

VICINITY MAP

BILL OF MATERIALS

| ITEMS | QUANTITIES ESTIMATED | AS-BUILT | | |
|----------------------------|----------------------|------------|---------------|-------------------------|
| | | QUANTITIES | TYPE | MANUFACTURER / SUPPLIER |
| 30" DIP CL. 54 SEWER | 110 LF | 110 LF | DIP | US PIPE/FERGUSON |
| 30" FRP OR PVC SEWER | 593 LF | 593 LF | FRP | HODAS/SALKE |
| 36" FRP OR PVC SEWER | 3170 LF | 2863 LF | FRP | HODAS/SALKE |
| 36" DIP CL. 54 SEWER | 103.5 LF | 103.5 LF | DIP | US PIPE/FERGUSON |
| 5' DIA. PRECAST MANHOLES | 10 EA. | 10 EA | PRE-CAST | ATLANTIC PRECAST |
| 8' DIA. PRECAST MANHOLES | 5 EA. | 5 EA | PRE-CAST | ATLANTIC PRECAST |
| 5' DIA PRECAST DOGHOUSE | 2 EA | 2 EA | PRE-CAST | ATLANTIC PRECAST |
| 5' DIA MH ADDITIONAL DEPTH | 83 V.F. | 80.99 VF | PRE-CAST | ATLANTIC PRECAST |
| 8' DIA MH ADDITIONAL DEPTH | 51 V.F. | 49.11 VF | PRE-CAST | ATLANTIC PRECAST |
| JUNCTION CHAMBER (ST-1) | 1 EA. | 1 EA | CAST-IN-PLACE | EUREKA/SALKE |

NAME OF UTILITY CONTRACTOR : **MARONA CONSTRUCTION CO.**

Sediment control measures for this contract will be implemented in accordance with Section 308 of the Specifications and as shown on these plans.

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

John K. Blanton 6/25/09
HOWARD SOIL CONSERVATION DISTRICT DATE DEVELOPER

Steve Shaver 6/25/09
DEVELOPER DATE

CHECKBOX
AS-BUILT DATE
SURVEY AND DRAFTING DIVISION

BY THE DEVELOPER :
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 THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SEDIMENT AND EROSION BEFORE BEGINNING THE PROJECT. I ALSO AUTHORIZE PERIODIC ON-SITE INSPECTIONS BY THE HOWARD SOIL CONSERVATION DISTRICT.

BY THE ENGINEER :
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.

William Brice Foxwell 6/25/09
ENGINEER DATE

PROFESSIONAL CERTIFICATION :
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 22587, EXPIRATION DATE JANUARY 14, 2010.

William Brice Foxwell
WILLIAM BRICE FOXWELL, PE

LITTLE PATUXENT PARALLEL INTERCEPTOR SEWER CAPITAL PROJECT S-6175 CONTRACT NO. 20-4535 HOWARD COUNTY, MARYLAND

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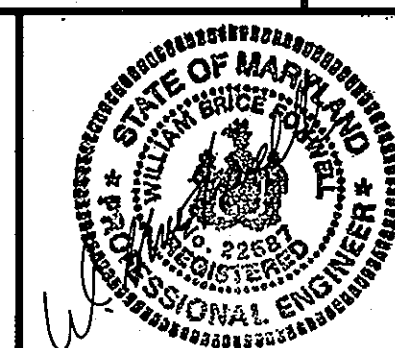
DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John P. Clark 6/25/09
DIRECTOR OF PUBLIC WORKS DATE

Steve Shaver acting for 6/25/09
CHIEF, BUREAU OF ENGINEERING DATE

Steve Shaver 6/25/09
CHIEF, BUREAU OF UTILITIES DATE

Dr. Debra Lewis 6/25/09
CHIEF, UTILITY DESIGN DIVISION DATE



| | |
|---------------|--|
| DES: D.A.V. | |
| DRN: M.A.D. | |
| CHK: W.B.F. | |
| DATE: 6/25/09 | 3/6/10 |
| BY: WAD | REVISION: REVISED SHEETS 2, 3, 6, 7, 13 & 15 |
| NO. | DATE: 3/6/10 |

TITLE SHEET

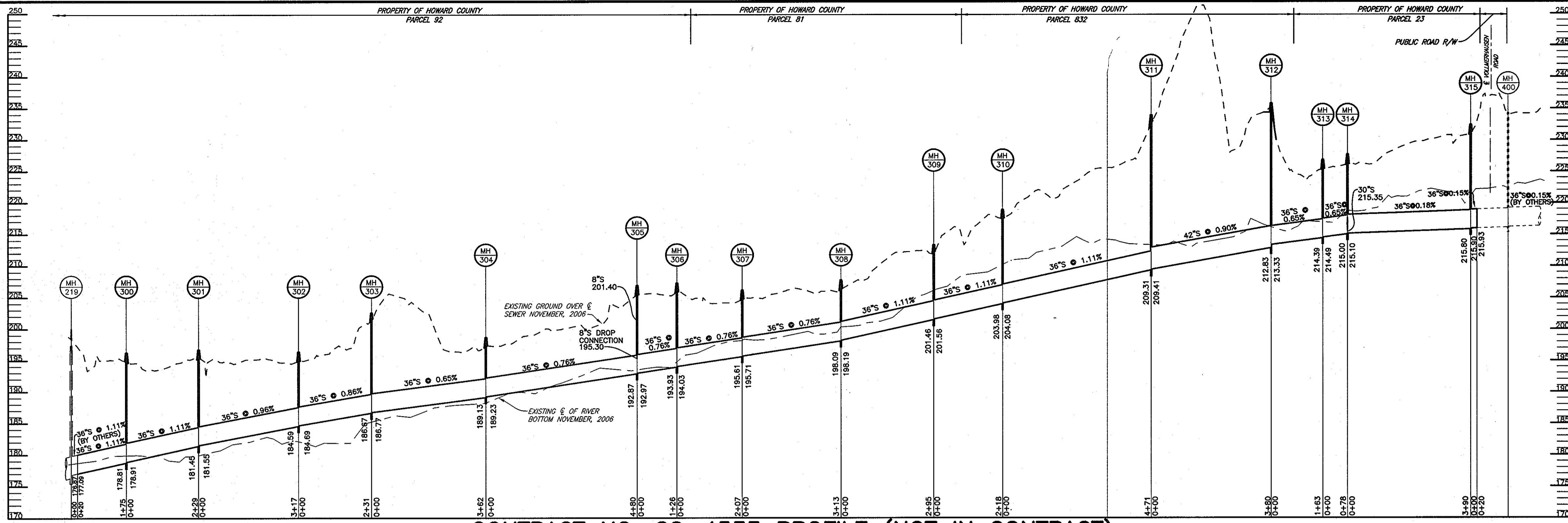
DATE: 3/6/10 SCALE: MAP NO. 42 BLOCK NO. 15, 16 & 22

LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

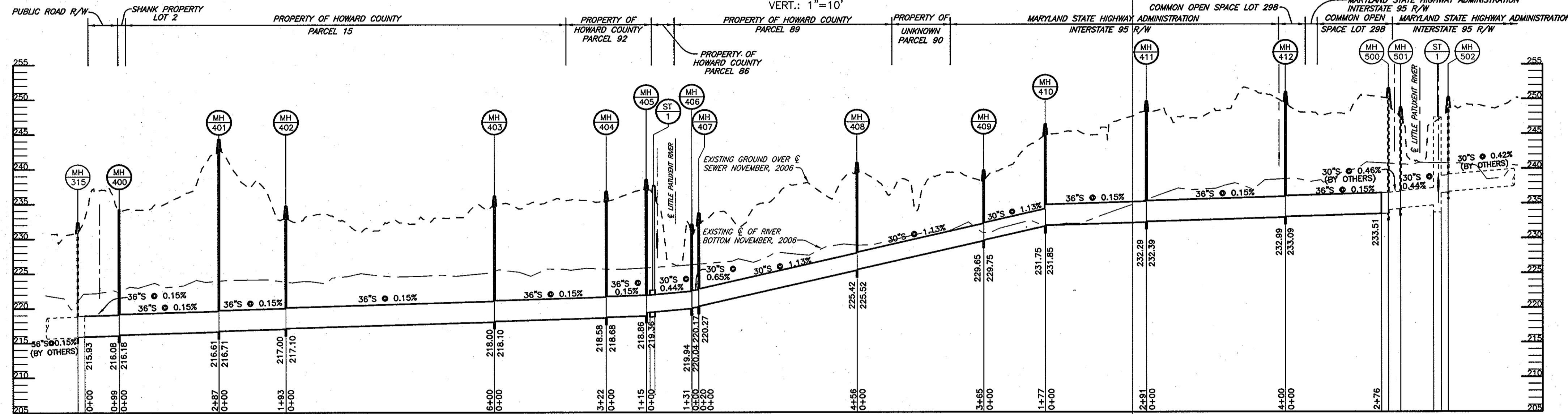
SHEET 1 OF 22

AS-BUILT: 11-7-2011



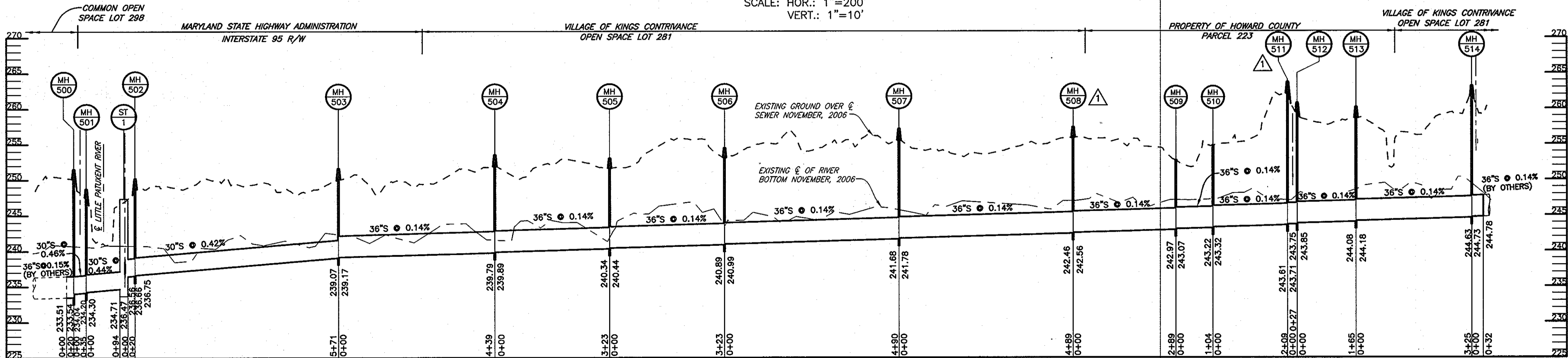
CONTRACT NO. 20-4533 PROFILE (NOT IN CONTRACT)

SCALE: HOR.: 1"=200'
VERT.: 1"=10'



CONTRACT NO. 20-4534 PROFILE (NOT IN CONTRACT)

SCALE: HOR.: 1"=200'
VERT.: 1"=10'



CONTRACT NO. 20-4535 PROFILE * NOTE: SEE SHEETS 4, 5, 6 & 7 FOR AS-BUILT INFORMATION

SCALE: HOR.: 1"=200'
VERT.: 1"=10'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 7/2/10
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 7/2/10
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 7/1/10
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 7/1/10
CHIEF, UTILITY DESIGN DIVISION DATE

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GEORGE MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SAUSURY - BALTIMORE - LEWES - SEAFORD - YORK
www.gmbnet.com



DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 6/25/09

MAD: *[Symbol]* REVISD PROFILE FROM MH-508 TO MH-511 3/18/10
BY NO. REVISION

OVERALL PROFILE SHEET


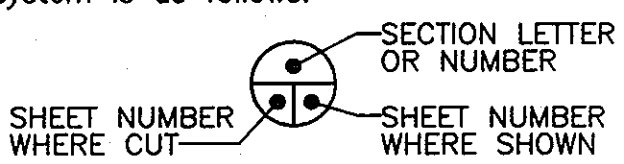
600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 2 OF 22

G:\DRAWINGS\2009-2012\LITTLE PATUXENT_SEWER\DWG\CURRENT\Contract_S-6175-PROFILE.dwg 5/20/2010 1:03:17 PM

GENERAL NOTES

- Approximate locations 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.
- Topographic field surveys were performed during October and November, 2006, by C.C. Johnson and Malhorta, pc.
- Horizontal and Vertical Survey Controls:
The coordinates shown on the drawings are based on Maryland State Reference System NAD '83/'91 as projected by Howard County Geodetic Control Station No. LPS-102, LPS-103 and 42ED. All vertical controls are based on NAVD '88. Vertical Controls on the drawings are based on Howard County Geodetic Control Station No. LPS-102 and 42ED.
LPS-102 - N 534676.62, E 1360784.80, Elev. 149.32
LPS-103 - N 539918.59, E 1359775.48, Elev. None
42ED - N 546494.25, E 1358095.09, Elev. 286.765
- All pipe elevations shown are invert elevations unless otherwise noted on the plans.
- 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 the 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.
- For details not shown on the drawings, 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 Volume IV on the job.
- 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 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.
- 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 (Construction Services) 410-850-4620
BGE (Emergency) 410-685-1400
Bureau of Utilities 410-313-4900
Colonial Pipeline Co. 410-795-1390
Miss Utility 1-800-257-7777
State Highway Administration 410-531-5533
Verizon 1-800-743-0033 / 410-224-9210
- The contractor shall install tree protection fence (see Sheet 16 for detail) along the limit of disturbance (LOD) for the entire project. In areas where Super Silt Fence (SSF) is required along the LOD, tree protection fence is not also required to be furnished and installed. Trees within the temporary construction strips and temporary construction easements shall not be removed or damaged by the contractor. Shrubs within the temporary construction strips and temporary construction easements shall be protected from damage to the maximum extent possible.
- The contractor shall remove trees, stumps and roots along the line of excavation. Payment for such removal shall be included in the Lump Sum prices bid for Tree Removal and Clearing and Grubbing.
- 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.
- Spoil from trenching operations is to be placed on the uphill side of the trench.
- The contractor shall be responsible for acquiring any additional staging and/or stockpile areas that he deems necessary.
- The contractor shall be responsible for repairing and replacing any existing fences, signs, concrete curb, driveways, paving, curb and gutter pan, walkways, etc., damaged or removed during construction. All disturbed areas shall be returned to their original or better condition.
- MDE Permit Tracking No. 20076408/07-NT-3268.
- The section identification system is as follows:


SEWER NOTES

- Sewer mains for stream crossings shall be CL 54 DIP with lining. All other sewer mains shall be AWWA C-905 PVC or FRP unless otherwise noted.
- All manholes shall be 5'-0" or 8'-0" inside diameter as noted in the Structure Schedule.
- Manholes designated W.T. in profile shall have watertight frame and covers, Standard Detail G5.52. Where watertight manhole frames and covers are used, set top of frame 1'-6" above finished grade unless otherwise noted on the drawings.
- The existing sewer shall remain in service at all times and be protected during construction.
- Final connection of the proposed sewer main to the existing system shall not be completed until all downstream sewer contracts are accepted by the County and the contractor has received written permission from the County.
- Provide pipe joint five feet from the face at each side of all proposed manholes when installing FRP sewer mains.

STRUCTURE SCHEDULE

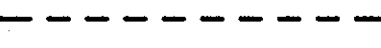
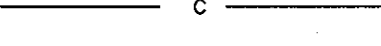


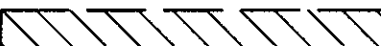
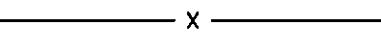
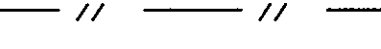

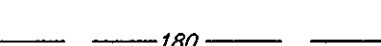
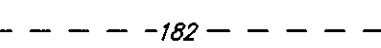
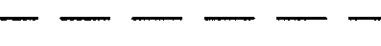
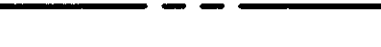



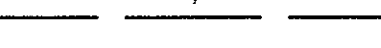
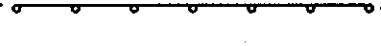


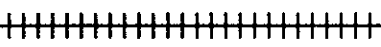
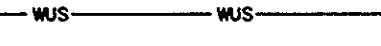





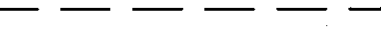



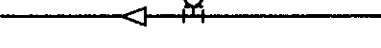












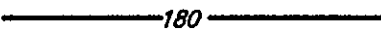
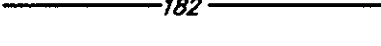













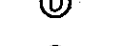









| STRUCTURE | TYPE | LOCATION | INV. IN | INV. OUT | RIM ELEV. | REMARKS | INVERT @ # MH |
|-----------|--------------------|--------------------------|--------------|--------------|-----------|---------------------|---------------|
| MH-500 | 8' PRECAST MANHOLE | N 543234.69 E 1359277.83 | 234.04 (30") | 233.54 (36") | 251.1 | SEE DETAIL SHEET 18 | 233.36 |
| MH-501 | 5' PRECAST MANHOLE | N 543257.84 E 1359304.14 | 234.30 (30") | 234.20 (30") | 248.5 | SEE DETAIL SHEET 18 | 234.12 |
| MH-502 | 8' PRECAST MANHOLE | N 543316.63 E 1359420.73 | 236.66 (30") | 236.56 (30") | 250.2 | SEE DETAIL SHEET 18 | 236.54 |
| MH-503 | 8' PRECAST MANHOLE | N 543859.92 E 1359245.49 | 239.17 (36") | 239.07 (30") | 253.3 | SEE DETAIL SHEET 18 | 238.96 |
| MH-504 | 8' PRECAST MANHOLE | N 544170.17 E 1358934.74 | 239.89 (36") | 239.79 (36") | 254.5 | SEE DETAIL SHEET 18 | 239.26 |
| MH-505 | 8' PRECAST MANHOLE | N 544205.19 E 1358614.66 | 240.44 (36") | 240.34 (36") | 253.1 | SEE DETAIL SHEET 18 | 240.13 |
| MH-506 | 8' PRECAST MANHOLE | N 544417.73 E 1358374.26 | 240.99 (36") | 240.89 (36") | 257.3 | SEE DETAIL SHEET 18 | 240.57 |
| MH-507 | 8' PRECAST MANHOLE | N 544905.92 E 1358416.55 | 241.78 (36") | 241.68 (36") | 257.2 | SEE DETAIL SHEET 18 | 241.40 |
| MH-508 | 5' PRECAST MANHOLE | N 545324.56 E 1358169.13 | 242.56 (36") | 242.46 (36") | 257.4 | SEE DETAIL SHEET 18 | 242.13 |
| MH-509 | 5' PRECAST MANHOLE | N 545567.83 E 1358008.40 | 243.07 (36") | 242.97 (36") | 259.7 | SEE DETAIL SHEET 18 | 242.62 |
| MH-510 | 5' PRECAST MANHOLE | N 545671.56 E 1357997.93 | 243.32 (36") | 243.22 (36") | 254.8 | SEE DETAIL SHEET 18 | 242.76 |
| MH-511 | 8' PRECAST MANHOLE | N 545879.57 E 1358018.37 | 243.74 (36") | 243.64 (36") | 253.8 | SEE DETAIL SHEET 18 | 243.47 |
| MH-512 | 5' PRECAST MANHOLE | N 545899.60 E 1358000.07 | 243.85 (36") | 243.75 (36") | 260.8 | SEE DETAIL SHEET 18 | 243.62 |
| MH-513 | 5' PRECAST MANHOLE | N 545972.66 E 1357894.42 | 244.18 (36") | 244.08 (36") | 261.6 | SEE DETAIL SHEET 18 | 244.15 |
| MH-514 | 5' PRECAST MANHOLE | N 546047.15 E 1357535.55 | 244.73 (36") | 244.63 (36") | 263.2 | SEE DETAIL SHEET 18 | 244.70 |

NOTE: LOCATION OF MANHOLES IS GIVEN AT CENTER OF STRUCTURE. RIM ELEVATION IS SET 1'-6" ABOVE EXISTING GROUND PER STD. DETAIL G-5.41 EXCEPT FOR MANHOLES 509 AND 510 WHICH ARE SET FLUSH TO EXISTING GROUND.

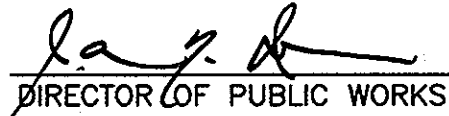
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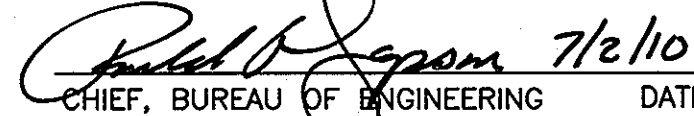
| NO. | LOCATION |
|--------|--------------------------|
| KCI-71 | N 543307.63 E 1359394.61 |
| KCI-72 | N 543847.76 E 1359231.14 |
| KCI-73 | N 544154.92 E 1358910.91 |
| KCI-74 | N 544209.26 E 1358572.85 |
| KCI-75 | N 544423.47 E 1358354.76 |
| KCI-76 | N 544875.71 E 1358404.53 |
| KCI-77 | N 545337.83 E 1358133.00 |
| KCI-78 | N 545587.94 E 1357987.90 |
| KCI-79 | N 545896.20 E 1357993.51 |
| KCI-80 | N 546044.21 E 1357748.95 |
| LPS-26 | N 546102.22 E 1357487.45 |


LEGEND


-  EX. BUILDING
-  EX. UNDERGROUND CABLE
-  EX. UNDERGROUND ELECTRIC
-  EX. OVERHEAD ELECTRIC LINES
-  EX. 100 YR. FLOODPLAIN EASEMENT
-  EX. UTILITY EASEMENT
-  EX. CHAIN LINK FENCE
-  EX. WOOD FENCE
-  EX. 100 YR. FLOODPLAIN
-  EX. UNDERGROUND GAS MAIN
-  EX. 10 FOOT CONTOURS
-  EX. 2 FOOT CONTOURS
-  EX. FOOT PATH
-  EX. PROPERTY BOUNDARY
-  EX. ADJACENT PROPERTY BOUNDARY
-  EX. BRIDGE
-  EX. CENTERLINE ROAD
-  EX. CURB & GUTTER
-  EX. EDGE OF PAVEMENT
-  EX. GUARDRAIL
-  EX. PAVEMENT MARKINGS
-  EX. ROAD RIGHT-OF-WAY
-  EX. RIVER
-  EX. RAILROAD TRACKS
-  EX. WATERS OF THE U.S.
-  EX. SANITARY SEWER
-  EX. STORM DRAIN
-  EX. STREAM
-  EX. VEGETATION BUFFER
-  EX. UNDERGROUND TELEPHONE LINE
-  EX. WOODS LINE
-  EX. SIDEWALK
-  EX. WALLS
-  EX. WETLANDS
-  EX. WETLAND BUFFER
-  EX. WATER MAIN, FIRE HYDRANT, VALVE & REDUCER
-  PROPOSED UTILITY EASEMENT
-  TEMPORARY CONSTRUCTION EASEMENT
-  TEMPORARY CONSTRUCTION STRIP
-  PROPOSED SANITARY SEWER MAIN
-  PROPOSED CLAY DAM
-  PROPOSED WATER MAIN, FIRE HYDRANT, VALVE & REDUCER
-  PROPOSED 10 FOOT CONTOUR
-  PROPOSED 2 FOOT CONTOUR
-  EARTH DIKE
-  LIMIT OF DISTURBANCE
-  SILT FENCE
-  SUPER SILT FENCE
-  TREE PROTECTION FENCE
-  EX. EVERGREEN TREE
-  EX. SPECIMEN TREE
-  EX. DECIDUOUS TREE
-  EX. TREE TO BE REMOVED
-  EX. ELECTRICAL MANHOLE
-  EX. SEWER MANHOLE
-  EX. WATER METER
-  EX. AIR RELEASE MANHOLE
-  EX. STORM DRAIN MANHOLE
-  EX. TELEPHONE MANHOLE
-  EX. LIGHT POLE
-  EX. GAS MANHOLE
-  EX. UTILITY PEDESTAL
-  EX. UTILITY POLE
-  EX. SIGN
-  BENCHMARK
-  SOIL BORING
-  TRAVERSE
-  TEST PIT

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

 7/2/10
DIRECTOR OF PUBLIC WORKS DATE

 7/2/10
CHIEF, BUREAU OF ENGINEERING DATE

 7/2/10
CHIEF, BUREAU OF UTILITIES DATE

 7/1/10
CHIEF, UTILITY DESIGN DIVISION DATE



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| | |
|---------------|---|
| DES: D.A.V. | |
| DRN: M.A.D. | |
| CHK: W.B.F. | |
| DATE: 6/25/09 | |
| MAD | REVISED COORDINATES, INV. ELEV. & RIM ELEV. FOR MH-508 & MH-510 |
| BY | NO. |
| DATE | REVISION |

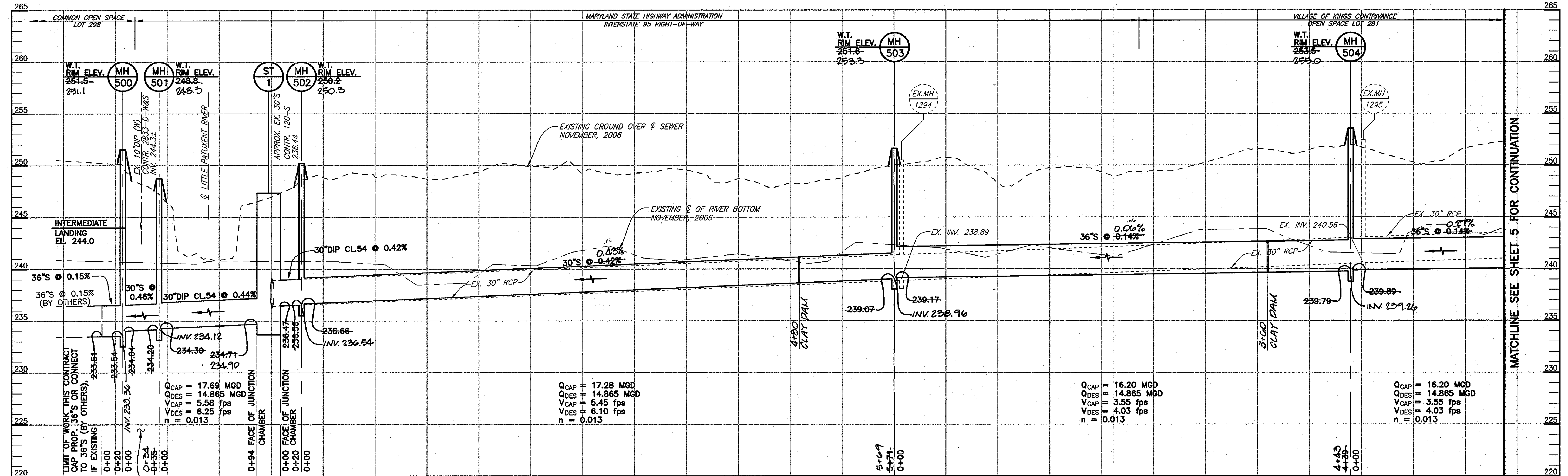
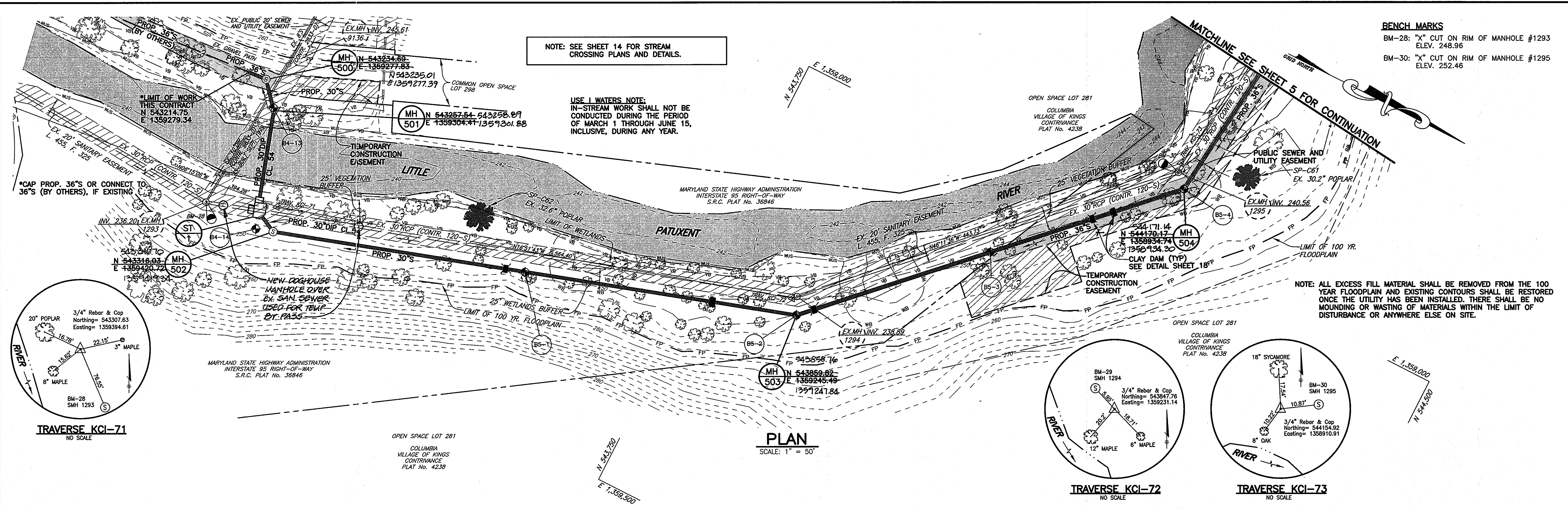
GENERAL NOTES

600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 3 OF 22



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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

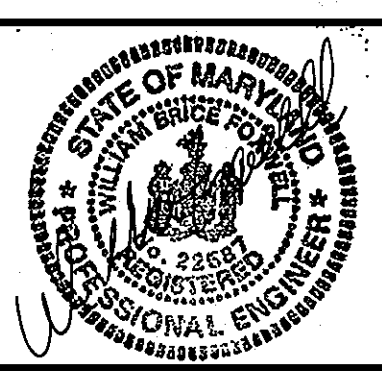
Director of Public Works: *James K. ...*
DATE: *6/25/09*

Chief, Bureau of Engineering: *Steve Shannon*
DATE: *6/25/09*

Chief, Bureau of Utilities: *Shirley C. ...*
DATE: *6/25/09*

Chief, Utility Design Division: *...*
DATE: *6/25/09*

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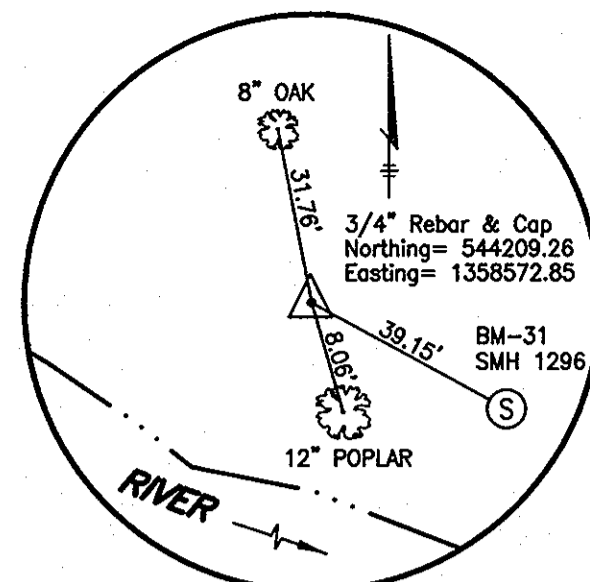
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| DES: D.A.V. | |
| DRN: M.A.D. | |
| CHK: W.B.F. | |
| DATE: 6/25/09 | |
| BY: NO. | |
| REVISION | |
| DATE | |

PLAN AND PROFILE OF A SEWER MAIN

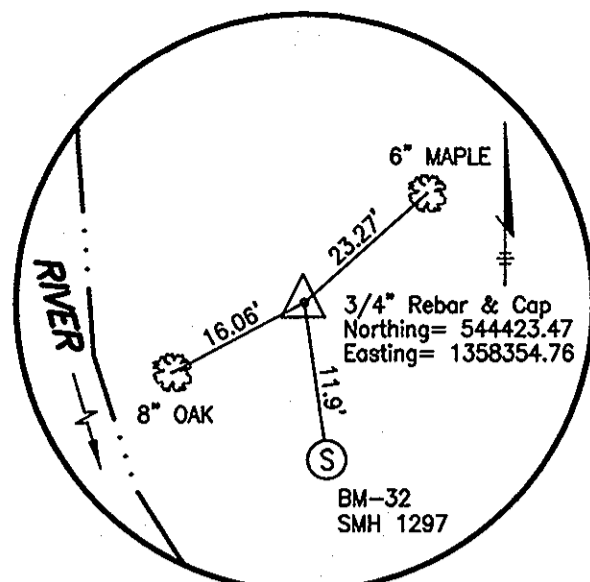
600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

**LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER**
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

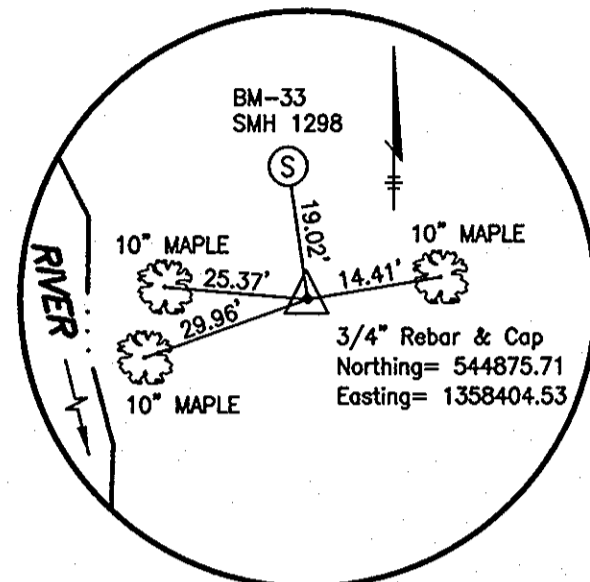
SCALE AS SHOWN
SHEET 4 OF 22



TRAVERSE KCI-74
NO SCALE



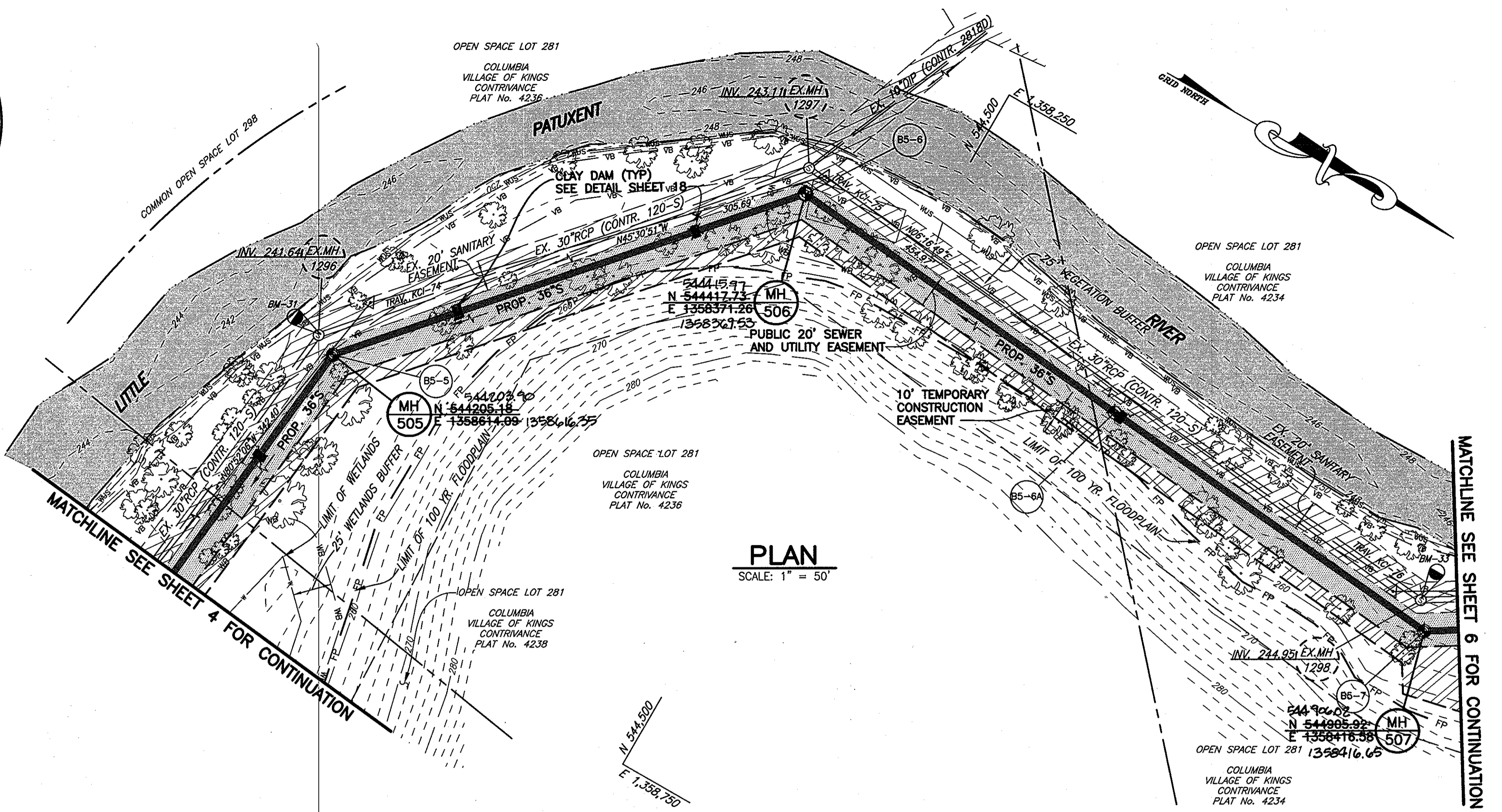
TRAVERSE KCI-75
NO SCALE



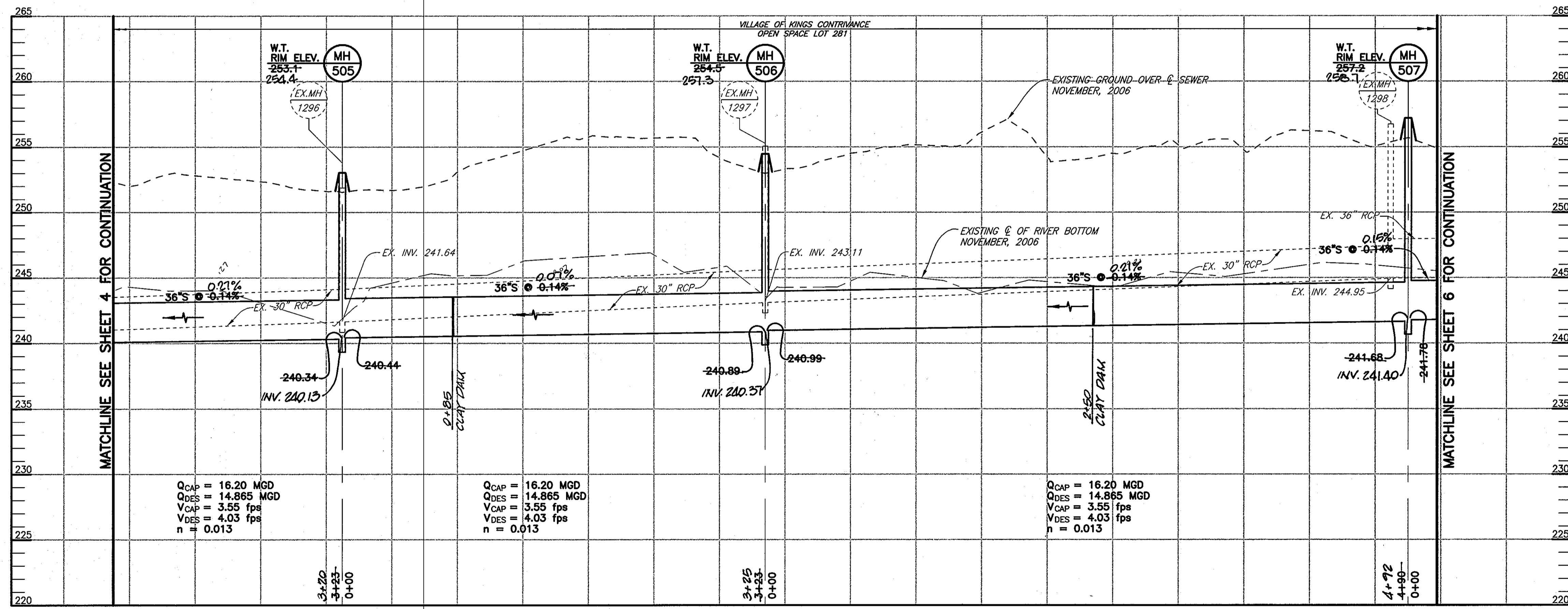
TRAVERSE KCI-76
NO SCALE

BENCH MARKS
 BM-31: "X" CUT ON RIM OF MANHOLE #1296
 ELEV. 251.88
 BM-33: "X" CUT ON RIM OF MANHOLE #1293
 ELEV. 256.73

NOTE: ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED ONCE THE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMIT OF DISTURBANCE OR ANYWHERE ELSE ON SITE.



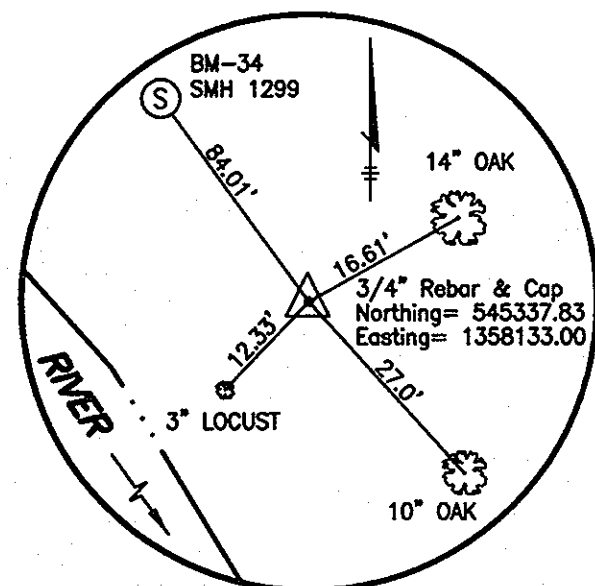
PLAN
SCALE: 1" = 50'



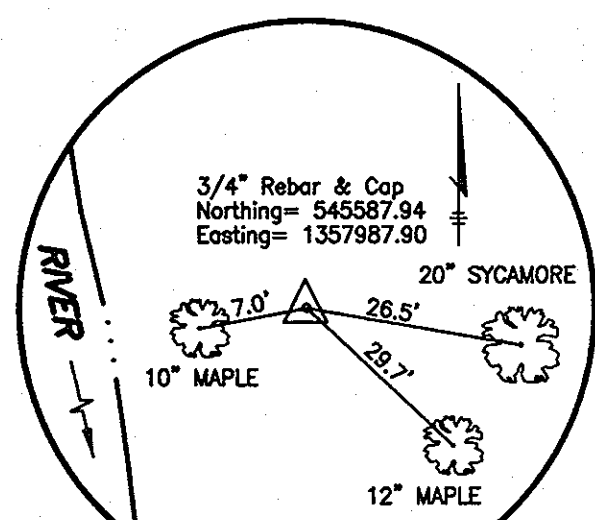
PROFILE
SCALE: HOR.: 1" = 50'
VERT.: 1" = 5'

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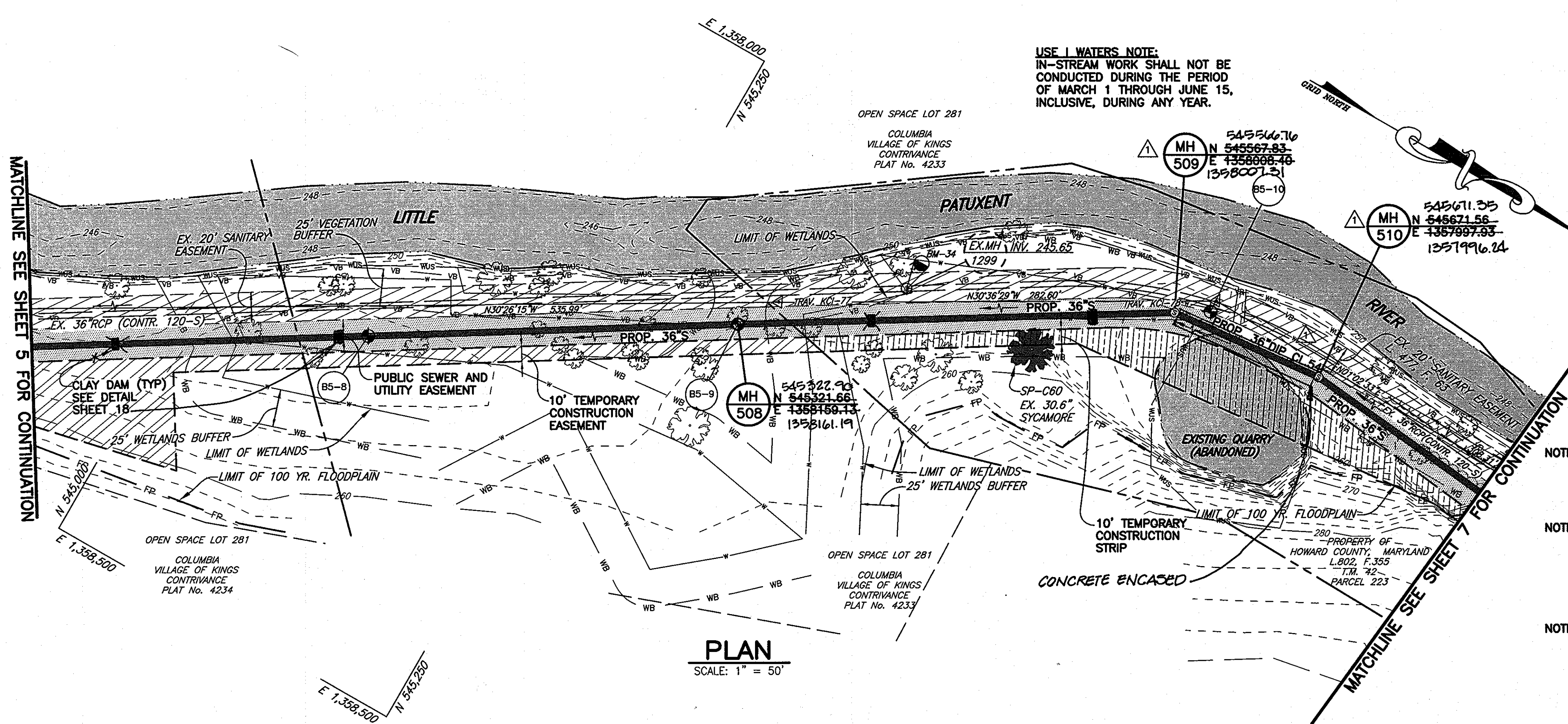
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|---|--|--|------------------------------|---|---|--|
| <p>DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND</p> <p><i>[Signature]</i> 6/25/09 DIRECTOR OF PUBLIC WORKS DATE</p> <p><i>[Signature]</i> 6/25/09 CHIEF, BUREAU OF UTILITIES DATE</p> | <p>GMB GEORGE, MILES & BUHR, LLC ARCHITECTS & ENGINEERS SALISBURY - BALTIMORE - LEWES - SEAFORD - YORK www.gmbnet.com</p> | <p>DES: D.A.V. DRN: M.A.D. CHK: W.B.F. DATE: 6/25/09</p> | <p>BY: NO. REVISION DATE</p> | <p>PLAN AND PROFILE OF A SEWER MAIN</p> <p>600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22</p> | <p>LITTLE PATUXENT PARALLEL INTERCEPTOR SEWER CAPITAL PROJECT NO. S-6175 CONTRACT NO. 20-4535 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND</p> | <p>SCALE AS SHOWN</p> <p>SHEET 5 OF 22</p> |
|---|--|--|------------------------------|---|---|--|



TRAVERSE KCI-77
NO SCALE



TRAVERSE KCI-78
NO SCALE



PLAN
SCALE: 1" = 50'

USE 1 WATERS NOTE:
IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.

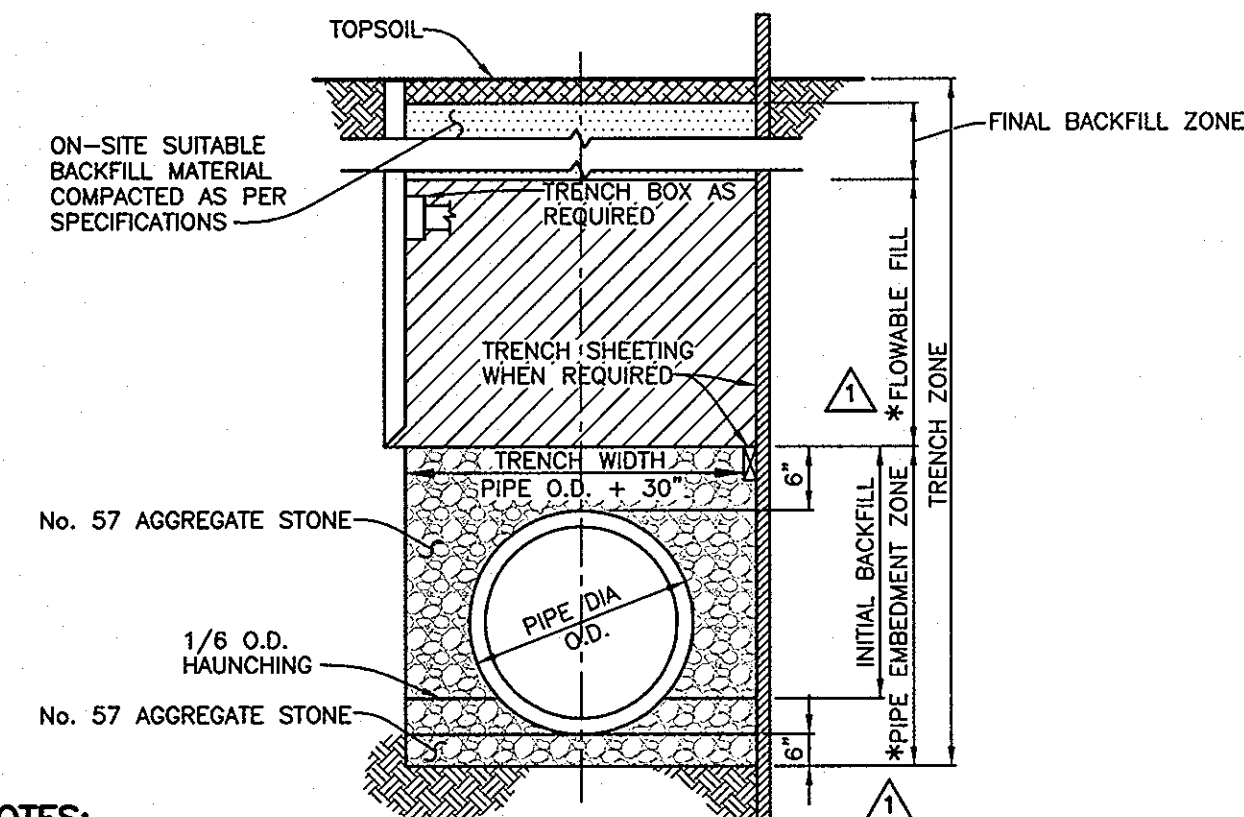
BENCH MARK
BM-34: "X" CUT ON RIM OF MANHOLE #1299
ELEV. 256.06

NOTE: SEE SHEET 15 FOR STREAM CROSSING PLAN AND DETAILS AND QUARRY SLOPE STABILIZATION.

NOTE: PRIOR TO CONSTRUCTION OF THE 36-INCH SEWER BETWEEN MANHOLE 508 AND MANHOLE 511, THE CONTRACTOR SHALL TEST PIT THE EXISTING 36-INCH RCP SEWER TO VERIFY CLEARANCES WITH THE PROPOSED ALIGNMENT.

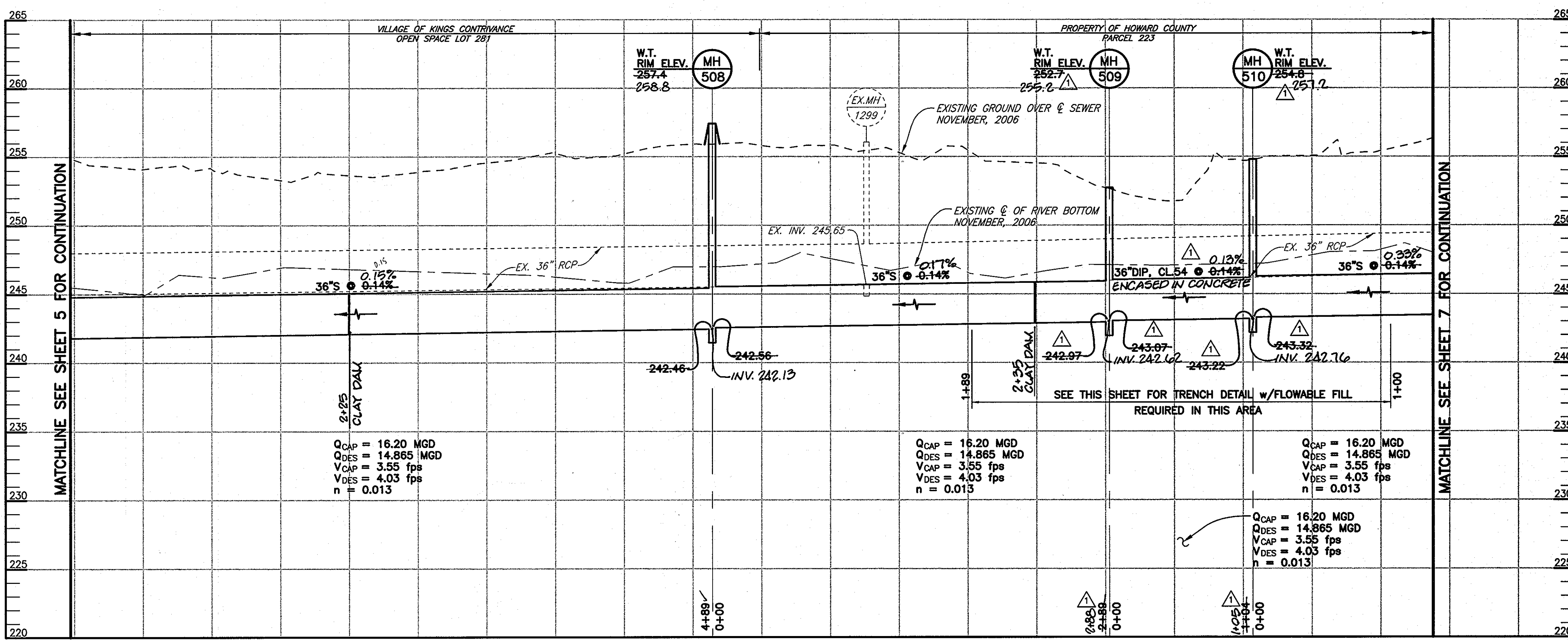
NOTE: ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED ONCE THE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMIT OF DISTURBANCE OR ANYWHERE ELSE ON SITE.

NOTE: REFER TO TRENCH DETAIL w/FLOWABLE FILL, THIS SHEET, FOR SEWER CONSTRUCTION ADJACENT TO THE EXISTING QUARRY WITHIN THE LIMITS SHOWN ON THE PROFILE.



- NOTES:**
- CONTRACTOR TO STRICTLY ADHERE TO SECTION 1000.03.05, "EXCAVATION AND SUBGRADE PREPARATION", OF THE STANDARD SPECIFICATIONS AND DETAILS OF CONSTRUCTION, VOLUME IV.
 - TRENCH BACKFILL IN THE FINAL BACKFILL ZONE, FROM 24 INCHES TO 6 INCHES BELOW THE FINAL GRADE, SHALL CONSIST OF ON-SITE SUITABLE BACKFILL MATERIAL AS MUCH AS PRACTICABLE.
 - FLOWABLE FILL SHALL BE PLACED FROM 6 INCHES ABOVE THE CROWN OF THE PIPE TO 24 INCHES BELOW THE FINAL GRADE. DO NOT ALLOW THE UTILITY BEING INSTALLED TO FLOAT.
 - *4. BETWEEN MANHOLES 509 AND 510, FLOWABLE FILL SHALL BE PLACED FROM BOTTOM OF TRENCH TO 24 INCHES BELOW FINAL GRADE.

TRENCH DETAIL w/FLOWABLE FILL
NO SCALE



PROFILE
SCALE: HOR.: 1" = 50'
VERT.: 1" = 5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: [Signature] 7/2/10
Chief, Bureau of Engineering: [Signature] 7/2/10

Chief, Bureau of Utilities: [Signature] 7/1/10
Chief, Utility Design Division: [Signature] 7/1/10

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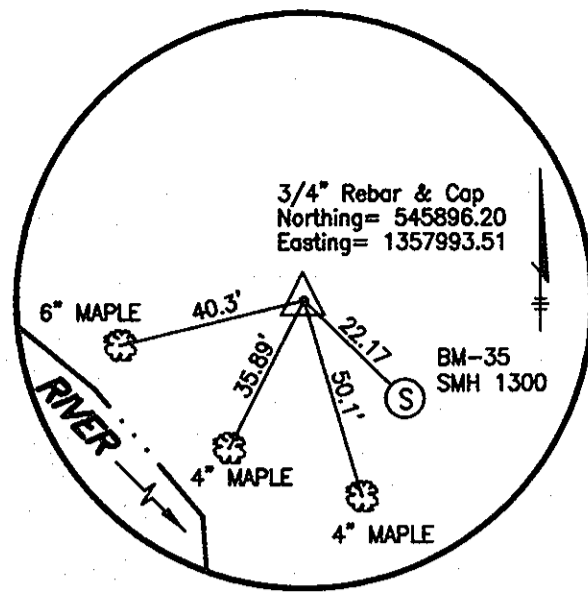
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| DES: D.A.V. | |
| DRN: M.A.D. | |
| CHK: W.B.F. | |
| DATE: 6/25/09 | |
| BY: [Signature] | |
| NO.: | |
| REVISION: | |
| DATE: | |

PLAN AND PROFILE OF A SEWER MAIN

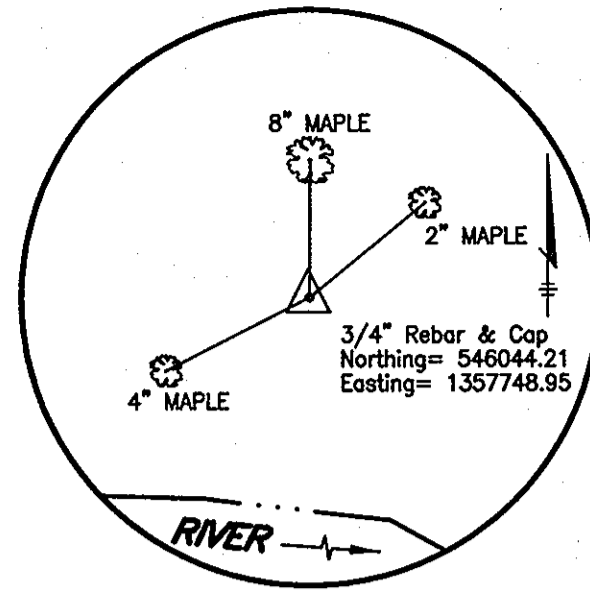
600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

LITTLE PATUXENT PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

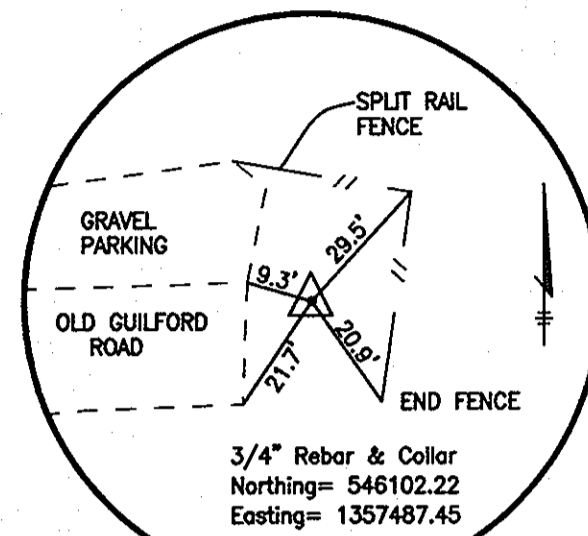
SCALE AS SHOWN
SHEET 6 OF 22



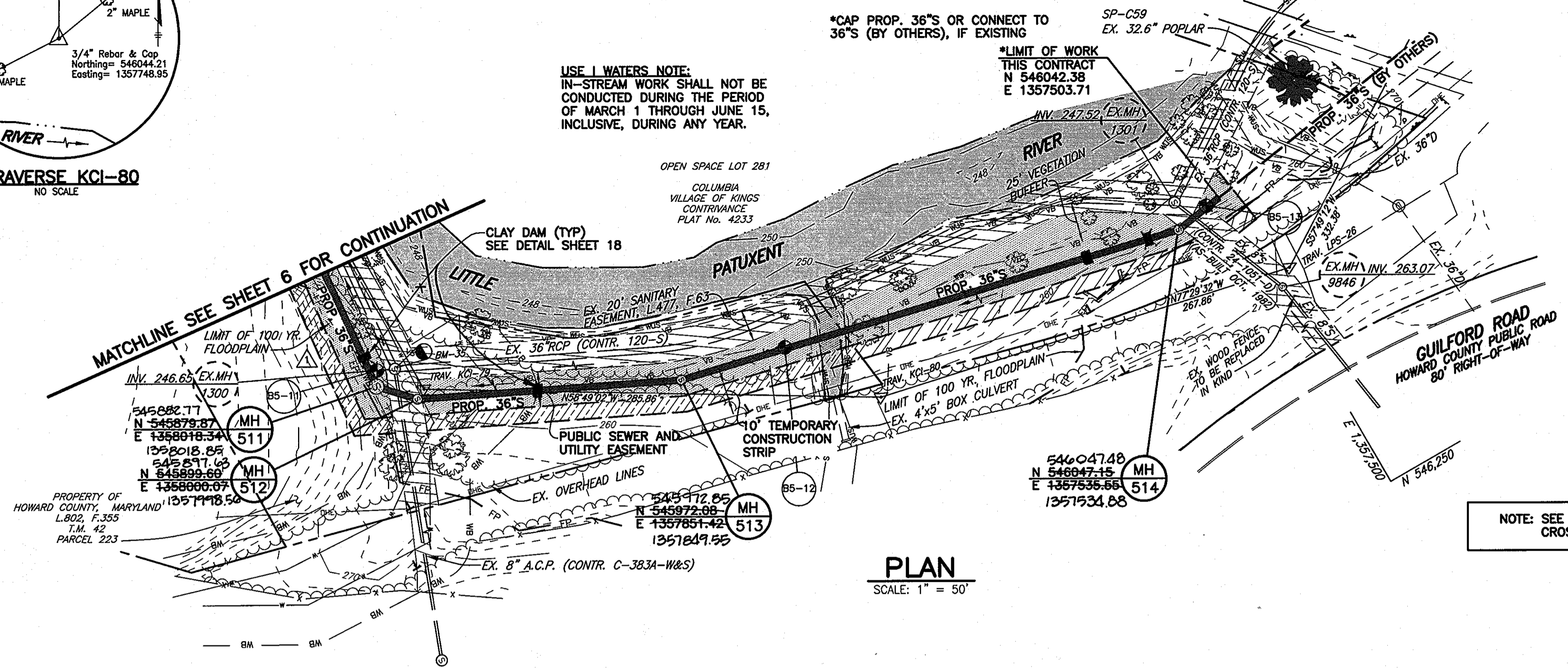
TRAVERSE KCI-79
NO SCALE



TRAVERSE KCI-80
NO SCALE



TRAVERSE LPS-26
NO SCALE

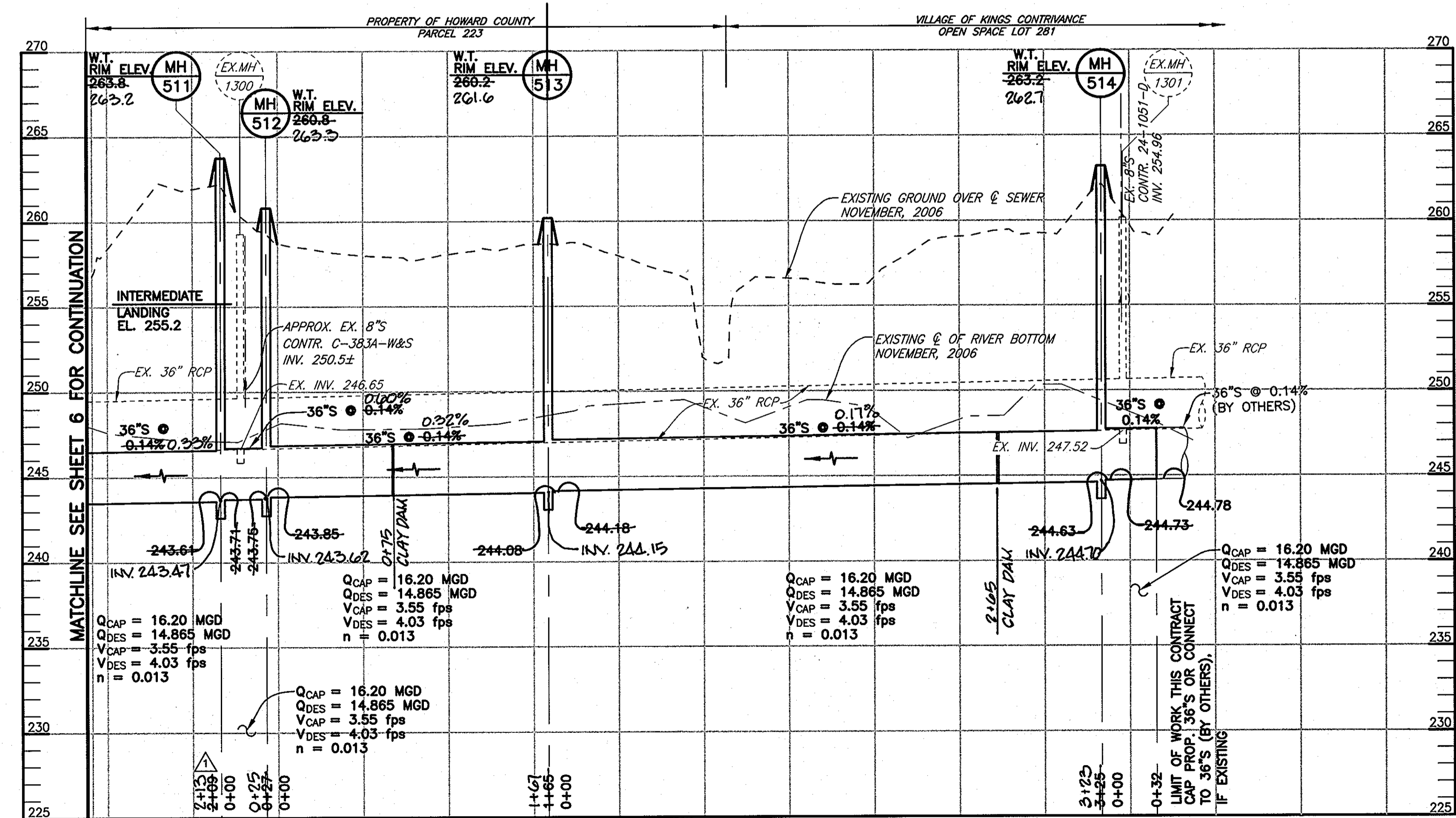


PLAN
SCALE: 1" = 50'

NOTE: SEE SHEET 15 FOR CULVERT CROSSING PLAN AND DETAILS.

NOTE: ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED ONCE THE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMIT OF DISTURBANCE OR ANYWHERE ELSE ON SITE.

NOTE: REFER TO TRENCH DETAIL (w/SLOPE STABILIZATION), SHEET 18, FOR SEWER CONSTRUCTION IN SLOPES GREATER THAN 3:1.



PROFILE
SCALE: HOR.: 1"=50'
VERT.: 1"=5'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *Janet H. [Signature]* 7/6/10
Chief, Bureau of Engineering: *Robert [Signature]* 7/2/10
Chief, Bureau of Utilities: *William [Signature]* 7/2/10
Chief, Utility Design Division: *[Signature]* 7/1/10

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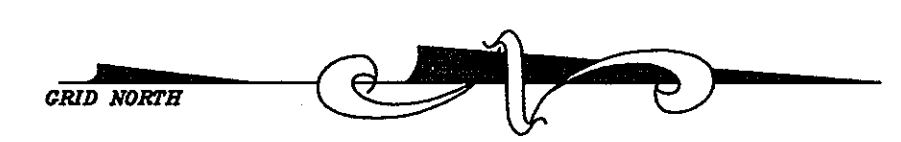
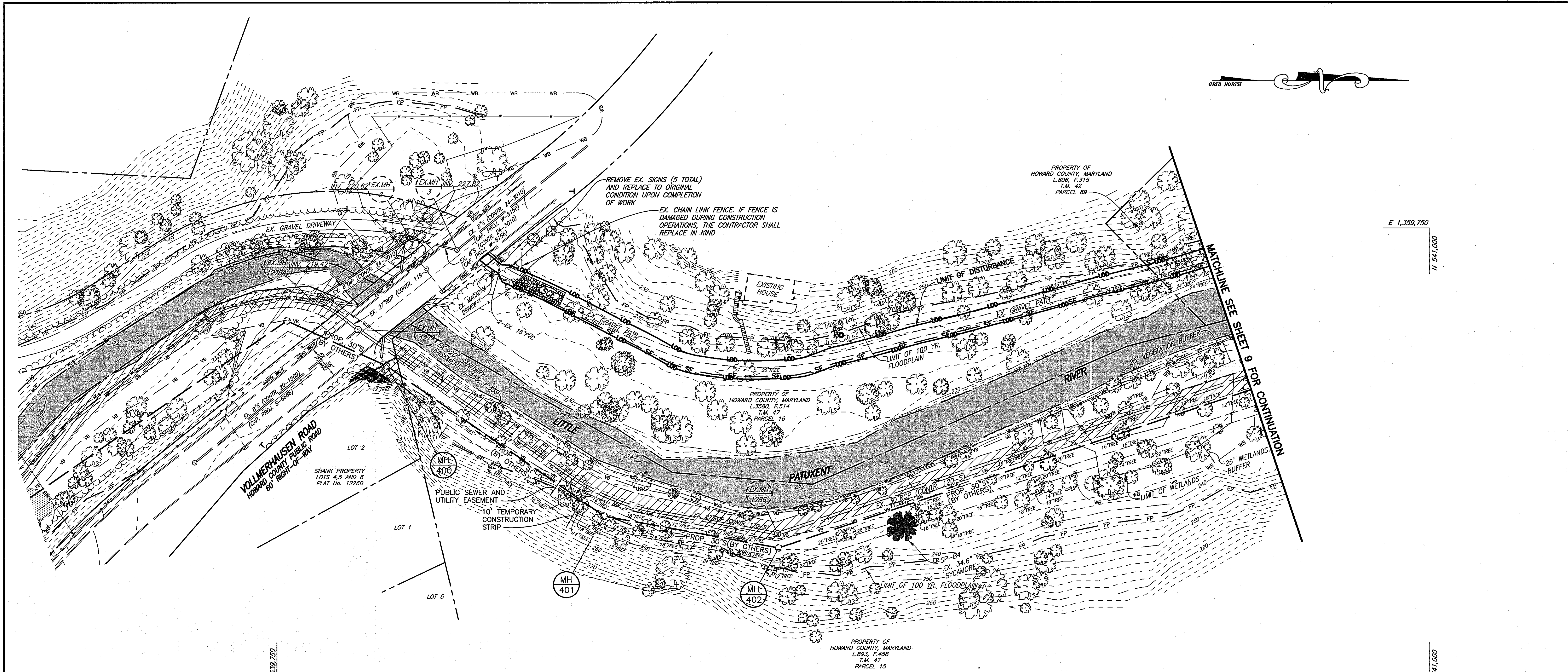
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| DES: D.A.V. | | | |
| DRN: M.A.D. | | | |
| CHK: W.B.F. | | | |
| DATE: 6/25/09 | MAD | REVISED PLAN & PROFILE BETWEEN MH-510 & 511 | 3/18/10 |
| | BY | NO. | REVISION |

PLAN AND PROFILE OF
A SEWER MAIN

600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 7 OF 22



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N 541,000

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E 1,360,250

PLAN
SCALE: 1" = 50'

CONSTRUCTION ACCESS FROM VOLLMERHAUSEN ROAD

THE CONTRACTOR FOR CONTRACT NO. 20-4534 (SECTION 4) WILL CLEAR AND GRUB AND REMOVE ALL TREES WITHIN THE LIMIT OF DISTURBANCE BETWEEN MANHOLES 409 AND 501. THE CONTRACTOR FOR THIS CONTRACT, NO. 20-4535 (SECTION 5) SHALL BE RESPONSIBLE FOR CONSTRUCTING, MAINTAINING AND REMOVING ANY KIND OF ACCESS ROAD TO SERVE CONTRACT NO. 20-4535 WITHIN THE ACCESS CORRIDOR BETWEEN VOLLMERHAUSEN ROAD AND MANHOLE 501. THE CONTRACTOR (SECTION 5) SHALL BE RESPONSIBLE FOR MAINTAINING THAT CORRIDOR DURING ITS USE AND, WHEN DONE, SHALL RETURN IT TO ITS ORIGINAL OR BETTER CONDITION. IF TEMPORARY STONE BASE IS PLACED OUTSIDE THE LIMITS OF THE EXISTING ROAD, THE CONTRACTOR OF SECTION 4 WILL HAVE THE CHOICE OF HAVING THAT MATERIAL REMOVED BY THE SECTION 5 CONTRACTOR OR KEEPING IT IN PLACE FOR HIS OWN BENEFIT. IF HE ELECTS TO KEEP IT IN PLACE, IT WILL NOT BE REMOVED AS PART OF THIS CONTRACT. THE CONTRACTOR (SECTION 5) WILL NOT RECEIVE ANY CREDIT OR ADDITIONAL COMPENSATION FOR STONE BASE LEFT IN PLACE.

NOTE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND REPLACING ANY EXISTING FENCES, SIGNS, CONCRETE CURB, DRIVEWAYS, PAVING, CURB AND GUTTER PAN, WALKWAYS, ETC., DAMAGED OR REMOVED DURING CONSTRUCTION. ALL DISTURBED AREAS SHALL BE RETURNED TO THEIR ORIGINAL OR BETTER CONDITION.

RESTORATION NOTES

- NON-TIDAL WETLANDS AND ASSOCIATED NON-TIDAL WETLAND BUFFERS WITHIN THE LIMITS OF DISTURBANCE (LOD) HAVE BEEN SHADED ON THIS PLAN FOR CLARITY. FOR WORKING IN THESE AREAS AND FOR RESTORING THEM ONCE THE SEWER INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS OF THE "BEST MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS" ON SHEET 16.
- FOR GROUND PREPARATION, SOIL MODIFICATIONS, SEEDING AND STABILIZATION REQUIREMENTS FOR ALL DISTURBED AREAS OUTSIDE OF THE WETLAND AND WETLAND BUFFER AREAS, REFER TO SHEET 17. THESE BASIC REQUIREMENTS ARE SUPPLEMENTED BY TECHNICAL SPECIFICATION, SECTION 02260 - FINISH GRADING AND LANDSCAPING, IN THE SPECIFICATIONS WHICH ADDRESS SPECIFIC SUB-GRADE PREPARATION AND FINISH GRADING REQUIREMENTS.

DENOTES AREA OF NON-TIDAL WETLANDS AND BUFFER WITHIN THE LOD

NOTES

- THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD AND INSTALL 4' HIGH BLAZE ORANGE FENCING ALONG THE LOD PRIOR TO CONSTRUCTION ACTIVITIES. THE FENCING SHALL BE ANCHORED AT MAXIMUM 8 FEET SPACING, SHALL NOT SAG AND SHALL BE MAINTAINED IN GOOD CONDITION DURING CONSTRUCTION.
- SOIL FROM TRENCHING OPERATIONS IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
- THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL EXCAVATED STONE LARGER THAN 12 INCHES IN GREATEST DIMENSION.
- ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED ONCE THE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMIT OF DISTURBANCE OR ANYWHERE ELSE ON SITE.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Ray A. ... 6/26/09
DIRECTOR OF PUBLIC WORKS DATE

Steve Shanan acting for 6/25/09
CHIEF, BUREAU OF ENGINEERING DATE

Steve C. ... 6/25/09
CHIEF, BUREAU OF UTILITIES DATE

... 6/25/09
CHIEF, UTILITY DESIGN DIVISION DATE

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| DES: D.A.V. | | | |
| DRN: M.A.D. | | | |
| CHK: W.B.F. | | | |
| DATE: 6/25/09 | BY: | NO. | REVISION |

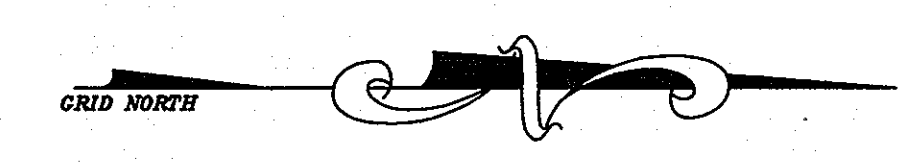
EROSION AND SEDIMENT CONTROL PLAN

DATE: 600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

**LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER**
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 8 OF 22

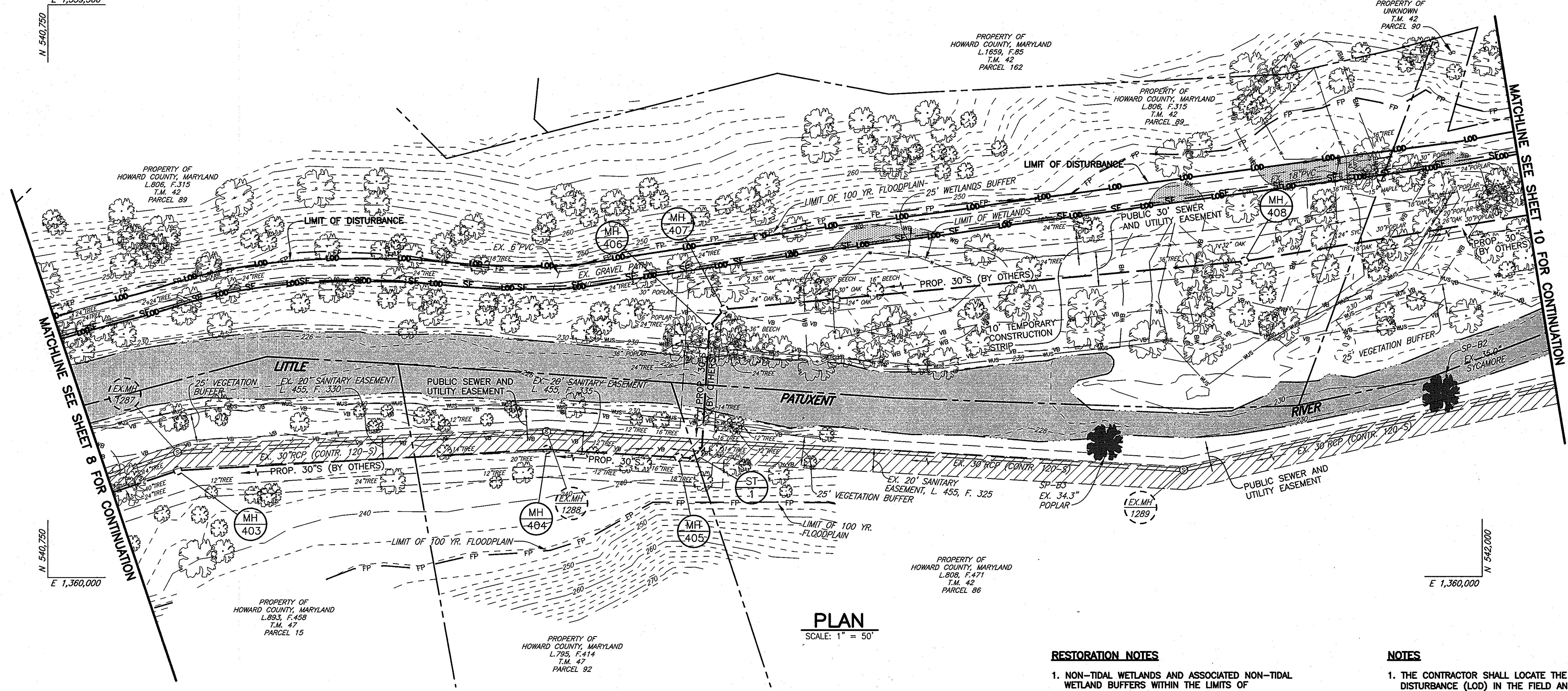
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N 540,750
E 1,360,000

N 542,000
E 1,360,000



PLAN
SCALE: 1" = 50'

RESTORATION NOTES

1. NON-TIDAL WETLANDS AND ASSOCIATED NON-TIDAL WETLAND BUFFERS WITHIN THE LIMITS OF DISTURBANCE (LOD) HAVE BEEN SHADED ON THIS PLAN FOR CLARITY. FOR WORKING IN THESE AREAS AND FOR RESTORING THEM ONCE THE SEWER INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS OF THE "BEST MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS" ON SHEET 16.
2. FOR GROUND PREPARATION, SOIL MODIFICATIONS, SEEDING AND STABILIZATION REQUIREMENTS FOR ALL DISTURBED AREAS OUTSIDE OF THE WETLAND AND WETLAND BUFFER AREAS, REFER TO SHEET 17. THESE BASIC REQUIREMENTS ARE SUPPLEMENTED BY TECHNICAL SPECIFICATION, SECTION 02250 - FINISH GRADING AND LANDSCAPING, IN THE SPECIFICATIONS WHICH ADDRESS SPECIFIC SUB-GRADE PREPARATION AND FINISH GRADING REQUIREMENTS.

DENOTES AREA OF NON-TIDAL WETLANDS AND BUFFER WITHIN THE LOD

NOTES

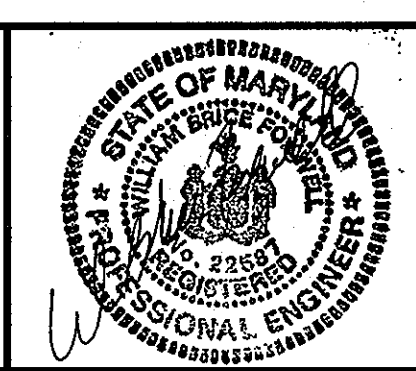
1. THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD AND INSTALL 4' HIGH BLAZE ORANGE FENCING ALONG THE LOD PRIOR TO CONSTRUCTION ACTIVITIES. THE FENCING SHALL BE ANCHORED AT MAXIMUM 8 FEET SPACING, SHALL NOT SAG AND SHALL BE MAINTAINED IN GOOD CONDITION DURING CONSTRUCTION.
2. SOIL FROM TRENCHING OPERATIONS IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
3. THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL EXCAVATED STONE LARGER THAN 12 INCHES IN GREATEST DIMENSION.
4. ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED ONCE THE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMIT OF DISTURBANCE OR ANYWHERE ELSE ON SITE.

NOTE: SEE SHEET 8 FOR NOTES REGARDING ACCESS OFF OF VOLLMERHAUSEN ROAD.

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| | |
|---|--|
| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND | |
| <i>Jan P. ...</i> DIRECTOR OF PUBLIC WORKS | <i>Steve Shavan acting for</i> 6/25/09 CHIEF, BUREAU OF ENGINEERING |
| <i>She C. ...</i> 6/26/09 CHIEF, BUREAU OF UTILITIES | <i>Of ...</i> 6/25/09 CHIEF, UTILITY DESIGN DIVISION |

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|---------------|---------|----------|------|
| DES: D.A.V. | | | |
| DRN: M.A.D. | | | |
| CHK: W.B.F. | | | |
| DATE: 6/25/09 | BY: NO. | REVISION | DATE |

EROSION AND SEDIMENT CONTROL PLAN

600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

**LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER**
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 9 OF 22

E 1,359,000
N 542,250

E 1,359,000
N 543,500

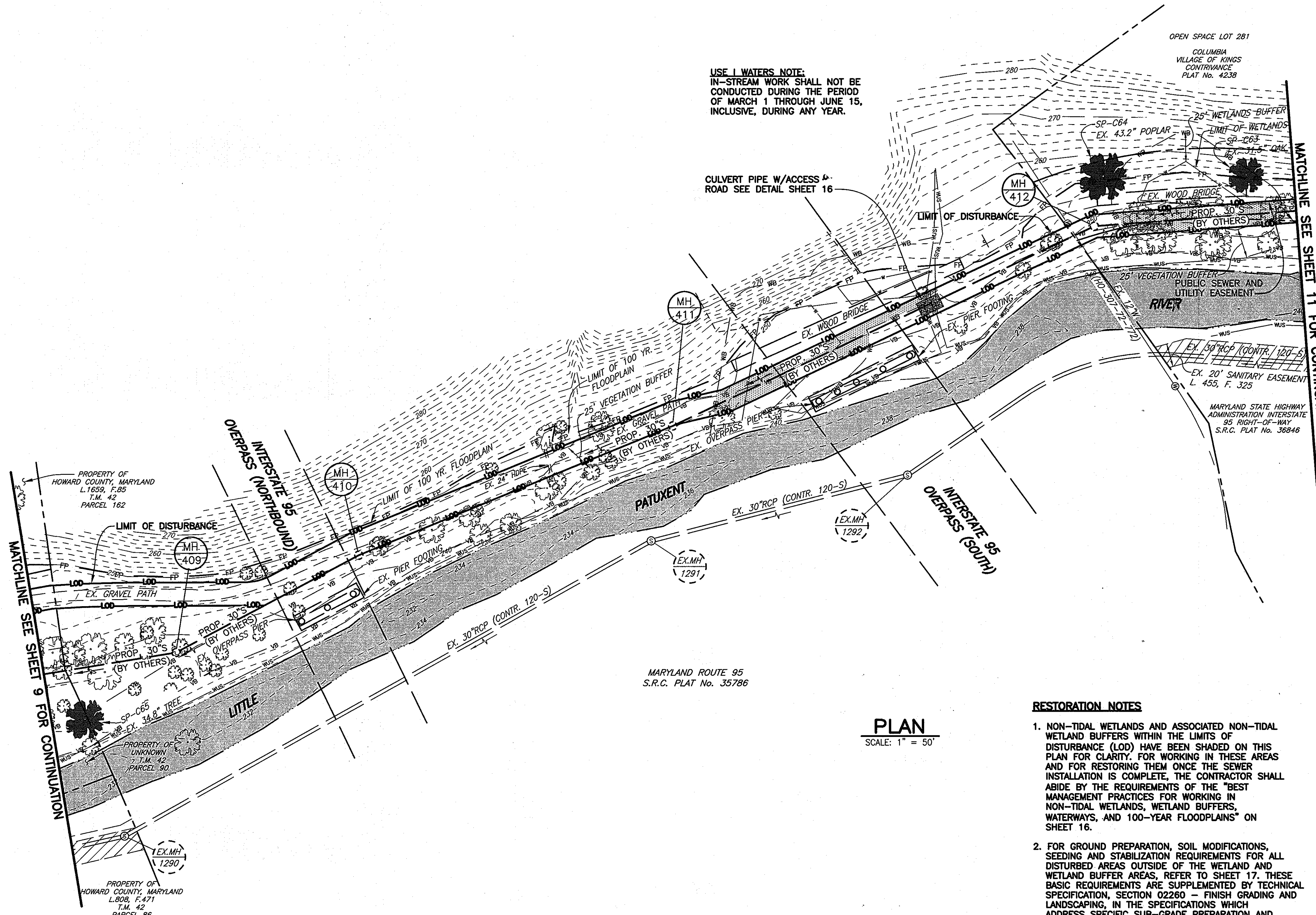


USE 1 WATERS NOTE:
IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.

CULVERT PIPE W/ACCESS ROAD SEE DETAIL SHEET 16

MATCHLINE SEE SHEET 11 FOR CONTINUATION

MATCHLINE SEE SHEET 9 FOR CONTINUATION



MARYLAND ROUTE 95
S.R.C. PLAT No. 35786

PLAN
SCALE: 1" = 50'

RESTORATION NOTES

1. NON-TIDAL WETLANDS AND ASSOCIATED NON-TIDAL WETLAND BUFFERS WITHIN THE LIMITS OF DISTURBANCE (LOD) HAVE BEEN SHADED ON THIS PLAN FOR CLARITY. FOR WORKING IN THESE AREAS AND FOR RESTORING THEM ONCE THE SEWER INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS OF THE "BEST MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS" ON SHEET 16.
2. FOR GROUND PREPARATION, SOIL MODIFICATIONS, SEEDING AND STABILIZATION REQUIREMENTS FOR ALL DISTURBED AREAS OUTSIDE OF THE WETLAND AND WETLAND BUFFER AREAS, REFER TO SHEET 17. THESE BASIC REQUIREMENTS ARE SUPPLEMENTED BY TECHNICAL SPECIFICATION, SECTION 02260 - FINISH GRADING AND LANDSCAPING, IN THE SPECIFICATIONS WHICH ADDRESS SPECIFIC SUB-GRADE PREPARATION AND FINISH GRADING REQUIREMENTS.

NOTES

1. THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD AND INSTALL 4' HIGH BLAZE ORANGE FENCING ALONG THE LOD PRIOR TO CONSTRUCTION ACTIVITIES. THE FENCING SHALL BE ANCHORED AT MAXIMUM 8 FEET SPACING, SHALL NOT SAG AND SHALL BE MAINTAINED IN GOOD CONDITION DURING CONSTRUCTION.
2. SOIL FROM TRENCHING OPERATIONS IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
3. THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL EXCAVATED STONE LARGER THAN 12 INCHES IN GREATEST DIMENSION.
4. ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED ONCE THE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMIT OF DISTURBANCE OR ANYWHERE ELSE ON SITE.

NOTE: SEE SHEET 8 FOR NOTES REGARDING ACCESS OFF OF VOLLMERHAUSEN ROAD.

 DENOTES AREA OF NON-TIDAL WETLANDS AND BUFFER WITHIN THE LOD

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| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND | |
| | 6/26/09 |
| DIRECTOR OF PUBLIC WORKS | DATE |
| | 6/25/09 |
| CHIEF, BUREAU OF ENGINEERING | DATE |
| | 6/25/09 |
| CHIEF, BUREAU OF UTILITIES | DATE |
| | 6/25/09 |
| CHIEF, UTILITY DESIGN DIVISION | DATE |

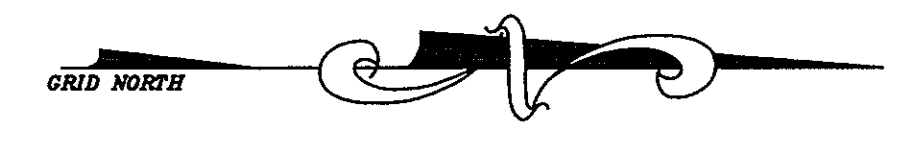
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| DES: D.A.V. | | | |
| DRN: M.A.D. | | | |
| CHK: W.B.F. | | | |
| DATE: 6/25/09 | BY | NO. | REVISION |

| | | | | |
|-----------------------------------|--|------|----------------------|-----------------------|
| EROSION AND SEDIMENT CONTROL PLAN | | DATE | 600 SCALE MAP NO. 42 | BLOCK NO. 15, 16 & 22 |
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|---|----------------|
| LITTLE PATUXENT PARALLEL INTERCEPTOR SEWER CAPITAL PROJECT NO. S-6175 CONTRACT NO. 20-4535 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND | |
| SCALE AS SHOWN | SHEET 10 OF 22 |



E 1,358,000
N 544,250

E 1,358,000
N 544,250

OPEN SPACE LOT 281
COLUMBIA VILLAGE OF KINGS CONTRIVANCE PLAT No. 4233

MATCHLINE SEE SHEET 13 FOR CONTINUATION

OPEN SPACE LOT 281
COLUMBIA VILLAGE OF KINGS CONTRIVANCE PLAT No. 4236

OPEN SPACE LOT 281
COLUMBIA VILLAGE OF KINGS CONTRIVANCE PLAT No. 4234

OPEN SPACE LOT 281
COLUMBIA VILLAGE OF KINGS CONTRIVANCE PLAT No. 4233

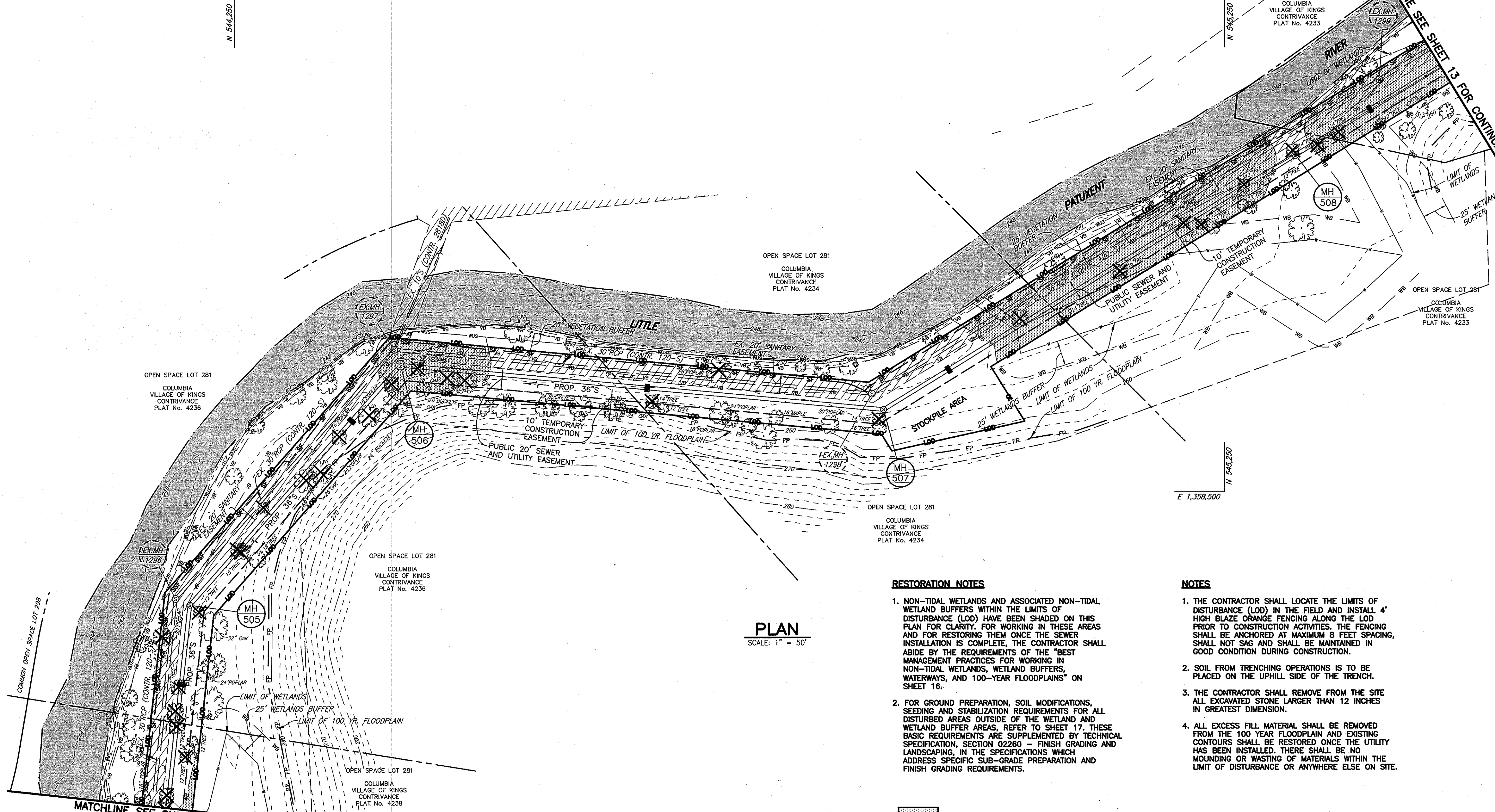
OPEN SPACE LOT 281
COLUMBIA VILLAGE OF KINGS CONTRIVANCE PLAT No. 4236

OPEN SPACE LOT 281
COLUMBIA VILLAGE OF KINGS CONTRIVANCE PLAT No. 4234

E 1,358,500
N 545,250

COMMON OPEN SPACE LOT 288

MATCHLINE SEE SHEET 11 FOR CONTINUATION



PLAN
SCALE: 1" = 50'

RESTORATION NOTES

- NON-TIDAL WETLANDS AND ASSOCIATED NON-TIDAL WETLAND BUFFERS WITHIN THE LIMITS OF DISTURBANCE (LOD) HAVE BEEN SHADED ON THIS PLAN FOR CLARITY. FOR WORKING IN THESE AREAS AND FOR RESTORING THEM ONCE THE SEWER INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS OF THE "BEST MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS" ON SHEET 16.
- FOR GROUND PREPARATION, SOIL MODIFICATIONS, SEEDING AND STABILIZATION REQUIREMENTS FOR ALL DISTURBED AREAS OUTSIDE OF THE WETLAND AND WETLAND BUFFER AREAS, REFER TO SHEET 17. THESE BASIC REQUIREMENTS ARE SUPPLEMENTED BY TECHNICAL SPECIFICATION, SECTION 02260 - FINISH GRADING AND LANDSCAPING, IN THE SPECIFICATIONS WHICH ADDRESS SPECIFIC SUB-GRADE PREPARATION AND FINISH GRADING REQUIREMENTS.

■ DENOTES AREA OF NON-TIDAL WETLANDS AND BUFFER WITHIN THE LOD

NOTES

- THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD AND INSTALL 4' HIGH BLAZE ORANGE FENCING ALONG THE LOD PRIOR TO CONSTRUCTION ACTIVITIES. THE FENCING SHALL BE ANCHORED AT MAXIMUM 8 FEET SPACING, SHALL NOT SAG AND SHALL BE MAINTAINED IN GOOD CONDITION DURING CONSTRUCTION.
- SOIL FROM TRENCHING OPERATIONS IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
- THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL EXCAVATED STONE LARGER THAN 12 INCHES IN GREATEST DIMENSION.
- ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED ONCE THE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMIT OF DISTURBANCE OR ANYWHERE ELSE ON SITE.

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|---|---|
| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND | |
| <i>James A. ...</i> DIRECTOR OF PUBLIC WORKS | <i>Steve Shuman</i> CHIEF, BUREAU OF ENGINEERING |
| <i>Alan Chen</i> CHIEF, BUREAU OF UTILITIES | <i>...</i> CHIEF, UTILITY DESIGN DIVISION |
| DATE: 6/25/09 | DATE: 6/25/09 |

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| DES: D.A.V. | | | |
| DRN: M.A.D. | | | |
| CHK: W.B.F. | | | |
| DATE: 6/25/09 | BY: | NO.: | REVISION: |

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|--|-----------------------|
| EROSION AND SEDIMENT CONTROL PLAN | |
| DATE: 6/25/09 | SCALE MAP NO. 42 |
| DATE: 6/25/09 | BLOCK NO. 15, 16 & 22 |

**LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER**
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 12 OF 22



E 1,357,500
N 545,750

E 1,357,500
N 546,250

E 1,358,000
N 546,250

USE 1 WATERS NOTE:
IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.

NOTE: SEE SHEETS 14 AND 15 FOR CULVERT CROSSING PLANS AND DETAILS.

RESTORATION NOTES

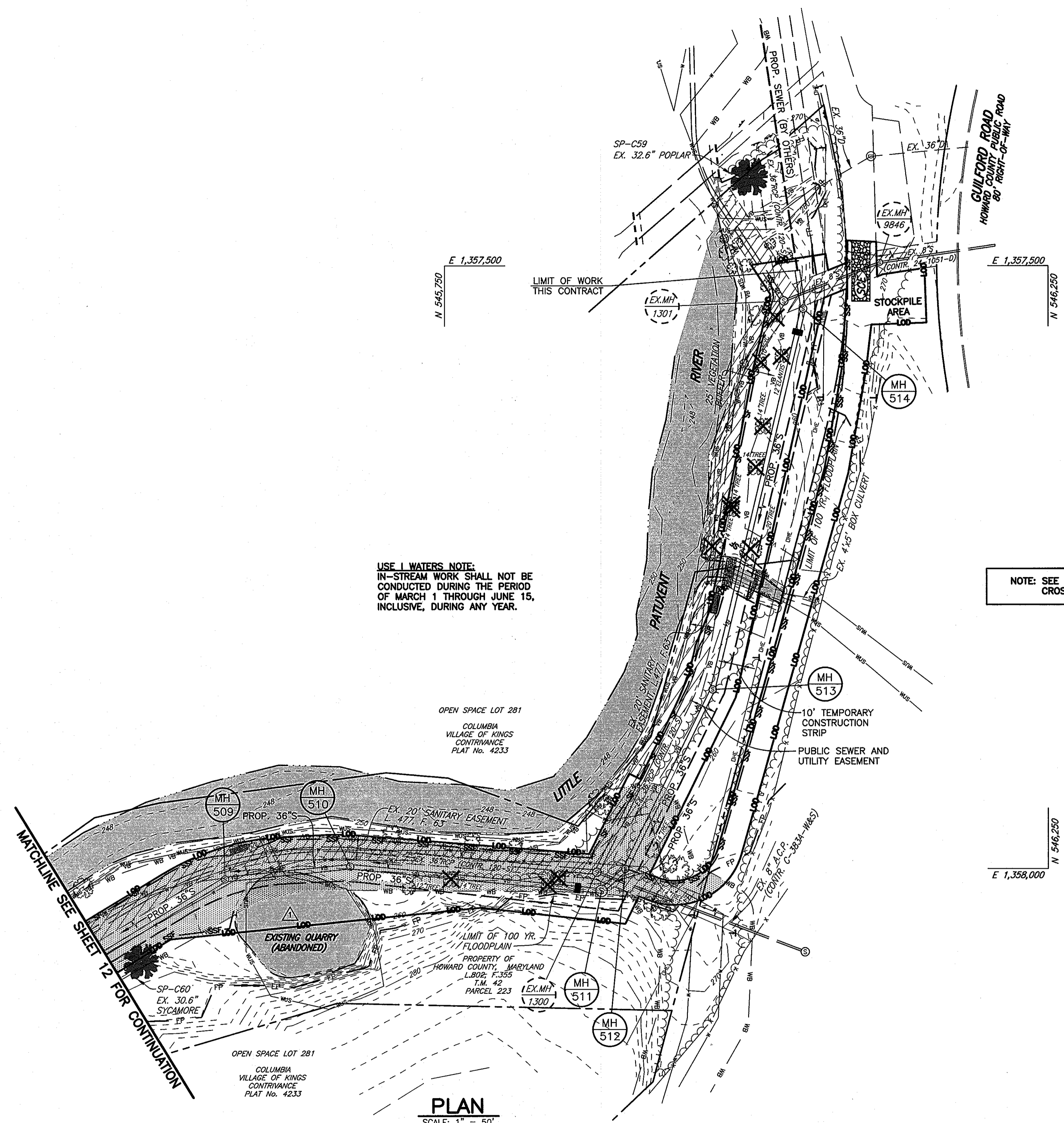
- NON-TIDAL WETLANDS AND ASSOCIATED NON-TIDAL WETLAND BUFFERS WITHIN THE LIMITS OF DISTURBANCE (LOD) HAVE BEEN SHADED ON THIS PLAN FOR CLARITY. FOR WORKING IN THESE AREAS AND FOR RESTORING THEM ONCE THE SEWER INSTALLATION IS COMPLETE, THE CONTRACTOR SHALL ABIDE BY THE REQUIREMENTS OF THE "BEST MANAGEMENT PRACTICES FOR WORKING IN NON-TIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS" ON SHEET 16.
- FOR GROUND PREPARATION, SOIL MODIFICATIONS, SEEDING AND STABILIZATION REQUIREMENTS FOR ALL DISTURBED AREAS OUTSIDE OF THE WETLAND AND WETLAND BUFFER AREAS, REFER TO SHEET 17. THESE BASIC REQUIREMENTS ARE SUPPLEMENTED BY TECHNICAL SPECIFICATION, SECTION 02260 - FINISH GRADING AND LANDSCAPING, IN THE SPECIFICATIONS WHICH ADDRESS SPECIFIC SUB-GRADE PREPARATION AND FINISH GRADING REQUIREMENTS.

DENOTES AREA OF NON-TIDAL WETLANDS AND BUFFER WITHIN THE LOD

NOTES

- THE CONTRACTOR SHALL LOCATE THE LIMITS OF DISTURBANCE (LOD) IN THE FIELD AND INSTALL 4' HIGH BLAZE ORANGE FENCING ALONG THE LOD PRIOR TO CONSTRUCTION ACTIVITIES. THE FENCING SHALL BE ANCHORED AT MAXIMUM 8 FEET SPACING, SHALL NOT SAG AND SHALL BE MAINTAINED IN GOOD CONDITION DURING CONSTRUCTION.
- SOIL FROM TRENCHING OPERATIONS IS TO BE PLACED ON THE UPHILL SIDE OF THE TRENCH.
- THE CONTRACTOR SHALL REMOVE FROM THE SITE ALL EXCAVATED STONE LARGER THAN 12 INCHES IN GREATEST DIMENSION.
- ALL EXCESS FILL MATERIAL SHALL BE REMOVED FROM THE 100 YEAR FLOODPLAIN AND EXISTING CONTOURS SHALL BE RESTORED ONCE THE UTILITY HAS BEEN INSTALLED. THERE SHALL BE NO MOUNDING OR WASTING OF MATERIALS WITHIN THE LIMIT OF DISTURBANCE OR ANYWHERE ELSE ON SITE.

NOTE: THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING AND REPLACING ANY EXISTING FENCES, SIGNS, CONCRETE CURB, DRIVEWAYS, PAVING, CURB AND GUTTER PAN, WALKWAYS, ETC., DAMAGED OR REMOVED DURING CONSTRUCTION. ALL DISTURBED AREAS SHALL BE RETURNED TO THEIR ORIGINAL OR BETTER CONDITION.



PLAN
SCALE: 1" = 50'

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

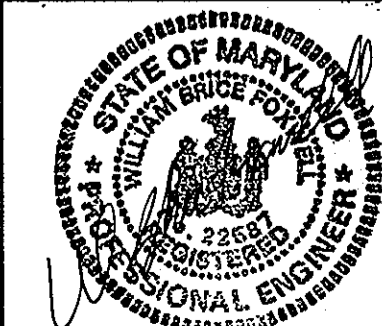
[Signature] 7/2/10
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 7/2/10
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 7/1/10
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 7/1/10
CHIEF, UTILITY DESIGN DIVISION DATE

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|---------------|-----|----|-----|---|---------|
| DES: D.A.V. | | | | | |
| DRN: M.A.D. | | | | | |
| CHK: W.B.F. | | | | | |
| DATE: 6/25/09 | MAD | BY | NO. | REVISION | DATE |
| | | | | REVISED L.O.D. IN AREA OF EX. QUARRY & LOCATION OF MH-509 & 510 | 5/18/10 |

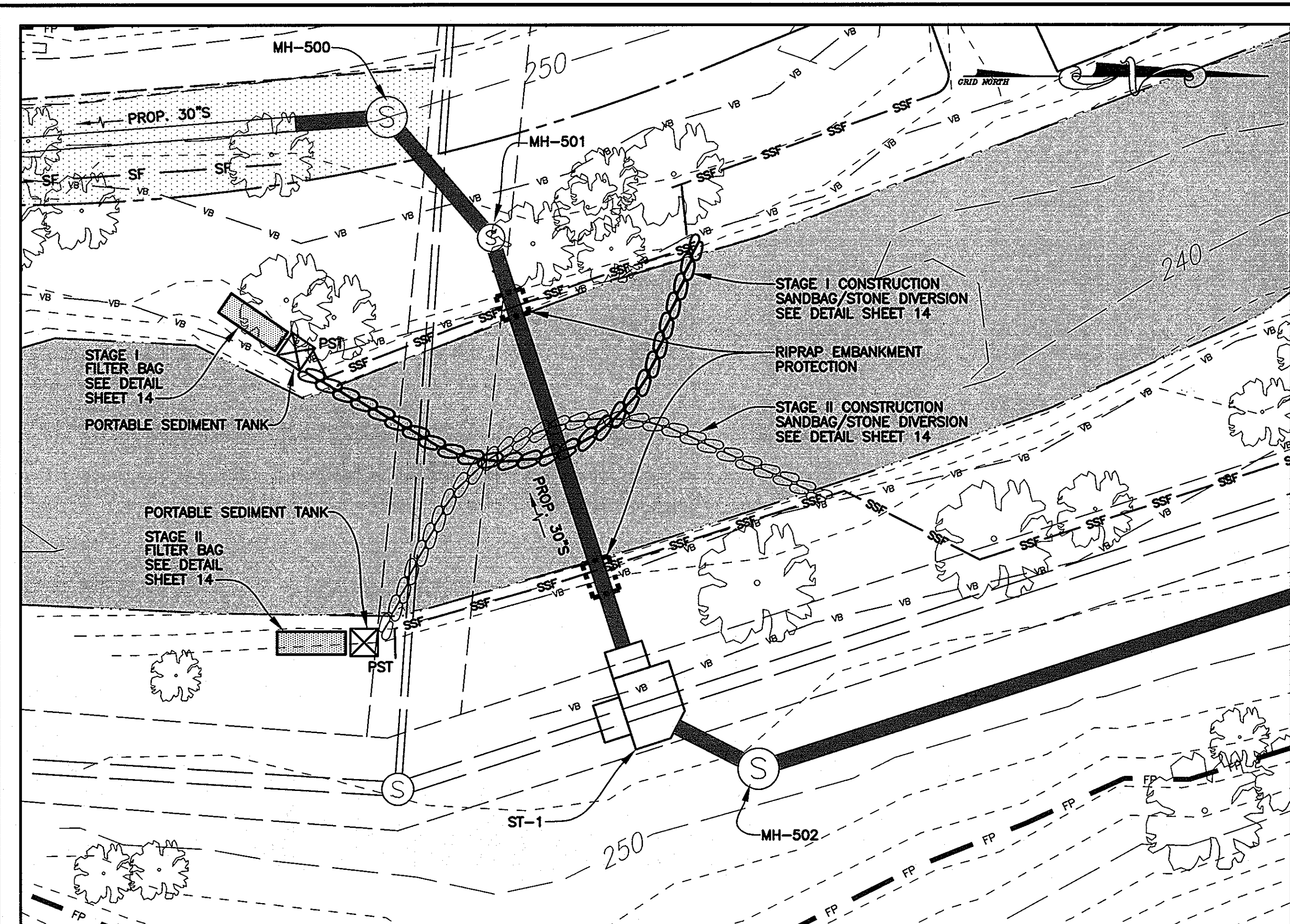
EROSION AND SEDIMENT CONTROL PLAN

600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

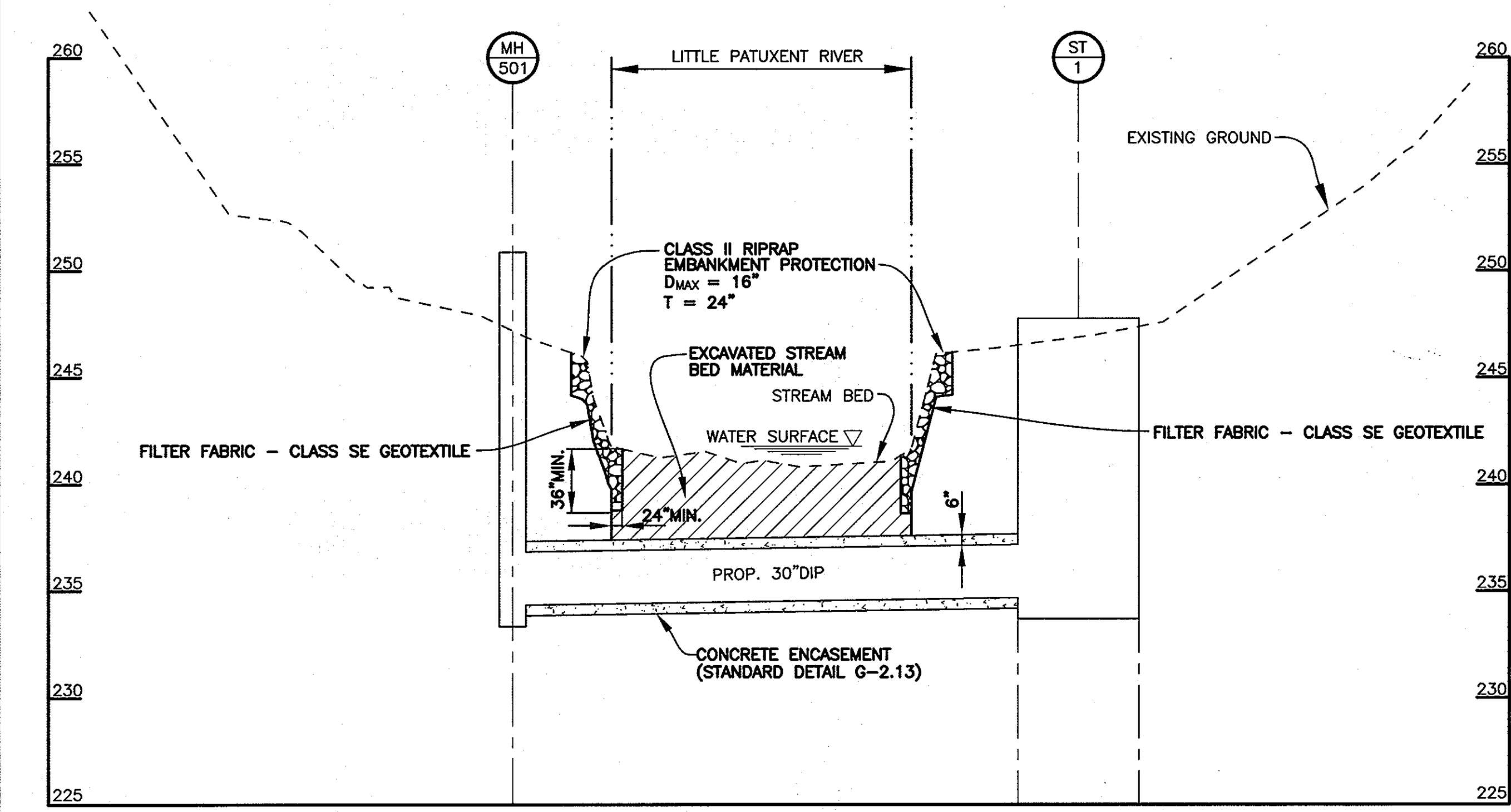
**LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER**
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 13 OF 22

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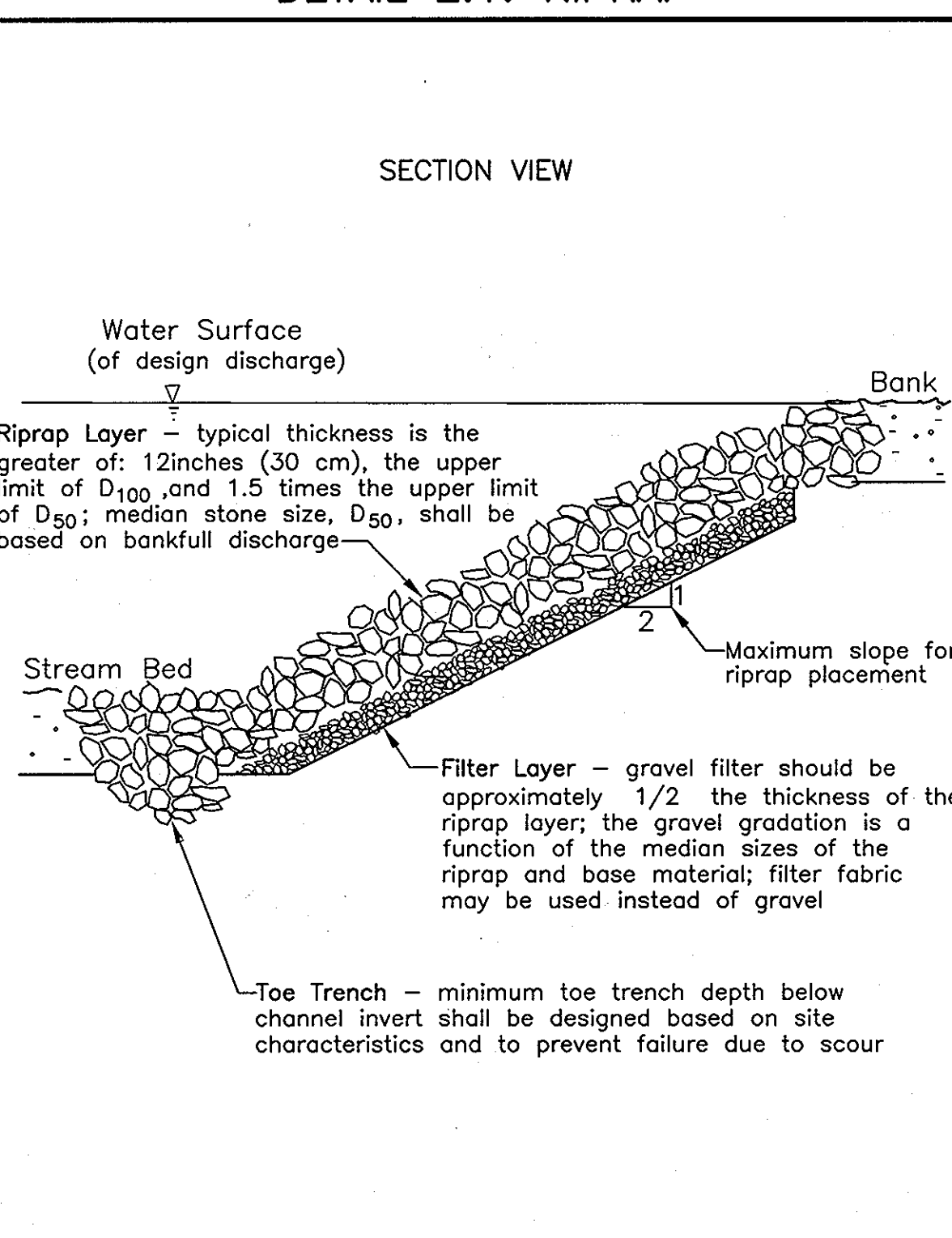


STREAM CROSSING PLAN - MH-501 TO ST-1
SCALE: 1"=20'



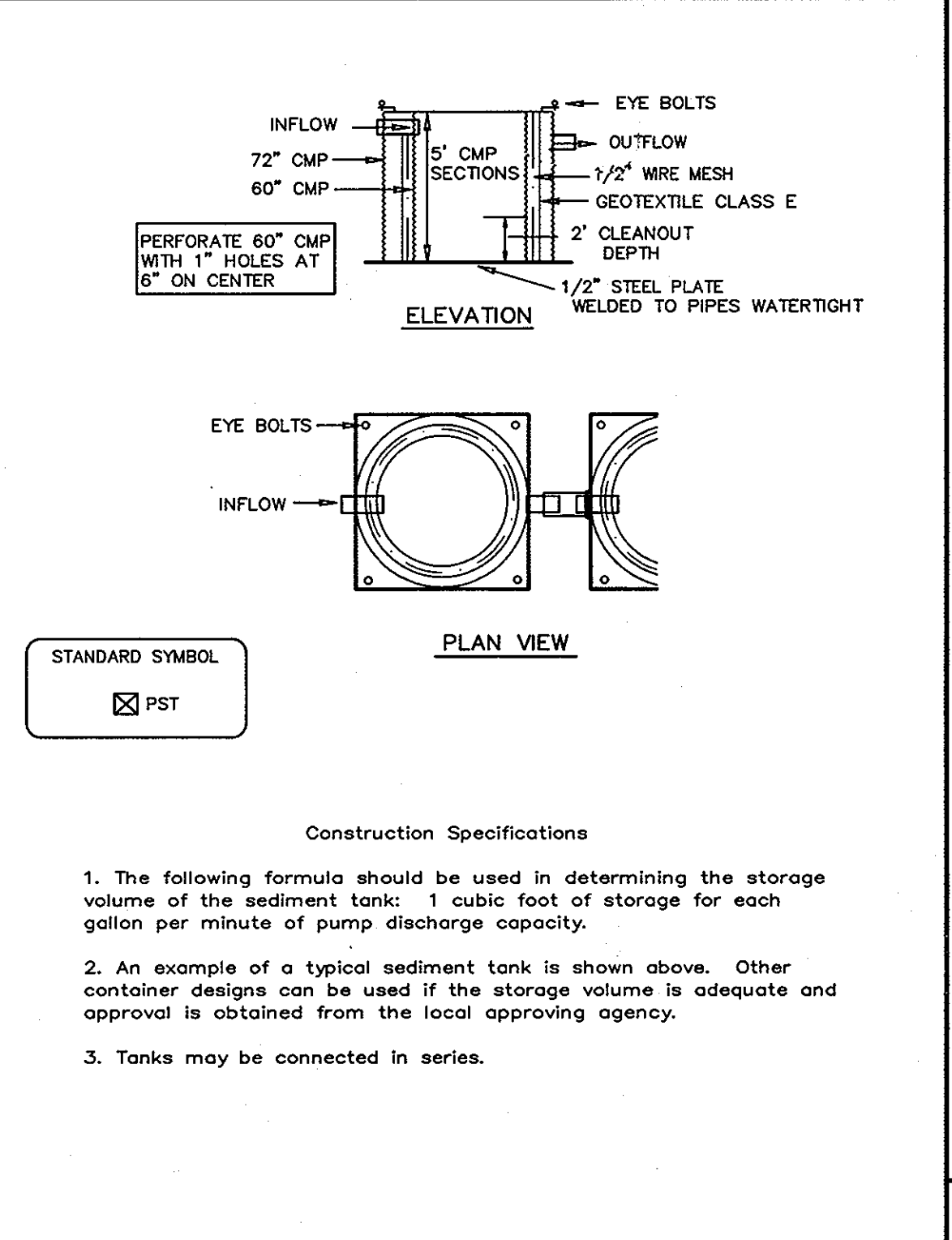
STREAM CROSSING PROFILE - MH-411 TO MH-412
SCALE: HOR.: 1"=20'
VERT.: 1"=5'

Maryland's Guidelines To Waterway Construction
DETAIL 2.1: RIPRAP

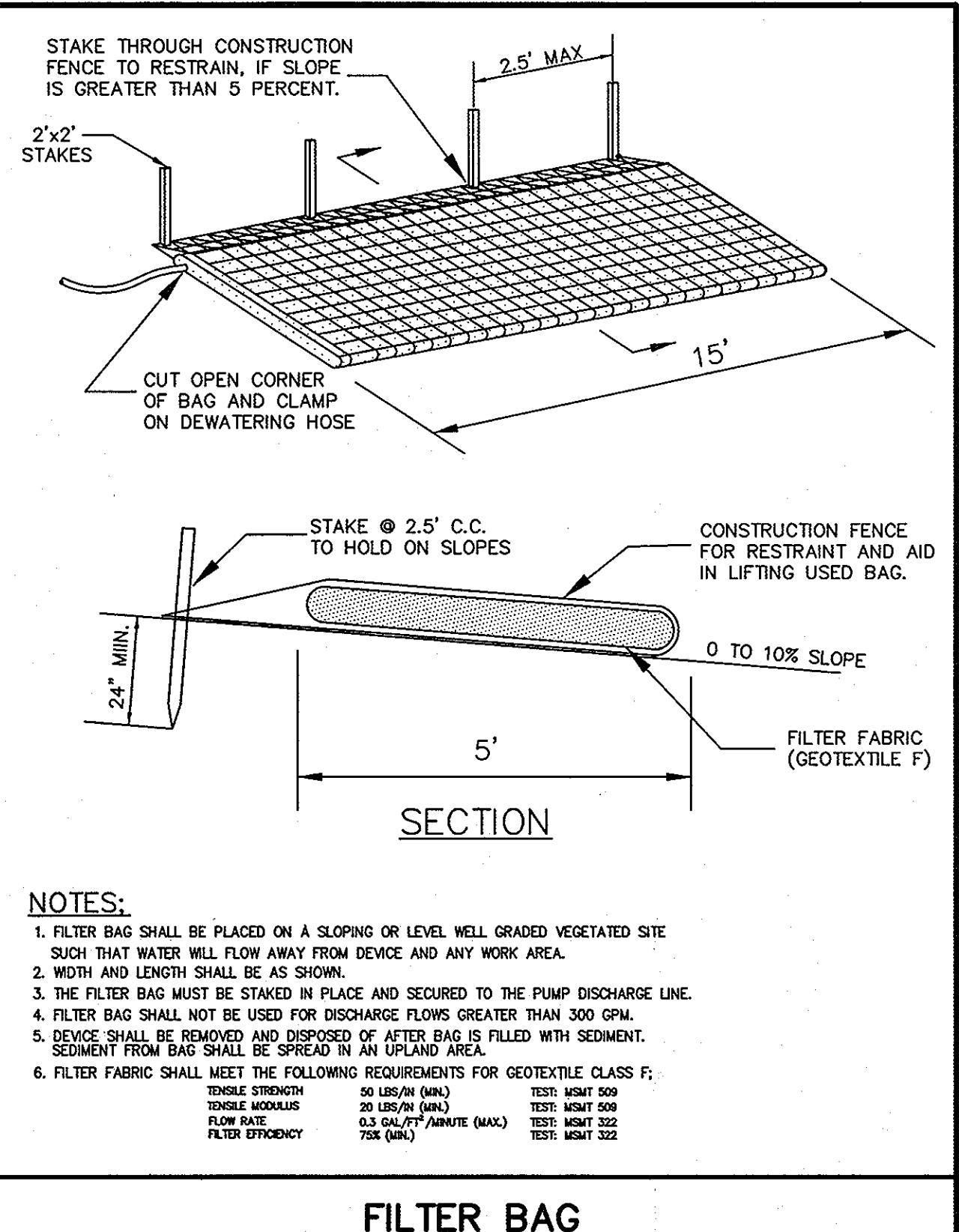


TEMPORARY INSTREAM CONSTRUCTION MEASURES
REVISED NOVEMBER 2000
PAGE 2.1 - 4
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

DETAIL 21 - PORTABLE SEDIMENT TANK

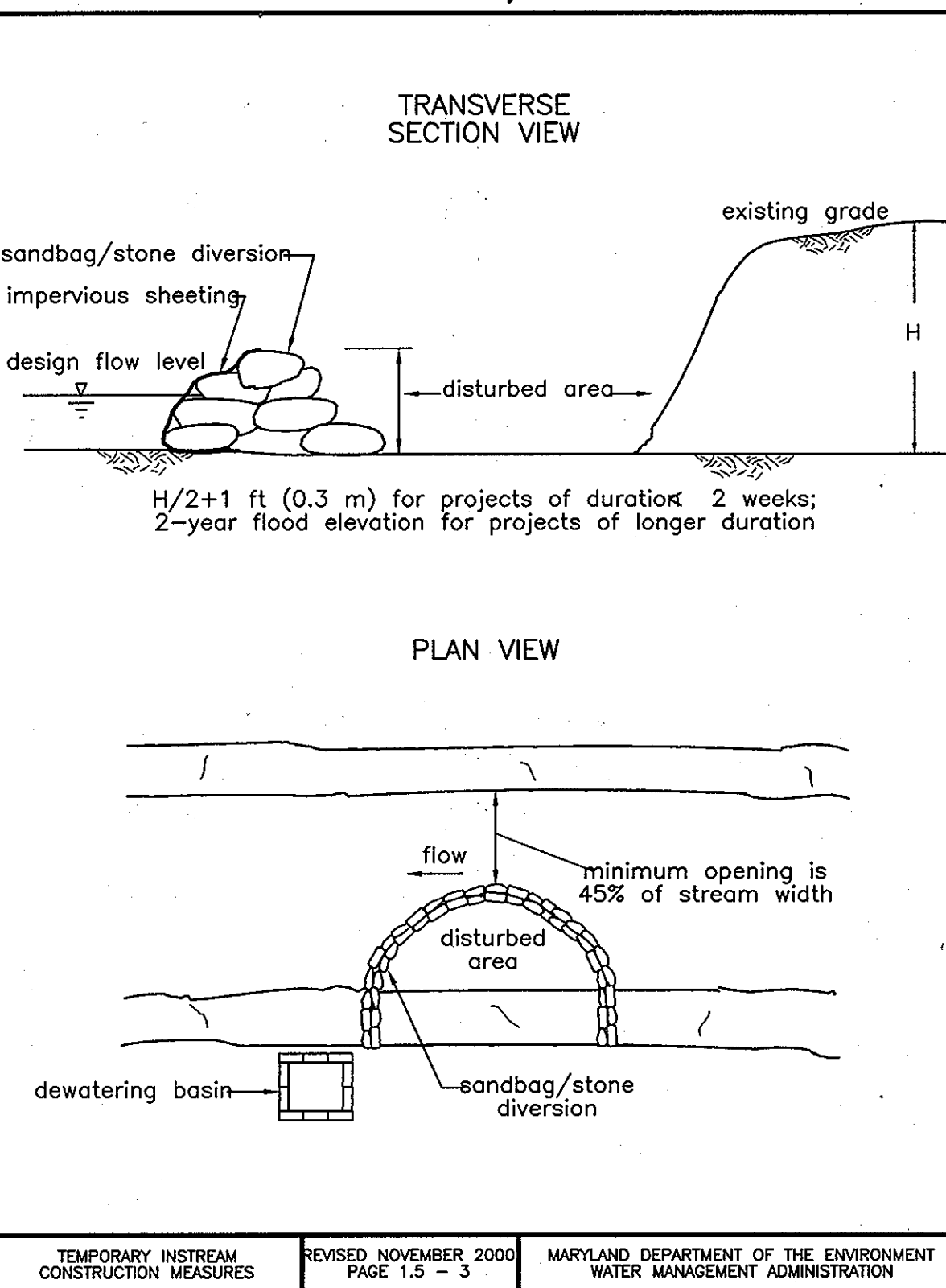


U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
PAGE
0 - 14 - 2
MARYLAND DEPARTMENT OF ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION



FILTER BAG
TEMPORARY EROSION CONTROL MEASURE

Maryland's Guidelines To Waterway Construction
DETAIL 1.5: SANDBAG/STONE DIVERSION



TEMPORARY INSTREAM CONSTRUCTION MEASURES
REVISED NOVEMBER 2000
PAGE 1.5 - 3
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

- NOTES:**
1. D_{MAX} = MAXIMUM DIAMETER OF RIPRAP.
 2. T = THICKNESS OF RIPRAP.
 3. DUCTILE IRON PIPE (DIP) BETWEEN MH-405 AND MH-406 SHALL BE CL. 54 WITH RESTRAINED JOINTS.

SEQUENCE OF CONSTRUCTION

1. Install Sediment Control Devices (Silt Fence / Super Silt Fence) as shown on the Plans. Existing Super Silt Fence may need to be relocated at the top of the stream crossing to allow room to work and prevent flow of sediment into the work area.
 2. Construct a temporary sandbag Cofferdam upstream to divert water around the Stage I working area.
 3. Construct a temporary sandbag Cofferdam downstream to prevent backwashing into the Stage I construction area.
 4. Dewater the work area for Stage I. Portable Sediment Tank(s) and filter bags shall be utilized to remove sediment from all dewatering.
 5. Install Sediment Control Devices for proposed excavated material storage piles.
 6. Excavate ditch and install sewer pipe for Stage I.
 7. Place riprap to restore stream bed to the original elevation for Stage I.
 8. Stabilize the stream bank with riprap for Stage I.
 9. Remove downstream Cofferdam for Stage I. Remove the upstream Cofferdam for Stage I.
 10. Restore the Stage I Dewatering Basin to the original grade.
 11. Repeat Step Nos. 2 through 12 for Stage II construction.
 12. Clean up the entire construction site.
 13. Remove all Sediment Control Devices related to the stream crossing. Restore all relocated Sediment Control Devices from Note 1.
 14. Seed and mulch all disturbed areas.
- Note: In-stream work shall not be conducted during the period of March 1 through June 15, inclusive, during any year.

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DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

John P. ... DIRECTOR OF PUBLIC WORKS
Steve Shaver acting for 6/25/09
DATE: 6/25/09
CHIEF, BUREAU OF ENGINEERING

Steve Chen 6/25/09
DATE: 6/25/09
CHIEF, BUREAU OF UTILITIES

... 6/25/09
DATE: 6/25/09
CHIEF, UTILITY DESIGN DIVISION

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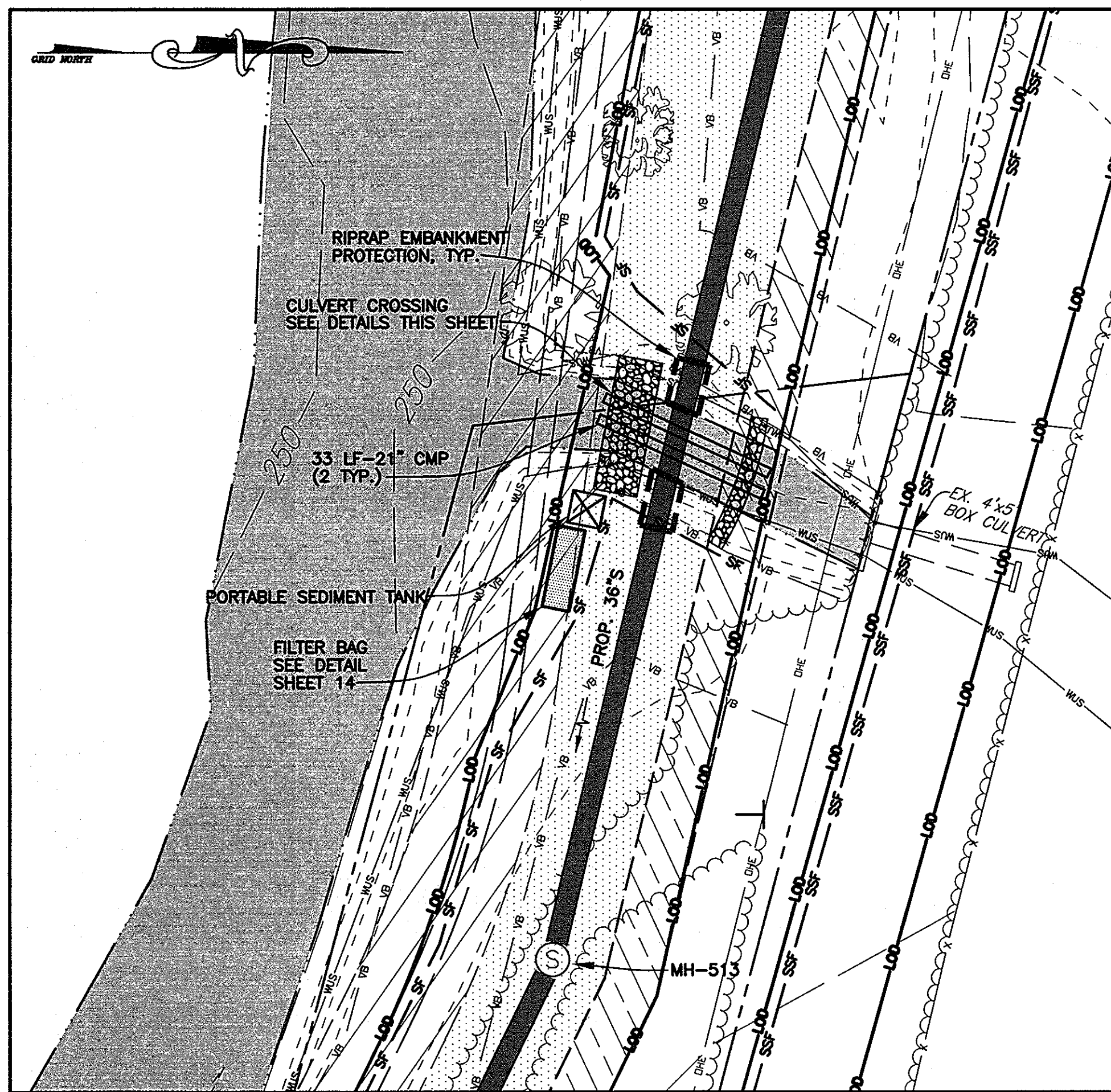
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| DRN: M.A.D. | | | | | |
| CHK: W.B.F. | | | | | |
| DATE: 6/25/09 | BY: | NO. | REVISION | DATE | |

STREAM CROSSING DETAILS

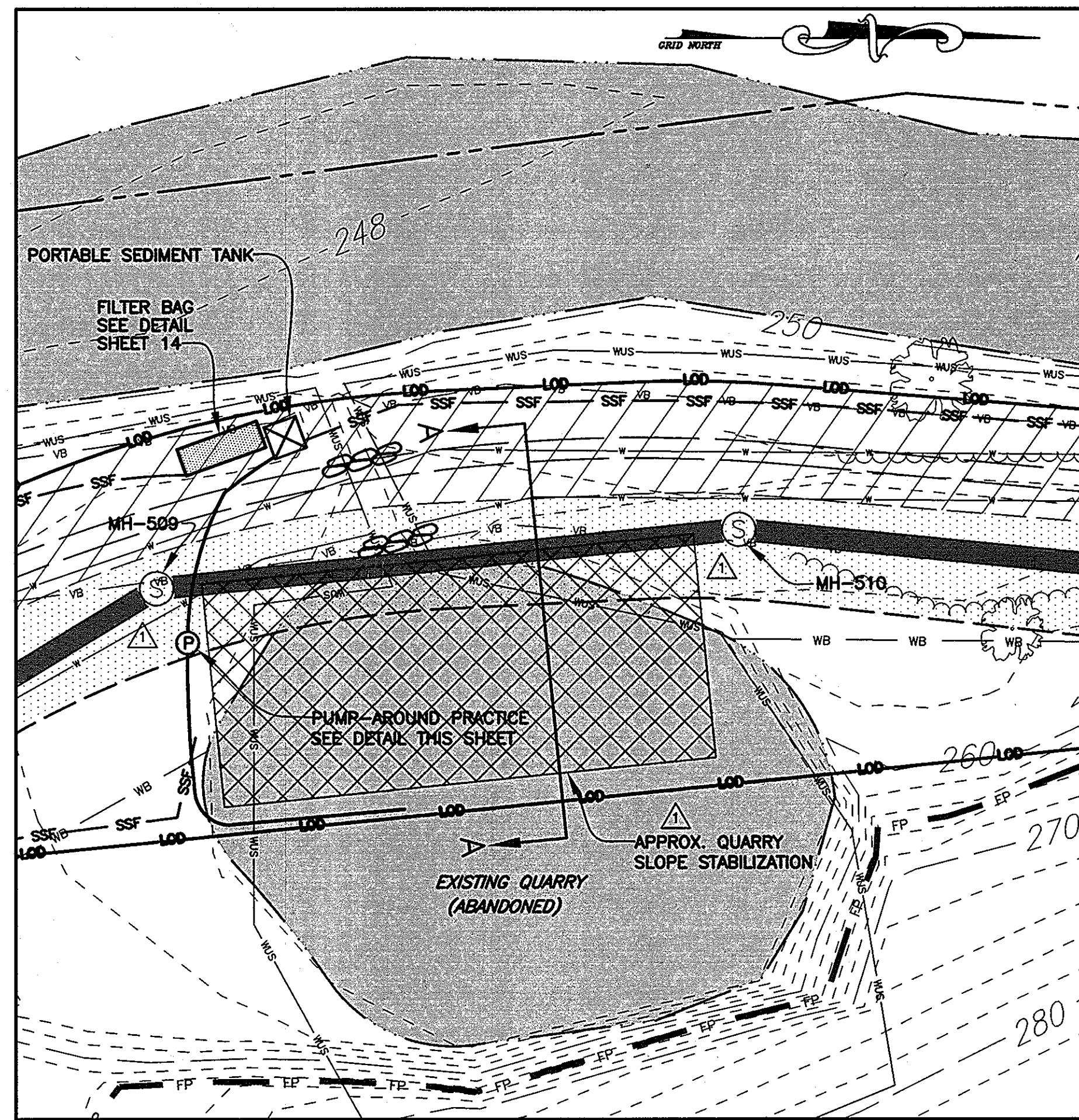
600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

**LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER**
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 14 OF 22

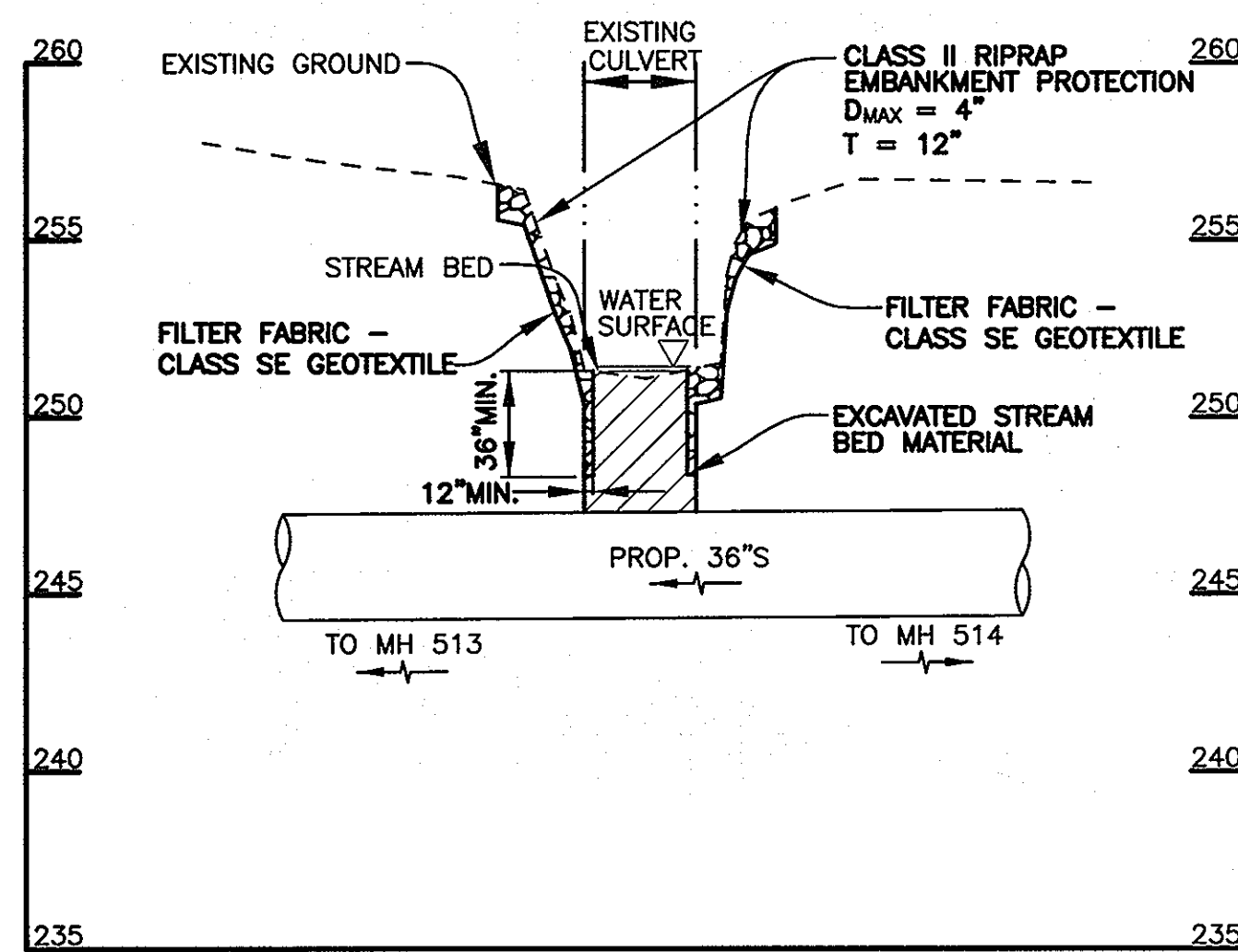


CULVERT CROSSING PLAN - MH-513 TO MH-514
SCALE: 1"=20'



QUARRY OUTLET CROSSING - MH-509 TO MH-510
SCALE: 1"=20'

NOTE: THE WATER LEVEL IN THE QUARRY MAY BE TEMPORARILY LOWERED BELOW THE ELEVATION OF THE TRENCH BOTTOM.



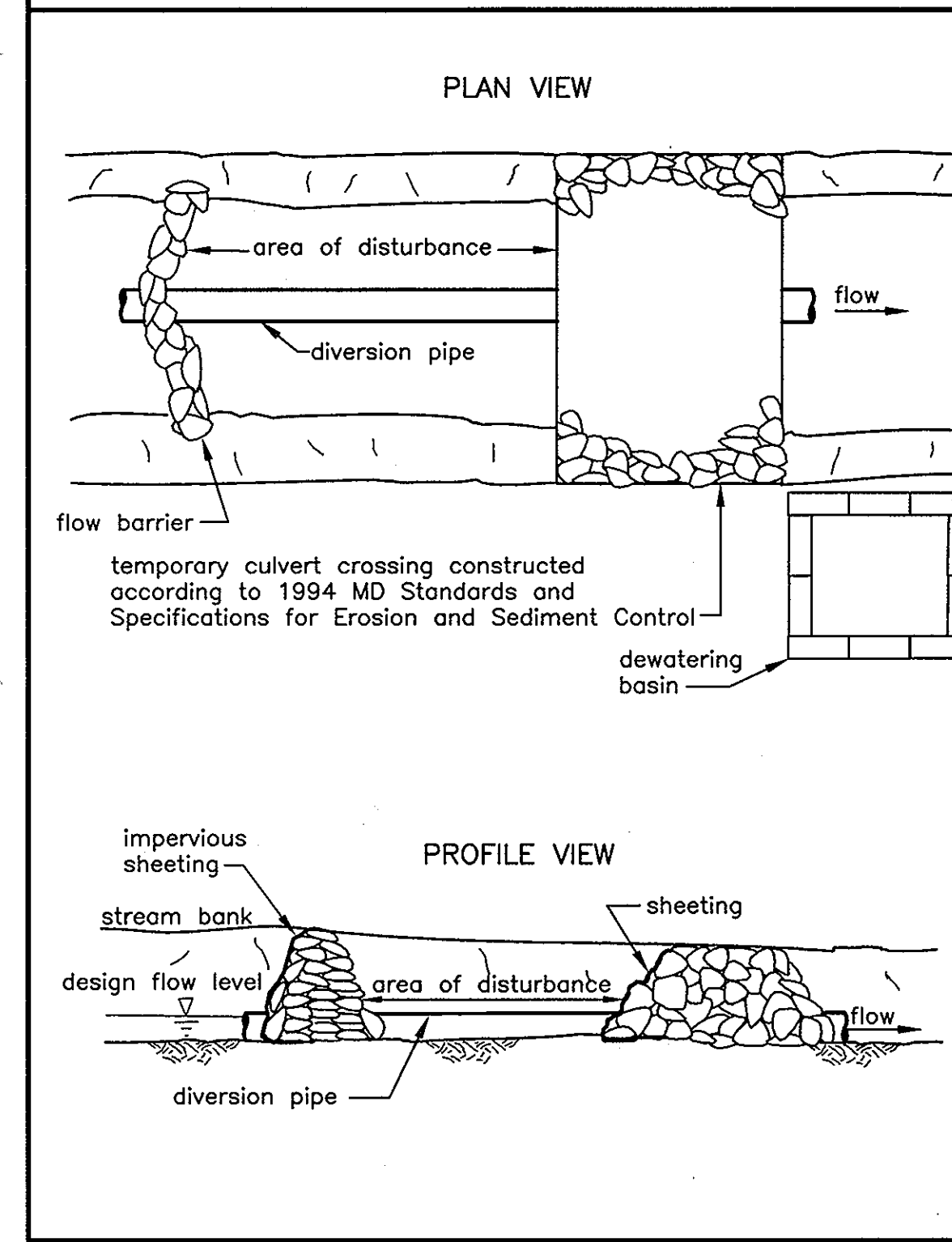
CULVERT CROSSING PROFILE - MH-509 TO MH-510
SCALE: HOR.: 1"=20'
VERT.: 1"=5'

CULVERT CROSSING SEQUENCE OF CONSTRUCTION

1. Install Sediment Control Devices (Silt Fence / Super Silt Fence) as shown on the Plans.
2. Construct a temporary sandbag Cofferdam / Flow Barrier upstream and install diversion pipe(s). Support ends of pipe as necessary prior to trenching operation.
3. Construct a temporary sandbag Cofferdam / Flow Barrier downstream to prevent backwashing into the construction area. Diversion pipe(s) shall extend a minimum of five feet beyond the Cofferdams. Cofferdams shall be constructed and in an approved operating condition prior to beginning the trenching operation.
4. If necessary, dewater the work area. Portable Sediment Tank(s) and filter bags shall be utilized to remove sediment from all dewatering.
5. Install Sediment Control Devices for proposed excavated material storage piles.
6. Excavate trench and install sewer pipe. Place straw bales on the high side of the trench outside of the culvert to prevent water from following line of the trench.
7. Place riprap to restore culvert to the original elevation.
8. Stabilize the banks of the culvert with riprap.
9. Remove downstream Cofferdam. Remove the diversion pipe(s), supports and upstream Cofferdam.
10. Clean up the entire construction site.
11. Remove all Sediment Control Devices related to culvert crossing.
12. Seed and mulch all disturbed areas.

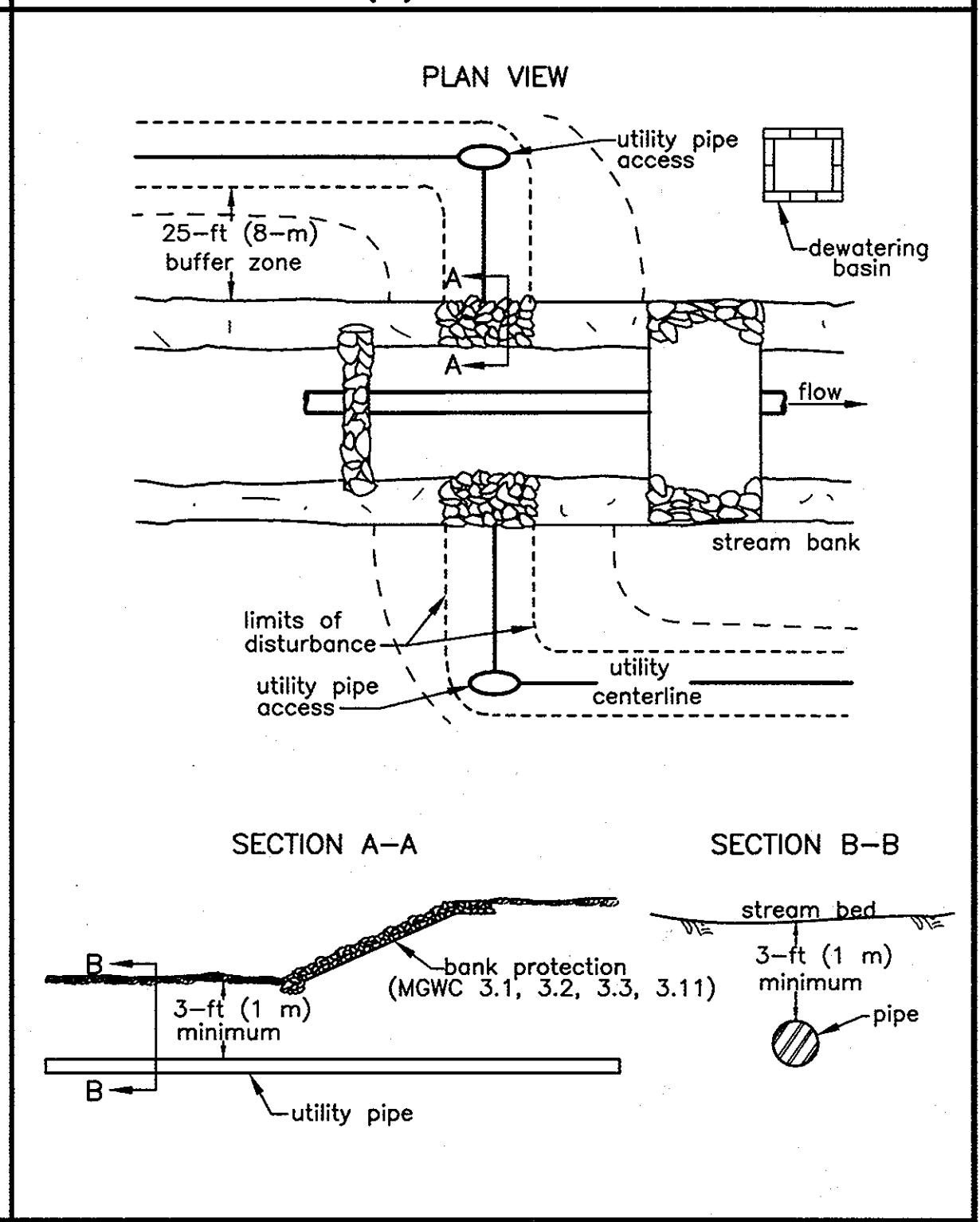
NOTE: MAXIMUM OF TWO (2) WEEKS TO COMPLETE THE CULVERT CROSSING. WORK SHALL NOT BE CONDUCTED DURING THE PERIOD OF MARCH 1 THROUGH JUNE 15, INCLUSIVE, DURING ANY YEAR.

Maryland's Guidelines To Waterway Construction DETAIL 1.3: CULVERT PIPE W/ACCESS ROAD



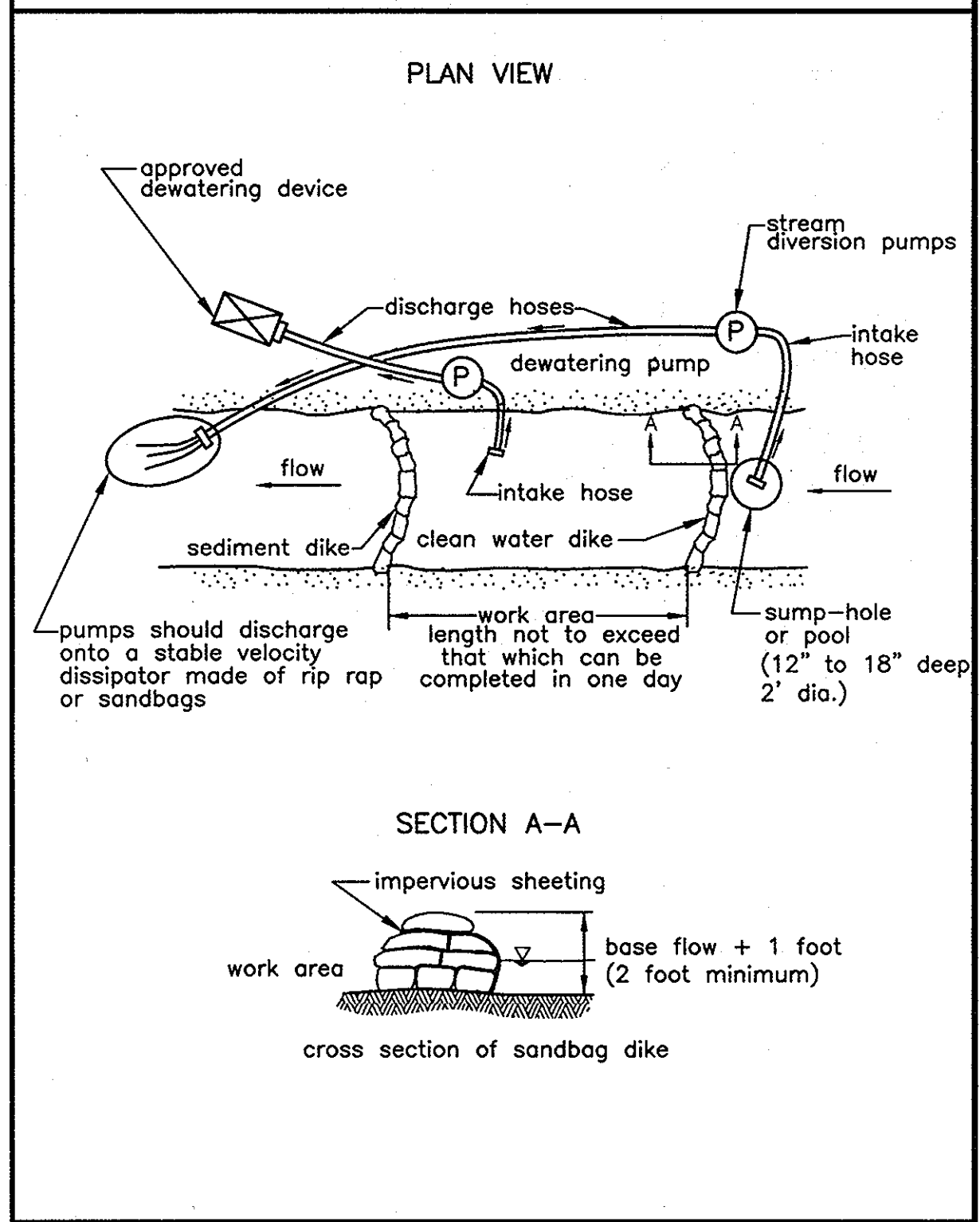
TEMPORARY INSTREAM CONSTRUCTION MEASURES REVISED NOVEMBER 2000 PAGE 1.3 - 3 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction DETAIL 4.2(a): UTILITY CROSSING

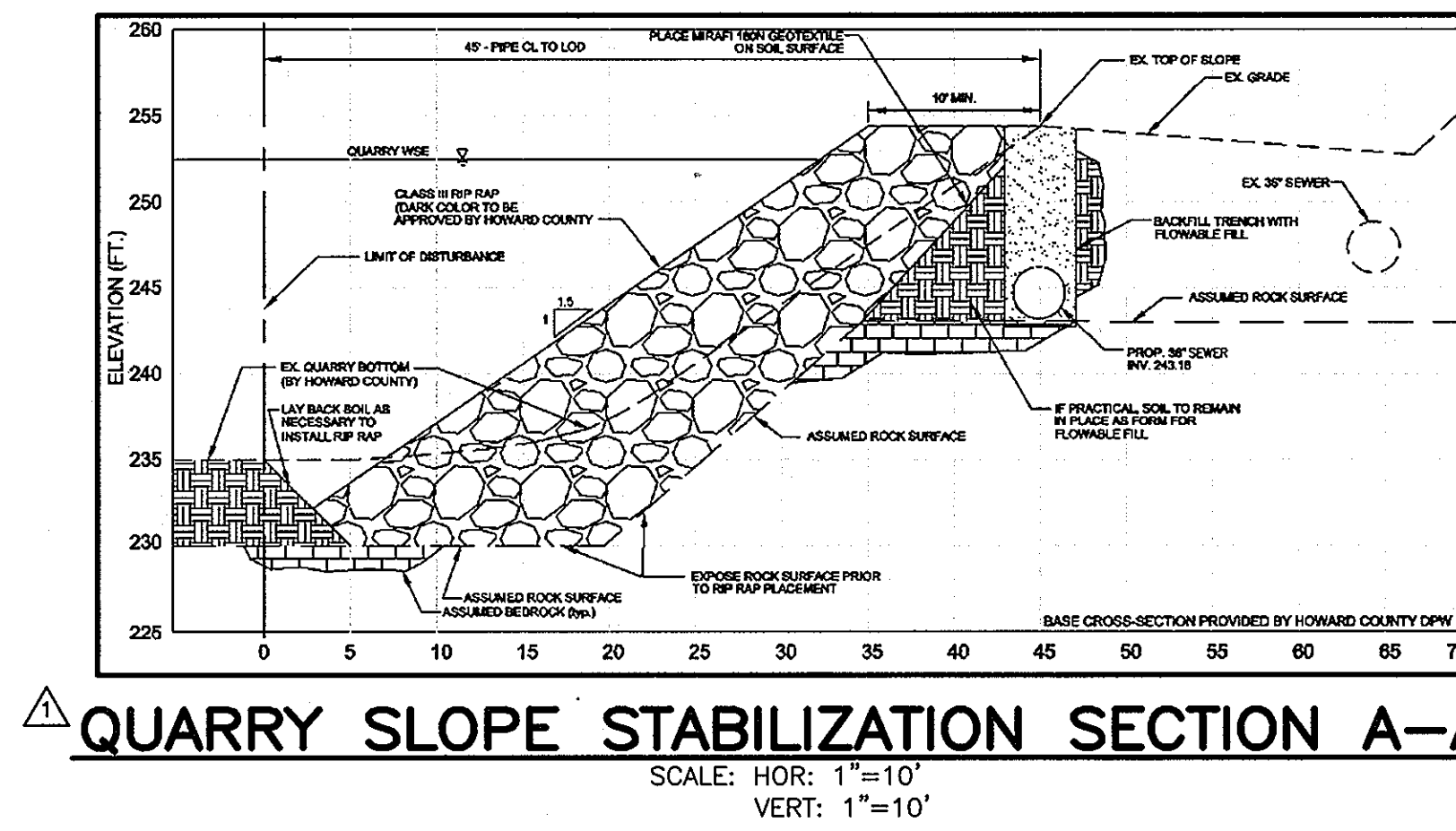


TEMPORARY INSTREAM CONSTRUCTION MEASURES PAGE 4.2 - 2 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

Maryland's Guidelines To Waterway Construction DETAIL 1.2: PUMP-AROUND PRACTICE



TEMPORARY INSTREAM CONSTRUCTION MEASURES REVISED NOVEMBER 2000 PAGE 1.2 - 3 MARYLAND DEPARTMENT OF THE ENVIRONMENT WATER MANAGEMENT ADMINISTRATION



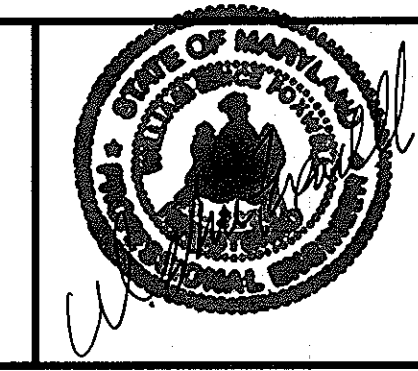
QUARRY SLOPE STABILIZATION SECTION A-A
SCALE: HOR.: 1"=10'
VERT.: 1"=10'

QUARRY SLOPE STABILIZATION RECOMMENDED SEQUENCE OF CONSTRUCTION

1. Drain quarry and dewater to permit soil excavation to expose rock.
2. Predrill and blast sewer trench.
3. Excavate working bench (if necessary to reach rock with machine).
4. Remove soft soils below proposed riprap.
5. Place geotextile on soil portion of slope.
6. Place MSHA Class III riprap on slope.
7. Install 36" sewer pipe.
8. Backfill with flowable fill in lifts to prevent pipe flotation and/or deformation.

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND
J. J. ... 7/2/10
DIRECTOR OF PUBLIC WORKS DATE
S. ... 7/1/10
CHIEF, BUREAU OF UTILITIES DATE

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DES: D.A.V.
DRN: M.A.D.
CHK: W.B.F.
DATE: 6/25/09
MAD: []
BY: []
NO.: []
REVISION: []
DATE: 3/18/10
REVISED LOCATION OF MH-509 & MH-510. ADD QUARRY SLOPE STABILIZATION

CULVERT CROSSING DETAILS
600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
SCALE AS SHOWN
SHEET 15 OF 22

SECTION I - VEGETATIVE STABILIZATION METHODS AND MATERIALS

- A. SITE PREPARATION**
- INSTALL EROSION AND SEDIMENT CONTROL STRUCTURES (EITHER TEMPORARY OR PERMANENT) SUCH AS DIVERSIONS, GRADE STABILIZATION STRUCTURES, BERMS, WATERWAYS, OR SEDIMENT CONTROL BASINS.
 - PERFORM ALL GRADING OPERATIONS AT RIGHT ANGLES TO THE SLOPE. FINAL GRADING AND SHAPING IS NOT USUALLY NECESSARY FOR TEMPORARY SEEDING.
 - SCHEDULE REQUIRED SOIL TESTS TO DETERMINE SOIL AMENDMENT COMPOSITION AND APPLICATION RATES FOR SITES HAVING DISTURBED AREA OVER 5 ACRES.
- B. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)**
- SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OVER 5 ACRES. SOIL ANALYSIS MAY BE PERFORMED BY THE UNIVERSITY OF MARYLAND OR A RECOGNIZED COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 - FERTILIZERS SHALL BE UNIFORM IN COMPOSITION, FREE FLOWING, AND SUITABLE FOR ACCURATE APPLICATION BY APPROVED EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS SHALL ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE STATE FERTILIZER LAWS AND SHALL BEAR THE NAME, TRADE NAME, OR TRADEMARK, AND WARRANTEE OF THE PRODUCER.
 - LIME MATERIALS SHALL BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED) WHICH CONTAINS AT LEAST 50% TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE SHALL BE GROUND TO SUCH FINENESS THAT AT LEAST 50% WILL PASS THROUGH A #100 MESH SIEVE AND 98-100% WILL PASS THROUGH A #20 MESH SIEVE.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
- C. SEEDBED PREPARATION**
- TEMPORARY SEEDING**
 - SEEDBED PREPARATION SHALL CONSIST OF LOOSENING SOIL TO A DEPTH OF 3"-5" BY MEANS OF SUITABLE AGRICULTURAL OR CONSTRUCTION EQUIPMENT, SUCH AS DISC HARROWS OR CHISEL PLOWS OR RIPPERS MOUNTED ON CONSTRUCTION EQUIPMENT. AFTER THE SOIL IS LOOSENED IT SHOULD NOT BE ROLLED OR DRAGGED SMOOTH, BUT LEFT IN THE ROUGHENED CONDITION. SLOPED AREAS (GREATER THAN 3:1) SHOULD BE TRACKED LEAVING THE SURFACE IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - INCORPORATE LIME AND FERTILIZER INTO THE TOP 3"-5" OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 - PERMANENT SEEDING**
 - MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT.
 - SOIL pH SHALL BE BETWEEN 6.0 AND 7.0.
 - SOLUBLE SALTS SHALL BE LESS THAN 500 PARTS PER MILLION (ppm).
 - THE SOIL SHALL CONTAIN LESS THAN 40% CLAY BUT ENOUGH FINE GRAINED MATERIAL (>50% SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION IS IF LOVEGRASS OR SERICIA LESPEDEZA IS TO BE PLANTED, THEN A SANDY SOIL (<30% SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - SOIL SHALL CONTAIN 1.5% MINIMUM ORGANIC MATTER BY WEIGHT.
 - SOIL MUST CONTAIN SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - IF THESE CONDITIONS CANNOT BE MET BY SOILS ON SITE, ADDING TOPSOIL IS REQUIRED IN ACCORDANCE WITH SECTION 21 STANDARD AND SPECIFICATION FOR TOPSOIL.
 - AREAS PREVIOUSLY GRADED IN CONFORMANCE WITH THE DRAWINGS SHALL BE MAINTAINED IN A TRUE AND EVEN GRADE, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3"-5" TO PERMIT BONDING OF THE TOPSOIL TO THE SURFACE AREA AND TO CREATE HORIZONTAL EROSION CHECK SLOTS TO PREVENT TOPSOIL FROM SLIDING DOWN A SLOPE.
 - APPLY SOIL AMENDMENTS AS PER SOIL TEST OR AS INCLUDED ON THE PLANS.
 - MIX SOIL AMENDMENTS INTO THE TOP 3"-5" OF TOPSOIL BY DISKING OR OTHER SUITABLE MEANS. LAWN AREAS SHOULD BE RAKED TO SMOOTH THE SURFACE, REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION, LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE. STEEP SLOPES (STEEPER THAN 3:1) SHOULD BE TRACKED BY A DOZER LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. THE TOP 1"-3" OF SOIL SHOULD BE LOOSE AND FRAGILE. SEEDBED LOOSENING MAY NOT BE NECESSARY ON NEWLY DISTURBED AREAS.
 - SEE TECHNICAL SPECIFICATIONS, SECTION 02260, FOR SPECIAL REQUIREMENTS.

- D. SEED SPECIFICATIONS**
- ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED SHALL BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED SHALL HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON THIS JOB.
NOTE: SEED TAGS SHALL BE MADE AVAILABLE TO THE INSPECTOR TO VERIFY TYPE AND RATE OF SEED USED.
 - INOCULANT - THE INOCULANT FOR TREATING LEGUME SEED MIXTURES SHALL BE A PURE CULTURE OF NITROGEN-FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS SHALL NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANT AS DIRECTED ON THE PACKAGE. USE FOUR TIMES THE RECOMMENDED RATE WHEN HYDROSEEDING.
NOTE: IT IS VERY IMPORTANT TO KEEP INOCULANT AS COOL AS POSSIBLE UNTIL USED. TEMPERATURES ABOVE 75-80°F CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.

- E. METHODS OF SEEDING**
- HYDROSEEDING:** APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER), BROADCAST OR DROP SEEDER, OR A CULTPACKER SEEDER.
 - IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATE AMOUNTS WILL NOT EXCEED THE FOLLOWING: NITROGEN: MAXIMUM OF 100 LBS. PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS): 200 LBS. PER ACRE; K20 (POTASSIUM): 200 LBS. PER ACRE.
 - LIME - USE ONLY GROUND AGRICULTURAL LIMESTONE (UP TO 3 TONS PER ACRE MAY BE APPLIED BY HYDROSEEDING). NORMALLY, NOT MORE THAN 2 TONS ARE APPLIED BY HYDROSEEDING AT ANY ONE TIME. DO NOT USE BURNT OR HYDRATED LIME WHEN HYDROSEEDING.
 - SEED AND FERTILIZER SHALL BE MIXED ON-SITE AND SEEDING SHALL BE DONE IMMEDIATELY AND WITHOUT INTERRUPTION.
 - DRY SEEDING:** THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - SEED SPREAD DRY SHALL BE INCORPORATED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON THE TEMPORARY OR PERMANENT SEEDING SUMMARIES OR TABLES 25 OR 26. THE SEEDING AREA SHALL THEN BE ROLLED WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

- DRILL OR CULTPACKER SEEDING:** MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL
 - CULTPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4" OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - WHERE PRACTICAL, SEED SHOULD BE APPLIED IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.

- F. MULCH SPECIFICATIONS (IN ORDER OF PREFERENCE)**
- STRAW SHALL CONSIST OF THOROUGHLY THRESHED WHEAT, RYE, OR OAT STRAW, REASONABLY BRIGHT IN COLOR, AND SHALL NOT BE MUSTY, MOLDY, CAKED, DECAYED, OR EXCESSIVELY DUSTY AND SHALL BE FREE OF NOXIOUS WEEDS SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW.
 - WOOD CELLULOSE FIBER MULCH (WCFM)
 - WCFM SHALL CONSIST OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - WCFM SHALL BE DYED GREEN OR CONTAIN A GREEN DYE IN THE PACKAGE THAT WILL PROVIDE AN APPROPRIATE COLOR TO FACILITATE VISUAL INSPECTION OF THE UNIFORMLY SPREAD SLURRY.
 - WCFM, INCLUDING DYE, SHALL CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - WCFM MATERIALS SHALL BE MANUFACTURED AND PROCESSED IN SUCH A MANNER THAT THE WOOD CELLULOSE FIBER MULCH WILL REMAIN IN UNIFORM SUSPENSION IN WATER UNDER AGITATION AND WILL BLEND WITH SEED, FERTILIZER AND OTHER ADDITIVES TO FORM A HOMOGENEOUS SLURRY. THE MULCH MATERIAL SHALL FORM A BLOTTER-LIKE GROUND COVER, ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND SHALL COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - WCFM MATERIAL SHALL CONTAIN NO ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH TO APPROXIMATELY 10mm, DIAMETER APPROXIMATELY 1mm, pH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6% MAXIMUM AND WATER HOLDING CAPACITY OF 90% MINIMUM.
- NOTE: ONLY STERILE STRAW MULCH SHOULD BE USED IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.

- G. MULCHING SEEDED AREAS - MULCH SHALL BE APPLIED TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.**
- IF GRADING IS COMPLETED OUTSIDE OF THE SEEDING SEASON, MULCH ALONE SHALL BE APPLIED AS PRESCRIBED IN THIS SECTION AND MAINTAINED UNTIL THE SEEDING SEASON RETURNS AND SEEDING CAN BE PERFORMED IN ACCORDANCE WITH THESE SPECIFICATIONS.
 - WHEN STRAW MULCH IS USED, IT SHALL BE SPREAD OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE. MULCH SHALL BE APPLIED TO A UNIFORM LOOSE DEPTH OF BETWEEN 1" AND 2". MULCH APPLIED SHALL ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. IF A MULCH ANCHORING TOOL IS TO BE USED, THE RATE SHOULD BE INCREASED TO 2.5 TONS PER ACRE.
 - WOOD CELLULOSE FIBER USED AS A MULCH SHALL BE APPLIED AT A NET DRY WEIGHT OF 1,500 LBS. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER, AND THE MIXTURE OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

- H. SECURING STRAW MULCH (MULCH ANCHORING):** MULCH ANCHORING SHALL BE PERFORMED IMMEDIATELY FOLLOWING MULCH APPLICATION TO MINIMIZE LOSS BY WIND OR WATER. THIS MAY BE DONE BY ONE OF THE FOLLOWING METHODS (LISTED BY PREFERENCE), DEPENDING UPON THE SIZE OF THE AREA AND EROSION HAZARD:
- A MULCH ANCHORING TOOL IS A TRACTOR-DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF TWO (2) INCHES. THIS PRACTICE IS MOST EFFECTIVE ON LARGE AREAS, BUT IS LIMITED TO FLATTER SLOPES WHERE EQUIPMENT CAN OPERATE SAFELY. IF USED ON SLOPING LAND, THIS PRACTICE SHOULD BE USED TO THE CONTOUR IF POSSIBLE.
 - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LBS. PER ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LBS. OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - APPLICATION OF LIQUID BINDERS SHOULD BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH, SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. THE REMAINDER OF AREA SHOULD APPEAR UNIFORM AFTER BINDER APPLICATION. SYNTHETIC BINDERS - SUCH AS ACRYLIC DLR (AGRO-TRAK), DCA-70, PETROSET, TERRA TACK II, TERRA TACK AIR OR OTHER APPROVED EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER TO ANCHOR MULCH.
 - LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4'-15" WIDE AND 300'-3,000' LONG.

- I. INCREMENTAL STABILIZATION - CUT SLOPES**
- ALL CUT SLOPES SHALL BE DRESSED, PREPARED, SEEDED AND MULCHED AS THE WORK PROGRESSES. SLOPES SHALL BE EXCAVATED AND STABILIZED IN EQUAL INCREMENTS NOT TO EXCEED 15'.
 - CONSTRUCTION SEQUENCE (REFER TO FIGURE 4 BELOW):
 - EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO CONVEY RUNOFF FROM THE EXCAVATION.
 - PERFORM PHASE 1 EXCAVATION, DRESS, AND STABILIZE.
 - PERFORM PHASE 2 EXCAVATION, DRESS, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - PERFORM FINAL PHASE EXCAVATION, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE EXCAVATION HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

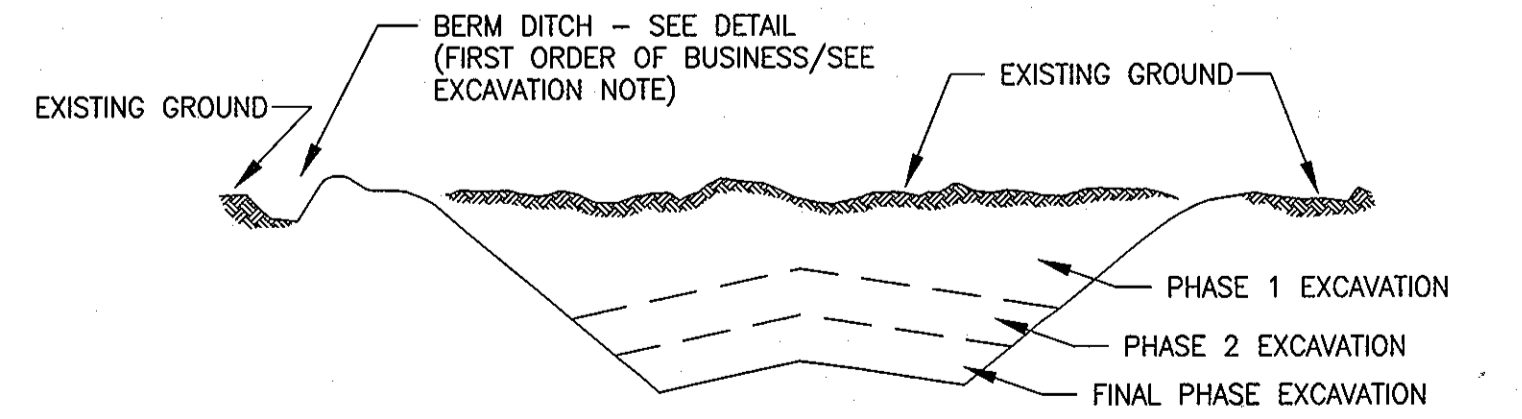


FIGURE 4: INCREMENTAL STABILIZATION - CUT

- J. INCREMENTAL STABILIZATION OF EMBANKMENTS - FILL SLOPES**
- EMBANKMENTS SHALL BE CONSTRUCTED IN LIFTS AS PRESCRIBED ON THE PLANS.
 - SLOPES SHALL BE STABILIZED IMMEDIATELY WHEN THE VERTICAL HEIGHT OF THE MULTIPLE LIFTS REACHES 15', OR WHEN GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS
 - AT THE END OF EACH DAY, TEMPORARY BERMS AND PIPE SLOPE DRAINS SHOULD BE CONSTRUCTED ALONG THE TOP EDGE OF THE EMBANKMENT TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER TO A SEDIMENT TRAPPING DEVICE.
 - CONSTRUCTION SEQUENCE: REFER TO FIGURE 5 (BELOW).
 - EXCAVATE AND STABILIZE ALL TEMPORARY SWALES, SIDE DITCHES, OR BERMS THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SLOPE SILT FENCE ON LOW SIDE OF FILL AS SHOWN IN FIGURE 5, UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
 - PLACE PHASE 1 EMBANKMENT, DRESS, AND STABILIZE.
 - PLACE PHASE 2 EMBANKMENT, DRESS, AND STABILIZE.
 - PLACE FINAL PHASE EMBANKMENT, DRESS, AND STABILIZE. OVERSEED PREVIOUSLY SEEDED AREAS AS NECESSARY.

NOTE: ONCE THE PLACEMENT OF FILL HAS BEGUN THE OPERATION SHOULD BE CONTINUOUS FROM GRUBBING THROUGH THE COMPLETION OF GRADING AND PLACEMENT OF TOPSOIL (IF REQUIRED) AND PERMANENT SEED AND MULCH. ANY INTERRUPTIONS IN THE OPERATION OR COMPLETING THE OPERATION OUT OF THE SEEDING SEASON WILL NECESSITATE THE APPLICATION OF TEMPORARY STABILIZATION.

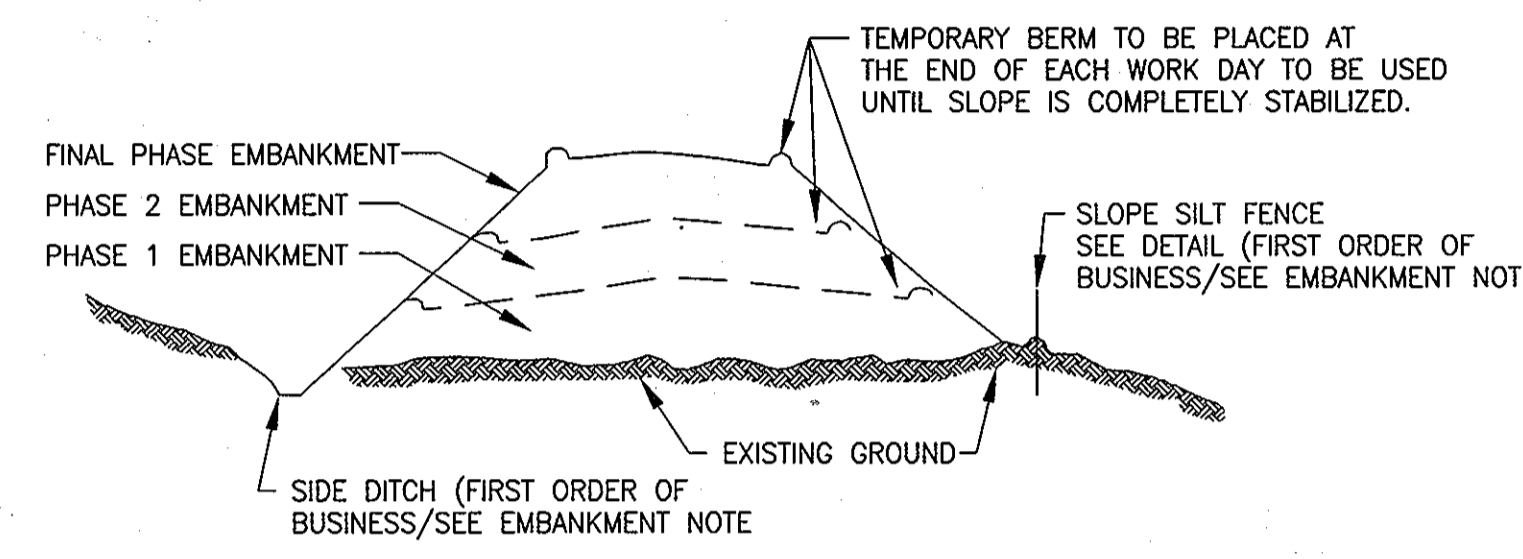


FIGURE 5: INCREMENTAL STABILIZATION - FILL

SECTION II - TEMPORARY SEEDING

VEGETATION - ANNUAL GRASS OR GRAIN USED TO PROVIDE COVER ON DISTURBED AREAS FOR UP TO 12 MONTHS. FOR LONGER DURATION OF VEGETATIVE COVER, PERMANENT SEEDING IS REQUIRED.

- A. SEED MIXTURES - TEMPORARY SEEDING**
- SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE 26 FOR APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE 5) AND ENTER THEM IN THE TEMPORARY SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES, AND SEEDING DEPTHS. IF THIS SUMMARY IS NOT PUT ON THE PLANS AND COMPLETED, THEN TABLE 26 MUST BE PUT ON THE PLANS.
 - FOR SITES HAVING SOIL TESTS PERFORMED, THE RATES SHOWN ON THIS TABLE SHALL BE DELETED AND THE RATES RECOMMENDED BY THE TESTING AGENCY SHALL BE WRITTEN IN. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.

TEMPORARY SEEDING SUMMARY

| SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 26 | | | | | FERTILIZER RATE (10-10-10) | LIME RATE |
|---|-------------------|--------------------------|-----------------------|----------------|-------------------------------|----------------------------|
| NO. | SPECIES | APPLICATION RATE (lb/ac) | SEEDING DATES | SEEDING DEPTHS | | |
| | ANNUAL RYE | 50 | 3/1-4/30 8/15-11/1 | 1/4" - 1/2" | 600 lb/ac (15 lb/1000sf) | 2 tons/ac 100 lb/1000sf |
| | WEeping LOVEGRASS | 4 | 5/1-8/14 | 1/4" - 1/2" | | |

SECTION III - PERMANENT SEEDING

SEEDING GRASS AND LEGUMES TO ESTABLISH GROUND COVER FOR A MINIMUM PERIOD OF ONE YEAR ON DISTURBED AREAS GENERALLY RECEIVING LOW MAINTENANCE.

- A. SEED MIXTURES - PERMANENT SEEDING**
- THE SPECIES OR MIXTURES LISTED IN THE PERMANENT SEEDING SUMMARY BELOW, ALONG WITH APPLICATION RATES, SEEDING DATES AND SEEDING DEPTHS SHALL BE USED ON THIS PROJECT.

- THIS SITE HAS A DISTURBED AREA OVER 5 ACRES. THEREFORE, THE RATES SHOWN ON THIS TABLE MAY BE MODIFIED BY THE SOIL TESTING AGENCY.
- FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREAFORM FERTILIZER (46-0-0) AT 3-1/2 LBS. PER 1000 sq. ft. (150 lbs./ac), IN ADDITION TO THE ABOVE SOIL AMENDMENTS SHOWN IN THE TABLE BELOW, TO BE PERFORMED AT THE TIME OF SEEDING.

PERMANENT SEEDING SUMMARY

| SEED MIXTURE (HARDINESS ZONE 6B) FROM TABLE 25 | | | | | FERTILIZER RATE (10-20-20) | | | LIME RATE |
|---|---|--------------------------|-------------------------------|----------------|-------------------------------|-----------------------------|-----------------------------|-------------------------------|
| NO. | SPECIES | APPLICATION RATE (lb/ac) | SEEDING DATES | SEEDING DEPTHS | N | P205 | K20 | |
| 1 | CREeping RED FESCUE (30%) CHEWINGS FESCUE (30%) ROUGH BLUE GRASS (20%) CATALINA PERENNIAL RYEGRASS (20%) | 200 | 3/1-5/15 AND 8/15-10/15 | 1" | 90 lb/ac (2.0 lb/1000 sf) | 175 lb/ac (4 lb/1000 sf) | 175 lb/ac (4 lb/1000 sf) | 2 tons/ac (100 lb/1000 sf) |

SECTION IV - SOD

TO PROVIDE QUICK COVER ON DISTURBED AREAS (2:1 GRADE OR FLATTER).

- A. GENERAL SPECIFICATIONS**
- CLASS OF TURFGRASS SOD SHALL BE MARYLAND OR VIRGINIA STATE CERTIFIED OR APPROVED. SOD LABELS SHALL BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
 - SOD SHALL BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4", PLUS OR MINUS 1/4", AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS SHALL EXCLUDE TOP GROWTH AND THATCH. INDIVIDUAL PIECES OF SOD SHALL BE CUT TO THE SUPPLIERS WIDTH AND LENGTH. MAXIMUM ALLOWABLE DEVIATION FROM STANDARD WIDTHS AND LENGTHS SHALL BE 5%. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
 - STANDARD SIZE SECTIONS OF SOD SHALL BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED VERTICALLY WITH A FIRM GRASP ON THE UPPER 10% OF THE SECTION.
 - SOD SHALL NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
 - SOD SHALL BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD SHALL BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

B. SOD INSTALLATION

- DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, THE SUBSOIL SHALL BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD.
- THE FIRST ROW OF SOD SHALL BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND TIGHTLY WEDGED AGAINST EACH OTHER. LATERAL JOINTS SHALL BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE AIR DRYING OF THE ROOTS.
- WHEREVER POSSIBLE, SOD SHALL BE LAID WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERING JOINTS. SOD SHALL BE ROLLED AND TAMPED, PEGGED OR OTHERWISE SECURED TO PREVENT SLIPPAGE ON SLOPES AND TO ENSURE SOLID CONTACT BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- SOD SHALL BE WATERED IMMEDIATELY FOLLOWING ROLLING OR TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. THE OPERATIONS OF LAYING TAMPING AND IRRIGATING FOR ANY PIECE OF SOD SHALL BE COMPLETED WITHIN EIGHT HOURS.

C. SOD MAINTENANCE

- IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF 4". WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN MOISTURE CONTENT.
- THE FIRST MOWING OF SOD SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/3 OF THE GRASS LEAF SHALL BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. GRASS HEIGHT SHALL BE MAINTAINED BETWEEN 2" AND 3" UNLESS OTHERWISE SPECIFIED.

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| CHIEF, BUREAU OF UTILITIES | DATE | CHIEF, UTILITY DESIGN DIVISION | DATE |

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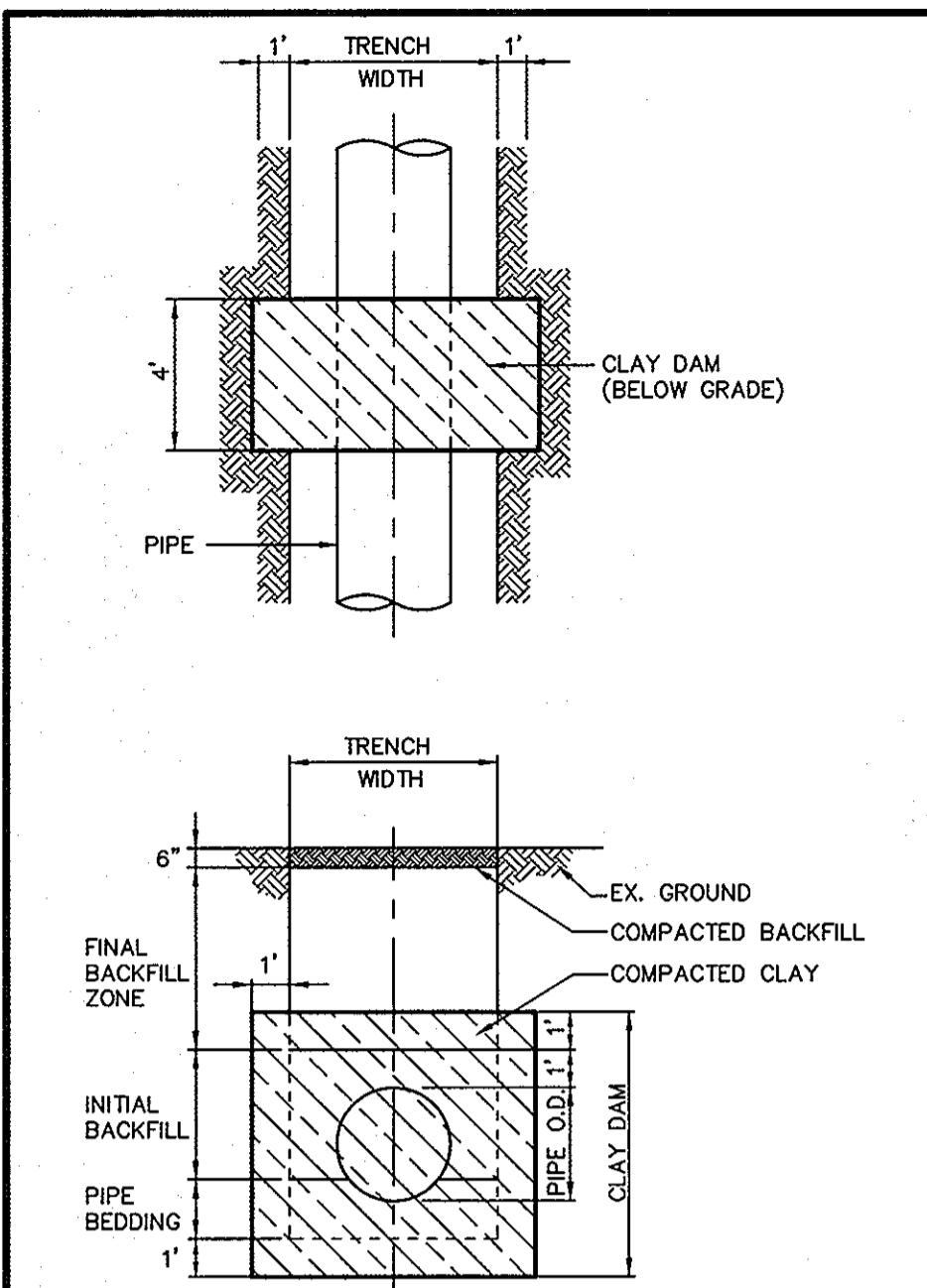
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| DES: D.A.V. | | | | |
| DRN: M.A.D. | | | | |
| CHK: W.B.F. | | | | |
| DATE: 6/25/09 | BY | NO. | REVISION | DATE |

EROSION AND SEDIMENT CONTROL DETAILS

600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

**LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND**

SCALE AS SHOWN
SHEET 17 OF 22

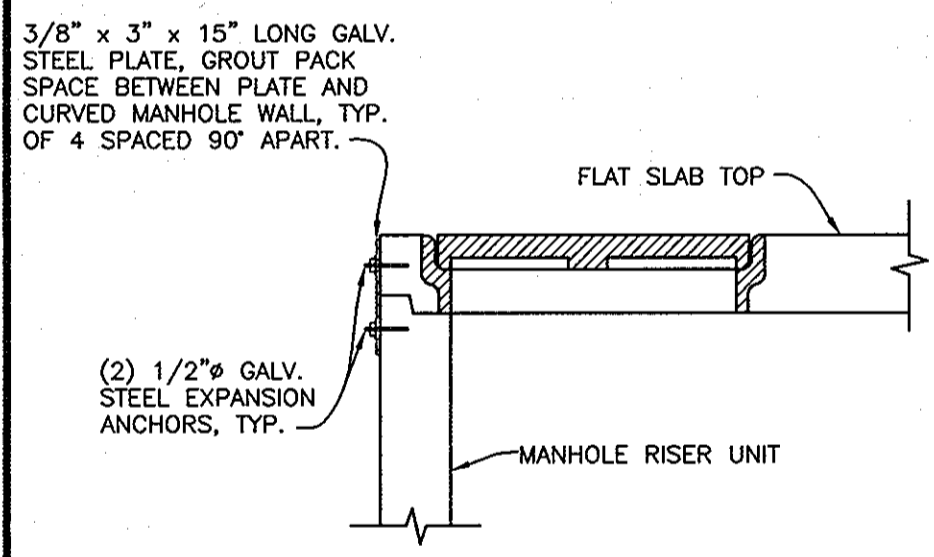


- NOTES:**
- CONTRACTOR TO STRICTLY ADHERE TO SECTION 1000.03.05, "EXCAVATION AND SUBGRADE PREPARATION", OF THE STANDARD SPECIFICATIONS AND DETAILS OF CONSTRUCTION, VOLUME IV.
 - TRENCH BACKFILL IN THE FINAL BACKFILL ZONE, FROM 12 INCHES ABOVE THE CROWN OF PIPE TO 6 INCHES BELOW THE FINAL GRADE, SHALL CONSIST OF ON-SITE SUITABLE BACKFILL MATERIAL AS MUCH AS PRACTICABLE AND MAY, BEGINNING AT A DEPTH 24 INCHES ABOVE THE CROWN OF PIPE, CONTAIN STONES NO LARGER THAN 12 INCHES IN ANY DIMENSION.

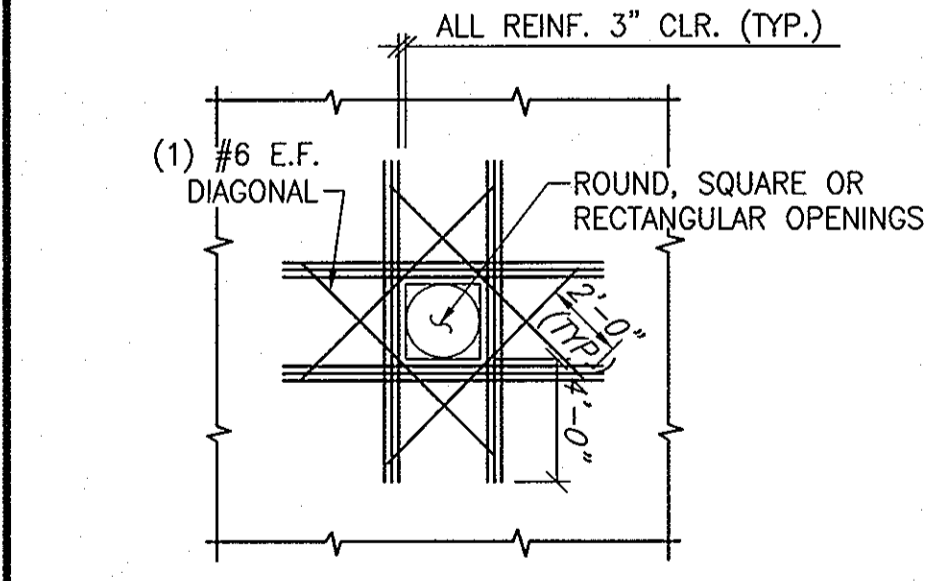
TRENCH DETAIL
NO SCALE

- CLAY DAM NOTES**
- CLAY DAM SHALL BE INSTALLED AT INTERVALS NO GREATER THAN 500 FEET AND AS SHOWN ON THE PLANS.
 - CLAY DAM LENGTH SHALL BE 4 FEET ALONG THE PIPE AXIS, AND SHALL BE PLACED FROM UNDERCUT SUBGRADE OR TRENCH SUBGRADE UP TO 1 FOOT OVER THE INITIAL BACKFILL.
 - PLACE CLAY DAM IN 6" LIFTS, USING CLAY MEETING THE REQUIREMENTS OF AASHTO M145 SOIL GROUPS A-6 OR A-7 AND COMPACT TO MIN. 92%.
 - NO STONE SHALL BE USED IN THE BOTTOM OF THE TRENCH OR IN THE FINAL BACKFILL ZONE ALONG THE LENGTH OF THE DAM.

CLAY DAM TYPICAL PIPE BEDDING DETAIL
NO SCALE

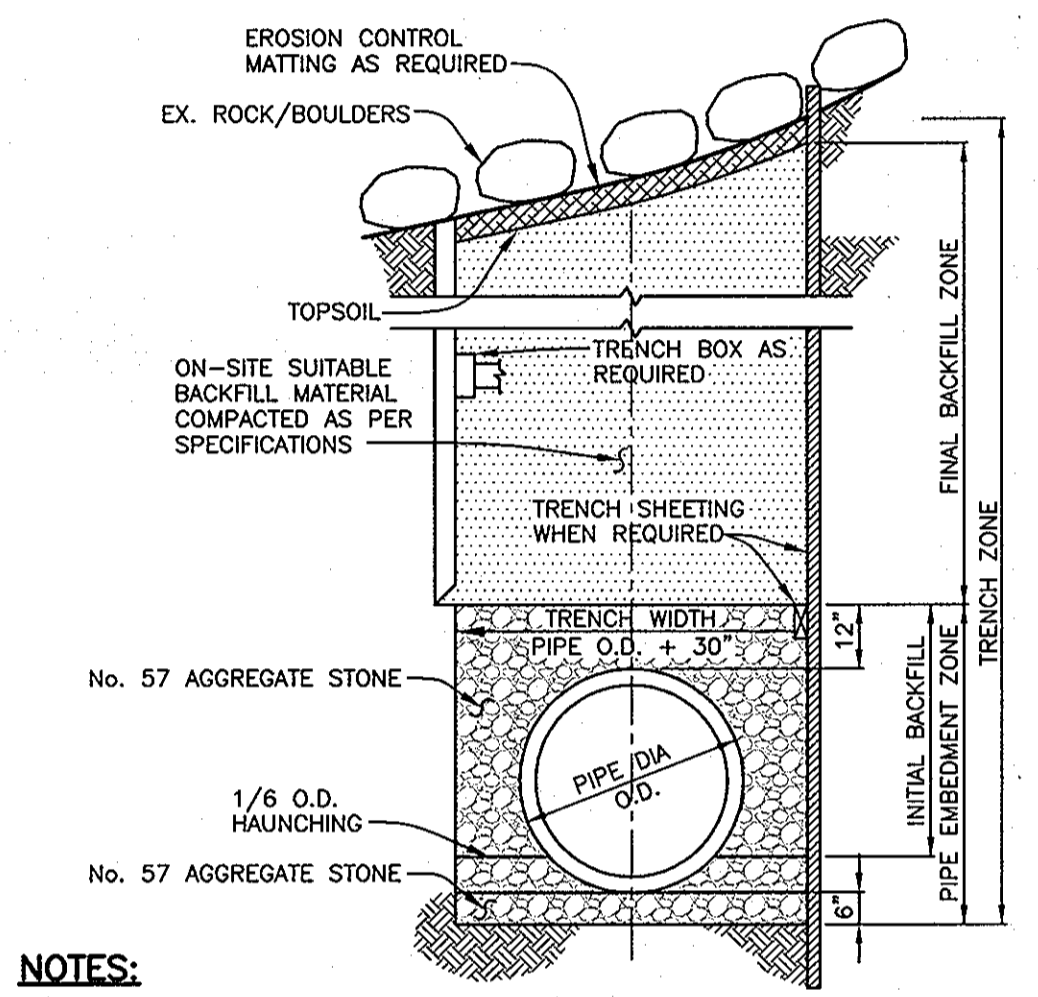


MANHOLE SLAB TOP CONNECTION
NO SCALE



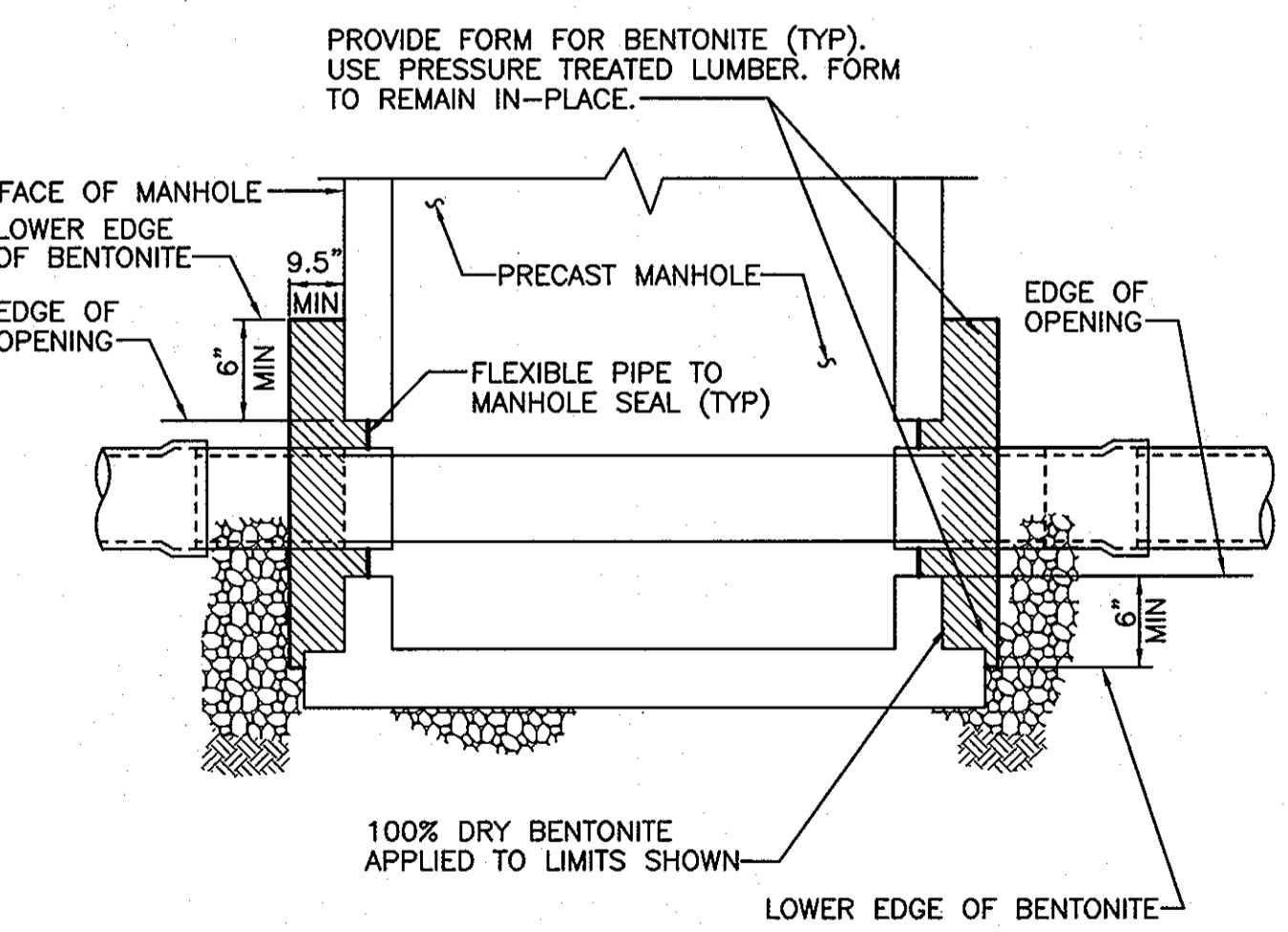
- NOTE:**
- PROVIDE ADDITIONAL REINFORCING, (MINIMUM OF ONE-HALF THE NUMBER OF PRINCIPLE REINFORCING BARS BEING INTERRUPTED BY THE OPENING AT EACH FACE ON EACH SIDE).
 - FOR OPENINGS LESS THAN 12" DIA., NO ADDITIONAL REINFORCING IS REQUIRED PROVIDED, NO REINFORCING IS INTERRUPTED BY THE OPENING.

REBAR OPENING DETAIL
NO SCALE

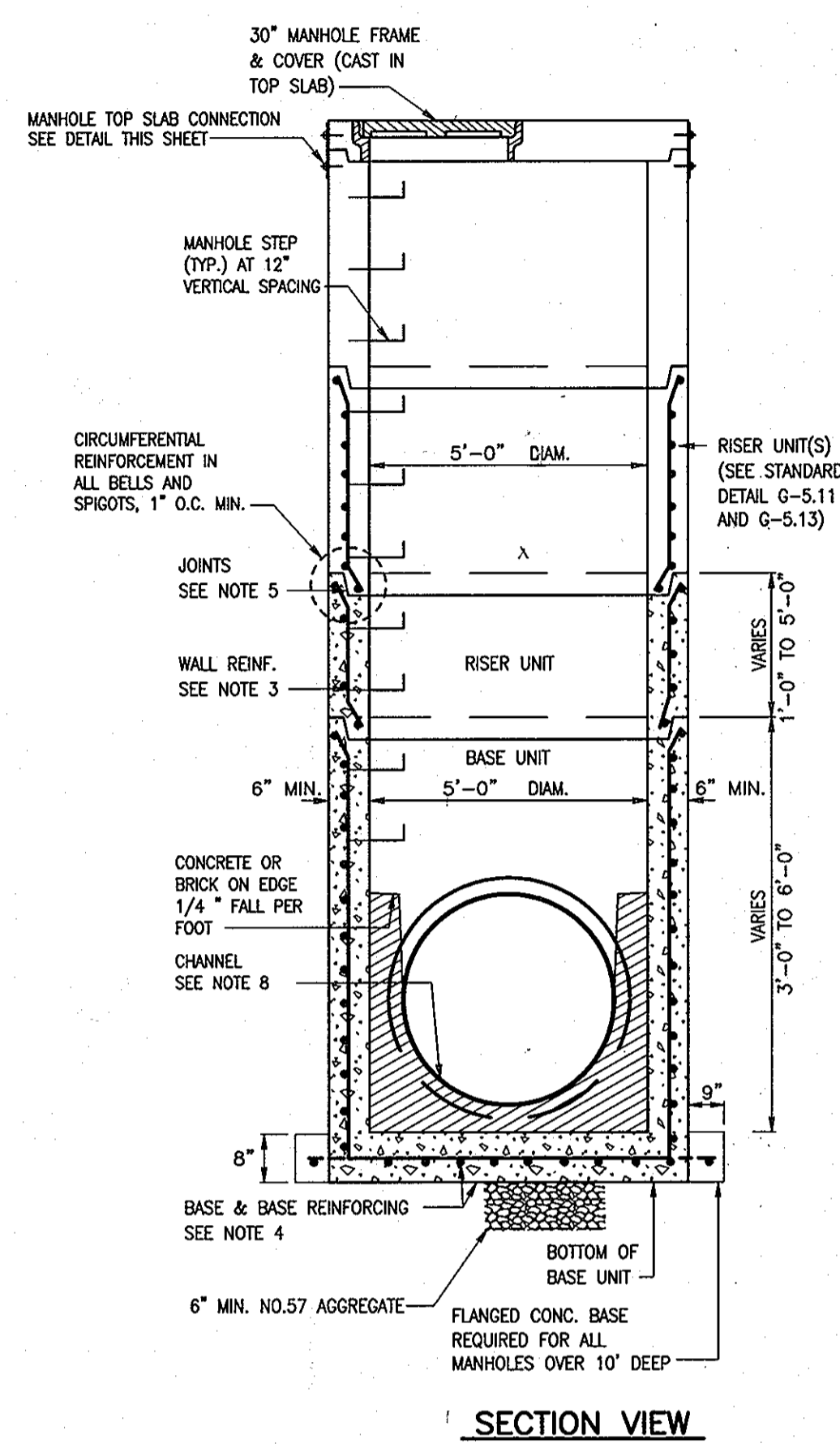


- NOTES:**
- GRADE SHALL BE RETURNED TO EXISTING CONDITION AFTER CONSTRUCTION.
 - ANY SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED WITH EROSION CONTROL MATTING (LANDLOCK 450 OR APPROVED EQUAL), SEE SHEET 16 FOR ANCHORING REQUIREMENTS.
 - ROCK REMOVED DURING PIPE INSTALLATION SHALL BE PLACED AND SPREAD OVER THE DISTURBED AREA TO MIMIC EXISTING CONDITIONS. ROCK SHALL BE PLACED OVER EROSION CONTROL MATTING.

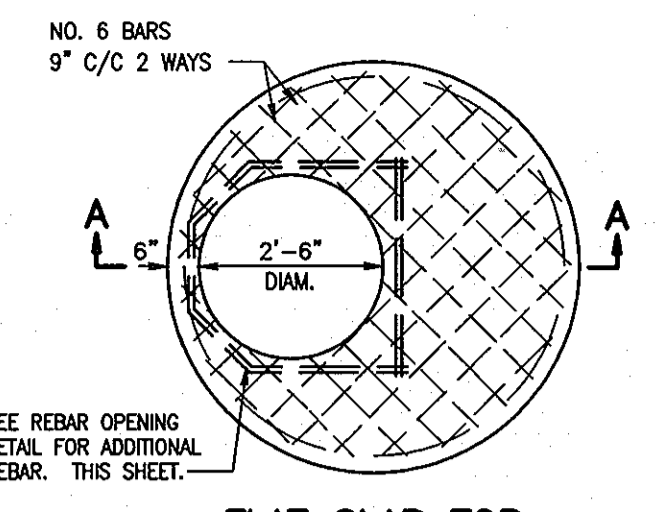
TRENCH DETAIL (w/SLOPE STABILIZATION)
NO SCALE



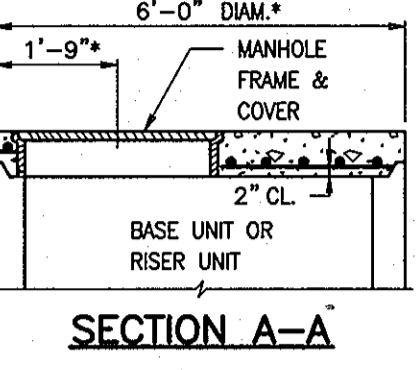
PIPE TO MANHOLE CONNECTION
NO SCALE



5'-0" DIAMETER PRECAST MANHOLE
NO SCALE



FLAT SLAB TOP
(SHOWN WITHOUT FRAME & COVER)

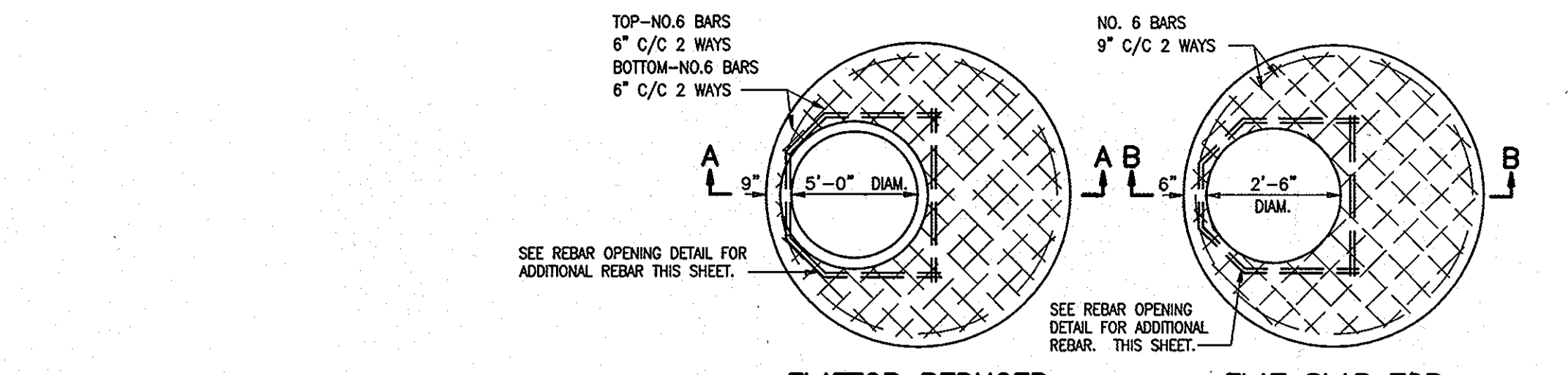


SECTION A-A

- NOTES**
- MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-478 AND THE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON STANDARD DETAIL G-5.11.
 - CONCRETE SHALL BE MIX NO.6 (4500 PSI).
 - WALL REINFORCEMENT FOR BASE UNITS AND RISER UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.23 IN²/FT FOR THE 60" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 AND A-82. REINFORCEMENT BARS SHALL MEET ASTM A-615, GRADE 60.
 - BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.23 IN²/FT. THE BASE SHALL BE CAST MONOLITHIC WITH THE BASE UNIT OR JOINED PER MANUFACTURER'S DESIGN.
 - THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATER TIGHT USING RUBBER O-RING GASKETS MEETING ASTM A-361 & C-443.
 - MINIMUM DISTANCE BETWEEN PIPE OPENINGS IN MANHOLE WALL SHALL BE 12 INCHES.
 - LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
 - MIX NO. 6 PRECAST CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED AND SHALL SLOPE TOWARD OUTLET AS DIRECTED BY THE ENGINEER.
 - NO MORE THAN ONE 1" RISER SECTION MAY BE USED PER MANHOLE.
 - MANHOLE INTERIOR LINER IS REQUIRED. REFER TO "SANITARY SEWER MANHOLES" SECTION OF THE SPECIAL PROVISIONS.

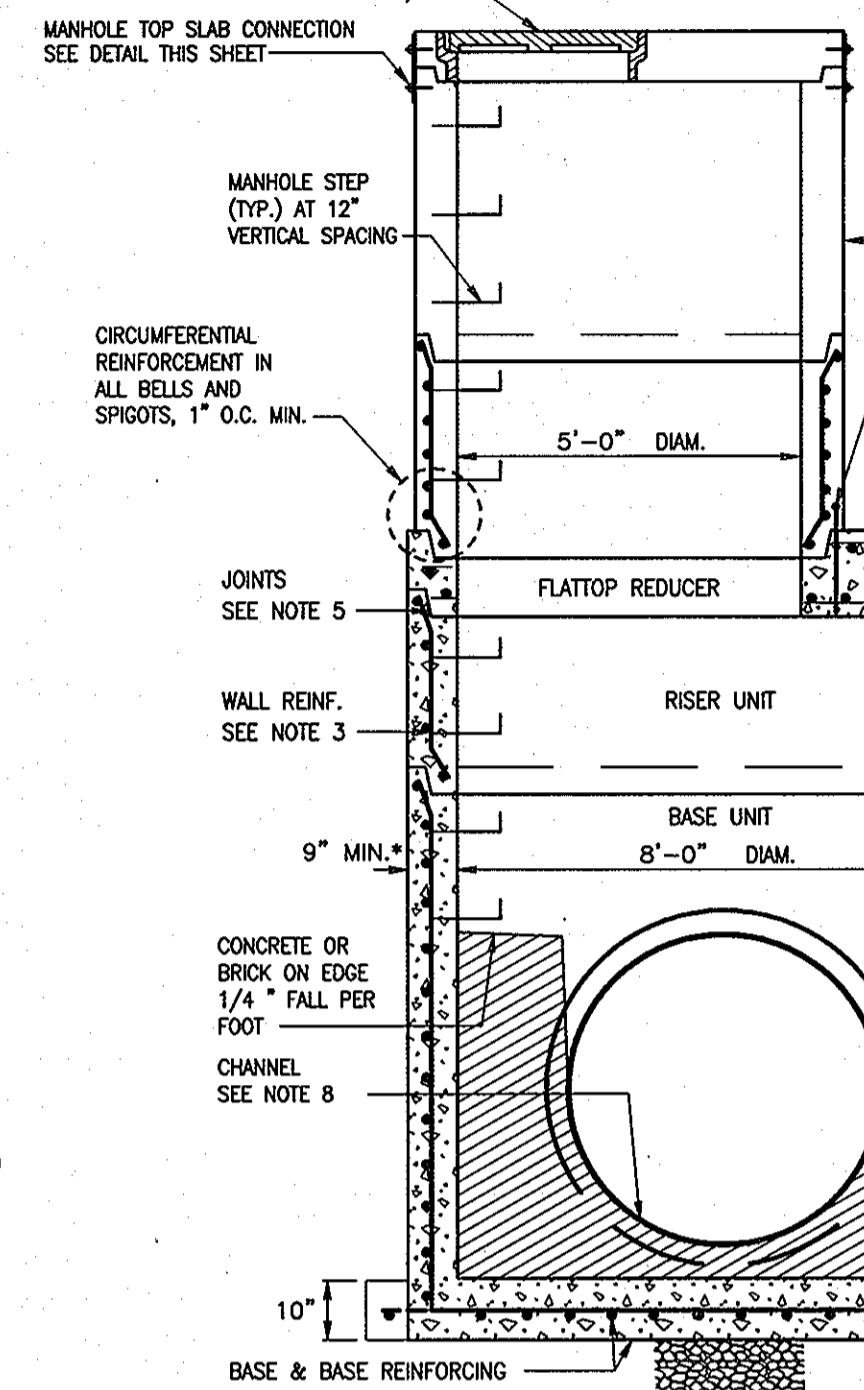
* DIMENSIONS TO BE CONFIRMED BY THE MANUFACTURER

NOTE: "STANDARD DETAIL" REFERS TO DETAILS IN HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.



FLATOP REDUCER

FLAT SLAB TOP
(SHOWN WITHOUT FRAME & COVER)



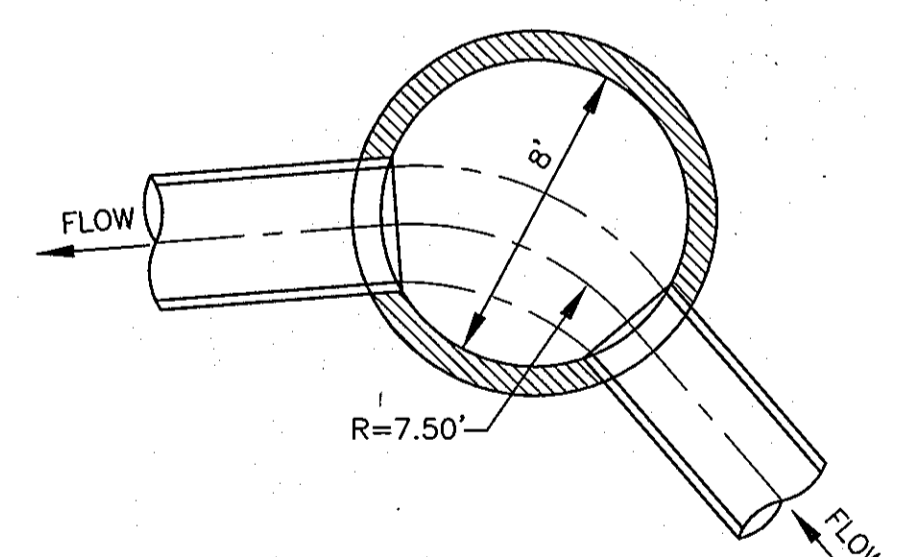
SECTION A-A

SECTION B-B

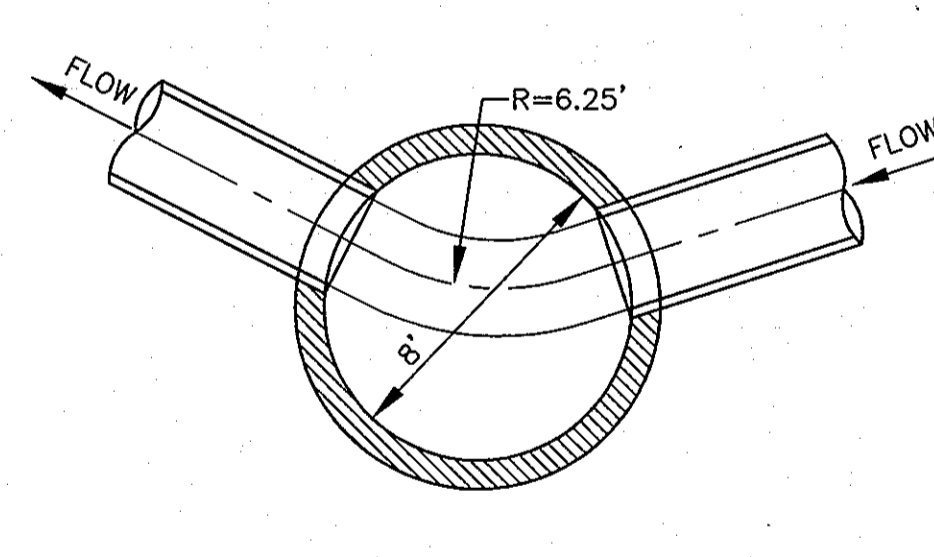
- NOTES**
- MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH ASTM C-478 AND THE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON STANDARD DETAIL G-5.11.
 - CONCRETE SHALL BE MIX NO.6 (4500 PSI).
 - WALL REINFORCEMENT FOR BASE UNITS AND RISER UNITS SHALL BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.37 IN²/FT FOR THE 96" DIAMETER MANHOLES. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 AND A-82. REINFORCEMENT BARS SHALL MEET ASTM A-615, GRADE 60.
 - BASE REINFORCEMENT TO BE REINFORCEMENT BARS OR WELDED WIRE FABRIC WITH A MINIMUM AREA OF 0.37 IN²/FT. THE BASE SHALL BE CAST MONOLITHIC WITH THE BASE UNIT OR JOINED PER MANUFACTURER'S DESIGN.
 - THE MANUFACTURER SHALL FORM MALE AND FEMALE ENDS OF JOINTS USING THEIR OWN DESIGN. THE JOINTS SHALL BE SEALED BY THE CONTRACTOR AND MADE WATER TIGHT USING RUBBER O-RING GASKETS MEETING ASTM A-361 & C-443.
 - MINIMUM DISTANCE BETWEEN PIPE OPENINGS IN MANHOLE WALL SHALL BE 12 INCHES.
 - LIFT HOLES OR LIFT EYES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING.
 - MIX NO. 6 PRECAST CONCRETE OR BRICK CHANNEL SHALL BE PROVIDED AND SHALL SLOPE TOWARD OUTLET AS DIRECTED BY THE ENGINEER.
 - NO MORE THAN ONE 1" RISER SECTION MAY BE USED PER MANHOLE.
 - MANHOLE INTERIOR LINER IS REQUIRED. REFER TO "SANITARY SEWER MANHOLES" SECTION OF THE SPECIAL PROVISIONS.

* DIMENSIONS TO BE CONFIRMED BY THE MANUFACTURER

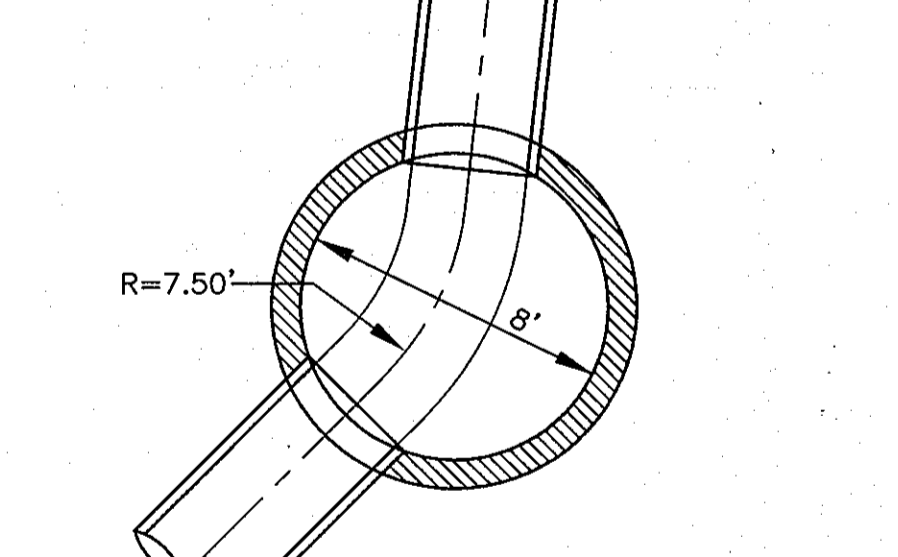
NOTE: "STANDARD DETAIL" REFERS TO DETAILS IN HOWARD COUNTY DESIGN MANUAL VOLUME IV - STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION.



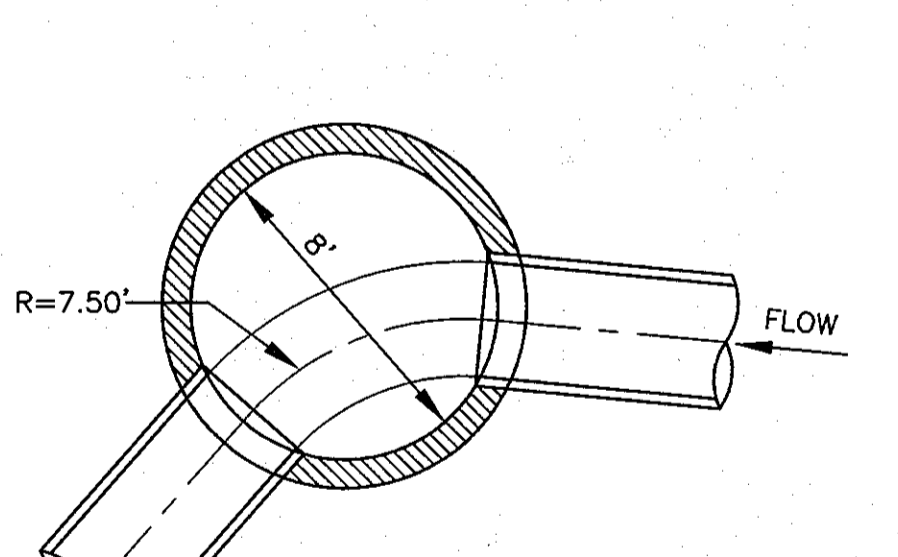
PLAN - MH 500



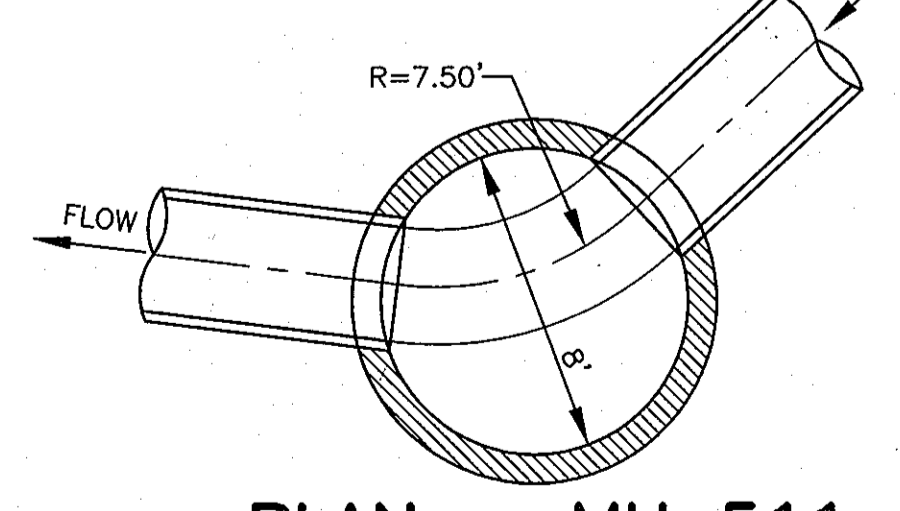
PLAN - MH 502



PLAN - MH 504



PLAN - MH 506



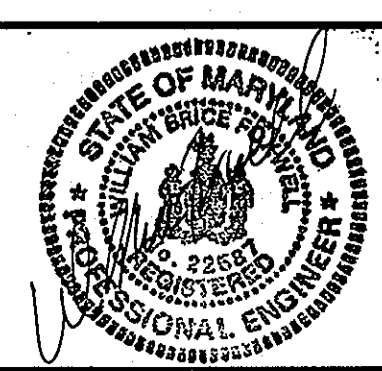
PLAN - MH 511

- NOTES:**
- THE CENTERLINE OF ALL PIPES ENTERING A MANHOLE SHALL INTERSECT WITHIN 1"± OF THE LONGITUDINAL AXIS OF THE MANHOLE BARREL (CENTER).
 - MANHOLE CHANNEL AND BENCH SHALL BE PRECAST OR FORMED USING SEWER BRICK (ASTM DESIGNATION C32-73, GRADE SM, SIZE NO. 1).
 - CHANNEL SHALL PROVIDE SMOOTH HYDRAULIC TRANSITION BETWEEN PIPES.
 - MINIMUM CENTERLINE CHANNEL RADIUS SHALL BE 2.5 x OUTLET PIPE DIAMETER.

MANHOLE CHANNEL CONFIGURATION DETAILS
SCALE: 1" = 5"

| | | | |
|---|----------------------------|--|----------------------------|
| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND | | | |
| <i>[Signature]</i> DIRECTOR OF PUBLIC WORKS | <i>[Signature]</i> DATE | <i>[Signature]</i> CHIEF, BUREAU OF ENGINEERING | <i>[Signature]</i> DATE |
| <i>[Signature]</i> CHIEF, BUREAU OF UTILITIES | <i>[Signature]</i> DATE | <i>[Signature]</i> CHIEF, UTILITY DESIGN DIVISION | <i>[Signature]</i> DATE |

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GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · LEVENS · SEAFORD · YORK
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|---------------|---------|----------|------|
| DES: D.A.V. | | | |
| DRN: M.A.D. | | | |
| CHK: W.B.F. | | | |
| DATE: 6/25/09 | BY: NO. | REVISION | DATE |

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| 600 SCALE MAP NO. 42 | BLOCK NO. 15, 16 & 22 |
|----------------------|-----------------------|

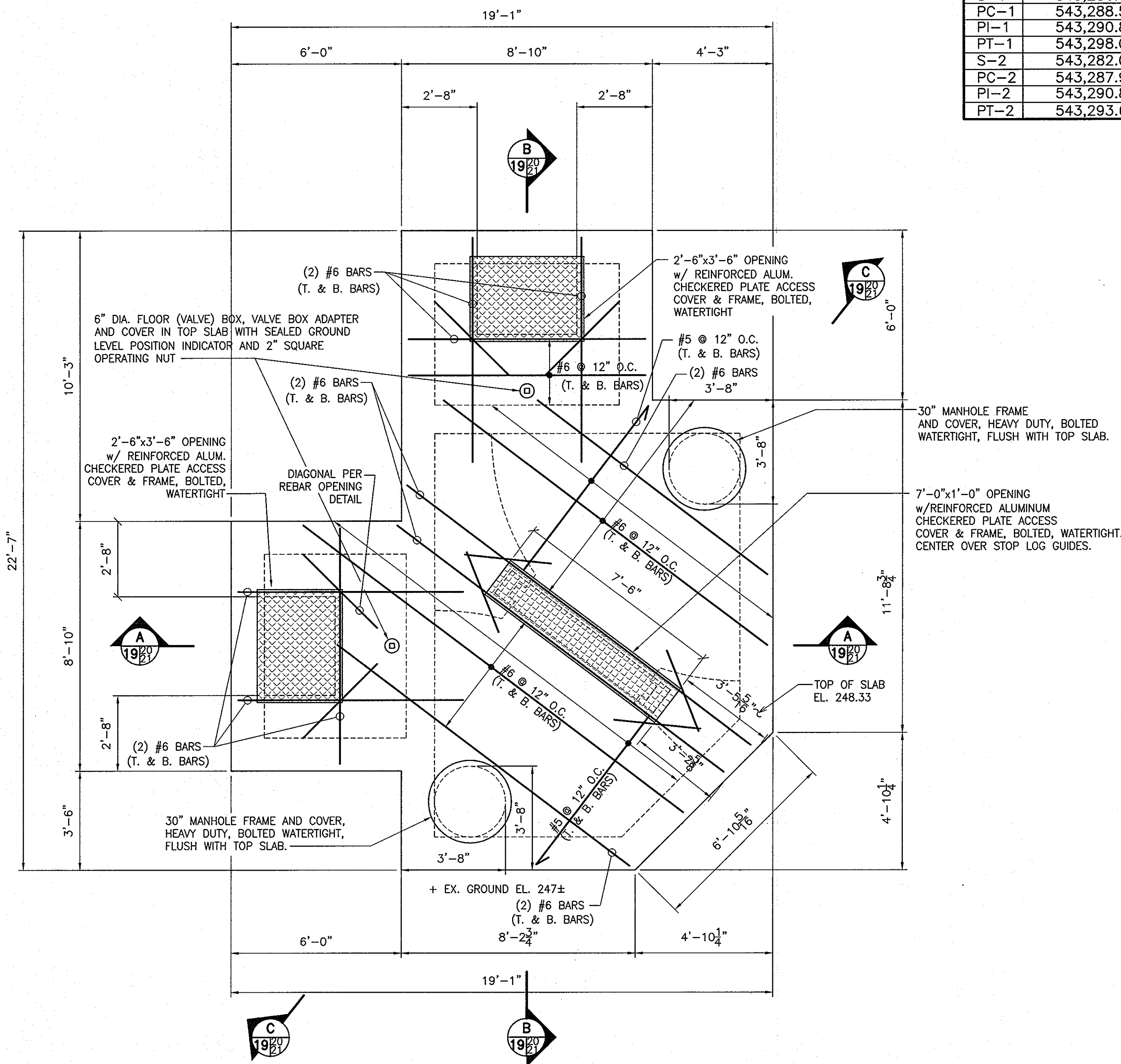
LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN
SHEET 18 OF 22

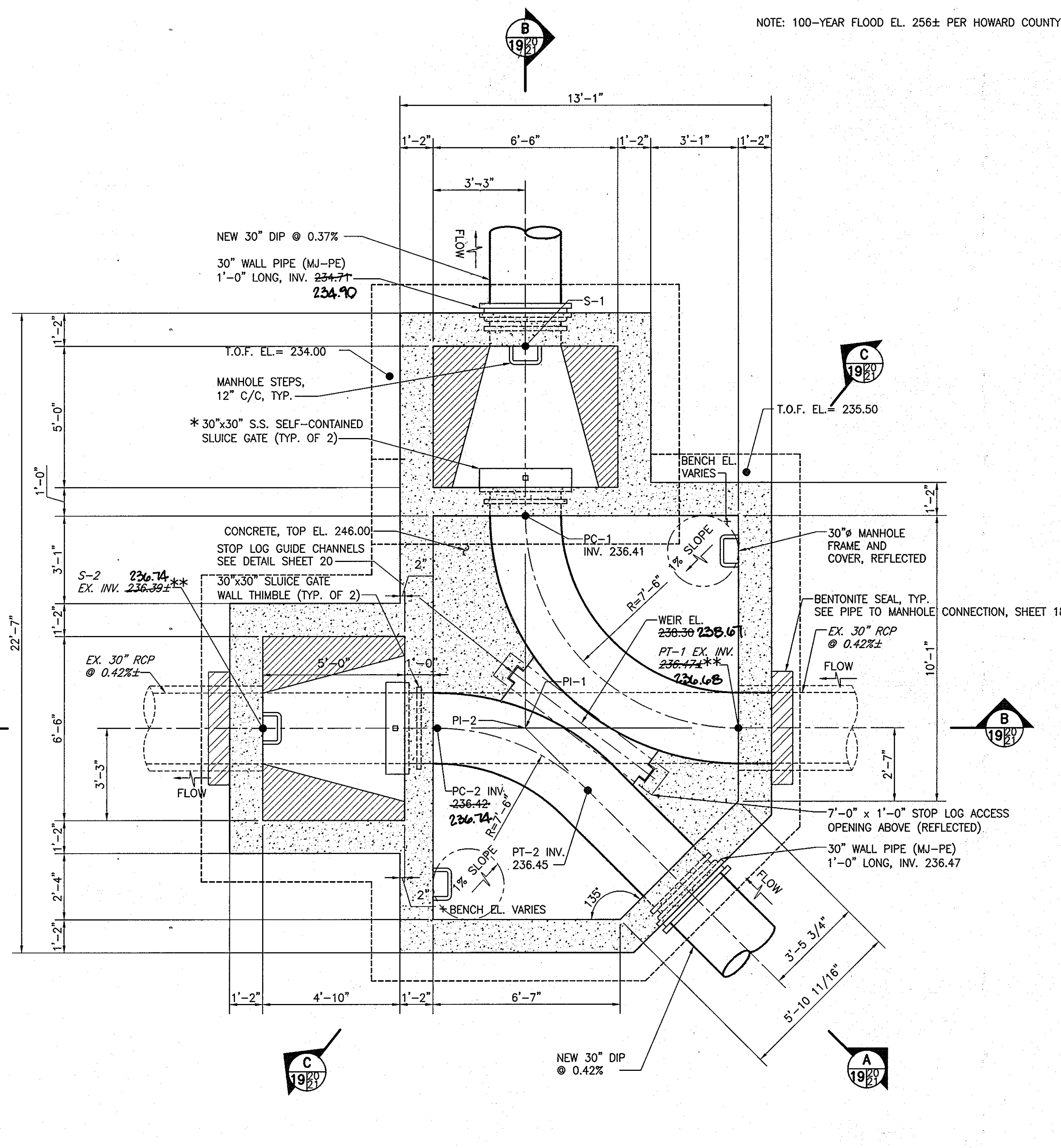
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AS-BUILT: 11-7-2011

| STAKEOUT DATA | | |
|---------------|------------|--------------|
| POINT | NORTHING | EASTING |
| S-1 | 543,286.72 | 1,359,394.97 |
| PC-1 | 543,288.56 | 1,359,400.68 |
| PI-1 | 543,290.86 | 1,359,407.82 |
| PT-1 | 543,298.00 | 1,359,405.52 |
| S-2 | 543,282.06 | 1,359,410.66 |
| PC-2 | 543,287.91 | 1,359,408.78 |
| PI-2 | 543,290.86 | 1,359,407.82 |
| PT-2 | 543,293.63 | 1,359,409.24 |



JUNCTION CHAMBER - TOP SLAB PLAN
SCALE: 3/8" = 1'-0"



JUNCTION CHAMBER - SECTIONAL PLAN
SCALE: 3/8" = 1'-0"

- NOTES:
- CONTRACTOR SHALL COORDINATE WITH THE SLUICE GATE AND STOP LOG MANUFACTURERS TO ENSURE THAT THE OPENINGS IN THE TOP SLAB ARE SUFFICIENT TO INSTALL AND REMOVE THEIR EQUIPMENT.
 - THIS PLAN ONLY SHOWS THE ADDITIONAL REINFORCING AROUND THE OPENINGS. REFER TO SHEET 21 FOR TOP SLAB REINFORCING STEEL.

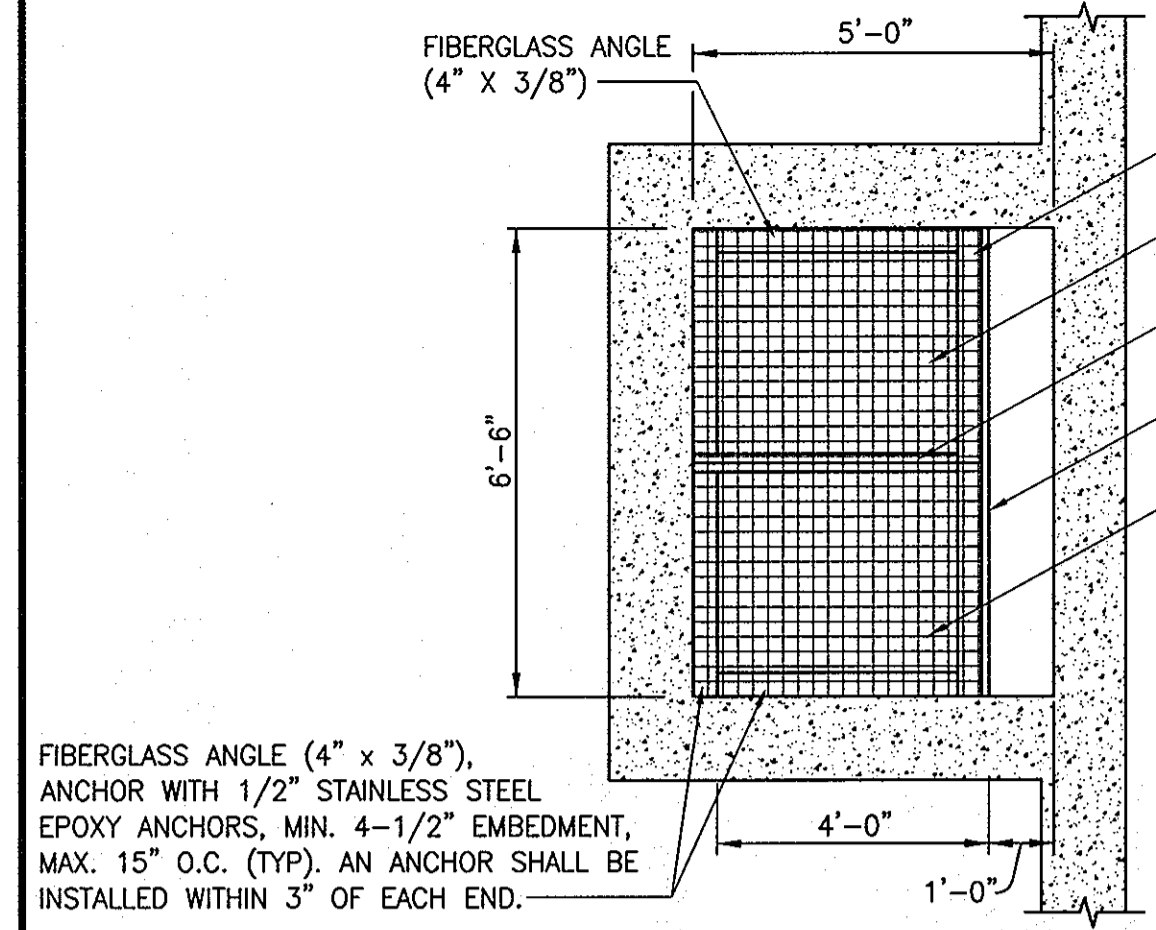
*NOTE: SLUICE GATE TO NEW 30" DIP SEWER SHALL REMAIN CLOSED, THE INLET OF THE NEW 30" DIP SHALL BE BLOCKED AND STOP LOGS REMOVED UNTIL ALL DOWNSTREAM SEWER CONTRACTS ARE ACCEPTED BY THE COUNTY (REFER TO SEWER NOTE NO. 5, SHEET 3). SEWAGE SHALL NOT, UNDER ANY CIRCUMSTANCES, BE DISCHARGED TO THE NEW SEWER UNTIL WRITTEN PERMISSION IS PROVIDED BY THE COUNTY.

**NOTE: POINTS PT-1 AND S-2 SHALL BE CENTERED ON THE EXISTING 30 INCH DIAMETER SEWER. THE EXISTING SEWER LOCATION AND INVERTS AT PT-1 AND S-2 SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO SEWER CONSTRUCTION. THE CONTRACTOR SHALL TEST PIT BOTH LOCATIONS AND VERIFY THE TOP OF PIPE AND BOTTOM OF PIPE ELEVATIONS AND SHALL ALSO SURVEY THE INCOMING SEWER INVERT AT EX. MANHOLE 1293 AND THE OUTGOING SEWER INVERT AT EX. MANHOLE 1294. THE CONTRACTOR SHALL IMMEDIATELY PROVIDE THIS INFORMATION TO THE ENGINEER AND NOTE ANY DISCREPANCIES.

- NOTES:
- THE JUNCTION CHAMBER REQUIRES AN INTERIOR LINER AND EXTERIOR WATERPROOFING IN ACCORDANCE WITH THE SPECIFICATIONS.
 - ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL BE COATED WITH A BITUMINOUS/ASPHALTIC COMPOUND, MINIMUM 10 MIL. THICK.
 - FOR STRUCTURAL DETAILS, SEE SHEET 21.

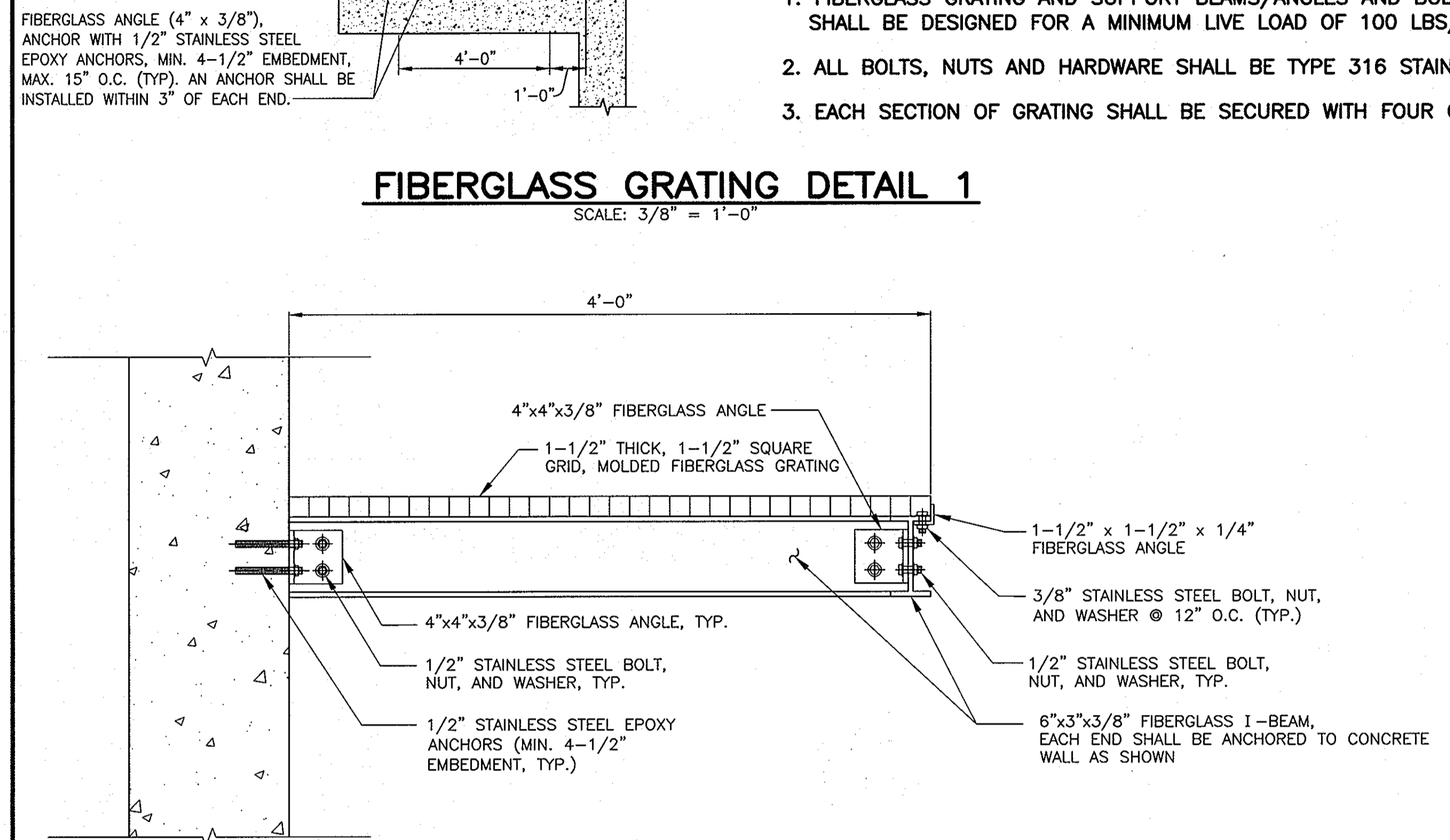
C:\DRAWINGS\2005\212_LITTLE PATUXENT_SEWER\DWG\CURRENT\CONTRACT_50-16-CHAMBER.dwg, 6/23/2009 4:28:23 PM, HP Designer, 1056.dwt by HPJ

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|---|--|---|--|--|-----|--|------|---|--|----------------------------------|
| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>[Signature]</i> Date: <i>[Date]</i> Chief, Bureau of Engineering: <i>[Signature]</i> Date: <i>[Date]</i> Chief, Bureau of Utilities: <i>[Signature]</i> Date: <i>[Date]</i> Chief, Utility Design Division: <i>[Signature]</i> Date: <i>[Date]</i> | | GMB GEORGE, MILES & BUHR, LLC ARCHITECTS & ENGINEERS SALESBURY • BALTIMORE • LEWES • SEAFORD • YORK www.gmbnet.com | | DES: C.G.H. DRN: H.B.E. CHK: A.R.M. DATE: 6/25/09 | | JUNCTION CHAMBER (STRUCTURE ST-1) PLANS | | LITTLE PATUXENT PARALLEL INTERCEPTOR SEWER CAPITAL PROJECT NO. S-6175 CONTRACT NO. 20-4535 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND | | SCALE AS SHOWN SHEET 19 OF 22 |
| | | | | BY | NO. | REVISION | DATE | 600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22 | | AS-BUILT: 11-7-2011 |

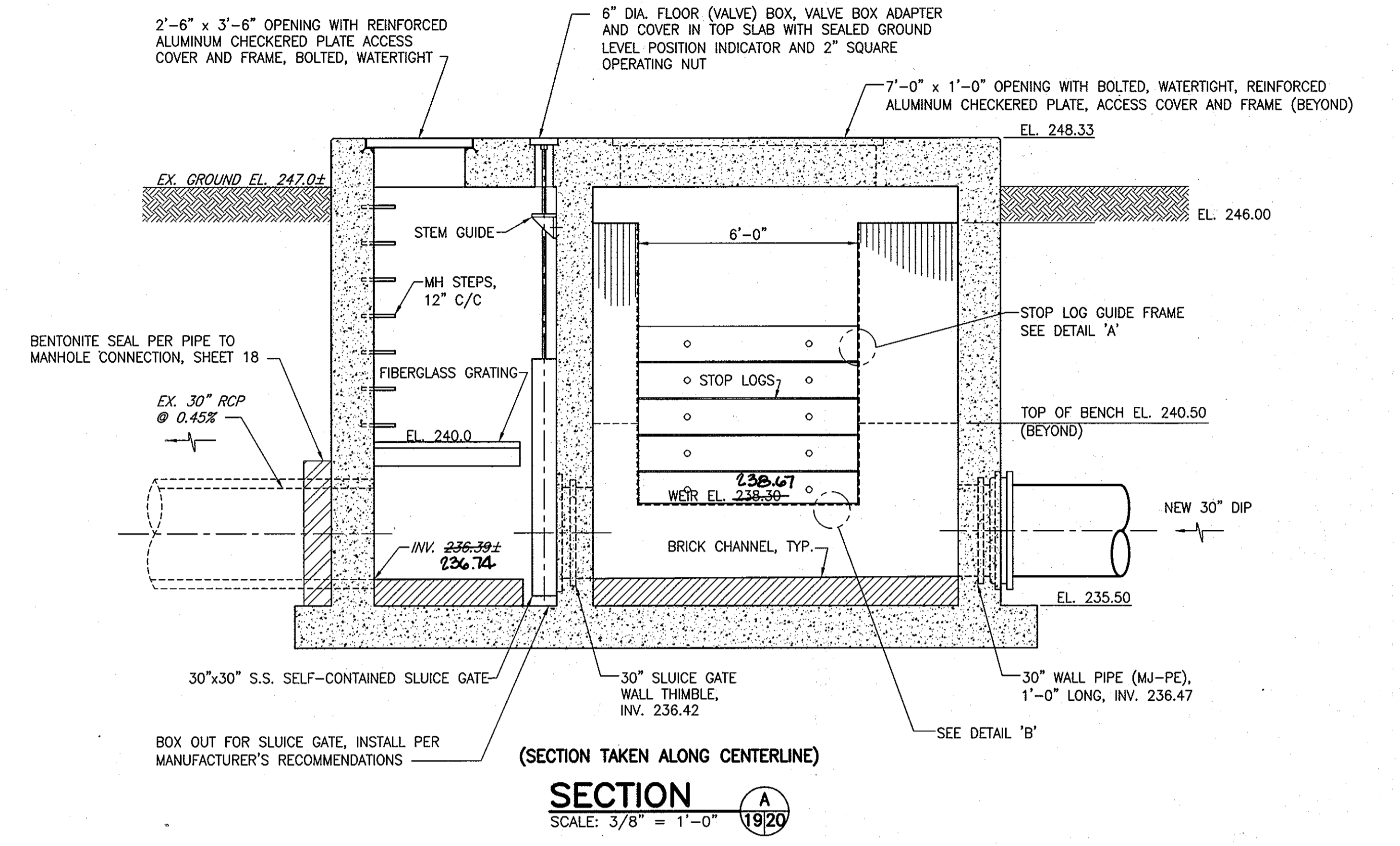


- NOTES:**
1. FIBERGLASS GRATING AND SUPPORT BEAMS/ANGLES AND BOLTS SHALL BE DESIGNED FOR A MINIMUM LIVE LOAD OF 100 LBS/SQUARE FOOT.
 2. ALL BOLTS, NUTS AND HARDWARE SHALL BE TYPE 316 STAINLESS STEEL.
 3. EACH SECTION OF GRATING SHALL BE SECURED WITH FOUR GRATING CLIPS.

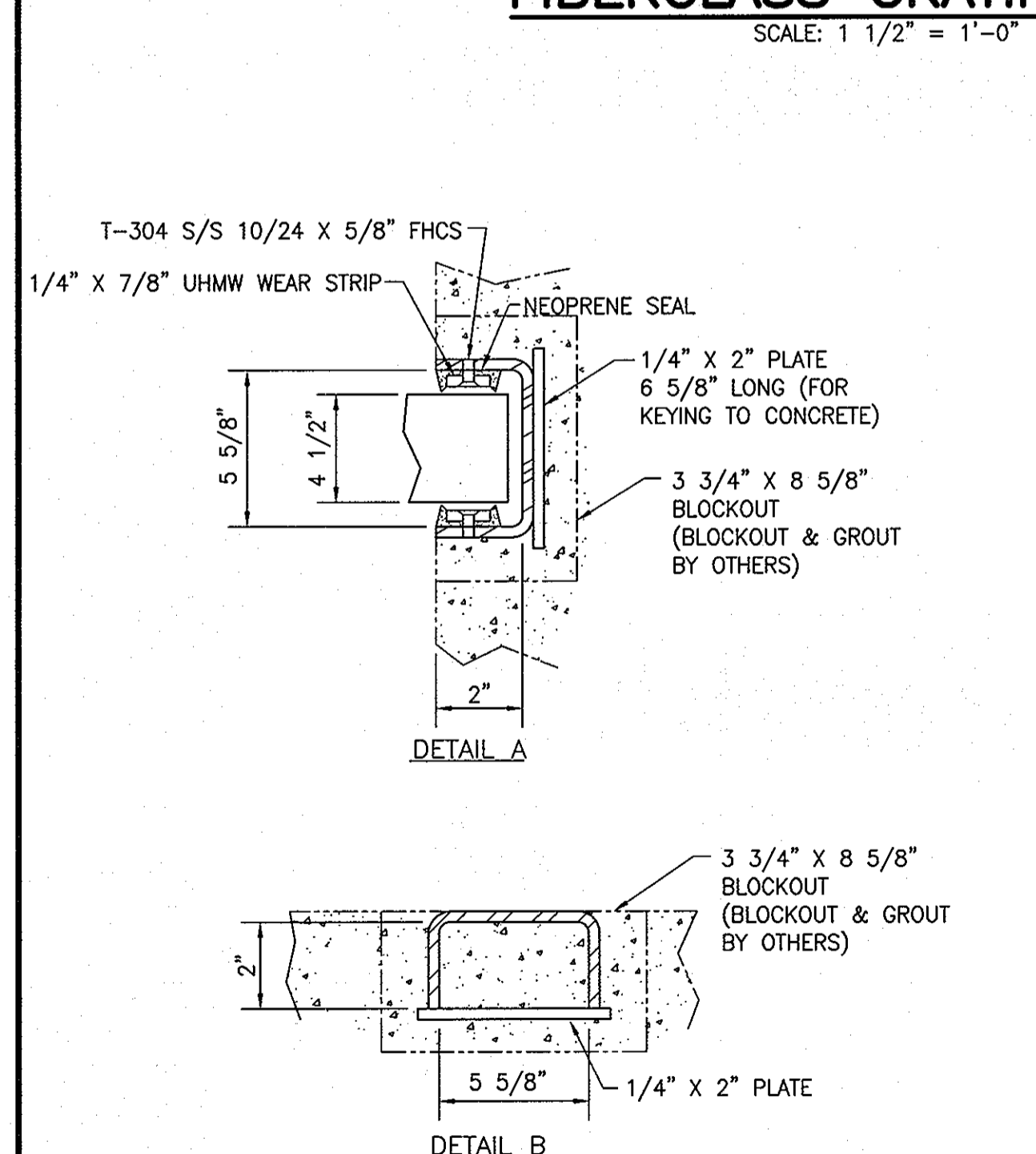
FIBERGLASS GRATING DETAIL 1
SCALE: 3/8" = 1'-0"



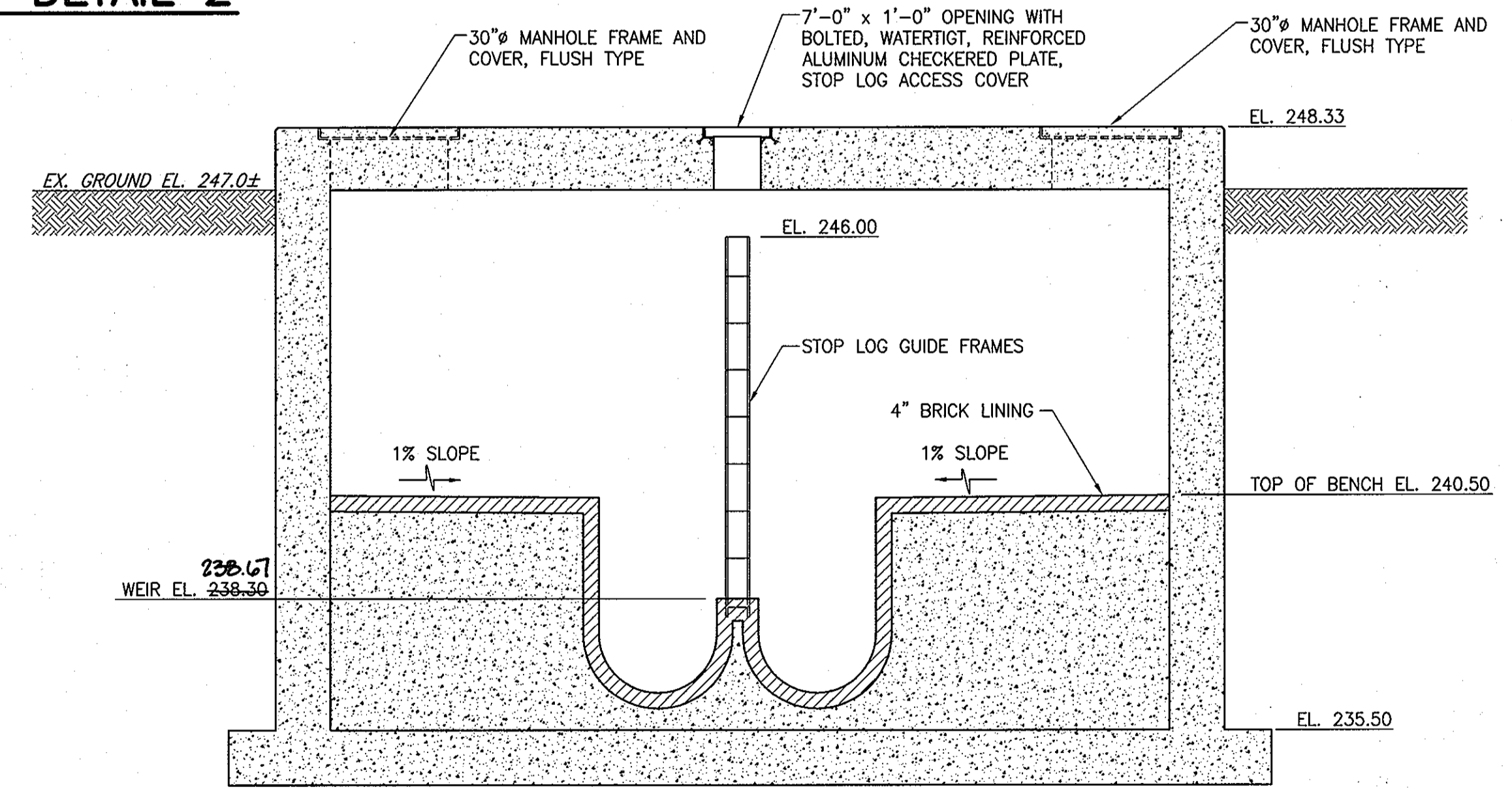
FIBERGLASS GRATING DETAIL 2
SCALE: 1 1/2" = 1'-0"



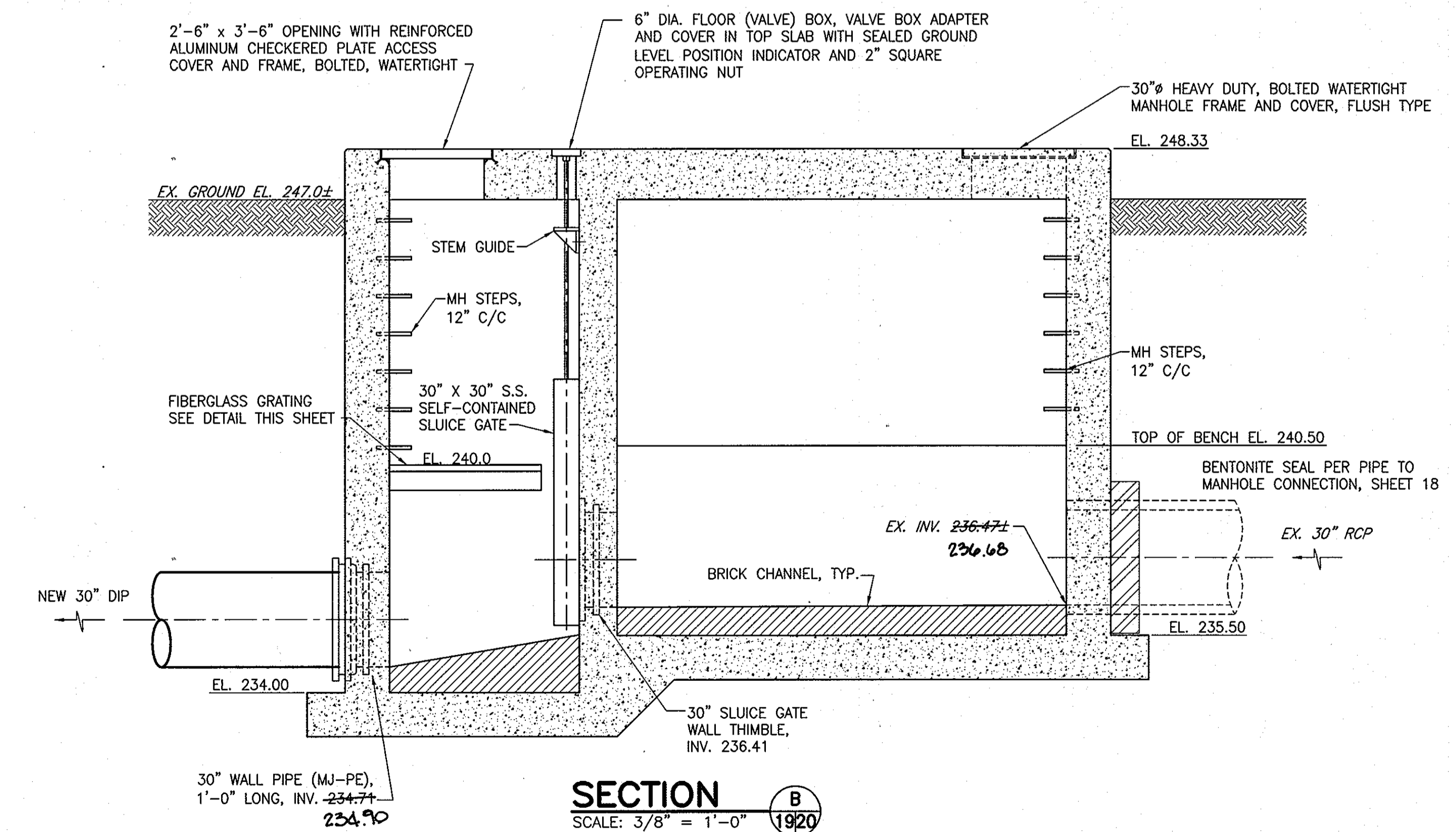
SECTION A
SCALE: 3/8" = 1'-0" 19/20



STOPLOG GUIDE FRAME DETAILS
NO SCALE



SECTION C
SCALE: 3/8" = 1'-0" 19/20



SECTION B
SCALE: 3/8" = 1'-0" 19/20

NOTE: 100-YEAR FLOOD EL. 256± PER HOWARD COUNTY

NOTE: FOR STRUCTURAL DETAILS, SEE SHEET 21.

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|--|--|--|--|--|--|
| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND | | GMB GEORGE, MILES & BUHR, LLC ARCHITECTS & ENGINEERS SALISBURY • BALTIMORE • LEWES • SEAFORD • YORK www.gmbnet.com | | DES: D.A.V. DRN: M.A.D. CHK: W.B.F. DATE: 6/25/09 | |
| Steve Sharau acting for CHIEF, BUREAU OF ENGINEERING DATE: 6/25/09 | Steve Sharau acting for CHIEF, BUREAU OF ENGINEERING DATE: 6/25/09 | Steve Sharau acting for CHIEF, BUREAU OF ENGINEERING DATE: 6/25/09 | Steve Sharau acting for CHIEF, BUREAU OF ENGINEERING DATE: 6/25/09 | Steve Sharau acting for CHIEF, BUREAU OF ENGINEERING DATE: 6/25/09 | Steve Sharau acting for CHIEF, BUREAU OF ENGINEERING DATE: 6/25/09 |

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| 600 SCALE MAP NO. 42 | BLOCK NO. 15, 16 & 22 |
| BY | NO. |
| REVISION | DATE |

| | |
|---|--|
| JUNCTION CHAMBER (STRUCTURE ST-1) SECTIONS AND DETAILS | |
| LITTLE PATUXENT PARALLEL INTERCEPTOR SEWER CAPITAL PROJECT NO. S-6175 CONTRACT NO. 20-4535 6TH ELECTION DISTRICT HOWARD COUNTY, MARYLAND | |

| | | | |
|-------------|-------------|-------------|---------------|
| DES: D.A.V. | DRN: M.A.D. | CHK: W.B.F. | DATE: 6/25/09 |
| BY | NO. | REVISION | DATE |

| |
|----------------|
| SCALE AS SHOWN |
| SHEET 20 OF 22 |

AS-BUILT: 11-7-2011

GENERAL NOTES

ALL DIMENSIONS, LOCATIONS AND ELEVATIONS OF EXISTING STRUCTURES SHOWN ON THE CONTRACT DRAWINGS, SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

THE SIZES AND LOCATIONS OF EQUIPMENT PADS AND PEDESTALS, AS WELL AS EQUIPMENT RELATED FLOOR AND SLAB OPENINGS, ARE DEPENDENT UPON THE ACTUAL EQUIPMENT FURNISHED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ALL SUCH ITEMS. NO DIMENSIONS INDICATED ON THESE DRAWINGS SHALL BE ALTERED WITHOUT THE ENGINEER'S APPROVAL. ALL EQUIPMENT PADS AND OTHER EQUIPMENT SUPPORTS REQUIRED, MAY NOT HAVE BEEN SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO CIVIL, ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR SIZES AND LOCATIONS OF SUCH PADS AND SUPPORTS.

FOR NOTES PERTAINING TO INDIVIDUAL STRUCTURES, SEE DRAWINGS FOR THOSE STRUCTURES.

CODES

"INTERNATIONAL BUILDING CODE," 2006, INTERNATIONAL CODE COUNCIL.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION, (AISC) "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS - ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN" 1989.

AMERICAN CONCRETE INSTITUTE, (ACI-318-95) "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."

AMERICAN CONCRETE INSTITUTE, (ACI-350-01) "CODE REQUIREMENTS, FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES."

DESIGN LOADS

DEAD LOADS - ACTUAL WEIGHT OF STRUCTURE.

WEIGHT OF SOIL - 100 P.C.F. TO RESIST UPLIFT.
120 P.C.F. DEAD LOAD

LIVE LOADS - IN AREAS NOT OCCUPIED BY EQUIPMENT OR SUBJECT TO TRUCK LOADING.

FLOOR 100 P.S.F.
EQUIPMENT - ACTUAL WEIGHT - 150 P.S.F. MINIMUM
TRUCK - H20-44 AASHTO LOADING
WALKWAYS - 100 P.S.F.
STAIRWAY - 100 P.S.F.
ROOF - 30 P.S.F.

SNOW LOAD - GROUND SNOW LOAD - 20 PSF

WIND LOAD - BASIC WIND SPEED - 90 MPH (EXPOSURE C)

SEISMIC LOAD - DESIGN CATEGORY B

EARTH PRESSURES - LATERAL EARTH PRESSURES ARE BASED ON A FRICTION ANGLE OF 30°. BACKFILL MATERIAL SHALL NOT BE PLACED AGAINST FOUNDATION WALLS UNTIL THE UPPER BRACING COMPONENTS ARE IN PLACE FOR AT LEAST 7 DAYS.

CONCRETE

ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS.

REINFORCED CONCRETE SHALL BE DETAILED AND CONSTRUCTED IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE, (ACI 301-99) "SPECIFICATIONS FOR STRUCTURAL CONCRETE."

ALL REINFORCEMENT SHALL CONFORM TO ASTM SPECIFICATION A615, DEFORMED, GRADE 60.

WELDED WIRE FABRIC SHALL CONFORM TO ASTM SPECIFICATION A185.

UNLESS OTHERWISE NOTED ON THE DRAWINGS, CONCRETE COVER FOR REINFORCEMENT SHALL BE AS FOLLOWS:

- A. UNFORMED CONCRETE BOTTOM BARS IN FOOTINGS AND SLABS ON EARTH OR GRAVEL-----3".
- B. BEAMS, SLABS, COLUMNS AND WALLS, EXPOSED TO GROUND, WEATHER OR PROCESS LIQUID AFTER THE REMOVAL OF FORMS-----2".
- C. BEAMS, COLUMNS AND PIERS NOT EXPOSED TO WEATHER OR PROCESS LIQUID-----1 1/2".
- D. STRUCTURAL SLABS NOT EXPOSED TO GROUND, WEATHER, PROCESS LIQUID OR TRUCK TRAFFIC-----1".
- E. STRUCTURAL SLAB NOT EXPOSED TO GROUND, WEATHER OR PROCESS LIQUID, BUT SUBJECT TO TRUCK TRAFFIC:

TOP OF SLAB-----1 1/2".
BOTTOM OF SLAB-----1".

ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4", UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL SUBMIT SHOP DETAILS OF REINFORCING STEEL BEFORE PROCEEDING WITH FABRICATION.

REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE, (ACI 315) "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT" AND (ACI SP-66) "ACI DETAILING MANUAL 1994."

ALL SPLICES FOR REINFORCING BARS NOT DIMENSIONED ON THE DRAWINGS, SHALL BE DETAILED AS TABULATED ON THIS DRAWING.

CONCRETE SLAB AND WALLS SHALL BE POURED BETWEEN INDICATED JOINTS, ALLOWING A MINIMUM PERIOD OF 3 DAYS TO ELAPSE BETWEEN ADJACENT POURS.

CONSTRUCTION JOINTS SHALL BE AS DETAILED ON THE DRAWINGS AND NO ADDITIONAL JOINTS SHALL BE USED, NOR ANY OMITTED, EXCEPT BY WRITTEN AUTHORIZATION OF THE ENGINEER. APPROVED ADDITIONAL CONSTRUCTION JOINTS SHALL NOT RESULT IN ADDITIONAL EXPENSE TO THE OWNER.

WATERSTOPS SHALL BE 3/8" THICK x 6" WIDE, PAUL MURPHY FLAT DUMBBELL TYPE, AS NOTED ON THE DRAWINGS. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.

ANCHOR BOLTS AND EQUIPMENT PEDESTALS SHALL BE SIZED AND LOCATED AS REQUIRED TO SUIT EQUIPMENT FURNISHED.

SEE ARCHITECTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL EMBEDDED ITEMS SUCH AS SLEEVES, ANCHORS, ELECTRICAL CONDUITS, OPENINGS, WHICH MAY INTERFERE WITH CONCRETE CONSTRUCTION. ALL PIPING AND OTHER EMBEDDED ITEMS ARE NOT SHOWN ON STRUCTURAL DRAWINGS.

WHERE A BEAM FRAMES INTO A WALL, IF A CONSTRUCTION JOINT IS NOT INDICATED AT THE BOTTOM OF THE BEAM, A POCKET SHALL BE PROVIDED IN THE WALL FOR BEAM BEARING. THE DEPTH OF THE POCKET SHALL BE FULL THICKNESS OF THE WALL.

FOUNDATION

ALL FOUNDATIONS SHALL BE FOUNDED ON SOIL HAVING BEARING CAPACITY OF 3000 PSF (AS DETERMINED BY THE GEOTECHNICAL ENGINEER, EBA ENGINEERING, INC. MAY 2008.) AT THE ELEVATIONS SHOWN ON THE STRUCTURAL DRAWINGS. WHERE FOUNDATIONS ARE FOUND ON FILL THE GEOTECHNICAL ENGINEER SHALL VERIFY ITS CAPACITY.

FOR MECHANICAL AND ELECTRICAL WORK TO BE INCORPORATED IN FOUNDATION WORK, SEE MECHANICAL AND ELECTRICAL DRAWINGS.

ALL EXCAVATIONS SHALL BE KEPT DRY. STANDING WATER SHALL NOT BE ALLOWED IN EXCAVATIONS.

BEFORE PLACING ANY CONCRETE ON SUB GRADE, THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL ENGINEER.

A STRUCTURAL SLAB SHALL BE USED WHEN UNCOMPACTED FILL EXCEEDS 8".

THE CONTRACTOR SHALL VERIFY THE BEARING CAPACITY OF THE BEARING SOILS IN THE FOOTING EXCAVATION PRIOR TO CASTING ANY FOOTINGS. WRITTEN VERIFICATION SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER.

REFER TO THE SPECIFICATIONS AND SOILS REPORT (IF AVAILABLE) FOR THE SITE PREPARATION REQUIREMENTS.

SHOP DRAWINGS

THE GENERAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL STRUCTURAL ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS FOR APPROVAL. THE STRUCTURAL ENGINEER WILL NOT BE RESPONSIBLE FOR THE STRUCTURAL CERTIFICATION AND DESIGN OF THE PROJECT IF THE GENERAL CONTRACTOR FAILS TO OBTAIN APPROVAL OF THE SHOP DRAWINGS. THE GENERAL CONTRACTOR SHALL INFORM THE STRUCTURAL ENGINEER IN WRITING CONCERNING DEVIATIONS AND/OR OMISSIONS FROM THE CONTRACT DOCUMENTS AT THE TIME OF SHOP DRAWING SUBMISSION. THE GENERAL CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS AND SHALL MAKE ALL CORRECTIONS HE DEEMS NECESSARY BEFORE SUBMISSION. THE GENERAL CONTRACTOR SHALL STATE ON THE SHOP DRAWINGS THAT CONTRACT DOCUMENT REQUIREMENTS HAVE BEEN MET AND THAT ALL DIMENSIONS, CONDITIONS AND QUANTITIES HAVE BEEN REVIEWED AND VERIFIED AS SHOWN AND/OR CORRECTED ON THE SHOP DRAWINGS.

MISCELLANEOUS ITEMS

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS, AND DRAWINGS OF OTHER TRADES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THE WORK OF ALL TRADES IS COORDINATED WITH THE STRUCTURAL WORK.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, FURNISHING, ERECTING, AND REMOVING ANY SHORING AND BRACING REQUIRED DURING CONSTRUCTION.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL SAFETY REGULATIONS, PROGRAMS AND PRECAUTIONS RELATED TO ALL WORK ON THIS PROJECT.

CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF PERSONS AND PROPERTY EITHER ON OR ADJACENT TO THE PROJECT AND SHALL PROTECT SAME AGAINST INJURY, DAMAGE OR LOSS.

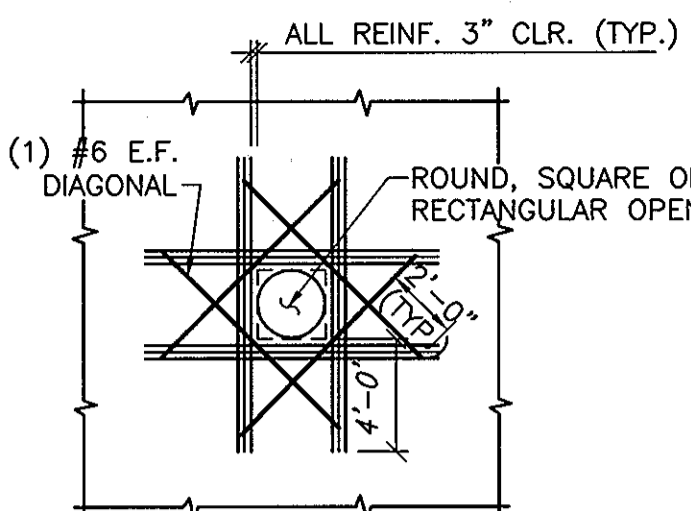
NO OPENING NOR ANY CHANGES IN SIZE, DIMENSION OR LOCATION SHALL BE MADE IN ANY STRUCTURAL ELEMENTS WITHOUT WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.

THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED ON THE STRUCTURE. SUCH LOADS SHALL NOT EXCEED THE CAPACITY OF THE STRUCTURE AT ANY TIME.

THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION, AND ANY TEMPORARY BRACING OR SUPPORT REQUIRED TO ACCOMMODATE THE CONTRACTOR'S MEANS AND METHODS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH NEW WORK IN AREAS AFFECTED BY EXISTING CONDITIONS. STRUCTURAL ENGINEER SHALL BE INFORMED IN WRITING OF CONFLICTS BETWEEN EXISTING AND PROPOSED NEW CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL DIMENSIONS SHOWN ON THE CONTRACT DOCUMENTS. INCONSISTENCIES ON THE STRUCTURAL DRAWINGS OR BETWEEN THE STRUCTURAL DRAWINGS AND ANY OTHER CONTRACT, SHOP, FABRICATION, OR OTHER DRAWINGS OR INFORMATION SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH AFFECTED WORK.

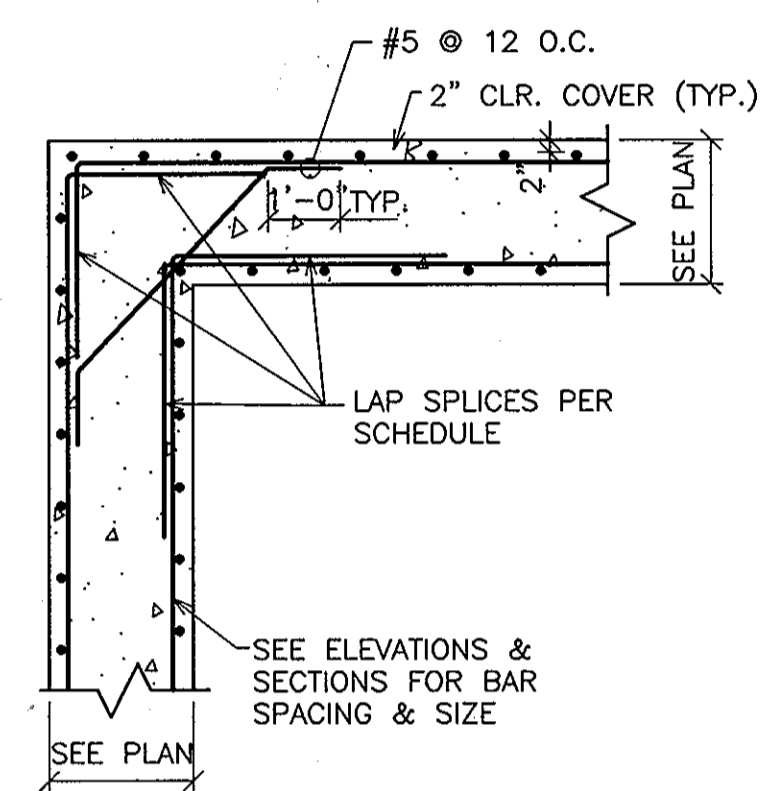


NOTE:

1. PROVIDE ADDITIONAL REINFORCING, (MINIMUM OF ONE-HALF THE NUMBER OF PRINCIPLE REINFORCING BARS BEING INTERRUPTED BY THE OPENING AT EACH FACE ON EACH SIDE.
2. FOR OPENINGS LESS THAN 12" DIA., NO ADDITIONAL REINFORCING IS REQUIRED PROVIDED, NO REINFORCING IS INTERRUPTED BY THE OPENING.

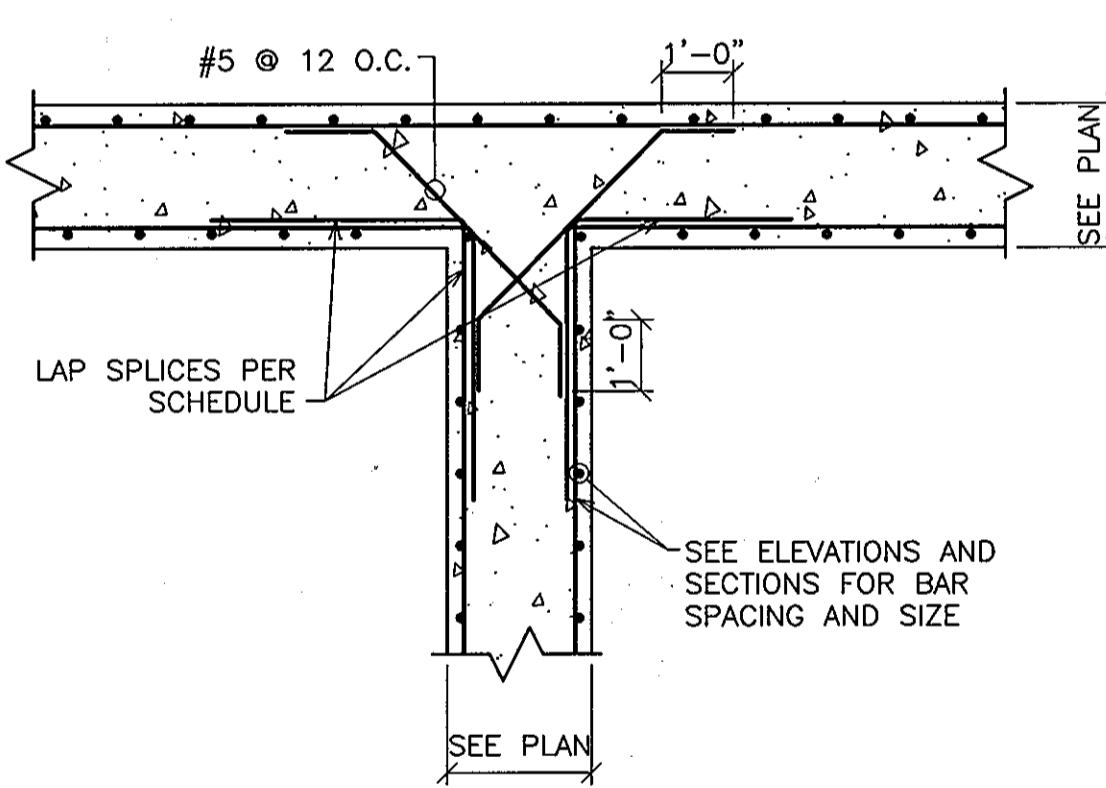
REBAR OPENING DETAIL

N.T.S.



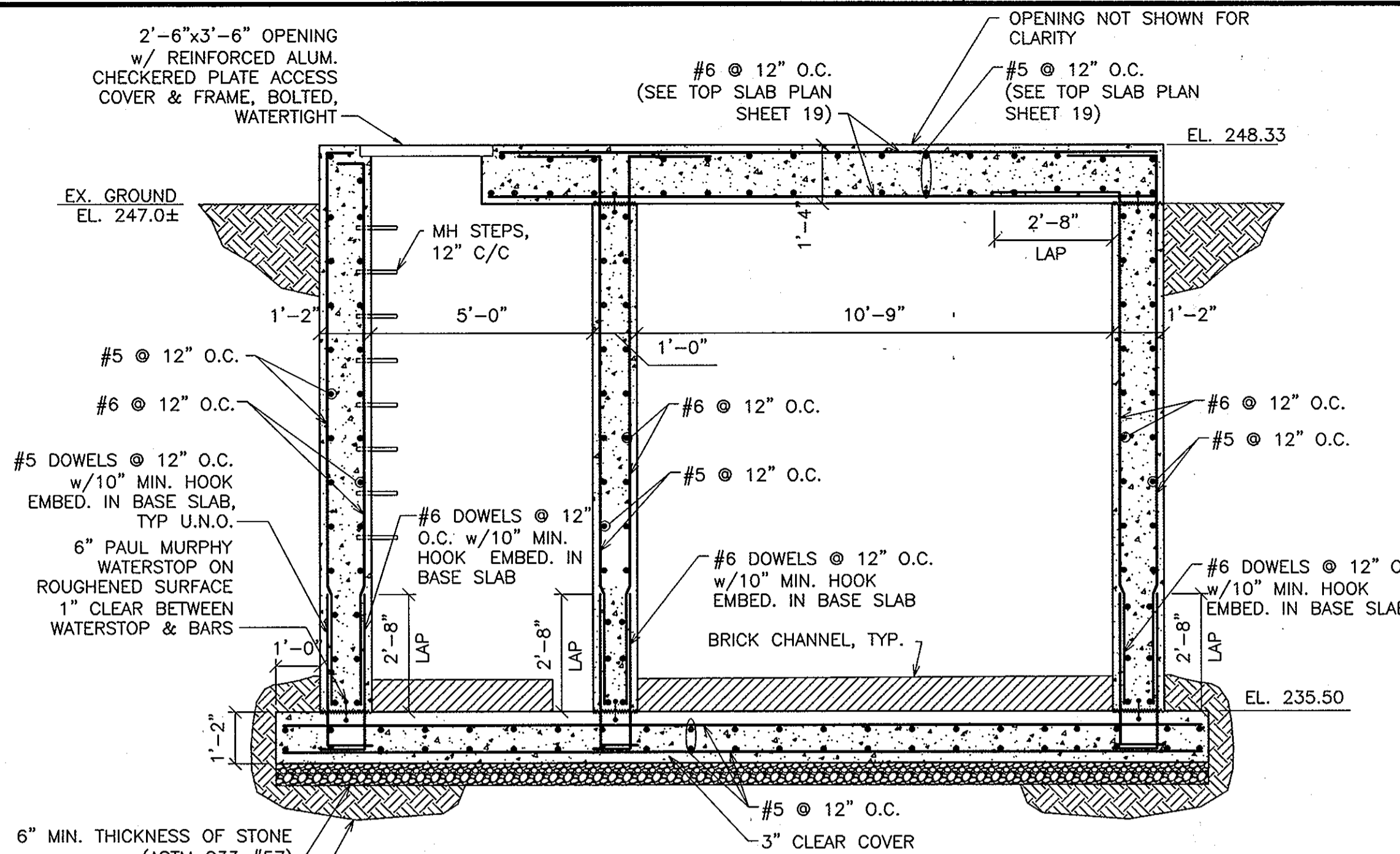
TYPICAL CORNER DETAIL

N.T.S.



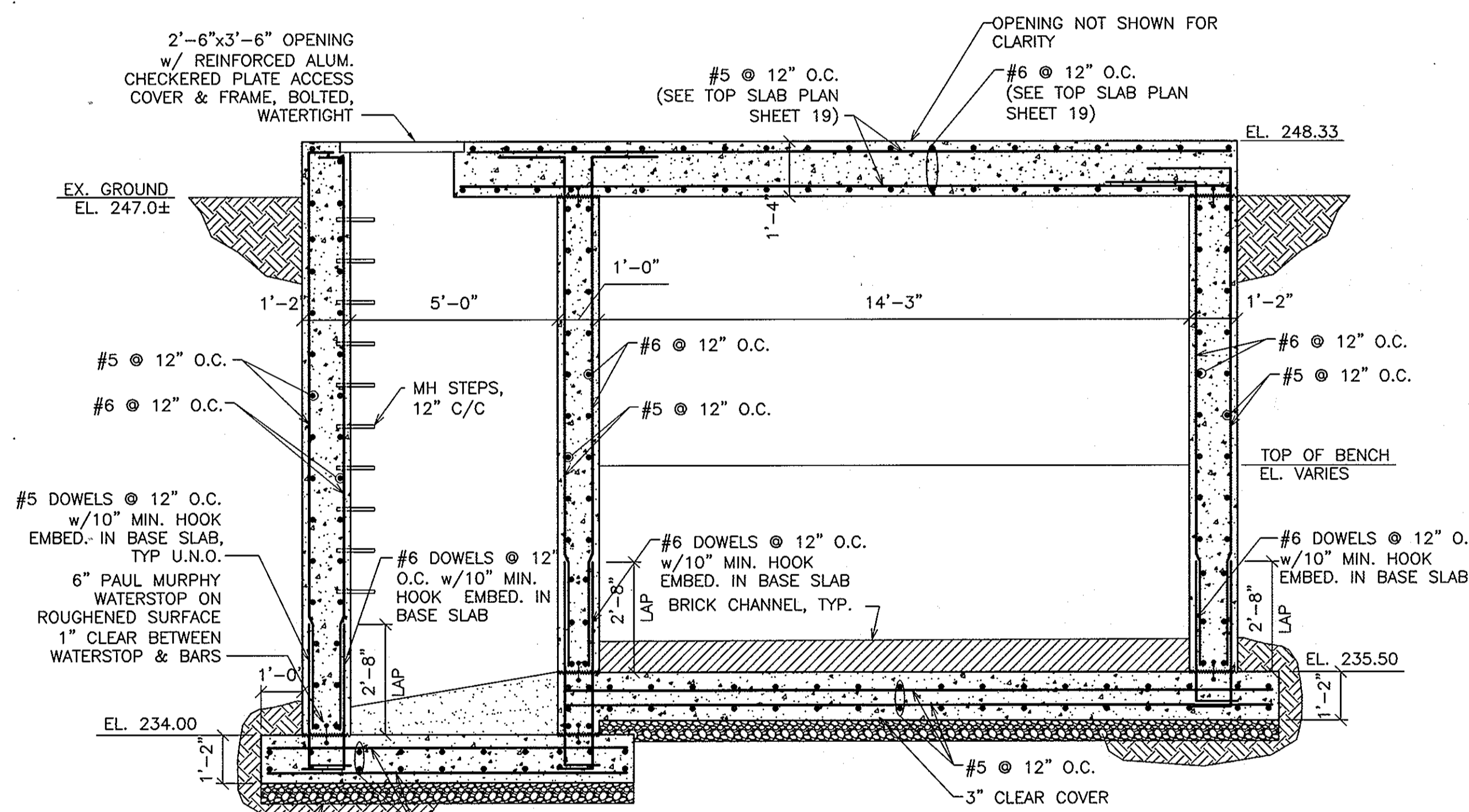
TYPICAL INTERSECTION DETAIL

N.T.S.



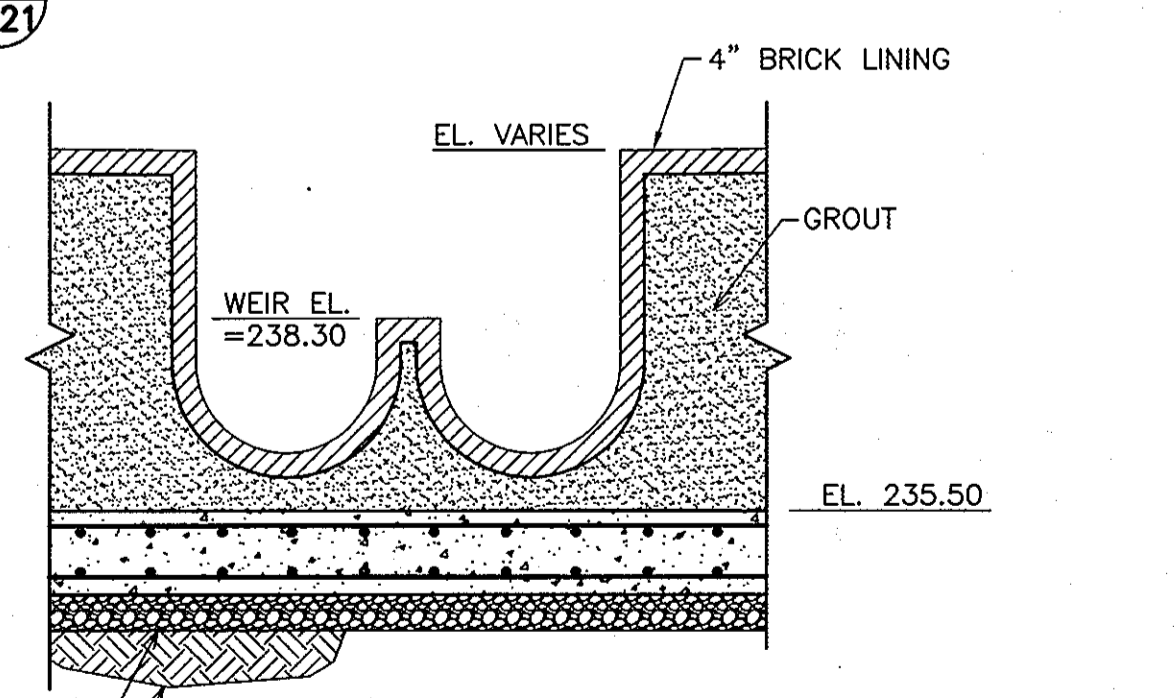
SECTION A

SCALE: 3/8" = 1'-0" 19/21



SECTION B

SCALE: 3/8" = 1'-0" 19/21



SECTION C

SCALE: 3/8" = 1'-0" 19/21

| CONDITIONS CASES | | | | |
|------------------|---|---|--|--------------------------------|
| BAR SIZE | BEAM, COLUMN, AND INNER LAYER BARS IN SLABS AND WALLS | CONDITIONS OTHER THAN PREVIOUS CASES INCLUDING SLAB/WALL OUTER LAYER BARS | CLEAR COVER < BAR Ø OR CLEAR COVER < 2 BAR Ø | LAP SPLICE NOMENCLATURE DETAIL |
| #4 | 20" | 20" | 21" | |
| #5 | 24" | 24" | 32" | |
| #6 | 29" | 32" | 45" | |
| #7 | 33" | 42" | 60" | |
| #8 | 39" | 55" | 78" | |
| #9 | 50" | 71" | 99" | |
| #10 | 64" | 89" | 127" | |
| #11 | 78" | 108" | 155" | |

LAP SPLICES OF REINFORCING BARS

(f'c=4000 psi) NON EPOXY COATED

G:\DRAWINGS\2005\212_LITTLE PATUXENT_SEWER\DWG\CURRENT\Detail_S-C-1-CHAMBER.dwg, 6/23/2009 4:21:22 PM, HP Designer, 1055CM by HP.dwg

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Jan 7 6/26/09
DIRECTOR OF PUBLIC WORKS DATE

Steve Shanahan acting for 6/26/09
CHIEF, BUREAU OF ENGINEERING DATE

Shan C. Lee 6/26/09
CHIEF, BUREAU OF UTILITIES DATE

Dr. Dan 6/25/09
CHIEF, UTILITY DESIGN DIVISION DATE

GMB
GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY · BALTIMORE · LEWES · SEAFORD · YORK
www.gmbnet.com

DES: C.G.H.
DRN: H.B.E.
CHK: A.R.M.
DATE: 6/25/09

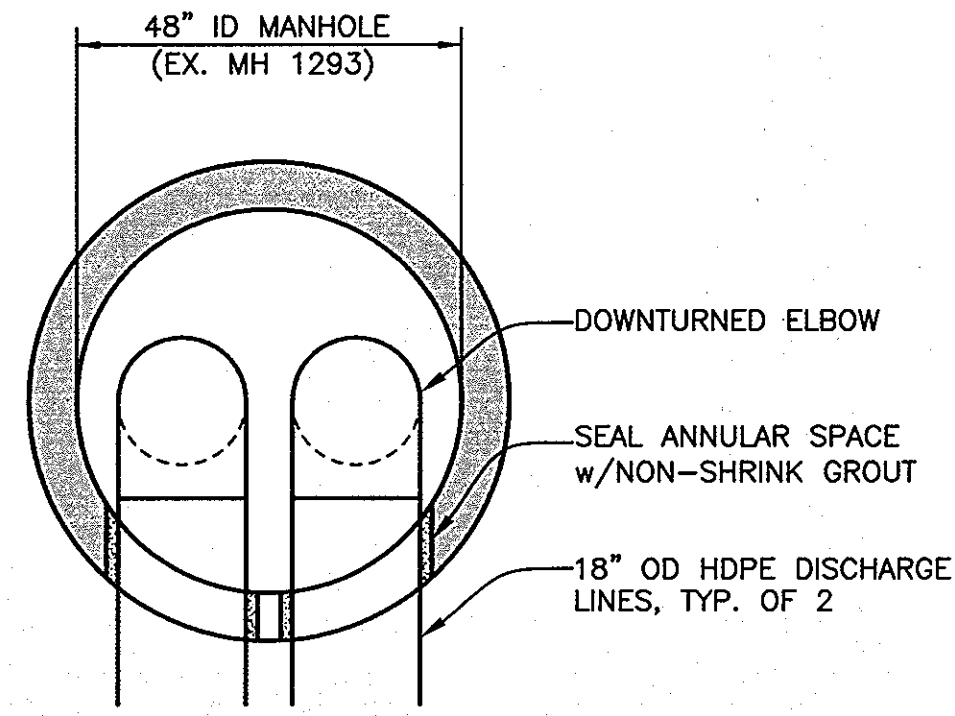
| BY | NO. | REVISION | DATE |
|----|-----|----------|------|
| | | | |

STRUCTURE ST-1
STRUCTURAL SECTIONS AND DETAILS

600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

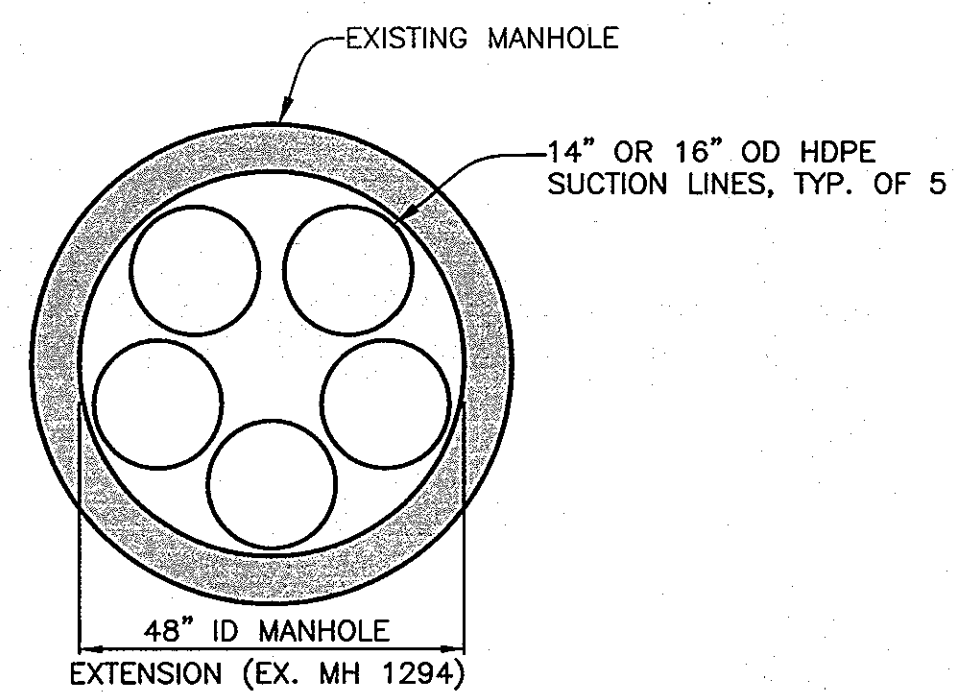
SCALE AS SHOWN
SHEET 21 OF 22



NOTE: HOLES IN MANHOLE WALL FOR DISCHARGE PIPES SHALL BE REPAIRED/PLUGGED WHEN WORK IS COMPLETE.

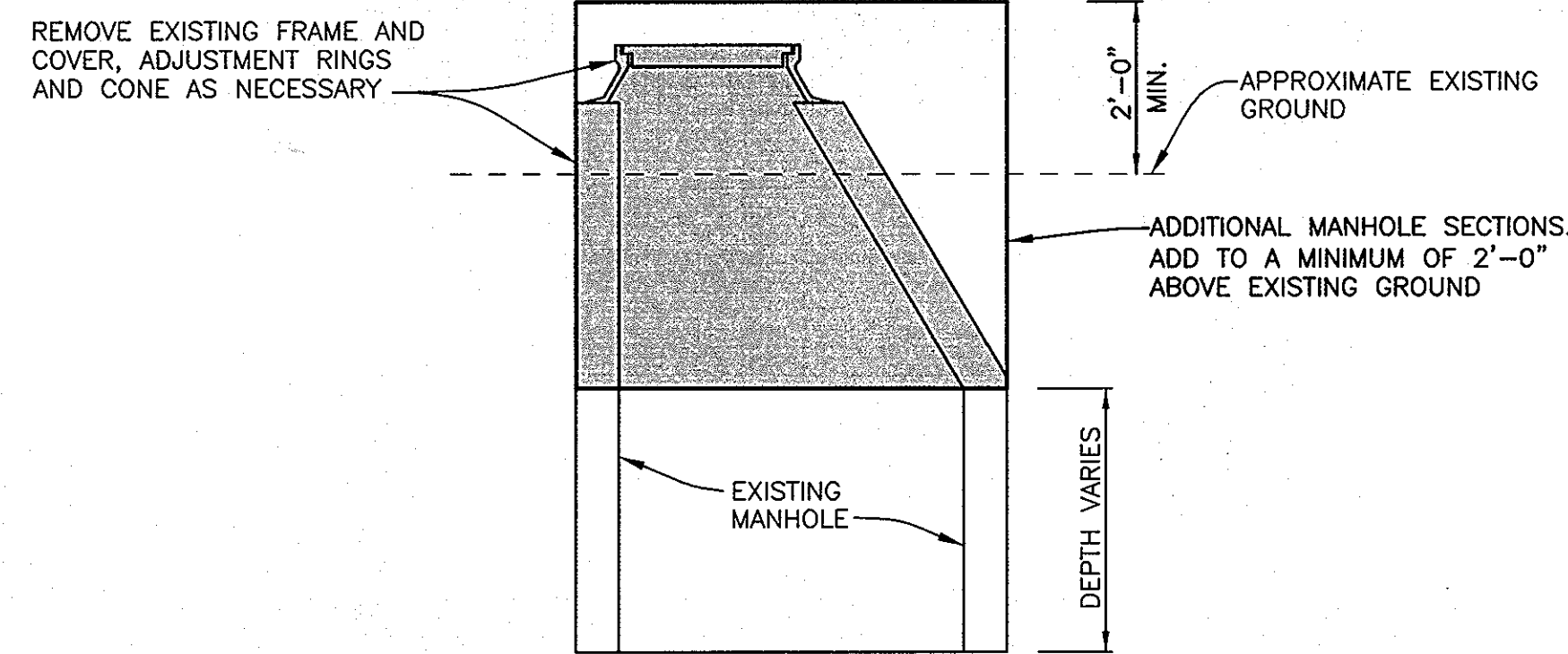
POINT OF DISCHARGE

NO SCALE



POINT OF SUCTION

NO SCALE

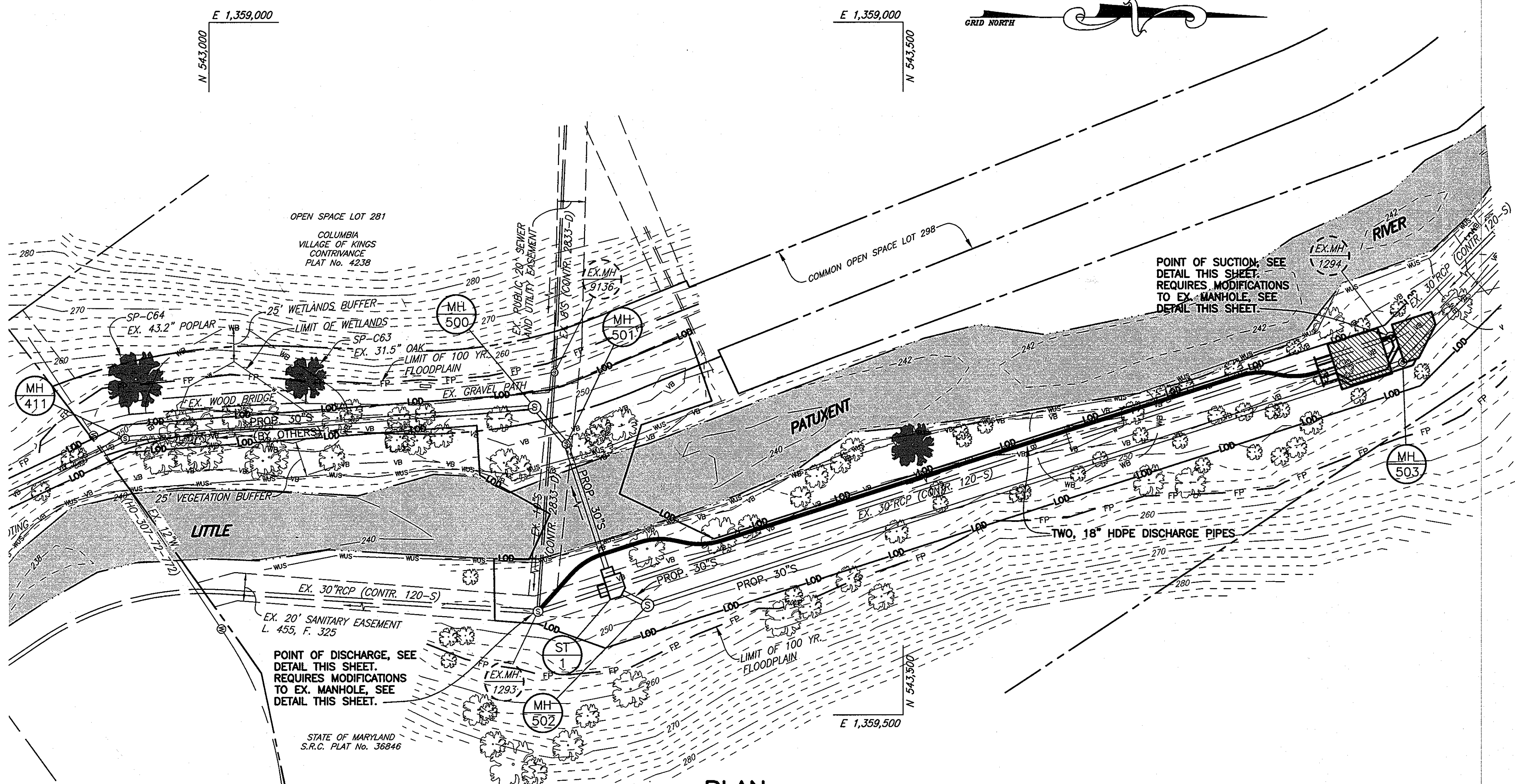


MODIFICATIONS TO EXISTING MANHOLES 1293 AND 1294

NO SCALE

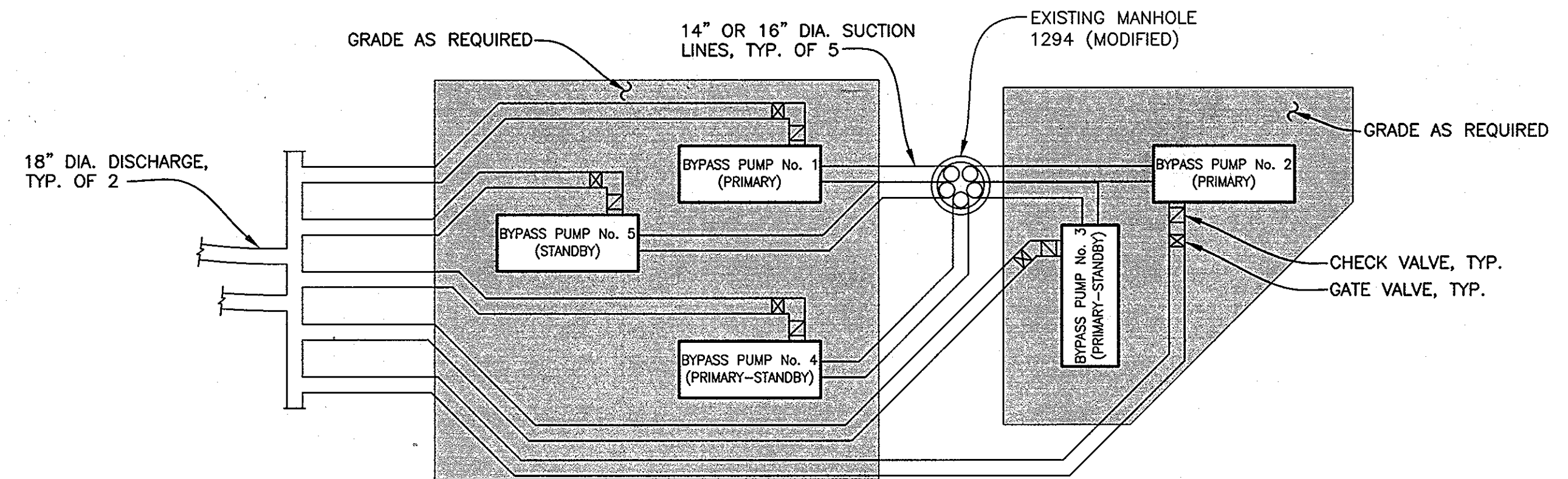
NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGNING, FURNISHING, INSTALLING, OPERATING AND MAINTAINING THE BYPASS SYSTEM, AS PER THE SPECIFICATIONS.
2. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS TO VERIFY DESIGN AND SIZING OF THE BYPASS SYSTEM.
3. THE CONTRACTOR SHALL BE RESPONSIBLE, INCLUDING PAYMENT OF PENALTIES, FOR ANY VIOLATIONS AND SPILLAGE OF SEWER.
4. EACH PUMP SHALL BE FITTED WITH AN INDIVIDUAL SUCTION PIPE. MANIFOLD SUCTION SHALL NOT BE ALLOWED.
5. NO STORMWATER SHALL BE ALLOWED TO ENTER POINT OF SUCTION MANHOLE.



PLAN

SCALE: 1" = 50'



NOTES:

1. STANDBY PUMP(S) SHALL BE CONNECTED AT ALL TIMES.
2. PUMPS SHALL BE GODWIN DRI-PRIME MODEL DPC 300 (OR APPROVED EQUAL).
3. PROTECTION FENCE SHALL BE INSTALLED ALONG EAST SIDE OF PUMPS, SUCTION LINES AND DISCHARGE LINES AS A VISUAL BARRIER TO CONSTRUCTION TRAFFIC.

BYPASS PUMP SCHEMATIC LAYOUT

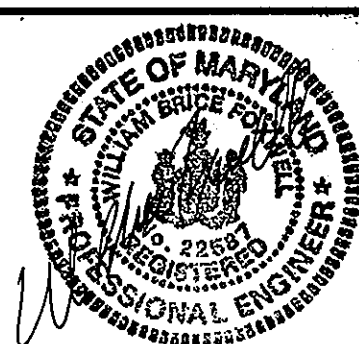
NO SCALE

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *John A. Gledits*
 Chief, Bureau of Engineering: *Steve Slavan*
 Chief, Bureau of Utilities: *Shirley Chen*
 Chief, Utility Design Division: *Dr. Dan P... 6/25/09*

GMB

GEORGE, MILES & BUHR, LLC
ARCHITECTS & ENGINEERS
SALISBURY • BALTIMORE • LEWES • SEAFORD • YORK



| | |
|---------------|----------|
| DES: D.A.V. | |
| DRN: M.A.D. | |
| CHK: W.B.F. | |
| DATE: 6/25/09 | |
| BY: NO. | REVISION |
| | |
| | |
| | |

BYPASS PUMPING PLAN

600 SCALE MAP NO. 42 BLOCK NO. 15, 16 & 22

LITTLE PATUXENT
PARALLEL INTERCEPTOR SEWER
CAPITAL PROJECT NO. S-6175
CONTRACT NO. 20-4535
6TH ELECTION DISTRICT
HOWARD COUNTY, MARYLAND

SCALE AS SHOWN

SHEET 22 OF 22

AS BUILT: 11-7-2011