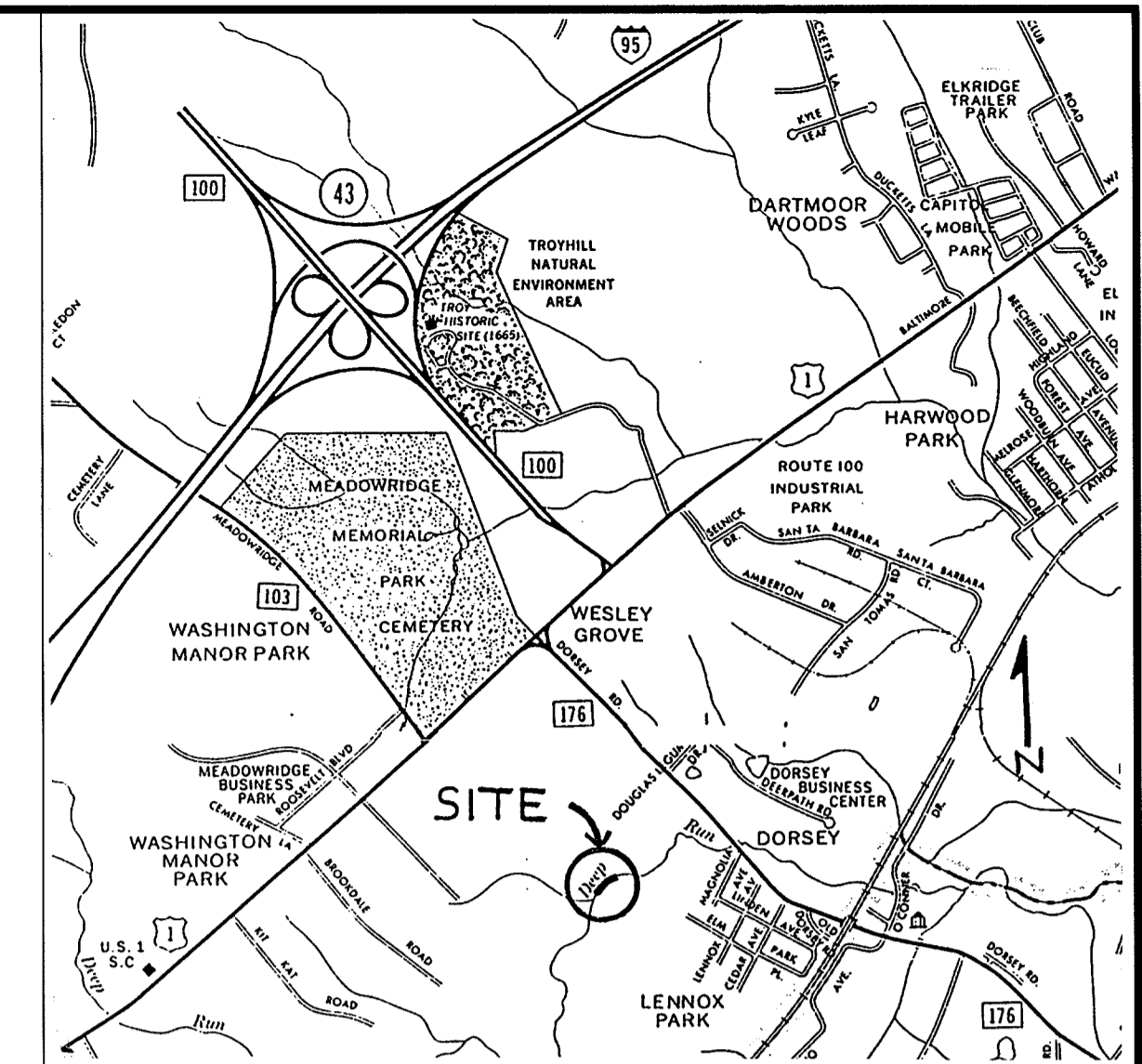
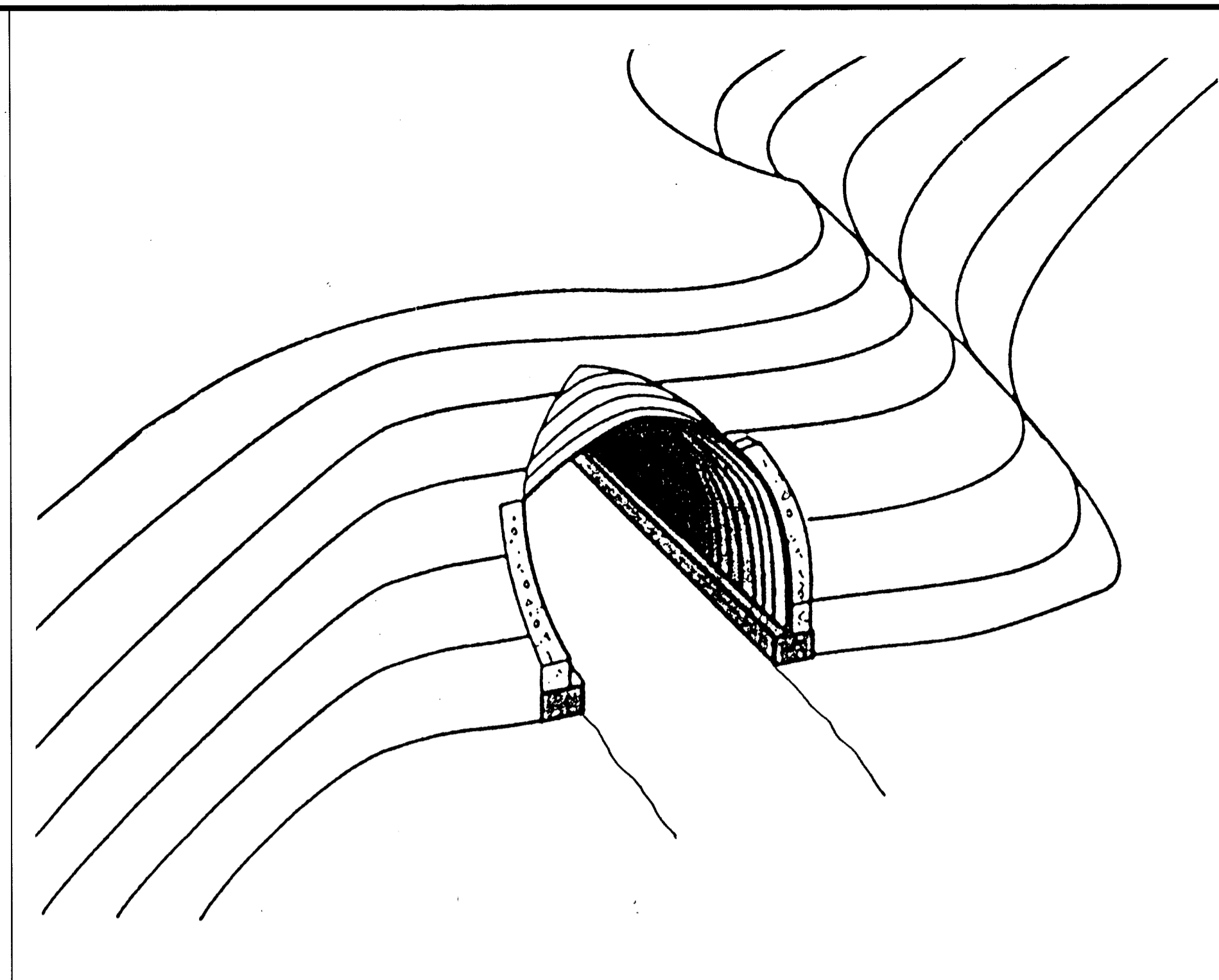


INDEX OF DRAWINGS	
SHEET NO.	TITLE
1	TITLE SHEET
2	CULVERT SPAN PLAN AND PROFILE
3	CULVERT SPAN DETAILS
4	REINFORCED END SLOPE DETAIL
5	SEDIMENT AND EROSION CONTROL DETAIL



VICINITY MAP
SCALE: 1" = 2000'

NOTE:
1. WRA permit No. NTWW #93-NT-0547
Tracking # 199366395

SUPER SPAN CULVERT CONSTRUCTION PLANS DORSEY RUN ROAD CROSSING OF DEEP RUN - PHASE 1

CAPITAL PROJECT NO. J4114

1st. ELECTION DISTRICT

HOWARD COUNTY, MARYLAND

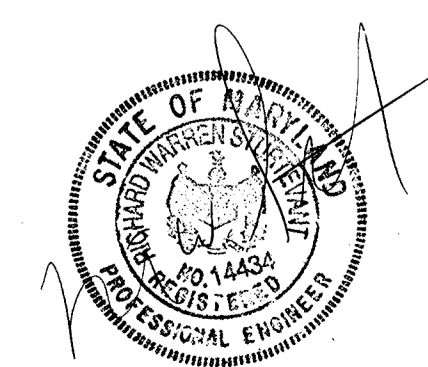
107

HILLIS-CARNES
ENGINEERING ASSOCIATES, INC.
12011 GUILFORD RD Suite #106
ANNAPOLIS JUNCTION, MD 20701
FAX:(410) 880-4098 PHONE:(410) 880-4788

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
James P. ...
Director of Public Works
Elizabeth Anderson Calver
Chief, Division of Roads,
Bridges & Storm Drainage
Charles W. ...
Chief, Bureau of Engineering
Charles W. ...
Chief, Bureau of Highways

These plans have been reviewed for the Howard
Soil Conservation District and meet the technical
requirements.
Date 5/15/95
U.S. Soil Conservation Service
Date 5/12/95
This plan is approved for soil erosion and
sediment control by the Howard Soil
Conservation District.
Date 5/12/95
Howard Soil Conservation District
Date 5/15/95

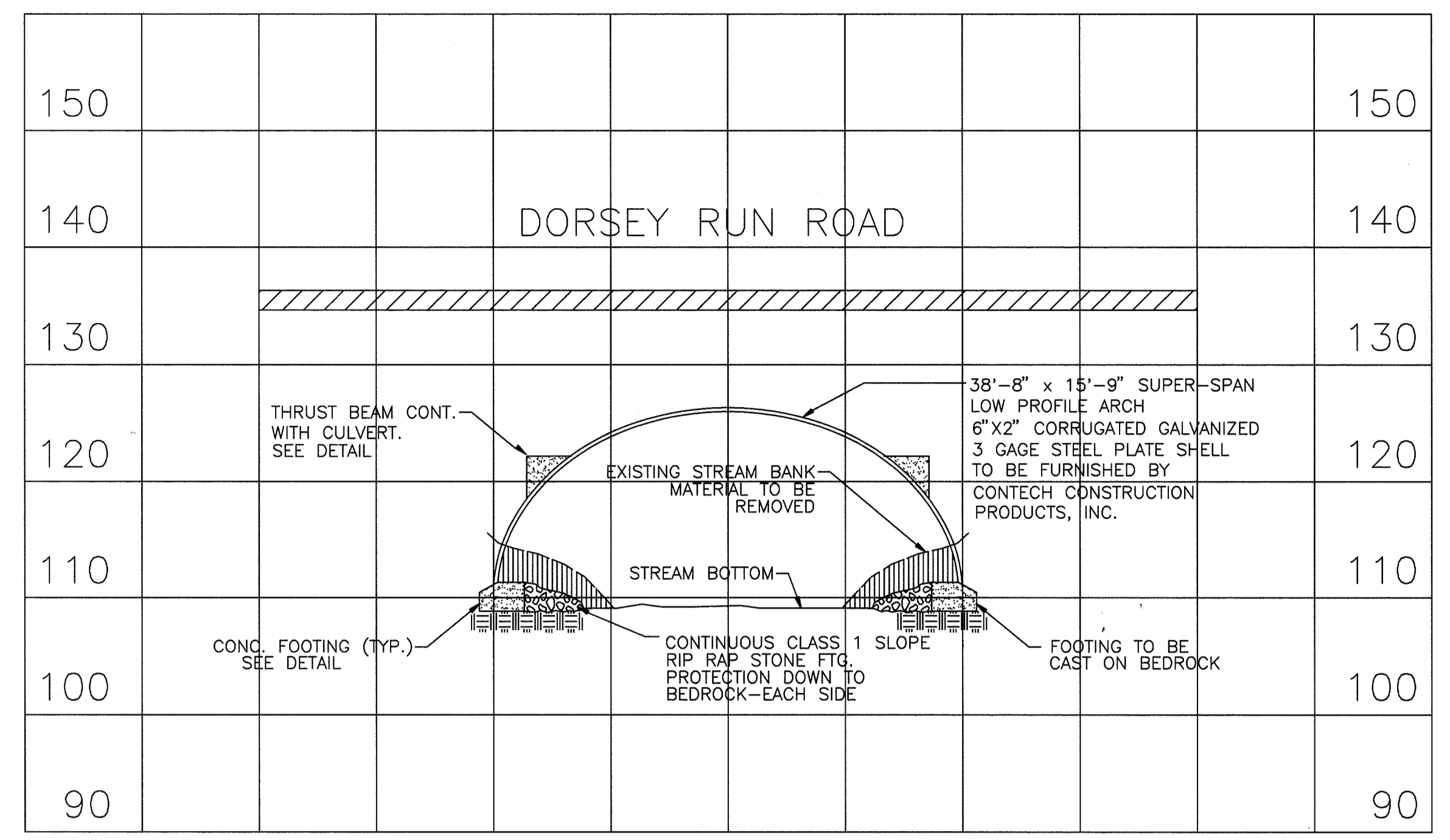
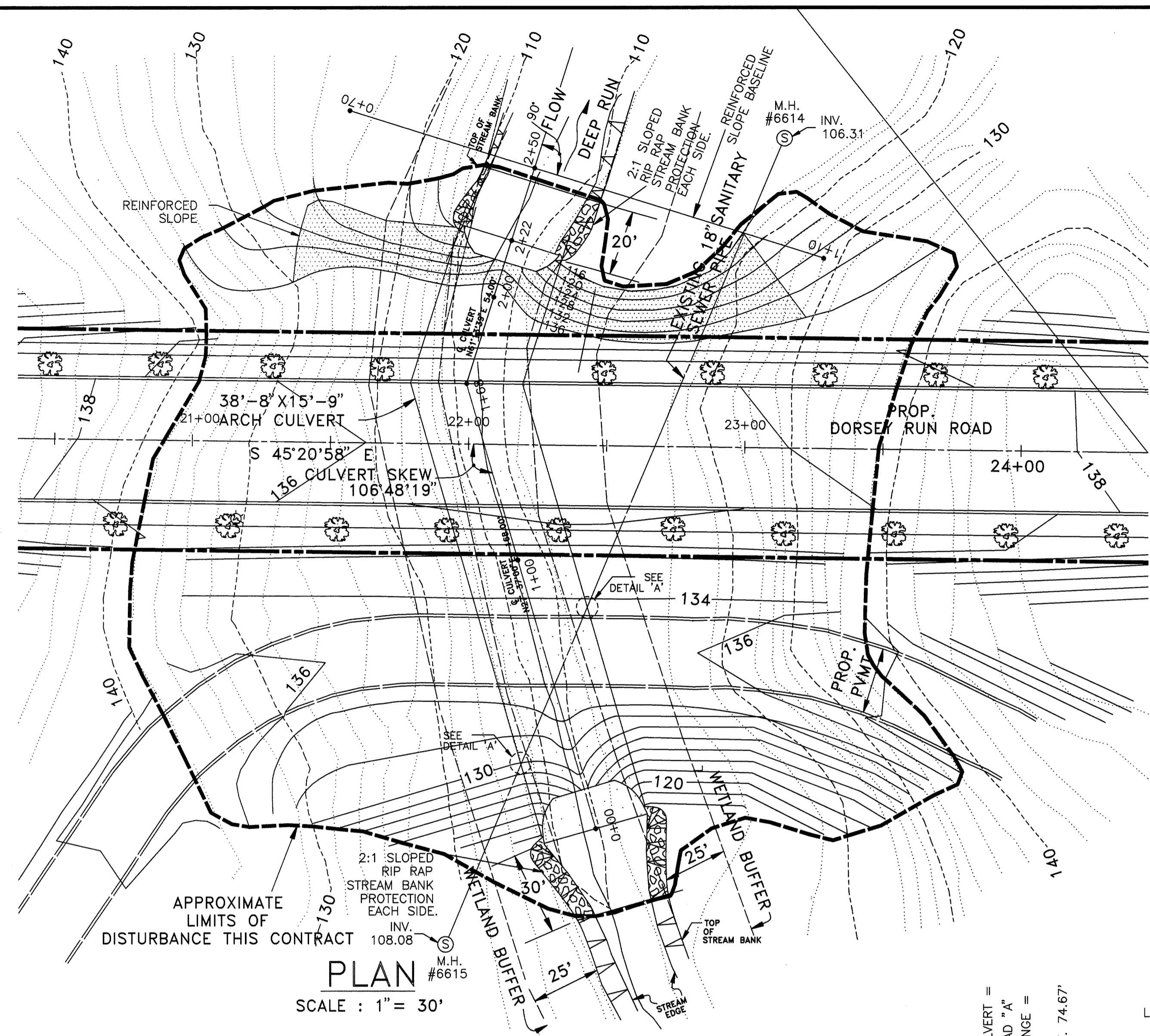
Engineers Certificate



TITLE SHEET
DORSEY RUN ROAD
CROSSING OF DEEP RUN

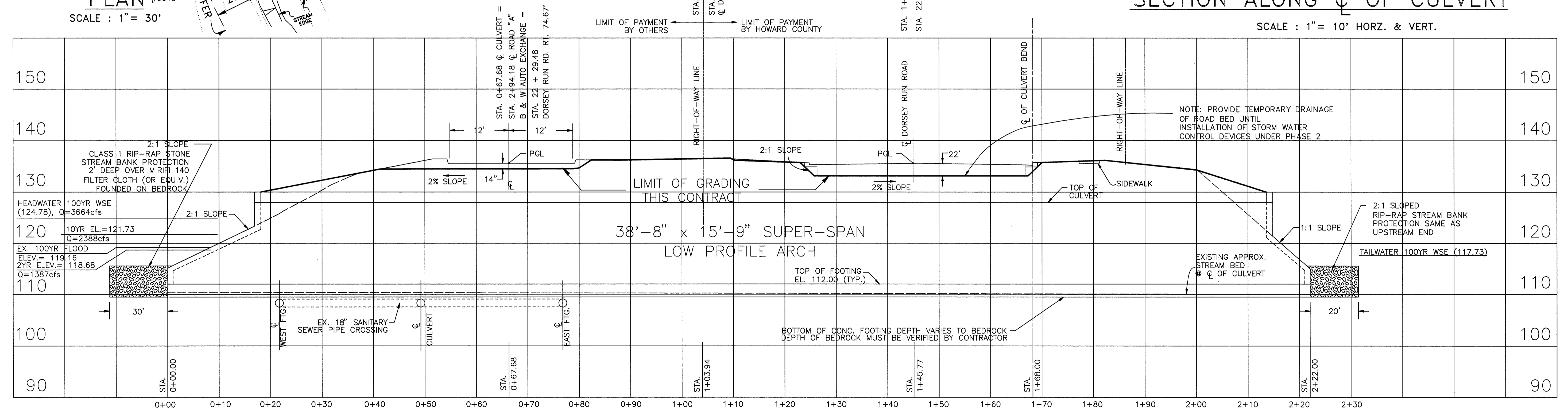
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGNED BY: R.W.S.	DRAWING No. 1 OF 5				
DRAWN BY: L.G.	SCALE: NONE				
CHECKED BY: R.M.H.	FILE No. 95067A				
DATE: 5/4/95	JOB No. 95067T1	DATE	REVISION	BY	



TYPICAL SECTION
SCALE: 1" = 10' HORZ. & VERT.

SECTION ALONG C OF CULVERT
SCALE: 1" = 10' HORZ. & VERT.



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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

James P. Shaw
Director of Public Works
Date 5/12/95

Elizabeth Anderson Oaler
Chief, Division of Roads, Bridges & Storm Drainage
Date 5/12/95

William J. Spang
Chief, Bureau of Engineering
Date 5/12/95

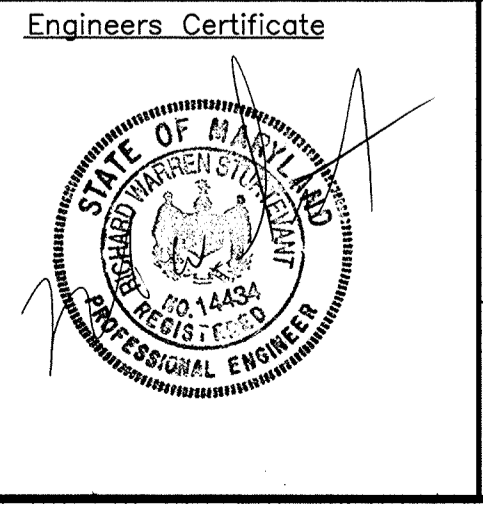
Christopher M. Wheeler
Chief, Bureau of Highways
Date 5/12/95

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.

U.S. Soil Conservation Service
Date

This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

Howard Soil Conservation District
Date

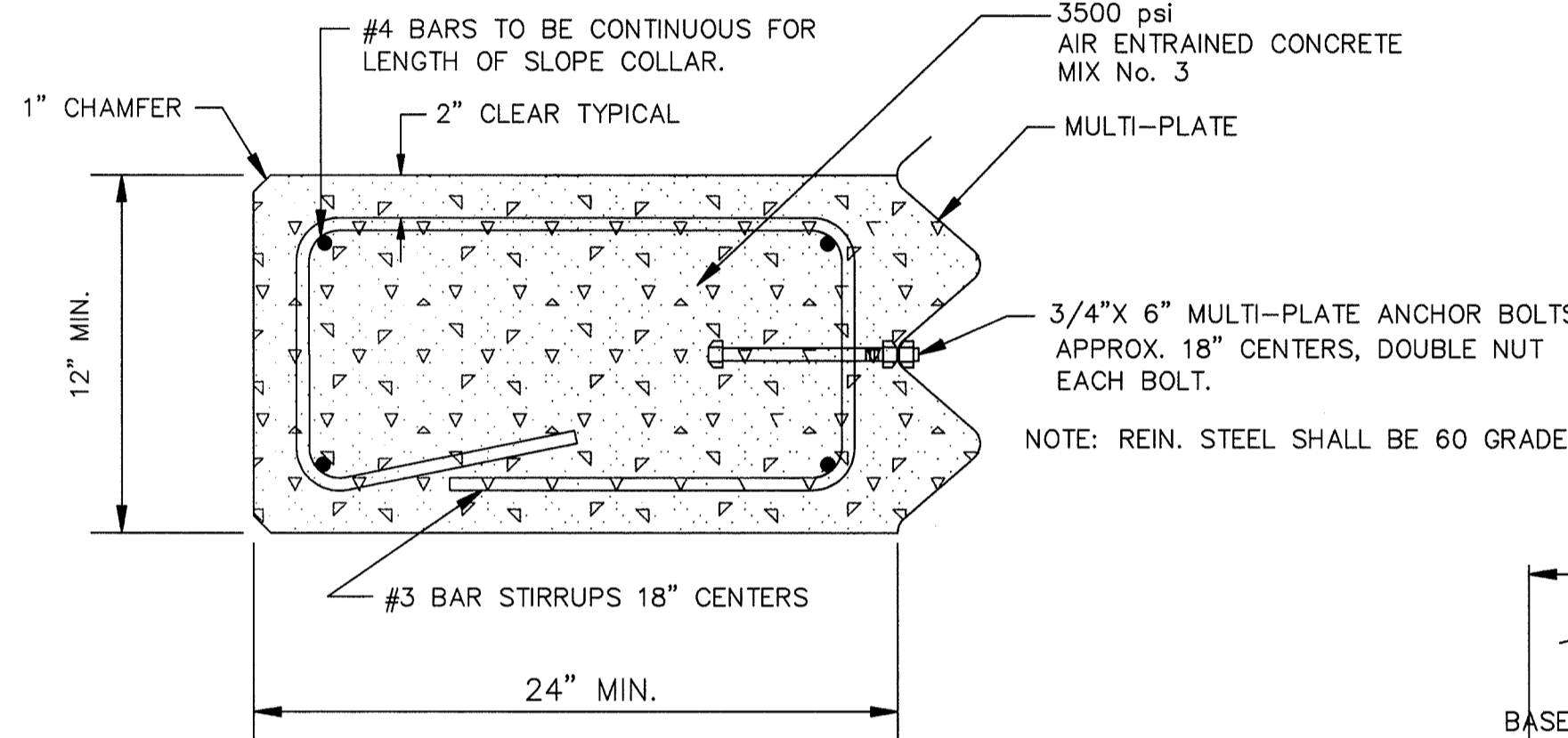
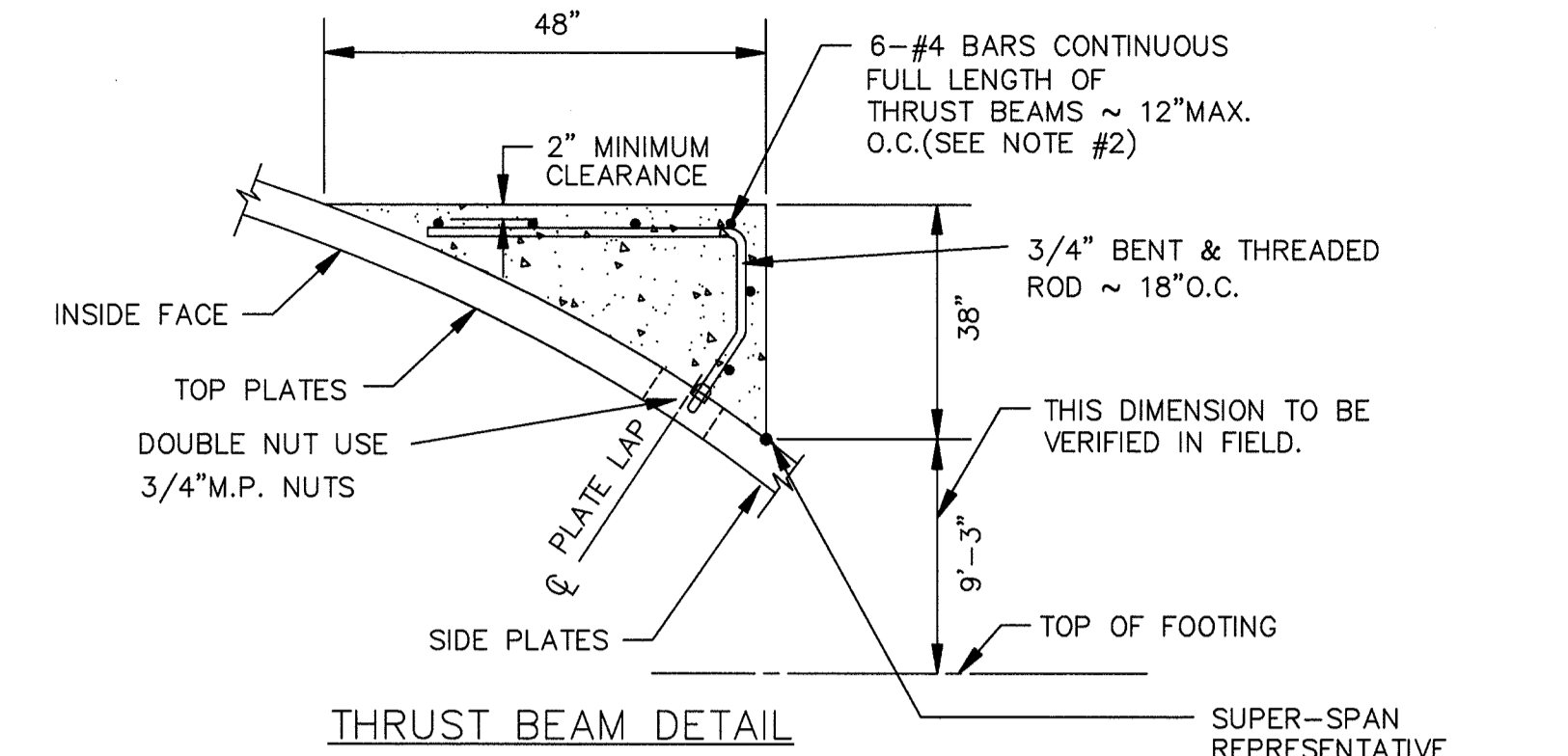
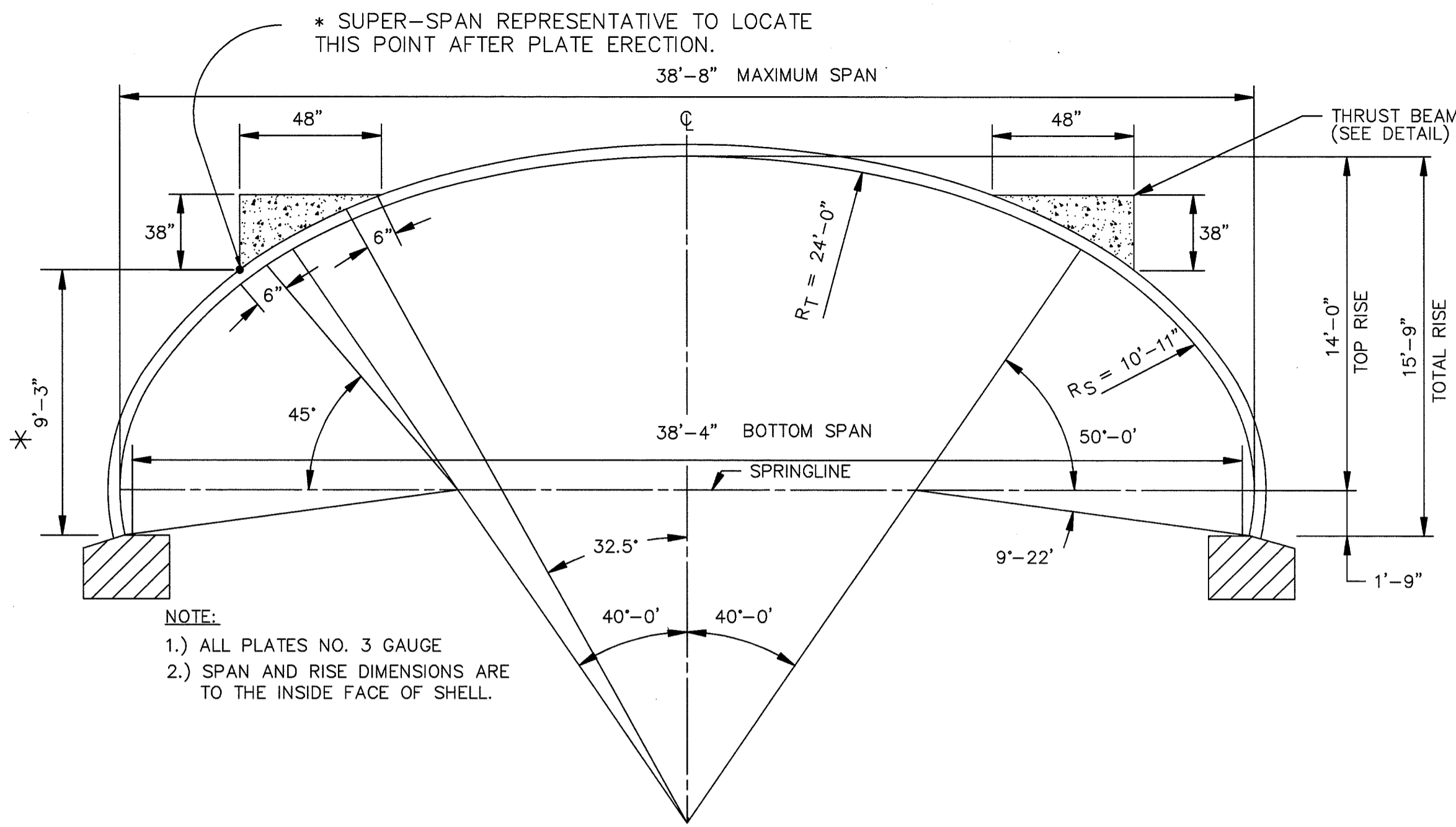
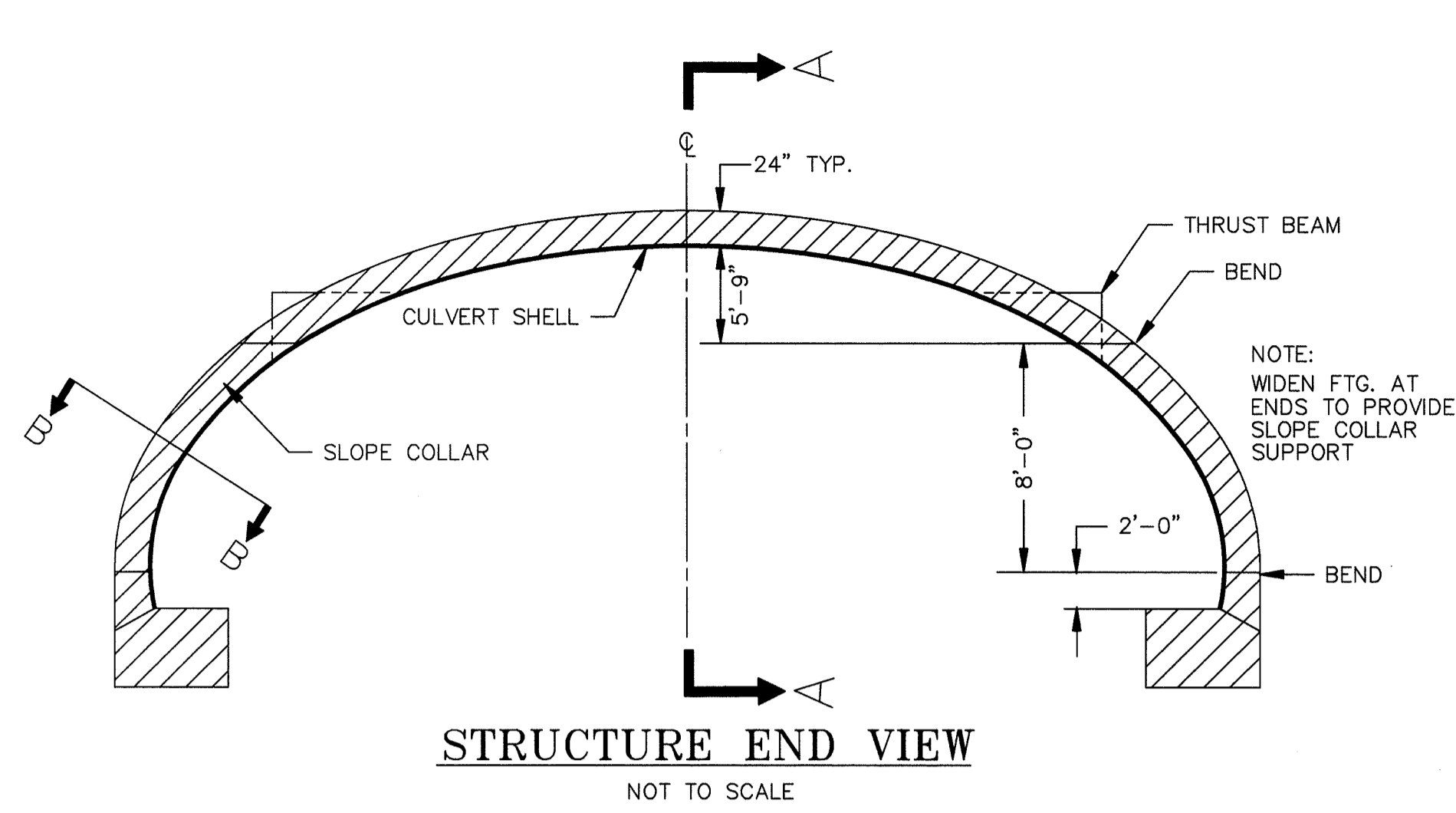


CULVERT SPAN
PLAN AND PROFILE
DORSEY RUN ROAD
CROSSING OF DEEP RUN

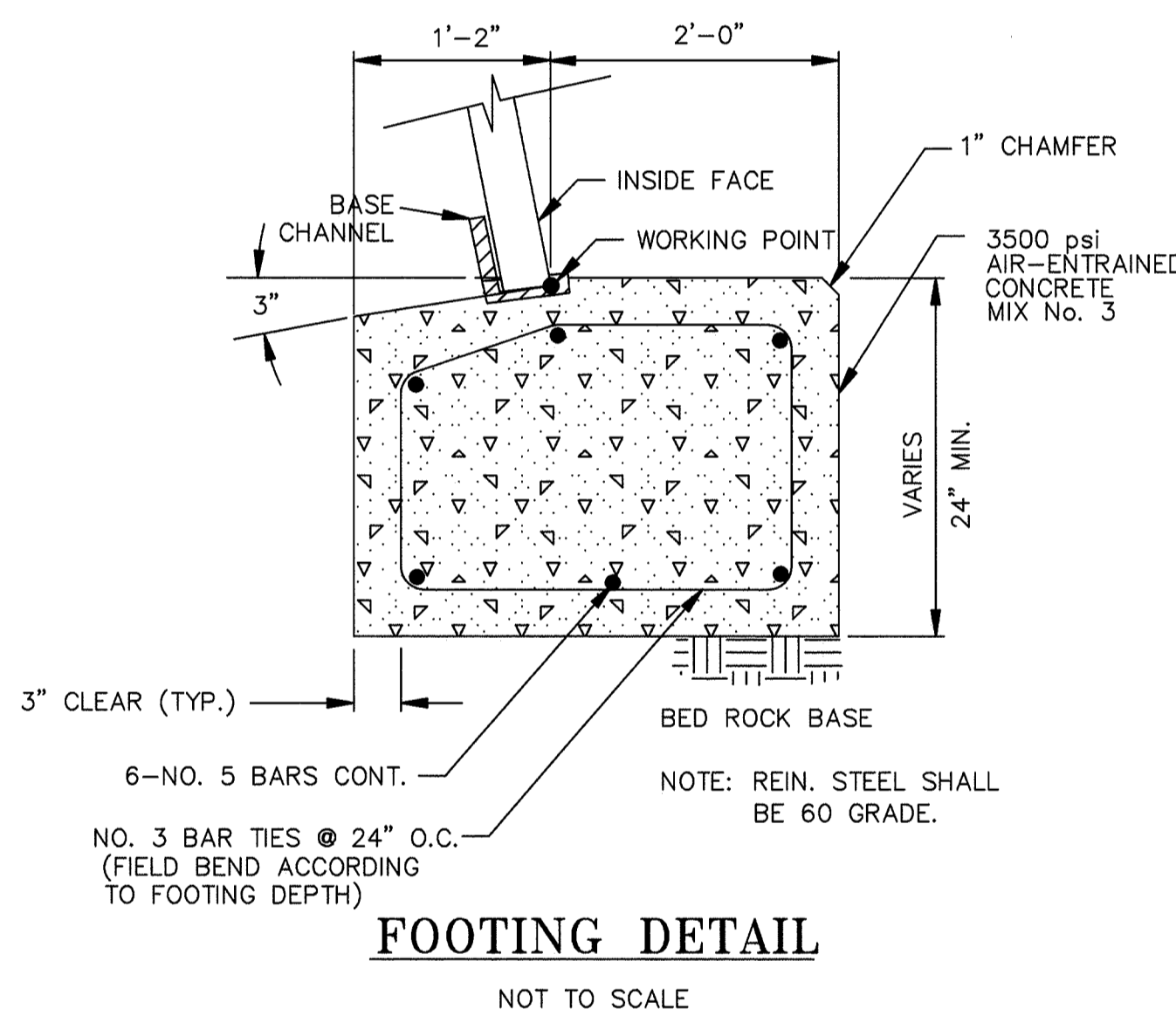
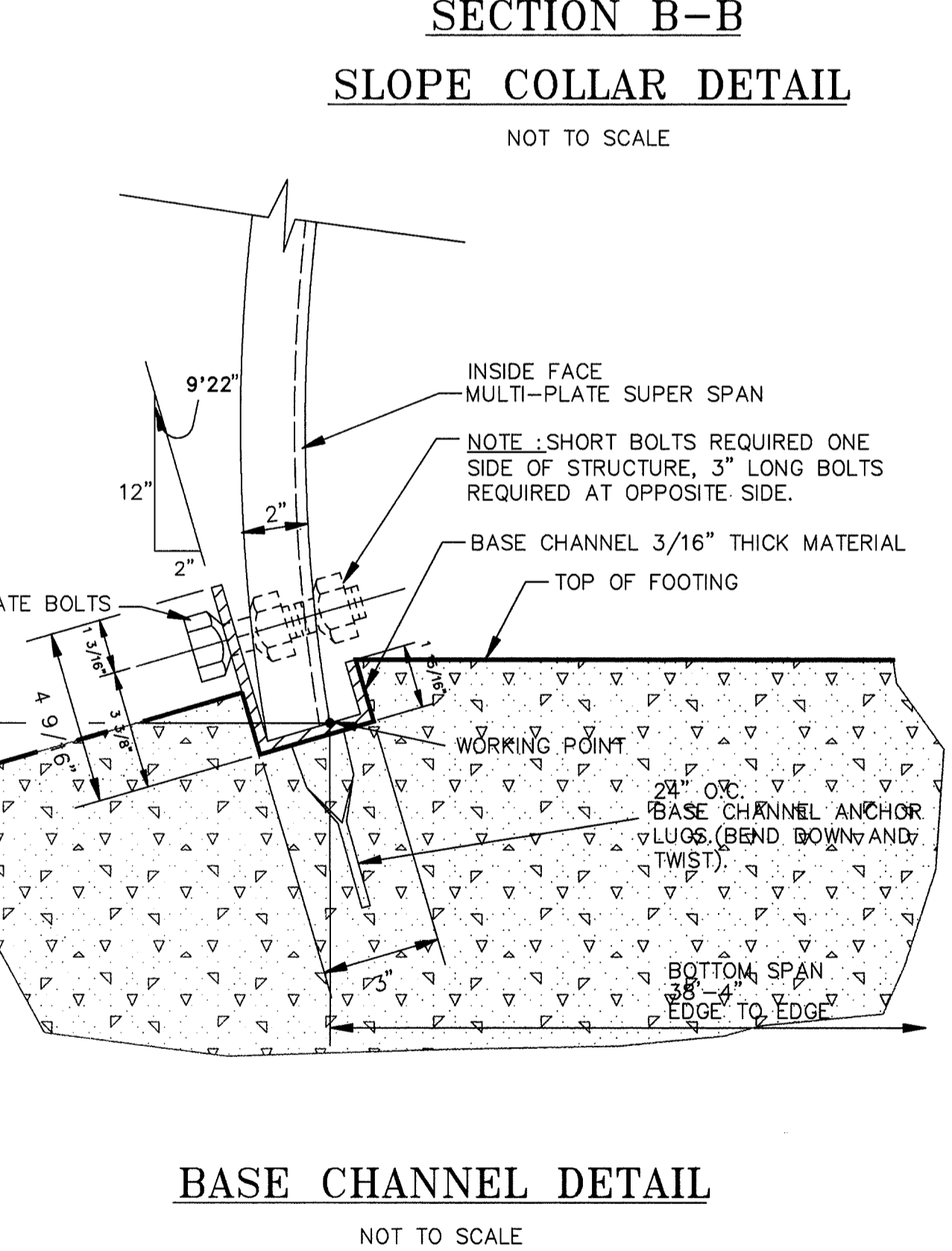
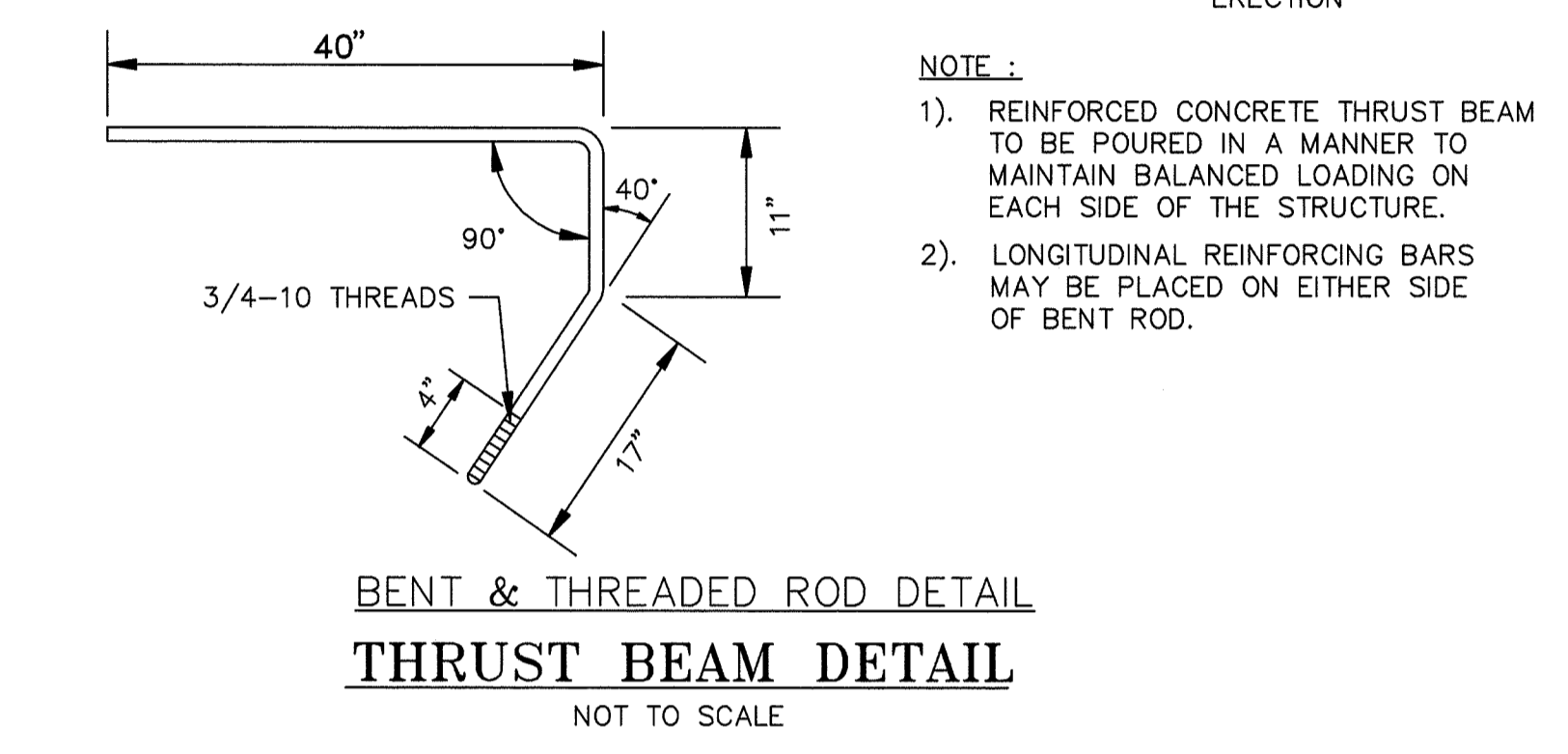
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGNED BY: R.W.S.	DRAWING No. 2 OF 5		
DRAWN BY: L.G.	SCALE: AS SHOWN		
CHECKED BY: R.M.H.	FILE No. 950672		
DATE: 5/4/95	JOB No. 95067A	DATE	REVISION

107



NOTE:
1.) ALL PLATES NO. 3 GAUGE
2.) SPAN AND RISE DIMENSIONS ARE TO THE INSIDE FACE OF SHELL.



STRUCTURAL BACKFILL MATERIAL
A granular type of material shall be used around and over the structure. This select structural backfill material shall conform to one of the following classifications of soil from AASHTO Specification M-145, as modified in the following table for A-1, A-2-4 or A-2-5. Maximum particle size shall not exceed 3 inches. For the A-2 materials, moisture content must be between -3% to +2% optimum as defined by AASHTO T-180.

- ADDITIONAL REQUIREMENTS**
1. Materials must be dense graded (open graded or gap graded materials are not allowed).
 2. Fine beach sands, windblown sands, stream deposited sands exhibiting fine, rounded particles and typically classified by AASHTO M-145 as A-3 materials are not allowed.
 3. On site mixing or blending to achieve specified gradation is not allowed.

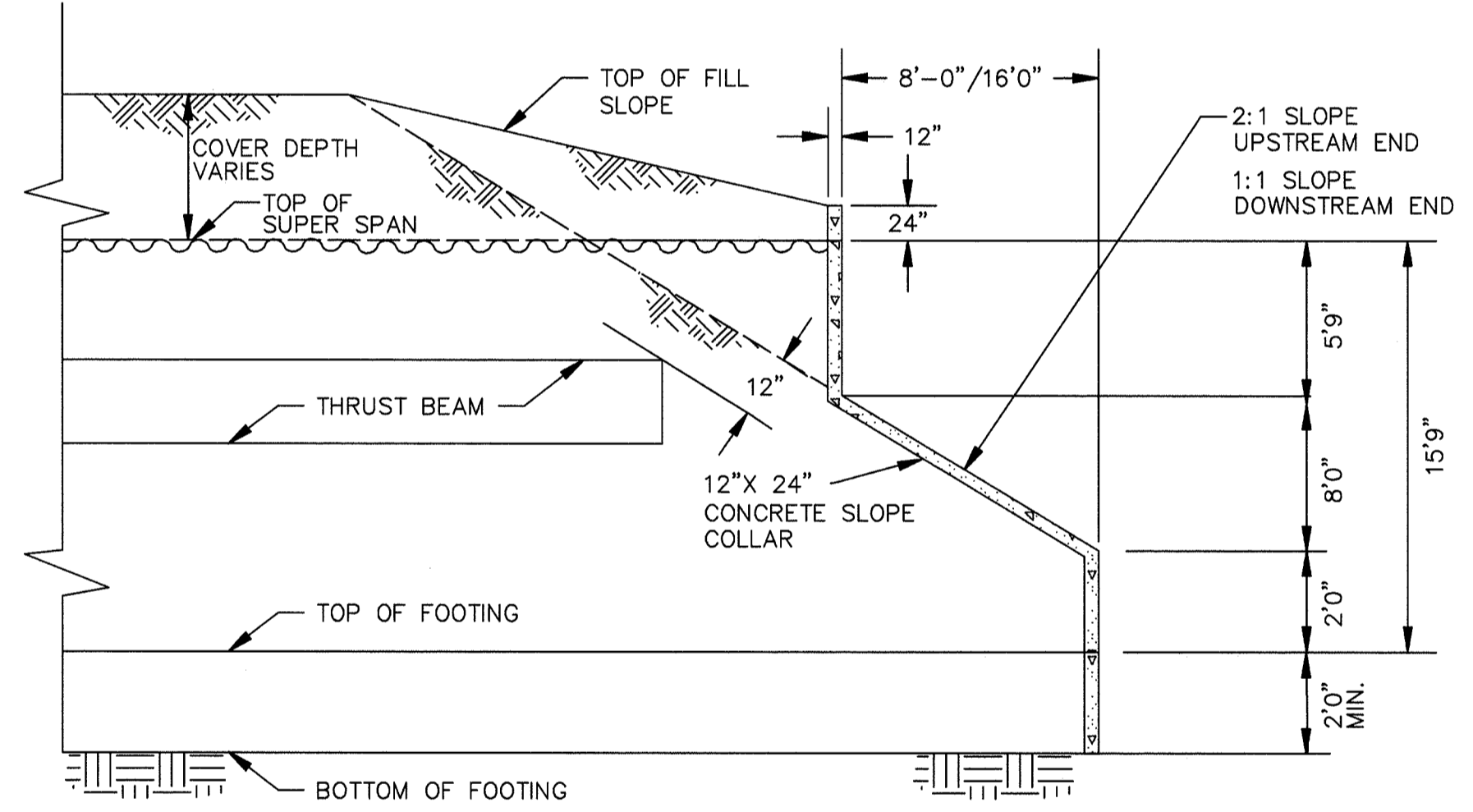
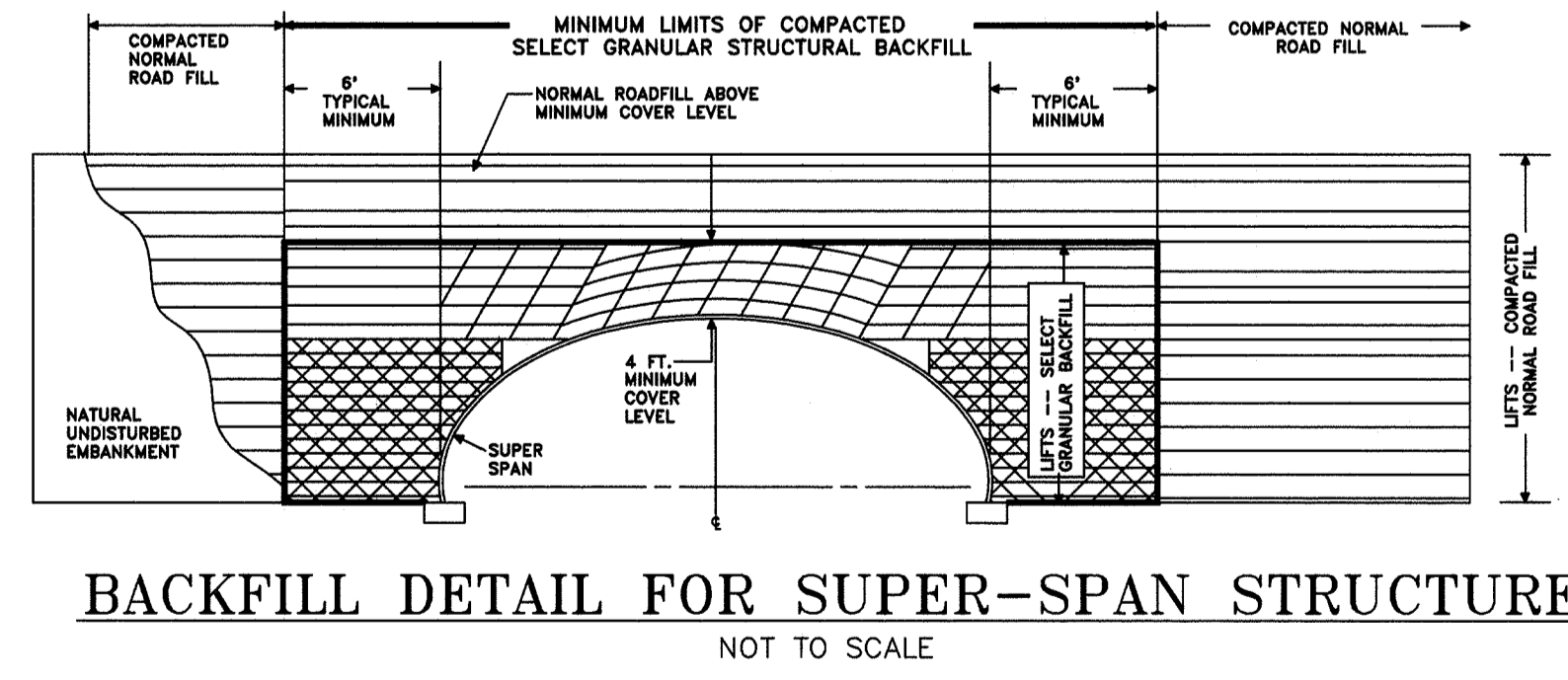
BACKFILL ENVELOPE LIMITS
The backfill envelope limits are as detailed on the plans.

BACKFILL PLACEMENT
Before backfilling, the erected structure shall meet the tolerance and symmetry requirements of AASHTO and the manufacturer.

Approved backfill material shall be placed in horizontal, uniform layers not exceeding 6" in thickness, before compaction, and shall be brought up uniformly on both sides of the structure. Each layer of backfill shall be compacted to a relative density of not less than 90%, modified proctor per AASHTO Test Method No. T-180. Field density tests of compacted backfill will be made at regular intervals during backfill.

Long span structures, due to their size and shape, are sensitive to the types and weights of equipment used to place and compact the select backfill material. This is especially critical in the areas immediately adjacent to and above the structure. Therefore, equipment types will be restricted in those critical zones. Compaction equipment or methods that produce horizontal or vertical earth pressures which cause excessive distortion or damage to structures shall not be used.

Contractors should plan to have a D4 (approximately 20,000 lbs.) or similar weight tracked dozer to place and grade backfill immediately alongside and above the structure until minimum cover level is reached. Lightweight vibratory plate or roller type compaction equipment must be used to compact the backfill in these zones. Use of heavier equipment and/or rubber tired equipment such as scrapers, graders and front end loaders will likely be prohibited inside the select fill envelope zone until appropriate minimum cover height has been obtained.



GROUP CLASSIFICATION	A-1		A-2 (Modified)	
	A-1-a	A-1-b	A-2-4	A-2-5
SIEVE ANALYSIS, PERCENT PASSING:				
NO. 10 (2.00mm)	50 MAX.	---	---	---
NO. 40 (0.425 mm)	30 MAX.	50 MAX.	---	---
NO. 100 (0.150 mm)	---	---	50 MAX.	50 MAX.
NO. 200 (0.075 mm)	15 MAX.	25 MAX.	20 MAX.	20 MAX.
CHARACTERISTICS OF FRACTION PASSING NO. 40 (0.425 mm)				
Liquid Limit	---	6 MAX.	40 MAX.	41 MIN.
Plasticity Index	---	---	10 MAX.	10 MAX.
USUAL TYPES OF SIGNIFICANT CONSTITUENT MATERIALS	STONE FRAGMENTS GRAVEL AND SAND		SILTY OR CLAYEY GRAVEL AND SAND	

101

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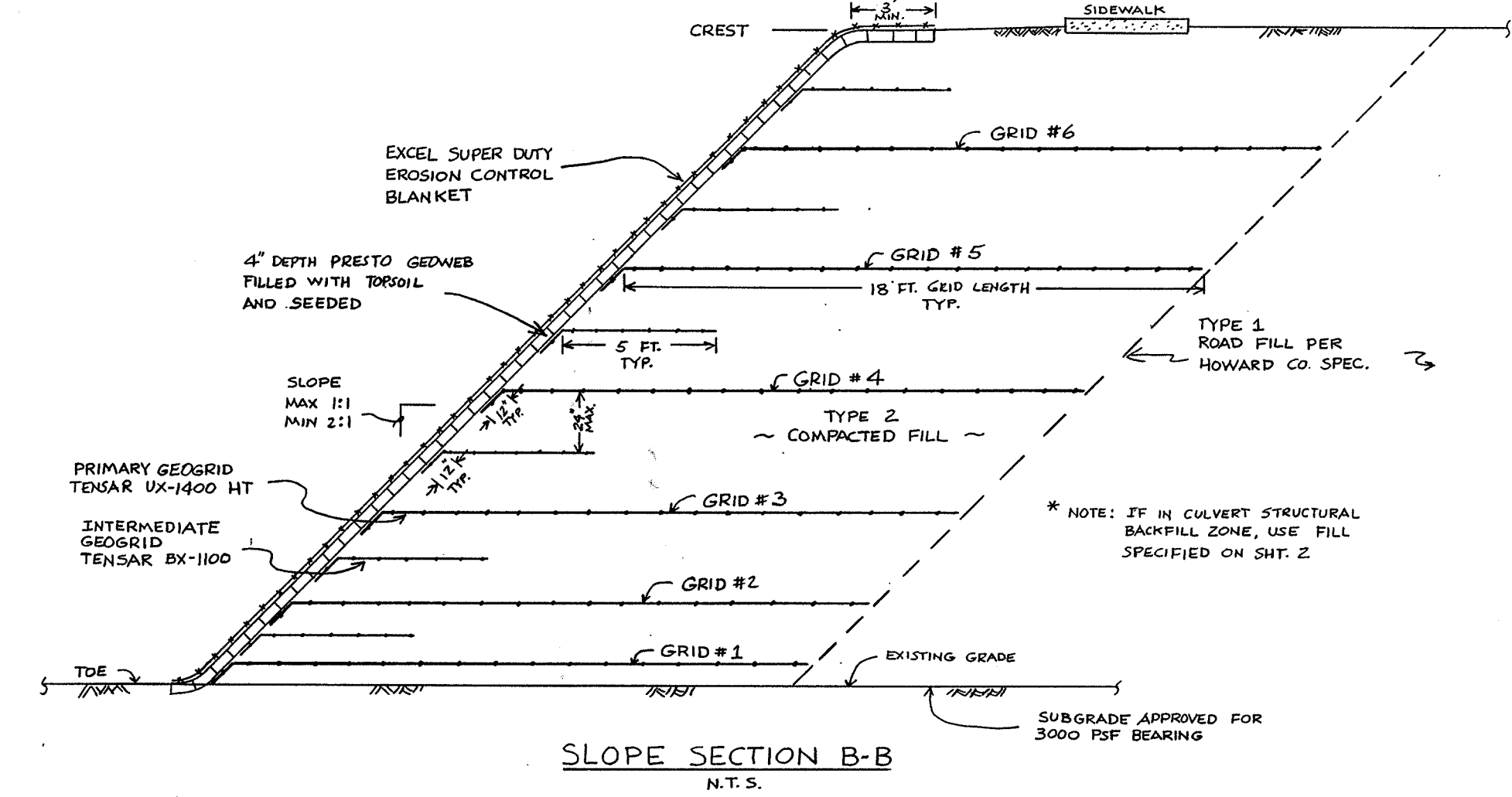
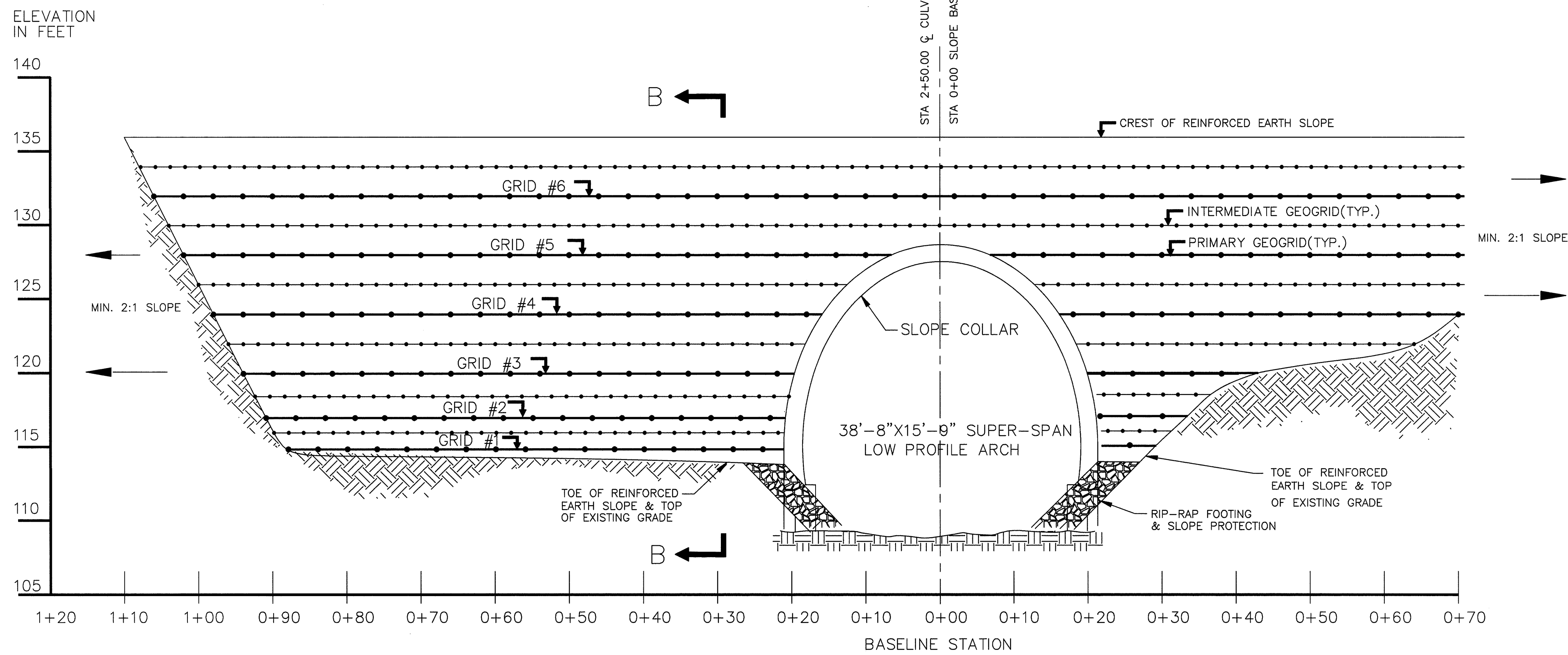
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
James P. Selva 5/15/95
Director of Public Works
Elizabeth Anderson Selva 5/12/95
Chief, Division of Roads, Bridges & Storm Drainage
William M. Soper 5/12/95
Chief, Bureau of Engineering
Cynthia M. Soper 5/15/95
Chief, Bureau of Highways

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.
U.S. Soil Conservation Service Date
This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
Howard Soil Conservation District Date

Engineers Certificate
STATE OF MARYLAND
PROFESSIONAL ENGINEER

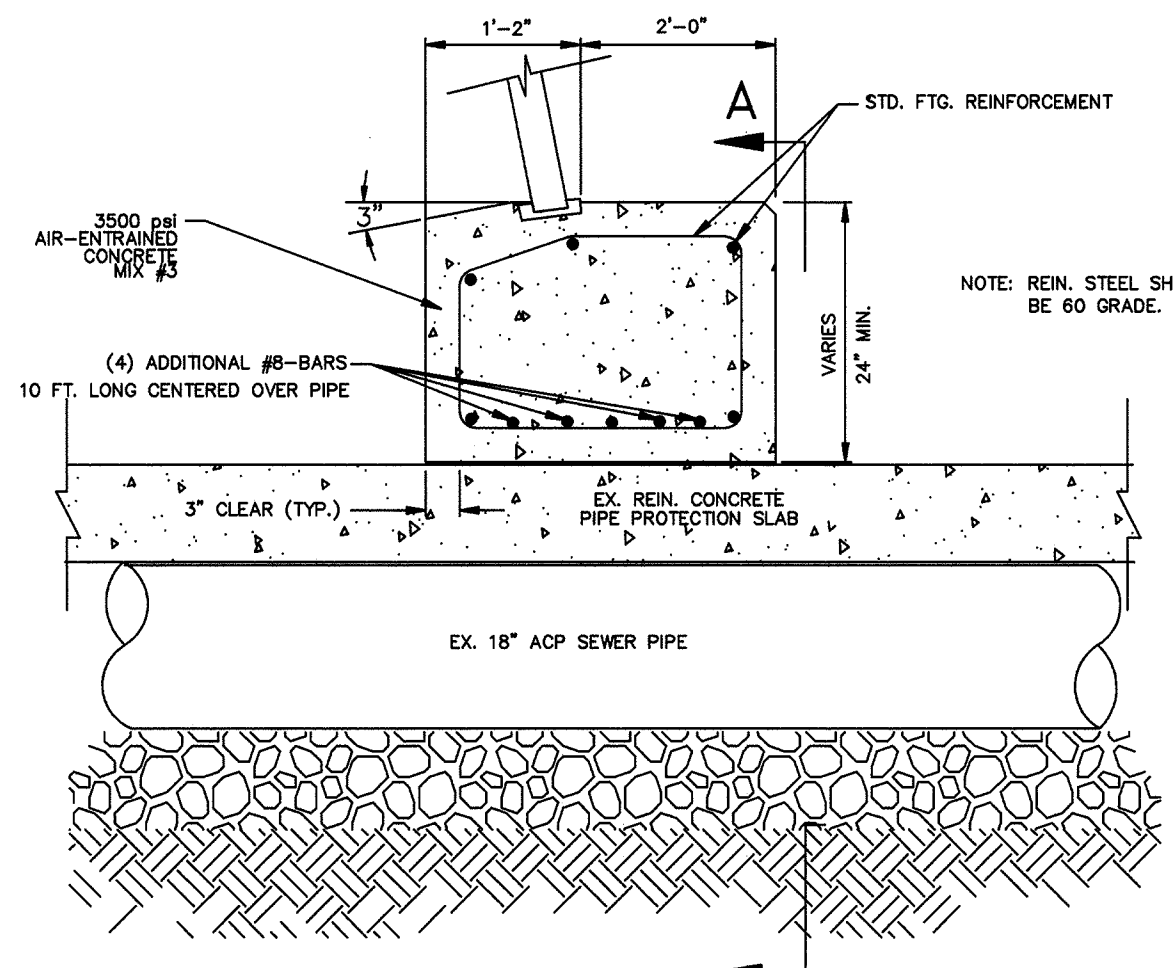
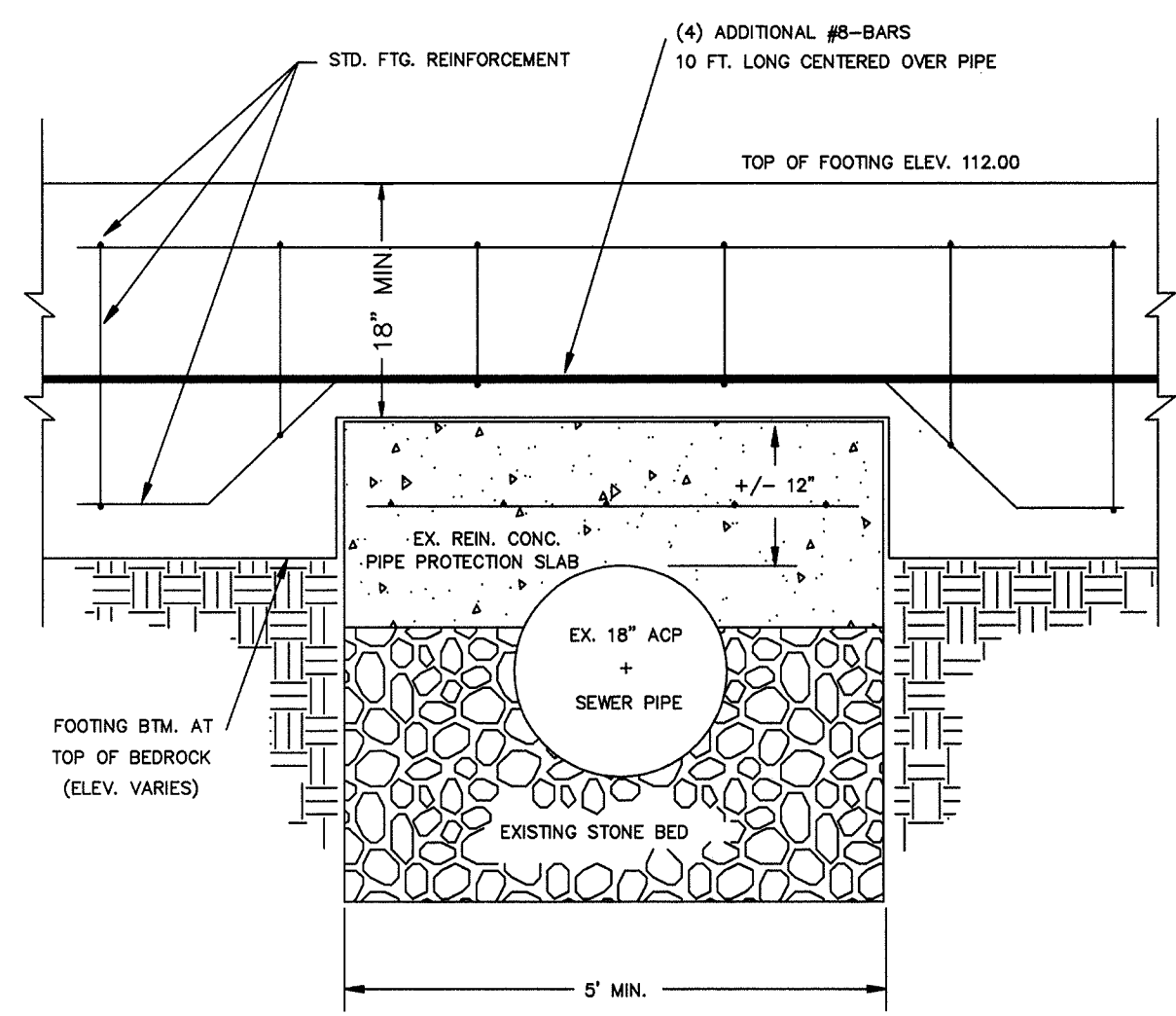
CULVERT SPAN DETAILS
DORSEY RUN ROAD
CROSSING OF DEEP RUN
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGNED BY: R.W.S.
DRAWING No.: 3 OF 5
SCALE: NONE
DRAWN BY: L.G.
CHECKED BY: R.M.H.
FILE No.: 950671
DATE: 5/4/95
JOB No.: 95067A
DATE: REVISION BY:



DOWN STREAM CULVERT END SLOPE

SCALE: VERTICAL 1" = 5'
HORIZONTAL 1" = 10'



**DETAIL A A
CULVERT FOOTING OVER
SEWER PIPE CROSSING**

- GEOGRID REINFORCED SLOPE FACING SPECIFICATIONS**
- THE GEOGRID REINFORCED SLOPE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS, ALLOWING FOR AN ADDITIONAL 12 INCHES OF TEMPORARY FACE SOIL.
 - THE CONSTRUCTED "OVER BUILT" SLOPE FACE SHALL BE TRIMMED AND SURFACE COMPACTED WITH A GRADE-ALL BUCKET EXPOSING APPROX. 12 INCHES OF GEOGRID.
 - 4 INCH DEEP GEO-WEB SLOPE PROTECTION MANUFACTURED BY PRESTO SHALL BE SECURED TO THE ENTIRE GEOGRID REINFORCED SLOPE FACE USING 16" x 4" 180° EPOXY COATED HOOKED #4 BAR ON APPROX. 4 FOOT SPACING EACH WAY INTO THE EXPOSED GEOGRID LAYERS AND AT EACH END CELL ALONG THE SLOPE CREST. EDGE CELLS OF ADJOINING GEOGRID SECTIONS SHALL BE SPICED USING #12 GAGE GALVANIZED STEEL WIRE.
 - QUALITY TOP SOIL SHALL BE USED TO COMPLETELY FILL THE GEOWEB CELLS FOR A TAMPED DEPTH OF 4 INCHES.
 - EXCEL SUPER DUTY EROSION CONTROL BLANKET SHALL BE SECURED TO THE TOPSOIL FACE USING 12 INCH 500 PINS ON 4 FOOT SPACING.
 - THE GEOGRID REINFORCED SLOPES SHALL BE HYDRO-SEEDED BEFORE PLACEMENT OF THE EROSION CONTROL BLANKET USING STANDARD MD. S.H.A. CROWN VETCH AND TEMPORARY NURSE SEED MIX FOR HIGHWAY SLOPES.
- GEOGRID INSTALLATION**
- THE PRIMARY GEOGRID SOIL REINFORCEMENT SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL IN A DIRECTION PERPENDICULAR TO THE FACE OF SLOPE. IF THE GEOGRID TO BE USED IS INTERMEDIATE BI-ORIENTED GEOGRID (SQUARE MESH), IT MAY BE ROLLED OUT PARALLEL TO THE SLOPE DIRECTION.
 - GEOGRID SHALL BE LAID AT THE PROPER ELEVATION AS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.
 - GEOGRID MAY BE SECURED IN PLACE USING STAPLES, PINS OR BACKFILL AS REQUIRED BY PROJECT CONDITIONS OR AS DIRECTED BY THE ENGINEER.
 - THE PRIMARY MONO-ORIENTED GEOGRID MAY BE PLACED SIDE BY SIDE WITHOUT OVERLAPPING. THE BI-ORIENTED GEOGRID SHALL BE OVERLAPPED A MIN. OF 6" ALONG THE EDGE IN THE DIRECTION PERPENDICULAR TO THE SLOPE FACE.
 - THE PRIMARY MONO-ORIENTED GRID SHALL BE SPICED WHERE NECESSARY USING A BODWIN SPICING BAR PROVIDED BY TENSAR.
 - THE STRUCTURAL SLOPE FILL SHALL BE PLACED IN 8 INCH LIFTS OR AS DIRECTED BY THE ENGINEER AND COMPACTED TO 95 PERCENT OF STANDARD PROCTOR. SEE PROJECT SPECIFICATIONS FOR SOIL COMPACTION ADJACENT TO CULVERT.
- SLOPE DESIGN/INSPECTION NOTES**
- STRUCTURAL SLOPE DESIGN CRITERIA IS BASED ON SOIL PARAMETERS AND SURCHARGE VALUES ALLOWING FOR A SAFETY FACTOR OF 1.5 FOR SLIDING, 2.0 FOR OVERTURNING AND 1.5 FOR GLOBAL STABILITY.
 - SAMPLES OF SOILS TO BE USED AS FILL FOR THE STRUCTURAL SLOPE SHALL BE PERIODICALLY TAKEN DURING CONSTRUCTION TO VERIFY SOIL PARAMETERS WITH THE DESIGN CRITERIA.
 - PLACEMENT OF THE STRUCTURAL SLOPE FILL SHALL BE PERFORMED UNDER THE OBSERVATION OF A MARYLAND REGISTERED PROFESSIONAL GEOTECHNICAL ENGINEER. UPON COMPLETION OF THE WORK, THE ENGINEER SHALL SUBMIT TO HOWARD CO. A SIGNED AND SEALED REPORT STATING THAT THE STRUCTURAL SLOPE WAS CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

HILLIS-CARNES
ENGINEERING ASSOCIATES, INC.
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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works
Chief, Division of Roads, Bridges & Storm Drainage
Chief, Bureau of Engineering
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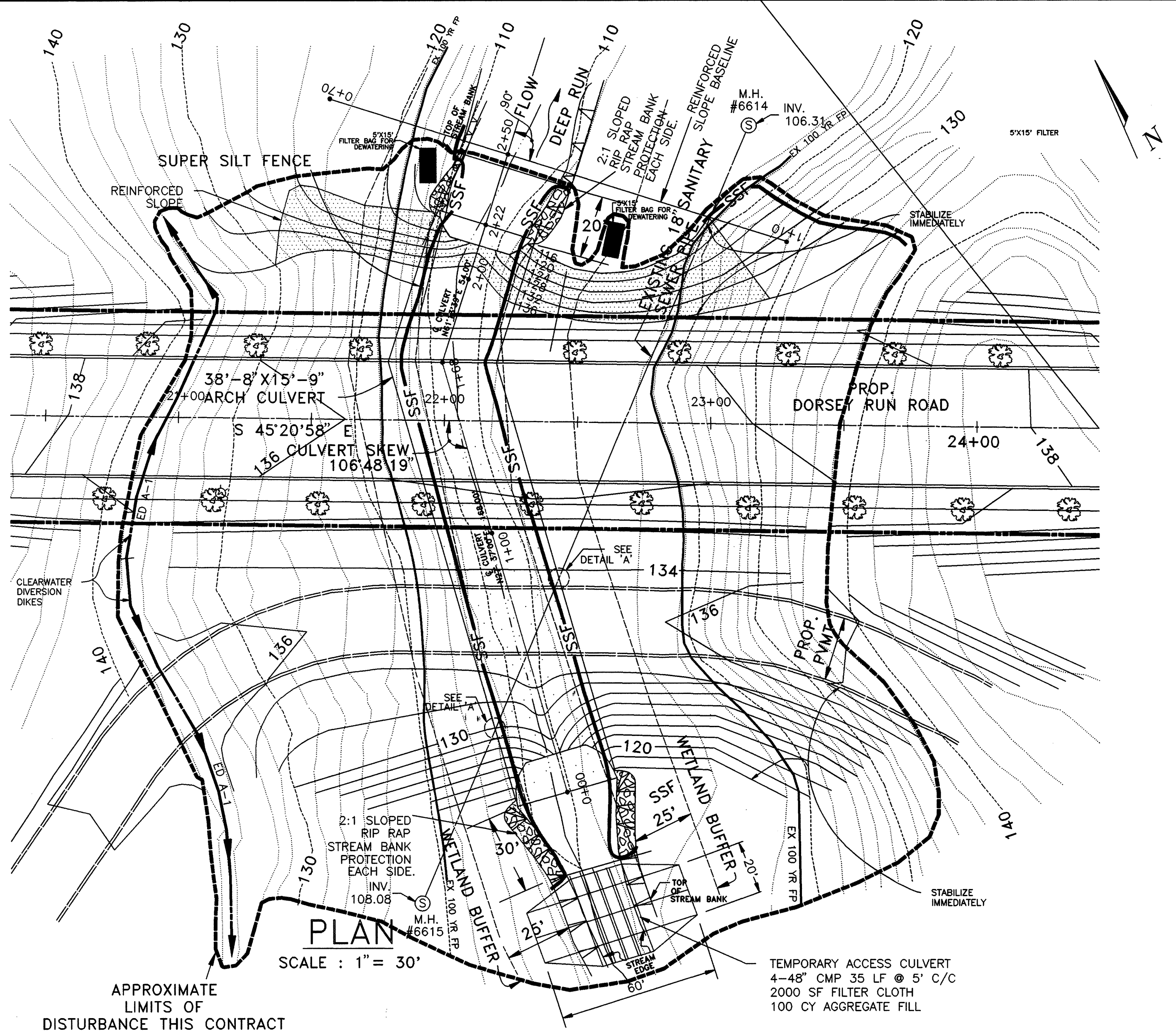
These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.
U.S. Soil Conservation Service
This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
Howard Soil Conservation District

Engineers Certificate
STATE OF MARYLAND
PROFESSIONAL ENGINEER

REINFORCED END SLOPE DETAIL
DORSEY RUN ROAD
CROSSING OF DEEP RUN
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGNED BY: R.W.S.	DRAWING No. 4 OF 5		
DRAWN BY: L.G.	SCALE: AS SHOWN		
CHECKED BY: R.M.H.	FILE No. 95067C2		
DATE: 5/4/95	JDB No. 95067A	DATE	REVISION

107



- HOWARD SOIL CONSERVATION DISTRICT
STANDARD SEDIMENT CONTROL NOTES
- A minimum of 48 hours notice must be given to the Howard County Department of Inspections, Licenses and Permits, Sediment Control Division prior to the start of any construction. (380-3450).
 - All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the most current "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL," and revisions thereto.
 - Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within: a) 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1, b) 14 days as to all other disturbed or graded areas on the project site.
 - All sediment traps/basins shown must be fenced and warning signs posted around their perimeter in accordance with Vol. 1, Chapter 12, of the HOWARD COUNTY DESIGN MANUAL, Storm Drainage.
 - All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seeding (Sec. 51), sod (Sec. 54), temporary seeding (Sec. 50), and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses. All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
 - Site Analysis:
Total Area of Site 1.8 Acres
Area Disturbed 1.6 Acres
Area to be roofed or paved 0 Acres
Area to be vegetatively stabilized 1.6 Acres
Total Fill 19,000 Acres
Offsite waste/borrow area location N/A (Balanced Site)
 - Any sediment control practice which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance. Additional sediment control must be provided, if deemed necessary by the Howard County Sediment Control Inspector.
 - On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
 - Trenches for the construction of utilities is limited to three pipe lengths or that which can be back filled and stabilized within one working day, whichever is shorter.

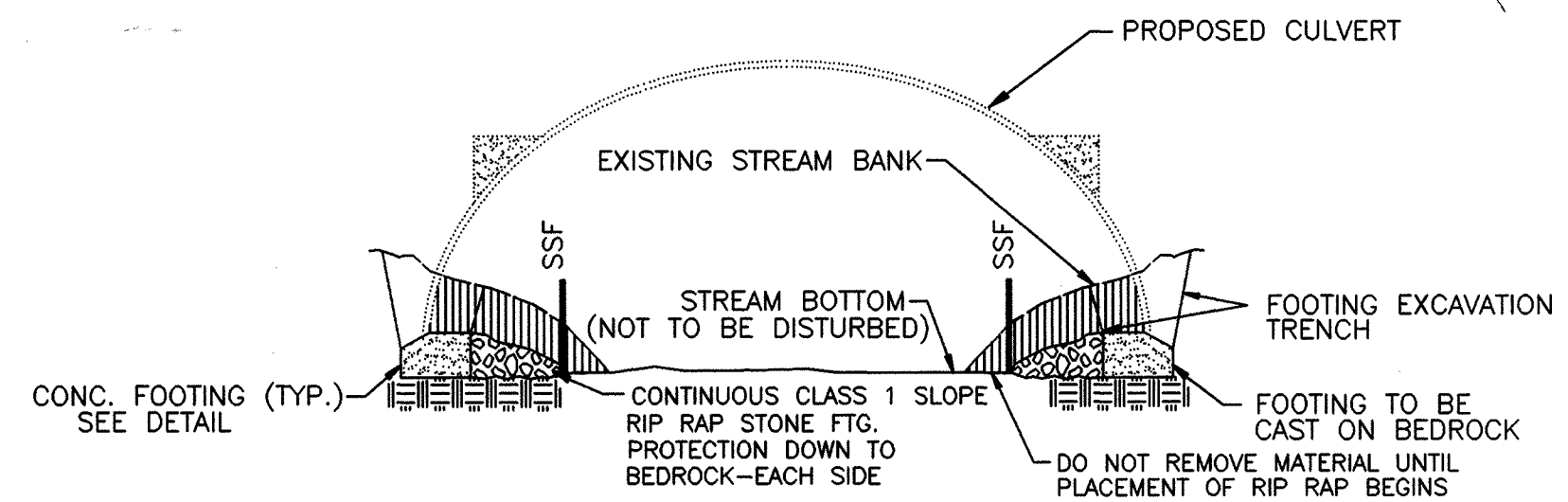
- HOWARD SOIL CONSERVATION DISTRICT
PERMANENT SEEDING NOTES
- Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.
- SEEDBED PREPARATION: Loosen upper three inches of soil by raking, disking, or other acceptable means before seeding, if not previously loosened.
- SOIL AMENDMENTS: In lieu of soil test recommendations, use one of the following schedules:
- PREFERRED -- Apply 2 tons per acre dolomitic limestone (92 lbs/1000sq. ft.) and 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil. At time of seeding, apply 400 lbs per acre 30-0-0 ureaform fertilizer (9 lbs/1000sq. ft.)
 - ACCEPTABLE -- Apply 2 tons per acre dolomitic limestone (92 lbs/1000sq. ft.) and 1000 lbs per acre 10-10-10 fertilizer (23 lbs/1000 sq. ft.) before seeding. Harrow or disk into upper three inches of soil.
- SEEDING -- For the periods March 1 thru April 30, and August 1 thru October 15, seed with 2-12 bushels per acre of annual ryegrass (3.2 lbs/1000sq. ft.). For the period May 1 thru August 31, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs/1000sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.
- MULCHING -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.
- MAINTENANCE -- Inspect all seeding areas and make needed repairs, replacements and reseeding.

- TEMPORARY SEEDING NOTES
- Apply to graded or cleared areas likely to be redisturbed where a short-term vegetative cover is needed.
- SEEDBED PREPARATION: -- Loosen upper three inches of soil by raking, disking, or other acceptable means before seeding, if not previously loosened.
- SOIL AMENDMENTS: -- Apply 600 lbs per acre 10-10-10 fertilizer (14 lbs/1000sq. ft.).
- SEEDING -- For periods March 1 thru April 30, and from August 15 thru October 15 seed with 2-12 bushels per acre of annual ryegrass (3.2 lbs/1000sq. ft.). For the period May 1 thru August 14, seed with 3 lbs. per acre of weeping lovegrass (.07 lbs/1000sq. ft.). For the period November 16 thru February 28, protect site by applying 2 tons per acre of well anchored straw mulch and seed as soon as possible in the spring, or use sod.
- MULCHING -- Apply 1-1/2 to 2 tons per acre (70 to 90 lbs/1000sq. ft.) of unrotted weed free small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 218 gallons per acre (5 gal/1000sq. ft.) of emulsified asphalt on flat areas. On slopes 8 feet or higher, use 348 gallons per acre (8 gal/1000sq. ft.) for anchoring.
- Refer to the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for additional rates and methods not covered.

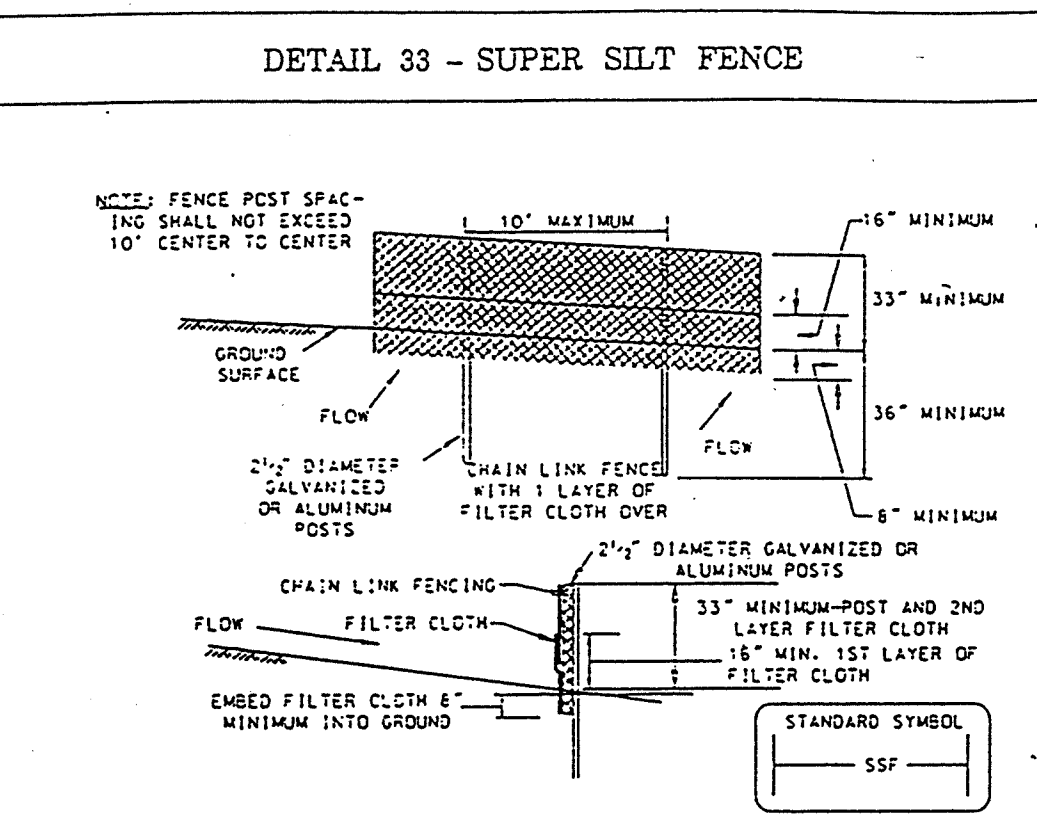
APPROXIMATE LIMITS OF DISTURBANCE THIS CONTRACT

CULVERT CONSTRUCTION SEQUENCE

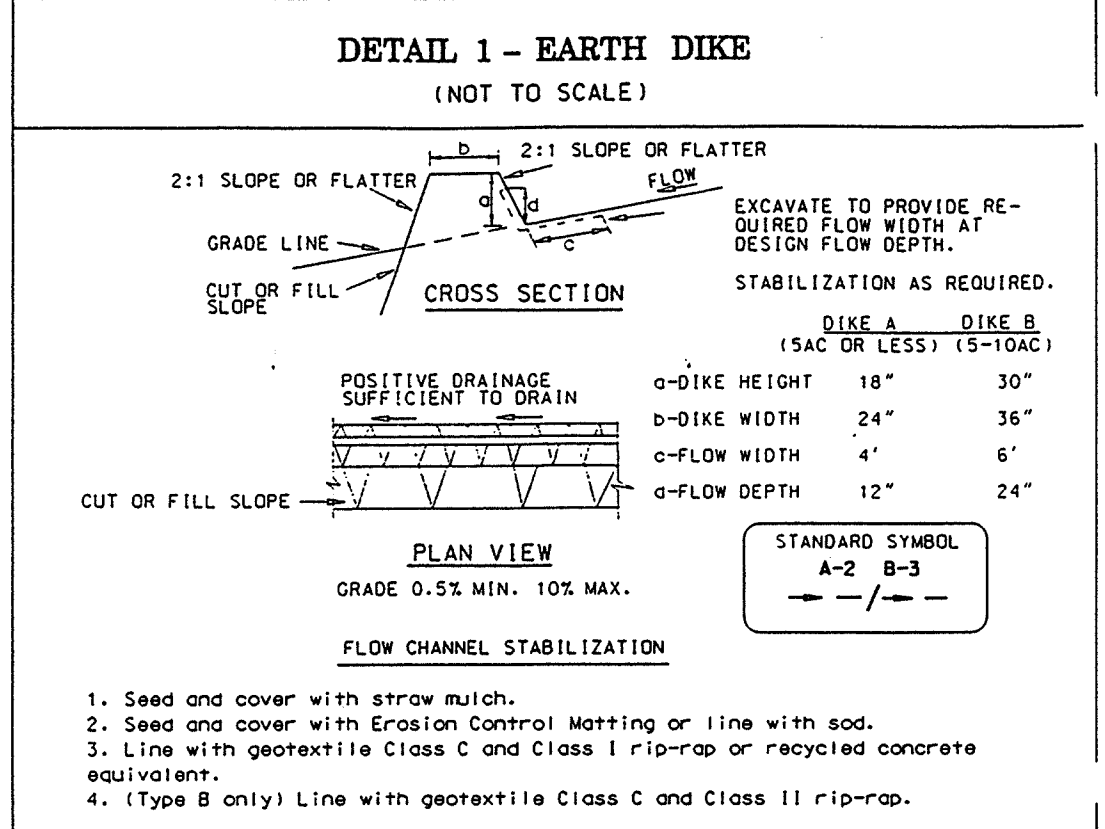
- OBTAIN GRADING PERMIT. (1 DAY)
WRA PERMIT # NTW 893-NI-0547
TRACKING # 09036395
- INSTALL STABILIZED CONSTRUCTION ENTRANCE, UNLESS EXISTING ONE IS USED.
- STAKEOUT LIMITS OF DISTURBANCE. (1 DAY)
- WALK LIMITS OF DISTURBANCE WITH PROJECT FORESTER AND ADJUST LIMITS AS REQUIRED. (1 DAY)
- INSTALL SUPER SILT FENCE AT LIMIT OF DISTURBANCE WHERE SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR.
- INSTALL TEMPORARY STREAM CROSSING (ONE WEEK)
- EXCAVATE SUPER-SPAN CULVERT FOOTINGS DOWN TO BEDROCK AT THE REQUIRED ELEVATION. PLACE FOOTING FORMS AND REINFORCEMENT AND CAST CONCRETE FOOTING ONTO CLEAN BEDROCK SURFACE USING THE TREMIE METHOD WHEN NECESSARY. DEWATER AS REQUIRED USING A 100 G.P.M. PUMP INTO FILTER BAGS.
- REMOVE OVER BURDEN MATERIAL ABOVE STREAM BED LEVEL ALONG INTERIOR OF CULVERT AND INSTALL CONTINUOUS RIP RAP. (ONE WEEK)
- CONSTRUCT SUPER-SPAN CULVERT STRUCTURE SHELL. (1 WEEK)
- PLACE AND COMPACT CULVERT STRUCTURE FILL AND ADJACENT ROAD EMBANKMENT FILL IN ACCORDANCE WITH THE SPECIFICATIONS AND LIMITS OF DISTURBANCE SHOWN ON THE PLAN. SIMULTANEOUSLY CONSTRUCT THE GEGRID REINFORCED SLOPE AND CULVERT SLOPE COLLARS AS SHOWN. (4 WEEKS)
- COMPLETE GRADING WORK AND STABILIZE DISTURBED AREAS WITH SEED AND MULCH. DISTURBED GROUND STABILIZATION SHALL BE PERFORMED IN ACCORDANCE WITH SHA STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS SECTION 704 - TEMPORARY SEEDING SECTION 705 - TURF ESTABLISHMENT SECTION 920 - LANDSCAPING CROWN VETCH SHALL BE ADDED TO SHA SEED MIX #1 FOR ALL SLOPES STEEPER THAN 3:1 PER SUBSECTION 705.01.01. AFTER PERMISSION HAS BEEN GIVEN BY THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL SILT FENCE AND STABILIZE ANY REMAINING DISTURBED AREAS WITH SEED AND MULCH. (2 DAYS)
- REMOVE TEMPORARY ACCESS CULVERT, BEDDING AND/OR FILTER CLOTH, RESTORE ORIGINAL GROUND SECTION AND STABILIZE. (14 DAYS MAXIMUM)
- THE CONTRACTOR SHALL INSPECT AND PROVIDE NECESSARY MAINTENANCE ON THE SEDIMENT AND EROSION CONTROL STRUCTURES SHOWN OR REFERRED TO HEREIN IMMEDIATELY AFTER EACH RAINFALL ON A DAILY BASIS.



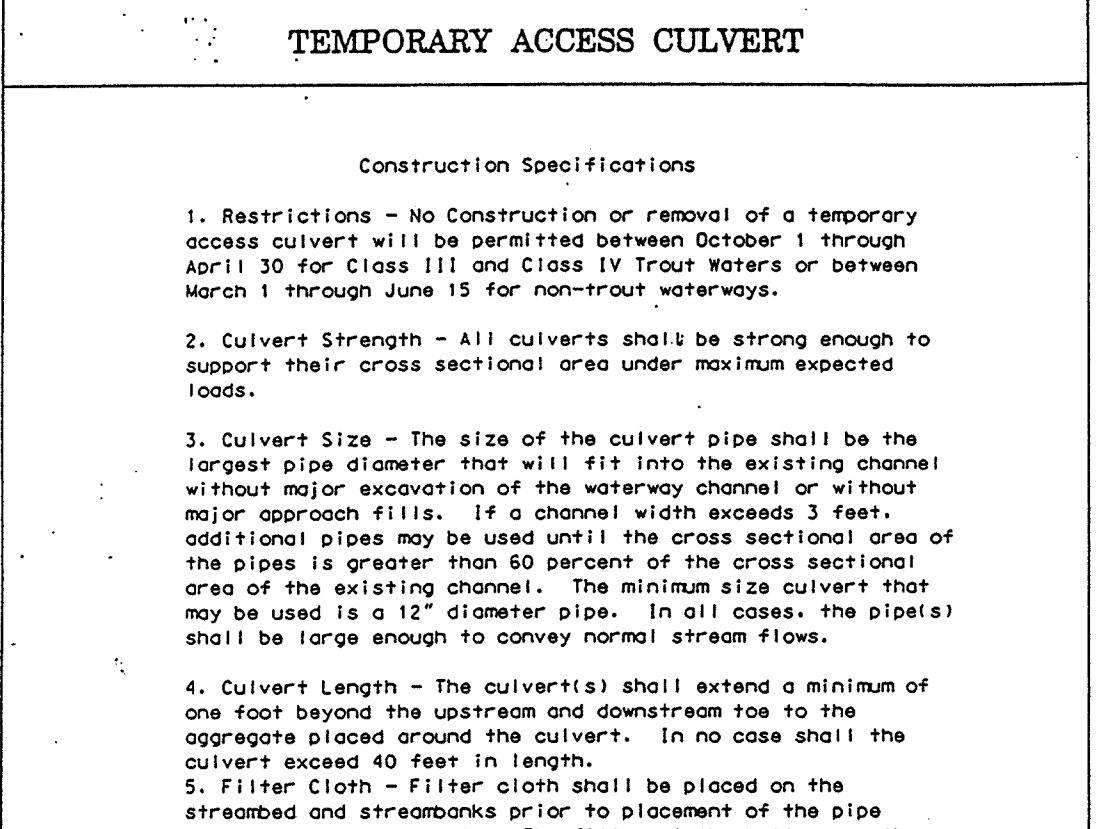
NOTE: STREAM CLOSURE DATE PER DNR REGULATION
MARCH 1ST THRU JUNE 15TH



- Construction Specifications
- Fencing shall be 42 inches in height and constructed in accordance with the latest Maryland State Highway Details for Chain Link Fencing. The specification for a 6 foot fence shall be used, substituting 42 inch fabric and 6 foot length posts.
- The poles do not need to set in concrete.
 - Chain link fence shall be fastened securely to the fence posts with wire ties or staples.
 - Filter cloth shall be fastened securely to the chain link fence with ties spaced every 24" at the top and mid section.
 - Filter cloth shall be embedded a minimum of 6" into the ground.
 - When two sections of filter cloth adjoin each other, they shall be overlapped by 6" and fastened.
 - Maintenance shall be performed as needed and silt buildups removed when "bulges" develop in the silt fence.



- Construction Specifications
- All temporary earth dikes shall have uninterrupted positive grade to an outlet. Spot elevations may be necessary for grades less than 1%.
 - Runoff diverted from an disturbed area shall be conveyed to a sediment trapping device.
 - Runoff diverted from an undisturbed area shall outlet directly into an undisturbed stabilized area at a non-erosive velocity.
 - All trees, brush, stumps, obstructions, and other objectional material shall be removed and disposed of so as not to interfere with the proper functioning of the dike.
 - The dike shall be excavated or shaped to line, grade and cross section as required to meet the criteria specified herein and be free of bank projections or other irregularities which will impede normal flow.
 - Fill shall be compacted by earth moving equipment.
 - All earth removed and not needed on construction shall be placed so that it will not interfere with the functioning of the dike.
 - Inspection and maintenance must be provided periodically and after each rain event.



- Construction Specifications
- Restrictions - No Construction or removal of a temporary access culvert will be permitted between October 1 through April 30 for Class III and Class IV Trout waters or between March 1 through June 15 for non-trout waterways.
 - Culvert Strength - All culverts shall be strong enough to support their cross sectional area under maximum expected loads.
 - Culvert Size - The size of the culvert pipe shall be the largest pipe diameter that will fit into the existing channel without major excavation of the waterway channel or without major approach fills. If a channel width exceeds 3 feet, additional pipes may be used until the cross sectional area of the pipes is greater than 60 percent of the cross sectional area of the existing channel. The minimum size culvert that may be used is a 12" diameter pipe. In all cases, the pipes shall be large enough to convey normal stream flows.
 - Culvert Length - The culvert(s) shall extend a minimum of one foot beyond the upstream and downstream toe to the aggregate placed around the culvert. In no case shall the culvert exceed 40 feet in length.
 - Filter Cloth - Filter cloth shall be placed on the streambed and streambanks prior to placement of the pipe culvert(s) and aggregate. The filter cloth shall cover the streambed and extend a minimum six inches and a maximum one foot beyond the end of the culvert and bedding material. Filter cloth reduces settlement and improves crossing stability.
 - Culvert Placement - The invert elevation of the culvert shall be installed on the natural streambed grade to minimize interference with fish migration (free passage of fish).
 - Culvert Protection - The culvert(s) shall be covered with a minimum of one foot of aggregate. If multiple culverts are used they shall be separated by at least 12" of compacted aggregate fill. At a minimum, the bedding and fill material used in the construction of the temporary access culvert crossings shall conform with the aggregate requirements cited in Section 1.H.1, above.
 - Stabilization - All areas disturbed during culvert installation shall be stabilized within 14 calendar days of the disturbance in accordance with the Standard for "Critical Area Stabilization with Permanent Seeding."

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works
6/19/95
6/19/95
6-21-95

These plans have been reviewed for the Howard Soil Conservation District and meet the technical requirements.
Natural Resources Conservation Service
This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.

DEVELOPERS CERTIFICATE
I certify that all development and construction will be done according to this plan of development and plan for erosion and sediment control and that all responsible personnel involved in the construction project have a certification of attendance at a Maryland Department of Environment approved training program for the periodic on-site inspection by the Howard Soil Conservation District or their authorized agents, as are deemed necessary.
6/22/95
6/19/95
6/19/95

Engineers Certificate
STATE OF MARYLAND
PROFESSIONAL ENGINEER
6/19/95

SEDIMENT AND EROSION CONTROL DETAIL
DORSEY RUN ROAD CROSSING OF DEEP RUN
1ST ELECTION DISTRICT HOWARD COUNTY, MARYLAND

DESIGNED BY: R.W.S.	DRAWING No: 5 OF 5				
DRAWN BY: L.G.	SCALE: NONE				
CHECKED BY: R.M.H.	FILE No: 950675				
DATE: 6/16/95	JOB No: 95067A				
	DATE		REVISION		BY