



GENERAL NOTES

- All fittings shall be buttressed or anchored with concrete in accordance with the Standard Details unless otherwise provided for on the drawings.
- Approximate location of existing mains are shown. The Contractor shall take all necessary precautions to protect existing mains and services and maintain uninterrupted supply. Any damage incurred shall be repaired immediately to the satisfaction of the Engineer, at the Contractors expense.
- All horizontal controls are based on Maryland State Coordinates.
- All vertical controls are based on U.S.G.S. Datum.
- All pipe elevations shown are pipe inverts, unless otherwise noted.
- Clear all utilities by a minimum of 6". Clear all poles by 2'-0" minimum or tunnel as required. The owner has contacted the utilities companies and has made arrangements for bracing of poles as shown on the drawings. In the event the Contractor's work requires the bracing of additional poles, any cost incurred by the owner for the bracing of additional poles or damages shall be deducted from money owed the Contractor. The Contractor shall coordinate with the utility companies to schedule the bracing of the poles.
- Valves adjacent to tees shall be strapped to tees.
- Contractor shall notify the following utilities or agencies at least five (5) working days before starting work shown on these plans.
 - State Highway Administration: 531-5533
 - Baltimore Gas & Electric Co. Contractor Service - 561-2585
 - Baltimore Gas & Electric Co. Underground Damage Control - 234-5621
 - Baltimore Gas & Electric Co. Trouble Shooting - 298-9013
 - Miss Utility - 1-559-0100
 - Colonial Pipeline Co. - 795-1390
 - Bureau of Utilities, Howard County Dept. of Public Works - 992-2366
- Trees are to be protected from damage to maximum extent. Trees and shrubs located within the construction strip are not to be removed or damaged by the Contractor.
- Contractor shall remove trees, stumps and roots along line of excavation. Payment for such removal shall be included in the unit price bid for construction of the main.
- Place regulation "Men Working" and warning signs as required to comply with Maryland State Highway Administration Manual of Traffic Control for Highway Construction and Maintenance Operations.
- All water mains shall be D.I.P. unless otherwise noted.
- Top of all water mains shall have a minimum of 3.5 feet of cover unless otherwise noted.
- The Contractor shall not operate any water main valves on the existing system.
- Encasement of 16" Water Main within existing 36" diameter steel casing to be in accordance with Howard County Standard Detail W.4.21, Type 3.
- The Contractor shall coordinate tie-in of 16" water main with Howard County Department of Public Works, Bureau of Utilities.
- Where test pits have been made on existing utilities, they are noted by the symbol  at the location of the test pit. A note or notes containing the results of the test pit or pits is included on the drawings. Existing utilities in the vicinity of the proposed work for which test pits have not been dug shall be located by the Contractor two weeks in advance of construction operations at his own expense.
-  Boring Location
- "Bury line elevations on fire hydrants shall be set to the elevation shown on the drawings. All fire hydrants shall be strapped and buttressed with concrete in accordance with Standard Details. Soil around the fire hydrant is to be compacted in accordance with Section 1003 of the Standard Specifications.
- For details not shown on the drawings, and for materials and construction methods, use Howard County Design Manual, Volume IX, Standard Specifications and Details for Construction. The Contractor shall have a copy of Volume IX on the job.

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

J. Helm Date: 4-11-84
U.S. SOIL CONSERVATION SERVICE

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

Approved: *Colin W. Johns* Date: 4-11-84
HOWARD COUNTY S.C.D.

ENGINEER'S CERTIFICATION

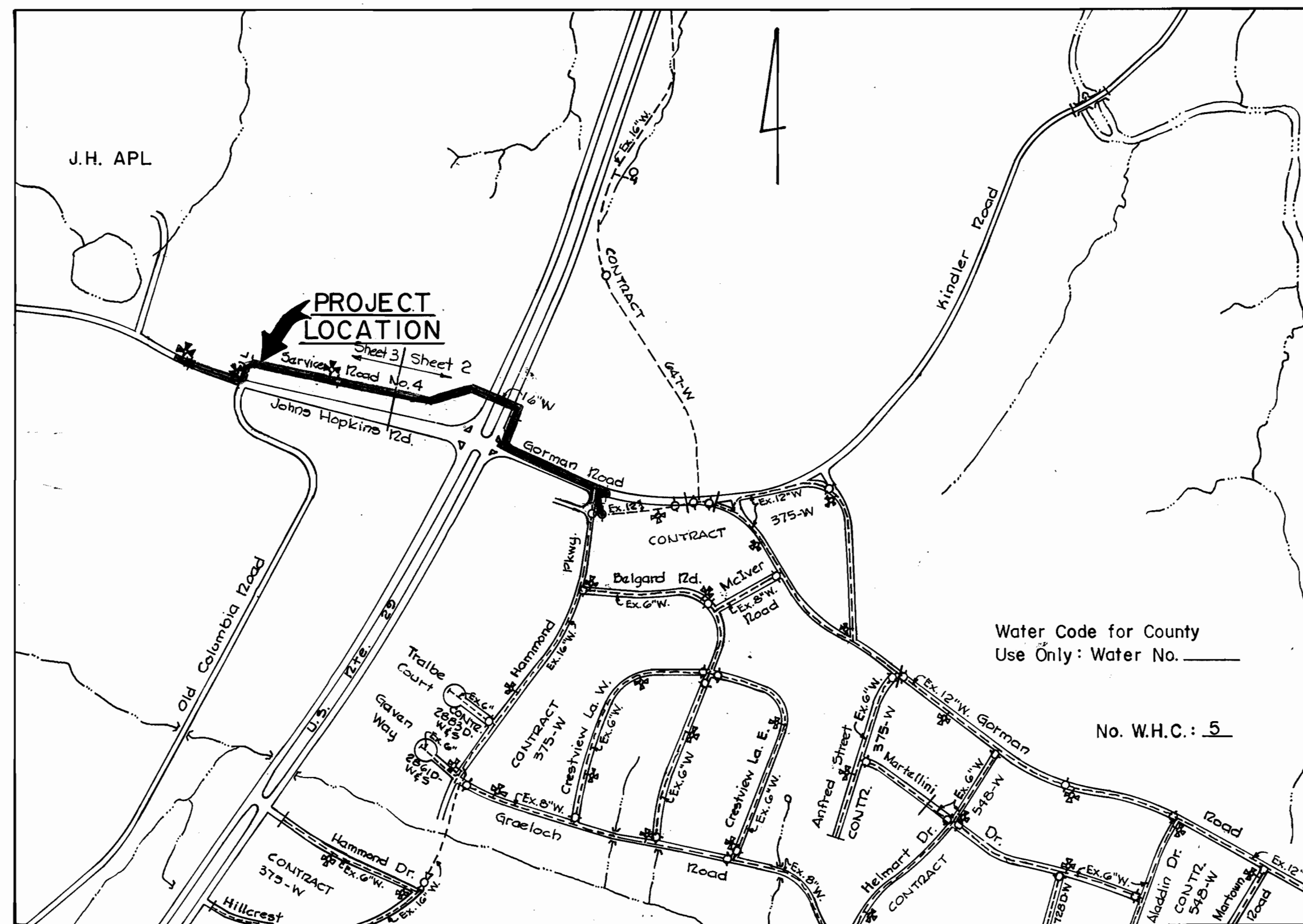
I certify that this plan for erosion and sediment control represents a practical and workable plan based on my personal knowledge of the site conditions and that it was prepared in accordance with the requirements of the Howard County Soil Conservation District.

Mitchell L. Harris Date: 2-1-84
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 at a Department of Natural Resources Approved Training Program for the Control of Sediment and Erosion before beginning the project."

William E. Riley 4-16-84
BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS



QUANTITIES			
ITEM	ESTIMATE	AS-BUILT	MATERIAL/SUPPLIER
16" Water	2,896 L.F.	2885.0	DIP/GRIFFIN
Fire Hydrant	3 Ea.	3EA	M&C SUPPLY
16" W.H.C.	22 L.F.	22.0	DIP/GRIFFIN
16" Valve	3 Ea.	4EA	M&C SUPPLY
1/2" CAV-ARV	4 Ea.	4EA	M&C SUPPLY
16" 45° Bend	7 Ea.	8EA	DIP/GRIFFIN
16" 22 1/2° Bend	9 Ea.	5EA	DIP/GRIFFIN
16" 11 1/4° Bend	1 Ea.	1	DIP/GRIFFIN
16" Blowoff	1 Ea.	1	M&C SUPPLY
16" 2" increaser	1 Ea.	1	DIP/GRIFFIN
16" x 16" Tee	1 Ea.	1	DIP/GRIFFIN
16" Water in Ex. Casing	181 L.F.	181.0	DIP/GRIFFIN
1" Dual W.H.C.	40 L.F.	34.0	M&C SUPPLY
3/4" W.H.C.	85 L.F.	86.0	M&C SUPPLY
12" Sleeve	2 Ea.	2	GRIFFIN
12" Valve	3 Ea.	3	M&C SUPPLY

CAPITAL PROJECT W-8135

CONTRACT NO. 44-1160

JOHNS HOPKINS ROAD WATER EXTENSION

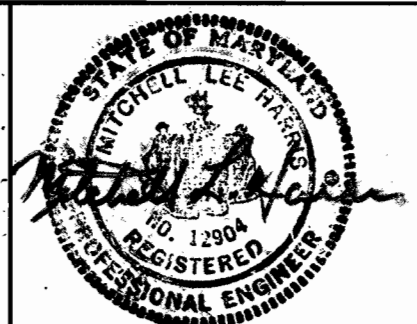
HOWARD COUNTY, MARYLAND

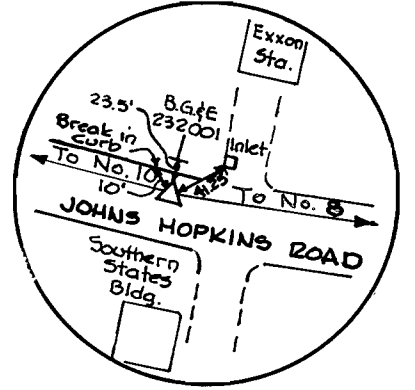
DEPARTMENT OF PUBLIC WORKS

12" Tee	1 Ea.	1EA.	DIP/GRIFFIN
16" x 12" Tee	1 Ea.	1EA.	DIP/GRIFFIN

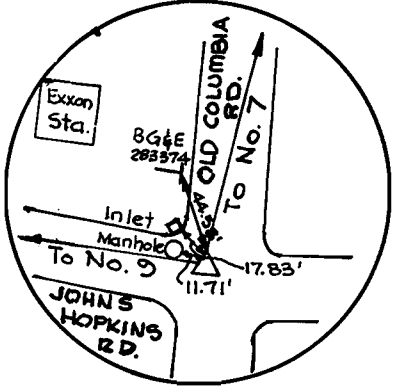
A5-BUILTS 11-85

CONTRACT NO. 44-1160
JOHNS HOPKINS ROAD WATER EXTENSION
HOWARD COUNTY CAPITAL PROJECT W-8135

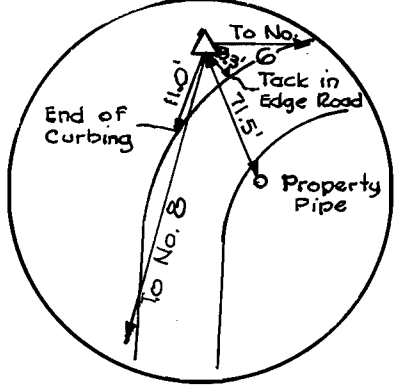
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>William E. Riley</i> 5-7-84 Chief, Bureau of Utilities: <i>Allen J. Brown</i> 4/13/84	JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 5 PASADENA, MARYLAND		DES: C.B.	L.A.F.	General notes, Location Map, & Qty. Table to reflect change in watermain size (i.e. 12" becomes 16" w.).	LOCATION MAP JOHN'S HOPKINS ROAD WATER EXTENSION 600' SCALE MAP NO. 41 BLOCK NO. 16, 17, 23	JOHN'S HOPKINS ROAD WATER EXTENSION ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND CONTRACT NO. 44-1160	SCALE AS SHOWN
			DRN: REC.	CHK: M.L.H.	MJS			BY NO.
			DATE: 2/3/84	BY: MJS	NO. 41	REVISION	DATE	



No. 9
Railroad Spike
N 483060.86
E 829822.07
Elev. 428.59



No. 8
Railroad Spike
N 482969.74
E 830055.38
Elev. 428.53



No. 7
Railroad Spike
N 483197.56
E 830178.52
Elev. 428.97

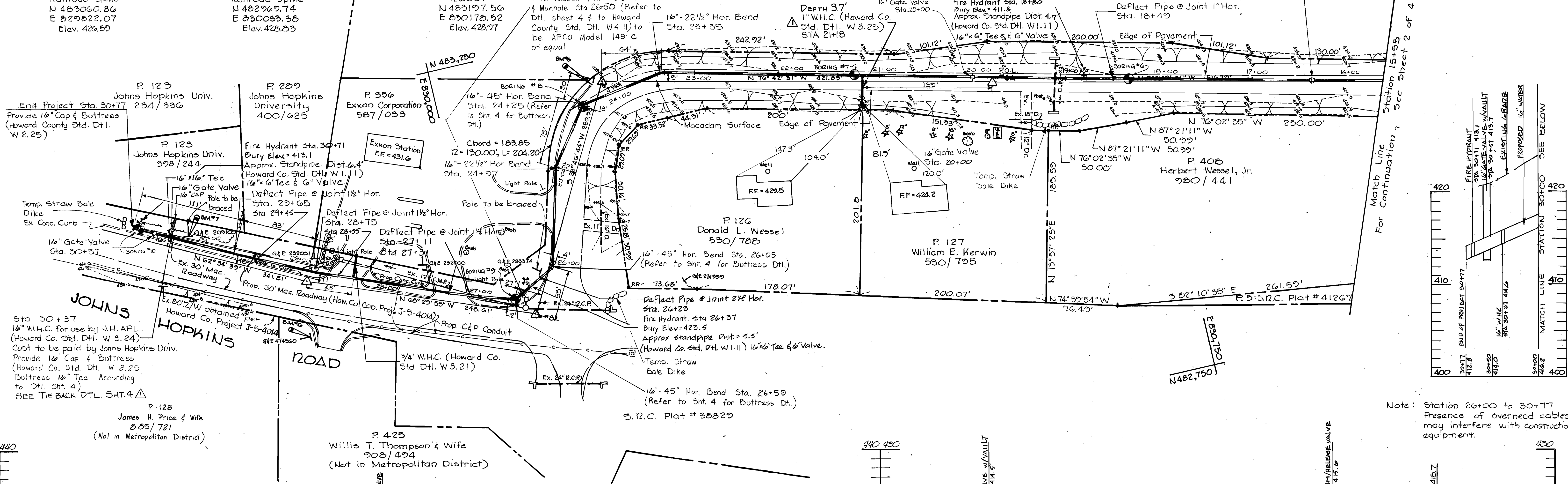
H. W. Wassal, et al
870/206

Note: Refer to Sht. 4 for
16" x 6" Tee Buttress
Detail.

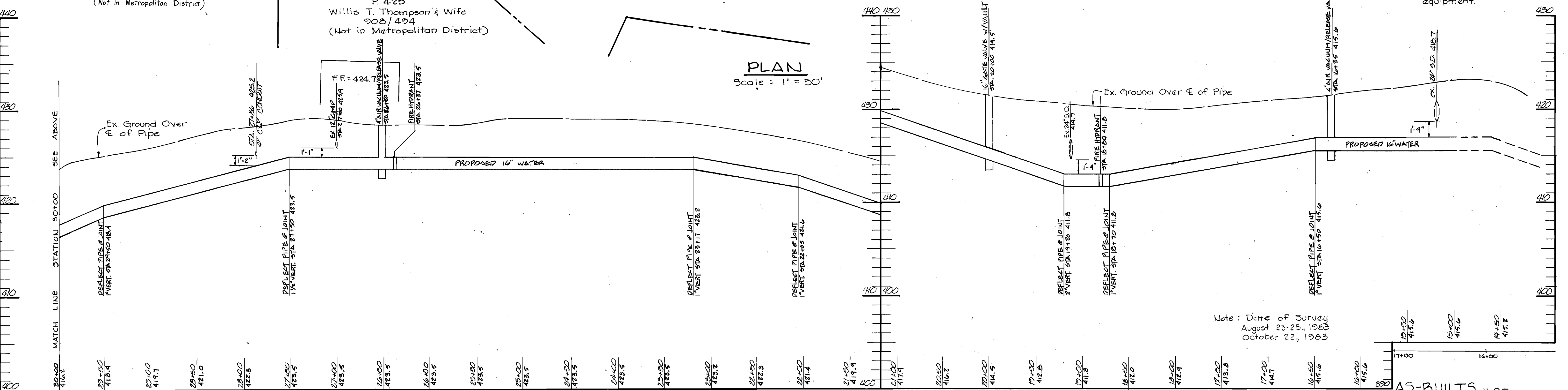
Bench Mark #5: End of Curb
Elev. 429.83
Bench Mark #6: Railroad Spike in Pole G&E 474560
Elev. 428.67
Bench Mark #7: Railroad Spike in Pole G&E 209100
Elev. 428.20

4" Air Vacuum & Air Release Valve
& Manhole Sta. 16+35 (Refer to
D.H. Sheet 4 & to Howard County
Std. D.H. W.4.11) to be APCO Model
149 C or equal.

OLD COLUMBIA ROAD (SERVICE ROAD NO. 4)



PLAN
Scale: 1" = 50'



PROFILE
Scale: Hor. 1" = 50'
Vert. 1" = 5'

Note: Station 26+00 to 30+77
Presence of overhead cables
may interfere with construction
equipment.

Note: Date of Survey
August 23-25, 1983
October 22, 1983

AS-BUILTS 11-85
CONTRACT NO. 44-1160
JOHNS HOPKINS ROAD WATER EXTENSION
HOWARD COUNTY CAPITAL PROJECT W-8135

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works: *Robert M. Bunn* 5-7-84
Chief, Bureau of Utilities: *Robert M. Bunn* 5-7-84

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

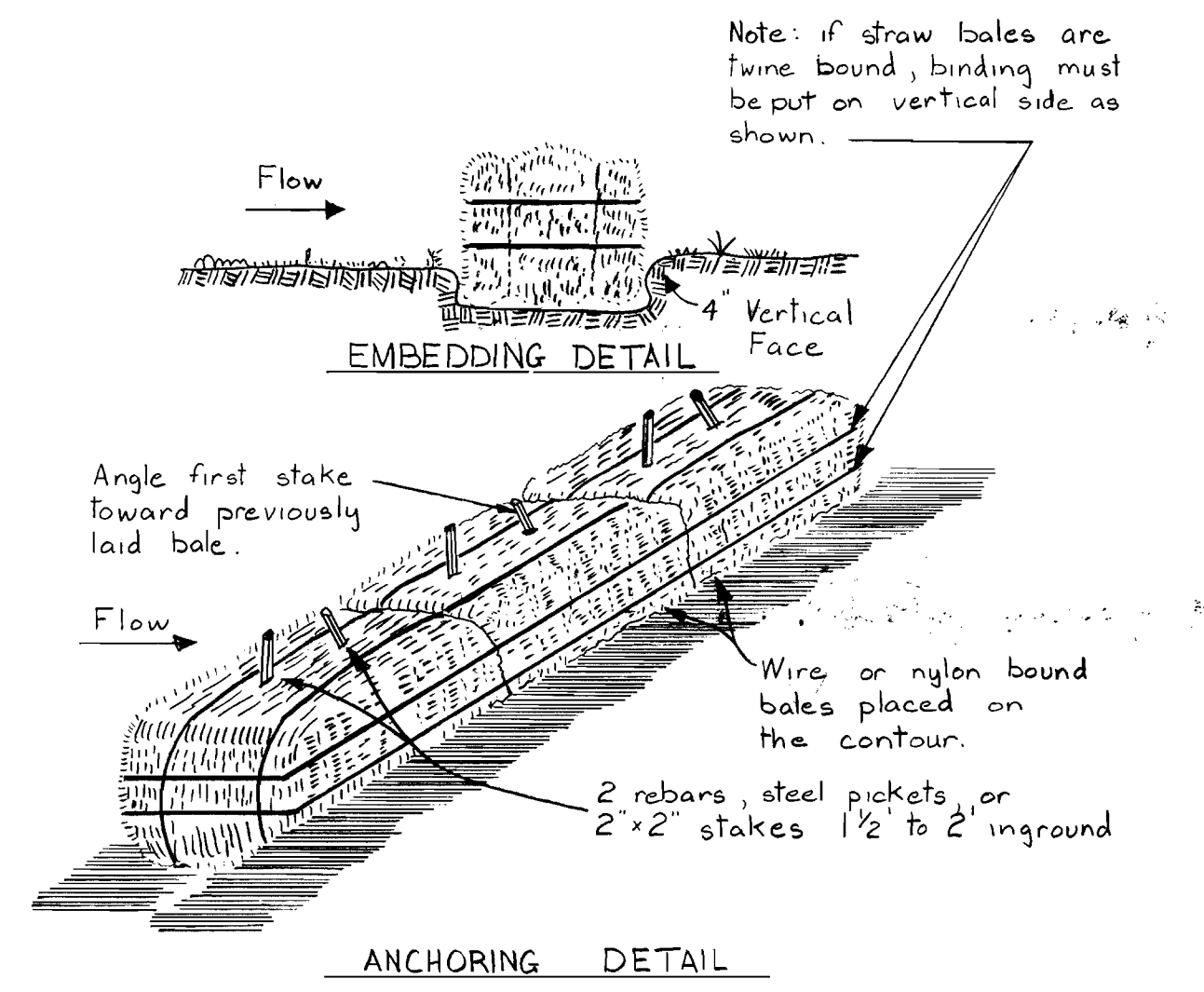


DES: C.B.	L.A.F.	I	Revise plan to indicate 16" watermain. Realignment of watermain. Remove boring info. in profile.
DRN: R.E.C.			
CHK: M.L.H.			
DATE: 2/3/84	MJS	As-builts	11-85
BY NO.		REVISION	DATE

PLAN & PROFILE
STA. 15+55 TO STA. 30+59
JOHNS HOPKINS ROAD WATER EXTENSION
600' SCALE MAP NO. 41 BLOCK NO. 16, 17, 23

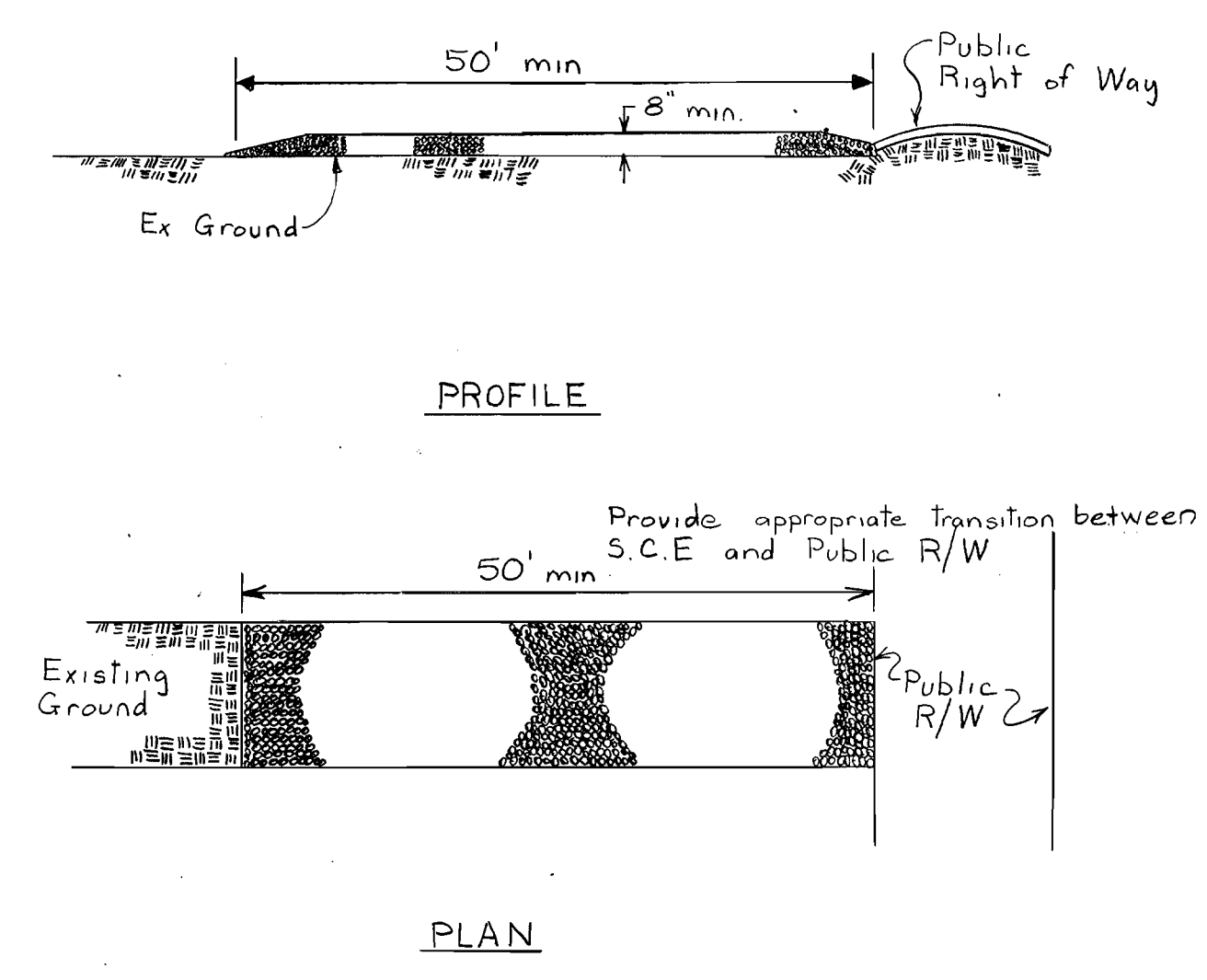
JOHNS HOPKINS ROAD WATER EXTENSION
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND
CONTRACT NO. 44-1160

SCALE AS SHOWN
SHEET 3 OF 4



- Construction Specifications**
1. Bales shall be placed in a row with ends tightly abutting the adjacent bales.
 2. Each bale shall be embedded in the soil a minimum of 4".
 3. Bales shall be securely anchored in place by stakes or re-bars driven through the bales. The first stake in each bale shall be angled toward previously laid bale to force bales together.
 4. Inspection shall be frequent and repair or replacement shall be made promptly as needed.
 5. Bales shall be removed when they have served their usefulness so as not to block or impede storm flow or drainage.

STRAW BALE DIKE DETAIL
No Scale

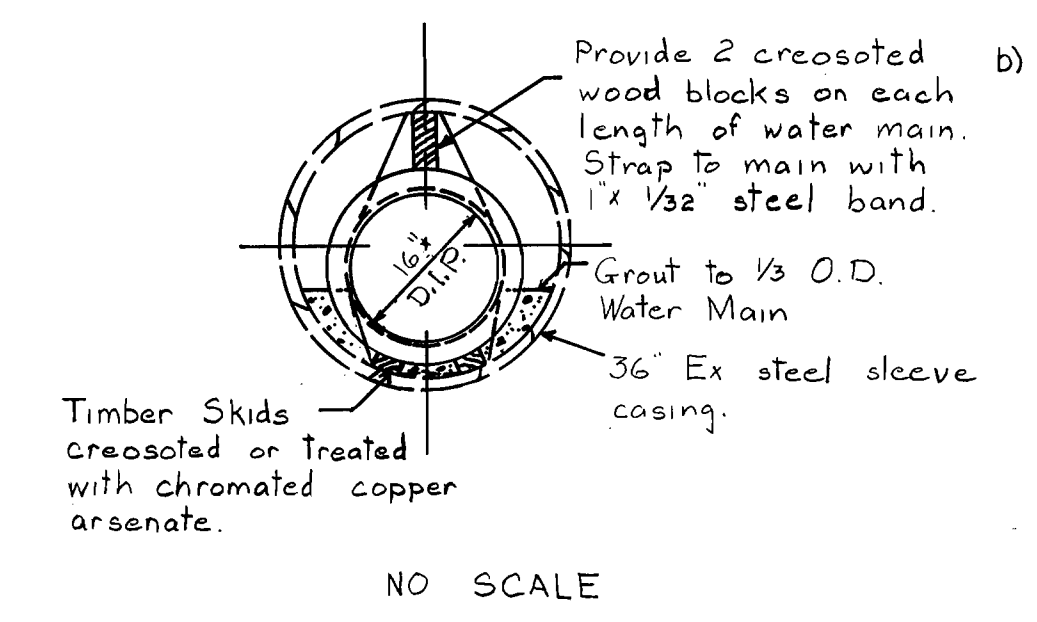


- Construction Specifications**
1. Stone size - Use MSHA size No. 2 (2-1/2" to 1") or AASHTO designation M43, size No. 2 (2-1/2" to 1-1/2"). Use crushed stone.
 2. Length - As effective, but not less than 50 feet.
 3. Thickness - Not less than eight (8) inches.
 4. Width - Not less than full width of all points of ingress or egress.
 5. Washing - When necessary, wheels shall be cleaned to remove sediment prior to entrance onto public R/W. When washing req'd, it shall be done on an area stabilized w/crushed stone which drains into an approved trap or basin. All sediment shall be prevented from entering storm drains, etc through use of sand bags, gravel, boards, or other approved methods.
 6. Maintenance - The entrance shall be maintained in a condition which will prevent movement of sediment onto Public R/W. All sediment must be removed immediately.

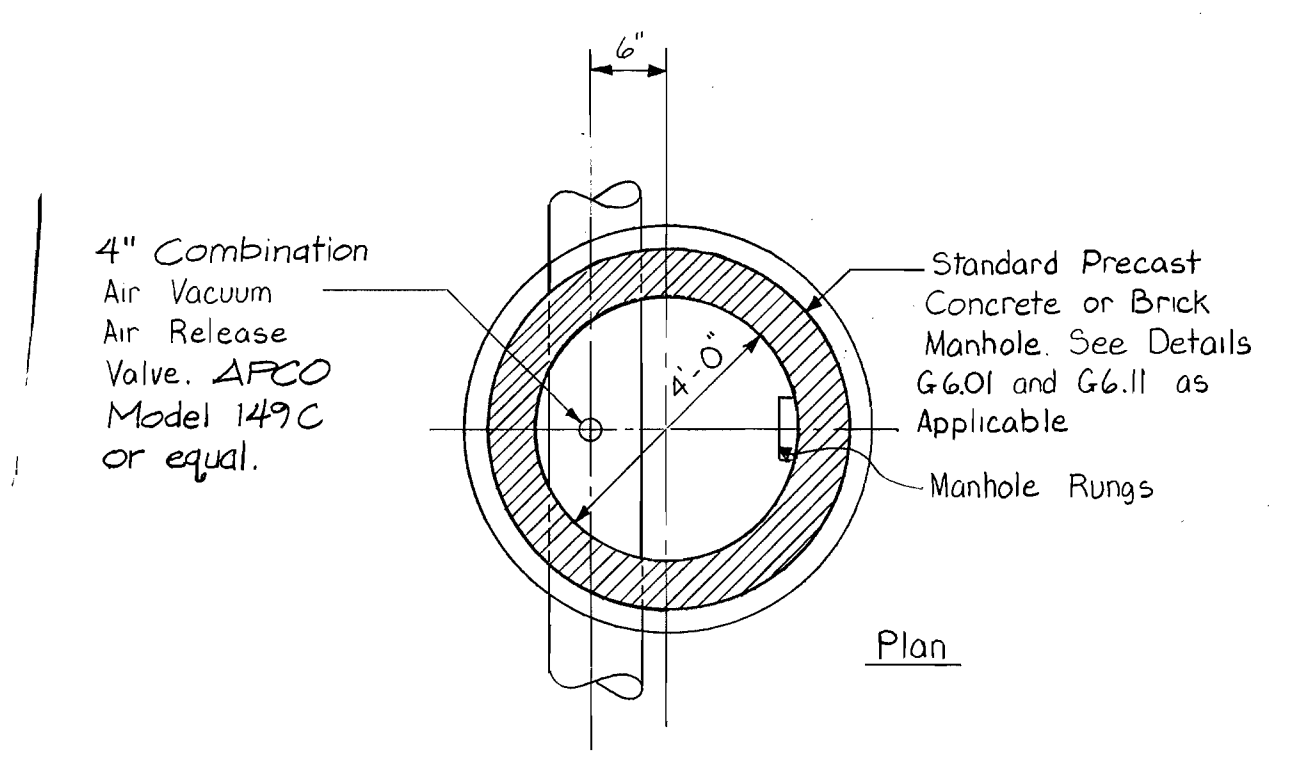
STABILIZED CONSTRUCTION ENTRANCE
No Scale

NOTE:
ALL SEDIMENT CONTROL MEASURES SHALL CONFORM TO ARTICLE 15 OF THE HOWARD COUNTY DESIGN MANUAL VOL. II.

Notes:
Following initial soil disturbance or redisturbance, permanent or temporary stabilization shall be completed within:
a) Seven calendar days as to the surface of all perimeter controls, dikes, swales, ditches, perimeter slopes, and all slopes greater than 3 horizontal to 1 vertical (3:1) and
b) Fourteen days as to all other disturbed or graded areas on the project site.



STEEL SLEEVE INSTALLATION DETAIL
NO SCALE



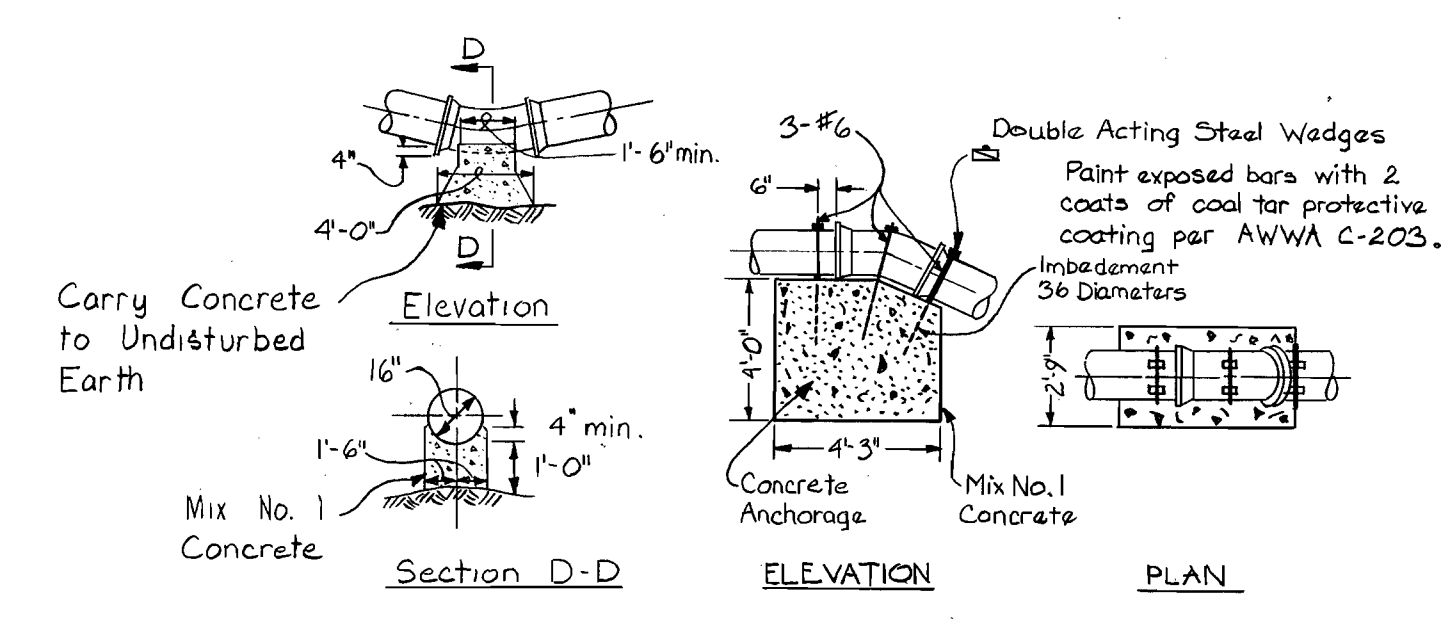
AIR VACUUM/AIR RELEASE VALVE MANHOLE DETAIL
No Scale

For Remaining Details Refer to Howard County Std. Dtl. W4.11

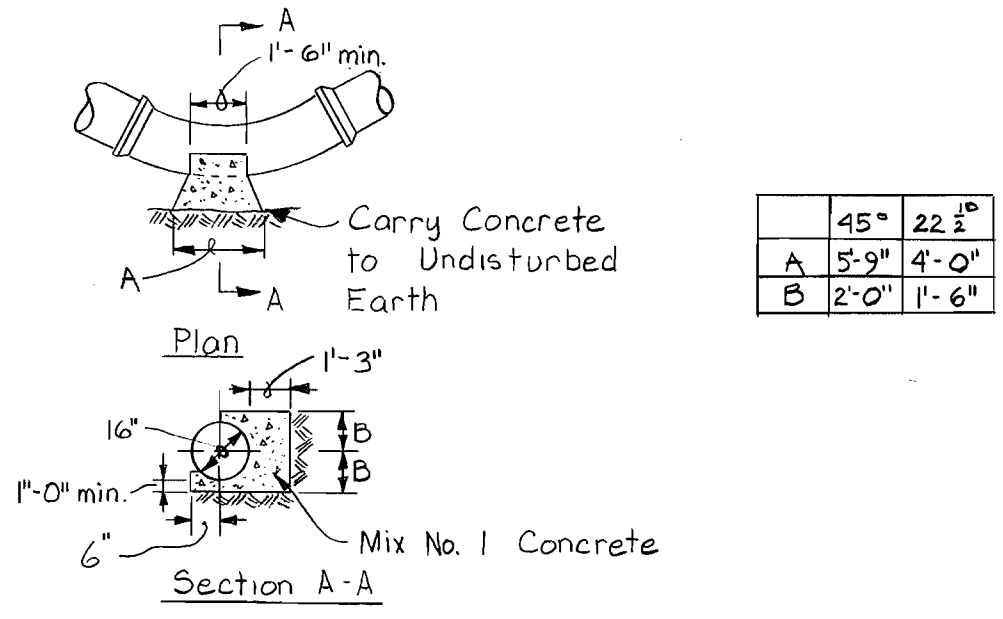
± of 16" W to be Offset 6" from CL of Manhole Opposite of Manhole Rungs

SCHEDULE OF PHASING AND CONSTRUCTION

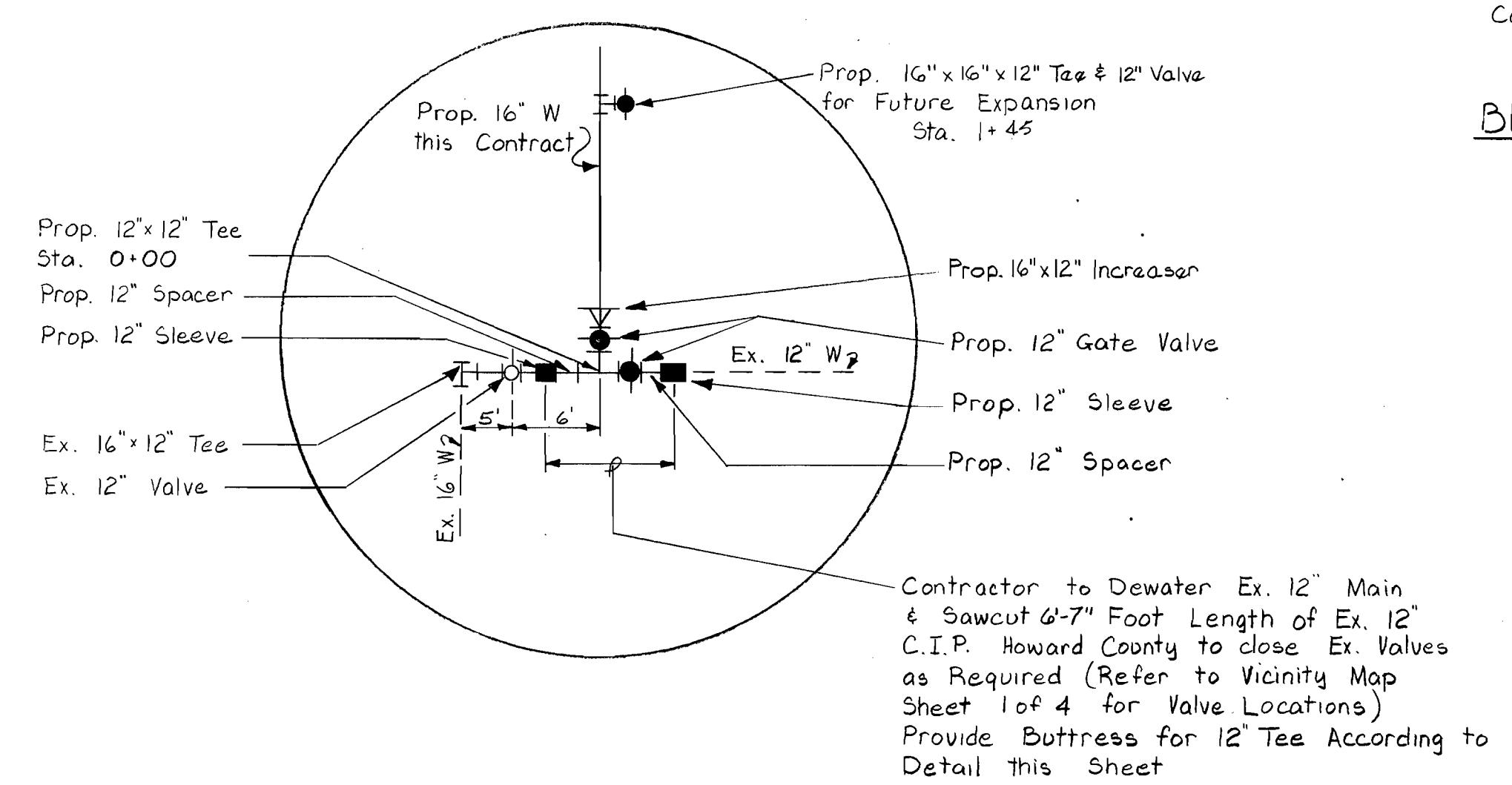
- PHASE I - Clear Areas for construction. Install Sediment Control Measures down grade of construction.
- PHASE II - Begin Pipeline Construction. Maintain Sediment Control Measures on a daily basis.
- PHASE III - Complete Underground Construction. Clean up entire project area. Seed and Mulch all disturbed areas not paved or otherwise surfaced.
- PHASE IV - Remove Sediment Control Measures. Maintain new vegetative areas to achieve a thick stand of grass.



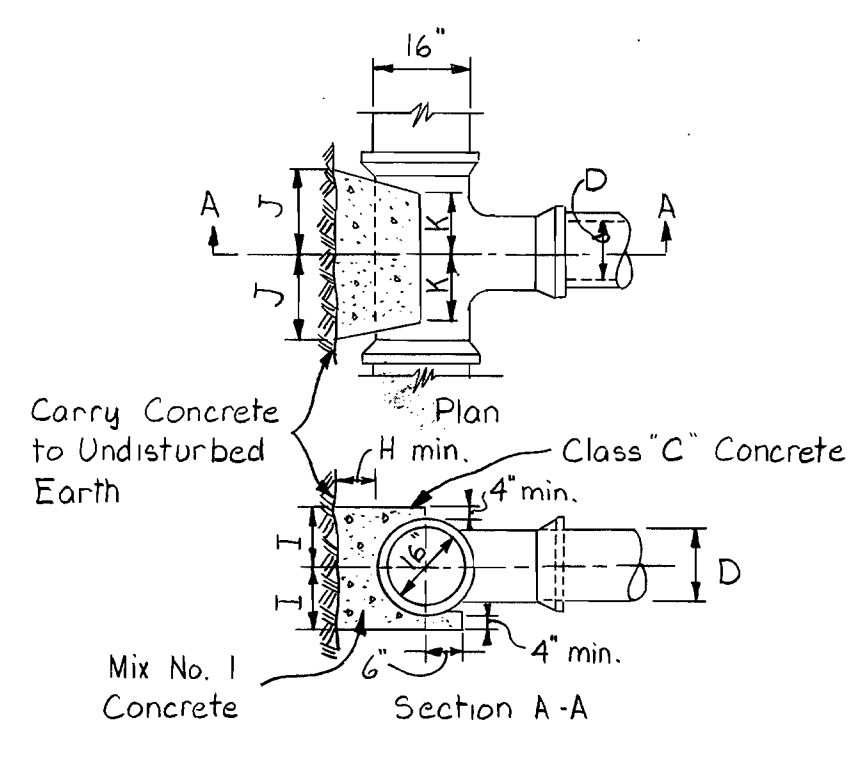
BUTTRESS FOR 22 1/2 DEGREE VERTICAL BEND
No Scale



BUTTRESS FOR HORIZONTAL BENDS
No Scale



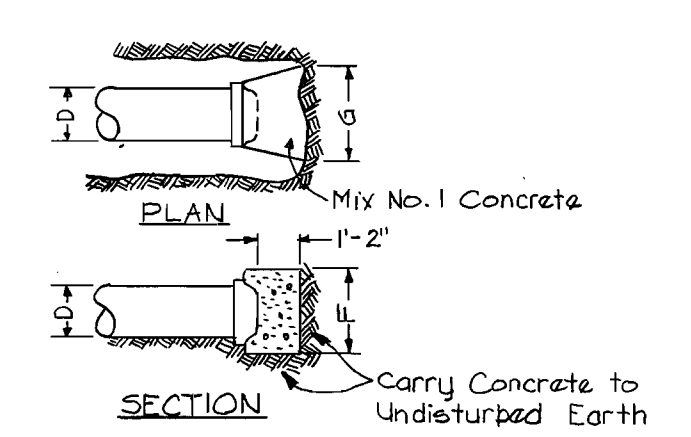
CONNECTION DETAIL
No Scale



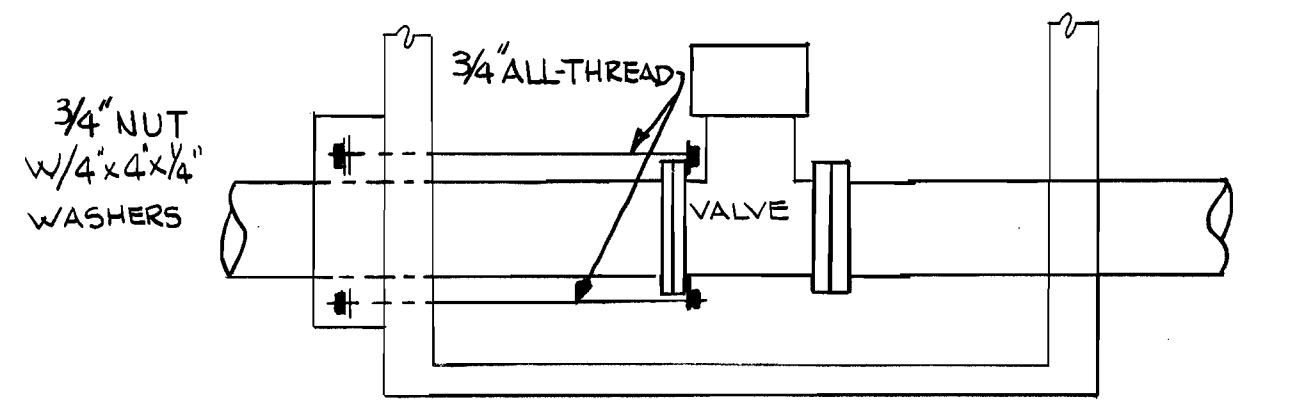
BUTTRESS FOR TEES
No Scale

TEES

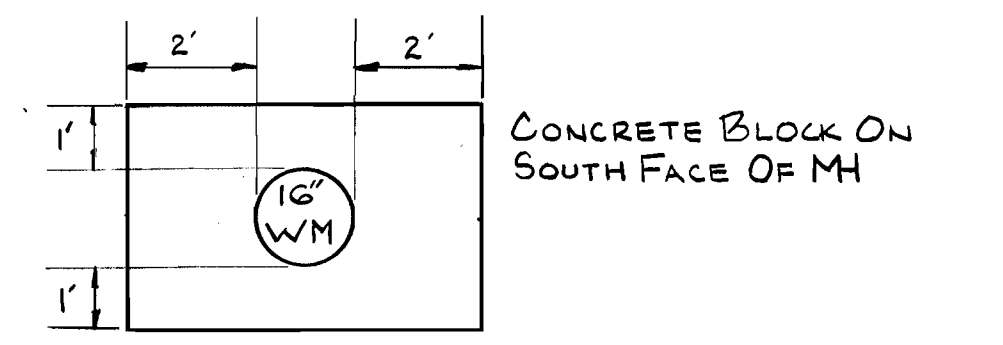
	16" x 12"	16" x 6"	16" x 16"
D	12"	16"	6"
I	2'-4"	3'-0"	1'-0"
J	1'-10"	2'-6"	1'-0"
K	1'-10"	1'-2"	9"
H	1'-0"	1'-4"	8"



BUTTRESS FOR CAPS
No Scale

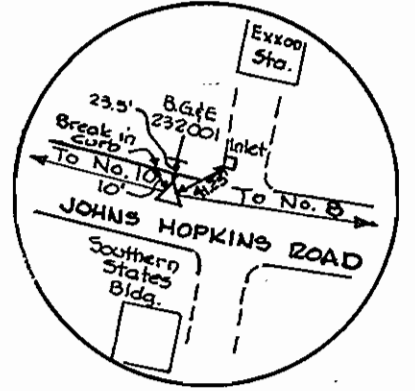


TIEBACK DETAIL @ 16" VALVE MANHOLE STA. 30+37
No Scale

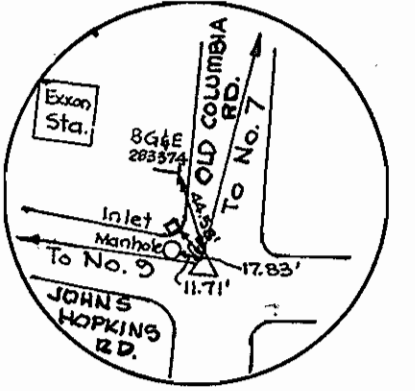


AS-BUILTS 11-85

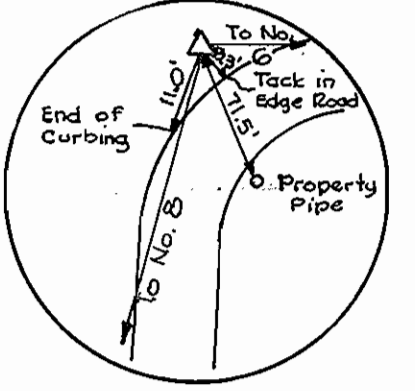
DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>John F. Neuman</i> 5-7-84 Chief, Bureau of Engineering: <i>William E. Reidy</i> 4/11/84 Chief, Bureau of Utilities: <i>Robert Brown</i> 5-1-84 Chief, Utility Division: <i>Allen L. Brown</i> 4/13/84	JOHN E. HARMS, JR. & ASSOCIATES, INC. CONSULTING ENGINEERS P.O. BOX 5 PASADENA, MARYLAND		DES: C.B. DRN: C.M. CHK: M.L.H. DATE: 2/3/84	MJS BY NO. AS-BUILTS REVISION DATE: 11-85	MISCELLANEOUS DETAILS JOHN HOPKINS ROAD WATER EXTENSION 600' SCALE MAP NO. 41 BLOCK NO. 16, 17, 23	JOHN HOPKINS ROAD WATER EXTENSION ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND CONTRACT NO. 44-1160	SCALE AS SHOWN SHEET 4 OF 4
			JOHN HOPKINS ROAD WATER EXTENSION ELECTION DISTRICT NO. 5 HOWARD COUNTY, MARYLAND CONTRACT NO. 44-1160				



No. 9
Railroad Spike
N 483060.86
E 829822.07
Elev. 428.59



No. 8
Railroad Spike
N 482969.74
E 830053.38
Elev. 428.53



No. 7
Railroad Spike
N 483127.56
E 830178.52
Elev. 428.97

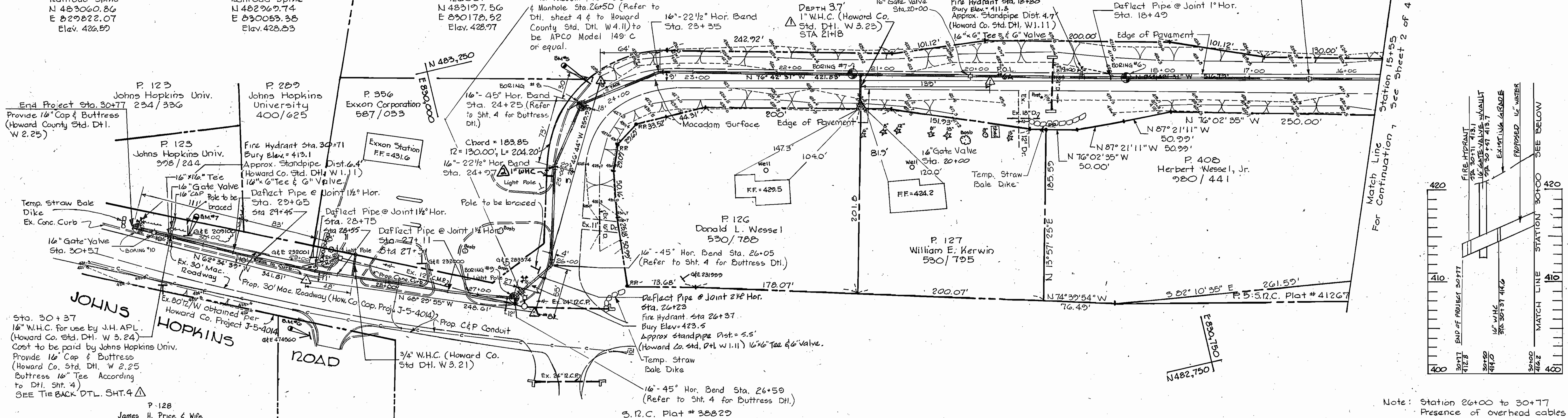
H. W. Wassel, et al
870/206

Note: Refer to Sht. 4 for
16" x 6" Tee Buttress
Detail.

Bench Mark #5: End of Curb
Elev. 429.83
Bench Mark #6: Railroad Spike in Pole G&E 474560
Elev. 428.67
Bench Mark #7: Railroad Spike in Pole G&E 209100
Elev. 425.20

4" Air Vacuum & Air Release Valve
& Manhole Sta. 16+35 (Refer to
Dtl. Sheet 4 & to Howard County
Std. Dtl. W.4.11) to be APCO Model
149 C or equal.

OLD COLUMBIA ROAD (SERVICE ROAD NO. 4)



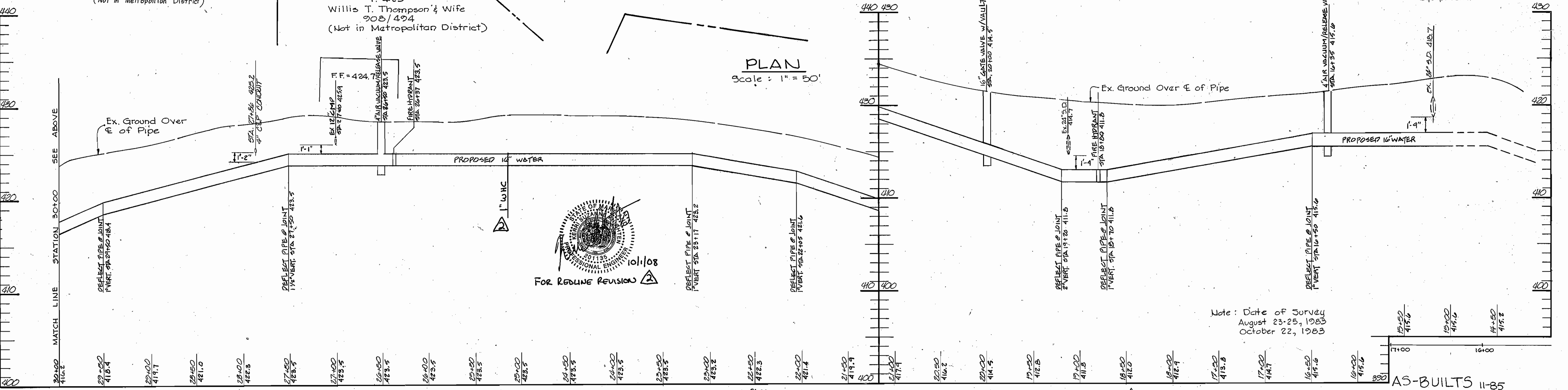
Sta. 30+37
16" W.H.C. for use by J.H. APL.
(Howard Co. Std. Dtl. W 3.24)
Cost to be paid by Johns Hopkins Univ.
Provide 16" Cap & Buttress
(Howard Co. Std. Dtl. W 2.25)
Buttress 16" Tee According
to Dtl. Sht. 4)
SEE TIE BACK DTL. SHT. 4

P-128
James H. Price & Wife
885/721
(Not in Metropolitan District)

P-425
Willis T. Thompson & Wife
908/494
(Not in Metropolitan District)

PLAN
Scale: 1" = 50'

Note: Station 26+00 to 30+77
Presence of overhead cables
may interfere with construction
equipment.



PROFILE
Scale: Hor. 1" = 50'
Vert. 1" = 5'

Note: Restrained Joints to be Provided at all Bends, Tees, Fittings, etc.

Note: Date of Survey
August 23-25, 1983
October 22, 1983

AS-BUILTS 11-85

CONTRACT NO. 44-1160
JOHNS HOPKINS ROAD WATER EXTENSION
HOWARD COUNTY CAPITAL PROJECT W-8135

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
Director of Public Works: *Sam F. Nemes* 5-7-84
Chief, Bureau of Engineering: *William R. Ray* 4/11/84
Chief, Utility Division: *Allen S. Brown* 4/13/84

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



DES: C.B.	L.A.F.	Revise plan to indicate 16" watermain. Realignment of watermain. Remove boring info. in profile.
DRN: R.E.C.	M.R.A.	ADDED 1" W.H.C. TO PARCEL 356
CHK: M.L.H.	M.J.S.	As-builts
DATE: 2/3/84	BY: NO.	REVISION

PLAN & PROFILE
STA. 15+55 TO STA. 30+59
JOHNS HOPKINS ROAD WATER EXTENSION
600' SCALE MAP NO. 41 BLOCK NO. 16, 17, 23

JOHNS HOPKINS ROAD WATER EXTENSION
ELECTION DISTRICT NO. 5
HOWARD COUNTY, MARYLAND
CONTRACT NO. 44-1160
SCALE AS SHOWN
SHEET 3 OF 4