

GENERAL NOTES:

- APPROXIMATE LOCATIONS OF EXISTING MAINS ARE SHOWN. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT EXISTING MAINS AND SERVICES AND MAINTAINS 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 ON APRIL, 2020 BY DANIEL CONSULTANTS, INCORPORATED.
- 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 STATIONS NO. 2413 AND NO. 24FB. ALL VERTICAL CONTROLS ARE BASED ON NAVD '88. CONTROL POINTS, (I.E., IRON BARS, CROSS CUTS ON CONCRETE STRUCTURES) ARE PROVIDED ON SHEET C-001 OF THIS PLANSET.
- 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 DRAWING, AND FOR MATERIALS AND CONSTRUCTION METHODS, USE HOWARD COUNTY DESIGN MANUAL, VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION (LATEST EDITION). THE CONTRACTOR SHALL HAVE A COPY OF 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.....800-252-1133
 BGE (CONTRACTOR SERVICES).....410-637-8713
 BGE (EMERGENCY).....410-685-0123
 BUREAU OF UTILITIES.....410-313-4900
 COLONIAL PIPELINE CO.....410-795-1390
 MISS UTILITY.....800-257-7777
 STATE HIGHWAY ADMINISTRATION.....410-531-5533
 VERIZON.....800-743-0033

- TREES AND SHRUBS ARE TO BE PROTECTED FROM DAMAGE TO THE MAXIMUM EXTENT. TREES AND SHRUBS LOCATED WITHIN THE CONSTRUCTION STRIP ARE NOT TO BE REMOVED OR DAMAGED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL REMOVE TREES, STUMPS AND ROOTS ALONG THE LINE OF EXCAVATION. PAYMENT FOR SUCH REMOVAL SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CONSTRUCTION OF THE MAIN.
- THE CONTRACTOR SHALL NOTIFY THE BUREAU OF HIGHWAYS, HOWARD COUNTY, AT (410) 313-7450 AT LEAST FIVE (5) 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.

WATER NOTES:

- ALL WATER MAINS SHALL BE D.I.P. CLASS 54 UNLESS OTHERWISE NOTED.
- TOPS OF ALL WATER MAINS SHALL HAVE A MINIMUM OF 3'-6" OF COVER UNLESS OTHERWISE NOTED.
- VALVES ADJACENT TO TEES SHALL BE STRAPPED TO TEES.
- ALL FITTINGS SHALL BE BUTTRESSED OR ANCHORED WITH CONCRETE IN ACCORDANCE WITH STANDARD DETAILS UNLESS OTHERWISE PROVIDED FOR ON THE DRAWINGS.
- FIRE HYDRANTS SHALL BE SET TO THE BURY LINE ELEVATIONS SHOWN ON THE DRAWINGS. ALL FIRE HYDRANTS SHALL BE INSTALLED IN ACCORDANCE WITH STANDARD DETAILS. THE SOIL AROUND THE FIRE HYDRANT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 1000 AND SECTION 1005 OF THE STANDARD SPECIFICATIONS.
- THE CONTRACTOR SHALL NOT OPERATE ANY WATER MAIN VALVES ON THE EXISTING WATER SYSTEM.
- TRACER WIRES AND CONTINUITY TEST STATIONS SHALL BE INSTALLED ON ALL DIP AND PVC WATER MAINS IN ACCORDANCE WITH THE HOWARD COUNTY DESIGN MANUAL.
- FOR PVC WATER MAINS, ALL RECORDS FOR THE QUALITY CONTROL AND QUALIFICATION TEST REQUIREMENTS NOTED IN SECTION 5.1 OF THE AWWA STANDARD C900 FOR PVC PRESSURE PIPES SHALL BE SUBMITTED WITH THE PIPE MATERIAL CERTIFICATIONS OR SHOP DRAWINGS PRIOR TO APPROVAL OF THE MATERIAL FOR USE.
- UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS, SACRIFICIAL ANODES SHALL BE INSTALLED ON ALL VALVES AND METALLIC FITTINGS USED WITH PVC WATER MAINS IN ACCORDANCE WITH VOLUME IV, STANDARD SPECIFICATIONS AND DETAILS FOR CONSTRUCTION. SEVENTEEN (17) POUND MAGNESIUM ANODES SHALL BE INSTALLED ON ALL VALVES AND DUCTILE IRON FITTINGS INCLUDING RESTRAINTS AND HARNESSSES. TWELVE (12) POUND ZINC ANODES SHALL BE INSTALLED ON ALL STAINLESS STEEL FITTINGS AND SADDLES USED WITH PVC MAINS. ALL TEES USED WITH PVC MAINS SHALL BE DUCTILE IRON.
- PROPER ASSEMBLY OF GASKETED PVC PIPE JOINTS: THE MANUFACTURER'S INSERTION LINE OF GASKETED PVC PIPE JOINTS INDICATES THE MAXIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. AFTER ASSEMBLY OF THE JOINT THE INSERTION LINE SHALL REMAIN VISIBLE. DUAL INSERTION LINES ON GASKETED PVC PIPE INDICATE THE MAXIMUM AND MINIMUM DEPTH OF INSERTION OF THE SPIGOT INTO THE BELL. THE CONTRACTOR SHALL NOT OVER INSERT OR OVER HOME THE SPIGOT INTO THE BELL OF PVC PIPE.
- ALL CHANGES IN HORIZONTAL OR VERTICAL DIRECTION OF PVC WATER PIPE SHALL BE MADE WITH STANDARD BENDS, 5-DEGREE SWEEPS OR HIGH DEFLECTION (HD) COUPLINGS. NO BENDING OF THE PIPE OR DEFLECTING OF PVC PIPE JOINTS IS PERMITTED, WHERE HIGH DEFLECTION COUPLINGS OR 5-DEGREE SWEEPS ARE PERMITTED, THE CONTRACTOR SHALL PROVIDE ONE FULL PIPE LENGTH (20-FOOT LONG) ON EITHER SIDE OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP. THE CONTRACTOR SHALL USE A VIBRATORY PLATE COMPACTOR OR OTHER APPROVED MEANS TO THOROUGHLY COMPACT THE #57 STONE ON BOTH SIDES OF THE HIGH DEFLECTION COUPLING OR 5-DEGREE SWEEP, TAKING CARE NOT TO USE COMPACTOR EQUIPMENT DIRECTLY OVER THE FITTING.
- PVC HIGH DEFLECTION COUPLINGS SHALL BE LIMITED TO A TOTAL DEFLECTION OF 3-DEGREES (1-1/2 DEGREE ON EITHER END OF THE COUPLING), SHALL BE RATED FOR A MINIMUM 200 PSI MEETING THE REQUIREMENTS OF AWWA C900, SHALL HAVE A MINIMUM LAY LENGTH OF 9-INCHES AND SHALL HAVE CENTER STOPS. PVC HIGH DEFLECTION COUPLINGS SHALL BE CERTAIN TEED PVC HIGH DEFLECTION (HD) STOP COUPLINGS OR EQUAL.
- FIVE DEGREE SWEEPS SHALL BE BELL BY SPIGOT, RATED FOR A MINIMUM 225 PSI, DR18 MEETING THE REQUIREMENTS OF AWWA C900 AND SHALL BE MULTI FITTINGS (IPEX) BLUE BRUTE DR18 OR EQUAL.
- WHEN PVC HIGH DEFLECTION COUPLINGS OR PVC 5-DEGREE SWEEPS ARE USED TO FACILITATE CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENTS OF AWWA C-900 PVC PIPELINES, THE CONTRACTOR SHALL INSTALL DEVICES FOR THE PREVENTION OF OVER-INSERTION OF THE PVC PIPE SPIGOTS OR PLAIN ENDS INTO THE PUSH ON BELL JOINT ON BOTH SIDES OF THE HIGH DEFLECTION COUPLINGS AND 5 DEGREE SWEEPS. BELL STOPS SHALL BE PLACED AT THE PROPER INSERTION LINE FOR THE FITTING. THE BELL STOP SHALL BE MANUFACTURED OF DUCTILE IRON AND INCORPORATE AN EXPANSION RETENTION SPRING TO ALLOW FOR PIPE EXPANSION AND CONTRACTION. THE BELL STOPS SHALL BE SERIES 5000 MEGA-STOP, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL.

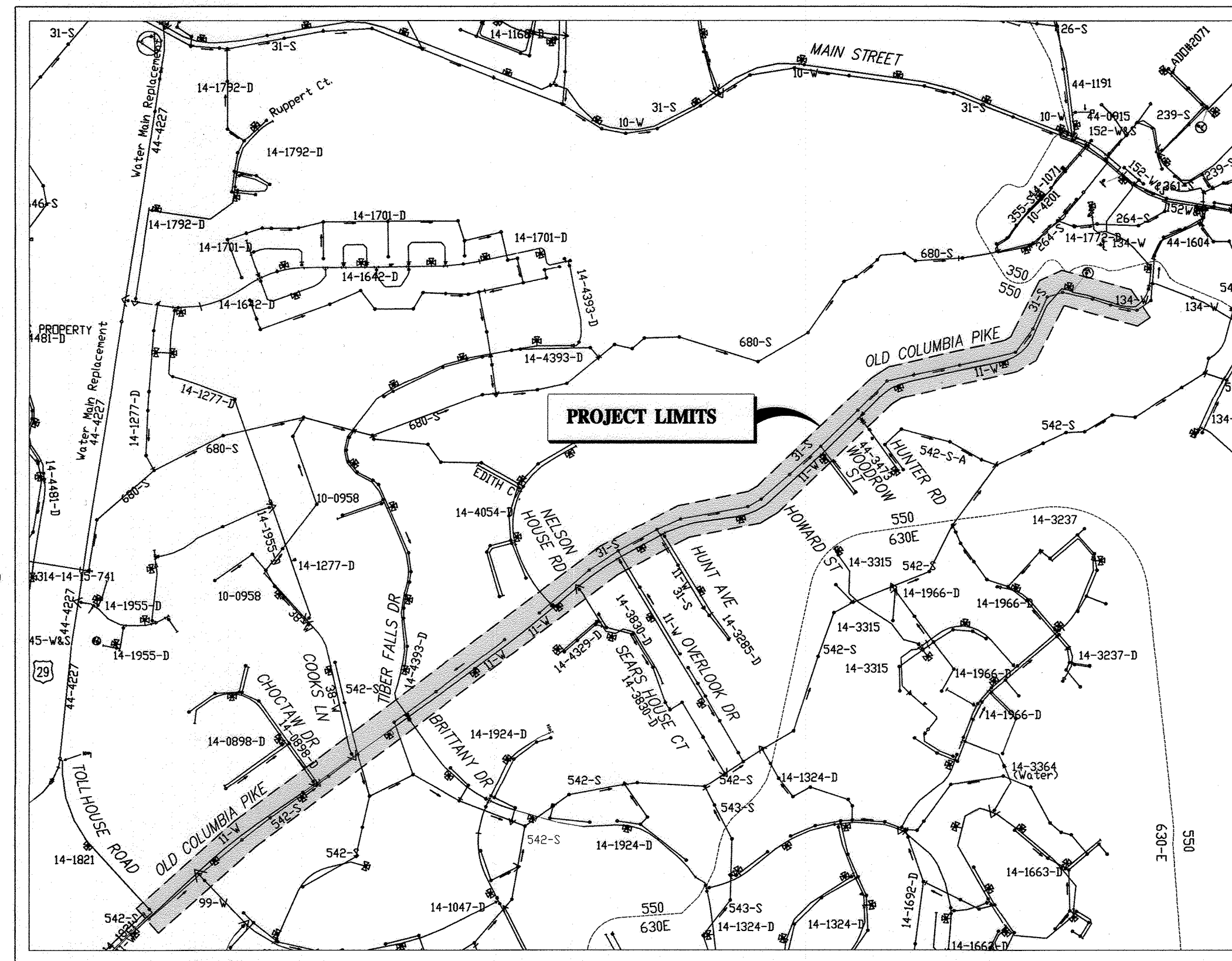
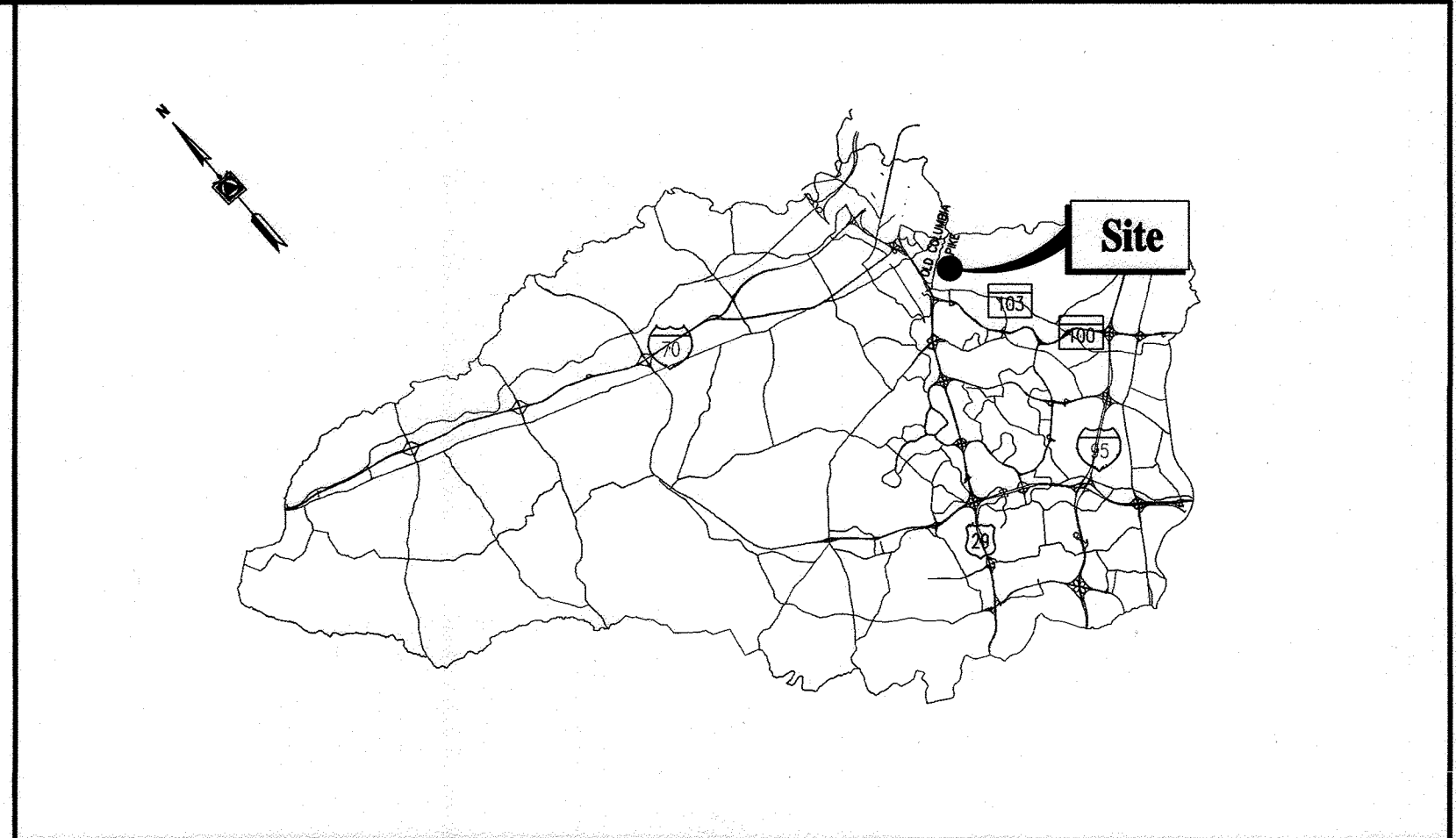
OLD COLUMBIA PIKE WATER MAIN REHABILITATION

HOWARD COUNTY AS-BUILTS

DEPARTMENT OF PUBLIC WORKS

CAPITAL PROJECT NO. W8330

CONTRACT NO. 44-5166



ABBREVIATIONS

- | | | | |
|-----|--------------------------|-----|-------------------|
| EX | EXISTING | E | ELECTRICAL |
| WHC | WATER HOUSE CONNECTION | SAN | SANITARY |
| SHC | SEWER HOUSE CONNECTION | EL | ELEVATION |
| W | WATER | INV | INVERT |
| DIP | DUCTILE IRON PIPE | TH | TEST HOLE |
| PVC | POLYVINYLCHLORIDE PIPE | SD | STORM DRAIN |
| V | VALVE | HB | HORIZONTAL BEND |
| PC | POINT OF CURVATURE | FO | FIBER OPTIC |
| RCP | REINFORCED CONCRETE PIPE | FB | FIRE HYDRANT |
| G | GAS | ROW | RIGHT OF WAY |
| HDC | HIGH DEFLECTION COUPLING | OC | OLD COLUMBIA PIKE |
| JD | JOINT DEFLECTION | | |

LEGEND

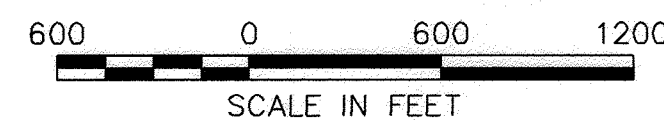
- | EXISTING | PROPOSED |
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QUANTITIES

| ITEM | UNIT | ESTIMATE | AS-BUILT | MATERIAL SUPPLIER |
|---------------------|------|----------|----------|--------------------------|
| 8" PVC PIPE | LF | 5,550 | 5,890.5 | NATIONAL PIPE |
| 6" PVC PIPE | LF | 150 | 129.5 | NATIONAL PIPE |
| 8" DIP | LF | 1,200 | 1063 | McWANE DUCTILE |
| 6" DIP | LF | 220 | 0 | |
| FIRE HYDRANT | EA | 14 | 14 | MUELLER CO. |
| 8" GATE VALVE | EA | 20 | 21 | MUELLER CO. |
| 6" GATE VALVE | EA | 17 | 6 | MUELLER CO. |
| 12" GATE VALVE | EA | 3 | 3 | MUELLER CO. |
| 3/4" COPPER SERVICE | LF | 750 | 1010 | CAMBRIDGE-LEE INDUSTRIES |
| 1" COPPER SERVICE | LF | 300 | 483 | CAMBRIDGE-LEE INDUSTRIES |
| 3/4" METER | EA | 4 | 8 | MCDONALD |

NAME OF UTILITY CONTRACTOR: COSENTINO CONTRACTING COMPANY
 CHECKBOX
 AS-BUILT DATE: _____
 SURVEY AND DRAFTING DIVISION

VICINITY MAP
SCALE: 1"=600'



INDEX OF DRAWINGS

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| 04 | C-101 PIPELINE PLAN AND PROFILE |
| 05 | C-102 PIPELINE PLAN AND PROFILE |
| 06 | C-103 PIPELINE PLAN AND PROFILE |
| 07 | C-104 PIPELINE PLAN AND PROFILE |
| 08 | C-105 PIPELINE PLAN AND PROFILE |
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| 12 | C-202 DETAILS |
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| 14 | C-302 EROSION AND SEDIMENT CONTROL PLAN |
| 15 | C-303 EROSION AND SEDIMENT CONTROL PLAN |
| 16 | C-304 EROSION AND SEDIMENT CONTROL NOTES AND DETAILS |
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OWNER/DEVELOPER CERTIFICATION:
 I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL OF EROSION AND SEDIMENT PRIOR TO BEGINNING THE PROJECT. I CERTIFY RIGHT-OF-ENTRY FOR PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.
 Signature:
 Date: 12/16/2021
 Title: Project Manager

DESIGN CERTIFICATION:
 I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, THAT IT REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE, AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.
 Signature:
 Date: 12/08/2021
 Title: JEFFREY M. STAMM
 Print Name: JEFFREY M. STAMM
 License No.: 20821 MD License No.

EP-21-006
HOWARD SOIL CONSERVATION DISTRICT SIGNATURE BLOCK:
 THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT (HSCD).
 Signature:
 Date: 12/21/21

PURPOSE STATEMENT:
 CONTRACT NO. 44-5166 INVOLVES THE REHABILITATION OF A 8-INCH WATER MAIN AND SERVICE CONNECTIONS. ALL WATER MAINS IN THE PROJECT AREA ARE IN THE 550 PRESSURE ZONE. THIS PROJECT IS NEEDED TO REPLACE AN EXISTING 8" MAIN ALONG THE SAME CORRIDOR WHICH HAS BEEN IDENTIFIED FOR REPLACEMENT DUE TO THE HISTORY OF BREAKS ON THE LINE, PIPE CONDITION, AND AGE.

As Built
 APRIL 08, 2024

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND
 Signature:
 Date: 12-17-21
 Title: DIRECTOR OF PUBLIC WORKS
 Signature:
 Date: 12/20/2021
 Title: CHIEF, BUREAU OF ENGINEERING
 Signature:
 Date: 12/20/2021
 Title: CHIEF, UTILITY DESIGN DIVISION

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. 50345, EXPIRATION DATE: 12/15/2022

Gannett Fleming
 BALTIMORE, MARYLAND

DES: SJM
 BY: NHL
 NO.: AS-BUILT
 REVISION: _____
 DATE: 4/24
 DRN: KDJ
 CHK: NHL
 SIGN DATE: 12/14/21

DECEMBER 2021
 TITLE SHEET, GENERAL NOTES, AND INDEX OF DRAWINGS
 600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24
 CAPITAL PROJECT NO. W8330
 CONTRACT NO. 44-5166
 OLD COLUMBIA PIKE WATER MAIN REHABILITATION
 ELECTION DISTRICT NO. 2
 HOWARD COUNTY, MARYLAND
 SCALE: AS SHOWN
 SHEET NO. 1 OF 21

PROPERTY INFORMATION

SHEET C-101

- 4108 PARCEL 283 LOT N/A NOW OR FORMERLY JOHN H. ROSS L. 03614 F. 0244
- 4090 PARCEL 1092 LOT 1 NOW OR FORMERLY BRIAN P. RENAULT L. 19864 F. 0410
- 4025 PARCEL 261 LOT 7 NOW OR FORMERLY EMIL L. PRESTI L. 12225 F. 0070
- 4021 PARCEL 261 LOT 5 NOW OR FORMERLY ARMEL SIMO L. 18470 F. 0162
- 4017 PARCEL 261 LOT 5 NOW OR FORMERLY BRUCE LEUTHOLD L. 01475 F. 0661
- 4013 PARCEL 261 LOT 4 NOW OR FORMERLY VALERIE H. MOORE L. 18842 F. 0223
- 4009 PARCEL 261 LOT 3 NOW OR FORMERLY RONALD N. ANDES L. 02620 F. 0371
- 4005 PARCEL 261 LOT 2 NOW OR FORMERLY MICHAEL HEYTENS L. 09938 F. 0581
- 4001 PARCEL 261 LOT 1 NOW OR FORMERLY DOUGLAS W. RIDER L. 02637 F. 0555
- 4040 PARCEL 261 LOT 36 NOW OR FORMERLY JOINT V. KEYWADIN L. 01205 F. 0161
- 4113 PARCEL 712 LOT 1 NOW OR FORMERLY LUTHFUR R. KHAN L. 18750 F. 0367
- 4109 PARCEL 712 LOT 2 NOW OR FORMERLY KIZZY MCMASTER L. 20261 F. 0159
- 4105 PARCEL 712 LOT 3 NOW OR FORMERLY REBECCA L. STERNER L. 18555 F. 0383
- 4101 PARCEL 712 LOT 4 NOW OR FORMERLY KATHLEEN BEAN L. 16729 F. 0164
- 4097 PARCEL 712 LOT 40 NOW OR FORMERLY HAN S. WOONG L. 11580 F. 0141
- 4093 PARCEL 916 LOT 2 NOW OR FORMERLY MICHAEL M. MAHONY L. 10264 F. 0696
- 4089 PARCEL 916 LOT 1 NOW OR FORMERLY FREDERICK A. SCHOENBRODT L. 01015 F. 0090
- 4075 PARCEL 837 LOT N/A NOW OR FORMERLY SARAH B. DICKERSON L. 15744 F. 0025
- 4069 PARCEL 284 LOT 2 NOW OR FORMERLY JENNIFER H. NGUYEN L. 0954 F. 0254
- 4065 PARCEL 679 LOT N/A NOW OR FORMERLY JAMES S. FLURIE L. 01306 F. 0156
- 4061 PARCEL 678 LOT N/A NOW OR FORMERLY JAMES S. FLURIE L. 16366 F. 0472
- 4057 PARCEL 285 LOT N/A NOW OR FORMERLY DALE B. SULLIVAN L. 05165 F. 0577

SHEET C-102

- 4040 PARCEL 261 LOT 36 NOW OR FORMERLY DAVID T. WALLEY L. 01205 F. 0161
- 4008 PARCEL 263 LOT N/A NOW OR FORMERLY DAVID T. WALLEY L. 16769 F. 0070
- 00-1 PARCEL 945 LOT N/A NOW OR FORMERLY BALTIMORE GAS ELECTRIC L. 00139 F. 0453
- 00-2 PARCEL 811 LOT 44 NOW OR FORMERLY WOODS OF TIMBER BRANCH II L. 10947 F. 0483
- 4010 PARCEL 811 LOT 3 NOW OR FORMERLY DAMODAR POREDDY L. 19223 F. 0112
- 4014 PARCEL 811 LOT 3 NOW OR FORMERLY PARTH G. PATEL L. 14268 F. 0327
- 4016 PARCEL 264 LOT 5 NOW OR FORMERLY AUGUSTUS S. WURTZER L. 00820 F. 0527
- 3915 PARCEL 255 LOT 32 NOW OR FORMERLY TRINITY HOMES MARYLAND, LLC L. 17320 F. 0150
- 4053 PARCEL 836 LOT 1 NOW OR FORMERLY ANGELICA ANOKHIN L. 12657 F. 0489
- 00-3 PARCEL 651 LOT 44 NOW OR FORMERLY BRITTANY MANOR HOMEOWNERS L. 02086 F. 0280
- 4029 PARCEL 835 LOT N/A NOW OR FORMERLY RYAN W. DAGGLE L. 17366 F. 0416
- 4007 PARCEL 337 LOT N/A NOW OR FORMERLY JO A. COOK L. 00316 F. 0127
- 4001 PARCEL 287 LOT N/A NOW OR FORMERLY CLARE I. CHRISMER L. 20603 F. 0497
- 3997 PARCEL 286 LOT N/A NOW OR FORMERLY BERTRAM H. WILSON, SR. L. 12544 F. 0232

SHEET C-103

- 3911 PARCEL 255 LOT 33 NOW OR FORMERLY PAULINE EMMANUEL L. 15522 F. 0437
- 3908 PARCEL 255 LOT 1 NOW OR FORMERLY LIANG W. LIN L. 10028 F. 0427
- 3982 PARCEL 845 LOT 1 NOW OR FORMERLY HUAPENG HUANG L. 11484 F. 0015
- 3978 PARCEL 845 LOT 2 NOW OR FORMERLY THOMAS M. MACLELLAN L. 04922 F. 0472
- 3970 PARCEL 1098 LOT 2 NOW OR FORMERLY SEAN D. GERRITY L. 11484 F. 0001
- 3966 PARCEL 846 LOT 1 NOW OR FORMERLY SANFORD TASSEL L. 18871 F. 0295
- 3962 PARCEL 565 LOT N/A NOW OR FORMERLY DAVID G. BOHNINGS L. 01693 F. 0470
- 3956 PARCEL 134 LOT N/A NOW OR FORMERLY MUKESH KUMAR L. 18199 F. 0398
- 3946 PARCEL 21 LOT N/A NOW OR FORMERLY ARTHUR L. LINTHICUM L. 06537 F. 0508
- 3942 PARCEL 133 LOT N/A NOW OR FORMERLY KAMALAKAR R. NAIDU L. 12945 F. 0415
- 3938 PARCEL 132 LOT N/A NOW OR FORMERLY MATTHEW H. FLEMING L. 10138 F. 0265
- 3934 PARCEL 174 LOT N/A NOW OR FORMERLY DAVID M. NEILSON L. 18530 F. 0416
- 3926 PARCEL 257 LOT N/A NOW OR FORMERLY TED J. ROLLINS L. 17616 F. 0230
- 4103 PARCEL 220 LOT 1 NOW OR FORMERLY MUHAMMAD A. IHSAN L. 17685 F. 0267
- 3965 PARCEL 952 LOT 28 NOW OR FORMERLY CHRISTOPHER J. LATTERI L. 03657 F. 0296
- 3959 PARCEL 142 LOT 2 NOW OR FORMERLY JEFFERSON GILL L. 18740 F. 0099
- 3954 PARCEL 144 LOT N/A NOW OR FORMERLY CHRISTOPHER J. LATTERI L. 05593 F. 0255
- 3947 PARCEL 219 LOT N/A NOW OR FORMERLY MARK A. RAGONESE L. 05348 F. 0273
- 3937 PARCEL 28 LOT N/A NOW OR FORMERLY ELIZABETH A. MCGINTY L. 15582 F. 0132

SHEET C-104

- 3922 PARCEL 131 LOT N/A NOW OR FORMERLY MARISSA R. PINA L. 18793 F. 0161
- 3918 PARCEL 156 LOT 11/12 NOW OR FORMERLY MARK J. BIEBERICH L. 15501 F. 0147
- 3910 PARCEL 130 LOT N/A NOW OR FORMERLY JONATHAN A. POSTMA L. 15621 F. 0481
- 3896 PARCEL 66 LOT N/A NOW OR FORMERLY MARIMOE FAMILY TRUST L. 16835 F. 0064
- 3876 PARCEL 237 LOT N/A NOW OR FORMERLY ELIZABETH A. LARNEY L. 02991 F. 0170
- 3872 PARCEL 25 LOT N/A NOW OR FORMERLY EDWARD J. HARRISON L. 00524 F. 0149
- 3864 PARCEL 24 LOT N/A NOW OR FORMERLY DORIS SLACK L. 11380 F. 0095
- 3856 PARCEL 23 LOT N/A NOW OR FORMERLY NICHOLAS G. SOMMESE TRUSTEE L. 18245 F. 0020
- 3850 PARCEL 305 LOT N/A NOW OR FORMERLY DAVID M. NEILSON TRUSTEE L. 18530 F. 0425
- 3917 PARCEL 149 LOT N/A NOW OR FORMERLY ALISON J. PFLUGRAD L. 12296 F. 0180
- 3913 PARCEL 156 LOT N/A NOW OR FORMERLY HELEN S. GRIFFIN L. 01134 F. 0620
- 3907 PARCEL 61 LOT N/A NOW OR FORMERLY ROBERT J. HOFSTETTER L. 04134 F. 0001
- 3910 PARCEL 29 LOT 63 NOW OR FORMERLY RICHARD L. LEFEVER TRUST L. 16674 F. 0163
- 3887 PARCEL 30 LOT N/A NOW OR FORMERLY GREGORY J. DUNN L. 14986 F. 0402
- 3909 PARCEL 304 LOT 3 NOW OR FORMERLY ROGER J. MICHEL L. 08498 F. 0081
- 3873 PARCEL 154 LOT N/A NOW OR FORMERLY KIMBERLY SCRIBNER L. 13756 F. 0050
- 3871 PARCEL 27 LOT N/A NOW OR FORMERLY JOHN D. SLACK L. 11380 F. 0090
- 00-4 PARCEL 26 LOT N/A NOW OR FORMERLY ADDYIKE, LLC L. 11323 F. 0634

SHEET C-105

- 3832 PARCEL 262 LOT N/A NOW OR FORMERLY SHIHENG ZHAO L. 16704 F. 0213
- 3820 PARCEL 133 LOT N/A NOW OR FORMERLY CRAIG L. STEWART L. 12084 F. 0383
- 00-5 PARCEL 80 LOT N/A NOW OR FORMERLY JOY N. WALTERHOEFER L. 19386 F. 0368
- 3800 PARCEL 132 LOT N/A NOW OR FORMERLY TERESA E. CROSS L. 03744 F. 0440
- 3796 PARCEL 131 LOT N/A NOW OR FORMERLY TAYLOR PROPERTY GROUP L. 00773 F. 0536
- 3790 PARCEL 130 LOT N/A NOW OR FORMERLY KELLY J. MCILAN L. 20347 F. 0152
- 3786 PARCEL 129 LOT N/A NOW OR FORMERLY AMBER GEORGIEFF L. 15118 F. 0474
- 3782 PARCEL 128 LOT N/A NOW OR FORMERLY HOWARD LAND DEVELOPERS L. 16645 F. 0261
- 3774 PARCEL 127 LOT N/A NOW OR FORMERLY JASON A. MANELLI L. 20203 F. 0262
- 00-6 PARCEL 264 LOT N/A NOW OR FORMERLY COUNTY COMMISSIONERS OF HOWARD COUNTY L. 00198 F. 0264
- 3726 PARCEL 123 LOT N/A NOW OR FORMERLY HOWARD COUNTY MARYLAND L. 06096 F. 0179
- 3825 PARCEL 261 LOT N/A NOW OR FORMERLY JOSHUA ANDERSON L. 17419 F. 0459
- 3821 PARCEL 260 LOT N/A NOW OR FORMERLY BROXTON PROPERTIES, LLC L. 18643 F. 0330
- 3815 PARCEL 258 LOT N/A NOW OR FORMERLY EDWARD B. LAIRD L. 11047 F. 0192
- 3799 PARCEL 257 LOT N/A NOW OR FORMERLY SEAN O. BARR L. 15938 F. 0252
- 3795 PARCEL 256 LOT N/A NOW OR FORMERLY MARK BOFFEN L. 04256 F. 0316
- 3791 PARCEL 255 LOT N/A NOW OR FORMERLY JANE G. HODGDON L. 15630 F. 0001
- 3787 PARCEL 254 LOT N/A NOW OR FORMERLY JOHN D. BAKER III L. 17171 F. 0215
- 3783 PARCEL 253 LOT N/A NOW OR FORMERLY KATHLEEN Y. FEENEY L. 20580 F. 0124
- 3779 PARCEL 252 LOT N/A NOW OR FORMERLY MARGARET A. MAXSON L. 14461 F. 0047
- 3775 PARCEL 251 LOT N/A NOW OR FORMERLY ALEXANDER S. IWASKIW L. 18254 F. 0041
- 3771 PARCEL 339 LOT N/A NOW OR FORMERLY KAREN L. GORDES L. 17818 F. 0327

As Built
APRIL 08, 2024

G-002

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. M. M. 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

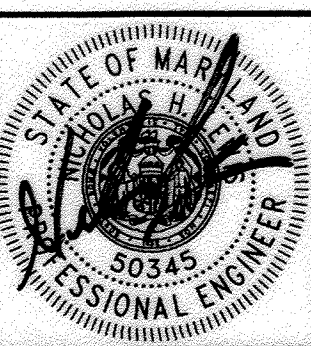
J. J. J. 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

S. S. S. 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

S. S. S. 12/20/21
CHIEF, UTILITY DESIGN DIVISION 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. 20821, EXPIRATION DATE: 5/2/2023

Gannett Fleming
BALTIMORE, MARYLAND



| DES: | BY: | NO.: | REVISION: | DATE: |
|------------|----------|------|-----------|-------|
| NHL | NHL | 1 | AS-BUILT | 4/24 |
| DRN: | SGB | | | |
| CHK: | JMS | | | |
| SIGN DATE: | 12/14/21 | | | |

DECEMBER 2021

PROPERTY INFORMATION

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

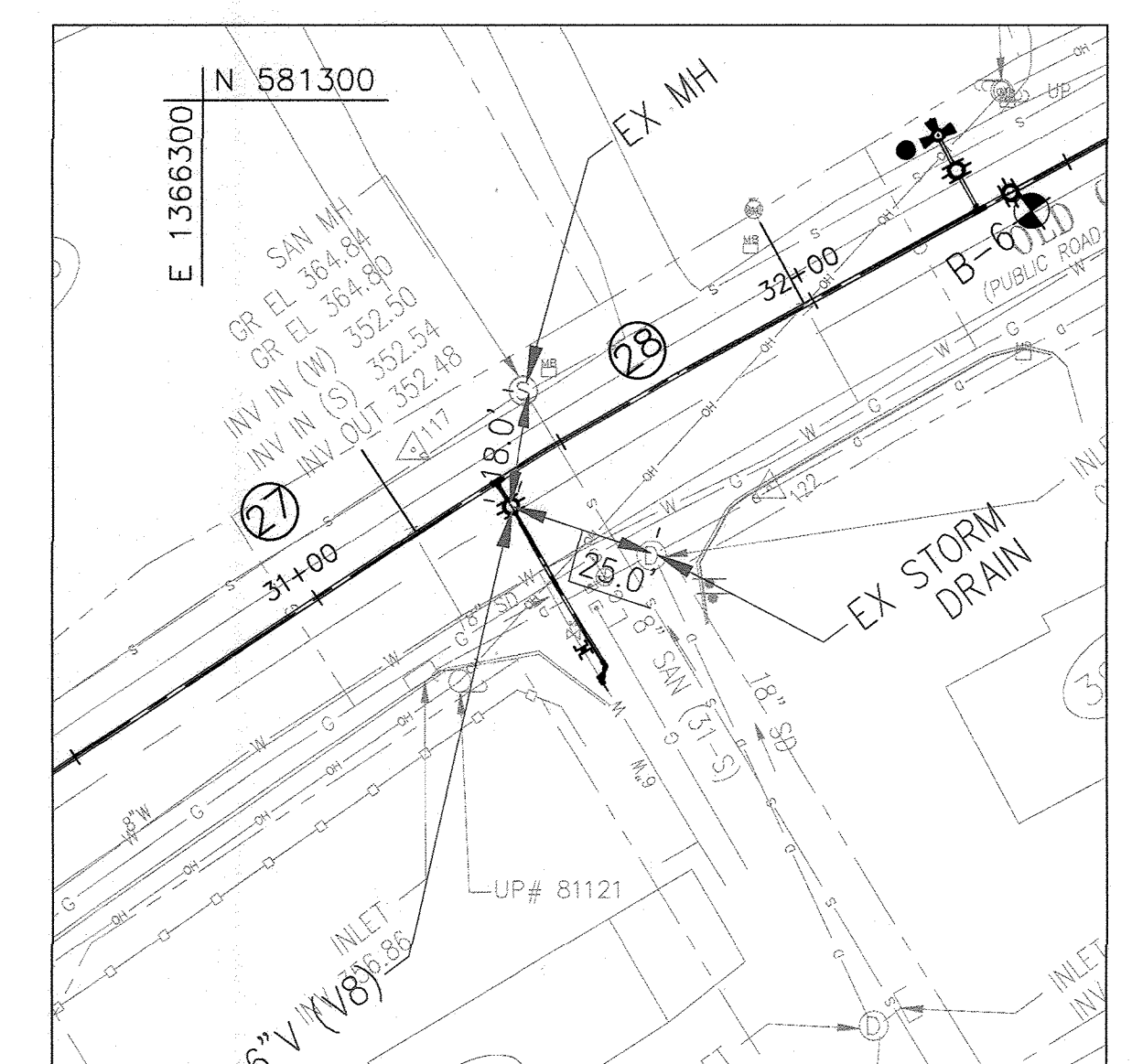
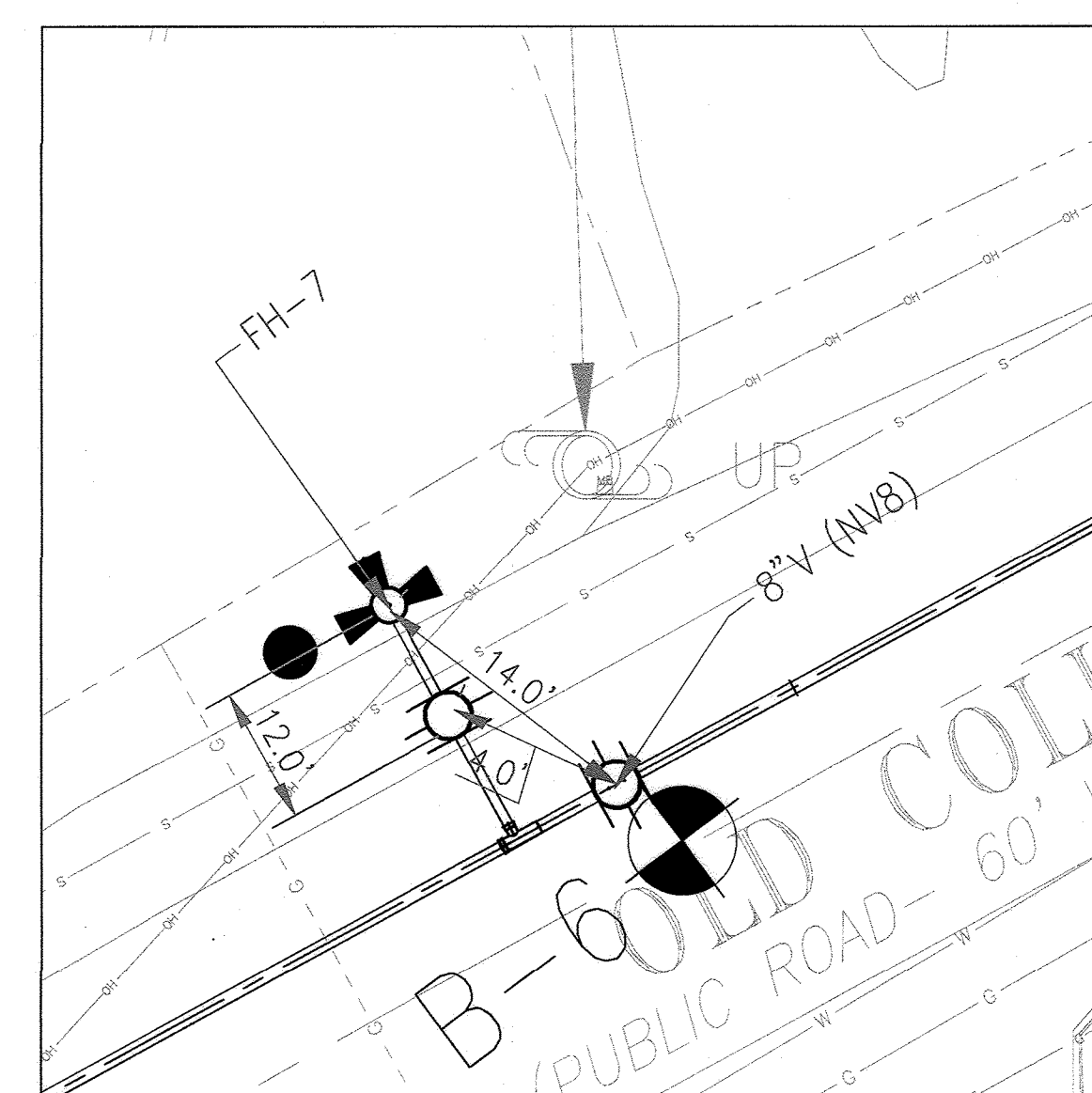
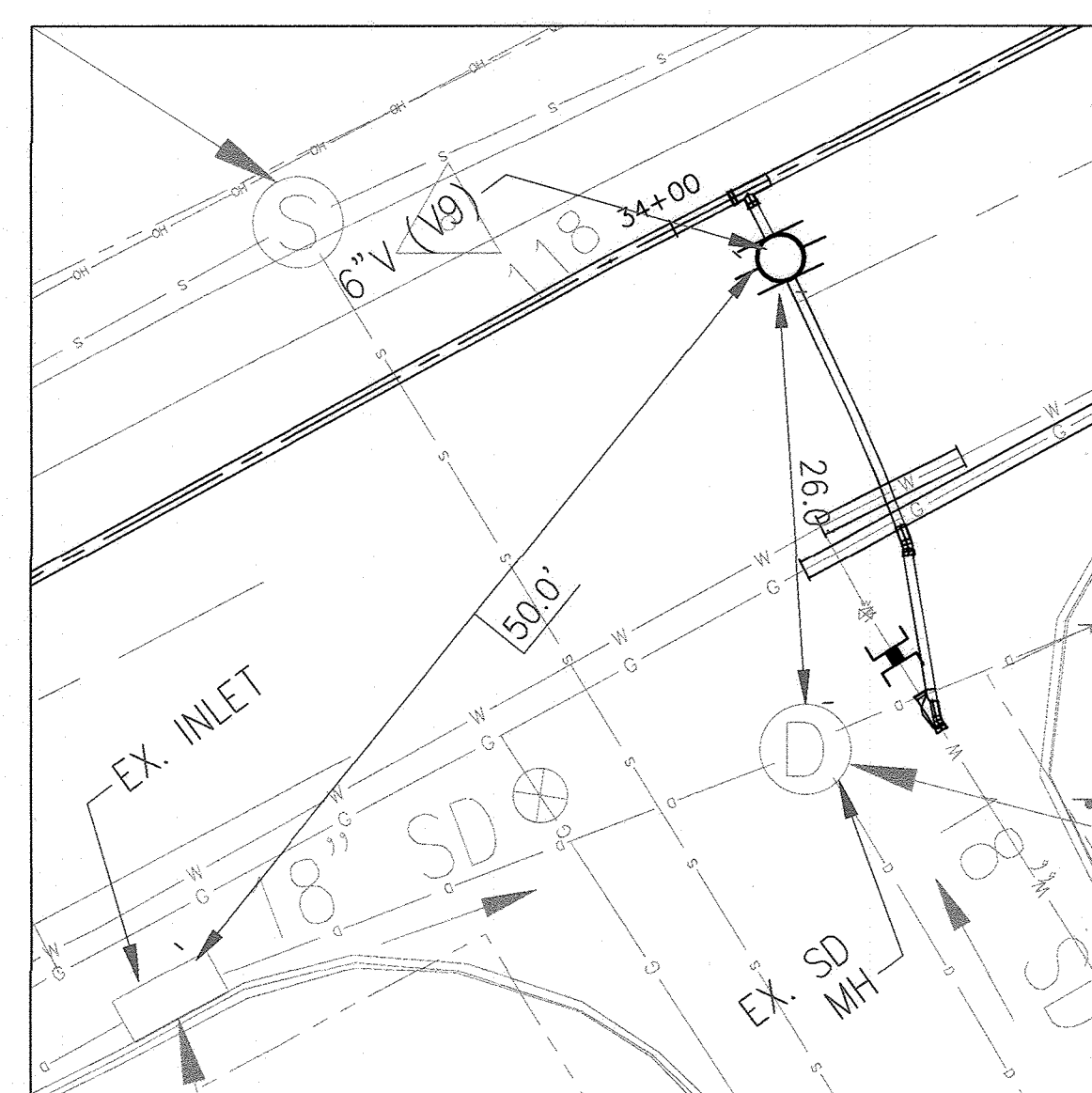
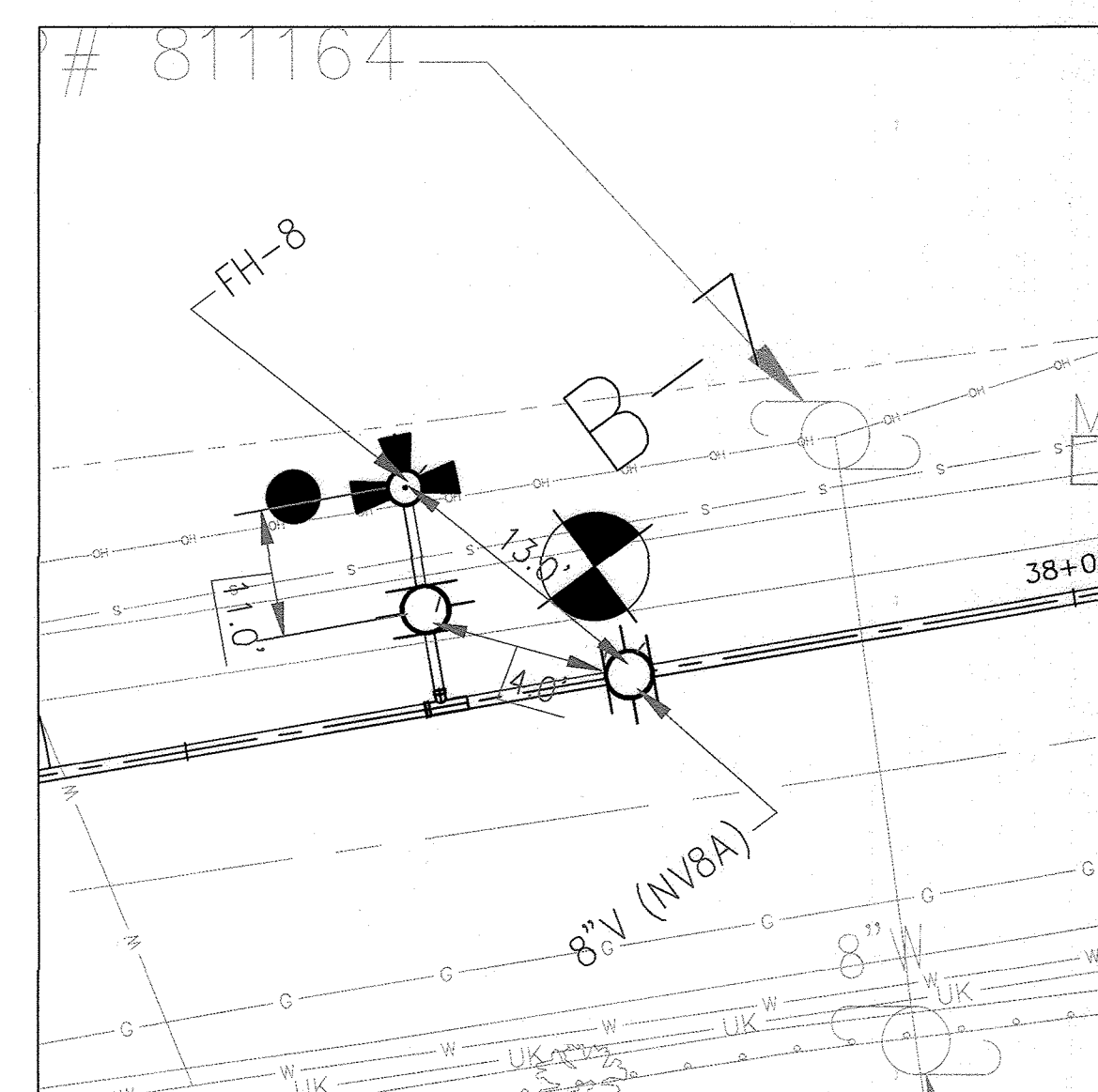
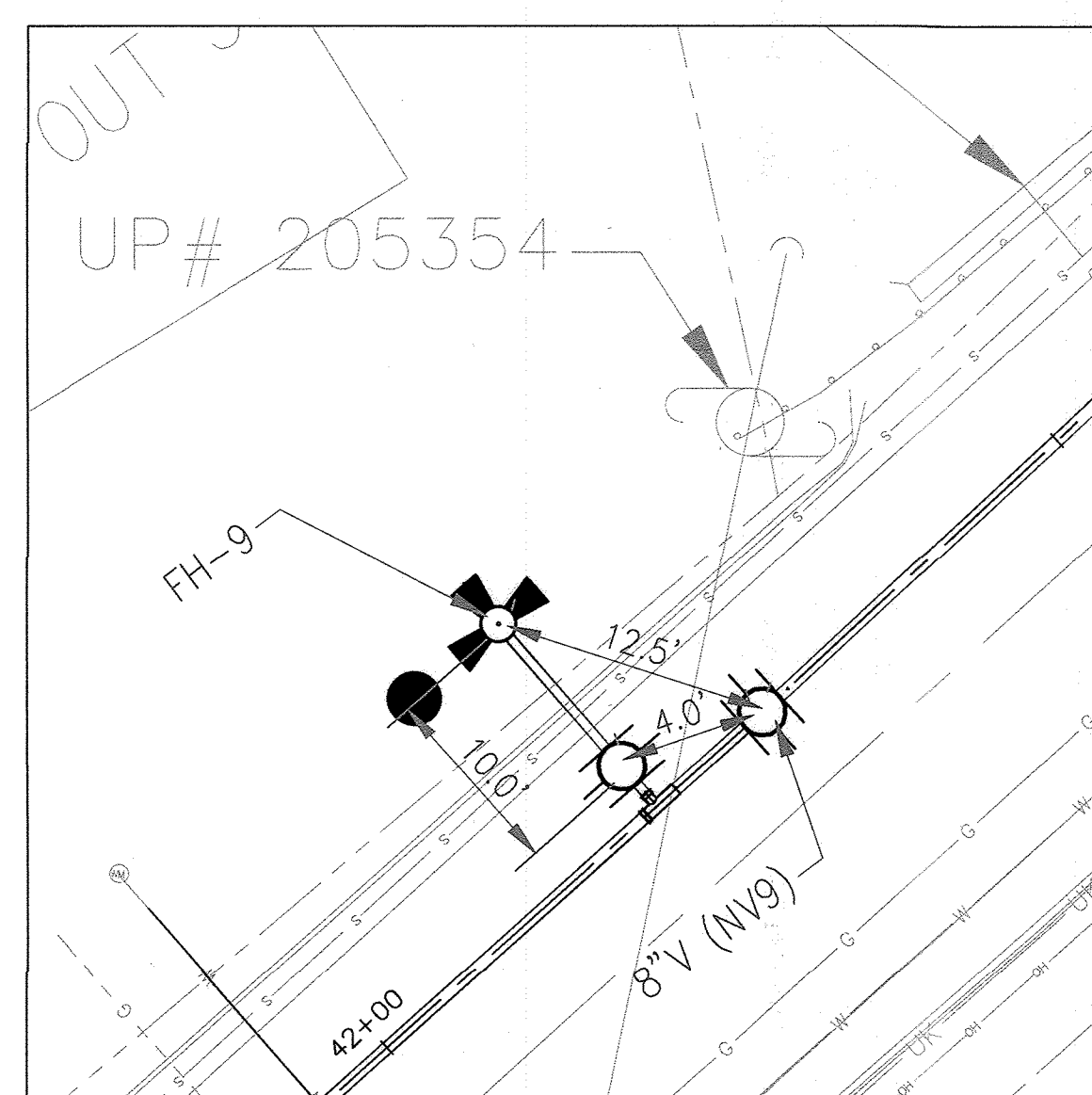
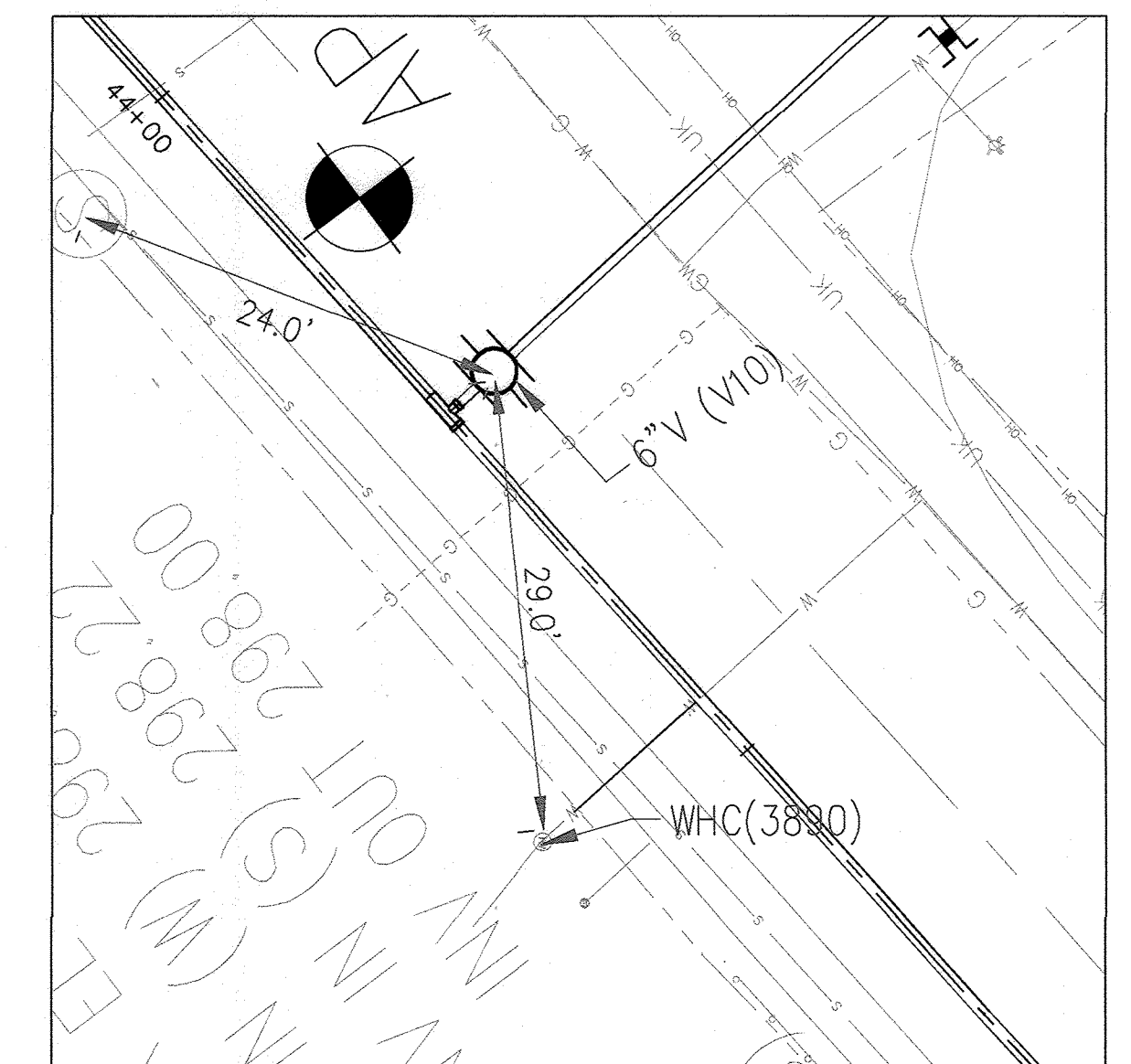
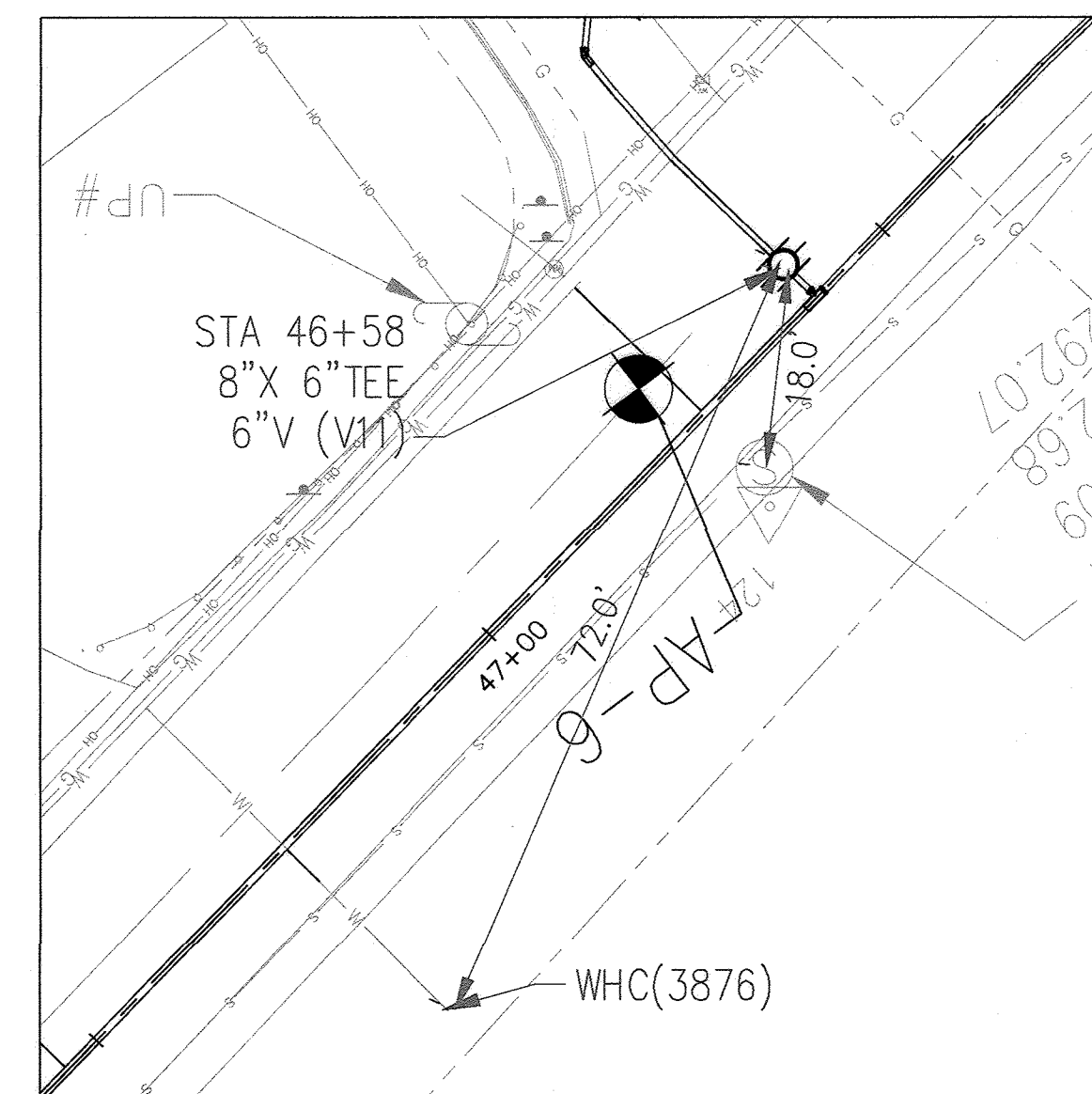
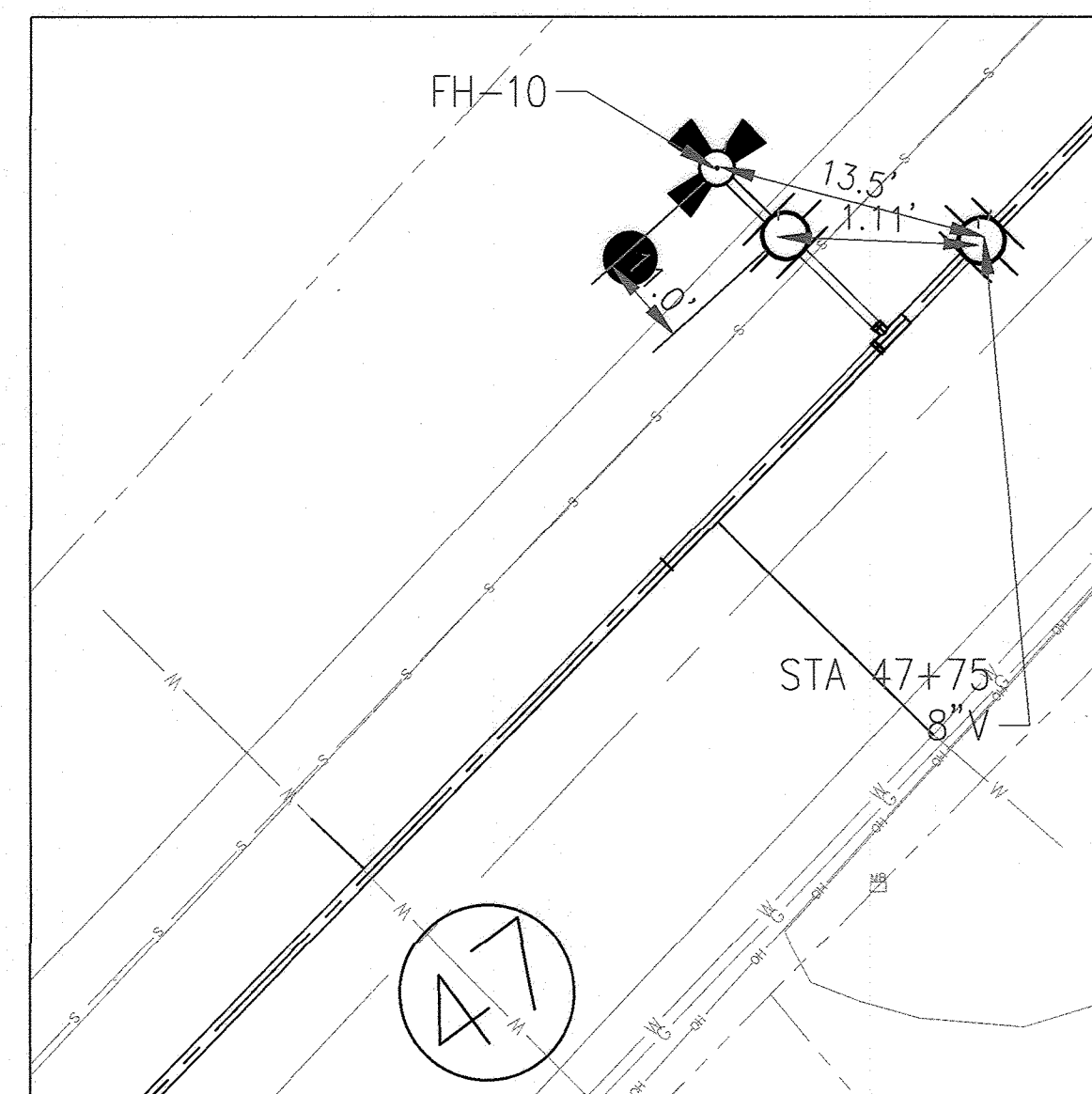
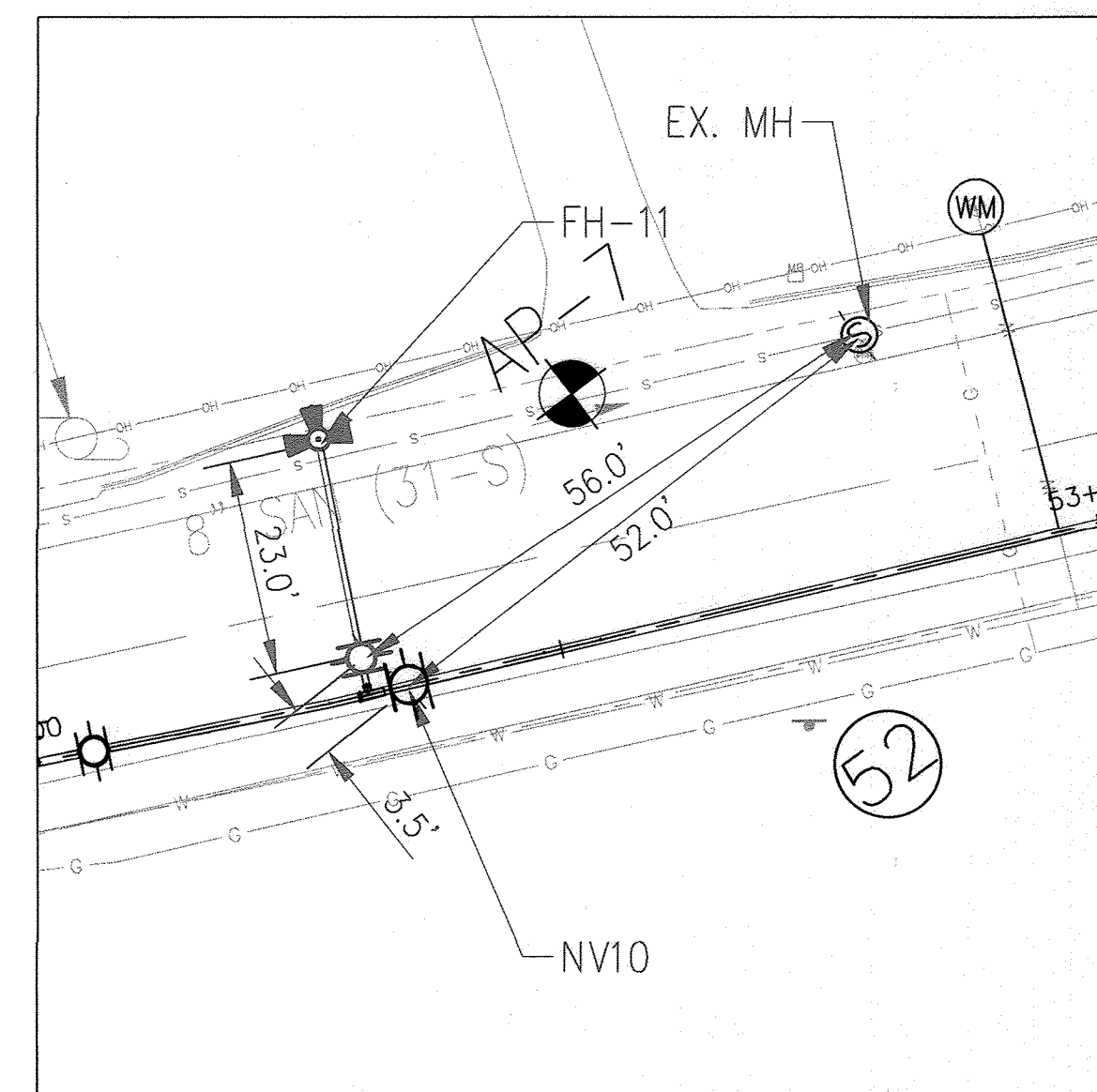
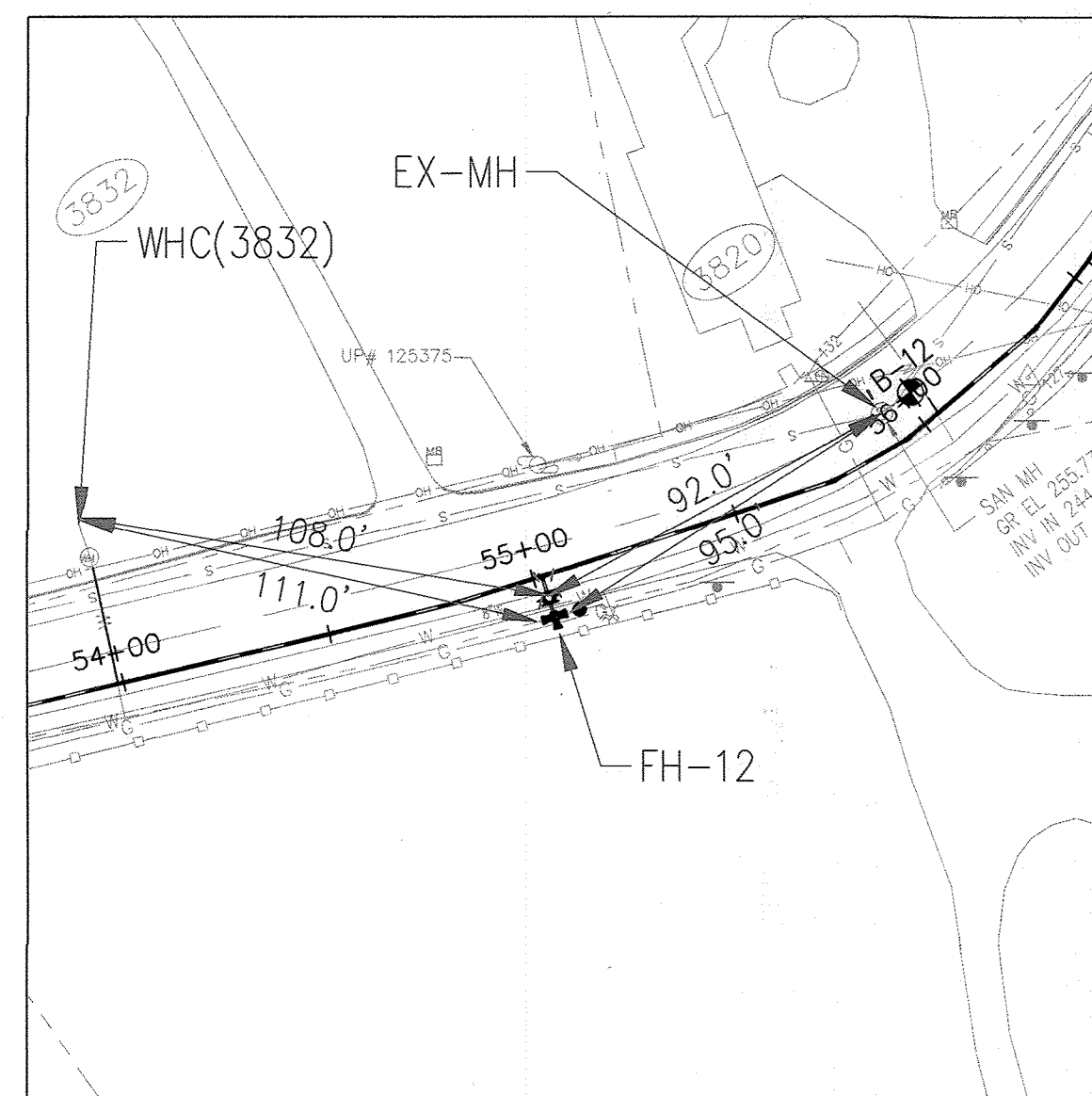
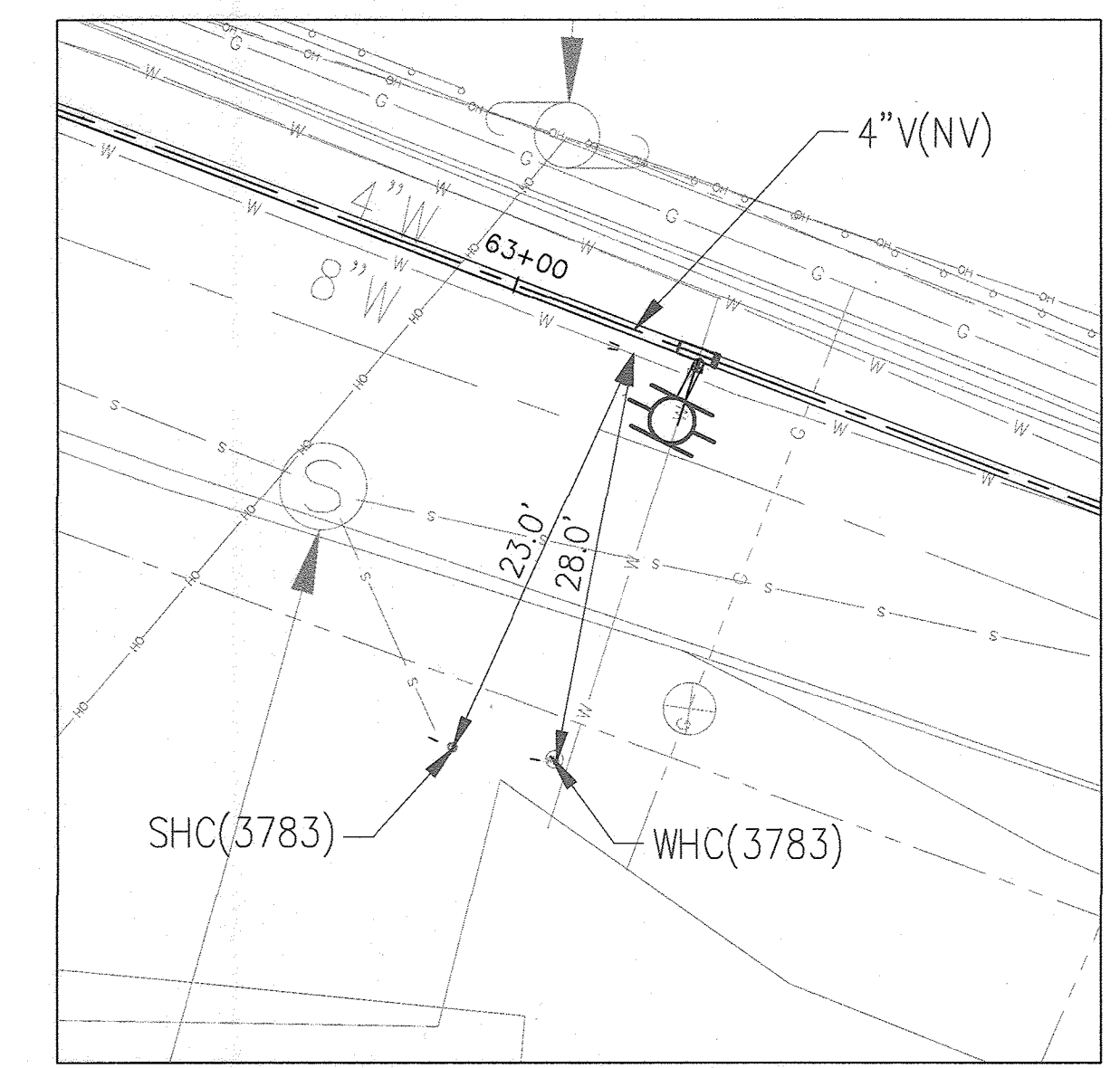
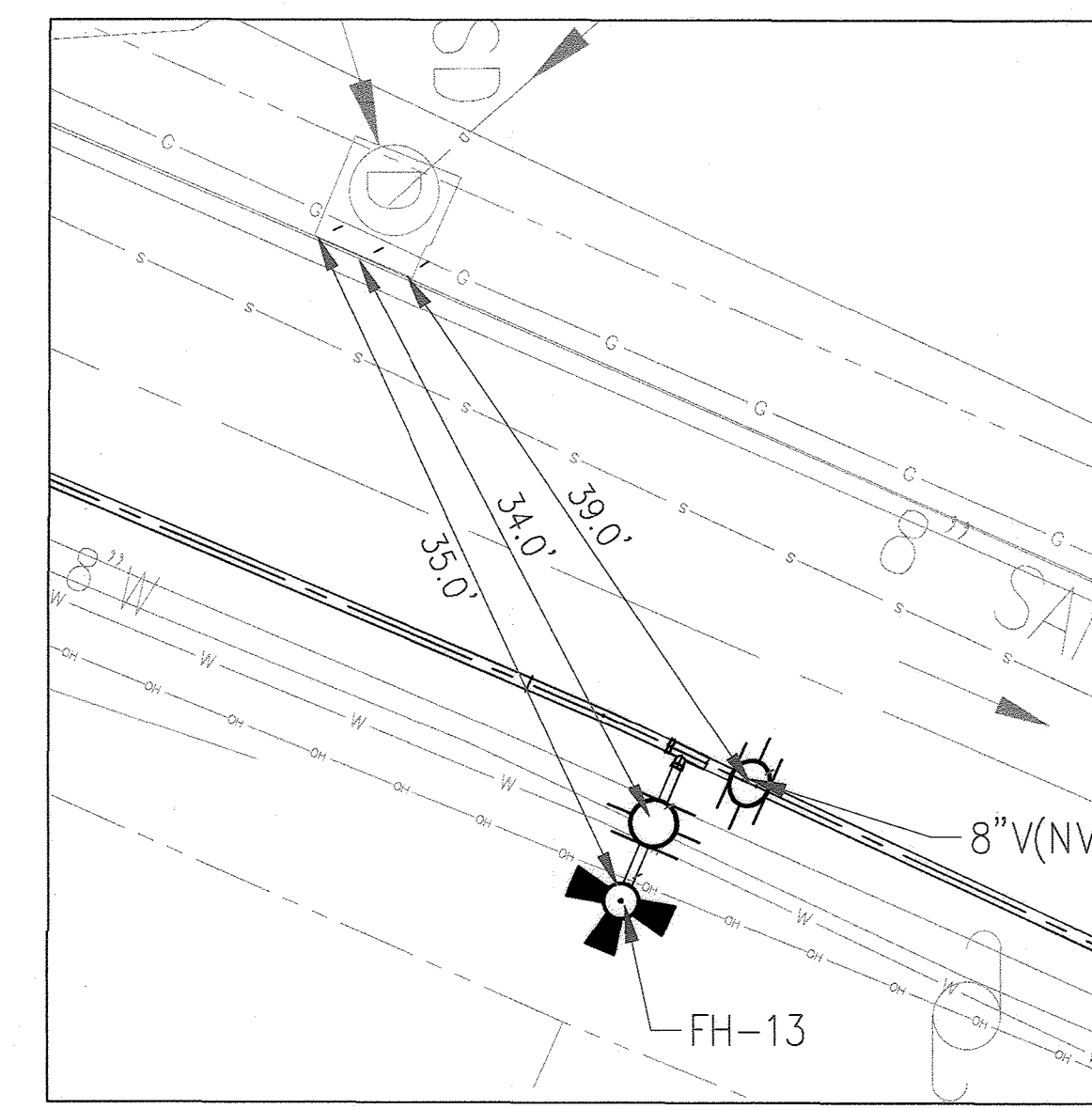
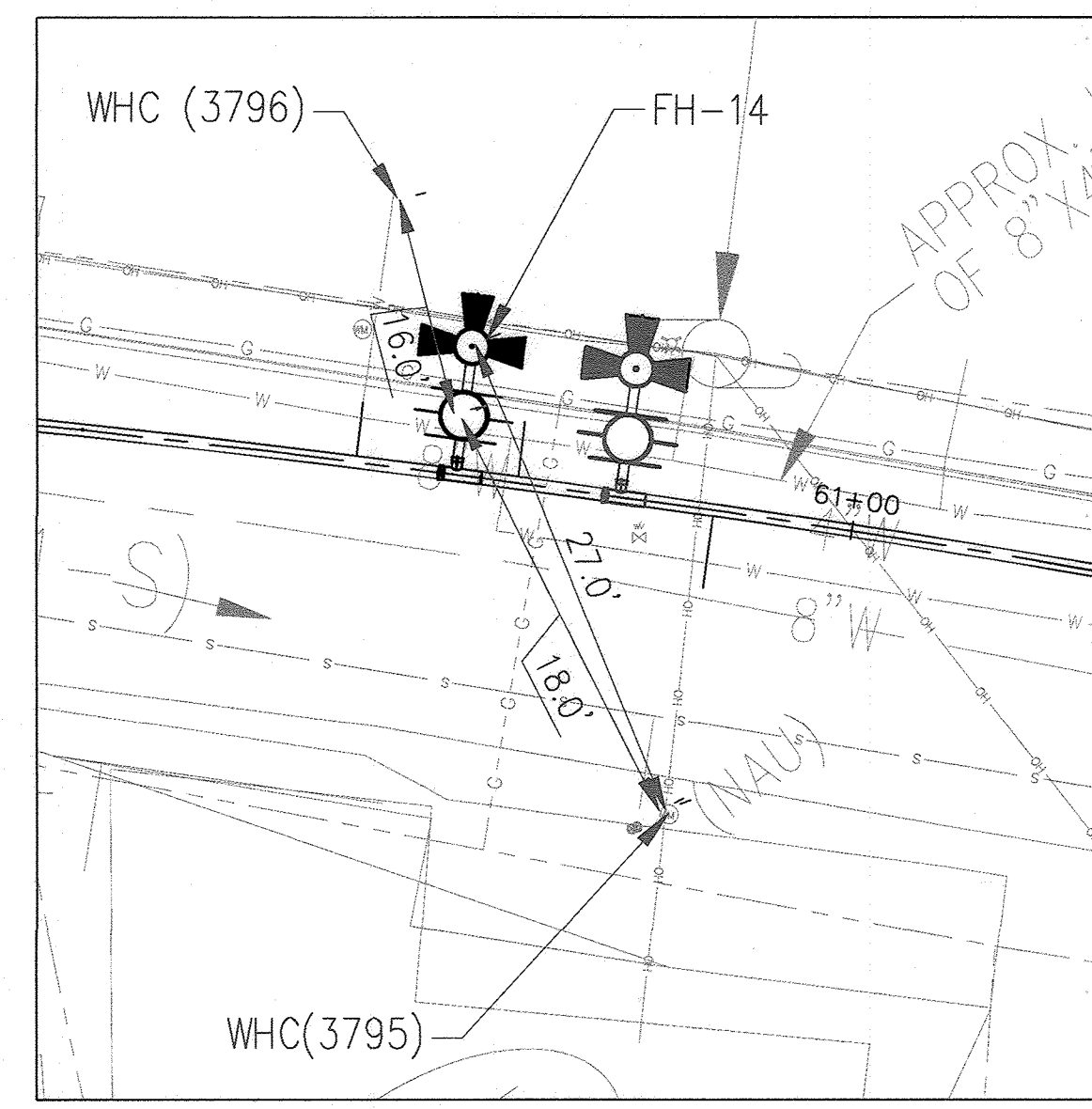
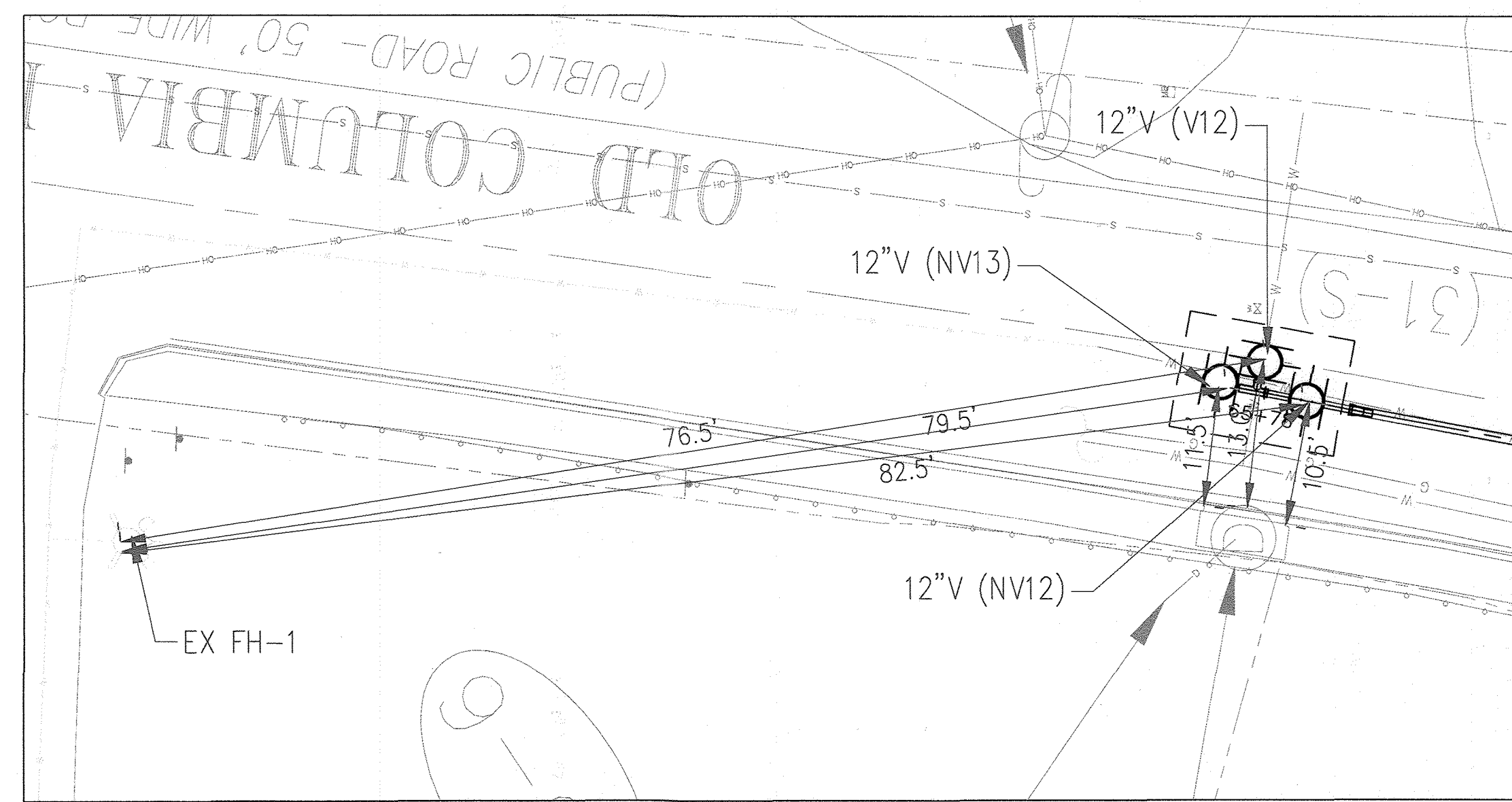
CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

SHEET NO.
2 OF 21



NEW AS-BUILT SHEET 2A OF 21

As Built
APRIL 08, 2024

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Rebeca 5/21/24
DIRECTOR OF PUBLIC WORKS DATE

Chief, Bureau of Engineering 5/11/24
DATE

Chief, Bureau of Utilities 5/16/2024
DATE

Chief, Utility Design Division 4/30/2024
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. 50345, EXPIRATION DATE: 12/15/2022

Gannett Fleming
BALTIMORE, MARYLAND

| DES: | BY: | NO.: | REVISION: | DATE: |
|------------|-----|------|-----------|-------|
| SJM | NHL | 1 | AS-BUILT | 4/24 |
| DRN: | SJM | | | |
| CHK: | NHL | | | |
| SIGN DATE: | | | | |

DECEMBER 2021

AS BUILT LOCATIONS

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24 ELECTION DISTRICT NO. 2

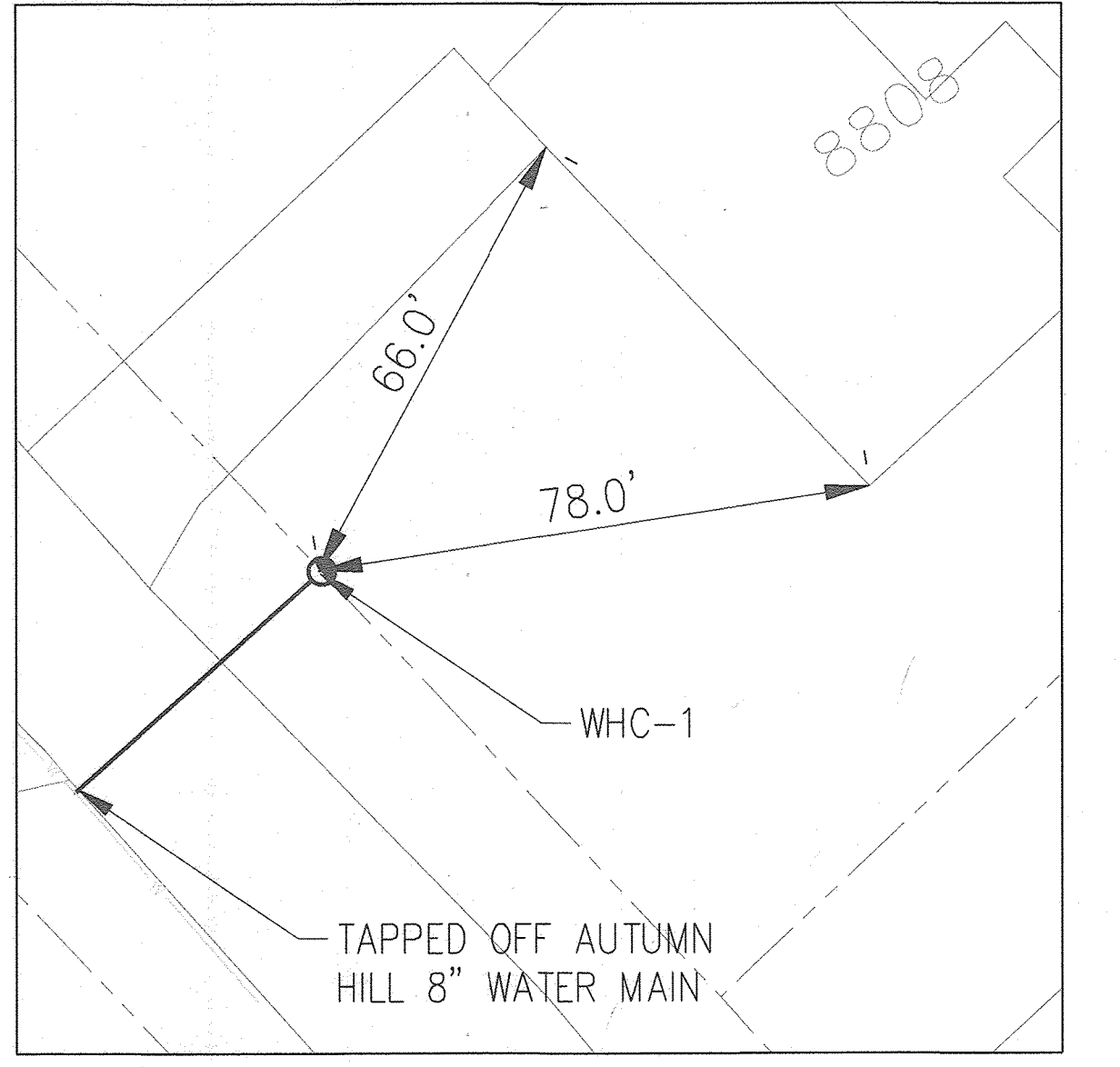
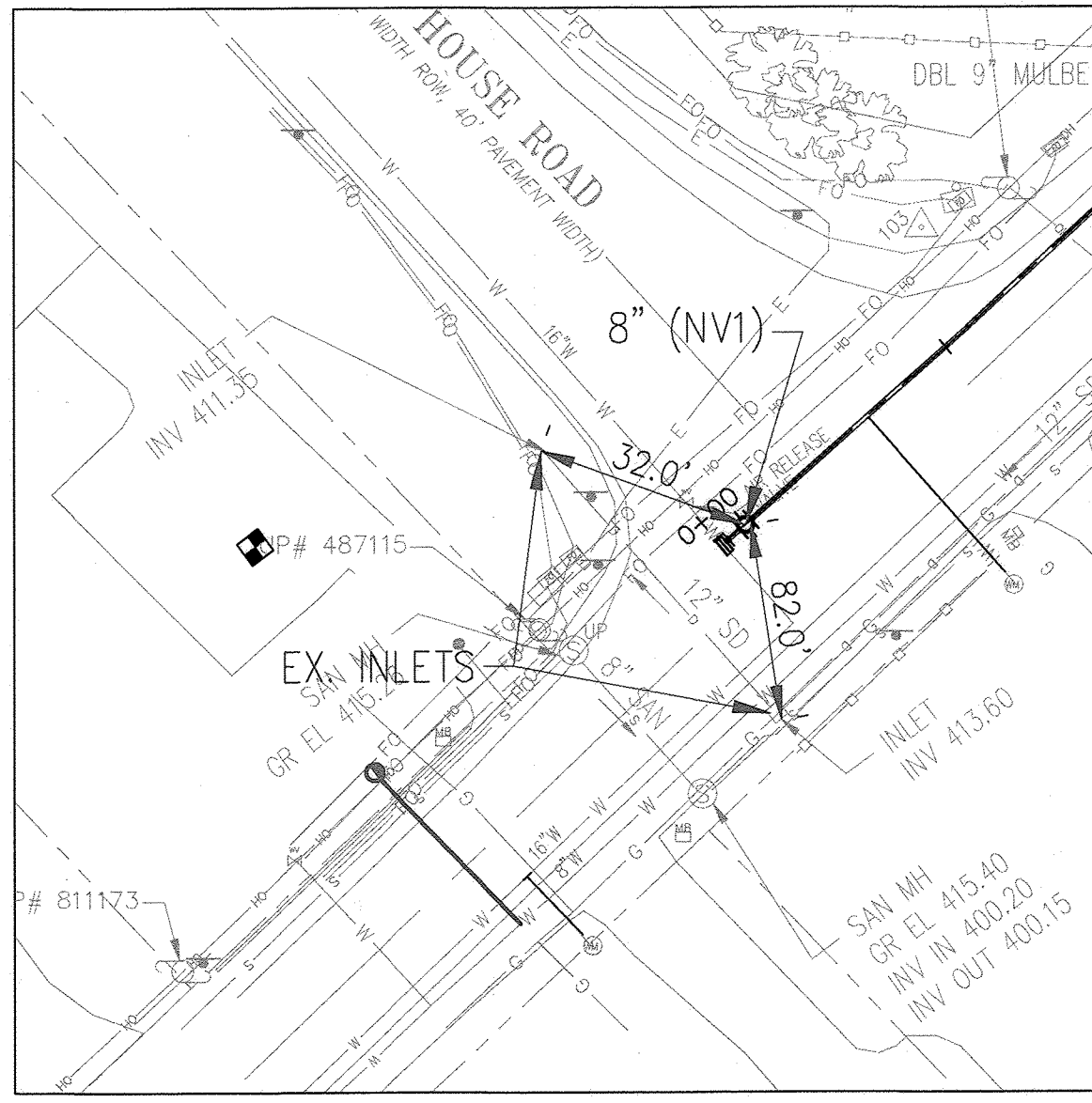
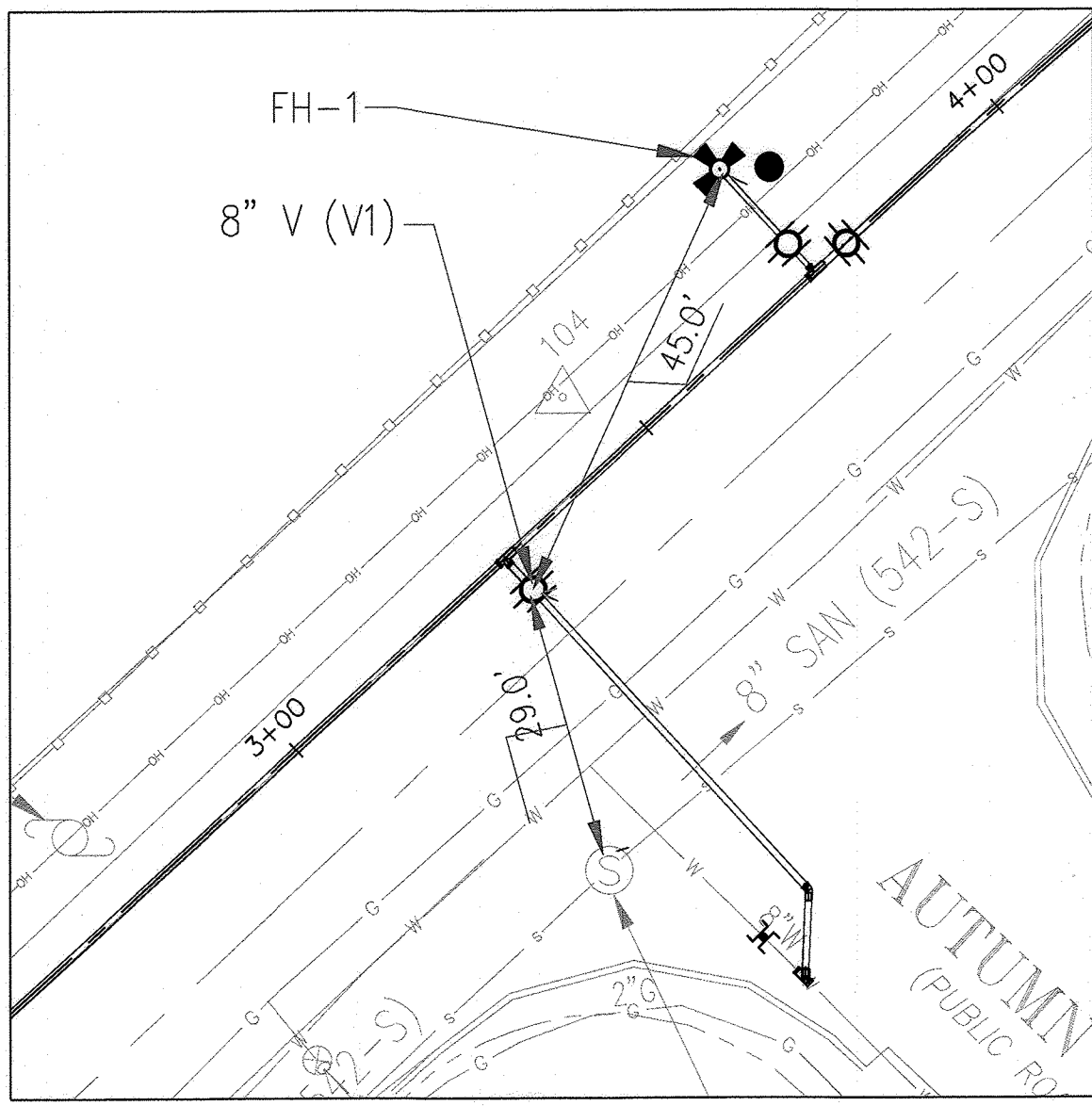
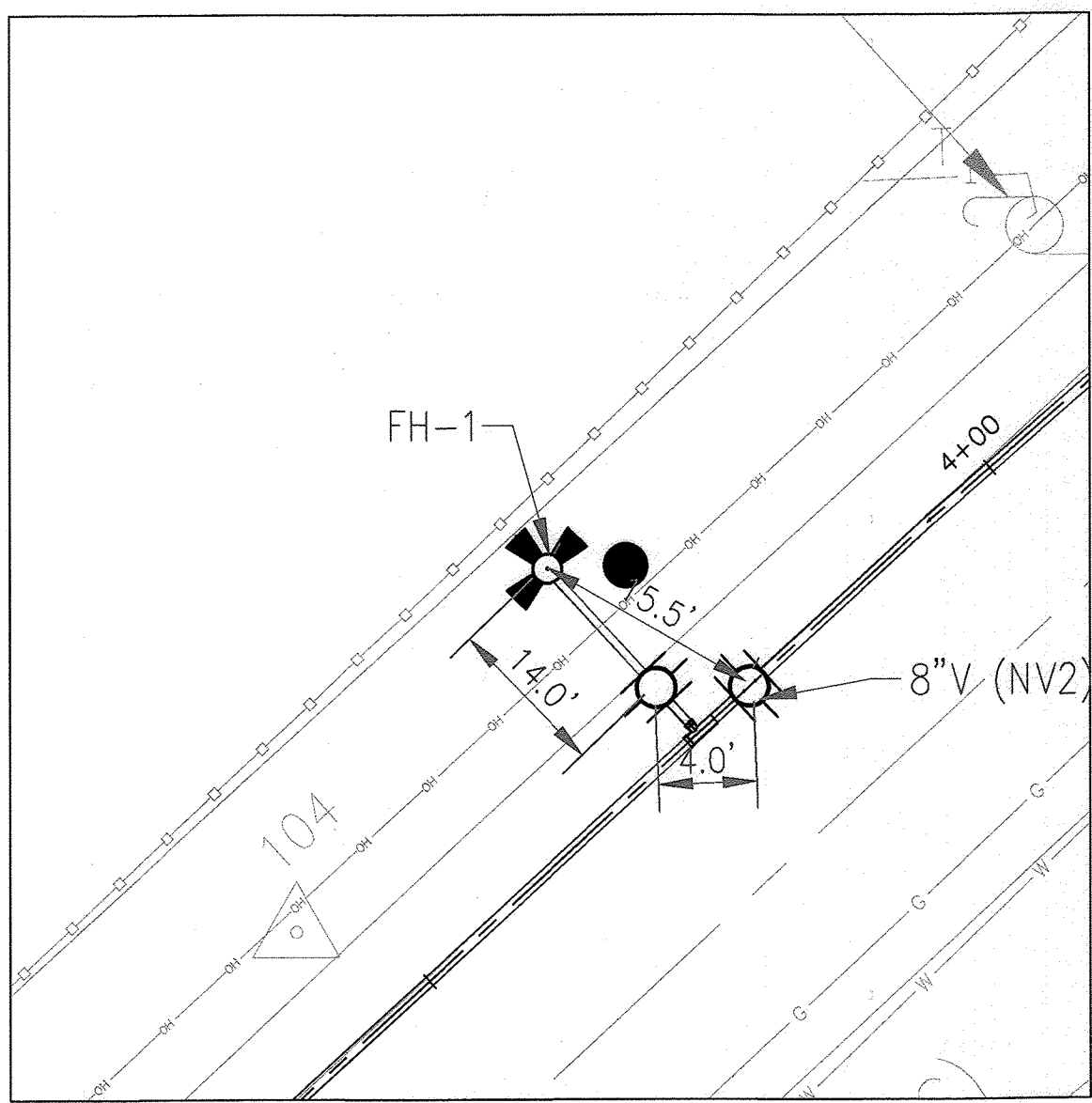
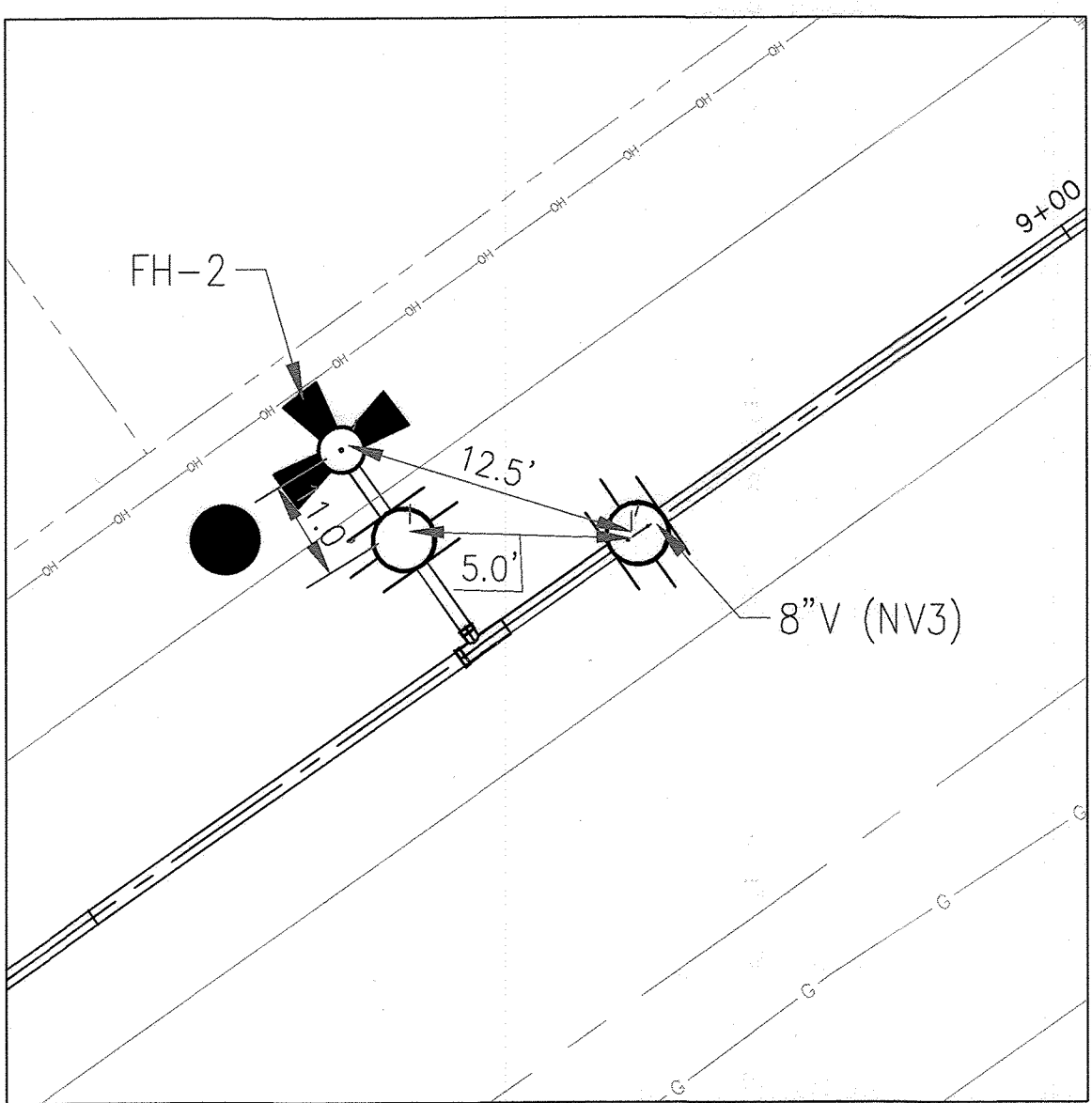
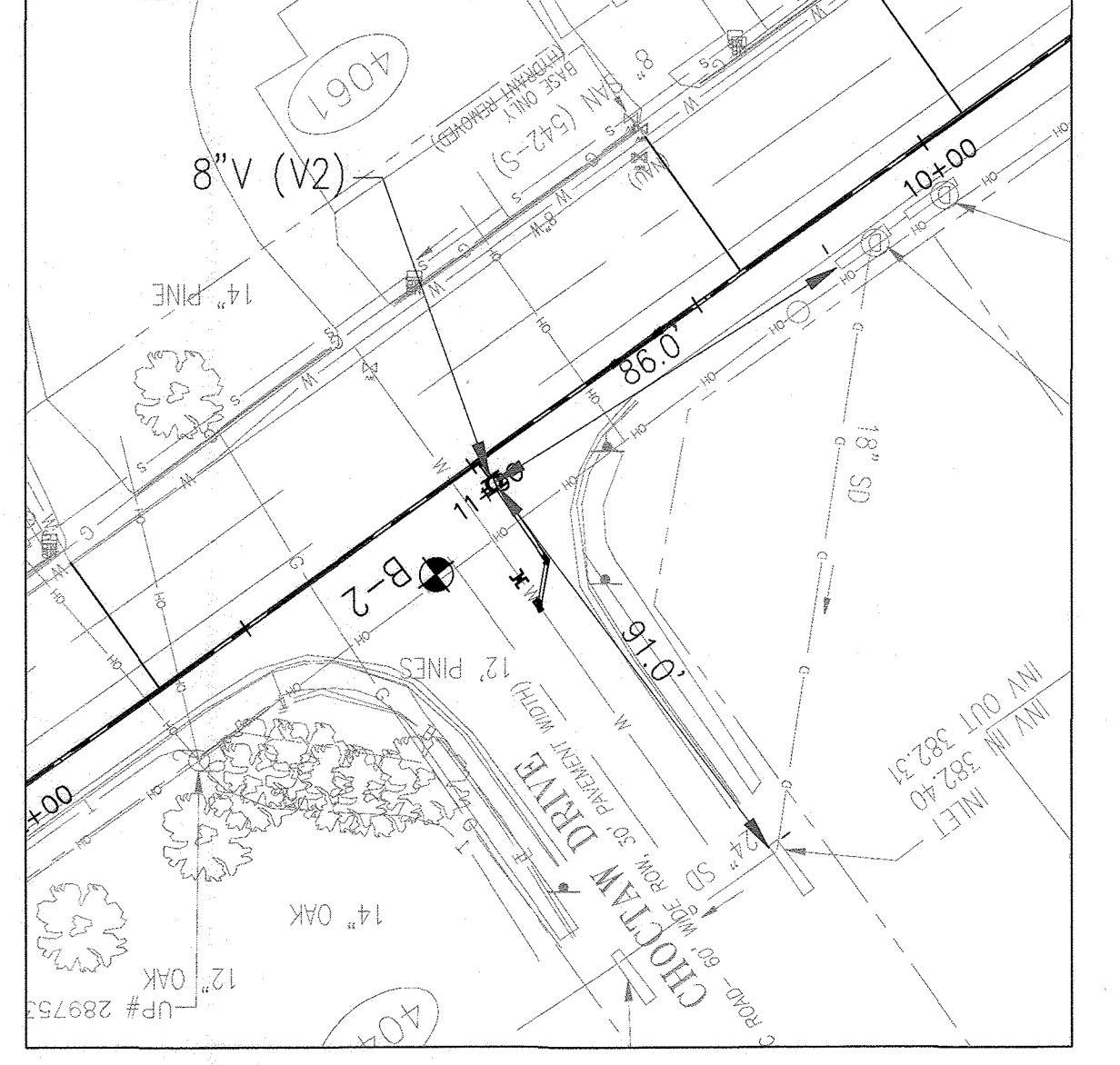
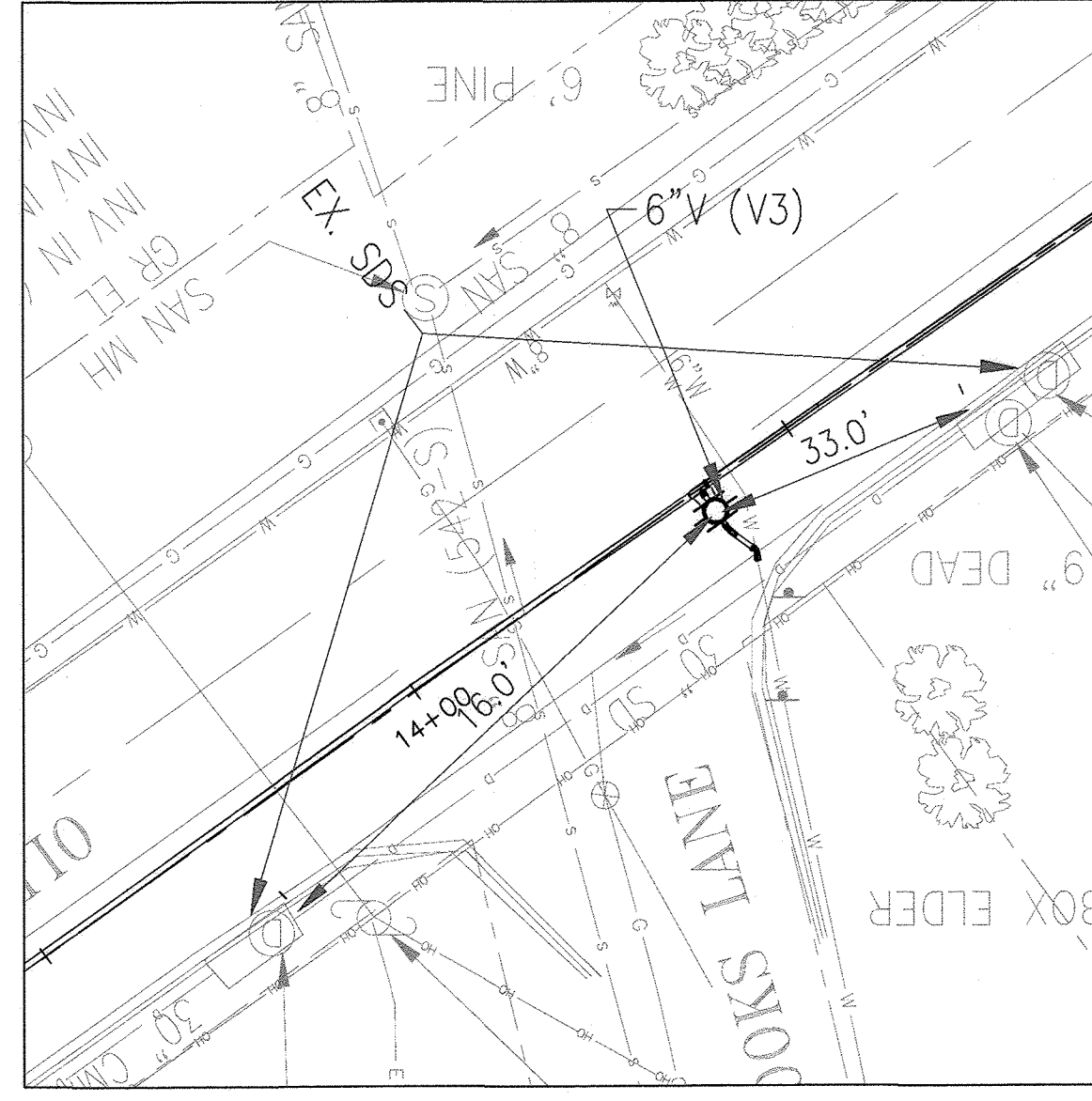
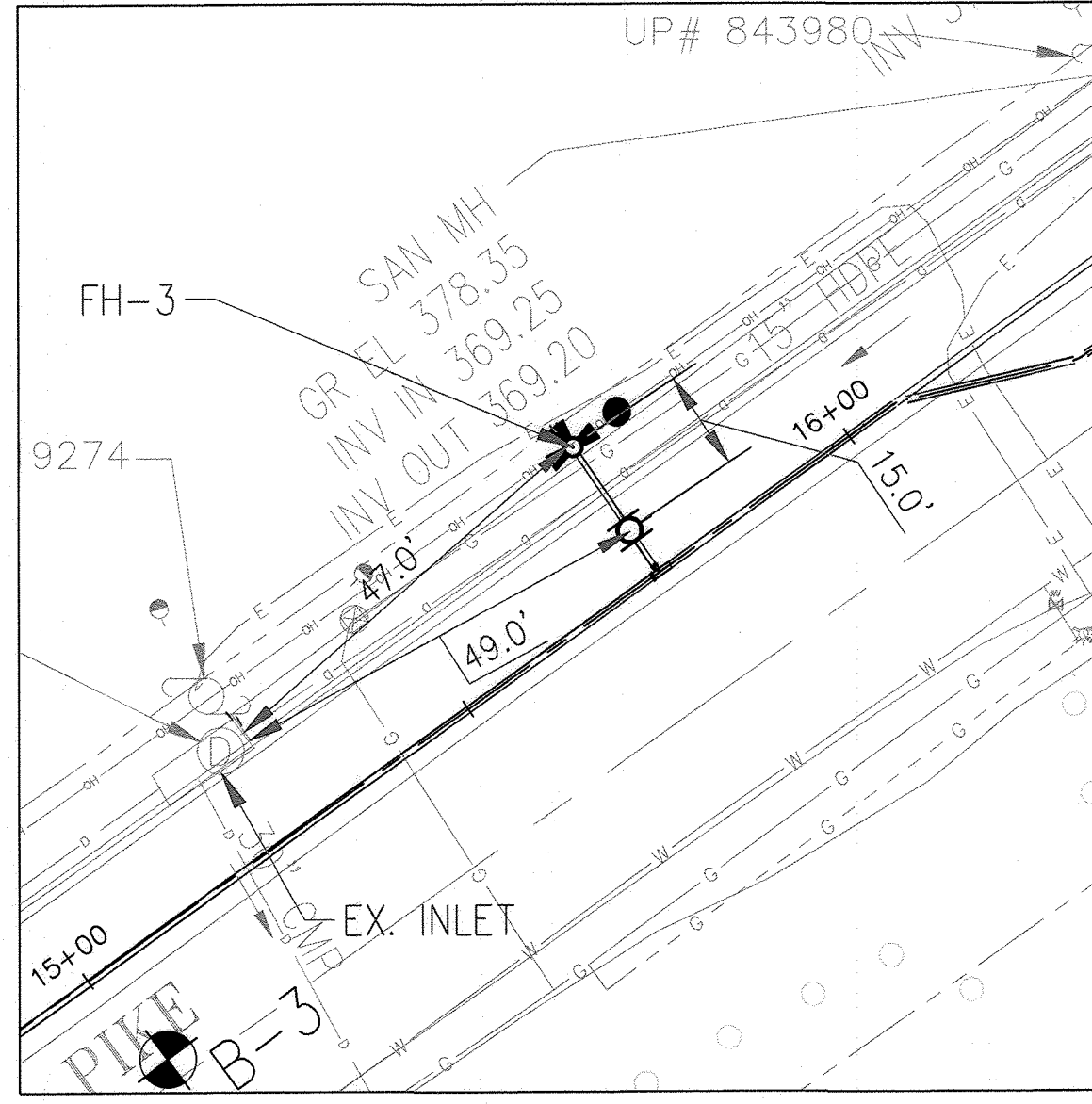
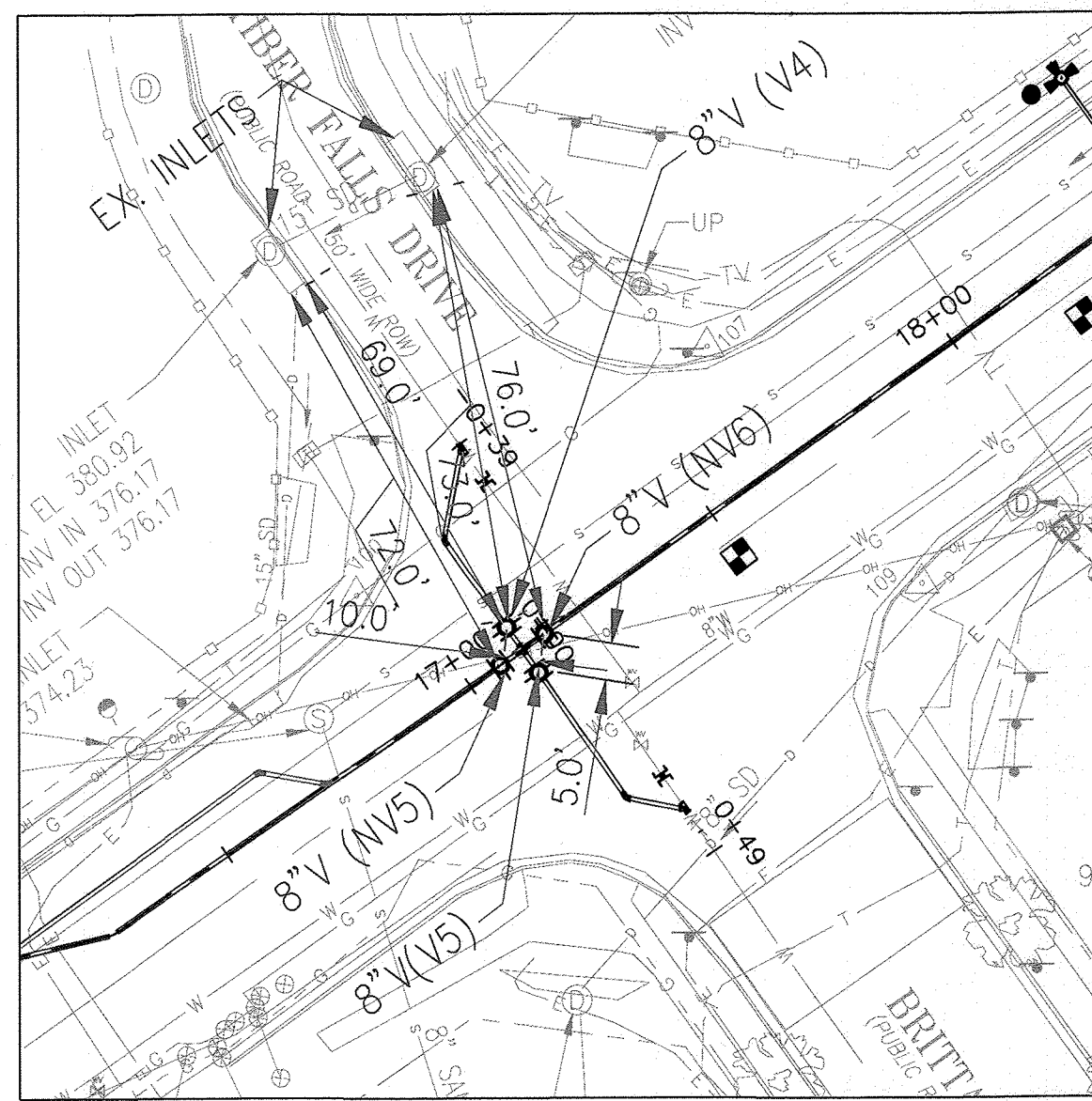
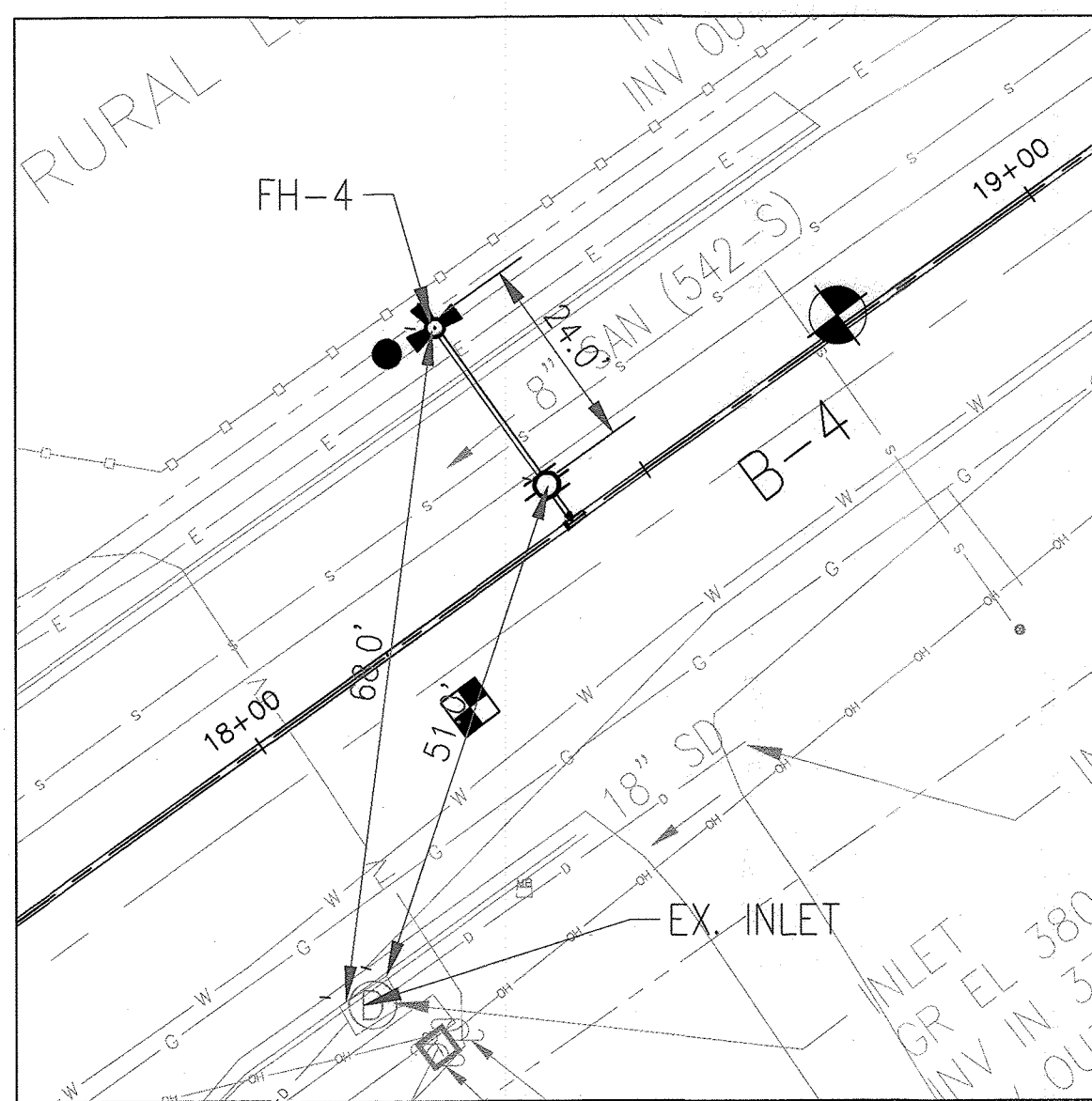
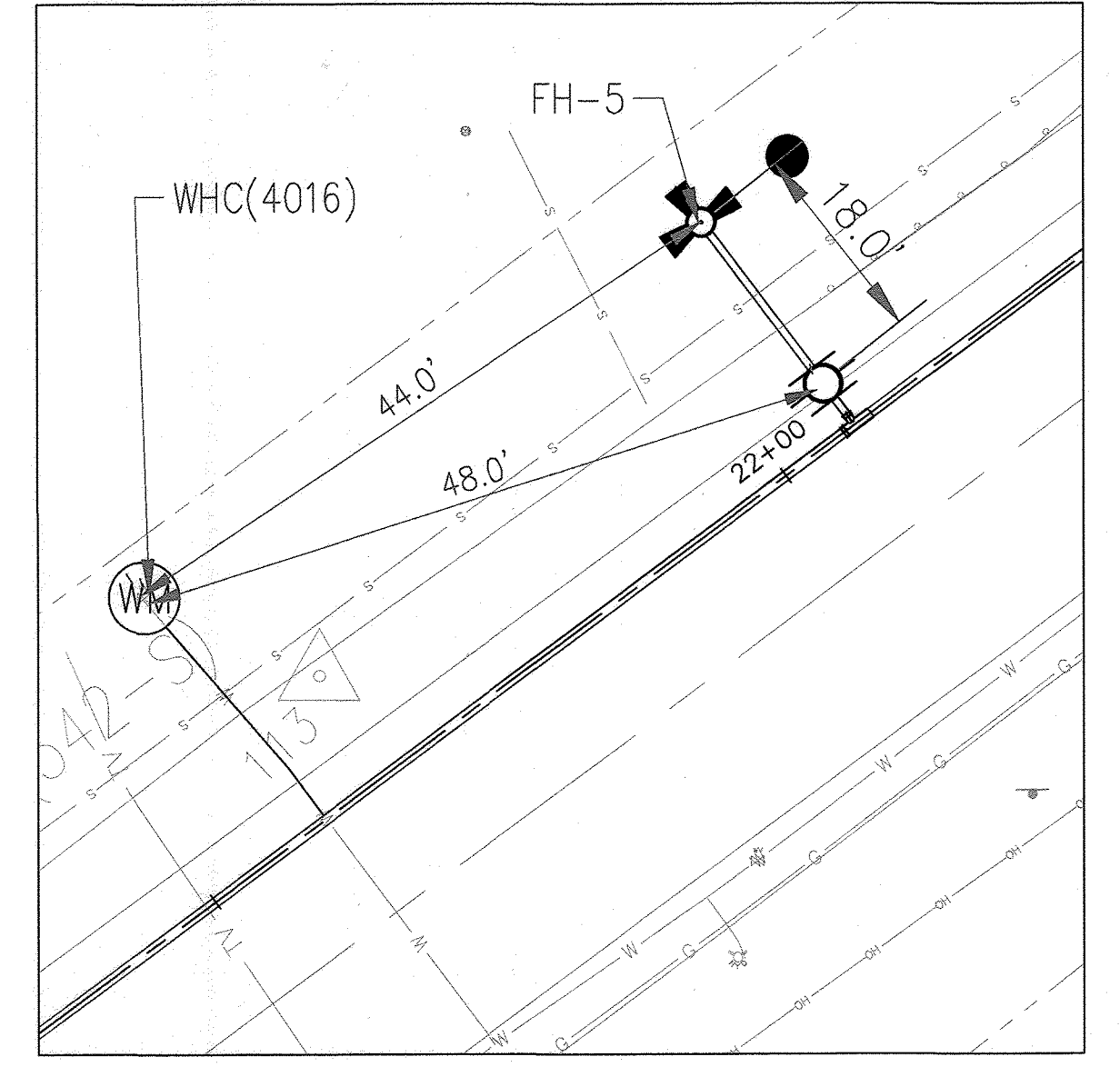
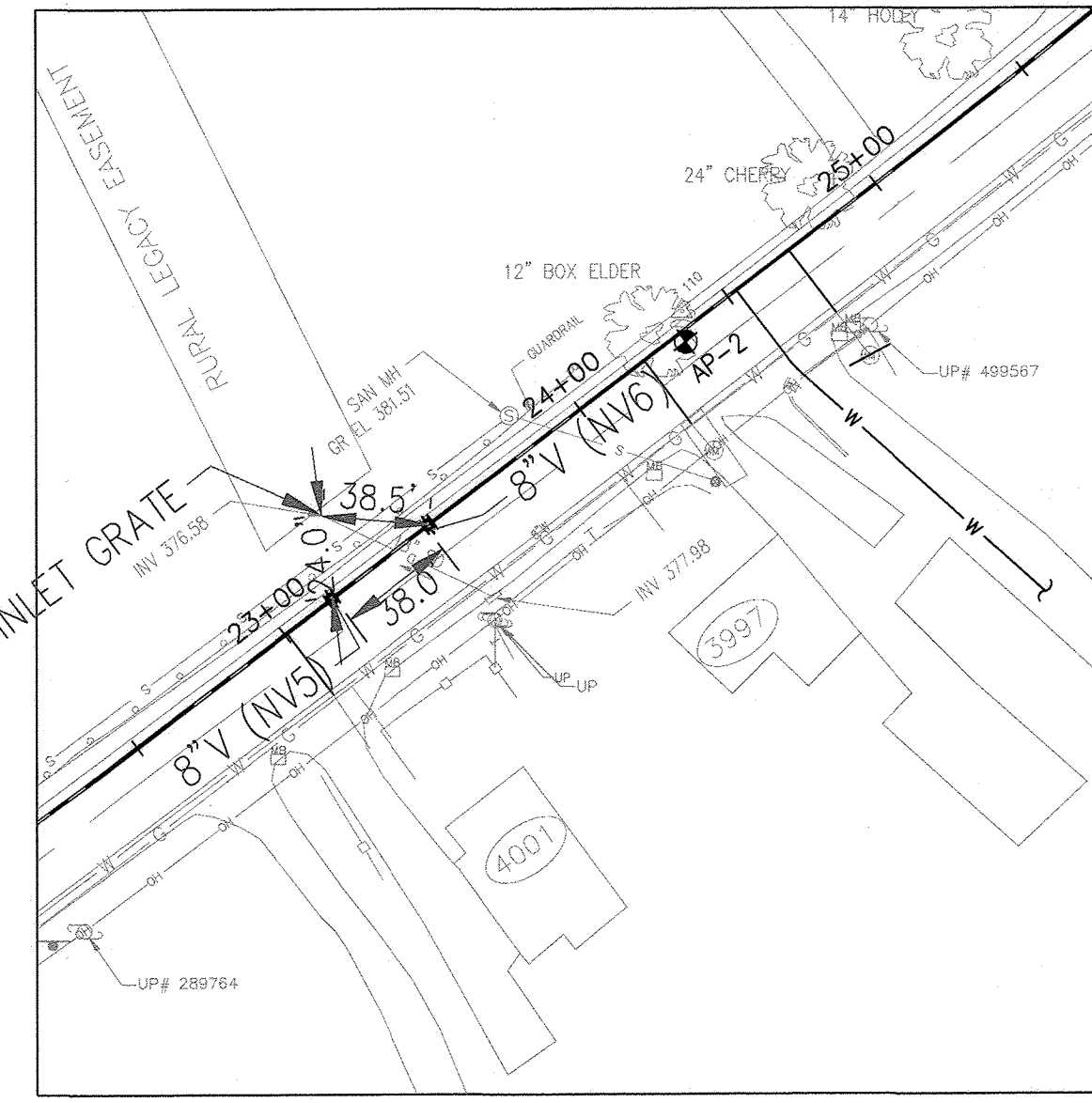
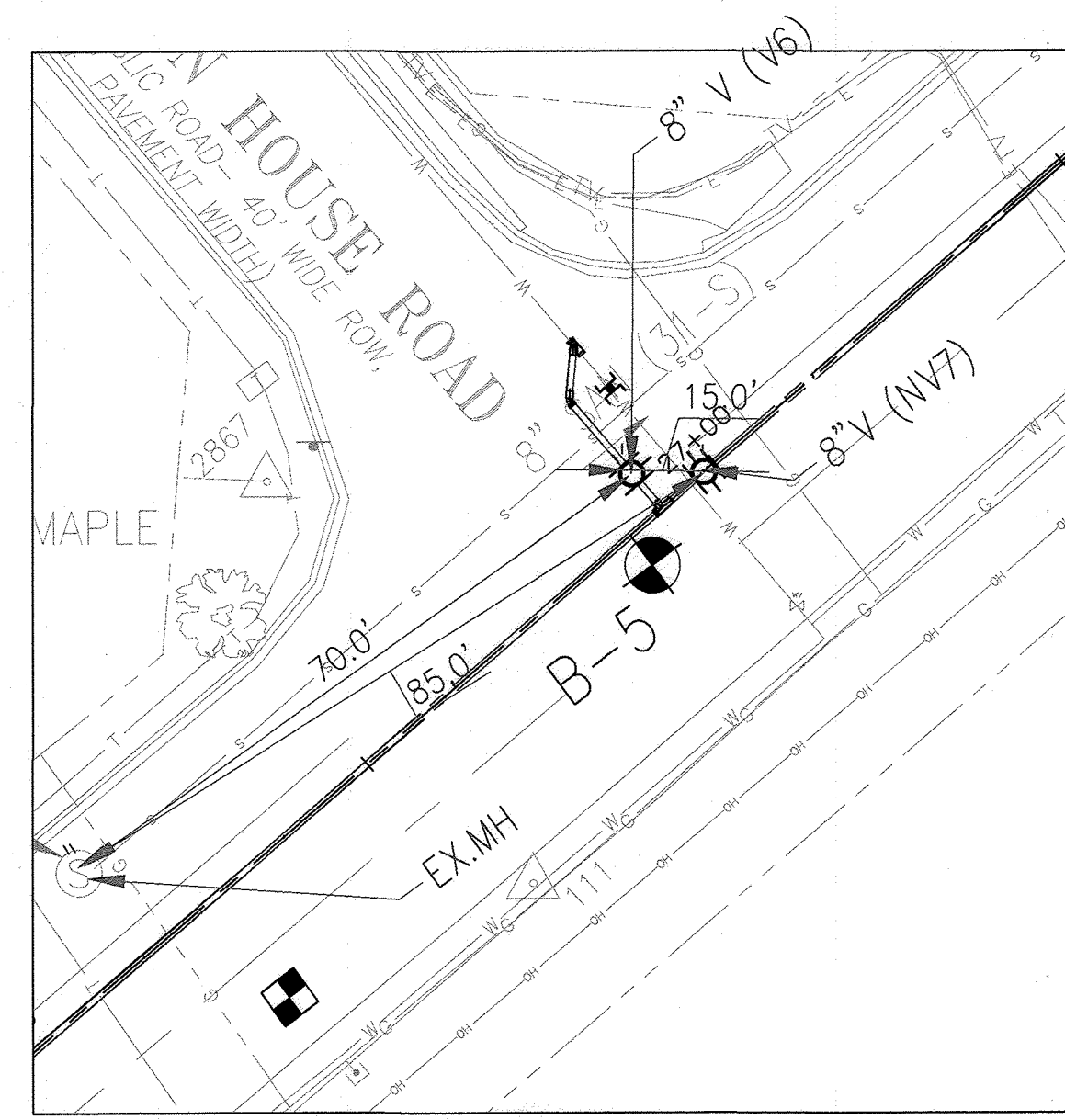
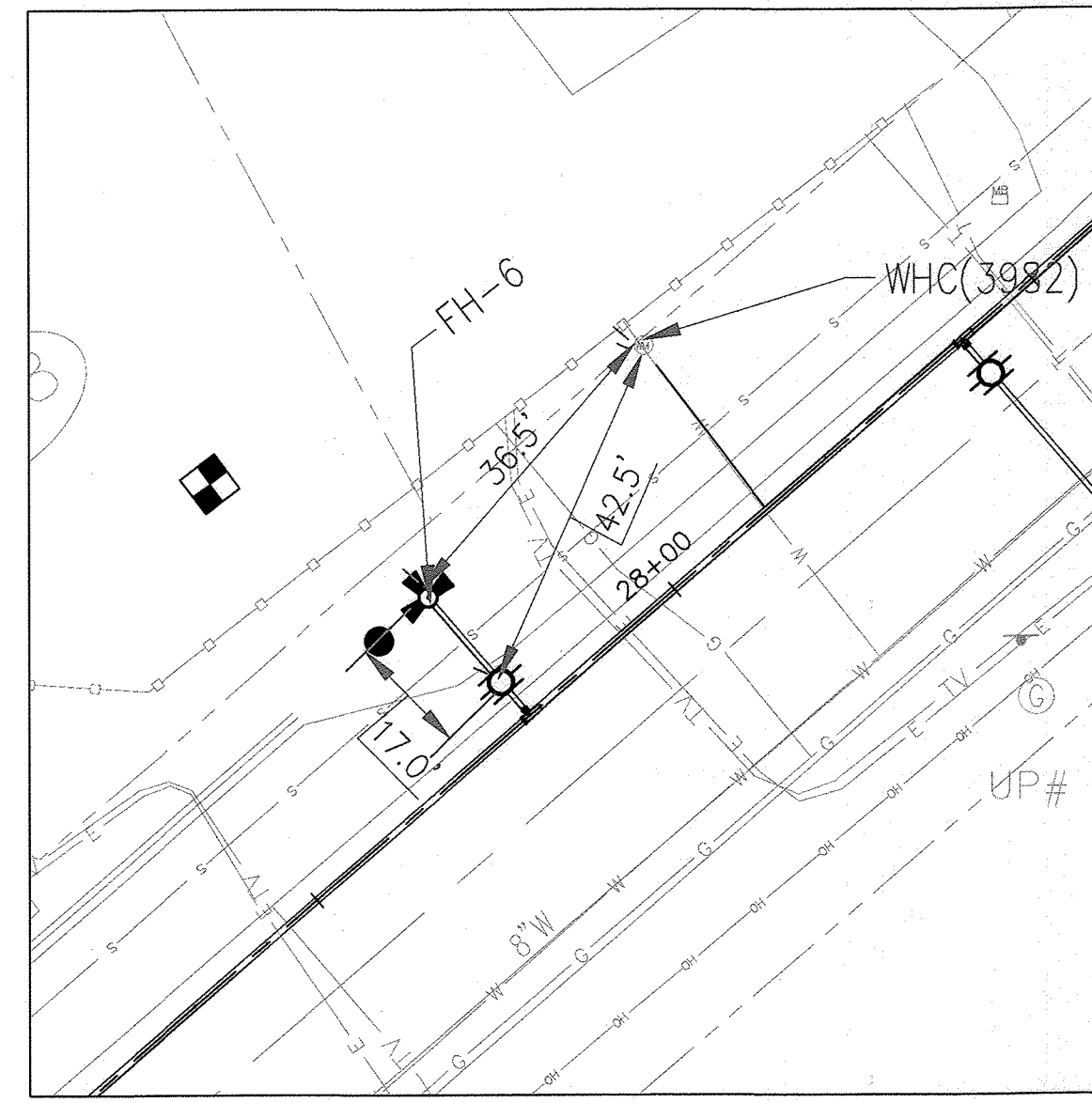
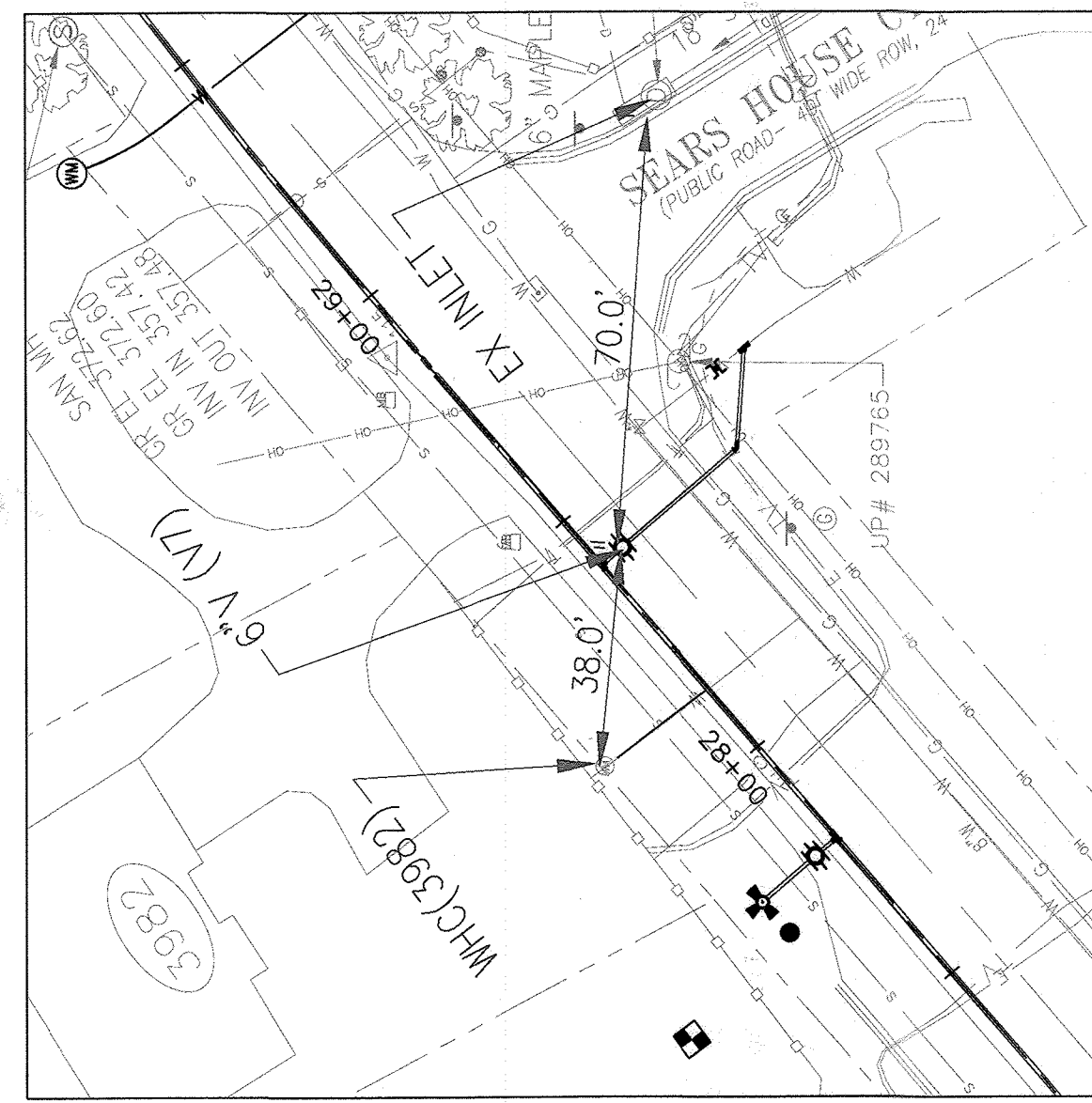
CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

SCALE:
AS SHOWN

SHEET NO.
2A OF 21

HOWARD COUNTY, MARYLAND



NEW AS-BUILT SHEET 2B OF 21

As Built
APRIL 08, 2024

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 5/21/24
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 5/14/2024
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 5/11/24
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 4/30/2024
CHIEF, UTILITY DESIGN DIVISION 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. 50345, EXPIRATION DATE: 12/15/2022

Gannett Fleming
BALTIMORE, MARYLAND

| DES: | BY: | NO. | REVISION | DATE |
|------------|-----|-----|----------|------|
| SJM | NHL | 1 | AS-BUILT | 4/24 |
| DRN: | | | | |
| SJM | | | | |
| CHK: | | | | |
| NHL | | | | |
| SIGN DATE: | | | | |

DECEMBER 2021

AS BUILT LOCATION

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

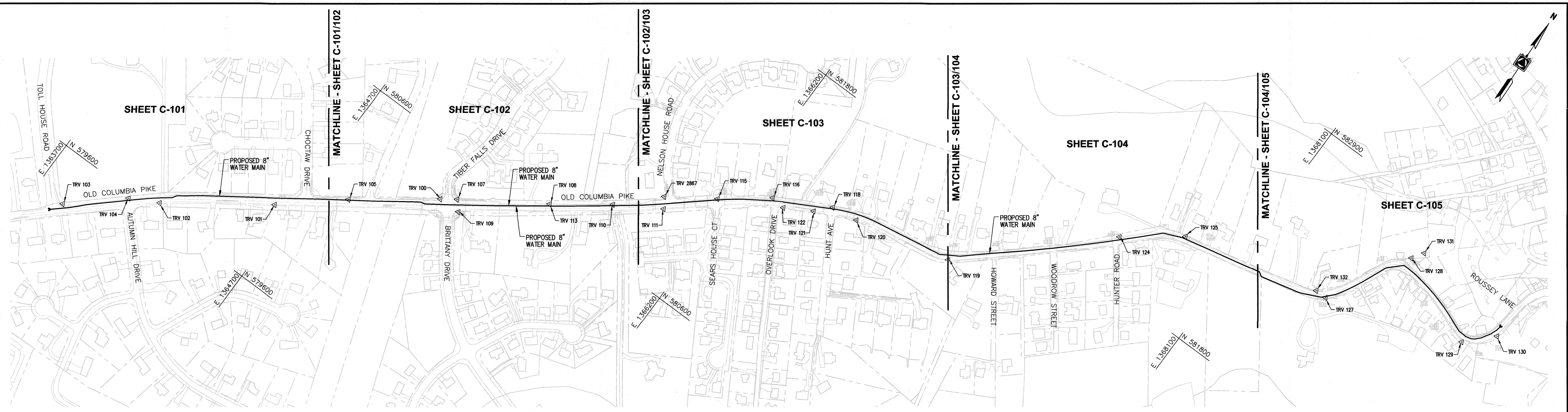
CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN REPLACEMENT PROJECT

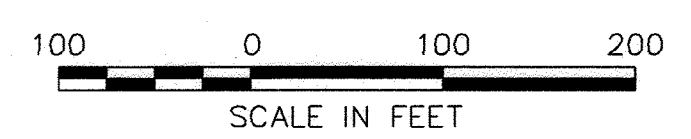
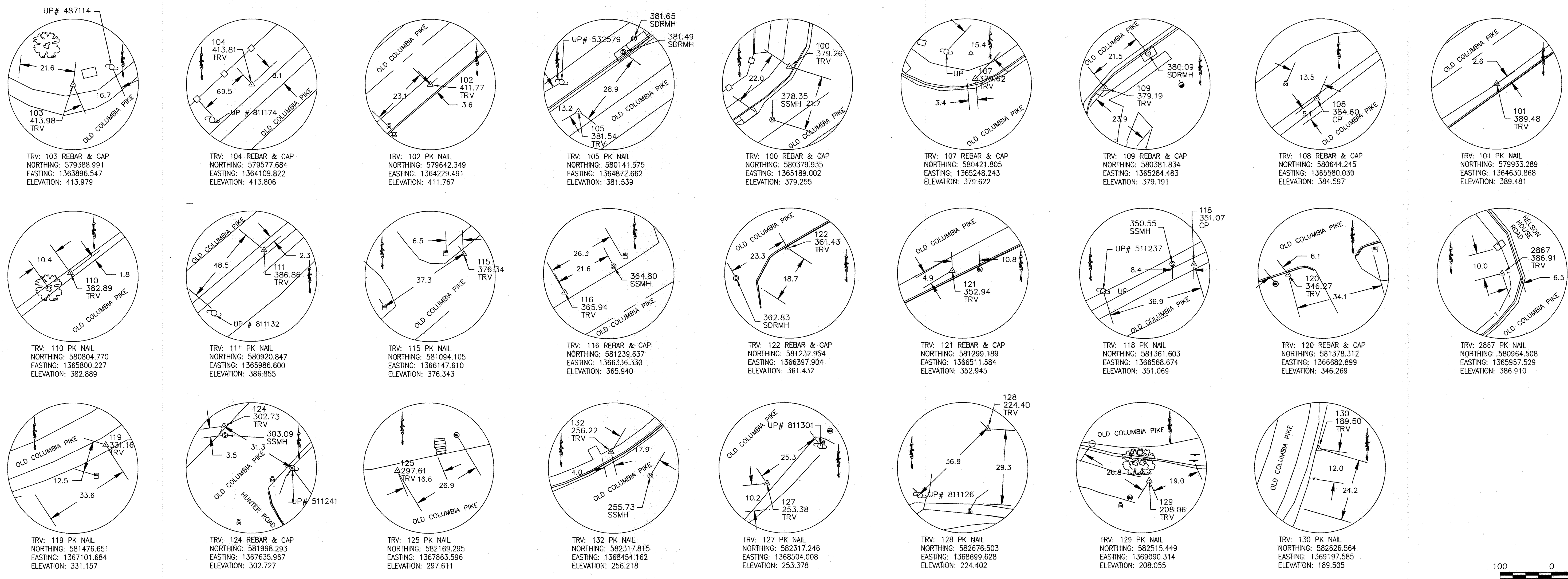
ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

SHEET NO.
2B OF 21



KEY PLAN
SCALE: 1"=200'



As Built
APRIL 08, 2024

C-001

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. M. M. M. 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

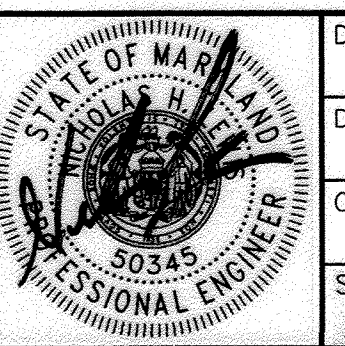
J. J. J. J. 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

S. S. S. S. 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

S. S. S. S. 12/20/2021
CHIEF, UTILITY DESIGN DIVISION DATE

PROFESSIONAL CERTIFICATION:
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Gannett Fleming
BALTIMORE, MARYLAND



| DES: | BY: | NO.: | REVISION: | DATE: |
|------------|----------|----------|-----------|-------|
| SJM | NHL | AS-BUILT | | 4/24 |
| DRN: | SJM | | | |
| CHK: | NHL | | | |
| SIGN DATE: | 12/14/21 | | | |

DECEMBER 2021

KEY SHEET AND STAKEOUT PLAN

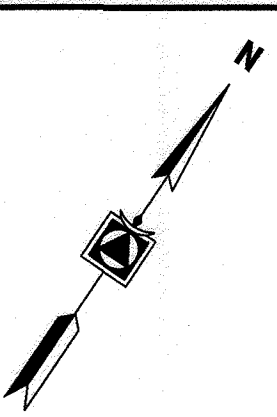
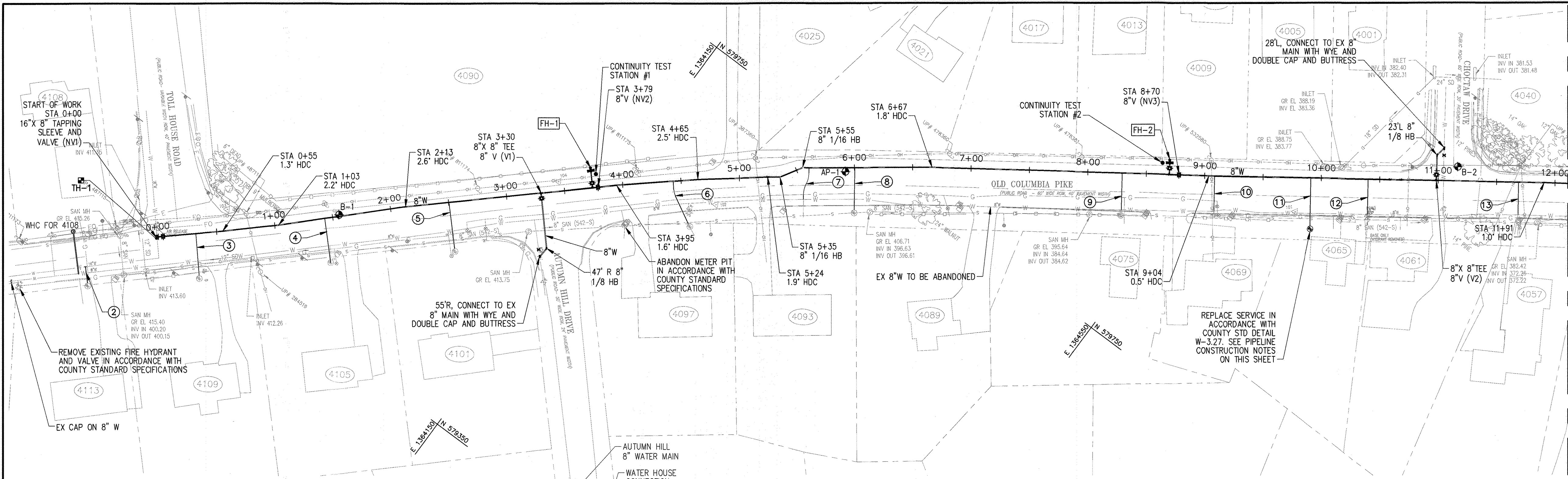
600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET NO. 3 OF 21



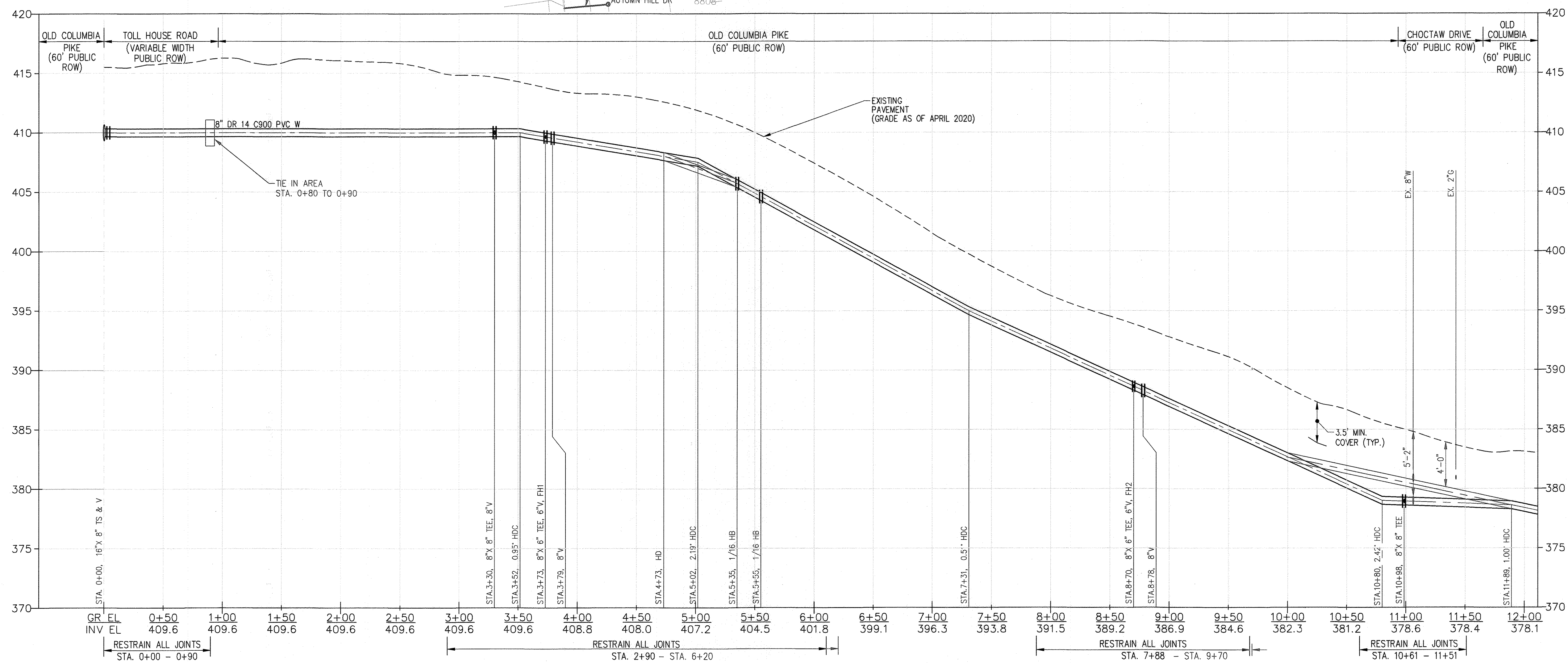
| FIRE HYDRANT ASSEMBLY TABLE | | | |
|-----------------------------|-------------|---------------|------------------|
| ID | LEAD LENGTH | FH INVERT EL. | FH BURY LINE EL. |
| FH-1 | 14.71' | 409.48 | 413.50 |
| FH-2 | 10.06' | 388.46 | 393.88 |

NOTE: FIRE HYDRANT ASSEMBLY INCLUDES HYDRANT LEAD, 6-INCH GATE VALVE, TEE, AND ALL APPURTENANCES SHOWN ON COUNTY STANDARD DETAIL W-1.11. ALL NEW FIRE HYDRANT CONSTRUCTION WILL OCCUR ENTIRELY WITHIN THE PUBLIC RIGHT-OF-WAY.

| WATER HOUSE CONNECTION TABLE | | | | |
|------------------------------|----------|------------------------|--------------|--------------|
| ID | STATION | ADDRESS | SERVICE SIZE | MATERIAL |
| 1 | NOT USED | - | - | - |
| 2 | -0+81 | 4113 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 3 | 0+33 | 4109 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 4 | 1+43 | 4105 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 5 | 2+50 | 4101 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 6 | 4+43 | 4097 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 7 | 5+61 | 4093 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 8 | 6+00 | 4089 OLD COLUMBIA PIKE | 1" | COPPER |
| 9 | 8+29 | 4075 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 10 | 9+08 | 4069 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 11 | 9+91 | 4065 OLD COLUMBIA PIKE | 3/4" | POLYETHYLENE |
| 12 | 10+40 | 4061 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 13 | 11+68 | 4057 OLD COLUMBIA PIKE | 3/4" | COPPER |

| NEW WATER MAIN STAKEOUT TABLE | | | |
|-------------------------------|-------------|--------------|---------------|
| STATION | NORTHING | EASTING | DESCRIPTION |
| 0+00 | 579334.4496 | 1363862.2820 | 16" X 8" TS&V |
| 5+35 | 579693.6755 | 1364259.6614 | 8" - 1/16 HB |
| 5+55 | 579711.7733 | 1364270.4995 | 8" - 1/16 HB |

SITE PLAN
SCALE: 1"=50'



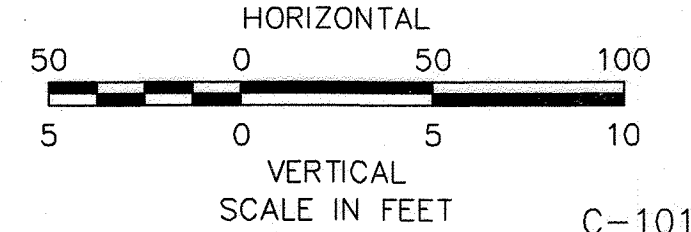
8" WATER MAIN PROFILE
SCALE: HORIZ. 1"=50'
VERT. 1"=5'

PIPELINE CONSTRUCTION NOTES

- ALL TIE-INS TO EXISTING WATER MAINS SHALL BE COORDINATED WITH THE HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 10 WORKING DAYS PRIOR TO SCHEDULING THE WORK.
- SALVAGEABLE VALVES AND APPURTENANCES TO BE REMOVED SHALL BE DELIVERED TO THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS - BUREAU OF UTILITIES, AS DIRECTED BY THE ENGINEER OR THE COUNTY.
- IN ACCORDANCE WITH THE 10 STATES STANDARD REQUIREMENTS, WHERE PROPOSED WATER MAIN CROSSES THE EXISTING OR PROPOSED SEWER, THE WATER MAIN SHALL BE INSTALLED WITH A MINIMUM 18-INCH VERTICAL CLEARANCE (BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER). ALL CROSSINGS OF THE NEW WATER MAIN WITH EXISTING SANITARY OR STORM SEWER PIPING SHALL BE ACCOMPLISHED BY CENTERING A FULL LENGTH OF THE NEW WATER MAIN PIPING AT THE CROSSING TO MAXIMIZE THE DISTANCE OF ANY WATER MAIN JOINT FROM THE CROSSING.
- NO WATER SHALL BE DISCHARGED FROM THE EXISTING WATER MAIN TO THE ENVIRONMENT, WITHOUT FIRST DECHLORINATING. THE CONTRACTOR SHALL SUBMIT THE DECHLORINATION METHOD TO THE ENGINEER FOR APPROVAL.
- EXISTING WATER HOUSE CONNECTIONS THAT ARE FOUND TO BE GALVANIZED STEEL OR POLYETHYLENE SHALL BE REPLACED WITH A 1" SERVICE LINE AND 3/4" METER, INCLUDING METER SETTINGS METER VAULTS, FRAME, AND LID. INSTALLATION SHALL BE IN ACCORDANCE WITH COUNTY STANDARD DETAIL W-3.27.
- THRUST RESTRAINT FOR WATER MAIN PIPE, VALVES, AND FITTINGS SHALL BE MADE EXCLUSIVELY BY RESTRAINED JOINT PIPE AND IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS. ALTERNATIVE METHODS FOR JOINT RESTRAINT, INCLUDING BUT NOT LIMITED TO, THRUST BLOCKING, THRUST COLLARS, AND TIED JOINT SYSTEMS WILL NOT BE CONSIDERED UNLESS SHOWN ON THE DRAWINGS.
- RESTRAINED JOINT LENGTHS ARE INDICATED ON THE PIPELINE PROFILES.
- RESTRAIN ALL JOINTS OF NEW BRANCH CONNECTIONS FROM THE CONNECTION TO THE NEW MAIN IN OCP TO THE TIE-IN TO THE EXISTING MAIN.
- MAXIMUM ALLOWABLE JOINT DEFLECTIONS SHALL BE IN STRICT ACCORDANCE WITH HOWARD COUNTY REQUIREMENTS. FOR MECHANICAL JOINT RESTRAINT, DEFLECTIONS SHALL BE MADE PRIOR TO TIGHTENING RESTRAINING BOLTS.
- ALL RESTRAINED JOINTS SHALL BE FULLY EXTENDED DURING INSTALLATION.
- CONTRACTOR SHALL PROVIDE TEMPORARY RESTRAINT AND BLOCKING NECESSARY TO COMPLETE HYDROSTATIC TESTING OF THE FORCE MAIN AT NO ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING IN WRITING OR BY DOOR HANGERS ALL CUSTOMERS AT LEAST 4 DAYS PRIOR TO ANY SERVICE INTERRUPTION. SERVICE INTERRUPTIONS WILL BE NECESSARY FOR TRANSFERRING CONNECTIONS TO NEW MAIN OR FOR RELOCATION OF WATER METERS. IN THE EVENT OF AN UNPLANNED OUTAGE THE CONTRACTOR SHALL NOTIFY IMPACTED BUSINESS IN PERSON.

SHEET NOTES

- SEE DRAWING C-201 FOR PIPELINE CONSTRUCTION DETAILS AND REFERENCES TO COUNTY STANDARDS.



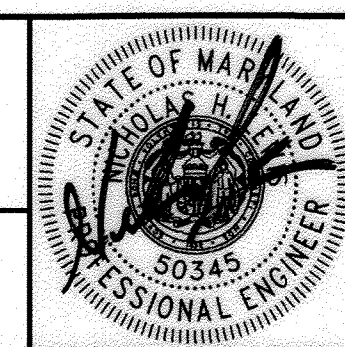
As Built
APRIL 08, 2024

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 12/20/2021
 Chief, Bureau of Engineering: *[Signature]* 12-17-21
 Chief, Bureau of Utilities: *[Signature]* 12/20/2021
 Chief, Utility Design Division: *[Signature]* 12/16/21

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. 50345, EXPIRATION DATE: 12/15/2022

Gannett Fleming
BALTIMORE, MARYLAND



| DES: | BY: | NO.: | REVISION: | DATE: |
|------------|----------|------|-----------|-------|
| SJM | NHL | 1 | AS-BUILT | 4/24 |
| DRN: | SJM | | | |
| CHK: | NHL | | | |
| SIGN DATE: | 12/14/21 | | | |

DECEMBER 2021

PIPELINE PLAN AND PROFILE

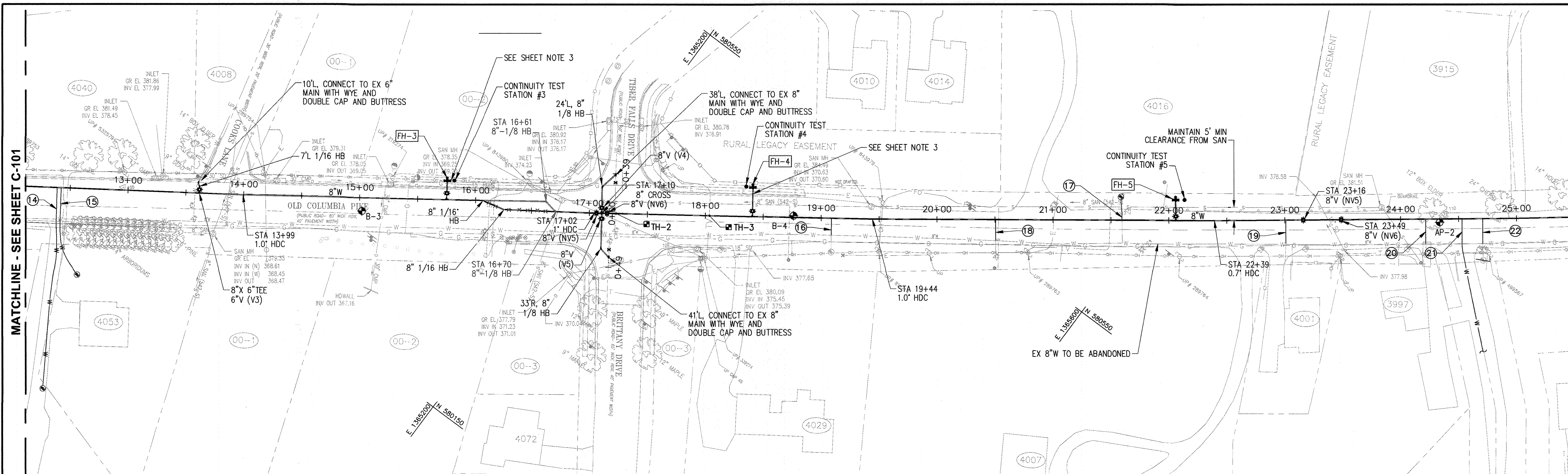
600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24 ELECTION DISTRICT NO. 2

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN REPLACEMENT PROJECT

HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET NO. 4 OF 21



SITE PLAN
SCALE: 1"=50'

FIRE HYDRANT ASSEMBLY TABLE

| ID | LEAD LENGTH | FH INVERT EL. | FH BURY LINE EL. |
|------|-------------|---------------|------------------|
| FH-3 | 16.23' | 375.76 | 381.11 |
| FH-4 | 25.18' | 375.94 | 381.21 |
| FH-5 | 17.84' | 377.27 | 382.46 |

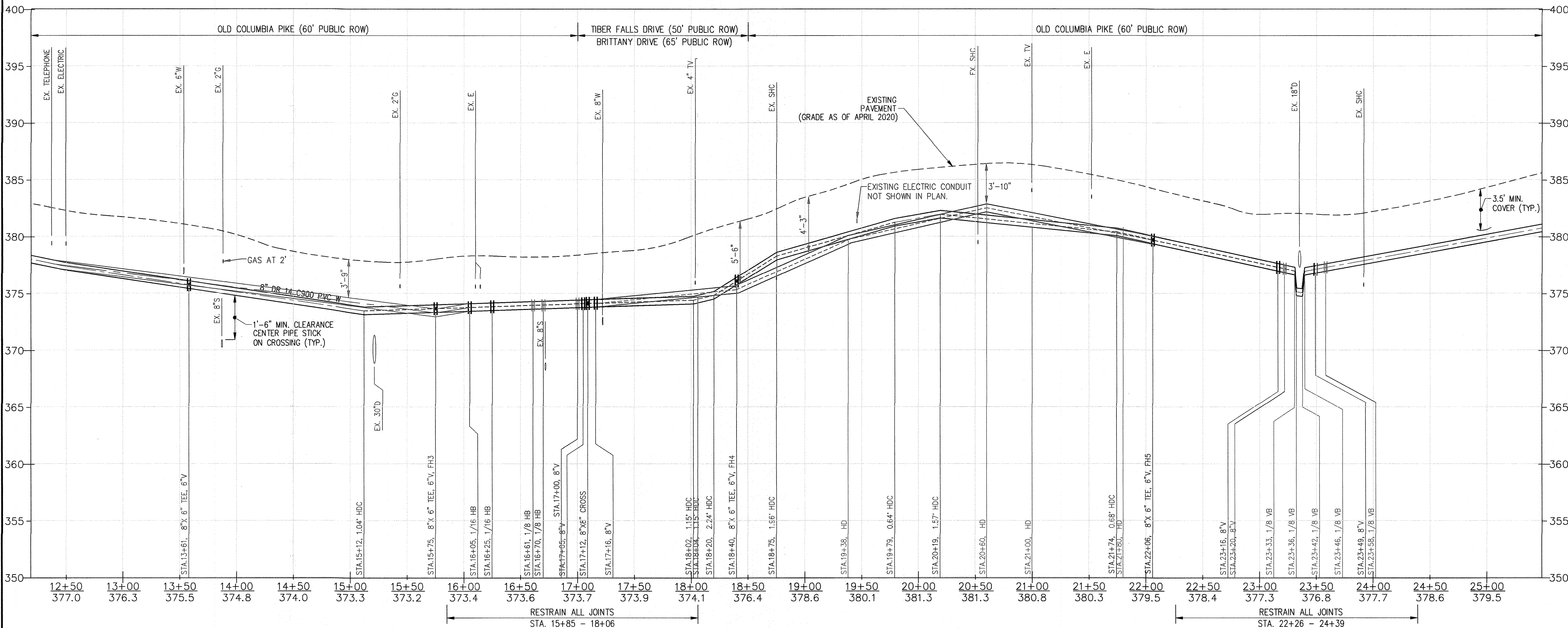
NOTE: FIRE HYDRANT ASSEMBLY INCLUDES HYDRANT LEAD, 6-INCH GATE VALVE, TEE, AND ALL APPURTENANCES SHOWN ON COUNTY STANDARD DETAIL W-1.11. ALL NEW FIRE HYDRANT CONSTRUCTION WILL OCCUR ENTIRELY WITHIN THE PUBLIC RIGHT-OF-WAY.

WATER HOUSE CONNECTION TABLE

| ID | STATION | ADDRESS | SERVICE SIZE | MATERIAL |
|----|---------|------------------------|--------------|--------------|
| 14 | 12+39 | 4055 OLD COLUMBIA PIKE | 1" | COPPER |
| 15 | 12+42 | 4053 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 16 | 19+08 | 4029 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 17 | 21+59 | 4016 OLD COLUMBIA PIKE | 3/4" | POLYETHYLENE |
| 18 | 20+50 | 4007 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 19 | 23+00 | 4001 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 20 | 24+21 | 3997 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 21 | 24+52 | 3993 OLD COLUMBIA PIKE | 1" | COPPER |
| 22 | 24+70 | 3989 OLD COLUMBIA PIKE | 1" | COPPER |

NEW WATER MAIN STAKEOUT TABLE

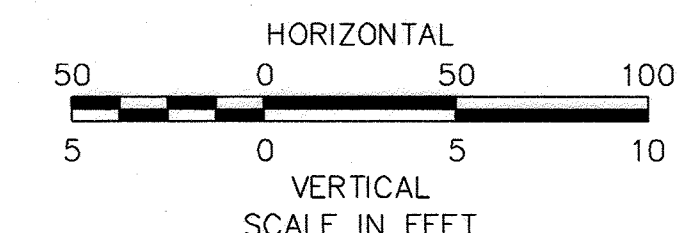
| STATION | NORTHING | EASTING | DESCRIPTION |
|---------|-------------|--------------|--------------|
| 16+06 | 580318.3941 | 1365128.1648 | 8" - 1/16 HB |
| 17+26 | 580322.9723 | 1365147.5987 | 8" - 1/16 HB |



8" WATER MAIN PROFILE
SCALE: HORIZ. 1"=50'
VERT. 1"=5'

SHEET NOTES

- SEE DRAWING C-201 FOR PIPELINE CONSTRUCTION DETAILS AND REFERENCES TO COUNTY STANDARDS.
- SEE DRAWING C-101 FOR PIPELINE CONSTRUCTION NOTES.
- REMOVE AND REPLACE SIDEWALK, CURB, AND GUTTER AS REQUIRED FOR HYDRANT INSTALLATION.



As Built
APRIL 08, 2024

C-102

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

Director of Public Works: *[Signature]* 12/20/2021
 Chief, Bureau of Engineering: *[Signature]* 12-17-21
 Chief, Bureau of Utilities: *[Signature]* 12/20/2021
 Chief, Utility Design Division: *[Signature]* 12/17/21

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. 50345, EXPIRATION DATE: 12/15/2022

Gannett Fleming
BALTIMORE, MARYLAND



| DES. | BY | NO. | REVISION | DATE |
|------|-----|-----|----------|------|
| SJM | NHL | 1 | AS-BUILT | 4/24 |
| SJM | | | | |
| NHL | | | | |

SIGN DATE: 12/14/21

DECEMBER 2021

PIPELINE PLAN AND PROFILE

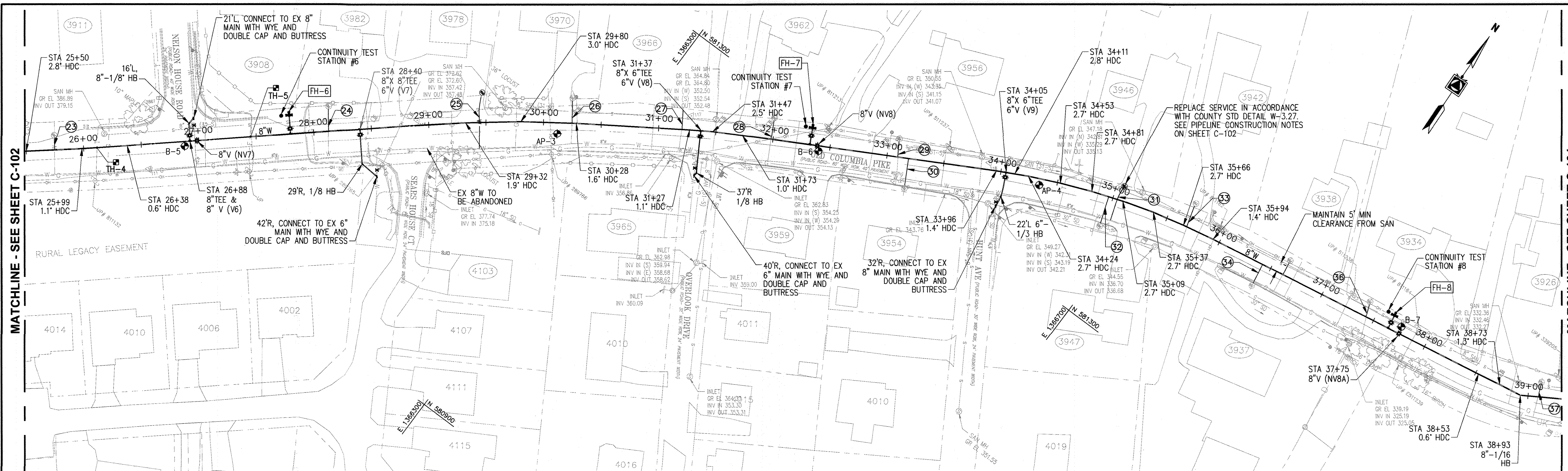
600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN REHABILITATION

SCALE: AS SHOWN
SHEET NO. 5 OF 21

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND



| ID | LEAD LENGTH | FH INVERT EL. | FH BURY LINE EL. |
|------|-------------|---------------|------------------|
| FH-6 | 16.46' | 377.12 | 382.01 |
| FH-7 | 14.67' | 351.30 | 356.49 |
| FH-8 | 12.34' | 334.30 | 339.19 |

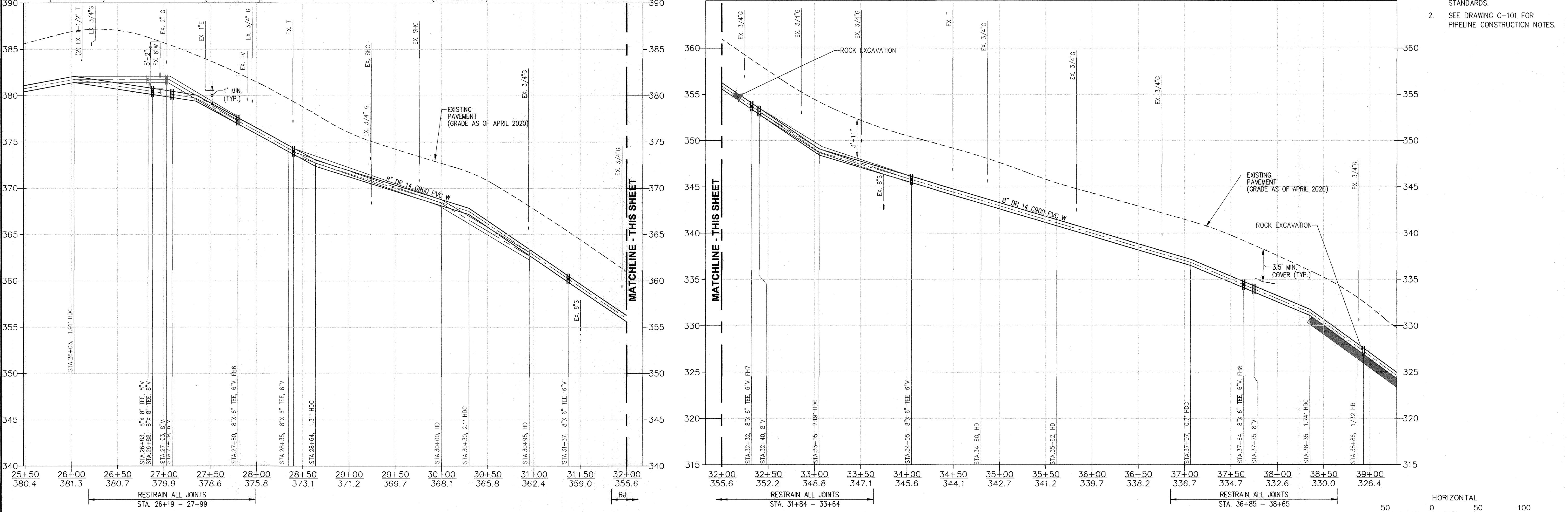
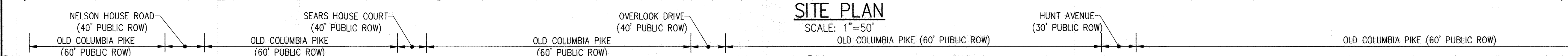
NOTE: FIRE HYDRANT ASSEMBLY INCLUDES HYDRANT LEAD, 6-INCH GATE VALVE, TEE, AND ALL APPURTENANCES SHOWN ON COUNTY STANDARD DETAIL W-1.11. ALL NEW FIRE HYDRANT CONSTRUCTION WILL OCCUR ENTIRELY WITHIN THE PUBLIC RIGHT-OF-WAY.

| ID | STATION | ADDRESS | SERVICE SIZE | MATERIAL |
|----|---------|------------------------|--------------|------------|
| 23 | 25+75 | 3911 NELSON HOUSE RD | 1" | COPPER |
| 24 | 28+13 | 3982 OLD COLUMBIA PIKE | 1" | COPPER |
| 25 | 29+44 | 3978 OLD COLUMBIA PIKE | 1" | COPPER |
| 26 | 30+24 | 3970 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 27 | 31+20 | 3966 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 28 | 31+98 | 3962 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 29 | 33+09 | 3956 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 30 | 33+19 | 3954 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 31 | 35+04 | 3946 OLD COLUMBIA PIKE | 3/4" | POLYETHENE |
| 32 | 34+96 | 3947 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 33 | 35+68 | 3942 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 34 | 36+42 | 3937 OLD COLUMBIA PIKE | 1" | UNKNOWN |
| 35 | 36+62 | 3938 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 36 | 37+42 | 3934 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 37 | 39+09 | 3926 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |

| STATION | NORTHING | EASTING | DESCRIPTION |
|---------|-------------|--------------|--------------|
| 16+06 | 580318.3941 | 1365128.1648 | 8" - 1/16 HB |

SITE PLAN

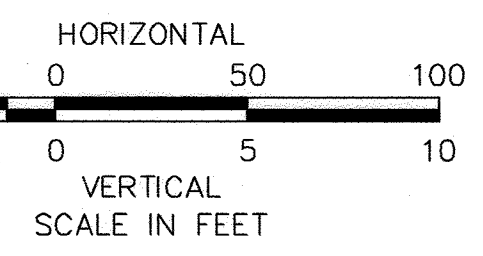
SCALE: 1"=50'



8" WATER MAIN PROFILE

SCALE: HORIZ. 1"= 50'
VERT. 1"= 5'

As Built
APRIL 08, 2024



DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

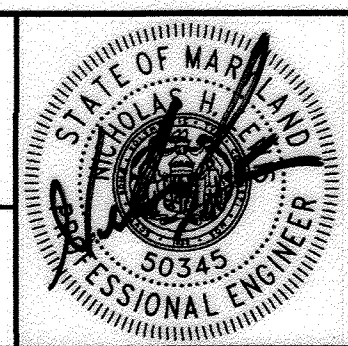
[Signature] 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 12/20/2021
CHIEF, UTILITY DESIGN DIVISION DATE

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Gannett Fleming
BALTIMORE, MARYLAND



| DES. | BY | NO. | REVISION | DATE |
|------|-----|-----|----------|------|
| SJM | NHL | 1 | AS-BUILT | 4/24 |
| SJM | | | | |
| NHL | | | | |

SIGN DATE: 12/14/21

DECEMBER 2021

PIPELINE PLAN AND PROFILE

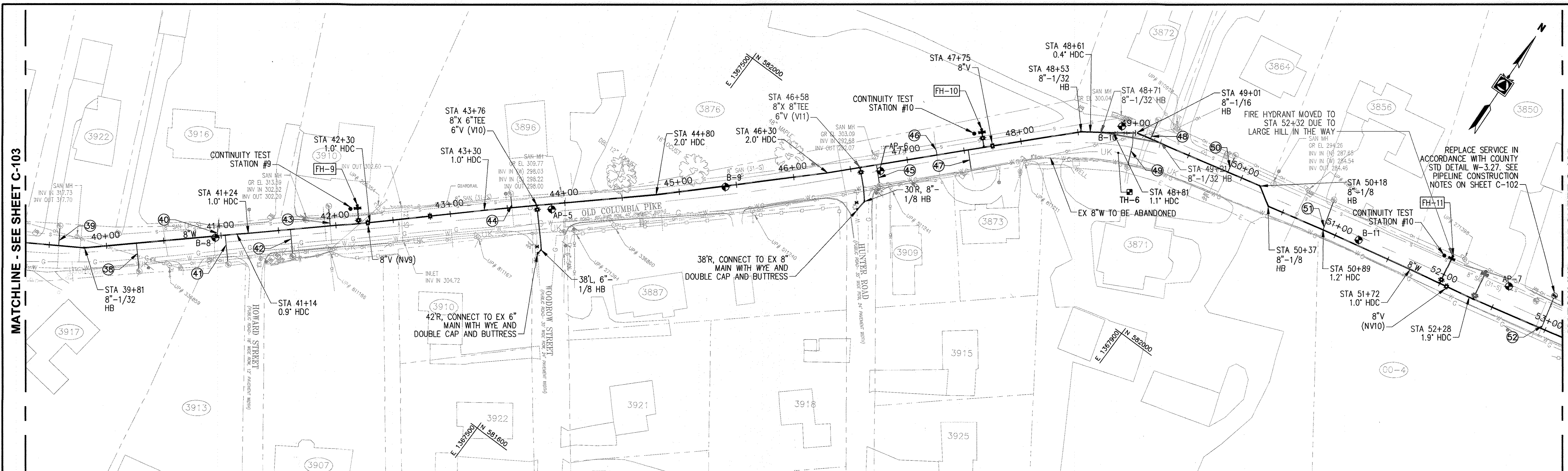
600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24 ELECTION DISTRICT NO. 2

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN REHABILITATION

HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET NO. 6 OF 21



SITE PLAN
SCALE: 1"=50'

| FIRE HYDRANT ASSEMBLY TABLE | | | |
|-----------------------------|-------------|---------------|------------------|
| ID | LEAD LENGTH | FH INVERT EL. | FH BURY LINE EL. |
| FH-9 | 13.35' | 306.60 | 310.76 |
| FH-10 | 13.29' | 297.47 | 301.64 |
| FH-11 | 30.76' | 272.36 | 277.69 |

NOTE: FIRE HYDRANT ASSEMBLY INCLUDES HYDRANT LEAD, 6-INCH GATE VALVE, TEE, AND ALL APPURTENANCES SHOWN ON COUNTY STANDARD DETAIL W-1.11. ALL NEW FIRE HYDRANT CONSTRUCTION WILL OCCUR ENTIRELY WITHIN THE PUBLIC RIGHT-OF-WAY.

| WATER HOUSE CONNECTION TABLE | | | | |
|------------------------------|---------|------------------------|--------------|------------|
| ID | STATION | ADDRESS | SERVICE SIZE | MATERIAL |
| 38 | 40+26 | 3917 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 39 | 39+58 | 3922 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 40 | 40+97 | 3916 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 41 | 41+03 | 3913 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 42 | 41+60 | 3907 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 43 | 41+95 | 3910 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 44 | 43+54 | 3896 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 45 | 46+72 | 3909 HUNTER RD | 3/4" | COPPER |
| 46 | 47+26 | 3876 OLD COLUMBIA PIKE | 1" | COPPER |
| 47 | 47+53 | 3873 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 48 | 49+14 | 3872 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 49 | 48+98 | 3871 OLD COLUMBIA PIKE | 1" | COPPER |
| 50 | 49+87 | 3864 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 51 | 50+88 | 3856 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 52 | 52+96 | 3850 OLD COLUMBIA PIKE | 3/4" | POLYETHENE |

| NEW WATER MAIN STAKEOUT TABLE | | | |
|-------------------------------|-------------|--------------|--------------|
| STATION | NORTHING | EASTING | DESCRIPTION |
| 39+81 | 581521.1539 | 1367133.2196 | 8" - 1/32 HB |
| 48+53 | 582119.5178 | 1367767.3247 | 8" - 1/32 HB |
| 49+00 | 582147.3676 | 1367806.5874 | 8" - 1/16 HB |
| 50+17 | 582174.5193 | 1367919.7840 | 8" - 1/8 HB |
| 50+38 | 582164.6237 | 1367936.3208 | 8" - 1/8 HB |



8" WATER MAIN PROFILE
SCALE: HORIZ. 1"= 50'
VERT. 1"= 5'

- SHEET NOTES**
- SEE DRAWING C-201 FOR PIPELINE CONSTRUCTION DETAILS AND REFERENCES TO COUNTY STANDARDS.
 - SEE DRAWING C-101 FOR PIPELINE CONSTRUCTION NOTES.

As Built
APRIL 08, 2024

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

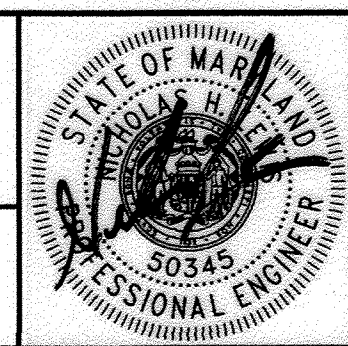
[Signature] 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 12/20/21
CHIEF, UTILITY DESIGN DIVISION DATE

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Gannett Fleming
BALTIMORE, MARYLAND



| DES. | BY | NO. | REVISION | DATE |
|------|-----|----------|----------|------|
| SJM | NHL | AS-BUILT | | 4/24 |
| SJM | | | | |
| NHL | | | | |

SIGN DATE: 12/14/21

PIPELINE PLAN AND PROFILE

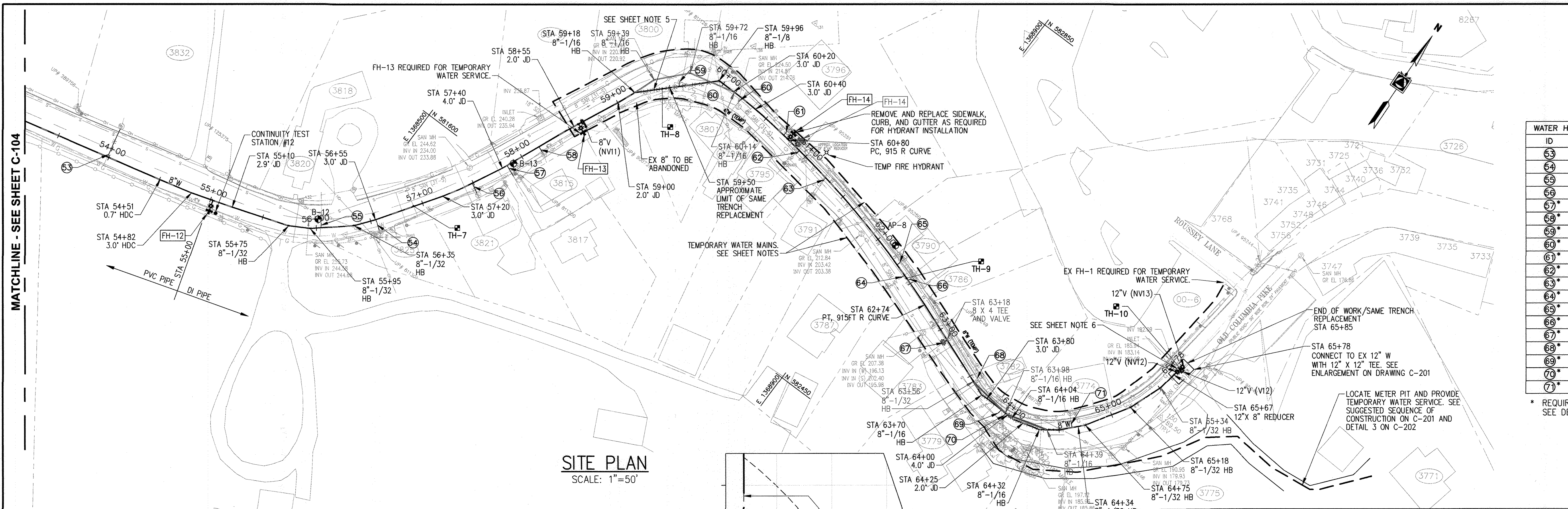
600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166
OLD COLUMBIA PIKE WATER MAIN REHABILITATION

SCALE: AS SHOWN
SHEET NO. 7 OF 21

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

MATCHLINE - SEE SHEET C-104



SITE PLAN
SCALE: 1"=50'

| FIRE HYDRANT ASSEMBLY TABLE | | | |
|-----------------------------|-------------|---------------|------------------|
| ID | LEAD LENGTH | FH INVERT EL. | FH BURY LINE EL. |
| FH-12 | 10.00' | 255.81 | 260.84 |
| FH-13 | 8.92' | 229.87 | 235.25 |
| FH-14 | 7.14' | 216.06 | 221.16 |

NOTE: FIRE HYDRANT ASSEMBLY INCLUDES HYDRANT LEAD, 6-INCH GATE VALVE, TEE, AND ALL APPURTENANCES SHOWN ON COUNTY STANDARD DETAIL W-1.11. ALL NEW FIRE HYDRANT CONSTRUCTION WILL OCCUR ENTIRELY WITHIN THE PUBLIC RIGHT-OF-WAY.

| WATER HOUSE CONNECTION TABLE | | | | |
|------------------------------|---------|------------------------|--------------|----------|
| ID | STATION | ADDRESS | SERVICE SIZE | MATERIAL |
| 53 | 53+99 | 3832 OLD COLUMBIA PIKE | 1" | COPPER |
| 54 | 56+55 | 3829 OLD COLUMBIA PIKE | 1" | UNKNOWN |
| 55 | 56+04 | 3820 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 56 | 57+49 | 3821 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 57 | 57+85 | 3817 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 58 | 58+18 | 3815 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 59 | 59+59 | 3800 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 60 | 60+21 | 3801 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 61 | 60+72 | 3796 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 62 | 60+92 | 3795 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 63 | 61+26 | 3791 OLD COLUMBIA PIKE | 3/4" | COPPER |
| 64 | 62+41 | 3787 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 65 | 62+29 | 3790 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 66 | 62+46 | 3786 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 67 | 63+11 | 3783 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 68 | 63+55 | 3782 OLD COLUMBIA PIKE | 3/4" | UNKNOWN |
| 69 | 63+93 | 3779 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 70 | 63+98 | 3775 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |
| 71 | 64+62 | 3774 OLD COLUMBIA PIKE | UNKNOWN | UNKNOWN |

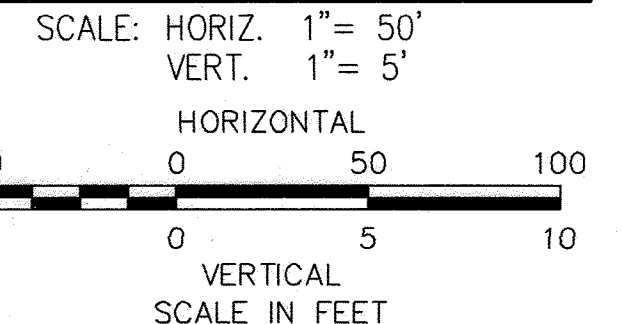
* REQUIRES TEMPORARY WATER SERVICE CONNECTION FOR PIPELINE CONSTRUCTION. SEE DETAIL 3 ON SHEET C-201.

| NEW WATER MAIN TAKEOUT TABLE | | | |
|------------------------------|-------------|--------------|--------------|
| STATION | NORTHING | EASTING | DESCRIPTION |
| 55+75 | 582292.7023 | 1368458.1724 | 8" - 1/32 HB |
| 55+95 | 582302.5323 | 1368475.4633 | 8" - 1/32 HB |
| 56+35 | 582328.6807 | 582328.6807 | 8" - 1/32 HB |
| 59+18 | 582578.2982 | 1368638.0365 | 8" - 1/16 HB |
| 59+96 | 582632.5717 | 1368693.3965 | 8" - 1/8 HB |
| 63+70 | 582546.2157 | 1369055.1580 | 8" - 1/16 HB |
| 64+04 | 582544.8458 | 1369089.6797 | 8" - 1/16 HB |
| 64+32 | 582552.0572 | 1369116.2878 | 8" - 1/16 HB |
| 64+50 | 582562.7763 | 1369130.9639 | 8" - 1/32 HB |
| 64+75 | 582580.3610 | 1369147.1639 | 8" - 1/32 HB |
| 64+18 | 582617.9643 | 1369170.1741 | 8" - 1/32 HB |
| 64+51 | 582648.3971 | 1369181.3687 | 8" - 1/32 HB |
| 65+71 | 582672.6871 | 1369185.1932 | 12" X 8" TEE |

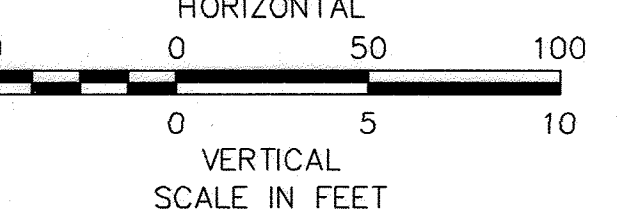
SHEET NOTES

- SEE DRAWING C-201 FOR PIPELINE CONSTRUCTION DETAILS AND REFERENCES TO COUNTY STANDARDS.
- SEE DRAWING C-101 FOR PIPELINE CONSTRUCTION NOTES.
- TEMPORARY WATER IS SHOWN SCHEMATICALLY FOR THE CONTRACTOR'S REFERENCE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ROUTE THE TEMPORARY PIPING TO THE SATISFACTION OF THE ENGINEER. ANY LOCATIONS WHERE THE TEMPORARY WATER CROSSES THE PAVED ROADWAY MUST BE TRENCHED AND PATCHED WITH ASPHALT. CONTRACTOR SHALL MAINTAIN ACCESS TO RESIDENCES AND BUSINESSES AT ALL TIMES. TEMPORARY PIPING SHALL BE INSTALLED WITH RAMPS ACROSS ALL DRIVEWAYS AND SIDEWALKS TO ALLOW FOR BOTH PEDESTRIAN AND VEHICULAR ACCESS. AFTER CONSTRUCTION IS COMPLETE, THE PAVEMENT SHALL BE RESTORED IN ACCORDANCE WITH THE PAVEMENT RESTORATION REQUIREMENTS OF THE PROJECT. SEE SPECIAL PROVISIONS OF THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- TEMPORARY WATER CANNOT BE INSTALLED FROM NOVEMBER 15 THROUGH MARCH 15 WITHOUT PRIOR APPROVAL FROM HOWARD COUNTY. THE CONTRACTOR SHALL PLAN SUCH WORK WHICH REQUIRES TEMPORARY WATER ACCORDINGLY.
- INSTALL THREE 17 LB MAGNESIUM ANODES AND STD/ANODE TEST STATION NO. 1 AT STA 59+10, SEE STD. DETAILS 1-CP AND 11-CP.
- INSTALL THREE 17 LB MAGNESIUM ANODES AT STA. 65+65, SEE STD. DETAIL 11-CP. INSTALL INSULATING FLANGE & IJ/ANODE TEST STATION NO. 2 AT STA. 65+76 AND THREE 17 LB MAGNESIUM ANODE, SEE STD. DETAILS 2-CP AND 3-CP.

8" WATER MAIN PROFILE



As Built
APRIL 08, 2024



C-105

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

[Signature] 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 12/20/2021
CHIEF, UTILITY DESIGN DIVISION DATE

PROFESSIONAL CERTIFICATION:
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Gannett Fleming
BALTIMORE, MARYLAND

STATE OF MARYLAND
PROFESSIONAL ENGINEER
50345
12/14/21

| DES: | BY: | NO.: | REVISION: | DATE: |
|------------|----------|------|-----------|-------|
| SJM | NHL | 1 | AS-BUILT | 4/24 |
| SJM | | | | |
| NHL | | | | |
| SIGN DATE: | 12/14/21 | | | |

DECEMBER 2021

PIPELINE PLAN AND PROFILE

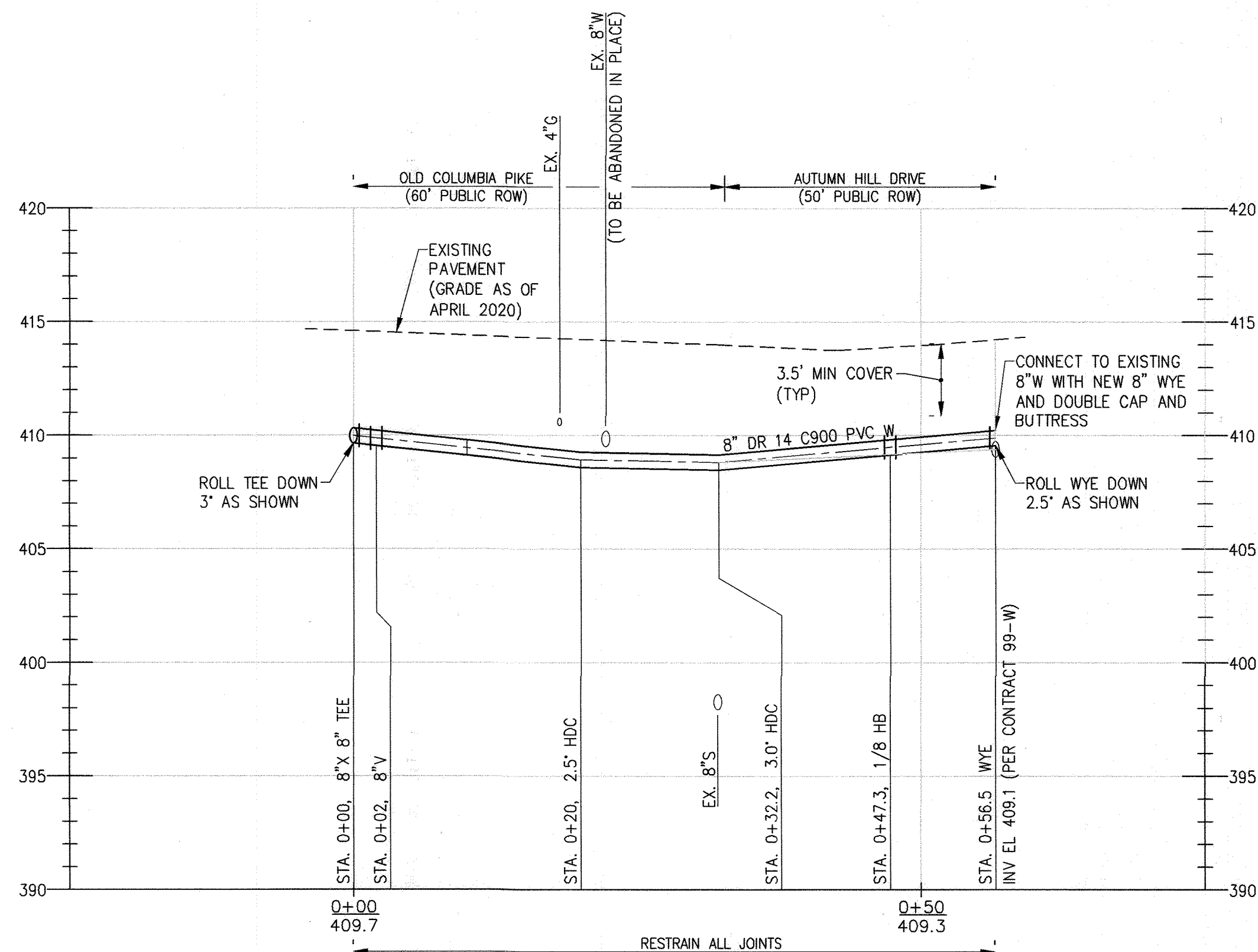
600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24 ELECTION DISTRICT NO. 2

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

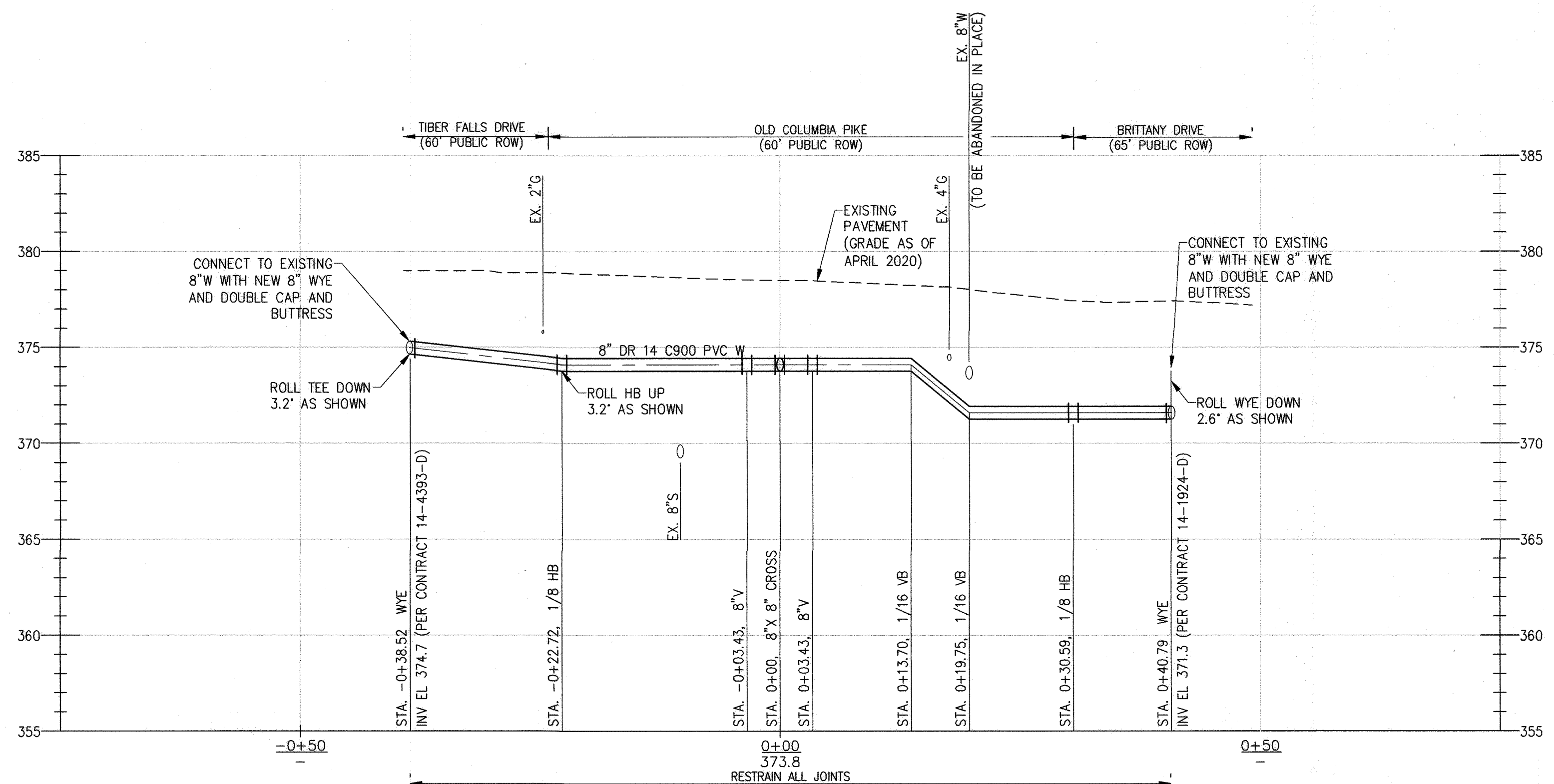
HOWARD COUNTY, MARYLAND

SCALE: AS SHOWN
SHEET NO. 8 OF 21



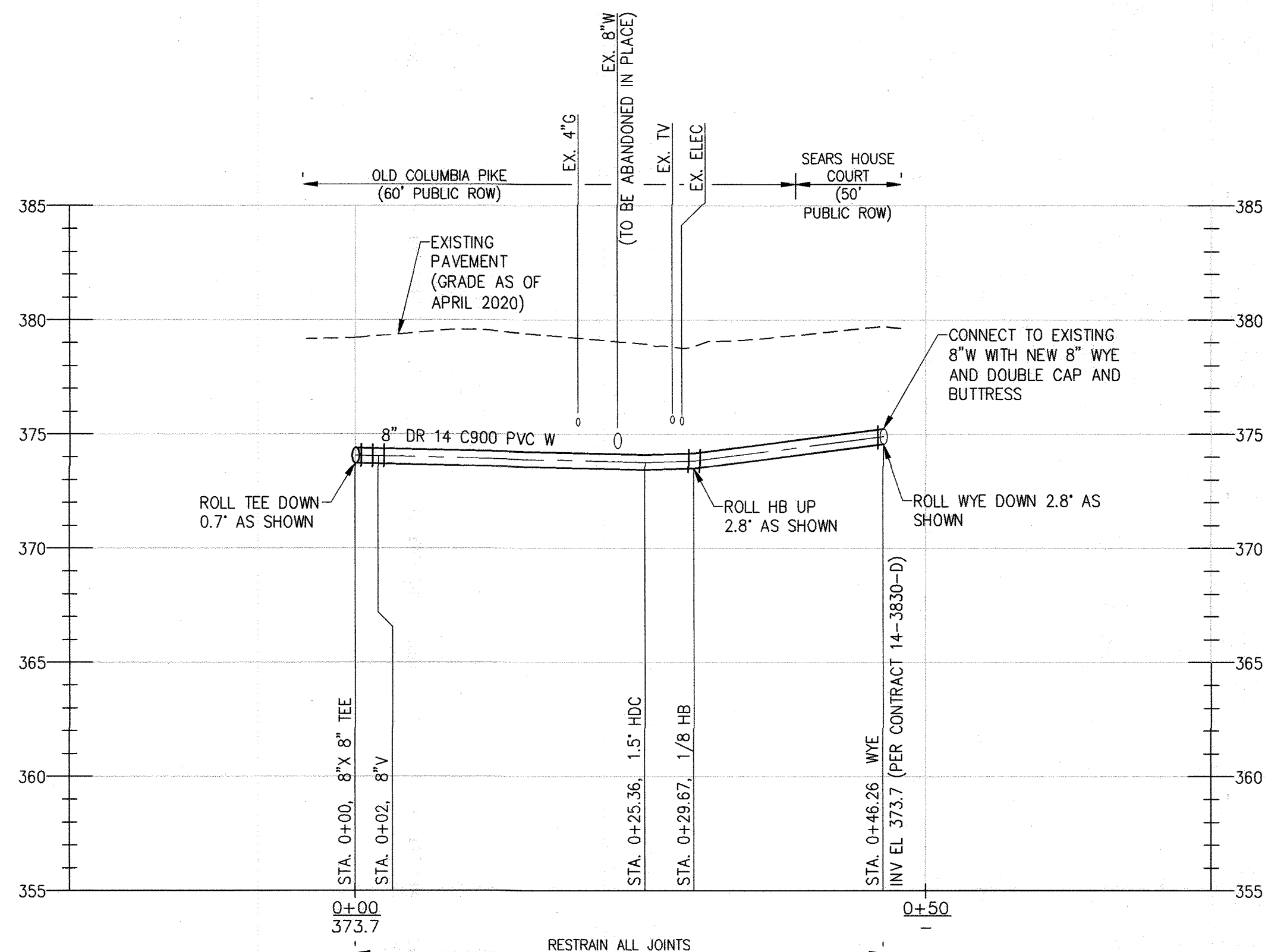
8" WATER MAIN- AUTUMN HILL DRIVE

SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'



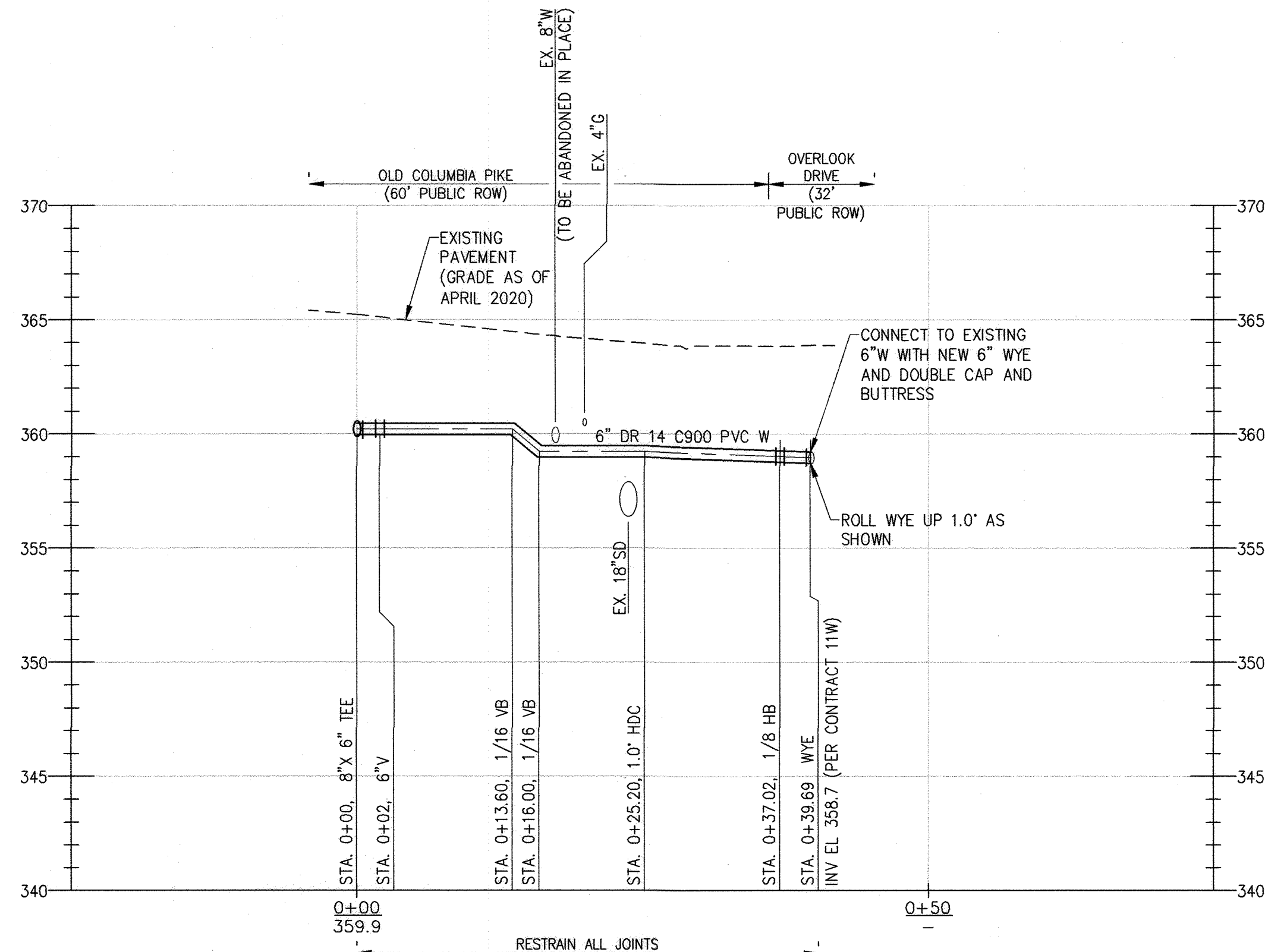
8" WATER MAIN- TIBER FALLS DRIVE AND BRITTANY DRIVE

SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'



8" WATER MAIN- SEARS HOUSE COURT

SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'



6" WATER MAIN- OVERLOOK DRIVE

SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'

As Built
APRIL 08, 2024

C-106

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. M. M. M. 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

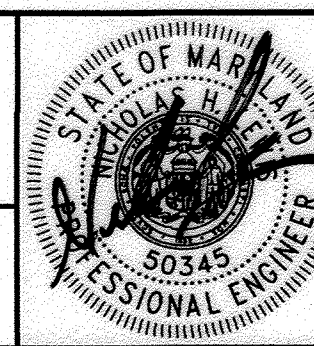
J. J. J. J. 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

S. S. S. S. 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

S. S. S. S. 12/20/2021
CHIEF, UTILITY DESIGN DIVISION DATE

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Gannett Fleming
BALTIMORE, MARYLAND



| DES: | BY: | NO. | REVISION | DATE |
|------------|----------|----------|----------|------|
| NHL | NHL | AS-BUILT | | 4/24 |
| DRN: | KDJ | | | |
| CHK: | NHL | | | |
| SIGN DATE: | 12/14/21 | | | |

DECEMBER 2021

PIPELINE PROFILES

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

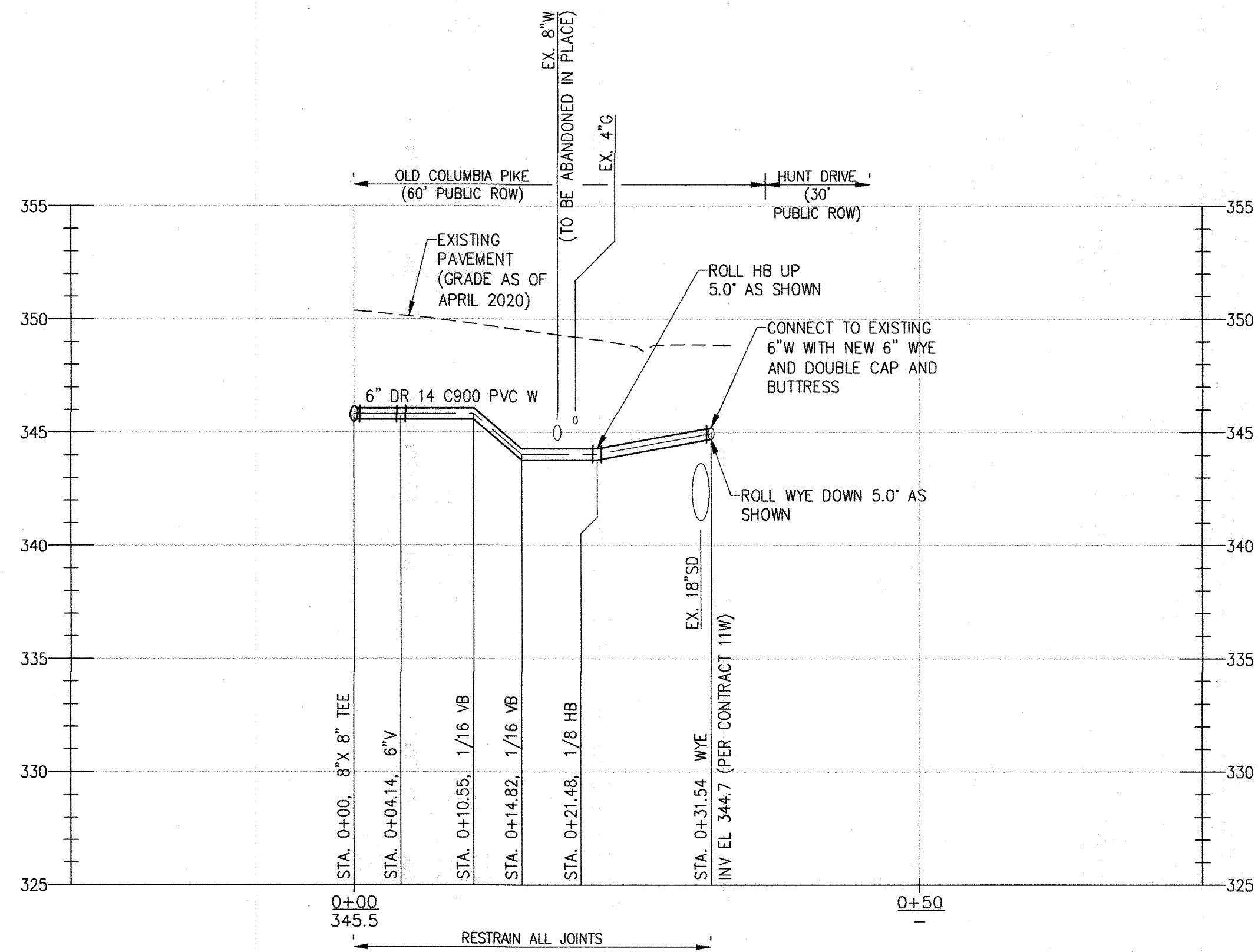
CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

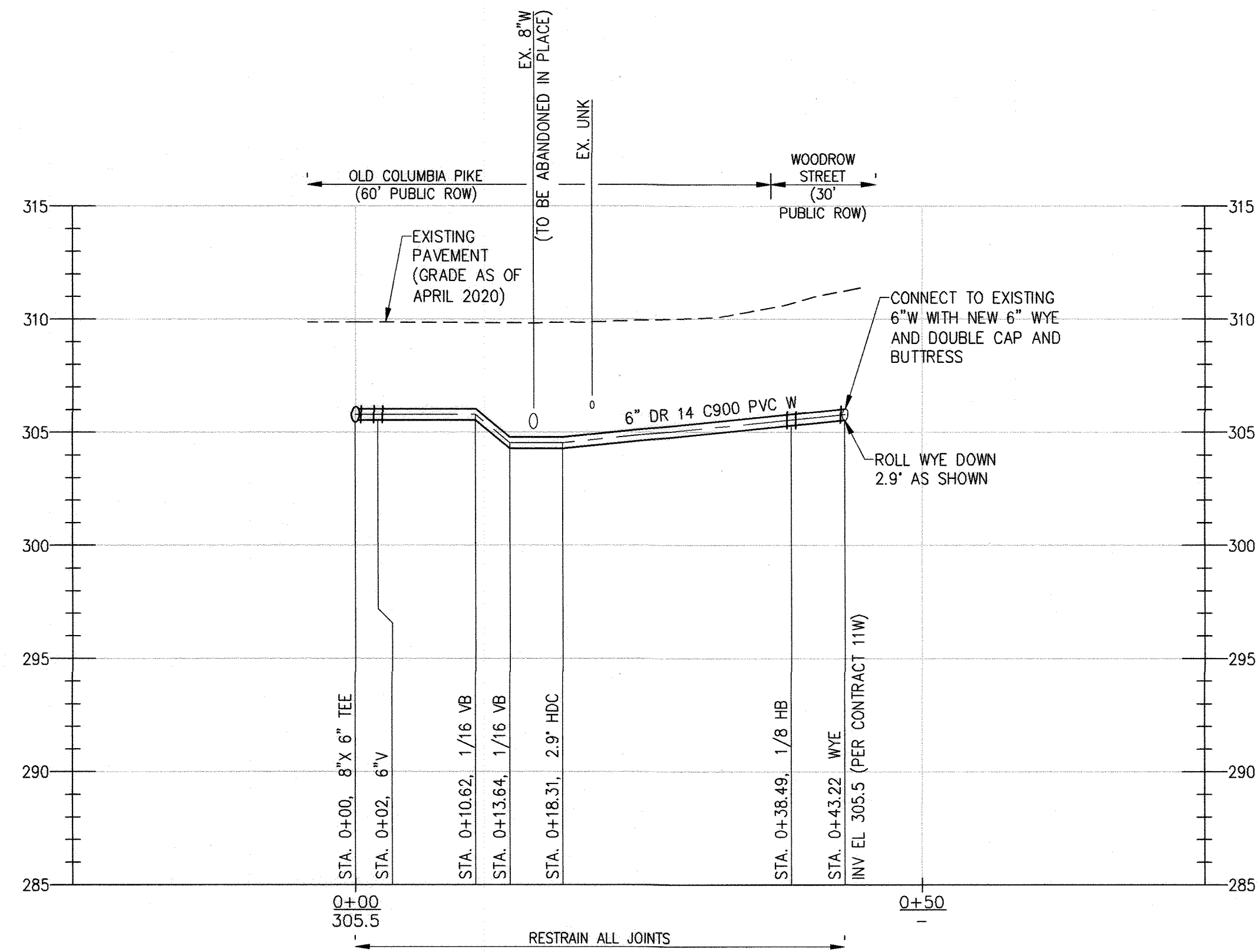
SCALE:
AS SHOWN

SHEET NO.
9 OF 21



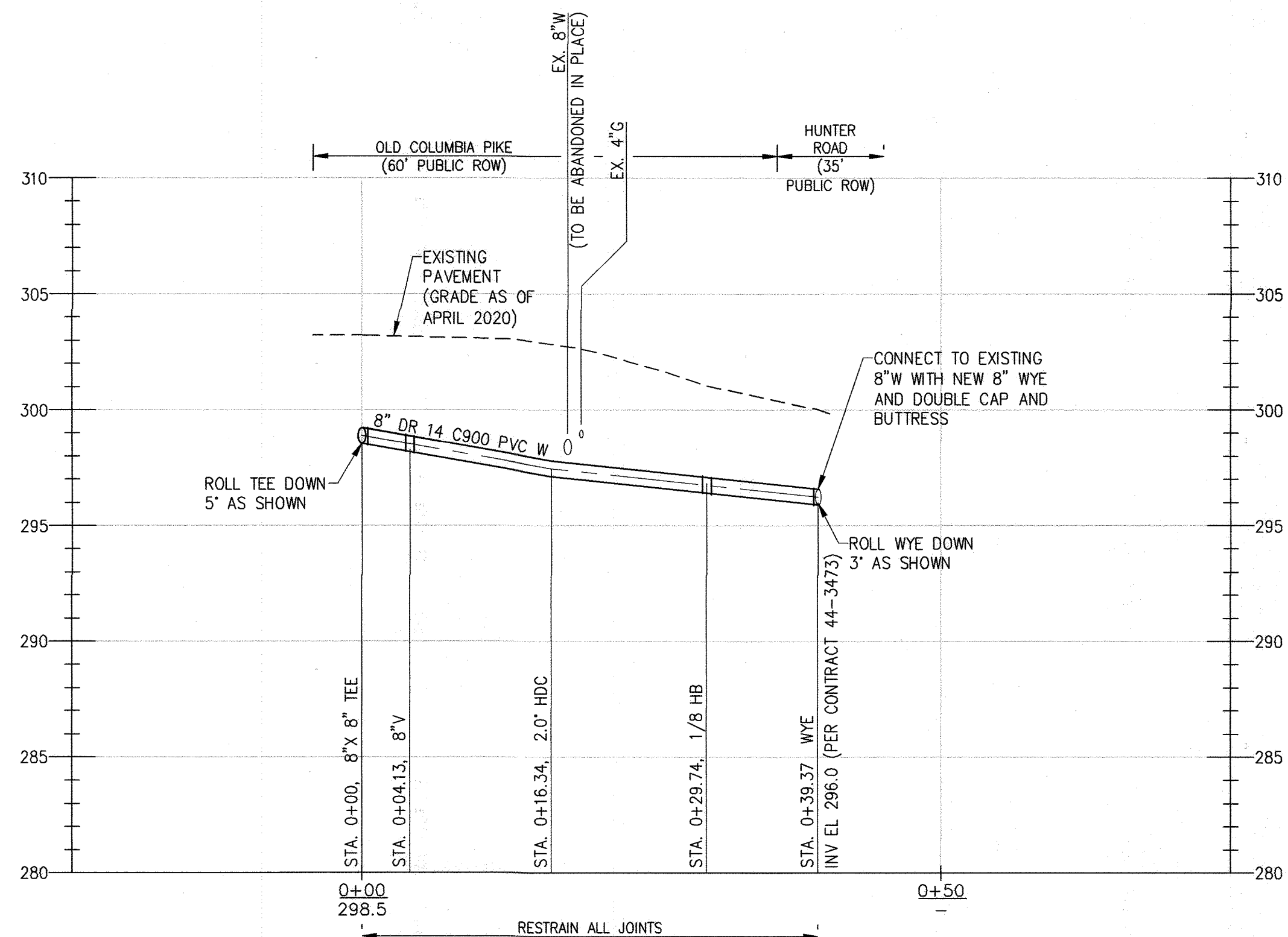
6" WATER MAIN- HUNT AVENUE

SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'



6" WATER MAIN- WOODROW STREET

SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'



8" WATER MAIN- HUNTER ROAD

SCALE: HORIZ. 1" = 10'
VERT. 1" = 5'

As Built
APRIL 08, 2024

C-107

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. M. M. M. 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

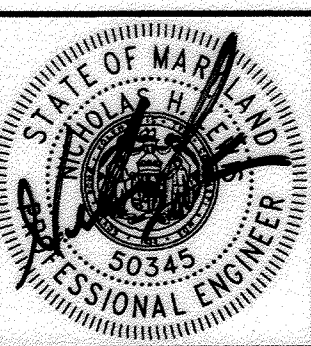
J. J. J. J. 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

S. S. S. S. 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

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Gannett Fleming
BALTIMORE, MARYLAND



| DES: | BY: | NO. | REVISION | DATE |
|------------|----------|-----|----------|------|
| NHL | NHL | △ | AS-BUILT | 4/24 |
| DRN: | KDJ | | | |
| CHK: | NHL | | | |
| SIGN DATE: | 12/14/21 | | | |

DECEMBER 2021

PIPELINE PROFILES

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

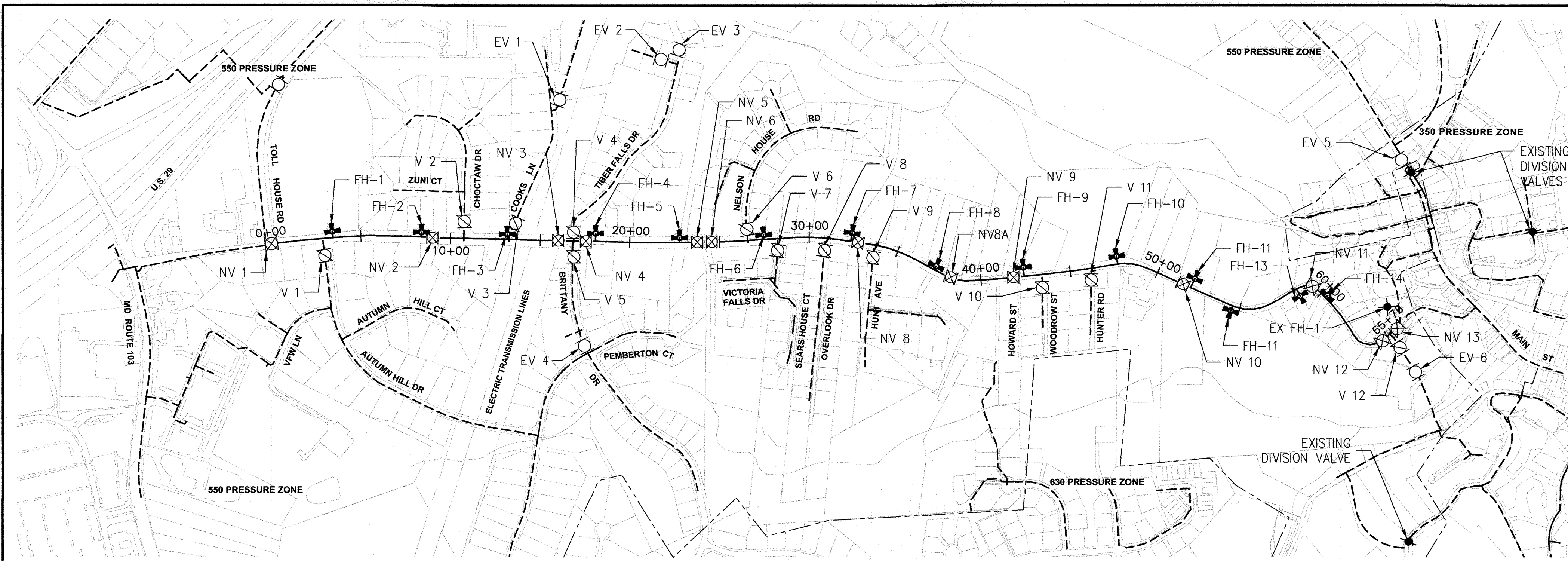
CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

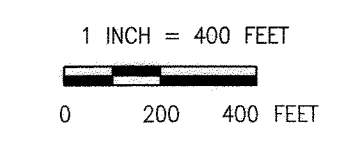
SCALE:
AS SHOWN

SHEET NO.
10 OF 21



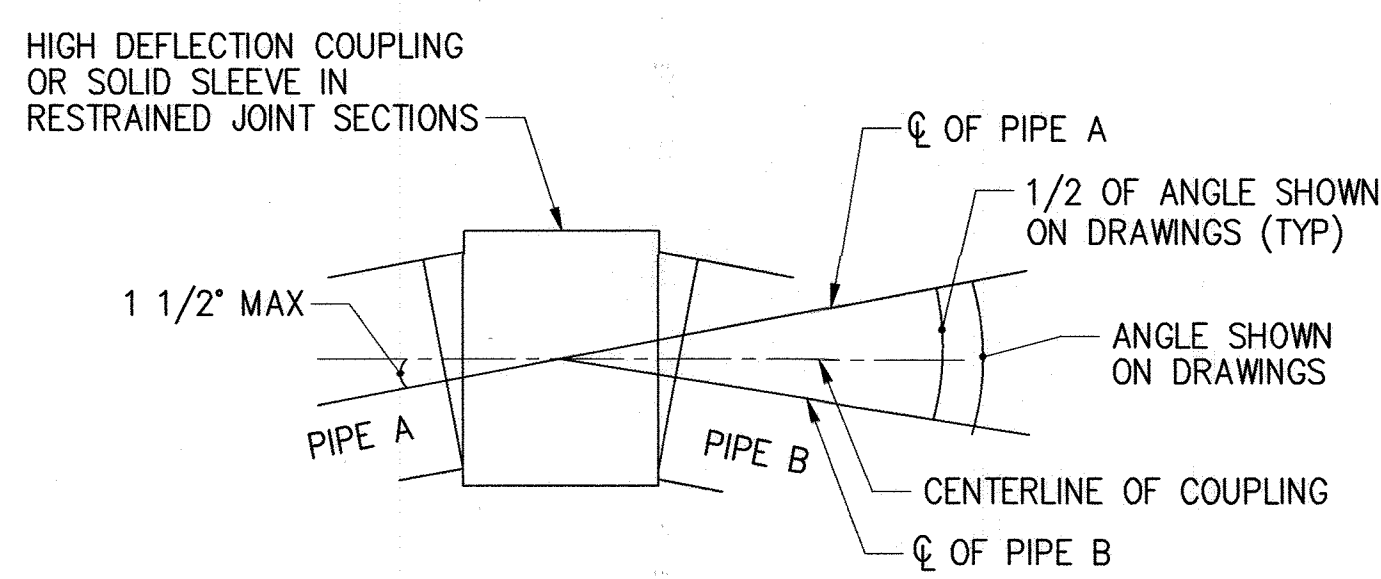
VALVE AND HYDRANT DIAGRAM
SCALE: N.T.S.

- LEGEND**
- NEW WATER MAIN
 - - - EXISTING WATER MAIN
 - - - PRESSURE ZONE BOUNDARIES
 - ◆ EXISTING DIVISION VALVES
 - EXISTING ISOLATION VALVE (EV)
 - ⊠ VALVE TO BE REPLACED IN KIND ON NEW ALIGNMENT (V)
 - ⊞ NEW VALVE (NV)



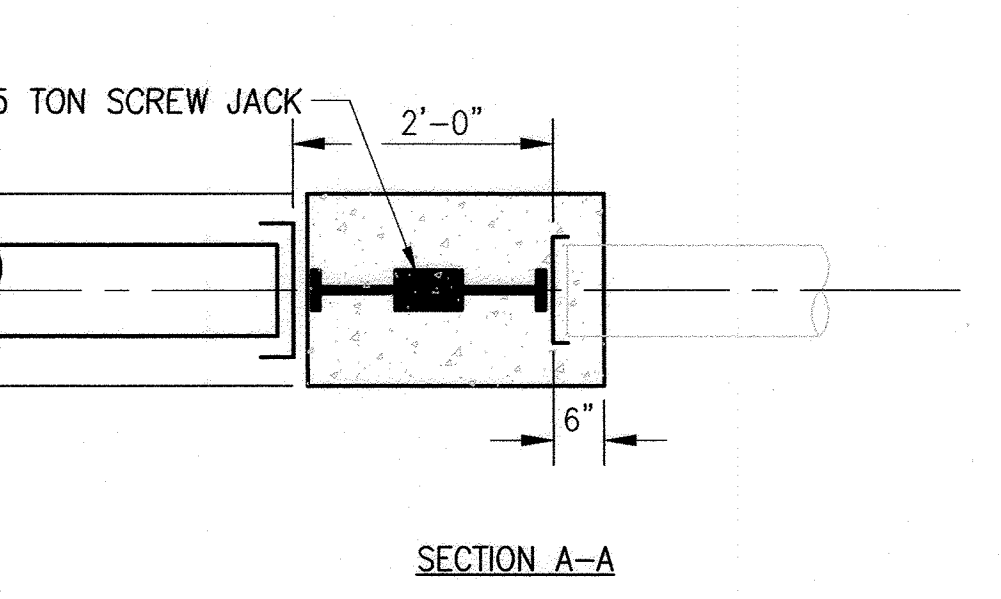
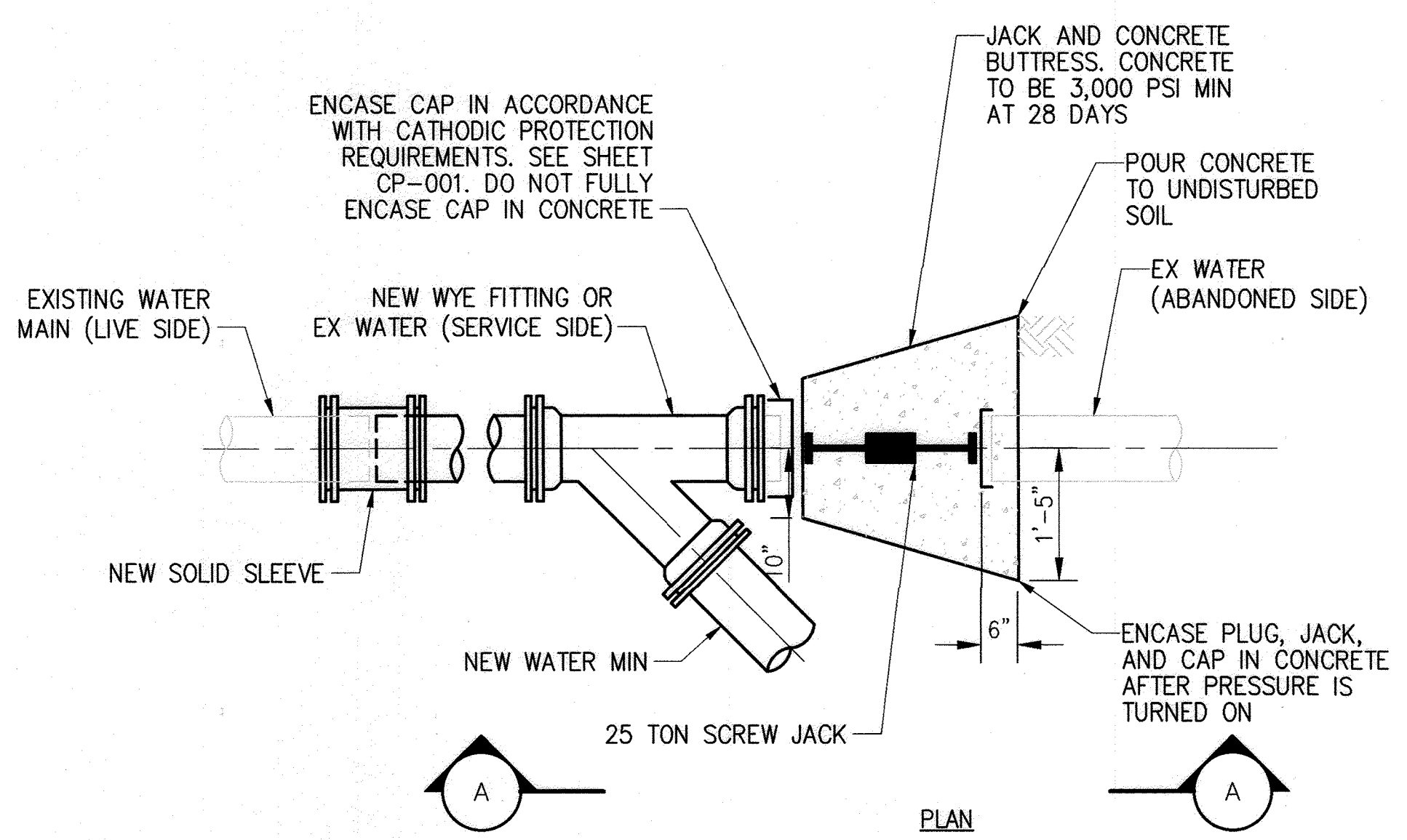
SUGGESTED SEQUENCE OF CONSTRUCTION

1. COORDINATE EROSION AND SEDIMENT CONTROL AND MAINTENANCE OF TRAFFIC WITH RESPECTIVE AGENCIES AS REQUIRED.
2. INSTALL THRUST COLLAR TC-1 AT THE NORTHERN END OF THE CONTRACT ON THE EXISTING 12" MAIN.
3. CONSTRUCT THE NEW PARALLEL SECTION OF WATER MAIN IN OLD COLUMBIA PIKE (OCP) FROM A POINT 10 FEET FROM THE CONNECTION AT TOLL HOUSE ROAD UP TO STA 59+00, INCLUDING THE TRANSITION TO DIP AT STA 55+00.
4. CONSTRUCT NEW BRANCH MAINS FROM THE CONNECTION AT THE NEW 8-INCH MAIN IN OCP TO A POINT 10 FEET FROM THE PROPOSED CONNECTION TO THE EXISTING SYSTEM AT EACH INTERSECTION BETWEEN STA. 0+00 AND STA. 59+00.
5. CLOSE NEW VALVES NV 2, NV 11, AND REPLACEMENT VALVES V 1 THROUGH V 11.
6. HYDROSTATICALLY TEST AND DISINFECT NEWLY INSTALLED MAIN AND CONNECTING FITTINGS IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS.
7. PERFORM 16"x8" TAP ON EXISTING MAIN AT TOLL HOUSE ROAD AND CONNECT TO NEWLY INSTALLED MAIN. THIS WILL PLACE THE NEW MAIN INTO SERVICE FROM STA. 0+00 TO STA. 59+00, JUST PRIOR TO THE SAME TRENCH REPLACEMENT PORTION OF THE ALIGNMENT.
8. SEQUENTIALLY CLOSE EXISTING VALVES V 1 THROUGH V 11 AND EV 1 THROUGH EV 4 TO COMPLETE TIE-INS AT INTERSECTION BETWEEN STA 0+00 AND STA 59+00. ALL TIE-INS SHALL BE CONDUCTED AT NIGHT ONLY UNLESS PERMITTED IN ADVANCE BY THE COUNTY. CLOSE ONLY THE VALVES NECESSARY TO ISOLATE THE TIE-IN AREAS THAT CAN BE COMPLETED IN A SINGLE OVERNIGHT SHIFT. ANY EXISTING VALVE CLOSED UNDER THIS STEP MUST BE OPENED AT THE BEGINNING OF THE NEXT WORKING DAY, AS WELL AS THE ASSOCIATED NEW VALVE(S) THAT WILL PUT THE NEW CONNECTION INTO SERVICE.
9. TRANSFER THE WATER SERVICES FROM THE EXISTING MAIN TO THE NEW MAIN IN OCP FROM STA. 0+00 TO STA. 59+00.
10. INSTALL TEMPORARY WATER FROM NEW FIRE HYDRANT FH-13 TO EX FH-1 AS SHOWN. PROVIDE TEMPORARY WATER SERVICES TO THE ADDRESSEES SHOWN ON DRAWING C-105.
11. CLOSE EXISTING VALVES EV 5 AND EV 6 AND INSTALL NEW 12"x12" TEE, THRUST BLOCK, AND VALVES V12, NV 12, AND NV 13 AS SHOWN. CAP THE EXISTING 8 INCH MAIN 5 FT SOUTH OF NV 12 AND OPEN VALVE EV 5. THE WORK DESCRIBED IN THIS STEP SHALL BE PERFORMED IN A SINGLE OVERNIGHT SHIFT AND MUST BE CLOSELY COORDINATE WITH HOWARD COUNTY BUREAU OF UTILITIES AT LEAST 30 DAYS IN ADVANCE.
12. INSTALL THE REMAINING PORTION OF NEW 8" MAIN IN OCP FROM STA. 59+00 TO 65+60 NEAR THE CONNECTIONS TO THE SYSTEM AT THE NORTH END OF THE PROJECT.
13. HYDROSTATICALLY TEST AND DISINFECT NEWLY INSTALLED MAIN AND CONNECTING FITTINGS IN ACCORDANCE WITH HOWARD COUNTY STANDARD SPECIFICATIONS.
14. COMPLETE THE TIE-INS.
15. OPEN VALVE NV 12, EV 6, AND HYDRANT FH-14 TO FLUSH EXISTING 12" FROM NEW CUT ROAD. FLUSHING SHALL BE PERFORMED TO THE SATISFACTION OF THE COUNTY.
16. CLOSE HYDRANT FH-14 AND OPEN VALVE NV 11 TO PLACE THE NEW 8" MAIN INTO SERVICE.
17. TRANSFER THE REMAINING WATER SERVICES ALONG THE ALIGNMENT AS SHOWN ON THE DRAWINGS AND ABANDON THE EXISTING 8" MAIN IN OCP AS SHOWN ON THE DRAWINGS.
18. REMOVE TEMPORARY BYPASS ALONG WITH TEMPORARY CONNECTIONS AND FIRE HYDRANTS.

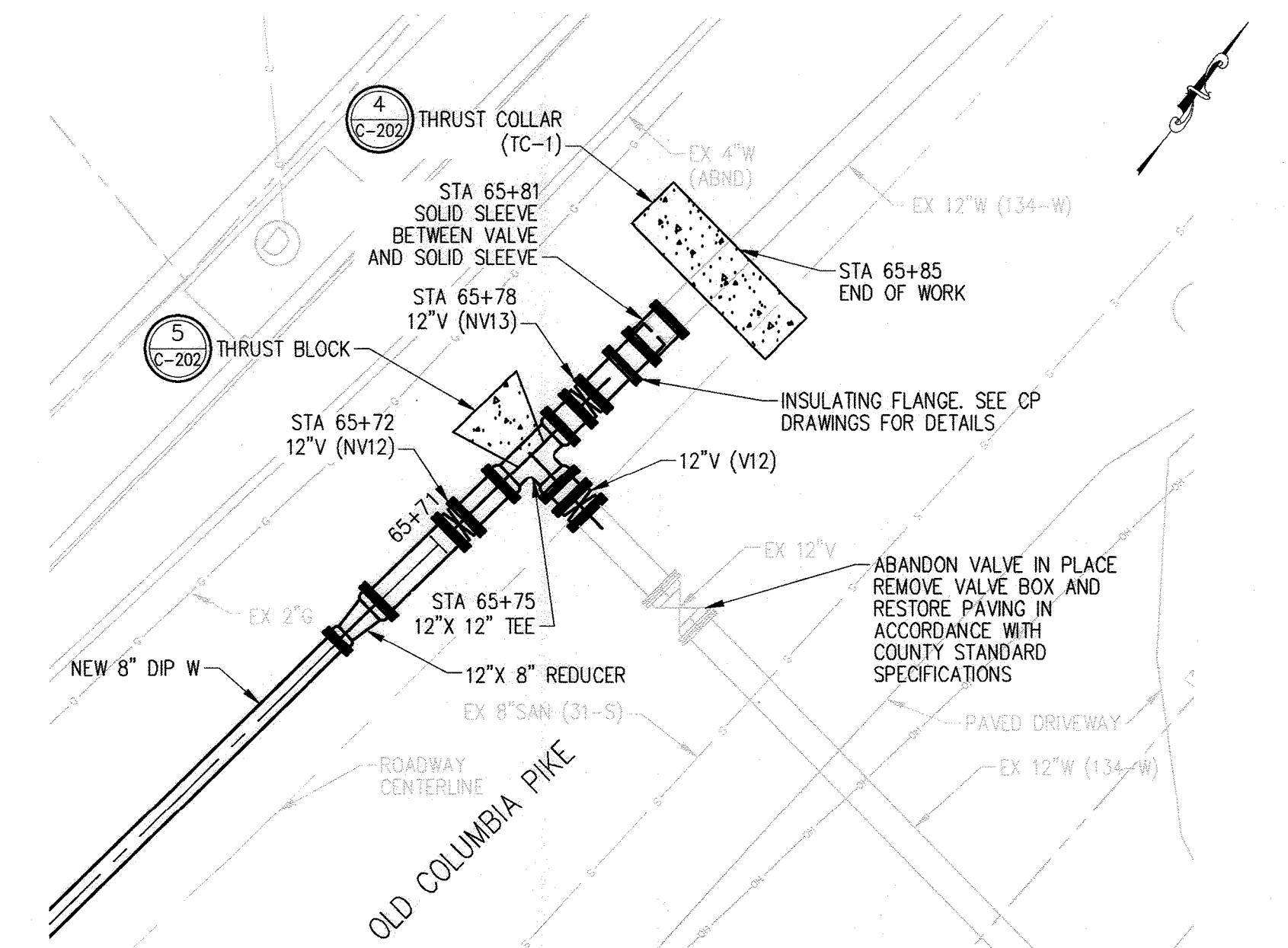


HIGH DEFLECTION COUPLING (HDC) INSTALLATION
SCALE: N.T.S.

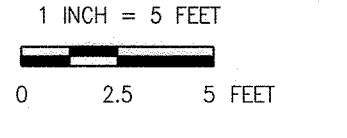
- NOTES:**
1. THE MAXIMUM ALLOWABLE DEFLECTION FOR A HIGH DEFLECTION COUPLING IS 3-DEGREES OR 1-1/2 DEGREES ON EITHER SIDE OF THE COUPLING. HIGH DEFLECTION COUPLINGS SHALL BE RATED FOR A MINIMUM 305 PSI, DR-14, MEETING THE REQUIREMENTS OF ANSI/AWWA C900.
 2. WITHIN THE LIMITS OF RESTRAINED JOINTS, RESTRAINED SOLID SLEEVES SHALL BE USED IN LIEU OF HIGH DEFLECTION COUPLINGS. RESTRAINED SOLID SLEEVES SHALL BE LIMITED TO A TOTAL DEFLECTION OF 3-DEGREES (1-1/2 DEGREE ON EITHER END OF THE COUPLING). THE PIPE SHALL BE INSERTED AN EQUAL DEPTH ON BOTH SIDES OF THE SOLID SLEEVE. RESTRAINT FOR SOLID SLEEVES SHALL BE PROVIDED USING SERIES 3800 MEGA-COUPLING, AS MANUFACTURED BY EBAA IRON, INC. OR APPROVED EQUAL INSTALL MECHANICAL JOINT RESTRAINT IN STRICT ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
 3. PROVIDE CATHODIC PROTECTION ON SOLID SLEEVES AND MECHANICAL JOINT RESTRAINT IN ACCORDANCE WITH THE CP DETAILS. SEE SPECIAL PROVISIONS OF THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



DOUBLE CAP AND BUTTRESS
SCALE: N.T.S.



ENLARGEMENT: PLAN
SCALE: 1" = 5'



HOWARD COUNTY STANDARD DETAIL REFERENCES

1. PAVEMENT RESTORATION SHALL BE MADE IN ACCORDANCE WITH HOWARD COUNTY STANDARD DETAIL C-4.01 FOR FLEXIBLE PAVEMENT, AND R-2.01, CLASSIFICATION P-4. PAVEMENT BASE AND SURFACE THICKNESS SHALL BE IN CONSIDERATION OF A CBR VALUE BETWEEN 3 TO <5 FOR A MINIMUM SUPERPAVE ASPHALT MIX WITH GAB IN ACCORDANCE WITH COUNTY STANDARD DETAIL R-2.01.
2. FIRE HYDRANT SETTING DETAILS, W-1.11
3. FIRE HYDRANT CONTINUITY TEST STATION, W-1.15
4. STRAPPING VALVE TO TEE, W-2.13
5. WATER SERVICE SADDLE OFF PVC MAIN, W-3.30

As Built
APRIL 08, 2024

C-201

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. Meunier 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

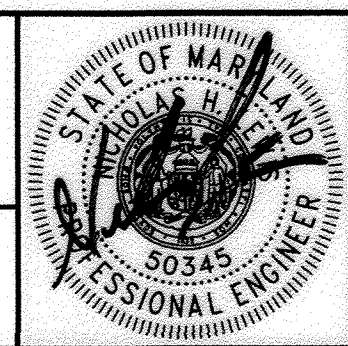
J. [Signature] 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 12/14/21
CHIEF, UTILITY DESIGN DIVISION 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. 50345, EXPIRATION DATE: 12/15/2022

Gannett Fleming
BALTIMORE, MARYLAND



| DES: | BY: | NO. | REVISION | DATE |
|------------|----------|-----|----------|------|
| NHL | NHL | 1 | AS-BUILT | 4/24 |
| DRN: | KDJ | | | |
| CHK: | NHL | | | |
| SIGN DATE: | 12/14/21 | | | |

DECEMBER 2021

DETAILS/SOC/SHUTOFF DIAGRAM

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

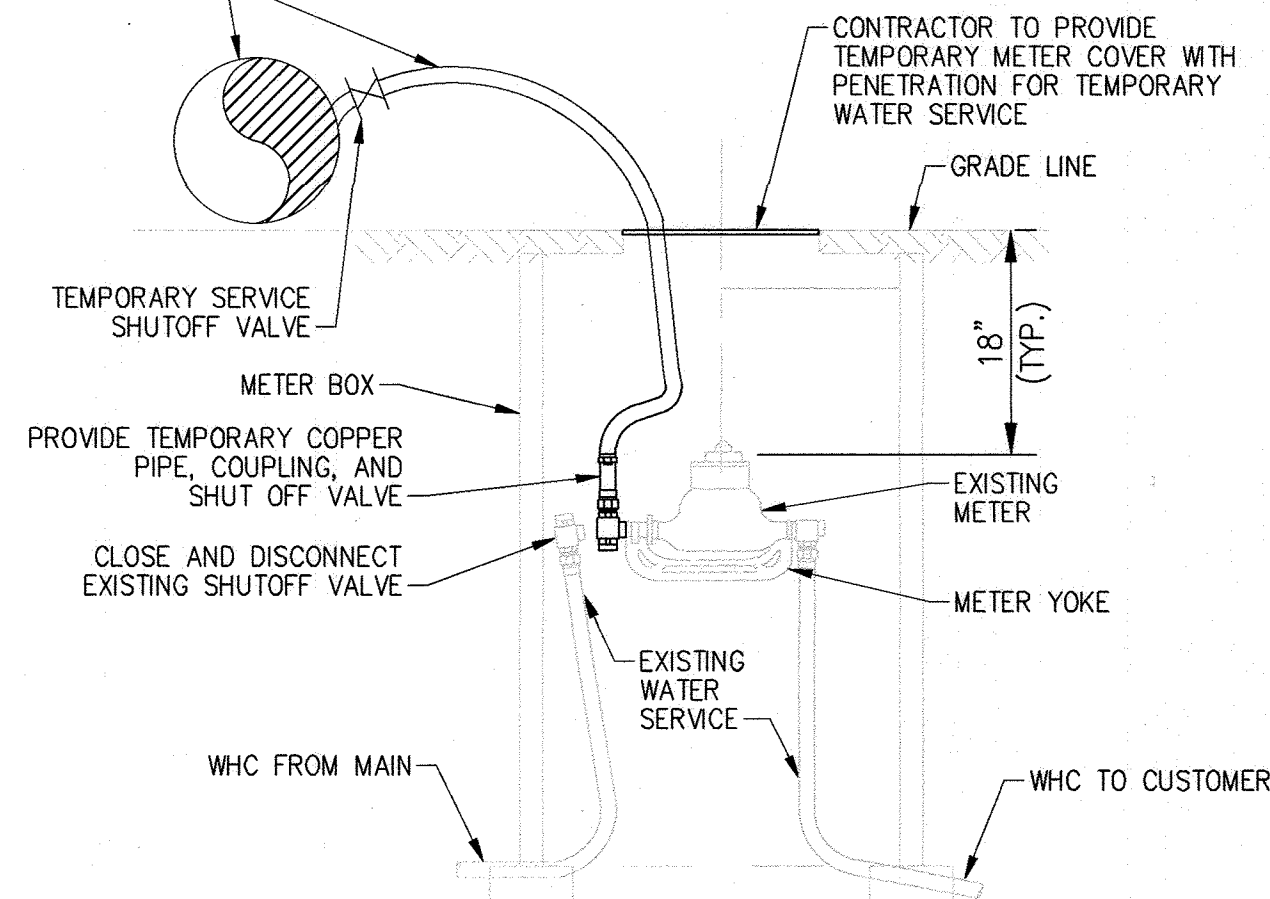
OLD COLUMBIA PIKE WATER MAIN REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

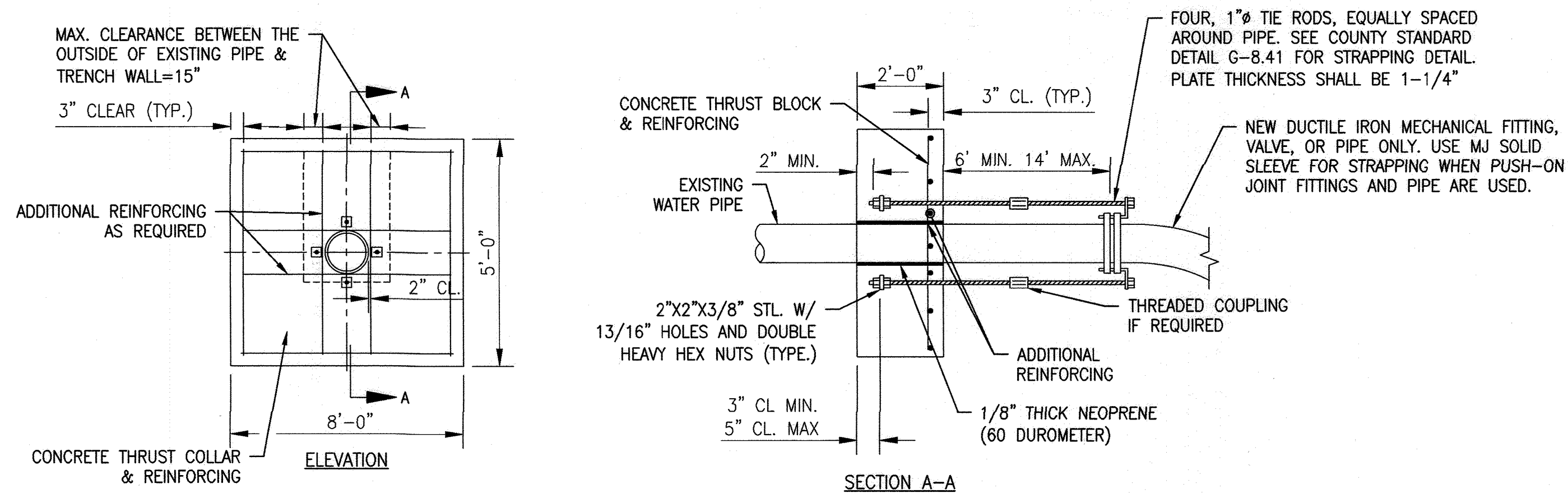
SCALE: AS SHOWN

SHEET NO. 11 OF 21

TEMPORARY WATER PIPE AND SERVICE. SIZE ACCORDING TO PLANS. ALL TEMPORARY PIPING AND APPURTENANCES SHALL BE RATED FOR A MINIMUM 200 PSI WORKING PRESSURE.



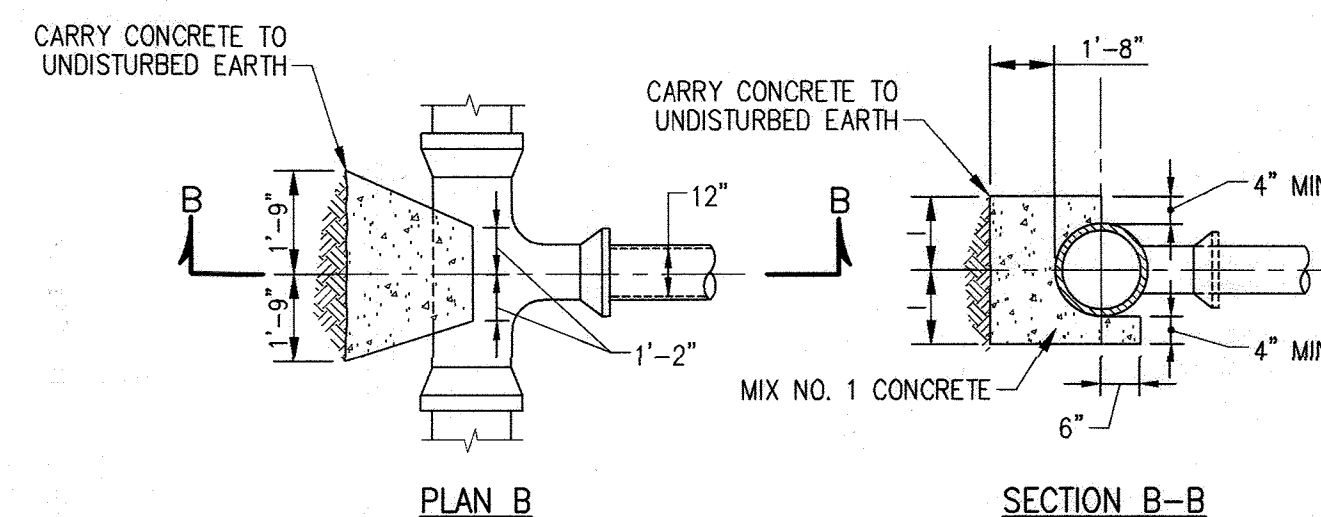
3 TEMPORARY SERVICE CONNECTION DETAIL
SCALE: N.T.S.



NOTES:

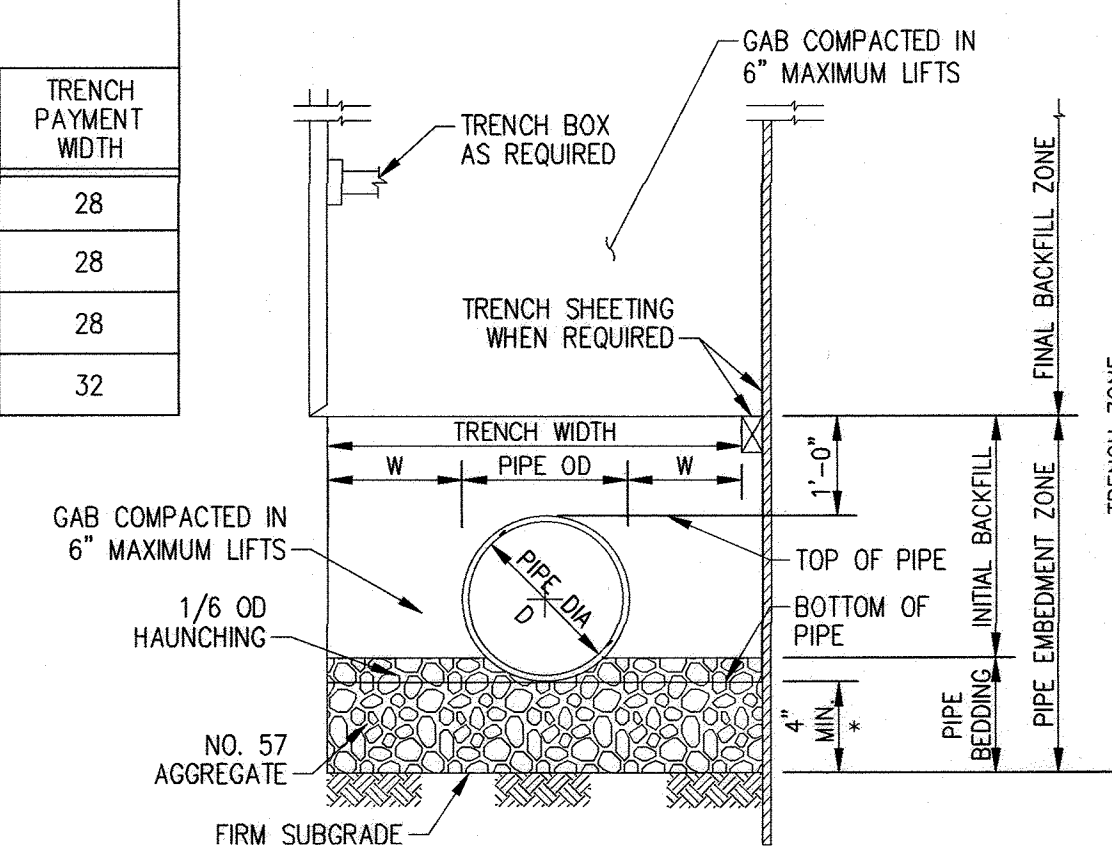
1. ALL CONCRETE SHALL BE 4000 PSI. PIPELINE SHALL NOT BE PRESSURIZED UNTIL CONCRETE STRENGTH REACHES 4000 PSI.
2. ALL REBARS SHALL BE ASTM A616 GRADE 80. REINFORCING TO BE #5@8" C/C EW. ADDITIONAL REINFORCING SHALL BE FOUR #5 BARS AT THE LOCATIONS SHOWN.
3. STEEL PLATES SHALL BE ASTM A36.
4. MAINTAIN 2" CLEAR BETWEEN ALL REBARS AND PIPE.
5. WHERE GALVANIZED COATING IS DAMAGED, COVER WITH BITUMINOUS MATERIAL.
6. BOLT CIRCLE FOR TIE RODS AT THRUST COLLAR SHALL EQUAL BOLT CIRCLE AT TIE BOLTS.
7. ALL TIE RODS SHALL BE PARALLEL TO AXIS OF PIPE.

4 THRUST COLLAR
SCALE: N.T.S.



5 THRUST BLOCK
SCALE: N.T.S.

| DIP | | |
|--------------|-----|----------------------|
| PIPE DIA "D" | "W" | TRENCH PAYMENT WIDTH |
| 6 | 11 | 28 |
| 8 | 10 | 28 |
| 12 | 8 | 28 |
| 16 | 8 | 32 |



* FOR TRENCHES ROCKS, MINIMUM BEDDING DEPTH IS 6 INCHES. FOR RCP 96 INCHES AND GREATER, MINIMUM BEDDING DEPTH IS 12 INCHES.

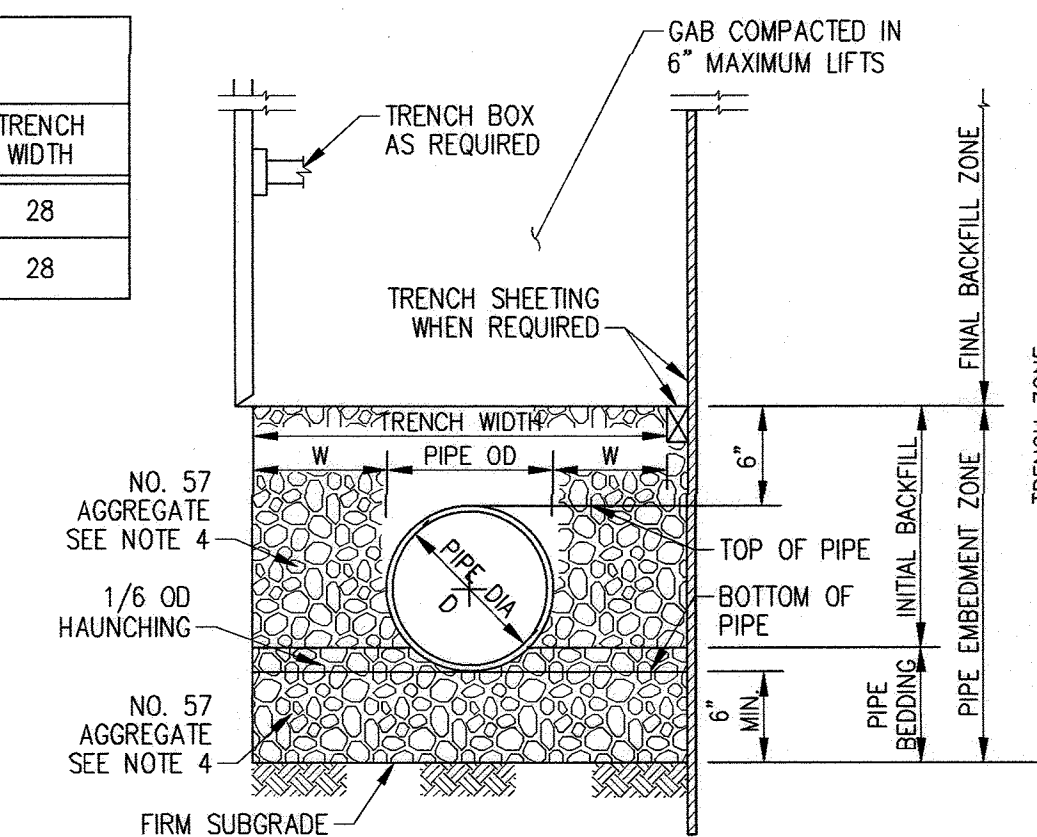
NOTES:

1. THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
2. THE TRENCHES WHERE TRENCH BOX OR TRENCH SHEETING IS NOT REQUIRED, MEASUREMENT FOR CONTINGENT BORROW MATERIALS WILL BE BASED ON THE TRENCH WIDTH SHOWN.
3. FOR TRENCHES WHERE TRENCH BOX OR TRENCH SHEETING IS REQUIRED, MEASUREMENT FOR CONTINGENT BORROW MATERIALS WILL BE BASED ON THE TRENCH WIDTH SHOWN PLUS 24 INCHES.
4. THE MAXIMUM WIDTH OF THE TRENCH EXCAVATED ON-SITE FOR RCP, SHALL NOT EXCEED THE TRENCH PAYMENT WIDTH PLUS 12 INCHES.

6 PIPE TRENCH - DIP
SCALE: N.T.S.

| PLASTIC | | |
|--------------|-----|--------------|
| PIPE DIA "D" | "W" | TRENCH WIDTH |
| 6 | 11 | 28 |
| 8 | 10 | 28 |

ALL DIMENSIONS IN INCHES



NOTES:

1. THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
2. THE TRENCHES WHERE TRENCH BOX OR TRENCH SHEETING IS NOT REQUIRED, MEASUREMENT FOR CONTINGENT BORROW MATERIALS WILL BE BASED ON THE TRENCH WIDTH SHOWN.
3. FOR TRENCHES WHERE TRENCH BOX OR TRENCH SHEETING IS REQUIRED, MEASUREMENT FOR CONTINGENT BORROW MATERIALS WILL BE BASED ON THE TRENCH WIDTH SHOWN PLUS 24 INCHES.
4. FOR COPPER, PVC AND HDPE PIPE, 3 INCHES OR SMALLER: PIPE EMBEDMENT ZONE MATERIAL IS FINE AGGREGATE (SAND) "W" DIMENSION IS 6 INCHES MINIMUM AND BEDDING THICKNESS UNDER PIPE IS 4" MINIMUM. UNDER PIPE IS 4" MINIMUM. FOR TRENCHES IN ROCK, MINIMUM BEDDING THICKNESS IS 6 INCHES.

7 PIPE TRENCH - PVC/COPPER
SCALE: N.T.S.

As Built
APRIL 08, 2024

C-202

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

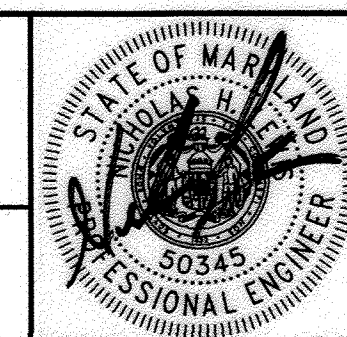
[Signature] 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 12/20/21
CHIEF, UTILITY DESIGN DIVISION DATE

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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. 50345, EXPIRATION DATE: 12/15/2022

Gannett Fleming
BALTIMORE, MARYLAND



| DES: | BY: | NO. | REVISION | DATE |
|------------|----------|-----|----------|------|
| NHL | NHL | 1 | AS-BUILT | 4/24 |
| DRN: | KDJ | | | |
| CHK: | NHL | | | |
| SIGN DATE: | 12/14/21 | | | |

DECEMBER 2021

DETAILS

600' SCALE MAP NO. 24, 25, 251, 25A

BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

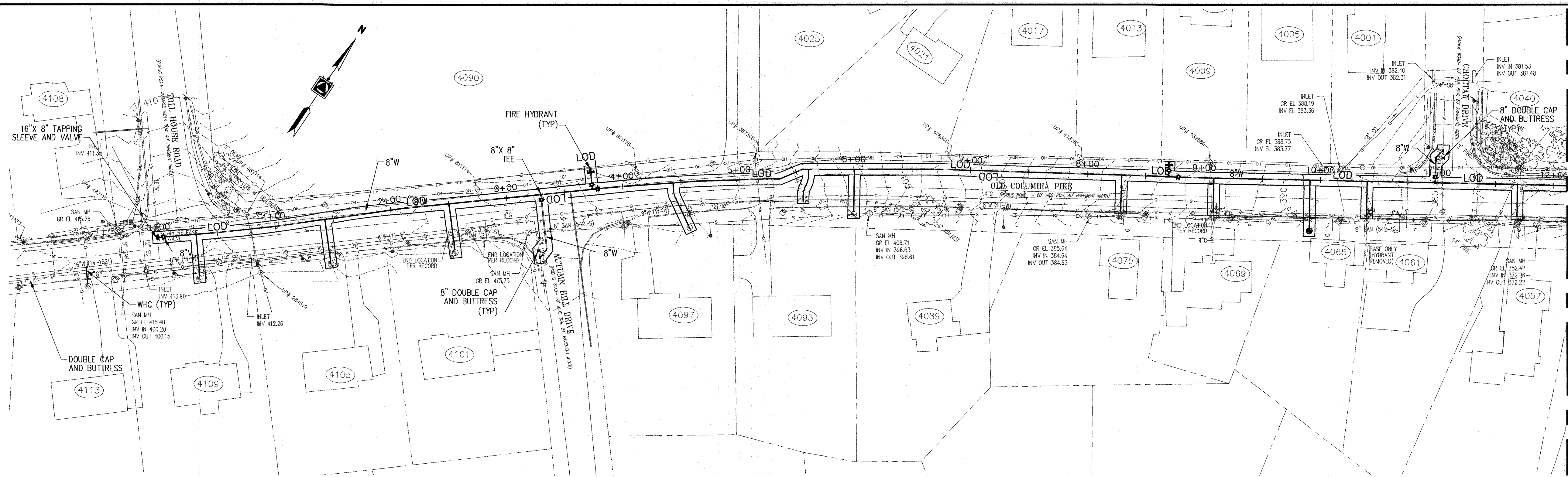
OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

ELECTION DISTRICT NO. 2

HOWARD COUNTY, MARYLAND

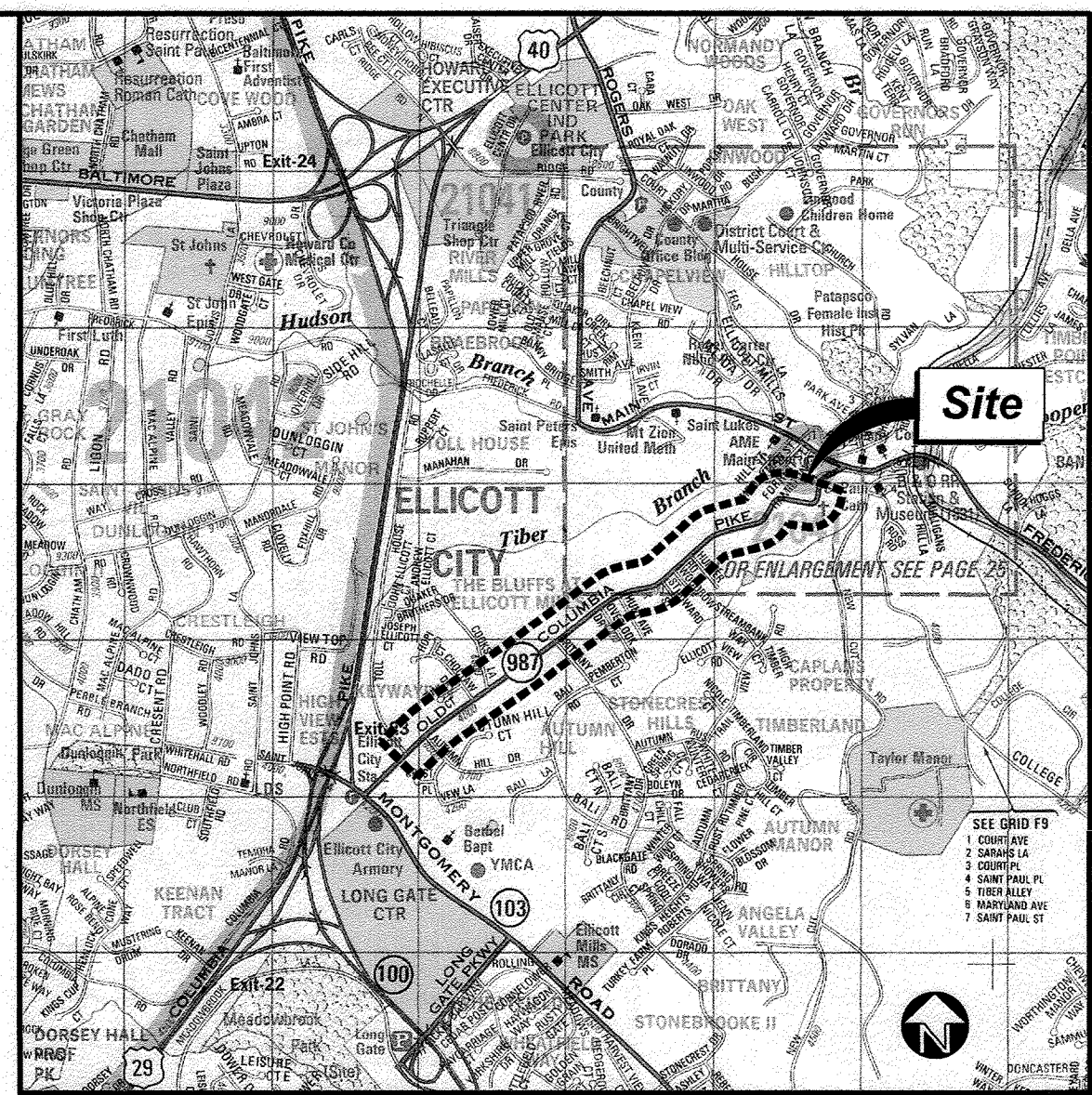
SCALE:
AS SHOWN

SHEET NO.
12 OF 21



SITE PLAN
SCALE: 1"=50'

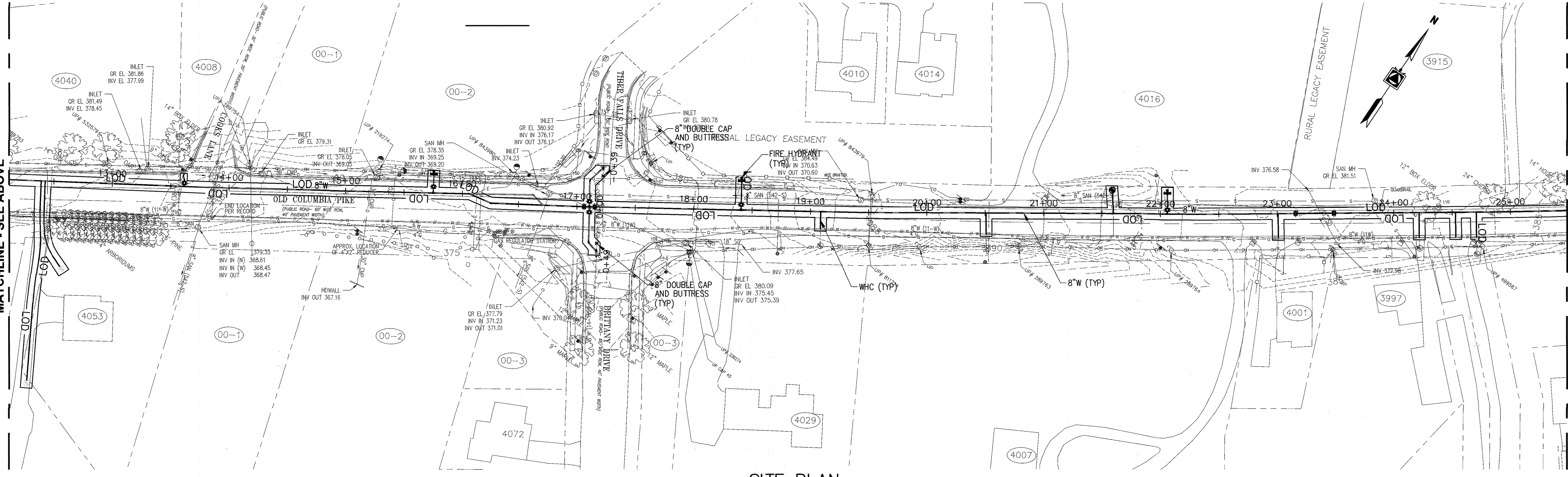
MATCHLINE - SEE BELOW



VICINITY MAP
SCALE: 1"= 2273'

- LEGEND**
- PROPERTY LINE
 - LOD — LIMIT OF DISTURBANCE

- GENERAL NOTES**
- NO 100 YEAR FLOOD PLAIN PRESENT ON SITE.
 - NO WETLANDS PRESENT ON SITE.
 - NO CRITICAL AREAS PRESENT ON SITE.
 - ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH APPLICABLE LOCAL STATE AND FEDERAL REGULATIONS.
 - ALL WASTE WATER FROM DEWATERING ACTIVITIES SHALL BE DISCHARGED TO AN APPROVED SEDIMENT CAPTURE DEVICE.
 - THE CONTRACTOR SHALL PROTECT ALL POINTS OF CONSTRUCTION INGRESS AND EGRESS TO PREVENT DEPOSITION OF MATERIALS ON ROADS AND SIDEWALKS. ANY MATERIAL DEPOSITED SHALL BE REMOVED AT THE END OF EACH WORK DAY.
 - ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE MOST CURRENT "MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL", AND REVISIONS THERETO.



SITE PLAN
SCALE: 1"=50'

MATCHLINE - SEE ABOVE

MATCHLINE - SEE SHEET C-302

DESIGN NARRATIVE

THE CONTRACT IS A LINEAR UTILITY IMPROVEMENT PROJECT INVOLVING THE REPLACEMENT OF AN 8-INCH WATER MAIN AND SERVICE CONNECTIONS ALONG OLD COLUMBIA PIKE. THE WORK INVOLVES CONSTRUCTION OF APPROXIMATELY 6600 LINEAR FEET OF 8-INCH WATER MAIN, 220 LINEAR FEET OF 6" WATER MAIN, INSTALLATION OF 14 FIRE HYDRANTS, AND CONSTRUCTION OF APPROXIMATELY 600 LINEAR FEET OF SMALL DIAMETER WATER HOUSE CONNECTION PIPING. WITH THE EXCEPTION OF FIRE HYDRANT INSTALLATION, THE WORK WILL OCCUR WITHIN THE PAVED ROADWAY SURFACE OF OLD COLUMBIA PIKE AND ASSOCIATED INTERSECTIONS.

EROSION AND SEDIMENT CONTROL WILL BE ADDRESSED USING DAILY STABILIZATION OF THE DISTURBED WORK AREA. TRENCH EXCAVATION FOR ONLY THAT LENGTH OF PIPE WHICH CAN BE INSTALLED IN A SINGLE DAY WILL BE PERFORMED. AT THE END OF EACH WORKDAY THE TRENCH WILL BE FILLED AND COMPACTED AND THE SURFACE REPAVED. THE WORK AREA WILL BE CLEANED OF DIRT AND DEBRIS AND TRAFFIC CONTROL MEASURES REMOVED ON A DAILY BASIS. WORK WILL CONTINUE IN THIS FASHION UNTIL CONSTRUCTION ACTIVITIES ARE COMPLETE. YARD AREAS DISTURBED FOR INSTALLATION OF FIRE HYDRANTS AND WATER HOUSE CONNECTIONS WILL BE STABILIZED WITH SEED, MULCH AND STABILIZATION MATTING ON A DAILY BASIS. THE WORK IS EXPECTED TO BE COMPLETED IN APPROXIMATELY 30 WEEKS.

OWNER/ DEVELOPER

HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS
7125 RIVERWOOD DRIVE
COLUMBIA, MD 21046
410-313-6122

ENGINEER

GANNETT FLEMING, INC.
7133 RUTHERFORD ROAD
SUITE 300
BALTIMORE, MD 21244
443-348-2017

NOTE TO CONTRACTOR

- EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
- EXCESS CUT MATERIAL SHALL BE HAULED OFFSITE IMMEDIATELY. NO ERODIBLE MATERIAL STOCKPILES WILL BE ALLOWED.

NO SCE NOTE

ALL EQUIPMENT SHALL HAVE TREADS/TIRES CLEANED PRIOR TO LEAVING THE LOD. ALL MATERIAL REMOVAL/LOADOUT SHALL BE LIFTED FROM THE LOD AND ANY SEDIMENT TRACKED OR DROPPED OUTSIDE THE LOD SHALL BE CLEANED IMMEDIATELY. A U-SHAPED EQUIPMENT CLEANING AREA SHALL BE PLACED DAILY PER THE DETAIL OF SHEET 15, EXCEPT WHERE WAIVED BY THE SEDIMENT CONTROL INSPECTOR.

STANDARD STABILIZATION NOTE

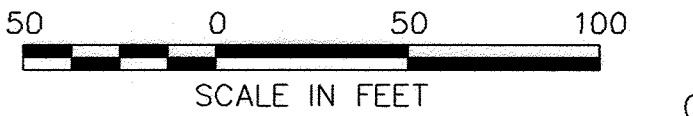
FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

DAILY STABILIZATION NOTES

FOR AREAS THAT REQUIRE SAME DAY STABILIZATION, CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY. STABILIZATION SHALL BE AS FOLLOWS:

- FOR AREAS TO BE PAVED, INSTALL TEMPORARY ASPHALT PAVEMENT OVER A STONE BASE. FOR AREAS THAT CANNOT BE BACKFILLED AT THE END OF THE WORKING DAY, INSTALL STEEL PLATES IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC DRAWINGS.
- ALL AREAS TO BE VEGETATIVELY STABILIZED SHALL REQUIRE SEED AND MAINTAINED SOIL STABILIZATION MATTING. MULCH OVER SEED MAY ONLY BE USED IF SILT FENCE IS INSTALLED AND REMAINS UNTIL ADEQUATE VEGETATIVE STABILIZATION OF 95% GROUND COVER IS OBTAINED.
- ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE.



As Built
APRIL 08, 2024

C-301

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. Meunier 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

J. Lee 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

S. Smith 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

V. Lee 12/20/2021
CHIEF, UTILITY DESIGN DIVISION 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. 20821, EXPIRATION DATE: 5/2/2023

Gannett Fleming
BALTIMORE, MARYLAND

DES. SJM
BY NHJ
NO. 1
REVISION AS-BUILT
DATE 4/24

CHK: JMS
SIGN DATE 12/14/21

| BY | NO. | REVISION | DATE |
|-----|-----|----------|------|
| NHJ | 1 | AS-BUILT | 4/24 |

EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

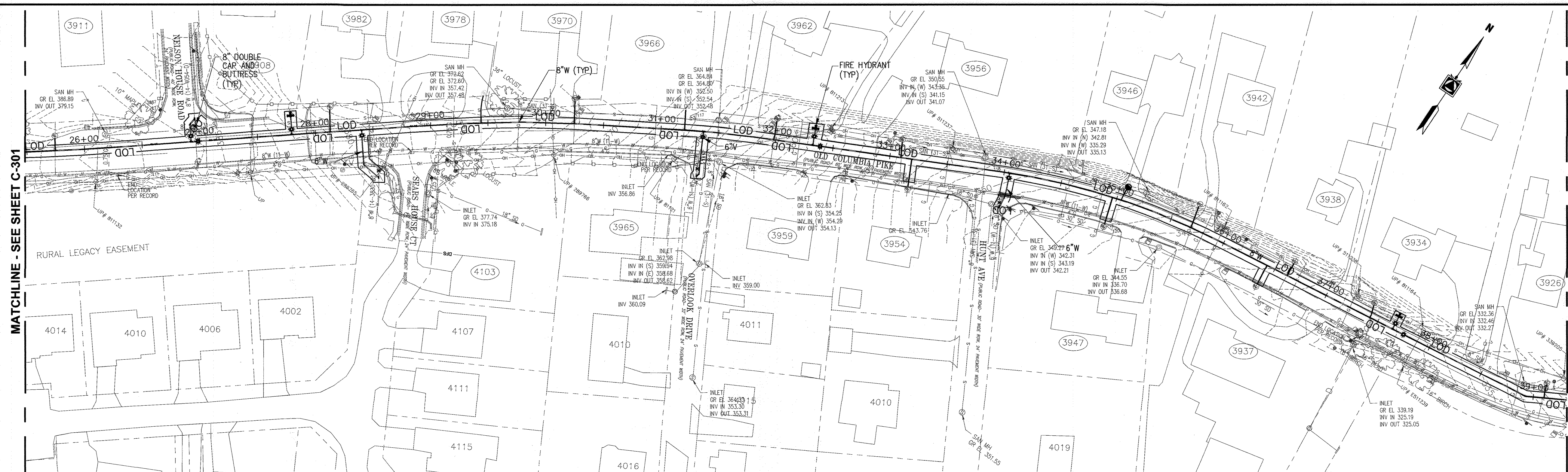
DECEMBER 2021

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

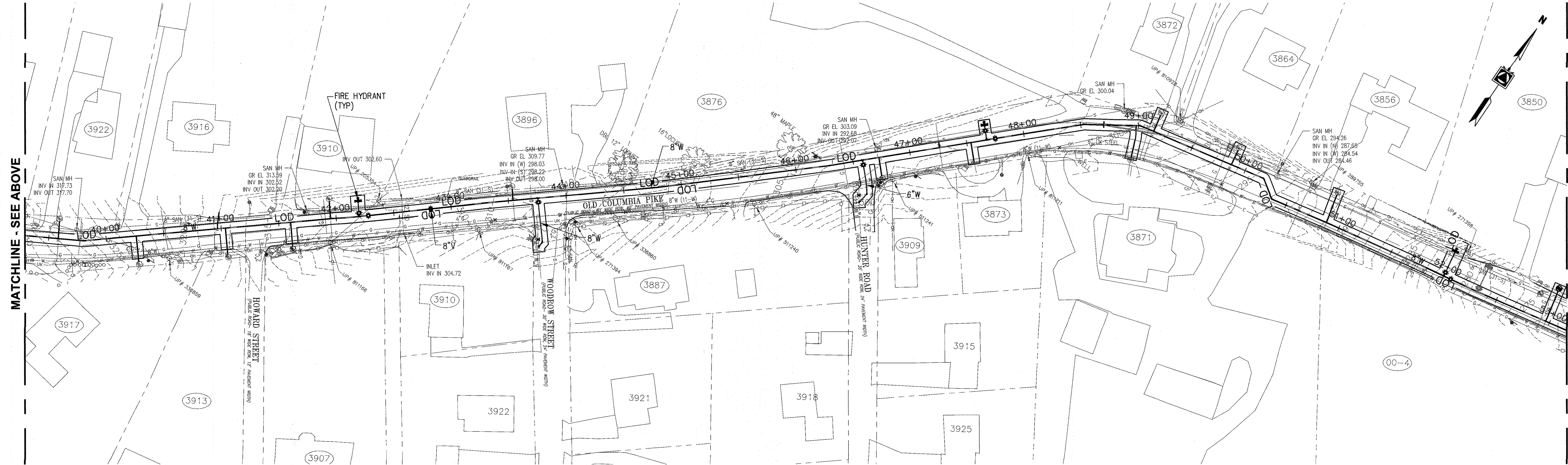
OLD COLUMBIA PIKE WATER MAIN REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: 1"= 50'
SHEET NO. 13 OF 21



SITE PLAN
SCALE: 1"=50'



SITE PLAN
SCALE: 1"=50'

LEGEND
 ——— PROPERTY LINE
 ——— LOD ——— LIMIT OF DISTURBANCE

DAILY STABILIZATION NOTES
 FOR AREAS THAT REQUIRE SAME DAY STABILIZATION, CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY.
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- B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

As Built
 APRIL 08, 2024
 50 0 50 100
 SCALE IN FEET
 C-302

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

M. Meunier 12/20/2021
 DIRECTOR OF PUBLIC WORKS DATE

J. [Signature] 12-17-21
 CHIEF, BUREAU OF ENGINEERING DATE

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Gannett Fleming
 BALTIMORE, MARYLAND

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 BY NHJ
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 SIGN DATE: 12/14/21

DECEMBER 2021

EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
 CONTRACT NO. 44-5166

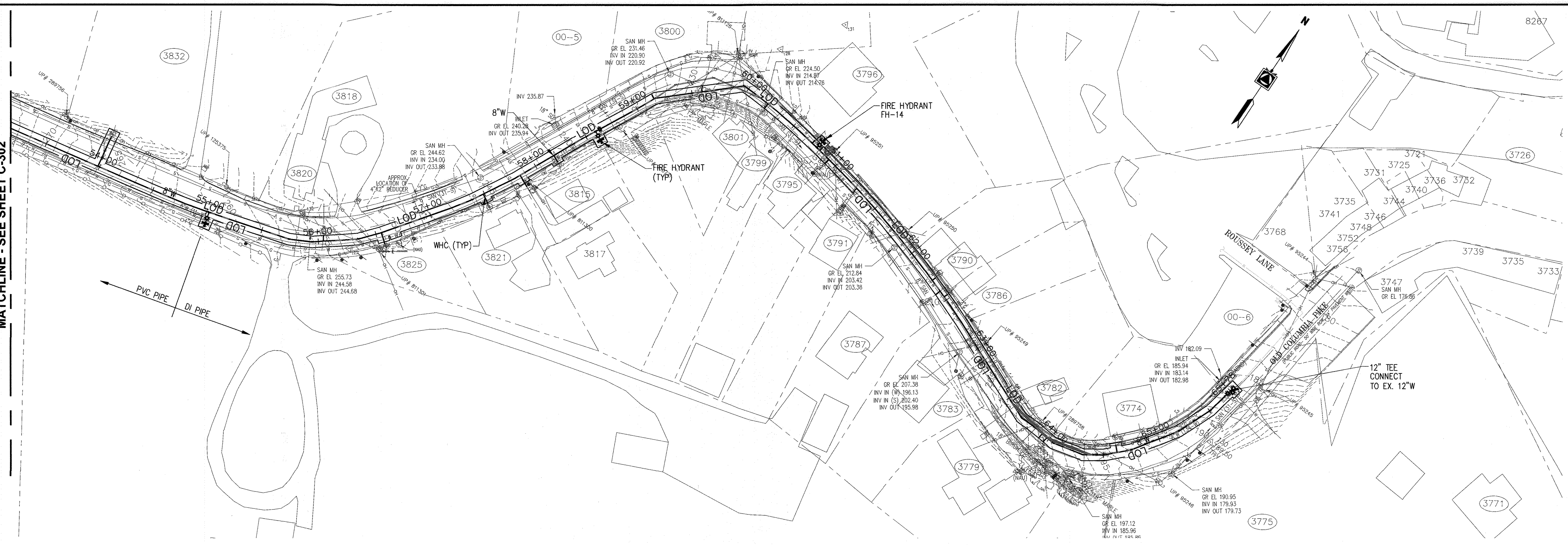
OLD COLUMBIA PIKE WATER MAIN REHABILITATION

ELECTION DISTRICT NO. 2

SCALE:
 1"= 50'

SHEET NO.
 14 OF 21

MATCHLINE - SEE SHEET C-302



SITE PLAN
SCALE: 1"=50'

LEGEND
— PROPERTY LINE
— LOD — LIMIT OF DISTURBANCE

DAILY STABILIZATION NOTES
FOR AREAS THAT REQUIRE SAME DAY STABILIZATION, CONTRACTOR SHALL ONLY DISTURB THAT AREA WHICH CAN BE COMPLETED AND STABILIZED BY THE END OF EACH WORKING DAY. STABILIZATION SHALL BE AS FOLLOWS:

1. FOR AREAS TO BE PAVED, INSTALL TEMPORARY ASPHALT PAVEMENT OVER A STONE BASE. FOR AREAS THAT CANNOT BE BACKFILLED AT THE END OF THE WORKING DAY, INSTALL STEEL PLATES IN ACCORDANCE WITH THE MAINTENANCE OF TRAFFIC DRAWINGS.
2. ALL AREAS TO BE VEGETATIVELY STABILIZED SHALL REQUIRE SEED AND MAINTAINED SOIL STABILIZATION MATTING. MULCH OVER SEED MAY ONLY BE USED IF SILT FENCE IS INSTALLED AND REMAINS UNTIL ADEQUATE VEGETATIVE STABILIZATION OF 95% GROUND COVER IS OBTAINED.
3. ANY AREAS WHICH CAN NOT BE STABILIZED BY THE END OF EACH WORKING DAY MUST HAVE SILT FENCE INSTALLED ON THE DOWNSLOPE SIDE.

- NOTE TO CONTRACTOR**
1. EROSION AND SEDIMENT CONTROL SHALL BE STRICTLY ENFORCED.
 2. EXCESS CUT MATERIAL SHALL BE HAULED OFFSITE IMMEDIATELY. NO ERODIBLE MATERIAL STOCKPILES WILL BE ALLOWED.

NO SCE NOTE
ALL EQUIPMENT SHALL HAVE TREADS/TIRES CLEANED PRIOR TO LEAVING THE LOD. ALL MATERIAL REMOVAL/LOADOUT SHALL BE LIFTED FROM THE LOD AND ANY SEDIMENT TRACKED OR DROPPED OUTSIDE THE LOD SHALL BE CLEANED IMMEDIATELY. A U-SHAPED EQUIPMENT CLEANING AREA SHALL BE PLACED DAILY PER THE DETAIL OF SHEET 15, EXCEPT WHERE WAIVED BY THE SEDIMENT CONTROL INSPECTOR.

STANDARD STABILIZATION NOTE
FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
- B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

As Built
APRIL 08, 2024

SCALE IN FEET

C-303

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

[Signature] 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

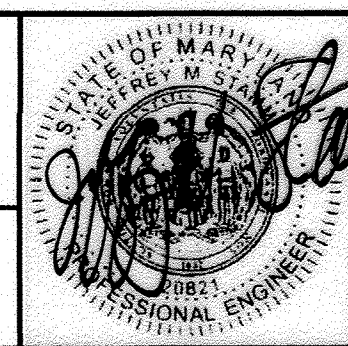
[Signature] 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 12/20/2021
CHIEF, UTILITY DESIGN DIVISION 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. 20821, EXPIRATION DATE: 5/2/2023

Gannett Fleming
BALTIMORE, MARYLAND



| DES. | BY | NO. | REVISION | DATE |
|---------------------|-----|-----|----------|------|
| SJM | NHL | 1 | AS-BUILT | 4/24 |
| SJM | | | | |
| JMS | | | | |
| SIGN DATE: 12/14/21 | | | | |

DECEMBER 2021

EROSION AND SEDIMENT CONTROL PLAN

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE:
1"= 50'

SHEET NO.
15 OF 21

**HOWARD SOIL CONSERVATION DISTRICT (HSCD)
STANDARD SEDIMENT CONTROL NOTES**

- A PRE-CONSTRUCTION MEETING MUST OCCUR WITH THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID), 410-313-1855 AFTER THE FUTURE LOD AND PROTECTED AREAS ARE MARKED CLEARLY IN THE FIELD. A MINIMUM OF 48 HOUR NOTICE TO CID MUST BE GIVEN AT THE FOLLOWING STAGES:
 - PRIOR TO THE START OF EARTH DISTURBANCE.
 - UPON COMPLETION OF THE INSTALLATION OF PERIMETER EROSION AND SEDIMENT CONTROLS, BUT BEFORE PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
 - PRIOR TO THE START OF ANOTHER PHASE OF CONSTRUCTION OR OPENING OF ANOTHER GRADING UNIT.
 - PRIOR TO THE REMOVAL OR MODIFICATION OF SEDIMENT CONTROL PRACTICES.

OTHER BUILDING OR GRADING INSPECTION APPROVALS MAY NOT BE AUTHORIZED UNTIL THIS INITIAL APPROVAL BY THE INSPECTION AGENCY IS MADE. OTHER RELATED STATE AND FEDERAL PERMITS SHALL BE REFERENCED, TO ENSURE COORDINATION AND TO AVOID CONFLICTS WITH THIS PLAN.

- ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO.
- FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
- ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH >15% OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
- ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.
- SITE ANALYSIS:
TOTAL AREA OF SITE: _____ 1.72 ACRES (75,000 SQ FT)
AREA DISTURBED: _____ 0.46 ACRES (20,000 SQ FT)
AREA TO BE ROOFED OR PAVED: _____ 0.46 ACRES (REPAVING IN COUNTY ROADWAY)
AREA TO BE VEGETATIVELY STABILIZED: _____ N/A
TOTAL CUT: _____ 3,650 CU. YDS.
TOTAL FILL: _____ 3,540 CU. YDS.
OFFSITE WASTE/BORROW AREA LOCATION: _____ SITE WITH AN ACTIVE GRADING PERMIT, TO BE APPROVED BY THE SEDIMENT CONTROL INSPECTOR

- ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED IF DEEMED NECESSARY BY THE CID. THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY, AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:

- INSPECTION DATE
- INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
- NAME AND TITLE OF INSPECTOR
- WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
- BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
- EVIDENCE OF SEDIMENT DISCHARGES
- IDENTIFICATION OF PLAN DEFICIENCIES
- IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
- IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
- COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
- PHOTOGRAPHS
- MONITORING/SAMPLING
- MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
- OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).

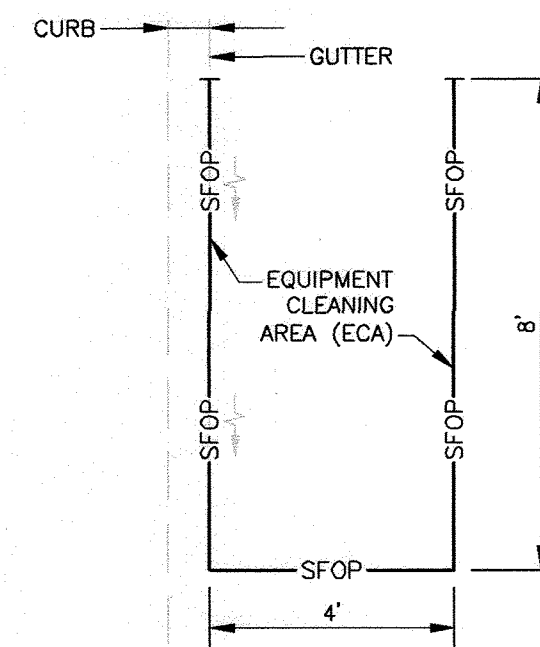
- TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- ANY MAJOR CHANGES OR REVISIONS TO THE PLAN OR SEQUENCE OF CONSTRUCTION MUST BE REVIEWED AND APPROVED BY THE HSCD PRIOR TO PROCEEDING WITH CONSTRUCTION. MINOR REVISIONS MAY ALLOWED BY THE CID PER THE LIST OF HSCD-APPROVED FIELD CHANGES.
- DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D. A PROJECT IS TO BE SEQUENCED SO THAT GRADING ACTIVITIES BEGIN ON ONE GRADING UNIT (MAXIMUM ACREAGE OF 20 AC. PER GRADING UNIT) AT A TIME. WORK MAY PROCEED TO A SUBSEQUENT GRADING UNIT WHEN AT LEAST 50 PERCENT OF THE DISTURBED AREA IN THE PRECEDING GRADING UNIT HAS BEEN STABILIZED AND APPROVED BY THE CID, UNLESS OTHERWISE SPECIFIED AND APPROVED BY THE HSCD, NO MORE THAN 30 ACRES CUMULATIVELY MAY BE DISTURBED AT A GIVEN TIME.
- WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
- ALL SILT FENCE AND SUPER SILT FENCE SHALL BE PLACED ON-THE-CONTOUR, AND BE

- IMBRICATED AT 25° MINIMUM INTERVALS, WITH LOWER ENDS CURLED UP HILL BY 2" IN ELEVATION.
- STREAM CHANNELS MUST NOT BE DISTURBED DURING THE FOLLOWING RESTRICTED TIME PERIODS (INCLUSIVE):
 - USE I AND II: MARCH 1 - JUNE 15
 - USE III AND III: OCTOBER 1 - APRIL 30
 - USE IV: MARCH 1 - MAY 31
 - A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.

STANDARD STABILIZATION NOTE:

FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:

- THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
- SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.



U-SHAPED EQUIPMENT CLEANING AREA

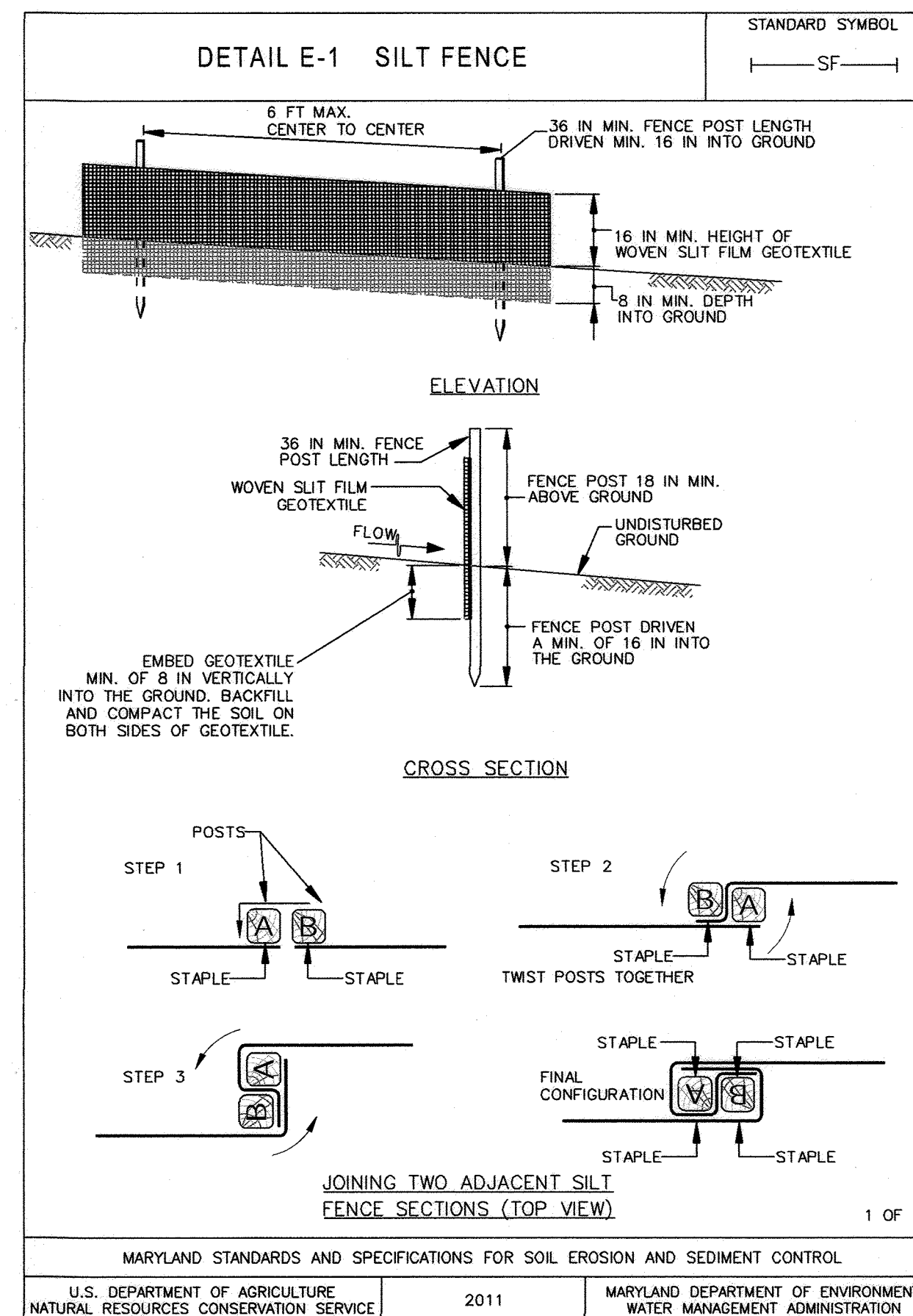
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NOTES

- SFOP TO MEET DETAIL E-2 AND CONSTRUCTION SPECIFICATIONS THEREOF.
- ECA TO BE PLACED AT THE LOWEST END OF LOD AND CLEANED DAILY.
- IMMEDIATELY REMOVE STONE AND/OR SEDIMENT SPILLED, DROPPED, OR TRACKED ONTO ADJACENT ROADWAY BY VACUUMING, SCRAPING, AND/OR SWEEPING.
- CID MAY WAIVE INSTALLATION OF ECA WHERE INSPECTOR ACCEPTS SAME-DAY STABILIZATION WITH SEED/SSM OR SOD.

SEQUENCE OF CONSTRUCTION

| ITEM | DURATION |
|--|----------|
| 1. THE CONTRACTOR SHALL NOTIFY THE HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, CONSTRUCTION INSPECTION DIVISION (CID) AT 410-313-1855 AT LEAST 48 HOURS PRIOR TO BEGINNING ANY EARTH DISTURBANCE ACTIVITIES. | 1 DAY |
| 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "MISS UTILITY" AT 1-800-257-7777 FOR FIELD LOCATION OF ALL PUBLIC AND PRIVATE UTILITY LINES, PIPES, CABLES AND ASSOCIATED FEATURES AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION WORK. THE CONTRACTOR SHALL UTILIZE THE SERVICES OF A PRIVATE UTILITY LOCATOR TO LOCATE AND MARK EXISTING UNDERGROUND UTILITIES NOT MARKED BY "MISS UTILITY". NO WORK MAY BEGIN WITHOUT CLEAR UTILITY MARKINGS AND A DIG PERMIT AUTHORIZATION FROM MISS UTILITY AND THE CONTRACTING OFFICER. | 1 DAY |
| 3. THE CONTRACTOR SHALL SCHEDULE AN ONSITE COORDINATION MEETING BETWEEN THE CID AND ENGINEER TO DISCUSS PROJECT SCOPE AND OBJECTIVES, ON-SITE CONDITIONS, ADDRESS, COORDINATION WITH ON-GOING WORK AND NECESSARY PRACTICES TO PROTECT EXISTING RESOURCES AND PROPERTY. | 1 DAY |
| 4. STAKEOUT LIMITS OF DISTURBANCE PRIOR TO INITIATING WORK. | 1 DAY |
| 5. INSTALL TRAFFIC CONTROL AND/OR DIRECTIONAL SIGNAGE AS REQUIRED. | 1 DAY |
| 6. INSTALL INDIVIDUAL SECTIONS OF WATER MAIN INCLUDING TRENCH EXCAVATION, PIPE INSTALLATION, BACKFILL, COMPACTION AND TEMPORARY TRENCH REPAIR. WORK IS LIMITED TO THE EXTENT THAT CAN BE COMPLETED AND STABILIZED EACH DAY. COMPLETE INDIVIDUAL SECTIONS AND STABILIZE TRENCH BEFORE PROCEEDING TO THE NEXT SECTION. SWEEP PAVED SURFACES CLEAN OF ANY REMAINING SOIL RESIDUE AT THE END OF EACH WORKDAY. | 175 DAYS |
| 7. PERFORM SLOPE GRADING, TOPSOIL, SEED AND MULCH ON ANY AREAS DISTURBED BY WATER MAIN INSTALLATION OUTSIDE OF ROADWAY PAVING. | 7 DAYS |
| 8. FOLLOWING COMPLETION OF ALL PIPELINE CONSTRUCTION PERFORM FINAL TRENCH REPAIR OF ALL PAVING UTILITY CUTS. | 21 DAYS |
| 9. WITH WRITTEN APPROVAL OF THE CID INSPECTOR ADDRESS ANY REMAINING ISSUES AND DEMOBILIZE FROM SITE. | 7 DAYS |



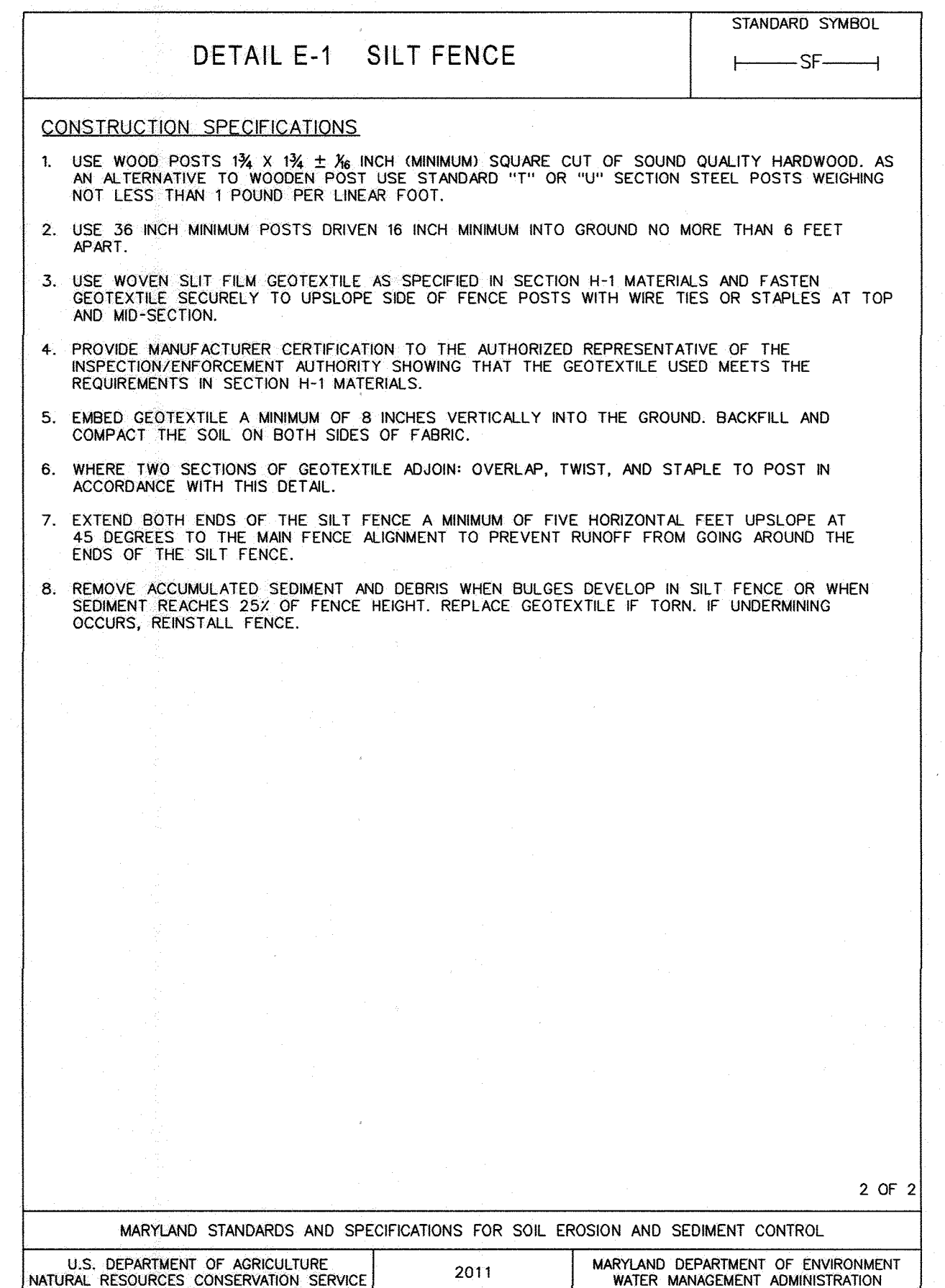
DETAIL E-1 SILT FENCE

CROSS SECTION

JOINING TWO ADJACENT SILT FENCE SECTIONS (TOP VIEW)

STANDARD SYMBOL

SF



DETAIL E-1 SILT FENCE

STANDARD SYMBOL

SF

C-304

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. Meunier 12/20/2021 12-17-21
DIRECTOR OF PUBLIC WORKS DATE CHIEF, BUREAU OF ENGINEERING DATE

S. Romack 12/20/2021 12/20/21
CHIEF, BUREAU OF UTILITIES DATE CHIEF, UTILITY DESIGN DIVISION 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. 20821, EXPIRATION DATE: 5/2/2023

Gannett Fleming
BALTIMORE, MARYLAND

DES: SJM
BY: NH/L
NO. AS-BUILT
DATE: 4/24

CHK: JMS
SIGN DATE: 12/14/21

REVISION

DECEMBER 2021

EROSION AND SEDIMENT CONTROL
NOTES AND DETAILS

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166
OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: NONE
SHEET NO. 16 OF 21

SECTION B-4: VEGETATIVE STABILIZATION

DEFINITION: USING VEGETATION AS COVER TO PROTECT EXPOSED SOIL FROM EROSION.

PURPOSE: TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL.

CONDITIONS WHERE PRACTICE APPLIES: ON ALL DISTURBED AREAS NOT STABILIZED BY OTHER METHODS. THIS SPECIFICATION IS DIVIDED INTO SECTIONS ON INCREMENTAL STABILIZATION, SOIL PREPARATION, SOIL AMENDMENTS AND TOPSOILING, SEEDING AND MULCHING, TEMPORARY STABILIZATION, AND PERMANENT STABILIZATION.

EFFECTS ON WATER QUALITY AND QUANTITY: STABILIZATION PRACTICES ARE USED TO PROMOTE THE ESTABLISHMENT OF VEGETATION ON EXPOSED SOIL. WHEN SOIL IS STABILIZED WITH VEGETATION, THE SOIL IS LESS LIKELY TO ERODE AND MORE LIKELY TO ALLOW INFILTRATION OF RAINFALL, THEREBY REDUCING SEDIMENT LOADS AND RUNOFF TO DOWNSTREAM AREAS.

PLANTING VEGETATION IN DISTURBED AREAS WILL HAVE AN EFFECT ON THE WATER BUDGET, ESPECIALLY ON VOLUMES AND RATES OF RUNOFF, INFILTRATION, EVAPORATION, TRANSPIRATION, PERCOLATION, AND GROUNDWATER RECHARGE. OVER TIME, VEGETATION WILL INCREASE ORGANIC MATTER CONTENT AND IMPROVE THE WATER HOLDING CAPACITY OF THE SOIL AND SUBSEQUENT PLANT GROWTH.

VEGETATION WILL HELP REDUCE THE MOVEMENT OF SEDIMENT, NUTRIENTS, AND OTHER CHEMICALS CARRIED BY RUNOFF TO RECEIVING WATERS. PLANTS WILL ALSO HELP PROTECT GROUNDWATER SUPPLIES BY ASSIMILATING THOSE SUBSTANCES PRESENT WITHIN THE ROOT ZONE.

SEDIMENT CONTROL PRACTICES MUST REMAIN IN PLACE DURING GRADING, SEEDBED PREPARATION, SEEDING, MULCHING, AND VEGETATIVE ESTABLISHMENT.

ADEQUATE VEGETATIVE ESTABLISHMENT: INSPECT SEEDED AREAS FOR VEGETATIVE ESTABLISHMENT AND MAKE NECESSARY REPAIRS, REPLACEMENTS, AND RESEEDINGS WITHIN THE PLANTING SEASON.

1. ADEQUATE VEGETATIVE STABILIZATION REQUIRES 95 PERCENT GROUND COVER.
2. IF AN AREA HAS LESS THAN 40 PERCENT GROUND COVER, RESTABILIZE FOLLOWING THE ORIGINAL RECOMMENDATIONS FOR LIME, FERTILIZER, SEEDBED PREPARATION, AND SEEDING.
3. IF AN AREA HAS BETWEEN 40 AND 94 PERCENT GROUND COVER, OVER-SEED AND FERTILIZE USING HALF OF THE RATES ORIGINALLY SPECIFIED.
4. MAINTENANCE FERTILIZER RATES FOR PERMANENT SEEDING ARE SHOWN IN TABLE B.6.

SECTION B-4-1: INCREMENTAL STABILIZATION

DEFINITION: ESTABLISHMENT OF VEGETATIVE COVER ON CUT AND FILL SLOPES.

PURPOSE: TO PROVIDE TIMELY VEGETATIVE COVER ON CUT AND FILL SLOPES AS WORK PROGRESSES.

CONDITIONS WHERE PRACTICE APPLIES: ANY CUT OR FILL SLOPE GREATER THAN 15 FEET IN HEIGHT. THIS PRACTICE ALSO APPLIES TO STOCKPILES.

CRITERIA:
A. INCREMENTAL STABILIZATION - CUT SLOPES

1. EXCAVATE AND STABILIZE CUT SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL CUT SLOPES AS WORK PROGRESSES.
2. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.1):
 - a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO CONVEY RUNOFF AROUND THE EXCAVATION.
 - b. PERFORM PHASE 1 EXCAVATION, PREPARE SEEDBED, AND STABILIZE.
 - c. PERFORM PHASE 2 EXCAVATION, PREPARE SEEDBED, AND STABILIZE. OVERSEED PHASE 1 AREAS AS NECESSARY.
 - d. PERFORM FINAL PHASE EXCAVATION, PREPARE SEEDBED, 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.

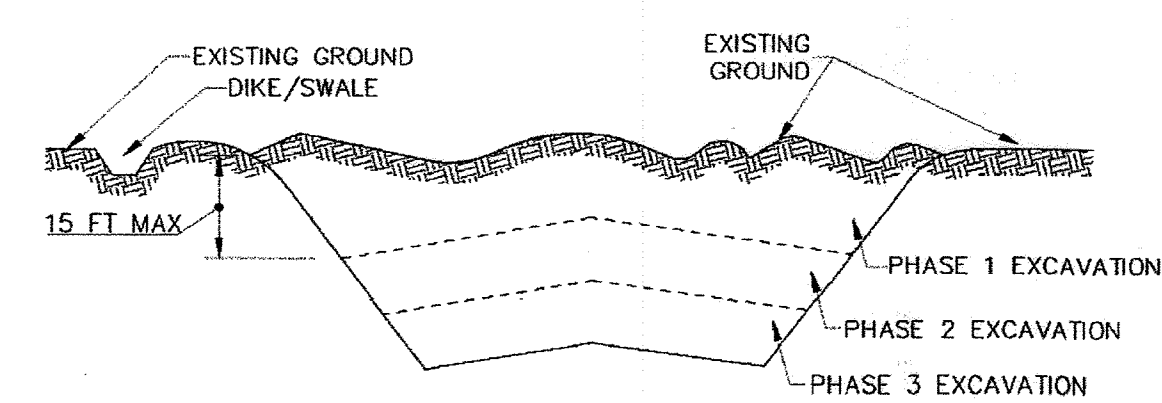


Figure B.1: Incremental Stabilization - Cut

B. INCREMENTAL STABILIZATION - FILL SLOPES

1. CONSTRUCT AND STABILIZE FILL SLOPES IN INCREMENTS NOT TO EXCEED 15 FEET IN HEIGHT. PREPARE SEEDBED AND APPLY SEED AND MULCH ON ALL SLOPES AS THE WORK PROGRESSES.
2. STABILIZE SLOPES IMMEDIATELY WHEN THE VERTICAL HEIGHT OF A LIFT REACHES 15 FEET, OR WHEN THE GRADING OPERATION CEASES AS PRESCRIBED IN THE PLANS.
3. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.
4. CONSTRUCTION SEQUENCE EXAMPLE (REFER TO FIGURE B.2):
 - a. CONSTRUCT AND STABILIZE ALL TEMPORARY SWALES OR DIKES THAT WILL BE USED TO DIVERT RUNOFF AROUND THE FILL. CONSTRUCT SILT FENCE ON LOW SIDE OF FILL UNLESS OTHER METHODS SHOWN ON THE PLANS ADDRESS THIS AREA.
 - b. AT THE END OF EACH DAY, INSTALL TEMPORARY WATER CONVEYANCE PRACTICE(S), AS NECESSARY, TO INTERCEPT SURFACE RUNOFF AND CONVEY IT DOWN THE SLOPE IN A NON-EROSIVE MANNER.

- c. PLACE PHASE 1 FILL, PREPARE SEEDBED, AND STABILIZE.
- d. PLACE PHASE 2 FILL, PREPARE SEEDBED, AND STABILIZE.
- e. PLACE FINAL PHASE FILL, PREPARE SEEDBED, 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.

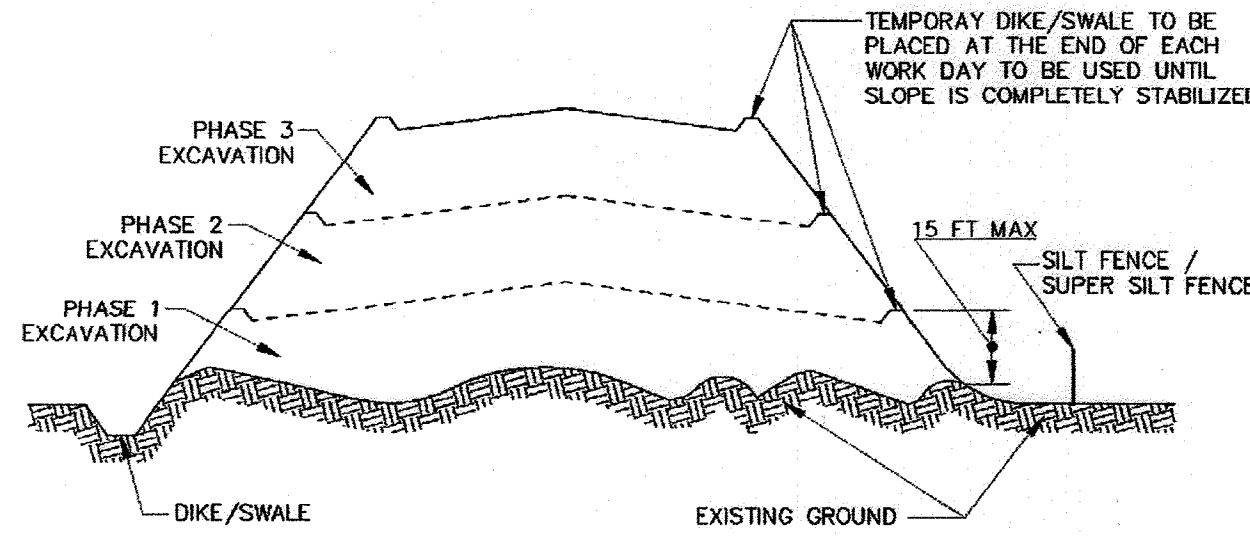


Figure B.2: Incremental Stabilization - Fill

SECTION B-4-2: SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

DEFINITION: THE PROCESS OF PREPARING THE SOILS TO SUSTAIN ADEQUATE VEGETATIVE STABILIZATION

PURPOSE: TO PROVIDE SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH

CONDITIONS WHERE PRACTICE APPLIES: WHERE VEGETATIVE STABILIZATION IS TO BE ESTABLISHED

CRITERIA:

- A. SOIL PREPARATION
 1. TEMPORARY STABILIZATION
 - a. SEEDBED PREPARATION CONSISTS OF LOOSENING SOIL TO A DEPTH OF 3 TO 5 INCHES 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 MUST NOT BE ROLLED OR DRAGGED SMOOTH BUT LEFT IN THE ROUGHENED CONDITION. SLOPES 3:1 OR FLATTER ARE TO BE TRACKED WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE.
 - b. APPLY FERTILIZER AND LIME AS PRESCRIBED ON THE PLANS.
 - c. INCORPORATE LIME AND FERTILIZER INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 2. PERMANENT STABILIZATION
 - a. A SOIL TEST IS REQUIRED FOR ANY EARTH DISTURBANCE OF 5 ACRES OR MORE. THE MINIMUM SOIL CONDITIONS REQUIRED FOR PERMANENT VEGETATIVE ESTABLISHMENT ARE:
 - I. SOIL PH BETWEEN 6.0 AND 7.0.
 - II. SOLUBLE SALTS LESS THAN 500 PARTS PER MILLION (PPM).
 - III. SOIL CONTAINS LESS THAN 40 PERCENT CLAY BUT ENOUGH FINE GRAINED MATERIAL (GREATER THAN 30 PERCENT SILT PLUS CLAY) TO PROVIDE THE CAPACITY TO HOLD A MODERATE AMOUNT OF MOISTURE. AN EXCEPTION: IF LOVEGRASS WILL BE PLANTED, THEN A SANDY SOIL (LESS THAN 30 PERCENT SILT PLUS CLAY) WOULD BE ACCEPTABLE.
 - IV. SOIL CONTAINS 1.5 PERCENT MINIMUM ORGANIC MATTER BY WEIGHT.
 - V. SOIL CONTAINS SUFFICIENT PORE SPACE TO PERMIT ADEQUATE ROOT PENETRATION.
 - b. APPLICATION OF AMENDMENTS OR TOPSOIL IS REQUIRED IF ON-SITE SOILS DO NOT MEET THE ABOVE CONDITIONS.
 - c. GRADED AREAS MUST BE MAINTAINED IN A TRUE AND EVEN GRADE AS SPECIFIED ON THE APPROVED PLAN, THEN SCARIFIED OR OTHERWISE LOOSENED TO A DEPTH OF 3 TO 5 INCHES.
 - d. APPLY SOIL AMENDMENTS AS SPECIFIED ON THE APPROVED PLAN OR AS INDICATED BY THE RESULTS OF A SOIL TEST.
 - e. MIX SOIL AMENDMENTS INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS. RAKE LAWN AREAS TO SMOOTH THE SURFACE. REMOVE LARGE OBJECTS LIKE STONES AND BRANCHES, AND READY THE AREA FOR SEED APPLICATION. LOOSEN SURFACE SOIL BY DRAGGING WITH A HEAVY CHAIN OR OTHER EQUIPMENT TO ROUGHEN THE SURFACE WHERE SITE CONDITIONS WILL NOT PERMIT NORMAL SEEDBED PREPARATION. TRACK SLOPES 3:1 OR FLATTER WITH TRACKED EQUIPMENT LEAVING THE SOIL IN AN IRREGULAR CONDITION WITH RIDGES RUNNING PARALLEL TO THE CONTOUR OF THE SLOPE. LEAVE THE TOP 1 TO 3 INCHES OF SOIL LOOSE AND FRABLE. SEEDBED LOOSENING MAY BE UNNECESSARY ON NEWLY DISTURBED AREAS.
- B. TOPSOILING
 1. TOPSOIL IS PLACED OVER PREPARED SUBSOIL PRIOR TO ESTABLISHMENT OF PERMANENT VEGETATION. THE PURPOSE IS TO PROVIDE A SUITABLE SOIL MEDIUM FOR VEGETATIVE GROWTH. SOILS OF CONCERN HAVE LOW MOISTURE CONTENT, LOW NUTRIENT LEVELS, LOW PH, MATERIALS TOXIC TO PLANTS, AND/OR UNACCEPTABLE SOIL GRADATION.
 2. TOPSOIL SALVAGED FROM AN EXISTING SITE MAY BE USED PROVIDED IT MEETS THE STANDARDS AS SET FORTH IN THESE SPECIFICATIONS. TYPICALLY, THE DEPTH OF TOPSOIL TO BE SALVAGED FOR A GIVEN SOIL TYPE CAN BE FOUND IN THE REPRESENTATIVE SOIL PROFILE SECTION IN THE SOIL SURVEY PUBLISHED BY USDA-NRCS.
 3. TOPSOILING IS LIMITED TO AREAS HAVING 2:1 OR FLATTER SLOPES WHERE:
 - a. THE TEXTURE OF THE EXPOSED SUBSOIL/PARENT MATERIAL IS NOT ADEQUATE TO PRODUCE VEGETATIVE GROWTH.
 - b. THE SOIL MATERIAL IS SO SHALLOW THAT THE ROOTING ZONE IS NOT DEEP ENOUGH TO SUPPORT PLANTS OR FURNISH CONTINUING SUPPLIES OF MOISTURE AND PLANT NUTRIENTS.
 - c. THE ORIGINAL SOIL TO BE VEGETATED CONTAINS MATERIAL TOXIC TO PLANT GROWTH.
 - d. THE SOIL IS SO ACIDIC THAT TREATMENT WITH LIMESTONE IS NOT FEASIBLE.

4. AREAS HAVING SLOPES STEEPER THAN 2:1 REQUIRE SPECIAL CONSIDERATION AND DESIGN.
5. TOPSOIL SPECIFICATIONS: SOIL TO BE USED AS TOPSOIL MUST MEET THE FOLLOWING CRITERIA:
 - a. TOPSOIL MUST BE A LOAM, SANDY LOAM, CLAY LOAM, SILT LOAM, SANDY CLAY LOAM, OR LOAMY SAND. OTHER SOILS MAY BE USED IF RECOMMENDED BY AN AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY. TOPSOIL MUST NOT BE A MIXTURE OF CONTRASTING TEXTURED SUBSOILS AND MUST CONTAIN LESS THAN 5 PERCENT BY VOLUME OF CINDERS, STONES, SLAG, COARSE FRAGMENTS, GRAVEL, STICKS, ROOTS, TRASH, OR OTHER MATERIALS LARGER THAN 1 1/2 INCHES IN DIAMETER.
 - b. TOPSOIL MUST BE FREE OF NOXIOUS PLANTS OR PLANT PARTS SUCH AS BERMUDA GRASS, QUACK GRASS, JOHNSON GRASS, NUT SEDGE, POISON IVY, THISTLE, OR OTHERS AS SPECIFIED.
 - c. TOPSOIL SUBSTITUTES OR AMENDMENTS, AS RECOMMENDED BY A QUALIFIED AGRONOMIST OR SOIL SCIENTIST AND APPROVED BY THE APPROPRIATE APPROVAL AUTHORITY, MAY BE USED IN LIEU OF NATURAL TOPSOIL.
6. TOPSOIL APPLICATION
 - a. EROSION AND SEDIMENT CONTROL PRACTICES MUST BE MAINTAINED WHEN APPLYING TOPSOIL.
 - b. UNIFORMLY DISTRIBUTE TOPSOIL IN A 5 TO 8 INCH LAYER AND LIGHTLY COMPACT TO A MINIMUM THICKNESS OF 4 INCHES. SPREADING IS TO BE PERFORMED IN SUCH A MANNER THAT SOODING OR SEEDING CAN PROCEED WITH A MINIMUM OF ADDITIONAL SOIL PREPARATION AND TILLAGE. ANY IRREGULARITIES IN THE SURFACE RESULTING FROM TOPSOILING OR OTHER OPERATIONS MUST BE CORRECTED IN ORDER TO PREVENT THE FORMATION OF DEPRESSIONS OR WATER POCKETS.
 - c. TOPSOIL MUST NOT BE PLACED IF THE TOPSOIL OR SUBSOIL IS IN A FROZEN OR MUDDY CONDITION, WHEN THE SUBSOIL IS EXCESSIVELY WEAK IN A CONDITION THAT MAY OTHERWISE BE DETRIMENTAL TO PROPER GRADING AND SEEDBED PREPARATION.

- C. SOIL AMENDMENTS (FERTILIZER AND LIME SPECIFICATIONS)
 1. SOIL TESTS MUST BE PERFORMED TO DETERMINE THE EXACT RATIOS AND APPLICATION RATES FOR BOTH LIME AND FERTILIZER ON SITES HAVING DISTURBED AREAS OF 5 ACRES OR MORE. SOIL ANALYSIS MAY BE PERFORMED BY A RECOGNIZED PRIVATE OR COMMERCIAL LABORATORY. SOIL SAMPLES TAKEN FOR ENGINEERING PURPOSES MAY ALSO BE USED FOR CHEMICAL ANALYSES.
 2. FERTILIZERS MUST BE UNIFORM IN COMPOSITION, FREE FLOWING AND SUITABLE FOR ACCURATE APPLICATION BY APPROPRIATE EQUIPMENT. MANURE MAY BE SUBSTITUTED FOR FERTILIZER WITH PRIOR APPROVAL FROM THE APPROPRIATE APPROVAL AUTHORITY. FERTILIZERS MUST ALL BE DELIVERED TO THE SITE FULLY LABELED ACCORDING TO THE APPLICABLE LAWS AND MUST BEAR THE NAME, TRADE NAME OR TRADEMARK AND WARRANTY OF THE PRODUCER.
 3. LIME MATERIALS MUST BE GROUND LIMESTONE (HYDRATED OR BURNT LIME MAY BE SUBSTITUTED EXCEPT WHEN HYDROSEEDING) WHICH CONTAINS AT LEAST 50 PERCENT TOTAL OXIDES (CALCIUM OXIDE PLUS MAGNESIUM OXIDE). LIMESTONE MUST BE GROUND TO SUCH FINENESS THAT AT LEAST 50 PERCENT WILL PASS THROUGH A #100 MESH SIEVE AND 98 TO 100 PERCENT WILL PASS THROUGH A #20 MESH SIEVE.
 4. LIME AND FERTILIZER ARE TO BE EVENLY DISTRIBUTED AND INCORPORATED INTO THE TOP 3 TO 5 INCHES OF SOIL BY DISKING OR OTHER SUITABLE MEANS.
 5. WHERE THE SUBSOIL IS EITHER HIGHLY ACIDIC OR COMPOSED OF HEAVY CLAYS, SPREAD GROUND LIMESTONE AT THE RATE OF 4 TO 8 TONS/ACRE (200-400 POUNDS PER 1,000 SQUARE FEET) PRIOR TO THE PLACEMENT OF TOPSOIL.

SECTION B-4-3: SEEDING AND MULCHING

DEFINITION: THE APPLICATION OF SEED AND MULCH TO ESTABLISH VEGETATIVE COVER.

PURPOSE: TO PROTECT DISTURBED SOILS FROM EROSION DURING AND AT THE END OF CONSTRUCTION.

CONDITIONS WHERE PRACTICE APPLIES: TO THE SURFACE OF ALL PERIMETER CONTROLS, SLOPES, AND ANY DISTURBED AREA NOT UNDER ACTIVE GRADING.

CRITERIA:

- A. SEEDING
 1. SPECIFICATIONS
 - a. ALL SEED MUST MEET THE REQUIREMENTS OF THE MARYLAND STATE SEED LAW. ALL SEED MUST BE SUBJECT TO RE-TESTING BY A RECOGNIZED SEED LABORATORY. ALL SEED USED MUST HAVE BEEN TESTED WITHIN THE 6 MONTHS IMMEDIATELY PRECEDING THE DATE OF SOWING SUCH MATERIAL ON ANY PROJECT. REFER TO TABLE B.4 REGARDING THE QUALITY OF SEED. SEED TAGS MUST BE AVAILABLE UPON REQUEST TO THE INSPECTOR TO VERIFY TYPE OF SEED AND SEEDING RATE.
 - b. MULCH ALONE MAY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES ONLY IF THE GROUND IS FROZEN. THE APPROPRIATE SEEDING MIXTURE MUST BE APPLIED WHEN THE GROUND THAWS.
 - c. INOCULANTS: THE INOCULANT FOR TREATING LEGUME SEED IN THE SEED MIXTURES MUST BE A PURE CULTURE OF NITROGEN FIXING BACTERIA PREPARED SPECIFICALLY FOR THE SPECIES. INOCULANTS MUST NOT BE USED LATER THAN THE DATE INDICATED ON THE CONTAINER. ADD FRESH INOCULANTS 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 TO 80 DEGREES FAHRENHEIT CAN WEAKEN BACTERIA AND MAKE THE INOCULANT LESS EFFECTIVE.
 - d. SOD OR SEED MUST NOT BE PLACED ON SOIL WHICH HAS BEEN TREATED WITH SOIL STERILANTS OR CHEMICALS USED FOR WEED CONTROL UNTIL SUFFICIENT TIME HAS ELAPSED (14 DAYS MIN.) TO PERMIT DISSIPATION OF PHYTO-TOXIC MATERIALS.

2. APPLICATION

- a. DRY SEEDING: THIS INCLUDES USE OF CONVENTIONAL DROP OR BROADCAST SPREADERS.
 - I. INCORPORATE SEED INTO THE SUBSOIL AT THE RATES PRESCRIBED ON TEMPORARY SEEDING TABLE B.1, PERMANENT SEEDING TABLE B.3, OR SITE-SPECIFIC SEEDING SUMMARIES.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION. ROLL THE SEEDED AREA WITH A WEIGHTED ROLLER TO PROVIDE GOOD SEED TO SOIL CONTACT.
- b. DRILL OR CULTIPACKER SEEDING: MECHANIZED SEEDERS THAT APPLY AND COVER SEED WITH SOIL.
 - I. CULTIPACKING SEEDERS ARE REQUIRED TO BURY THE SEED IN SUCH A FASHION AS TO PROVIDE AT LEAST 1/4 INCH OF SOIL COVERING. SEEDBED MUST BE FIRM AFTER PLANTING.
 - II. APPLY SEED IN TWO DIRECTIONS, PERPENDICULAR TO EACH OTHER. APPLY HALF THE SEEDING RATE IN EACH DIRECTION.
- c. HYDROSEEDING: APPLY SEED UNIFORMLY WITH HYDROSEEDER (SLURRY INCLUDES SEED AND FERTILIZER).
 - I. IF FERTILIZER IS BEING APPLIED AT THE TIME OF SEEDING, THE APPLICATION RATES SHOULD NOT EXCEED THE FOLLOWING: NITROGEN, 100 POUNDS PER ACRE TOTAL OF SOLUBLE NITROGEN; P205 (PHOSPHOROUS), 200 POUNDS PER ACRE; K2O (POTASSIUM), 200 POUNDS PER ACRE.
 - II. 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.
 - III. MIX SEED AND FERTILIZER ON SITE AND SEED IMMEDIATELY AND WITHOUT INTERRUPTION.
 - IV. WHEN HYDROSEEDING DO NOT INCORPORATE SEED INTO THE SOIL.

B. MULCHING

1. MULCH MATERIALS (IN ORDER OF PREFERENCE)
 - a. STRAW CONSISTING OF THOROUGHLY THRESHED WHEAT, RYE, OAT, OR BARLEY AND REASONABLY BRIGHT IN COLOR. STRAW IS TO BE FREE OF NOXIOUS WEED SEEDS AS SPECIFIED IN THE MARYLAND SEED LAW AND NOT MUSTY, MOLLY, CAKED, DECAYED, OR EXCESSIVELY DUSTY. NOTE: USE ONLY STERILE STRAW MULCH IN AREAS WHERE ONE SPECIES OF GRASS IS DESIRED.
 - b. WOOD CELLULOSE FIBER MULCH (WCFM) CONSISTING OF SPECIALLY PREPARED WOOD CELLULOSE PROCESSED INTO A UNIFORM FIBROUS PHYSICAL STATE.
 - I. WCFM IS TO 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.
 - II. WCFM, INCLUDING DYE, MUST CONTAIN NO GERMINATION OR GROWTH INHIBITING FACTORS.
 - III. WCFM MATERIALS ARE TO 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 MUST FORM A BLOTTER-LIKE GROUND COVER. ON APPLICATION, HAVING MOISTURE ABSORPTION AND PERCOLATION PROPERTIES AND MUST COVER AND HOLD GRASS SEED IN CONTACT WITH THE SOIL WITHOUT INHIBITING THE GROWTH OF THE GRASS SEEDLINGS.
 - IV. WCFM MATERIAL MUST NOT CONTAIN ELEMENTS OR COMPOUNDS AT CONCENTRATION LEVELS THAT WILL BE PHYTO-TOXIC.
 - V. WCFM MUST CONFORM TO THE FOLLOWING PHYSICAL REQUIREMENTS: FIBER LENGTH OF APPROXIMATELY 10 MILLIMETERS, DIAMETER APPROXIMATELY 1 MILLIMETER, PH RANGE OF 4.0 TO 8.5, ASH CONTENT OF 1.6 PERCENT MAXIMUM AND WATER HOLDING CAPACITY OF 90 PERCENT MINIMUM.

2. APPLICATION

- a. APPLY MULCH TO ALL SEEDED AREAS IMMEDIATELY AFTER SEEDING.
- b. WHEN STRAW MULCH IS USED, SPREAD IT OVER ALL SEEDED AREAS AT THE RATE OF 2 TONS PER ACRE TO A UNIFORM LOOSE DEPTH OF 1 TO 2 INCHES. APPLY MULCH TO ACHIEVE A UNIFORM DISTRIBUTION AND DEPTH SO THAT THE SOIL SURFACE IS NOT EXPOSED. WHEN USING A MULCH ANCHORING TOOL, INCREASE THE APPLICATION RATE TO 2.5 TONS PER ACRE.
- c. WOOD CELLULOSE FIBER USED AS MULCH MUST BE APPLIED AT A NET DRY WEIGHT OF 1500 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER TO ATTAIN A MIXTURE WITH A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.

3. ANCHORING

- a. PERFORM MULCH ANCHORING IMMEDIATELY FOLLOWING APPLICATION OF MULCH 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:
 - I. A MULCH ANCHORING TOOL IS A TRACTOR DRAWN IMPLEMENT DESIGNED TO PUNCH AND ANCHOR MULCH INTO THE SOIL SURFACE A MINIMUM OF 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 FOLLOW THE CONTOUR.
 - II. WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. APPLY THE FIBER BINDER AT A NET DRY WEIGHT OF 750 POUNDS PER ACRE. MIX THE WOOD CELLULOSE FIBER WITH WATER AT A MAXIMUM OF 50 POUNDS OF WOOD CELLULOSE FIBER PER 100 GALLONS OF WATER.
 - III. SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRO-TACK), DCA-70, PETROSET, TERRA TACK II, TERRA TACK AR OR OTHER APPROVED EQUAL MAY BE USED. FOLLOW APPLICATION RATES AS SPECIFIED BY THE MANUFACTURER. APPLICATION OF LIQUID BINDERS NEEDS TO BE HEAVIER AT THE EDGES WHERE WIND CATCHES MULCH. SUCH AS IN VALLEYS AND ON CRESTS OF BANKS. USE OF ASPHALT BINDERS IS STRICTLY PROHIBITED.
 - IV. LIGHTWEIGHT PLASTIC NETTING MAY BE STAPLED OVER THE MULCH ACCORDING TO MANUFACTURER RECOMMENDATIONS. NETTING IS USUALLY AVAILABLE IN ROLLS 4 TO 15 FEET WIDE AND 300 TO 3,000 FEET LONG.

STANDARD STABILIZATION NOTE:
FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

As Built
APRIL 08, 2024

C-305

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. Meunier 12/20/2021 12-17-21
DIRECTOR OF PUBLIC WORKS DATE
J. Smith 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

J. Smith 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE
J. Smith 12/20/2021
CHIEF, UTILITY DESIGN DIVISION 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. 20821, EXPIRATION DATE: 5/2/2023

Gannett Fleming
BALTIMORE, MARYLAND

DES: SJM
BY: NHL
NO. 1
REVISION AS-BUILT
DATE 4/24

CHK: JMS
SIGN DATE: 12/14/21

DECEMBER 2021

VEGETATIVE STABILIZATION NOTES- 1

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE: NONE
SHEET NO. 17 OF 21

SECTION B-4-4: TEMPORARY STABILIZATION

DEFINITION: TO STABILIZE DISTURBED SOILS WITH VEGETATION FOR UP TO 6 MONTHS.

PURPOSE: TO USE FAST GROWING VEGETATION THAT PROMOTES COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE GROUND COVER IS NEEDED FOR A PERIOD OF 6 MONTHS OR LESS. FOR LONGER DURATION OF TIME, PERMANENT STABILIZATION PRACTICES ARE REQUIRED.

CRITERIA:

1. SELECT ONE OR MORE OF THE SPECIES OR SEED MIXTURES LISTED IN TABLE B.1 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3), 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 PLAN AND COMPLETED, THEN TABLE B.1 PLUS FERTILIZER AND LIME RATES MUST BE PUT ON THE PLAN.
2. FOR SITES HAVING SOIL TESTS PERFORMED, USE AND SHOW THE RECOMMENDED RATES BY THE TESTING AGENCY. SOIL TESTS ARE NOT REQUIRED FOR TEMPORARY SEEDING.
3. WHEN STABILIZATION IS REQUIRED OUTSIDE OF A SEEDING SEASON, APPLY SEED AND MULCH OR STRAW MULCH ALONE AS PRESCRIBED IN SECTION B-4-3A.1.8 AND MAINTAIN UNTIL THE NEXT SEEDING SEASON.

TEMPORARY SEEDING SUMMARY

| NO. | SPECIES | APPLICATION RATE (lb/ac) | SEEDING DATES | SEEDING DEPTHS | FERTILIZER RATE (10-20-20) | | LIME RATE |
|-----|-----------------|--------------------------|-----------------------------|----------------|------------------------------|-------------------------------|------------------------------|
| | | | | | N | P ₂ O ₅ | |
| | ANNUAL RYEGRASS | 40 | 2/15 - 4/30 8/15 - 11/30 | 0.5 in. | 436 lb/ac (10 lb/1000 sf) | 90 lb/ac (90 lb/1000 sf) | 2 tons/ac (90 lb/1000 sf) |
| | FOXTAIL MILLET | 30 | 5/1 - 8/14 | 0.5 in. | | | |

- c. IDEAL TIMES OF SEEDING FOR TURF GRASS MIXTURES
WESTERN MD: MARCH 15 TO JUNE 1, AUGUST 1 TO OCTOBER 1 (HARDINESS ZONES: 5B, 6A)
CENTRAL MD: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONE: 6B)
SOUTHERN MD, EASTERN SHORE: MARCH 1 TO MAY 15, AUGUST 15 TO OCTOBER 15 (HARDINESS ZONES: 7A, 7B)
- d. TILL AREAS TO RECEIVE SEED BY DISKING OR OTHER APPROVED METHODS TO A DEPTH OF 2 TO 4 INCHES, LEVEL AND RAKE THE AREAS TO PREPARE A PROPER SEEDBED. REMOVE STONES AND DEBRIS OVER 1 1/2 INCHES IN DIAMETER. THE RESULTING SEEDBED MUST BE IN SUCH CONDITION THAT FUTURE MOWING OF GRASSES WILL POSE NO DIFFICULTY.
- e. IF SOIL MOISTURE IS DEFICIENT, SUPPLY NEW SEEDINGS WITH ADEQUATE WATER FOR PLANT GROWTH (1/2 TO 1 INCH EVERY 3 TO 4 DAYS DEPENDING ON SOIL TEXTURE) UNTIL THEY ARE FIRMLY ESTABLISHED. THIS IS ESPECIALLY TRUE WHEN SEEDINGS ARE MADE LATE IN THE PLANTING SEASON, IN ABNORMALLY DRY OR HOT SEASONS, OR ON ADVERSE SITES.

PERMANENT SEEDING SUMMARY

| NO. | SPECIES | APPLICATION RATE (lbs/ac) | SEEDING DATES | SEEDING DEPTHS | FERTILIZER RATE (10-20-20) | | | LIME RATE |
|-----|---|---------------------------|-----------------------------|----------------|----------------------------|-------------------------------|----------------------------|------------------------------|
| | | | | | N | P ₂ O ₅ | K ₂ O | |
| 9 | TALL FESCUE KENTUCKY BLUEGRASS PERENNIAL RYEGRASS | 60 40 20 | 2/15 - 4/30 8/15 - 11/30 | 1/4" - 1/2" | 45 lb/ac (1 lb/1000 sf) | 90 lb/ac (2 lb/1000 sf) | 90 lb/ac (2 lb/1000 sf) | 2 tons/ac (90 lb/1000 sf) |

** FOR SEEDING DATES 5/1-8/14, ADD 6 LBS PER ACRE OF FOXTAIL MILLET TO SEED MIX NO.9

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

1. GENERAL SPECIFICATIONS

- a. CLASS OF TURFGRASS SOD MUST BE MARYLAND STATE CERTIFIED. SOD LABELS MUST BE MADE AVAILABLE TO THE JOB FOREMAN AND INSPECTOR.
- b. SOD MUST BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4 INCH, PLUS OR MINUS 1/8 INCH, AT THE TIME OF CUTTING. MEASUREMENT FOR THICKNESS MUST EXCLUDE TOP GROWTH AND THATCH. BROKEN PADS AND TORN OR UNEVEN ENDS WILL NOT BE ACCEPTABLE.
- c. STANDARD SIZE SECTIONS OF SOD MUST 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 PERCENT OF THE SECTION.
- d. SOD MUST NOT BE HARVESTED OR TRANSPLANTED WHEN MOISTURE CONTENT (EXCESSIVELY DRY OR WET) MAY ADVERSELY AFFECT ITS SURVIVAL.
- e. SOD MUST BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS. SOD NOT TRANSPLANTED WITHIN THIS PERIOD MUST BE APPROVED BY AN AGRONOMIST OR SOIL SCIENTIST PRIOR TO ITS INSTALLATION.

2. SOD INSTALLATION

- a. DURING PERIODS OF EXCESSIVELY HIGH TEMPERATURE OR IN AREAS HAVING DRY SUBSOIL, LIGHTLY IRRIGATE THE SUBSOIL IMMEDIATELY PRIOR TO LAYING THE SOD.
- b. LAY THE FIRST ROW OF SOD IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO IT AND TIGHTLY WEDGED AGAINST EACH OTHER. STAGGER LATERAL JOINTS 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.
- c. WHEREVER POSSIBLE, LAY SOD WITH THE LONG EDGES PARALLEL TO THE CONTOUR AND WITH STAGGERED JOINTS. ROLL AND TAMP, PEG OR OTHERWISE SECURE THE SOD TO PREVENT SLIPPAGE ON SLOPES. ENSURE SOLID CONTACT EXISTS BETWEEN SOD ROOTS AND THE UNDERLYING SOIL SURFACE.
- d. WATER THE SOD IMMEDIATELY FOLLOWING ROLLING AND TAMPING UNTIL THE UNDERSIDE OF THE NEW SOD PAD AND SOIL SURFACE BELOW THE SOD ARE THOROUGHLY WET. COMPLETE THE OPERATIONS OF LAYING, TAMPING AND IRRIGATING FOR ANY PIECE OF SOD WITHIN EIGHT HOURS.

3. SOD MAINTENANCE

- a. IN THE ABSENCE OF ADEQUATE RAINFALL, WATER DAILY DURING THE FIRST WEEK OR AS OFTEN AND SUFFICIENTLY AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF 4 INCHES. WATER SOD DURING THE HEAT OF THE DAY TO PREVENT WILTING.
- b. AFTER THE FIRST WEEK, SOD WATERING IS REQUIRED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE CONTENT.
- c. DO NOT MOW UNTIL THE SOD IS FIRMLY ROOTED. NO MORE THAN 1/2 OF THE GRASS LEAF MUST BE REMOVED BY THE INITIAL CUTTING OR SUBSEQUENT CUTTINGS. MAINTAIN A GRASS HEIGHT OF AT LEAST 3 INCHES UNLESS OTHERWISE.

SECTION B-4-5: PERMANENT STABILIZATION

DEFINITION: TO STABILIZE DISTURBED SOILS WITH PERMANENT VEGETATION.

PURPOSE: TO USE LONG-LIVED PERENNIAL GRASSES AND LEGUMES TO ESTABLISH PERMANENT GROUND COVER ON DISTURBED SOILS.

CONDITIONS WHERE PRACTICE APPLIES: EXPOSED SOILS WHERE COVER IS NEEDED FOR 6 MONTHS OR MORE.

CRITERIA:

A. SEED MIXTURES

1. GENERAL USE

- a. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED IN TABLE B.3 FOR THE APPROPRIATE PLANT HARDINESS ZONE (FROM FIGURE B.3) AND BASED ON THE SITE CONDITION OR PURPOSE FOUND ON TABLE B.2. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
- b. ADDITIONAL PLANTING SPECIFICATIONS FOR EXCEPTIONAL SITES SUCH AS SHORELINES, STREAM BANKS, OR DUNES OR FOR SPECIAL PURPOSES SUCH AS WILDLIFE OR AESTHETIC TREATMENT MAY BE FOUND IN USDA-NRCS TECHNICAL FIELD OFFICE GUIDE, SECTION 342 - CRITICAL AREA PLANTING.
- c. FOR SITES HAVING DISTURBED AREA OVER 5 ACRES, USE AND SHOW THE RATES RECOMMENDED BY THE SOIL TESTING AGENCY.
- d. FOR AREAS RECEIVING LOW MAINTENANCE, APPLY UREA FORM FERTILIZER (46-0-0) AT 3 1/2 POUNDS PER 1000 SQUARE FEET (150 POUNDS PER ACRE) AT THE TIME OF SEEDING IN ADDITION TO THE SOIL AMENDMENTS SHOWN IN THE PERMANENT SEEDING SUMMARY.

2. TURFGRASS MIXTURES

- a. AREAS WHERE TURFGRASS MAY BE DESIRED INCLUDE LAWNS, PARKS, PLAYGROUNDS, AND COMMERCIAL SITES WHICH WILL RECEIVE A MEDIUM TO HIGH LEVEL OF MAINTENANCE.
- b. SELECT ONE OR MORE OF THE SPECIES OR MIXTURES LISTED BELOW BASED ON THE SITE CONDITIONS OR PURPOSE. ENTER SELECTED MIXTURE(S), APPLICATION RATES, AND SEEDING DATES IN THE PERMANENT SEEDING SUMMARY. THE SUMMARY IS TO BE PLACED ON THE PLAN.
 - i. KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN AREAS THAT RECEIVE INTENSIVE MANAGEMENT. IRRIGATION REQUIRED IN THE AREAS OF CENTRAL MARYLAND AND EASTERN SHORE. RECOMMENDED CERTIFIED KENTUCKY BLUEGRASS CULTIVARS SEEDING RATE: 1.5 TO 2.0 POUNDS PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - ii. KENTUCKY BLUEGRASS/PERENNIAL RYE: FULL SUN MIXTURE: FOR USE IN FULL SUN AREAS WHERE RAPID ESTABLISHMENT IS NECESSARY AND WHEN TURF WILL RECEIVE MEDIUM TO INTENSIVE MANAGEMENT. CERTIFIED PERENNIAL RYEGRASS CULTIVARS/CERTIFIED KENTUCKY BLUEGRASS SEEDING RATE: 2 POUNDS MIXTURE PER 1000 SQUARE FEET. CHOOSE A MINIMUM OF THREE KENTUCKY BLUEGRASS CULTIVARS WITH EACH RANGING FROM 10 TO 35 PERCENT OF THE TOTAL MIXTURE BY WEIGHT.
 - iii. TALL FESCUE/KENTUCKY BLUEGRASS: FULL SUN MIXTURE: FOR USE IN DROUGHT PRONE AREAS AND/OR FOR AREAS RECEIVING LOW TO MEDIUM MANAGEMENT IN FULL SUN TO MEDIUM SHADE. RECOMMENDED MIXTURE INCLUDES: CERTIFIED TALL FESCUE CULTIVARS 95 TO 100 PERCENT, CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 0 TO 5 PERCENT. SEEDING RATE: 5 TO 8 POUNDS PER 1000 SQUARE FEET. ONE OR MORE CULTIVARS MAY BE BLENDED.
 - iv. KENTUCKY BLUEGRASS/FINE FESCUE: SHADE MIXTURE: FOR USE IN AREAS WITH SHADE IN BLUEGRASS LAWNS. FOR ESTABLISHMENT IN HIGH QUALITY, INTENSIVELY MANAGED TURF AREA. MIXTURE INCLUDES: CERTIFIED KENTUCKY BLUEGRASS CULTIVARS 30 TO 40 PERCENT AND CERTIFIED FINE FESCUE AND 60 TO 70 PERCENT. SEEDING RATE: 1 1/2 TO 3 POUNDS PER 1000 SQUARE FEET.

NOTES:

SELECT TURFGRASS VARIETIES FROM THOSE LISTED IN THE MOST CURRENT UNIVERSITY OF MARYLAND PUBLICATION, AGRONOMY MEMO #77, "TURFGRASS CULTIVAR RECOMMENDATIONS FOR MARYLAND" CHOOSE CERTIFIED MATERIAL. CERTIFIED MATERIAL IS THE BEST GUARANTEE OF CULTIVAR PURITY. THE CERTIFICATION PROGRAM OF THE MARYLAND DEPARTMENT OF AGRICULTURE, TURF AND SEED SECTION, PROVIDES A RELIABLE MEANS OF CONSUMER PROTECTION AND ASSURES A PURE GENETIC LINE.

STANDARD STABILIZATION NOTE:
 FOLLOWING INITIAL SOIL DISTURBANCE AND REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION MUST BE COMPLETED WITHIN:
 A. THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND
 B. SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING.

As Built
 APRIL 08, 2024

C-306

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

M. Meunier 12/20/2021
 DIRECTOR OF PUBLIC WORKS DATE

J. Lee 12-17-21
 CHIEF, BUREAU OF ENGINEERING DATE

Tomasa 12/20/2021
 CHIEF, BUREAU OF UTILITIES DATE

SRK
 CHIEF, UTILITY DESIGN DIVISION 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. 20821, EXPIRATION DATE: 5/2/2023

Gannett Fleming
 BALTIMORE, MARYLAND

DES: *SJM*
 BY: *SJM*
 CHK: *JMS*
 SIGN DATE: 12/14/21

| NO. | REVISION | DATE |
|-----|----------|------|
| 1 | AS-BUILT | 4/24 |

DECEMBER 2021

VEGETATIVE STABILIZATION NOTES- 2

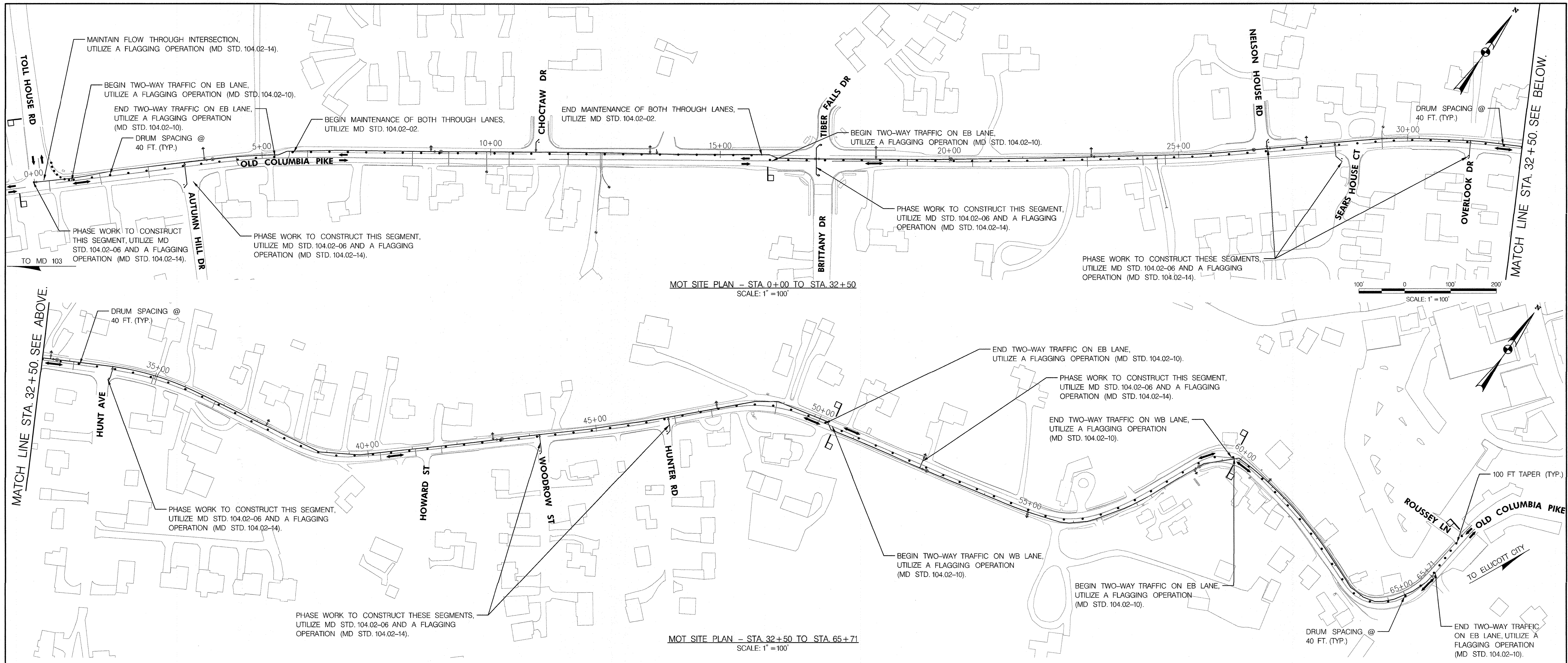
600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
 CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN
 REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

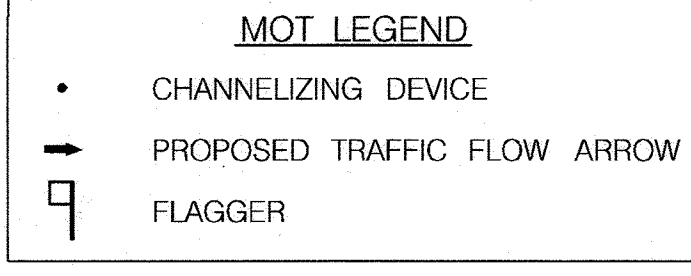
SCALE: NONE
 SHEET NO. 18 OF 21



MOT GENERAL NOTES

- ALL STANDARD REGULATORY AND WARNING SIGNS USED FOR MAINTENANCE OF TRAFFIC SHALL CONFORM TO THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MD MUTCD-2011) AS WELL AS THE MARYLAND STATE HIGHWAY ADMINISTRATION'S STANDARD SIGN BOOK - STANDARD SIGNS-2009 REVISION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOLLOWING THE LATEST EDITIONS AND SUPPLEMENTS TO THE MD MUTCD.
- THE TRAFFIC CONTROL SEQUENCE DEPICTS THE MINIMUM TRAFFIC CONTROLS REQUIRED DURING CONSTRUCTION TO MAINTAIN VEHICULAR TRAFFIC FLOW AND THE SAFETY OF VEHICLES AND WORKERS. ADDITIONAL DEVICES OR ADJUSTMENT OF THE LOCATION OF DEVICES SHALL BE INCORPORATED AS DIRECTED BY THE ENGINEER.
- IN THE EVENT THAT ADJACENT CONSTRUCTION PROJECTS OCCUR SIMULTANEOUSLY WITH THIS PROJECT, COORDINATION OF THE TRAFFIC CONTROL PLANS FOR EACH PROJECT WILL BE REQUIRED. SPECIFICALLY THE LOCATION OF OVERLAPPING ADVANCE WARNING SIGNS SHALL BE ADJUSTED AS REQUIRED.
- ALL TEMPORARY SIGNS INSTALLED FOR THIS PROJECT SHALL BE HIGH INTENSITY GRADE RETROREFLECTIVE SHEETING.
- ANY WORK NOT AFFECTING TRAFFIC PATTERNS MAY BE COMPLETED AT ANY TIME AS APPROVED BY THE ENGINEER.
- CONTRACTOR SHALL MAINTAIN DROP-OFF PROTECTION IN ACCORDANCE WITH MDSHA TYPICAL STANDARDS.
- EXISTING SIGNS NO LONGER APPLICABLE DURING WORK PERIODS SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS RELATED TO TRAFFIC CONTROL (PAVEMENT MARKINGS, SIGNING, FLAGGERS, ETC.).
- TEMPORARY SIGNS NO LONGER APPLICABLE DURING NON-WORK PERIODS SHALL BE COVERED OR REMOVED AS DIRECTED BY THE ENGINEER.
- PORTABLE VARIABLE MESSAGE SIGNS SHALL BE LOCATED AND DISPLAY MESSAGES AS DIRECTED BY THE ENGINEER. PROTECT AND DELINEATE PORTABLE VARIABLE MESSAGE SIGNS IN ACCORDANCE WITH MDSHA STANDARD NO. MD 104.01-22.
- PORTABLE VARIABLE MESSAGE SIGNS SHALL BE INSTALLED AND OPERATIONAL ALERTING THE PUBLIC OF UPCOMING CONSTRUCTION AND NEW TRAFFIC PATTERNS AT LEAST 7 DAYS PRIOR TO BEGINNING CONSTRUCTION AND SHALL BE USED PRIOR TO ANY NEW PHASE. MESSAGES SHALL BE COORDINATED WITH THE COUNTY PUBLIC RELATIONS OFFICER.
- ANY OTHER LANE CLOSURES NOT SPECIFICALLY IDENTIFIED IN THESE PLANS SHALL BE AT THE DISCRETION OF THE ENGINEER. CHANNELIZING DEVICES SHALL BE PLACED AT 40 FOOT INTERVALS ALONG TANGENT ROADWAY SECTIONS AND AT 20 FOOT INTERVALS ALONG TAPERS.

- ALL TRAVEL LANES THROUGHOUT CONSTRUCTION MUST BE A MINIMUM OF 11 FEET WIDE.
- ANY CORRECTIONS, MODIFICATIONS, OR ADDITIONS TO THE MAINTENANCE OF TRAFFIC PLAN MUST BE APPROVED BY THE ENGINEER.
- CONTRACTOR SHALL INSTALL AND REMOVE TRAFFIC CONTROL DEVICES PER MD STD 104.06-01 THROUGH 104.06-04 AND IS RESPONSIBLE FOR MAINTAINING ALL TRAFFIC CONTROL.
- ACCESS MUST BE MAINTAINED TO ALL RESIDENCES AND BUSINESSES AT ALL TIMES.
- THE CONTRACTOR SHALL ONLY TRENCH AS MUCH ROADWAY AS CAN BE PERFORMED DURING EACH WORK DAY /NIGHT. SHOWN ABOVE IS A COMPOSITE OF ALL WORK AREAS - MAY ADAPT FOR SMALLER AREAS. TAPERS AT THE END OF WORK AREAS SHALL CORRESPOND WITH MDSHA STANDARDS.
- ALL TRAVEL LANES SHALL BE OPEN AT 4:00PM EACH WORK DAY. LANE CLOSURE HOURS ARE LIMITED TO 9:00AM TO 4:00PM.
- PARKING SHALL BE RESTRICTED FOR 72 HOURS PRIOR TO THE COMMENCEMENT OF WORK.
- THE CONTRACTOR SHALL INSTALL WORK SIGNS AS PER THE FOLLOWING SHA STANDARDS:
 STD. MD 104.02-02 (SHOULDER WORK/2-LANE, 2-WAY EQL/LESS THAN 40 MPH)
 STD. MD 104.02-06 (WORK IN CENTER OF LOW-VOLUME ROAD 2-LANE 2-WAY/EQL/LESS THAN 40 MPH 15 MIN - 12 HRS. OR DAYTIME ONLY)
 STD. MD 104.02-10 (FLAGGING OPERATION/2-LANE, 2-WAY EQL/LESS THAN 40 MPH)
 STD. MD 104.02-14 (INTERSECTION FLAGGING OPERATION/2-LANE, 2-WAY EQL/LESS THAN 40 MPH)
 FOR TRENCH WORK AREAS THAT CAN'T BE BACKFILLED AT END OF WORK PERIOD:
 STD. MD 104.01-85 (STEEL PLATE)
 FOR INTERSECTION WORK AND TIE-IN WORK FOR WATER LINE:
 WORK SHALL BE NIGHT WORK FROM 9:00 PM TO 4:00 AM



As Built
 APRIL 08, 2024

T-001

DEPARTMENT OF PUBLIC WORKS
 HOWARD COUNTY, MARYLAND

DIRECTOR OF PUBLIC WORKS DATE 12/20/2021

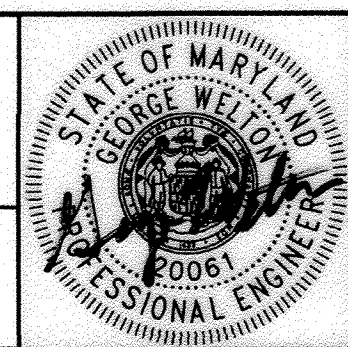
 CHIEF, BUREAU OF ENGINEERING DATE 12-17-21

 CHIEF, BUREAU OF UTILITIES DATE 12/20/2021

 CHIEF, UTILITY DESIGN DIVISION DATE 12/20/21

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. 20061, EXPIRATION DATE: 5/30/2023

Gannett Fleming
 BALTIMORE, MARYLAND



| DES: | BY: | NO. | REVISION | DATE |
|---------------------|-----|-----|----------|------|
| JSK | NHL | 1 | AS-BUILT | 4/24 |
| JSK | | | | |
| GW | | | | |
| SIGN DATE: 12/14/21 | | | | |

DECEMBER 2021

MAINTENANCE OF TRAFFIC PLAN
 OLD COLUMBIA PIKE

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

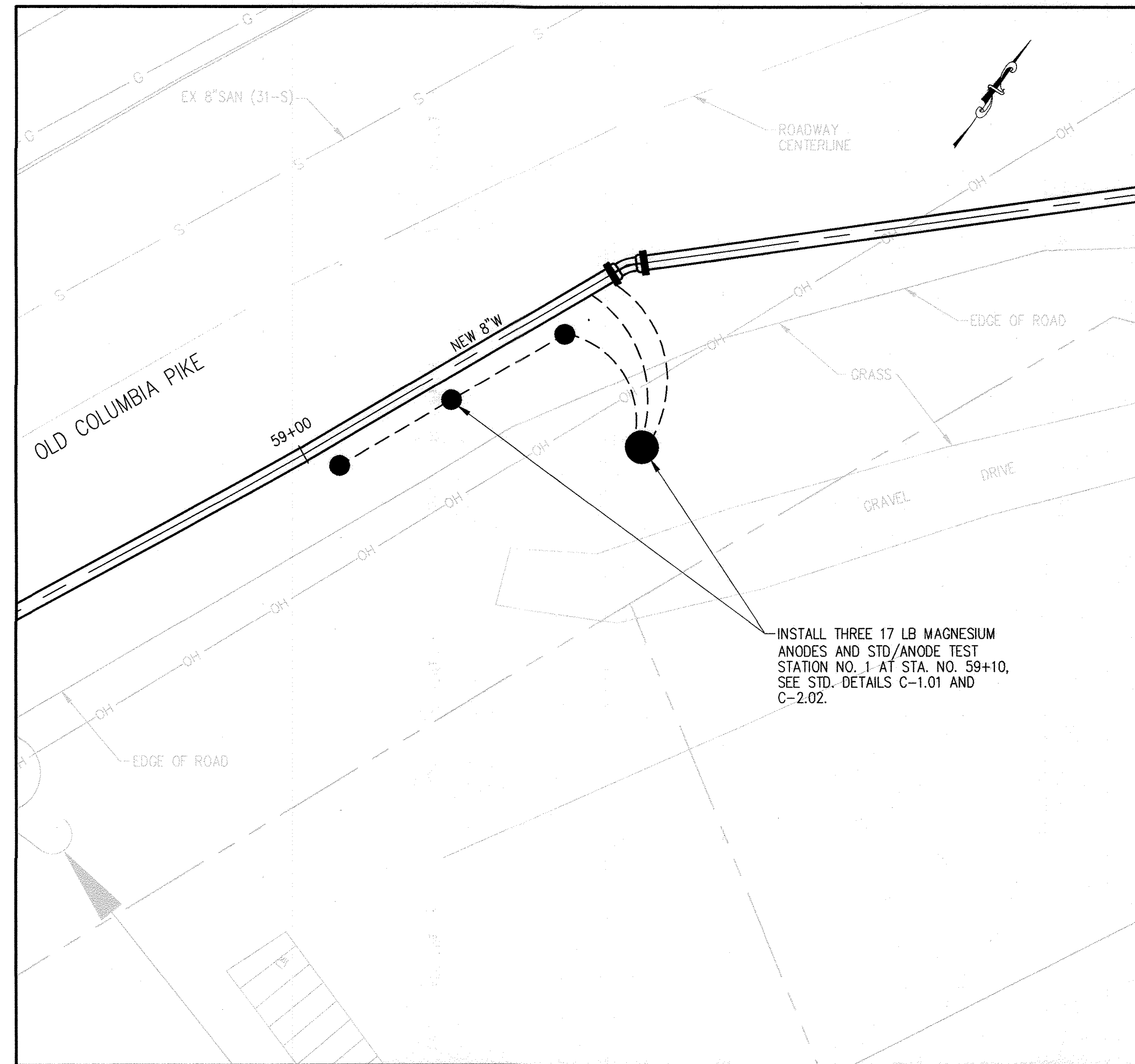
CAPITAL PROJECT NO. W8330
 CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN REHABILITATION

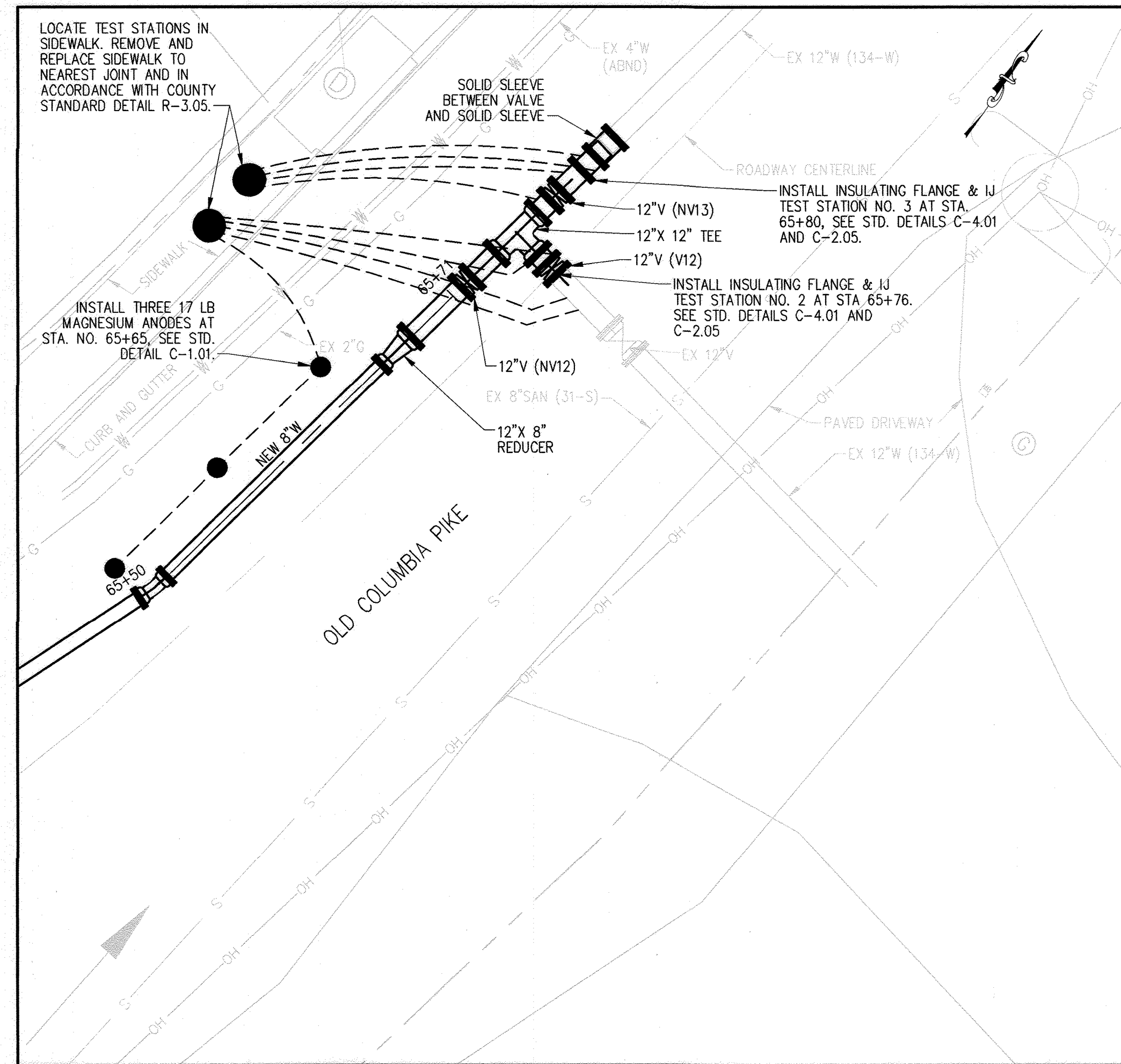
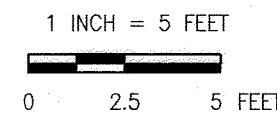
ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE:
 AS SHOWN

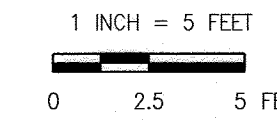
SHEET NO.
 19 OF 21



CATHODIC PROTECTION PLAN- STA. 59+10
SCALE: 1" = 5'



CATHODIC PROTECTION PLAN- STA. 65+65
SCALE: 1" = 5'



CATHODIC PROTECTION NOTES

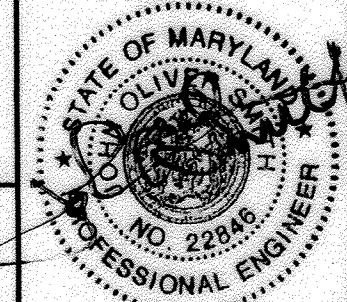
1. EXTERNALLY COAT THE 8-INCH DUCTILE IRON WATER MAIN WITH SHOP APPLIED PRITEC COATING AS MANUFACTURED BY BREDERO SHAW, DIVISION OF SHAWCOR LTD. FOLLOW AWWA C215 FOR POLYOLEFIN SYSTEMS.
2. EXTERNALLY COAT ALL DUCTILE IRON PIPE FITTINGS ALONG BOTH PVC AND DIP PORTIONS OF THE 8-INCH WATER MAIN. FOLLOW AWWA C110 AND AWWA C116 (FUSION BOND EPOXY). SCOTCHKOTE 206N, OR COMPARABLE PROPRIETARY SYSTEMS.
3. EXTERNALLY COAT DUCTILE IRON PIPE JOINTS USING FIELD APPLIED POLYKEN 939 (OR EQUAL) IN ACCORDANCE WITH AWWA C209. HEAT SHRINKABLE SLEEVES THAT UTILIZE CROSSLINKED POLYOLEFIN BACKING, CAN BE USED AS AN ALTERNATIVE IN ACCORDANCE WITH AWWA C216.
4. BOND ALL NEW DUCTILE IRON JOINTS ALONG THE 8-INCH DUCTILE IRON WATER MAIN, EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED. SEE STANDARD DETAIL C-3.01.
5. BOND ALL NEW DUCTILE IRON PIPE FITTINGS ALONG THE 8-INCH DUCTILE IRON WATER MAIN, EXCEPT THOSE THAT ARE SPECIFIED TO BE ELECTRICALLY ISOLATED. SEE STANDARD DETAIL C-3.01.
6. THE CATHODIC PROTECTION SYSTEM WILL UTILIZE A TOTAL OF SIX HIGH POTENTIAL 17 POUND MAGNESIUM ANODES. INSTALLATION LOCATION AND NUMBER OF ANODES ARE SPECIFIED ON THE PLAN AND DETAIL DRAWINGS.
7. UTILIZE ONE 15 POUND ZINC ANODE AT EACH LARGE DUCTILE OR CAST IRON PIPE FITTING, SEE DETAILS 12-CP AND 13-CP.
8. ELECTRICAL ISOLATION IS REQUIRED FOR CONNECTIONS TO EXISTING DUCTILE IRON PIPELINES. SEE STANDARD DETAIL C-4.01.
9. TWO CATHODIC PROTECTION MONITORING TEST STATIONS SHOULD BE INSTALLED AS SPECIFIED ON THE PLAN AND DETAIL DRAWINGS.
10. ALL WATER HOUSE CONNECTIONS SHALL BE WRAPPED WITH A COLD APPLIED PETROLATUM OR PETROLEUM ANTI-CORROSION WAX TAPE COATING SYSTEM. THE WAX TAPE COATING SYSTEM SHALL BE THREE-PART AND COLD APPLIED. IT SHALL CONSIST OF PRIMER, WAX TAPE, AND TAPE OUTER WRAP IN ACCORDANCE WITH AWWA C217. THE APPLICATION THICKNESS SHALL BE 40 MILS (MINIMUM). WAX TAPE COATING SYSTEM SHALL ENCAPSULATE THE ENTIRE SERVICE SADDLE AND EXTEND A MINIMUM OF THREE INCHES ON BOTH SIDES OF THE SERVICE SADDLE. THE TAPE SHALL EXTEND A MINIMUM OF ONE FOOT FROM THE CORPORATION ONTO THE COPPER PIPE. WAX TAPE COATING SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTALLATION GUIDELINES INCLUDING HOST PIPE PREPARATION/CLEANING, PRIMER APPLICATION, WRAP APPLICATION (INCLUDING RECOMMENDED OVERLAPPING), OVERWRAP APPLICATION, AND USE OF APPROVED FILLER TAPES. ACCEPTABLE MANUFACTURERS INCLUDE THE TRENTON COMPANY AND DENSO NORTH AMERICA, OR EQUAL.

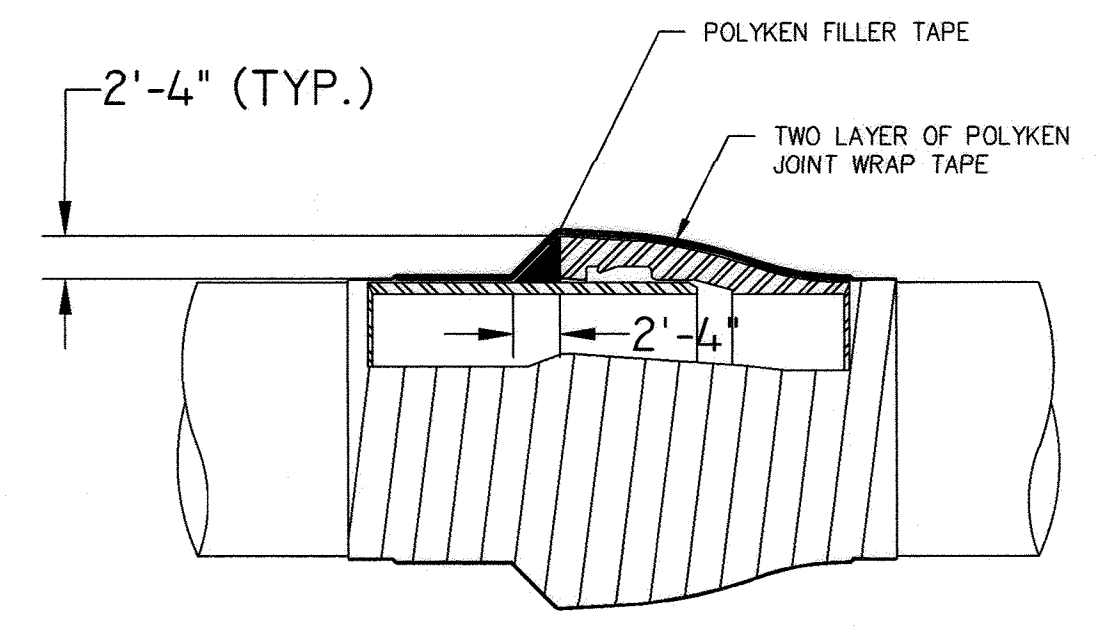
HOWARD COUNTY STANDARD DETAIL REFERENCES

1. C-1.01 ANODE AND REFERENCE ELECTRODE PLACEMENT IN PIPE TRENCH
2. C-1.02 FLUSH TO GRADE TEST BOX AND PAD
3. C-1.03 HEADER CABLE SPLICE
4. C-2.02 PREPACKAGED ANODE TEST STATION
5. C-2.05 INSULATING JOINT AND ANODES TEST STATION
6. C-3.01 BONDING JOINTS
7. C-3.04 HORIZONTAL THERMITE WELD FOR JOINT BONDING
8. C-3.05 VERTICAL THERMITE WELD FOR JOINT BONDING
9. C-4.01 INSULATING FLANGE
10. C-4.02 COATING OF INSULATING FLANGE

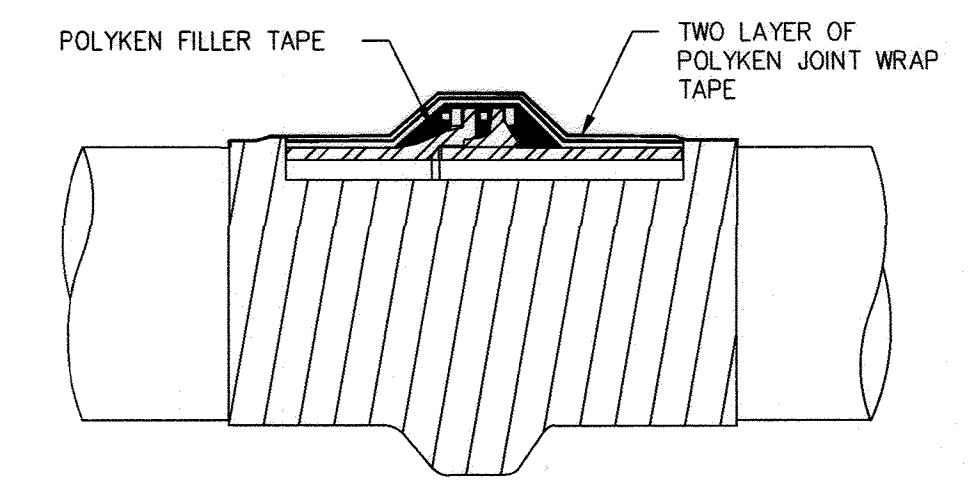
As Built
APRIL 08, 2024

CP-001

| | | | | | | | | | | | |
|---|--|---|--|---|--|-----------------------------------|--|---|--|---------------------------------------|--|
| DEPARTMENT OF PUBLIC WORKS HOWARD COUNTY, MARYLAND Director of Public Works: <i>[Signature]</i> 12/20/2021 Chief, Bureau of Engineering: <i>[Signature]</i> 12-17-21 Chief, Bureau of Utilities: <i>[Signature]</i> 12/20/2021 Chief, Utility Design Division: <i>[Signature]</i> SRK 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. 22846, EXPIRATION DATE: 9/25/2022  | | DES: DS BY: NHL NO. AS-BUILT DATE: 4/24 DRN: KDJ CHK: JOS SIGN DATE: 12/15/21 | | REVISION DATE DECEMBER 2021 | | CAPITAL PROJECT NO. W8330 CONTRACT NO. 44-5166 CATHODIC PROTECTION PLAN OLD COLUMBIA PIKE WATER MAIN REHABILITATION 600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24 ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND | | SCALE: AS SHOWN SHEET NO. 20 OF 21 | |
|---|--|---|--|---|--|-----------------------------------|--|---|--|---------------------------------------|--|

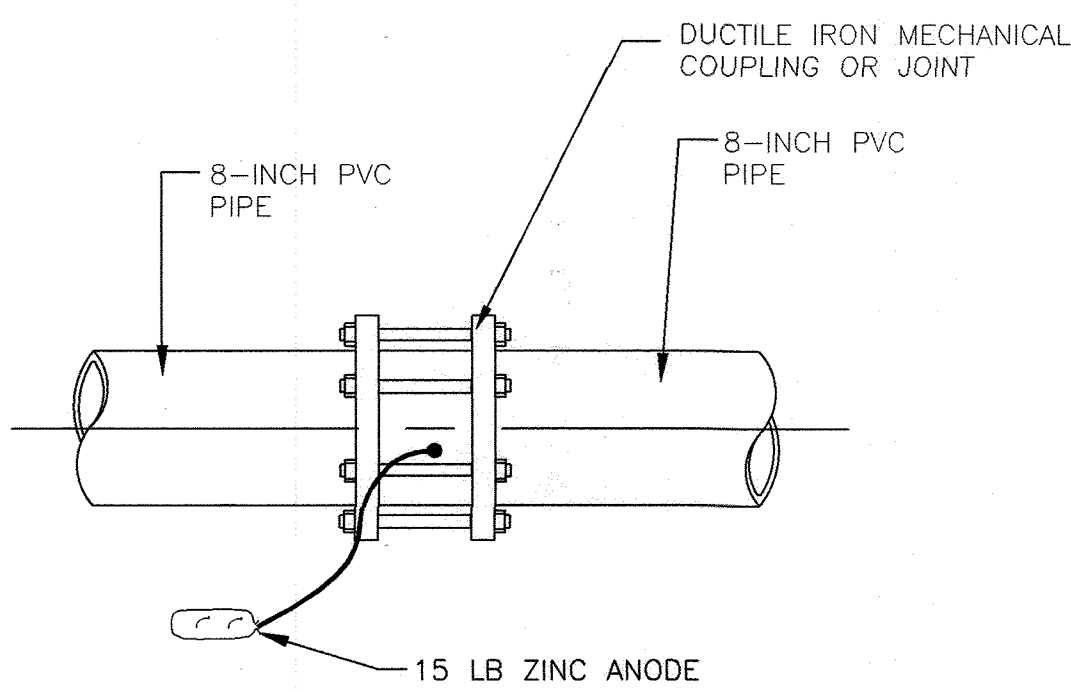


BELL AND SPIGOT JOINT

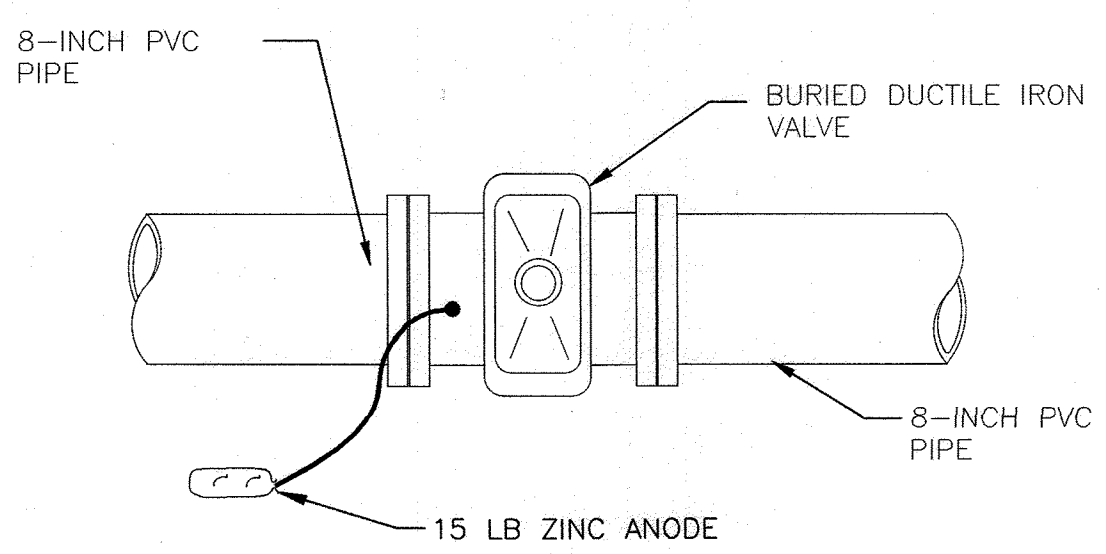


MEGALUG JOINT

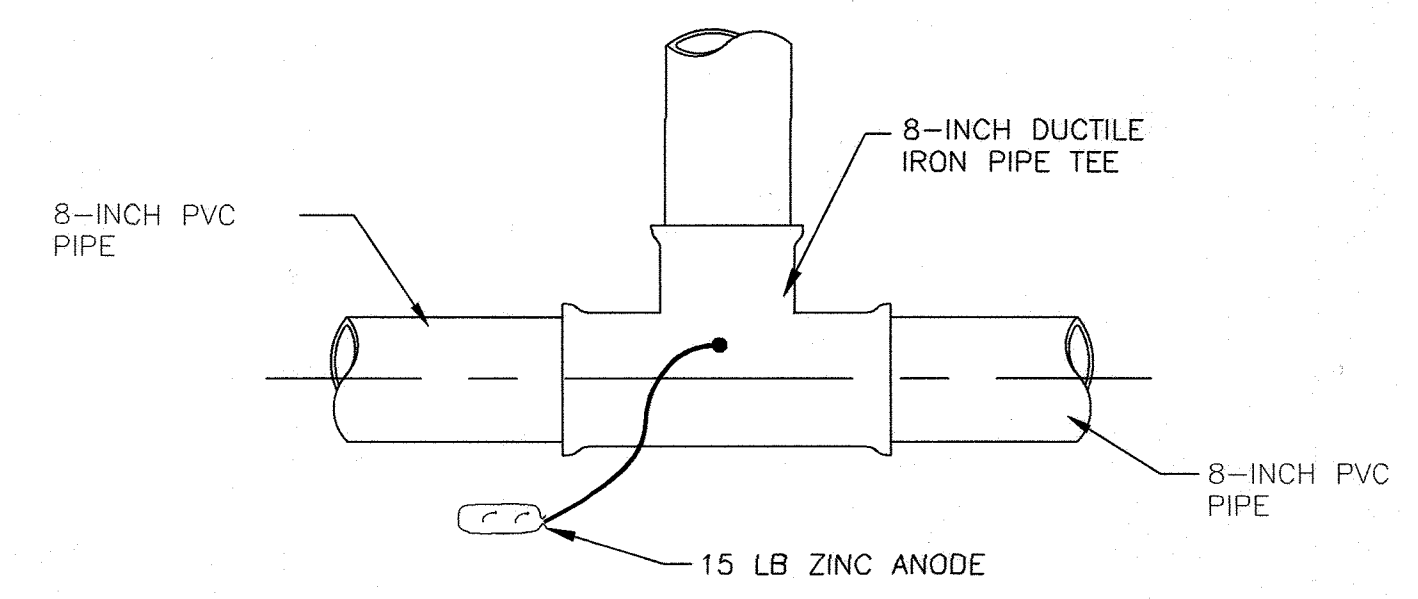
9-CP: PIPE JOINT COATING DETAIL
NOT TO SCALE



TYPICAL ZINC ANODE ATTACHMENT ON MECHANICAL COUPLING

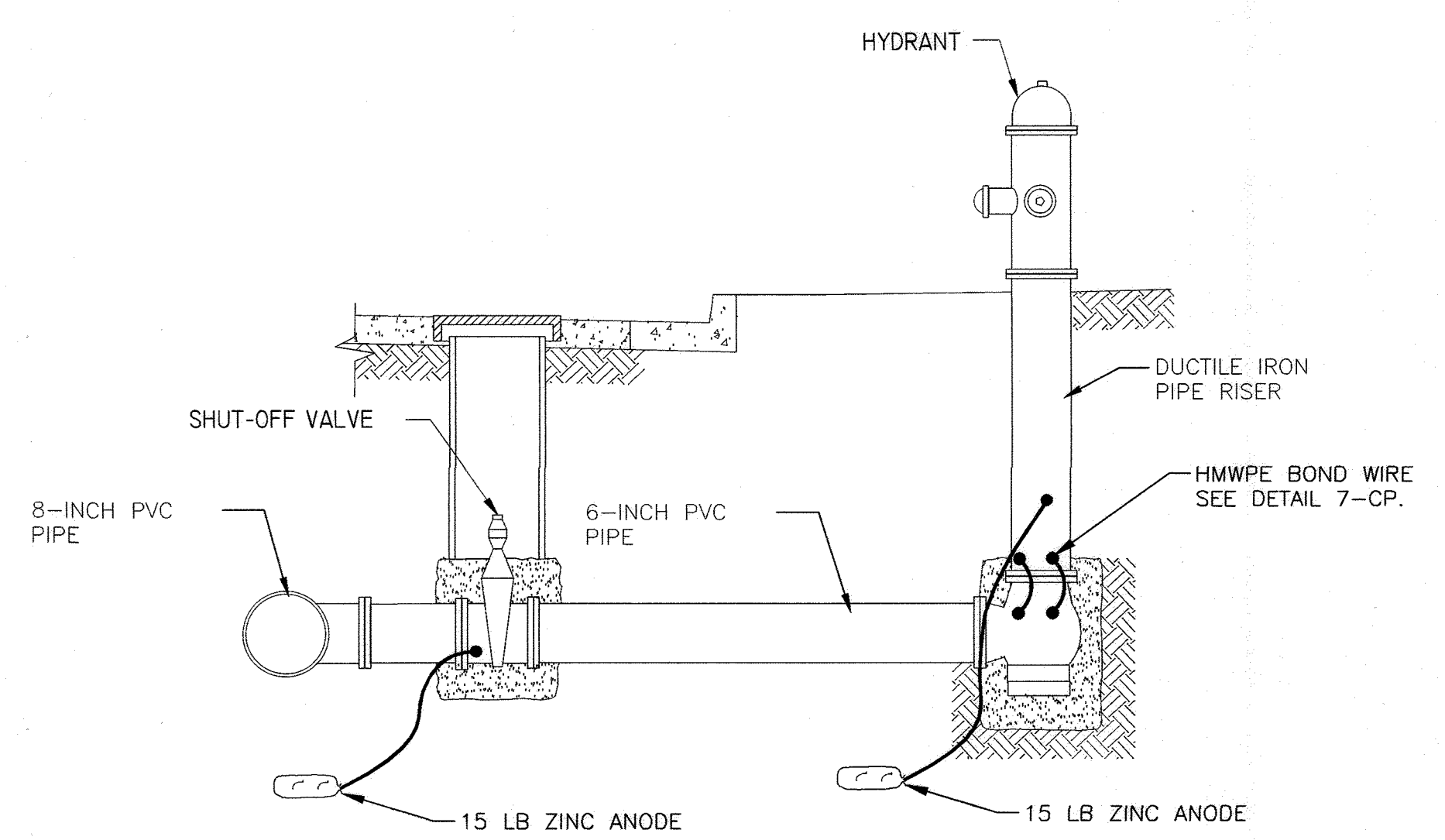


TYPICAL ZINC ANODE ATTACHMENT ON BURIED VALVE



TYPICAL ZINC ANODE ATTACHMENT ON PIPE TEE

12-CP: CORROSION PROTECTION OF DUCTILE IRON PIPE FITTINGS DETAIL
NOT TO SCALE



13-CP: CORROSION PROTECTION OF FIRE HYDRANT EXTENSION DETAIL
NOT TO SCALE

As Built
APRIL 08, 2024 CP-002

DEPARTMENT OF PUBLIC WORKS
HOWARD COUNTY, MARYLAND

M. Meunier 12/20/2021
DIRECTOR OF PUBLIC WORKS DATE

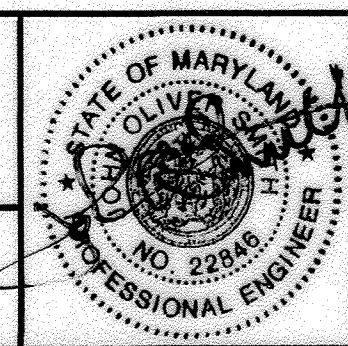
J. [Signature] 12-17-21
CHIEF, BUREAU OF ENGINEERING DATE

[Signature] 12/20/2021
CHIEF, BUREAU OF UTILITIES DATE

[Signature] 12/20/21
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ENGINEERING DESIGN TECHNOLOGIES, INC.
3000 Capital Drive • Suite 111 • Silver Spring, MD 20910
www.edtinc.com



| DES: | BY: | NO. | REVISION | DATE |
|------------|-----|-----|----------|------|
| DS | NHL | △ | AS-BUILT | 4/24 |
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| SIGN DATE: | | | | |
| 12/15/21 | | | | |

DECEMBER 2021

CATHODIC PROTECTION DETAILS

600' SCALE MAP NO. 24, 25, 251, 25A BLOCK NO. 24

CAPITAL PROJECT NO. W8330
CONTRACT NO. 44-5166

OLD COLUMBIA PIKE WATER MAIN
REHABILITATION

ELECTION DISTRICT NO. 2 HOWARD COUNTY, MARYLAND

SCALE:
AS SHOWN

SHEET NO.
21 OF 21