

SECTION C -4-WATER RELATED PERMITS

REVIEW OF PUBLIC NOTICES

The Department frequently receives copies of public notices from the Corps of Engineers and/or U.S. Coast Guard advising us of permit applications for various items crossing navigable waters such as overhead power lines, bridges, and underwater telephone cables. The Corps of Engineers and the U.S. Coast Guard have requested that all contacts in response to these public notices be from a single state agency. The Governor designated the Dept. of Environmental Quality as the contact agency. Any comments or objections are to be submitted to their office in writing. The Location and Design Engineer will review these public notices and act as the clearing house for all comments and/or objections from the Department. The Assistant Location and Design Engineer in charge of Location will consolidate and submit all comments to the Dept. of Environmental Quality. If there are no comments, then no response is necessary.

INTRODUCTION (PERMIT APPLICATION)

The following material is intended to provide Location and Design personnel with an overview of the process by which the Department obtains permits from other agencies for its construction in or near waterways. It also provides detailed instructions for the compilation of that part of a permit assembly that is the responsibility of Location and Design personnel.

The information and procedures outlined herein are based on current practices and the Department's experience to date. Revisions and modifications will be issued in the future as necessary to reflect changes in the permit process.

TYPES OF PERMITS	ISSUING AGENCIES
River and Harbor Act of 1899	U.S. Army Corps of Engineers U.S. Coast Guard
Public Law 92-500, Section 404	U.S. Army Corps of Engineers
Public Law 92-500, Section 401 Virginia Water Protection Permit(VWPP)	Department of Environmental Quality
Public Law 92-500, Section 402	Environmental Protection Agency
Subaqueous Bed Permit	Virginia Marine Resources Commission
Tennessee Valley Authority Permit	Tennessee Valley Authority
VDOT General Permit	U.S. Army Corps of Engineers Virginia Marine Resources Commission
Navigable Water Permit	U.S. Coast Guard

PERMIT APPLICATION PROCEDURE

The determination as to the need for permits is the responsibility of the District Environmental Managers. The normal procedure is for the District Environmental Manager to handle all permit matters for all projects in that District, regardless if plans are developed in the District or in the Central Office. The steps in the permit process are shown on the flow chart following this Section and are outlined as follows:

Step 1 After a project has been initiated, the project designer will determine if a permit determination has been done on the project. If not, the project designer will request a permit determination from the appropriate District Environmental Section. Stated more precisely, the District Design Engineer or the Central Office project designer will make his/her request to the District Environmental Manager. The request is accompanied by a topo map and preliminary plans, if available, indicating the limits of the project and Form LD-252 requesting supporting data.

Step 2 Upon receipt of this request, the District Environmental Section shall survey the project and determine what permits MAY be required. They shall notify the project designer initiating the request as to their determination.

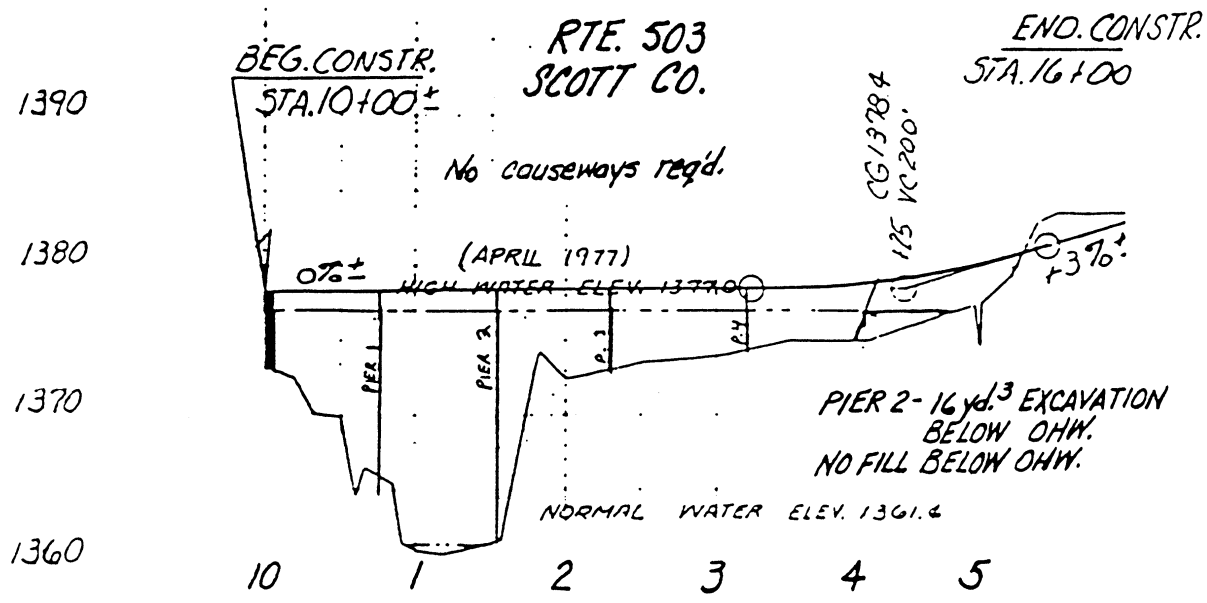
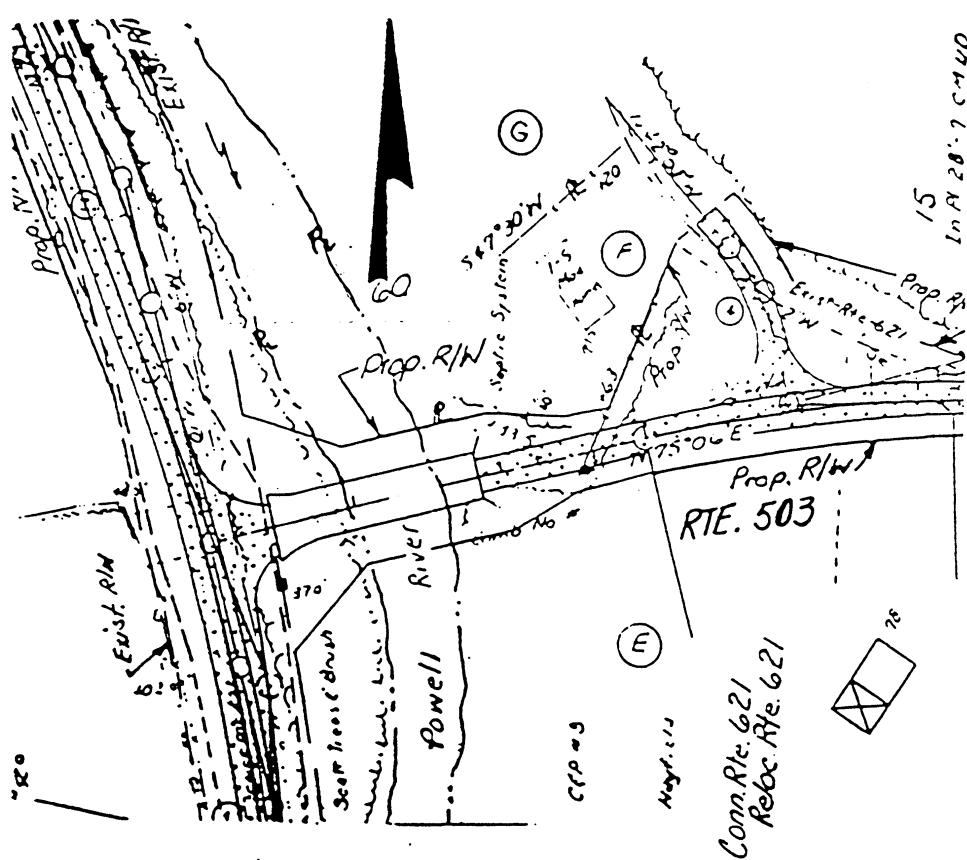
Step 3 Upon receipt of the permit determination, the project designer is to notify all other disciplines who will be involved in the design of the project and, if a permit is required, requests that they furnish their respective components of the permit assembly at the earliest appropriate time. The District Design Engineer shall furnish the Central Office Coordinator a copy of the determination.

Typically, the project designer prepares the location map and basic sketches. If a bridge is involved, the bridge designer prepares the bridge sketch and obtain the hydraulic commentary from the Central Office Hydraulic Section. For facilities other than bridges, the project designer obtains the Hydraulic Commentary from the unit that designed the drainage items. The project designer obtains the construction commentary from the Construction Division in the case of a central office project or the Assistant District Engineer in charge of construction, if a district project, and if necessary, obtains the necessary property data from the respective Right of Way unit.

It is important to note that the initial permit determination is based on cursory data and is usually conservative, reflecting the most disruption that may be anticipated as a result of the proposed construction. If it becomes apparent during the development of a more detailed design that the proposed project will have little or no effect on the aquatic environment, the project designer shall request a review of the permit determination. To facilitate this, he shall submit a rough sketch showing the extent of the proposed activity (For details see [Figure C-4-1](#)).

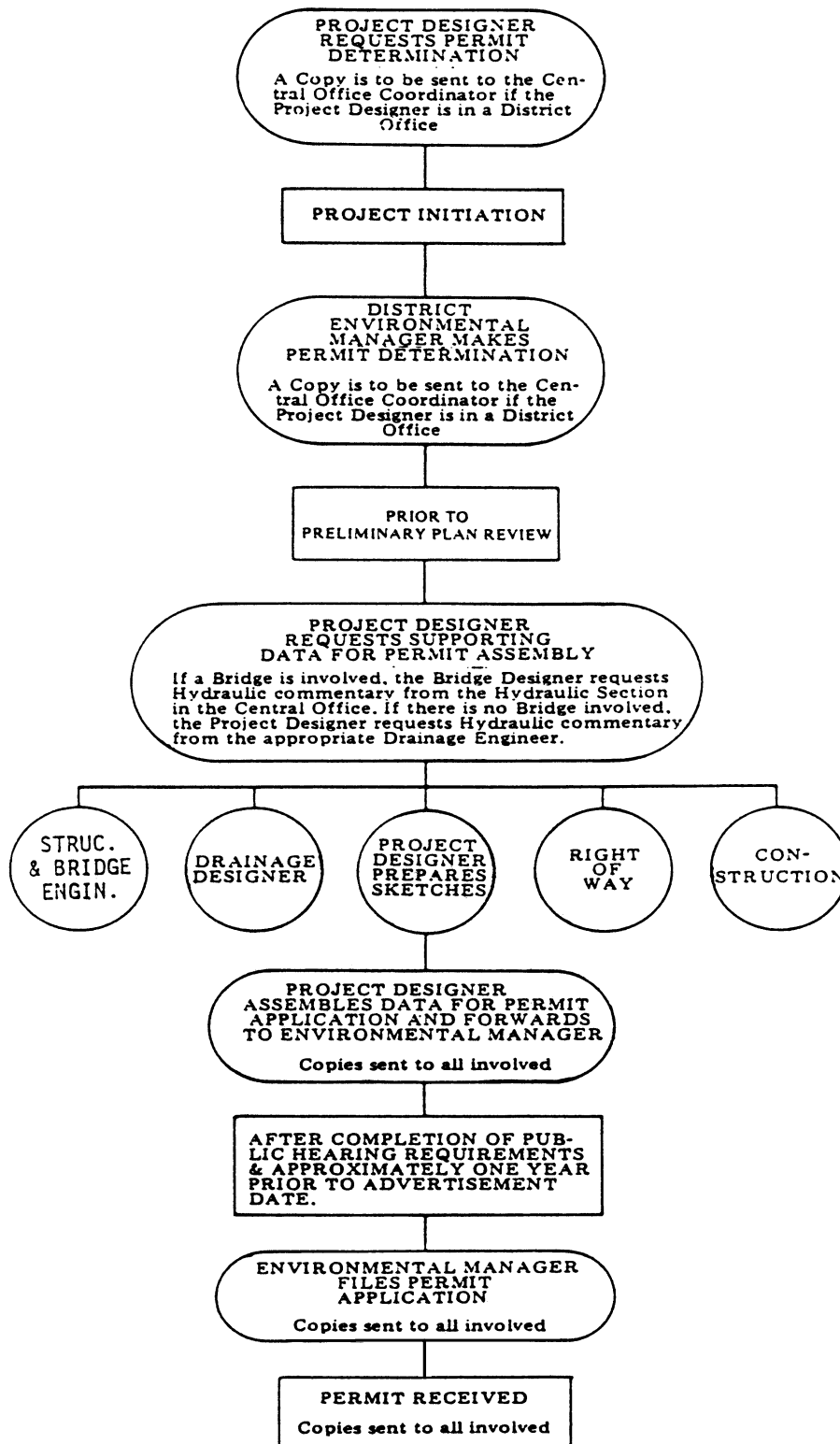
Step 4 If a project requires a permit, as noted on the permit determination and after the project designer has received the required sketches and other information from the various disciplines involved, he will compile the permit assembly. The project designer will forward the entire assembly to the District Environmental Section making the permit determination. This step should occur after the public hearing requirements have been met and approximately one year prior to the project advertisement date.

The District Environmental Section will file the necessary permit applications on behalf of the Department.



PLAN AND PROFILE - PERMIT (ROUGH SKETCH)
 FIGURE C-4-1

VIRGINIA DEPARTMENT OF TRANSPORTATION
 PERMIT APPLICATION
 FLOW CHART



NOTE: THE PROJECT DESIGNER IN A DISTRICT OFFICE AND THE PROJECT DESIGNER IN THE CENTRAL OFFICE BOTH CORRESPOND WITH THE DISTRICT ENVIRONMENTAL MANAGER.

PERMIT APPLICATION FLOW CHART
 FIGURE C-4-2

DRAWING REQUIREMENTS

The permit sketch is to be drawn on paper sheets measuring 216 mm x 279 mm (8 1/2 x 11 inches) with a 25 mm (1") border at the top and 12 mm (half-inch) borders on the remaining three sides. The plan and profile views are to be drawn to the largest scale practical to clearly show the details of construction which the various permits address. In most cases, more than one sketch sheet will be needed to adequately show all of the details for each of the different views. For example, in a tidal area, the edge of existing stream mean low tide, mean high tide, limits of mud wave, limits of wetlands, and limits of oyster planting grounds may all have to be shown in addition to other pertinent information. When such is the case, a larger than normal scale must be used which would in turn lead to more than one sketch sheet. A maximum effort is to be directed toward clarity and the elimination of unnecessary details not pertaining to the subject of the permit (i.e., it is not necessary to show details of bridge parapets, guardrail, etc., but it is necessary to show cofferdam locations and channel cleanouts.

The applicable water elevations and corresponding quantities are outlined in the next three paragraphs. Note that the demarcation of ordinary high water and tide lines refers to their location prior to the proposed construction. For fresh water streams, the ordinary high water and wetlands limits (if applicable) need to be shown. Quantities will be figured channelward and below ordinary high water.

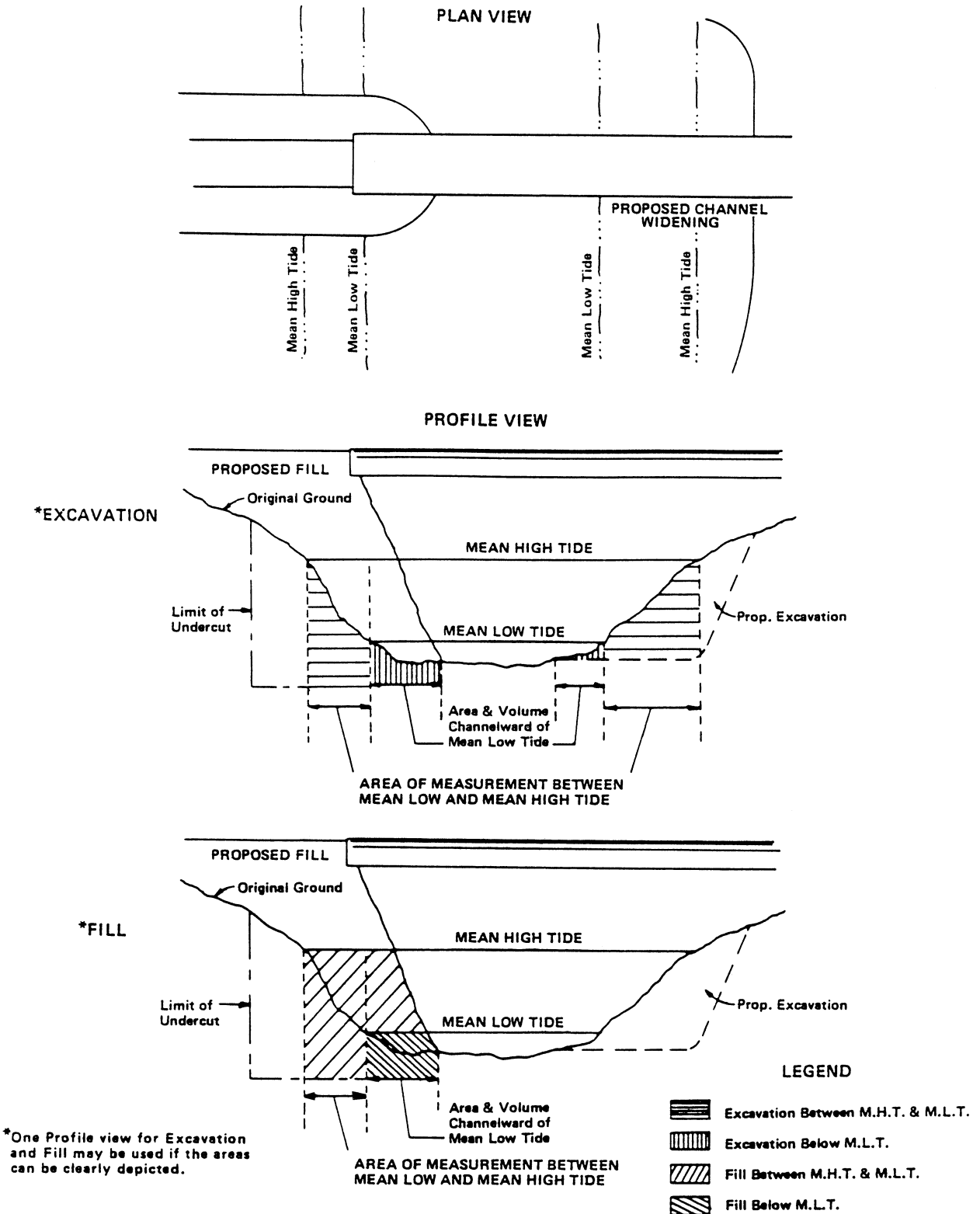
For fresh water lakes, the ordinary high water, ordinary low water and limits of wetlands (if applicable) need to be shown. Quantities will be figured channelward and below ordinary high water.

For tidal areas, the mean low tide, mean high tide and limits of wetlands (if applicable) need to be shown. Quantities are to be figured from where the tide lines touch the original banks (1) Channelward of and below mean low tide line and (2) Channelward of mean high tide line and below to the horizontal and vertical planes of mean low tide.

In addition, the total area to be filled below the applicable high water line is to be stated. The area of wetlands to be filled is to be stated separately. These areas are those within the limits of construction.

In addition to showing the wetland mitigation site(s) on the plan view, include, as appropriate, both a contour map with the proposed and adjacent contours and a typical cross-sectional view with the proposed grade of the site(s) in relation to the approximate adjacent ground/wetlands elevation. A primary concern of the VMRC involves slightly sloping mitigation sites to minimize trenching and excessive ponding. In addition, an enlarged plan view depicting species to be planted at the appropriate elevations if helpful.

In summary, it is suggested that a copy of the [drawing checklist](#) be utilized and made a part of the file when the sketches are prepared, since this will be the procedure followed when the sketches are reviewed before being submitted to the District Environmental Manager. When questions arise pertaining to the preparation of the permit sketch, the Hydraulics Section in the Central Office is to be consulted.



MEASUREMENT OF EXCAVATION AND FILL AREAS BETWEEN MEAN LOW AND MEAN HIGH TIDES

FIGURE C-4-3

DRAWING CHECKLIST (TO BE STRICTLY ADHERED TO)

1. General

- () Submit one copy original of all drawings on paper sheets measuring 216 mm x 279 mm (8 1/2 x 11 inches). Submit the fewest number of sheets necessary to adequately and clearly show the proposed activity. Drawings should be in accordance with the general format of the enclosed sample drawings and must be of good reproducible quality. Block style lettering should be used. Do not use freehand sketches.

It is recommended that the drawings be in ink on plastic sheets. Prints may be made from these sheets and may, in turn, be used as the "copy original" for the permit application. The original drawing will be retained by the designer to facilitate revisions.

- () A 25 mm (1") margin is to be left at the top edge of each sheet for binding purposes and a 12 mm (half-inch) margin on the other three sides.
- () Drawings are not to reflect the approval, non-objection, or action of other agencies.
- () Since drawings must be reproduced photographically, color shading cannot be used. Drawings may show proposed work using stippling, hatching, cross-hatching, or similar graphic symbols.
- () Each drawing submitted should identify the project and contain the route and project number; the name of any applicable body of water and/or stream; river mile, if applicable; name of county; number of sheet and total number of sheets in a set; and date the drawing was prepared.
- () State datum used as basis for elevations (mean sea level, mean low water or National Ocean Survey datum in tidal areas / ordinary high water in non-tidal areas).
- () Subsequent revised drawings, as required, must be dated.

2. Vicinity Map

- () Show location of each activity site (to scale) including latitude and longitude on a portion of an original USGS Topo map. Show name of the USGS map(s) used.
- () *Show name of waterway and river mile (if applicable).

- () *Show name of and distance to local town, community or other major landmark(s). Show city and/or county boundaries where applicable.
- () Show graphic scale.
- () Show North arrow (preferably oriented so North is pointing to top of sheet).
- () *Show route numbers and names of roads in the vicinity of the activity site.

*Note: A cut out from a county map with the scale, north arrow and activity site identified may be used in lieu of showing distances and route numbers/road names on the topographic map.

3. Plan View (To be drawn to as large a scale as practical)

- () Show name of waterway.
- () Show distance between proposed activity and water channel or navigation channel where applicable.
- () Show location and boundary of any wetlands. (Use COE's (Corps of Engineer's) multiparameter method for boundary delineation.)
- () Show existing shorelines if different from ordinary high water or mean high tide.
- () Show ebb and flood in tidal waters and direction of flow in non-tidal areas.
- () Show North arrow (preferably oriented so North is pointing to top of sheet).
- () Show graphic scale or "not to scale." (Adequate dimensions must be provided on "not to scale" views. Freehand sketches are unacceptable).
- () Show existing and/or proposed VDOT right of way and easements, existing easements owned by others and existing and/or proposed utilities where applicable.
- () Show proposed and/or existing roadway limits and existing structure to be replaced.
- () Show proposed construction limits including channel changes and easements.
- () Show relocated utilities if they are part of the project and located within our right of way easement.

- () Show applicable erosion control devices. (Do not place in "live" streams.) Show stream bank stabilization.
- () Show mean high and mean low tides if proposed activity is in tidal areas.
- () Show delineation of ordinary high water line if activity is in a non-tidal area.
- () Show normal pool elevation (level) if activity is on a lake.
- () Show principal dimensions of structure or work and extent of encroachment channelward of the mean high water and mean low water lines (for tidal areas only), or ordinary high water line (for non-tidal areas only), or normal pool elevation (level) for lakes.
- () Show the location for dredging, excavation, or fills below the applicable high water line, type of materials, and methods of handling. If applicable, indicate the number of cubic yards to be dredged, excavated and/or filled below and channelward of the ordinary high water line. In a tidal situation indicate the applicable dredged and/or fill quantities (1) below and channelward of the mean low water line, and (2) between the mean low water and mean high water lines.
- () Indicate, if applicable, the total area in square feet to be dredged and/or filled below the ordinary high water line or in a tidal situation, the mean high water line.
- () If known, show location of fill or spoil disposal area. If spoil material is to be placed in an approved spoil site, a separate map showing the location of the spoil site must be attached. The drawings must indicate proposed retention levees, weirs, and/or other devices for retaining hydraulically placed materials. If any de-watering or spoil material re-enters State waters, the site will need a permit.
- () Show and identify structures, if any, in navigable waters immediately adjacent to the proposed activity including permit numbers, if known.
- () Show water depths on either side of the project at mean low water (for tidal areas only) or ordinary high water (for non-tidal areas only) when a temporary causeway, dredge channel or channelization is part of the proposed project.
- () If applicable, indicate the total area in square feet of wetlands to be filled and/or dredged based on the COE's (Corps of Engineers') multiparameter method for boundary delineation.
- () Depict the wetland mitigation site(s).

- () Show property lines and identify adjacent property owners and addresses. On narrow waterways the property owner on the opposite shore must also be identified. (Not required for general permit sketch.)
 - () Show limits of wetlands for fresh water and tidal areas, if applicable. Also show spot elevations adjacent to project when the foregoing criteria applies.
 - () Identify the limits of oyster planting grounds, if applicable.
 - () Show the limits of anticipated mud wave, if applicable.
 - () Show proposed causeways, cofferdams and detours, if applicable.
 - () Show composition of causeways and cofferdams.
4. Profile View* (To be drawn to as large a scale as practical to depict the proposed structure, cofferdams, piers, stream bank stabilization, etc., in relation to the stream.)
- () Depict the proposed structure(s) perpendicular to the center line if not skewed. If skewed, depict the structure looking upstream along the angle (or line) of skew or perpendicular to the centerline if a simple profile view (looking upstream) is given.
 - () If extensive channel dredging or channel relocation is proposed, show the proposed dredging grade or channel profile as appropriate.
 - () Show same water elevation as for plan views, including wetlands elevation, if applicable.
 - () Show proposed and/or existing structures (with invert elevations in the case of culverts).
 - () Show proposed and/or existing road grade elevations over proposed structures.
 - () Show graphic scale or "not to scale". (Adequate dimensions must be provided on "not to scale" views.)
 - () Show elevation of spoil areas, if applicable.
 - () Show by cross hatching, area of fill below applicable high water.

*Note:

Small depictions of the profile view of temporary causeways/haul roads/detours with pipes, work bridges may be shown on the plan view if space permits and if such features are attendant/secondary. When projects are modified to include or reflect changes to these features, the features should be adequately depicted on a larger scale.

5. Cross-sectional View** (Adequate dimensions must be provided to describe activity - Does not have to be to scale).
- () Show typical view of longitudinal roadway encroachments into streams and wetlands. The wetlands shown must be those based on the COE's (Corps of Engineer's) multiparameter method for boundary delineation.
 - () Show the typical view of channel relocations with low-flow provisions as appropriate.
 - () Show disposal sites with elevation of berms and any overflow pipes if any dewatering or spoil material will re-enter State waters.
 - () Show same water elevations as for plan view, including wetlands elevation, when applicable.
 - () Show cross section of excavation or fill and side slopes.
 - () Show elevation of spoil areas, if applicable.
 - () Show depth of waterward face of proposed work or if dredging is proposed, show dredging grade.
 - () If a fill, float, or pile supported platform is proposed, show dimensions above applicable high water line and identify any structures to be erected thereon.
 - () Show by cross hatching, area of fill below applicable high water.

**** Note:**

- (1) Small depictions of typical cross-sections of temporary causeways /haul roads /detours, work bridges and detour bridges may be shown on the plan view if space permits when such features are attendant/secondary. When permits are revised to reflect changes to or include such features, larger depictions are preferable.
- (2) Cross-sections are to be used to depict different type features and/or options of structural features. The detail/size of such cross-section is discretionary.
- (3) Cross-sections referenced to the plan view are helpful.

6. Wetlands Mitigation Sketches

- () In addition to showing the wetland mitigation site(s) on the plan view, include as appropriate, a contour map with the proposed and adjacent contours and a typical cross-sectional view with the proposed grade of the site(s) in relation to the approximate adjacent ground/wetlands elevation. In addition, an enlarged plan view depicting species to be planted at the appropriate elevations is required.

7. Notes on Drawings

- () List names and addresses of adjacent property owners whose property also adjoins the water, if not shown in plan view. (Not required for general permit sketch).
- () State purpose (private use, commercial, public, etc.) of proposed activity. (Identify Project).
- () If petroleum products or other hazardous material will be stored or handled at the proposed facility, so indicate.
- () State datum used in plan, profile, and section views. (Mean Low Water, National Ocean Survey Datum or USGS).
- () List names and addresses, separate from the property owners, of known claimants of Water Rights and/of oyster planting Grounds, if applicable.
- () State the method of dredging, if applicable.

- () State the number of m³ (cubic yards) to be dredged, excavated or filled channelward of and below the ordinary high water line (causeways and fill type cofferdams inclusive).

or

State the number of m³ (cubic yards) to be dredged, excavated or filled (1) Channelward of and below Mean Low Tide and (2) between Mean Low Tide and Mean High Tide (causeways and fill type cofferdams inclusive). See Figures C-4-6 and C-4-7.

- () State the total area in square meters (sq. ft.) to be filled and excavated channelward of and below applicable high water line. State separately the entire area of wetlands in m² (sq. ft.) filled (causeways and fill type cofferdams included.)

HYDRAULIC COMMENTARY FOR PERMIT APPLICATIONS

1. State source (or base) of hydrologic computations - i.e., "regional analysis of USGS gage data" or "empirical formulas such as Circular IV and USGS multiple regression formulas. State design frequency of projects, Q design, Q100.
2. State historical data - i.e., "high water marks for the 1969 flood obtained by VDOT field reconnaissance or from local resident." State discharge and frequency, if possible.
3. State type of hydraulic calculations - i.e., "FHWA Circular 5 -Culvert nomographs, FHWA Bridge Backwater Program, USACE HEC-2 W.S.P. Program, etc."
4. Display or describe by appropriate means the effect of the 100-year flood level under existing conditions and under proposed conditions.

It is recognized that the scope of this data will vary widely between different project types. Bridges and major streams will require adherence to the "1 on 100-year" rule or a detailed justification for deviating from the rule. Culverts and smaller streams are less restricted, although a statement of justification for our action is still required.

DISTRIBUTION OF COPIES OF PERMIT APPLICATIONS

Permit Application Data	to the Environmental Unit
District Environmental Section	2 complete assemblies, 1 containing original sketches
Construction Engineer.....	cover letter only
Programming & Scheduling Engineer	cover letter only
Bridge Designer.....	2 copies of bridge sketches and bridge construction commentary, if applicable
Assistant L&D Engineer - Rd. Des.....	1 complete assembly
Drainage Designer	1 complete assembly
File	1 complete assembly

GENERAL CONSTRUCTION NOTES AND EROSION AND SILTATION CONTROL NARRATIVE

The attached list of notes has been prepared for use as a guide in making permit application. It appears that one or more of the following conditions may exist on projects and the appropriate notes are to be used for the applicable condition:

-
- Condition No. 1 - Proposed Channel Change Outside the limits of existing live streams - Use note numbers 1 and 2.
 - Condition No. 2 - Proposed Channel Change inside the limits of existing live stream - Use note number 1.
 - Condition No. 3 - Proposed Culvert (Pipe or Box) outside the limits of existing stream - Use note numbers 1 and 4.
 - Condition No. 4 - Proposed Culvert (Pipe or Box) inside the limits of existing stream where topography will permit temporary channel change - Use note numbers 1 and 3.
 - Condition No. 5 - Proposed Culvert (Pipe or Box) inside the limits of existing stream where topography will not permit temporary channel change - Use note numbers 1 and 5.

Note No. 1 - Construction of proposed and temporary channel changes and culverts will be performed in such a manner as to minimize siltation of streams. Coordinate the essential sequence of operations so that work in live streams (including tie-ins on existing streams to proposed or temporary channel changes and culverts) will be scheduled for the season occurring during the life of the contract at which stream flow is at or near its minimum.

Prior to beginning excavation in live streams (including tie-ins) for proposed and temporary channel changes and culverts, required erosion control devices downstream from the proposed location(s) will be in place. Such devices will be properly maintained during construction at the respective locations. Material excavated for construction of proposed and temporary channel changes and culverts will be deposited within the roadway prism or in designated waste areas in such a manner as to prevent its return to streams by high water or run off. Backfill and approach fills for culverts will consist of excavation material. Erosion control devices will be strategically located as shown on the plan view to prevent siltation of streams during placement of backfill and approach fills and until the slopes are stabilized in accordance with Virginia Department of Transportation's Road and Bridge Specifications.

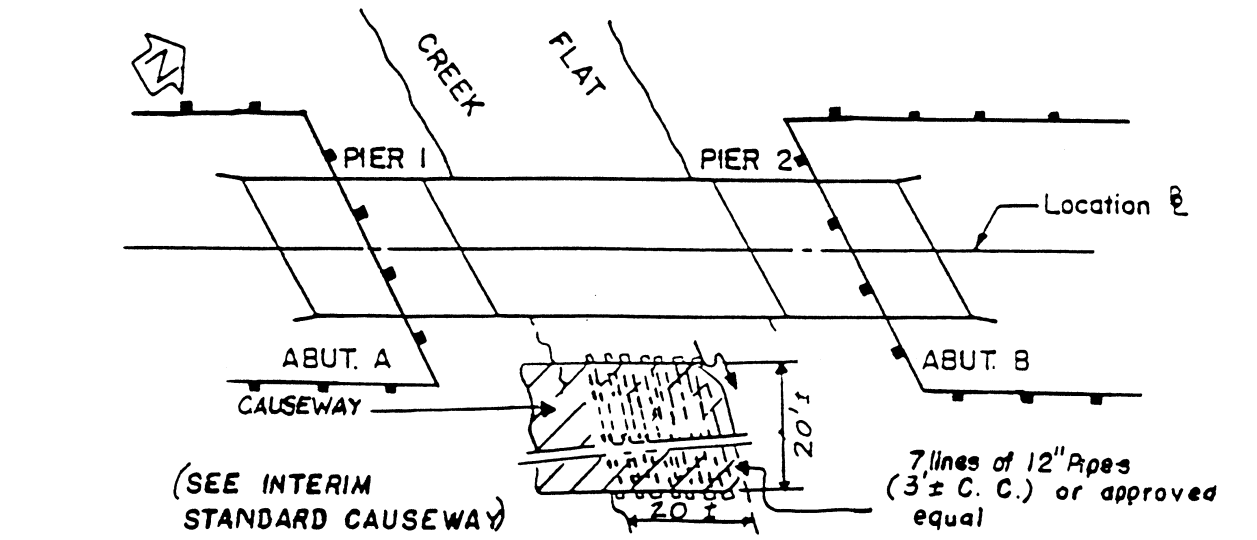
- Note No. 2 - Proposed Channel Change(s) No. _____ will be constructed in the dry, with the exception of tie-ins to existing live streams, and will be completed (including stabilization of the bottom and slopes) prior to diverting existing streams through proposed channel change(s). Once excavation for the tie-ins is begun, it shall be continuously prosecuted to completion, including stabilization of bottom and slopes.
- Note No. 3 - Culvert(s) No. _____ will be constructed by diverting the stream through a temporary channel change during excavation for and installation of the culvert(s). The temporary channel change will be constructed in the dry, with the exception of tie-ins to existing stream, and will be completed (including necessary stabilization of bottom and slopes) prior to diverting stream through temporary channel change. Once excavation for the tie-ins for the temporary channel change is begun, it shall be continuously prosecuted to completion including necessary stabilization of the bottom and slopes. The stream will not be diverted through the proposed culvert(s) until installation is complete, including required stabilization of inlet and/or outlet channel(s).
- Note No. 4 - Culvert(s) No. _____ will be installed in the dry, with the exception of tie-ins to existing live stream. The minimum temporary channel change necessary to maintain the integrity of the channel will be constructed to provide the dry condition during installation of the culvert(s). Once excavation for the tie-ins is begun, it will be continuously prosecuted to completion, including any required stabilization of inlet and/or outlet channel(s).

Note No. 5 - Culvert(s) No. _____ will be constructed by diverting the stream through a temporary pipe culvert or temporary diversion channel during excavation for and installation of the proposed culvert(s).

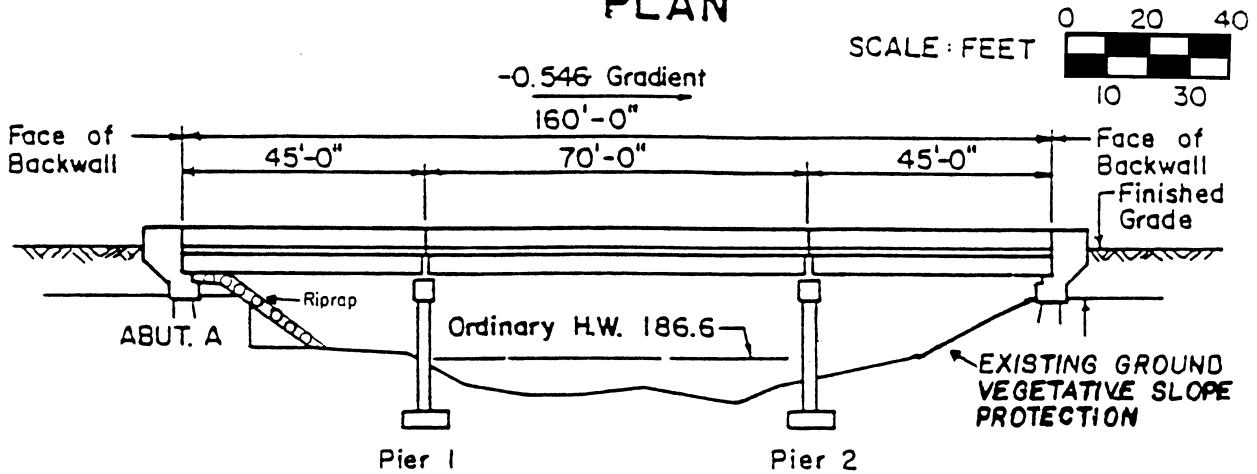
Note No. 6 - Measures shall be employed to prevent and/or control spills of fuels and/or lubricants from entering state waters. In the event that oil or other hazardous spill material has potential to or gets into state waters, the Contractor shall immediately notify the State Water Control Board and will take immediate actions for the containment and removal of such spill.

Note No. 7 - The Department will enforce the application of the following temporary and permanent erosion and siltation control measures for the work to be done on both shores of _____.

- a. Temporary filter barriers will be placed at the base of fill at the abutments and around the perimeter at the base of the causeway.
- b. Temporary filter barriers will be installed in accordance with Section 303 of the Virginia Department of Transportation's Road and Bridge Specifications. The Contractor will regularly inspect the temporary barriers and correct any deficiencies in accordance with Section 107 of the Virginia Department of Transportation's Road and Bridge Specifications.
- c. Cut and fill slopes will be promptly seeded in accordance with the Virginia Department of Transportation's Road and Bridge Specifications.



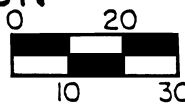
PLAN



ELEVATION

FILL BELOW ORDINARY HIGH WATER		
	C.Y.	S.F.
RIPPRAP	23	280
CAUSEWAY*	30	400
*CAUSEWAY IS OPTIONAL		
EXCAVATION BELOW ORDINARY HIGH WATER		
	C.Y.	S.F.
RIPPRAP	23	280
CAUSEWAY*	30	400
EXISTING STRUCTURE	37	1000

SCALE: FEET



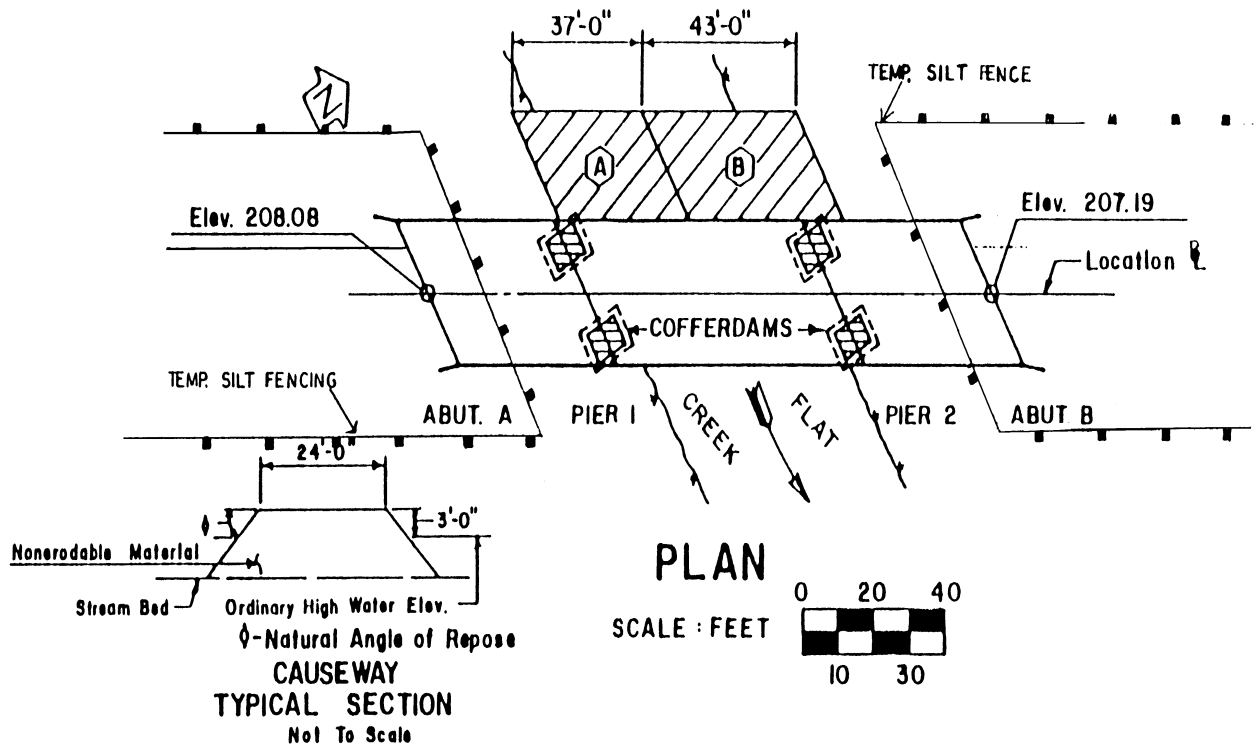
PROPOSED BRIDGE ON RTE. 604
 OVER FLAT CREEK
 0.4 MI. N. INT. RTE. 632
 COUNTY OF AMELIA
 STATE OF VIRGINIA
 APPLICATION BY: VA. DEPT. OF
 TRANS.

SHEET OF

DATUM: U.S.C. & G.S.

PROPOSED BRIDGE PLAN-PROFILE SKETCH

FIGURE C-4-4



STRUCTURE EXCAVATION

- PIER 1 - 80 C.Y.
- PIER 2 - 73 C.Y.

CAUSEWAY QUANTITIES

	FILL	AREA
(A)	99 C.Y.	1200 S.F.
(B)	68 C.Y.	1400 S.F.

- DENOTES AREA OF EXCAVATION
- DENOTES CAUSEWAY

PROPOSED BRIDGE ON RTE. 604
OVER FLAT CREEK
0.4 MI. N. INT. RTE. 632
COUNTY OF AMELIA
STATE OF VIRGINIA
APPLICATION BY: VA. DEPT. OF
TRANS.

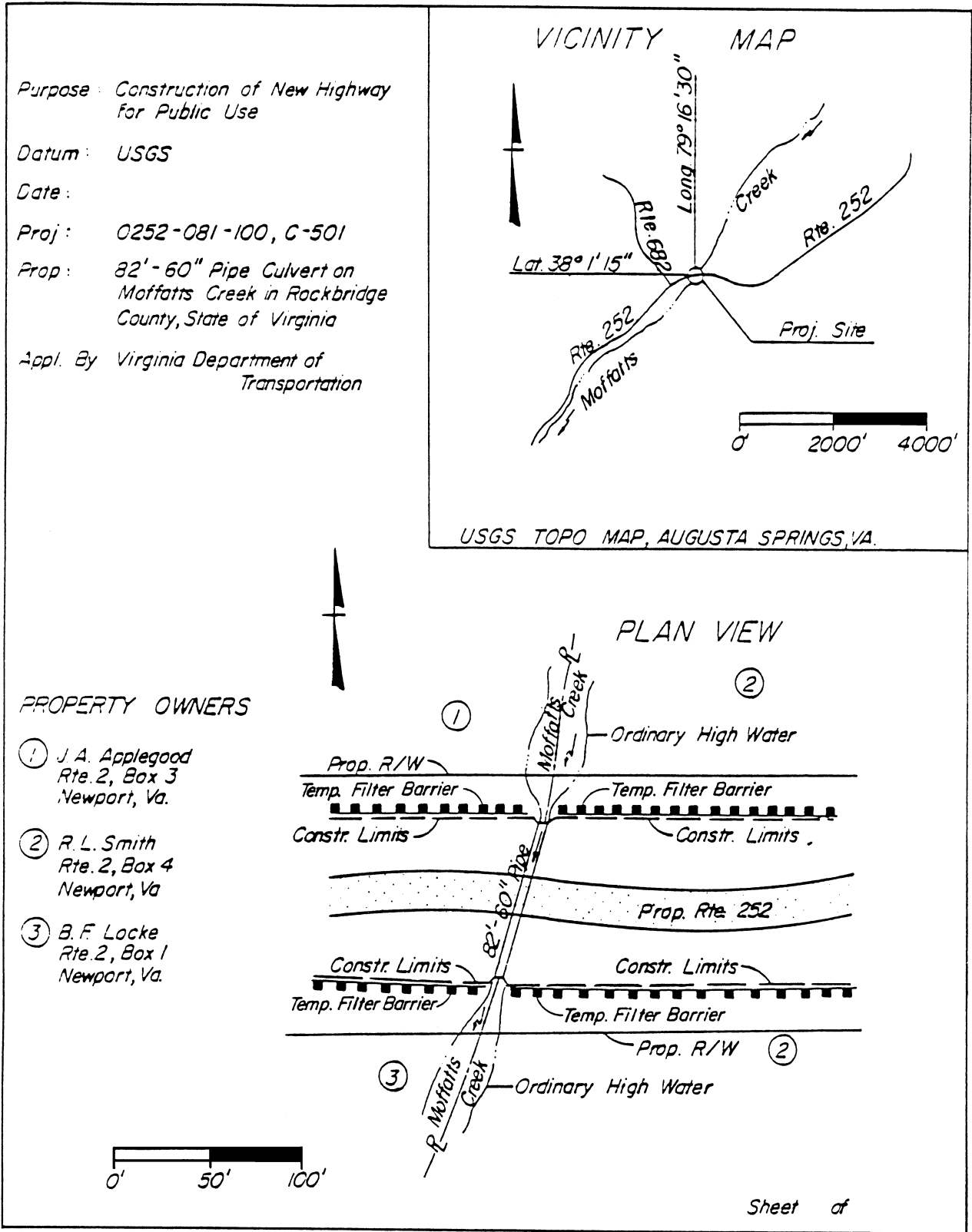
SHEET OF

PROPOSED BRIDGE EXCAVATION AND CAUSEWAY SKETCH

FIGURE C-4-5

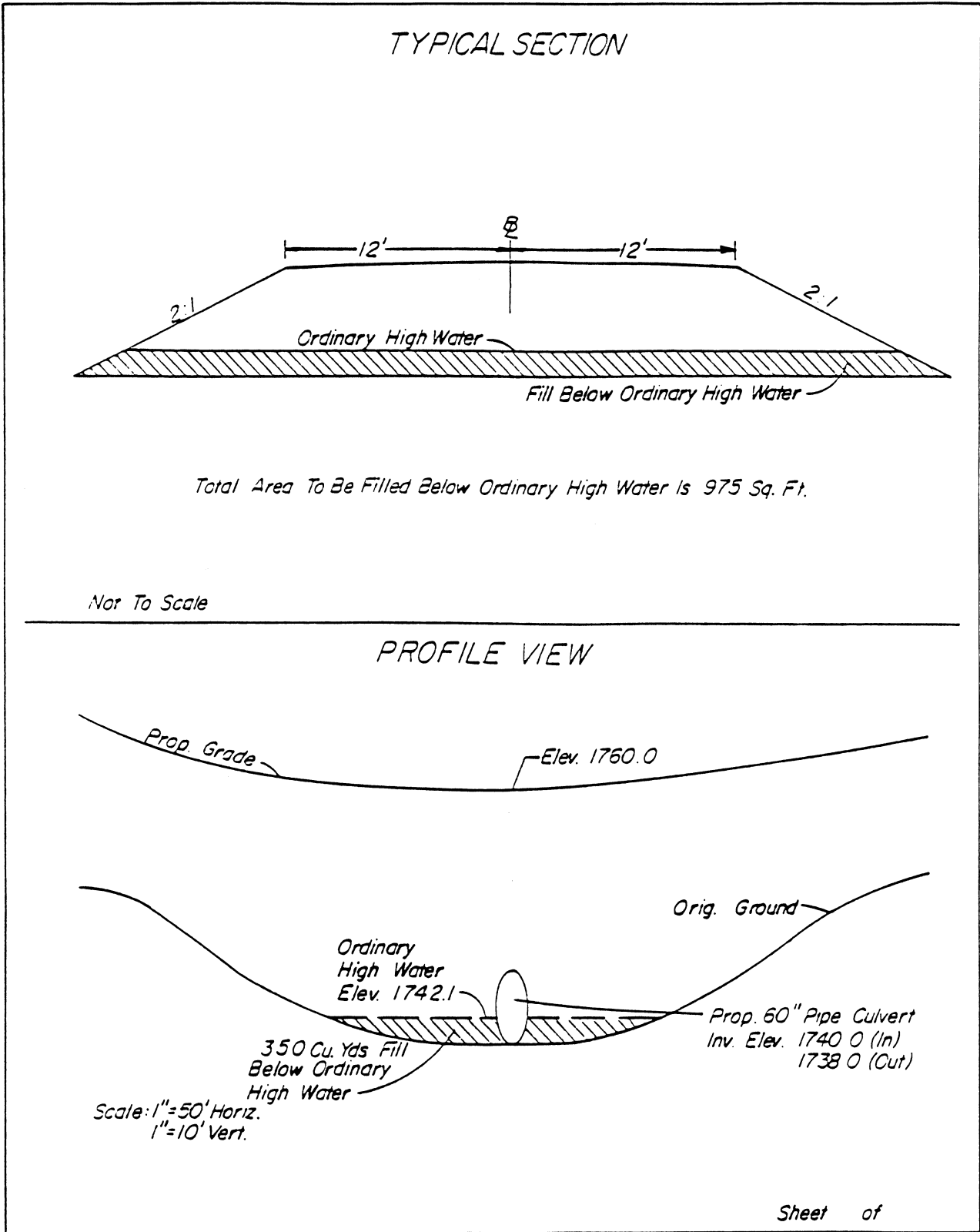
Project 0604-004-140,B-615
Route 604 over Flat Creek

1. Causeway A is to be constructed of non-erodable material as shown on the attached drawing. Causeway to be used for construction of Pier 1 and superstructure.
2. Excavation for Pier 1 to be performed within cofferdam placed from Causeway A. Cofferdam to be constructed so as to permit no siltation of the stream as a result of the excavation and backfill operations. Materials excavated from within cofferdam to be hauled from the site and used within the roadway prism.
3. After completion of Pier 1 and superstructure, the cofferdam and Causeway A are to be completely removed in such a manner as to cause minimal disturbance of the stream and hauled from the site to be used within the roadway prism or salvaged.
4. After removal of Causeway A, Causeway B is to be constructed of non-erodable material as shown on attached drawing. Causeway B to be used for construction of Pier 2 and superstructure.
5. Excavation for Pier 2 is to be performed within cofferdam placed from Causeway B. Cofferdam to be constructed as to permit no siltation of the stream as a result of the excavation and backfill operations. Material excavated from within cofferdam is to be hauled from the site and used within the roadway prism.
6. After completion of Pier 2 and superstructure, the material in cofferdam and Causeway B is to be completely removed in such a manner as to cause minimal disturbance of the stream and hauled from the site to be used within the roadway prism or salvaged.
7. All material disposed of within the roadway prism will be prevented from re-entry into the stream and its flood plains in accordance with Virginia Department of Transportation's Roadway and Bridge Specifications. Special Provisions and Supplemental Specifications.
8. The order of construction may be reversed in order to build Causeway B first thence following the above outlined procedures.
9. The existing bridge will be removed in accordance with our Road and Bridge Specifications.
10. The fill at the existing abutments will be removed and graded to the elevation of natural ground.
11. All fill material removed from the existing abutments shall be disposed of and prevented from re-entry into the stream and its flood plains in accordance with Virginia Department of Transportation's Roadway and Bridge Specifications, Special Provisions and Supplemental Specifications.
12. Measures shall be employed to prevent and/or control spills of fuels and/or lubricants from entering state waters. In the event that oil or other hazardous spill material has potential to or gets into state waters, the Contractor shall immediately notify the State Water Control Board and will take immediate actions for the containment and removal of such spill.
13. The Department will enforce the application of the following temporary and permanent erosion and siltation control measures for the work to be done on both shores of Four Mile Creek:
 - a. Temporary filter barriers will be placed at the base of fill at the abutments and around the perimeter at base of the causeway.
 - b. Temporary filter barriers will be installed in accordance with Section 303.02(e) of the "Virginia Department of Transportation Road and Bridge Specifications." The Contractor will regularly inspect the temporary barriers and correct any deficiencies in accordance with Section 107.14(a) of the "Virginia Department of Transportation Road and Bridge Specifications."
 - c. Cut and fill slopes will be promptly seeded in accordance with the "Virginia Department of Transportation Road and Bridge Specifications."



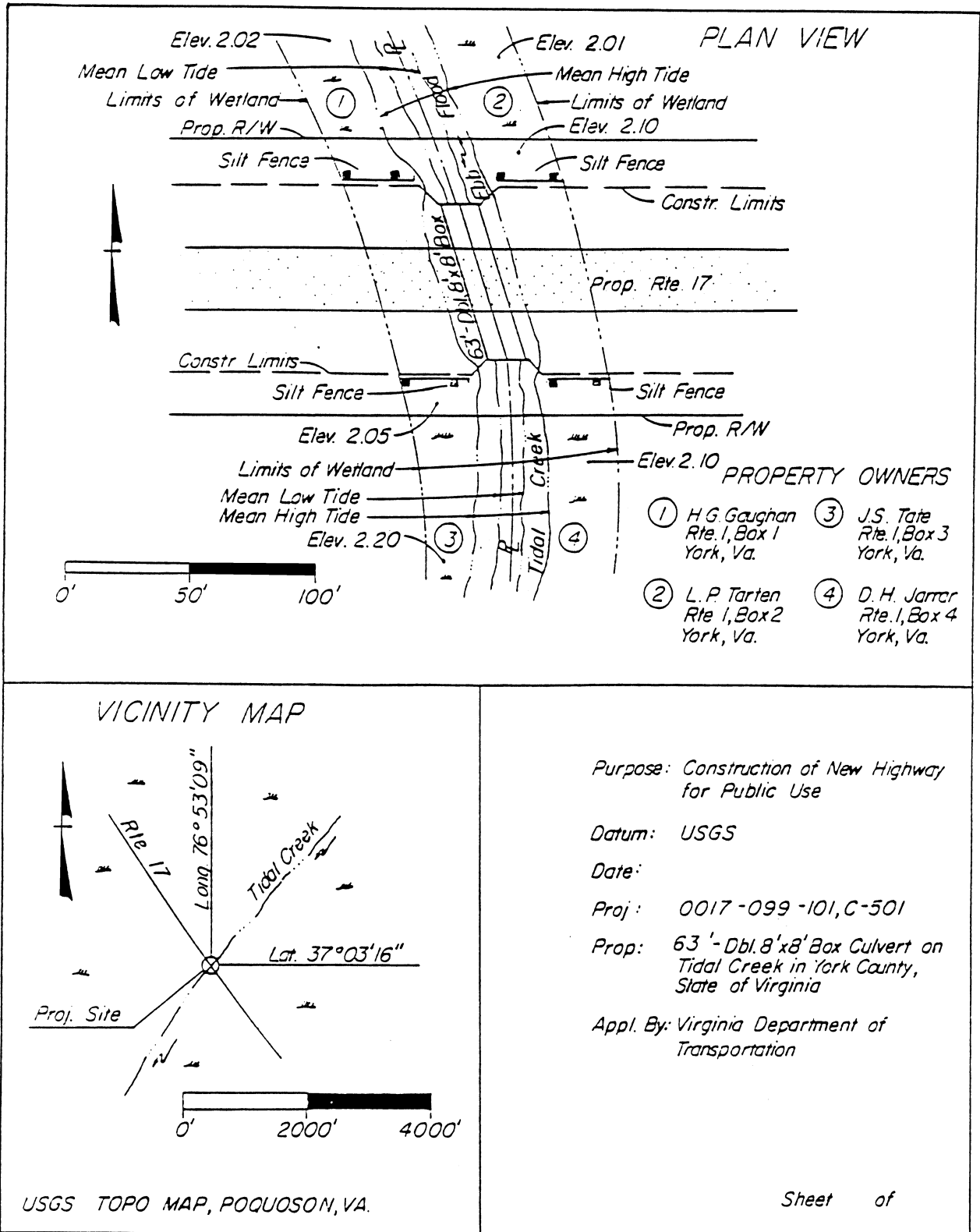
CULVERT (NON-TIDAL) PLAN VIEW

FIGURE C-4-6



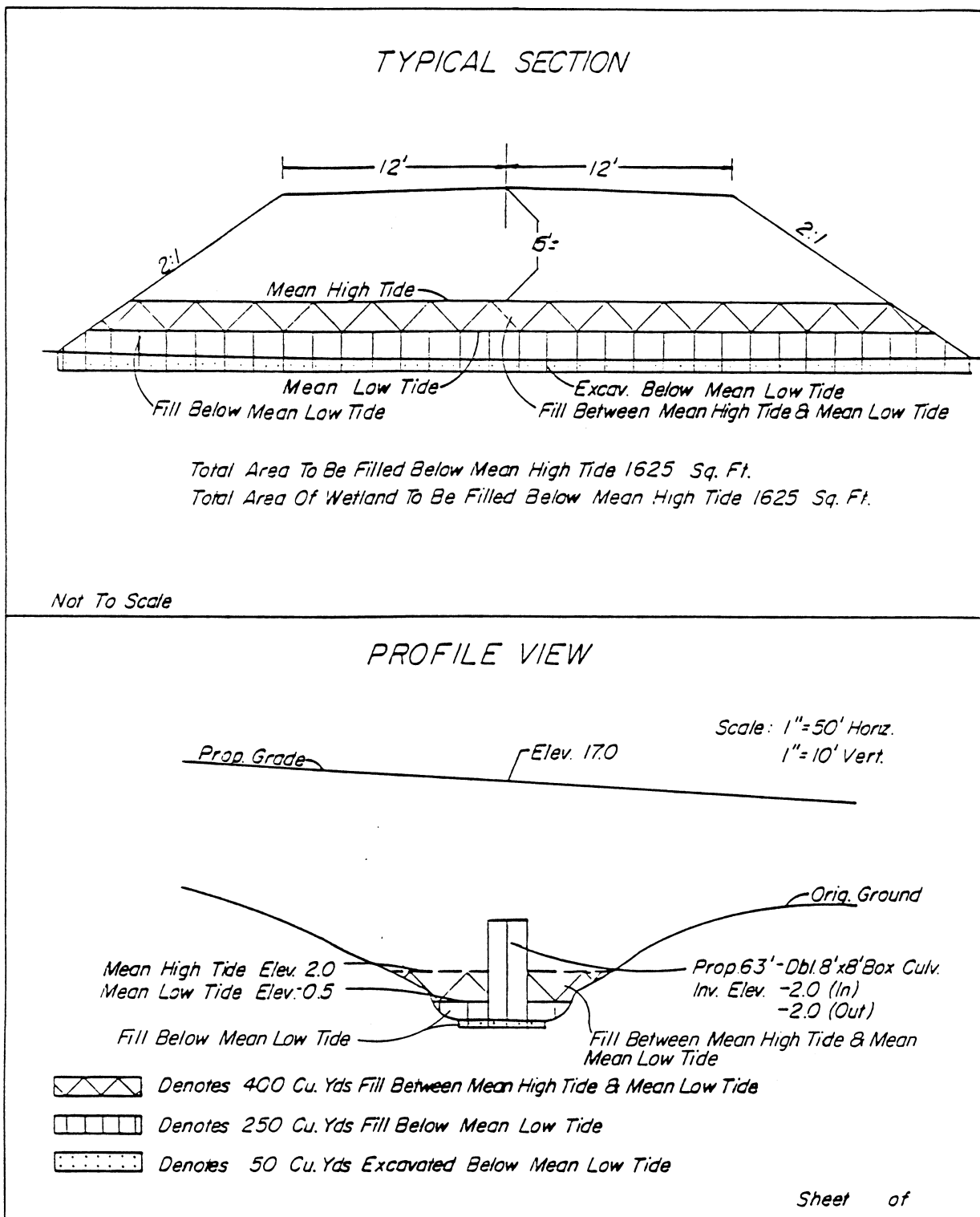
CULVERT (NON-TIDAL) -TYPICAL SECTION AND PROFILE VIEW

FIGURE C-4-7



CULVERT (TIDAL)-PLAN VIEW

FIGURE C-4-8



CULVERT (TIDAL) -PLAN VIEW

FIGURE C-4-9