MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

PLAN AND PROFILE OF

CYRUS STAGE ROAD OVER POTTER BROOK

BRIDGE NO. R-10-008

IN THE TOWN OF

ROWE

FRANKLIN COUNTY

FEDERAL AID PROJECT NO. STP(BR-OFF)-003S(739)X

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

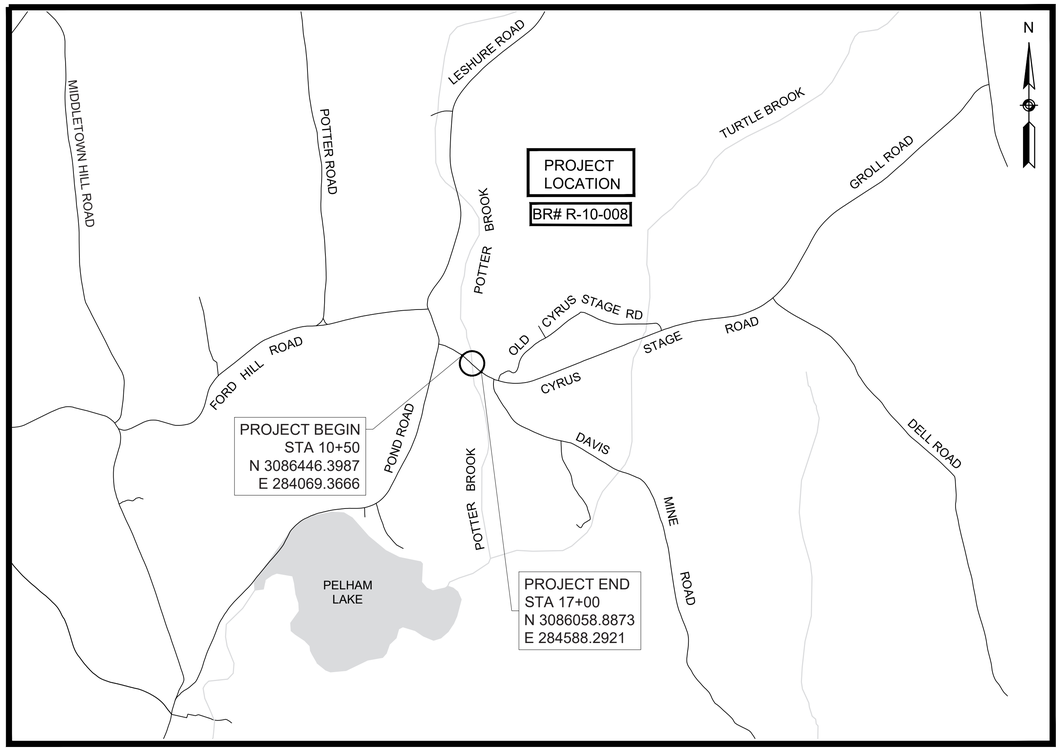
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	1	50
	PROJECT FILE NO. 608855		

TITLE SHEET & INDEX

608855_HD(TITLE).DWG Plotted on 30-May-2024 8:17 AM

THESE PLANS ARE SUPPLEMENTED BY THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK.

INDEX



0 1000 2000 3000 4000

SCALE: 1" = 1000'

LENGTH OF PROJECT = 650.00 FEET = 0.124 MILES

DESIGN DESIGNATION (CYRUS STAGE ROAD)

DESIGN SPEED	35 MPH
ADT (2017)	647
ADT (2037)	798
K	-
D	55%
T (PEAK HOUR)	-
T (AVERAGE DAY)	6.0%
DHV	-
DDHV	-
FUNCTIONAL CLASSIFICATION	RURAL LOCAL

COMMONWEALTH OF MASSACHUSETTS
THOMAS J. LOUGHLIN
CIVIL
No. 46491
PROFESSIONAL ENGINEER

Thomas J. Loughlin
Digitally signed by Thomas J. Loughlin
Date: 2024.05.30 16:10:18 -04'00'

DATE	DESCRIPTION	REV #

massDOT
Massachusetts Department of Transportation
Highway Division

APPROVED

Carrie Lavallee, P.E.
Digitally signed by Carrie Lavallee, P.E.
Date: 2024.06.05 13:12:45 -04'00'

06/05/2024

CHIEF ENGINEER **DATE**

GM2

GM2 ASSOCIATES, INC.
10 CABOT ROAD, STE. 101B
MEDFORD, MA 02155

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	2	50
PROJECT FILE NO.	608855		

SURVEY & GENERAL NOTES

SURVEY NOTES

1. THIS PLAN IS BASED UPON AN ON THE GROUND INSTRUMENT SURVEY PERFORMED BY GCG ASSOCIATES BETWEEN JUNE 19,2018 AND JUNE 29, 2018 (FIELD BOOK NO.30576).

2. NORTH IS BASED UPON THE NORTH AMERICAN DATUM OF 1983 (NAD-83) (2011) EPOCH 2010.00, MASSACHUSETTS STATE PLANE COORDINATE SYSTEM, MAINLAND ZONE. COORDINATES ARE BASED ON CONTROL AS PROVIDED BY MASSSOT SURVEY SECTION FOR STATION 2122 AND STATION 2123.

3. VERTICAL CONTROL IS BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 AS PROVIDED BY MASSDOT SURVEY SECTION FOR STATION 2122 AND STATION 2123.

4. NO EASEMENT RESEARCH WAS COMPLETED FOR THIS PROJECT. EASEMENTS SHOWN HEREON ARE FROM PLANS WHICH WERE FOUND WHILE COMPILING PROPERTY LINES.

5. ALL EXISTING COUNTY, CITY, AND THE TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.

6. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING ANY HIGHWAY BOUND OR PRIVATE PROPERTY PIN THAT MAY BE DAMAGED OR DESTROYED DURING CONSTRUCTION TO ITS PRECISE LOCATION.

GENERAL NOTES

1. EXISTING GROUND SURFACES SHOWN ON PLANS, PROFILES AND CROSS SECTIONS ARE BASED UPON DATA OBTAINED BY FIELD SURVEYS.

2. THE LOCATIONS OF EXISTING SUBSURFACE STRUCTURES, SUCH AS SEWERS, WATER MAINS, DRAINS AND OTHER UTILITIES ARE APPROXIMATE ONLY AND THE ENGINEER DOES NOT GUARANTEE THEIR NUMBER OR LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES BEFORE EXCAVATING.

3. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE UTILITY COMPANIES DOING WORK IN THE SAME AREA. THE CONTRACTOR SHALL ALLOW THE UTILITY COMPANIES AND THEIR REPRESENTATIVES TO ADJUST AND/OR INSTALL THEIR SYSTEMS WITHIN TOWN/STATE OWNED STREETS AND EASEMENTS.

4. NO EXISTING PUBLIC UTILITY STRUCTURES SHALL BE ABANDONED AND/OR DISMANTLED WITHOUT AUTHORIZATION FROM THE ENGINEER.

5. THE CONTRACTOR SHALL COORDINATE WORK WITH THE OWNERS OF UTILITY POLES AND SHALL BE RESPONSIBLE FOR TRIMMING TREES AS NECESSARY TO ACCOMMODATE NEW UTILITY POLE LOCATIONS, AS MAY BE REQUIRED.

6. THE CONTRACTOR SHALL MAKE ARRANGEMENTS FOR TEMPORARY SUPPORT WHILE EXCAVATING IN CLOSE PROXIMITY OF UTILITY POLES, IF REQUIRED BY THE UTILITY, AT NO ADDITIONAL COST.

7. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING SUITABLE EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).

8. ITEMS LABELED "REM" SHALL BE REMOVED AND DISCARDED BY CONTRACTOR.

9. DRIVEWAYS AND WALKS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS AN/OR AS REQUIRED BY THE ENGINEER.

10. THE CONTRACTOR SHALL CUT EXISTING BITUMINOUS CONCRETE ROADWAYS AND BITUMINOUS CONCRETE DRIVEWAYS AS SHOWN ON THE PLANS AND AT THE PROPOSED LIMITS OF WORK.

11. WHERE THE NEW CONSTRUCTION COINCIDES WITH PRESENT TRAVELED WAYS:

    11.1. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE TEMPORARY TRAFFIC CONTROL PLANS AND THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR WORK ZONES.

    11.2. THE CONTRACTOR SHALL PERFORM HIS WORK IN A MANNER ACCEPTABLE TO THE ENGINEER SO THAT INTERFERENCE WITH AND INCONVENIENCE TO BUSINESS CONCERNS AND ABUTTERS, ON ACCOUNT OF THE CONSTRUCTION WORK, IS KEPT TO A MINIMUM.

    11.3. THE CONTRACTOR SHALL NOT BE ALLOWED TO PARK EQUIPMENT OR STOCKPILE EQUIPMENT OR MATERIAL ON THE TRAVELED WAYS OVERNIGHT OR WHEN NOT IN USE.

    11.4. THE CONTRACTOR SHALL MAINTAIN SAFE AND RESPONSIBLE ACCESS TO AND FROM ABUTTING PROPERTY PRIVATE WAYS, DRIVEWAYS AND ALL ALLEYS AT ALL TIMES DURING THE CONSTRUCTION PERIOD.

12. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.

13. AREAS OUTSIDE THE LIMIT OF PROPOSED WORK DISTURBED BY THE CONTRACTORS OPERATIONS SHALLL CONTRACTOR SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

14. ALL PROPOSED PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.

15. THE CONTRACTOR SHALL RESTORE ANY EXISTING SURFACE PAVEMENTS AND TURF WHICH IS TO REMAIN THAT IS DISTURBED BY THE PROPOSED WORK AND SHALL PATCH ALL HOLES RESULTING FROM THE REMOVAL OF FOUNDATIONS PER THE SPECIFICATIONS UNDER ITEM 451. HMA FOR PATCHING.

16. PRIOR TO COMMENCING ANY WORK ON THE SITE, PRECEDING THE ARRIVAL OF EQUIPMENT, MATERIALS, OR VEHICLES TO THE SITE, AND PRIOR TO THE COMMENCEMENT OF ANY CLEARING ON THE SITE, THE CONTRACTOR AND ARBORIST SHALL ARRANGE A PRE CONSTRUCTION TREE INVENTORY CONFERENCE ON THE SITE WITH THE ENGINEER AND REPRESENTATIVE MUNICIPAL TREE WARDENS TO IDENTIFY TREES AND SHRUBS THAT ARE TO BE PROTECTED OR REMOVED AND REVIEW APPROVED PROTECTION MEASURES. NO CLEARING OR PRUNING SHALL BE DONE WITHOUT A CLEAR UNDERSTANDING OF EXISTING CONDITIONS TO BE PRESERVED.

17. THE CONTRACTOR SHALL PROTECT EXISTING SURVEY MONUMENTS AND SHALL RESET ANY MONUMENTATION DISTURBED BY HIS OPERATIONS.

18. ALL EXISTING PAVEMENT BELOW THE PROPOSED MILLING DEPTH DEEMED UNSATISFACTORY BY THE ENGINEER SHALL BE SAW CUT, REMOVED, AND REPAIRED PER THE SPECIFICATIONS UNDER ITEM 451. HMA FOR PATCHING.

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
WELL	WELL	WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
CO.BD.		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
WG	WG	WATER GATE
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		GUARD RAIL - DOUBLE FACE - STEEL POSTS
		GUARD RAIL - DOUBLE FACE - WOOD POSTS
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
1	1	CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
RRSG	RRSG	RAILROAD SIGNAL
OR		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
20'	20'	MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
	20'	MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWL	SOLID WHITE LINE
	SYL	SOLID YELLOW LINE
	BWL	BROKEN WHITE LINE
	BYL	BROKEN YELLOW LINE
	DWL	DOTTED WHITE LINE
	DYL	DOTTED YELLOW LINE
	DWLEx	DOTTED WHITE LINE EXTENSION
	DYLEx	DOTTED YELLOW LINE EXTENSION
	DBWL	DOUBLE WHITE LINE
	DBYL	DOUBLE YELLOW LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
ABAN	ABANDON
ADJ	ADJUST
APPROX.	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
ESMT	EASEMENT
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	3	50
	PROJECT FILE NO. 608855		

LEGEND & ABBREVIATIONS

ABBREVIATIONS (cont.)

GENERAL

PWW	PAVED WATER WAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
X-SECT	CROSS SECTION

TRAFFIC SIGNAL ABBREVIATIONS

CAB	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY UPRAISED HAND
FDW	FLASHING UPRAISED HAND
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FYL	FLASHING YELLOW LEFT ARROW
FYR	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALKING PERSON
Y	STEADY CIRCULAR YELLOW
YL	STEADY YELLOW LEFT ARROW

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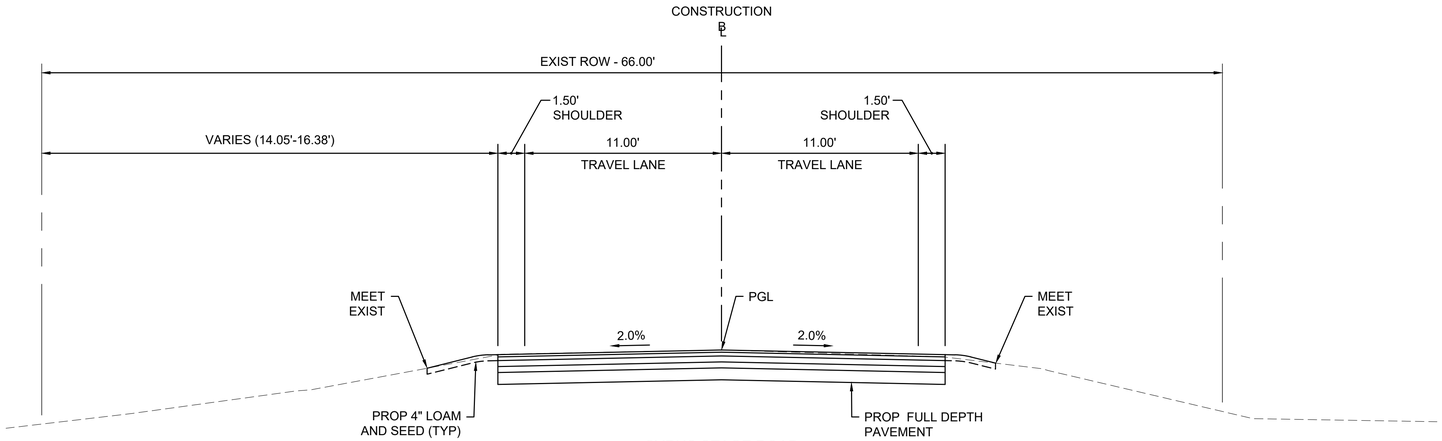
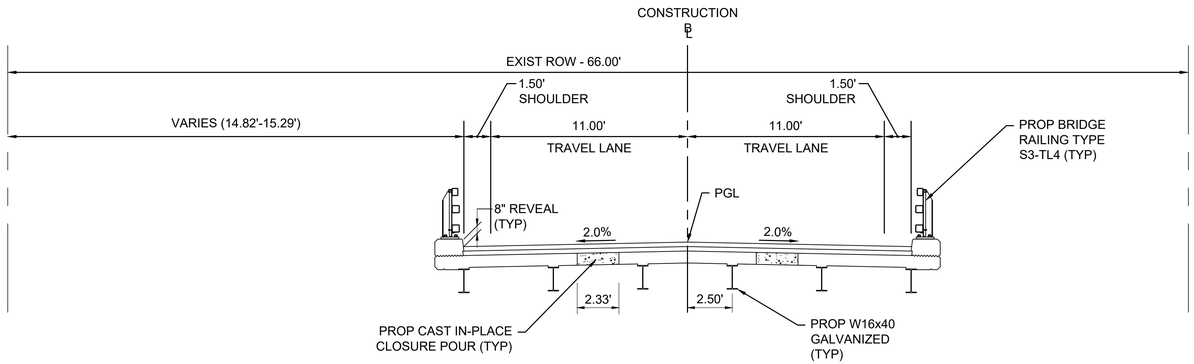


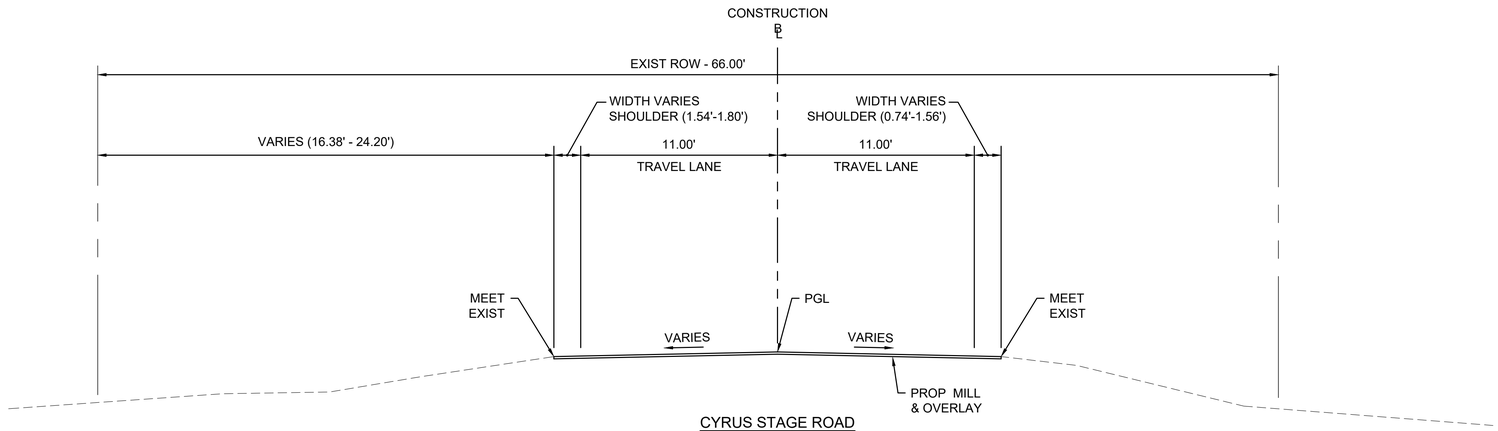
CYRUS STAGE ROAD
TYPICAL SECTION

STA. 12+50± TO STA. 13+23±
1"=4'



CYRUS STAGE ROAD
TYPICAL SECTION

STA. 14+00± TO STA. 14+35±
1"=4'



CYRUS STAGE ROAD
TYPICAL SECTION

STA. 10+50± TO STA. 12+50±
1"=4'

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	4	50
	PROJECT FILE NO. 608855		

TYPICAL SECTIONS

PAVEMENT NOTES:

PROPOSED FULL DEPTH PAVEMENT

SURFACE:	1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)
INTERMEDIATE:	2½ " SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5)
BASE:	4" SUPERPAVE BASE COURSE 37.5 (SBC-37.5)
SUBBASE:	4" DENSED GRADED CRUSHED STONE OVER 8" GRAVEL BORROW (M1.03.0 TYPE B)

PROPOSED MILLING AND OVERLAY

SURFACE:	1½ " SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER VARIABLE DEPTH PAVEMENT MILLING

BRIDGE DECK PAVEMENT

SURFACE:	1½" SUPERPAVE BRIDGE SURFACE COURSE 9.5 (SSC-B-9.5)
PROTECTIVE:	1½" SUPERPAVE BRIDGE PROTECTIVE COURSE 9.5 (SPC-B-9.5) OVER POLYMER MODIFIED TACK COAT OVER SPRAYED APPLIED MEMBRANE WATERPROOFING

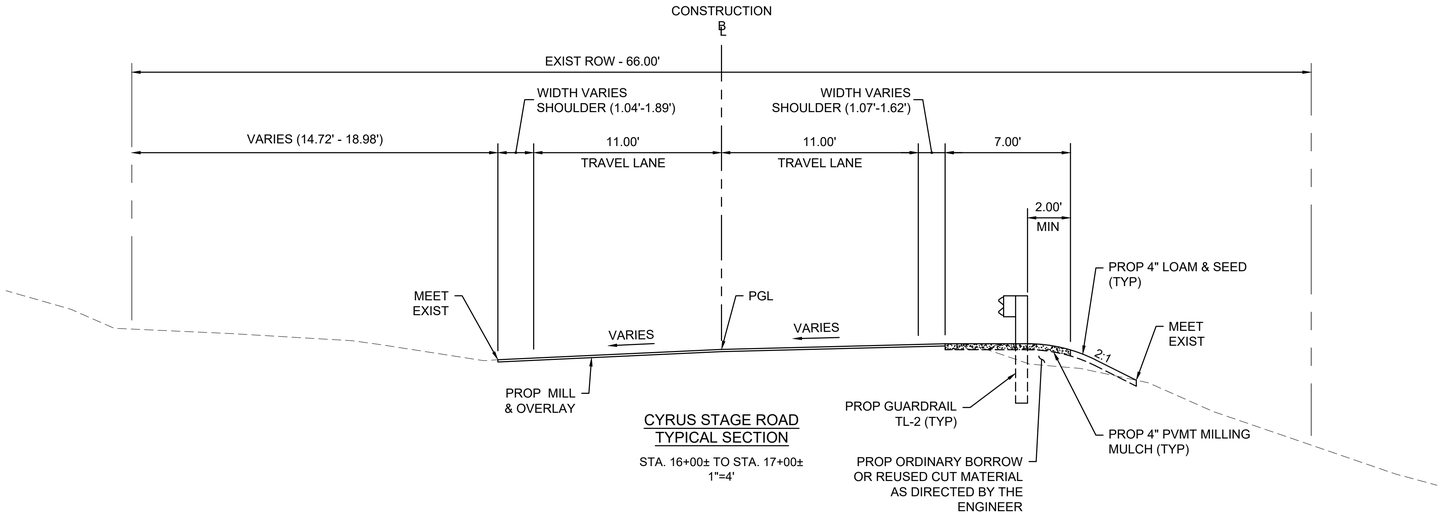
NOTES:

1. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED ACCORDING TO SECTION 450.43(G) OF THE 2023 STANDARD SPECIFICATIONS.
2. HMA JOINT ADHESIVE SHALL BE APPLIED TO ALL JOINTS IN THE SURFACE COURSE PRIOR TO PAVING.
3. REFER TO THE STRUCTURAL PLANS FOR ADDITIONAL INFORMATION ON THE BRIDGE TYPICAL SECTION.

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

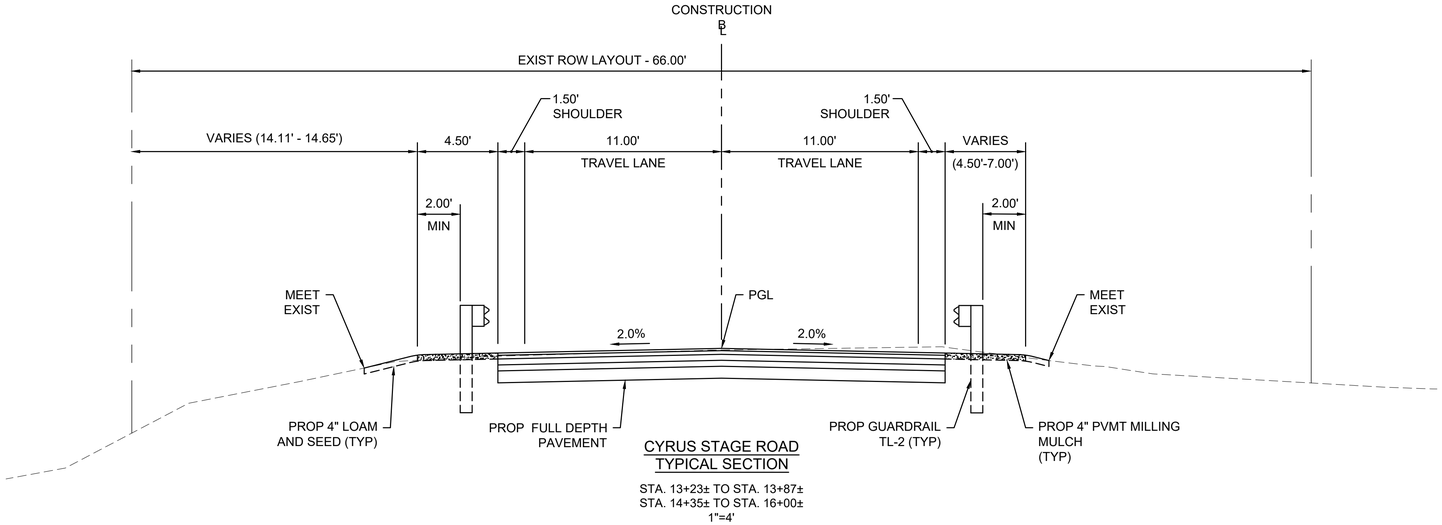
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	5	50
PROJECT FILE NO.	608855		

TYPICAL SECTIONS



CYRUS STAGE ROAD
TYPICAL SECTION

STA. 16+00± TO STA. 17+00±
1"=4'



CYRUS STAGE ROAD
TYPICAL SECTION

STA. 13+23± TO STA. 13+87±
STA. 14+35± TO STA. 16+00±
1"=4'

PAVEMENT NOTES:

PROPOSED FULL DEPTH PAVEMENT

SURFACE:	1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)
INTERMEDIATE:	2½ " SUPERPAVE INTERMEDIATE COURSE 12.5 (SIC-12.5)
BASE:	4" SUPERPAVE BASE COURSE 37.5 (SBC-37.5)
SUBBASE:	4" DENSED GRADED CRUSHED STONE OVER 8" GRAVEL BORROW (M1.03.0 TYPE B)

PROPOSED MILLING AND OVERLAY

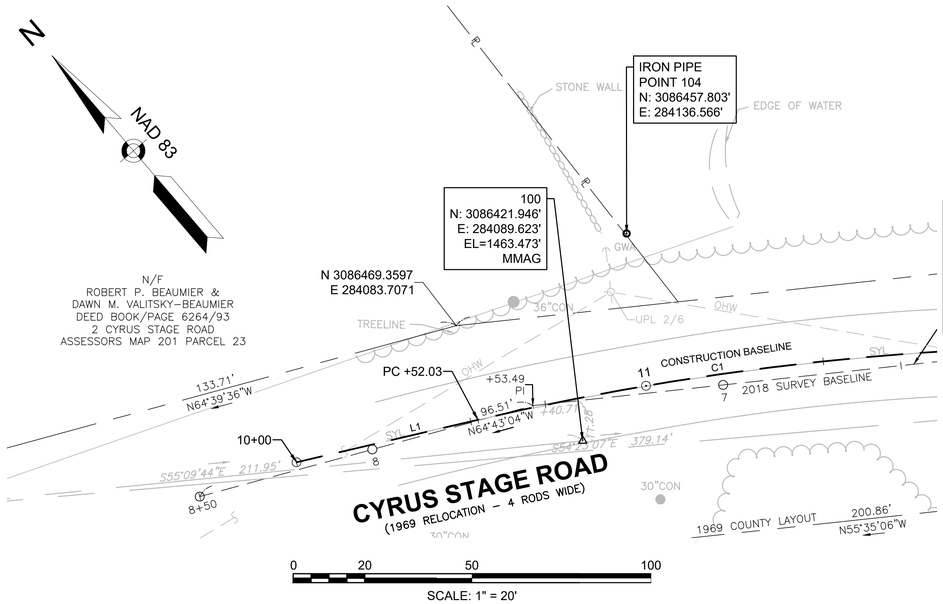
SURFACE:	1½ " SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER VARIABLE DEPTH PAVEMENT MILLING

BRIDGE DECK PAVEMENT

SURFACE:	1½" SUPERPAVE BRIDGE SURFACE COURSE 9.5 (SSC-B-9.5)
PROTECTIVE:	1½" SUPERPAVE BRIDGE PROTECTIVE COURSE 9.5 (SPC-B-9.5) OVER POLYMER MODIFIED TACK COAT OVER SPRAYED APPLIED MEMBRANE WATERPROOFING

NOTES:

1. ASPHALT EMULSION FOR TACK COAT SHALL BE APPLIED ACCORDING TO SECTION 450.43(G) OF THE 2023 STANDARD SPECIFICATIONS.
2. HMA JOINT ADHESIVE SHALL BE APPLIED TO ALL JOINTS IN THE SURFACE COURSE PRIOR TO PAVING.
3. REFER TO THE STRUCTURAL PLANS FOR ADDITIONAL INFORMATION ON THE BRIDGE TYPICAL SECTION.



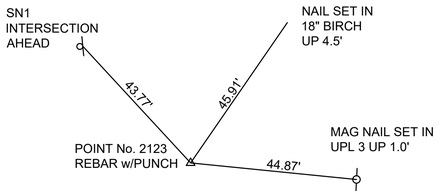
CYRUS STAGE ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	3086469.392	284024.967		S62°37'19"E 52.03'	10+52.03	3086445.466	284071.168
C1	10+52.03	3086445.466	284071.168	R=785.00' Δ=15°03'08" L=206.23' T=103.71'		12+58.26	3086327.800	284239.812
C2	12+58.26	3086327.800	284239.812	R=7000.00' Δ=1°04'08" L=130.59' T=65.30'		13+88.85	3086240.596	284337.018
L2	13+88.85	3086240.596	284337.018		S48°38'19"E 73.14'	14+61.98	3086192.267	284391.910
C3	14+61.98	3086192.267	284391.910	R=950.00' Δ=18°32'57" L=307.56' T=155.14'		17+69.54	3086029.604	284651.352

CONTROL POINT DATA - CYRUS STAGE ROAD				
LABEL	DESCRIPTION	NORTHING	EASTING	ELEVATION
2122	GPS CONTROL PT	3086543.047	283915.627	1481.156
2123	GPS CONTROL PT	3086322.240	284223.882	1448.947
31	MSTN	3086185.395	284355.351	1433.949
3	MMAG	3086190.432	284376.413	1444.850
32	MMAG	3086087.244	284444.299	1440.619
4	MMAG	3086062.338	284554.873	1452.610
100	MMAG	3086421.946	284089.623	1463.473
104	IRON PIPE	3086457.803	284136.566	-

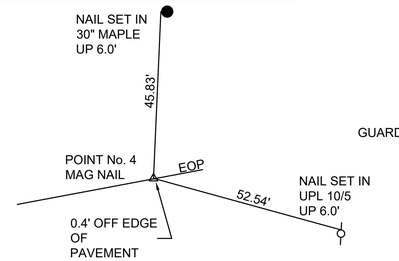
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	6	50
	PROJECT FILE NO. 608855		

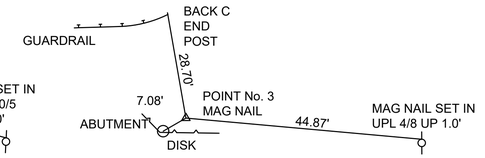
CONSTRUCTION BASELINE TIES



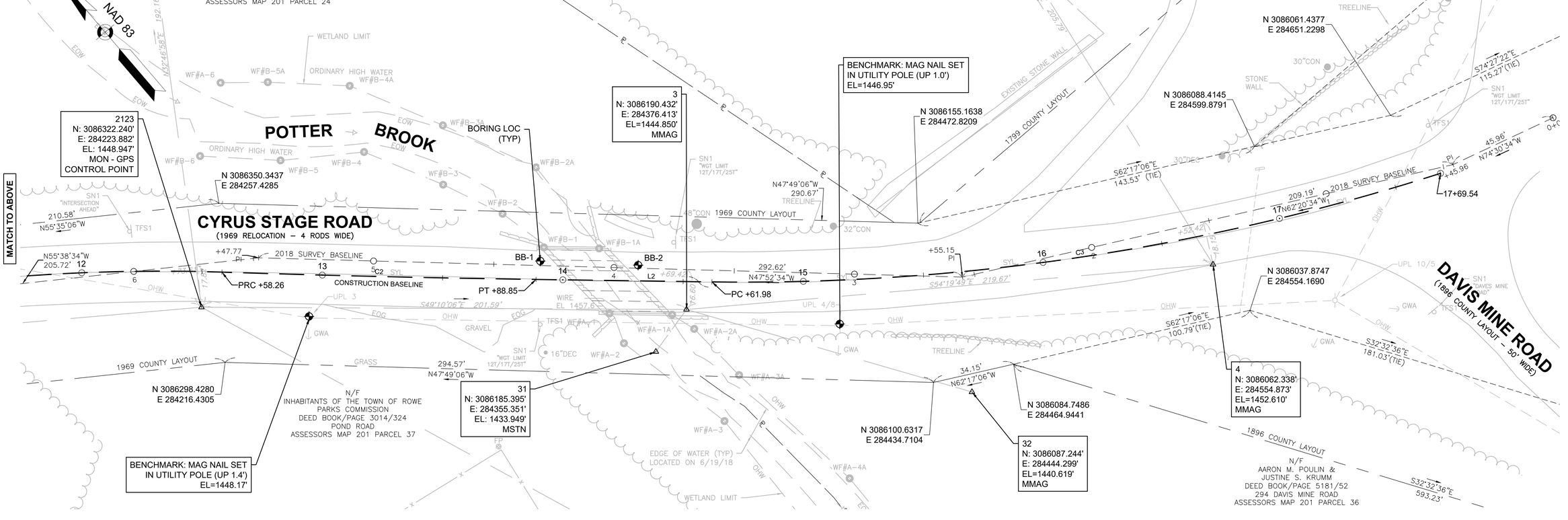
TRAVERSE TIE POINT No. 2123
NOT TO SCALE



TRAVERSE TIE POINT No. 4
NOT TO SCALE



TRAVERSE TIE POINT No. 3
NOT TO SCALE



608855_HD(TIEPLAN).DWG Plotted on 30-May-2024 2:47 PM

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	7	50
PROJECT FILE NO.	608855		

CONSTRUCTION PLAN

608855_HD(CONSTRPLAN).DWG Plotted on 30-May-2024 2:49 PM

HIGHWAY GUARD DETAILS

PROP TRAILING ANCHORAGE, TL-2 - STA 13+33 LT TO STA 13+46 LT
PROP GUARDRAIL, TL-2 (SINGLE FACED) - STA 13+46 LT TO STA 13+58 LT
PROP TRANSITION TO BRIDGE RAIL, TL-2 - STA 13+58 LT TO STA 13+85, LT

PROP TRAILING ANCHORAGE, TL-2 - STA 13+84 RT TO STA 13+94 RT
PROP GUARDRAIL, TL-2 (SINGLE FACED) - STA 13+78 TO STA 13+84 RT
PROP CURVED GUARDRAIL, TL-2 (SINGLE FACED) - STA 13+78 RT TO STA 13+82 RT
PROP TRANSITION TO BRIDGE RAIL, TL-2 - STA 13+82 RT TO STA 14+15 RT

PROP TRANSITION TO BRIDGE RAIL, TL-3 - STA 14+25 LT TO STA 14+59 LT
PROP GUARDRAIL, TL-3 (SINGLE FACED) - STA 14+59 LT TO STA 14+65 LT
PROP TANGENT END TREATMENT, TL-3 - STA 14+65 LT TO STA 14+93 LT

PROP TRANSITION TO BRIDGE RAIL, TL-2 - STA 14+75 RT TO STA 15+08 RT
PROP GUARDRAIL, TL-2 (SINGLE FACED) - STA 15+08 RT TO STA 16+88 RT
PROP CURVED GUARDRAIL, TL-2 (SINGLE FACED) - STA 16+88 RT TO STA 17+52 RT
PROP GUARDRAIL, TL-2 (SINGLE FACED) - STA 17+52 RT TO STA 17+60 RT
PROP TRAILING ANCHORAGE, TL-2 - STA 17+60 RT TO STA 17+65 RT

TRAFFIC SIGNAL CONDUIT

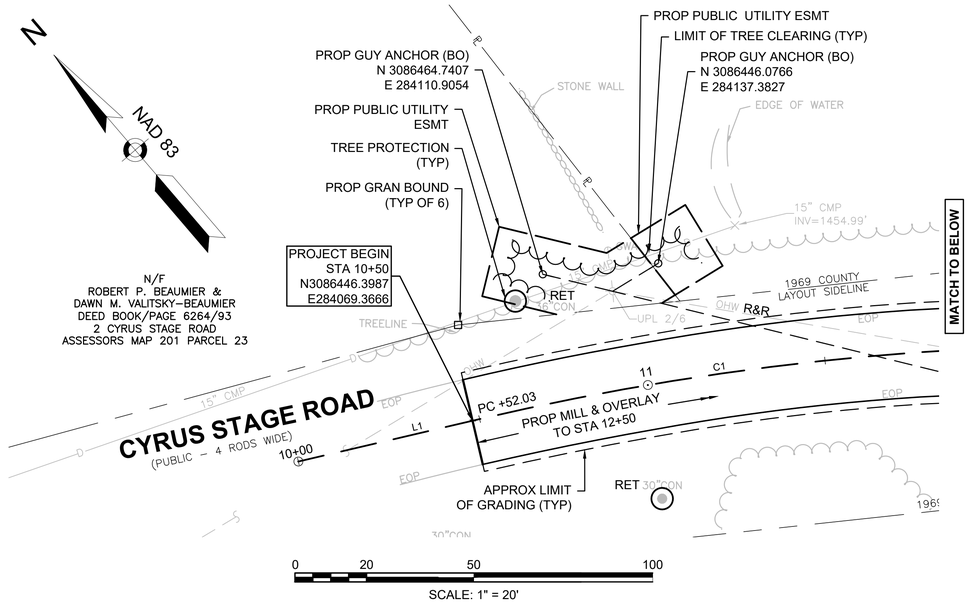
NONE

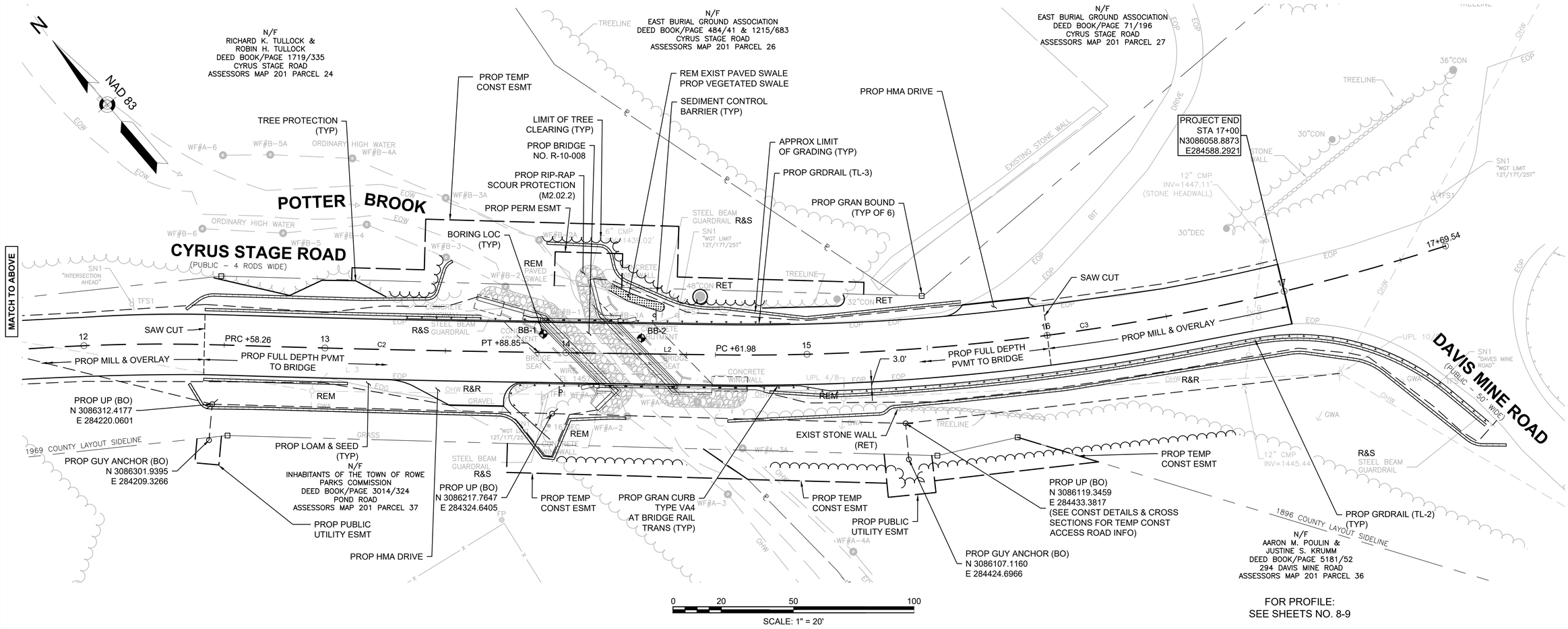
WATER SUPPLY ALTERATIONS

NONE

DRAINAGE DETAILS

NONE



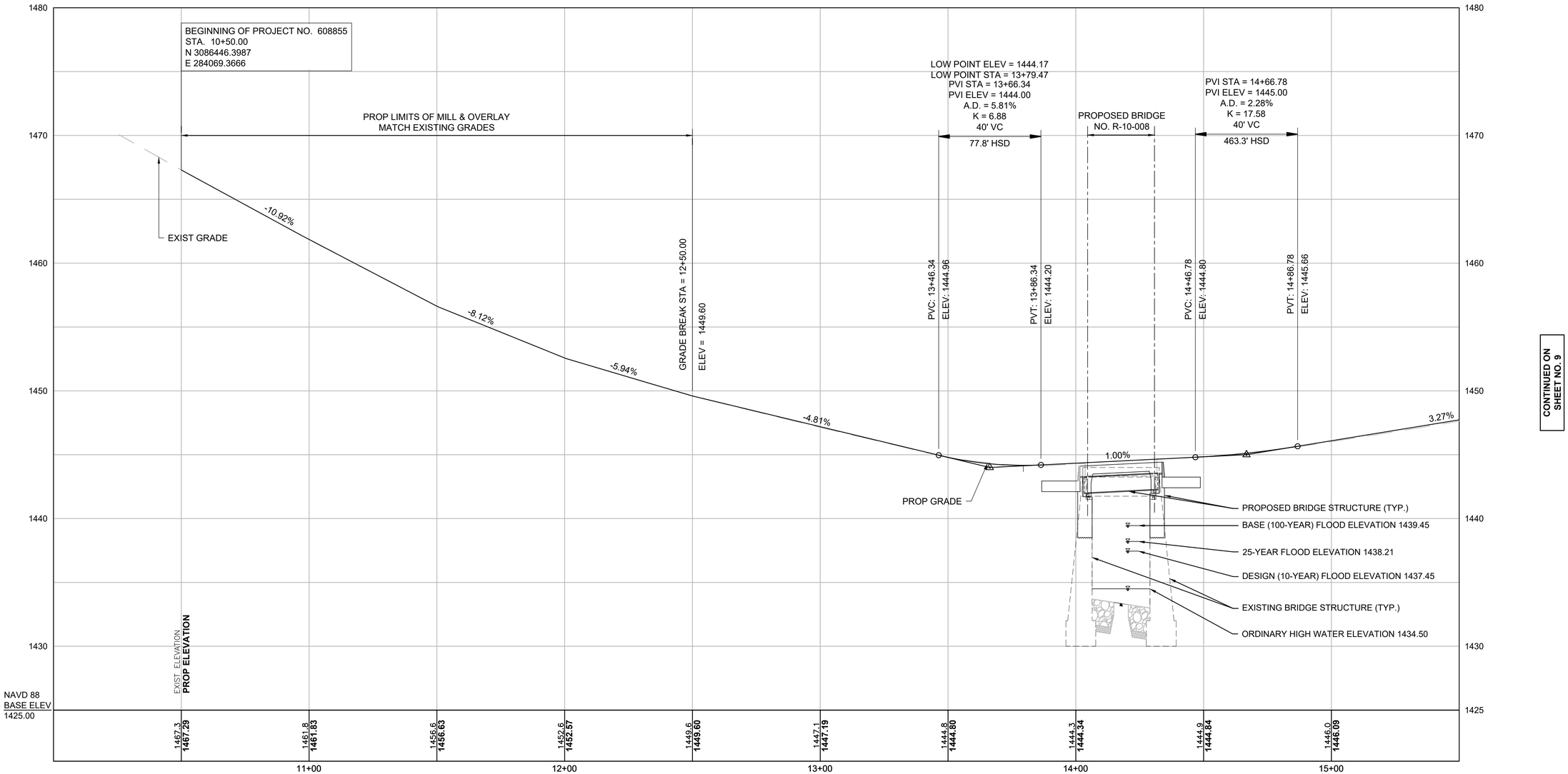


FOR PROFILE:
SEE SHEETS NO. 8-9

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	8	50
PROJECT FILE NO.	608855		

PROFILE



CONTINUED ON SHEET NO. 9

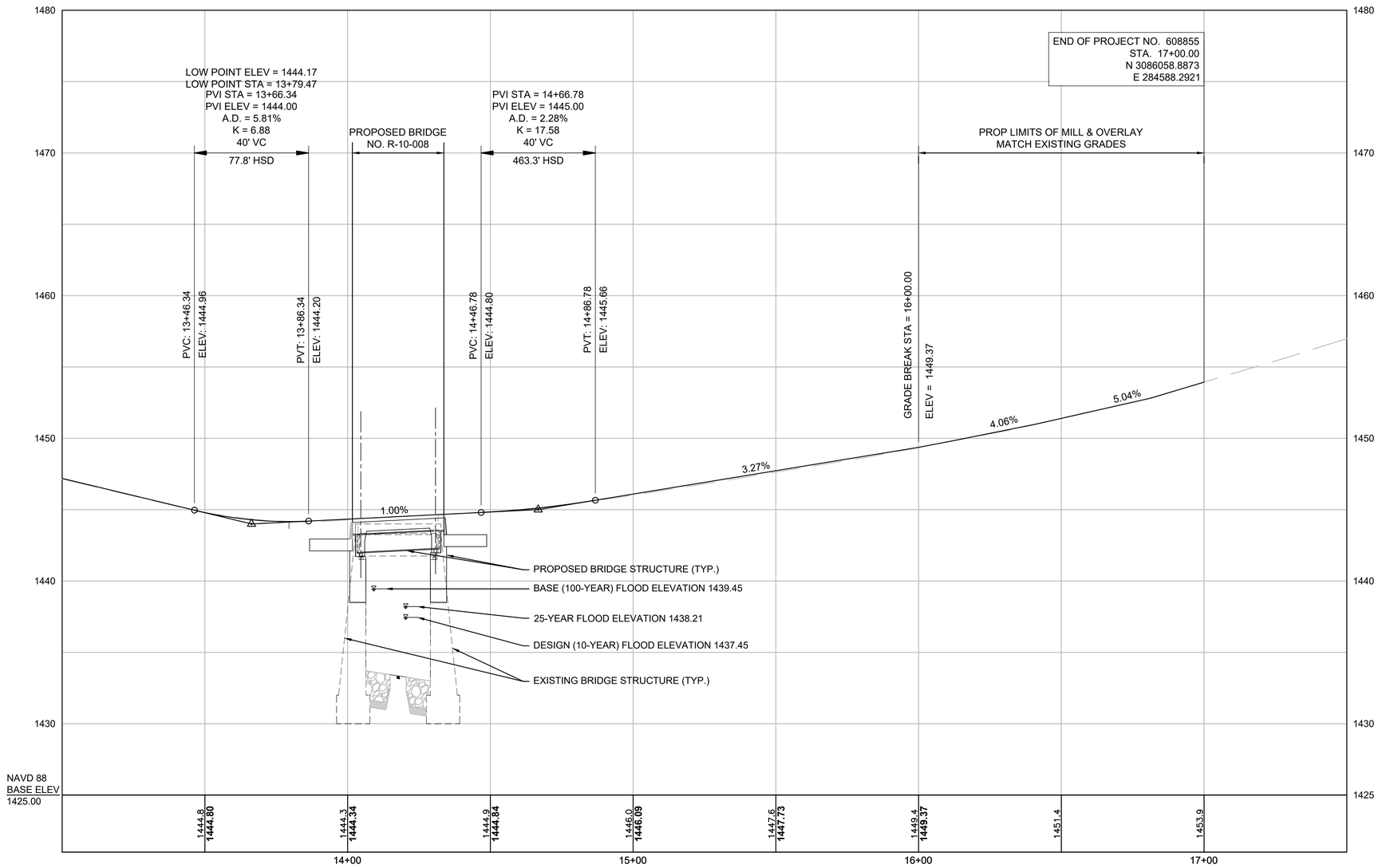
FOR CONSTRUCTION PLANS:
SEE SHEET NO. 7

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	9	50
	PROJECT FILE NO. 608855		

PROFILE



CONTINUED ON SHEET NO. 8

FOR CONSTRUCTION PLANS:
SEE SHEET NO. 7

HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

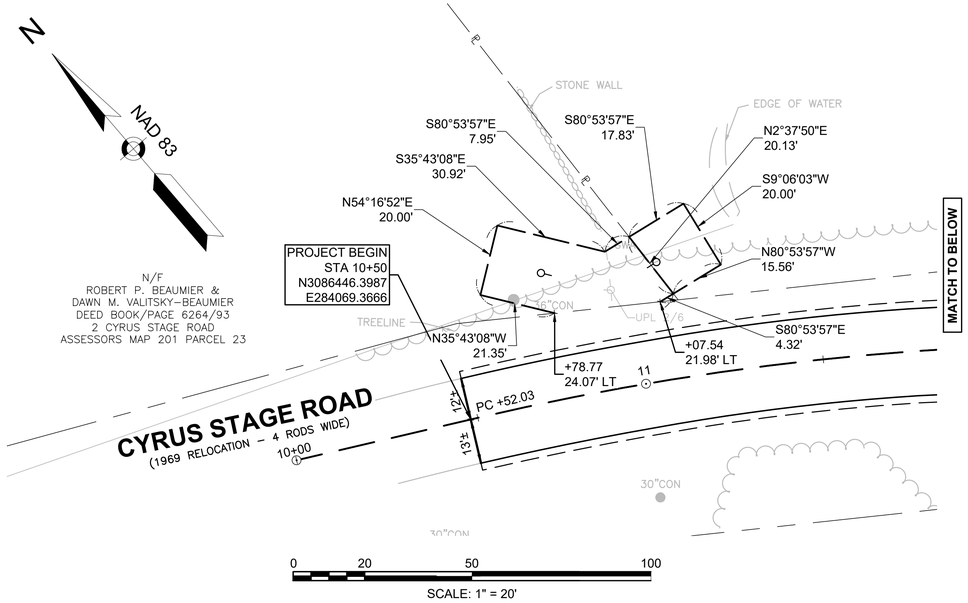
CYRUS STAGE ROAD CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	3086469.392	284024.967		S62°37'19"E 52.03'	10+52.03	3086445.466	284071.168
C1	10+52.03	3086445.466	284071.168	R=785.00' Δ=15°03'08" L=206.23' T=103.71'		12+58.26	3086327.800	284239.812
C2	12+58.26	3086327.800	284239.812	R=7000.00' Δ=1°04'08" L=130.59' T=65.30'		13+88.85	3086240.596	284337.018
L2	13+88.85	3086240.596	284337.018		S48°38'19"E 73.14'	14+61.98	3086192.267	284391.910
C3	14+61.98	3086192.267	284391.910	R=950.00' Δ=18°32'57" L=307.56' T=155.14'		17+69.54	3086029.604	284651.352

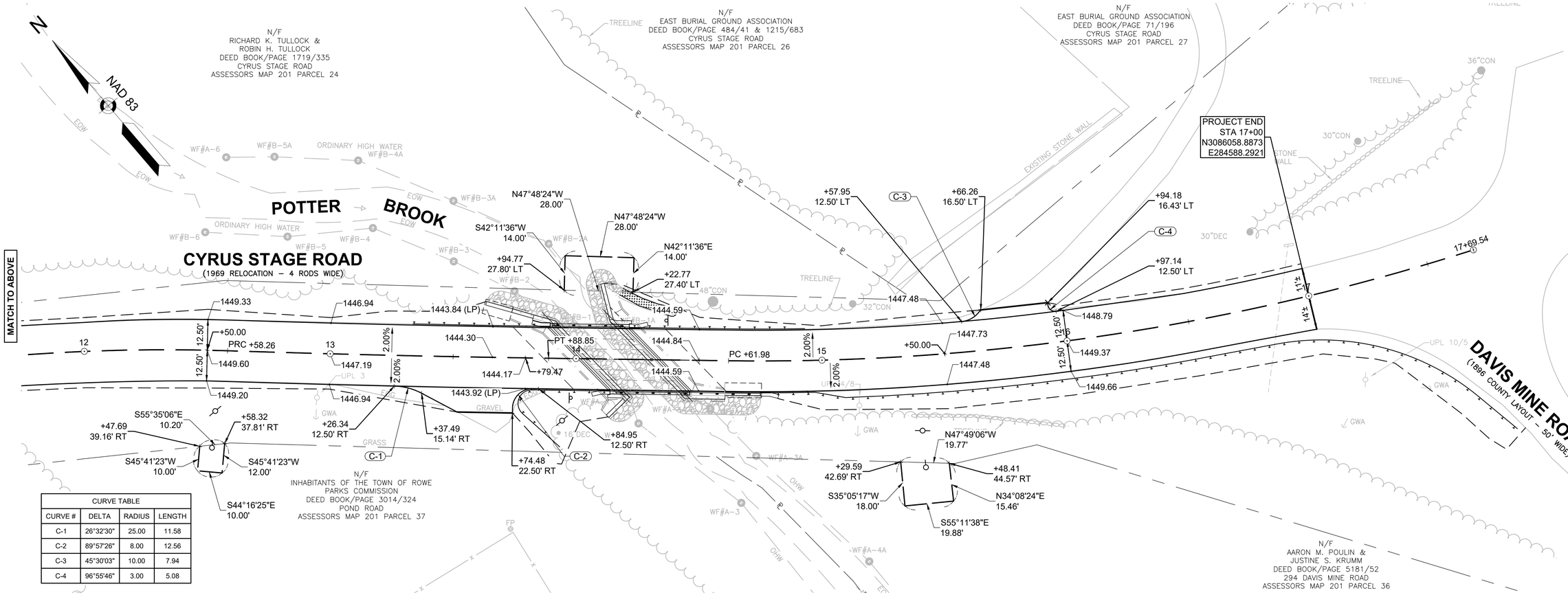
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	10	50
PROJECT FILE NO. 608855			

ALIGNMENT & GRADING PLAN

608855_HD(ALIGNPLAN).DWG Plotted on 30-May-2024 2:52 PM



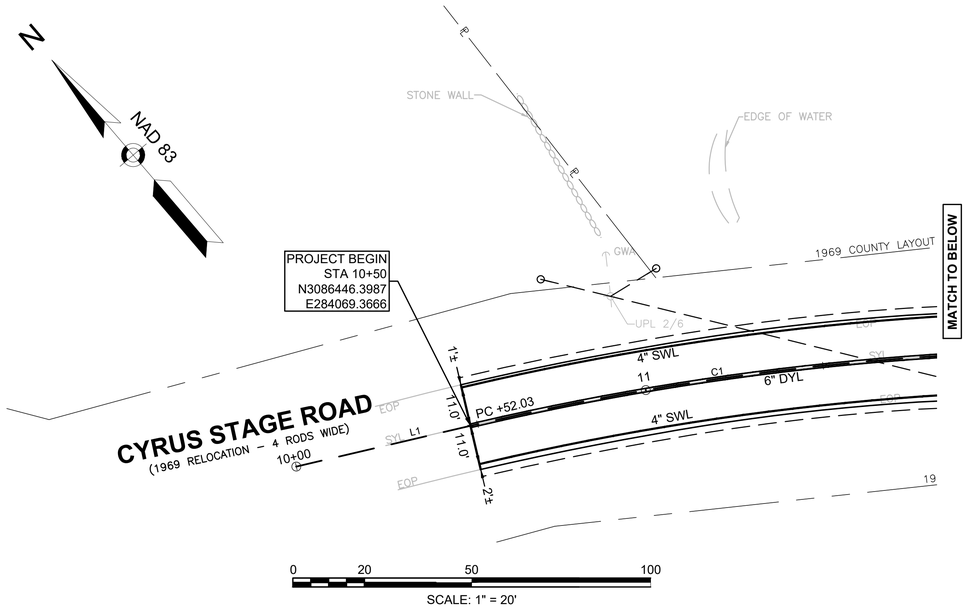


CURVE TABLE			
CURVE #	DELTA	RADIUS	LENGTH
C-1	26°32'30"	25.00	11.58
C-2	89°57'26"	8.00	12.56
C-3	45°30'03"	10.00	7.94
C-4	96°55'46"	3.00	5.08

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	11	50
	PROJECT FILE NO. 608855		

TRAFFIC SIGN & PAVEMENT MARKINGS

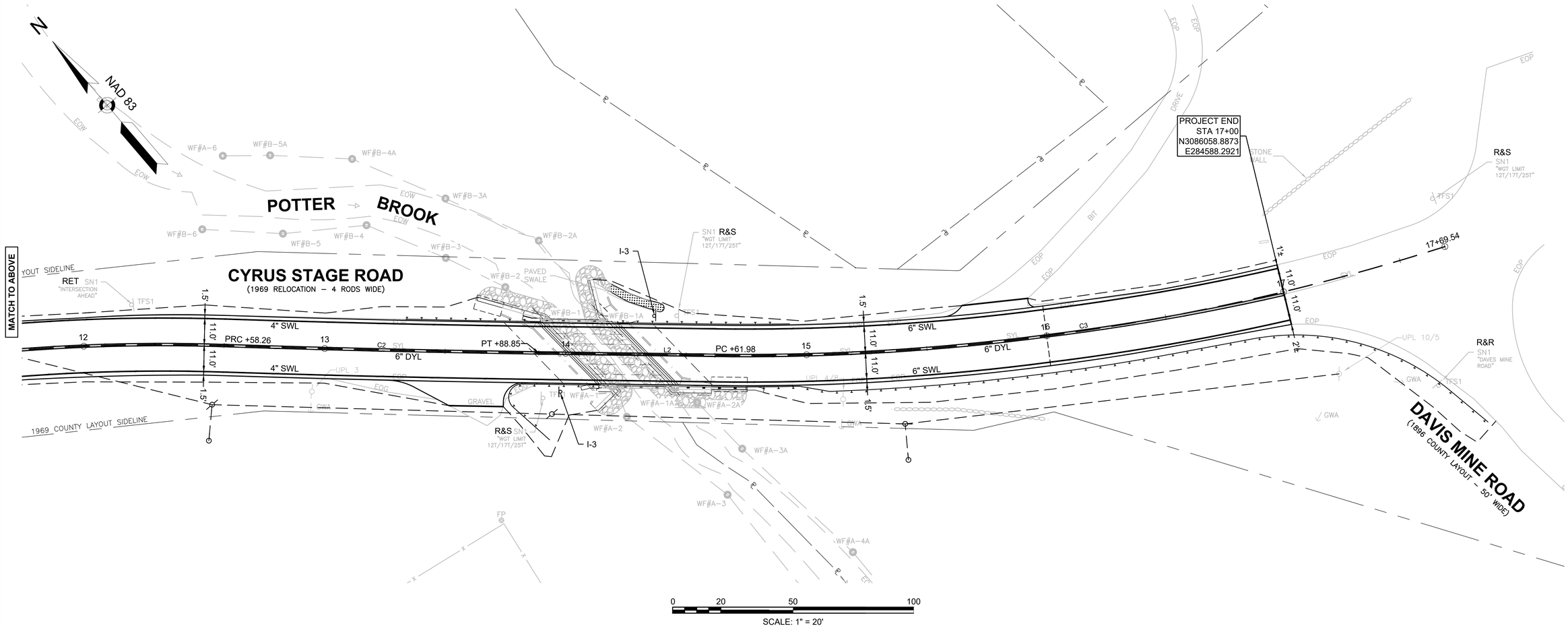


TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
I-3	24"	18"	POTTER BROOK	SEE 2009 M.U.T.C.D.			2	GREEN	WHITE	WHITE	1 (P-5)	3.00	6.00

NOTES:

1. HIGH INTENSITY ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. THE 2009 "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", THE 1990 MDPW "STANDARD DRAWINGS FOR SIGNS AND SUPPORTS", AND ALL AMENDMENTS WILL GOVERN.
2. ALL STOP AND YIELD SIGNS PROPOSED IN THIS CONTRACT ARE SUBJECT TO FIELD INVESTIGATION BY THE DISTRICT OFFICE OF THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION TO JUSTIFY WARRANTS BEFORE INSTALLATION. NUMERICAL LIMITS AND JUSTIFICATION FOR SPEED & ADVISORY EXIT SPEED SIGNS SHALL BE OBTAINED FROM THE SPEED ZONING UNIT OF THE TRAFFIC ENGINEERING SECTION, MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS, BEFORE FABRICATION AND/OR ERECTION.
3. ALL PROPOSED PERMANENT PAVEMENT MARKINGS ON CYRUS STAGE ROAD SHALL BE THERMOPLASTIC.

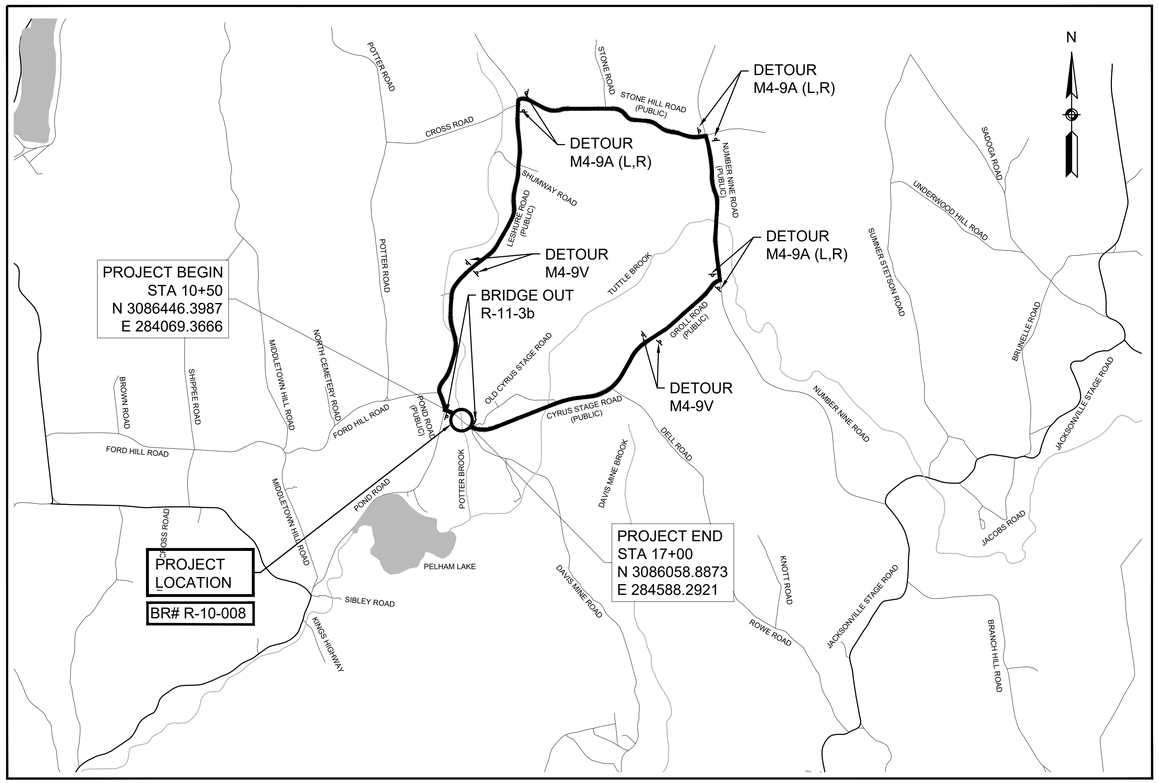


ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	12	50
	PROJECT FILE NO. 608855		

TEMPORARY TRAFFIC CONTROL PLAN

DETOUR PLAN



DETOUR LENGTH = 5.4 MILES

NOT TO SCALE

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK-GROUND	LEGEND	BORDER			
R-11-3b	24"	36"	ROAD CLOSED 0.1 MILES AHEAD LOCAL TRAFFIC ONLY	SEE 2009 M.U.T.C.D.			2	WHITE	BLACK	BLACK		12.50	25.00
R-11-2	48"	30"	ROAD CLOSED	SEE 2009 M.U.T.C.D.			2	WHITE	BLACK	BLACK		10.00	20.00
M4-9V	24"	30"	DETOUR ↑	SEE 2009 M.U.T.C.D.			4	ORANGE	BLACK	BLACK		5.00	20.00
M4-9A L	24"	30"	DETOUR ↰	SEE 2009 M.U.T.C.D.			3	ORANGE	BLACK	BLACK		5.00	15.00
M4-9A L	24"	30"	DETOUR ↱	SEE 2009 M.U.T.C.D.			3	ORANGE	BLACK	BLACK		5.00	15.00
												ESTIMATED TOTAL AREA OF SIGNS = 95.00 SQ. FT.	

NOTES:

1. ALL TEMPORARY TRAFFIC CONTROL WORK SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) AND ALL REVISIONS, UNLESS SUPERCEDED BY THESE PLANS.
2. ALL SIGN LEGENDS, BORDERS, AND MOUNTING SHALL BE IN ACCORDANCE WITH THE MUTCD.
3. TEMPORARY CONSTRUCTION SIGNING AND ALL OTHER TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO THE START OF ANY WORK.
4. TEMPORARY CONSTRUCTION SIGNING, BARRICADES, AND ALL OTHER NECESSARY WORK ZONE TRAFFIC CONTROL DEVICES SHALL BE REMOVED FROM THE HIGHWAY OR COVERED WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.
5. SIGNS AND SIGN SUPPORTS LOCATED ON OR NEAR THE TRAVELED WAY, CHANNELIZING DEVICES, BARRIERS, AND CRASH ATTENUATORS MUST PASS THE CRITERIA SET FORTH IN NCHRP REPORT 350, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE EVALUATION OF HIGHWAY FEATURES" AND/OR "MANUAL FOR ASSESSING SAFETY HARDWARE" (MASH).
6. CONTRACTORS SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OF ACCESS, SUCH AS CONDUIT INSTALLATION, EXISTING PAVEMENT EXCAVATION, TEMPORARY DRIVEWAY PAVEMENT PLACEMENT, AND SIMILAR OPERATIONS.
7. THE FIRST TEN PLASTIC DRUMS OF A TAPER SHALL BE MOUNTED WITH TYPE A SEQUENTIAL FLASHING LIGHTS.
8. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE ENGINEER.
9. DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
10. MAXIMUM SPACING OF TRAFFIC DEVICES IN A TAPER (DRUMS OR CONES) IS EQUAL IN FEET TO THE SPEED LIMIT IN MPH.
11. MINIMUM LANE WIDTH IS TO BE 11 FEET (3.3m) UNLESS OTHERWISE SHOWN. MINIMUM LANE WIDTH TO BE MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
12. ALL SIGNS SHALL BE MOUNTED ON THEIR OWN STANDARD SIGN SUPPORTS.

LEGEND:

- REFLECTORIZED PLASTIC DRUM OR 36" CONE
- P/F POLICE/FLAGGER DETAIL
- TYPE III BARRICADE
- CHANGEABLE MESSAGE SIGN
- ARROW BOARD
- WORK ZONE
- DIRECTION OF TRAFFIC
- IMPACT ATTENUATOR
- MEDIAN BARRIER
- MEDIAN BARRIER WITH WARNING LIGHTS
- WORK VEHICLE
- TRUCK MOUNTED ATTENUATOR
- TRAFFIC OR PEDESTRIAN SIGNAL
- SIGN

THE IDEAL CAPACITY OF A MAJOR HIGHWAY IS GENERALLY CONSIDERED TO BE 1900 PASSENGER CARS PER HOUR PER LANE (PCPHPL). IN WORK ZONES ON A MULTI-LANE DIVIDED HIGHWAY, THE FOLLOWING VOLUME GUIDELINES HAVE BEEN SUGGESTED:

MEASURED AVERAGE WORK ZONE CAPACITIES

NUMBER OF LANES		NUMBER OF STUDIES	AVERAGE CAPACITY	
NORMAL (EXISTING)	OPEN (TO TRAFFIC)		VPH	VPHPL
3	1	7	1,170	1,170
2	1	8	1,340	1,340
5	2	8	2,740	1,370
4	2	4	2,960	1,480
3	2	9	2,980	1,490
4	3	4	4,560	1,520

Source: Dudek, C., Notes on Work Zone Capacity and Level of Service. Texas Transportation Institute, Texas A&M University, College Station, Texas (1984)

BY OBTAINING HOURLY TRAFFIC COUNTS FOR A PARTICULAR ROADWAY (WITH A MINIMUM OF A 48-HOUR AUTOMATIC TRAFFIC RECORDER (ATR) COUNT), THIS WILL HELP TO DETERMINE AT WHAT TIMES OF THE DAY OR NIGHT A CERTAIN NUMBER OF LANES MAY BE CLOSED.

SUGGESTED WORK ZONE WARNING SIGN SPACING

ROAD TYPE	DISTANCE BETWEEN SIGNS **		
	A	B	C
LOCAL OR LOW VOLUME ROADWAYS*	350 (100)	350 (100)	350 (100)
MOST OTHER ROADWAYS*	500 (150)	500 (150)	500 (150)
FREEWAYS AND EXPRESSWAYS*	1,000 (300)	1,500 (450)	2,640 (800)

* ROAD TYPE TO BE DETERMINED BY MASSDOT OFFICE OF TRANSPORTATION PLANNING.

** DISTANCES ARE SHOWN IN FEET (METERS). THE COLUMN HEADINGS A, B, AND C ARE THE DIMENSIONS SHOWN IN THE DETAIL/ TYPICAL SETUP FIGURES. THE A DIMENSION IS THE DISTANCE FROM THE TRANSITION OR POINT OF RESTRICTION TO THE FIRST SIGN. THE B DIMENSION IS THE DISTANCE BETWEEN THE FIRST AND SECOND SIGNS. THE C DIMENSION IS THE DISTANCE BETWEEN THE SECOND AND THIRD SIGNS. (THE "THIRD" SIGN IS THE FIRST ONE TYPICALLY ENCOUNTERED BY A DRIVER APPROACHING A TEMPORARY TRAFFIC CONTROL (TTC) ZONE.)

THE "THIRD" SIGN ABOVE IS TYPICALLY REFERRED TO AS AN "ADVANCE WARNING" SIGN ON THE TTCP SETUPS. THESE ADVANCE WARNING SIGNS ARE LOCATED PRIOR TO THE PROJECT LIMITS ON ALL APPROACHES (i.e. THE W20-1 SERIES (ROAD WORK XX FT) SIGNS), AND USUALLY REMAIN FOR THE DURATION OF THE PROJECT. ADDITIONAL SIGNS (i.e. "RIGHT LANE CLOSED 1 MILE" AND "LEFT LANE CLOSED 1 MILE") HAVE BEEN SHOWN IN SOME FIGURES AS EXAMPLES OF REINFORCEMENT SIGN PLACEMENT BUT ARE USED IN RARE OCCASIONS.

THE FIRST AND SECOND WARNING SIGNS ABOVE ARE REFERRED TO AS THE OPERATIONAL (DAY-TO-DAY) WORK ZONE SIGNS AND MAY BE MOVED DEPENDING ON WHERE THE SPECIFIC ROADWAY WORK FOR THAT DAY IS LOCATED.

MA-R2-10a SIGNS SHALL BE PLACED BETWEEN THE SECOND AND THIRD SIGNS AS DESCRIBED ABOVE.

MA-R2-10a, MA-R2-10e, AND W20-1 SERIES SIGNS ARE TO BE INCLUDED ON ALL DETAILS/TYPICAL SETUPS.

Based on: Table 6C-1 MUTCD LATEST EDITION

STOPPING SIGHT DISTANCE AS A FUNCTION OF SPEED

SPEED* (km/h)	DISTANCE (m)
30	35
40	50
50	65
60	85
70	105
80	130
90	160
100	185
110	220
120	250

SPEED* (mph)	DISTANCE (ft)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

*POSTED SPEED, OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICIPATED OPERATING SPEED

THESE VALUES MAY BE USED TO DETERMINE THE LENGTH OF LONGITUDINAL BUFFER SPACES.

THE DISTANCES IN THE ABOVE CHART REPRESENT THE MINIMAL VALUES FOR BUFFER SPACING.

Source: Table 6C-2 MUTCD LATEST EDITION

CONVENTIONAL ROADWAY- A STREET OR HIGHWAY OTHER THAN A LOW-VOLUME ROAD, EXPRESSWAY, OR FREEWAY.

EXPRESSWAY- A DIVIDED HIGHWAY WITH PARTIAL CONTROL OF ACCESS.

FREEWAY- A DIVIDED HIGHWAY WITH FULL CONTROL OF ACCESS.

LOW-VOLUME ROAD- A FACILITY LYING OUTSIDE OF BUILT-UP AREAS OF CITIES, TOWNS, AND COMMUNITIES, AND IT SHALL HAVE A TRAFFIC VOLUME OF LESS THAN 400 AADT. IT SHALL NOT BE A FREEWAY, EXPRESSWAY, INTERCHANGE RAMP, FREEWAY SERVICE ROAD OR A ROAD ON A DESIGNATED STATE HIGHWAY SYSTEM.

Source: MUTCD LATEST EDITION

TAPER LENGTH CRITERIA FOR TEMPORARY TRAFFIC CONTROL ZONES

TYPE OF TAPER	TAPER LENGTH (L)*
MERGING TAPER	AT LEAST L
SHIFTING TAPER	AT LEAST 0.5L
SHOULDER TAPER	AT LEAST 0.33L
ONE-LANE, TWO-WAY TRAFFIC TAPER	50 FT MIN.(15 m) 100 FT(30 m) MAX.
DOWNSTREAM TAPER	50 FT MIN.(15 m) 100 FT MAX.(30 m) PER LANE

Source: Table 6C-3 MUTCD LATEST EDITION

FORMULAS FOR DETERMINING TAPER LENGTHS

SPEED LIMIT (S)	TAPER LENGTH (L) FEET
40 MPH OR LESS	$L = \frac{WS^2}{60}$
45 MPH OR MORE	$L = WS$

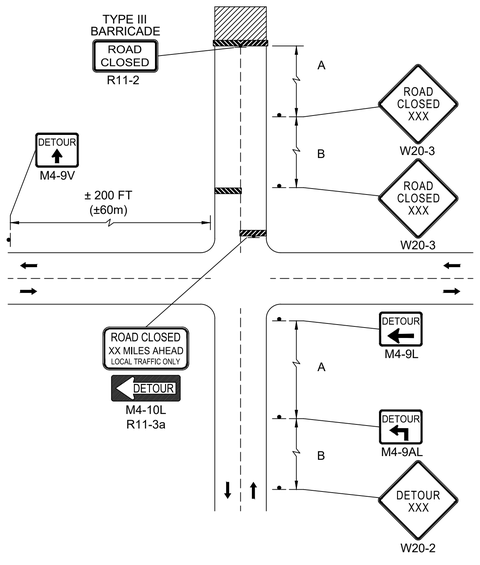
SPEED LIMIT (S)	TAPER LENGTH (L) Meters
60 KM/H OR LESS	$L = \frac{WS^2}{155}$
70 KM/H OR MORE	$L = \frac{WS}{1.6}$

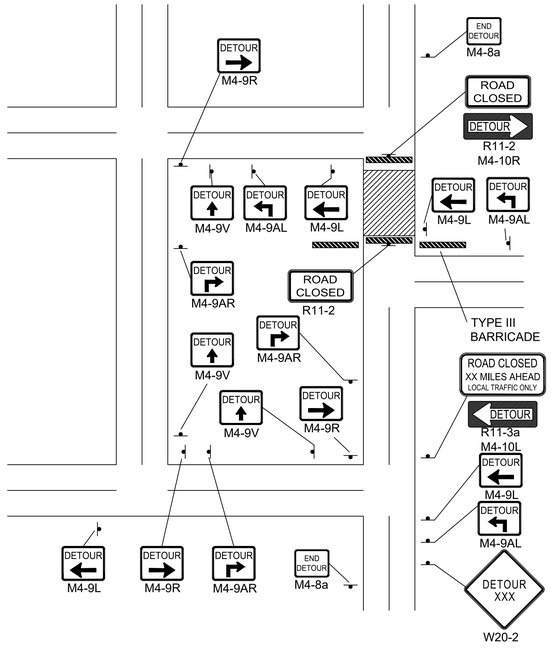
WHERE: L = TAPER LENGTH IN FEET (METERS)

W = WIDTH OF OFFSET IN FEET (METERS)

S = POSTED SPEED LIMIT, OR OFF-PEAK 85TH-PERCENTILE SPEED PRIOR TO WORK STARTING, OR THE ANTICAPATED OPERATING SPEED IN MPH (KM/H)

Source: Table 6C-4 MUTCD LATEST EDITION





TRAFFIC MANAGEMENT NOTES:

GENERAL:

1. ALL CONSTRUCTION SIGNING, DRUMS, BARRICADES AND OTHER DEVICES SHALL BE FURNISHED AND INSTALLED IN CONFORMANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES - 2009 EDITION (M.U.T.C.D.); MASSDOT'S STANDARD SPECIFICATIONS; MASSDOT'S STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TRAFFIC MANAGEMENT PLANS, OCTOBER 2014 EDITION, AND THE LATEST REVISIONS; AND THE FOLLOWING:
2. UNLESS WRITTEN PERMISSION FROM MASSDOT IS OBTAINED, ALL TRAVEL WAYS WITHIN MASSDOT'S RIGHT OF WAY CAN ONLY BE OCCUPIED DURING THE HOURS STATED IN THE SPECIAL PROVISIONS, SUBSECTION 7.09 PUBLIC SAFETY AND CONVENIENCE.
3. WARNING SIGNS SHALL HAVE AN ORANGE BACKGROUND, AND REGULATORY SIGNS SHALL BE BLACK TEXT ON A WHITE BACKGROUND.

CONSTRUCTION SIGNING:

1. FINAL LOCATION OF SIGNS, DRUMS, AND OTHER TRAFFIC CONTROL DEVICES SHALL BE DETERMINED IN THE FIELD BY MASSDOT'S REPRESENTATIVE.
2. ADVISORY SPEED PLATES (W13-1(XX)) SHALL BE USED IF APPROPRIATE AND AS DIRECTED BY MASSDOT. THE ADVISORY SPEED LIMIT, IF REQUIRED, SHALL BE DETERMINED BY THE MASSDOT REPRESENTATIVE.
3. NON-ESSENTIAL TEMPORARY CONSTRUCTION TRAFFIC CONTROL DEVICES SHALL BE COVERED OR REMOVED FROM THE HIGHWAY WHEN THEY ARE NOT REQUIRED FOR CONTROL OF TRAFFIC.

MISCELLANEOUS:

1. THE WORK SITE SHALL BE ADEQUATELY PROTECTED (DURING BOTH WORKING AND NON-WORKING HOURS) TO ENSURE THE SAFETY OF ALL MODES OF TRAFFIC.
2. AT ALL TIMES, MAINTAIN INGRESS AND EGRESS TO ALL STREETS AND DRIVES, EXCEPT AS SHOWN.
3. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL REMOVE THE TEMPORARY MARKINGS AND INSTALL THE PAVEMENT MARKING AS SHOWN.

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	13	50
	PROJECT FILE NO. 608855		

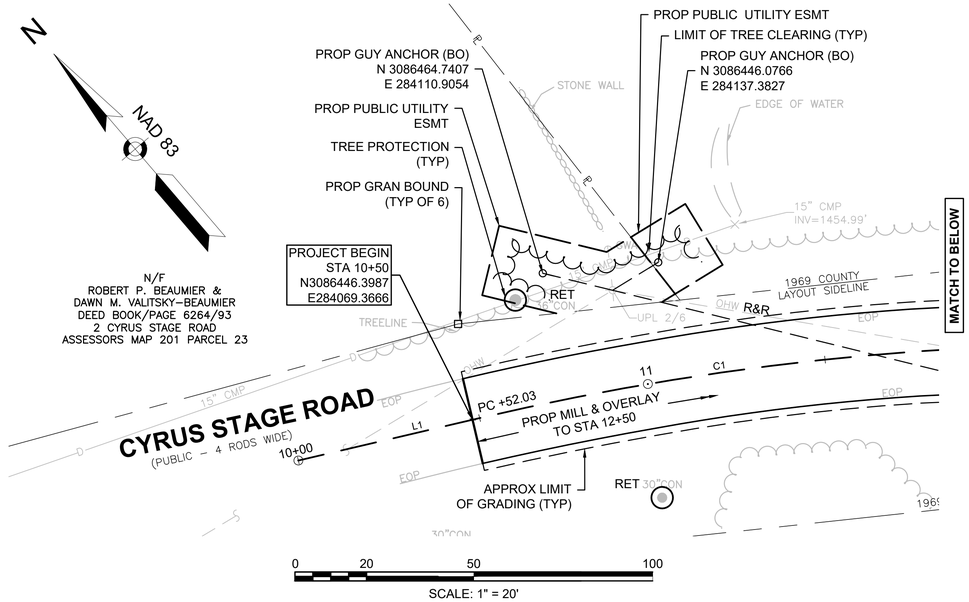
TRAFFIC MANAGEMENT DETAILS

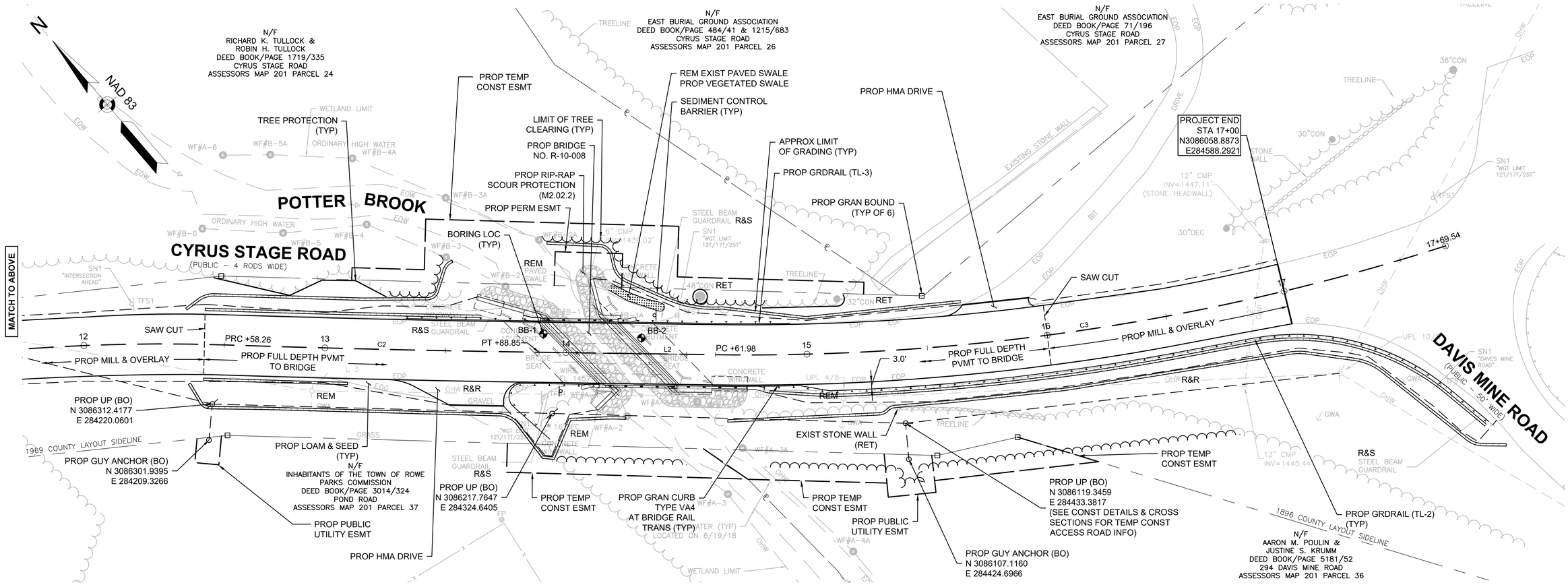
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	14	50
PROJECT FILE NO.	608855		

UTILITY PLAN

608855_HD(UTILITYPLAN).DWG Plotted on 6-Jun-2024 2:15 PM

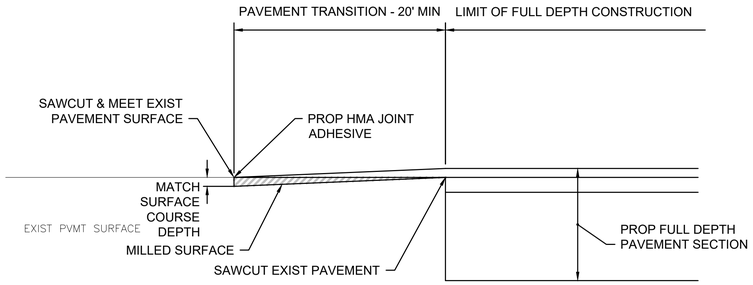




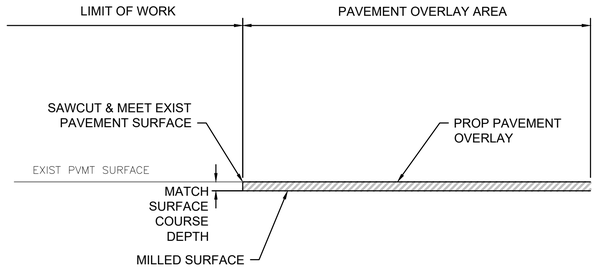
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	15	50
PROJECT FILE NO.	608855		

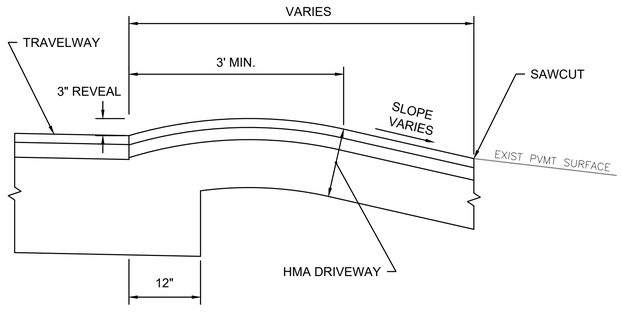
CONSTRUCTION DETAILS



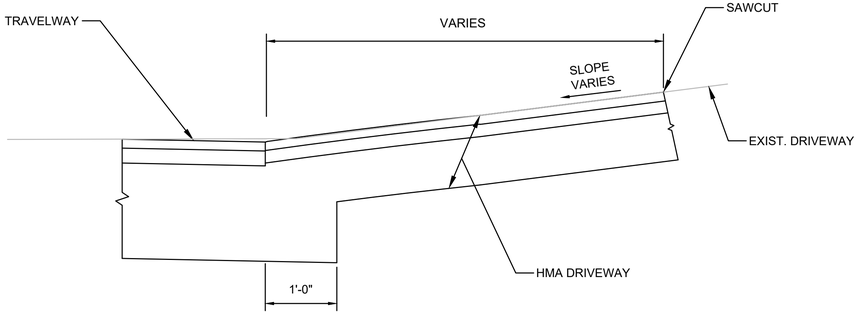
FULL DEPTH PAVEMENT TRANSITION AT LIMITS OF WORK
NOT TO SCALE



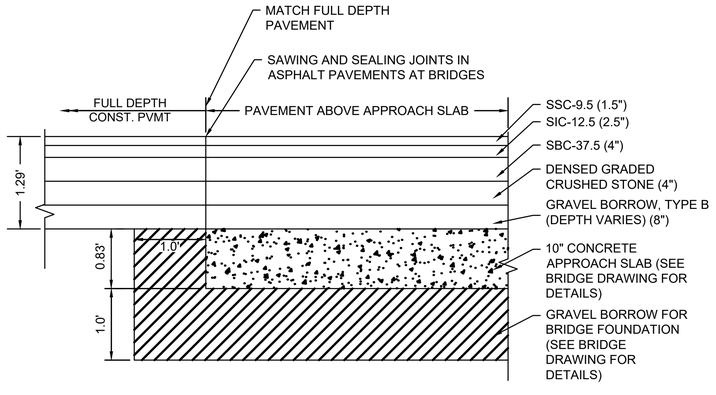
PAVEMENT OVERLAY TRANSITION AT LIMITS OF WORK
NOT TO SCALE



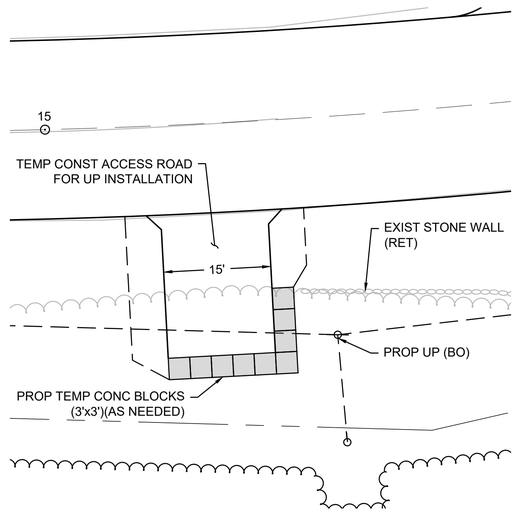
HMA DRIVEWAY SECTION WITHOUT SIDEWALK IN FILL
NOT TO SCALE



DRIVEWAY SECTION WITHOUT SIDEWALK IN CUT
NOT TO SCALE



LONGITUDINAL SECTION AT APPROACH SLAB
NOT TO SCALE



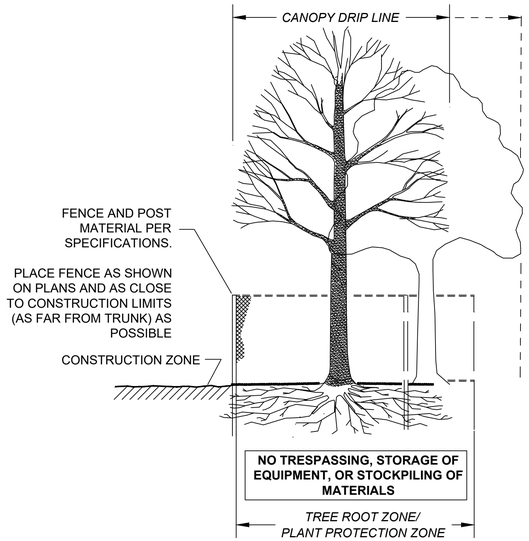
TEMPORARY CONSTRUCTION ACCESS ROAD
NOT TO SCALE

NOTE: FINAL MEANS AND METHODS FOR THE TEMPORARY ACCESS ROAD WILL BE DETERMINED BY THE CONTRACTOR.

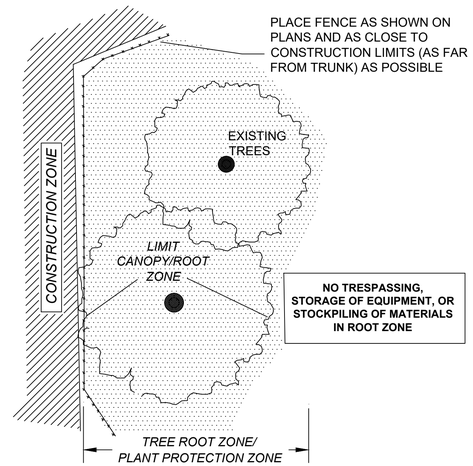
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	16	50
	PROJECT FILE NO. 608855		

CONSTRUCTION DETAILS

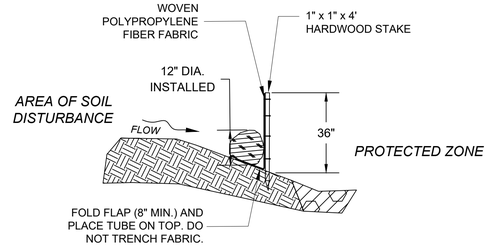


SECTION - FENCE PROTECTION OF ROOT ZONE



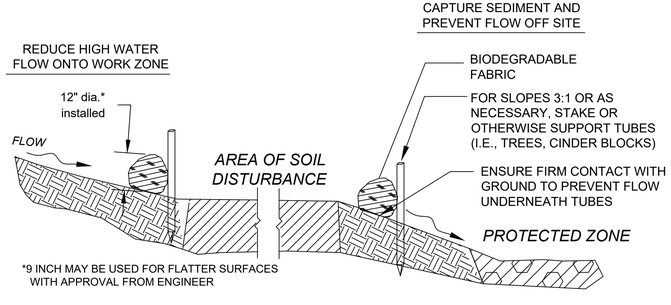
PLAN VIEW - FENCE PROTECTION OF ROOT ZONE

TREE PROTECTION - ROOT ZONE
NOT TO SCALE

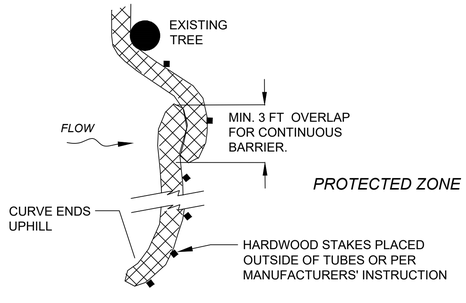


SECTION

COMPOST FILTER TUBE & SILT FENCE
NOT TO SCALE



SECTION

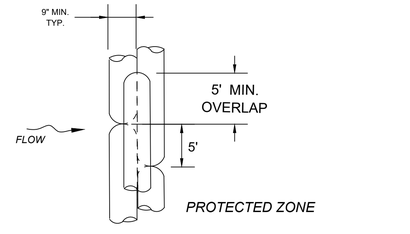


PLACE TUBE AS CLOSE TO LIMIT OF SOIL DISTURBANCE AS POSSIBLE, ALONG CONTOURS, AND PERPENDICULAR TO FLOW.

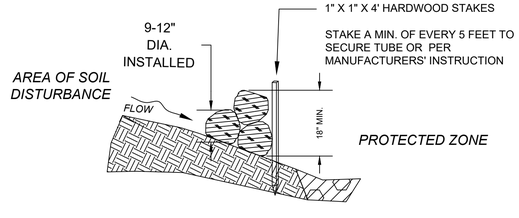
ADJUST LOCATION AS REQUIRED FOR OPTIMUM EFFECTIVENESS. DO NOT INSTALL IN WATERWAYS.

PLAN VIEW

SEDIMENT CONTROL BARRIER
NOT TO SCALE



PLAN VIEW



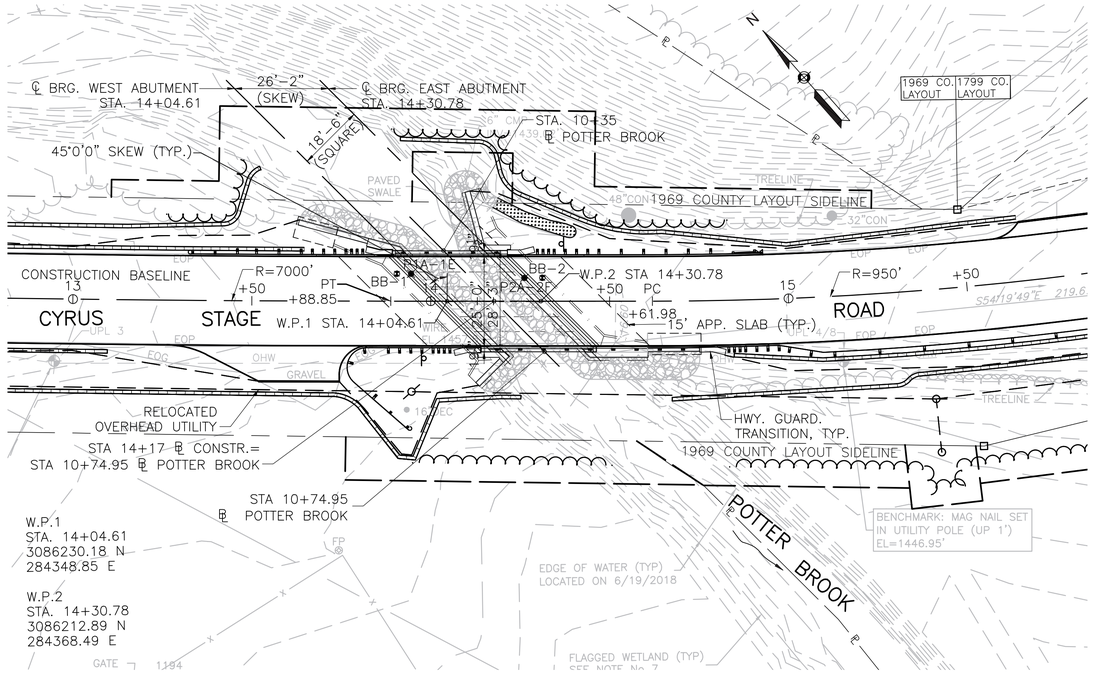
SECTION

COMPOST FILTER TUBE BERM (SLOPES 2:1 OR STEEPER)
NOT TO SCALE

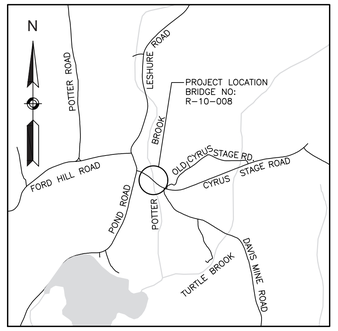
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	17	50
	PROJECT FILE NO. 608855		

KEY PLAN AND PROFILES



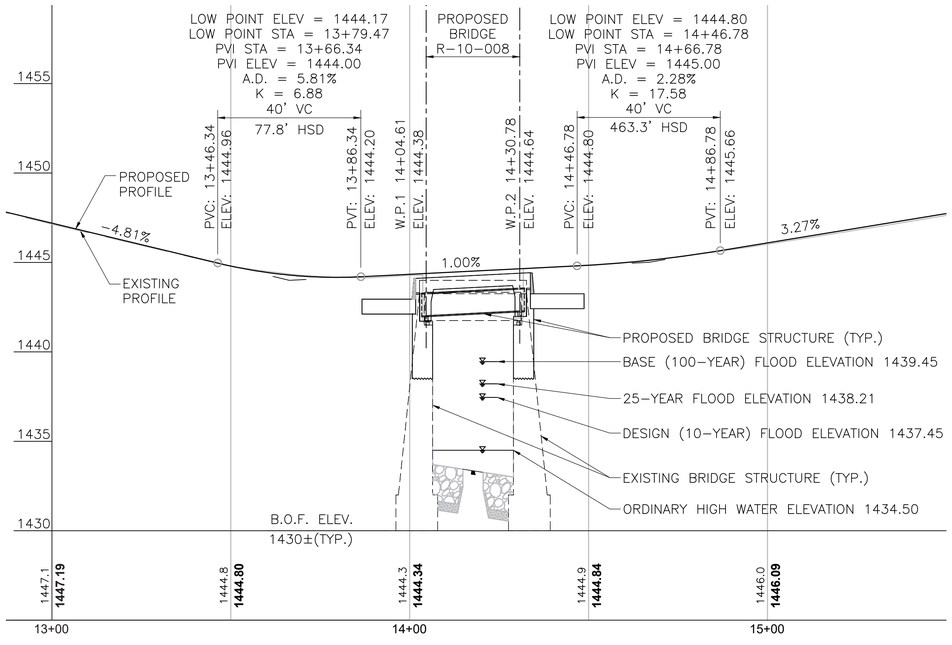
KEY PLAN
SCALE: 1"=20'



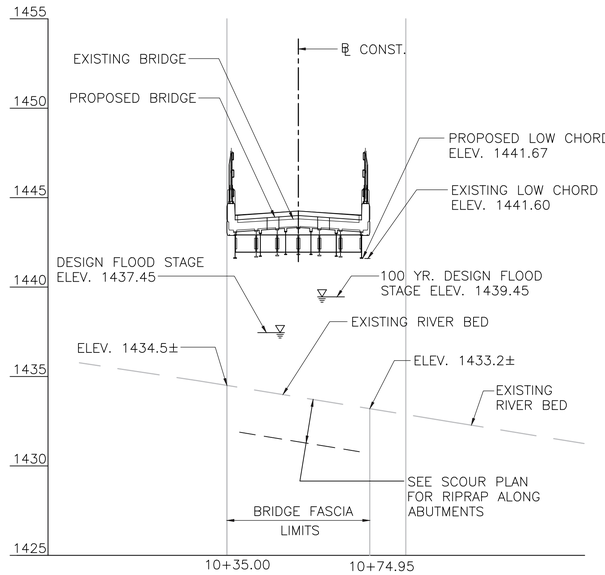
LOCUS MAP
SCALE: 1"=2,000 FT

ESTIMATED QUANTITIES
(NOT GUARANTEED)

ITEM NO.	QTY.	UNIT	ITEM
114.1	1	LS	DEMOLITION OF SUPERSTRUCTURE OF BRIDGE NO. R-10-008
127.1	75	CY	REINFORCED CONCRETE EXCAVATION
140	265	CY	BRIDGE EXCAVATION
148	90	CY	DREDGING AND DISPOSAL OF MATERIAL
151.2	165	CY	GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES
156	75	TON	CRUSHED STONE
156.1	20	TON	CRUSHED STONE FOR BRIDGE FOUNDATIONS
450.60	8	TON	SUPERPAVE BRIDGE SURFACE COURSE – 9.5 (SSC-B-9.5)
450.70	8	TON	SUPERPAVE BRIDGE PROTECTIVE COURSE – 9.5 (SPC-B-9.5)
450.71	5	TON	SUPERPAVE BRIDGE PROTECTIVE COURSE – 12.5 (SPC-B-12.5)
482.31	75	LF	SAWING AND SEALING JOINTS IN ASPHALT PAVEMENT AT BRIDGES
698.3	365	SY	GEOTEXTILE FABRIC FOR SEPARATION
912	400	EA	DRILLING AND GROUTING DOWELS
983.1	145	TON	RIPRAP
991.1*	1	LS	CONTROL OF WATER – STRUCTURE NO. R-10-008 (0J3)
994.01	1	LS	TEMPORARY PROTECTIVE SHIELDING, BRIDGE NO. R-10-008 (0J3)
995	1	LS	BRIDGE STRUCTURE, BRIDGE NO. R-10-008 (0J3)



PROFILE ALONG CYRUS STAGE ROAD ℄
HORIZ. SCALE: 1"=20'
VERT. SCALE: 1"=4'



PROFILE ALONG POTTER BROOK ℄
HORIZ. SCALE: 1"=20'
VERT. SCALE: 1"=4'

INDEX TO DRAWINGS

COMMONWEALTH OF MASSACHUSETTS
JOHN M. ST. CYR
STRUCTURAL
No. 36509
PROFESSIONAL ENGINEER

John M. St. Cyr, PE — Digitally signed by John M. St. Cyr, PE Date: 2024.05.30 09:34:15 -04'00'

GM2 ASSOCIATES, INC.
200 MAIN STREET
PAWTUCKET, RI 02860

JUNE 08, 2024 | ISSUED FOR CONSTRUCTION

MassDOT Massachusetts Department of Transportation Highway Division

PROPOSED SUPERSTRUCTURE REPLACEMENT

ROWE

CYRUS STAGE ROAD
OVER POTTER BROOK

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION
10 PARK PLAZA BOSTON, MASS

Alexander K. Bardow, P.E. — Digitally signed by Alexander K. Bardow, P.E. Date: 2024.05.30 12:04:49 -04'00'
STATE BRIDGE ENGINEER

Carrie Lavallee, P.E. — Digitally signed by Carrie Lavallee, P.E. Date: 2024.06.05 13:10:10 -04'00'
CHIEF ENGINEER

GENERAL NOTES

DESIGN:

IN ACCORDANCE WITH THE 2020 AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS LRFD BRIDGE DESIGN SPECIFICATIONS WITH CURRENT INTERIM SPECIFICATIONS THROUGH 2024, FOR HL–93 LOADING.

MASSDOT BENCH MARKS:

TBM1: MAG NAIL SET IN UTILITY POLE (UP 1.4'), STA 12+94.97, 17.33' RT
ELEVATION = 1448.17'

TBM2: MAG NAIL SET IN UTILITY POLE (UP 1'), STA 15+14.35, 18.22' RT
ELEVATION = 1446.95'

ELEVATION ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

DATE:

TO BE PLACED ON THE INSIDE FACE OF THE NORTHEAST AND SOUTHWEST HIGHWAY GUARDRAIL TRANSITIONS. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE LATEST YEAR OF CONTRACT COMPLETION AS OF THE DATE THE FIRST HIGHWAY GUARDRAIL TRANSITION IS CONSTRUCTED. BOTH HIGHWAY GUARDRAIL TRANSITIONS SHALL FEATURE THE SAME DATE.

SURVEY NOTEBOOKS:

SURVEY BASED UPON PLANS PREPARED BY GCG ASSOCIATES, DATED JULY 11, 2018.

COPIES OF ELECTRONIC FILES MAY BE OBTAINED FROM THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION.

SCALES:

SCALES NOTED ON THE PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALE BY 2 FOR HALF–SIZE PRINTS (A3).

FOUNDATIONS:

FOUNDATIONS MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED DURING CONSTRUCTION, WITH THE APPROVAL OF THE ENGINEER.

UNSUITABLE MATERIAL:

ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE FOUNDATIONS OF THE STRUCTURE, AS DIRECTED BY THE ENGINEER.

ANCHOR BOLTS:

ANCHOR BOLTS WITHIN CAST–IN–PLACE CONCRETE SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED.

CONCRETE:

ALL PORTLAND CEMENT CONCRETE SHALL BE AIR–ENTRAINED PORTLAND CEMENT CONCRETE.

CEMENT SHALL CONFORM TO AASHTO M85.

ALL EXPOSED EDGES AND REENTRANT CORNERS NOT OTHERWISE DETAILED ON THE CONSTRUCTION DRAWINGS SHALL HAVE A MINIMUM ¾" CHAMFER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING CONCRETE STAINS OR DISCOLORATIONS DURING CONSTRUCTION UNTIL SUCH TIME AS THE SURFACES ARE APPROVED AND ACCEPTED. ANY CONCRETE STAINS OR DISCOLORATIONS OCCURRING PRIOR TO ACCEPTANCE OF THE SURFACES SHALL BE REMOVED BY THE CONTRACTOR AT HIS OWN EXPENSE.

CONCRETE SHALL BE PLACED AS FOLLOWS:

ABUTMENT AND WALL STEMS, WALL FOOTINGS, APPROACH SLABS	4,000 PSI, 1½" , 565 CEMENT CONCRETE
BACKWALLS, CURTAIN WALLS, KEEPER BLOCKS	4,000 PSI, ¾ , 610 CEMENT CONCRETE
ABUT. AND WALL FACE REPAIRS	4,000 PSI, ⅜" , 660 CEMENT CONCRETE
DECK SLAB, END DIAPH. (INCLUDING CLOSURE POURS), SAFETY CURB, GUARDRAIL TRANSITION	5,000 PSI, ¾ , 685 HP CEMENT CONCRETE

REINFORCEMENT:

REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 31 GRADE 60.

ALL REINFORCING STEEL SHALL BE EPOXY COATED.

UNLESS OTHERWISE NOTED ON THE CONSTRUCTION DRAWINGS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS	#6 BARS
1. NONE	16"	19"	23"
2. 12" OF CONCRETE BELOW BAR	20"	25"	30"
3. COATED BARS, COVER<3db, OR CLEAR SPACING<6db	23"	29"	34"
4. COATED BARS, ALL OTHER CASES	18"	23"	27"
5. CONDITION 2 AND 3	26"	32"	39"
6. CONDITION 2 AND 4	24"	30"	36"

ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

MEMBRANE WATERPROOFING:

ALL MEMBRANE WATERPROOFING USED ON BRIDGE DECKS SHALL BE MEMBRANE WATERPROOFING FOR BRIDGE DECKS–SPRAY APPLIED.

ESTIMATED QUANTITIES:

Item No.	Qty.	Unit	Item
114.1	1	LS	Demolition of Superstructure of Bridge No. R-10-008
127.1	75	CY	Reinforced Concrete Excavation
140.	265	CY	Bridge Excavation
148.	90	CY	Dredging and Disposing of Material
151.2	165	CY	Gravel Borrow for Backfilling Structures and Pipes
156.	75	TON	Crushed Stone
156.1	20	TON	Crushed Stone for Bridge Foundations
450.6	8	TON	Superpave Bridge Surface Course - 9.5 (SSC-B-9.5)
450.7	8	TON	Superpave Bridge Protective Course - 9.5 (SPC-B-9.5)
450.71	5	TON	Superpave Bridge Protective Course - 12.5 (SPC-B-12.5)
482.31	75	LF	Sawing and Sealing Joints in Asphalt Pavement at Bridges
698.3	365	SY	Geotextile Fabric for Separation
912.	400	EA	Drilling And Grouting Dowels
983.1	145	TON	Riprap
991.1	1	LS	Control of Water - Structure No. R-10-008 (0J3)
994.01	1	LS	Temporary Protective Shielding Bridge No. R-10-008(OJ3)
995.	1	LS	Bridge Structure, Bridge No. R-10-008 (0J3)

EXISTING CONDITIONS AND DIMENSIONS:

EXISTING BRIDGE PLANS ARE AVAILABLE UPON REQUEST. ALL DIMENSIONS AND DETAILS OF THE EXISTING STRUCTURE ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL THE WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE HAS VERIFIED AND COMPLETED THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

REINFORCEMENT DOWELS:

ALL DOWELS TO BE DRILLED AND GROUTED INTO THE EXISTING SUBSTRUCTURE SHALL BE SET BY TEMPLATE BEFORE THE CONCRETE IS PLACED. DOWELS AND GROUT SHALL BE ON THE MASSDOT QUALIFIED CONSTRUCTION MATERIALS LIST.

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	18	50
PROJECT FILE NO. 608855			

GENERAL NOTES AND QUANTITIES

TRAFFIC DATA	ROADWAY OVER	ROADWAY UNDER
DESIGN YEAR	2037	YEAR
AVERAGE DAILY TRAFFIC – PRESENT	647	ADT
AVERAGE DAILY TRAFFIC – DESIGN YEAR	798	ADT
DESIGN HOURLY VOLUME	–	DHV
DIRECTIONAL DISTRIBUTION	55%	DIST
TRUCK PERCENTAGE – AVERAGE DAY	6%	ADTT
TRUCK PERCENTAGE – PEAK HOUR	–	PHTT
DESIGN SPEED	35 MPH	DES
DIRECTIONAL DESIGN HOURLY VOLUME	–	DDHV

SEISMIC DESIGN CRITERIA	
DESIGN RETURN PERIOD:	1000 YRS
DESIGN SPECTRA	
As	0.071
SDs	0.160
SD1	0.070
SITE CLASS	C
SEISMIC DESIGN CATEGORY (SDC)	A

HYDRAULIC DESIGN DATA	
DRAINAGE AREA (SQ. MILES)	1.82
DESIGN FLOOD DISCHARGE (C.F.S.)	343
DESIGN FLOOD FREQUENCY (YEARS)	10
DESIGN FLOOD VELOCITY (F.P.S.)	4.39
DESIGN FLOOD ELEVATION (FEET, NAVD)	1437.45
BASE (100–YEAR) FLOOD DATA	
BASE FLOOD DISCHARGE (C.F.S.)	755
BASE FLOOD ELEVATION (FEET, NAVD)	1439.45
DESIGN AND CHECK SCOUR DATA	
DESIGN SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	25
DESIGN FLOOD ABUTMENT SCOUR DEPTH (FEET)	1.63
DESIGN FLOOD PIER SCOUR DEPTH (FEET)	NA
CHECK SCOUR FLOOD EVENT RETURN FREQUENCY (YEARS)	50
CHECK FLOOD ABUTMENT SCOUR DEPTH (FEET)	1.70
CHECK FLOOD PIER SCOUR DEPTH (FEET)	NA
FLOOD OF RECORD	
DISCHARGE (C.F.S.)	UNKNOWN
FREQUENCY (IF KNOWN, YEARS)	UNKNOWN
MAXIMUM ELEVATION (FEET, NAVD)	UNKNOWN
DATE (MM/YYYY)	UNKNOWN
HISTORY OF ICE FLOES	UNKNOWN
EVIDENCE OF SCOUR AND EROSION	NONE

TEMPORARY WATER CONTROL DESIGN DATA	
DESIGN FLOOD DISCHARGE (C.F.S.)	141
DESIGN FLOOD FREQUENCY (YEARS)	2
DESIGN FLOOD VELOCITY (F.P.S.)	6.07
DESIGN FLOOD ELEVATION (FEET, NAVD)	1437.7

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Boring No. BB-1
Pg. 1 of 2
Scale 1" = 5'

City/Town: Rowe	Bridge: Cyrus Stage Road R-10-008	Project File No: 604189	Contract No:
Project: Cyrus Stage Road over Potter Brook	Date & Time Started: 8/22/2018		Total Hours:
Groundwater Depth: 11'	Date & Time: 8/22/2018	Date & Time Completed: 8/22/2018	8
Coordinates: N 3086245.23	E 284343.35	Driller's Name: R. Brown	Helper's Name: B. Duffey
Ground Elevation: 1444.2'	Inspector's Name: J. Hall	Inspector's Company: Terracon Consultants	

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some coarse gravel. trace silt (FILL)	0.3
4						
6						
8						
10						
12	C-1	11.1-16.1		38	BRIDGE ABUTMENT FOOTING	11
					ELEV. 1430.0'±	
14						
16					Wet, very dense, gray, MEDIUM TO FINE SAND, and silt, trace gravel	14.5
18						
20	S-1	20-22	14 22 26 25	12		
22						
24						
26	S-2	25-27	22 28 26 43	22		

ABUT. FOOTING

Remarks:

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: 140 lbs. Fall: 30"
Sampler Type: Split Spoon 1 3/8"
Automatic Hammer Weight: 140 lbs.
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: HQ Size:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Boring No. BB-1
Pg. 2 of 2
Scale 1" = 5'

City/Town: Rowe	Bridge: Cyrus Stage Road R-10-008	Project File No: 604189	Contract No:
Project: Cyrus Stage Road over Potter Brook	Date & Time Started: 8/22/2018		Total Hours:
Groundwater Depth: 11'	Date & Time: 8/22/2018	Date & Time Completed: 8/22/2018	8
Coordinates: N 3086245.23	E 284343.35	Driller's Name: R. Brown	Helper's Name: B. Duffey
Ground Elevation: 1444.2'	Inspector's Name: J. Hall	Inspector's Company: Terracon Consultants	

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
26					Wet, very dense, gray, MEDIUM TO FINE SAND, and silt, trace gravel	
28						
30	S-3	30-32	29 55 57 42	16		
32						
34						
	S-4	35-36.8	17 60	8		
36						
38						
40	S-5	40-42	18 31 39 54	20		
42					Bottom of Exploration = 42'	
44						
46						
48						
50						
52						

Remarks:

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: 140 lbs. Fall: 30"
Sampler Type: Split Spoon 1 3/8"
Automatic Hammer Weight: 140 lbs.
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: HQ Size:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less

1. LOCATION OF BORINGS BB-1, AND BB-2 SHOWN ON KEY PLAN THUS: ⊕
2. LOCATION OF PROBES P-1A, P-1B, P-1C, P-1D, P-1E, P-2A, P-2B, P-2C, P-2D, P-2E, AND P-2F SHOWN ON KEY PLAN THUS: ●
3. BORINGS ARE TAKEN FOR THE PURPOSE OF DESIGN ONLY AND SHOW CONDITIONS AT BORING POINTS ONLY BUT DO NOT NECESSARILY SHOW THE NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
4. 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.
5. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE A 1 3/8" I.D. SPLIT SPOON SAMPLER 6" USING A 140 POUND WEIGHT FALLING 30".
6. BORING SAMPLES ARE STORED AT A STORAGE FACILITY LOCATED ON ROUTE 114 (219 WINTHROP AVE.) IN LAWRENCE, MA. THE CONTRACTOR MAY EXAMINE THE SOIL AND ROCK SAMPLES BY CONTACTING THE MASSDOT GEOTECHNICAL SECTION AT 10 PARK PLAZA, BOSTON, MA.
7. ALL BORINGS AND PROBES WERE MADE IN AUGUST 2018.
8. ALL BORINGS AND PROBES WERE MADE BY TERRACON CONSULTANTS, INC., 77 SUNDIAL AVE, MANCHESTER, NH 03103.
9. THE NORTH AMERICA VERTICAL DATUM (NAVD) OF 1988 IS USED THROUGHOUT.

DATE	DESCRIPTION
6/8/2024	ISSUED FOR CONSTRUCTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

Moving Massachusetts Forward **massDOT** Highway

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Boring No. BB-2
Pg. 1 of 2
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/23/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/23/2018 | Date & Time Completed: 8/23/2018 | 8
Coordinates: N 3086217.49 E 284373.12 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.6' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some coarse gravel. trace silt (FILL)	0.3
4						
6						
8						
10						
12						
14	C-1	13.5-14.5		8	BRIDGE ABUTMENT FOOTING ELEV. 1430.0'±	12.5
16					Wet, dense to very dense, gray, MEDIUM TO FINE SAND, some fine gravel, some silt, trace boulders	14.5
18						
20	S-1	20-21.8	9 31 38 60	18		
22						
24						
26	S-2	25-26.3	33 42 60	10		

ABUT. FOOTING

Remarks:

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: 140 lbs. Fall: 30"
Sampler Type: Split Spoon 1 3/8"
Automatic Hammer Weight: 140 lbs.
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: HQ Size:

Moving Massachusetts Forward **massDOT** Highway

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Boring No. BB-2
Pg. 2 of 2
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/22/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/23/2018 | Date & Time Completed: 8/22/2018 | 8
Coordinates: N 3086217.49 E 284373.12 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.6' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
26					Wet, very dense, gray, MEDIUM TO FINE SAND, and silt, trace gravel	
28						
30	S-3	30-31.9	19 38 52 60	20		
32						
34						
36	S-4	35-37	18 26 35 50	20		
38						
40	S-5	40-42	26 45 55 57	20		
42					Bottom of Exploration = 42'	
44						
46						
48						
50						
52						

Remarks:

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: 140 lbs. Fall: 30"
Sampler Type: Split Spoon 1 3/8"
Automatic Hammer Weight: 140 lbs.
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: HQ Size:

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

Moving Massachusetts Forward massDOT Highway

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-1A
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/22/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/22/2018 | Date & Time Completed: 8/22/2018
Coordinates: N 3086242.60 E 284346.34 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.2' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
4					BRIDGE ABUTMENT WALL	0.8
6					Bottom of Exploration = 0.8'	
8						
10						
12						
14						
16						
18						
20						
22						
24						
26						

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions:and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

Moving Massachusetts Forward massDOT Highway

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-1B
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/22/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/22/2018 | Date & Time Completed: 8/22/2018
Coordinates: N 3086243.69 E 284345.10 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.2' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
4					BRIDGE ABUTMENT WALL	5.5
6					Bottom of Exploration = 5.5'	
8						
10						
12						
14						
16						
18						
20						
22						
24						
26						

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions:and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	22	50
PROJECT FILE NO.	608855		

BORING LOGS - 4

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-1C
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/22/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/22/2018 | Date & Time Completed: 8/22/2018
Coordinates: N 3086245.23 E 284343.35 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.2' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
8		8-8.5			COARSE TO FINE SAND. some gravel, some silt (FILL)	
12					BRIDGE ABUTMENT WALL	12.5
					Bottom of Exploration = 12.5'	

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions:and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-1D
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/22/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/22/2018 | Date & Time Completed: 8/22/2018
Coordinates: N 3086246.01 E 284342.47 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.2' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
12					BRIDGE ABUTMENT WALL	12.5
					Bottom of Exploration = 12.5'	

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions:and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	23	50
PROJECT FILE NO.	608855		

BORING LOGS - 5

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-1E
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/22/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/22/2018 | Date & Time Completed: 8/22/2018
Coordinates: N 3086247.33 E 284340.97 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.2' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
14					BRIDGE ABUTMENT WALL	14
					Bottom of Exploration = 14'	

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-2A
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/23/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/23/2018 | Date & Time Completed: 8/23/2018
Coordinates: N 3086220.81 E 284369.35 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.6' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
					BRIDGE ABUTMENT WALL	0.7
					Bottom of Exploration = 0.7'	

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

DATE	DESCRIPTION
6/8/2024	ISSUED FOR CONSTRUCTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-2B
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/23/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/23/2018 | Date & Time Completed: 8/23/2018
Coordinates: N 3086219.80 E 284370.50 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.6' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
4					BRIDGE ABUTMENT WALL	2.2
6					Bottom of Exploration = 2.2'	
8						
10						
12						
14						
16						
18						
20						
22						
24						
26						

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-2C
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/23/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/23/2018 | Date & Time Completed: 8/23/2018
Coordinates: N 3086218.64 E 284371.81 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.6' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
4						
6					BRIDGE ABUTMENT WALL	6.5
8					Bottom of Exploration = 6.5'	
10						
12						
14						
16						
18						
20						
22						
24						
26						

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions: and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

massDOT Highway

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-2D
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/23/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/23/2018 | Date & Time Completed: 8/23/2018
Coordinates: N 3086217.49 E 284373.12 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.6' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
4						
6						
8						
10						
12						
14					Augers grinded then walked off bridge abutment footing at 13 feet Wet, gray. MEDIUM TO FINE SAND, some fine gravel, some silt, trace boulders	15
16					BRIDGE ABUTMENT WALL	
18					Bottom of Exploration = 15'	
20						
22						
24						
26						

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions:and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

massDOT Highway

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-2E
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe | Bridge: Cyrus Stage Road R-10-008 | Project File No: 604189 | Contract No:
Project: Cyrus Stage Road over Potter Brook | Date & Time Started: 8/23/2018 | Total Hours:
Groundwater Depth: NE | Date & Time: 8/23/2018 | Date & Time Completed: 8/23/2018
Coordinates: N 3086217.45 E 284371.65 | Driller's Name: R. Brown | Helper's Name: B. Duffey
Ground Elevation: 1444.6' | Inspector's Name: J. Hall | Inspector's Company: Terracon Consultants

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
4						
6						
8						
10						
12						
14					Wet, gray. MEDIUM TO FINE SAND, some fine gravel, some silt, trace boulders	
16					BRIDGE ABUTMENT WALL	15
18					Bottom of Exploration = 15'	
20						
22						
24						
26						

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions:and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

Terracon Consultants, Inc.
77 Sundial Avenue, Suite 401W
Manchester, NH 03103

Probe No. P-2F
Pg. 1 of 1
Scale 1" = 5'

City/Town: Rowe	Bridge: Cyrus Stage Road R-10-008	Project File No:604189	Contract No:
Project: Cyrus Stage Road over Potter Brook		Date & Time Started: 8/23/2018	Total Hours:
Groundwater Depth: NE	Date & Time: 8/23/2018	Date & Time Completed: 8/23/2018	
Coordinates: N 3086219.52 E 284369.30	Driller's Name: R. Brown	Helper's Name: B. Duffey	
Ground Elevation: 1444.6'	Inspector's Name: J. Hall	Inspector's Company: Terracon Consultants	

Depth (Ft.)	Sample Number	Depth Range (Ft.)	Blow Counts per 6 Inches Coring Times (Min/Ft.)	Recovery (Inch)	Field Description	Strata Change (Ft.)
0					BITUMINOUS CONCRETE	0
2					Moist, gray, MEDIUM TO FINE SAND, some gravel. trace silt (FILL)	0.3
4						
6					BRIDGE ABUTMENT WALL	7
8					Bottom of Exploration = 7'	
10						
12						
14						
16						
18						
20						
22						
24						
26						

Remarks: Sample descriptions based on auger cuttings.

Protective Device - Stand: Box:
Well Depth: Solid Pipe:
Stick Up Pipe: Screen Pipe:

Penetration Resistance (N) Guide:

Cohesionless Soils (Sands, Gravels)		Cohesive Soils (Silts, Clays)	
Relative Density	Penetration Resistance	Consistency	Penetration Resistance
Very Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Medium Dense	10 - 30	Medium Stiff	4 - 8
Dense	30 - 50	Stiff	8 - 15
Very Dense	Over 50	Very Stiff	15 - 30
N=Sum of Second and Third 6" Blow Counts		Hard	Over 30

Terms Used for Second Entry of Descriptions:and = 40-50%, some = 10-40%, trace = 10% or less

Type of Drill Rig: CME 550x
Arrow-Board: Signs: X Cones: X
Casing Size: Depth:
Hammer Weight: NA Fall: NA
Sampler Type:
Automatic Hammer Weight:
Safety Hammer Weight:
Donut Hammer Weight:
Core Barrel Type: Size:

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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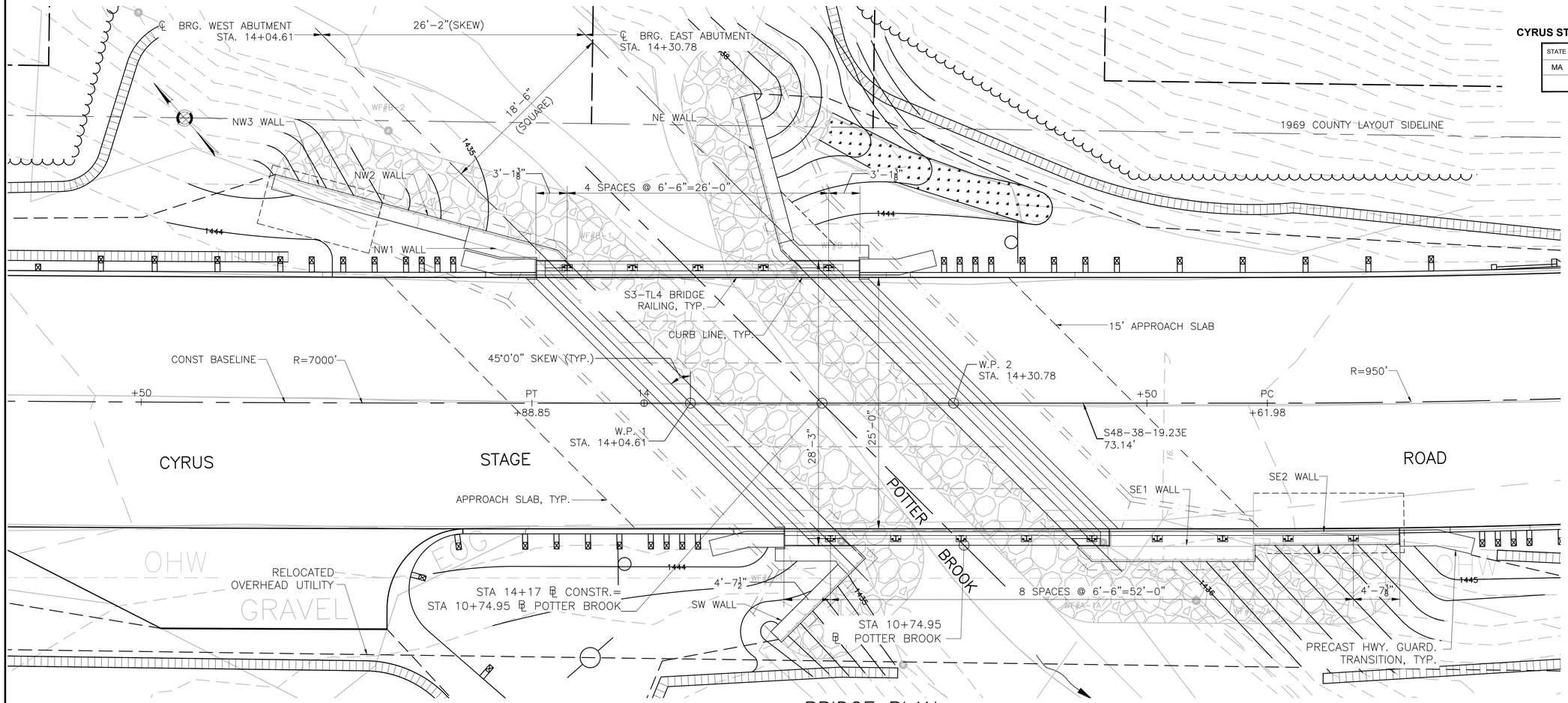
USE ONLY PRINTS OF LATEST DATE

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

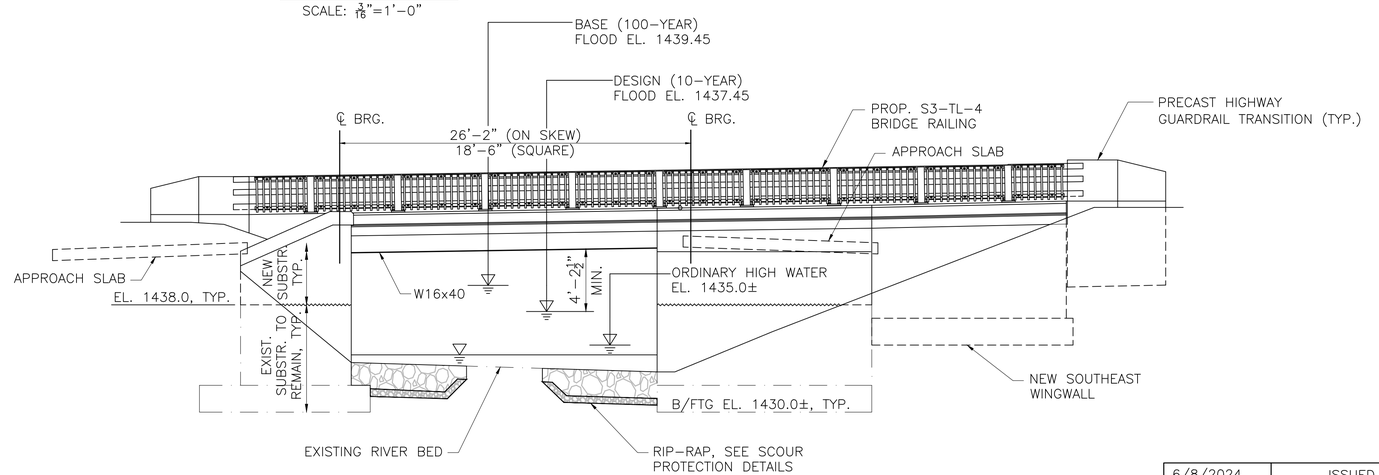
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	27	50
PROJECT FILE NO.	608855		

PLAN AND ELEVATION



BRIDGE PLAN

SCALE: $\frac{3}{16}$"=1'-0"



BRIDGE ELEVATION

SCALE: $\frac{3}{16}$"=1'-0"

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

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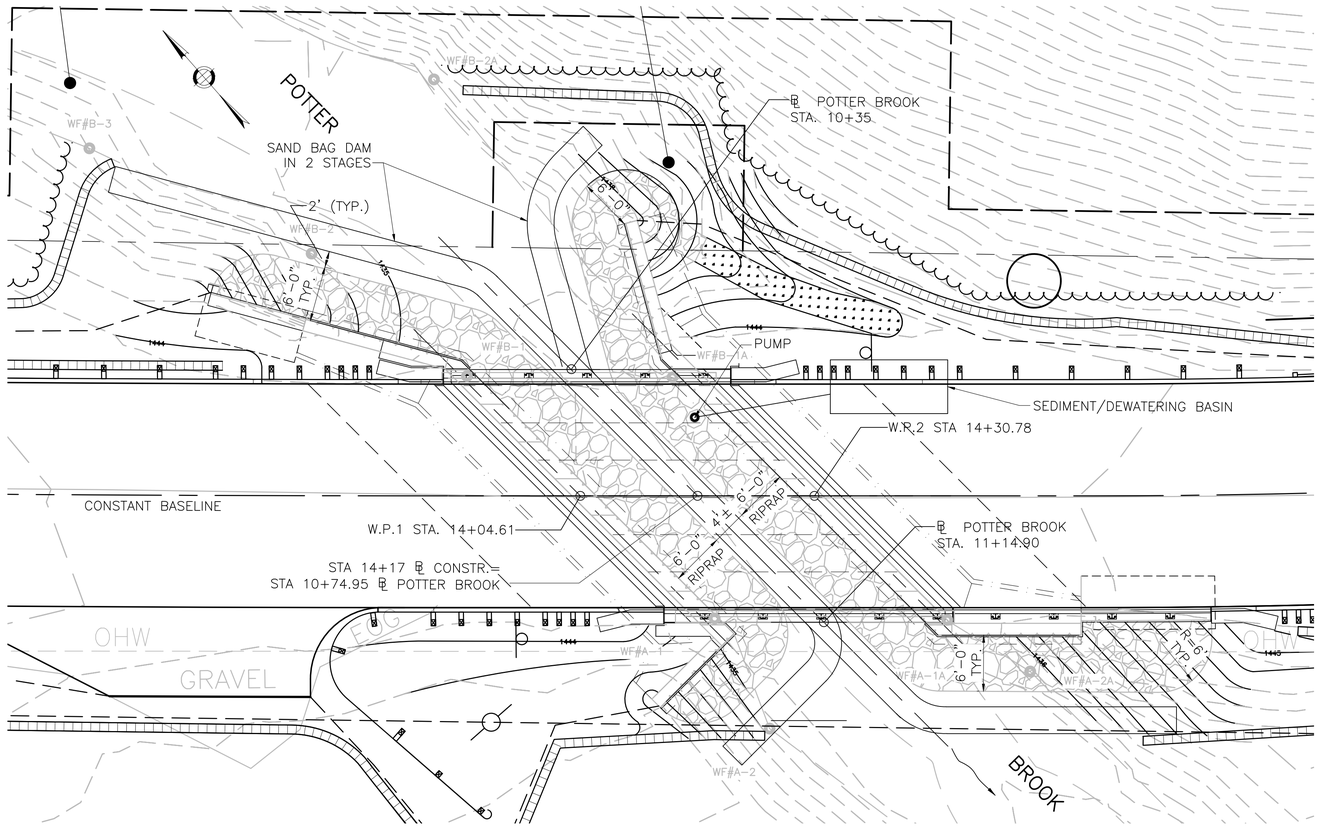
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	28	50
PROJECT FILE NO.	608855		

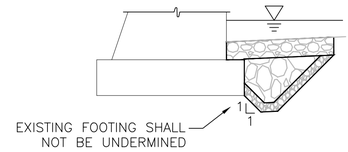
WATER CONTROL AND SCOUR PROTECTION



LEGEND

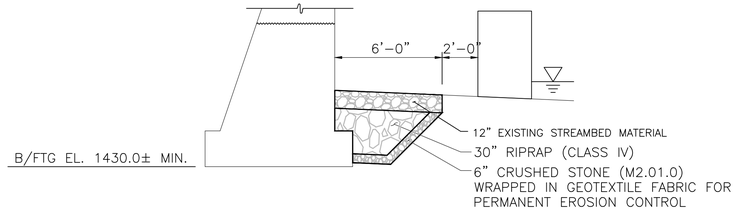
DENOTES RIPRAP LIMITS

PLAN
SCALE: 1"=8'

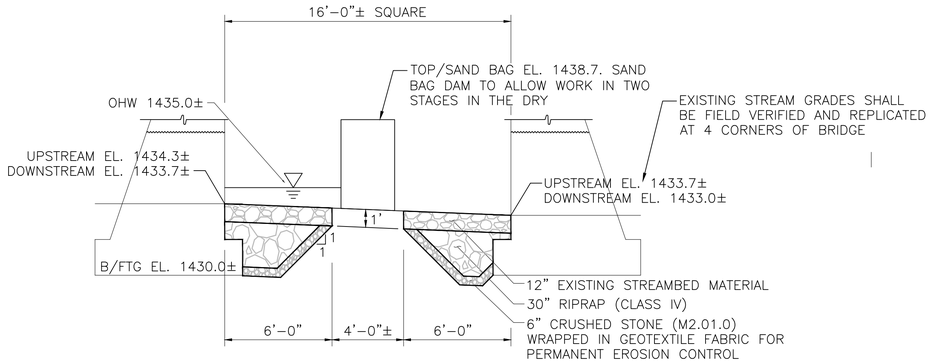


(WHERE RIP-RAP EXTENDS BELOW EXISTING FOOTING)

SCOUR PROTECTION DETAIL AT ABUTMENTS AND WALLS
SCALE: ¼" = 1'-0"



SCOUR PROTECTION DETAIL AT WALLS
SCALE: ¼" = 1'-0"



(LOOKING NORTH)

SCOUR PROTECTION DETAIL AT ABUTMENTS
SCALE: ¼" = 1'-0"

NOTES:

1. RIPRAP SHALL CONFORM TO CLASS IV IN ACCORDANCE WITH HEC 23, VOLUME 1, TABLE 5.1 AND 5.2. PAYMENT WILL BE UNDER ITEM 983.1.
2. CRUSHED STONE SHALL CONFORM TO M2.01.0.
3. GEOTEXTILE FABRIC FOR PERMANENT EROSION CONTROL SHALL CONFORM TO M9.50.0.
4. CONTROL OF WATER (IE. SAND BAG DAM AND DEWATERING SYSTEM) SHALL CONFORM TO SPECIAL PROVISION 991.1 AND SHALL BE DESIGNED BY THE CONTRACTOR. PUMP AND SEDIMENT/DEWATERING BASIN SHOWN IN PLAN ARE SCHEMATIC ONLY AND ARE REQUIRED ON BOTH SIDES OF RIVER.
5. ANY EARTH SUPPORT REQUIRED AS A RESULT OF CONTRACTORS MEANS AND METHODS, SHALL BE IN ACCORDANCE WITH SECTION 950 OF THE MASSDOT STANDARD SPEC, EXCEPT WILL NOT BE PAID FOR SEPERATELY BUT CONSIDERED INCIDENTAL TO BRIDGE EXCAVATION.

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
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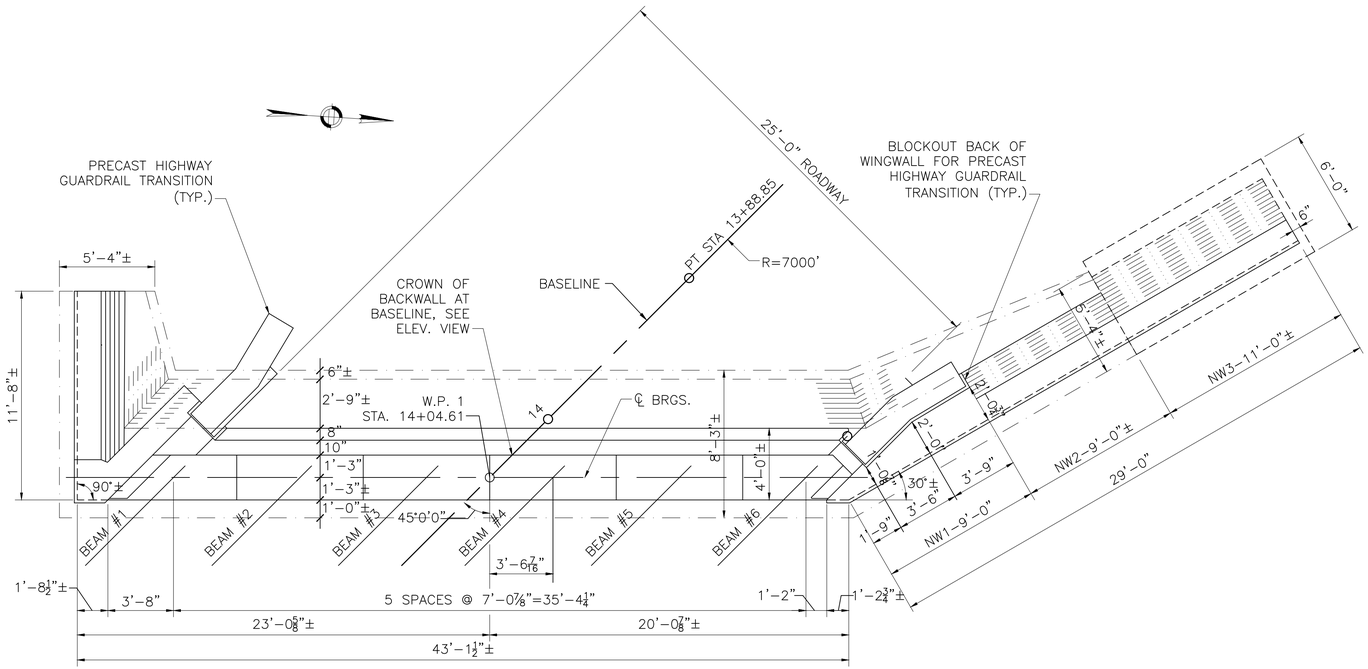
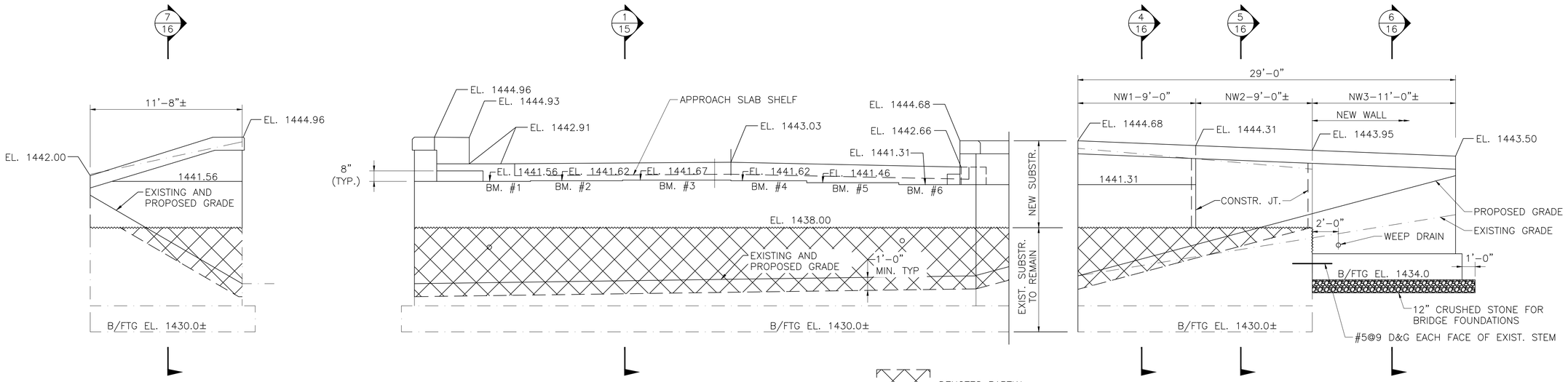
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	29	50
PROJECT FILE NO.	608855		

WEST ABUTMENT AND WALLS



WEST ABUTMENT PLAN
SCALE: ¼" = 1'-0"



SOUTHWEST WALL ELEVATION
SCALE: ¼" = 1'-0"

WEST ABUTMENT ELEVATION
SCALE: ¼" = 1'-0"

NORTHWEST WALL ELEVATION
SCALE: ¼" = 1'-0"

DATE	DESCRIPTION
6/8/2024	ISSUED FOR CONSTRUCTION

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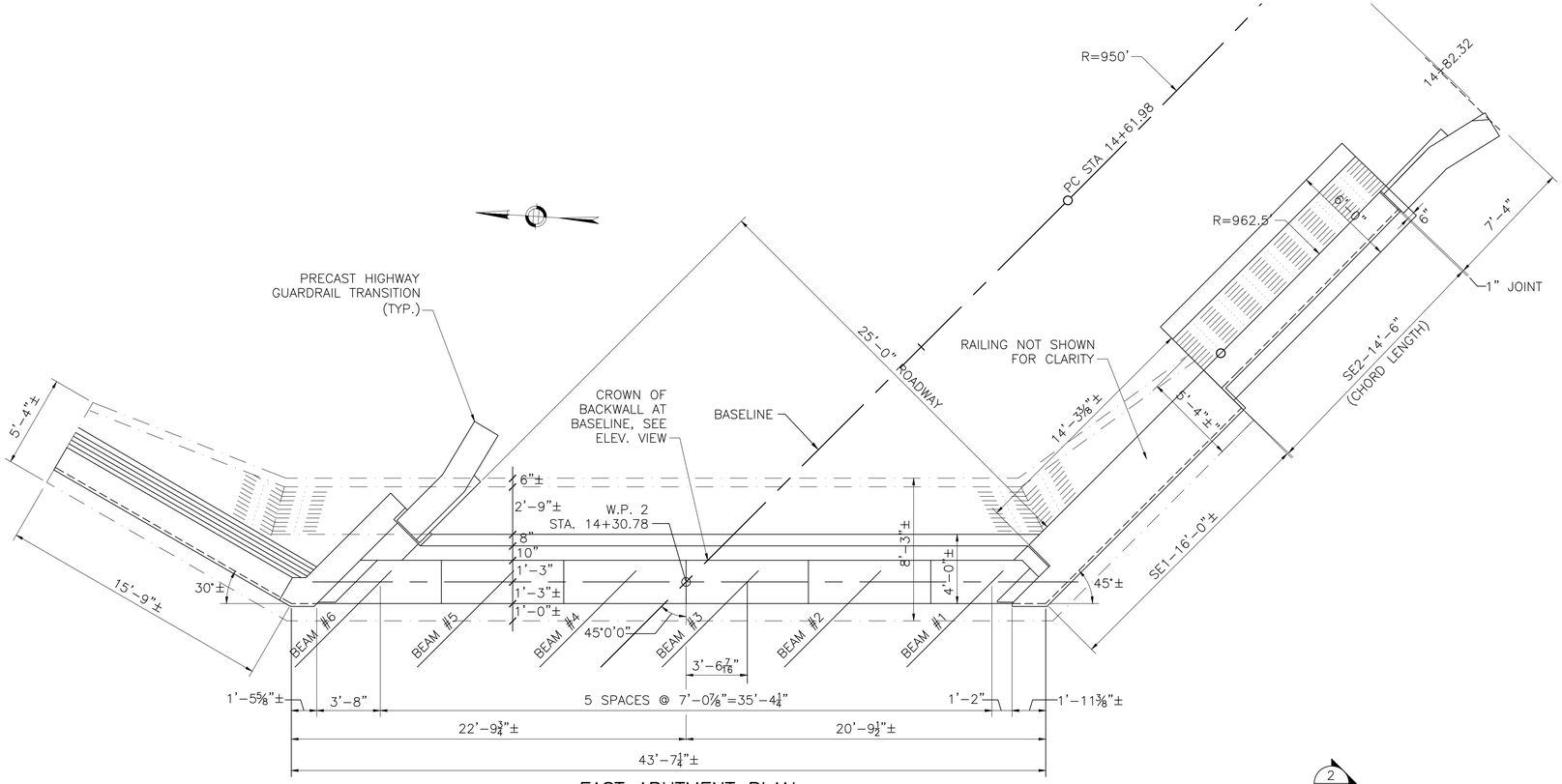
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

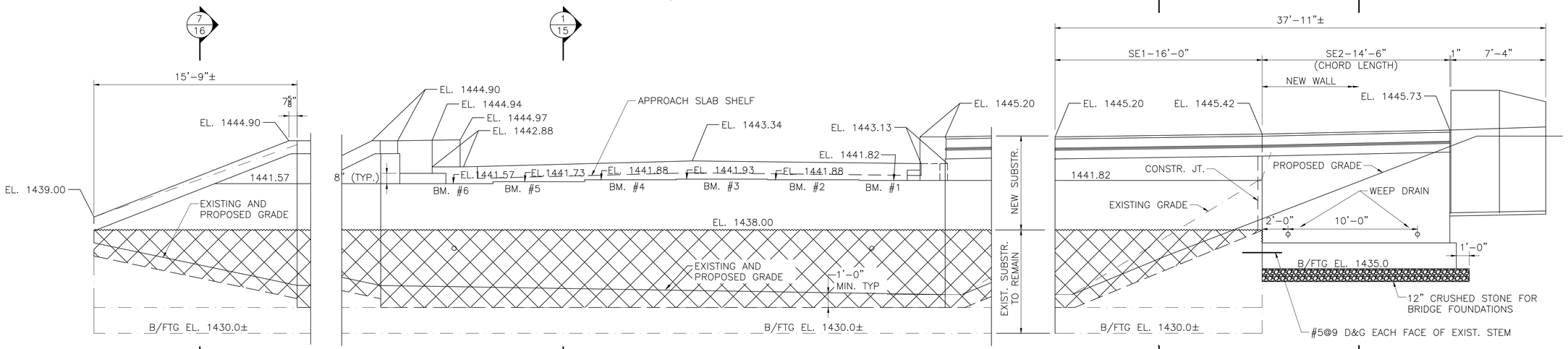
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	30	50
PROJECT FILE NO.	608855		

EAST ABUTMENT AND WALLS

608855_BR14(R10008)\EAST ABUT & WALLS).DWG Plotted on 30-May-2024 3:35 PM



EAST ABUTMENT PLAN
SCALE: ¼" = 1'-0"



NORTHEAST WALL ELEVATION
SCALE: ¼" = 1'-0"

EAST ABUTMENT ELEVATION
SCALE: ¼" = 1'-0"

DENOTES PARTIAL DEPTH REPAIR AREA

SOUTHEAST WALL ELEVATION
SCALE: ¼" = 1'-0"

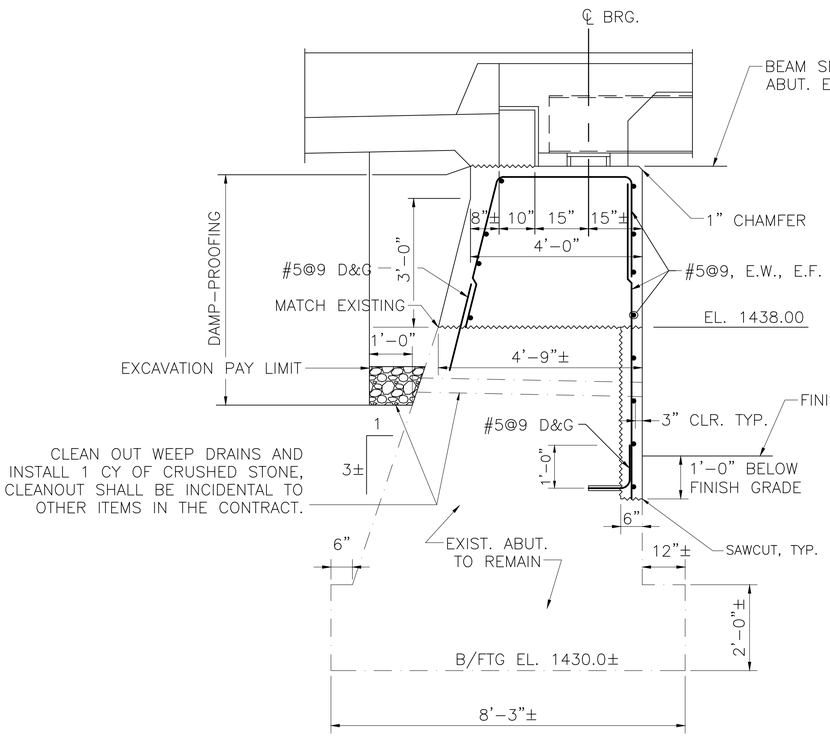
DATE	DESCRIPTION
6/8/2024	ISSUED FOR CONSTRUCTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

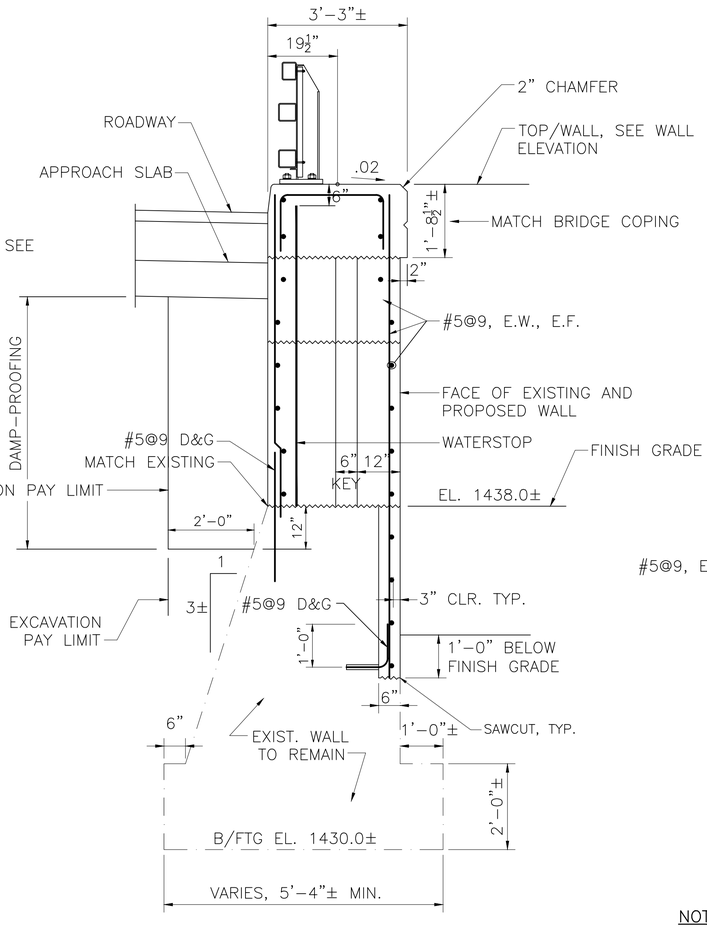
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	31	50
	PROJECT FILE NO. 608855		

SUBSTRUCTURE DETAILS - 1

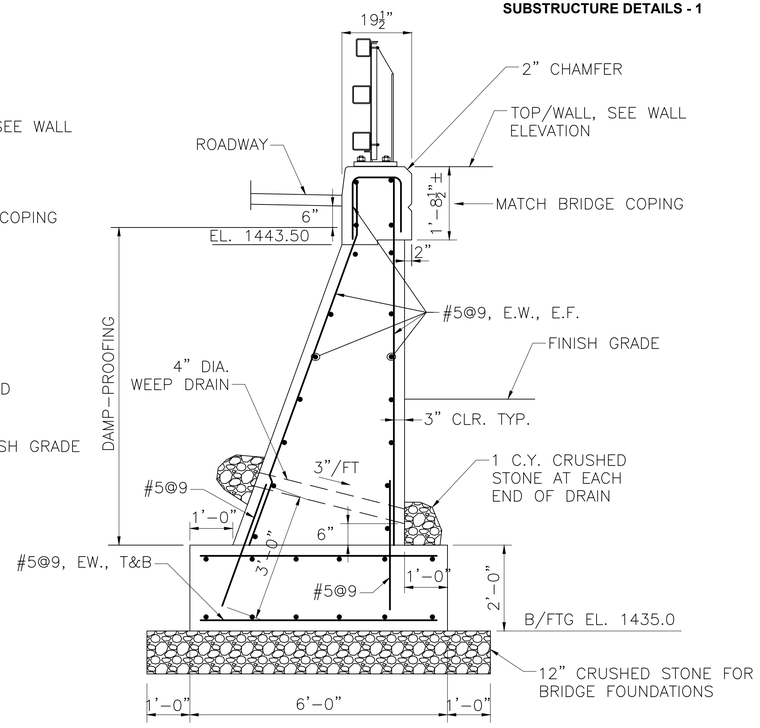


TYPICAL ABUTMENT SECTION (1) — SCALE: ½" = 1'–0" — 13,14



STRUCTURAL EXCAVATION PAY LIMIT SHOWN ABOVE IS TYPICAL FOR ALL WALL BEING REHABILITATED

SE1 WALL SECTION (2) — SCALE: ½" = 1'–0" — 14



SE2 WALL SECTION (3) — SCALE: ½" = 1'–0" — 14

NOTES:

1. SEE SHEET 18 FOR TYPICAL DRILL AND GROUT DOWEL DETAIL.
2. ALL ABUTMENT AND WALL STEM CONCRETE SHALL BE 4000 PSI, 1½ IN, 565 CEMENT CONCRETE, EXCEPT PARTIAL DEPTH REPAIR ON LOWER PORTIONS SHALL BE 4000 PSI, ⅜" IN, 660 CEMENT CONCRETE.
3. BACKWALL CONCRETE SHALL BE 4000 PSI, ¾ IN, 610 CEMENT CONCRETE.
4. FACTORED BEARING PRESSURE FOR WALL FOOTINGS= 4.7 KSF PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS STRENGTH I LOAD COMBINATION.

   FACTORED BEARING RESISTANCE=12.2 KSF. FACTORED BEARING RESISTANCE IS THE PRODUCT OF THE NOMINAL BEARING RESTANCE AND A RESISTANCE FACTOR OF .45.

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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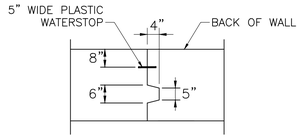
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	32	50
PROJECT FILE NO.	608855		

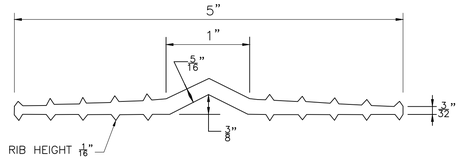
SUBSTRUCTURE DETAILS - 2



NOTE: ALL HORIZONTAL REINFORCING SHALL BE CONTINUOUS THRU JOINT

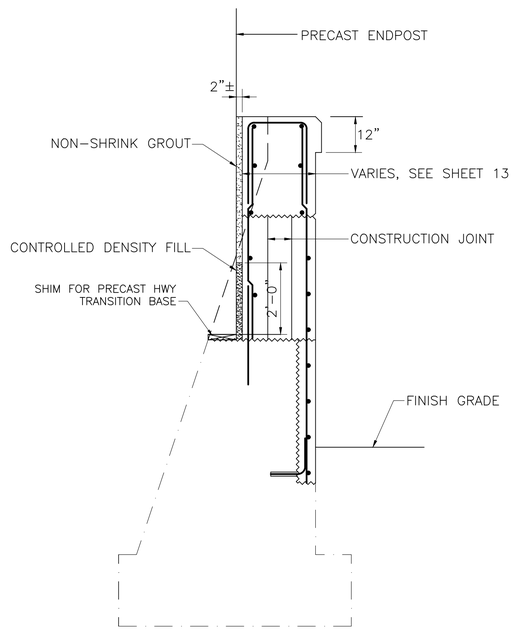
CONSTRUCTION JOINT DETAIL

NOT TO SCALE



5" WATERSTOP

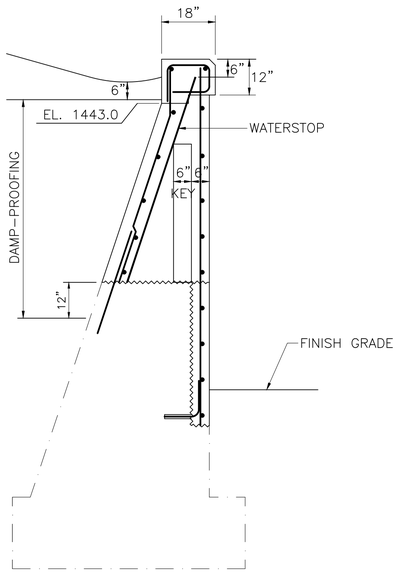
NOT TO SCALE



NOTE: SEE SECTION 2 ON SHEET 15 FOR TYPICAL CALLOUTS

NW1 WALL SECTION (4/13)

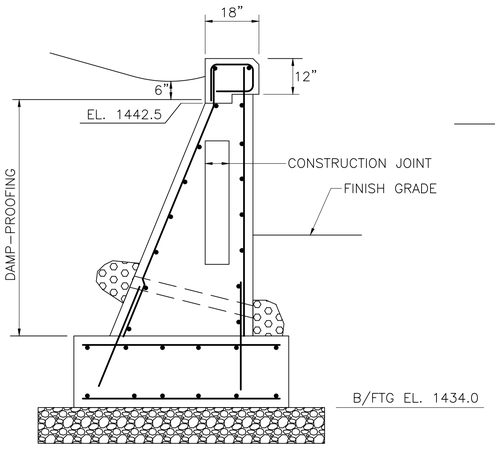
SCALE: 1/2" = 1'-0"



NOTE: SEE SECTION 2 ON SHEET 15 FOR TYPICAL CALLOUTS

NW2 WALL SECTION (5/13)

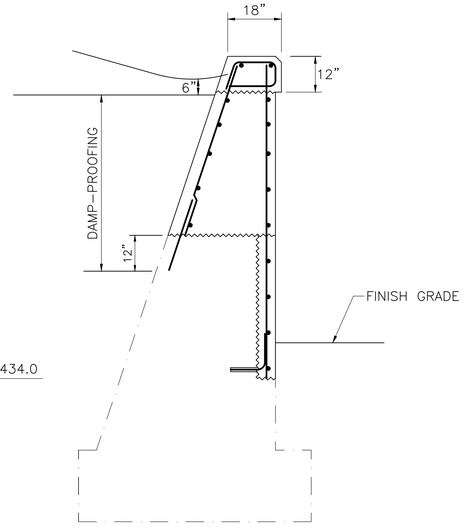
SCALE: 1/2" = 1'-0"



NOTE: SEE SECTION 3 ON SHEET 15 FOR TYPICAL CALLOUTS

NW3 WALL SECTION (6/13)

SCALE: 1/2" = 1'-0"



NOTE: SEE SECTION 2 ON SHEET 15 FOR TYPICAL CALLOUTS

NE & SW WALL SECTION (7/13,14)

SCALE: 1/2" = 1'-0"

NOTES:

1. SEE SHEET 15 FOR TYPICAL NOTES.

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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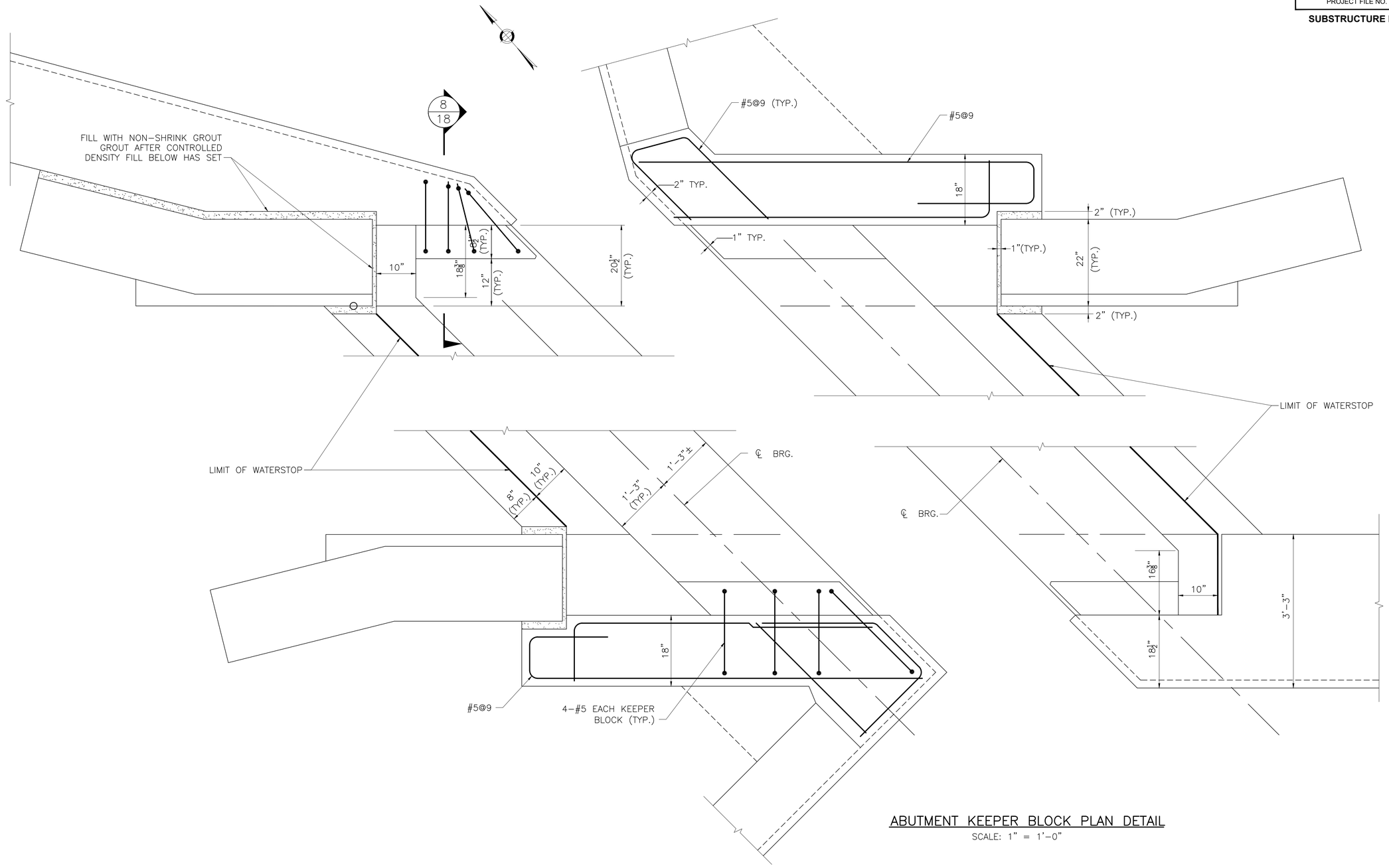
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
USE ONLY PRINTS OF LATEST DATE

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	33	50
PROJECT FILE NO.	608855		

SUBSTRUCTURE DETAILS - 3



ABUTMENT KEEPER BLOCK PLAN DETAIL
SCALE: 1" = 1'-0"

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
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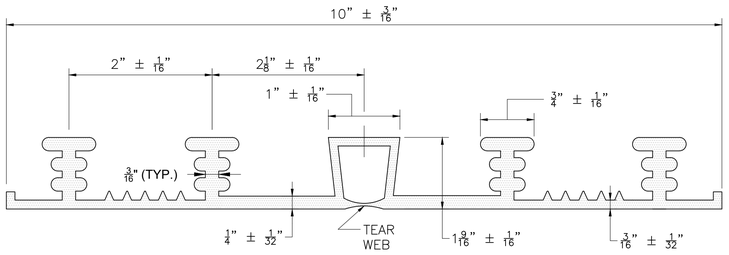
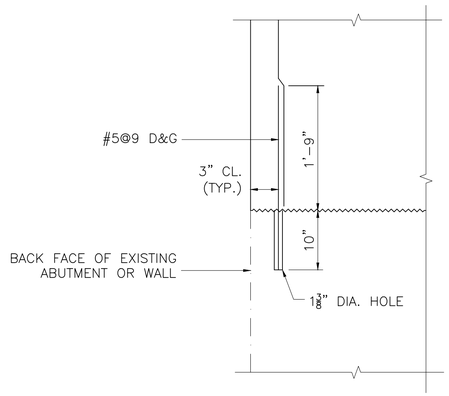
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	34	50
	PROJECT FILE NO. 608855		

SUBSTRUCTURE DETAILS - 4

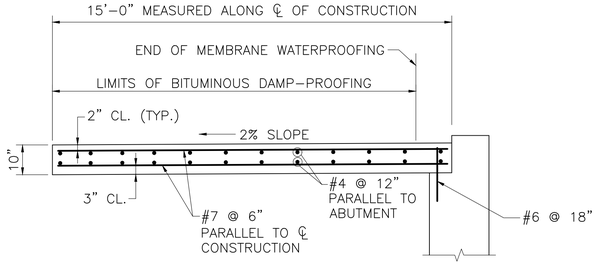


10" WATERSTOP
NOT TO SCALE



NOTE: BACK FACE SHOWN VERTICAL FOR CLARITY

TYPICAL DRILL AND GROUT DOWEL DETAIL
SCALE: 1" = 1'-0"

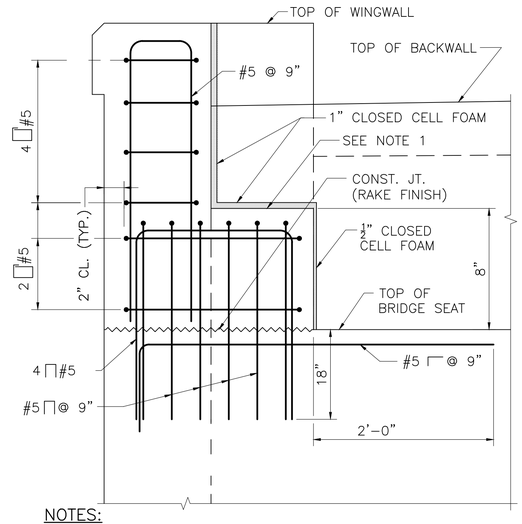


NOTES:
1. APPROACH SLAB TO BE 4000 PSI, 1½ IN, 565 CEMENT CONCRETE.

APPROACH SLAB DETAILS
SCALE: ½" = 1'-0"

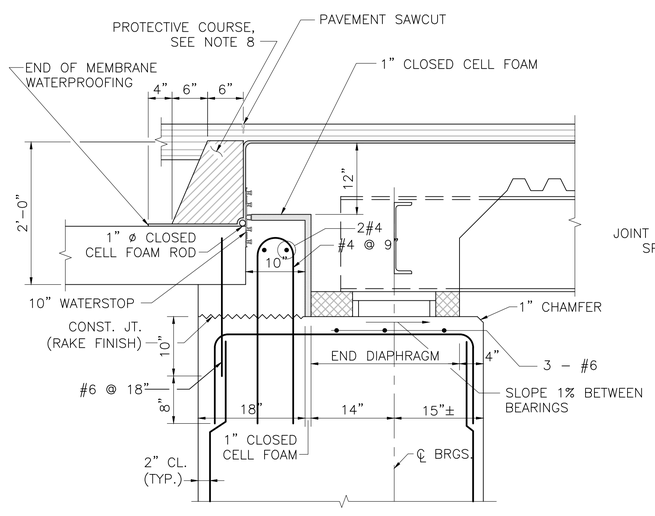
ABUTMENT/ROADWAY SECTION NOTES:

1. ALL REINFORCEMENT SHOWN IN THIS DETAIL SHALL BE COATED EXCEPT FOR THE APPROACH SLAB REINFORCEMENT.
2. ALL BACKWALL CONCRETE ABOVE THE CONSTRUCTION JOINT LOCATED AT THE BRIDGE SEAT SHALL BE 4000 PSI, ¾ IN, 610 CEMENT CONCRETE. THE CONSTRUCTION JOINT SHALL BE GIVEN A RAKE FINISH WITH A ¼" MINIMUM AMPLITUDE.
3. TOP OF BACKWALL SHALL BE TROWELED SMOOTH PARALLEL TO THE PROFILE GRADE.
4. THE BACKWALL, KEEPER BLOCK, AND CURTAIN WALL CONCRETE MUST BE PLACED AND SUFFICIENTLY CURED PRIOR TO PLACING THE END DIAPHRAGM CONCRETE.
5. THE END DIAPHRAGM CONCRETE SHALL BE 5000 PSI, ¾ IN, 685 HP CEMENT CONCRETE AND SHALL BE PLACED MONOLITHICALLY WITH THE DECK.
6. PRIOR TO PLACING THE END DIAPHRAGM CONCRETE, CLOSED CELL FOAM OF THE SPECIFIED THICKNESSES SHALL BE ATTACHED WITH ADHESIVE TO ALL SURFACES OF THE BACKWALL, KEEPER BLOCKS, AND CURTAIN WALLS AS SHOWN ON THE PLANS. EXPANDED POLYSTYRENE FILLER SHALL BE PLACED UNDER THE BEAM BOTTOM FLANGE AND THE BOTTOM OF THE END DIAPHRAGM SHALL BE FORMED AS SPECIFIED. THE CONTRACTOR SHALL INSURE THAT ALL ABUTMENT CONCRETE IS PROPERLY LINED. END DIAPHRAGM CONCRETE MUST NOT COME IN DIRECT CONTACT WITH ABUTMENT CONCRETE.
7. DRAPE MEMBRANE WATERPROOFING OVER CLOSED CELL FOAM BACKER ROD.
8. PROTECTIVE COURSE TO BE SUPERPAVE BRIDGE PROTECTIVE COARSE (SPC-B-12.5), PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND-GUIDED TAMPER WITHIN 12 HOURS AFTER PLACING MEMBRANE WATERPROOFING.



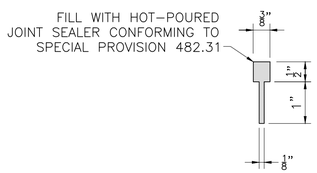
NOTES:
1. TOP OF KEEPER BLOCK SHALL BE TROWELED SMOOTH PARALLEL TO PROFILE GRADE.
2. ABUTMENT REINFORCEMENT BELOW CONSTRUCTION JOINT HAS BEEN OMITTED FOR CLARITY.

SECTION OF KEEPER BLOCK/CURTAIN WALL
NOT TO SCALE



NOTE: SEE DECK DETAILS FOR ADDITIONAL INFORMATION.

DETAILS AT ABUTMENT – ROADWAY SECTION
SCALE: 1" = 1'-0"



PAVEMENT SAWCUT DETAIL
NOT TO SCALE

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER
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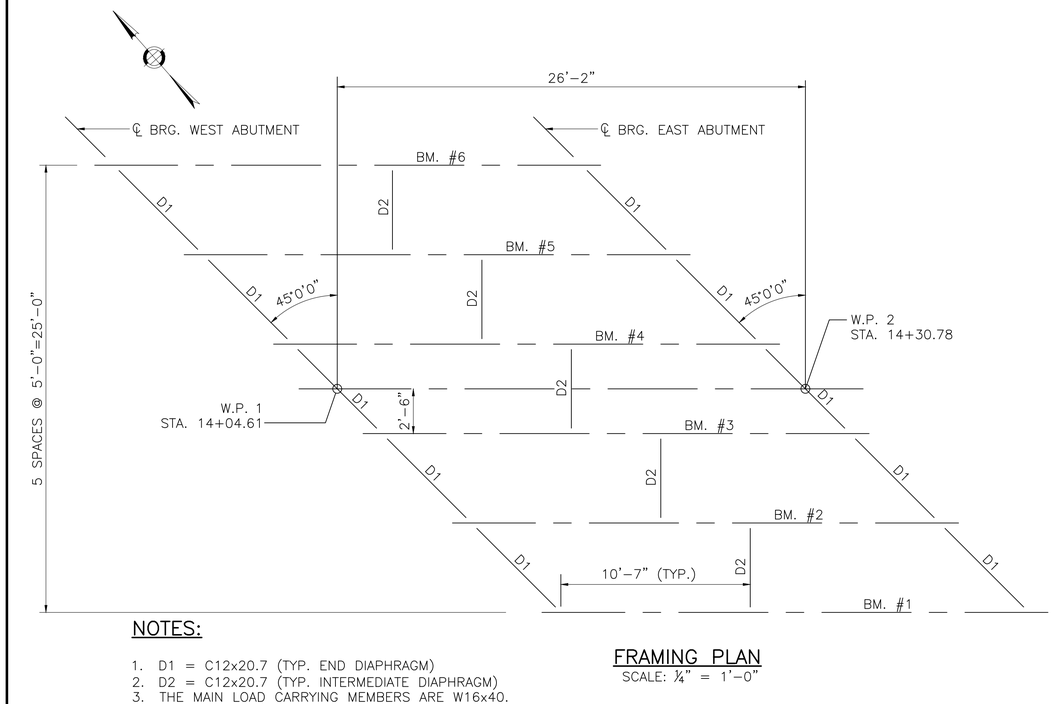
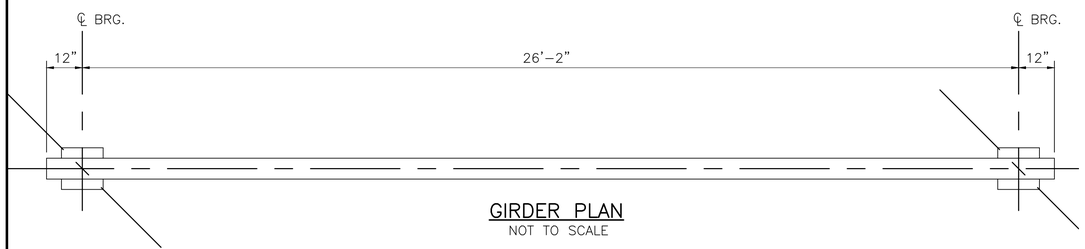


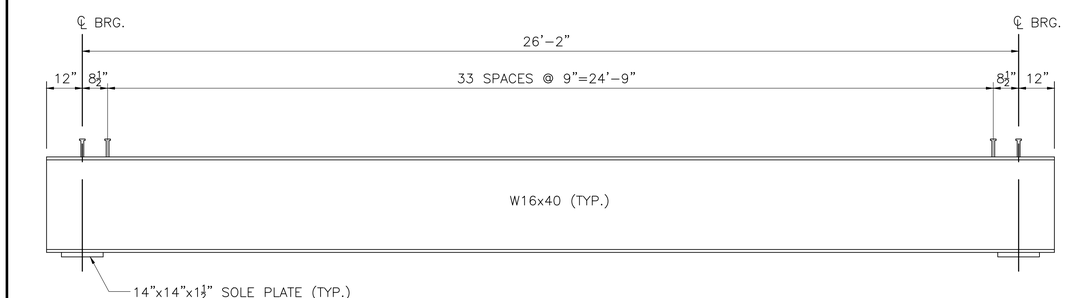
NOTES:

1. D1 = C12x20.7 (TYP. END DIAPHRAGM)
2. D2 = C12x20.7 (TYP. INTERMEDIATE DIAPHRAGM)
3. THE MAIN LOAD CARRYING MEMBERS ARE W16x40.

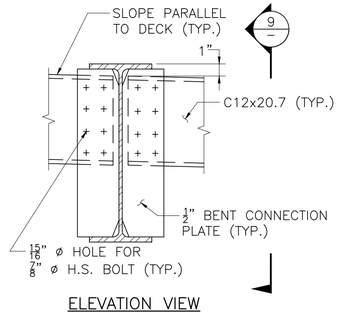
FRAMING PLAN
SCALE: ¼" = 1'–0"



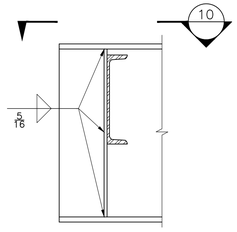
GIRDER PLAN
NOT TO SCALE



GIRDER ELEVATION
NOT TO SCALE

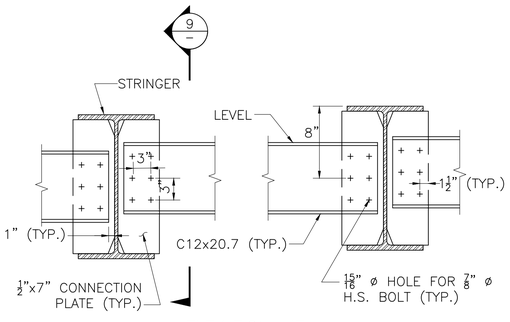


ELEVATION VIEW



SECTION 9

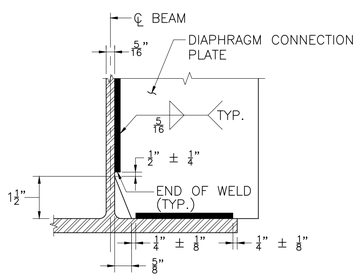
END DIAPHRAGM DETAILS
SCALE: 1" = 1'–0"



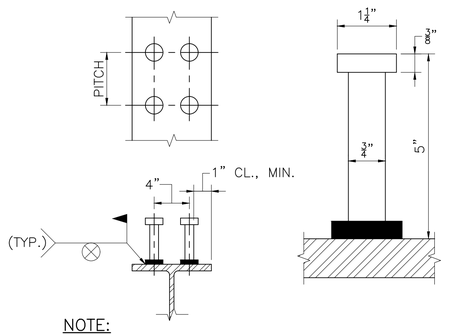
ELEVATION VIEW

NOTE:
SEE CLIP DETAILS ON SHEET X. (See Dwg. No. 5.1.9)

INTERMEDIATE DIAPHRAGM DETAILS
SCALE: 1" = 1'–0"

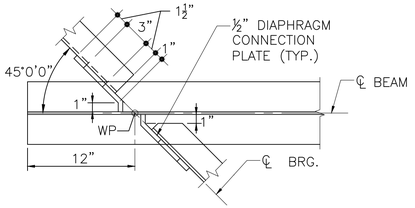


CLIP DETAIL
NOT TO SCALE



NOTE:
⅞" ø STUDS MAY BE SUBSTITUTED FOR ¾" ø STUDS BY ADJUSTING THE PITCH TO PROVIDE AN EQUIVALENT CROSS–SECTIONAL AREA PER FOOT.

STUD SHEAR CONNECTORS
NOT TO SCALE



SECTION 10
SCALE: 1½" = 1'–0"

NOTES:

1. STEEL BEAMS AND APPLICABLE DIAPHRAGMS SHALL BE INCORPORATED INTO PREFABRICATED BRIDGE UNITS (PBU'S) AS SHOWN ON SHEETS 1 AND 19 AND SPECIAL PROVISION 900.00.
2. ALL STEEL SHALL CONFORM TO AASHTO M270 GRADE 50 AND SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
3. ALL BOLTS SHALL BE HOT DIPPED GALVANIZED.

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	35	50
PROJECT FILE NO.	608855		

STEEL DETAILS

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

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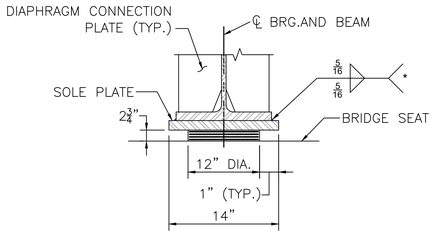
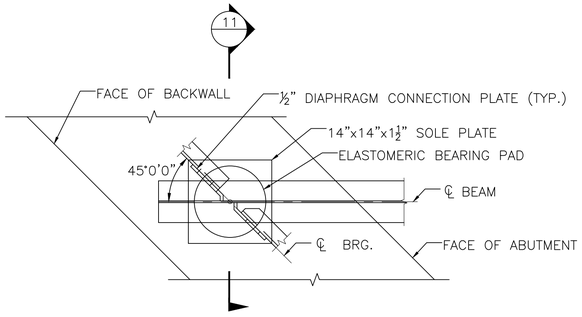
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	36	50
PROJECT FILE NO.	608855		

BEARING DETAILS

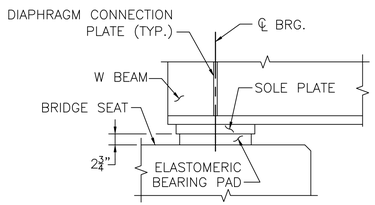


(*) – WELDS SHALL TERMINATE ¼" FROM EDGE OF PLATE.

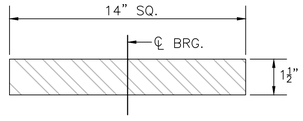
SECTION 11
NOT TO SCALE



PLAN
SCALE: 1" = 1'–0"



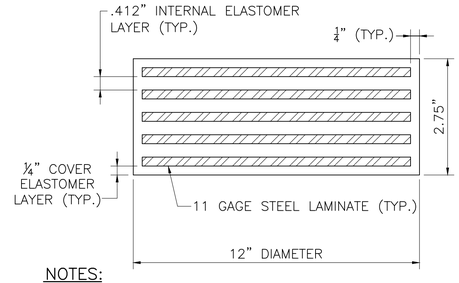
ELEVATION
NOT TO SCALE



SOLE PLATE DETAIL
SCALE: 3" = 1'–0"

BEARING NOTES:

1. STEEL SOLE PLATE SHALL CONFORM TO AASHTO M 270 GRADE 36 AND SHALL BE HOT–DIP GALVANIZED.
2. CENTER THE ELASTOMERIC PAD UNDER THE SOLE PLATE DURING BEAM ERECTION.
3. BEAMS SHALL BE ERECTED WHEN THE AMBIENT TEMPERATURE IS BETWEEN 50 °F AND 77 °F. IF BEAMS ARE ERECTED AT OTHER AMBIENT TEMPERATURES, THEY WILL HAVE TO BE JACKED AND THE ELASTOMERIC BEARINGS RECENTERED WHEN THE TEMPERATURE RETURNS TO THAT RANGE.
4. TEMPERATURE OF STEEL ADJACENT TO ELASTOMER DURING FIELD WELDING SHALL BE KEPT BELOW 250 °F.



NOTES:

1. ELASTOMER SHALL HAVE A SHEAR MODULUS OF 0.160 KSI.
2. STEEL LAMINATES SHALL CONFORM TO ASTM A 1011 GRADE 36.
3. THE COMPRESSIVE DESIGN LOAD ON THE BEARING PAD IS 64 KIPS. THE COMPRESSIVE DESIGN STRESS IS THE RESULT OF DIVIDING THE COMPRESSIVE DESIGN LOAD BY THE AREA OF THE PAD AND IS EQUAL TO .566 KSI.
4. ELASTOMERIC BEARING PAD SHALL NOT BE VULCANIZED TO THE SOLE PLATE.

ELASTOMERIC BEARING PAD
NOT TO SCALE

DATE	DESCRIPTION
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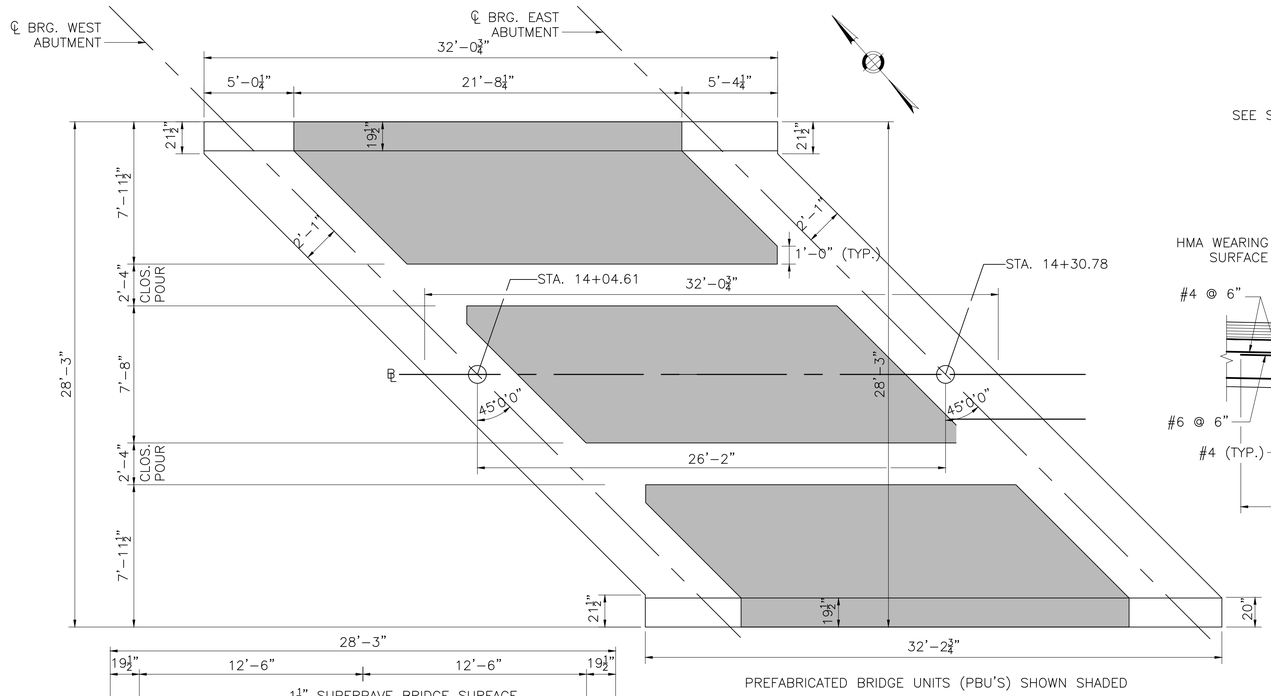
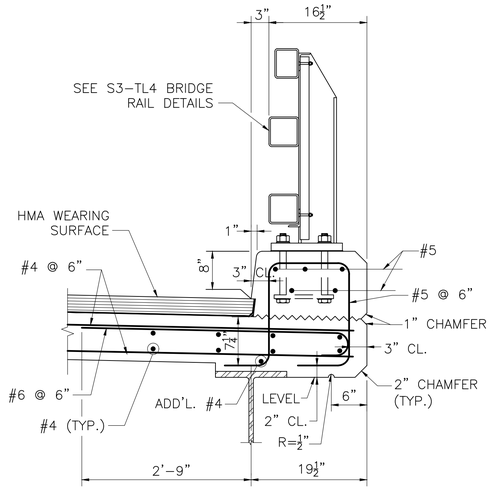


PREFABRICATED BRIDGE UNITS (PBU'S) SHOWN SHADED

DECK PLAN
SCALE: ¼" = 1'-0"

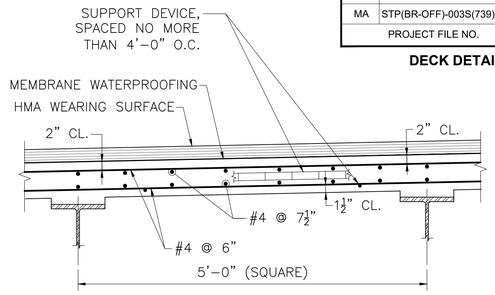


SECTION THRU SAFETY CURB
SCALE: 1" = 1'-0"

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	37	50
	PROJECT FILE NO. 608855		

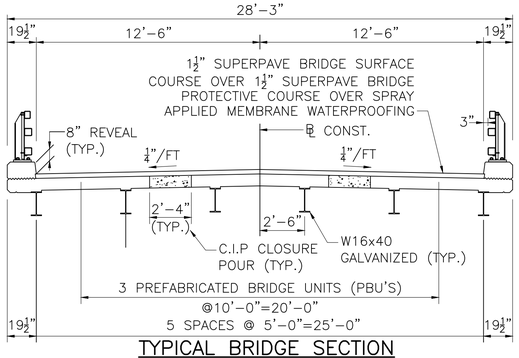
DECK DETAILS



NOTES:

1. BRIDGE DECK SLAB, PRECAST AND CAST IN PLACE, SHALL BE 5000 PSI, ¾ IN, 685 HP CEMENT CONCRETE.
2. LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE ℄ OF CONSTRUCTION. TRANSVERSE (PRIMARY) REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE ℄ OF CONSTRUCTION.
3. ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.
4. THE FINISHED SURFACE OF BRIDGE DECK SHALL BE SMOOTH AND WITHOUT ANY PROJECTIONS THAT COULD PUNCTURE THE MEMBRANE WATERPROOFING OR DEPRESSIONS THAT COULD RETAIN WATER.

TYPICAL DECK REINFORCEMENT
SCALE: ¾" = 1'-0"

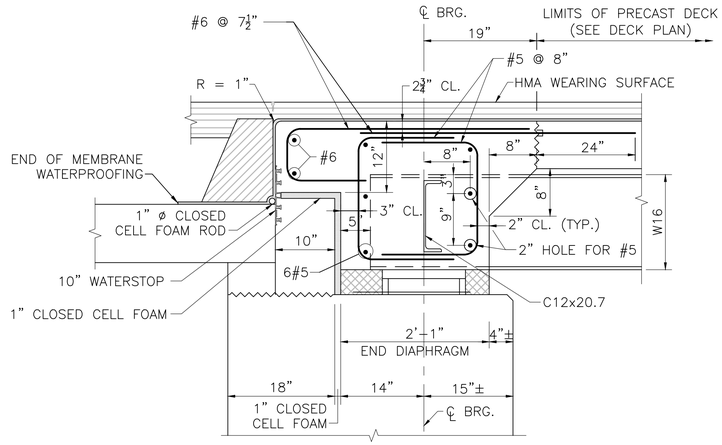


TYPICAL BRIDGE SECTION
SCALE: ¼" = 1'-0"

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE					
BEAM NO.	INCREASING STATIONS →				
	℄ BRG.	1/4 PT.	1/2 PT.	3/4 PT.	℄ BRG.
B1	1443.33	1443.42	1443.49	1443.55	1443.59
B2	1443.39	1443.47	1443.54	1443.60	1443.65
B3	1443.44	1443.53	1443.60	1443.66	1443.70
B4	1443.39	1443.48	1443.55	1443.61	1443.65
B5	1443.24	1443.32	1443.39	1443.45	1443.50
B6	1443.08	1443.17	1443.24	1443.30	1443.34

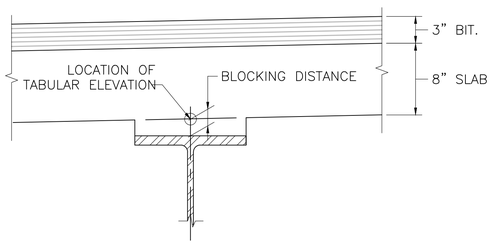
NOTE:

AFTER THE BEAMS ARE ERECTED BUT BEFORE THE FORMS ARE BUILT, ELEVATIONS ON TOP OF THE FLANGE OF THE BEAMS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN THE ELEVATIONS OBTAINED AND THOSE SHOWN IN THE TABLE GIVES THE ACTUAL BLOCKING DISTANCE FROM THE TOP OF BEAM TO THE BOTTOM OF THE SLAB AT CENTER LINE OF BEAM.



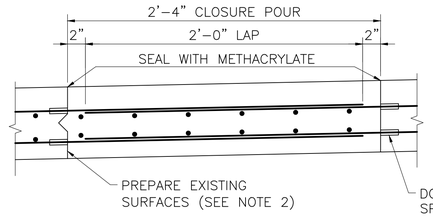
NOTES:
1. SEE ABUTMENT DETAILS FOR ADDITIONAL INFORMATION.
2. DECK REBAR NOT SHOWN FOR CLARITY.

END DIAPHRAGM/DECK DETAIL
SCALE: 1" = 1'-0"

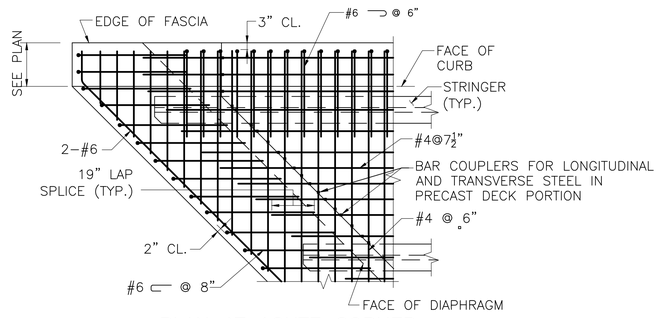


HAUNCH DETAIL

TOP OF FORM DETAILS
NOT TO SCALE



CLOSURE POUR DETAIL
SCALE: 1½" = 1'-0"



PLAN AT ACUTE CORNER
SCALE: ⅜" = 1'-0"

NOTES:

1. PORTIONS OF DECK AS SHOWN SHALL BE PRECAST AND INTEGRAL WITH STEEL BEAMS AS DESCRIBED IN SPECIAL PROVISION 995.1 "PREFABRICATED BRIDGE UNITS (PBU'S)".
2. EDGE OF PRECAST DECK ADJACENT TO CLOSURE POUR SHALL BE BLAST CLEANED, ROUGHENED, WETTED WITH CLEAN WATER, AND THEN FLUSHED WITH A MORTAR COMPOSED OF EQUAL PARTS OF THE CEMENT AND SAND SPECIFIED FOR THE NEW CONCRETE, BEFORE NEW CONCRETE IS PLACED ADJACENT THERETO. NEW CONCRETE SHALL BE PLACED BEFORE MORTAR HAS TAKEN INITIAL SET.
3. IN LIEU OF THE MORTAR, AN EPOXY ADHESIVE SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS MAY BE USED. THE EPOXY ADHESIVE SHALL CONFORM TO AASHTO M 235 TYPE V AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

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ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	38	50
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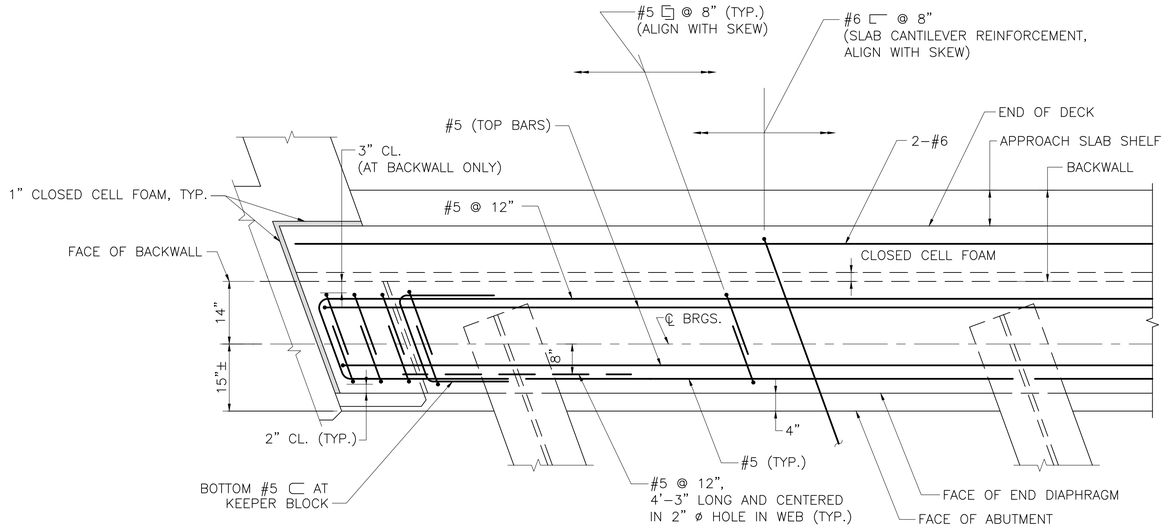
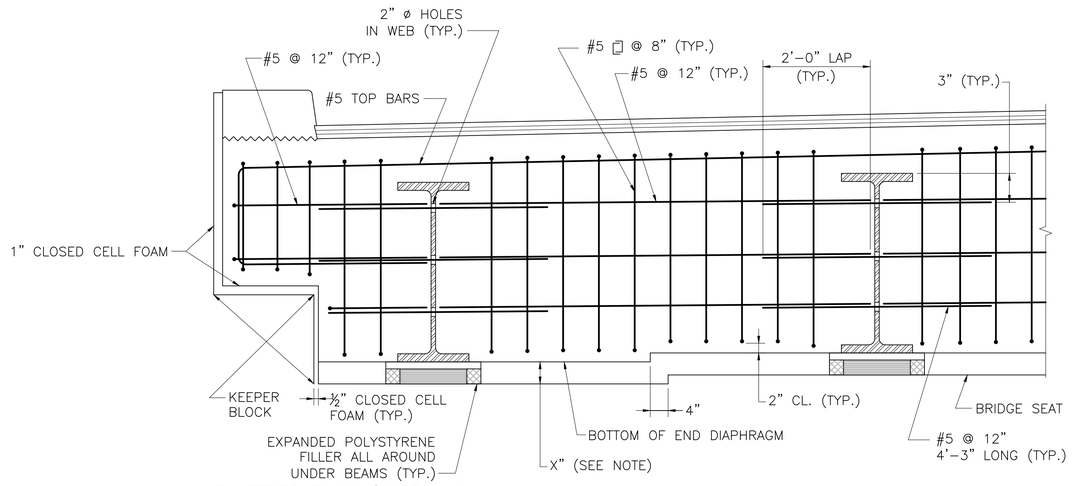
END DIAPHRAGM DETAILS



AT KEEPER BLOCK/CURTAIN WALL TYPICAL INTERIOR BAY

END DIAPHRAGM PLAN

SCALE: ¾" = 1'-0"



AT KEEPER BLOCK/CURTAIN WALL TYPICAL INTERIOR BAY

NOTE:
CONTRACTOR MAY USE EXPANDED POLYSTYRENE FILLER OR A REMOVABLE FORM TO FORM THE BOTTOM OF THE END DIAPHRAGM.

END DIAPHRAGM ELEVATION

SCALE: ¾" = 1'-0"

DATE	DESCRIPTION
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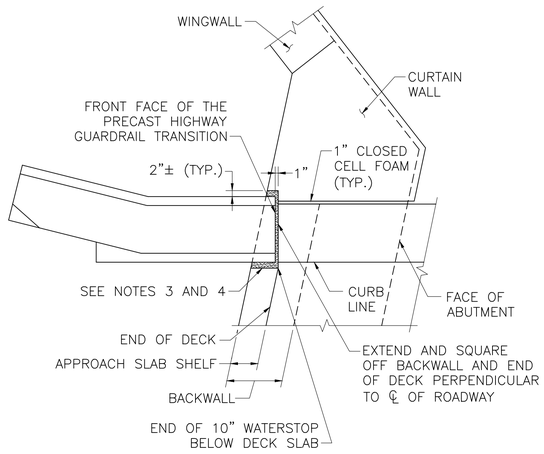
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

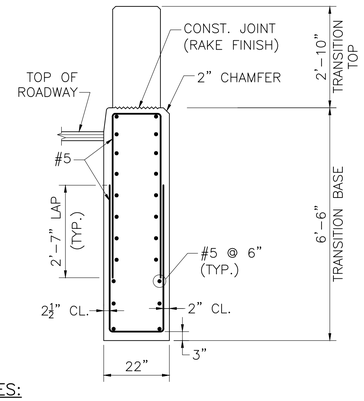
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	39	50
	PROJECT FILE NO. 608855		

GUARDRAIL TRANSITION DETAILS - 1



PRECAST GUARDRAIL TRANSITION PLAN AT NW, SW, AND NE CORNERS

SCALE: $\frac{1}{2}$" = 1'–0"

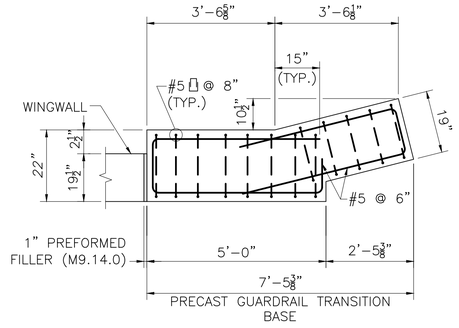


NOTES:

1. COPING NOT SHOWN FOR CLARITY.
2. REINFORCEMENT OF THE TRANSITION TOP IS NOT SHOWN FOR CLARITY.

SECTION 12

SCALE: $\frac{1}{2}$" = 1'–0"

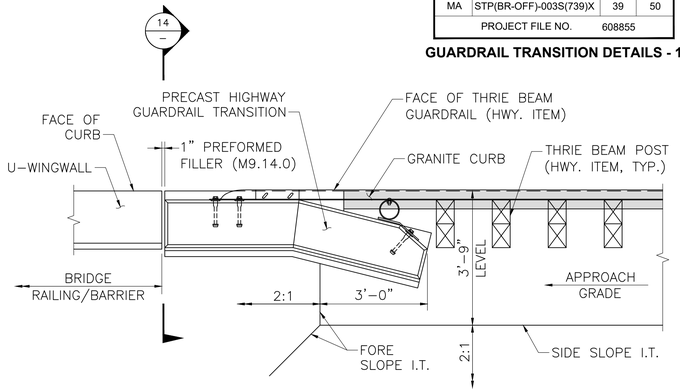


NOTE:

WINGWALL REINFORCEMENT AND STRIATIONS NOT SHOWN FOR CLARITY.

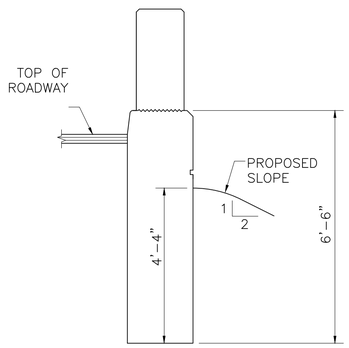
SECTION 13

SCALE: $\frac{1}{2}$" = 1'–0"



GRADING REQUIREMENTS PLAN

SCALE: $\frac{1}{2}$" = 1'–0"

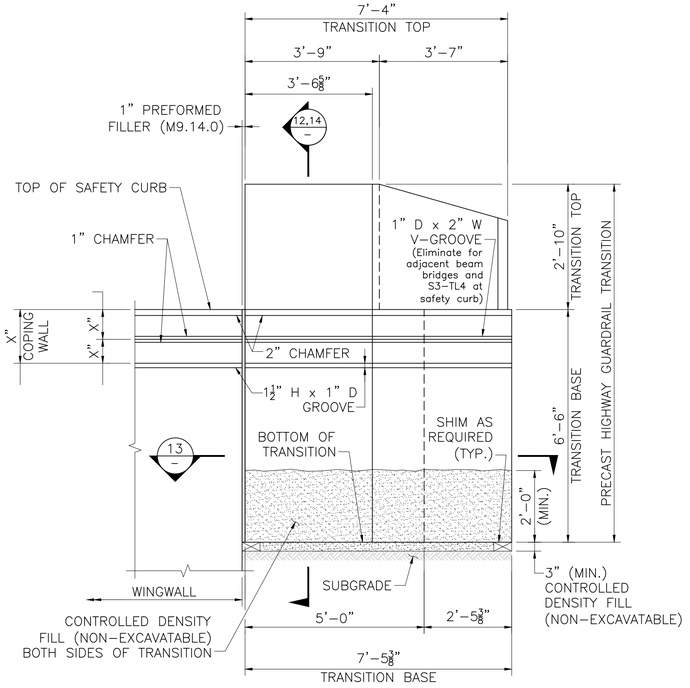


SECTION 14

SCALE: $\frac{1}{2}$" = 1'–0"

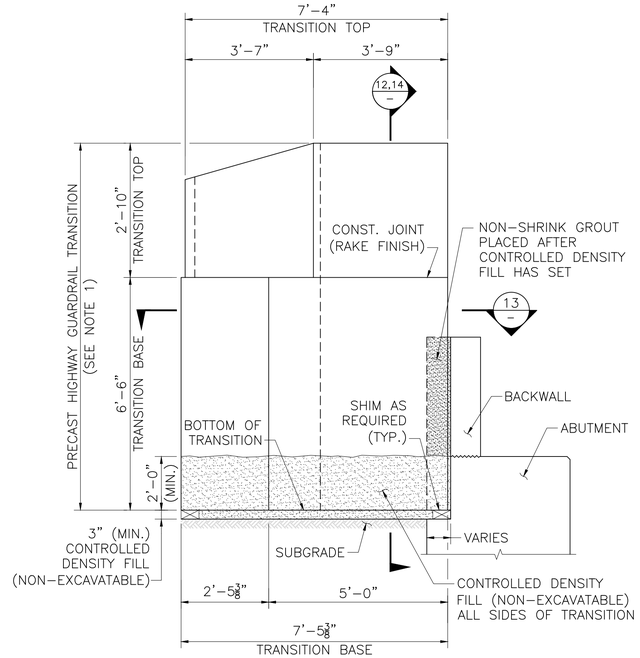
NOTES:

1. PRECAST GUARDRAIL TRANSITION SHALL BE 5000 PSI, ¾ IN, 685 HP CEMENT CONCRETE.
2. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF 3" (MIN.) BELOW THE INTENDED BOTTOM OF THE PRECAST GUARDRAIL TRANSITION BASE AND TO A HEIGHT OF 2'–0" (MIN.) ON ALL SIDES OF THE TRANSITION BASE TO FORM A TRENCH IN WHICH TO SET THE TRANSITION. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE BASE, IT SHALL BE PLACED ON UNDISTURBED SOIL.
3. CONTRACTOR SHALL SET THE PRECAST GUARDRAIL TRANSITION TO THE REQUIRED ELEVATION AND ALIGNMENT, AND BACKILL PRECAST GUARDRAIL TRANSITION WITH CONTROLLED DENSITY FILL (NON–EXCAVATABLE) TO THE ELEVATION SHOWN.
4. AFTER CONTROLLED DENSITY FILL (NON–EXCAVATABLE) HAS SET FILL THE GAPS BETWEEN GUARDRAIL TRANSITION AND BLOCK–OUT IN BACKWALL AND ABUTMENT WITH NON–SHRINK GROUT UP TO THE TOP OF BACKWALL.
5. THE REST OF REINFORCEMENT IS NOT SHOWN FOR CLARITY.



PRECAST GUARDRAIL TRANSITION ELEVATION AT SE WINGWALL

SCALE: $\frac{1}{2}$" = 1'–0"



PRECAST GUARDRAIL TRANSITION ELEVATION AT NW, SW, AND NE CORNERS

SCALE: $\frac{1}{2}$" = 1'–0"

6/8/2024	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION

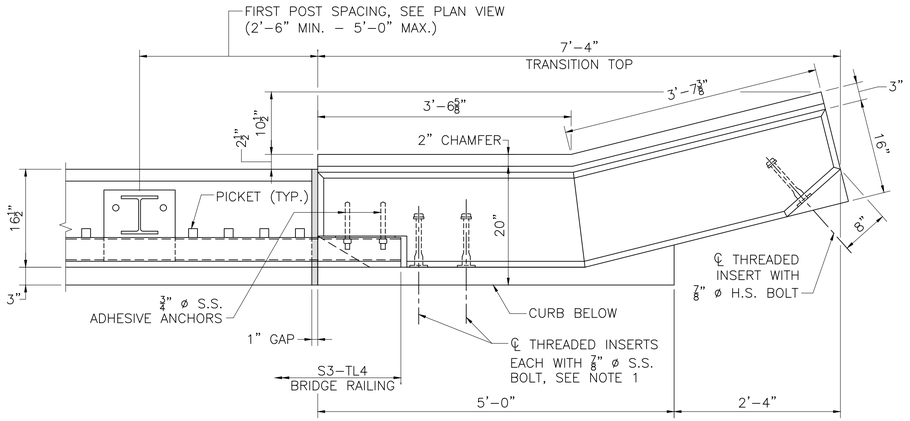
THIS SHEET IS APPROVED FOR CONSTRUCTION BY MASSDOT
AUTHORIZED SIGNATORY: STATE BRIDGE ENGINEER

USE ONLY PRINTS OF LATEST DATE

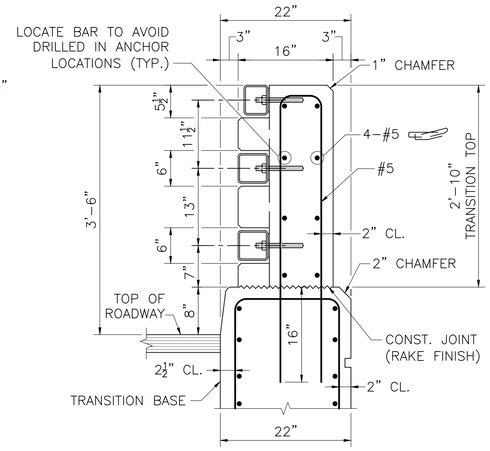
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	40	50
	PROJECT FILE NO. 608855		

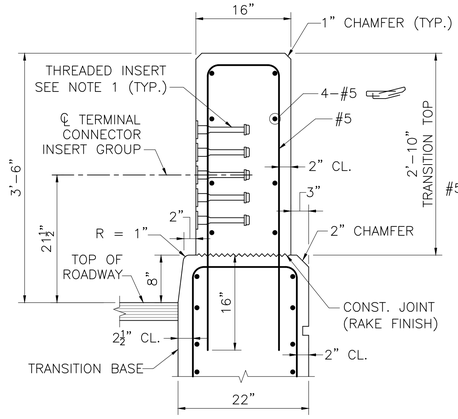
GUARDRAIL TRANSITION DETAILS - 2



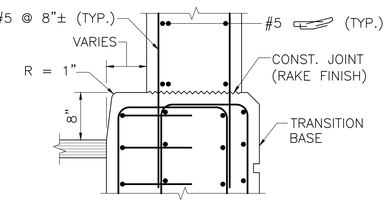
PLAN
SCALE: 1" = 1'-0"



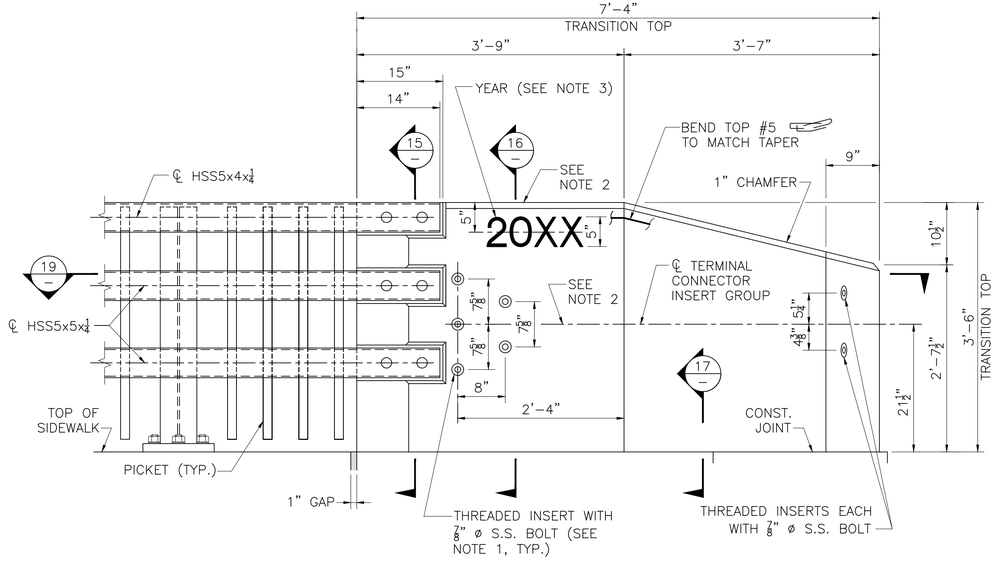
SECTION 15
SCALE: 1" = 1'-0"



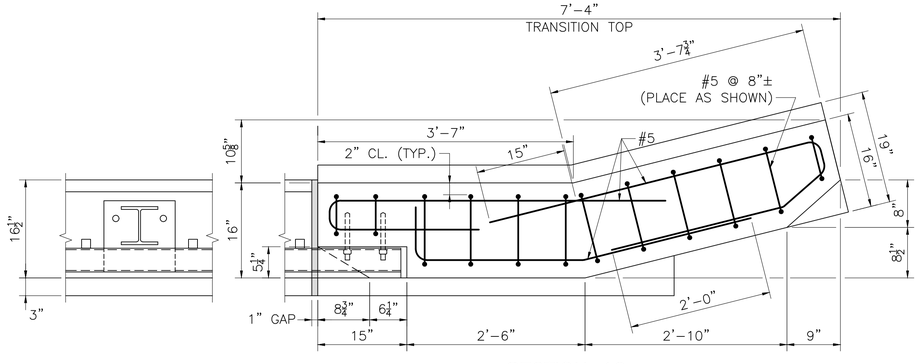
SECTION 16
SCALE: 1" = 1'-0"



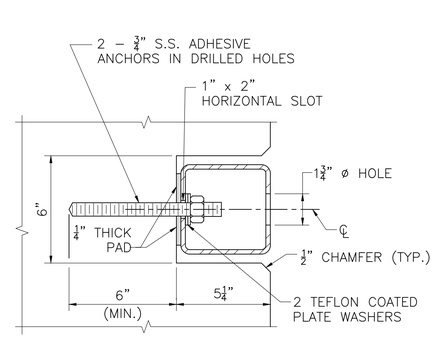
SECTION 17
SCALE: 1" = 1'-0"



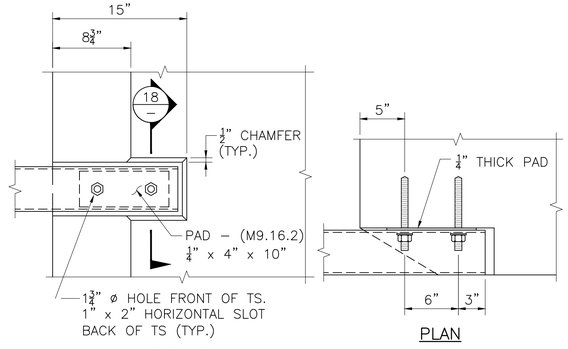
ELEVATION
SCALE: 1" = 1'-0"



SECTION 19
SCALE: 1" = 1'-0"



SECTION 18
SCALE: 3" = 1'-0"



ELEVATION

PLAN

RAIL ATTACHMENT
SCALE: 1½" = 1'-0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING A NOMINAL SHEAR RESISTANCE OF 20 KIPS PER ⅞" ø S.S. BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR ⅞" S.S. BOLTS SHALL BE GALVANIZED AND CAST INTO THE TRANSITION.

2. THE NW, NE, AND SW TRANSITION MAY BE CAST SQUARE AND SET PLUMB WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SQUARE TO THE POST.

   THE SE TRANSITION TOP AND THE TOP OF CURB SHALL FOLLOW THE APPROACH GRADE. THE HEIGHT OF THE TRANSITION TOP SHALL VARY PROVIDED THAT THE MINIMUM DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE MET. THE BOTTOM OF THE TRANSITION BASE SHALL BE SET LEVEL WITH THE MINIMUM EMBEDMENT DEPTH SHOWN. THE TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO FOLLOW THE APPROACH GRADE.

3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.

4. ALL CONCRETE FOR THE PRECAST HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, ¾", 685 HP CEMENT CONCRETE.

5. LIFTING DEVICES (NOT SHOWN), INCLUDING THEIR NUMBER AND LOCATION, SHALL BE DESIGNED AND DETAILED BY THE PRECASTER. THEY SHALL BE GALVANIZED AND SHALL BE PLACED AND RECESSED IN POCKETS TO PROVIDE 1½" CLEAR COVER TO THE FACE OF THE TRANSITION CONCRETE. THESE DEVICES SHALL BE CLEARLY SHOWN ON THE SHOP DRAWINGS ALONG WITH ALL SUPPORTING CALCULATIONS AND/OR CATALOG CUTS. ONCE THE PRECAST TRANSITION IS SET IN PLACE, THE LIFTING DEVICE POCKETS SHALL BE FILLED WITH A NON-SHRINK GROUT THAT MATCHES THE COLOR OF THE TRANSITION CONCRETE WHEN CURED AND THE FILLED POCKETS SHALL BE RUBBED WITH A CORUNDUM STONE TO BLEND OUT THE JOINTS.

6/8/2024	ISSUED FOR CONSTRUCTION
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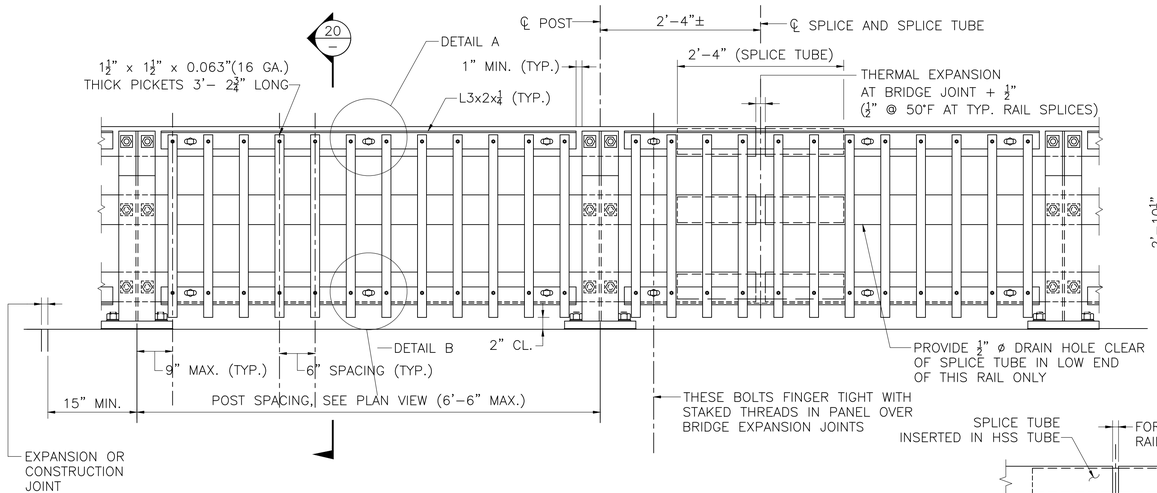
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

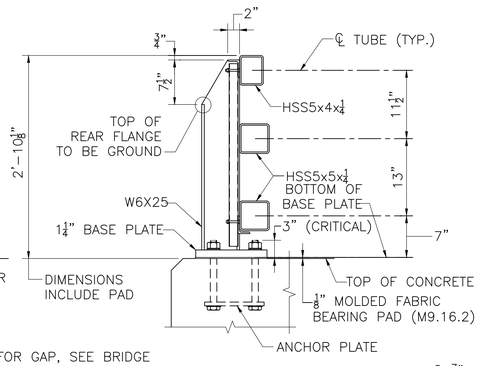
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003S(739)X	41	50
	PROJECT FILE NO. 608855		

RAILING DETAILS



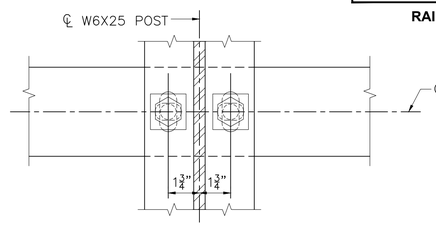
BRIDGE RAILING ELEVATION

SCALE: 1" = 1'-0"

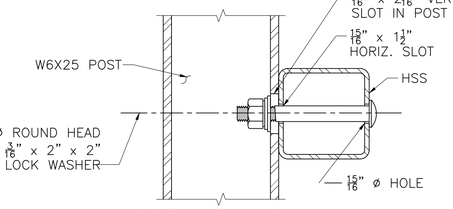


SECTION 20

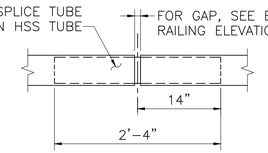
SCALE: 1" = 1'-0"



SECTION THRU POST WEB



SECTION THRU RAIL



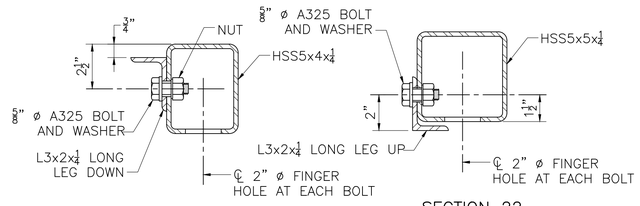
TYPICAL SPLICE

SCALE: 1" = 1'-0"

NOTE:
CONNECTIONS AT LOWER RAILS SHOWN.
CONNECTIONS AT TOP RAIL SIMILAR.

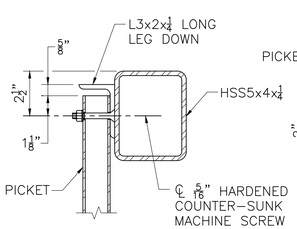
TYPICAL RAIL TO POST CONNECTIONS

NOT TO SCALE

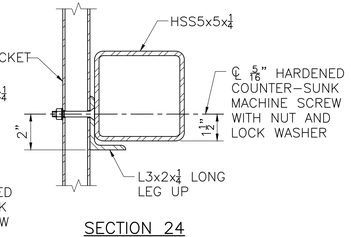


SECTION 21

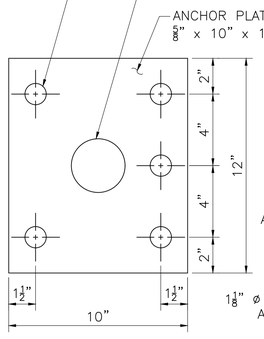
SECTION 22



SECTION 23

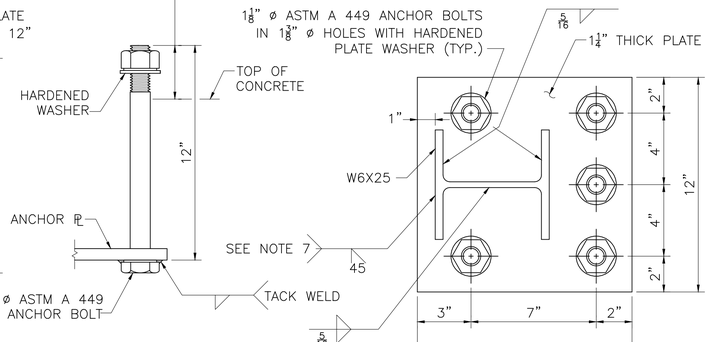


SECTION 24



ANCHOR PLATE

SCALE: 3" = 1'-0"

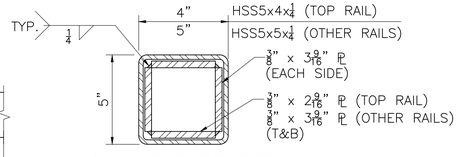


ANCHOR BOLT

SCALE: 3" = 1'-0"

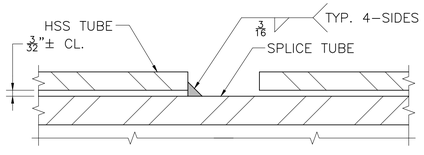
BASE PLATE

SCALE: 3" = 1'-0"



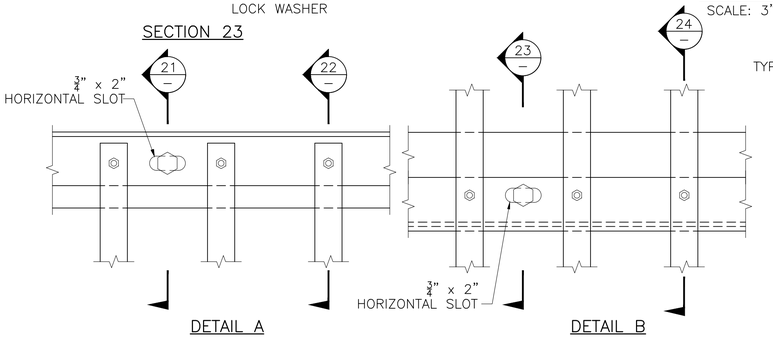
SPLICE TUBE DETAILS

SCALE: 3" = 1'-0"



SPLICE DETAIL

FULL SIZE

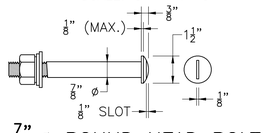


DETAIL A

DETAIL B

TYPICAL PICKET TO RAIL DETAILS

SCALE: 3" = 1'-0"



⅞" ø ROUND HEAD BOLT

SCALE: 3" = 1'-0"

RAILING NOTES:

1. RAIL POST AND BASE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 50. HOLLOW RAILING STRUCTURAL TUBING (HSS) SHALL CONFORM TO THE REQUIREMENTS OF ASTM A 500 WITH A CERTIFIED Fy = 50 KSI MINIMUM. THE MINIMUM HORIZONTAL BENDING RADII OF THE HSS TUBING SHALL BE 8 FEET. PICKET CARRIER ANGLES, ANCHOR PLATES, AND SPLICE TUBE PLATES SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 36. PICKET TUBING SHALL CONFORM TO ASTM A 513 WITH Fy = 36 KSI MIN. OR A 500 GRADE B.
2. ALL STEEL (EXCEPT THE ⅜" ANCHOR PLATE AND FASTENERS) SHALL BE GALVANIZED AND PAINTED DARK BRONZE (FEDERAL STD. 595B COLOR NO. 10045). ANCHOR PLATE SHALL BE GALVANIZED ONLY. HEADS OF ⅞" ø ROUND HEAD BOLTS SHALL BE PAINTED TO MATCH RAIL.
3. ANCHOR BOLTS SHALL BE SET WITH TEMPLATES. THE NUT SECURING THE POST BASE PLATE TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8 TURN AFTER STEEL IS IN PLACE.
4. RAILS SHALL BE CONTINUOUS OVER A MINIMUM OF FOUR (4) POSTS WITHOUT SPLICES WHERE POSSIBLE. RAILS SHALL BE SPLICED IN THE PANELS OVER EXPANSION JOINT.
5. ENDS OF TUBE SECTIONS SHALL BE SAWED. GRIND SMOOTH EXPOSED EDGES. ALL CUT ENDS SHALL BE TRUE AND SMOOTH.
6. ALL POSTS TO BE PLUMB WHEN PROFILE GRADE EXCEEDS 1.5%. FOR PROFILE GRADES LESS THAN 1.5%, POSTS SHALL BE SET PERPENDICULAR TO GRADE.
7. POST FLANGE WELD DOES NOT REQUIRE MAGNETIC PARTICLE TESTING. WELD SHALL BE BACK-GOUGED ON BACK SIDE EXCEPT AT WEB. WELD IS THE SAME ON BOTH FLANGES.
8. ⅞" ø ROUND HEAD BOLTS SHALL CONFORM TO THE CHEMICAL AND PHYSICAL REQUIREMENTS OF AASHTO M 164.

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USE ONLY PRINTS OF LATEST DATE	

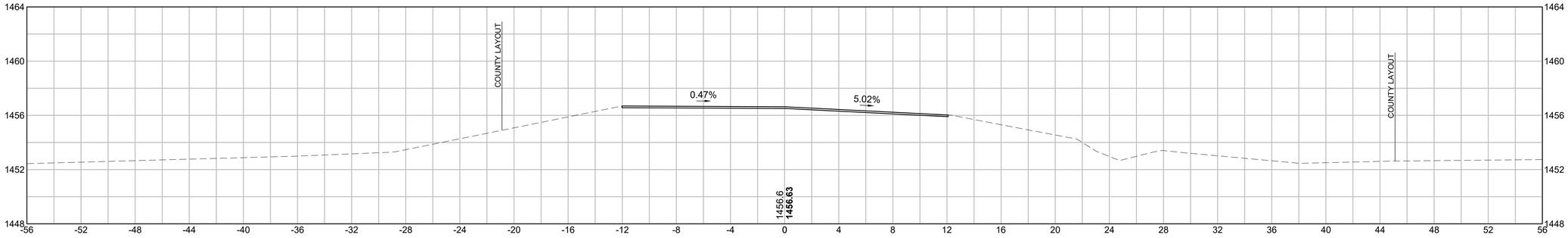
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	42	50
PROJECT FILE NO.	608855		

CROSS SECTIONS

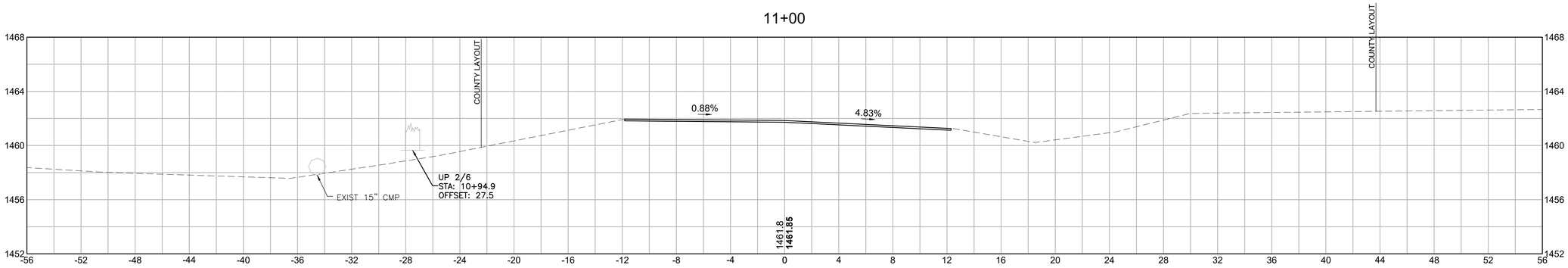
608855_HD\XSECTIONS\.DWG Plotted on 30-May-2024 3:13 PM

11+50



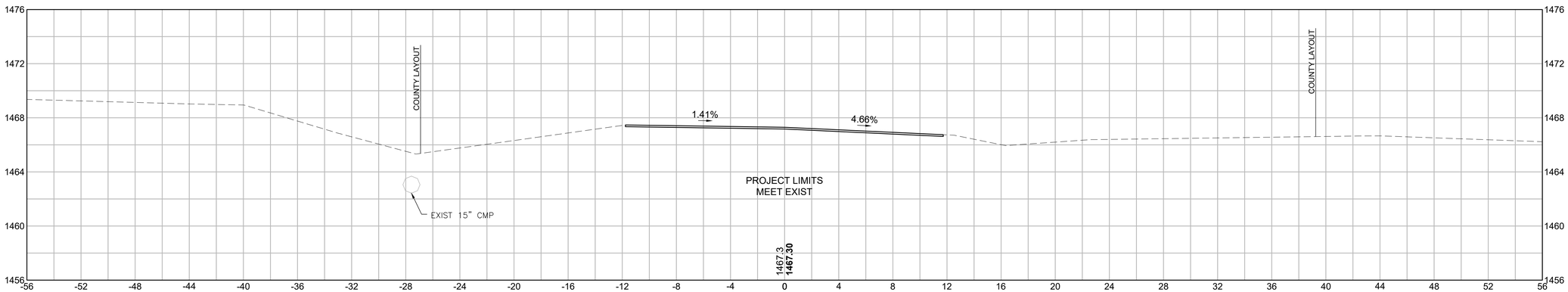
CUT: 0.00 SF
FILL: 0.00 SF

11+00



CUT: 0.00 SF
FILL: 0.00 SF

10+50



CUT: 0.00 SF
FILL: 0.00 SF

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

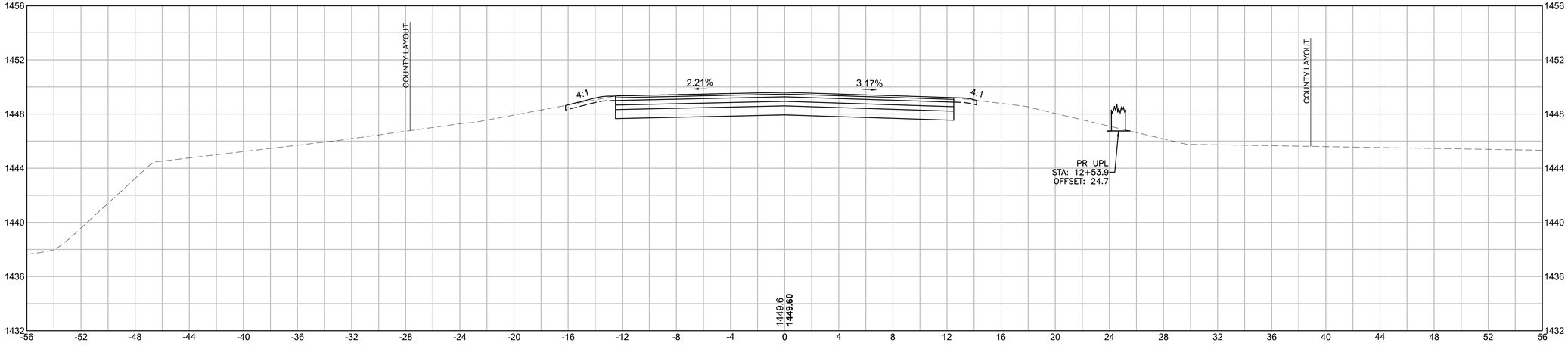
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	43	50
PROJECT FILE NO.	608855		

CROSS SECTIONS

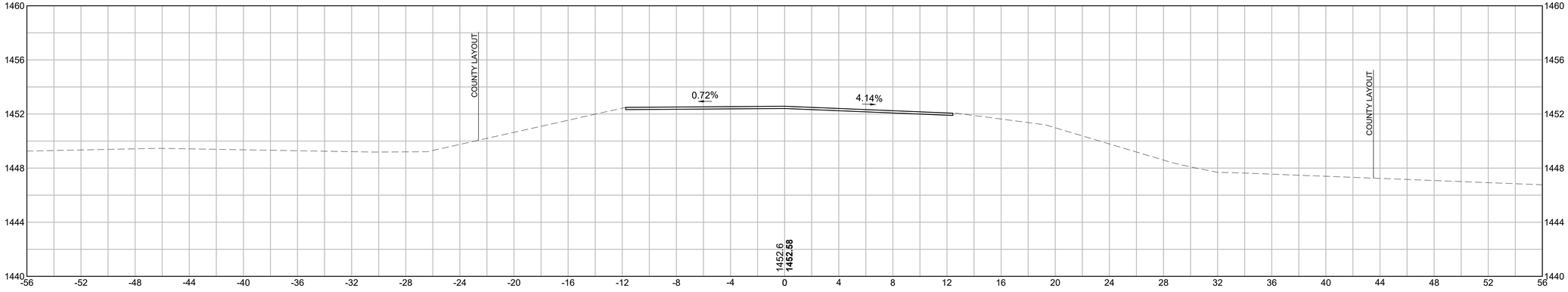
608855_HD\XSECTIONS\.DWG Plotted on 30-May-2024 3:13 PM

12+50



CUT: 43.09 SF
FILL: 0.00 SF

12+00



CUT: 0.00 SF
FILL: 0.00 SF

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

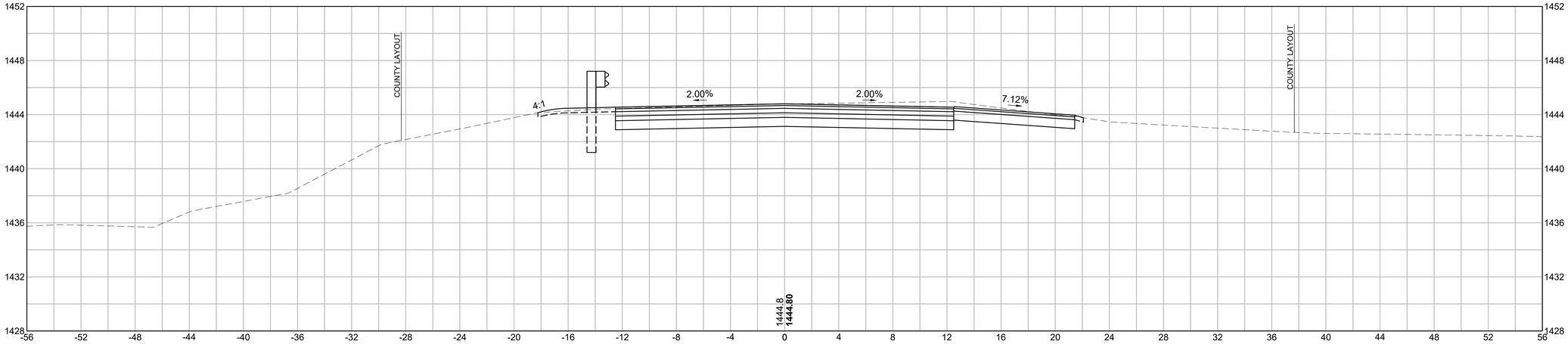
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	44	50
PROJECT FILE NO.	608855		

CROSS SECTIONS

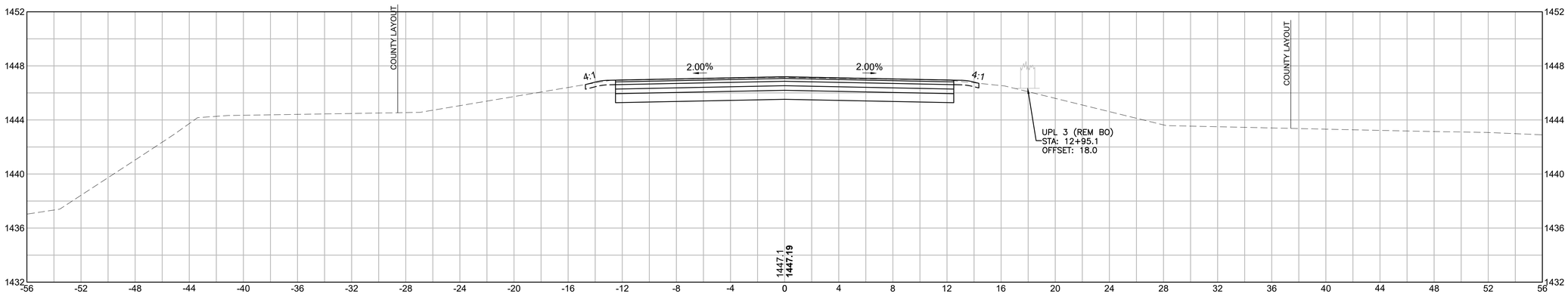
608855_HD\XSECTIONS\.DWG Plotted on 30-May-2024 3:13 PM

13+50



CUT: 54.75 SF
FILL: 0.00 SF

13+00



CUT: 41.97 SF
FILL: 0.00 SF

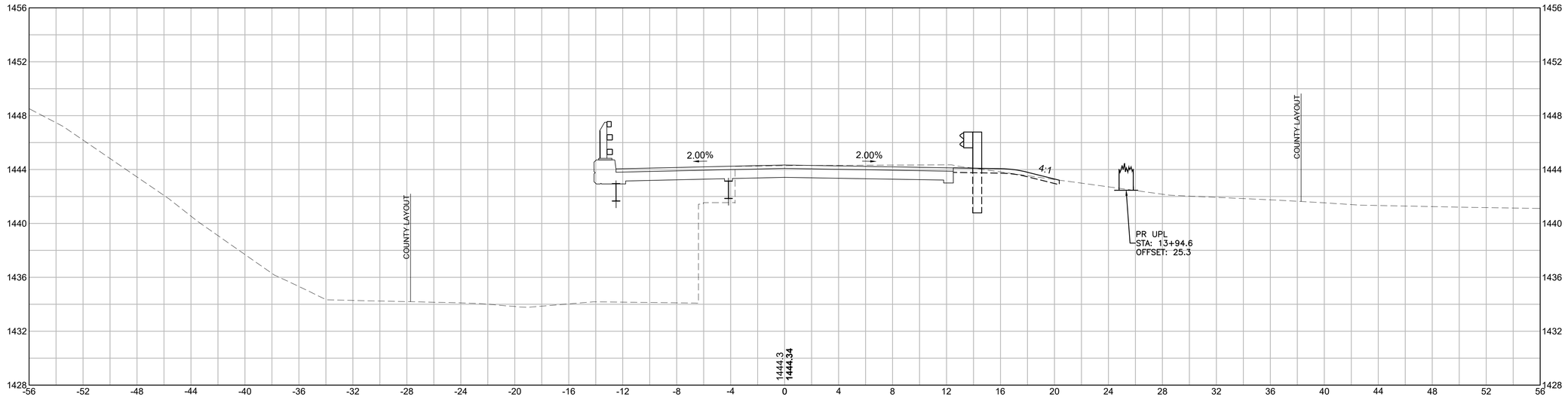
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	45	50
	PROJECT FILE NO. 608855		

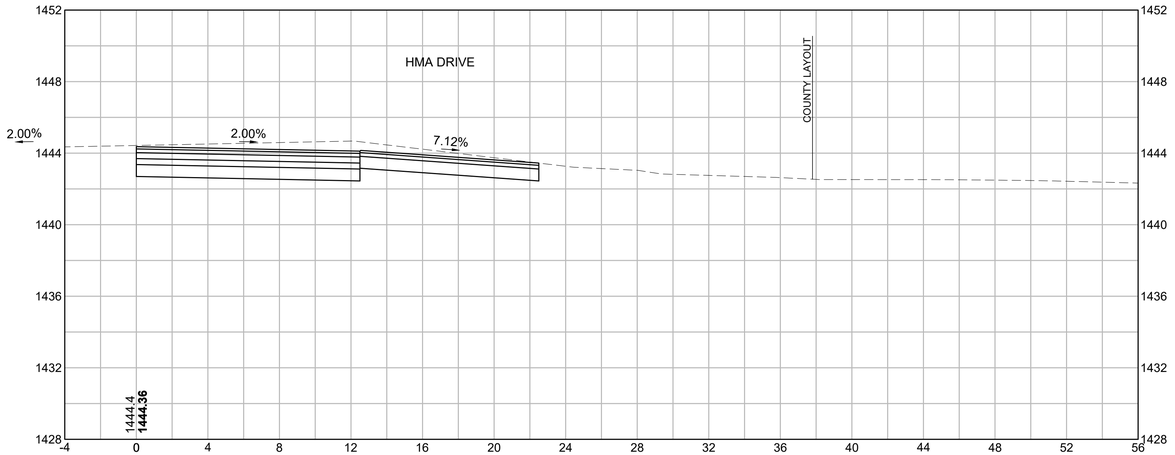
CROSS SECTIONS

14+00



CUT: 1.65 SF
FILL: 0.00 SF

13+63



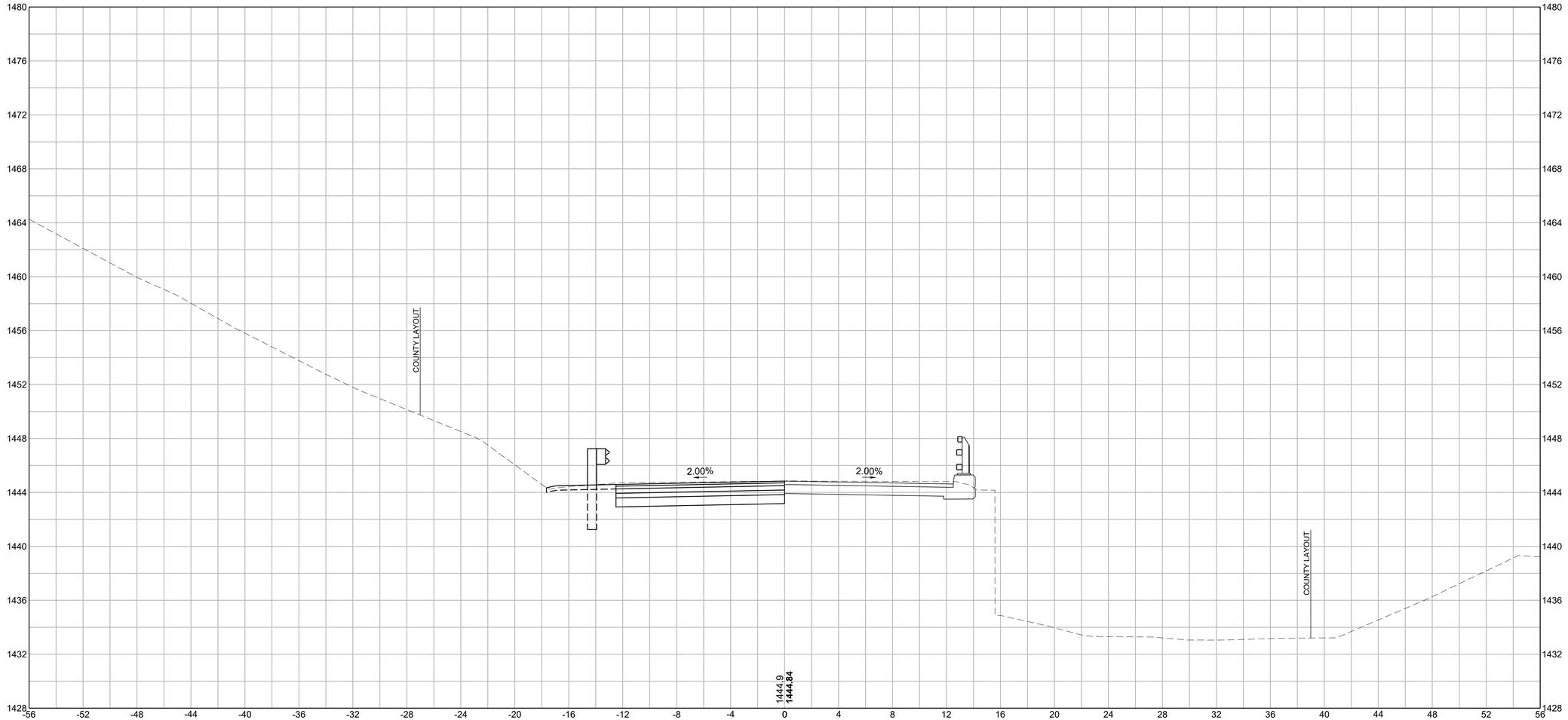
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	46	50
PROJECT FILE NO.	608855		

CROSS SECTIONS

14+50



CUT: 23.19 SF
FILL: 0.00 SF

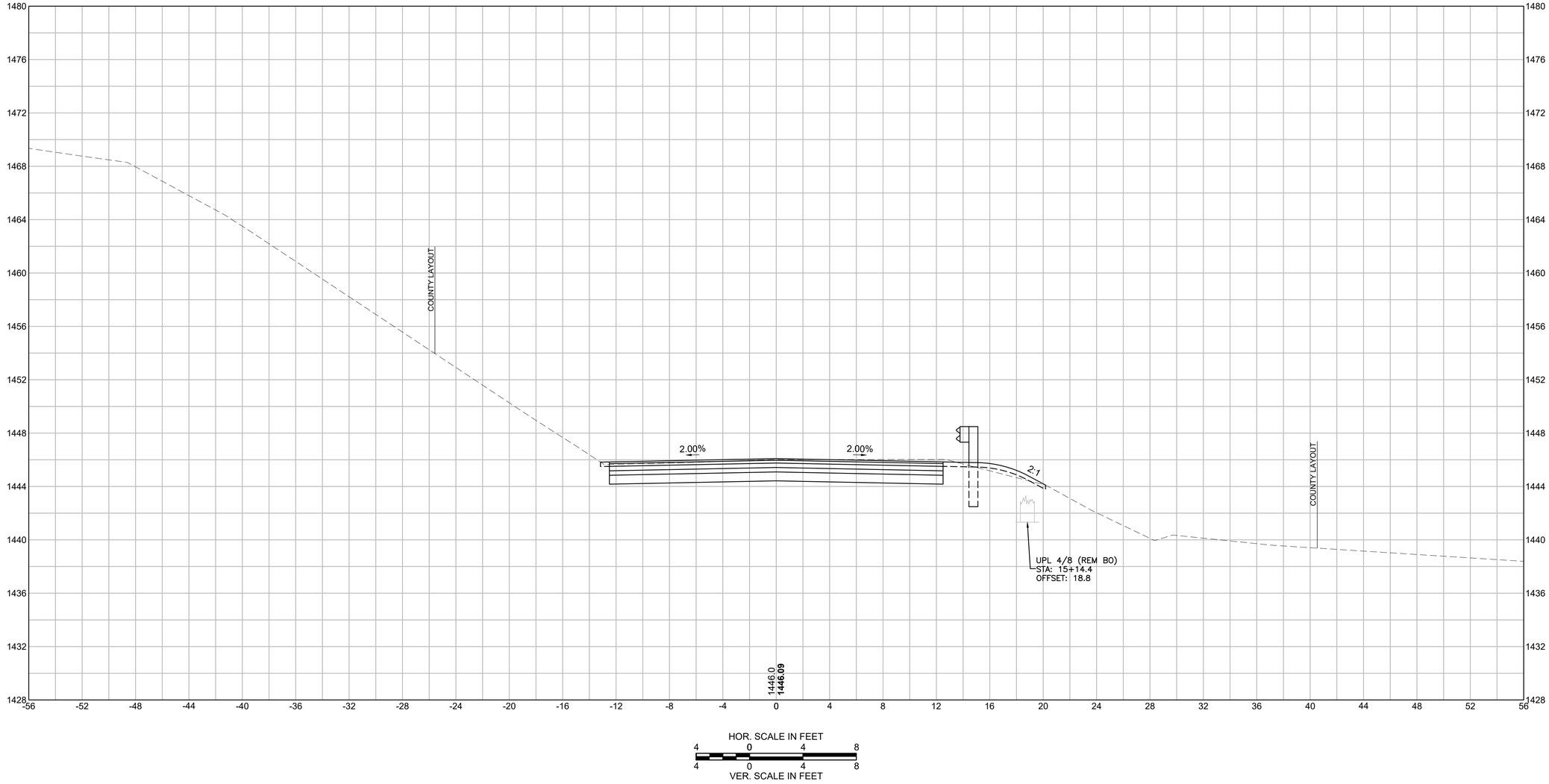
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	47	50
PROJECT FILE NO.	608855		

CROSS SECTIONS

15+00



CUT: 41.57 SF
FILL: 0.75 SF

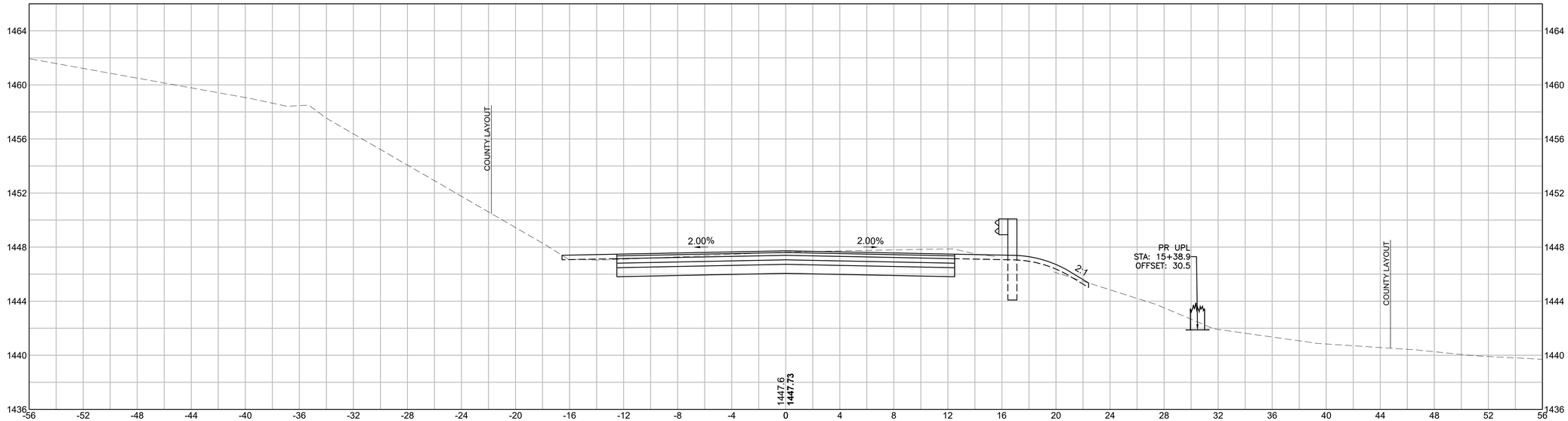
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

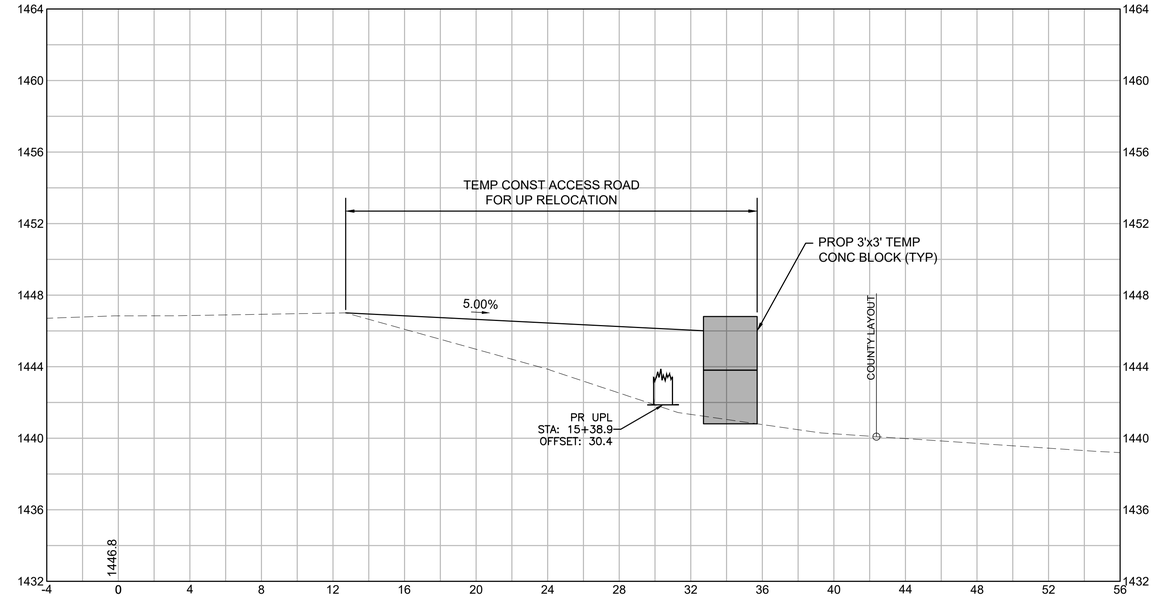
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	48	50
PROJECT FILE NO.	608855		

CROSS SECTIONS
CUT: 42.29 SF
FILL: 1.01 SF

15+50



15+26



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

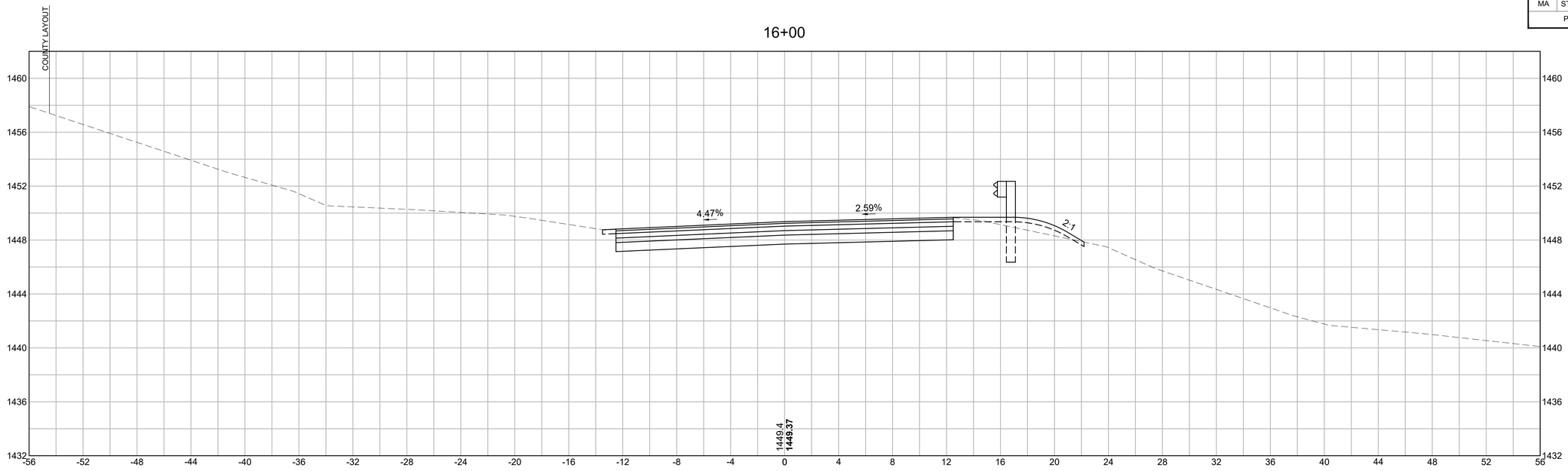
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	49	50
PROJECT FILE NO.	608855		

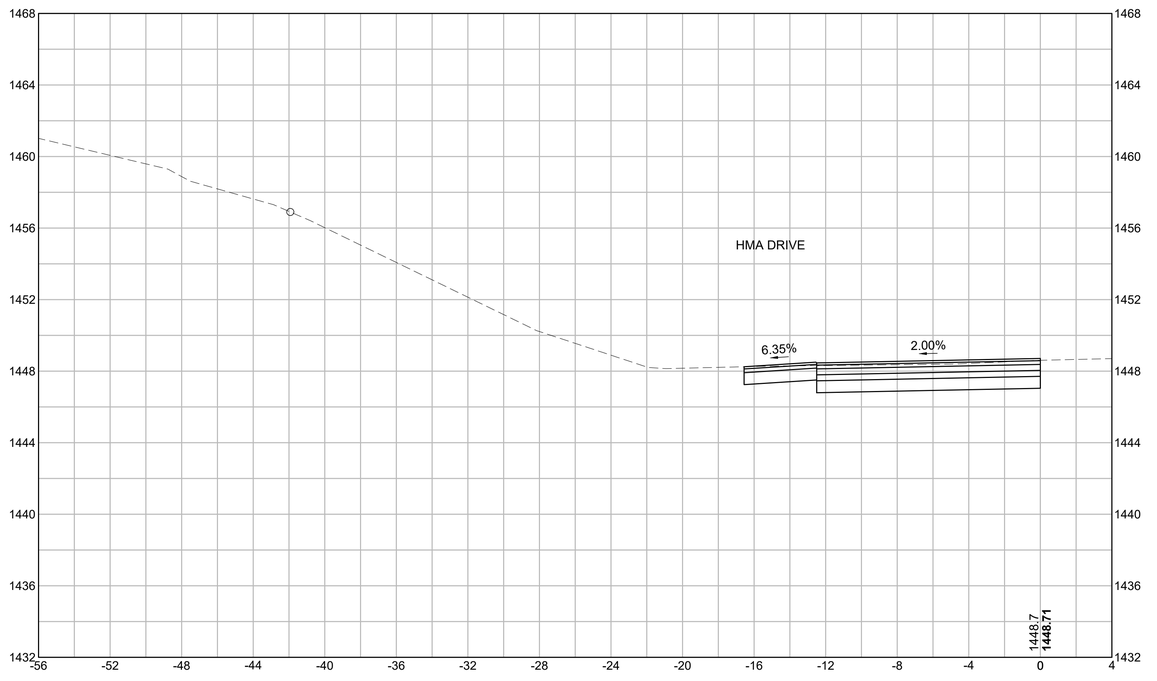
CROSS SECTIONS

CUT: 42.59 SF
FILL: 2.30 SF

16+00



15+80



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

608855_HD\XSECTIONS\.DWG Plotted on 30-May-2024 3:13 PM

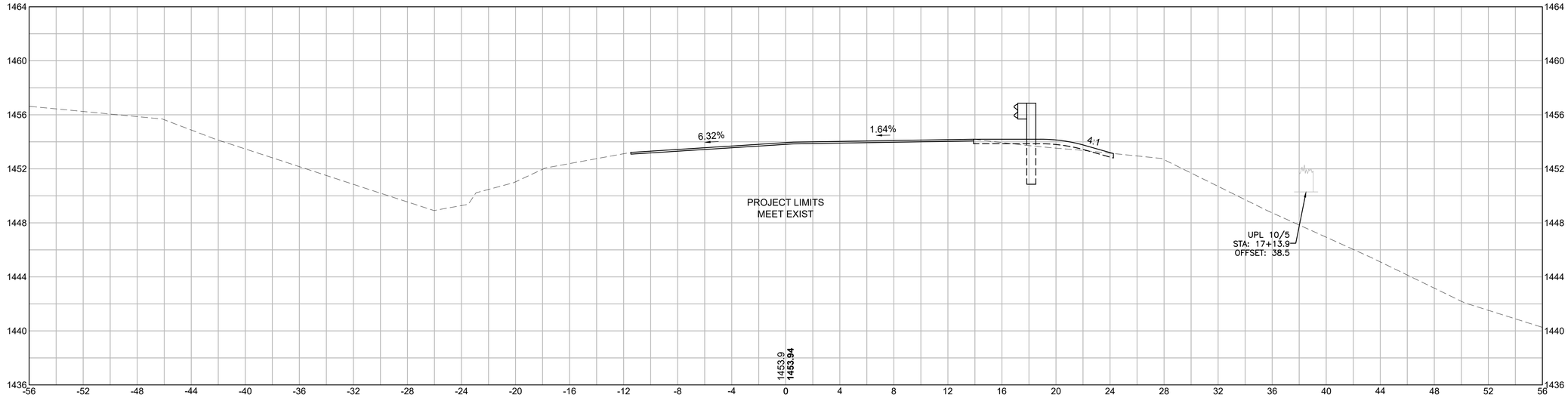
ROWE
CYRUS STAGE ROAD OVER POTTER BROOK

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	STP(BR-OFF)-003(739)X	50	50
PROJECT FILE NO. 608855			

CROSS SECTIONS

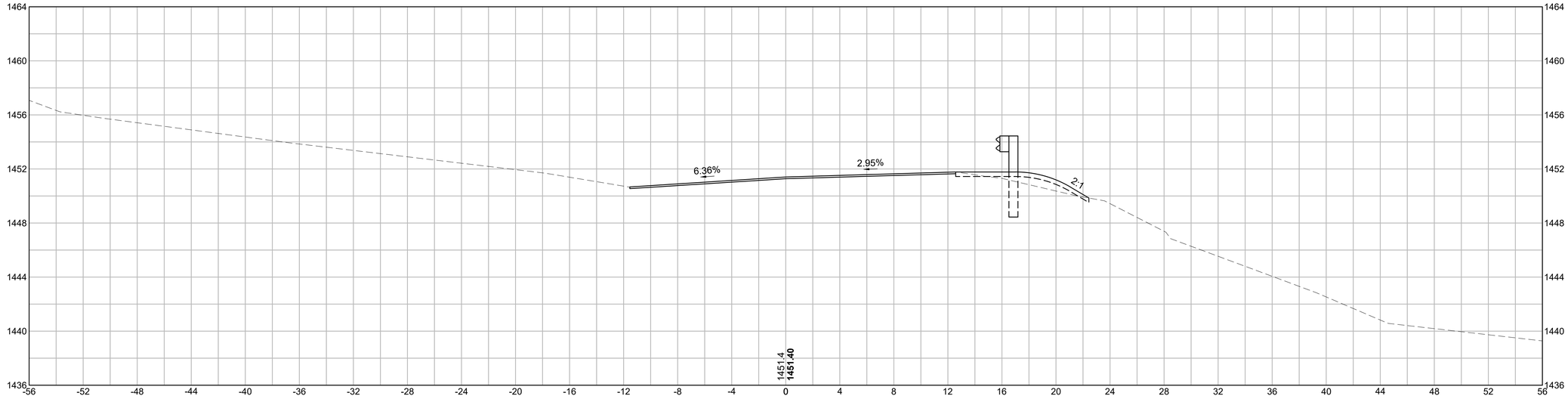
608855_HD\XSECTIONS).DWG Plotted on 30-May-2024 3:13 PM

17+00



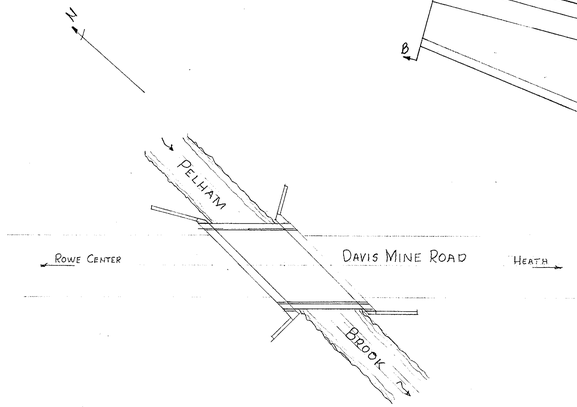
CUT: 0.78 SF
FILL: 0.96 SF

16+50

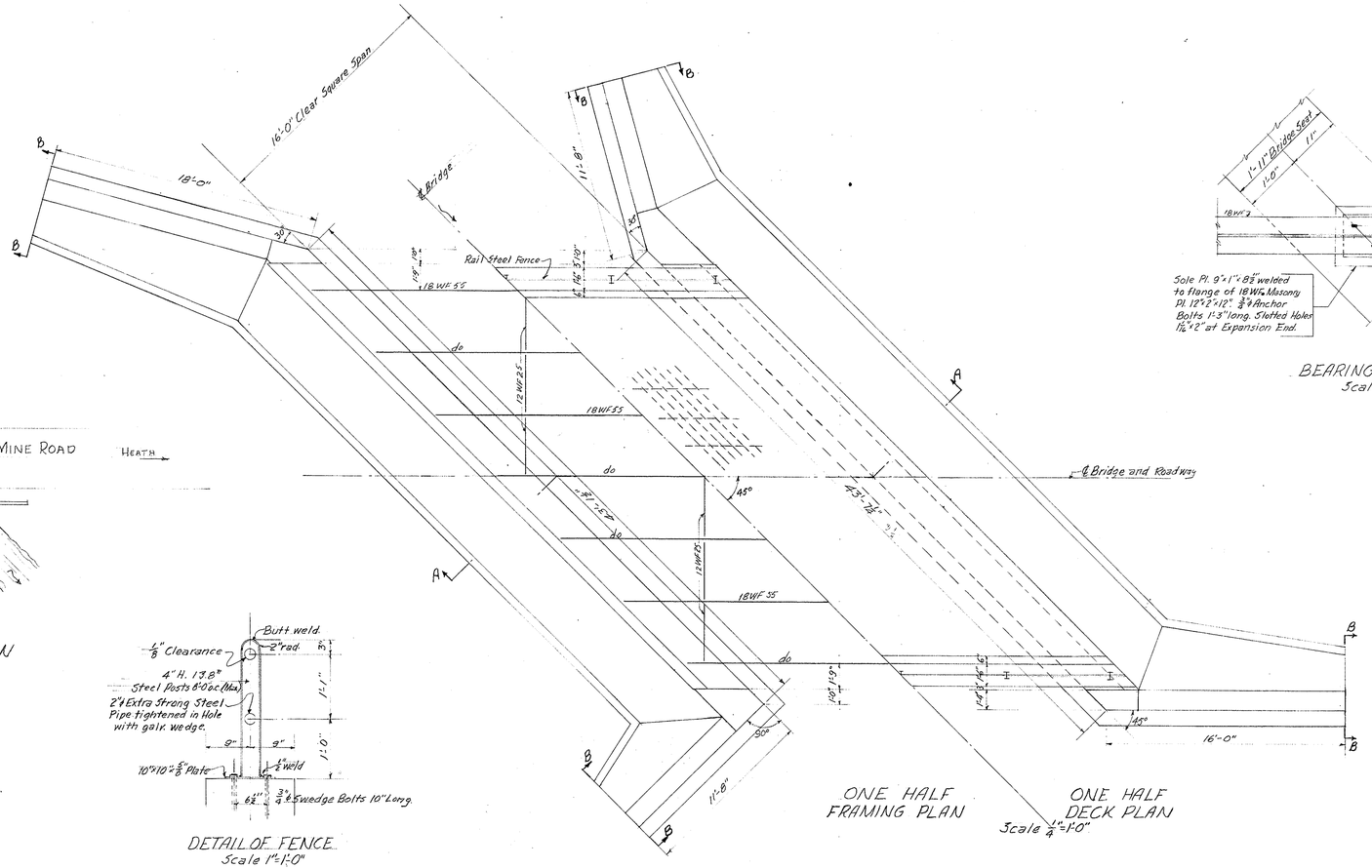


CUT: 0.52 SF
FILL: 2.36 SF

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET



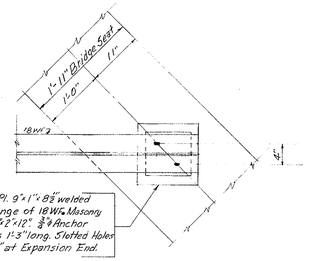
LOCATION PLAN
No Scale



ONE HALF FRAMING PLAN

ONE HALF DECK PLAN
Scale 1/4"=1'-0"

DETAIL OF FENCE
Scale 1"=1'-0"



BEARING DETAIL
Scale 1"=1'-0"

ESTIMATED QUANTITIES
(NOT GUARANTEED)

EXCAVATION (BRIDGE)	530	CU. YDS.
EXCAVATION (TRENCH LEDGE)	10	CU. YDS.
EXCAVATION (CONCRETE)	85	CU. YDS.
EXCAVATION (GHANNEL)	85	CU. YDS.
BORROW GRAVEL	80	CU. YDS.
CONCRETE (CLASS A)	22	CU. YDS.
CONCRETE (CLASS C)	298	CU. YDS.
STRUCTURAL STEEL	13500	POUNDS
REINFORCING STEEL	7740	POUNDS
BITUMINOUS CONCRETE SURFACING (CLASS I)	11.7	TONS
BITUMINOUS WATERPROOFING	99	SQ. YDS.
RAIL STEEL FENCE	60	LIN. FT.
WELDED IRON FENCE		LIN. FT.
STEEL SHEETING	43,560	POUNDS
LUMBER SHEETING	4.0	M. FT. B. M.
LUMBER PLATFORMS		M. FT. B. M.

GENERAL NOTES

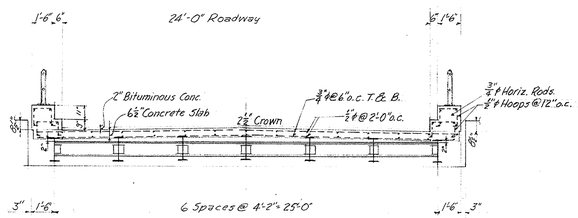
FOUNDATIONS: MAY BE ALTERED IF NECESSARY TO SUIT CONDITIONS OF CONSTRUCTION.

WEEP HOLES: TO BE PROVIDED IN ABUTMENTS AND WING WALLS WITH INLETS PROTECTED BY BROKEN STONE OR SCREENED GRAVEL AS DIRECTED BY THE ENGINEER

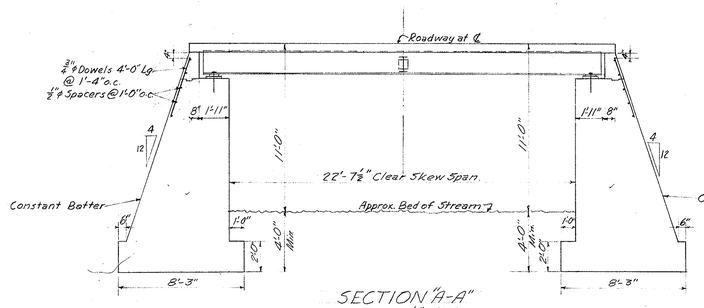
DESIGN: ACCORDING TO SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS (1935 ED.) FOR H-15 LOADING.

CONCRETE: CONCRETE FOR DECK SLABS CLASS "A", CONCRETE FOR ABUTMENT AND WING WALLS CLASS "C".

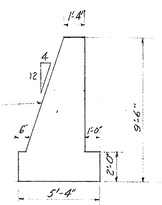
STEEL SHEETING: AS DIRECTED BY THE ENGINEER DRIVE AND LEAVE IN PLACE 23 POUND STEEL SHEET PILING ± 10'-0" LONG ON STREAM FACES OF ALL ABUTMENTS AND WING WALLS; ALSO TURN ACROSS ENDS OF WING WALL AND RETURN 5'-0" ALONG BACK OF SAME. USE WOOD SHEETING IN REMAINDER OF ABUTMENT AND WING WALLS.



CROSS-SECTION
Scale ¾"=1'-0"



SECTION "A-A"
Scale ¼"=1'-0"



"B-B"
Scale ¼"=1'-0"

FOR CONSTRUCTION
DATE 12/30/38

Revised 12/1/38

W. & L. ENGINEERING CO. ENGINEERS
MAURICE A. REIDY CONSULTANT

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE
ROWE
BRIDGE No. 4
DAVIS MINE ROAD
OVER PELHAM BROOK
SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST., BOSTON, MASS.
DECEMBER 1938

BRIDGE ENGINEER — ASSIST. ENGINEER

DESIGNED BY B.K.	TRACED BY	CHECKED
	DATE OF ISSUE	
ADVERTISING	CONSTRUCTION	

BRIDGE No R-10-8