	QUAN	TITIES					
BID ITEM NO.	ITEM	ITEM BID		AS-BUILT	MATERIAL	SUPPLIER	
PART "A"	WATER MAINS						
A-4	48" DUCTILE IRON; PUSH ON JOINT	2,819	L.F.	2,773			
A-5	48" DUCTILE IRON; RESTRAINED JOINT - TR FLEX	944	L.F.	985			
A-6	42" DUCTILE IRON; RESTRAINED JOINT - TR FLEX 50		L.F.	40		US PIPE &	
A-7	16" DUCTILE IRON; RESTRAINED JOINT	10	L.F.	L.F. 21		FOUNDRY CO.	
A-8	12" DUCTILE IRON; R.J.	10	L.F.	21			
A-9	8" DUCTILE IRON; RESTRAINED JOINT	10	L.F.	5			
A-10	ACCESS/BLOW-OFF VALVE ASSEMBLY	1	EA.	1		APCO VALVES	
A-11	ACCESS/AIR VALVE ASSEMBLY	2	EA.	2	•	APCO VALVES	
A-12	48" BUTTERFLY VALVE AND APPURTENANCES	2	EA.	2		M&H VALVE	
A-13	8-INCH RESILIENT SEAT GATE VALVE	1	EA.	1		MUELLER	
<u>A</u> —14	12-INCH RESILIENT SEAT GATE VALVE	3	EA.	3		MUELLER	
A-15	16-INCH RESILIENT SEAT GATE VALVE	1	EA.	, 1		MUELLER	
	16"x12" TAPPING SLEEVE			1		JCM	
	12"x12" TAPPING SLEEVE			1		JCM	
						:	
A-19	12-INCH RESILIENT SEAT GATE VALVE	1	EA.				

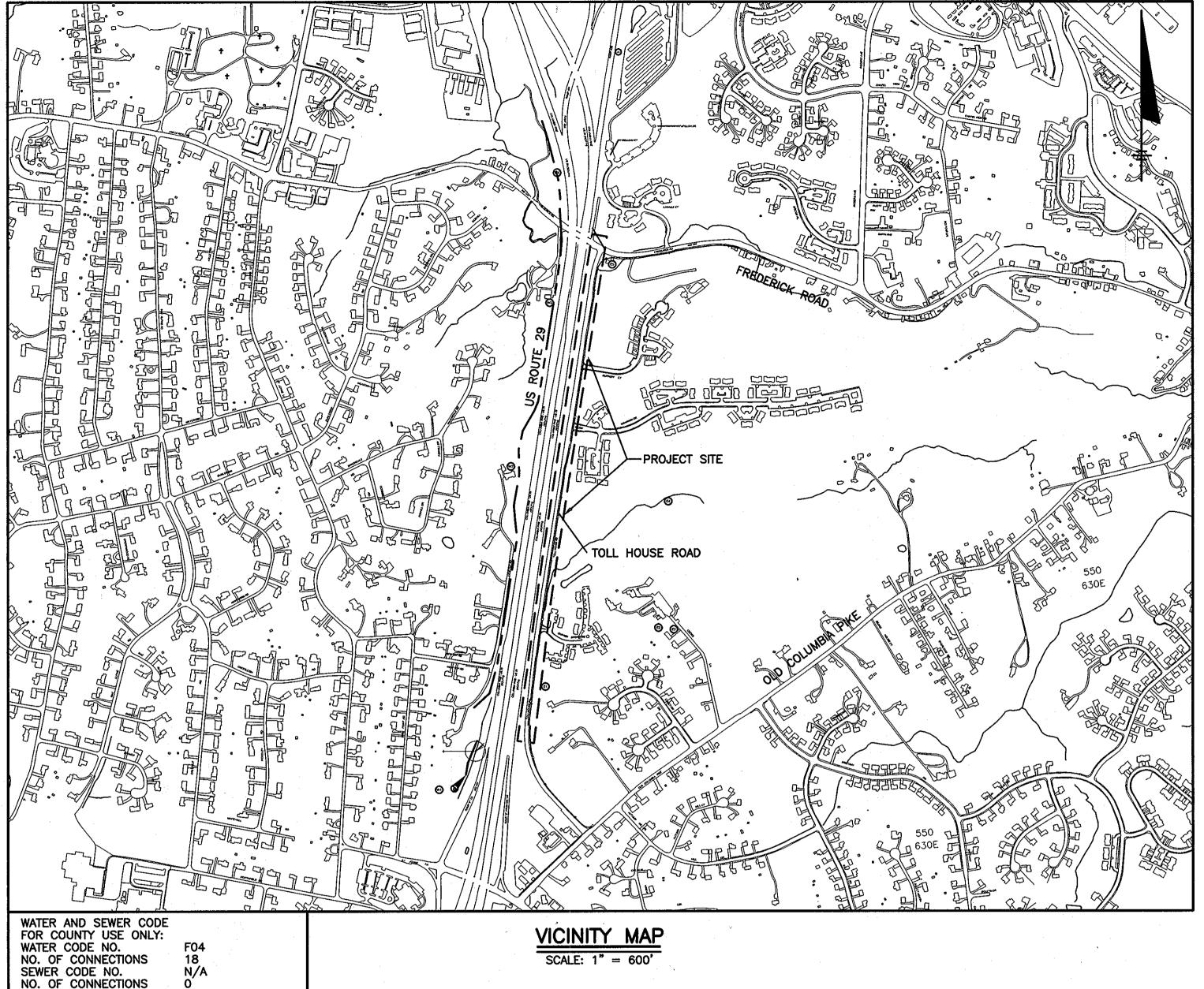
- 1. APPROXIMATE LOCATION OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAIN UNINTERRUPTED SERVICE. ANY DAMAGE INCURRED SHALL BE REPAIRED IMMEDIATELY TO THE SATISFACTION OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.
- 2. ALL HORIZONTAL CONTROLS ARE BASED ON MARYLAND STATE COORDINATES, NAD 83/91.
- 3. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88.
- 4. ALL PIPE ELEVATIONS SHOWN ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED ON THE

5. CLEAR ALL UTILITIES BY A MINIMUM OF 12 INCHES. CLEAR ALL POLES BY 5'-0" MINIMUM OR TUNNEL AS REQUIRED UNLESS OTHERWISE NOTED. THE OWNER HAS CONTACTED THE UTILITY 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 BRACING OF ADDITIONAL POLES OR DAMAGES SHALL BE DEDUCTED FROM MONIES OWED THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANIES TO SCHEDULE THE BRACING OF THE POLES.

6. FOR DETAILS NOT SHOWN ON THE DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF

7. ALL DUCTILE IRON PIPE TO BE USED ON THE PUBLIC WATER SYSTEM SHALL BE CLASS 54. DUCTILE IRON FITTINGS SHALL MEET THE REQUIREMENTS OF THE HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION AND SHALL BE

8. WHERE TEST PITS HAVE BEEN MADE ON EXISTING UTILITIES, THEY ARE NOTED BY THE SYMBOL 🛄 AT THE LOCATIONS OF THE TEST PITS. A NOTE OR NOTES CONTAINING THE RESULTS OF THE 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



TOLL HOUSE ROAD WATER MAIN REPLACEMENT

CAPITAL PROJECT: W-8243 **CONTRACT NO.: 44-4227** HOWARD COUNTY, MARYLAND DEPARTMENT OF PUBLIC WORKS

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DEPARTMENT OF PUBLIC WORKS

OBRIEN & GERE ENGINEERS. INC. 8401 Corporate Drive

FAX: (301) 577-4737



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D PROJECT SITE: W. CODE 02/07 -BUILT REVISIONS DATE 600' SCALE MAP NO. W&S 24, 30 BLOCK NO. **REVISION**

COVER SHEET

GENERAL NOTES CONT'D:

9. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITY COMPANIES OR AGENCIES AT LEAST FIVE WORKING DAYS BEFORE STARTING WORK SHOWN ON THESE PLANS:

AT&T	1-800-252-1133
BGE (CONTRACTOR SERVICES)	410-850-4620
BGE (UNDERGROUND DAMAGE CONTROL)	
BUREAU OF UTILITIES	
COLONIAL PIPELINE COMPANY	410-795-1390
MISS UTILITY	1-800-257-7777
STATE HIGHWAY ADMINISTRATION	410-531-5533
VERIZON	1-800-743-0033/410-224-9210
MCI WORLDCOM	

10. TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT.

11. 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

12. THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410)-313-7450 AT LEAST FIVE WORKING DAYS BEFORE OPEN CUTTING OR BORING/JACKING OF ANY COUNTY ROAD FOR LAYING WATER/SEWER MAINS OR HOUSE CONNECTIONS. THE APPROVAL OF THESE DRAWINGS WILL CONSTITUTE COMPLIANCE WITH DPW REQUIREMENTS PER SECTION 18.114(A) OF THE HOWARD COUNTY CODE.

13. TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 4'-0" OF COVER UNLESS OTHERWISE

14. VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES, UNLESS OTHERWISE NOTED.

15. ALL FITTINGS ON THE 48" MAIN SHALL BE RESTRAINED JOINT, UNLESS OTHERWISE NOTED. ALL FITTINGS ON SMALLER MAINS SHALL BE RESTRAINED JOINT OR BUTTRESSED/ANCHORED WITH CONCRETE IN ACCORDANCE WITH THE STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.

16. THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER

17. ALL TIE-INS TO EXISTING WATER MAINS SHALL BE COORDINATED WITH THE HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING WORK. A DETAILED PLAN FOR THE SHUTDOWN OF EXISTING WATER MAINS SHALL BE SUBMITTED FOR APPROVAL BY THE COUNTY.

18. EXISTING STORM DRAINS DISTURBED BY THE CONSTRUCTION SHALL BE REPLACED IN KIND AT THE SAME LINE AND GRADE AS THE EXISTING STORM DRAINS.

19. ANY TREES, OUTSIDE OF EXISTING EASEMENTS, DISTURBED BY CONSTRUCTION SHALL BE REPLACED IN KIND. (3" CALIPER MINIMUM.)

20. SALVAGEABLE VALVES AND APPURTENANCES TO BE REMOVED SHALL BE DELIVERED TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - BUREAU OF UTILITIES AS DIRECTED BY THE ENGINEER OR COUNTY.

INDEX OF DRAWINGS				
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MAINTENANCE OF TRAFFIC PLAN - FREDERICK ROAD	15			
CATHODIC PROTECTION SYSTEM	16			
CATHODIC PROTECTION SYSTEM	17			
CATHODIC PROTECTION SYSTEM	18			

RECORD DRAWINGS

To the best of our knowledge information and belief, based on information provided by others, these record drawings substantially represent the project as constructed. O'BRIEN & GERE ENGINEERS INC.

AS-BUILT REPLACEMENT SHEET 02/07

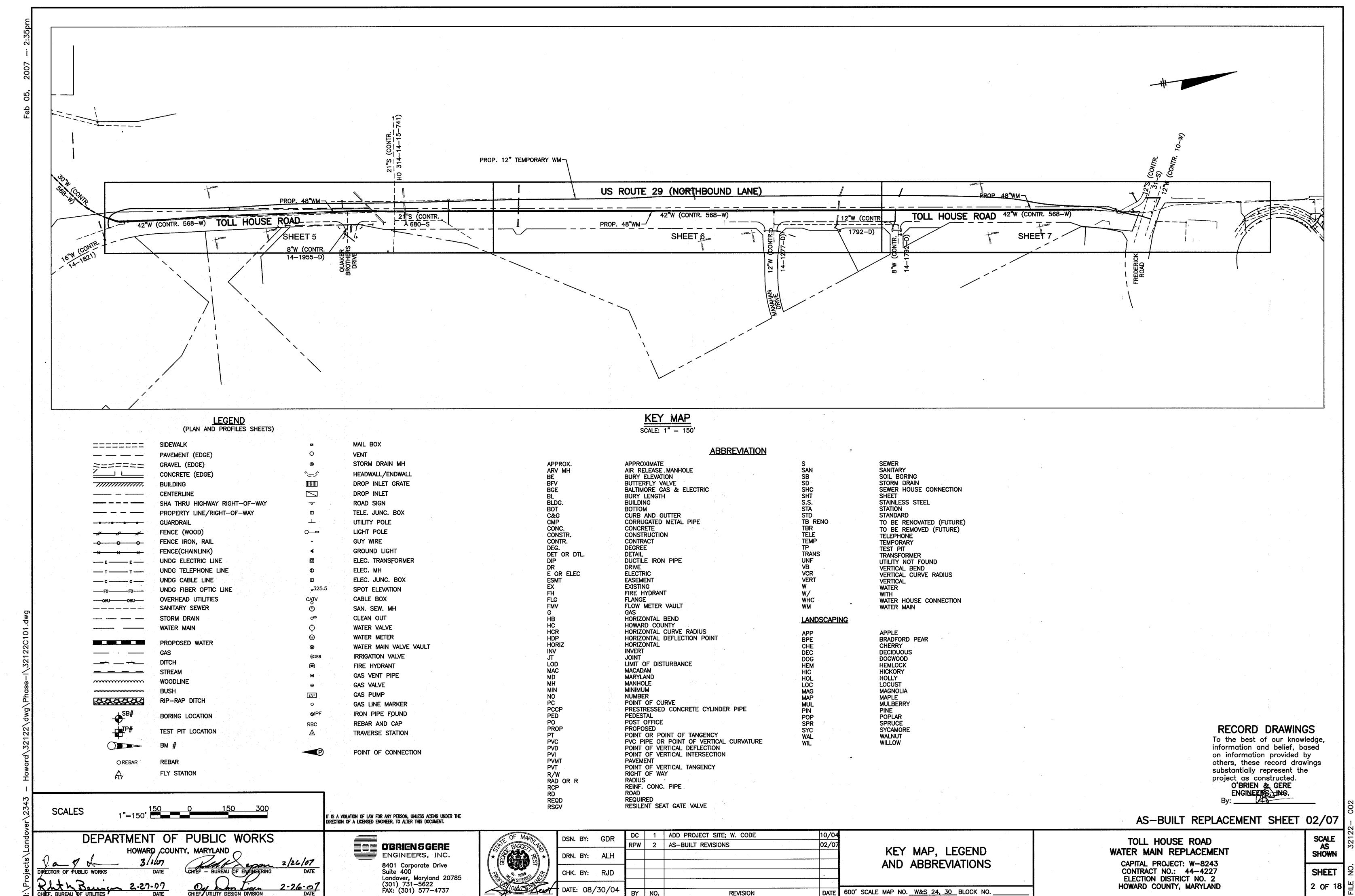
TOLL HOUSE ROAD WATER MAIN REPLACEMENT

CAPITAL PROJECT: W-8243 CONTRACT NO.: 44-4227 **ELECTION DISTRICT NO. 2** HOWARD COUNTY, MARYLAND

SHOWN SHEET

SCALE AS

1 OF 18 当



Restoration Schedule—Along 48" Water Main

48'	DIA. WATER MAIN CO	ORDINATE TA	ABLE
STATION	ITEM	NORTHING	EASTING
0 + 06.9	CONNECTION POINT	580048.96	1363354.65
0 + 29.9	42"-5.625 DEG. HB	580070.08	1363363.87
0 + 48.6	48"x42" REDUCER	580087.90	1363369.72
0 + 56.1	48"-11.25 DEG. HB	580095.00	1363372.05
0 + 62.1	48" BFV	580100.96	1363372.77
0 + 68.2	48"-5.625 DEG. VB	573607.08	1357899.16
0 + 76.0	48"X16" OUTLET	580114.75	1363374.44
0 + 88.7	AIR RELEASE/ACCESS MH	580127.27	1363375.96
1 + 72.4	48"-5.625 DEG. VB	580210.42	1363386.04
11 + 72.6	BLOW-OFF/ACCESS MH	581203.08	1363508.69
24 + 42.8	AIR RELEASE/ACCESS MH	582457.78	1363705.82
25 + 84.0	48"X12" OUTLET	582597.35	1363727.57
28 + 18.1	48"-45 DEG. VB	582828.71	1363763.62
28 + 27.6	48"-45 DEG. VB	582838.05	1363765.08
28 + 38.8	BLOW-OFF/ACCESS MH	582849.16	1363766.81
28 + 48.1	48"-45 DEG. VB	582858.26	1363768.23
28 + 54.3	48"45 DEG. VB	582864.40	1363769.18
37 + 97.7	48" BFV	583796.62	1363914.44
38 + 03.3	48"5.625 DEG. HB	583802.14	1363915.30
38 + 10.6	48"x42" REDUCER	583809.22	1363917.16
38 + 18.2	CONNECTION POINT	583816.13	1363920.78

UTILITY POLE IDENTIFICATION SCHEDULE							
ID	BGE NO.	VERIZON NO.	COMMENT				
UP01	551169		POLE WILL NOT BE DISTURBED				
•							

<u>Lot Number</u>	Owner Name	Legal Description	Premises Address
P1	Ruygrok Alexander and Ruygrok Terry E T/E	Lot 1 10.239 A. 4090 Old Columbia Road Joseph H Clark	4090 Old Columbia Pike Ellicott City, 21043
P2	Salah Frank A	Lot 21 1.036 A 4099 Choctaw Drive Kew Waydin	4099 Choctaw Drive Ellicott City 21043
P3	Keywadin Joint Venture	Lot 37 3.479 A Choctaw Drive Kew Waydin	Choctaw Drive Ellicott City, 21043
P4	Howard County Maryland	Lot 2 4.45 A OPSP Toll House Road SE The Bluffs Elct Mi lls	Toll House Road Ellicott City, 21043
P5	Howard County Maryland Department of Recreation and Parks	P/O Lot 2 4.4255 A Manahan Dr. Toll House S1	W Manhan Dr. Ellicott City, 21043
P6	Howard County Maryland	Lot 2 4.45 A OPSP Toll House Road SE The Bluffs Elct Mills	Toll House Road Ellicott City, 21043
P7	Howard Co. Dept Rec and Parks	Lot 48 .5390 A OPSP Toll House Road Ruppert Property	Toll House Road Ellicott City, 21043
P8	Howard County Maryland	Lot 47 .1185 A OPSP Ruppert Ct. Ruppert Property	Ruppert Ct. Ellicott City, 21043
P9	Howard Co. Dept Rec and Parks	Lot 46 2.1013 A OPSP Ruppert Ct. Ruppert Property	Ruppert Ct. Ellicott City, 21043
P10	Lee Chong S	Lot 41 .7507 A 8879 Frederick Road Ruppert Property	8879 Frederick Road Ellicott City, 21043

RECORD DRAWINGS

To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.

O'BRIEN & GERE

ENGINEERS, INC.

By:

AS-BUILT REPLACEMENT SHEET 02/07

DEPARTMENT OF PUBLIC WORKS

8401 Corporate Drive Suite 400

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O'BRIEN & GERE ENGINEERS, INC.

Landover, Maryland 20785 (301) 731-5622 FAX: (301) 577-4737

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DATE: 08/	30/04	BY	NO.	REVISION	DATE	600' SCALE MAP NO. <u>W&S 24, 30</u> BLOCK NO

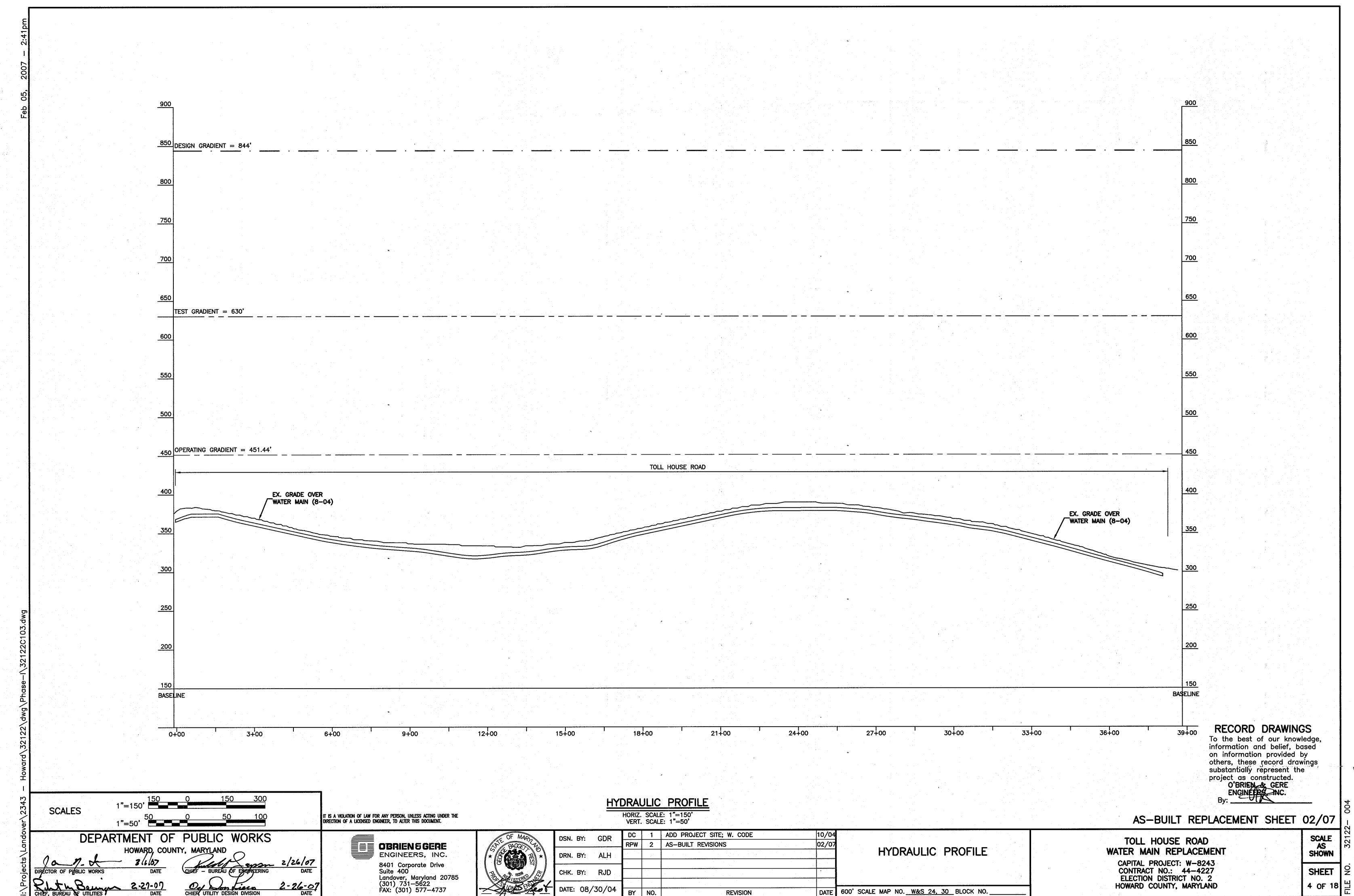
SCHEDULES AND TABLES

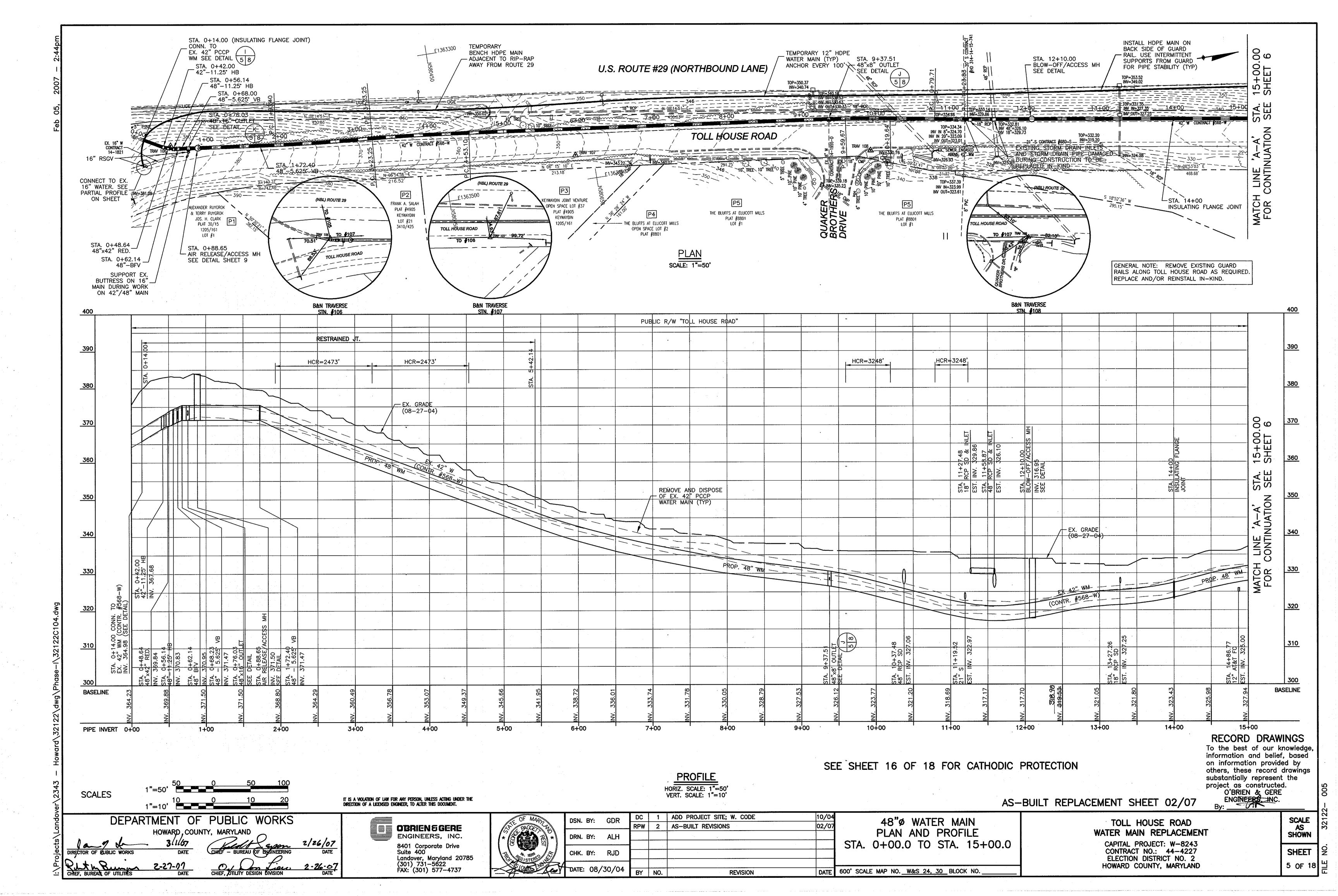
TOLL HOUSE ROAD WATER MAIN REPLACEMENT

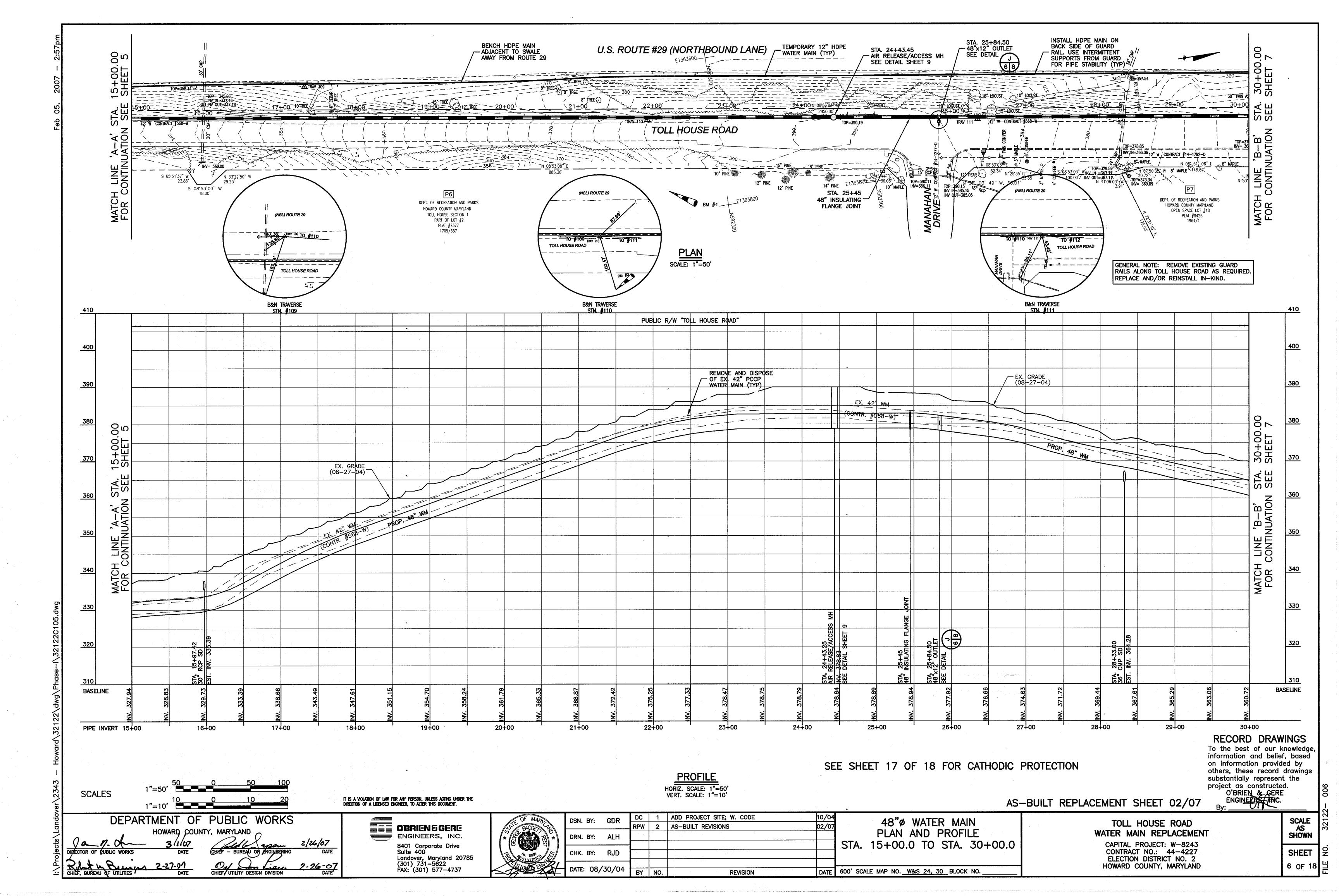
CAPITAL PROJECT: W-8243 CONTRACT NO.: 44-4227 **ELECTION DISTRICT NO. 2** HOWARD COUNTY, MARYLAND

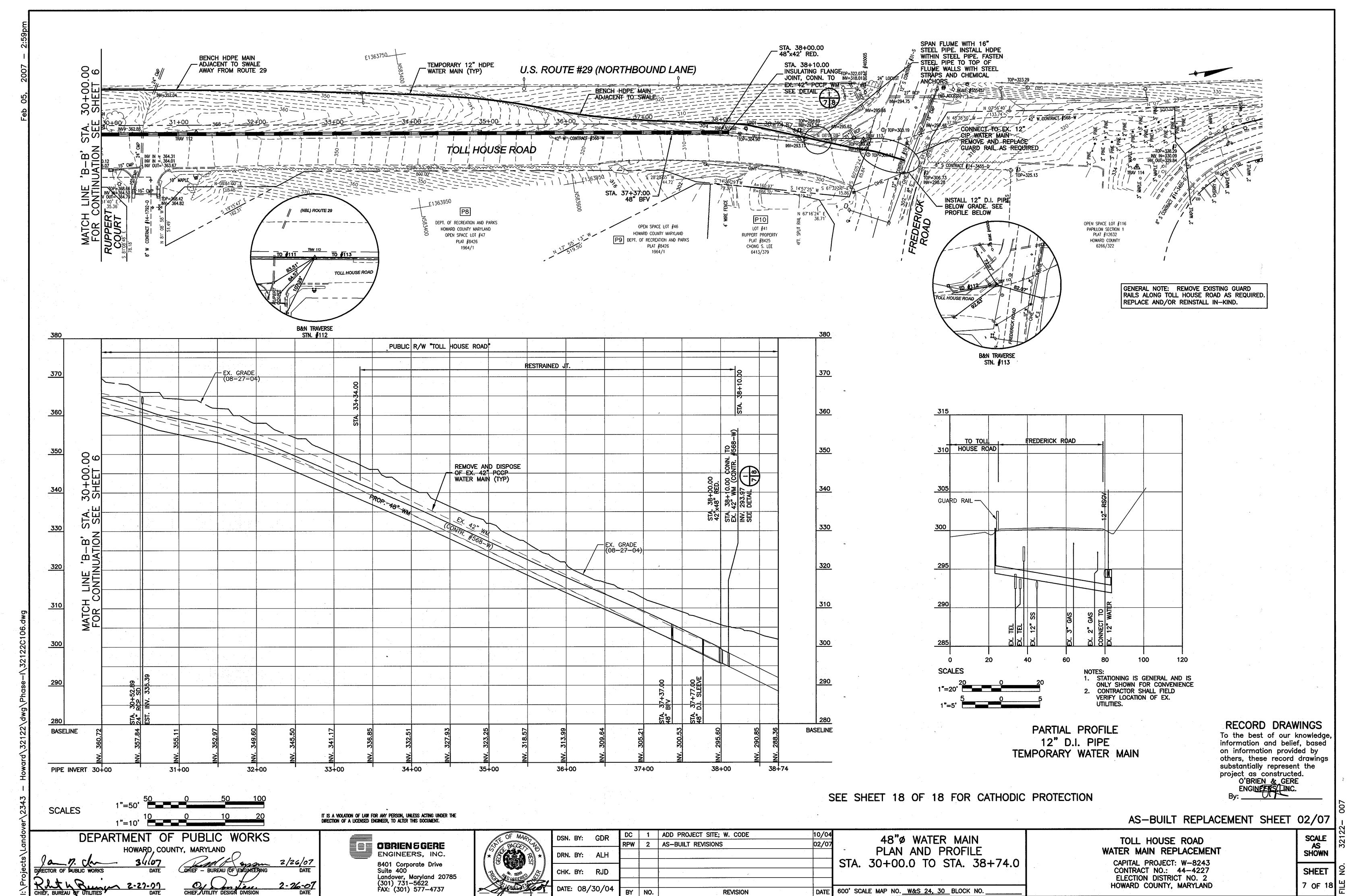
SCALE AS SHOWN SHEET

3 OF 18 当





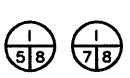


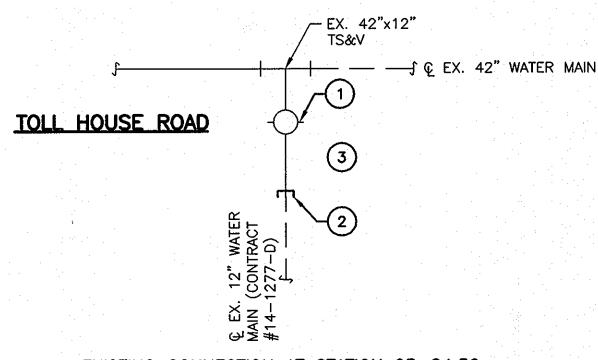


TOLL HOUSE ROAD

CONNECTIONS AT STATIONS 0+06.86 & 38+18.24

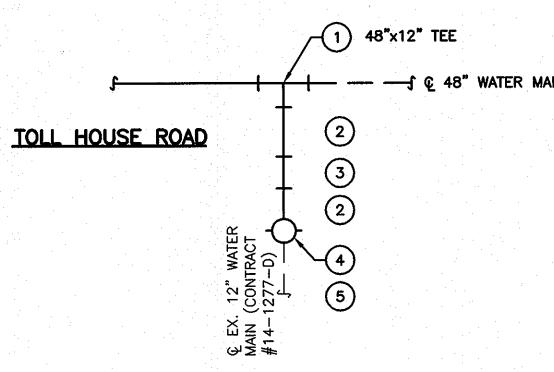
- EXISTING 42" PCCP PIPE. UNCOVER ONLY THE PORTION OF THE PIPE SUFFICIENT FOR INSTALLATION OF THE PIPE ADAPTER. KEEP CONCRETE PIPE DAMPENED WHEN UNCOVERED.
- DISASSEMBLE THE 42" PCCP AT THE JOINT AT STA. 0+06.86 AND INSTALL AN ADAPTOR AS SHOWN IN THE STANDARD JOINT x FLANGE ADAPTER DETAIL, THIS SHEET.
- NEW 42" PIPE FROM THE ADAPTER TO THE NEW REDUCER. BEGIN WITH 3' SPOOL PIECE CONNECTED TO THE PIPE.
- REPEAT CONNECTION AT STATION 38+18.24 AS IT IS SIMILAR.





EXISTING CONNECTION AT STATION 25+84.50

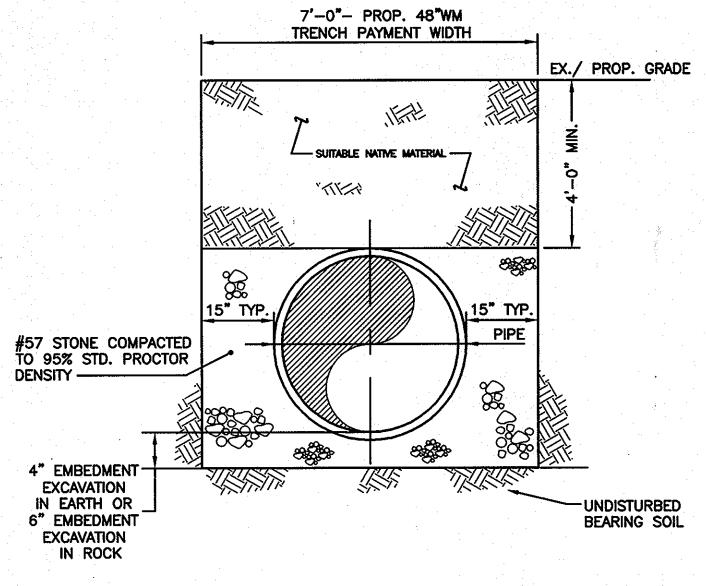
- (1) REMOVE EX. 12" VALVE AND PIPE.
- CAP EXISTING 12" MAIN AND PROVIDE TEMPORARY THRUST
- CONTRACTOR SHALL TEST PIT EX. 12" WATER MAIN TO VERIFY LOCATION AND ELEVATION. INFORMATION ON ELEVATION SHALL BE PROVIDED TO THE ENGINEER PRIOR TO COMMENCING WORK ON REPLACEMENT AND RECONNECTION OF THE 12" MAIN
- CONNECTION TO 8" W (CONTR. 14-1955-D) AT STA. 9+37.51



PROPOSED CONNECTION AT STATION 25+84.50

- (1) ROTATE TEE AS REQUIRED.
- (2) 12" SPOOL PIECE.
- (3) 12"-45" VERTICAL BEND.
- (4) 12" RESILENT SEAT GATE VALVE.
- REMOVE TEMPORARY CAP AND CONNECT TO EXISTING MAIN.
- CONNECTION TO 8" W (CONTR. 14-1955-D) SIMILAR.
- INSTALL RESTRAINED MECHANICAL COUPLING AS REQUIRED TO FACILITATE CONNECTION.



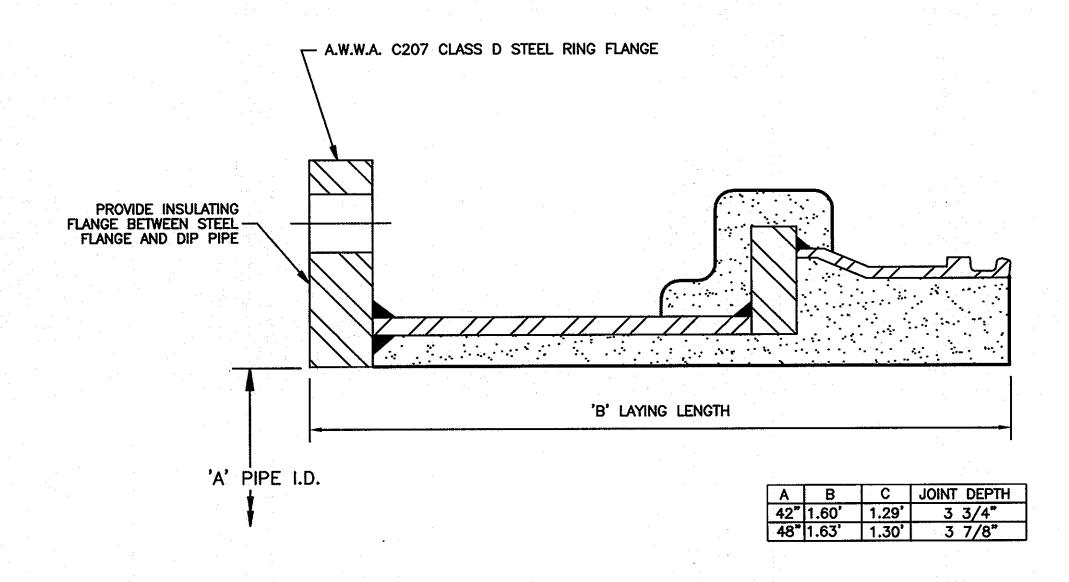


TYPICAL PIPE TRENCH - DETAIL



DETAIL NOTES:

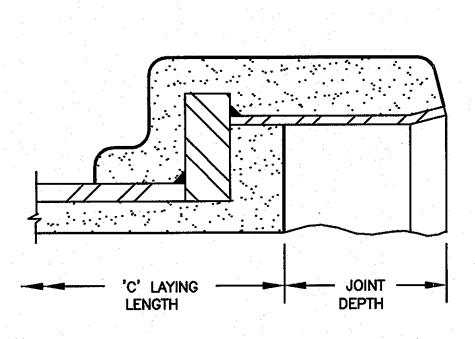
TRENCH SHALL BE COMPACTED TO 95% STD. PROCTOR DENSITY, 8" LAYERS MAXIMUM.

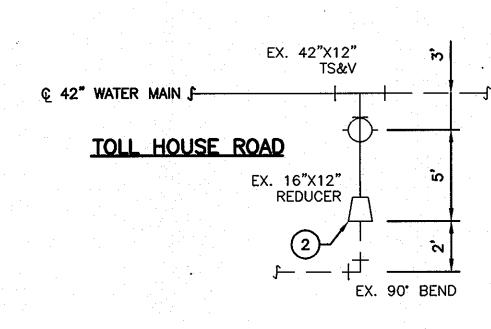


NOTES:

1) MESH AND MORTAR AS SHOWN.

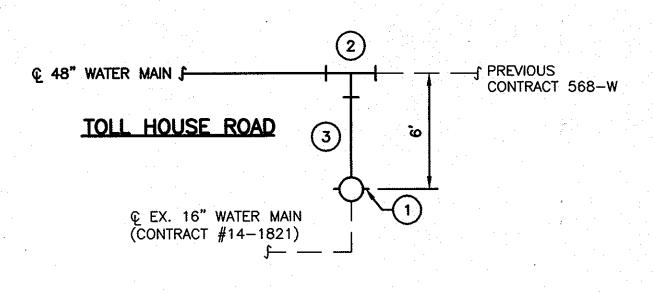
DFT HIGH SOLIDS EPOXY COATING.





CONNECTION AT STATION 0+76.03

- REMOVE EX. 12" VALVE AND PIPE.
- REMOVE EX. 16"X12" REDUCER.



CONNECTION AT STATION 0+76.03

- NEW 16" RESILIENT SEAT VALVE. CONTRACTOR SHALL CAP AND PROVIDE TEMPORARY MEANS OF RESTRAINT PRIOR TO CONNECTION TO 48" MAIN. IF NECESSARY ADJUST LOCATION OF VALVE TO ALLOW FOR PROPER CONNECTION.
- 2 NEW 48"x16" TEE. MATCH CENTER LINES (HORIZ. & VERT.) OF 16" OUTLET TO EXISTING 16" WATER MAIN.
- 3 16" PIPE CONNECTION BETWEEN EXISTING 16" VALVE AND 48"x16" TEE.

RECORD DRAWINGS To the best of our knowledge, information and belief, based on information provided by others, these record drawings substantially represent the project as constructed.

O'BRIEN & GERE ENGINEERS TIME. y:

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2) ALL EXPOSED STEEL (EXCEPT FLANGE FACE AND BOLT HOLES) PAINTED WITH 12 MILS

STANDARD JOINT x FLANGE ADAPTER DETAIL

3) FLANGE FACE AND BOLT HOLES PAINTED WITH ZINC RICH PAINT.

ENGINEERS, INC. 8401 Corporate Drive Suite 400 Landover, Maryland 20785 (301) 731-5622 FAX: (301) 577-4737

ADD PROJECT SITE; W. CODE 02/07 AS-BUILT REVISIONS DRN. BY: ALH CHK. BY: RJD DATE: 08/30/04 BY NO. **REVISION**

TOLL HOUSE ROAD WATER MAIN REPLACEMENT

CAPITAL PROJECT: W-8243 CONTRACT NO.: 44-4227 **ELECTION DISTRICT NO. 2** HOWARD COUNTY, MARYLAND SCALE AS

DEPARTMENT OF PUBLIC WORKS

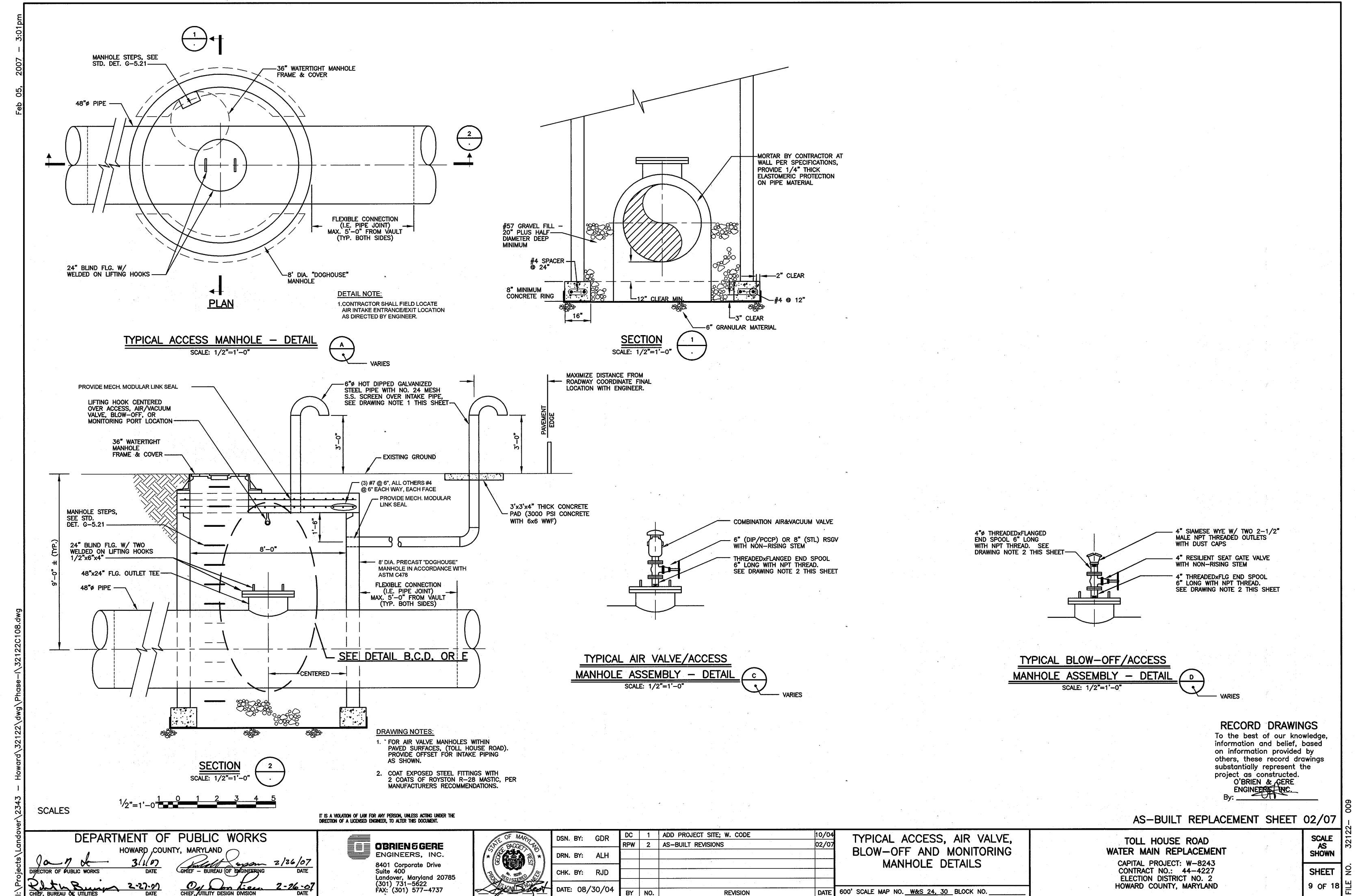
HOWARD , COUNTY, MARYLAND

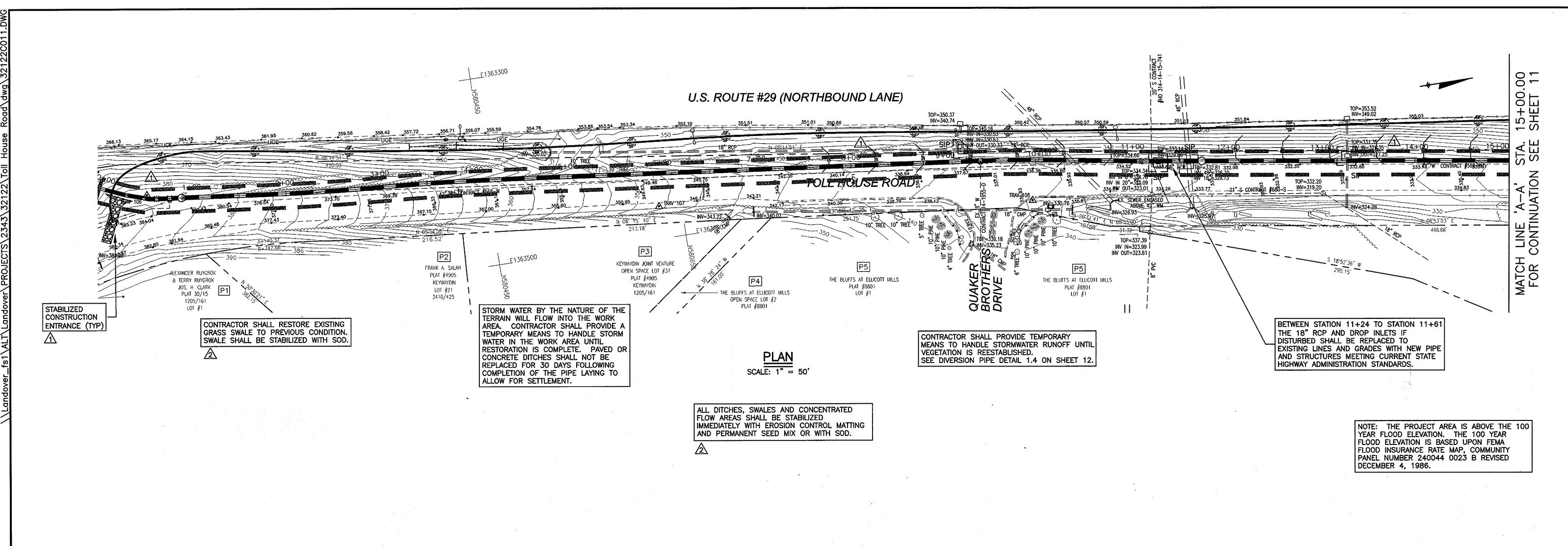
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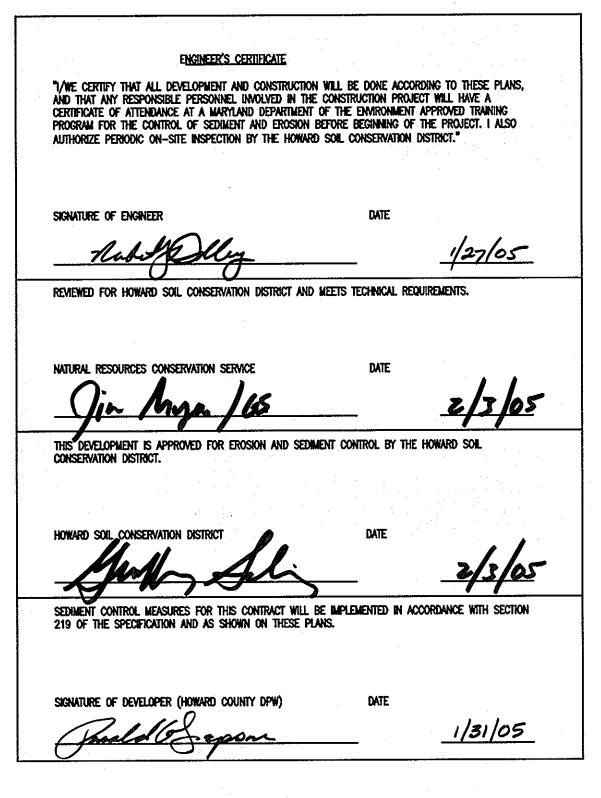
DETAILS DATE 600' SCALE MAP NO. W&S 24, 30 BLOCK NO. AS-BUILT REPLACEMENT SHEET 02/07

SHOWN SHEET

8 OF 18 빌







EROSION AND SEDIMENT CONTROL LEGEND

EROSION AND SEDIMENT CONTROL NOTES FOR UTILITY CONSTRUCTION

- 1. CONTRACTOR WILL OPEN ONLY THAT LENGTH OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN (1) DAY, SILT FENCE SHALL BE PLACED DOWN SLOPE OF THE TRENCH.
- 2. PLACE ALL EXCAVATED MATERIAL ON UPHILL SIDE OF TRENCH.
- 3. ANY SEDIMENT CONTROLS DISTURBED BY UTILITY CONSTRUCTION ARE TO BE REPAIRED IMMEDIATELY.
- 4. LIMIT OF DISTURBANCE (LOD) SHALL BE CONFINED WITH IN EXISTING EASEMENTS, TEMPORARY CONSTRUCTION STRIPS, AND PUBLIC RIGHTS OF WAY UNLESS SHOWN OTHERWISE. CONTRACTOR SHALL NOT DAMAGE OR REMOVE ANY EXISTING TREES OR SHRUBS OUTSIDE OF LOD.
- 5. ALL INLETS WITHIN LOD SHALL BE PROTECTED IN ACCORDANCE WITH DETAIL SHEET 12
- 6. ALL DITCHES, SWALES AND CONCENTRATED FLOW AREAS SHALL BE
- 7. CONTRACTOR SHALL PROVIDE SEEDING AND PAVING AS APPLICABLE AND COMPLETE SITE CLEANUP. PAVING TO BE PER CONSTRUCTION PLANS AND SPECIFICATIONS

ENGINEERS, INC. By: Manually

THIS SHEET FOR EROSION AND SEDIMENT CONTROL ONLY

600' SCALE MAP NO. W&S: 24, 30 BLOCK NO.



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AS-BUILT (

DEPARTMENT OF PUBLIC WORKS

HOWARD COUNTY, MARYLAND

2905

DIRECTOR OF PUBLIC WORKS

DATE

CHIEF, BUREAU OF UTILITIES

DATE

CHIEF, UTILITY DESIGN DIVISION

DATE

©BRIEN 5 GERE
ENGINEERS, INC.

8201 Corporate Drive
Suite 1000
Landover, Maryland 20785
(301) 731-5622
FAX: (301) 577-4737



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EROSION AND SEDIMENT CONTROL PLAN

TOLL HOUSE ROAD
WATER MAIN REPLACEMENT — PHASE

CAPITAL PROJECT: W-8243
CONTRACT NO.: 44-4277
ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND

SCALE AS SHOWN SHEET

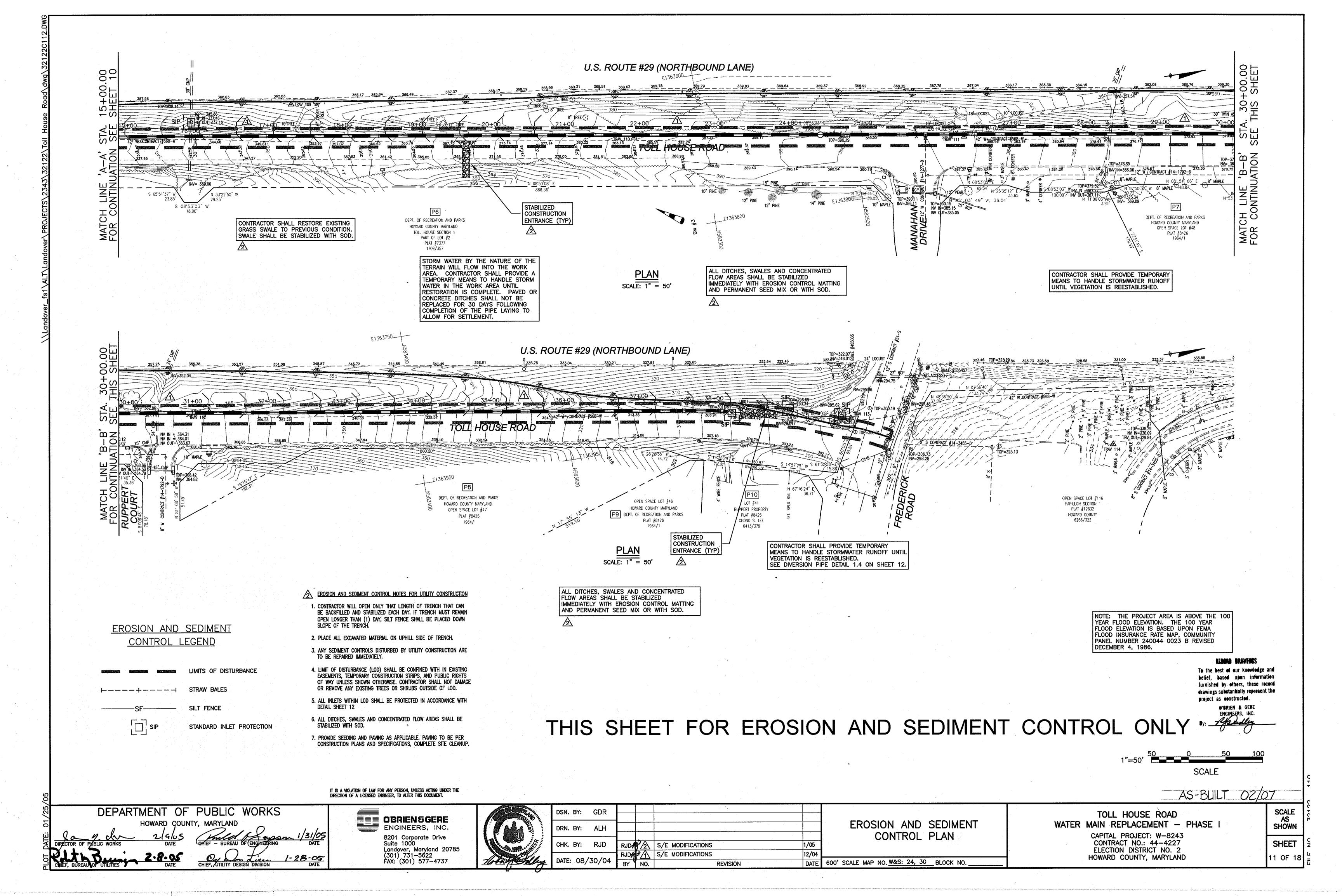
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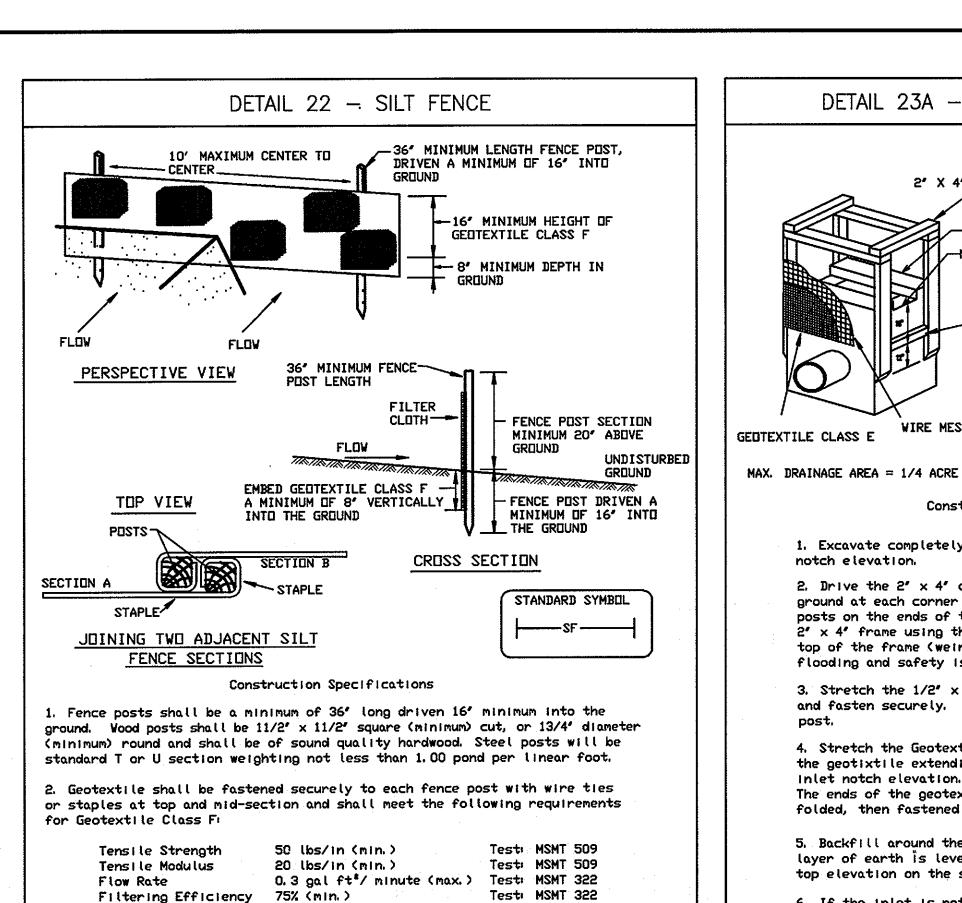
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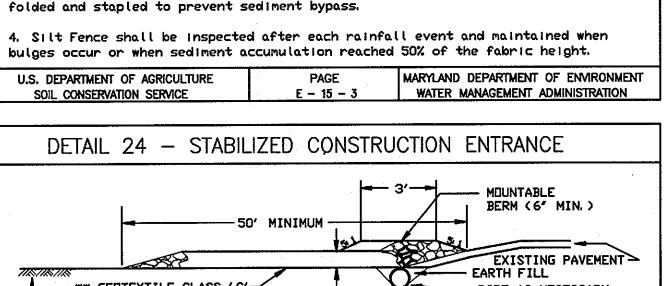
O'BRIEN & GERE

preject as constructed.

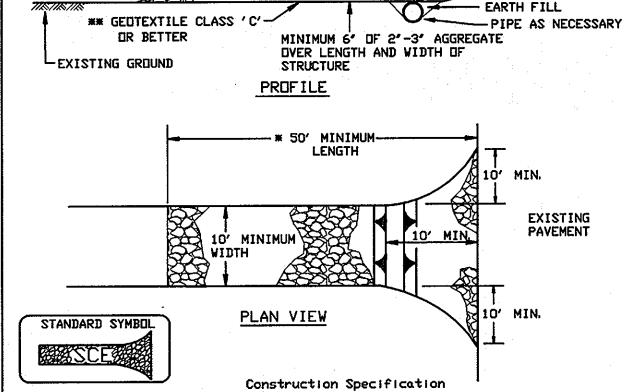
10 OF 18







3. Where ends of geotextile fabric come together, they shall be overlapped,



1. Length - minimum of 50' (#30' for single residence lot).

2. Width - 10' minimum, should be flared at the existing road to provide a turning

3. Geotextile fabric (filter cloth) shall be placed over the existing ground prior to placing stone. **The plan approval authority may not require single family residences to use geotextile.

4. Stone - crushed aggregate (2' to 3') or reclaimed or recycled concrete equivalent shall be placed at least 6' deep over the length and width of the

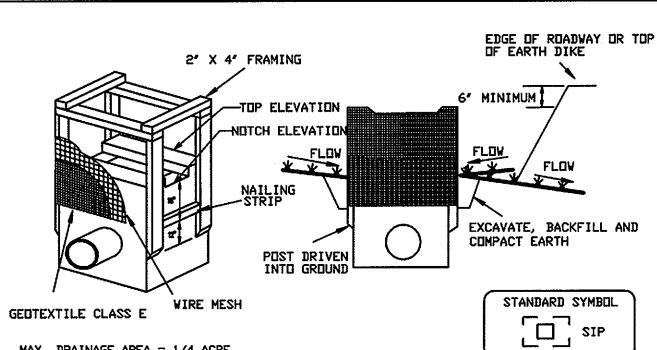
5. Surface Water - all surface water flowing to or diverted toward construction entrances shall be piped through the entrance, maintaining positive drainage. Pipe installed through the stabilized construction entrance shall be protected with a mountable berm with 5:1 slopes and a minimum of 6' of stone over the pipe. Pipe has to be sized according to the drainage. When the SCE is located at a high spot and has no drainage to convey a pipe will not be necessary. Pipe should be sized according to the amount of runoff to be conveyed. A 6" minimum will be required.

6. Location - A stabilized construction entrance shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must travel over the entire length of the stabilized construction entrance.

U.S. DEPARTMENT OF AGRICULTURE

MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION SOIL CONSERVATION SERVICE F - 17 - 3

DETAIL 23A - STANDARD INLET PROTECTION



Construction Specifications

1. Excavate completely around the Inlet to a depth of 18' below the notch elevation.

2. Drive the 2' x 4' construction grade lumber posts 1' into the ground at each corner of the inlet. Place nail strips between the posts on the ends of the inlet. Assemble the top portion of the 2' x 4' frame using the overlap joint shown on Detail 23A. The top of the frame (weir) must be 6' below adjacent roadways where flooding and safety issues may arise.

3. Stretch the $1/2'' \times 1/2''$ wire mesh tightly around the frame and fasten securely. The ends must meet and overlap at a

4. Stretch the Geotextile Class E tightly over the wire mesh with the geotixtile extending from the top of the frame to 18' below the inlet notch elevation. Fasten the geotextile firmly to the frame. The ends of the geotextile must meet at a post, be overlapped and folded, then fastened down.

5. Backfill around the inlet in compacted 6" layers until the layer of earth is level with the notch elevation on the ends and top elevation on the sides.

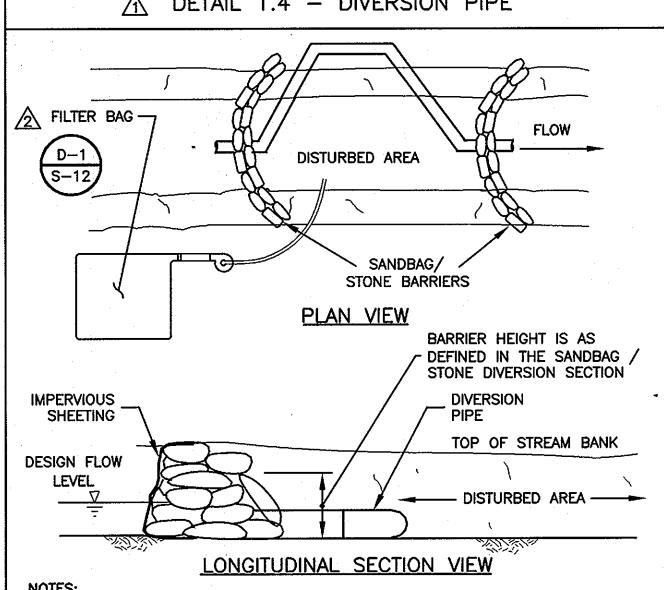
6. If the inlet is not in a sump, construct a compacted earth dike across the ditch line directly below it. The top of the earth dike should be at least 6' higher than the top of the frame.

7. The structure must be inspected periodically and after each rain and the geotextile replaced when it becomes clogged.

MARYLAND DEPARTMENT OF ENVIRONMENT U.S. DEPARTMENT OF AGRICULTURE WATER MANAGEMENT ADMINISTRATION

SOIL CONSERVATION SERVICE

DETAIL 1.4 - DIVERSION PIPE



. SEDIMENT-LADEN WATER FROM THE CONSTRUCTION AREA MUST BE PUMPED THROUGH A FILTER BAG AND RELEASED TOWARDS A STABLE, WELL VEGETATED AREA.

2. THE DIVERSION PIPE SHOULD HAVE A MINIMUM CAPACITY SUFFICIENT TO CONVEY THE 2-YEAR FLOW FOR PROJECTS WITH A DURATION OF TWO WEEKS OR GREATER. FOR PROJECTS OF SHORTER DURATION, THE CAPACITY OF THE PIPE CAN BE REDUCED ACCORDINGLY.

3. THE HEIGHT OF THE SANDBAG/STONE DIVERSION SHOULD BE A FUNCTION OF THE DURATION OF THE PROJECT IN THE STREAM REACH. FOR PROJECTS WITH A DURATION LESS THAN 2 WEEKS, THE HEIGHT OF THE DIVERSION SHOULD BE ONE HALF THE STREAMBANK HEIGHT, MEASURED FROM THE CHANNEL BED, PLUS 1-FOOT OR BANKFULL HEIGHT, WHICHEVER IS GREATER. FOR PROJECTS OF LONGER DURATION, THE TOP OF THE SANDBAG OR STONE DIVERSION SHOULD CORRESPOND TO BANKFULL HEIGHT. FOR DIVERSION STRUCTURES UTILIZING SANDBAGS, THE STREAM BED SHOULD BE HAND PREPARED PRIOR TO PLACEMENT OF THE BASE LAYER OF SANDBAGS IN ORDER TO ENSURE A WATER TIGHT FIT. ADDITIONALLY, IT MAY BE NECESSARY TO PREPARE THE BANK IN A

4. ALL EXCAVATED MATERIAL SHOULD BE DEPOSITED AND STABILIZED IN AN APPROVED AREA OUTSIDE THE 100-YEAR FLOODPLAIN UNLESS OTHERWISE AUTHORIZED BY THE WMA.

TEMPORARY INSTREAM REVISED NOVEMBER 2000 MARYLAND DEPARTMENT OF ENVIRONMENT CONSTRUCTION MEASURES WATER MANAGEMENT ADMINISTRATION It is a violation of law for any person, unless acting under the

GENERAL SEDIMENT CONTROL NOTES:

1. A MINIMUM OF 48 HOURS NOTICE MUST BE GIVEN TO THE HOWARD COUNTY DEPARTMENT OF INSPECTIONS AND PERMITS PRIOR TO THE START OF ANY CONSTRUCTION.

2. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THE PLAN AND ARE TO BE IN CONFORMANCE WITH THE "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL" AND REVISIONS THERETO.

3. FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN a) 7 CALENDAR DAYS FOR ALL PERIMETER SEDIMENT CONTROL STRUCTURES, e.g., TEMPORARY DIVERSION DIKES AND ALL SLOPES GREATER THAN 3:1 AND b) 14 DAYS FOR ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT

4. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE LATEST EDITION OF THE MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL AND EROSION CONTROL FOR PERMANENT SEEDINGS (SEC. 51) AND (SEC. 54), TEMPORARY SEEDINGS (SEC. 50) AND MULCHING (SEC. 53). TEMPORARY STABILIZATION WITH MULCH CAN ONLY BE DONE WHEN RECOMMENDED SEEDING DATES DO NOT ALLOW FOR PROPER GERMINATION AND ESTABLISHMENT OF GRASSES.

5. 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.

6. SITE ANALYSIS:

TOTAL AREA OF SITE = 5.52 AC. AREA DISTURBED (LOD) = 2.32 AC. AREA TO BE PAVED = 0.93 AC. AREA TO BE VEGETATIVELY STABILIZED = 1.39 AC. TOTAL CUT = 11,504 CU. YD. TOTAL FILL = 11,504 CU. YD.

7. ANY SEDIMENT CONTROL PRACTICE 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 SEDIMENT CONTROL INSPECTOR.

9. SITE GRADING WILL BEGIN ONLY AFTER ALL PERIMETER SEDIMENT CONTROL MEASURES HAVE BEEN INSTALLED AND ARE IN OPERATING CONDITION.

10. CUT AND FILL QUANTITIES PROVIDED UNDER SITE ANALYSIS DO NOT REPRESENT BID QUANTITIES. THESE QUANTITIES DO NOT DISTINGUISH BETWEEN TOPSOIL, STRUCTURAL FILL OR EMBANKMENT VATERIAL NOR DO THEY REFLECT CONSIDERATION OF UNDERCUTTING OR REMOVAL OF UNSUITABLE MATERIAL. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SITE CONDITIONS WHICH MAY AFFECT THE WORK.

11. 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.

13. CONTRACTOR SHALL NOT ALLOW SOIL TO ENTER EXISTING STORM DRAINS OR BE'TRACKED ONTO

EXISTING ROADWAYS.

14. TEMPORARY HANDLING OF EXCESSIVE STORMWATER SHALL BE IN ACCORDANCE WITH DETAIL 1.4 ON THIS SHEET.

12. CONTRACTOR SHALL MAKE EVERY EFFORT TO AVOID DAMAGE TO EXISTING TREES.

15. AT ALL CONSTRUCTION ACCESS POINTS, CONTRACTOR SHALL INSTALL A STABILIZED CONSTRUCTION ENTRANCE AS REQUIRED.

SEQUENCE OF CONSTRUCTION:

1. OBTAIN GRADING PERMIT AND OTHER NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION. ALL EROSION AND SEDIMENT CONTROL SHALL CONFORM TO THE LATEST MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

2. STAKEOUT THE WATER MAIN ALIGNMENT - 2 WEEKS.

3. INSTALL EROSION AND SEDIMENT CONTROL DEVICES AS REQUIRED BY INSPECTOR. DURATION — 1 WEEK.

4. BEGIN CONSTRUCTION. CONTRACTOR WILL OPEN ONLY THAT LENGTH OF TRENCH THAT CAN BE BACKFILLED AND STABILIZED EACH DAY. IF TRENCH MUST REMAIN OPEN LONGER THAN ONE (1) DAY, SILT FENCE SHALL BE PLACED DOWN SLOPE OF THE TRENCH. ALL DITCHES, SWALES AND CONCENTRATED FLOW AREAS SHALL BE STABILIZED IMMEDIATELY WITH EROSION CONTROL MATTING AND PERMANENT SEED MIX OR WITH SOD. COMPLETE 48" WATER MAIN LINE CONSTRUCTION.

5. PROVIDE SEEDING AND PAVING AS APPLICABLE. PAVING TO BE PER CONSTRUCTION PLANS AND SPECIFICATIONS, COMPLETE SITE CLEANUP. DURATION - 60 DAYS.

REVISION

6. UPON APPROVAL OF HOWARD COUNTY SEDIMENT CONTROL INSPECTOR, REMOVE REMAINING SEDIMENT CONTROL DEVICES AND STABILIZE AREAS DISTURBED BY THIS PROCESS WITH PERMANENT, TEMPORARY OR SPECIAL SEEDING IN ALL AREAS AS REQUIRED. DURATION - 30 DAYS.

1 TOPSOIL AND SEEDING NOTES:

1. TOPSOIL SPECIFICATIONS - SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING:

a) TOPSOIL SHALL BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. REGARDLESS. TOPSOIL SHALL NOT BE A MIXTURE OF CONTRASTING Textured subsoils and shall contain less than 5% BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 13" IN DIAMETER.

b) TOPSOIL MUST BE FREE OF PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACKGRASS, JOHNSONGRASS, NUTSEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.

c) WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, GROUND LIMESTONE SHALL BE SPREAD AT THE RATE OF 4-8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL. LIME SHALL BE DISTRIBUTED UNIFORMLY OVER DESIGNATED AREAS AND WORKED INTO THE SOIL IN CONJUNCTION WITH TILLAGE OPERATIONS AS DESCRIBED IN THE FOLLOWING PROCEDURES.

2. TOPSOIL APPLICATION

a) WHEN TOPSOILING, MAINTAIN NEEDED EROSION AND SEDIMENT CONTROL PRACTICES SUCH AS DIVERSIONS. GRADE STABILIZATION STRUCTURES, EARTH DIKES, SLOPE SILT FENCE AND SEDIMENT TRAPS AND BASINS.

b) GRADES ON THE AREAS TO BE TOPSOILED, WHICH HAVE BEEN PREVIOUSLY ESTABLISHED, SHALL BE MAINTAINED, ALBEIT 4"-8" HIGHER IN ELEVATION.

c) TOPSOIL SHALL BE UNIFORMLY DISTRIBUTED IN A 4"-8" LAYER AND LIGHTLY COMPACTED TO A MINIMUM THICKNESS OF 4". SPREADING SHALL BE PERFORMED IN SUCH A MANNER THAT SODDING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS SHALL BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER

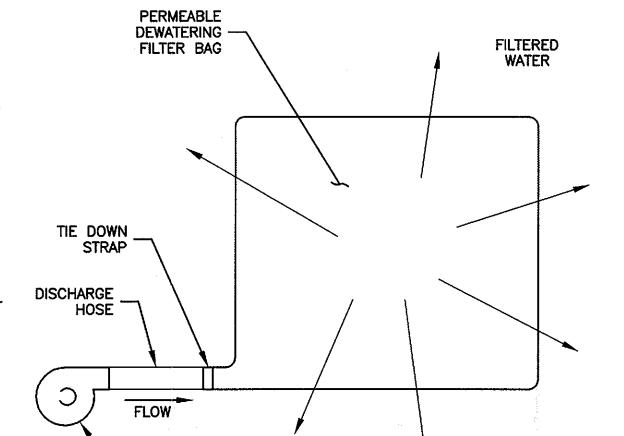
d) TOPSOIL SHALL NOT BE PLACED WHILE THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WET OR IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

/2\ 3. TEMPORARY SEEDING SCHEDULE

(FC	SEED MIXTU OR HARDINESS	FERTILIZER RATE	LIME		
SPECIES	APPLICATION RATE (lb/ac)	SEEDING DATES	SEEDING DEPTHS	(10-20-20)	RATE
BARLEY OR RYE PLUS FOXTAIL MILLET	150	3/1-10/15	1-INCH	600 tons/cc (15 lb/1000 sf)	2 tons/ac (100 lb/1000 sf)

4. PERMANENT SEEDING SCHEDULE

SEED MIXTURE FERTILIZER RAT (FOR HARDINESS ZONE 6b) (10-20-20)								LIME
No.	SPECIES	APPLICATION RATE (lb/qc)	SEEDING DATES	SEEDING DEPTHS	N	P205	K20	RATE
7	TALL FESCUE (83%)	110	3/1-8/14	1-INCH				
7	WEEPING LOVEGRASS (2%) PLUS	3	3/1-8/14	1/4-1/2 INCHES	90 lb/ac (2.0 lb/ 1000 sf)	175 lb/ac (4.0 lb/ 1000 sf)	175 lb/ac (4.0 lb/ 1000 sf)	2 tons/cc (100 lb/ 1000 sf)
7	SERECIA LESPEDEZA (15%)	20	3/1-8/14	1-INCH				



WATER

1. ANY AND ALL WATER WITHIN THE LIMITS OF DISTURBANCE MUST BE PUMPED THROUGH A FILTER BAG AND RELEASED TOWARDS A STABLE, WELL VEGETATED AREA. PUMP AND BAG SIZE - AS REQUIRED.

2. PERIODIC INSPECTION OF DISCHARGE AREA IS REQUIRED.

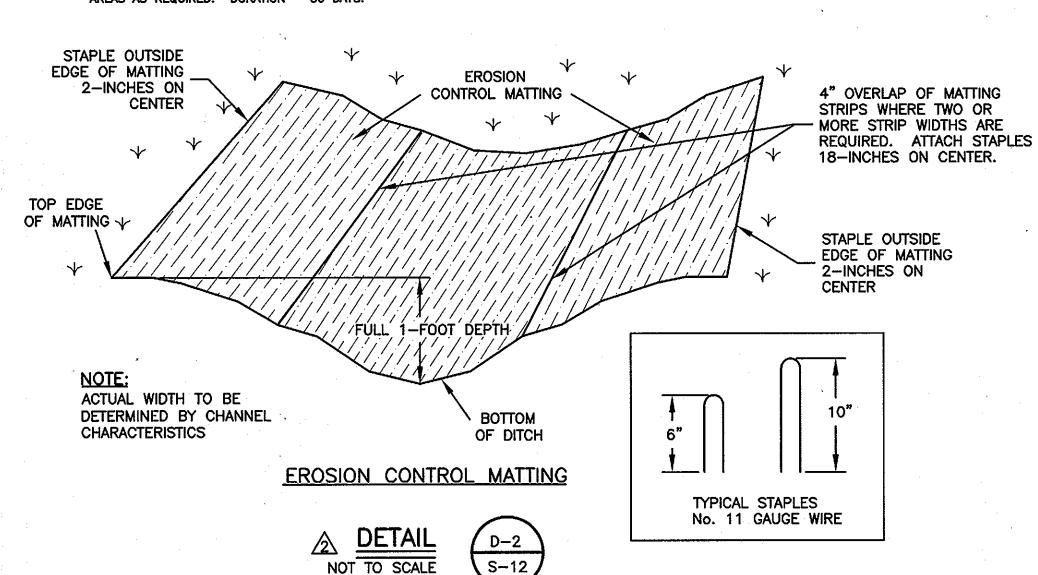
3. REMOVE SEDIMENT WHEN IT REACHES 1/3 CAPACITY OF FILTER BAG.

4. SEGREGATED MATERIALS MUST BE PLACED IN AN APPROVED LOCATION ON SITE OR REMOVED FROM SITE.

FILTER BAG



WATER



relief, based upon information furnished by others, these record frawings substantially represent the preject as constructed.

TOLL HOUSE ROAD WATER MAIN REPLACEMENT - PHASE |

CAPITAL PROJECT: W-8243 CONTRACT NO.: 44-4227 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

DEPARTMENT OF PUBLIC WORKS

O'BRIEN & GERE ENGINEERS. INC.

DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT

8201 Corporate Drive Suite 1000 Landover, Maryland 20785 (301) 731-5622 FAX: (301) 577-4737

DRN. BY: ALH DATE: 08/30/04

SE MODIFICATIONS S/E MODIFICATIONS

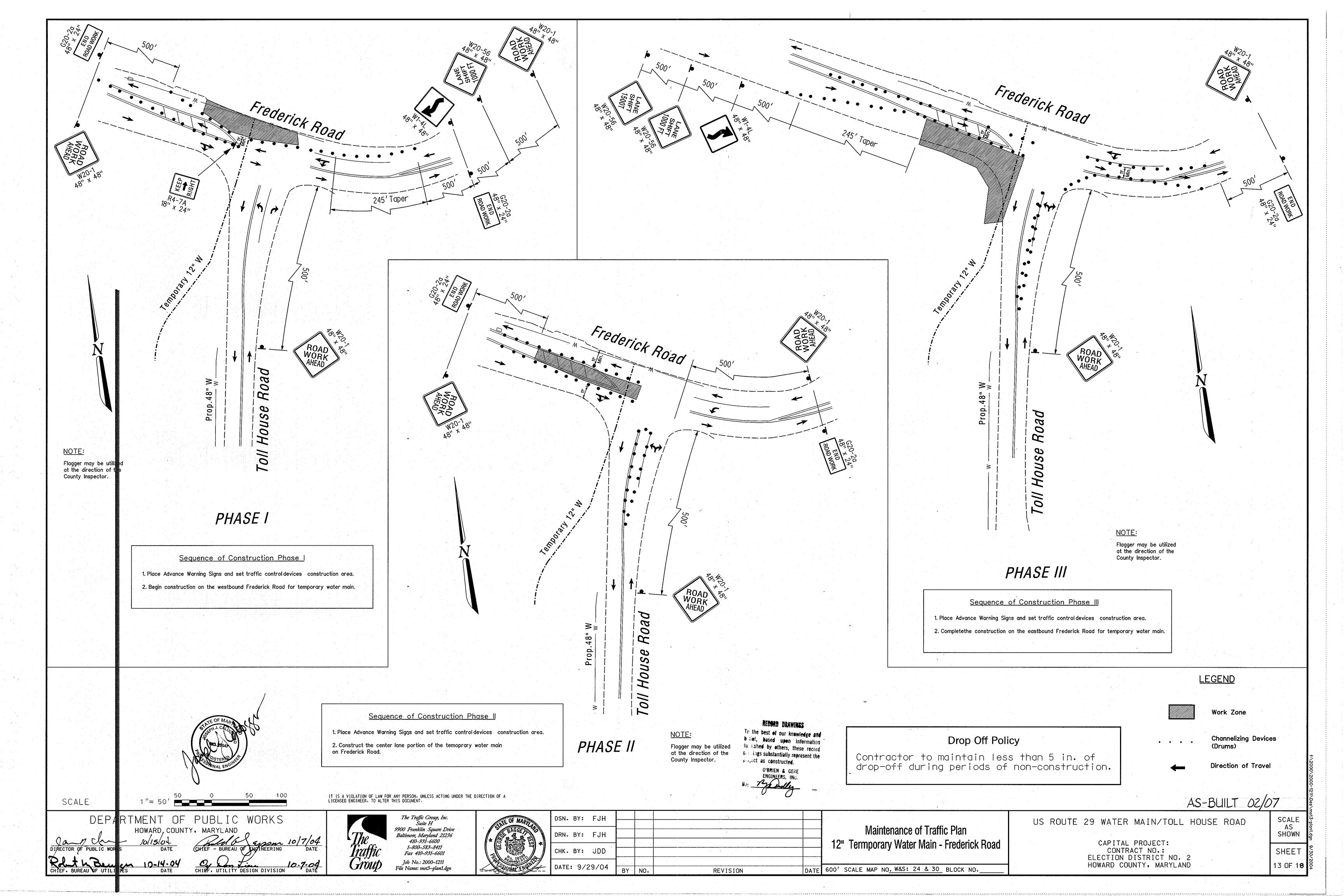
EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

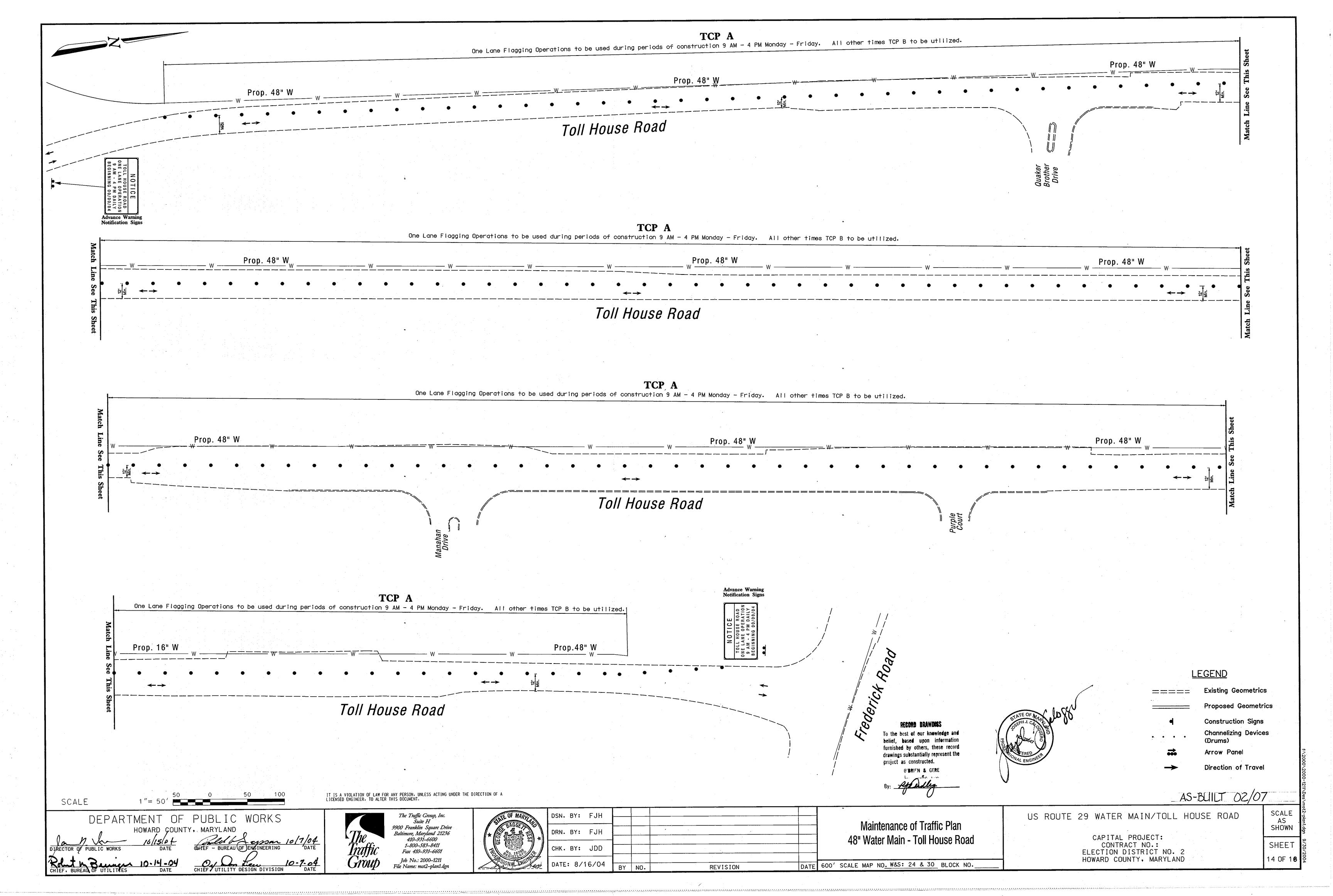
600' SCALE MAP NO. W&S: 24, 30 BLOCK NO.

SHEET 12 OF 18

SCALE

SHOWN





GENERAL NOTES FOR TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATIONS (TTCTA)

1.1 The General Notes (GN) supplement the TTCTA setups, and have been assembled to provide additional directions on the installation and application of traffic control devices shown on these standards. The GN's also provide additional guidelines and other useful information that will facilitate the installation of appropriate temporary traffic controls. Users of these standards shall also comply with the provisions of the Manual On Uniform Traffic Control Devices (MUTCD), the Standard Specifications For Construction And Materials, and General Provisions For Construction Contracts.

1.2 The TTCTA show the minimum requirements necessary to plan for the safety of workers, motorists, pedestrians and other traffic throughout the temporary traffic control zone for various types of activity along roadways. Typically, more traffic control devices are required for long-term stationary work activities than for short-term stationary work activities. Additional temporary traffic control devices may be necessary because of other traffic factors such as the roadway's accident history, expected traffic backups, high truck traffic, roadway appearance of the roadway's accident history, expected traffic backups, high truck traffic, roadway geometrics or characteristics, and other conditions that may adversely affect the smooth flow of traffic. The users of these TTCTA should review the temporary traffic control setup once in place to insure that traffic is traveling smoothly throughout the traffic control zone, meeting driver expectancies, and no other adjustments to the temporary traffic control devices are necessary. This review is to be repeated on a frequent basis as noted elsewhere.

1.3 The TTCTA address a wide variety of different applications, however, every situation could not be shown. Therefore, charts have been provided which show standard devices to be used for the proposed work zone activity, and the placement of these devices for certain roadway conditions and work durations. The user is expected to combine the information of these charts into a workable traffic controlplan.

1.4 In applying these standards and guidelines, questions for applications and interpretations should be referred to the State Highway Administration's Assistant District Engineer-Traffic, County Traffic Engineer, City Traffic Engineer, Public Works Department and so forth, who are the experts in traffic engineering; and who has jurisdiction on the appropriate roadways for applying such controls, establishing the appropriate speed criteria for the appropriate speed condition and other operational and/or elements.

4.0 SIGNS:

4.1 Signs should be spaced at the distances shown on the typical application diagrams.

4.2 See the "Sign and Buffer Spacing Charts/Standard Temporary Traffic Control Operations" for the appropriate spacing of the advance warning signs for lower speed highway facilities. 4.3 The advance warning area may need to be lengthened with additional signs in order to provide sufficient warning to upstream motorists, especially if traffic is expected to backup past any of the warning signs near the work site.

4.4 When bus and/or truck volumes are high, as determined by the Engineer, an initial advance warning sign may be placed on the left side of a multilane undivided roadway. 4.5 Fluorescent Orange High Performance Wide Angle Retro reflective Sign Sheeting material shall be used on all warning signs erected in construction zones along freeways, and major expressways with an Average Daily Traffic of 50,000 vehicles or more. These signs shall also be used on the highway ramps leading to these roadways.

4.6 FOHPWA Retro reflective Sign Sheeting material may be used for maintenance work along freeways and major expressways at the discretion of the Engineer.

4.7 Approved temporary roll up signs may be used for maintenance work along all roadways. 4.8 On 60 mph and 65 mph highways, special temporary traffic control regulatory speed signing shall be required for work activities of one hour duration or longer, unless otherwise directed by the Engineer. These signs are to be placed as directed in the General Notes.

4.9 Sign designations and messages for the most common signs used in work zones are shown within these General Notes. See specification 104.08.03 for information on other

4.11 in urban areas along streets where the prevailing speed is 35 mph or less, and along secondary roads where the Average Daily Traffic (ADT) is less than 1000 vehicles, the minimum sign size of 36 in. x 36 in. may be used.

4.12 For utility operations, advance warning signs may utilize the word "AHEAD " in lieu of distances up to and including 1500 feet. At greater distances, such as \(\frac{1}{2} \) mile or 1 mile, however, the correct distance value is to be used on such warning signs. Also the UTILITY WORK AHEAD sign may be used in lieu of ROAD WORK ______, or SHOULDER WORK

4.13 Warning signs mounted on wood posts, and those mounted on approved portable supports shall be mounted in conformance with Standard No. MD 104.00.26.

4.14 Existing regulatory, warning, and guide signs that do not apply due to temporary traffic conditions will be covered with the approval of the Engineer

4.15 All work zone signing shall be in accordance with the typical sign placement shown on this plan and shall not obstruct existing traffic control devices. 5.0 PORTABLE VARIABLE MESSAGE SIGNS

5.1 The sequential arrow mode display is prohibited on portable variable message signs.

6.0 ARROW PANELS

6.1 Arrow panels that are installed along the shoulder or median of roadways with prevailing speeds greater than 40 mph shall be provided with a minimum shoulder closure taper of 1/3 the taper length, (See 7.0 Channelizing Devices). For all other roadways a 100 foot minimum

General Notes & Standards are For Reference Purposes ONLY Check Book of Standards For Most Recent Standard

7.0 CHANNELIZING DEVICES

L - WS for speeds greater than (>) 40 mph
L - WS(S is squared)/60 for speeds equal to or less than (<) 40 mph
Where: L - minimum length of taper (ft)
S - numerical value of prevailing travel speed or speed limit (MPH),
whichever is higher, prior to work starting,
W - width of offset (ft.)

7.2 Maximum spacing between channelizing devices:
a. Taper Channelization - shall be equal in feet to the posted speed limit.
b. Tangent Channelization - shall be equal in feet to twice the posted speed limit.

7.3 Channelizing devices, especially at horizontal or vertical curves, are to be extended to a point where they are visible to approaching traffic. A full taper length (on two-lane, two-way roadways) shall always be provided in advance of curves.

7.4 Drums should always be used to form the taper on roadways having a posted or prevailing travel speed (whichever is higher) equal to or greater than 40 MPH. 7.5 Storing channelizing devices along any roadway is prohibited without approval of the Engineer.

7.6 Type 3 object markers (VP-1) are required for barrier flare/tangent points. 7.7 The appropriate channelizing devices (including approved barrier) to separate opposing traffic shall be as shown on the plans or as directed by the Engineer.

8.0 PAVEMENT MARKINGS

8.1 Pavement markings no longer applicable shall be completely removed or obliterated.

Temporary markings shall be used as necessary. Operations less than 12 hours or undertaken during the daytime may require that the permanent markings be temporarily covered with black

8.2 Pavement marking lines adjacent to any lane transition or lane closure taper shall be removed (or covered with SHA approved black pavement marking tape) as depicted on TTCTA for over 12 hours or nighttime use, unless otherwise directed by the Engineer. Pavement marking lines shall be re-installed (or uncovered) prior to re-opening the closed lane(s).

8.3 Temporary markings on intermediate pavement surfaces shall be paint placed to full dimensions per the Contract Documents, (i.e. continuous double yellow center lines; single dashed yellow center line [10 ft. segments, 30 ft. gaps] to denote passing when allowed; lane lines [10 ft.

8.4 On straight sections of roadway with full dimension center and/or lane lines, but without edge lines, channelizing drums may be used to delineate the edge of the roadway and may be spaced up to 500 ft. apart where no undue hazards exist and when directed by the Engineer. On curve sections, this spacing shall be reduced to a value equal to the posted speed limit, unless otherwise directed by the Engineer.

9.1 Where two or more flaggers are to be used and are unable to see each other, two-way radio communications shall be used.

9.2 If the entire work area is visible from one station, a single flagger may be used, subject to other

9.3 All channelizing devices and flag person(s) shall be moved accordingly as construction progresses. 9.4 All persons designated as Flaggers shall be MD-SHA certified.

10.1 Work vehicles should not occupy or be stopped in a lane beyond a horizontal curve or a vertical curve (hill). Instead, vehicles stopping are to be pulled as far off the road as possible or be otherwise parked in a manner as to inhibit the movement of traffic as little as possible. If stopping is necessary and no protection vehicle is available place channelizing devices in conformance with the placement of channelizing devices at curves as specified in 7.0, Channelizing Devices.

10.2 Work vehicles, if required, should not occupy any part of the buffer area instead vehicle(s) may occupy part of the work area.

10.3 Vehicle safety lights (amber in color) shall be approved by the Office of Traffic & Safety. work operations on freeways, where no formal lane closure exists. A formal lane closure condition work operations on freeways, where no formaliane closure exists. A formaliane closure conditions includes a full complement of advance warning devices, a lane closure taper of channelizing devices and channelizing devices to define the work area as required. A protection vehicle shall also be required for highway marking and may be required under other traffic and work conditions in conformance with SHA policy or as directed by the Engineer. The protection vehicle may be considered the initial advance warning for some mobile work operations.

This vehicle should be used in advance of horizontal and/or vertical curves to provide the advance warning for a work operation bidden by curves. Consideration should also be given advance warning for a work operation hidden by curves. Consideration should also be given to placing an additional temporary advance warning sign(s) or truck mounted variable message sign no less than 500 ft. and no more than 1500 ft. (or no more than/2mile for expressway conditions) in advance of the protection vehicle, when one or more of the traffic factors listed under Ceneral Notes 12 evict

11.0 WORK RESTRICTIONS

under General Notes 1.2 exist.

11.1 Work within a lane, or within 15 ft. of the nearest edge line is prohibited during the peak hours 6 AM - 9 AM and 4 PM - 7 PM Monday - Friday. Also, such work is not permitted on Saturdays, Sundays, National or State holidays. These work restrictions apply unless otherwise specified in the Contract Document or permitted by the Engineer.

11.2 Travellanes shall be a minimum of ten feet in width. When only one lane is open, a certified flag person(s) properly trained and attired with the appropriate signing shall be provided. The roadway should be reopened to two lanes in accordance with work hour restrictions.

11.3 All open trenches shall be closed at the end of each day. If steel plates are to be used, appropriate signing will be required. 11.4 Access shall be provided to all existing driveways at all times. The Contractor is to insure during one lane flagging operation that no vehicles exit from any driveways between both flag persons in the incorrect direction.

12.0 TRAFFIC CONTROL PLANS:

12.1 Alternate traffic control plans may be presented to Howard County Dept. of Public Works for approval in conformance with Specification 104.01.

12.2 For emergency repair operations, a minimum number of traffic control devices (TCD's) may be used. This generally will consist of one sign per direction, flashing lights on the vehicle, a minimum number of channelizing devices, and flags or high level warning devices. Additional TCD's such as, arrow panel(s), more signing, etc., will be placed as soon as possible to present an array of devices which are consistent with the standard TTCTA.

12.3 All signs, channelizing devices, and other traffic control devices shall be in conformance with the latest edition of the MUTCD.

13.0 JOB SPECIFIC NOTES:

13.1 The S.H.A. and Howard County Department of Public Works shall be notified at least 48 hours prior to beginning any work in order to schedule a field inspection of traffic control devices. 13.2 All Work Zone traffic control devices shall be in accordance with the Standard Specifications contained in the Manual on Uniform Traffic Control Devices and The State Highway Admin.

13.3 No work shall be performed in the roadway from 6 AM to 9 AM and 3 PM to 7 PM. 13.4 All cones and flag person(s) shall be moved accordingly as construction progresses.

13.5 All work zone signing shall be in accordance with typical sign placement shown on this plan and shall not obstruct existing Traffic Control Devices.

13.6 If the road is to be closed, a detailed detour plan shall be submitted to the S.H.A. and Howard County Department of Public Works for review and approval prior to any road 13.7 If temporary parking restrictions will be required, the contractor will be responsible for installing signs and for notifying at least one day in advance all affected residents. The contractor must contact S.H.A. and Howard County Traffic Engineering before any

13.8 Construction vehicles shall not be parked in a manner that will impeded traffic or impair sight

DROP-OFF GUIDELINES FOR WORK AREAS WHERE TRAFFIC IS BEING MAINTAINED

During work activities involving pavement surface work, including shoulders, it often becomes necessary to maintain traffic along-side or near lanes and shoulders having different elevations (drop-offs). Special traffic control devices are needed to safely protect and guide traffic through such areas. The traffic control requirements for drop-off situations are described in these quidelines.

I. PAVING, RESURFACING, GRINDING AND MILLING 1. Pavement Drop-Offs of 2 Inches or Less:

Adjacent pavement elevation differences, drop-offs, of two inches or less may be freely crossed by traffic. Drop-offs of two inches or less shall be indicated to traffic through the use of the UNEVEN PAVEMENT working sign

The UNEVEN PAVEMENT warning sign is to be placed in advance of and repeated throughout the limits of the drop-off in accordance with Standard No. MD.-104.89-01. When needed, the GROOVED warning supplemental sign plate shall be mounted below each sign.

NOTE: Adjacent pavement elevation differences, drop-offs, exceeding two inches shall be matched with the abutting lanes or shoulders on the same working day. As a result of this the complete povement section including shoulders shall be at the same elevation at the end of each working day.

2. Pavement Edge Drop-Offs of 2 Inches or Less: Pavement edge elevation differences, drop-offs, of two inches or less shall be indicate to traffic through the use of the UNEVEN PAVEMENT warning sign. The pavement edge is defined as being between travellane and shoulder.

The UNEVEN PAVEMENT warning sign is to be placed in advance of and repeated throughout the limits of the drop-off in accordance with Standard No. MD.-104.89-02.

3. Shoulder Edge Drop-Offs of 2 Inches or Less:

No advance warning for traffic is necessary when shoulder edge elevation differences, drop-offs, of two-inches or less exist.

The shoulder edge is defined as being between shoulder and earth

4. Tie-In to Existing Pavement:

Temporary tie-in transitions during the paving operation shall be a minimum of 4 feet in length for each 1 inch of course depth. The longitudinal Tie-in shall be completed prior to traffic being allowed

II. PAVEMENT RECONSTRUCTION

Pavement Edge and Shoulder Edge Drop-Offs Greater Than 2 Inches, But 5 Inches or Less:

Drop-offs between lane and shoulder and shoulder and earth grading, exceeding two inches, but equal to or less than five inches shall be provided with an abutting wedge with a slope of 4:1 or flatter at all times while no work is being performed. See Standard No. MD.-104.90 for wedge detail. Drums or other suitable channelizing devices are used to mark the area even when a traversable wedge is in place. Drop-offs in this range shall be indicated to traffic through the use of Standard No. MD-104.95.

2. Drop-Offs Exceeding 5 Inches:

Continuous drop-offs exceeding five inches if next to or within 12 feet of a lane of traffic, shall be provided with a temporary concrete barrier or other suitable barrier as may be approved by the Engineer, to preclude crossing the drop-off throughout its entire length. See Standard No. MD.-104.91-01.

Continuous drop-offs exceeding five inches, but greater than 12 feet away from traffic (and not protected with an approved barrier) shall be provided with an abutting wedge with a slope of 4:1 or flatter at all times while no work is being performed. See Standard No. MD.-104.91-02. Drums or other suitable channelizing devices are needed to mark the area.

For a series of drop-offs within a lane or a shoulder typically as a result of concrete joint or pavement repair, all areas where the pavement material has been removed shall be repaired the same working day. When traffic is permitted to occupy the adjacent lane(s) to this work, drums or other suitable channelizing devices shall be placed in front and completely across the excavated area in addition to the

The decision to use barrier to separate the work space from traffic will be determined by the Design Engineering Team. This team should consider such things as traffic volumes; vehicle speeds and weaving; trucks; highway geometrics; length of work space; duration of work; etc...

#SPEED LIMIT OR PREVAILING TRAVEL SPEED, WHICHEVER IS HIGHER.

TEMPORARY TRAFFIC CONTROL TYPICAL APPLICATION

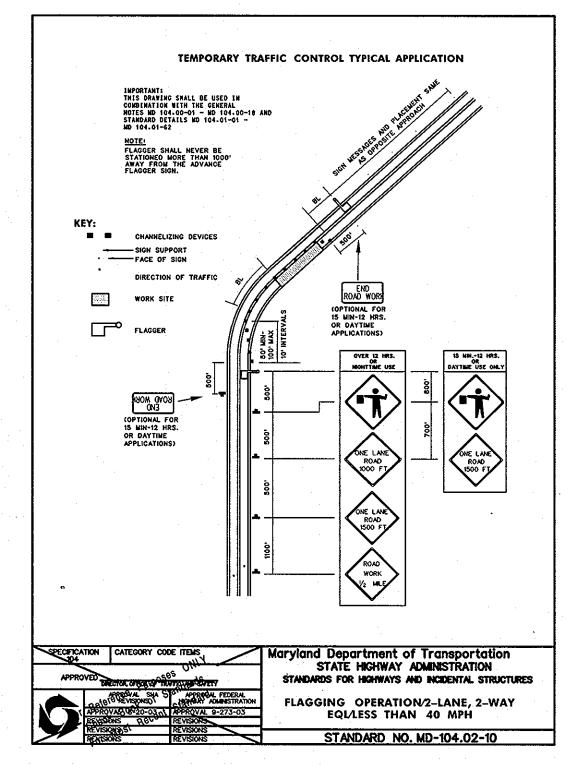
STANDARD TEMPORARY TRAFFIC CONTROL OPERATIONS

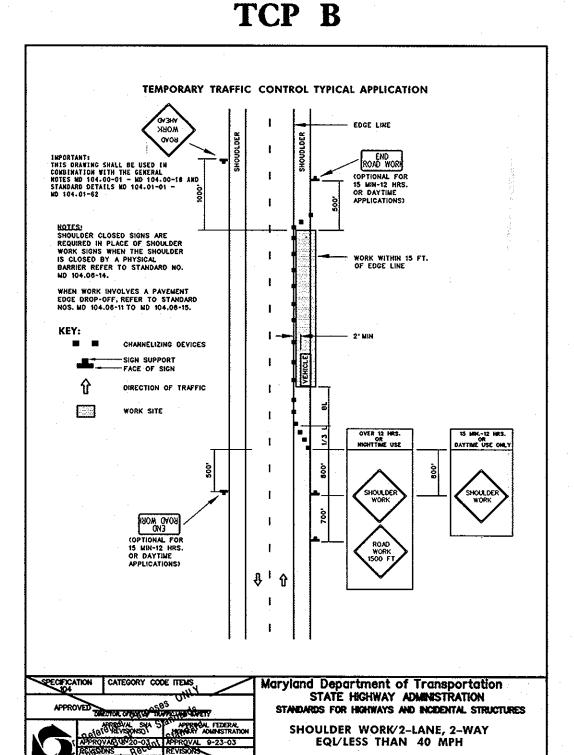
(1/2 MILE)

REFER TO STANDARD NO. MD 104.01-81 (TYPICAL APPLICATION NOTES) FOR BUFFER LENGTHS.

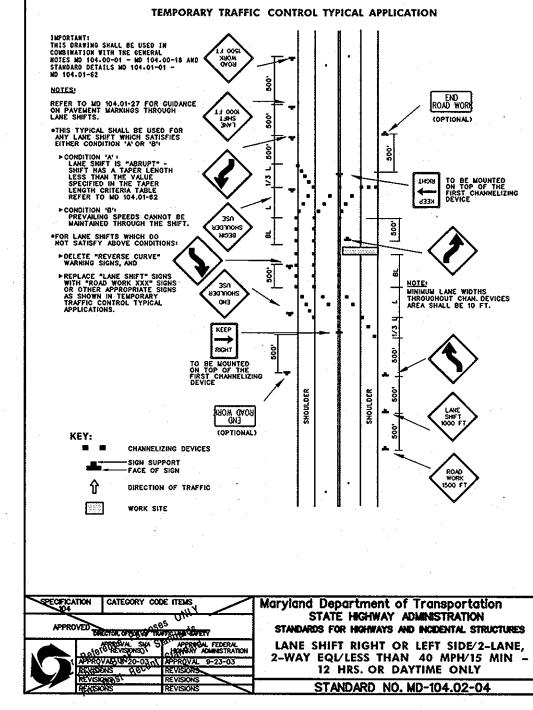
SIGN SPACING CHART

TCP A









To the best of our knowledge and belief, based upon information

RECORD DRAWINGS

furnished by others, these record drawings substantially represent the project as constructed. O'BRIEN & GERE ENGINEERS, INC.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER, TO ALTER THIS DOCUMENT.

Jepson 10/7/04 CHIEF UTILITY DESIGN DIVISION

The Traffic Group, Inc. Suite H 9900 Franklin Square Drive Baltimore, Maryland 21236 410-931-6600 1-800-583-8411 Fax 410-931-6601 Job No.: 2000-1211 File Name: mot2-plan2.dgn

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RYLAND	DSN. BY: FJH				

48' Water Main - Toll House Road Maintenance of Traffic Plan **General Notes**

-600' SCALE MAP NO. W&S: 24 & 30 BLOCK NO.

US ROUTE 29 WATER MAIN/TOLL HOUSE ROAD

CAPITAL PROJECT: CONTRACT NO.: ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE AS SHOWN SHEET

15 OF 1**8**

