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PROJECT REFERENCE NO. SHEET NO.

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

LIST OF ROADWAY STANDARDS

EFF. 01-16-2024 REV.

2024 ROADWAY STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference here by are considered a part of these plans:

STD. NO. TITLE

DIVISION 8 - INCIDENTALS

862.01 Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)

862.02 Guardrail Installation (Use Details in Lieu of Standards for Sheets 5 of 9)

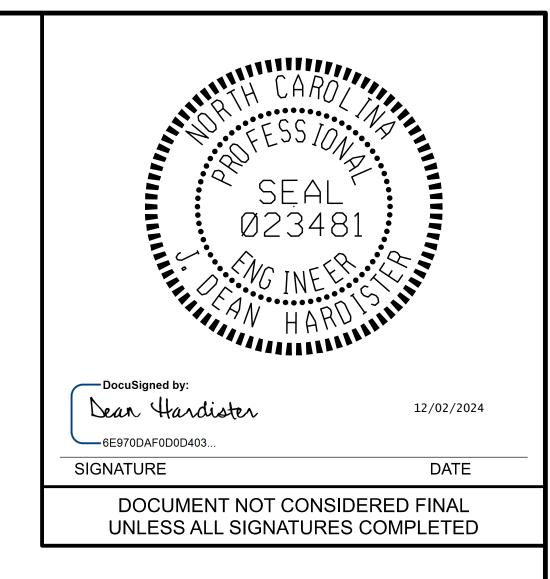
876.03 Drainage Ditches with Class 'A' Rip Rap 876.04 Drainage Ditches with Class 'B' Rip Rap

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

HELENE EMERGENCY REPAIRS

COUNTY TRANSYLVANIA
PROJECT DESCRIPTION 1 SITE ON BECKY MOUNTAIN RD

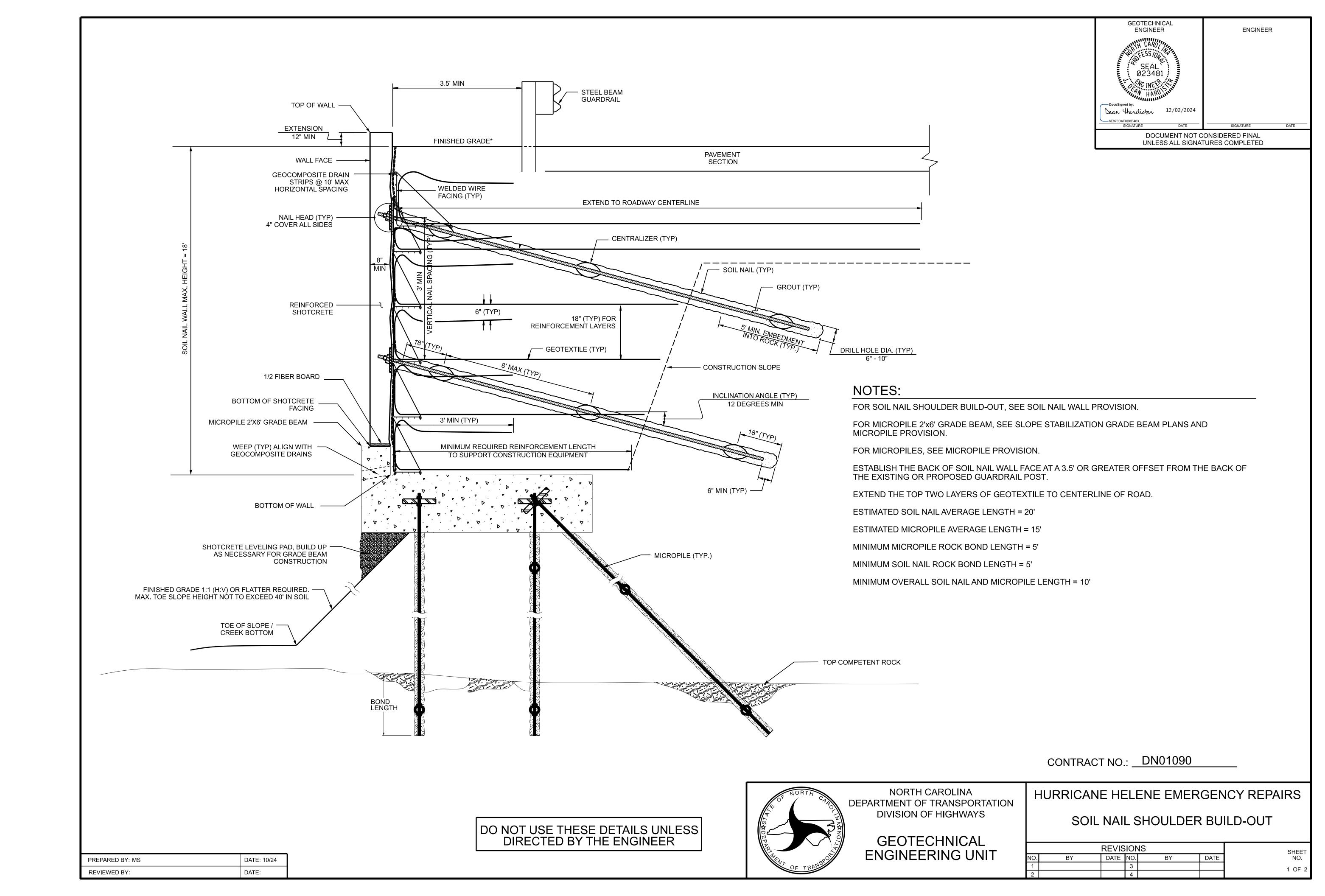


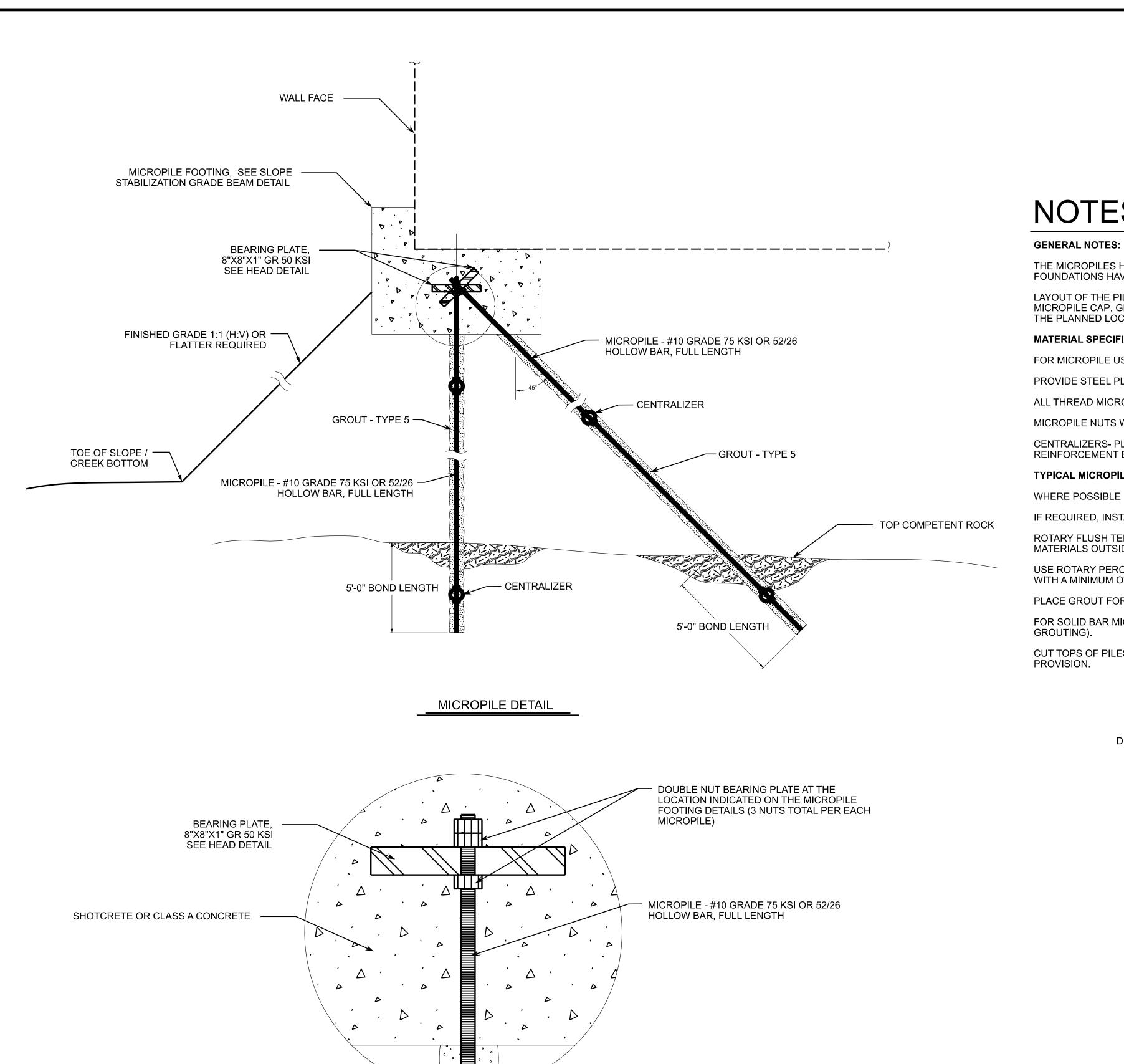
ROUTE	SITE#	SITE LATITUDE	SITE LONGITUDE	REPAIR OPTION 1	REPAIR OPTION 2	REPAIR OPTION 3
SR-1538 Becky	25	35 10865/3/	-82.71416048	Soil Nail Shoulder Buildout		
Mountain Road	25	33.19003434	-02.7 14 10040	Soli Nali Shoulder Buildout		

CONTRACT: DN01090

WHEN MULTIPLE REPAIR OPTIONS ARE AVAILABLE AT A SITE LOCATION, THE CONTRACTOR SHALL PROCEED IN SEQUENTIAL ORDER AND CHOOSE THE FIRST OPTION THAT FITS WITHIN SITE CONSTRAINTS

PRIOR TO CONSTRUCTING THE GEOTECHNICAL REPAIRS, AN ON-SITE MEETING WITH THE PRIME CONTRACTOR, THE GEOTECHNICAL SPECIALTY SUBCONTRACTOR (IF APPLICABLE), THE DIVISION CONSTRUCTION REPRESENTATIVE AND THE GEOTECHNICAL OPERATIONS GROUP REPRESENTATIVE SHALL BE CONDUCTED





- GROUT - TYPE 5

MICROPILE HEAD DETAIL



NOTES:

THE MICROPILES HAVE BEEN DESIGNED IN GENERAL ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS. THE MICROPILE FOUNDATIONS HAVE BEEN DESIGNED TO SUPPORT A LOAD OF 60 KIPS IN COMPRESSION AND TENSION.

LAYOUT OF THE PILES SHALL BE BY THE GENERAL CONTRACTOR. MICROPILE LAYOUT IS BASED ON PILE LOCATION AT THE BOTTOM OF THE MICROPILE CAP. GENERAL CONTRACTOR SHALL LAY OUT PILES BASED ON DRILLING ELEVATION SUCH THAT THE MICROPILE LOCATION WILL BE AT THE PLANNED LOCATION AT THE BOTTOM OF THE PILE CAP.

GEOTECHNICAL

ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ENGINEER

MATERIAL SPECIFICATIONS:

FOR MICROPILE USE TYPE 5 GROUT, SEE SECTION 1003 OF THE STANDARD SPECIFICATIONS.

PROVIDE STEEL PLATES THAT MEET ASTM A572 GRADE 50 KSI.

ALL THREAD MICROPILE REINFORCEMENT SHALL BE MINIMUM GRADE 75 KSI.

MICROPILE NUTS WILL BE MANUFACTORED BY THE BAR MANUFACTURER AND COMPATIBLE WITH THE BAR TYPE SPECIFIED.

CENTRALIZERS- PLASTIC, STAINLESS STEEL, OR OTHER NON-DELETERIOUS MATERIAL WHICH WILL MAINTAIN SHAPE AND LOCATION TO KEEP REINFORCEMENT BAR IN CENTRAL PORTION OF THE DRILL HOLE.

TYPICAL MICROPILE CONSTRUCTION SEQUENCE:

WHERE POSSIBLE LEVEL AREA OF MICROPILE FOOTING PRIOR TO DRILLING.

IF REQUIRED, INSTALL AND TEST PILES IN ACCORDANCE AASHTO GUIDLINES AS DIRECTED BY THE ENGINEER.

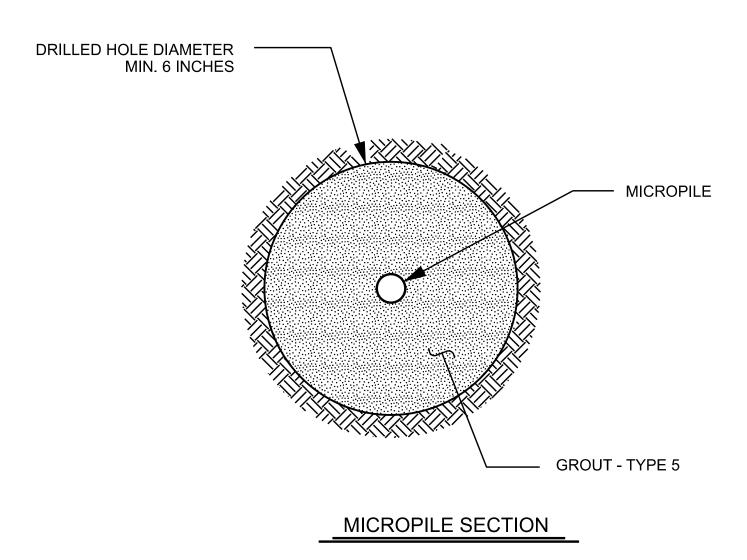
ROTARY FLUSH TEMPORARY CASING TO TOP OF ROCK USING AIR OR WATER AS FLUSHING MEDIUM. CARE SHALL BE TAKEN SO MINIMAL LOSS OF MATERIALS OUTSIDE THE THE TEMPORARY CASING OCCURS.

USE ROTARY PERCUSSIVE DRILLING TO DRILL ROCK SOCKET TO REQUIRED DEPTH. MINIMUM BOND LENGTH IS 5 FEET INTO COMPETENT ROCK, WITH A MINIMUM OVERALL LENGTH OF AT LEAST 10 FT.

PLACE GROUT FOR MICROPILES BY TREMIE METHOD FROM BOTTOM OF THE HOLE.

FOR SOLID BAR MICROPILES, INSTALL CENTER CORE REINFORCEMENT STEEL (STEEL MAY BE PLACED PRIOR TO OR IMMEDIATELY AFTER

CUT TOPS OF PILES TO FINAL ELEVATION AND INSTALL PLATES. FOR MICROPILES AND MICROPILE FOOTING, SEE MICROPILE SLOPE STABILIZATION PROVISION.



CONTRACT NO.: <u>DN01090</u>

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS**

GEOTECHNICAL ENGINEERING UNIT

HURRICANE HELENE EMERGENCY REPAIRS **MICROPILES**

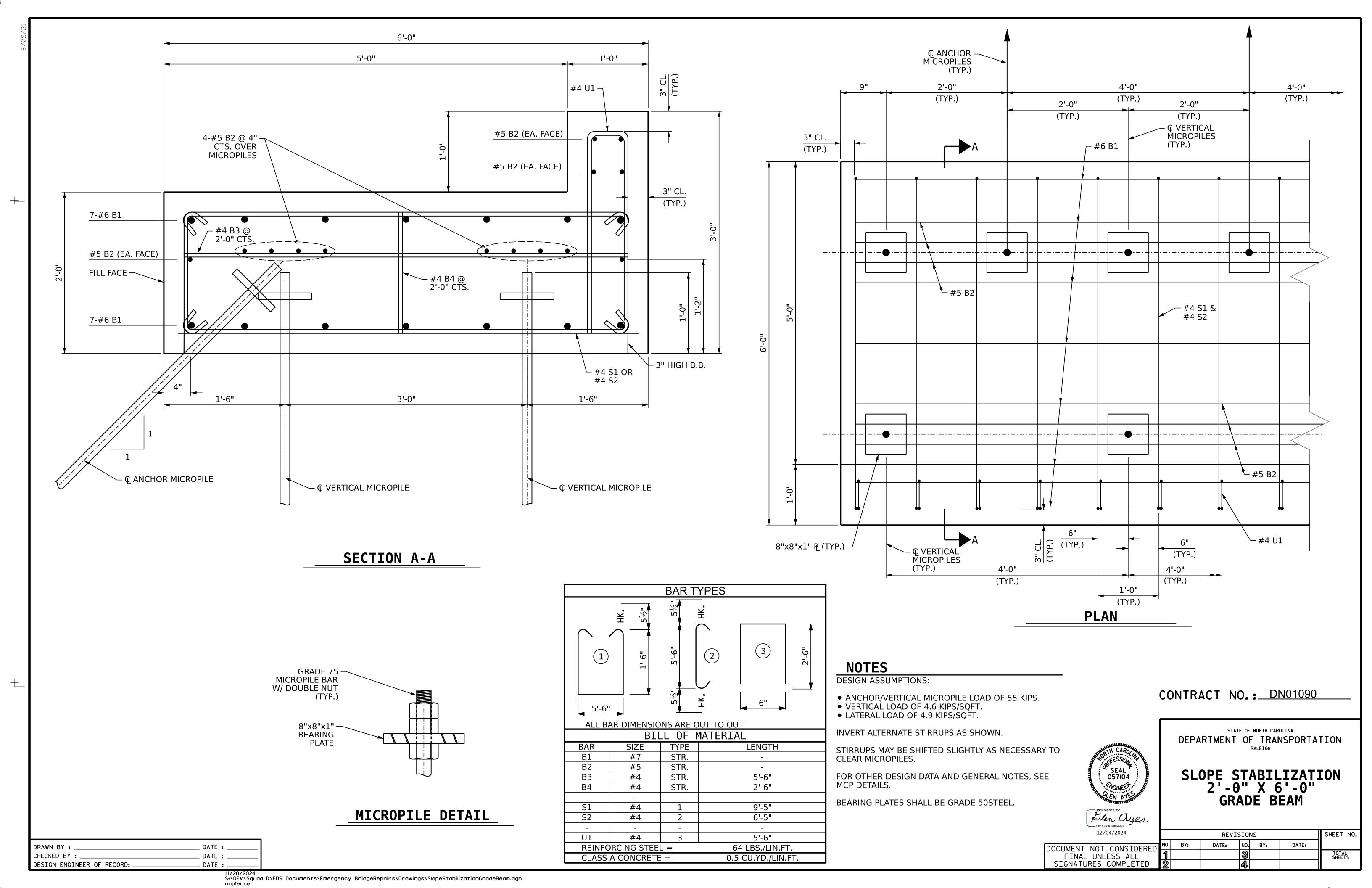
SHEET NO.

2 OF 2

	REVIS	101	NS	
BY	DATE	NO.	BY	DATE
		3		
		4		

PREPARED BY: MS DATE: 10/24 DATE: REVIEWED BY:

DO NOT USE THESE DETAILS UNLESS DIRECTED BY THE ENGINEER



										1491000000-E	1523000000-E	1575000000-E
PROJECT NO	COUNTY	MAP NO	ROUTE	LANES	LANE	LENGTH	WIDTH	BEGIN	END	BASE COURSE,	SURFACE	ASPHALT
					TYPE			MP	MP	B25.0C	COURSE, S9.5C	BINDER FOR
												PLANT MIX
						MI	FT			TONS	TONS	TONS
DF18314.2088022	Transylvania	25	SR-1538 / BECKY MOUNTAIN RD	2	2WD	0.06	20	0.7	0.76	73	32	5
	TOTAL	FOR MAP	NO. 25			0.06				73	32	5
	TOTAL EOD DD	OLNO DE1	18314.2088022			0.06				73	32	5
	TOTAL FOR PR	OJ NO. DE	10314.2000022									
	-	RAND TOTA	ΛΙ			0.06				73	32	5
		NAME TO I	nL							<u>-</u>		_

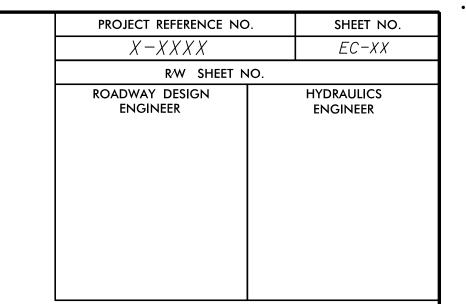
Type E Sign Summary

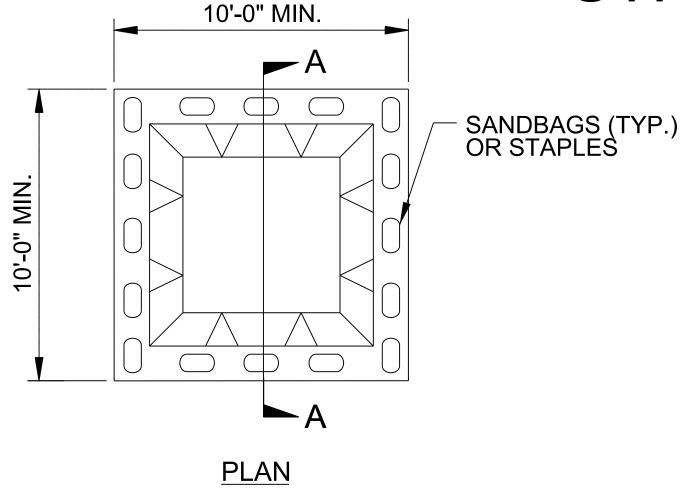
				MUTCD			5' U-CHANNEL	U-CHANNEL	POST
ROUTE	NAME	SITE	SIGN	CODE	QUANTITY	SIZE	STUB QUANTITY	POST SIZE	QUANTITY
SR-1538	Becky Mtn	025	Left Turn Warning	W1-1	1	30"x30"	1	13'	1
SR-1538	Becky Mtn	025	15 MPH Speed Advisory	W13-1P	1	18"x18"	0	0	0
SR-1538	Becky Mtn	025	Winding Road Warning	W1-5	1	30"x30"	1	13'	1
SR-1538	Becky Mtn	025	15 MPH Speed Advisory	W13-1P	1	18"x18"	0	0	0

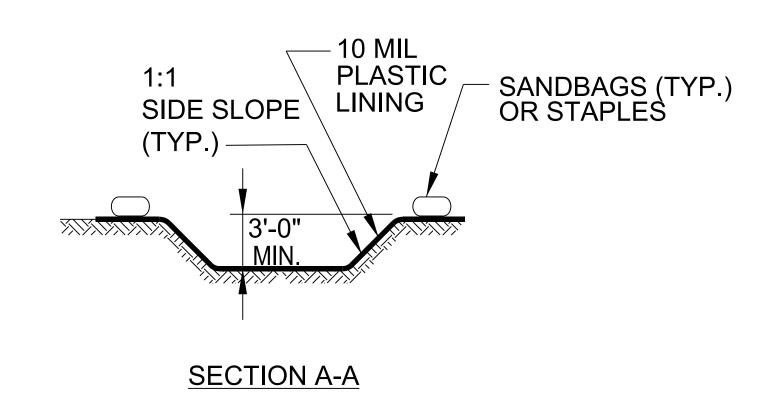
^{*}Field locations to be determined by Division 14 Traffic Engineer

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER









CLEARLY MARKED SIGNAGE NOTING DEVICE (18"X24" MIN.) CONCRETE WASHOUT

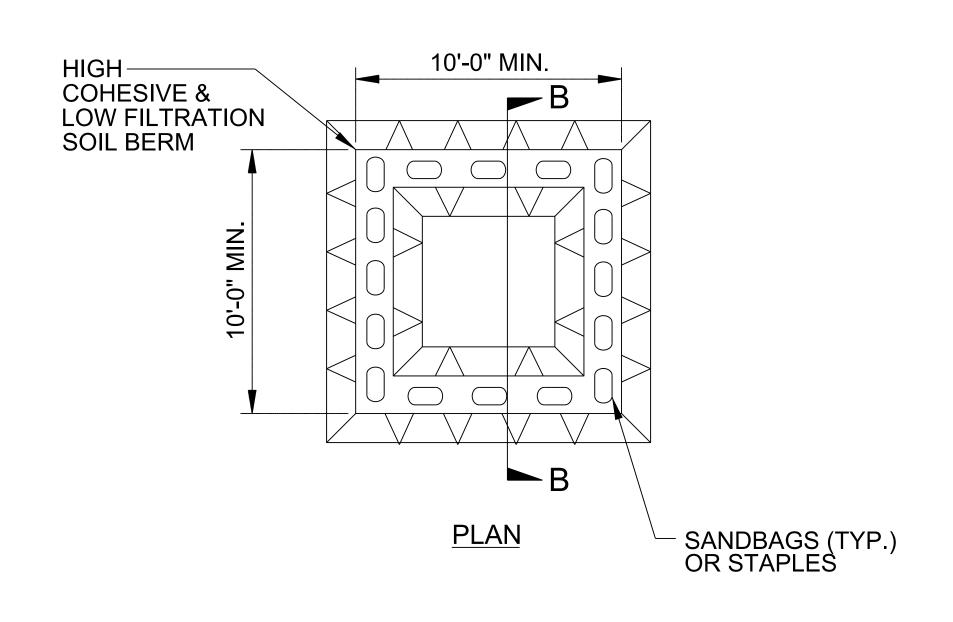
BELOW GRADE WASHOUT STRUCTURE

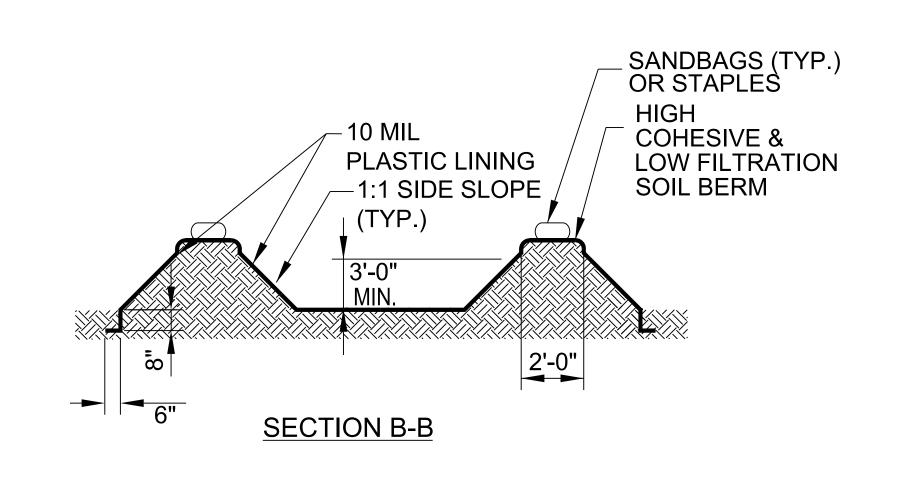
NOT TO SCALE

1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.





CLEARLY MARKED SIGNAGE NOTING DEVICE (18"X24" MIN.) CONCRETE WASHOUT

NOTES:

1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE NOT TO SCALE

										6000000000-E	6009000000-E	6012000000-E	6029000000-E	6036000000-E	6042000000-E	6071010000-E	6084000000-E	6117000000-N	6117500000-N
PROJECT NO	COUNTY	MAP NO	ROUTE	LANES	LANE	LENGTH	WIDTH	BEGIN	END	TEMPORARY SILT	STONE FOR	SEDIMENT	SAFETY FENCE	MATTING FOR	1/4" HARDWARE	WATTLE	SEED &	RESPONSE FOR	CONCRETE
					TYPE			MP	MP	FENCE	EROSION	CONTROL		EROSION	CLOTH		MULCHING	EROSION	WASHOUT
											CONTROL,	STONE		CONTROL				CONTROL	STRUCTURE
											CLASS B								
						MI	FT			LF	TON	TON	LF	SY	LF	LF	AC	EA	EA
DF18314.2088022	Transylvania	25	SR-1538 / BECKY MOUNTAIN RD	2	2WD	0.06	20	0.7	0.76	500	100	40	200	550	30	50	1	2	2
	TOTAL FOR MAP NO. 25									500	100	40	200	550	30	50	1	2	2
	TOTAL FOR PROLING PEASSAA 20090000									500	100	40	200	550	30	50	1	2	2
	TOTAL FOR PROJ NO. DF18314.2088022																		
	GRAND TOTAL 0.06									500	100	40	200	550	30	50	1	2	2
	GRAND IOTAL																		

									8252000000-E	8802015110-N		883400	0000-N		8	839000000-E		8848000000-E	8853000000-E	8853000000-E
PROJECT NO COUN	NTY I	MAP NO	LANES	LANE	LENGTH	WIDTH	BEGIN	END	REINFORCING	SOIL NAIL	SOIL NAIL,	MICROPILE,	MICROPILE	WIRE	GEOCOMPOSITE	SOIL NAIL,	MICROPILE,	GEOTEXTILE FOR	BORROW	SHOTCRETE
				TYPE			MP	MP	STEEL	PROOF TESTS	AVERAGE	AVERAGE	PROOF TEST	BASKET	DRAINS	ADDITIONAL	ADDITIONAL	TEMPORARY WALL		
									(RETAINING		LENGTH	LENGTH		FORMS		LENGTH	LENGTH OVER			
									WALL)							OVER	AVERAGE			
																AVERAGE				
					MI	FT			LB	EA	EA	EA	EA	EA	LF	LF	LF	SY	CY	CY
DF18314.2088022 Transyl	lvania	25	2	2WD	0.06	20	0.7	0.76	12,800	10	175	206	12	400	450	350	309	5,000	2,200	200
OTAL FOR MAP NO. 25					0.06				12,800	10	175	206	12	400	450	350	309	5,000	2,200	200
R PROJ NO. DF18314.208802	22				0.06				12,800	10	175	206	12	400	450	350	309	5,000	2,200	200
GRAND TOTAL					0.06				12,800	10	175	206	12	400	450	350	309	5,000	2,200	200

									0000400000-N	0043000000-N	0195000000-E	0196000000-Е	3656000000-E	3635000000-E	1099700000-E	1220000000-E	2044000000-E	2077000000-Е	3642000000-E	3649000000-E
PROJECT NO COUN	ГҮ МАР	NO I	LANES	LANE	LENGTH	WIDTH	BEGIN	END	CONSTRUCTION	GRADING	SELECT	GEOTEXTILE	GEOTEXTILE	RIP RAP,	CLASS IV	INCIDENTAL	6" PERFORATED	6" OUTLET PIPE	RIP RAP, CLASS	RIP RAP, CLASS
				TYPE			MP	MP	SURVEYING		GRANULAR	FOR SOIL	FOR DRAINAGE	CLASS II	SUBGRADE	STONE BASE	SUBDRAIN PIPE		Α	В
											MATERIAL	STABILIZATION			STABILIZATION					
					MI	FT			LS	LS	CY	SY	SY	TON	TON	TONS	LF	LF	TON	TON
DF18314.2088022 Transylv	ania 25	5	2	2WD	0.06	20	0.7	0.76	1	1	120	267	278	100	100	60	200	100	75	75
DTAL FOR MAP NO. 25					0.06				1	1	120	267	278	100	100	60	200	100	75	75
R PROJ NO. DF18314.2088022					0.06				1	1	120	267	278	100	100	60	200	100	75	75
GRAND TOTAL					0.06				1	1	120	267	278	100	100	60	200	100	75	75

THERMOPLASTIC AND PAINT QUANTITIES

										4457000000-N	4810000000-E	4810000000-E
PROJECT NO	COUNTY	MAP NO	ROUTE	LANES	LANE	LENGTH	WIDTH	BEGIN MP	END MP	TEMPORARY	4" YELLOW	4" WHITE PAINT
					TYPE					TRAFFIC	PAINT	
										CONTROL		
						MI	FT			LS	LF	LF
DF18314.2088022	Transylvania	25	SR-1538 / BECKY MOUNTAIN RD	2	2WD	0.06	20	0.7	0.76	1	1,200	1,200
	TOTAL	FOR MAP	NO. 25			0.06				1	1,200	1,200
	TOTAL FOR PR	OJ NO. DF1	8314.2088022			0.06				1	1,200	1,200
	G	RAND TOTA	AL			0.06				1	1,200	1,200

										303000000-Е	3288000000-N	4025000000-E	4072000000-Е	4102000000-N	4155000000-N
PROJECT NO	COUNTY	MAP NO	ROUTE	LANES	LANE	LENGTH	WIDTH	BEGIN	END	STEEL BEAM	GUARDRAIL END	CONTRACTOR	SUPPORTS, 3-LB	SIGN ERECTION,	DISPOSAL OF
					TYPE			MP	MP	GUARDRAIL	UNITS, TYPE TL-2	FURNISHED,	STEEL U-	TYPE E	SIGN SYSTEM, U-
											TYPE *E SIGN	CHANNEL		CHANNEL	
						MI	FT			LF	EA	SF	LF	EA	EA
DF18314.2088022	Transylvania	25	SR-1538 / BECKY MOUNTAIN RD	2	2WD	0.06	20	0.7	0.76	200	2	17	30	4	2
	TOTAL	FOR MAP	NO. 25			0.06				200	2	17	30	4	2
	TOTAL EOD DD	OLNO DE	18314.2088022			0.06				200	2	17	30	4	2
	IOIAL FOR PR	OJ NO. DE	16314.2086022												
		RAND TOTA	Λ1			0.06				200	2	17	30	4	2
	G			·											