SEE SHEET 47 FOR -L2- PROFILE
 (2) SEE SHEET 49 FOR -L3- PROFILE
 (3) SEE SHEET 59 FOR -RAMPB3- PROFILE
 (4) SEE SHEET 60 FOR -RAMP3- PROFILE

19-MAR-2007 08:17:29 g:\p\dwj_randolph\cadd\geotech\planproj\14407_GEO.inv_029_psh29.dgn
 g:\p\dwj_randolph\cadd\geotech\planproj\14407_GEO.inv_029_psh29.dgn
 g:\p\dwj_randolph\cadd\geotech\planproj\14407_GEO.inv_029_psh29.dgn

-L3- CURVE DATA

PIs Sta 373+25.25	PI Sta 383+52.85
Δs = 1° 30' 06.7"	Δ = 28° 16' 32.3" (LT)
Ls = 200.00'	D = 1° 30' 06.7"
LT = 133.34'	L = 1882.71'
ST = 66.67'	T = 960.94'
	R = 3,815.00'
	SE = EXISTING

-RAMP4- CURVE DATA

PI Sta 18+64.85
Δ = 10° 44' 42.4" (RT)
D = 3° 49' 11.0"
L = 281.31'
T = 141.07'
R = 1,500.00'
SE = EXISTING

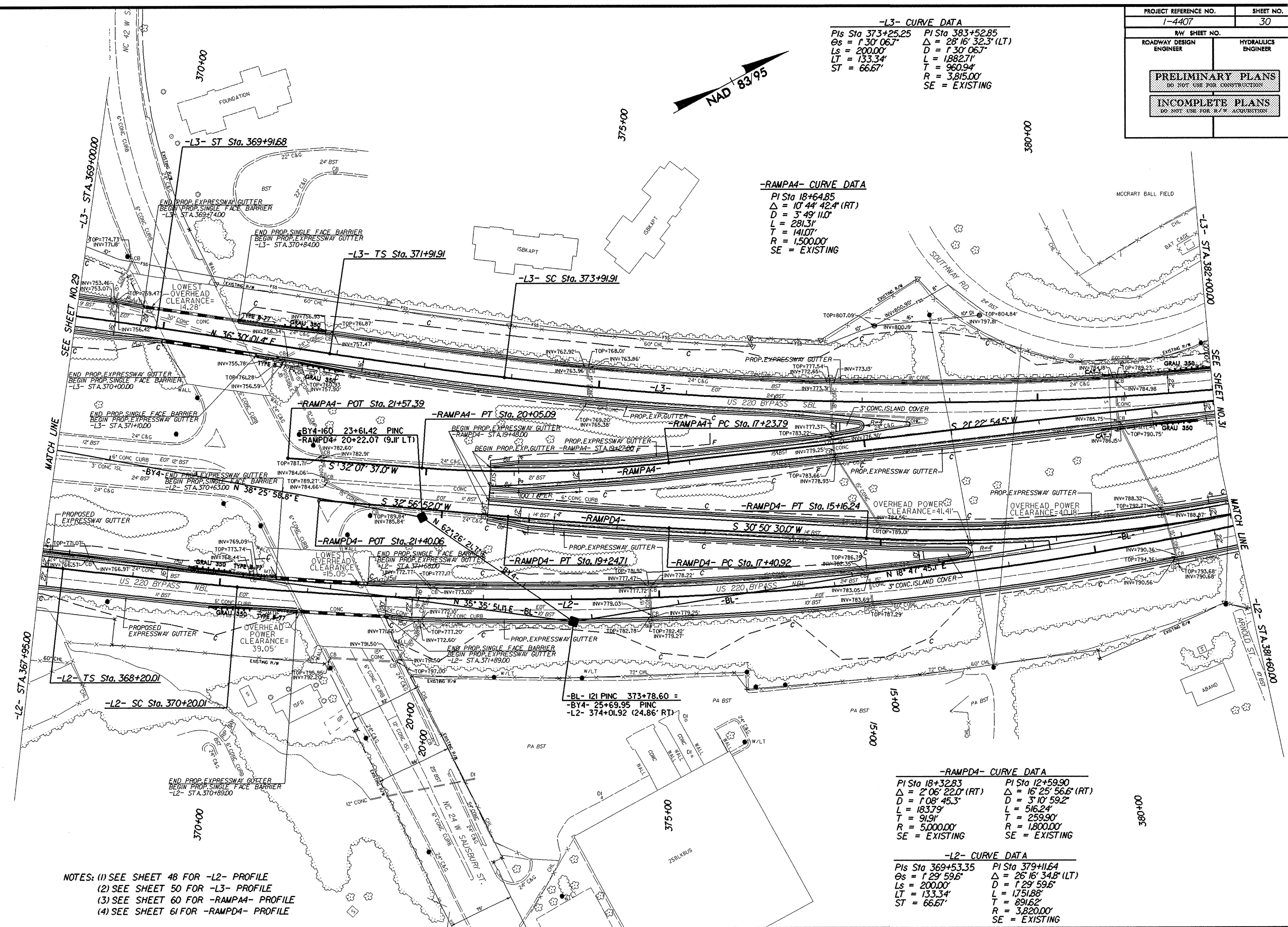
-RAMP4- CURVE DATA

PI Sta 18+32.83	PI Sta 12+59.90
Δ = 2° 06' 22.0" (RT)	Δ = 16° 25' 56.6" (RT)
D = 1° 08' 45.3"	D = 3° 10' 59.2"
L = 183.79'	L = 516.24'
T = 91.91'	T = 259.90'
R = 5,000.00'	R = 1,800.00'
SE = EXISTING	SE = EXISTING

-L2- CURVE DATA

PIs Sta 369+53.35	PI Sta 379+11.64
Δs = 1° 29' 59.6"	Δ = 26° 16' 34.8" (LT)
Ls = 200.00'	D = 1° 29' 59.6"
LT = 133.34'	L = 1,751.88'
ST = 66.67'	T = 891.62'
	R = 3,820.00'
	SE = EXISTING

- NOTES: (1) SEE SHEET 48 FOR -L2- PROFILE
 (2) SEE SHEET 50 FOR -L3- PROFILE
 (3) SEE SHEET 60 FOR -RAMP4- PROFILE
 (4) SEE SHEET 61 FOR -RAMP4- PROFILE

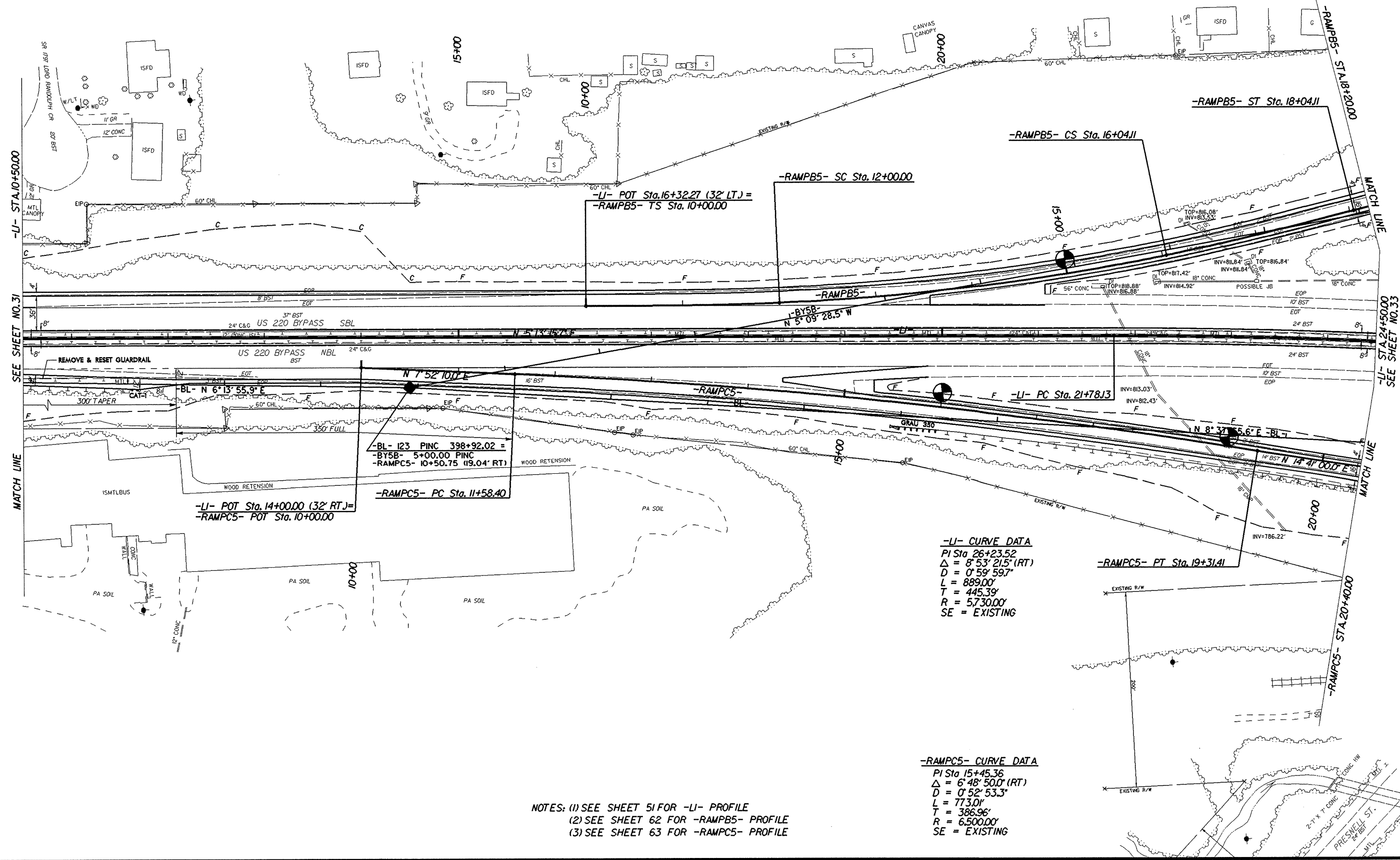
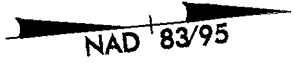


19-MAR-2007 08:47
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 14407_030.dwg

PROJECT REFERENCE NO. I-4407	SHEET NO. 32
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

-RAMPB5- CURVE DATA

PIs Sta 11+33.34	PI Sta 14+02.51	PIs Sta 16+70.79
$\Theta_s = 2^\circ 20' 19.0"$	$\Delta = 9^\circ 27' 01.7" (LT)$	$\Theta_s = 2^\circ 20' 19.0"$
$L_s = 200.00'$	$D = 2^\circ 20' 19.0"$	$L_s = 200.00'$
$LT = 133.34'$	$L = 404.11'$	$LT = 133.34'$
$ST = 66.68'$	$T = 202.51'$	$ST = 66.68'$
	$R = 2,450.00'$	
	$SE = EXISTING$	



-LI- CURVE DATA

PI Sta 26+23.52
$\Delta = 8^\circ 53' 21.5" (RT)$
$D = 0^\circ 59' 59.7"$
$L = 889.00'$
$T = 445.39'$
$R = 5,730.00'$
$SE = EXISTING$

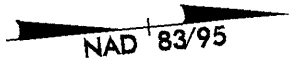
-RAMPC5- CURVE DATA

PI Sta 15+45.36
$\Delta = 6^\circ 48' 50.0" (RT)$
$D = 0^\circ 52' 53.3"$
$L = 773.01'$
$T = 386.96'$
$R = 6,500.00'$
$SE = EXISTING$

NOTES: (1) SEE SHEET 51 FOR -LI- PROFILE
(2) SEE SHEET 62 FOR -RAMPB5- PROFILE
(3) SEE SHEET 63 FOR -RAMPC5- PROFILE

REVISIONS

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g:\projects\14407\GEO\inv_032_psh32.dgn
14407



-RAMPB5- CURVE DATA
 PI Sta 21+70.81
 $\Delta = 17^{\circ} 50' 29.0''$ (RT)
 $D = 4^{\circ} 57' 38.4''$
 $L = 359.66'$
 $T = 181.30'$
 $R = 1155.00'$
 SE = EXISTING

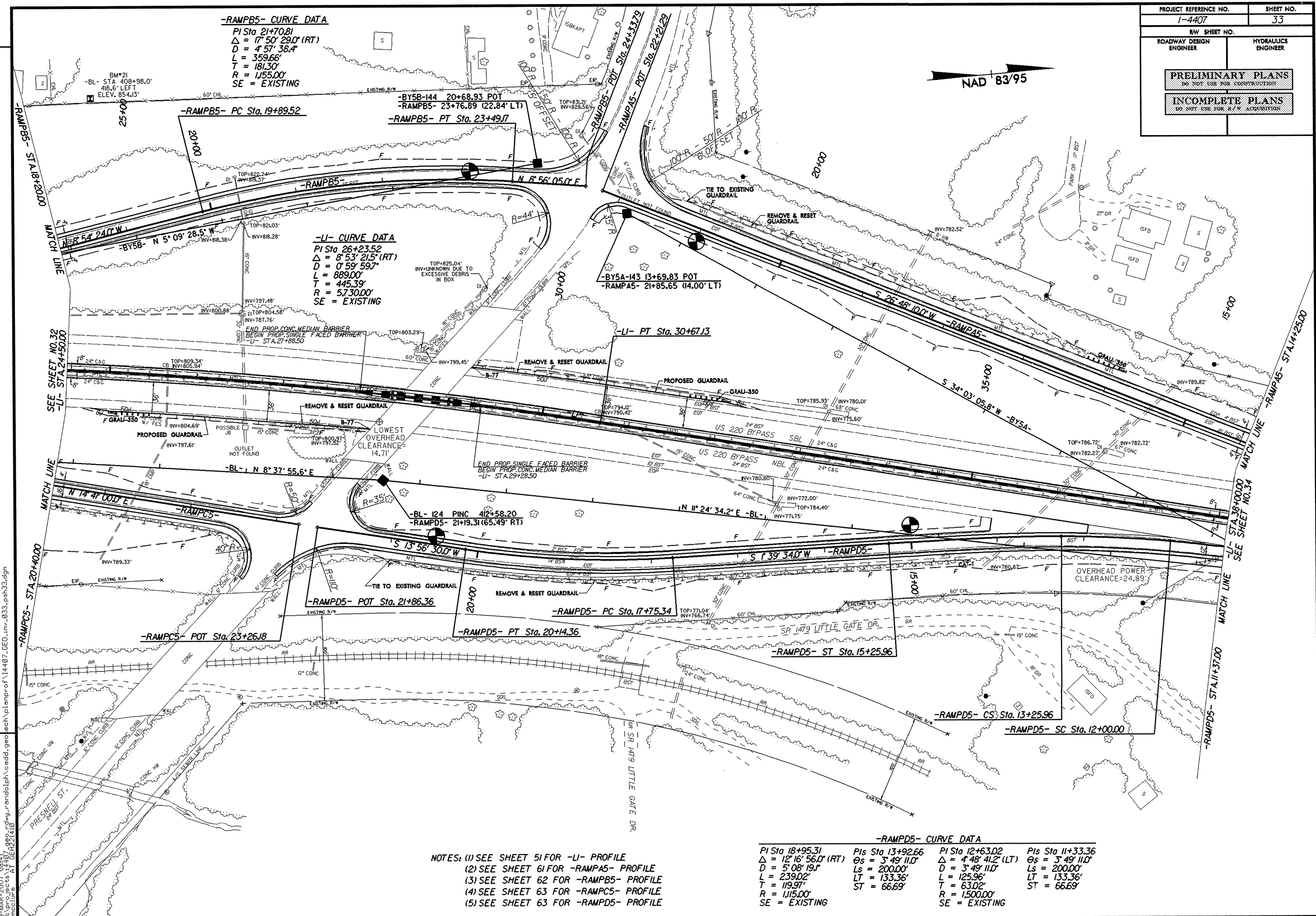
-LI- CURVE DATA
 PI Sta 26+23.52
 $\Delta = 8^{\circ} 53' 21.5''$ (RT)
 $D = 0^{\circ} 59' 59.7''$
 $L = 889.00'$
 $T = 445.39'$
 $R = 5730.00'$
 SE = EXISTING

-RAMPD5- CURVE DATA

PI Sta 18+95.31	PIs Sta 13+92.66	PI Sta 12+63.02	PIs Sta 11+33.36
$\Delta = 12^{\circ} 16' 56.0''$ (RT)	$\Delta = 3^{\circ} 49' 11.0''$	$\Delta = 4^{\circ} 48' 41.2''$ (LT)	$\Delta = 3^{\circ} 49' 11.0''$
$D = 5^{\circ} 08' 19.1''$	$Ls = 200.00'$	$D = 3^{\circ} 49' 11.0''$	$Ls = 200.00'$
$L = 239.02'$	$LT = 133.36'$	$L = 125.96'$	$LT = 133.36'$
$T = 119.97'$	$ST = 66.69'$	$T = 63.02'$	$ST = 66.69'$
$R = 1115.00'$		$R = 1500.00'$	
SE = EXISTING		SE = EXISTING	

NOTES: (1) SEE SHEET 51 FOR -LI- PROFILE
 (2) SEE SHEET 61 FOR -RAMPAS- PROFILE
 (3) SEE SHEET 62 FOR -RAMPB5- PROFILE
 (4) SEE SHEET 63 FOR -RAMP5- PROFILE
 (5) SEE SHEET 63 FOR -RAMPD5- PROFILE

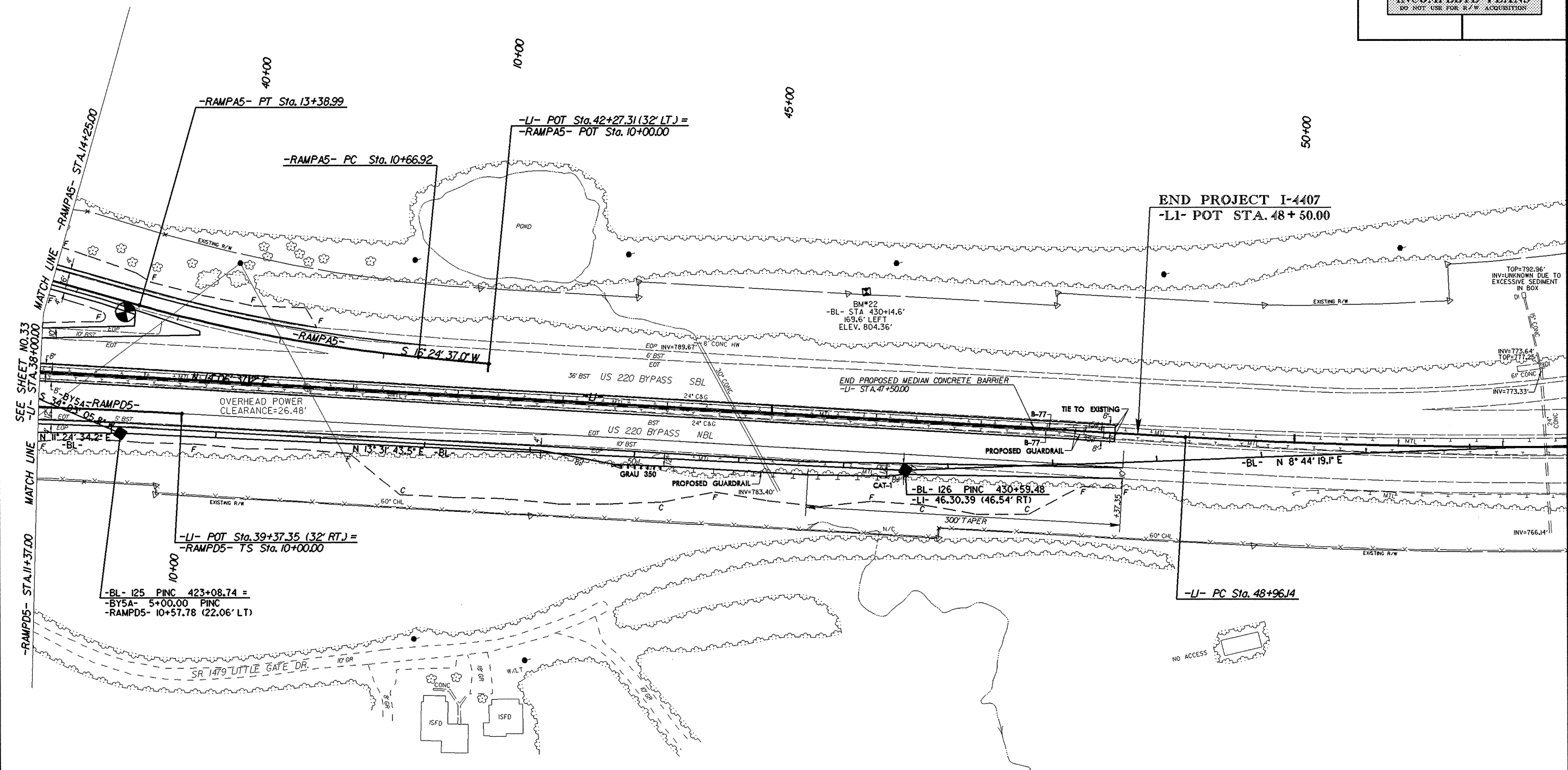
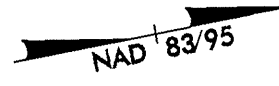
REVISIONS
 19-MAR-2007 08:47
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 imc\ljb



PROJECT REFERENCE NO. I-4407	SHEET NO. 34
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	

-RAMPA5- CURVE DATA

PI Sta 12+03.33
 $\Delta = 10^\circ 23' 33.0"$ (RT)
 $D = 3^\circ 49' 11.0"$
 $L = 272.08'$
 $T = 136.41'$
 $R = 1500.00'$
 SE = EXISTING



-RAMPD5- SPIRAL DATA

PIs Sta 11+33.36
 $\Theta_s = 3^\circ 49' 11.0"$
 $L_s = 200.00'$
 $LT = 133.36'$
 $ST = 66.69'$

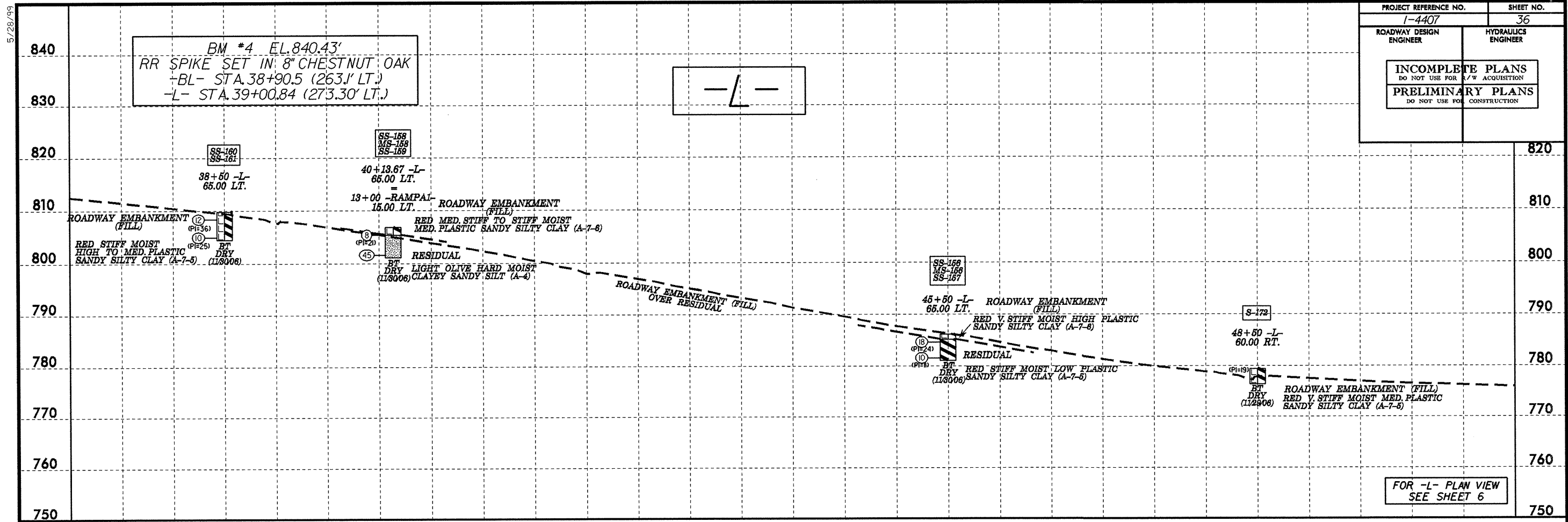
-LI- CURVE DATA

PI Sta 58+25.91
 $\Delta = 18^\circ 26' 00.0"$ (LT)
 $D = 0^\circ 59' 59.7"$
 $L = 1843.47'$
 $T = 929.77'$
 $R = 5730.00'$
 SE = EXISTING

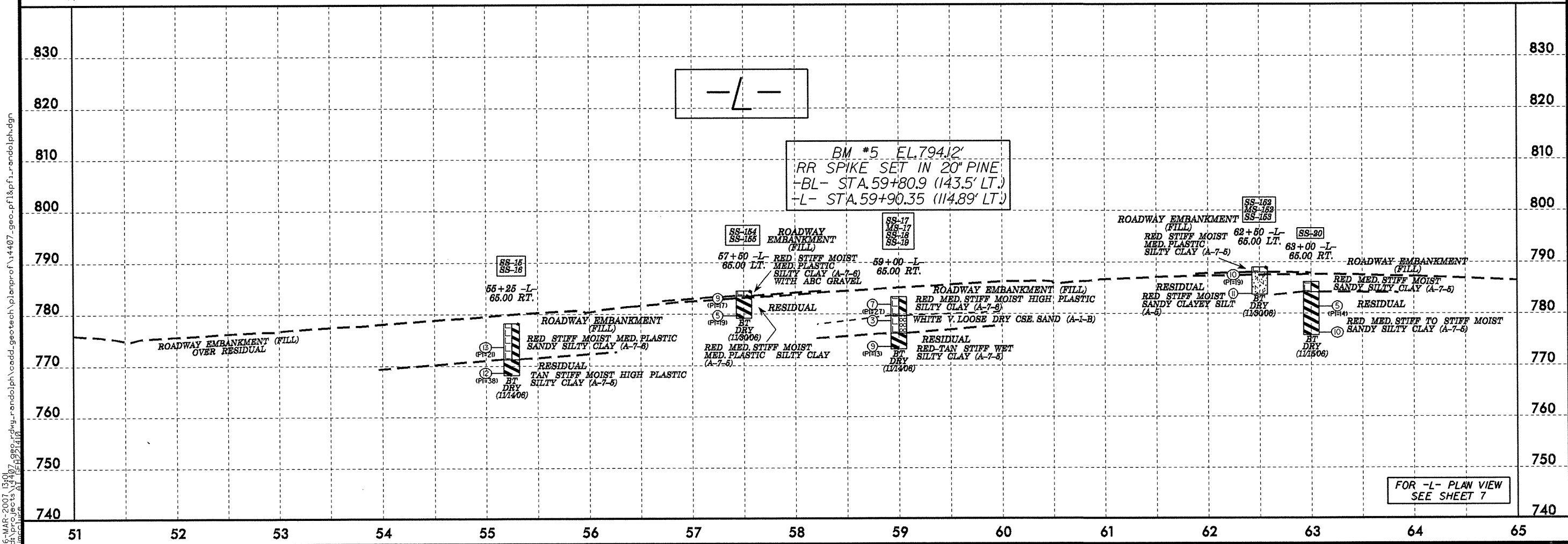
NOTES: (1) SEE SHEET 52 FOR -LI- PROFILE
 (2) SEE SHEET 61 FOR -RAMPA5- PROFILE
 (3) SEE SHEET 63 FOR -RAMPD5- PROFILE

REVISIONS

19-MAR-2007 09:48
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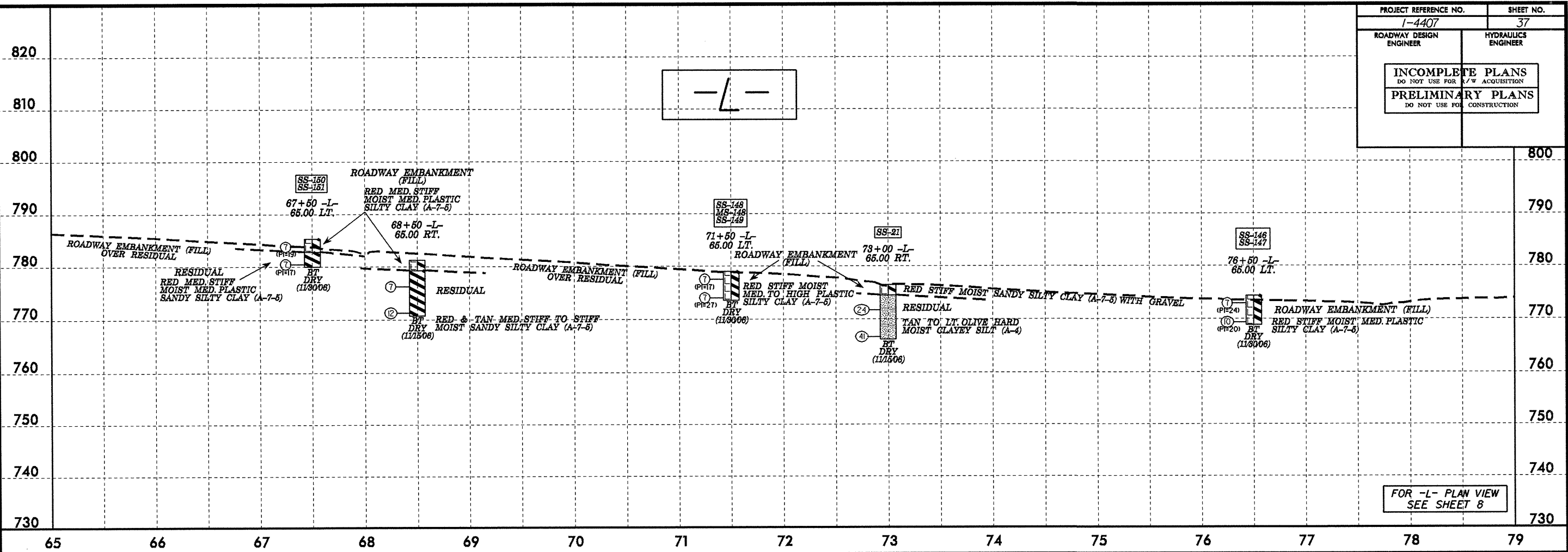
FOR -L- PLAN VIEW
SEE SHEET 6



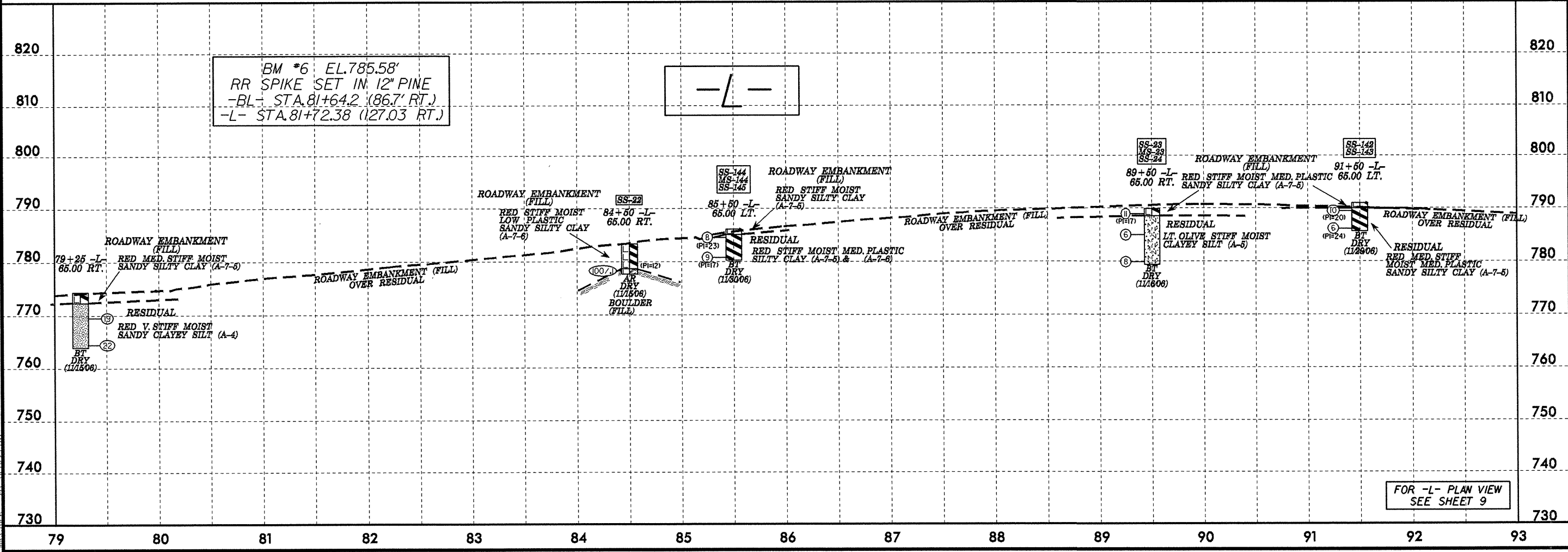
FOR -L- PLAN VIEW
SEE SHEET 7

5/28/99
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 11/22/10

PROJECT REFERENCE NO. 1-4407	SHEET NO. 37
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



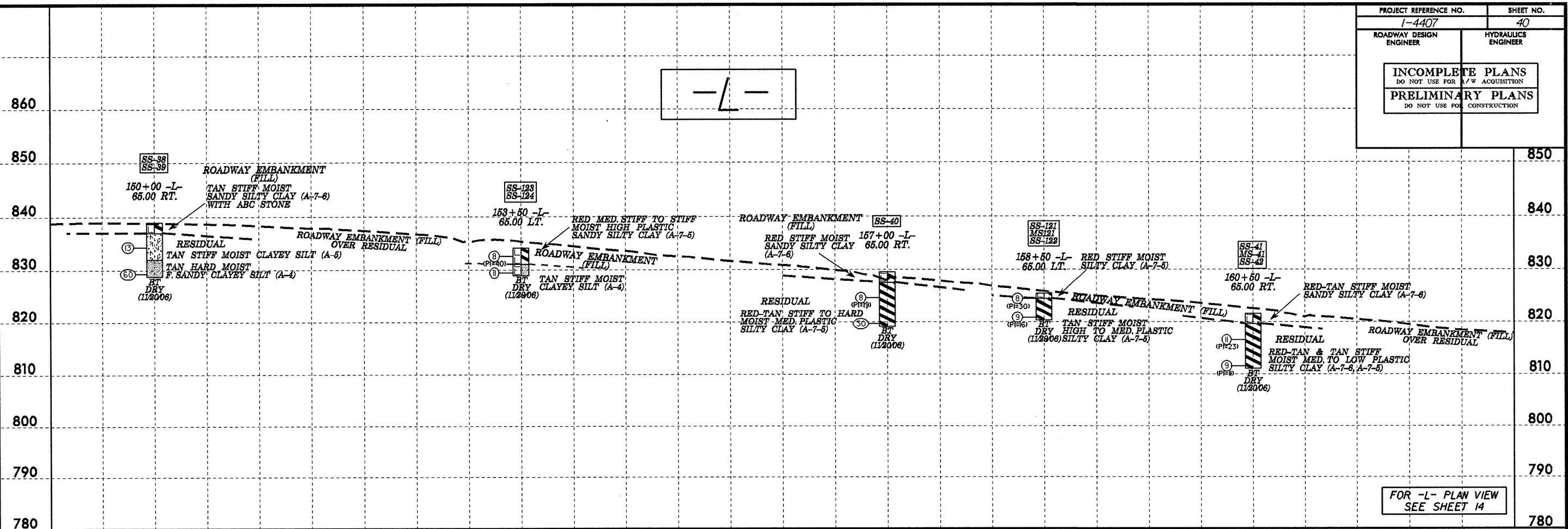
FOR -L- PLAN VIEW
SEE SHEET 8



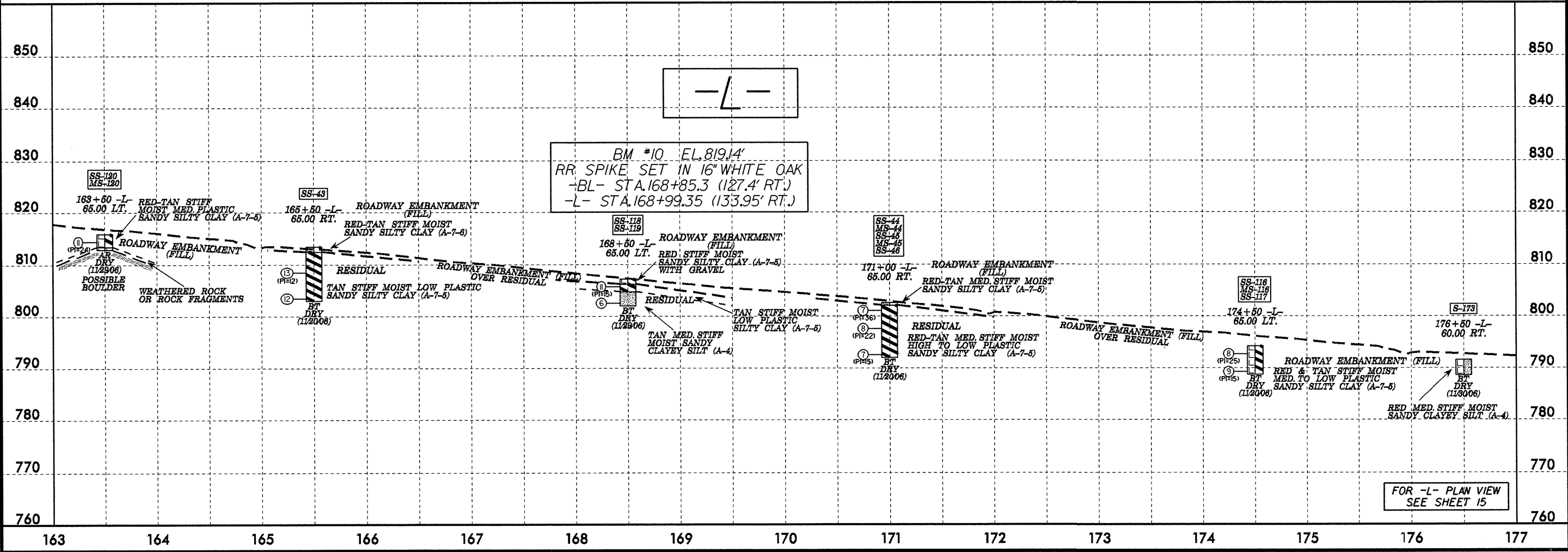
BM *6 EL.785.58'
RR SPIKE SET IN 12" PINE
-BL- STA. 81+64.2 (86.7' RT.)
-L- STA. 81+72.38 (127.03 RT.)

FOR -L- PLAN VIEW
SEE SHEET 9

5/28/99
 16-MAR-2007 13:02
 c:\p\projects\4407\1-4407-990-rdw-randolph\cadd-geotech\planprof\1-4407-geo-pf1-randolph.dgn
 made: jre



FOR -L- PLAN VIEW
SEE SHEET 14

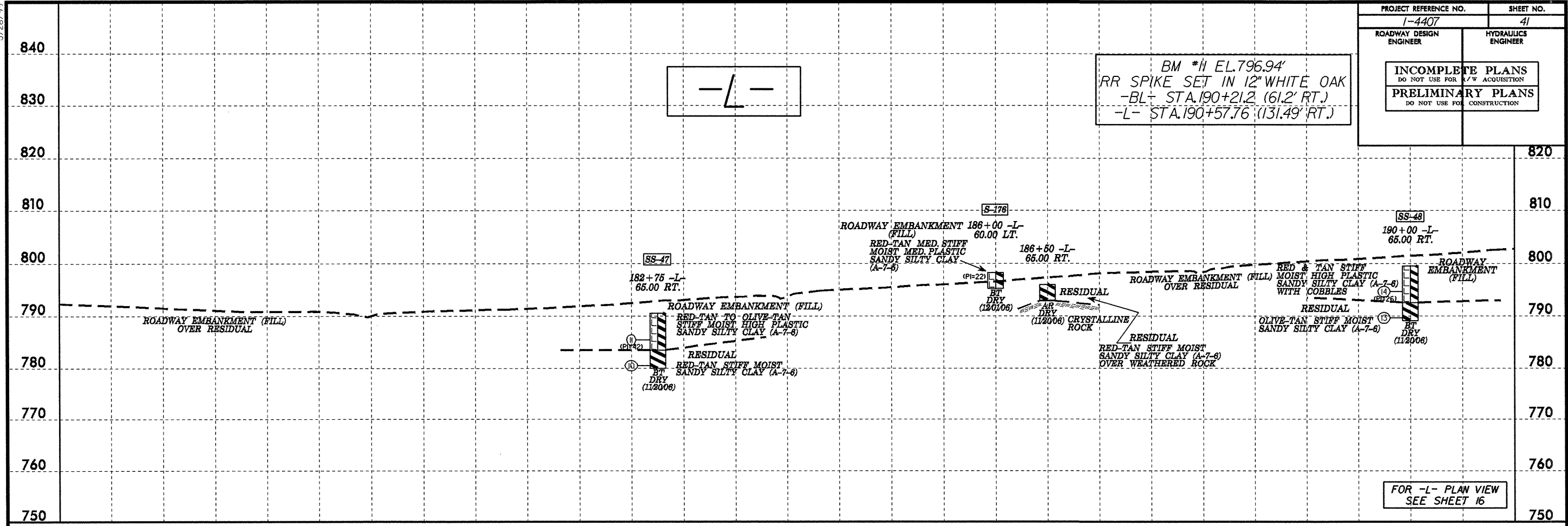


FOR -L- PLAN VIEW
SEE SHEET 15

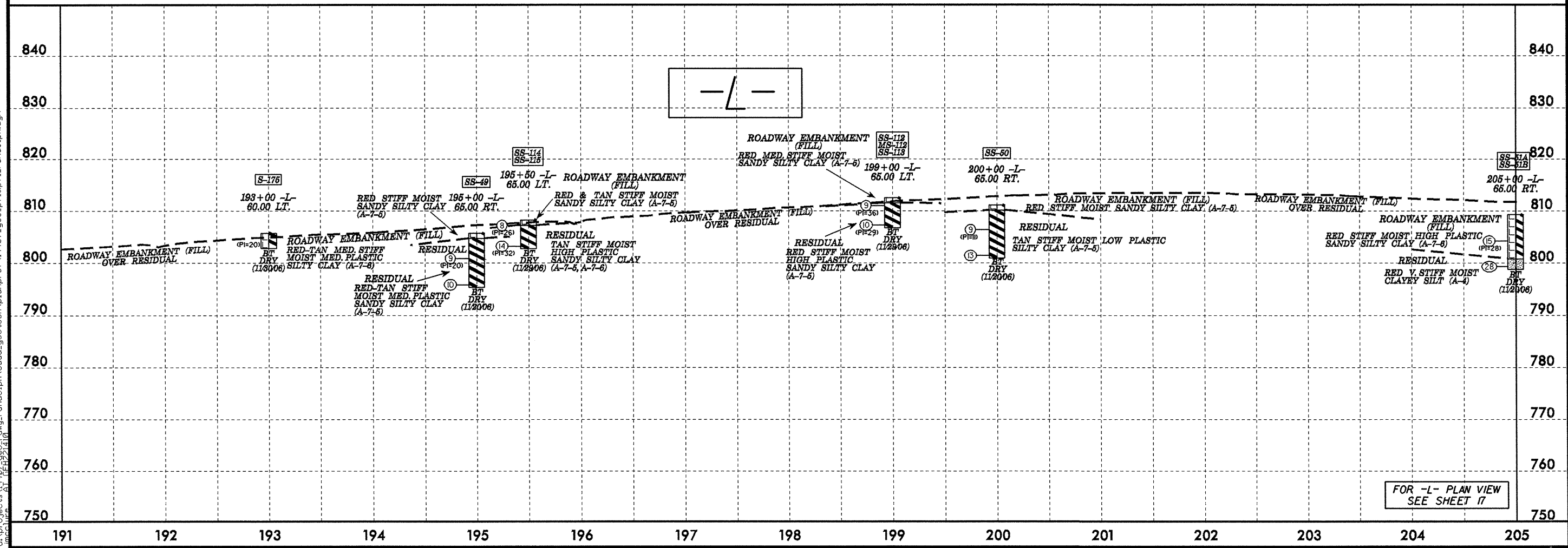
5/28/99
 16-MAR-2007 13:02
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 msc:ca 81 07121410

PROJECT REFERENCE NO. 1-4407	SHEET NO. 41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

BM #1 EL.796.94
RR SPIKE SET IN 12" WHITE OAK
-BL- STA.190+21.2 (61.2' RT.)
-L- STA.190+57.76 (131.49' RT.)



FOR -L- PLAN VIEW
SEE SHEET 16

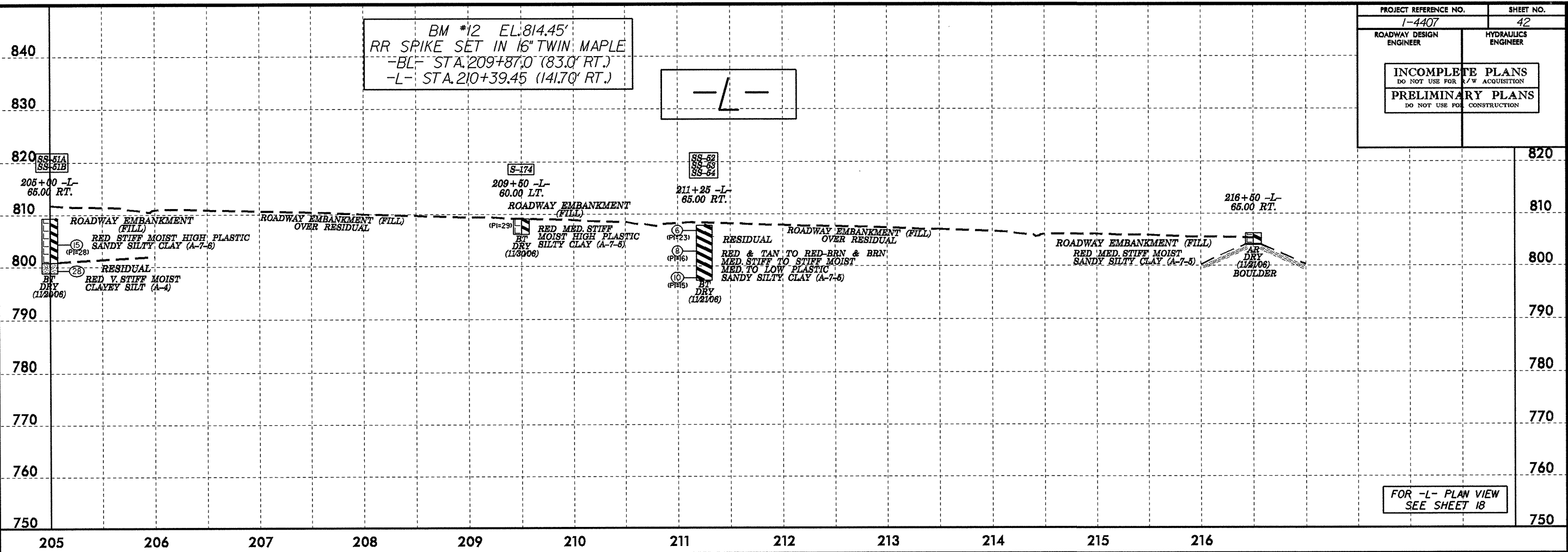
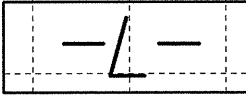


FOR -L- PLAN VIEW
SEE SHEET 17

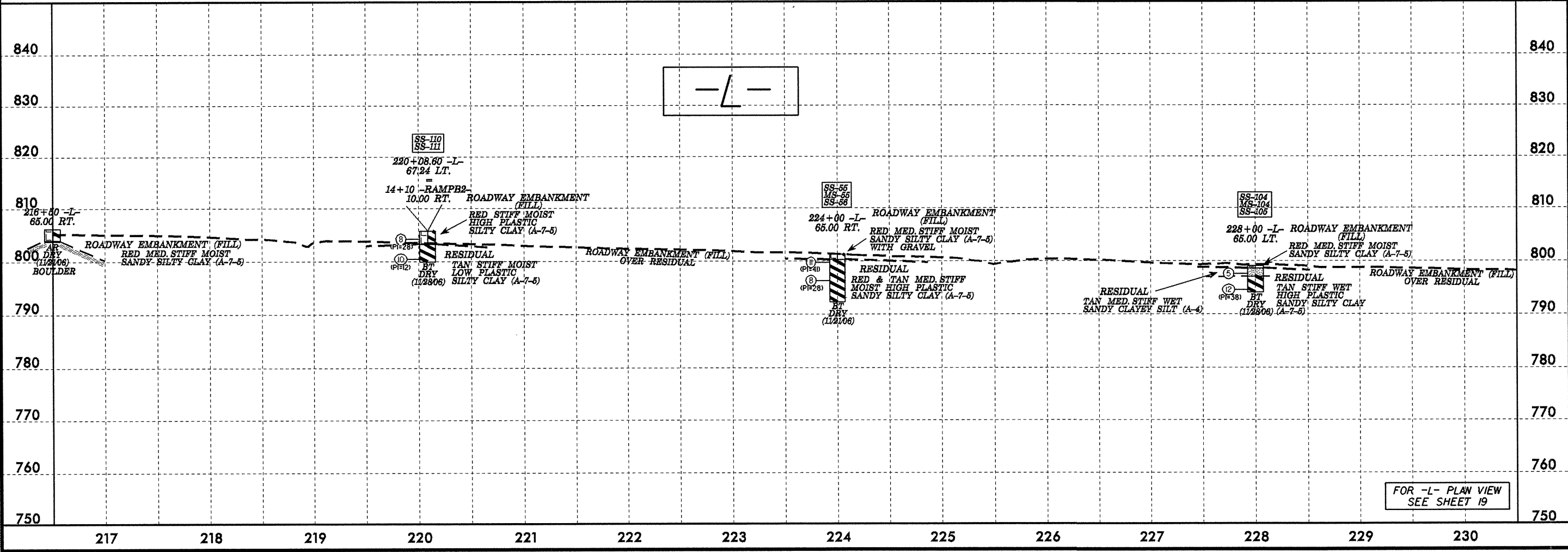
5/28/99
 16-MAR-2007 13:05
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 14407-geo-p11&p1-r-endo.plh.dwg
 14407-geo-p11&p1-r-endo.plh.dwg

PROJECT REFERENCE NO. 1-4407	SHEET NO. 42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

BM #12 EL. 814.45'
 RR SPIKE SET IN 16" TWIN MAPLE
 -BL- STA. 209+87.0 (83.0' RT.)
 -L- STA. 210+39.45 (141.70' RT.)



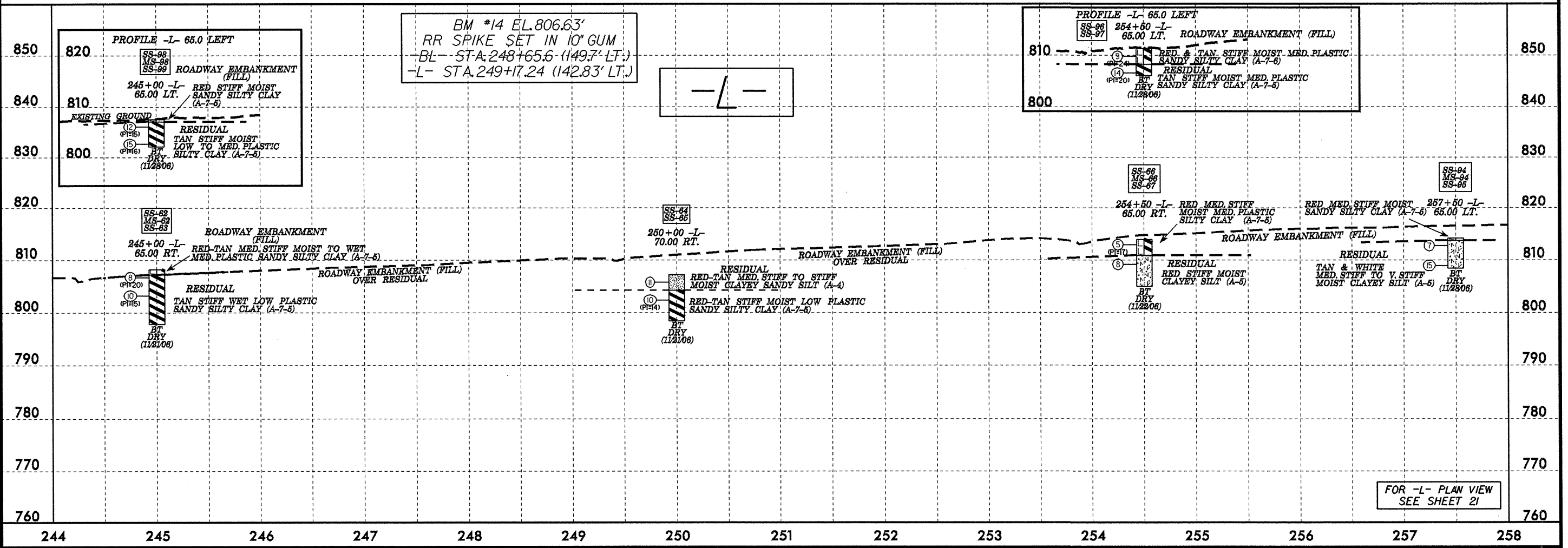
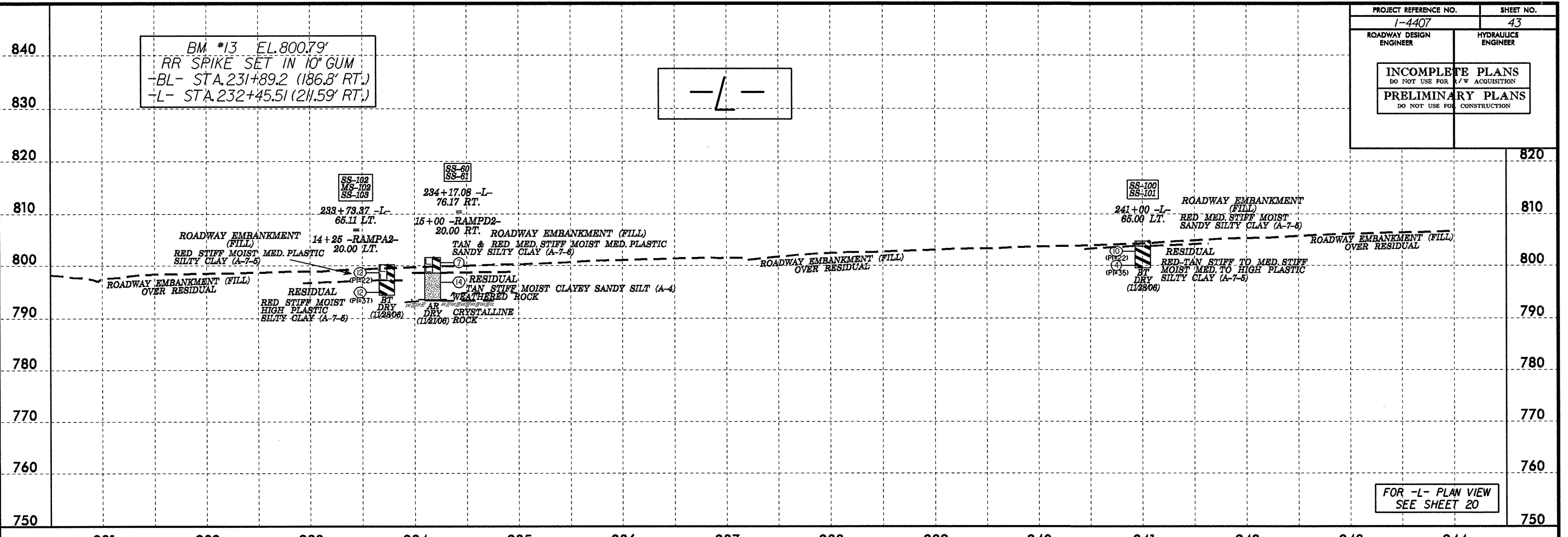
FOR -L- PLAN VIEW
 SEE SHEET 18



FOR -L- PLAN VIEW
 SEE SHEET 19

16-MAR-2007 13:05
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 5/28/99

PROJECT REFERENCE NO. 1-4407	SHEET NO. 43
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

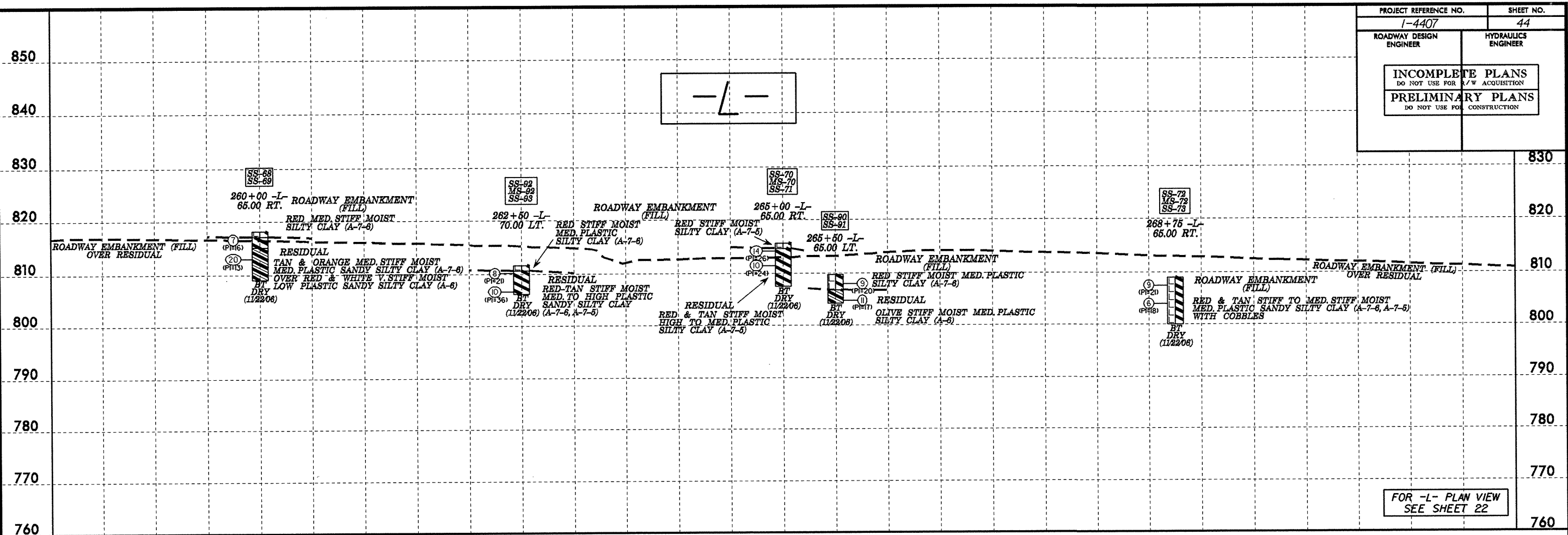


FOR -L- PLAN VIEW
SEE SHEET 20

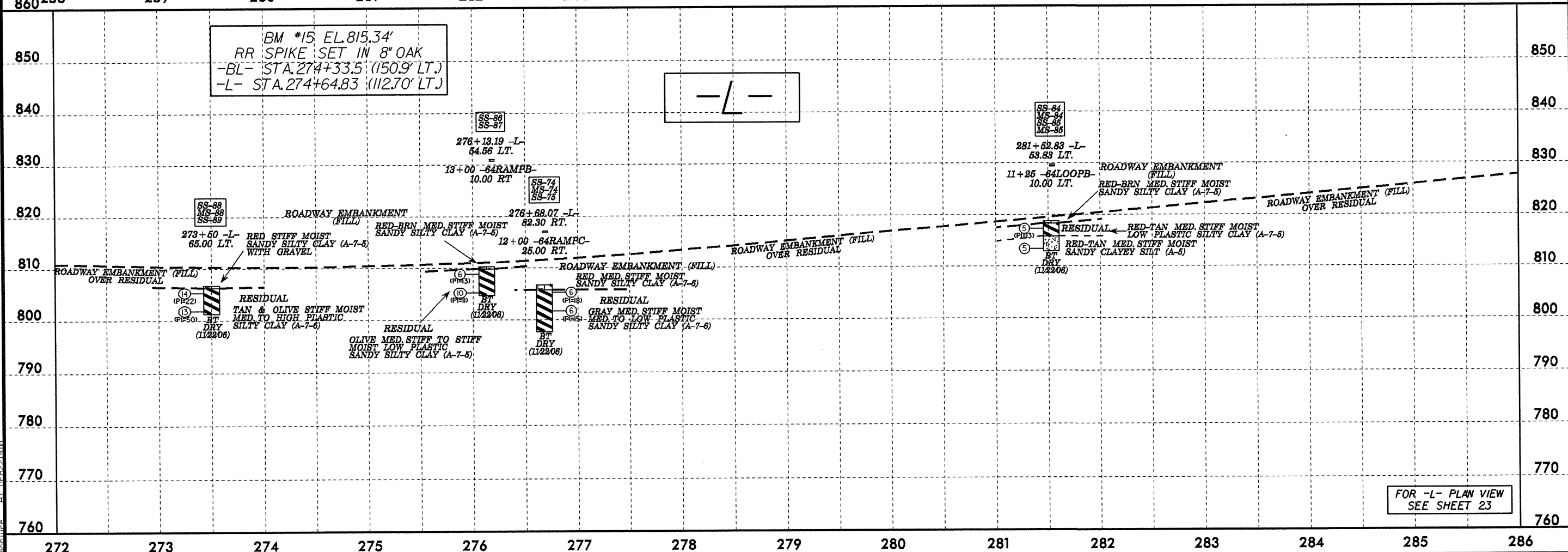
FOR -L- PLAN VIEW
SEE SHEET 21

5/28/99
 16-MAR-2007 13:06
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PROJECT REFERENCE NO. 1-4407	SHEET NO. 44
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



FOR -L- PLAN VIEW
SEE SHEET 22



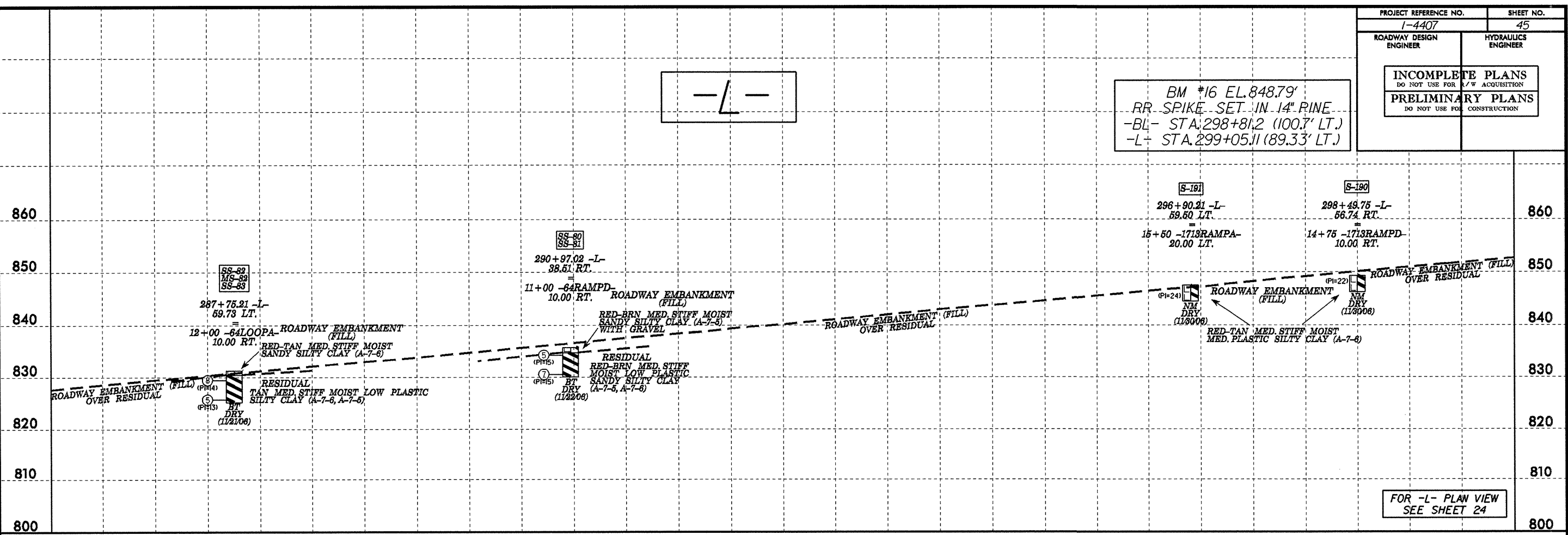
BM #15 EL. 815.34'
RR SPIKE SET IN 8" OAK
-BL- STA. 274+33.5 (150.9' LT.)
-L- STA. 274+64.83 (112.70' LT.)

FOR -L- PLAN VIEW
SEE SHEET 23

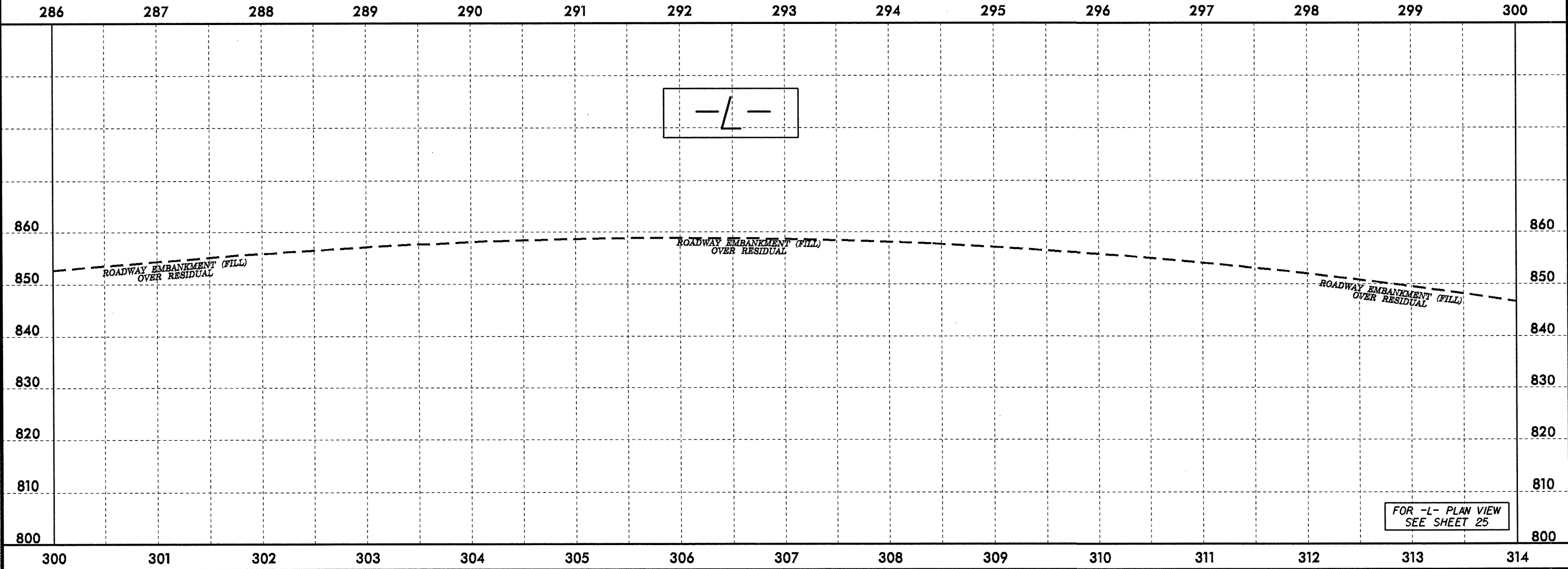
5/28/99
 16-MAR-2007 13:47
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 include: AT PF1&PF2

PROJECT REFERENCE NO. 1-4407	SHEET NO. 45
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

BM *16 EL. 848.79'
 RR SPIKE SET IN 14" PINE
 -BL- STA. 298+81.2 (100.7' LT.)
 -L+ STA. 299+05.11 (89.33' LT.)



FOR -L- PLAN VIEW
SEE SHEET 24

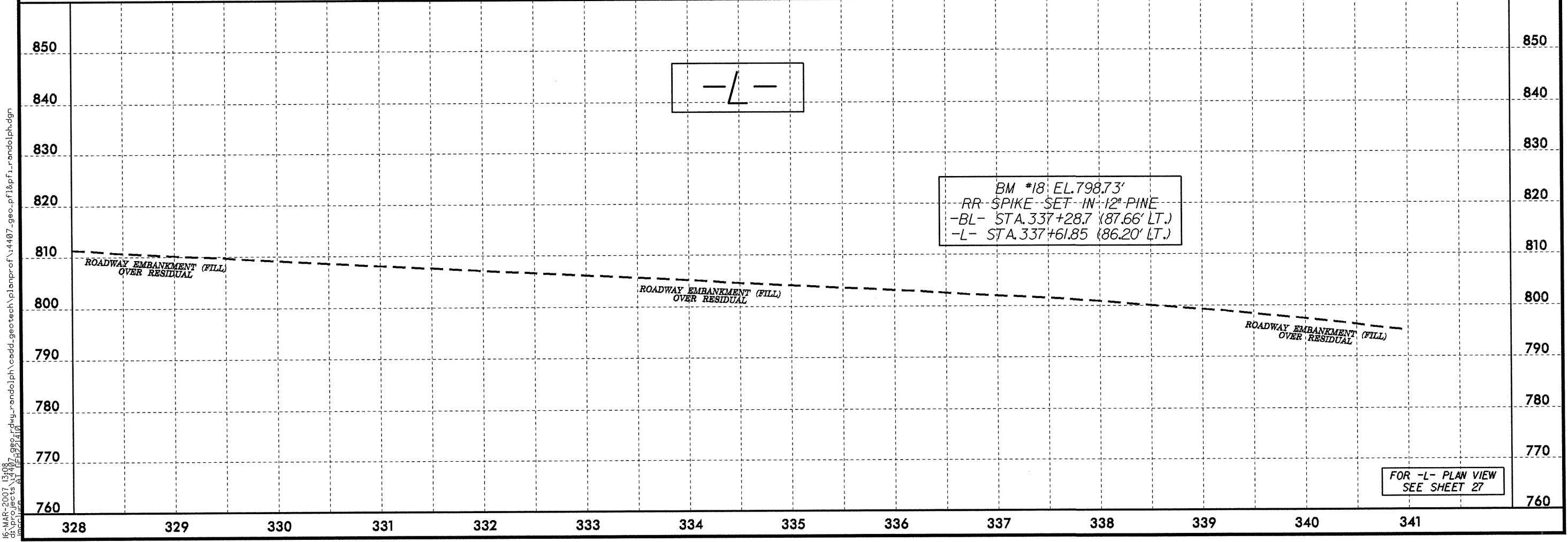
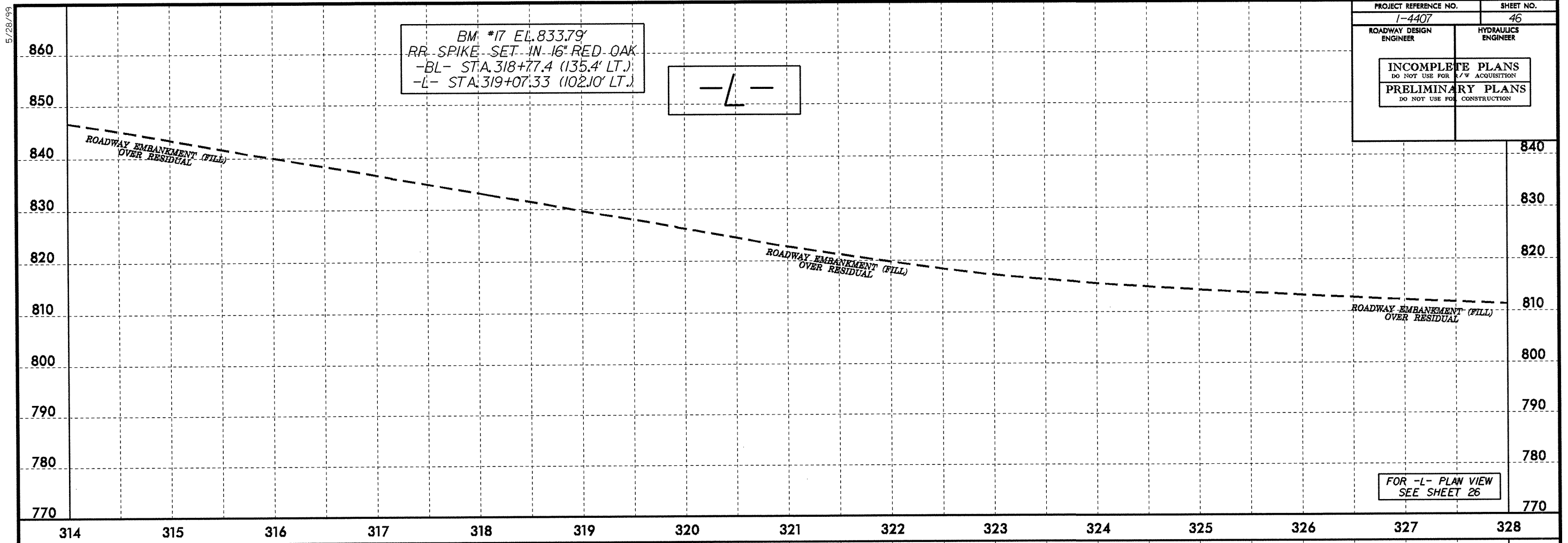


FOR -L- PLAN VIEW
SEE SHEET 25

5/28/99

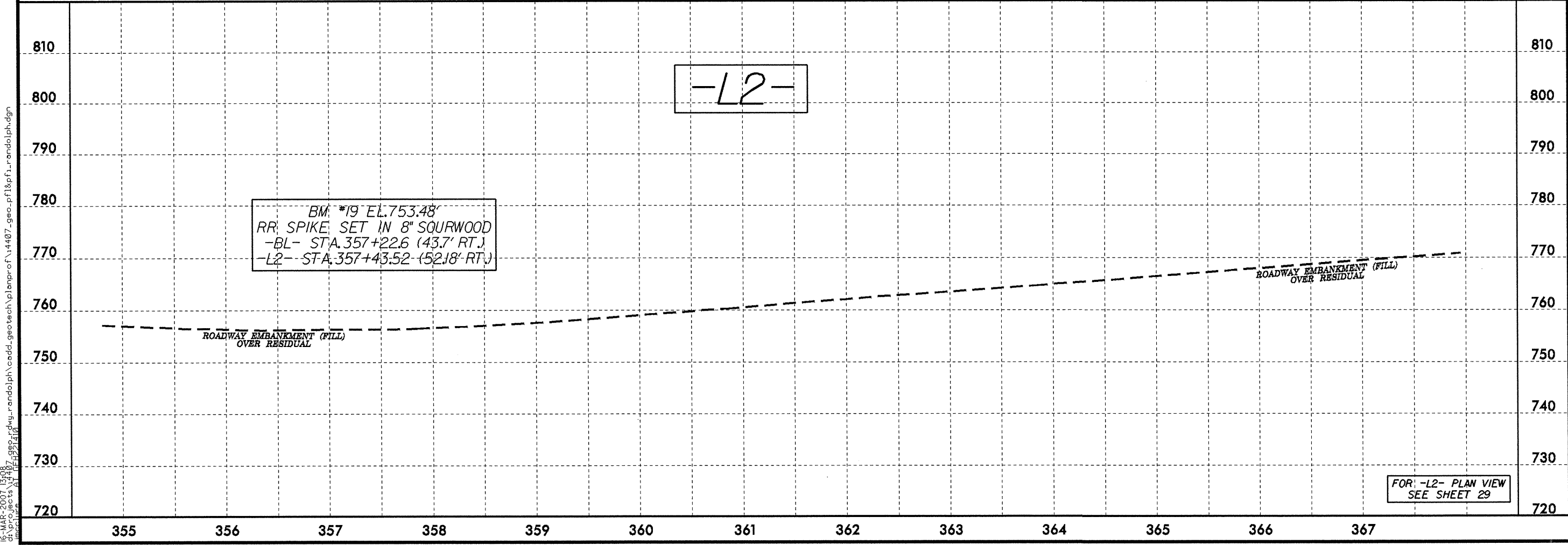
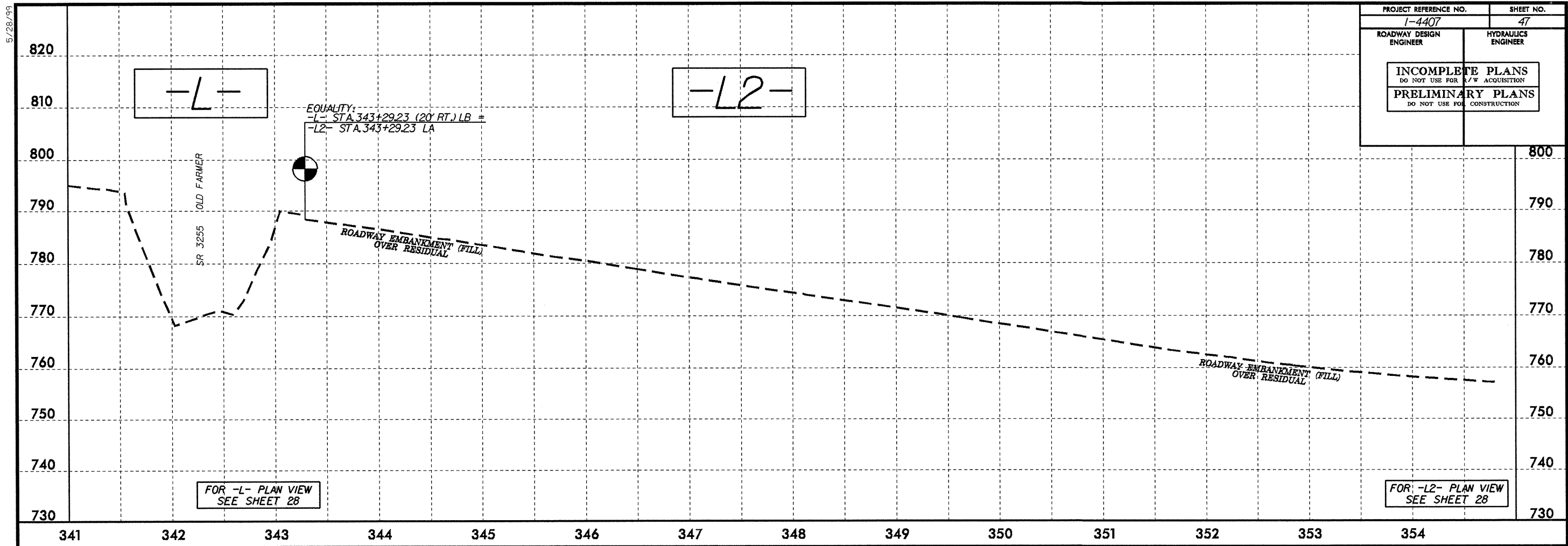
16-MAR-2007 09:07
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PROJECT REFERENCE NO. 1-4407	SHEET NO. 46
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/C ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



5/28/99
 16-MAR-2007 13:08
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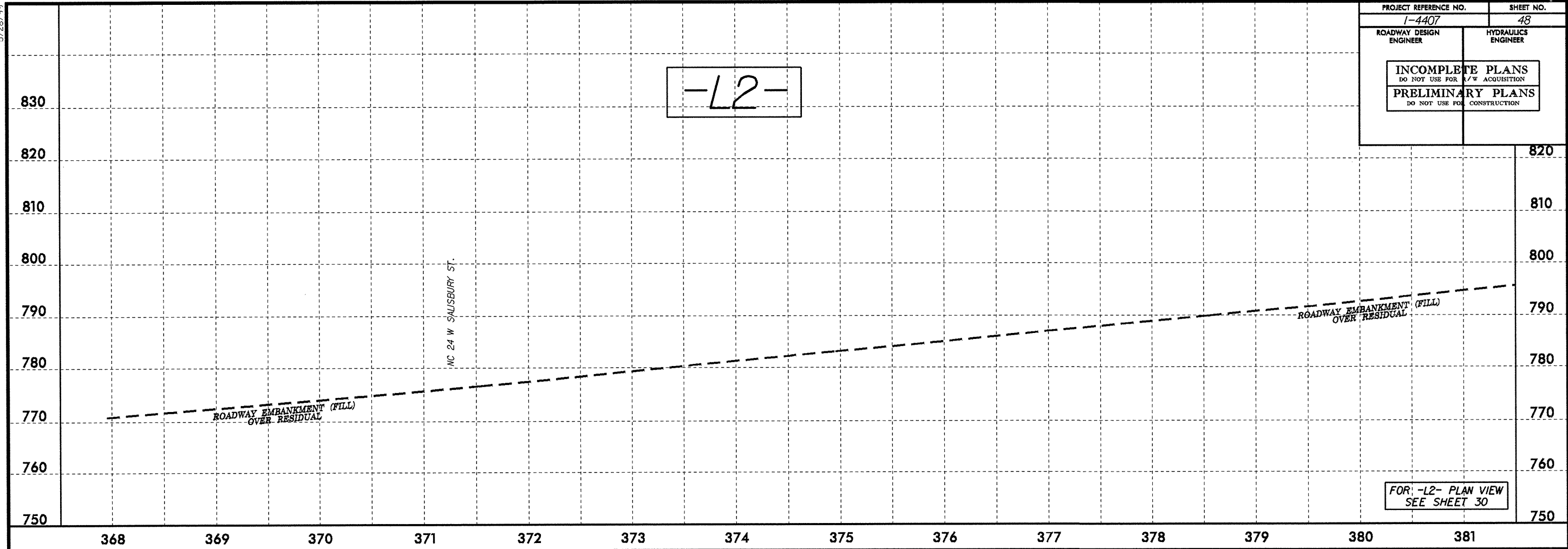
PROJECT REFERENCE NO. 1-4407	SHEET NO. 47
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



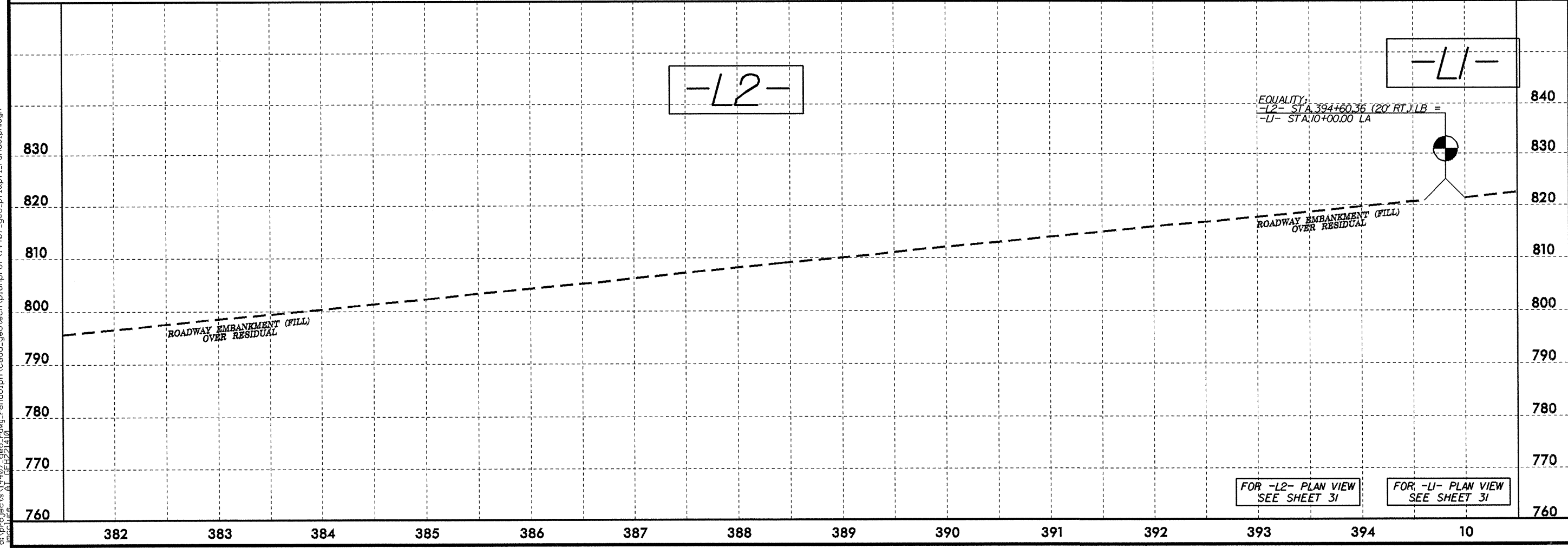
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PROJECT REFERENCE NO. 1-4407	SHEET NO. 48
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

5/28/99

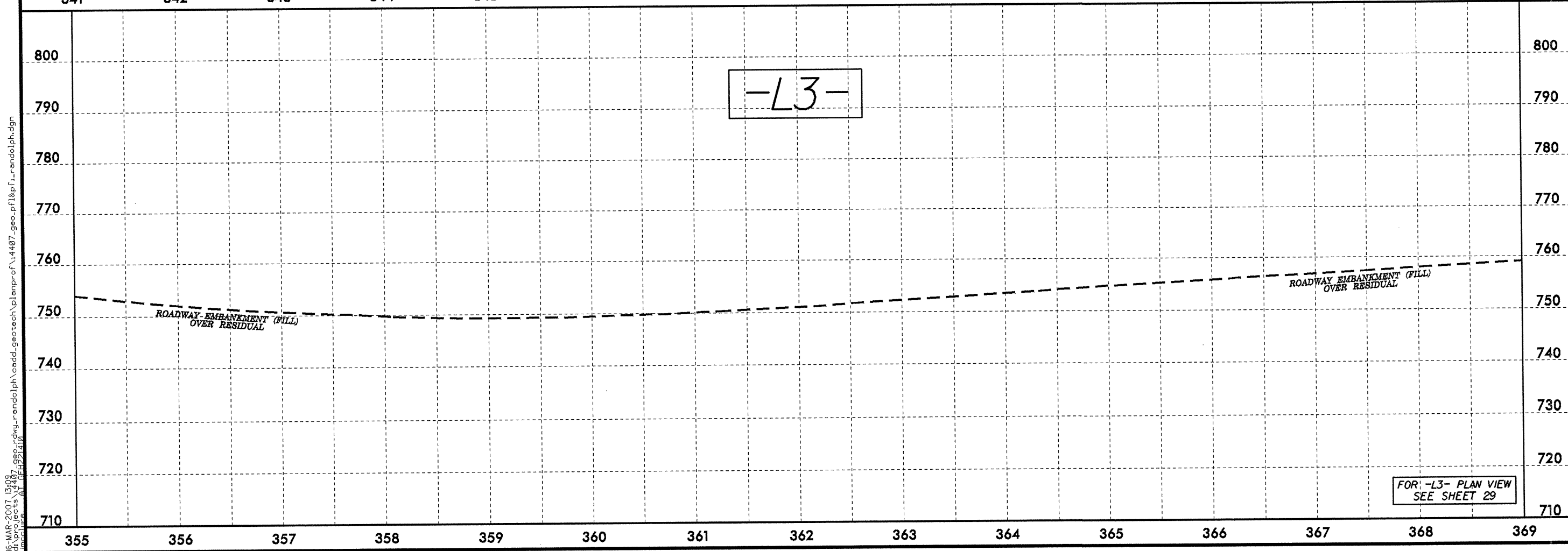
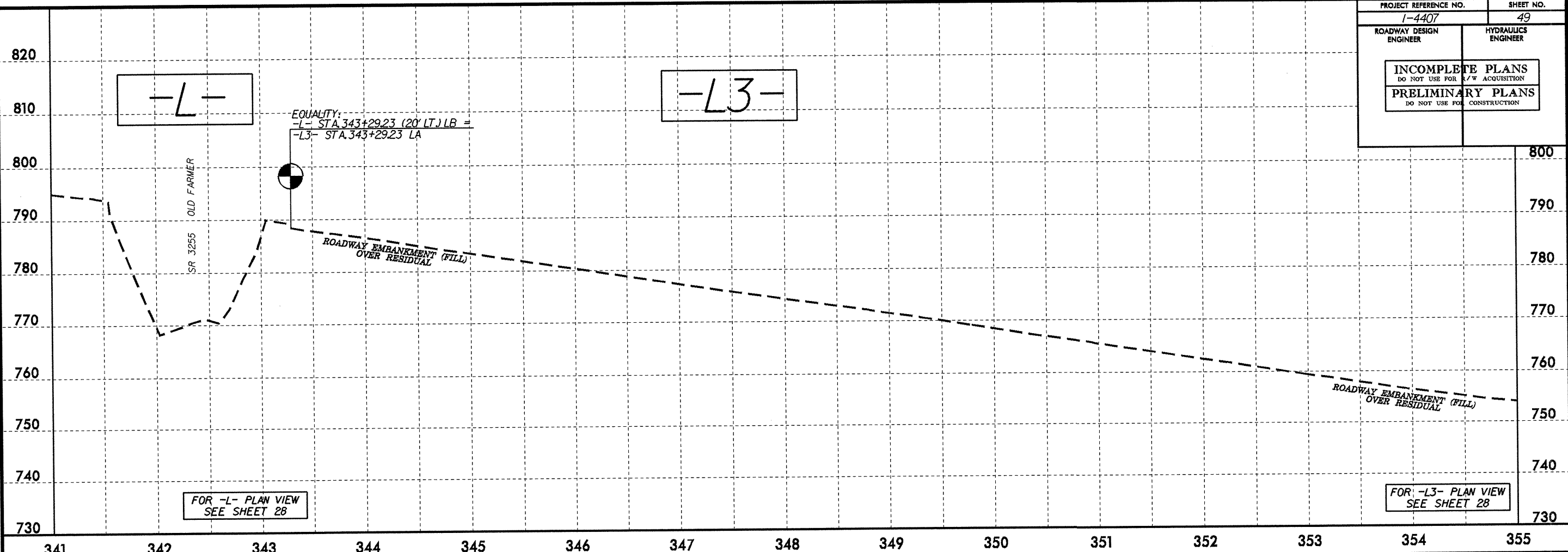


16-MAR-2007 13:09
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PROJECT REFERENCE NO. 1-4407	SHEET NO. 49
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

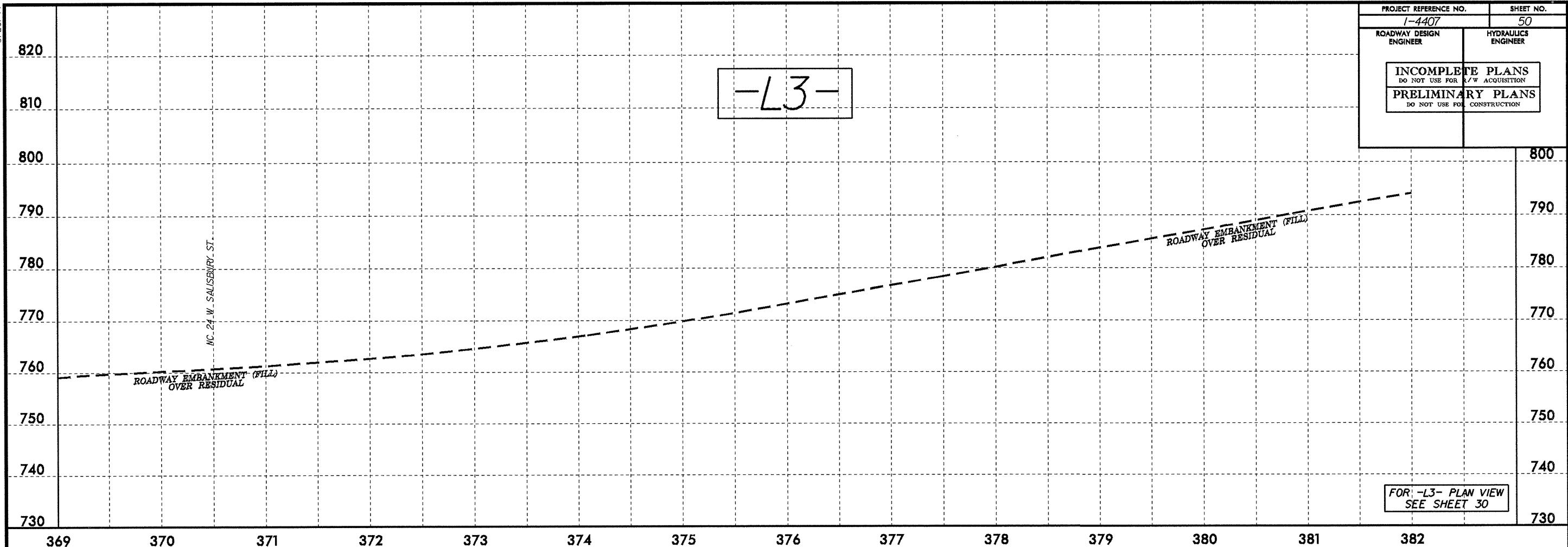
5/28/99



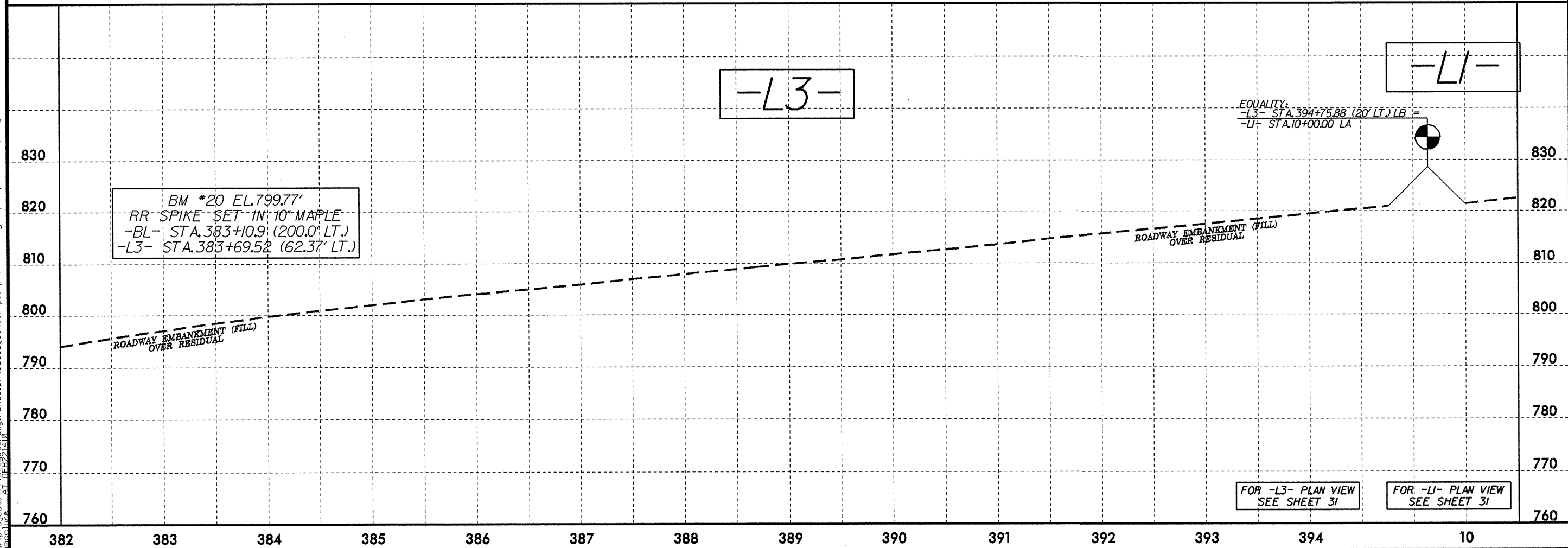
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5/28/99

PROJECT REFERENCE NO. 1-4407	SHEET NO. 50
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	



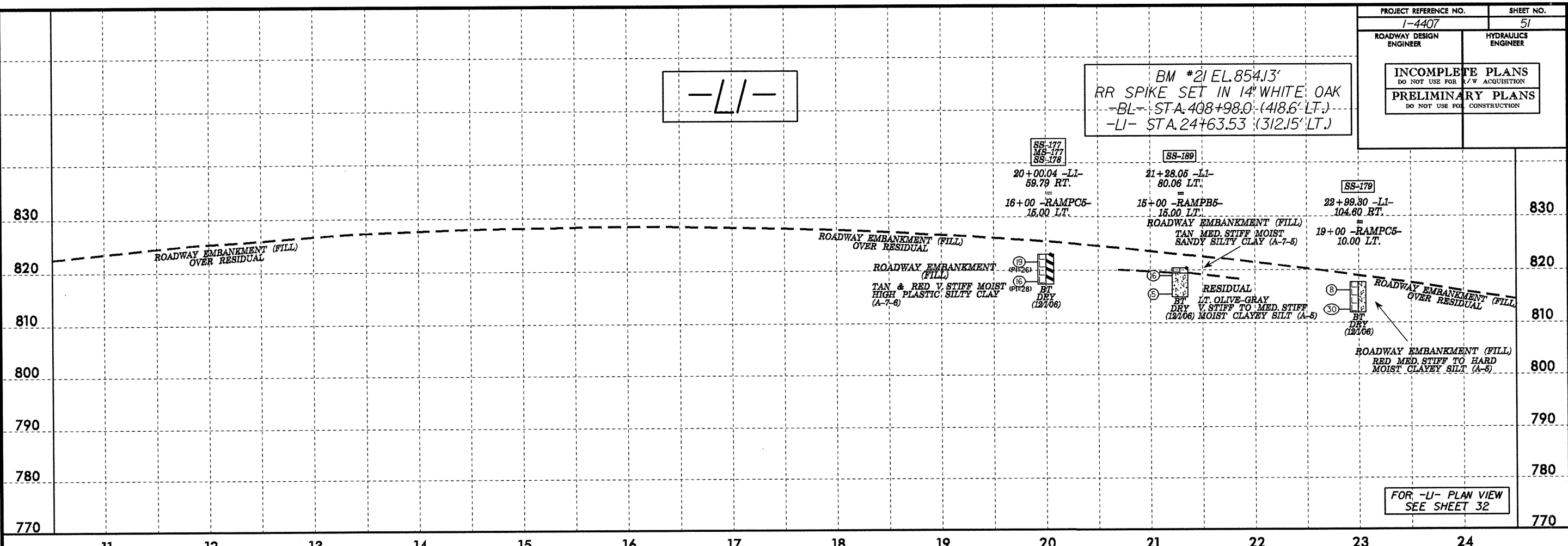
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drawing AT 10/22/10



PROJECT REFERENCE NO. 1-4407	SHEET NO. 51
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

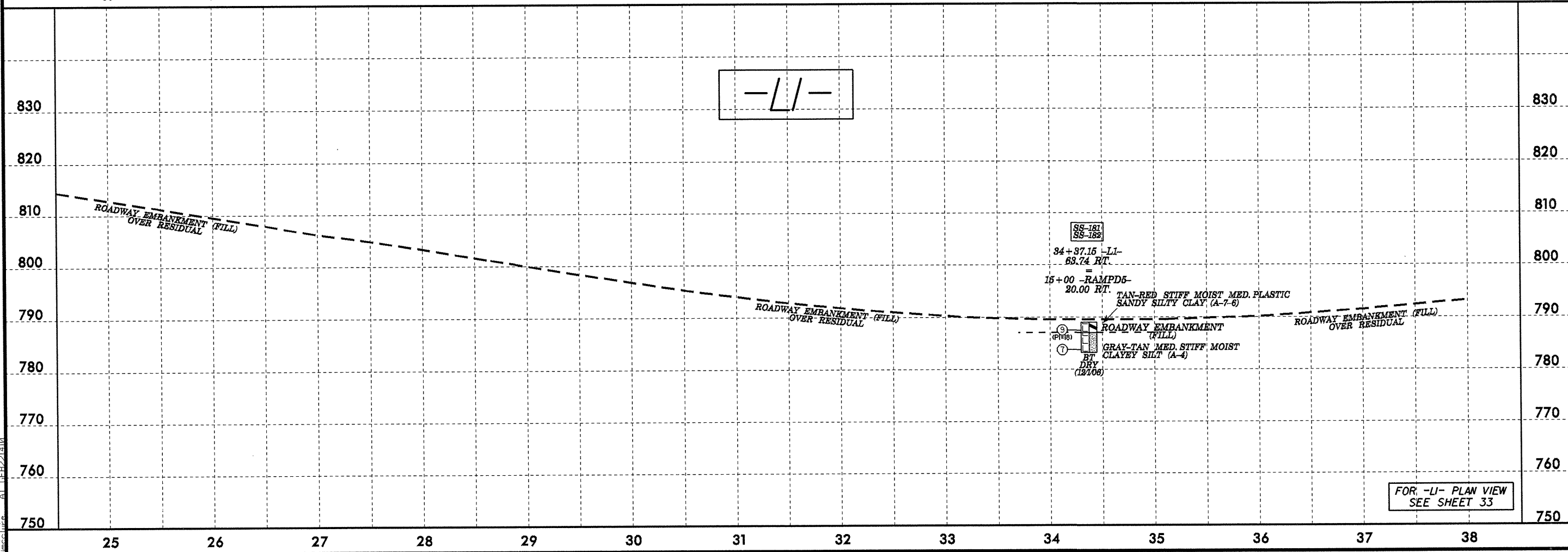
-L1-

BM *21 EL. 854.13'
 RR SPIKE SET IN 14" WHITE OAK
 -BL- STA. 408+98.0 (418.6' LT.)
 -LI- STA. 24+63.53 (312.15' LT.)



-L1-

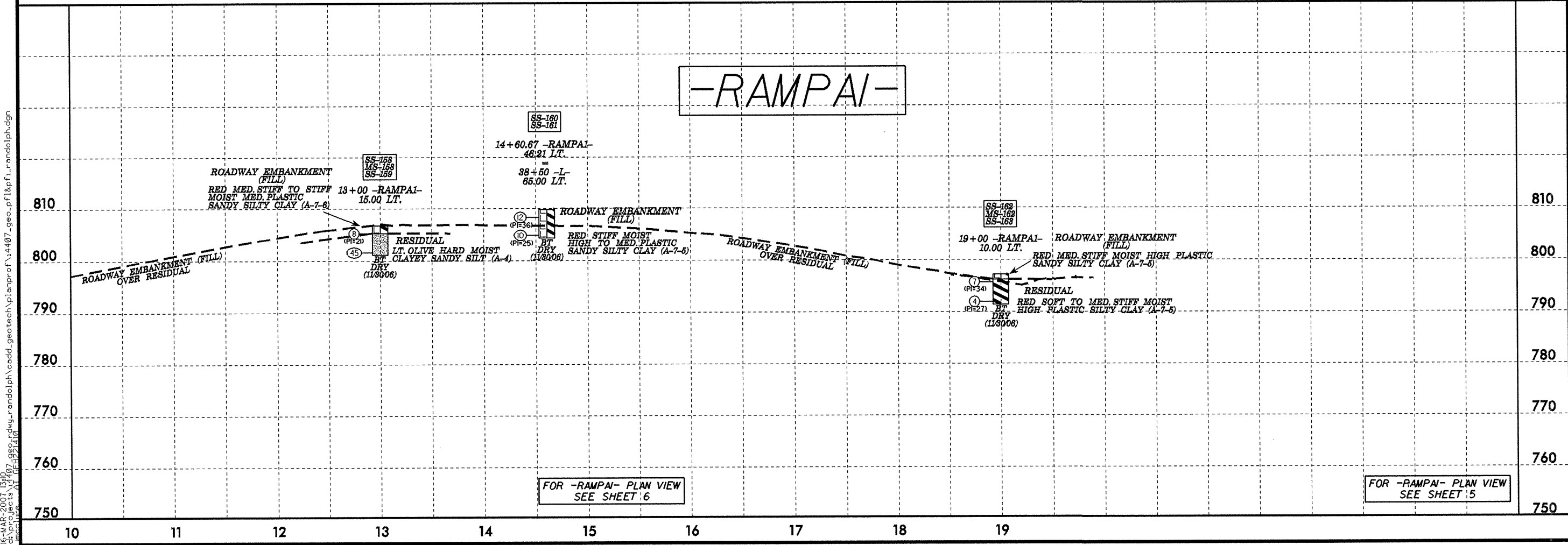
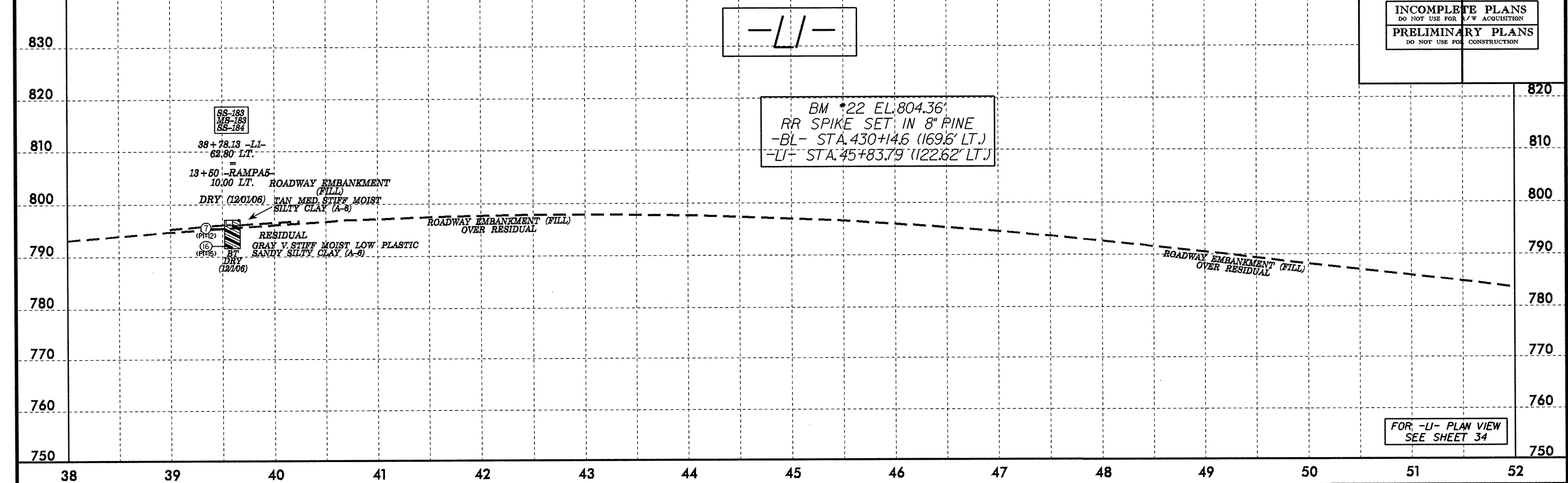
FOR -L1- PLAN VIEW
 SEE SHEET 33



5/28/99

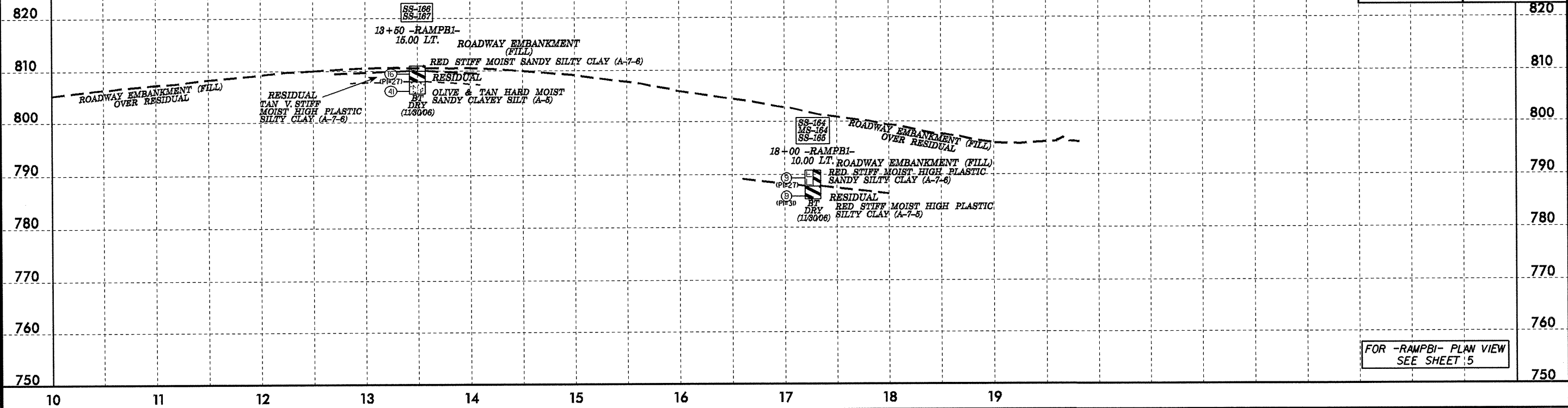
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5/28/99



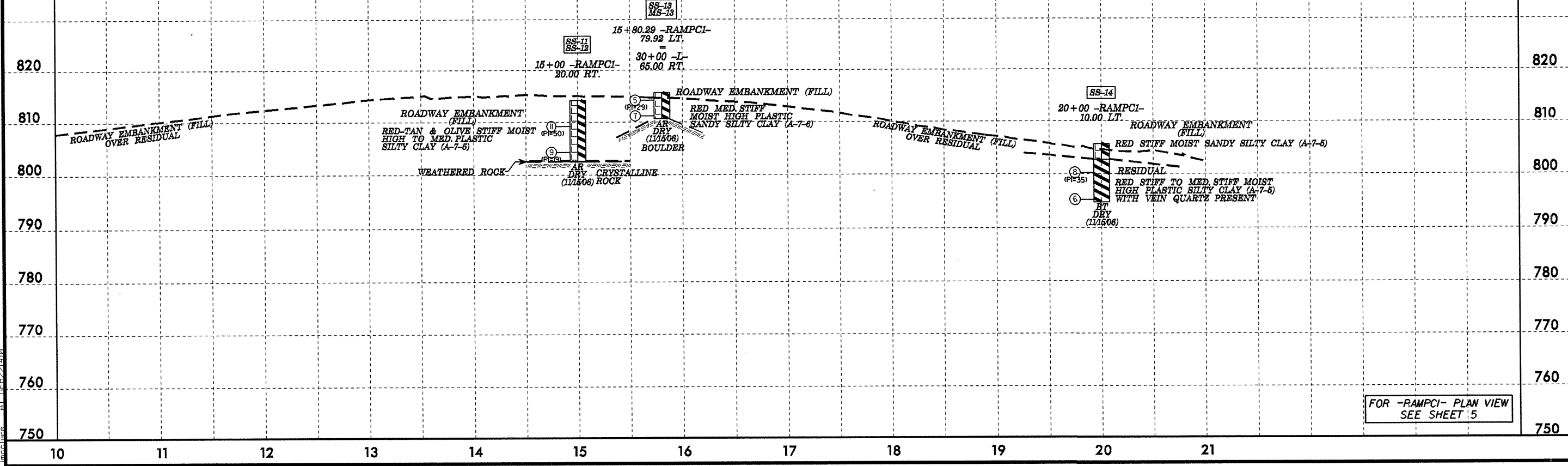
PROJECT REFERENCE NO. 1-4407	SHEET NO. 53
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-RAMPBI-



FOR -RAMPBI- PLAN VIEW
SEE SHEET 5

-RAMPCI-

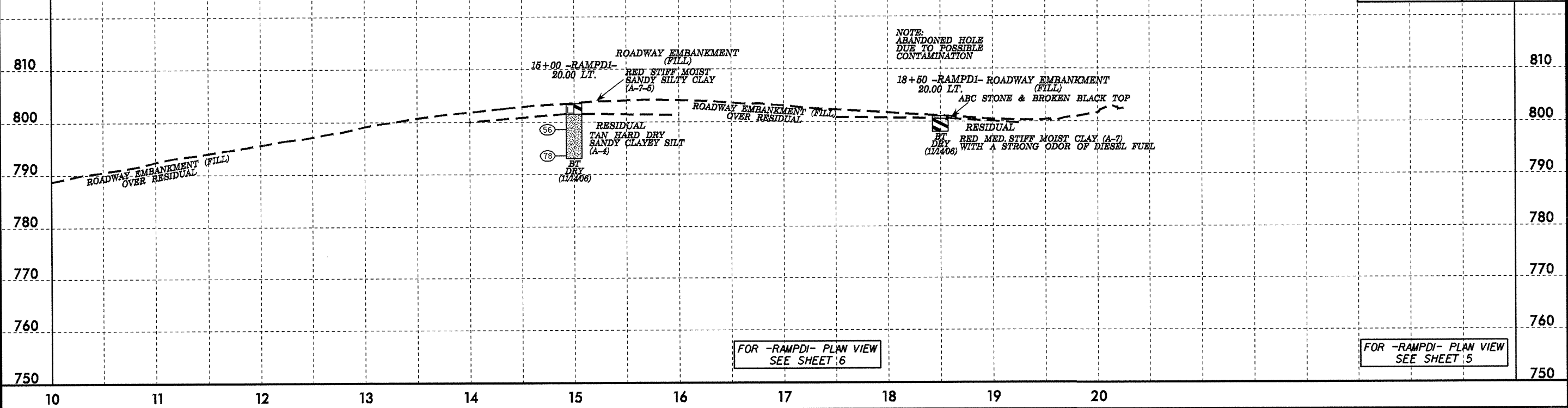


FOR -RAMPCI- PLAN VIEW
SEE SHEET 5

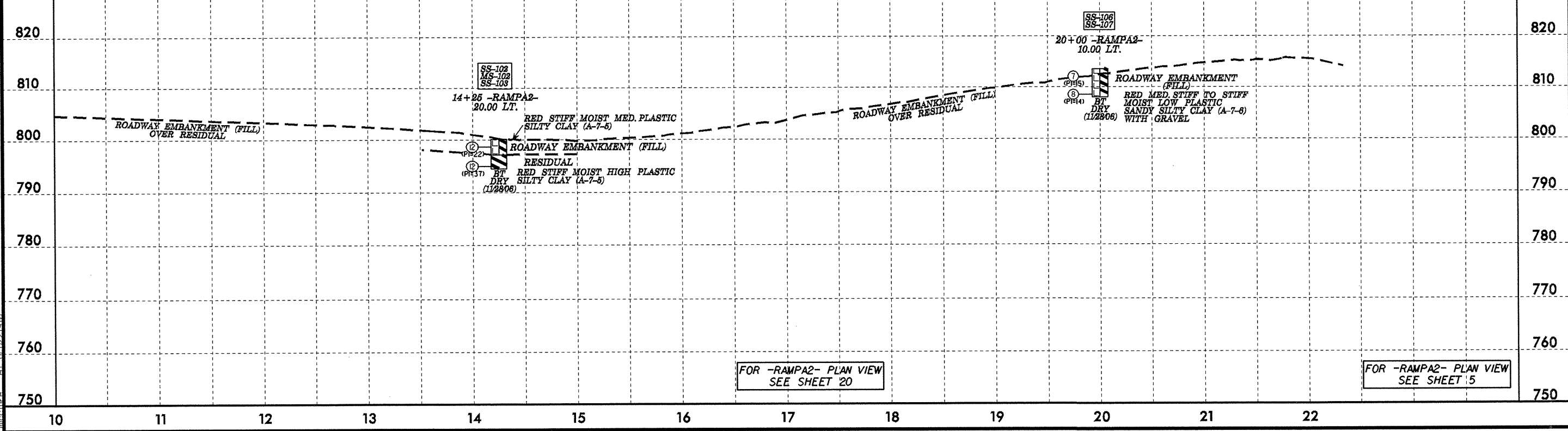
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 1/15/06

PROJECT REFERENCE NO. 1-4407	SHEET NO. 54
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-RAMPDI-



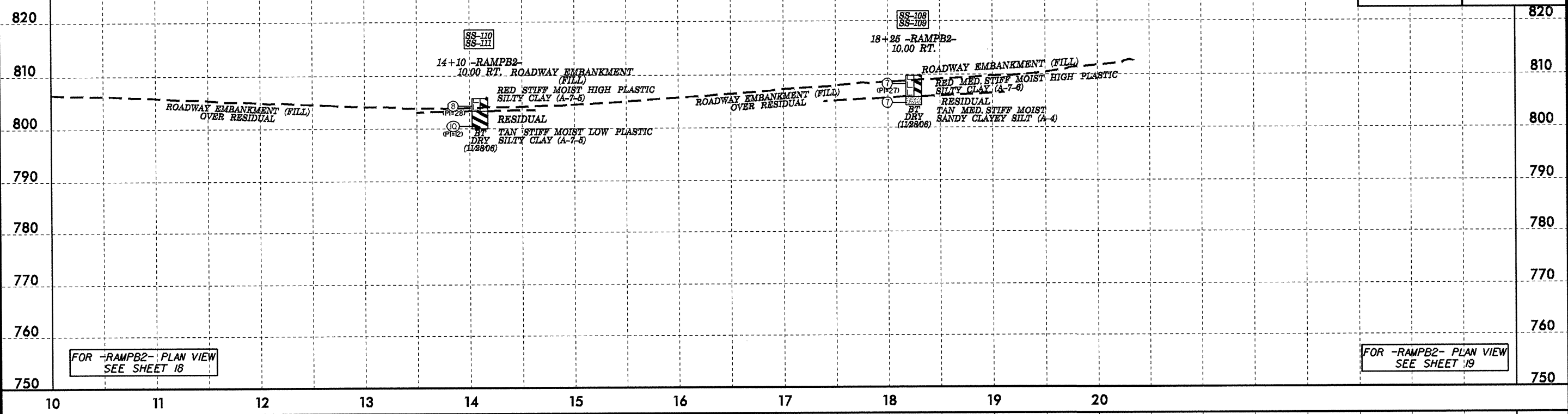
-RAMPA2-



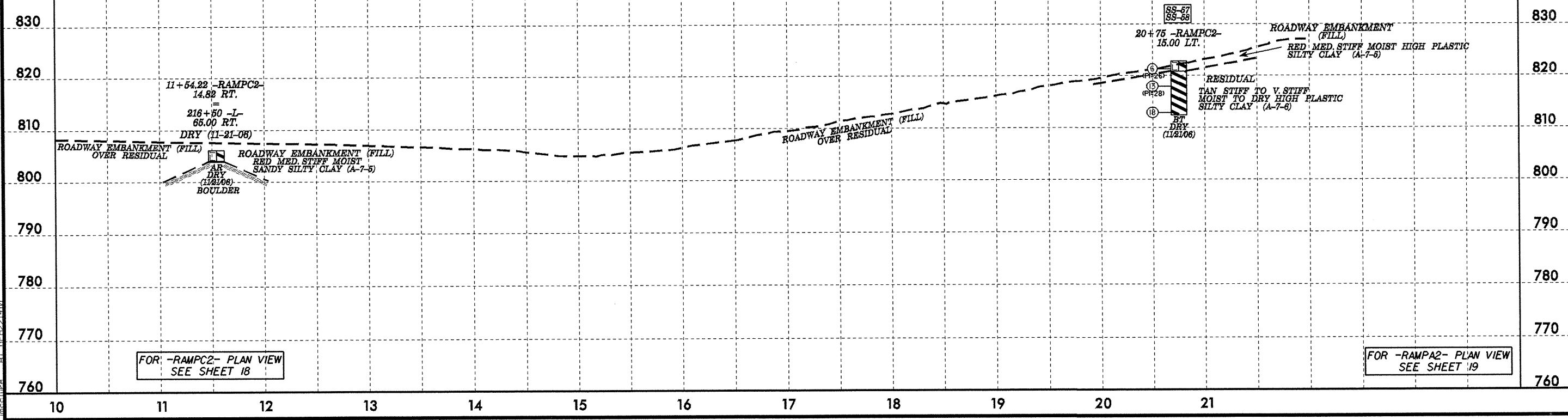
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 imc:\line AT 11/15/21/10

PROJECT REFERENCE NO. 1-4407	SHEET NO. 55
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-RAMPB2-



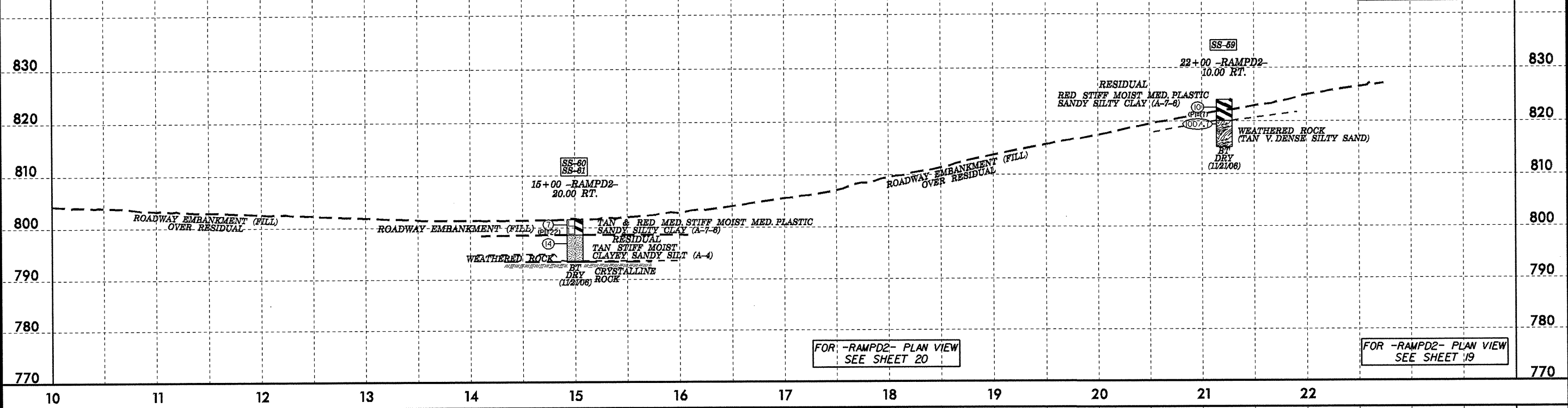
-RAMPC2-



5/28/99
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PROJECT REFERENCE NO. 1-4407	SHEET NO. 56
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

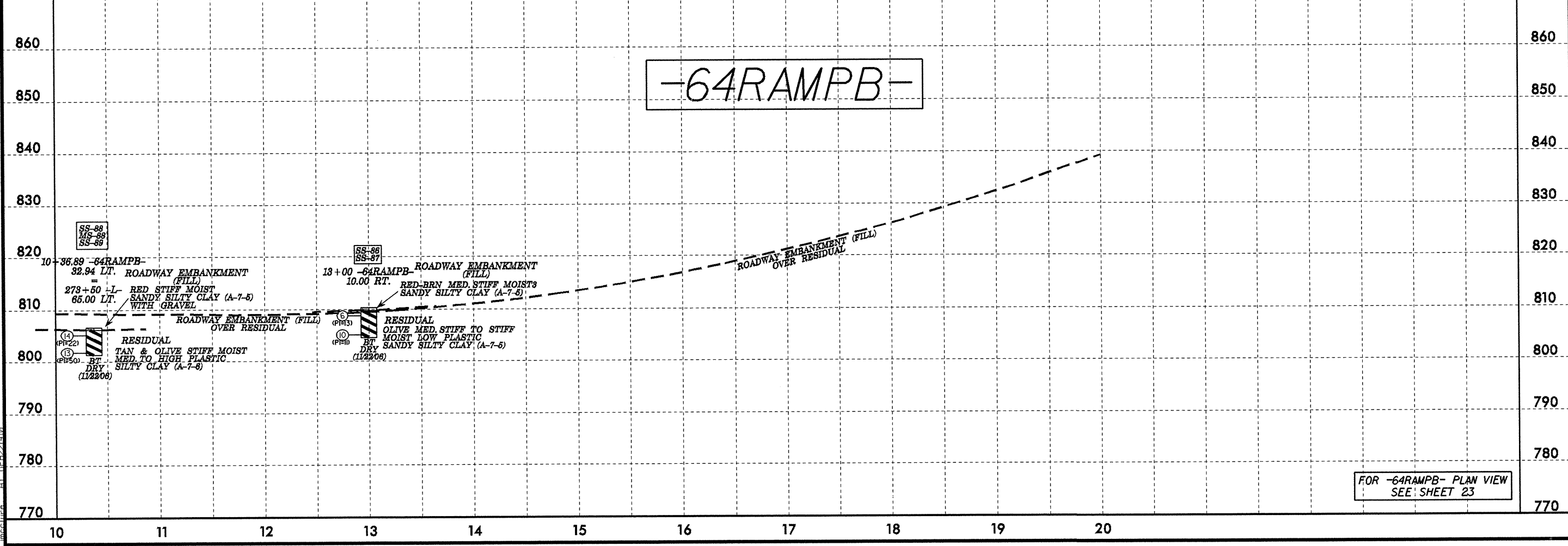
-RAMPD2-



FOR -RAMPD2- PLAN VIEW
SEE SHEET 20

FOR -RAMPD2- PLAN VIEW
SEE SHEET 19

-64RAMPB-



FOR -64RAMPB- PLAN VIEW
SEE SHEET 23

5/28/99
 16-MAR-2007 13:13
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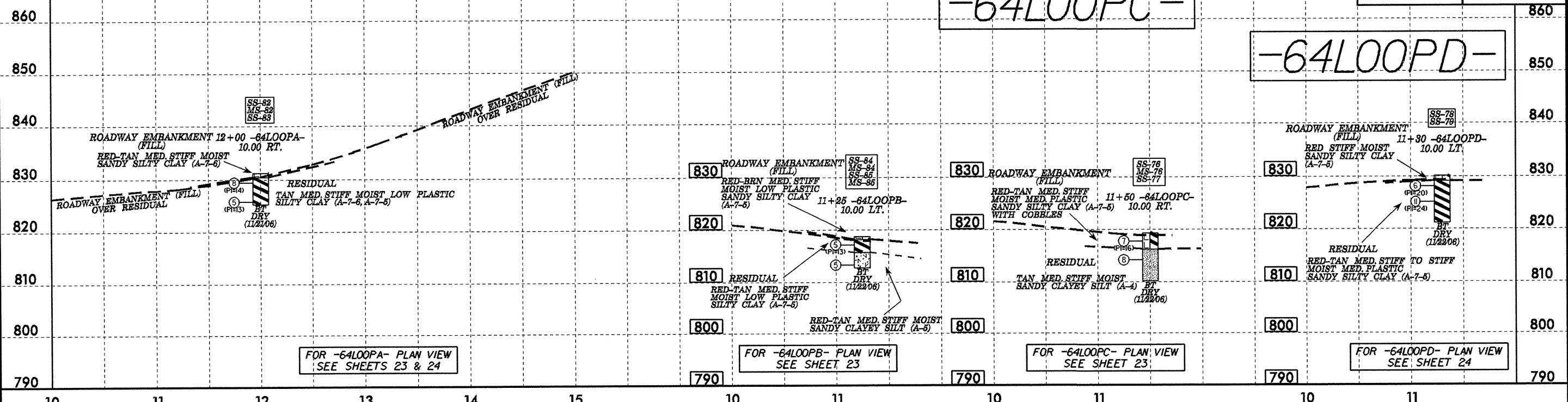
PROJECT REFERENCE NO. 1-4407	SHEET NO. 58
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/C W/ ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-64LOOPA-

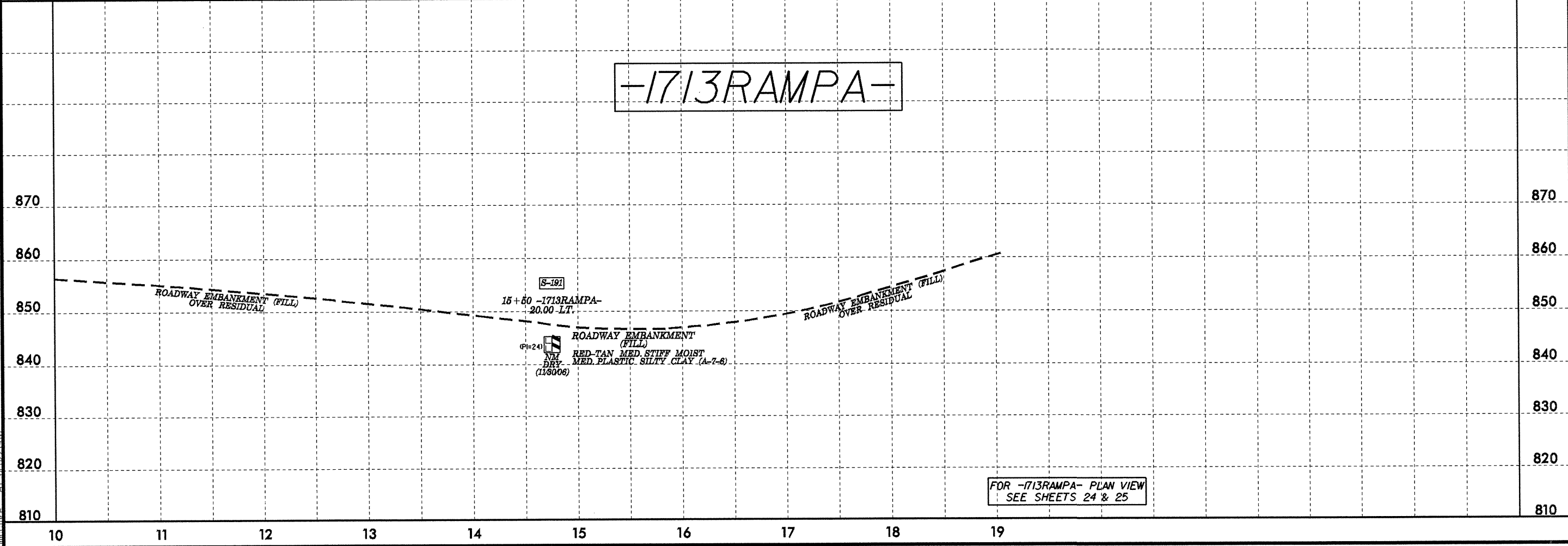
-64LOOPB-

-64LOOPC-

-64LOOPD-



-1713RAMPA-

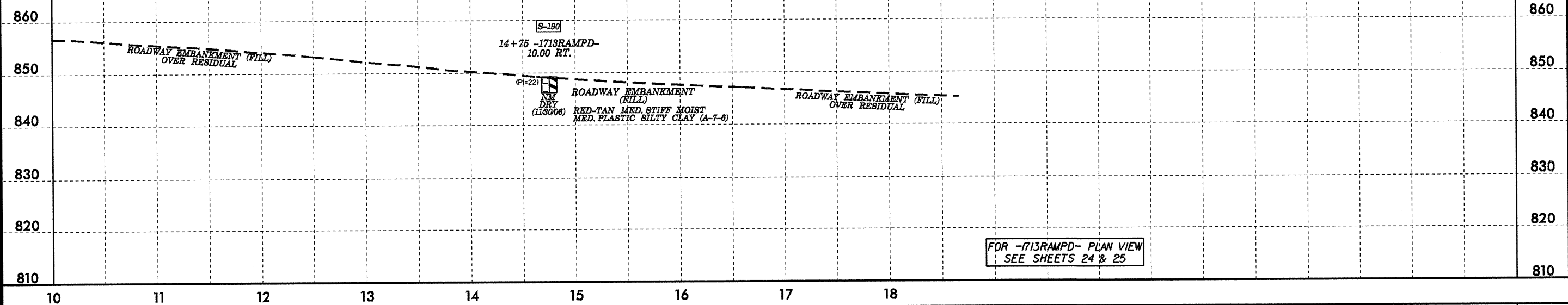


5/28/99

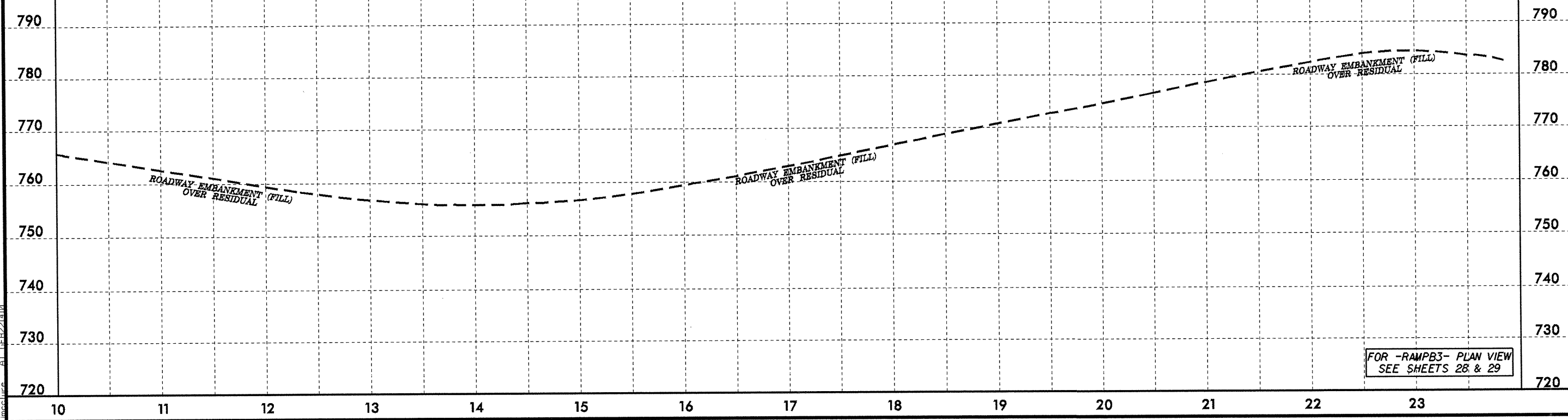
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PROJECT REFERENCE NO.	SHEET NO.
1-4407	59
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-1713RAMPD-



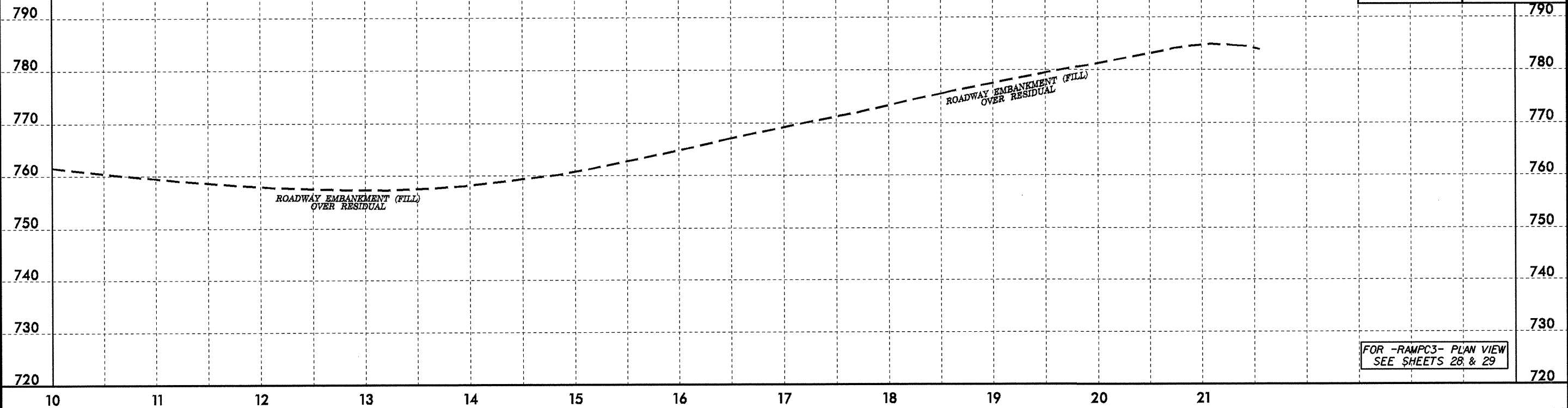
-RAMPB3-



5/28/99
 15-MAR-2007 13:14
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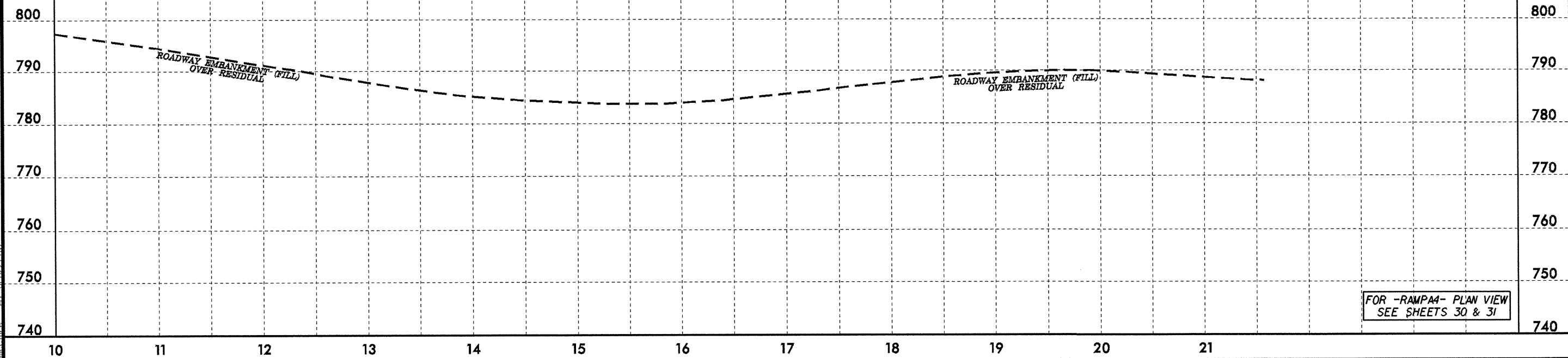
INCOMPLETE PLANS
DO NOT USE FOR ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

-RAMPC3-



FOR -RAMPC3- PLAN VIEW
SEE SHEETS 28 & 29

-RAMPA4-



FOR -RAMPA4- PLAN VIEW
SEE SHEETS 30 & 31

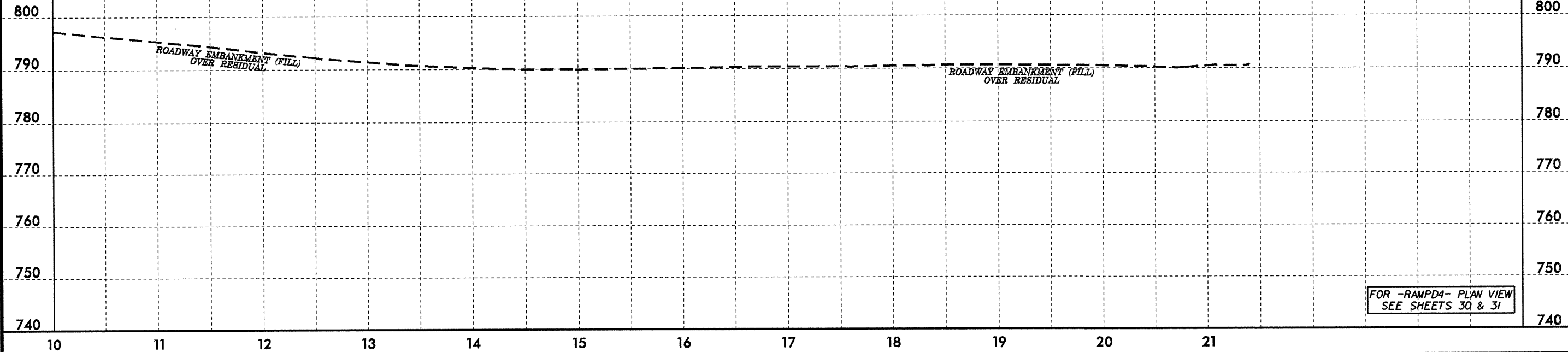
5/28/99

16-MAR-2007 13:15
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5/28/99

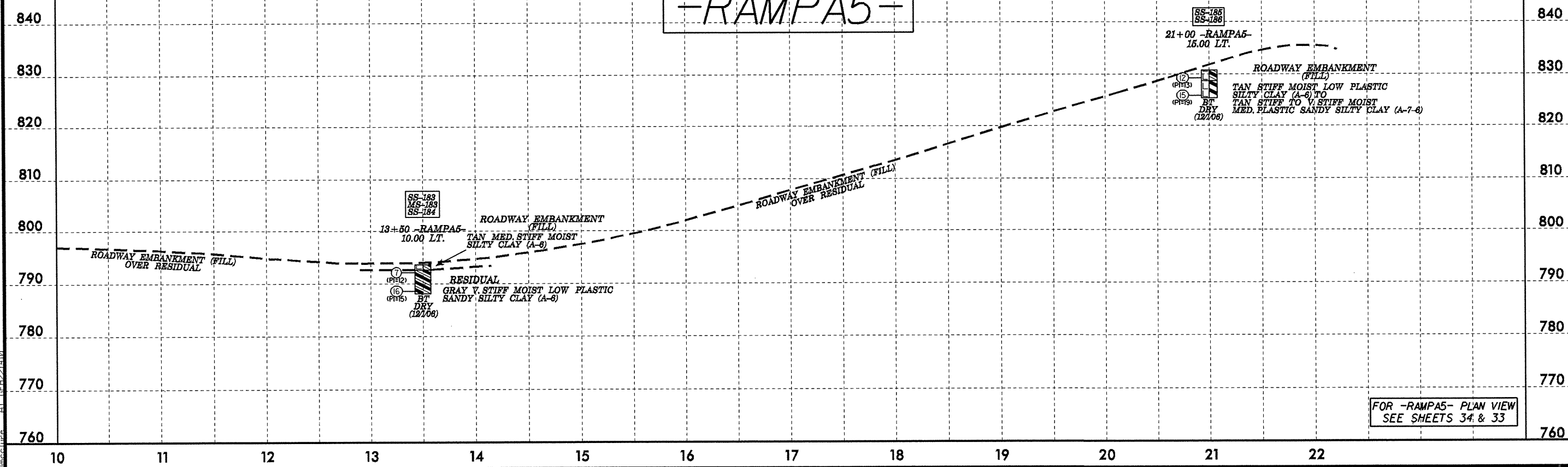
PROJECT REFERENCE NO. 1-4407	SHEET NO. 61
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR ACQUISITION	
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-RAMPD4-



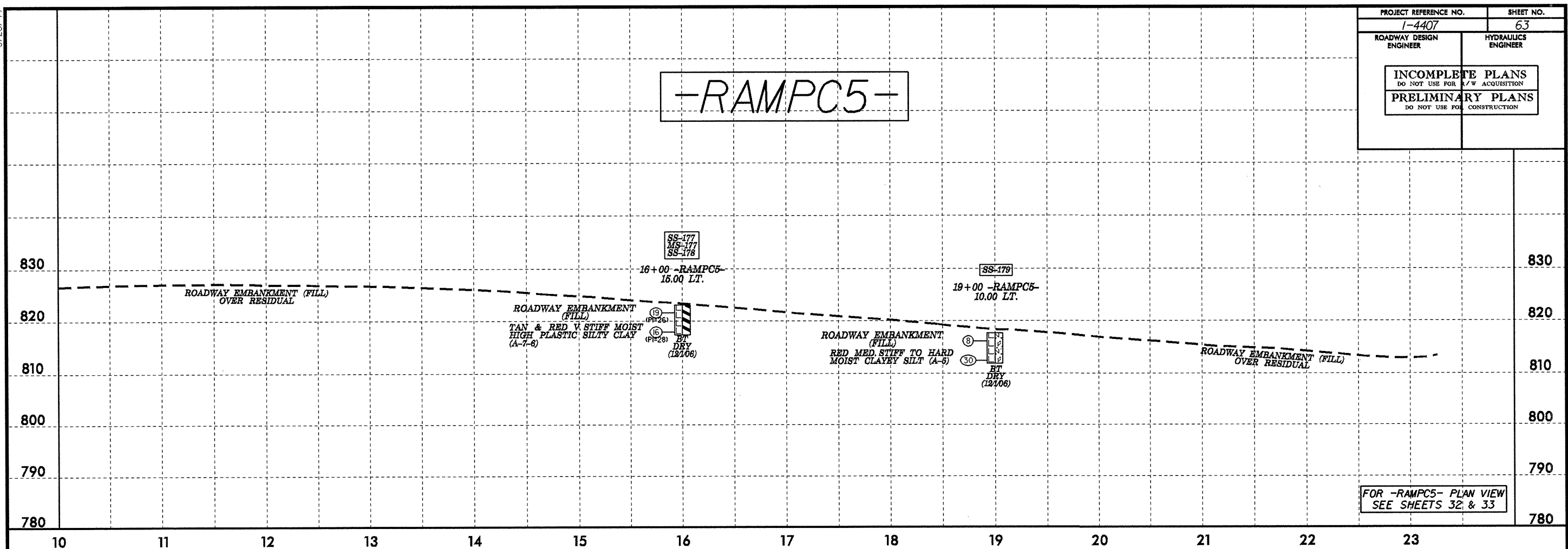
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-RAMPA5-

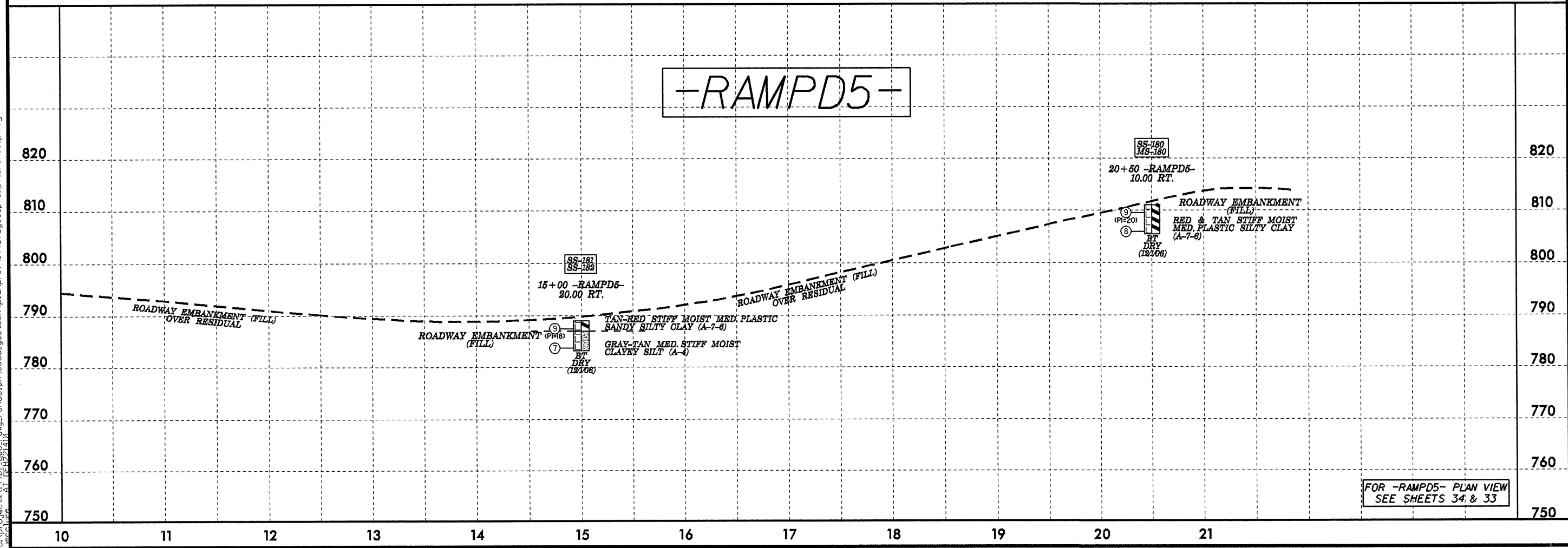


PROJECT REFERENCE NO. 1-4407	SHEET NO. 63
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR A/W ACQUISITION PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION	

-RAMPC5-



-RAMPD5-



5/28/99

16-MAR-2007 13:58
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 msc:mc

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-1	65 RT	5+00	0.00-1.50	A-7-6(12)	42	17	12.1	17.0	46.6	24.3	95	88	72		
SS-2	65 RT	5+00	4.00-5.50	A-7-5(8)	42	12	10.1	18.8	48.8	22.3	91	85	70		
SS-3	65 RT	5+00	9.00-10.50	A-7-6(19)	44	24	8.5	13.6	41.5	36.4	95	89	80		
SS-4	65 RT	10+00	3.90-5.40	A-7-5(39)	68	38	7.1	4.3	40.1	48.6	99	95	89		
SS-5	65 RT	10+00	8.90-10.40	A-5(8)	44	8	13.1	10.3	54.3	22.2	100	93	79		
SS-6	65 RT	15+00	3.90-5.40	A-7-6(21)	47	23	6.2	10.6	39.1	44.1	97	93	85		
SS-7	65 RT	19+00	3.70-5.20	A-7-6(31)	62	34	5.0	8.2	30.7	56.1	93	90	83		
SS-8	65 RT	19+00	8.70-10.20	A-7-5(20)	58	17	5.8	11.0	45.1	38.1	100	96	87		
MS-9	65 RT	23+50	3.80-5.30				0.0	0.0	0.0	0.0				28.7	
SS-9	65 RT	23+50	3.80-5.30	A-7-5(22)	70	17	4.4	19.4	38.1	38.1	100	98	83		
SS-10	65 RT	23+50	8.80-10.30	A-4(7)	40	10	7.6	18.0	56.3	18.0	89	85	72		
SS-11	20 RT	15+00	4.00-5.50	A-7-5(61)	91	50	0.4	3.4	16.0	80.2	100	100	97		
SS-12	20 RT	15+00	9.00-10.50	A-7-5(22)	51	19	3.4	5.2	59.3	32.1	100	97	94		
MS-13	65 RT	30+00	0.50-2.00				0.0	0.0	0.0	0.0				27.8	
SS-13	65 RT	30+00	0.50-2.00	A-7-6(21)	55	29	12.0	8.8	31.1	48.1	88	80	72		
SS-14	10 LT	20+00	4.40-5.90	A-7-5(43)	70	35	0.6	2.8	28.5	68.1	100	100	98		
SS-15	65 RT	55+25	3.60-5.10	A-7-6(19)	50	21	4.3	5.9	45.3	44.5	90	87	83		
SS-16	65 RT	55+25	8.60-10.10	A-7-5(47)	76	38	0.6	3.2	41.5	54.7	100	100	98		
MS-17	65 RT	59+00	0.50-2.00				0.0	0.0	0.0	0.0				28.1	
SS-17	65 RT	59+00	0.50-2.00	A-7-6(30)	56	27	2.0	3.8	43.5	50.6	98	97	94		
SS-18	65 RT	59+00	3.60-5.10	A-1-b(0)	16	NP	83.3	11.6	4.0	1.0	92	29	5		
SS-19	65 RT	59+00	8.60-10.10	A-7-5(17)	49	13	2.8	6.3	58.5	32.4	100	98	94		
SS-20	65 RT	63+00	3.80-5.30	A-7-5(18)	52	14	1.4	14.6	61.7	22.3	100	100	91		
SS-21	65 RT	73+00	3.80-5.30	A-4(10)	39	8	4.3	6.5	69.0	20.2	100	97	92		
SS-22	65 RT	84+50	3.70-5.20	A-7-6(9)	41	12	16.6	7.5	51.6	24.3	92	79	72		
MS-23	65 RT	89+50	0.00-1.50				0.0	0.0	0.0	0.0				23.0	
SS-23	65 RT	89+50	0.00-1.50	A-7-5(18)	48	17	5.3	7.7	44.5	42.5	98	94	88		
SS-24	65 RT	89+50	4.00-5.50	A-5(9)	41	5	1.2	4.3	54.0	40.5	100	99	97		
MS-25	65 RT	97+50	4.00-5.50				0.0	0.0	0.0	0.0				25.8	
SS-25	65 RT	97+50	4.00-5.50	A-7-5(22)	54	19	4.7	6.7	54.3	34.4	100	98	90		
SS-26A	65 RT	100+00	3.90-5.40	A-7-6(32)	60	33	3.2	9.5	42.7	44.5	96	94	87		
SS-26	65 RT	97+50	9.00-10.50	A-7-6(13)	41	12	1.0	15.8	46.8	36.4	100	100	89		
MS-27	65 RT	105+25	0.50-2.00				0.0	0.0	0.0	0.0				26.9	
SS-27	65 RT	105+25	0.50-2.00	A-7-6(31)	61	35	8.1	8.7	30.6	52.6	95	89	81		
MS-28	65 RT	105+25	4.00-5.50				0.0	0.0	0.0	0.0				28.3	
SS-28	65 RT	105+25	4.00-5.50	A-7-5(16)	46	15	5.5	6.7	53.4	34.4	98	94	88		
MS-29	65 RT	105+25	9.00-10.50				0.0	0.0	0.0	0.0				29.1	
SS-29	65 RT	105+25	9.00-10.50	A-7-5(22)	49	17	0.4	1.4	57.7	40.5	100	100	99		
SS-30	65 RT	110+50	8.90-10.40	A-4(1)	25	6	10.9	15.0	53.8	20.2	78	73	61		
SS-31	65 RT	115+50	3.90-5.40	A-7-5(40)	67	37	1.8	7.3	44.3	46.6	100	100	92		
SS-32	65 RT	115+50	8.90-10.40	A-5(12)	46	7	0.4	0.8	78.5	20.2	100	100	99		
MS-33	65 RT	130+50	0.50-2.00				0.0	0.0	0.0	0.0				31.1	
SS-33	65 RT	130+50	0.50-2.00	A-7-6(18)	46	17	3.2	7.9	46.4	42.5	98	96	90		
MS-34	65 RT	130+50	3.90-5.40				0.0	0.0	0.0	0.0				25.6	
SS-34	65 RT	130+50	3.90-5.40	A-7-5(20)	53	17	2.6	7.5	29.1	60.7	99	97	92		
SS-35	65 RT	130+50	8.90-10.40	A-7-5(45)	82	35	1.0	5.3	20.9	72.9	100	100	95		
SS-36	65 RT	141+00	3.70-5.20	A-7-6(31)	55	26	0.4	1.0	50.0	48.6	100	100	99		
SS-37	65 RT	141+00	8.70-10.20	A-4(9)	38	7	0.6	3.4	73.7	22.3	100	100	98		
SS-38	65 RT	150+00	3.70-5.20	A-5(12)	42	8	0.6	3.2	69.9	26.3	100	100	98		
SS-39	65 RT	150+00	8.70-10.20	A-4(7)	40	5	0.4	17.2	62.2	20.2	100	100	90		
SS-40	65 RT	157+00	3.90-5.40	A-7-5(24)	54	19	0.6	3.0	62.0	34.4	100	100	98		
MS-41	65 RT	160+50	4.10-5.60				0.0	0.0	0.0	0.0				35.3	
SS-41	65 RT	160+50	4.10-5.60	A-7-6(25)	50	23	1.4	7.1	41.0	50.6	100	99	95		
SS-42	65 RT	160+50	9.10-10.60	A-7-5(14)	44	11	1.6	3.2	68.9	26.3	100	99	96		
SS-43	65 RT	165+50	4.00-5.50	A-7-5(11)	47	12	2.4	28.3	49.0	20.2	100	100	78		
MS-44	65 RT	171+00	0.50-2.00				0.0	0.0	0.0	0.0				32.5	
SS-44	65 RT	171+00	0.50-2.00	A-7-5(41)	68	36	2.2	5.1	32.1	60.7	100	99	95		
MS-45	65 RT	171+00	4.00-5.50				0.0	0.0	0.0	0.0				31.3	
SS-45	65 RT	171+00	4.00-5.50	A-7-5(24)	56	22	8.9	4.0	48.6	38.4	100	99	89		
SS-46	65 RT	171+00	9.00-10.50	A-7-5(17)	49	15	3.0	11.9	54.7	30.3	100	99	90		
SS-47	65 RT	182+75	4.00-5.50	A-7-6(42)	70	42	4.4	5.5	35.5	54.6	96	93	88		
SS-48	65 RT	190+00	3.90-5.40	A-7-6(26)	55	26	4.9	8.3	38.3	48.5	98	95	88		
SS-49	65 RT	195+00	3.90-5.40	A-7-5(21)	54	20	1.8	12.1	37.5	48.5	100	99	86		
SS-50	65 RT	200+50	3.70-5.20	A-7-5(15)	46	11	1.0	3.4	47.0	48.5	100	99	97		
MS-51A	65 RT	205+50	4.00-5.50				0.0	0.0	0.0	0.0				26.2	

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-51A	65 RT	205+50	4.00-5.50	A-7-6(26)	55	28	6.9	9.7	36.9	46.5	98	94	84		
SS-51B	65 RT	205+50	9.00-10.50	A-4(9)	39	7	1.4	4.4	55.7	38.4	100	99	96		
SS-52	65 RT	211+25	0.00-1.50	A-7-5(24)	56	23	3.1	10.4	43.7	42.8	98	96	88		
SS-53	65 RT	211+25	4.00-5.50	A-7-5(14)	53	16	5.7	23.9	43.9	26.5	100	98	75		
SS-54	65 RT	211+25	9.00-10.50	A-7-5(17)	45	15	1.0	8.8	59.6	30.6	100	100	94		
MS-55	65 RT	224+00	0.50-2.00				0.0	0.0	0.0	0.0				0	37.7
SS-55	65 RT	224+00	0.50-2.00	A-7-5(40)	79	41	6.3	5.9	30.7	57.1	92	88	83		
SS-56	65 RT	224+00	3.90-5.40	A-7-5(36)	76	28	1.8	11.4	35.8	51.0	100	99	92		
SS-57	15 LT	20+75	0.50-2.00	A-7-5(25)	59	26	7.7	8.2	39.2	44.9	94	89	82		
SS-58	15 LT	20+75	3.90-5.40	A-7-6(28)	55	28	4.3	6.5	44.3	44.9	96	93	88		
SS-59	10 RT	22+00	0.50-2.00	A-7-6(16)	44	17	5.1	9.0	47.2	38.7	94	91	84		
SS-60	20 LT	15+00	0.50-1.50	A-7-6(19)	48	22	6.1	15.9	35.2	42.8	100	97	81		
SS-61	20 LT	15+00	3.70-5.20	A-4(2)	36	3	16.3	22.4	49.0	12.2	100	91	68		
MS-62	65 RT	245+00	0.50-2.00				0.0	0.0	0.0	0.0				0	61.9
SS-62	65 RT	245+00	0.50-2.00	A-7-5(22)	60	20	5.5	15.3	40.5	38.7	100	97	85		
SS-63	65 RT	245+00	4.00-5.50	A-7-5(13)	57	15	10.8	25.7	41.1	22.4	100	94	70		
SS-64	70 RT	250+00	0.50-2.00	A-4(4)	39	7	13.0	19.0	43.5	24.5	84	78	61		
SS-65	70 RT	250+00	3.90-5.40	A-7-5(15)	47	14	4.5	14.3	54.7	26.5	100	98	86		
MS-66	15 LT	13+50	0.00-1.50				0.0	0.0	0.0	0.0				0	19.4
SS-66	65 LT	254+50	0.00-1.50	A-7-5(18)	47	17	3.0	5.5	67.2	24.3	97	95	91		
SS-67	65 LT	254+50	3.70-5.20	A-5(16)	50	10	0.2	1.2	50.0	48.6	100	100	100		
SS-68	65 RT	260+00	0.50-2.00	A-7-6(13)	41	16	10.1	6.1	43.3	40.5	93	85	80		
SS-69	65 RT	260+00	4.00-5.60	A-6(12)	40	13	7.9	8.1	59.7	24.3	97	91	85		
MS-70	65 RT	265+00	0.50-2.00				0.0	0.0	0.0	0.0				0	34.9
SS-70															

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-101	65 LT	241+00	3.50-5.30	A-7-5(44)	81	35	1.4	4.2	31.9	62.5	99	99	95		
SS-102	20 LT	14+25	0.50-2.00	A-7-5(19)	53	22	3.6	5.4	36.5	54.4	83	81	77		
MS-102	20 LT	14+25	0.50-2.00				0.0	0.0	0.0	0.0		0	0	28.3	
SS-103	20 LT	14+25	4.20-5.70	A-7-5(40)	68	37	2.6	3.6	33.3	60.5	96	94	91		
SS-104	65 LT	228+00	0.50-2.00	A-4(3)	26	7	12.5	15.3	41.9	30.2	86	78	66		
MS-104	65 LT	228+00	0.50-2.00				0.0	0.0	0.0	0.0		0	0	21.3	
SS-105	65 LT	228+00	3.50-5.00	A-7-5(43)	78	38	2.4	9.5	21.6	66.5	100	99	91		
SS-106	10 LT	20+00	0.50-2.00	A-7-6(13)	42	15	5.6	8.7	45.4	40.3	94	91	83		
SS-107	10 LT	20+00	4.10-5.60	A-7-6(14)	42	14	3.8	10.3	51.6	34.3	97	94	87		
SS-108	10 RT	18+25	0.50-2.00	A-7-6(26)	55	27	5.8	7.3	38.5	48.4	95	91	85		
SS-109	10 RT	18+25	4.10-5.60	A-4(9)	38	9	4.6	10.9	54.2	30.2	99	96	87		
SS-110	10 RT	14+10	0.50-2.00	A-7-5(28)	59	28	4.6	5.4	33.5	56.5	94	91	86		
SS-111	10 RT	14+10	4.30-5.80	A-7-5(17)	51	12	0.4	6.5	44.8	48.4	100	100	96		
MS-112	65 LT	199+00	0.50-2.00				0.0	0.0	0.0	0.0		0	0	32.8	
SS-112	65 LT	199+00	0.50-2.00	A-7-5(43)	71	36	1.0	3.5	36.4	59.1	99	98	96		
SS-113	65 LT	199+00	4.20-5.70	A-7-5(36)	75	29	0.4	13.5	43.3	42.8	100	100	92		
SS-114	65 LT	195+50	0.50-2.00	A-7-5(29)	57	26	1.8	6.3	45.0	46.9	97	96	92		
SS-115	65 LT	195+50	4.00-5.50	A-7-6(17)	53	32	9.4	4.9	36.8	48.9	70	65	61		
MS-116	65 LT	174+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	30.0	
SS-116	65 LT	174+50	0.50-2.00	A-7-5(30)	57	25	1.2	5.1	44.8	48.9	100	99	96		
SS-117	65 LT	174+50	4.00-5.50	A-7-5(13)	47	15	11.4	10.6	45.4	32.6	93	85	76		
SS-118	65 LT	168+50	0.50-2.00	A-7-5(18)	48	15	0.6	8.8	62.1	28.5	100	100	95		
SS-119	65 LT	168+50	3.70-5.20	A-4(7)	39	5	0.2	15.7	65.7	18.3	100	100	91		
MS-120	65 LT	163+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	29.0	
SS-120	65 LT	163+50	0.50-2.00	A-7-5(22)	54	24	4.5	8.2	44.5	42.8	90	87	81		
MS-121	65 LT	158+50	0.50-2.00	No Material	No	No	0.0	0.0	0.0	0.0		0	0		
SS-121	65 LT	158+50	0.00-1.00	A-7-5(30)	61	30	2.9	4.5	43.7	48.9	91	89	86		
SS-122	65 LT	158+50	3.60-5.10	A-7-5(17)	50	16	3.3	5.3	40.5	51.0	92	90	86		
SS-123	65 LT	153+50	0.50-2.00	A-7-5(43)	71	40	2.7	6.3	23.8	67.3	99	97	92		
SS-124	65 LT	144+00	3.60-5.10	A-4(7)	33	10	4.9	9.0	55.6	30.6	90	87	80		
SS-125	65 LT	144+00	0.50-2.00	A-7-5(15)	50	14	8.4	9.2	35.6	46.9	97	91	83		
SS-126	65 LT	144+00	4.00-5.50	A-7-5(18)	52	12	0.8	2.7	51.7	44.9	100	99	98		
MS-127	65 LT	138+00	0.50-2.00				0.0	0.0	0.0	0.0		0	0	30.1	
SS-127	65 LT	138+00	0.50-2.00	A-7-6(34)	59	32	2.4	4.3	38.2	55.0	98	97	93		
MS-128	65 LT	132+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	17.9	
SS-128	65 LT	132+50	0.50-2.00	A-7-5(17)	49	19	6.3	7.7	47.2	38.7	93	90	81		
SS-129	65 LT	132+50	4.00-5.50	A-7-6(19)	48	21	3.4	4.8	45.3	46.4	88	86	82		
MS-130	65 LT	127+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	31.3	
SS-130	65 LT	127+50	0.50-2.00	A-7-6(14)	43	17	5.2	7.5	51.0	36.3	88	85	79		
SS-131	65 LT	127+50	3.80-5.30	A-7-5(25)	65	24	5.9	18.4	39.5	36.3	100	97	83		
MS-132	65 LT	122+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	50.9	
SS-132	65 LT	122+50	0.50-2.00	A-7-5(86)	114	73	0.6	3.4	21.3	74.7	100	100	96		
SS-133	65 LT	122+50	3.80-5.30	A-7-5(40)	75	37	1.4	16.8	35.4	46.4	100	99	88		
MS-134	65 LT	117+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	40.3	
SS-134	65 LT	117+50	0.50-2.00	A-7-5(33)	66	27	1.2	7.5	40.9	50.5	100	100	95		
SS-135	65 LT	117+50	3.80-5.30	A-7-5(20)	61	16	1.2	20.0	40.5	38.3	100	100	86		
SS-136	65 LT	112+50	0.50-2.00	A-7-6(23)	54	26	8.1	10.3	41.3	40.4	95	90	80		
MS-137	65 LT	107+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	28.6	
SS-137	65 LT	107+50	0.50-2.00	A-7-5(16)	48	16	5.9	7.5	42.3	44.4	94	91	84		
MS-138	65 LT	101+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	28.8	
SS-138	65 LT	101+50	0.50-2.00	A-7-5(33)	60	30	2.2	6.3	39.1	52.5	99	98	93		
SS-139	65 LT	101+50	4.00-5.50	A-7-5(21)	51	19	1.0	6.3	44.3	48.4	96	95	91		
MS-140	65 LT	96+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	23.8	
SS-140	65 LT	96+50	0.50-2.00	A-7-6(11)	41	17	7.7	8.5	49.5	34.3	81	77	71		
SS-141	65 LT	96+50	3.80-5.30	A-7-5(30)	59	26	1.6	3.8	44.1	50.5	97	96	93		
SS-142	65 LT	91+50	0.50-2.00	A-7-5(25)	65	20	1.8	13.1	36.6	48.4	100	99	90		
SS-143	65 LT	91+50	3.90-5.40	A-7-5(31)	81	24	2.2	17.0	32.4	48.4	100	99	87		
MS-144	65 LT	85+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	26.9	
SS-144	65 LT	85+50	0.50-2.00	A-7-5(22)	53	23	4.0	6.5	41.1	48.4	92	89	85		
SS-145	65 LT	85+50	4.20-5.70	A-7-6(19)	45	17	2.8	2.6	54.2	40.4	100	98	95		
SS-146	65 LT	85+50	0.50-2.00	A-7-5(26)	57	24	3.2	4.8	37.4	54.5	96	94	90		
SS-147	65 LT	76+50	4.00-5.50	A-7-5(25)	58	20	1.2	6.3	44.1	48.4	100	99	95		
MS-148	65 LT	71+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	29.3	
SS-148	65 LT	71+50	0.50-2.00	A-7-5(20)	53	17	1.4	6.9	55.4	36.3	98	97	92		
SS-149	65 LT	71+50	4.00-5.50	A-7-5(31)	60	27	1.6	4.2	33.6	60.5	98	97	94		

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-150	65 LT	67+50	0.50-2.00	A-7-5(20)	52	19	3.8	5.4	38.2	52.5	95	92	88		
SS-151	65 LT	67+50	3.90-5.40	A-7-5(22)	67	17	2.8	19.6	53.4	24.2	100	99	85		
MS-152	65 LT	62+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	32.4	
SS-152	65 LT	62+50	0.50-2.00	A-7-5(22)	49	19	1.6	5.7	42.3	50.5	100	99	95		
SS-153	65 LT	62+50	4.20-5.70	A-5(18)	64	10	1.0	19.8	53.0	26.2	100	99	90		
SS-154	65 LT	57+50	0.50-2.00	A-7-5(19)	49	17	2.2	5.4	41.9	50.5	95	94	90		
SS-155	65 LT	57+50	3.80-5.30	A-7-5(24)	54	19	0.4	4.8	50.4	44.4	100	100	97		
MS-156	65 LT	45+50	0.50-2.00				0.0	0.0	0.0	0.0		0	0	26.3	
SS-156	65 LT	45+50	0.50-2.00	A-7-6(21)	51	24	6.3	8.9	36.4	48.4	92	88	81		
SS-157	65 LT	45+50	3.50-5.00	A-7-5(12)	43	11	3.6	12.5	53.6	30.3	100	98	89		
MS-158	15 LT	13+00	0.50-2.00				0.0	0.0	0.0	0.0		0	0	37.2	
SS-158	15 LT	13+00	0.50-2.00	A-7-6(10)	50	21	15.7	12.7	33.2	38.3	74	65	56		
SS-159	15 LT	13+00	4.20-5.70	A-4(1)	31	6	18.8	39.4	31.8	10.1	100	93	50		
SS-160	65 LT	38+50	0.50-2.00	A-7-5(45)	76	36	0.4	4.8	26.1	68.6	100	100	97		
SS-161	65 LT	38+50	3.90-5.40	A-7-5(32)	74	25	1.4	13.9	40.3	44.4	100	100	91		
MS-162	10 LT	19+00	0.50-2.00				0.0	0.0	0.0	0.0		0	0	44.6	
SS-162	10 LT	19+00	0.50-2.00	A-7-5(29)	66	34	5.2	11.3	33.0	50.5	89	86	78		
SS-163	10 LT	19+00	4.30-5.80	A-7-5(36)	78	27	1.0	8.9	49.7	40.4	100	99	94		
MS-164	10 LT	18+00	0.50-2.00				0.0	0.0	0.0	0.0		0	0	32.8	
SS-164	10 LT	18+00	0.50-2.00	A-7-6(25)	56	27	7.1	10.1	32.4	50.5	95	90	82		
SS-165	10 LT	18+00	3.90-5.40	A-7-5(38)	73	31	2.0	6.9	28.6	62.6	100	99	94		
SS-166	15 LT	13+50	0.50-2.00	A-7-6(29)	55	27	2.6	5.4	41.5	50.5	99	98	93		
SS-167	15 LT	13+50	3.80-5.30	A-5(9)	43	8	8.9	11.5	57.4	22.2	100	95	82		
MS-168	65 LT	21+50	0.50-2.0												