

M E M O R A N D U M

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DATE: April 23, 2018

SUBJECT: Henderson County
FD52 051 0060 019-020 D; BRO 5053 026
MARS No. 8675901D
US 60, Replace Bridge over Green River @ KY 1078
Item No. 2-1080.00
Geotechnical Engineering Structure Foundation Report Addendum

This report addendum serves to replace the idealized soil and bedrock profile as well as the drilled shaft capacity tables that were included in the original Structure Foundation Report (**S-058-2016**). An incorrect version of the profile and tables was attached to the original report. The remaining recommendations, figures, special notes, and other attachments from the original report shall still apply.

The designer should feel free to contact the Geotechnical Branch at 502-564-2374 for further recommendations or if any questions arise pertaining to this project.

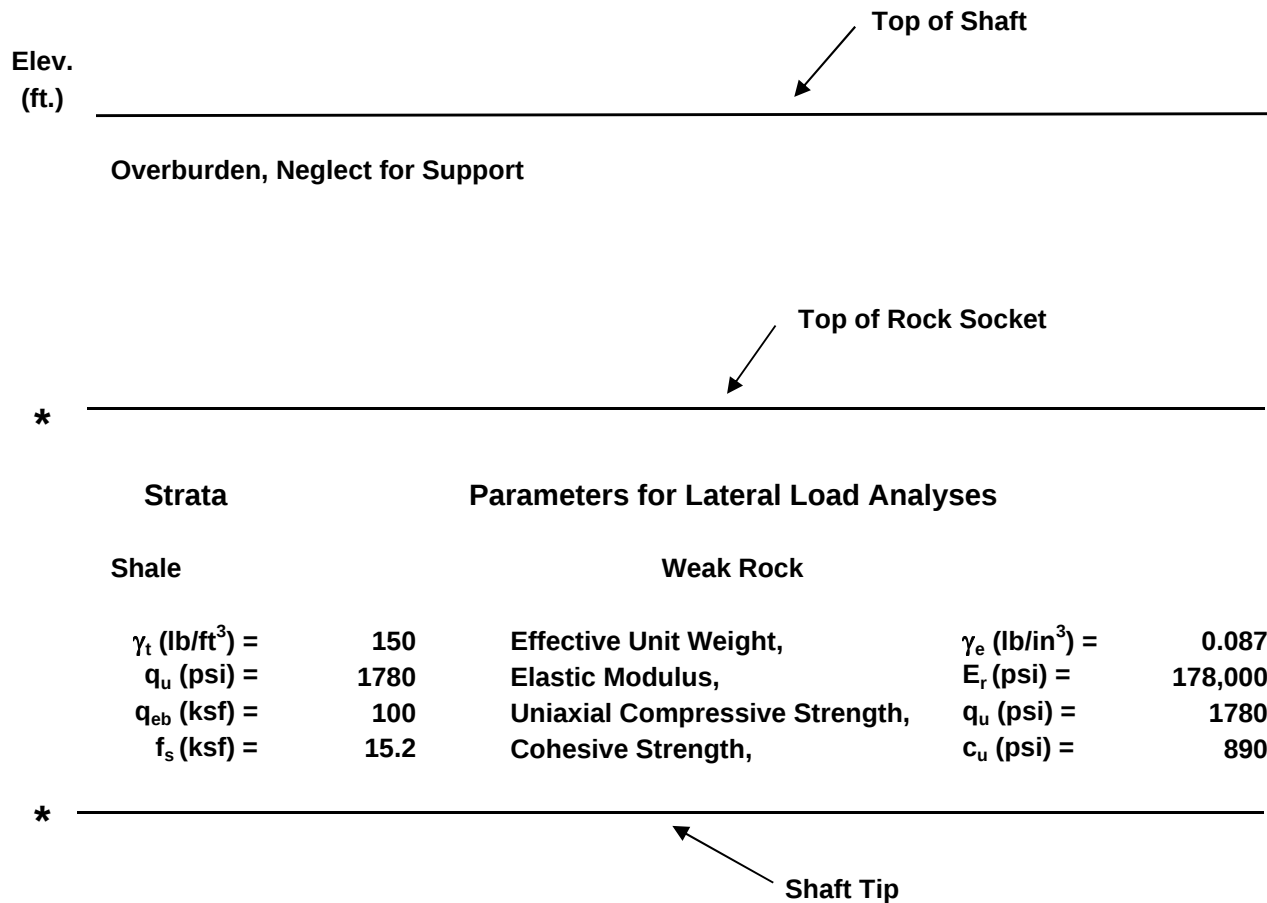
Attachment:

- **Idealized Soil and Bedrock Profiles and Drilled Shaft Axial Resistance Tables For Piers 1 through 4**

IDEALIZED SOIL AND BEDROCK PROFILE

Henderson, US 60 over Green River
Piers 1 - 4

DJG 7/10/17



* Elevations vary and are provided in the report body.

ADDITIONAL DATA FOR GEOTECHNICAL CALCULATIONS ONLY:

min. f'_c (psi) = 3500

p_a (psi) = 14.7

Load and Resistance Factor Design (LRFD)

DRILLED SHAFT AXIAL RESISTANCE TABLE

**Henderson, US 60 over Green River
Piers 1 - 4**

Rock Socket Diameter = 3.5 feet

Rock Socket Diameter = 42 inches

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[illegible]

Load and Resistance Factor Design (LRFD)

DRILLED SHAFT AXIAL RESISTANCE TABLE

Henderson, US 60 over Green River
Piers 1 - 4

Rock Socket Diameter = 4.0 feet

Rock Socket Diameter = 48 inches

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Rock Socket Length (ft.)	Nominal Unit Side Shear q_{ss} (ksf)	Nominal Unit End Bearing q_{eb} (ksf)	Nominal Side Resistance R_{sr} (kips)	Nominal End Bearing Resistance R_{eb} (kips)	Factored Side Resistance ϕR_{sr} (kips)	Factored End Bearing Resistance ϕR_{eb} (kips)	Total Factored Axial Resistance ϕR_t (kips)	Total Factored Uplift Resistance ϕR_{tu} (kips)
0.0								
1.0	15.2	100	191	1257	96	628	724	76
2.0	15.2	100	382	1257	191	628	819	153
3.0	15.2	100	573	1257	287	628	915	229
4.0	15.2	100	764	1257	382	628	1010	306
5.0	15.2	100	955	1257	478	628	1106	382
6.0	15.2	100	1146	1257	573	628	1201	458
7.0	15.2	100	1337	1257	669	628	1297	535
>>> 8.0	15.2	100	1528	1257	764	628	1392	611
9.0	15.2	100	1719	1257	860	628	1488	688
10.0	15.2	100	1910	1257	955	628	1583	764
11.0	15.2	100	2101	1257	1051	628	1679	840
12.0	15.2	100	2292	1257	1146	628	1774	917
13.0	15.2	100	2483	1257	1242	628	1870	993
14.0	15.2	100	2674	1257	1337	628	1965	1070
15.0	15.2	100	2865	1257	1433	628	2061	1146
16.0	15.2	100	3056	1257	1528	628	2156	1222
17.0	15.2	100	3247	1257	1624	628	2252	1299
18.0	15.2	100	3438	1257	1719	628	2347	1375
19.0	15.2	100	3629	1257	1815	628	2443	1452
20.0	15.2	100	3820	1257	1910	628	2538	1528
AASHTO Table 10.5.5.2.4-1 Resistance Factor, ϕ					0.50	0.50		0.40
>>> = Min. Socket Length							D (ft.) = 4.0	

Load and Resistance Factor Design (LRFD)

DRILLED SHAFT AXIAL RESISTANCE TABLE

**Henderson, US 60 over Green River
Piers 1 - 4**

Rock Socket Diameter = 4.5 feet

Rock Socket Diameter = 54 inches

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[illegible]

Load and Resistance Factor Design (LRFD)

DRILLED SHAFT AXIAL RESISTANCE TABLE

Henderson, US 60 over Green River
Piers 1 - 4

Rock Socket Diameter = 5.0 feet

Rock Socket Diameter = 60 inches

DJG 7/10/17

Rock Socket Length (ft.)	Nominal Unit Side Shear q_{ss} (ksf)	Nominal Unit End Bearing q_{eb} (ksf)	Nominal Side Resistance R_{sr} (kips)	Nominal End Bearing Resistance R_{eb} (kips)	Factored Side Resistance ϕR_{sr} (kips)	Factored End Bearing Resistance ϕR_{eb} (kips)	Total Factored Axial Resistance ϕR_t (kips)	Total Factored Uplift Resistance ϕR_{tu} (kips)
0.0								
1.0	15.2	100	239	1963	119	982	1101	96
2.0	15.2	100	478	1963	239	982	1221	191
3.0	15.2	100	716	1963	358	982	1340	287
4.0	15.2	100	955	1963	478	982	1459	382
5.0	15.2	100	1194	1963	597	982	1579	478
6.0	15.2	100	1433	1963	716	982	1698	573
7.0	15.2	100	1671	1963	836	982	1817	669
8.0	15.2	100	1910	1963	955	982	1937	764
9.0	15.2	100	2149	1963	1074	982	2056	860
>>> 10.0	15.2	100	2388	1963	1194	982	2176	955
11.0	15.2	100	2626	1963	1313	982	2295	1051
12.0	15.2	100	2865	1963	1433	982	2414	1146
13.0	15.2	100	3104	1963	1552	982	2534	1242
14.0	15.2	100	3343	1963	1671	982	2653	1337
15.0	15.2	100	3581	1963	1791	982	2772	1433
16.0	15.2	100	3820	1963	1910	982	2892	1528
17.0	15.2	100	4059	1963	2029	982	3011	1624
18.0	15.2	100	4298	1963	2149	982	3131	1719
19.0	15.2	100	4536	1963	2268	982	3250	1815
20.0	15.2	100	4775	1963	2388	982	3369	1910
AASHTO Table 10.5.5.2.4-1 Resistance Factor, ϕ					0.50	0.50		0.40
>>> = Min. Socket Length							D (ft.) = 5.0	