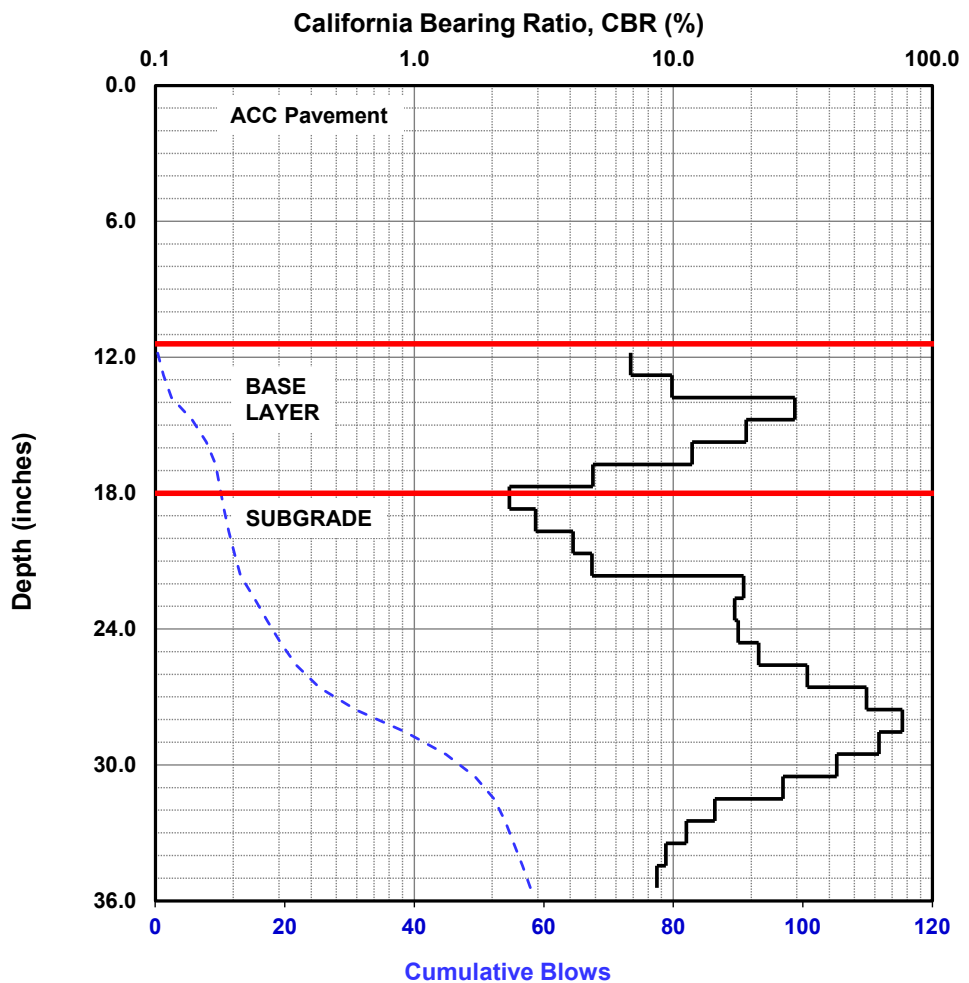
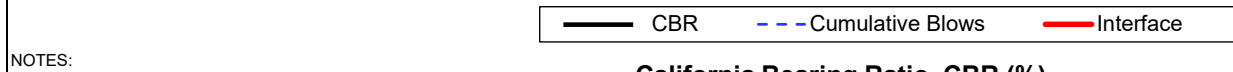


Date of Test	7/10/2020	Test ID	BL-1	Operator	HG	ASTM	D6951
Latitude	42.4975467		Longitude	-91.9134033		Elevation (ft)	NA
Location	D16, WB Lane		Station	1157+55			
Comments	DCP test performed in the foundation layer by drilling a hole through the asphalt pavement layer. Pavement thickness measured as 11.4 in.						

Parameter	DPI (mm/blow)	CBR (%)	E_{CBR} , Elastic Modulus (ksi) (non stress-dependent)	S_{u-CBR} , Bearing Capacity (psf)
Avg. Base Layer	16.5	12.6	12.9	2,939
Avg. Subgrade Layer	9.1	24.5	19.8	4,569
Ratio of Avg. Base/Subg. Layer	1.8	0.5	0.7	0.6
Std.Dev. Base Layer	11.3	9.2	10.5	2,377
Std. Dev. Subg. Layer	12.5	25.3	20.2	4,667

NOTE: Top layer thickness interpreted based on CBR profile



Dynamic Cone Penetrometer (DCP) Test Results

Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers

Project ID: ISP_00010

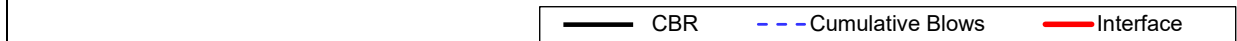
Location: D16, Buchanan County, IA



Date of Test	7/10/2020	Test ID	BL-2	Operator	HG	ASTM	D6951
Latitude	42.4975950		Longitude	-91.9117683		Elevation (ft)	NA
Location	D16, WB Lane		Station	1162+00			
Comments	DCP test performed in the foundation layer by drilling a hole through the asphalt pavement layer. Pavement thickness measured as 11.5 in.						

Parameter	DPI (mm/blow)	CBR (%)	E _{CBR} , Elastic Modulus (ksi) (non stress-dependent)	S _{u-CBR} , Bearing Capacity (psf)
Avg. Base Layer	6.7	34.8	24.8	5,771
Avg. Subgrade Layer	14.6	14.5	14.1	3,227
Ratio of Avg. Base/Subg. Layer	0.5	2.4	1.8	1.8
Std.Dev. Base Layer	11.3	22.7	18.9	4,350
Std. Dev. Subg. Layer	5.0	9.5	10.8	2,429

NOTE: Top layer thickness interpreted based on CBR profile



NOTES:

Subgrade is classified as CL

$$^1\text{CBR} = 292/\text{DPI}^{1.12}$$

$$^1\text{CBR} = 1/(0.017019\text{DPI})^2$$

for CL soils with CBR < 10

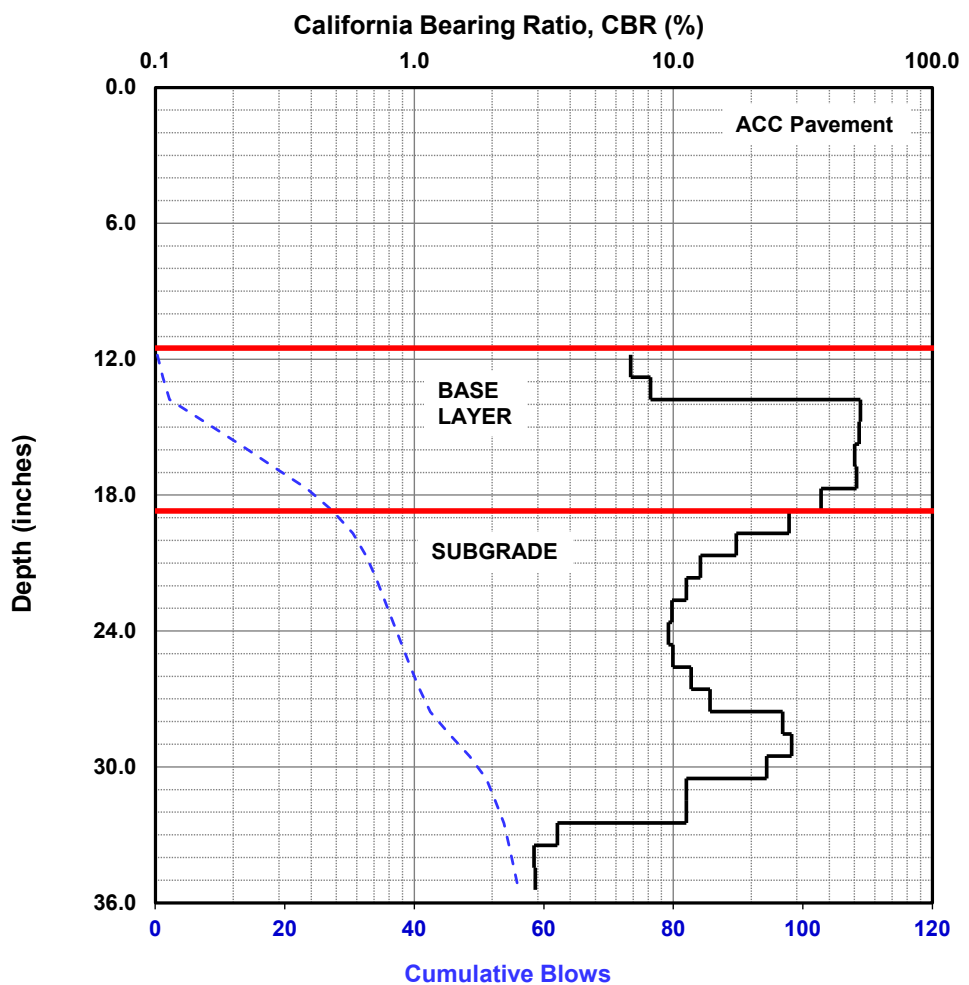
$$^2E \text{ (ksi)} = (17.6 \text{ CBR}^{0.64}) \times 0.1450377$$

$$^3S_u \text{ (psf)} = (3.794 \times \text{CBR}^{0.664}) \times 144$$

¹ ASTM D6951-03

² Powell et al. (1986)

³ Portland Cement Assoc. (1955)



Dynamic Cone Penetrometer (DCP) Test Results

Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



Date of Test	7/10/2020	Test ID	C-1	Operator	HG	ASTM	D6951
Latitude	42.4973883	Longitude	-91.9272783	Elevation (ft)	NA		
Location	D16, WB Lane	Station	1157+55				
Comments	DCP test performed in the foundation layer by drilling a hole through the asphalt pavement layer. Pavement thickness measured as 11.4 in.						

Parameter	DPI (mm/blow)	CBR (%)	E _{CBR} , Elastic Modulus (ksi) (non stress-dependent)	S _{u-CBR} , Bearing Capacity (psf)
Avg. Base Layer	9.5	23.6	19.3	4,455
Avg. Subgrade Layer	17.7	11.7	12.3	2,800
Ratio of Avg. Base/Subg. Layer	0.5	2.0	1.6	1.6
Std.Dev. Base Layer	8.3	15.6	14.8	3,381
Std. Dev. Subg. Layer	6.9	5.6	7.7	1,721

NOTE: Top layer thickness interpreted based on CBR profile

NOTES: — CBR - - - Cumulative Blows — Interface

Subgrade is classified as CL

¹CBR = 292/DPI^{1.12}

¹CBR = 1/(0.017019DPI)²

for CL soils with CBR < 10

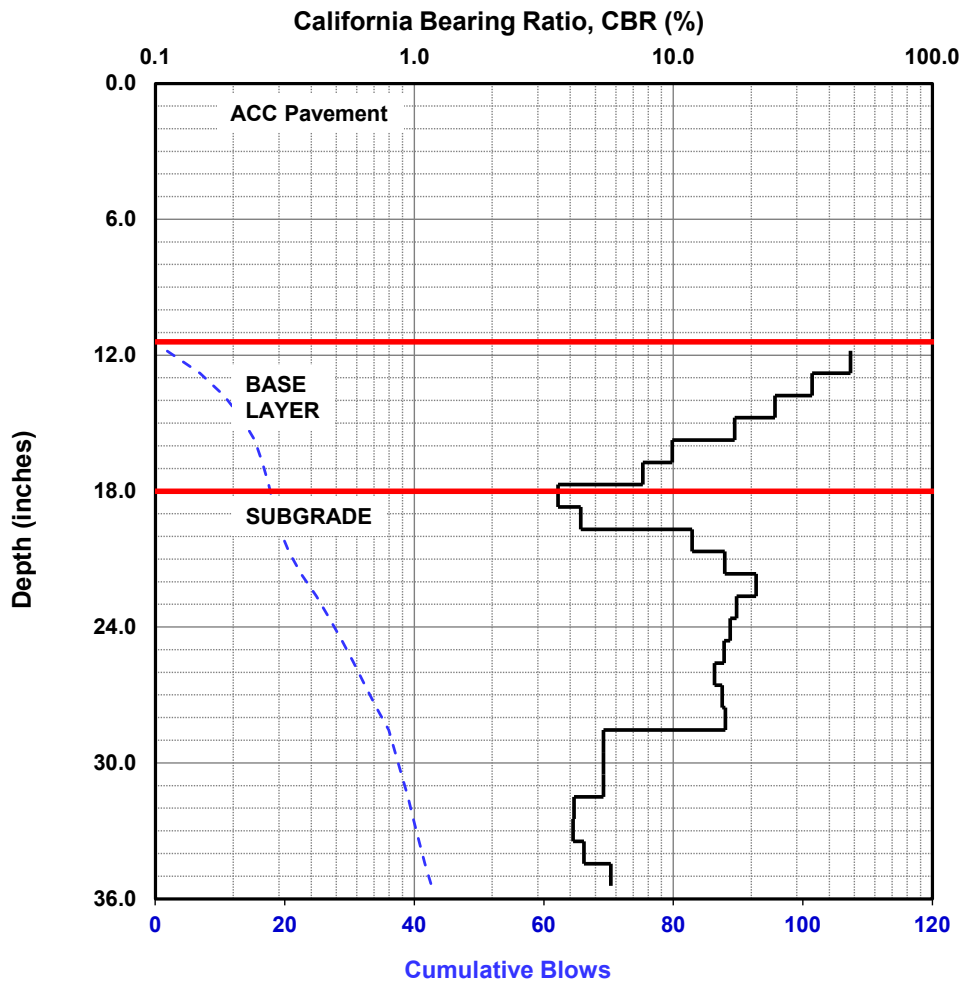
²E (ksi) = (17.6 CBR^{0.64}) x 0.1450377

³S_u (psf) = (3.794 x CBR^{0.664}) x 144

¹ ASTM D6951-03

² Powell et al. (1986)

³ Portland Cement Assoc. (1955)



Dynamic Cone Penetrometer (DCP) Test Results

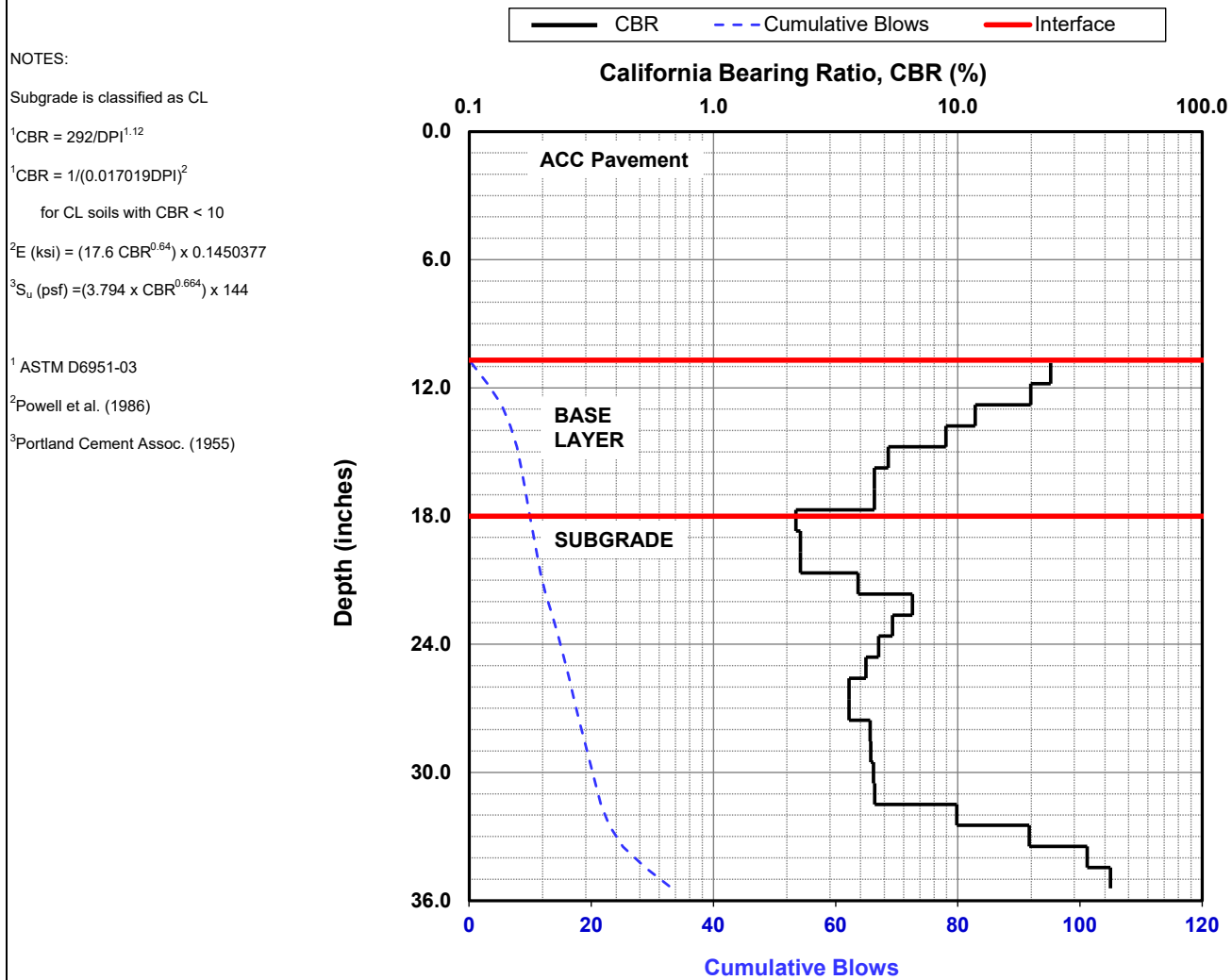
Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



Date of Test	7/10/2020	Test ID	C-2	Operator	HG	ASTM	D6951
Latitude	42.4974167		Longitude	-91.9259200		Elevation (ft)	NA
Location	D16, WB Lane		Station	1123+94			
Comments	DCP test performed in the foundation layer by drilling a hole through the asphalt pavement layer. Pavement thickness measured as 10.7 in.						

Parameter	DPI (mm/blow)	CBR (%)	E _{CBR} , Elastic Modulus (ksi) (non stress-dependent)	S _{u-CBR} , Bearing Capacity (psf)
Avg. Base Layer	18.7	11.0	11.8	2,684
Avg. Subgrade Layer	20.2	8.5	10.0	2,255
Ratio of Avg. Base/Subg. Layer	0.9	1.3	1.2	1.2
Std.Dev. Base Layer	13.8	7.8	9.5	2,145
Std. Dev. Subg. Layer	5.6	1.3	3.0	654

NOTE: Top layer thickness interpreted based on CBR profile



Dynamic Cone Penetrometer (DCP) Test Results		
Project Name:	Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers	
Project ID:	ISP_00010	
Location:	D16, Buchanan County, IA	

Date of Test	7/10/2020	Test ID	C-3	Operator	HG	ASTM	D6951
Latitude	42.4974167		Longitude	-91.9259200		Elevation (ft)	NA
Location	D16, WB Lane		Station	1123+94			
Comments	DCP test performed in the foundation layer by drilling a hole through the asphalt pavement layer. Pavement thickness measured as 11.2 in.						

Parameter	DPI (mm/blow)	CBR (%)	E _{CBR} , Elastic Modulus (ksi) (non stress-dependent)	S _{u-CBR} , Bearing Capacity (psf)
Avg. Base Layer	17.7	11.7	12.3	2,797
Avg. Subgrade Layer	26.4	4.9	7.1	1,579
Ratio of Avg. Base/Subg. Layer	0.7	2.4	1.7	1.8
Std.Dev. Base Layer	10.3	6.1	8.2	1,823
Std. Dev. Subg. Layer	1.8	0.5	1.6	339

NOTE: Top layer thickness interpreted based on CBR profile

NOTES:

CBR
 Cumulative Blows
 Interface

Subgrade is classified as CL

$$^1\text{CBR} = 292/\text{DPI}^{1.12}$$

$$^1\text{CBR} = 1/(0.017019\text{DPI})^2$$

for CL soils with CBR < 10

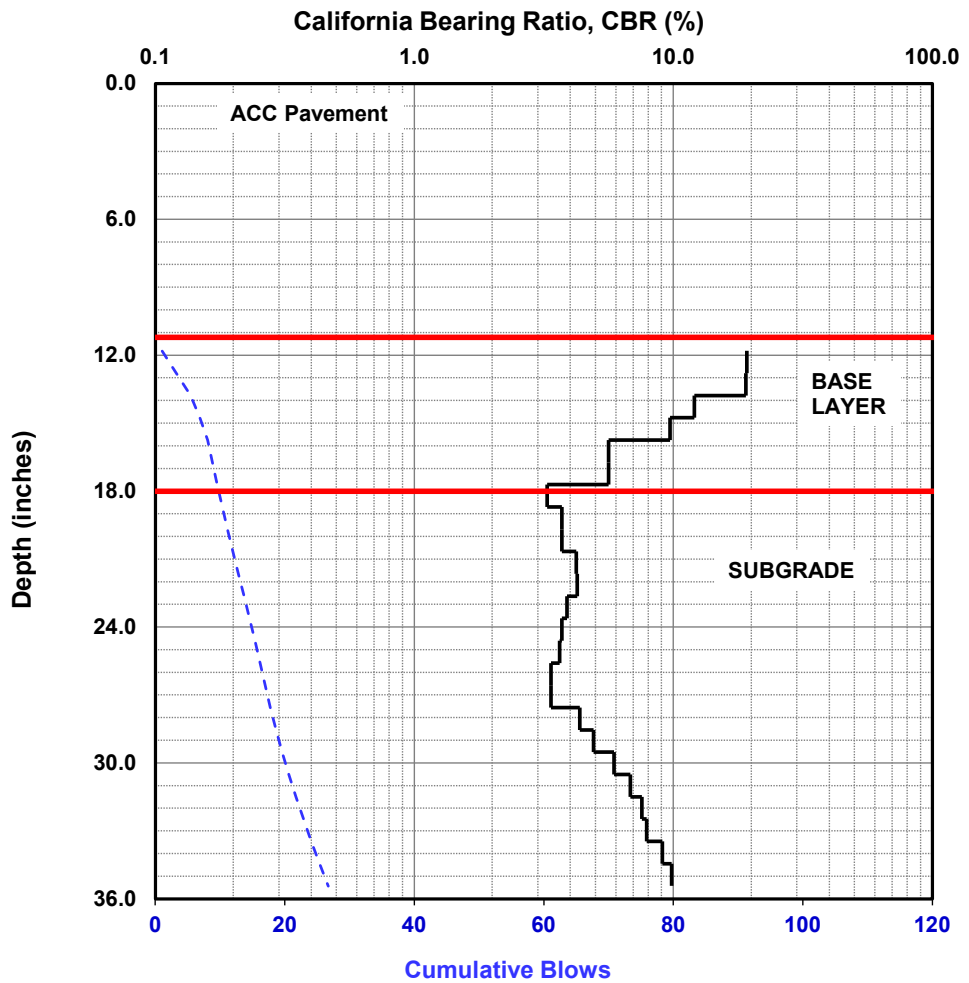
$$^2E \text{ (ksi)} = (17.6 \text{ CBR}^{0.64}) \times 0.1450377$$

$$^3S_u \text{ (psf)} = (3.794 \times \text{CBR}^{0.664}) \times 144$$

¹ ASTM D6951-03

² Powell et al. (1986)

³ Portland Cement Assoc. (1955)



Dynamic Cone Penetrometer (DCP) Test Results

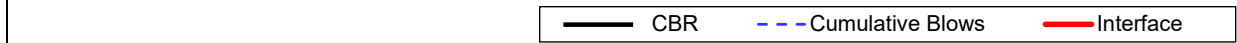
Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



Date of Test	7/10/2020	Test ID	WF-1	Operator	HG	ASTM	D6951
Latitude	42.4974533		Longitude	-91.9215733		Elevation (ft)	NA
Location	D16, WB Lane		Station	1135+57			
Comments	DCP test performed in the foundation layer by drilling a hole through the asphalt pavement layer. Pavement thickness measured as 12.3 in.						

Parameter	DPI (mm/blow)	CBR (%)	E _{CBR} , Elastic Modulus (ksi) (non stress-dependent)	S _{u-CBR} , Bearing Capacity (psf)
Avg. Base Layer	18.3	11.3	12.0	2,730
Avg. Subgrade Layer	19.0	9.6	10.8	2,448
Ratio of Avg. Base/Subg. Layer	1.0	1.2	1.1	1.1
Std.Dev. Base Layer	6.7	4.6	6.8	1,509
Std. Dev. Subg. Layer	8.5	11.2	12.0	2,714

NOTE: Top layer thickness interpreted based on CBR profile



Subgrade is classified as CL

$${}^1\text{CBR} = 292/\text{DPI}^{1.12}$$

$${}^1\text{CBR} = 1/(0.017019\text{DPI})^2$$

for CL soils with CBR < 10

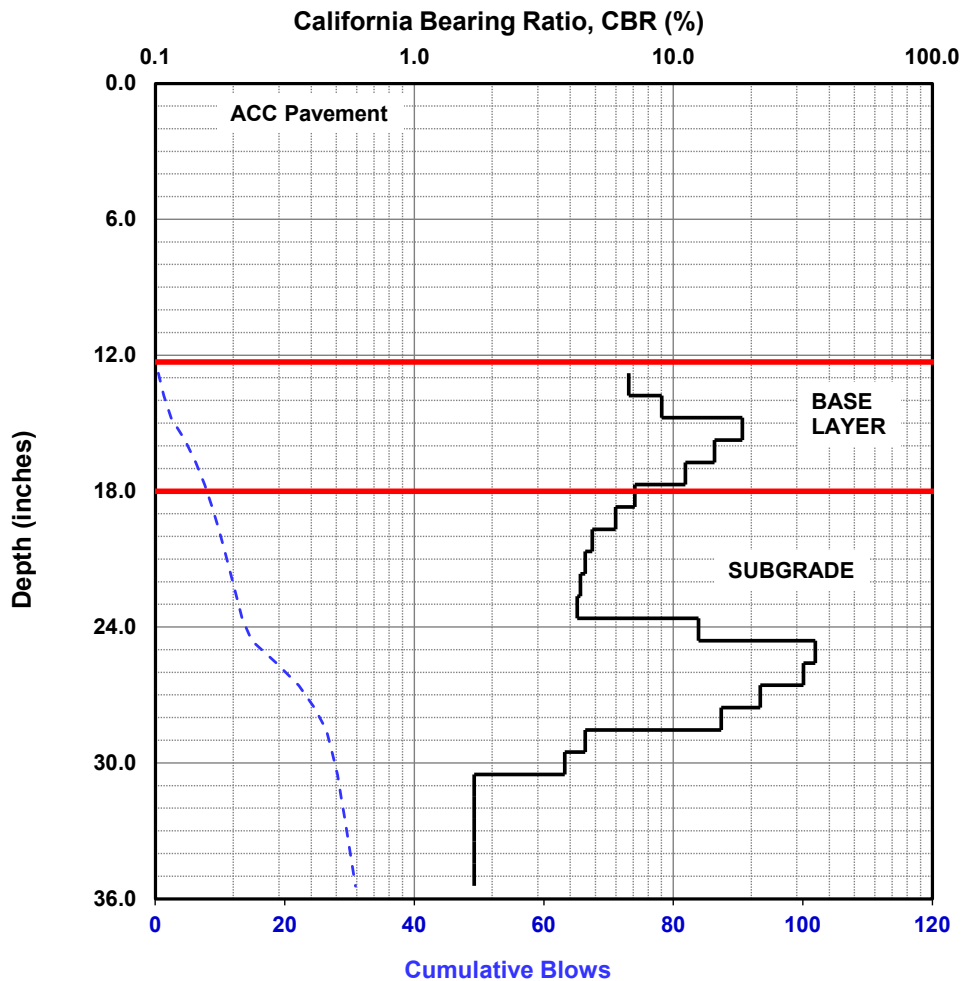
$${}^2\text{E (ksi)} = (17.6 \text{ CBR}^{0.64}) \times 0.1450377$$

$${}^3\text{S}_u \text{ (psf)} = (3.794 \times \text{CBR}^{0.664}) \times 144$$

¹ ASTM D6951-03

² Powell et al. (1986)

³ Portland Cement Assoc. (1955)



Dynamic Cone Penetrometer (DCP) Test Results

Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



Date of Test	7/10/2020	Test ID	WF-2	Operator	HG	ASTM	D6951
Latitude	42.4974567		Longitude	-91.9204917		Elevation (ft)	NA
Location	D16, WB Lane		Station	1138+52			
Comments	DCP test performed in the foundation layer by drilling a hole through the asphalt pavement layer. Pavement thickness measured as 12.3 in.						

Parameter	DPI (mm/blow)	CBR (%)	E _{CBR} , Elastic Modulus (ksi) (non stress-dependent)	S _{u-CBR} , Bearing Capacity (psf)
Avg. Base Layer	10.5	21.1	17.9	4,133
Avg. Subgrade Layer	23.2	6.4	8.4	1,872
Ratio of Avg. Base/Subg. Layer	0.5	3.3	2.1	2.2
Std.Dev. Base Layer	5.8	10.6	11.6	2,626
Std. Dev. Subg. Layer	5.8	5.4	7.5	1,666

NOTE: Top layer thickness interpreted based on CBR profile

NOTES:

CBR
 Cumulative Blows
 Interface

Subgrade is classified as CL

$${}^1\text{CBR} = 292/\text{DPI}^{1.12}$$

$${}^1\text{CBR} = 1/(0.017019\text{DPI})^2$$

for CL soils with CBR < 10

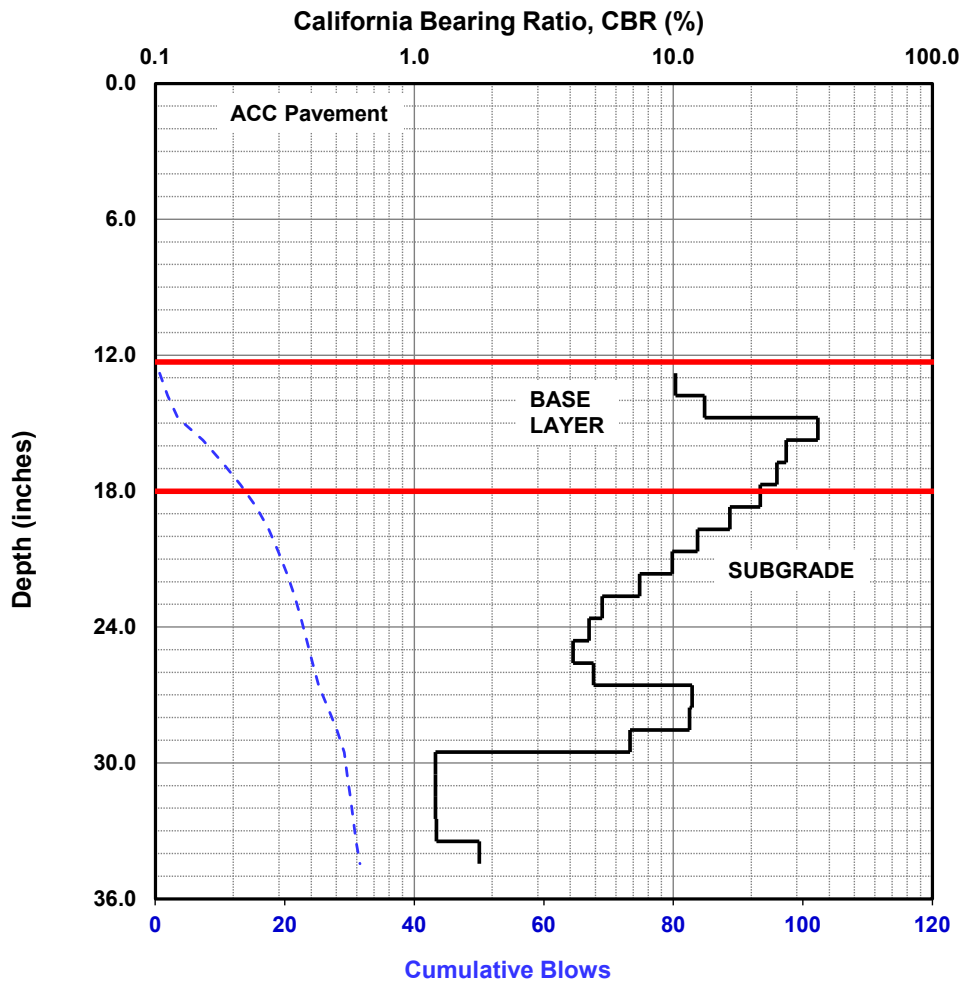
$${}^2\text{E (ksi)} = (17.6 \text{ CBR}^{0.64}) \times 0.1450377$$

$${}^3\text{S}_u \text{ (psf)} = (3.794 \times \text{CBR}^{0.664}) \times 144$$

¹ ASTM D6951-03

² Powell et al. (1986)

³ Portland Cement Assoc. (1955)



Dynamic Cone Penetrometer (DCP) Test Results

Project Name: Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers
 Project ID: ISP_00010
 Location: D16, Buchanan County, IA



Date of Test	7/10/2020	Test ID	WF-3	Operator	HG	ASTM	D6951
Latitude	42.4974683		Longitude	-91.9197750		Elevation (ft)	NA
Location	D16, WB Lane		Station	1140+47			
Comments	DCP test performed in the foundation layer by drilling a hole through the asphalt pavement layer. Pavement thickness measured as 11.5 in.						

Parameter	DPI (mm/blow)	CBR (%)	E _{CBR} , Elastic Modulus (ksi) (non stress-dependent)	S _{u-CBR} , Bearing Capacity (psf)
Avg. Base Layer	15.6	13.5	13.5	3,077
Avg. Subgrade Layer	8.8	25.5	20.3	4,694
Ratio of Avg. Base/Subg. Layer	1.8	0.5	0.7	0.7
Std.Dev. Base Layer	9.1	6.9	8.8	1,969
Std. Dev. Subg. Layer	8.0	20.9	17.9	4,110

NOTE: Top layer thickness interpreted based on CBR profile

NOTES:

Subgrade is classified as CL

¹CBR = 292/DPI^{1.12}

¹CBR = 1/(0.017019DPI)²
for CL soils with CBR < 10

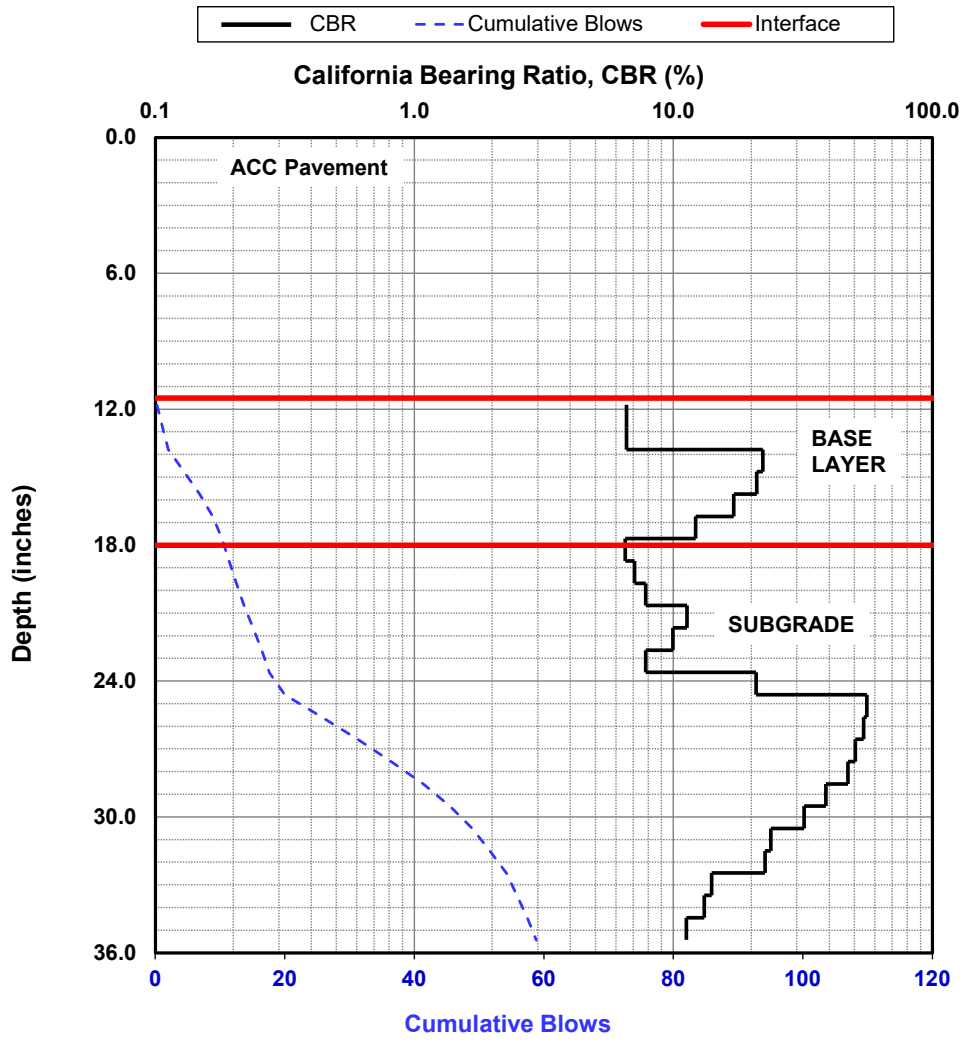
²E (ksi) = (17.6 CBR^{0.64}) x 0.1450377

³S_u (psf) = (3.794 x CBR^{0.664}) x 144

¹ ASTM D6951-03

² Powell et al. (1986)

³ Portland Cement Assoc. (1955)



Dynamic Cone Penetrometer (DCP) Test Results		
Project Name:	Concrete Pavement Overlays Supported on Geotextile and Asphalt Interlayers	
Project ID:	ISP_00010	
Location:	D16, Buchanan County, IA	