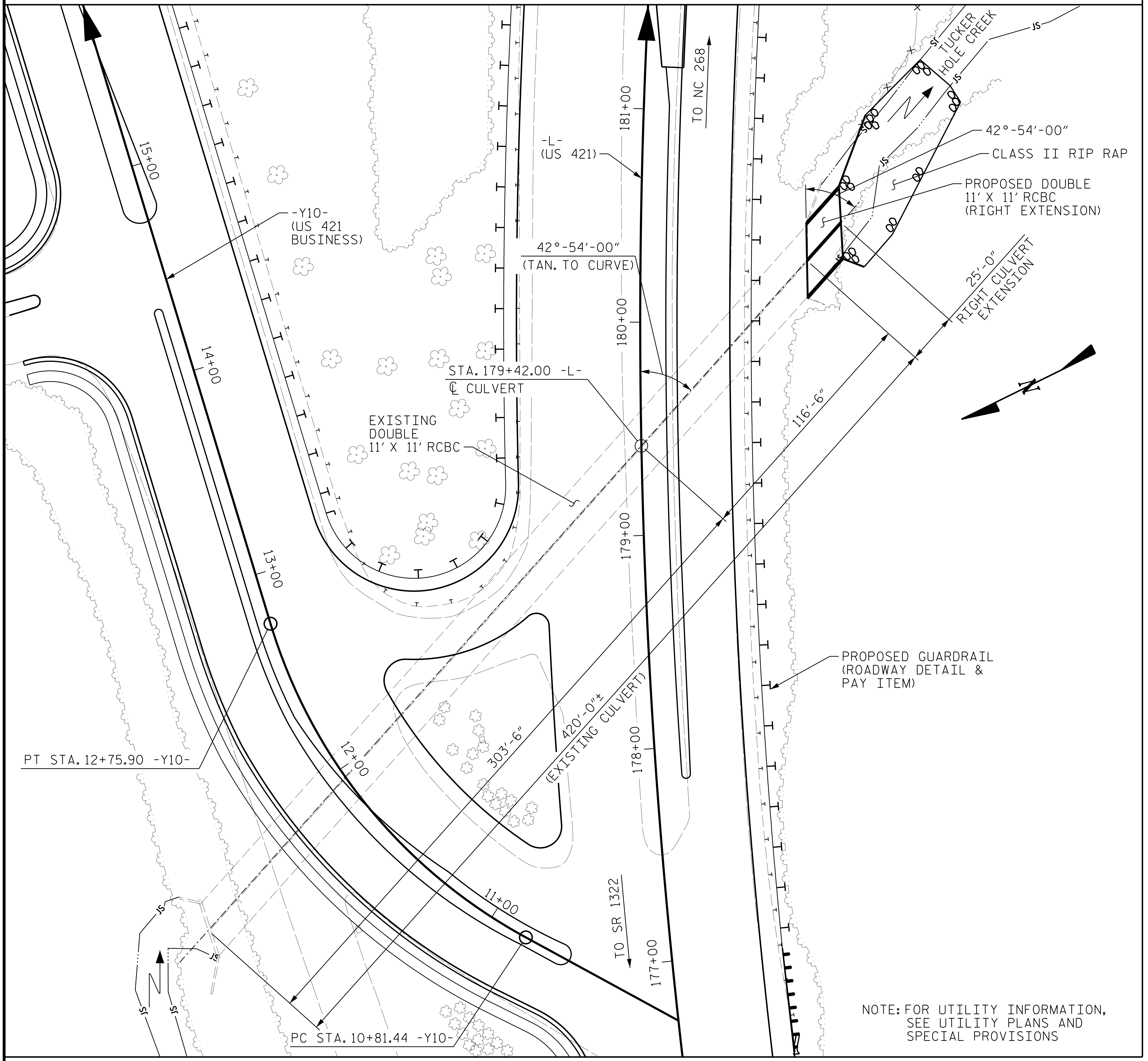
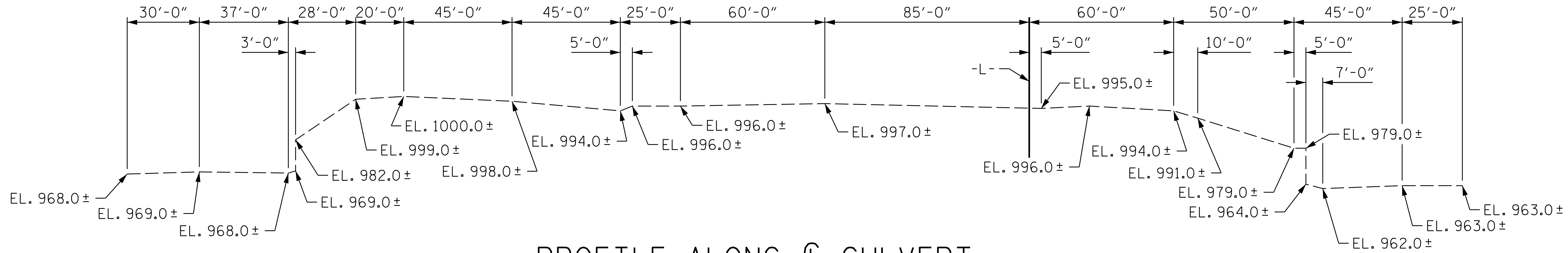
BM #1: MAG NAIL IN BRIDGE WING WALL, 300.00' RT. OF STA. 27+60.00 -EY10-, EL. 981.65



NOTE: FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS

LOCATION SKETCH

GRADE POINT ELEVATION @ 179+42.00 -L- = 997.53
BED ELEVATION @ 179+42.00 -L- = 965.11
ROADWAY SLOPES = 2:1



PROFILE ALONG ℄ CULVERT

DRAWN BY : B.E. LANNING DATE : 04/2022
CHECKED BY : J.I. BREWER DATE : 05/2022
DESIGN ENGINEER OF RECORD : J.I. BREWER DATE : 09/2022

F.A. PROJ. NO. NHS-0421(072)

NOTES

ASSUMED LIVE LOAD ----------HL-93 OR ALTERNATE LOADING.

DESIGN FILL----------------- 7.9 FT.

FOR OTHER DESIGN DATA AND NOTES, SEE STANDARD NOTE SHEET.

3" Ø WEEP HOLES INDICATED TO BE IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE IN CULVERTS TO BE POURED IN THE FOLLOWING ORDER:

1. WING FOOTINGS AND FLOOR SLAB INCLUDING 4" OF ALL VERTICAL WALLS.
2. THE REMAINING PORTIONS OF THE WALLS AND WINGS FULL HEIGHT FOLLOWED BY ROOF SLAB AND HEADWALLS.

THE RESIDENT ENGINEER SHALL CHECK THE LENGTH OF CULVERT BEFORE STAKING IT OUT TO MAKE CERTAIN THAT IT WILL PROPERLY TAKE CARE OF THE FILL.

DIMENSIONS FOR WING LAYOUT AS WELL AS ADDITIONAL REINFORCING STEEL EMBEDDED IN BARREL ARE SHOWN ON WING SHEET.

THE EXISTING STRUCTURE CONSISTING OF A REINFORCED CONCRETE CULVERT 2 AT 11' (W) X 11' (H) SIZE, 420'-0"± LONG AND LOCATED AT THE PROPOSED STRUCTURE SHALL BE RETAINED.

AT THE CONTRACTOR'S OPTION, HE MAY SPLICE THE VERTICAL REINFORCING STEEL IN THE INTERIOR FACE OF EXTERIOR WALL AND BOTH FACES OF INTERIOR WALLS ABOVE LOWER WALL CONSTRUCTION JOINT. THE SPLICE LENGTH SHALL BE AS PROVIDED IN THE SPLICE LENGTH CHART SHOWN ON THE PLANS. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

DOWELS SHALL BE USED TO CONNECT THE CULVERT EXTENSION TO THE EXISTING CULVERT AS SHOWN. FOR NOTE REGARDING SETTING OF DOWELS, SEE SHEET SN.

IF APPROVED BY THE ENGINEER, THE CONTRACTOR MAY USE THE EXISTING WINGS AS TEMPORARY SHORING FOR THE CONSTRUCTION OF THE CULVERT EXTENSIONS. IN THIS CASE, THE BOTTOM SLAB OF THE EXTENSION SHALL BE POURED AT LEAST 72 HOURS PRIOR TO CUTTING THE WINGS. THE WINGS MAY BE CUT EARLIER PROVIDED THE SLAB CONCRETE STRENGTH HAS REACHED A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI.

AT THE CONTRACTOR'S OPTION HE MAY SUBMIT, TO THE ENGINEER FOR APPROVAL, DESIGN AND DETAIL DRAWINGS FOR A PRECAST REINFORCED CONCRETE BOX CULVERT IN LIEU OF THE CAST-IN-PLACE CULVERT SHOWN ON THE PLANS. THE DESIGN SHALL PROVIDE THE SAME SIZE AND NUMBER OF BARRELS AS USED ON THE CAST-IN-PLACE DESIGN. FOR OPTIONAL PRECAST REINFORCED CONCRETE BOX CULVERT, SEE SPECIAL PROVISIONS.

ONE PERMITTED CONSTRUCTION JOINT WILL BE ALLOWED IN THE END OF THE CURTAIN WALL.

STEEL IN THE BOTTOM SLAB MAY BE SPLICED AT THE PERMITTED CONSTRUCTION JOINT AT THE CONTRACTOR'S OPTION. EXTRA WEIGHT OF STEEL DUE TO THE SPLICES SHALL BE PAID FOR BY THE CONTRACTOR.

FOR CULVERT DIVERSION DETAILS AND PAY ITEM, SEE EROSION CONTROL PLANS.

A 3 FOOT STRIP OF FILTER FABRIC SHALL BE ATTACHED TO THE FILL FACE OF THE WING COVERING THE ENTIRE LENGTH OF THE EXPANSION JOINT.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE SAMPLE BARS SHOULD COME FROM STEEL ACTUALLY USED IN THE PROJECT AND THE SAMPLE BARS SHOULD BE REPLACED BY SPLICED BARS AS SPECIFIED IN THE SAMPLE BAR REPLACEMENT CHART. PAYMENT FOR THE SAMPLE BARS AND REPLACEMENT REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAY ITEMS.

SAMPLE BAR REPLACEMENT	
SIZE	LENGTH
#3	6'-2"
#4	7'-4"
#5	8'-6"
#6	9'-8"
#7	10'-10"
#8	12'-0"
#9	13'-2"
#10	14'-6"
#11	15'-10"

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

EXCAVATE FOUNDATION A MINIMUM OF 12" BELOW CULVERT BEARING ELEVATION. PLACE 12" OF CLASS VI FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS.

FOR AREAS WITH NEW FILL BELOW CULVERT BEARING ELEVATION, PLACE A MINIMUM OF 12" OF CLASS VI FOUNDATION CONDITIONING MATERIAL IN ACCORDANCE WITH SECTION 414 OF THE STANDARD SPECIFICATIONS.

AT THE CONTRACTOR'S OPTION, USE ADDITIONAL CLASS VI FOUNDATION CONDITIONING MATERIAL FOR FILL BENEATH FOUNDATION CONDITIONING MATERIAL.

OVEREXCAVATE ADDITIONAL LOOSE/SOFT OR ORGANIC MATERIAL IF PRESENT TO SUITABLE BEARING MATERIALS AND REPLACE WITH ADDITIONAL CLASS VI FOUNDATION CONDITIONING MATERIAL.

HYDRAULIC DATA

DESIGN DISCHARGE .... = 1,800 CFS
FREQUENCY OF DESIGN FLOOD .... = 50 YRS.
DESIGN HIGH WATER ELEVATION .... = 979.1
DRAINAGE AREA .... = 2.05 SQ. MI.
BASE DISCHARGE (Q100).................... = 2,000 CFS
BASE HIGH WATER ELEVATION .... = 979.9

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE .... = 7,075 CFS
FREQUENCY OF OVERTOPPING FLOOD .... = 500+ YRS.
OVERTOPPING FLOOD ELEVATION .... = 1001.3

-L- PROFILE DATA

PVI STA. 177+66.00 -L-
PVI EL. = 994.65
VC = 900.00
g1 = -4.5511%
g2 = +0.1973%

TOTAL STRUCTURE QUANTITIES

CLASS A CONCRETE			
BARREL @ 2.61 CY/FT		65.3	C.Y.
WING ETC.		46.9	C.Y.
TOTAL		112.2	C.Y.
REINFORCING STEEL			
BARREL		11,582	LBS.
WINGS ETC.		5,052	LBS.
TOTAL		16,634	LBS.
CULVERT EXCAVATION ----------------		LUMP SUM	
FOUNDATION CONDITIONING MATERIAL		50 TONS	

PROJECT NO. U-5312
WILKES COUNTY
STATION: 179+42.00 -L-

SHEET 1 OF 8 EXTENDS CULVERT NO. 960062

Jilla I. Brewer
889826AB74C4429...
46029
JILLA I. BREWER
6/21/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

MI ENGINEERING
1011 SCHAUB DRIVE, SUITE 100
RALEIGH, NC 27606
(919) 851-6606
FIRM PE NUMBER : P-0671

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

RIGHT EXTENSION DOUBLE 11 FT. X 11 FT. CONCRETE BOX CULVERT 42°-54'-00" SKEW

REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

SHEET NO. C1-1
TOTAL SHEETS 8

6/21/2023
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