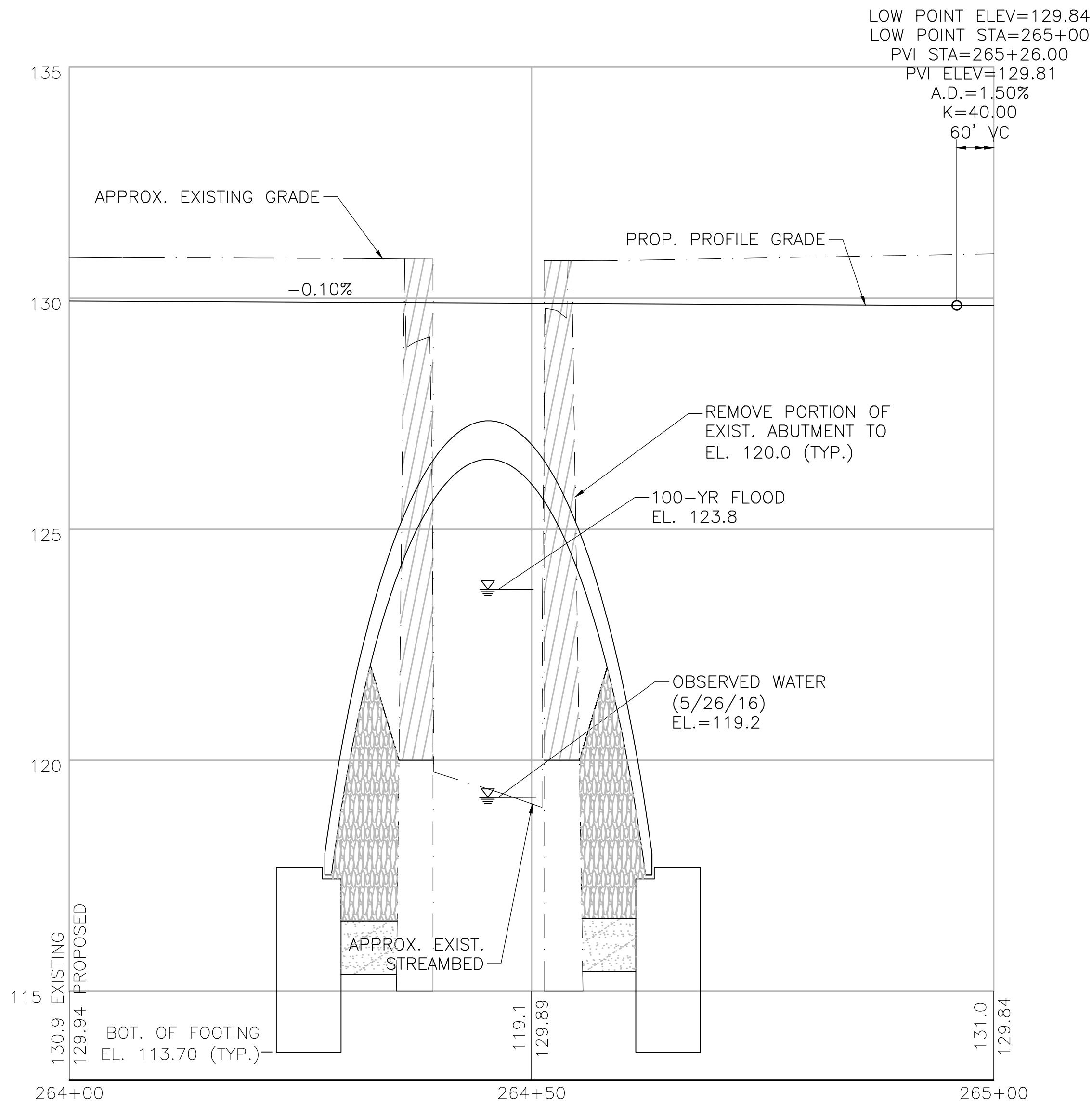
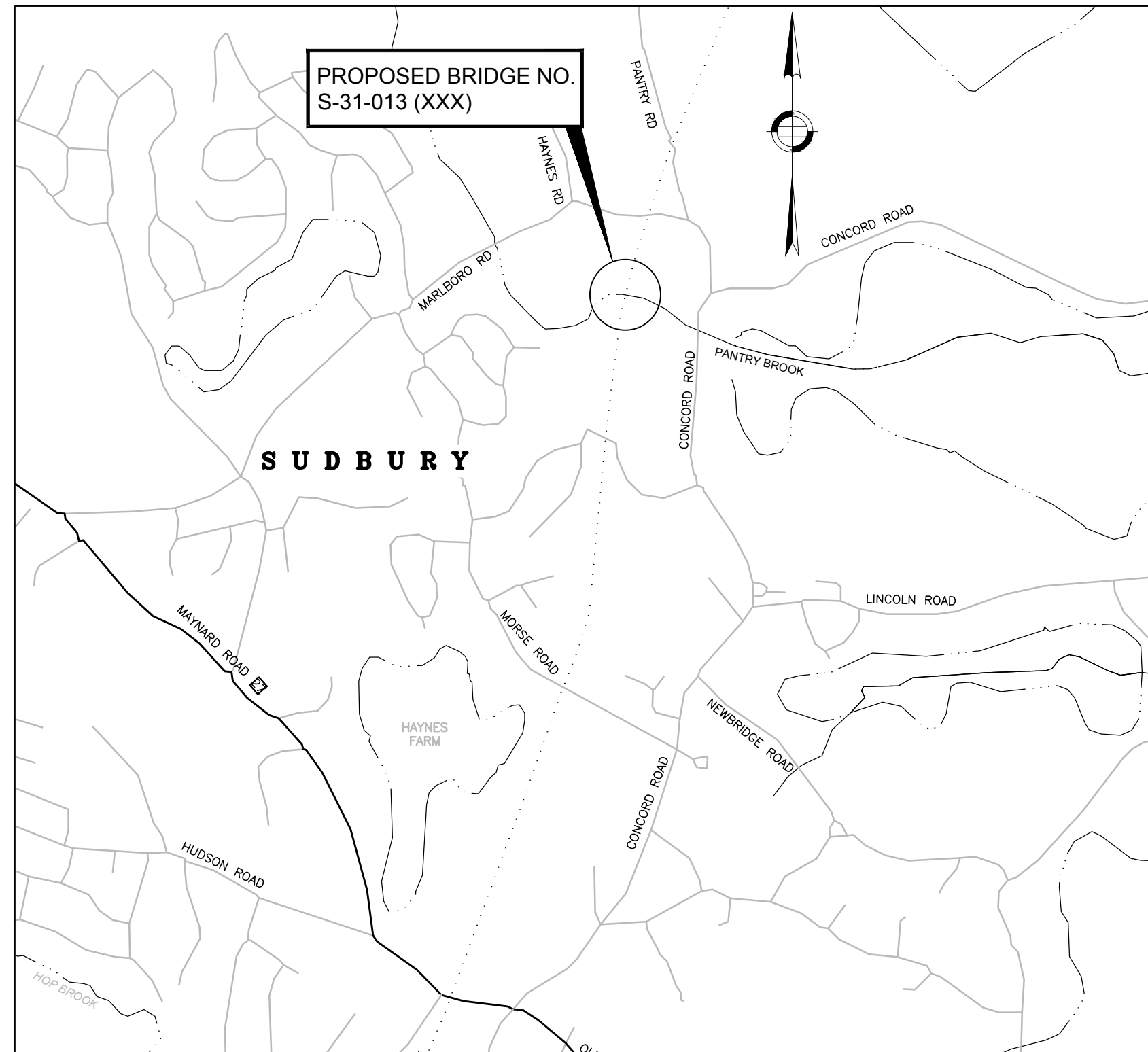


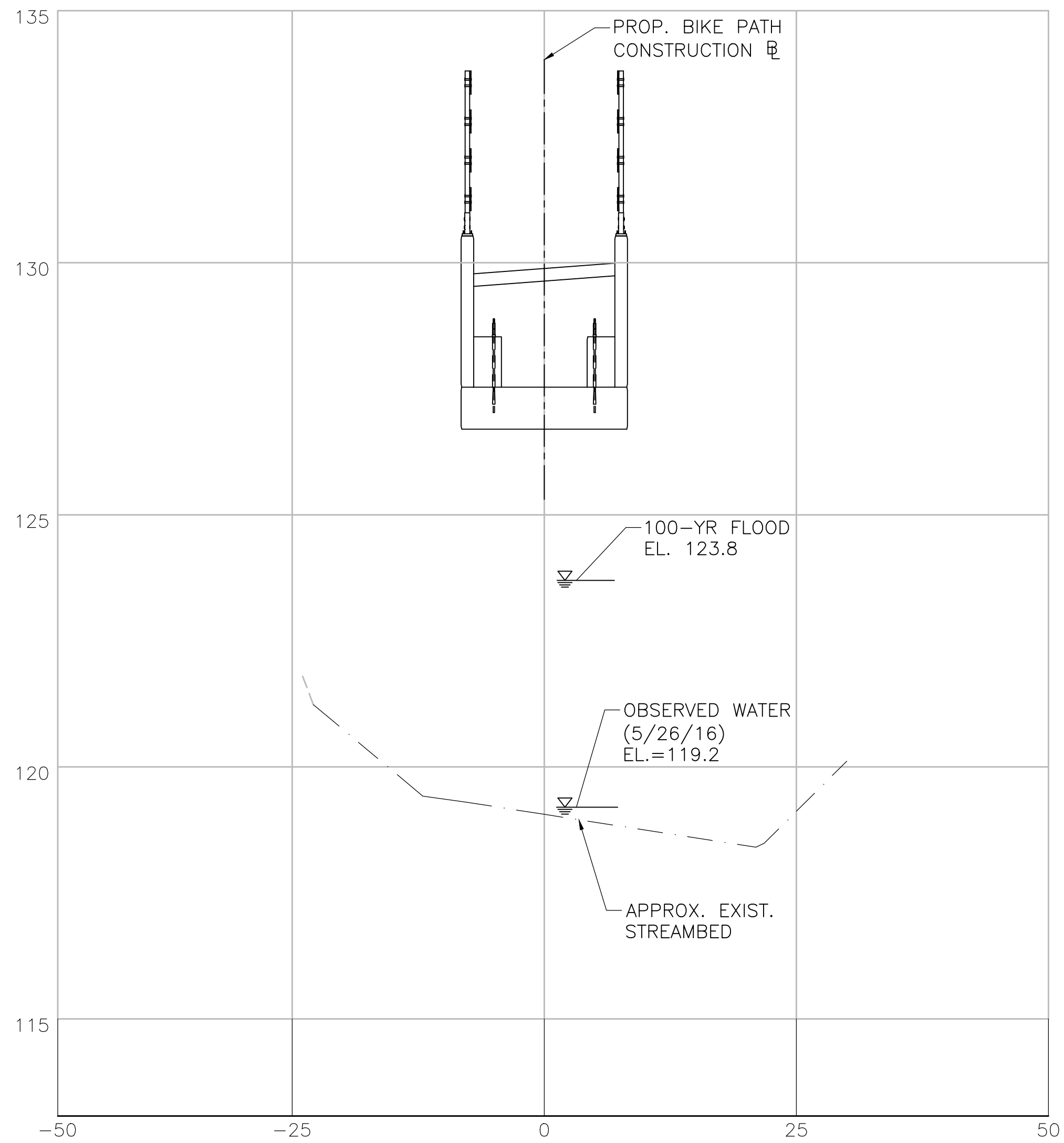
KEY PLAN
SCALE: 1"=10'-0"



PROFILE ALONG BIKE PATH
HORIZONTAL SCALE: 1"=10'-0"
VERTICAL SCALE: 1" = 2'-0"



LOCUS
SCALE: 1"=1200'-0"



PROFILE ALONG PENTRY BROOK
HORIZONTAL SCALE: 1"=10'-0"
VERTICAL SCALE: 1" = 2'-0"

GENERAL NOTES		
PROJECT FILE NO.: XXXXXX		
PROJECT DESCRIPTION: PROPOSED BRIDGE		
BRIDGE DESIGN LOADING: H10		
SURVEY: SURVEY INFO		
ELEVATION REFERENCE: NAVD OF 1988		
TRAFFIC DATA		
	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	N/A	
AVERAGE DAILY TRAFFIC - PRESENT	N/A	
AVERAGE DAILY TRAFFIC - DESIGN YEAR	N/A	
DESIGN HOURLY VOLUME	N/A	
DIRECTIONAL DISTRIBUTION	N/A	
TRUCK PERCENTAGE - AVERAGE DAY	N/A	
TRUCK PERCENTAGE - PEAK HOUR	N/A	
DESIGN SPEED	18 MPH	
DIRECTIONAL DESIGN HOURLY VOLUME	N/A	
BENCH MARK: #98, N: 2973228.466' E: 681133.936' EL=130.880' MSTN		

DESIGN

IN ACCORDANCE WITH THE 2017 AASHTO LRFD BRIDGE DESIGN SPECIFICATION.

NOTES:

1. APPROVAL DOES NOT INCLUDE STRUCTURAL ANALYSIS.
2. DIMENSIONS OF STRUCTURAL MEMBERS ARE APPROXIMATE, AND WILL BE FINALIZED DURING THE FINAL DESIGN PHASE.
3. SEE GEOTECHNICAL REPORT, DATED OCTOBER 2019
4. SEISMIC DESIGN CRITERIA:
DESIGN RETURN PERIOD: 1000-YEAR
DESIGN SPECTRA:
 $A_S = 0.11$
 $S_{DS} = 0.23$
 $S_{D1} = 0.09$
SITE CLASS = D
SEISMIC DESIGN CATEGORY (SDC) = A
5. SEE HYDRAULIC REPORT, DATED SEPTEMBER 2019.
6. NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

HYDRAULIC DESIGN DATA

DRAINAGE AREA: 2.5 SQUARE MILES
DESIGN FLOOD DISCHARGE: 204 CUBIC FEET PER SECOND
DESIGN FLOOD FREQUENCY: 10 YEARS
DESIGN FLOOD VELOCITY: 3.27 FEET PER SECOND
DESIGN FLOOD ELEVATION: 122.12 FEET, NAVD

BASE (100-YEAR) FLOOD DATA

BASE FLOOD DISCHARGE: 476 CUBIC FEET PER SECOND
BASE FLOOD ELEVATION: 123.8 FEET, NAVD

DESIGN AND CHECK SCOUR AREA

DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY: 25 YEARS
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY: 50 YEARS

FLOOD OF RECORD

DISCHARGE: UNKNOWN
FREQUENCY (IF KNOWN): UNKNOWN
MAXIMUM ELEVATION: UNKNOWN
DATE: UNKNOWN
HISTORY OF ICE FLOES: UNKNOWN
EVIDENCE OF SCOUR AND EROSION: THE POTENTIAL OF UNDERMINED FOUNDATION WAS DETERMINED DURING AN FILED SURVEY IN 2016.

JACOBS
120 ST. JAMES AVENUE, 5TH FLOOR
BOSTON MA, 02116

massDOT
Massachusetts Department of Transportation
Highway Division

SKETCH PLANS OF
PROPOSED BRIDGE

SUDBURY

PROPOSED BIKEPATH
OVER PENTRY BROOK

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

APPROVED BY _____ DATE _____

STRUCTURAL ELEMENTS:

TITLE: _____

HIGHWAY ELEMENTS:

TITLE: _____

JACOBS										PROJECT LOCATION OWNER JOB NUMBER			Bruce Freeman Rail Trail Sudbury, MA MASSDOT E2X81800			BORING NO.		BB-101	
INSPECTOR		S. Ramesh		CONTRACTOR		NEBC		DRILLER		B. Cross		ELEVATION		131					
METHOD OF DRILLING				GROUNDWATER READINGS				DRILL RIG		Mobile B-53		DATUM		NAVD 88					
0.0		Split Spoon Sample		DATE/TIME		DEPTH(ft)		REMARKS		SPT HAMMER		GRID		N 2973226					
4.0		Wash Boring w/ 4" Casing		08-19-2019 / 8:18 am		9.3		During Drilling (In Casing)				COORD		E 681132					
51.0		NX Rock Core										DATE START		8/16/19					
55.0		Terminated										DATE END		8/19/19					
ELEV. (ft)	DEPTH (ft)	SAMPLE DATA	N- VALUE	SAMPLE NO.	DEPTH INTERVAL (ft)	PENREC (in)/(in)	PID (ppt)	LAYER NAME	SOIL AND ROCK DESCRIPTION							NOTES			
130	2	5	11	S1	0 - 2	24/10		FILL	S1: (0-5") Top Soil Dry, medium dense, brown, medium to coarse SAND, trace Gravel.										
	5	6	13	S2	2 - 4	24/18			S2: Dry, medium dense, brown, medium SAND, little Gravel, little Silt.										
	7	8	10	S3	4 - 6	24/4			S3: Wet, medium dense, brown, medium SAND, some Silt.										
	10	5	13	S4	6 - 8	24/12			S4: Similar to S3.										
125	13	5	15	S5	8 - 10	24/20		SILT	S5: Wet, medium dense, brown, medium to coarse SAND, some Silt, trace Gravel.										
	15	6	8	S6	10 - 12	24/10			S6: Wet, medium stiff, brown SILT, some fine to medium Sand.										
	17	7	4	S7	12 - 14	24/6			S7: Wet, medium stiff, brown SILT and fine SAND.										
	20	4	1	S8	14 - 16	24/24			S8: Wet, blackish brown, fine grained PEAT, trace Gravel.										
115	22	3	12	S9	16 - 18	24/7		SAND	S9: Wet, medium dense, blackish brown SAND and Organic Silt, trace Gravel.										
	24	2	21	S10	18 - 20	24/24			S10: Wet, medium dense, medium SAND, little Silt, trace Gravel.										
	26	10																	
	28	7																	
110	30	12	46	S11	24 - 26	24/14		GRAVEL	S11: Wet, dense, fine GRAVEL and coarse SAND, little Silt.										
	32	24	101	S12	29 - 31	24/18			S12: Wet, very dense, fine to coarse GRAVEL, trace Silt, trace coarse Sand.										
	34	16																	
	36	37																	
105	38	50/5"	50/5"	S13	34 - 34.3	5/4			S13: Wet, very dense, coarse GRAVEL, trace Silt.										
100																			
95																			
90																			
85																			
80																			
75																			
70																			
65																			
60																			
55																			
50																			
45																			
40																			
35																			

Page 1: 0-35 feet. Each subsequent page displays 40 feet.

1. Hard drilling at 32".

NOTES

BOT. OF FTG.
EL. 113.70

PROJECT						BORING NO.		BB-101		
LOCATION										
OWNER						MASSDOT				
JOB NUMBER						E2X81800		SHEET 2 OF 2		
ELEV. (ft)	DEPTH (ft)	SAMPLE DATA	N- VALUE	SAMPLE NO.	DEPTH INTERVAL (ft)	PENREC (in)(lb)	RID (ppm)	% W/ LIME	SOIL AND ROCK DESCRIPTION	NOTE
95										
40		21 29 50 31	79	S14	39 - 41	24/9		39	S14: Wet, hard SILT, trace fine Sand, trace Gravel.	2
90										
45		30 68/4"	68/4"	S15	44 - 44.8	10/5		SILT	S15: Wet, hard SILT, some fine Gravel, little fine to coarse Sand, trace Clay.	
85										
50		70/2"	70/2"	S16	49 - 49.2	2/2		49	S16: Wet, very dense, coarse SAND, weathered rock fragments.	
80				RC-1	51 - 55	48/46		SAND	RC-1: Coring time: 12, 9, 9, 10 (mins/ft) Pinkish gray, hard, moderately weathered GRANODIORITE, fractures dipping at 30 degree angle. Clay seam noted between 42 to 43".	3
55								GRANODIORITE	Bottom of Borehole at 55 feet.	
75										
60										
65										
70										

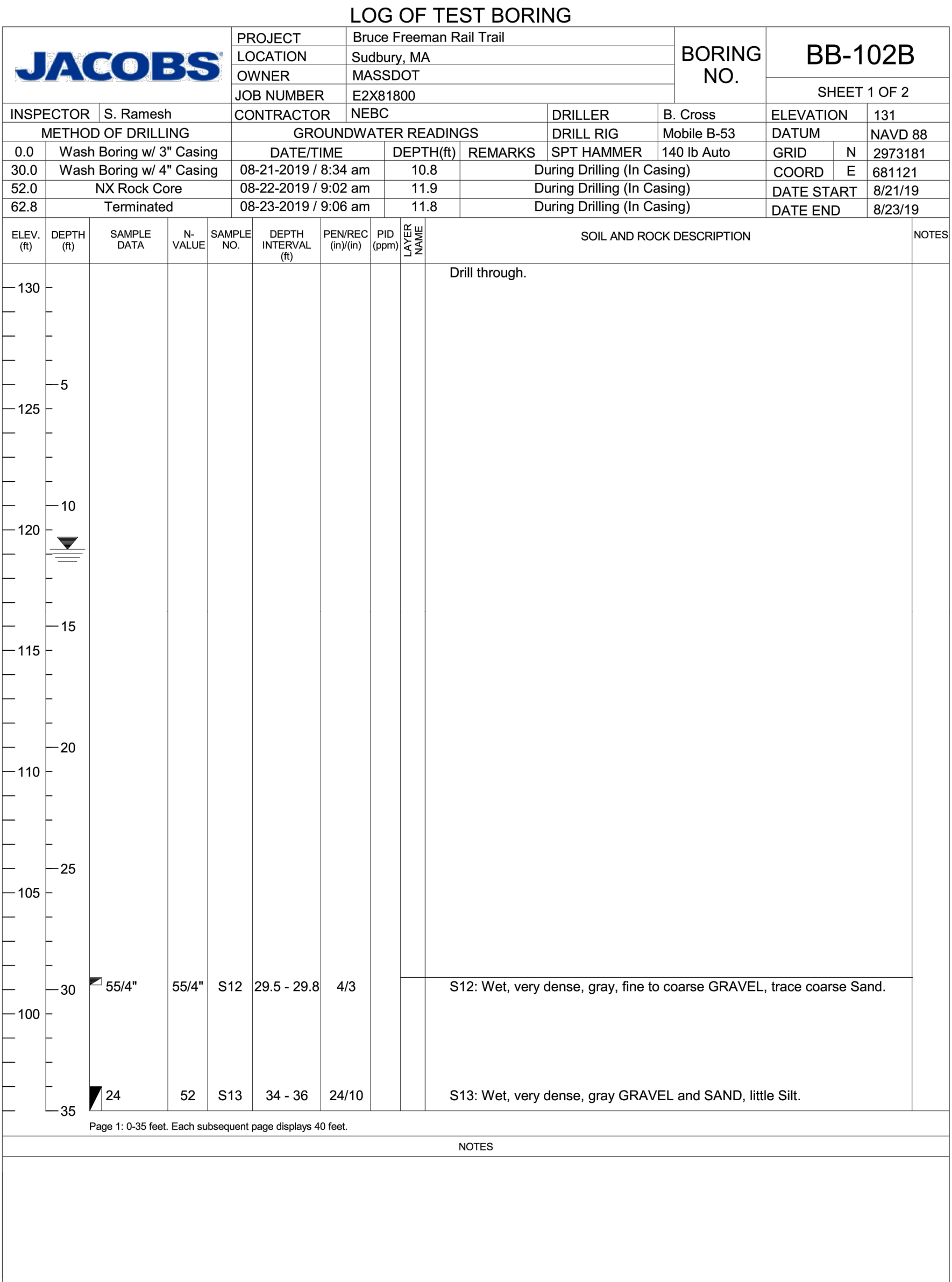
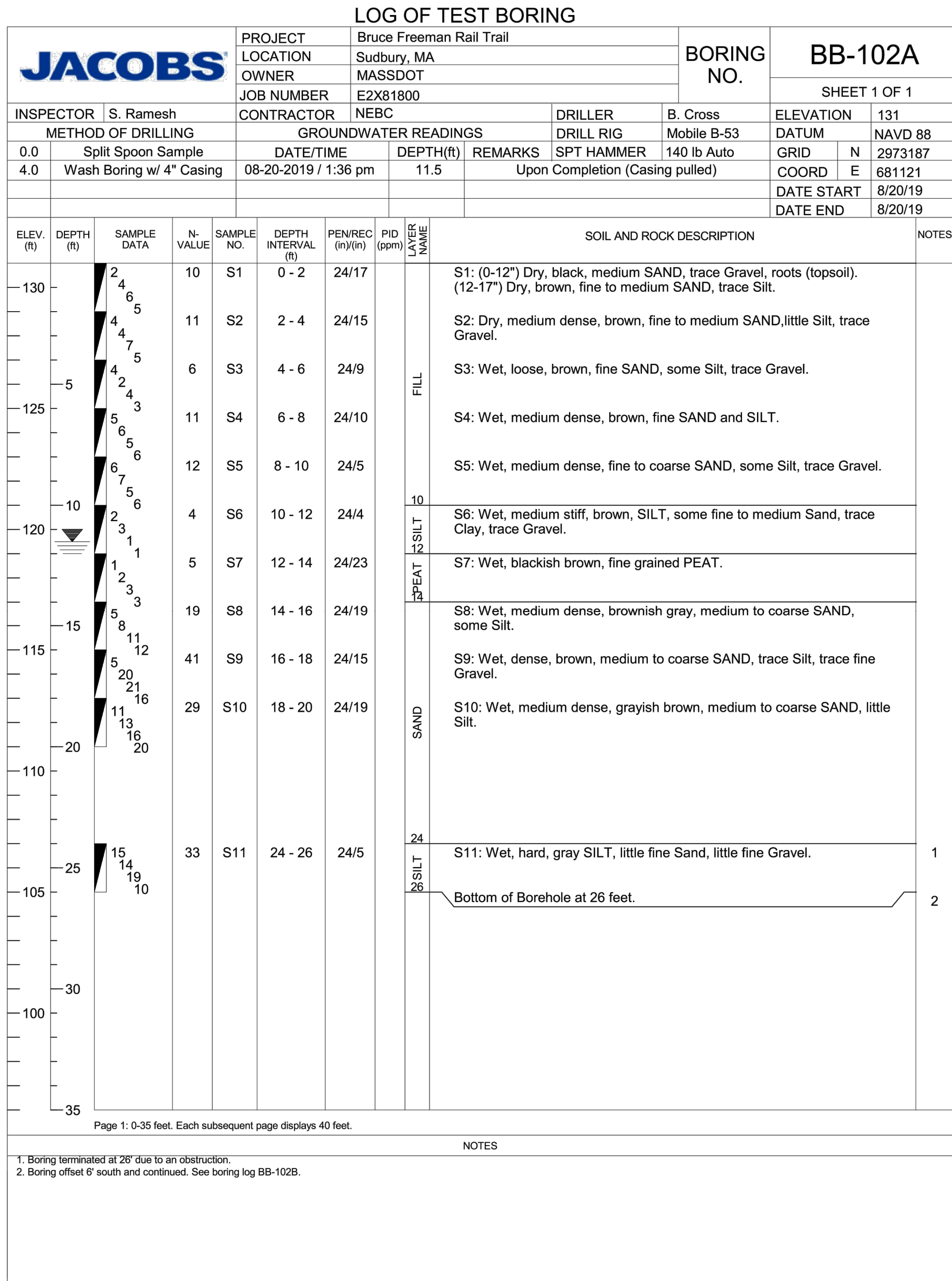
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NOTES

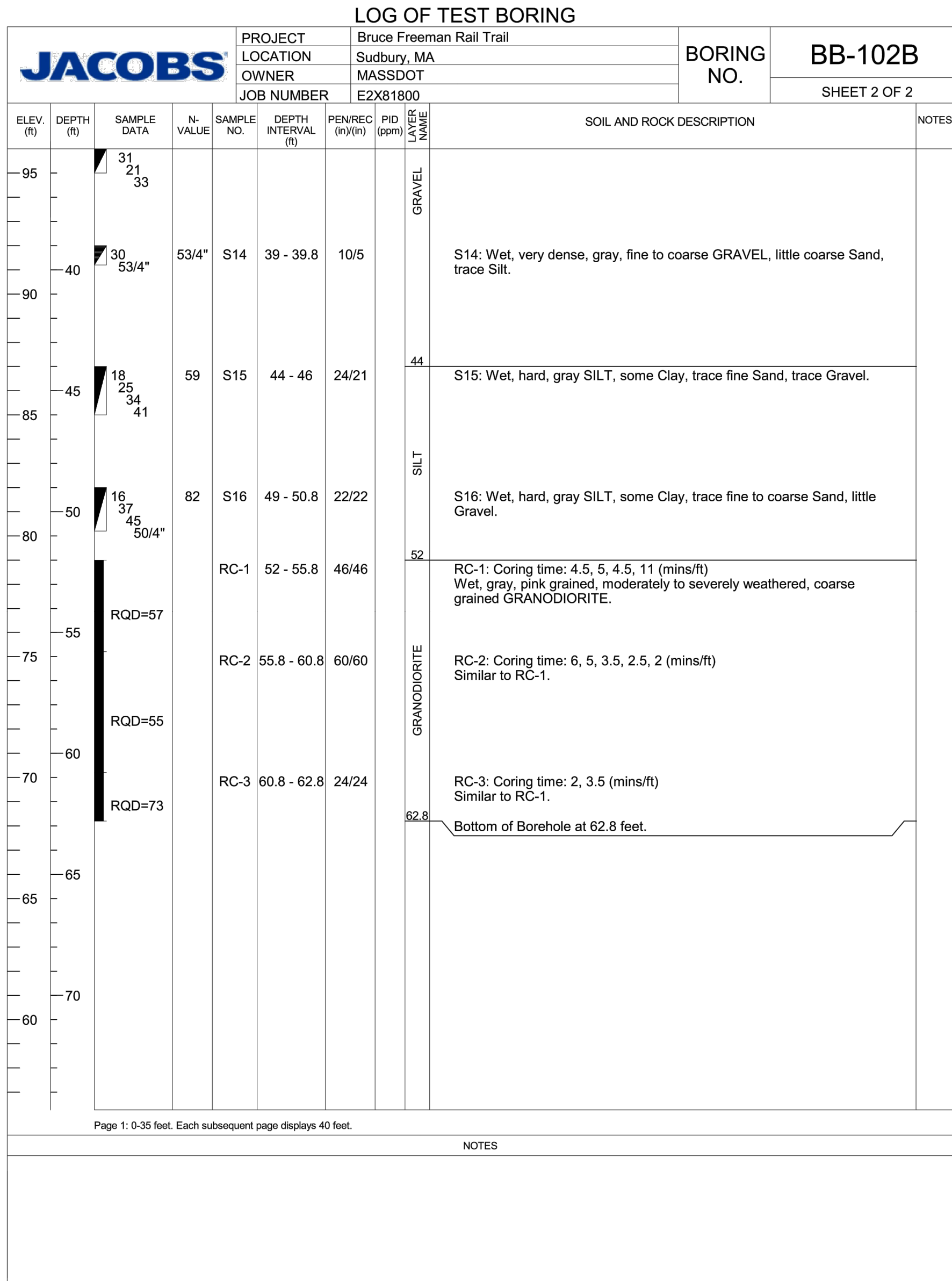
2. Boulders encountered between 36 and 39'.
 3. Outer barrel of core bit broke in the borehole during drilling at 55'. Could not continue boring any further.

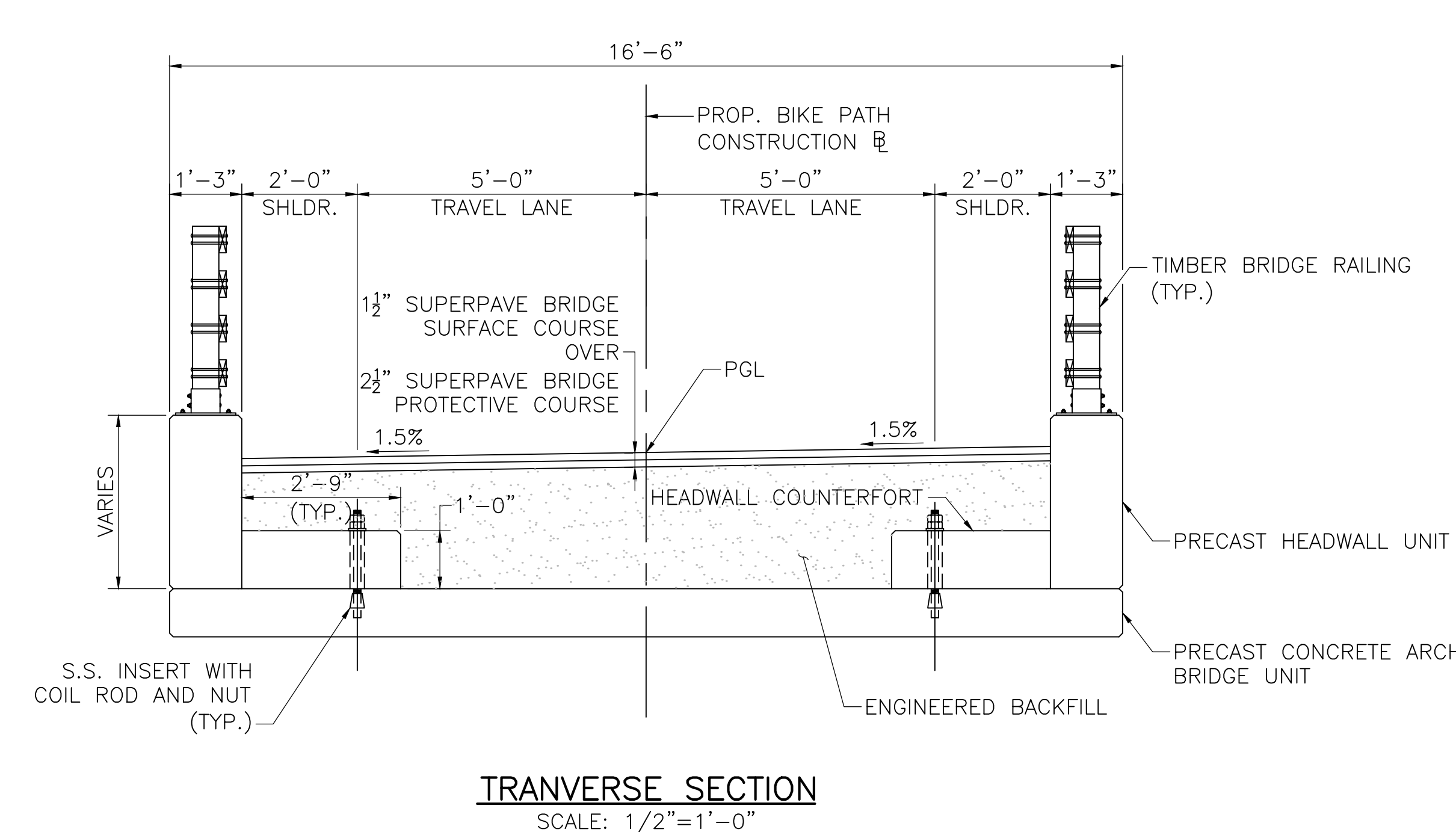
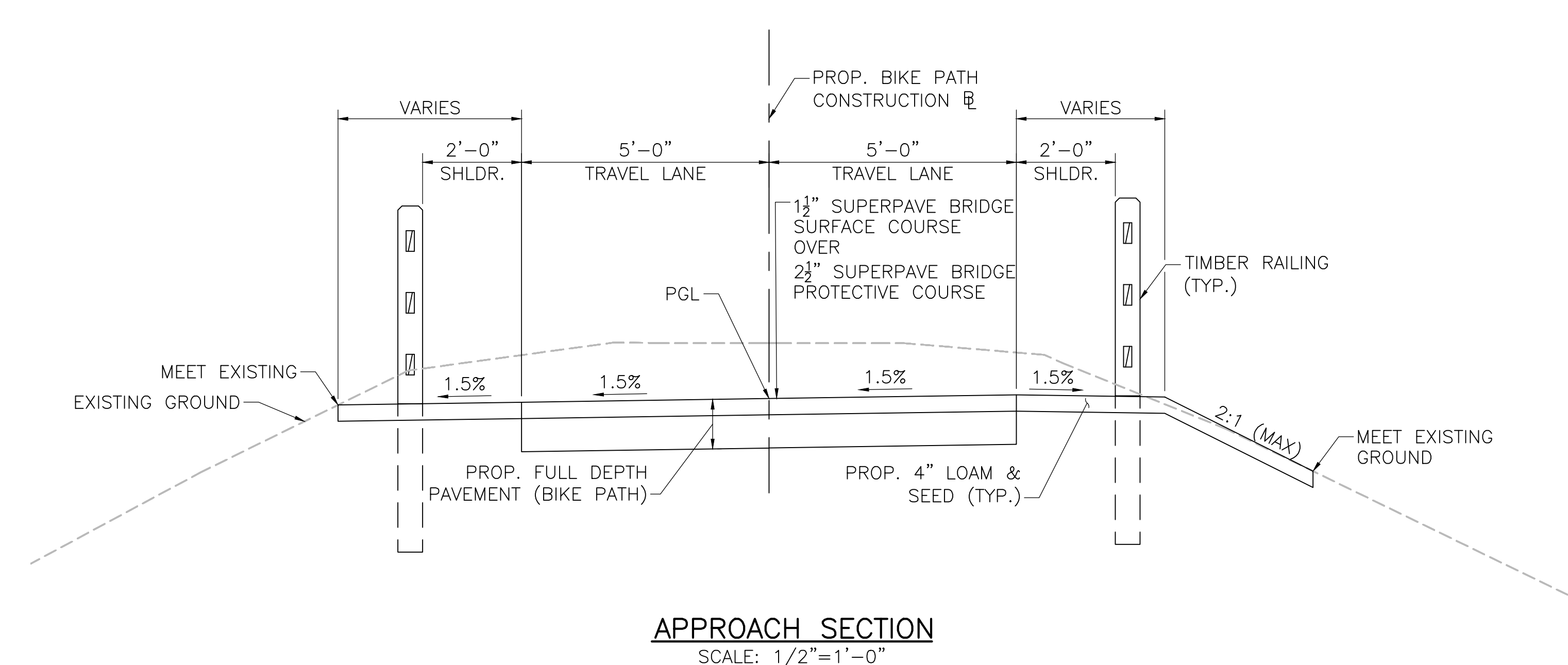
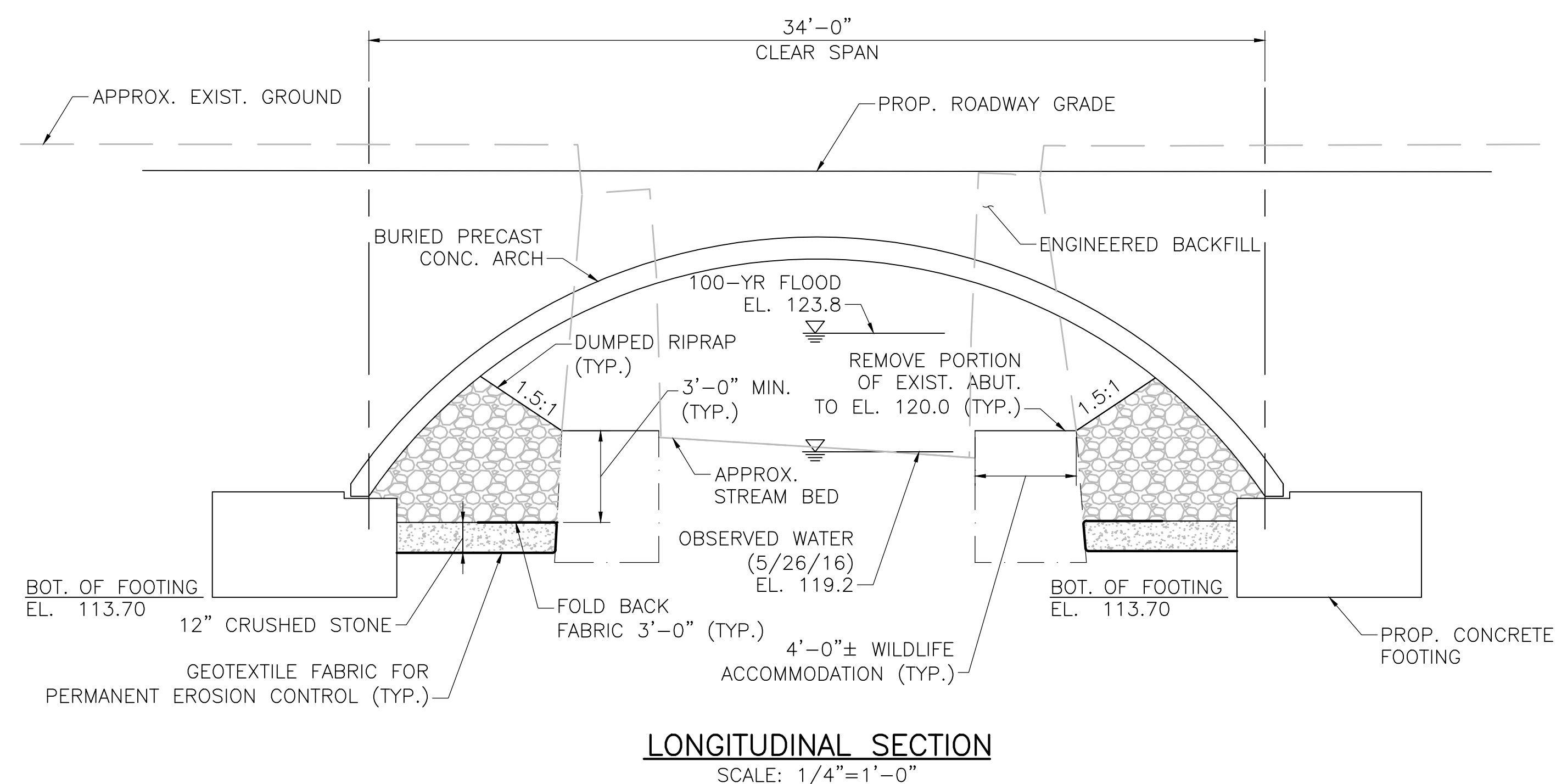
1. LOCATION OF BORINGS SHOWN ON THE PLANS THUS: BB-#
2. BORINGS ARE TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW THE NATURE OF THE MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
3. WATER LEVELS SHOWN ON THE BORING LOGS WERE OBSERVED AT THE TIME OF TAKING BORINGS AND DO NOT NECESSARILY SHOW THE TRUE GROUND WATER LEVEL.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 $\frac{3}{8}$ " I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
5. ALL BORINGS WERE MADE IN AUGUST 2019.
6. BORINGS WERE MADE BY NEW ENGLAND BORING CONTRACTOR, INC., P.O. BOX 165, DERRY, NH 03038.
7. THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

BORING NOTES:
SEE SHEET 2 FOR BORING NOTES.



BORING NOTES:
SEE SHEET 2 FOR BORING NOTES.





NOTES:

THE PRECAST CONCRETE STRIP FOOTING IS PER CONTRACTOR DESIGN. THEREFORE, THE FACTORED BEARING PRESSURE WILL BE DETERMINED BY THE CONTRACTOR. SLIDING AND OVERTURNING OF THE PRECAST STRIP FOOTING SHALL ALSO BE CHECKED IN THE CONTRACTOR'S DESIGN.

FACTORED BEARING RESISTANCE:

FOOTING WIDTH (FT)	FACTORED BEARING RESISTANCE (KSF)
4	5.2
6	5.7
8	6.1

FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESISTANCE AND A RESISTANCE FACTOR OF 0.45.