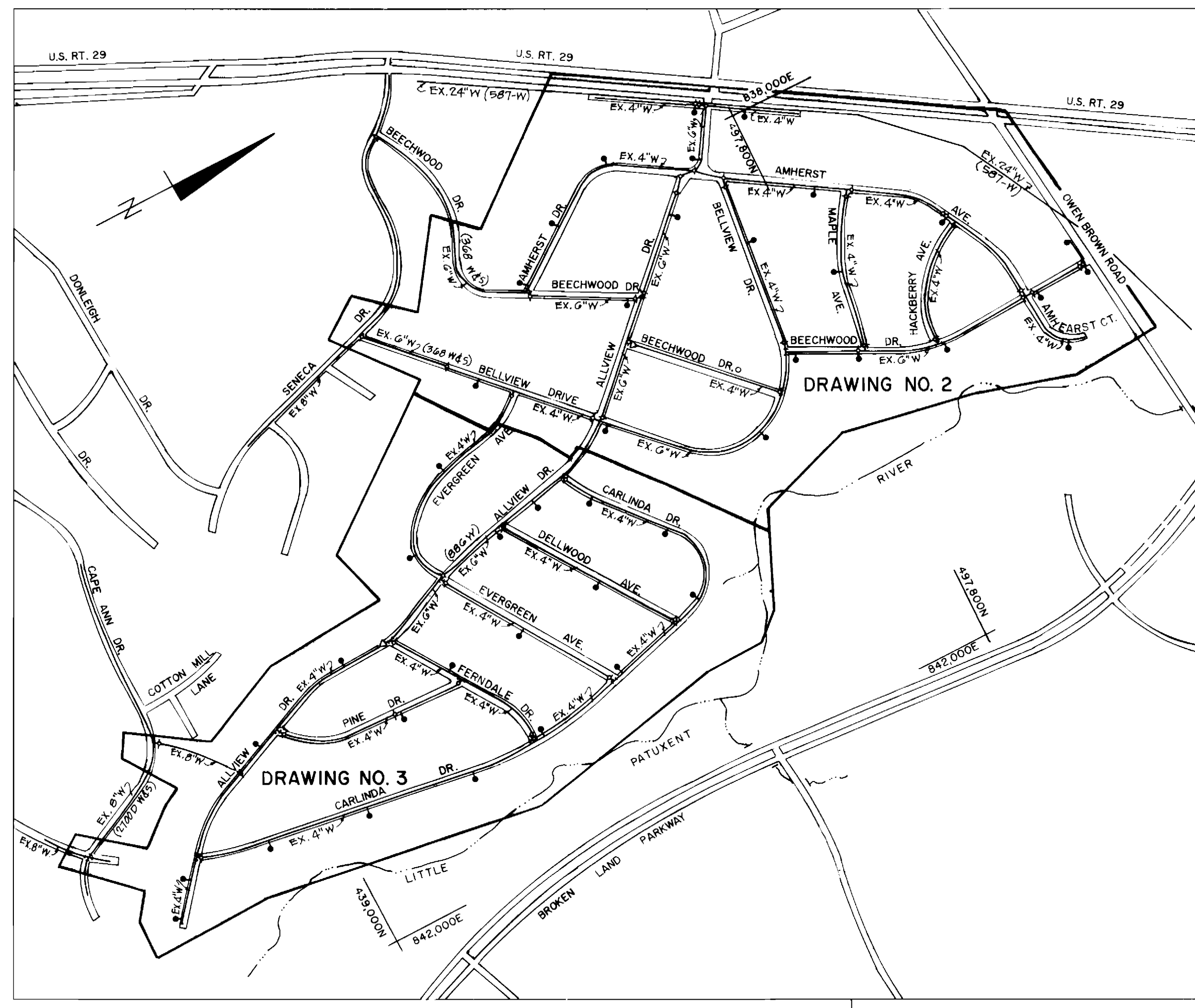


QUANTITIES

ITEM	BID	AS-BUILT	MATERIAL/SUPPLIER
CLEAN & LINE UNLINED 4" W.M.	14,900		
CLEAN & LINE UNLINED 6" W.M.	6,655		
CLEAN 4" LINED W.M.	8,190		
CLEAN 6" LINED W.M.	1,545		
2" TEMP. BYPASS & FIRE HYDRANT	LUMP SUM		
4" TEMP. BYPASS & FIRE HYDRANT	LUMP SUM		



VICINITY MAP
SCALE 1" = 600'

WASTEWATER DISPOSAL-SAVAGE
BUILDING TYPE-SINGLE FAMILY

* W.H.C. - 425
* S.H.C. - N.A.

WATER AND SEWER CODE

WATER - E-13
SEWER - N.A.

GENERAL NOTES

1. APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN AN UNINTERRUPTED SUPPLY. ANY DAMAGE INCURRED TO SAID MAINS AND SERVICES SHALL BE IMMEDIATELY REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. ALL HORIZONTAL AND VERTICAL CONTROLS ARE BASED ON MARYLAND STATE DATUM AS ADOPTED BY HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS.
3. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS.
4. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:
BALTIMORE GAS & ELECTRIC COMPANY - CONTRACTOR SERVICES 850-4620.
BALTIMORE GAS & ELECTRIC COMPANY - UNDERGROUND DAMAGE CONTROL 859-9004
BALTIMORE GAS & ELECTRIC COMPANY-TROUBLESHOOTING 298-9001

C & P TELEPHONE CO. 1-800-257-7777
COLONIAL PIPELINE COMPANY 795-4444
HOWARD CABLE TELEVISION 461-7017
MISS UTILITY 1-800-257-7777
HOWARD COUNTY BUREAU OF UTILITIES 313-4900
5. CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES, CLEAR ALL POLES BY A MINIMUM OF TWO FEET OR TUNNEL AS REQUIRED.
6. FOR DETAILS NOT SHOWN ON THE DRAWINGS AND FOR MATERIALS AND CONSTRUCTION METHODS SEE HOWARD COUNTY DESIGN MANUAL VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.
7. VEGETATIVE AND STRUCTURAL SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED PER ARTICLE 219 OF THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF THE MARYLAND STANDARDS AND SPECIFICATIONS OF SOIL EROSION AND SEDIMENT CONTROL DATED 1983 OR LATER REVISIONS.
8. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
9. SHUTDOWNS SHALL BE COORDINATED WITH THE BUREAU OF UTILITIES AT LEAST 48 HOURS IN ADVANCE.
10. EXISTING UTILITY INFORMATION SHOWN ON THESE PLANS IS PROVIDED SOLELY FOR THE CONTRACTOR'S CONVENIENCE AND IS NOT GUARANTEED TO BE ACCURATE OR COMPLETE.

ALLVIEW ESTATES WATER MAIN REHABILITATION

CAPITAL PROJECT W-8168

CONTRACT NUMBER 44-3078

HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

REVIEWED FOR HOWARD SOIL CONSERVATION DISTRICT AND MEETS TECHNICAL REQUIREMENT.	This Construction Plan is approved for Soil Erosion and Sediment Control by the Howard Soil Conservation District.
<i>James M. Helm</i> (6-3) 3/11/91 U.S. SOIL CONSERVATION SERVICE	APPROVED: <i>Shelly A. Allen</i> HOWARD S.C.D. 3/11/91 DATE

DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND			
<i>James M. Helm</i> DIRECTOR OF PUBLIC WORKS	4/6/91 DATE	<i>Shelly A. Allen</i> CHIEF, BUREAU OF ENGINEERING	2-6-91 DATE
<i>Richard S. Sumner</i> CHIEF, BUREAU OF UTILITIES	3-5-91 DATE	<i>Shelly A. Allen</i> CHIEF, UTILITY DESIGN DIVISION	2-28-91 DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND 21122
301-647-6000



DES: DMD	
DRN: E.CH.	
CHK:	
DATE:	
BY NO	
REVISION	
DATE	

LOCATION MAP & GENERAL NOTES	
600' SCALE MAP NO.	BLOCK NO.

ALLVIEW ESTATES WATER MAIN REHABILITATION CONTRACT NUMBER 44-3078 CAPITAL PROJECT W-8168 ELECTION DISTRICT GUILFORD NUMBER 6	SCALE AS SHOWN
	SHEET 1 OF 4

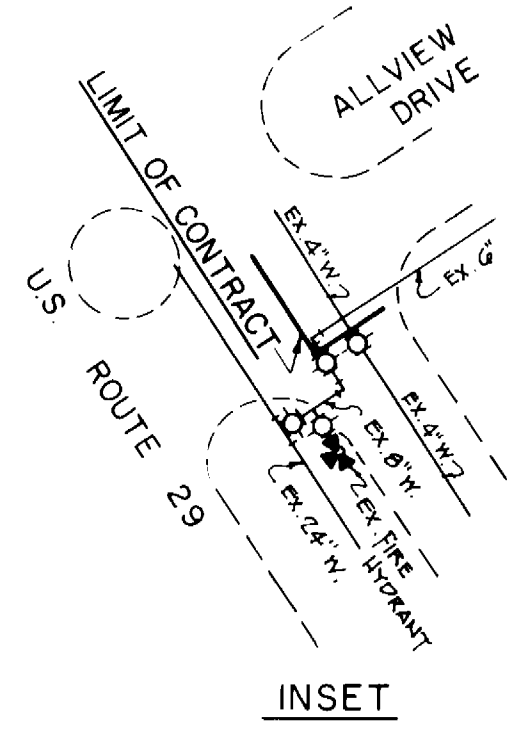


LEGEND

- ⊕ EXISTING FIRE HYDRANT
- ⊕ TEMPORARY SERVICE PIPE & DIAMETER
- ⊕ TEMPORARY FIRE HYDRANT FITTING
- ⊕ EXISTING SYSTEM VALVE
- * LOT WITH CURRENT WATER SERVICE (SEPT., 1990)
- S— EXISTING SANITARY SEWER
- G— EXISTING NATURAL GAS MAIN
- E— EXISTING ELECTRICAL CONDUIT
- T— EXISTING UNDERGROUND TELEPHONE LINES
- ⊕ INLET PROTECTION
- SD STORM DRAIN

- NOTES**
1. FOR FURTHER DETAILS OF EXISTING WATER MAIN SEE CONTRACT NUMBER 886-W; FOR DETAILS OF EXISTING SANITARY SEWERS SEE CONTRACT NUMBER 365-S.
 2. THE CONTRACTOR SHALL NOT PASS CLEANING EQUIPMENT THROUGH ANY VALVES ON THE EXISTING WATER SYSTEM.
 3. EXISTING WATER MAINS ARE UNLINED EXCEPT WHERE NOTED.
 4. ELEVATION OF EXISTING MAINS IS NOT KNOWN FROM EXISTING RECORDS.

PLAN
SCALE 1"=200'



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 3-6-91
 Chief, Bureau of Utilities: *[Signature]* 3-5-91

Chief, Bureau of Engineering: *[Signature]* 2-6-91
 Chief, Utility Design Division: *[Signature]* 2-28-91

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND 21122
301-647-6000



DES: DMD					
DRN: E.CH.					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

PLAN OF WATER MAINS
SHOWING TEMPORARY BYPASS SERVICE






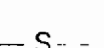

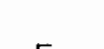


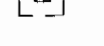
600' SCALE MAP NO. W83 36 BLOCK NO.

ALLVIEW ESTATES WATER MAIN REHABILITATION
CONTRACT NUMBER 44-3078
CAPITAL PROJECT W-8168
ELECTION DISTRICT GUILFORD NUMBER 6

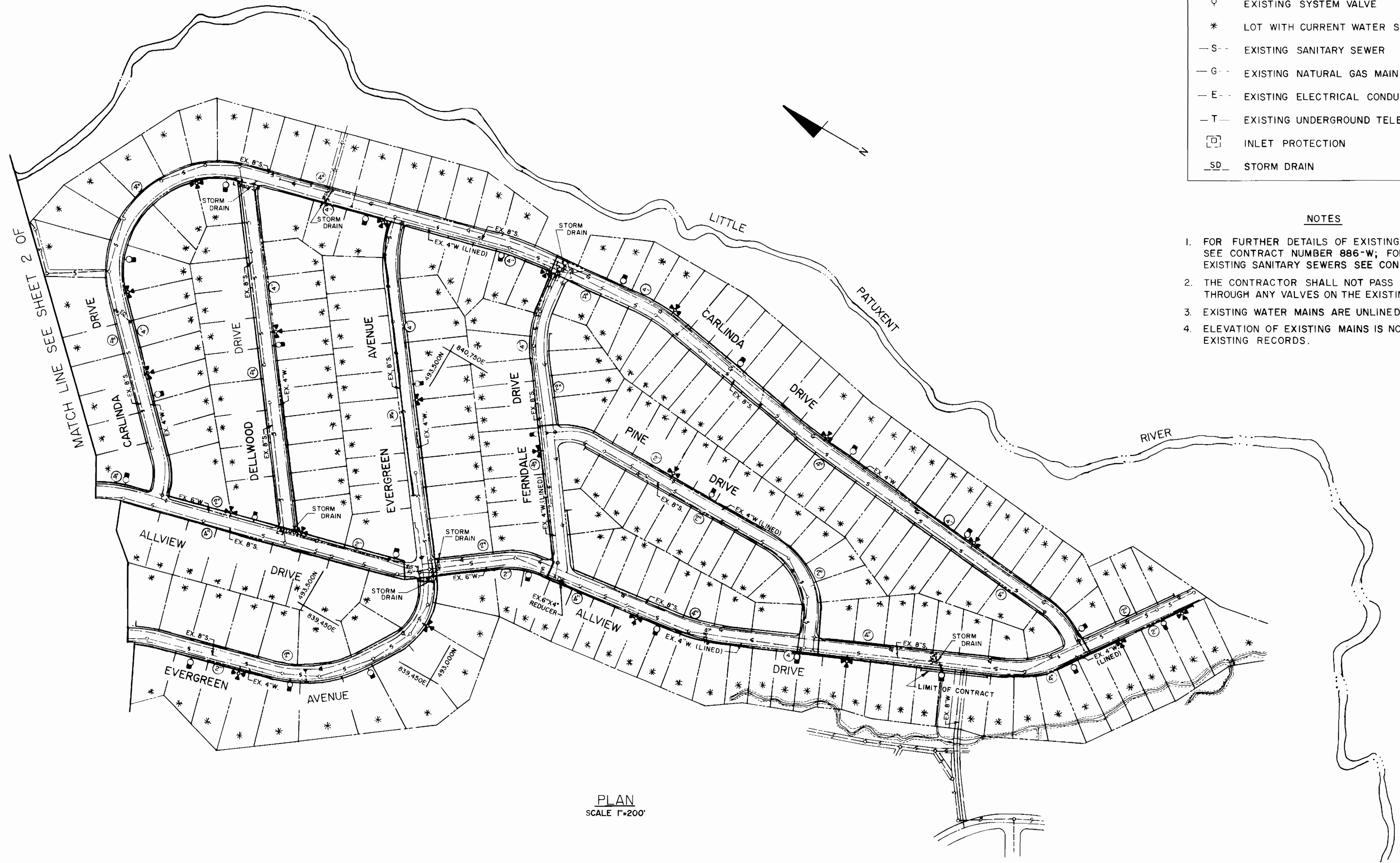
SCALE AS SHOWN

SHEET 2 OF 4

LEGEND

-  EXISTING FIRE HYDRANT
-  TEMPORARY SERVICE PIPE & DIAMETER
-  TEMPORARY FIRE HYDRANT FITTING
-  EXISTING SYSTEM VALVE
-  LOT WITH CURRENT WATER SERVICE (SEPT, 1990)
-  EXISTING SANITARY SEWER
-  EXISTING NATURAL GAS MAIN
-  EXISTING ELECTRICAL CONDUIT
-  EXISTING UNDERGROUND TELEPHONE LINES
-  INLET PROTECTION
-  STORM DRAIN

- NOTES**
1. FOR FURTHER DETAILS OF EXISTING WATER MAINS SEE CONTRACT NUMBER 886-W; FOR DETAILS OF EXISTING SANITARY SEWERS SEE CONTRACT NUMBER 365-S.
 2. THE CONTRACTOR SHALL NOT PASS CLEANING EQUIPMENT THROUGH ANY VALVES ON THE EXISTING WATER SYSTEM.
 3. EXISTING WATER MAINS ARE UNLINED EXCEPT WHERE NOTED.
 4. ELEVATION OF EXISTING MAINS IS NOT KNOWN FROM EXISTING RECORDS.



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 3-6-91
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 2-28-91
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 3-5-91
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 2-28-91
CHIEF, UTILITY DESIGN DIVISION DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA MARYLAND 21122
301-647-6000



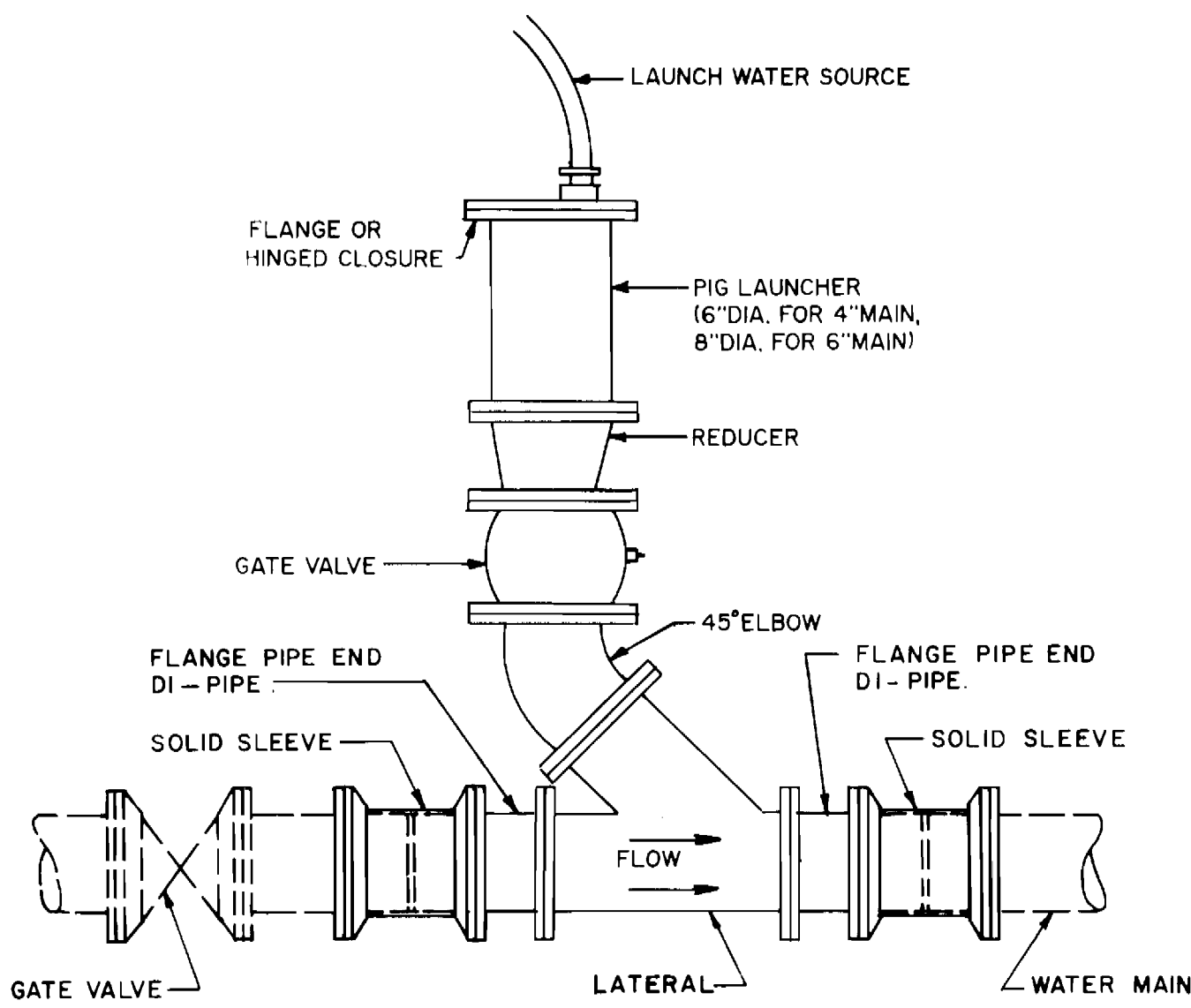
DES: DMD					
DRN: E.C.H.					
CHK:					
DATE:	BY	NO.	REVISION	DATE	

PLAN OF WATER MAINS
SHOWING TEMPORARY BYPASS SERVICE

600' SCALE MAP NO. WBS 36842 ? BLOCK NO. _____

ALLVIEW ESTATES WATER MAIN REHABILITATION
CONTRACT NUMBER 44-3078
CAPITAL PROJECT W-8168
ELECTION DISTRICT GUILFORD NUMBER 6

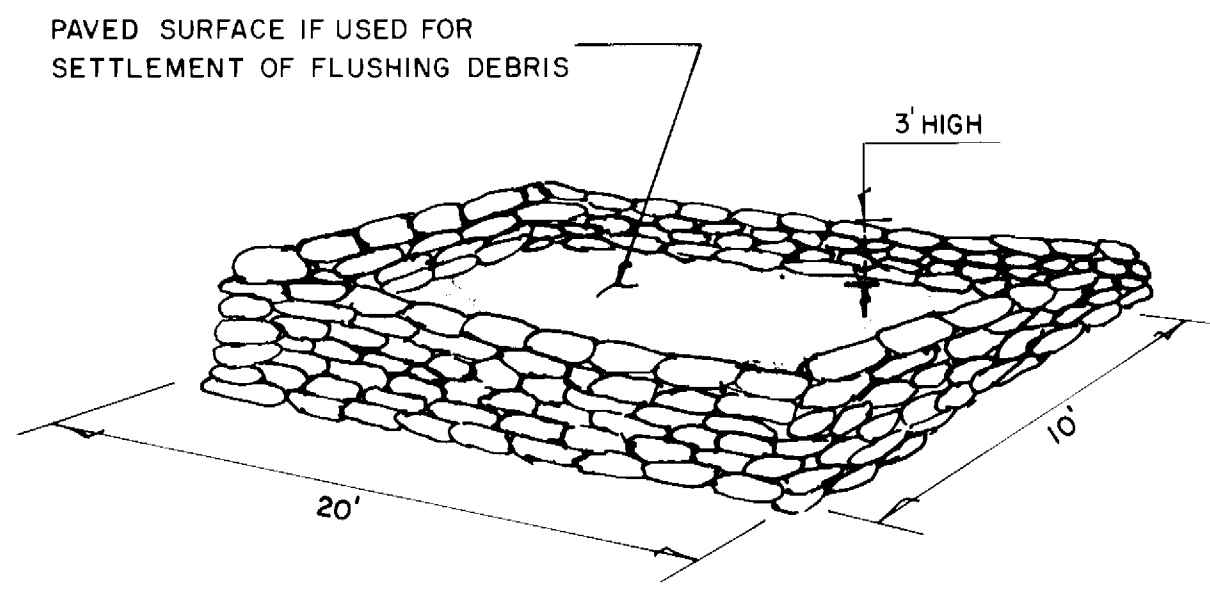
SCALE AS SHOWN
SHEET 3 OF 4



TYPICAL LAUNCHING DEVICE FOR HYDRAULIC PIPELINE CLEANING (PIGGING)
NOT TO SCALE

SEQUENCE OF INSTALLATION

- CUT PIPELINE & INSTALL LAUNCHER W/SLEEVES.
- PERFORM PIGGING OPERATION.
- REMOVE LAUNCHER & INSTALL REPLACEMENT SECTION WITH SLEEVES.



SANDBAG ENCLOSURE FOR IMPOUNDMENT OF CHLORINATED AND/OR DEBRIS-LADEN DISCHARGE WATER

NOTE

- CHLORINATED WATER MAY BE RELEASED ONCE CHLORINE LEVEL HAS FALLEN BELOW DETECTABLE LEVELS.
- CONSTRUCT ON PAVED SURFACE IF UTILIZED FOR SETTLEMENT OF FLUSHING DEBRIS.

SEQUENCE OF CONSTRUCTION

- Install sediment control measures downgrade of construction area after notification of Howard County Sediment Control Division, 880-3450.
- Install temporary service pipe and house connections as required to maintain customers water supply.
- Excavate access pits to main for cleaning/lining operations and construct impoundment(s) for settlement of flushing water.
- Perform cleaning and lining operations. Return mains to service, remove temporary water service, and backfill and compact all excavations.
- Restore vegetated areas as follows: all lawn areas are to be sodded as specified on this paper. Bush and open areas may be seeded and mulched. Restore paved areas in accordance with the specifications.
- Length of open trench shall be limited to three pipe lengths or that which can be backfilled and stabilized in one day, whichever is shorter. Silt fencing for sediment control shall be placed downhill surrounding any disturbed area which remains disturbed longer than one working day.

SPECIFICATIONS FOR VEGETATIVE ESTABLISHMENT

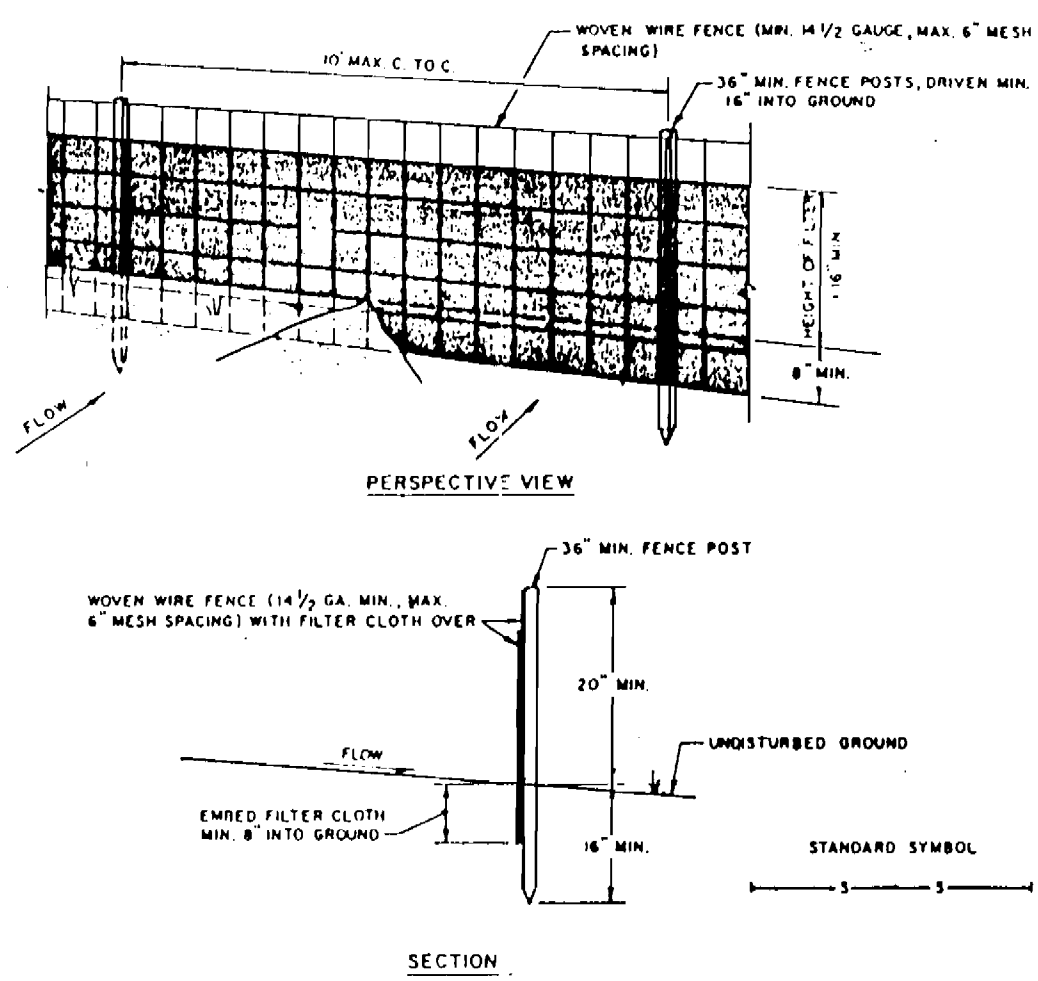
- Permanent Seeding
 - Seedbed Preparation: Loosen upper 3" of soil by raking, discing or other acceptable means prior to seeding.
 - Soil Amendments: In lieu of soil test use one of the following:
 - Before seeding apply 92 lbs. of dolomitic limestone and 14 lbs of 10-10-10 fertilizer per 1,000 square feet. Harrow or disc into upper 3" of soil. At time of seeding apply 9 lbs of 30-0-0 ureaform fertilizer per 1,000 square feet.
 - Before seeding apply 92 lbs of dolomitic limestone and 23 lbs of 10-10-10 fertilizer per 1,000 square feet. Harrow or disc into upper 3" of soil.
 - Seeding: Apply 1.4 lbs per 1,000 square feet of Kentucky 31 Tall Fescue between March 1 and April 30 or between August 1 and October 15. Apply 1.4 lbs of Kentucky 31 Tall Fescue and 0.05 lbs of Weeping Lovegrass per 1,000 square feet between May 1 and July 31. Apply 1.4 lbs of Kentucky 31 Tall Fescue per 1,000 square feet and mulch with 2 tons per acre of well anchored straw between October 16 and February 28 or apply sod.
 - Mulching: Apply 70 to 90 lbs per 1,000 square feet of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring tool or 5 gal. per 1,000 square feet of emulsified asphalt on flat areas. On slopes 8' or higher use 8 gal. per 1,000 square feet for anchor.
- Temporary Seeding
 - Seedbed Preparation: Loosen upper 3" of soil by raking, discing or other acceptable means prior to seeding.
 - Soil Amendments: Apply 14 lbs per 1,000 square feet of 10-10-10 fertilizer.
 - Seeding: Apply 3.2 lbs per 1,000 square feet of Annual Rye between March 1 and April 30 or between August 15 and November 15. Apply 0.07 lbs per 1,000 square feet of Weeping Lovegrass between May 1 and August 14. Apply 2 tons of well anchored straw mulch and seed as soon as possible in the spring between November 16 and February 28, or use sod.
 - Mulching: Apply 70 to 90 lbs per 1,000 square feet of unrotted small grain straw immediately after seeding. Anchor mulch immediately after application using mulch anchoring or 5 gal. per 1,000 square feet of emulsified asphalt on flat areas. On slopes 8' or higher use 8 gal. per 1,000 square feet for anchoring.
- Permanent Sod

Permanent sod is to be Kentucky 31 Tall Fescue state approved sod; lime and fertilizer per permanent seeding specifications and lightly irrigate soil prior to laying sod. Sod is to be laid on the contour with all ends tightly abutting. Water and roll or tamp sod to insure positive root contact with the soil. All slopes greater than 3 to 1, as shown, are to be permanently sodded. Additional watering for establishment may be required. Sod is not to be applied on frozen ground.

SOIL EROSION AND SEDIMENT CONTROL NOTES

- A minimum of 24 hours notice must be given to the Howard County Office of Inspection and Permits prior to the start of any construction. (992-2437)
- All vegetative and structural practices are to be installed according to the provisions of this plan and are to be in conformance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL.
- Following initial soil disturbance or redistribution, permanent or temporary stabilization shall be completed within 7 calendar days for all perimeter sediment control structures, dikes, perimeter slopes and all slopes greater than 3:1 and 14 days for all other disturbed or graded areas on the project site.
- All disturbed areas must be stabilized within the time period specified above in accordance with the 1983 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL for permanent seedings (Sec. 51) sod (Sec. 54), temporary seeding (Sec. 50) and mulching (Sec. 52). Temporary stabilization with mulch alone can only be done when recommended seeding dates do not allow for proper germination and establishment of grasses.
- All sediment control structures are to remain in place and are to be maintained in operative condition until permission for their removal has been obtained from the Howard County Sediment Control Inspector.
- Site Analysis:

Total Area of Site	272.4 Acres
Area Disturbed	0.09 Acres
Area to be roofed or paved	0.02 Acres
Area to be vegetatively stabilized	0.07 Acres
Cut volume	740 Cu. Yd.
Fill volume	740 Cu. Yd.
Borrow volume	0 Cu. Yd.
Waste volume	0 Cu. Yd.
- Any sediment control practices which is disturbed by grading activity for placement of utilities must be repaired on the same day of disturbance.
- Additional sediment controls must be provided, if deemed necessary by the Howard County DPW sediment control inspector.
- On all sites with disturbed areas in excess of 2 acres, approval of the inspection agency shall be requested upon completion of installation of perimeter erosion and sediment controls, but before proceeding with any other earth disturbance or grading. Other building or grading inspection approvals may not be authorized until this initial approval by the inspection agency is made.
- All excavated material will be placed on the high side of the trench.
- Erosion control measures will include sandbag filters, gravel filters, straw mulch, or any other applicable devices which will prevent erosion and sediment damage to adjacent properties, in accordance with the contract documents.
- Restoration shall proceed on each section of the right of way after each three pipe lengths of open trench. If it is not the proper seeding season then a straw mulch shall be spread over the disturbed area until final restoration can be performed. If as a result of limited access road then the disturbed areas on either side of the access road should be restored. The maximum width of an access road shall be 15 feet. The contractor shall regard at completion of project all such areas to conform to general topography of the area so as to avoid trapping of water. The access road shall be vegetated when it is no longer used.
- A buffer strip of undisturbed ground shall be left between the stream bank and the construction area in those areas where construction comes extremely close to the stream and a straw bale or sandbag filter berm shall be placed along the top of the stream bank.
- Sediment Removal - All trapped sediment is to be removed and disposed of at the authorized land fills prior to removal of sediment control structures.
- All tree removal and repair work shall be conducted in accordance with the State of Maryland, Department of Forest and Parks.
- Roadside ditches and drainage pipes to be returned to original condition following completion of construction.

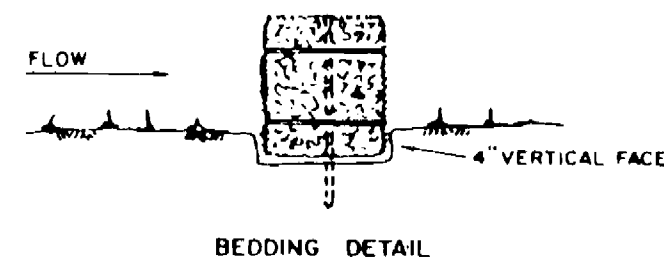


CONSTRUCTION NOTES FOR PREFABRICATED SILT FENCE

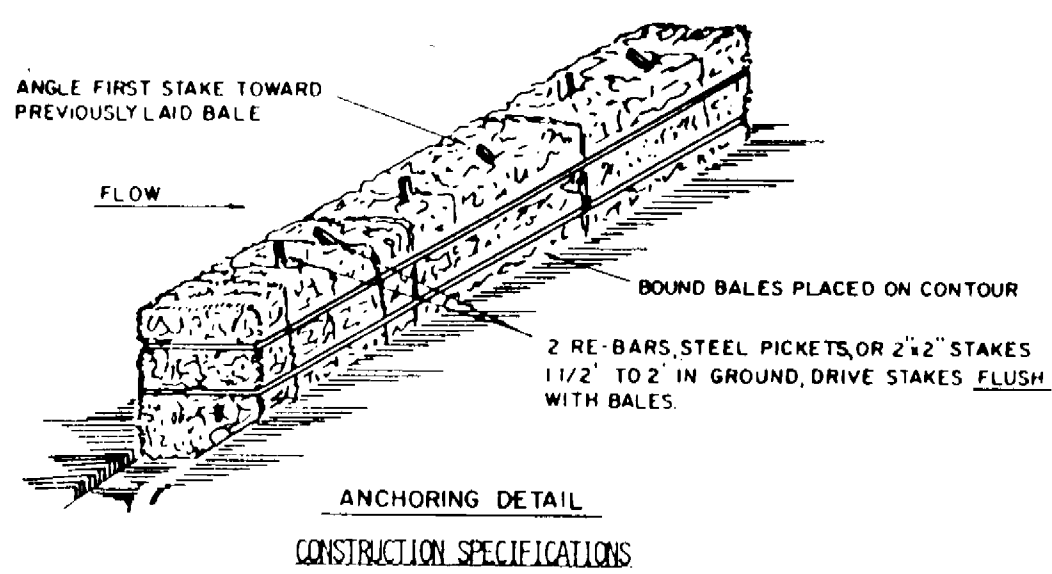
- Woven wire fence to be fastened securely to fence posts with wire T's or staples.
- Filter cloth to be fastened securely to woven wire fence with T's spaced every 24" at top and mid section.
- When two sections of filter cloth abut in each other they shall be overlapped by six inches and folded.
- Maintenance shall be performed as needed and material removed when 'bulges' develop in the silt fence.

POSTS: STEEL EITHER T OR U TYPE OR 2" HARDWOOD
FENCE: WOVEN WIRE, 1/2\"/>

SILT FENCE
NTS

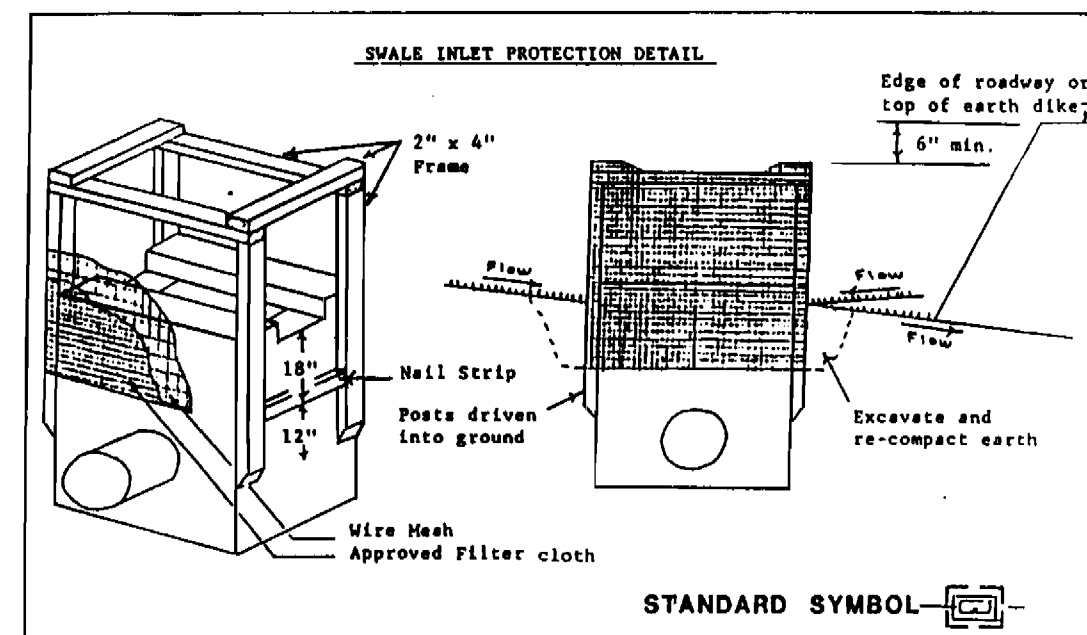


STANDARD SYMBOL
SBD

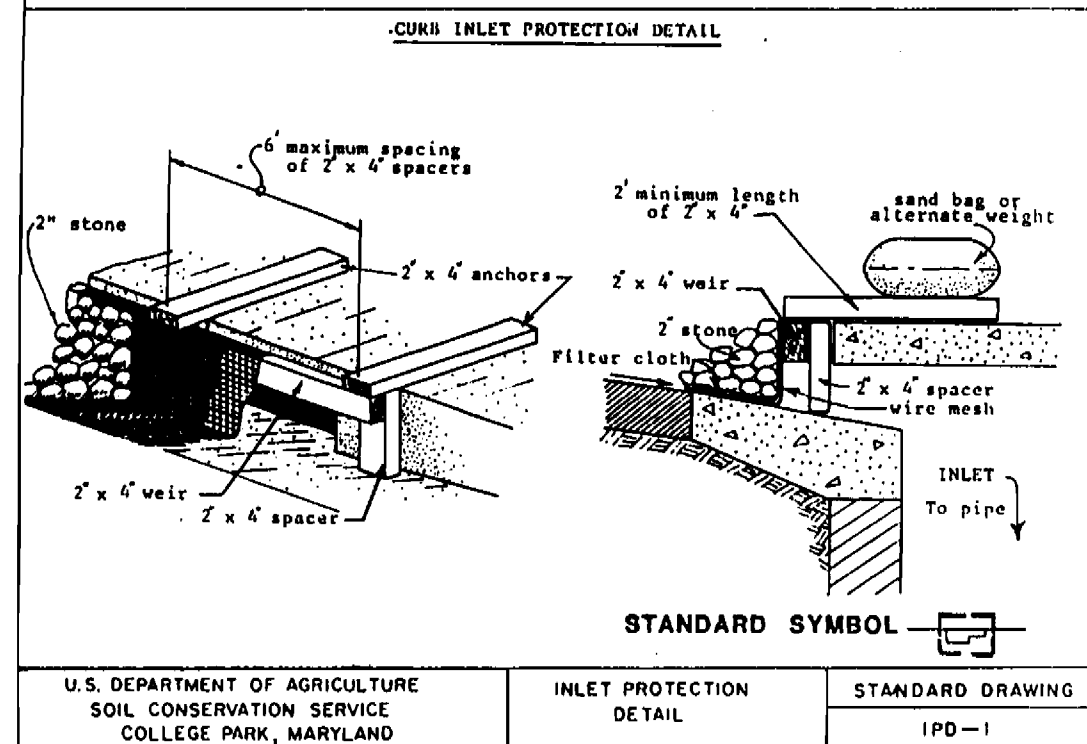


STRAW BALE DIKE
NTS

- BALES SHALL BE PLACED AT THE TOE OF A SLOPE OR ON THE CONTOUR AND IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
- EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF (4) INCHES, AND PLACED SO THE BINDINGS ARE HORIZONTAL.
- BALES SHALL BE SECURELY ANCHORED IN PLACE BY EITHER TWO STAKES OR RE-BARS DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHALL BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE AT AN ANGLE TO FORCE THE BALES TOGETHER. STAKES SHALL BE DRIVEN FLUSH WITH THE BALE.
- INSPECTION SHALL BE FREQUENT AND REPAIR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPED STORM FLOW OR DRAINAGE.



STANDARD SYMBOL



STANDARD SYMBOL

U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
COLLEGE PARK, MARYLAND
INLET PROTECTION
DETAIL
STANDARD DRAWING
IPD-1

ENGINEER'S CERTIFICATION

I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard Soil Conservation District.

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5 PASADENA, MD. 21122

DEVELOPER'S CERTIFICATION

"I/WE certify that all development and construction will be done according to this plan, and that any responsible personnel involved in the construction project will have a Certificate of Attendance of a Maryland Department of Environment Approved Training Program for the Control of sediment and Erosion before beginning the project."

BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS

Reviewed for Howard County S.C.D. and meets technical requirements

Approved: *James M. Harms, Jr.* Date: 3/1/91
S.O.S. SOIL CONSERVATION SERVICE
This development plan is approved for soil erosion and sediment control by the Howard County Soil Conservation District.
Approved: *[Signature]* Date: 3/1/91
HOWARD COUNTY S.C.D.

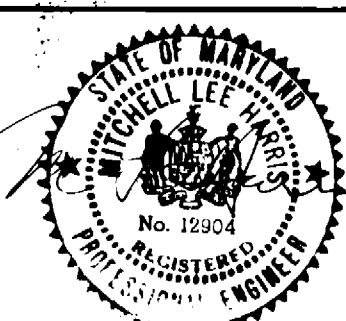
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works
Robert W. Beatty 3-5-91
DATE

Chief, Bureau of Engineering
William R. Ray 3-6-91
DATE

Chief, Utility Design Division
Op Don Liu 2-28-91
DATE

JOHN E. HARMS, JR. & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 5
PASADENA, MARYLAND 21122
301-647-6000



DES: DMD.

DRN: E.CH.

CHK:

DATE:

BY	NO.	REVISION	DATE

PIPING DETAILS
AND
SEDIMENT CONTROL
DETAILS.

ALLVIEW ESTATES WATER MAIN REHABILITATION
CONTRACT NUMBER 44-3078
CAPITAL PROJECT W-8168
ELECTION DISTRICT GULFDOR NUMBER 6

SCALE
AS
SHOWN

SHEET
4 OF 4