

EROSION & SEDIMENTATION CONTROL NARRATIVE

RESPONSIBLE LAND DISTURBER

Through design of the project and until a construction contract has been awarded, the professional engineer who stamped the Civil plan sheets shall be designated the Responsible Land Disturber. Upon award of the Construction Contract, the Contractor shall have in his employ a Responsible Land Disturber, who is certified by the Department of Conservation and Recreation, and then assume this responsibility. The name of this person is to be designated in writing by the Contractor to the State ESC plan approving authority, the A/E, and the Owner along with copies of their certification prior to any land disturbance. The Responsible Land Disturber for this project shall be in charge of and is responsible for carrying out the land-disturbing activities on this project. The certified Responsible Land Disturber may change at any time during the life of this project, as long as the State ESC plan approving authority is notified in advance and in writing. Hereinafter RLSD shall be interpreted as the Responsible Land Disturber.

PROJECT DESCRIPTION

The purpose of this project is the construction of a building, parking, utilities and storm drainage that will serve as a new office and customer service building for "First Market Bank". The site of approximately 1.03 acres is currently a part of an 8.06 acre parcel located at 3595 Electric Road in Roanoke County and owned by "West Village LLC". The total area to be disturbed is approximately 0.94 acres.

EXISTING SITE CONDITIONS

The proposed site is a previously graded lot, since the adjacent portion of the West Village parcel is currently being developed. The disturbed area will be contained within the previously graded area and no existing vegetation will need to be removed. The site is a single drainage area that drains to an existing inlet at the eastern corner of the property. Slopes range from 3.5 to 45 percent, averaging approximately 25 percent. The site is out of the flood plain.

ADJACENT PROPERTY

The site is bordered by residential property to the south. A Type-C buffer yard will be provided to insure adequate screening between commercial and residential zoning districts. The site is bordered by the West Village parcel to the west; it is also in the C2 commercial district. Electric Road follows the property along its entire northern edge.

OFF-SITE AREAS

Excess cut is expected to be removed from this site and placed at one or more off-site locations. These locations are the Contractor's responsibility to locate. Whether the locations are owned by others or the Contractor, it is the Contractor's responsibility to assure that said source has a current, approved Erosion Control Plan in accordance with the ESC Handbook and Regulations. Prior to land disturbance at any off-site area, submit to Roanoke county Erosion & Sediment Control Administrator a copy of the plans, land disturbing permit, and/or agreement in lieu approved by the appropriate Federal, State, or local authorities.

Should the borrow, excavation waste or spoil areas proposed not have a current approved ESC Plan, an ESC Plan shall be submitted and approved by the Department of Conservation and Recreation, prior to any land disturbances in accordance with the requirements of the Erosion Control notes on the plans and state laws.

SOILS

The predominant soils which will be disturbed are the **Chiswell-Litz complex** and **Udorthents-Urban land complex**. These soils typically occur as highly intermingled areas. A usual mixture of soil types is about 45 percent Chiswell, 30 percent Litz, and 25 percent Udorthents-Urban soil.

A typical sequence, depth, and composition of Chiswell soil is as follows: The surface layer is from 0 to 2 inches and consists of dark brown channel silt loam. The subsoil from 2 to 12 inches is a reddish brown very channel silt loam. The bedrock at 12 inches is mottled reddish brown, brown, and brownish yellow soft shale.

A typical sequence, depth, and composition of Litz soil is as follows: The surface layer is from 0 to 5 inches and consists of dark brown channel silt loam. The subsoil from 5 to 16 inches is a brown very channel silt loam and strong brown silt clay loam. The substratum from 16 to 24 inches is a strong brown very channel silt loam. The bedrock at 24 inches is hard grey and red shale.

A typical composition of an Udorthents or Urban land complex is as follows: Udorthents consists of material that has been graded, cut and filled, or otherwise disturbed during construction of urban areas or highways. The material is highly variable and typically consists of loamy or clayey material. The Urban land complex consists of asphalt, concrete, or other impervious surfaces. These soil types should be expected in the construction areas adjacent to Electric Road.

Permeability on these soil types is variable but typically moderate. Available water capacity is very low to moderate. Surface runoff is rapid and erosion potential is high, mostly due to steep slopes. Care shall be taken when grading and establishing erosion controls in order to minimize erosion. The rooting zone and depth to bedrock are 10 to 40 inches. Potential frost action and shrink-swell is low.

CRITICAL EROSION AREAS

The steep slopes at the rear of the site are the critical erosion areas. Care shall be taken to minimize erosion in these areas, particularly during the construction of the retaining wall. All steep slopes shall be mulched and seeded as soon as possible to minimize soil exposure time.

EROSION AND SEDIMENT CONTROL MEASURES

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices will be constructed and maintained in accordance with the minimum standards and specifications to the Virginia Erosion and Sediment Control Handbook, latest edition. References to VDOT refer to the Virginia Department of Transportation "Road and Bridge Standards and Specifications," latest edition.

STRUCTURAL PRACTICES

- Temporary Construction Entrance (CE) - Std. & Spec. 3.02**
A temporary construction entrance shall be installed where the construction access road leaves existing pavement. During wet weather conditions, drivers of construction vehicles will be required to wash their wheels before entering the street.
- Construction Road Stabilization (CRS) - Std. & Spec. 3.03**
All construction roads/travel lanes on the site shall be stabilized with gravel immediately after rough grading. Construction traffic shall be limited to access roads and areas to be graded. Traffic is prohibited from entering drainage swales unless absolutely necessary.
- Silt Fence (SF) - Std. & Spec. 3.05**
A temporary sediment barrier, consisting of a fabric filter stretched across and attached to support posts and stretched, will be installed as indicated on the plans. This Standard is interchangeable with 3.04.
- Storm Drain Inlet Protection (IP) - Std. & Spec. 3.07**
Protect inlets of storm sewers from erosion and sedimentation during construction.
- Outlet Protection (OP) - VDOT Std. EC-1, Type A**
EC-1 Type A riprap is to be placed at the outlet of all storm sewer/culverts as indicated on the plans. Place immediately upon system being able to receive drainage. OP stone shall be underlain by filter fabric per Std. & Spec. 3.19.
- Sediment Basin (SB) - Std. & Spec. 3.14**
Temporary use of the detention basin to detain sediment laden runoff from disturbed areas in "wet" and "dry" storage long enough for the majority of sediment to settle out. The existing temporary 12" HDPE outlet pipe will be left in place to serve as the sediment basin outlet during construction of the First Market Bank site. Provide adequate inlet protection to prevent sediment transport into the existing inlets. After construction is completed and soils have been stabilized, the temporary 12" HDPE shall be removed and replaced with the permanent 15" RCP, endwall, and orifice plate. Sediment shall be removed from the basin and final grading shall be completed to match grading as shown on Sheet C-1.3. Actual Basin Volume shall be equal to or greater than the designed Basin Volume as shown in the Drainage Calculations.
- Diversion (DV) - Std. & Spec. 3.12**
A temporary diversion shall be constructed to route all flow from the existing ditch around the sediment basin, until all construction site slopes have been stabilized. Diversion must have a minimum depth of 1.0' and maximum side slopes of 2H:1V. Temporarily seed and mat (EC-2) diversion. A 24" Temporary Slope drain may be substituted for the diversion if construction is performed in accordance with Std. & Spec. 3.15.
- Check Dams (CD) - Std. & Spec. 3.20**
Small temporary stone dams constructed across a swale or drainage ditch to reduce the velocity of concentrated flows and trap sediment by temporarily ponding the runoff.

STABILIZATION & VEGETATIVE PRACTICES

- Topsoiling (TO) - Std. & Spec. 3.30**
Topsoil shall be stripped from all areas to be graded and stockpiled for later use and protected from erosion.
- Temporary Seeding (TS) - Std. & Spec. 3.31**
The topsoil stockpiles and all other areas to be rough graded, but not finish graded during the initial phase of construction shall be seeded with fast germinating, temporary vegetation immediately following grading.
- Mulching (MU) - Std. & Spec. 3.35**
Application of plant residues or other suitable materials to the soil surface (1) to prevent erosion due to rainfall impact and overland flow velocity, and (2) to foster seed germination and growth by increasing available moisture and insulating from extreme temperatures.

PERMANENT STABILIZATION

All exposed soil surfaces not indicated on the Landscaping Plan to receive hardwood mulch, landscaping, or seed shall be seeded for permanent vegetative cover immediately following final earthwork (within 7 days following finish grading). Seeding shall be placed at a rate of 200-250 pounds per acre in a standard manner and in accordance with Virginia Erosion and Sedimentation Handbook (latest edition) Section 3.32. Seeding mixture shall include 90-100% Kentucky 31 or other approved Turf-Type Tall Fescue, 0-10% Perennial Ryegrass, and 0-10% Kentucky Bluegrass.

MANAGEMENT STRATEGIES

- The RLSD shall be responsible for the installation and maintenance of all erosion and sediment control practices maintaining them in good and effective operating condition.
- The RLSD shall notify the Civil Engineer when the local governing official has inspected and approved all in-place erosion and sediment control devices, required by local ordinances to be in place prior to land disturbance.
- Construction shall be sequenced so that the duration of grading operations is as brief as possible.
- Maintenance of inlet and outlet protection shall be given high priority.
- Temporary seeding or other stabilization shall follow within 7 days after grading, or installation if a temporary measure.
- Areas which are not to be disturbed shall be clearly marked by flags, signs, etc.
- No solid materials, including building materials, garbage, and debris shall be discharged to surface waters of the State, except as authorized by a Section 401 permit.
- Where construction vehicle access routes intersect paved public roads, provisions shall be made to minimize dust and the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a public road surface, the road shall be cleaned thoroughly at the end of each day. Sediment shall be removed by shoveling or sweeping. Cleared sediment shall be returned to the point of likely origin or other suitable location. The general of dust shall be minimized. Bulk clearing of accumulated sediment shall not include flushing the area with water. Street washing shall be allowed only after sediment has been so removed.
- Ensure and demonstrate compliance with applicable State and/or local water disposal, sanitary sewer or septic system regulations.
- All sediment removed from sediment trapping measures or cleaning operations shall be appropriately wasted so as not to become a dust or sediment problem elsewhere.

MAINTENANCE

In general, all erosion and sediment control measures shall be checked weekly and after each significant rainfall. The following items shall be checked in particular:

- Inlet protection shall be checked regularly for sediment cleanout. Remove sediment prior to it reaching 1/2 the design depth of the trap.
- Channel linings shall be checked regularly for undermining or deterioration. Stabilize immediately if not to spec.
- Silt fences shall be checked regularly for structural/functional integrity. Remove any sediment deposits - do not allow buildup.
- All seeded areas shall be checked regularly to see that a good stand is maintained. Areas should be fertilized and reseeded as needed.
- Detention basin shall be checked regularly for sediment build-up. Remove any sediment deposits - do not allow buildup.

STORM WATER MANAGEMENT

A Detention Basin will receive runoff from the developed area via two sections of storm drainage piping. The Basin will limit post-development flow during a ten (10) year frequency storm to that of a two (2) year frequency pre-development storm. It will limit post-development flow during a twenty-five (25) year frequency storm to that of a ten (10) year frequency pre-development storm. The Detention Basin will also provide adequate drainage during a one hundred (100) year frequency storm. See the Drainage Calculations for more detailed information.

During construction, the detention basin will function as a sediment basin as described in Sediment Basin section of this narrative. Unless remaining disturbed areas are properly managed by other methods satisfactory to the local governing authority, the sediment basin shall remain in good functioning condition until the entire disturbed site has been stabilized. When stabilization is acceptable to the local governing authority the sediment basin may be graded and converted to the Detention Basin as designed in these plans. The contractor shall insure that all accumulated sediment is removed from the detention basin and designed basin volume is achieved prior to adding the final seeding to the basin.

UNDERGROUND UTILITY INSTALLATION

Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:

- No more than 500 linear feet of trench may be open at one time.
- Excavated material shall be placed on the uphill side of trenches.
- Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
- Re-establishment of disturbed areas shall be accomplished in accordance with the ESC Handbook and contract documents.
- All applicable safety regulations shall be complied with.

DISPLAY & STATUS OF PLAN

Plan with a copy of the permit must be maintained on-site and kept available for local and state inspectors at all times form the date of commencement of construction to the date of final stabilization. Note that this narrative and RLSD's log of inspection reports and all certifications are part of the plan (keep with this narrative).

The Plan with all attachments, reports, etc. shall be retained by the contractor for at least three (3) years from the date that the site is finally stabilized.

SCHEDULE

Record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated.

Perimeter controls shall be installed after clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. The perimeter controls shall be actively maintained until final stabilization of these portions of the site upward of the perimeter control. Temporary perimeter controls may be removed after final stabilization.

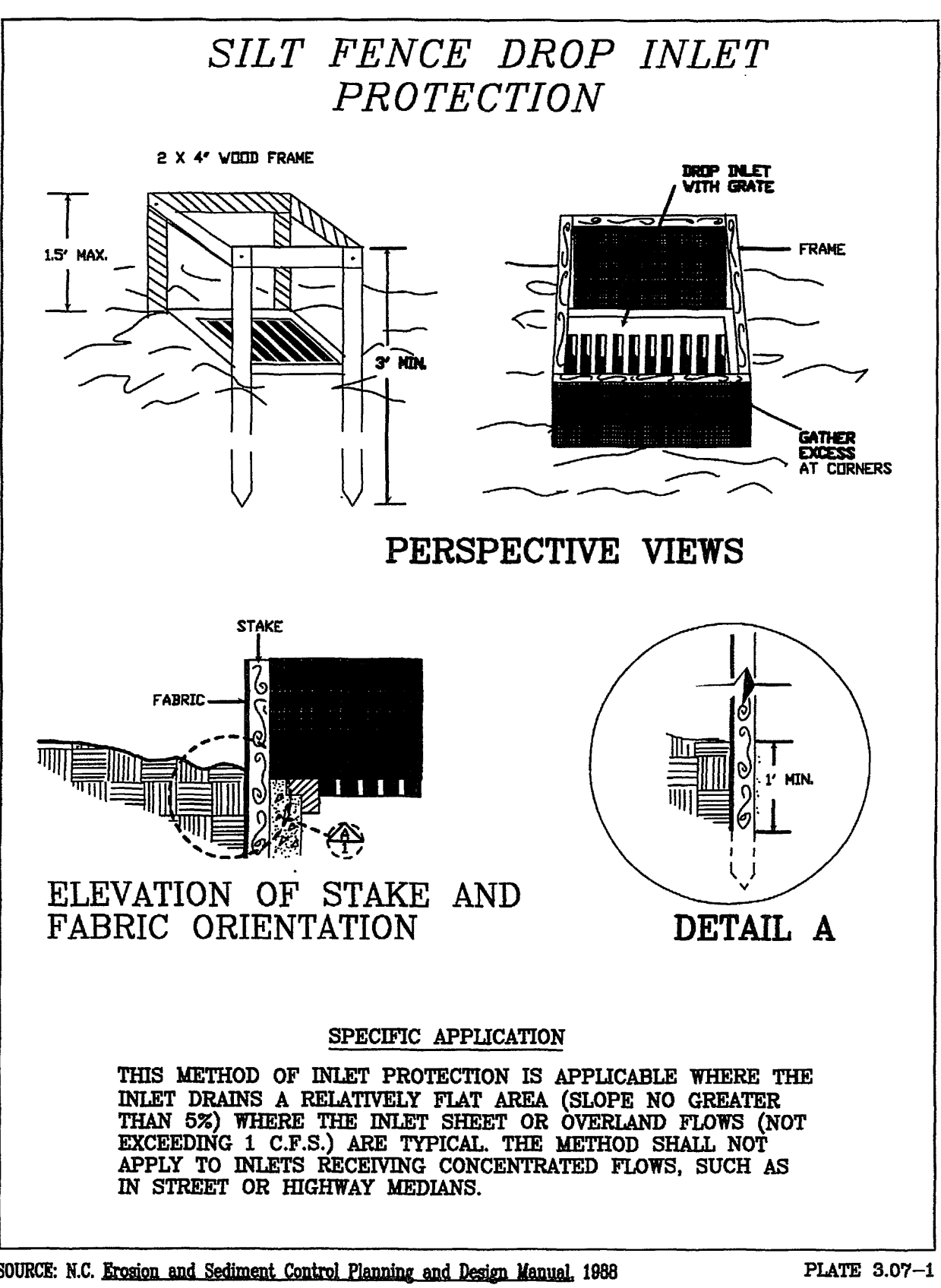
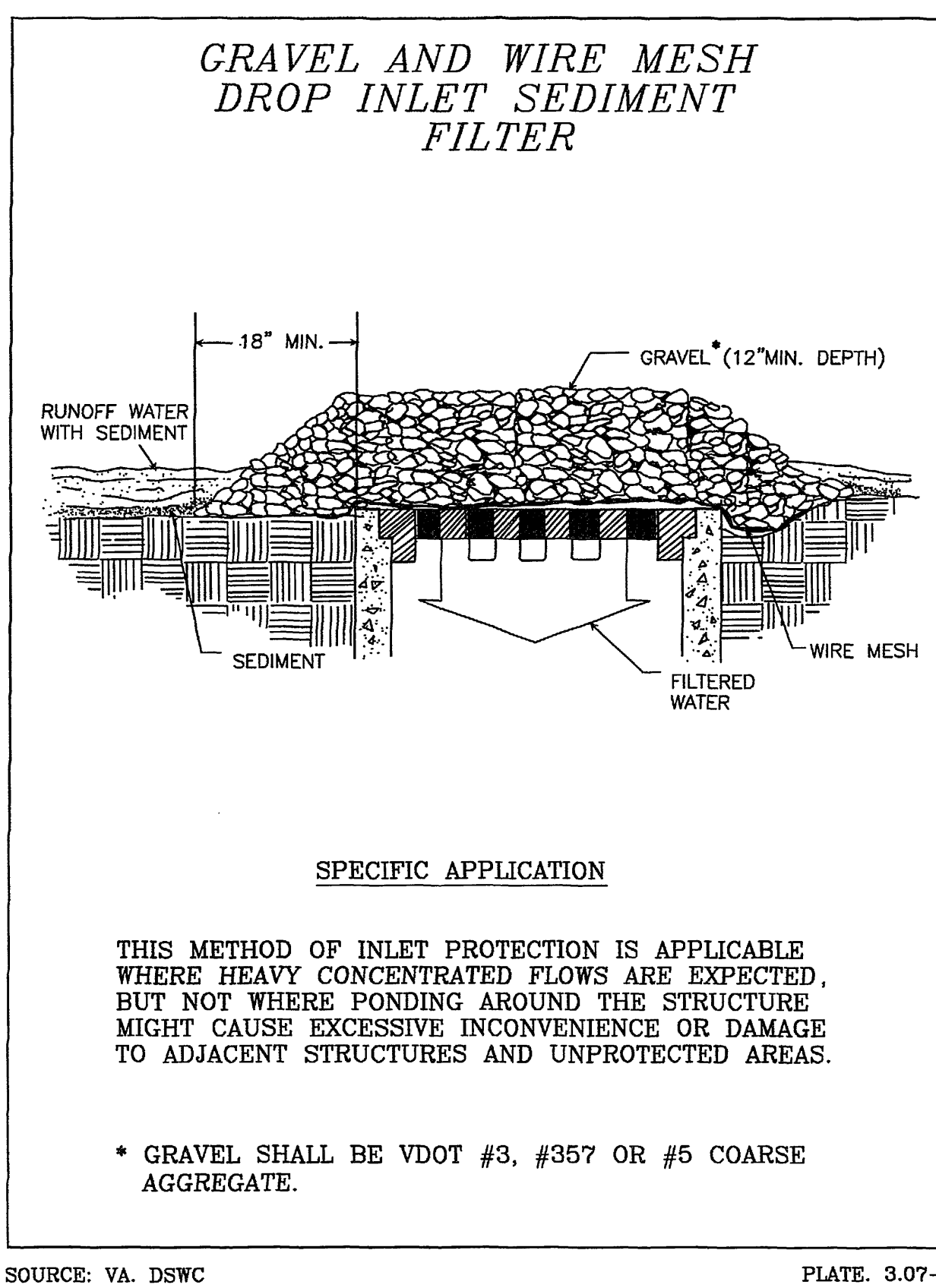
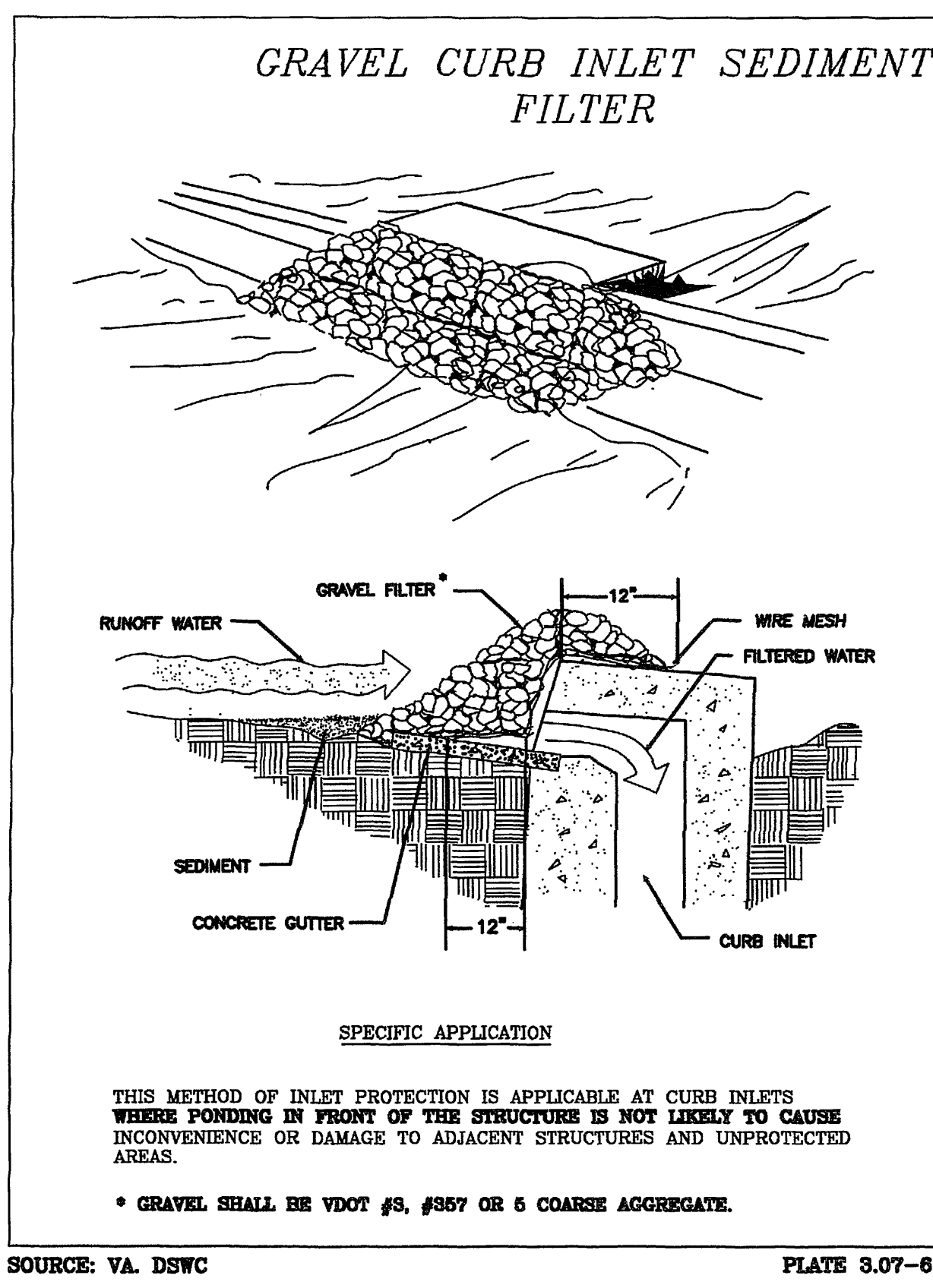
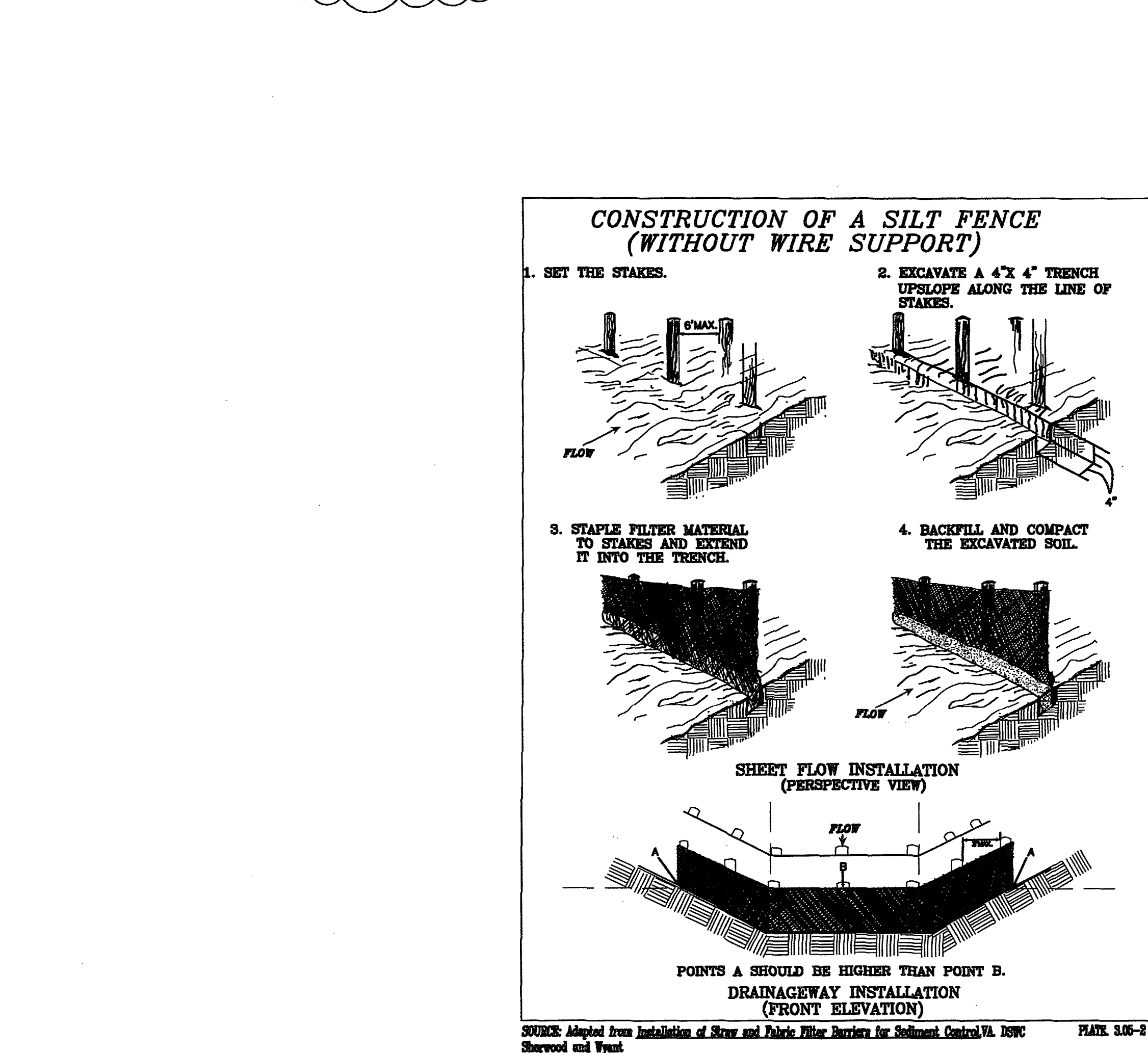
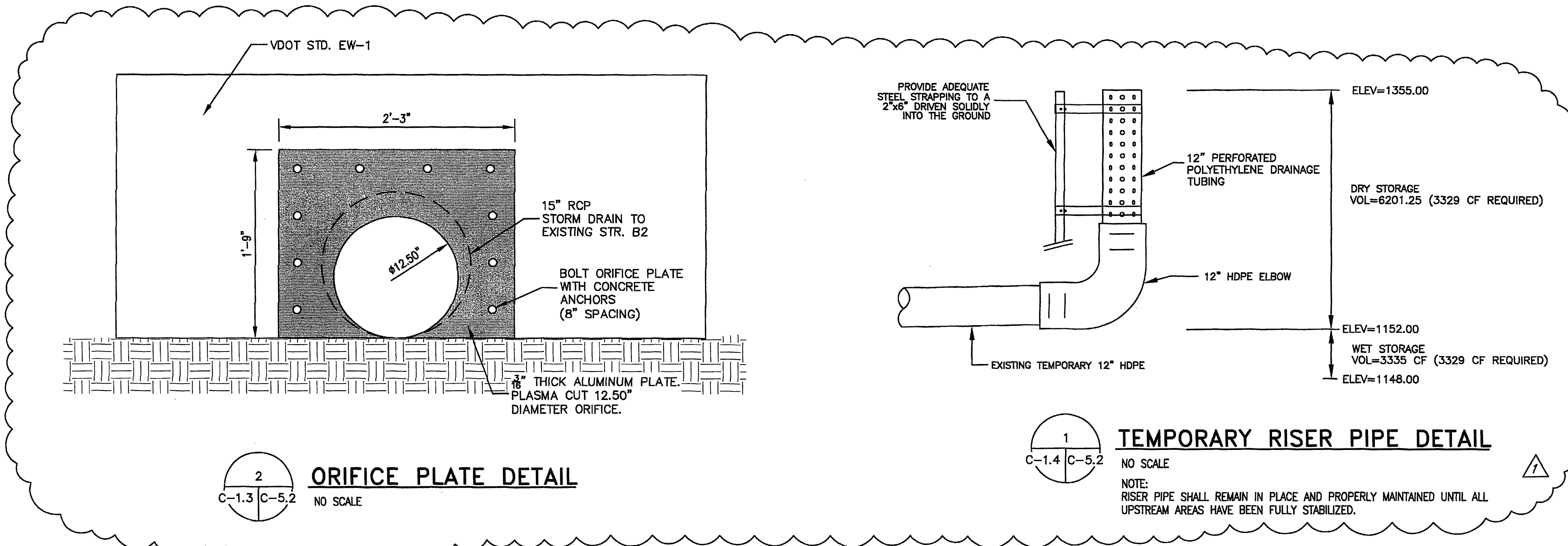
Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than seven (7) days after the construction activities have temporarily or permanently ceased, unless construction activity will resume within twenty-one (21) days after ceasing. Permanent seeding shall be done within 30 days if construction has permanently ceased.

Whenever water seeps from a slope face, adequate subsurface interception (french drain) shall be provided discharging to the nearest suitable stabilized channel.

All temporary ESC measures shall be removed within 30 days after the temporary measures are no longer needed and removal has been approved by the local erosion and sediment control administrator. No trapped sediment and other disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.

MINIMUM STANDARDS COMPLIANCE

- MS-1: Temporary and permanent stabilization required to minimize erosion has been required in these plans and notes.
- MS-2: All onsite or offsite soil stockpiles shall be stabilized per note on plans.
- MS-3: Permanent vegetative cover is required on all denuded areas per notes on plans.
- MS-4: The plans require that all sediment trapping measures be installed as a first step at the start of construction. Sediment basin is existing and will provide initial protection from sediment transportation.
- MS-5: Dams and dikes are not applicable.
- MS-6: Existing Sediment Basin was designed in West Village, Phase II plans. It was designed to adequately control up to 1.52 acres. Actual drainage area is approximately 1.30 acres.
- MS-7: Cut and fill slope stabilization is required in the plans. No new slopes exceed 3H:1V.
- MS-8: Concentrated runoff does not flow down cut or fill slopes.
- MS-9: Notes on these plans require adequate drainage if seepage occurs. Retaining wall design provides for seepage control.
- MS-10: Inlet protection is required in these plans and notes.
- MS-11: Outlet protection and channel lining is required in these plans and notes.
- MS-12: Work within a live watercourse is not applicable.
- MS-13: Work within a live watercourse is not applicable.
- MS-14: Work within a live watercourse is not applicable.
- MS-15: Work within a live watercourse is not applicable.
- MS-16: Underground utility lines shall be properly installed per these plans and notes.
- MS-17: Public roads shall be kept clean and free of sediment. Sediment tracking and sediment cleanup has been addressed in these plans and notes.
- MS-18: Criteria for removal of ESC measures is stipulated in these plans and notes.
- MS-19:
 - Most site runoff is captured by a designed Detention Basin. All bypass runoff is accounted for in the calculations. All site runoff flows to an existing DI-7 inlet at the eastern corner of the property.
 - All downstream channels are currently adequate as observed in the field. Due to the proposed storm detention basin, all post-development flows will be less than the pre-development condition.
 - All downstream channels are adequate. Wet weather conditions during construction will be observed by the contractor and the design engineers. Should adverse condition arise, the contractor shall consult with the designer and Roanoke County officials for any necessary corrective measures.
 - All improvements fall within the owner's property. Documented permission is not applicable. Curbing and pavement connections to West Village, Phase II shall be coordinated with the adjacent developer.
 - Hydrologic analyses are based on the existing watershed characteristics and ultimate development. All existing conditions are considered to be in hydrologically good condition. Conservative values have been used throughout.
 - Detention Basin will be maintained by the owner. Maintenance Agreement will be provided to the owner with the review of the development plans.
 - All sheet flows that may cause erosion are diverted to a storm sewer and detention facility. Flow leaving the site has been reduced and is directed to an adequate channel.
 - Subdivision development not applicable.
 - Commercial or Industrial subdivision not applicable.

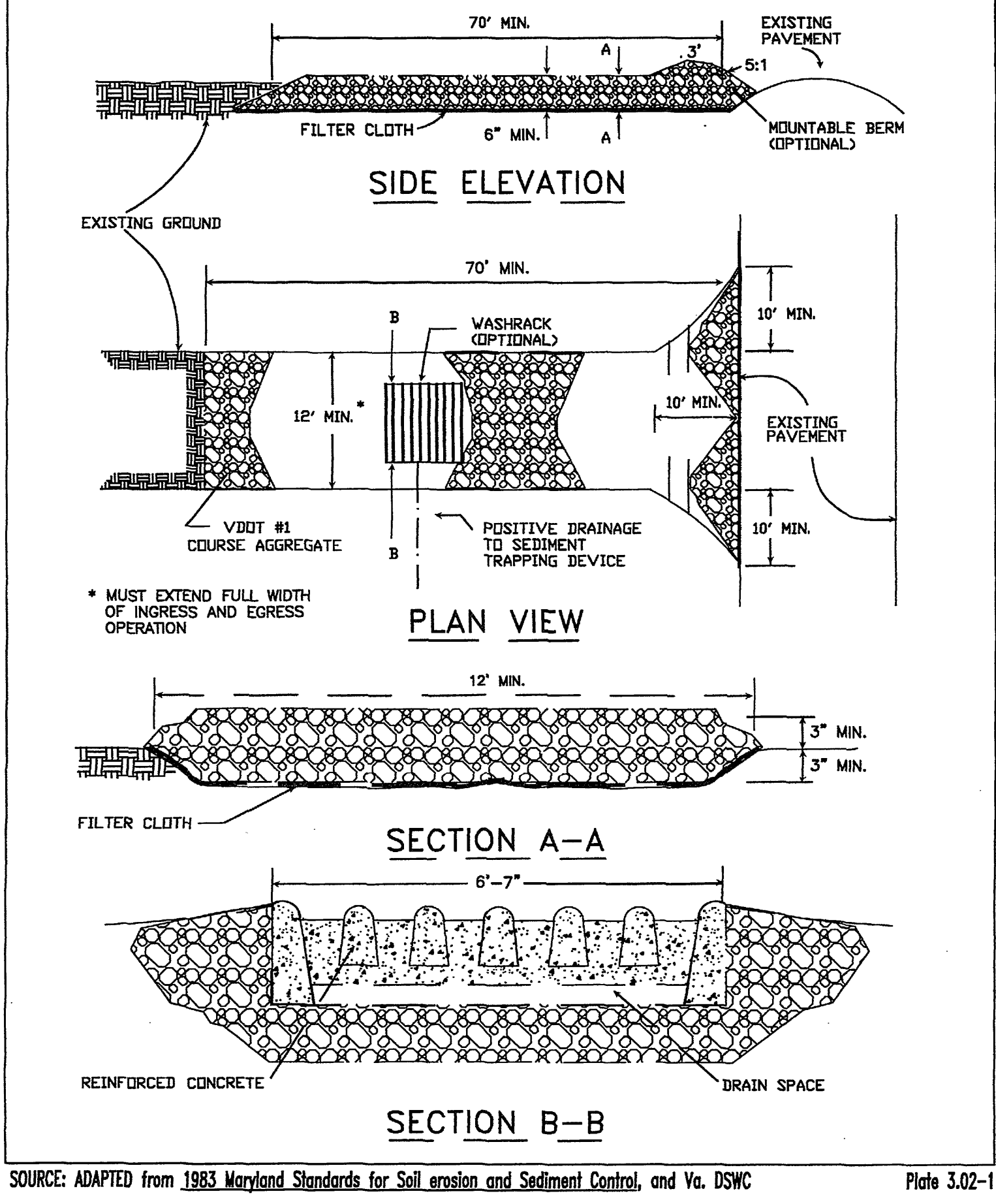


KEY PLAN

GENERAL NOTES

NOTE:
RISER PIPE SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL ALL
UPSTREAM AREAS HAVE BEEN FULLY STABILIZED.

STONE CONSTRUCTION ENTRANCE



SPECTRUM DESIGN

10 CHURCH AVE SE, PLAZA SUITE 1 ROANOKE, VIRGINIA 24011 540.342.6001
ROANOKE • MARION

FIRST MARKET
BANK

Route 419
Roanoke, VA

SPECTRUM DESIGN PROJECT NO. 06128

COMMONWEALTH OF VIRGINIA
MICHAEL A. RAVES
00899
10/5/96
PROFESSIONAL ENGINEER
DATE: 16 JANUARY, 2007
DESIGN ARCHITECT: MAR
PROJECT ARCHITECT: MAR
PROJECT ENGINEER: MAR
CHECKED BY: MAR
DRAWN BY: MAG
REVISIONS: NUMBER
1 DATE: 02/21/2007

SHEET TITLE

ESC NARRATIVE
& DETAILS

C-5.2