



## North Carolina Department of Transportation

Highway Stormwater Program  
STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS



(Version 3.00; Released August 2021)

WBS Element: 34817.3.4 TIP/Proj No: U-2519AA &amp; AB County(ies): Cumberland Robeson Page 1 of 2

## General Project Information

|                                 |          |                                                                      |  |             |               |                        |               |                                                                           |  |         |           |  |
|---------------------------------|----------|----------------------------------------------------------------------|--|-------------|---------------|------------------------|---------------|---------------------------------------------------------------------------|--|---------|-----------|--|
| WBS Element:                    |          | 34817.3.4                                                            |  | TIP Number: | U-2519AA & AB |                        | Project Type: | Roadway Widening                                                          |  | Date:   | 2/15/2022 |  |
| NCDOT Contact:                  |          | Paul Atkinson, PE                                                    |  |             |               | Contractor / Designer: |               | Joshua G. Dalton, PE                                                      |  |         |           |  |
|                                 | Address: | NCDOT Hydraulics Unit<br>1590 Mail Service<br>Raleigh, NC 27699-1590 |  |             |               |                        | Address:      | Sunate Design Group, P.A.<br>905 Jones Franklin Road<br>Raleigh, NC 27606 |  |         |           |  |
|                                 |          |                                                                      |  |             |               |                        |               |                                                                           |  |         |           |  |
|                                 | Phone:   | 919-707-6707                                                         |  |             |               |                        | Phone:        | 919-859-2243                                                              |  |         |           |  |
|                                 | Email:   | patkinson@ncdot.gov                                                  |  |             |               |                        | Email:        | jdalton@sungatedesign.com                                                 |  |         |           |  |
| City/Town:                      |          | Hope Mills                                                           |  |             |               | County(ies):           |               | Cumberland                                                                |  | Robeson |           |  |
| River Basin(s):                 |          | Cape Fear                                                            |  |             |               | CAMA County?           |               | No                                                                        |  | No      |           |  |
| Wetlands within Project Limits? |          | Yes                                                                  |  |             |               |                        |               |                                                                           |  |         |           |  |

## Project Description

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                       |                                                     |                                                                                                                                                               |           |        |       |      |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------|-------|------|
| Project Length (lin. miles or feet):   | 4.16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Surrounding Land Use: | Rural, Low Density Residential, Agricultural, Woods |                                                                                                                                                               |           |        |       |      |
|                                        | Proposed Project                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                       |                                                     | Existing Site                                                                                                                                                 |           |        |       |      |
| Project Built-Upon Area (ac.)          | 83.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ac.                   |                                                     | 50.0                                                                                                                                                          | ac.       |        |       |      |
| Typical Cross Section Description:     | I-95 Sta. 18+80 - 22+90, 145+00 - 246+00 -Y-: Grassed ditch median with varying 4:1 to 10:1 side slopes. 8 paved lanes (total 96' wide). 12' full depth paved shoulder on each side (17' with guardrail). Varying fill and cut slopes (see project XSC's for detailed information). I-95 Sta 22+90 - 145+00 -Y-: Paved median separated by median barrier with 13'-24' paved median. 8 paved lanes (total 96' wide). 12' full depth paved shoulder on each side (17' with guardrail). Varying fill and cut slopes (see project XSC's for detailed information). |                       |                                                     | I-95: Grassed ditch median with varying 6:1 to 8:1 side slopes. 4 paved lanes (total 48' wide). 12' paved shoulder on each side. Varying fill and cut slopes. |           |        |       |      |
| Annual Avg Daily Traffic (veh/hr/day): | Design/Future:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 77,900                | Year:                                               | 2040                                                                                                                                                          | Existing: | 58,300 | Year: | 2018 |

General Project Narrative:  
(Description of Minimization of Water  
Quality Impacts)

The North Carolina Department of Transportation (NCDOT) has proposed the widening and improvements of existing I-95 in Hope Mills, NC. The U-2519 AA & AB project includes 2 proposed culverts at existing stream crossings along I-95. All major structures have been designed to have as little environmental and surface water impacts as possible. The first proposed major structure is along I-95 at Horsepen Branch. The first proposed structure is a 2@10'x8' Reinforced Concrete Box Culvert buried 1' with a beveled headwall. The existing structure at this crossing is a 1@7'x6' Reinforced Concrete Box Culvert with a square edge headwall. The second proposed major structure is along I-95 at Cole Camp Creek. The second proposed structure is a 2@10'x9' Reinforced Concrete Box Culvert buried 1' with a beveled headwall. The existing structure at this crossing is a 1@9'x7' Reinforced Concrete Box Culvert with a square edge headwall. Grassed swales were used for treatment when BMP design standards could be met. Grassed swales were used to reduce flow velocity, promote sedimentation infiltration and runoff attenuation. Velocities at jurisdictional and wetland features are non-erosive.



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STORMWATER MANAGEMENT PLAN  
FOR NCDOT PROJECTS

(Version 3.00; Released August 2021)

WBS Element: 34817.3.4

TIP/Proj No.: U-2519AA &amp; AB

County(ies): Cumberland Robeson

Page 2 of 2

## General Project Information

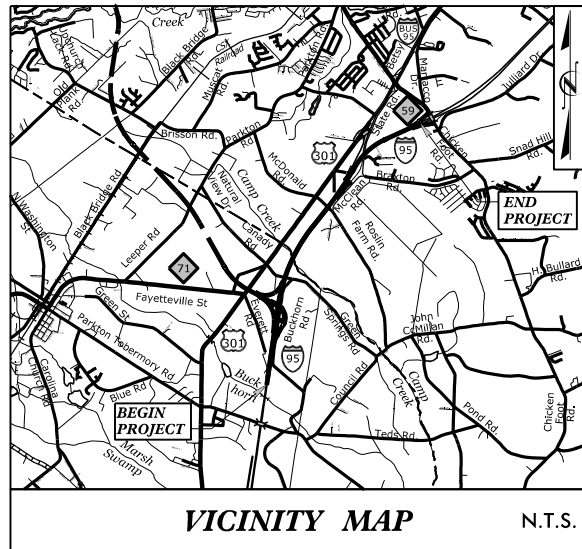
## Waterbody Information

|                                                                  |                                         |                                                                  |                                                                                                      |
|------------------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Surface Water Body (1):                                          | Horsepen Branch                         | NCDWR Stream Index No.:                                          | 14-22-1-1-1                                                                                          |
| NCDWR Surface Water Classification for Water Body                | Primary Classification:                 | Class C                                                          |                                                                                                      |
|                                                                  | Supplemental Classification:            | Swamp Waters (Sw)                                                |                                                                                                      |
| Other Stream Classification:                                     | None                                    |                                                                  |                                                                                                      |
| Impairments:                                                     | None                                    |                                                                  |                                                                                                      |
| Aquatic T&E Species?                                             | No                                      | Comments:                                                        |                                                                                                      |
| NRTR Stream ID:                                                  |                                         | Buffer Rules in Effect:                                          | N/A                                                                                                  |
| Project Includes Bridge Spanning Water Body?                     | No                                      | Deck Drains Discharge Over Buffer?                               | N/A                                                                                                  |
| Deck Drains Discharge Over Water Body?                           | N/A                                     | (If yes, provide justification in the General Project Narrative) | Dissipator Pads Provided in Buffer?                                                                  |
| (If yes, provide justification in the General Project Narrative) |                                         |                                                                  | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) |
| Surface Water Body (2):                                          | Cold Camp Creek                         | NCDWR Stream Index No.:                                          | 14-22-1-1                                                                                            |
| NCDWR Surface Water Classification for Water Body                | Primary Classification:                 | Class C                                                          |                                                                                                      |
|                                                                  | Supplemental Classification:            | Swamp Waters (Sw)                                                |                                                                                                      |
| Other Stream Classification:                                     | None                                    |                                                                  |                                                                                                      |
| Impairments:                                                     | None                                    |                                                                  |                                                                                                      |
| Aquatic T&E Species?                                             | No                                      | Comments:                                                        |                                                                                                      |
| NRTR Stream ID:                                                  |                                         | Buffer Rules in Effect:                                          | N/A                                                                                                  |
| Project Includes Bridge Spanning Water Body?                     | No                                      | Deck Drains Discharge Over Buffer?                               | N/A                                                                                                  |
| Deck Drains Discharge Over Water Body?                           | N/A                                     | (If yes, provide justification in the General Project Narrative) | Dissipator Pads Provided in Buffer?                                                                  |
| (If yes, provide justification in the General Project Narrative) |                                         |                                                                  | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) |
| Surface Water Body (3):                                          | Grays Creek (Rainey Pond, Rainbow Pond) | NCDWR Stream Index No.:                                          | 18-35-(1)                                                                                            |
| NCDWR Surface Water Classification for Water Body                | Primary Classification:                 | Class B                                                          |                                                                                                      |
|                                                                  | Supplemental Classification:            | None                                                             |                                                                                                      |
| Other Stream Classification:                                     | None                                    |                                                                  |                                                                                                      |
| Impairments:                                                     | None                                    |                                                                  |                                                                                                      |
| Aquatic T&E Species?                                             | No                                      | Comments:                                                        |                                                                                                      |
| NRTR Stream ID:                                                  |                                         | Buffer Rules in Effect:                                          | N/A                                                                                                  |
| Project Includes Bridge Spanning Water Body?                     | No                                      | Deck Drains Discharge Over Buffer?                               | N/A                                                                                                  |
| Deck Drains Discharge Over Water Body?                           | N/A                                     | (If yes, provide justification in the General Project Narrative) | Dissipator Pads Provided in Buffer?                                                                  |
| (If yes, provide justification in the General Project Narrative) |                                         |                                                                  | (If yes, describe in the General Project Narrative; if no, justify in the General Project Narrative) |

TIP PROJECT: U-2519AA&AB

CONTRACT: C204043

See Sheet 1A For Index of Sheets  
See Sheet 1B For Standard Symbology Sheet



VICINITY MAP N.T.S.

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

CUMBERLAND COUNTY  
/ROBESON COUNTY

LOCATION: I-95 FROM NORTH OF BUCKHORN SWAMP IN ROBESON COUNTY TO CHICKEN FOOT ROAD / NC 59 (EXIT 41) IN CUMBERLAND COUNTY

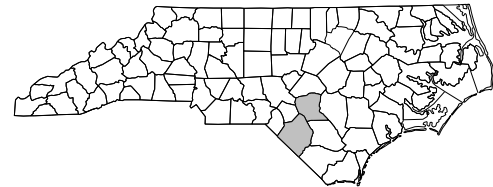
TYPE OF WORK: GRADING, DRAINAGE, PAVING, SIGNING AND STRUCTURES

WETLAND AND SURFACE WATER IMPACTS PERMIT

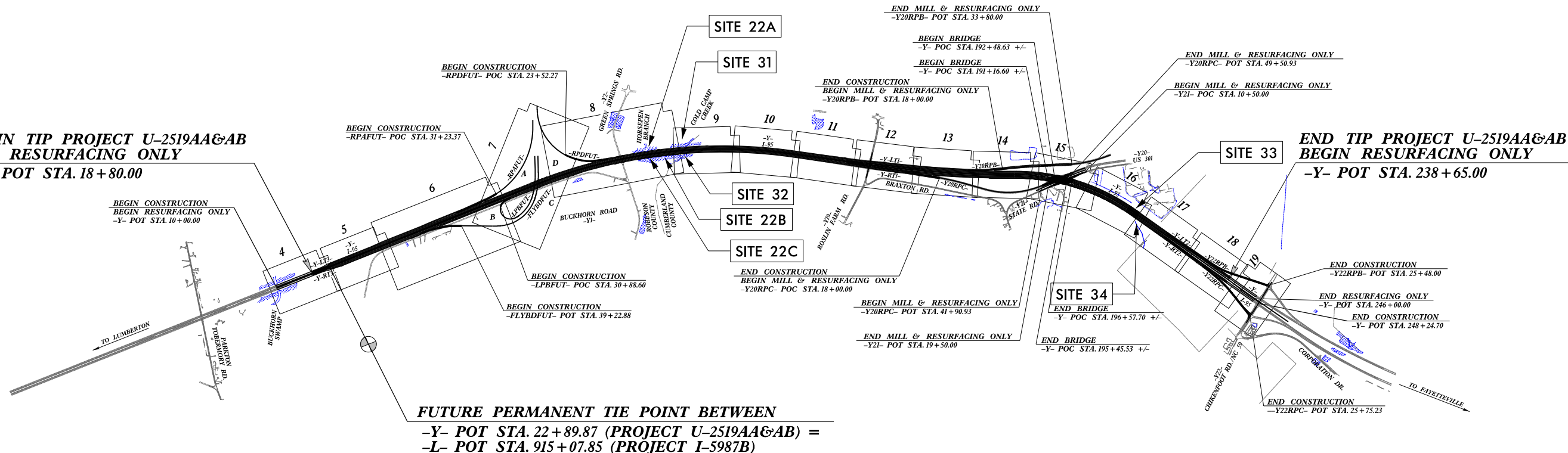
THESE PLANS SUPERSEDE WORK SHOWN IN THE ORIGINAL U-2519AA&AB PLANS ALONG I-95 FOR ITS ENTIRETY AND PORTIONS OF RPA, LPB, FLYBD AND RPD ON SHEETS 4 AND 26 THRU 29.

PERMIT DRAWING  
SHEET 1 OF 21  
DATE: 04-18-22

| STATE           | STATE PROJECT REFERENCE NO. | SHEET NO.                           | TOTAL SHEETS |
|-----------------|-----------------------------|-------------------------------------|--------------|
| N.C.            | U-2519AA&AB                 | 1                                   |              |
| STATE PROJ. NO. | F.A. PROJ. NO.              | DESCRIPTION                         |              |
| 34817.3.4       | NHP-1118(11)                | P.E., ROW, UTILITIES & CONSTRUCTION |              |
|                 |                             |                                     |              |
|                 |                             |                                     |              |
|                 |                             |                                     |              |
|                 |                             |                                     |              |



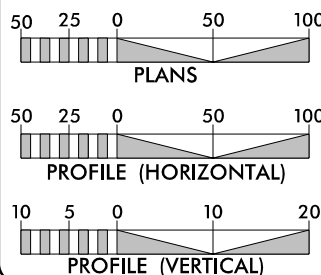
BEGIN TIP PROJECT U-2519AA&AB  
END RESURFACING ONLY  
-Y- POT STA. 18+80.00



FUTURE PERMANENT TIE POINT BETWEEN  
-Y- POT STA. 22+89.87 (PROJECT U-2519AA&AB) =  
-L- POT STA. 915+07.85 (PROJECT I-5987B)

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.  
THIS IS A CONTROLLED ACCESS PROJECT WITH ACCESS BEING LIMITED TO INTERCHANGES.

GRAPHIC SCALES



DESIGN DATA

ADT 2018 = 58,300  
ADT 2040 = 77,900  
K = 8%  
D = 55%  
T = 16%\*  
V = 75 MPH  
\* (TTST=13%+DUAL 3%)  
FUNC. CLASSIFICATION =  
INTERSTATE  
STATEWIDE TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT U-2519AA & AB = 4.083 MILES  
LENGTH STRUCTURE TIP PROJECT U-2519AA & AB = 0.081 MILES \*  
TOTAL LENGTH OF TIP PROJECT U-2519AA & AB = 4.164 MILES  
\* LENGTH BASED OFF NB BRIDGES

NCDOT CONTACT: MICHAEL PENNEY, PE  
DESIGN BUILD ENGINEER - DESIGN BUILD

PLANS PREPARED FOR THE NCDOT BY:

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
NOVEMBER 21, 2017

LETTING DATE:  
NOVEMBER 21, 2017

JOSEPH A. FREEMAN, PE  
DESIGN PROJECT MANAGER

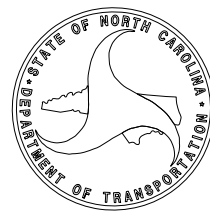
NARONG PHAL, PE  
PROJECT DESIGN ENGINEER

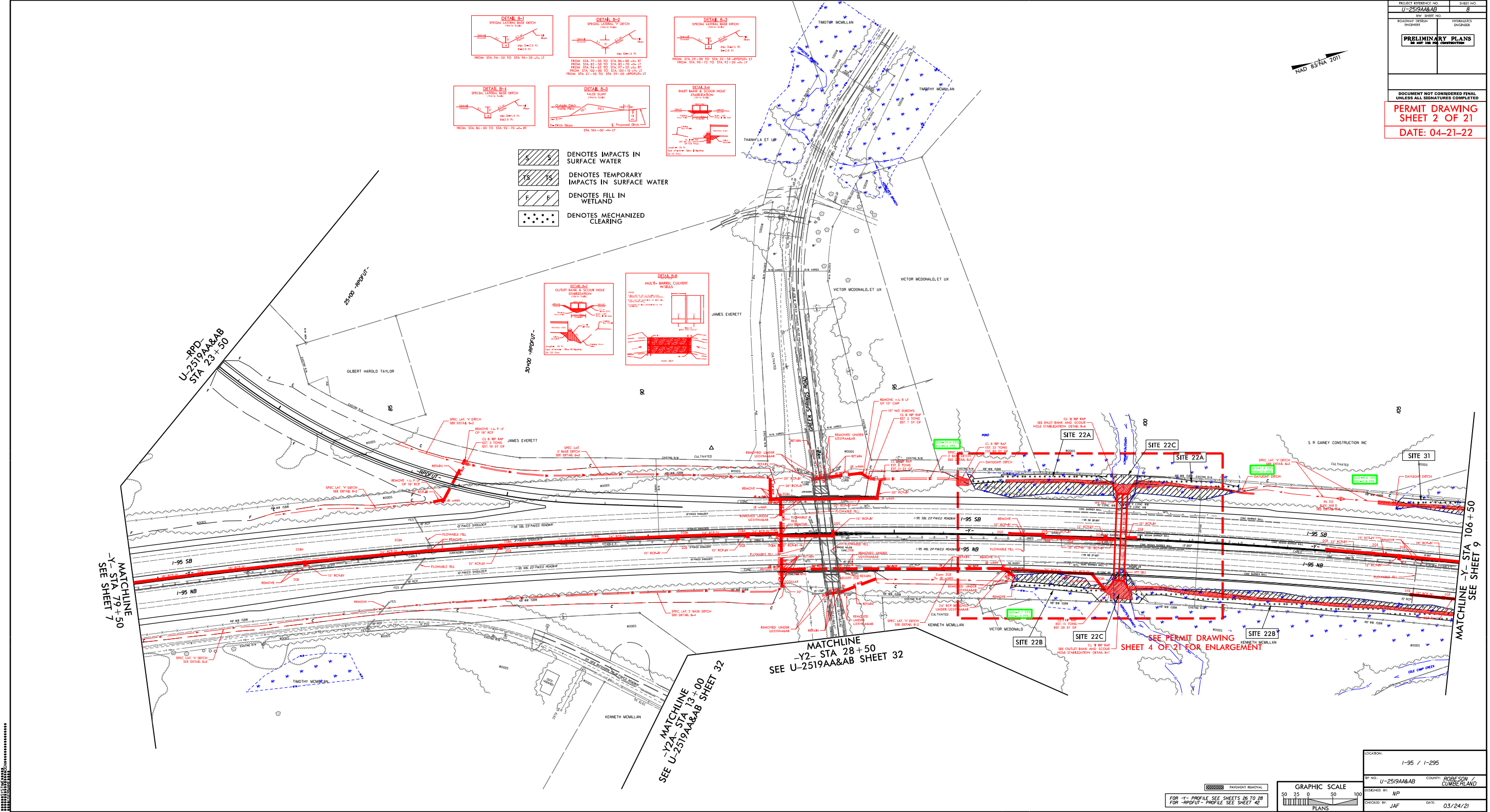
HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.  
ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION  
DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED





|                                                                  |            |
|------------------------------------------------------------------|------------|
| PROJECT REFERENCE NO.                                            | SHEET NO.  |
| U-2519AA&AB                                                      | 2          |
| REV. SHEET NO.                                                   |            |
| ROADWAY DESIGN                                                   | HYDRAULICS |
| INCHES                                                           | FOOTING    |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION          |            |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |            |
| <b>PERMIT DRAWING</b><br>SHEET 2 OF 21                           |            |
| DATE: 04-21-22                                                   |            |

|              |              |         |            |
|--------------|--------------|---------|------------|
| LOCATION:    | I-95 / I-295 |         |            |
| TP NO.:      | U-2519AA&AB  | COUNTY: | ROBERTSON  |
| DESIGNED BY: | NP           | CITY:   | CUMBERLAND |
| CHECKED BY:  | JAF          | DATE:   | 03/24/21   |

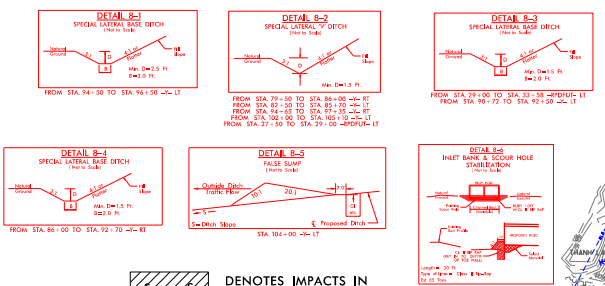
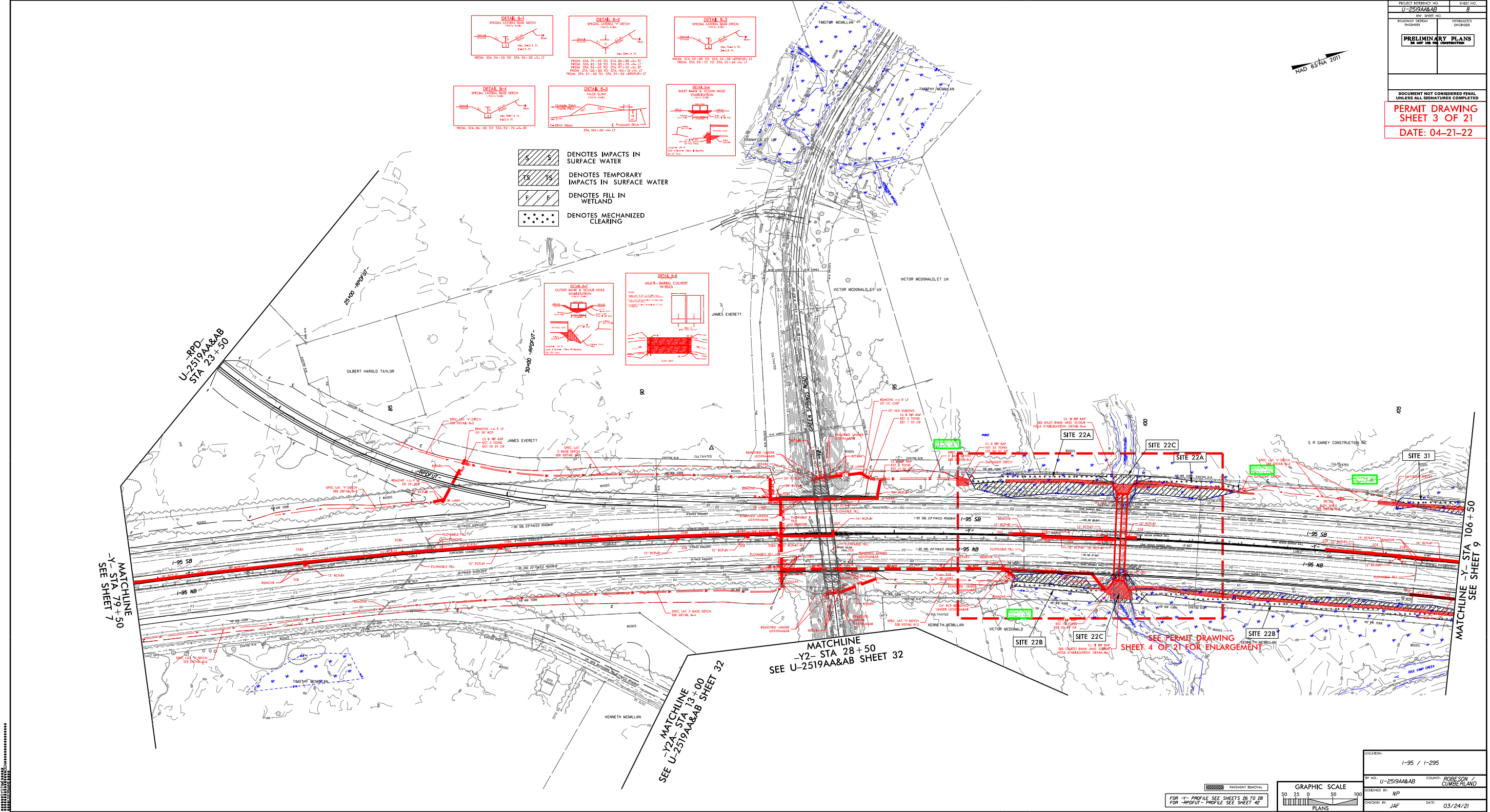
PAVEMENT REMOVAL

FOR -Y- PROFILE SEE SHEETS 26 TO 28  
FOR -POPUT- PROFILE SEE SHEET 42

GRAPHIC SCALE

50 25 0 50 100

PLANS



DENOTES IMPACTS IN SURFACE WATER

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES FILL IN WETLAND

DENOTES MECHANIZED CLEARING

|                                                                  |            |
|------------------------------------------------------------------|------------|
| PROJECT REFERENCE NO.                                            | SHEET NO.  |
| U-2519AA&AB                                                      | 3          |
| REV. SHEET NO.                                                   |            |
| ROADWAY DESIGN                                                   | HYDRAULICS |
| ENGINEER                                                         | ENGINEER   |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION          |            |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |            |
| <b>PERMIT DRAWING</b><br>SHEET 3 OF 21                           |            |
| DATE: 04-21-22                                                   |            |

|              |              |            |           |
|--------------|--------------|------------|-----------|
| LOCATION:    | I-95 / I-295 |            |           |
| TP NO.:      | U-2519AA&AB  | COUNTY:    | ROBERTSON |
| DESIGNED BY: | NP           | CUMBERLAND |           |
| CHECKED BY:  | JAF          | DATE:      | 03/24/21  |

FOR -Y- PROFILE SEE SHEETS 26 TO 28  
FOR -HPOUT- PROFILE SEE SHEET 42

GRAPHIC SCALE  
50 25 0 50 100  
PLANS

8/17/99



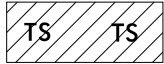
DENOTES FILL IN  
WETLAND



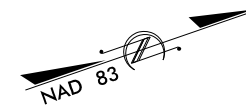
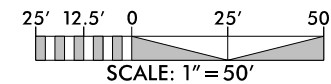
DENOTES IMPACTS IN  
SURFACE WATER



DENOTES MECHANIZED  
CLEARING



DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO. SHEET NO.

U-2519AA&AB

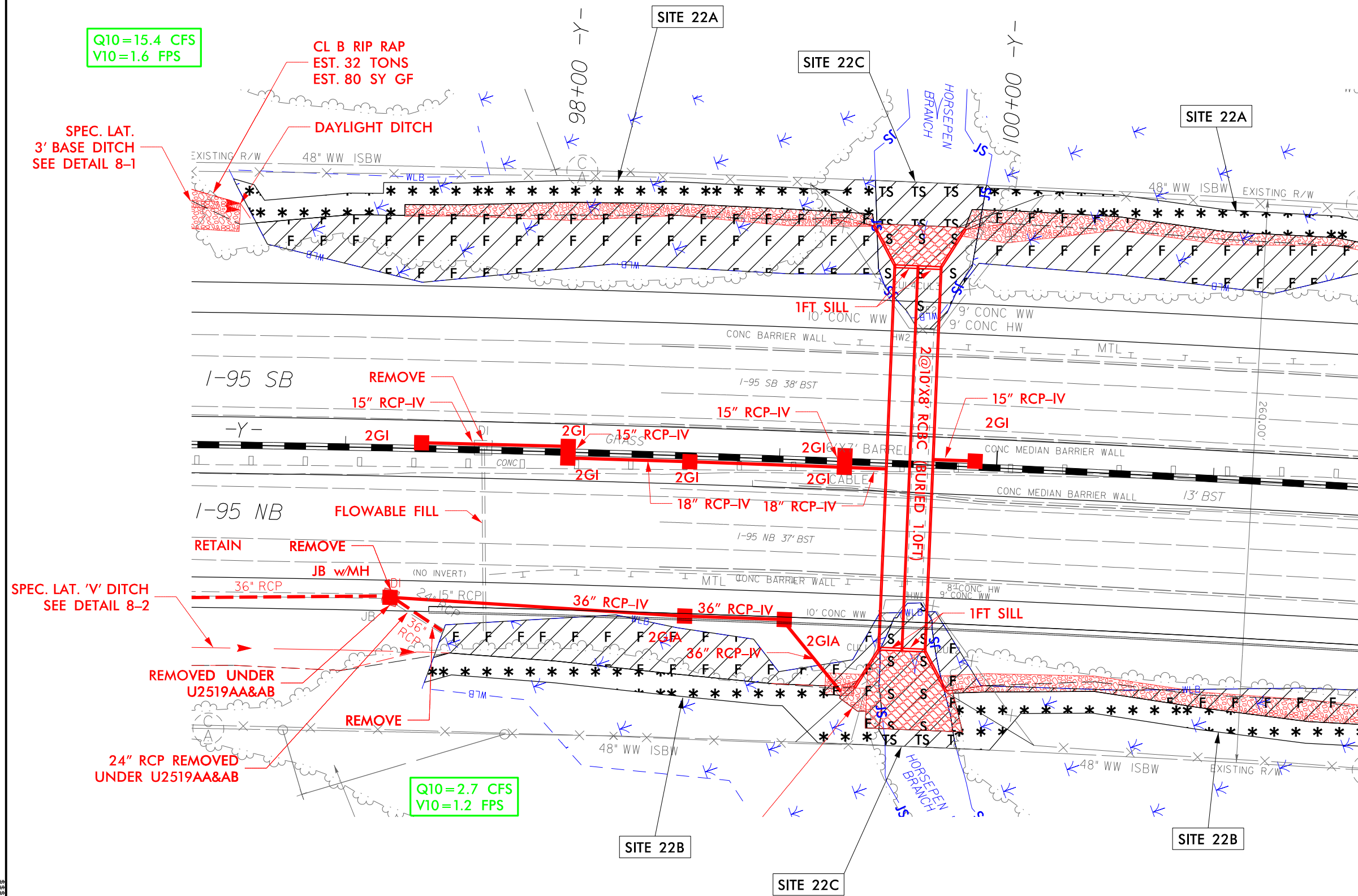
R/W SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 4 OF 21

DATE: 04-21-22

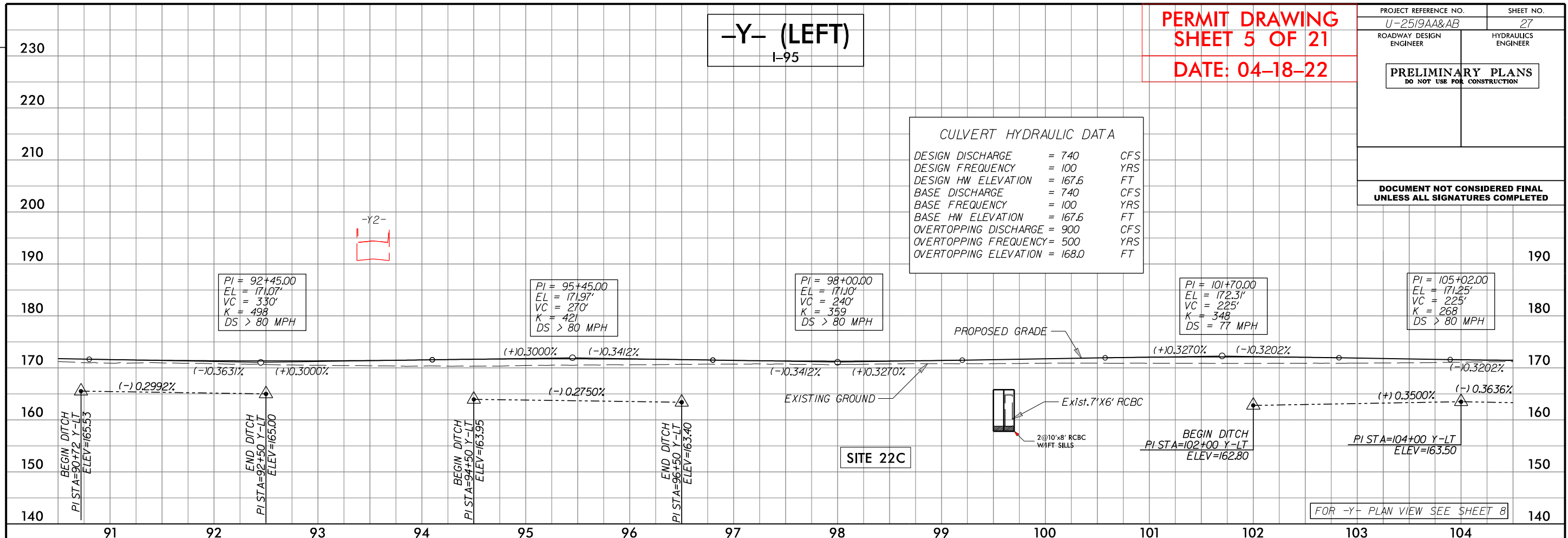


|                |
|----------------|
| DATE: 04-18-22 |
|----------------|

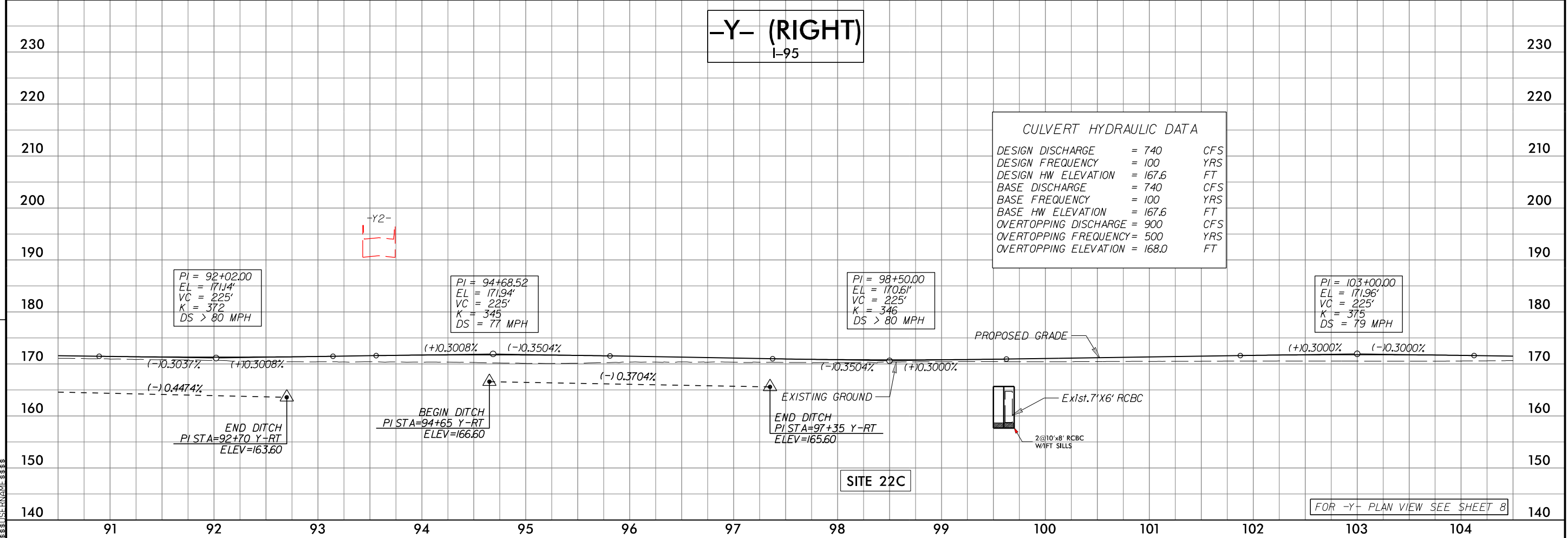
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| PROJECT REFERENCE NO.                                   | SHEET NO.              |
| <i>U-2519AA&amp;AB</i>                                  | <i>27</i>              |
| ROADWAY DESIGN<br>ENGINEER                              | HYDRAULICS<br>ENGINEER |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION |                        |

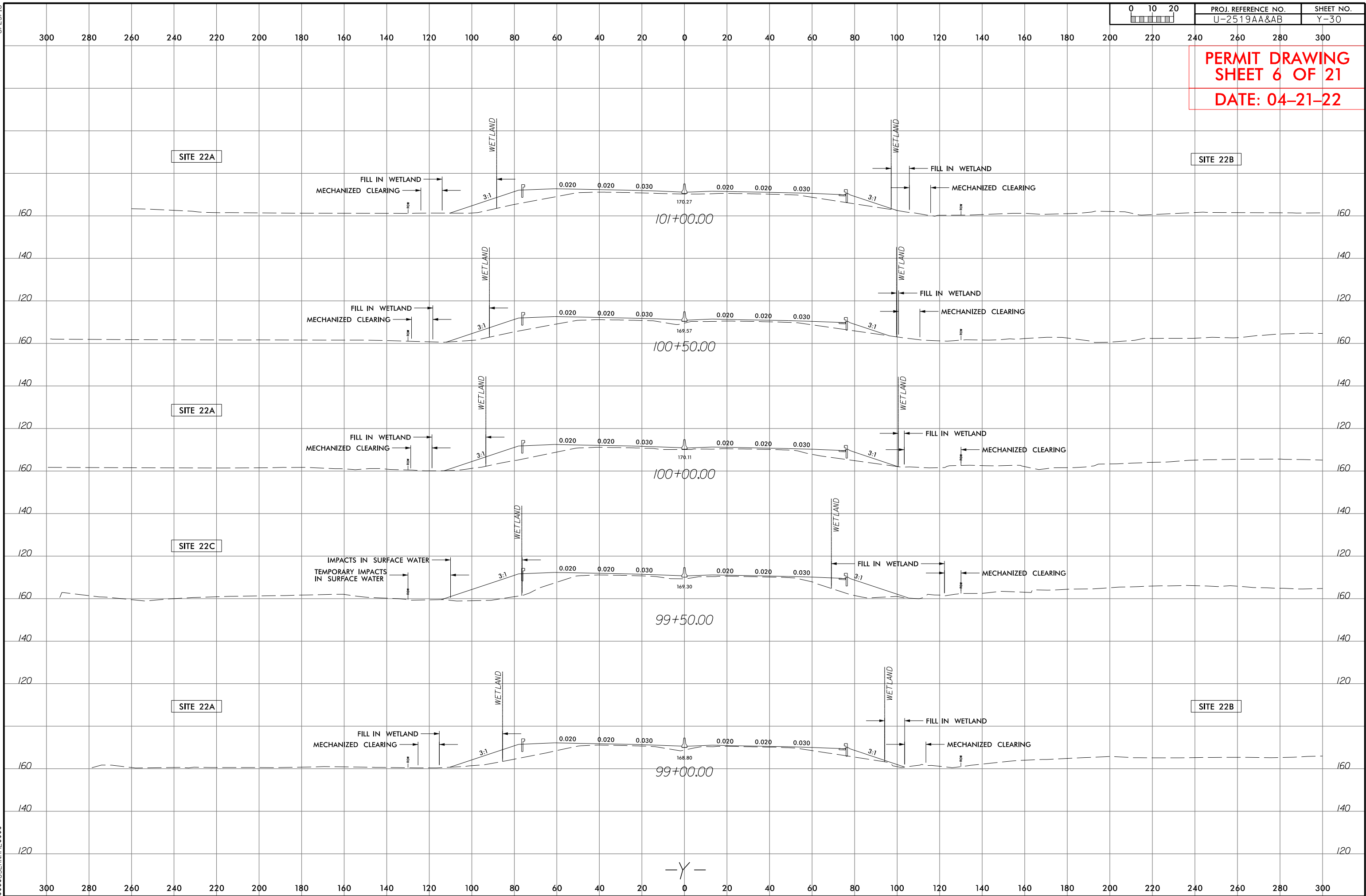
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

| CULVERT HYDRAULIC DATA |         |    |
|------------------------|---------|----|
| DESIGN DISCHARGE       | = 740   | CF |
| DESIGN FREQUENCY       | = 100   | YR |
| DESIGN HW ELEVATION    | = 167.6 | FT |
| BASE DISCHARGE         | = 740   | CF |
| BASE FREQUENCY         | = 100   | YR |
| BASE HW ELEVATION      | = 167.6 | FT |
| OVERTOPPING DISCHARGE  | = 900   | CF |
| OVERTOPPING FREQUENCY  | = 500   | YR |
| OVERTOPPING ELEVATION  | = 168.0 | FT |



| CULVERT HYDRAULIC DATA |   |       |     |
|------------------------|---|-------|-----|
| DESIGN DISCHARGE       | = | 740   | CF  |
| DESIGN FREQUENCY       | = | 100   | YRS |
| DESIGN HW ELEVATION    | = | 167.6 | FT  |
| BASE DISCHARGE         | = | 740   | CF  |
| BASE FREQUENCY         | = | 100   | YRS |
| BASE HW ELEVATION      | = | 167.6 | FT  |
| OVERTOPPING DISCHARGE  | = | 900   | CF  |
| OVERTOPPING FREQUENCY  | = | 500   | YRS |
| OVERTOPPING ELEVATION  | = | 168.0 | FT  |





5/14/99

200 100 0 100 200

CL STA 99+60 -Y-  
GP EL = 171.62 -Y- (LEFT)  
GP EL = 170.94 -Y- (RIGHT)  
2@10'x8' RCBC (BURIED 1.0FT)  
SKEW = 90°-00'-00"

SITE 22C

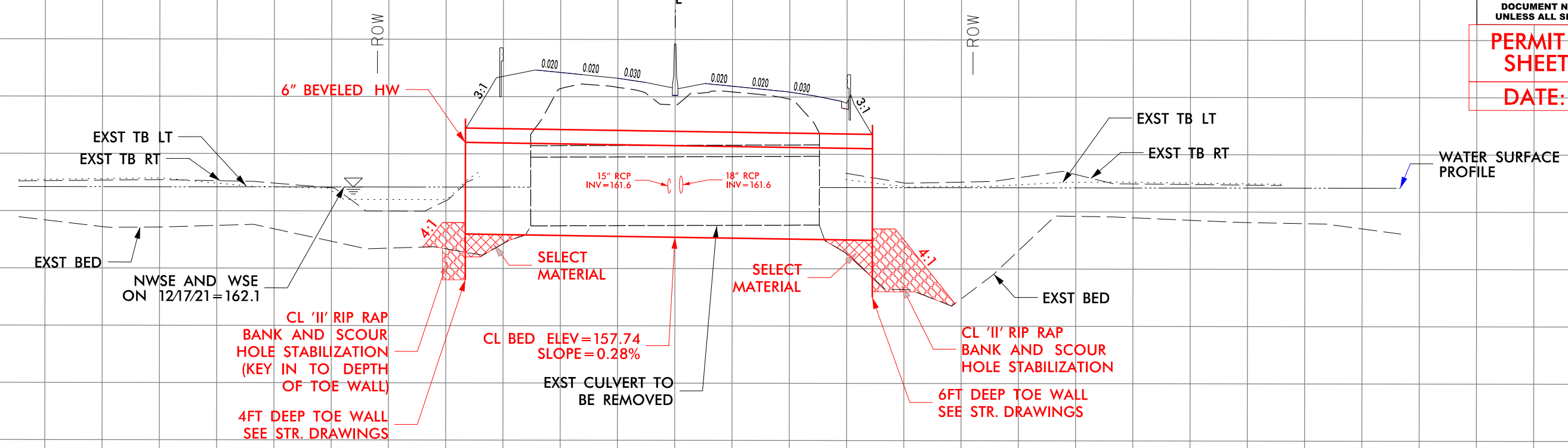
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| PROJECT REFERENCE NO.<br>U-2519AA&AB               | SHEET NO.              |
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| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION |                        |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

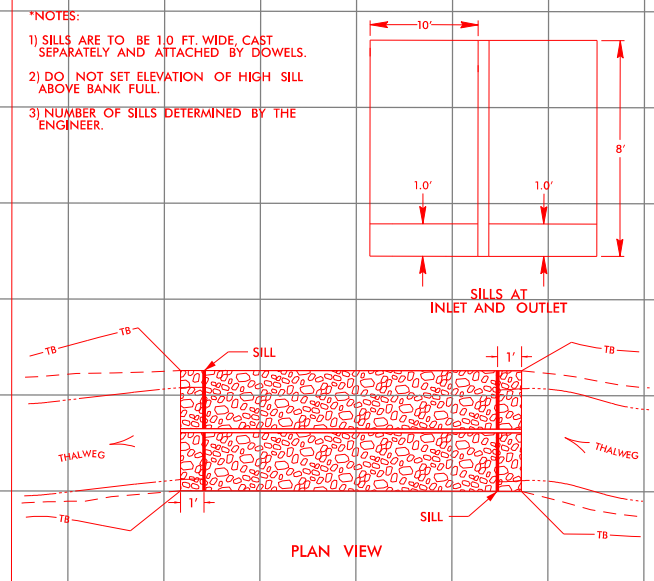
PERMIT DRAWING  
SHEET 7 OF 21

DATE: 04-18-22

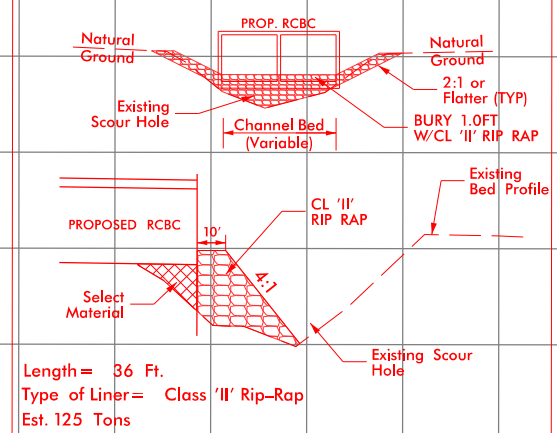
180  
170  
160  
150



DETAIL  
(NOT TO SCALE)  
MULTI-BARREL CULVERT  
W/SILLS

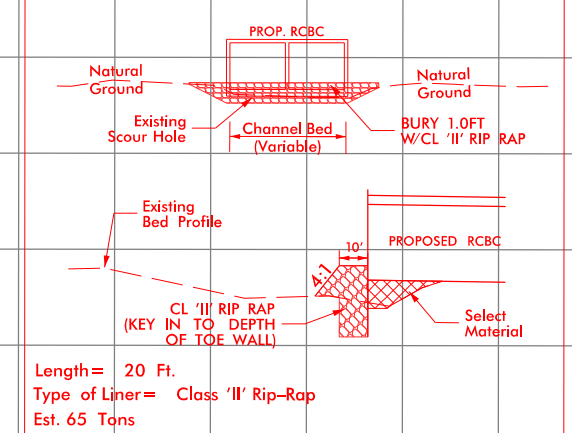


DETAIL  
(Not to Scale)  
OUTLET BANK & SCOUR HOLE  
STABILIZATION



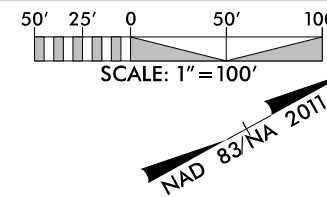
Length = 36 Ft.  
Type of Liner = Class 'II' Rip-Rap  
Est. 125 Tons

DETAIL  
(Not to Scale)  
INLET BANK & SCOUR HOLE  
STABILIZATION



Length = 20 Ft.  
Type of Liner = Class 'II' Rip-Rap  
Est. 65 Tons

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING



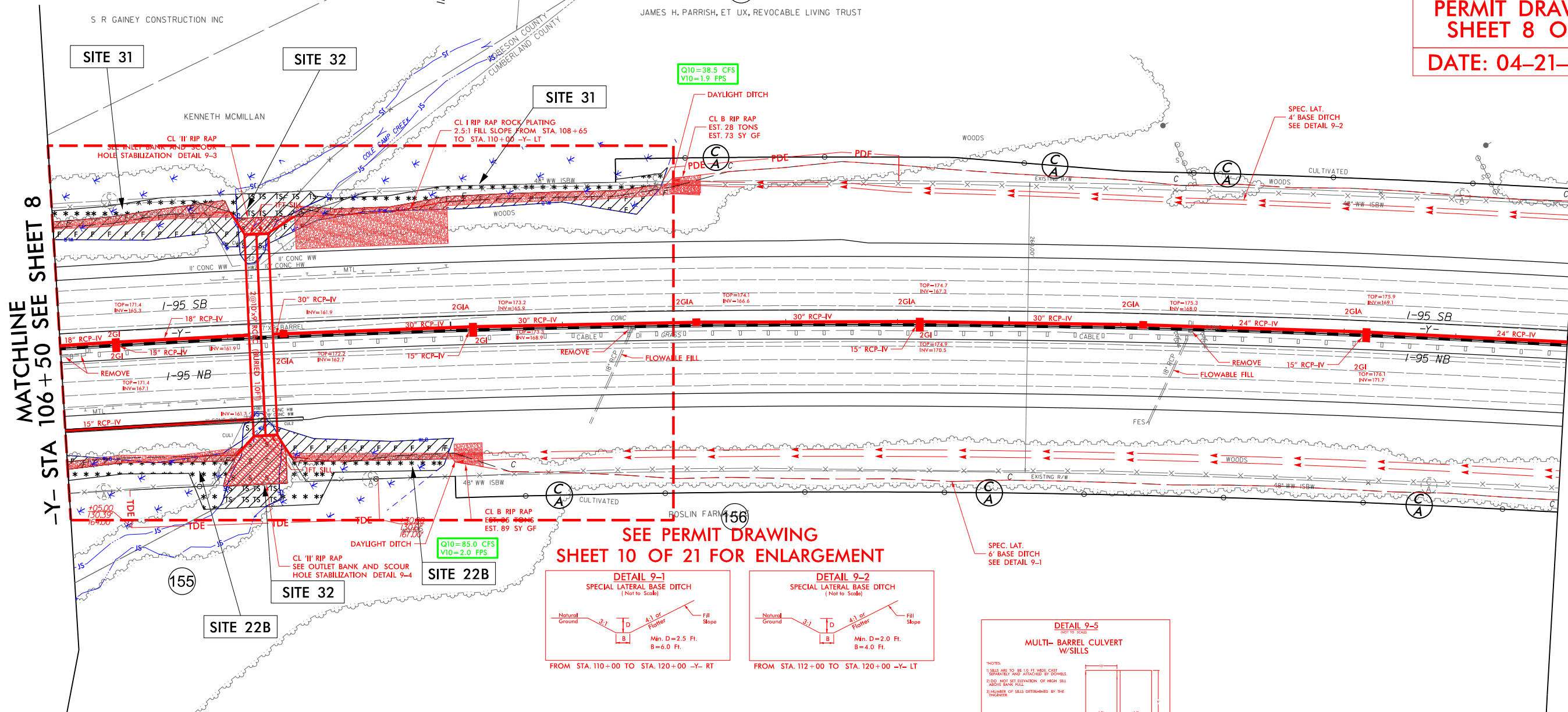
|                                                  |                     |
|--------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                            | SHEET NO.           |
| U-2519AA&AB                                      | 9                   |
| R/W SHEET NO.                                    |                     |
| ROADWAY DESIGN ENGINEER                          | HYDRAULICS ENGINEER |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION |                     |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 8 OF 21

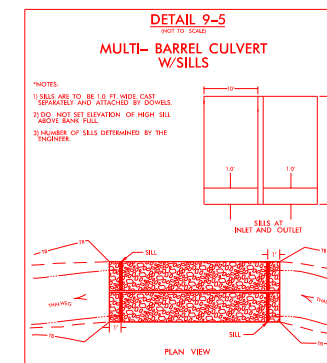
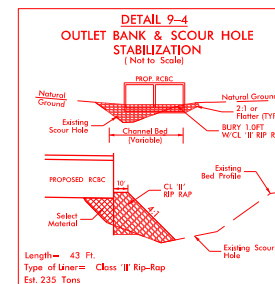
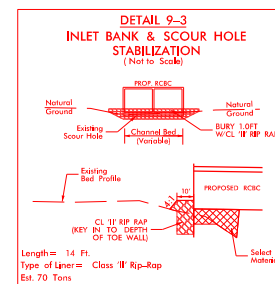
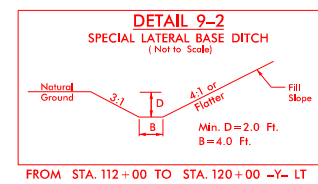
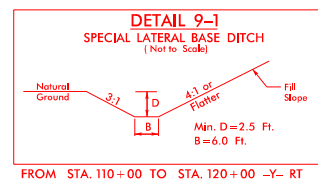
DATE: 04-21-22

MATCHLINE  
-Y- STA 106+50 SEE SHEET 8

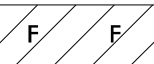


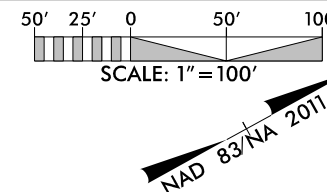
MATCHLINE  
-Y- STA 120+00 SEE SHEET 10

SEE PERMIT DRAWING  
SHEET 10 OF 21 FOR ENLARGEMENT



FOR -Y- PROFILE SEE SHEETS 28 & 29

-  DENOTES IMPACTS IN SURFACE WATER
-  DENOTES TEMPORARY IMPACTS IN SURFACE WATER
-  DENOTES FILL IN WETLAND
-  DENOTES MECHANIZED CLEARING



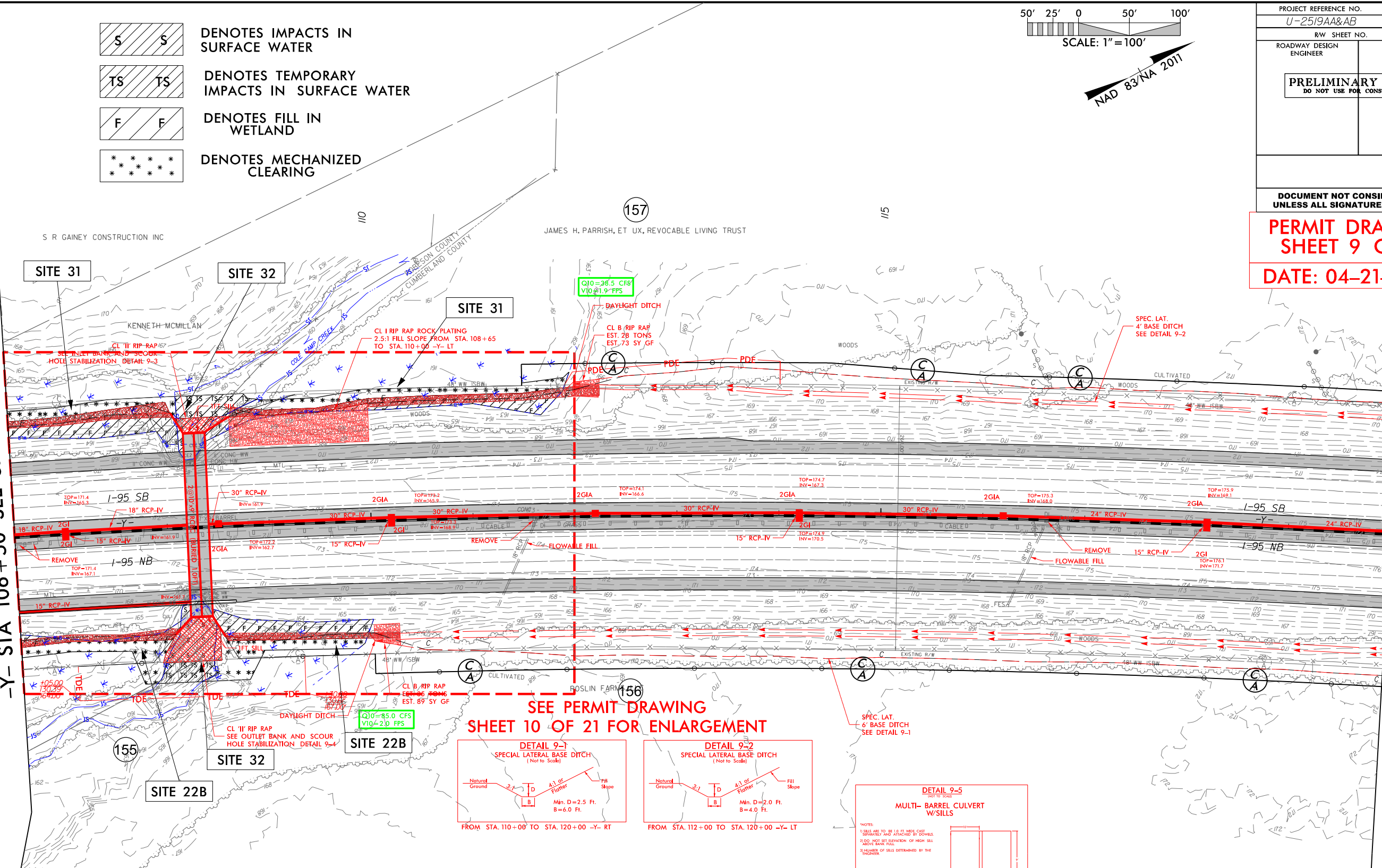
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|--------------------------------------------------|---------------------|
| PROJECT REFERENCE NO.                            | SHEET NO.           |
| U-2519AA&AB                                      | 9                   |
| R/W SHEET NO.                                    |                     |
| ROADWAY DESIGN ENGINEER                          | HYDRAULICS ENGINEER |
| PRELIMINARY PLANS<br>DO NOT USE FOR CONSTRUCTION |                     |

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

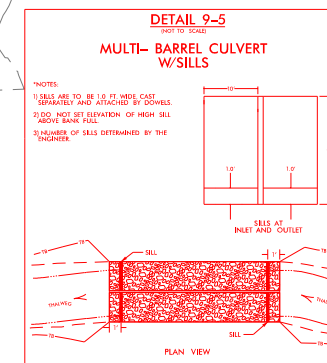
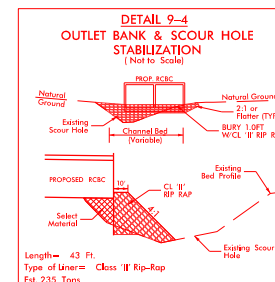
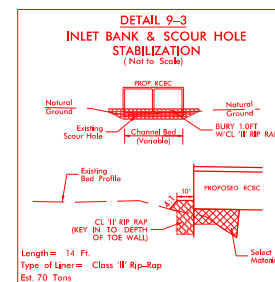
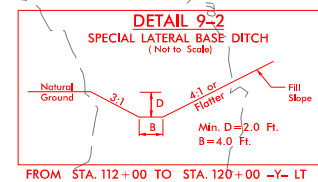
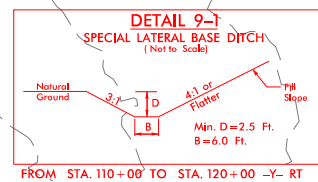
PERMIT DRAWING  
SHEET 9 OF 21  
DATE: 04-21-22

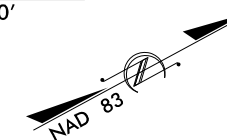
MATCHLINE  
-Y- STA 106+50 SEE SHEET 8

MATCHLINE  
-Y- STA 120+00 SEE SHEET 10



SEE PERMIT DRAWING  
SHEET 10 OF 21 FOR ENLARGEMENT





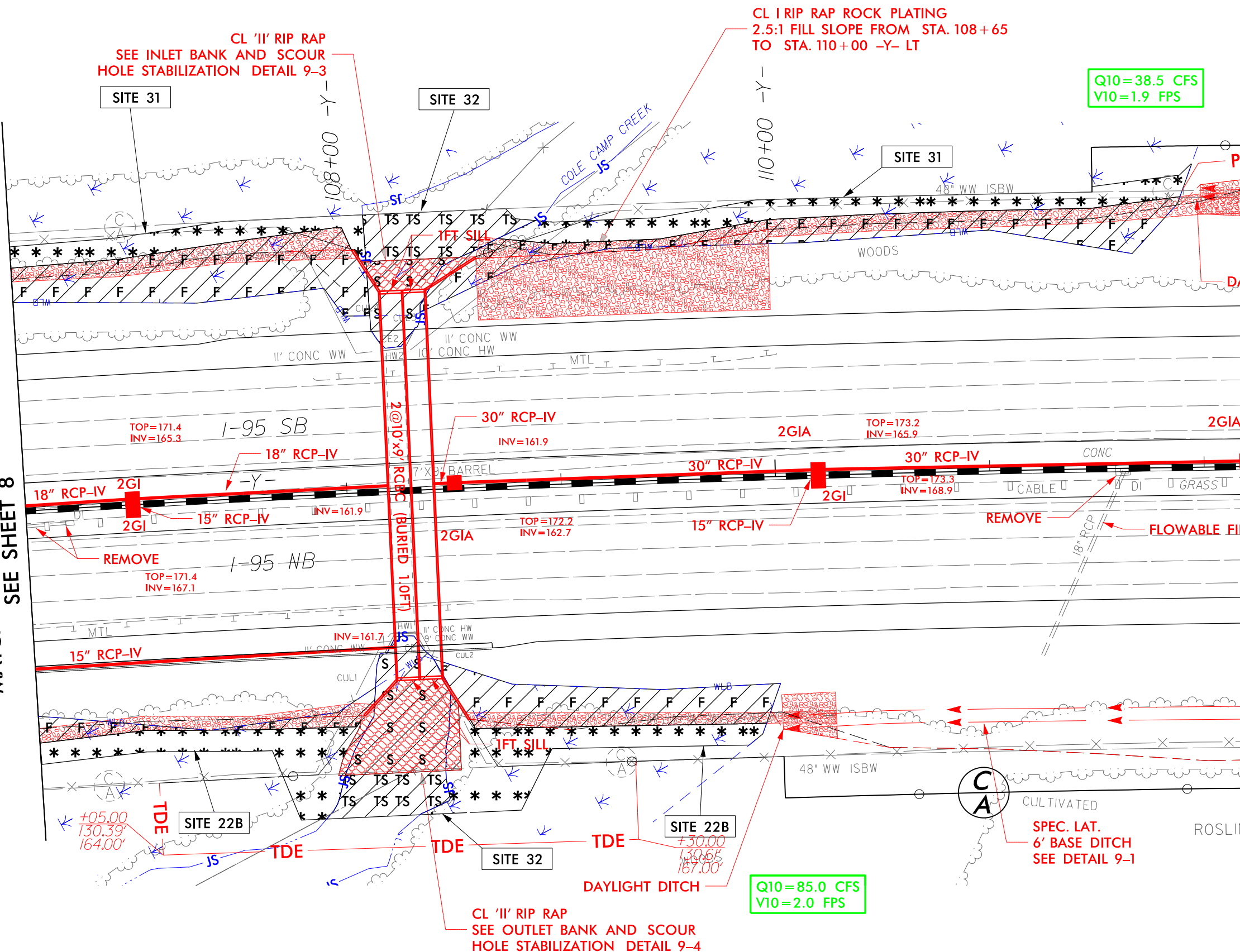
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

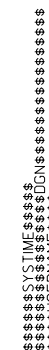
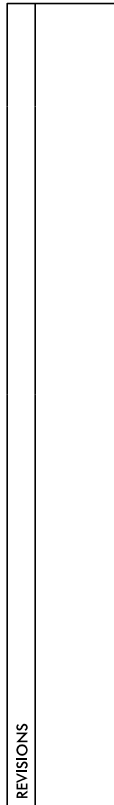
DATE: 04-21-22

SPEC. LAT.  
— 4' BASE DITCH  
SEE DETAIL 9-2

CL B RIP RAP  
— EST. 28 TONS  
EST. 73 SY GF  
IGHT DITCH

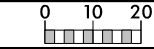
MATCHLINE -Y- STA 106+50  
SEE SHEET 8





6/23/16

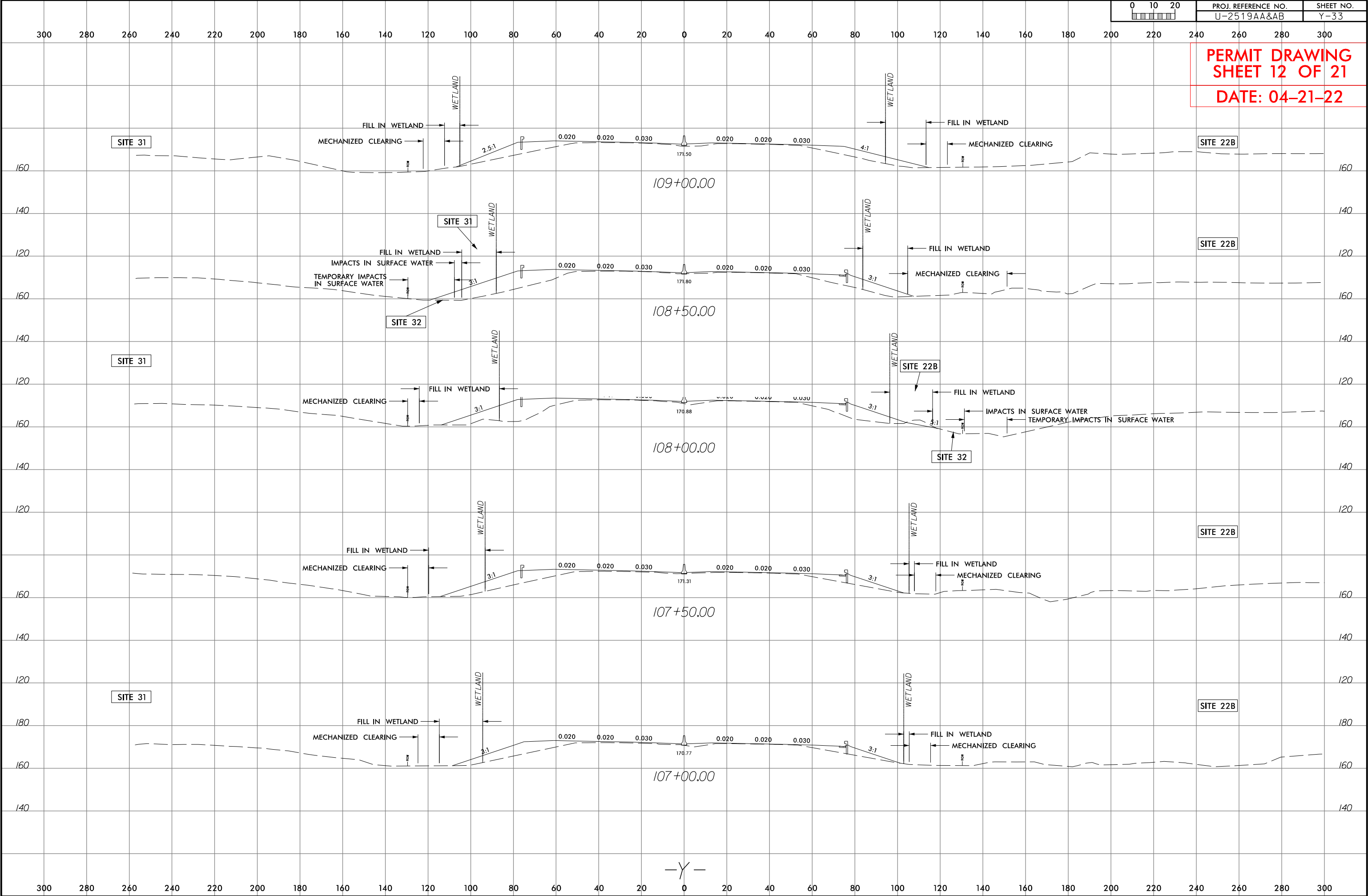
6/23/16



| PROJ. REFERENCE NO. | SHEET NO. |
|---------------------|-----------|
| U-2519AA&AB         | Y-33      |

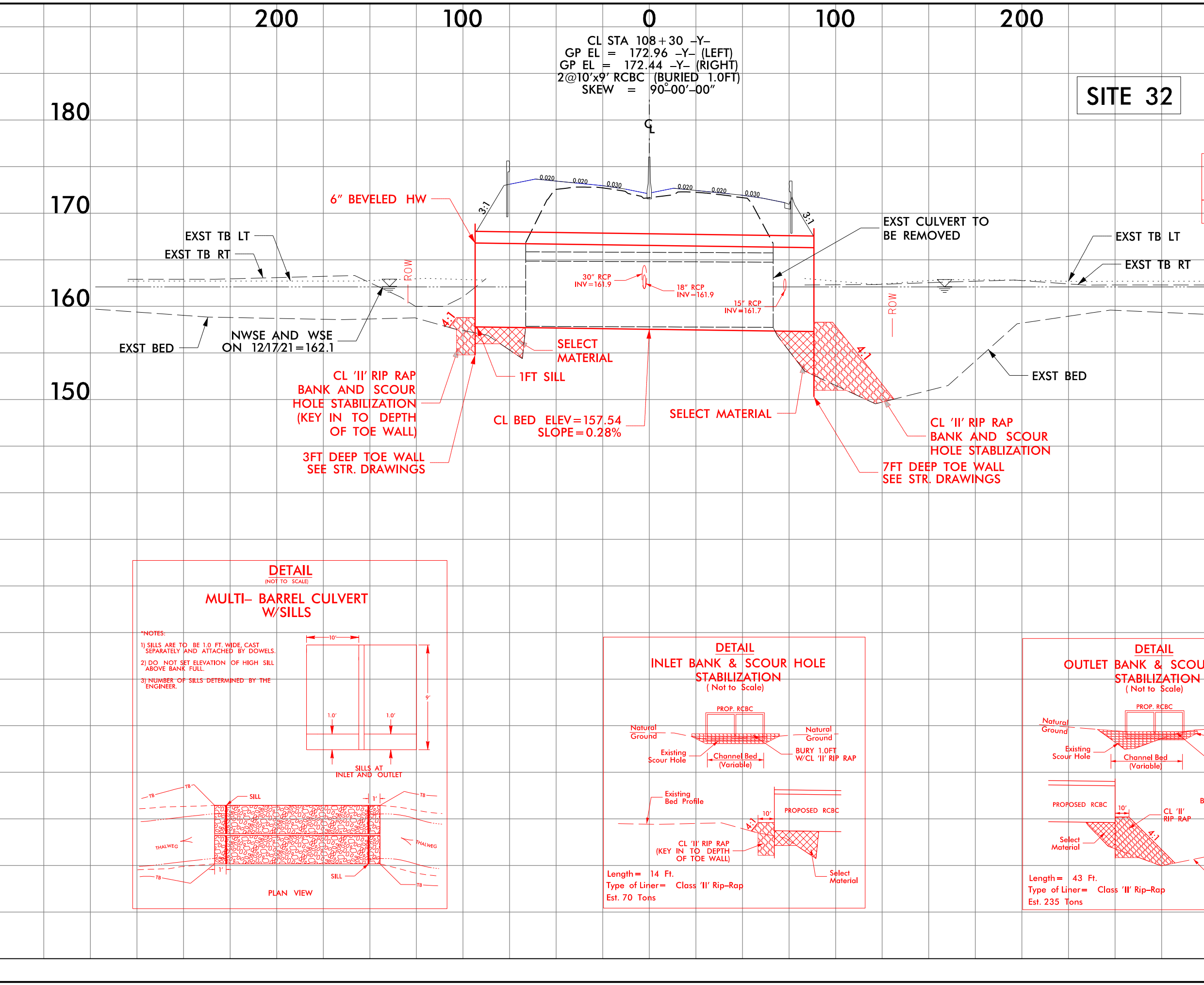
PERMIT DRAWING  
SHEET 12 OF 21

DATE: 04-21-22



5/14/99

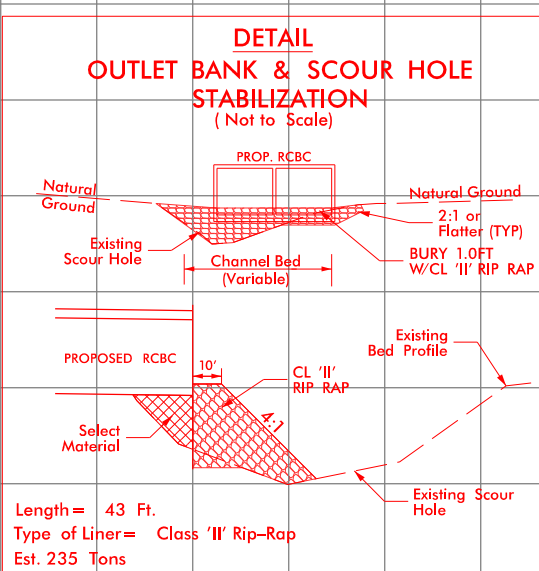
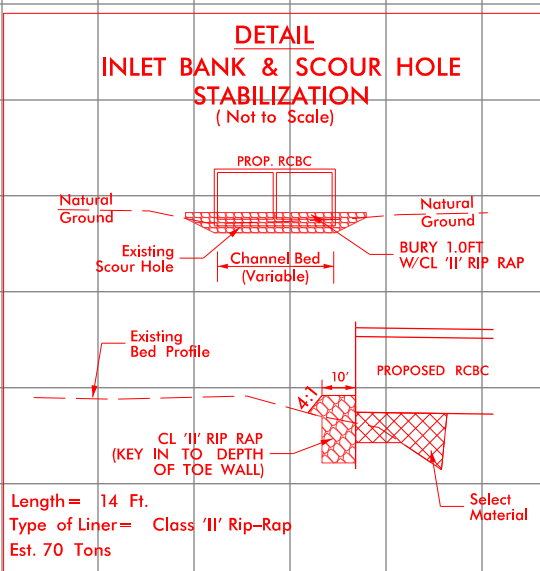
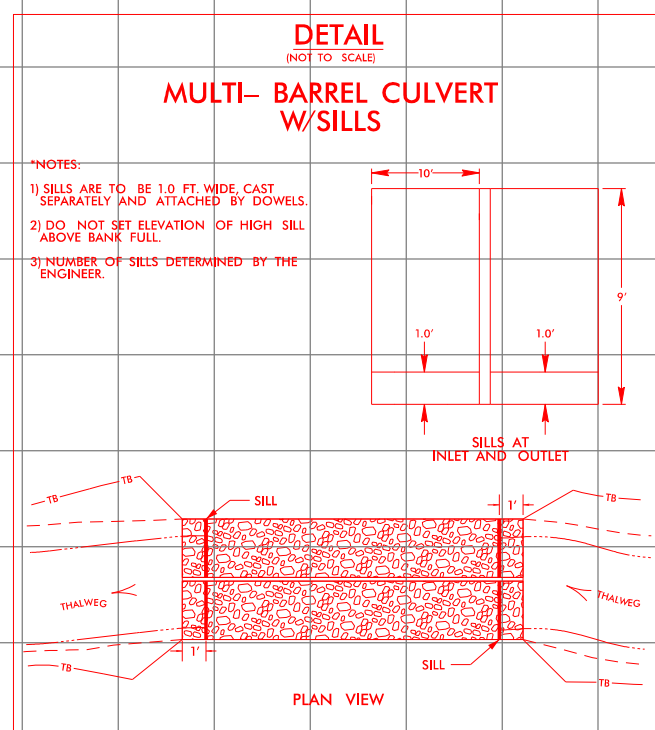
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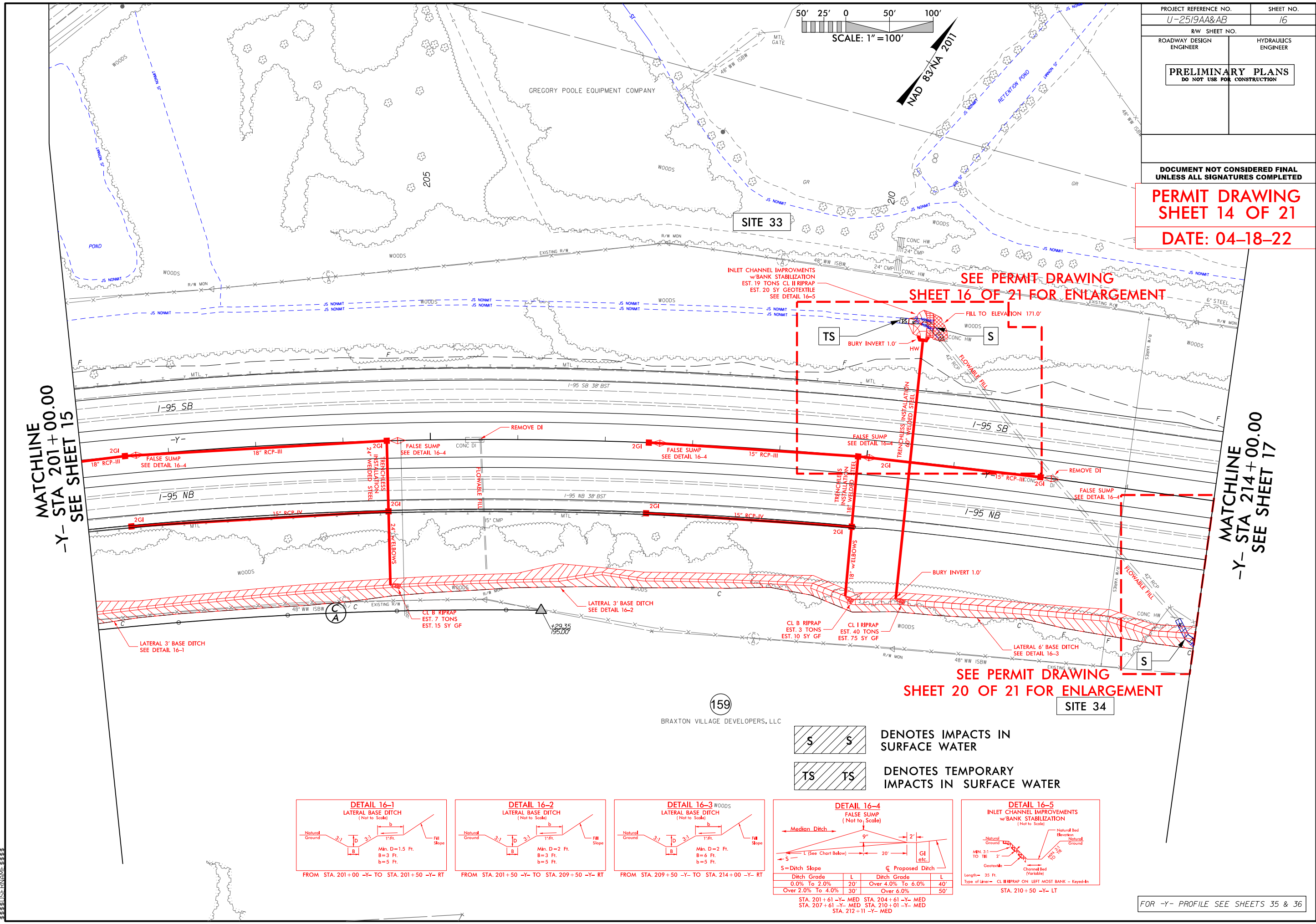


CL STA 108+30 -Y-  
GP EL = 172.96 -Y- (LEFT)  
GP EL = 172.44 -Y- (RIGHT)  
2@10'x9' RCBC (BURIED 1.0FT)  
SKEW = 90-00'-00"

SITE 32

|                                                                  |  |                     |  |
|------------------------------------------------------------------|--|---------------------|--|
| PROJECT REFERENCE NO.<br>U-2519AA&AB                             |  | SHEET NO.           |  |
| ROADWAY DESIGN ENGINEER                                          |  | HYDRAULICS ENGINEER |  |
| INCOMPLETE PLANS<br>DO NOT USE FOR R/W ACQUISITION               |  |                     |  |
| DOCUMENT NOT CONSIDERED FINAL<br>UNLESS ALL SIGNATURES COMPLETED |  |                     |  |
| PERMIT DRAWING<br>SHEET 13 OF 21<br>DATE: 04-18-22               |  |                     |  |

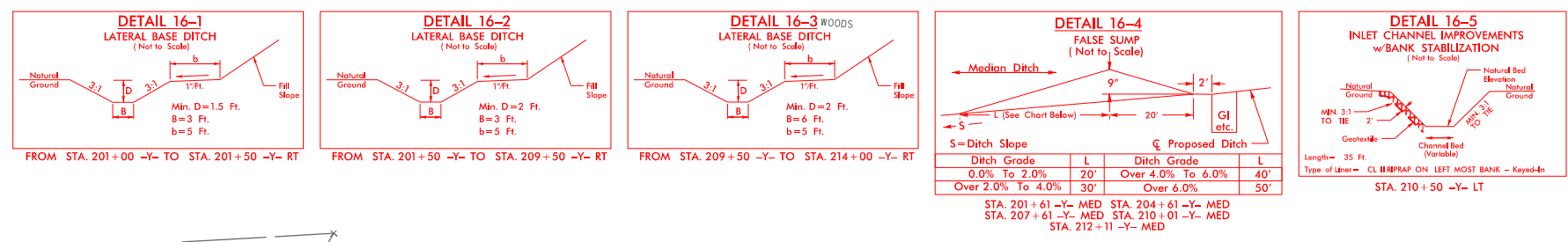




159  
BRAXTON VILLAGE DEVELOPERS, LLC

**S S** DENOTES IMPACTS IN SURFACE WATER

**TS TS** DENOTES TEMPORARY IMPACTS IN SURFACE WATER



PROJECT REFERENCE NO.  
U-2519AA&AB

SHEET NO.  
16

ROADWAY DESIGN ENGINEER

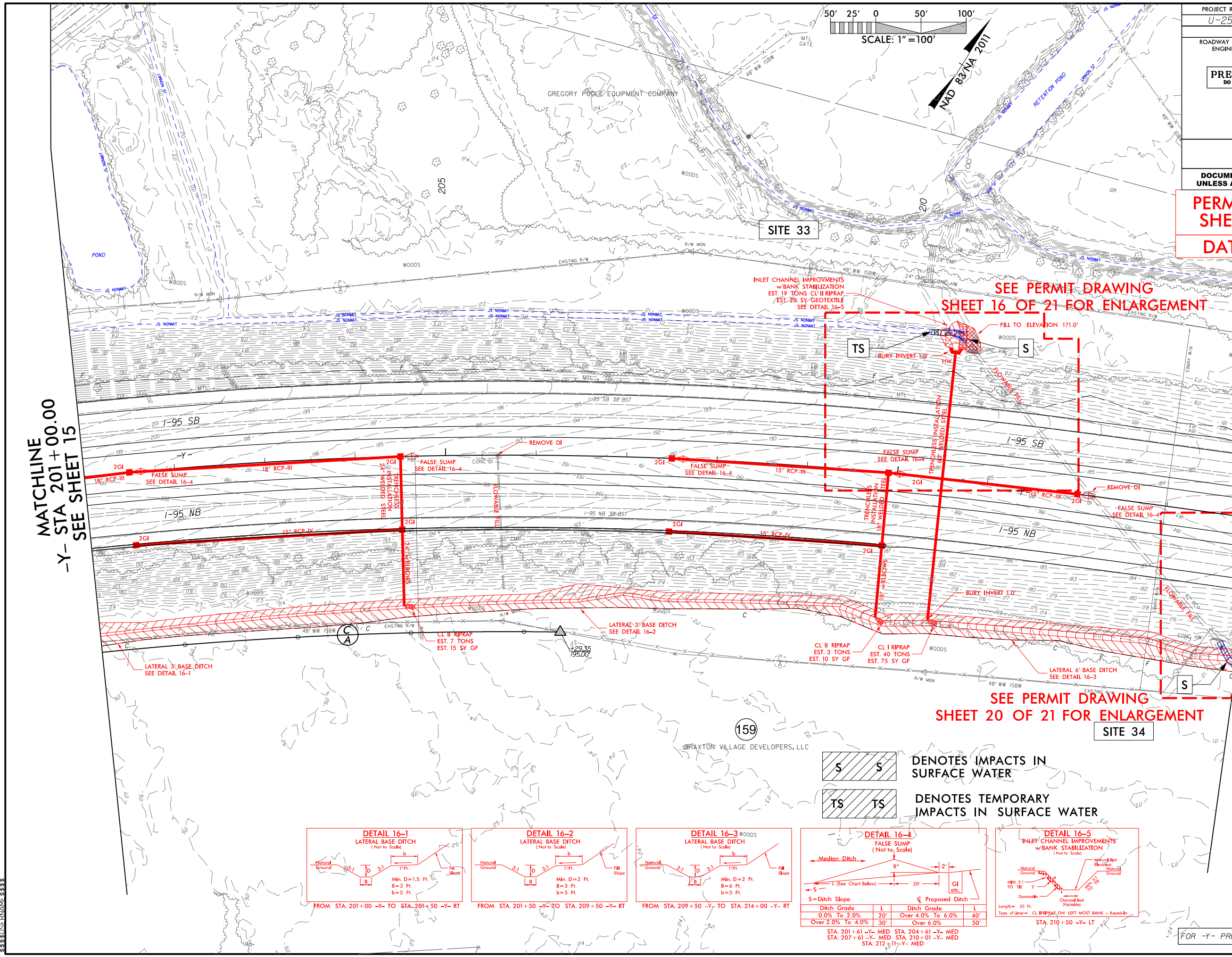
HYDRAULICS ENGINEER

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING  
SHEET 15 OF 21

DATE: 04-18-22



**DETAIL 16-1**  
LATERAL BASE DITCH  
(Not to Scale)

FROM STA. 201+00 -Y- TO STA. 201+50 -Y- RT

**DETAIL 16-2**  
LATERAL BASE DITCH  
(Not to Scale)

FROM STA. 201+50 -Y- TO STA. 209+50 -Y- RT

**DETAIL 16-3**  
LATERAL BASE DITCH  
(Not to Scale)

FROM STA. 209+50 -Y- TO STA. 214+00 -Y- RT

**DETAIL 16-4**  
FALSE SUMP  
(Not to Scale)

FROM STA. 201+61 -Y- MED STA. 204+61 -Y- MED  
STA. 207+61 -Y- MED STA. 210+01 -Y- MED  
STA. 212+11 -Y- MED

**DETAIL 16-5**  
INLET CHANNEL IMPROVEMENTS  
w/BANK STABILIZATION  
(Not to Scale)

STA. 210+50 -Y- LT

**S S** DENOTES IMPACTS IN SURFACE WATER

**TS TS** DENOTES TEMPORARY IMPACTS IN SURFACE WATER

FOR -Y- PROFILE SEE SHEETS 35 & 36

DATE: 04-18-22



CONC HW

APR 22 1964

1-95 SB

**SITE 33**



|     |              |
|-----|--------------|
| 60" | WELDED STEEL |
|     | S = 0.00%    |

|  |           |  |
|--|-----------|--|
|  | BURY PIPE |  |
|--|-----------|--|

PROP BED  
= 168.4

PROJECT REFERENCE NO.  
U-2519AA&AB

SHEET NO.  
17

R/W SHEET NO.

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PRELIMINARY PLANS

DO NOT USE FOR CONSTRUCTION

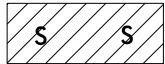
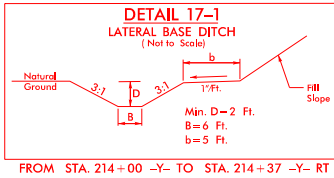
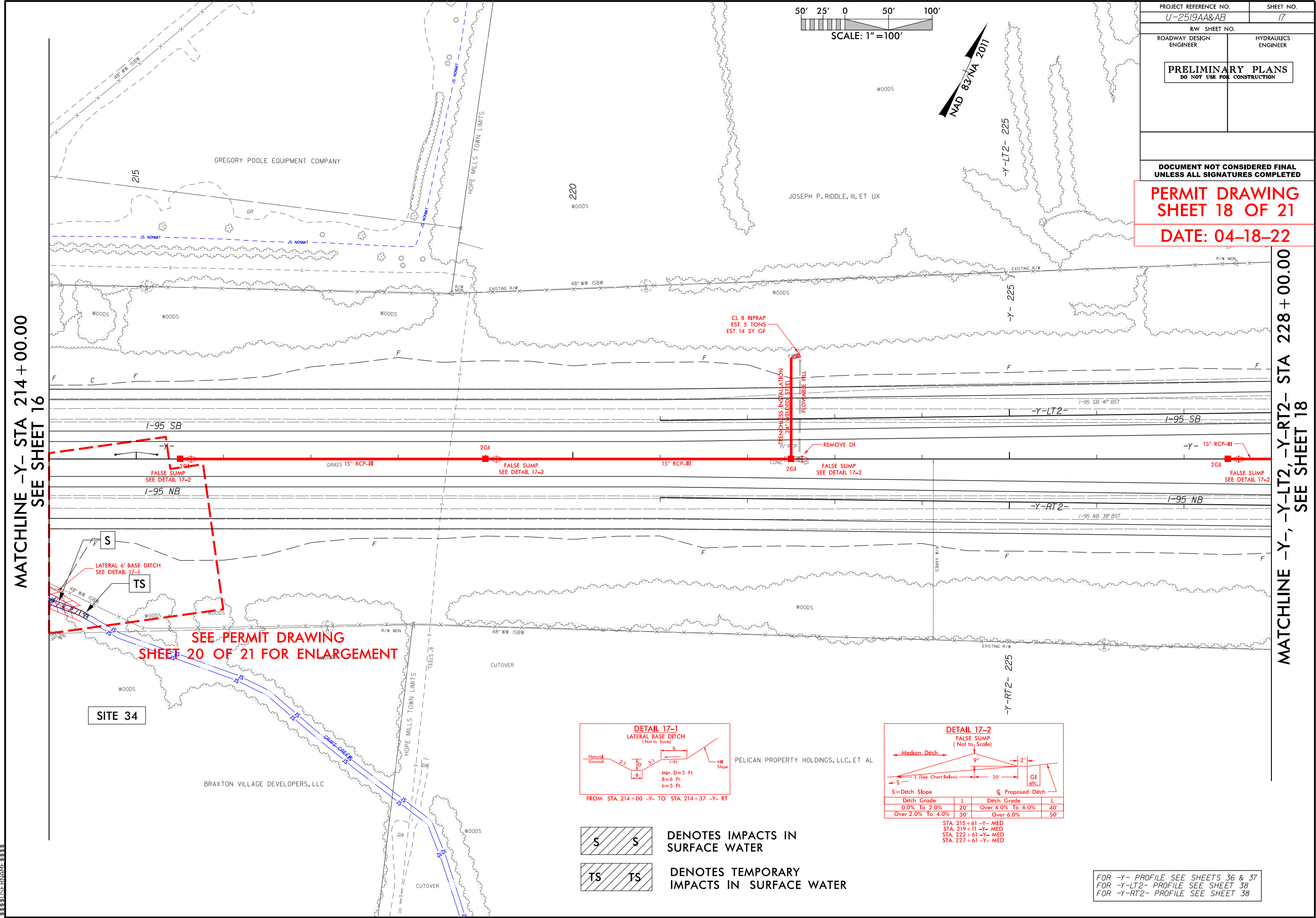
DOCUMENT NOT CONSIDERED FINAL

UNLESS ALL SIGNATURES COMPLETED

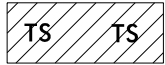
PERMIT DRAWING

SHEET 18 OF 21

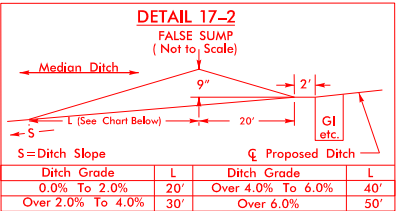
DATE: 04-18-22



DENOTES IMPACTS IN  
SURFACE WATER



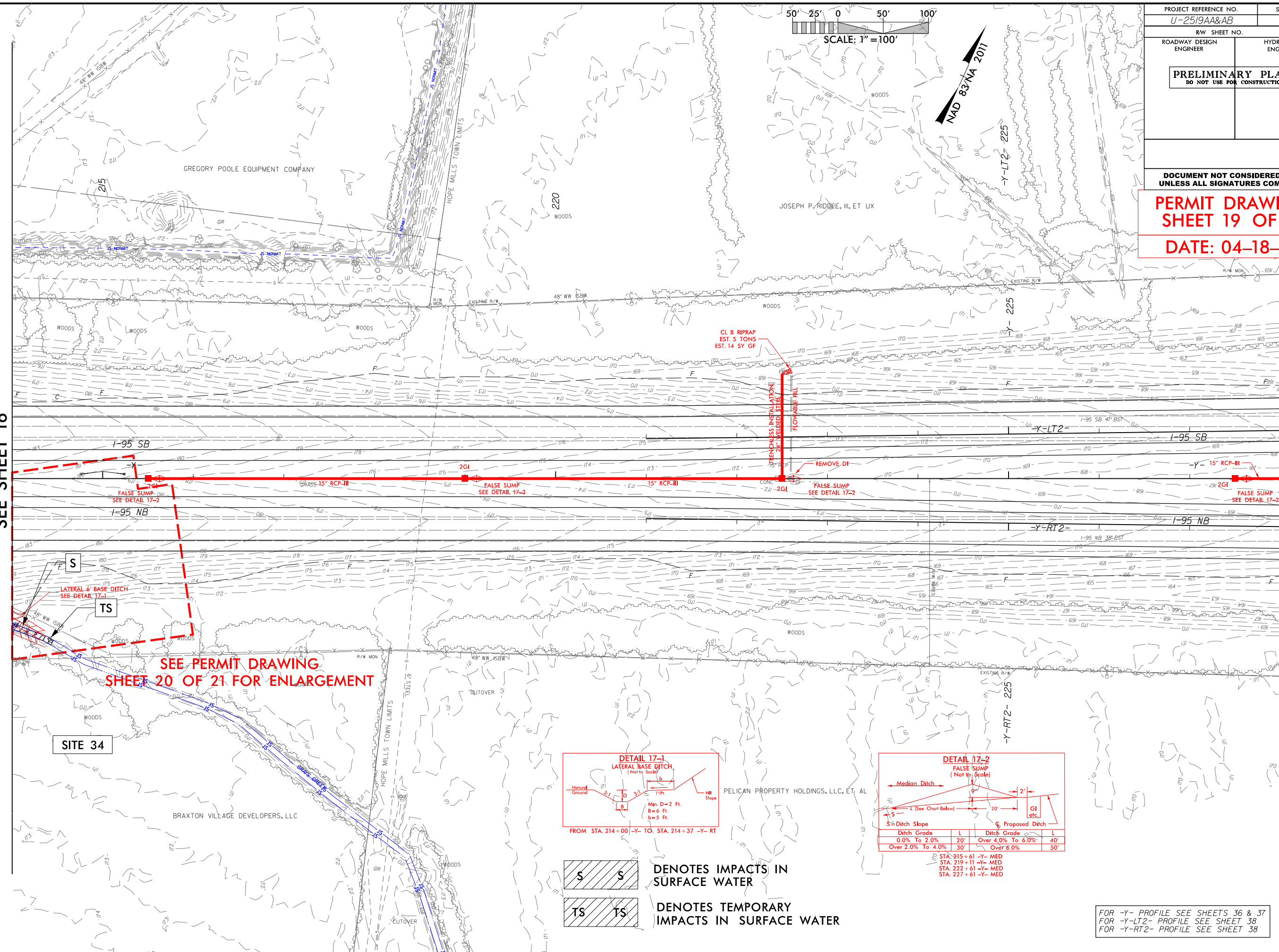
DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER



STA. 215+61 -Y- MED  
STA. 219+11 -Y- MED  
STA. 222+61 -Y- MED  
STA. 227+61 -Y- MED

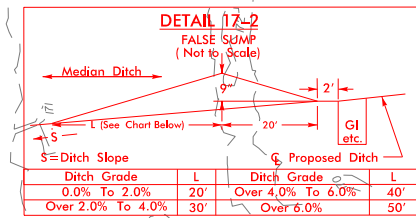
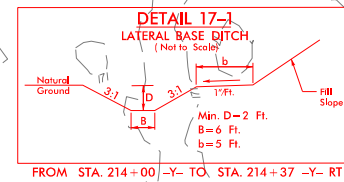
FOR -Y- PROFILE SEE SHEETS 36 & 37  
FOR -Y-LT2- PROFILE SEE SHEET 38  
FOR -Y-RT2- PROFILE SEE SHEET 38

MATCHLINE -Y- STA 214 + 00.00  
SEE SHEET 16



SEE PERMIT DRAWING  
SHEET 20 OF 21 FOR ENLARGEMENT

SITE 34



DENOTES IMPACTS IN  
SURFACE WATER



DENOTES TEMPORARY  
IMPACTS IN SURFACE WATER

FOR -Y- PROFILE SEE SHEETS 36 & 37  
FOR -Y-LT2- PROFILE SEE SHEET 38  
FOR -Y-RT2- PROFILE SEE SHEET 38

|                                                                         |  |                        |  |
|-------------------------------------------------------------------------|--|------------------------|--|
| PROJECT REFERENCE NO.<br><b>U-2519AA&amp;AB</b>                         |  | SHEET NO.<br><b>17</b> |  |
| RW SHEET NO.                                                            |  | HYDRAULICS ENGINEER    |  |
| ROADWAY DESIGN ENGINEER                                                 |  | HYDRAULICS ENGINEER    |  |
| <b>PRELIMINARY PLANS</b><br>DO NOT USE FOR CONSTRUCTION                 |  |                        |  |
| <b>DOCUMENT NOT CONSIDERED FINAL</b><br>UNLESS ALL SIGNATURES COMPLETED |  |                        |  |
| <b>PERMIT DRAWING</b><br><b>SHEET 19 OF 21</b>                          |  |                        |  |
| <b>DATE: 04-18-22</b>                                                   |  |                        |  |

MATCHLINE -Y-, -Y-LT2-, -Y-RT2- STA 228 + 00.00  
SEE SHEET 18



| WETLAND AND SURFACE WATER IMPACTS SUMMARY |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|-------------------------------------------|------------------------|-----------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|-----------------------------------------|-------------------------------------|----------------------------|
| Site No.                                  | Station (From/To)      | Structure Size / Type | WETLAND IMPACTS                 |                             |                             |                                      |                                | SURFACE WATER IMPACTS     |                       |                                         |                                     |                            |
|                                           |                        |                       | Permanent Fill In Wetlands (ac) | Temp. Fill In Wetlands (ac) | Excavation in Wetlands (ac) | Mechanized Clearing in Wetlands (ac) | Hand Clearing in Wetlands (ac) | Permanent SW impacts (ac) | Temp. SW impacts (ac) | Existing Channel Impacts Permanent (ft) | Existing Channel Impacts Temp. (ft) | Natural Stream Design (ft) |
| 22A                                       | 96+52 to 100+94 -Y-LT  | ROADWAY FILL          | 0.29                            |                             |                             | 0.12                                 |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 22B                                       | 97+39 to109+99 -Y-RT   | ROADWAY FILL          | 0.40                            |                             |                             | 0.33                                 |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 22C                                       | 99+42 to 99+87 -Y-     | 2 at 10' x 8' RCBC    |                                 |                             |                             |                                      |                                | 0.03                      | 0.03                  | 50                                      | 28                                  |                            |
|                                           | 99+42 to 99+85 -Y-LT   | INLET CHANNEL         |                                 |                             |                             |                                      |                                | 0.01                      |                       | 19                                      |                                     |                            |
|                                           | 99+50 to 99+87-Y-RT    | OUTLET CHANNEL        |                                 |                             |                             |                                      |                                | 0.02                      |                       | 36                                      |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 31                                        | 105+12 to 111+91 -Y-LT | ROADWAY FILL          | 0.21                            |                             |                             | 0.13                                 |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 32                                        | 107+90 to 108+78 -Y-   | 2 at 10' x 9' RCBC    |                                 |                             |                             |                                      |                                | 0.03                      | 0.05                  | 48                                      | 73                                  |                            |
|                                           | 108+13 to 108+57 -Y-LT | INLET CHANNEL         |                                 |                             |                             |                                      |                                | 0.01                      |                       | 20                                      |                                     |                            |
|                                           | 107+93 to 108+78 -Y LT | OUTLET CHANNEL        |                                 |                             |                             |                                      |                                | 0.04                      |                       | 44                                      |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 33                                        | 210+22 to 210+73 -Y-LT | INLET CHANNEL         |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| 34                                        | 213+76 to 214+45 -Y-RT | DRAINAGE DITCH        |                                 |                             |                             |                                      |                                | < 0.01                    | < 0.01                | 70                                      | 10                                  |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
|                                           |                        |                       |                                 |                             |                             |                                      |                                |                           |                       |                                         |                                     |                            |
| TOTALS*:                                  |                        |                       | 0.90                            |                             |                             | 0.58                                 |                                | 0.16                      | 0.09                  | 287                                     | 111                                 | 0                          |

\*Rounded totals are sum of actual impacts

NOTES:

Wetland and stream impacts at Site 22 were previously permitted under the U-2519AA & AB project. Since receiving approval of that permit, this site has been redelineated under the I-5987 project. The impacts shown above for Site 22A-C utilize the newest wetland and final survey file to calculate impact totals. The impact totals which were previously permitted at Site 22 using the U-2519AA & AB wetland file are as follows:

Permanent Fill in Wetlands: 0.17 ac, Temp. Fill in Wetlands: 0.06 ac, Hand Clearing in Wetlands: 0.14 AC

Site 33 is JS-Non Mitigable