Pavement Coring and Ground Penetrating Radar Results
Carolina Crossroads GPR Survey
Columbia, South Carolina
S&ME Project No. 6205-20-008

PREPARED FOR:

South Carolina Department of Transportation
955 Park Street
P.O. Box 191
Columbia, SC 29201

PREPARED BY:

S&ME, Inc.
3201 Spring Forest Road
Raleigh, NC 27616

July 13, 2020

July 13, 2020

South Carolina Department of Transportation
955 Park Street
P.O. Box 191
Columbia, SC 29201

Attention: Mr. Luke Gibson

Reference: **Pavement Coring and Ground Penetrating Radar Results**
Carolina Crossroads GPR Survey
Columbia, South Carolina
S&ME Project No. 6205-20-008

Dear Mr. Gibson:

The purpose of this report is to present the pavement Ground Penetrating Radar (GPR) survey along I-20, I-26, and I-126 for the Carolina Crossroads Project located near Columbia, South Carolina. Our services are being performed in general accordance with the approved scope of services in the Master Agreement for Pavement Design, Evaluation, and Investigation Services between S&ME, Inc. and SCDOT dated January 25, 2019 and Notice to Proceed (NTP) authorized by SCDOT dated May 21, 2020.

Sincerely,

S&ME, Inc.

Vladimir Mitchev, PE
Project Manager

Kevin Hon, PG
Geophysical Project Lead

Senior Review: Kristen Hill, PG, PE

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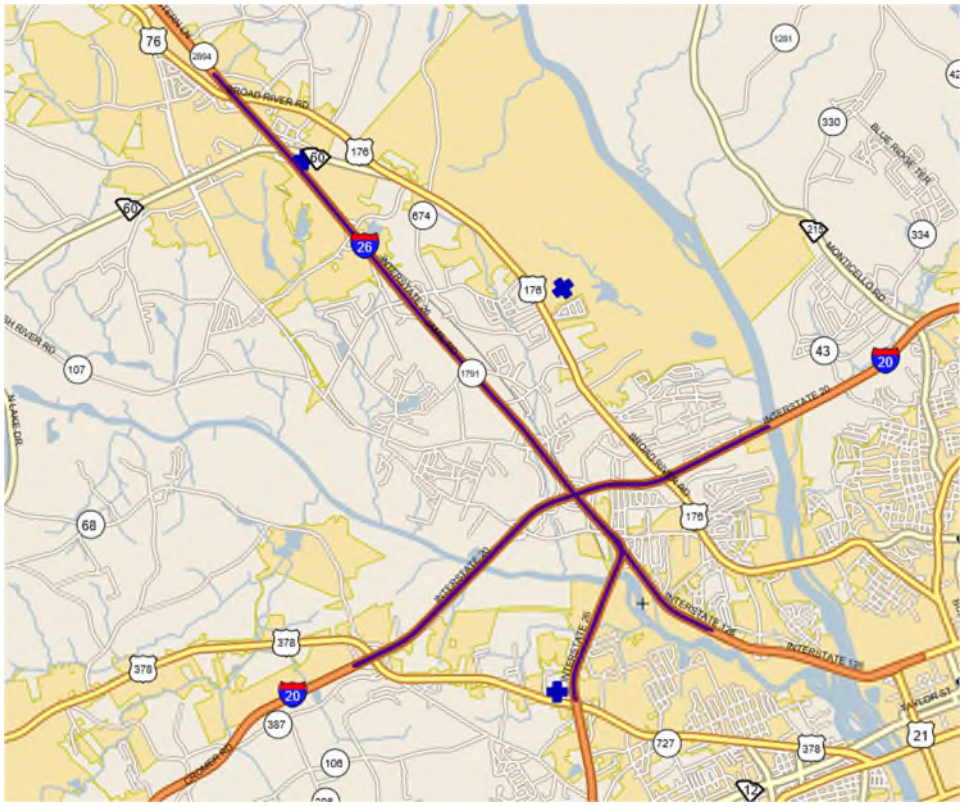
1.0 Project Information

Project information was provided via phone conversation and email correspondence between Jay Thompson and Luke Gibson with SCDOT and Vladimir Mitchev and Jayson Jordan with S&ME between March 26 and May 21, 2020. SCDOT requested pavement testing to be performed for the locations of interest below. These areas include the following:

- I-26 from MM 107.0 to 109.5 – all lanes and outside shoulder
- I-126 from MM 0.0 to MM 1.5 – all lanes and outside shoulder
- I-20 from MM 64.0 to 66.3 (Bridge) – outside shoulders only

Figure 1-1: Site Location Map



S&ME performed the pavement testing consisting of GPR survey, coring, and Kessler Dynamic Cone Penetrometer (KDCP) testing. The data and analysis are presented below.

2.0 Ground Penetrating Radar (GPR) Survey

2.1 GPR Methodology, Field Survey, and Data Processing

On April 27, 2020, S&ME conducted a Ground Penetrating Radar (GPR) survey along the requested sections of the I-20, I-26, and I-126 outside shoulders and travel lanes to identify lateral changes, and associated thicknesses, of the underlying asphalt and concrete pavements.

GPR transmits electromagnetic waves into the pavement from an antenna at a specific frequency and measures the travel time for wave reflections to be received from interfaces between materials with differing dielectric properties (e.g. asphalt/concrete, concrete/base course, etc.). The intensity of the reflected GPR signal is a function of the contrast in the electrical properties (i.e. dielectric permittivity) at the interface, the conductivity of the material that the signal is traveling through, and the frequency of the signal. GPR antennas can be either air-launched (horn-type) or ground-based. However, horn antennas are generally necessary for high speed data acquisition as they are suspended about 18 inches off the ground. Layer-specific dielectric permittivity used for depth calculations are also automatically generated when using an air-launched antenna and preferred for pavement evaluations. A distance measuring interval (DMI) encoder, attached to the vehicle, is used for triggering the GPR signal and to have a distance reference. These measurements are also typically supported with a global positioning system (GPS), which sends a continuous data output stream to the GPR controller during acquisition.

We used a Geophysical Survey Systems, Inc. (GSSI) RoadScan™ 30 system equipped with a 2 GHz air-launched horn antenna using a sub-meter GPS as positioning support in general accordance with ASTM D4748 "*Determining the Thickness of Bound Pavement Layers Using Short-Pulse Radar*". GPR data were generally collected down the center of each travel lane and along two (2) transects for the shoulders; one (1) at approximately 3 to 4 feet offset from the white stripe (Center) and one (1) at approximately 6 to 8 feet offset from the white stripe (RT Edge). GPR data file designation numbers and associated locations are presented in *Table 1* below. Data was acquired at two scans per foot (i.e. every 6 inches) and post-processed using the GSSI Radan® 7 software with RoadScan™ module. Cores performed at the site were used to assist with our interpretations; SCDOT (2017) and S&ME (2020).

Table 2-1: GPR Designations and Locations

GPR File Number	Location/Description
002	I-26, EB Shoulder RT Edge
003	I-26, WB Shoulder RT edge Through Bush River Rd Exit lanes
005	I-26, WB Shoulder center Through Bush River Rd Exit lanes
007	I-26, EB Shoulder Center
008	I-26, WB Shoulder RT Edge, Left of Jersey Barrier
009	I-26, WB Shoulder Center, Left of Jersey Barrier
010	I-20, EB Shoulder RT Edge
011	I-20, WB Shoulder RT Edge
012	I-20, EB Shoulder Center
013	I-20, WB Shoulder Center
014	I-126, EB Shoulder RT Edge
015	I-126, WB Shoulder RT Edge
016	I-126, EB Shoulder Center
017	I-126, WB Shoulder Center
019	I-26, EB Lane 4 to I-126, EB Lane 2
020	I-26, WB Lane 3 to Lane 1 Bush River Rd Exit

021	I-26, WB Lane 4 Past Bush River Rd
022	I-26, EB Lane 3 to Lane 1 Past I-126
023	I-26, WB Lane 4 to Lane 2 Bush River Rd Exit
026	I-26, EB Lane 3 from I-126 Ramp
027	I-26, WB Lane 2
028	I-26, WB Lane 1 to I-26, WB Lane 3
029	I-26, EB Lane 2 to I-126, EB Lane 2
030	I-126, WB Lane 4
031	I-26, EB Lane 3 to I-126, EB Lane 3
032	I-126, WB Lane 3
033	I-26, EB Lane 1 to I-126, EB Lane 1
034	I-126, WB Lane 2 to I-26, WB Lane 2
035	I-126, EB Lane 4 from Colonial Life Blvd On-Ramp
036	I-126, WB Lane 1 to I-26, WB Lane 1
038	I-20, WB Lane 3
039	I-20, EB Lane 3
040	I-20, WB Lane 2
041	I-20, EB Lane 2
042	I-20, WB Lane 1
043	I-20, EB Lane 1
044	I-20, WB Lane 4 to Broad River Rd Exit

Note: Travel lane designations start at outside lane (1) with incremental designations toward inside lane

2.2 GPR Results

The following summarizes the GPR results:

- Based on the cores performed by SCDOT (2017) and S&ME (2020), two (2) layers were interpreted in the GPR data sets; asphalt and concrete.
- Asphalt thicknesses appear to generally range between about 4 and 24 inches and concrete thicknesses appear to generally range between about 8 and 12 inches.
- Interpreted data thickness profile plots for both layers along each GPR transect are provided digitally in an Excel spreadsheet format.
- For visual reference, associated interpreted color-coded thickness plots for both layers along each GPR transect are provided digitally in Google Earth KMZ format.

3.0 Existing Pavement Evaluation

S&ME conducted the coring portion of the project on May 27-28, 2020. The pavement was cored at locations selected by the GPR team to calibrate the GPR survey with ground truth data.

3.1 Pavement Coring

S&ME obtained eight (8) pavement cores along the project length of I-20 (four in the westbound and four in the eastbound direction), thirteen (13) pavement cores along I-26 (five in the eastbound direction and eight in the westbound direction), and five (5) pavement cores along the I-126 (one in the eastbound direction and four in the westbound direction). Cores were taken in the outside lane and outside shoulder at the locations selected to assist in calibration and verification of the GPR data. Cores thickness and composition varied. Core information for each highway section is presented in the tables below. Core photographs were also obtained and are included in Appendix I.

Table 3-1: Core Data – I-20

Core #	Asphalt Thickness	Concrete Thickness	ABC Present
I-20 WB C-1 OSS	15.25	-	-
I-20 WB C-1 OSL	9.5	9.5	4.0 +/-
I-20 WB C-2 OSS	17.75	-	-
I-20 WB C-2 OSL	13.25	-	-
I-20 EB C-4 OSS	10.75	-	-
I-20 EB C-4 OSL	3.35	9.5	3.0 +/-
I-20 EB C-5 OSS	16.0	-	-
I-20 EB C-6 OSS	12.0	-	-

Table 3-2: Core Data – I-26

Core #	Asphalt Thickness	Concrete Thickness	ABC Present
I-26 EB C-7 OSS	9.0	-	11.0 +/-
I-26 EB C-8 OSS	10.75	-	-
I-26 EB C-9 OSS	7.25	-	-
I-26 EB C-10 OSS	12.0	-	-
I-26 EB C-11 OSL	16.5	-	-
I-26 WB C-12 OSS	6.75	-	-
I-26 WB C-13 OSL	18.5+	-	Core terminated

I-26 WB C-14 OSL (2)	18.5+	-	Core terminated
I-26 WB C-15 OSS	12.25	-	-
I-26 WB C-16 OSL	15.0	-	-
I-26 WB C-17 OSS	2.5	9.5	-
I-26 WB C-18 OSS	11.5	-	-
I-26 WB C-19 OSL	17.0	-	-

Table 3-3: Core Data – I-126

Core #	Asphalt Thickness	Concrete Thickness	ABC Present
I-126 EB C-20 OSS	9.75	-	11.0 +/-
I-126 WB C-21 0SS	14.5	-	-
I-126 WB C-22 OSS	10.0	-	-
I-126 WB C-23 OSL	16.75	-	-
I-126 WB C-24 OSS	9.75	-	8.0 +/-

Figure 3-1: Sample Core Photos



Date: 5/27-28/2020

Photographer: TRP

1	**Location / Orientation**	I-20 OSL WB
	Remarks	C-1



Date: 5/27-28/2020

Photographer: TRP

2	**Location / Orientation**	I-20 OSS WB
	Remarks	C-1

3.2 Subgrade Testing

The in-situ subgrade strength was evaluated by Kessler Dynamic Cone Penetrometer (KDCP) at all coring locations. The KDCP is driven into the subgrade soils by dropping a Dual-Mass Hammer from a height of 22.6 inches. The depth of cone penetration is measures at selected penetration of hammer drop intervals and the soil shear strength is reported in terms of DCP index. The DCP index is used to estimate weighted average field CBR values using the NCDOT correlation. The tables below summarize the DCP data obtained from each tested location.

Table 3-4: KDCP Data – I-20

Core	Weighted Average Field ABC CBR	Weighted Average Field Subgrade CBR
I-20 WB C-1 OSS	-	33
I-20 WB C-1 OSL	69	31
I-20 WB C-2 OSS	-	31
I-20 WB C-2 OSL	-	38
I-20 EB C-4 OSS	-	20
I-20 EB C-4 OSL	45	24
I-20 EB C-5 OSS	-	28
I-20 EB C-6 OSS	-	29

Table 3-5: KDCP Data – I-26

Core	Weighted Average Field ABC CBR	Weighted Average Field Subgrade CBR
I-26 EB C-7 OSS	77	25
I-26 EB C-8 OSS	-	33
I-26 EB C-9 OSS	-	15
I-26 EB C-10 OSS	-	82
I-26 EB C-11 OSL	-	90
I-26 WB C-12 OSS	-	15
I-26 WB C-13 OSL	*	*
I-26 WB C-14 OSL (2)	*	*
I-26 WB C-15 OSS	-	83
I-26 WB C-16 OSL	-	59
I-26 WB C-17 OSS	-	25
I-26 WB C-18 OSS	-	10
I-26 WB C-19 OSL	-	39

*KDCP test was not conducted at this location

Table 3-6: KDCP Data – I-126

Core	Weighted Average Field ABC CBR	Weighted Average Field Subgrade CBR
I-126 EB C-20 OSS	62	15
I-126 WB C-21 0SS	-	13
I-126 WB C-22 OSS	-	15
I-126 WB C-23 OSL	-	46
I-126 WB C-24 OSS	61	26

4.0 Limitations

This report has been prepared in accordance with generally accepted geotechnical and pavement engineering practices for specific application to this project. The conclusions and recommendations contained in this report are based upon applicable standards of our practice in this geographic area at the time this report was prepared. No other warranty, expressed or implied, is made.

The Client should note that the existing pavement structure recommendations have some inherent risk due to variability in the existing pavements and base thickness, as well as seasonal pavement and subgrade conditions. S&ME cannot qualify or warrant the material properties, or the dimensions or existing conditions in their entirety. As such, the Client should assess such parameters and the construction contingency risk this poses to the project.

Regardless of the thoroughness of a geophysical survey, there is always a possibility that actual conditions may not match the interpretations. The results should be considered accurate only to the degree implied by the method used and the method's limitations and data coverage. Accordingly, the possibility exists that not all features at a project site will be located due to either pavement/subsurface conditions or the occurrence of features outside the lateral limits and below the depth of penetration of the method used. As with most surface geophysical methods, resolution of the subsurface also decreases with depth. As such, the size and/or contrast of features compared to the imaged subsurface media must be significant enough to produce the anticipated response. The location and/or determination (or the lack thereof) of pavement structure thickness was based on our review of provided information and of the geophysical survey. Under no circumstances does S&ME assume any responsibility for damages resulting from the presence of subsurface features that may exist but were not identified by our survey.

The GPR method used for this survey also has inherent limitations. Items such as target age, pavement structure thicknesses, lack of dielectric contrast, etc. may make the determination of layer boundaries and target locations difficult. The average maximum depth of penetration for the 2 GHz horn antenna is typically about 24 inches below the pavement surface. However, properties of the subsurface materials (e.g. moisture, etc.) can have a significant impact on the effective depth of penetration of the GPR survey. In addition, the GPS that was used for this survey is limited to sub-meter accuracy or higher when used at high speeds.

Appendices

Appendix I – Core Photographic Log



Date: 5/27-28/20

Photographer: TRP

1	**Location / Orientation**	I-20 WB OSL
	Remarks	C-1



Date: 5/27-28/20

Photographer: TRP

2	**Location / Orientation**	I-20 WB OSS
	Remarks	C-1



Date: 5/27-28/20

Photographer: TRP

3	**Location / Orientation**	I-20 WB OSS
	Remarks	C-2



Date: 5/27-28/20

Photographer: TRP

4	**Location / Orientation**	I-20 WB OSS
	Remarks	C-3



Date: 5/27-28/20

Photographer: TRP

5	**Location / Orientation**	I-20 EB OSL
	Remarks	C-4



Date: 5/27-28/20

Photographer: TRP

6	**Location / Orientation**	I-20 WB OSS
	Remarks	C-4



Date: 5/27-28/20

Photographer: TRP

7	**Location / Orientation**	I-20 EB OSS
	Remarks	C-5



Date: 5/27-28/20

Photographer: TRP

8	**Location / Orientation**	I-20 EB OSS
	Remarks	C-6



Date: 5/27-28/20

Photographer: TRP

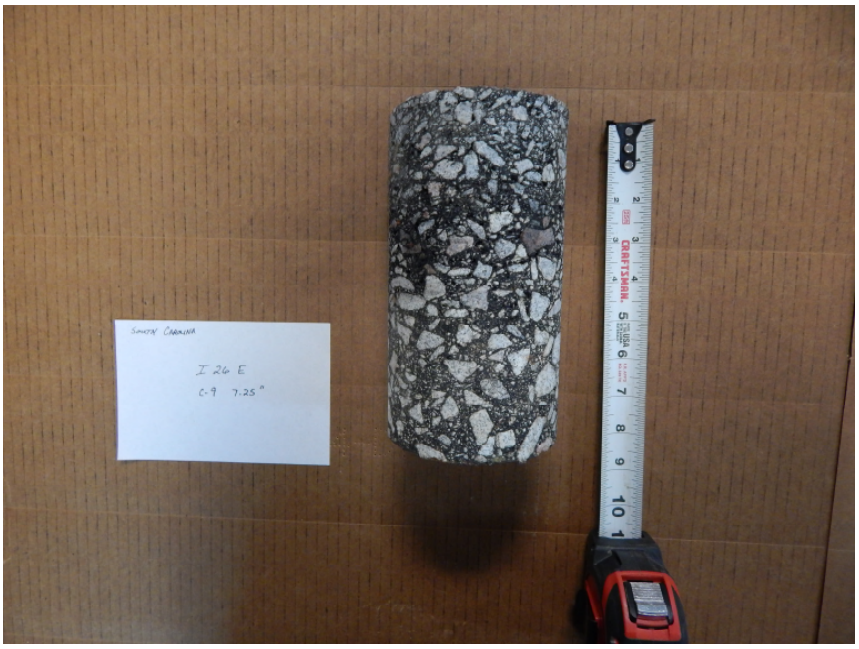
9	Location / Orientation	I-26 EB OSS
	Remarks	C-7



Date: 5/27-28/20

Photographer: TRP

10	Location / Orientation	I-26 EB OSS
	Remarks	C-8



Date: 5/27-28/20

Photographer: TRP

11	**Location / Orientation**	I-26 EB OSS
	Remarks	C-9



Date: 5/27-28/20

Photographer: TRP

12	**Location / Orientation**	I-26 EB OSS
	Remarks	C-10



Date: 5/27-28/20

Photographer: TRP

13	Location / Orientation	I-26 EB OSL
	Remarks	C-11



Date: 5/27-28/20

Photographer: TRP

14	Location / Orientation	I-26 WB OSS
	Remarks	C-12



Date: 5/27-28/20

Photographer: TRP

15	Location / Orientation	I-26 WB OSL
	Remarks	C-13



Date: 5/27-28/20

Photographer: TRP

16	Location / Orientation	I-26 WB OSL - 2
	Remarks	C-14



Date: 5/27-28/20

Photographer: TRP

17	Location / Orientation	I-26 WB OSS
	Remarks	C-15



Date: 5/27-28/20

Photographer: TRP

18	Location / Orientation	I-26 WB OSL
	Remarks	C-16



Date: 5/27-28/20

Photographer: TRP

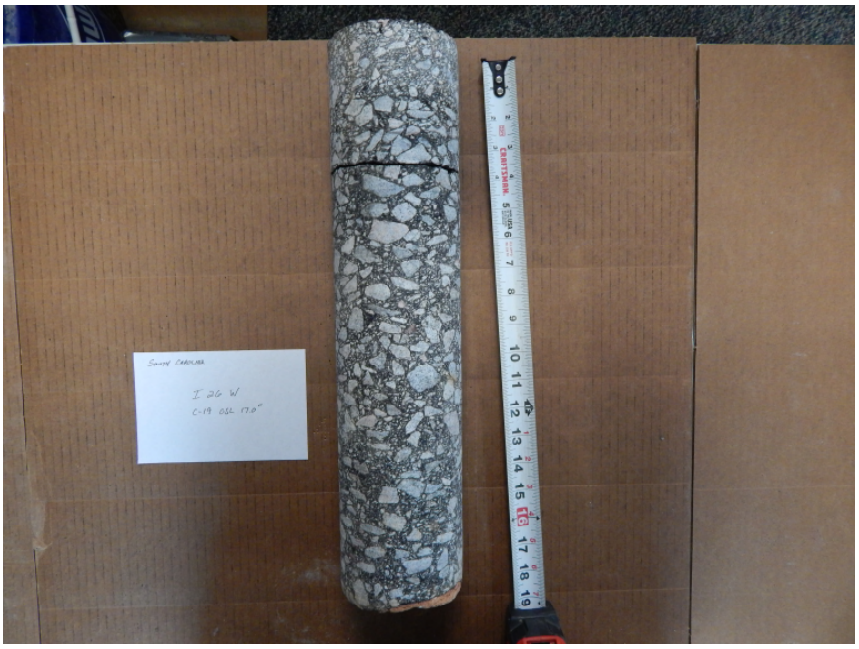
19	Location / Orientation	I-26 WB OSS
	Remarks	C-17



Date: 5/27-28/20

Photographer: TRP

20	Location / Orientation	I-26 WB OSS
	Remarks	C-18



Date: 5/27-28/20

Photographer: TRP

21	**Location / Orientation**	I-26 WB OSL
	Remarks	C-19



Date: 5/27-28/20

Photographer: TRP

22	**Location / Orientation**	I-126 EB OSS
	Remarks	C-20



Date: 5/27-28/20

Photographer: TRP

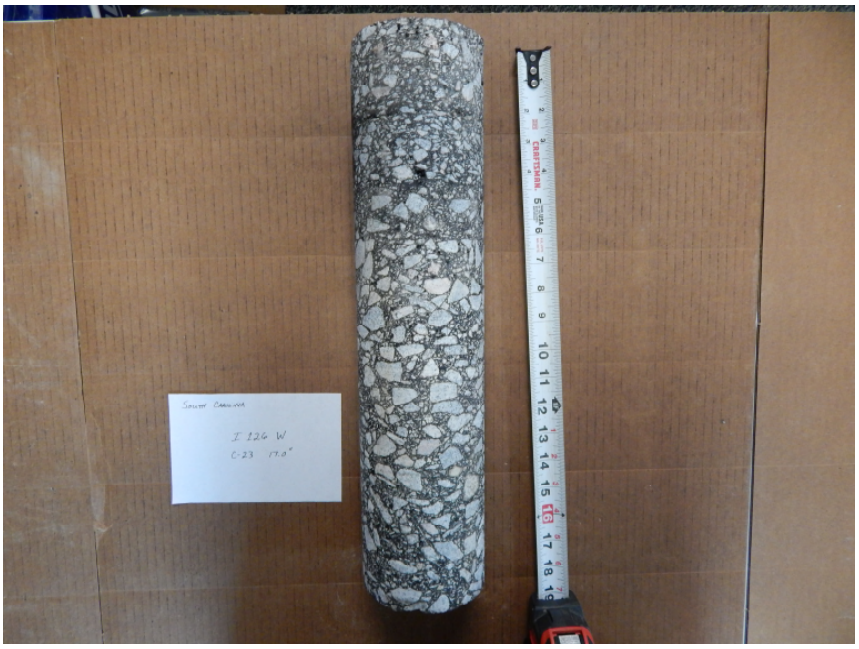
23	Location / Orientation	I-126 WB OSS
	Remarks	C-21



Date: 5/27-28/20

Photographer: TRP

24	Location / Orientation	I-126 WB OSS
	Remarks	C-22



Date: 5/27-28/20

Photographer: TRP

25	Location / Orientation	I-126 WB OSL
	Remarks	C-23



Date: 5/27-28/20

Photographer: TRP

26	Location / Orientation	I-126 WB OSS
	Remarks	C-24

Appendix II – Kessler Dynamic Cone Penetrometer Graphs

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-1_OSS_I20_W **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

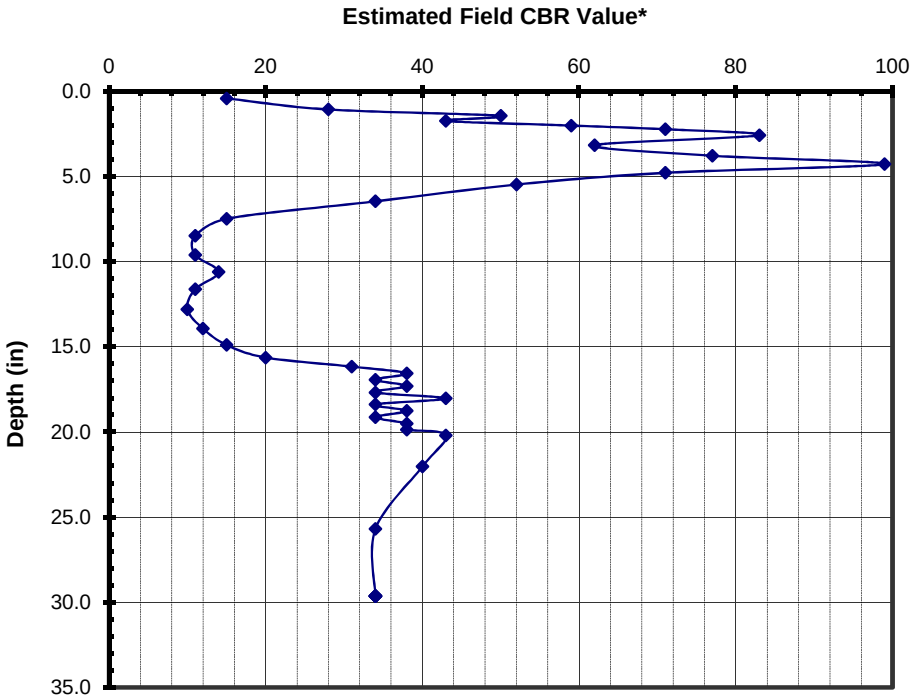
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	21
1	33
1	40
1	48
1	54
1	59
3	72
3	89
3	103
3	114
3	129
3	149
3	179
1	201
1	230
1	258
1	281
1	309
1	341
1	367
1	389
1	405
1	416
1	425
1	435
1	444
1	454
1	462
1	472
1	481
1	491
1	500
1	509
1	517
10	602
10	703
10	802

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	37
Average CBR	n/a	Average CBR	38
Weighted Avera	n/a	Weighted Average	33
Max CBR	n/a	Max CBR	99
Min CBR	n/a	Min CBR	10



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-1_OSL_I20_W **Date:** 6/18/2020-6/19/2020 **Personnel:** TRP
Thickness of Stone (in): 4

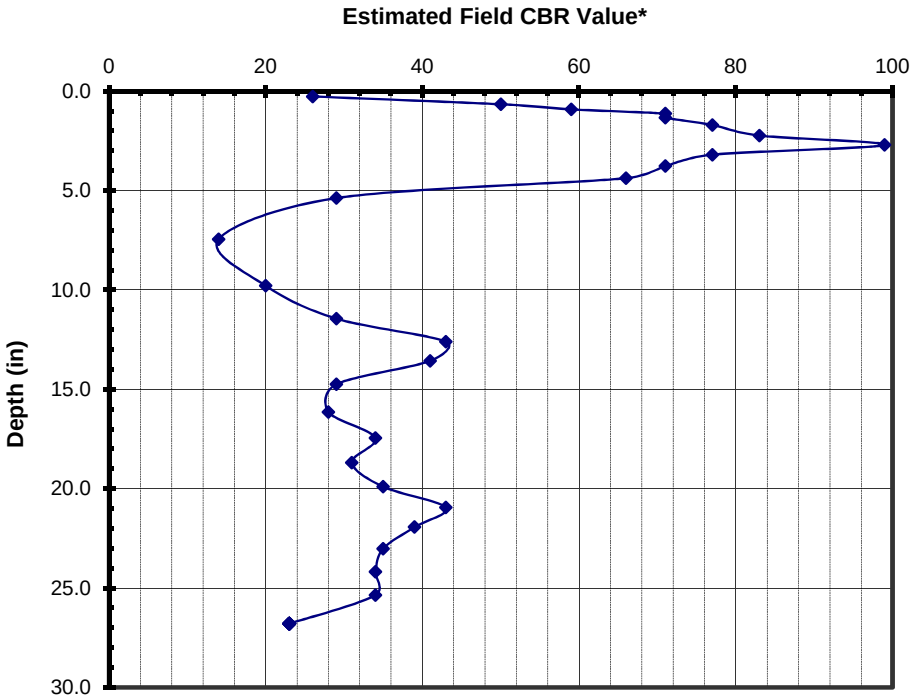
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	13
1	20
1	26
1	31
1	36
3	50
3	63
3	74
3	88
3	103
3	119
3	154
3	224
3	273
3	308
3	332
3	357
3	392
3	428
3	458
3	491
3	520
3	544
3	570
3	599
3	629
3	659
3	702

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	10	# Values	18
Average CBR	68	Average CBR	34
Weighted Avera	69	Weighted Average	31
Max CBR	99	Max CBR	66
Min CBR	26	Min CBR	14



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-2_OSS_I20_W **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

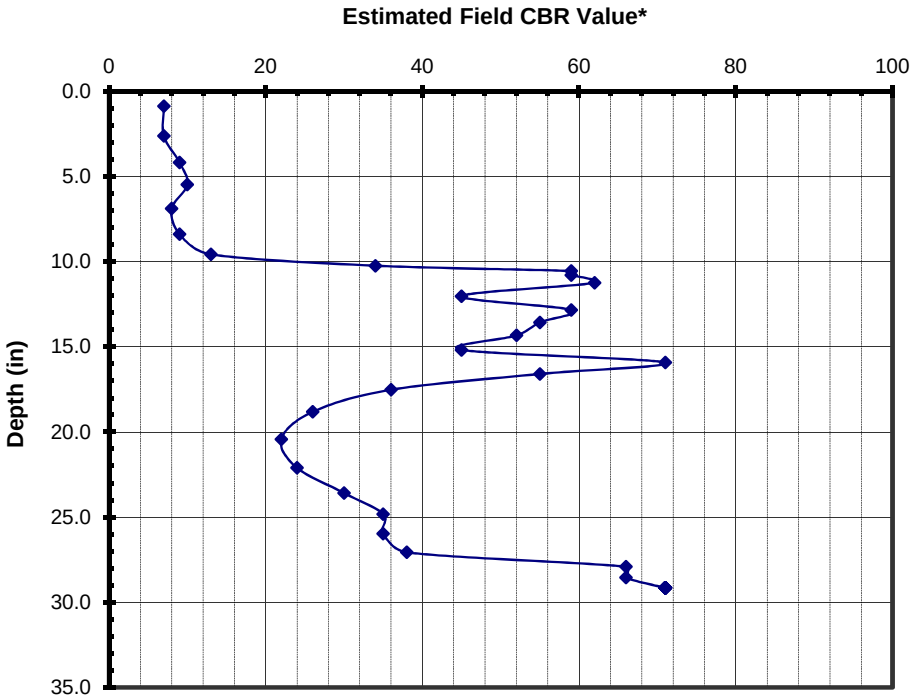
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	44
1	89
1	123
1	155
1	195
1	231
1	255
1	265
1	271
1	277
3	294
3	317
3	335
3	354
3	374
3	397
3	412
3	431
3	459
3	497
3	541
3	582
3	616
3	645
3	674
3	701
3	717
3	733
3	748

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	29
Average CBR	n/a	Average CBR	38
Weighted Avera	n/a	Weighted Average	31
Max CBR	n/a	Max CBR	71
Min CBR	n/a	Min CBR	7



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-3_OSS_I20_W **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

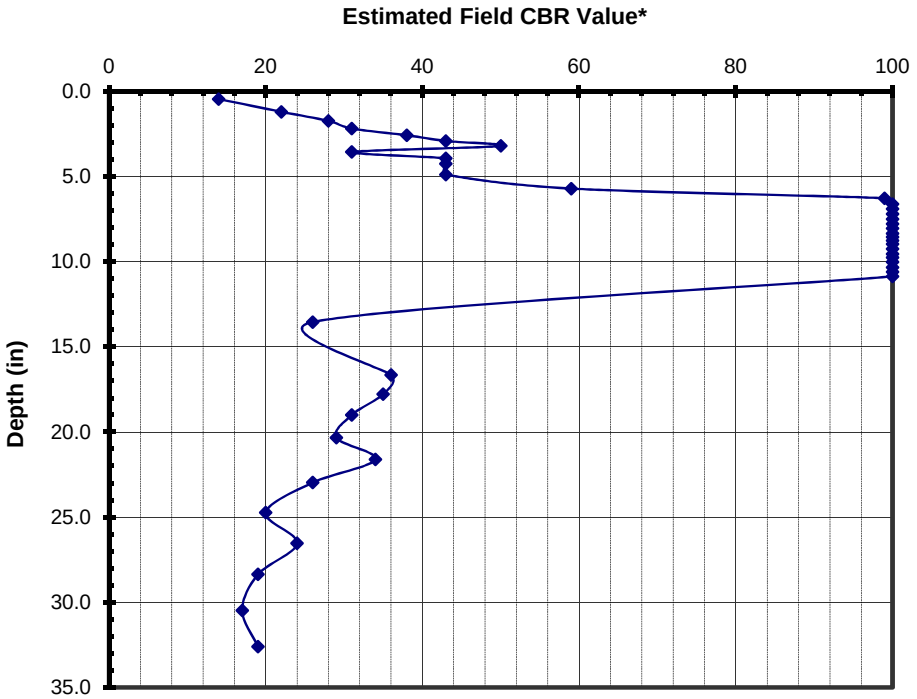
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	23
1	38
1	50
1	61
1	70
1	78
1	85
1	96
1	104
1	112
3	136
3	154
3	165
3	171
3	180
3	186
3	195
3	200
3	209
3	215
3	220
3	225
3	231
3	239
3	246
3	250
3	259
3	266
3	273
3	279
10	409
3	437
3	466
3	499
3	534
3	564
3	603
3	653
3	695
3	746
3	802
3	854

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	42
Average CBR	n/a	Average CBR	61
Weighted Avera	n/a	Weighted Average	38
Max CBR	n/a	Max CBR	100
Min CBR	n/a	Min CBR	14



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-4_OSS_I20_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

Test Data	
No. of Blows	Cummulative Penetration (mm)
1	22
1	33
1	44
1	55
1	64
1	71
1	79
1	85
3	106
3	129
3	152
3	183
3	219
3	266
3	317
3	373
3	431
3	482
3	538
3	611
3	713
3	796
3	856
3	921

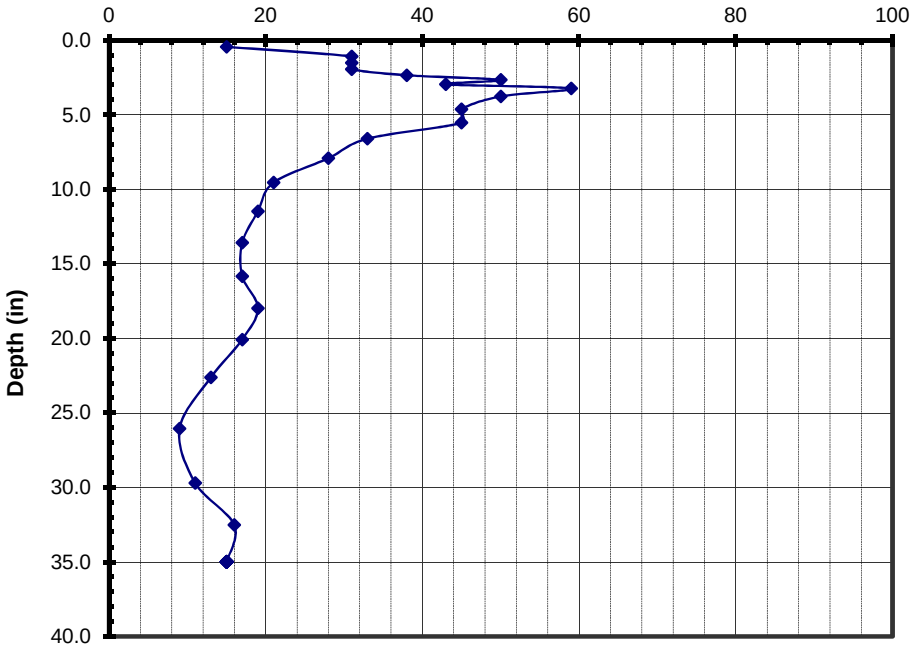
CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	24
Average CBR	n/a	Average CBR	28
Weighted Avera	n/a	Weighted Average	20
Max CBR	n/a	Max CBR	59
Min CBR	n/a	Min CBR	9

Estimated Field CBR Value*



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-4_OSL_I20_E **Date:** 6/18/2020-6/19/2020 **Personnel:** TRP
Thickness of Stone (in): 3

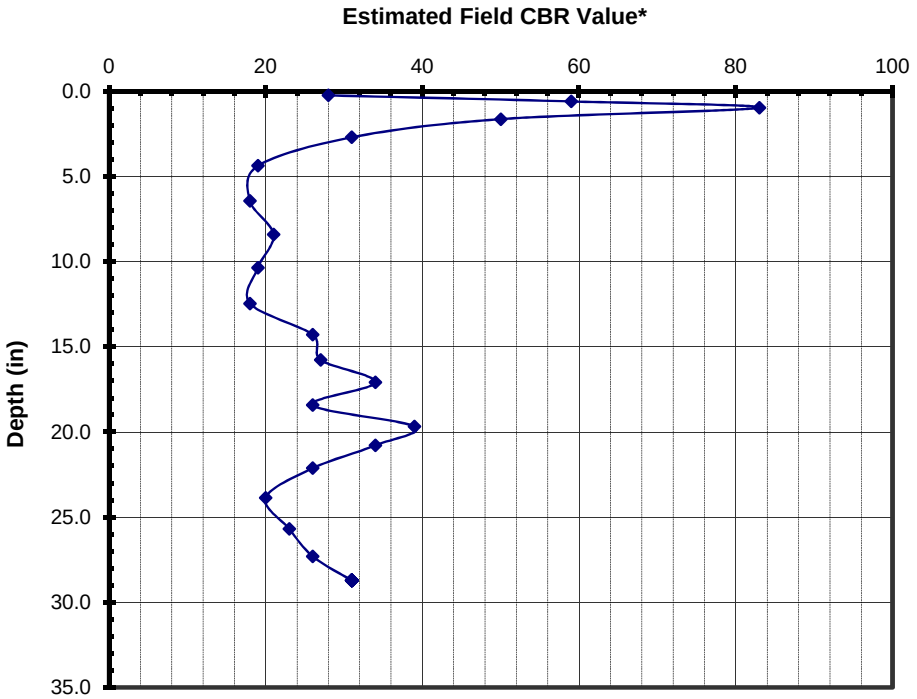
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	12
1	18
3	31
3	52
3	85
3	137
3	190
3	237
3	289
3	344
3	382
3	419
3	449
3	487
3	513
3	543
3	581
3	631
3	674
3	713
3	746

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	5	# Values	16
Average CBR	50	Average CBR	25
Weighted Avera	45	Weighted Average	24
Max CBR	83	Max CBR	39
Min CBR	28	Min CBR	18



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-5_OSS_I20_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

Test Data	
No. of Blows	Cummulative Penetration (mm)
1	45
1	91
1	142
1	163
1	184
1	212
1	236
1	259
1	278
1	298
1	316
1	334
1	349
1	367
1	384
1	399
1	413
1	428
1	442
1	454
1	466
1	478
1	489
1	497
1	506
1	515
1	524
3	548
3	572
3	595
3	616
3	636
3	655
3	674
3	693
3	711
3	729
3	746
3	764

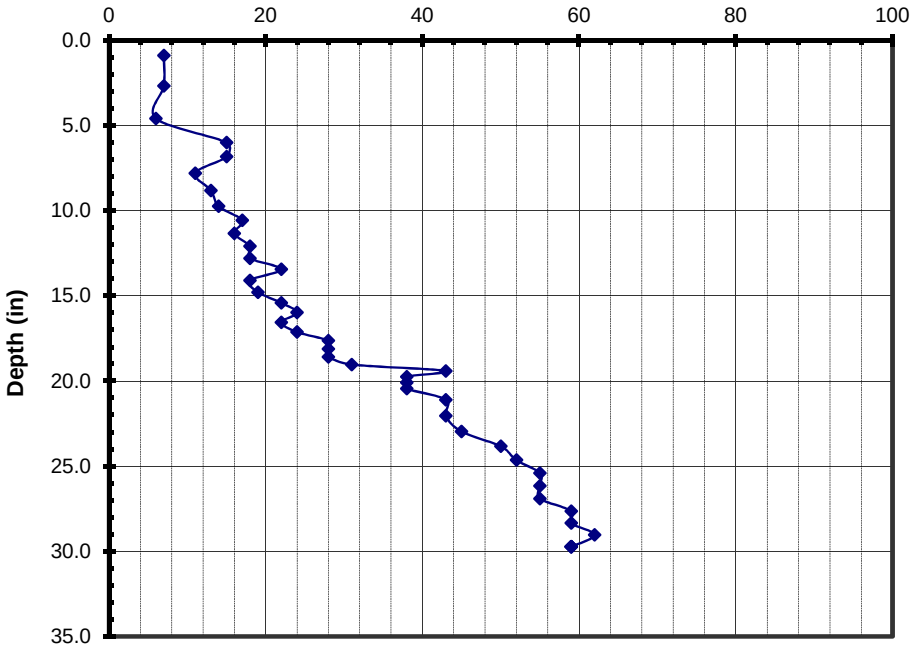
CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	39
Average CBR	n/a	Average CBR	31
Weighted Avera	n/a	Weighted Average	28
Max CBR	n/a	Max CBR	62
Min CBR	n/a	Min CBR	6

Estimated Field CBR Value*



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-6_OSS_I20_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

Test Data	
No. of Blows	Cummulative Penetration (mm)
1	30
1	37
1	43
1	49
3	59
3	69
3	79
3	94
3	109
3	130
3	159
3	191
3	232
3	284
3	345
3	382
3	422
3	466
3	521
3	579
3	631
3	679
3	717
3	754
3	793
3	829
3	861
3	890

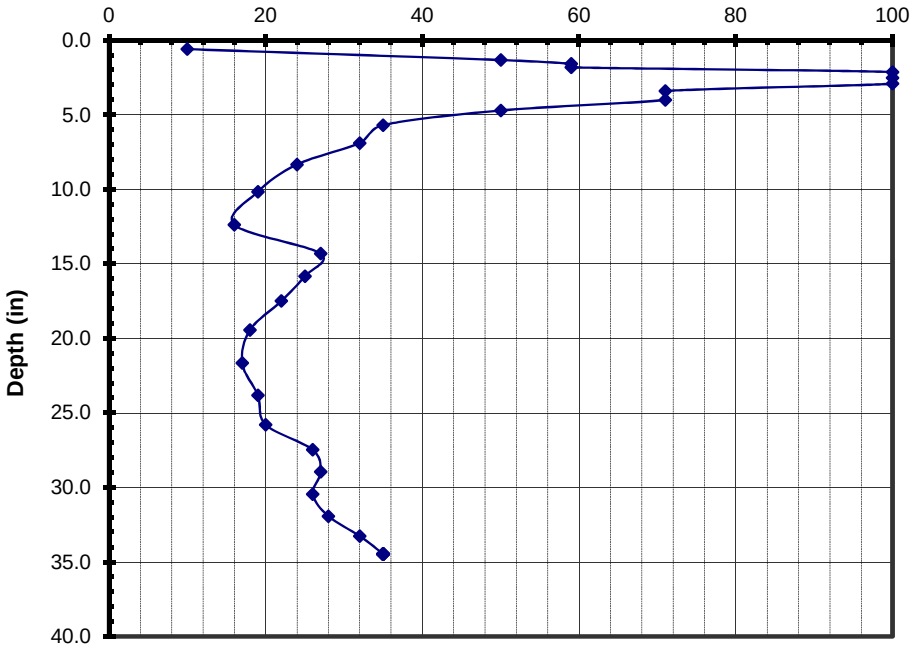
CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	28
Average CBR	n/a	Average CBR	40
Weighted Avera	n/a	Weighted Average	29
Max CBR	n/a	Max CBR	100
Min CBR	n/a	Min CBR	10

Estimated Field CBR Value*



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-7_OSS_I26_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 11

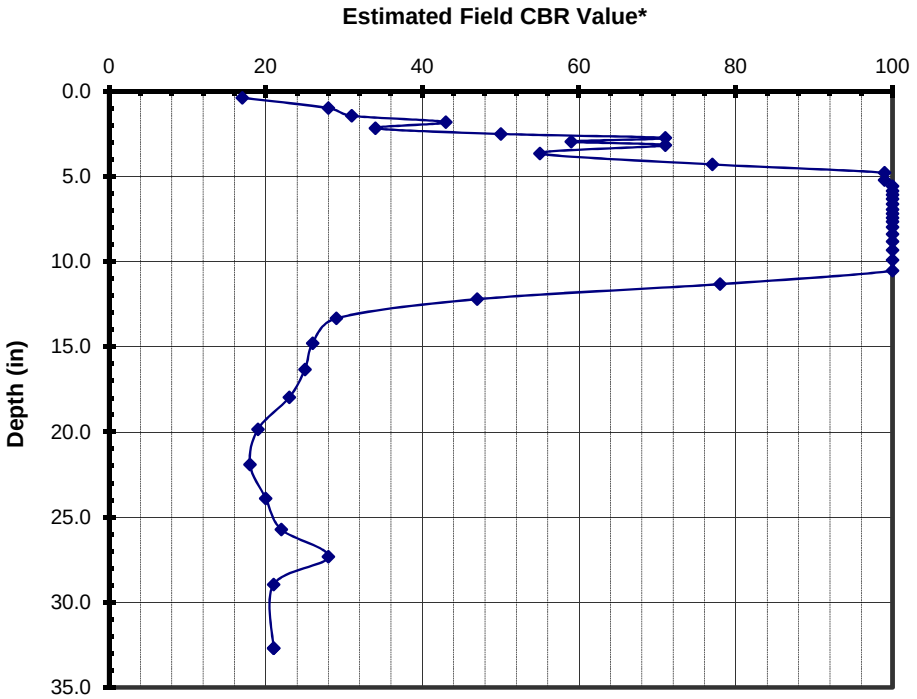
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	19
1	31
1	42
1	50
1	60
1	67
1	72
1	78
1	83
3	102
3	116
3	127
3	138
3	145
3	152
3	157
3	164
5	172
5	180
5	185
5	192
5	197
5	208
5	218
5	230
5	244
5	259
5	276
5	299
3	321
3	356
3	395
3	435
3	478
3	530
3	583
3	631
3	676
3	712
3	759
9	902

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	28	# Values	13
Average CBR	80	Average CBR	29
Weighted Avera	77	Weighted Average	25
Max CBR	100	Max CBR	78
Min CBR	17	Min CBR	18



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-8_OSS_I26_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

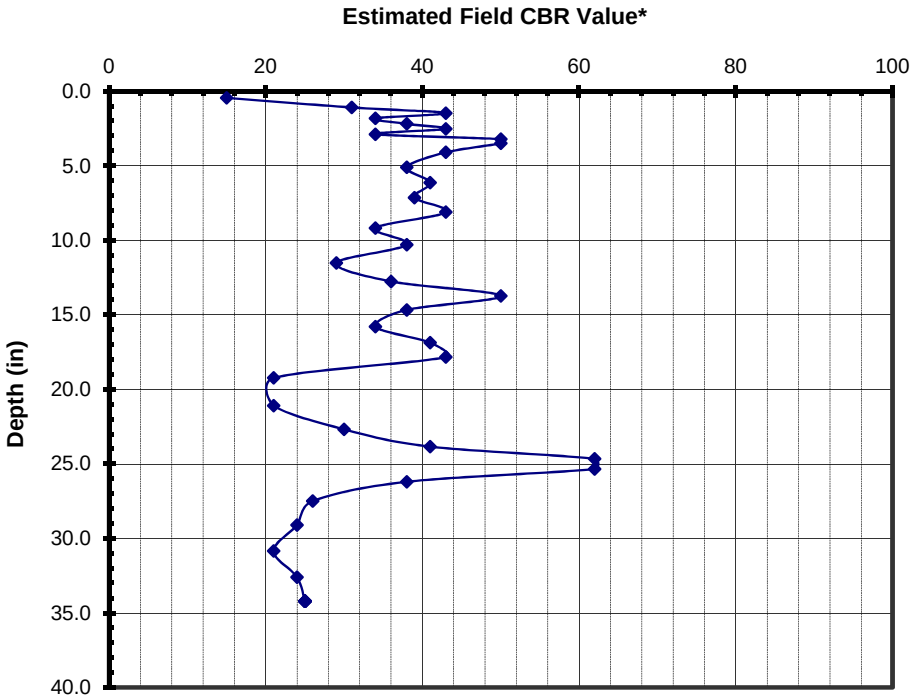
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	22
1	33
1	41
1	51
1	60
1	68
1	78
1	85
1	92
3	116
3	143
3	168
3	194
3	218
3	248
3	275
3	310
3	338
3	359
3	386
3	416
3	441
3	465
3	512
3	559
3	593
3	618
3	635
3	652
3	679
3	718
3	760
3	807
3	849
3	889

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	35
Average CBR	n/a	Average CBR	37
Weighted Avera	n/a	Weighted Average	33
Max CBR	n/a	Max CBR	62
Min CBR	n/a	Min CBR	15



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-9_OSS_I26_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

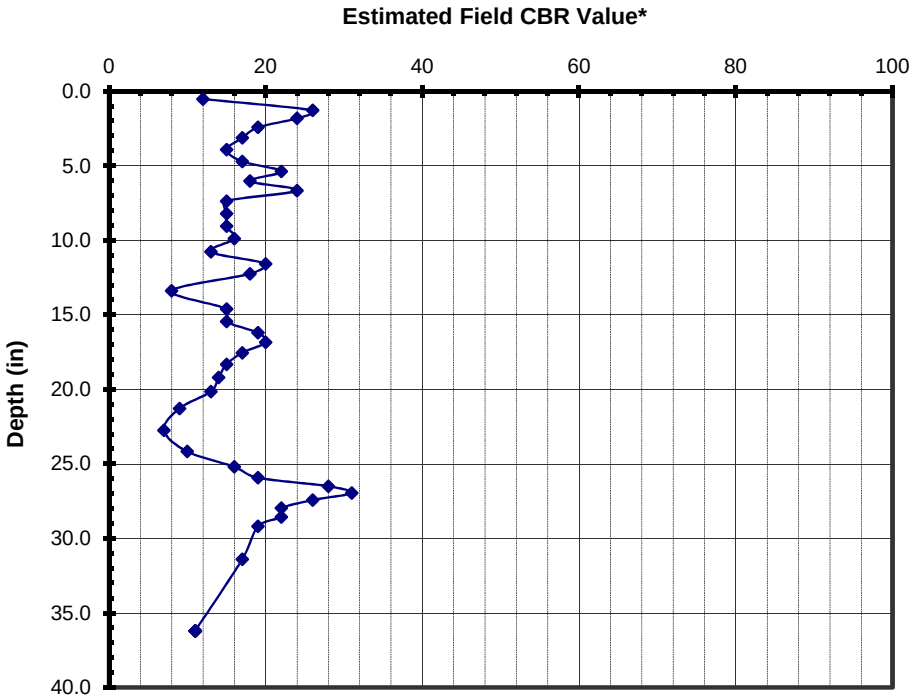
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	26
1	39
1	53
1	70
1	89
1	110
1	129
1	144
1	162
1	176
1	198
1	219
1	241
1	261
1	286
1	302
1	320
1	360
1	382
1	403
1	420
1	436
1	455
1	476
1	499
1	524
1	557
1	598
1	630
1	650
1	667
1	679
1	690
1	703
1	718
1	733
1	750
5	845
5	994

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	39
Average CBR	n/a	Average CBR	17
Weighted Avera	n/a	Weighted Average	15
Max CBR	n/a	Max CBR	31
Min CBR	n/a	Min CBR	7



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-10_OSS_I26_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

Test Data	
No. of Blows	Cummulative Penetration (mm)
1	13
1	19
1	26
1	32
1	35
1	40
3	48
3	60
3	69
3	80
3	90
3	101
3	109
3	118
3	129
3	137
3	146
3	155
3	163
3	172
3	182
3	190
3	197
3	207
3	217
3	226
3	235
3	244
3	254
3	263
3	274
3	285
3	295
3	306
3	320
3	337
3	354
3	375
3	404
3	430
9	461

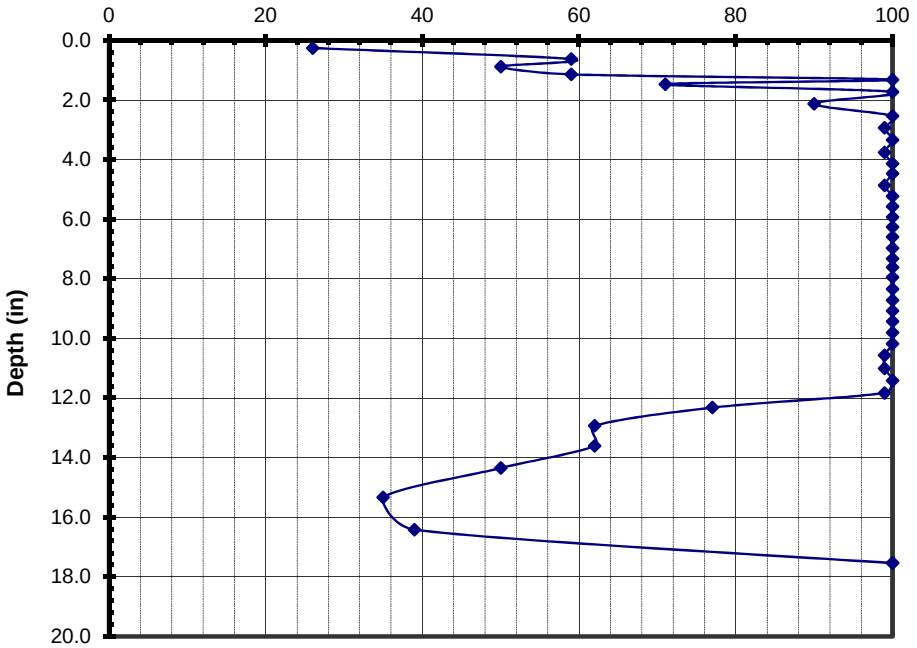
CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	41
Average CBR	n/a	Average CBR	87
Weighted Avera	n/a	Weighted Average	82
Max CBR	n/a	Max CBR	100
Min CBR	n/a	Min CBR	26

Estimated Field CBR Value*



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-11_OSL_I26_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

Test Data	
No. of Blows	Cummulative Penetration (mm)
1	10
1	15
3	25
3	33
3	36
5	43
5	49
10	60
10	71
10	80

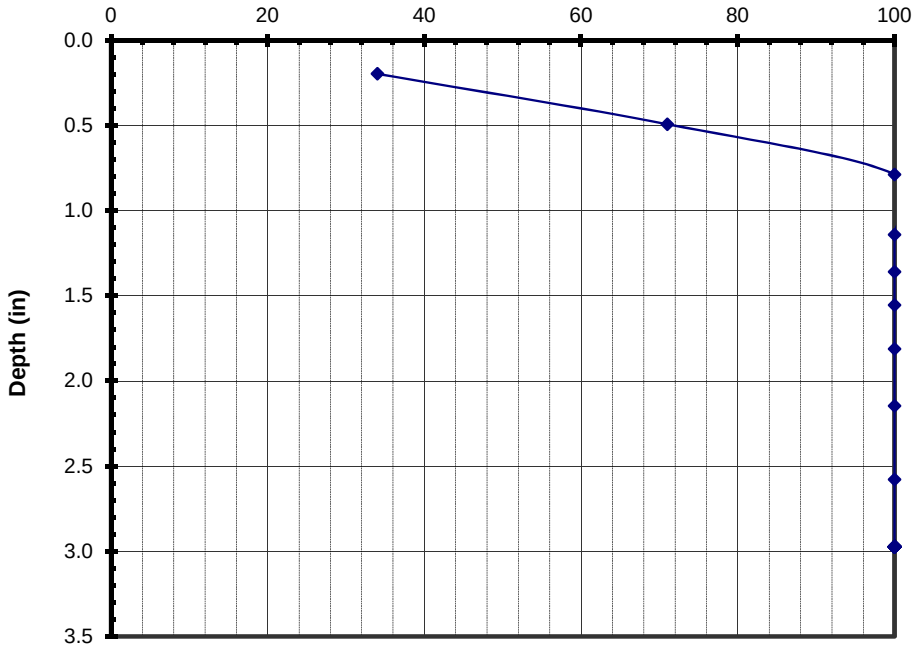
CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	10
Average CBR	n/a	Average CBR	91
Weighted Avera	n/a	Weighted Average	90
Max CBR	n/a	Max CBR	100
Min CBR	n/a	Min CBR	34

Estimated Field CBR Value*



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-12_OSS_I26-W **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

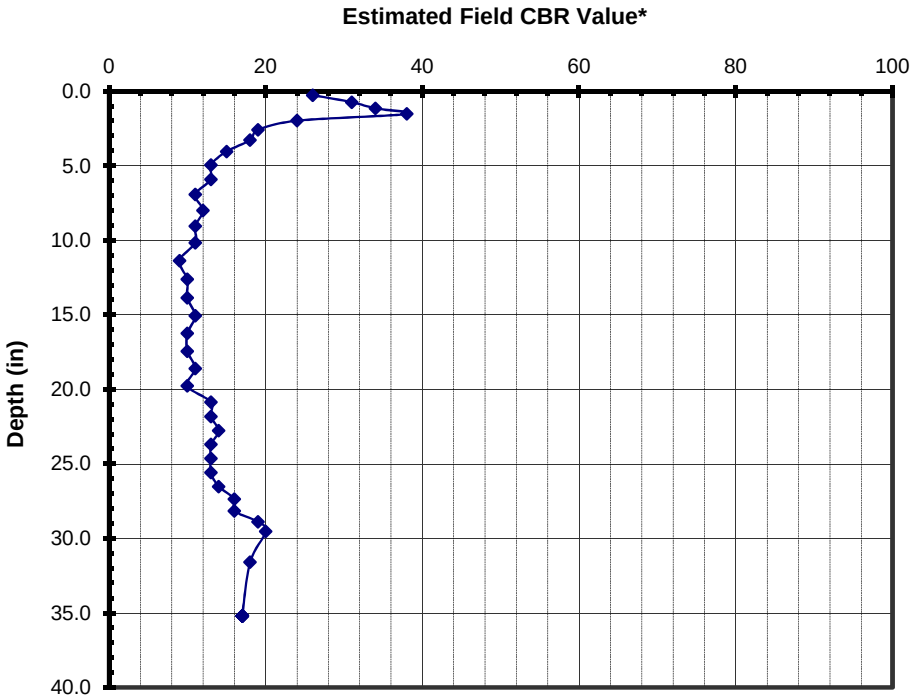
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	13
1	24
1	34
1	43
1	57
1	74
1	92
1	113
1	138
1	162
1	190
1	216
1	244
1	272
1	305
1	336
1	368
1	397
1	428
1	458
1	487
1	517
1	542
1	567
1	590
1	614
1	638
1	662
1	685
1	705
1	725
1	742
1	758
5	847
5	941

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	35
Average CBR	n/a	Average CBR	16
Weighted Avera	n/a	Weighted Average	15
Max CBR	n/a	Max CBR	38
Min CBR	n/a	Min CBR	9



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-15_OSS_I26_W **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

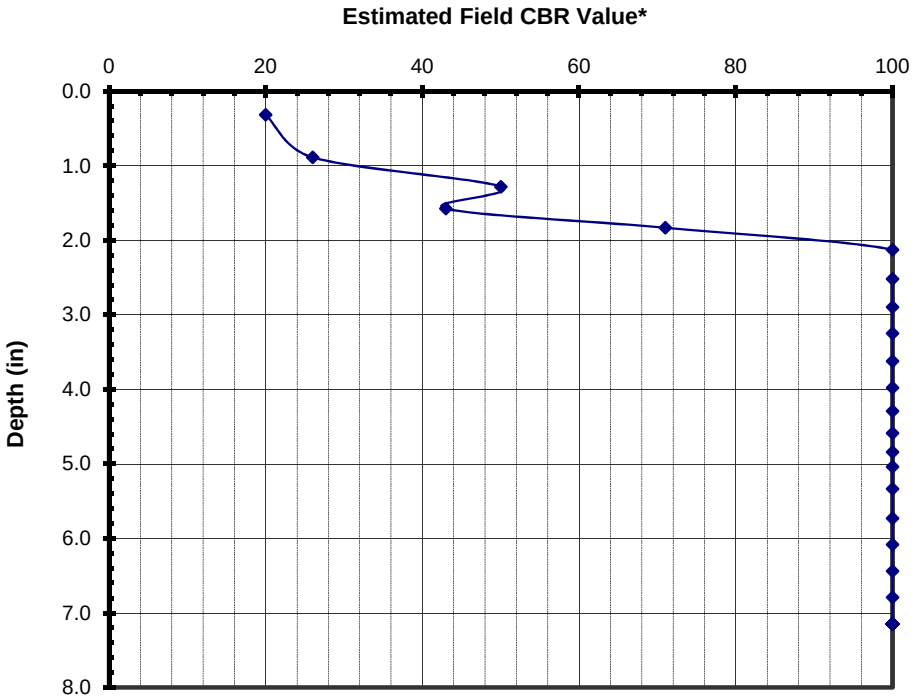
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	16
1	29
1	36
1	44
1	49
3	59
3	69
3	78
3	87
3	97
3	105
3	113
3	120
3	126
3	130
5	141
5	150
5	159
5	168
5	177
5	186

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	21
Average CBR	n/a	Average CBR	86
Weighted Avera	n/a	Weighted Average	83
Max CBR	n/a	Max CBR	100
Min CBR	n/a	Min CBR	20



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-16_OSL_I26_W **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

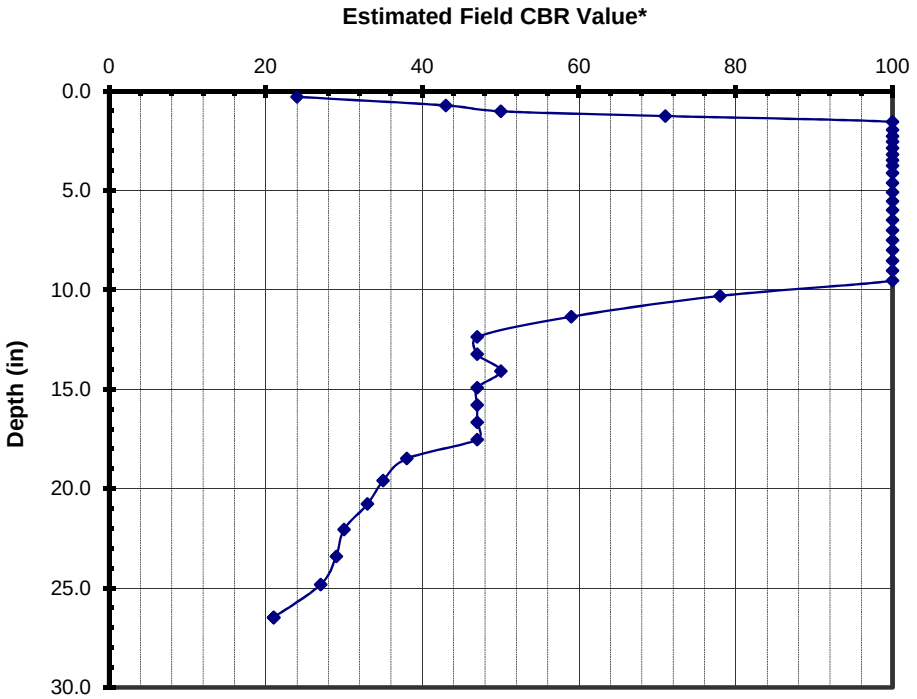
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	14
1	22
1	29
1	34
3	44
3	54
3	61
3	68
3	77
3	84
3	92
3	98
5	111
5	123
5	135
5	146
5	158
5	171
5	184
5	197
5	209
5	224
5	234
5	250
5	273
5	303
3	325
3	347
3	368
3	390
3	412
3	434
3	456
3	483
3	512
3	543
3	577
3	612
3	649
3	696

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	40
Average CBR	n/a	Average CBR	72
Weighted Avera	n/a	Weighted Average	59
Max CBR	n/a	Max CBR	100
Min CBR	n/a	Min CBR	21



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-17_OSS_I26_W **Date:** 6/18/2020-6/19/2020 **Personnel:** TRP
Thickness of Stone (in): 0

Test Data	
No. of Blows	Cummulative Penetration (mm)
1	18
1	29
1	40
1	47
1	56
1	63
1	69
1	76
1	82
1	87
1	93
1	98
1	104
1	109
1	114
3	128
3	151
3	175
3	200
3	229
3	261
3	291
3	319
3	359
3	429
3	500
3	574
3	645
3	731
3	810

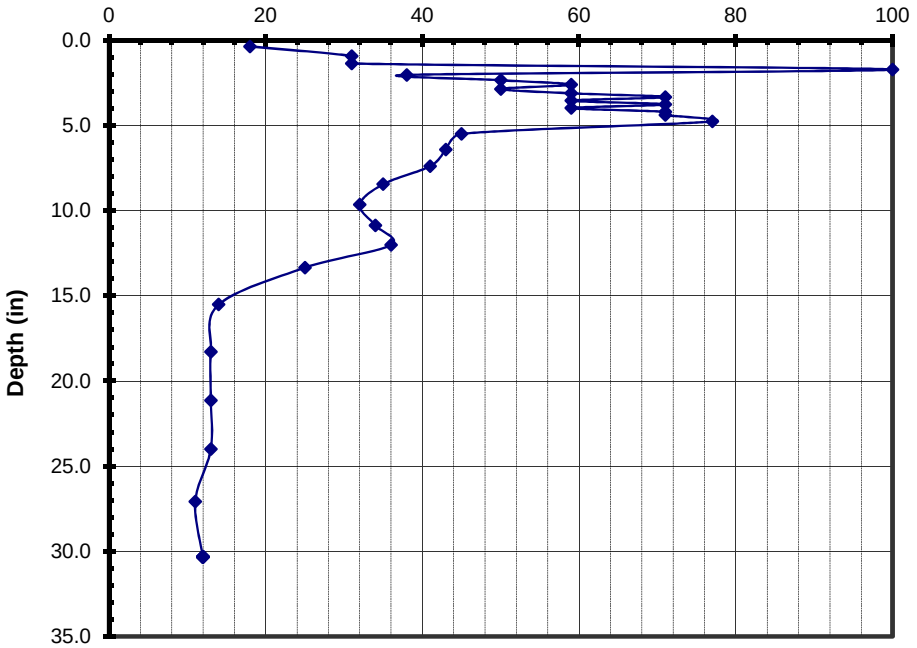
CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	29
Average CBR	n/a	Average CBR	41
Weighted Avera	n/a	Weighted Average	25
Max CBR	n/a	Max CBR	77
Min CBR	n/a	Min CBR	11

Estimated Field CBR Value*



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-18_OSS_I26_W **Date:** 6/18/2020-6/19/2020 **Personnel:** TRP
Thickness of Stone (in): 0

Test Data	
No. of Blows	Cummulative Penetration (mm)
1	32
1	58
1	77
1	93
1	116
1	131
1	162
1	183
1	220
1	255
1	279
1	304
1	329
1	351
1	372
1	393
1	414
1	438
1	472
1	513
1	558
1	604
1	650
1	692
1	745
1	803
1	873

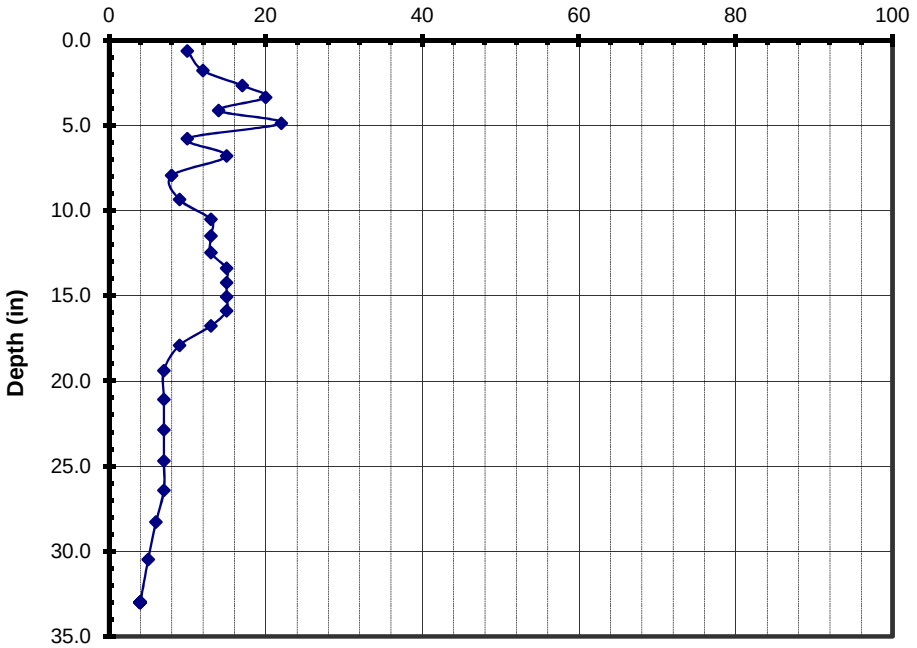
CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	27
Average CBR	n/a	Average CBR	11
Weighted Avera	n/a	Weighted Average	10
Max CBR	n/a	Max CBR	22
Min CBR	n/a	Min CBR	4

Estimated Field CBR Value*



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-19_OSL_I26_W **Date:** 6/18/2020-6/19/2020 **Personnel:** TRP
Thickness of Stone (in): 0

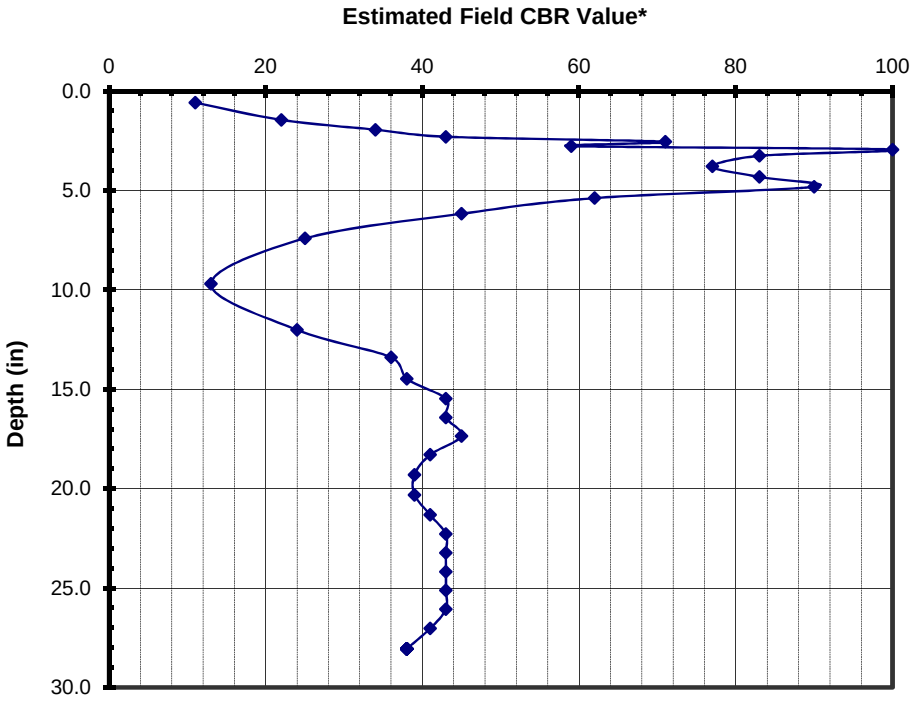
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	29
1	44
1	54
1	62
1	67
1	73
1	76
3	89
3	103
3	116
3	128
3	145
3	168
3	208
3	284
3	326
3	354
3	381
3	405
3	429
3	452
3	477
3	503
3	529
3	554
3	578
3	602
3	626
3	650
3	674
3	699
3	726

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	32
Average CBR	n/a	Average CBR	47
Weighted Avera	n/a	Weighted Average	39
Max CBR	n/a	Max CBR	100
Min CBR	n/a	Min CBR	11



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-20_OSS_I126_E **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 11

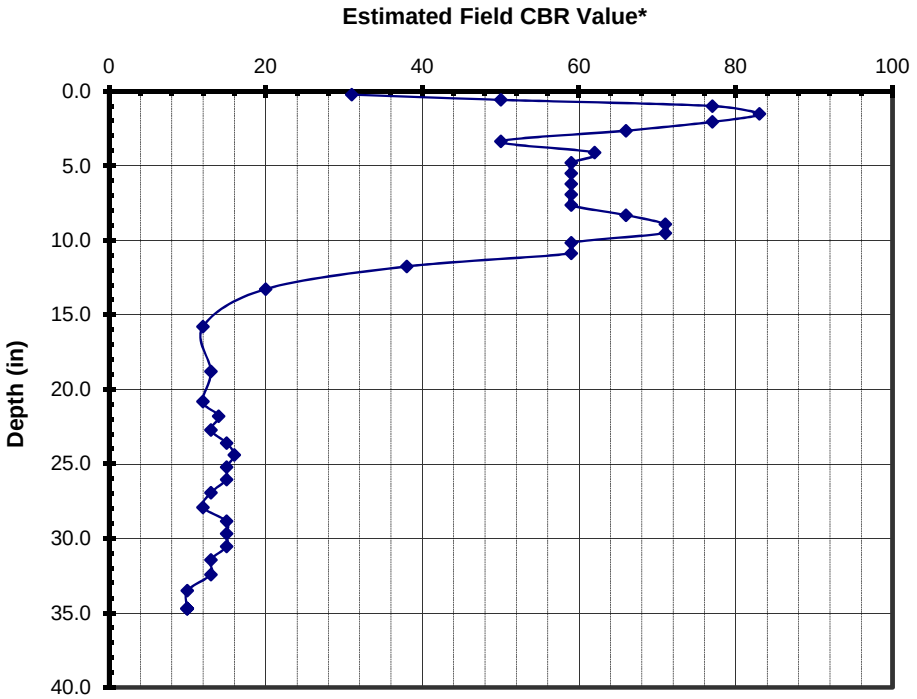
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	11
1	18
3	32
3	45
3	59
3	75
3	96
3	113
3	131
3	149
3	167
3	185
3	203
3	219
3	234
3	249
3	267
3	285
3	312
3	362
3	440
3	515
1	542
1	565
1	589
1	610
1	630
1	651
1	672
1	696
1	722
1	743
1	765
1	786
1	811
1	836
1	866
1	897

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	18	# Values	20
Average CBR	62	Average CBR	15
Weighted Avera	62	Weighted Average	15
Max CBR	83	Max CBR	38
Min CBR	31	Min CBR	10



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-21_OSS_I126_W **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

Test Data	
No. of Blows	Cummulative Penetration (mm)
1	23
1	45
1	73
1	104
1	136
1	165
1	190
1	210
1	229
1	249
1	269
1	295
1	324
1	350
1	371
1	390
1	408
1	430
1	451
1	478
1	502
1	522
1	547
1	578
1	609
1	639
1	671
1	705
1	734
1	751
1	776

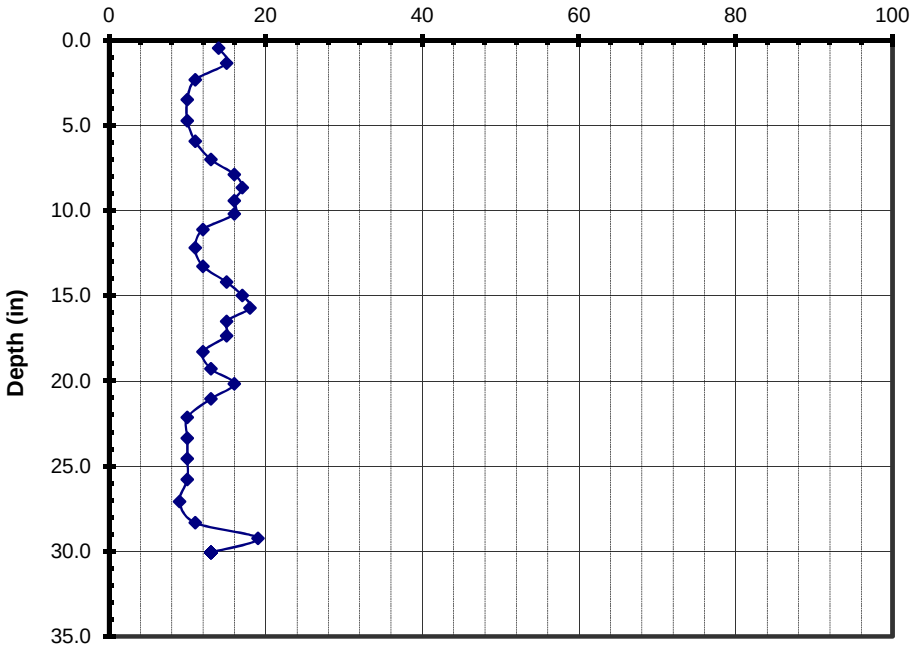
CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	31
Average CBR	n/a	Average CBR	13
Weighted Avera	n/a	Weighted Average	13
Max CBR	n/a	Max CBR	19
Min CBR	n/a	Min CBR	9

Estimated Field CBR Value*



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-22_OSS-I126_W **Date:** 5/27/2020-5/28/2020 **Personnel:** TRP
Thickness of Stone (in): 0

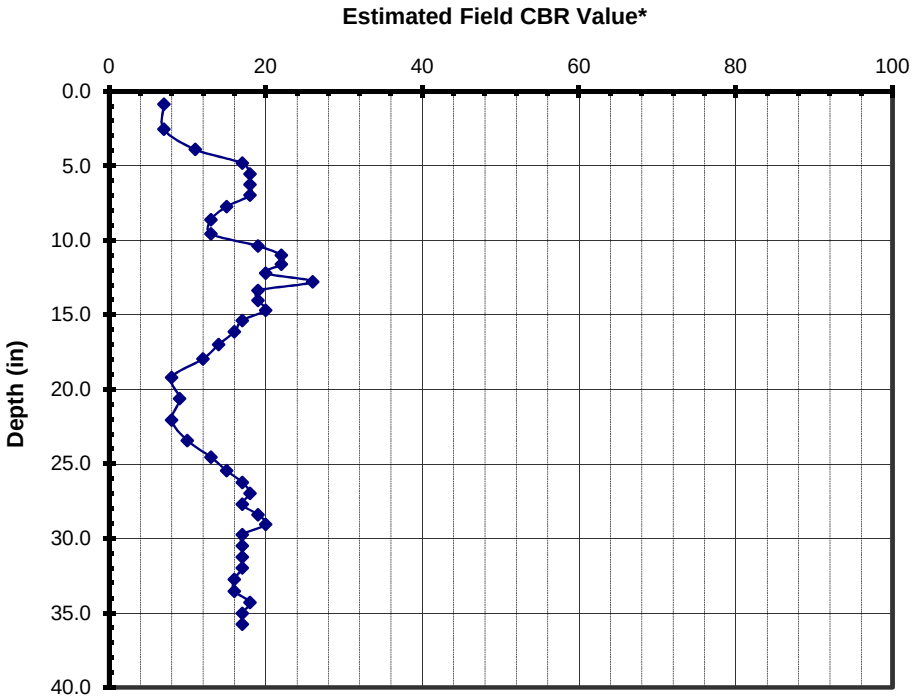
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	44
1	85
1	113
1	132
1	150
1	168
1	186
1	207
1	231
1	255
1	272
1	287
1	302
1	318
1	331
1	348
1	365
1	381
1	400
1	420
1	443
1	469
1	506
1	542
1	579
1	611
1	636
1	657
1	676
1	694
1	713
1	730
1	746
1	765
1	784
1	803
1	822
1	842
1	862
1	880
1	899
1	918

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	42
Average CBR	n/a	Average CBR	16
Weighted Avera	n/a	Weighted Average	15
Max CBR	n/a	Max CBR	26
Min CBR	n/a	Min CBR	7



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-23_OSL_I126_W **Date:** 6/18/2020-6/19/2020 **Personnel:** TRP
Thickness of Stone (in): 0

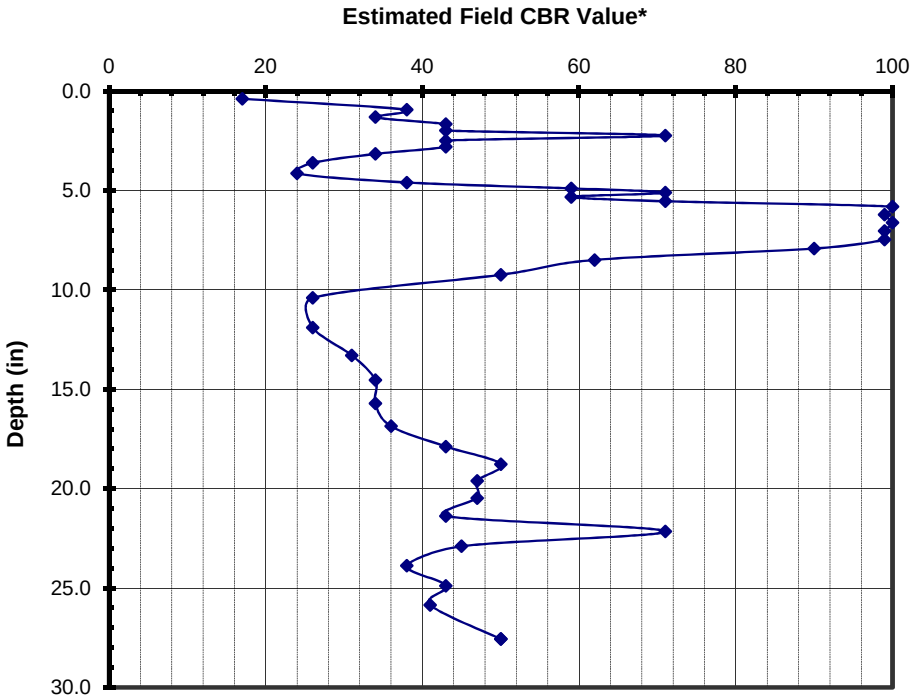
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	19
1	28
1	38
1	46
1	54
1	59
1	67
1	75
1	85
1	98
1	112
1	121
1	127
1	132
1	138
1	143
3	152
3	163
3	173
3	184
3	195
3	207
3	224
3	245
3	283
3	321
3	354
3	384
3	414
3	442
3	466
3	487
3	509
3	531
3	555
3	570
3	593
3	620
3	644
3	669
9	731

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	n/a	# Values	41
Average CBR	n/a	Average CBR	52
Weighted Avera	n/a	Weighted Average	46
Max CBR	n/a	Max CBR	100
Min CBR	n/a	Min CBR	17



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

KESSLER DCP TEST RESULTS

Project Name: I20_I26_I126
S&ME Project No.: 620520008

Test Location: C-24_OSS_I126_W **Date:** 6/18/2020-6/19/2020 **Personnel:** TRP
Thickness of Stone (in): 8

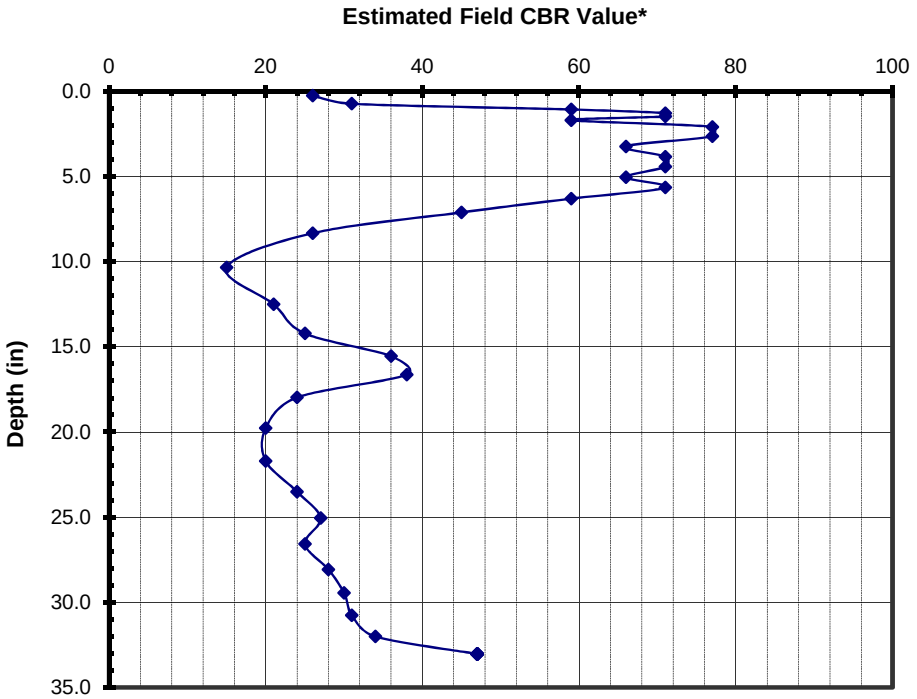
Test Data	
No. of Blows	Cummulative Penetration (mm)
1	13
1	24
1	30
1	35
1	40
1	46
3	60
3	74
3	90
3	105
3	120
3	136
3	151
3	169
3	192
3	231
3	294
3	341
3	381
3	409
3	436
3	477
3	527
3	576
3	618
3	655
3	695
3	731
3	765
3	798
3	828
3	850

CBR - DCP Correlation for Soil Subgrade

- (●) North Carolina Department of Transportation (Shin, et al 1989)
- ( ) U.S. Army Corps of Engineers (Webster, et al 1992)
- ( ) Piedmont Residual Soils (Coonse 1999)

Test Summary

Stone		Soil Subgrade	
# Values	15	# Values	17
Average CBR	61	Average CBR	28
Weighted Avera	61	Weighted Average	26
Max CBR	77	Max CBR	47
Min CBR	26	Min CBR	15



* Stone Field CBR estimated using published NCDOT relationship.
Subgrade Field CBR estimated using relationship indicated above.

Appendix III – Core Data Sheets

PAVEMENT INVESTIGATION DATA SHEET

Project:		Route:		Date:	
TIP:		County:		Notes By:	

		Width				Thickness						Subgrade						GPS Coordinates	
Position (Sta.,Lane,Shldr.)	Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Gross to Top of Soil	Asphalt	Concrete	Stone	Stabilized Subgrade Soil	Pavement Layering	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Asphalt Notes	Northing	Easting
I-20 WB C-1 OSS	F-10'		11.4	6.8 FW		15.25	15.25	-	-	-	A							N: 114094.91	E: 1369908.78
I-20 WB C-1 OSL	F-10'	12.O	11.4	4.0 FW		22.0+/-	9.5	9.5	4.0+/-	-	A C ABC							804798.3	1975802.0
I-20 WB C-2 OSS	F-6'		10.0	5.0 FW		17.75	17.75	-	-	-	A							N: 113444.77	E: 1368522.36
I-20 WB C-3 OSS	F-5'		9.8	5.1 FW		13.25	13.25	-	-	-	A							N: 111792.62	E: 1362970.86
I-20 EB C-4 OSS	C-5'		10.8	6.4 FW		10.75	10.75	-	-	-	A							N: 111363.03	E: 1361234.88
I-20 EB C-4 OSL	C5'	11.0	10.8	2.0 FW		15.75+/-	3.25	9.5	3.0+/-	-	A C ABC							801912.4	1967183.2
I-20 EB C-5 OSS	C-8'		9.0	5.8 FW		16.0	16.0	-	-	-	A							N: 111654.39	E: 1364126.16
I-20 EB C-6 OSS	F-4'		6.8	3.4 FW		12.0	12.0	-	-	-	A							N: 112851.49	E: 1367555.70
I-26 EB C-7 OSS	F-8'		10.0	5.O FW		20.0+/-	9.0	-	11.0+/-	-	A ABC							N: 110506.01	E: 1361013.63
I-26 EB C-8 OSS	F-4'		9.8	4.5 FW		10.75	10.75	-	-	-	A							N: 108788.58	E: 1362485.33
I-26 EB C-9 OSS	F-2'		12.0	6.0 FW		7.25	7.25	-	-	-	A							N: 105761.11	E: 1362255.21
I-26 EB C-10 OSS	F-15'		9.0	4.5 FW		12.0	12.0	-	-	-	A							N: 102840.41	E: 1360995.44
I-26 EB C-11 OSL	F-15'		9.0	2.5 FW		16.5	16.5	-	-	-	A							N: 102808.39	E: 1360986.32

Notes:

OSL = Outside Lane	CTL = Center Turn Lane	OSS = Outside Shoulder	PS = Paved Shoulder	RT = Right	NB = Northbound
ISL = Inside Lane	RTL = Right Turn Lane	ISS = Inside Shoulder	RT LN = Right Lane	LT = Left	SB = Southbound
CL = Center Lane	DECEL = Deceleration Lane	GM = Grass Median	LT LN = Left Lane	(I) = Inside	FW = From White
LTL = Left Turn Lane	ACCEL = Acceleration Lane	OGS = Outside Grass Shoulder	COL = Collector Lane	(O) = Outside	FY = From Yellow

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Raleigh, North Carolina 27616

PAVEMENT INVESTIGATION DATA SHEET

Project:		Route:		Date:	
TIP:		County:		Notes By:	

		Width				Thickness						Subgrade						GPS Coordinates	
Position (Sta.,Lane,Shldr.)	Cut/Fill (Est. of Amount)	Lane(s)	Shoulder(s)	Offset Distance (See Notes)	Crown "C" or Super "S"	Gross to Top of Soil	Asphalt	Concrete	Stone	Stabilized Subgrade Soil	Pavement Layering	Description	Sample Number	AASHTO Classification	Soil Moisture	Probe Depth	Asphalt Notes	Northing	Easting
I-26 WB C-12 OSS	C-10'		10.0	5.0 FW		6.75	6.75	-	-	-								N: 101379.52	E: 1360474.88
I-26 WB C-13 OSL	C-10'	12.0	15.3	3.0 FW		18.5+	18.5+	?	?	?	A ?							N: 102230.92	E: 1360823.31
I-26 WB C-14 OSL(2)	C-10'	12.0	9.0	1.0 FW		18.5+	18.5+	?	?	?	A ?							N: 104529.82	E: 1361818.64
I-26 WB C-15 OSS	C-15'		9.8	5.8 FW		12.25	12.25	-	-	-	A							N: 104755.07	E: 1361934.02
I-26 WB C-16 OSL	C-15'	12.0	9.8	2.5 FW		15	15	-	-	-	A							N: 104810.96	E: 1361948.80
I-26 WB C-17 OSS	F-10'		9.0	4.0 FW		12	2.5	9.5	-	-	A C							797545.2	1968874.4
I-26 WB C-18 OSS	F-10'		9.0	4.0 FW		11.5	11.5	-	-	-	A							799062.1	1969015.7
I-26 WB C-19 OSL	F-10'	11.4	10.0	2.4 FW		17	17	-	-	-	A							802375.6	1966026.3
I-126 EB C-20 OSS	F-10'		7.3	3.8 FW		20.75+/-	9.75	-	11.0+/-	-	A ABC							N: 106329.95	E: 1364346.69
I-126 WB C-21 OSS	AG		22.0	9.4 FW		14.5	14.5	-	-	-	A							N: 103437.47	E: 1368000.41
I-26 WB C-22 OSS	C-6'		6.0	4.0 FW		10	10	-	-	-	A							N: 105340.08	E: 1365199.31
I-126 WB C-23 OSL	C-6'	12.0	10.0	4.3 FW		16.75	16.75	-	-	-	A							795961.7	1971266.3
I-126 WB C-24 OSS	AG		8.0	4.6 FW		9.75	9.75	-	8.0+/-	-	A ABC							796975.1	1970489.8

Notes:

OSL = Outside Lane
ISL = Inside Lane
CL = Center Lane
LTL = Left Turn Lane

CTL = Center Turn Lane
RTL = Right Turn Lane
DECEL = Deceleration Lane
ACCEL = Acceleration Lane

OSS = Outside Shoulder
ISS = Inside Shoulder
GM = Grass Median
OGS = Outside Grass Shoulder

PS = Paved Shoulder
RT LN = Right Lane
LT LN = Left Lane
COL = Collector Lane

RT = Right
LT = Left
(I) = Inside
(O) = Outside

NB = Northbound
SB = Southbound
FW = From White
FY = From Yellow

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