APPENDIX G

VDOT Road Design Manual Excerpts

Section A-7
"No Plan" and "Minimum Plan Projects"
Pages A-113 to A-124

SECTION A-7-"NO PLAN" AND "MINIMUM PLAN" PROJECTS

GENERAL CONCEPTS

Description

The "No Plan" and "Minimum Plan" concepts provide for the accomplishment by contract of the type improvements that would not require complete and detailed surveys and plans, and where the use of standard Specifications would be appropriate. Generally, the improvements will consist of widening, grading, draining and stabilizing primary and secondary roads with relatively low traffic volumes by using engineering judgment. "No Plan" and "Minimum Plan" concepts are to be used only for projects where significant reductions in the cost of engineering, and construction can be experienced by using these concepts to obtain the quality of improvement necessary for the particular situation. To optimize the usefulness of this concept, very careful initial study and project selection by the District and Residency staff is required. The Federal Highway Administration has concurred with the use of the "No Plan" and "Minimum Plan" concept on selected projects with Federal Oversight.

"No Plan" projects are used when–minimal survey is required to accomplish engineering, right of way and construction stakeout, and no major hydraulic analysis or river mechanics studies are needed. Right of way may be acquired on "No Plan" projects provided it is acquired through donations and no condemnation is required. A "No Plan" contract contains an assembly of letter size sketches showing the location of the project with a typical cross section and estimated quantities.

A "Minimum Plan" project requires survey and topo to provide sufficient right of way plans necessary for the acquisition of right of way by the Right of Way Division and plan, profile and cross section sheets are to be provided. In the establishment of such projects, attention should be given to determine that the project location and selection is in an area where disruption due to construction can be tolerated by the users of that particular roadway for a reasonable period of time.

PUBLIC HEARING AND RIGHT OF WAY

All right of way negotiations are to be conducted in accordance with the applicable statutes, regulations, policies, and procedures stipulated in the Right of Way Division's Manual of Instructions and related memoranda.

Deleted Information*

* Rev. 2/10

For “No Plan” projects any required right of way and/or easements will normally be secured by donation provided no condemnation is required. However, right of way may be purchased by individual deeds or under the “Minimum Plan” concept (See - second paragraph under "Minimum Plan" Projects). Right of Way Division will issue a Notice to Proceed on “No Plan” projects when incidental costs, such as fencing, shrubbery, etc. occur. Activity 52 should be added to iPM because of the costs.*

The Commonwealth Transportation Board's resolution of February 16, 1961 specifies a minimum 40-foot right of way is to be provided for any initial improvement to the secondary system, except in extenuating circumstances.

Section 33.1 - 70.1, Code of Virginia permits consideration for hard surfacing of a secondary road on less than a 40-foot right of way.

Right of Way - Donations

Public hearing requirements will normally be waived on "No Plan" and "Minimum Plan" projects when all landowners are willing to donate the right of way provided there is no evidence of controversy, the landowners have been advised of their right to receive just compensation prior to requesting donations, and the project files have been so documented.

Right of Way - Acquisitions

On “Minimum Plan” projects when right of way must be acquired, a "Willingness to Hold a Public Hearing" will be advertised and public hearings will be conducted upon request. A public hearing handout and appropriate environmental document, on projects with Federal Oversight, will be prepared following the usual guidelines. If there are questions concerning the public hearing requirements or procedures, check with the State Location and Design Engineer.

SPECIAL DESIGN STRUCTURES, SOIL SURVEY AND PAVEMENT DESIGN

"No Plan" projects may include drainage structures; however, major structures with "B" or "D" designation numbers and all standard box culverts and/or major channel modifications that require a hydraulic study are to be constructed under the "Minimum Plan" concept. When pipes are to be extended and endwalls, end sections, pipe spillouts, etc., are to be provided, separate bid items are to be set up.

The District Materials section is to review the project site to determine if soil samples may be necessary The District Materials Engineer is to furnish recommendations regarding any undercutting or pipe bedding requirements and pavement design.

* Rev. 7/09

MOBILIZATION AND FIELD OFFICE

Mobilization is to be set up as a contract item on "No Plan" and "Minimum Plan" projects in accordance with VDOT's Road and Bridge Specifications.

When it is necessary to set up a field office, it is set up as a contract item in accordance with VDOT's Road and Bridge Specifications at the discretion of the District; however, other arrangements should be considered such as the use of existing facilities where feasible to eliminate the need for the extra cost of a field office.

DRAINAGE FACILITIES AND EROSION AND SEDIMENT CONTROL MEASURES

For all land disturbance activities that disturb an area equal to or greater than 10,000 square feet or 2,500 square feet or greater in Tidewater Virginia** an Erosion and Sediment Control (ESC) Plan and a Stormwater Pollution Prevention Plan (SWPPP) must be prepared and included in the contract documents. The appropriate notes on the SWPPP General Sheets must be completed and the SWPPP General Information Sheets must be included in the plan set or other such contract documents. Guidelines for developing and approving an ESC Plan are contained in the latest version of IIM-LD-11. Guidelines for completing the SWPPP General Information Sheets are contained in the latest version of IIM-LD-246.*

Temporary and permanent erosion and sediment control measures are required in accordance with the Department's approved ESC and SWM Standards and Specifications. Plan details must accompany any plan narrative and shall denote the type and location of proposed erosion and sediment control measures.

Seeding operations, erosion, and sedimentation control measures shall be included as specific contract items in accordance with standard specifications and procedures or shall be performed by State Forces, at the discretion of the District. When seeding operations and other items are to be performed by State Forces, a plan note must be included to denote such State Force work; and, in the event of Federal Funding, finding of cost effectiveness must be furnished in accordance with existing policy and procedures. All drainage facilities shall be designed in accordance with the appropriate design criteria noted in the VDOT Drainage Manual and shall comply with Minimum Standard 19 of the Virginia Erosion and Sediment Control Law and Regulations.

** Tidewater, VA, as defined by the Virginia Chesapeake Bay Preservation Act, Title 10.1, Chapter 21, Code of Virginia.

* Rev. 1/10

POST CONSTRUCTION STORMWATER MANAGEMENT PLAN AND VSMP CONSTRUCTION PERMIT

For all land disturbance activities that disturb an area equal to or greater than one acre or 2,500 square feet or greater in an area locally designated as a Chesapeake Bay Preservation Area, a post construction stormwater management plan and coverage under the Virginia Stormwater Management Program (VSMP) Construction Permit are required. For routine maintenance activities, the land disturbance threshold is 5 acres (see the latest version of IIM-LD-242 for additional information).*

Permanent Stormwater management facilities may be addressed in a similar fashion as the erosion and sediment control facilities provided sufficient detail is included to ensure their proper construction. Any Plan Narrative or details will also become part of the contract assembly. The appropriate notes on the SWPPP General Sheets must be completed and the SWPPP General Information Sheets must be included in the plan set or other such contract documents. Guidelines for developing and approving a post construction SWM Plan are contained in the latest version of IIM-LD-11 and 195. Guidelines for completing the SWPPP General Information Sheets are contained in the latest version of IIM-LD-246. Guidelines for applying for VSMP Construction permit coverage are contained in the latest version of IIM-LD-242.

CONTRACT TIME LIMIT

Generally, a fixed contract completion date should be established. However, the contract time limit should be determined after thorough consideration of the need to realize the lowest cost possible to provide the improvement at the earliest practical date.

PROCEDURES

General Description of Work

A general description of the work must be provided on Form C-99 (No Plan and Minimum Plan Quantity Support Report) and the Project Narrative to denote the nature of the work to be performed, such as daylighting of slopes; realignment; intersection improvement; or widening of shoulders and ditchlines are to be completed by the District Construction Engineer or the District Administrator's Staff. "Simple" sketches may be used in lieu of the narrative. They are to be submitted with the project assembly for the purpose of providing information concerning the general description of construction work from which to develop and support the construction cost estimate.

PROJECT SCOPING FIELD REVIEW

All projects are to be scoped and a Field Review is to be held in accordance with PM-100. These procedures will define the potential need for field and office engineering as well as right of way and environmental requirements.

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* Rev. 1/10

"NO PLAN" PROJECTS

The "No Plan" concept may be used when:

(a) Minimal survey is required to accomplish engineering, right of way and construction stakeout.
(b) Improvements to roadways do not involve major structures with “B” or “D” designation numbers, channel modifications or special design items
(c) Major hydraulic analysis or river mechanics studies are not required.
(d) Rights of way are acquired through donations and no condemnation is required.
(e) Environmental permits including VSMP Construction Permit coverage* will not normally be required
(f) Construction activities must be handled in an expeditious manner
(g) Engineering is required

Projects that may be developed with the “No Plan” concept include, but are not limited to:

(a) Addition of Turn lanes
(b) Shoulder Widening, Ditch Work, Minor Relocation and Alignment Work
(c) Intersection Improvements
(d) Sidewalks and Curb Ramps
(e) Safety Improvements
(f) Guardrail Upgrade and Replacement
(g) Pavement Overlays and Pavement Markers and Markings
(h) Maintenance Operations
(i) Sign, Signal and Luminaire Repair and Replacement

* Rev. 2/10

The District Construction Engineer normally obtains any donated right of way by use of the appropriate Right of Way Forms. When a "No Plan" project is to be constructed within existing right of way, a note must be placed on the title sheet indicating that "All construction is to be performed within existing right of way."*

Metes and bounds plans are required for right of way from unique clients (e.g. Federal and State agencies, the National Forest, railroads, Virginia Power, etc.) - see VDOT's Road Design Manual Chapter 2E, Section 2E-5.

The construction baseline should generally follow the center of the existing roadway; however, minor relocation and alignment improvements (horizontal and vertical), roadway widening, and turn lanes may be accomplished. The geometrics should comply with the appropriate design standards. However, where it is impractical or not economical to obtain the minimum design and a design exception is required, permission shall be secured from the State Location and Design Engineer and, if applicable, from the Federal Highway Administration.

The Project Manager, with the assistance of the project team, determines the typical section and furnishes an estimate of quantities on the "Quantity Support Report" Form C-99. Grading should generally be balanced and set up as a lump sum quantity. Form C-99 should indicate an estimate of grading quantities, including anticipated waste quantities, to guide the Scheduling and Contract Division in preparing the construction cost estimate.

When borrow material is anticipated, "Borrow Excavation" is to be set up as a separate bid item in accordance with VDOT's Road and Bridge Specifications. Borrow sources should be located and designated whenever possible in accordance with VDOT's Road Design Manual Chapter 2E, Section 2E-1 - SOIL SURVEY AND PAVEMENT DESIGN.

A unit price for extra excavation is to be established by the District Construction Engineer or the District Administrator's staff and entered on Form C-99 for inclusion in the contract assembly by the contract section.

The Project Manager is responsible for coordinating utility field inspections with the Residency Administrator and preparing the field inspection reports. The Residency Administrator is responsible for determining utility conflicts, method of adjustment, cost responsibility and for obtaining and forwarding all plans and estimates from utility owners to the District Administrator (District Utilities Engineer) for approval and authorization. The District Administrator (District Utilities Engineer) will then forward a copy of the approval and authorization letter to the Project Manager to be placed in the project.

The Residency Administrator is also responsible for notifying the District Administrator (District Utilities Engineer) in writing, no later than 60 days prior to the advertisement of the project, that all arrangements have been made with the utility owners to relocate or adjust the utilities prior to or in conjunction with the project construction.

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* Rev. 7/09

The Central Office Location and Design, Utilities Section will obtain any necessary FHWA authorization for utility work and will furnish the usual utility clearances and estimates to the Scheduling and Contract Division for contract projects and State Force projects with Federal Oversight. If no known utilities and/or railroads are involved, the plans will contain a note so stating.*

The District Administrator or Designee is responsible for the district project funding confirmation for “No Plan” Construction and Maintenance projects and shall sign the “No Plan” Title Sheet. For all other required signatures see the “No Plan” Title Sheet, which can be found in Falcon under the eng_ser directory, subfolder for “No Plan”.

On Secondary "No Plan" projects, the project manager will submit the plan assembly directly to the Central Office Plan Coordination Section for processing. Plan coordination will forward the plan assembly to the Scheduling & Contract Division for construction advertisement or authorization for State Force work on projects with Federal Oversight, whichever is applicable.

Primary "No Plan" projects will continue to be submitted to the Central Office Plan Coordination Section for processing and recommended approval for advertisement (See IIM-68 for Electric Plan Submission). Construction plans will be retained in the District until right of way has been secured and arrangements made for utility adjustments. When retained, status reports (containing applicable correspondence) will be submitted by the District Administrator's staff quarterly until all right of way is acquired and utilities are clear.

"MINIMUM PLAN" PROJECTS

Those projects that require an engineering design should be designated as "Minimum Plan" projects. This will provide the mechanism for the development of required engineering studies and will provide a vehicle for transmitting critical information to the contractor.

Projects that should be developed with the "Minimum Plan" concept include, but are not limited to:

(a) Projects requiring more than minimal survey
(b) Major stream crossing sites
(c) Projects that will require environmental evaluation and/or permits
(d) Projects with "B" and "D" designation numbers
(e) Projects requiring major hydraulic analysis or river mechanics studies
(f) Projects that involve the acquisition of right of way and/or condemnation

* Rev. 7/09

The basic difference between the "Minimum Plan" and the "No Plan" project is the need for more than minimal survey and topo to provide sufficient right of way plans necessary to acquire right of way. Form RW-205 or individual deed forms are to be used. If any additional right of way or easements are necessary, the usual right of way certification letter and release for advertisement will be required. If additional right of way or easements are not required, the "Minimum Plan" title sheet is to contain a note indicating that "All construction is to be performed within existing right of way."

"Minimum Plan" projects may include relocation or alignment improvements (horizontal or vertical), roadway widening, and the addition of turn lanes that involve the acquisition of right of way and/or condemnations.

A general description of work must be provided on Form C-99 and the Field Narrative to denote additional work that is not covered on the plans.

Special attention should be given to major drainage sites and the limits set for the proposed right of way. The geometrics should comply with the appropriate design standards. However, where it is impractical or not economical to obtain minimum design standard* a design exception is required, permission must be secured from the State Location and Design Engineer and, if applicable, from the Federal Highway Administration.

Quantities, typical sections, entrance profiles and other similar information should be shown on the initial plan and profile sheets. A grade line is required when the grade is to be different than that of the existing road. In areas where right of way is to be obtained and entrance grading is necessary, a profile showing the approximate grade of the proposed entrance should be included in the plan assembly.

When borrow material is anticipated, "Borrow Excavation" is to be set up as a separate bid item in accordance with Section 303 of VDOT's Road and Bridge Specifications. Borrow sources should be located and designated, whenever possible, in accordance with VDOT's Road Design Manual, Chapter 2E, Section 2E-1 - SOIL SURVEY AND PAVEMENT DESIGN.

A unit price for extra excavation is to be established by the District Construction Engineer or the District Administrator's staff and entered on Form C-99 for inclusion in the contract assembly by the contract section.

The Project Manager is responsible for coordinating utility field inspections with the District Administrator (District Utilities Engineer) and preparing the field inspection reports.
Utility adjustments shall be handled in accordance with IIM-LD-140 and Road Design Manual, Chapters 2E and 2G, which can be accessed at http://www.virginiadot.org/business/locdes/rdmanual-index.asp

* Rev. 2/10

For all land disturbance activities that disturb an area equal to or greater than 10,000 square feet or 2,500 square feet or greater in the area defined as Tidewater Virginia**, an Erosion and Sediment Control Plan and a Stormwater Pollution Prevention Plan (SWPPP) must be developed, reviewed, and approved by appropriate qualified personnel in accordance with the latest version of IIM-LD-11 and IIM-LD-246.*

** Tidewater, VA, as defined by the Virginia Chesapeake Bay Preservation Act, Title 10.1, Chapter 21, Code of Virginia.

For all land disturbance activities that disturb one acre of land or greater or 2,500 square feet or greater in an area locally designated as a Chesapeake Bay Preservation Area, a Stormwater Management Plan must be developed, reviewed, and approved by appropriate qualified personnel in accordance with the latest version of IIM-LD-11 and IIM- LD-195.

PERMITS AND REVIEWS ("NO PLAN" AND "MINIMUM PLAN" PROJECTS)

Historical and archaeological reviews are to be made. (Request Forms LD-252 and EQ-429). The need for 401, 404, navigation, and other environmental permits are to be considered in accordance with the Guidelines for the Preparation of Permit Application. Any land disturbing activity that disturbs one acre or greater (or 2,500 square feet or greater in an area locally designated as a Chesapeake By Preservation Area, (except certain routine maintenance activities specifically exempted by the Virginia Stormwater Management Law and the Virginia Stormwater Management Program (VSMP) Permit Regulations - 4VAC50-30 et seq. and 4VAC50-60 et seq.) must have a project specific VSMP Construction Permit registration. Instructions for registering a project for VSMP Construction Permit coverage are contained in IIM-LD-242. (Request Form LD-445, 445A, 445B and 445C)

PLAN PREPARATION

The sample plan assemblies for both "No Plan" and "Minimum Plan" projects provide the manner of showing the minimum essential information and the notes necessary to govern construction. For the current version of the “No Plan” title sheet, see the CADD No Plan Directory, which is in Falcon under Engineering Services (eng-ser).

“Minimum Plan” title sheet shall include all the information as that shown on a “Construction Plan” title sheet. Variation may be made to the formats to meet the specific project needs and to best utilize all available sheet space, thereby minimizing the total number of project assembly sheets. Careful attention should be given to the notes shown thereon.

* Rev. 7/09

The plan assemblies for both “No Plan” and “Minimum Plan” projects are to be placed in Falcon and transmitted electronically to the Plan Coordination Section in the Central Office. The document assembly instructions are located in Falcon along with the other typical drawings needed for “No Plan” and “Minimum Plan” projects.

Generally, plan variations from AASHTO guidelines, as set forth in the Geometric Design Standards (See VDOT's Road Design Manual, Appendix A), are not readily apparent in an office review; therefore, it is very important that the variations be defined in the project assembly (consisting of the plan details, Form C-99, cost analysis, and narrative or description of the work) by the Project Manager and/or District Administrator.

Aggregate Material No. 21, 21A, 25 or 26 should be set up as a contract item for roadway base or subbase, maintenance of traffic, private entrances, and mailbox turnouts. Normally, one contract item should cover all uses.

SPECIFICATIONS*

It is intended that modified versions of parts of VDOT's Road and Bridge Specifications will be followed in order to reduce the field engineering and final computations required; however, the use of such modifications must still be consistent with good construction practices in relation to the kind and type of improvement being provided and must comply with the Department’s Approved Erosion and Sediment Control and Stormwater Management Standards and Specifications and the Virginia Stormwater Management Program Laws and Regulations.

A unit price for extra excavation is to be established by the District Construction Engineer or the District Administrator's staff and entered on Form C-99 for inclusion in the contract assembly by the contract section.

The Special Provisions for "No Plan” and “Minimum Plan” Projects (available from VDOT's Scheduling and Contract Division) are approved by the Federal Highway Administration for use on a project by project basis. When additional changes to the Specifications are necessary, such changes should be documented and submitted with the project assembly. (Any additional Special Provisions are to be reviewed by the Scheduling and Contract Division in ample time for inclusion in the project bid proposal.)

"No Plan" and "Minimum Plan" projects will often consist of small quantities of materials; therefore, materials testing requirements for most items will fall within the limits of minimum testing as set forth in VDOT's Materials Manual. Compactive effort must be provided by the Contractor in such a manner as to attain the required densities and random compaction tests will be performed to the extent required to assure proper compaction.

Generally, materials from sources that have proven to be satisfactory in the past will normally be accepted by certification as determined by VDOT's Materials Division, subject to visual inspection at the project site.

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* Rev. 7/09

The Contractor shall perform all construction surveying on "No Plan" and "Minimum Plan" projects in accordance with the Special Provision "Copied Note" for Section 105.10 of VDOT's (See IIM LD- 152) VDOT's Road and Bridge Specifications.

Prospective bidders may be required to attend the Project Showing as a prerequisite for submitting a bid proposal for "No Plan" and "Minimum Plan" projects. When attendance is required, prospective bidders must register with the Engineer at the project showing and all attending parties are to be noted in the project showing letter. The Project Engineer and the Project Inspector must also attend the project showing. The Field Narrative will indicate if attendance is required.

PROJECT LAYOUT

If deemed necessary by the District Administrator or District Construction Engineer, marked stakes shall be established showing the approximate depth at centerline of major fills and cuts which exceed 4 feet and/or other areas as required. Marked stakes shall be in place at the time of the Project Showing.

Survey work for "Minimum Plan" projects should normally be performed in accordance with the VDOT Survey Instructions Manual or as otherwise determined by the District Administrator or District Construction Engineer. The designer should determine in the early stages of the plan development where additional survey is needed in order to alleviate any major problem during construction. For entrance profiles on “Minimum Plan” projects see Appendix “F” – Section 4 – Entrances Affected by Highway Construction Projects.*

INSPECTION AND RECORD KEEPING

Close coordination between the Project Inspector and the Contractor is necessary to assure the success of the "No Plan" and "Minimum Plan" concepts.

One loose leaf notebook is normally necessary on a "No Plan" or "Minimum Plan" project for use as a combination diary, materials book, and sketch book provided that electronic versions of these materials are not available.

Alignment and sketches may be entered in accordance with standard procedures or, where feasible, small sketches may be glued into the notebook to properly indicate the work performed.

* Rev. 2/10

Where it is determined by the District that "As Built Plans" are more practical, they may be used in lieu of entering alignment, sketches, and summaries in the notebook. When "As Built Plans" are used, any changes, additions, or deletions of any nature are to be clearly indicated on the prints/files furnished to the Inspector with the diary and materials information entered in the notebook.*

All documents pertaining to the SWPPP for the project shall be kept in an individual notebook or folder and shall be available for review upon request during normal working business hours (See IIM-LD-246).

Upon the completion of a project, all records shall be submitted in accordance with standard procedures; except that after verification of the materials section by the District Materials Engineer, a reproducible copy of the materials section of the notebook/file is to be furnished to the State Materials Engineer in lieu of furnishing the original document/file.

* Rev. 7/09

NO PLAN PROJECT REV. 5-03
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

DISTRICT:	**COUNTY:**	**PPMS NO:**
Bristol	**Buchanan**	58266

FUNCTIONAL CLASS	**FHWA 534 DATA**	**TYPE CODE**
Rural Local		**IOOO**

ROUTE: 628 **PROJ**. 0628-013-P56, N501 **FEDERAL AID:**

FROM: 0.67 Mi. S. Rte. 638 **TO:** 0.17 Mi. S. Rte. 638

LENGTH: 2640 Ft. 0.50 Miles

TOPO: Mnts. **DES. SPEED:** 20 MPH 200 VPD (2001)

DESIGNED BY: R. L. Musser **R/W DONATION:** Yes

Utilities No **and/or Railroads** No **are involved in the construction of this project.**

This project is to be constructed in accordance with the Department's Road and Bridge Specifications dated 2007*, Road and Bridge Standards dated December, 2008, Work Area Protection Manual dated May 2005 and as amended by contract provisions and the complete plan assembly.

"All curves are to be superelevated, transitioned and widened in accordance with proper highway engineering practices."

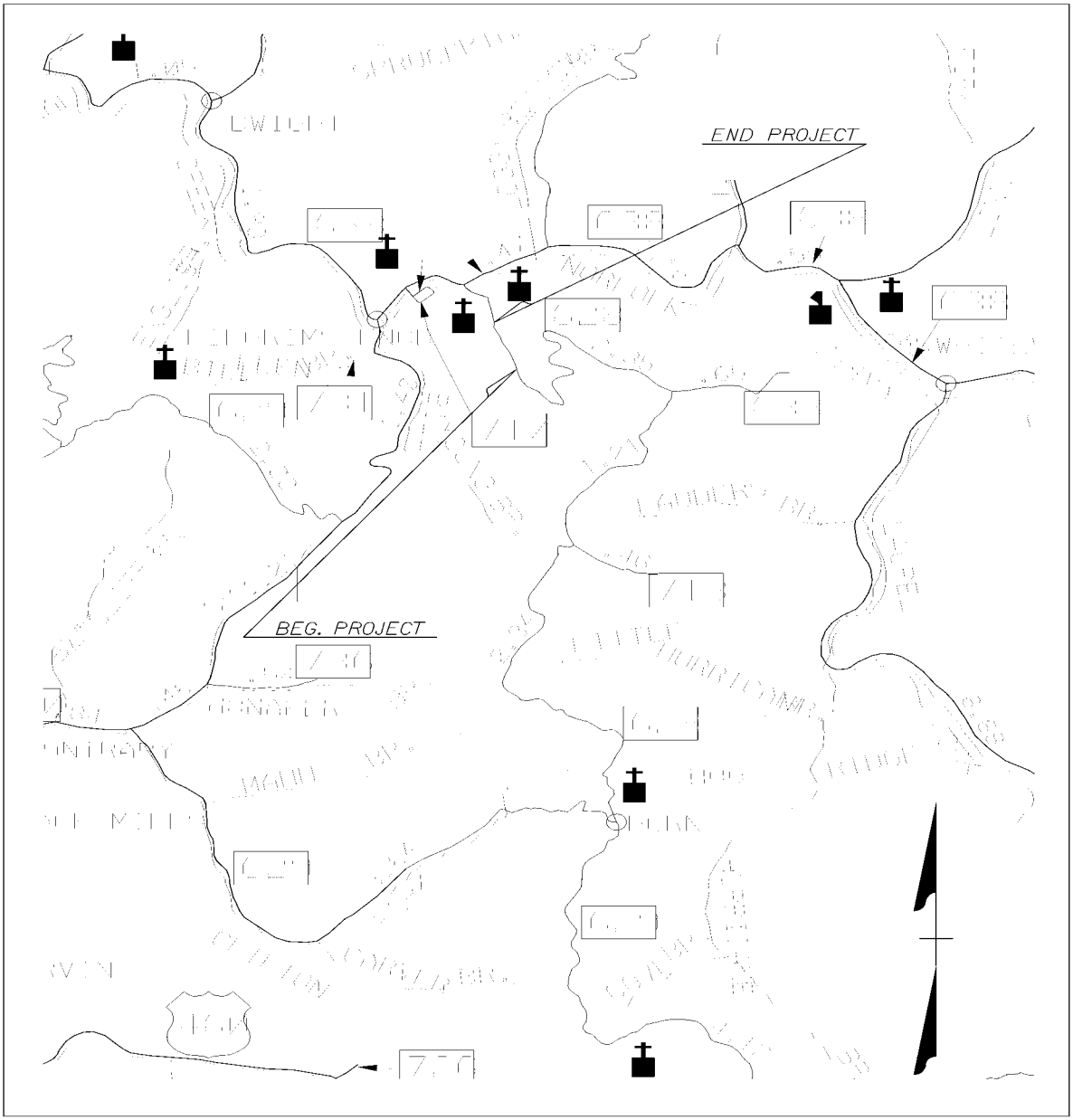
NOTE: THESE PLANS WERE DESIGNED IN ACCORDANCE WITH VIRGINIA RRR GUIDELINES.

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
DATE	DISTRICT ADMINISTRATOR
DATE	PROGRAMMING DIVISION DIRECTOR
DATE	CHIEF FINANCIAL OFFICER

APPROVED FOR CONSTRUCTION	
DATE	CHIEF ENGINEER

* Rev. 7/09

PROJECT LOCATION MAP



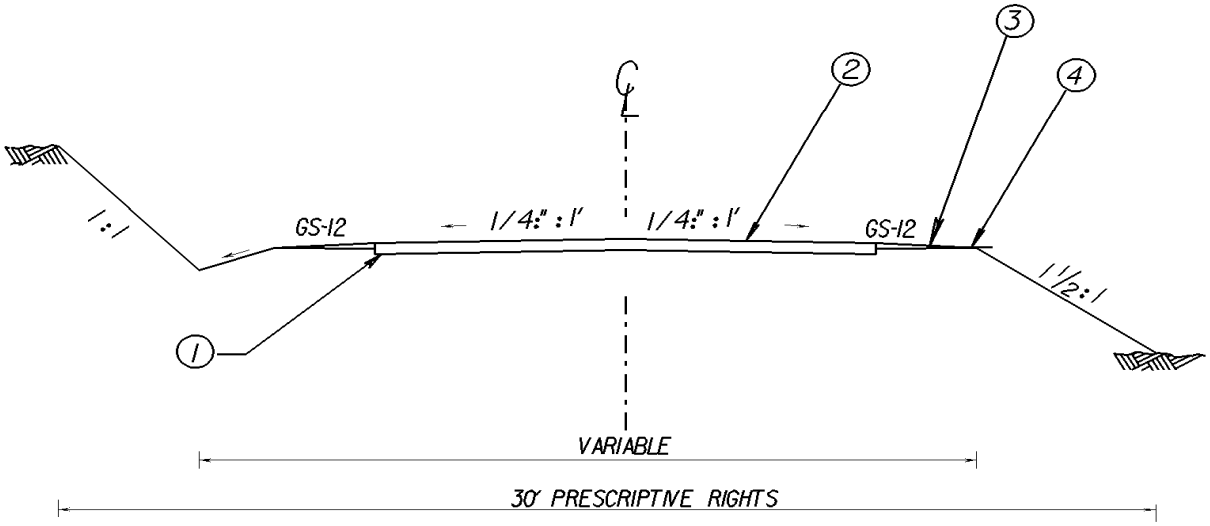
0628-013-P56, N501

ROUTE 628, BUCHANAN COUNTY*

* Rev. 1/07

TYPICAL SECTION

0628-013-P56, N501



*** R/W WITH EASEMENTS FOR CUTS AND FILLS**

NOT TO SCALE

1. 6" DEPTH AGGR. BASE MATL. TY. I NO. 21B
2. 4" DEPTH ASPHALT CONC. TY. BM-25.0
3. ASPHALT CONCRETE TY. SM-19.0 A AT RATE OF 200 LBS. SQ. YD.
4. STABILIZE SHOULDERS WITH 2" OF AGGR. BASE MATL. TY. I NO. 21B FOR ENTIRE WIDTH OF SHOULDERS

R/W WITH EASEMENTS FOR CUTS AND FILLS

Note: Depth to be placed as directed by the Engineer.

6" Depth to be used for Estimating Purposes ONLY.

Increase shoulder width to 5’ where guardrail is required.

General Notes

- **Mainline and entrance pipes are to be concrete and paid for per linear feet.**
- **Aggregate material No. 21 or 21B and Aggregate Base Material No. 1 is to be used to stabilize roadway and is to be paid for on a tonnage basis.**
- **Aggregate Material No. 25 or 26 is to be used to maintain roadway and entrances and is to be paid for on a tonnage basis.**
- **Erosion Control Stone Class I, EC-1 is to be used for erosion control at pipe outlets and where deemed necessary to prevent erosion and is to be paid for on a tonnage basis.**
- **Clearing and Grubbing is to be performed where necessary to construct the typical section and in accordance with Section 301 of the Specifications.**
- **Height of cover for pipe culverts is minimum unless otherwise designated.**
- **The locations and lengths of all drainage structures shown in this assembly are approximate only. Contractor shall verify locations and lengths of all drainage structures with Engineer prior to installation of drainage structures.***

* Rev. 1/07

* Rev. 1/07

Erosion & Sediment Control Narrative

Project: 0628-013-P56, N501

Project 0628-013-P56, N501 is a Rural Rustic Road project located off of Route 638 approximately 0.17 miles south of Rte. 638. Drainage from the project will flow to Burnt Chestnut Br. a tributary of Dismal Creek. The following erosion and sediment control measures are proposed to control runoff from the site.

- **The project will consist of paving 0.50 miles of non-hard surfaced roadway, establishing ditch lines, replacing cross pipes.**
- **All perimeter controls shall be installed prior to upslope disturbances.**
- **Temporary filter barrier or temporary silt fence shall be utilized at the toe of proposed fill slopes. Temporary filter barrier may be utilized for slope heights less than 5 feet. Temporary silt fence is required when slope heights are equal to or greater than 5 feet.**
- **Type II Rock Check Dams shall be utilized in cut ditch lines, and as inlet protection for cross drains and entrance pipes. If the drainage cannot be controlled within the ditch line, then temporary filter barrier shall be installed on the out slope shoulder.**
- **EC-1 Class I erosion control stone shall be installed for outlet protection on ALL pipes, unless otherwise noted on the SLS.**
- **The project shall be stabilized in accordance with VDOT Specification 303.03(b).**
- **All E&S controls shall be removed within 30 days after the project has been stabilized.**
- **Installation of culverts in live streams shall be done in accordance with the attached VDOT memorandum regarding replacement of pipes in live streams.**

The following standards are hereby incorporated as part of this erosion & sediment control plan:

- **Std. EC-1: Stone for Erosion Control (VA Rd. & Bridge. Standards).**
- **Std. EC-4: Rock Check Dams Type I & II (VA Rd. & Bridge. Standards).***

* Rev. 1/07

FIELD NARRATIVE

- **Pave with Asphalt Concrete Ty. BM-25.0 at 4" depth then surface with Asphalt Concrete Ty. Sm-19.0A at 200 lbs./s.y.**
- **No cut or fill sections.**
- **The roadway typical section is to be constructed the entire length of the project.**
- **Pipe shall be paid for at the contract price per linear foot. This price shall include excavating, when not a pay item, sheeting, shoring, cofferdams and dewatering basins (see SPECS. 302.04). Ditches with running water shall be treated as live streams.**
- **Clearing and grubbing is to be performed where necessary the entire length of the project in accordance to right of way widths, cuts, and fills as per typical section and Section 301 of the 2007* Road and Bridge Specifications.**
- **Temporary filter barriers and temporary silt fences will be required along toe of fills.**
- **Rock check dams will be required in ditch lines.**
- **All pipes that are placed in jurisdictional waters must be countersunk. Pipes 24" or smaller are to be countersunk 3". All pipes greater than 24" are to be countersunk 6".**
- **There are live streams on this project and it has been determined that Stormwater Management Facilities are not required for this project.**
- **This project is to be constructed on existing 30' prescriptive rights.**

* Rev. 7/09

EFFECTIVE DATE: **TGT ADV DATE: 12/07**
EXPIRATION DATE: JUNE 30, 2009 **STATE PROJ NO: 0628-013-P56,N501**

Erosion & Sediment Control Plan Narrative

PROJECT DESCRIPTION

Grade, drain and pave existing 16' stabilized roadway to a typical section of 18' paved with 2' shoulders and a 3' ditch. All work to be performed on the existing alignment. Pipes will be replaced on this project. Rip Rap will be placed at the outlet of all pipes. This is a Rural Rustic project and will be constructed on the existing 30' right of way.

PROJECT LOCATION

The project is located from 0.67 Mi. S. Route 638 at Latitude 37° 14' 10" (NAD27), to 0.17 Mi. S. Route 638 at Longitude 81° 54' 04" (NAD27), on the Keen Mtn. USGS 7.5 minute topographic quadrangle map.

PROJECT AREA

Project Right-of-Way Area: 30'
Expected Area To Be Disturbed: 1.82 acres

EXISTING SITE CONDITIONS

The existing project vegetative cover consists of brush and trees. The existing topography consists of mountainous terrain. The existing drainage patterns consist of Ditches effluent into Burnt Chestnut Br. in a northern direction and tributates Dismal Creek..

Soils located within the project limits consist of the following types:

- **********
- **********
- **********

Runoff from the project will discharge to: Burnt Chestnut Br.

Adjacent Areas

Areas adjacent to the project include: Mountainous terrain

Critical Areas

Critical areas on the project consist of: none

Stormwater runoff considerations for this project include: EC-1 (Erosion Control Stone), Rock Check Dams and Temporary Silt Fence/Filter Barrier*

* Rev. 1/07

Erosion & Sediment Control Measures

The erosion and sediment control measures shown on the Straight Line Sketch (SLS) for this project can be seen in further detail in the *VDOT Road & Bridge Standards, 2008* Edition*. These controls are consistent with the requirements of the *Virginia Erosion and Sediment Control Handbook, 1992 Edition.*

The following E&S measures will be used to control runoff on this project:

- **St'd. EC-1 (Erosion Control Stone)**
- **St'd. EC-4 (Rock Check Dam)**
- **St'd. EC-5 (Temporary Silt Fence / Filter Barrier)**
- **Culvert Inlet Protection**
- **************
- **************

All erosion and sediment controls are to be installed, inspected, maintained, and removed in accordance with VDOT Specifications and Standards. Runoff from the cut slope shall be maintained in an established ditch, and controlled with the measures shown on the SLS. If conditions exist where an established ditch cannot be maintained, runoff may be controlled, if approved by the Engineer or the Environmental Monitor, with either Temporary Silt Fence (TSF) or Temporary Filter Barrier (TFB) positioned on the roadway fill side. If runoff from the cut side is controlled on the fill side with TSF or TFB, the existing roadway is to be stabilized with maintenance stone as required.

Site stabilization will be conducted in accordance with VDOT Specification 303.03(b), the Roadside Development Sheet, and all other measures shown on the Straight Line Sketch (SLS).

The Contractor is responsible for complying with both VDOT Specifications 106.03 and 106.04 for all off-site support facilities.

CONTACT INFORMATION

VDOT (Bristol District Office)
Location & Design – Hydraulics Section
870 Bonham Road
P.O. Box 1768
Bristol, VA 24203

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* Rev. 7/09

SUMMARY NOTES

(Construction Items)

Item	Unit	Quantity	Item	Unit	Quantity
Mobilization	LS	1	Group 2 Channelizing Devices	Day	50
Grading	LS	1	Flagger Service	Hr.	1,800
18" Conc. Pipe	L.F.	160	Warning Light TY. A	Day	25
Erosion Control Stone Cl. I, EC-1	Ton	12	Regular Seed	Lb.	300
Aggr. NO. 1	Ton	100	Over Seeding	Lb.	300
Aggr. Base Mat'l. Ty. I No. 21B	Ton	2,058	Legume Seed	Lb.	40
Asphalt Concrete Ty. SM-19.0A	Ton	528	Legume Overseeding	Lb.	40
Allaying Dust	Hr.	50	Fertilizer (15-30-15)	Ton	1
Construction Signs	S.F.	144	Lime	Ton	4
Cr. Run Aggr. No. 25 or 26	Ton	500	Check Dam (Rock) Ty. II	Ea.	20
Temp. Filter Barrier	L.F.	2640	Siltration Control Excavation	C.Y.	472
			Temp. Silt Fence	L.F.	100

Denotes item(s) to be paid for on basis of plan quantities in accordance with current Road and Bridge Specifications.*

* Rev. 1/07

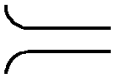
Erosion And Sediment Control Plan

Straight Line Sketch Notes

- All Pipes and culverts must be installed in the dry
- All E & S controls need to be removed within 30 days after project is stabilized (MS 18)
- All referenced standards and E & S controls should conform to the latest edition of the VDOT Road and Bridge Standards.
- Refer to contract documents for all quantities (E.G. minor Structure excavation, bedding backfill, etc.)
- For additional guidance on E & S controls, refer to IIM-LD-11.24*
- Dewatering devices may be required at live stream pipe installation.
- All disturbed areas will be stabilized with seed and mulch in accordance with the Roadside Development Sheet.

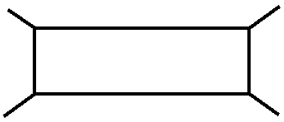
* Rev. 7/09

LEGEND


STD.PE-I ENTR.REQ'D.

ENTRANCE PIPE

PIPE

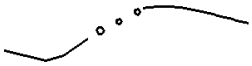

BOX CULVERT

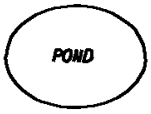

EC

DRAINAGE FLOW ARROW

CUT/FILL

ROCK CHECK DAM


STREAM OR EDGE OF WATER



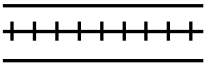
POND

Wet Land


CHURCH


BARN


HOUSE


RAILROAD CROSSING

Gurdrail


MAINLINE CUT


MAINLINE FILL


TEMP.SILT FENCE

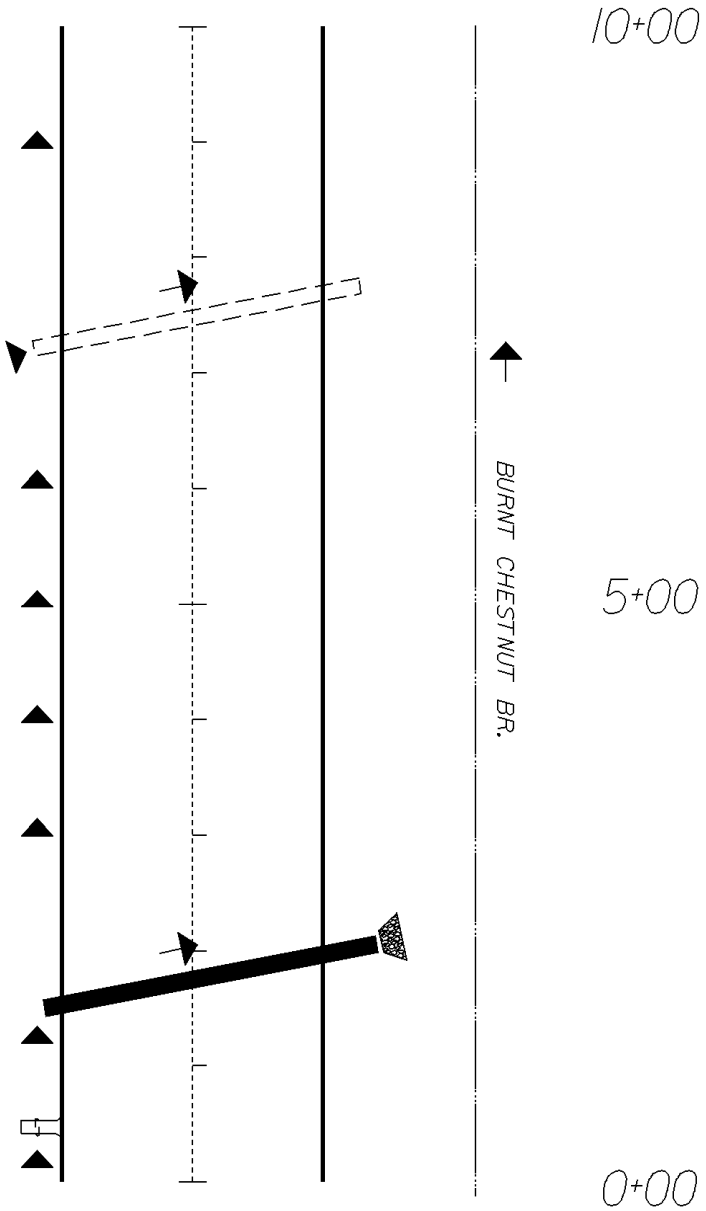
TEMP.FILTER BARRIER


TREE

CEMETERY

NOT TO SCALE

RTE.628, BUCHANAN COUNTY
FR: 0.67 MI. S. RTE.638
TO: 0.17 MI S. RTE. 638



STA. 7 + 44
(EXIST. 18" IN PL.
DO NOT DISTURB)

STA. 1+75
40' - 18" PIPE (CONC)
(EXIST. 18" IN PL.
TO BE REPLACED)

STA. 0+37
EXIST. 15" PIPE
DO NOT DISTURB

STA. 0 + 00
BEGIN PROJECT
BEGIN GRADING

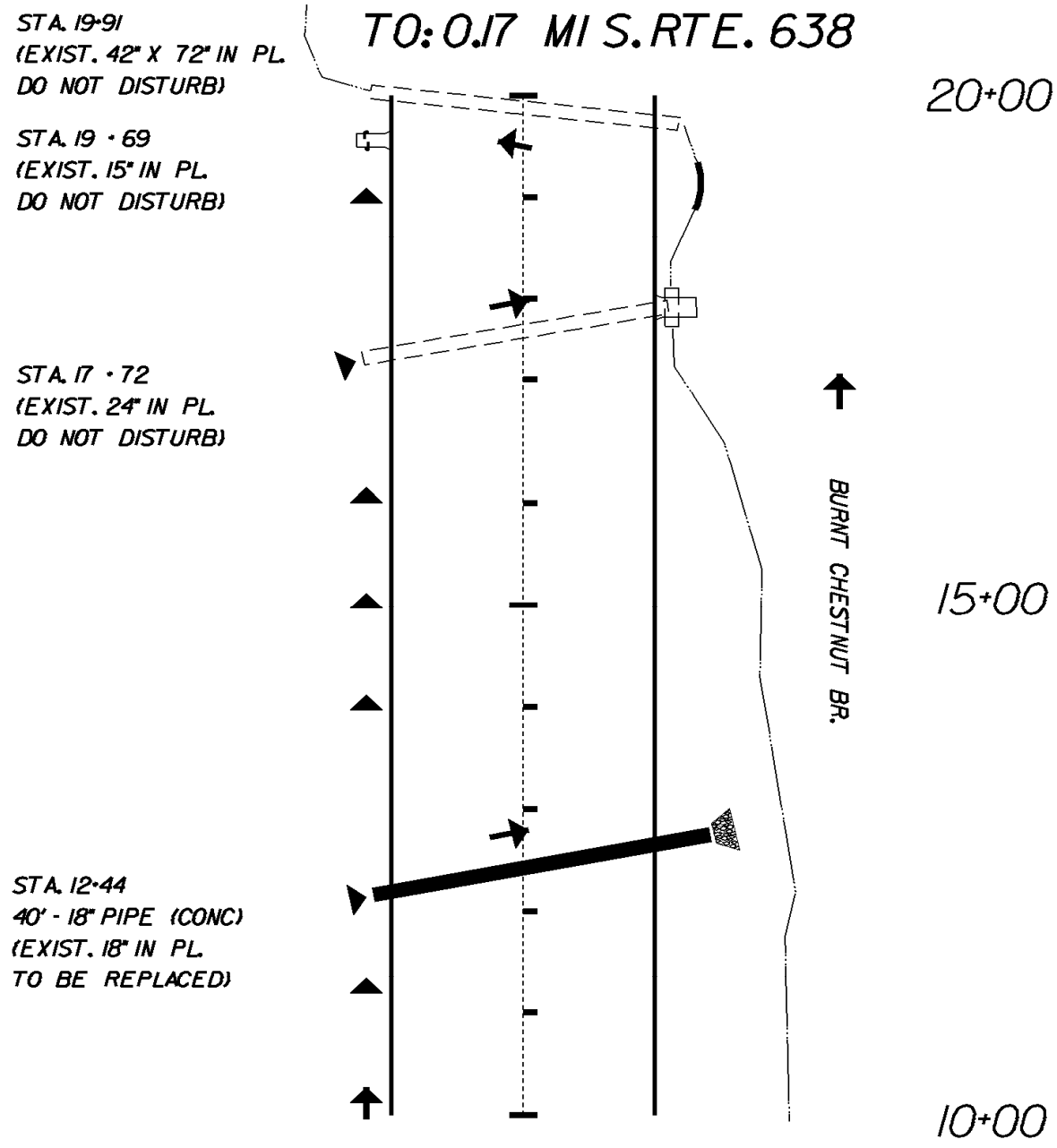
* ALL LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO CHANGE BY ENGINEER

* NOT TO SCALE

*

* Rev. 1/07

RTE. 628, BUCHANAN COUNTY
FR: 0.67 MI. S. RTE. 638
TO: 0.17 MI S. RTE. 638



* ALL LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO CHANGE BY ENGINEER

* NOT TO SCALE

*

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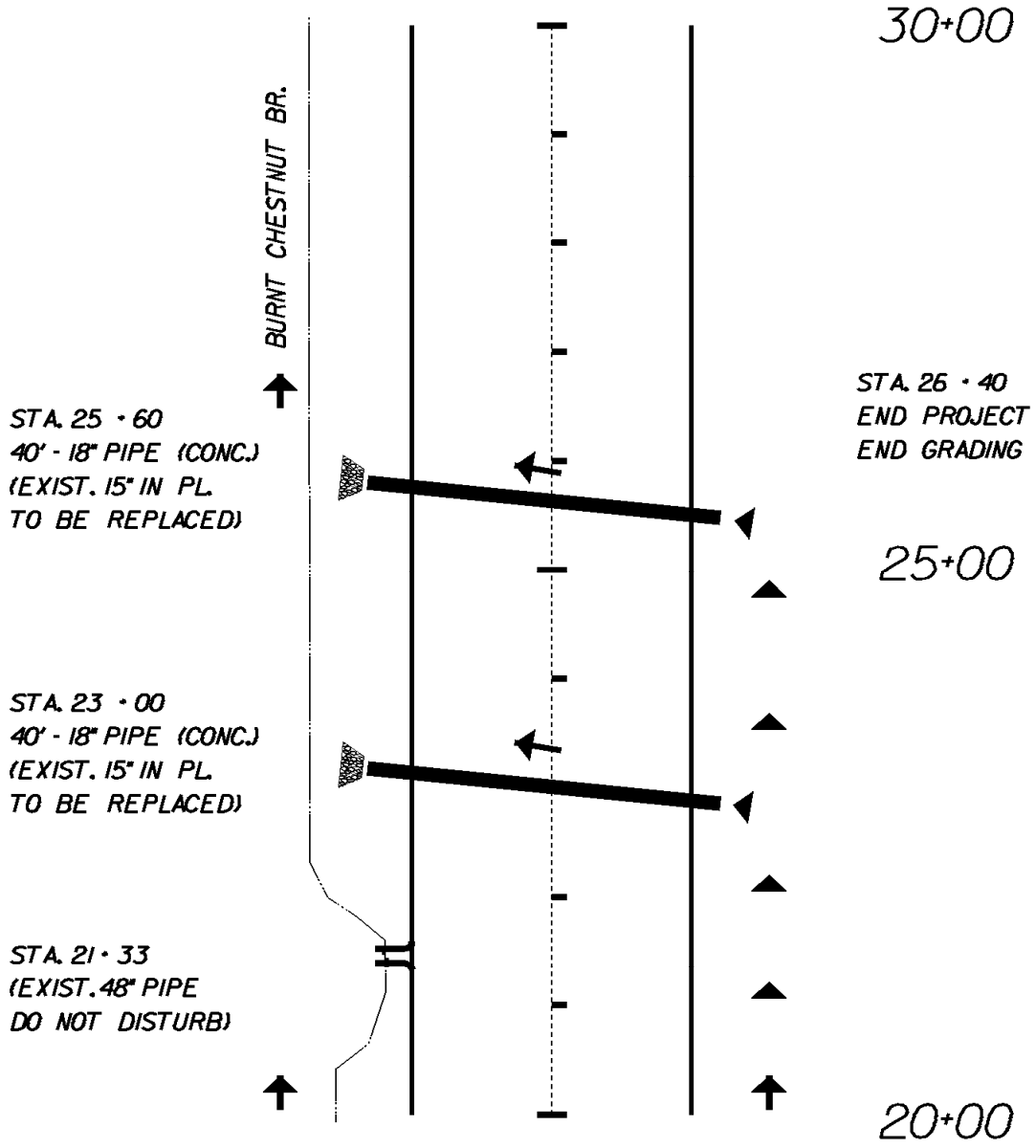
* Rev. 1/07

RTE. 628, BUCHANAN COUNTY
FR: 0.67 MI. S. RTE. 638
TO: 0.17 MI S. RTE. 638



* ALL LOCATIONS ARE APPROXIMATE AND ARE SUBJECT TO CHANGE BY ENGINEER

* NOT TO SCALE

*

* Rev. 1/07

ROADSIDE DEVELOPMENT

Rev. 7-03

CORE MIX

MIX	LBS./ ACRES	DESCRIPTION
1	100	* 100% CERTIFIED FINE FESCUE
2	100	100% CERTIFIED TALL FESCUE
3		50% CERTIFIED TALL FESCUE * 50% CERTIFIED FINE FESCUE
4		50% ORCHARD GRASS 50% CERTIFIED KENTUCKY BLUEGRASS
5		100% BERMUDA GRASS
TEMPORARY		
3/1 - 5/16 and 8/16 – 3/1		50% CERTIFIED TALL FESCUE 50%, BARLEY, WINTER RYE OR WINTER WHEAT
5/16 - 8/16		50% FOXTAIL MILLET 50% CERTIFIED TALL FESCUE

ALL RATES TO BE SPECIFIED BY THE DISTRICT ROADSIDE MANAGER.

*** FINE FESCUES INCLUDE CHEWINGS, CREEPING RED, HARD, SHEEP**

ADDITIVES

TYPE	LBS./ ACRES	DESCRIPTION
A		100% LOVE GRASS
B	20	100% BARLEY, WINTER RYE OR WINTERWHEAT
C	10	100% FOXTAIL MILLET
D	10	100% ANNUAL RYEGRASS
E	20	100% CROWNVETCH (LEGUME)
F		100% SERICEA LESPEDEZA (LEGUME)
G		100 % BIRDSFOOT TREFOIL (LEGUME)
H		100 % Perennial Ryegrass
I	10	White Clover
J		
K		

SEEDING SCHEDULE

SLOPES SEED MIX WITH ADDITIVE	MOWED SEED MIX WITH ADDITIVE	SLOPES SEED MIX WITH ADDITIVE	MOWED SEED MIX WITH ADDITIVE	SLOPES SEED MIX WITH ADDITIVE	MOWED SEED MIX WITH ADDITIVE
SPRING MONTH & DATE		SUMMER MONTH & DATE		FALL & WINTER MONTH & DATE	
4/1 - 6/1		6/1 – 9/15		9/15 – 4/1	

PROJECT NUMBERS	2DI	1D	2CDI	1DC	2BI	1B
*SPECIFY KIND OF FINE FESCUE		HARD		HARD		HARD

MIX REQUIREMENT THIS PROJECT

RECOMMENDATIONS FOR THE APPLICATION OF SEED MIXTURES(CORE MIX AND ADDITIVES), FERTILIZER, LIME, ETC. ARE TO BE OBTAINED FROM THE DISTRICT ROADSIDE MANAGER.*

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* Rev. 1/07

SECTION OF SEED LOCATION

NOTES:

Approximately 2 acres will be disturbed on this project and will require the establishment of grasses and /or legumes.

☆ NOTES FOR FIELD USE ONLY

Over seeding rates shall be 100% of the seed mixture supplied without fertilizer.

The Engineer will require the Contractor to perform supplemental seeding when less than 75 percent uniform stand of the permanent grass specified in the mixtures is obtained. (Annual species such as, Rye and Millet are temporary varieties and require supplemental seeding.)

NOTES APPLY TO SCHEDULE

Legume seed mixes (Birdsfoot Trefoil, Crown Vetch and Sericea Lespedeza) and Weeping Lovegrass shall not be used on shoulders and other locations flatter that 3:1 slope.

Legume Seed shall be inoculated with the appropriate strain and rate of bacteria. For hydroseeding, use five times the dry seeding rate of the inoculate.

A temporary mix of erosion control mulch, as directed by the Engineer, is to be used only on areas that are to be regraded or later disturbed, if left dormant for more than 15 days.

Erosion Control Mulch, as directed by the Engineer, is to be used on areas that are to be left dormant for more than 15 days between December 1 and february 28.

Erosion Control Mulch, as listed on the VDOT Approved Products List, shall be applied in accordance with the manufacture's recommendations.

Erosion Control Mulch shall provide 100% coverage of all denuded areas.

Spring & Summer and Fall & Winter defined for the purpose of determining whether hulled or unhulled Bermudagrass and Sericea Lespedeza seed is required:

Spring & Summer – 4/1 – 9/15 – use hulled seed
Fall & Winter – 9/15 – 4/1 – use unhulled seed

Type I mulch (Straw) to be used on newly seeded areas adjacent to all waterways, wetlands, swamps, or any area in which drainage flows toward areas under the jurisdiction of the environmental regulatory agencies.

Type I mulch shall be applied to provide a minimum 90% coverage.

Type I mulch shall be tacked with Fiber mulch at the rate of 750 lbs. per acre.

Type II mulch (Fiber mulch) may be substituted for Type I mulch at the recommendation of the District Roadside Manager.

Type II mulch shall be applied at a rate of 1500 lbs. (net dry weight) per acre to provide a minimum of 90 percent coverage, and shall be applied in a separate application.

All topsoil is to be free of hard lumps, clods, rocks and foreign debris and is to be hand raked to tie into existing lawns.

All seed must be in conformance with VDOT seed specifications for Grasses & Legumes and be provided at the project site in bags not opened and labeled for use on VDOT projects with a green tag certifying inspection by the Virginia Crop Improvement Association.*

* Rev. 1/07

PB-1

GENERAL

1. METHOD "A" PIPE BEDDING SHALL BE USED FOR ALL TYPES OF PIPE CULVERTS WITHIN THE APPLICABLE HEIGHT OF COVER RANGE NOTED IN THE STANDARD PC-1 TABLES UNLESS OTHERWISE NOTED ON THE PLANS.

2. H = HEIGHT OF COVER MEASURED FROM TOP OF CULVERT TO FINISHED GRADE.

3. b = EXCAVATION DEPTH AS SHOWN ON PLANS OR TO FIRM BEARING SOIL.

CIRCULAR PIPE

1. D = OUTSIDE DIAMETER OF PIPE.

2. d = INSIDE DIAMETER OF PIPE.

3. X = WIDTH OF CLASS I BACKFILL MATERIAL BEYOND THE EXTREMITY OF THE PIPE.
   X = 12" WHERE d IS LESS THAN 36".
   X = 18" WHERE d IS 36" AND GREATER.

4. WHERE DIRECTED BY THE ENGINEER, BEDDING MATERIAL MAY BE ELIMINATED FOR NORMAL EARTH FOUNDATIONS UNDER ROUTINE ENTRANCE PIPE (EXCEPT PLASTIC PIPE) 30" AND LESS IN DIAMETER WITH HEIGHT OF COVER 15' OR LESS.

5. REGULAR BACKFILL MATERIAL MAY BE USED IN LIEU OF CLASS I BACKFILL MATERIAL FOR ALL FOUNDATION TYPES FOR ROUTINE ENTRANCE PIPE (EXCEPT PLASTIC PIPE) 30" AND LESS IN DIAMETER WITH HEIGHT OF COVER 15' OR LESS.

6. BEDDING MATERIAL AND CLASS I BACKFILL MATERIAL MAY BE ELIMINATED FOR SHOULDER SLOT INLET (DI-13) OUTLET PIPES INSTALLATIONS.

ELLIPTICAL PIPE

1. S_1 = OUTSIDE SPAN DIMENSION OF PIPE.

2. S_2 = INSIDE SPAN DIMENSION OF PIPE.

3. R = OUTSIDE RISE DIMENSION OF PIPE.
4. X = WIDTH OF CLASS I BACKFILL MATERIAL BEYOND THE EXTREMITY OF THE PIPE.
   X = 12" WHERE S_2 IS LESS THAN 36".
   X = 18" WHERE S_2 IS 36" AND GREATER
5. WHERE DIRECTED BY THE ENGINEER, BEDDING MATERIAL MAY BE ELIMINATED FOR NORMAL EARTH FOUNDATIONS UNDER ROUTINE ENTRANCE PIPE WHERE S_2 IS 38" OR LESS AND HEIGHT OF COVER 15' OR LESS.

6. REGULAR BACKFILL MATERIAL MAY BE USED IN LIEU OF CLASS I BACKFILL MATERIAL FOR ALL FOUNDATION TYPES FOR ROUTINE ENTRANCE PIPE WHERE S_2 IS 38" OR LESS AND HEIGHT OF COVER 15' OR LESS.

PIPE ARCH

1. S = SPAN DIMENSION OF PIPE.
2. R = RISE DIMENSION OF PIPE.
3. B = SEE PC-1 TABLE FOR APPLICABLE PIPE MATERIAL
4. x = WIDTH OF CLASS I BACKFILL MATERIAL BEYOND THE EXTREMITY OF THE PIPE.
   x = 12" WHERE S_2 IS LESS THAN 36".
   x = 18" WHERE S_2 IS 36" AND GREATER
5. WHERE DIRECTED BY THE ENGINEER, BEDDING MATERIAL MAY BE ELIMINATED FOR NORMAL EARTH FOUNDATIONS UNDER ROUTINE ENTRANCE PIPE WHERE S_2 IS 35" OR LESS AND HEIGHT OF COVER 15' OR LESS.

6. REGULAR BACKFILL MATERIAL MAY BE USED IN LIEU OF CLASS I BACKFILL MATERIAL FOR ALL FOUNDATION TYPES FOR ROUTINE ENTRANCE PIPE WHERE S IS 35" OR LESS AND HEIGHT OF COVER 15' OR LESS.

INSTALLATION OF PIPE CULVERTS AND STORM SEWERS
GENERAL NOTES

NEW. 1/04

107.00

VIRGINIA DEPARTMENT OF TRANSPORTATION

NEW 1/04

SPECIAL DESIGN SECTION
DRAWING NO. A-151

SPECIFICATION REFERENCE

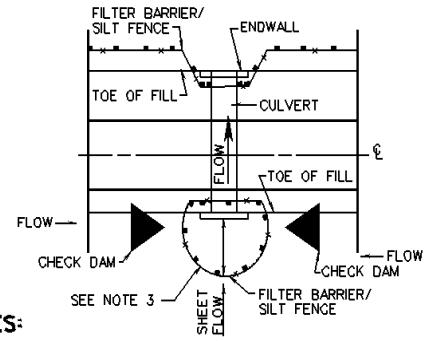
302
303

*

* Rev. 1/07

EC-5

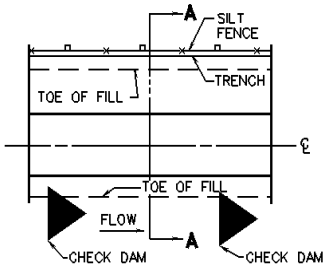
TYPICAL DETAIL FOR TEMPORARY FILTER BARRIER/SILT FENCE/CHECK DAM AT CULVERT



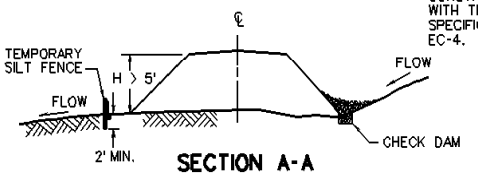
NOTES:

1. IF ANY PORTION OF FILL IS GREATER THAN 5', SILT FENCE IS REQUIRED. IF FILL HEIGHT IS LESS THAN 5', FILTER BARRIER IS REQUIRED.
2. ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.
3. DISTANCE IS 6' MINIMUM AND IS TO BE CONTAINED WITHIN RIGHT OF WAY OR EASEMENT.

TYPICAL DETAIL FOR TEMPORARY SILT FENCE/CHECK DAM AT TOE OF FILL

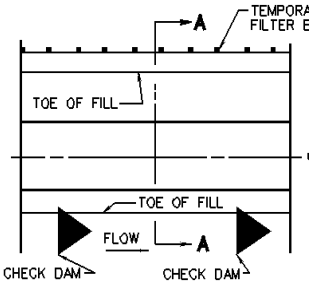


NOTE:
ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.



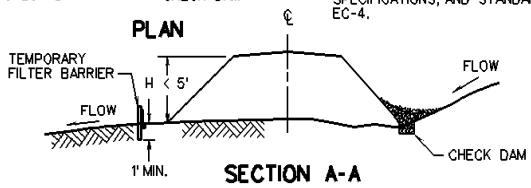
SECTION A-A

TYPICAL DETAIL FOR TEMPORARY FILTER BARRIER/CHECK DAM AT TOE OF FILL



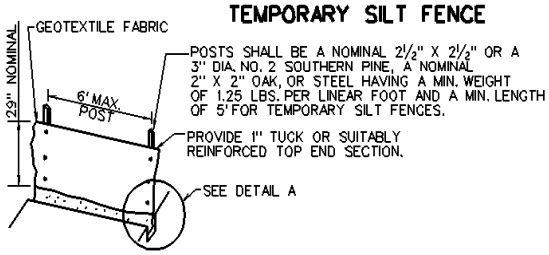
NOTE:
ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.

PLAN

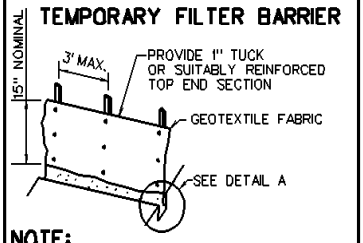


SECTION A-A

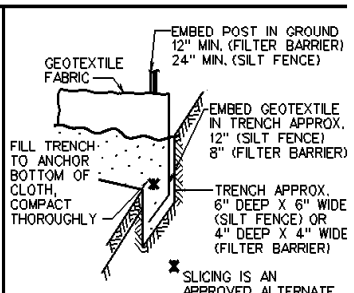
TEMPORARY SILT FENCE



TEMPORARY FILTER BARRIER



NOTE:
SUPPORTS FOR TEMPORARY FILTER BARRIERS SHALL BE A NOMINAL 1" X 2" OR A 1½" DIA. NO. 2 SOUTHERN PINE OR OAK, OR STEEL HAVING A MIN. WEIGHT OF 1.00 LBS. PER LINEAR FOOT.



DETAIL A

TEMPORARY SILT FENCE AND FILTER BARRIER

REV. 3/03

VIRGINIA DEPARTMENT OF TRANSPORTATION

NEW. 3-03

SPECIAL DESIGN SECTION DRAWING NO. 414-1

114.06

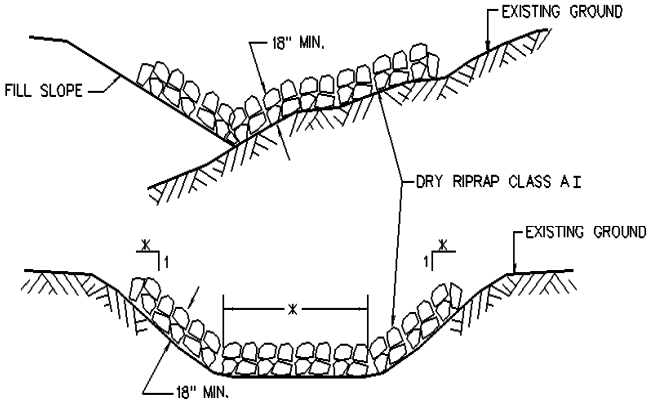
SPECIFICATION REFERENCE

107
242
303

* Rev. 1/07

ESC-INS

SUGGESTED METHOD OF TEMPORARILY PLACING RIPRAP FOR EROSION CONTROL IN CHANNELS, DITCHES, & AT TOE OF FILL SLOPES

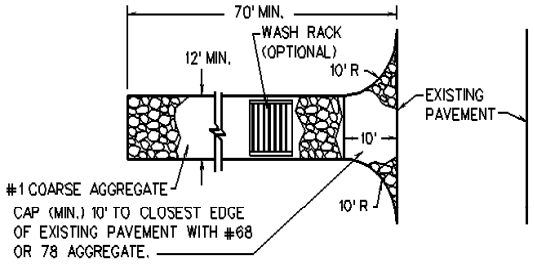


NOTES:

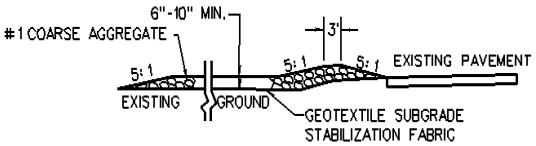
1. THE DEPTH OF PROTECTION WILL DEPEND ON WHATEVER DEPTH IS ATTAINABLE, WITH THE RIPRAP BEING EVENLY SPREAD WITH THE QUANTITY SHOWN ON THESE PLANS. RIPRAP MAY BE ADDED OR DELETED AS FOUND NECESSARY BY THE ENGINEER.

* SIDE SLOPES AND BOTTOM WIDTH (IF TRAPEZOIDAL) SHOWN IN TYPICAL SECTION OF PROPOSED DITCH OR CHANNEL.

MINIMUM REQUIREMENTS FOR STABILIZED CONSTRUCTION ENTRANCE



PLAN



PROFILE

1. SURFACE WATER SHALL BE PIPED UNDER THE CONSTRUCTION ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.

2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT OF WAY SHALL BE REMOVED IMMEDIATELY.

3. WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT OF WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

4. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER HEAVY USE AND EACH RAIN.

SHEET 1 OF 3

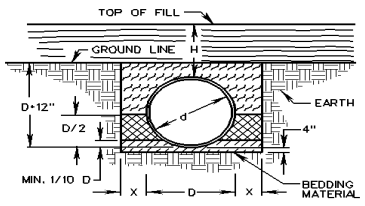
SPECIFICATION REFERENCE	TEMPORARY EROSION & SILTATION CONTROL		
107 303	VIRGINIA DEPARTMENT OF TRANSPORTATION	REV. 7/04 SPECIAL DESIGN SECTION DRAWING NO. 414.4	REV. 7 /04 115.01

*

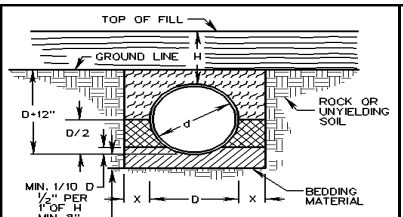
* Rev. 1/07

PB-1

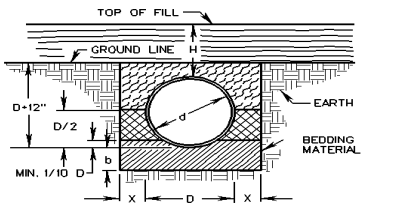
NO PROJECTION OF PIPE ABOVE GROUND LINE



NORMAL EARTH FOUNDATION

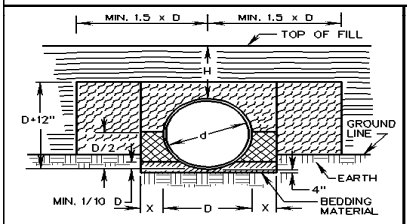


ROCK FOUNDATION

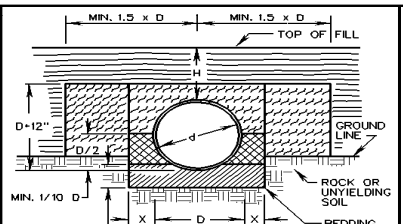


FOUNDATION SOFT, YIELDING, OR OTHERWISE UNSUITABLE MATERIAL

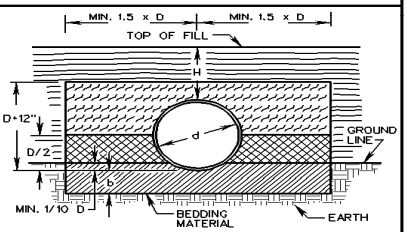
PIPE PROJECTION ABOVE GROUND LINE



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



FOUNDATION SOFT, YIELDING, OR OTHERWISE UNSUITABLE MATERIAL

BEDDING MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

CLASS I BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

REGULAR BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

EMBANKMENT

NOTE: FOR PLASTIC PIPE, THE LIMITS OF THE CLASS I BACKFILL MATERIAL SHALL BE EXTENDED TO 12" ABOVE THE TOP OF THE PIPE.

SHEET 1 OF 4

SPECIFICATION REFERENCE
302 303

INSTALLATION OF PIPE CULVERTS AND STORM SEWERS
CIRCULAR PIPE BEDDING AND BACKFILL - METHOD "A"

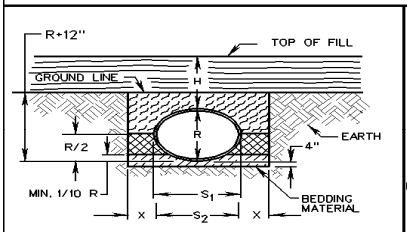
VIRGINIA DEPARTMENT OF TRANSPORTATION

NEW. 1/04

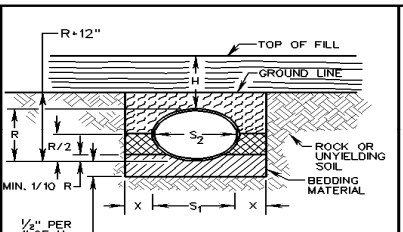
107.01

PB-1

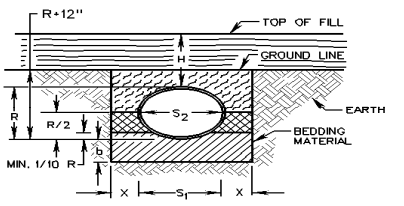
NO PROJECTION OF PIPE ABOVE GROUND LINE



NORMAL EARTH FOUNDATION

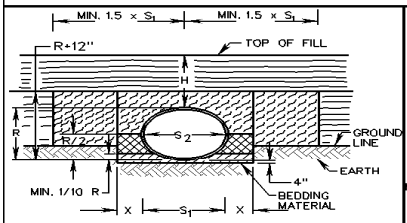


ROCK FOUNDATION

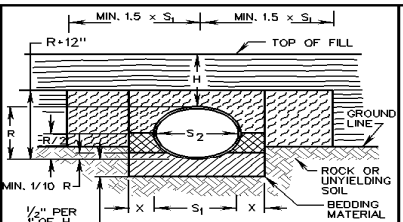


FOUNDATION SOFT, YIELDING, OR OTHERWISE UNSUITABLE MATERIAL

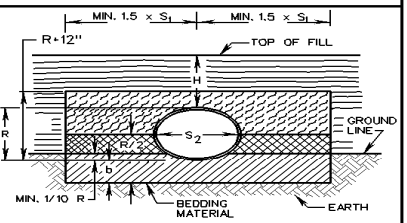
PIPE PROJECTION ABOVE GROUND LINE



NORMAL EARTH FOUNDATION



ROCK FOUNDATION



FOUNDATION SOFT, YIELDING, OR OTHERWISE UNSUITABLE MATERIAL

BEDDING MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

CLASS I BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

REGULAR BACKFILL MATERIAL IN ACCORDANCE WITH SECTION 302 OF THE ROAD AND BRIDGE SPECIFICATIONS.

EMBANKMENT

REV. 7 /04

SHEET 2 OF 4

SPECIAL DESIGN SECTION DRAWING NO. A-86

INSTALLATION OF PIPE CULVERTS AND STORM SEWERS
ELLIPTICAL PIPE BEDDING AND BACKFILL - METHOD "A"

VIRGINIA DEPARTMENT OF TRANSPORTATION

REV. 7 /04

107.02

SPECIFICATION REFERENCE
302 303

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* Rev. 1/07