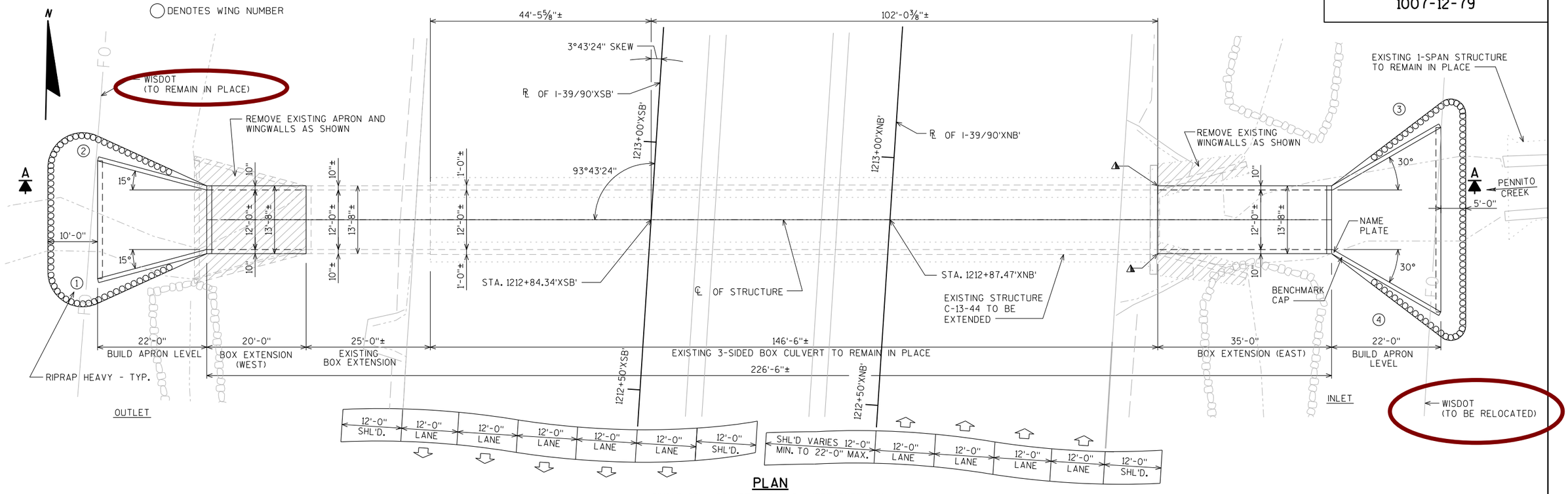
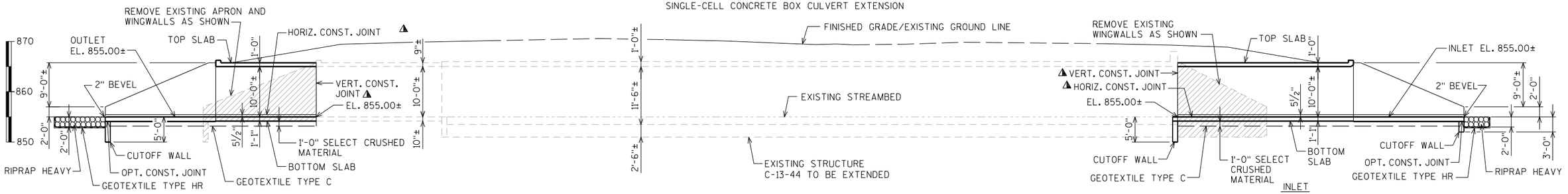
STATE PROJECT NUMBER

1007-12-79



PLAN

SINGLE-CELL CONCRETE BOX CULVERT EXTENSION



SECTION A

⚠ 18" RUBBERIZED MEMBRANE WATERPROOFING UP WALLS & ACROSS TOP SLAB AT VERTICAL CONSTRUCTION JOINTS AND ALONG HORIZONTAL CONSTRUCTION JOINTS

LIST OF DRAWINGS

1. PRELIMINARY PLAN
2. DESIGN DATA, QUANTITIES AND NOTES
3. SUBSURFACE EXPLORATION

FOR TYPICAL SECTION THRU BOX CULVERT AND DESIGN DATA SEE SHEET 2

BRIDGE OFFICE CONTACT:
WILLIAM DREHER
(608)-266-8489

CONSULTANT CONTACT:
CHRIS MCMAHON
(715)-834-3161

NO.	DATE	REVISION	BY

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED _____ _____
CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE C-13-44

I-39/90 OVER PENNITO CREEK

COUNTY		~~TOWN~~/CITY/~~VILLAGE~~	
DANE			MADISON

DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
KLW		CLS/JLB	

PRELIMINARY PLAN

SHEET 1 OF 3

I.D. DATE:

DATE: DATE: DATE:
CHECKED BY: BACK CHECKED BY: CORRECTED BY:

$PRFNAME$
U:\41-0660.0X - IH-39 Dane Partners General Bridge Information\Pennito Creek\Structure\C-13-0044

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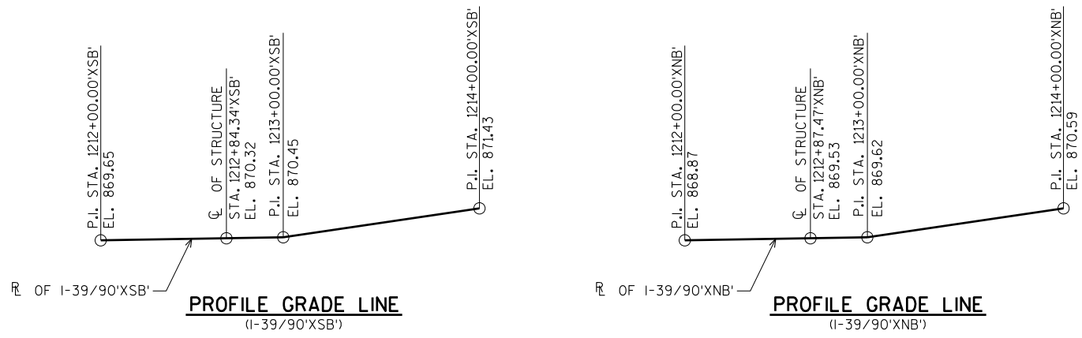
TOTAL ESTIMATED QUANTITIES

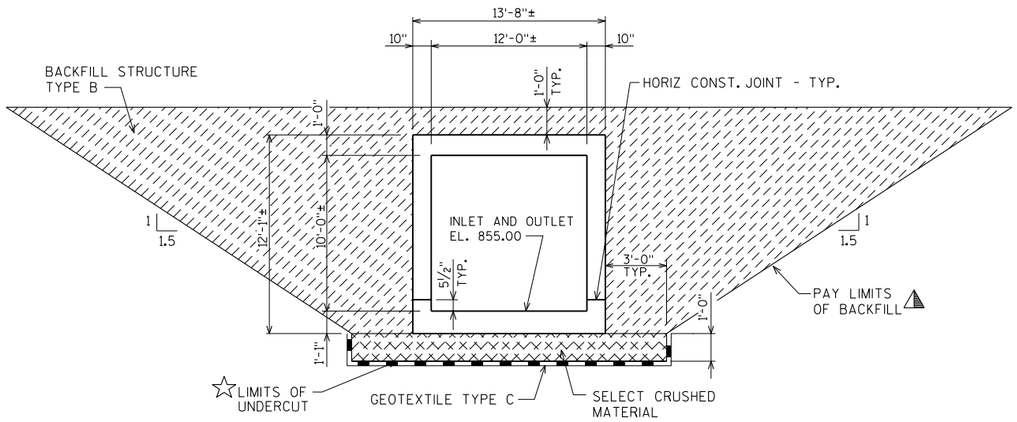
BID ITEM NUMBER	BID ITEMS	UNIT	INLET	OUTLET	TOTAL
203.0500.S	REMOVING OLD STRUCTURE OVER WATERWAY STATION 1212+84.34'XSB'	LS	-----	-----	1
206.2000	EXCAVATION FOR STRUCTURES CULVERTS C-13-44	LS	-----	-----	1
210.2500	BACKFILL STRUCTURE TYPE B	TON			
312.0110	SELECT CRUSHED MATERIAL	TON			
502.4205	ADHESIVE ANCHORS NO.5 BAR	EACH			
504.0100	CONCRETE MASONRY CULVERTS	CY			
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB			
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB			
⊗ 509.1500	CONCRETE SURFACE REPAIR	SF			
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY			
606.0300	RIPRAP HEAVY	CY			
645.0105	GEOTEXTILE TYPE C	SY			
645.0120	GEOTEXTILE TYPE HR	SY			
	NON-BID ITEMS				
	FILLER	SIZE	-----	-----	¾"

⊗ UNDISTRIBUTED IN EXISTING BARREL TO REMAIN AS DIRECTED BY ENGINEER IN THE FIELD



PROFILE GRADE LINE
(I-39/90'XSB')

PROFILE GRADE LINE
(I-39/90'XNB')



TYPICAL SECTION THRU BOX CULVERT EXTENSIONS
NOTE: MATCH EXISTING CULVERT OPENING

⚠ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.

☆ UNDERCUT 1'-0". EXCAVATION FOR UNDERCUT TO BE INCLUDED IN EXCAVATION FOR STRUCTURES. PLACE "GEOTEXTILE TYPE C" AND BACKFILL WITH SELECT CRUSHED MATERIAL.

DESIGN DATA

LIVE LOAD:

DESIGN LOADING: HL-93
INVENTORY RATING FACTOR:
OPERATING RATING FACTOR:
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = KIPS

EARTH LOAD: 2 FEET

2' to 4', BM 36.5, Max load on entire structure.

The extension is to have full structural capacity of any location along the structure.

MATERIAL PROPERTIES:

CONCRETE MASONRY ——— f'_c = 3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT (GRADE 60) ——— f_y = 60,000 p.s.i.

HYDRAULIC DATA:

100 YEAR FREQUENCY

Q_{100} = 820 c.f.s.
VEL. = 9.3 f.p.s.
HW_{100} = EL. 865.1
WATERWAY AREA = 88 sq. ft.
DRAINAGE AREA = 2.21 sq. mi.
ROADWAY OVERTOPPING = N/A
SCOUR CRITICAL CODE = N/A

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2 YEAR FREQUENCY

Q_2 = 290 c.f.s.
VEL. = 4.0 f.p.s.
HW_2 = EL. 862.2

TRAFFIC DATA:

A.A.D.T. = 86,100 (2013)
A.A.D.T. = 116,000 (2040)
R.D.S. = 70 M.P.H.

FOUNDATION DATA:

BOX CULVERT EXTENSIONS TO BE SUPPORTED ON 1'-0" THICK SELECT CRUSHED MATERIAL WITH A MAXIMUM ALLOWABLE BEARING PRESSURE OF 4,000 PSF.

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS SHOWN OR NOTED OTHERWISE.

THE FIRST DIGIT OF A THREE DIGIT BAR NO. AND THE FIRST TWO DIGITS OF A FOUR DIGIT BAR NO. SIGNIFIES THE BAR SIZE.

JOINT FILLER SHALL CONFORM TO THE REQUIREMENTS OF A.A.S.H.T.O. DESIGNATION M 153, TYPE I, II OR III OR A.A.S.H.T.O. DESIGNATION M 213.

THE ALTERNATE CUTOFF WALL MAY BE USED IN LIEU OF THE CAST-IN-PLACE CONCRETE CUTOFF WALLS. PAYMENT SHALL BE BASED ON THE CONCRETE CUTOFF WALLS.

THE CONCRETE IN THE CUTOFF WALL MAY BE PLACED UNDERWATER IF THE EXCAVATION CANNOT BE DEWATERED.

THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES CULVERTS C-13-44" SHALL BE THE EXISTING GROUNDLINE

THE BACKFILL QUANTITIES ARE BASED ON THE PAY LIMITS SHOWN ON THE PLANS AND MAY NOT REFLECT ACTUAL PLACED QUANTITIES. "BACKFILL STRUCUTRE TYPE B" REQUIRED ON THE BOX CULVERT SIDES AND BEHIND APRON WINGS FOR 3 FEET. BACKFILL PLACED BEYOND PAY LIMITS OR EXCEEDING PLAN QUANTITIES SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES

ALL VOLUME SHICH CANNOT BE PLACED BEFORE CULVERT CONSTRUCTION AND NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH BACKFILL STRUCTURE TYPE B WITHIN THE LENGTH OF THE CULVERT INLCUDING THE APRON WING WALLS.

THE EXISTING STRUCTURE C-13-44, IS A 3-SIDED CONCRETE CULVERT WITH 12' SPAN x 146.5'± LONG BARREL THAT HAS BEEN EXTENDED 25'-0" AT THE WEST END WITH A SINGLE CELL 12'-0" x 10'-0" CONCRETE BOX CULVERT.

REMOVING OLD STRUCTURE STATION 1212+84.34'XSB', INCLUDES REMOVING OUTLET AND INLET WINGS AND APRON.

DIMENSIONS SHOWN ARE BASED ON FIELD MEASUREMENTS. THE CONTRACTOR SHALL ADJUST THE DIMENSIONS OF THE BOX CELL OPENINGS TO MATCH THE EXISTING CULVERT.

ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1" DEEP SAW CUT UNLESS SHOWN OR NOTED OTHERWISE.

FILLET THE FORMS WITH ¾ INCH TRIANGULAR MOLDING CHAMFER STRIPS AT ALL EXPOSED, SHARP CORNERS AND AT THE EDGES OF THE CONCRETE, UNLESS SPECIFIED OTHERWISE.

THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. NAME PLATE TO SHOW THE ORIGINAL CONSTRUCTION YEAR (1960).

UTILIZE EXISTIG BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

IF ADDITIONAL EXCAVATION IS REQUIRED UNDER THE CULVERT, IT WILL BE PAID FOR AS COMMON EXCAVATION/EBS. SEE THE ROADWAY PLANS FOR BID ITEMS.

SEE ROADWAY PLANS FOR DIVERSION CHANNEL DETAILS.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-13-44

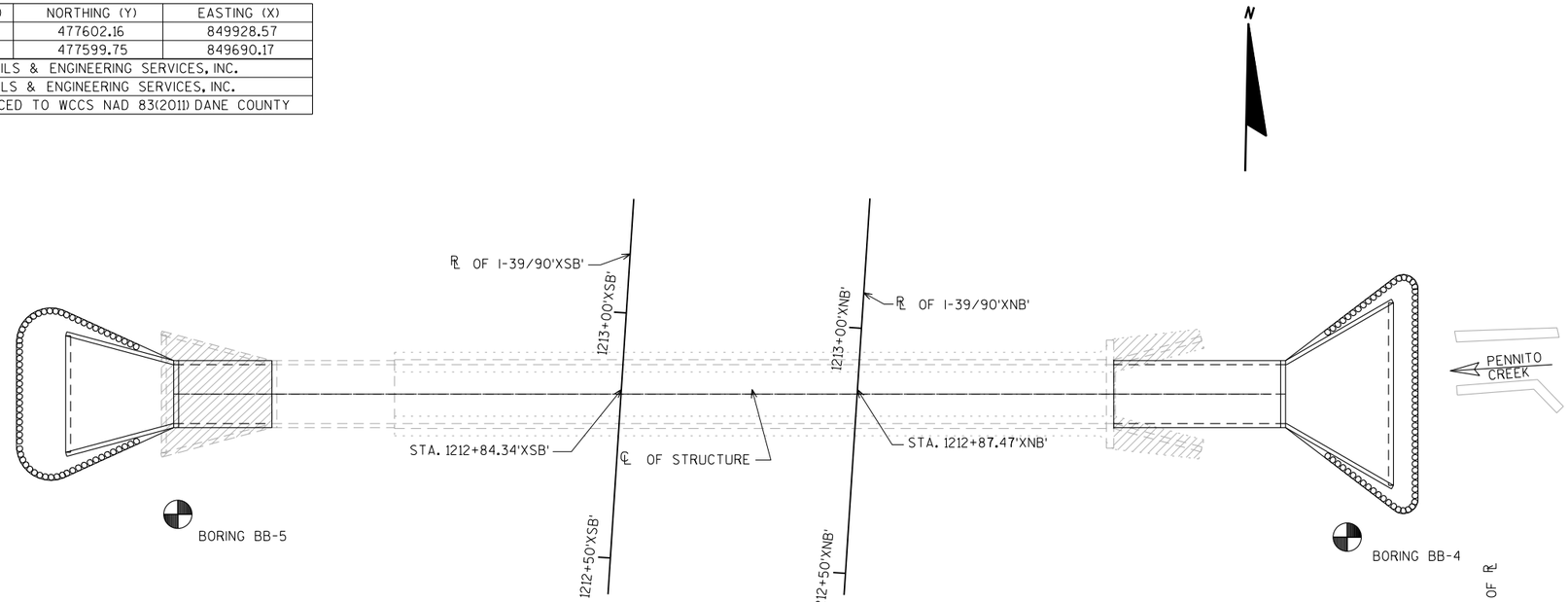
DRAWN BY CLS/JLB | PLANS CK'D.

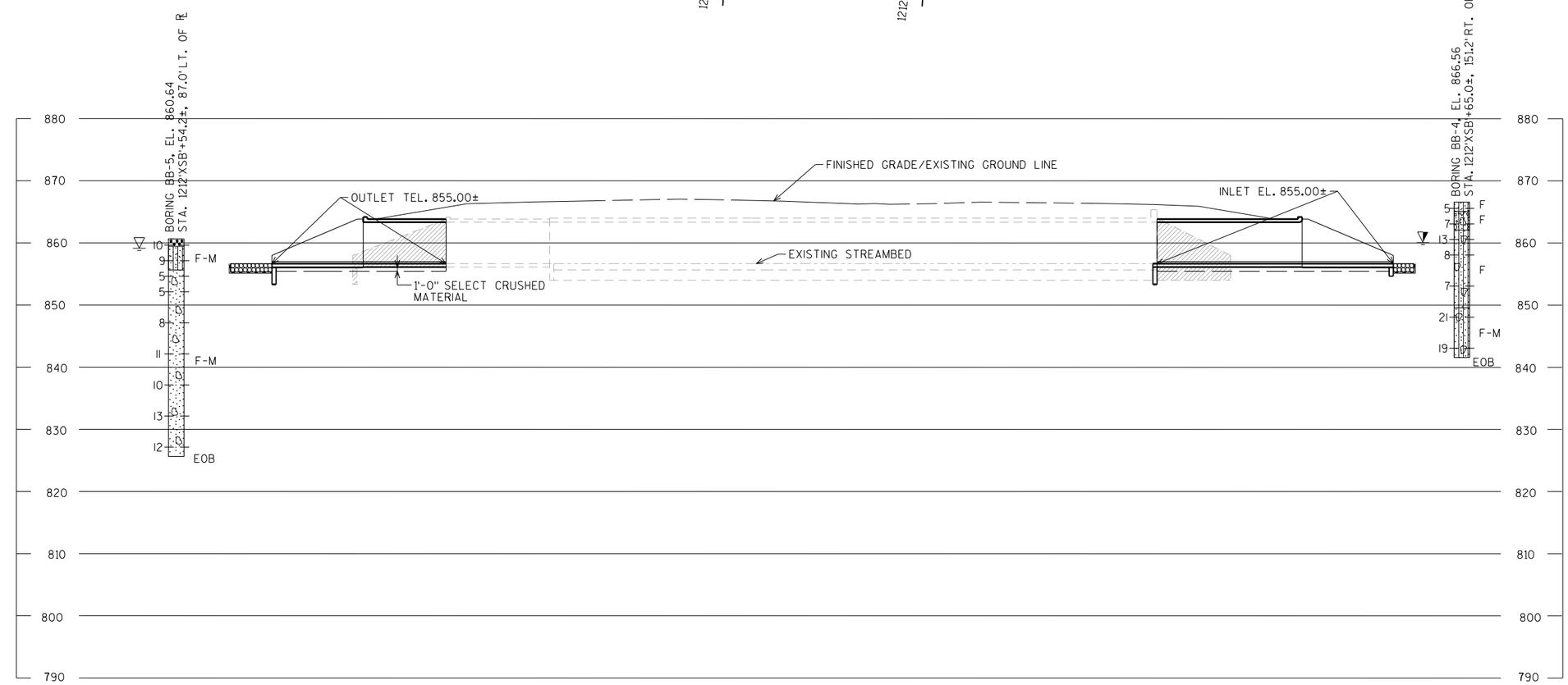
DESIGN DATA, QUANTITIES AND NOTES

SHEET 2 OF 3

ORIGINAL PLANS PREPARED BY
AYRES ASSOCIATES
3433 Oakwood Hills Parkway
Eau Claire, WI 54701
www.AyresAssociates.com

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
BB-4	8/30/18	477602.16	849928.57
BB-5	9/6/18	477599.75	849690.17
BORINGS COMPLETED BY: SOILS & ENGINEERING SERVICES, INC.			
REPORT COMPLETED BY: SOILS & ENGINEERING SERVICES, INC.			
ALL COORDINATES REFERENCED TO WCCS NAD 83(2011) DANE COUNTY			





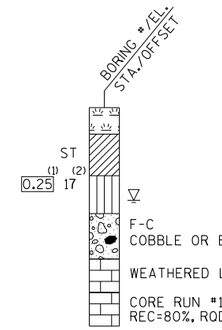
STATE PROJECT NUMBER

1007-12-79

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/ META

LEGEND OF BORING



(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)

(2) UNLESS OTHERWISE, SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION

- AT TIME OF DRILLING
- END OF DRILLING
- AFTER DRILLING

ABBREVIATIONS

F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

STRUCTURE C-13-44

DRAWN BY JLB | PLANS CK'D.

SUBSURFACE EXPLORATION

SHEET 3 OF 3

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9/5/2019
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U:±41-0660.0X - IH-39 Dane Partners General Bridge Information±Pennito Creek±Structure±C-13-0044_soils.dgn