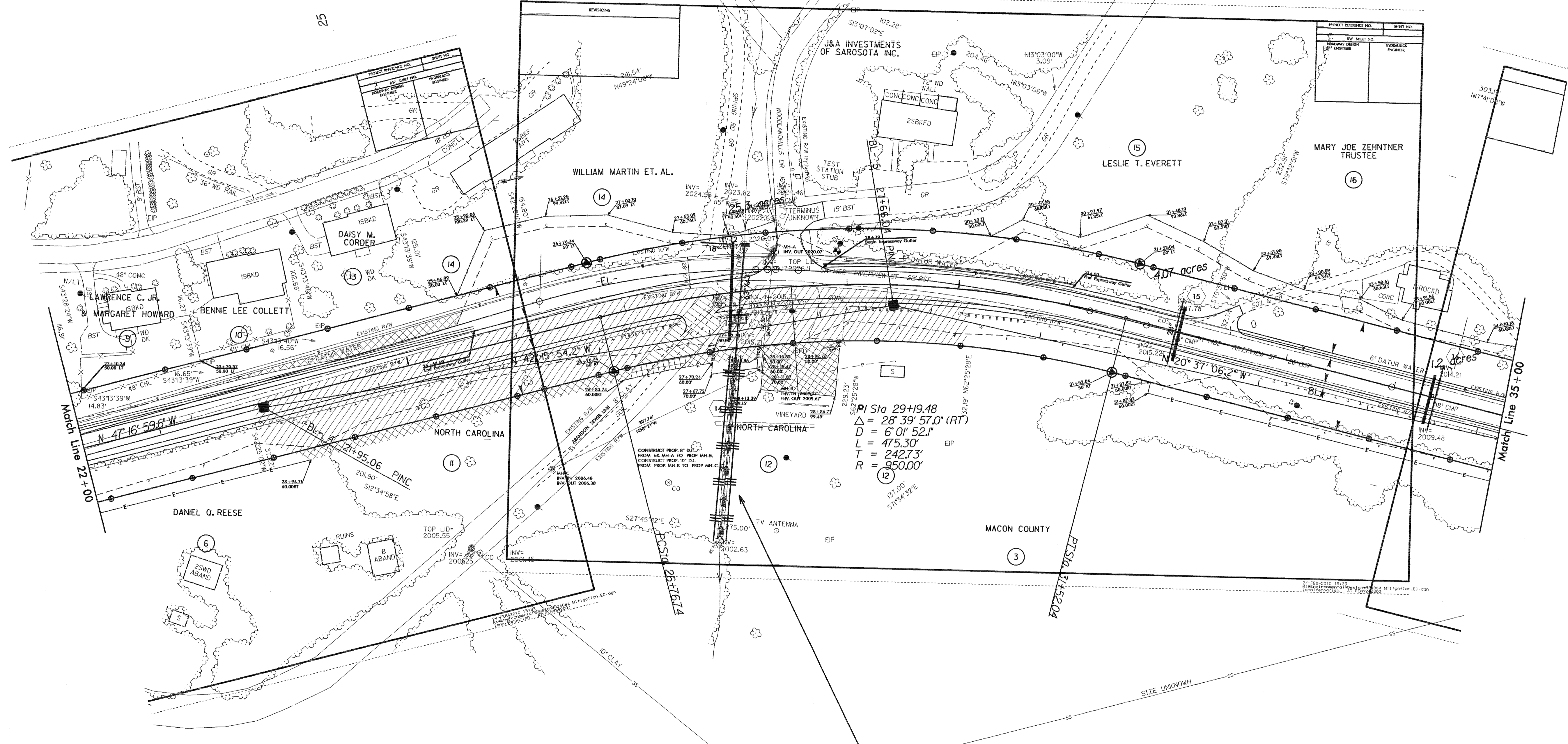


8/17/99

R-2408 On-Site Stream Mitigation

PROJECT REFERENCE NO. R-2408B	SHEET NO. EC-1/CONST.OSM-1
R/W SHEET NO.	HYDRAULICS ENGINEER
ROADWAY DESIGN ENGINEER	



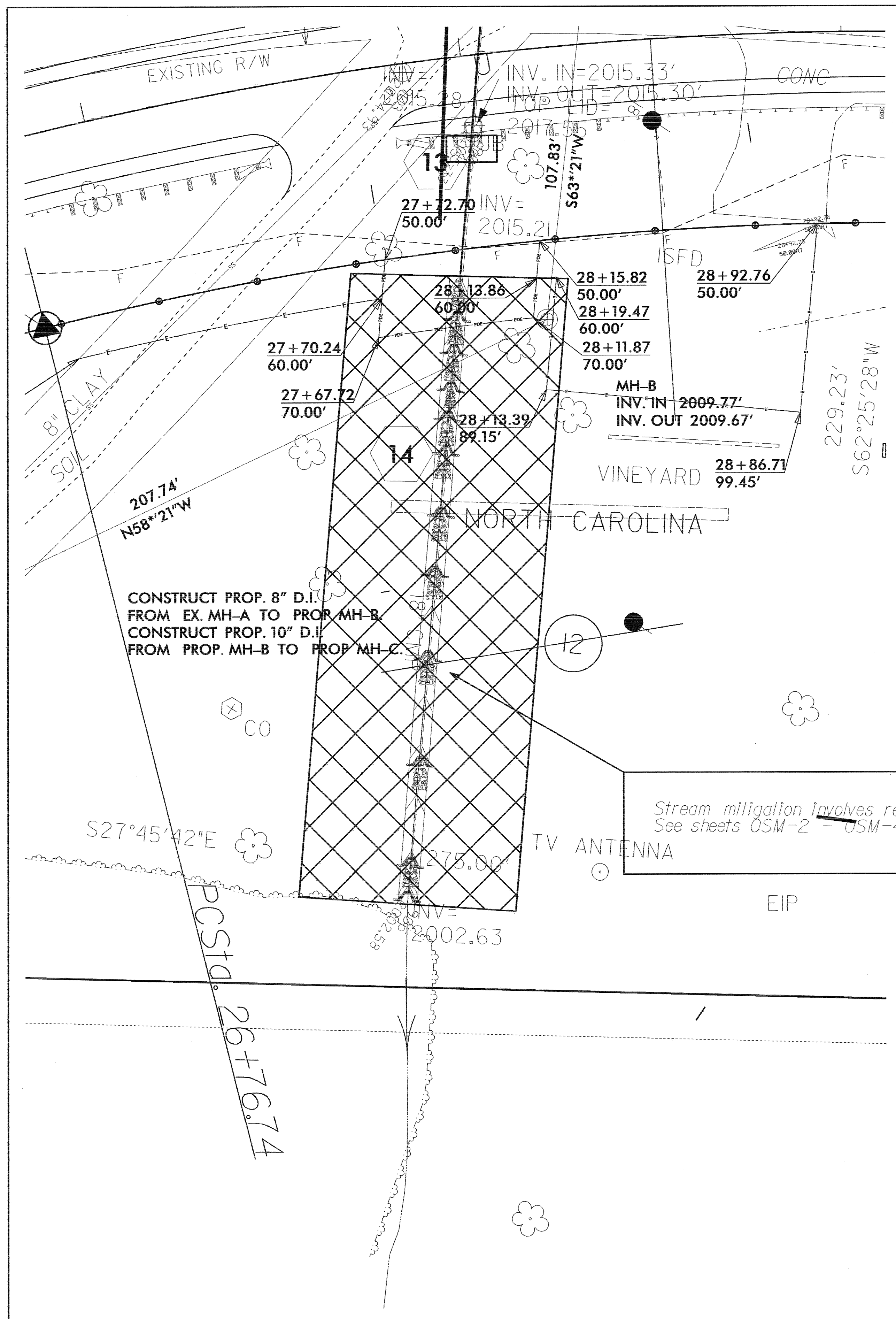
DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "GPS-105" WITH NAD 1983/95 STATE PLANE GRID COORDINATES OF (NORTHING: 560403586(1) EASTING: 686157220(1)) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99977456 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-105" TO -L- STATION (supplied by roadway) IS ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Stream mitigation involves removal of existing 18" RCP and reestablishment of stream channel See sheets OSM-2 - OSM-4 for typicals, profile, and details

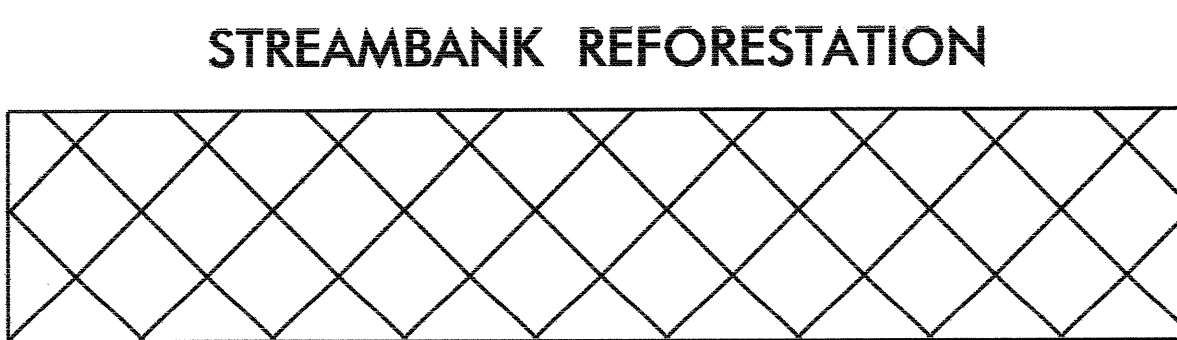
8/17/99

PROJECT REFERENCE NO. <i>R-2408B</i>	SHEET NO. <i>EC-2/CONST.OSM-2</i>
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



R-2408 On-Site Stream Mitigation

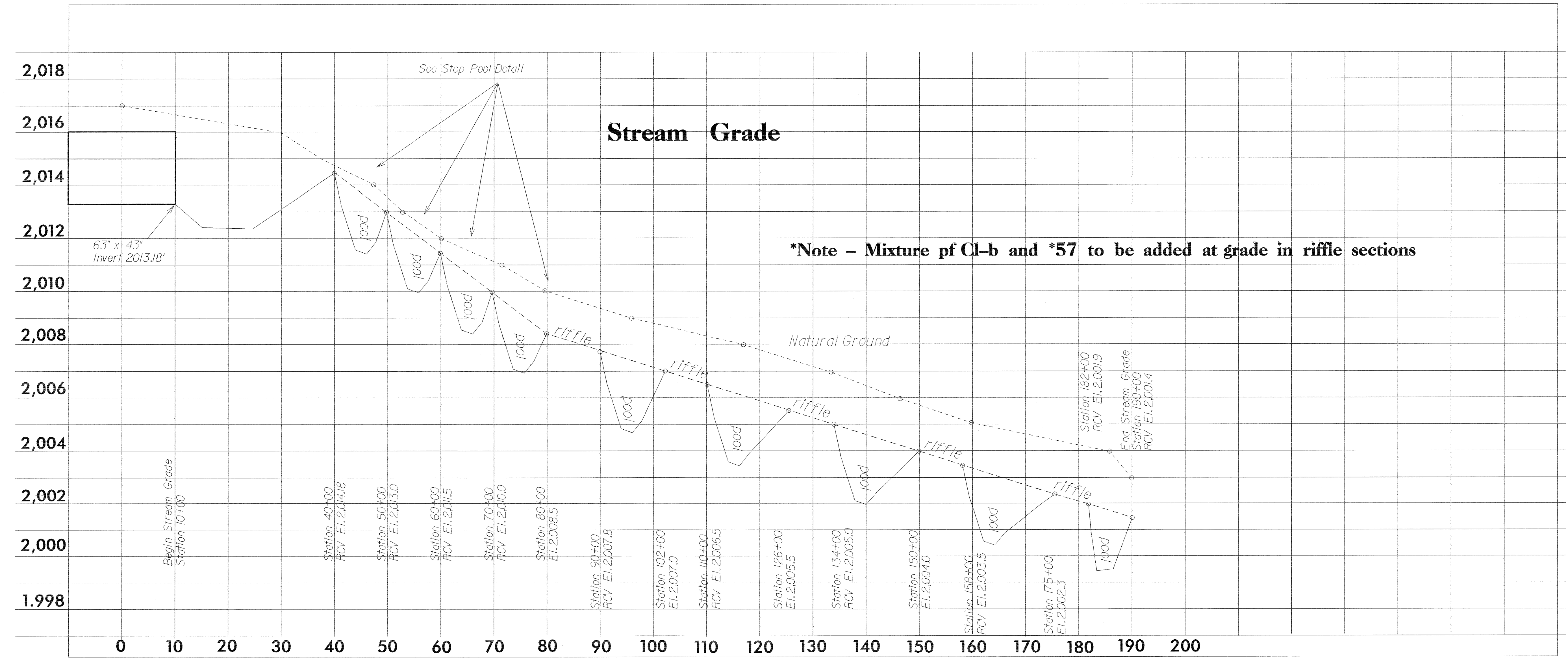
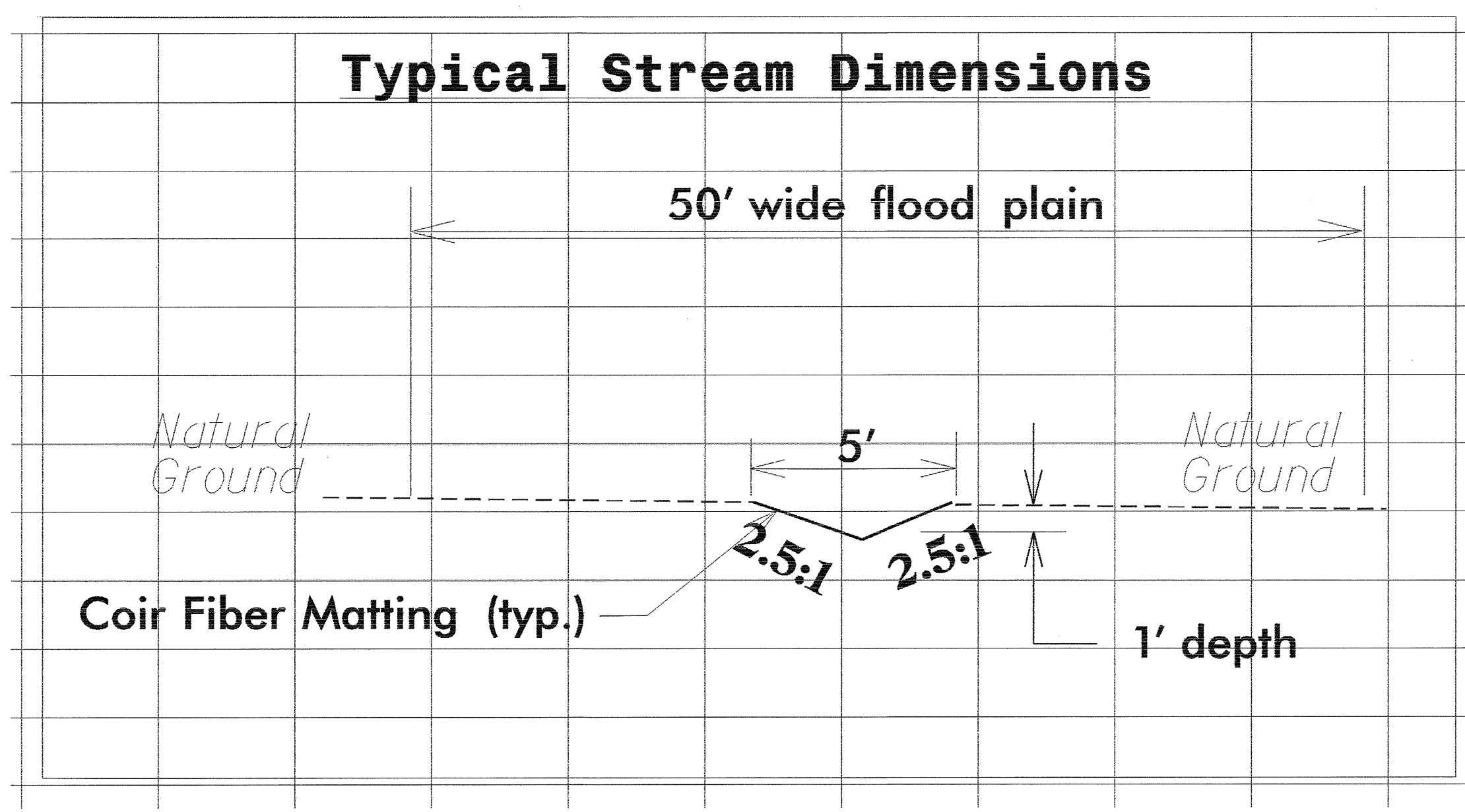
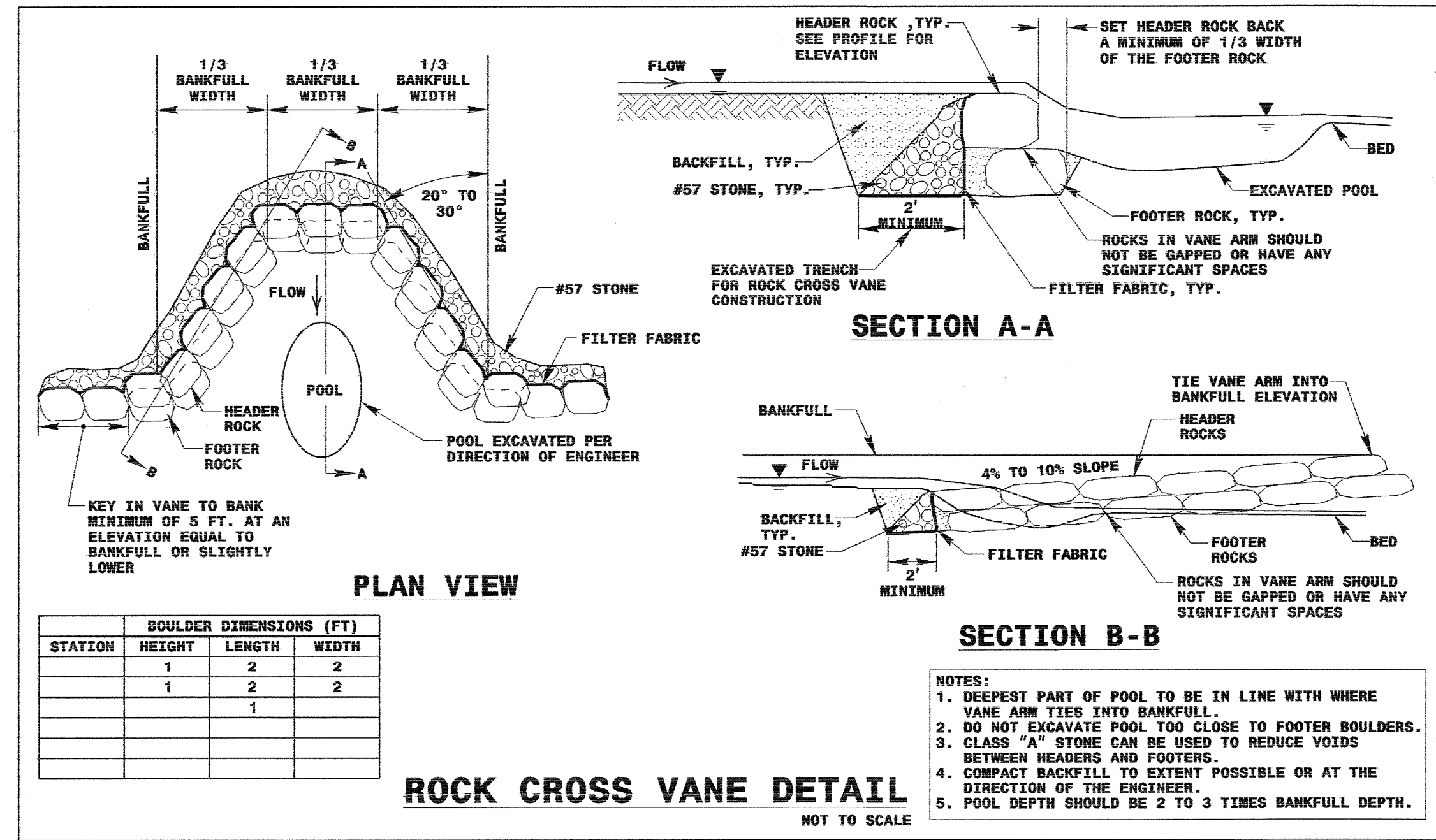
Stream mitigation involves removal of existing 18" RCP and reestablishment of stream channel. See sheets OSM-2 - OSM-4 for typicals, profile, and details.



0.25 ACRE STREAMBANK REFORESTATION

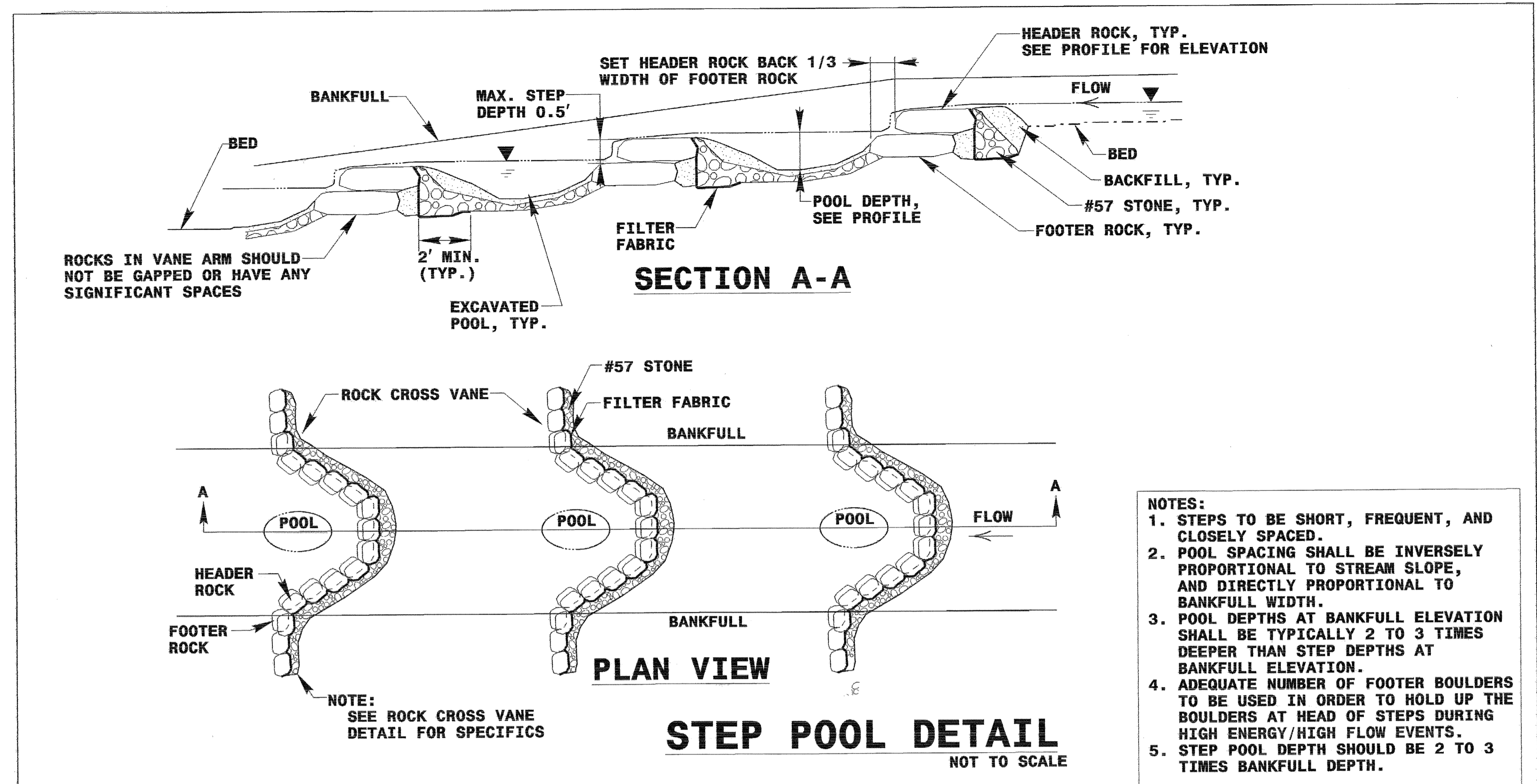
SEE RF-1, RF-2 AND PROJECT SPECIAL PROVISIONS

PROJECT REFERENCE NO.	SHEET NO.
R-2408B	EC-3/CONST.DSM-3
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

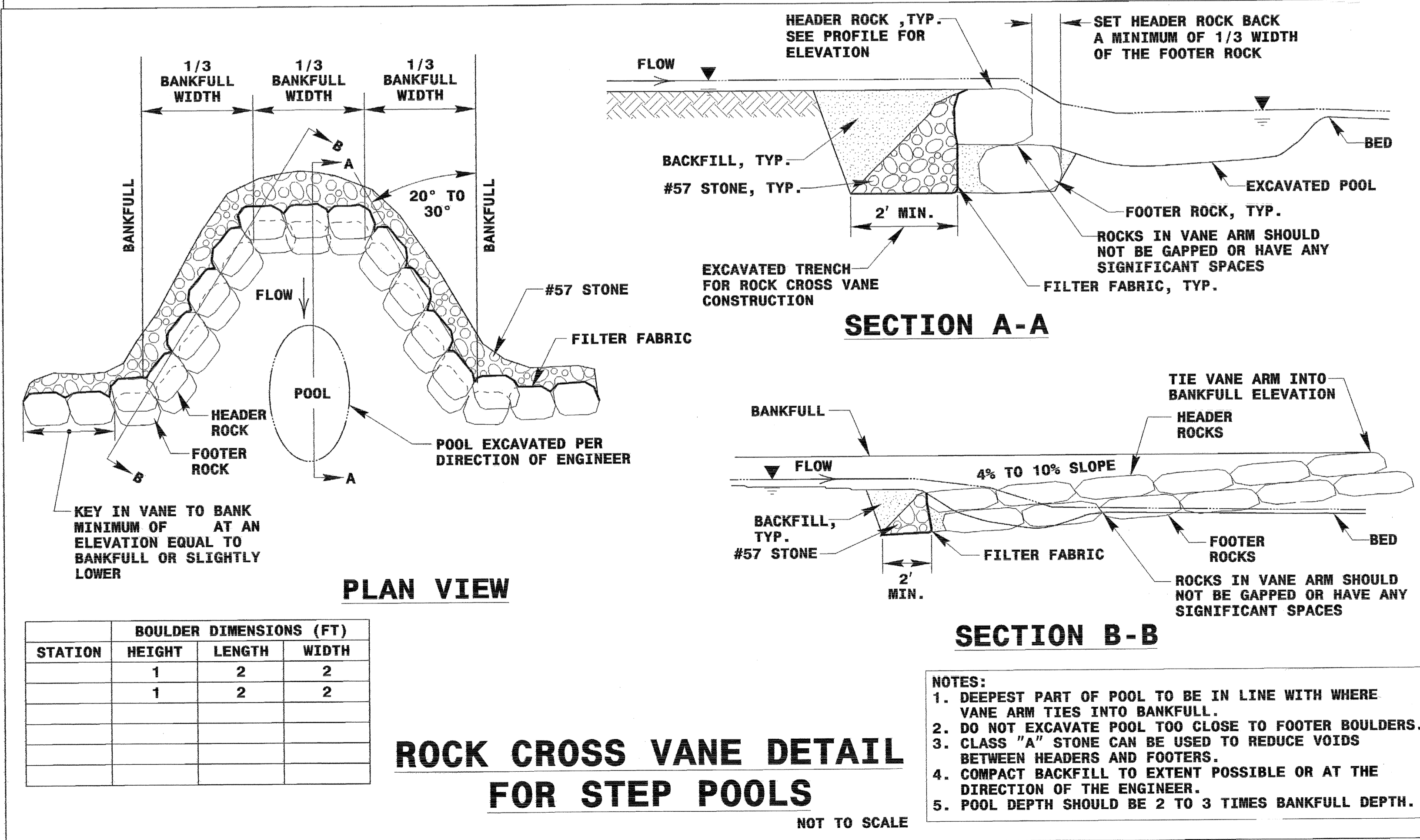


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PROJECT REFERENCE NO. R-2408B	SHEET NO. EC-4/CONST.OSM-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



- NOTES:
1. STEPS TO BE SHORT, FREQUENT, AND CLOSELY SPACED.
 2. POOL SPACING SHALL BE INVERSELY PROPORTIONAL TO STREAM SLOPE, AND DIRECTLY PROPORTIONAL TO BANKFULL WIDTH.
 3. POOL DEPTHS AT BANKFULL ELEVATION SHALL BE TYPICALLY 2 TO 3 TIMES DEEPER THAN STEP DEPTHS AT BANKFULL ELEVATION.
 4. ADEQUATE NUMBER OF FOOTER BOULDERS TO BE USED IN ORDER TO HOLD UP THE BOULDERS AT HEAD OF STEPS DURING HIGH ENERGY/HIGH FLOW EVENTS.
 5. STEP POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.



- NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
 2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
 3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
 4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
 5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

STATION	BOULDER DIMENSIONS (FT)		
	HEIGHT	LENGTH	WIDTH
	1	2	2
	1	2	2

3/14/99
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