

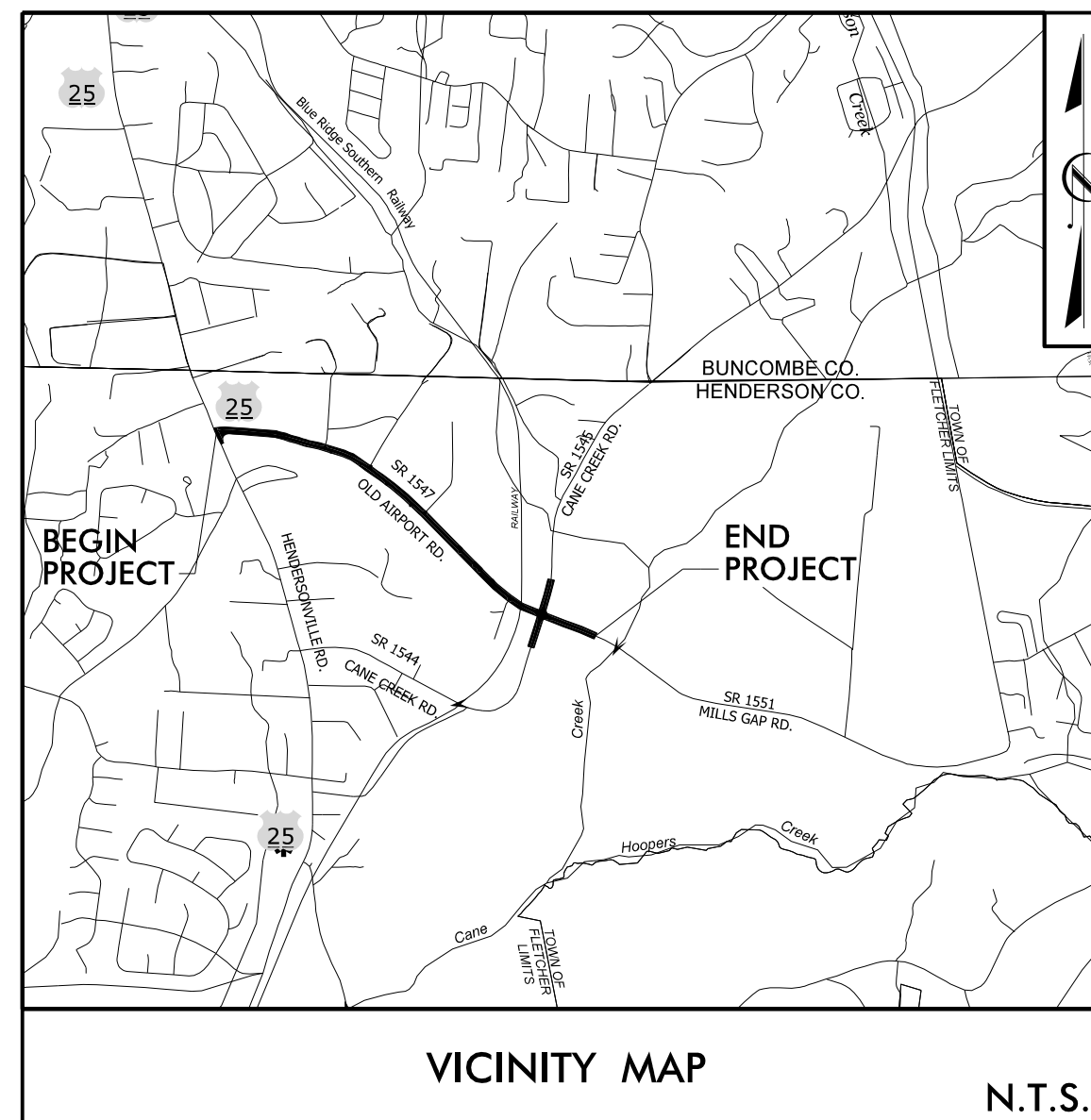
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with their signature on that page.**

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| | | | |
|-----------------|-----------------------------|----------------|--------------|
| STATE | STATE PROJECT REFERENCE NO. | SHEET NO. | TOTAL SHEETS |
| N.C. | U-5840 | EC-1 | 18 |
| STATE PROJ. NO. | F.A. PROJ. NO. | DESCRIPTION | |
| 50231.1.D1 | | P.E. | |
| 50231.2.D1 | | R.O.W./UTILITY | |
| 50231.3.D1 | | CONSTRUCTION | |

TIP PROJECT: U-5840



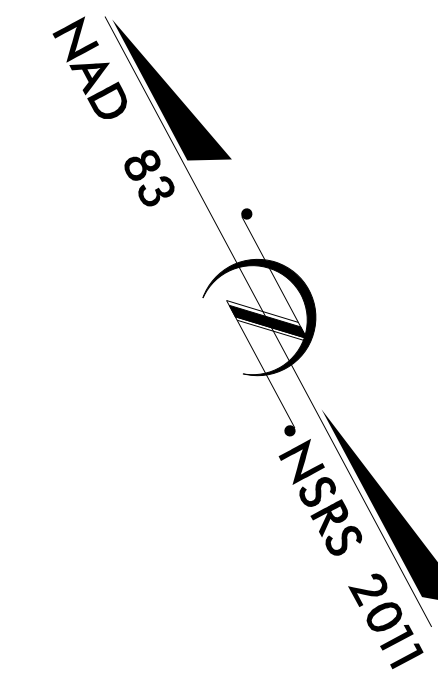
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

HENDERSON COUNTY

LOCATION: SR 1547 (OLD AIRPORT ROAD) FROM US 25 (HENDERSONVILLE ROAD) TO SR 1545 (CANE CREEK ROAD)

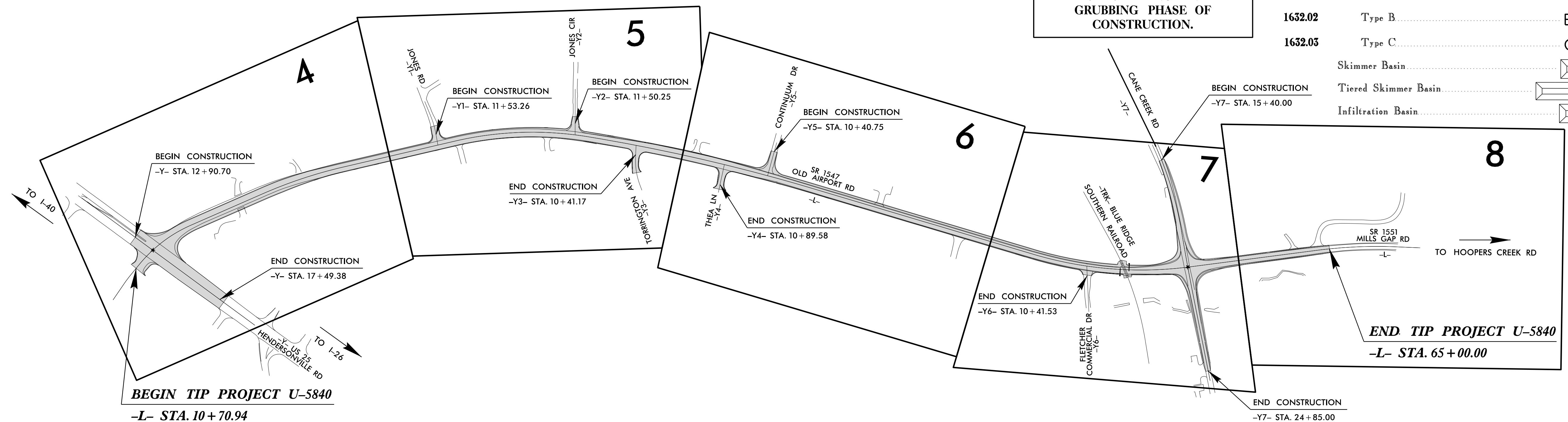
TYPE OF WORK: GRADING, PAVING, DRAINAGE, CULVERT, & RETAINING WALLS



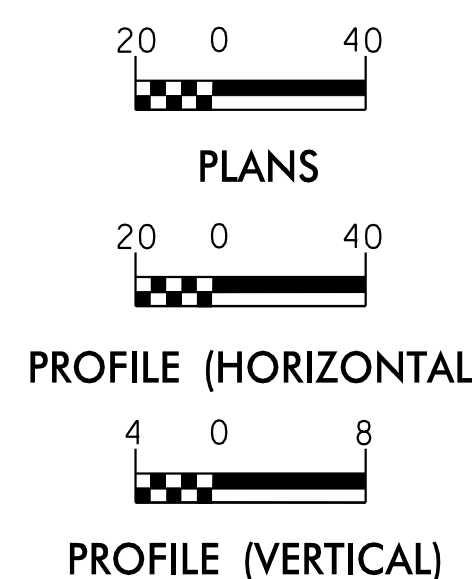
EROSION AND SEDIMENT CONTROL MEASURES

| Std. # | Description | Symbol |
|---------|--|---------------|
| 1630.03 | Temporary Silt Ditch | — TD — |
| 1630.05 | Temporary Diversion | — TD — |
| 1605.01 | Temporary Silt Fence | — SIF — |
| 1606.01 | Special Sediment Control Fence | — SCF — |
| 1622.01 | Temporary Berms and Slope Drains | — B&SD — |
| 1630.02 | Silt Basin Type B | — SB — |
| 1633.01 | Temporary Rock Silt Check Type-A | — TRSC — |
| | Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM) | — TRSC/PAM — |
| 1633.02 | Temporary Rock Silt Check Type-B | — TRSC — |
| | Wattle / Coir Fiber Wattle | — W/CFW — |
| | Wattle / Coir Fiber Wattle with Polyacrylamide (PAM) | — W/CFW/PAM — |
| 1634.01 | Temporary Rock Sediment Dam Type-A | — TRSD — |
| 1634.02 | Temporary Rock Sediment Dam Type-B | — TRSD — |
| 1635.01 | Rock Pipe Inlet Sediment Trap Type-A | — RPIS — |
| 1635.02 | Rock Pipe Inlet Sediment Trap Type-B | — RPIS — |
| 1630.04 | Stilling Basin | — SB — |
| 1630.06 | Special Stilling Basin | — SSB — |
| | Rock Inlet Sediment Trap: | |
| 1632.01 | Type A | — A — |
| 1632.02 | Type B | — B — |
| 1632.03 | Type C | — C — |
| | Skimmer Basin | — SB — |
| | Tiered Skimmer Basin | — TSB — |
| | Infiltration Basin | — IB — |

THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.



GRAPHIC SCALE



THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER RESOURCES.

Prepared in the Office of:
STV ENGINEERS, INC.
900 WEST TRADE STREET, SUITE 715
CHARLOTTE, NC 28202

2018 STANDARD SPECIFICATIONS

Designed by:
MARK PUGH 3960
NAME LEVEL III CERTIFICATION NO.

Reviewed in the Office of:
ROADSIDE ENVIRONMENTAL UNIT
1 South Wilmington St.
Raleigh, NC 27611

2018 STANDARD SPECIFICATIONS

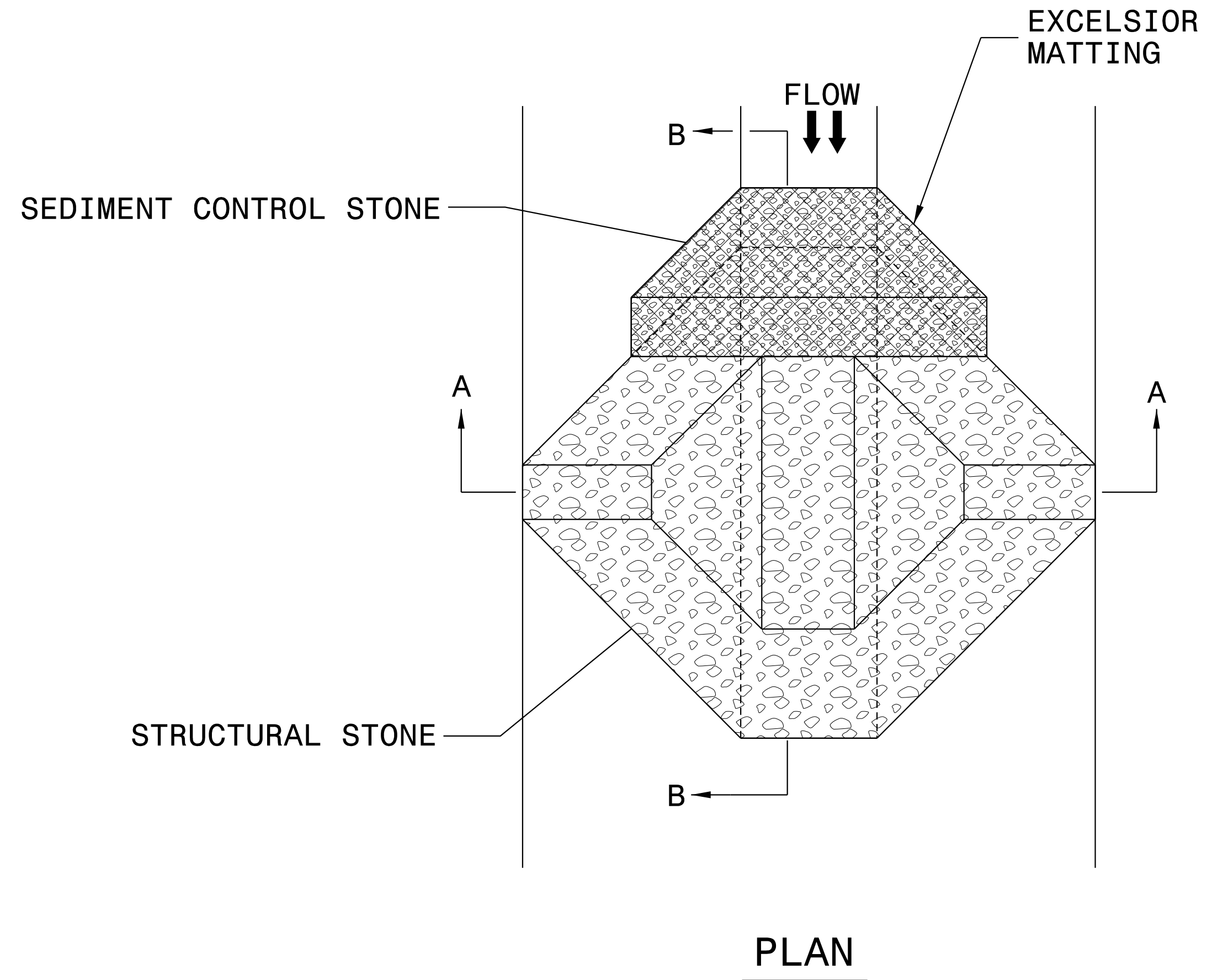
Reviewed by:
REID WHITEHEAD, PE

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

| | |
|--|--|
| 1604.01 Railroad Erosion Control Detail | 1632.01 Rock Inlet Sediment Trap Type A |
| 1605.01 Temporary Silt Fence | 1632.02 Rock Inlet Sediment Trap Type B |
| 1606.01 Special Sediment Control Fence | 1632.03 Rock Inlet Sediment Trap Type C |
| 1607.01 Gravel Construction Entrance | 1633.01 Temporary Rock Silt Check Type A |
| 1622.01 Temporary Berms and Slope Drains | 1633.02 Temporary Rock Silt Check Type B |
| 1630.01 Riser Basin | 1634.01 Temporary Rock Sediment Dam Type A |
| 1630.02 Silt Basin Type B | 1634.02 Temporary Rock Sediment Dam Type B |
| 1630.03 Temporary Silt Ditch | 1635.01 Rock Pipe Inlet Sediment Trap Type A |
| 1630.04 Stilling Basin | 1635.02 Rock Pipe Inlet Sediment Trap Type B |
| 1630.05 Temporary Diversion | 1640.01 Coir Fiber Baffle |
| 1630.06 Special Stilling Basin | 1645.01 Temporary Stream Crossing |
| 1631.01 Matting Installation | |

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



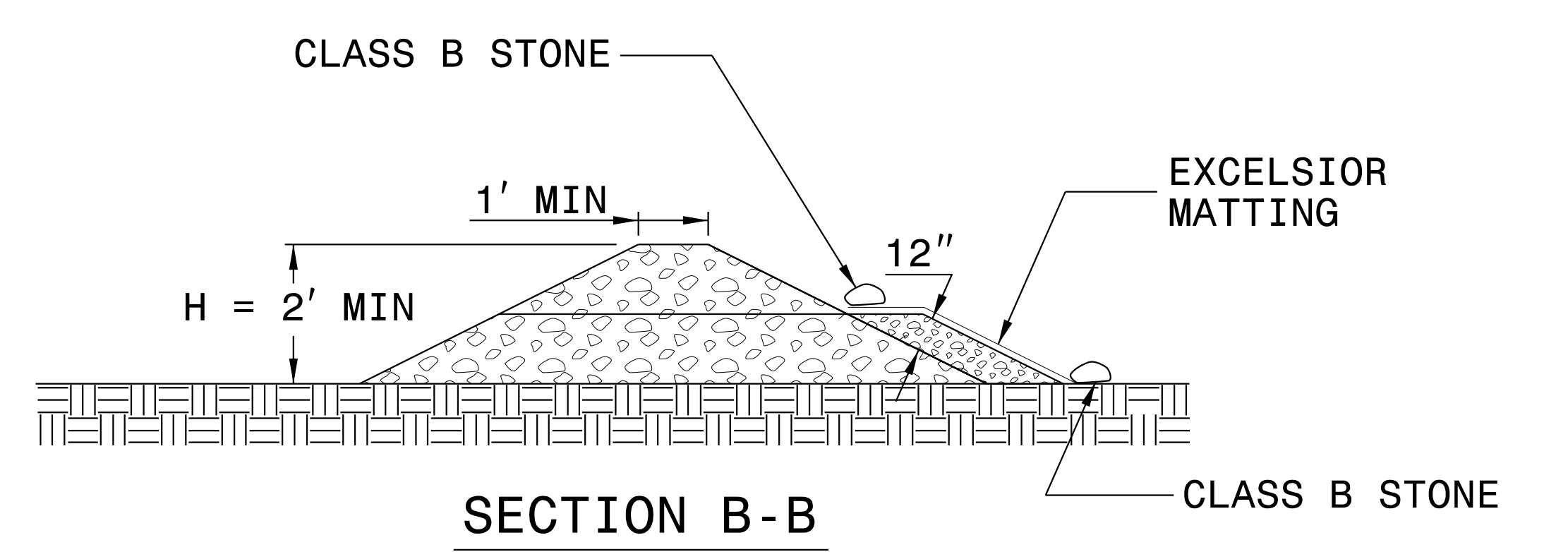
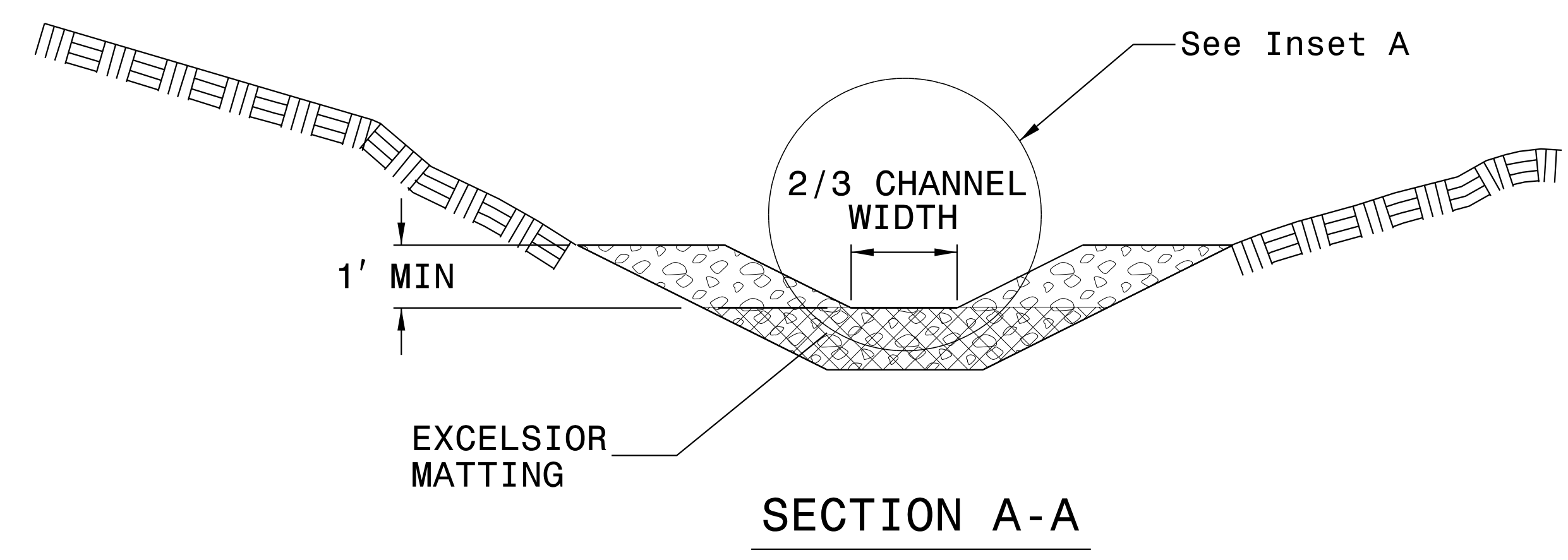
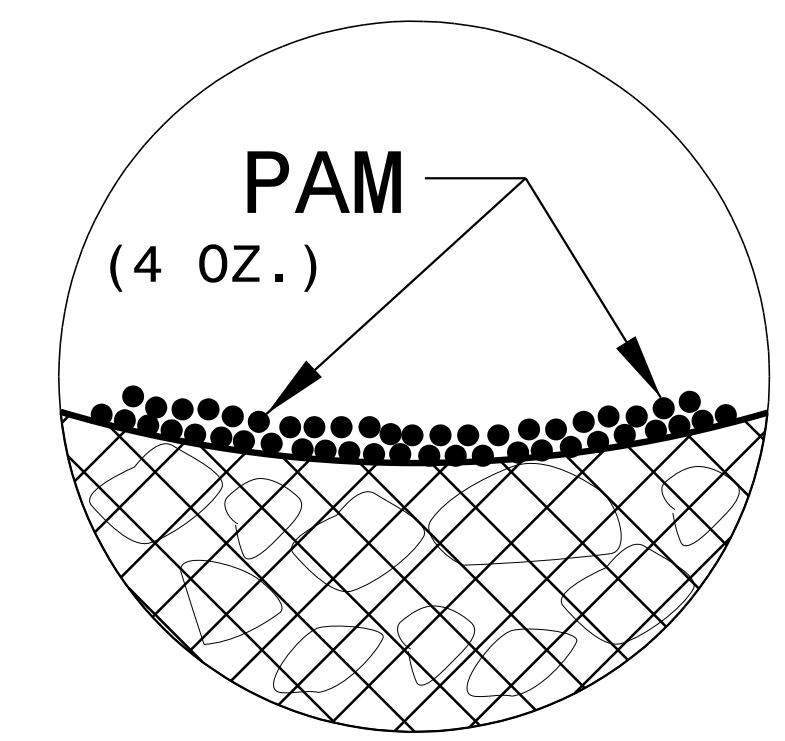
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

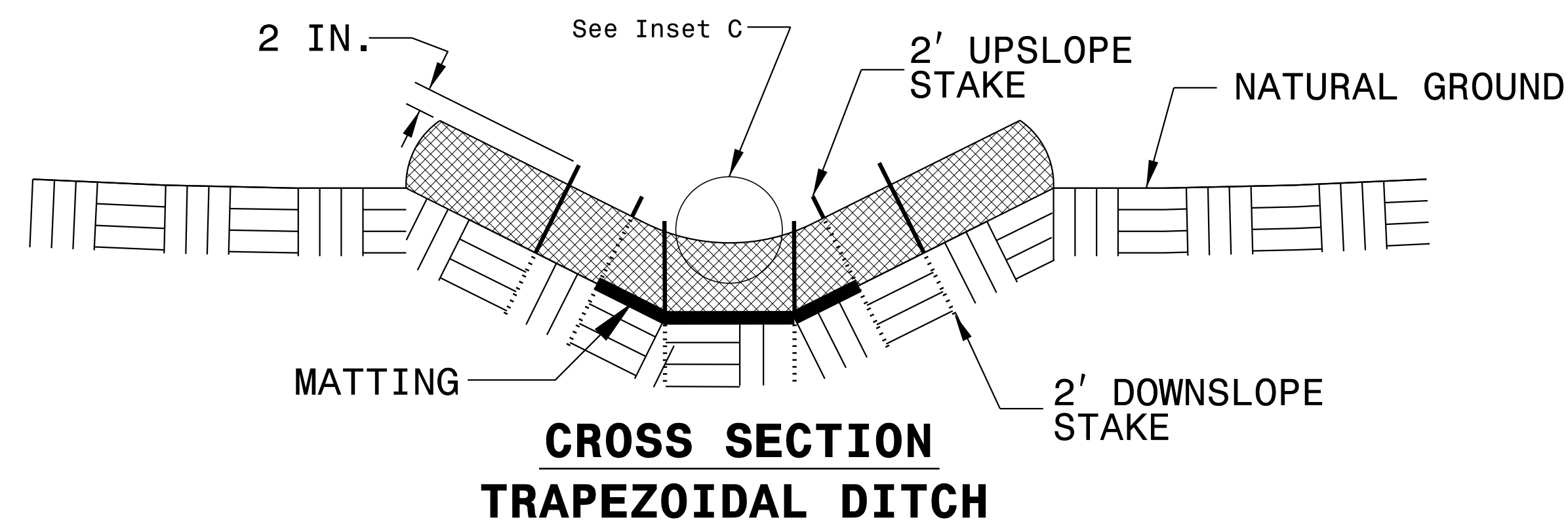
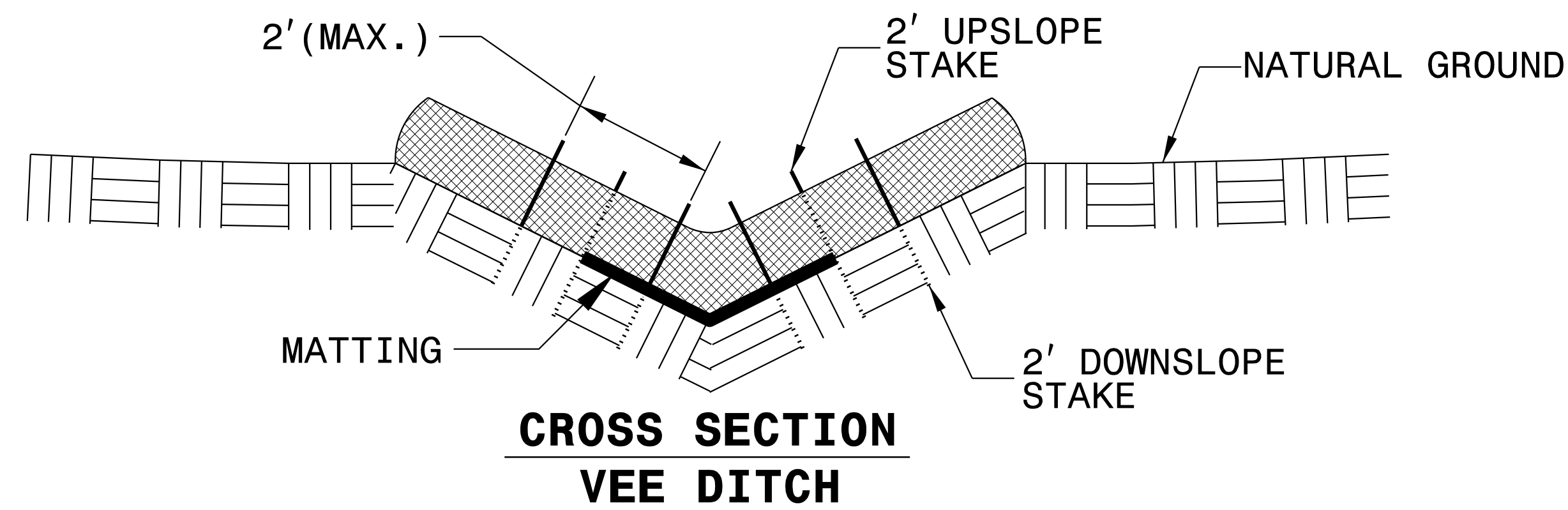
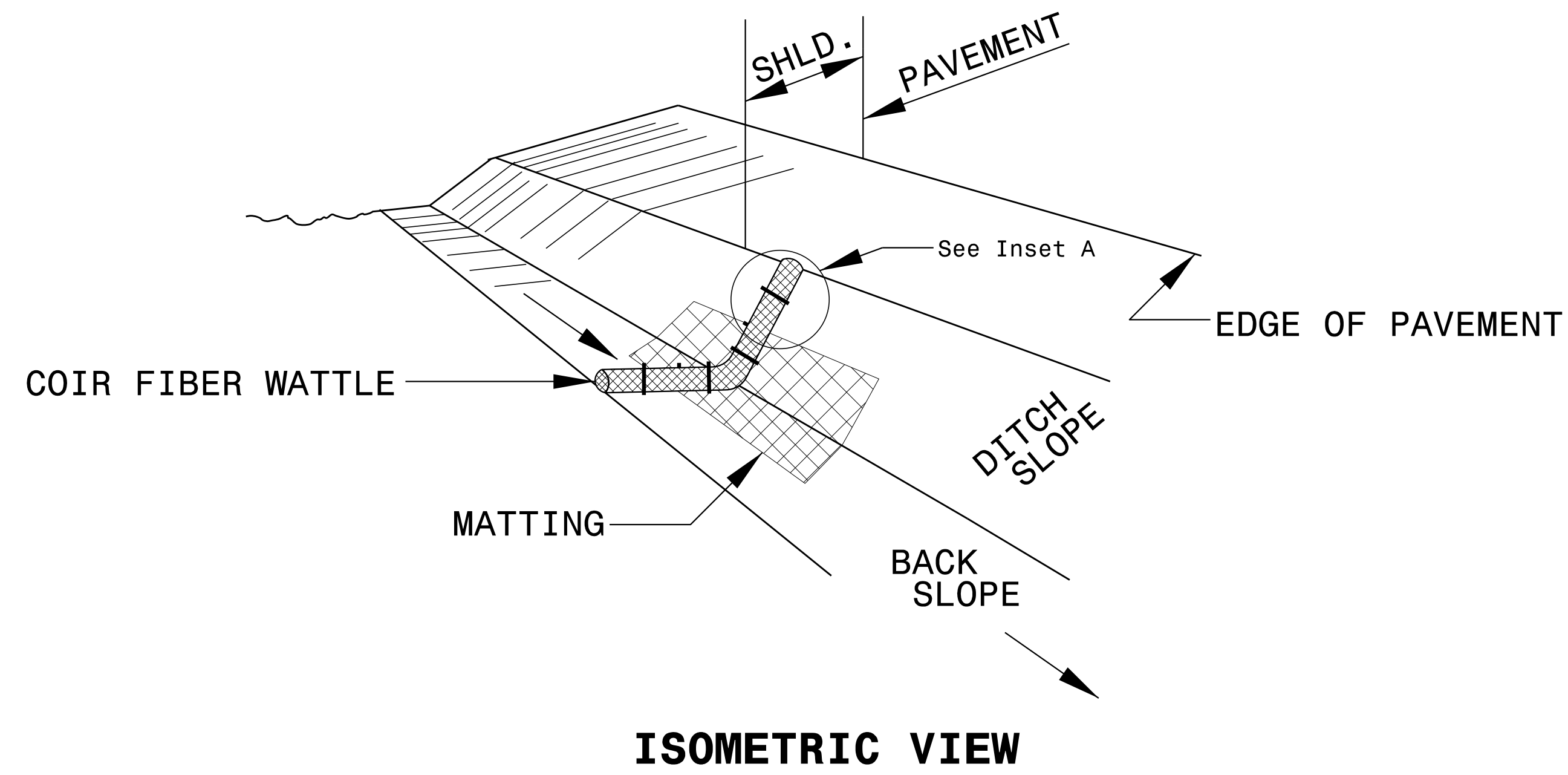
PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



NOT TO SCALE

COIR FIBER WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



NOTES:

USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

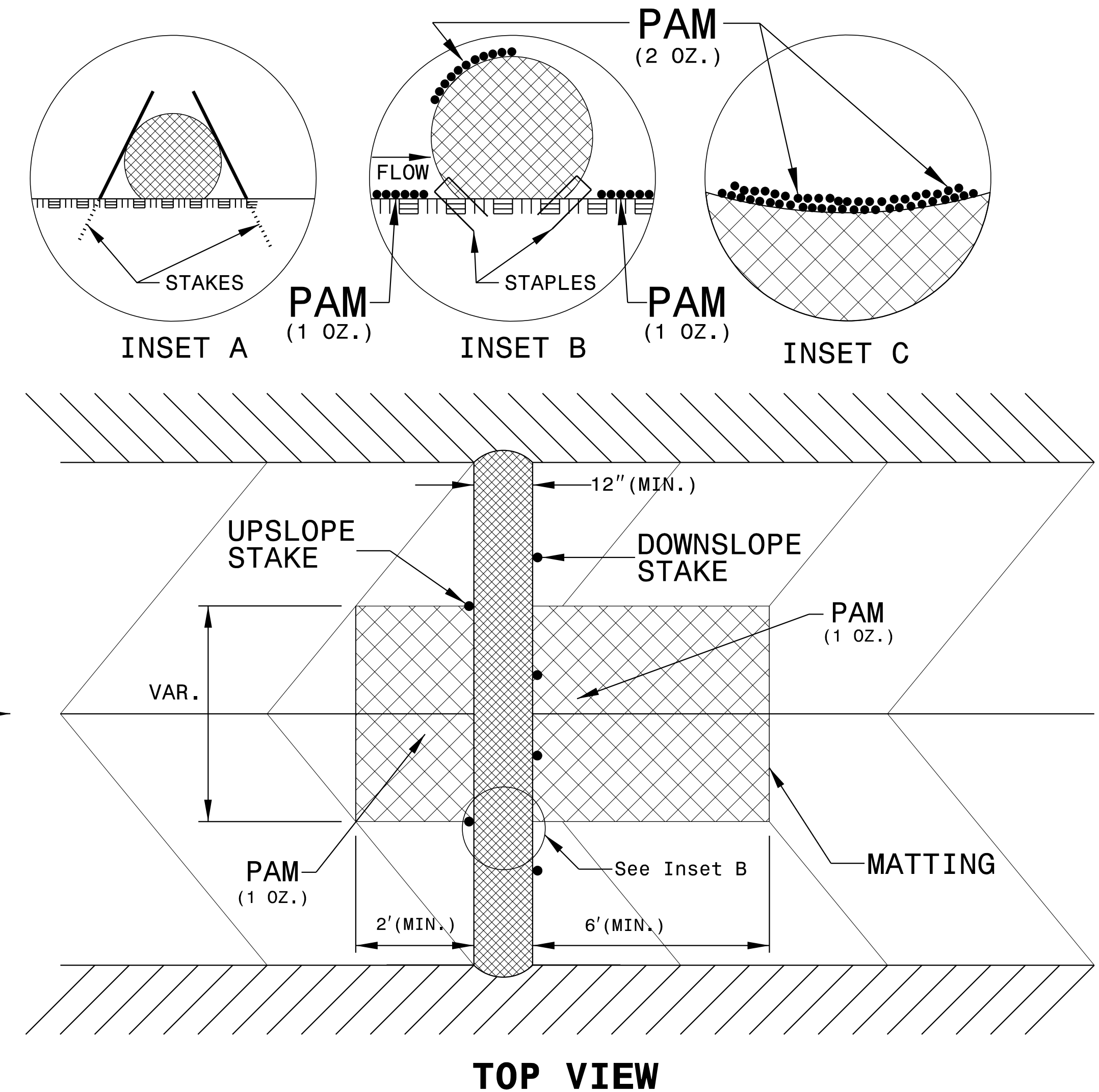
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

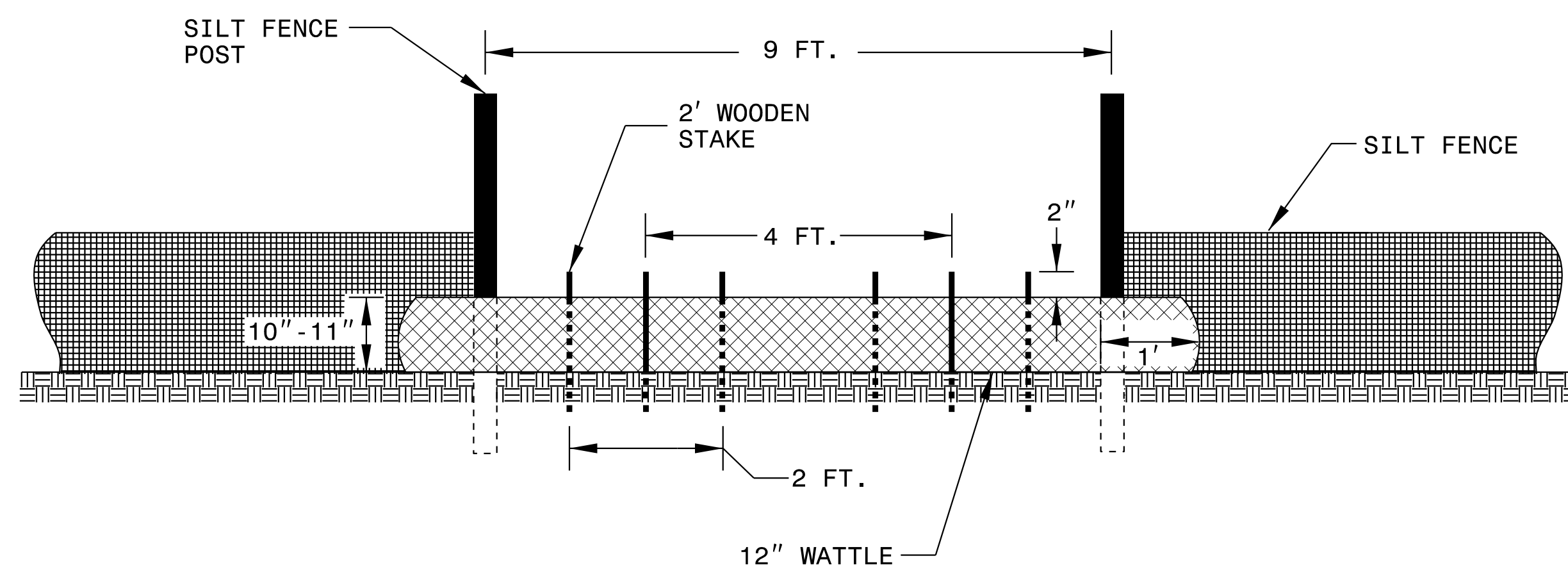
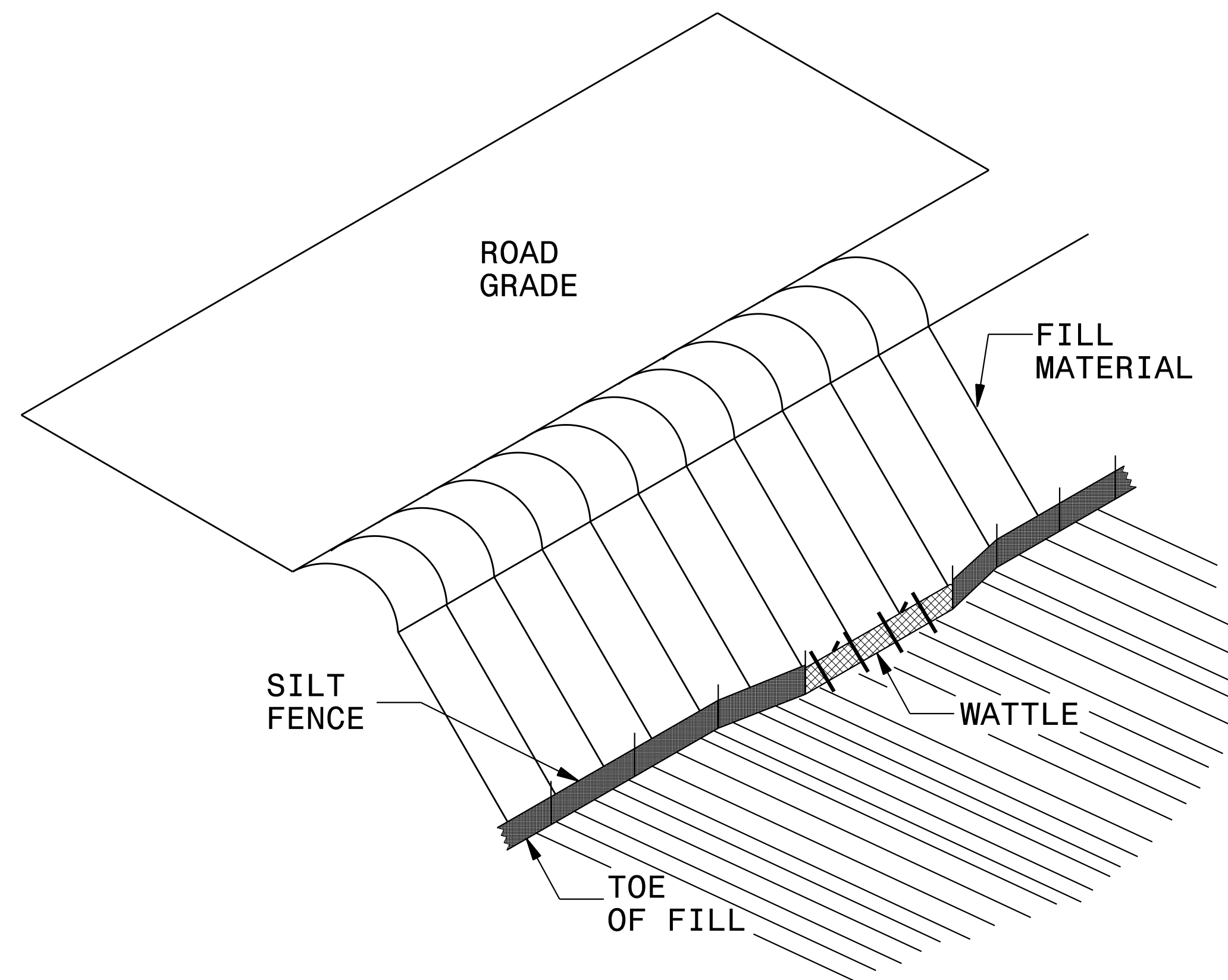
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



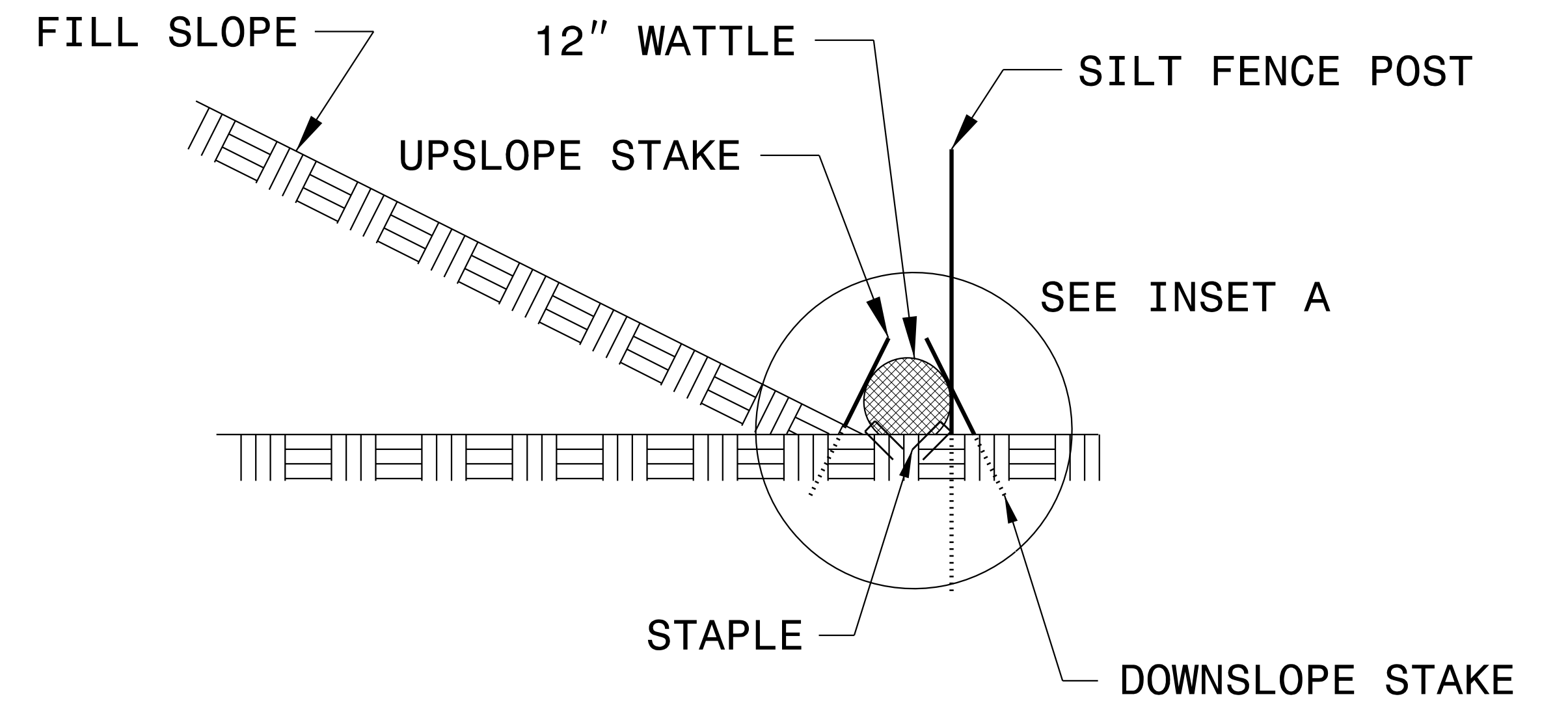
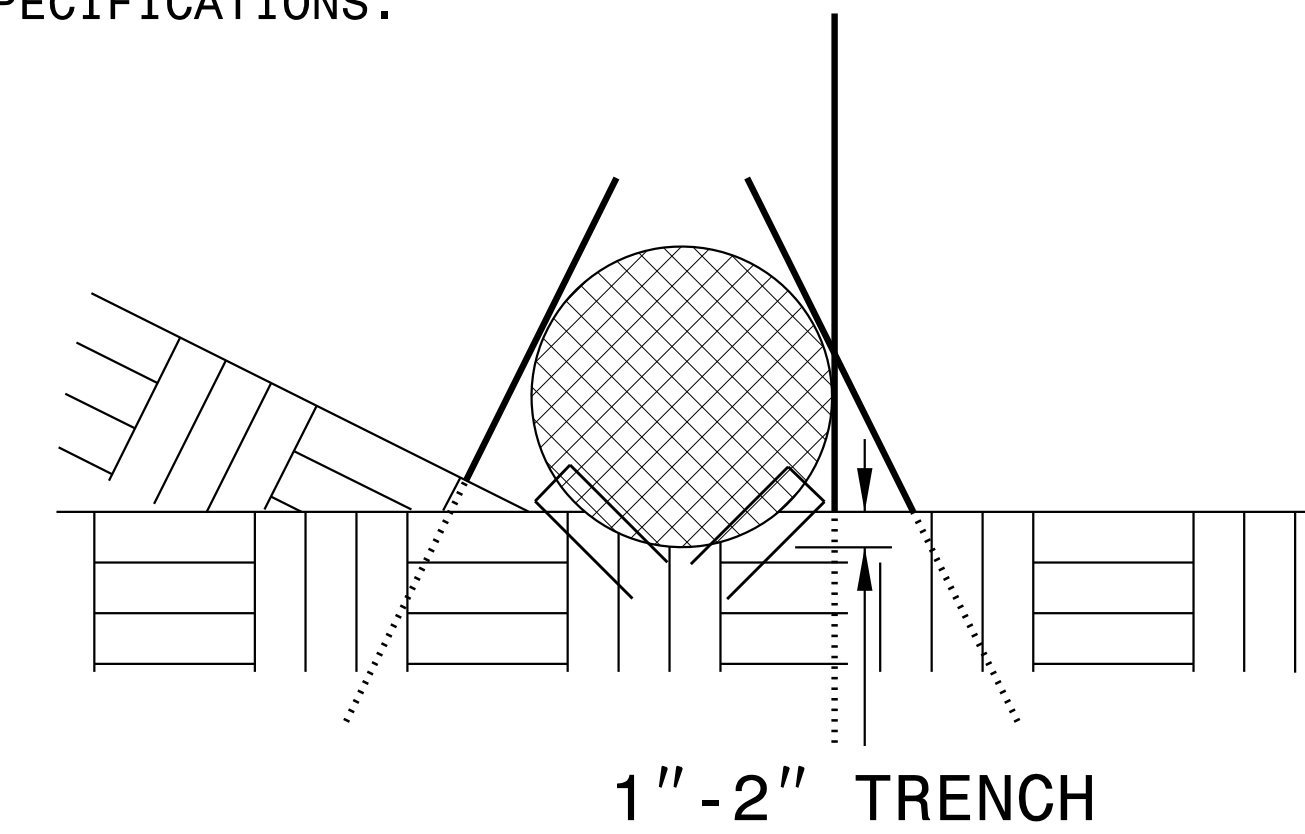
SILT FENCE COIR FIBER WATTLE BREAK DETAIL



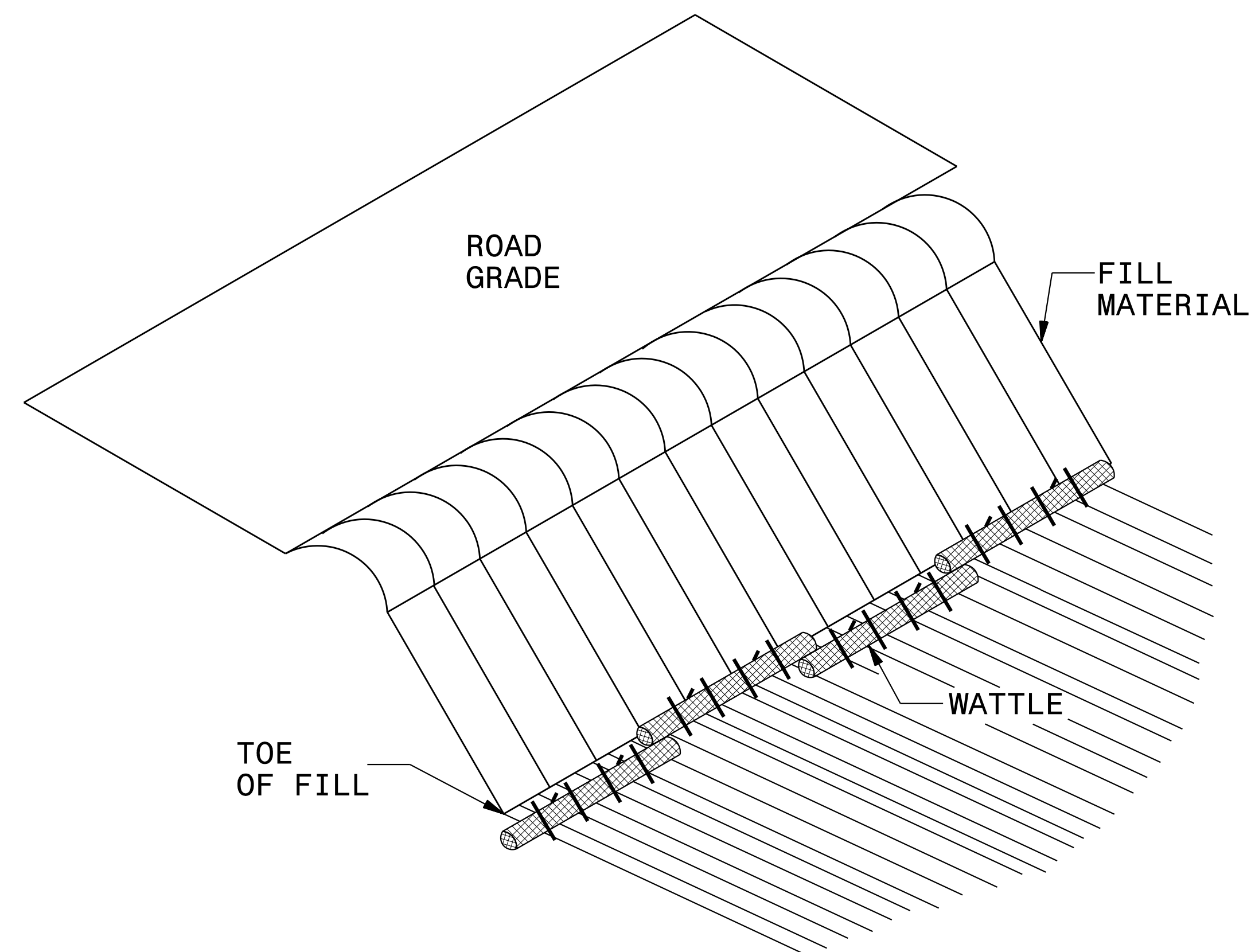
NOTES:

- USE MINIMUM 12 IN. DIAMETER COIR FIBER (COCONUT FIBER) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 1 TO 2 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLE ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- WATTLE INSTALLATION CAN BE ON OUTSIDE OF THE SILT FENCE AS DIRECTED.
- INSTALL TEMPORARY SILT FENCE IN ACCORDANCE WITH SECTION 1605 OF THE STANDARD SPECIFICATIONS.

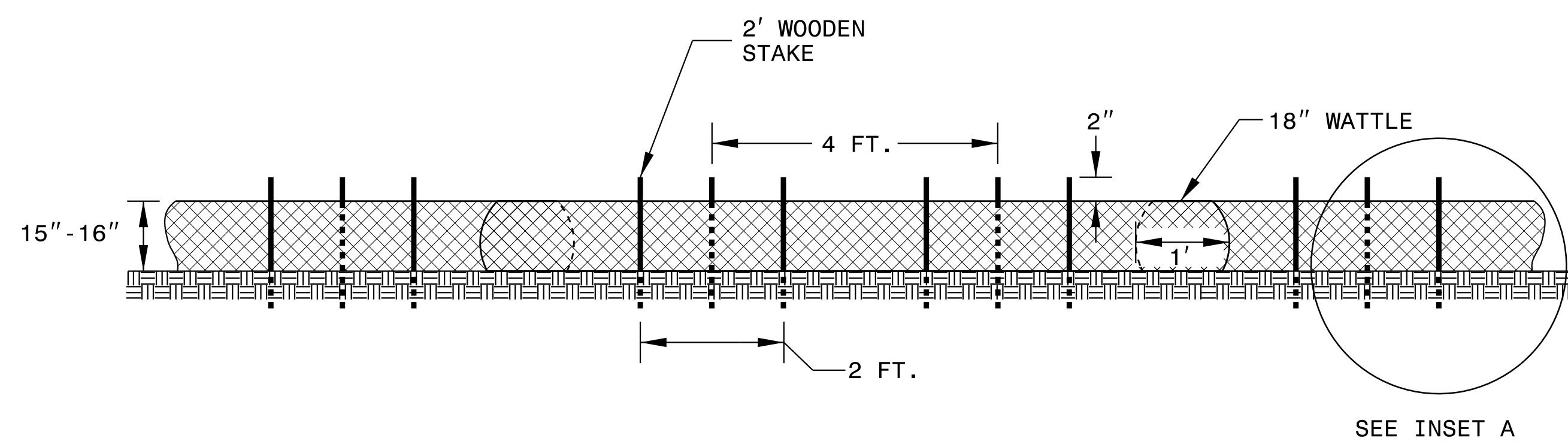
INSET A



COIR FIBER WATTLE BARRIER DETAIL



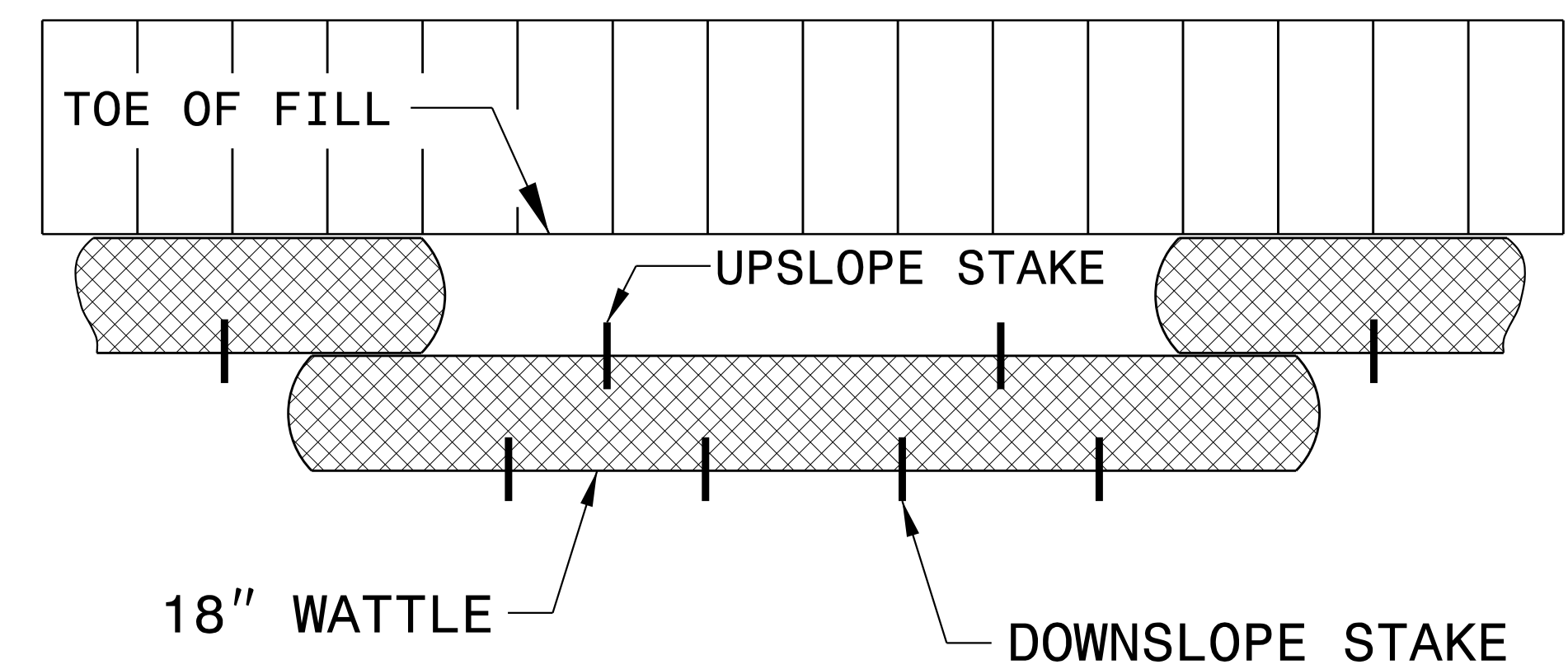
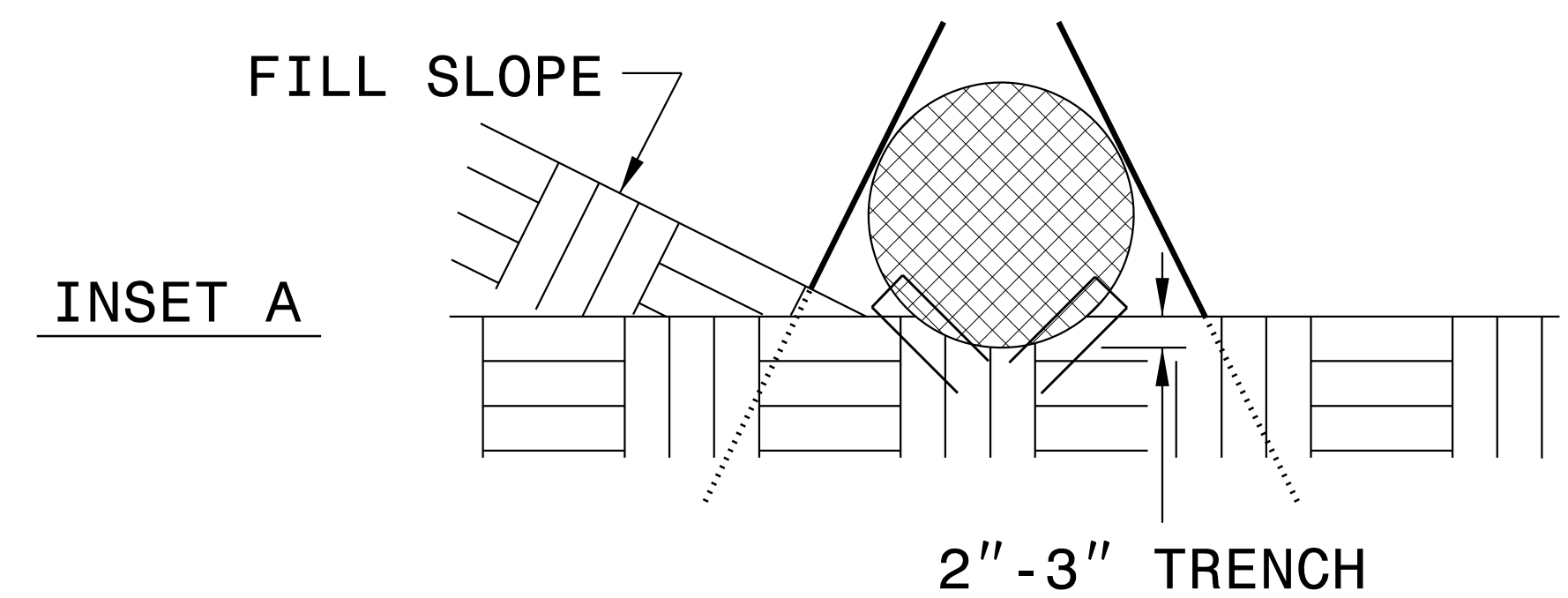
ISOMETRIC VIEW



FRONT VIEW

NOTES:

- USE MINIMUM 18 IN. NOMINAL DIAMETER COIR FIBER (COCONUT) WATTLE AND LENGTH OF 10 FT.
- EXCAVATE A 2 TO 3 INCH TRENCH FOR WATTLE TO BE PLACED.
- DO NOT PLACE WATTLES ON TOE OF SLOPE.
- USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.
- INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO GROUND.
- PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.
- INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.
- FOR BREAKS ALONG LARGE SLOPES, USE MAXIMUM SPACING OF 25 FT.

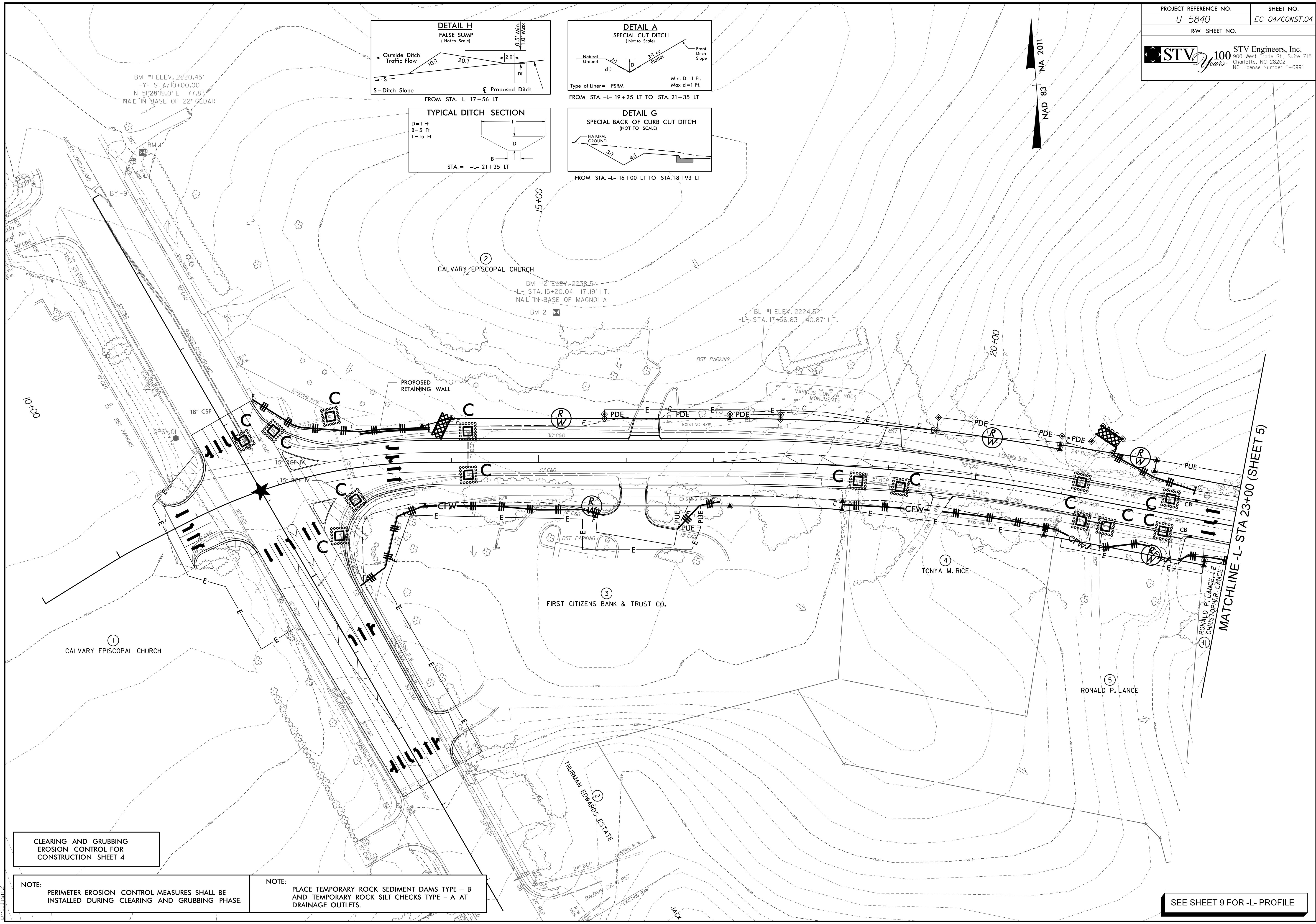
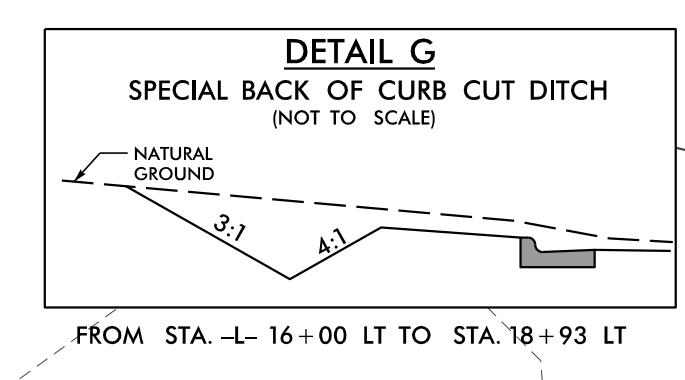
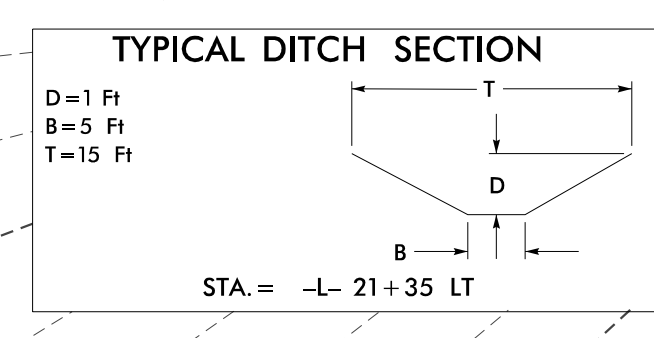
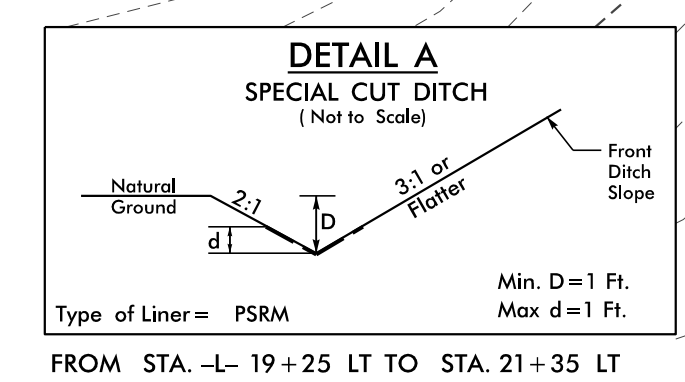
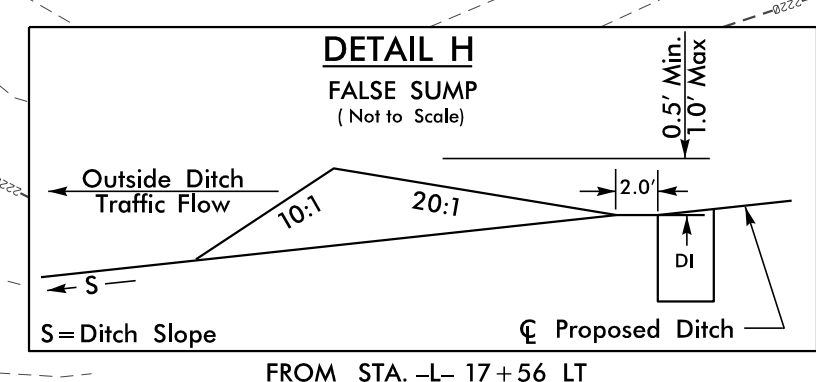
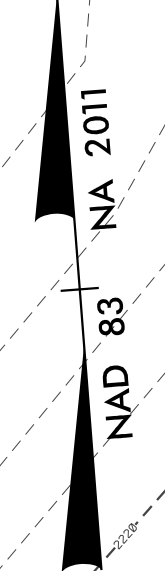


TOP VIEW

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION TIMEFRAMES

| <i>SITE DESCRIPTION</i> | <i>STABILIZATION TIME</i> | <i>TIMEFRAME EXCEPTIONS</i> |
|--|---------------------------|--|
| PERIMETER DIKES, SWALES, DITCHES AND SLOPES | 7 DAYS | NONE |
| HIGH QUALITY WATER (HQW) ZONES | 7 DAYS | NONE |
| SLOPES STEEPER THAN 3:1 | 7 DAYS | IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED. |
| SLOPES 3:1 OR FLATTER | 14 DAYS | 7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH. |
| ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1 | 14 DAYS | NONE, EXCEPT FOR PERIMETERS AND HQW ZONES. |



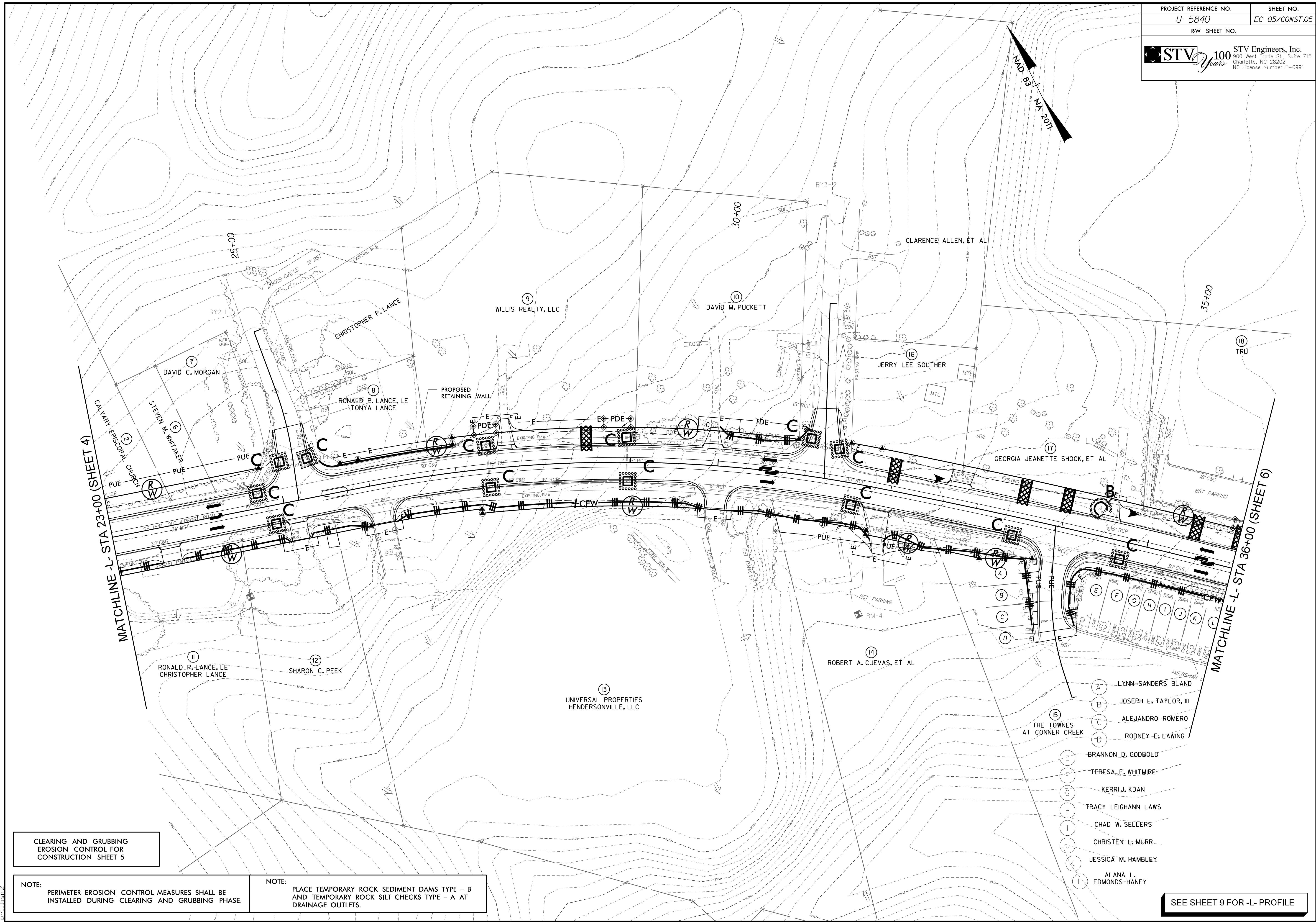
CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 4

NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

SEE SHEET 9 FOR -L- PROFILE

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CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET 5

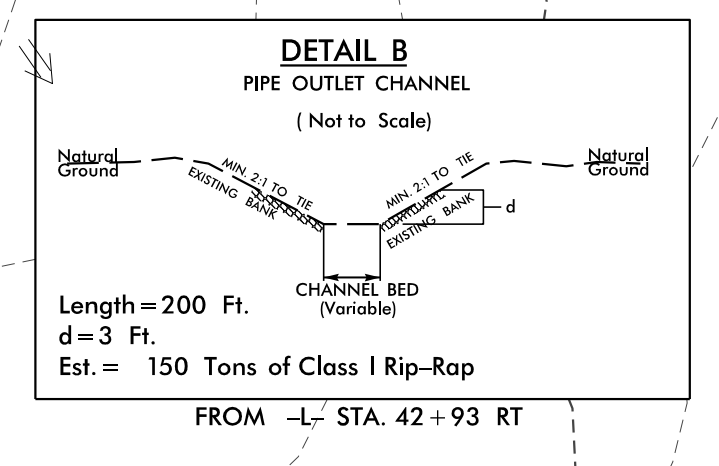
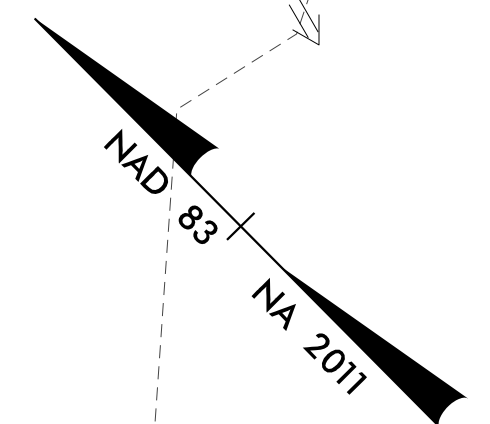
NOTE:
PERIMETER EROSION CONTROL MEASURES SHALL BE
INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE:
PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
DRAINAGE OUTLETS.

- (A) LYNN SANDERS BLAND
- (B) JOSEPH L. TAYLOR, III
- (C) ALEJANDRO ROMERO
- (D) RODNEY E. LAWING
- (E) BRANNON D. GOBOLD
- (F) TERESA E. WHITMIRE
- (G) KERRI J. KDAN
- (H) TRACY LEIGHANN LAWS
- (I) CHAD W. SELLERS
- (J) CHRISTEN L. MURR
- (K) JESSICA M. HAMBLEY
- (L) ALANA L. EDMONDS-HANEY

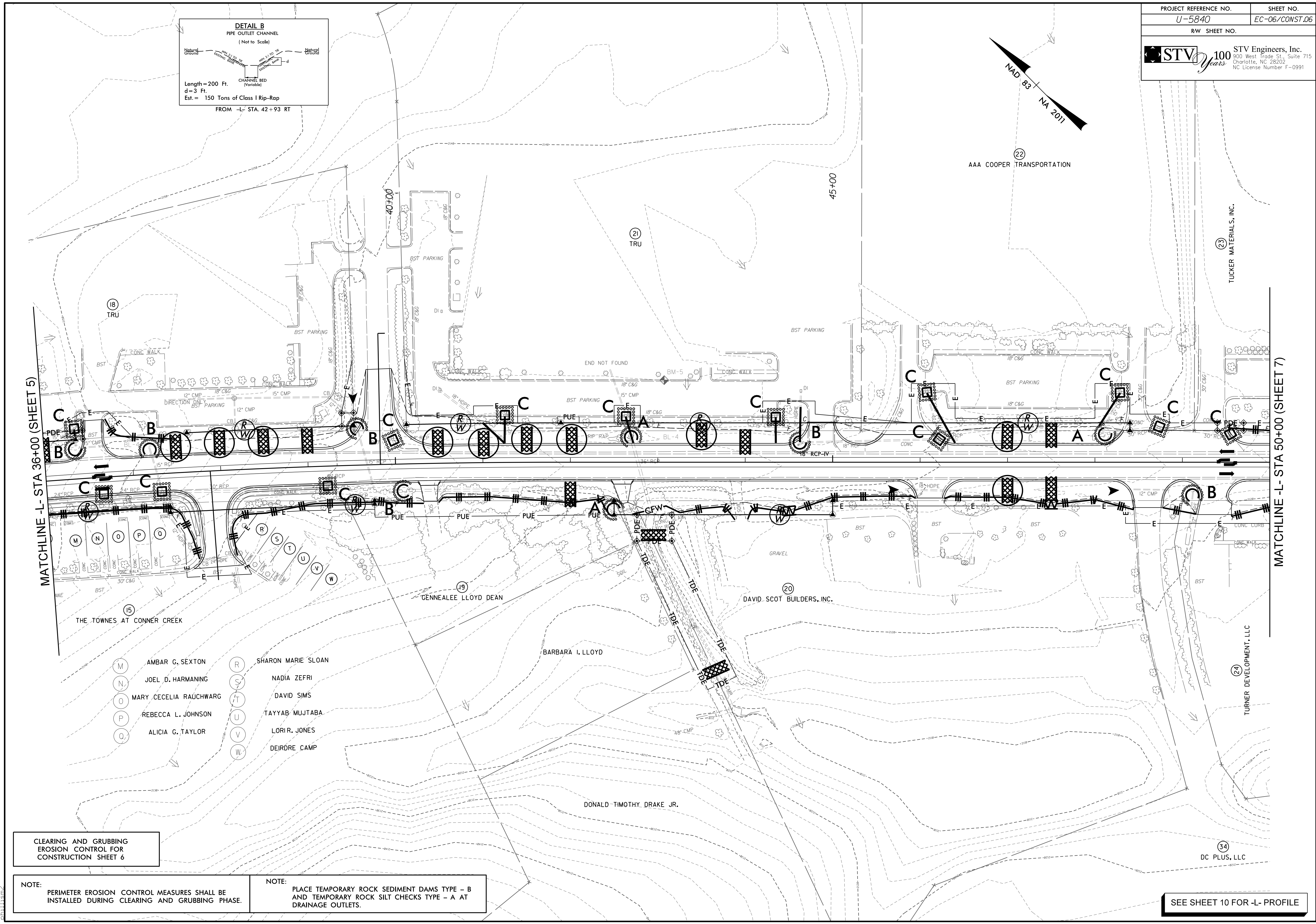
SEE SHEET 9 FOR -L- PROFILE

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MATCHLINE -L- STA 36+00 (SHEET 5)

MATCHLINE -L- STA 50+00 (SHEET 7)



- | | |
|----------------------------|------------------------|
| (M) AMBAR G. SEXTON | (R) SHARON MARIE SLOAN |
| (N) JOEL D. HARMANING | (S) NADIA ZEFRI |
| (O) MARY CECELIA RAUCHWARG | (T) DAVID SIMS |
| (P) REBECCA L. JOHNSON | (U) TAYYAB MUJTABA |
| (Q) ALICIA G. TAYLOR | (V) LORIR. JONES |
| | (W) DEIRDRE CAMP |

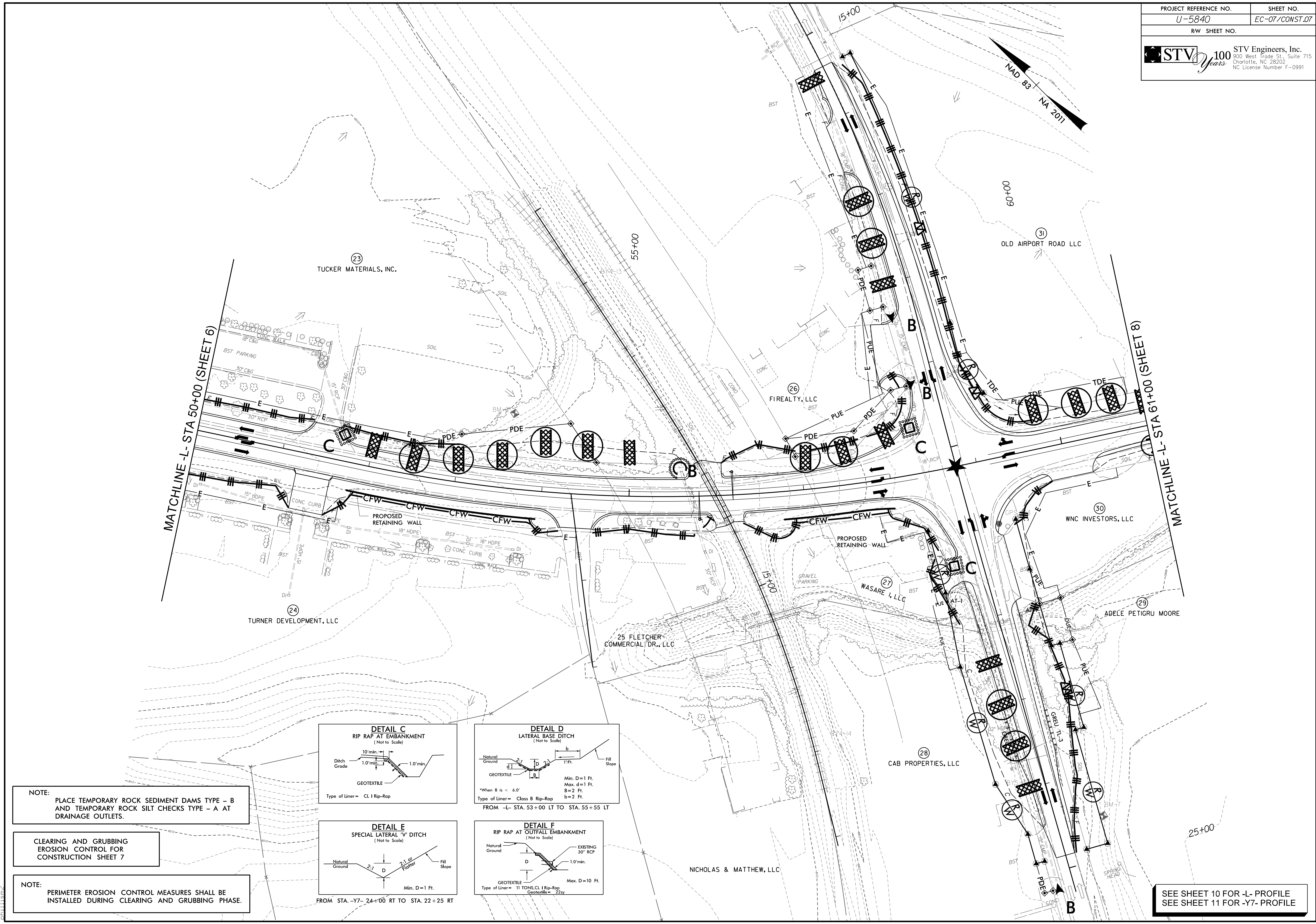
CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 6

NOTE:
 PERIMETER EROSION CONTROL MEASURES SHALL BE
 INSTALLED DURING CLEARING AND GRUBBING PHASE.

NOTE:
 PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B
 AND TEMPORARY ROCK SILT CHECKS TYPE - A AT
 DRAINAGE OUTLETS.

SEE SHEET 10 FOR -L- PROFILE

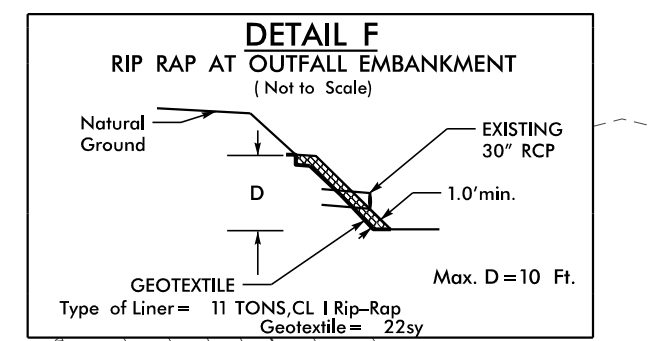
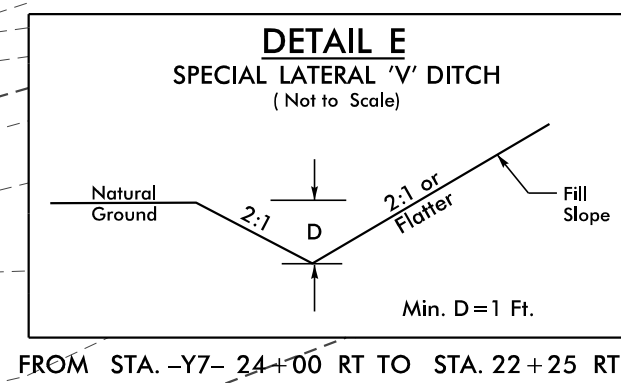
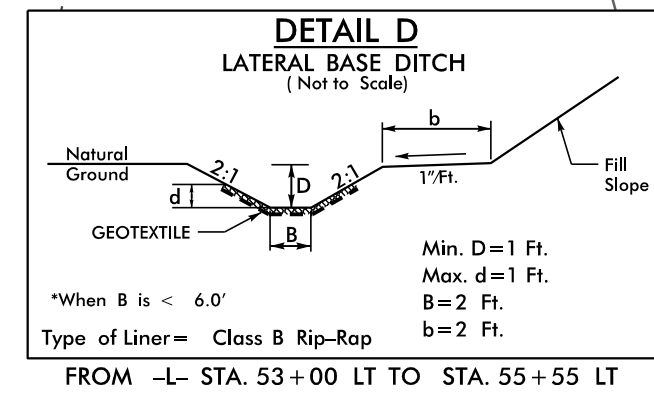
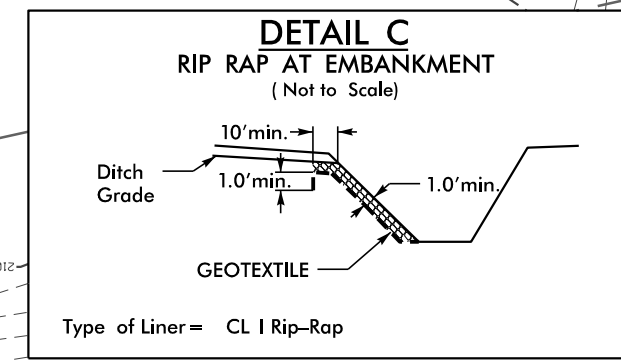
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NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

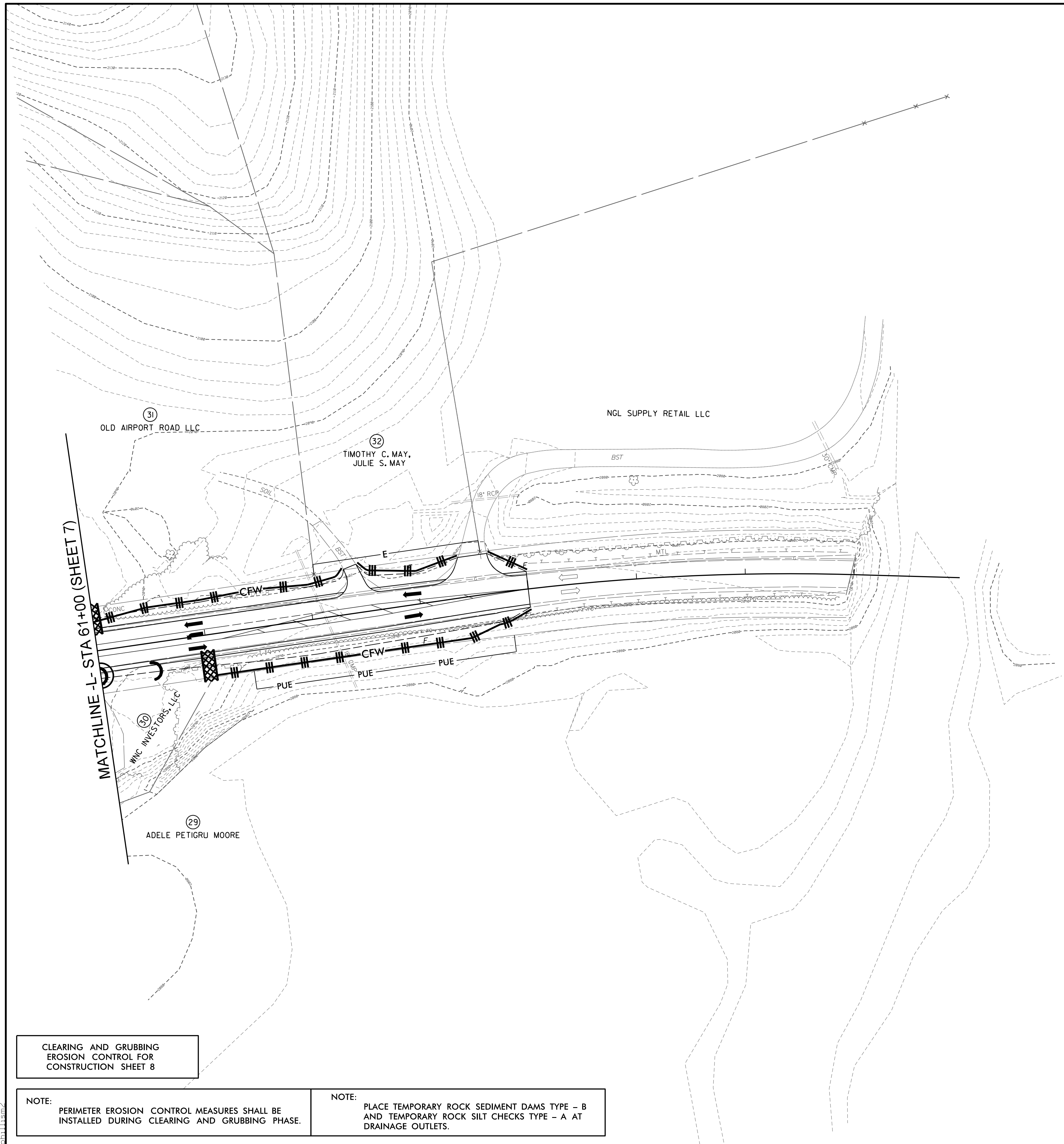
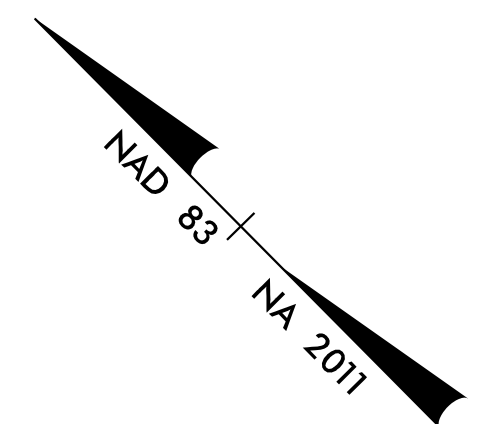
CLEARING AND GRUBBING EROSION CONTROL FOR CONSTRUCTION SHEET 7

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.



SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 11 FOR -Y7- PROFILE

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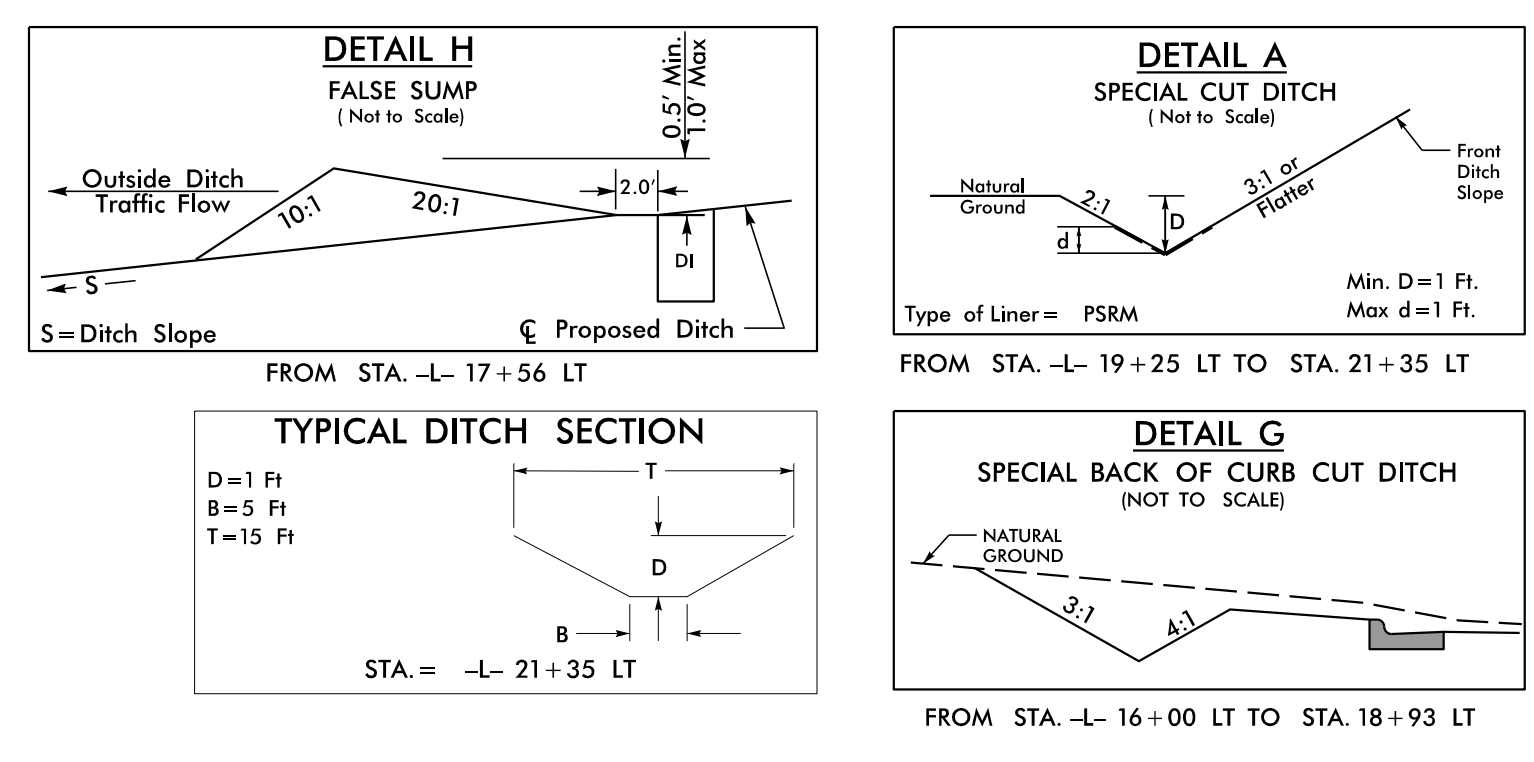
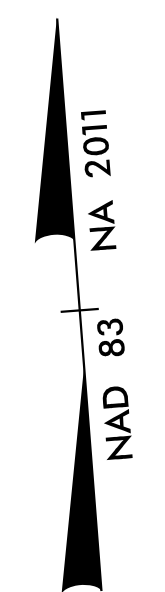
CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET 8

NOTE: PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED DURING CLEARING AND GRUBBING PHASE.

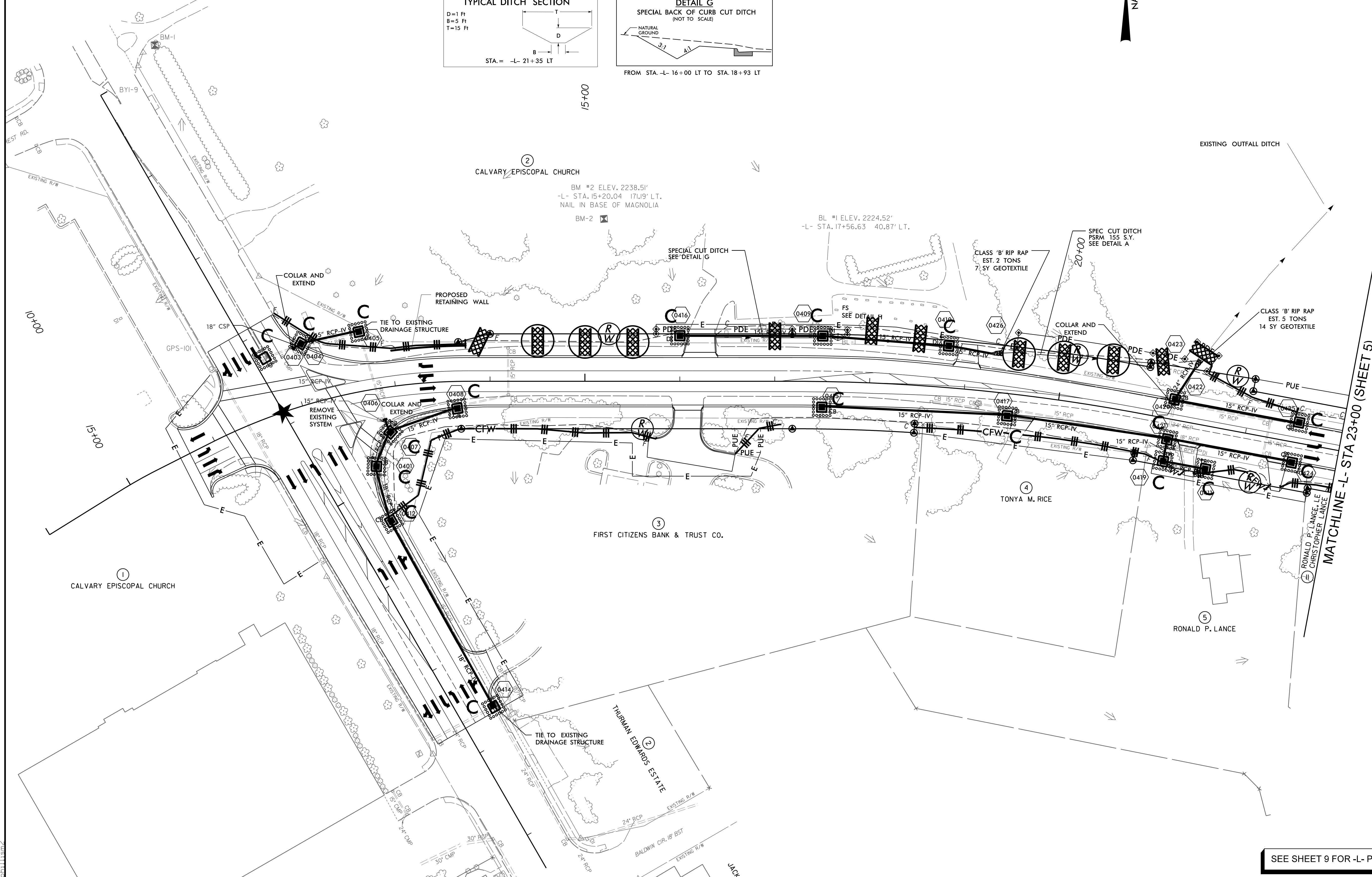
NOTE: PLACE TEMPORARY ROCK SEDIMENT DAMS TYPE - B AND TEMPORARY ROCK SILT CHECKS TYPE - A AT DRAINAGE OUTLETS.

SEE SHEET 11 FOR -L- PROFILE

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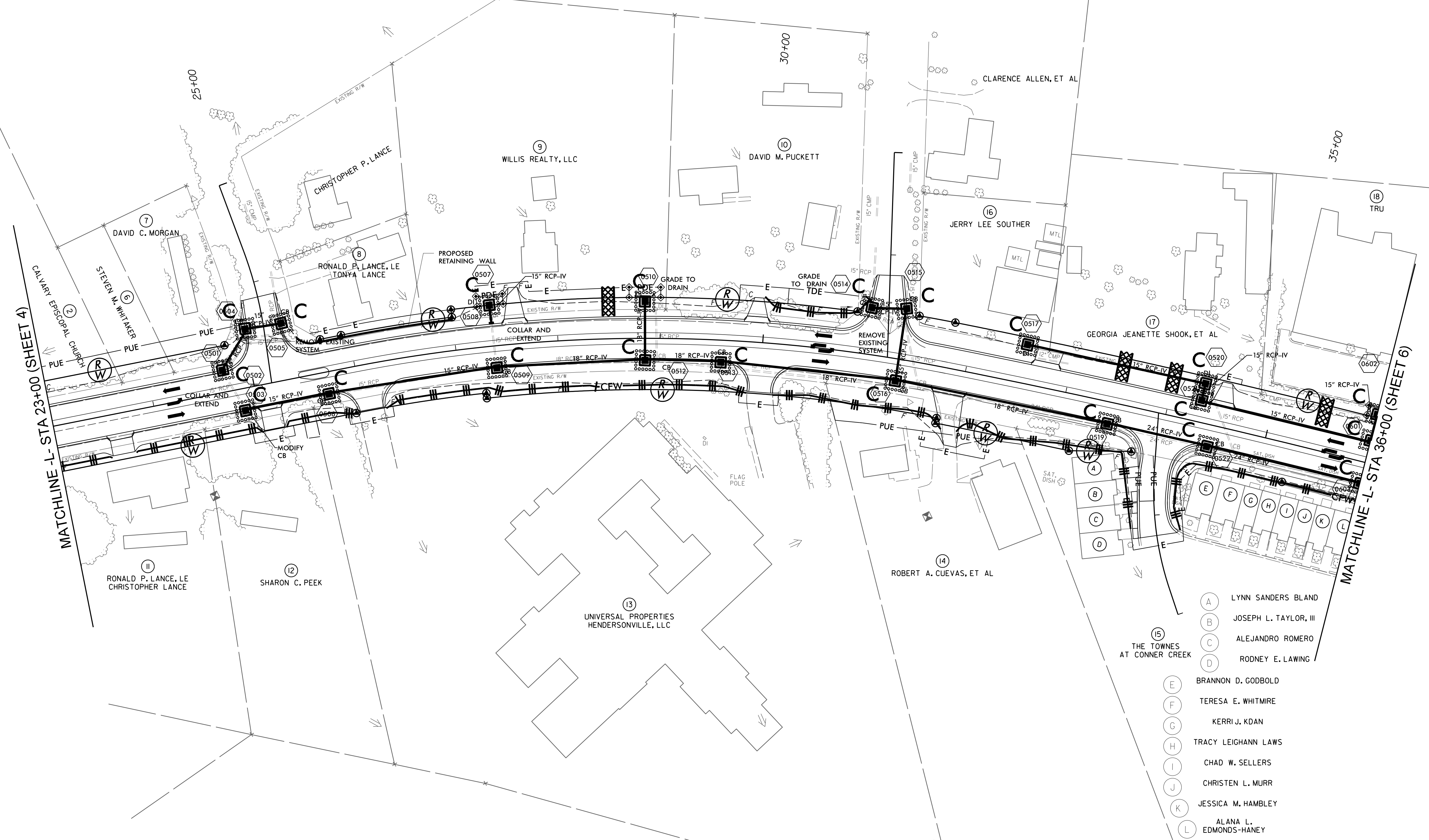
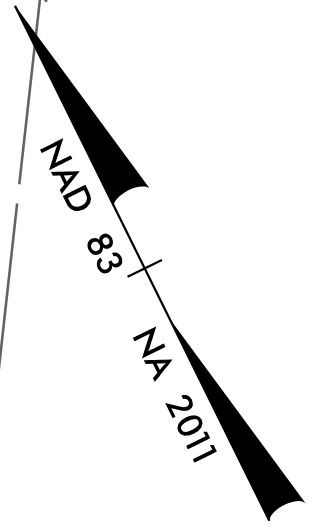
BM #1 ELEV. 2220.45'
 -Y- STA. 10+00.00
 N 51°28'19.0" E 77.81'
 NAIL IN BASE OF 22" CEDAR



MATCHLINE -L- STA 23+00 (SHEET 5)

SEE SHEET 9 FOR -L- PROFILE

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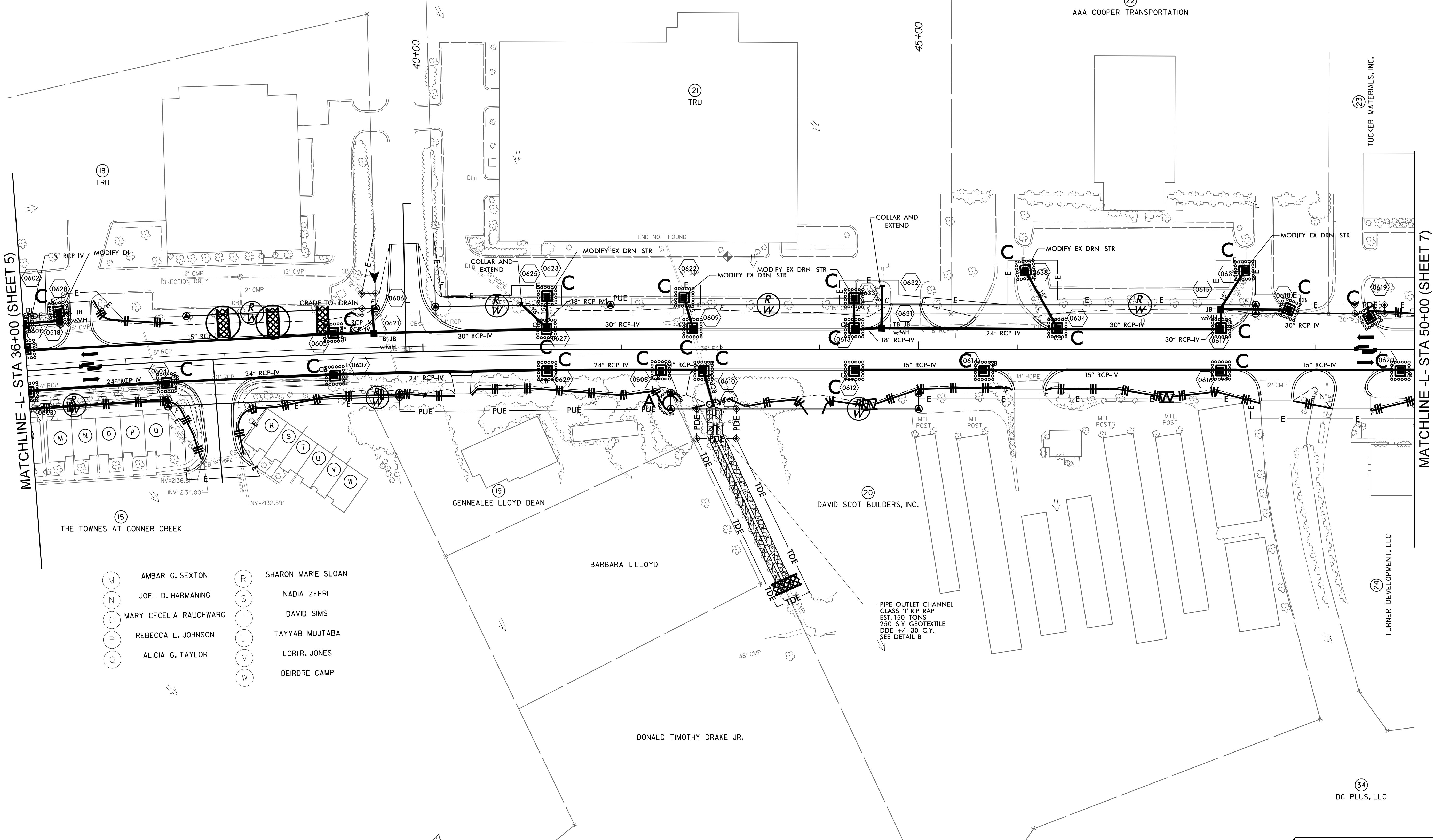
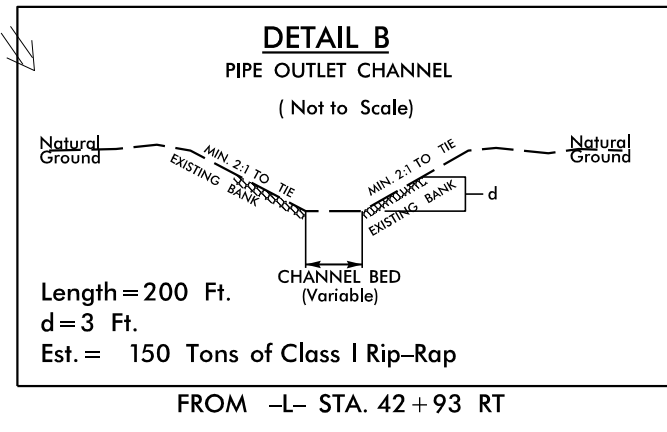
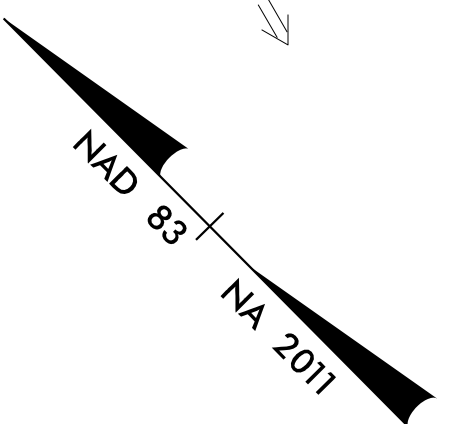
MATCHLINE -L- STA 23+00 (SHEET 4)

MATCHLINE -L- STA 36+00 (SHEET 6)

- (A) LYNN SANDERS BLAND
- (B) JOSEPH L. TAYLOR, III
- (C) ALEJANDRO ROMERO
- (D) RODNEY E. LAWING
- (E) BRANNON D. GODBOLD
- (F) TERESA E. WHITMIRE
- (G) KERRI J. KDAN
- (H) TRACY LEIGHANN LAWS
- (I) CHAD W. SELLERS
- (J) CHRISTEN L. MURR
- (K) JESSICA M. HAMBLEY
- (L) ALANA L. EDMONDS-HANEY

SEE SHEET 9 FOR -L- PROFILE

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11/14/2018

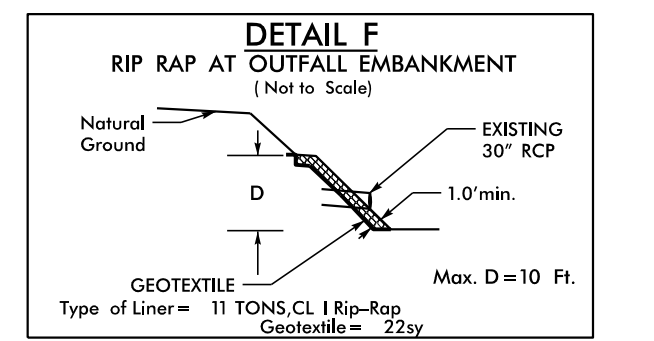
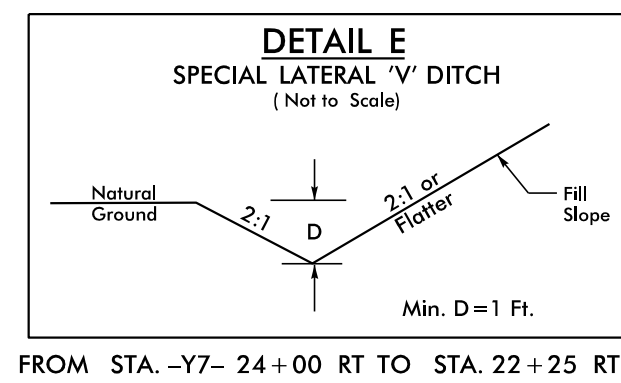
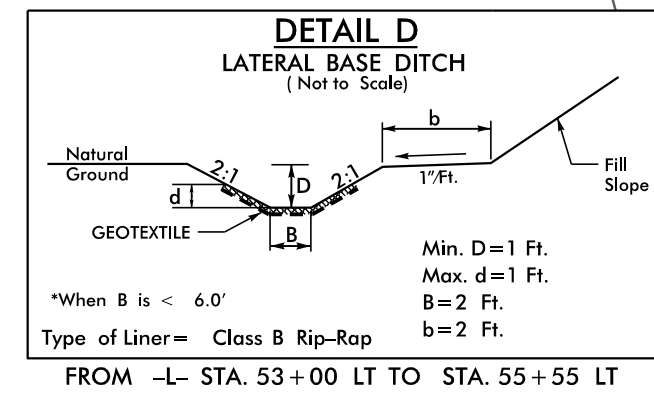
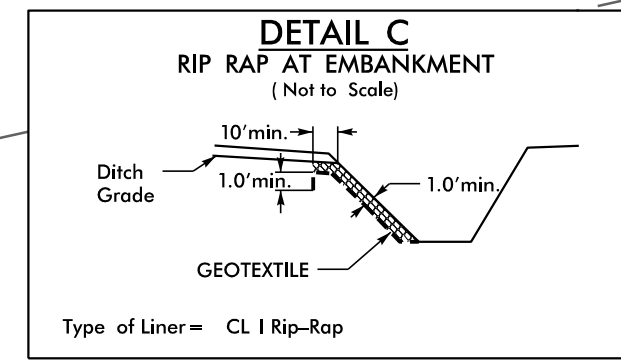
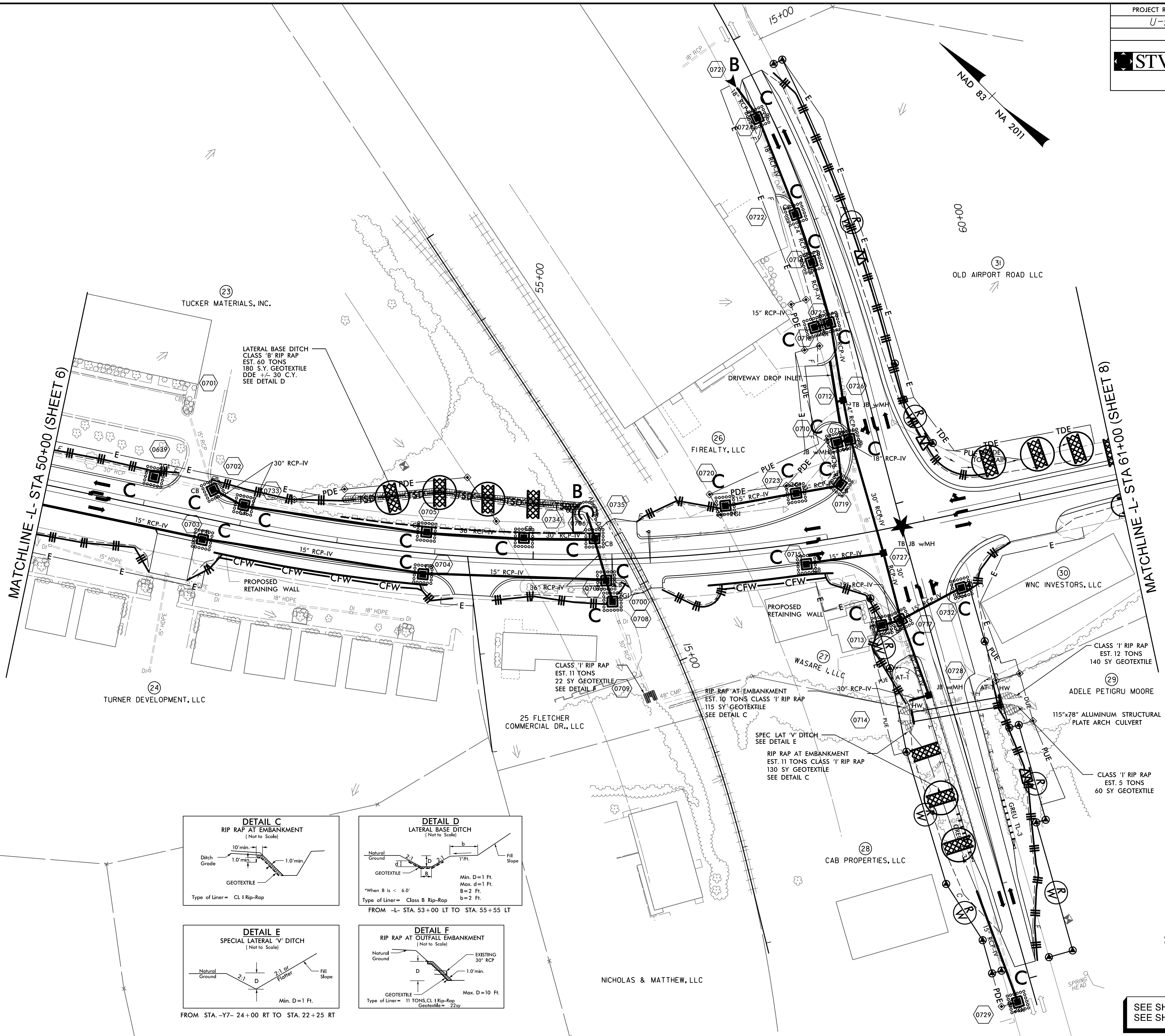
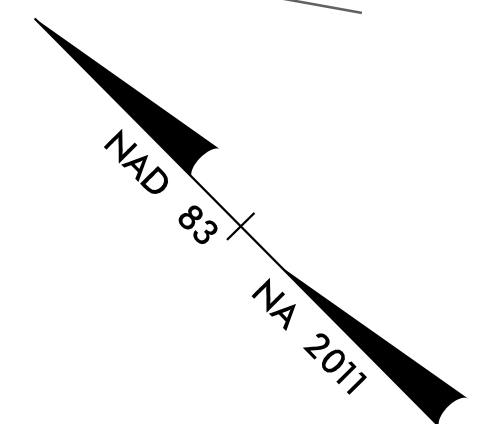


- | | | | |
|---|------------------------|---|--------------------|
| M | AMBAR G. SEXTON | R | SHARON MARIE SLOAN |
| N | JOEL D. HARMANING | S | NADIA ZEFRI |
| O | MARY CECELIA RAUCHWARG | T | DAVID SIMS |
| P | REBECCA L. JOHNSON | U | TAYYAB MUJTABA |
| Q | ALICIA G. TAYLOR | V | LORIR. JONES |
| | | W | DEIRDRE CAMP |

PIPE OUTLET CHANNEL
CLASS 'I' RIP RAP
EST. 150 TONS
250 S.Y. GEOTEXTILE
DDE +/- 30 C.Y.
SEE DETAIL B


SEE SHEET 10 FOR -L- PROFILE

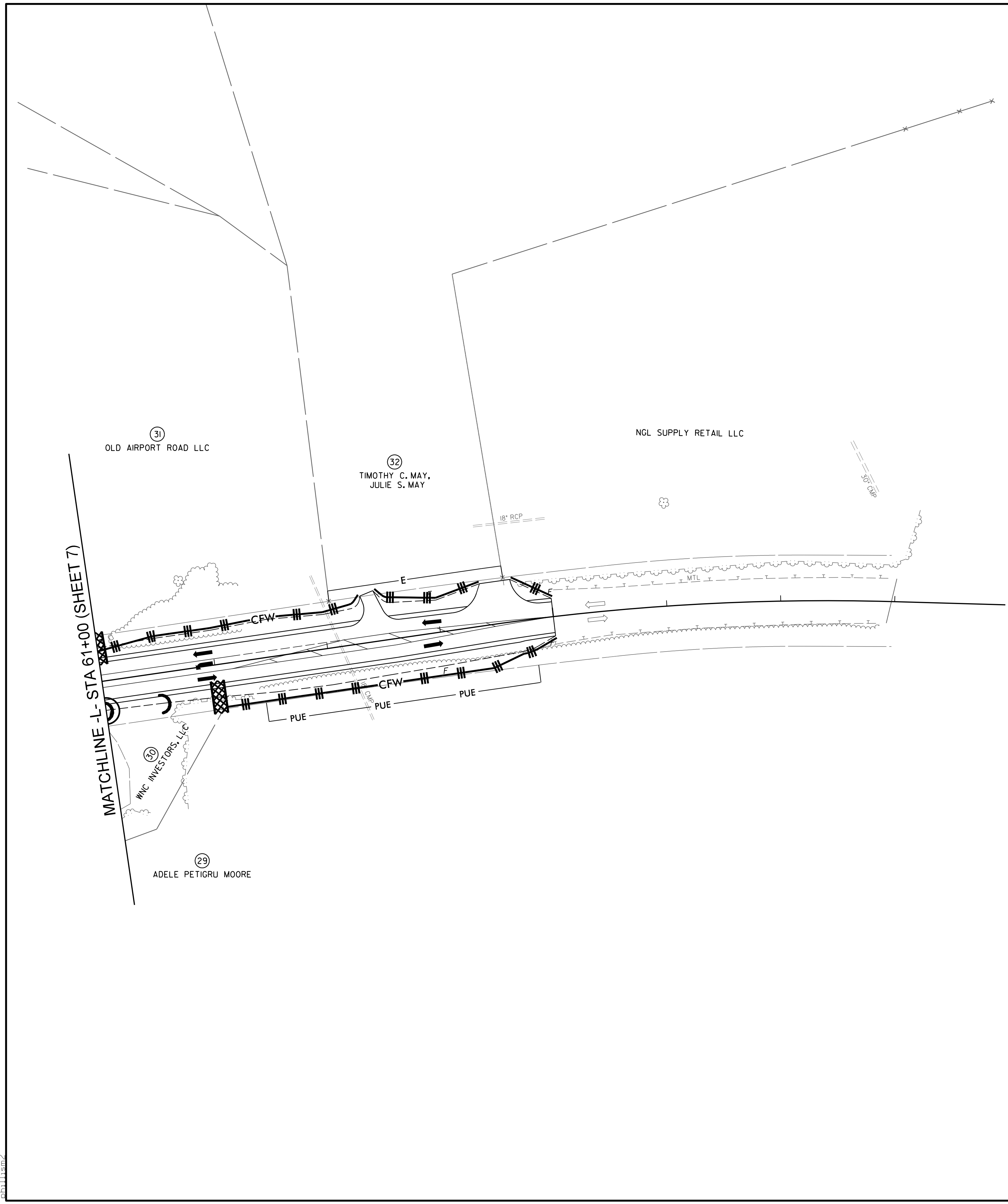
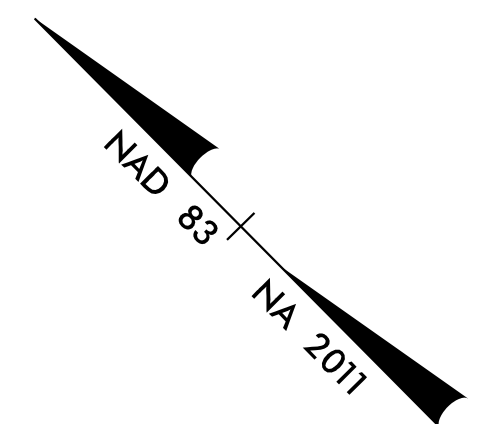
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 SEE SHEET 11 FOR -Y7- PROFILE

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| | |
|---|----------------|
| PROJECT REFERENCE NO. | SHEET NO. |
| U-5840 | EC-13/CONST.08 |
| RW SHEET NO. | |
|  STV 100 Years STV Engineers, Inc. 900 West Trade St., Suite 715 Charlotte, NC 28202 NC License Number F-0991 | |



5/14/2016
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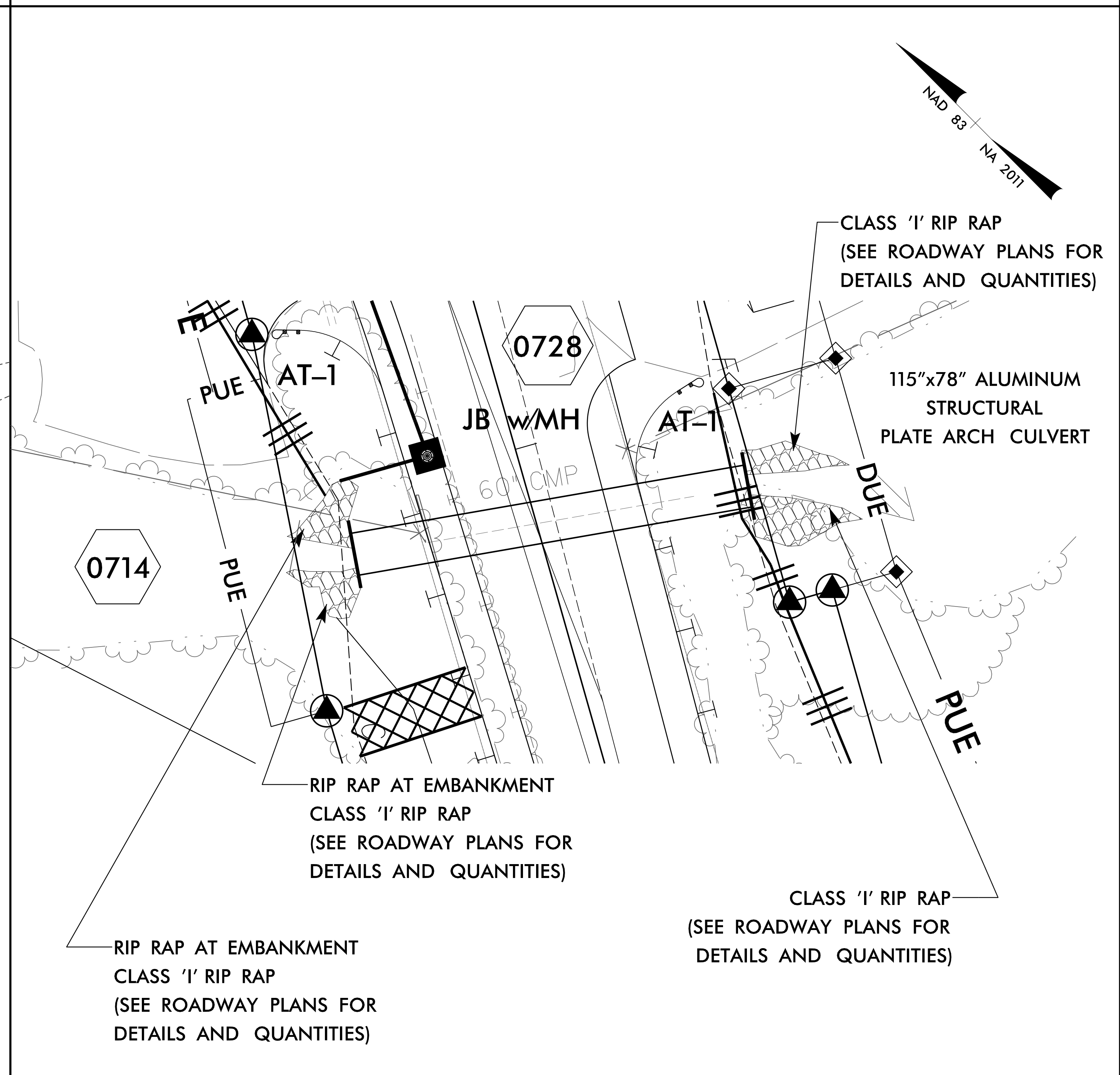
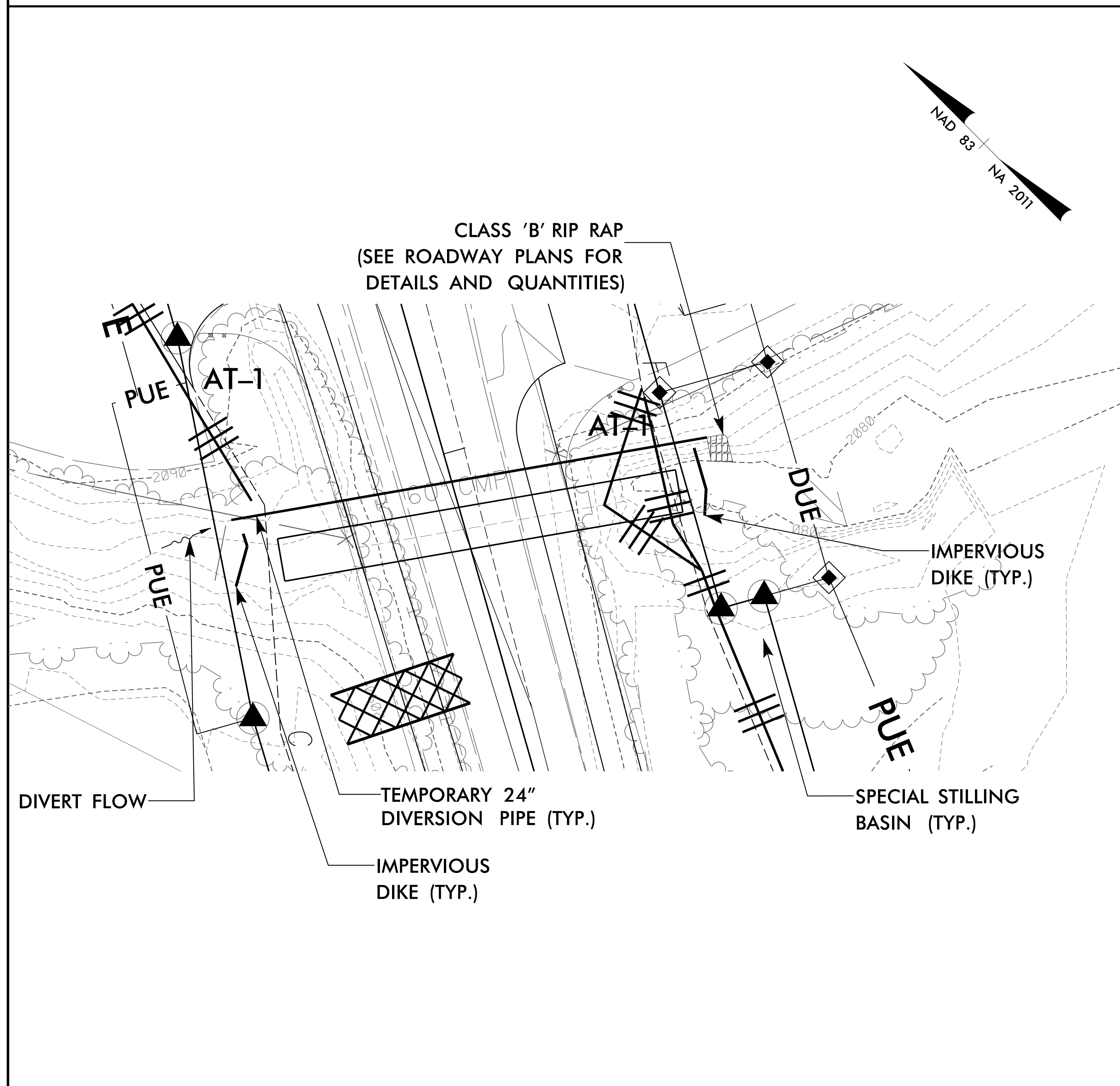
CULVERT CONSTRUCTION SEQUENCE STA. 22+17 -Y7-

PHASE I

1. UTILIZE SPECIAL STILLING BASIN(S) AS NEEDED THROUGHOUT CULVERT CONSTRUCTION.
2. CONSTRUCT IMPERVIOUS DIKES AND TEMPORARY 24" PIPE, DIVERTING FLOW THROUGH THE TEMPORARY PIPE.
3. USE SPECIAL STILLING BASINS TO DEWATER EXCAVATION AREA.
4. REMOVE EXISTING 60" CMP CULVERT.
5. CONSTRUCT PROPOSED 115"x78" PLATE ARCH CULVERT.

PHASE II

6. CONSTRUCT THE WING WALLS FOR THE PROPOSED CULVERT, AND ANY NECESSARY EMBANKMENT AND CHANNEL IMPROVEMENTS.
7. EXCAVATE ANY REMAINING SILT, REMOVE SPECIAL STILLING BASINS
8. REMOVE IMPERVIOUS DIKES ALLOWING NORMAL FLOW THROUGH CULVERT.
9. COMPLETE ROADWAY.



SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 11 FOR -Y7- PROFILE

INSTALL PIPE(S) IN JURISDICTIONAL AREAS WITHOUT IMPACTING STREAM UNTIL AREA STABILIZED AND ACCORDING TO NCDOT BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES MANUAL.

SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 11 FOR -Y7- PROFILE