

STANDARD DRAWING LEGEND FOR ENTIRE PLAN SET. Includes symbols for LIMIT OF WORK, LIMIT OF DISTURBANCE, EXISTING NOTE, TYPICAL NOTE TEXT, PROPOSED NOTE, EASEMENT LINE, SETBACK LINE, CONCRETE CURB & GUTTER, UTILITY POLE, STREET LIGHT, TYPICAL SIGN, CONTOUR LINE, SPOT ELEVATIONS, SANITARY LABEL, STORM LABEL, SANITARY SEWER, UNDERGROUND WATER LINE, UNDERGROUND ELECTRIC LINE, OVERHEAD WIRE, UNDERGROUND TELEPHONE LINE, UNDERGROUND CABLE LINE, STORM SEWER, SANITARY FORCE MAIN, SANITARY MANHOLE, STORM MANHOLE, WELL, TYPICAL END SECTION, HEADWALL OR ENDWALL, GRATE INLET, CURB INLET, CLEAN OUT, MONITORING WELL, BENCHMARK, BORING, TREELINE, CONDOMINIUM UNIT NUMBER.

ROADWAY INFORMATION CHART. Table with columns: ROAD NAME, CLASSIFICATION, DESIGN SPEED, EASEMENT WIDTH. Rows include LALLYBROCH LANE, NICOLAR DRIVE, NICOLAR DRIVE, TBD.

ESD SUMMARY TABLE. Table with columns: *SITE AREA, ESDv, Rev, CPv, OP10, QP25, CP100. Includes values for 40.34 AC, 60,858 C.F., 10,127 C.F., etc.

SITE ANALYSIS DATA / TABULATION. Table with columns: LYLHUS PROPERTY, TOTAL PROJECT AREA (GROSS), AREA OF 100+ MPH FLOODPLAIN, AREA OF WETLANDS AND BUFFER, AREA OF FOREST, AREA OF STEEP SLOPES (25% OR GREATER), NET TRACT AREA, PRESENT ZONING DESIGNATION, PROPOSED USE, IMPERVIOUS COVER, NUMBER OF UNITS ALLOWED, NUMBER OF UNITS PROPOSED, DENSITY PER NET ACRE, NUMBER OF LOTS/PARCEL.

DESIGN MANUAL WAIVERS (PREVIOUSLY APPROVED):

- A. A WAIVER TO DESIGN MANUAL VOLUME III, SECTION 2.3.3.E... B. A WAIVER TO DESIGN MANUAL VOLUME III, SECTION 2.6... C. WAIVER TO DESIGN MANUAL, VOL. II, WATER AND SEWER... 1. UTILITY CROSSING AND CLEARANCES... 2. UTILITY PLAN... 3. EASEMENTS AND SETBACKS FROM STRUCTURES... 4. DMV2 - ALTERNATIVE SEWER SYSTEMS... 5. OTHERS... 6. IT SHALL BE UNDERSTOOD THAT SHOULD IT LATER BE DETERMINED THAT NECESSARY CLEARANCES CANNOT BE ACHIEVED WITH THE UTILITIES PLACED OUTSIDE THE ROADBED...

ALTERNATIVE COMPLIANCES (PREVIOUSLY APPROVED):

- A. REQUEST WP-16-070 FOR AN ALTERNATIVE COMPLIANCE... B. REQUEST WP-21-011 FOR AN ALTERNATIVE COMPLIANCE... C. REQUEST WP-22-132 FOR AN ALTERNATIVE COMPLIANCE... 1. COMPLIANCE WITH ALL SRC AGENCY COMMENTS... 2. PROVIDE 2" x 1" REPLACEMENT TREES... 3. INCLUDE THE ALTERNATIVE COMPLIANCE REQUEST NUMBER... 4. THE PROPOSED STREAM CROSSING... 5. ENGINEERS FOR STREAM AND WETLAND IMPACTS... 1. PERIMETER LANDSCAPING WILL BE PROVIDED... 2. THE PROPOSED SHARED DRIVEWAY WILL NEED TO BE SPECIFIED... 3. THE ALTERNATIVE COMPLIANCE FILE NUMBER... 4. SHARED ACCESS EASEMENTS AND MAINTENANCE AGREEMENTS... 5. INCLUDE THE ALTERNATIVE COMPLIANCE REQUEST NUMBER...

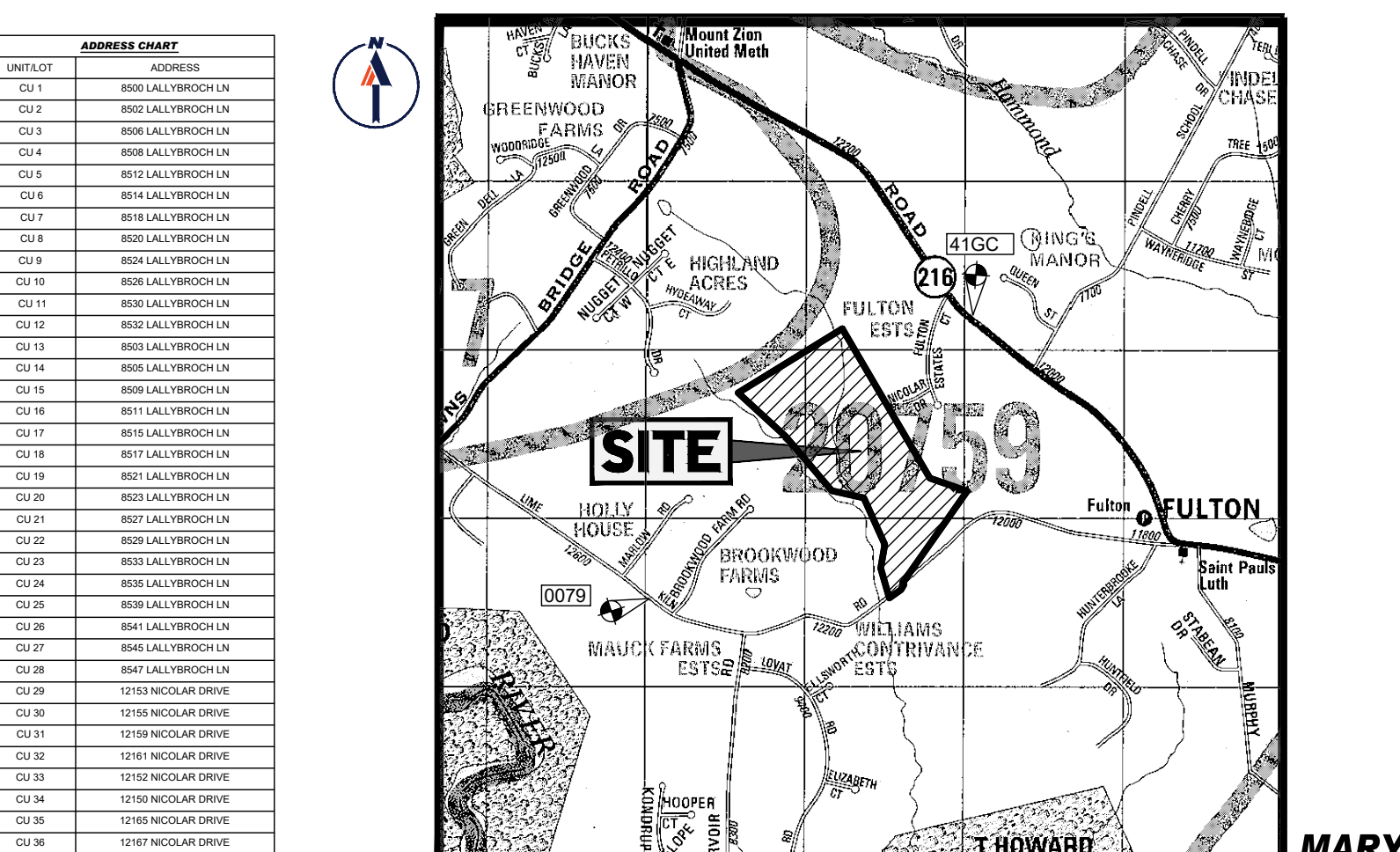
APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS. Includes names: Naomi Powell, NACOM HIGGINS, WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM, MARYLAND DEPARTMENT OF THE ENVIRONMENT, APPROVED DEPARTMENT OF PLANNING AND ZONING, APPROVED FOR ENGINEERING DIVISION, CHIEF DIVISION OF LAND DEVELOPMENT.

STORMWATER MANAGEMENT PRACTICES. Table with columns: FACILITY NAME & NUMBER, PRACTICE TYPE (EQUIV), PUBLIC, PRIVATE, HOA MAINT, HOMEOWNER MAINT, MSC. Rows include Surface Sand Filter, Submerged Gravel Wetland #1, Submerged Gravel Wetland #2, Submerged Gravel Wetland #3, Submerged Gravel Wetland #4, Submerged Gravel Wetland #5, (6) Drywell Each, (8) Drywell Each, Half Grass Swale, Grass Swale #7.

Table with columns: Facility #, Practice, Surface Area, Impervious Area, Pervious Area, PE, Recharge Volume, Treatment Volume. Rows include 1. Surface Sand Filter, 2. Submerged Gravel Wetland #1, 3. Submerged Gravel Wetland #2, 4. Submerged Gravel Wetland #3, 5. Submerged Gravel Wetland #4, 6. (6) Drywell Each, 7. (8) Drywell Each, 8. Half Grass Swale, 9. Grass Swale #7.

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY KNOWN AS LYHUS PROPERTY)

AGE-RESTRICTED ADULT HOUSING LOCATION OF SITE 5TH ELECTION DISTRICT TAX MAP 40, GRID 24, PARCEL 135 (1, 2, & 3) HOWARD COUNTY, MARYLAND



ADDRESS CHART. Table with columns: UNIT/LOT, ADDRESS. Lists addresses from 8000 LALLYBROCH LN to 12176 NICOLAR DRIVE.

SITE PARKING/OPEN SPACE ANALYSIS. Table with columns: REQUIRED PARKING, PROVIDED PARKING, OPEN SPACE. Includes values for 58 units x 2 spaces/unit, 116 spaces, 58 units x 4 spaces/unit, 232 spaces, 71.09 acres, 35.55 acres (50%).

MODERATE INCOME HOUSING UNITS (MIHU) ALTERNATIVE COMPLIANCE. Table with columns: TOTAL NUMBER OF UNITS, MIHU REQUIRED, ALTERNATIVE COMPLIANCE ELECTED, PERCENT OF UNITS SUBJECT TO MIHU FEE-IN-LIEU. Values: 58 units, 5.8 MIHU, YES, 100%.

PLEASE NOTE THAT ALL LOTS/RESIDENTIAL UNITS IN THIS SUBDIVISION ARE SUBJECT TO THE MIHU FEE-IN-LIEU REQUIREMENT THAT IS TO BE CALCULATED AND PAID TO THE DEPARTMENT OF INSPECTIONS, LICENSES AND PERMITS AT THE TIME OF BUILDING PERMIT ISSUANCE BY THE PERMIT APPLICATION.

PREPARED BY BOHLER BENCHMARK. CONTACT: BRANDON ROWE, P.E. Includes logo and contact information.

SHEET INDEX. Table with columns: SHEET TITLE, SHEET NUMBER. Lists sheets from COVER SHEET to STORM DRAIN PROFILES, totaling 146 sheets.

MARYLAND DEPARTMENT OF THE ENVIRONMENT GENERAL NOTES:

- 1. SEQUENCE OF WELL DRILLINGS TO BE CONFIRMED PRIOR TO SIGNATURE OF SITE DEVELOPMENT PLAN. 2. THIS AREA DESIGNATES A SEWAGE DISPOSAL AREA AS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT... 3. ANY CHANGES TO A PRIVATE SEWAGE EASEMENT SHALL REQUIRE A REVISED PERCOLATION CERTIFICATION PLAN. 4. ALL STRUCTURES WILL BE ABANDONED PRIOR TO SIGNATURE OF THE SITE DEVELOPMENT PLAN AND BEFORE THE RELEASE OF ANY BUILDING PERMITS. 5. THE MARYLAND DEPARTMENT OF THE ENVIRONMENT MAY REQUIRE SAMPLING OF SPECIFIC WELLS AT YIELD TEST TO EVALUATE GROUNDWATER FOR CONTENT OF NITRATES, SODIUM, CHLORIDES, AND/OR TOTAL DISSOLVED SOLIDS (TDS). 6. PRIOR TO SUBMITTAL FOR SIGNATURE OF THE SITE DEVELOPMENT PLAN, THE MARYLAND DEPARTMENT OF THE ENVIRONMENT MUST RECEIVE COPIES OF INVOICES FOR PUMP-OUTS AND CONTRACTOR REPORTS FOR EACH OF THE SEPTIC SYSTEMS THAT ARE ABANDONED WITHIN THE PROJECT AREA. 7. PRIOR TO SUBMITTAL FOR SIGNATURE OF THE SITE DEVELOPMENT PLAN, THE MARYLAND DEPARTMENT OF THE ENVIRONMENT MUST RECEIVE A WELL ABANDONMENT REPORT FOR EACH WELL THAT IS TO BE SEALED. 8. ALL WELLS INSTALLED FOR SUBDIVISION ARE TO BE PROTECTED DURING ALL PHASES OF THE SITE PREPARATION AND CONSTRUCTION... 9. CURB AND GUTTER WILL BE PROVIDED ON ALL ROADS AND SHARED DRIVEWAY WHEN WELLS CANNOT BE ACHIEVE 50 FEET SEPARATION FROM ROADSIDE SWALES. 10. ALL SEWER FORCE MAINS MUST BE LOCATED AT LEAST 50 FEET FROM WELLS AND WELL BOXES OR CONFORM TO THE REQUIREMENTS OF COMAR 26.04.04.3 TO ALLOW THEM TO BE LOCATED BETWEEN 10 AND 50 FEET AWAY. 11. THE SHARED FACILITY DESIGN AND APPROVAL IS SUBJECT TO REVIEW BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT... 12. THE SHARED WELLS AND WELL LOCATIONS LOCATED DOWN GRADE FROM THE SEWAGE DISPOSAL AREA REQUIRE A VARIANCE FROM MARYLAND DEPARTMENT OF THE ENVIRONMENT... 13. EXISTING POND MUST BE REMOVED AND THE RESULTING SURFACE WATER FLOW MUST BE AT LEAST 100 FEET FROM ALL SEWERAGE DISPOSAL AREAS PRIOR TO MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVAL OF FINAL RECORD PLAN. 14. MDE WILL BE THE SIGNING AUTHORITY FOR THE SHARED WELL AND SHARED SEPTIC SYSTEMS... 15. EXISTING POND MUST BE REMOVED AND THE RESULTING SURFACE WATER FLOW MUST BE AT LEAST 100 FEET FROM ALL SEWERAGE DISPOSAL AREAS PRIOR TO MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVAL OF FINAL RECORD PLAN. 16. THE DETAILED JUSTIFICATION PROVIDED BY BOHLER ENGINEERING IN A LETTER DATED APRIL 28, 2021... 17. THE EXISTING POND FRONTAGE ON LIME KLN ROAD WITH A VERY NARROW AND CONSTRAINED PASSAGE INTO THE SITE BETWEEN TWO SEPARATE STREAMS NEAR THE ROADWAY ENTRANCE... 18. THE DISTURBANCES ARE THE MINIMUM NECESSARY TO PROVIDE THE PROPOSED STANDARD ROADWAY AS CLOSE TO THE COUNTIES STANDARDS AS POSSIBLE AS PART OF THE REVIEW OF FINAL PLAN 2-20-16. 19. THERE ARE NO OTHER REASONABLE ALTERNATIVES FOR PROVIDING THE PROPOSED ROADWAY THAT MEET THE REQUIREMENTS FOR A STANDARD ROADWAY.

NECESSARY DISTURBANCE DETERMINATION (PREVIOUSLY APPROVED):

- A. A WAIVER TO SUBDIVISION AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116(g) TO ALLOW THE LYHUS PROPERTY PROJECT TO IMPACT STREAMBANK BUFFERS AND WETLAND BUFFERS AS ESSENTIAL OR NECESSARY DISTURBANCES WAS APPROVED ON MAY 4, 2021, SUBJECT TO THE FOLLOWING: 1. THE DETAILED JUSTIFICATION PROVIDED BY BOHLER ENGINEERING IN A LETTER DATED APRIL 28, 2021... 2. THE EXISTING POND FRONTAGE ON LIME KLN ROAD WITH A VERY NARROW AND CONSTRAINED PASSAGE INTO THE SITE BETWEEN TWO SEPARATE STREAMS NEAR THE ROADWAY ENTRANCE... 3. THE DISTURBANCES ARE THE MINIMUM NECESSARY TO PROVIDE THE PROPOSED STANDARD ROADWAY AS CLOSE TO THE COUNTIES STANDARDS AS POSSIBLE AS PART OF THE REVIEW OF FINAL PLAN 2-20-16. 4. THERE ARE NO OTHER REASONABLE ALTERNATIVES FOR PROVIDING THE PROPOSED ROADWAY THAT MEET THE REQUIREMENTS FOR A STANDARD ROADWAY.

GENERAL NOTES

- 1. SUBJECT PROPERTY ZONED RR-DEO PER THE 10/6/2013 COMPREHENSIVE ZONING REGULATIONS AND COUNCIL BILL NO. 31-2019. 2. SUBJECT PROPERTY WAS APPROVED FOR AN AGE-RESTRICTED ADULT HOUSING COMMUNITY PER DECISION AND ORDER FOR BA-20-002C DATED 9-20-2020. 3. PROPERTY INFORMATION: a. GROSS AREA OF TRACT: 71.09 AC. b. CONDITIONAL USE AREA: 71.09 AC. c. AREA OF FLOODPLAIN: 6.87 AC. d. AREA OF 25% OR GREATER SLOPES: 1.12 AC. e. NET AREA OF CONDITIONAL USE TRACT: 63.10 AC. 4. THE PROPOSED PRIVATE ROADS WILL HAVE A PAVEMENT WIDTH OF 24'. PARKING WILL BE RESTRICTED ON BOTH SIDES OF THE ROAD WITH SIGNAGE. 5. SOILS INFORMATION TAKEN FROM SOIL SURVEY, HOWARD COUNTY, MARYLAND, ISSUED MAY 2008: HOWARD COUNTY SOILS MAP *CLARKSVILLE NW MAP #6 - HYDRIC SOILS EXIST ON THE LYHUS PROPERTY. 6. THE BOUNDARY LINES SHOWN HEREON ARE BASED ON A BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY CONTROL POINT, INC. TITLED: LYHUS FAMILY TRUST, 12170 LIME KLN ROAD, APN 8040-0024-0135-0000-0000 FULTON TOWNSHIP, 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND, PROJECT NO. CP14186, DATED: 4/24/15. 7. THE TOPOGRAPHY SHOWN HEREON IS BASED ON A BOUNDARY & TOPOGRAPHIC SURVEY PREPARED BY CONTROL POINT ASSOCIATES, INC. TITLED: LYHUS FAMILY TRUST, 12170 LIME KLN ROAD, APN 8040-0024-0135-0000-0000 FULTON TOWNSHIP, 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND, PROJECT NO. CP14186, DATED: 4/24/15. TOPOGRAPHY SHOWN OUTSIDE "LIMITS OF FIELD RUN SURVEY" IS TAKEN FROM HOWARD COUNTY G.I.S. 8. A PORTION (112 AC.) OF THE PROPERTY QUALIFIES AS STEEP SLOPES (25% OR GREATER) AS DEFINED BY THE HOWARD COUNTY SURVEYING AND LAND DEVELOPMENT REGULATIONS, SECTION 16.116.3. THIS AREA IS SHOWN ON THE GRADING PLAN AND WILL REMAIN UNDISTURBED. 9. STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH HOWARD COUNTY SPECIFICATIONS. WATER QUALITY AND RECHARGE VOLUMES WILL BE PROVIDED BY DRYWELLS, GRASS SWALE, SUBMERGED GRAVEL WETLANDS, AND SURFACE SAND FILTER FACILITIES TO MEET MDE REQUIREMENTS. CHANNEL PROTECTION VOLUME AND PEAK MANAGEMENT IS REQUIRED DUE TO THE DOWNSTREAM CROSSING AT LIME KLN ROAD. DUE TO HEAVY TRAFFIC AND SEPTIC PROGRAM SETBACK REQUIREMENTS, ESS FACILITIES COULD NOT BE FULLY UTILIZED IN SOME AREAS OF THE SITE. ALL FACILITIES AND STORMDRAIN WILL BE PRIVATELY OWNED AND MAINTAINED BY THE HOA. 10. WETLANDS EXIST ON SITE BASED UPON A WETLAND DELINEATION REPORT BY ECO-SYSTEMS PROFESSIONALS, INC. DATED APRIL 27, 2017. FIELD WORK WAS PERFORMED ON MARCH 24, 2015 AND APRIL 29, 2015. 11. THE ADEQUATE ROAD FACILITIES TEST EVALUATION FOR THIS PROJECT WAS PREPARED BY THE TRAFFIC GROUP, DATED 2/11/16 AND UPDATED MARCH 18, 2022 AND WAS SUBMITTED UNDER PLAN NUMBER SDP-23-018. THE TRAFFIC COUNTS WERE COLLECTED ON 6/13/2015. SCHOOLS WERE IN SESSION DURING THE TRAFFIC COUNTS. THE INTERSECTIONS STUDIED WERE MD 216 AT BROWNS BRIDGE ROAD (STATE JURISDICTION), MD 216 AT PINDEL SCHOOL ROAD (STATE JURISDICTION), MD 216 AT LIME KLN ROAD (STATE JURISDICTION) AND LIME KLN ROAD AT RESERVOR ROAD (HOWARD COUNTY JURISDICTION). DURING THE MORNING PEAK PERIOD, EACH INTERSECTION IS PROJECTED TO MAINTAIN LEVEL OF SERVICE "F" OR BETTER. DURING THE EVENING PEAK PERIOD, EACH INTERSECTION IS PROJECTED TO MAINTAIN AN ACCEPTABLE LEVEL OF SERVICE "E" OR BETTER CONDITIONS. THEREFORE THE ROAD SYSTEM CAN SUPPORT THE PROPOSED DEVELOPMENT WITHOUT THE NEED FOR FURTHER IMPROVEMENT OR MITIGATION. 12. THIS PROPERTY IS NOT LOCATED INSIDE OF THE METROPOLITAN DISTRICT. 13. NO CEMETERIES ARE KNOWN TO EXIST WITHIN THIS SUBDIVISION. 14. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEOELECTRIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLAN COORDINATE AND VERTICAL CONTROL DATUM ARE BASED ON HOWARD COUNTY MONUMENT NOS. 410C AND 0079 WHICH WERE USED FOR THIS PROJECT. 1. HOWARD COUNTY MONUMENT NO. 410C ELEV. = 488.29' 2. HOWARD COUNTY MONUMENT NO. 0079 ELEV. = 426.13' 15. A FOREST STAND DELINEATION REPORT WAS COMPLETED BY ECO-SYSTEMS PROFESSIONALS, INC. ON 6/9/15. 16. A) A LANDSCAPING PLAN WILL BE REQUIRED AS PART OF THE DEVELOPER'S AGREEMENT. THE LANDSCAPE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.121 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$25,200 FOR 81 SHADE TREES, 3 EVERGREEN TREES, AND 6 ORNAMENTAL TREES WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS PLAN. PREVIOUSLY, THE AMOUNT OF \$12,000 FOR 40 SPECIES TREE MITIGATION SHADE TREES (\$300 EACH), WAS POSTED AS PART OF THIS PROJECT UNDER THE DEVELOPER'S AGREEMENT FOR F-20-016. B) FINANCIAL SURETY IN THE AMOUNT OF \$84,200 (\$300 EACH) FOR THE REQUIRED 214 TREE TREES IS REQUIRED. \$58,000 OF THAT TOTAL WAS PREVIOUSLY POSTED AS PART OF THIS PROJECT UNDER THE DEVELOPER'S AGREEMENT FOR F-20-016. THE REMAINING \$5,800 WILL BE POSTED WITH THE DEVELOPER'S AGREEMENT FOR SDP-23-018. 17. HIGHLY ERODIBLE SOILS EXIST ON SITE. SEDIMENT CONTROL PLANS WILL ADDRESS THE EROSION CONCERNS. 18. THE PROJECT IS IN CONFORMANCE WITH THE LATEST HOWARD COUNTY STANDARDS UNLESS WAIVERS HAVE BEEN APPROVED. 19. AN OBVIOUSLY NON-CRITICAL FLOODPLAIN STUDY FOR BOTH ON-SITE AND OFF-SITE DRAINAGE AREAS FLOWING TOWARDS THE SITE WAS COMPLETED BY BOHLER ENGINEERING ON 11/14/17 DOWNSTREAM OF PROPOSED ROAD CROSSING A FLOODPLAIN STUDY WAS COMPLETED BY BOHLER ENGINEERING FOR THE PROPOSED ROAD CROSSING. 20. THIS PLAN IS SUBJECT TO THE AMENDED FEED OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS PER COUNCIL BILL NO. 45-2003 AND THE AMENDED ZONING REGULATIONS PER COUNCIL BILL NO. 32-019. DEVELOPMENT OR CONSTRUCTION ON THIS PROPERTY MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS IN EFFECT AT THE TIME OF SUBMISSION OF THE CONDITIONAL USE APPROVAL, WAIVER PETITION APPLICATION OR BUILDING/GRADING PERMIT APPLICATIONS. 21. NO NOISE STUDY IS REQUIRED FOR THIS PROJECT BECAUSE LIME KLN ROAD IS DESIGNATED AS A MINOR COLLECTOR. 22. EXISTING UTILITIES ARE BASED ON FIELD RUN SURVEY PERFORMED BY BOHLER ENGINEERING, DATED 1/16/15. 23. MULTIPLE UTILITY SHARED WELL SYSTEMS ARE PROPOSED FOR ALL 20 SEMI-DETACHED BUILDINGS AND THE COMMUNITY BUILDING. MULTIPLE ON-SITE PRIVATE SHARED SEPTIC SYSTEMS ARE PROPOSED TO SERVE ALL 58 UNITS AND THE COMMUNITY BUILDING. 24. THE LOCATION LOCATED ON THE PROPERTY, BUILT 1908, IS NOT LISTED ON THE COUNTY'S HISTORIC SITES INVENTORY. THE HOUSE WAS REVIEWED BY THE COUNTY'S ARCHITECTURAL HISTORIAN, AND IT WAS APPROVED FOR DEMOLITION ON JUNE 16, 2021. HISTORIC PRESERVATION COMMISSION APPROVAL IS NOT REQUIRED PRIOR TO DEMOLITION. THE EXISTING STRUCTURE LOCATED ON THE SITE WILL BE REMOVED PRIOR TO PLAN RELOCATION. 25. THE R-1 ("STOP) SIGN AND THE STREET NAME SIGN (SNS) ASSEMBLY FOR THIS DEVELOPMENT MUST BE INSTALLED BEFORE THE BASE PAVING IS COMPLETED. 26. THE TRAFFIC CONTROL DEVICE LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MUST BE FIELD APPROVED BY HOWARD COUNTY TRAFFIC DIVISION (410-313-2430) PRIOR TO THE INSTALLATION OF ANY OF THE TRAFFIC CONTROL DEVICES. 27. ALL TRAFFIC CONTROL DEVICES AND THEIR LOCATIONS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MDMUTCD). 28. ALL SIGN POSTS USED FOR TRAFFIC CONTROL SIGNS INSTALLED IN THE COUNTY RIGHT-OF-WAY SHALL BE MOUNTED ON A 2" GALVANIZED STEEL, PERFORATED ("QUICK PUNCH"), SQUARE TUBE POST (14 GAUGE) INSERTED INTO A 2-1/2" GALVANIZED STEEL, PERFORATED, SQUARE TUBE SLEEVE (12 GAUGE), 1' LONG. THE ANCHOR SHALL NOT EXTEND MORE THAN TWO "QUICK PUNCH" HOLES ABOVE GROUND LEVEL. A GALVANIZED STEEL POLE CAP SHALL BE MOUNTED ON TOP OF EACH POST. 29. NO GRADING, REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE LIMITS OF WETLANDS, STREAMS, OR OTHER BUFFERS, 100-YEAR FLOODPLAIN, STEEP SLOPES AND FOREST CONSERVATION EASEMENTS UNLESS DEEMED NECESSARY BY THE DEPARTMENT OF PLANNING AND ZONING OR APPROVED VIA ALTERNATIVE COMPLIANCE PETITION. 30. FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THE SUBDIVISION SHALL BE FULLY FULFILLED OR RETENTION OF EXISTING FOREST IN THE AMOUNT OF 14.11 ACRES. THE RESTORATION OBLIGATION OF 10.14 ACRES WILL BE PROVIDED BY 20.12 ACRES AT THE SAVAGE PROPERTY FOREST CONSERVATION BANK (F-14-24) AT 21.20 FOR AN OFFSITE RESTORATION CREDIT OF 10.06 ACRES AND 0.08 ACRE PROVIDED BY PAYMENT OF FEE-IN-LIEU IN THE AMOUNT OF \$5,828. 31. IN COMPLIANCE WITH THE HOWARD COUNTY ZONING REGULATIONS, A MINIMUM OF 10% OF THE AREAS (SIX UNITS) WILL BE MODERATE INCOME HOUSING UNITS ("MIHUS"), NOT WITHSTANDING THE PRECEDING, THE PETITIONER MAY ELECT TO PURSUE THE PAYMENT OF A FEE-IN-LIEU OF SUCH MIHU REQUIREMENT AS AND WHERE PERMITTED. (SEE REFERENCED DOCUMENT L-22-13, F-289) 32. PATHWAY SHOWN IS CONCEPTUAL ALIGNMENT. FINAL ALIGNMENT WILL BE DETERMINED IN THE FIELD WITH INTENT TO LIMIT IMPACTS TO EXISTING TREES TO THE MAXIMUM EXTENT PRACTICABLE. 33. DEPARTMENT OF THE ARMY (DA) AUTHORIZATION TO CONSTRUCT ACCESS ROADS AND ASSOCIATED INFRASTRUCTURE TO PROVIDE ACCESS TO A PROPOSED RESIDENTIAL SUBDIVISION. DATED JAN. 22, 2019. 34. RESIDENCES SERVED BY SHARED SYSTEM ARE TO BE DESIGNATED FOR GRAVITY FLOW FROM THE FIRST FLOOR TO THE GRINDER PIT. 35. LIME KLN ROAD IS CONSIDERED ESSENTIAL OR NECESSARY TO GAIN ACCESS TO THE SITE AND LOOP IN NICOLAR DRIVE IN ACCORDANCE WITH SECTION 16.116(C). 36. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MDSA STANDARDS AND SPECIFICATIONS IF APPLICABLE. 37. HOWARD COUNTY PLANNING BOARD APPROVED THE PRELIMINARY EQUIVALENT SKETCH PLAN ON 12/18/18 UNDER CASE #40. THIS REVISION TO THE APPROVED RELIEF PLAN SKETCH PLAN IS FOR AGE-RESTRICTED ADULT HOUSING. 38. PRIVATE RANGE OF ADDRESS SIGN ASSEMBLY FOR NICOLAR DRIVE, CUP 55-58 SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPER'S/OWNER'S EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-313-2522 FOR DETAILS AND COST ESTIMATES. 39. ALL ROADS, UTILITIES, AND STORMWATER MANAGEMENT IS TO BE PRIVATELY OWNED AND MAINTAINED.

COVER SHEET. Table with columns: MDE PERMIT NUMBERS, OWNER, SUBDIVISION NAME, DEVELOPER, PREVIOUS FILE NO., TAX MAP, GRID, ZONED, PERMITS, PARCEL, SHEET NUMBER, PREVIOUS FILE NO., TAX MAP, GRID, ZONED, PERMITS, PARCEL, SHEET NUMBER. Includes values for MDRON06X, LYHUS DEVELOPMENT LLC, THE HIGHLANDS (FORMERLY LYHUS PROPERTY), RED # 1453200469, 58 UNITS, 194T-320-2019E1758, 6800 DEERPATH ROAD #100 ELKRODGE, MARYLAND 21075, 8600 DEERPATH ROAD #100 ELKRODGE, MARYLAND 21075, 1 OF 146.

BOHLER logo and text: SITE CIVIL AND CONSULTING ENGINEERING, PROGRAM MANAGEMENT, LANDSCAPE ARCHITECTURE, SUSTAINABLE DESIGN, PERMITTING SERVICES, TRANSPORTATION SERVICES.

REVISIONS table with columns: REV, DATE, COMMENT, DRAWN BY, CHECKED BY.

811 logo and text: Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.

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PROJECT INFO table with columns: PROJECT No., DRAWN BY, CHECKED BY, DATE, CAD ID, PROJECT.

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KLN ROAD, FULTON, HOWARD COUNTY, MD

BOHLER logo and address: 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21204. Phone: (410) 821-7900, Fax: (410) 821-7987, MD@BohlerEng.com

B.R. ROWE logo and text: PROFESSIONAL ENGINEER, MARYLAND LICENSE NO. 43038, EXPIRATION DATE: 7/30/2025.

COVER SHEET. SHEET NUMBER: 1 OF 146. ORG. DATE: 04/17/24.

GENERAL NOTES

(Rev. 1/2019)

- 1. THESE PLANS ARE SOLELY BASED ON INFORMATION THE OWNER AND OTHERS PROVIDED TO BOHLER ENGINEERING VA, LLC (HEREIN "BOHLER ENGINEERING") PRIOR TO THE DATE ON WHICH ENGINEER PREPARED THESE PLANS... 2. THE CONTRACTOR MUST FIELD VERIFY ALL EXISTING CONDITIONS AND IMMEDIATELY NOTIFY BOHLER ENGINEERING... 3. THE CONTRACTOR MUST STRICTLY COMPLY WITH THESE NOTES AND ALL SPECIFICATIONS/REPORTS CONTAINED HEREIN... 4. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST OBTAIN ALL NECESSARY PERMITS AND APPROVALS... 5. THE CONTRACTOR MUST ENSURE THAT ALL WORK IS PERFORMED IN ACCORDANCE WITH THESE PLANS... 6. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR MUST COORDINATE THE BUILDING LAYOUT... 7. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 8. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 9. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 10. THE OWNER AND CONTRACTOR MUST BE FAMILIAR WITH, AND RESPONSIBLE FOR THE PROCUREMENT OF ANY AND ALL CERTIFICATIONS... 11. OBTAIN ALL REQUIRED PERMITS, SPECIFICATIONS AND RECOMMENDATIONS SET FORTH THEREIN... 12. ENGINEER OF RECORD IS NEITHER LIABLE NOR RESPONSIBLE FOR ANY SUBSURFACE CONDITIONS... 13. THE CONTRACTOR MUST EXERCISE EXTREME CAUTION WHEN PERFORMING ANY WORK ACTIVITIES ADJACENT TO PAVEMENT STRUCTURES... 14. THE CONTRACTOR IS RESPONSIBLE FOR TAKING ALL APPROPRIATE MEASURES REQUIRED TO ENSURE THE STABILITY OF ADJACENT AREAS... 15. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 16. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO MAINTAIN RECORDS TO DEMONSTRATE PROPER AND FULLY COMPLETE CONSTRUCTION... 17. THE CONTRACTOR MUST REPAIR, AT CONTRACTOR'S SOLE COST, ALL DAMAGE DONE TO ANY NEW OR EXISTING CONSTRUCTION... 18. THE ENGINEER OF RECORD AND BOHLER ENGINEERING ARE NOT RESPONSIBLE FOR AND HAVE NO CONTRACTUAL, LEGAL OR OTHER RESPONSIBILITIES... 19. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 20. THE CONTRACTOR'S FAILURE TO BUILD OR CONSTRUCT IN STRICT ACCORDANCE WITH THE APPROVED PLANS... 21. THE CONTRACTOR MUST CARRY AT LEAST THE MINIMUM AMOUNT OF THE SPECIFIED AND COMMERCIALY REASONABLE STATUTORY WORKERS COMPENSATION... 22. THE ENGINEER OF RECORD AND BOHLER ENGINEERING ARE NOT RESPONSIBLE FOR CONSTRUCTION METHODS... 23. NEITHER THE PROFESSIONAL ACTIVITIES OF BOHLER ENGINEERING NOR THE PRESENCE OF BOHLER ENGINEERING AND/OR ITS PART, PRESENT AND FUTURE OWNERS... 24. UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE...

- 24. UNDER THE GENERAL CONTRACTOR'S POLICIES OF GENERAL LIABILITY INSURANCE AS DESCRIBED ABOVE... 25. IF THE CONTRACTOR DEVIATES FROM THESE PLANS AND/OR SPECIFICATIONS... 26. THE CONTRACTOR IS RESPONSIBLE FOR A MAINTAINING AND PROTECTING THE TRAFFIC CONTROL PLAN AND ELEMENTS IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REQUIREMENTS... 27. OWNER MUST MAINTAIN AND PRESERVE ALL PHYSICAL SITE FEATURES AND DESIGN FEATURES... 28. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ENSURING THAT ALL CONSTRUCTION ACTIVITIES AND MATERIALS COMPLY WITH ALL APPLICABLE PERMITS... 29. THE CONTRACTOR MUST STRICTLY COMPLY WITH THE LATEST AND MOST CURRENT OSHA STANDARDS AND REGULATIONS... 30. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN AN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)... 31. COMPLIANCE WITH THE ENVIRONMENTAL PROTECTION AGENCY (EPA) REQUIREMENTS... 32. THE CONTRACTOR IS RESPONSIBLE FOR FAILING TO DO SO... 33. THE CONTRACTOR IS RESPONSIBLE TO MAINTAIN AN ON-SITE STORMWATER POLLUTION PREVENTION PLAN (SWPPP)...

SITE LAYOUT NOTES

(Rev. 1/2019)

- 1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS... 2. PRIOR TO THE COMMENCEMENT OF GENERAL CONSTRUCTION... 3. ALL DIRECTIONAL TRAFFIC SIGNING AND PAVEMENT STRIPING MUST CONFORM TO THE LATEST STANDARDS... 4. THE LOCATIONS OF PROPOSED UTILITY POLES AND TRAFFIC SIGNS SHOWN ON THE PLANS ARE SCHEMATIC AND PRELIMINARY... 5. ALL DIMENSIONS SHOWN ARE TO BOTTOM FACE OF CURB, EDGE OF PAVEMENT, OR EDGE OF BUILDING... 6. THE CONTRACTOR IS RESPONSIBLE TO SECURE ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 7. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ALL UNSUITABLE MATERIALS WITH SUITABLE MATERIALS... 8. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 9. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ALL UNSUITABLE MATERIALS WITH SUITABLE MATERIALS... 10. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS...

GRADING NOTES

(Rev. 1/2019)

- 1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS... 2. SITE GRADING MUST BE PERFORMED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS... 3. THE CONTRACTOR IS REQUIRED TO SECURE ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 4. THE CONTRACTOR IS FULLY RESPONSIBLE FOR VERIFYING EXISTING TOPOGRAPHIC INFORMATION... 5. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ALL UNSUITABLE MATERIALS WITH SUITABLE MATERIALS... 6. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 7. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING AND REPLACING ALL UNSUITABLE MATERIALS WITH SUITABLE MATERIALS... 8. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS...

ACCESSIBILITY DESIGN GUIDELINES

(Rev. 1/2019)

- 1. ALL ACCESSIBLE (A.K.A. ADA) COMPONENTS AND ACCESSIBLE ROUTES MUST BE CONSTRUCTED TO MEET... 2. THE CONTRACTOR MUST REVIEW ALL DOCUMENTS REFERENCED IN THESE NOTES FOR ACCURACY... 3. THE CONTRACTOR MUST SECURE APPROPRIATE CARE AND PRECISION IN CONSTRUCTION... 4. ACCESSIBLE PARKING SPACES AND ACCESSIBLE ROUTES MUST EXCEED 1.50 (2%) IN ANY DIRECTION... 5. ACCESSIBLE RAMPINGS MUST NOT EXCEED A SLOPE OF 1:12 (8.3%) AND A RISE OF 30-INCHES... 6. ACCESSIBLE CURB RAMPINGS MUST NOT EXCEED A SLOPE OF 1:12 (8.3%)... 7. ACCESSIBLE LANDINGS MUST NOT EXCEED A SLOPE OF 1:48 (2.1%)... 8. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS...

DEMOLITION NOTES

(Rev. 1/2019)

- 1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS... 2. THE CONTRACTOR MUST CONDUCT DEMOLITION/REMOVALS ACTIVITIES IN SUCH A MANNER AS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, STREETS, SIDEWALKS, WALKWAYS... 3. WHEN DEMOLITION-RELATED ACTIVITIES IMPACT ROADWAYS AND/OR ROADWAY RIGHT-OF-WAY... 4. THE DEMOLITION (AND/OR REMOVAL) PLANS IS INTENDED TO PROVIDE GENERAL INFORMATION AND TO IDENTIFY ONLY CONDITIONS REGARDING ITEMS TO BE DEMOLISHED... 5. THE CONTRACTOR MUST PROVIDE ALL METHODS AND MEANS NECESSARY TO PREVENT MOVEMENT... 6. THIS PLAN IS NOT INTENDED TO AND DOES NOT PROVIDE DIRECTION REGARDING THE MEANS, METHODS, SEQUENCING, TECHNIQUES AND PROCEDURES... 7. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 8. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 9. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 10. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 11. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 12. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 13. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 14. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 15. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 16. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 17. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 18. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 19. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES... 20. THE CONTRACTOR MUST MAINTAIN A RECORD SET OF PLANS UPON WHICH IS INDICATED THE LOCATION OF EXISTING UTILITIES...

LIGHTING NOTES

(Rev. 1/2019)

- 1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS... 2. THIS LIGHTING PLAN DEPICTS PROPOSED, SUSTAINED ILLUMINATION LEVELS CALCULATED USING DATA PROVIDED... 3. THE LIGHTING CONTRACTOR MUST CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 4. WHERE APPLICABLE, THE EXISTING CONDITION LIGHT LEVELS ILLUSTRATED ARE REPRESENTATIVE OF AN APPROXIMATION... 5. THE LIGHTING CONTRACTOR MUST CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 6. THE LIGHTING CONTRACTOR MUST CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 7. THE LIGHTING CONTRACTOR MUST CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 8. THE LIGHTING CONTRACTOR MUST CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 9. THE LIGHTING CONTRACTOR MUST CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS... 10. THE LIGHTING CONTRACTOR MUST CONDUCT AND REPORT ALL NECESSARY AND/OR REQUIRED PERMITS AND APPROVALS...

SOIL EROSION & SEDIMENT CONTROL PLAN NOTES

(Rev. 1/2019)

- 1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS... 2. EROSION CONTROL MEASURES MUST CONFORM TO THE MARYLAND... 3. THE DISTURBED LAND AREA OF THIS SITE IS APPROXIMATELY 4.15 ACRES... 4. THE FOLLOWING EROSION CONTROL MEASURES ARE PROPOSED FOR THIS SITE... 5. STABILIZED CONSTRUCTION ENTRANCE/EXIT... 6. BERM... 7. SEDIMENT FENCE... 8. INSTALL FILTER FABRIC DROP INLET PROTECTION... 9. THE CONTRACTOR MUST FIELD VERIFY TEMPORARY SEED AND MULCH... 10. THE CONTRACTOR MUST STABILIZE SAME WITH GEOTEXTILE FABRIC AND MAINTAIN SAME IN STRICT ACCORDANCE... 11. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 12. THIS PLAN REPRESENTS THE MINIMUM LEVEL OF IMPLEMENTATION OF TEMPORARY EROSION AND SEDIMENTATION CONTROL FACILITIES... 13. THE CONTRACTOR MUST PROTECT ALL EXISTING TREES AND SHRUBS... 14. THE CONTRACTOR MUST REFER TO GRADING PLANS FOR ADDITIONAL INFORMATION... 15. THE CONTRACTOR MUST CLEAN EXISTING AND PROPOSED DRAINAGE STRUCTURES... 16. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 17. THE CONTRACTOR MUST IDENTIFY, ON THE PLAN, THE LOCATION OF WASTE CONTAINERS...

DRAINAGE AND UTILITY NOTES

(Rev. 1/2019)

- 1. THE GENERAL NOTES MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS... 2. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 3. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 4. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 5. STORMWATER ROOF DRAIN LOCATIONS ARE BASED ON ARCHITECTURAL PLANS... 6. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING SITE PLAN DOCUMENTS AND ARCHITECTURAL PLANS... 7. ALL FILL, COMPACTATION, AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION... 8. DURING THE INSTALLATION OF UNDERGROUND UTILITIES... 9. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS... 10. FINAL LOCATIONS OF PROPOSED UTILITY POLES, AND/OR POLES TO BE RELOCATED... 11. THE CONTRACTOR MUST FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS SHOWN ON THESE PLANS...

BOHLER ENGINEERING logo and contact information: 901 DULANEY VALLEY ROAD, SUITE 801, TOWSON, MARYLAND 21284. Phone: (410) 821-7900. Fax: (410) 821-7967. MD@BohlerEng.com

REVISIONS table with columns: REV, DATE, COMMENT, DRAWN BY, CHECKED BY.

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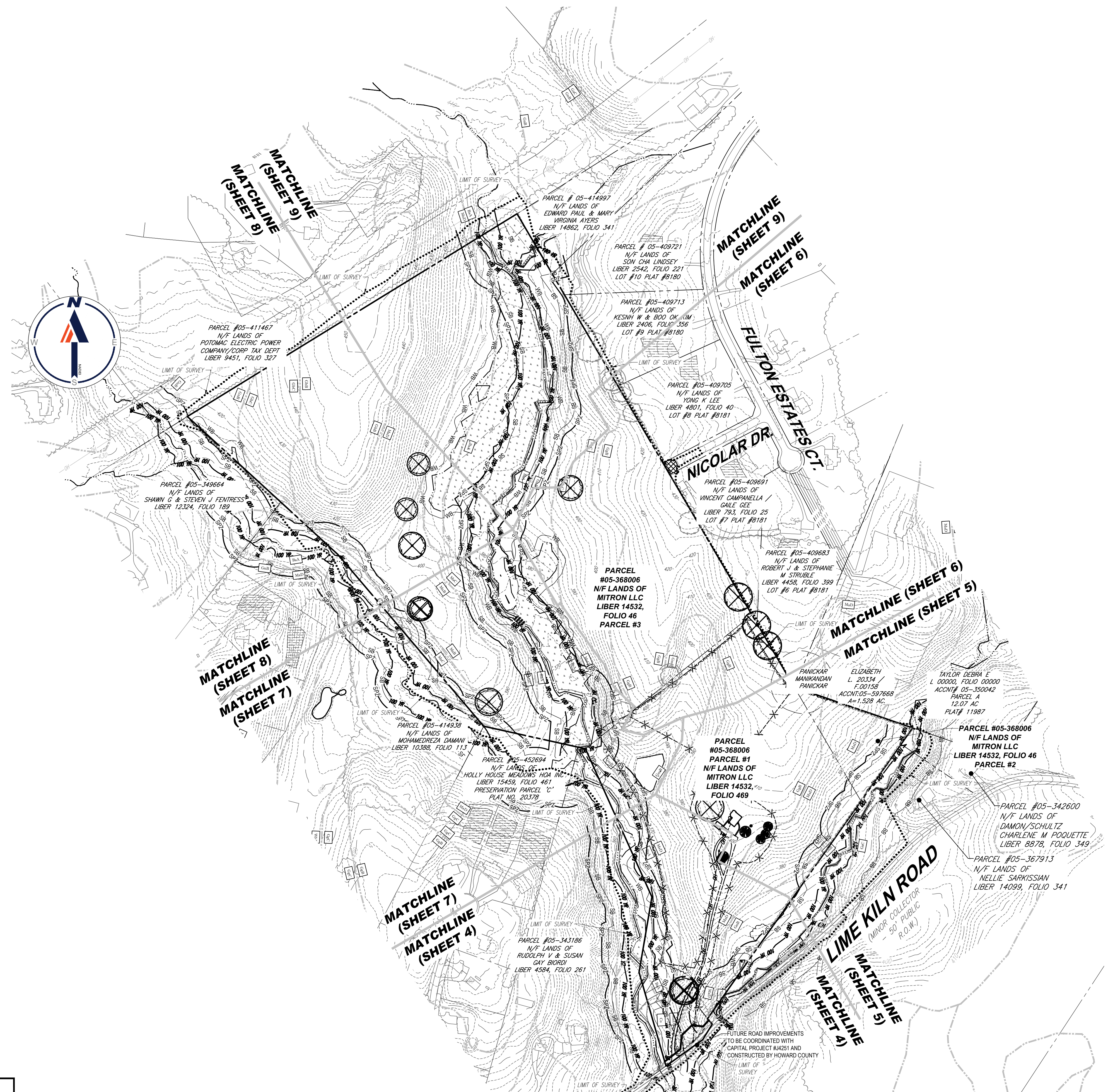
PROJECT No.: MD1420672. DRAWN BY: MUR. CHECKED BY: MP. DATE: 07/11/2024. CAD ID: CMSD.

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY) PROPOSED AGE-RESTRICTED COMMUNITY. 12170 LIME KILN ROAD, FULTON, HOWARD COUNTY, MD.

BOHLER ENGINEERING logo and contact information: 901 DULANEY VALLEY ROAD, SUITE 801, TOWSON, MARYLAND 21284. Phone: (410) 821-7900. Fax: (410) 821-7967. MD@BohlerEng.com

B.R. ROWE logo and contact information: PROFESSIONAL ENGINEER, 6800 DEERPATH ROAD #100, ELK RIDGE, MARYLAND 21075. License No. 40898, Expiration Date: 7/30/25.

GENERAL NOTES. OWNER: LYHUS DEVELOPMENT, LLC. DEVELOPER: ROCK REALTY INC. SHEET NUMBER: 2 OF 146. ORG. DATE: 04/17/24.



MAPPED SOILS		
MAP SYMBOL	MAP UNIT NAME	RATING
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	B
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	B
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

LEGEND	
FOR OVERALL EXISTING CONDITIONS & DEMOLITION PLAN (NOT TO SCALE)	
EXISTING NOTE	TYPICAL NOTE TEXT
---	ONSITE PROPERTY LINE / R.O.W. LINE
- - -	NEIGHBORING PROPERTY LINE / INTERIOR PARCEL LINE
▨	STEEP SLOPES 15-20%
▩	STEEP SLOPES >25%
WB	WETLAND BUFFER
SB	STREAM BUFFER
---	NATURAL WETLAND EDGE
...	WETLAND
---	WATERWAY STREAM
---	PERENNIAL STREAM
---	INTERMITTENT STREAM
---	TREELINE
---	FENCE
---	LIMIT OF SURVEY
---	TPF TREE PROTECTION FENCE
---	RP ROOT PRESERVATION
---	CURB
---	ASPHALT PAVEMENT
---	UNDERGROUND STORM
---	2' CONTOUR
---	10' CONTOUR
⊗	SPECIMEN TREE (TO BE REMOVED)
⊗	SPECIMEN TREE (TBR)
○	CRITICAL ROOT ZONE

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - ORVL - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40988
 PROFESSIONAL CERTIFICATION
 I BRANSON, ENGINE, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988, EXPIRATION DATE: 7/30/2025

OVERALL EXISTING CONDITIONS, DEMOLITION, & SOILS PLAN

SHEET NUMBER
3 OF 146

ORG. DATE - 04/17/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 7/16/2024
 Naomi Powell, PROGRAM MANAGER
 DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 Chad Edmondson, CHIEF DEVELOPMENT ENGINEERING DIVISION
 DATE
 7/16/2024
 CHIEF DIVISION OF LAND DEVELOPMENT
 DATE
 7/16/2024
 Linda Eisenberg, DATE

200 100 50 0 200
 1"=200'

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

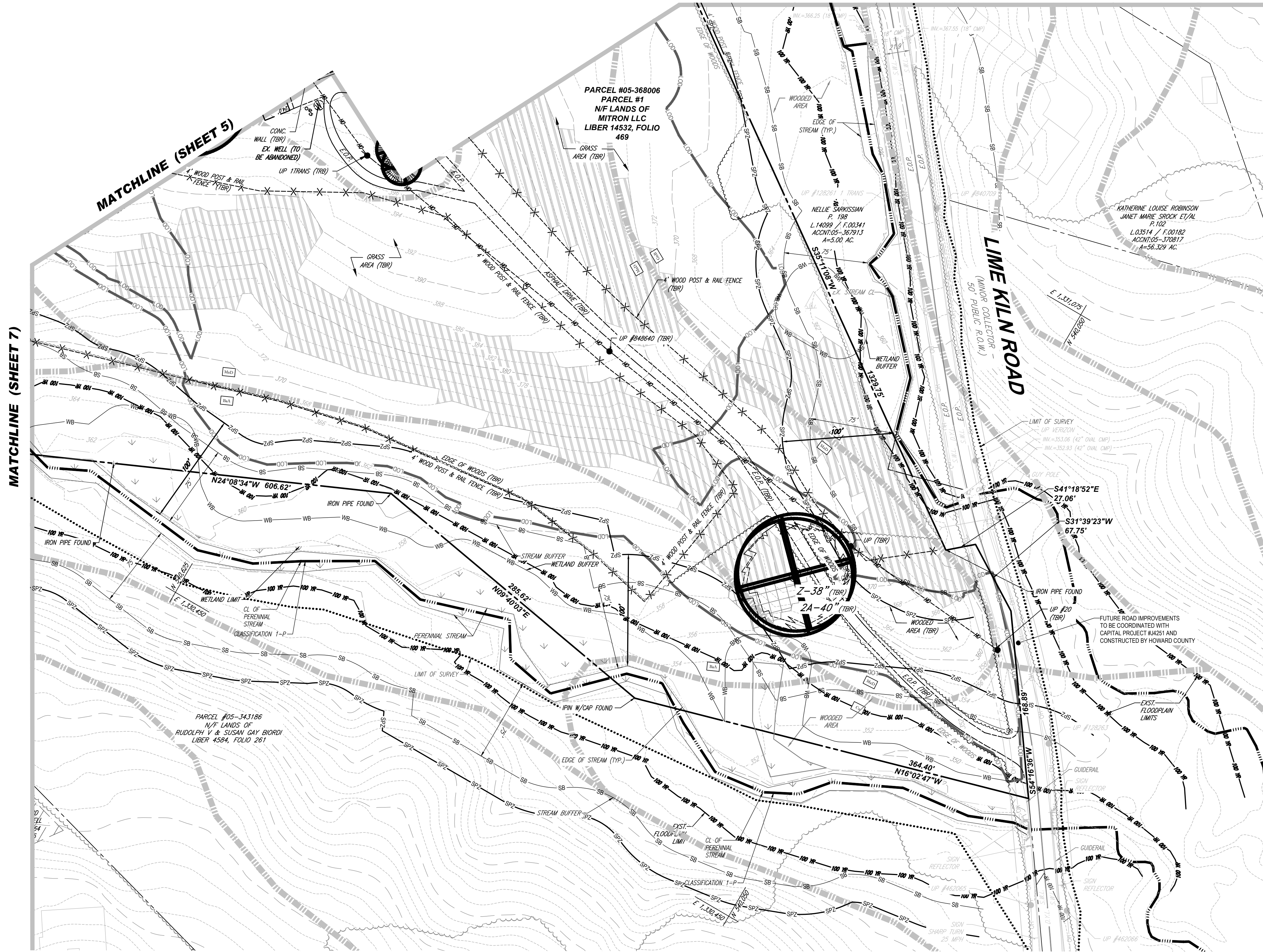
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
 SF-17-0108 F-20-016
 ECP-17-056 WP-21-011
 WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

JUL 11, 2024
 H:\1420672\DRAWINGS\PLAN SET\SITE DEVELOPMENT PLAN\MD1420672 - ORVL - 2.dwg - LAYOUT: 03 OVERALL EXISTING CONDITIONS - DEMOLITION & SOILS PLAN

MATCHLINE (SHEET 5)



MAPPED SOILS			
MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	0.37
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	0.32
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	0.28
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	0.28
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B	0.24
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.37
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.43
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	0.28
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.28

LEGEND

- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SPECIMEN TREE (TO BE REMOVED)
- CRITICAL ROOT ZONE
- SOIL DIVIDE
- SOIL LABEL (MaB)
- STREAM BUFFER (SB)
- WETLAND BUFFER (WB)
- FLOODPLAIN LIMIT (100 FT)
- WETLANDS
- PERENNIAL STREAM
- STREAM BANK
- LOD

NOTE:

1. THE EXISTING WELL MUST BE PROPERLY ABANDONED BY A LICENSED WELL DRILLER WITH AN ABANDONMENT REPORT SUBMITTED TO THE HEALTH DEPARTMENT. THE EXISTING SEWAGE SYSTEM MUST BE PUMPED OUT BY A LICENSED SEWAGE HAULER AND PROPERLY ABANDONED WITH DOCUMENTATION SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO SITE DEVELOPMENT PLAN SIGNATURE.

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - DEMO - 2

SITE DEVELOPMENT PLAN

FOR

THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER

901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40988
 PROFESSIONAL CERTIFICATION
 I BRANSON, ENGINEER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988, EXPIRATION DATE: 7/30/2025

SHEET TITLE:

EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
4 OF 146

ORG. DATE - 04/17/24

50 25 12.5 0 50
 1" = 50'

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
 SP-17-0108 F-20-016
 ECP-17-056 WP-21-011
 WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell 7/16/2024
 NACOM HOMEWELL PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

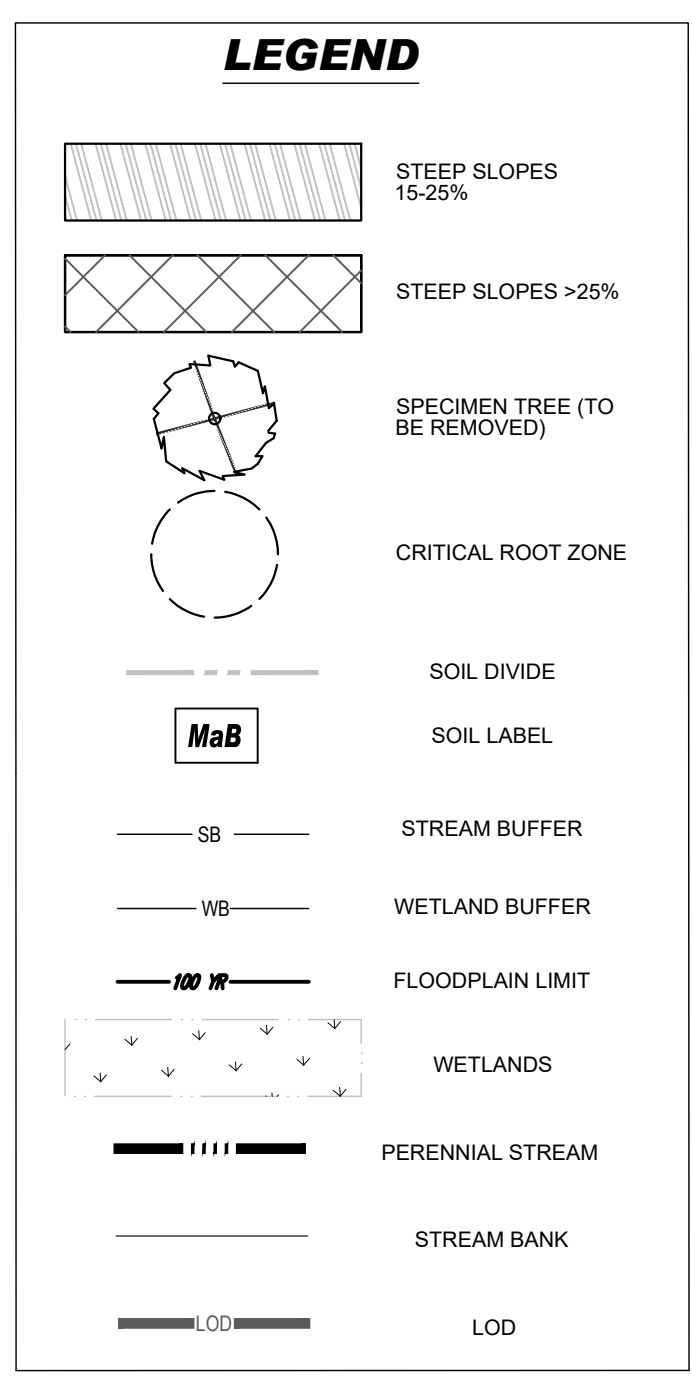
APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 Chad Edmondson
 CHIEF, DEPARTMENT OF PLANNING AND ZONING ENGINEERING DIVISION DATE
 7/16/2024

CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 7/16/2024
 Lynda Eisenberg

JUL 11, 2024 11:40 AM D:\007\DRAWINGS\PLAN SET\SITE DEVELOPMENT PLAN\MD1420672 - DEMO - 2.dwg LAYOUT: 04 EXISTING CONDITIONS & DEMOLITION PLAN



MAPPED SOILS			
MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	0.37
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	0.32
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55
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GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	0.28
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B	0.24
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.37
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.43
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	0.28
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.28



NOTE:
 1. THE EXISTING WELL MUST BE PROPERLY ABANDONED BY A LICENSED WELL DRILLER WITH AN ABANDONMENT REPORT SUBMITTED TO THE HEALTH DEPARTMENT. THE EXISTING SEWAGE SYSTEM MUST BE PUMPED OUT BY A LICENSED SEWAGE HAULER AND PROPERLY ABANDONED WITH DOCUMENTATION SUBMITTED TO THE HEALTH DEPARTMENT PRIOR TO SITE DEVELOPMENT PLAN SIGNATURE.

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - DEMO - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40988
 PROFESSIONAL CERTIFICATION
 I BRANSON, ENGINEER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988, EXPIRATION DATE: 7/31/2025

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
5 OF 146

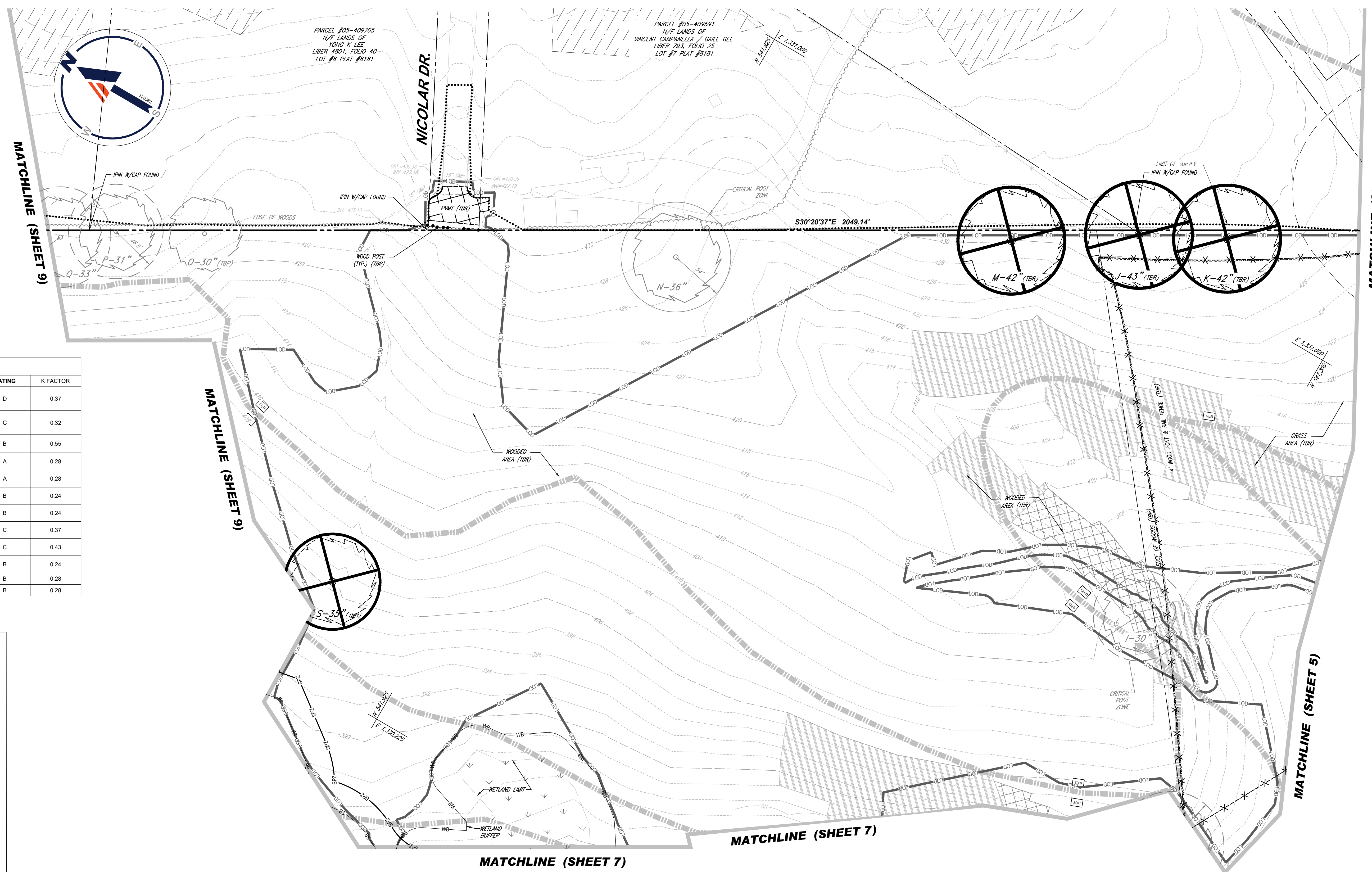
ORG. DATE - 04/17/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell, DATE 7/16/2024
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 CHIEF ENGINEER
 DATE 7/16/2024
 CHIEF DIVISION OF LAND DEVELOPMENT
 DATE 7/16/2024

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT # 28648-29652	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075
PREVIOUS FILE NO.: BA-20-002C SF-17-0108 ECP-17-056 WP-18-070	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
TAX MAP: 40 GRID: 24 ZONED: RR-DEO	5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

JUL 11, 2024
 HY14MD1420672DRAWINGSPLAN SET SITE DEVELOPMENT PLAN MD1420672 - DEMO - 2 - LAYOUT, 06 EXISTING CONDITIONS & DEMOLITION PLAN



MAPPED SOILS

MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	0.37
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	0.32
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	0.28
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	0.28
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B	0.24
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.37
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.43
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	0.28
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.28

LEGEND

[Symbol]	STEEP SLOPES 15-25%
[Symbol]	STEEP SLOPES >25%
[Symbol]	SPECIMEN TREE (TO BE REMOVED)
[Symbol]	CRITICAL ROOT ZONE
[Symbol]	SOIL DIVIDE
[Symbol]	SOIL LABEL
[Symbol]	STREAM BUFFER
[Symbol]	WETLAND BUFFER
[Symbol]	FLOODPLAIN LIMIT
[Symbol]	WETLANDS
[Symbol]	PERENNIAL STREAM
[Symbol]	STREAM BANK
[Symbol]	LOD

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell, 7/16/2024
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 CHIEF ENGINEER DIVISION
 DATE 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
 DATE 7/16/2024

50 25 12.5 0 50
 1" = 50'

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
 SF-17-0108 F-20-016
 ECP-17-056 WP-21-011
 WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
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 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - DEMO - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

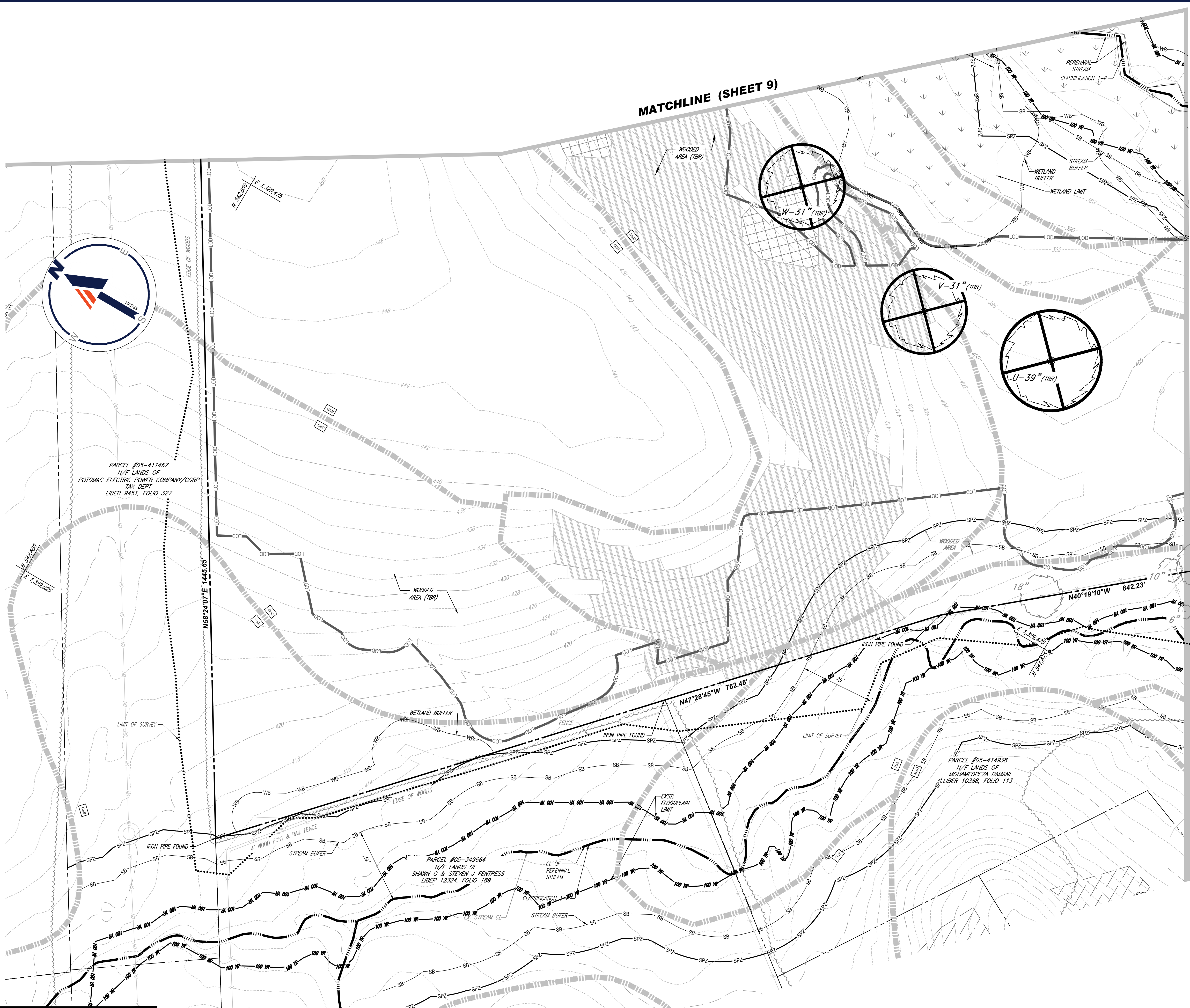
BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40898
 PROFESSIONAL CERTIFICATION
 I BRANSON, ENGINEER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DELIVERABLE PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 40898, EXPIRATION DATE: 7/30/2025

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
6 OF 146

ORG. DATE - 04/17/24



MAPPED SOILS			
MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	0.37
Co	COORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	0.32
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55
GhB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	0.28
GhC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	0.28
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
GgC	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B	0.24
GmB	GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.37
GhB	GLENNVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.43
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	0.28
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.28

LEGEND	
	STEEP SLOPES 15-25%
	STEEP SLOPES >25%
	SPECIMEN TREE (TO BE REMOVED)
	CRITICAL ROOT ZONE
	SOIL DIVIDE
	SOIL LABEL
	STREAM BUFFER
	WETLAND BUFFER
	FLOODPLAIN LIMIT
	WETLANDS
	PERENNIAL STREAM
	STREAM BANK
	LOD

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 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
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 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

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PROJECT: **SITE DEVELOPMENT PLAN**
 FOR **THE HIGHLANDS (FORMERLY LYHUS PROPERTY)**
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

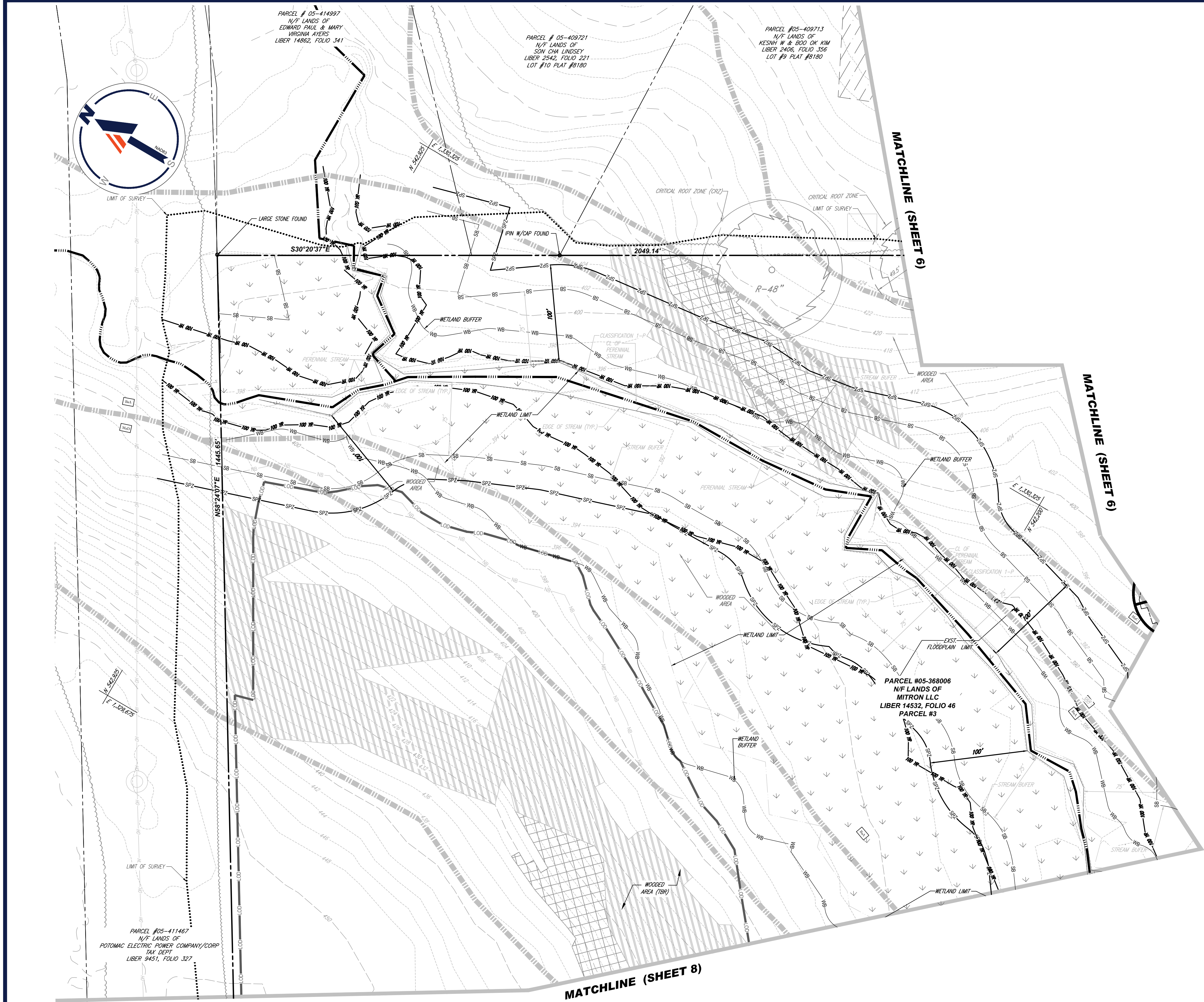
B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40898
 I BRANDED, PLANNED, DESIGNED, CHECKED, AND APPROVED THESE DOCUMENTS WHILE I WAS A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898, EXPIRATION DATE: 7/3/2025

SHEET TITLE: **EXISTING CONDITIONS & DEMOLITION PLAN**
 SHEET NUMBER: **8 OF 146**
 ORG. DATE - 04/17/24

JUL 11, 2024
 H:\14401\14401\DRAWINGS\PLAN SET\SITE DEVELOPMENT PLAN\14401\2 - DEMO - 2 - LAYOUT - 08 EXISTING CONDITIONS & DEMOLITION PLAN

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS. Naomi Powell NACOM HIGHELL, PROGRAM MANAGER WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM MARYLAND DEPARTMENT OF THE ENVIRONMENT DATE: 7/16/2024	APPROVED, DEPARTMENT OF PLANNING AND ZONING Chad Edwards CHIEF ENGINEER, DEPARTMENT OF PLANNING AND ZONING DATE: 7/16/2024
APPROVED, DIVISION OF LAND DEVELOPMENT Linda Eisenberg DATE: 7/16/2024	

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14332/00469 PLAT # 2894E-2952C	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075
PREVIOUS FILE NO.: BA-20-002C SF-17-0108 ECP-17-056 WP-18-070	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
TAX MAP: 40 GRID: 24 ZONED: RR-DEO	PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



MAPPED SOILS			
MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	0.37
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	0.32
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GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B	0.24
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.37
GnB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.43
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LEGEND	
	STEEP SLOPES 15-25%
	STEEP SLOPES >25%
	SPECIMEN TREE (TO BE REMOVED)
	CRITICAL ROOT ZONE
	SOIL DIVIDE
	SOIL LABEL
	STREAM BUFFER
	WETLAND BUFFER
	FLOODPLAIN LIMIT
	WETLANDS
	PERENNIAL STREAM
	STREAM BANK
	LOD

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
DRAWN BY: MUR
DATE: 07/11/2024
CAD ID: MD1420672 - DEMO - 2

PROJECT:

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE

PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40398
I BRANSON, ENGINEERING CERTIFICATION THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40398, EXPIRATION DATE: 7/31/2025

SHEET TITLE:
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET NUMBER:
9 OF 146

ORG. DATE - 04/17/24

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
CHAD Edmondson
SHEPPARD GRIMM ENGINEERING DIVISION
DATE: 7/16/2024
CHIEF DIVISION OF LAND DEVELOPMENT
DATE: 7/16/2024
Linda Ewing
DIRECTOR

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
Naomi Howell
PROGRAM MANAGER
DATE: 7/16/2024
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

50 25 12.5 0 50
1"=50'

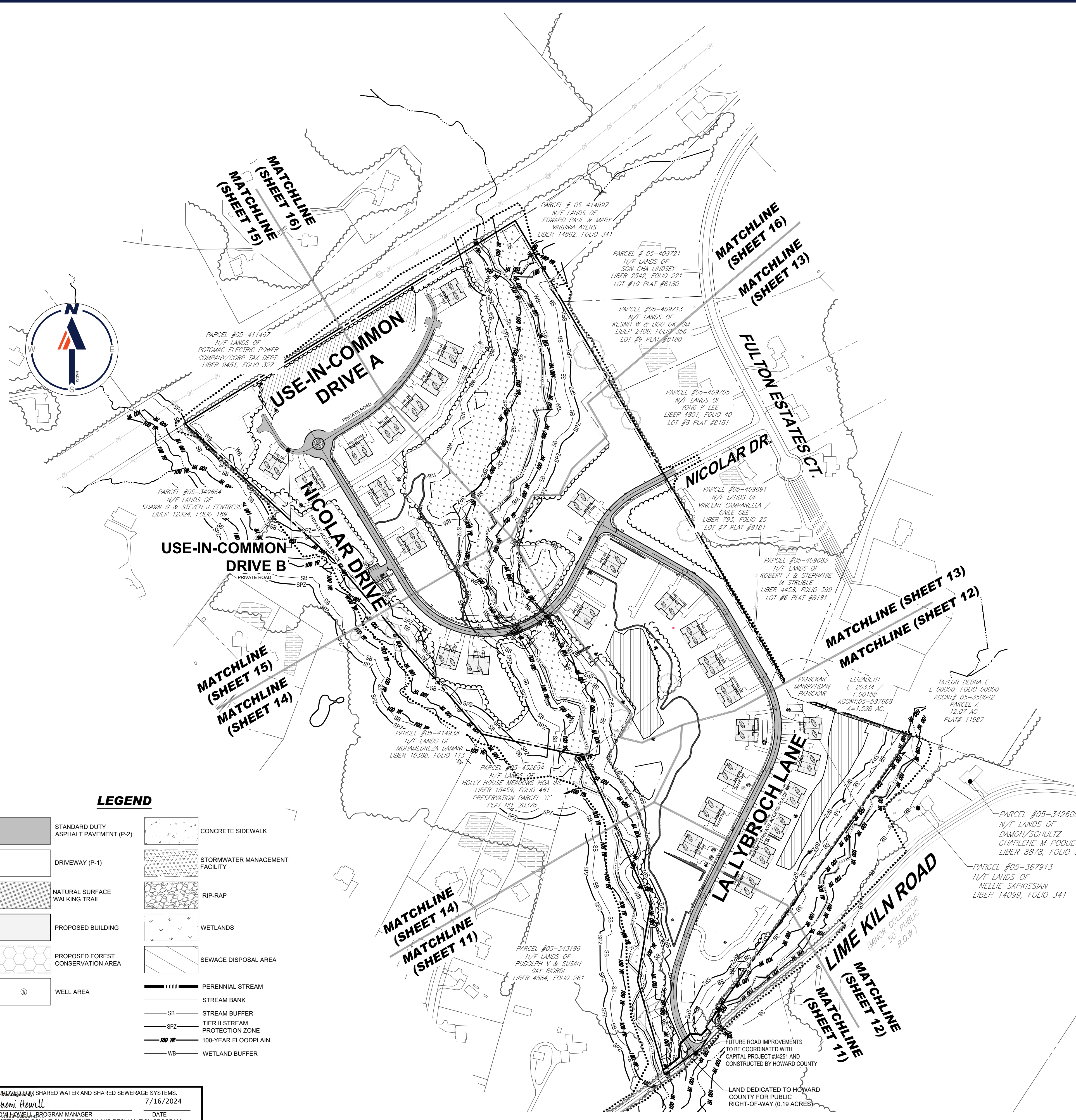
OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE No.: BA-20-002C WP-24-060
SF-17-0108 F-20-016
ECP-17-056 WP-21-011
WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

Jul 11, 2024 11:40 AM C:\DRAWINGS\PLAN SET\SITE DEVELOPMENT PLAN\MD1420672 - DEMO - 2 - LAYOUT - 09 EXISTING CONDITIONS & DEMOLITION PLAN



LEGEND

- STANDARD DUTY ASPHALT PAVEMENT (P-2)
- DRIVEWAY (P-1)
- NATURAL SURFACE WALKING TRAIL
- PROPOSED BUILDING
- PROPOSED FOREST CONSERVATION AREA
- WELL AREA
- CONCRETE SIDEWALK
- STORMWATER MANAGEMENT FACILITY
- RIP-RAP
- WETLANDS
- SEWAGE DISPOSAL AREA
- PERENNIAL STREAM
- STREAM BANK
- STREAM BUFFER
- TIER II STREAM PROTECTION ZONE
- 100-YEAR FLOODPLAIN
- WETLAND BUFFER

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.	7/16/2024
<i>Neomi Powell</i>	DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM	
MARYLAND DEPARTMENT OF THE ENVIRONMENT	
APPROVED, DEPARTMENT OF PLANNING AND ZONING	7/16/2024
<i>Chad Edwards</i>	DATE
CHEF, DEPARTMENT ENGINEERING DIVISION	7/16/2024
<i>Linda Eschberg</i>	DATE
CHIEF DIVISION OF LAND DEVELOPMENT	7/16/2024
<i>Linda Eschberg</i>	DATE

ELEVATIONS PROVIDED ON THIS SHEET ARE FOR REFERENCE ONLY. CONTRACTOR TO REFER TO APPROVED BUILDING PLANS AND PERMIT(S) FOR CONSTRUCTION OF THE BUILDINGS.



UNIT B
ELEVATION "A"
TWO CAR FRONT ENTRY GARAGE
(REVERSE)

1 STRIP ELEVATIONS
SCALE: 1/8" = 1'-0"



UNIT A
ELEVATION "A"
TWO CAR FRONT ENTRY GARAGE
(PER PLAN)

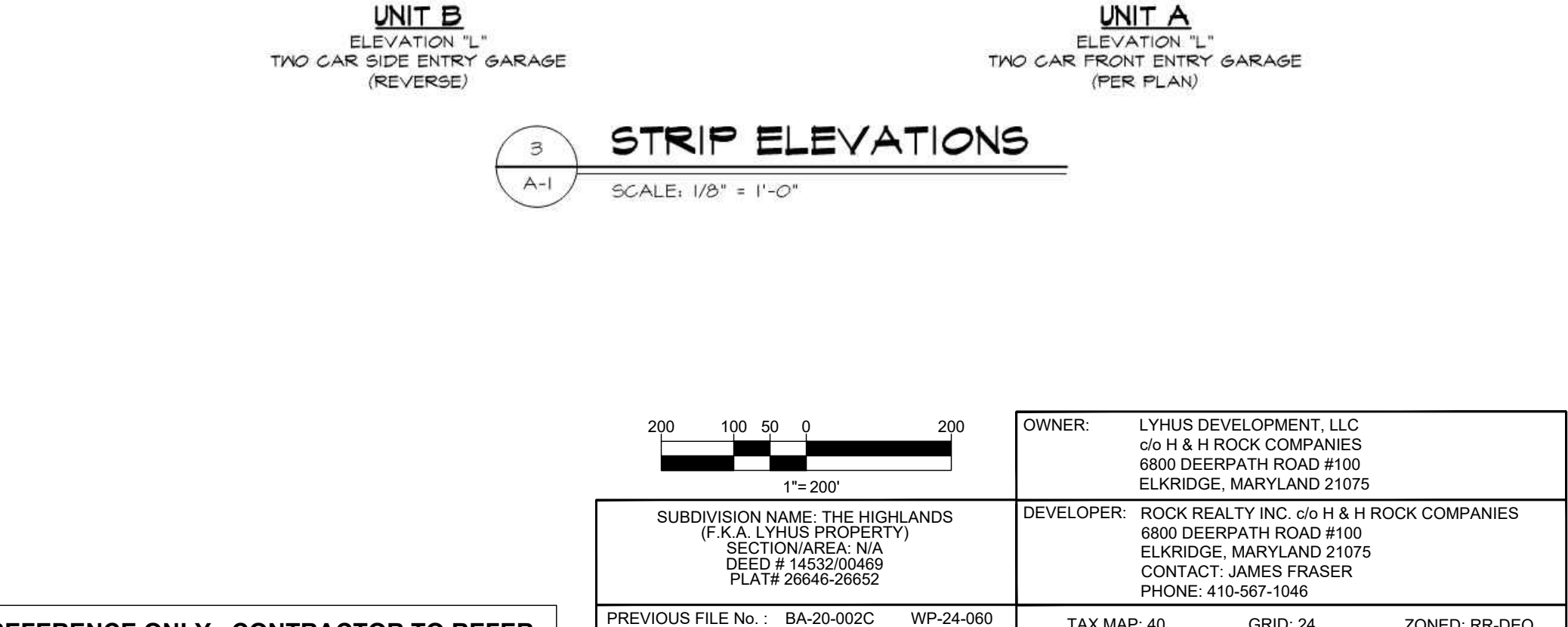
2 STRIP ELEVATIONS
SCALE: 1/8" = 1'-0"



UNIT B
ELEVATION "K"
TWO CAR SIDE ENTRY GARAGE
(REVERSE)

UNIT A
ELEVATION "K"
TWO CAR SIDE ENTRY GARAGE
(PER PLAN)

3 STRIP ELEVATIONS
SCALE: 1/8" = 1'-0"



UNIT B
ELEVATION "L"
TWO CAR SIDE ENTRY GARAGE
(REVERSE)

UNIT A
ELEVATION "L"
TWO CAR FRONT ENTRY GARAGE
(PER PLAN)

200 100 50 0 200 1" = 20'	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075
SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT # 28948-29052	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
PREVIOUS FILE NO.: BA-20-002C SP-17-018 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132
TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	ZONED: RR-DEO

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
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REVISIONS

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PROJECT NO.: MD1420672
DRAWN BY: MUR
CHECKED BY: J.P.
DATE: 07/11/2024
CAD ID: MD1420672 - ORVL - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

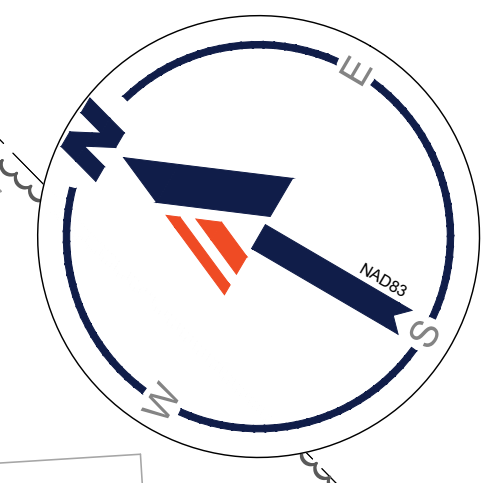
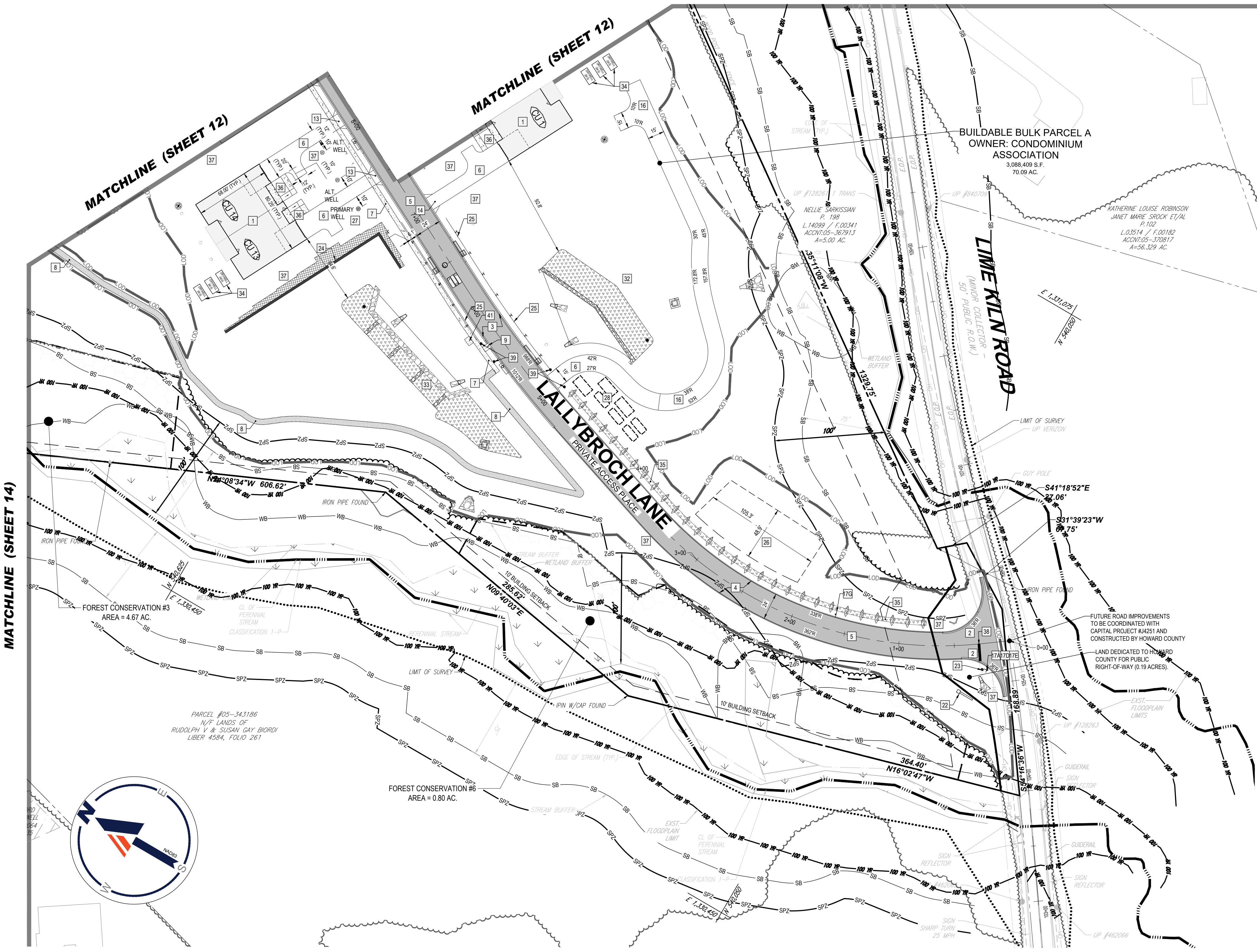
BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
AMERICAN SOCIETY OF CIVIL ENGINEERS
1 BRANDON BLVD, HESBROOK, MARYLAND 21075
I BRANDED, ENGINE, HESBROOK, MARYLAND 21075
THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898. EXPIRATION DATE: 7/30/2025

SHEET TITLE
OVERALL SITE DEVELOPMENT PLAN AND ARCHITECTURAL ELEVATIONS
SHEET NUMBER
10 OF 146
ORG. DATE - 04/17/24

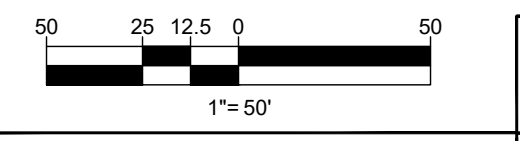
SITE PLAN KEYNOTES:

- 1 SITE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDINGS AND THE LOCATION OF DOORWAYS, UTILITIES, ETC.
- 2 7" COMBINATION CURB AND GUTTER (HO. CO. STD. DET. R-3.01)
- 3 MOD. COMBINATION CURB AND GUTTER (HO. CO. STD. DET. R-3.01)
- 4 FLUSH CURB (HO. CO. STD. DET. R-9.01)
- 5 STANDARD DUTY ASPHALT PAVEMENT (HO. CO. SECTION P-2)
- 6 RESIDENTIAL DRIVEWAY (HO. CO. SECTION P-1)
- 7 CONCRETE SIDEWALK (WIDTH VARIES)
- 8 NATURAL SURFACE PATHWAY
- 9 ADA COMPLIANT SIDEWALK RAMP TYPE 'B' (HO. CO. STD. DET. R-4.02)
- 10 ADA COMPLIANT SIDEWALK RAMP PARALLEL TO CURB (HO. CO. STD. DET. R-4.06)
- 11 ADA COMPLIANT SIDEWALK RAMP PERPENDICULAR TO CURB (HO. CO. STD. DET. R-4.05)
- 12 RESIDENTIAL DRIVEWAY ENTRANCE W/ 7" CURB & GUTTER (HO. CO. STD. DET. R-6.02)
- 13 RESIDENTIAL DRIVEWAY ENTRANCE W/ MOD. CURB & GUTTER (HO. CO. STD. DET. R-6.03)
- 14 RESIDENTIAL DRIVEWAY ENTRANCE W/ MOD. CURB & GUTTER (HO. CO. STD. DET. R-6.05)
- 15 RESIDENTIAL DRIVEWAY ENTRANCE W/ OPEN SECTION (HO. CO. STD. DET. R-6.06)
- 16 15' GRAVEL ACCESS DRIVE
- 17 TRAFFIC SIGNAGE
ALL SIGNS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) BY THE U.S. DEPARTMENT OF TRANSPORTATION.
- 17A *STOP* SIGN (R1-1)
- 17B *YIELD* SIGN (R1-2)
- 17C BOLLARD MOUNTED ADA ACCESSIBLE SIGN (WITH VAN ACCESSIBLE SIGN)
- 17D "LIME KILN ROAD" STREET NAME SIGN
- 17E "LALLYBROCH LANE" STREET NAME SIGN
- 17F "NICOLAR DRIVE" STREET NAME SIGN
- 17G *SPEED LIMIT 25 MPH* SIGN
- 17H *NO PARKING* SIGN
- 18 4" WHITE PARKING STALL STRIPING (9' X 18')
- 19 ADA PARKING SYMBOL (VAN ACCESSIBLE)
- 20 4" WHITE STRIPING, 45° ANGLE, 4" O.C. PAVEMENT MARKING
- 21 CONCRETE BUS PAD
- 22 MONUMENT SIGN (REFER TO ARCHITECTURAL PLANS)
- 23 LED-150 COLONIAL POST-TOP STREET LIGHT
- 24 RETAINING WALL W/ SAFETY FENCE (REFER TO STRUCTURAL PLANS)
- 25 GUARD RAIL WITH TYPE-C END TREATMENT (MDOOT SHA STD. MD-605.03)
- 26 WATER CISTERN RESERVE AREA
- 27 WELL & WELL AREA (REFER TO WELL PLANS)
- 28 MBR TANK (REFER TO SEPTIC PLANS)
- 29 SEPTIC RESERVE AREA (REFER TO SEPTIC PLANS)
- 30 MONITORING WELL (REFER TO SEPTIC PLANS)
- 31 CONCRETE BOX CULVERT (REFER TO STRUCTURAL PLANS)
- 32 SAND FILTER (REFER TO SWM NOTES & DETAILS)
- 33 SUBMERGED GRAVEL WETLAND (REFER TO SWM NOTES & DETAILS)
- 34 DRY WELL (REFER TO SWM NOTES & DETAILS)
- 35 GRASS SWALE (REFER TO SWM NOTES & DETAILS)
- 36 ZERO-STEP ENTRYWAY (REFER TO ARCHITECTURAL PLANS)
- 37 LANDSCAPE AREA
- 38 24" STOP BAR
- 39 BOLLARD
- 40 26" MANUAL BARRIER GATE
- 41 5'X7' CONC. PAD FOR MAIL BOX KIOSK(S)



LEGEND

- STANDARD DUTY ASPHALT PAVEMENT (P-2)
- DRIVEWAY (P-1)
- NATURAL SURFACE WALKING TRAIL
- PROPOSED BUILDING
- PROPOSED FOREST CONSERVATION AREA
- WELL AREA
- CONCRETE SIDEWALK
- STORMWATER MANAGEMENT FACILITY
- RIP-RAP
- WETLANDS
- SEWAGE DISPOSAL AREA
- PERENNIAL STREAM
- STREAM BANK
- STREAM BUFFER
- 100-YEAR FLOODPLAIN
- WETLAND BUFFER



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT# 28646-29652		OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075
PREVIOUS FILE NO.: BA-20-002C SF-17-0108 ECP-17-056 WP-18-070	DATE: F-20-016 WP-21-011 WP-22-132	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
TAX MAP: 40	GRID: 24	ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND		PARCEL: 135

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS. <i>Neomi Powell</i> NACOM HOMEWELL PROGRAM MANAGER DATE 7/16/2024 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM MARYLAND DEPARTMENT OF THE ENVIRONMENT
APPROVED, DEPARTMENT OF PLANNING AND ZONING <i>Chad Edwards</i> CHIEF OF DEPARTMENT ENGINEERING DIVISION DATE 7/16/2024
CHIEF DIVISION OF LAND DEVELOPMENT <i>Linda Eisenberg</i> DATE 7/16/2024

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

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PROJECT No.:	MD1420672
DRAWN BY:	MJR
CHECKED BY:	MP
DATE:	07/11/2024
CAD ID:	MD1420672 - SITE - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40988
I BRANSON, ENGINEER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988, EXPIRATION DATE: 7/30/2025

SITE DEVELOPMENT PLAN
SHEET NUMBER:
11 of 146
ORG. DATE - 04/17/24

SITE PLAN KEYNOTES:

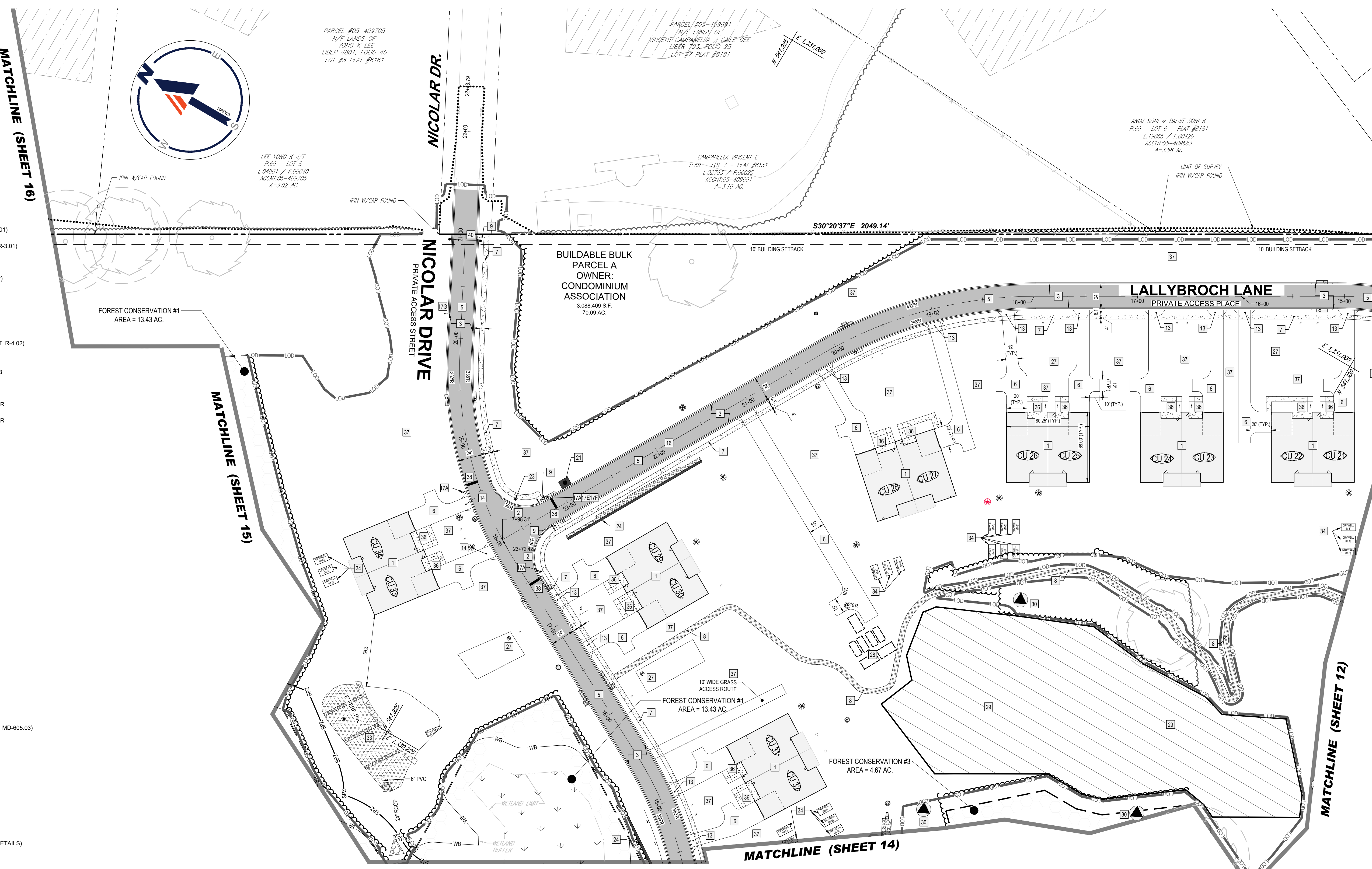
- 1 SITE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR THE EXACT DIMENSIONS OF THE BUILDINGS AND THE LOCATION OF DOORWAYS, UTILITIES, ETC.
- 2 7" COMBINATION CURB AND GUTTER (HO. CO. STD. DET. R-3.01)
- 3 MOD. COMBINATION CURB AND GUTTER (HO. CO. STD. DET. R-3.01)
- 4 FLUSH CURB (HO. CO. STD. DET. R-9.01)
- 5 STANDARD DUTY ASPHALT PAVEMENT (HO. CO. SECTION P-2)
- 6 RESIDENTIAL DRIVEWAY (HO. CO. SECTION P-1)
- 7 CONCRETE SIDEWALK (WIDTH VARIES)
- 8 NATURAL SURFACE PATHWAY
- 9 ADA COMPLIANT SIDEWALK RAMP TYPE 'B' (HO. CO. STD. DET. R-4.02)
- 10 ADA COMPLIANT SIDEWALK RAMP PARALLEL TO CURB (HO. CO. STD. DET. R-4.05)
- 11 ADA COMPLIANT SIDEWALK RAMP PERPENDICULAR TO CURB (HO. CO. STD. DET. R-4.05)
- 12 RESIDENTIAL DRIVEWAY ENTRANCE W/ 7" CURB & GUTTER (HO. CO. STD. DET. R-6.02)
- 13 RESIDENTIAL DRIVEWAY ENTRANCE W/ MOD. CURB & GUTTER (HO. CO. STD. DET. R-6.03)
- 14 RESIDENTIAL DRIVEWAY ENTRANCE W/ MOD. CURB & GUTTER (HO. CO. STD. DET. R-6.05)
- 15 RESIDENTIAL DRIVEWAY ENTRANCE W/ OPEN SECTION (HO. CO. STD. DET. R-6.06)
- 16 15' GRAVEL ACCESS DRIVE
- 17 TRAFFIC SIGNAGE

ALL SIGNS SHALL CONFORM TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (MUTCD) BY THE U.S. DEPARTMENT OF TRANSPORTATION.

- 17A *STOP* SIGN (R1-1)
- 17B *YIELD* SIGN (R1-2)
- 17C BOLLARD MOUNTED ADA ACCESSIBLE SIGN (WITH VAN ACCESSIBLE SIGN)
- 17D *LIME KILN ROAD* STREET NAME SIGN
- 17E *LALLYBROCH LANE* STREET NAME SIGN
- 17F *NICOLAR DRIVE* STREET NAME SIGN
- 17G *SPEED LIMIT 25 MPH* SIGN
- 17H *NO PARKING* SIGN

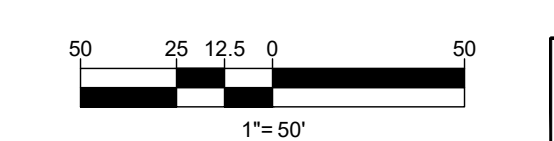
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- 26 WATER CISTERN RESERVE AREA
- 27 WELL & WELL AREA (REFER TO WELL PLANS)
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- 38 24" STOP BAR
- 39 BOLLARD
- 40 26" MANUAL BARRIER GATE
- 41 5X7" CONC. PAD FOR MAIL BOX KIOSK(S)

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.	7/16/2024
<i>Neomi Powell</i>	DATE
NACOM HOMEWELL, PROGRAM MANAGER	DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM	DATE
MARYLAND DEPARTMENT OF THE ENVIRONMENT	DATE
APPROVED, DEPARTMENT OF PLANNING AND ZONING	7/16/2024
<i>Chad Edwards</i>	DATE
CHEF, DEPARTMENT OF PLANNING AND ZONING	DATE
CHEF, DIVISION OF LAND DEVELOPMENT	DATE
<i>Linda Eisenberg</i>	7/16/2024
DATE	DATE



LEGEND

	STANDARD DUTY ASPHALT PAVEMENT (P-2)		CONCRETE SIDEWALK
	DRIVEWAY (P-1)		STORMWATER MANAGEMENT FACILITY
	NATURAL SURFACE WALKING TRAIL		RIP-RAP
	PROPOSED BUILDING		WETLANDS
	PROPOSED FOREST CONSERVATION AREA		SEWAGE DISPOSAL AREA
	WELL AREA		PERENNIAL STREAM
			STREAM BANK
			STREAM BUFFER
			100-YEAR FLOODPLAIN
			WETLAND BUFFER



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
 SECTION/AREA: N/A
 DEED # 145320-00469
 PLAT # 2004B-2905C

PREVIOUS FILE NO.: BA-20-002C
 SF-17-0108
 ECP-17-056
 WP-18-070

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

TAX MAP: 40
 GRID: 24
 PARCEL: 135
 ZONED: RR-DEO

5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - SITE - 2

SITE DEVELOPMENT PLAN

FOR

THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER

901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

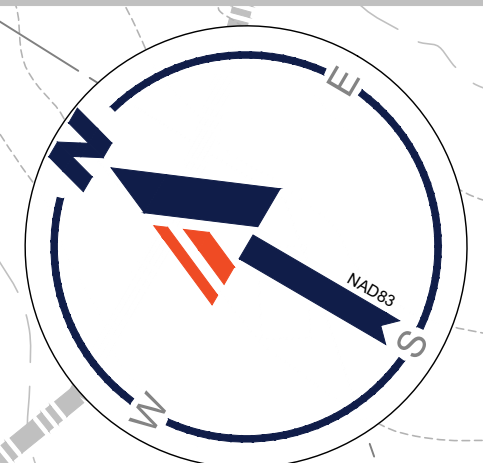
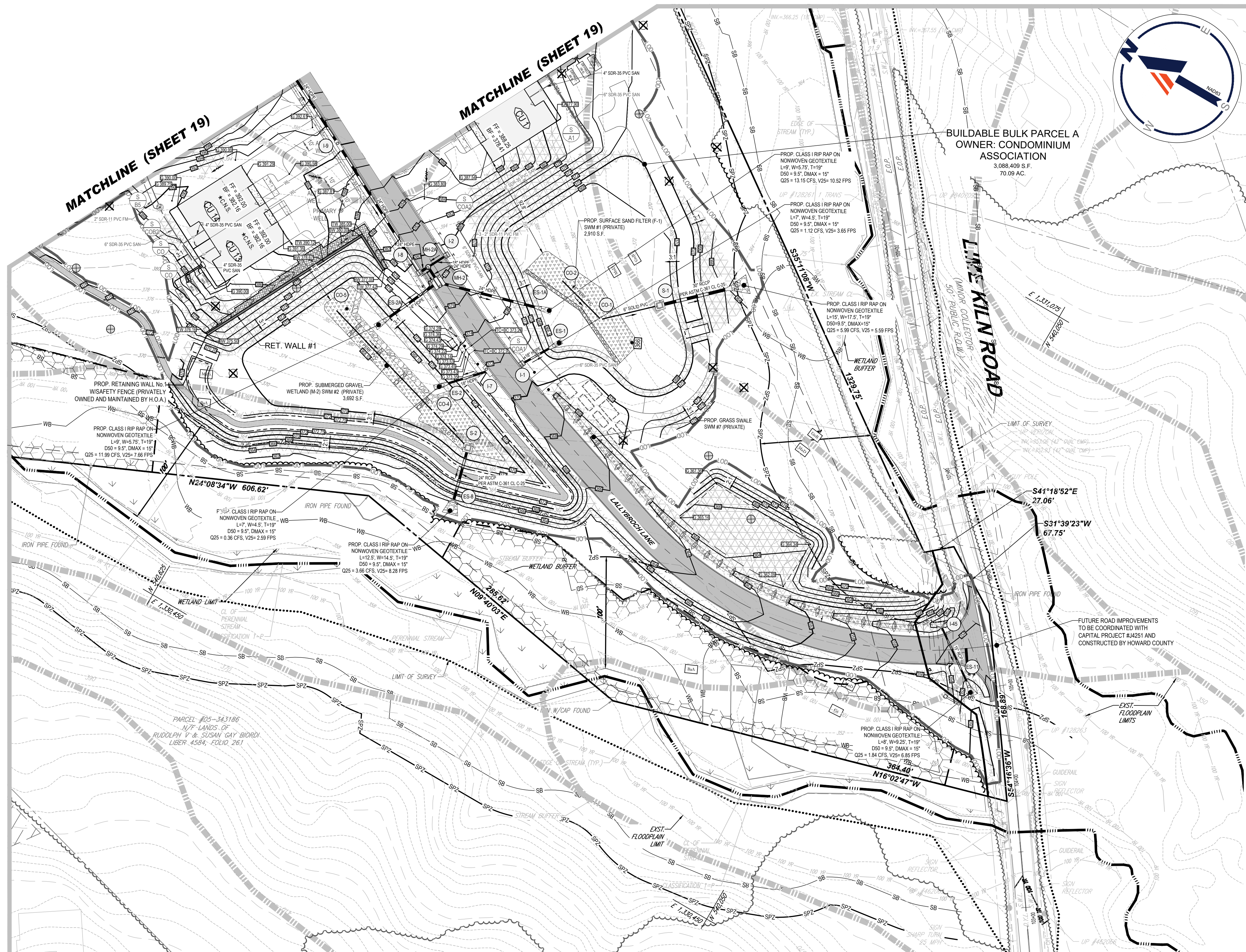
B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 10008
 PROFESSIONAL CERTIFICATION
 I BRANSON, ENGINEER, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898. EXPIRATION DATE: 7/31/2025

SITE DEVELOPMENT PLAN

SHEET NUMBER:
13 of 146

ORG. DATE - 04/17/24



BUILDABLE BULK PARCEL A
OWNER: CONDOMINIUM
ASSOCIATION
3,088,409 S.F.
70.09 AC.

LEGEND

- STANDARD DUTY ASPHALT PAVEMENT (P-2)
- DRIVEWAY (P-1)
- NATURAL SURFACE WALKING TRAIL
- PROPOSED BUILDING
- PROPOSED FOREST CONSERVATION AREA
- WELL AREA
- SOIL DIVIDE AND LABEL
- PERCOLATION HOLE (PASSED)
- PERCOLATION HOLE (FAILED)
- GEOGRID
- CONCRETE SIDEWALK
- STORMWATER MANAGEMENT FACILITY
- RIP-RAP
- WETLANDS
- SEWAGE DISPOSAL AREA
- TEMPORARY SOIL STABILIZATION MATTING
- RETAINING WALL GEO-GRID ZONE
- PERENNIAL STREAM
- STREAM BANK
- STREAM BUFFER
- 100-YEAR FLOODPLAIN
- WETLAND BUFFER
- CELLAR NOT SERVED

MAPPED SOILS

MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	0.37
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 5 PERCENT SLOPES	C	0.32
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55
GaB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	0.28
GaC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	0.28
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B	0.24
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D	0.37
GhB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.43
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	0.28
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.28

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Neomi Powell 7/16/2024
 NACM/MSM/EL, PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
Chad Edwards
 CHIEF ENGINEER, DEPARTMENT OF PLANNING AND ZONING
 ENGINEERING DIVISION
 DATE: 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
 DATE: 7/16/2024
Linda Eschberg
 DATE: 7/16/2024

NOTES:

- ROAD GRADING WITHIN LIME KILN ROAD IS PER COORDINATION WITH CAPITAL IMPROVEMENT PROJECT #J4251. ROAD GRADING OF PROPOSED LALLYBROOK LANE IS DESIGNED TO THE ULTIMATE BUILD-OUT OF LIME KILN ROAD AND IS SHOWN AS SUCH HEREIN.
- WELL AND SEPTIC SHOWN ON THESE PLANS IS FOR REFERENCE ONLY. CONTRACTOR IS TO REFER TO WELL PLANS AND SEPTIC DRAINFIELD PLANS PREPARED BY HYDRO-TERRA.
- ALL WATER LINES ARE TO BE 1" DIAMETER 200 PSI HOPE SDR-11 4710 RESIN PIPE. THE MINIMUM COVER OF ALL WATER LINES IS 3.5'. THE MINIMUM CLEARANCE OF ALL WATER LINES FROM OTHER UTILITIES IS 1.5'.
- FOR FORCE MAIN WITHIN 100' WELL SETBACK, CONTRACTOR TO USE EITHER CAST IRON PIPE WITH EITHER WATER-TIGHT LEAD CAULKED JOINTS OR JOINTS WITH NEOPRENE GASKETS, SOLVENT WELDED SCHEDULED 40 (OR SDR EQUIVALENT) OR BETTER POLYVINYL CHLORIDE (PVC) PIPE, OR THERMALLY WELDED HIGH DENSITY POLYETHYLENE (HDPE) PIPE.
- ALL ROOF DRAINS TO DRYWELLS ARE TO BE MIN. 4" PVC AT A MIN. SLOPE OF 2%. ALL OTHER ROOF DRAINS ARE TO BE CONSTRUCTED PER THE PLAN AND ROOF DRAIN TABLE ON SHEET 68.

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

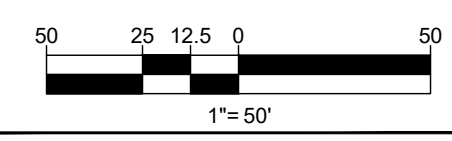
NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE BASED ON THE 25-YEAR STORM EVENT.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
 SECTION/AREA: N/A
 DEED # 14332/00469
 PLAT # 26646-26652

PREVIOUS FILE NO.: BA-20-002C WP-24-060
 SP-17-0108 F-20-016
 ECP-17-056 WP-21-011
 WP-18-070 WP-22-132

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 DATE: 07/11/2024
 CAD LD.: MD1420672 - GRAD - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

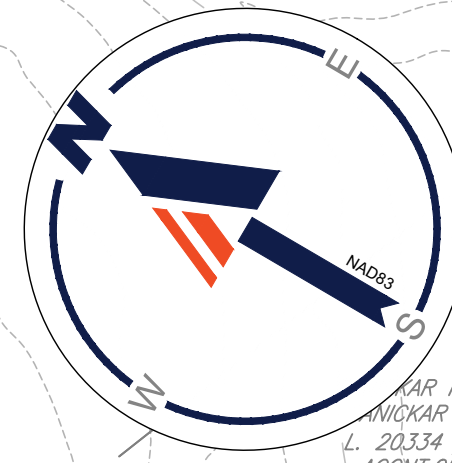
BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40898
 I BRANSON, PAINE, HERSHEY & COMPANY THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 40898, EXPIRATION DATE: 7/30/2025

SHEET TITLE:
GRADING, UTILITY & STORMWATER MANAGEMENT PLAN

SHEET NUMBER:
18 OF 146

ORG. DATE - 04/17/24



MATCHLINE (SHEET 20)

MATCHLINE (SHEET 20)

MATCHLINE (SHEET 18)

MATCHLINE (SHEET 18)

LEGEND

	STANDARD DUTY ASPHALT PAVEMENT (P-2)		CONCRETE SIDEWALK
	DRIVEWAY (P-1)		STORMWATER MANAGEMENT FACILITY
	NATURAL SURFACE WALKING TRAIL		RIP-RAP
	PROPOSED BUILDING		WETLANDS
	PROPOSED FOREST CONSERVATION AREA		SEWAGE DISPOSAL AREA
	WELL AREA		TEMPERARY SOIL STABILIZATION MATTING
	SOIL DIVIDE AND LABEL		RETAINING WALL GEO-GRID ZONE
	PERCOLATION HOLE (PASSED)		PERENNIAL STREAM
	PERCOLATION HOLE (FAILED)		STREAM BANK
	GEOGRID		100-YEAR FLOODPLAIN
			WETLAND BUFFER
			C.N.S. CELLAR NOT SERVED

MAPPED SOILS

MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
BaA	BAILIE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	0.37
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	0.32
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55
GbC	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	0.28
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	0.28
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
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GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D	0.37
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MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	0.28
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.28

NOTES:

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- FOR FORCE MAIN WITHIN 100' WELL SETBACK, CONTRACTOR TO USE EITHER CAST IRON PIPE WITH EITHER WATER-TIGHT LEAD CAULKED JOINTS OR JOINTS WITH NEOPRENE GASKETS, SOLVENT WELDED SCHEDULED 40 (OR SDR EQUIVALENT) OR BETTER POLYVINYL CHLORIDE (PVC) PIPE, OR THERMALLY WELDED HIGH DENSITY POLYETHYLENE (HDPE) PIPE.
- ALL ROOF DRAINS TO DRYWELLS ARE TO BE MIN. 4" PVC AT A MIN. SLOPE OF 2%. ALL OTHER ROOF DRAINS ARE TO BE CONSTRUCTED PER THE PLAN AND ROOF DRAIN TABLE ON SHEET 68.

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE BASED ON THE 25-YEAR STORM EVENT.

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OWNER: LYHUS DEVELOPMENT, LLC
600 H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

50 25 12.5 0 50
1" = 50'

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED # 14532/00469
PLAT # 26646-26652

PREVIOUS FILE NO.: BA-20-002C WP-24-060
SF-17-0108 F-20-016
ECP-17-056 WP-21-011
WP-18-070 WP-22-132

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
NACOM HIGHELL, PROGRAM MANAGER
DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
DATE
7/16/2024
DATE
7/16/2024
DATE

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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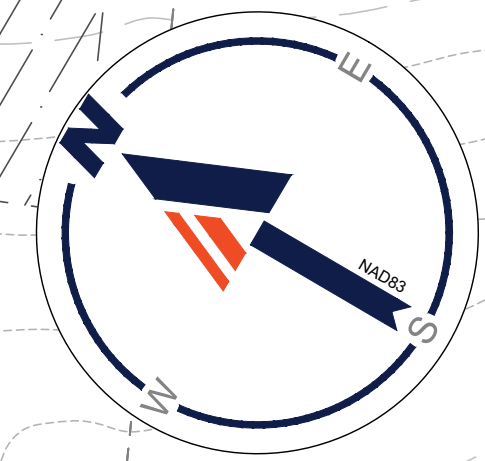
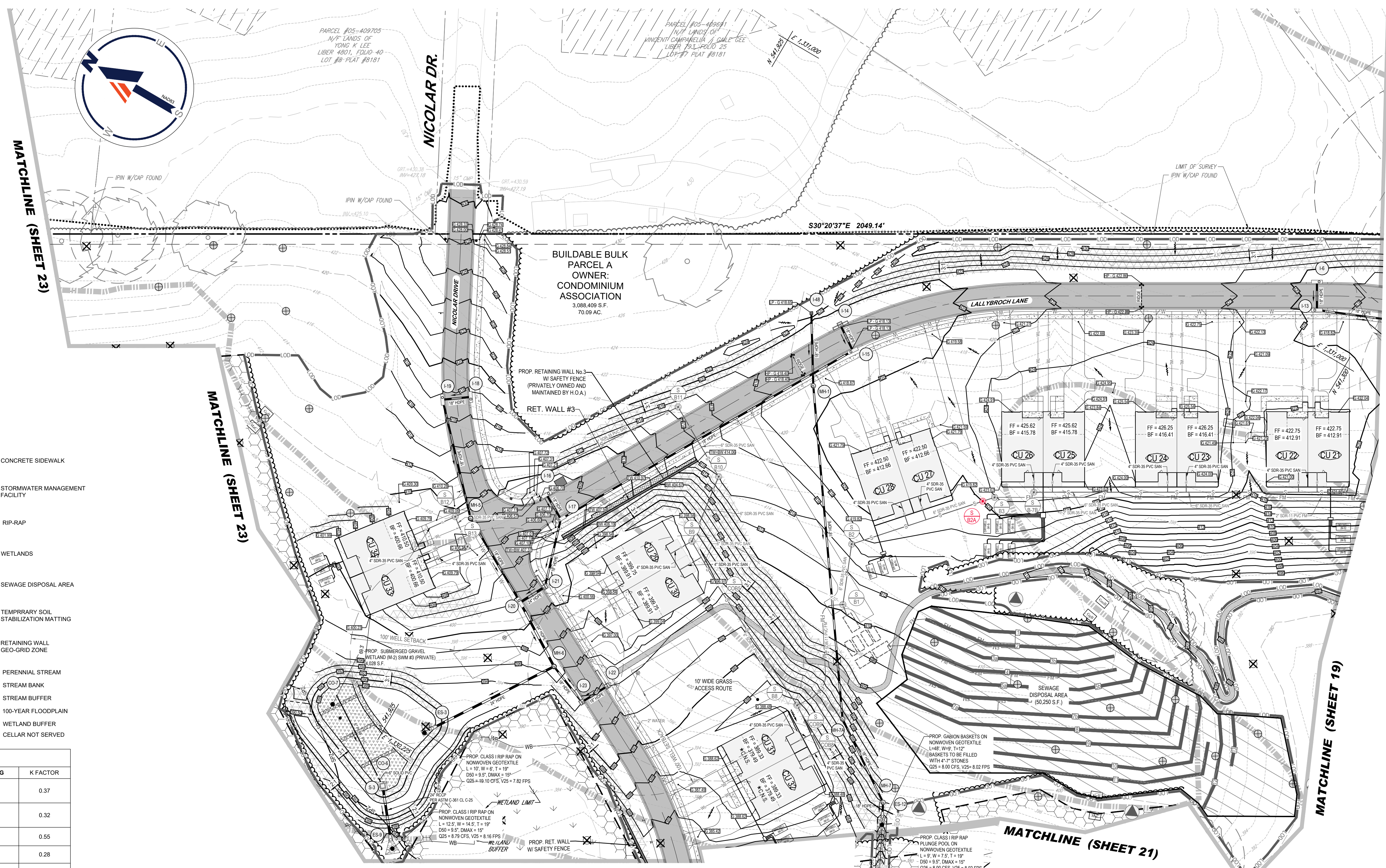
PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - GRAD - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40938
I BRANSON, PAINE, HERSHEY & COMPANY HAVE THESE DOCUMENTS WITNESSED AND APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40938, EXPIRATION DATE: 7/3/2025

SHEET TITLE:
GRADING, UTILITY & STORMWATER MANAGEMENT PLAN
SHEET NUMBER:
19 OF 146
ORG. DATE - 04/17/24



LEGEND

	STANDARD DUTY ASPHALT PAVEMENT (P-2)		CONCRETE SIDEWALK
	DRIVEWAY (P-1)		STORMWATER MANAGEMENT FACILITY
	NATURAL SURFACE WALKING TRAIL		RIP-RAP
	PROPOSED BUILDING		WETLANDS
	PROPOSED FOREST CONSERVATION AREA		SEWAGE DISPOSAL AREA
	WELL AREA		TEMPRRARY SOIL STABILIZATION MATTING
	SOIL DIVIDE AND LABEL		RETAINING WALL GEO-GRID ZONE
	PERCOLATION HOLE (PASSED)		PERENNIAL STREAM
	PERCOLATION HOLE (FAILED)		STREAM BANK
	GEOGRID		STREAM BUFFER
			100-YEAR FLOODPLAIN
			WETLAND BUFFER
			CELLAR NOT SERVED

MAPPED SOILS

MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D	0.37
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C	0.32
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B	0.55
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A	0.28
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A	0.28
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B	0.24
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D	0.37
GmC	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C	0.43
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B	0.24
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B	0.28
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B	0.28

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Neomi Powell DATE 7/16/2024
NACM HOMEPLANNING PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
Chad Edwards
CHIEF ENGINEER, DEPARTMENT OF PLANNING AND ZONING

CHIEF DIVISION OF LAND DEVELOPMENT
DATE 7/16/2024
Linda Eschberg
CHIEF ENGINEER, DIVISION OF LAND DEVELOPMENT

MATCHLINE (SHEET 21)

NOTES:

- ROAD GRADING WITHIN LIME KILN ROAD IS PER COORDINATION WITH CAPITAL IMPROVEMENT PROJECT #J4251. ROAD GRADING OF PROPOSED LALLYBROCK LANE IS DESIGNED TO THE INTO ULTIMATE BUILD-OUT OF LIME KILN ROAD AND IS SHOWN AS SUCH HEREIN.
- WELL AND SEPTIC SHOWN ON THESE PLANS IS FOR REFERENCE ONLY. CONTRACTOR IS TO REFER TO WELL PLANS AND SEPTIC DRAINFIELD PLANS PREPARED BY HYDRO-TERRA.
- ALL WATER LINES ARE TO BE 1" DIAMETER 200 PSI HDPE SDR-11 4710 RESIN PIPE. THE MINIMUM CLEARANCE OF ALL WATER LINES FROM OTHER UTILITIES IS 1.5'.
- FOR FORCE MAIN WITHIN 100' WELL SETBACK, CONTRACTOR TO USE EITHER CAST IRON PIPE WITH EITHER WATER-TIGHT LEAD CAULKED JOINTS OR JOINTS WITH NEOPRENE GASKETS, SOLVENT WELDED SCHEDULED 40 (OR SDR EQUIVALENT) OR BETTER POLYVINYL CHLORIDE (PVC) PIPE, OR THERMALLY WELDED HIGH DENSITY POLYETHYLENE (HDPE) PIPE.
- ALL ROOF DRAINS TO DRYWELLS ARE TO BE MIN. 4" PVC AT A MIN. SLOPE OF 2%. ALL OTHER ROOF DRAINS ARE TO BE CONSTRUCTED PER THE PLAN AND ROOF DRAIN TABLE ON SHEET 68.

50 25 12.5 0
1" = 50'

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED # 145320/00469
PLAT # 26646-26652

PREVIOUS FILE NO.: BA-20-002C
SP-17-0108
ECP-17-056
WP-18-070

BA-20-016
F-20-016
WP-21-011
WP-22-132

WP-24-060
TAX MAP: 40
GRID: 24
PARCEL: 135
ZONED: RR-DEO

OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

TAX MAP: 40
GRID: 24
PARCEL: 135
ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE BASED ON THE 25-YEAR STORM EVENT.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
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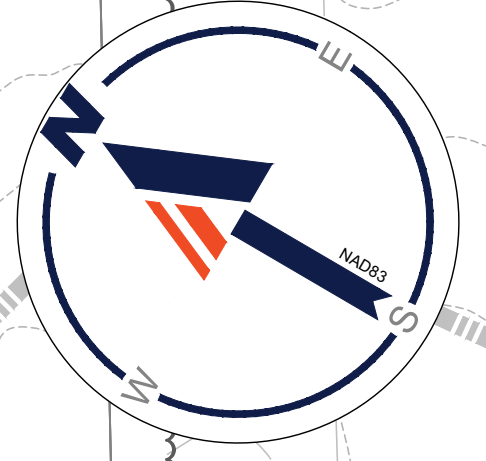
PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - GRAD - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
18 BRANDON LANE, HERRINGTON HEIGHTS THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898. EXPIRATION DATE: 7/30/2025

SHEET TITLE:
GRADING, UTILITY & STORMWATER MANAGEMENT PLAN
SHEET NUMBER:
20 OF 146
ORG. DATE - 04/17/24



MATCHLINE (SHEET 23)

MATCHLINE (SHEET 23)

MATCHLINE (SHEET 21)

LEGEND

Legend table with symbols for pavement types, building footprints, wetlands, and utility lines.

MAPPED SOILS

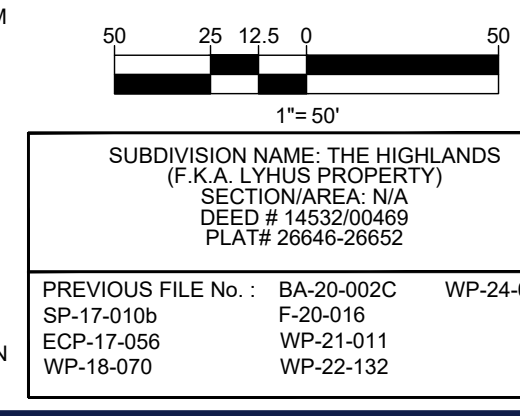
Table with 4 columns: MAP SYMBOL, MAP UNIT NAME, RATING, K FACTOR. Lists soil types like BaA, Co, GaC, etc.

NOTES:

- 1. ROAD GRADING WITHIN LIME KILN ROAD IS PER COORDINATION WITH CAPITAL IMPROVEMENT PROJECT #4251...
2. WELL AND SEPTIC SHOWN ON THESE PLANS IS FOR REFERENCE ONLY...
3. ALL WATER LINES ARE TO BE 1 1/2" DIAMETER 200 PSI HDPE SDR-11 4710 RESIN PIPE...

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.
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NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED...
OWNER: LYHUS DEVELOPMENT, LLC
DEVELOPER: ROCK REALTY INC.



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
APPROVED DEPARTMENT OF PLANNING AND ZONING
APPROVED ENVIRONMENTAL ENGINEERING DIVISION
CHIEF DIVISION OF LAND DEVELOPMENT

BOHLER logo and company information: SITE CIVIL AND CONSULTING ENGINEERING, PROGRAM MANAGEMENT, LANDSCAPE ARCHITECTURE, SUSTAINABLE DESIGN, PERMITTING SERVICES, TRANSPORTATION SERVICES.

REVISIONS table with columns: REV, DATE, COMMENT, DRAWN BY.

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PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: JIM
DATE: 07/11/2024
CAD ID: MD1420672 - GRAD - 2

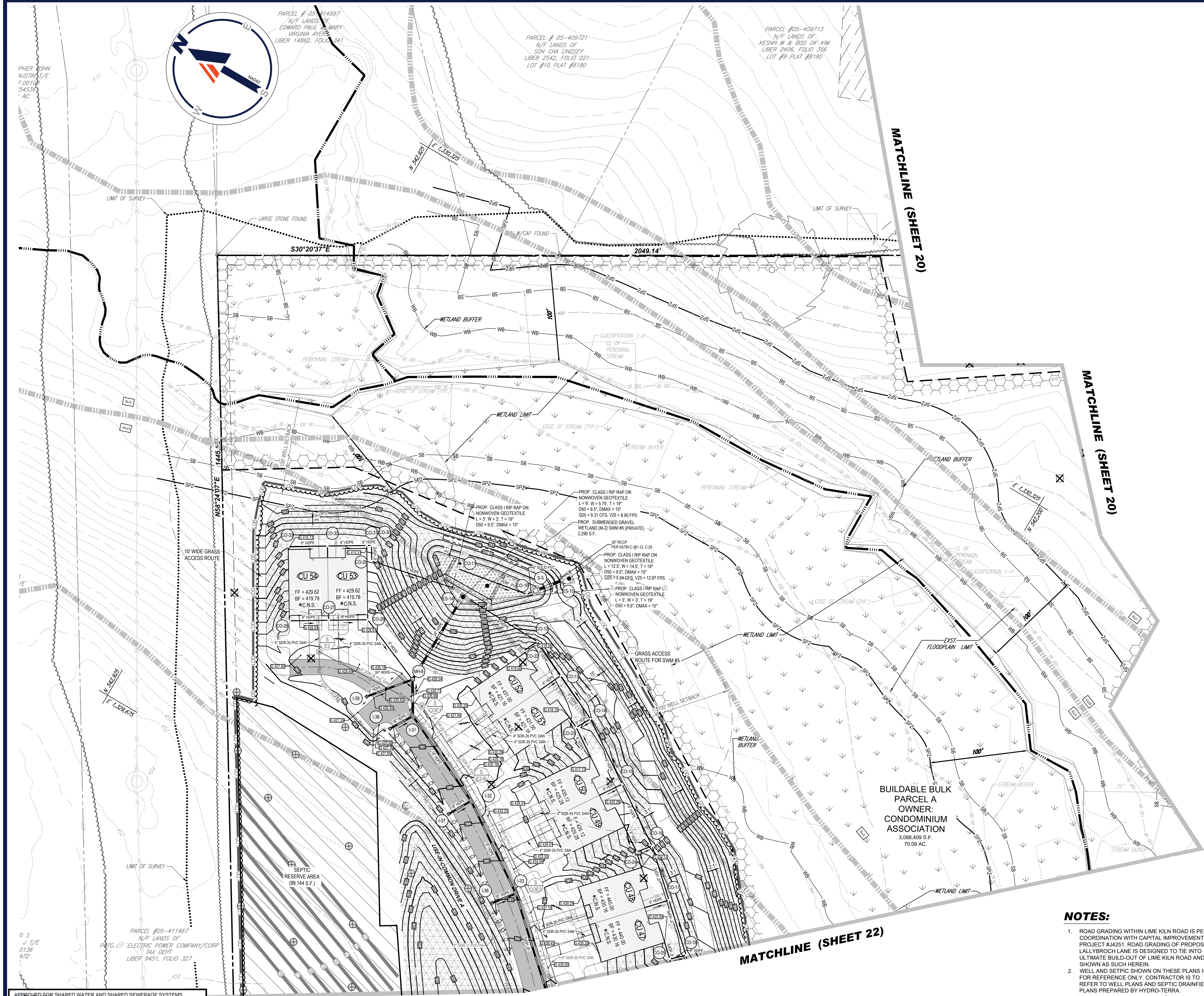
SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER logo and address: 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21204

B.R. ROWE logo and professional engineer information for James Fraser.

SHEET TITLE: GRADING, UTILITY & STORMWATER MANAGEMENT PLAN
SHEET NUMBER: 22 OF 146
ORG. DATE - 04/17/24



LEGEND

	STANDARD DUTY ASPHALT PAVEMENT (P-2)		CONCRETE SIDEWALK
	DRIVEWAY (P-1)		STORMWATER MANAGEMENT FACILITY
	NATURAL SURFACE WALKING TRAIL		RIP-RAP
	PROPOSED BUILDING		WETLANDS
	PROPOSED FOREST CONSERVATION AREA		SEWAGE DISPOSAL AREA
	WELL AREA		TEMPORARY SOIL STABILIZATION MATTING
	SOIL DIVIDE AND LABEL		RETAINING WALL GEO-GRID ZONE
	PERCOLATION HOLE (PASSED)		PERENNIAL STREAM
	PERCOLATION HOLE (FAILED)		STREAM BANK
	GEOGRID		STREAM BUFFER
			100-YEAR FLOODPLAIN
			WETLAND BUFFER
			* C.N.S. CELLAR NOT SERVED

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MAP SYMBOL	MAP UNIT NAME	RATING	K FACTOR
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NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE DRAIN ON THE 25-YEAR STORM EVENT.

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OWNER: LYHUS DEVELOPMENT, LLC
600 H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
SP-17-0108 F-20-016
ECP-17-056 WP-21-011
WP-18-070 WP-23-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
Nadmi Powell, PROGRAM MANAGER
DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
DATE
7/16/2024
DATE
7/16/2024
DATE

APPROVED, DIVISION OF LAND DEVELOPMENT
7/16/2024
DATE

MATCHLINE (SHEET 22)

MATCHLINE (SHEET 22)

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
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REVISIONS

REV	DATE	COMMENT	DRAWN BY

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
MUR
DRAWN BY: MUR
CHECKED BY: 07/11/2024
DATE: MD1420672 - GRAD - 2
CAD ID:

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40988
I BRANDED, PLANNING, DESIGN, CONSTRUCTION THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988, EXPIRATION DATE: 7/30/2025

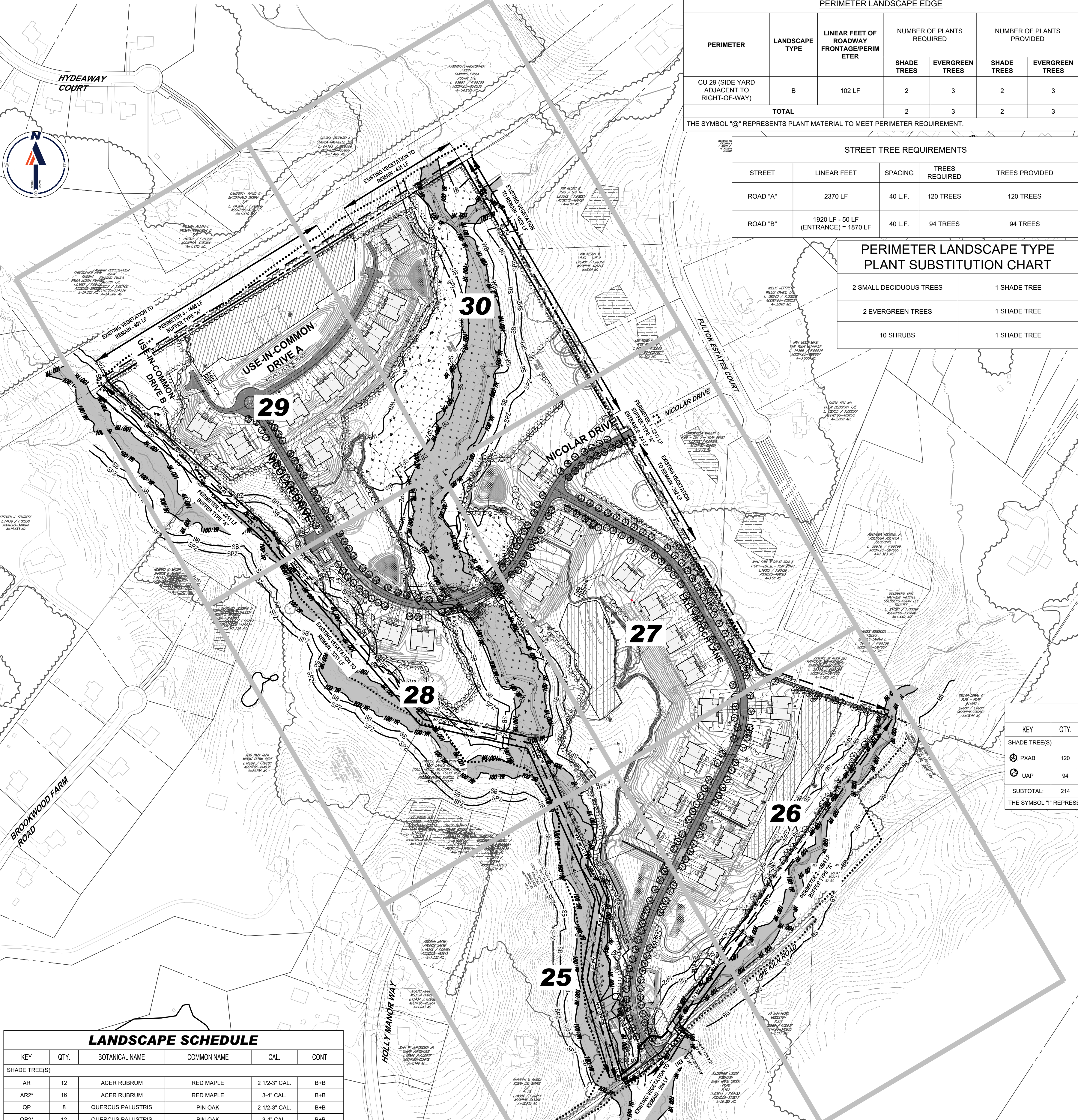
SHEET TITLE:
GRADING, UTILITY & STORMWATER MANAGEMENT PLAN
SHEET NUMBER:
23 OF 146
ORG. DATE - 04/17/24

KEY	SPECIES NAME	SIZE	CONDITION	TO REMAIN
A	WHITE PINE	34"	GOOD	N
B	WHITE PINE	40"	F. GOOD	N
C	WHITE PINE	30"	GOOD	N
D	WHITE PINE	30"	GOOD	N
E	LOBLOLLY PINE	32"	FAIR	N
F	WHITE PINE	39"	F. GOOD	N
G	SILVER MAPLE	38"	GOOD	N
H	WHITE OAK	35"	GOOD/FAIR	Y
I	SCARLET OAK	30"	FAIR	Y
J	RED OAK	43"	POOR	N
K	RED OAK	42"	FAIR	N
L	SCARLET OAK	36"	F. GOOD	Y
M	BLACK OAK	42"	V. POOR	N
N	SCARLET OAK	36"	V. POOR	Y
O	TULIP POPLAR	30"	V. POOR	N
P	TULIP POPLAR	31"	FAIR	Y
Q	SCARLET OAK	33"	FAIR	Y
R	SCARLET OAK	48"	F. GOOD	Y
S	SCARLET OAK	35"	FAIR	N
T	TULIP POPLAR	38"	F. GOOD	N
U	RED MAPLE	39"	F. GOOD	N
V	TULIP POPLAR	31"	F. GOOD	N
W	TULIP POPLAR	31"	F. GOOD	N
X	TULIP POPLAR	35"	F. GOOD	N
Y	TULIP POPLAR	31"	F. GOOD	N
Z	TULIP POPLAR	38"	F. GOOD	N
2A	TULIP POPLAR	40"	F. GOOD	N

A SYMBOL (^) REPRESENTS MITIGATION FOR REMOVAL OF THE SPECIMEN TREE.
 40 3/4" CALIPER TREES HAVE BEEN PLANTED FOR MITIGATION REQUIREMENT.

UNDER WP-21-011, SECTION 16.1205(A)(7) - A REQUEST HAS BEEN MADE TO DPZ FOR THE REMOVAL OF TWENTY (20) SPECIMEN TREES. MITIGATION FOR THE REMOVAL OF THESE TWENTY (20) SPECIMEN TREES IS TO CONSIST OF TWO (2) 3-4" CALIBER TREE FOR EACH ONE (1) REMOVED SIMILAR OR IDENTICAL SPECIES. THESE THIRTY (30) TREES SHALL BE PLACED WITHIN CLOSE PROXIMITY TO THE LOCATION OF THE ORIGINAL SPECIMEN TREE AND WILL BE IN ADDITION TO THE REQUIRED PERIMETER LANDSCAPING. COSTS TO COVER THE INSTALLATION OF THESE TREES SHALL BE INCLUDED IN THE PERIMETER LANDSCAPING ESTIMATE, AND SURETY AND INSPECTION FEES SHALL BE POSTED WITH THE DPW DEVELOPER'S AGREEMENT AT THE FINAL PLAN STAGE FOR THIS DEVELOPMENT. THE SYMBOL (^) REPRESENTS PLANT MATERIAL TO MEET THIS REQUIREMENT.

- NOTES:
1. THE OWNER, TENANT AND/OR THEIR AGENTS SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE REQUIRED LANDSCAPING, PLANT MATERIALS, BERRIS, FENCES, AND WALLS. ALL PLANT MATERIALS SHALL BE MAINTAINED IN GOOD GROWING CONDITION AND WHEN NECESSARY, REPLACED WITH NEW MATERIALS TO ENSURE CONTINUED COMPLIANCE WITH APPLICABLE REGULATIONS.
 2. AT THE TIME OF INSTALLMENT, ALL SHRUBS AND OTHER PLANTINGS HEREWITHIN LISTED AND APPROVED FOR THIS SITE SHALL BE OF THE PROPER HEIGHT REQUIREMENTS IN ACCORDANCE WITH THE HOWARD COUNTY LANDSCAPE MANUAL. IN ADDITION, NO SUBSTITUTIONS OR RELOCATION OR REQUIRED PLANTINGS MAY BE MADE WITHOUT PRIOR REVIEW AND APPROVAL FROM THE DEPARTMENT OF PLANNING AND ZONING. ANY DEVIATION FROM THIS APPROVED LANDSCAPE PLAN MAY RESULT IN DENIAL OR DELAY IN THE RELEASE OF LANDSCAPE SURETY UNTIL SUCH TIME AS ALL REQUIRED MATERIALS ARE PLANTED AND/OR REVISIONS ARE MADE TO APPLICABLE PLANS AND CERTIFICATES.
 3. FOR ANY TREE DESIGNATED FOR PRESERVATION, FOR WHICH CREDIT IS GIVEN, BE REMOVED OR DIE PRIOR TO RELEASE OF BONDS, THE OWNER WILL BE REQUIRED TO REPLACE THE TREE WITH THE EQUIVALENT SPECIES OR WITH A TREE WHICH WILL OBTAIN THE SAME HEIGHT, SPREAD AND GROWTH CHARACTERISTICS. THE REPLACEMENT TREE MUST BE A MINIMUM OF 3 INCHES IN CALIBER AND INSTALLED AS REQUIRED IN THE LANDSCAPE MANUAL. ANY SPECIMEN TREE AS INDICATED ON THIS PLAN MAY NOT BE REMOVED WITHOUT APPROVAL OF AN ALTERNATIVE COMPLIANCE REQUEST THROUGH THE DEPARTMENT OF PLANNING AND ZONING.
 4. THE HEALTH DEPARTMENT MAY REQUIRE DISTURBANCE TO THE TREES WITHIN THE VICINITY OF THE SRA. IF DAMAGE OCCURS, THE TREES MUST BE REPLACED IN KIND.
 5. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. FINANCIAL SURETY IN THE AMOUNT OF \$15,450 FOR 50 SHADE TREES, 3 EVERGREEN TREES, AND 0 ORNAMENTAL TREES WILL BE POSTED AS PART OF THE DEVELOPER'S AGREEMENT FOR THIS PLAN.



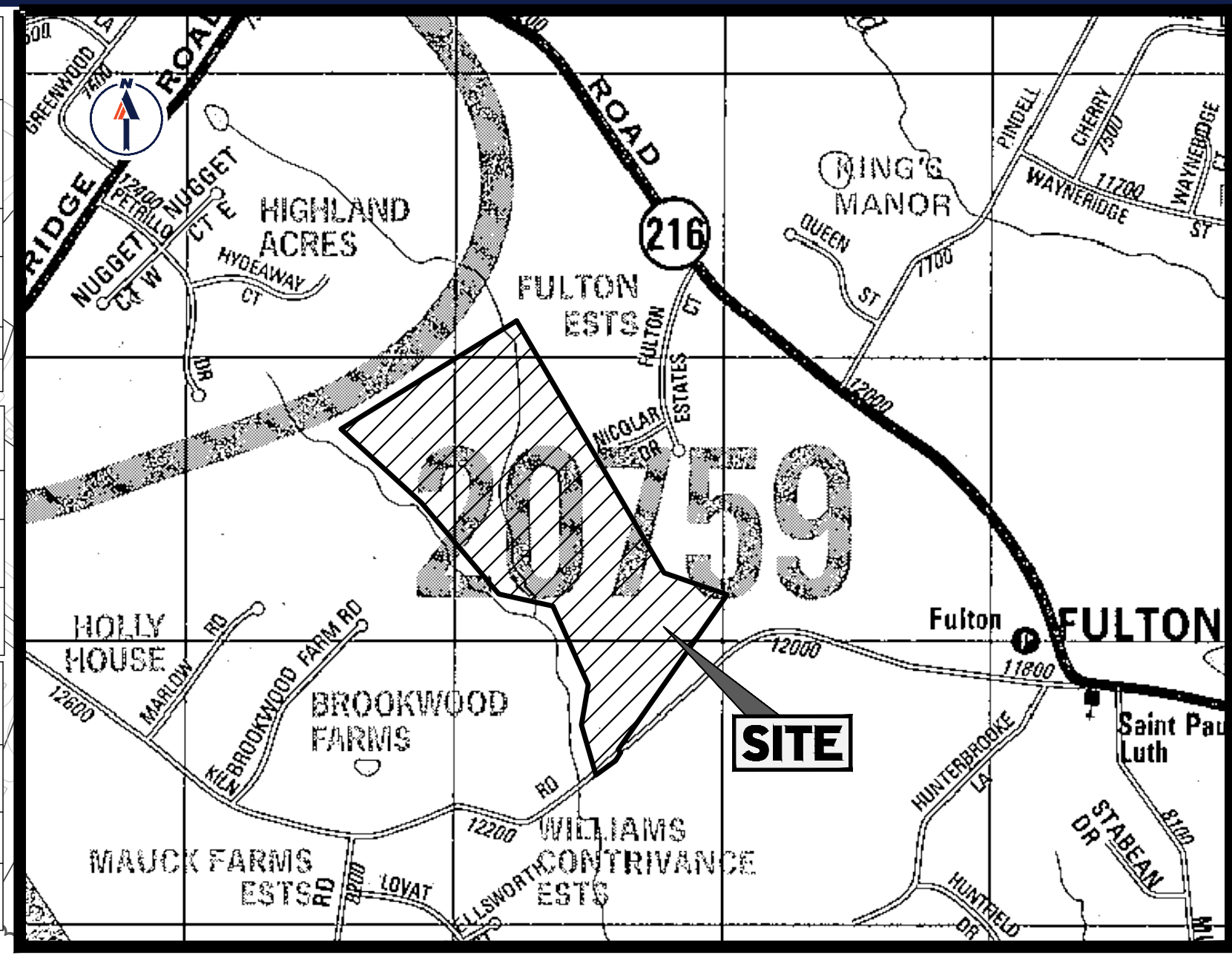
KEY	QTY.	BOTANICAL NAME	COMMON NAME	CAL.	CONT.
SHADE TREE(S)					
AR	12	ACER RUBRUM	RED MAPLE	2 1/2-3" CAL.	B+B
AR2	16	ACER RUBRUM	RED MAPLE	3-4" CAL.	B+B
QP	8	QUERCUS PALUSTRIS	PIN OAK	2 1/2-3" CAL.	B+B
QP2	12	QUERCUS PALUSTRIS	PIN OAK	3-4" CAL.	B+B
QPH	9	QUERCUS PHELLOS	WILLOW OAK	2 1/2-3" CAL.	B+B
QPH2	13	QUERCUS PHELLOS	WILLOW OAK	3-4" CAL.	B+B
QR	9	QUERCUS RUBRA	RED OAK	2 1/2-3" CAL.	B+B
QR2	2	QUERCUS RUBRA	RED OAK	3-4" CAL.	B+B
SUBTOTAL:	81				
EVERGREEN TREES					
IO	3	ILEX OPACA	AMERICAN HOLLY	6-8"	B+B
SUBTOTAL:	3				
* TREES PROVIDED FOR MITIGATION					
(^) SYMBOL IS USED TO REPRESENT MATERIAL USED TO MEET THE PERIMETER LANDSCAPING REQUIREMENT					
(**) SYMBOL IS USED TO REPRESENT MATERIAL USED TO MEET THE WP MITIGATION TREE REQUIREMENT					
(*) SYMBOL IS USED TO REPRESENT MATERIAL USED TO MEET STREET TREE REQUIREMENTS					

QTY.	SPECIES	SIZE	SPACING	TOTAL UNITS
54	LINDERA BENZOIN - NORTHERN SPICEBUSH	1 GAL.	30" O.C.	174
54	SALIX NIGRA - BLACK WILLOW	1 GAL.	30" O.C.	174
54	CORNUS AMOMUM - SILKY DOGWOOD	1 GAL.	30" O.C.	174
54	PLATANUS OCCIDENTALIS - AMERICAN SYCAMORE	1 GAL.	30" O.C.	174
P.U. PROVIDED	216	480		TOTAL PLANTINGS 696

SCHEDULE 'A' PERIMETER LANDSCAPE EDGE						
PERIMETER	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	NUMBER OF PLANTS REQUIRED		NUMBER OF PLANTS PROVIDED	
			SHADE TREES	EVERGREEN TREES	SHADE TREES	EVERGREEN TREES
CU 29 (SIDE YARD ADJACENT TO RIGHT-OF-WAY)	B	102 LF	2	3	2	3
TOTAL			2	3	2	3

STREET TREE REQUIREMENTS				
STREET	LINEAR FEET	SPACING	TREES REQUIRED	TREES PROVIDED
ROAD 'A'	2370 LF	40 L.F.	120 TREES	120 TREES
ROAD 'B'	1920 LF - 50 LF (ENTRANCE) = 1870 LF	40 L.F.	94 TREES	94 TREES

PERIMETER LANDSCAPE TYPE PLANT SUBSTITUTION CHART	
2 SMALL DECIDUOUS TREES	1 SHADE TREE
2 EVERGREEN TREES	1 SHADE TREE
10 SHRUBS	1 SHADE TREE

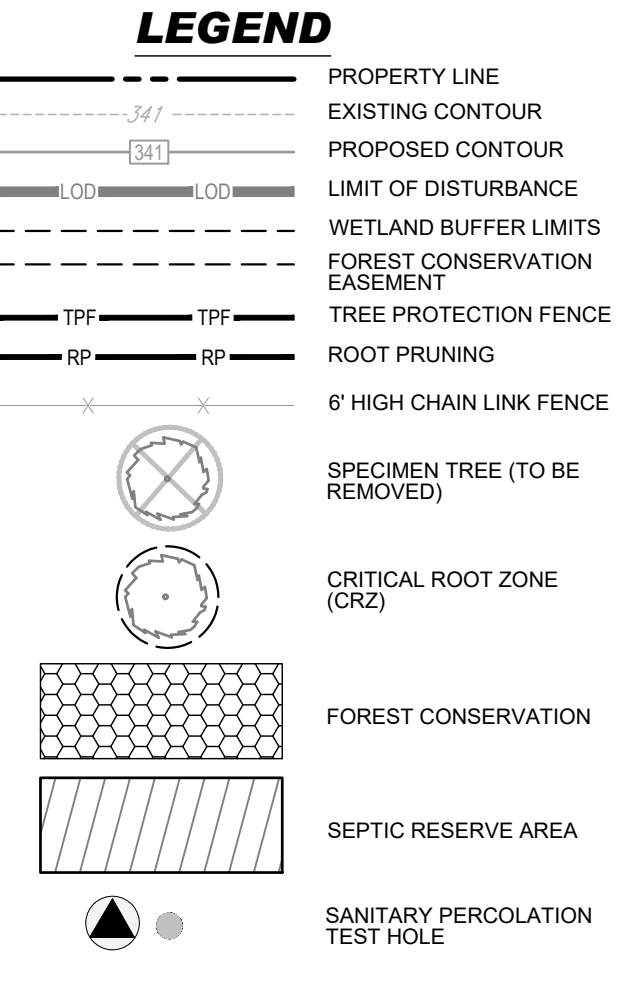


LOCATION MAP
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 PERMIT USE NO. 20602153-5
 SCALE: 1"=1000'
 ADC MAP COORDINATES: 30/C5

SCHEDULE 'A' PERIMETER LANDSCAPE EDGE								
PERIMETER	LANDSCAPE TYPE	LINEAR FEET OF ROADWAY FRONTAGE/PERIMETER	CREDIT FOR EX. VEGETATION (YES/NO; LF) (DESCRIBE BELOW IF NEEDED)	CREDIT FOR FENCE/WALL/BERM (YES/NO; LF) (DESCRIBE BELOW IF NEEDED)	TOTAL LINEAR FEET (AFTER CREDITS)	NUMBER OF PLANTS REQUIRED		NUMBER OF PLANTS PROVIDED
						SHADE TREES	EVERGREEN TREES	
#1	A	2517 LF - 24 LF (ENTRANCE) = 2493 LF	YES (1402 LF)	NO	1091 LF	19	19	
#2	A	1594 LF - 24 LF (ENTRANCE) = 1570 LF	YES (504 LF)	NO	1066 LF	18	18	
#3	A	3251 LF	YES (3251 LF)	NO	0 LF	0	0	
#4	A	1446 LF	YES (904 + 431 = 1332 LF)	NO	114 LF	2	2	
TOTAL						39	39	

STREET TREE SCHEDULE					
KEY	QTY.	BOTANICAL NAME	COMMON NAME	CAL.	CONT.
SHADE TREE(S)					
PXAB	120	PLATANUS X ACERIFOLIA 'BLOODGOOD'	BLOODGOOD LONDON PLANETREE	2 1/2-3" CAL.	B+B
UAP	94	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	2 1/2-3" CAL. / 12-14"	B+B
SUBTOTAL:	214				

PERIMETER LANDSCAPE TYPES - BASED ON ADJACENT LAND USE		
BUFFER TYPE	SHADE TREE(S) PER LINEAR FEET	
	PER LINEAR FEET	EVERGREEN TREE(S) PER LINEAR FEET
A	1:60	0
B	1:50	1:40
C	1:40	1:20
D	1:60	1:10
E	1:40	0



1. FINANCIAL SURETY FOR THE REQUIRED IN THE AMOUNT OF \$84,200 FOR 214 STREET TREES WILL BE POSTED WITH THE COST ESTIMATE UNDER THE FINAL PLAN SUBMISSION.
2. SHADE TREES MUST BE PLANTED A MINIMUM OF 40 FEET AND ORNAMENTAL TREES MUST BE PLANTED A MINIMUM OF 25 FEET FROM POWER LINES FROM POWER LINES PER B.G.E. PLANTING GUIDE.
3. FINAL PLACEMENT OF STREET TREES WILL OCCUR IN THE FIELD AND BE PLACED A MINIMUM OF 30 FEET FROM ALL SIGNS AND INTERSECTIONS WHEN PLANTED BETWEEN SIDEWALK AND CURB, BE LOCATED WITH CONSIDERATION OF UNDERGROUND UTILITIES AND STRUCTURES AND MAINTAIN A MINIMUM 5 FEET DISTANCE ON CENTER FROM A DRAIN INLET STRUCTURE, 5 FEET FROM AN OPEN ACCESS STRIP AND 10 FEET FROM A DRIVEWAY.

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell, DATE 7/16/2024
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 DATE 7/16/2024
 CHIEF ENGINEERING DIVISION

DATE 7/16/2024
 CHIEF DIVISION OF LAND DEVELOPMENT

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE
 I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER'S / OWNER'S NAME: [Signature]
 DATE: 7/14/2024

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
 SECTION/AREA: N/A
 DEED # 1453200469
 PLAT # 26546-26552

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C
 SP-17-0108 F-20-016 WP-24-060
 ECP-17-056 WP-21-011 WP-22-132
 WP-18-070

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
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PROJECT No.: MD1420672 MUR
 DRAWN BY: [Name] MP
 CHECKED BY: [Name] MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - LAND - 2

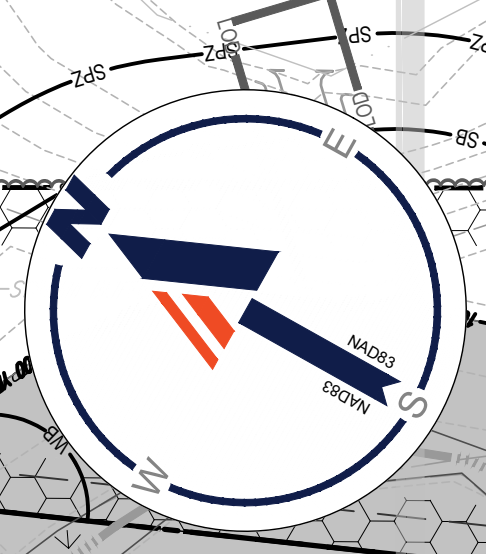
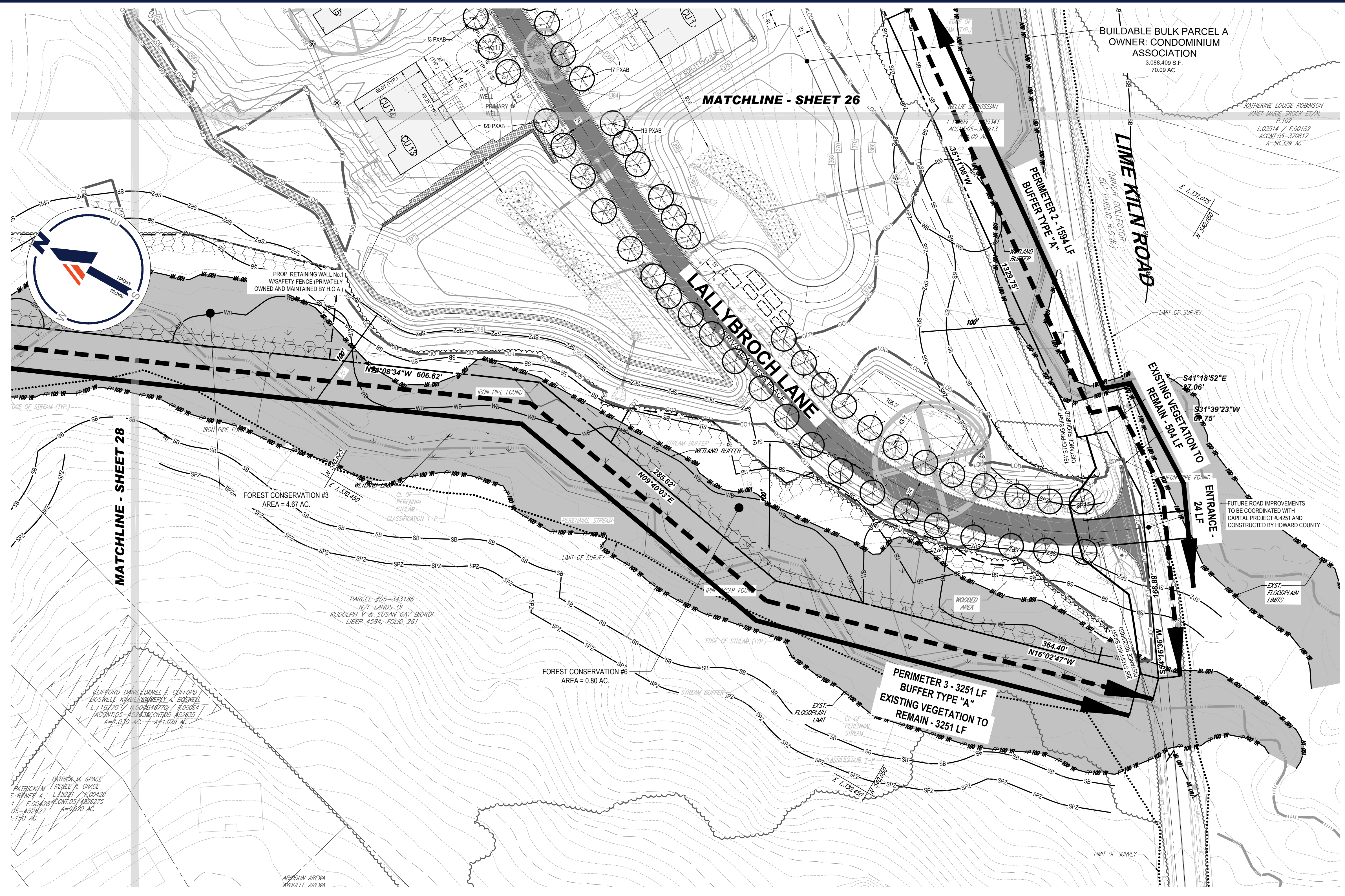
SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

E.R. McWILLIAMS
 07/12/2024
 REGISTERED LANDSCAPE ARCHITECT
 LICENSE NO. 3697 EXPIRATION DATE: 9/30/24

SHEET TITLE:
OVERALL LANDSCAPE PLAN
 SHEET NUMBER:
24 OF 146
 ORG. DATE - 04/17/24



- LEGEND**
- PROPERTY LINE
 - EXISTING CONTOUR
 - PROPOSED CONTOUR
 - LIMIT OF DISTURBANCE
 - WETLAND BUFFER LIMITS
 - TREE PROTECTION FENCE
 - ROOT PRUNING
 - 6' HIGH CHAIN LINK FENCE
 - SPECIMEN TREE (TO BE REMOVED)
 - CRITICAL ROOT ZONE (CRZ)
 - FOREST CONSERVATION EASEMENT
 - SEPTIC RESERVE AREA
 - SANITARY PERCOLATION TEST HOLE

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE
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DEVELOPER'S / OWNER'S NAME: _____ DATE: 5/14/2024

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 7/16/2024

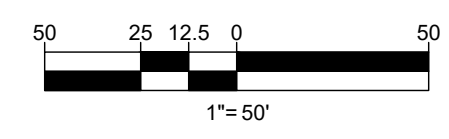
APPROVED: DEPARTMENT OF ENVIRONMENTAL ENGINEERING DIVISION
 DATE: 7/16/2024

APPROVED: DEPARTMENT OF LAND DEVELOPMENT
 DATE: 7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 DATE: 7/16/2024

PROGRAM MANAGER: Naomi Powell
 DATE: 7/16/2024

WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14332/00469 PLAT# 28548-29552	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075	TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PREVIOUS FILE NO.: BA-20-002C SP-17-0108 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132	PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - LAND - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

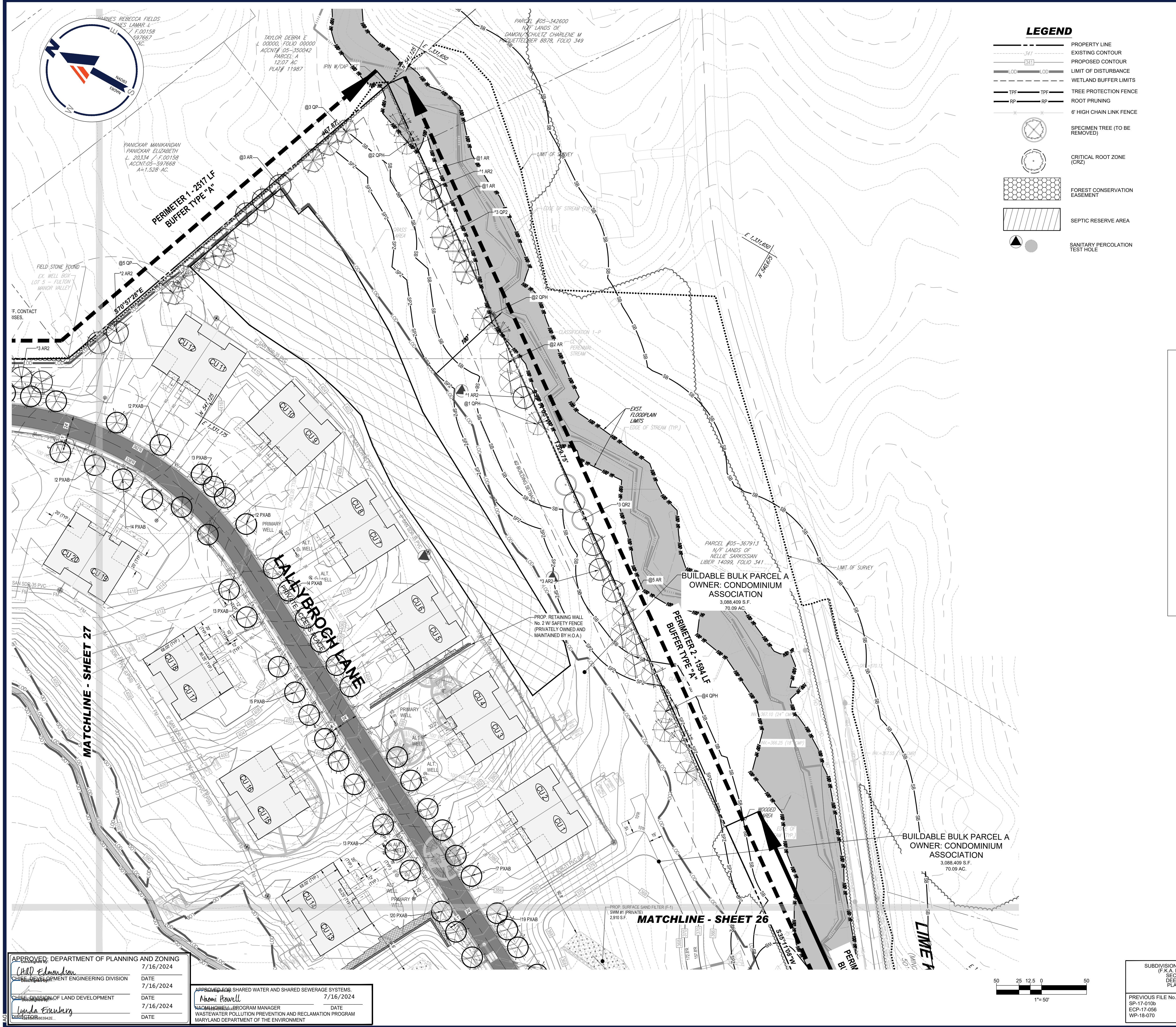
BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

E.R. McWILLIAMS
 07/12/2024
 REGISTERED LANDSCAPE ARCHITECT
 PROFESSIONAL CERTIFICATION
 I, ERIC R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 3897, EXPIRATION DATE: 9/30/24

SHEET TITLE:
LANDSCAPE PLAN

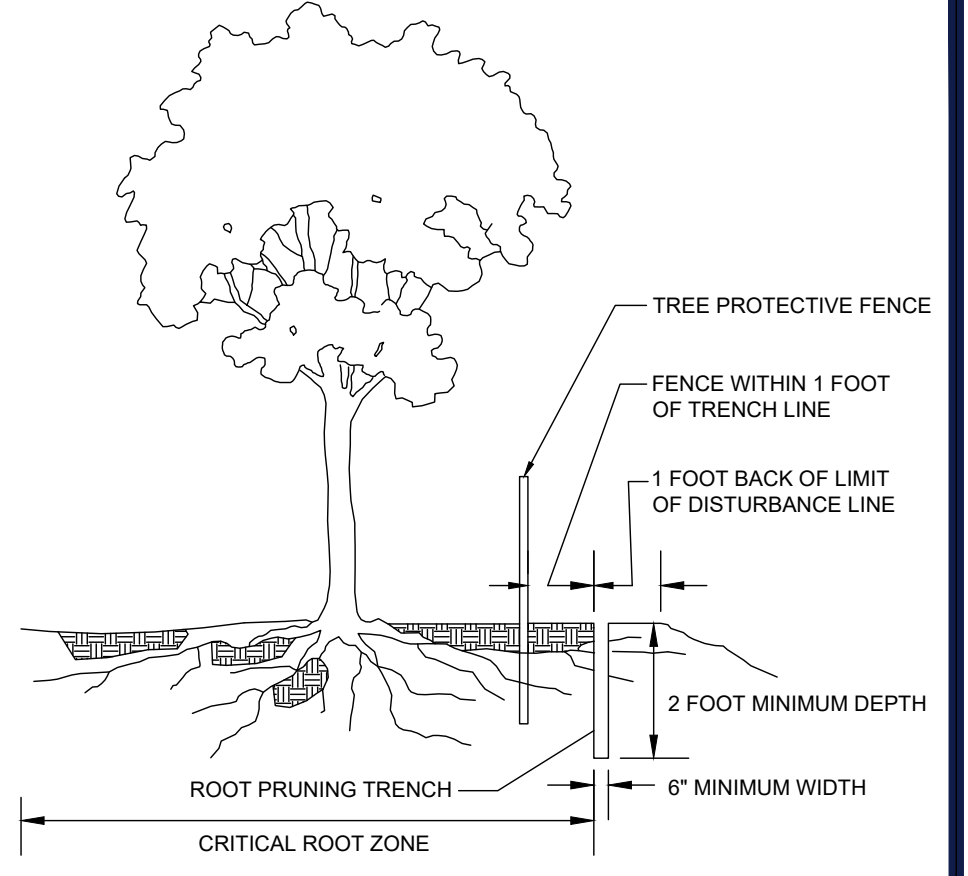
SHEET NUMBER:
25 OF 146

ORG. DATE - 04/17/24

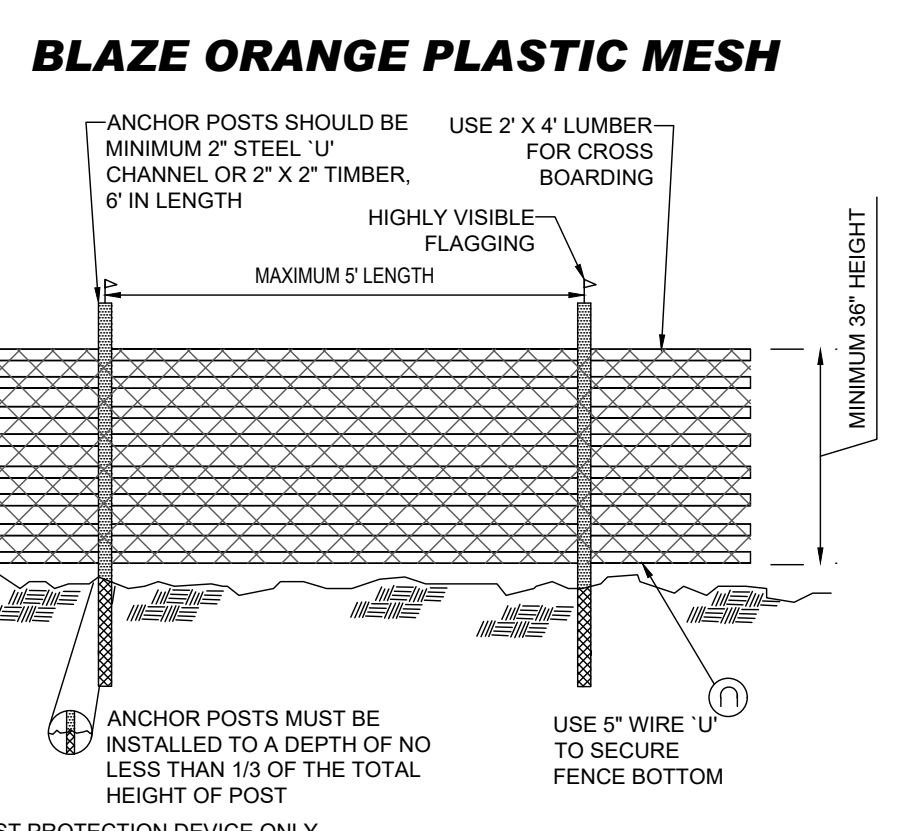


LEGEND

- 341 --- PROPERTY LINE
- 341 --- EXISTING CONTOUR
- 341 --- PROPOSED CONTOUR
- LOD --- LIMIT OF DISTURBANCE
- WETLAND BUFFER LIMITS
- TPF --- TREE PROTECTION FENCE
- RP --- ROOT PRUNING
- 6" HIGH CHAIN LINK FENCE
- SPECIMEN TREE (TO BE REMOVED)
- CRITICAL ROOT ZONE (CRZ)
- ▨ FOREST CONSERVATION EASEMENT
- ▨ SEPTIC RESERVE AREA
- ▲ SANITARY PERCOLATION TEST HOLE



- NOTES:**
- RETENTION AREAS WILL BE SET AS PART OF THE REVIEW PROCESS.
 - BOUNDARIES OF RETENTION AREAS SHOULD BE STAKED FLAGGED PRIOR TO TRENCHING.
 - EXACT LOCATION OF TRENCH SHOULD BE IDENTIFIED.
 - TRENCH SHOULD BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL.
 - ROOTS SHOULD BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.



- NOTES:**
- RETENTION AREA ONLY.
 - BOUNDARIES OF RETENTION AREAS SHOULD BE STAKED AND FLAGGED PRIOR TO INSTALLING DEVICE.
 - ROOT DAMAGE SHOULD BE AVOIDED.
 - PROTECTIVE SIGNAGE MAY ALSO BE USED.
 - DEVICE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
- TEMPORARY TREE PROTECTION FENCING**
NOT TO SCALE

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PROJECT No.:	MD1420672
DRAWN BY:	MJR
CHECKED BY:	MP
DATE:	07/11/2024
CAD ID:	MD1420672 - LAND - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

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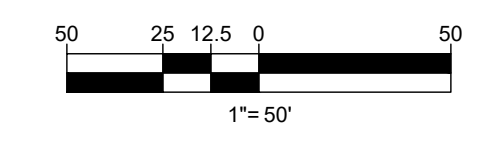
E.R. McWILLIAMS
07/12/2024
REGISTERED LANDSCAPE ARCHITECT
PROFESSIONAL CERTIFICATION
E.R. McWilliams, P.L.L.C. (F.K.A. LYHUS PROPERTY)
THESE DOCUMENTS WERE REVIEWED AND APPROVED BY ME, AND THAT I AM A FULLY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
LICENSE NO. 3697 EXPIRATION DATE: 9/2024

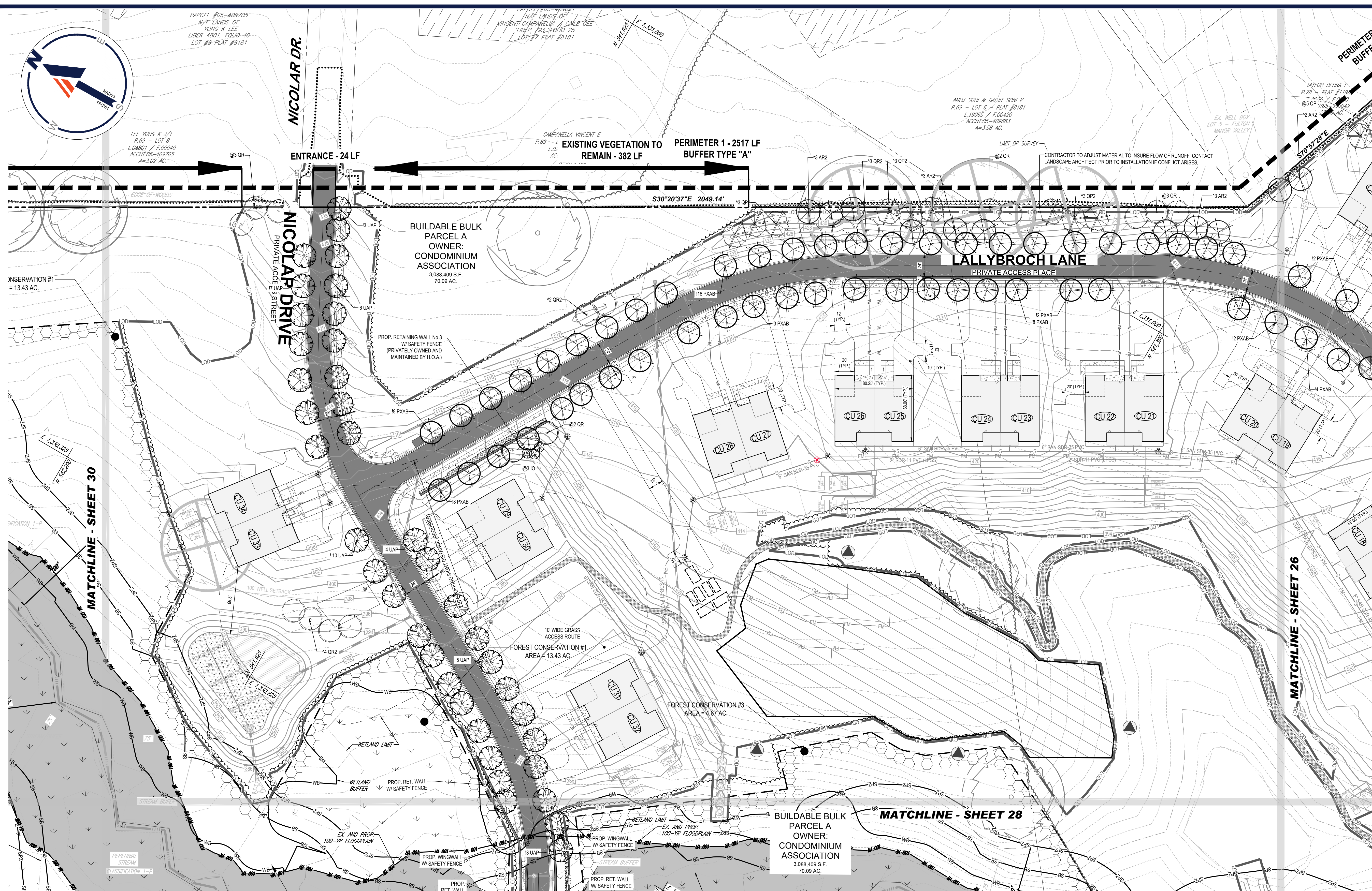
LANDSCAPE PLAN
SHEET NUMBER:
26 OF 146
ORG. DATE - 04/17/24

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
Chad Edmondson
CHIEF DEPARTMENT ENGINEERING DIVISION
DATE: 7/16/2024
CHIEF DIVISION OF LAND DEVELOPMENT
DATE: 7/16/2024
Linda Eschberg

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
DATE: 7/16/2024
Naomi Howell
WASTEWATER PROGRAM MANAGER
DATE: 7/16/2024
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT # 2694B-2695C	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKDRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 PARCEL: 135 ZONED: RR-DEO 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE NO.: BA-20-002C SP-17-0108 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132	WP-24-060



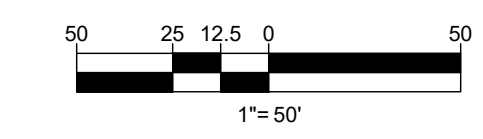


DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
APPROVED, DEPARTMENT OF ENVIRONMENTAL ENGINEERING DIVISION
7/16/2024
APPROVED, DIVISION OF LAND DEVELOPMENT
7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

- LEGEND**
- PROPERTY LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- LIMIT OF DISTURBANCE
- WETLAND BUFFER LIMITS
- TREE PROTECTION FENCE
- ROOT PRUNING
- 6' HIGH CHAIN LINK FENCE
- SPECIMEN TREE (TO BE REMOVED)
- CRITICAL ROOT ZONE (CRZ)
- FOREST CONSERVATION EASEMENT
- SEPTIC RESERVE AREA
- SANITARY PERCOLATION TEST HOLE



OWNER: LYHUS DEVELOPMENT, LLC
60 H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
SP-17-0108 F-20-016
ECP-17-056 WP-21-011
WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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CAD ID: MD1420672 - LAND - 2

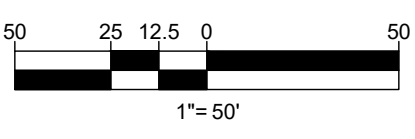
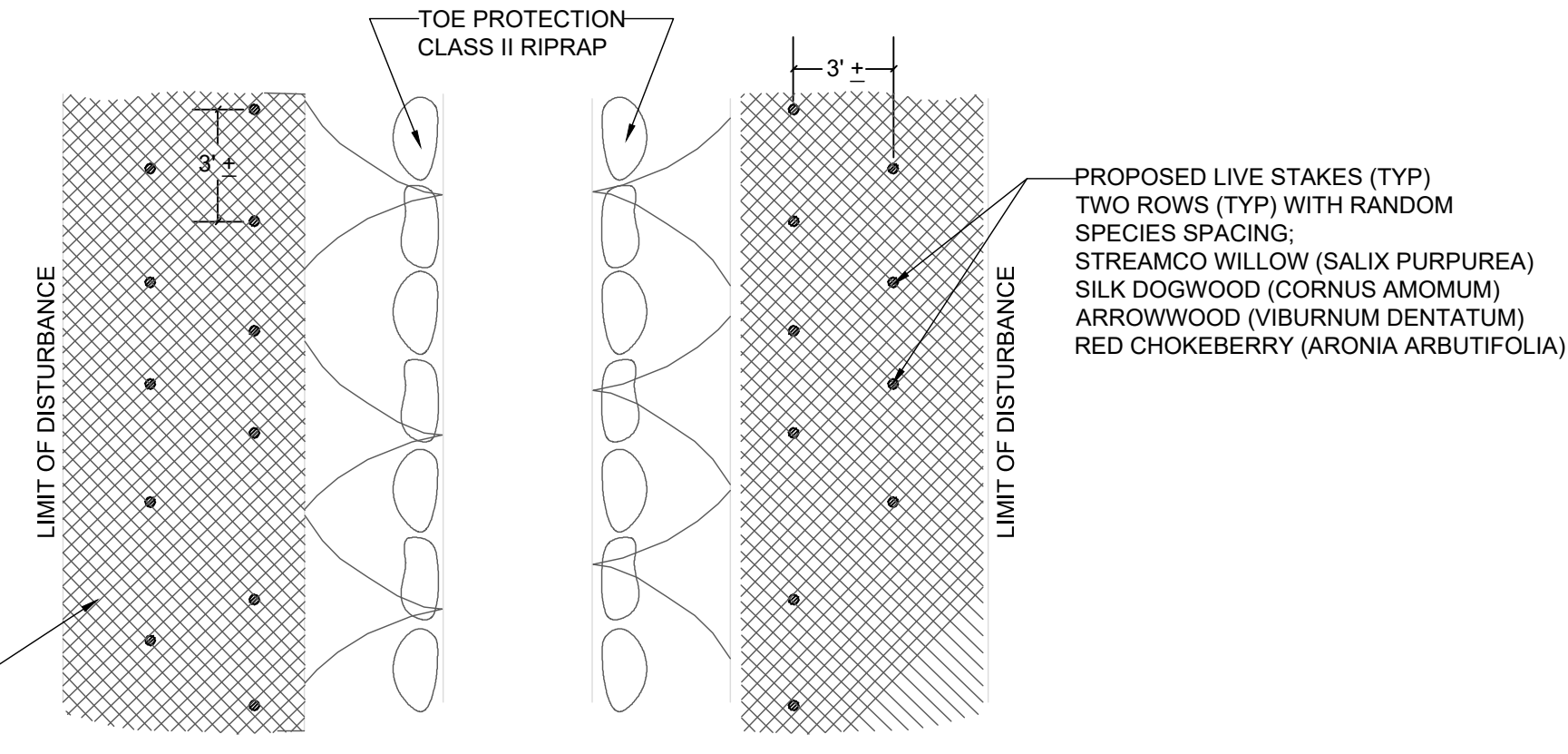
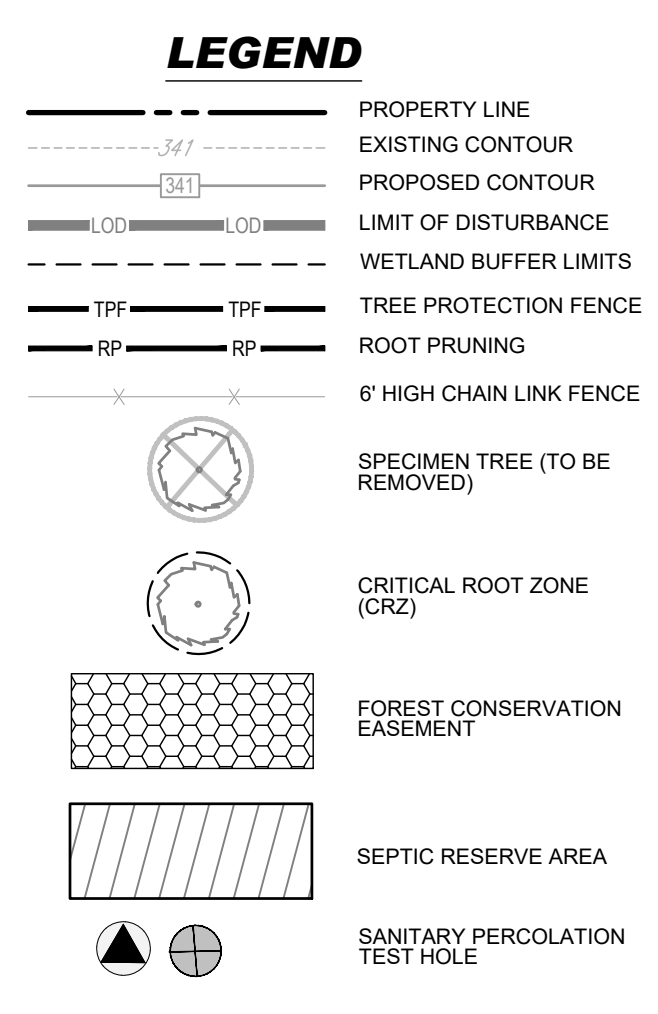
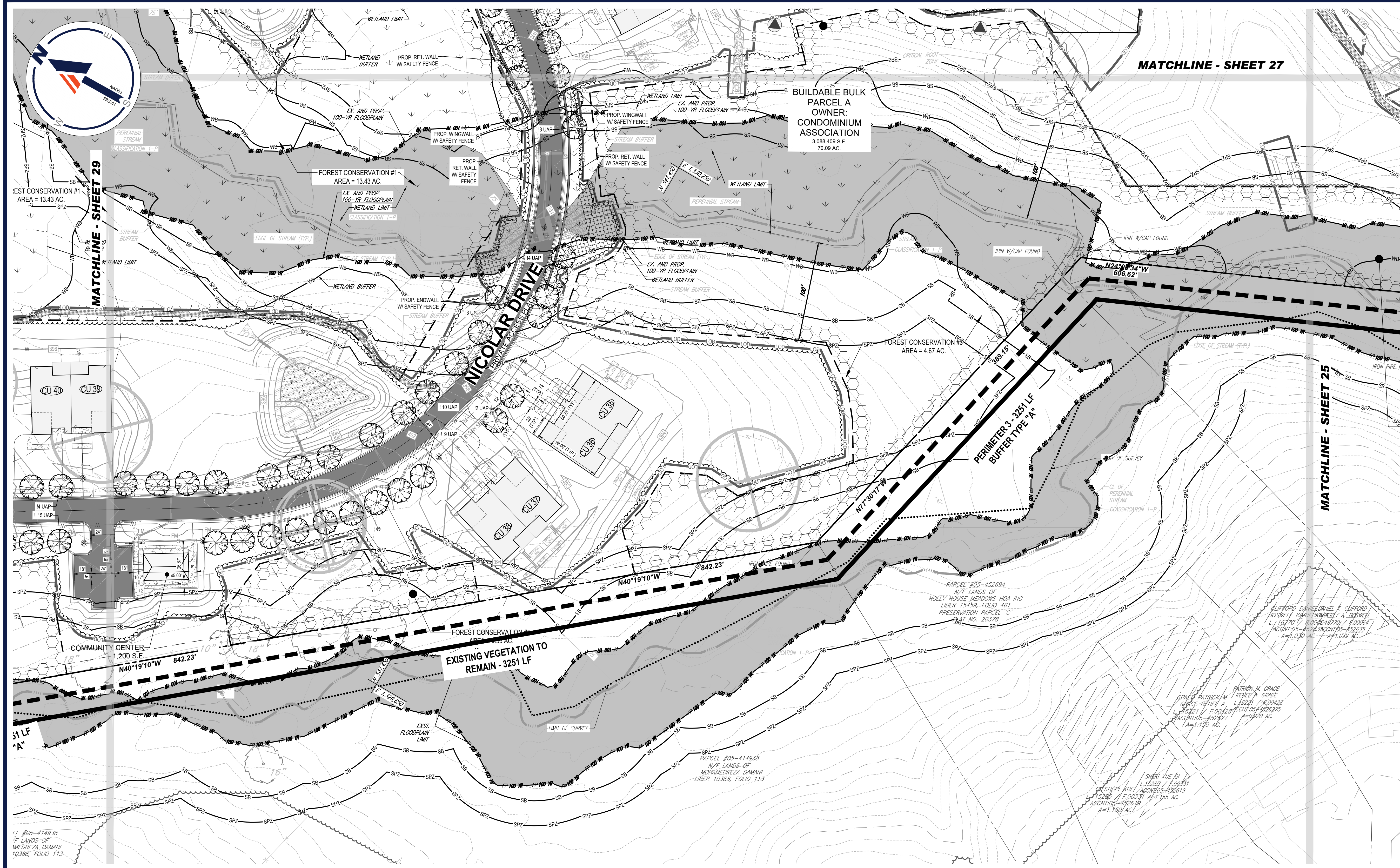
SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

E.R. McWILLIAMS
07/12/2024
REGISTERED LANDSCAPE ARCHITECT
PROFESSIONAL CERTIFICATION
I, E.R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR SUPERVISED BY ME, AND THAT I AM A FULLY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 5697 EXPIRATION DATE: 9/30/24

SHEET TITLE:
LANDSCAPE PLAN
SHEET NUMBER:
27 OF 146
ORG. DATE - 04/17/24



DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPER'S / OWNERS NAME: *Lynda Eisenberg* DATE: *5/14/2024*

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 DATE: 7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 DATE: 7/16/2024

APPROVED FOR WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 DATE: 7/16/2024

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 145320/00469 PLAT # 28048-29052	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075
PREVIOUS FILE NO.: BA-20-002C SP-17-0108 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132	TAX MAP: 40 GRID: 124 PARCEL: 135 ZONED: RR-DEO 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
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REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - LAND - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

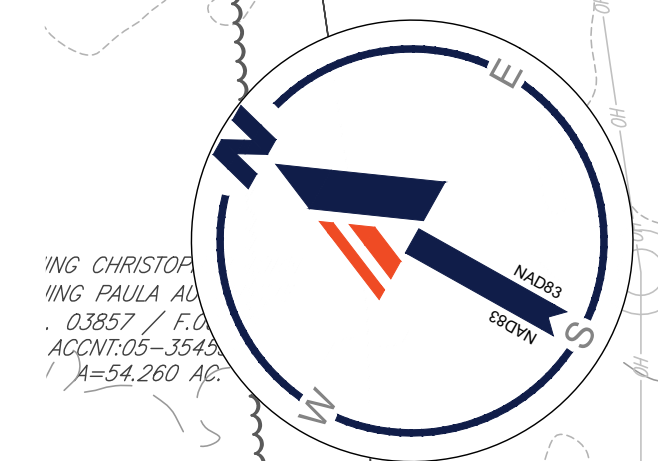
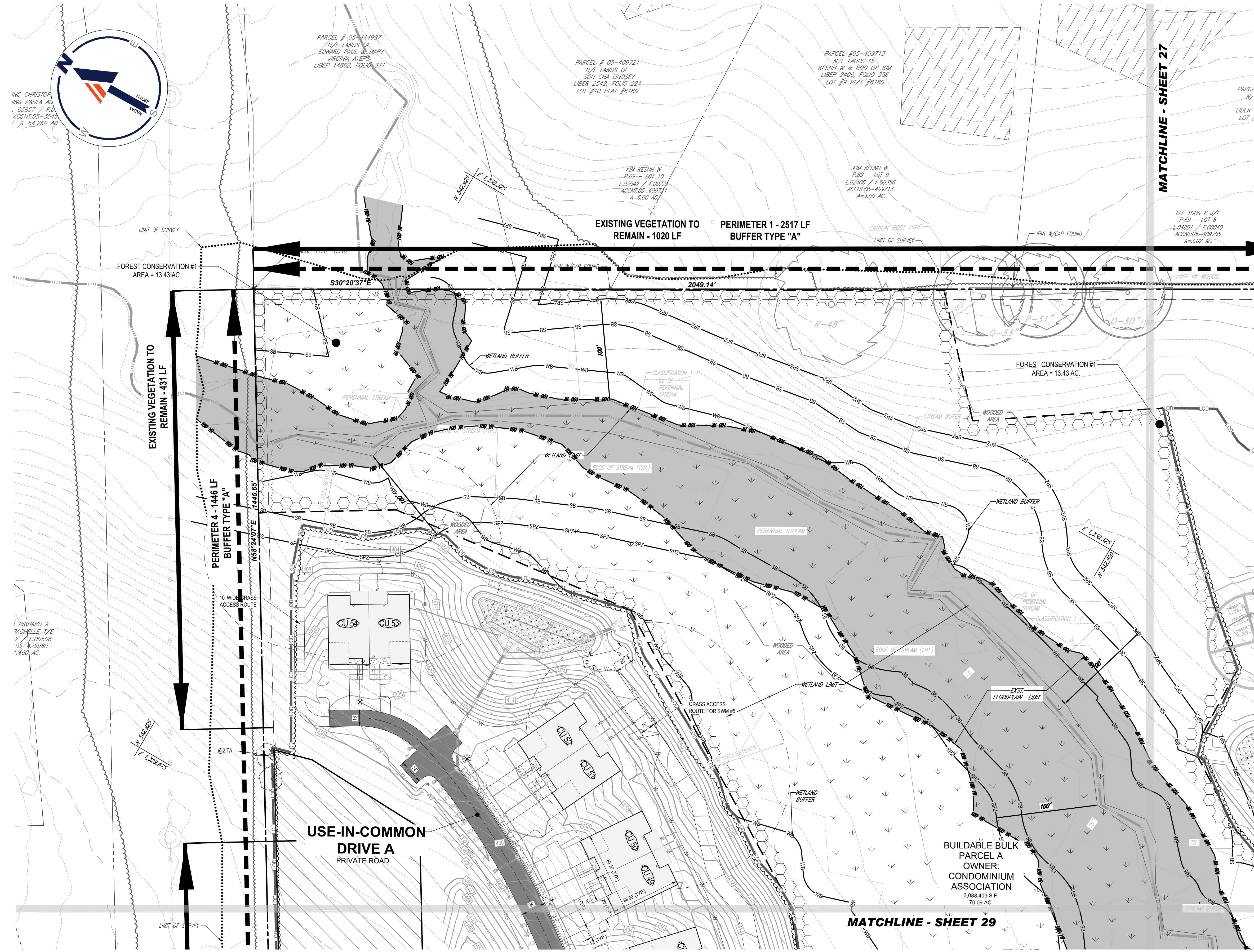
BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

E.R. McWILLIAMS
 07/12/2024
 REGISTERED LANDSCAPE ARCHITECT
 PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 3897 EXPIRATION DATE: 9/30/24

SHEET TITLE:
LANDSCAPE PLAN

SHEET NUMBER:
28 OF 146

ORG. DATE - 04/17/24



ING CHRISTOPHER PAULA ALI
03857 / F.00221
ACCT:05-40973
A=54,260 AC

PARCEL # 05-414927
N/E LANDS OF
EDWARD PAUL & MARY
VIRGINIA AYERS
LIBER 14862, FOLIO 341

PARCEL # 05-409721
N/E LANDS OF
SON CHA LINDSEY
LIBER 2542, FOLIO 221
LOT #10, PLAT #8180

PARCEL #05-409713
N/E LANDS OF
KESH W & BOO OK KIM
LIBER 2406, FOLIO 356
LOT #9, PLAT #8180

KIM KESH W
P.69 - LOT 10
L.02542 / F.00221
ACCT:05-40971
A=6.00 AC

KIM KESH W
P.69 - LOT 9
L.02406 / F.00256
ACCT:05-409713
A=3.00 AC

LEE YONG K J/T
P.69 - LOT 8
L.04801 / F.00040
ACCT:05-409705
A=3.02 AC

FOREST CONSERVATION #1
AREA = 13.43 AC.

FOREST CONSERVATION #1
AREA = 13.43 AC.

RICHARD A
RACHELLE 1/2
2 / F.00306
05-42590
1,463 AC

**USE-IN-COMMON
DRIVE A
PRIVATE ROAD**

**BUILDABLE BULK
PARCEL A
OWNER:
CONDOMINIUM
ASSOCIATION**
3,088,409 S.F.
70.09 AC.

- LEGEND**
- 3/4" — PROPERTY LINE
 - 3/4" --- EXISTING CONTOUR
 - 3/4" --- PROPOSED CONTOUR
 - 1/4" --- LIMIT OF DISTURBANCE
 - 1/4" --- WETLAND BUFFER LIMITS
 - 1/4" --- TREE PROTECTION FENCE
 - 1/4" --- ROOT PRUNING
 - 1/4" --- 6' HIGH CHAIN LINK FENCE
 - ⊗ SPECIMEN TREE (TO BE REMOVED)
 - ⊙ CRITICAL ROOT ZONE (CRZ)
 - ▨ FOREST CONSERVATION EASEMENT
 - ▨ SEPTIC RESERVE AREA
 - SANITARY PERCOLATION TEST HOLE

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.:	MD1420672
DRAWN BY:	MUR
CHECKED BY:	MP
DATE:	07/11/2024
CAD ID:	MD1420672 - LAND - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

E.R. McWILLIAMS
07/12/2024
REGISTERED LANDSCAPE ARCHITECT
PROFESSIONAL CERTIFICATION
ERIC R. McWILLIAMS, FRESHER CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 20046-29052 EXPIRATION DATE: 9/2024

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE
I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.124 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.
DEVELOPER'S / OWNER'S NAME: _____ DATE: 5/14/2024

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
APPROVED, ENVIRONMENTAL ENGINEERING DIVISION
7/16/2024
APPROVED, DIVISION OF LAND DEVELOPMENT
7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT# 28046-29052	PREVIOUS FILE NO.: BA-20-002C SP-17-0108 ECP-17-056 WP-18-070	BA-20-002C F-20-016 WP-21-011 WP-22-132	WP-24-060 WP-21-011 WP-22-132	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	ZONED: RR-DEO
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SHEET TITLE:
LANDSCAPE PLAN
SHEET NUMBER:
30 OF 146
ORG. DATE - 04/17/24

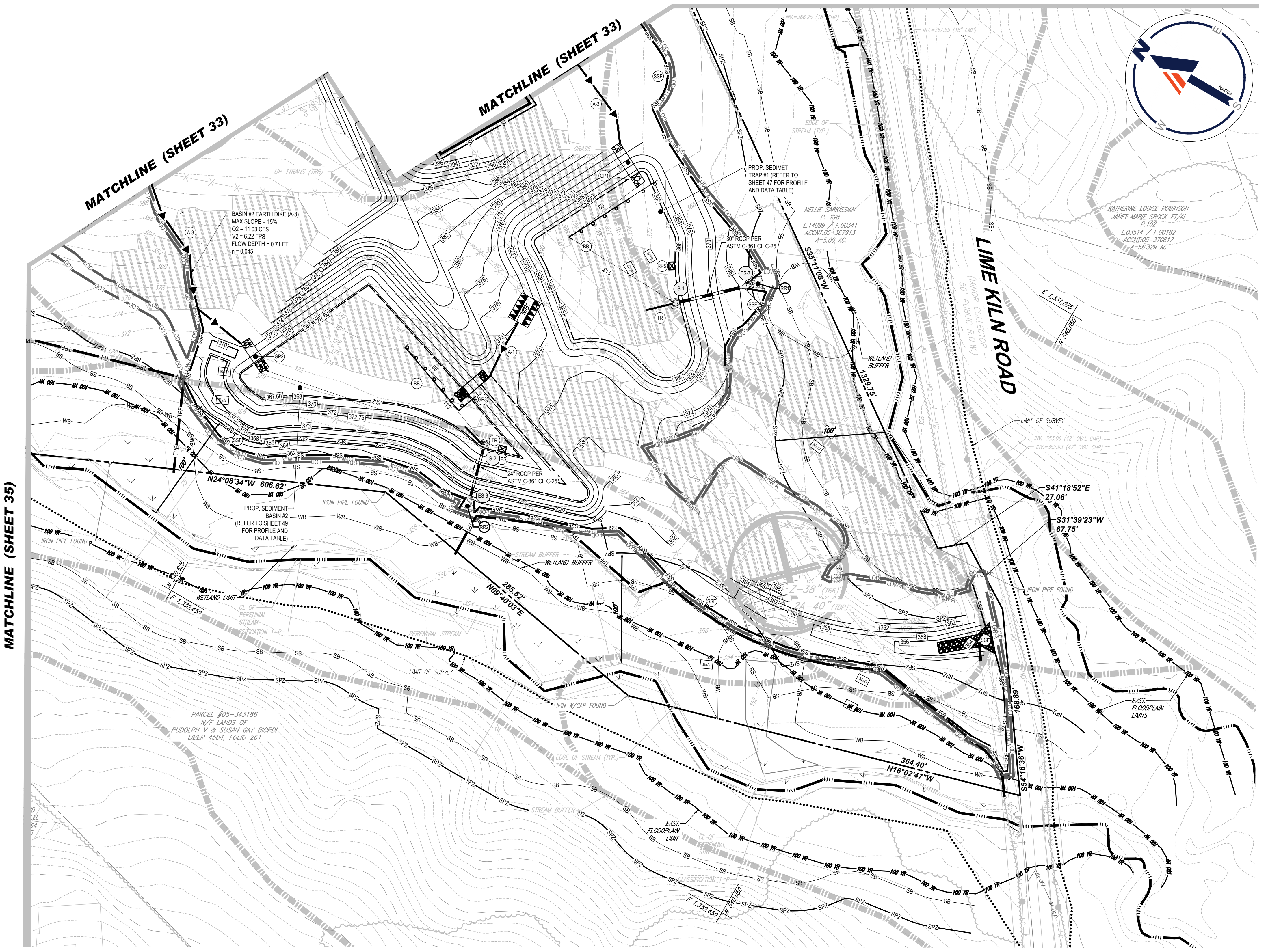
LEGEND

- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SOIL DIVIDE
- SOIL LABEL
- MaB
- SB - STREAM BUFFER
- SPZ - TIER II STREAM PROTECTION ZONE
- WB - WETLAND BUFFER
- 100' - FLOODPLAIN LIMIT
- WETLANDS
- PERENNIAL STREAM
- STREAM BANK
- LOD
- LOW-A
- LOW-B

STANDARD SYMBOLS

FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SC	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
SUPER SILT FENCE	SSF	[Symbol]
SILT FENCE	SF	[Symbol]
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	BB	[Symbol]
REMOVABLE PUMPING STATION	PPS	[Symbol]
TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GP	[Symbol]
RIP RAP OUTLET PROTECTION	OR	[Symbol]
PLUNGE POOL	PP	[Symbol]
GABION INLET PROTECTION	IP	[Symbol]
TREE PROTECTION FENCE	TPF	[Symbol]
SAND BAGS	[Symbol]	[Symbol]
TEMPORARY PUMP AROUND	CWD-12	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	OS	[Symbol]



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SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
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REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.:	MD1420672
DRAWN BY:	MUR
CHECKED BY:	MP
DATE:	07/11/2024
CAD ID:	MD1420672 - ERO1 - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND
LICENSE NO. 40898, EXPIRATION DATE: 7/30/2025

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Powell 7/16/2024
NACOM HOMELESS PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 7/16/2024
CHIEF ENGINEER
ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
Linda Eschenberg 7/16/2024
DATE

OWNER'S/DEVELOPER'S CERTIFICATE
I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 COUNTY CONSERVATION DISTRICT, AND/OR MDE.

SIGNATURE OF DEVELOPER: **[Signature]** DATE: 7/16/2024
(NAME): **[Name]**

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.

DocuSigned by:
Alexander Bratevic 7/16/2024
HOWARD COUNTY CONSERVATION DISTRICT

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 COUNTY SOIL CONSERVATION DISTRICT.

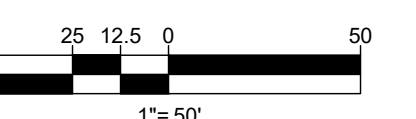
SIGNATURE OF ENGINEER: **[Signature]** DATE: 7/11/2024
BRANDON R. ROWE P.E. MD PE LICENSE NO 40808

RIP-RAP SCHEDULE

SYM	DESCRIPTION	TYPE	LENGTH	WIDTH	THICKNESS	D ₁₅	D ₈₅	REMARKS
RR1	CLASS I RIP-RAP ON NONWOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION III	15'	17.5'	10"	9.5"	15"	
RR2	CLASS I RIP-RAP ON NONWOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION III	12.5'	14.5'	10"	9.5"	15"	
GP1	GABION INFLOW PROTECTION ON NONWOVEN GEOTEXTILE FABRIC		42'	9'	12"			GABIONS TO BE FILLED WITH 4" - 7" STONES
GP2	GABION INFLOW PROTECTION ON NONWOVEN GEOTEXTILE FABRIC		32'	9'	12"			GABIONS TO BE FILLED WITH 4" - 7" STONES
GP3	GABION INFLOW PROTECTION ON NONWOVEN GEOTEXTILE FABRIC		34'	9'	12"			GABIONS TO BE FILLED WITH 4" - 7" STONES

EROSION AND SEDIMENT CONTROL NOTES

- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
- ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY PER THE "WORK OUTSIDE PERIMETER CONTROLS NOTES".
- PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE IN THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
- CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SLOPES 3:1 OR GREATER.
- IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
- IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.
- WORK LOCATED OUTSIDE OF THE LIMIT OF WORK (---LO---) AND WITHIN THE LIMIT OF DISTURBANCE (---LOD---) SUCH AS SHARED SEPTIC FIELDS SHALL BE COMPLETED ALONG WITH CONSTRUCTION OF THE HOUSES DISCHARGING TO EACH SEPTIC FIELD. THE MAJORITY THE LOW SHOULD BE STABILIZED AT THIS TIME, KEEPING THE ACTIVE DISTURBANCE AREA UNDER 20 AC.
- LOW AND PERIMETER CONTROLS ARE TO BE SET AT THE LOD, OFFSET FOR PLAN CLARITY.
- FOR ANY DISTURBANCE OR REDISTURBANCE WITHIN THE TIER II STREAM PROTECTION ZONE (SPZ), CONTRACTOR IS TO USE ACCELERATED STABILIZATION AS NOTED IN THE SOIL STABILIZATION NOTE ON SHEET 39.



NOTE: HAZARD CLASS FOR ALL SEDIMENT BASINS IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

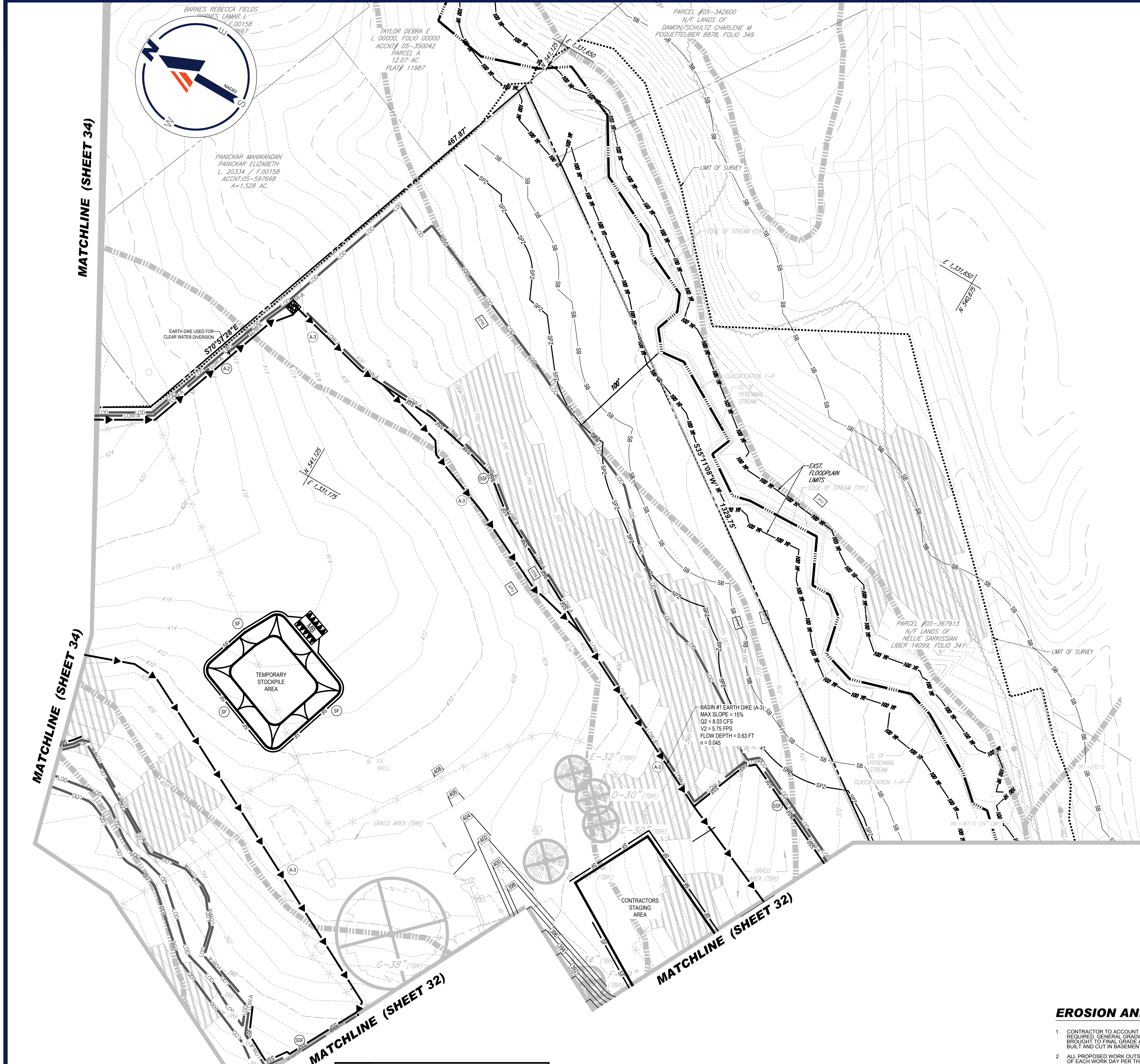
TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)	SECTION/AREA: N/A	DEED # 14532/00469	PLAT # 26946-26952
PREVIOUS FILE NO.:	BA-20-002C	F-20-016	WP-24-060
SP-17-018	WP-21-011	WP-22-132	
ECF-17-056			
WP-18-070			

SHEET TITLE
PHASE I EROSION & SEDIMENT CONTROL PLAN

SHEET NUMBER:
32 OF 146

ORG. DATE - 04/17/24



LEGEND

- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SOIL DIVIDE
- SOIL LABEL
- MaB
- SB
- SPZ
- WB
- 100 FT
- WETLANDS
- PERENNIAL STREAM
- STREAM BANK
- LOD
- LOW-A
- LOW-B

STANDARD SYMBOLS
FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SC	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
SUPER SILT FENCE	SSF	[Symbol]
SILT FENCE	SF	[Symbol]
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	B	[Symbol]
REMOVABLE PUMPING STATION	RS	[Symbol]
TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GI	[Symbol]
RIP RAP OUTLET PROTECTION	RO	[Symbol]
PLUNGE POOL	PP	[Symbol]
GABION INLET PROTECTION	GI	[Symbol]
TREE PROTECTION FENCE	TPF	[Symbol]
SAND BAGS	[Symbol]	[Symbol]
TEMPORARY PUMP AROUND	CWD-12	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	TOS	[Symbol]

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
DRAWN BY: MUR
DATE: 07/11/2024
CAD ID: MD1420672 - ERO1 - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND
LICENSE NO. 40898, EXPIRATION DATE: 7/30/2025

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
NACOM HOMERL, PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT
DATE: 7/16/2024

APPROVED, DEPARTMENT OF PLANNING AND ZONING
DATE: 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
DATE: 7/16/2024

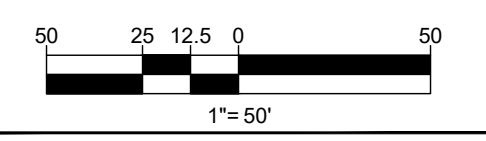
OWNER'S/DEVELOPER'S CERTIFICATE
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DATE: 7/16/2024

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 COUNTY SOIL CONSERVATION DISTRICT.
DATE: 7/11/2024
SIGNATURE OF ENGINEER: BRANDON R. ROWE P.E.
MD PE LICENSE NO 40808

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.
DESIGNED BY: Alexander Bratchis
DATE: 7/16/2024

EROSION AND SEDIMENT CONTROL NOTES

- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
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- IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
- IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.
- WORK LOCATED OUTSIDE OF THE LIMIT OF WORK (LOD) AND WITHIN THE LIMIT OF DISTURBANCE (LOD) SUCH AS SHARED SEPTIC FIELDS SHALL BE COMPLETED ALONG WITH CONSTRUCTION OF THE HOUSES DISCHARGING TO EACH SEPTIC FIELD. THE MAJORITY THE LOW SHOULD BE STABILIZED AT THIS TIME, KEEPING THE ACTIVE DISTURBANCE AREA UNDER 20 AC.
- LOW AND PERIMETER CONTROLS ARE TO BE SET AT THE LOD, OFFSET FOR PLAN CLARITY.
- FOR ANY DISTURBANCE OR REDISTURBANCE WITHIN THE TIER II STREAM PROTECTION ZONE (SPZ), CONTRACTOR IS TO USE ACCELERATED STABILIZATION AS NOTED IN THE SOIL STABILIZATION NOTE ON SHEET 59.



NOTE: HAZARD CLASS FOR ALL SEDIMENT BASINS IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

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6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

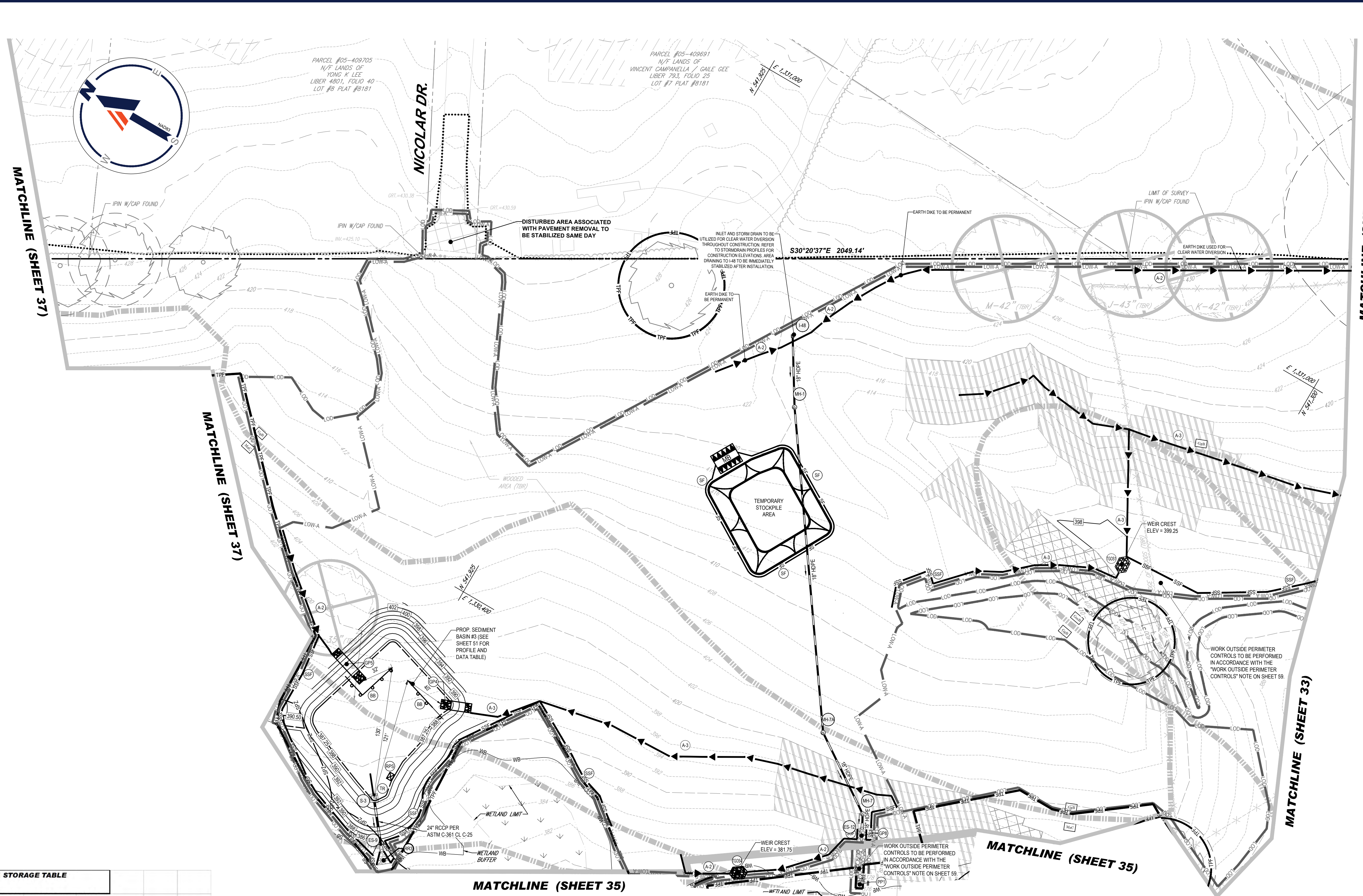
PHASE I EROSION & SEDIMENT CONTROL PLAN
SHEET NUMBER:
33 OF 146
ORG. DATE - 04/17/24

LEGEND

- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SOIL DIVIDE
- SOIL LABEL
- MaB
- SB - STREAM BUFFER
- SPZ - TIER II STREAM PROTECTION ZONE
- WB - WETLAND BUFFER
- 100 ft - FLOODPLAIN LIMIT
- WETLANDS
- PERENNIAL STREAM
- STREAM BANK
- LOD - LOW
- LOW-A - LOW
- LOW-B - LOW

STANDARD SYMBOLS FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SCC	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
SUPER SILT FENCE	SSF	[Symbol]
SILT FENCE	SF	[Symbol]
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	BB	[Symbol]
REMOVABLE PUMPING STATION	RPS	[Symbol]
TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GP	[Symbol]
RIP RAP OUTLET PROTECTION	RR	[Symbol]
PLUNGE POOL	PP	[Symbol]
GABION INLET PROTECTION	GIP	[Symbol]
TREE PROTECTION FENCE	TPF	[Symbol]
SAND BAGS	[Symbol]	[Symbol]
TEMPORARY PUMP AROUND	[Symbol]	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	[Symbol]	[Symbol]



TEMPORARY GABION OUTLET STRUCTURE 1 STORAGE TABLE (PRE-DEVELOPMENT)

ELEVATION (FT)	AREA (FT²)	AREA [ACRES]	CHANGE IN ELEVATION (FT)	AVERAGE AREA [ACRES]	INCREMENTAL VOLUME [AC-FT]	CUMULATIVE VOLUME [FT³]	CUMULATIVE VOLUME [AC-FT]
397.00	0	0.0000					
398.00	1730	0.0397	1.00	0.0199	0.0199	865	0.02
399.00	2325	0.0534	1.00	0.0465	0.0465	2,893	0.07
399.25	2500	0.0574	0.25	0.0554	0.0138	3,496	0.08

WEIR CREST ELEVATION

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Neomi Powell 7/16/2024
 NACOMHIGMEL, PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 7/16/2024
 CHIEF OF DIVISION, ENGINEERING DIVISION
 DATE 7/16/2024

CHIEF OF DIVISION OF LAND DEVELOPMENT
Linda Eschberg 7/16/2024
 DATE 7/16/2024

OWNER'S/DEVELOPER'S CERTIFICATE

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 OF DEVELOPER (NAME): **Alexander Bratovic** DATE: 7/16/2024
 SIGNATURE OF ENGINEER: **Brandon R. Rowe** DATE: 7/11/2024
 MD PE LICENSE NO 40808

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DESIGNED BY: **Alexander Bratovic** DATE: 7/16/2024
 HOWARD SOIL CONSERVATION DISTRICT

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 COUNTY SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER: **Brandon R. Rowe** DATE: 7/11/2024
 MD PE LICENSE NO 40808

RIP-RAP SCHEDULE

SYM	DESCRIPTION	TYPE	LENGTH	WIDTH	THICKNESS	D ₁₅	D ₈₅	REMARKS
RR3	CLASS I RIP-RAP ON NONWOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION III	15'	17.5'	19"	9.5"	15"	
GP4	GABION INFLOW PROTECTION ON NONWOVEN GEOTEXTILE FABRIC		30'	9'	12"			GABIONS TO BE FILLED WITH 4" - 7" STONES
GP5	GABION INFLOW PROTECTION ON NONWOVEN GEOTEXTILE FABRIC		41'	9'	12"			GABIONS TO BE FILLED WITH 4" - 7" STONES
GP6	GABION INFLOW PROTECTION ON NONWOVEN GEOTEXTILE FABRIC		44.5'	9'	12"			GABIONS TO BE FILLED WITH 4" - 7" STONES
RR3	CLASS I RIP-RAP ON NONWOVEN GEOTEXTILE FABRIC	PLUNGE POOL	9'	7.5'	19"	9.5"	15"	

- #### EROSION AND SEDIMENT CONTROL NOTES
- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
 - ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY PER THE "WORK OUTSIDE PERIMETER CONTROLS" NOTES.
 - PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
 - EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
 - CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SLOPES 3:1 OR GREATER.
 - IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
 - IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.
 - WORK LOCATED OUTSIDE OF THE LIMIT OF WORK (-LOW-) AND WITHIN THE LIMIT OF DISTURBANCE (-LOD-) SUCH AS SHARED SEPTIC FIELDS SHALL BE COMPLETED WITHIN CONSTRUCTION OF THE HOUSES DISCHARGING TO EACH SEPTIC FIELD. THE MAJORITY OF THE LOW SHOULD BE STABILIZED AT THIS TIME, KEEPING THE ACTIVE DISTURBANCE AREA UNDER 20 AC.
 - LOW AND PERIMETER CONTROLS ARE TO BE SET AT THE LOD, OFFSET FOR PLAN CLARITY.
 - FOR ANY DISTURBANCE OR REDISTURBANCE WITHIN THE TIER II STREAM PROTECTION ZONE (SPZ), CONTRACTOR IS TO USE ACCELERATED STABILIZATION AS NOTED IN THE SOIL STABILIZATION NOTE ON SHEET 59.

NOTE: HAZARD CLASS FOR ALL SEDIMENT BASINS IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED, NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

PREVIOUS FILE NO.: BA-20-002C
 SP-17-0108 ECP-17-056 WP-18-070
 F-20-016 WP-21-011 WP-22-132
 WP-24-060
 TAX MAP: 40
 ZONED: RR-DEO

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - ERO1 - 2

SITE DEVELOPMENT PLAN

FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

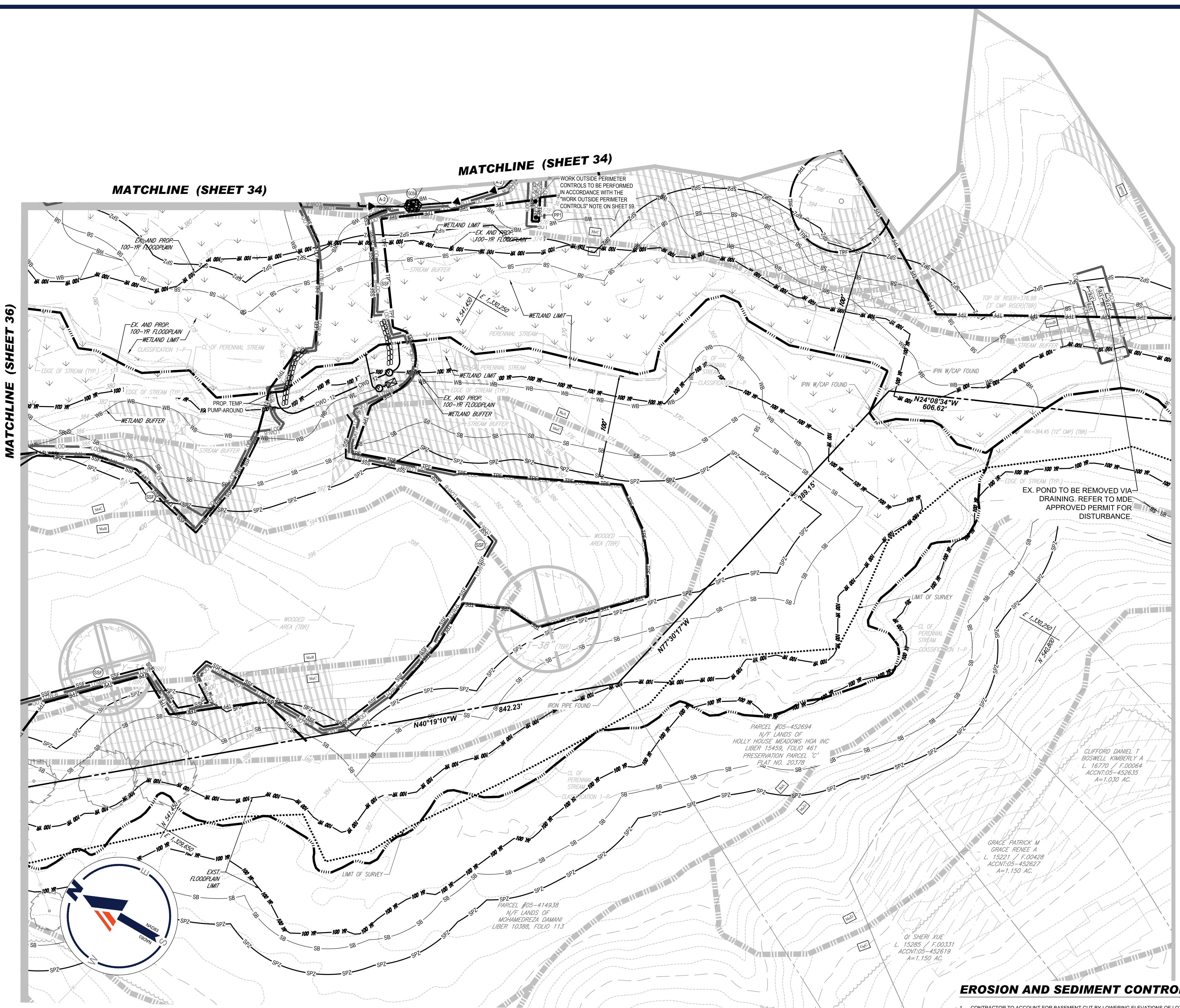
BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 PROFESSIONAL CERTIFICATION
 I BRANSON, MO. HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED AND APPROVED BY ME AND THAT I AM A DELIVERABLE PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40808. EXPIRATION DATE: 7/31/2025

SHEET TITLE: **PHASE I EROSION & SEDIMENT CONTROL PLAN**

SHEET NUMBER: **34 OF 146**

ORG. DATE - 04/17/24



LEGEND

- STEEP SLOPES 15-25%
- STEEP SLOPES >25%
- SOIL DIVIDE
- SOIL LABEL
- MaB
- SB
- SPZ
- WB
- 100'
- PERENNIAL STREAM
- STREAM BANK
- LOD
- LOW-A
- LOW-B
- LOW

STANDARD SYMBOLS
FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SC	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
SUPER SILT FENCE	SS	[Symbol]
SILT FENCE	SF	[Symbol]
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	B	[Symbol]
REMOVABLE PUMPING STATION	RPS	[Symbol]
TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GP	[Symbol]
RIP RAP OUTLET PROTECTION	RO	[Symbol]
PLUNGE POOL	PP	[Symbol]
GABION INLET PROTECTION	GIP	[Symbol]
TREE PROTECTION FENCE	TPF	[Symbol]
SAND BAGS	[Symbol]	[Symbol]
TEMPORARY PUMP AROUND	[Symbol]	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	TOS	[Symbol]

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
DRAWN BY: MUR
DATE: 07/11/2024
CAD ID: MD1420672 - ERO1 - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

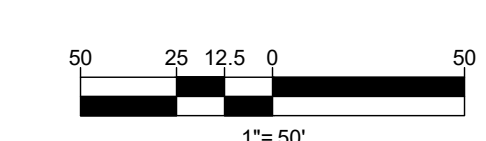
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND
LICENSE NO. 40898, EXPIRATION DATE: 7/30/2025

EROSION AND SEDIMENT CONTROL NOTES

- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
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- WORK LOCATED OUTSIDE OF THE LIMIT OF WORK (LOW) AND WITHIN THE LIMIT OF DISTURBANCE (LOD) SUCH AS SHARED SEPTIC FIELDS SHALL BE COMPLETED ALONG WITH CONSTRUCTION OF THE HOUSES DISCHARGING TO EACH SEPTIC FIELD. THE MAJORITY OF THE LOW SHOULD BE STABILIZED AT THIS TIME, KEEPING THE ACTIVE DISTURBANCE AREA UNDER 20 AC.
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- FOR ANY DISTURBANCE OR REDISTURBANCE WITHIN THE TIER II STREAM PROTECTION ZONE (SPZ), CONTRACTOR IS TO USE ACCELERATED STABILIZATION AS NOTED IN THE SOIL STABILIZATION NOTE ON SHEET 59.



NOTE: HAZARD CLASS FOR ALL SEDIMENT BASINS IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER: LYHUS DEVELOPMENT, LLC
600 H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT # 26946-26952	PREVIOUS FILE NO.: BA-20-002C SP-17-0108 ECP-17-056 WP-18-070	BA-20-002C F-20-016 WP-21-011 WP-22-132	WP-24-060	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
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APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
NACOM HIGHELL, PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024

CHIEF ENGINEER
DATE: 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
DATE: 7/16/2024

OWNER'S/DEVELOPER'S CERTIFICATE

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON 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 OF DEVELOPER
(NAME):
DATE: 7/16/2024

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

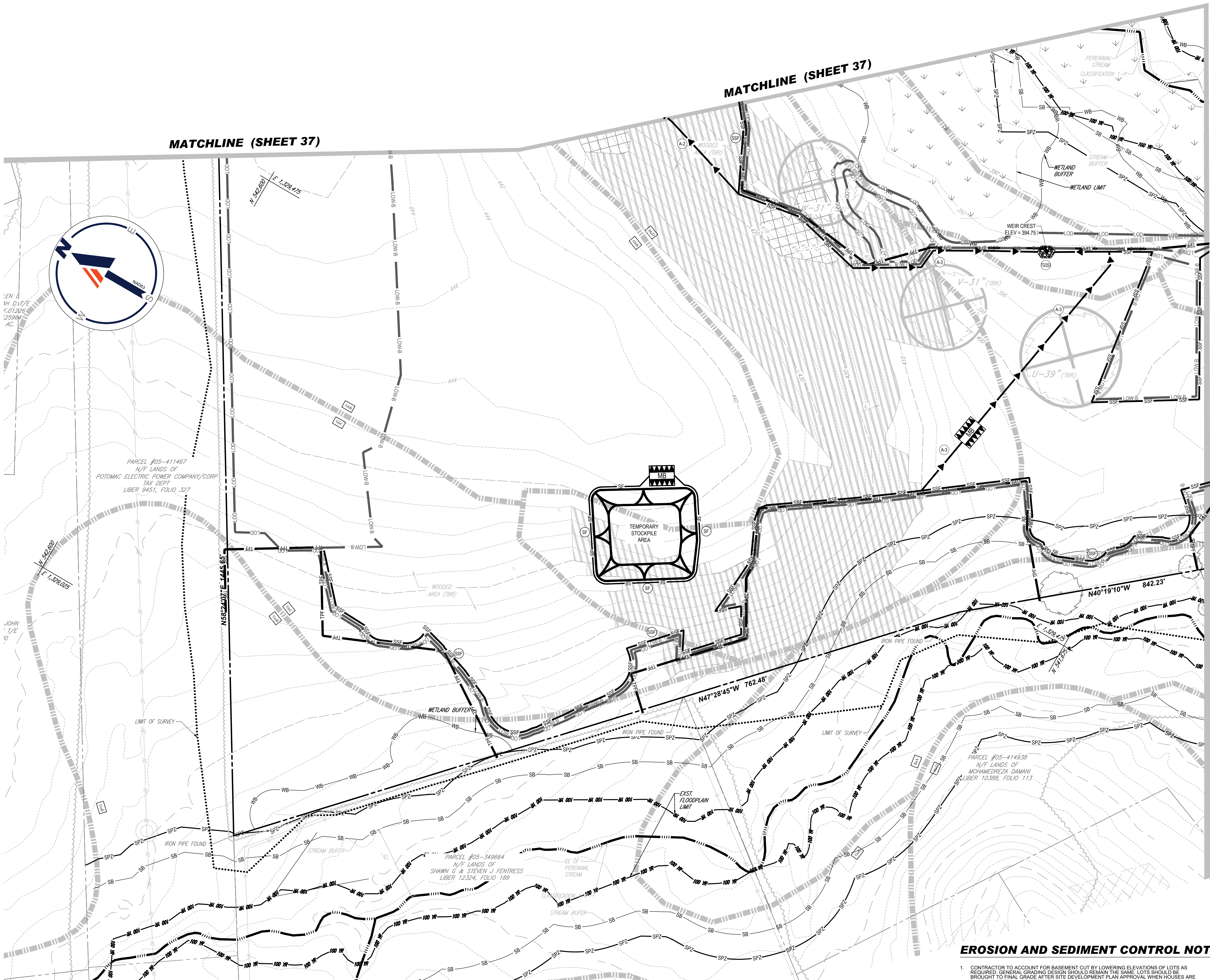
Designed by:
Alexander Bratich
DATE: 7/16/2024

HOWARD SOIL CONSERVATION DISTRICT

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 COUNTY SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER
BRANDON R. ROWE P.E.
DATE: 7/11/2024
MD PE LICENSE NO 40808



LEGEND

	STEEP SLOPES 15-25%
	STEEP SLOPES >25%
	SOIL DIVIDE
	SOIL LABEL
	STREAM BUFFER
	TIER II STREAM PROTECTION ZONE
	WETLAND BUFFER
	FLOODPLAIN LIMIT
	WETLANDS
	PERENNIAL STREAM
	STREAM BANK
	LOD
	LOW A
	LOW B

STANDARD SYMBOLS
FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SC	
MOUNTABLE BERM	MB	
SUPER SILT FENCE	SSF	
SILT FENCE	SF	
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	
BAFFLE BOARDS	B	
REMOVABLE PUMPING STATION	RS	
TRASH RACK	TR	
GABION INFLOW PROTECTION	GI	
RIP RAP OUTLET PROTECTION	RO	
PLUNGE POOL	PP	
GABION INLET PROTECTION	GI	
TREE PROTECTION FENCE	TPF	
SAND BAGS		
TEMPORARY PUMP AROUND		
TEMPORARY GABION OUTLET STRUCTURE		

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - ERO1 - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

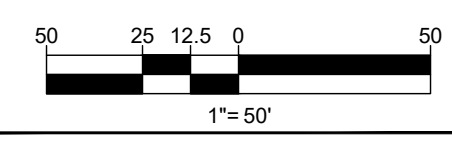
BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND
LICENSE NO. 40988, EXPIRATION DATE: 7/30/2025

PHASE I EROSION & SEDIMENT CONTROL PLAN
SHEET NUMBER:
36 OF 146
ORG. DATE - 04/17/24

EROSION AND SEDIMENT CONTROL NOTES

- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
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- WORK LOCATED OUTSIDE OF THE LIMIT OF WORK (—LOD—) AND WITHIN THE LIMIT OF DISTURBANCE (—LOD—) SUCH AS SHARED SEPTIC FIELDS SHALL BE COMPLETED ALONG WITH CONSTRUCTION OF THE HOUSES DISCHARGING TO EACH SEPTIC FIELD. THE MAJORITY OF THE LOW SHOULD BE STABILIZED AT THIS TIME, KEEPING THE ACTIVE DISTURBANCE AREA UNDER 20 AC.
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APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Neomi Powell 7/16/2024
NACOMHOMEL, PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 7/16/2024
CHIEF, PERMITTING ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
Linda Eisenberg 7/16/2024

OWNER'S/DEVELOPER'S CERTIFICATE
I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) APPROVED TRAINING PROGRAM FOR THE CONTROL ON 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.

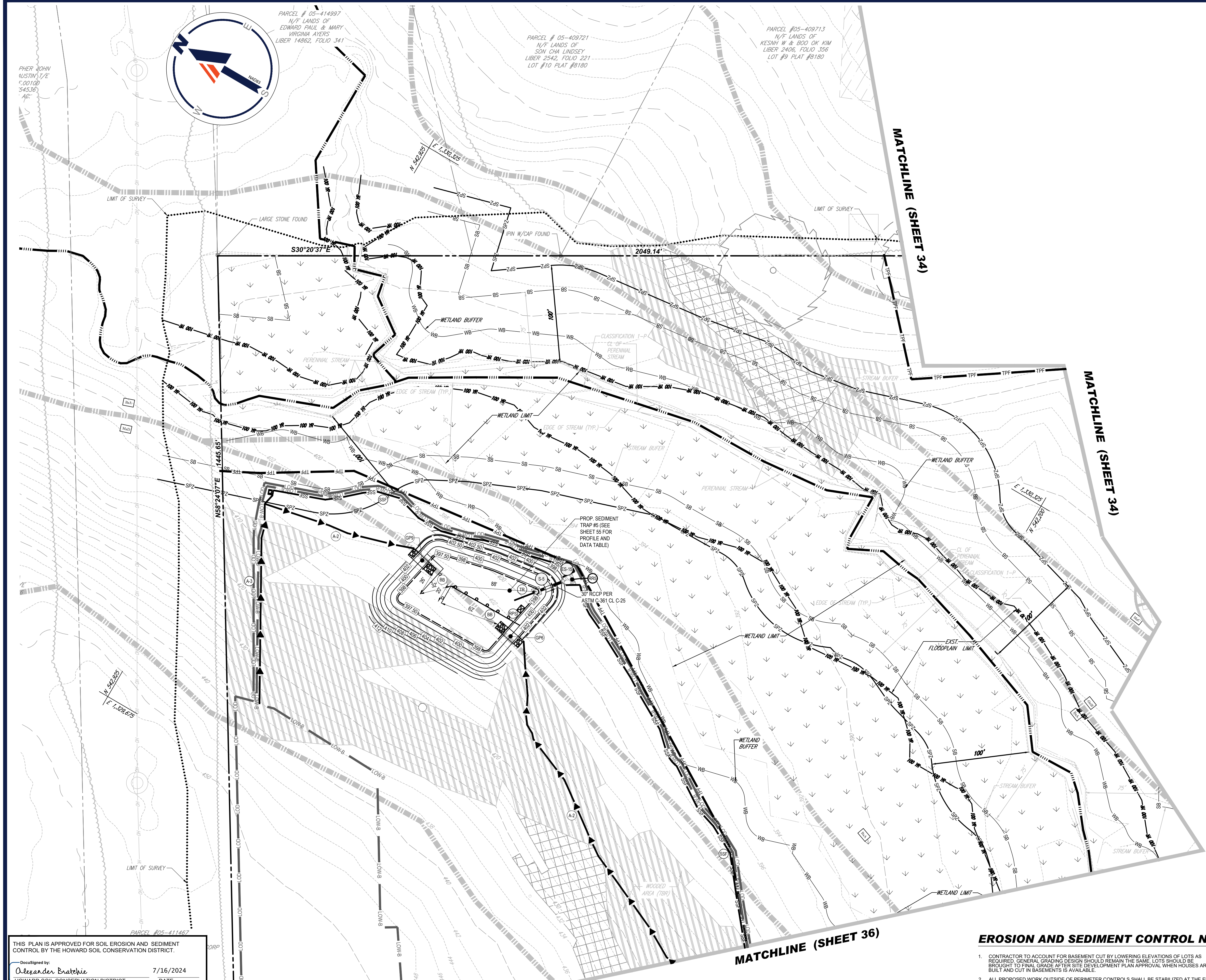
SIGNATURE OF DEVELOPER (NAME): **John Lewis** DATE: **7/16/2024**

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Designed by: **Alexander Bratich** 7/16/2024
HOWARD SOIL CONSERVATION DISTRICT DATE

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 COUNTY SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER: **BRANDON R. ROWE P.E.** DATE: **7/11/2024**
MD PE LICENSE NO 40808



LEGEND

[Symbol]	STEEP SLOPES 15-25%
[Symbol]	STEEP SLOPES >25%
[Symbol]	SOIL DIVIDE
[Symbol]	SOIL LABEL
[Symbol]	STREAM BUFFER
[Symbol]	TIER II STREAM PROTECTION ZONE
[Symbol]	WETLAND BUFFER
[Symbol]	FLOODPLAIN LIMIT
[Symbol]	WETLANDS
[Symbol]	PERENNIAL STREAM
[Symbol]	STREAM BANK
[Symbol]	LOD
[Symbol]	LOW-A
[Symbol]	LOW-B

STANDARD SYMBOLS

FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SC	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
SUPER SILT FENCE	SS	[Symbol]
SILT FENCE	SF	[Symbol]
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	B	[Symbol]
REMOVABLE PUMPING STATION	RS	[Symbol]
TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GP	[Symbol]
RIP RAP OUTLET PROTECTION	RO	[Symbol]
PLUNGE POOL	PP	[Symbol]
GABION INLET PROTECTION	GIP	[Symbol]
TREE PROTECTION FENCE	TPF	[Symbol]
SAND BAGS	[Symbol]	[Symbol]
TEMPORARY PUMP AROUND	[Symbol]	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	TOS	[Symbol]

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
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REVISIONS

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CAD ID: MD1420672 - ERO1 - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
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B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND
LICENSE NO. 40898, EXPIRATION DATE: 7/30/2025

SHEET TITLE
PHASE I EROSION & SEDIMENT CONTROL PLAN
SHEET NUMBER
37 OF 146
ORG. DATE - 04/17/24

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Designed by: **Alexander Brachic** 7/16/2024
HOWARD SOIL CONSERVATION DISTRICT DATE

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
NACOM HOWELL, PROGRAM MANAGER DATE 7/16/2024
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 7/16/2024
CHIEF ENGINEER, DEPARTMENT OF PLANNING AND ZONING
DATE 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
Linda Eschberg 7/16/2024
DATE 7/16/2024

OWNER'S/DEVELOPER'S CERTIFICATE

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 OF DEVELOPER: **[Signature]** DATE: 7/11/2024
(NAME) DATE

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 COUNTY SOIL CONSERVATION DISTRICT.

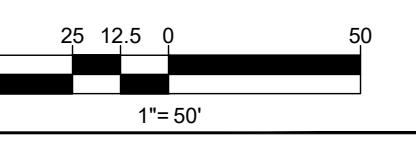
SIGNATURE OF ENGINEER: **[Signature]** DATE: 7/11/2024
BRANDON R. ROWE P.E. MD PE LICENSE NO 40808

RIP-RAP SCHEDULE

SYM	DESCRIPTION	TYPE	LENGTH	WIDTH	THICKNESS	D ₁₀	D ₅₀	REMARKS
RS	CLASS I RIP-RAP ON NONWOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION III	15'	17.5'	18"	9.5"	15"	
GP	GABION INFLOW PROTECTION ON NONWOVEN GEOTEXTILE FABRIC		31'	9'	12"			GABIONS TO BE FILLED WITH 4" - 7" STONES
GP	GABION INFLOW PROTECTION ON NONWOVEN GEOTEXTILE FABRIC		31'	9'	12"			GABIONS TO BE FILLED WITH 4" - 7" STONES

EROSION AND SEDIMENT CONTROL NOTES

- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
- ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY PER THE "WORK OUTSIDE PERIMETER CONTROLS NOTES".
- PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
- CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SLOPES 3:1 OR GREATER.
- IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
- IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.
- WORK LOCATED OUTSIDE OF THE LIMIT OF WORK (-LOW-) AND WITHIN THE LIMIT OF DISTURBANCE (-LOD-) SUCH AS SHARED SEPTIC FIELDS SHALL BE COMPLETED ALONG WITH THE CONSTRUCTION OF THE HOUSES DISCHARGING TO EACH SEPTIC FIELD. THE MAJORITY THE LOW SHOULD BE STABILIZED AT THIS TIME, KEEPING THE ACTIVE DISTURBANCE AREA UNDER 20 AC.
- LOW AND PERIMETER CONTROLS ARE TO BE SET AT THE LOD, OFFSET FOR PLAN CLARITY.
- FOR ANY DISTURBANCE OR REDISTURBANCE WITHIN THE TIER II STREAM PROTECTION ZONE (SPZ), CONTRACTOR IS TO USE ACCELERATED STABILIZATION AS NOTED IN THE SOIL STABILIZATION NOTE ON SHEET 59.



NOTE: HAZARD CLASS FOR ALL SEDIMENT BASINS IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER: LYHUS DEVELOPMENT, LLC
60 H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKDRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKDRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C F-20-016 WP-24-060
SP-17-0108 F-20-016 WP-21-011
ECP-17-056 WP-22-132
WP-18-070

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

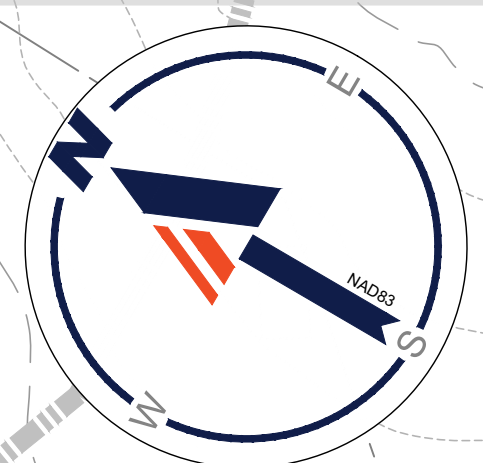
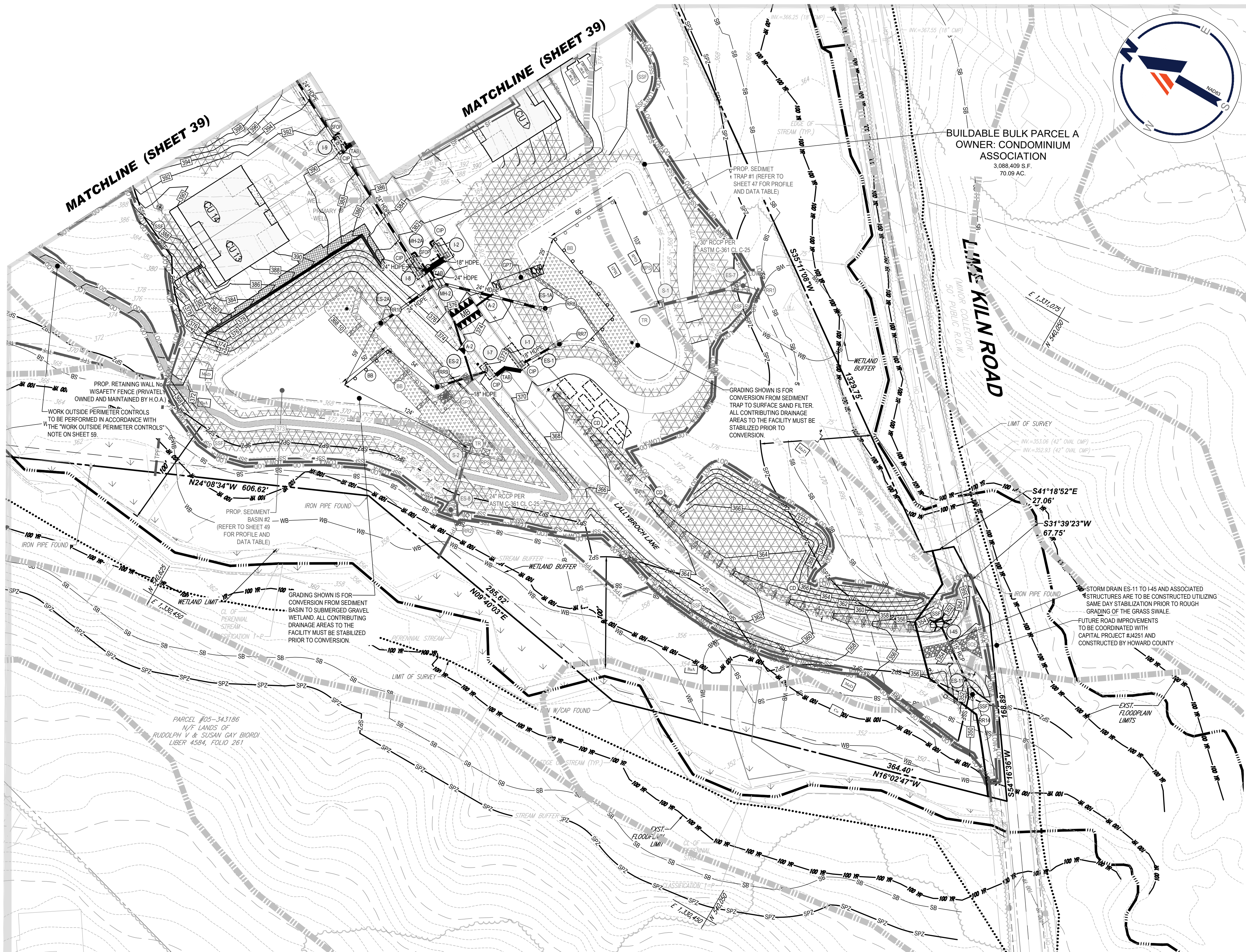
STANDARD SYMBOLS

FOR EROSION AND SEDIMENT CONTROL PRACTICES

Table with 3 columns: TITLE, KEY, SYMBOL. Lists various erosion and sediment control practices like stabilized stone construction entrance, mountable berm, temporary asphalt berm, etc.

LEGEND

Legend table with symbols for soil divide, stream buffer, wetlands, perennial stream, asphalt pavement, natural surface walking trail, proposed building, concrete sidewalk, stormwater management facility, well area, sewage disposal area, etc.



BUILDABLE BULK PARCEL A
OWNER: CONDOMINIUM
ASSOCIATION
3,088,408 S.F.
70.09 AC.

BOHLER logo and company information: SITE CIVIL AND CONSULTING ENGINEERING, PROGRAM MANAGEMENT, LANDSCAPE ARCHITECTURE, SUSTAINABLE DESIGN, PERMITTING SERVICES, TRANSPORTATION SERVICES.

REVISIONS table with columns: REV, DATE, COMMENT, DRAWN BY, CHECKED BY.

811 logo and text: Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

Project information table: PROJECT No., DRAWN BY, DATE, CAD ID, MUR, MP, 07/11/2024, MD1420672 - ERO2 - 2

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY) PROPOSED AGE-RESTRICTED COMMUNITY. 12170 LIME KILN ROAD, FULTON, HOWARD COUNTY, MD.

BOHLER logo and address: 901 DULANEY VALLEY ROAD, SUITE 801, TOWSON, MARYLAND 21204.

B.R. ROWE logo and professional engineer information: PROFESSIONAL ENGINEER, LICENSE NO. 40808, EXPIRATION DATE: 7/30/2025.

SHEET TITLE: PHASE II EROSION & SEDIMENT CONTROL PLAN. SHEET NUMBER: 38 OF 146. ORG. DATE: 04/17/24.

PHASE II EROSION & SEDIMENT CONTROL PLAN

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS. NACM HOMEPLANNING PROGRAM MANAGER, WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM, MARYLAND DEPARTMENT OF THE ENVIRONMENT.

OWNER'S/DEVELOPER'S CERTIFICATE. I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN.

DESIGN CERTIFICATION. I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS.

RIP-RAP SCHEDULE table with columns: SYM, DESCRIPTION, TYPE, LENGTH, WIDTH, THICKNESS, D₁₅, D₈₅, REMARKS. Lists specifications for Class I rip-rap on nonwoven geotextile fabric for rock outlet protection.

EROSION AND SEDIMENT CONTROL NOTES

- 1. CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
- 2. ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY PER THE "WORK OUTSIDE PERIMETER CONTROLS" NOTES.
- 3. PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- 4. EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
- 5. CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SLOPES 3:1 OR GREATER.
- 6. IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
- 7. IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.
- 8. WORK LOCATED OUTSIDE OF THE LIMIT OF WORK (LOW) AND WITHIN THE LIMIT OF DISTURBANCE (LOD) SUCH AS SHARED SEPTIC FIELDS SHALL BE COMPLETED ALONG WITH CONSTRUCTION OF THE HOUSES DISCHARGING TO EACH SEPTIC FIELD. THE MAJORITY OF THE LOW SHOULD BE STABILIZED AT THIS TIME, KEEPING THE ACTIVE DISTURBANCE AREA UNDER 20 AC.
- 9. LOW AND PERIMETER CONTROLS ARE TO BE SET AT THE LOD OFFSET FOR PLAN CLARITY.
- 10. FOR ANY DISTURBANCE OR REDISTURBANCE WITHIN THE TIER II STREAM PROTECTION ZONE (SPZ), CONTRACTOR IS TO UTILIZE ACCELERATED STABILIZATION AS NOTED IN THE SOIL STABILIZATION NOTE ON SHEET 59.
- 11. ALL ROOF DRAINS TO DRYWELLS ARE TO BE A MIN. 4" DIAMETER AT A MIN. SLOPE OF 2.00%. ALL OTHER ROOF DRAINS ARE TO BE CONSTRUCTED PER THE PLAN AND ROOF DRAIN TABLE ON SHEET 58.

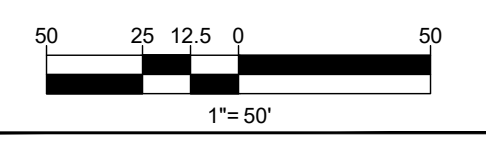


Table with project details: SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY), SECTION/AREA: N/A, DEED # 145320/0469, PLAT # 29548-29552, TAX MAP: 40, GRID: 24, ZONED: RR-DEO, PARCEL: 135, 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND.

NOTE: HAZARD CLASS FOR ALL SEDIMENT BASINS IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.



STANDARD SYMBOLS

FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SCS	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
TEMPORARY ASPHALT BERM	TAB	[Symbol]
SUPER SILT FENCE	SSF	[Symbol]
SILT FENCE	SF	[Symbol]
SILT FENCE ON PAVEMENT	SFOP	[Symbol]
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	BB	[Symbol]
REMOVABLE PUMPING STATION	RPS	[Symbol]
TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GI	[Symbol]
RIP RAP OUTLET PROTECTION	RO	[Symbol]
PLUNGE POOL	PP	[Symbol]
AT-GRADE INLET PROTECTION	AGIP	[Symbol]
CURB INLET PROTECTION	CIP	[Symbol]
GABION INLET PROTECTION	GIP	[Symbol]
MEDIAN INLET PROTECTION	MIP	[Symbol]
MEDIAN SUMP INLET PROTECTION	MSIP	[Symbol]
STANDARD INLET PROTECTION TYPE 'A'	SPHA	[Symbol]
TREE PROTECTION FENCE	TPF	[Symbol]
STONE CHECK DAM	CD	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	TGOS	[Symbol]
TEMPORARY SOIL STABILIZATION MATTING	[Symbol]	[Symbol]

LEGEND

[Symbol]	SOIL DIVIDE
[Symbol]	SOIL LABEL
[Symbol]	STREAM BUFFER
[Symbol]	TIER II STREAM PROTECTION ZONE
[Symbol]	WETLAND BUFFER
[Symbol]	FLOODPLAIN LIMIT
[Symbol]	WETLANDS
[Symbol]	PERENNIAL STREAM
[Symbol]	STREAM BANK
[Symbol]	LOD
[Symbol]	LOW-A
[Symbol]	LOW-B
[Symbol]	ASPHALT PAVEMENT
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[Symbol]	CONCRETE SIDEWALK
[Symbol]	STORMWATER MANAGEMENT FACILITY
[Symbol]	WELL AREA
[Symbol]	SEWAGE DISPOSAL AREA

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.:	MD1420672
DRAWN BY:	MJR
CHECKED BY:	MP
DATE:	07/11/2024
CAD ID:	MD1420672 - ERO2 - 2

PROJECT:

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE

PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40808
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40808. EXPIRATION DATE: 7/30/2025

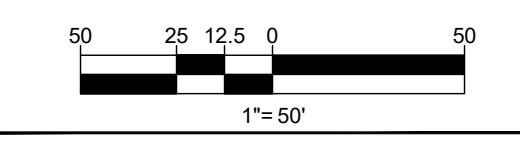
SHEET TITLE:
PHASE II EROSION & SEDIMENT CONTROL PLAN

SHEET NUMBER:
39 OF 146

ORG. DATE - 04/17/24

EROSION AND SEDIMENT CONTROL NOTES

- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
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OWNER:	LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075
DEVELOPER:	ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
PREVIOUS FILE NO.:	BA-20-002C SP-17-0108 ECP-17-056 WP-18-070
	F-20-016 WP-21-011 WP-22-132
	WP-24-060
TAX MAP:	40
GRID:	24
ZONED:	RR-DEO
PARCEL:	135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.	7/16/2024
Naomi Howell, PROGRAM MANAGER	DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM	
MARYLAND DEPARTMENT OF THE ENVIRONMENT	
APPROVED, DEPARTMENT OF PLANNING AND ZONING	7/16/2024
Chad Edwards	DATE
CHEIE DIVISION	
CHEIE ENGINEERING DIVISION	7/16/2024
DATE	
CHEIE DIVISION OF LAND DEVELOPMENT	7/16/2024
DATE	
Linda Eisenberg	DATE
DATE	

OWNER'S/DEVELOPER'S CERTIFICATE

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DATE: 7/16/2024

SIGNATURE OF DEVELOPER (NAME): *[Signature]*

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 COUNTY SOIL CONSERVATION DISTRICT.

DATE: 7/11/2024

SIGNATURE OF ENGINEER: *[Signature]*

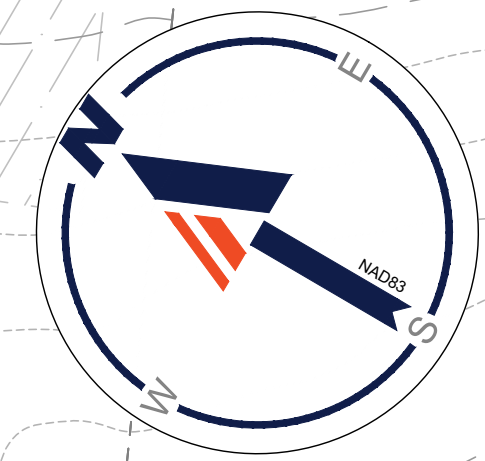
BRANDON R. ROWE, P.E.
MD PE LICENSE NO. 40808

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.

DATE: 7/16/2024

SIGNATURE: *[Signature]*

HOWARD COUNTY CONSERVATION DISTRICT



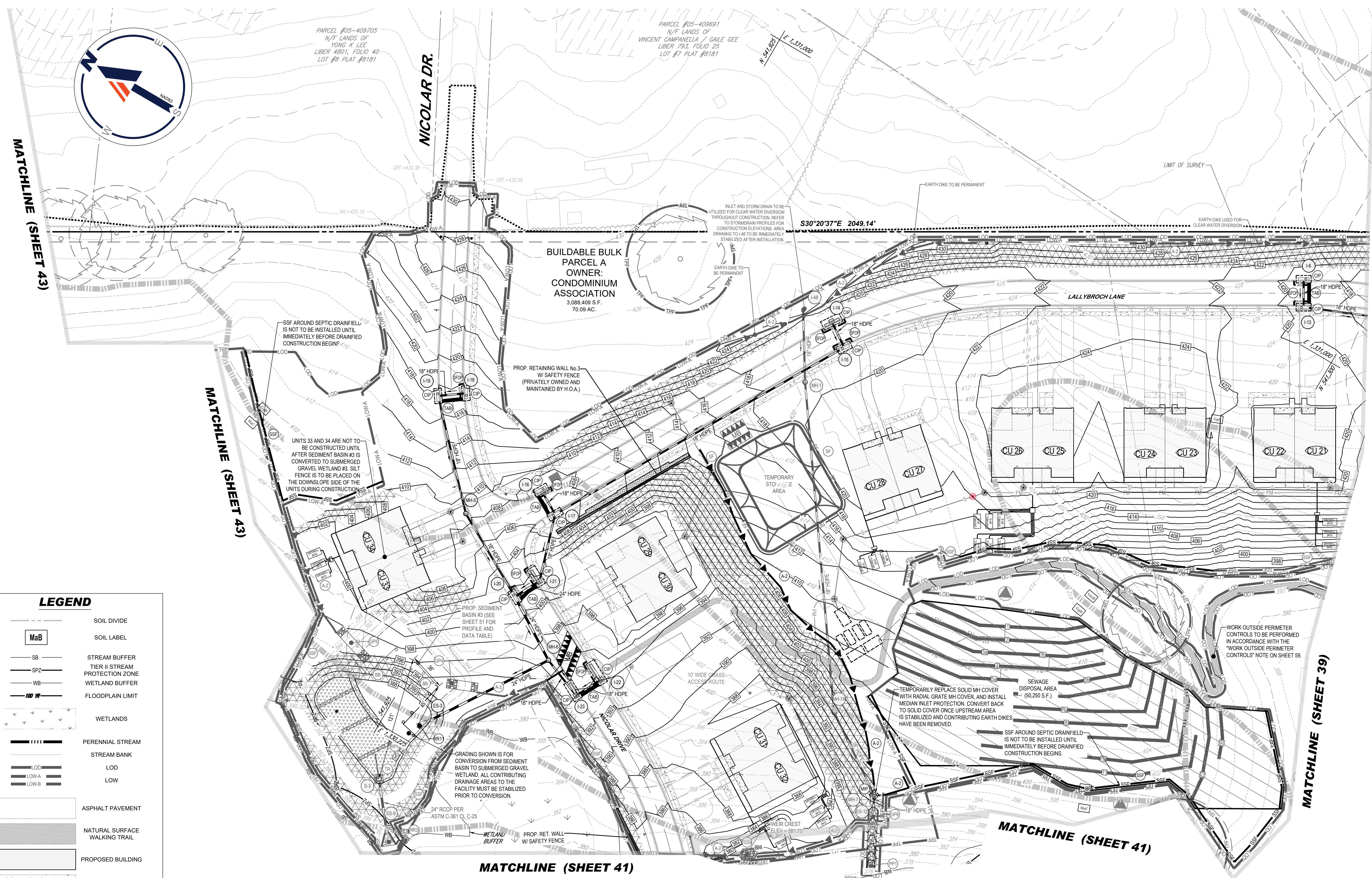
STANDARD SYMBOLS

FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SC	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
TEMPORARY ASPHALT BERM	TMB	[Symbol]
SUPER SILT FENCE	SSF	[Symbol]
SILT FENCE	SF	[Symbol]
SILT FENCE ON PAVEMENT	SFOP	[Symbol]
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	BB	[Symbol]
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TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GP	[Symbol]
RIP RAP OUTLET PROTECTION	RR	[Symbol]
PLUNGE POOL	PP	[Symbol]
AT-GRADE INLET PROTECTION	AP	[Symbol]
CURB INLET PROTECTION	CP	[Symbol]
GABION INLET PROTECTION	GP	[Symbol]
MEDIAN INLET PROTECTION	MP	[Symbol]
MEDIAN SUMP INLET PROTECTION	MSIP	[Symbol]
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TREE PROTECTION FENCE	TPF	[Symbol]
STONE CHECK DAM	CD	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	GT	[Symbol]
TEMPORARY SOIL STABILIZATION MATTING	SSM	[Symbol]

LEGEND

[Symbol]	SOIL DIVIDE
[Symbol]	SOIL LABEL
[Symbol]	STREAM BUFFER
[Symbol]	TIER II STREAM PROTECTION ZONE
[Symbol]	WETLAND BUFFER
[Symbol]	FLOODPLAIN LIMIT
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[Symbol]	PROPOSED BUILDING
[Symbol]	CONCRETE SIDEWALK
[Symbol]	STORMWATER MANAGEMENT FACILITY
[Symbol]	WELL AREA
[Symbol]	SEWAGE DISPOSAL AREA



MATCHLINE (SHEET 43)

MATCHLINE (SHEET 43)

MATCHLINE (SHEET 41)

MATCHLINE (SHEET 39)



REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.:	MD1420672
DRAWN BY:	MUR
CHECKED BY:	MP
DATE:	07/11/2024
CAD ID:	MD1420672 - ERO2 - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
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SHEET TITLE: **PHASE II EROSION & SEDIMENT CONTROL PLAN**
SHEET NUMBER: **40 OF 146**
ORG. DATE - 04/17/24

EROSION AND SEDIMENT CONTROL NOTES

- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
- ALL PROPOSED WORK OUTSIDE OF PERIMETER CONTROLS SHALL BE STABILIZED AT THE END OF EACH WORK DAY PER THE "WORK OUTSIDE PERIMETER CONTROLS" NOTES.
- PROPOSED SILT FENCE IS TO BE CHANGED TO SUPER SILT FENCE AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.
- EITHER TEMPORARY OR PERMANENT SEEDING IS TO BE PERFORMED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR OR AT THE TIME FRAMES REQUIRED BY THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, WHICHEVER IS MORE RESTRICTIVE.
- CONTRACTOR TO INSTALL SOIL STABILIZATION MATTING IN ALL SLOPES 3:1 OR GREATER.
- IF A STOCKPILE EXCEEDS 15 FEET IN HEIGHT, IT MUST BE BENCHED.
- IF A UTILITY CROSSES A PHASING LINE, THAT SECTION OF PIPE OR STRUCTURE CANNOT BE INSTALLED UNTIL THE LATER PHASE.
- WORK LOCATED OUTSIDE OF THE LIMIT OF WORK (LOW) AND WITHIN THE LIMIT OF DISTURBANCE (LOD) SUCH AS SHARED SEPTIC FIELDS SHALL BE COMPLETED ALONG WITH CONSTRUCTION OF THE HOUSES DISCHARGING TO EACH SEPTIC FIELD. THE MAJORITY OF THE LOW SHOULD BE STABILIZED AT THIS TIME, KEEPING THE ACTIVE DISTURBANCE AREA UNDER 20 AC.
- LOW AND PERIMETER CONTROLS ARE TO BE SET AT THE LOD OFFSET FOR PLAN CLARITY.
- FOR ANY DISTURBANCE OR REDISTURBANCE WITHIN THE TIER II STREAM PROTECTION ZONE (SPZ), CONTRACTOR IS TO UTILIZE ACCELERATED STABILIZATION AS NOTED IN THE SOIL STABILIZATION NOTE ON SHEET 59.
- LOW AND PERIMETER CONTROLS ARE TO BE SET AT A MIN. SLOPE OF 2.00% ALL OTHER ROOFS DRAIN TO DRYWELLS ARE TO BE A MIN. 4" DIAMETER AT A MIN. SLOPE OF 2.00%. ALL OTHER ROOFS DRAIN ARE TO BE CONSTRUCTED PER THE PLAN AND ROOF DRAIN TABLE ON SHEET 58.

NOTE: HAZARD CLASS FOR ALL SEDIMENT BASINS IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER:	LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIE, MARYLAND 21075
DEVELOPER:	ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046
PREVIOUS FILE NO.:	BA-20-002C SP-17-0108 ECP-17-056 WP-18-070
F-20-016 WP-21-011 WP-22-132	WP-24-060
TAX MAP: 40	GRID: 24
PARCEL: 135	ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD COUNTY CONSERVATION DISTRICT.

Designed by: **Alexander Eroshin** 7/16/2024
HOWARD COUNTY CONSERVATION DISTRICT

DESIGN CERTIFICATION

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS, AND 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 COUNTY SOIL CONSERVATION DISTRICT.

7/11/2024
SIGNATURE OF ENGINEER: **BRANDON R. ROWE P.E.**
MD PE LICENSE NO 40808

RIP-RAP SCHEDULE

SYM	DESCRIPTION	TYPE	LENGTH	WIDTH	THICKNESS	D ₁₀	D ₆₀	REMARKS
(R1)	CLASS I RIP-RAP ON NONWOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION III	11'	6.5'	19"	9.5"	15"	

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Powell 7/16/2024
NACOM HOMEOWNERS PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

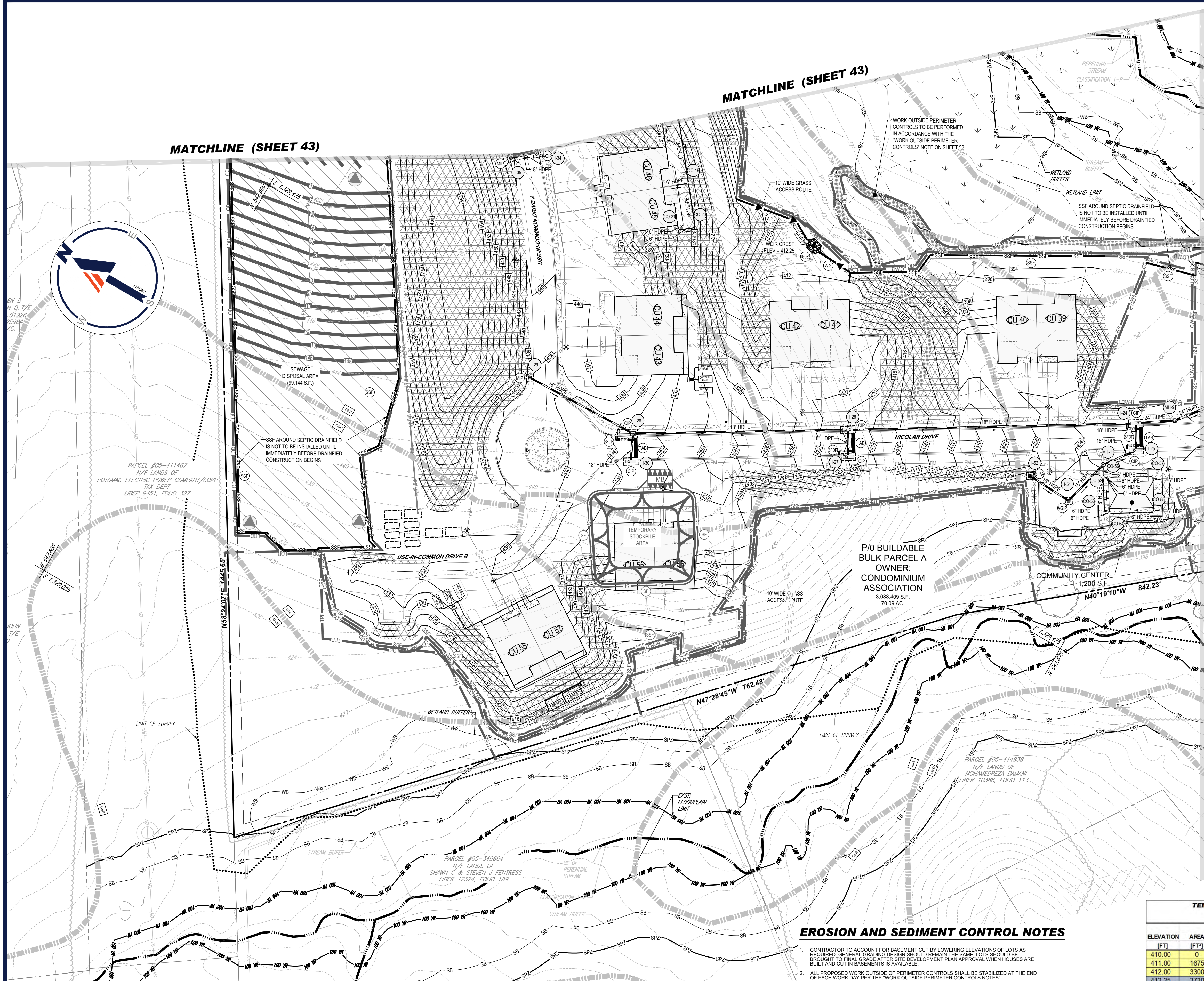
APPROVED DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 7/16/2024
CHIEF ENGINEER
ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
Linda Eschberg 7/16/2024
DATE

OWNER'S/DEVELOPER'S CERTIFICATE

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 COUNTY CONSERVATION DISTRICT AND/OR MDE.

7/16/2024
SIGNATURE OF DEVELOPER: **[Signature]**
(NAME): **[Name]** DATE



STANDARD SYMBOLS

FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SCS	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
TEMPORARY ASPHALT BERM	TAB	[Symbol]
SUPER SILT FENCE	SSF	[Symbol]
SILT FENCE	SF	[Symbol]
SILT FENCE ON PAVEMENT	SFOP	[Symbol]
EARTH TIRE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	BB	[Symbol]
REMOVABLE PUMPING STATION	RP	[Symbol]
TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GP	[Symbol]
RIP RAP OUTLET PROTECTION	RO	[Symbol]
PLUNGE POOL	PP	[Symbol]
AT-GRADE INLET PROTECTION	AGP	[Symbol]
CURB INLET PROTECTION	CP	[Symbol]
GABION INLET PROTECTION	GP	[Symbol]
MEDIAN INLET PROTECTION	MP	[Symbol]
MEDIAN SUMP INLET PROTECTION	MSIP	[Symbol]
STANDARD INLET PROTECTION TYPE 'A'	SPA	[Symbol]
TREE PROTECTION FENCE	TPF	[Symbol]
STONE CHECK DAM	CD	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	TOG	[Symbol]
TEMPORARY SOIL STABILIZATION MATTING	[Symbol]	[Symbol]

LEGEND

MaB SOIL DIVIDE
 SB STREAM BUFFER
 SPZ TIER II STREAM PROTECTION ZONE
 WB WETLAND BUFFER
 100 FT FLOODPLAIN LIMIT
 WETLANDS
 PERENNIAL STREAM
 STREAM BANK
 LOD LOW A
 LOW B
 ASPHALT PAVEMENT
 NATURAL SURFACE WALKING TRAIL
 PROPOSED BUILDING
 CONCRETE SIDEWALK
 STORMWATER MANAGEMENT FACILITY
 WELL AREA
 SEWAGE DISPOSAL AREA

TEMPORARY GABION OUTLET STRUCTURE 2 STORAGE TABLE (INTERIM & POST-DEVELOPMENT)

ELEVATION (FT)	AREA (FT)	AREA (ACRE)	CHANGE IN ELEVATION (FT)	AVERAGE VOLUME (AC-FT)	INCREMENTAL VOLUME (AC-FT)	CUMULATIVE VOLUME (FT)	CUMULATIVE VOLUME (AC-FT)
410.00	0	0.0000				0.00	0.0000
411.00	1675	0.0385	1.00	0.0192	0.0192	838	0.02
412.00	3300	0.0758	1.00	0.0571	0.0571	3325	0.08
412.25	3730	0.0856	0.25	0.0807	0.0202	4204	0.10

WEIR CREST ELEVATION

MAXIMUM DRAINAGE AREA = 0.90 AC
 TOTAL STORAGE REQUIRED = 1620 CF
 TOTAL STORAGE PROVIDED = 4204 CF

OWNER: LYHUS DEVELOPMENT, LLC
 G/O H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. G/O H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

EROSION AND SEDIMENT CONTROL NOTES

- CONTRACTOR TO ACCOUNT FOR BASEMENT CUT BY LOWERING ELEVATIONS OF LOTS AS REQUIRED. GENERAL GRADING DESIGN SHOULD REMAIN THE SAME. LOTS SHOULD BE BROUGHT TO FINAL GRADE AFTER SITE DEVELOPMENT PLAN APPROVAL WHEN HOUSES ARE BUILT AND CUT IN BASEMENTS IS AVAILABLE.
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APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 NACOM HIGGINS, PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 CHIEF ENGINEER
 CIVIL ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
 LINDA FISHER

DATE: 7/16/2024

OWNER'S/DEVELOPER'S CERTIFICATE

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 OF DEVELOPER (NAME): [Signature]
 DATE: 7/16/2024

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 COUNTY SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER: BRANDON R. ROWE P.E.
 DATE: 7/11/2024
 MD PE LICENSE NO 40808

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
 DRAWN BY: MUR
 DATE: 07/11/2024
 CAD LID: MD1420672 - EROD - 2

SITE DEVELOPMENT PLAN

FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER

901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

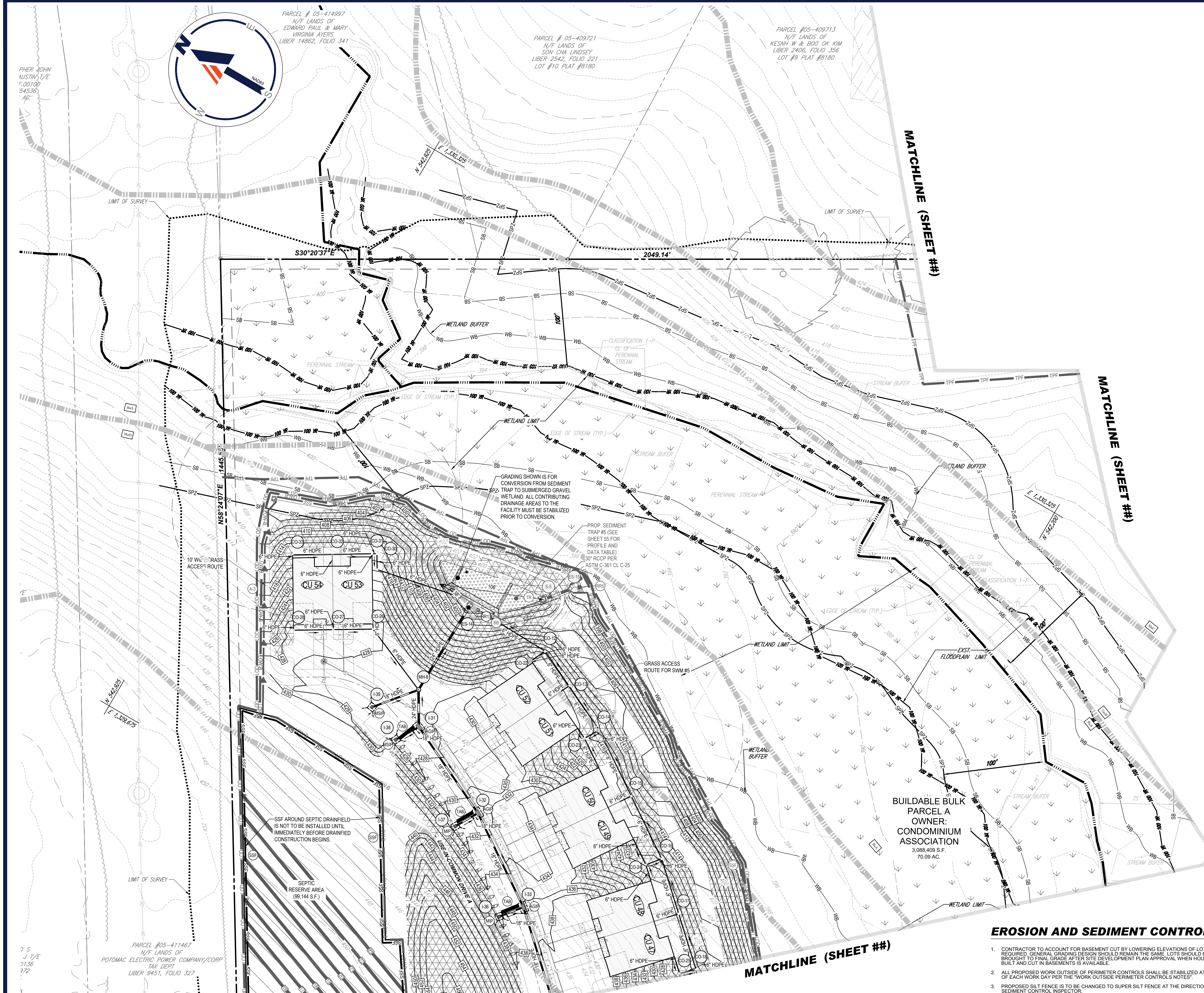
B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 10303
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DELIVERABLE PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40808, EXPIRATION DATE: 7/31/2025

SHEET TITLE: **PHASE II EROSION & SEDIMENT CONTROL PLAN**

SHEET NUMBER: **42 OF 146**

ORG. DATE - 04/17/24



LEGEND

MaB SOIL DIVIDE

SB STREAM BUFFER

SPZ TIER II STREAM PROTECTION ZONE

WB WETLAND BUFFER

100 FT FLOODPLAIN LIMIT

PERENNIAL STREAM

STREAM BANK

LOD LOD

LOW-A LOW

LOW-B LOW

ASPHALT PAVEMENT

NATURAL SURFACE WALKING TRAIL

PROPOSED BUILDING

CONCRETE SIDEWALK

STORMWATER MANAGEMENT FACILITY

WELL AREA

SEWAGE DISPOSAL AREA

STANDARD SYMBOLS

FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL
STABILIZED STONE CONSTRUCTION ENTRANCE	SCC	[Symbol]
MOUNTABLE BERM	MB	[Symbol]
TEMPORARY ASPHALT BERM	TAB	[Symbol]
SUPER SILT FENCE	SSF	[Symbol]
SILT FENCE	SF	[Symbol]
SILT FENCE ON PAVEMENT	SFOP	[Symbol]
EARTH DIKE (TYPE A-1, A-2, OR A-3)	A1, A2, A3	[Symbol]
BAFFLE BOARDS	BB	[Symbol]
REMOVABLE PUMPING STATION	RPB	[Symbol]
TRASH RACK	TR	[Symbol]
GABION INFLOW PROTECTION	GP	[Symbol]
RIP RAP OUTLET PROTECTION	RO	[Symbol]
PLUNGE POOL	PP	[Symbol]
AT-GRADE INLET PROTECTION	AGP	[Symbol]
CURB INLET PROTECTION	CP	[Symbol]
GABION INLET PROTECTION	GP	[Symbol]
MEDIAN INLET PROTECTION	MP	[Symbol]
MEDIAN SUMP INLET PROTECTION	MSIP	[Symbol]
STANDARD INLET PROTECTION TYPE 'A'	SPA	[Symbol]
TREE PROTECTION FENCE	TPF	[Symbol]
STONE CHECK DAM	CD	[Symbol]
TEMPORARY GABION OUTLET STRUCTURE	TGOS	[Symbol]
TEMPORARY SOIL STABILIZATION MATTING	[Symbol]	[Symbol]

RIP-RAP SCHEDULE

SYM	DESCRIPTION	TYPE	LENGTH	WIDTH	THICKNESS	D ₅₀	D ₈₅	REMARKS
RR1	CLASS I RIP-RAP ON NONWOVEN GEOTEXTILE FABRIC	ROCK OUTLET PROTECTION III	9'	5.75'	19"	9.5"	15"	

EROSION AND SEDIMENT CONTROL NOTES

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NOTE: HAZARD CLASS FOR ALL SEDIMENT BASINS IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
SP-17-0108 F-20-016 PARCEL: 135
ECP-17-056 WP-21-011 TAX MAP: 40 GRID: 24 ZONED: RR-DEO
WP-18-070 WP-22-132 DATE: 7/16/2024

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

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THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: GRAD-

SITE DEVELOPMENT PLAN

FOR

THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE

PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 42057

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898. EXPIRATION DATE: 7/31/2025

SHEET TITLE

**PHASE - II
EROSION AND
SEDIMENT
CONTROL PLAN**

SHEET NUMBER:

43 OF 146

ORG. DATE - 04/17/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

7/16/2024

APPROVED DEPARTMENT OF PLANNING AND ZONING

7/16/2024

APPROVED ENGINEERING DIVISION

7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT

7/16/2024

OWNER'S/DEVELOPER'S CERTIFICATE

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 COUNTY CONSERVATION DISTRICT AND/OR MDE.

SIGNATURE OF DEVELOPER (NAME): [Signature] DATE: 7/16/2024

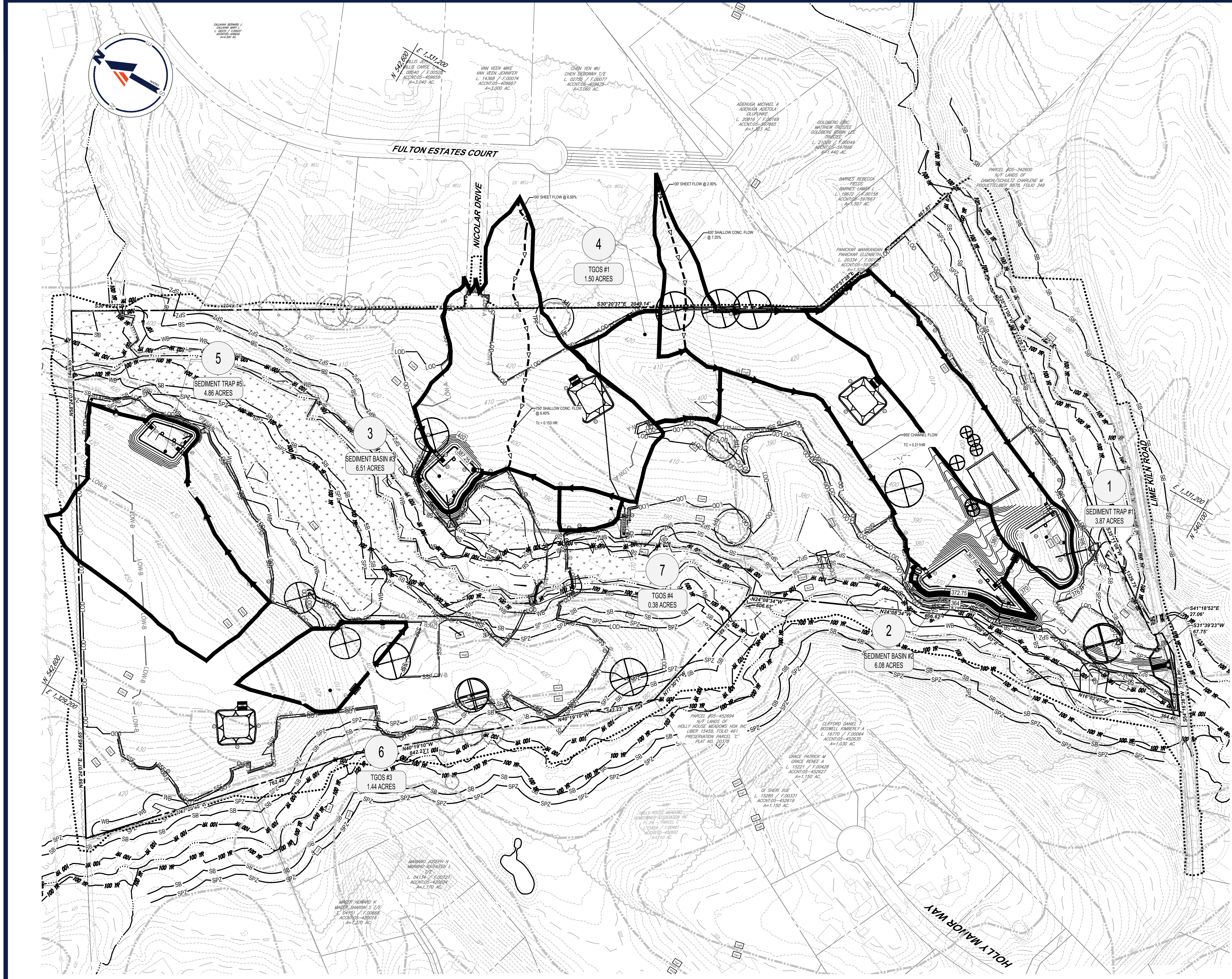
DESIGN CERTIFICATION

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SIGNATURE OF ENGINEER: [Signature] DATE: 7/16/2024
BRANDON R. ROWE P.E. MD PE LICENSE NO 40808

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Approved by: [Signature] DATE: 7/16/2024
HOWARD SOIL CONSERVATION DISTRICT



SOILS TABLE		
SOIL NAME	SOILS DESCRIPTION	HYDROLOGIC SOIL GROUP
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GBB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A
GBC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D
GhB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
 DRAWN BY: MJR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - EAH - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40808
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40808, EXPIRATION DATE: 7/31/2025

SHEET TITLE
PHASE I EROSION & SEDIMENT CONTROL DRAINAGE AREA MAP
 SHEET NUMBER
44 OF 146
 ORG. DATE - 04/17/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell, 7/16/2024
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT
 APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 CHIEF ENGINEER
 DATE: 7/16/2024
 CHIEF DIVISION OF LAND DEVELOPMENT
 DATE: 7/16/2024

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
 Documented by: Alexander Bratche, 7/16/2024
 HOWARD SOIL CONSERVATION DISTRICT DATE

OWNER'S/DEVELOPER'S CERTIFICATE
 I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 OF DEVELOPER: [Signature], DATE: 7/11/2024
 (NAME): BRANDON R. ROWE P.E. MD PE LICENSE NO 40808

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 COUNTY SOIL CONSERVATION DISTRICT.
 SIGNATURE OF ENGINEER: [Signature], DATE: 7/11/2024
 BRANDON R. ROWE P.E. MD PE LICENSE NO 40808

LEGEND

- 1: DRAINAGE AREA DIVIDE
- 1: DRAINAGE AREA LABEL
- SE: SEDIMENT BASIN #1, 1.00 ACRES
- DrE: SOIL LABEL
- : SOIL BOUNDARY LINE

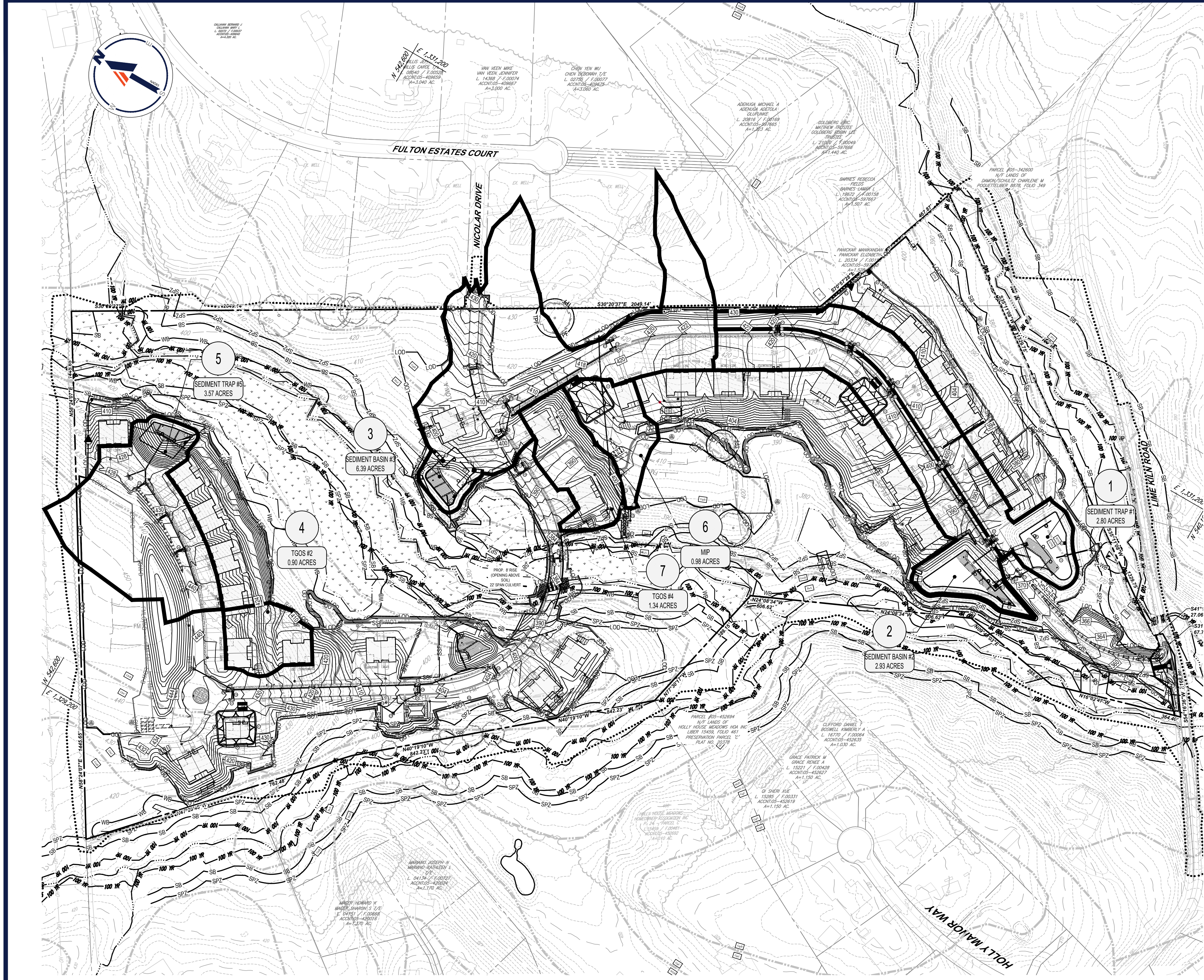
1"=150'

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
 SP-17-0108 F-20-016
 ECP-17-056 WP-21-011
 WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



SOILS TABLE		
SOIL NAME	SOILS DESCRIPTION	HYDROLOGIC SOIL GROUP
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
Co	CODORUS AND HATBORO SILT LOAMS, 0 TO 3 PERCENT SLOPES	C
GaC	GAILA LOAM, 8 TO 15 PERCENT SLOPES	B
GbB	GLADSTONE LOAM, 3 TO 8 PERCENT SLOPES	A
GbC	GLADSTONE LOAM, 8 TO 15 PERCENT SLOPES	A
GgB	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B
GgC	GLENELG LOAM, 3 TO 5 PERCENT SLOPES	B
GmB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	D
GhB	GLENVILLE SILT LOAM, 3 TO 8 PERCENT SLOPES	C
MaB	MANOR LOAM, 3 TO 8 PERCENT SLOPES	B
MaC	MANOR LOAM, 8 TO 15 PERCENT SLOPES	B
MaD	MANOR LOAM, 15 TO 25 PERCENT SLOPES	B

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS			
REV	DATE	COMMENT	DRAWN BY

811
 Know what's below.
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 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
 DRAWN BY: MJR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: EAH

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40808
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DELIVERABLE PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 40808, EXPIRATION DATE: 7/31/2025

INTERIM PHASE EROSION & SEDIMENT CONTROL DRAINAGE AREA MAP
 SHEET NUMBER:
45 OF 146
 ORG. DATE - 04/17/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS:
 Naomi Powell, 7/16/2024
 NACOM HOMEPLANNING PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 Chad Edwards, 7/16/2024
 CHIEF ENGINEER
 ENGINEERING DIVISION
 DATE: 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
 Linda Eisenberg, 7/16/2024
 DATE: 7/16/2024

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Documented by: Alexander Bratchie, 7/16/2024
 HOWARD SOIL CONSERVATION DISTRICT DATE

OWNER'S/DEVELOPER'S CERTIFICATE
 I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 OF DEVELOPER: [Signature] DATE: 7/11/2024
 (NAME): [Name] MD PE LICENSE NO 40808

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 COUNTY SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER: [Signature] DATE: 7/11/2024
 BRANDON R. ROWE P.E. MD PE LICENSE NO 40808

LEGEND

- 1: DRAINAGE AREA DIVIDE
- 1: DRAINAGE AREA LABEL
- 1.00 ACRES: SEDIMENT BASIN #1
- DrE: SOIL LABEL
- : SOIL BOUNDARY LINE

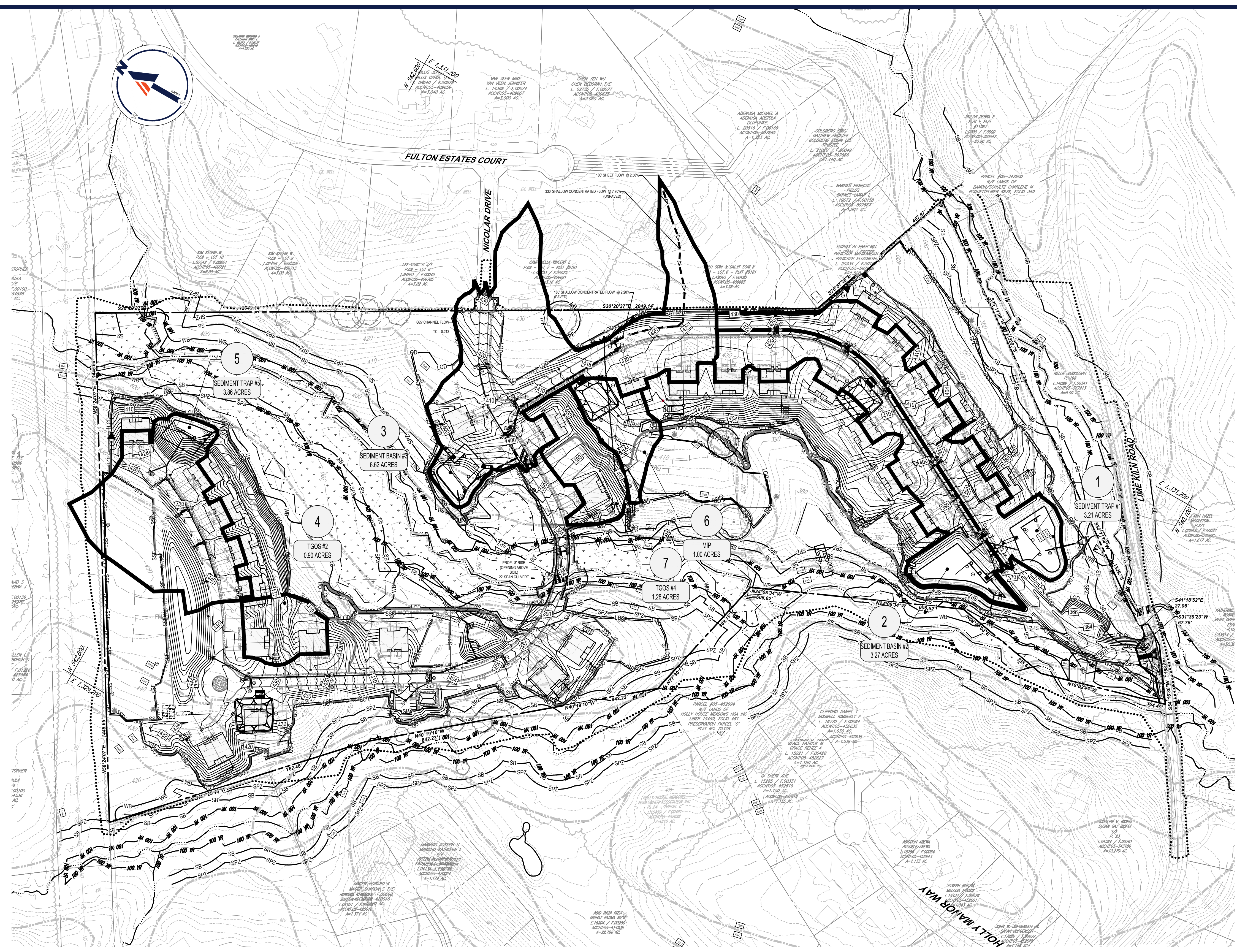
190 75 37.5 0 190
 1"=150'

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE No.: BA-20-002C WP-24-060
 SP-17-0108 F-20-016
 ECP-17-056 WP-21-011
 WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



SOILS TABLE		
SOIL NAME	SOILS DESCRIPTION	HYDROLOGIC SOIL GROUP
BaA	BAILE SILT LOAM, 0 TO 3 PERCENT SLOPES	D
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BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
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REVISIONS			
REV	DATE	COMMENT	DRAWN BY

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
 DRAWN BY: MJR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: EAH

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40808
 I BRANSON, I AM, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40808, EXPIRATION DATE: 7/31/2025

SHEET TITLE:
PHASE II EROSION & SEDIMENT CONTROL DRAINAGE AREA MAP
 SHEET NUMBER:
46 OF 146
 ORG. DATE - 04/17/24

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DocuSigned by:
 Alexander Bratche 7/16/2024
 HOWARD SOIL CONSERVATION DISTRICT DATE

OWNER'S/DEVELOPER'S CERTIFICATE
 I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 OF DEVELOPER (NAME): *[Signature]* DATE: 7/11/2024
 SIGNATURE OF ENGINEER: BRANDON R. ROWE P.E. MD PE LICENSE NO 40808

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 COUNTY SOIL CONSERVATION DISTRICT.

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS:
 Naomi Powell 7/16/2024
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 Chad Edwards 7/16/2024
 CHIEF ENGINEERING DIVISION DATE: 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
 Lynda Eisenberg 7/16/2024
 DATE: 7/16/2024

LEGEND

- 1 DRAINAGE AREA DIVIDE
- 1 DRAINAGE AREA LABEL
- DrE SOIL LABEL
- SOIL BOUNDARY LINE

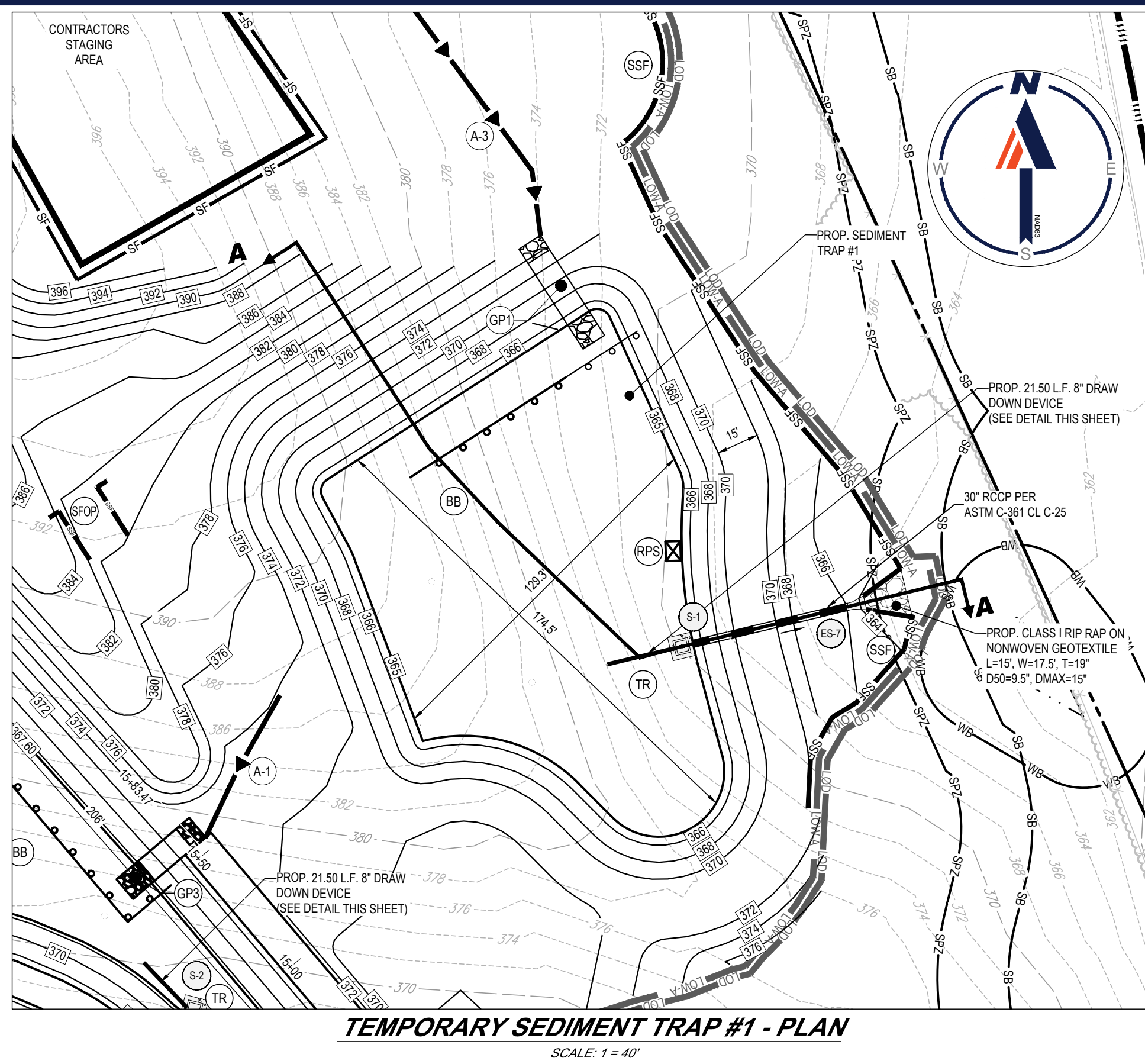
190 75 37.5 0 190
 1"=150'

OWNER: LYHUS DEVELOPMENT, LLC
 c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075

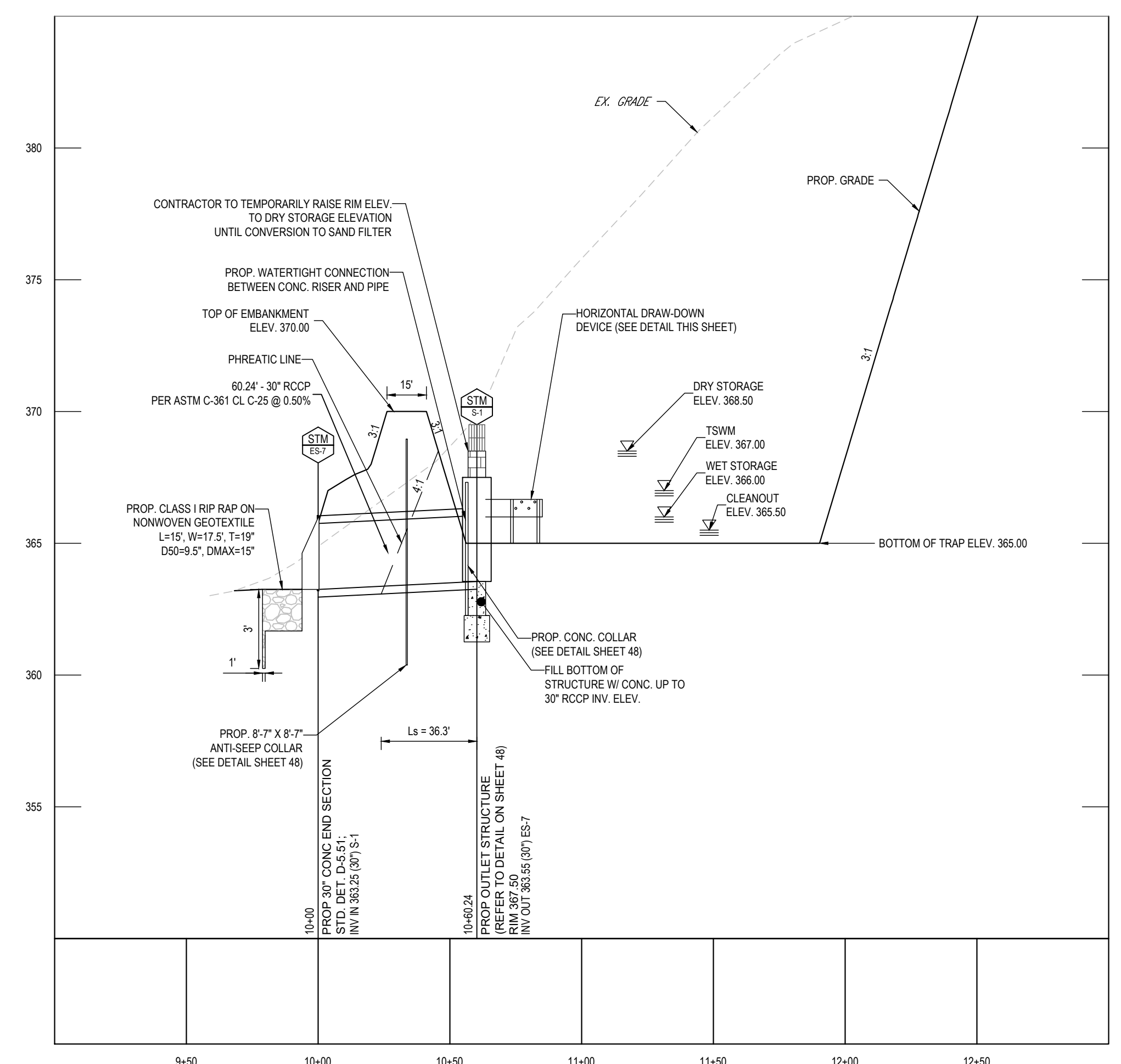
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
 SP-17-0108 F-20-016
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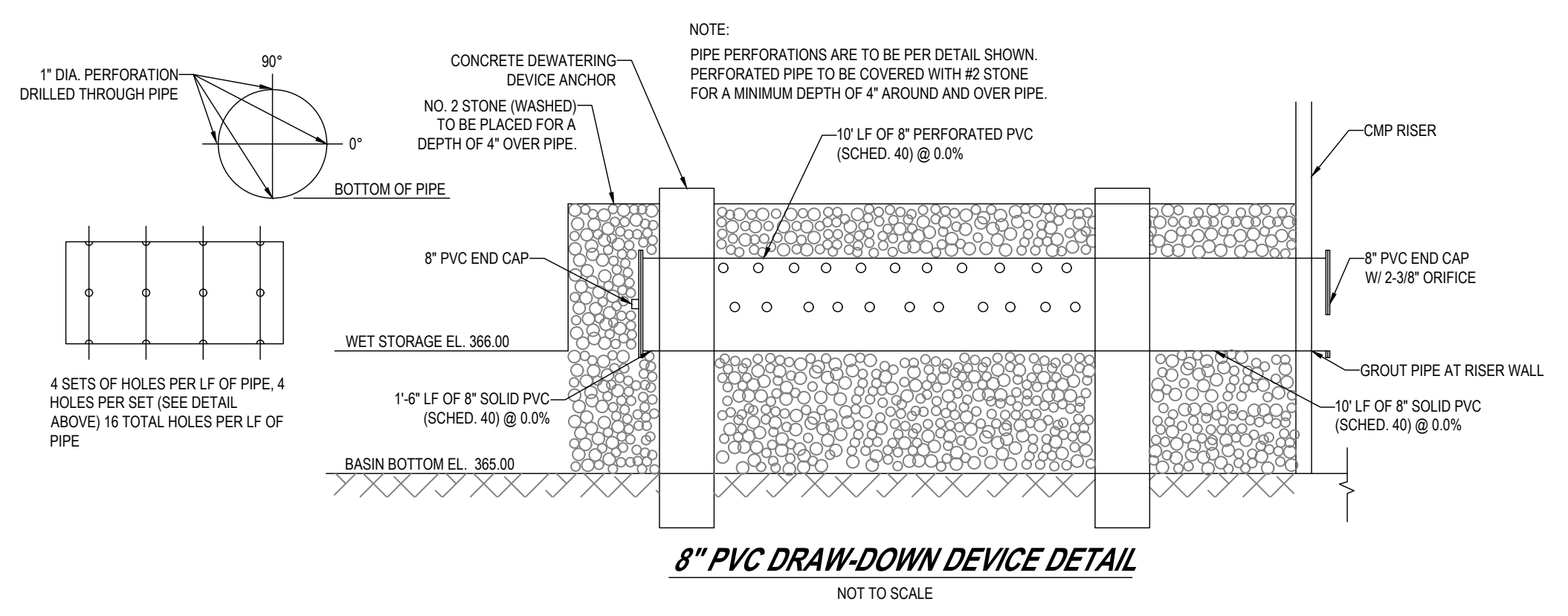
TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



TEMPORARY SEDIMENT TRAP #1 - PLAN
SCALE: 1" = 40'



TEMPORARY SEDIMENT TRAP #1 - SECTION A-A - PRINCIPAL SPILLWAY
SCALE: 1" = 40' HORIZONTAL, 1" = 4' VERTICAL



8" PVC DRAW-DOWN DEVICE DETAIL
NOT TO SCALE

SEDIMENT TRAP NO. 1		
DRAINAGE AREA - INITIAL	3.87	ACRES
DRAINAGE AREA - INTERIM	2.80	ACRES
DRAINAGE AREA - FINAL	3.21	ACRES
TOTAL STORAGE REQUIRED	13,932	CF
TOTAL STORAGE PROVIDED	65,178	CF
WET STORAGE REQUIRED	6,966	CF
WET STORAGE PROVIDED	16,584	CF
DRY STORAGE REQUIRED	6,966	CF
DRY STORAGE PROVIDED	48,594	CF
BASIN BOTTOM ELEVATION	365.00	FT
BASIN BOTTOM DIMENSIONS	VARIES FT X FT	
RISER CREST (DRY STORAGE) ELEVATION	368.50	FT
OUTLET (WET STORAGE) ELEVATION	366.00	FT
CLEANOUT ELEVATION	365.50	FT
TOP OF EMBANKMENT ELEVATION	370.00	FT
SIDE SLOPE	3:1	H:V RATIO
EMBANKMENT TOP WIDTH	15	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL RISER, ANTI-SEEP COLLAR)	CONCRETE	
RISER DIAMETER	SEE DETAIL	IN
BARREL DIAMETER	30	IN
TRASH RACK DIAMETER	SEE DETAIL	IN
TRASH RACK HEIGHT	SEE DETAIL	IN
ANTI-SEEP COLLAR DIMENSIONS	8.58 X 8.58	FT
OUTLET PROTECTION - LENGTH	15	FT
OUTLET PROTECTION - WIDTH	17.5	FT
OUTLET PROTECTION - DEPTH	19	IN
BAFFLE BOARD ELEVATION	367.25	FT

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT NO.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - EROX - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40898
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898, EXPIRATION DATE: 7/3/2025

SHEET TITLE
SEDIMENT TRAP/BASIN NOTES & DETAILS
SHEET NUMBER:
47 OF 146
ORG. DATE - 04/17/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Powell 7/16/2024
NACOM HOMELESS PROGRAM MANAGER
DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 7/16/2024
DATE
CHIEF ENGINEER, ENGINEERING DIVISION
7/16/2024
DATE
CHIEF DIVISION OF LAND DEVELOPMENT
7/16/2024
DATE
Lynda Eisenberg
DATE

OWNER'S/DEVELOPER'S CERTIFICATE
I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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.
DATE: 7/16/2024
SIGNATURE OF DEVELOPER: **Brandon R. Rowe**
(NAME): *Brandon R. Rowe* DATE: 7/16/2024

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.
Designed by: **Alexander Eroshin** 7/16/2024
HOWARD SOIL CONSERVATION DISTRICT DATE

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 COUNTY SOIL CONSERVATION DISTRICT.
DATE: 7/11/2024
SIGNATURE OF ENGINEER: **Brandon R. Rowe P.E.**
DATE: 7/11/2024
MD PE LICENSE NO 40808

50 25 12.5 0
1" = 50'

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED # 14332/00469
PLAT # 28646-29652

PREVIOUS FILE NO.: BA-20-002C
SP-17-0108
ECP-17-056
WP-18-070

FA-20-016
WP-21-011
WP-22-132

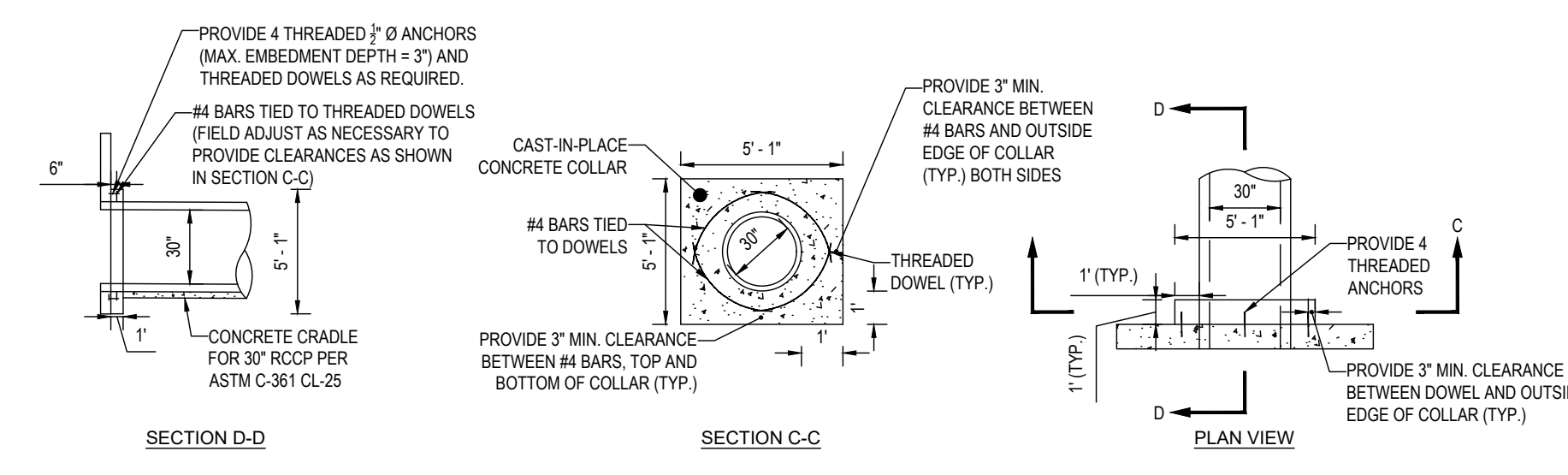
WP-24-060
TAX MAP: 40
GRID: 24
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

OWNER: LYHUS DEVELOPMENT LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

ZONED: RR-DEO

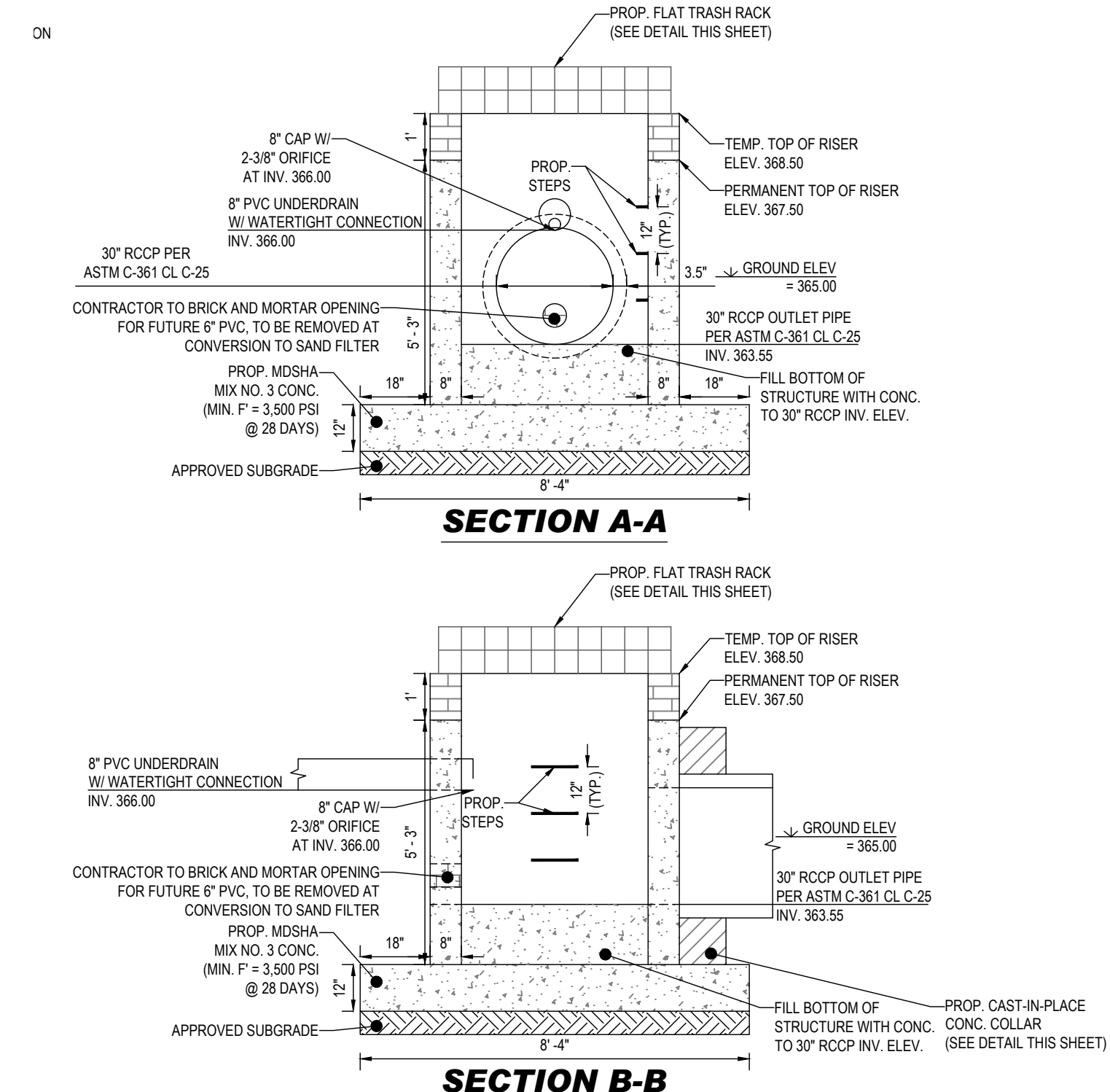
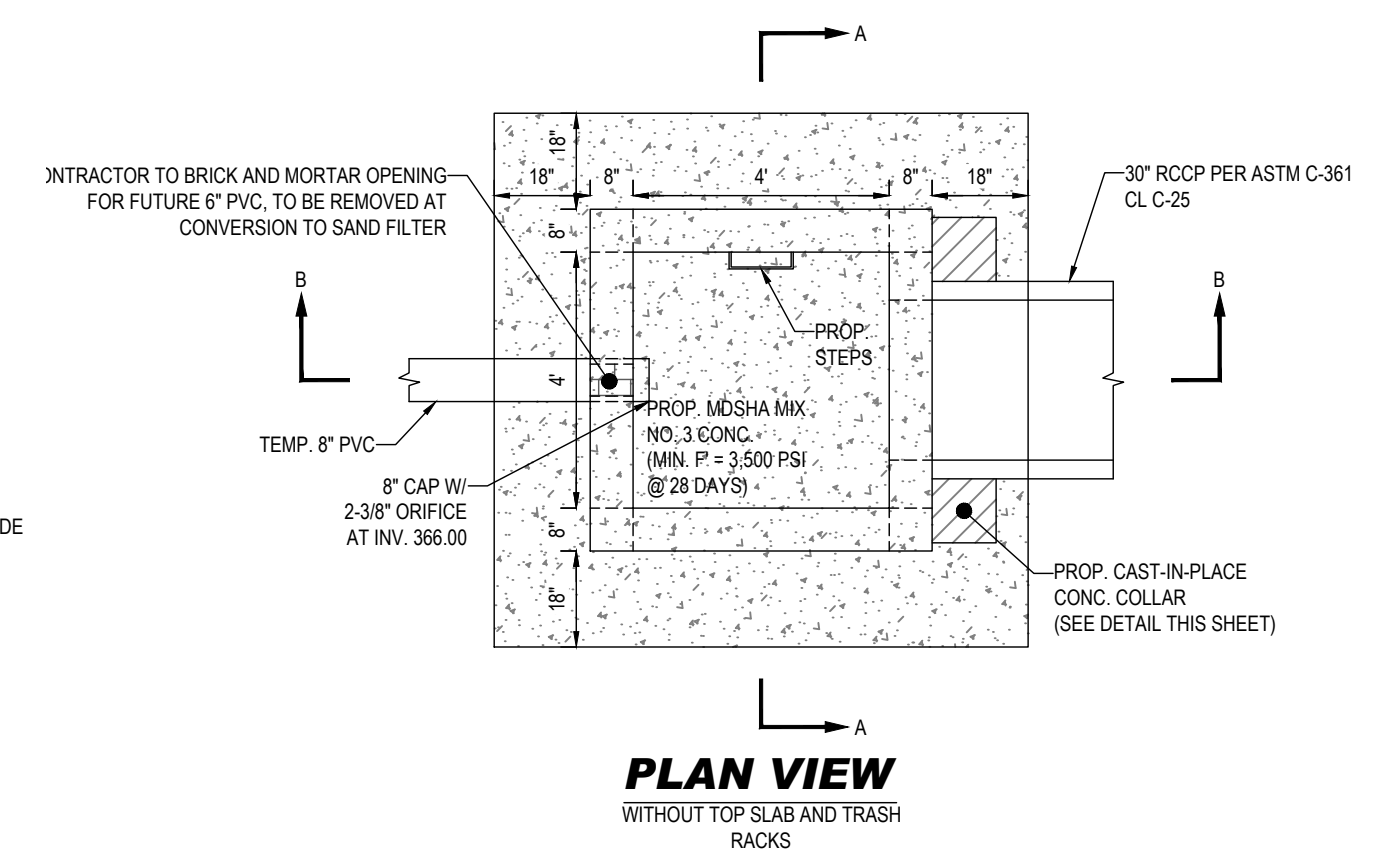
JUL 11, 2024 11:40AM 1:00PM DRAWING PLAN MD1420672 - EROX - 2 LAYOUT - 47 SEDIMENT BASIN NOTES & DETAILS



NOTES:

1. PROVIDE 1" MIN CONCRETE COVER AROUND O.D. OF PIPE.
2. $F_c = 3,500$ PSI AT 28 DAYS
3. TO BE USED WITH PRE-CAST RISERS ONLY
4. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

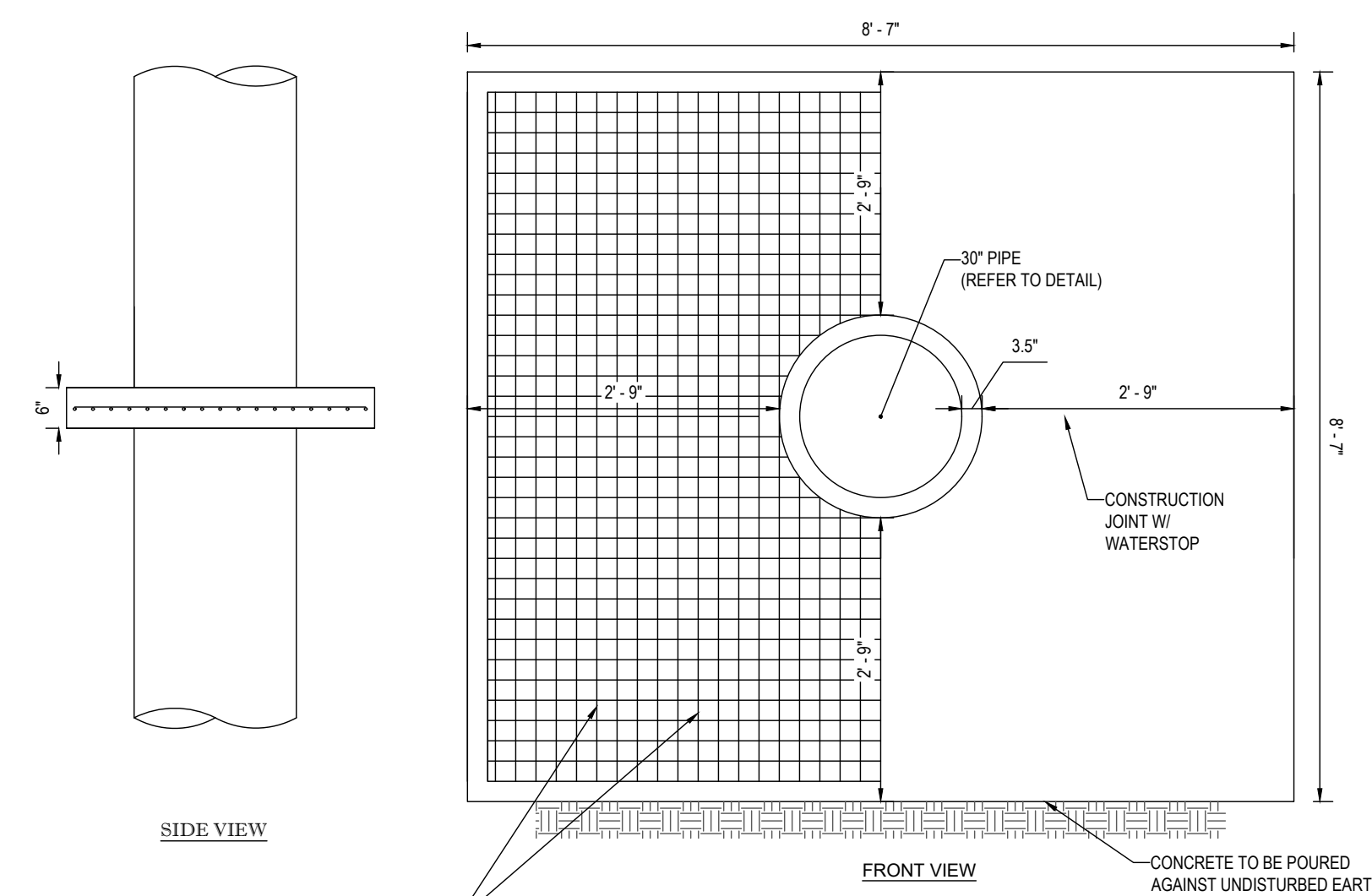
CAST-IN-PLACE CONCRETE COLLAR DETAILS
NOT TO SCALE



NOTES:

1. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. STRUCTURES ARE INTENDED TO BE STANDARD PRECAST CONCRETE STRUCTURES. BOHLER TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

TYPICAL RISER STRUCTURE DETAILS (STRUCTURE S-1)
NOT TO SCALE



NOTES:

1. CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
2. ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED TO THE CENTERLINE OF THE PIPE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
3. ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
4. LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
5. CONCRETE SHALL HAVE A MINIMUM $F_c = 3,500$ PSI (MSHA MIX NO. 3) AT 28 DAYS.
6. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

ANTI-SEEP COLLAR DETAIL
NOT TO SCALE

FLAT ROOF RECTANGULAR RACKS/WEIRS (STANDARD SIZES)
DIMENSIONS IN INCHES TO THE NEAREST 1/4"

WIDTH (A)	11 3/8	16 3/4	22 1/8	27 1/2	32 7/8	38 1/4	43 5/8	49	54 3/8	59 3/4	64 1/8	70 1/2	75 7/8	81 7/8	87 1/4	
CODE	01	03	04	05	06	07	08	09	10	11	12	13	14	15	16	
LENGTH (B)	11 3/8	16 3/4	22 1/8	27 1/2	32 7/8	38 1/4	43 5/8	49	54 3/8	59 3/4	64 1/8	70 1/2	75 7/8	81 7/8	87 1/4	
CODE	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	
HEIGHT (C)	17 1/2	12 7/8							54 1/2			12 1/2				
CODE	01	02														
	1 GRID		2 GRID													
	HIGH		HIGH													

*AS DISTRIBUTED BY CONTECH CONSTRUCTION PRODUCTS NATIONAL**

HOST STRUCTURE INSIDE DIMENSIONS	
LENGTH	5' WALL THICKNESS (REQUIRED)
WIDTH	

CUSTOMER:	H&H ROCK	DATE:	
PROJECT:	THE HIGHLANDS - STRUCTURE S-1	DRAWN BY:	
		APP'D BY:	
		DETAIL:	

Jul 11, 2024 11:40:00 AM 1420072 - EROX - 2 - LAYOUT - 48 SEDIMENT BASIN NOTES & DETAILS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Neomi Powell 7/16/2024
NACOM HOMELESS PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED DEPARTMENT OF PLANNING AND ZONING
Chad Edmondson 7/16/2024
CHIEF ENGINEER
CIVIL ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
Linda Eschenberg 7/16/2024
DATE

OWNER'S/DEVELOPER'S CERTIFICATE

I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 OF DEVELOPER (NAME): **Alexander Bratovic** DATE: 7/16/2024

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

DESIGNED BY: **Alexander Bratovic** 7/16/2024
HOWARD SOIL CONSERVATION DISTRICT DATE

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 COUNTY SOIL CONSERVATION DISTRICT.

SIGNATURE OF ENGINEER: **Brandon R. Rowe P.E.** DATE: 7/11/2024
MD PE LICENSE NO 40808

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID.: MD1420672 - EROX - 2

SITE DEVELOPMENT PLAN

FOR

THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER

901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

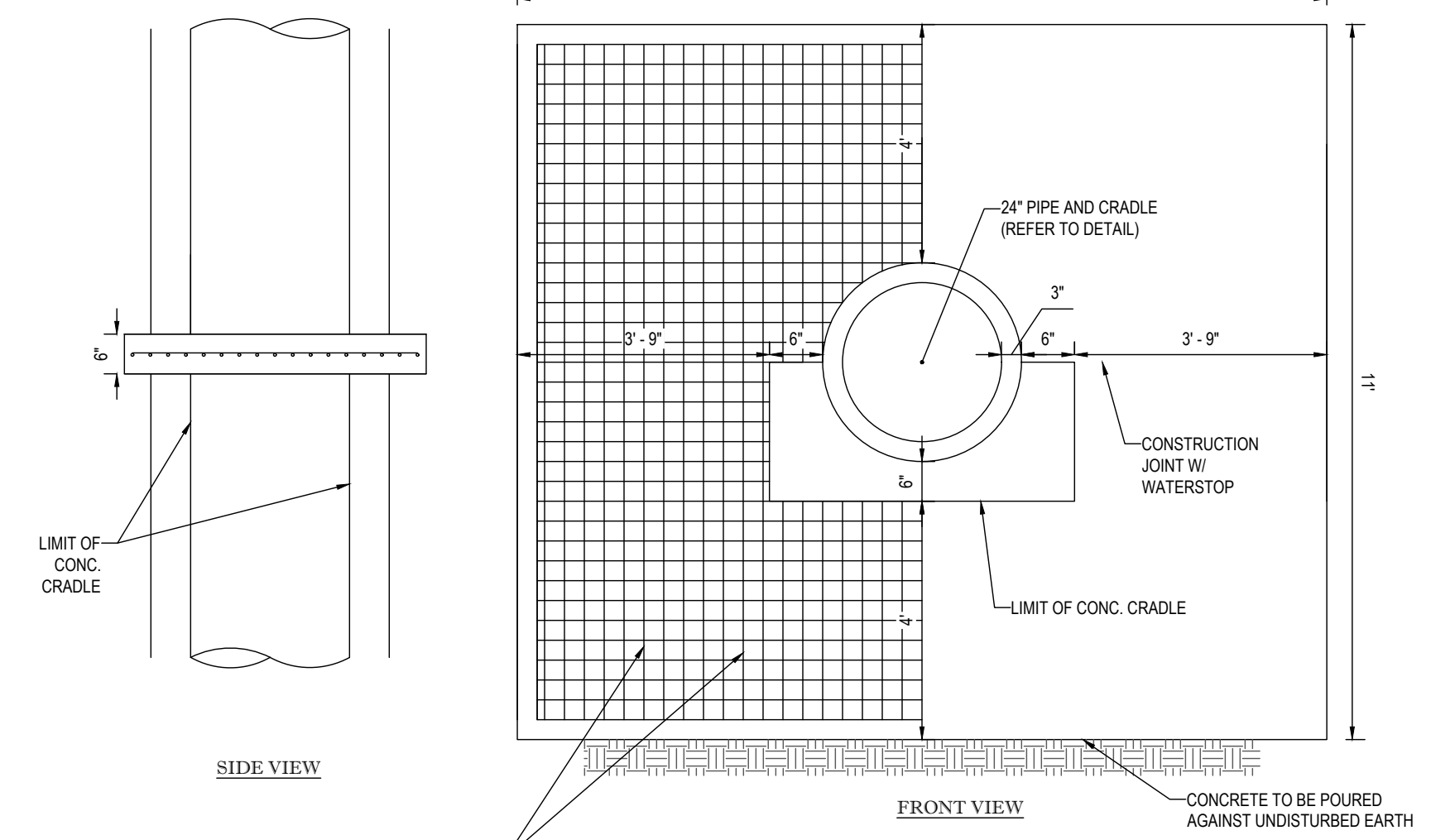
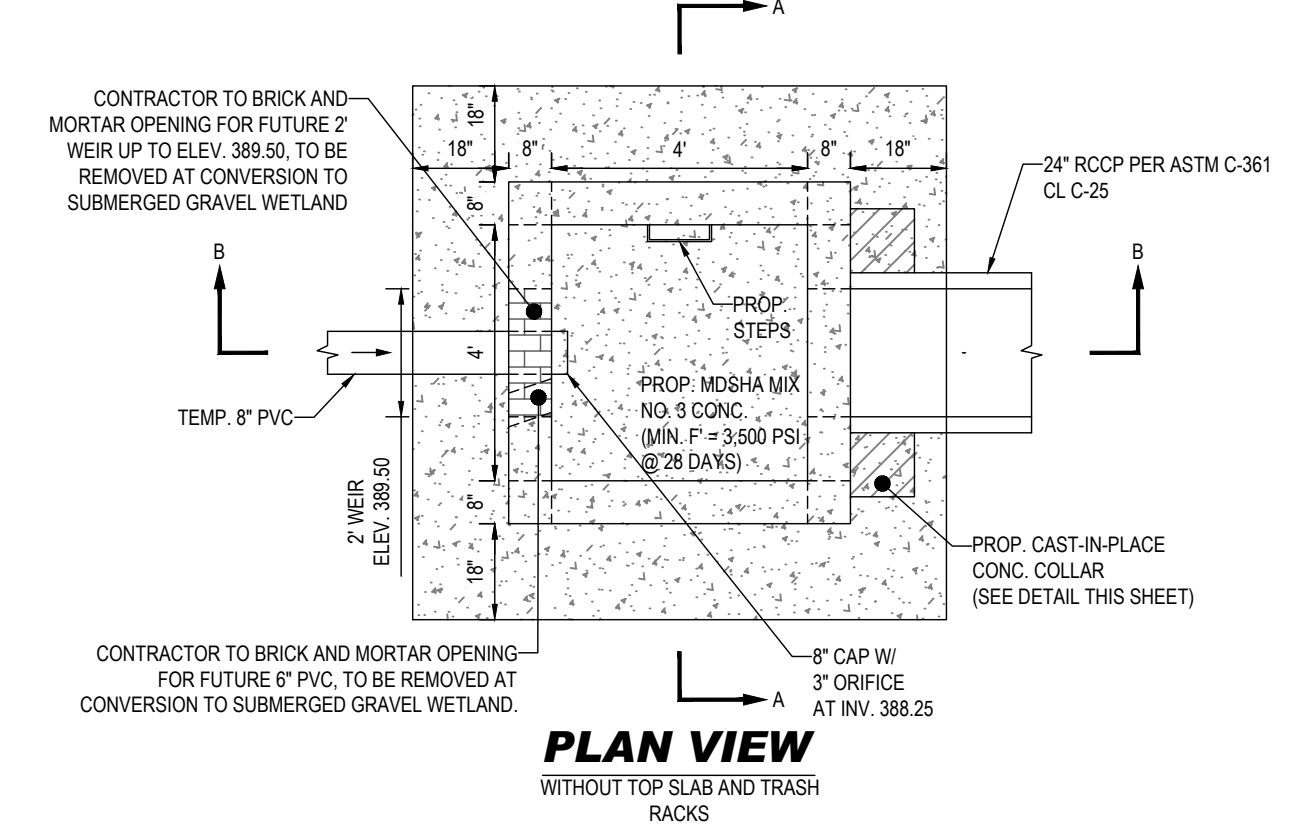
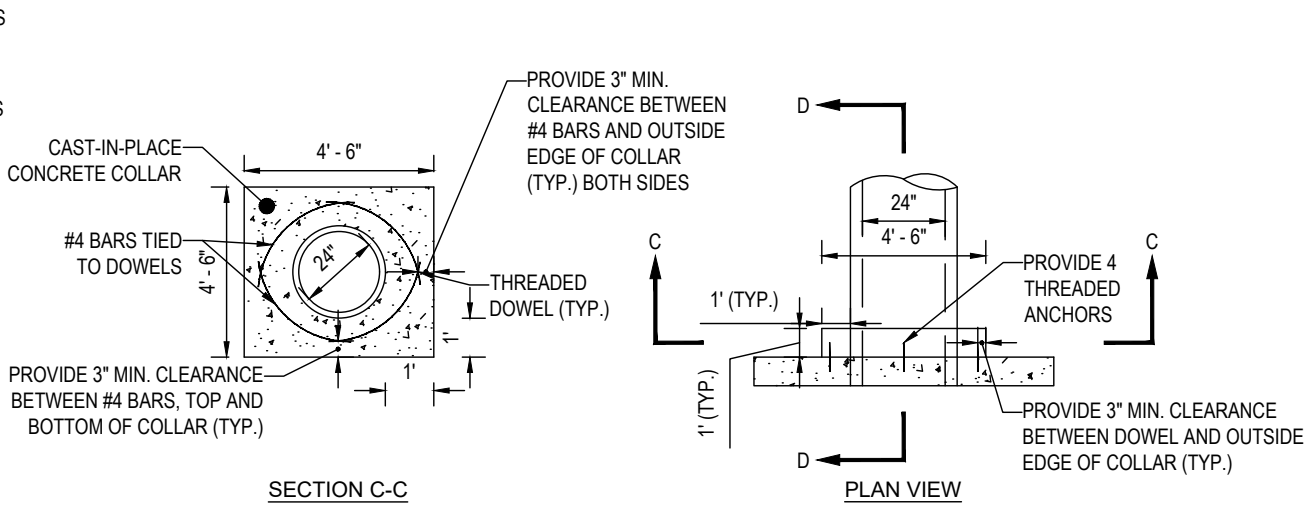
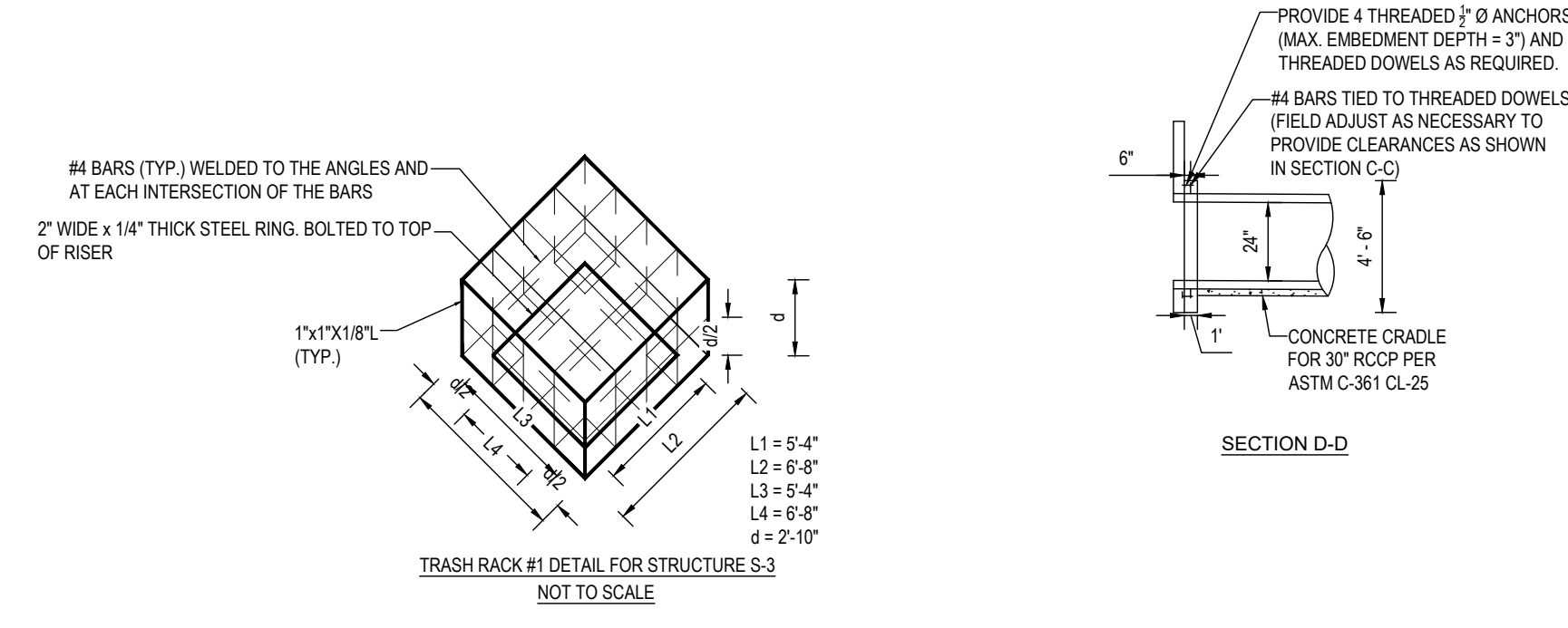
B.R. ROWE

PROFESSIONAL ENGINEER
AMERICAN SOCIETY OF CIVIL ENGINEERS
PROFESSIONAL CERTIFICATION
I BRANDED THIS ENGINEERING CERTIFICATION THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 40808 EXPIRATION DATE: 7/31/2025

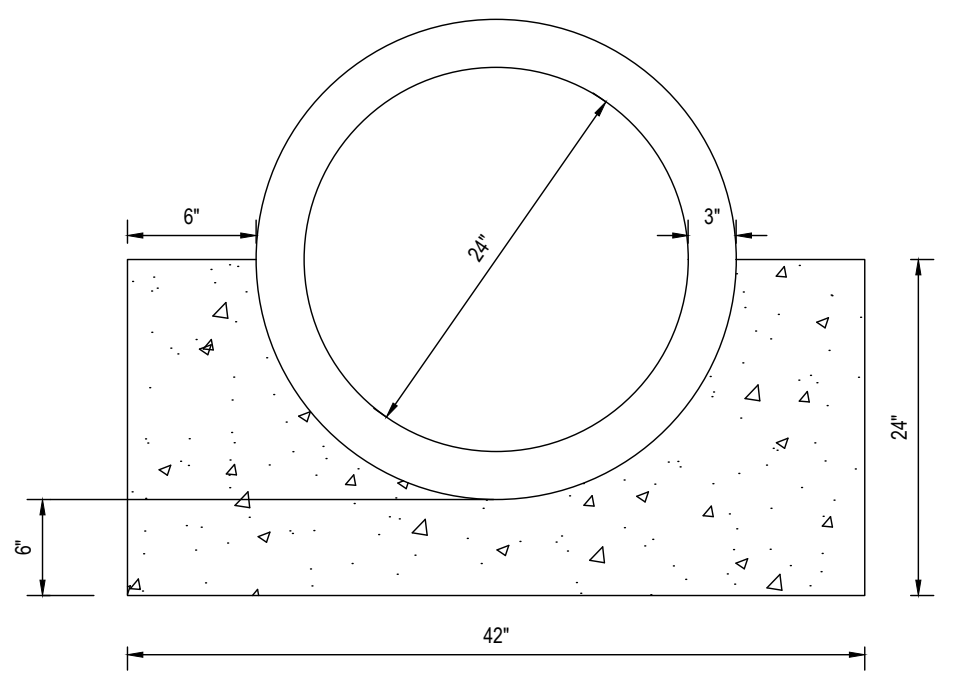
SHEET TITLE: **SEDIMENT TRAP/BASIN NOTES & DETAILS**

SHEET NUMBER: **48 OF 146**

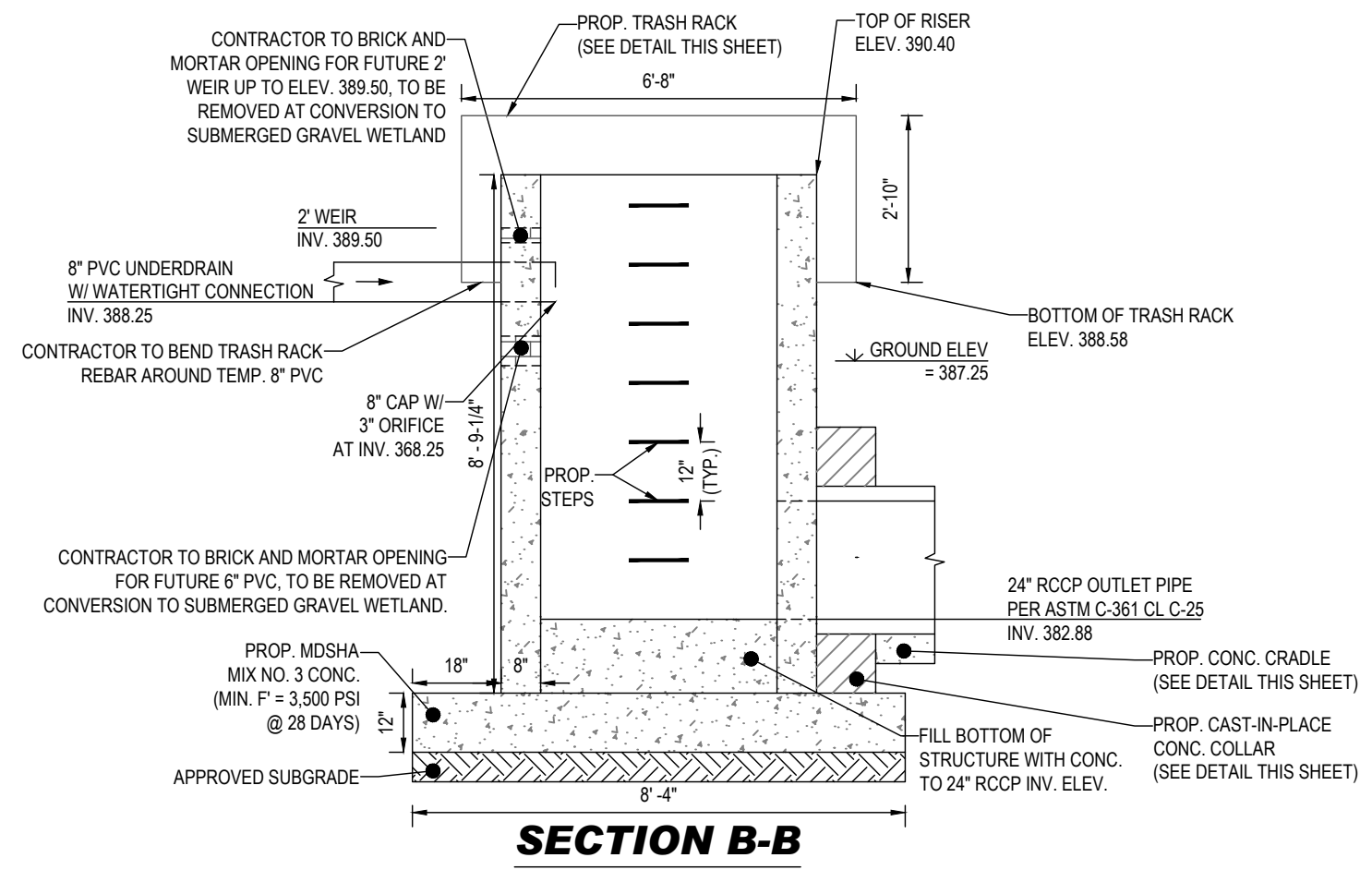
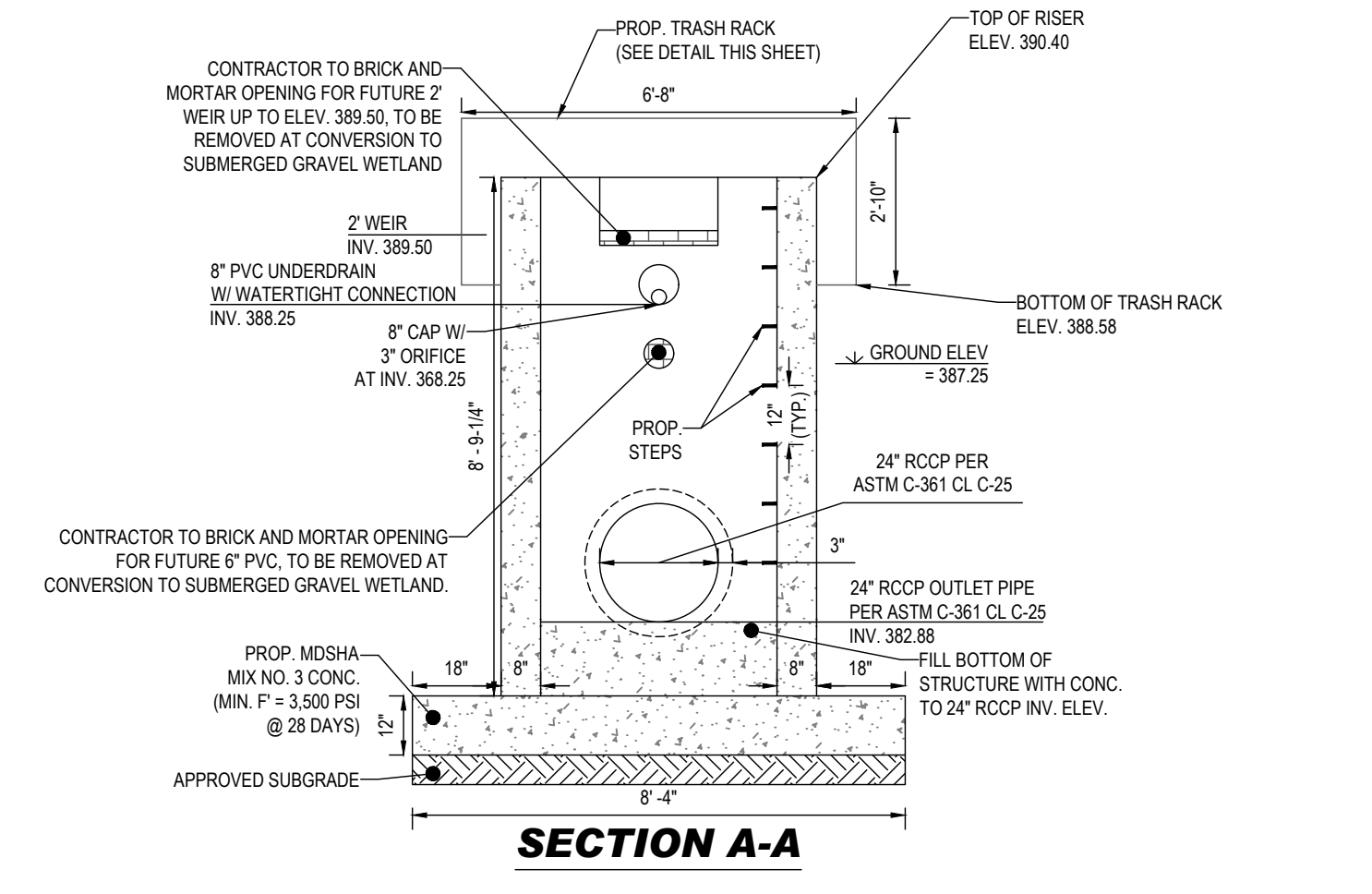
ORG. DATE - 04/17/24



- NOTES:**
- CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
 - ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED WITH THE CONCRETE CRADLE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
 - ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
 - LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
 - CONCRETE SHALL HAVE A MINIMUM F = 3,500 PSI (MSHA MIX NO. 3) AT 28 DAYS.
 - DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.



- NOTES:**
- CRADLE TO BE CONTINUOUS ALONG PIPE.
 - CONCRETE FOR CRADLE TO BE MDSA MIX NO. 3.



TYPICAL RISER STRUCTURE DETAILS (STRUCTURE S-3)
NOT TO SCALE

- NOTES:**
- DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. STRUCTURES ARE INTENDED TO BE STANDARD PRECAST CONCRETE STRUCTURES. BOHLER TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
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REVISIONS

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PROJECT No.:	MD1420672
DRAWN BY:	MJR
CHECKED BY:	07/11/2024
DATE:	MD1420672 - EROX - 2
CAD LID:	

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40808
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40808, EXPIRATION DATE: 7/3/2025

SEDIMENT TRAP/BASIN NOTES & DETAILS
SHEET NUMBER:
52 OF 146
ORG. DATE - 04/17/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
NACOM HOMELAND PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
CHIEF ENGINEERING DIVISION
CHIEF DIVISION OF LAND DEVELOPMENT

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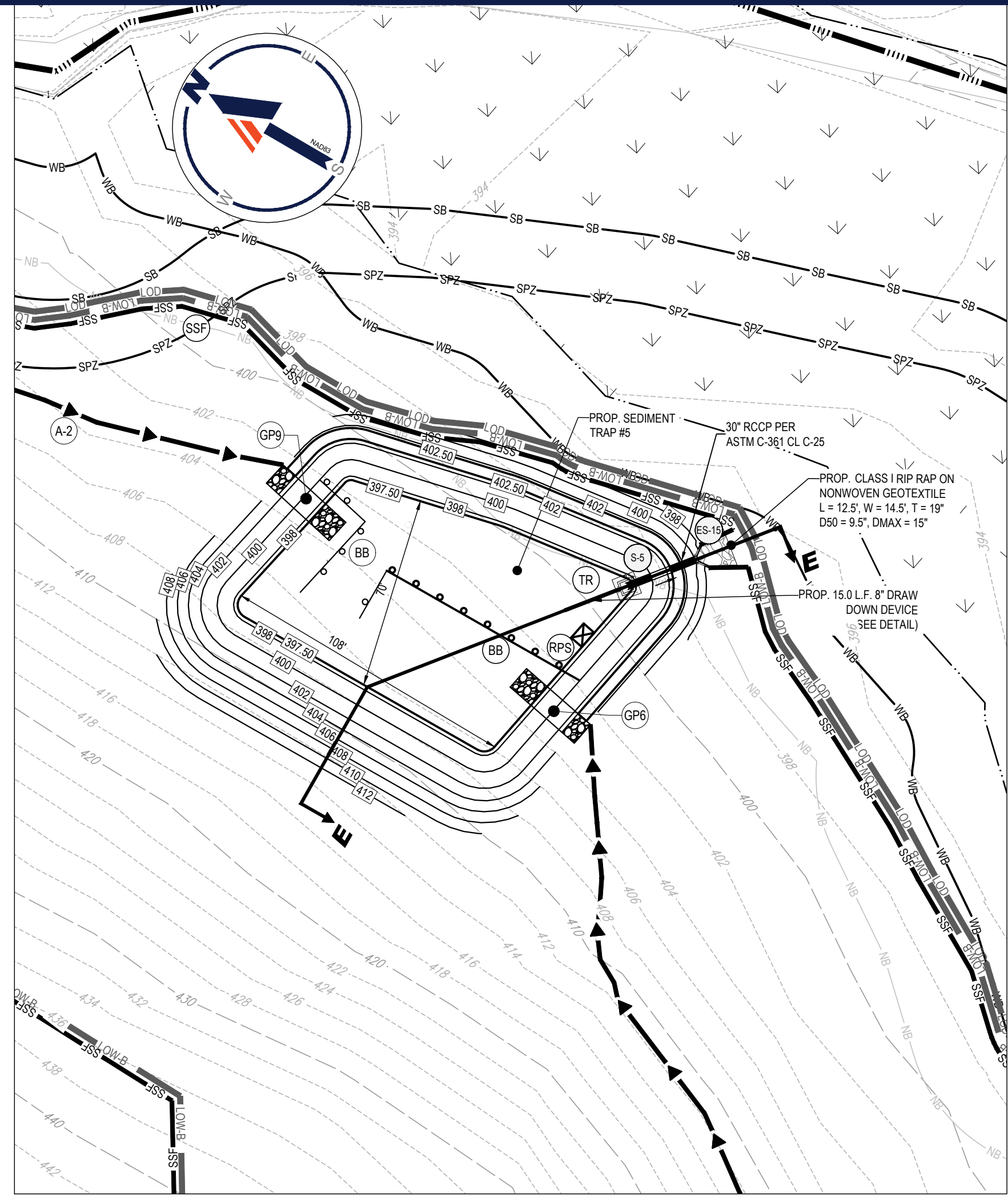
DESIGN CERTIFICATION
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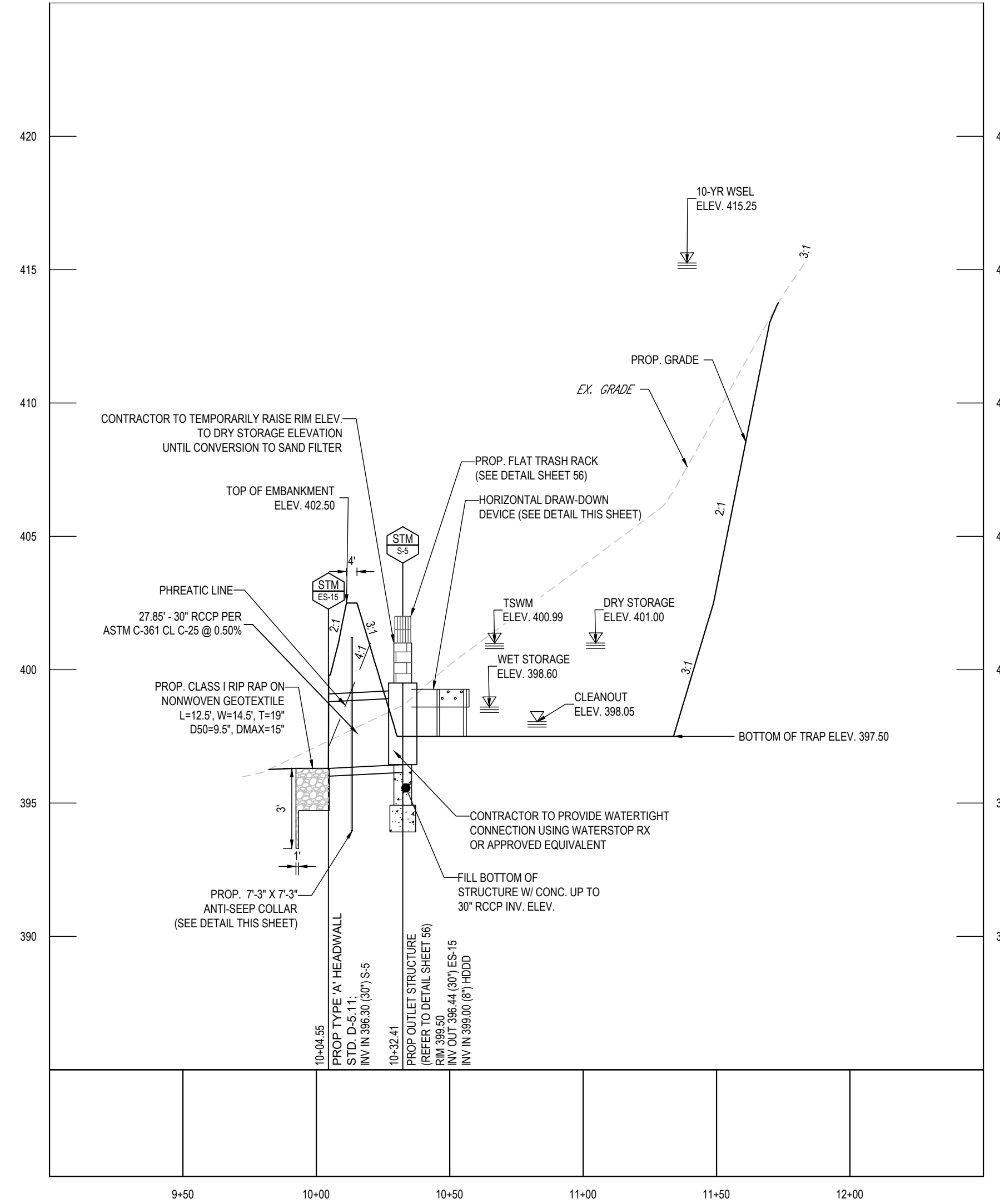
Designed by: **Alexander Bratchie** 7/16/2024
HOWARD SOIL CONSERVATION DISTRICT DATE

SIGNATURE OF DEVELOPER: **Lynda Eisenberg** DATE: 7/16/2024
SIGNATURE OF ENGINEER: **Brandon R. Rowe P.E.** DATE: 7/11/2024
MD PE LICENSE NO 40808

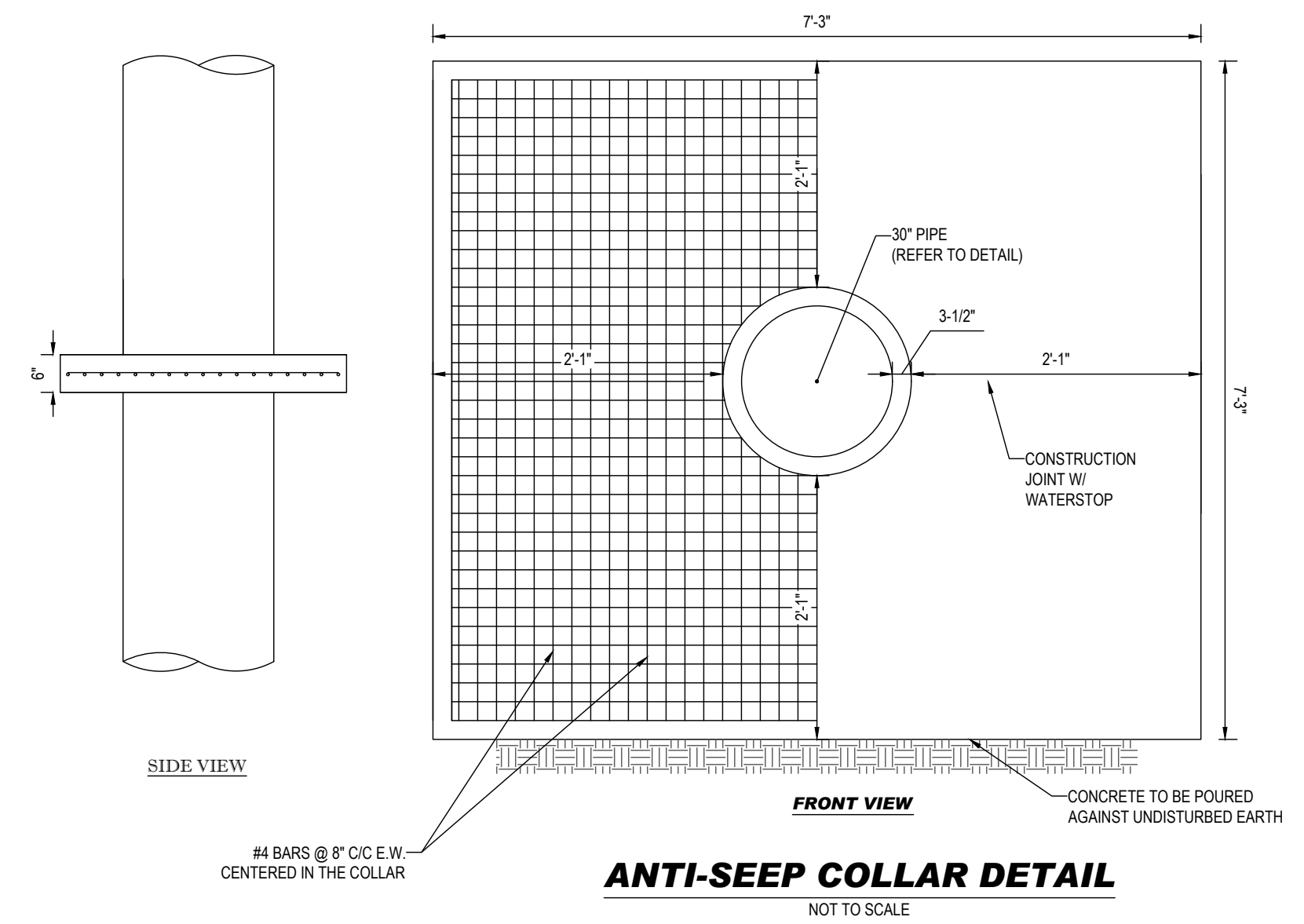
JUL 11, 2024 11:40AM 1420672.DWG SITE DEVELOPMENT PLAN 1420672 - EROX - 2 LAYOUT 52 SEDIMENT BASIN NOTES & DETAILS



TEMPORARY SEDIMENT BASIN #5 SPILLWAY - PLAN
SCALE: 1" = 40'

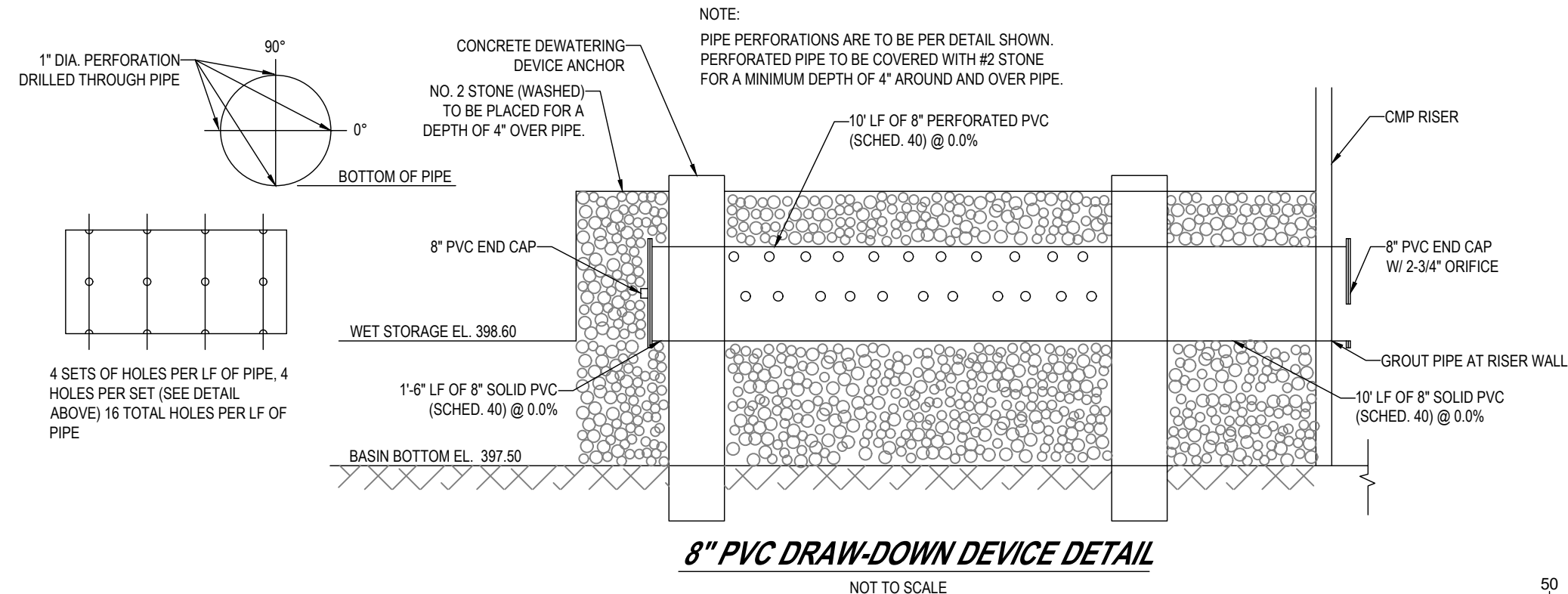


TEMPORARY SEDIMENT BASIN #5 - SECTION E-E - PRINCIPAL SPILLWAY
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



ANTI-SEEP COLLAR DETAIL
NOT TO SCALE

- NOTES:
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8" PVC DRAW-DOWN DEVICE DETAIL
NOT TO SCALE

SEDIMENT TRAP NO. 5		
DRAINAGE AREA - INITIAL	4.86	ACRES
DRAINAGE AREA - INTERIM	3.57	ACRES
DRAINAGE AREA - FINAL	3.86	ACRES
TOTAL STORAGE REQUIRED	17,496	CF
TOTAL STORAGE PROVIDED	34,574	CF
WET STORAGE REQUIRED	8,748	CF
WET STORAGE PROVIDED	9,327	CF
DRY STORAGE REQUIRED	8,748	CF
DRY STORAGE PROVIDED	25,247	CF
BASIN BOTTOM ELEVATION	397.50	FT
BASIN BOTTOM DIMENSIONS	VARIABLES	FT X FT
RISER CREST (DRY STORAGE) ELEVATION	401.00	FT
OUTLET (WET STORAGE) ELEVATION	399.00	FT
CLEANOUT ELEVATION	398.25	FT
TOP OF EMBANKMENT ELEVATION	402.50	FT
SIDE SLOPE	3:1	H:V RATIO
EMBANKMENT TOP WIDTH	4	FT
PRINCIPAL SPILLWAY MATERIAL (BARREL, RISER, ANTI-SEEP COLLAR)	CONCRETE	
RISER DIAMETER	SEE DETAIL	IN
BARREL DIAMETER	30	IN
TRASH RACK DIAMETER	SEE DETAIL	IN
TRASH RACK HEIGHT	SEE DETAIL	IN
ANTI-SEEP COLLAR DIMENSIONS	7.25 X 7.25	FT
OUTLET PROTECTION - LENGTH	12.50	FT
OUTLET PROTECTION - WIDTH	14.50	FT
OUTLET PROTECTION - DEPTH	19	IN
BAFFLE BOARD ELEVATION	400.00	FT

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PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: EROX

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
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Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
18 BRANDON LANE, HERSHBY, MARYLAND 21753
I BRANDED, ENGINE, HERSHBY, MARYLAND 21753
THESE DOCUMENTS WERE PREPARED BY ME, AND I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898. EXPIRATION DATE: 7/30/2025

SHEET TITLE:
SEDIMENT TRAP/BASIN NOTES & DETAILS
SHEET NUMBER:
55 OF 146
ORG. DATE - 04/17/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
Neami Powell
NACOM HOMELESS PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
Chad Edwards
CHIEF ENGINEER
CIVIL ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
7/16/2024
Linda Eschenberg

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7/16/2024
Alexander Bratovic

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7/11/2024
BRANDON R. ROWE P.E.
MD PE LICENSE NO. 40808

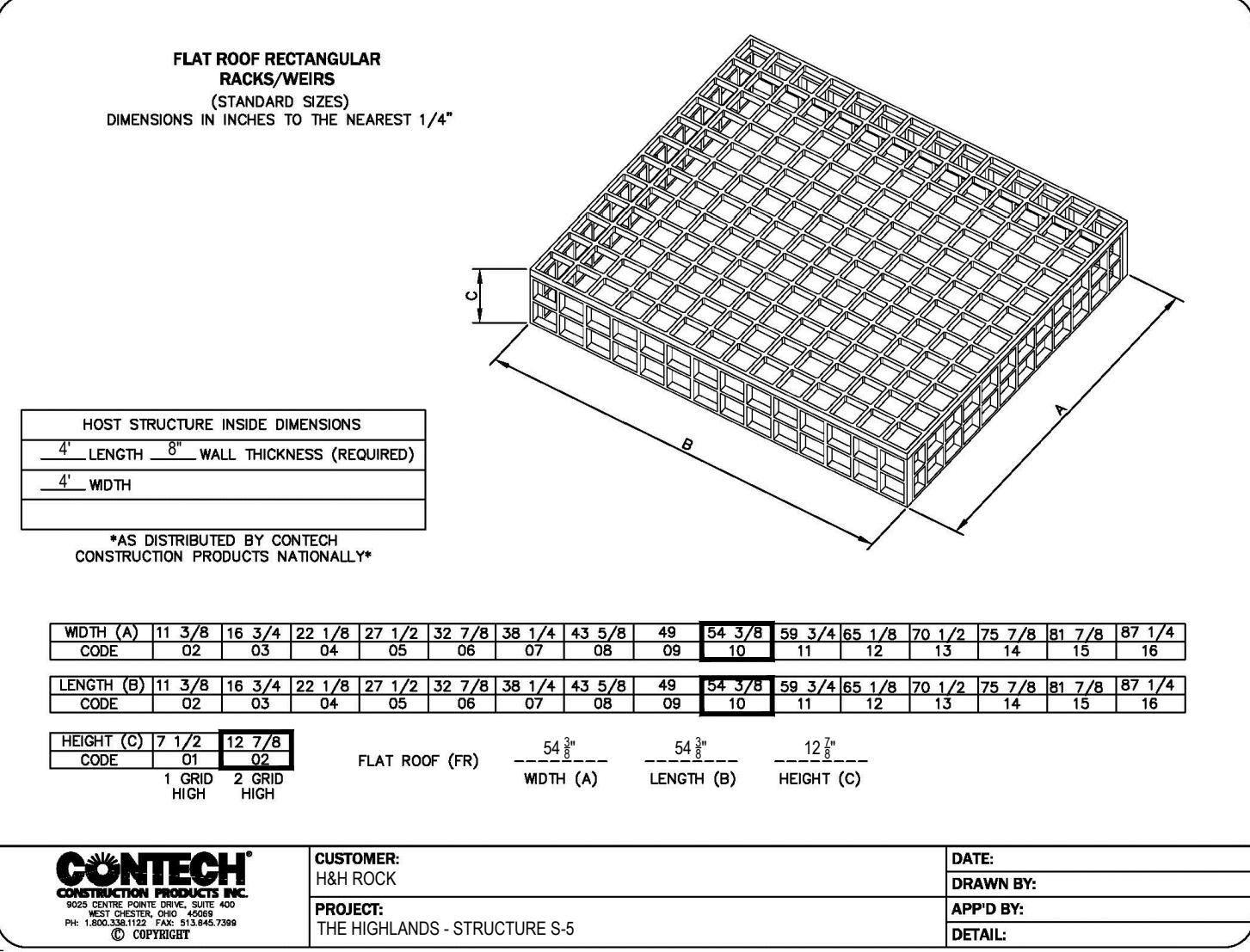
OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
SP-17-0108 F-20-016
ECP-17-056 WP-21-011
WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24
PARCEL: 135
ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

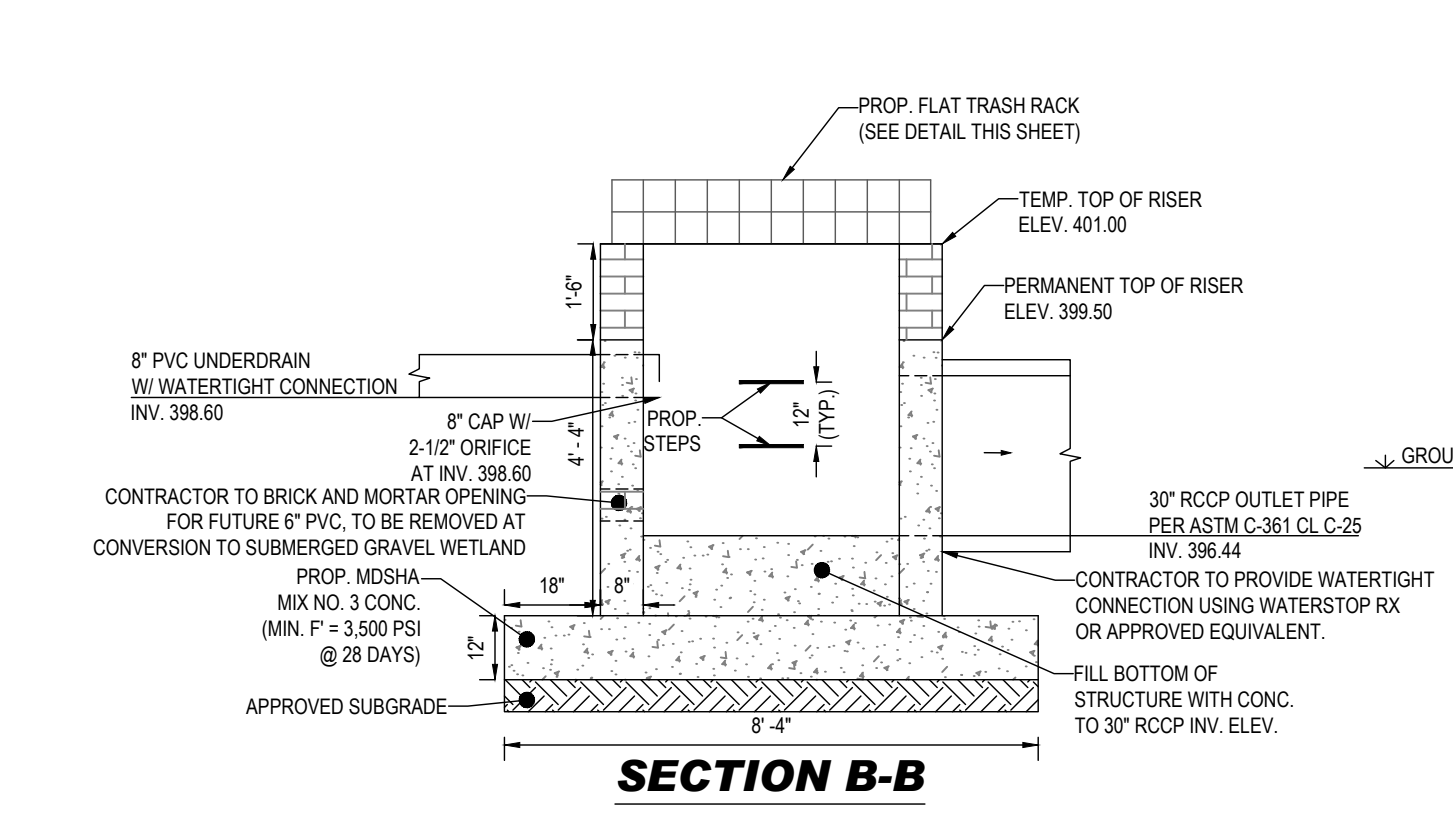
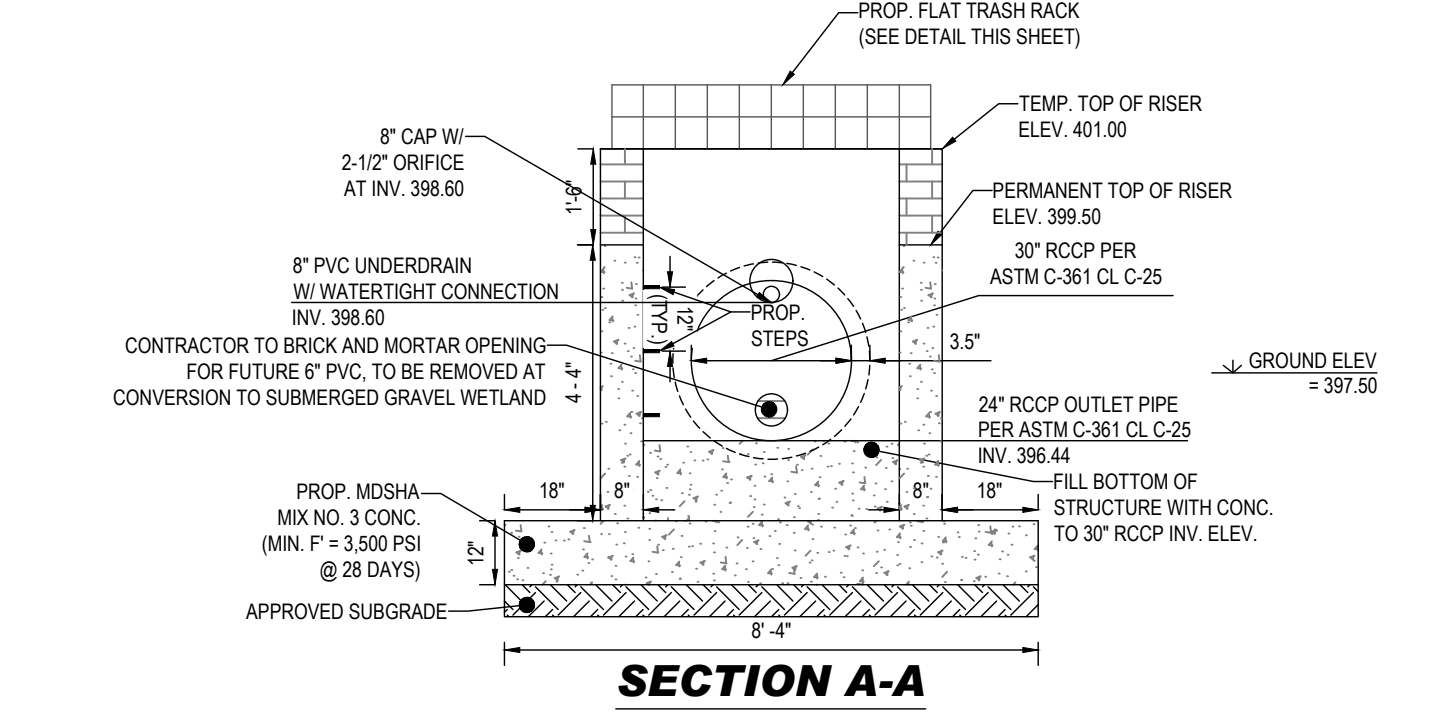
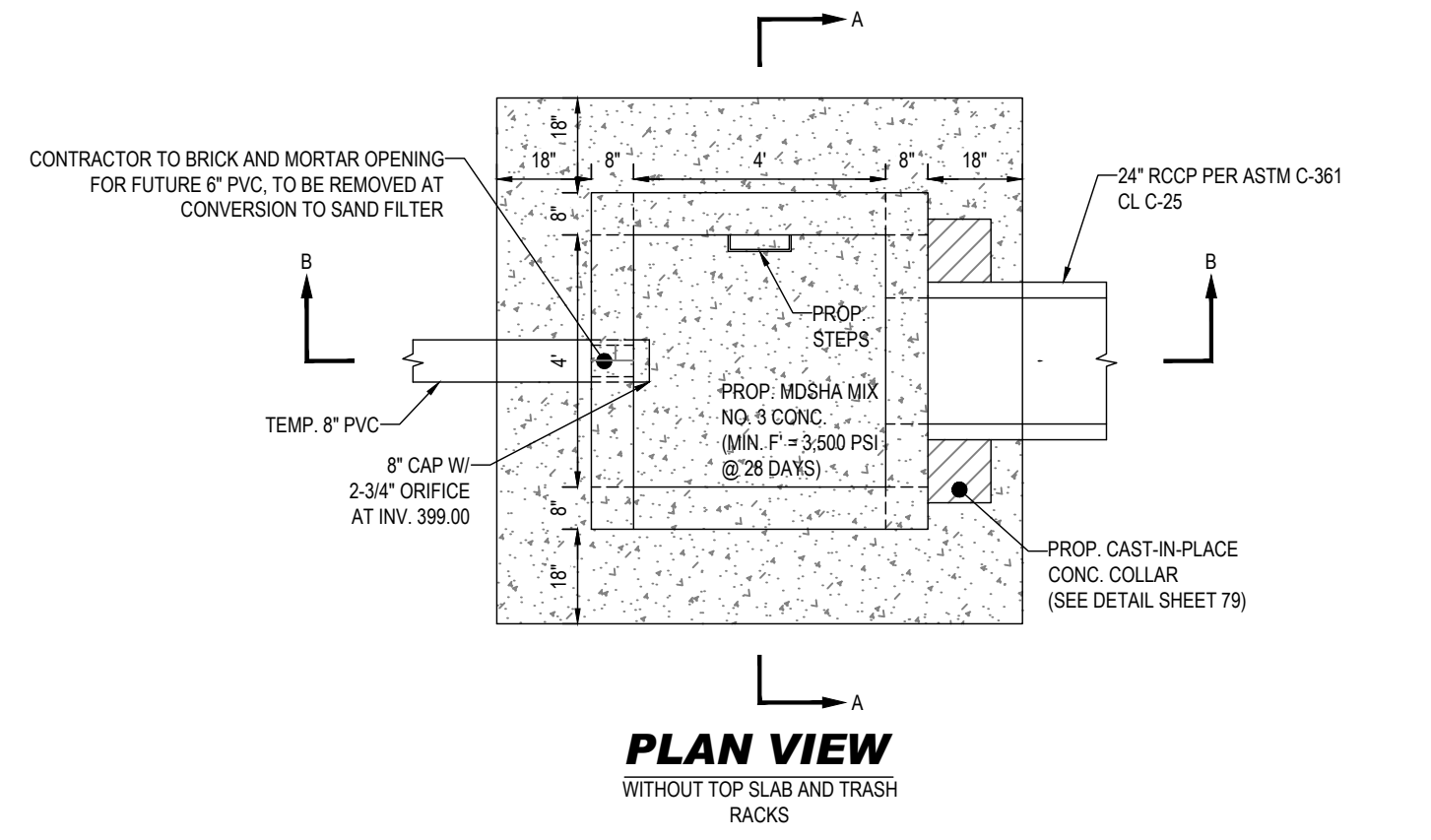
JUL 11, 2024 11:40AM D:\007\DRAWINGS\PLAN\SET SITE DEVELOPMENT PLAN\MD1420672 - EROX - 2 - LAYOUT 56 SEDIMENT BASIN NOTES & DETAILS



CONTECH
 CONSTRUCTION PRODUCTS INC.
 100 WEST 10TH STREET, SUITE 400
 PHILADELPHIA, PA 19107
 TEL: 800-221-2222 FAX: 800-221-2224
 WWW.CONTECH.COM

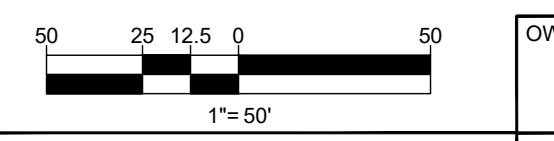
CUSTOMER: H&H ROCK
 PROJECT: THE HIGHLANDS - STRUCTURE S-5

DATE: _____
 DRAWN BY: _____
 APP'D BY: _____
 DETAIL: _____



TYPICAL RISER STRUCTURE DETAILS (STRUCTURE S-5)

- NOTES:
- DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. STRUCTURES ARE INTENDED TO BE STANDARD PRECAST CONCRETE STRUCTURES. BOHLER TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.
 - DETAIL SHOWN IS FOR FINAL CONDITIONS ONLY. ANY TEMPORARY OPENING IN THE STRUCTURE USED FOR SEDIMENT CONTROL IS TO BE PERMANENTLY SEALED WITH BRICK AND MORTAR.



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT # 2864E-2952E	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075
DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE NO.: BA-20-002C SP-17-0108 F-20-016 ECP-17-056 WP-21-011 WP-18-070 WP-22-132	

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
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 FULTON
 HOWARD COUNTY, MD

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JUL 11, 2024 11:40AM D:\007\DRAWINGS\PLAN SET\SITE DEVELOPMENT PLAN\MD1420672 - EROX - 2 - LAYOUT - 56 SEDIMENT BASIN NOTES & DETAILS

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 7/16/2024
 Naomi Powell
 NACOM HOMELESS PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

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 7/16/2024
 Chad Edmondson
 CHIEF ENGINEER
 ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
 7/16/2024
 Lynda Eisenberg
 CHIEF ENGINEER

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SIGNATURE OF DEVELOPER (NAME): *Alexander Bratich* DATE: 7/16/2024

THIS PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

Designed by: *Alexander Bratich* 7/16/2024
 HOWARD SOIL CONSERVATION DISTRICT DATE

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SIGNATURE OF ENGINEER: *Brandon R. Rowe* DATE: 7/11/2024
 BRANDON R. ROWE P.E. MD PE LICENSE NO 40808

MGWC 1.5: SANDBAGSTONE CHANNEL DIVERSION

Temporary measure for dewatering in-channel construction sites

DESCRIPTION
The work should consist of installing sandbag or stone flow diversions for the purpose of erosion control when construction activities occur within the stream channel

EFFECTIVE USES & LIMITATIONS
Diversions are used to isolate work areas from flow during the construction of in-stream projects. Diversions which have an insufficient flow capacity can fail and severely erode the disturbed channel section under construction.

MATERIAL SPECIFICATIONS
Materials for sandbag and stone stream diversions should meet the following requirements:
- Riprap: Riprap should be washed and have a minimum diameter of 6 inches (0.15 meters).

INSTALLATION GUIDELINES
All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority.

- 1. The diversion structure should be installed from upstream to downstream.
2. The height of the sandbag/stone diversion should be a function of the duration of the project in the stream reach.

TEMPORARY INSTREAM CONSTRUCTION MEASURES
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATERWAY CONSTRUCTION GUIDELINES
REVISED NOVEMBER 2000
PAGE 1.5 - 1

MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

- 1. Shoring on the diversion should be positioned such that the upstream portion covers the downstream portion with at least a 18-inch (0.45 meters) overlap.
2. Sandbag or stone diversions should not obstruct more than 85% of the stream width.

DESCRIPTION
The work should consist of installing a temporary pump around and supporting measures to divert flow around in-stream construction sites.

IMPLEMENTATION SEQUENCE
Sediment control measures, pump-around junctions, and associated channel and bank construction should be completed at the following sequence (refer to Detail 1.2):

- 1. Construction activities including the installation of erosion and sediment control measures should not begin until all necessary elements and/or right-of-way have been acquired.
2. The contractor should notify the Maryland Department of the Environment or WMA sediment control inspector at least 1 day before beginning construction.

TEMPORARY INSTREAM CONSTRUCTION MEASURES
MARYLAND DEPARTMENT OF THE ENVIRONMENT
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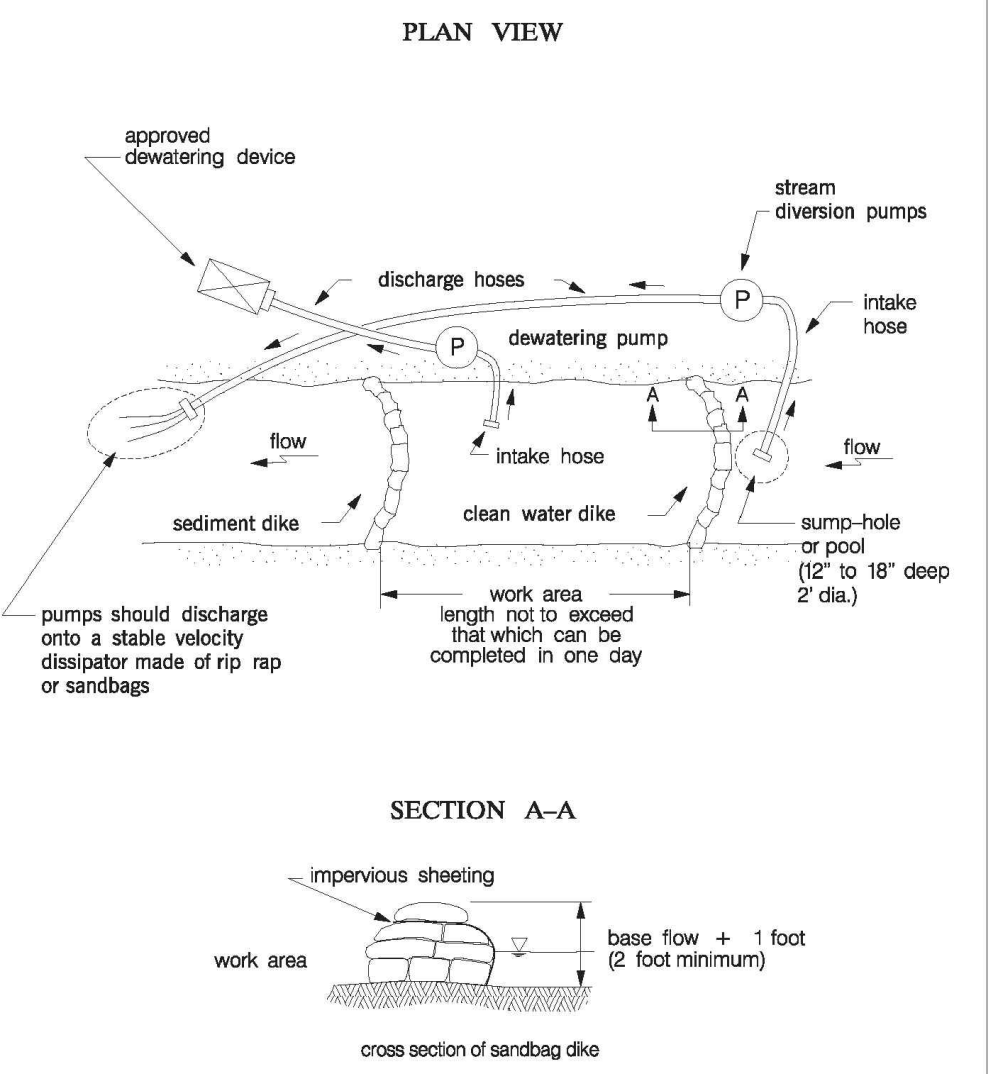
MGWC 1.2: PUMP-AROUND PRACTICE

Temporary measure for dewatering in-channel construction sites

- 7. Water from the work area should be pumped to a sediment filtering measure such as a dewatering basin, sediment bag, or other approved device.
8. To ensure a channel reach with equipment within the work area where no work is proposed should be avoided.

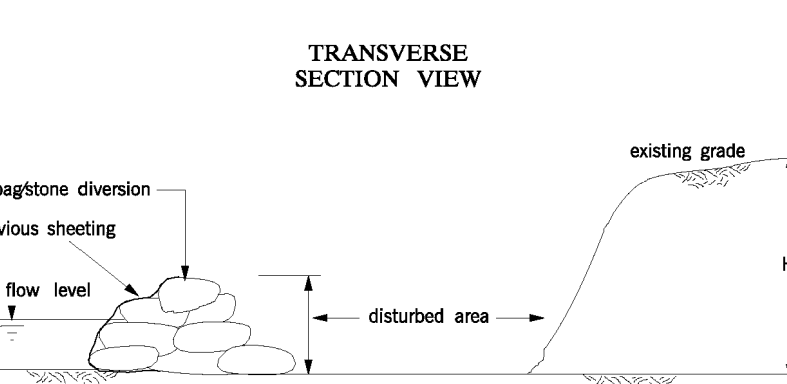
TEMPORARY INSTREAM CONSTRUCTION MEASURES
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATERWAY CONSTRUCTION GUIDELINES
REVISED NOVEMBER 2000
PAGE 1.2 - 2

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



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

Maryland's Guidelines To Waterway Construction DETAIL 1.5: SANDBAGSTONE DIVERSION



TEMPORARY INSTREAM CONSTRUCTION MEASURES
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PAGE 1.5 - 2
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

MGWC 4.3: CULVERT INSTALLATION

Proposed installation sequence for culverts

DESCRIPTION
The following is a typical installation sequence for culverts which details the minimum requirements to be incorporated into the project.

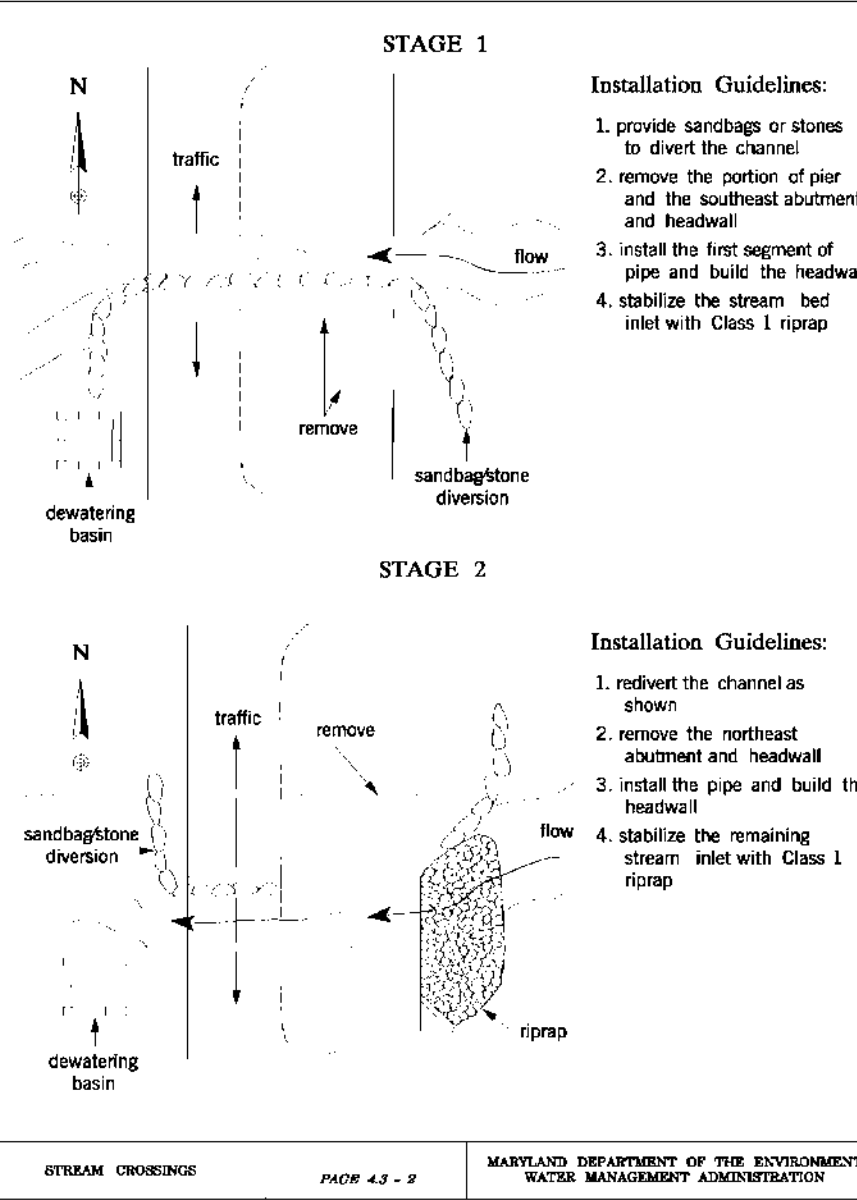
EFFECTIVE USES & LIMITATIONS
This method has been shown in order to illustrate a general sequence of construction and is not suitable for all projects. Therefore, the construction sequence should be reviewed and modified as necessary to meet specific project needs.

CONSTRUCTION SEQUENCE
All erosion and sediment control devices, including dewatering basins, should be implemented as the first order of business according to a plan approved by the WMA or local authority.

- 1. A diversion pipe as shown in MGWC 1.4: Diversion Pipe or other measure should be installed and a sandbag or stone barrier as shown in MGWC 1.5: Sandbag/Stone Diversion should be constructed according to specifications to divert the streamflow into the diversion.
2. A sandbag or stone barrier should be placed downstream to prevent the flow from backwashing into the construction area.

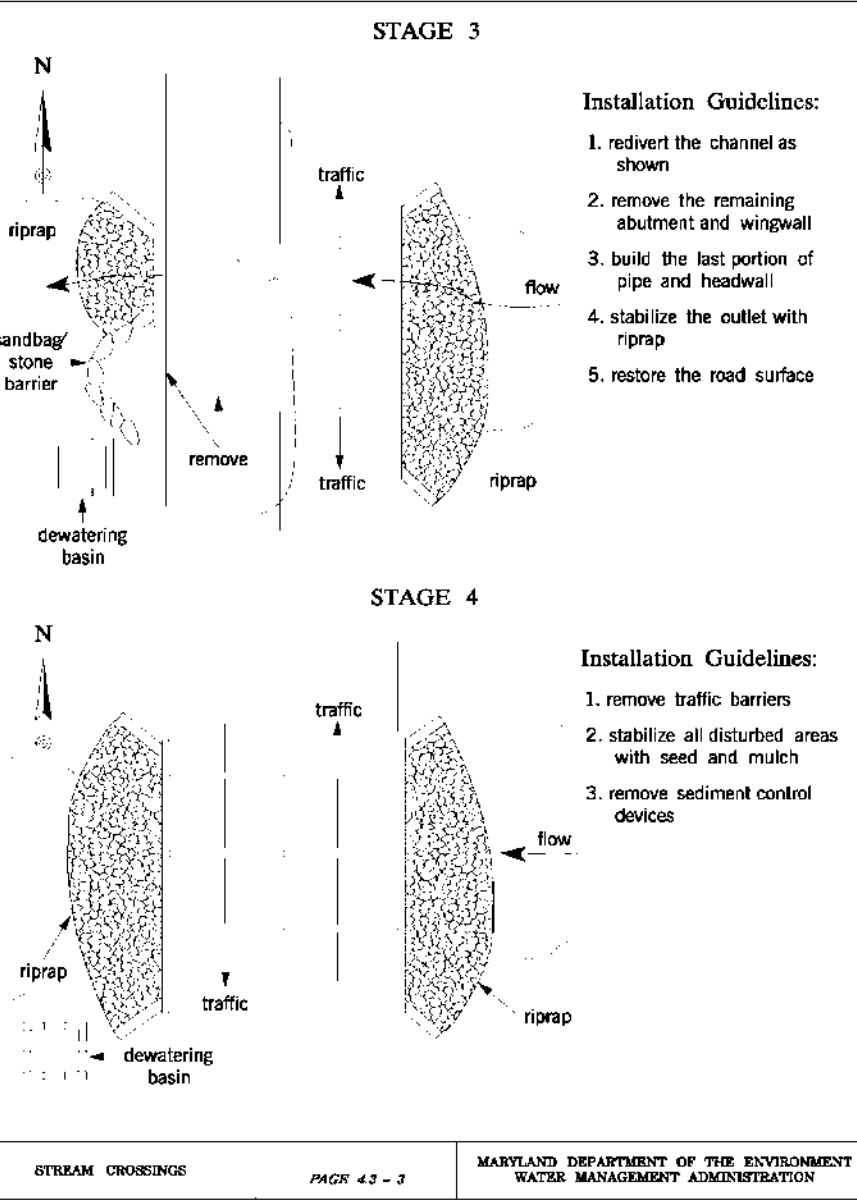
STANDARD SPECIFICATIONS
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATERWAY CONSTRUCTION GUIDELINES
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Maryland's Guidelines To Waterway Construction DETAIL 4.3: CULVERT INSTALLATION-STAGES 1&2



STREAM CROSSING
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MARYLAND DEPARTMENT OF THE ENVIRONMENT
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Maryland's Guidelines To Waterway Construction DETAIL 4.3: CULVERT INSTALLATION-STAGES 3&4



STREAM CROSSING
PAGE 4.3 - 3
MARYLAND DEPARTMENT OF THE ENVIRONMENT
WATER MANAGEMENT ADMINISTRATION

STONE SPECIFICATIONS

- 1. FOOTING OR BURIED STONE SHALL CONSIST OF ANGULAR FLAT ROCK SIMILAR IN COLOR, TEXTURE AND DENSITY TO THAT SUPPLIED BY THE LAFARGE CORPORATION - TEXAS QUARRY.
2. EXPOSED STONE SHALL CONSIST OF ANGULAR FLAT ROCK SIMILAR IN COLOR, TEXTURE AND DENSITY TO THAT SUPPLIED BY THE LAFARGE CORPORATION - CHURCHVILLE QUARRY.

DATE: 11/11/2024 11:40AM 142072.DWG: 2:--LAYOUT: 57: EROSION & SEDIMENT CONTROL NOTES & DETAILS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Approved by: Naomi Powell, 7/16/2024
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

OWNER'S/DEVELOPER'S CERTIFICATE
I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN.

DESIGN CERTIFICATION
I HEREBY CERTIFY THAT THIS PLAN HAS BEEN DESIGNED IN ACCORDANCE WITH CURRENT MARYLAND EROSION AND SEDIMENT CONTROL LAWS, REGULATIONS, AND STANDARDS.

OWNER: LYHUS DEVELOPMENT, LLC
DEVELOPER: ROCK REALTY INC.
SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED #: 145320-00469
PLAT #: 28546-29552

BOHLER CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS table with columns: REV, DATE, COMMENT, DRAWN BY, CHECKED BY.

811 logo with text: Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION
THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD LID: MD1420672 - EROD - 2

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER logo and address: 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21204

B.R. ROWE PROFESSIONAL ENGINEER
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

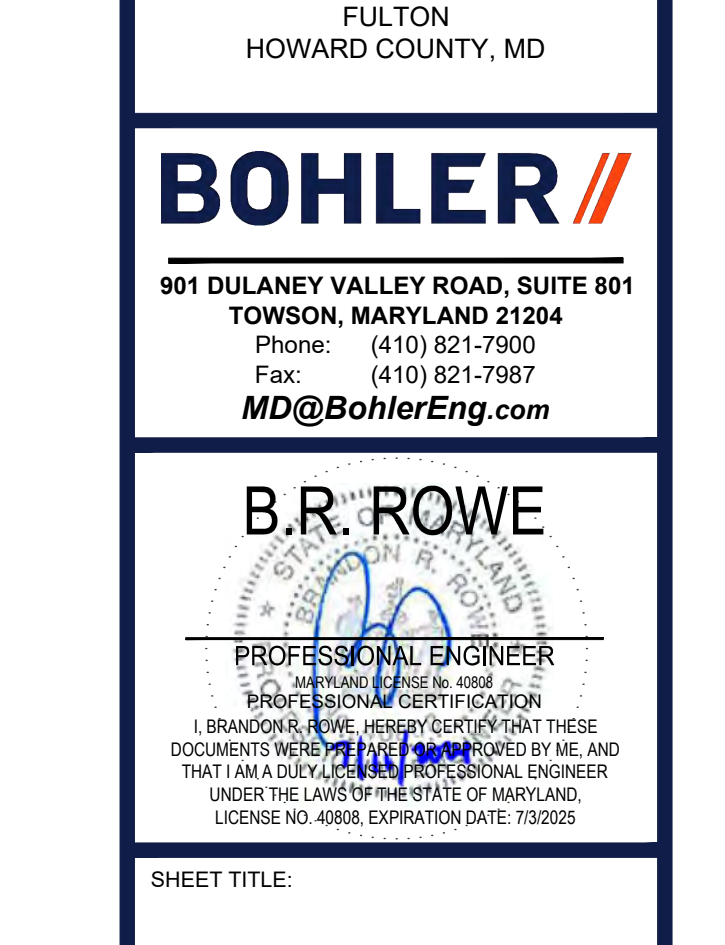
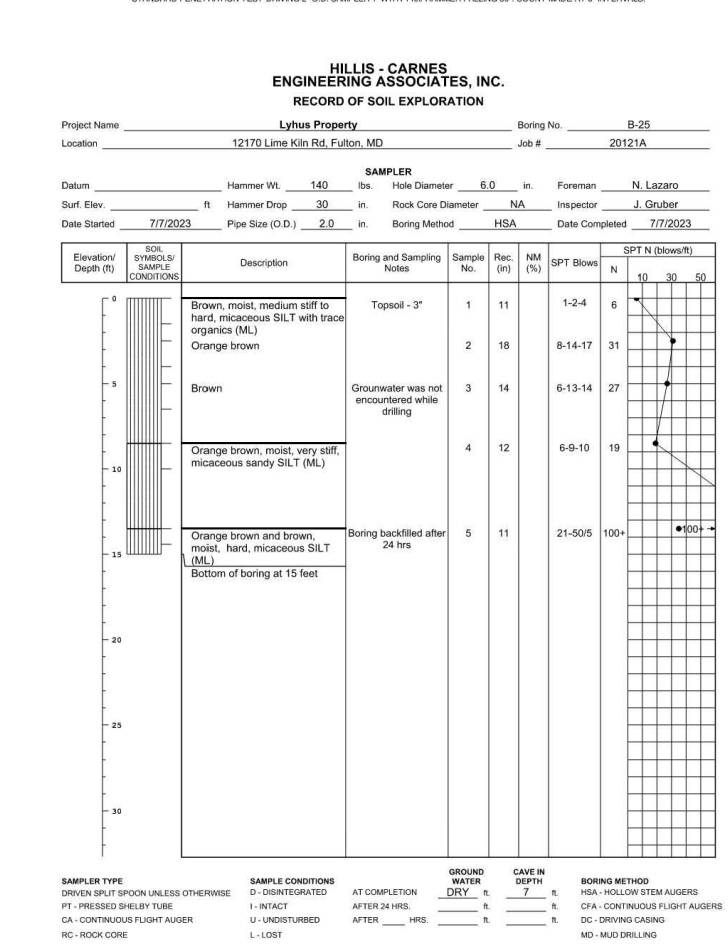
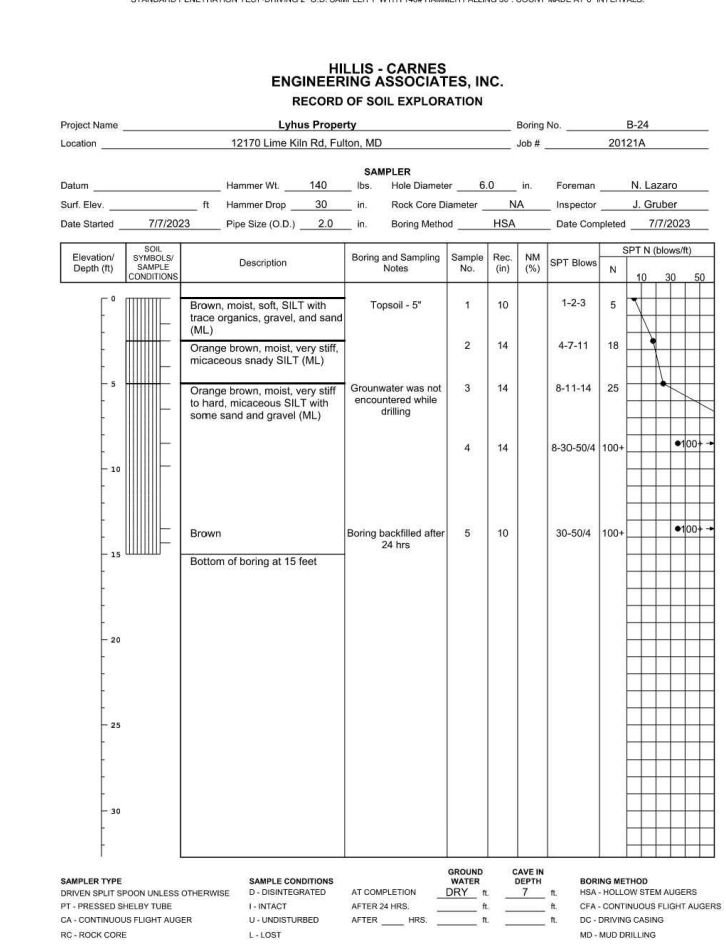
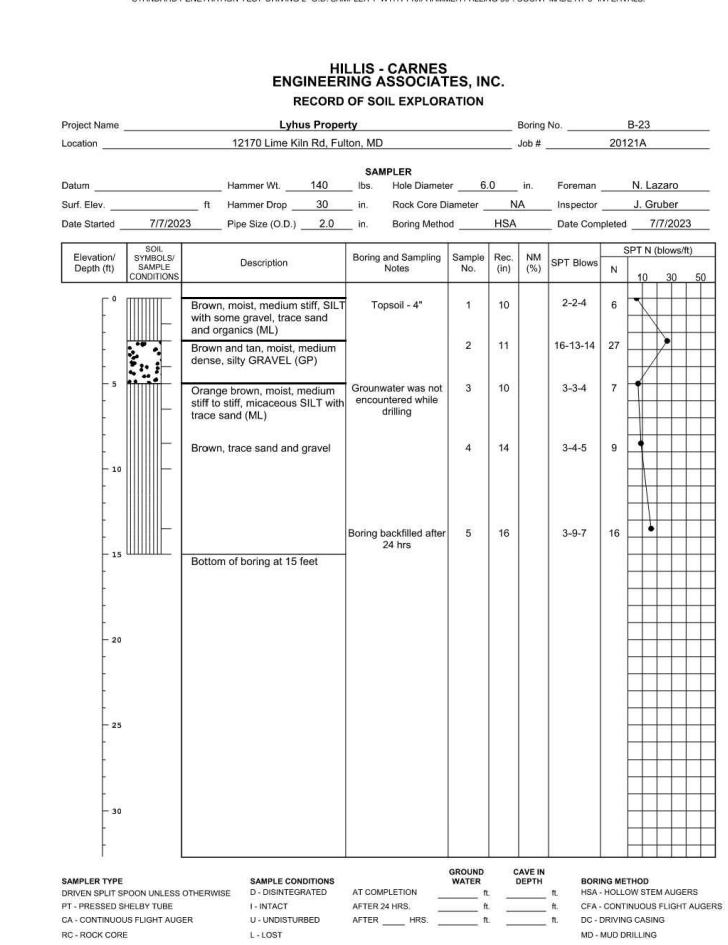
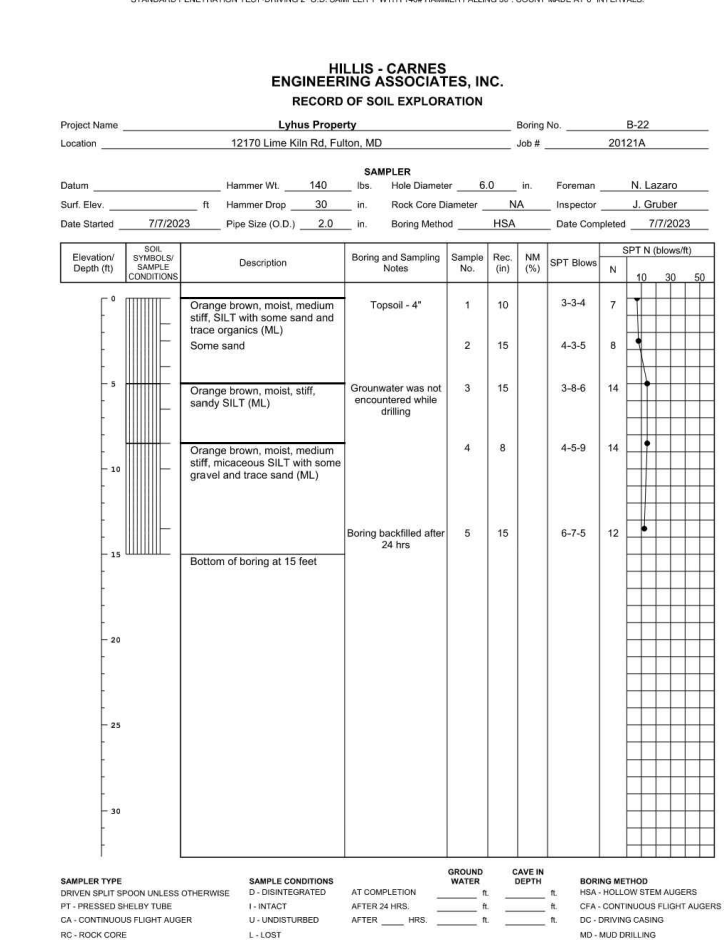
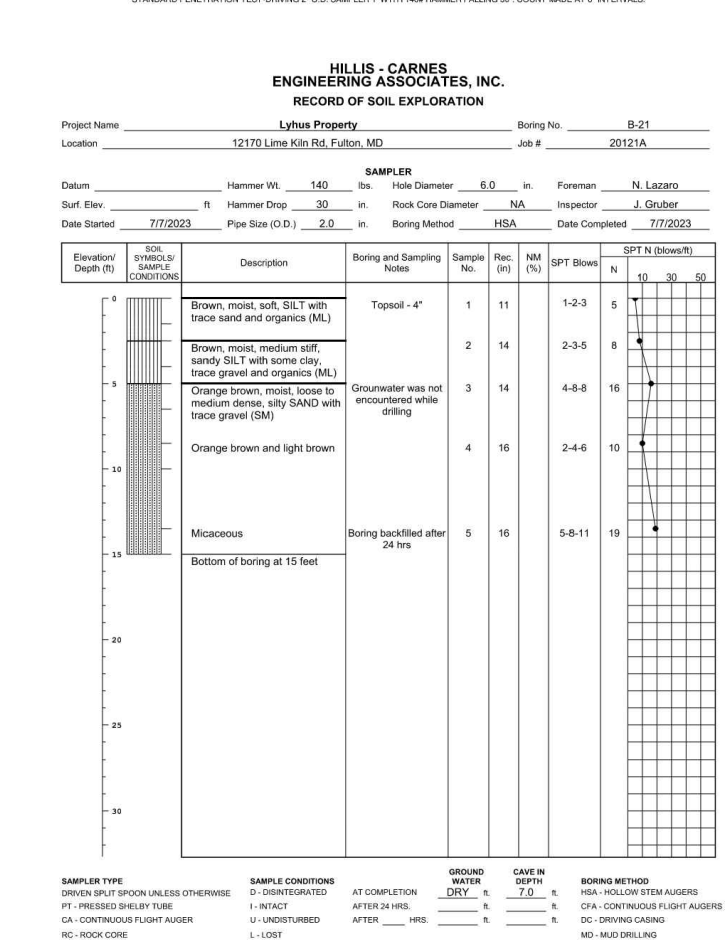
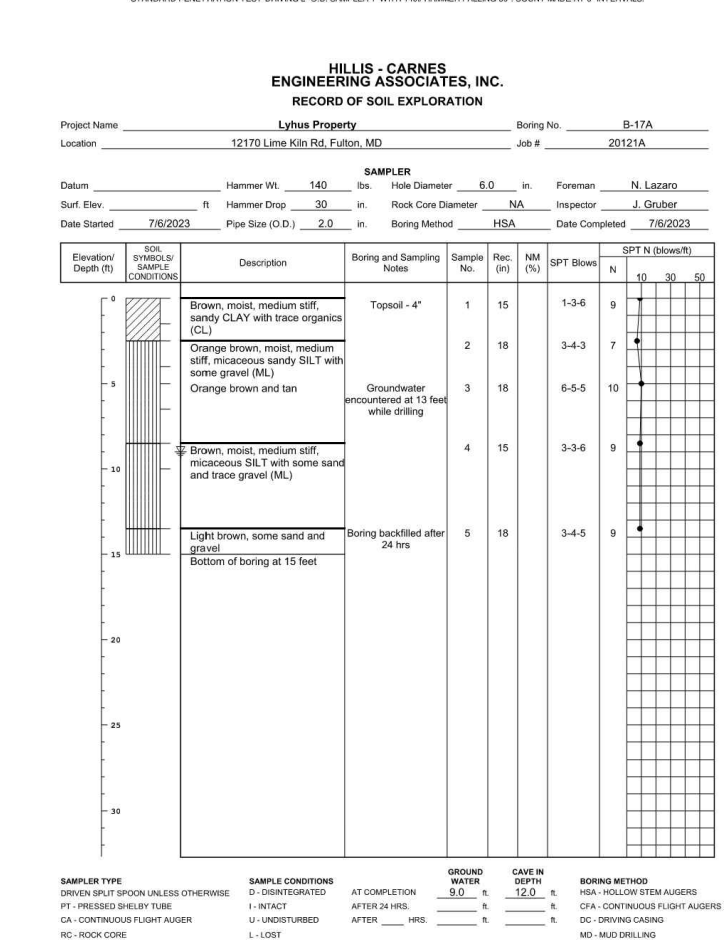
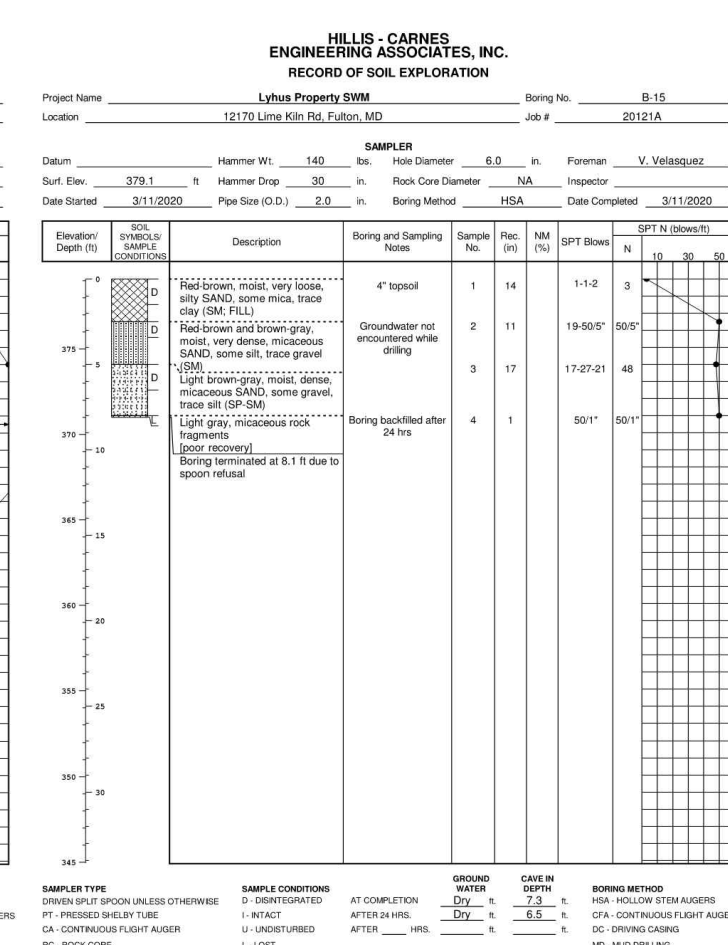
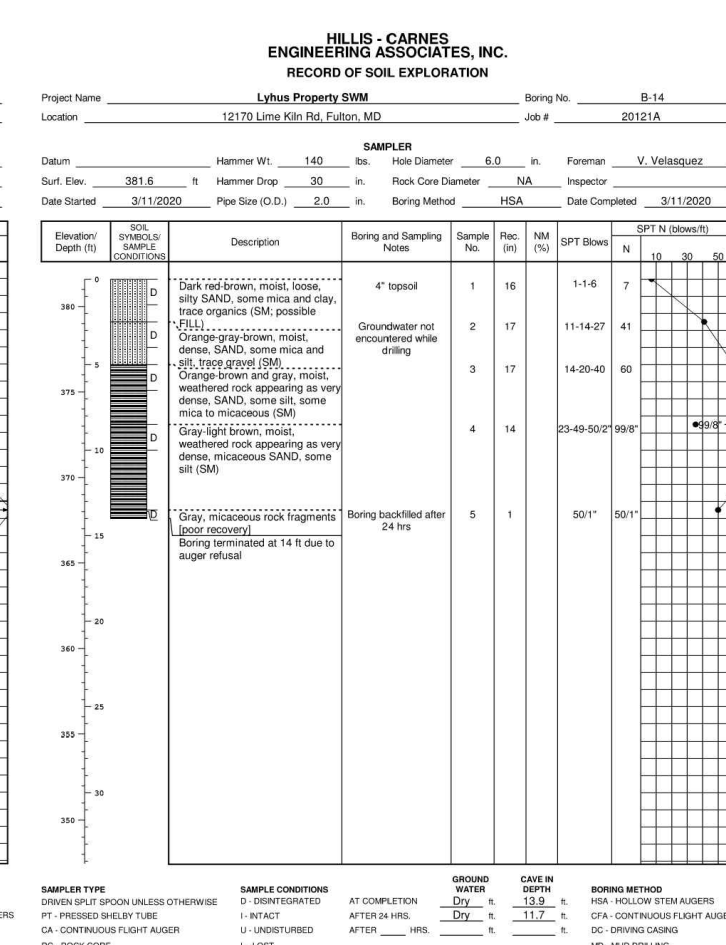
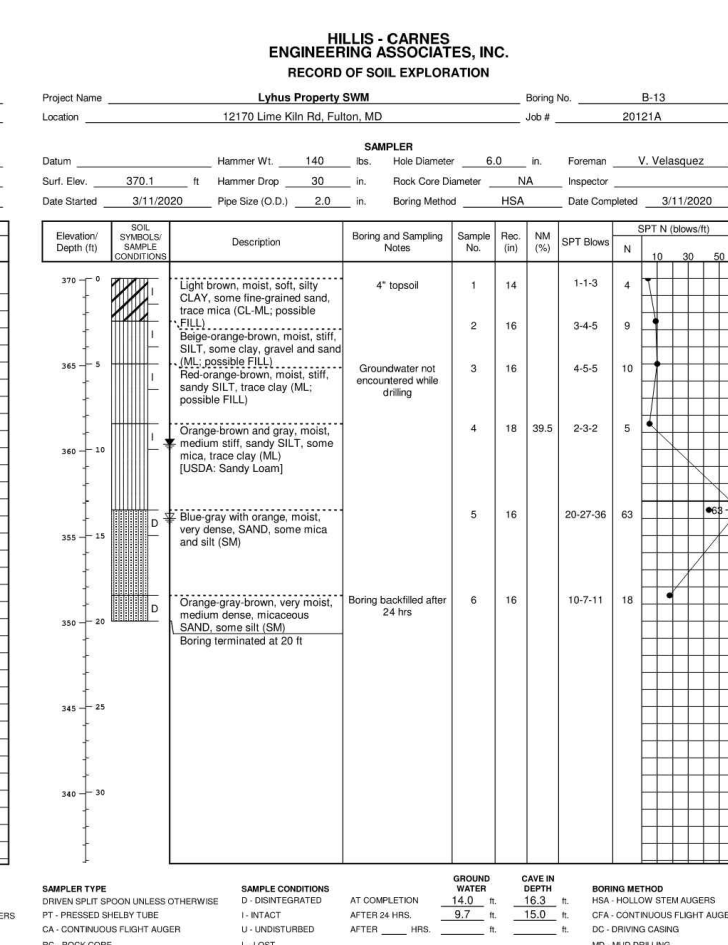
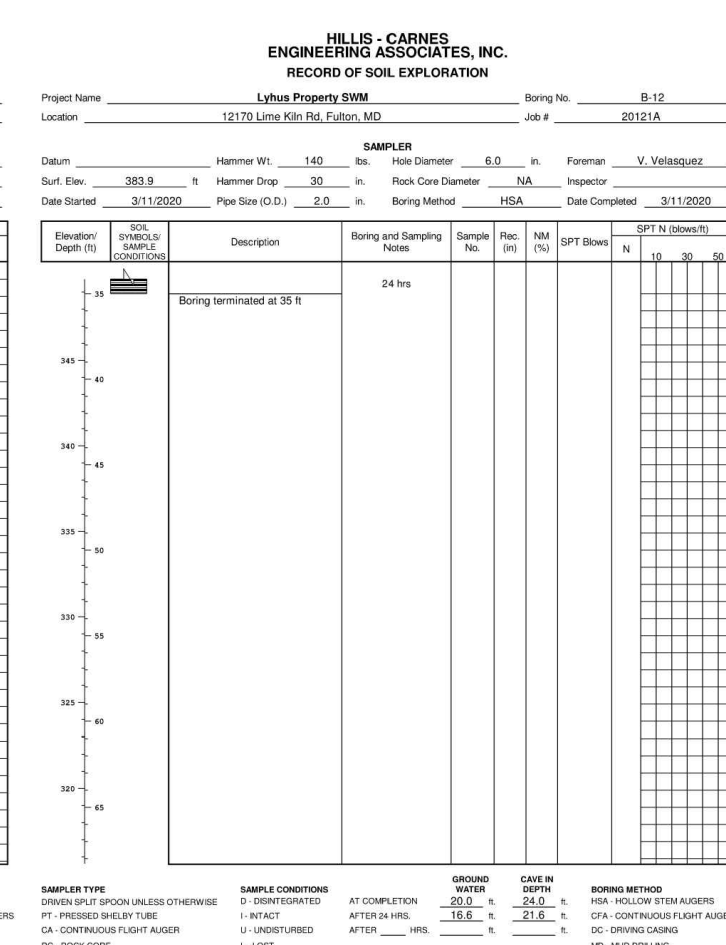
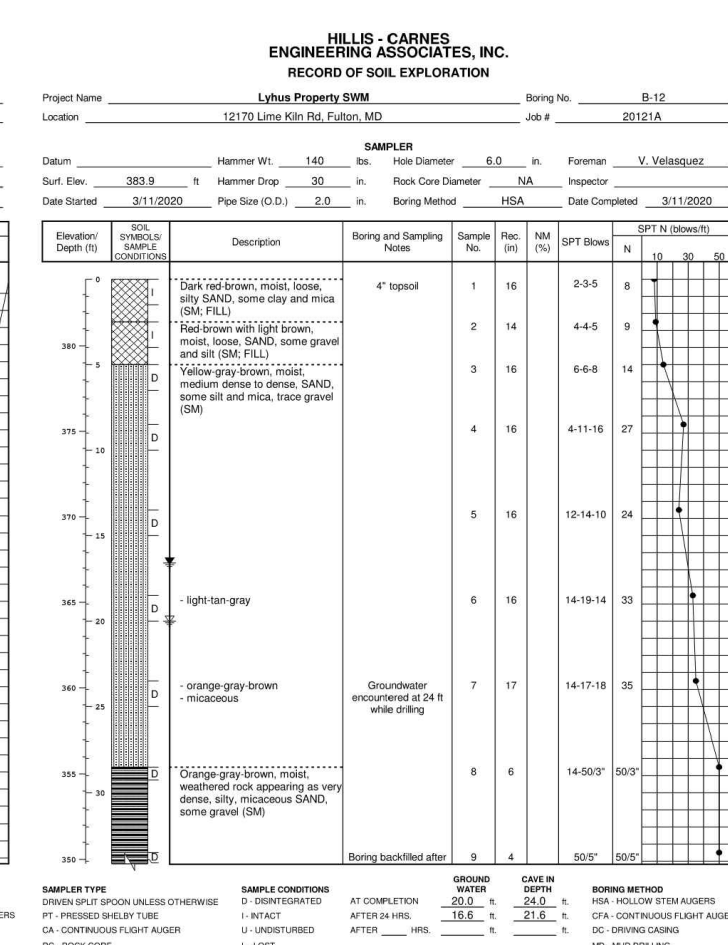
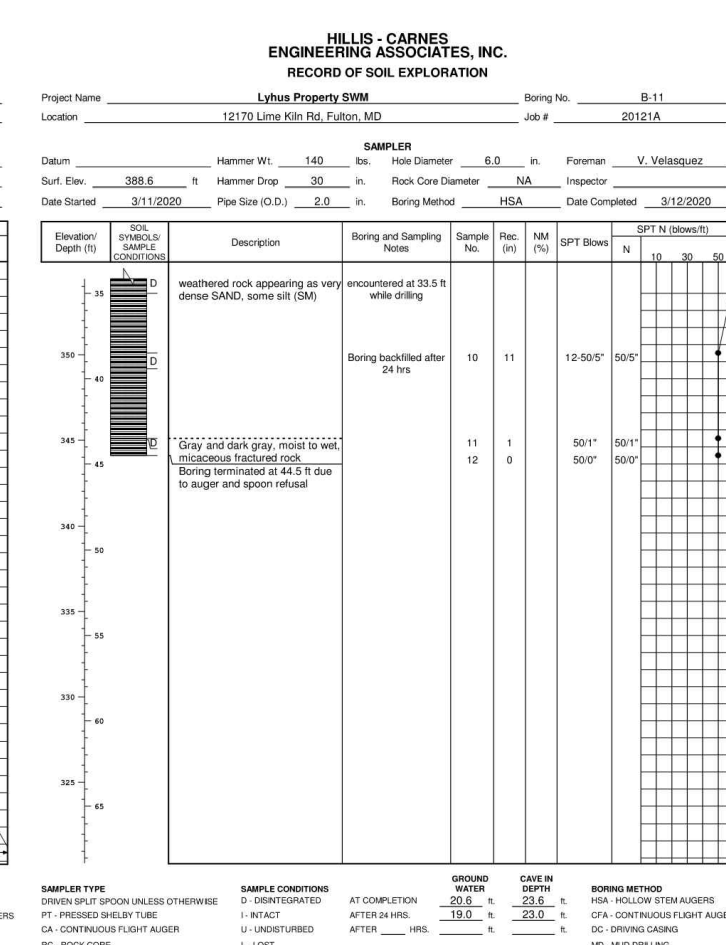
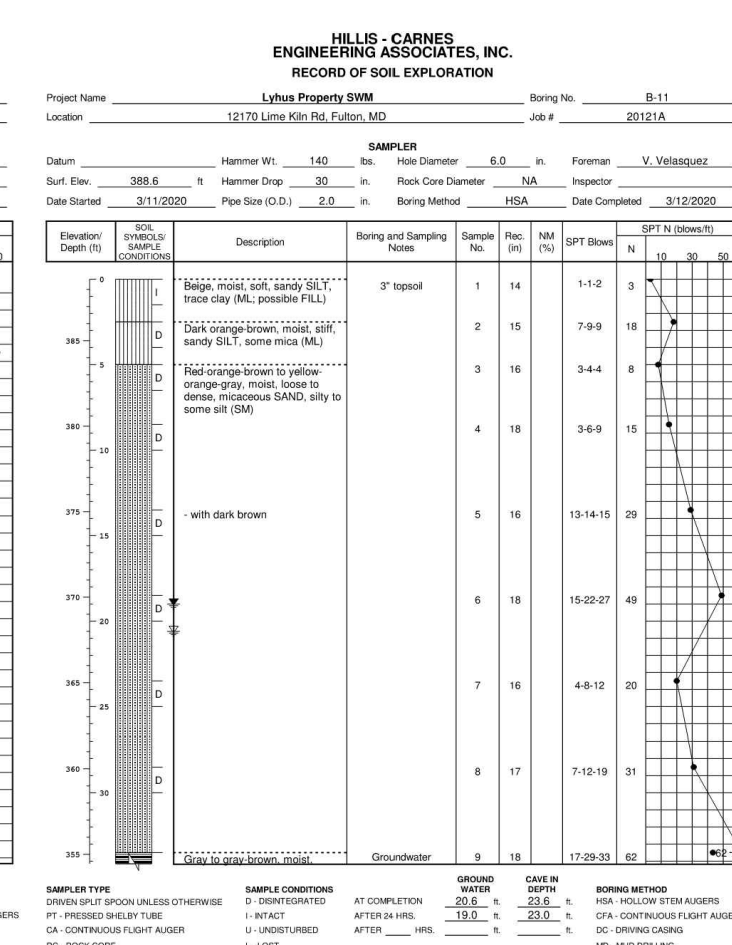
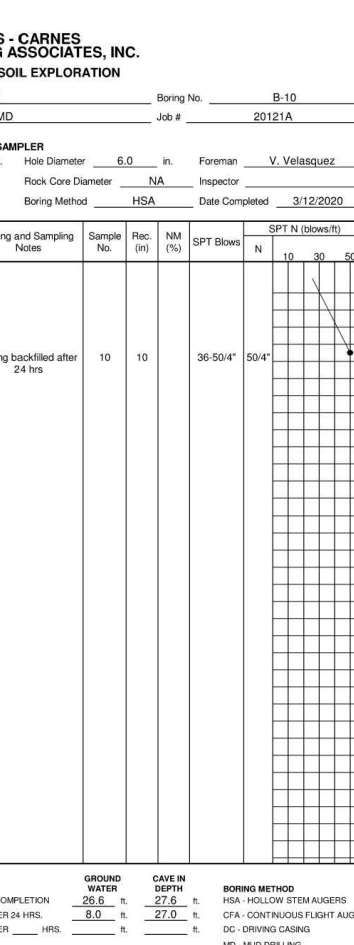
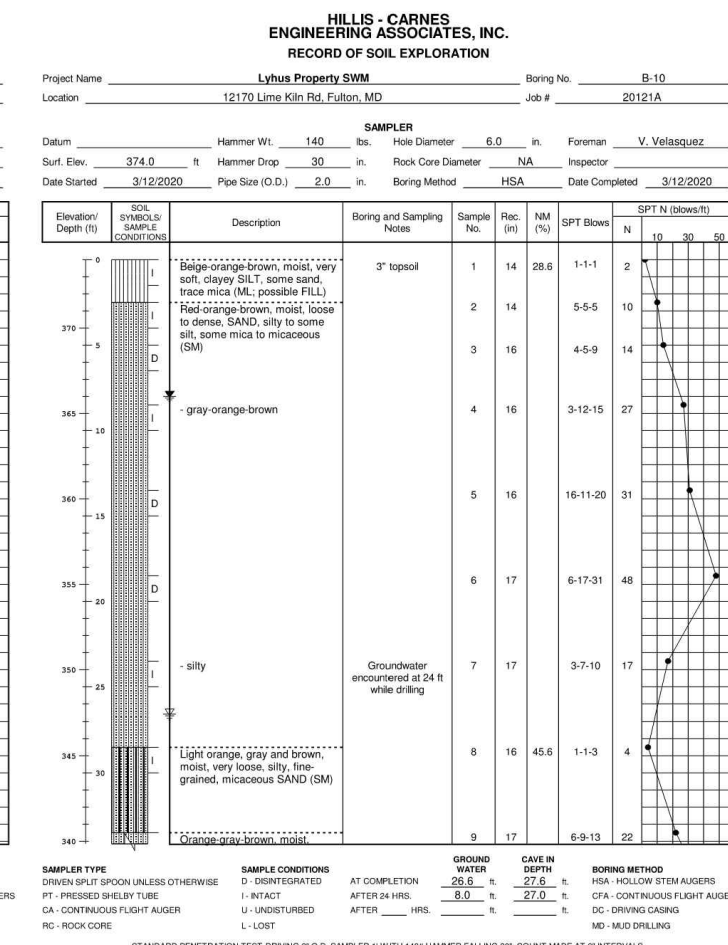
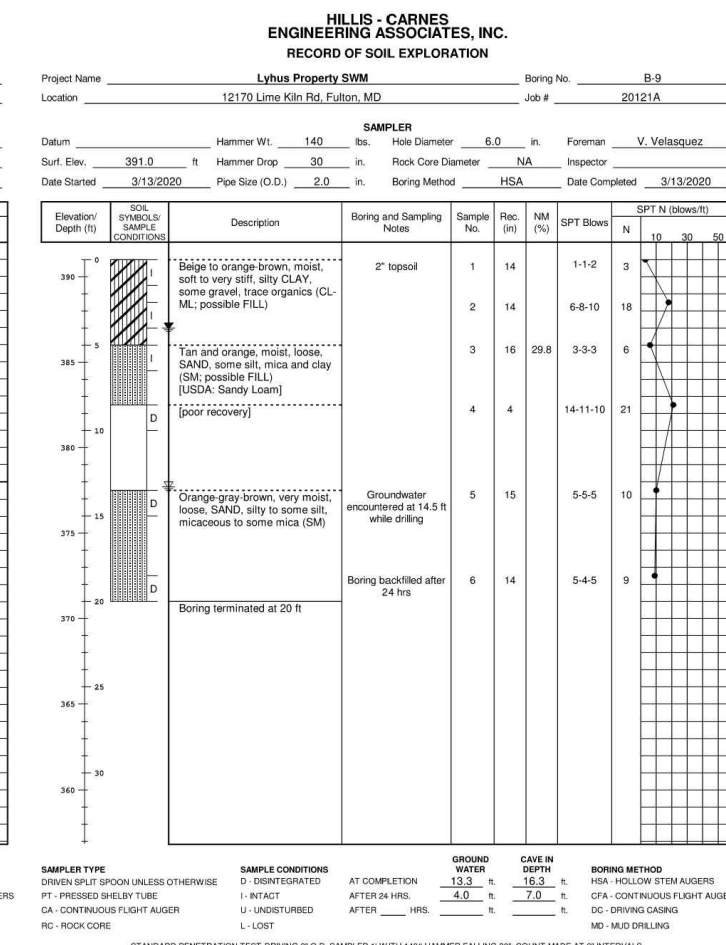
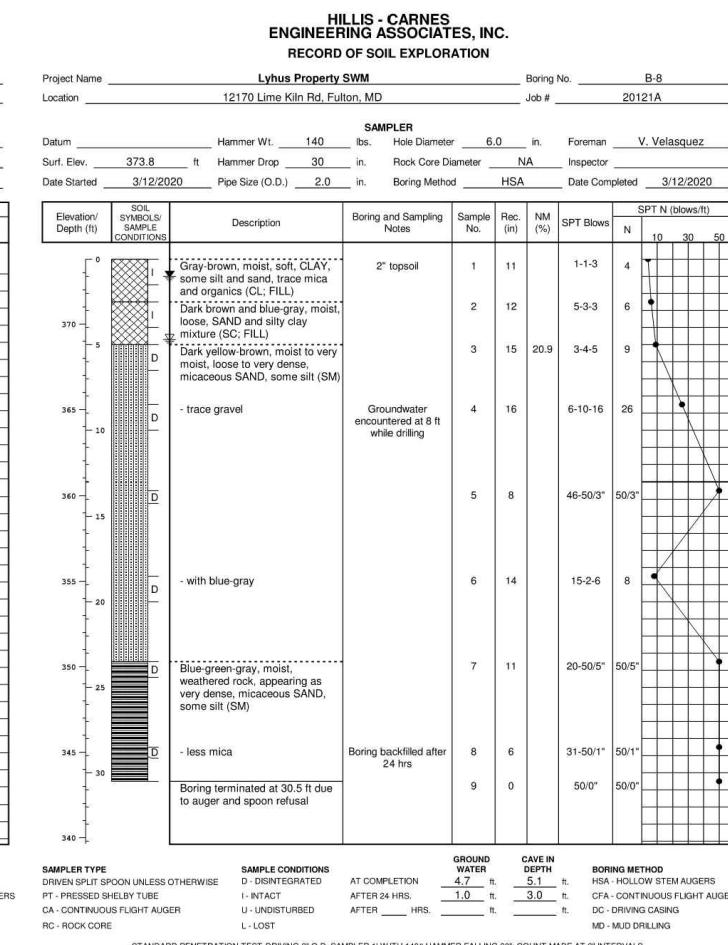
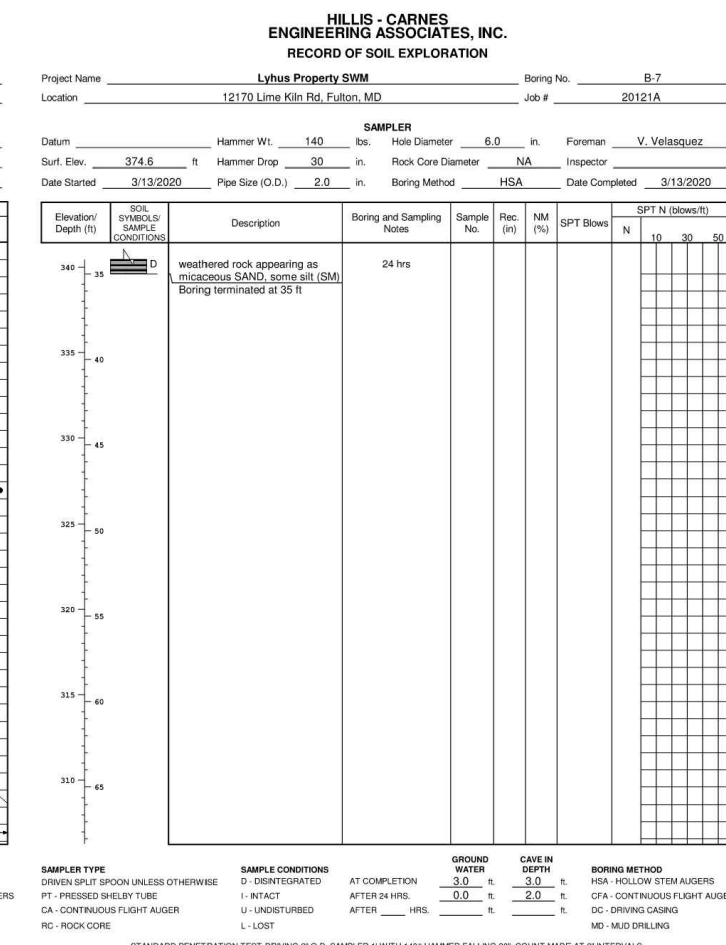
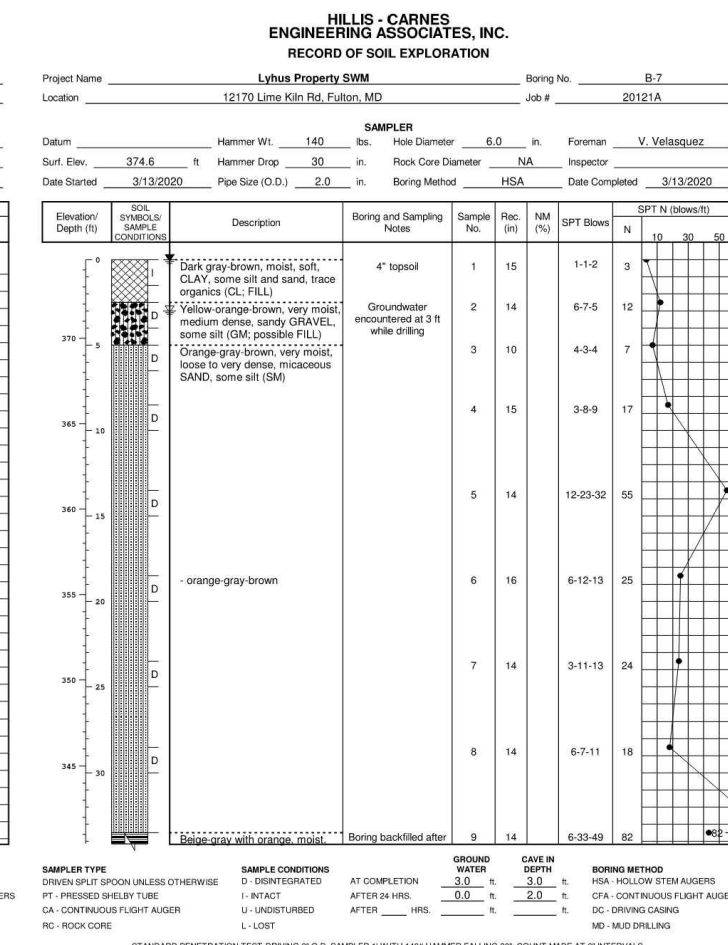
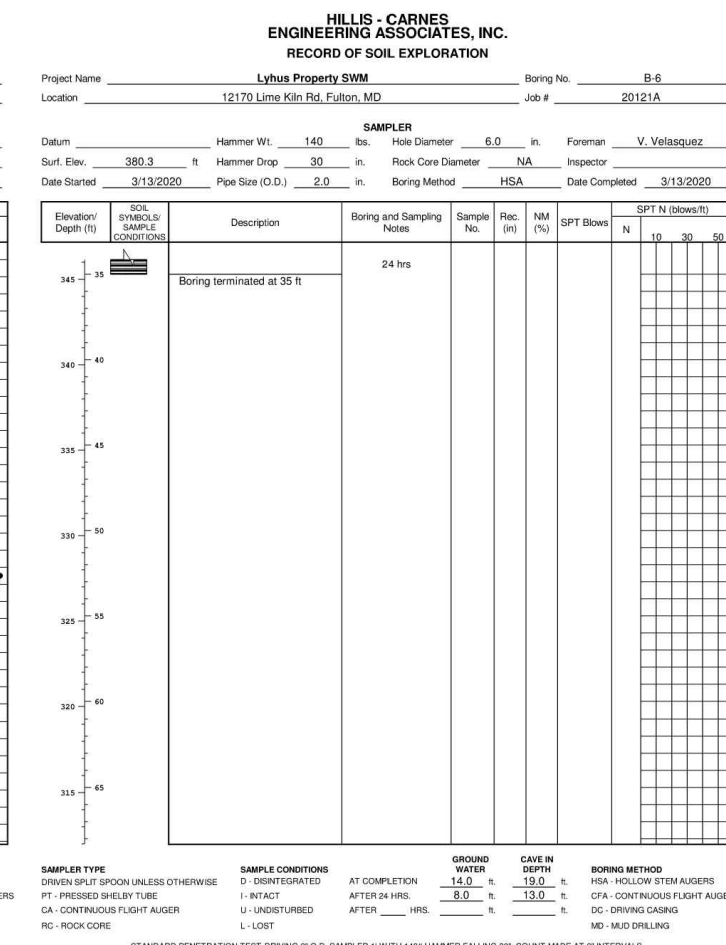
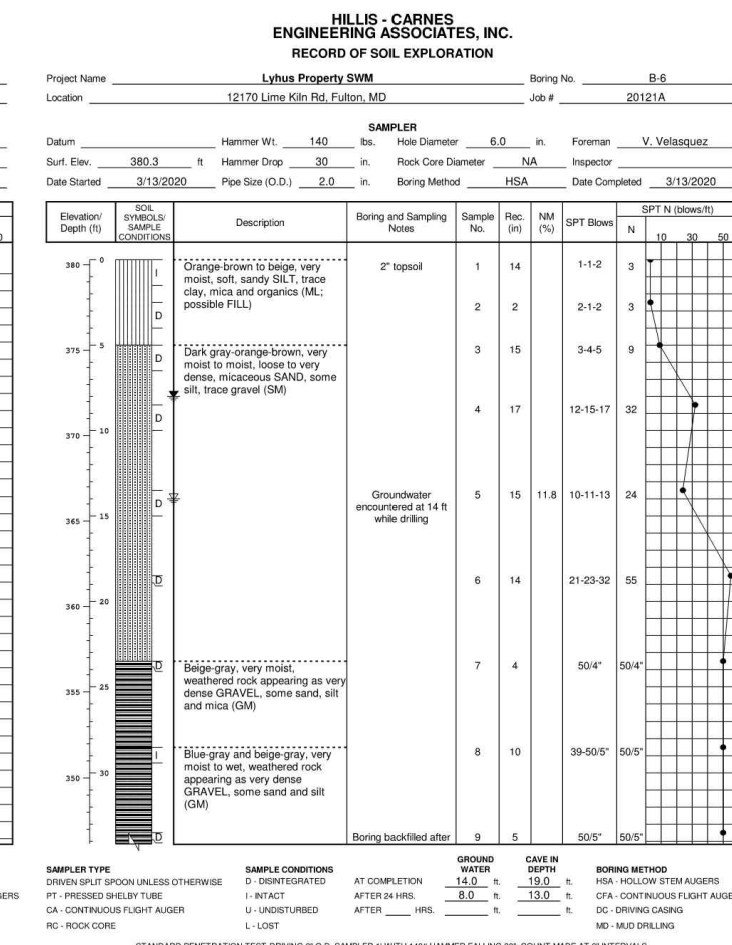
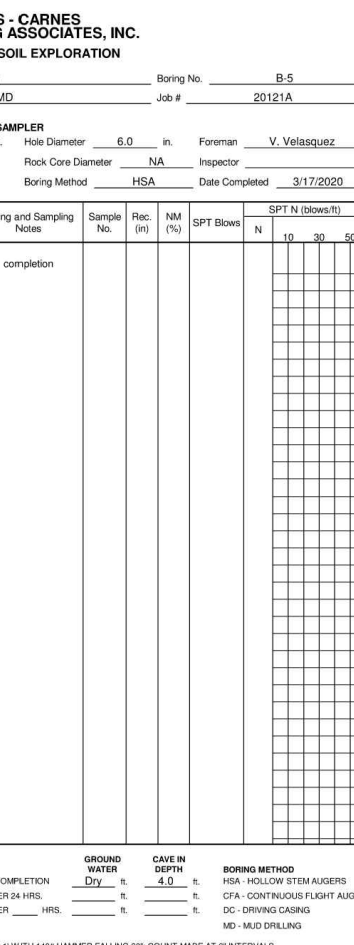
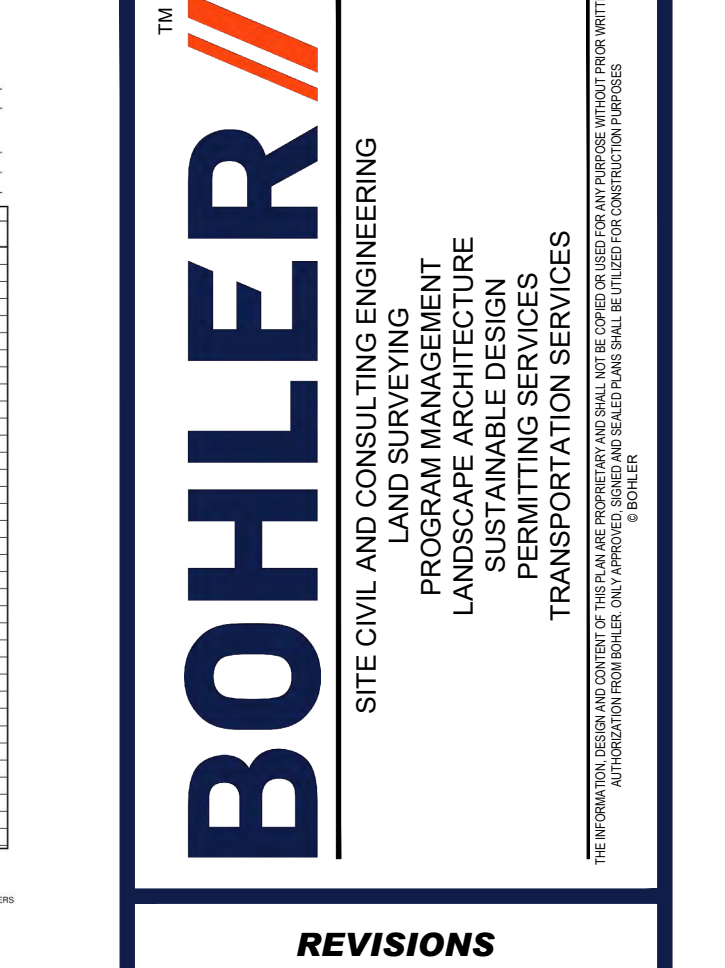
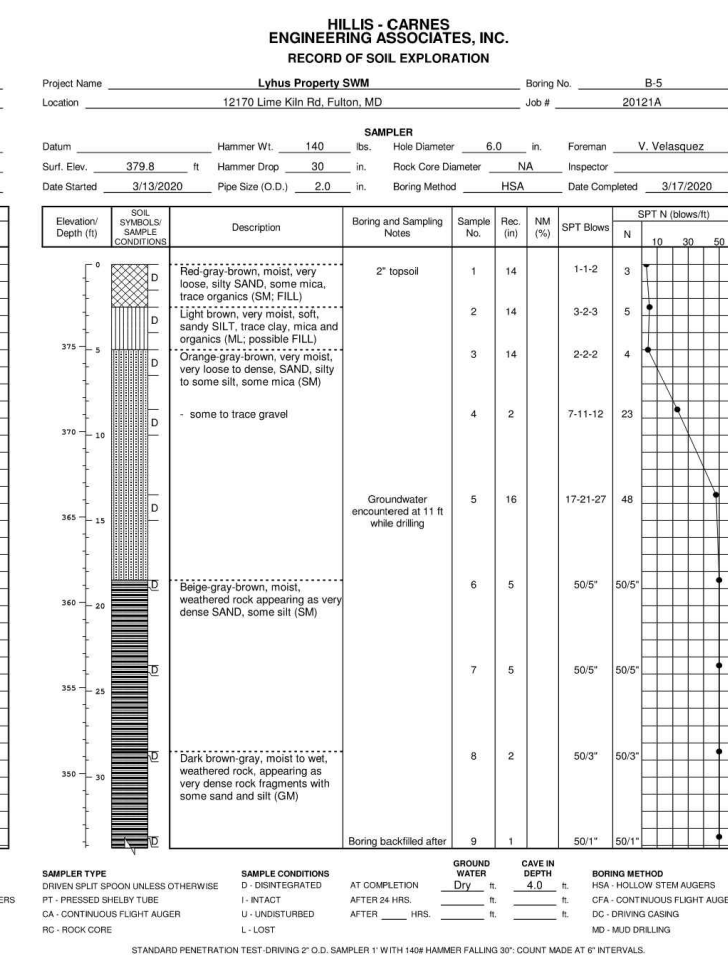
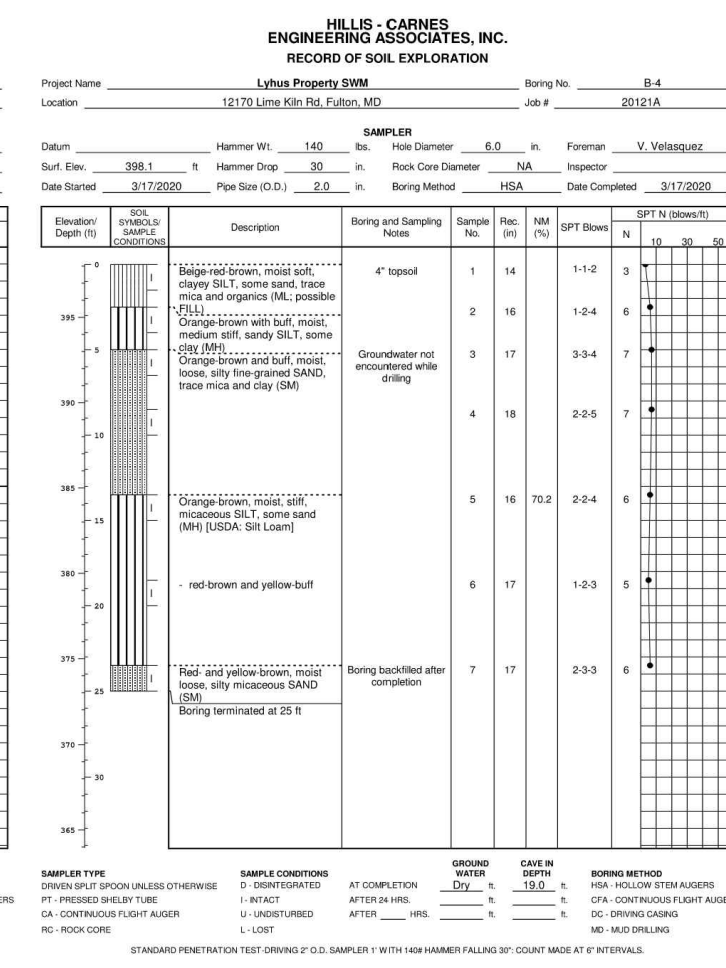
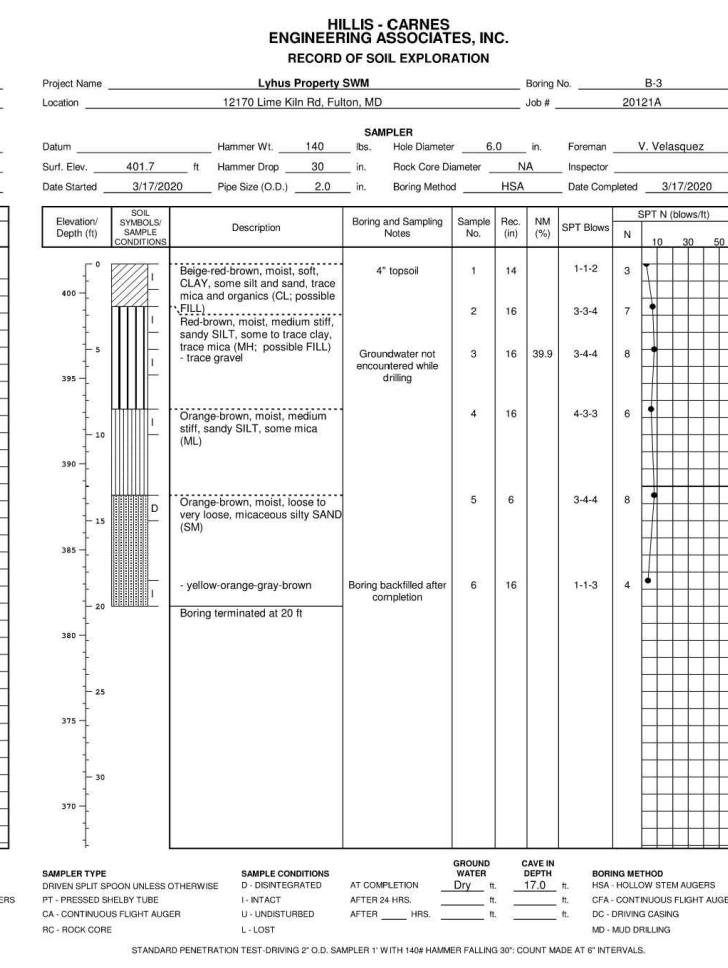
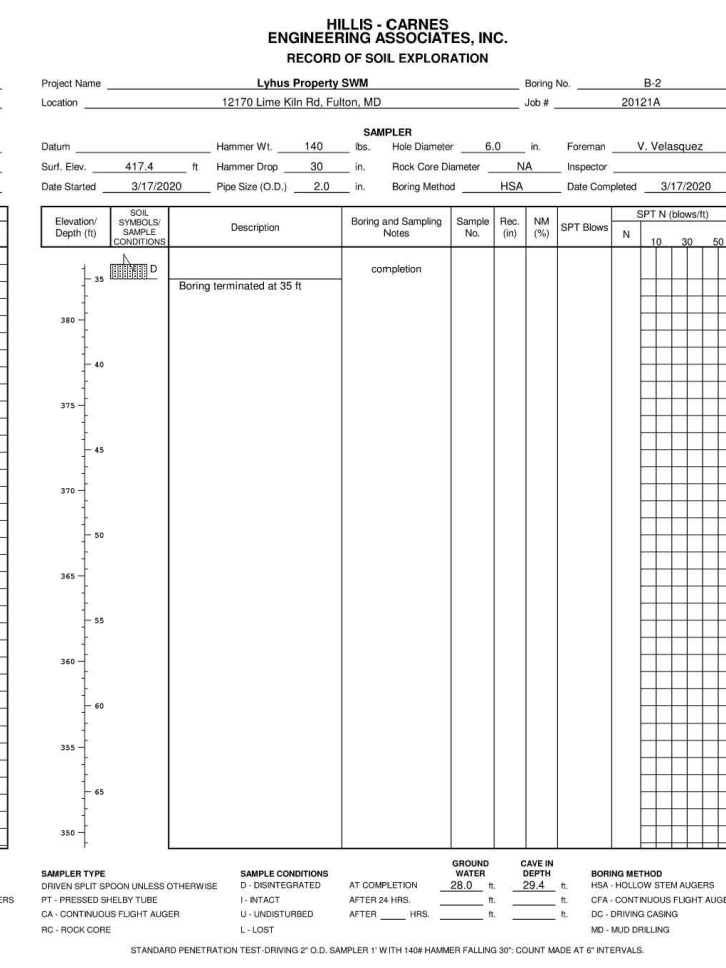
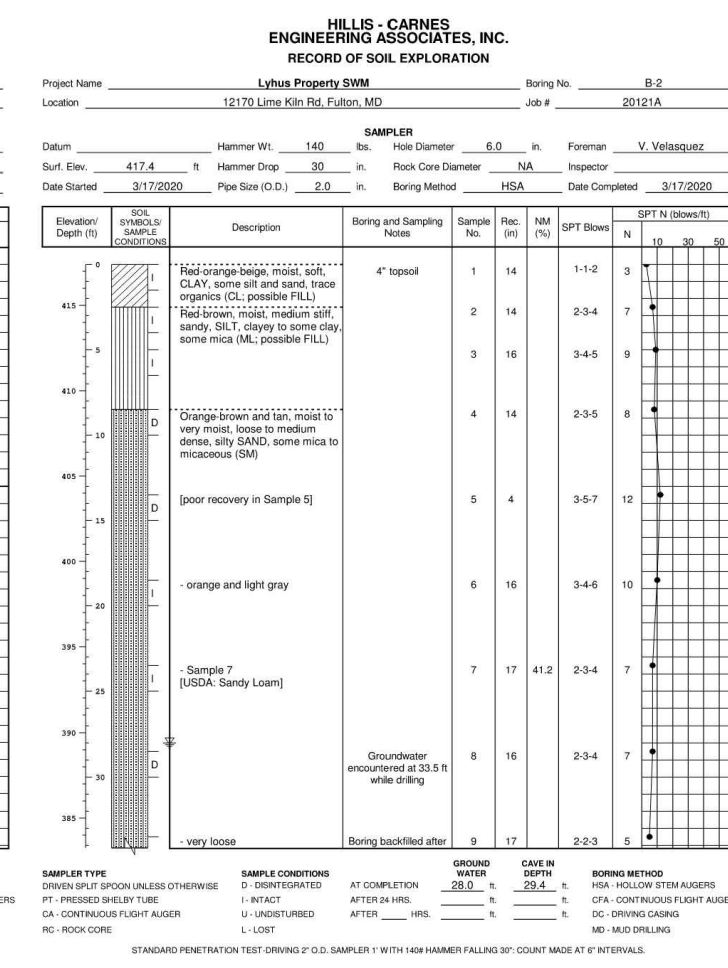
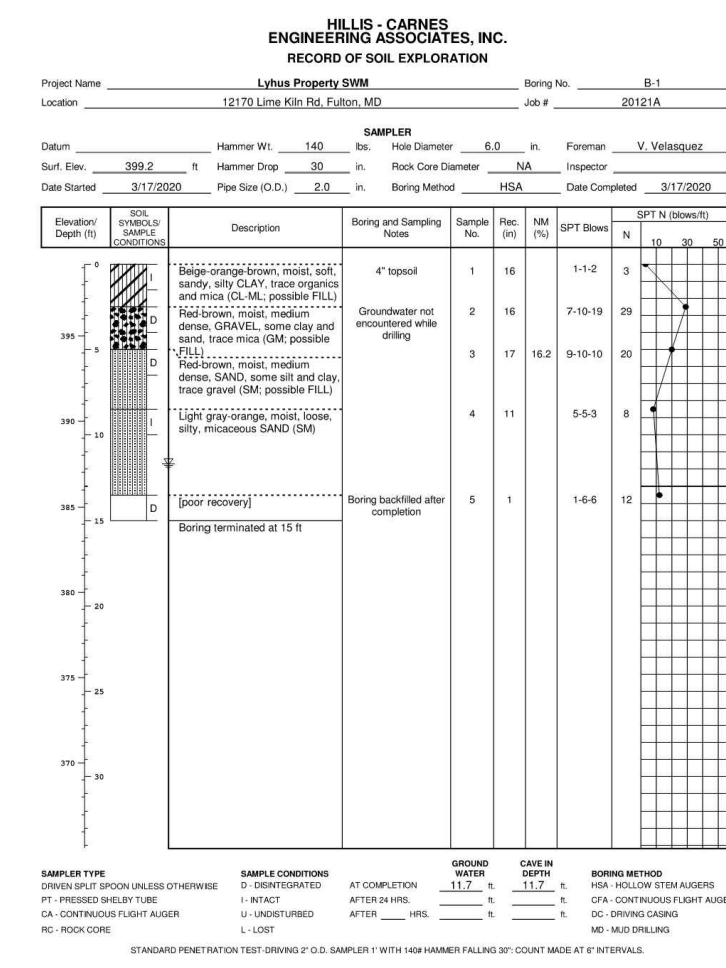
EROSION & SEDIMENT CONTROL NOTES & DETAILS
SHEET NUMBER: 57 OF 146
ORG. DATE - 04/17/24

BORING SUMMARY TABLE

Project Name: Lyhus Property
 Project No: 202114
 Date: 4/22/20

Boring No.	Purpose	Feld	Water	Depth (Feet)	Actual Bore Depth	Depth of Penetration (Feet)	Depth of Penetration (Feet)	Groundwater EL (Feet)	Depth to Water Table (Feet)	
B-1	Wall #2	309.2	No	11.0	8.5	CNE	11.7	307.4	DNE	
B-2	SWM	417.4	No	18	8.5	CNE	28.0	309.4	DNE	
B-3	SWM	407.7	No	20	8.5	CNE	Dry	DNE	DNE	
B-4	SWM	206.1	No	25	2.5	CNE	Dry	DNE	DNE	
B-5	Wall Culvert	379.8	No	18	5.0	11	Dry	308.8	18.5	
B-6	Wall Culvert	390.3	No	30	5.0	14	14.0	307.3	25.5	
B-7	Wall Culvert	374.6	No	28	5.0	3	3.0	374.6	33.5	
B-8	Wall Culvert	373.8	Yes	30.0	5.0	8	4.7	372.8	23.5	
B-9	SWM	391.0	No	28	8.5	15.5	13.5	4.0	307.7	DNE
B-10	Wall #1	374.0	No	40	2.5	24	26.6	8.0	306.0	35.5
B-11	Wall #1	388.6	Yes	44.8	2.5	33.5	20.6	19.0	309.9	33.5
B-12	SWM	383.3	No	35	5.0	24	20.0	16.0	307.3	28.5
B-13	SWM	370.1	No	20	8.5	CNE	14.0	9.7	300.4	DNE
B-14	SWM	381.6	Yes	14	2.5	CNE	Dry	DNE	5.0	
B-15	SWM	378.1	Yes	8.1	2.5	CNE	Dry	DNE	DNE	

3. Discontinuity encountered during drilling.



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell
 DATE 7/16/2024

APPROVED DEPARTMENT OF PLANNING AND ZONING
 DATE 7/16/2024

APPROVED ENVIRONMENTAL ENGINEERING DIVISION
 DATE 7/16/2024

APPROVED DIVISION OF LAND DEVELOPMENT
 DATE 7/16/2024

OWNER: LYHUS DEVELOPMENT LLC
 G/O H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. G/O H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

SUBDIVISION NAME: THE HIGHLANDS
 (F.K.A. LYHUS PROPERTY)
 SECTION/AREA: N/A
 DEED # 14532-00469
 FILE # 26546-2655

PREVIOUS FILE NO: BA-20-002C
 SP-17-010B
 ECP-17-056
 WP-18-070

GRID: 24
 WP-24-060
 F-20-016
 WP-21-011
 WP-22-132

TAX MAP: 40
 GRID: 24
 PARCEL: 135
 ZONED: RR-DEO

5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

910 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

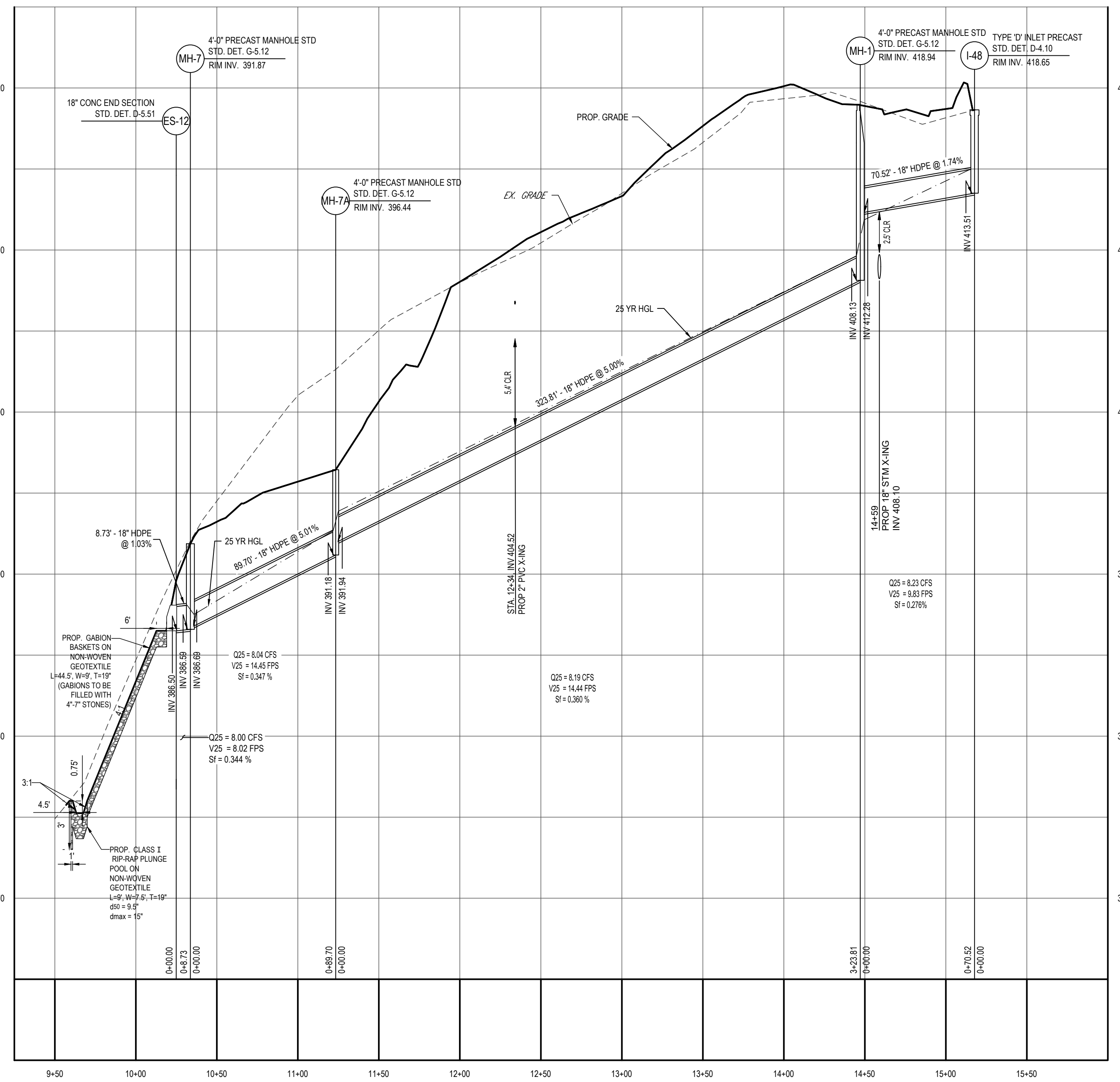
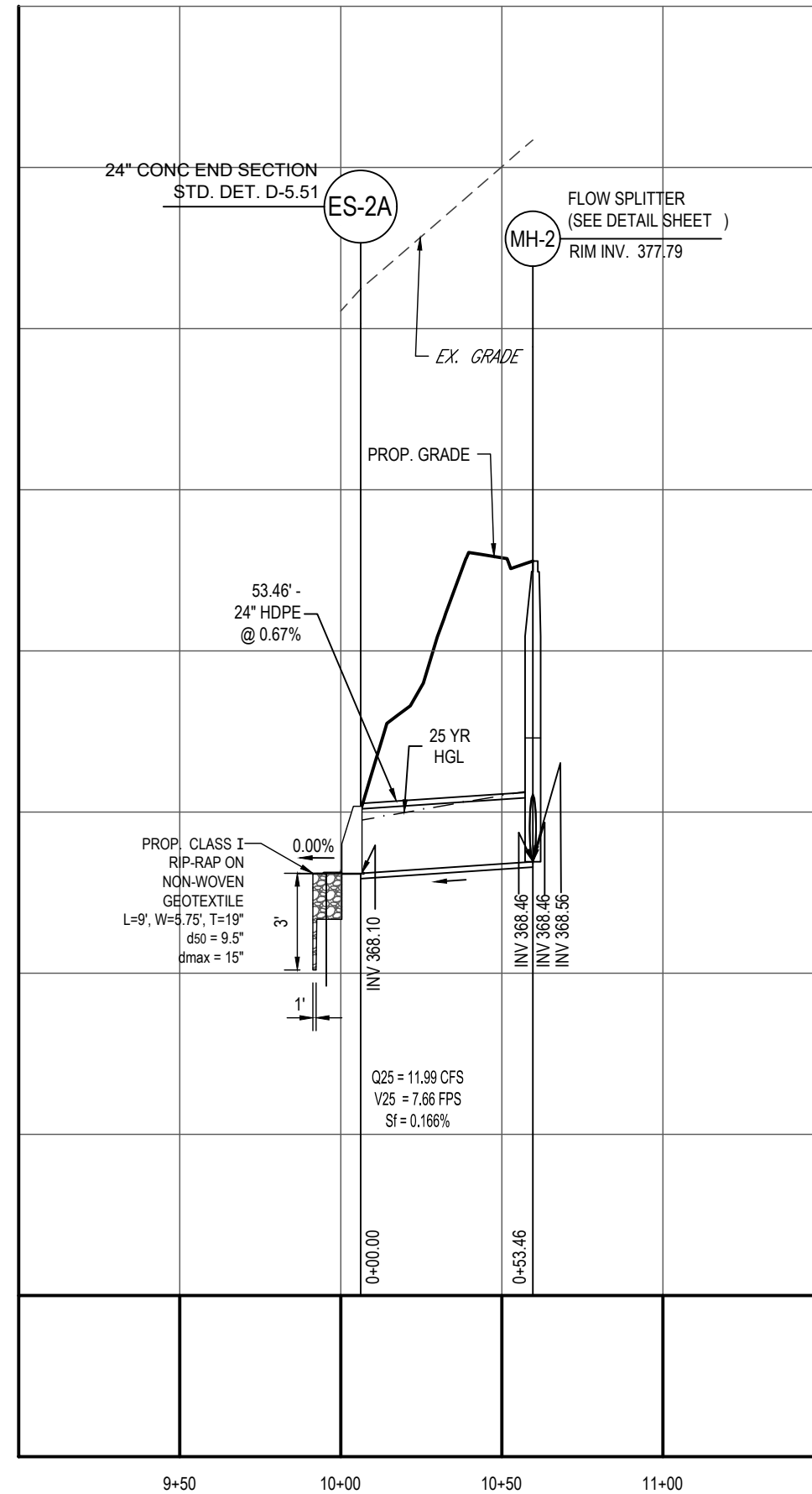
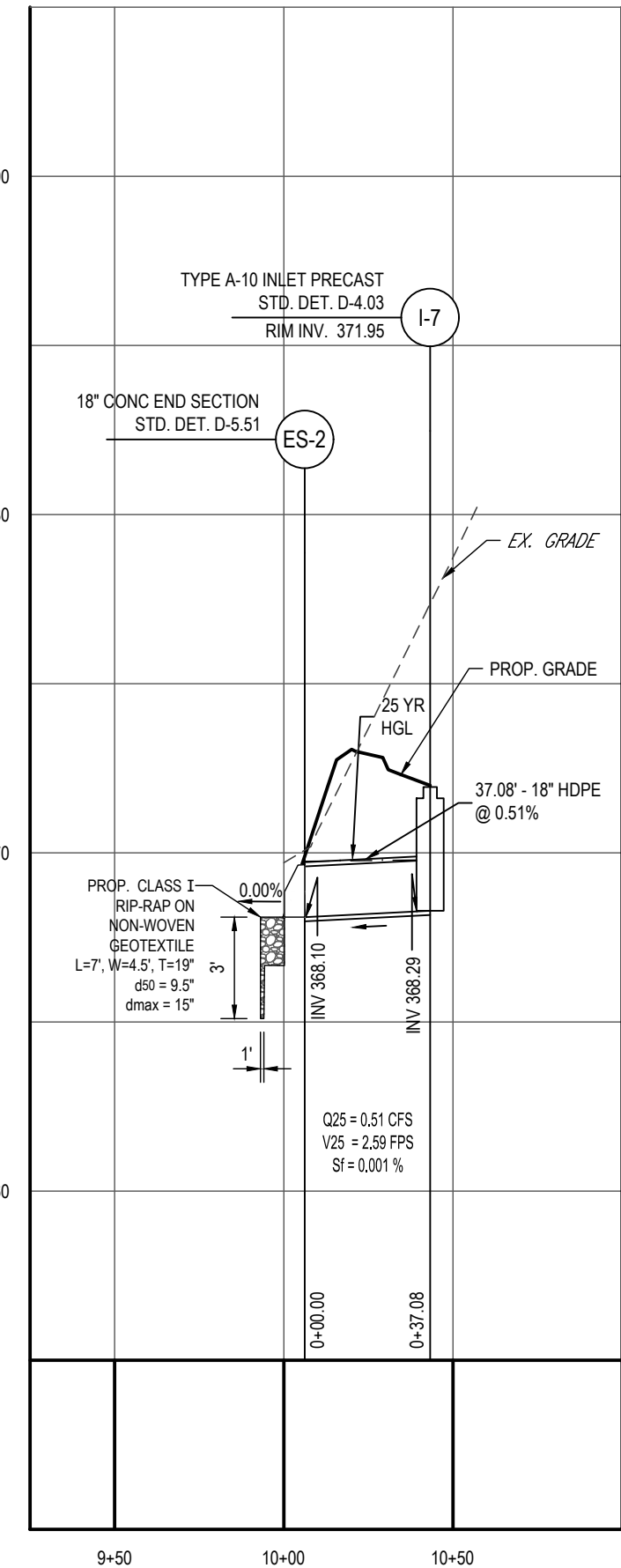
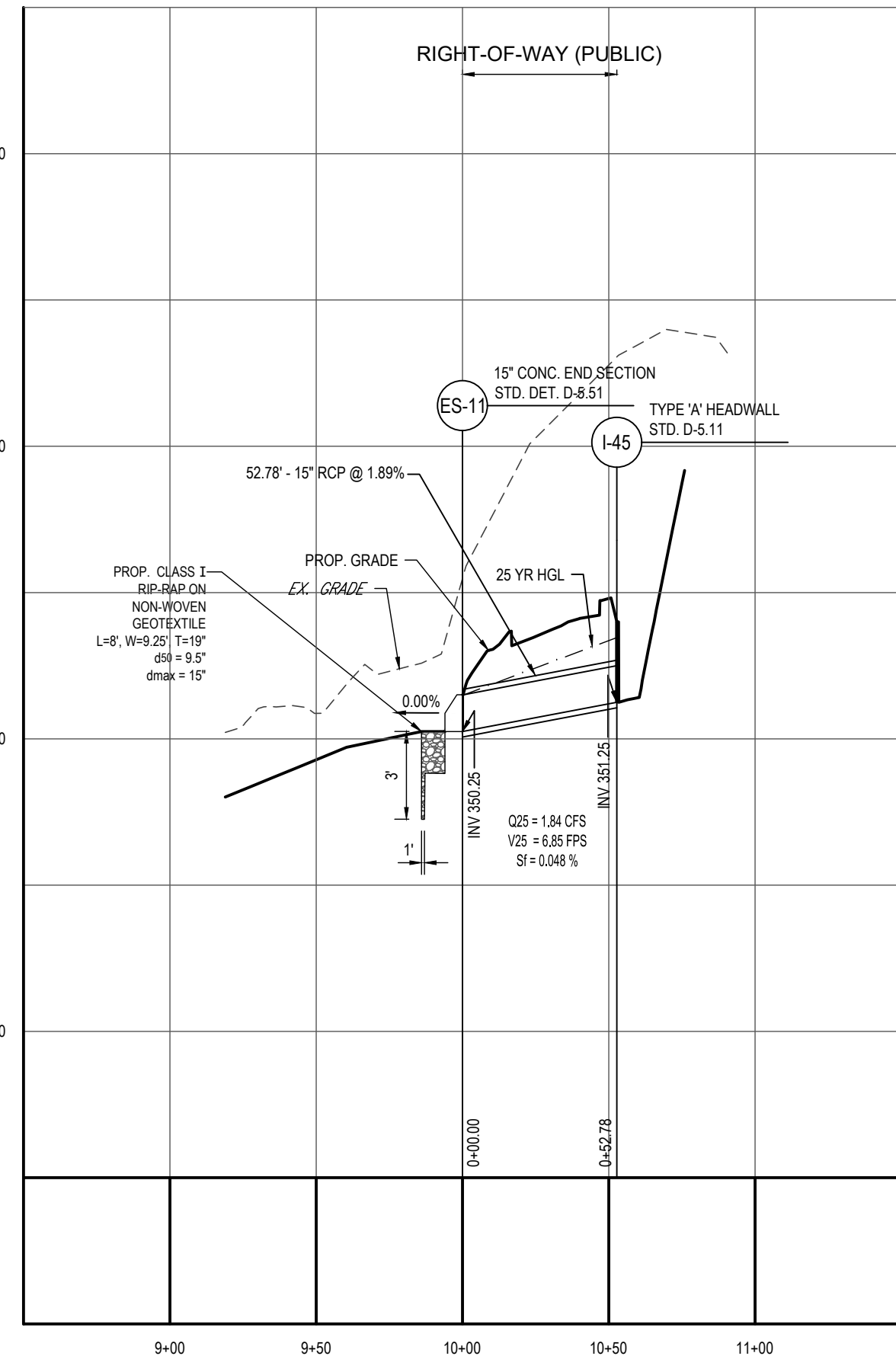
B.R. ROWE
 PROFESSIONAL ENGINEER
 PROFESSIONAL CERTIFICATION
 IN BRANDBLOWING, HEAVY CONSTRUCTION THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 40898 EXPIRATION DATE: 7/3/2025

SHEET TITLE: BORING LOGS

91 OF 146

ORG. DATE - 04/17/24

SDP-23-018

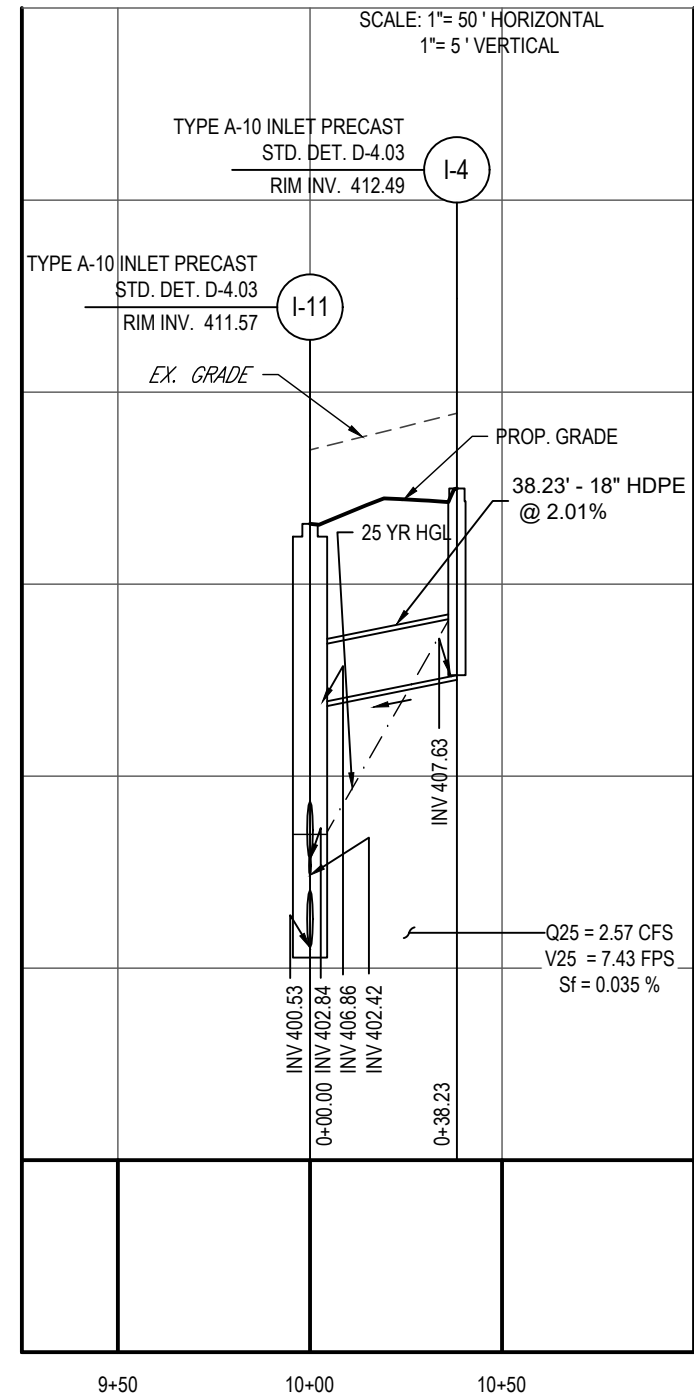


PROP. STORM DRAIN ES-11 TO I-45

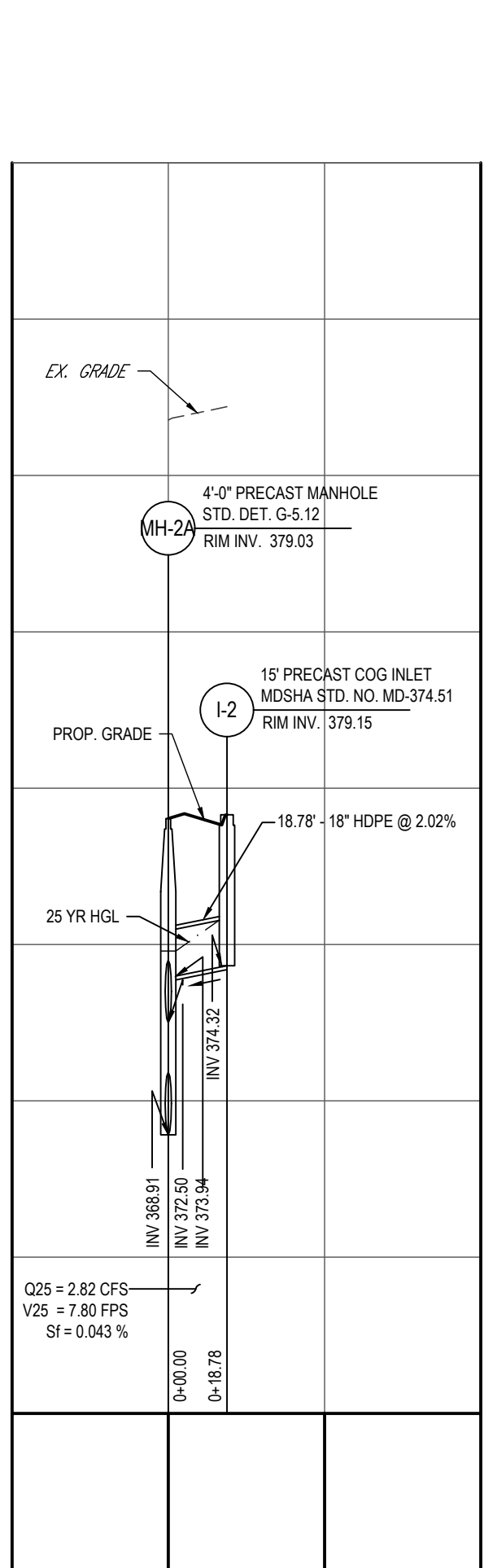
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PROP. STORM DRAIN ES-2A TO MH-2

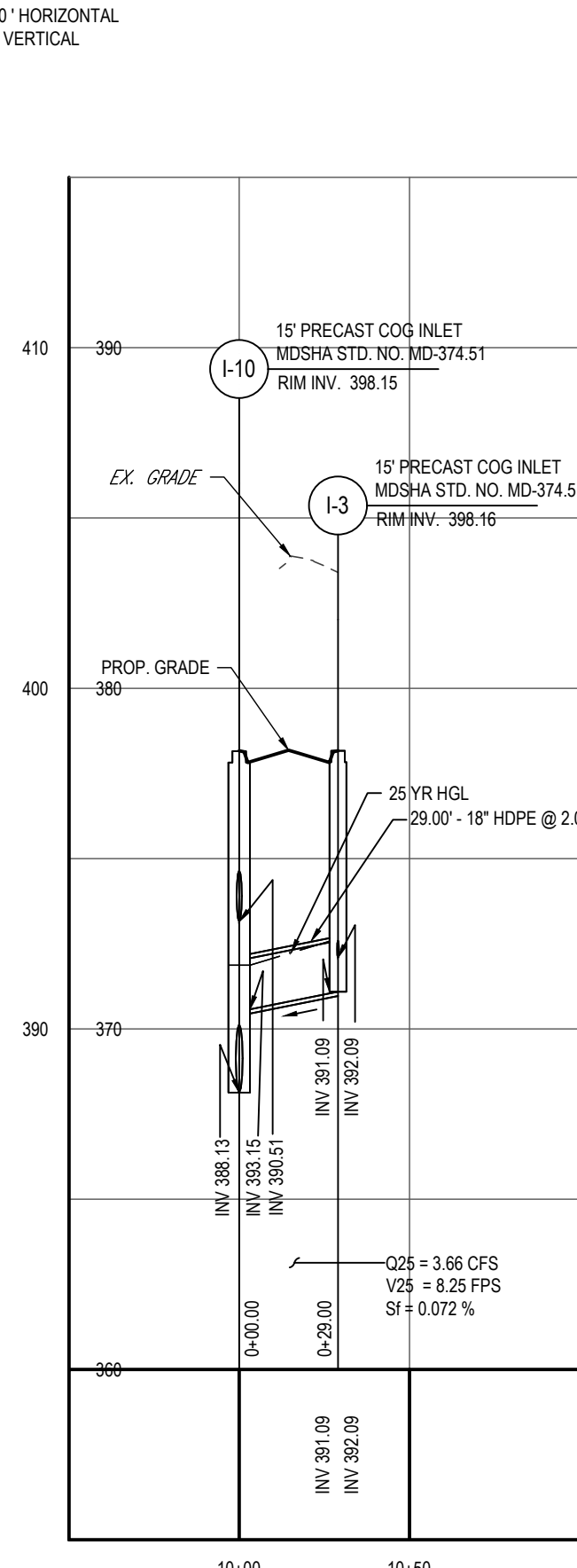
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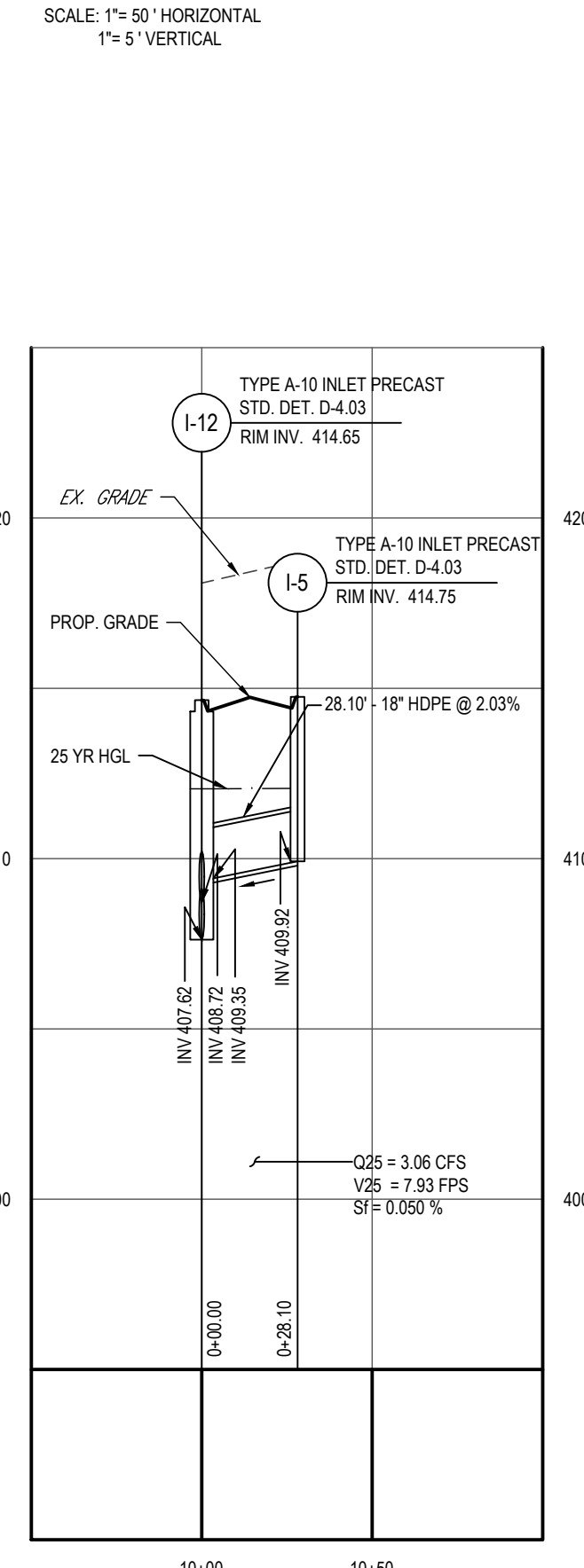
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PROP. STORM DRAIN MH-2A TO I-2



PROP. STORM DRAIN I-10 TO I-3



PROP. STORM DRAIN I-12 TO I-5

SCALE: 1"=50' HORIZONTAL 1"=5' VERTICAL

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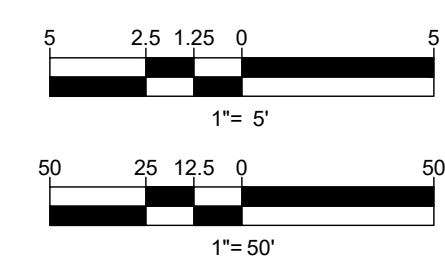
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APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell, 7/16/2024
 WACOM HOMELESS PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 Chad Edwards, 7/16/2024
 CHIEF ENGINEER, DEPARTMENT OF PLANNING AND ZONING
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DIVISION OF LAND DEVELOPMENT
 Lynda Eisenberg, 7/16/2024
 CHIEF ENGINEER, DIVISION OF LAND DEVELOPMENT
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT #: 20546-29552		DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	
PREVIOUS FILE NO.: BA-20-002C SF-17-0108 ECP-17-056 WP-18-070	FA-20-016 WP-21-011 WP-22-132	WP-24-060	TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND



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 SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
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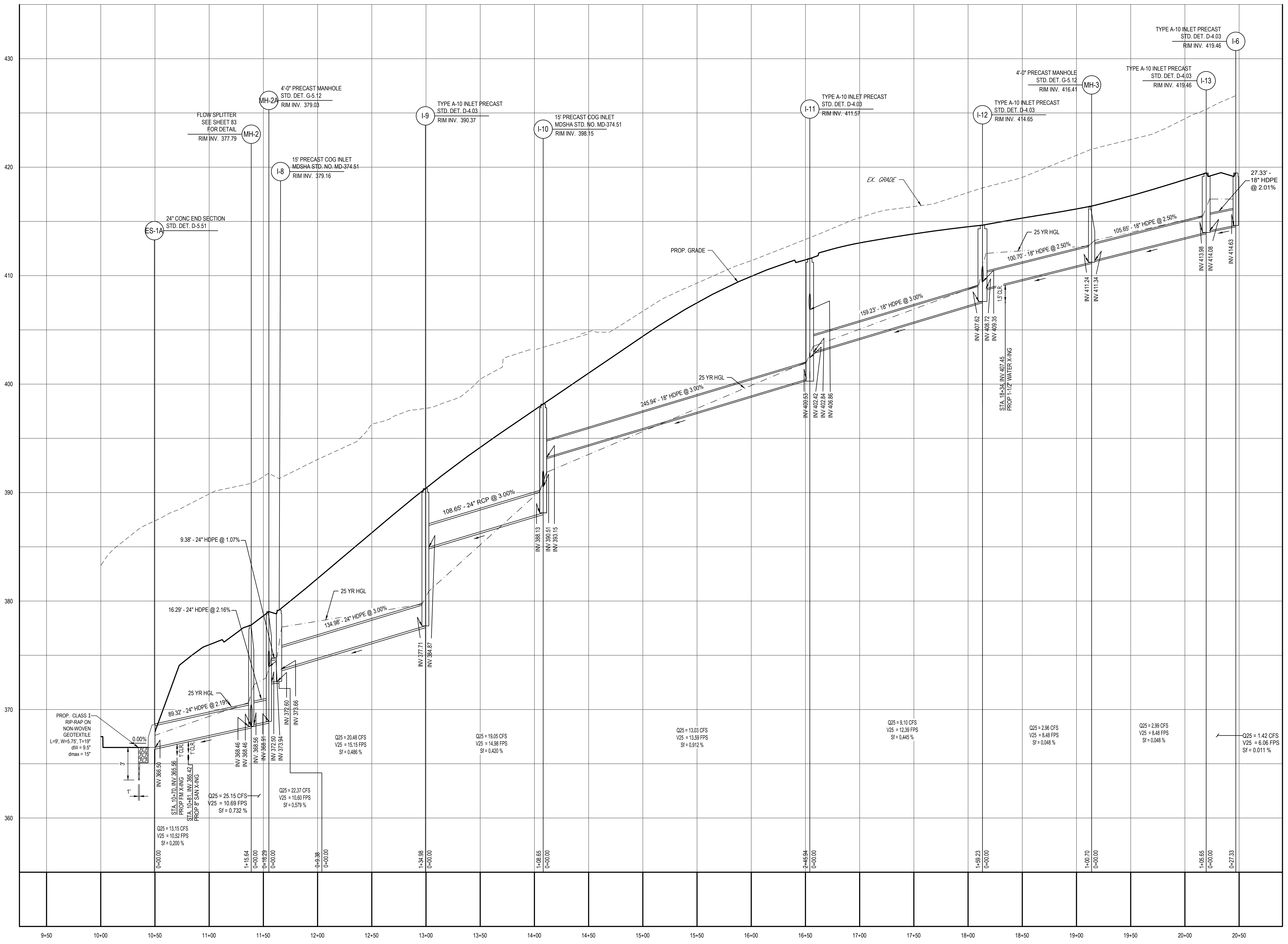
PROJECT NO.:	MD1420672
DRAWN BY:	MJR
CHECKED BY:	MP
DATE:	07/11/2024
CAD ID:	MD1420672 - PSTM - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40088
 I BRANCOLO, ROWE, HERSHEY CERTIFY THAT THESE DOCUMENTS WERE PREPARED AND REVIEWED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40088, EXPIRATION DATE: 7/30/2025

SHEET TITLE:
STORM DRAIN PROFILES
 SHEET NUMBER:
63 OF 146
 ORG. DATE - 04/17/24

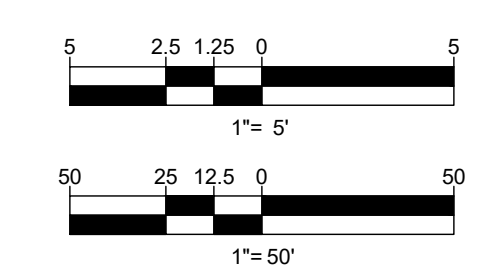


PROP. STORM DRAIN ES-1A TO I-6
 SCALE: 1" = 50' HORIZONTAL
 1" = 5' VERTICAL

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell, 7/16/2024
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 CHIEF ENGINEER DIVISION
 DATE: 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
 DATE: 7/16/2024



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED #: 145320-00469
PLAT #: 285446-28552

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELKCRIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

TAX MAP: 40
GRID: 24
PARCEL: 135
ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD I.D.: MD1420672 - PSTM - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

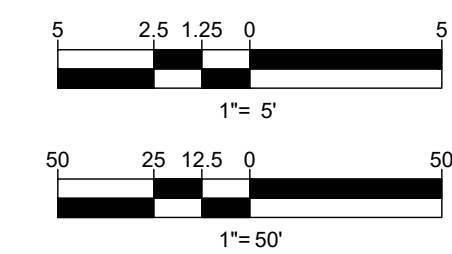
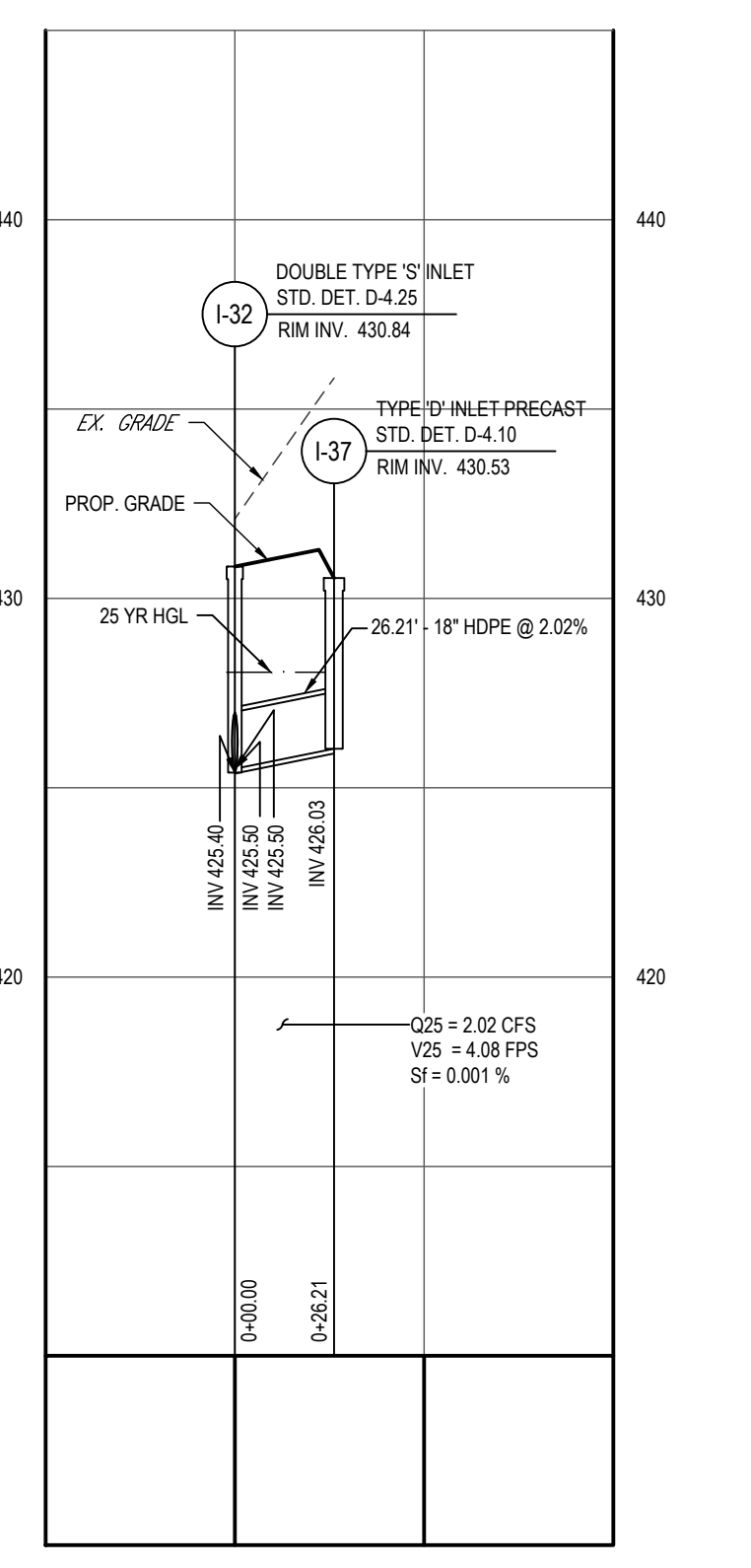
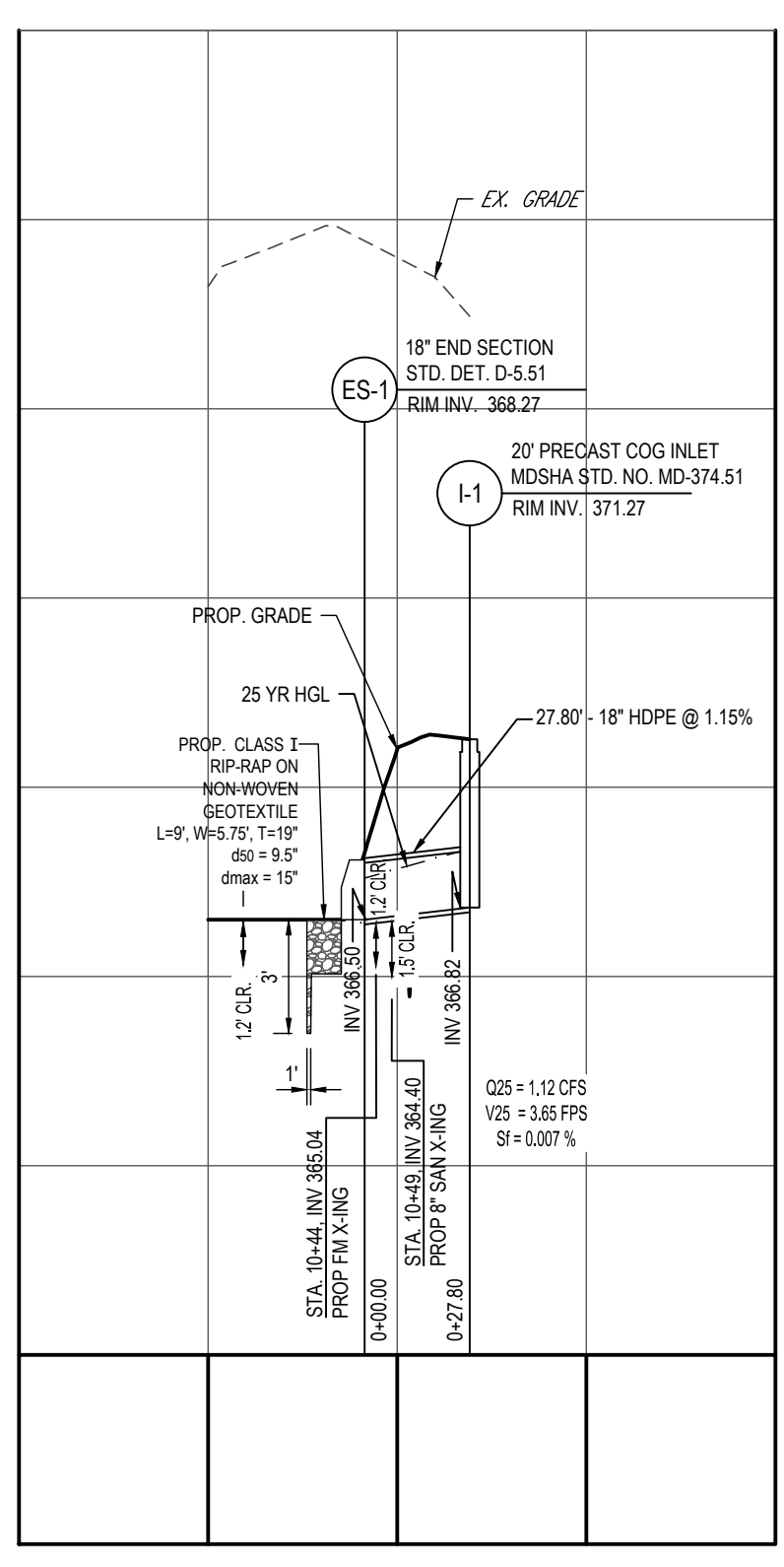
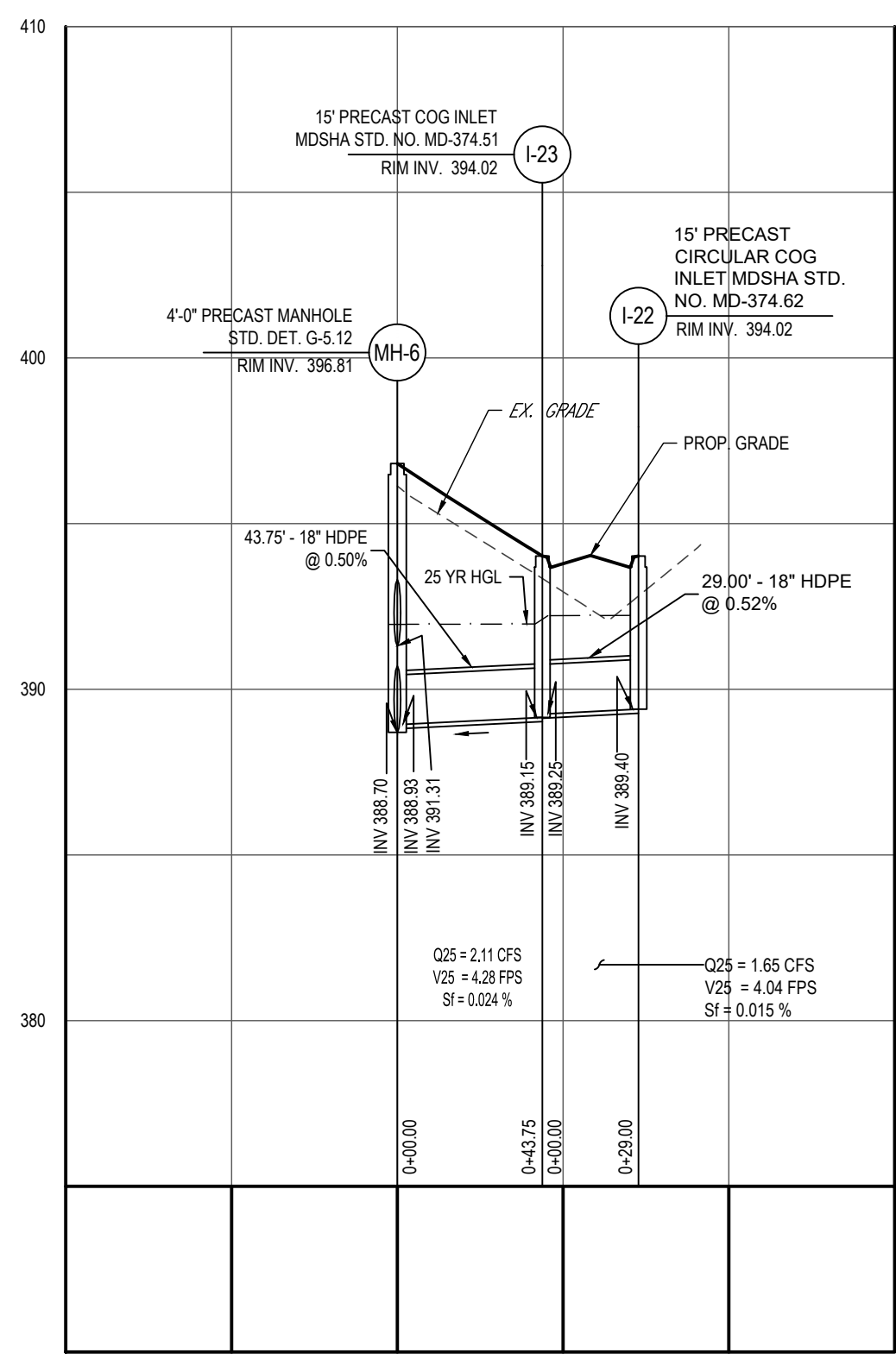
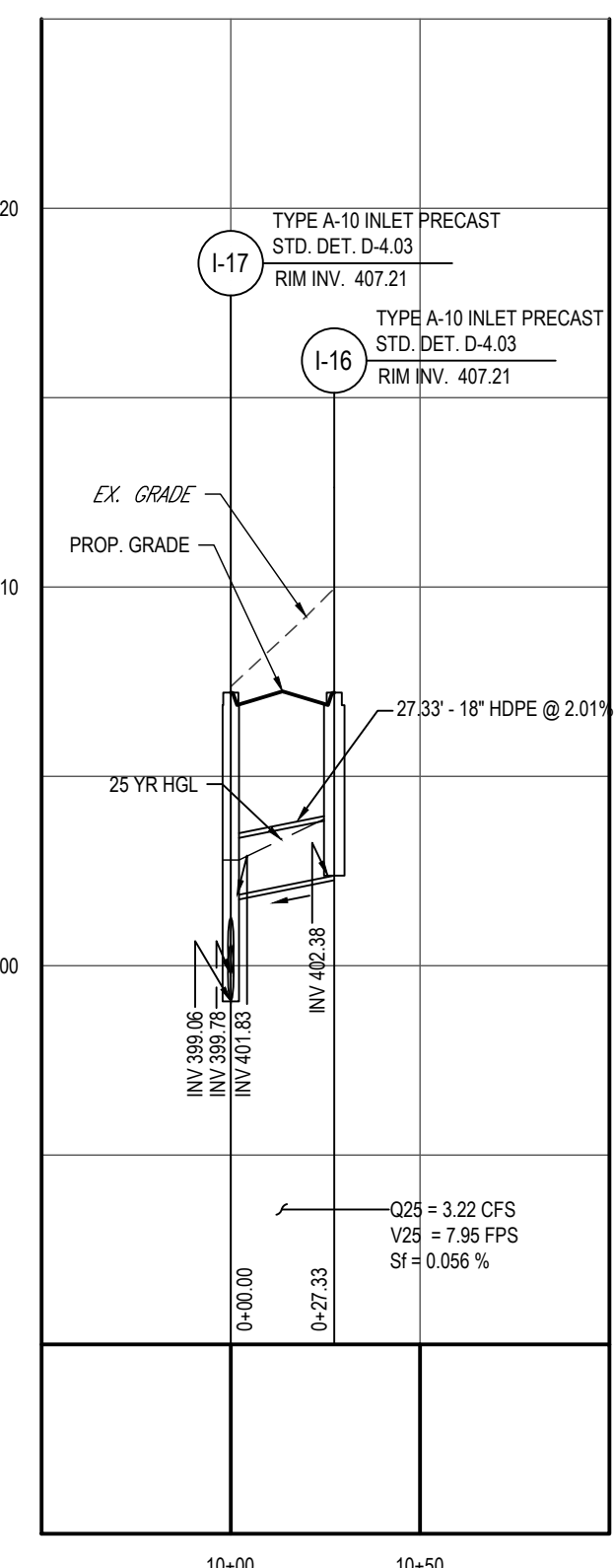
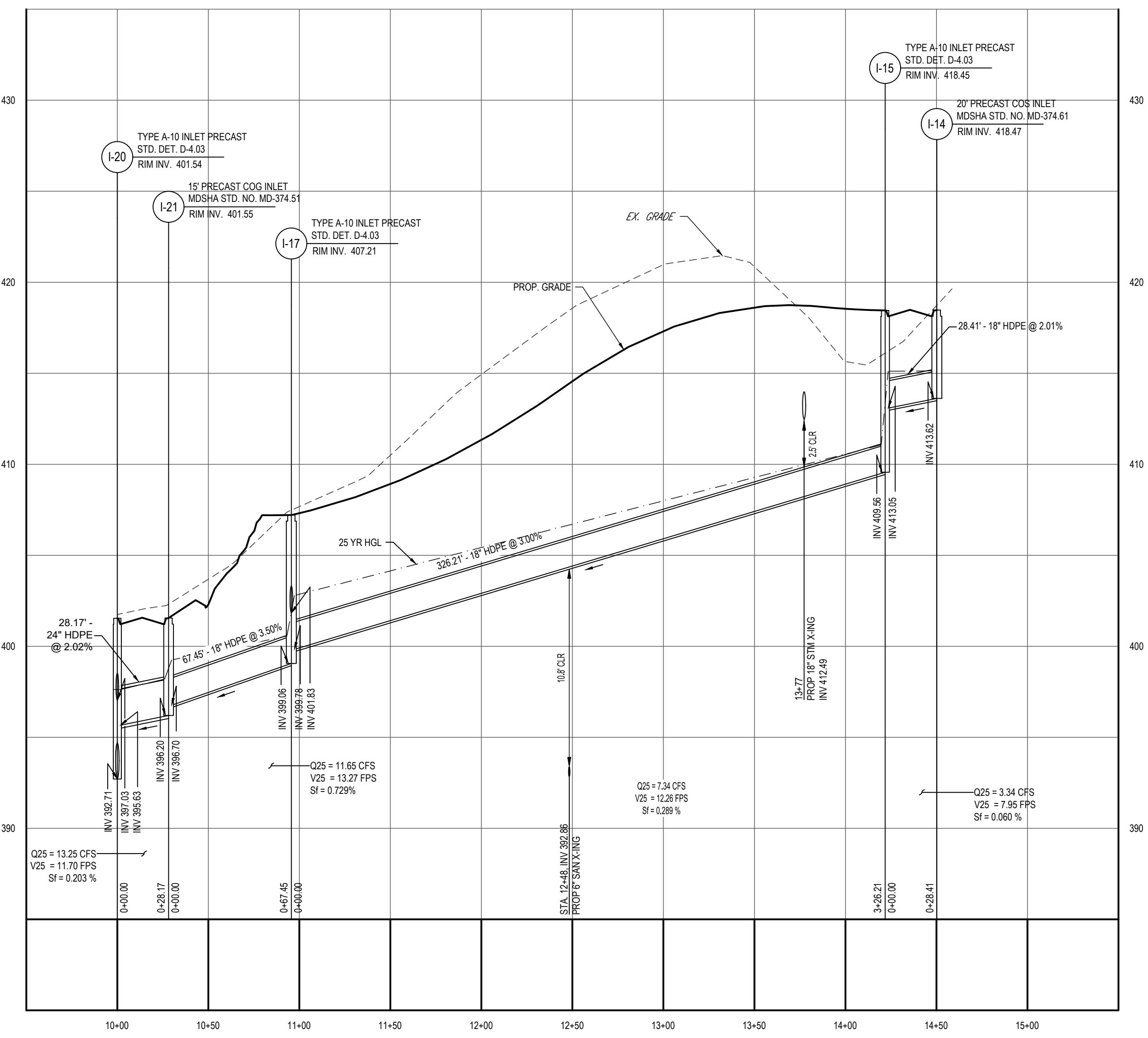
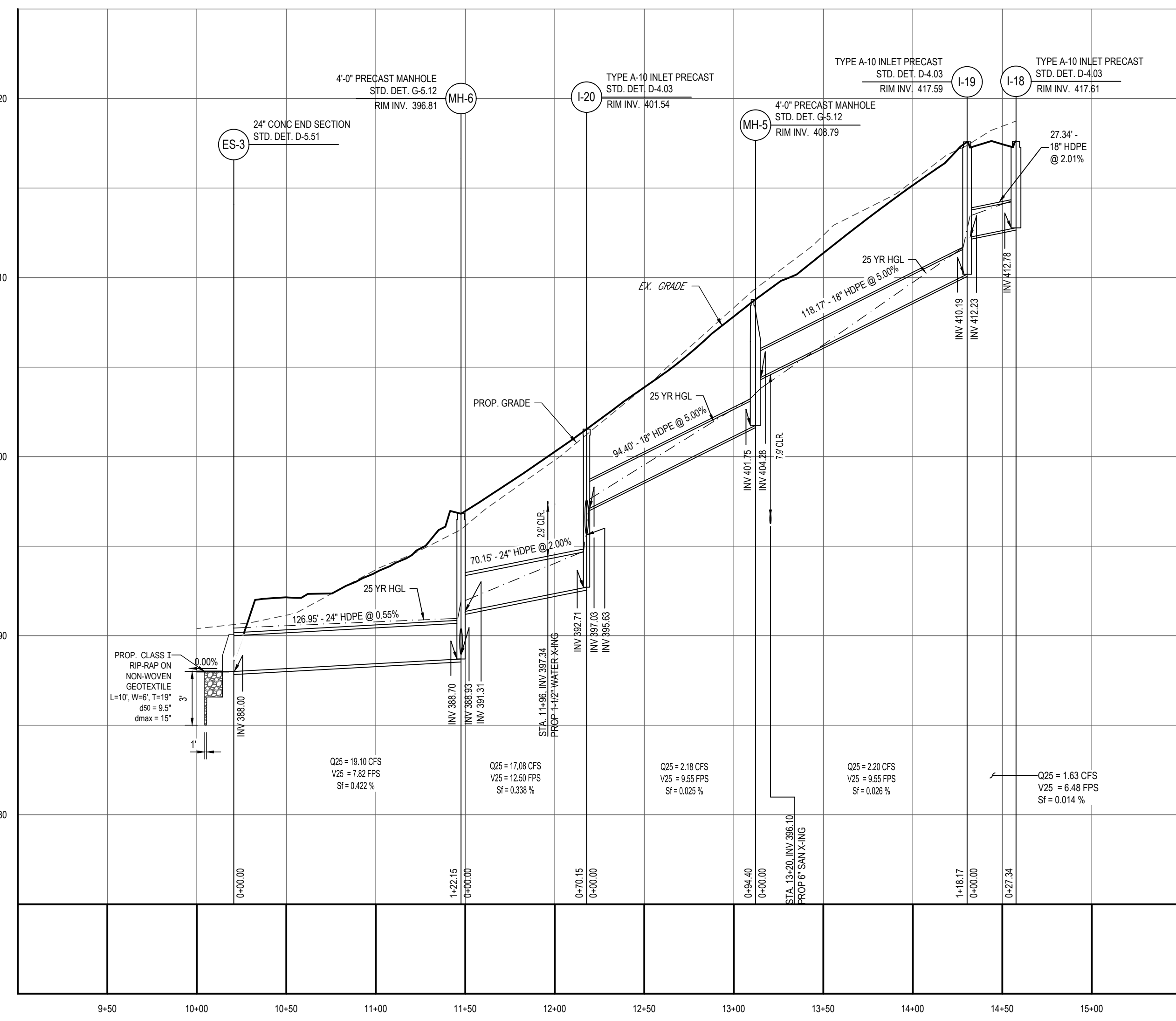
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 TOWSON, MARYLAND 21204
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 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 40808
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.
 LICENSE NO. 40808, EXPIRATION DATE: 7/31/2025

STORM DRAIN PROFILES

SHEET NUMBER:
64 OF 146

ORG. DATE - 04/17/24



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Powell, 7/16/2024
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 CHIEF ENGINEERING DIVISION
 DATE: 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT
 DATE: 7/16/2024

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
 SECTION/AREA: N/A
 DEED # 14532/00469
 PLAT # 28546-29552

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
 SF-17-0108 F-20-016
 ECP-17-056 WP-21-011
 WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
 PARCEL: 135
 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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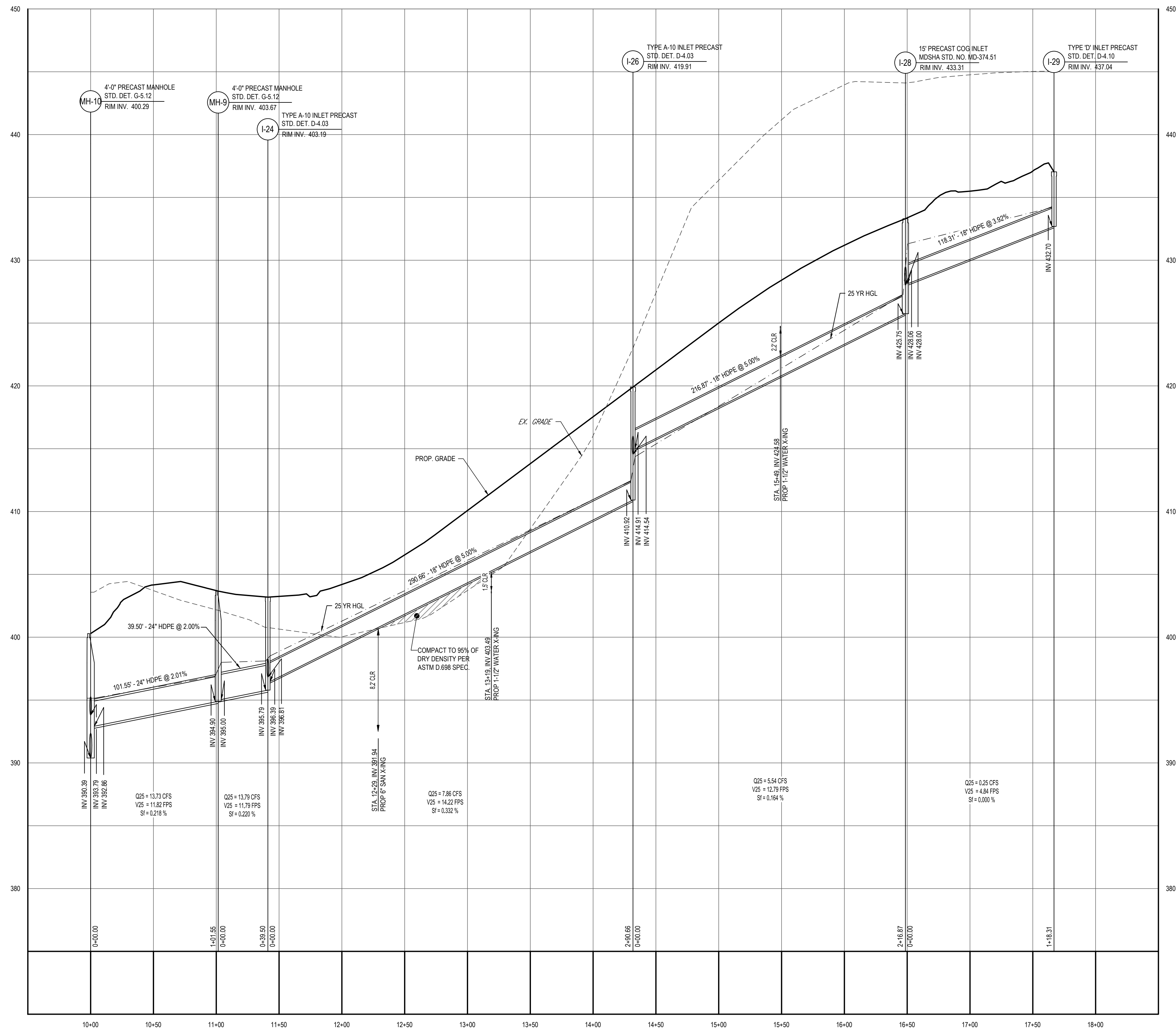
PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD LD.: MD1420672 - PSTM - 2

SITE DEVELOPMENT PLAN
 FOR
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PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

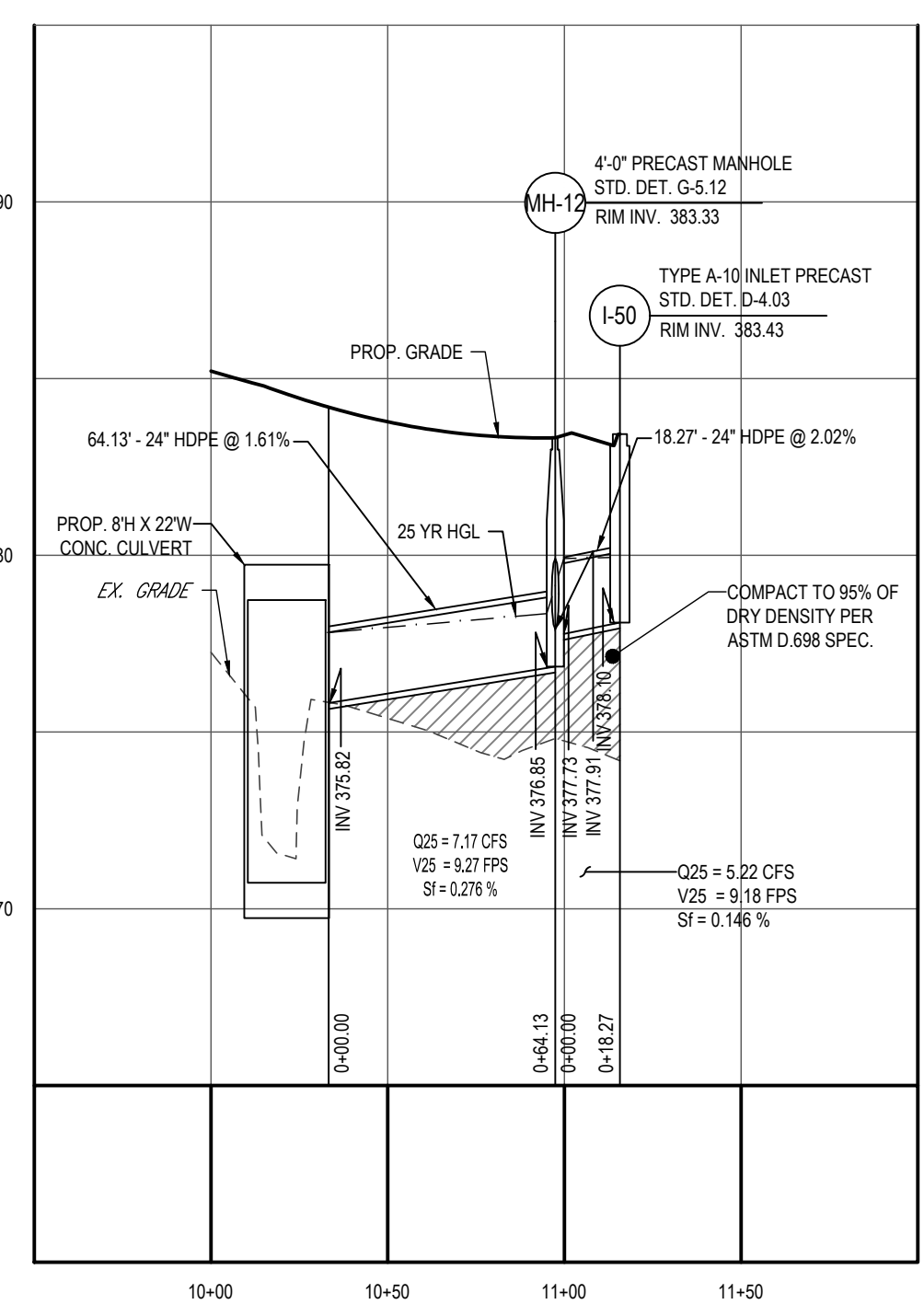
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B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 40898
 EXPIRATION DATE: 7/30/2025

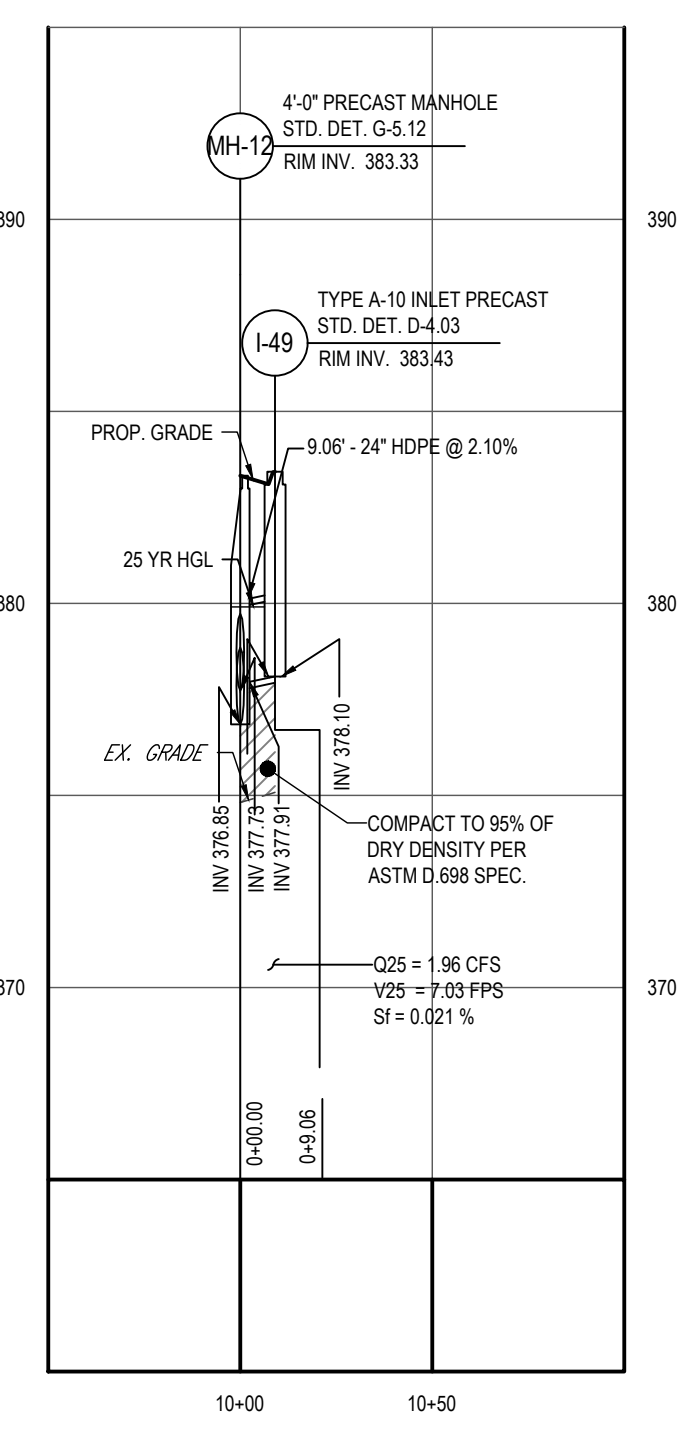
SHEET TITLE:
STORM DRAIN PROFILES
 SHEET NUMBER:
65 OF 146
 ORG. DATE - 04/17/24



PROP. STORM DRAIN MH-10 TO I-29
SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL



PROP. STORM DRAIN CULVERT TO I-50
SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

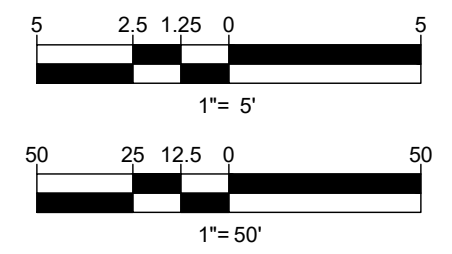


PROP. STORM DRAIN MH-12 TO I-49
SCALE: 1"= 50' HORIZONTAL
1"= 5' VERTICAL

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 7/16/2024
 Naomi Powell
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 Chad Edwards
 CHIEF ENGINEER, ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
 7/16/2024
 Lynda Eisenberg



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT# 28546-29552		DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	
PREVIOUS FILE NO.: BA-20-002C SF-17-0108 ECP-17-056 WP-18-070	BA-20-002C F-20-016 WP-21-011 WP-22-132	TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND	ZONED: RR-DEO

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 CHECKED BY: MP
 DATE: 07/11/2024
 CAD I.D.: MD1420672 - PSTM - 2

SITE DEVELOPMENT PLAN
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 (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
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 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 4308
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40808. EXPIRATION DATE: 7/3/2025

STORM DRAIN PROFILES

SHEET NUMBER:
67 OF 146

ORG. DATE - 04/17/24

STORM DRAIN PIPE SCHEDULE

Table with columns: FROM, TO, LOWER ELEVATION, UPPER ELEVATION, LENGTH, SIZE (in.), SLOPE (%), MATERIAL, COMMENTS. Lists storm drain pipe details for various segments.

*NOTE: STORMWATER MANAGEMENT FACILITY PRINCIPAL SPILLWAYS TO BE RCP PER ASTM C361 CL C25. REFER TO STORMWATER MANAGEMENT NOTES & DETAILS SHEETS.

ROOF DRAIN PIPE SCHEDULE

Table with columns: FROM, TO, LOWER ELEVATION, UPPER ELEVATION, LENGTH, SIZE (in.), SLOPE (%), MATERIAL, COMMENTS. Lists roof drain pipe details for various segments.

*NOTE: ROOF DRAINS DISCHARGING TO DRY WELLS ARE NOT INCLUDED IN THIS SCHEDULE. ANY ROOF DRAIN THAT DISCHARGES TO A DRY WELL IS TO BE MIN. 4" AT A MIN. SLOPE OF 2.0%.

STORM STRUCTURE SCHEDULE

Table with columns: NAME, TYPE, RIM ELEV. (FT.), INVERTS, COORDINATES, COMMENTS. Lists storm structure details for various segments.

STORM STRUCTURE SCHEDULE

Table with columns: NAME, TYPE, RIM ELEV. (FT.), INVERTS, COORDINATES, COMMENTS. Lists storm structure details for various segments.

STORM STRUCTURE SCHEDULE

Table with columns: NAME, TYPE, RIM ELEV. (FT.), INVERTS, COORDINATES, COMMENTS. Lists storm structure details for various segments.

BOHLER logo and contact information for site civil and consulting engineering.

REVISIONS table with columns: REV, DATE, COMMENT, DRAWN BY, CHECKED BY.

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PROJECT No.: MD1420672 MUR DATE: 07/11/2024 CHECKED BY: DATE: CAD ID: MD1420672 - PSTM - 2

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY 12170 LIME KILN ROAD FULTON HOWARD COUNTY, MD

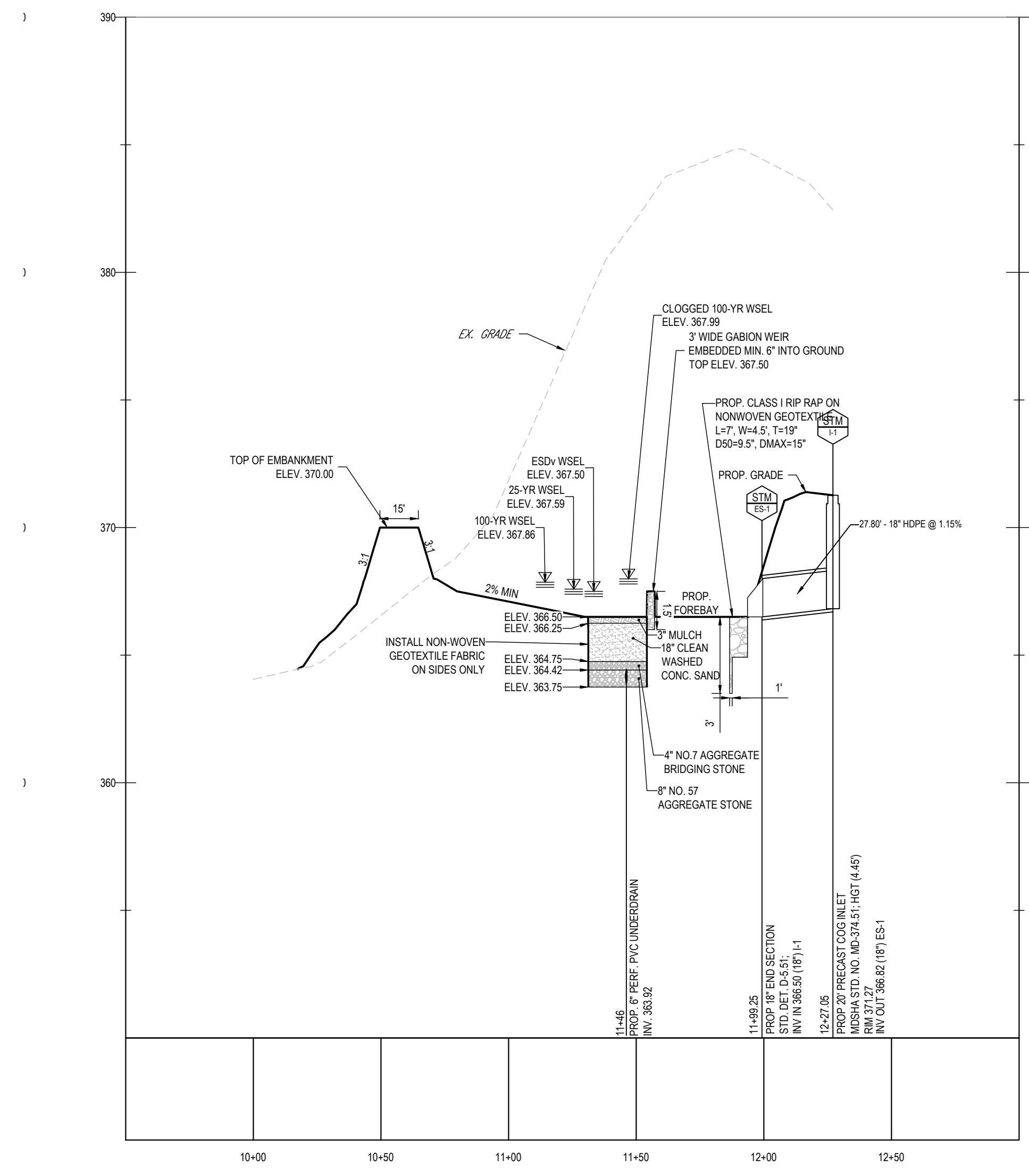
BOHLER logo and address: 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21284

B.R. ROWE logo and professional engineer information.

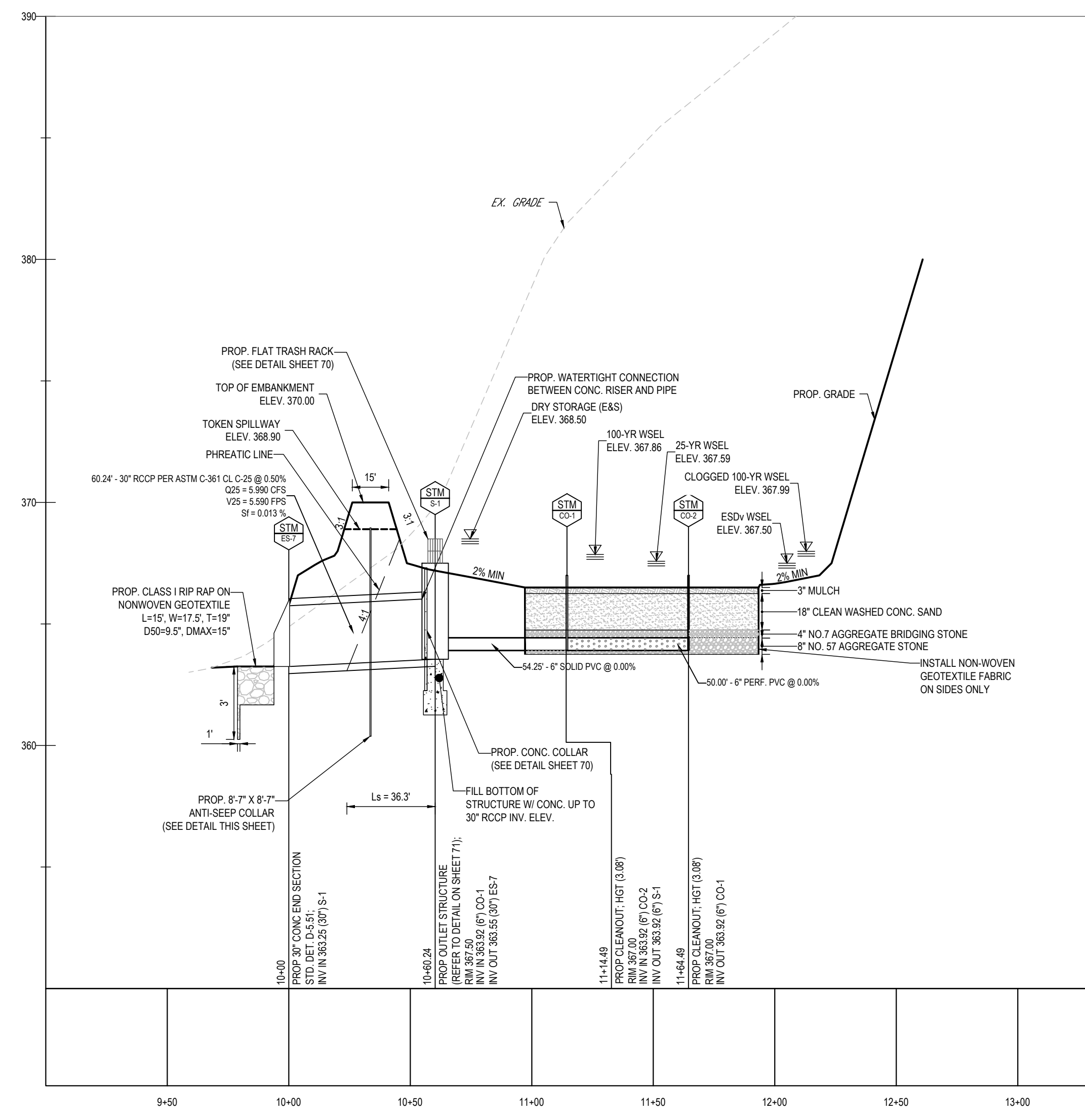
STORM DRAIN PIPE & STRUCTURE SCHEDULES SHEET NUMBER: 68 OF 146

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS. Approved by Naomi Powell, Program Manager, and Department of Planning and Zoning.

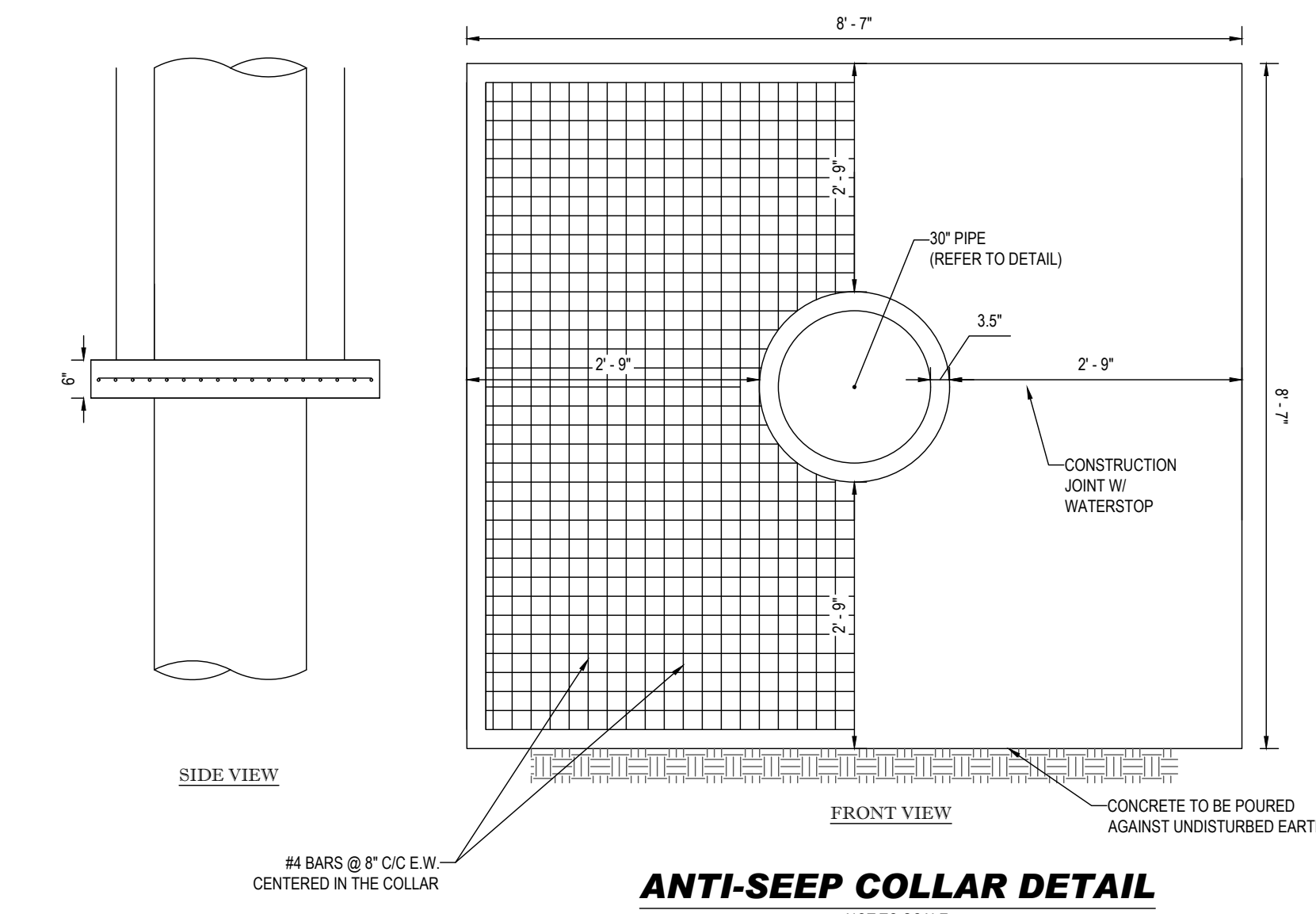
Table with columns: SUBDIVISION NAME, DEVELOPER, PREVIOUS FILE NO., TAX MAP, GRID, ZONED, PARCEL, 5TH ELECTION DISTRICT.



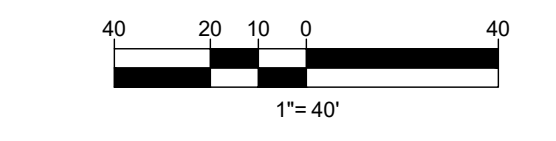
SAND FILTER #1 - SECTION B-B
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



SAND FILTER #1 - SECTION A-A - PRINCIPAL SPILLWAY
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



- NOTES:**
- CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
 - ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO THE CENTERLINE OF THE PIPE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
 - ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
 - LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
 - CONCRETE SHALL HAVE A MINIMUM F = 3,500 PSI (MSH MIX NO. 3) AT 28 DAYS.
 - DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.



NOTE:
IMPERVIOUS CORE, CUTOFF TRENCH, CONCRETE RISER STRUCTURE AND PRINCIPAL SPILLWAY ARE TO BE INSTALLED DURING CONSTRUCTION OF THE SEDIMENT BASIN. DETAILS ARE SHOWN HERE FOR REFERENCE ONLY.

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE BASED ON THE 25-YEAR STORM EVENT.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SUBDIVISION NAME: THE HIGHLANDS
(F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED # 145320/00469
PLAT# 29546-29552

PREVIOUS FILE NO.: BA-20-002C WP-24-060
SP-17-0108 F-20-016
ECP-17-056 WP-21-011
WP-18-070 WP-22-132

JUL 11, 2024 11:40MD1420672DRAWINGSPLAN SET SITE DEVELOPMENT PLANMD1420672 - SWM - 2 - LAYOUT 71 STORMWATER MANAGEMENT NOTES & DETAILS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
NACOM HONNELL, PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
C. H. EDWARDS
CHIEF, DEPARTMENT ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
7/16/2024
LYNDA FISHER
DIRECTOR

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
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PROJECT No.: MD1420672
DRAWN BY: MJR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID.: MD1420672 - SWM - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

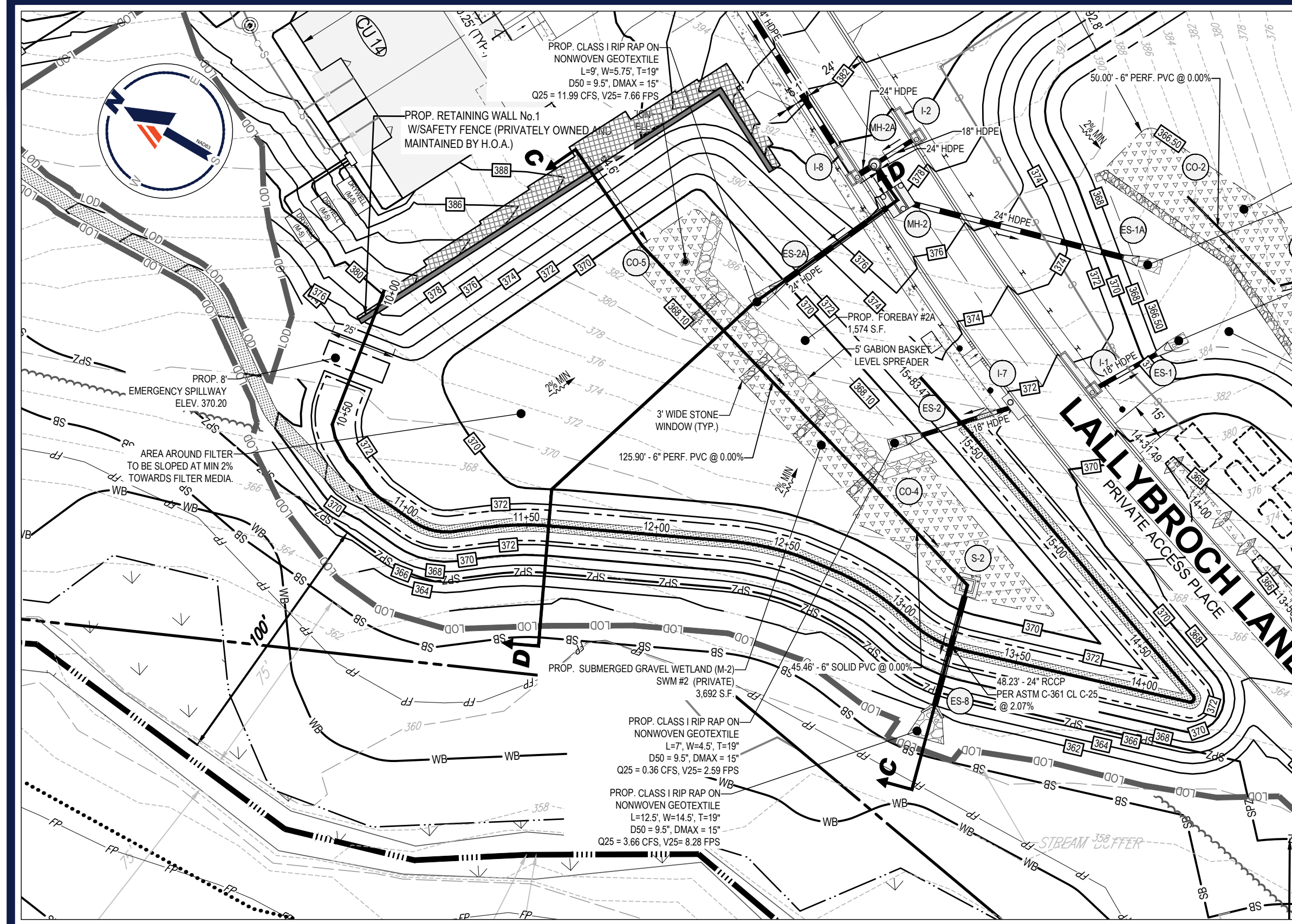
BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
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B.R. ROWE
PROFESSIONAL ENGINEER
STATE OF MARYLAND
LICENSE NO. 40898, EXPIRATION DATE: 7/3/2025

STORMWATER MANAGEMENT NOTES & DETAILS

SHEET NUMBER:
71 OF 146

ORG. DATE - 04/17/24



SUBMERGED GRAVEL WETLAND (M-2) SWM #2 (PRIVATE)
SCALE: 1" = 40'
SEE SECTION C-C AND SECTION D-D ON SHEET 73

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)

ERNST SEEDS | Catalog | Price List | Project Planner | Contact | 800-873-3321

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Seed Finder TOOL

Home / Stormwater Management / Native Detention Area Mix

Back to List

Native Detention Area Mix

Mix Composition

- 26.0% *Panicum clandestinum*, Triega (Deertongue, Triega)
- 25.0% *Panicum virgatum*, 'Shelter' (Switchgrass, 'Shelter')
- 20.0% *Carex vulpinoidea*, PA Ecotype (Fox Sedge, PA Ecotype)
- 20.0% *Elymus virginicus*, 'Madison' (Virginia Wildrye, 'Madison')
- 4.0% *Agrostis perennans*, Albany Pine Bush-NY Ecotype (Autumn Bentsgrass, Albany Pine Bush-NY Ecotype)
- 3.0% *Juncus effusus* (Soft Rush)
- 1.0% *Juncus tenuis*, PA Ecotype (Path Rush, PA Ecotype)
- 1.0% *Panicum rigidulum*, PA Ecotype (Redtop Panicgrass, PA Ecotype)

General Product Information:

The native grasses, sedges and rushes establish quickly in areas where mowing is not anticipated. With a high seed count per pound, it can achieve native establishment with minimum risk and tolerate low-fertility. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNMX-183

Product Categories:

Stormwater Management

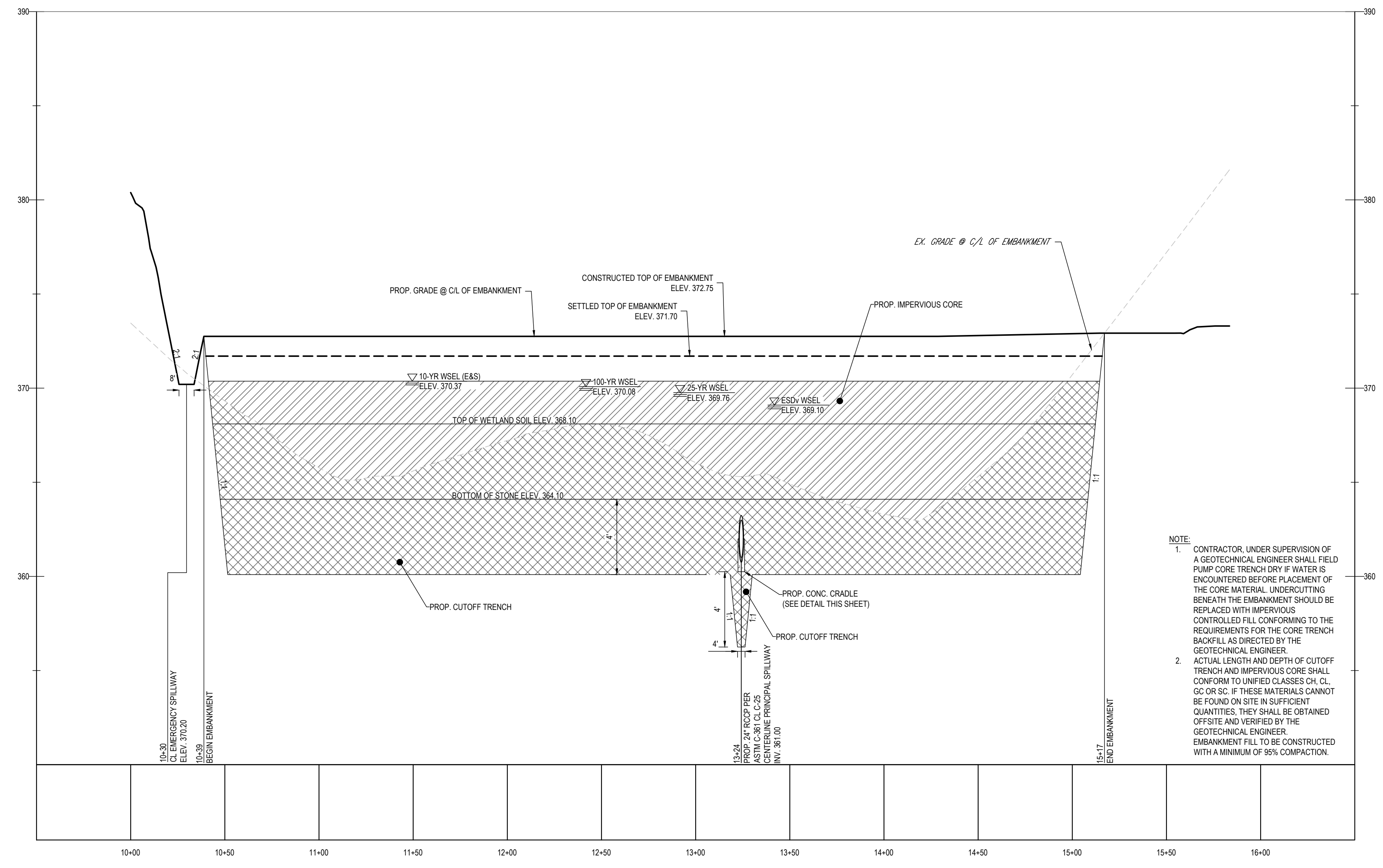
Height: 0.3 - 5.0 Ft

Seeding Rate: 20 lb per acre, or 1/2 lb per 1,000 sq ft

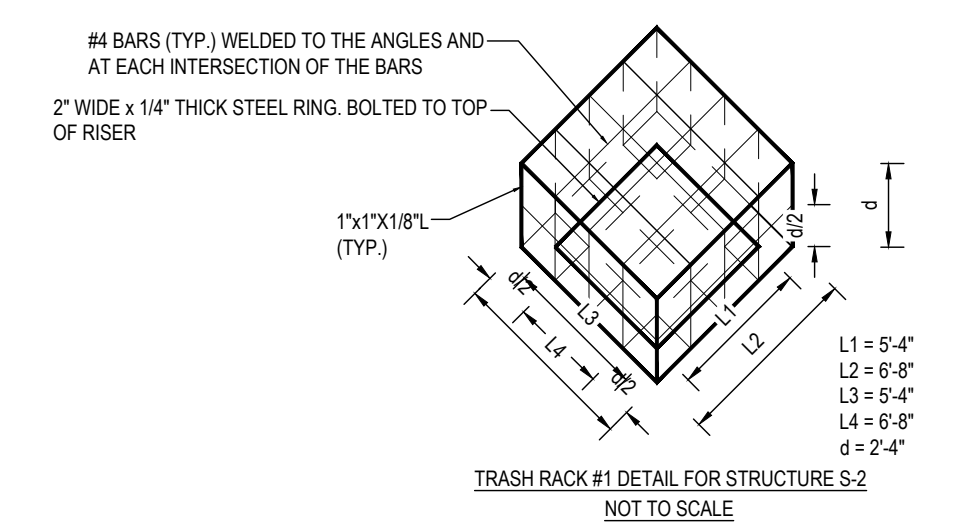
PRINT | EMAIL | SHARE

Price: \$15.98/lb

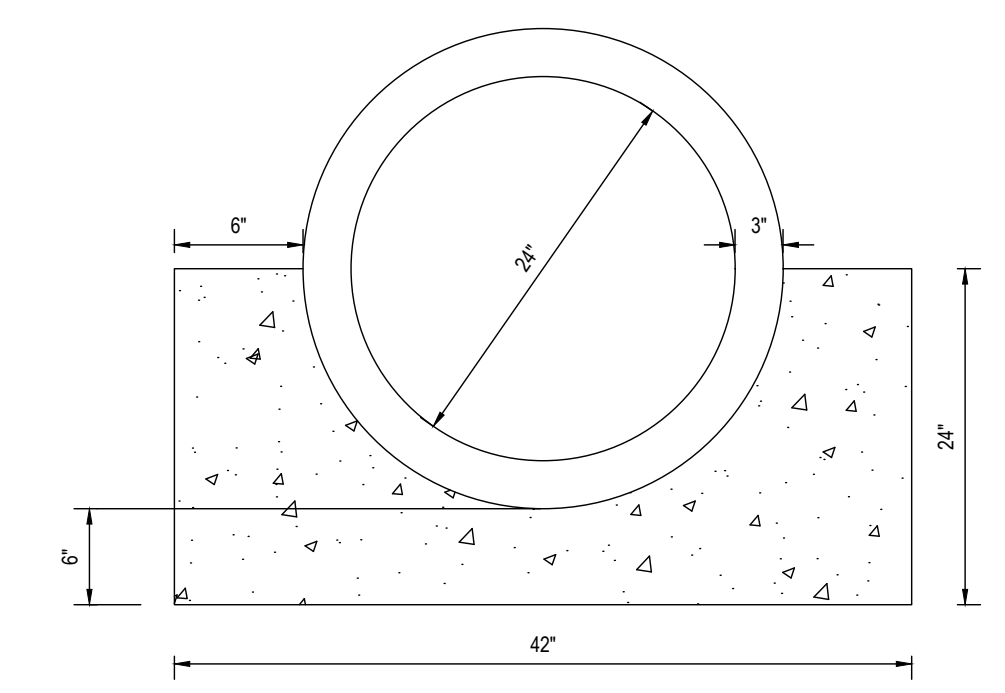
ADD TO PLANNER



SUBMERGED GRAVEL WETLAND #2 - EMBANKMENT PROFILE
SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



TRASH RACK #1 DETAIL FOR STRUCTURE S2
NOT TO SCALE



NOTES:
1. CRADLE TO BE CONTINUOUS ALONG PIPE.
2. CONCRETE FOR CRADLE TO BE MISHA MIX No. 3.

SCS TR-46 A2 CONCRETE CRADLE DETAIL
NOT TO SCALE

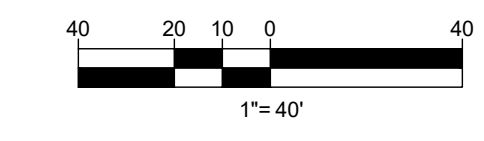
NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE BASED ON THE 25-YEAR STORM EVENT.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.

OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT# 2004B-2905C	PREVIOUS FILE NO.: SP-17-0108 ECP-17-056 WP-18-070	BA-20-002C F-20-016 WP-21-011 WP-22-132	WP-24-060	TAX MAP: 40 GRID: 24 PARCEL: 135 ZONED: RR-DEO 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
-------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------	--------------------------------------------------	-----------	-----------------------------------------------------------------------------------------------------------

NOTE:
IMPERVIOUS CORE, CUTOFF TRENCH, CONCRETE RISER STRUCTURE AND PRINCIPAL SPILLWAY ARE TO BE INSTALLED DURING CONSTRUCTION OF THE SEDIMENT BASIN. DETAILS ARE SHOWN HERE FOR REFERENCE ONLY.

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Neomi Powell 7/16/2024
NACOM HOMELESS PROGRAM MANAGER DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
Chad Edwards
CHIEF ENGINEER ENGINEERING DIVISION DATE
7/16/2024
CHIEF DIVISION OF LAND DEVELOPMENT DATE
7/16/2024
Linda Eisenberg
7/16/2024

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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PROJECT No.:	MD1420672
DRAWN BY:	MJR
CHECKED BY:	MP
DATE:	07/11/2024
CAD LD:	MD1420672 - SWM - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

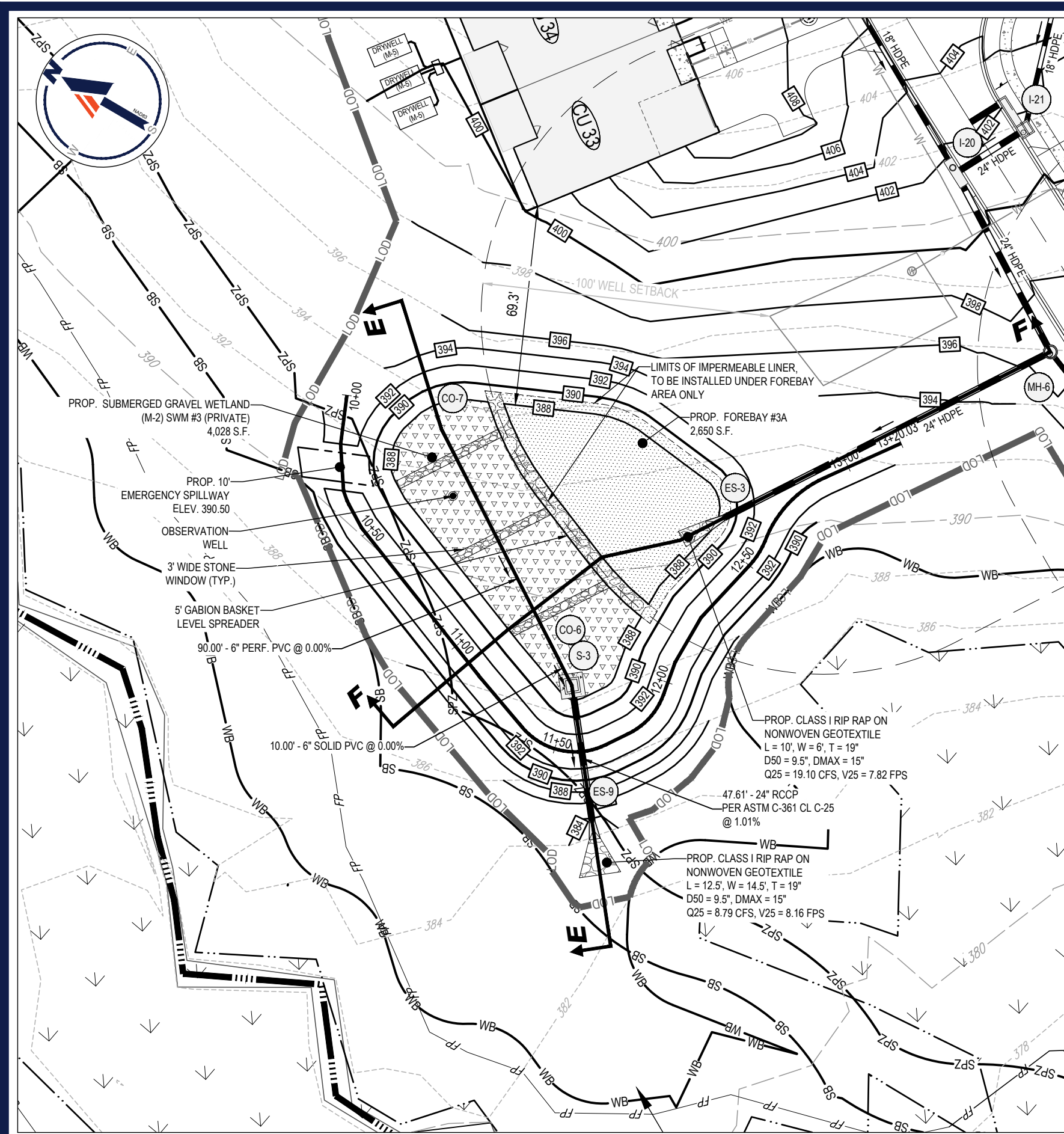
PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
ANNUAL LICENSE NO. 40898
PROFESSIONAL CERTIFICATION
I BRANDED, PLANNED, DESIGNED, SUPERVISED AND PREPARED THESE DOCUMENTS WHILE I WAS A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898, EXPIRATION DATE: 7/3/2025

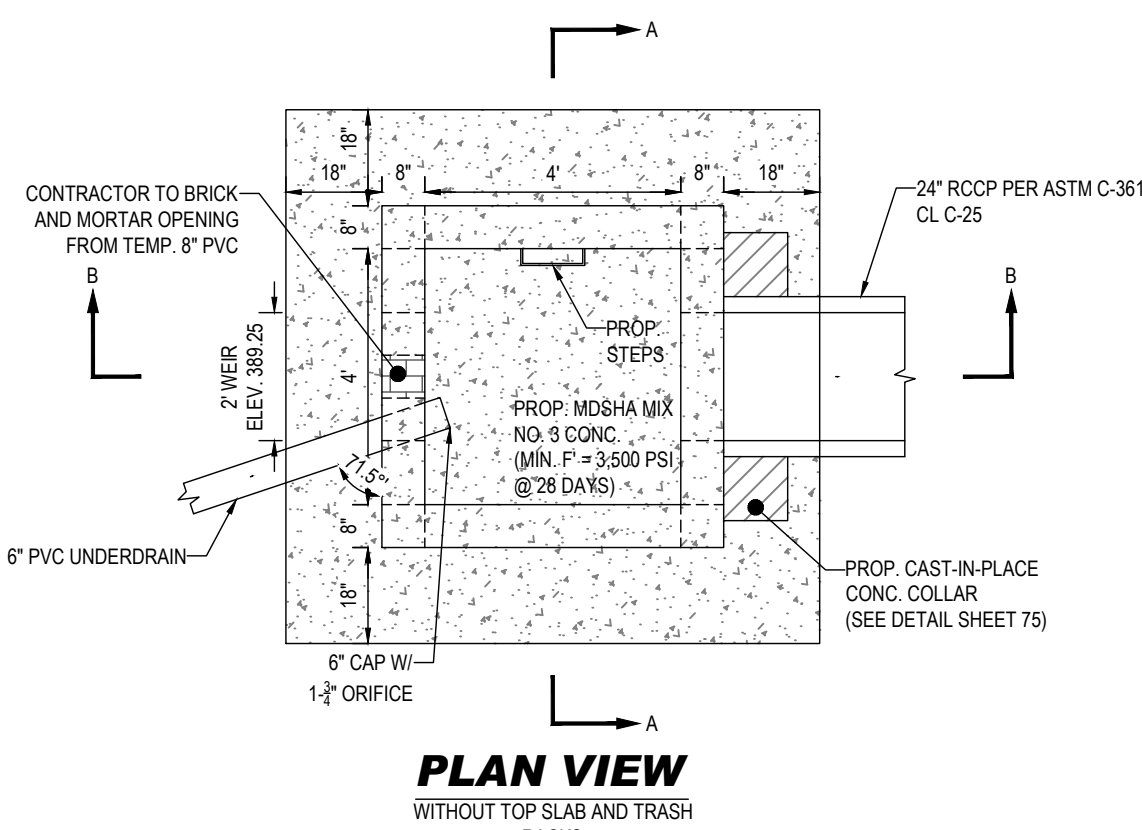
SHEET TITLE:
STORMWATER MANAGEMENT NOTES & DETAILS
SHEET NUMBER:
72 OF 146
ORG. DATE - 04/17/24



SUBMERGED GRAVEL WETLAND (M-2) SWM #3 (PRIVATE)

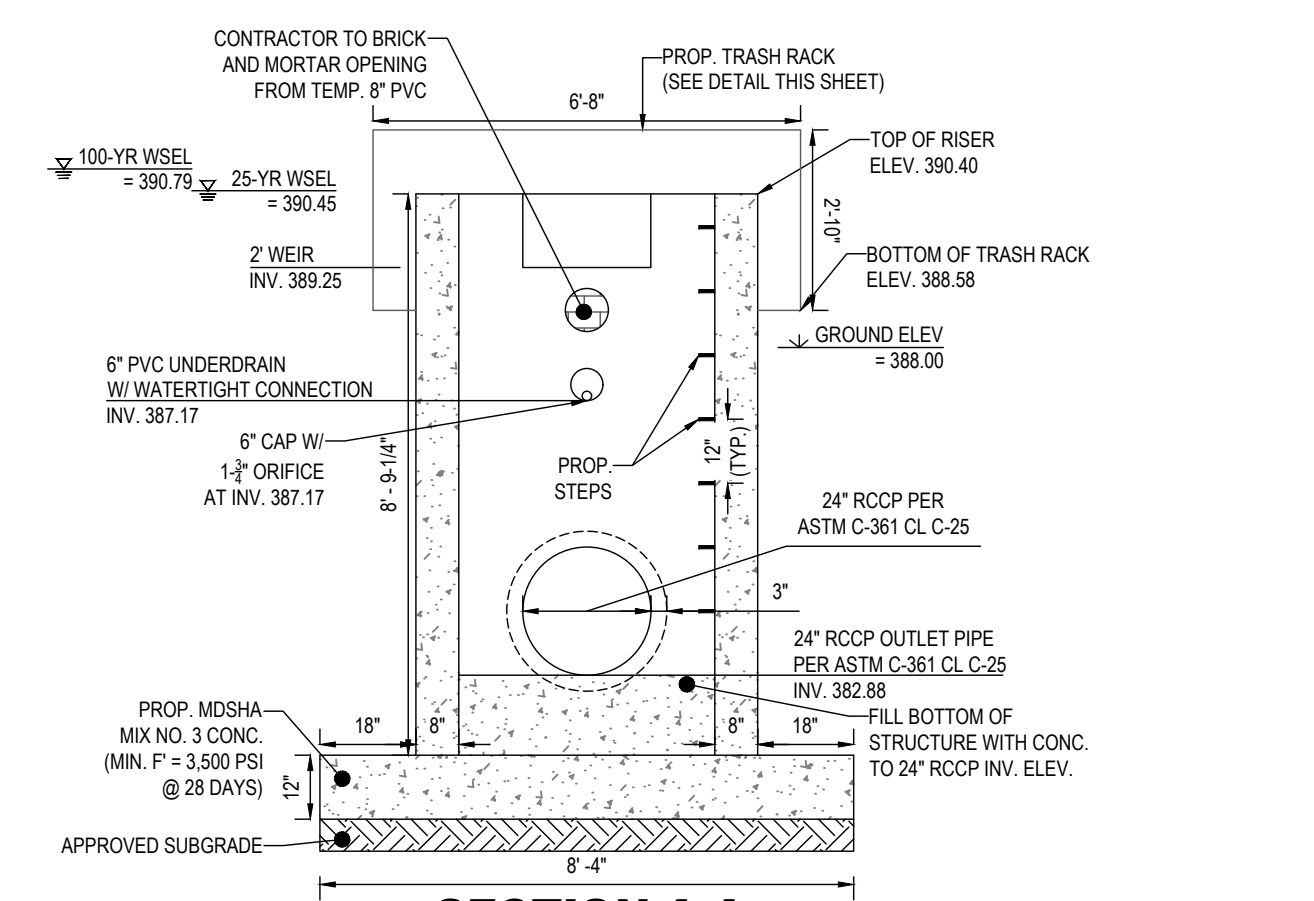
SCALE: 1" = 40'

SEE SECTION E-E AND SECTION F-F ON SHEET 75

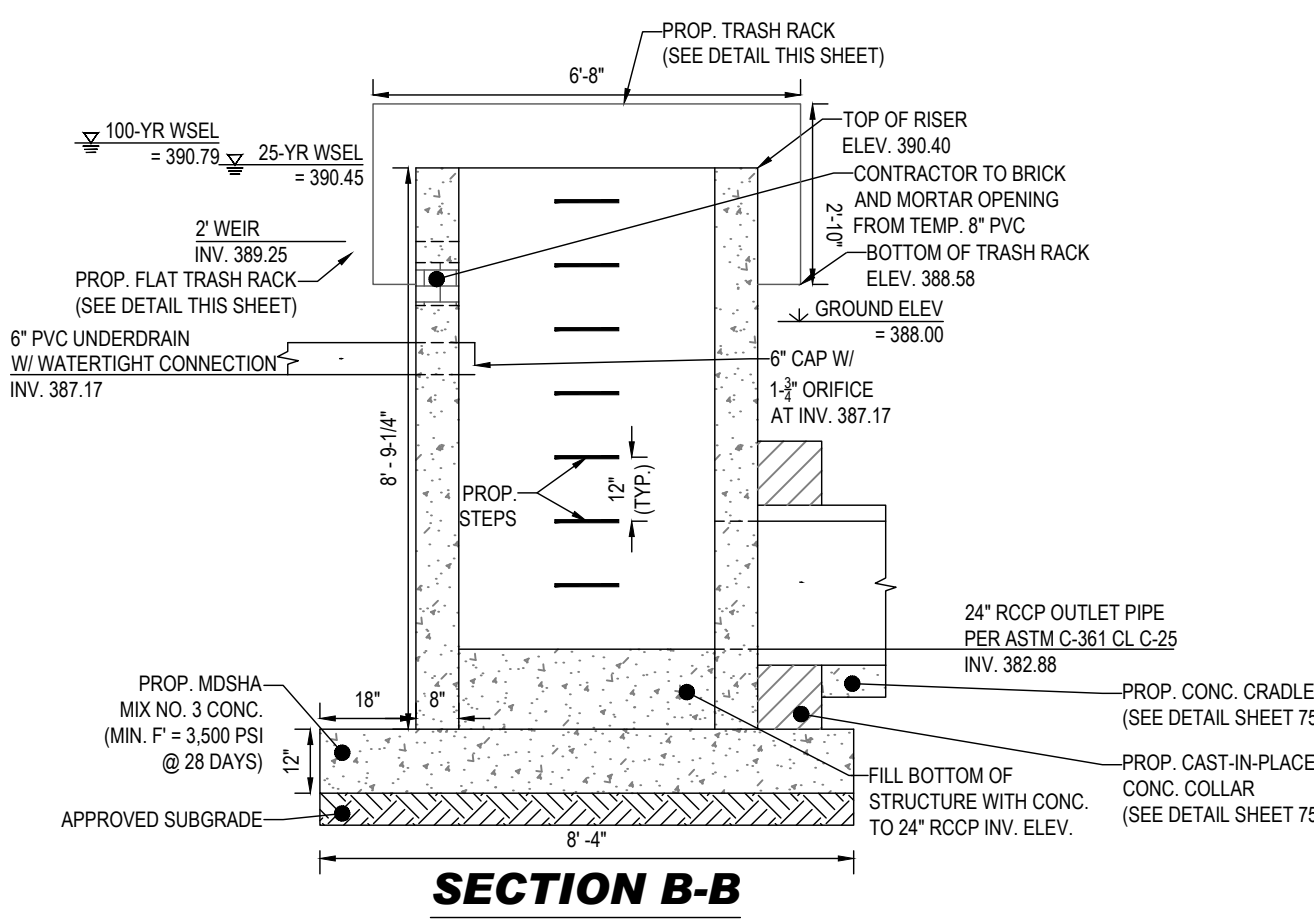


PLAN VIEW

WITHOUT TOP SLABS AND TRASH RACKS



SECTION A-A

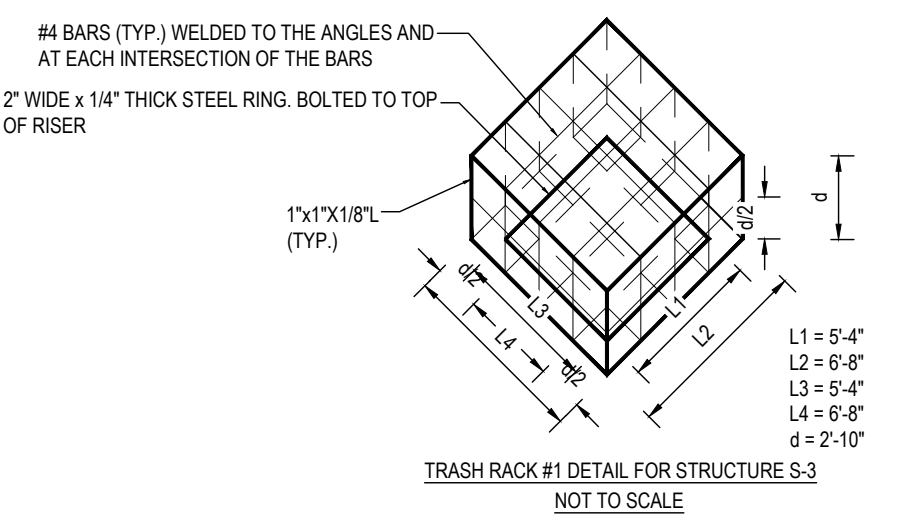


SECTION B-B

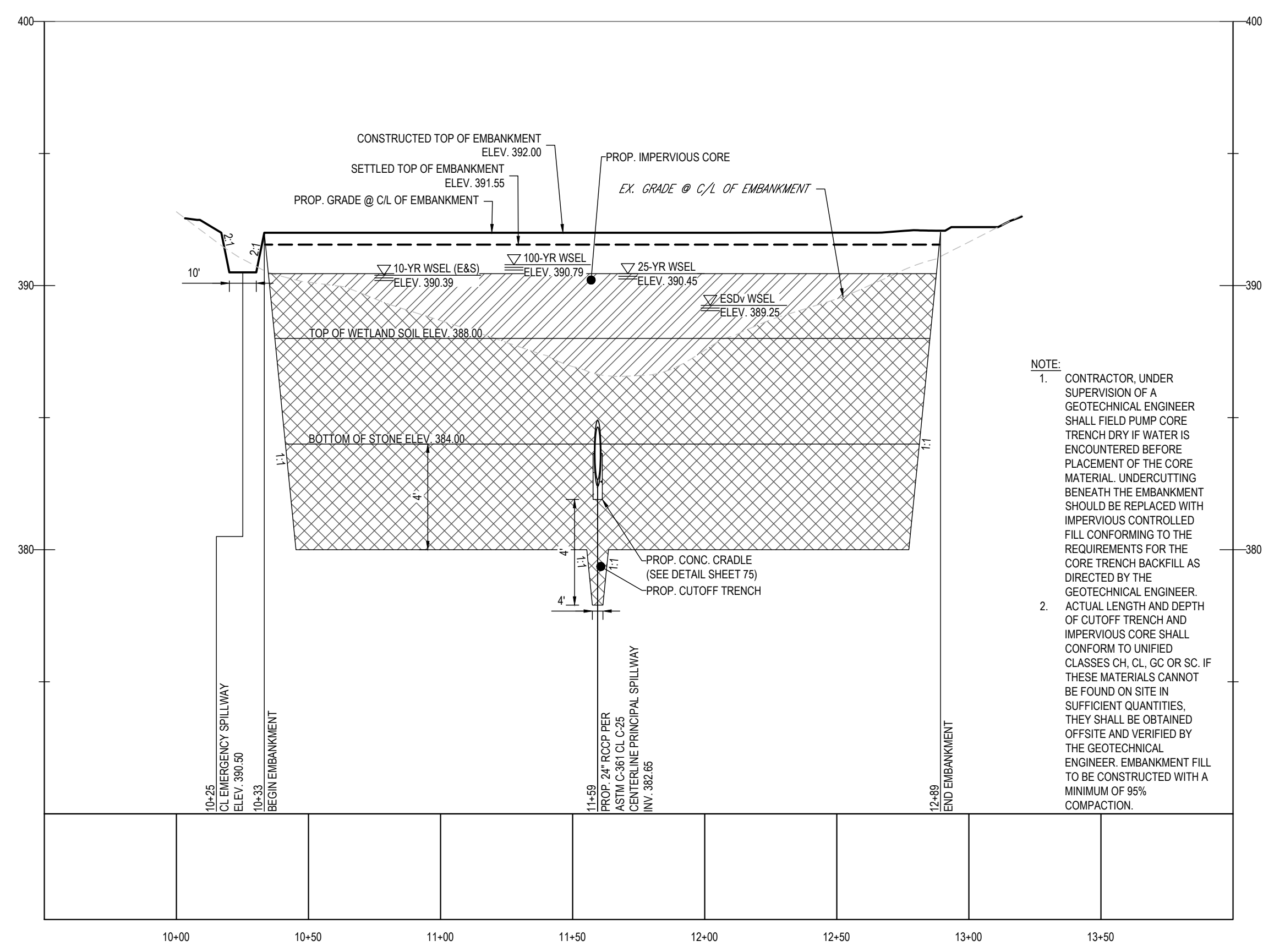
TYPICAL RISER STRUCTURE DETAILS (STRUCTURE S-3)

NOT TO SCALE

- NOTES:
- DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. STRUCTURES ARE INTENDED TO BE STANDARD PRECAST CONCRETE STRUCTURES. BOHLER TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.
 - DETAIL SHOWN IS FOR FINAL CONDITIONS ONLY. ANY TEMPORARY OPENING IN THE STRUCTURE USED FOR SEDIMENT CONTROL IS TO BE PERMANENTLY SEALED WITH BRICK AND MORTAR.



TRASH RACK #1 DETAIL FOR STRUCTURE S-3



SUBMERGED GRAVEL WETLAND #3 - EMBANKMENT PROFILE

SCALE: 1" = 40' HORIZONTAL

1" = 4' VERTICAL

NOTE:

- CONTRACTOR UNDER SUPERVISION OF A GEOTECHNICAL ENGINEER SHALL FIELD PUMP CORE TRENCH DRY IF WATER IS ENCOUNTERED BEFORE PLACEMENT OF THE CORE MATERIAL. UNDERCUTTING BENEATH THE EMBANKMENT SHOULD BE REPLACED WITH IMPERVIOUS CONTROLLED FILL CONFORMING TO THE REQUIREMENTS FOR THE CORE TRENCH BACKFILL AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- ACTUAL LENGTH AND DEPTH OF CUTOFF TRENCH AND IMPERVIOUS CORE SHALL CONFORM TO UNIFIED CLASSES CH, CL, GC OR SC. IF THESE MATERIALS CANNOT BE FOUND ON SITE IN SUFFICIENT QUANTITIES, THEY SHALL BE OBTAINED OFFSITE AND VERIFIED BY THE GEOTECHNICAL ENGINEER. EMBANKMENT FILL TO BE CONSTRUCTED WITH A MINIMUM OF 95% COMPACTION.

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)

ERNST SEEDS Catalog | Price List | Project Planner | Contact | 800-873-3321

Products | Resource Center | About Us | News & Media

Seed Finder TOOL

Home / Stormwater Management / Native Detention Area Mix

Native Detention Area Mix

Mix Composition

- 26.0% *Panicum clandestinum*, Tioga (Deertongue, Tioga)
- 25.0% *Panicum virgatum*, Shelter (Switchgrass, Shelter)
- 20.0% *Carex vulpinoidea*, PA Ecotype (Fox Sedge, PA Ecotype)
- 20.0% *Elymus virginicus*, Madison (Virginia Wildrye, Madison)
- 4.0% *Agrostis perennans*, Albany Pine Bush-NY Ecotype (Autumn Bentgrass, Albany Pine Bush-NY Ecotype)
- 5.0% *Juncus effusus* (Soft Rush)
- 1.0% *Juncus tenuis*, PA Ecotype (Path Rush, PA Ecotype)
- 1.0% *Panicum rigidulum*, PA Ecotype (Noddy Panicgrass, PA Ecotype)

General Product Information:

The native grasses, sedges and rushes establish quickly in areas where mowing is not anticipated. With a high seed count per pound, it can achieve native establishment with minimum risk and tolerate low-fertility. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNM-183
 Product Categories: Stormwater Management
 Height: 0.3 - 5.0 Ft
 Seeding Rate: 20 lb per acre, or 1/2 lb per 1,000 sq ft

Price: \$15.98/lb

ADD TO PLANNER

JUL 11, 2024 11:40AM 1400720 DRAWINGS PLAN SET SITE DEVELOPMENT PLAN 140072 - SWM - 2 - LAYOUT 74 STORMWATER MANAGEMENT NOTES & DETAILS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

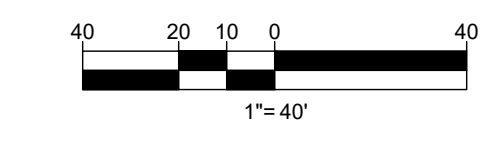
Naomi Powell 7/16/2024
 NACM HOMEPLANNING PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING

Chad Edwards 7/16/2024
 CHIEF ENGINEER DATE
 CIVIL ENGINEERING DIVISION DATE
 7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT

Linda Eisenberg 7/16/2024
 DATE
 7/16/2024



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT# 28646-29652	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PREVIOUS FILE No.: BA-20-002C SP-17-0108 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132	GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
 PROGRAM MANAGEMENT
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REVISIONS

REV	DATE	COMMENT	DRAWN BY

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PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - SWM - 2

SITE DEVELOPMENT PLAN

FOR

THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER

901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE

PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40508

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40508. EXPIRATION DATE: 7/31/2025

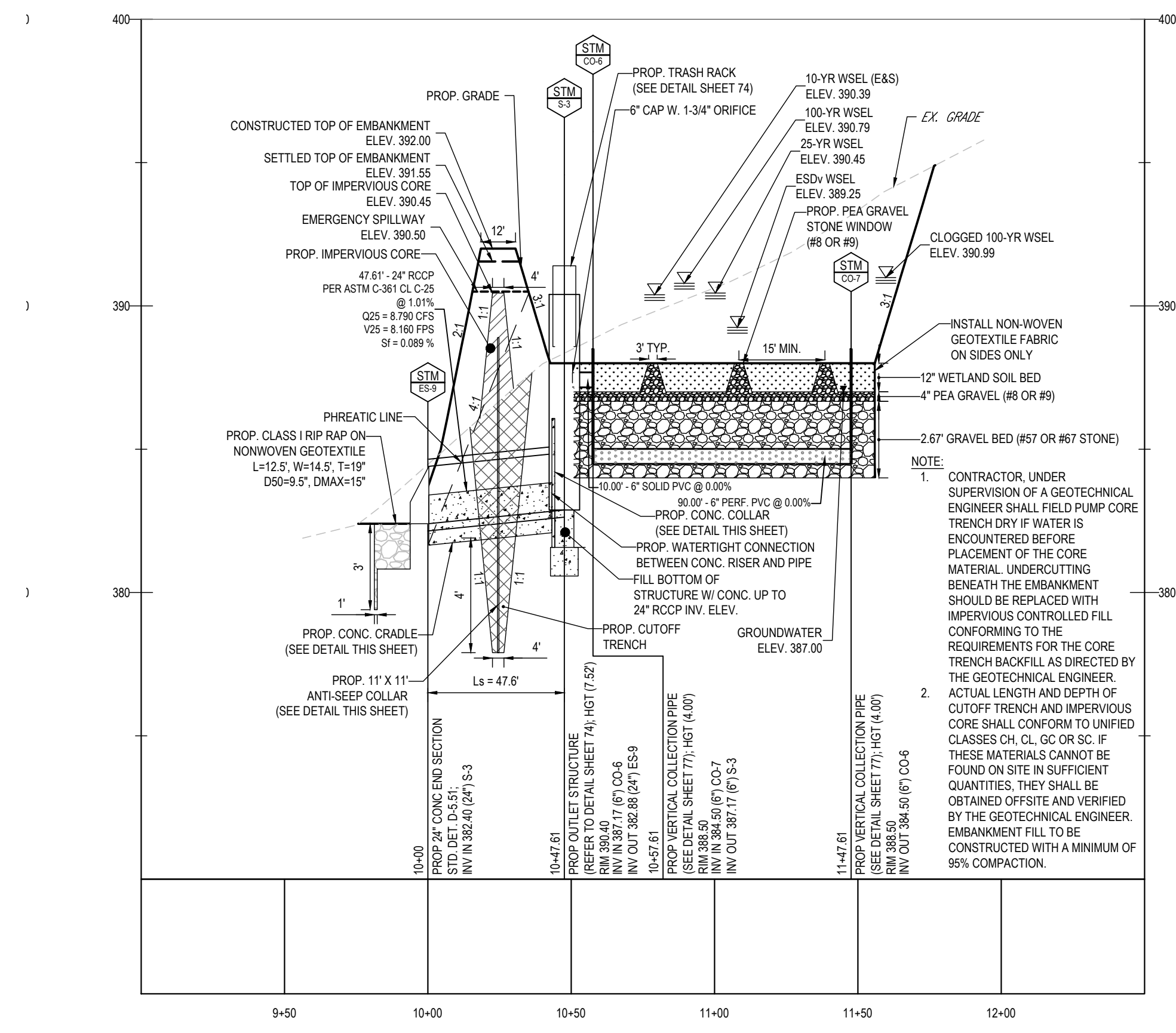
SHEET TITLE

STORMWATER MANAGEMENT NOTES & DETAILS

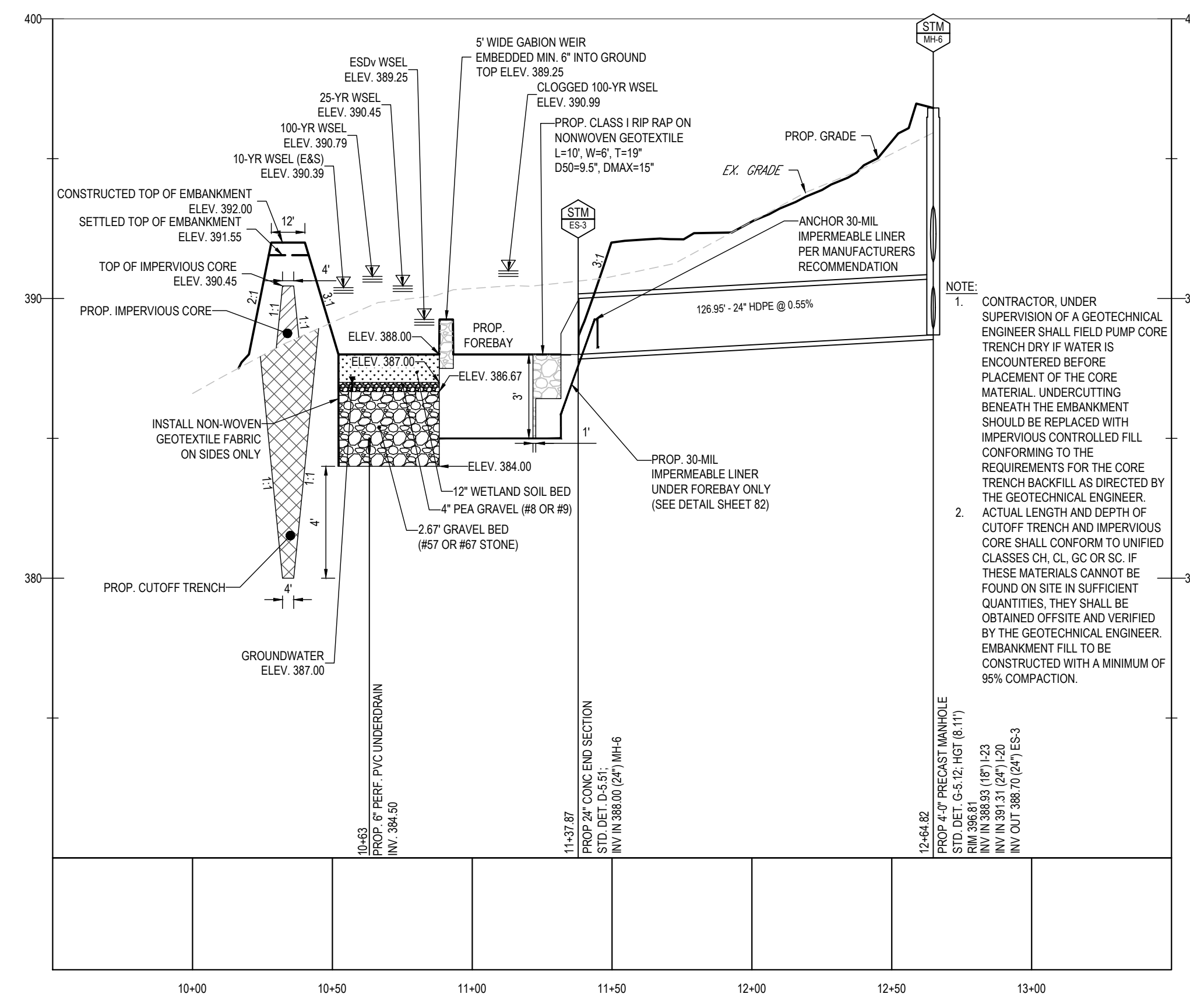
SHEET NUMBER

74 OF 146

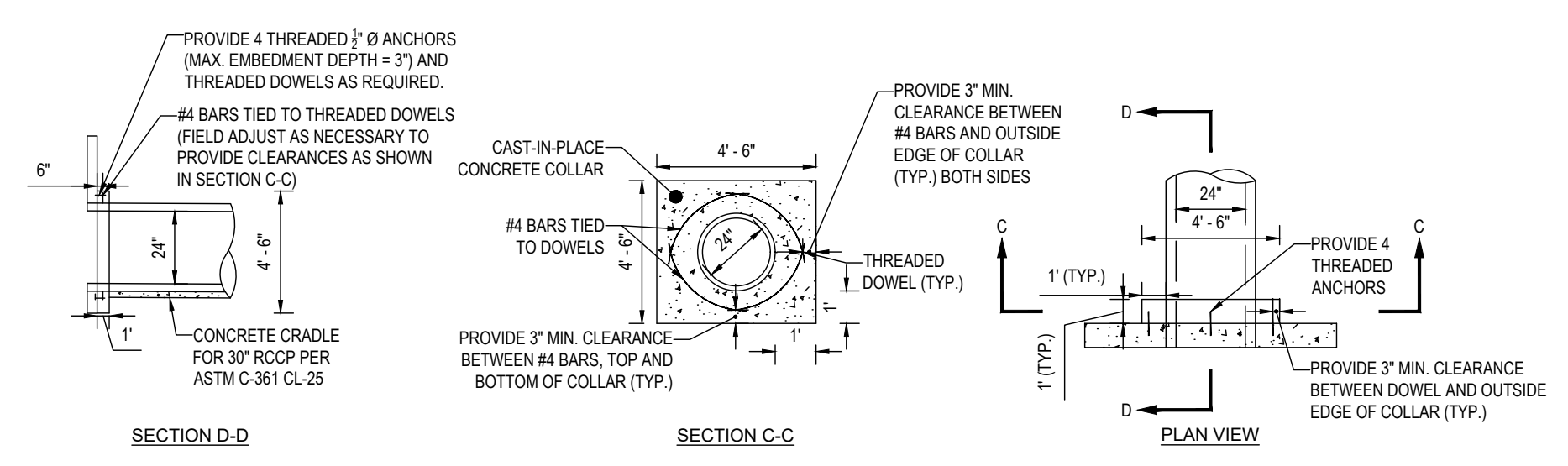
ORG. DATE - 04/17/24



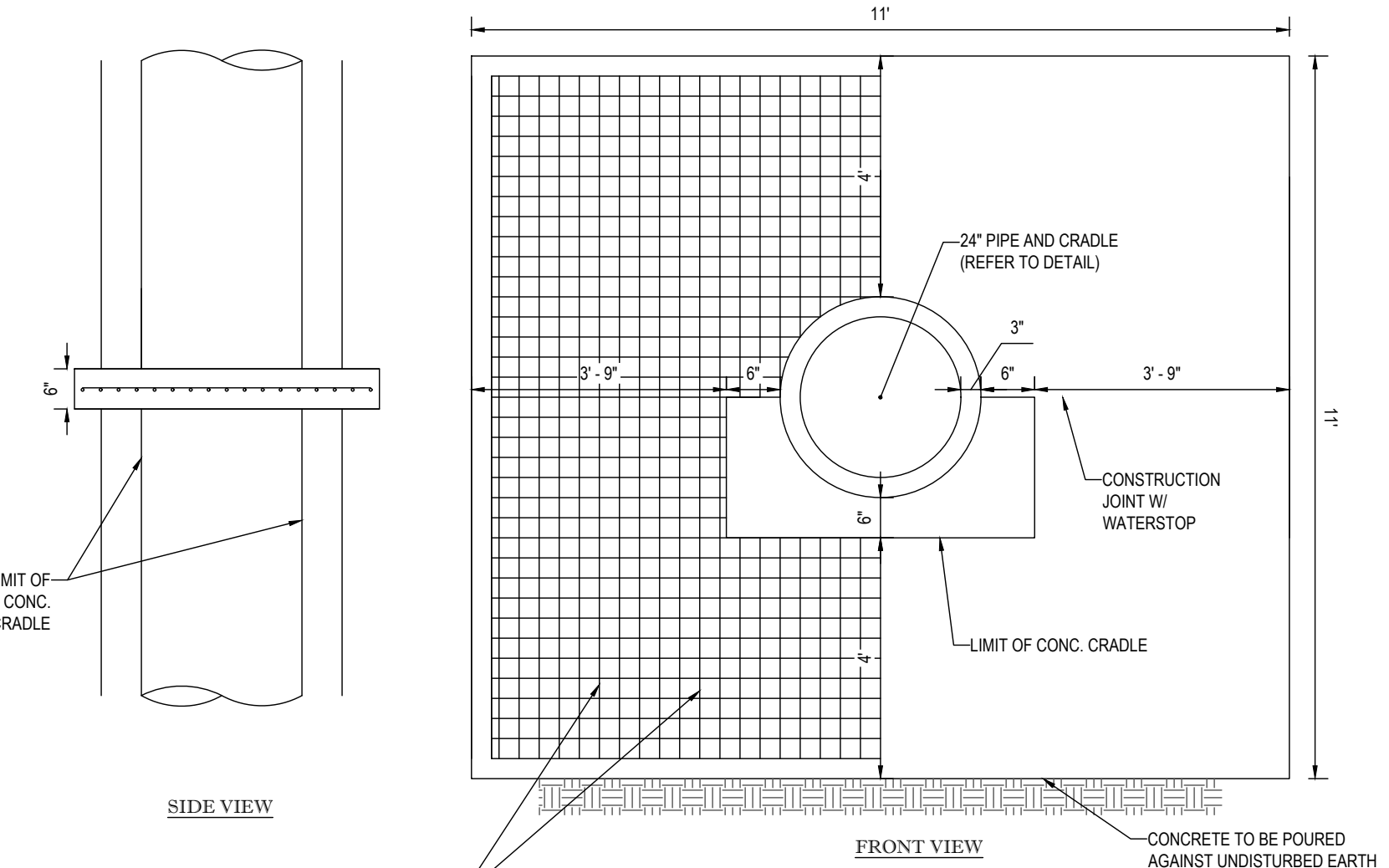
SUBMERGED GRAVEL WETLAND #3 - SECTION E-E - PRINCIPAL SPILLWAY
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



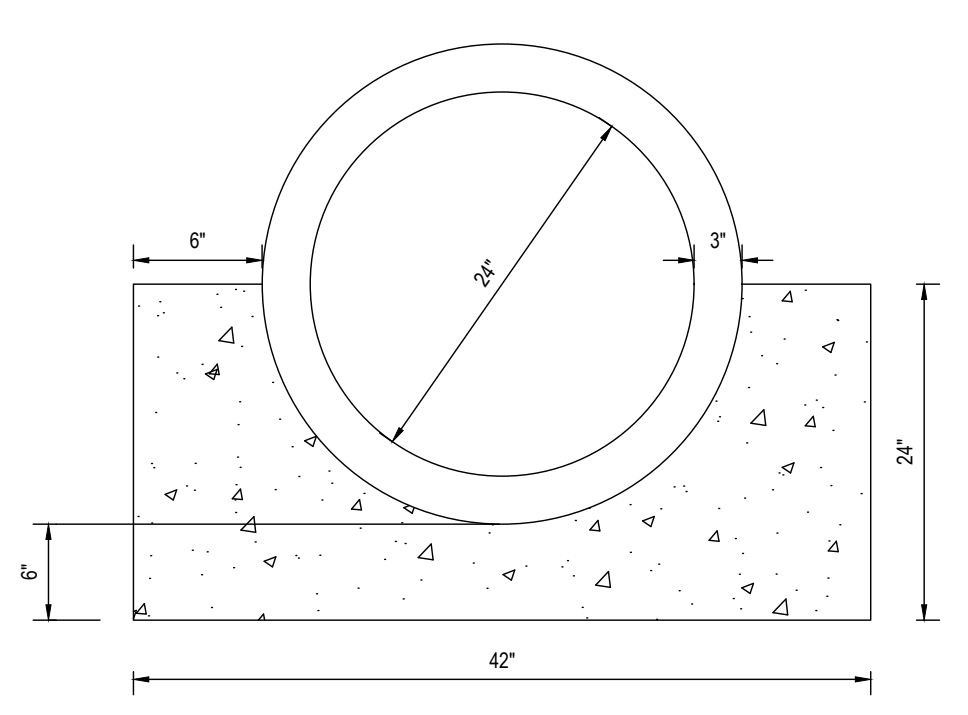
SUBMERGED GRAVEL WETLAND #3 - SECTION F-F
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



CAST-IN-PLACE CONCRETE COLLAR DETAILS
NOT TO SCALE



ANTI-SEEP COLLAR DETAIL
NOT TO SCALE



SCS TR-46 A2 CONCRETE CRADLE DETAIL
NOT TO SCALE

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Powell 7/16/2024
NACM HOMEPLANNING PROGRAM MANAGER DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
Chad Edwards 7/16/2024
CHIEF ENGINEER DATE
ENGINEERING DIVISION DATE
7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT DATE
Linda Eisenberg 7/16/2024
DATE

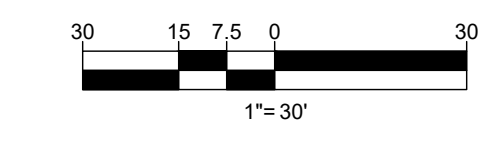
JUL 11, 2024 11:40AM 1:00PM DRAWING PLAN 1420072 - SWM - 2 - LAYOUT: 75 STORMWATER MANAGEMENT NOTES & DETAILS

- NOTES:**
- CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
 - ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED WITH THE CONCRETE CRADLE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
 - ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
 - LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
 - CONCRETE SHALL HAVE A MINIMUM F = 3,500 PSI (MSHA MIX NO. 3) AT 28 DAYS.
 - DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.

NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE BASED ON THE 25-YEAR STORM EVENT.

NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 145320/00469 PLAT# 29546-29552	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PREVIOUS FILE NO.: SP-17-0108 ECP-17-056 WP-18-070	BA-20-002C F-20-016 WP-21-011 WP-22-132	WP-24-060 PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND		

NOTE:
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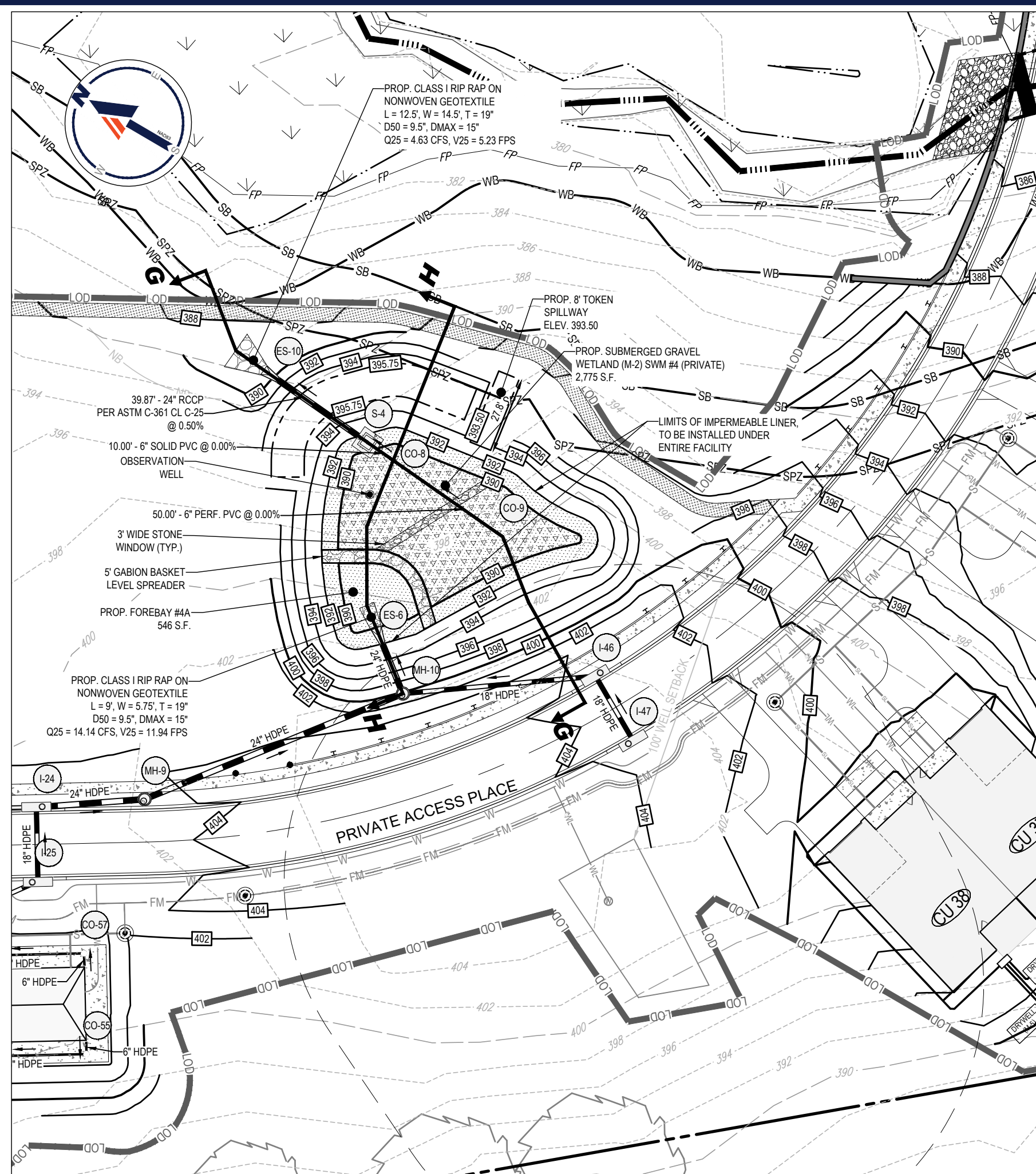
PROJECT NO.: MD1420672
DRAWN BY: MJR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - SWM - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND STATE BOARD OF PROFESSIONAL ENGINEERS
I BRANSON, PAULINE, HERRICK CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988, EXPIRATION DATE: 7/30/2025

SHEET TITLE:
STORMWATER MANAGEMENT NOTES & DETAILS
SHEET NUMBER:
75 OF 146
ORG. DATE - 04/17/24



SUBMERGED GRAVEL WETLAND (M-2) SWM #4 (PRIVATE)
SCALE: 1" = 40'
SEE SECTION G-G AND SECTION H-H ON SHEET 77

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)

ERNST SEEDS | Catalog | Price List | Project Planner | Contact | 800-873-3321 | **Seed Finder TOOL**

Home / Stormwater Management / Native Detention Area Mix
« Back to List

Native Detention Area Mix

Mix Composition

- 26.0% *Panicum clandestinum*, Triops (Doerflinger, Triops)
- 25.0% *Panicum virgatum*, Shelter (Switchgrass, Shelter)
- 20.0% *Carex vulpinoidea*, PA Ecotype (Fox Sedge, PA Ecotype)
- 20.0% *Elymus virginicus*, Madison (Virginia Wildrye, Madison)
- 4.0% *Agrostis perennans*, Albany Pine Bush-NY Ecotype (Autumn Bontgrass, Albany Pine Bush-NY Ecotype)
- 3.0% *Juncus effusus* (Soft Rush)
- 1.0% *Juncus tenuis*, PA Ecotype (Path Rush, PA Ecotype)
- 1.0% *Panicum rigidulum*, PA Ecotype (Redtop Panicgrass, PA Ecotype)

General Product Information:
The native grasses, sedges and rushes establish quickly in areas where mowing is not anticipated. With a high seed count per pound, it can achieve native establishment with minimum risk and tolerate low-fertility. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNMIX-183
Product Categories: Stormwater Management
Height: 0.3 - 5.0 Ft
Seeding Rate: 20 lb per acre, or 1/2 lb per 1,000 sq ft

PRINT | EMAIL | SHARE

Price: \$15.98/lb

ADD TO PLANNER

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Neomi Powell 7/16/2024
NACM HOMELESS PROGRAM MANAGER DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
Chad Edwards
CHIEF OF PLANNING AND ZONING DIVISION DATE
7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT DATE
7/16/2024
Linda Eisenberg

FLAT ROOF RECTANGULAR RACKS/WEIRS
STANDARD SIZES
DIMENSIONS IN INCHES TO THE NEAREST 1/4"

HOST STRUCTURE INSIDE DIMENSIONS
A LENGTH 8" WALL THICKNESS (REQUIRED)
B WIDTH

AS DISTRIBUTED BY CONTECH CONSTRUCTION PRODUCTS NATIONALLY

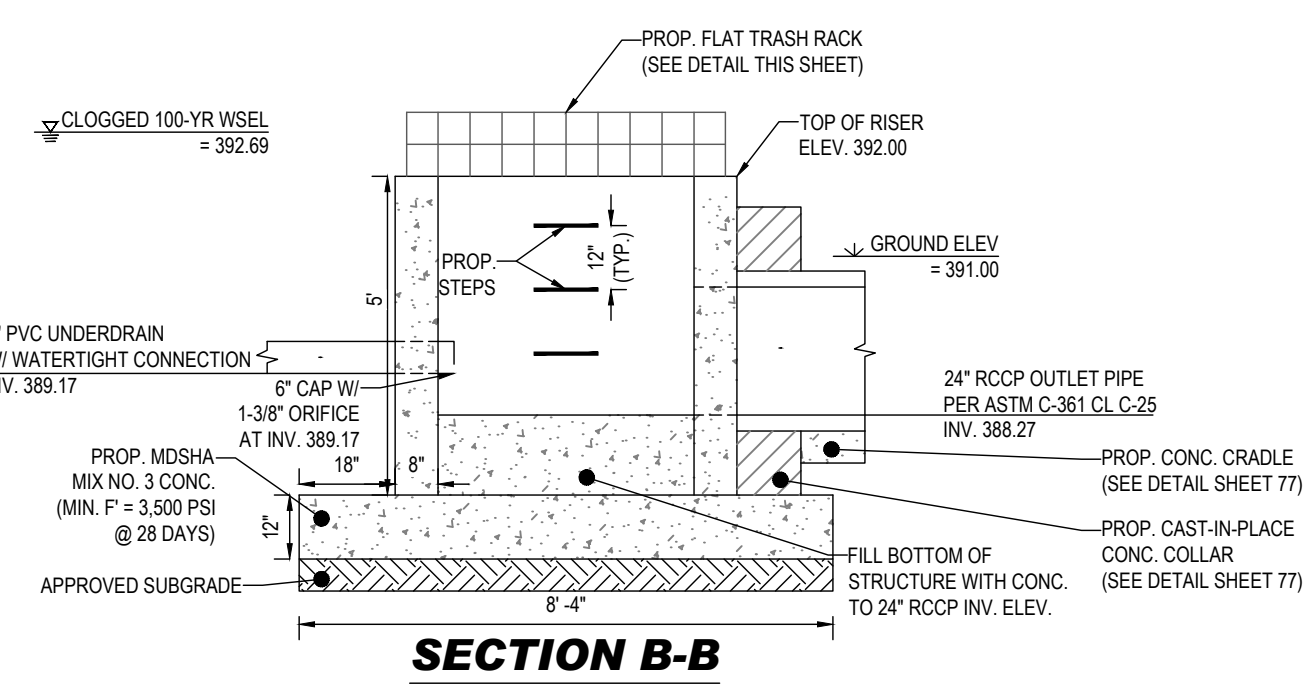
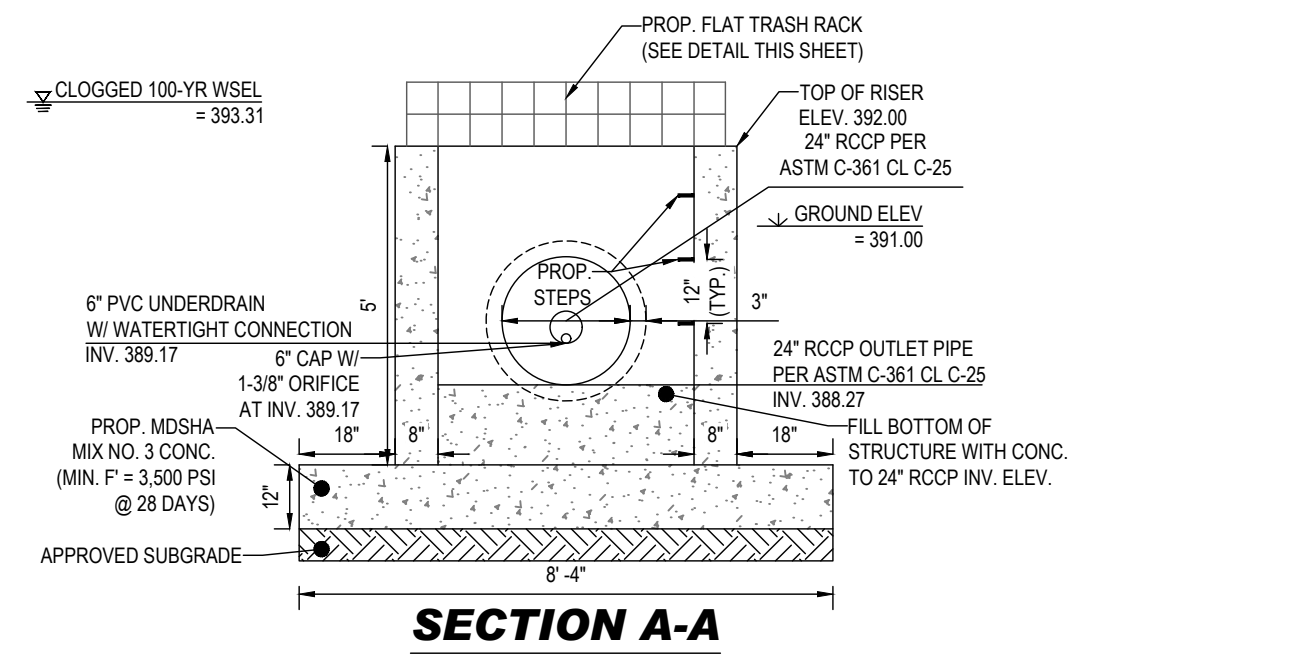
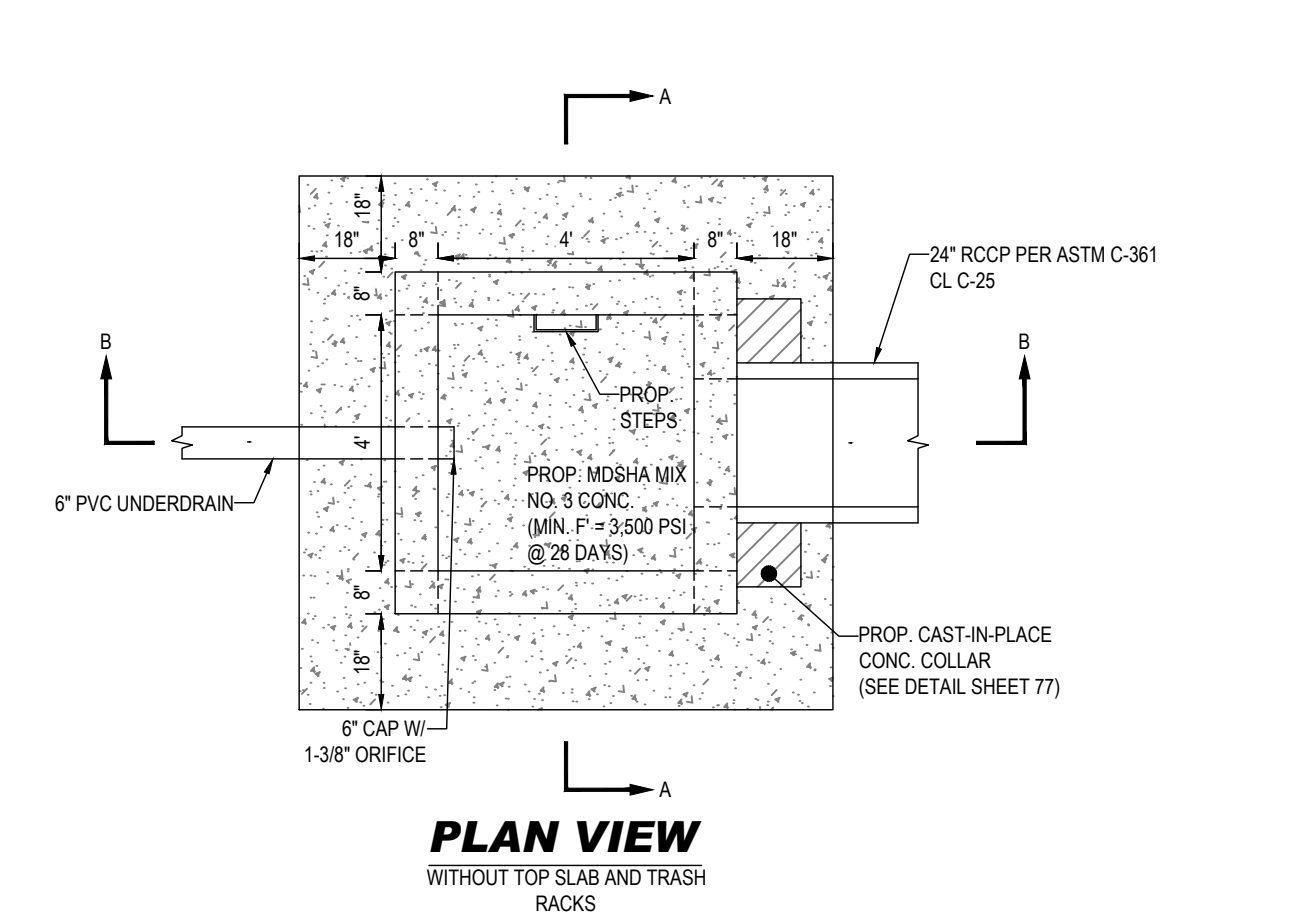
WIDTH (A)	11 3/8	16 3/4	22 1/8	27 1/2	32 7/8	38 1/4	43 5/8	48	54 3/8	59 3/4	65 1/8	70 1/2	75 7/8	81 7/8	87 1/4
CODE	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
LENGTH (B)	11 3/8	16 3/4	22 1/8	27 1/2	32 7/8	38 1/4	43 5/8	48	54 3/8	59 3/4	65 1/8	70 1/2	75 7/8	81 7/8	87 1/4
CODE	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16
HEIGHT (C)	17 1/2	19 7/8													
CODE	01	02													

FLAT ROOF (FR) 54" 54" 12"
WIDTH (A) LENGTH (B) HEIGHT (C)

1 GRID HIGH 2 GRID HIGH

CONTECH
CONSTRUCTION PRODUCTS INC.
1000 W. 10TH ST. SUITE 400
MILWAUKEE, WI 53233
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CUSTOMER: H&H ROCK
PROJECT: THE HIGHLANDS - STRUCTURE S-4
DATE:
DRAWN BY:
APP'D BY:
DETAIL:



TYPICAL RISER STRUCTURE DETAILS (STRUCTURE S-4)
NOT TO SCALE

- NOTES:
- DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. STRUCTURES ARE INTENDED TO BE STANDARD PRECAST CONCRETE STRUCTURES. BOHLER TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.
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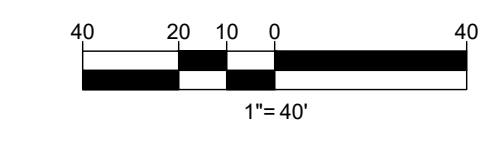
NOTE:

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SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT# 26646-26652	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075	TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE NO.: SP-17-0108 ECP-17-056 WP-18-070	BA-20-002C F-20-016 WP-21-011 WP-22-132	WP-24-060 WP-25-011 WP-26-132

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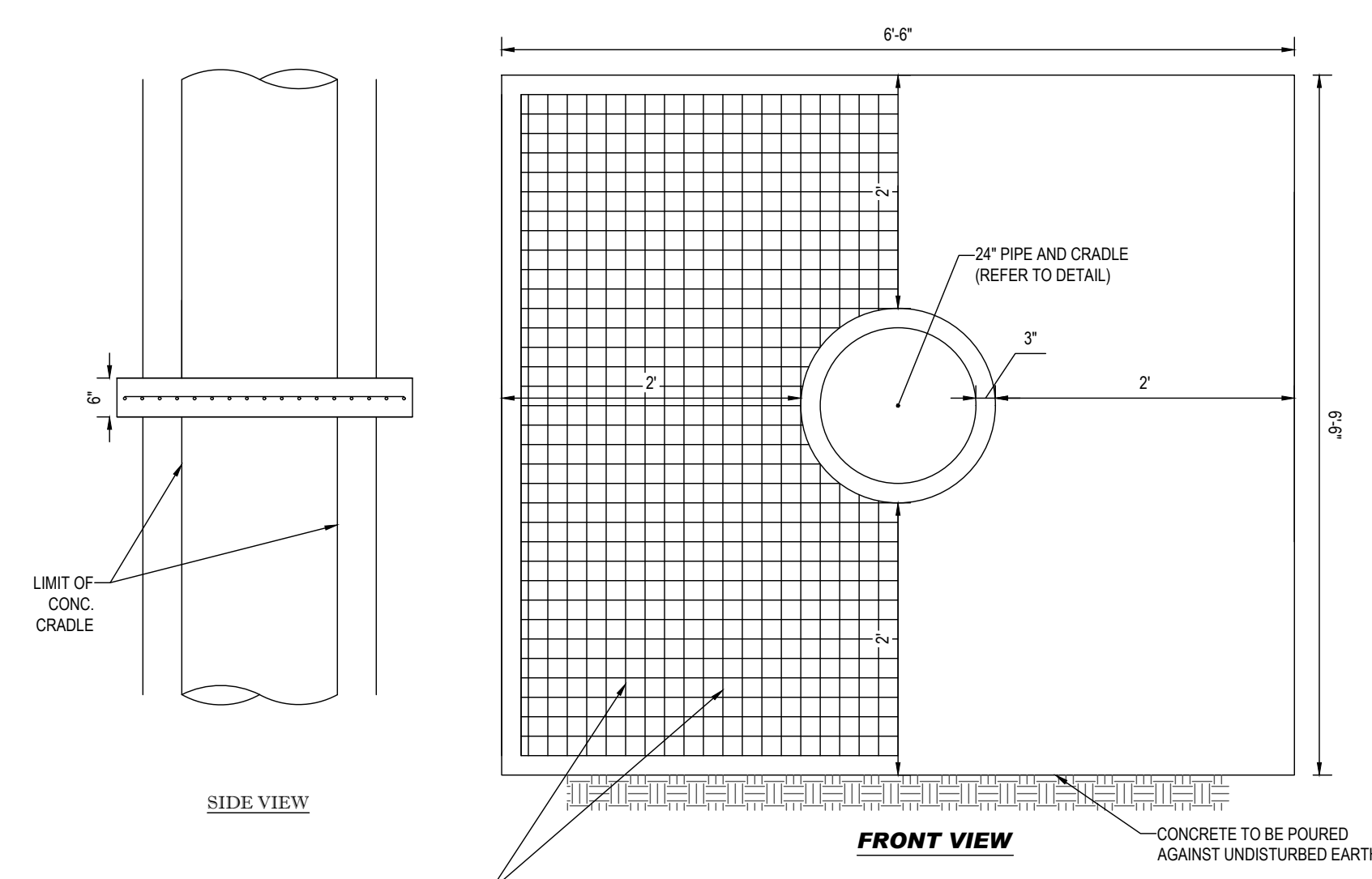
PROJECT No.: MD1420672
DRAWN BY: MUR
DATE: 07/11/2024
CAD ID.: MD1420672 - SWM - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

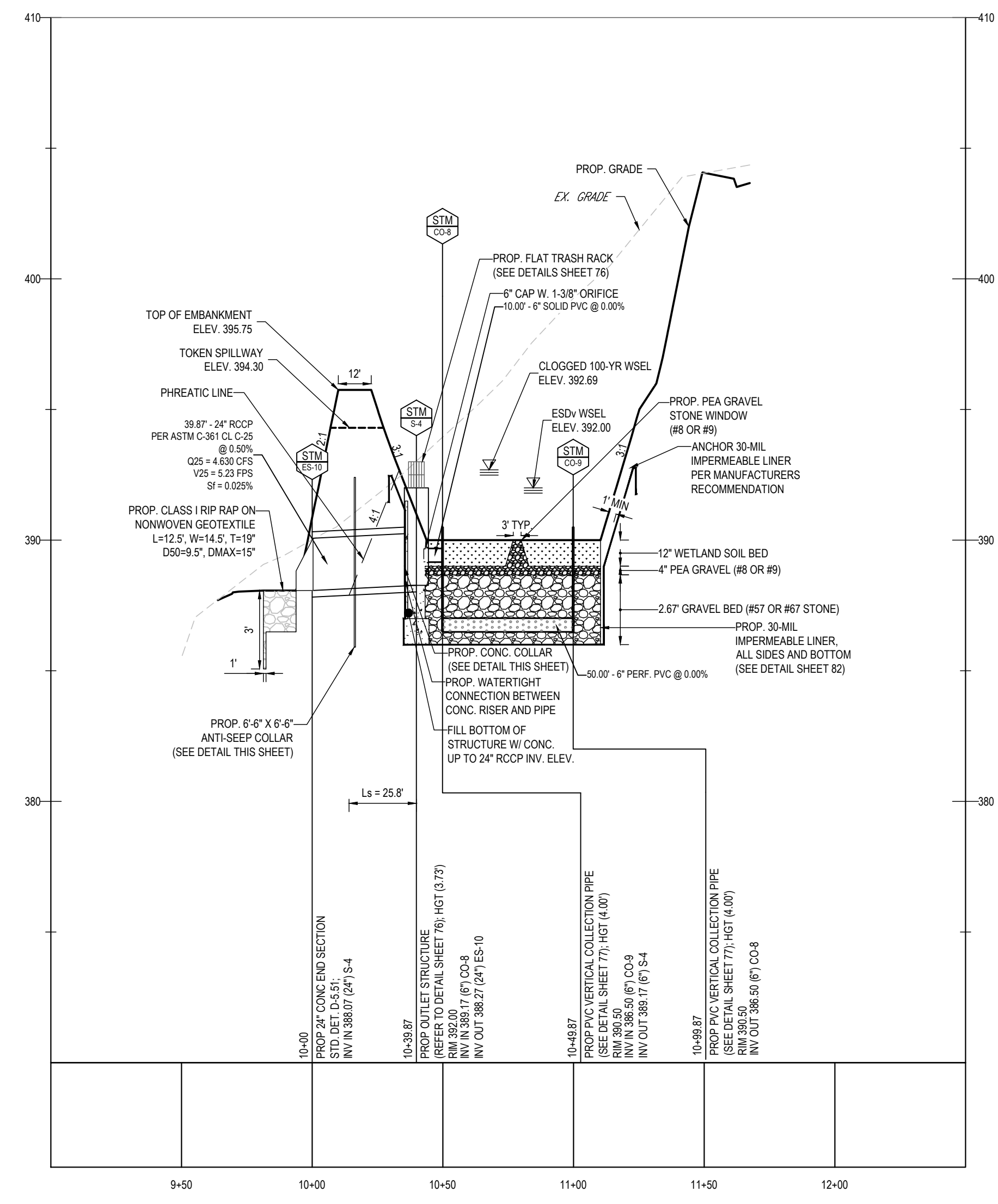
B.R. ROWE
PROFESSIONAL ENGINEER
MARYLAND LICENSE NO. 40988
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DELIVERABLE PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988. EXPIRATION DATE: 7/31/2025

SHEET TITLE:
STORMWATER MANAGEMENT NOTES & DETAILS
SHEET NUMBER:
76 OF 146
ORG. DATE - 04/17/24

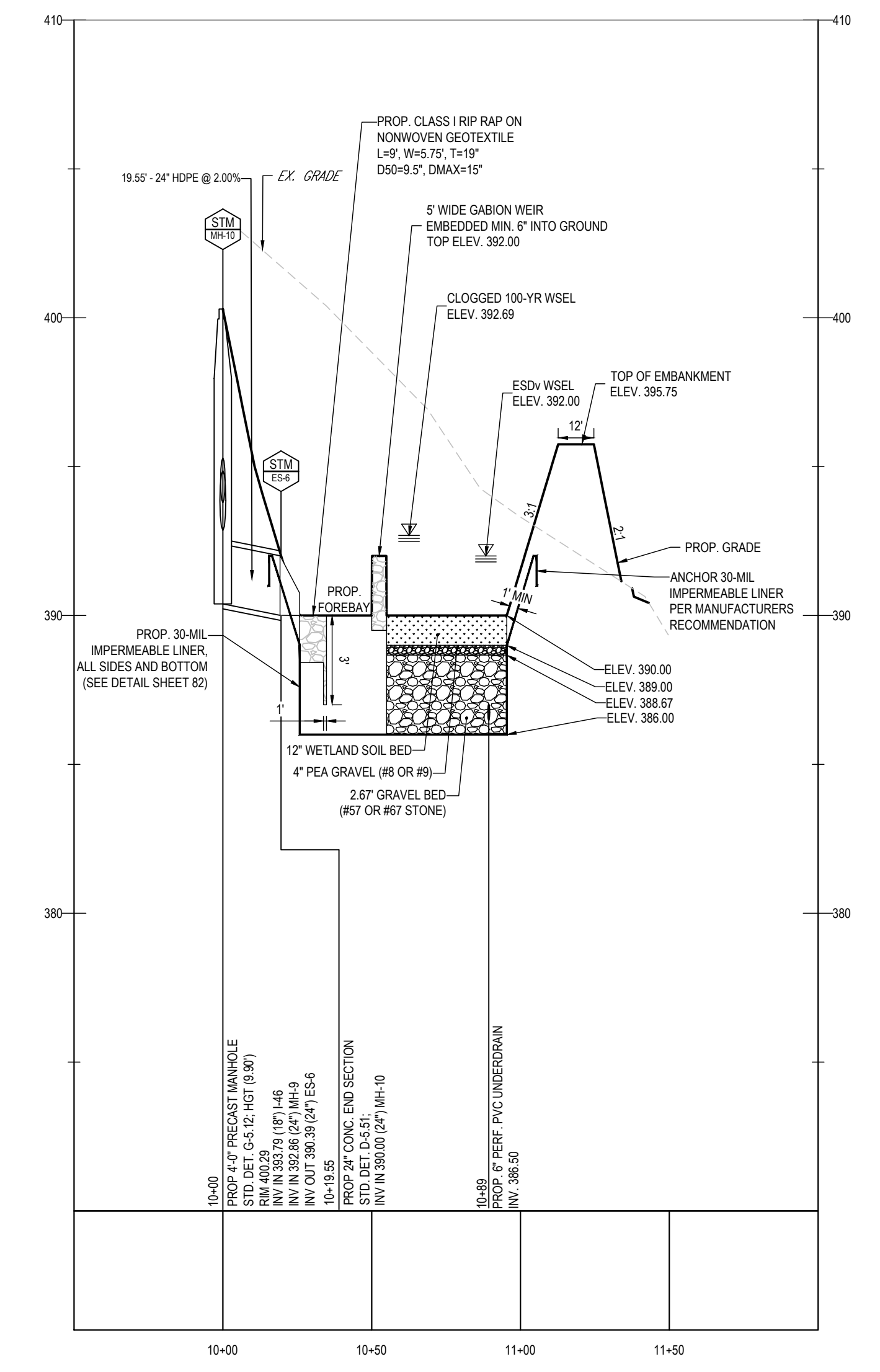


ANTI-SEEP COLLAR DETAIL
NOT TO SCALE

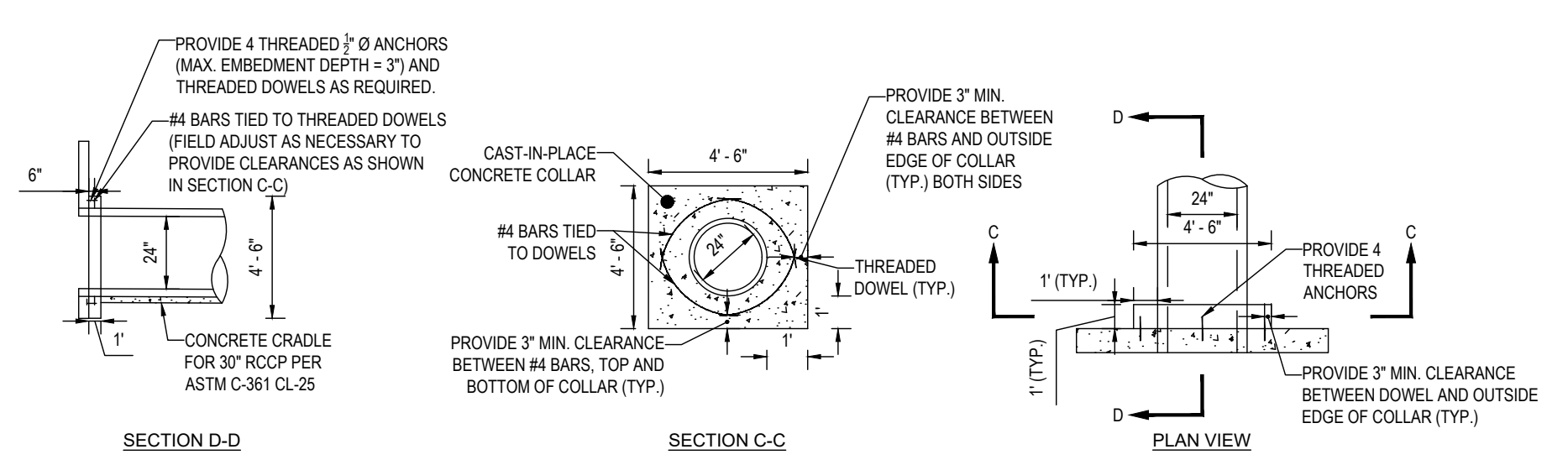
- NOTES:
- CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS.
 - ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED WITH THE CONCRETE CRADLE. FORM AND POUR THE TOP SECTION OF THE COLLAR.
 - ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT.
 - LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE.
 - CONCRETE SHALL HAVE A MINIMUM F' = 3500 PSI (MSHA MIX NO. 3) AT 28 DAYS.
 - DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.



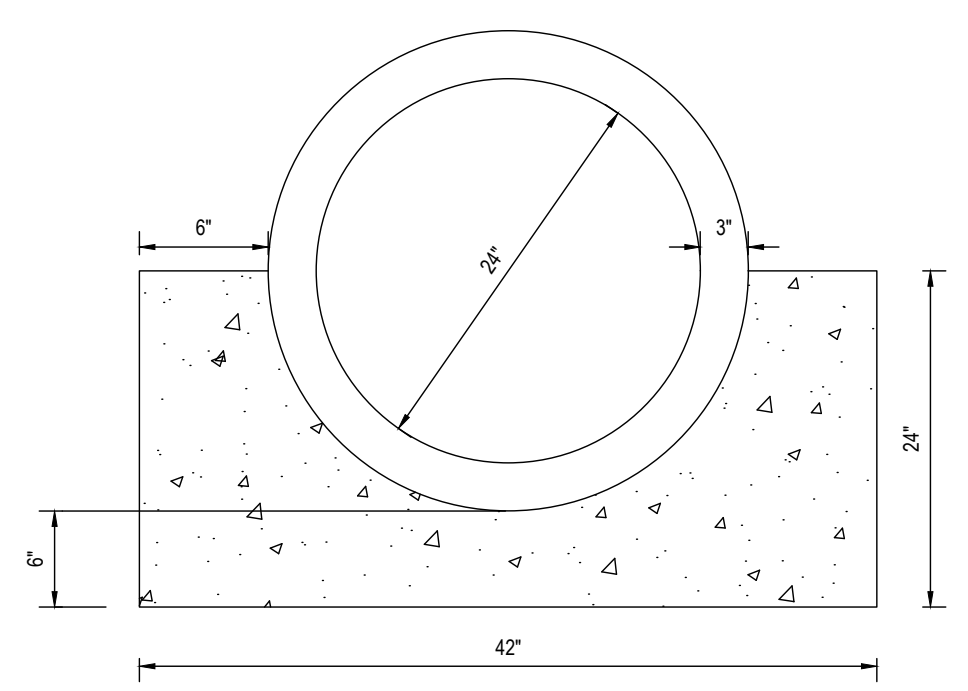
SUBMERGED GRAVEL WETLAND #4 - SECTION G-G - PRINCIPAL SPILLWAY
SCALE: 1"=4' HORIZONTAL
1"=4' VERTICAL



SUBMERGED GRAVEL WETLAND #4 - SECTION H-H
SCALE: 1"=4' HORIZONTAL
1"=4' VERTICAL

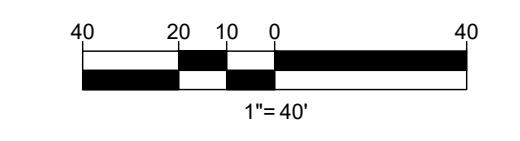


- NOTES:
- PROVIDE 1" MIN CONCRETE COVER AROUND O.D. OF PIPE.
 - F_c = 3500 PSI AT 28 DAYS.
 - TO BE USED WITH PRE-CAST RISERS ONLY.
 - DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.
- CAST-IN-PLACE CONCRETE COLLAR DETAILS**
NOT TO SCALE



- NOTES:
- CRADLE TO BE CONTINUOUS ALONG PIPE.
 - CONCRETE FOR CRADLE TO BE MSHA MIX NO. 3.
- SCS TR-46 A2 CONCRETE CRADLE DETAIL**
NOT TO SCALE

- NOTE: HAZARD CLASS FOR ALL SWM FACILITIES IS "A" DUE TO NO LIFE LOSS FOR FAILURE.
- NOTE: PROPOSED STORM DRAIN PIPES WILL BE SIZED BASED ON THE BASED ON THE 25-YEAR STORM EVENT.
- NOTE: A MAXIMUM OF 20 ACRES OF ACTIVE DISTURBANCE AREA WITH AN ADDITIONAL 10 ACRES OF RECENTLY STABILIZED OR TRANSITIONAL AREA IS PERMITTED. NO MORE THAN 30 ACRES, CUMULATIVELY, MAY BE DISTURBED AT ANY GIVEN TIME.



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 145320/00469 PLAT# 29548-29552	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
--------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------

NOTE:
IMPERVIOUS CORE, CUTOFF TRENCH, CONCRETE RISER STRUCTURE AND PRINCIPAL SPILLWAY ARE TO BE INSTALLED DURING CONSTRUCTION OF THE SEDIMENT BASIN. DETAILS ARE SHOWN HERE FOR REFERENCE ONLY.

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Powell 7/16/2024
NACOM HOMELESS PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
Chad Edmondson 7/16/2024
CHIEF ENGINEER
DEPARTMENT ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
Linda Eisenberg 7/16/2024

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - SWM - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
AMERICAN SOCIETY OF CIVIL ENGINEERS
PROFESSIONAL CERTIFICATION
I BRANSON, MISSOURI, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988. EXPIRATION DATE: 7/31/2025

SHEET TITLE:
STORMWATER MANAGEMENT NOTES & DETAILS

SHEET NUMBER:
77 OF 146

ORG. DATE - 04/17/24

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)

ERNST SEEDS Catalog | Price List | Project Planner | Contact | 800-873-3321

Products | Resource Center | About Us | News & Media

Seed Finder TOOL

Home / Stormwater Management / Native Detention Area Mix

Native Detention Area Mix

- Mix Composition**
- 26.0% *Panicum clandestinum*, Toga (Doerflinger, Toga)
 - 25.0% *Panicum virgatum*, Shelter (Switzgrass, Shelter)
 - 20.0% *Carex vulpinoidea*, PA Ecotype (Fox Sedge, PA Ecotype)
 - 20.0% *Elymus virginicus*, Madsoni (Virginia Wildrye, Madsoni)
 - 4.0% *Agrostis perennans*, Albany Pine Bush-NY Ecotype (Autumn Bentgrass, Albany Pine Bush-NY Ecotype)
 - 3.0% *Ancistrum affine* (Soft Rush)
 - 1.0% *Ancistrum affine*, PA Ecotype (Path Rush, PA Ecotype)
 - 1.0% *Panicum rigidulum*, PA Ecotype (Redtop Panicgrass, PA Ecotype)

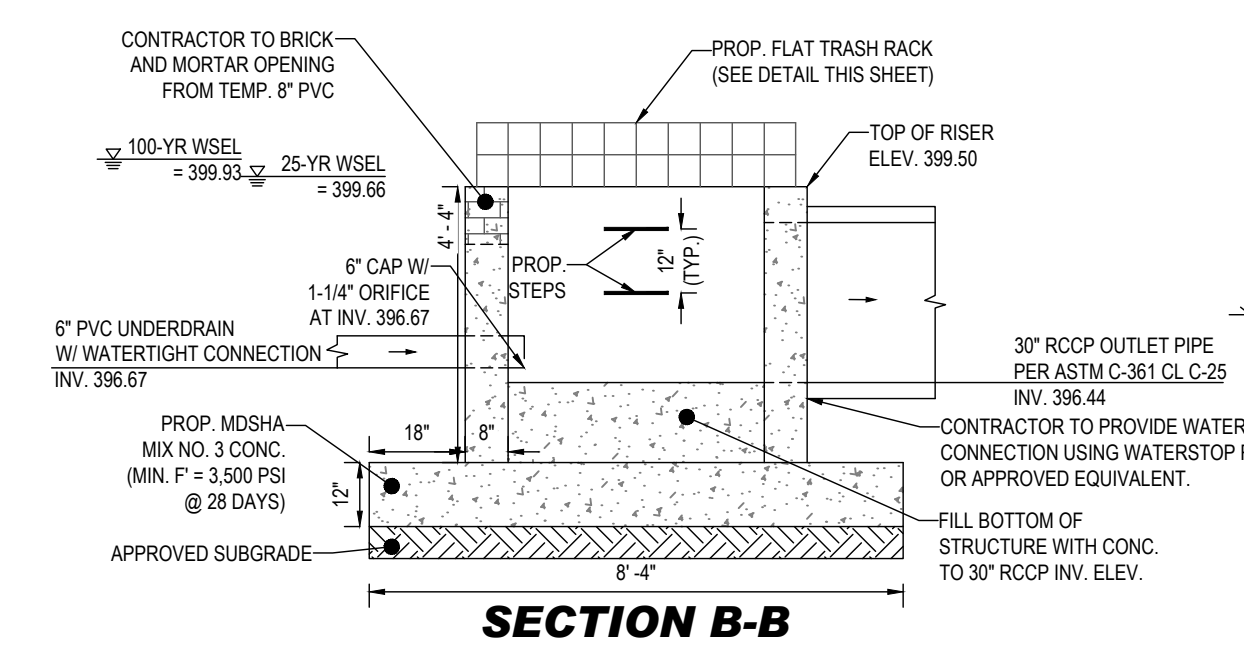
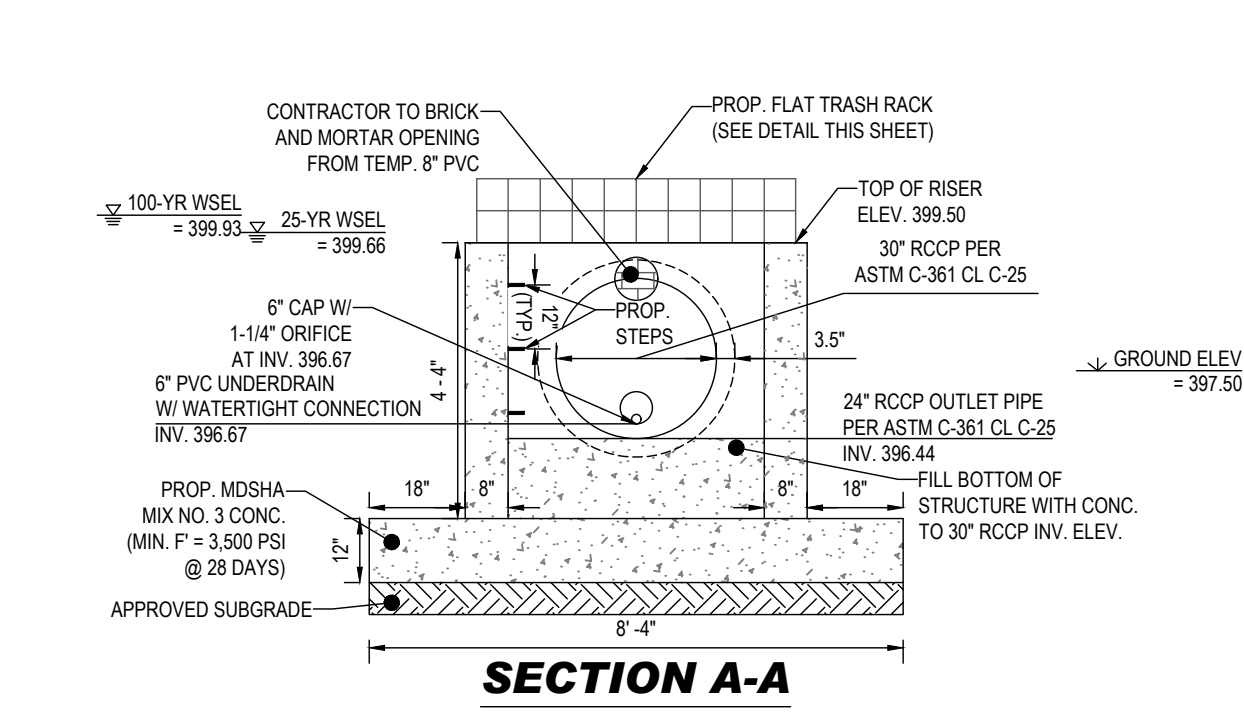
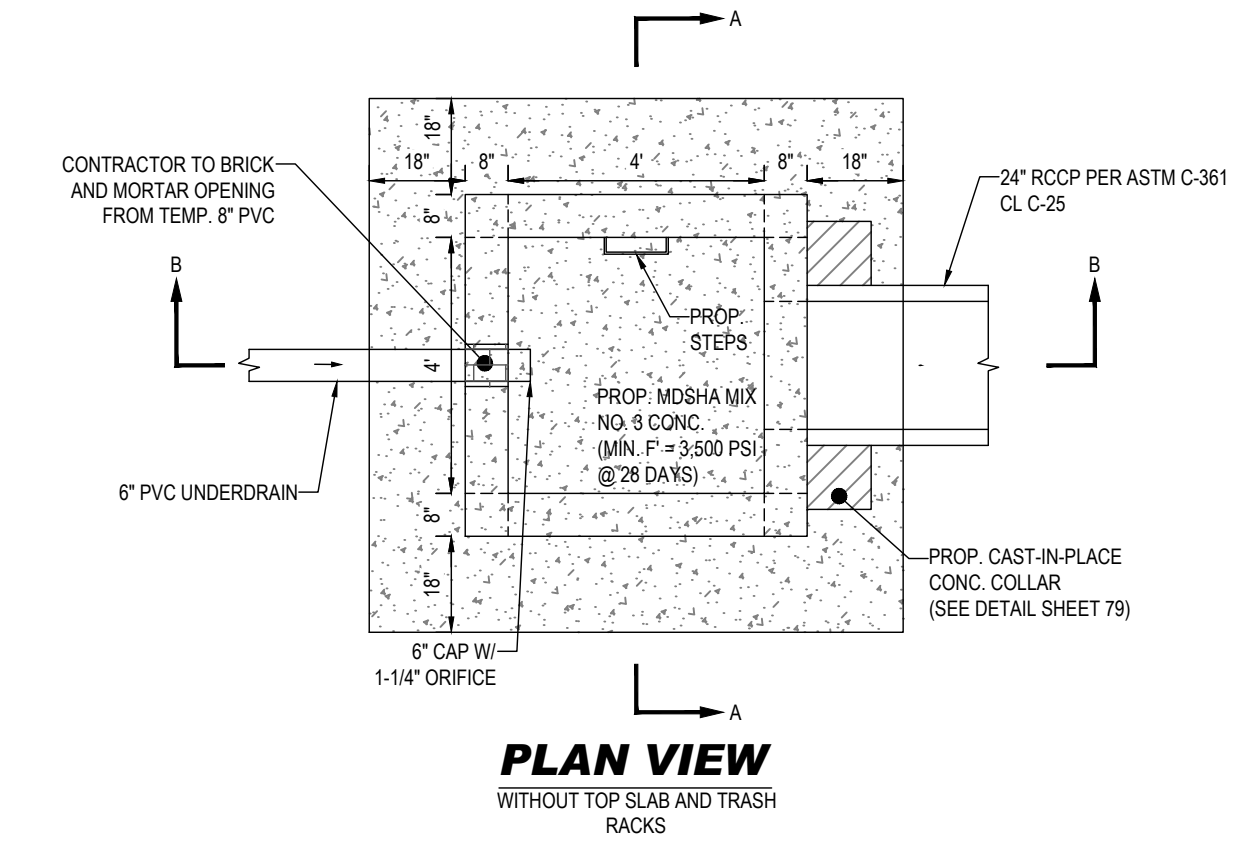
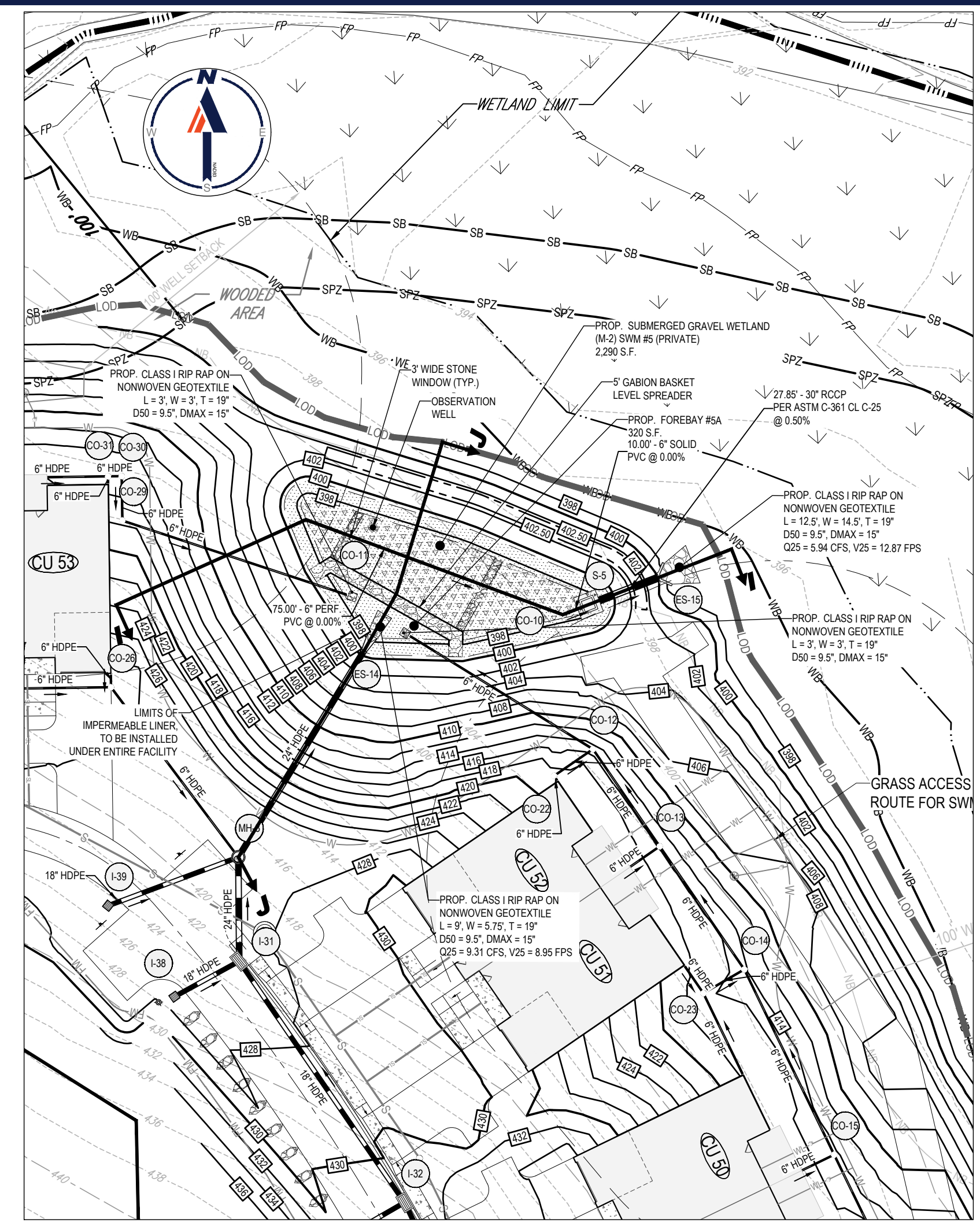
General Product Information:
The native grasses, sedges and rushes establish quickly in areas where mowing is not anticipated. With a high seed count per pound, it can achieve native establishment with minimum risk and tolerate low-fertility. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

Item Number: ERNMX-183
Product Categories: Stormwater Management
Height: 0.3 - 5.0 Ft
Seeding Rate: 20 lb per acre, or 1/2 lb per 1,000 sq ft

PRINT | EMAIL | SHARE

Price: \$15.98/lb

ADD TO PLANNER



TYPICAL RISER STRUCTURE DETAILS (STRUCTURE S-5)

- NOTES:**
- DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. STRUCTURES ARE INTENDED TO BE STANDARD PRECAST CONCRETE STRUCTURES. BOHLER TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.
 - DETAIL SHOWN IS FOR FINAL CONDITIONS ONLY. ANY TEMPORARY OPENING IN THE STRUCTURE USED FOR SEDIMENT CONTROL IS TO BE PERMANENTLY SEALED WITH BRICK AND MORTAR.

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - SWM - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
AMERICAN SOCIETY OF CIVIL ENGINEERS
PROFESSIONAL CERTIFICATION
I BRANSON, PAINE, HERSHEY/COPYRIGHT THESE DOCUMENTS WERE PREPARED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40988. EXPIRATION DATE: 7/3/2025

STORMWATER MANAGEMENT NOTES & DETAILS
SHEET NUMBER:
78 OF 146
ORG. DATE - 04/17/24

JUL 11, 2024 1:14:40 PM H:\1420672\DRAWINGS\PLAN SET\SITE DEVELOPMENT PLAN\MD1420672 - SWM - 2 - LAYOUT 78 STORMWATER MANAGEMENT NOTES & DETAILS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Powell 7/16/2024
NACM HOMELESS PROGRAM MANAGER DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
Chad Edmondson 7/16/2024
CHIEF OF DIVISION DATE
ENGINEERING DIVISION DATE
7/16/2024

CHIEF DIVISION OF LAND DEVELOPMENT DATE
Linda Eisenberg 7/16/2024
DATE

FLAT ROOF RECTANGULAR RACKS/WEIRS (STANDARD SIZES)
DIMENSIONS IN INCHES TO THE NEAREST 1/4"

HOST STRUCTURE INSIDE DIMENSIONS	
L	W
4	8
8	12
12	16
16	20
20	24
24	28
28	32
32	36
36	40
40	44
44	48
48	52
52	56
56	60
60	64
64	68
68	72
72	76
76	80
80	84
84	88
88	92
92	96
96	100
100	104
104	108
108	112
112	116
116	120
120	124
124	128
128	132
132	136
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140	144
144	148
148	152
152	156
156	160
160	164
164	168
168	172
172	176
176	180
180	184
184	188
188	192
192	196
196	200

HEIGHT (C) 12 1/2
CODE 01 02

1 GRD 2 GRD
HIGH HIGH

CONTECH CONSTRUCTION PRODUCTS INC.
CUSTOMER: H&H ROCK
PROJECT: THE HIGHLANDS - STRUCTURE S-5
DATE: 7/16/2024
DRAWN BY: [blank]
APP'D BY: [blank]
DETAIL: [blank]

OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C WP-24-060
SP-17-0108 F-20-016
ECP-17-056 WP-21-011
WP-18-070 WP-22-132

TAX MAP: 40 GRID: 24 ZONED: RR-DEO
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

REVISIONS table with columns: REV, DATE, COMMENT, DRAWN BY, CHECKED BY

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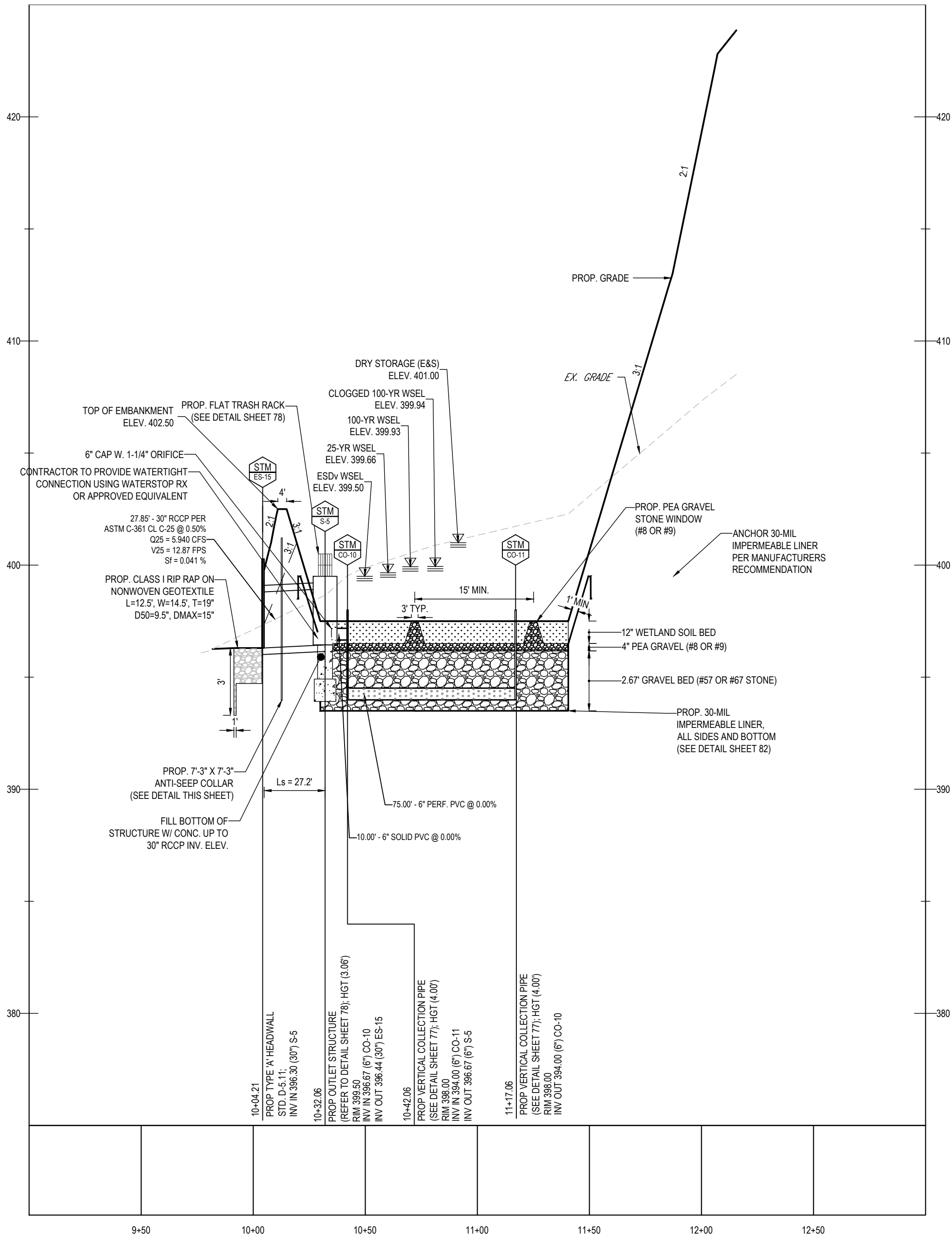
PROJECT INFORMATION table: PROJECT No., DRAWN BY, CHECKED BY, DATE, CAD ID.

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY) PROPOSED AGE-RESTRICTED COMMUNITY 12170 LIME KILN ROAD FULTON HOWARD COUNTY, MD

BOHLER 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21204 Phone: (410) 821-7900 Fax: (410) 821-7987 MD@BohlerEng.com

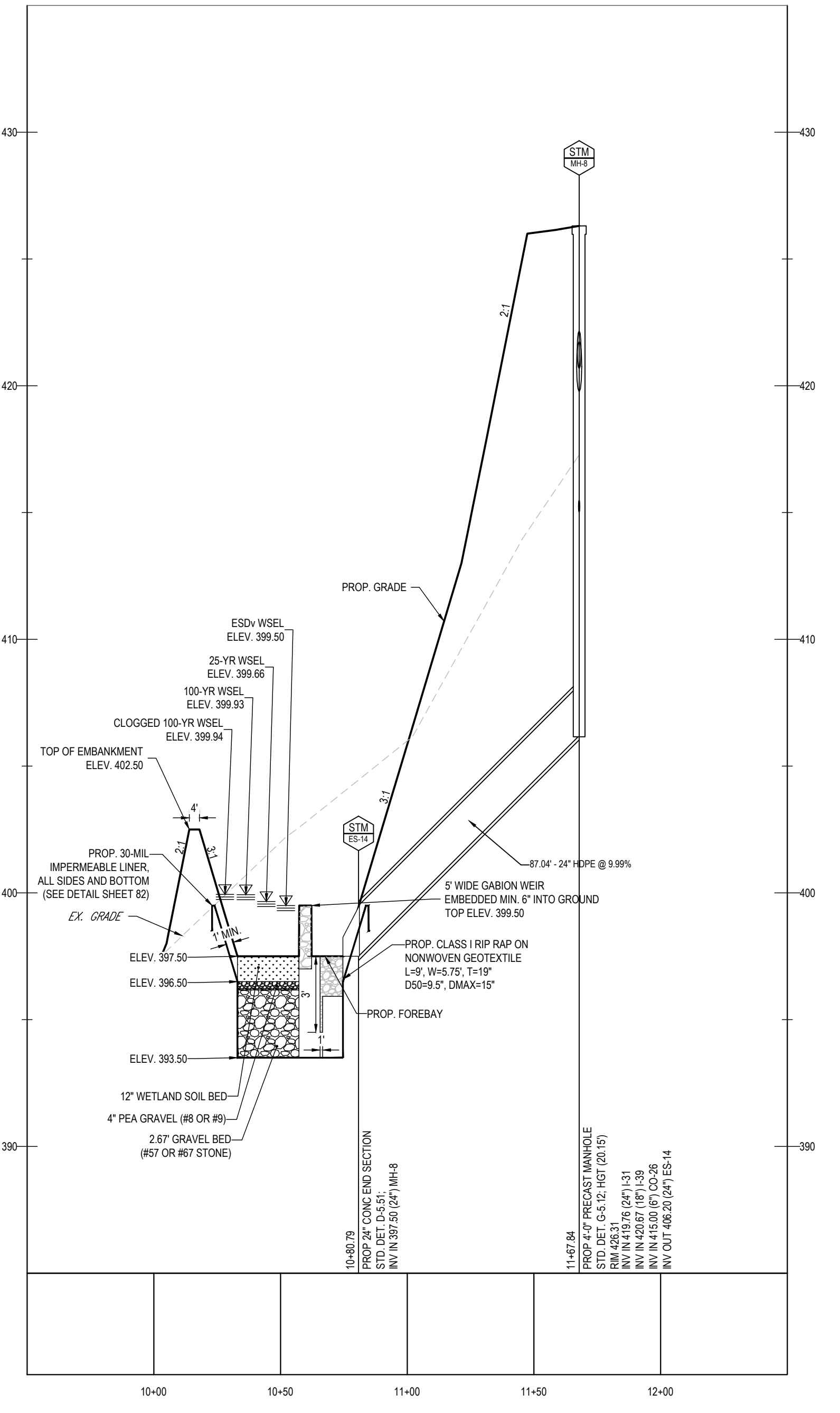
B.R. ROWE PROFESSIONAL ENGINEER LICENSE NO. 40988 EXPIRATION DATE: 7/3/2025

SHEET TITLE: STORMWATER MANAGEMENT NOTES & DETAILS SHEET NUMBER: 79 OF 146 ORG. DATE: 04/17/24



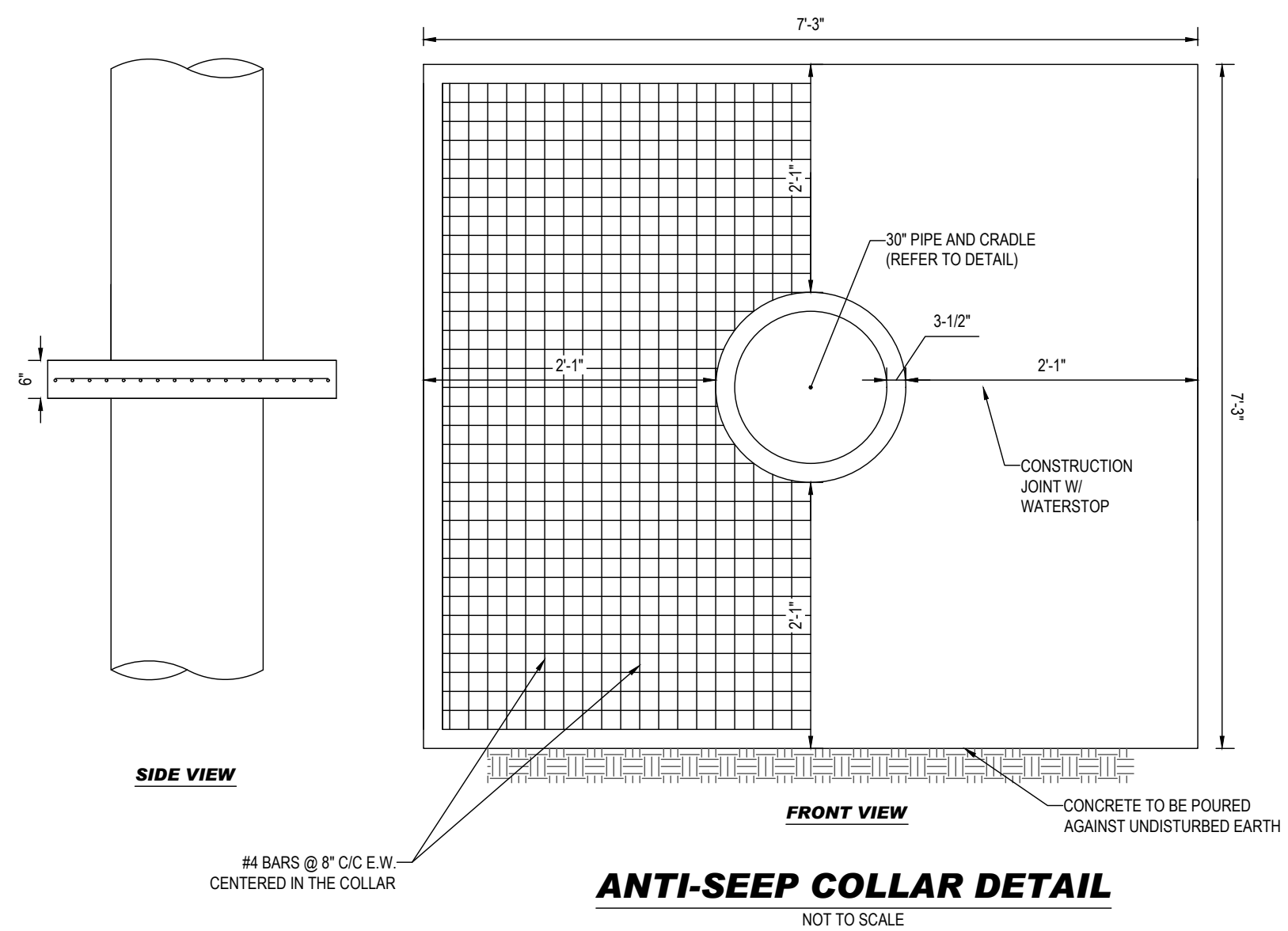
SUBMERGED GRAVEL WETLAND #5 - SECTION I-I - PRINCIPAL SPILLWAY

SCALE: 1" = 40' HORIZONTAL 1" = 4' VERTICAL



SUBMERGED GRAVEL WETLAND #5 - SECTION J-J

SCALE: 1" = 40' HORIZONTAL 1" = 4' VERTICAL



ANTI-SEEP COLLAR DETAIL

- NOTES: 1. CONTRACTOR IS TO CONSTRUCT AND INSTALL ANTI-SEEP COLLAR IN ACCORDANCE WITH ALL APPLICABLE MD-378 REGULATIONS. 2. ANTI-SEEP COLLARS ARE TO BE CONSTRUCTED IN TWO (2) POURS. THE BOTTOM SECTION IS TO BE POURED TO THE CENTERLINE OF THE PIPE. FORM AND POUR THE TOP SECTION OF THE COLLAR. 3. ANTI-SEEP COLLARS ARE TO BE POURED AT LEAST TWO (2) FEET FROM THE NEAREST PIPE JOINT. 4. LOOSE CONCRETE, EARTH, ETC. IS TO BE REMOVED FROM THE PIPE SURFACE. 5. CONCRETE SHALL HAVE A MINIMUM F' = 3500 PSI (MSHA MIX NO. 3) AT 28 DAYS. 6. DETAIL SHOWN IS FOR SCHEMATIC PURPOSES ONLY. FINAL DESIGN TO BE PROVIDED BY STRUCTURAL ENGINEER. BOHLER ENGINEERING TO BE HELD HARMLESS IN THE EVENT OF STRUCTURAL FAILURE.

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS. APPROVED DEPARTMENT OF PLANNING AND ZONING. APPROVED ENVIRONMENTAL ENGINEERING DIVISION. APPROVED DIVISION OF LAND DEVELOPMENT.

NOTE: IMPERVIOUS CORE, CUTOFF TRENCH, CONCRETE RISER STRUCTURE AND PRINCIPAL SPILLWAY ARE TO BE INSTALLED DURING CONSTRUCTION OF THE SEDIMENT BASIN. DETAILS ARE SHOWN HERE FOR REFERENCE ONLY.

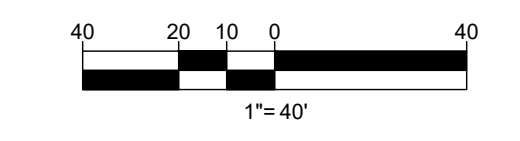
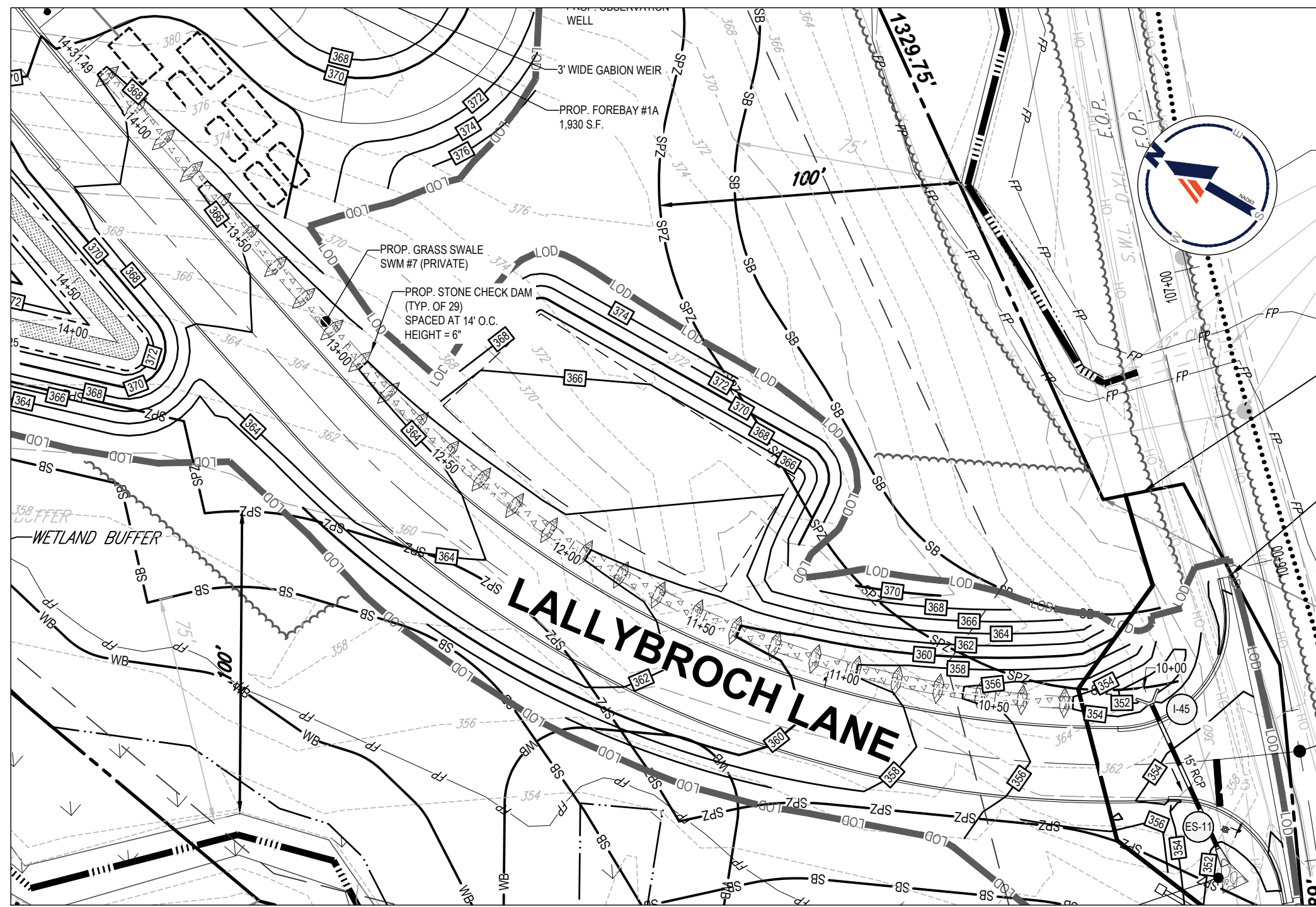
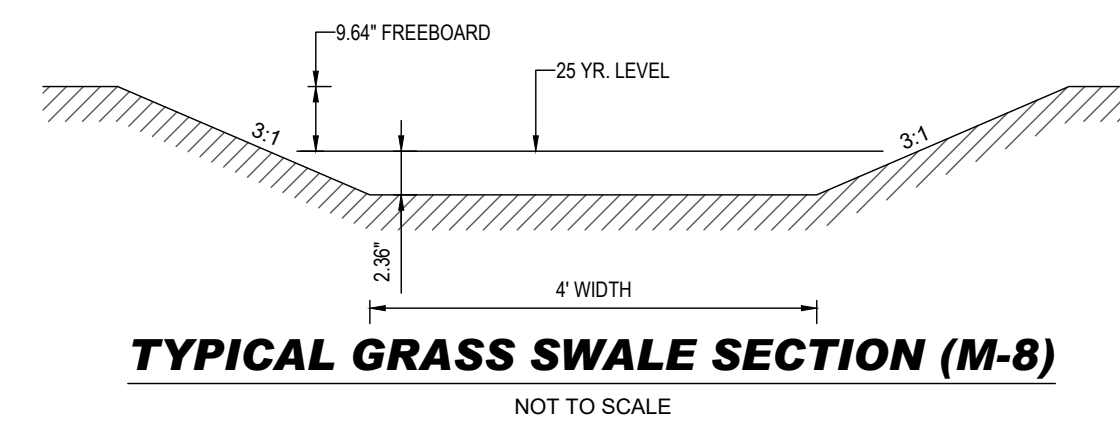
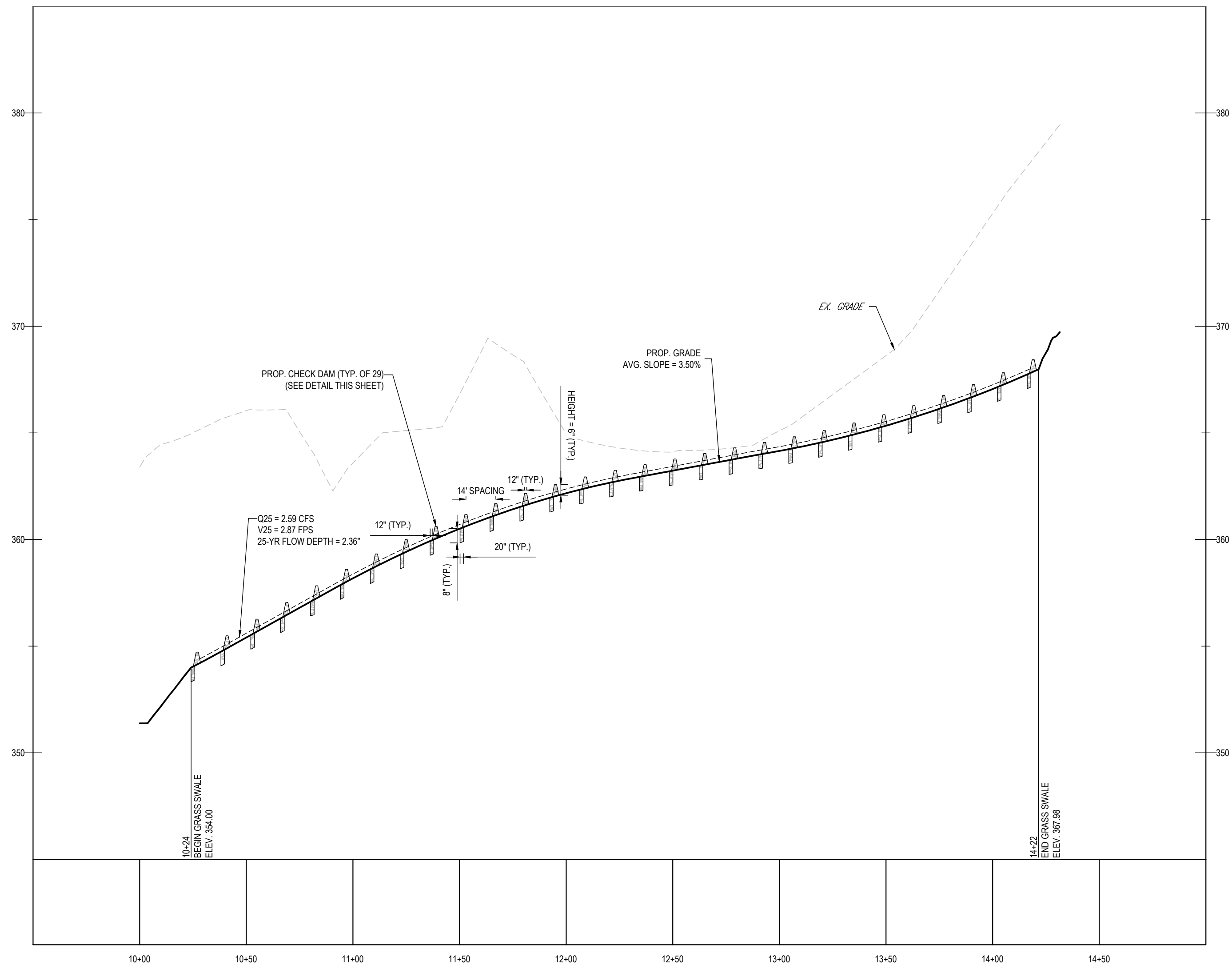
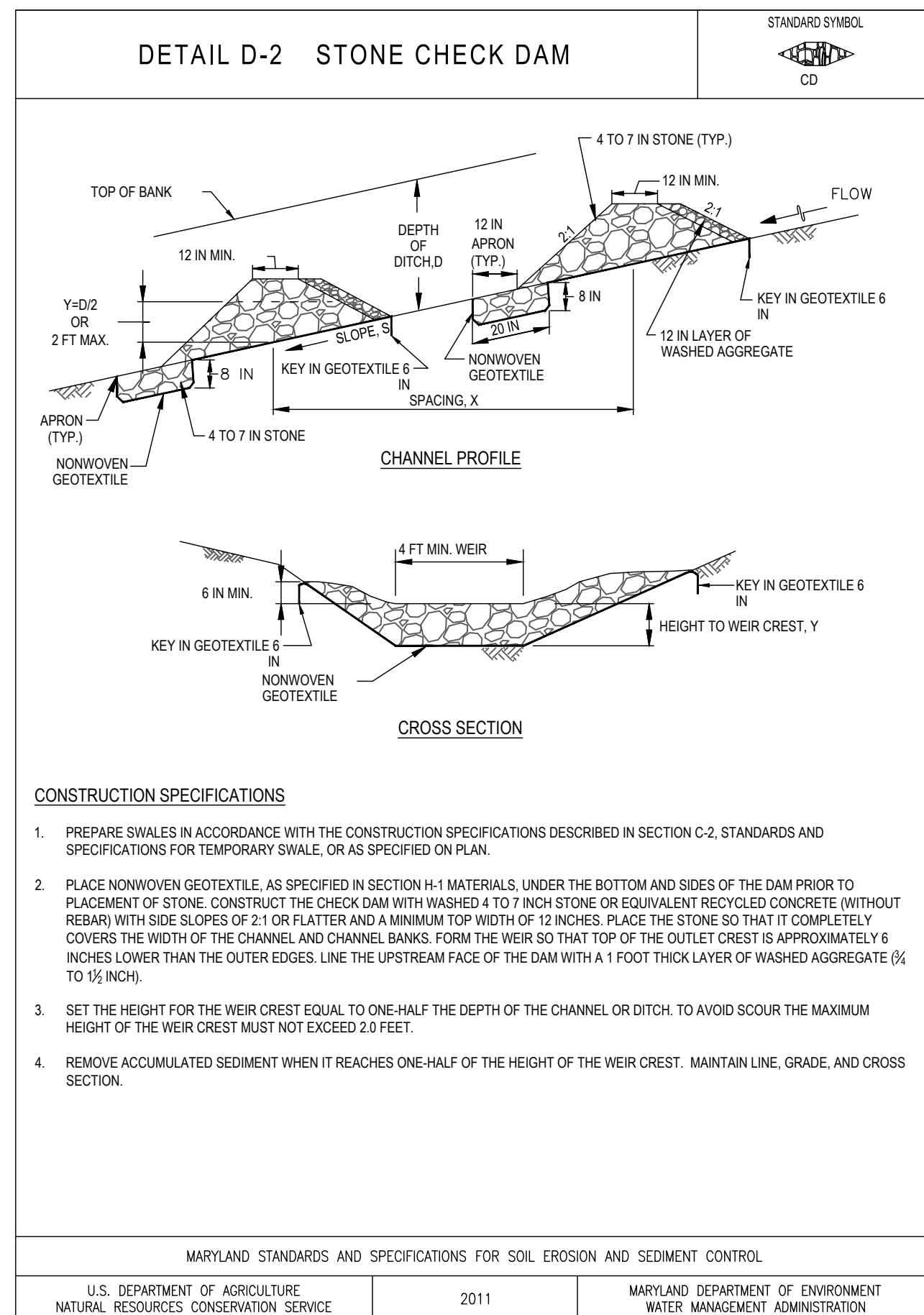


Table with project details: SUBDIVISION NAME, PREVIOUS FILE NO., OWNER, DEVELOPER, TAX MAP, GRID, ZONED, PARCEL, 5TH ELECTION DISTRICT.



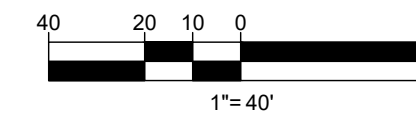
GRASS SWALE (M-6) SWM #7 (PRIVATE)
SCALE: 1" = 40'

NOTE: ALL FACILITY SIDE SLOPES TO BE PLANTED WITH TURFGRASS ESTABLISHMENT AND TYPE B SOIL STABILIZATION MATTING (SSM)



GRASS SWALE NOTES

- REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:
- DURING PLACEMENT AND BACKFILL OF UNDERDRAINS (IF APPLICABLE) AND THE INSTALLATION OF DIAPHRAGMS, FOREBAYS, CHECK DAMS OR WEIRS
 - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION.
- MAINTENANCE CRITERIA:
- FOR GRASS SWALES, REGULAR MOWING (AT LEAST BI-ANNUALLY) IS CRITICAL IN ORDER TO REDUCE COMPETITION FROM WEEDS AND ITIGATION MAY BE NEEDED DURING DRY WEATHER TO ESTABLISH VEGETATION. SPARSELY VEGETATED AREAS NEED TO BE RE-SEED TO MAINTAIN DENSE COVERAGE.
 - IF WATER DOES NOT DRAIN WITHIN 48 HOURS, THE BOTTOM SOIL SHOULD BE TILLED AND REVEGETATED.
 - INSPECTIONS SHOULD BE PERFORMED ONCE A YEAR TO ASSESS SLOPE INTEGRITY, VEGETATIVE HEALTH, SOIL STABILITY, COMPACTION, EROSION, PONDING AND SEDIMENTATION. PERIODIC REMOVAL OF SEDIMENT, LITTER, OR OBSTRUCTIONS SHOULD BE DONE AS NEEDED. ERODED SIDE SLOPES AND THE SWALE BOTTOM SHOULD BE REPAIRED AND STABILIZED WHERE NEEDED.



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 145320/00469 PLAT# 28648-29652	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE NO.: BA-20-002C SF-17-0108 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132	WP-24-060

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
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PROJECT No.:	MD1420672
DRAWN BY:	MJR
DATE:	07/11/2024
CAD ID:	MD1420672 - SWM - 2

PROJECT:

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
18 BRANDON BLVD. HERRINGTON, VIRGINIA 22941
I BRANSON ROWE, REGISTERED PROFESSIONAL ENGINEER THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 40898. EXPIRATION DATE: 7/30/2025

SHEET TITLE:
STORMWATER MANAGEMENT NOTES & DETAILS

SHEET NUMBER:
80 OF 146

ORG. DATE - 04/17/24

JUL 11, 2024 11:40AM D:\007\DRAWINGS\PLAN SET\SITE DEVELOPMENT\PLANNING\1420672 - SWM - 2 - LAYOUT\01 - STORMWATER MANAGEMENT NOTES & DETAILS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Neomi Powell 7/16/2024
NACOM HOMEPLANNING PROGRAM MANAGER DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
Linda Eisenberg 7/16/2024
CHIEF ENGINEERING DIVISION DATE
CHIEF DIVISION OF LAND DEVELOPMENT DATE

B.3.A SAND FILTER SPECIFICATIONS

1. MATERIAL SPECIFICATIONS FOR SAND FILTERS

THE ALLOWABLE MATERIALS FOR SAND FILTER CONSTRUCTION ARE DETAILED IN TABLE B.3.1.

2. SAND FILTER TESTING SPECIFICATIONS

UNDERGROUND SAND FILTERS, FACILITIES WITHIN SENSITIVE GROUNDWATER AQUIFERS, AND FILTERS DESIGNED TO SERVE URBAN HOT SPOTS ARE TO BE TESTED FOR WATER TIGHTNESS PRIOR TO PLACEMENT OF FILTER MEDIA...

ALL OVERFLOW WEIRS, MULTIPLE ORIFICES AND FLOW DISTRIBUTION SLOTS ARE TO BE FIELD-TESTED TO VERIFY ADEQUATE DISTRIBUTION OF FLOWS.

3. SAND FILTER CONSTRUCTION SPECIFICATIONS

PROVIDE SUFFICIENT MAINTENANCE ACCESS (I.E., 12-FOOT-WIDE ROAD WITH LEGALLY RECORDED EASEMENT). VEGETATED ACCESS SLOPES ARE TO BE A MAXIMUM OF 10%; GRAVEL SLOPES TO 15%; PAVED SLOPES TO 25%.

ABSOLUTELY NO RUNOFF IS TO ENTER THE FILTER UNTIL ALL CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED.

SURFACE OF FILTER BED IS TO BE LEVEL.

ALL UNDERGROUND SAND FILTERS SHOULD BE CLEARLY DELINEATED WITH SIGNS SO THAT THEY MAY BE LOCATED WHEN MAINTENANCE IS DUE.

SURFACE SAND FILTERS MAY BE PLANTED WITH APPROPRIATE GRASSES; SEE APPENDIX A.

"POCKET" SAND FILTERS (AND RESIDENTIAL BIORETENTION FACILITIES TREATING AREAS LARGER THAN AN ACRE) SHALL BE SIZED WITH A STONE "WINDOW" THAT COVERS APPROXIMATELY 10% OF THE FILTER AREA...

4. SPECIFICATIONS PERTAINING TO UNDERGROUND SAND FILTERS (F-2)

PROVIDE MANHOLE AND/OR GRATES TO ALL UNDERGROUND AND BELOW GRADE STRUCTURES. MANHOLES SHALL BE IN COMPLIANCE WITH STANDARD SPECIFICATIONS FOR EACH COUNTY BUT DIAMETERS SHOULD BE 30" MINIMUM TO COMPLY WITH OSHA CONFINED SPACE REQUIREMENTS...

UNDERGROUND SAND FILTERS SHOULD BE CONSTRUCTED WITH A GATE VALVE LOCATED JUST ABOVE THE TOP OF THE FILTER BED FOR DEWATERING IN THE EVENT THAT CLOGGING OCCURS.

UNDERGROUND SAND BEDS SHALL BE PROTECTED FROM TRASH ACCUMULATION BY A WIDE MESH GEOTEXTILE SCREEN TO BE PLACED ON THE SURFACE OF THE SAND BED; SCREEN IS TO BE ROLLED UP, REMOVED, CLEANED AND RE-INSTALLED DURING MAINTENANCE OPERATIONS.

TABLE B.3.1 MATERIAL SPECIFICATIONS FOR SAND FILTERS

Table with 4 columns: MATERIAL, SPECIFICATION/TEST METHOD, SIZE, NOTES. Lists materials like SAND, PEAT, LEAF COMPOST, UNDERDRAIN GRAVEL, etc.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED SURFACE STORMWATER FILTRATION SYSTEMS (F-1, F-4, AND F-5)

- 1. The stormwater wetland facility shall be inspected annually and after major storms. Inspections shall be performed during wet weather to determine if the facility is functioning properly.

INFILTRATION AND FILTER SYSTEM CONSTRUCTION SPECIFICATIONS

INFILTRATION AND FILTER SYSTEMS EITHER TAKE ADVANTAGE OF EXISTING PERMEABLE SOILS OR CREATE A PERMEABLE MEDIUM SUCH AS SAND FOR WC1, AND RE-V. IN SOME INSTANCES WHERE PERMEABILITY IS GREAT, THESE FACILITIES MAY BE USED FOR OP AS WELL...

WHEN PROPERLY PLANTED VEGETATION WILL THRIVE AND ENHANCE THE FUNCTIONING OF THESE SYSTEMS. FOR EXAMPLE, PRE-TREATMENT BUFFERS WILL TRAP SEDIMENTS THAT OFTEN ARE BOUND WITH PHOSPHORUS AND METALS...

DESIGN CONSTRAINTS:

- PLANTING BUFFER STRIPS OF AT LEAST 20 FEET WILL CAUSE SEDIMENTS TO SETTLE OUT BEFORE REACHING THE FACILITY, THEREBY REDUCING THE POSSIBILITY OF CLOGGING.

BIO-RETENTION

SOIL BED CHARACTERISTICS THE CHARACTERISTICS OF THE SOIL FOR THE BIORETENTION FACILITY ARE PERHAPS AS IMPORTANT AS THE FACILITY LOCATION, SIZE, AND TREATMENT VOLUME.

THE PLANTING SOIL SHOULD BE A SANDY LOAM, LOAMY SAND, LOAM (USDA), OR A LOAM/SAND MIX (SHOULD CONTAIN A MINIMUM 35 TO 60% SAND, BY VOLUME). THE CLAY CONTENT FOR THESE SOILS SHOULD BE LESS THAN 25% BY VOLUME...

TABLE A.3 PLANTING SOIL CHARACTERISTICS. PARAMETER VALUE. PH RANGE: 5.2 TO 7.00. ORGANIC MATTER: 1.5 TO 4.0% (BY WEIGHT).

MULCH LAYER

THE MULCH LAYER PLAYS AN IMPORTANT ROLE IN THE PERFORMANCE OF THE BIORETENTION SYSTEM. THE MULCH LAYER HELPS MAINTAIN SOIL MOISTURE AND AVOIDS SURFACE SEALING, WHICH REDUCES PERMEABILITY...

THE MULCH LAYER SHOULD BE STANDARD LANDSCAPE STYLE, SINGLE OR DOUBLE SHREDDED HARDWOOD MULCH OR CHIPS. THE MULCH LAYER SHOULD BE WELL AGED (STOCKPILED OR STORED FOR AT LEAST 12 MONTHS)...

PLANTING GUIDANCE

PLANT MATERIAL SELECTION SHOULD BE BASED ON THE GOAL OF SIMULATING A TERRESTRIAL FORESTED COMMUNITY OF NATIVE SPECIES. BIORETENTION SIMULATES AN UPLAND-SPECIES ECOSYSTEM. THE COMMUNITY SHOULD BE DOMINATED BY TREES...

THE PROPER SELECTION AND INSTALLATION OF PLANT MATERIALS IS KEY TO A SUCCESSFUL SYSTEM. THERE ARE ESSENTIALLY THREE ZONES WITHIN A BIORETENTION FACILITY (FIGURE A5). THE LOWEST ELEVATION SUPPORTS PLANT SPECIES ADAPTED TO STANDING AND FLUCTUATING WATER LEVELS...

DRY WELL NOTES

INSPECTION:

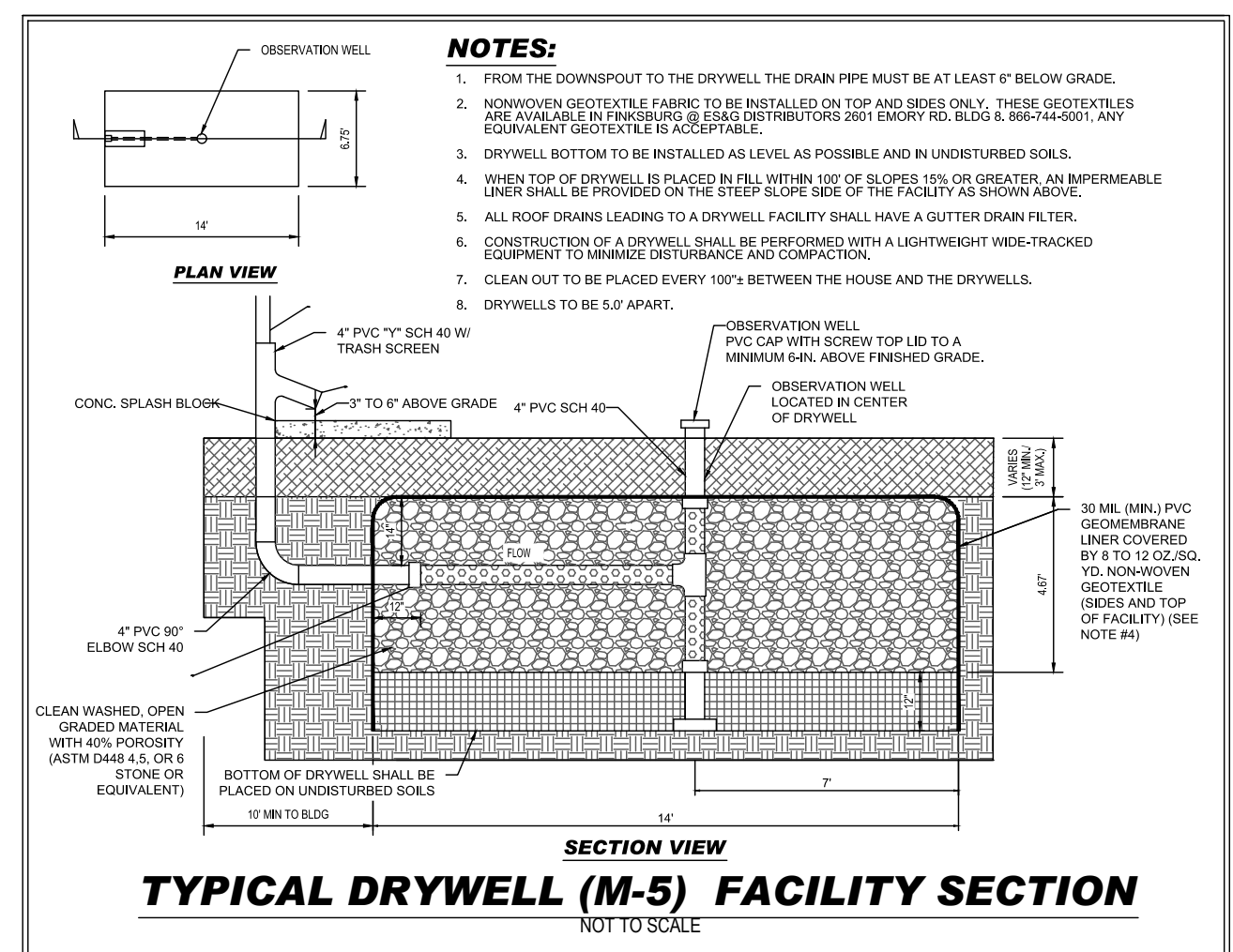
REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:

- DURING EXCAVATION TO SUBGRADE.
- DURING PLACEMENT OF BACKFILL AND PERFORATED INLET PIPE AND OBSERVATION WELL.
- DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA.

MAINTENANCE CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED TO ENSURE PROPER MAINTENANCE AND LONG-TERM PERFORMANCE OF DRY WELLS:

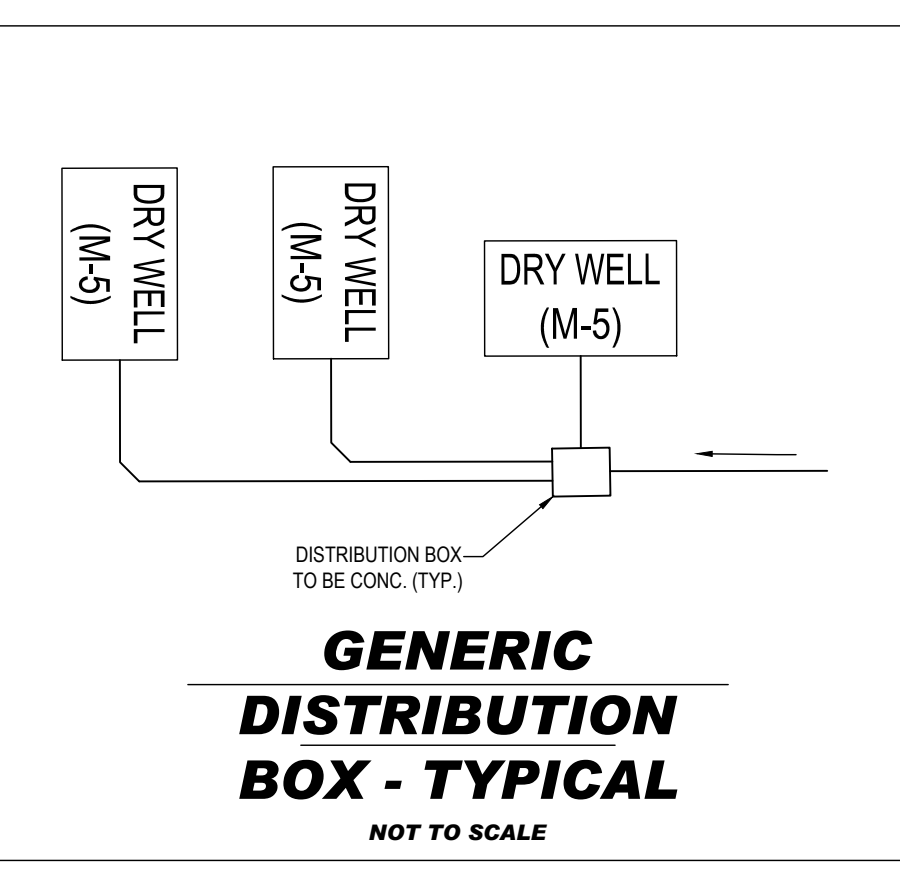
- PRIVATELY OWNED PRACTICES SHALL HAVE A MAINTENANCE PLAN AND SHALL BE PROTECTED BY EASEMENT, DEED RESTRICTION, ORDINANCE, OR OTHER LEGAL MEASURES PREVENTING ITS NEGLIGENCE, ADVERSE ALTERATION, AND REMOVAL.



NOTE: ALL ROOF DRAINS TO DRYWELLS TO BE 4" PVC AT MIN. 2% SLOPE.

DRY WELL - Residential: Operation and Maintenance

- Dry wells shall be inspected and cleaned annually. This includes pipes, gutters, downspouts and all filters.
- Ponding, standing water or algae growth on the top of a dry well may indicate failure due to sedimentation in the gravel media.



11/11/2024 11:49:00 AM H:\14100\141007\DRAWINGS\PLAN SET\SITE DEVELOPMENT\PLANNING\141007-2-SWML-2-LAYOUT-1-B1-STORMWATER MANAGEMENT NOTES & DETAILS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS. Approved by Naomi Powell, Program Manager, dated 7/16/2024.

Table with project details: SUBDIVISION NAME: THE HIGHLANDS (FORMERLY LYHUS PROPERTY), OWNER: LYHUS DEVELOPMENT, LLC, DEVELOPER: ROCK REALTY INC.

BOHLER logo and contact information: SITE CIVIL AND CONSULTING ENGINEERING, PROGRAM MANAGEMENT, LANDSCAPE ARCHITECTURE, SUSTAINABLE DESIGN, PERMITTING SERVICES, TRANSPORTATION SERVICES.

REVISIONS table with columns: REV, DATE, COMMENT, DRAWN BY, CHECKED BY.

811 logo and text: Know what's below. Call before you dig. ALWAYS CALL 811. It's fast. It's free. It's the law.

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THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT INFORMATION: PROJECT NO.: MD1420672, DRAWN BY: MUR, CHECKED BY: MJP, DATE: 07/11/2024, CAD LID: MD1420672 - SWM - 2

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY. 12170 LIME KILN ROAD, FULTON, HOWARD COUNTY, MD

BOHLER logo and address: 901 DULANEY VALLEY ROAD, SUITE 801, TOWSON, MARYLAND 21204

B.R. ROWE logo and professional information: PROFESSIONAL ENGINEER, MARYLAND LICENSE NO. 40988, EXPIRATION DATE: 7/30/2025

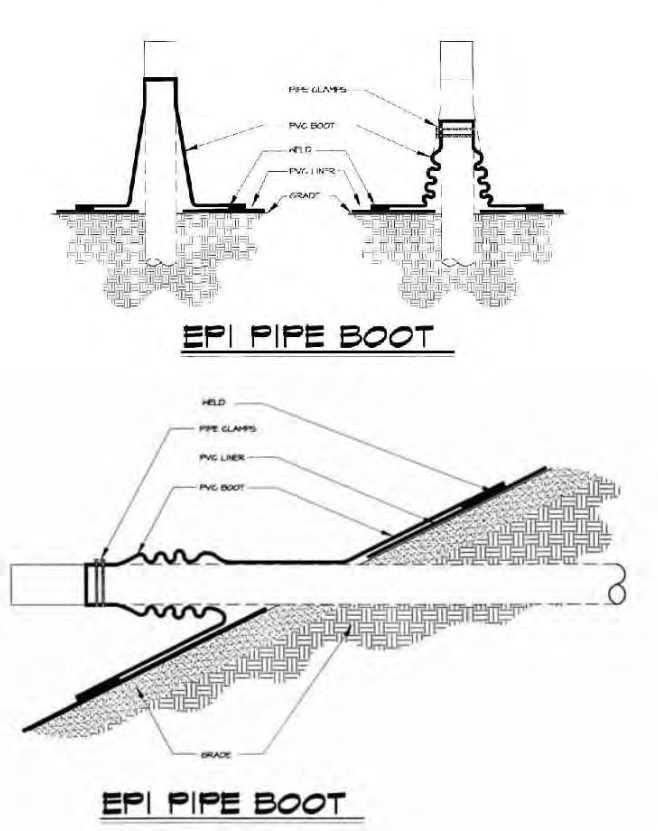
SHEET TITLE: STORMWATER MANAGEMENT NOTES & DETAILS

SHEET NUMBER: 81 OF 146. ORG. DATE - 04/17/24

EPI SOLUTIONS
ENVIRONMENTAL PROTECTION, INC.

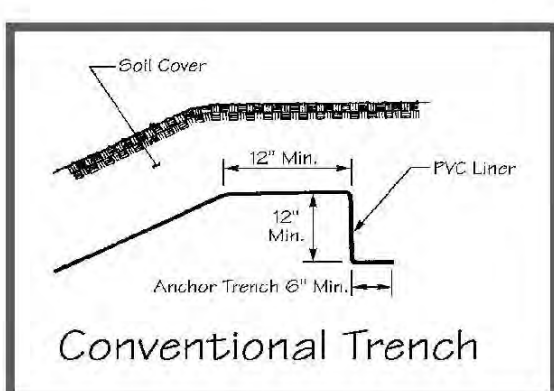
The Liner Company
1567 N. South Airport Rd.
Troy, Michigan 48068
Phone: 800-OK-LINER
Fax: 231-443-2378
www.geomembrane.com

Pipe Boot Details



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Anchor Trench Details



The anchor trench will be excavated to the line, grade and width shown on the construction drawings, prior to liner placement. The OWNER or ENGINEER will verify that the anchor trench has been constructed according to construction drawings.

If the anchor trench is located in a substrate susceptible to desiccation, no more than the amount of trench required for the geomembrane to be anchored in one day will be excavated to minimize desiccation of the anchor trench soils.

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30 mil PVC Geomembrane Specifications

TYPICAL APPLICATIONS:
Reservoirs
Canals
Sewage Lagoons
Landfill Closures
Soil Remediation
Farm Ponds
Water Features
Irrigation Ponds
Golf Course Ponds
Heap Leach Pads
Industrial Waste Ponds
Tailing Ponds

EPI liners fabricated by EPI are a single-ply construction with Polyvinyl Chloride as the principal polymer. Only first quality virgin resins are used and all materials meet or exceed the requirements of ASTM D1716 Standard Specification for PVC geomembranes used in buried applications.

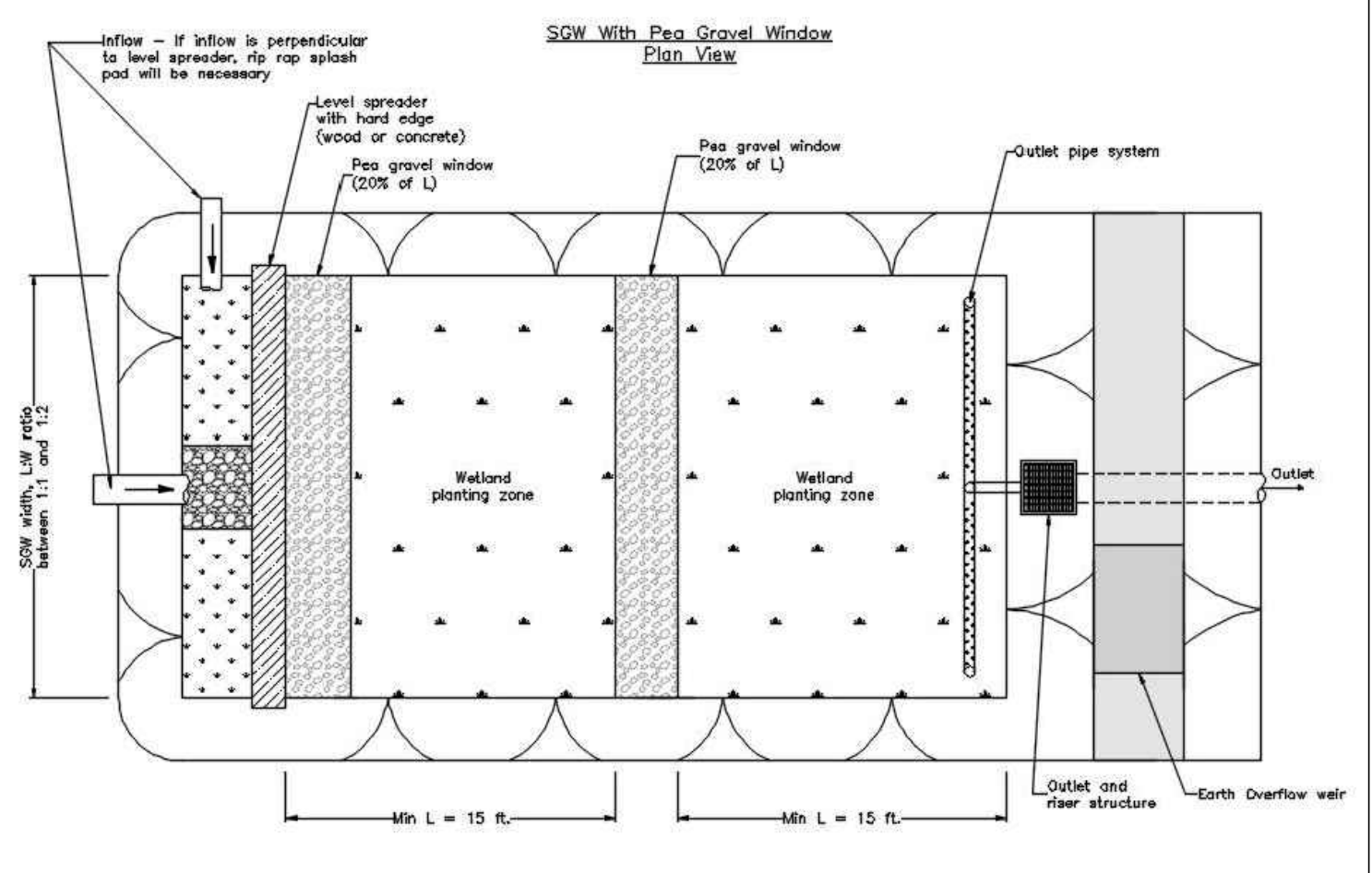
EPI utilizes statistical process control (SPC) to ensure the integrity of each panel produced. Samples from actual factory seasons are removed during the welding process for a rigorous, proven testing procedure that assures you of the highest quality factory-fabricated PVC geomembranes available.

PVC Liners are fabricated by EPI in panels, according to order in both directions, and packaged for shipment to your site for quick, easy installation to save you time and money.

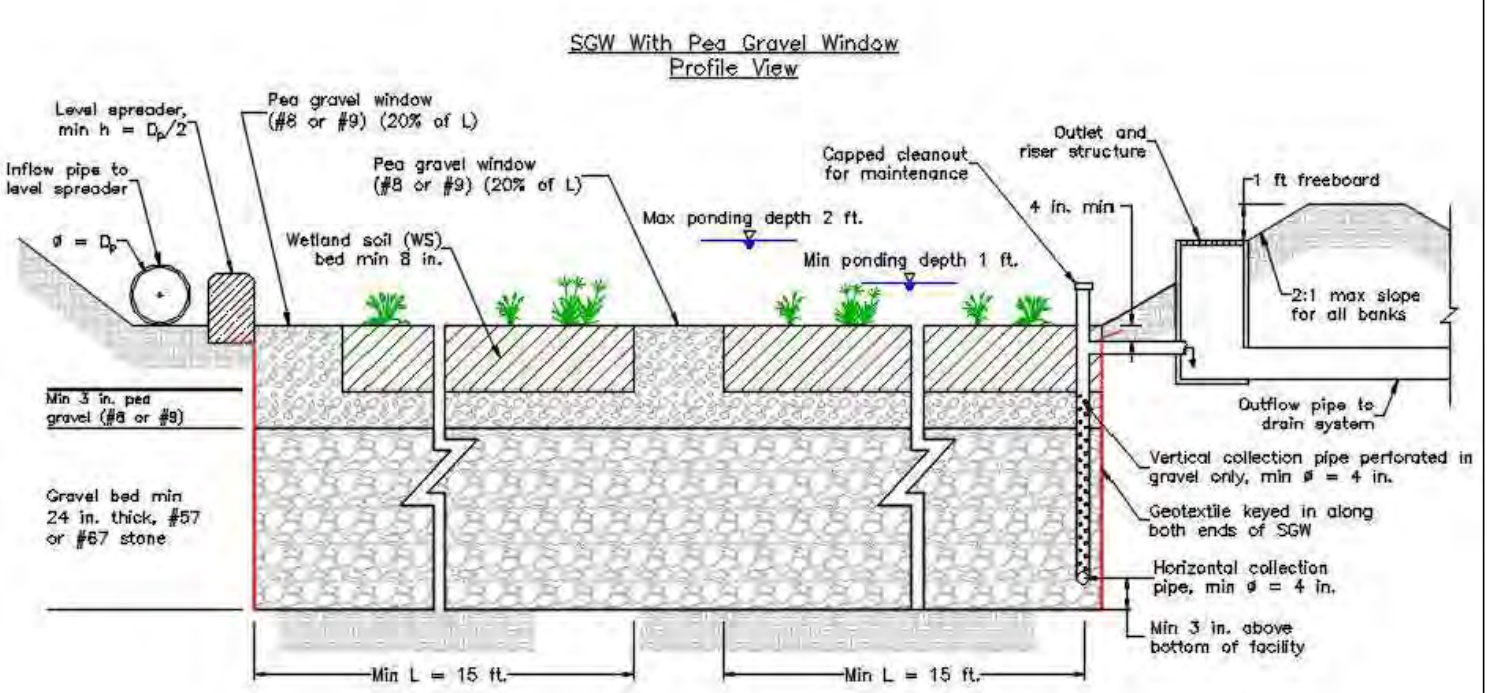
Thickness ± 5%	ASTM D-5199	.030"
Specific Gravity (min)	ASTM D-752	1.29
Tensile (film-width, min)	ASTM D-882	73
Elongation at Break (% min)	ASTM D-882	380
Modulus at Break (lb/in)	ASTM D-882	30
Tear Resistance (lb/in, min)	ASTM D-1004	8
Resistance to Soil Burial (% change, max)	ASTM G-180	20
1. Breaking Factor	5	
2. Elongation At Break	20	
3. Modulus at 100% Elongation	20	
Impact Cold Crack (°C)	ASTM D-1700	-29
Dimensional Stability (212°F/115 min.)	ASTM D-1204	3
Water Extraction (% max)	ASTM D-1299	0.15
Volatiles Loss (% max)	ASTM D-1203(A)	0.70
Hydrostatic Resistance (psi, min)	ASTM D-751(A)	100
Plasticizer Min. Ave Molec Wt	ASTM 2124	400
Factory Fabricated Seams: Peel Strength (lb/in, min)	ASTM D-7408	15
Shear Strength (lb/in, min)	ASTM D-7408	68.4

These data are based on tests believed to be suitable. However, these are laboratory tests that may not simulate actual use conditions. They are provided for your informational purposes only. No warranty, express or implied, including any other further warranty of fitness for a particular purpose or merchantability, is made by this promotional literature.

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TYPICAL SUBMERGED GRAVEL WETLAND PLAN VIEW



TYPICAL SUBMERGED GRAVEL WETLAND PROFILE VIEW

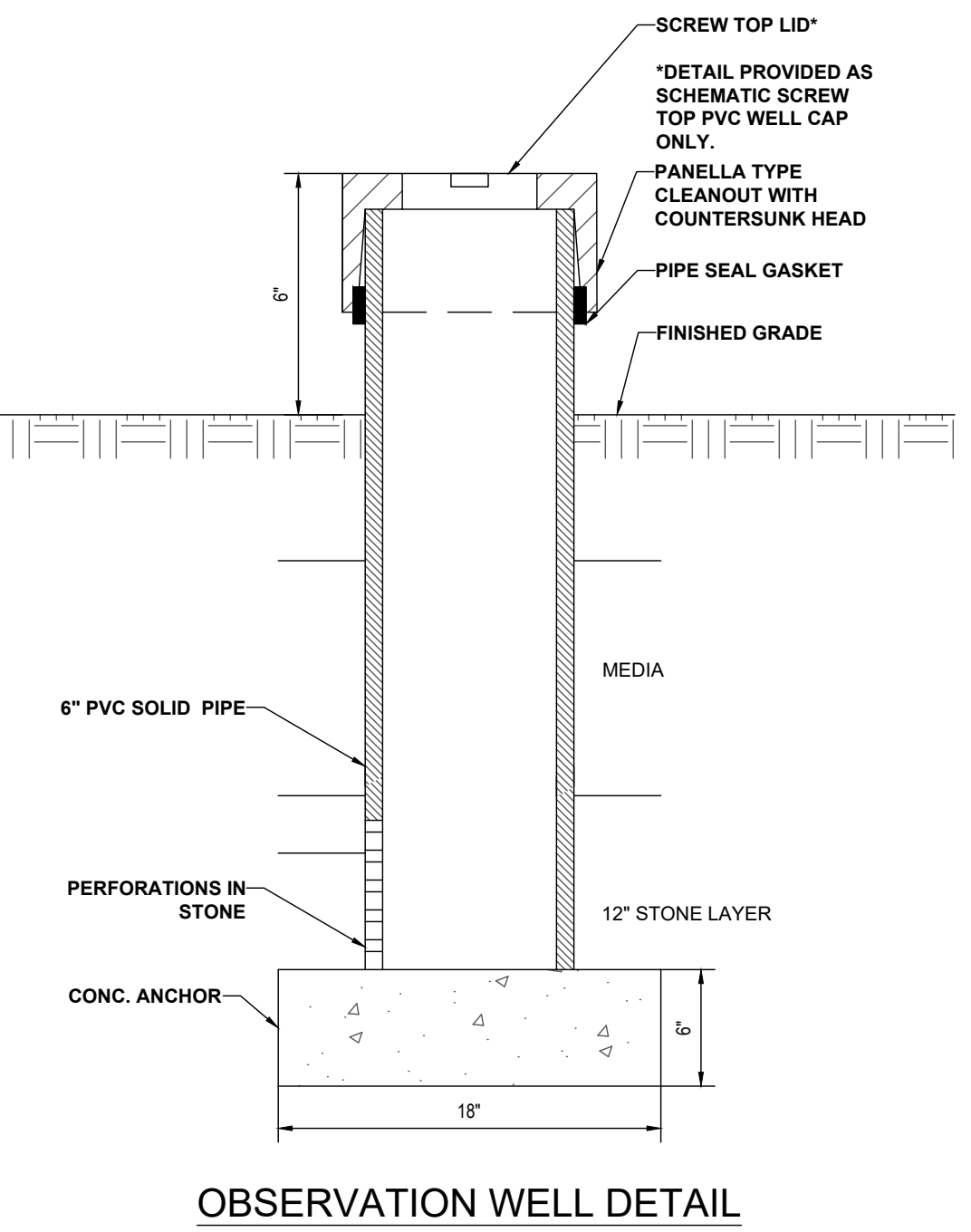
MATERIALS SPECIFICATIONS FOR SUBMERGED GRAVEL WETLANDS

MATERIAL	SPECIFICATIONS	SIZE	NOTES
PLANTINGS	SEE LANDSCAPE PLAN	N/A	PLANTINGS ARE SITE-SPECIFIC
BIORETENTION SOIL MIX	MSHA SPECIFICATION 920	N/A	
WINDOW STONE	ASTM-D-448	WASHED NO. 7	
GEOTEXTILE	CLASS 'C' - APPARENT OPENING SIZE (ASTM D-4571), GRAB TENSILE STRENGTH (ASTM D-4632), PUNCTURE RESISTANCE (ASTM D-4833)	N/A	SIDES ONLY, NOT ON BOTTOM UNLESS SPECIFIED ON PLANS
UNDERDRAIN AND RESERVOIR GRAVEL	AASHTO M-43	WASHED NO. 8	
UNDERDRAIN PIPING AND DRAWDOWN PIPE	SLOTTED PVC OR SLOTTED HDPE TYPE 'SP' PIPES SOLID SCHEDULE 40 PVC OR HDPE TYPE 'S'		ALL PIPES MUST BE DOUBLE WALLED (SMOOTH CORE) AND SLOTTED (NO CIRCULAR HOLES)
POURED IN PLACE CONCRETE (IF REQUIRED)	MSHA MIX NO. 3, ft = 3500 psi @ 28 DAYS, NORMAL WEIGHT, AIR-ENTRAINED, REINFORCING TO MEET ASTM-615-60	N/A	ON-SITE TESTING OF POUR-IN-PLACE CONCRETE REQUIRED; 28 DAY STRENGTH AND SLUMP TEST; ALL CONCRETE DESIGN (CAST-IN-PLACE OR PRE-CAST) NOT USING PREVIOUSLY APPROVED STATE OR LOCAL STANDARDS REQUIRES DESIGN DRAWINGS SEALED AND APPROVED BY A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE OF MARYLAND - DESIGN TO INCLUDE MEETING ACI CODE 350 R089; VERTICAL LOADING (H-10 OR H-20); ALLOWABLE HORIZONTAL LOADING (BASED ON SOIL PRESSURES); AND ANALYSIS OF POTENTIAL CRACKING
SAND	ASTM-C-33	0.02" TO 0.04"	SAND SUBSTITUTIONS SUCH AS DIABASE AND GRAYSTONE (AASHTO) #10 ARE NOT ACCEPTABLE. NO CALCIUM CARBONATE OR DOLOMITIC SAND SUBSTITUTIONS ARE ACCEPTABLE. NO "ROCK DUST" CAN BE USED FOR SAND.
GABION BASKET	MIN 11 GAUGE WIRE		
GABION STONES		4" TO 7" STONES	

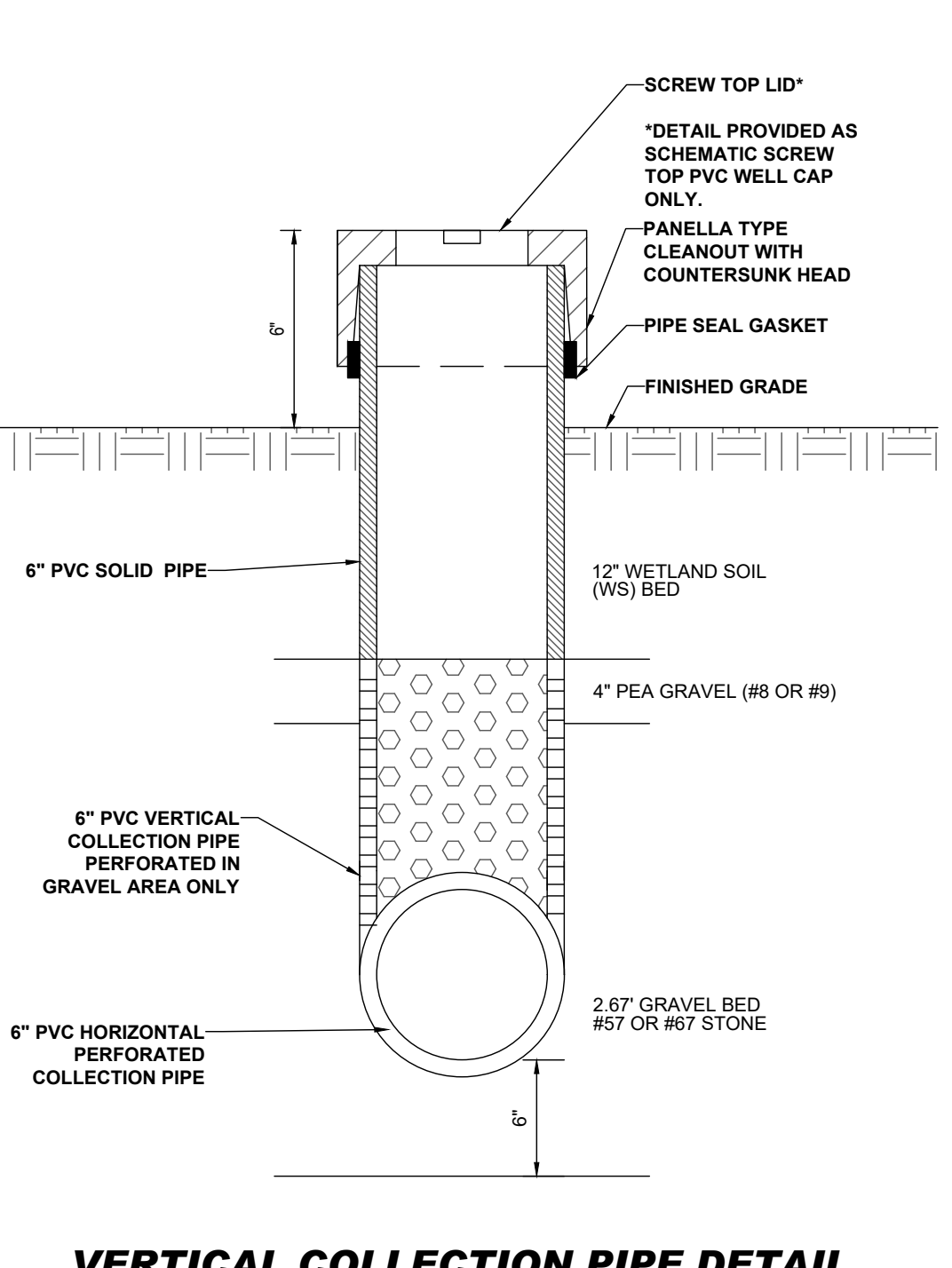
GRAVEL WETLAND: Operation and Maintenance

- During the first year of operation, inspections should be conducted after every major storm and poorly established areas revegetated.
- Sediment accumulation in the pretreatment areas should be removed as necessary.
- Signs of uneven flow distribution within the wetland may mean that the gravel or underdrain is clogged. The gravel and/or underdrain may need to be removed, cleaned and replaced.
- A dense stand of wetland vegetation should be maintained throughout the life of the facility with plantings replaced as needed.
- Inlets and outlets to each submerged gravel wetland cell should be free from debris to prevent clogging.
- Erosion at inflow points should be repaired. Flow splitters should be functional to prevent bypassing of the facility.

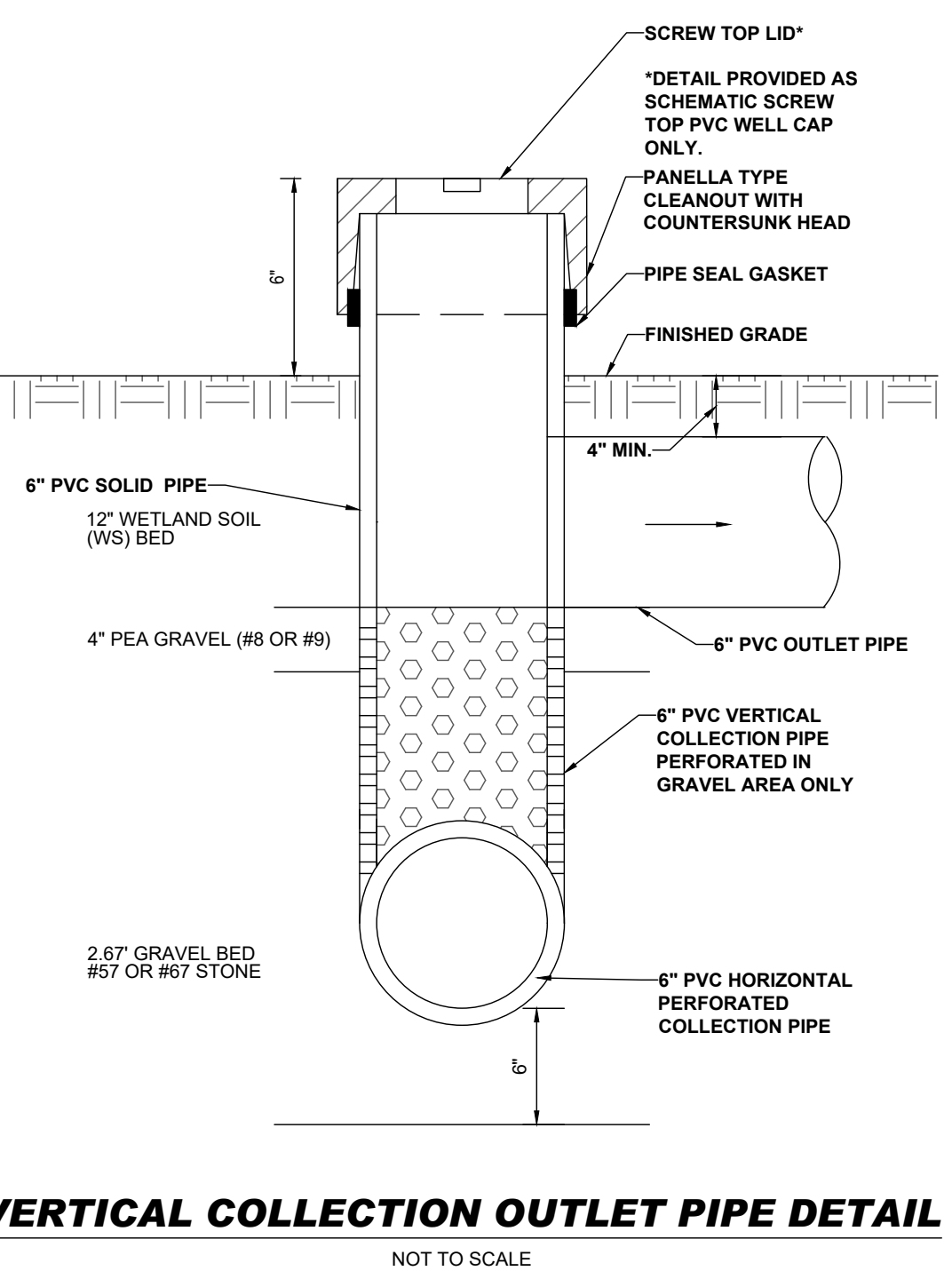
APPENDIX D.8 MISCELLANEOUS DETAILS FOR COMPLIANCE WITH PERFORMANCE CRITERIA



- EACH OBSERVATION WELL/CLEANOUT MUST INCLUDE THE FOLLOWING:
- FOR AN UNDERGROUND FLUSH MOUNTED OBSERVATION WELL/CLEANOUT, PROVIDE A TUBE MADE OF NON-CORROSIVE MATERIAL, SCHEDULE 40 OR EQUAL, AT LEAST THREE FEET LONG WITH AN INSIDE DIAMETER OF AT LEAST 6 INCHES.
 - THE TUBE SHALL HAVE A FACTORY ATTACHED CAST IRON OR HIGH IMPACT PLASTIC COLLAR WITH RIBS TO PREVENT ROTATION WHEN REMOVING SCREW TOP LID. THE SCREW TOP SHALL BE CAST IRON OR HIGH IMPACT PLASTIC THAT WILL WITHSTAND ULTRA-VIOLET RAYS.
 - OBSERVATION WELL TO EXTEND 6" ABOVE THE TOP OF MULCH. THE 6" PVC PIPE IS TO BE PERFORATED WITH 3/8" PERFORATIONS AT 6" ON CENTER, 4 PER ROW WITHIN THE STONE LAYER.
- NOTE: WELL CAP MUST BE PERMANENTLY MARKED WITH AS-BUILT DEPTH TO INVERT.



VERTICAL COLLECTION PIPE DETAIL



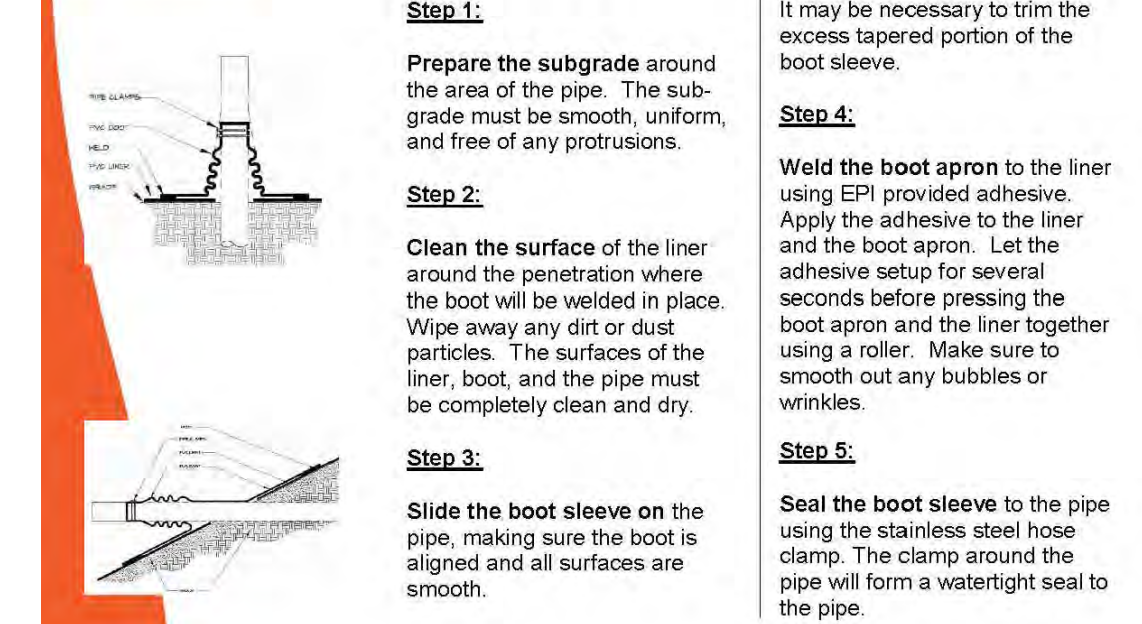
SUBMERGED GRAVEL WETLAND SEQUENCE OF CONSTRUCTION

- CONSTRUCTION OF STORMWATER MANAGEMENT FACILITY SHALL BE COORDINATED WITH EROSION AND SEDIMENT CONTROL SEQUENCE OF CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY AS-BUILT CERTIFYING ENGINEER AND THE SEDIMENT CONTROL INSPECTOR PRIOR TO BEGINNING CONSTRUCTION ON STORMWATER MANAGEMENT FACILITY.
- THE PROPOSED STORMWATER FACILITY IS NOT TO BE INSTALLED UNTIL THE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED. DELAY INSTALLATION OF FILTER MEDIA UNTIL SITE HAS BEEN PERMANENTLY STABILIZED.
- EXCAVATE PROPOSED FACILITY TO SUBGRADE.
- INSTALL 30-MIL PVC GEOMEMBRANE LINER WHERE SPECIFIED ON PLAN AND PROFILE VIEWS. PLACE PROPOSED NON-WOVEN GEOTEXTILE FABRIC ALONG ALL SIDES OF THE FACILITY. WORK AREA SHALL BE DEWATERED AS NEEDED USING PUMPS AND PST OR OTHER ME APPROVED DEVICE.
- INSTALL PROPOSED PIPING AND FILTER MEDIA LAYERS. CONSTRUCT LEVEL SPREADERS.
- FINAL GRADE AREAS AROUND PROPOSED FACILITY.
- PERMANENTLY STABILIZE DISTURBED AREAS AND INSTALL PROPOSED LANDSCAPE MATERIAL.

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Pipe Boot Installation



For technical assistance, call EPI toll free 800-655-4637

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11/11/2024 11:40:02 AM H:\1400\1400720\DRAWINGS\PLAN SET\SITE DEVELOPMENT\PLANNING\140072 - SWM - 2 - LAYOUT - 02 STORMWATER MANAGEMENT NOTES & DETAILS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Nadmi Powell 7/16/2024
DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
DATE
CHIEF ENGINEER
MARYLAND DEPARTMENT OF THE ENVIRONMENT

CHIEF DIVISION OF LAND DEVELOPMENT
7/16/2024
DATE
Linda Eisenberg
7/16/2024
DATE

OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

SUBDIVISION NAME: THE HIGHLANDS
(F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED #: 145320/00469
PLAT #: 26646-29552

PREVIOUS FILE NO.: BA-20-002C
SP-17-018
ECP-17-056
WP-18-070

F-20-016
WP-21-011
WP-22-132

GRID: 24
PARCEL: 135

TAX MAP: 40
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

ZONED: RR-DEO

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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ALWAYS CALL 811
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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD LID: MD1420672 - SWM - 2

PROJECT: **SITE DEVELOPMENT PLAN** FOR **THE HIGHLANDS (FORMERLY LYHUS PROPERTY)**

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER

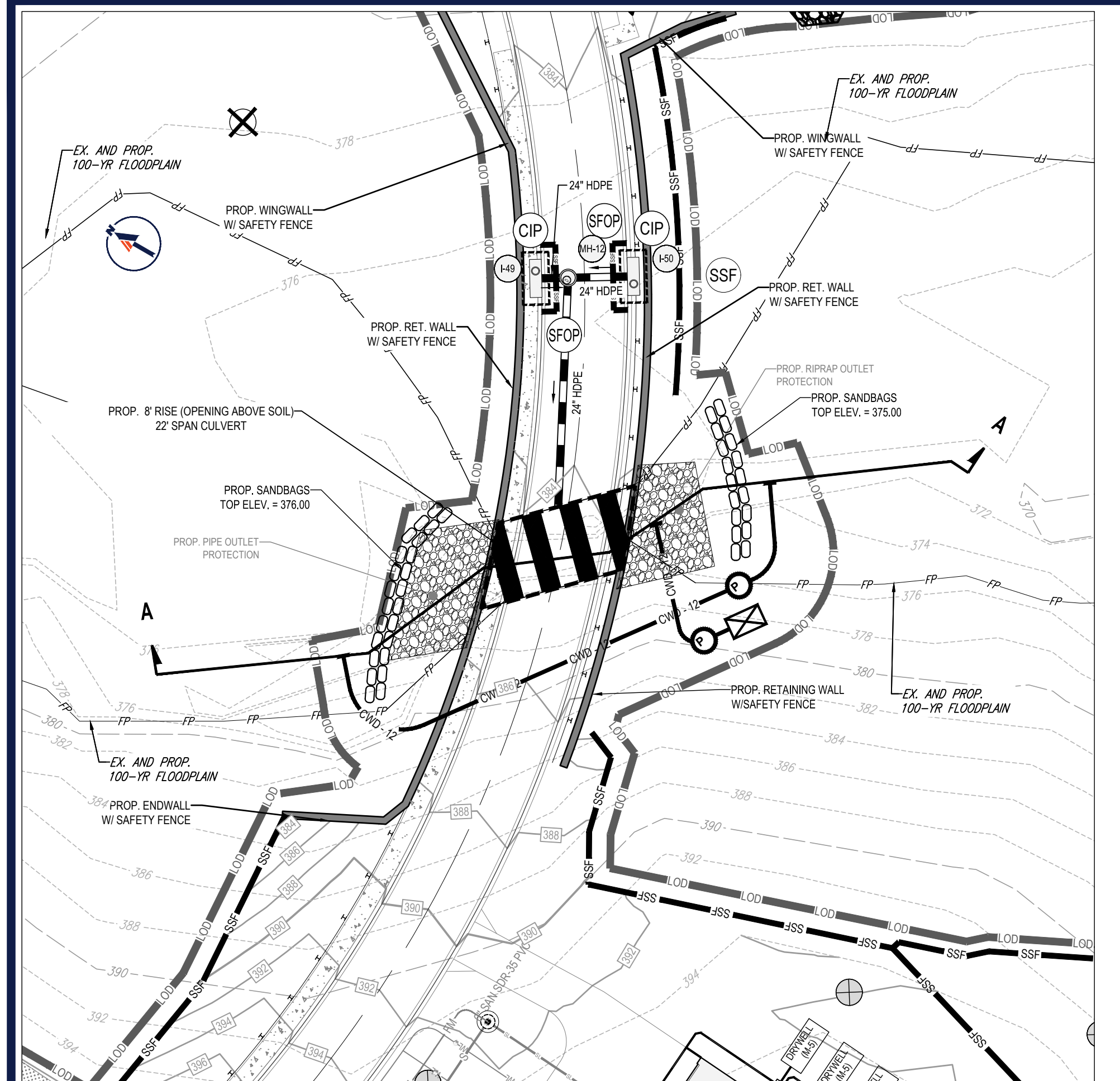
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
PROFESSIONAL CERTIFICATION
1 BRANDON BLVD, HESBRO, MARYLAND 21076
I BRANDED, FIVE, HESBRO CERTIFY THAT THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898, EXPIRATION DATE: 7/30/2025

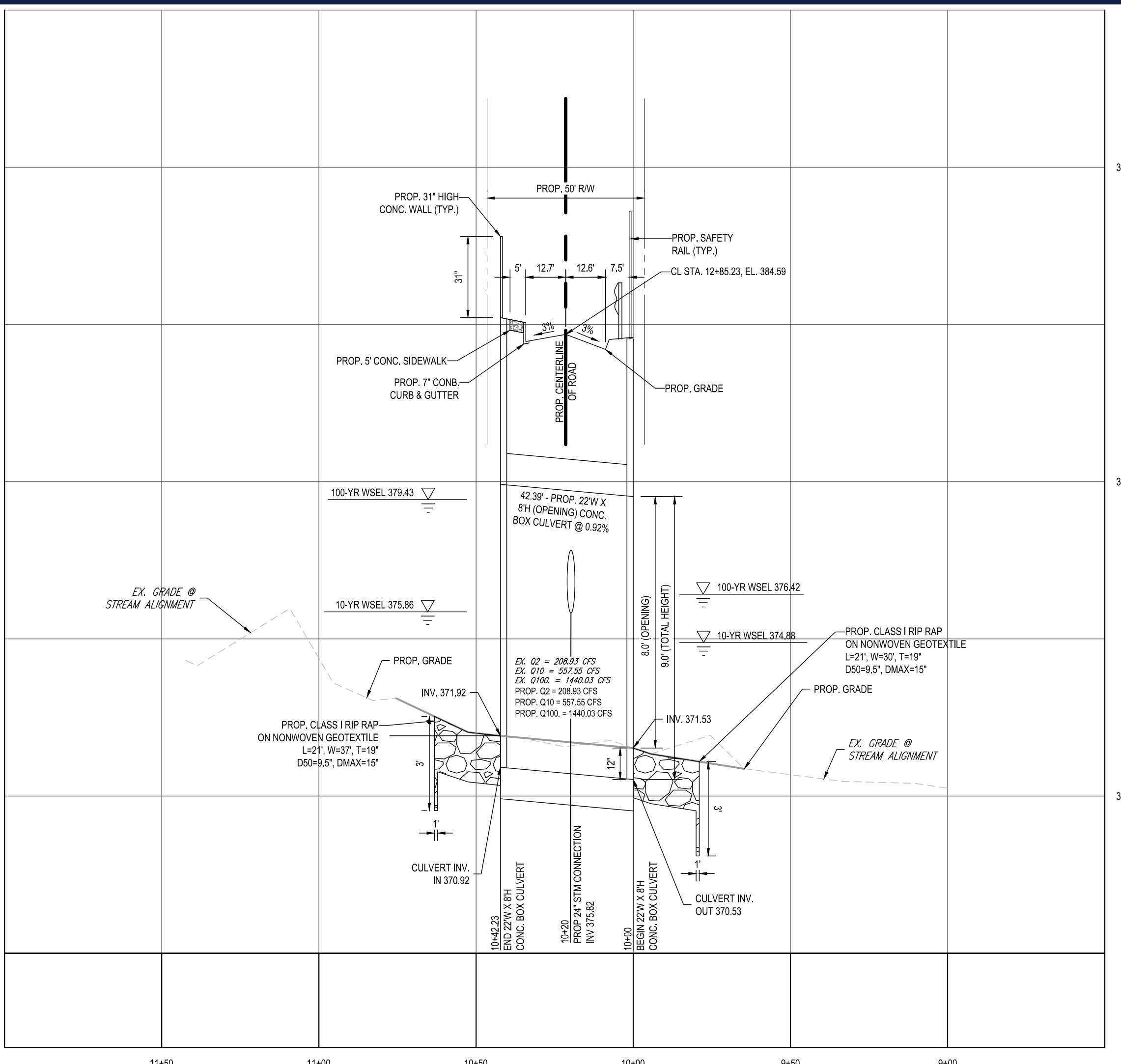
SHEET TITLE: **STORMWATER MANAGEMENT NOTES & DETAILS**

SHEET NUMBER: **82 OF 146**

ORG. DATE - 04/17/24



PROP. 22'W X 8'H CONCRETE BOX CULVERT INSTALLATION PLAN
SCALE: 1" = 30'



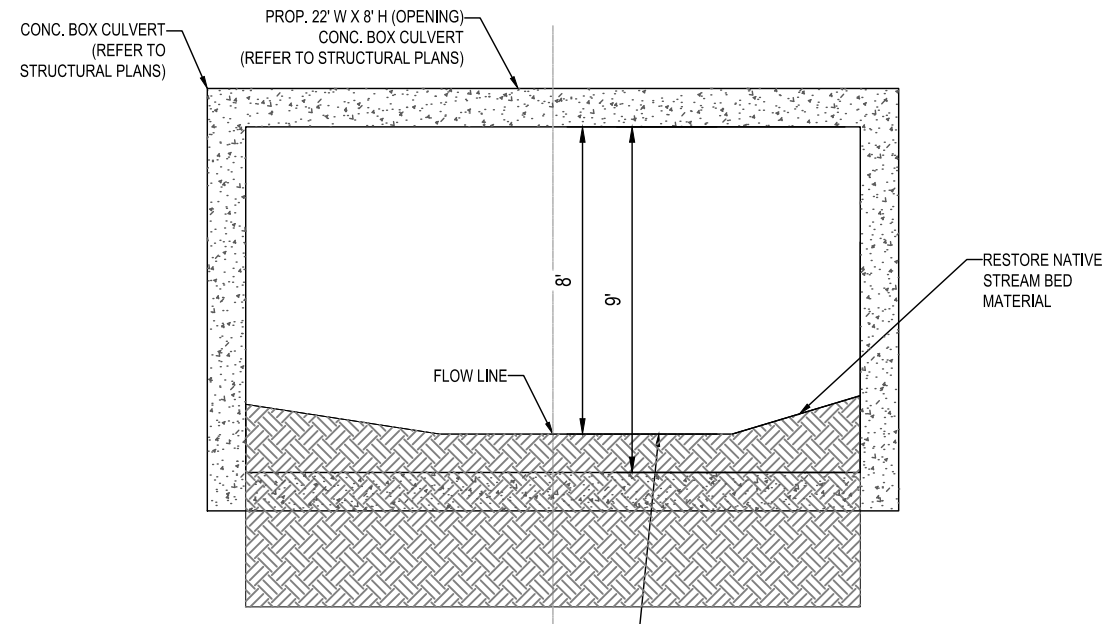
PROP. 22'W X 8'H CONCRETE BOX CULVERT PROFILE - SECTION A-A
SCALE: 1" = 30' HORIZONTAL
1" = 3' VERTICAL

LEGEND FOR EROSION AND SEDIMENT CONTROL PRACTICES

TITLE	KEY	SYMBOL	TITLE	KEY	SYMBOL
LIMITS OF DISTURBANCE	LOC		SUPER SILT FENCE	SSF	
CURB INLET PROTECTION	CIP		SAND BAG/STONE BARRIERS		

BEST MANAGEMENT PRACTICES FOR WORKING IN NONTIDAL WETLANDS, WETLAND BUFFERS, WATERWAYS, AND 100-YEAR FLOODPLAINS

- NO EXCESS FILL, CONSTRUCTION MATERIAL, OR DEBRIS SHALL BE STOCKPILED OR STORED IN NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- PLACE MATERIALS IN A LOCATION AND MANNER WHICH DOES NOT ADVERSELY IMPACT SURFACE OR SUBSURFACE WATER FLOW INTO OR OUT OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- DO NOT USE EXCAVATED MATERIAL AS BACKFILL IF IT CONTAINS WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DEleterious SUBSTANCE. IF ADDITIONAL BACKFILL IS REQUIRED, USE CLEAN MATERIAL FREE OF WASTE METAL PRODUCTS, UNSIGHTLY DEBRIS, TOXIC MATERIAL, OR ANY OTHER DEleterious SUBSTANCE.
- PLACE HEAVY EQUIPMENT ON MATS OR SUITABLY OPERATE THE EQUIPMENT TO PREVENT DAMAGE TO NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN.
- REPAIR AND MAINTAIN ANY SERVICEABLE STRUCTURE OR FILL SO THERE IS NO PERMANENT LOSS OF NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, OR WATERWAYS, OR PERMANENT MODIFICATION OF THE 100-YEAR FLOODPLAIN IN EXCESS OF THAT LOST UNDER THE ORIGINALLY AUTHORIZED STRUCTURE OR FILL.
- RECTIFY ANY NONTIDAL WETLANDS, NONTIDAL WETLAND BUFFERS, WATERWAYS, OR THE 100-YEAR FLOODPLAIN TEMPORARILY IMPACTED BY ANY CONSTRUCTION.
- ALL STABILIZATION IN THE NONTIDAL WETLAND AND NONTIDAL WETLAND BUFFER SHALL CONSIST OF THE FOLLOWING SPECIES: ANNUAL RYEGRASS (LOLIUM MULTIFLORUM), MILLET (SETARIA ITALICA), BARNY (HORDEUM SP.), OATS (Avena SP.), AND/OR RYE (SECALE CEREALE). THESE SPECIES WILL ALLOW FOR THE STABILIZATION OF THE SITE WHILE ALSO ALLOWING FOR THE VOLUNTARY REVEGETATION OR NATURAL WETLAND SPECIES. OTHER NON-PERSISTENT VEGETATION MAY BE ACCEPTABLE, BUT MUST BE APPROVED BY THE NONTIDAL WETLANDS AND WATERWAYS DIVISION. KENTUCKY 31 FESCUE SHALL NOT BE UTILIZED IN WETLAND OR BUFFER AREAS. THE AREA SHOULD BE SEEDED AND MULCHED TO REDUCE EROSION AFTER CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED.
- AFTER INSTALLATION HAS BEEN COMPLETED, MAKE POST-CONSTRUCTION GRADES AND ELEVATIONS THE SAME AS THE ORIGINAL GRADES AND ELEVATIONS IN TEMPORARILY IMPACTED AREAS.
- TO PROTECT AQUATIC SPECIES, IN-STREAM WORK IS PROHIBITED AS DETERMINED BY THE CLASSIFICATION OF THE STREAM.
- USE IV WATERS: IN-STREAM WORK SHALL NOT BE CONDUCTED DURING THE PERIOD MARCH 1 THROUGH MAY 31, INCLUSIVE, DURING ANY YEAR.
- STORMWATER RUNOFF FROM IMPERVIOUS SURFACES SHALL BE CONTROLLED TO PREVENT THE WASHING OF DEBRIS INTO THE WATERWAY.
- CULVERTS SHALL BE CONSTRUCTED AND ANY RIPRAP PLACED SO AS NOT TO OBSTRUCT THE MOVEMENT OF AQUATIC SPECIES, UNLESS THE PURPOSE OF THE ACTIVITY IS TO IMPOUND WATER.
- CULVERTS SHALL BE INSPECTED BY MDE AND ACOE, AS REQUIRED.



TYPICAL 22'W X 8'H (OPENING) CONCRETE BOX CULVERT 1 - SECTION
NTS

SEQUENCE OF CONSTRUCTION CULVERT:
SCALE: 1" = 30'

NO.	DESCRIPTION	TIME
1.	NOTIFY HOWARD COUNTY'S SEDIMENT CONTROL INSPECTOR AT 410-313-1855 AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.	1 DAY
2.	THE GENERAL CONTRACTOR SHALL NOT COMMENCE ANY LAND DISTURBING ACTIVITIES PRIOR TO OBTAINING A HOWARD PERMIT.	1 DAY
3.	THE CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING WITH THE CONSTRUCTION MANAGER AND THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES. (1 DAY)	1 DAY
4.	ALL AREAS WHICH ARE TO BE DISTURBED SHALL BE CLEARLY MARKED IN THE FIELD PRIOR TO CONSTRUCTION. DISTURBED AREAS WITHIN THE SITE WHERE CONSTRUCTION ACTIVITY HAS CEASED SHALL BE PERMANENTLY OR TEMPORARILY STABILIZED WITHIN: <ul style="list-style-type: none"> a. THREE (3) CALENDAR DAYS ON SLOPES GREATER THAN 3:1. ALL WATERWAYS AND TO THE SURFACE OF ALL PERIMETER CONTROL. b. SEVEN (7) CALENDAR DAYS ON ALL OTHER DISTURBED OR GRADED AREAS OF THE PROJECT. 	2 DAYS
5.	INSTALL PERIMETER SUPER SILT FENCE AS SHOWN ON THE SEDIMENT CONTROL PLANS.	3 DAYS
6.	INSTALL TYPE 3 OBJECT MARKERS ON ALL (4) FOUR CORNERS OF THE CULVERT CROSSING.	1 DAY
7.	INSTALL PUMP AROUND PRACTICE AS SHOWN ON THE SEDIMENT CONTROL PLANS (REFER TO SHEETS 32-43).	2 DAYS
8.	BEGIN STREAM RESTORATION. CONTRACTOR TO ROUGH GRADE STREAM CHANNEL.	1 WEEK
9.	BEGIN INSTALLATION RETAINING WALLS AND CONCRETE BOX CULVERT (REFER TO STRUCTURAL DESIGN PLANS).	1 WEEK
10.	FINALIZE STREAM RESTORATION. UTILIZE JUTE MATTING FOR SOIL STABILIZATION. SEE STREAM RESTORATION AREA PLANTING SCHEDULE ON SHEET 24 AND PLANT DETAIL FOR PROPOSED CHANNEL ON SHEET 28.	1 WEEK
11.	INSTALL PROPOSED ROAD BASE COURSE AS SHOWN ON THE ROAD PLANS.	4 WEEKS
12.	AS THE SITE IS BROUGHT TO FINAL GRADE, PERMANENTLY STABILIZE ALL DISTURBED AREAS WITHIN SEVEN (7) CALENDAR DAYS.	8 WEEKS
13.	INSTALL PERMANENT LANDSCAPING AROUND THE STREAM AND CULVERT AREAS.	1 WEEK
14.	AFTER ALL CONSTRUCTIONS HAS BEEN COMPLETED AND UPON APPROVAL FROM THE HOWARD COUNTY SEDIMENT CONTROL INSPECTOR REMOVE SEDIMENT CONTROL MEASURES.	1 WEEK
15.	NOTIFY HOWARD COUNTY OFFICE OF INSPECTIONS AND PERMITS FOR FINAL INSPECTION OF THE COMPLETED PROJECT.	3 DAYS

SUMMARY TABLE FOR PROPOSED CONDITION CULVERT 1 (NICOLAR DRIVE)

	2YEARS	10-YEARS	100-YEAR
U/STREAM W.S.E	373.68	375.08	378.12
D/OWNSTREAM W.S.E	373.91	374.88	376.42
U/PSTREAM VELOCITY	9.28 FPS	10.75 FPS	7.05 FPS
D/OWNSTREAM VELOCITY	3.97 FPS	6.99 FPS	10.62 FPS
F/ROUD #	0.54	1.43	1.03
S/HEAR STRESS	0.26	1.85 lb/sf	1.25 lb/sf

EXISTING HYDROLOGICAL AND HYDRAULIC ANALYSIS

DRAINAGE AREA	TC	RC	Q2	Q10	Q100
AC.	17.02	68	208.93 CFS	557.55 CFS	1440.03 CFS

PROPOSED HYDROLOGICAL AND HYDRAULIC ANALYSIS

DRAINAGE AREA	TC	RCN	Q2	Q10	Q100
AC.	17.02	68	208.93 CFS	557.55 CFS	1440.03 CFS

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS:
Neomi Powell, DATE: 7/16/2024
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
Chad Edwards, DATE: 7/16/2024
CHIEF ENGINEER, ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
Linda Eschberg, DATE: 7/16/2024

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 COUNTY SOIL CONSERVATION DISTRICT.

DESIGNED BY: **Alexander Bratichie**, DATE: 7/16/2024
HOWARD COUNTY

SIGNATURE OF ENGINEER: **Brandon R. Rowe P.E.**, DATE: 7/11/2024
MD PE LICENSE NO 40808

OWNER'S/DEVELOPER'S CERTIFICATE
I/WE HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTION AND MAINTAINING CONTROLS, AND THAT THE RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND 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 COUNTY SOIL CONSERVATION DISTRICT AND/OR MDE.

SIGNATURE OF DEVELOPER: **James Fraser**, DATE: 7/14/2024

PROPOSED FLOODPLAIN NOTE

- THE PROPOSED FLOODPLAIN SHOWN DOES NOT IMPACT ANY ADJACENT PROPERTY OR STRUCTURES BOTH UPSTREAM AND DOWN STREAM.
- THE PROPOSED 22'W X 8'H BOX CULVERT IS DESIGNED TO SAFELY CONVEY THE 100-YR. STORM WITHOUT IMPACTING ANY ADJACENT PROPERTY STRUCTURES BOTH UPSTREAM AND DOWN STREAM.

NOTES:

- WORK PERFORMED INSIDE STREAM BUFFER, WETLAND, AND STREAM TO BE STABILIZED AT THE END OF EACH DAY.
- PLANS REFLECT DESIGN PER STRUCTURAL DESIGN PLANS PREPARED BY HILLS-CARNES ENGINEERING ASSOCIATES, ENTITLED "CONCRETE STRUCTURE LOCATION PLANS, LYHUS PROPERTY, HOWARD COUNTY, MARYLAND" DATED 7/6/2020. PROJECT NO. G20054.
- MDE HAS ISSUED AUTHORIZATION LETTER DATED 1/17/2020 FOR IMPACTS RELATED TO ROAD CONSTRUCTION, TEMPORARY CONSTRUCTION ACCESS FOR RETAINING WALL AND REMOVAL OF A STORMWATER MANAGEMENT OUTFALL, ALL ASSOCIATED WITH A RESIDENTIAL SUBDIVISION. AUTHORIZATION NUMBER: 19-NT-3270/201961756.
- SAFETY FENCE TO BE ONGUARD STARLING ALUMINUM FENCE PANELS (BLACK, 36" HIGH X 72.5" WIDE PANELS) OR APPROVED EQUIVALENT.

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT 28646-28652	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075
PREVIOUS FILE NO.: BA-20-002C SP-17-0108 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132	GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
TAX MAP: 40	GRID: 24	ZONED: RR-DEO

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY

811
Know what's below.
Call before you dig.
ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MJP
DATE: 07/11/2024
CAD ID: MD1420672 - CIP - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)

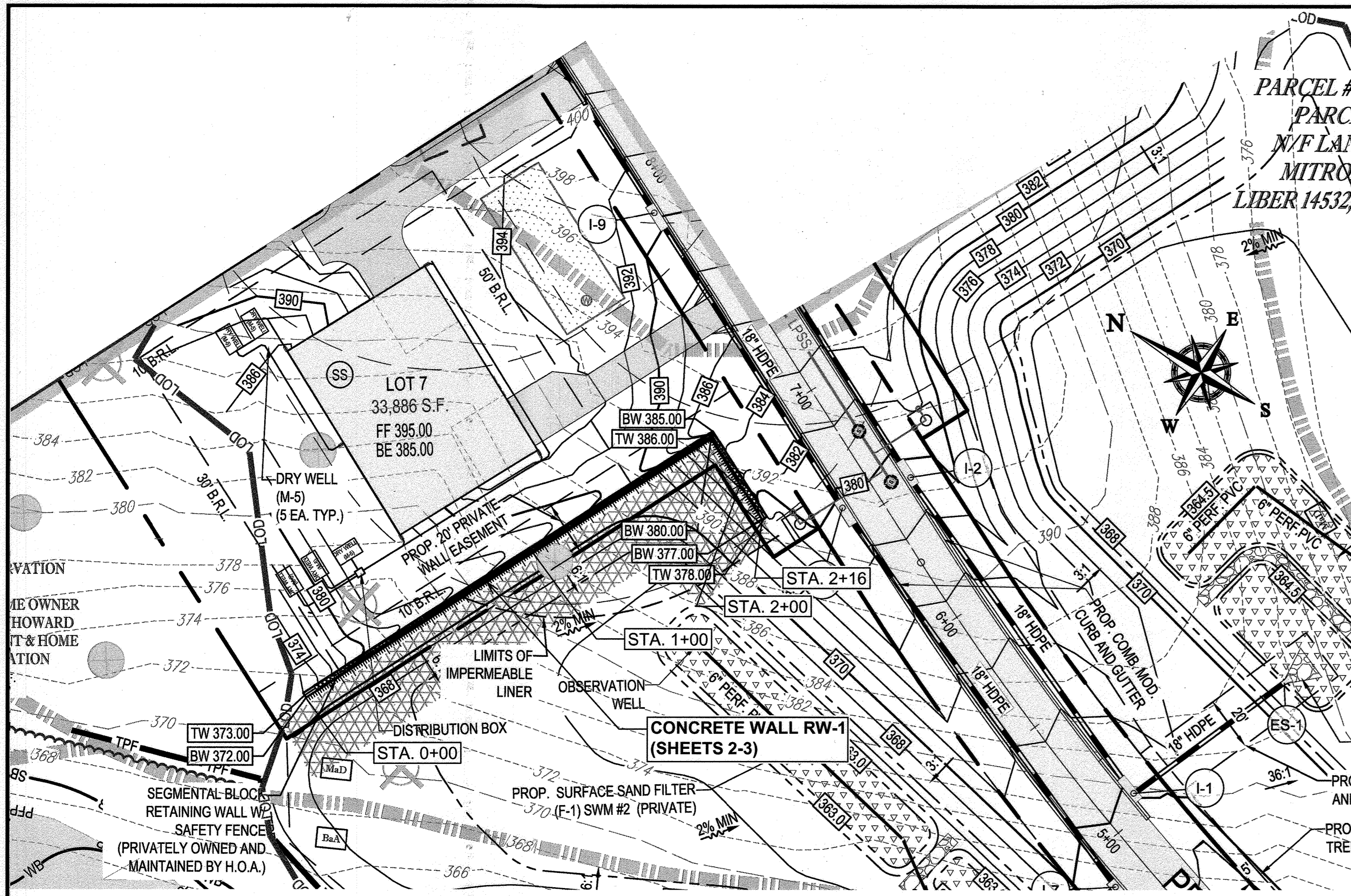
PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

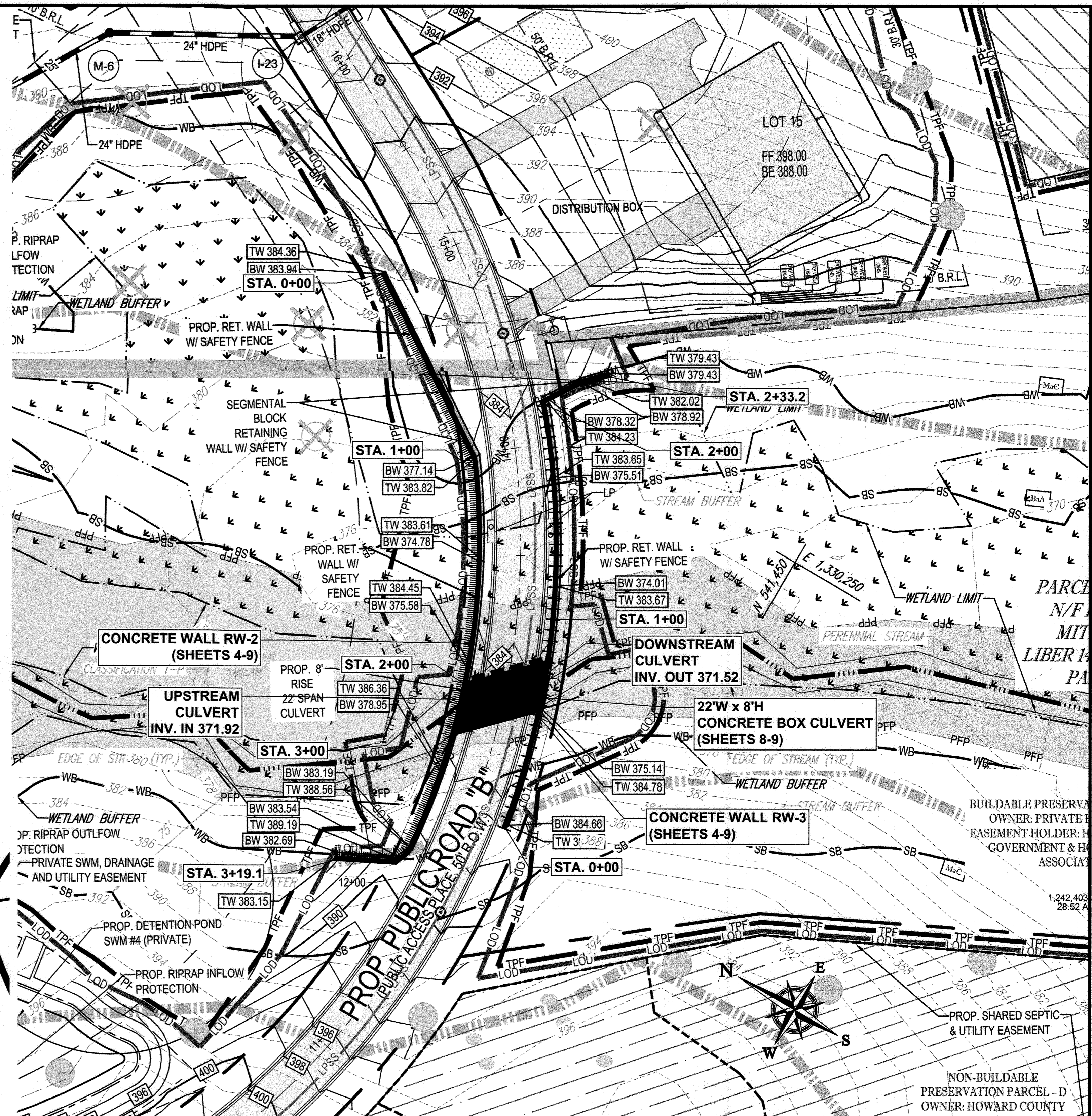
BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
I BRANDBLAW, P.L.L.C. HAS REVIEWED THESE DOCUMENTS AND HAS APPROVED BY ME AND THAT I AM A LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40808. EXPIRATION DATE: 7/30/2025

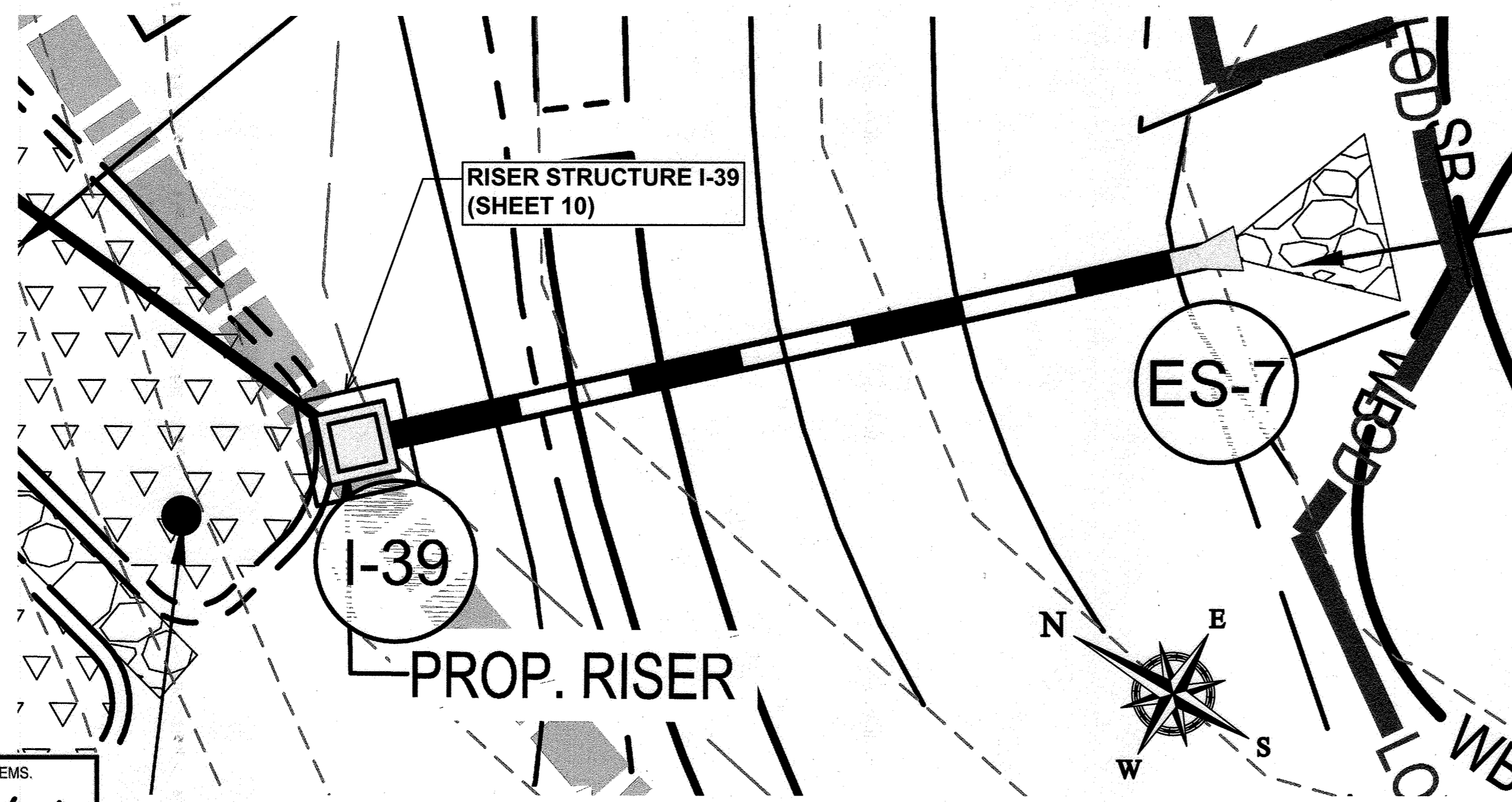
SHEET TITLE:
CULVERT INSTALLATION PLANS
SHEET NUMBER:
84 OF 124
ORG. DATE - 04/17/24



CONCRETE WALL #1 LOCATION PLAN
1" = 30'



CONCRETE WALL #2 & #3 AND 8'X 22' BOX CULVERT LOCATION PLAN
1" = 30'

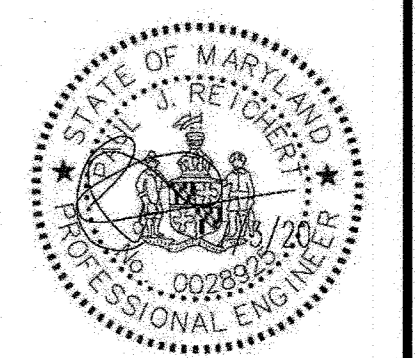


RISER I-39 LOCATION PLAN
1" = 10'

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell 7/16/2020
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 7/16/2020 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT 7/16/2020 DATE
Jason Balch or Michael Lyden 7/16/2020 DATE
 DIRECTOR

- SHEETS:
- 1: STRUCTURE LOCATION PLAN
 - 2: RW-1 NOTES, PLAN, AND ELEVATION
 - 3: RW-1 TYP. SECTIONS AND DETAILS
 - 4: RW-2, RW-3, AND CULVERT PLAN
 - 5: ELEVATION RW-2 AND CULVERT, ELEVATION RW-3 AND CULVERT
 - 6: ROADWAY SECTIONS
 - 7: RW-2, AND RW-3 TYP. WALL SECTIONS AND DETAILS
 - 8: CULVERT PLAN, ELEVATION, AND SECTION
 - 9: CULVERT AND WALL CONSTRUCTION DETAILS
 - 10: INLET I-39 STRUCTURE

PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE PLANS
 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. 28925,
 EXPIRATION DATE: 01/15/26



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

CONCRETE STRUCTURE LOCATION PLANS
LYHUS PROPERTY
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:	PR
			G20054		PR
			SCALE:	DRAWN BY:	HM
			DATE:	APPROVED BY:	PR
			7/6/2020		PR

RW-2, RW-3, AND CULVERT NOTES:

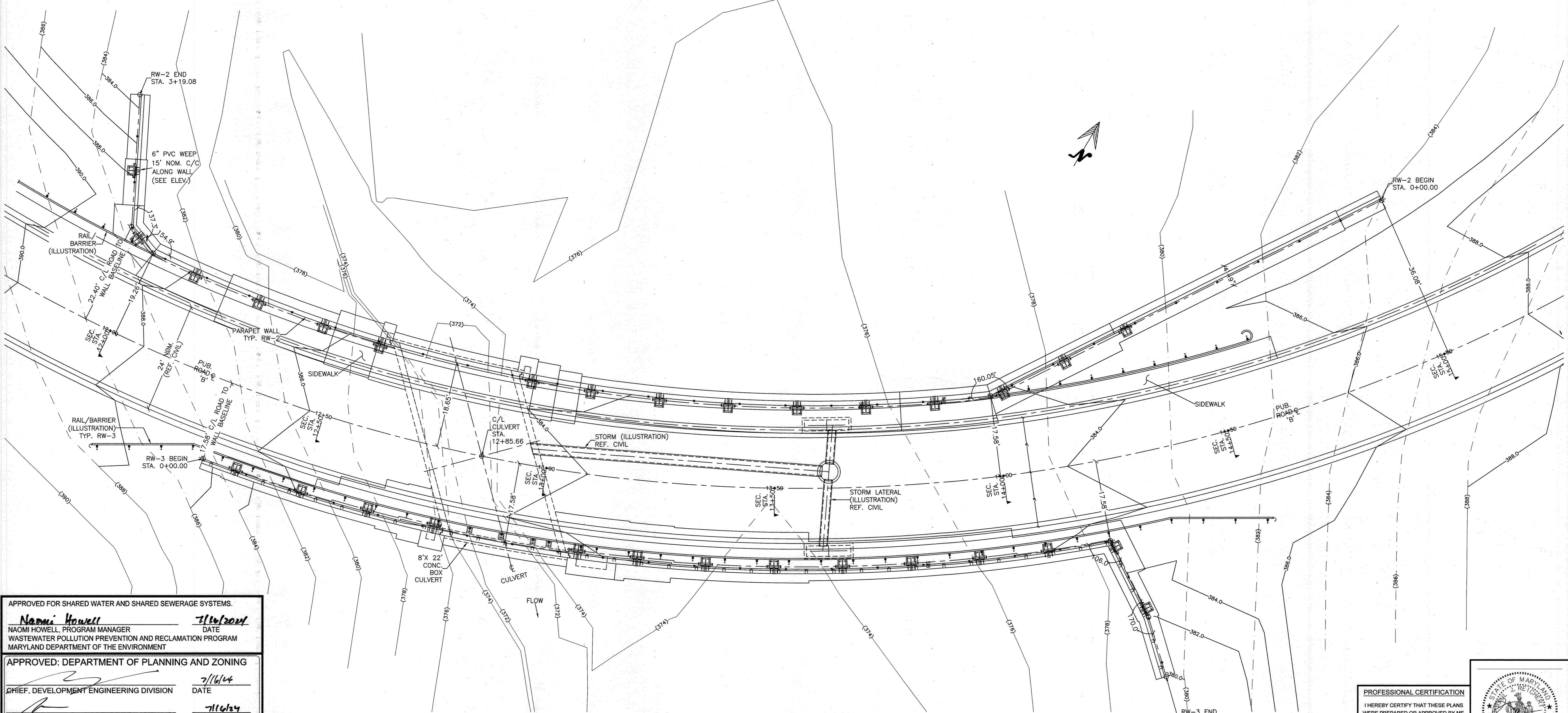
- CONSTRUCTION TO COMPLY WITH CURRENT IBC AND LOCAL CODES. ASHTO, ACI MANUAL OF CONCRETE PRACTICE, ACI 318 CODE FOR CONCRETE CONSTRUCTION.
- GEOMETRY SHOWN IS BASED ON INFORMATION PROVIDED BY OTHERS. VERIFY CRITICAL DIMENSIONS AND SUITABILITY OF RECOMMENDATIONS. RESOLVE ANY DISCREPANCY BEFORE PROCEEDING WITH THE WORK.
- MINIMUM DESIGN LOADS PER IRC/IBC:
DEAD (COMPONENT WEIGHT)
LIVE, 100 PSF. SURCHARGE (PEDESTRIAN)
LIVE, 250 PSF. SURCHARGE (VEHICLE)
GROUND SNOW LOAD 25 PSF.
- WIND DESIGN CRITERIA ARE AS FOLLOWS:
BASIC WIND SPEED = 115 MPH
IMPORTANCE FACTOR = 1.0, WIND EXPOSURE = B
(OTHER STRUCTURES' SOLID FREESTANDING WALL)
- SEISMIC DESIGN CRITERIA ARE AS FOLLOWS:
SEISMIC IMPORTANCE FACTOR, I_e=1.0
SEISMIC USE GROUP = CATEGORY II.
MAPPED SPECTRAL RESPONSE ACC.
SS = 0.122, SI = 0.051
SITE CLASS = D
SPECTRAL RESPONSE COEFFICIENTS
SDS = 0.130, SD1 = 0.082
SEISMIC DESIGN CATEGORY = CATEGORY A
BASIC SEISMIC FORCE RESISTING SYSTEM =
ORDINARY REINF. CONCRETE SHEAR WALL.
SEISMIC RESPONSE COEFFICIENT, CS = 0.065
RESPONSE MODIFICATION FACTOR, R = 2.5
DESIGN BASE SHEAR = 0.065 X W LBS.
ANALYSIS = EQUIVALENT LATERAL FORCE.

RW-2, RW-3, AND CULVERT NOTES (CONT.):

- MATERIALS:
SOILS: FOUNDATIONS TO BE IN SUITABLE NATURAL SOILS OR ENGINEERED CONTROLLED FILL. ALLOWABLE BEARING MIN. 2500 PSF. PER GEO RPT. TO BE FIELD-VERIFIED DURING CONSTRUCTION. BACKFILL WITH TYPE SM OR BETTER AND COMPACT TO MIN. 95% OF STD. PROCTOR (OR BETTER WHERE REQ'D BY PROJ. SPEC).
CONCRETE:
WALL, FOOTING, AND CULVERT F'_c: 4500 PSI. MIN.
AIR ENTRAINED MAX W/C 0.40, NO CHLORIDES IN CONCRETE.
SAMPLE ONE SET OF (6) 4X8 CYLINDERS PER STRUCTURE PER 50 YDS. MAX AND 1X PER DAY.
REINF. STEEL: ASTM A615 GR 60
LAP SPLICES: SEE TABLE, SHEET 09 OF 10
CONCRETE COVER: UNLESS NOTED OTHERWISE
3" CAST AGAINST EARTH
2" EXPOSED TO EARTH OR WEATHER
* COORDINATE COSMETIC REQUIREMENTS (EXPOSED CONCRETE SURFACES WITH CIVIL PLANS, AND OWNER. PROVIDE SAMPLES IF REQUESTED).
- WORKMANSHIP:
MEET OWNER'S REQUIREMENTS FOR APPEARANCE.
PROVIDE CONTROL JOINTS SPACED AT 20' C/C AS NOTED
PROVIDE EXPANSION JOINTS AT 80' C/C AS NOTED (EVERY 4TH CONTROL JT. LOCATION)
AT COLD JOINTS AND MATING SURFACES, EXISTING SURFACE TO BE DAMP-SATURATED, OR APPLY LATEX-TYPE BONDING AGENT PER MFG. INSTRUCTIONS.
- QUALIFICATIONS AND QA/QC:
PROVIDE MATERIAL RECORDS (MILL CERTS, BATCH TICKETS, FOR SOURCE AND TRACEABILITY), TEST RECORDS (CYLINDER BREAKS, FOR STRENGTH), AND INSPECTION REPORTS.

SHEETS:

- (69 OF 80) STRUCTURE LOCATION PLAN
- (70 OF 80) RW-2, RW-3, AND CULVERT PLAN
- (71 OF 80) ELEVATION RW-2, RW-3 AND CULVERT
- (72 OF 80) ROADWAY SECTIONS
- (73 OF 80) RW-2 WALL SECTIONS AND DETAILS
- (74 OF 80) RW-3 WALL SECTIONS AND DETAILS
- (75 OF 80) CULVERT PLAN, ELEVATION, AND SECTION
- (76 OF 80) CULVERT AND WALL CONSTRUCTION DETAILS
- (77 OF 80) INLET 1-38 STRUCTURE
- (78 OF 80) INLET 1-40 STRUCTURE
- (79 OF 80) FLOW SEPARATOR PLAN AND ELEVATION
- (80 OF 80) FLOW SEPARATOR PLAN AND DETAILS



PLAN VIEW RW-2, RW-3, AND CULVERT
20.00' (SCALE)

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Naomi Howell 7/16/2024
NAOMI HOWELL, PROGRAM MANAGER DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 7/16/24
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

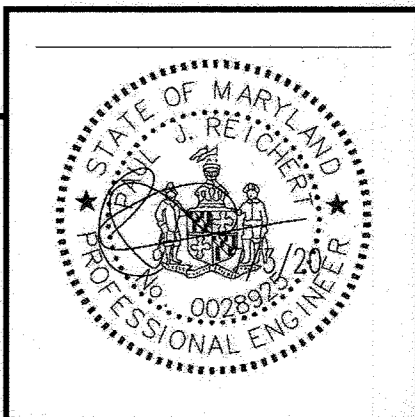
[Signature] 7/16/24
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 7/16/24
DIRECTOR DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 28925
EXPIRATION DATE: 01/15/26

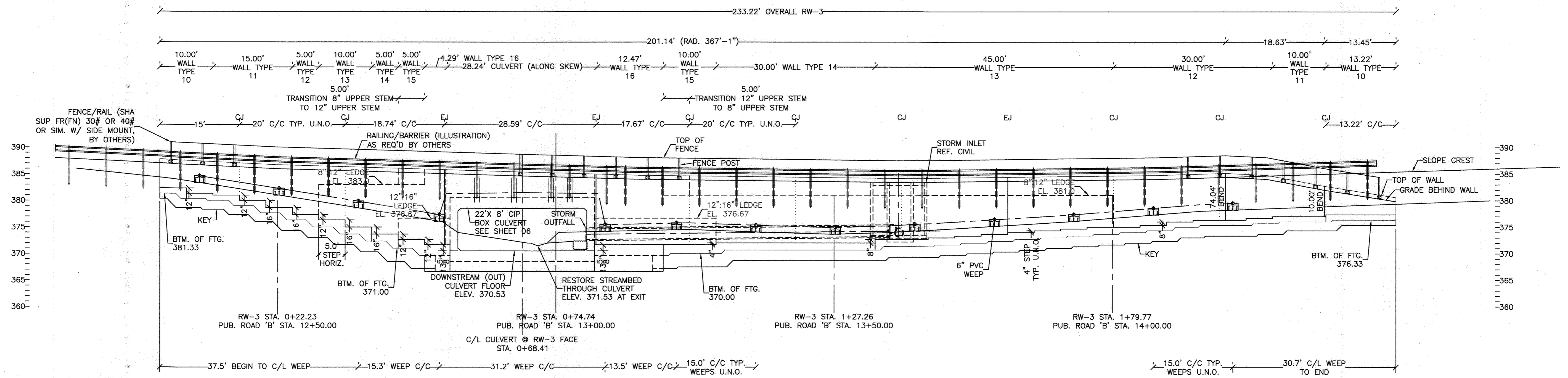
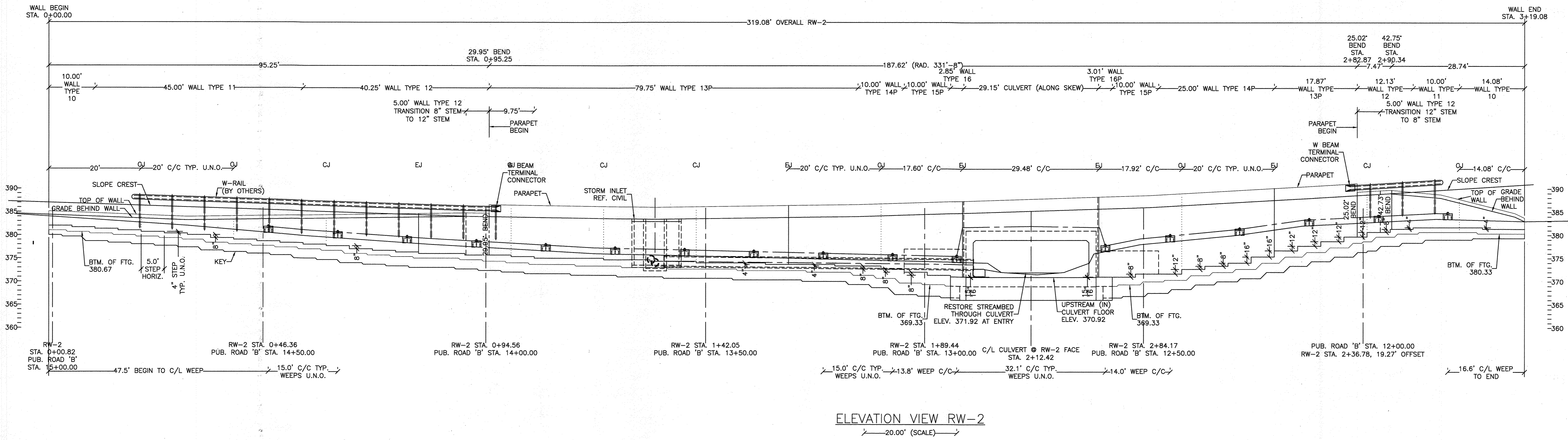


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(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RW-2, RW-3, AND CULVERT NOTES, PLAN
LYHUS PROPERTY
HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	7/6/21 PARAPET AND FENCE ADDED	7/6/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: PR
			DATE: 7/6/2020	APPROVED BY: PR

86 OF 146 SHEET



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 DIRECTOR 7/16/24

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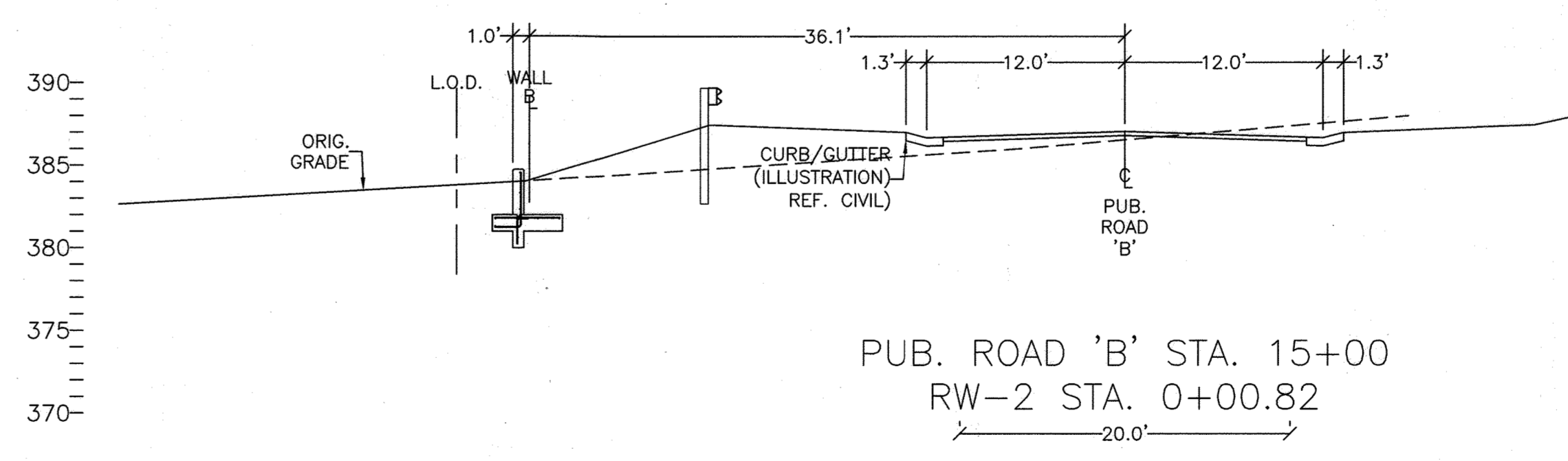
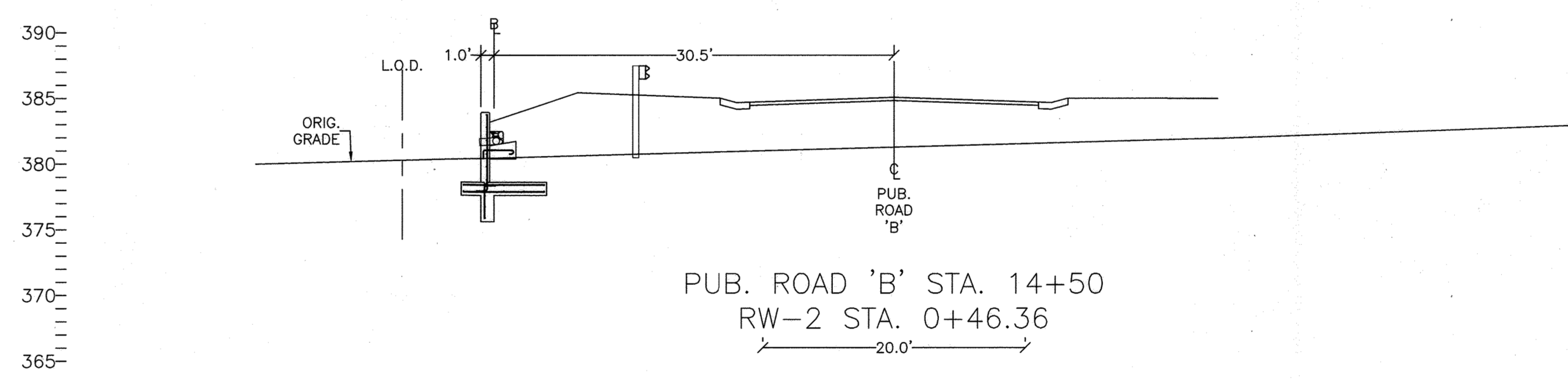
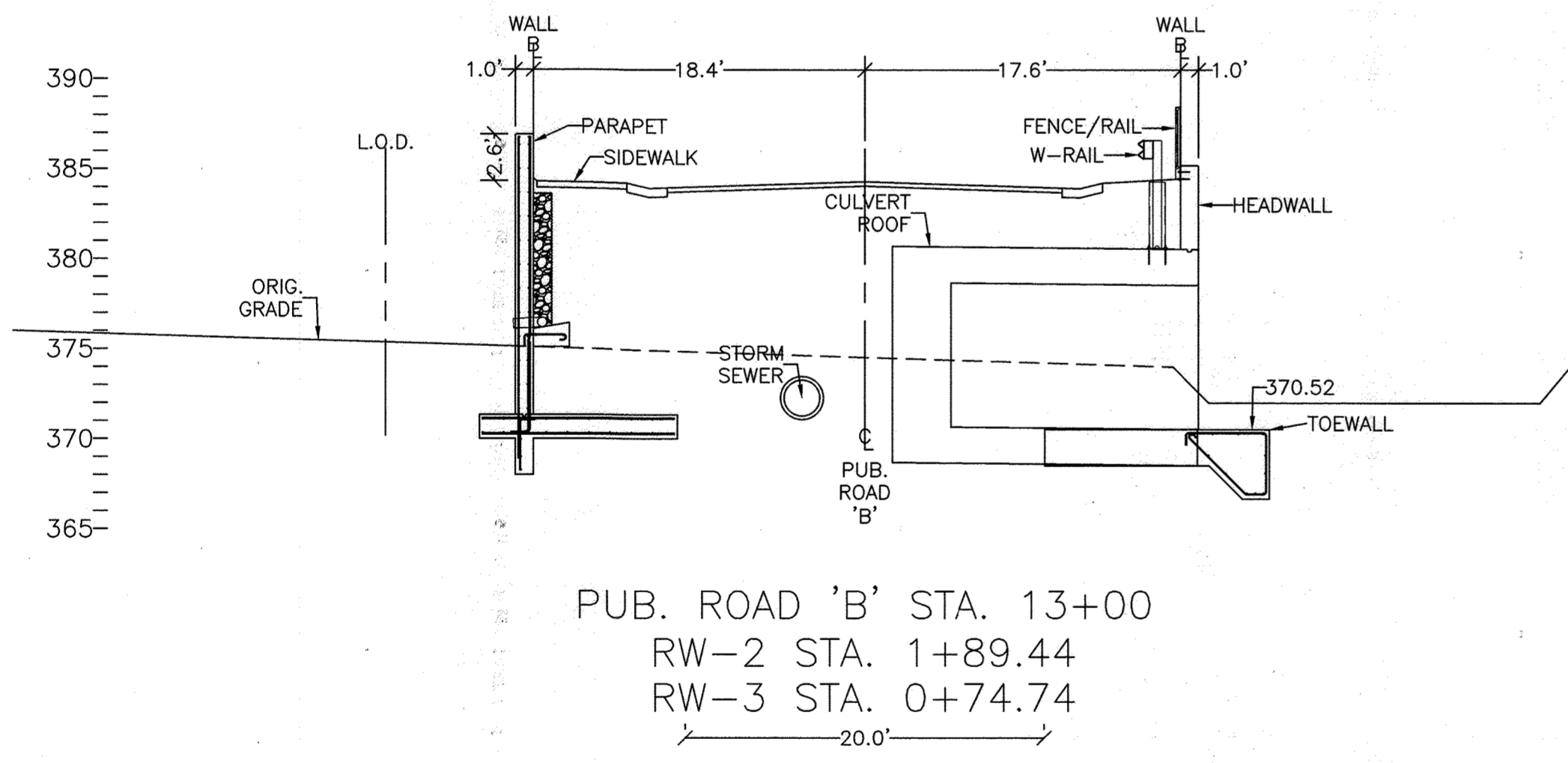
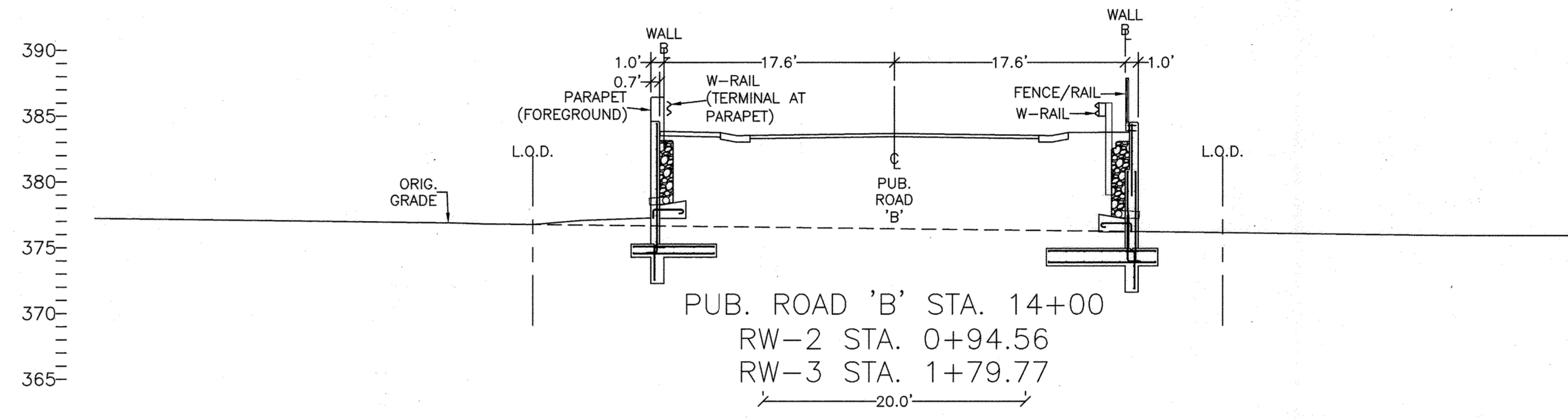
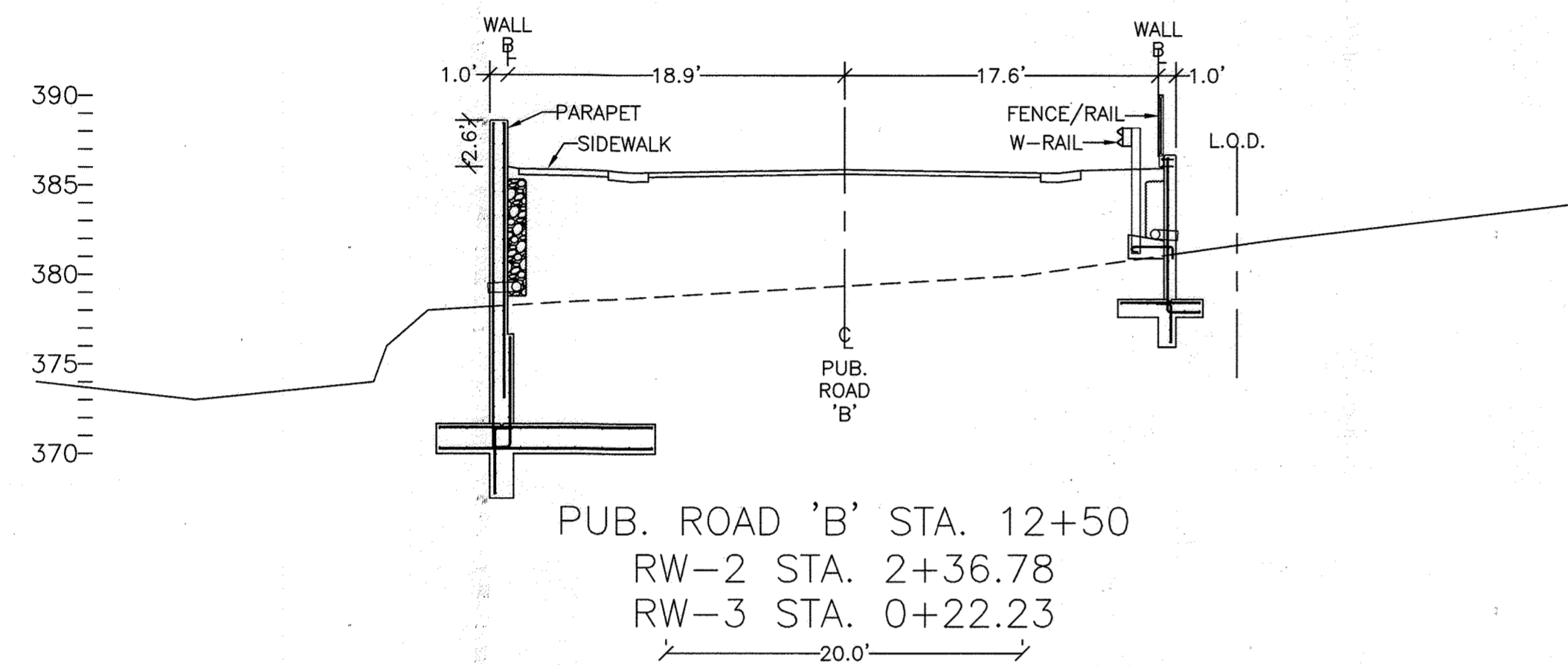
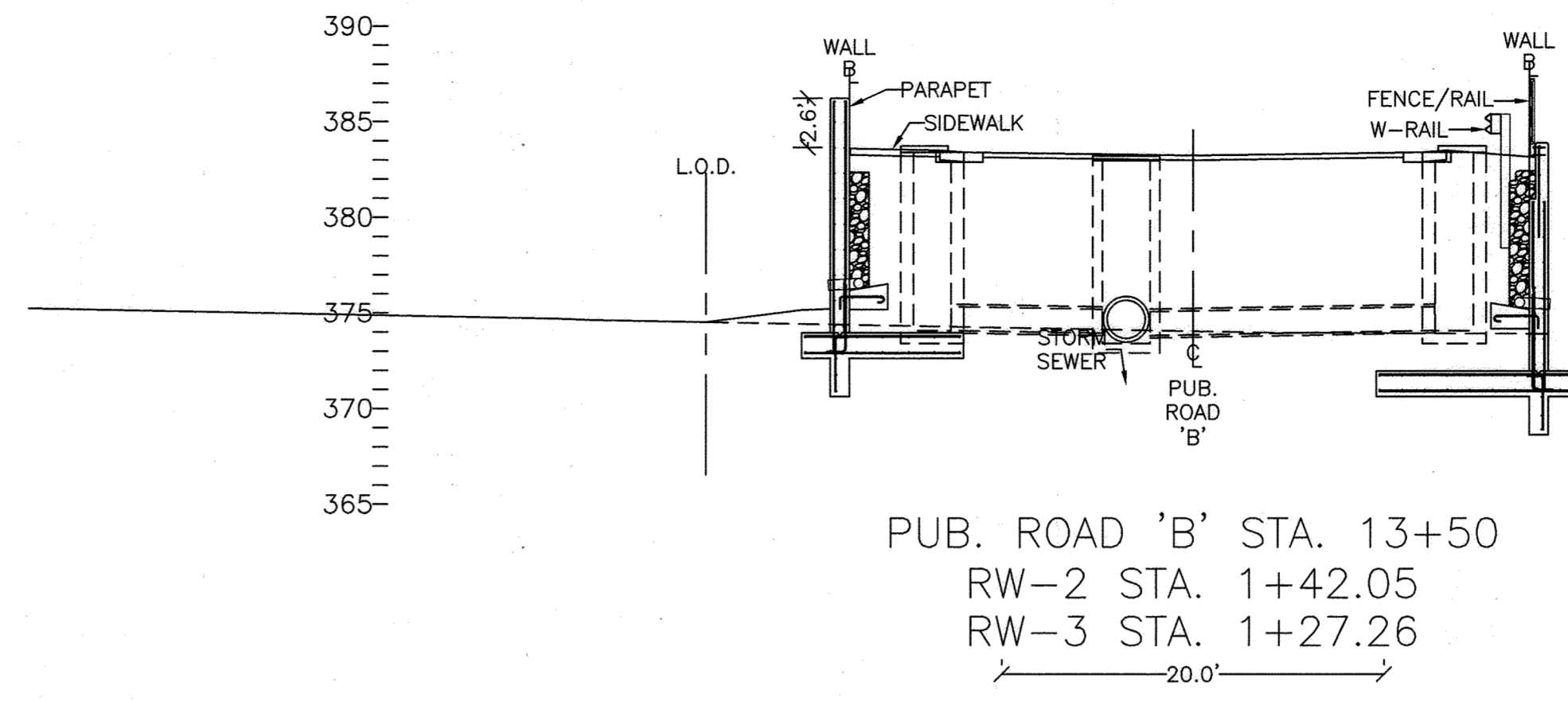
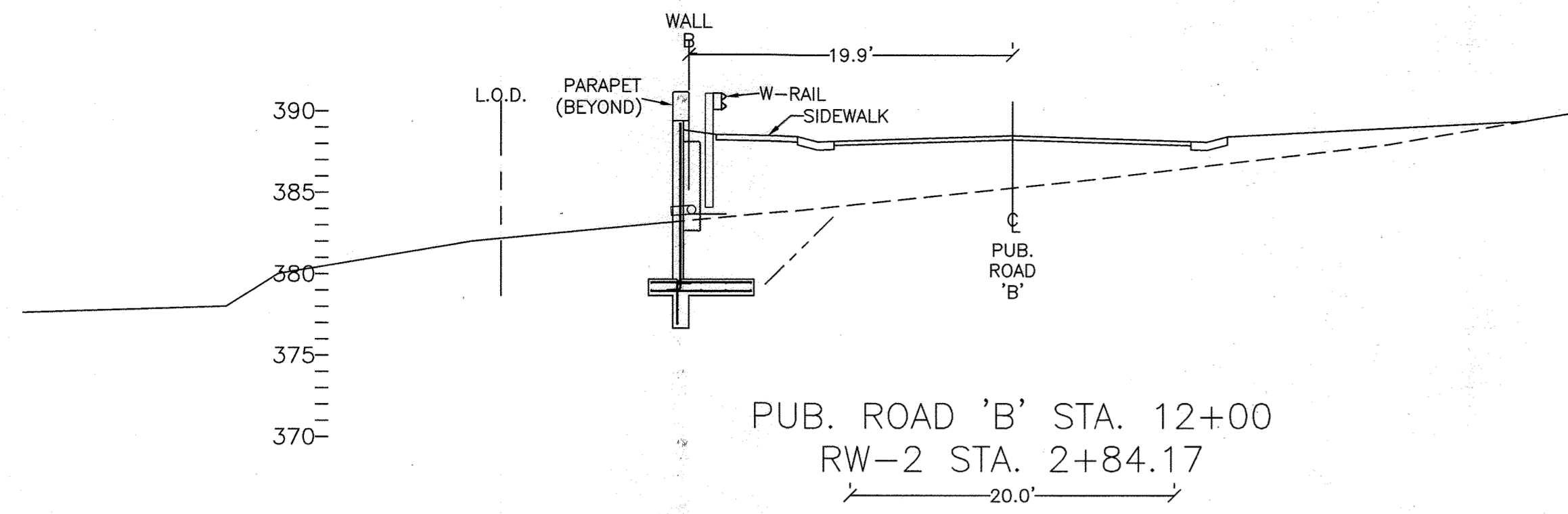


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RW-2, RW-3, AND CULVERT ELEVATION
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	PARAPET AND FENCE ADDED	7/8/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: PR
			DATE: 7/6/2020	APPROVED BY: PR

87 OF 146 SHEET



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Naomi Howell 7/16/2024
NAOMI HOWELL, PROGRAM MANAGER DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 7/16/24
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 7/16/24
CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 7/16/24
DIRECTOR DATE

PROFESSIONAL CERTIFICATION

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LICENSE NO. 28925
EXPIRATION DATE: 01/15/26

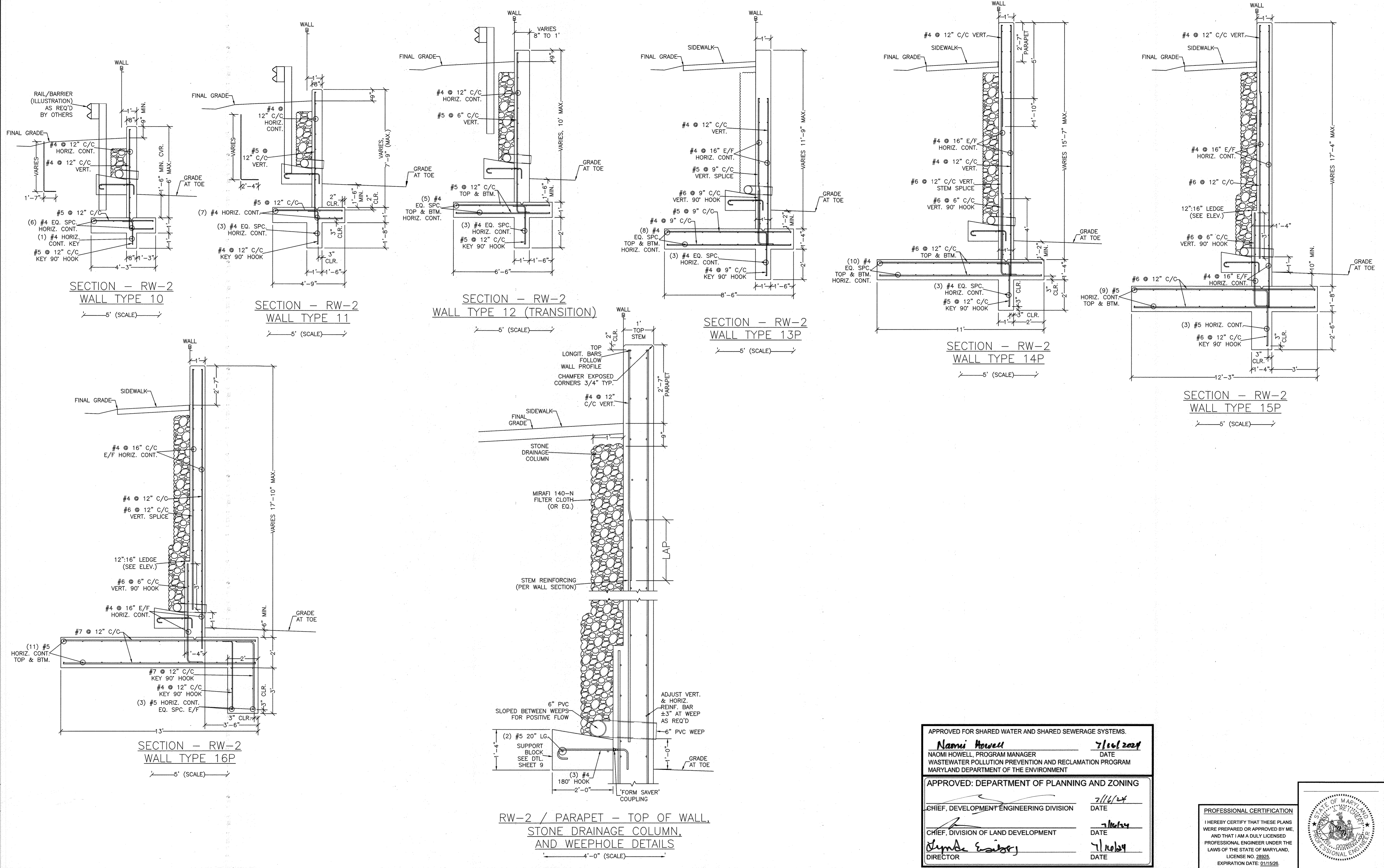


HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
(410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RW-2, RW-3, AND CULVERT ROADWAY SECTIONS
LYHUS PROPERTY
HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	PARAPET AND FENCE ADDED	7/6/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: PR
			DATE: 7/6/2020	APPROVED BY: PR

88 OF 146 SHEET



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Naomi Howell 7/16/2020
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 7/16/20
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

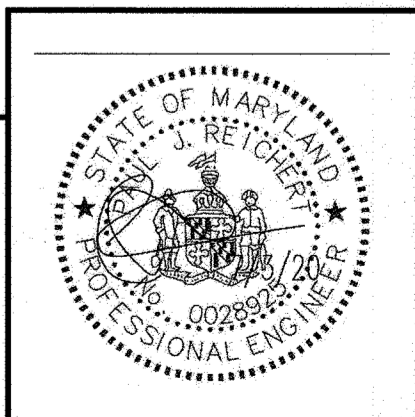
[Signature] 7/16/20
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 7/16/20
 DIRECTOR DATE

PROFESSIONAL CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS 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. 28923
 EXPIRATION DATE: 01/15/26

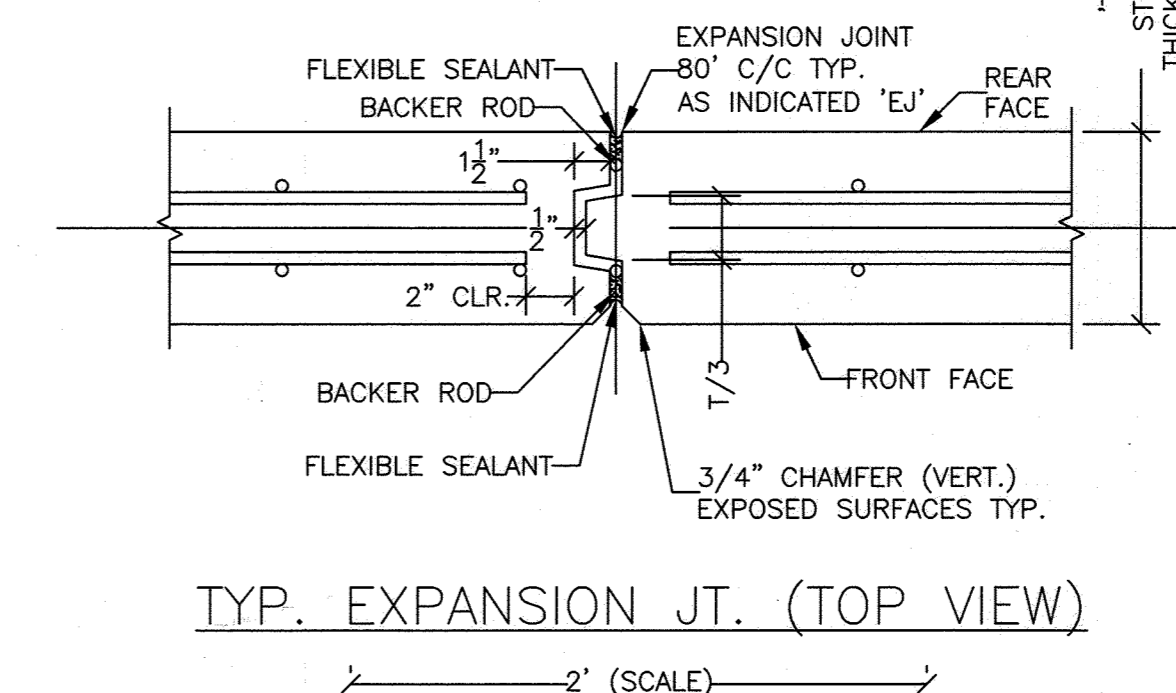
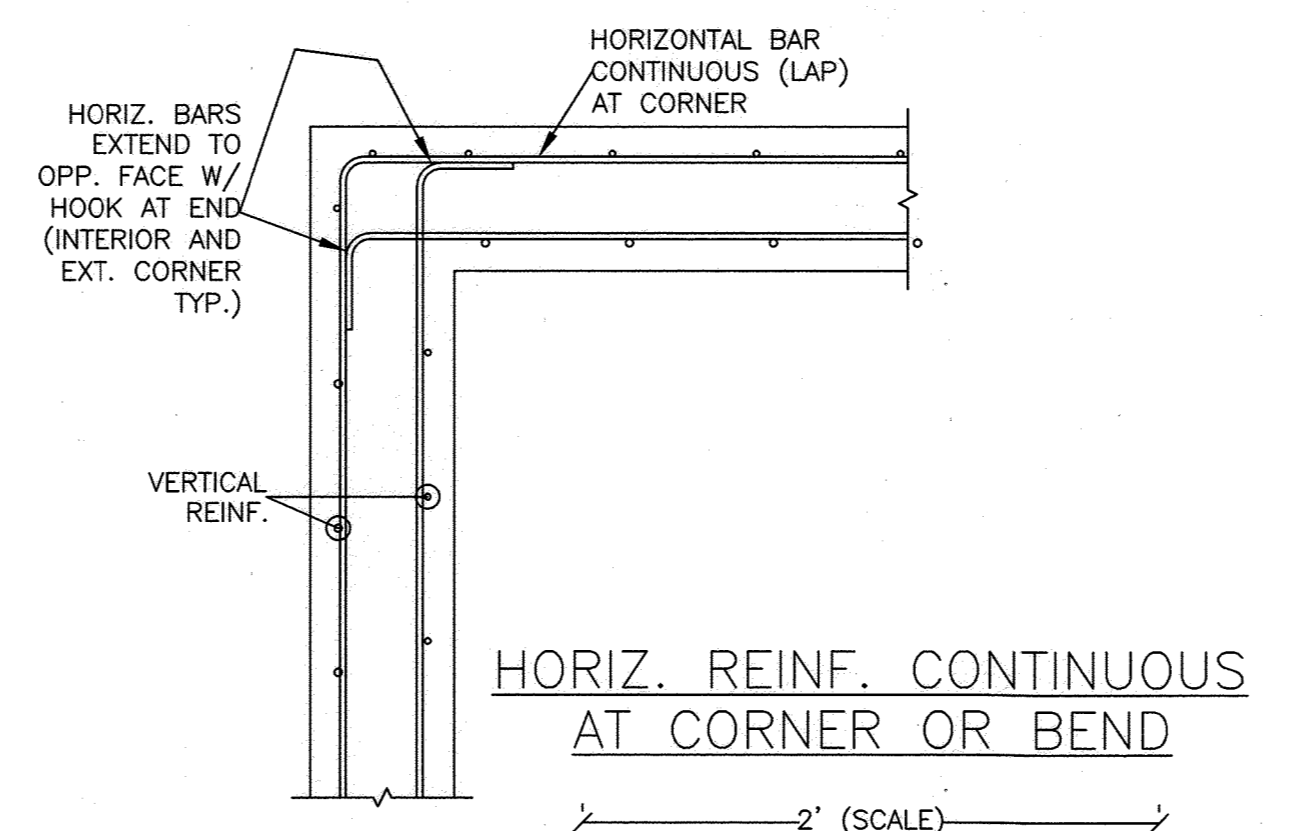
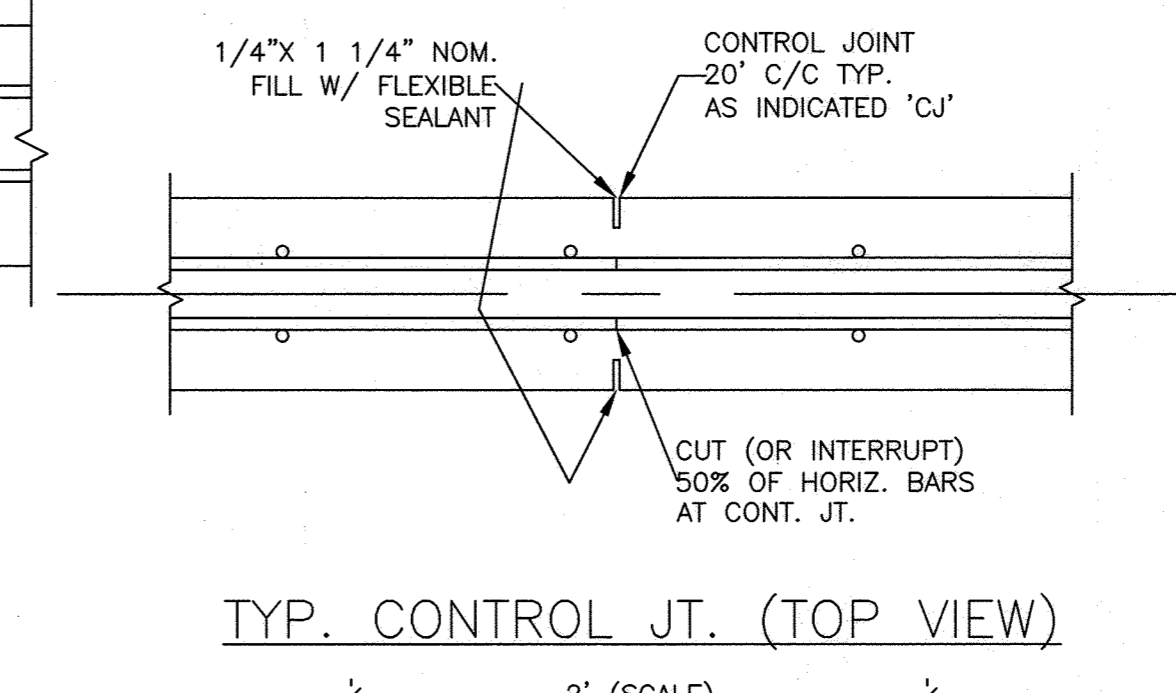
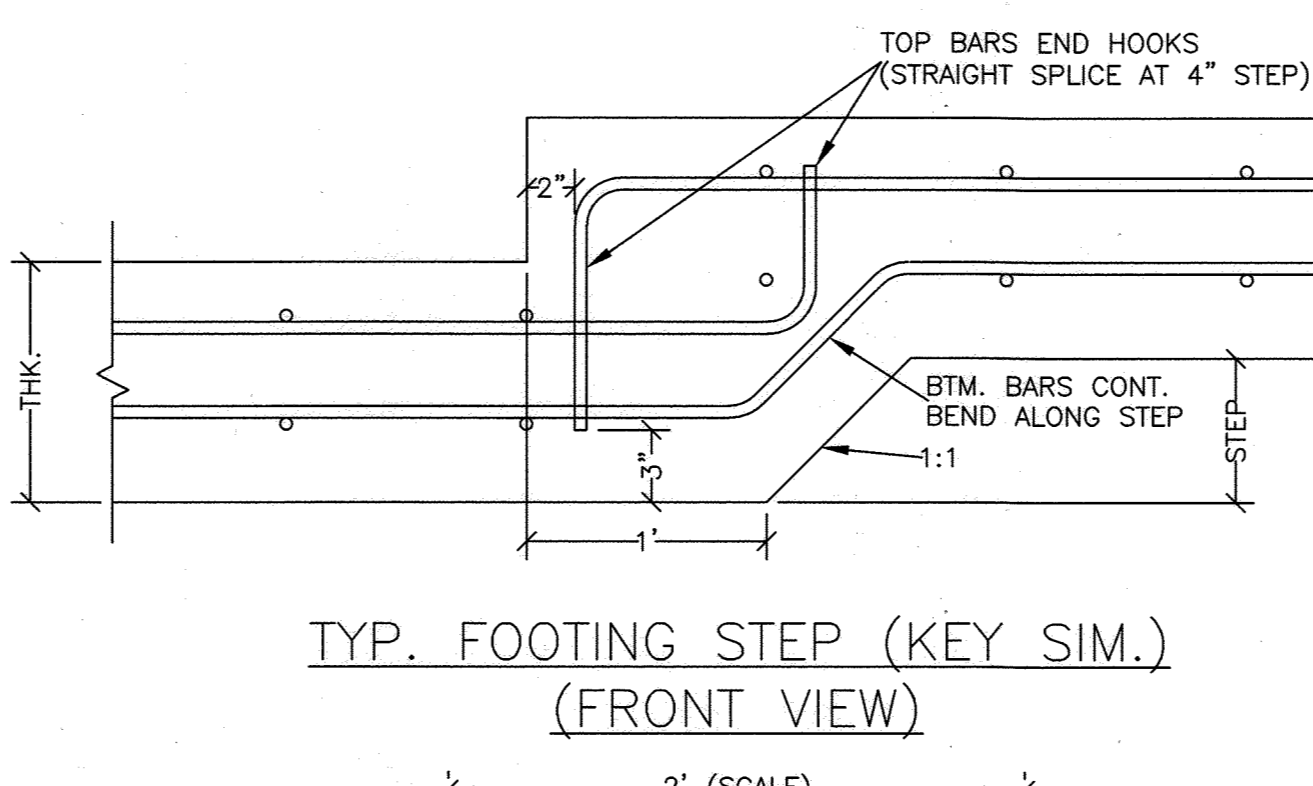
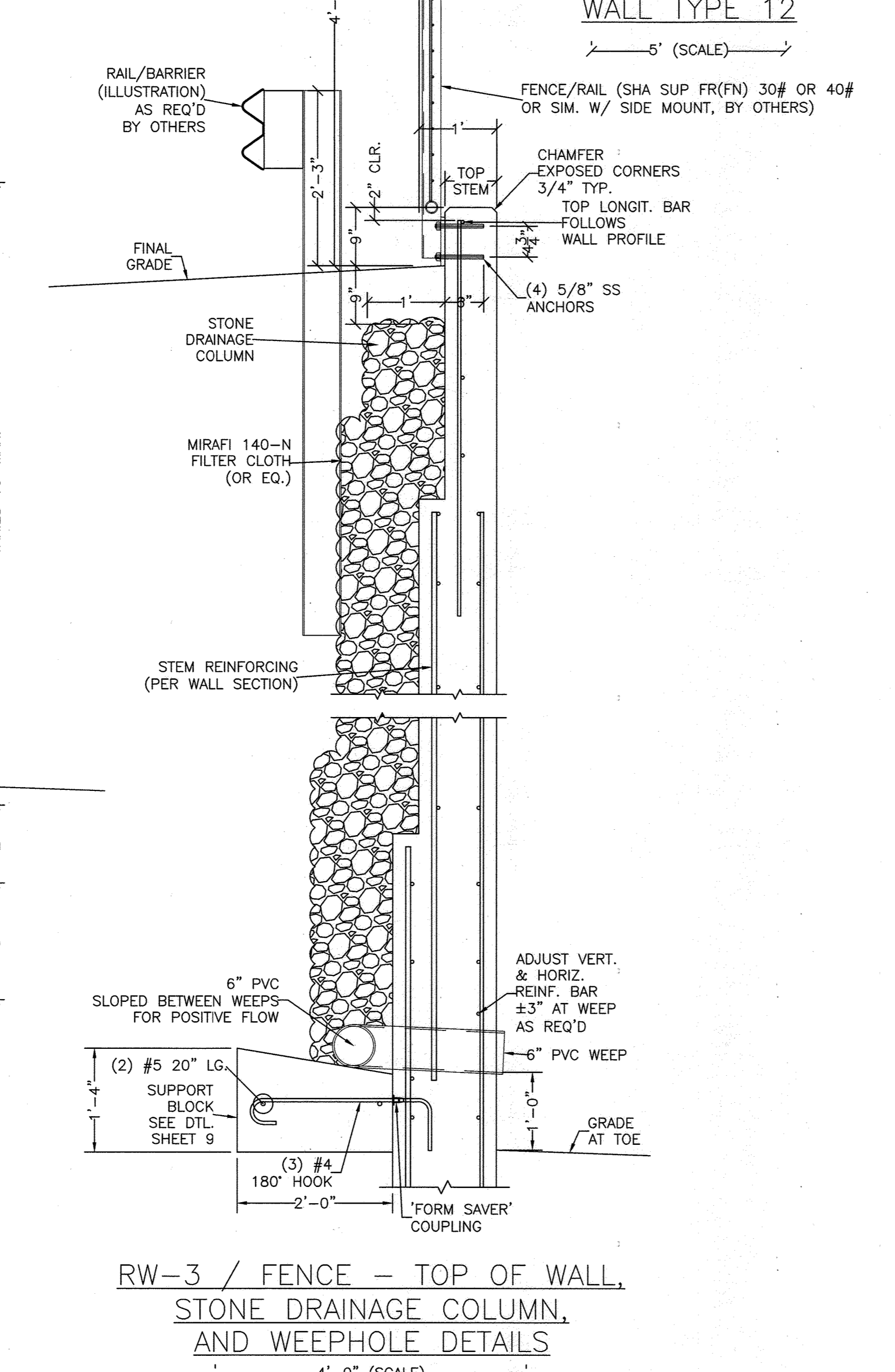
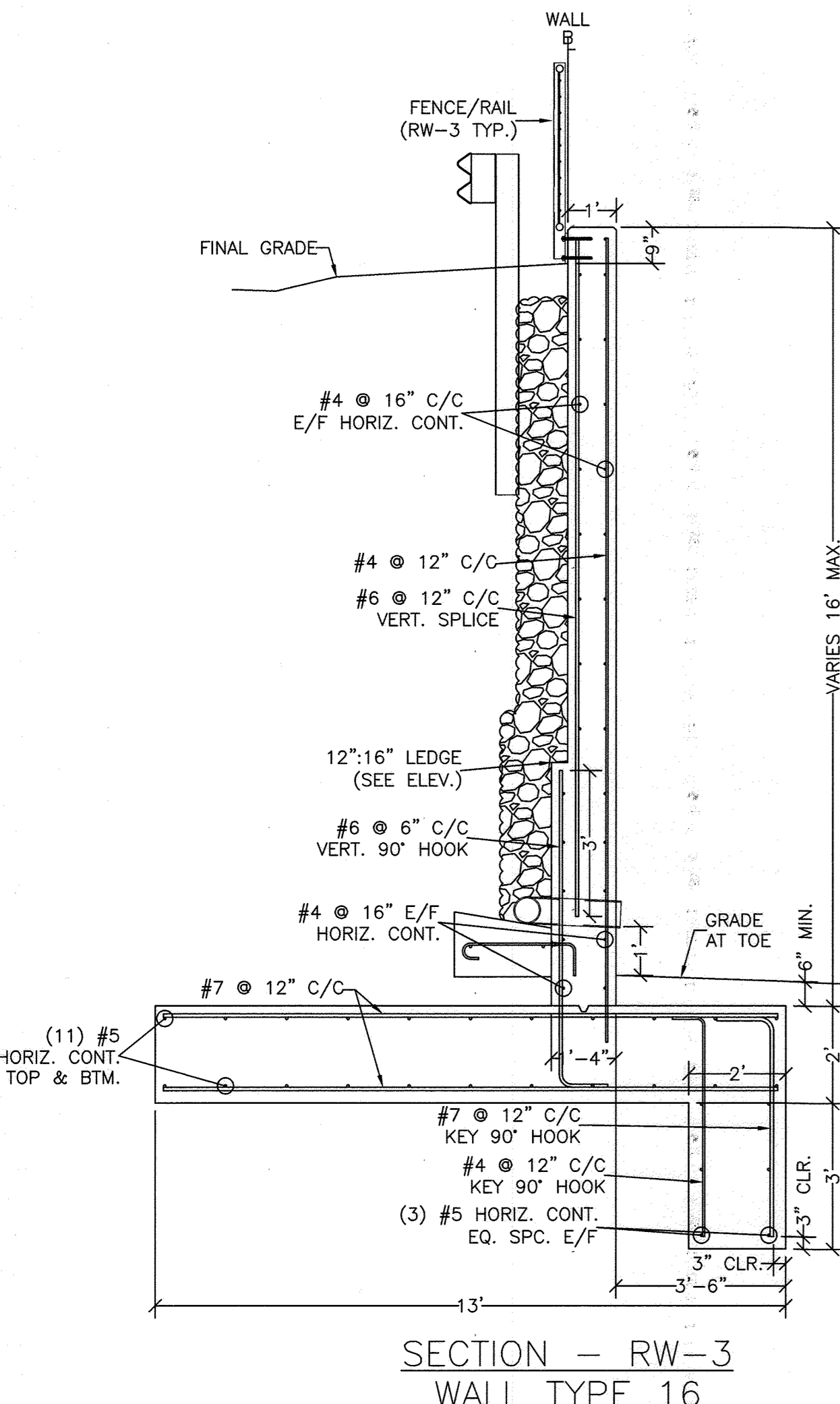
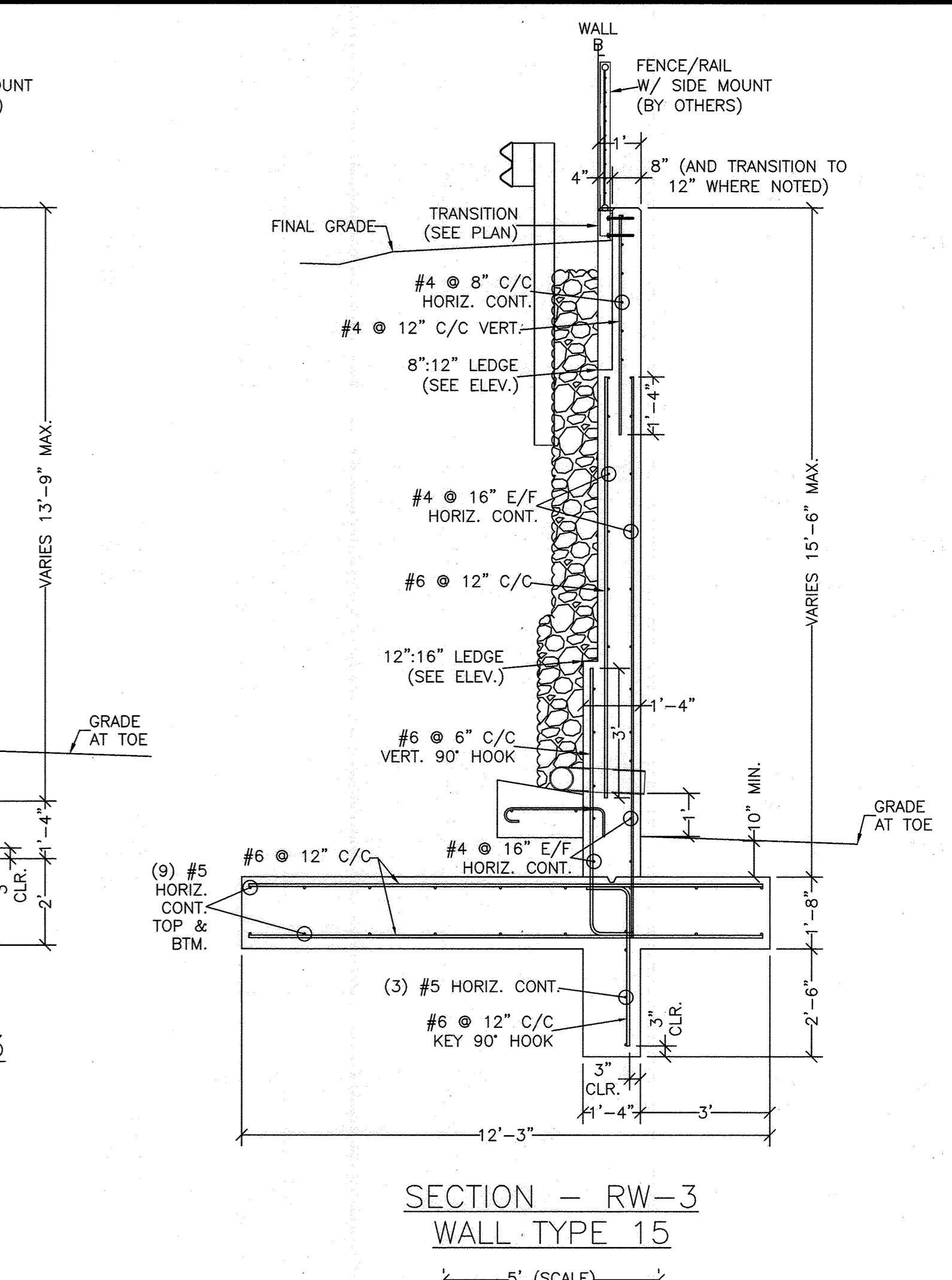
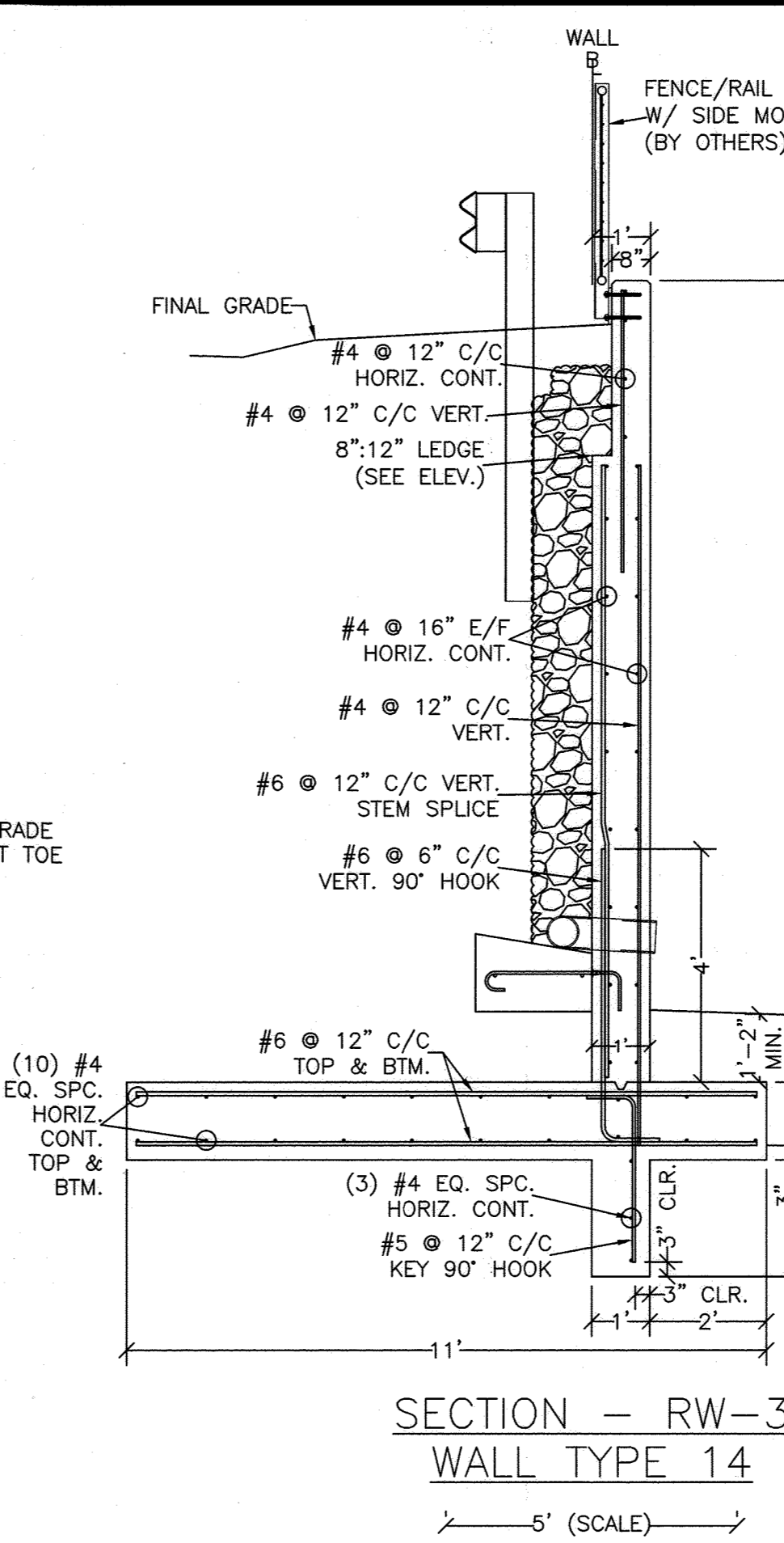
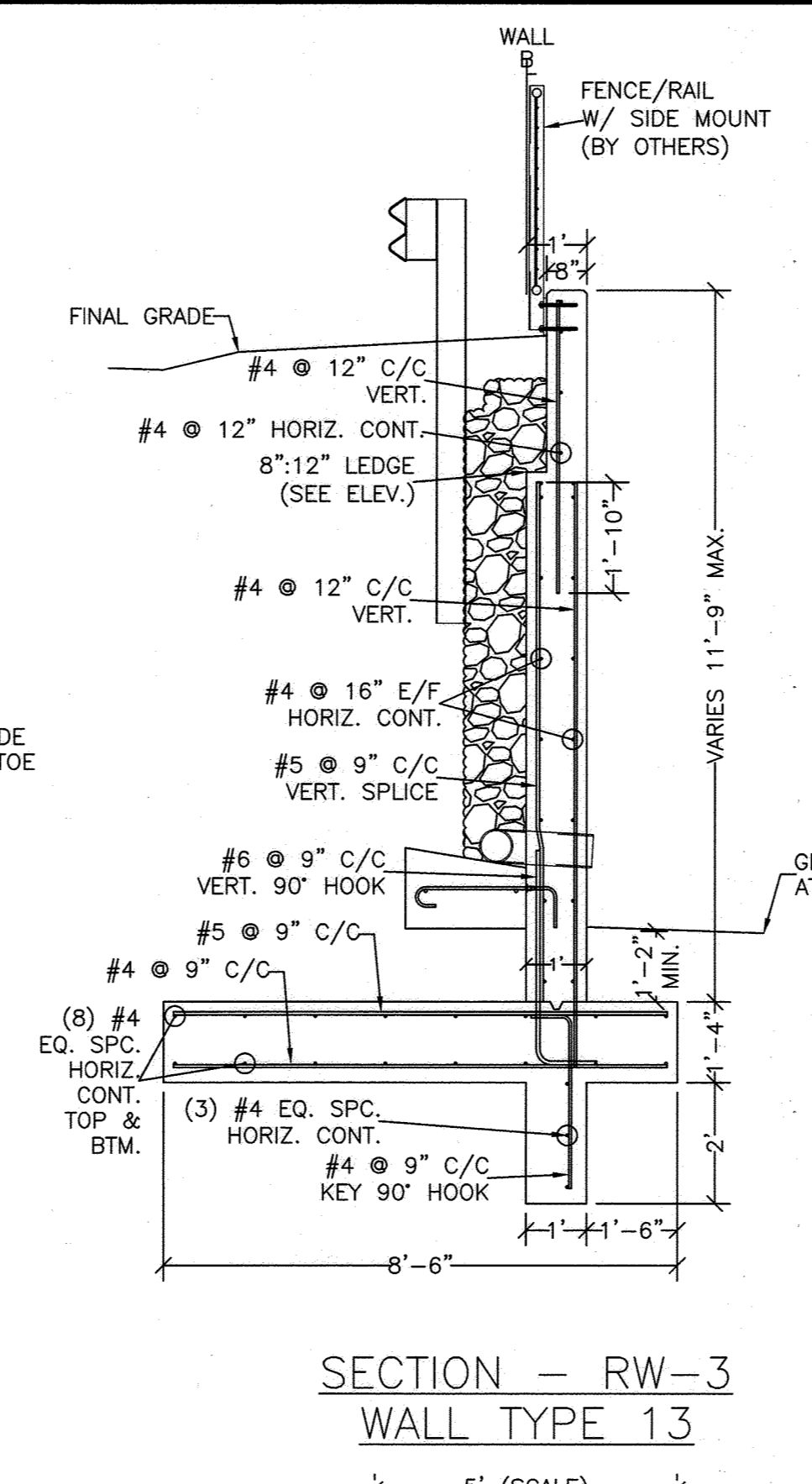
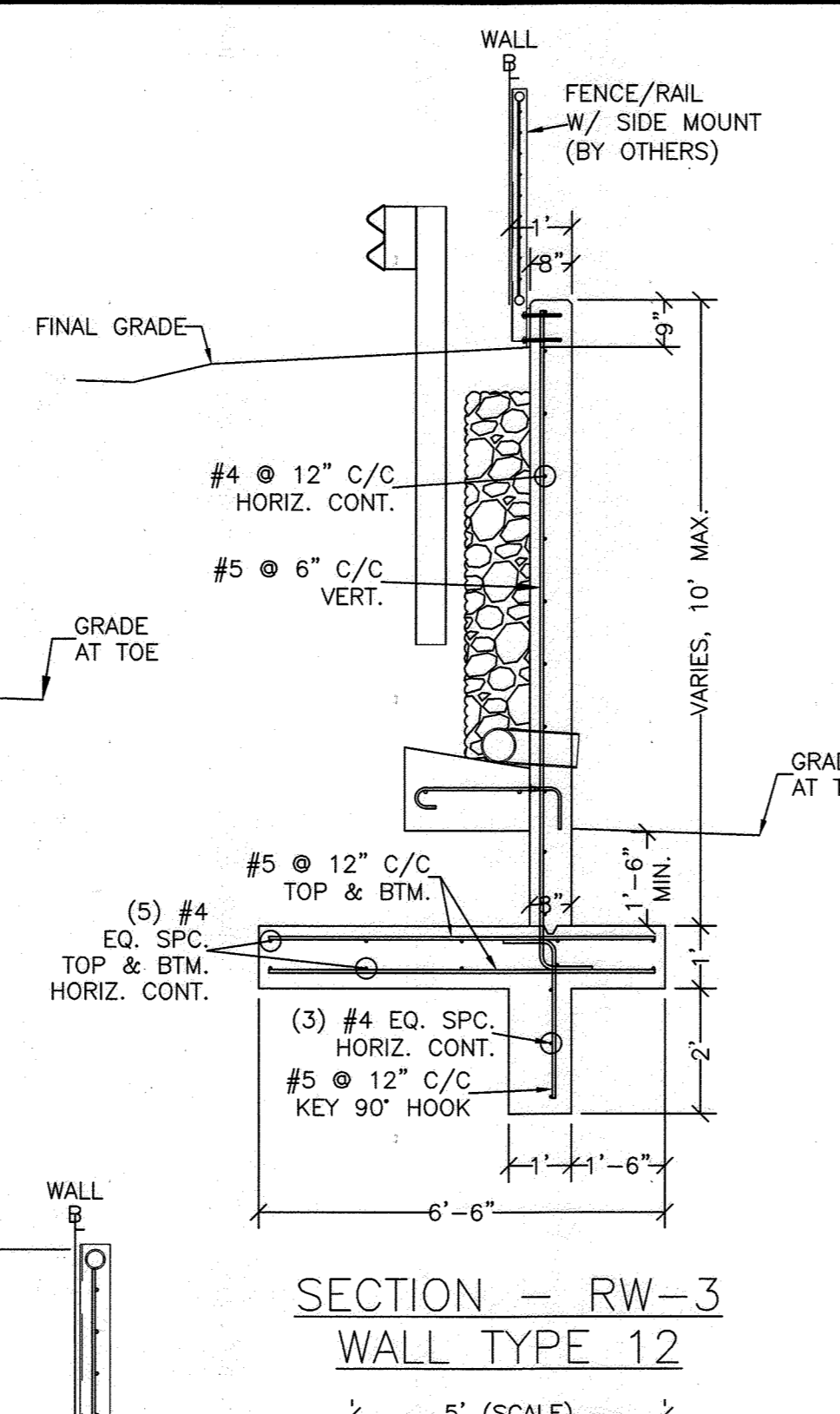
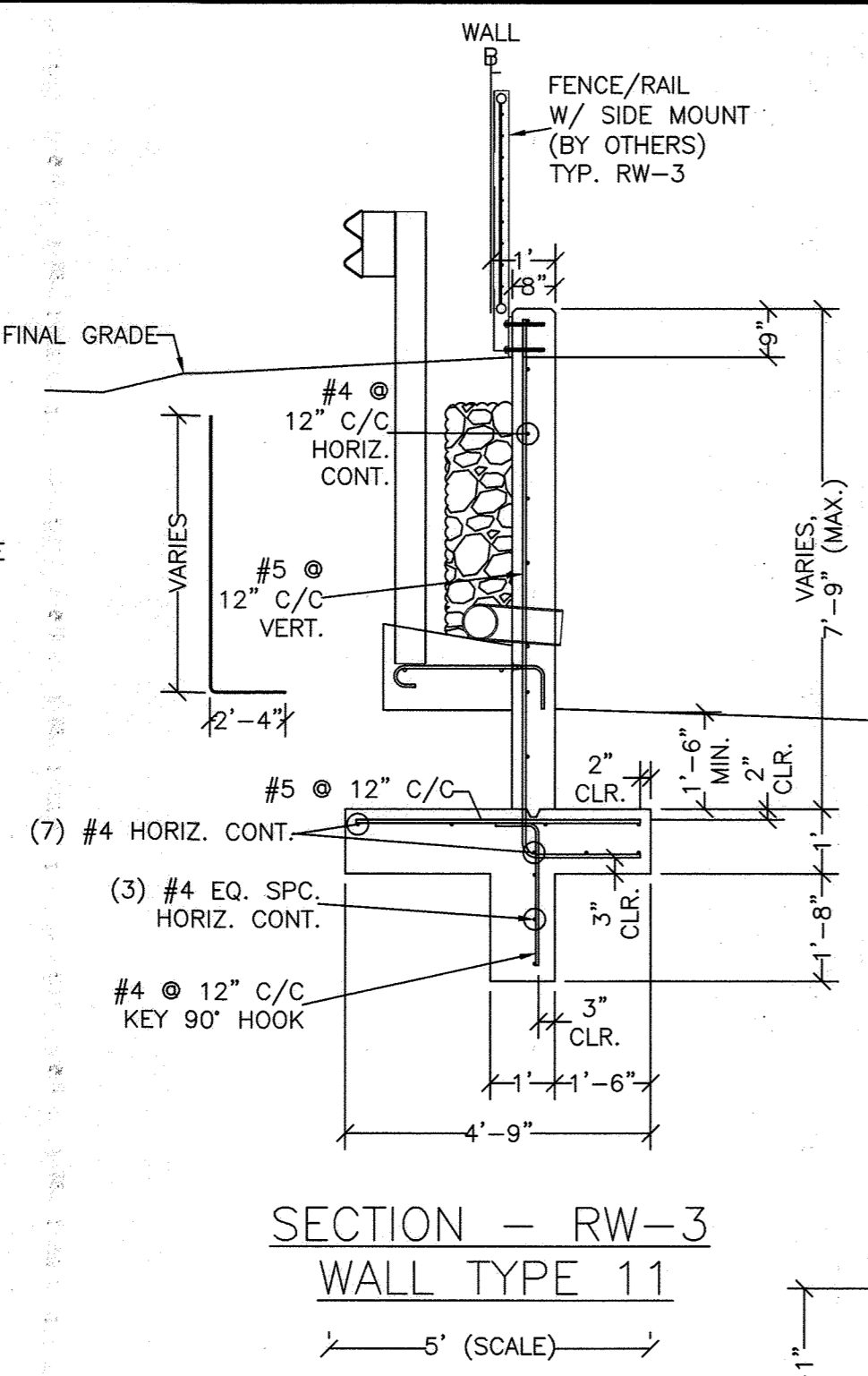
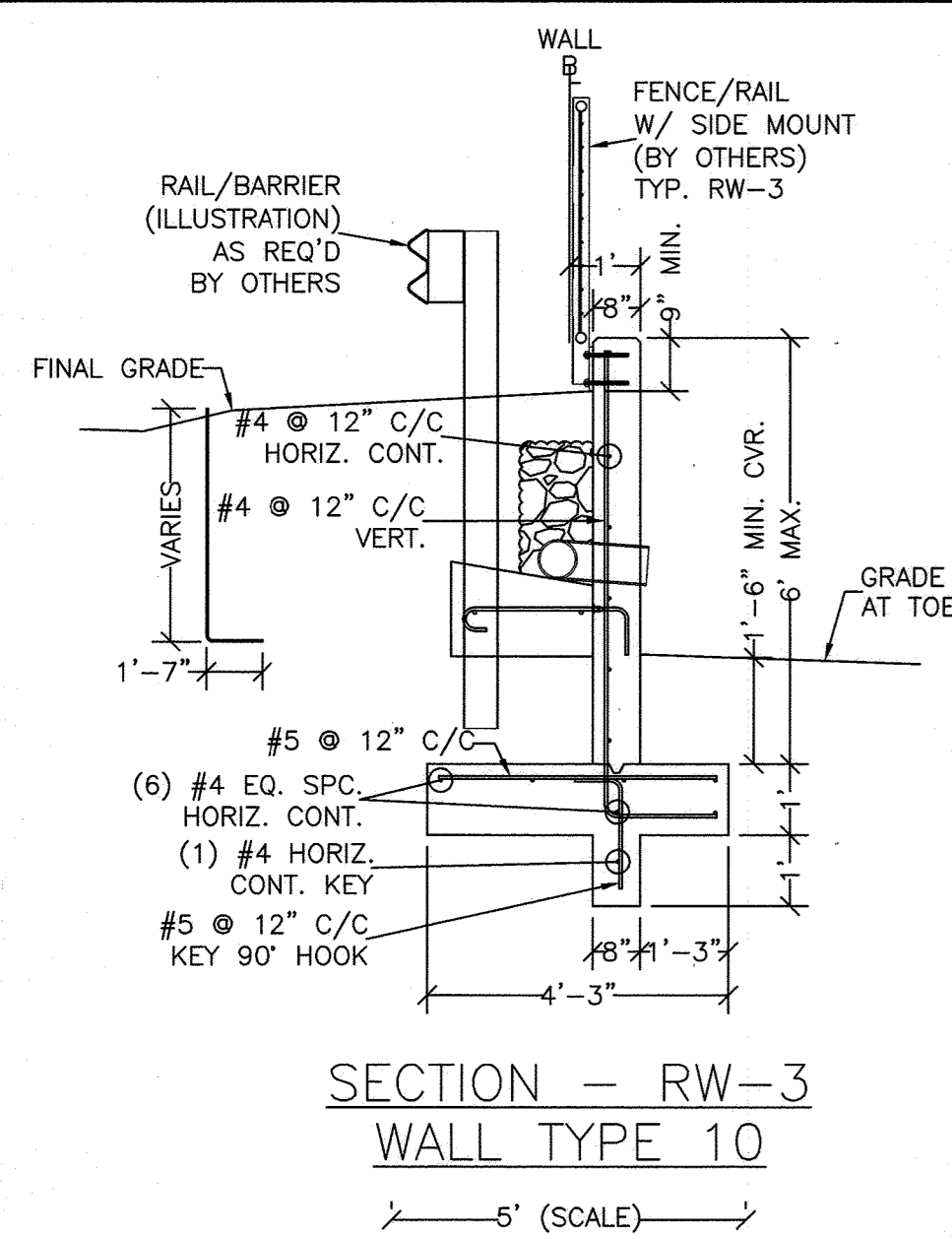


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 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RW-2 WALL TYP. SECTIONS AND DETAILS
LYHUS PROPERTY
 HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	PARAPET AND FENCE ADDED	7/8/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: PR
			DATE: 7/6/2020	APPROVED BY: PR

89 OF 146 SHEET



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Naomi Howell 7/16/2020
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

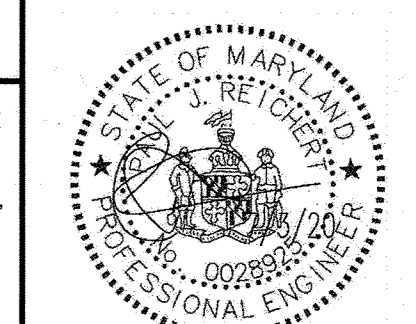
APPROVED: DEPARTMENT OF PLANNING AND ZONING

7/16/2020
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 7/16/2020
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 7/16/2020
 DIRECTOR DATE

PROFESSIONAL CERTIFICATION

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LICENSE NO. 28925
 EXPIRATION DATE: 01/15/26



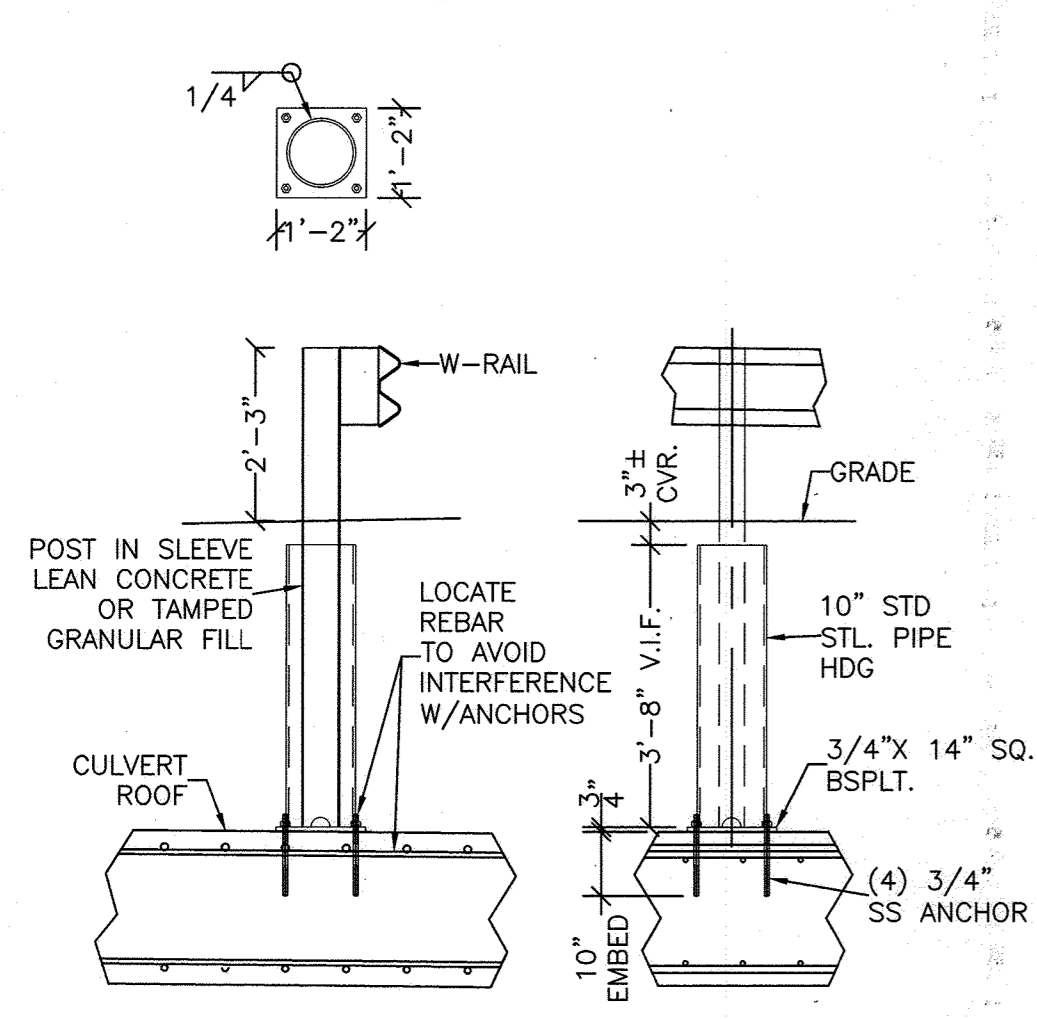
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 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 (410) 880-4788 WWW.HCEA.COM Fax: (410) 880-4098

RW-3 WALL TYP. SECTIONS AND DETAILS
LYHUS PROPERTY
 HOWARD COUNTY, MD.

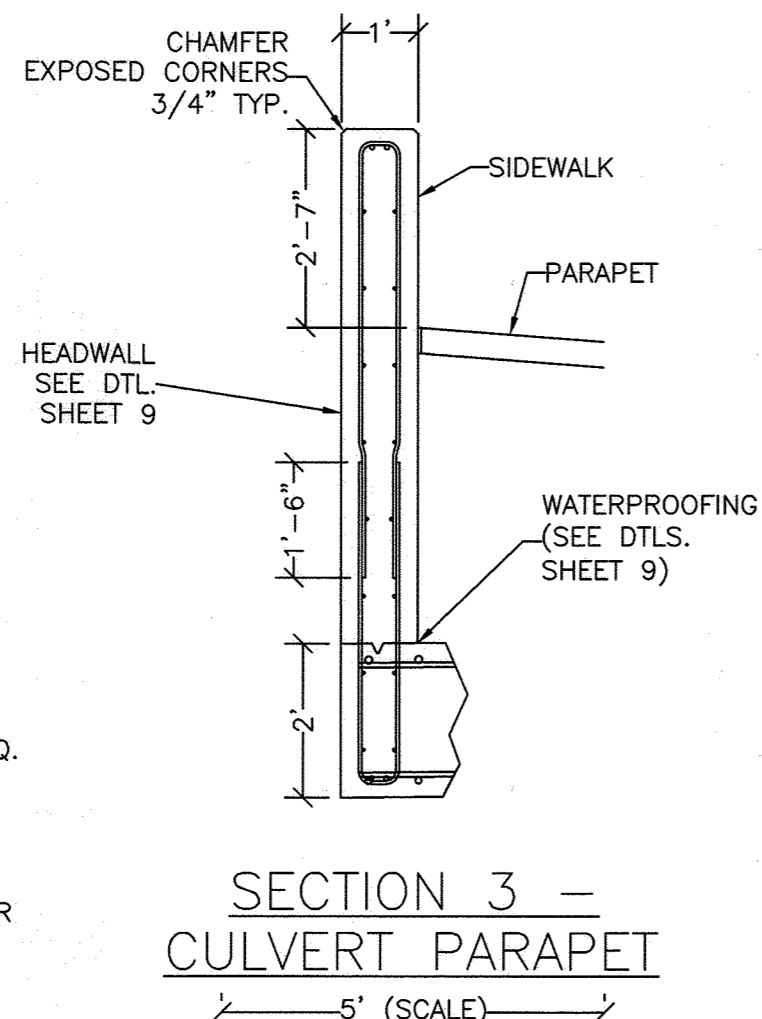
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1	PARAPET AND FENCE ADDED	7/8/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: PR
			DATE: 7/6/2020	APPROVED BY: PR

90 OF 146 SHEET

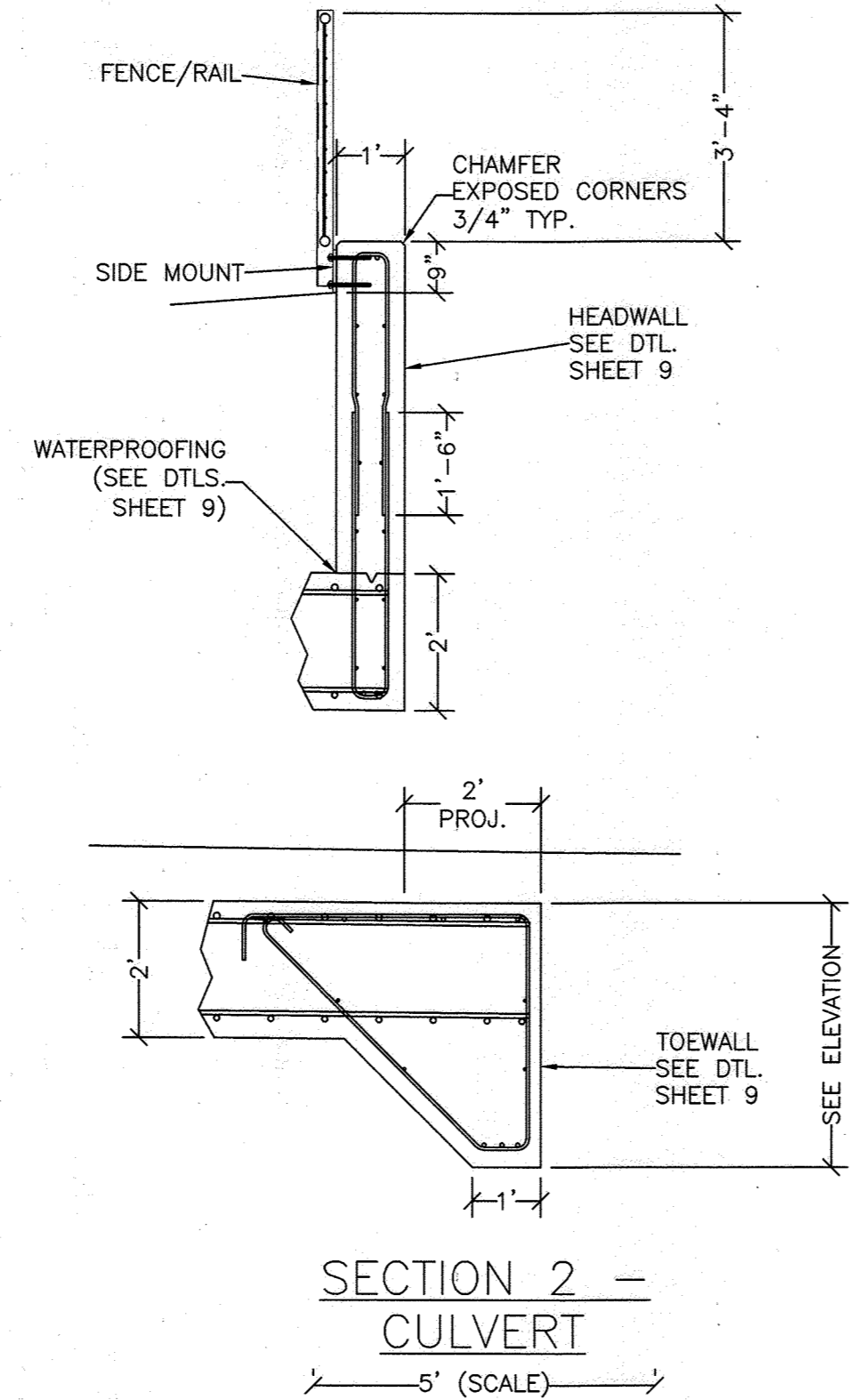
- CULVERT NOTES:**
- CONSTRUCTION TO COMPLY WITH MD SHA, AASHTO, ACI MANUAL OF CONCRETE PRACTICE, ACI 318 CODE FOR CONCRETE CONSTRUCTION.
 - VEHICLE LOADS CONSIDERED: AASHTO HL-93, MD SHA TANDEM.
 - SEE ALSO GENERAL STRUCTURAL NOTES, SHEET 4.



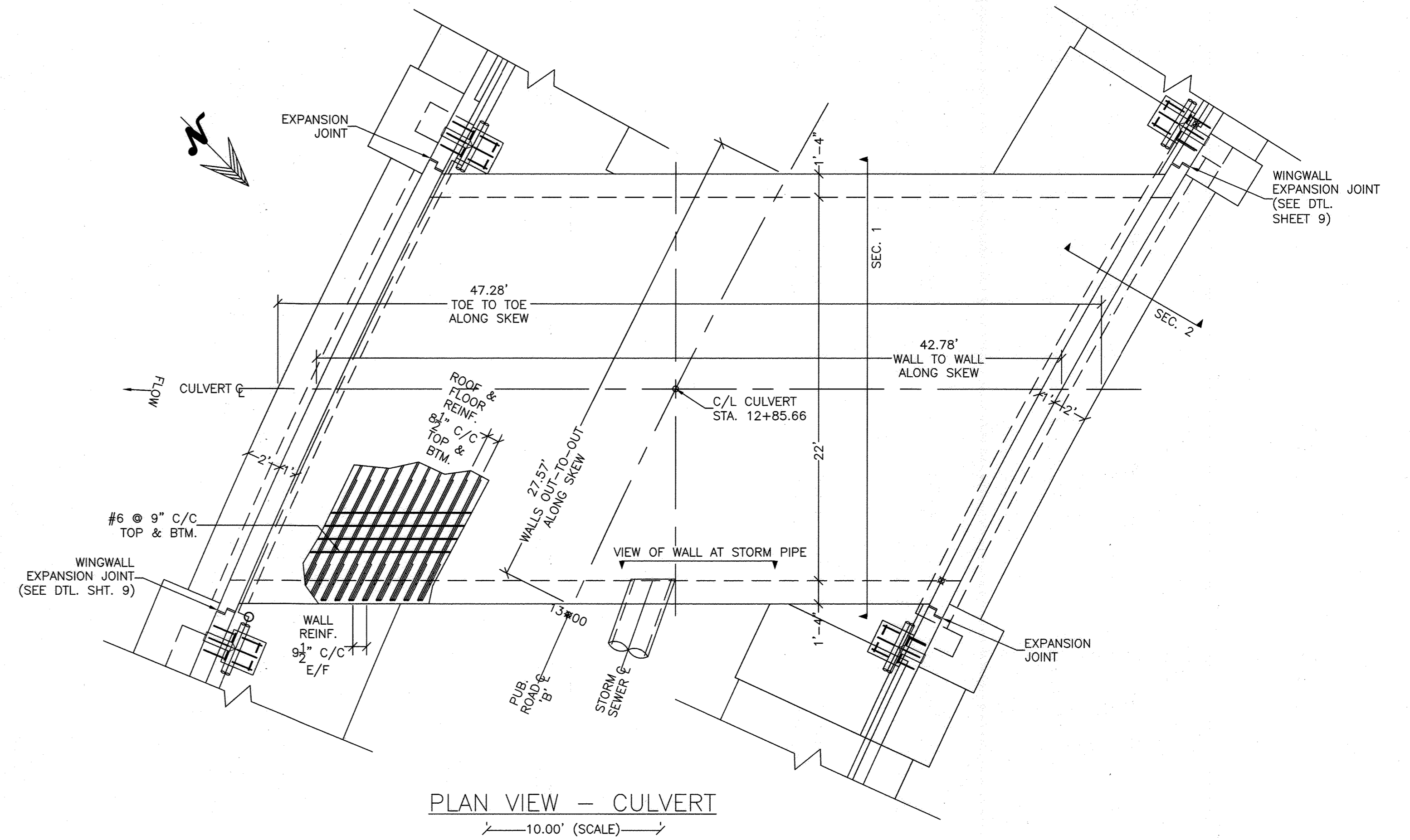
DETAIL A -
POST SLEEVE AT CULVERT
5' (SCALE)



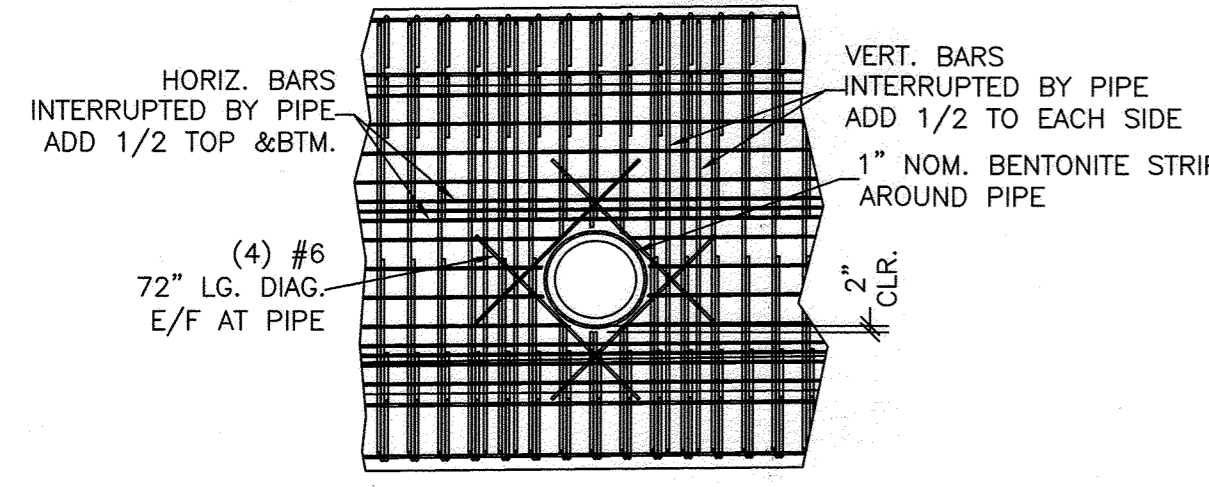
SECTION 3 -
CULVERT PARAPET
5' (SCALE)



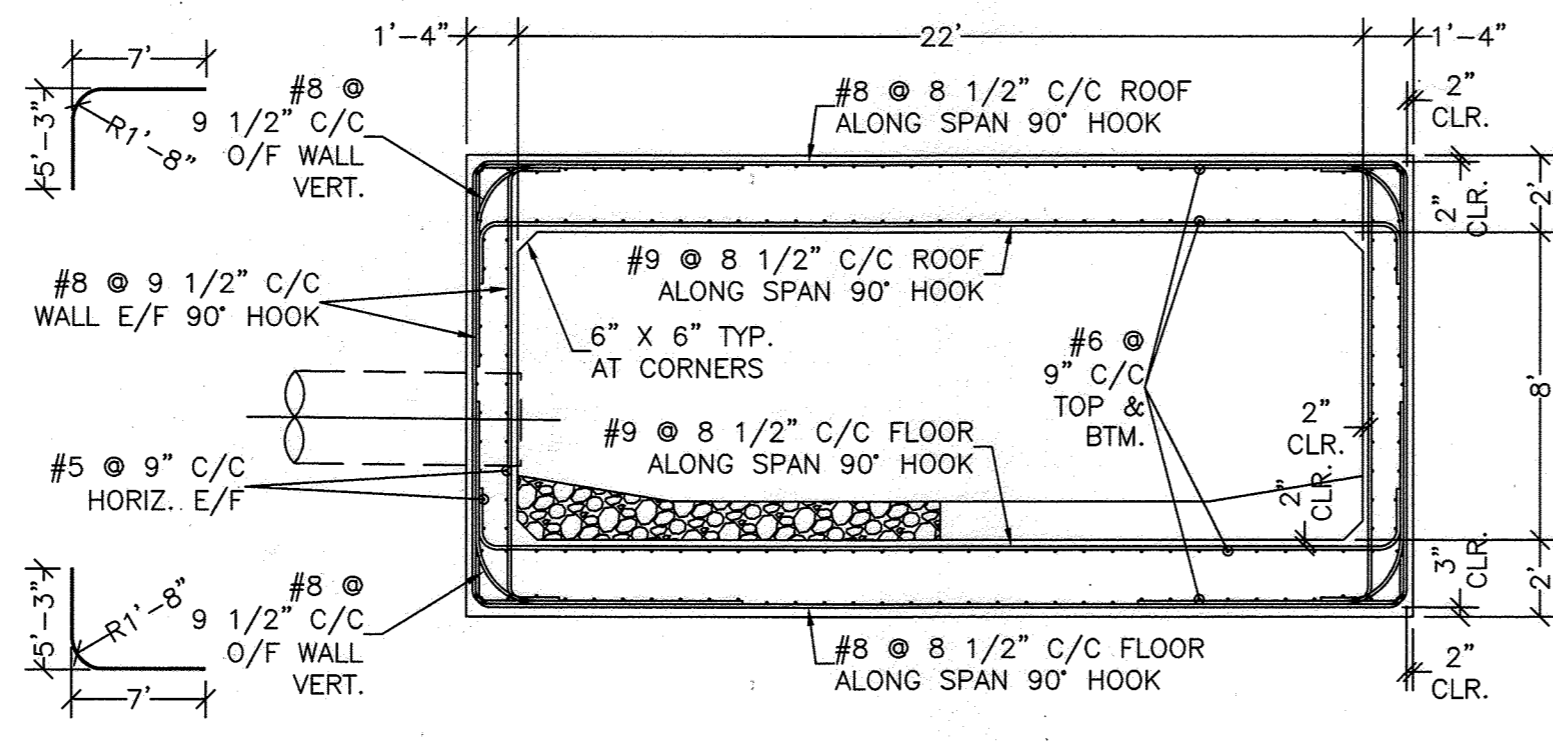
SECTION 2 -
CULVERT
5' (SCALE)



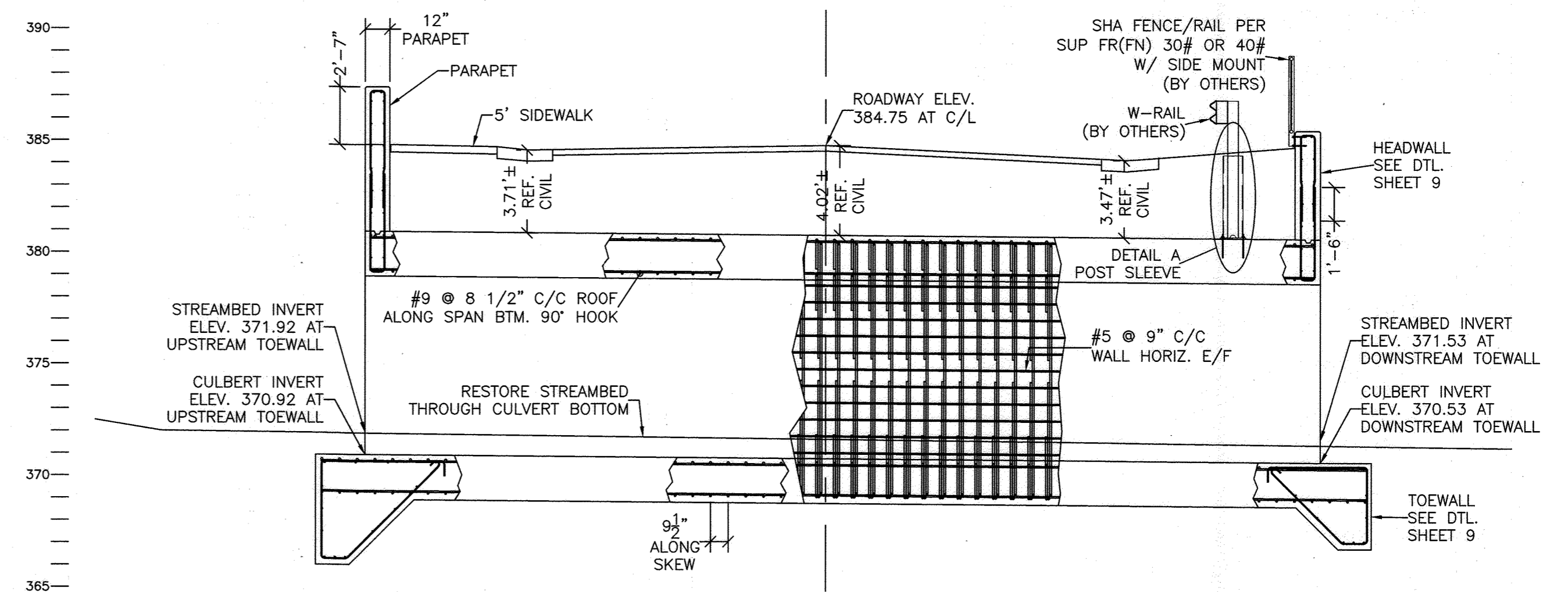
PLAN VIEW - CULVERT
10.00' (SCALE)



VIEW A - CULVERT PIPE PENETRATION
10.00' (SCALE)



SECTION 1 - CULVERT
10.00' (SCALE)



CULVERT PROFILE
10.00' (SCALE)

APPROVED: DEPARTMENT OF PLANNING AND ZONING

CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 7/16/20

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 7/16/20

DIRECTOR
DATE: 7/16/20

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

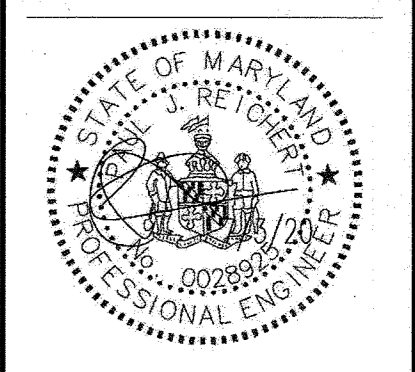
NAOMI HOWELL, PROGRAM MANAGER
DATE: 7/16/2020

WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

PROFESSIONAL CERTIFICATION

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LICENSE NO. 28925
EXPIRATION DATE: 01/15/28



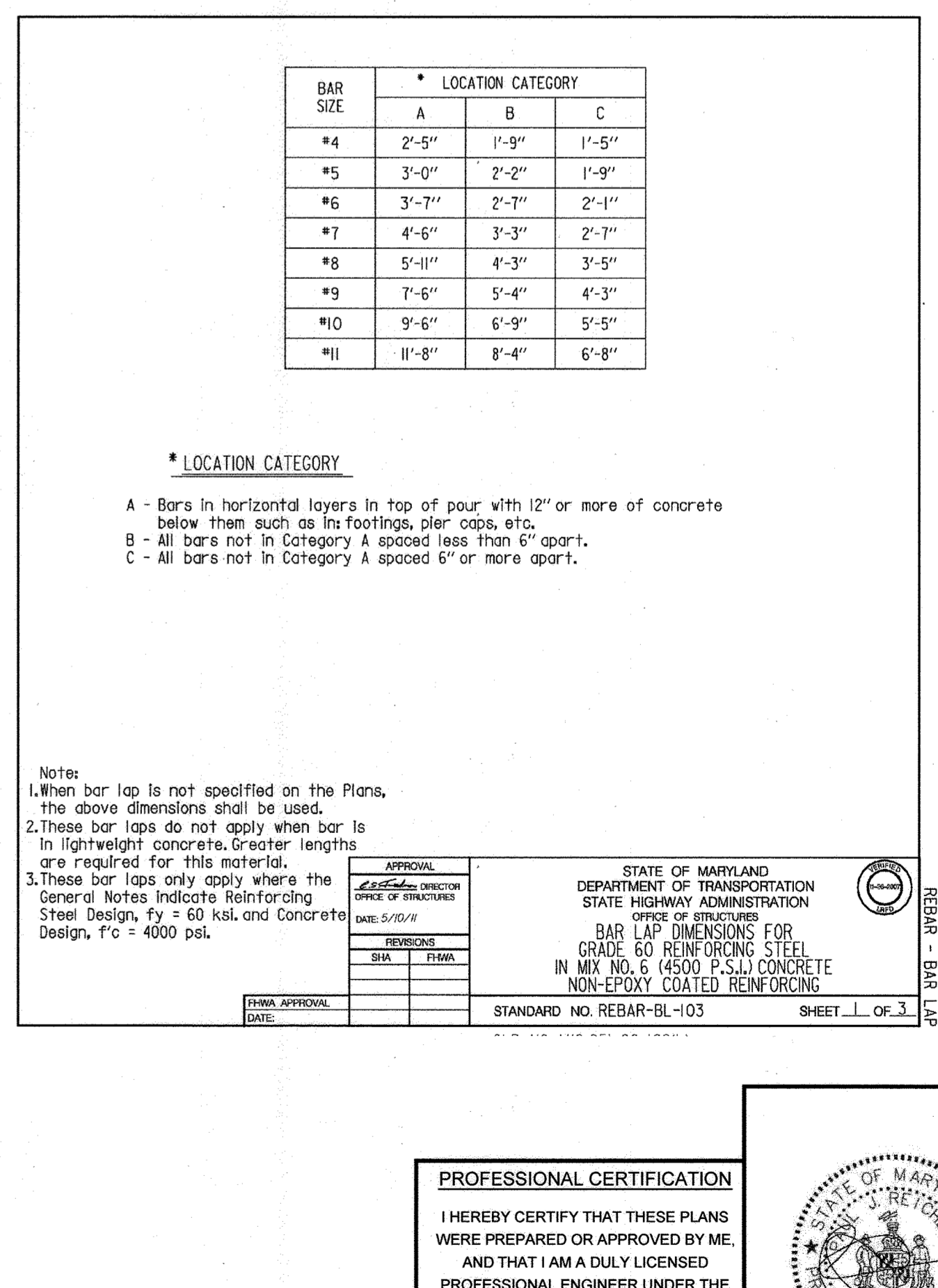
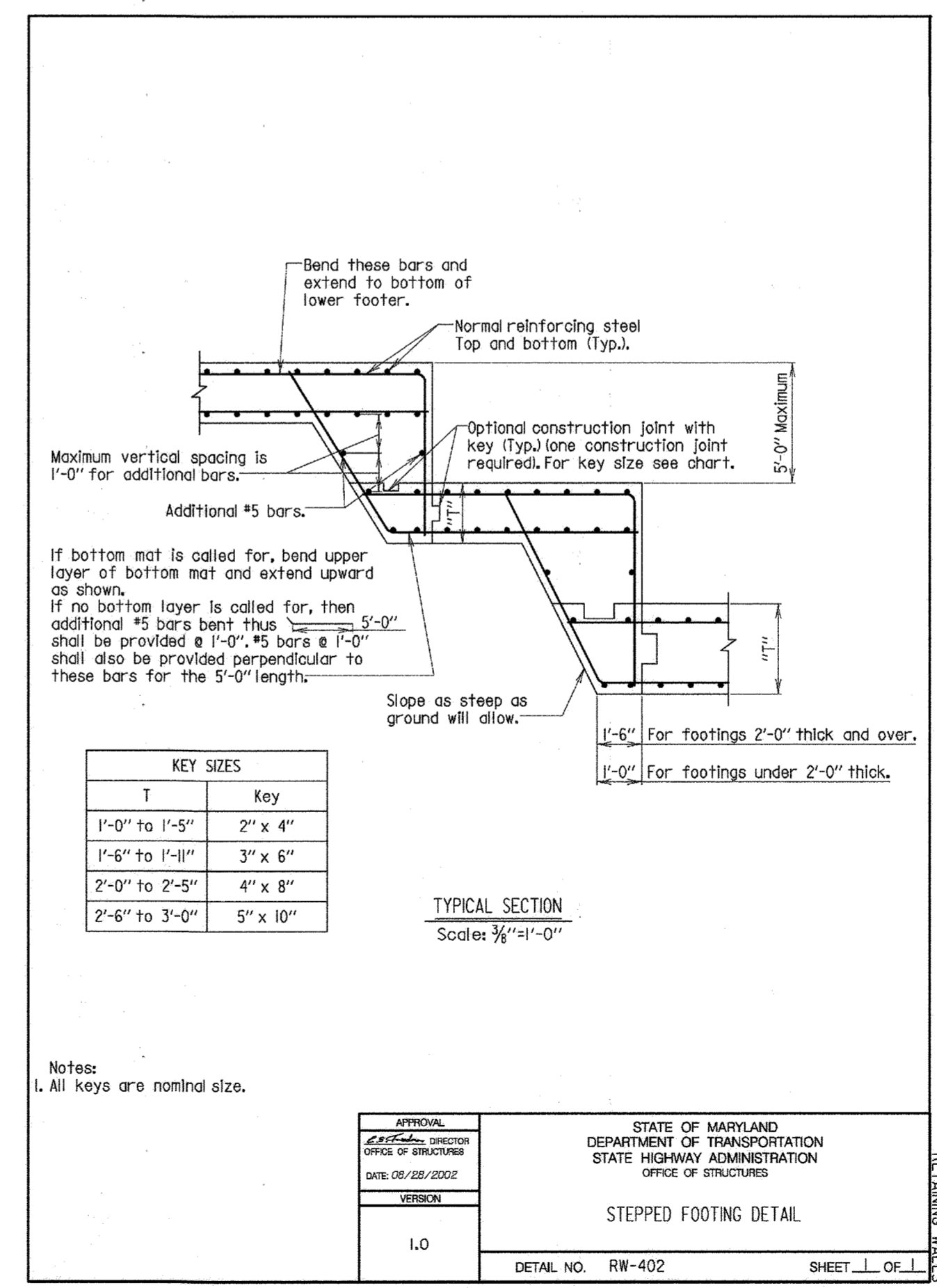
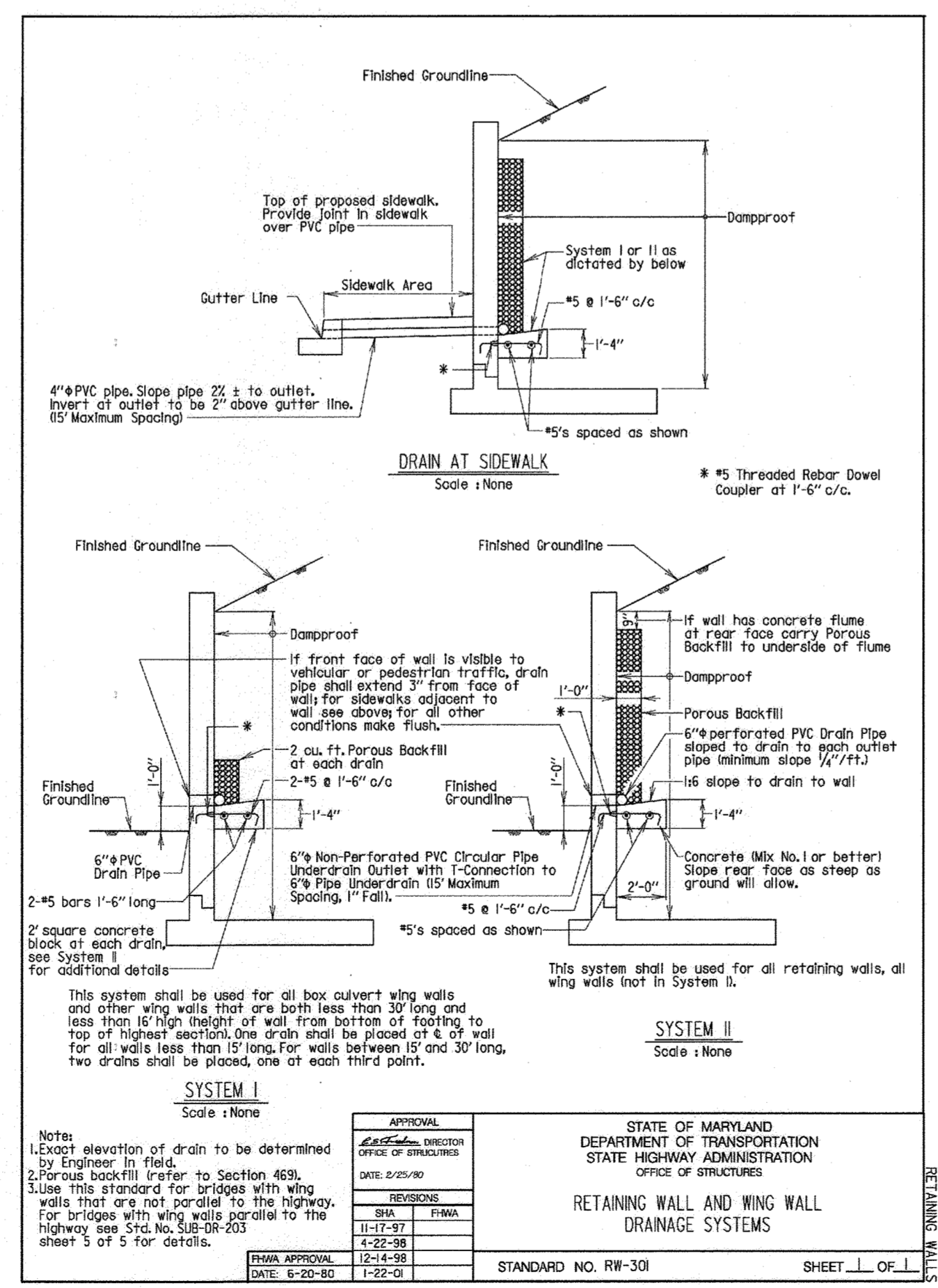
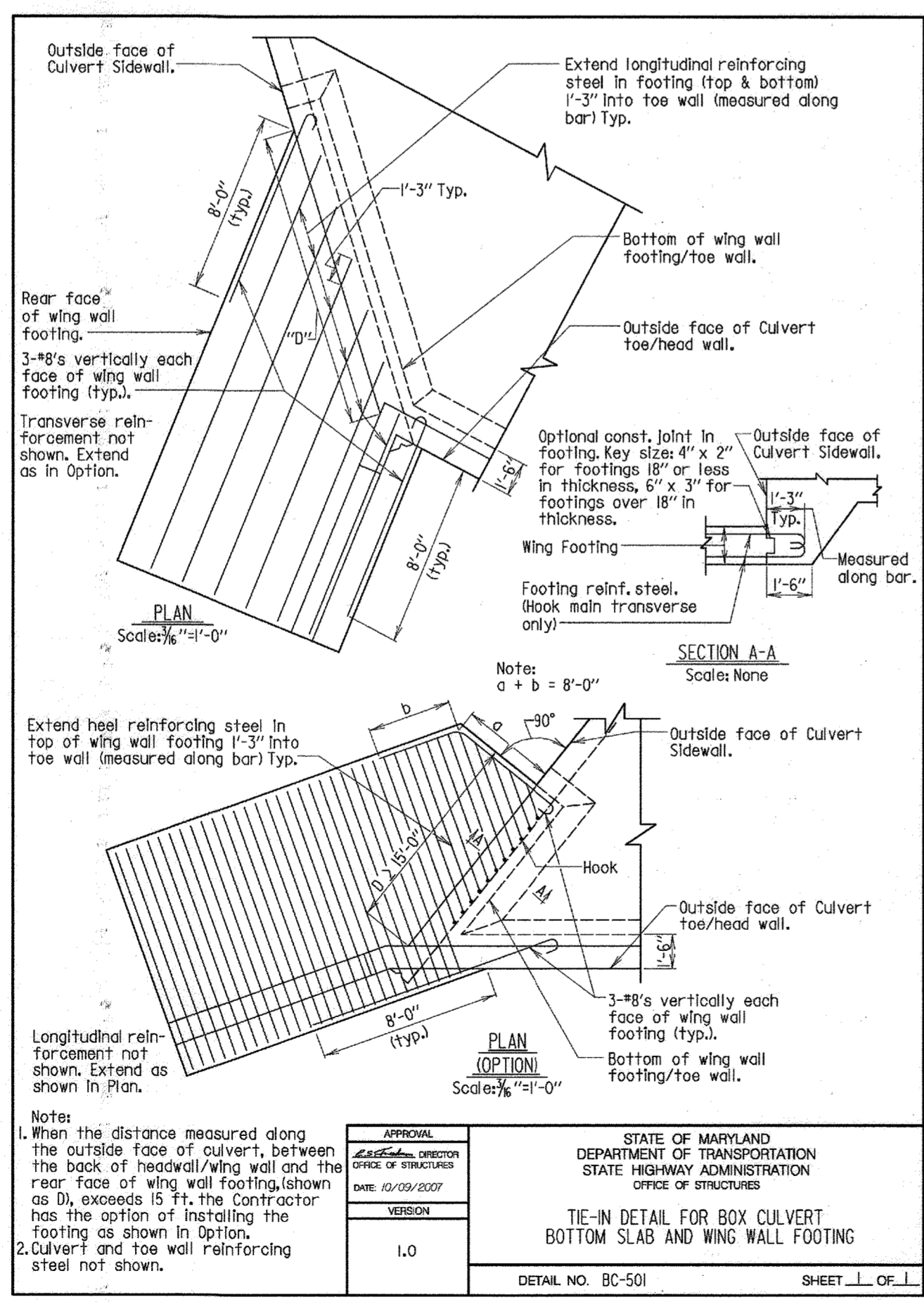
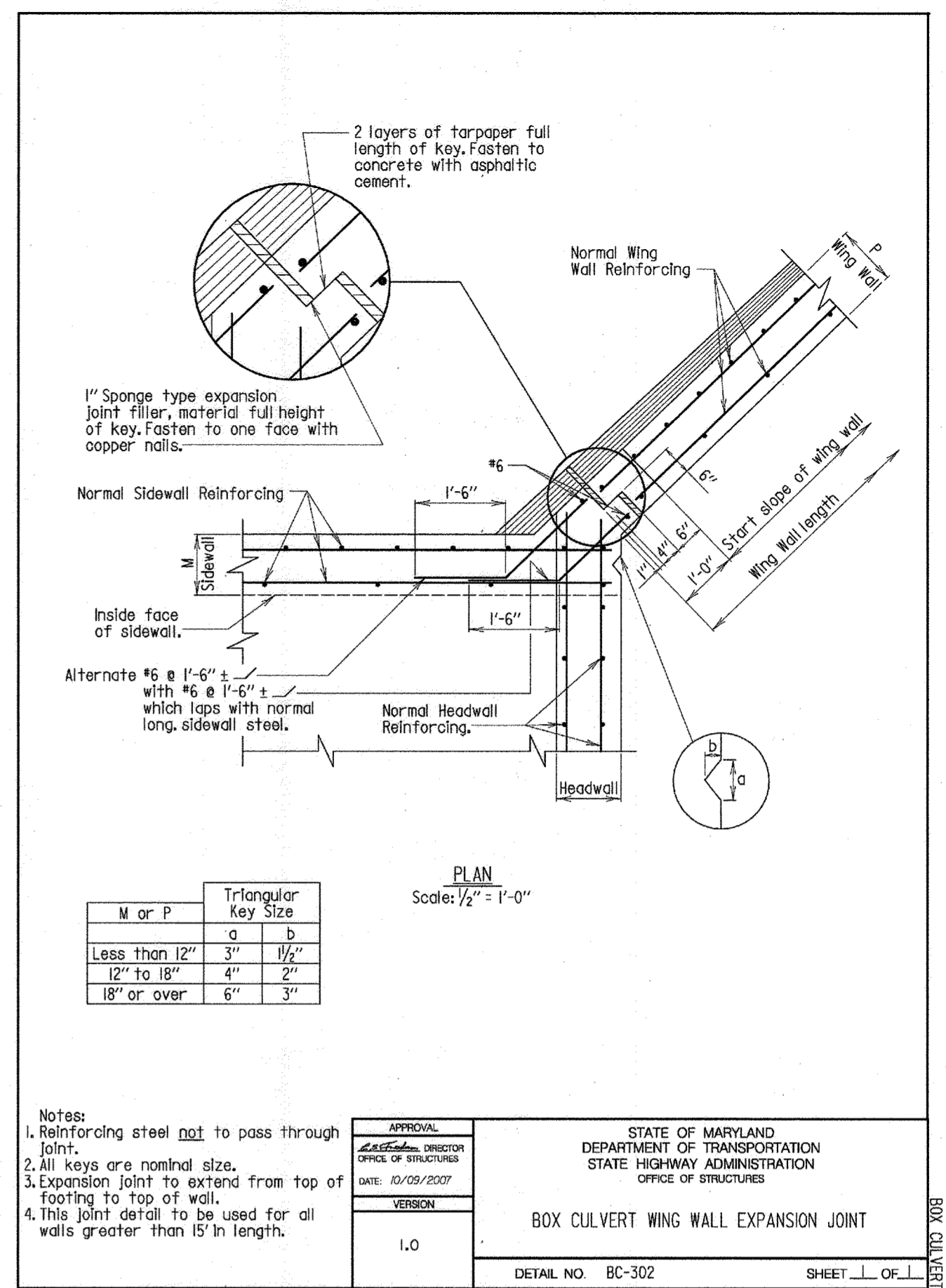
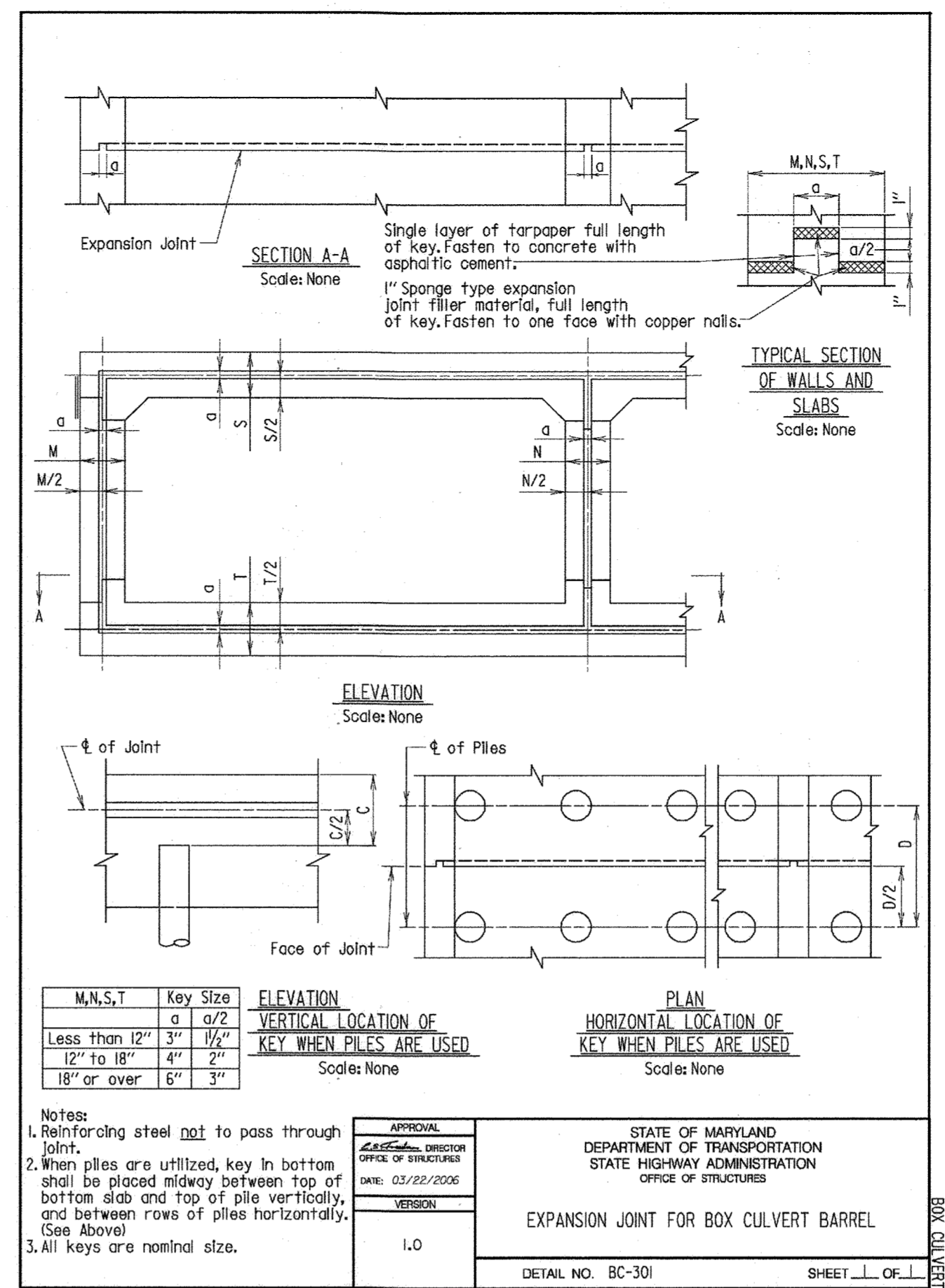
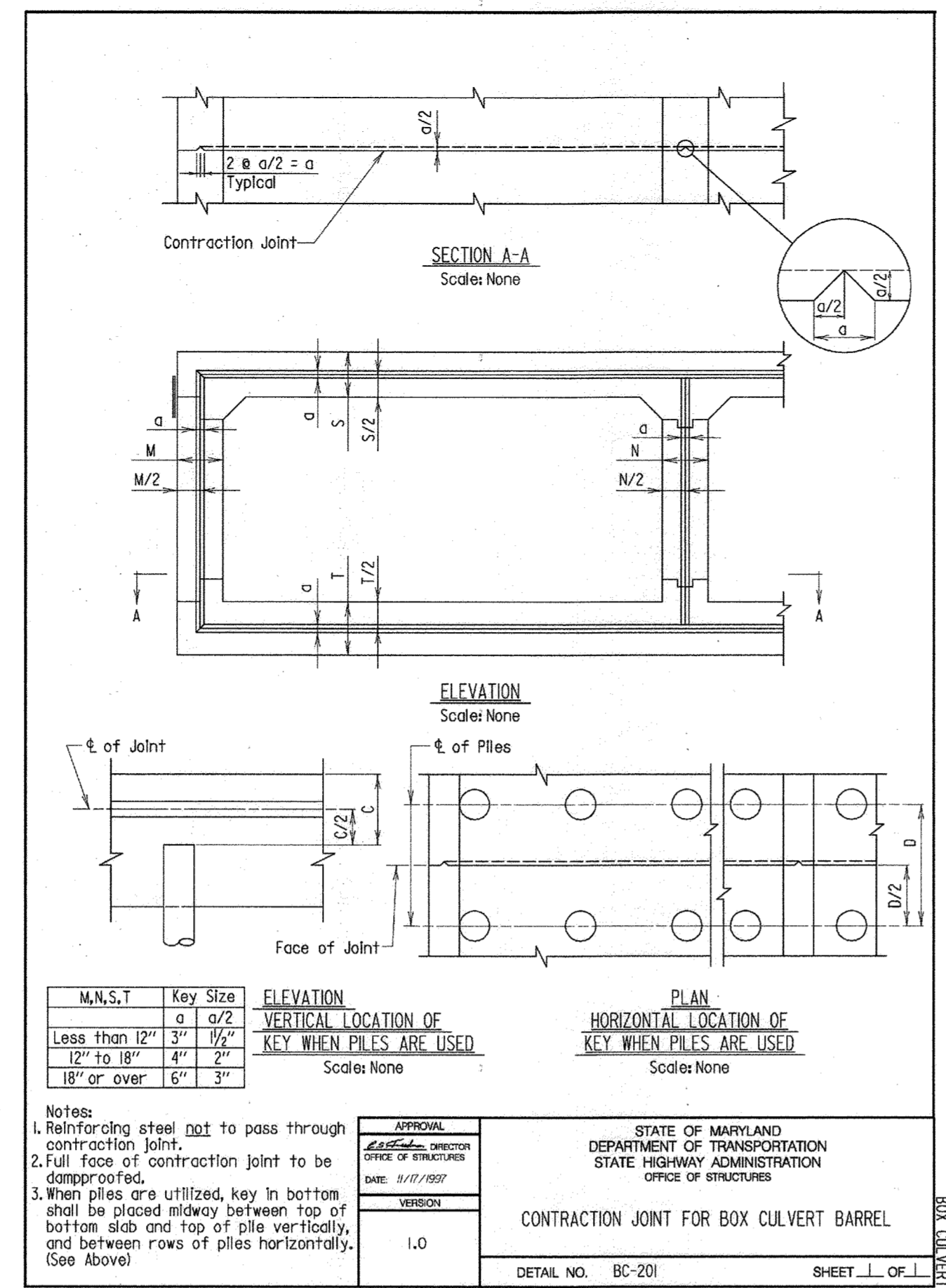
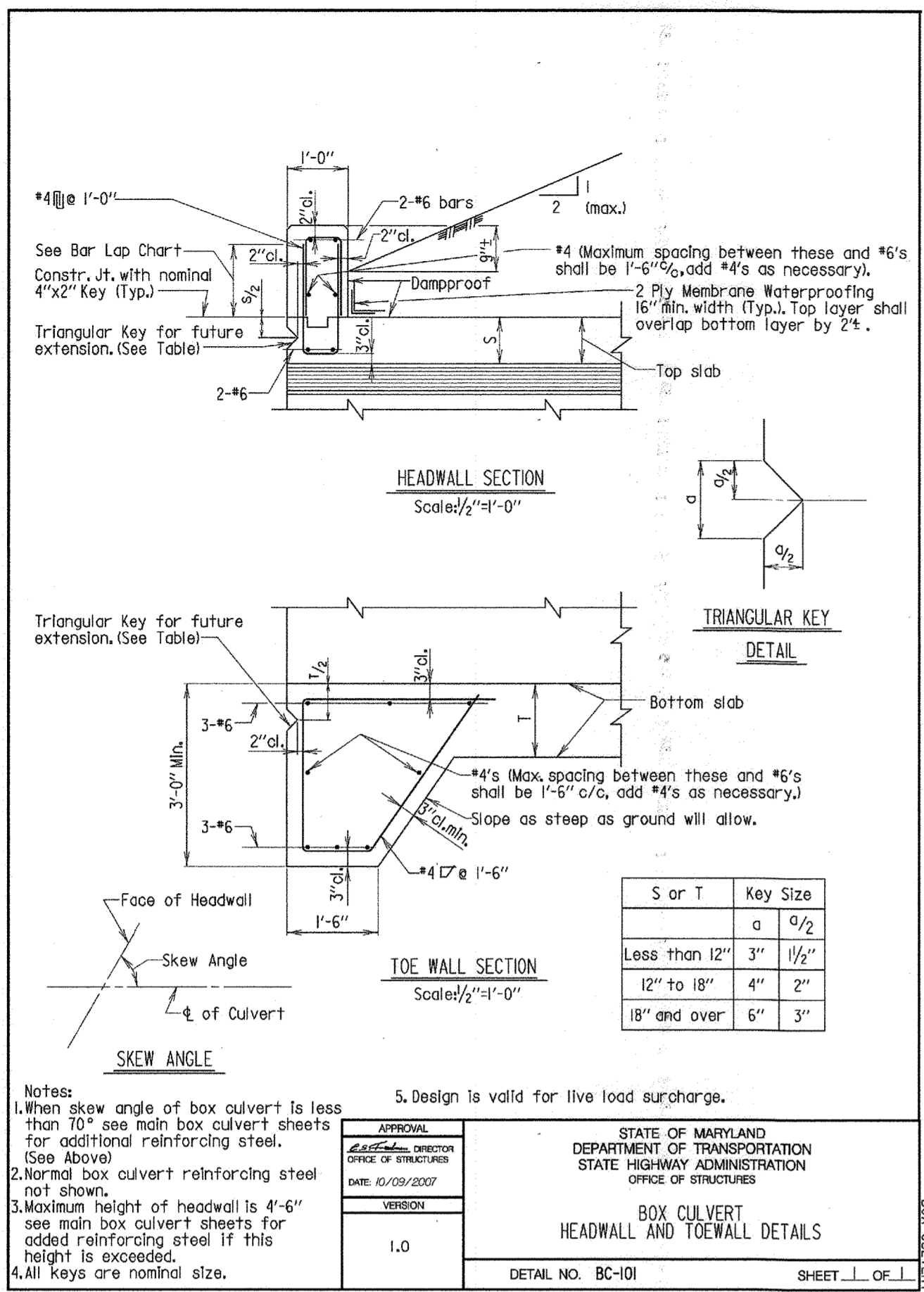
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CULVERT PLAN, ELEVATION, AND SECTION
LYHUS PROPERTY
HOWARD COUNTY, MD.

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
1	PARAPET AND FENCE ADDED	7/6/21	G20054	PR
			SCALE: AS SHOWN	DRAWN BY: PR
			DATE: 7/6/2020	APPROVED BY: PR

91 OF 146 SHEET



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell 7/16/24
NAOMI HOWELL, PROGRAM MANAGER DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT
APPROVED: DEPARTMENT OF PLANNING AND ZONING
7/16/24
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
CHIEF, DIVISION OF LAND DEVELOPMENT DATE
7/16/24
DIRECTOR

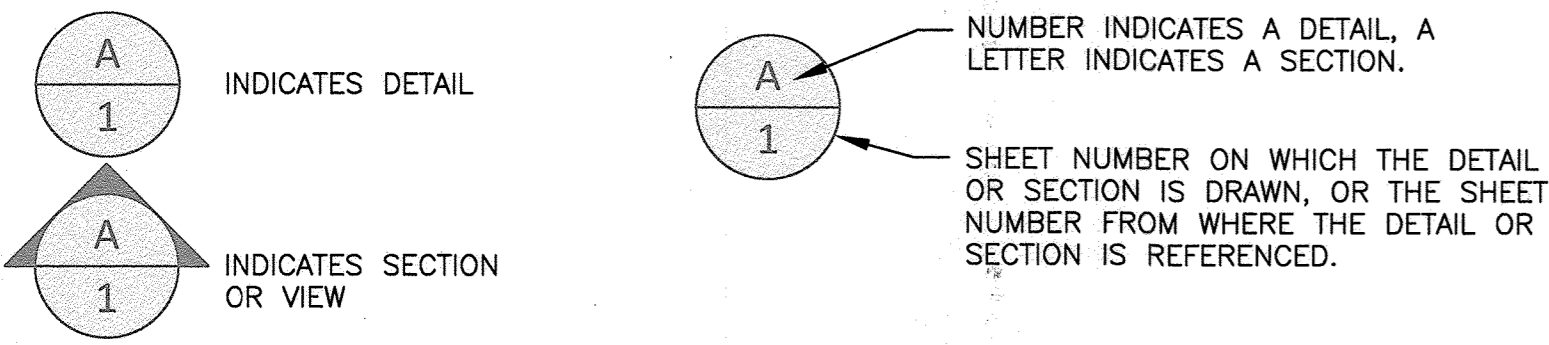
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CONCRETE CULVERT AND WING WALL CONSTRUCTION DETAILS
LYHUS PROPERTY
12170 LIME KILN ROAD
HOWARD COUNTY, MARYLAND

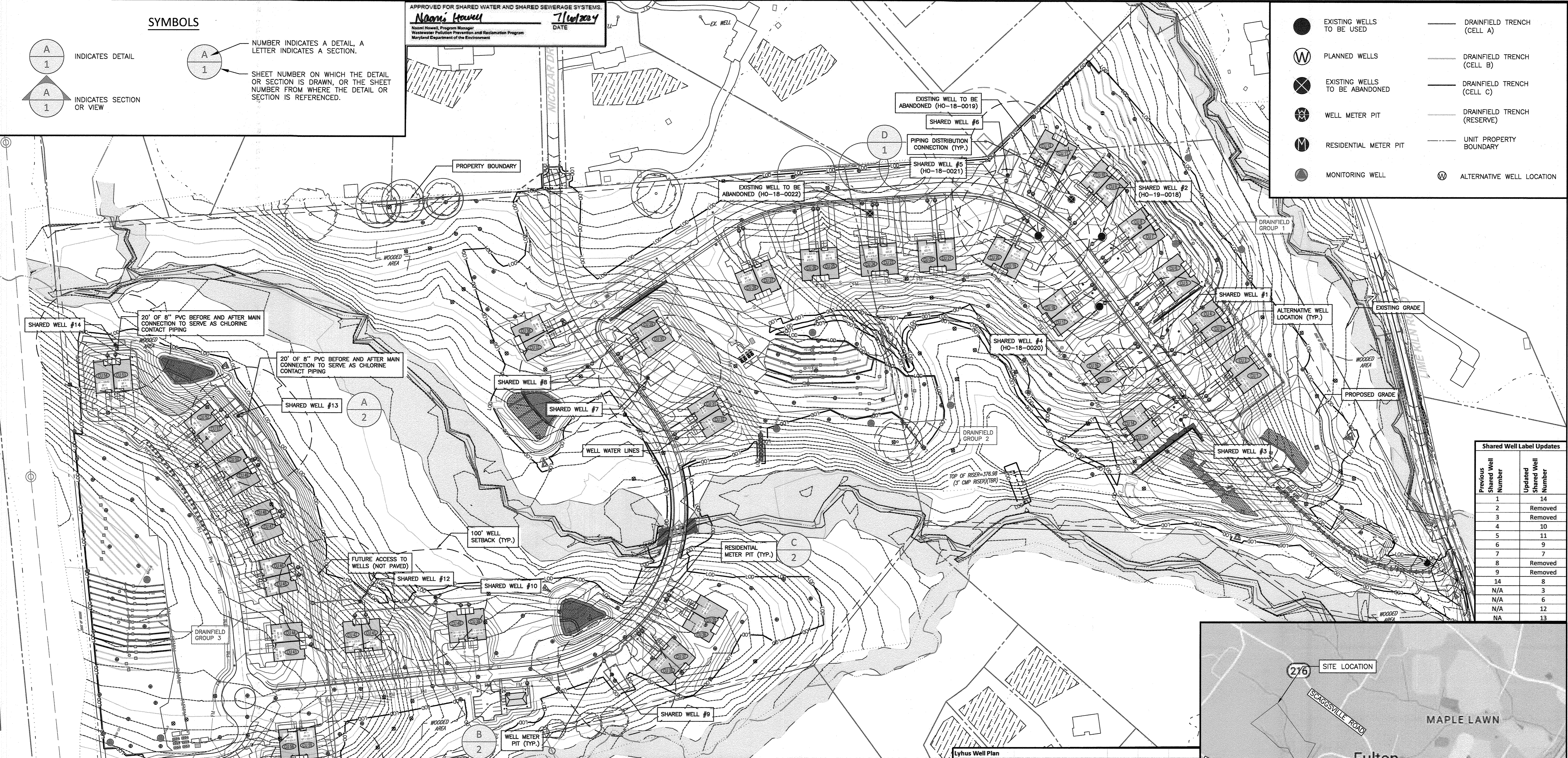
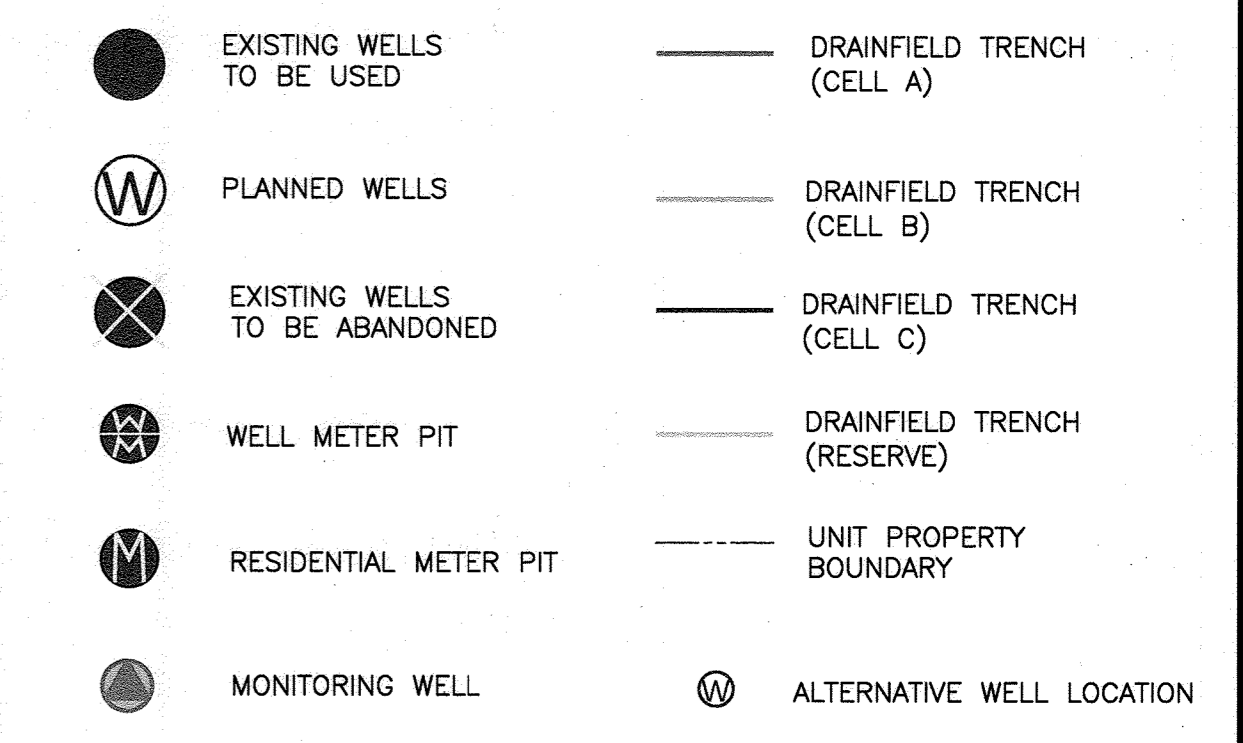
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			20121A	HM
			SCALE: AS SHOWN	DRAWN BY: HM
			DATE: 7/6/20	APPROVED BY: PR

92 OF 146 SHEET

SYMBOLS



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Noemi Howell
 Noemi Howell, Program Manager
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment
 DATE: 7/16/24



Shared Well Label Updates

Previous Shared Well Number	Updated Shared Well Number
1	14
2	Removed
3	Removed
4	10
5	11
6	9
7	7
8	Removed
9	Removed
14	8
N/A	3
N/A	6
N/A	12
NA	13

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 7/16/24
 DIRECTOR DATE: 7/16/24

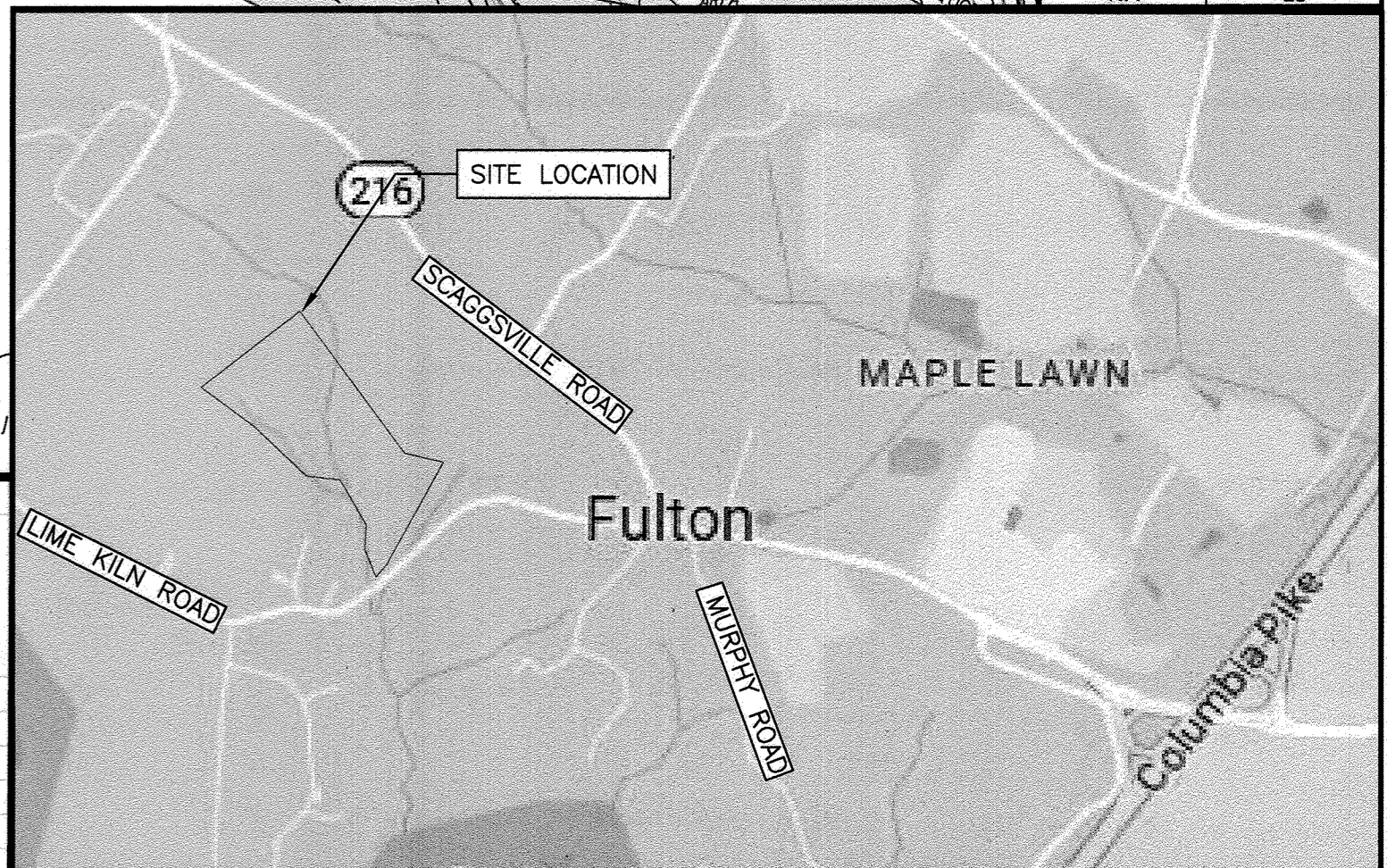
Lyhus Well Plan

Well Group	Associated Shared Wells	Connected Units	Total Units	Bedrooms	Yield Requirements (gpd)
1	1 & 2	CU1 - CU8	8	24	3600
2	3 & 4	CU9 - CU18	10	24	3600
3	5 & 6	CU19 - CU28	10	20	3000
4	7 & 8	CU29 - CU34	6	12	1800
5	9 & 10	CU35 - CU42, Comm. Center	9	17	2550
6	11 & 12	CU43 - CU46, CU55 to CU58	8	24	3600
7	13 & 14	CU47 - CU54	8	24	3600
Totals			59	145	

Well Site Plan

Test #	Well Tag	Test Lot	Depth of Well (ft.)	Depth of Casing (ft.)	Test Pump Depth (ft.)	Pumping Rate (gpm)	Initial Water Level (ft.)	Final Water Level (ft.)	Pump Time to Reach Final Water Level (hr)	Total Pump Time (hr)
55796	HO-18-0018	4	300	80	200	10	25.8	131	2.75	5.75
55799	HO-18-0019	5	401	78	275	5	26	156	0.75	3.75
55770	HO-18-0020	9	301	80	250	12	22	60	1	4
55800	HO-18-0021	10	220	80	90	10	33	67	1.5	4.5
55798	HO-18-0022	12	360	52	350	3	31	262	0.75	6.45

Notes:
 All existing wells are drilled with a 6-inch diameter casing, new wells to have 8-inch diameter casing.



- GENERAL NOTES:**
- THREE OF THE PLANNED WELLS CORRESPOND TO EXISTING WELLS PREVIOUSLY DRILLED FOR TESTING. THEY ARE THE FOLLOWING:
 - SHARED WELL #12 CORRESPONDS TO WELL TEST 55795 (HO-18-0018).
 - SHARED WELL #11 CORRESPONDS TO WELL TEST 55770 (HO-18-0020).
 - SHARED WELL #10 CORRESPONDS TO WELL TEST 55800 (HO-18-0021).
 - WELLS HO-18-0019 AND HO-18-0022 WILL NOT BE USED AND ARE TO BE ABANDONED.
 - WELLS WITHOUT WELL BOXES HAVE TWO ALTERNATIVE WELL LOCATIONS. THESE WELLS INCLUDE SHARED WELL 11, 12, and 13.
 - WATER MAINS TO BE 2" DIAMETER UNLESS OTHERWISE NOTED.

Well Site Plan

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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. 50293 EXPIRATION DATE 8/12/15/24.

Bar is one inch on original drawing

If not one inch on this sheet, adjust scales accordingly

Verify Scale

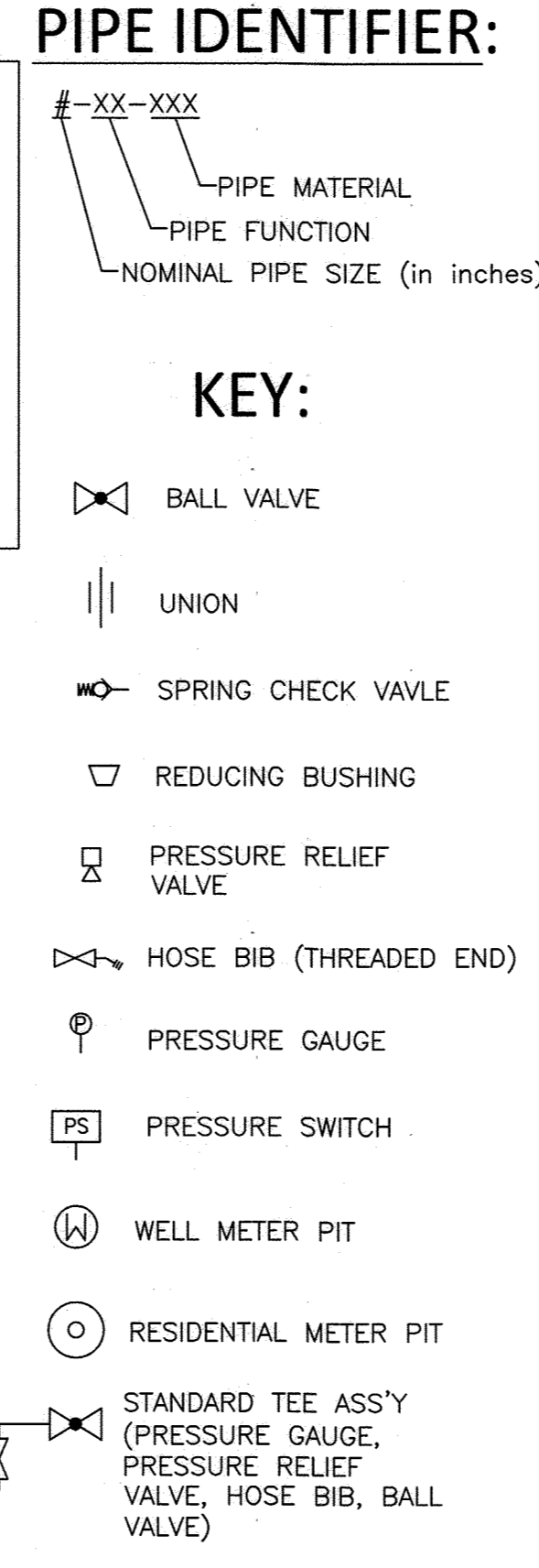
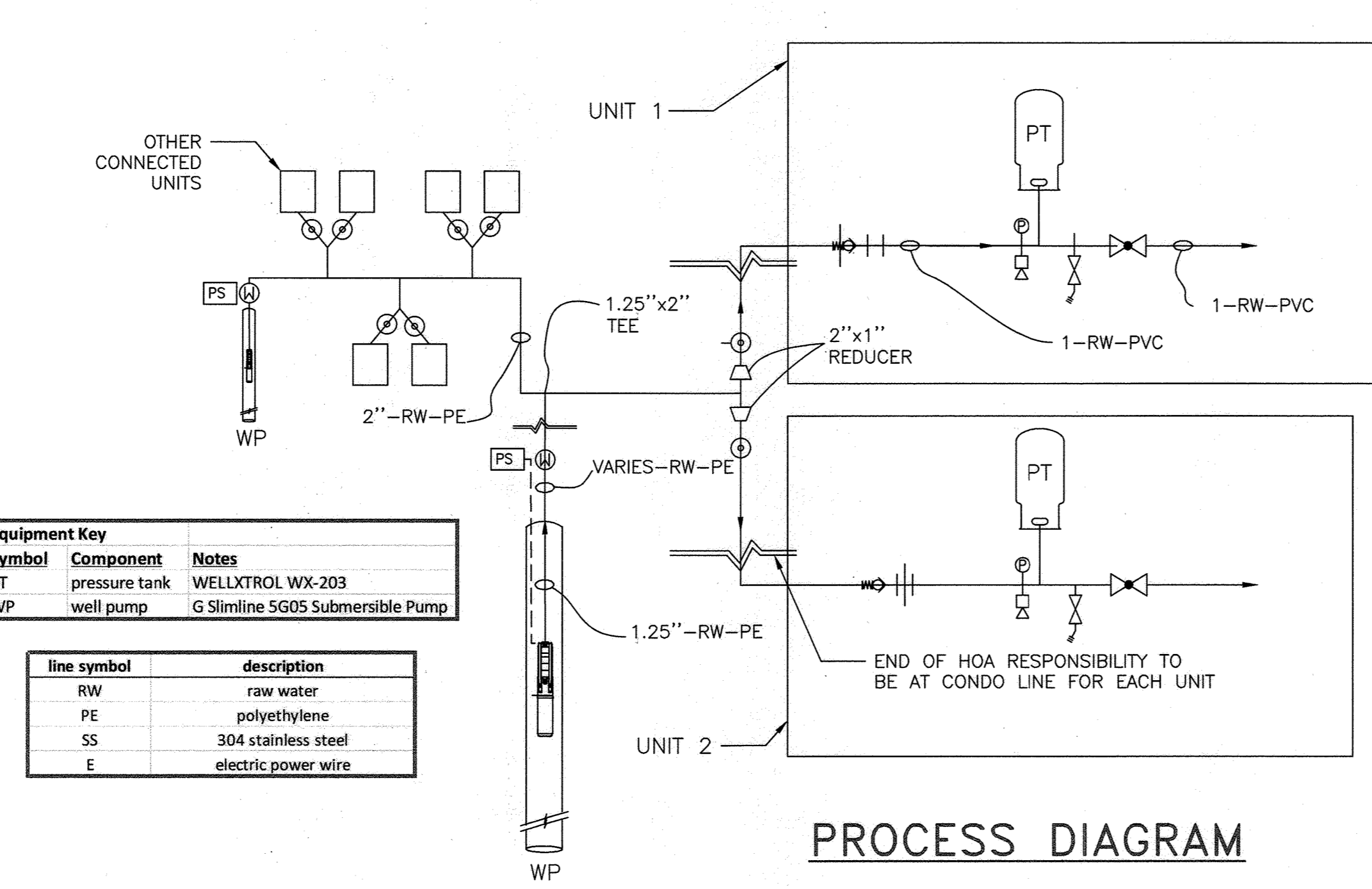
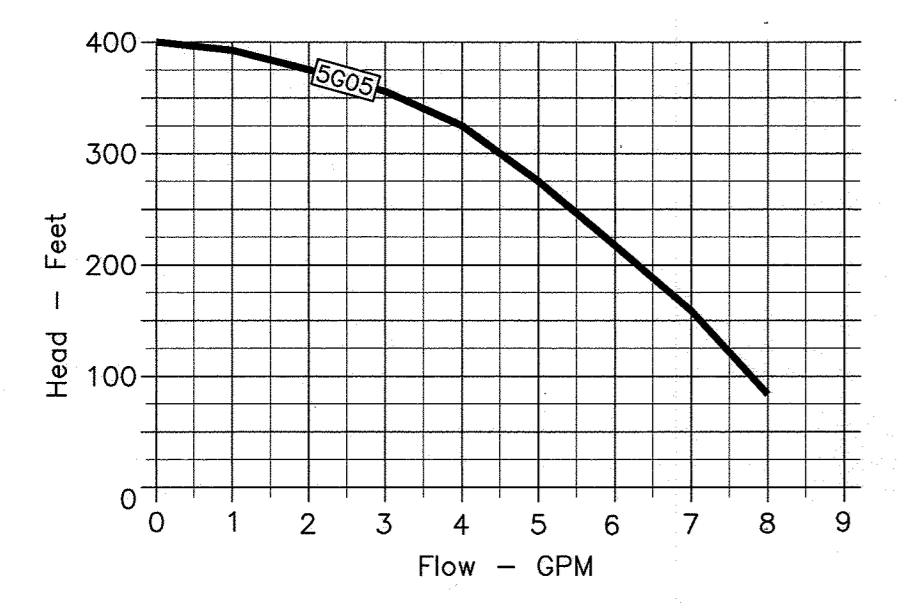
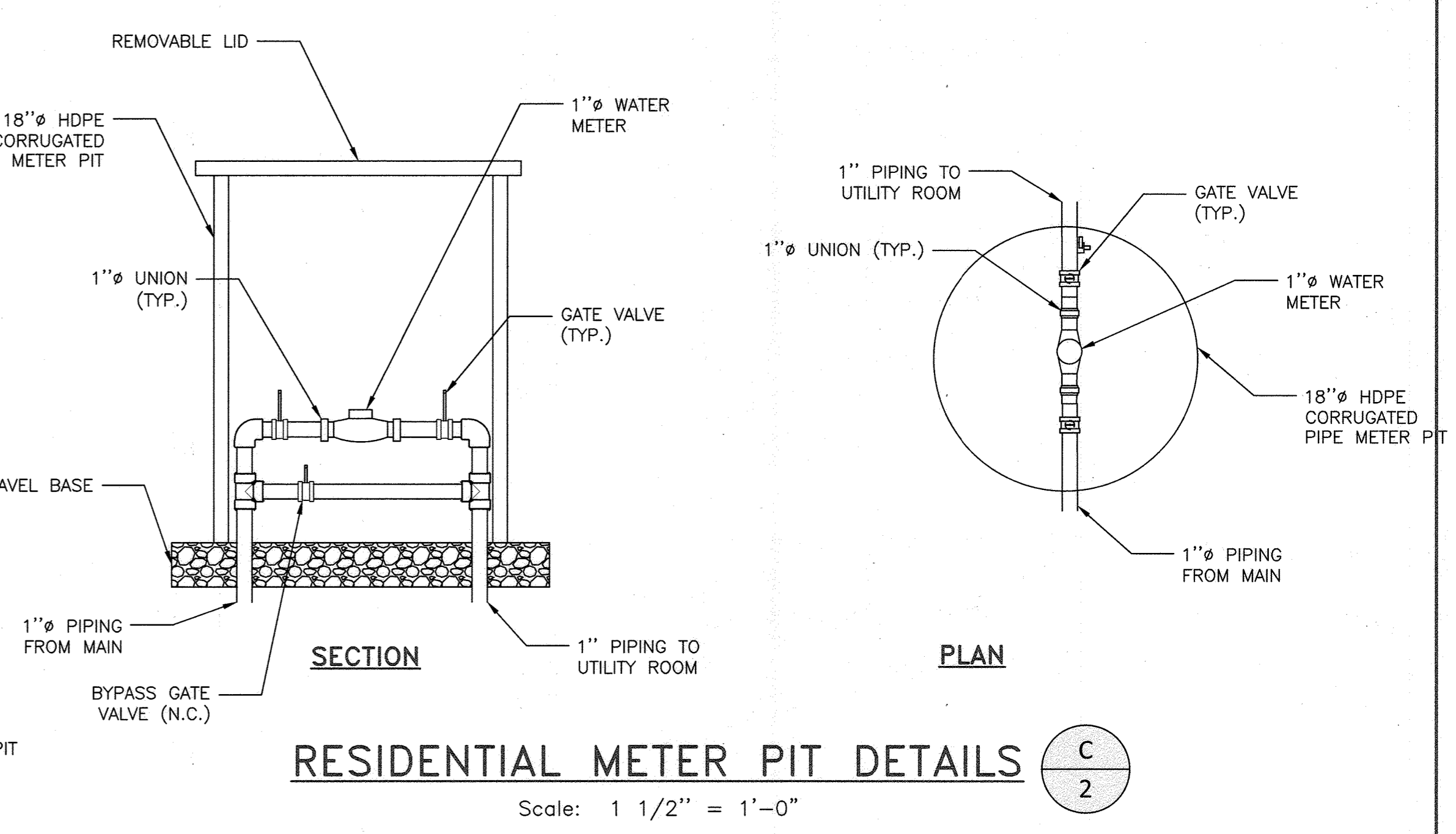
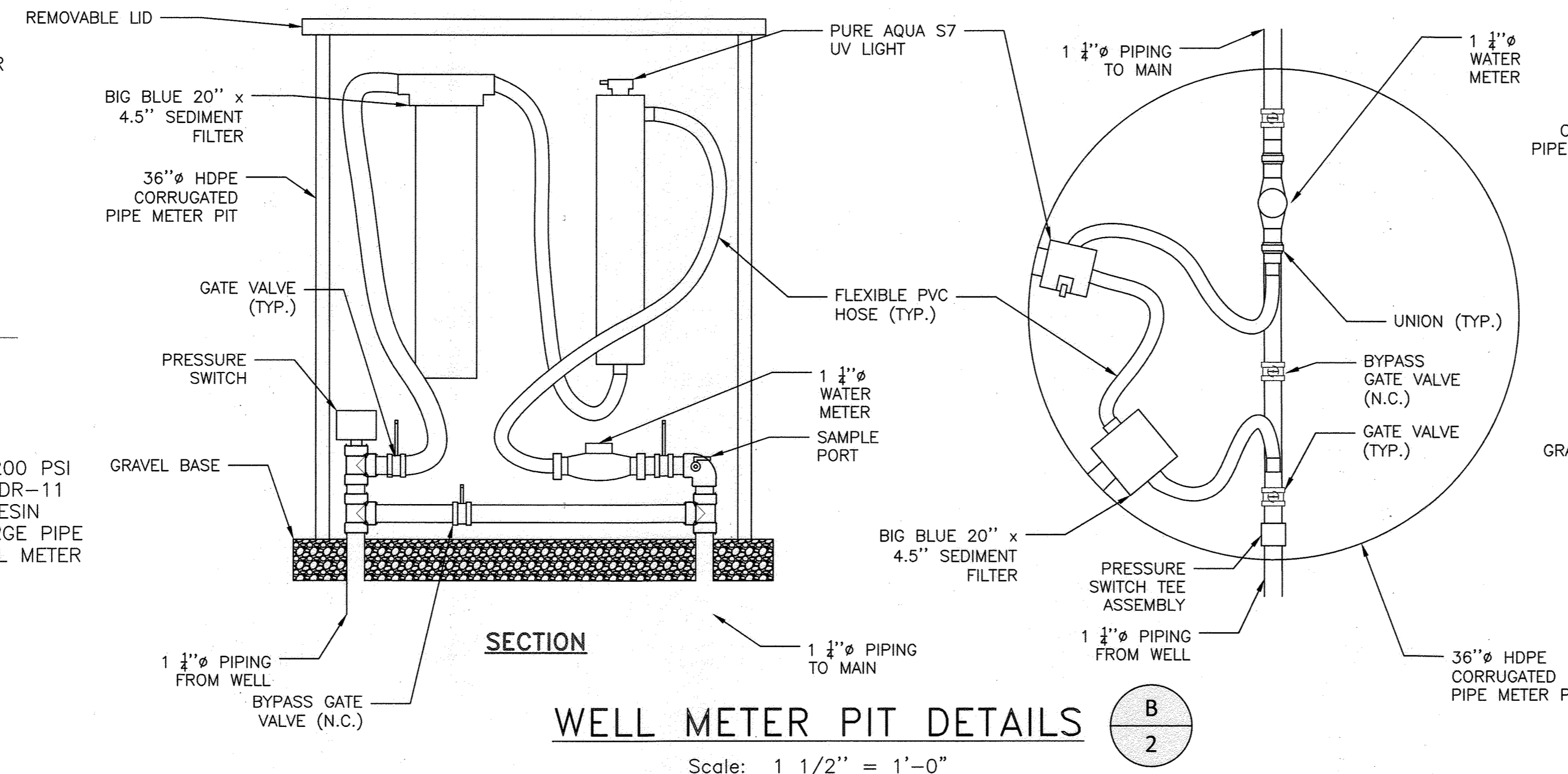
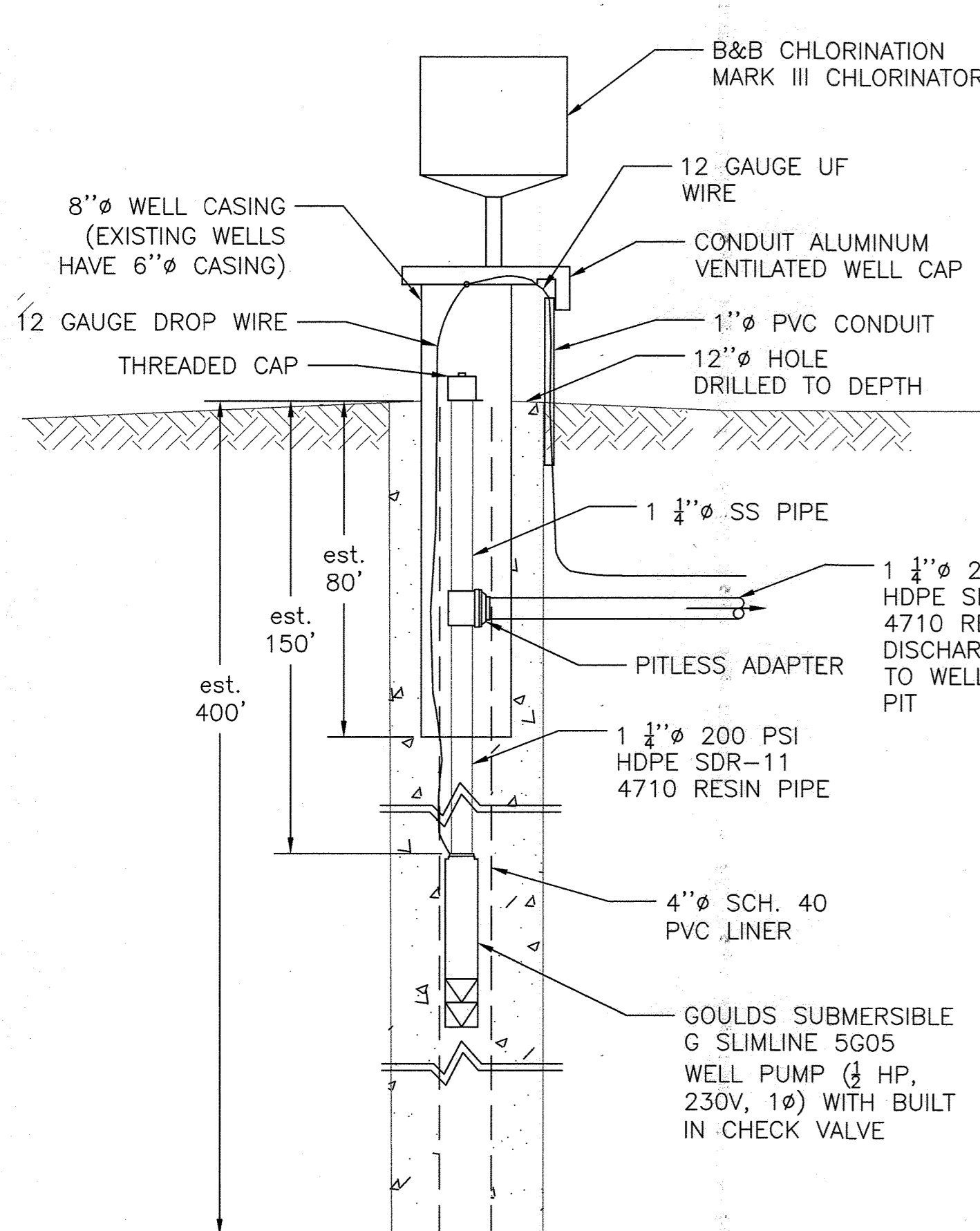
Client: **H&H Rock Companies**
 Project Location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 Project: **Lyhus Property**
 Title: **Well Plan**

Hydro-Terra GROUP

Drawn by: J. Brymeszer 12/12/24
 Checked by: M. Hauffer 1/12/24
 Approved by: M. Mazzochelle 12/12/24

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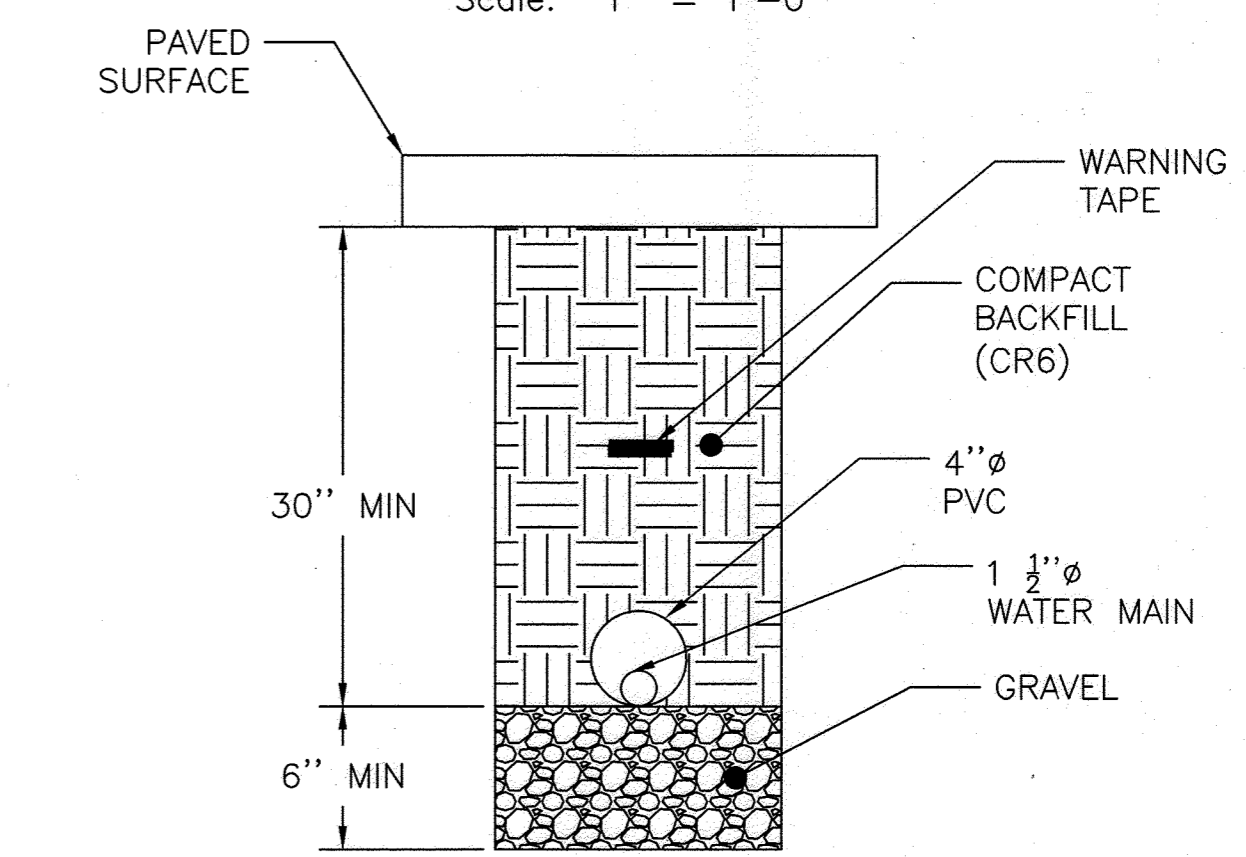
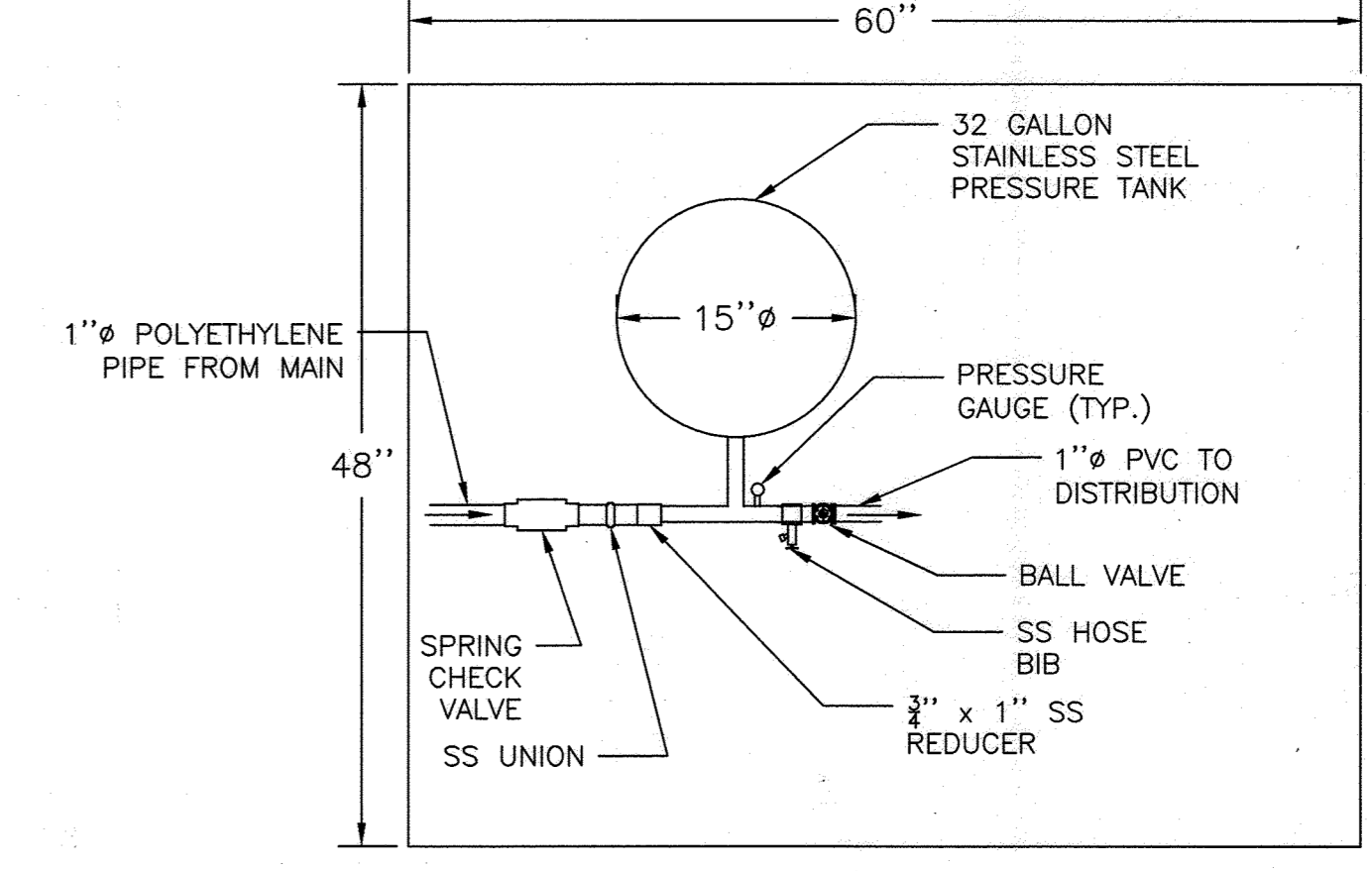
www.hydro-terra.com (410) 861-5376



Equipment Key

Symbol	Component	Notes
PT	pressure tank	WELLXTROL WX-203
WP	well pump	G Slimline 5G05 Submersible Pump

line symbol	description
RW	raw water
PE	polyethylene
SS	304 stainless steel
E	electric power wire



GENERAL NOTES:

- WATER LINES OUT OF WELL TO BE 1 1/2" Ø. WATER MAIN TO BE 1 1/2" Ø. WATER LATERALS TO EACH INDIVIDUAL UNIT TO BE 1" Ø.
- EACH UNIT TO UTILITY ROOM WITH PRESSURE TANK AND WILL BE AMTROL WX-203 TANK OR EQUIVALENT.
- PRESSURE SWITCH WILL BE INCLUDED FOR EACH WELL CONTROL. TO BE LOCATED INSIDE EACH WELL METER PIT. POWER SUPPLY FOR WELLS TO BE PROVIDED BY BGE.
- ALL POLYETHYLENE PIPE CONNECTIONS WILL HAVE TWO SS PIPE CLAMPS.
- WELL, PUMP, AND CASING DEPTH ARE ALL ESTIMATED AND WILL BE CONFIRMED IN THE FIELD.
- 4" Ø SCH. 40 PVC LINER TO BE INSTALLED IN SPECIFIC WELLS DUE TO UNSTABLE BOREHOLE CONDITIONS.
- EACH WELL TO HAVE WELL METER PIT AND CONTROLS LOCATED 10' FROM EACH WELL. SEE WELL METER PIT DETAIL THIS SHEET.
- EACH UNIT TO BE SERVED BY RESIDENTIAL WATER METERS LOCATED OUTSIDE OF EACH INDIVIDUAL UNIT AND TO BE CONTROLLED BY MES. PRESSURE SWITCH FOR EACH WELL TO BE LOCATED AT NEAREST RESIDENTIAL WATER METER. SEE DETAILS THIS SHEET.
- WATER METERS TO BE DWYER WPTN-A-C-04-1.
- THE POWER SUPPLY FOR THE WELL PUMPS WILL BE METERED SEPARATELY FROM THE RESIDENTIAL SERVICE CONNECTIONS. POWER TO WELL PUMPS TO BE SUPPLIED BY COMMUNITY POWER.
- ALL WATER SYSTEM COMPONENTS INSIDE EACH UNIT TO BE HOMEOWNER'S RESPONSIBILITY. WATER TREATMENT EQUIPMENT TO BE UP TO HOMEOWNERS DISCRETION AND MUST BE APPROVED BY HOA.
- ALL WATER LINES UNDER PAVED SURFACES TO BE SLEEVED IN 4" Ø SCH. 40 PVC. SLEEVE TO EXTEND FIVE FEET ON EACH SIDE OF PAVED SURFACE EDGE.
- TRACER WIRE MUST BE INSTALLED ABOVE ALL NON-METALIC PIPING WITH TEST STATIONS EVERY 300 FEET.
- WARNING TAPE TO BE INSTALLED 18" ABOVE WATER LINE.
- WELLS 1-14 WILL BE TESTED FOR RADIUM AFTER WELL CONSTRUCTION IS COMPLETE. THESE WELLS WILL ALSO FOLLOW TESTING GUIDELINES AND CONDITIONS WITHIN THE MAINTENANCE AND OPERATIONS PLAN. TREATMENT WILL BE ADDED TO PLANS IF NECESSARY, PENDING RESULTS.
- B&B CHLORINATION MARK III 10 LB. PELLET CAPACITY CHLORINATION SYSTEM, BIG BLUE SEDIMENT FILTER, AND PURE AQUA S7 UV LIGHT TO BE USED ON WELLS 13 AND 14 AND WILL BE USED ON OTHER WELLS IF REQUIRED.
- IN ADDITIONAL TO THE TESTING REQUIRED FOR THE CERTIFICATED OF POTABILITY, EVERY WATER SUPPLY WELL MUST BE TESTED ANNUALLY FOR BACTERIA, NITRATES, CHLORIDES, ARSENIC, AND ANY OTHER KNOWN GROUNDWATER CONTAMINANTS IN THE AREA. ALL WATER TEST RESULTS MUST BE PROVIDED TO THE USERS ANNUALLY. ANY RESULTS THAT INDICATED EXCEEDANCES ABOVE WATER QUALITY STANDARDS WILL NEED TO BE REMEDIATED ACCORDINGLY.

Chlorine Contact Calculations

Well #	13	14	
Flow Per Bedroom =	150	150	gal
Total Well Yield Requirement =	3600	3600	gpd
Total Bedroom Connections =	24	24	#
Max Yield Requirement =	3600	3600	gpd
Contact Pipe ID =	5.00	2.50	gpm
Distance to First Connection =	8.00	7.94	in
2" Water Main ID =	0.67	0.66	ft
Distance to First Connection =	19	20	ft
Contact Pipe Volume =	8.00	2.05	in
Distance to First Connection =	0.67	0.17	ft
Contact Pipe Volume =	20	5	ft
Theoretical Detention Time =	101.8	52.3	gal
	20.4	20.9	min

Note: Theoretical detention time to be at minimum of 20 minutes to ensure adequate chlorine residual at unit connections.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
7/16/24
CHIEF, DEVELOPMENT ENGINEERING DIVISION
7/16/24
CHIEF, DIVISION OF LAND DEVELOPMENT
7/16/24
DIRECTOR

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell
Naomi Howell, Program Manager
Wastewater Pollution Prevention and Remediation Program
Maryland Department of the Environment
7/16/2024

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. 50293 EXPIRATION DATE IS 12/31/24



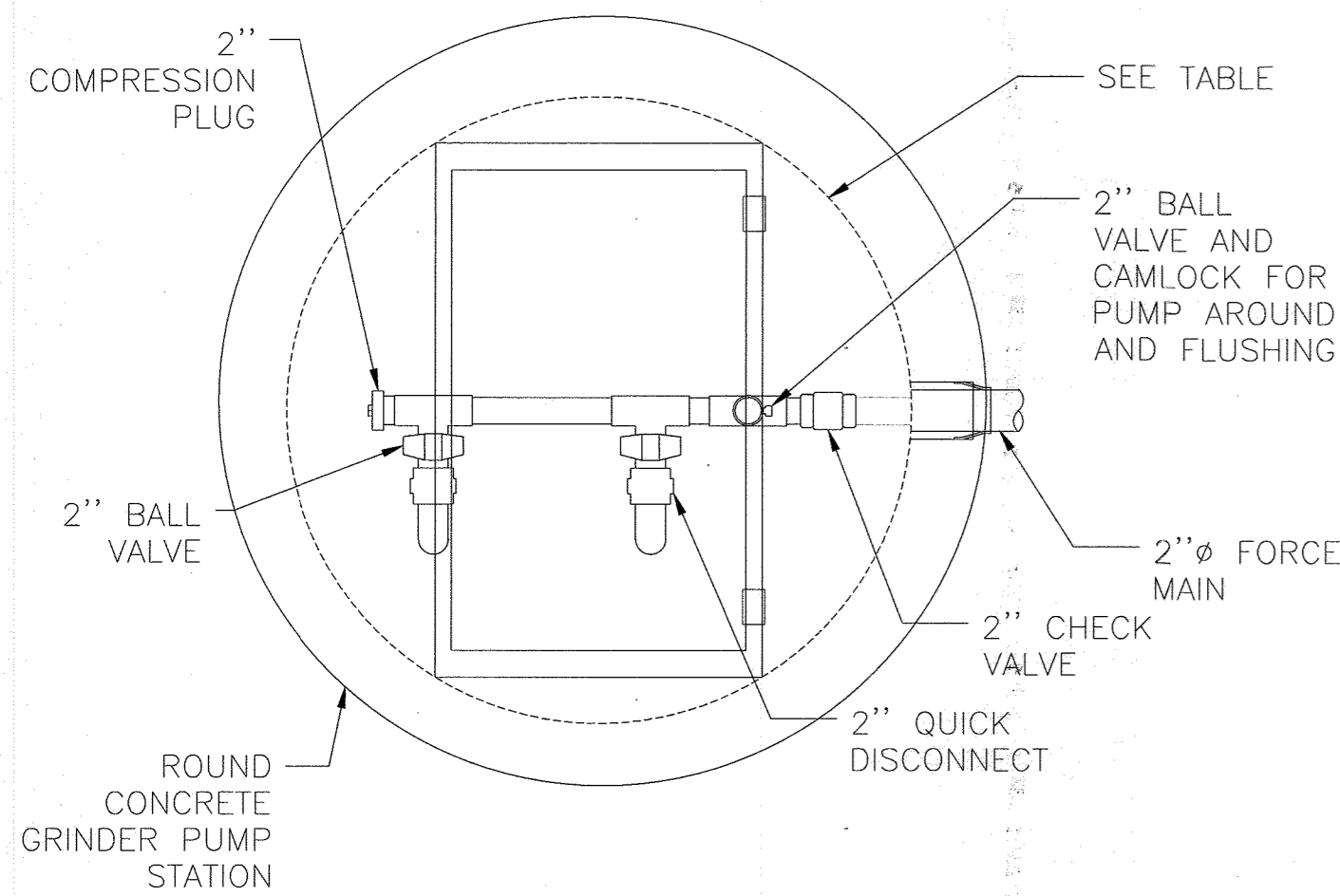
Verify Scale
Bar is one inch on original drawing
0 1"

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no.	description	date	by	approved

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client: **H&H Rock Companies**
project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
project: **Lythus Property**
sheet: **Well Details**
Hydro-Terra GROUP
drawn: **J. Brymessor** date: **1/12/24**
checked: **M. Hauffer** date: **1/12/24**
approved: **M. Mazzochella** date: **1/12/24**
File no. **Lythus Drainfield Plans.dwg**
94 of 146
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PLAN
GRINDER PUMP STATION
NOT TO SCALE

Design Input			
Group 2 B5 Grinder Pump Station			
residential units connected to pump station	14	design average daily flow (gpd)	2100
equivalent bedrooms connected to pump station	28	pump station capacity (gal)	1462,40823
design maximum daily flow (gpd)	4200	pump station specific capacity (gal/inch)	24.0
design maximum daily flow (gpm)	2.9	dose volume (gal)	287.9
design average daily flow (gpd)	2100	dose/day @ ADF	7.3
design average daily flow (gpm)	1.5	dose time (min)	14.4
peaking factor	4	stagnant volume (gal)	287.875636
peak flow rate (gpm)	5.8	hours of emergency storage required	2
design flow (two pumps, gpm)	20	2 hour volume @ peak flow rate (gal)	700
approximate finished grade elevation (ft msl)	389.16	emergency storage volume (gal)	815
grinder pump station inlet elevation (feet msl)	382.24	cubic yards of concrete needed for balast	2
force main invert elevation (feet msl)	385.95		
approximate bottom elevation (ft msl)	377.16		
approximate grinder pump elevation (ft msl)	378	lift (feet)	31
approximate transition manhole invert elevation (ft msl)	409	head loss (feet)	6.7
pump station inner diameter (in)	84	TDH (feet)	38.0
inlet invert height from bottom (in)	60.96	force main velocity (ft/s)	2.2
pump off height (in)	12		
lead pump on height (in)	24		
alarm/lag pump on height (in)	27		
discharge line interior diameter (in)	1.943		
discharge line length (ft)	592		
friction C factor for polyethylene pipe	140	Pump: Liberty 1 HP Omnivore PRG102A	
		Control Panel: SJE Rhombus 1221W134H	

Design Input			
Group B8 Grinder Pump Station			
residential units connected to pump station	6	design average daily flow (gpd)	900
equivalent bedrooms connected to pump station	12	pump station capacity (gal)	564
design maximum daily flow (gpd)	1800	pump station specific capacity (gal/inch)	7.8
design maximum daily flow (gpm)	1.25	dose volume (gal)	94.0
design average daily flow (gpd)	900	dose/day @ ADF	9.6
design average daily flow (gpm)	0.63	dose time (min)	3.9
peaking factor	4	stagnant volume (gal)	94.0
peak flow rate (gpm)	2.50	hours of emergency storage required	2
design flow (two pumps, gpm)	24	2 hour volume @ peak flow rate (gal)	300
approximate finished grade elevation (ft msl)	386.21	emergency storage volume (gal)	353
grinder pump station inlet elevation (feet msl)	382.21	cubic yards of concrete needed for balast	1.5
force main invert elevation (feet msl)	383.21		
approximate bottom elevation (ft msl)	376.21		
approximate grinder pump elevation (ft msl)	376.71	lift (feet)	30.29
approximate transition manhole invert elevation (ft msl)	407	head loss (feet)	2.1
pump station inner diameter (in)	48	TDH (feet)	32.4
inlet invert height from bottom (in)	72	force main velocity (ft/s)	2.6
pump off height (in)	12		
lead pump on height (in)	24		
alarm/lag pump on height (in)	27		
discharge line interior diameter (in)	1.943		
discharge line length (ft)	135		
friction C factor for polyethylene pipe	140	Pump: Liberty 1 HP Omnivore PRG102A	
		Control Panel: SJE Rhombus 1221W134H	

Design Input			
Group 3 E2 Grinder Pump Station			
residential units connected to pump station	12	design average daily flow (gpd)	2700
equivalent bedrooms connected to pump station	36	pump station capacity (gal)	1929
design maximum daily flow (gpd)	5400	pump station specific capacity (gal/inch)	31.3
design maximum daily flow (gpm)	3.75	dose volume (gal)	376.0
design average daily flow (gpd)	2700	dose/day @ ADF	7.2
design average daily flow (gpm)	1.88	dose time (min)	17.1
peaking factor	4	stagnant volume (gal)	376.0
peak flow rate (gpm)	7.50	hours of emergency storage required	2
design flow (two pumps, gpm)	22	2 hour volume @ peak flow rate (gal)	900
approximate finished grade elevation (ft msl)	427.82	emergency storage volume (gal)	1083
grinder pump station inlet elevation (feet msl)	417.95	cubic yards of concrete needed for balast	4.4
force main invert elevation (feet msl)	424.82		
approximate bottom elevation (ft msl)	412.82		
approximate grinder pump elevation (ft msl)	413.32	lift (feet)	23.06
approximate transition manhole invert elevation (ft msl)	436.38	head loss (feet)	10.8
pump station inner diameter (in)	96	TDH (feet)	33.9
inlet invert height from bottom (in)	61.56	force main velocity (ft/s)	2.4
pump off height (in)	12		
lead pump on height (in)	24		
alarm/lag pump on height (in)	27		
discharge line interior diameter (in)	1.943		
discharge line length (ft)	807		
friction C factor for polyethylene pipe	140	Pump: Liberty 1 HP Omnivore PRG102A	
		Control Panel: SJE Rhombus 1221W134H	

Design Input			
Group 3 E4 Grinder Pump Station			
residential units connected to pump station	13	design average daily flow (gpd)	1725
equivalent bedrooms connected to pump station	23	pump station capacity (gal)	1459
design maximum daily flow (gpd)	3450	pump station specific capacity (gal/inch)	31.3
design maximum daily flow (gpm)	2.40	dose volume (gal)	376.0
design average daily flow (gpd)	1725	dose/day @ ADF	4.6
design average daily flow (gpm)	1.20	dose time (min)	13.9
peaking factor	4	stagnant volume (gal)	376.0
peak flow rate (gpm)	4.79	hours of emergency storage required	2
design flow (two pumps, gpm)	27	2 hour volume @ peak flow rate (gal)	575
approximate finished grade elevation (ft msl)	435.64	emergency storage volume (gal)	613
grinder pump station inlet elevation (feet msl)	426.52		
force main invert elevation (feet msl)	430.09		
approximate bottom elevation (ft msl)	422.64		
approximate grinder pump elevation (ft msl)	423.14	lift (feet)	13.24
approximate transition manhole invert elevation (ft msl)	436.38	head loss (feet)	15.8
pump station inner diameter (in)	96	TDH (feet)	29.1
inlet invert height from bottom (in)	46.56	force main velocity (ft/s)	2.9
pump off height (in)	12		
lead pump on height (in)	24		
alarm/lag pump on height (in)	27		
discharge line interior diameter (in)	1.943		
discharge line length (ft)	807		
friction C factor for polyethylene pipe	140	Pump: Liberty 1 HP Omnivore PRG102A	
		Control Panel: SJE Rhombus 1221W134H	

Design Input			
Group 3 E6 Grinder Pump Station			
residential units connected to pump station	5	design average daily flow (gpd)	675
equivalent bedrooms connected to pump station	9	pump station capacity (gal)	579
design maximum daily flow (gpd)	1350	pump station specific capacity (gal/inch)	12.2
design maximum daily flow (gpm)	0.94	dose volume (gal)	146.9
design average daily flow (gpd)	675	dose/day @ ADF	4.6
design average daily flow (gpm)	0.47	dose time (min)	12.2
peaking factor	4	stagnant volume (gal)	146.9
peak flow rate (gpm)	1.88	hours of emergency storage required	2
design flow (two pumps, gpm)	12	2 hour volume @ peak flow rate (gal)	225
approximate finished grade elevation (ft msl)	402.41	emergency storage volume (gal)	248
grinder pump station inlet elevation (feet msl)	395.35	cubic yards of concrete needed for balast	1.5
force main invert elevation (feet msl)	398.57		
approximate bottom elevation (ft msl)	391.41		
approximate grinder pump elevation (ft msl)	391.91	lift (feet)	40.09
approximate transition manhole invert elevation (ft msl)	432	head loss (feet)	2.1
pump station inner diameter (in)	60	TDH (feet)	42.2
inlet invert height from bottom (in)	47.28	force main velocity (ft/s)	1.3
pump off height (in)	12		
lead pump on height (in)	24		
alarm/lag pump on height (in)	27		
discharge line interior diameter (in)	1.943		
discharge line length (ft)	489		
friction C factor for polyethylene pipe	140	Pump: Liberty 1 HP Omnivore PRG102A	
		Control Panel: SJE Rhombus 1221W134H	

Design Input			
Group 3 E10 Grinder Pump Station			
residential units connected to pump station	4	design average daily flow (gpd)	600
equivalent bedrooms connected to pump station	8	pump station capacity (gal)	658
design maximum daily flow (gpd)	1200	pump station specific capacity (gal/inch)	7.8
design maximum daily flow (gpm)	0.83	dose volume (gal)	94
design average daily flow (gpd)	600	dose/day @ ADF	6.4
design average daily flow (gpm)	0.42	dose time (min)	3.0
peaking factor	4	stagnant volume (gal)	94
peak flow rate (gpm)	1.67	hours of emergency storage required	2
design flow (two pumps, gpm)	31	2 hour volume @ peak flow rate (gal)	200
approximate finished grade elevation (ft msl)	391.47	emergency storage volume (gal)	447
grinder pump station inlet elevation (feet msl)	388.47	cubic yards of concrete needed for balast	1.5
force main invert elevation (feet msl)	387.47		
approximate bottom elevation (ft msl)	381.47		
approximate grinder pump elevation (ft msl)	381.97	lift (feet)	50.03
approximate transition manhole invert elevation (ft msl)	432	head loss (feet)	22.8
pump station inner diameter (in)	48	TDH (feet)	72.8
inlet invert height from bottom (in)	84	force main velocity (ft/s)	3.4
pump off height (in)	12		
lead pump on height (in)	24		
alarm/lag pump on height (in)	27		
discharge line interior diameter (in)	1.943		
discharge line length (ft)	900		
friction C factor for polyethylene pipe	140	Pump: Liberty 2 HP Omnivore LSG202A	
		Control Panel: SJE Rhombus 1221W134H	

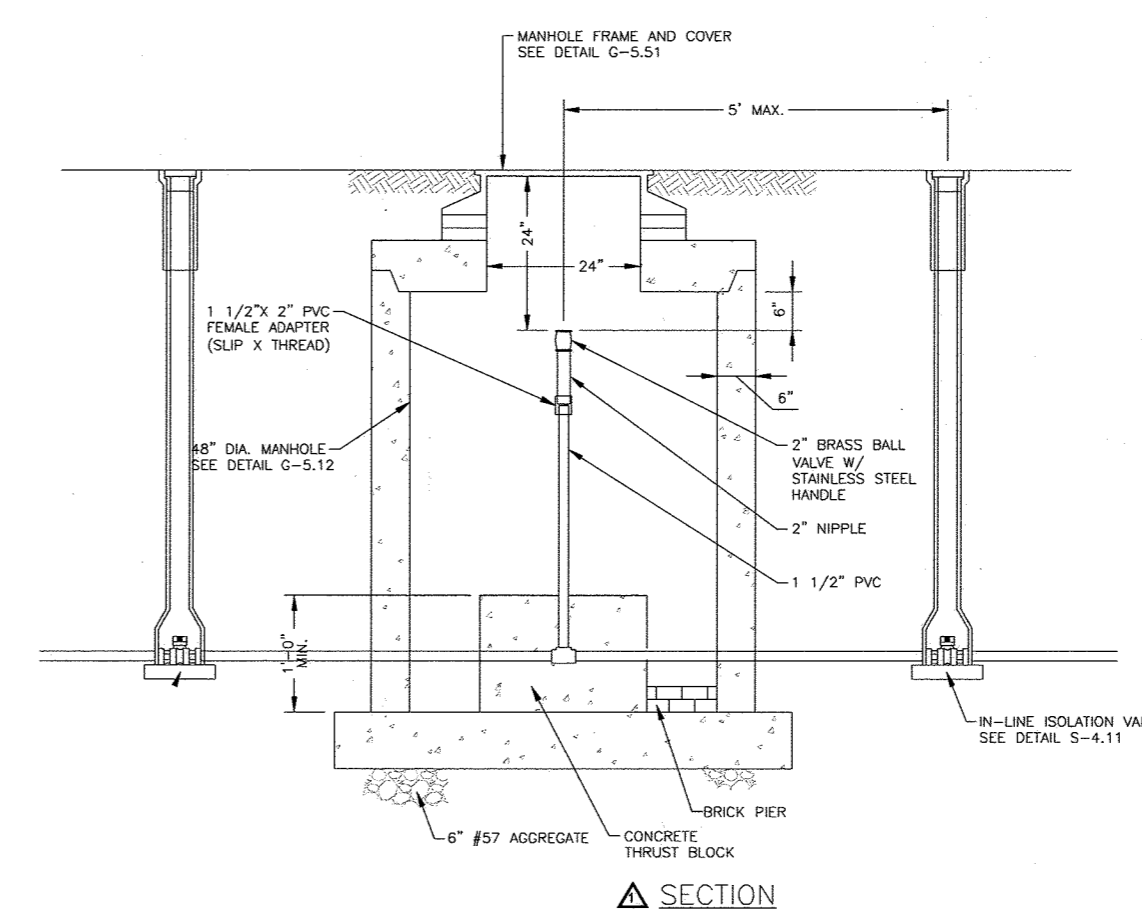
EMERGENCY STORAGE VOLUME NOTE: REQUIREMENT BASED ON MDE DESIGN GUIDELINES FOR WASTEWATER FACILITIES ADDENDUM TO CHAPTER 40 "WASTEWATER PUMPING STATION" EMERGENCY OPERATION.

Station	Bottom Elevation	Wet Weather Groundwater Elevation
B5	377.45	368
B8	376.21	382
E2	412.82	404
E4	422.64	411
E6	391.41	383
E10	381.47	374

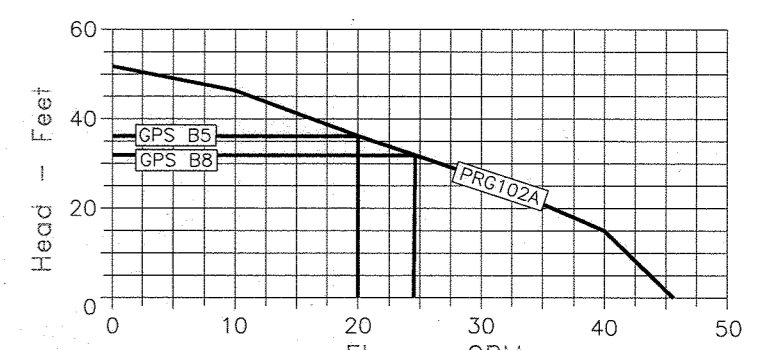
Grinder Pump Station B8		
Component	Volume (ft ³)	Weight (lb)
Top & Bottom	18	2,752
Walls	58	8,672
Totals	76	11,424
Buoyancy Calculations		
Displaced Volume (ft ³)	Density (lb/ft ³)	Buoyancy Force (lb)
106.2321448	62.4	6,629

Notes:
Concrete density assumed as 150 lb/ft³

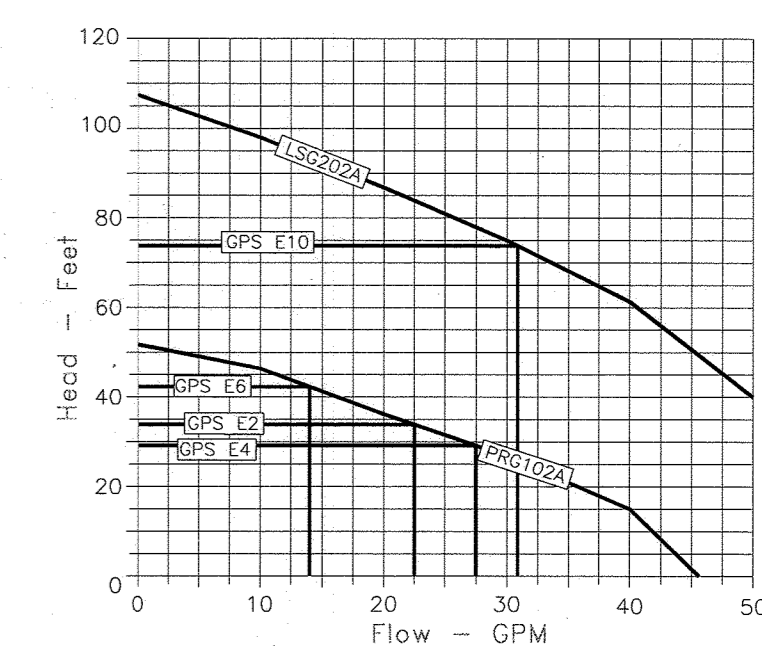
NOTE: DURING CONSTRUCTION, IF WATER TABLE IS ENCOUNTER AT ELEVATION HIGHER THAN LISTED IN THE ABOVE TABLE, CONTACT ENGINEER FOR UPDATED BUOYANCY CALCULATIONS.



SECTION
GRINDER PUMP STATION
NOT TO SCALE



GROUP 2 GRINDER PUMP CURVES - LIBERTY PRG102A



GROUP 3 GRINDER PUMP CURVES - LIBERTY PRG102A & LSG202A

Howard County, Maryland
Department of Public Works
Professional Seal
GRINDER PUMP
IN-LINE FLUSHING CONNECTION
Detail
E-2.05

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 7/16/24
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 7/16/24
DIRECTOR
DATE: 7/16/24
APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Noemi Howell, Program Manager
Wastewater Pollution Prevention and Reclamation Program
Maryland Department of the Environment
DATE: 7/16/24

Professional Seal
STATE OF MARYLAND
PROFESSIONAL ENGINEER
LICENSE NO. 50293 EXPIRATION DATE IS 12/15/24

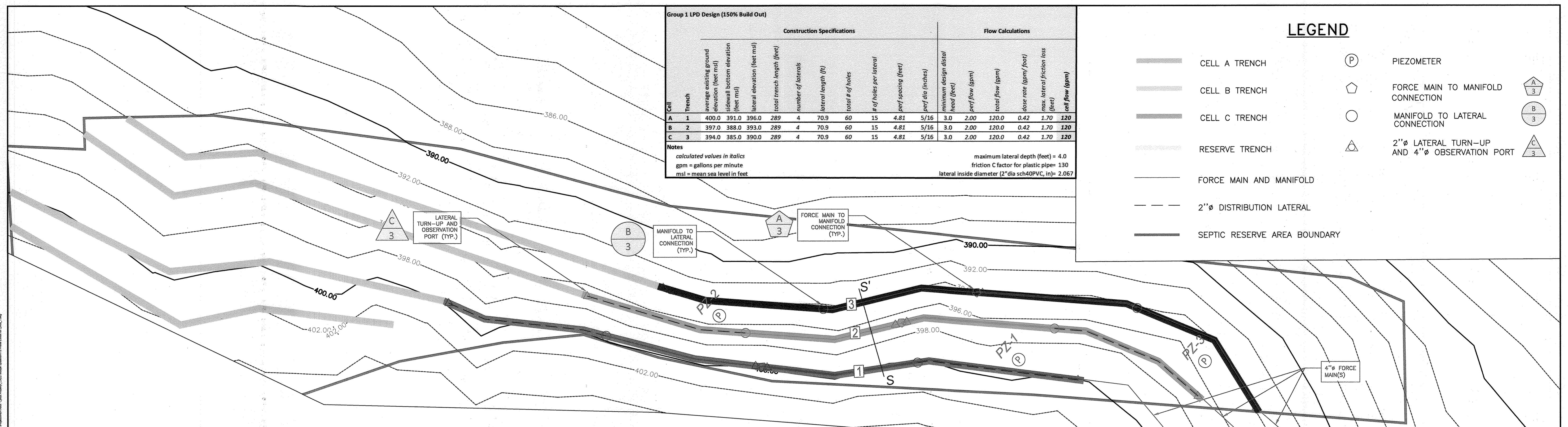
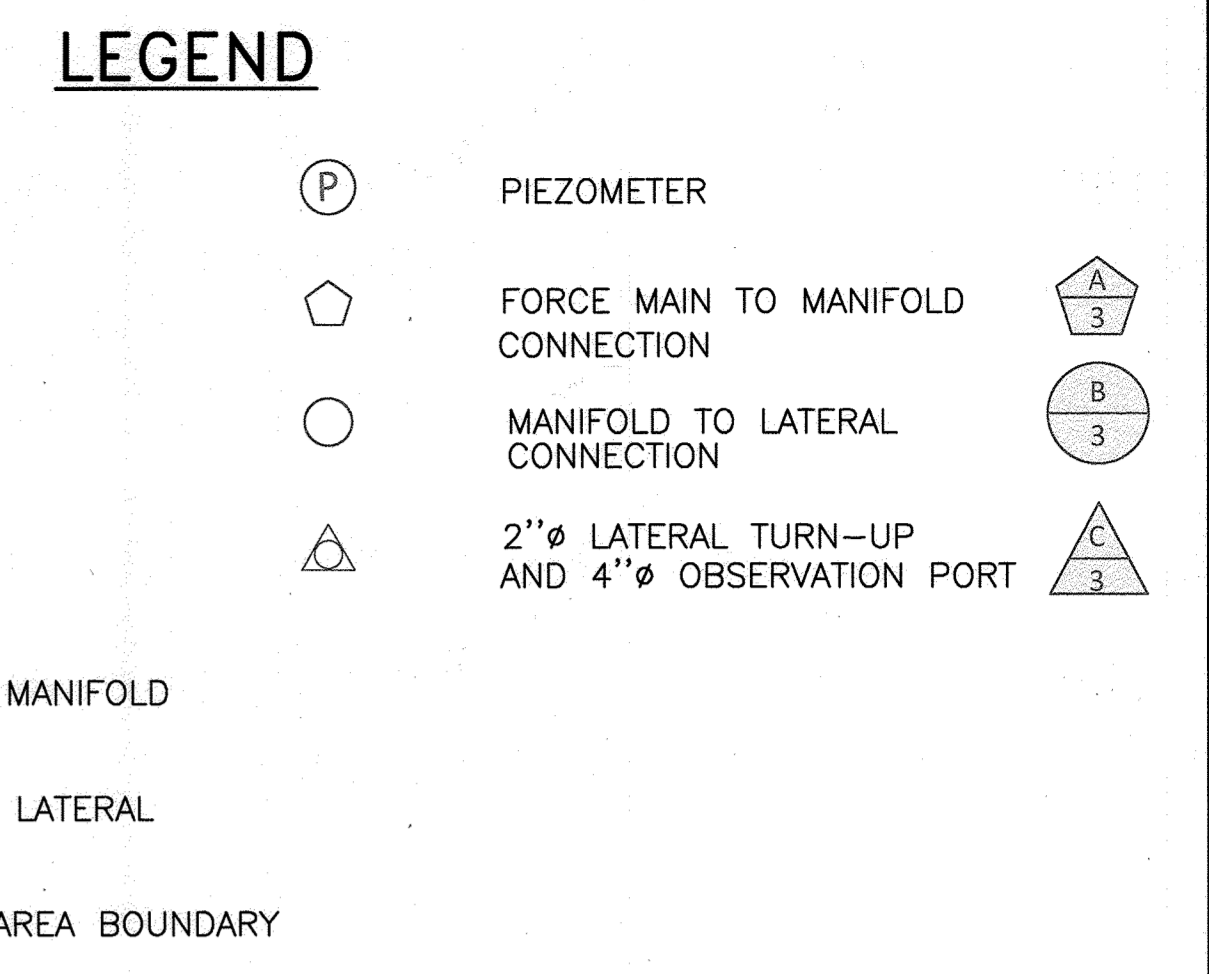
no.	description	date	by	approved

5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP: 40 GRID: 24 PARCEL: 135
client: H&H Rock Companies
project location: 12170 Lime Kiln Road, Fulton, Howard County, MD
project: Lyhus Property
title: Grinder Pump Details
file no.: Lyhus Grinder Pump Details.dwg
drawn: J. Brummer 5/24/24
checked: M. Hayler 5/24/24
approved: M. Mazzochette 7/12/24
sheet: 95 of 146
www.hydro-terra.com
Plotted on: May 24, 2024
(410) 861-5376

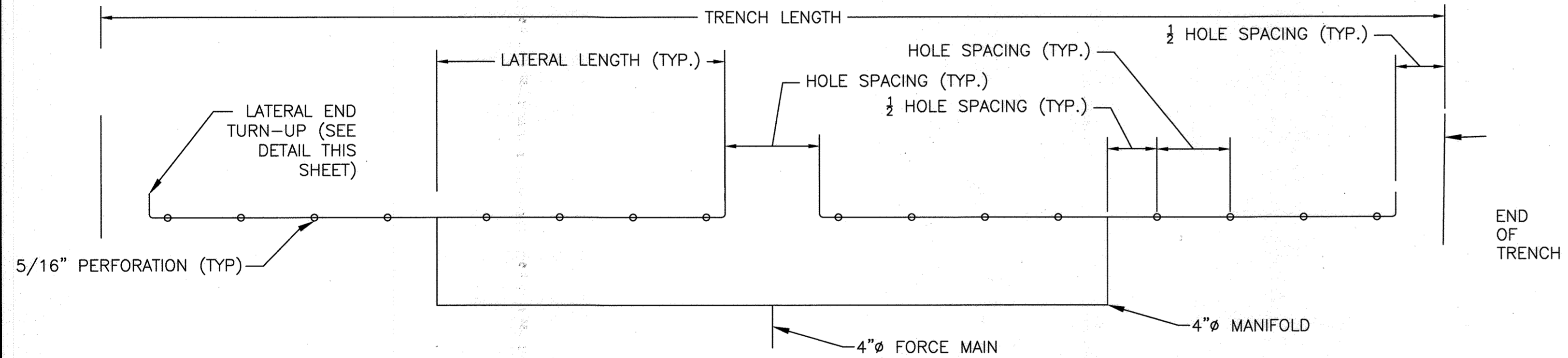
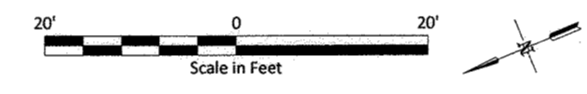
Group 1 LPD Design (150% Build Out)																	
Construction Specifications										Flow Calculations							
Cell	Trench	average existing ground elevation (feet msl)	side wall bottom elevation (feet msl)	lateral elevation (feet msl)	total trench length (feet)	number of laterals	lateral length (ft)	total # of holes	# of holes per lateral	perf spacing (feet)	perf dia (inches)	minimum design distal head (feet)	perf flow (gpm)	total flow (gpm)	dose rate (gpm/foot)	max. lateral friction loss (feet)	cell flow (gpm)
A	1	400.0	391.0	396.0	289	4	70.9	60	15	4.81	5/16	3.0	2.00	120.0	0.42	1.70	120
B	2	397.0	388.0	393.0	289	4	70.9	60	15	4.81	5/16	3.0	2.00	120.0	0.42	1.70	120
C	3	394.0	385.0	390.0	289	4	70.9	60	15	4.81	5/16	3.0	2.00	120.0	0.42	1.70	120

Notes
 calculated values in italics
 gpm = gallons per minute
 msl = mean sea level in feet

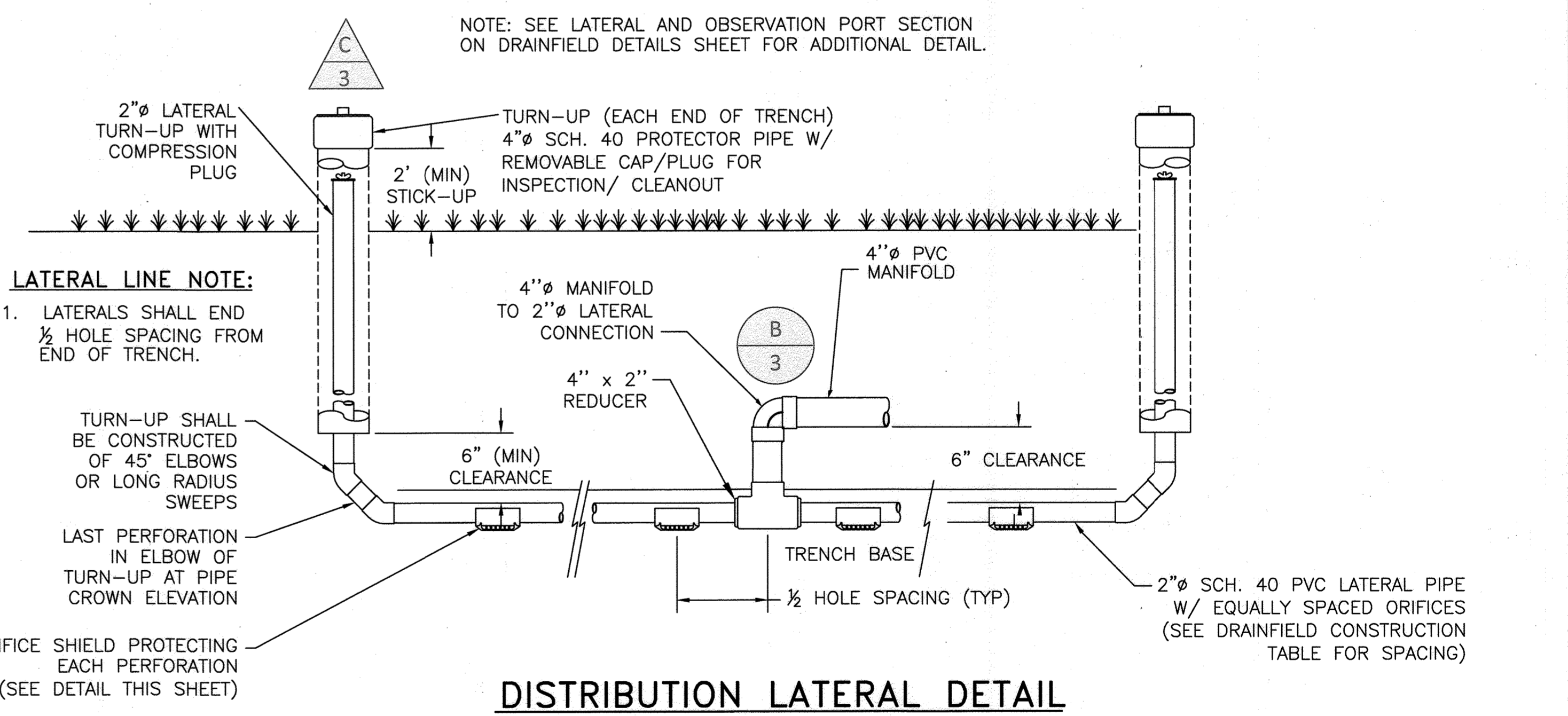
maximum lateral depth (feet) = 4.0
 friction C factor for plastic pipe= 130
 lateral inside diameter (2" dia sch40PVC, in)= 2.067



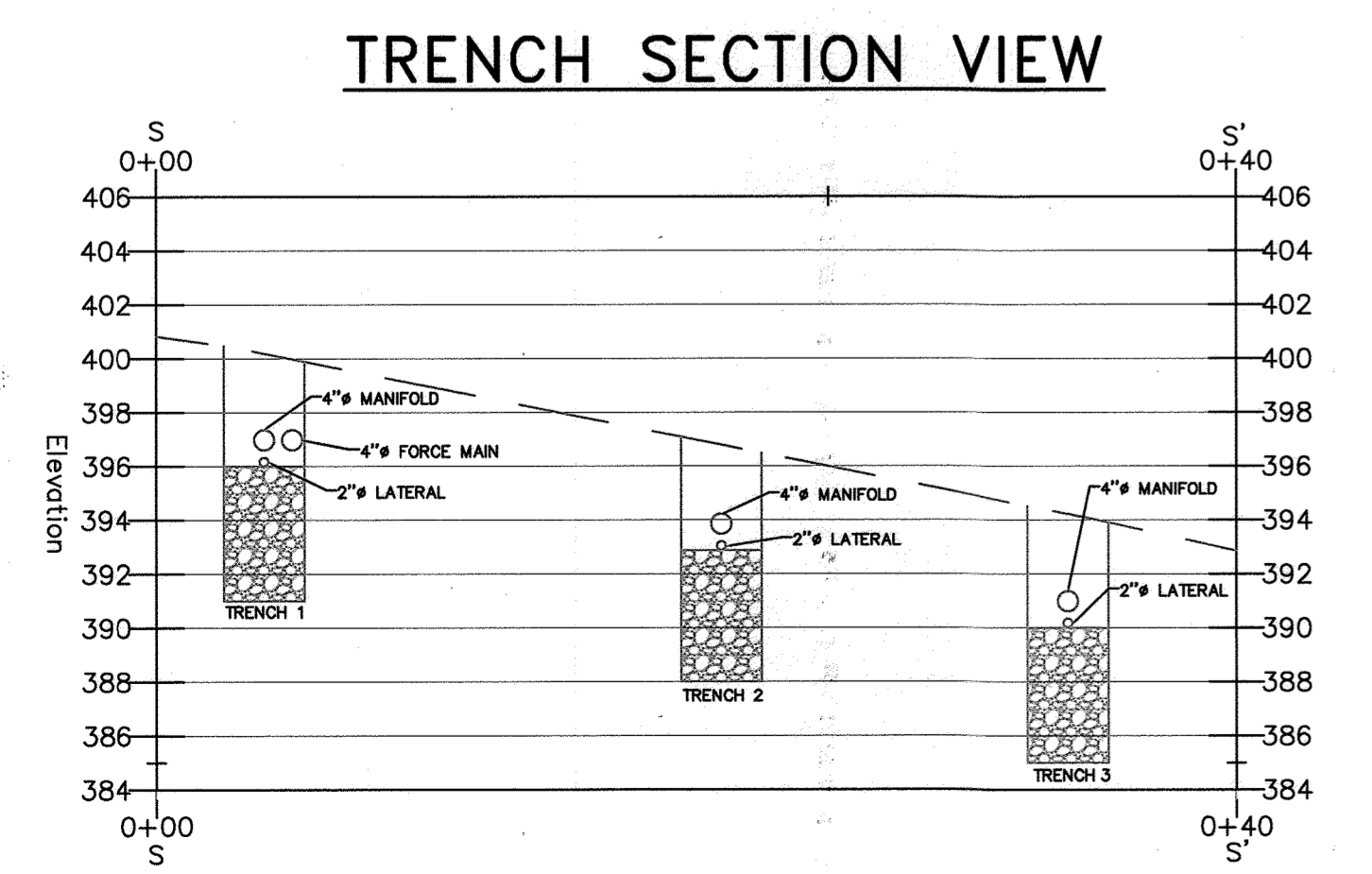
GROUP 1 TRENCH AND LPD PIPING PLAN



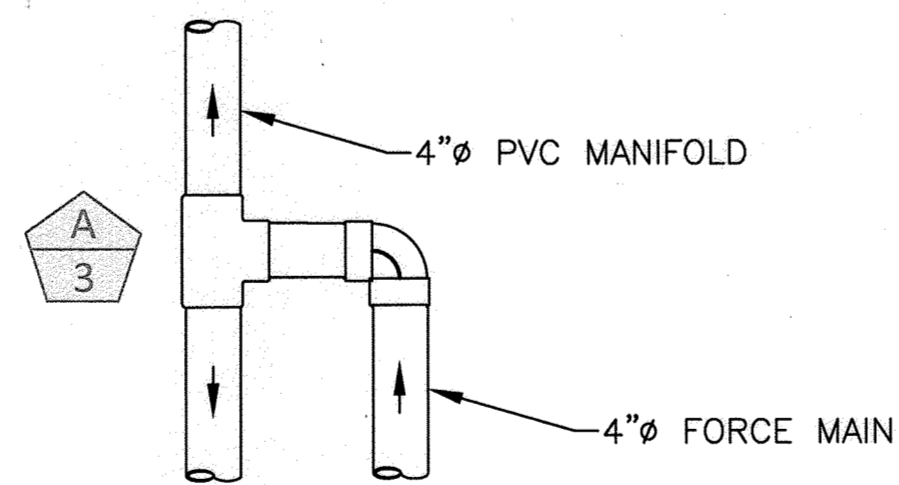
PIPING PLAN LATERAL DETAIL
NOT TO SCALE



DISTRIBUTION LATERAL DETAIL
NOT TO SCALE



TRENCH SECTION VIEW

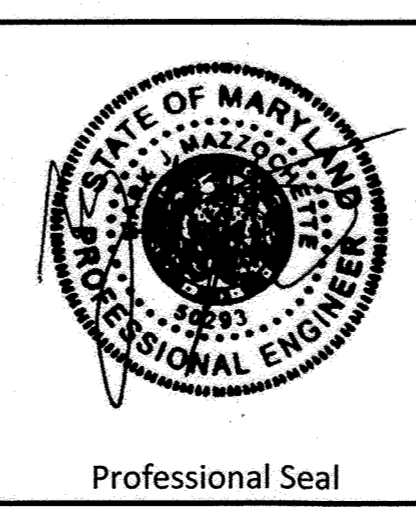


PIPING CONNECTIONS
NOT TO SCALE

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Howell
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE 7/16/24
 DIRECTOR
 DATE 7/16/24

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no.	description	date	by	approved
Revisions				

5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lyhus Property**
 title: **Group 1 Trench Profiles**
 file no.: **HTG Profile Exhibit for Lyhus_1.dwg**
 org: **Hydro-Terra Group**
 checked by: **M. Hausler** date: **7/29/24**
 approved by: **M. Wozniak** date: **7/29/24**
 www.hydro-terra.com
 (410) 861-5376
 Plotted on: January 30, 2024

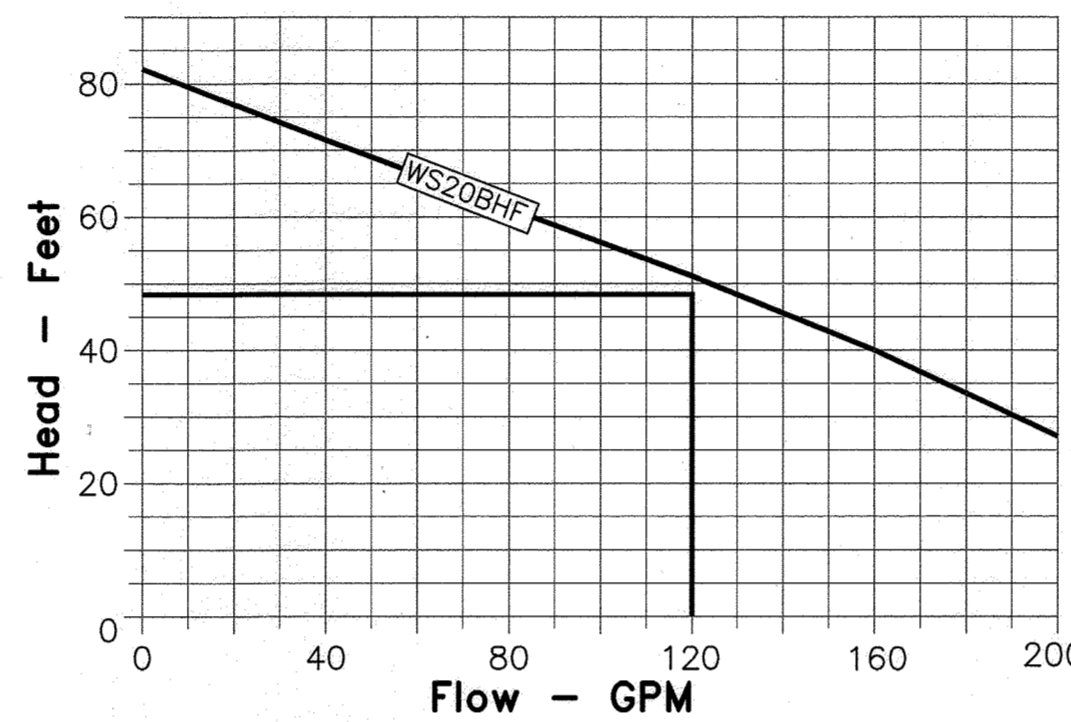
Design Input		Calculations	
Drainfield Pump Chamber			
pump chamber capacity (gal/inch)	79.8	maximum daily flow (MDF) (gpd)	5,400
pump chamber volume (gal)	5027	average daily flow (ADF) (gpd)	2,700
volume above high water alarm (gal)	2793		
Static Hydraulic Profile (with invert elevations)			
dose chamber surface elev. (feet msl)	369.00		
dose tank influent invert elev. (feet msl)	367.00		
dose tank floor elev. (feet msl)	361.58		
Cell A maximum lateral elev. (feet msl)	396.00	Cell A in-service static lift (feet)	34.4
Cell B maximum lateral elev. (feet msl)	393.00	Cell B in-service static lift (feet)	31.4
Cell C maximum lateral elev. (feet msl)	390.00	Cell C in-service static lift (feet)	28.4
Drainfield Dosing			
cell A flow (gpm)	120	force main velocity (feet/second)	3.1
Cell A force main length (feet)	800	Cell A force main friction loss (feet)	9.1
Cell A minor loss equivalent lengths (feet)	57.6	Cell A max. total dynamic head (feet)	48.2
		Cell A main volume (gal)	522
		Cell A total lateral volume (gal)	50
		Cell A dose vol. @ 5x lateral vol (gal)	251
cell B flow (gpm)	120	force main velocity (feet/second)	3.1
Cell B force main length (feet)	852	Cell B force main friction loss (feet)	9.7
Cell B minor loss equivalent lengths (feet)	57.6	Cell B max. total dynamic head (feet)	45.8
		Cell B main volume (gal)	556
		Cell B total lateral volume (gal)	50
		Cell B dose vol. @ 5x lateral vol (gal)	251
cell C flow (gpm)	120	force main velocity (feet/second)	3.1
Cell C force main length (feet)	970	Cell C force main friction loss (feet)	10.9
Cell C minor loss equivalent lengths (feet)	57.6	Cell C max. total dynamic head (feet)	44.0
		Cell C main volume (gal)	633
		Cell C total lateral volume (gal)	50
		Cell C dose vol. @ 5x lateral vol (gal)	251
dose chamber length (inches)	192	dose tank capacity (gal)	5,027
dose chamber width (inches)	96	dose tank capacity (gals per inch)	79.8
dose chamber height to invert (inches)	63	minimum design dose volume (gals)	251
# cells in service	2	effective dose volume (gals)	479
high water alarm/lag pump on height (inches)	28	# daily doses @ ADF	5.6
lead pump on (inches)	18	dose time (minutes)	4.0
low water cutoff (inches)	12	residual settling volume (gal)	957
Goolds pump model	WS15BHF	volume above high water alarm (gal)	2,793
Three SJE Rhombus IFN21W124H 6A8AC10E16D Control Panels			

Notes
gpd = gallons per day
gpm = gallons per minute
msl = mean sea level in feet
calculated values in *italics*
set floats based on weight +/- 3"
design distal head (feet)= 3.0
friction C factor for plastic pipes= 130
force main ID (4" dia sch40PVC, in)= 3.998
lateral inside diameter (2" dia sch40PVC, in)= 2.067
two cells are always in service, with the third resting

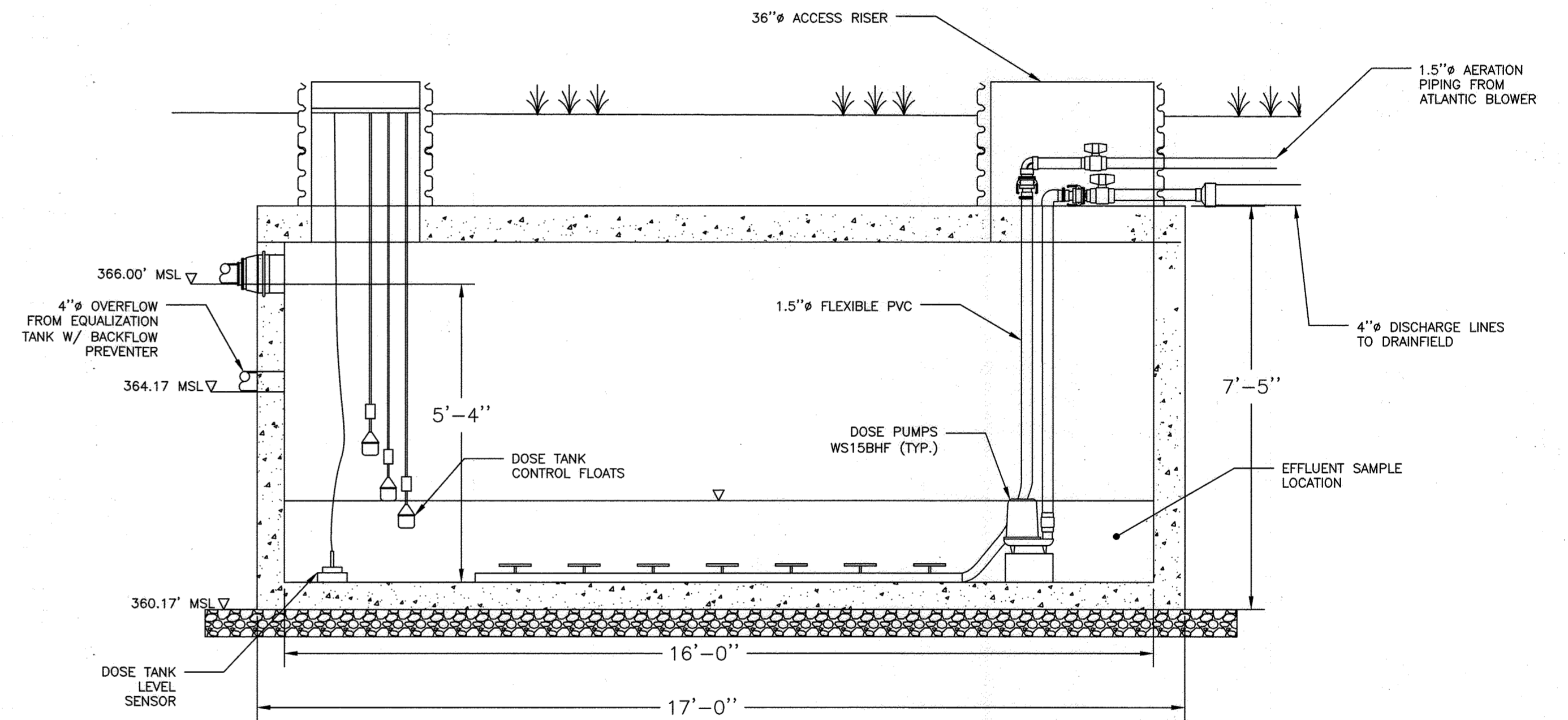
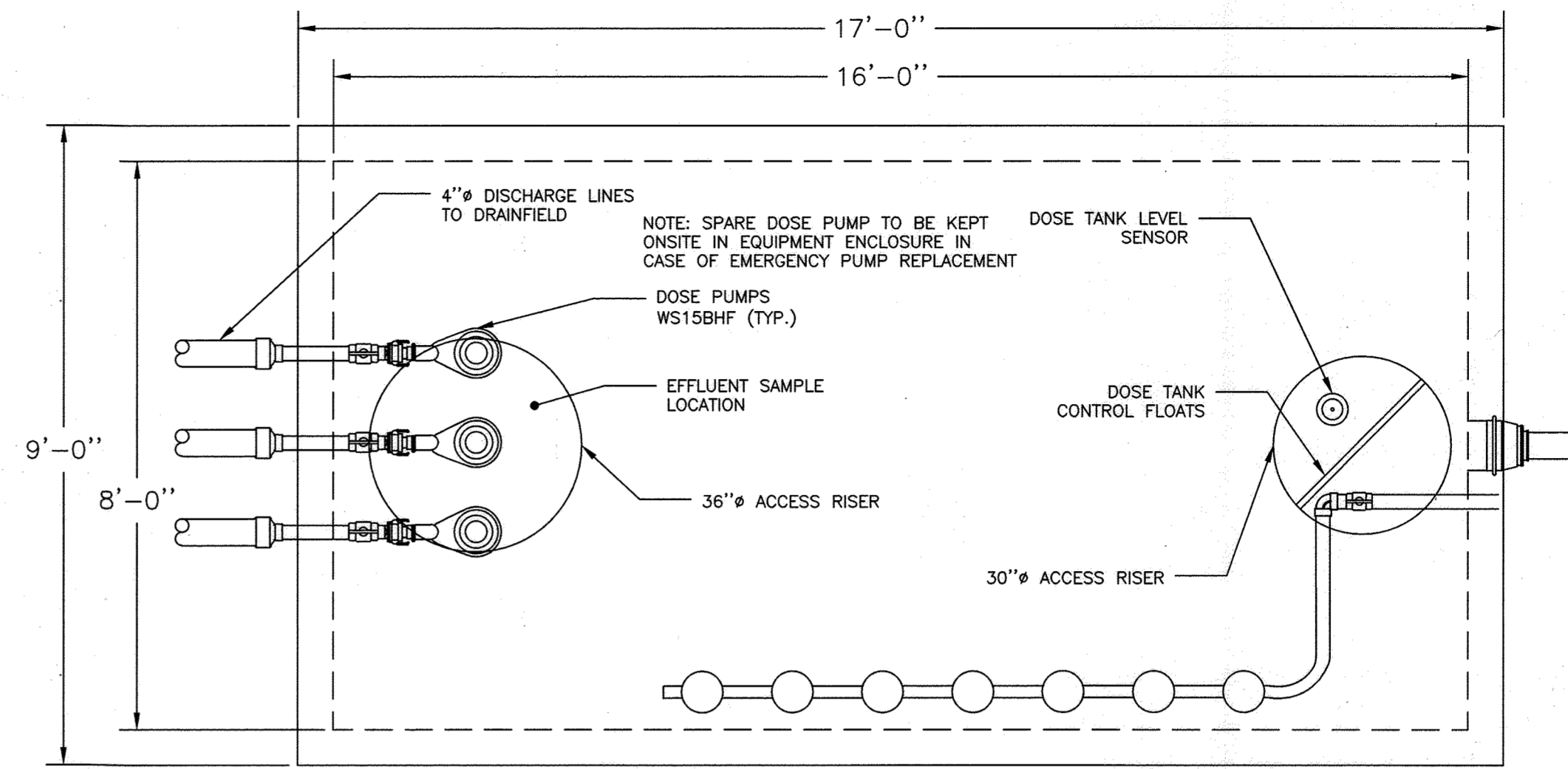
GROUP 1 DRAINFIELD DOSE DESIGN CALCULATIONS

Group 1 WWTS Equalization Balance					
	Primary Settling Tank	EQ Tank	Fuji-Clean Treatment Units	Denitrification Filter Tank	Dose Tank
Normal Operating Volume (gal)	2,000	3,000	7,600	6,000	2,234
Maximum Tank Volume (gal)	2,000	6,000	7,600	6,000	5,027
Available EQ Volume (gal)	0	3,000	0	0	2,793
	Total EQ Volume (gal)				5,793

GROUP 1 EQ VOLUME

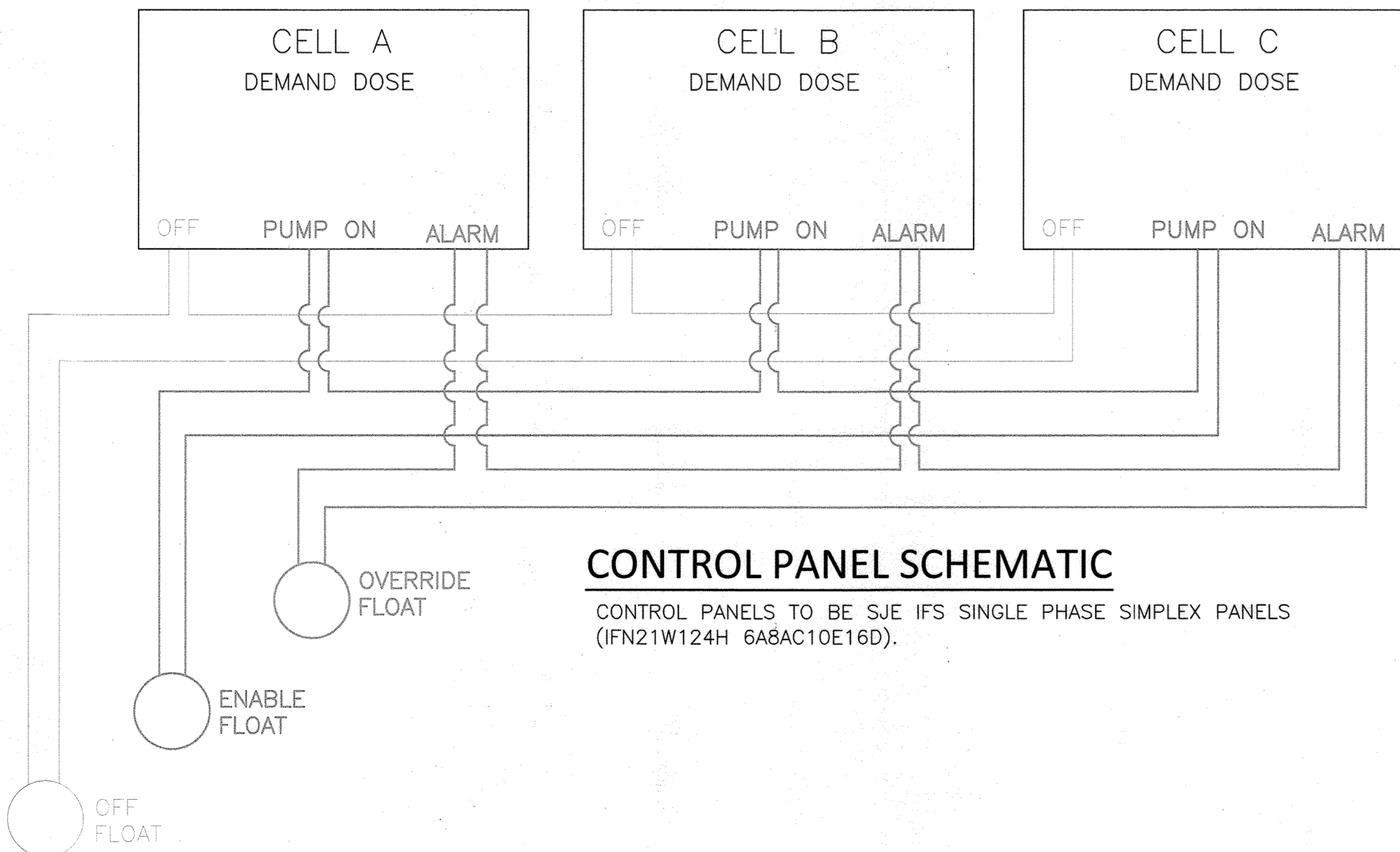


DOSE PUMP CURVE GOULDS WS20BHF



GROUP 1 DRAINFIELD DOSE TANK DETAIL (5,000 GALLONS)

1/2" = 1'-0"

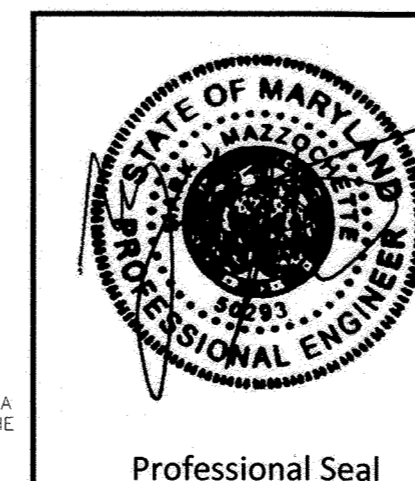


CONTROL PANEL SCHEMATIC

CONTROL PANELS TO BE SJE IFS SINGLE PHASE SIMPLEX PANELS (IFN21W124H 6A8AC10E16D).

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 7/16/24
CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 7/16/24
DIRECTOR

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell
Naomi Howell, Program Manager
Wastewater Pollution Prevention and Reclamation Program
Maryland Department of the Environment
DATE: 7/16/2024



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no.	description	date	by	approved

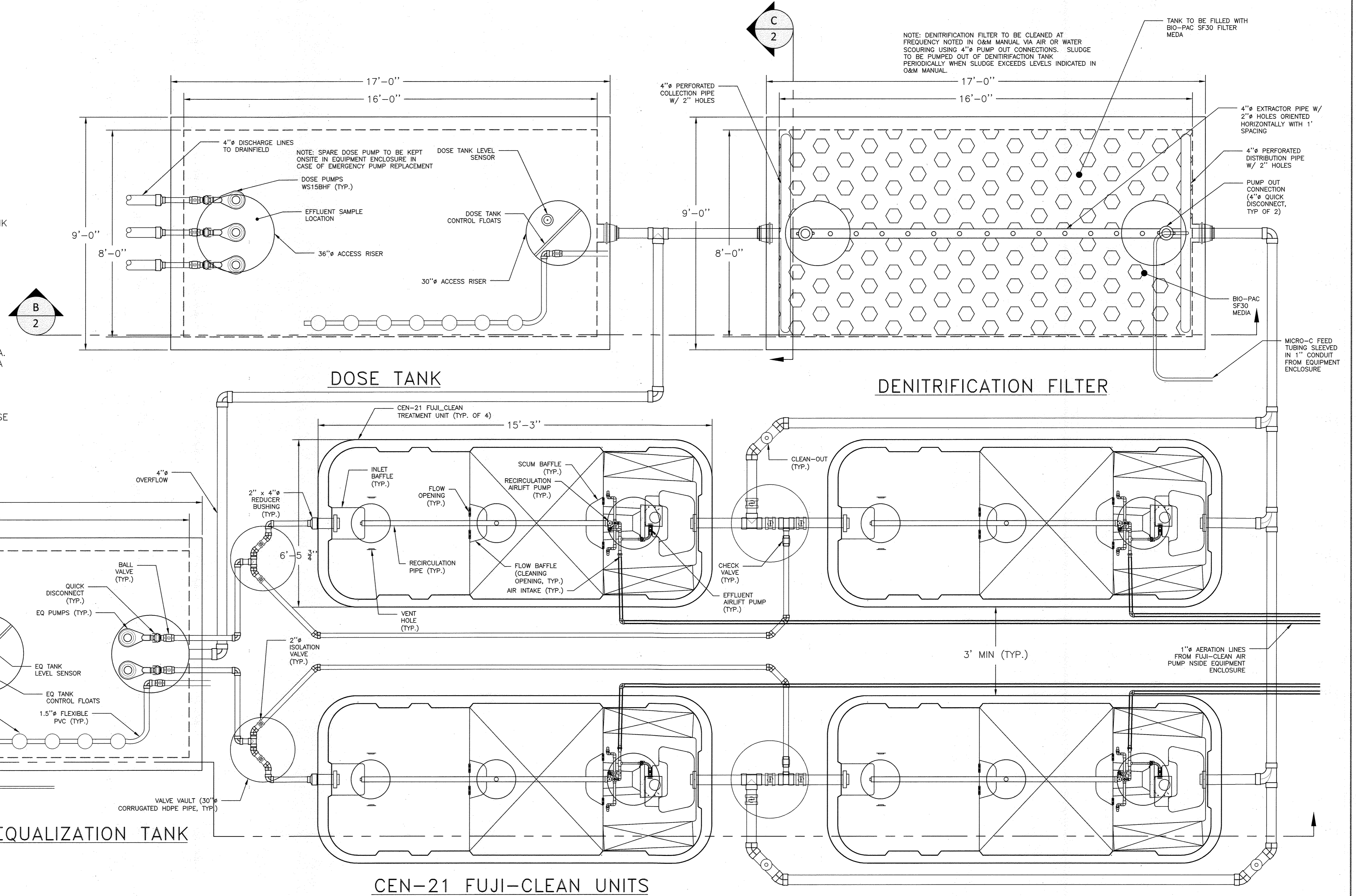
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP: 40 GRID: 24 PARCEL: 135

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client: **H&H Rock Companies**
project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
project: **Lyhus Property**
title: **Group 1 Wastewater Details**
file no.: **Lyhus Drainfield Plans 2024 May Permitting.dwg**
drawn by: **J. Brymester** date: **5/24/24**
checked by: **M. Hauffer** date: **5/24/24**
approved by: **M. Mazzone** date: **5/24/24**
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(410) 861-5376
Plotted on: May 24, 2024

GENERAL NOTES:

- CONSTRUCTION SHALL CONFORM TO ALL LOCAL, COUNTY, AND STATE GUIDELINES, INCLUDING HOWARD COUNTY BUILDING CODES AND RECOMMENDED STANDARDS FOR WASTEWATER SYSTEMS. DISCREPANCIES TO THESE AND THE APPROVED DRAWINGS SHALL BE REFERRED TO ENGINEER.
- ALL PIPE ELEVATIONS ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
- A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE CONTRACTOR, HTG, MDE, AND HCHD REPRESENTATIVES PRIOR TO STARTING WORK TO REVIEW DESIGN DOCUMENTS AND CONSTRUCTION REQUIREMENTS.
- ALL CONNECTIONS OF RISERS AND PIPES TO TANKS SHALL BE WATERTIGHT. WATER-TIGHT TESTING SHALL BE CONDUCTED POST-INSTALLATION.
- PRECAST CONCRETE TANKS SHALL BE PROVIDED BY GILLESPIE PRECAST OR APPROVED EQUAL, AND INSTALLED PER THESE DRAWINGS.
- BLOWERS SHALL BE ATLANTIC BLOWER MODEL AB-201 OR APPROVED EQUAL.
- ALL COMPONENTS SUBMERGED IN WASTEWATER, EXPOSED TO WASTEWATER TANK HEADSPACE, OR TO THE EXTERIOR ENVIRONMENT SHALL BE OF CORROSION RESISTANT CONSTRUCTION.
- FILTER SCREEN SHALL BE 1/8" FILTRATION SIZE AND SHALL BE POLYLOK PL-525 FILTER.
- ALL TANKS AND VALVE VAULTS TO BE SET ON 6" OF GRAVEL.
- FUJI-CLEAN UNITS TO BE INSTALLED USING "FUJI-CLEAN USA CONTRACTOR INSTALLATION MANUAL - RESIDENTIAL AND COMMERCIAL SYSTEMS."
- DENITRIFICATION FILTER TANK TO BE FILLED WITH BIO-PAC SF30 FILTER MEDIA. THIS MEDIA HAS A SURFACE AREA OF 30 FT²/FT³, A 95% VOID RATIO, AND A LOADING/WETTING RATE OF 150 GPD/FT². MEDIA TO BE CLEANED BY ATTACHING BLOWER TO PUMP OUT CONNECTION IN DENITRIFICATION FILTER TANK.
- FLOW THROUGH THE SYSTEM WILL BE MONITORED VOLUMETRICALLY USING DOSE TANK LEVEL INCREASES AND DECREASES DURING FILLING AND PUMPING. THE LEVELS ARE MONITORED EVERY MINUTE USING A PRESSURE TRANSDUCER ACCURATE TO 0.01 INCH, WITH A REMOTE MONITORING SYSTEM (RMS) AND DATA LOGGING.
- THE OPERATOR MUST BE LICENSED FOR CLASS SPECIFIED IN CONSTRUCTION PERMIT.



TREATMENT TANK PLAN

SCALE: 1/2" = 1'-0"

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7/16/24
 DIRECTOR DATE 7/16/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Howell DATE 7/16/2024
 Program Manager
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment



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no.	description	date	by	approved
Revisions				

5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

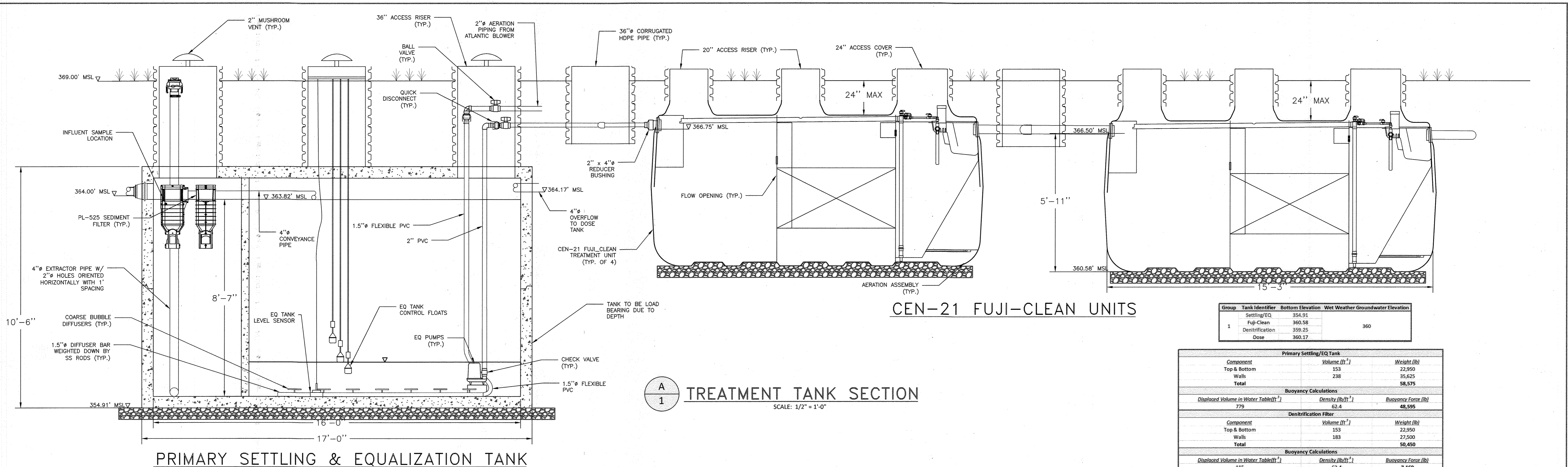
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client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lyhus Property**
 site: **Group 1 Treatment Plan**
 file no.: **Treatment System_1.dwg**
 sheet: **100 of 146**

drawn: J. Brymmer DATE 5/24/24
 checked: M. Huxley DATE 5/24/24
 issued: M. Mazzochella DATE 5/24/24

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CEN-21 FUJI-CLEAN UNITS

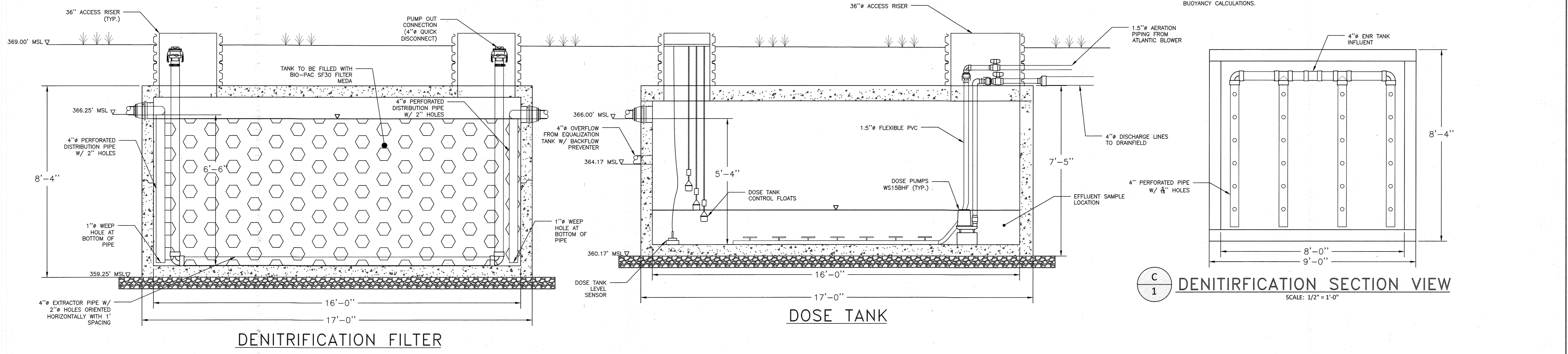
A
1 TREATMENT TANK SECTION
SCALE: 1/2" = 1'-0"

Group	Tank Identifier	Bottom Elevation	Wet Weather Groundwater Elevation
1	Settling/EQ	354.91	360
	Fuji-Clean	360.58	
	Denitrification	359.25	
	Dose	360.17	

Primary Settling/EQ Tank			
Component	Volume (ft ³)	Weight (lb)	
Top & Bottom	153	22,950	
Walls	238	35,625	
Total		58,575	
Buoyancy Calculations			
Displaced Volume in Water Table (ft ³)	779	Density (lb/ft ³)	62.4
			Buoyancy Force (lb)
			48,595
Denitrification Filter			
Component	Volume (ft ³)	Weight (lb)	
Top & Bottom	153	22,950	
Walls	183	27,500	
Total		50,450	
Buoyancy Calculations			
Displaced Volume in Water Table (ft ³)	115	Density (lb/ft ³)	62.4
			Buoyancy Force (lb)
			7,160

Notes:
Concrete density assumed as 150 lb/ft³
Soil cover not included in calculations and provides additional safety factor.

NOTE: DURING CONSTRUCTION, IF WATER TABLE IS ENCOUNTERED AT ELEVATION HIGHER THAN LISTED IN THE ABOVE TABLE, CONTACT ENGINEER FOR UPDATED BUOYANCY CALCULATIONS.

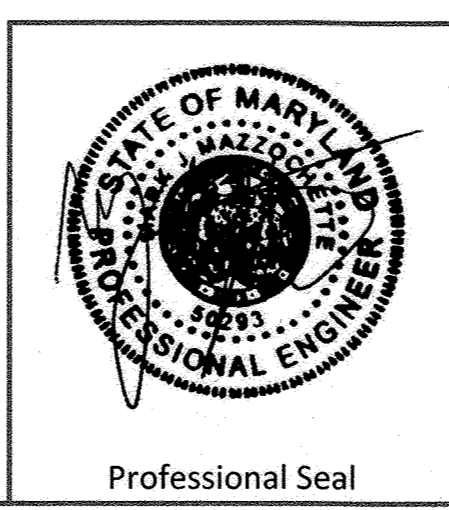


B
1 DENITRIFICATION SECTION VIEW
SCALE: 1/2" = 1'-0"

B
1 TREATMENT TANK SECTION
SCALE: 1/2" = 1'-0"

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 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE: 7/16/24
 DIRECTOR
 DATE: 7/16/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Howell, Program Manager
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment
 DATE: 7/16/24



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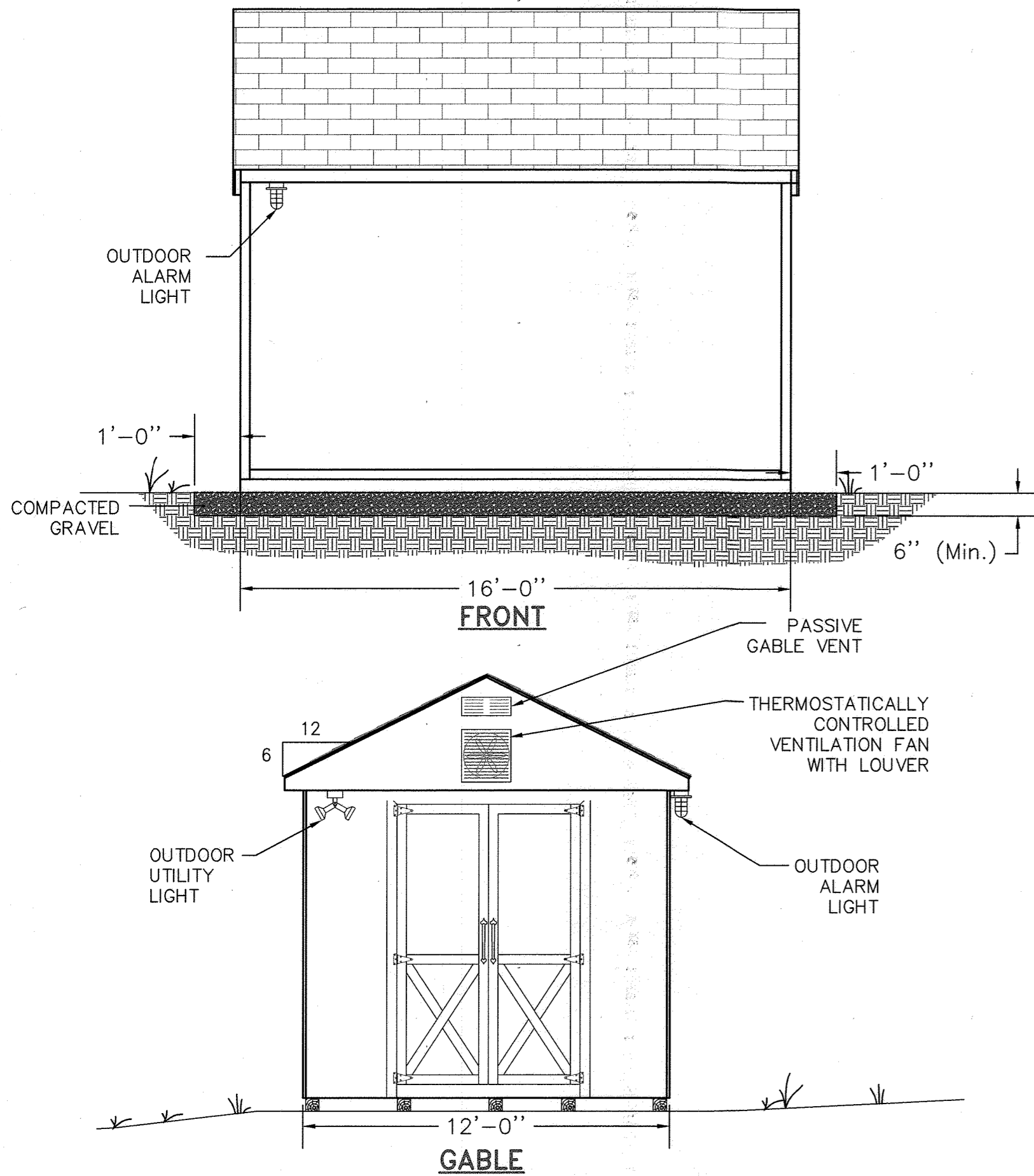
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Revisions				

5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lyhous Property**
 title: **Group 1 Treatment Section**
 file no.: **Treatment System_1.dwg**
 sheet: **101 of 146**

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EQUIPMENT ENCLOSURE EXTERIOR
NTS

DESIGN DETAILS FCUC-230628108 LVHUS (2700 ADF)5400 MDF	
AVERAGE DAILY FLOW	2,700 GPD
MAXIMUM MONTHLY FLOW (PF = 2)	5,400 GPD
PEAK DAILY FLOW (PF = 3)	8,100 GPD
PEAK HOURLY FLOW (PF = 4)	450 GPH
BOD--INFLUENT	300 mg/L
BOD--EFFLUENT	30 mg/L
TSS--INFLUENT	300 mg/L
TSS--EFFLUENT	30 mg/L
TN--INFLUENT	75 mg/L
TN--EFFLUENT	8 mg/L
FOG - INFLUENT MAXIMUM	30 mg/L
ALKALINITY (AS CaCO ₃) - INFLUENT	75 mg/L

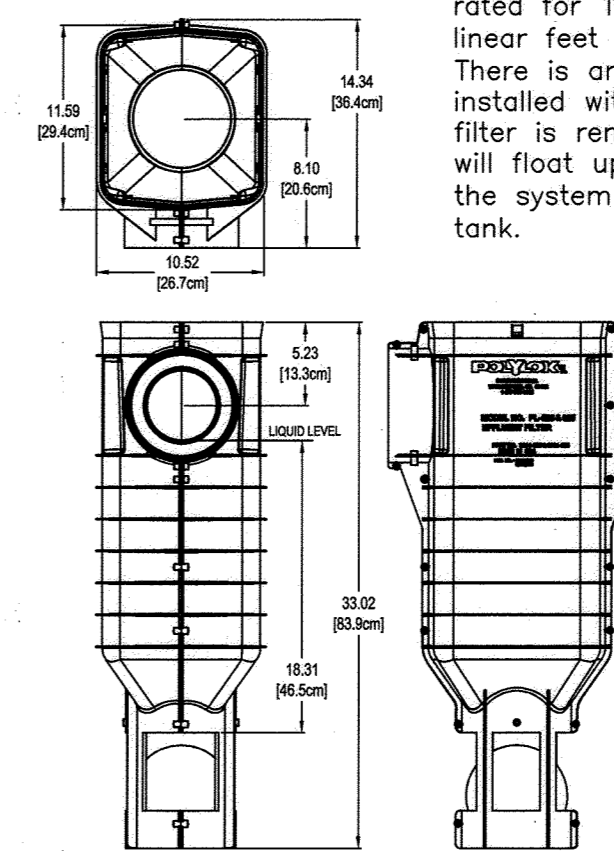
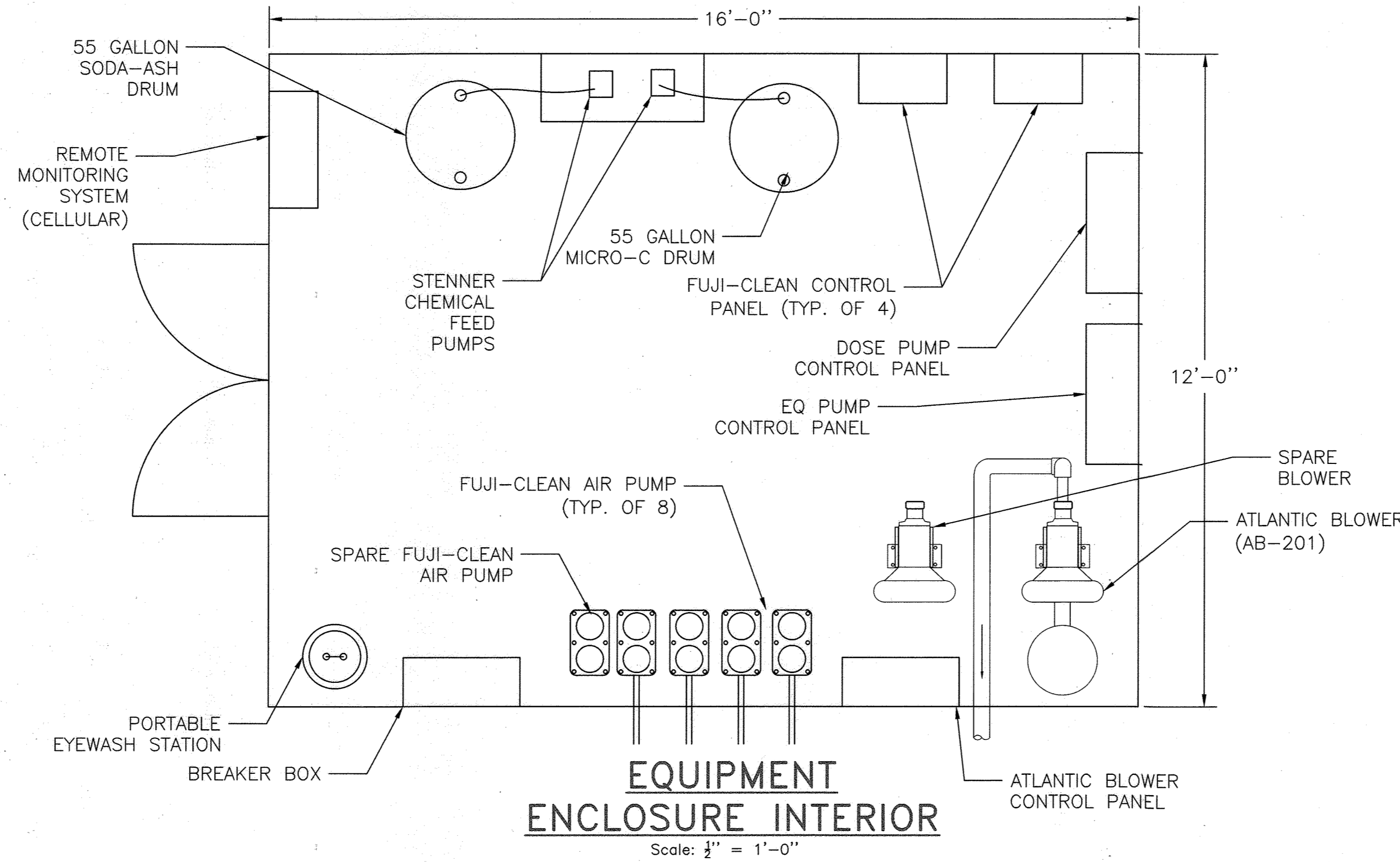
Treatment Stage	Length (ft)	Width (ft)	Outlet Height (ft)	Tank Volume (gal)	Total Volume (gal)
Settling	3.83	8.00	8.58	1966	1966
Equalization	11.83	8.00	9.00	6371	6371
CEN-21 Sedimentation	-	-	-	1200	4800
CEN-21 Anaerobic	-	-	-	1198	4792
CEN-21 Aeration	-	-	-	550	2200
CEN-21 Storage	-	-	-	268	1072
CEN-21 Disinfection	-	-	-	17	68
Denitrification Filter	16.00	8.00	6.58	6300	6300
Dose	16.00	8.00	5.25	5027	5027

Note: Treatment system consists of four (4) Fuji-Clean CEN-21 units.

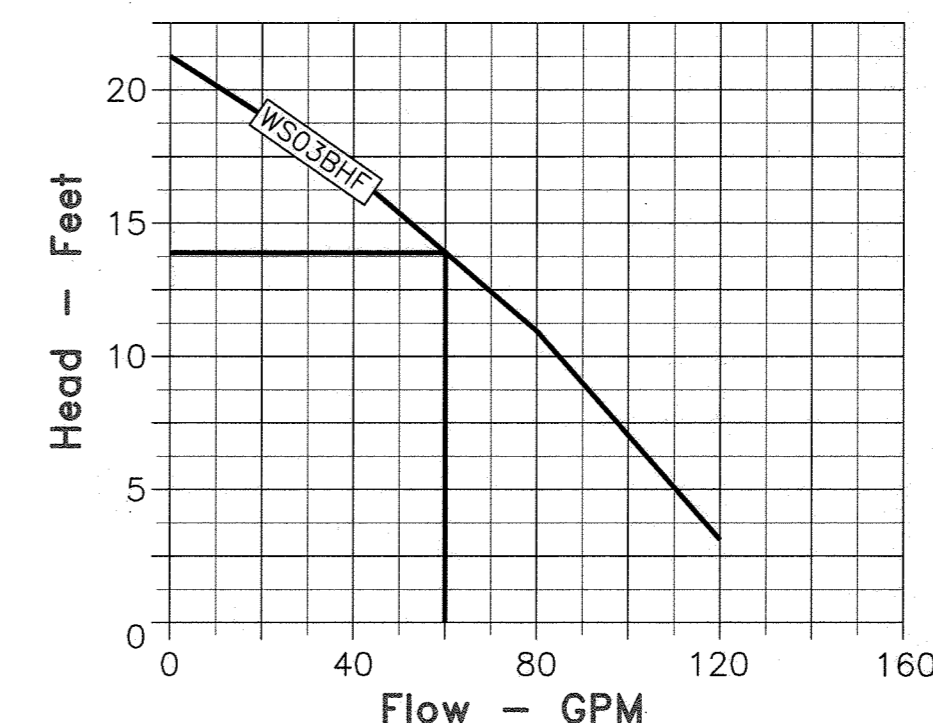
APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7/16/24
 DIRECTOR DATE 7/16/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Howell, Program Manager DATE 7/16/24
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment

NOTE: CHEMICALS (MICRO-C AND SODA-ASH) TO BE INJECTED INTO WASTEWATER TREATMENT SYSTEM DIRECTLY FROM 55-GALLON DRUMS AND WILL NOT BE MIXED IN CHEMICAL MIXING TANKS. ALL 55-GALLON DRUMS TO BE PLACED INSIDE 55-GALLON SPILL CONTAINMENT UNITS.



POLYLOK PL-525 FILTER
Scale: 1" = 1'-0"



EQUALIZATION PUMP GOULDS WS03BHF

Denitrification Filter	
Parameter	Value Unit
design nitrate loading	0.50 kg/day/m ³
	0.03 lb/day/ft ³
operating depth	5.00 ft
TKN in	3 mg/L
TKN out	3 mg/L
Nitrate in	7.0 mg/L
Nitrate out	5 mg/L
Total nitrogen out	8 mg/L
Nitrate removal efficiency	29%
Maximum daily flow	5400 gpd
	3.75 gpm
Design nitrate removal	0.09 lb/day
	0.04 kg/day
Reactor Total Length	192.00 in
Reactor Width	96 in
Tank cross-sectional area	40.00 ft ²
Hydraulic retention time	28.0 hr
Bio-Pac SF30 Protected Surface Area	30 ft ² /ft ³
Carrier Void Ratio	95%
NO ₃ -N Loading Rate	0.3 kg/m ³ /day
Hydraulic path length	4.9 m
	16 ft
Hydraulic application rate	5.7 m/h
	18.8 ft/h
Required tank volume	0.14 m ³
	36 gal
ENR reactor volume	6,300 gal
Empty Bed Contact Time	1,596 min

NOTE: DENITRIFICATION CHAMBER CALCULATIONS WERE COMPLETE USING METCALF AND EDDY - WASTEWATER ENGINEERING TREATMENT AND RESOURCE RECOVERY, 5TH EDITION, CHAPTER 9, TABLE 9-19 USING DOWNFLOW SUNKEN MEDIA DNF CRITERIA.

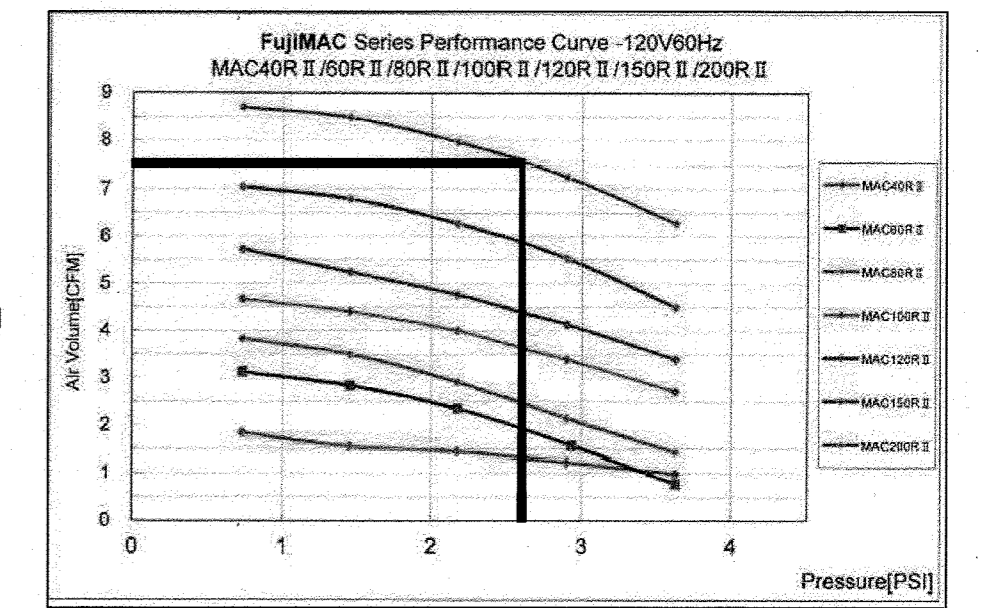
cBOD DESIGN REQUIREMENTS FOR ORGANIC REMOVAL		
ITEM	VALUE	UNITS
Flow	5,400	gpd
Primary Treatment BOD & TSS Removal	30	%
BOD Removal Required After Pretreatment	180	mg/L
Unit Selection		
Selected Model	CEN21	
Nominal Capacity Per Unit	1900	gpd
Number of Units	4	
Total Nominal Capacity	7600	gpd
Design BOD Loading	0.11	lb/day/ft ³
	1.80	kg/day/m ³
Design BOD Conversion	12.15	lb/day
	5.5	kg/day
Min. Volume Required @ Design Loading	3.06	m ³
	809	gal
Aerobic Aeration Volume Per Unit	550	gal
Total Aerobic Aeration Volume	2200	gal
Hydraulic Retention Time	9.8	hrs
BOD Removal Air Calculations		
BOD Conversion Efficiency	1.20	lb O ₂ /lb BOD
Oxygen Required w/ No Primary Treatment	14.6	lb O ₂ /day
Oxygen Required w/ Primary Treatment	9.7	lb O ₂ /day

Total Oxygen Calculations		
Oxygen Required for BOD Removal	9.7	lb O ₂ /day
Oxygen Required for Nitrogen Removal	13.9	lb O ₂ /day
Total Oxygen Required	23.6	lb O ₂ /day
Oxygen Transfer Efficiency	5%	
Oxygen Required w/ Transfer Efficiency	429.3	kg/day
Oxygen Concentration in Air	21%	
Total Air Required	2044	kg/day
Air Density	1.225	kg/m ³
Total Air Required	1159	L/min
Total Air Required	40.9	cfm

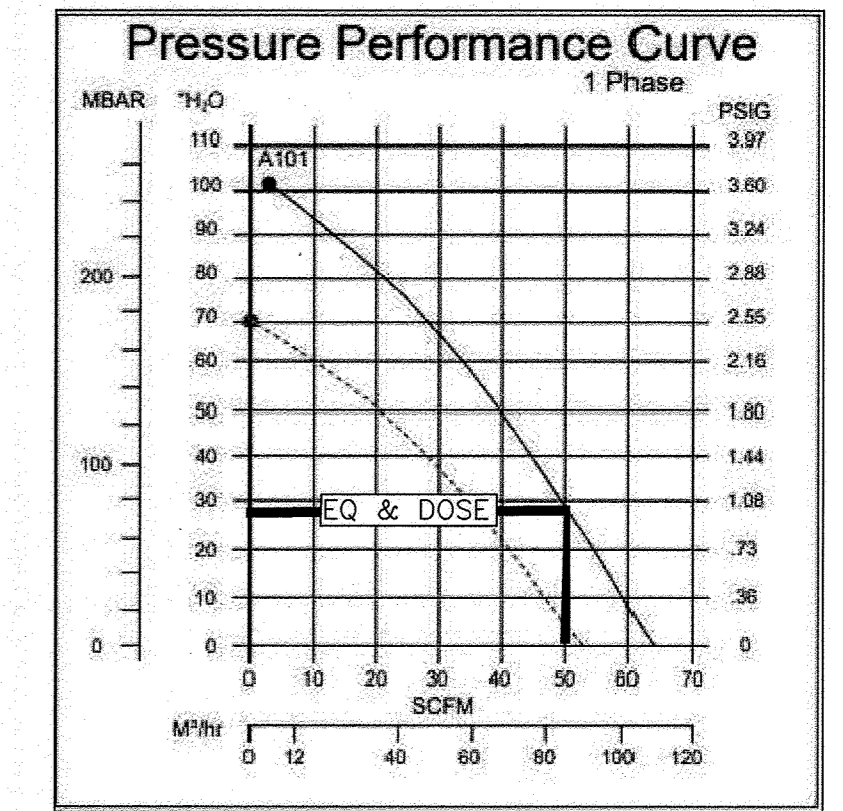
Note: Design loading and conversion efficiencies constants can be found in Metcalf & Eddy, 5th edition, Chapter 9.

nBOD DESIGN REQUIREMENTS FOR NITRIFICATION			
ITEM	VALUE	UNITS	
Flow	5,400	gpd	
Total Nitrogen Removal Required	67	mg/L	
Nitrification			
TKN In	75	mg/L	
TKN Out	3	mg/L	
TKN Removal Efficiency	96%		
Design Ammonia (NH ₃) Loading	0.05	lb/day/ft ³	
	0.80	kg/day/m ³	
Design Ammonia Conversion	2.70	lb/day	
	1.23	kg/day	
Min. Volume Required @ Design Loading	1.53	m ³	
	405	gal	
Remaining Volume for Nitrification after BOD Removal	5.27	m ³	
	1391	gal	
Max NH ₃ Loading Capacity	9.29	lb/day	
Denitrification			
Nitrate In	72	mg/l	
Nitrate Out	7	mg/l	
Nitrate Removal Efficiency	90%		
Design Nitrate Loading	0.05	lb/day/ft ³	
	0.80	kg/day/m ³	
Design Nitrate Conversion	2.93	lb/day	
	1.33	kg/day	
Min. Volume Required @ Design Loading	1.66	m ³	
	439	gal	
Anoxic Volume Per Unit	1198	gal	
Total Anoxic Volume	4792	gal	
Hydraulic Retention Time	21.3	hrs	
Max Nitrate Loading Capacity	32.00	lb/day	
Nitrogen Removal Air Calculations			
Nitrogen Conversion Efficiency	4.6	lb O ₂ /lb TN	
Oxygen Required	13.9	lb O ₂ /day	
Alkalinity Calculations			
Min. Alkalinity Required	75	mg/L (AS CaCO ₃)	
Alkalinity Provided	38	mg/L (AS CaCO ₃)	
Estimated Addition Required	6.0	LB/DAY (AS CaCO ₃)	
Estimated Carbon Calculations			
Influent BOD Concentration	300	mg/L	
Influent Total Nitrogen Concentration	75	mg/L	
BOD to Nitrogen Ratio	4		
Estimated Target BOD to Nitrogen Ratio	2.75		

Note: Design loading and conversion efficiencies constants can be found in Metcalf & Eddy, 5th edition, Chapter 9.



FUJI-CLEAN MAC200R II BLOWER CURVE



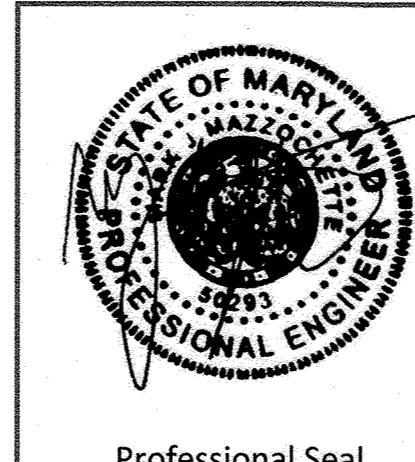
AB-202/1 BLOWER CURVE

Equalization Pump Calculations	
Total EQ Flow Per Pump (gpm)	60
Flow to Each Fuji-Clean Unit (gpm)	2
EQ Pump Elevation (feet msl)	355.42
Flow to Each Fuji-Clean Unit (gpm)	30
EQ Pump Elevation (feet msl)	366.75
Longest Pipe Length (feet)	35
Inside Pipe Diameter (in)	2.047
Friction Loss (feet)	2.3
TDH (feet)	13.7
EQ Tank Capacity (gal)	6,000
EQ Specific Capacity (gal/inch)	58.6
High Water Alarm Height (in)	28
Timer Enable Height (in)	18
Low Water Cutoff Height (in)	12
Volume Above High Water Alarm (gal)	4,359
Run Time (min)	3
Total Cycle Volume (gal)	180
Volume Per Fuji-Clean Unit (gal)	90

EQ PUMP CALCULATIONS

Equalization & Dose Tank Mixing	
minimum air required for mixing	15 cfm/1000 ft ³
equalization tank volume	2.01 cfm/1000 gal
EQ tank maximum water column	2.3 ft
minimum air required for EQ mixing	12.78 cfm
AB-202/1 split air @ EQ max water column	25 cfm
maximum air per coarse bubble diffuser	7.5 cfm
minimum number of coarse bubble diffusers	4
dose tank volume	5,027 gal
dose tank maximum water column	2.3 ft
minimum air required for dose mixing	10.08 cfm
AB-202/1 split air @ dose max water column	25 cfm
maximum air per coarse bubble diffuser	7.5 cfm
minimum number of coarse bubble diffusers	4

MIXING CALCULATIONS



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client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lynch Property**
 title: **Group 1 Treatment Details**
 file no.: **Treatment System_1.dwg**
 drawn: **J. Drzymmer** date: **5/24/24**
 checked: **M. Hawley** date: **5/24/24**
 approved: **M. Massochella** date: **5/24/24**

102 of 146
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 Plotted on: May 24, 2024

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- EXISTING WELLS TO BE USED
- PLANNED WELLS
- EXISTING WELLS TO BE ABANDONED
- WELL METER PIT
- RESIDENTIAL METER PIT
- MONITORING WELL
- PASSED PERC TEST
- FAILED PERC TEST
- GRINDER PUMP STATION
- IN-LINE FLUSHING CONNECTION
- DRAINFIELD TRENCH (CELL A)
- DRAINFIELD TRENCH (CELL B)
- DRAINFIELD TRENCH (CELL C)
- DRAINFIELD TRENCH (RESERVE)
- PRESSURIZED FORCE MAIN
- GRAVITY SANITARY MAIN
- GRAVITY SANITARY LATERAL
- UNIT PROPERTY BOUNDARY
- SEPTIC RESERVE AREA BOUNDARY

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Noroni Howell
 Naomi Howell, Program Manager
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment
 DATE: 7/16/24

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE: 7/16/24

CHIEF, DIVISION OF LAND DEVELOPMENT
Diana Eschey
 DIRECTOR
 DATE: 7/16/24



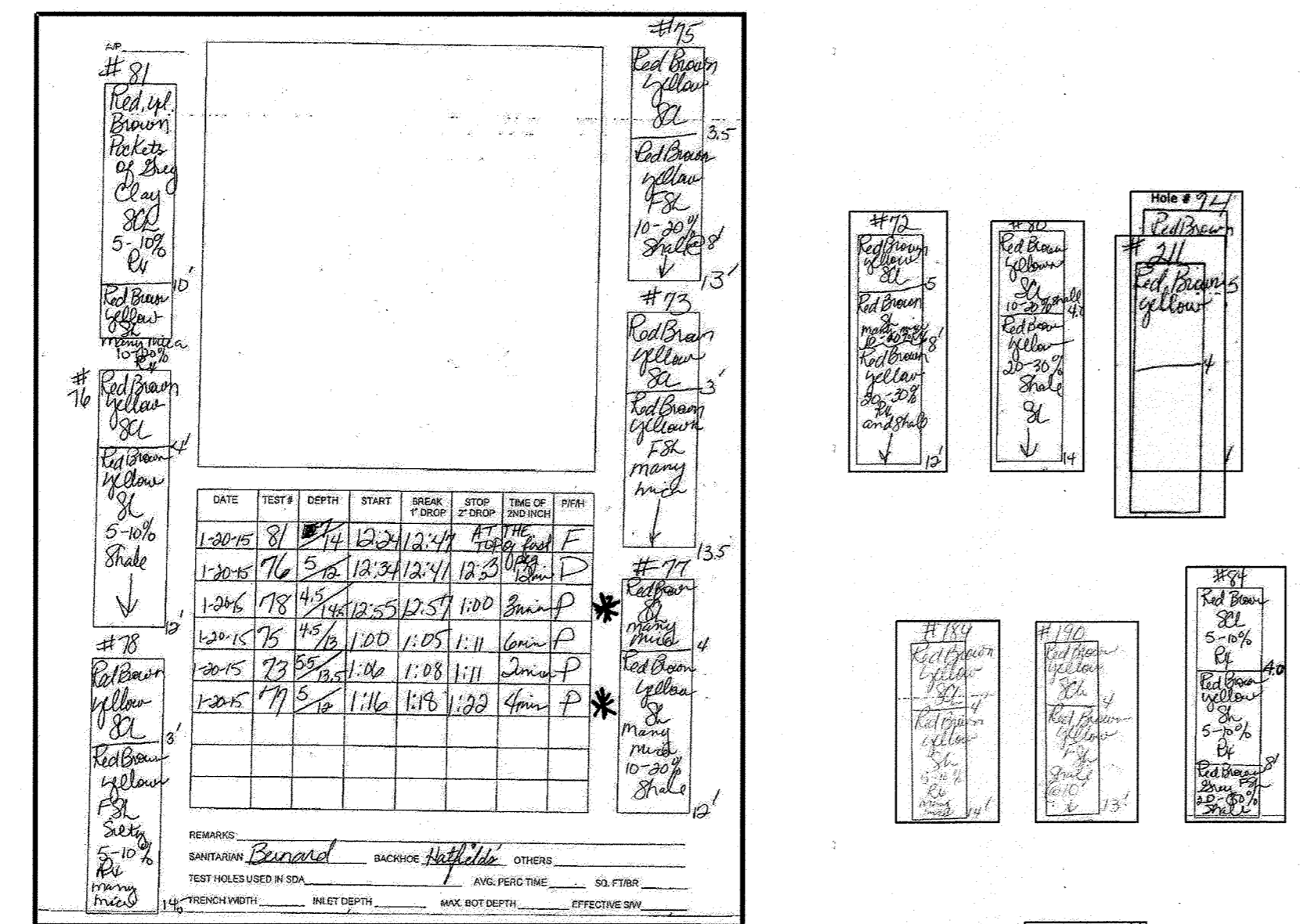
Trench Design, Group #2

Cell	Trench	Existing Ground Elevation (feet msl)	Sidewall Top Elevation (feet msl)	Sidewall Height (feet)	Sidewall Bottom Elevation (feet msl)	Trench Length (feet)	Capacity (gpd, L*W*Appr(ft ³))	Cell Capacity (gpd, L*W*Appr(ft ³))
Primary	1	412.5	407.50	3.00	404.5	165	1,188	
	2	412.0	407.00	3.00	404.0	185	1,332	3,300
	3a	411.0	406.00	3.00	403.0	108	780	
	4	410.0	405.00	3.00	402.0	212	1,526	3,300
	5	409.0	404.00	3.00	401.0	246	1,773	
Reserve	6	408.5	403.50	3.00	400.5	257	1,850	3,300
	7a	407.0	402.00	3.00	399.0	201	1,450	
	3b	411.0	406.00	3.00	403.0	92	662	
	7b	407.0	402.00	3.00	399.0	91	655	
	8	406.0	401.00	3.00	398.0	319	2,297	
	9	404.5	399.50	3.00	396.5	229	1,649	9,900
	10	403.0	398.00	3.00	395.0	260	1,872	
	11	402.0	397.00	3.00	394.0	238	1,714	
12	400.0	395.00	3.00	392.0	94	677		
13	398.0	393.00	3.00	390.0	52	374		
Trench width = 3 ft		totals 2,750		19,800		gpd		
Loading rate = 1.2 gpd/ft ²		150% buildout		9,900		gpd		
Trench bottom depth = 8 ft		100% capacity		6,600		gpd		

Applicable Percs

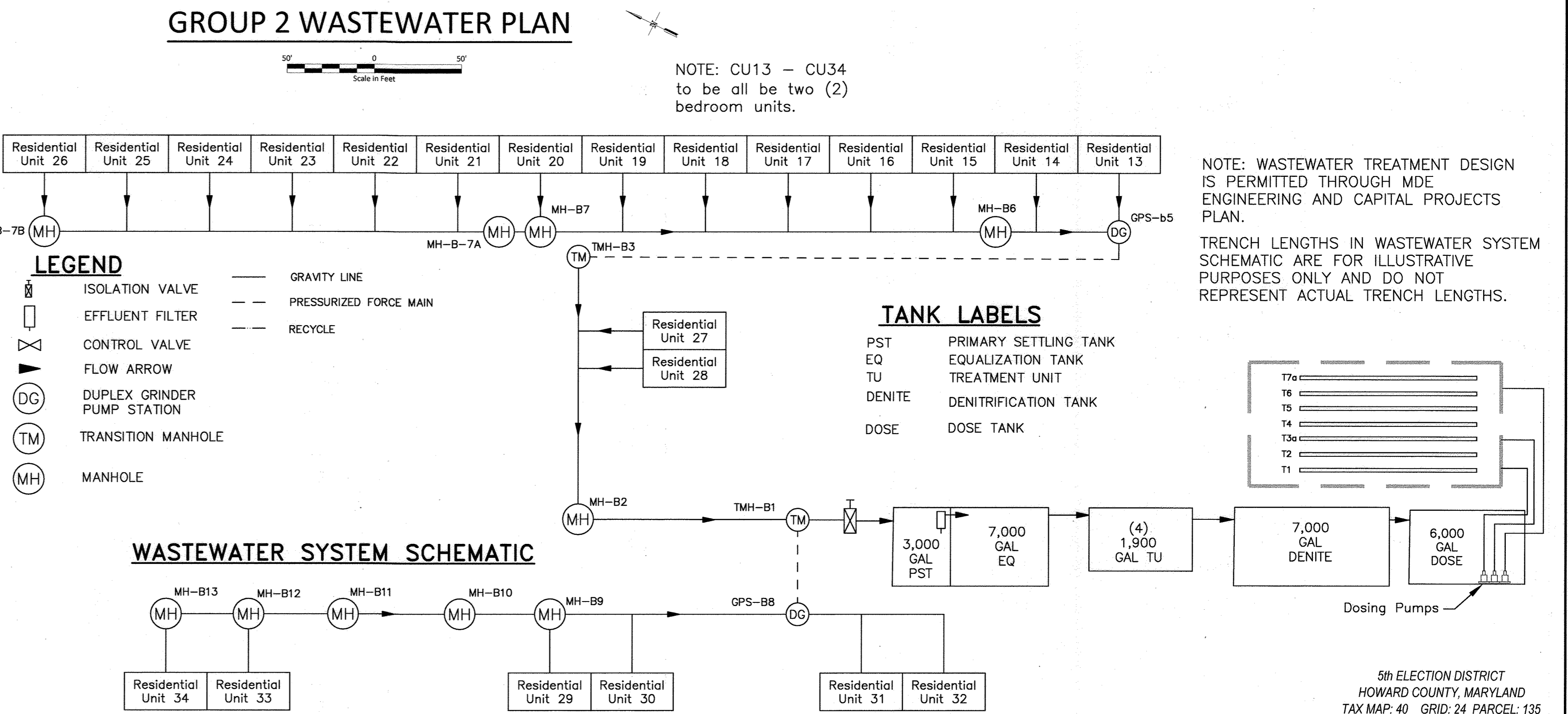
Test #	Limiting Zone Depth (ft)	Perc Test Depth (feet)	Test Pit Depth (feet)	Perc Rates (ml/min/inch)	Max Trench Bottom Depth (feet)
69	7	7.0	11.0	4	7
70	7.5	7.5	12.5	2	8.5
71	5.5	5.5	14.0	8	10
72	7	7.0	12.0	19	8
73	5.5	5.5	13.5	2	9.5
74	6.4	6.4	14.0	3	10
75	4.5	4.5	13.0	6	9
76	5	5.0	12.0	12	8
77	5	5.0	12.0	4	8
78	4.5	4.5	14.5	3	10.5
80	4.5	4.5	14.0	5	10
84	4.5	4.5	13.0	5	9
189	5	5.0	14.0	6	10
190	0	0.0	13.0	0	9
211	5	5.0	12.0	13	8

Notes
 calculated values in italics
 msl = mean sea level in feet
 laterals within each cell are at same elevation
 gpd = gallons per day
 Bold perc tests are within trench layout area.
 Red perc tests were avoided due to depth of limiting zone or slow perc rate.



PERC TEST FIELD SHEETS

DATE	TEST #	DEPTH	START	BREAK	STOP	TIME OF PERC	PERC RATE
1-20-15	70	7.5	11:31	1:54	2:00	19min	P
1-20-15	71	5.5	1:46	1:50	1:58	8min	P
2-10-14	74	6.4	12:12	12:34	12:37	3min	P
2-10-14	70	5.5	12:34	12:40	12:41	7min	P
1-20-15	80	4.5	11:43	11:49	11:53	5min	P
1-20-15	84	4.5	11:56	12:01	12:01	5min	P
1-20-15	189	5	4:28	4:30	4:31	3min	P
1-20-15	190	0	4:31	4:31	4:31	3min	P
1-20-15	211	5	1:13	1:13	1:13	13min	P

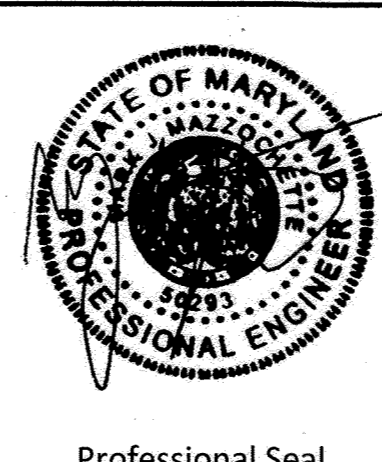


TRENCH DESIGN

PERC TEST FIELD SHEETS

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Revisions

no.	description	date	by	approved

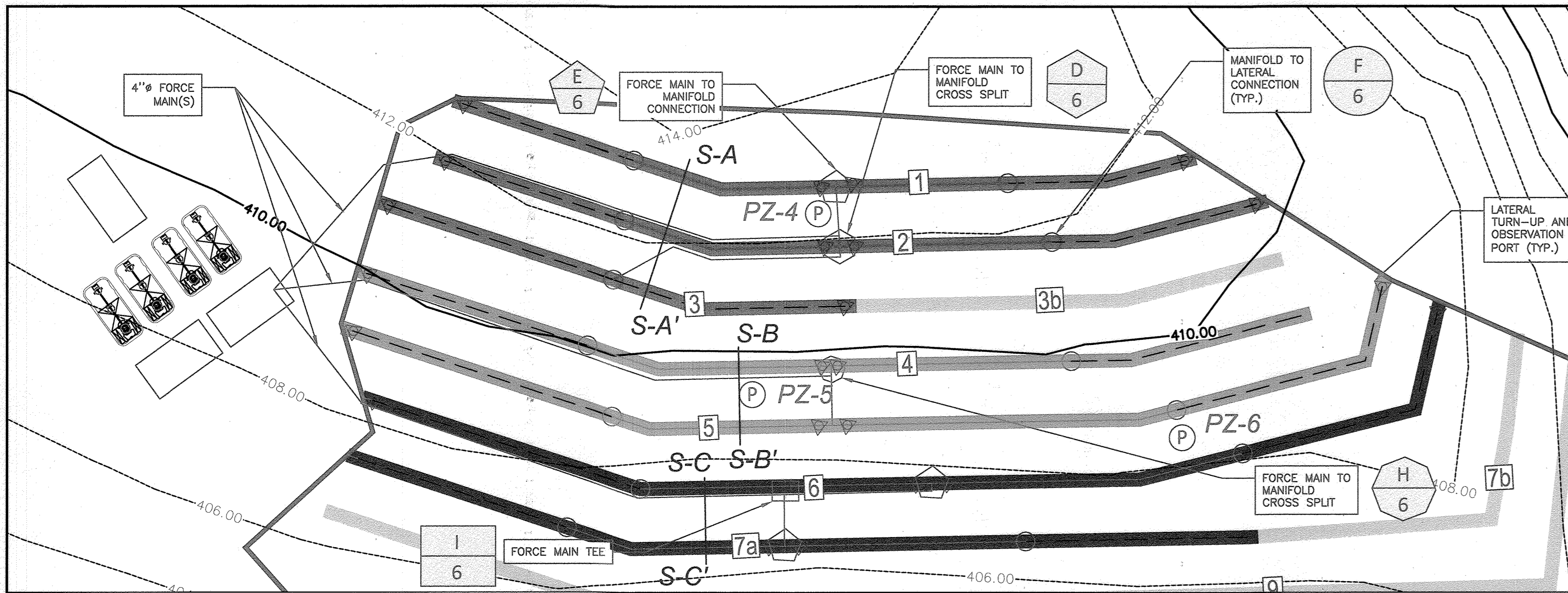
H&H Rock Companies

12170 Lime Kiln Road, Fulton, Howard County, MD

Hydro-Terra GROUP

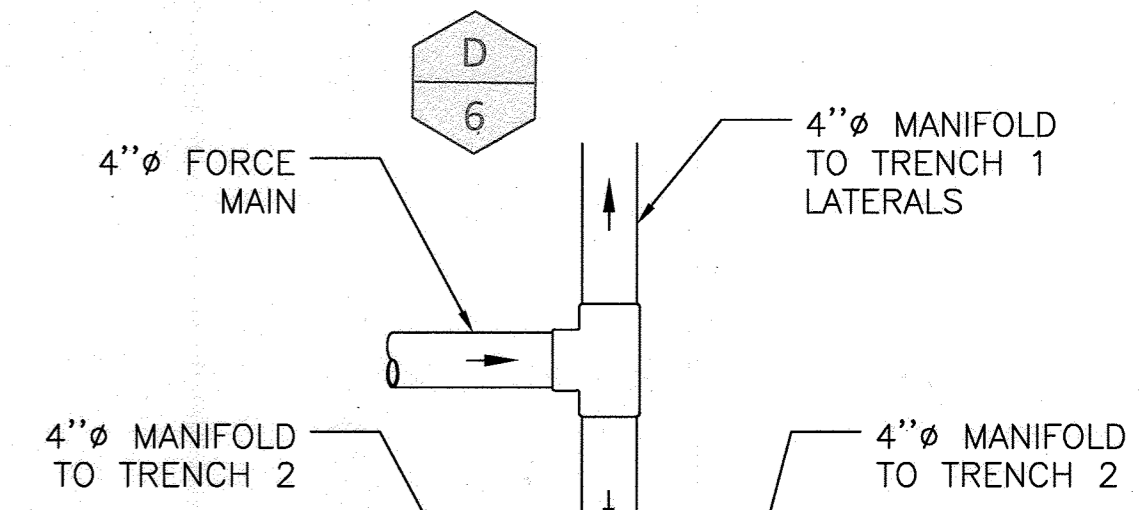
103 of 146

Plotted on: May 24, 2024

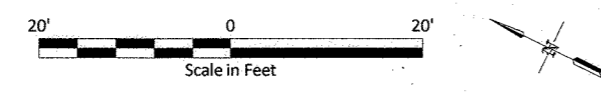


LEGEND

- CELL A TRENCH
- CELL B TRENCH
- CELL C TRENCH
- RESERVE TRENCH
- FORCE MAIN AND MANIFOLD
- 2" DISTRIBUTION LATERAL
- SEPTIC RESERVE AREA BOUNDARY
- PIEZOMETER
- FORCE MAIN TO MANIFOLD CROSS SPLIT
- FORCE MAIN TO MANIFOLD CONNECTION
- MANIFOLD TO LATERAL CONNECTION
- 2" LATERAL TURN-UP AND 4" OBSERVATION PORT
- FORCE MAIN TO MANIFOLD DOUBLE TEE
- FORCE MAIN TEE



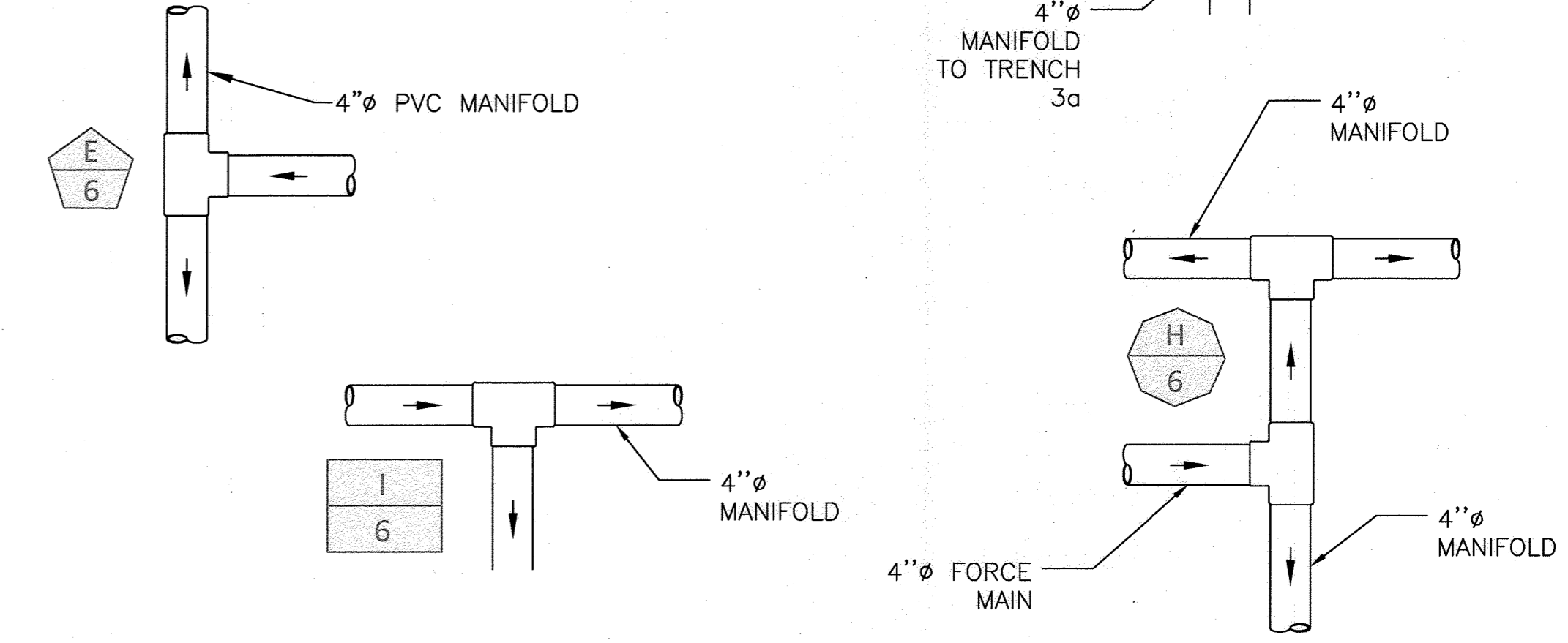
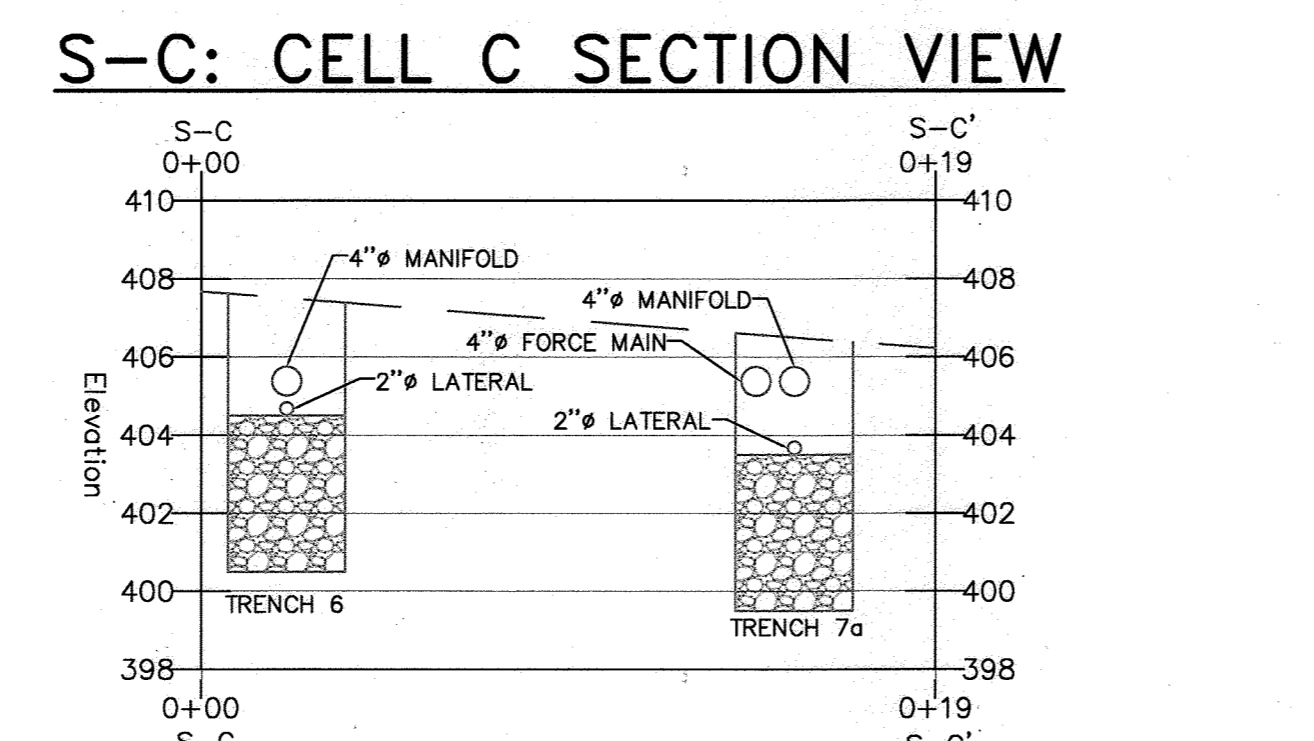
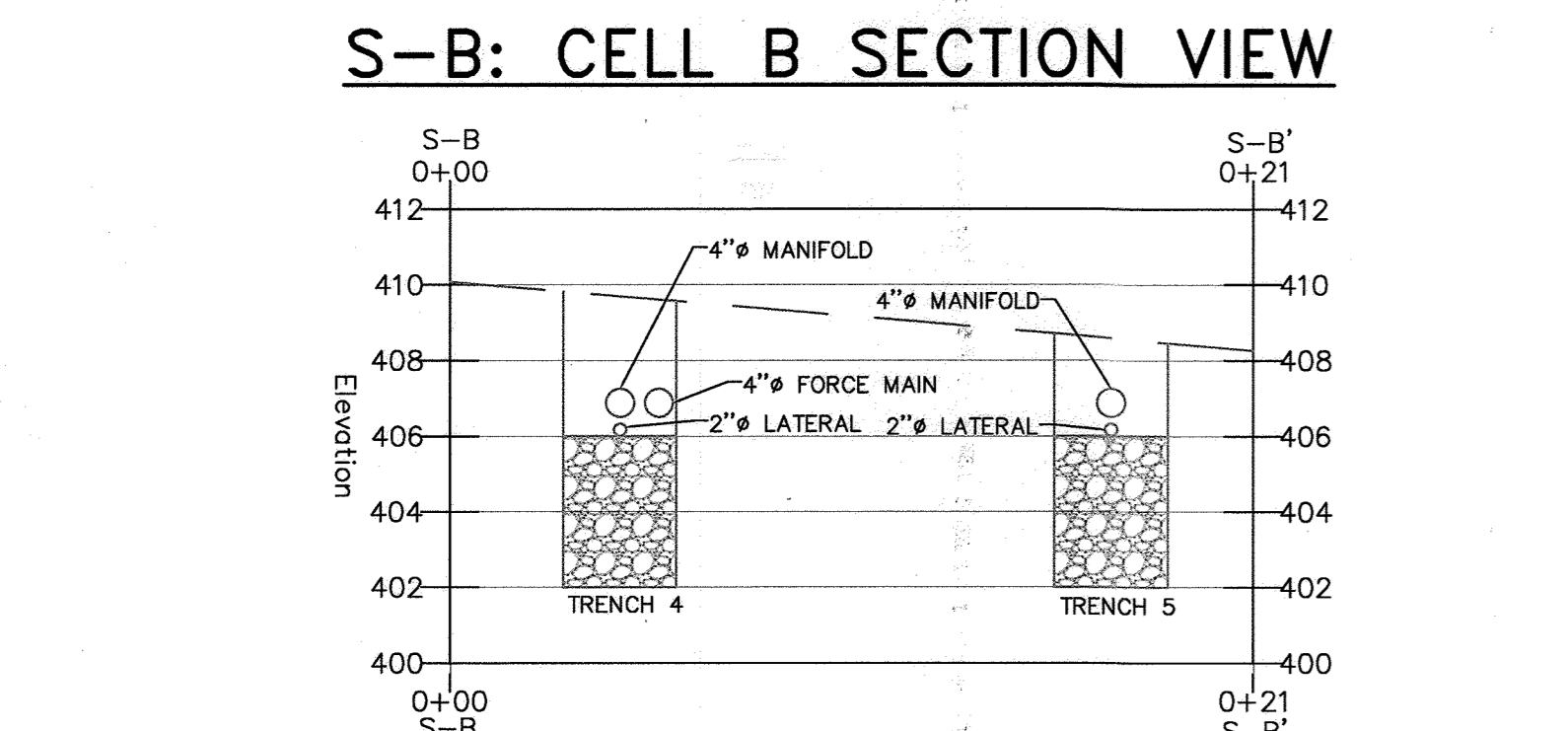
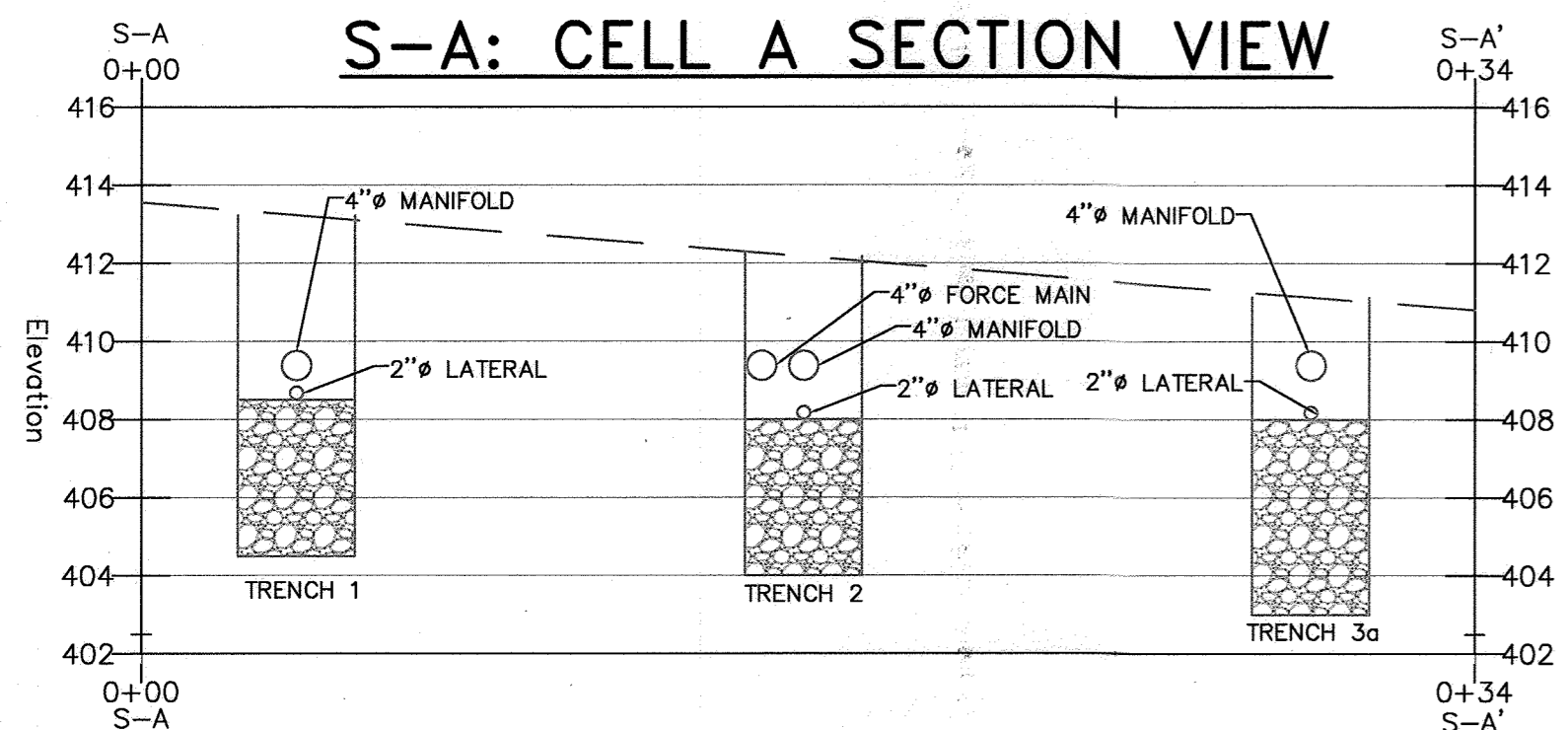
GROUP 2 TRENCH AND LPD PIPING PLAN



Cell	Trench	Construction Specifications							Flow Calculations								
		average existing ground elevation (feet msl)	sidewall bottom elevation (feet msl)	lateral elevation (feet msl)	total trench length (feet)	number of laterals	lateral length (ft)	total # of holes	# of holes per lateral	perf spacing (feet)	perf dia (inches)	minimum design distal head (feet)	perf flow (gpm)	total flow (gpm)	dose rate (gpm/foot)	max. lateral friction loss (feet)	cell flow (gpm)
A	1	412.5	404.5	408.5	165	4	39.2	40	10	4.13	1/4	3.0	1.28	51.2	0.31	0.21	140
A	2	412.0	404.0	408.0	185	4	43.9	40	10	4.63	1/4	3.5	1.38	55.3	0.30	0.28	
A	3a	411.0	403.0	408.0	108	2	51.9	24	12	4.52	1/4	3.5	1.38	33.2	0.31	0.13	
B	4	410.0	402.0	406.0	212	4	50.8	48	12	4.42	1/4	3.0	1.28	61.4	0.29	0.10	133
B	5	409.0	401.0	406.0	246	4	59.4	56	14	4.40	1/4	3.0	1.28	71.7	0.29	0.58	
C	6	408.5	400.5	404.5	257	4	62.0	56	14	4.59	1/4	3.0	1.28	71.7	0.28	0.52	131
C	7a	407.0	399.0	403.5	201	4	47.8	40	10	5.04	1/4	4.0	1.48	59.1	0.29	0.29	

Notes
 calculated values in *italics*
 gpm = gallons per minute
 msl = mean sea level in feet
 maximum lateral depth (feet) = 4.0
 friction C factor for plastic pipe= 130
 lateral inside diameter (2" dia sch40PVC, in)= 2.067

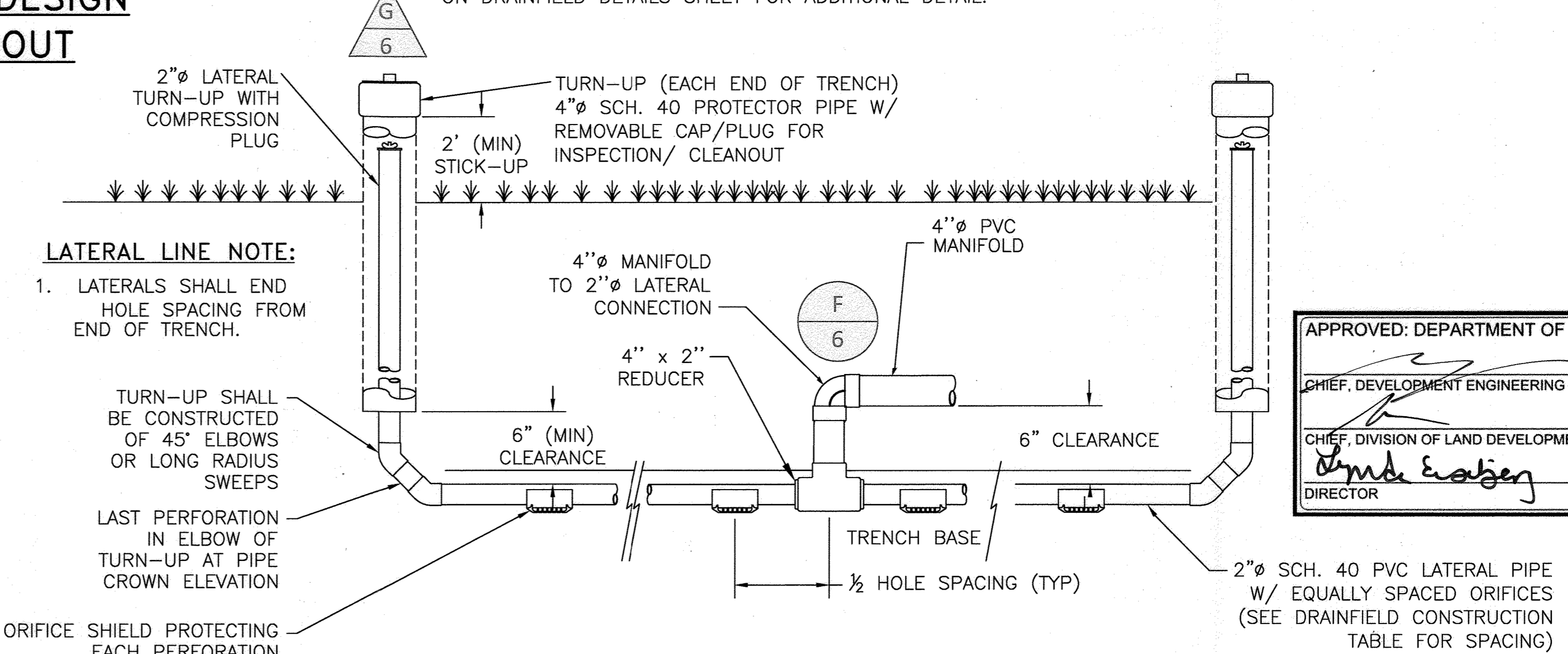
GROUP 2 LPD DESIGN (150% BUILDOUT)



PIPING CONNECTIONS

NOT TO SCALE

NOTE: SEE LATERAL AND OBSERVATION PORT SECTION ON DRAINFIELD DETAILS SHEET FOR ADDITIONAL DETAIL.



DISTRIBUTION LATERAL DETAIL

NOT TO SCALE

LATERAL LINE NOTE:

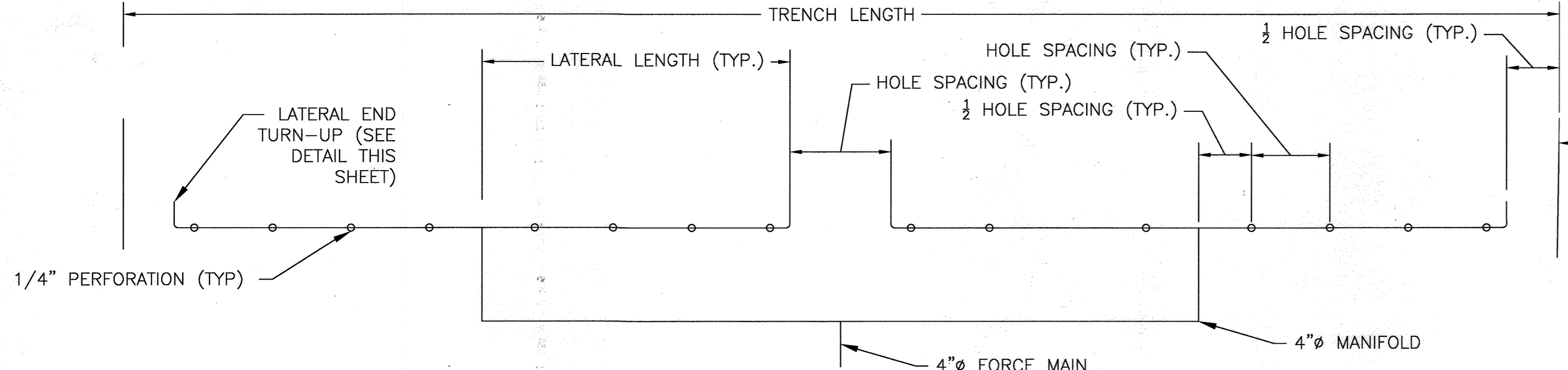
- LATERALS SHALL END HOLE SPACING FROM END OF TRENCH.

TURN-UP SHALL BE CONSTRUCTED OF 45° ELBOWS OR LONG RADIUS SWEEPS
 LAST PERFORATION IN ELBOW OF TURN-UP AT PIPE CROWN ELEVATION

ORIFICE SHIELD PROTECTING EACH PERFORATION (SEE DETAIL THIS SHEET)

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DIRECTOR

7/16/24
 DATE
 7/16/24
 DATE
 7/16/24
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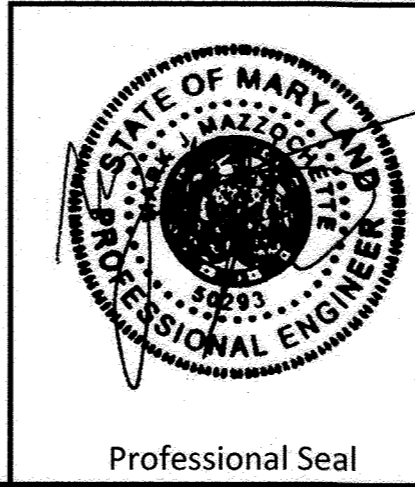


PIPING PLAN LATERAL DETAIL

NOT TO SCALE

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Howell
 7/16/24
 DATE

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5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lyhus Property**
 title: **Group 2 Trench Profiles**
 file no.: **HTG Profile Exhibit for Lyhus_1.dwg**
 sheet: **104 of 146**

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 Plotted on: January 30, 2024

Design Input		Calculations	
Drainfield Pump Chamber			
pump chamber capacity (gal/inch)	79.8	maximum daily flow (MDF) (gpd)	6,600
pump chamber volume (gal)	6064	average daily flow (ADF) (gpd)	3,300
volume above high water alarm (gal)	3351		
Static Hydraulic Profile (with invert elevations)			
dose chamber surface elev. (feet msl)	408.50		
dose tank influent invert elev. (feet msl)	406.50		
dose tank floor elev. (feet msl)	400.17		
Cell A maximum lateral elev. (feet msl)	408.50	Cell A in-service static lift (feet)	8.3
Cell B maximum lateral elev. (feet msl)	406.00	Cell B in-service static lift (feet)	5.8
Cell C maximum lateral elev. (feet msl)	403.50	Cell C in-service static lift (feet)	3.3
Drainfield Dosing			
cell A flow (gpm)	140	force main velocity (feet/second)	3.6
Cell A force main length (feet)	212	Cell A force main friction loss (feet)	3.6
Cell A minor loss equivalent lengths (feet)	41.6	Cell A max. total dynamic head (feet)	15.2
		Cell A main volume (gal)	138
		Cell A total lateral volume (gal)	80
		Cell A dose vol. @ 5x lateral vol (gal)	400
cell B flow (gpm)	133	force main velocity (feet/second)	3.4
Cell B force main length (feet)	195	Cell B force main friction loss (feet)	3.0
Cell B minor loss equivalent lengths (feet)	41.6	Cell B max. total dynamic head (feet)	12.5
		Cell B main volume (gal)	127
		Cell B total lateral volume (gal)	80
		Cell B dose vol. @ 5x lateral (gal)	399
cell C flow (gpm)	131	force main velocity (feet/second)	3.3
Cell C force main length (feet)	235	Cell C force main friction loss (feet)	3.4
Cell C minor loss equivalent lengths (feet)	41.6	Cell C max. total dynamic head (feet)	10.3
		Cell C main volume (gal)	153
		Cell C total lateral volume (gal)	80
		Cell C dose vol. @ 5x lateral (gal)	400
dose chamber length (inches)	192	dose tank capacity (gal)	6,064
dose chamber width (inches)	96	dose tank capacity (gals per inch)	79.8
dose chamber height to invert (inches)	76	minimum design dose volume (gals)	400
# cells in service	2	effective dose volume (gals)	638
high water alarm/lag pump on height (inches)	34	# daily doses @ ADF	5.2
lead pump on (inches)	20	dose time (minutes)	4.8
low water cutoff (inches)	12	residual settling volume (gal)	957
Goulds pump model	WS10BHF	volume above high water alarm (gal)	3,351
Three SJE Rhombus IFN21W124H 6A8AC10E16D Control Panels			

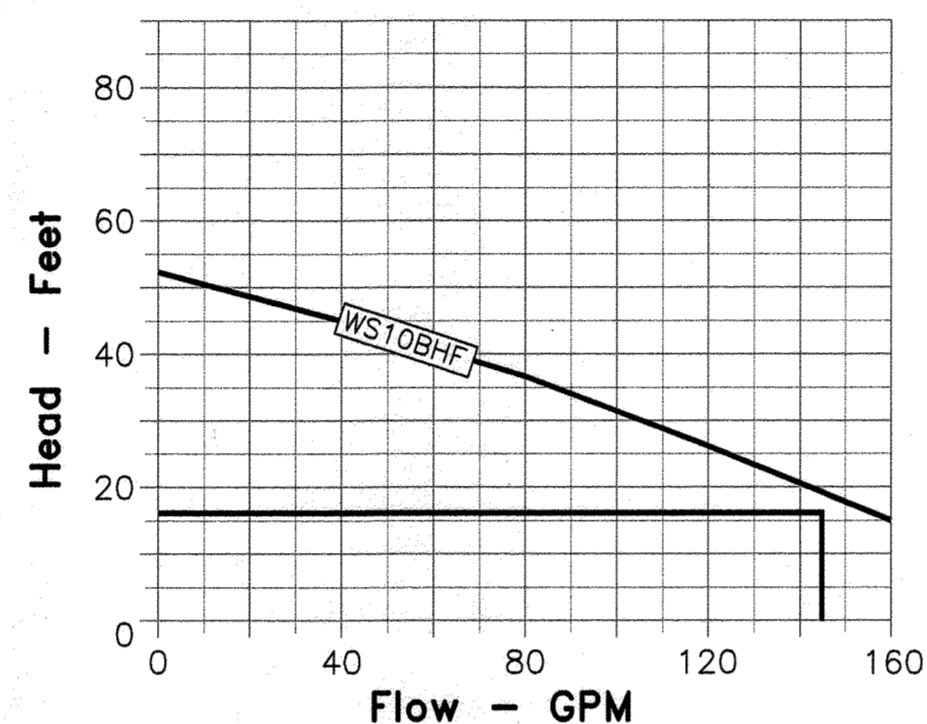
Notes
gpd = gallons per day
gpm = gallons per minute
msl = mean sea level in feet
calculated values in *italics*
set floats based on weight +/- 3"

design distal head (feet)= 3.0
friction C factor for plastic pipe= 130
force main ID (4" dia sch40PVC, in)= 3.998
lateral inside diameter (2" dia sch40PVC, in)= 2.067
two cells are always in service, with the third resting

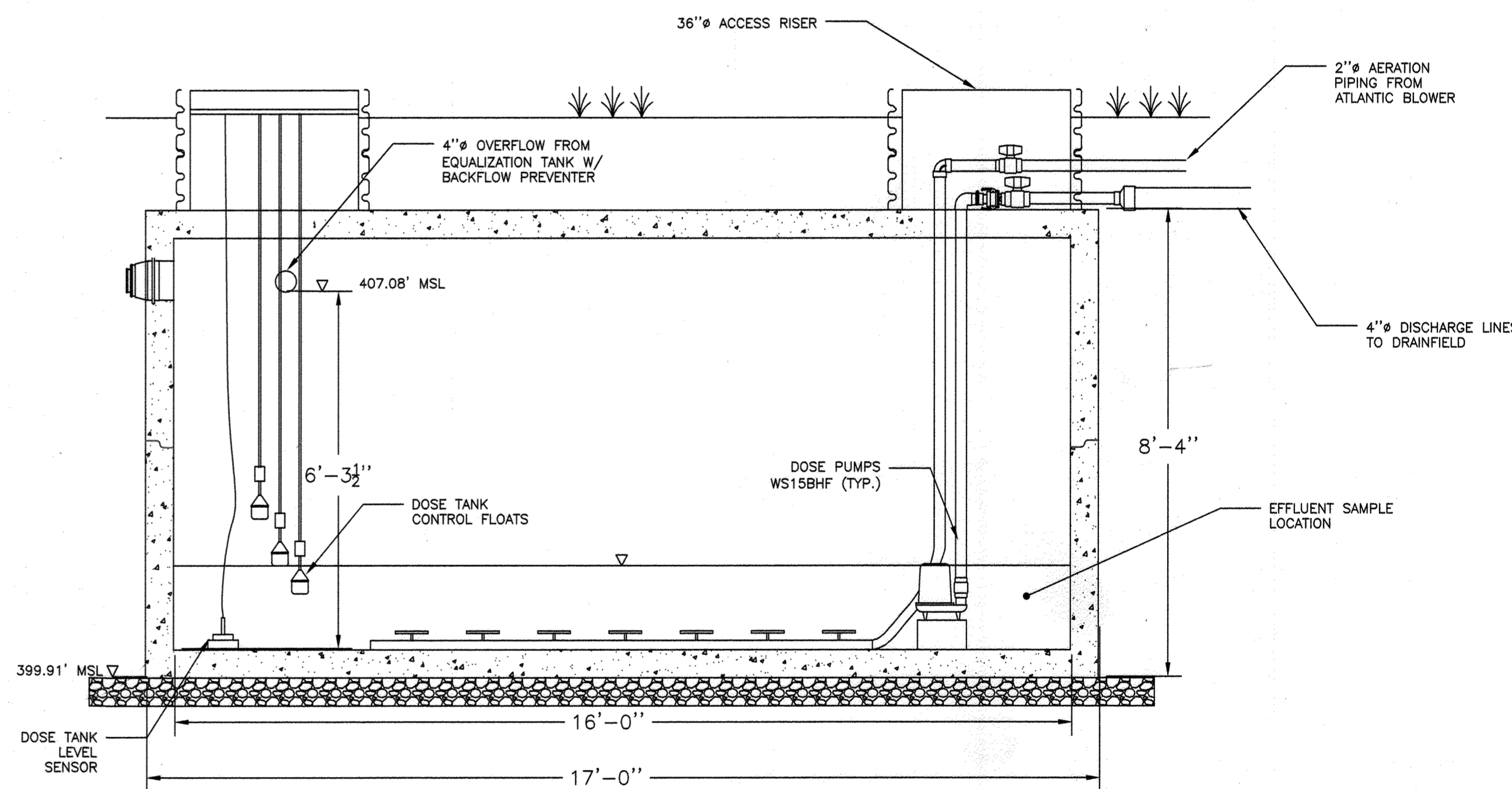
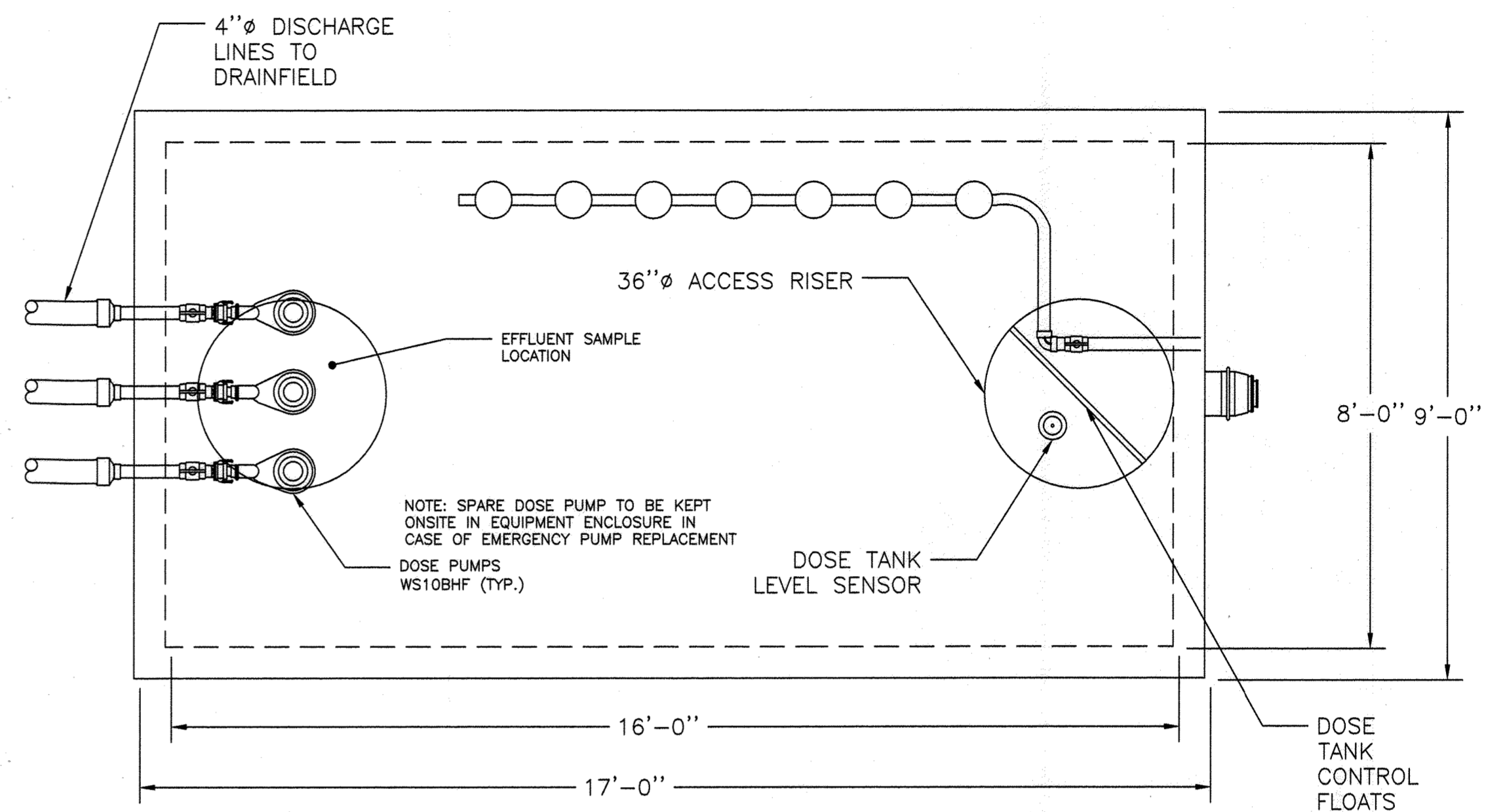
GROUP 2 DRAINFIELD DOSE DESIGN CALCULATIONS

Group 2 WWTS Equalization Balance						
	Primary Settling Tank	EQ Tank	Fuji-Clean Treatment Units	Denitrification Filter Tank	Dose Tank	
Normal Operating Volume (gal)	3,000	3,500	7,600	7,000	2,713	
Maximum Tank Volume (gal)	3,000	7,000	7,600	7,000	6,064	
Available EQ Volume (gal)	0	3,500	0	0	3,351	
		Total EQ Volume (gal)	6,851			

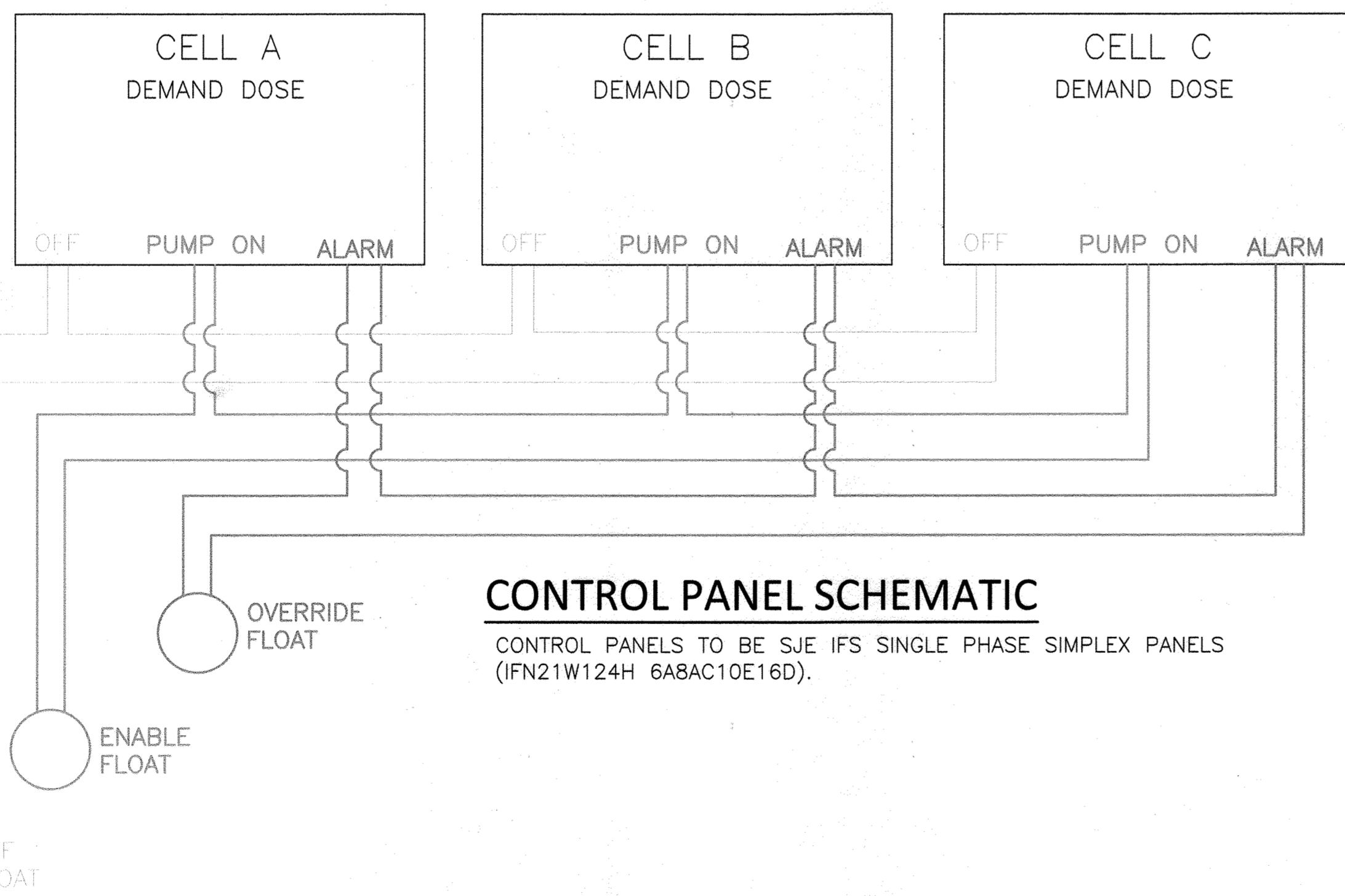
GROUP 2 EQ VOLUME



DOSE PUMP CURVE GOULDS WS10BHF



GROUP 2 DRAINFIELD DOSE TANK DETAIL (6,000 GALLONS)
1/8" = 1'-0"



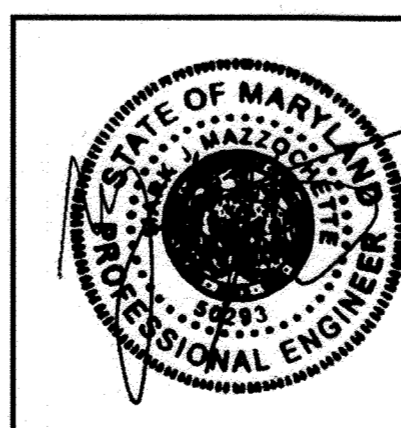
CONTROL PANEL SCHEMATIC

CONTROL PANELS TO BE SJE IFS SINGLE PHASE SIMPLEX PANELS (IFN21W124H 6A8AC10E16D).

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION
DATE: 7/16/24

CHIEF, DIVISION OF LAND DEVELOPMENT
DATE: 7/16/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell
Program Manager
Wastewater Pollution Prevention and Reclamation Program
Maryland Department of the Environment
DATE: 7/16/2024



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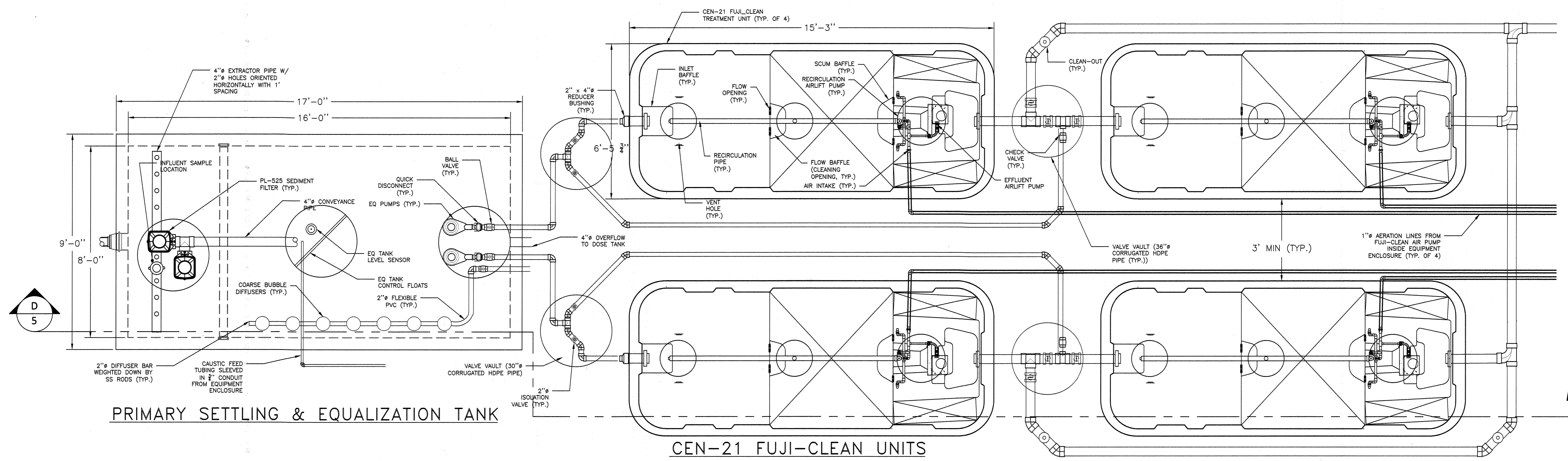
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5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP: 40 GRID: 24 PARCEL: 135

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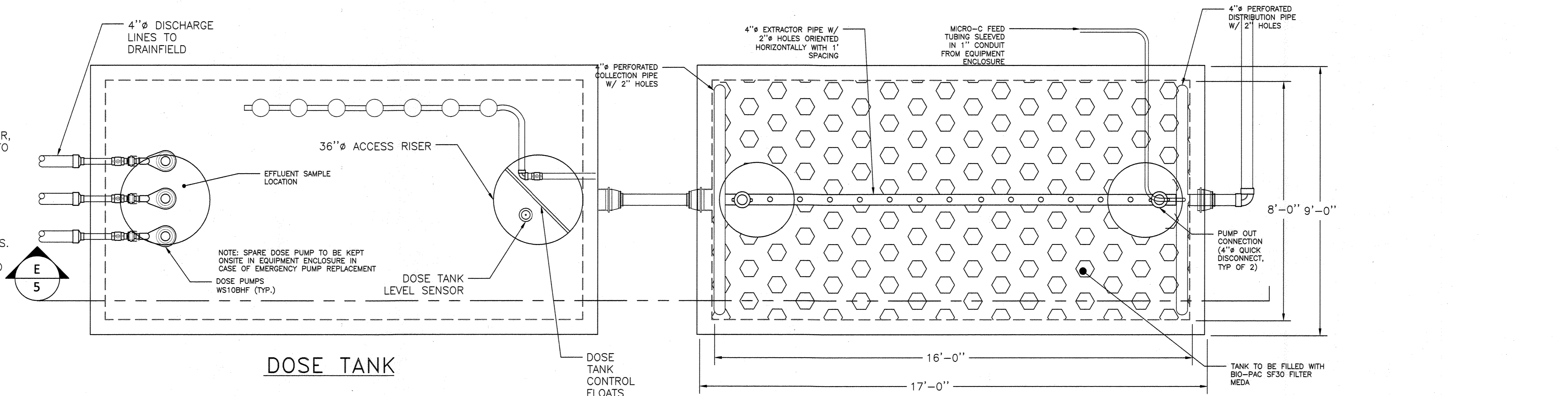
client: **H&H Rock Companies**
project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
project: **Lyhus Property**
title: **Group 2 Wastewater Details**
file no.: **Lyhus Drainfield Plans 2024 May Permitting.dwg**
drawn by: **J. Brymmer** date: **5/24/24**
checked by: **M. Hauffer** date: **5/24/24**
approved by: **M. Mazzuchelli** date: **5/24/24**

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Plotted on: May 24, 2024



GENERAL NOTES:

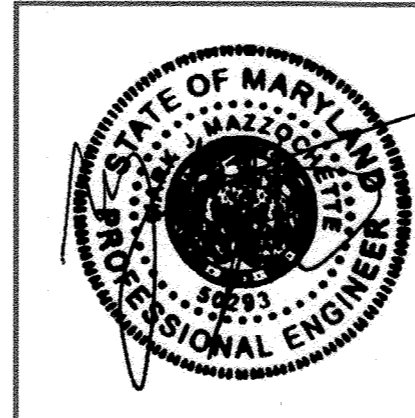
- CONSTRUCTION SHALL CONFORM TO ALL LOCAL, COUNTY, AND STATE GUIDELINES, INCLUDING HOWARD COUNTY BUILDING CODES AND RECOMMENDED STANDARDS FOR WASTEWATER SYSTEMS. DISCREPANCIES TO THESE AND THE APPROVED DRAWINGS SHALL BE REFERRED TO ENGINEER.
- ALL PIPE ELEVATIONS ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
- A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE CONTRACTOR, HTG, MDE, AND HCHD REPRESENTATIVES PRIOR TO STARTING WORK TO REVIEW DESIGN DOCUMENTS AND CONSTRUCTION REQUIREMENTS.
- ALL CONNECTIONS OF RISERS AND PIPES TO TANKS SHALL BE WATERTIGHT. WATER-TIGHT TESTING SHALL BE CONDUCTED POST-INSTALLATION.
- PRECAST CONCRETE TANKS SHALL BE PROVIDED BY GILLESPIE PRECAST OR APPROVED EQUAL, AND INSTALLED PER THESE DRAWINGS.
- BLOWERS SHALL BE ATLANTIC BLOWER MODEL AB-201 OR APPROVED EQUAL.
- ALL COMPONENTS SUBMERGED IN WASTEWATER, EXPOSED TO WASTEWATER TANK HEADSPACE, OR TO THE EXTERIOR ENVIRONMENT SHALL BE OF CORROSION RESISTANT CONSTRUCTION.
- FILTER SCREEN SHALL BE 1/8" FILTRATION SIZE AND SHALL BE POLYLOK PL-525 FILTER.
- ALL TANKS AND VALVE VAULTS TO BE SET ON 6" OF GRAVEL.
- FUJI-CLEAN UNITS TO BE INSTALLED USING "FUJI-CLEAN USA CONTRACTOR INSTALLATION MANUAL - RESIDENTIAL AND COMERCIAL SYSTEMS."
- DENITRIFICATION FILTER TANK TO BE FILLED WITH BIO-PAC SF30 FILTER MEDIA. THIS MEDIA HAS A SURFACE AREA OF 30 FT2/FT3, A 95% VOID RATIO, AND A LOADING/WETTING RATE OF 150 GPD/FT2. MEDIA TO BE CLEANED BY ATTACHING BLOWER TO PUMP OUT CONNECTION IN DENITRIFICATION FILTER TANK.
- FLOW THROUGH THE SYSTEM WILL BE MONITORED VOLUMETRICALLY USING DOSE TANK LEVEL INCREASES AND DECREASES DURING FILLING AND PUMPING. THE LEVELS ARE MONITORED EVERY MINUTE USING A PRESSURE TRANSDUCER ACCURATE TO 0.01 INCH, WITH A REMOTE MONITORING SYSTEM (RMS) AND DATA LOGGING.
- THE OPERATOR MUST BE LICENSED FOR CLASS SPECIFIED IN CONSTRUCTION PERMIT.



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell
 Naomi Howell, Program Manager
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment
 DATE: 7/16/24

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 7/16/24
 DIRECTOR DATE: 7/16/24

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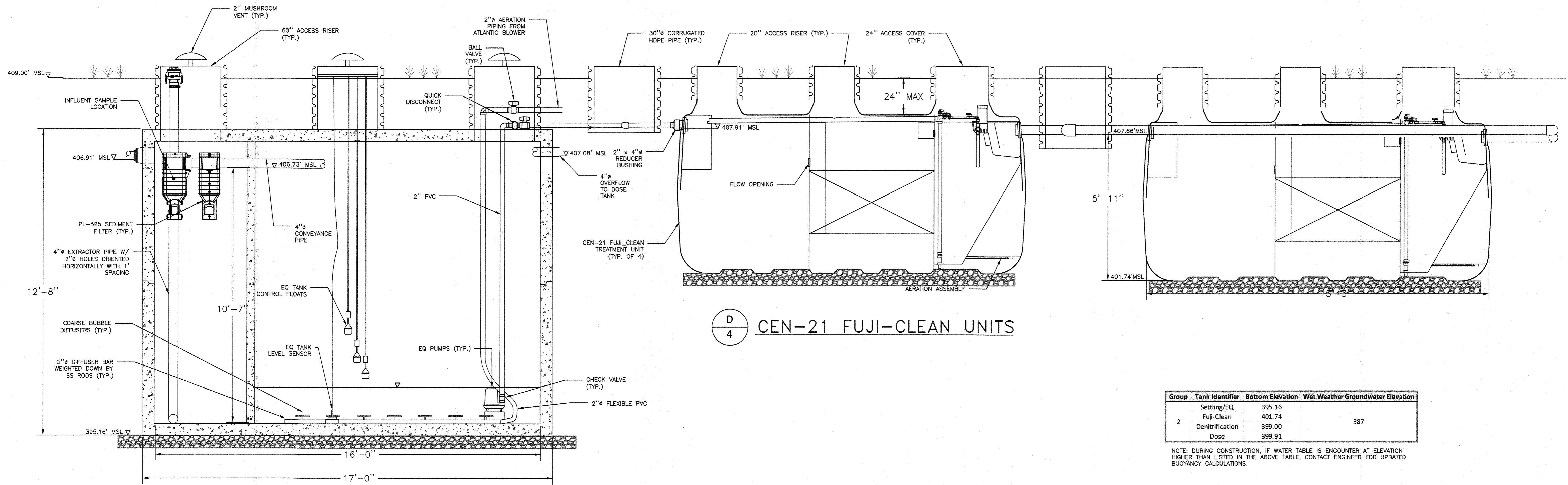


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5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lynch Property**
 title: **Group 2 Treatment Plan**
 file no.: **Treatment System_1.dwg**
 drawn by: **J. Brymmer** date: **5/24/24**
 checked by: **M. Huxley** date: **5/24/24**
 approved by: **M. Muscochelle** date: **5/24/24**
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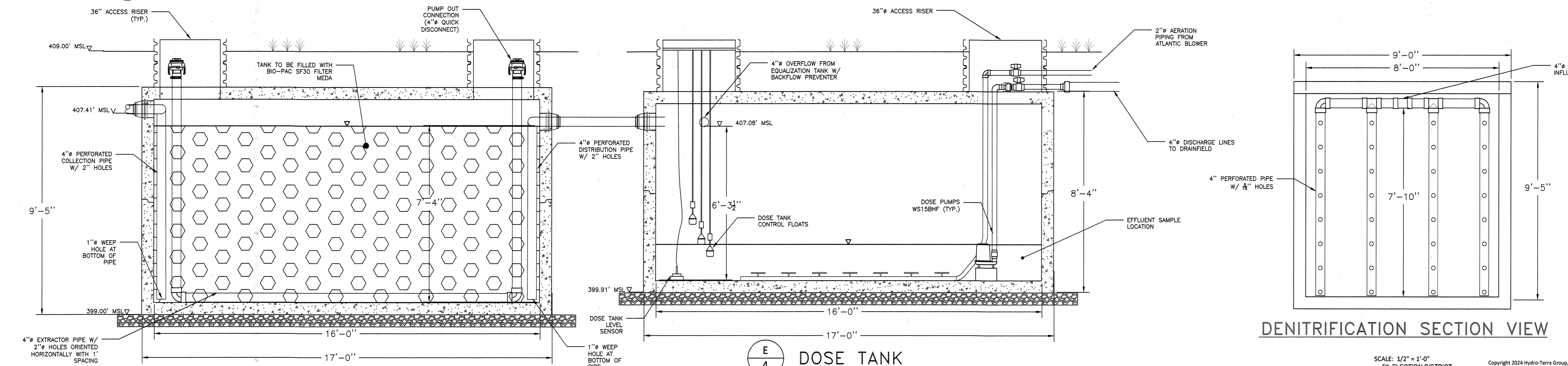


D
4 CEN-21 FUJI-CLEAN UNITS

Group	Tank Identifier	Bottom Elevation	Wet Weather Groundwater Elevation
2	Settling/EQ	395.16	387
	Fuji-Clean	401.74	
	Denitrification	399.00	
	Dose	399.91	

NOTE: DURING CONSTRUCTION, IF WATER TABLE IS ENCOUNTER AT ELEVATION HIGHER THAN LISTED IN THE ABOVE TABLE, CONTACT ENGINEER FOR UPDATED BUOYANCY CALCULATIONS.

D
4 PRIMARY SETTLING & EQUALIZATION TANK



E
4 DENITRIFICATION FILTER

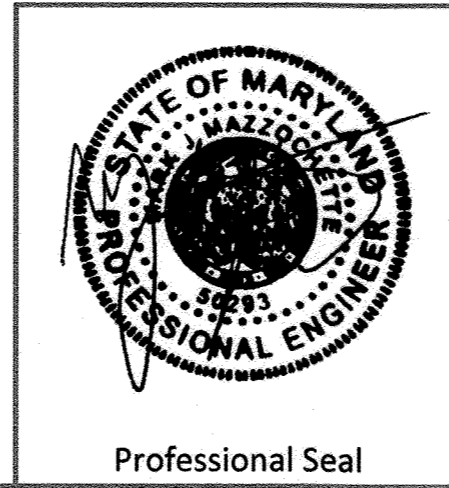
E
4 DOSE TANK

DENITRIFICATION SECTION VIEW

SCALE: 1/2" = 1'-0"
5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP: 40 GRID: 24 PARCEL: 135
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Naomi Howell
Naomi Howell, Program Manager
Wastewater Pollution Prevention and Reclamation Program
Maryland Department of the Environment
7/16/2024
DATE

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CHIEF, DEVELOPMENT ENGINEERING DIVISION
7/16/2024
DATE
CHIEF, DIVISION OF LAND DEVELOPMENT
7/16/2024
DATE
DIRECTOR
7/16/2024
DATE

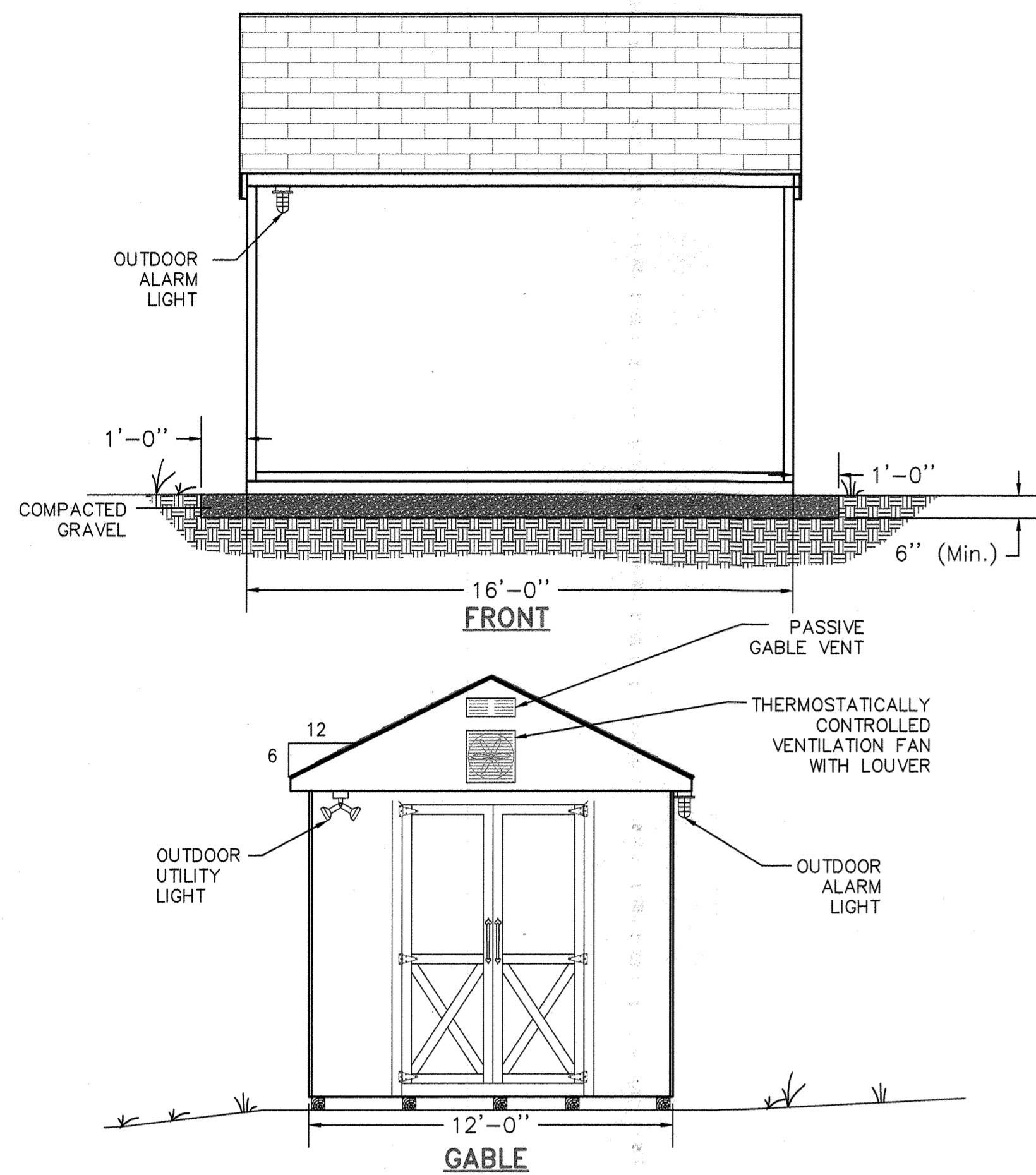


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Client: **H&H Rock Companies**
Project Location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
Project: **Lyhus Property**
Group 2 Treatment Section
Treatment System_1.dwg
Hydro-Terra GROUP
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Plotted on: May 24, 2024

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EQUIPMENT ENCLOSURE EXTERIOR
NTS

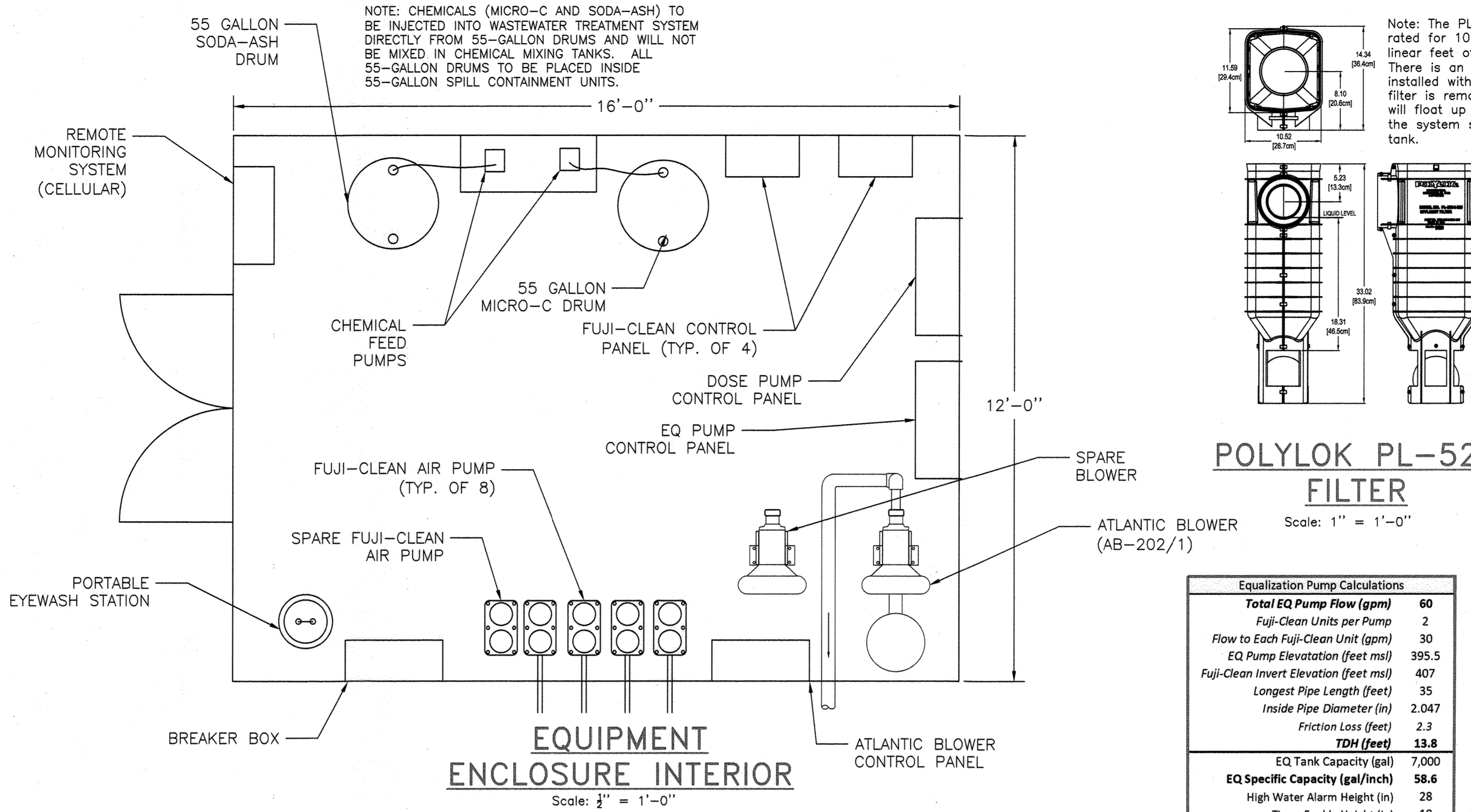
DESIGN DETAILS FCUC-230628108 LYHUS 6600MDF (3300 ADF)	
AVERAGE DAILY FLOW	3,300 GPD
MAXIMUM MONTHLY FLOW (PF = 2)	6,600 GPD
PEAK DAILY FLOW (PF = 3)	9,900 GPD
PEAK HOURLY FLOW (PF = 4)	550 GPH
BOD-INFLUENT	300 mg/L
BOD-EFFLUENT	30 mg/L
TSS-INFLUENT	300 mg/L
TSS-EFFLUENT	30 mg/L
TN-INFLUENT	75 mg/L
TN-EFFLUENT	8 mg/L
FOG - INFLUENT MAXIMUM	30 mg/L
ALKALINITY (AS CaCO ₃) - INFLUENT	75 mg/L

Treatment Stage	Length (ft)	Width (ft)	Outlet Height (ft)	Tank Volume (gal)	Total Volume (gal)
Settling	3.83	8.00	10.58	2425	2425
Equalization	11.83	8.00	11.00	7787	7787
CEN-21 Sedimentation	-	-	-	1200	4800
CEN-21 Anaerobic	-	-	-	1198	4792
CEN-21 Aeration	-	-	-	550	2200
CEN-21 Storage	-	-	-	268	1072
CEN-21 Disinfection	-	-	-	17	68
Denitrification Filter	16.00	8.00	7.33	7018	7018
Dose	16.00	8.00	6.33	6061	6061

Note: Treatment system consists of four (4) Fuji-Clean CEN-21 units.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT-ENGINEERING DIVISION DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7/16/24
 DIRECTOR DATE 7/16/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS
 Naomi Howell, Program Manager DATE 7/16/2024
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment

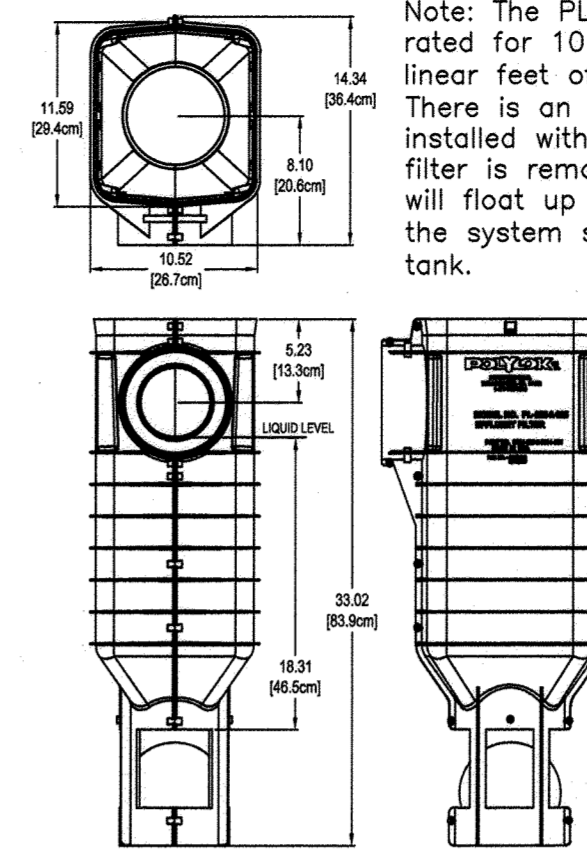


nBOD DESIGN REQUIREMENTS FOR NITRIFICATION			
ITEM	Flow	VALUE	UNITS
Total Nitrogen Removal Required	6,600	67	mg/L
Nitrification			
TKN In	75	mg/L	
TKN Out	3	mg/L	
TKN Removal Efficiency	96%		
Design Ammonia (NH3) Loading	0.05	lb/day/ft ³	
Design Ammonia Conversion	3.30	kg/day/m ³	
Design BOD Conversion	0.80	lb/day	
Min. Volume Required @ Design Loading	1.50	kg/day	
Remaining Volume for Nitrification after BOD Removal	0.42	m ³	
Max NH3 Loading Capacity	1.11	gal	
Design Nitrate Removal	3.58	lb/day	
Min. Volume Required @ Design Loading	1.62	kg/day	
Anoxic Volume Per Unit	2.03	m ³	
Total Anoxic Volume	536	gal	
Hydraulic Retention Time	1198	gal	
Max Nitrate Loading Capacity	2396	gal	
Design Nitrate Removal	8.7	hrs	
Min. Volume Required @ Design Loading	16.00	lb/day	
Nitrogen Removal Air Calculations			
Nitrogen Conversion Efficiency	4.6	lb O ₂ /lb TN	
Oxygen Required	17.0	lb O ₂ /day	
Alkalinity Calculations			
Min. Alkalinity Required	75	mg/L (AS CaCO ₃)	
Alkalinity Provided	38	mg/L (AS CaCO ₃)	
Estimated Addition Required	7.3	LB/DAY (AS CaCO ₃)	
Estimated Carbon Calculations			
Influent BOD Concentration	300	mg/L	
Influent Total Nitrogen Concentration	75	mg/L	
BOD to Nitrogen Ratio	4		
Estimated Target BOD to Nitrogen Ratio	2.75		

Note: Design loading and conversion efficiencies constants can be found in Metcalf & Eddy, 5th edition, Chapter 9.

cBOD DESIGN REQUIREMENTS FOR ORGANIC REMOVAL			
ITEM	Flow	VALUE	UNITS
Primary Treatment BOD & TSS Removal	30	%	
BOD Removal Required After Pretreatment	180	mg/L	
Unit Selection			
Selected Model	CEN21		
Nominal Capacity Per Unit	1900	gpd	
Number of Units	2		
Total Nominal Capacity	3800	gpd	
Design BOD Loading	0.11	lb/day/ft ³	
Design BOD Conversion	1.80	kg/day/m ³	
Min. Volume Required @ Design Loading	14.85	lb/day	
Aerobic Aeration Volume Per Unit	6.7	kg/day	
Total Aerobic Aeration Volume	3.74	m ³	
Hydraulic Retention Time	989	gal	
BOD Conversion Efficiency	550	gal	
Oxygen Required w/ No Primary Treatment	1100	gal	
Oxygen Required w/ Primary Treatment	4.0	hrs	

Total Oxygen Calculations			
Oxygen Required for BOD Removal	11.9	lb O ₂ /day	
Oxygen Required for Nitrogen Removal	17.0	lb O ₂ /day	
Total Oxygen Required	28.9	lb O ₂ /day	
Oxygen Transfer Efficiency	5%		
Oxygen Required w/ Transfer Efficiency	524.7	kg/day	
Oxygen Concentration in Air	21%		
Total Air Required	2499	kg/day	
Air Density	1.225	kg/m ³	
Total Air Required	1417	L/min	
Total Air Required	50.0	cfm	



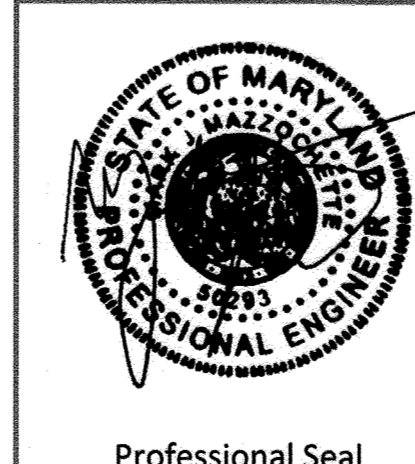
POLYLOK PL-525 FILTER
Scale: 1" = 1'-0"

Equalization Pump Calculations	
Total EQ Pump Flow (gpm)	60
Fuji-Clean Units per Pump	2
Flow to Each Fuji-Clean Unit (gpm)	30
EQ Pump Elevation (feet ms)	395.5
Fuji-Clean Invert Elevation (feet ms)	407
Longest Pipe Length (feet)	35
Inside Pipe Diameter (in)	2.047
Friction Loss (feet)	2.3
TDH (feet)	13.8
EQ Tank Capacity (gal)	7,000
EQ Specific Capacity (gal/inch)	58.6
High Water Alarm Height (in)	28
Timer Enable Height (in)	18
Low Water Cutoff Height (in)	12
Volume Above High Water Alarm (gal)	5,359
Run Time (min)	3
Total Cycle Volume (gal)	180
Volume Per Fuji-Clean Unit (gal)	90

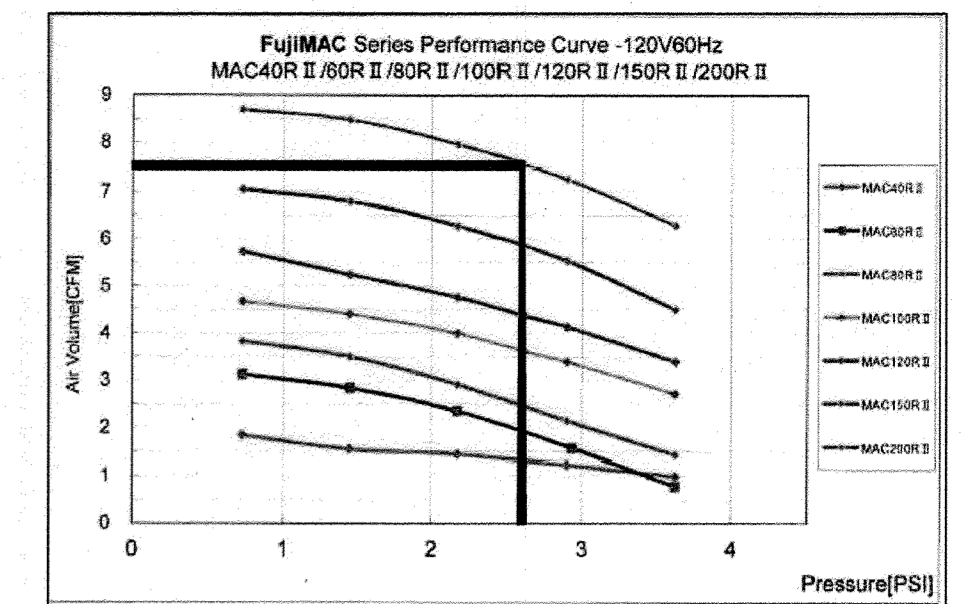
EQ PUMP CALCULATIONS

Denitrification Filter	
Parameter	Value Unit
design nitrate loading	0.50 kg/day/m ³
operating depth	0.03 lb/day/ft ³
operating depth	5.00 ft
TKN in	3 mg/L
TKN out	3 mg/L
Nitrate in	7.0 mg/L
Nitrate out	5 mg/L
Total nitrogen out	8 mg/L
Nitrate removal efficiency	29%
Maximum daily flow	6600 gpd
Design nitrate removal	4.58 gpm
Reactor Total Length	0.11 lb/day
Reactor Width	0.05 kg/day
Tank cross-sectional area	192.00 in
Hydraulic retention time	96 in
Bio-Pac SF30 Protected Surface Area	40.00 ft ²
Carrier Void Ratio	25.5 hr
NO ₃ -N Loading Rate	30 ft ² /ft ³
Hydraulic path length	95%
Hydraulic application rate	0.3 kg/m ³ /day
Required tank volume	4.9 m
Empty Bed Contact Time	16 ft
	5.2 m/h
	17.2 ft/h
	0.17 m ³
	44 gal
	7,018 gal
	1,455 min

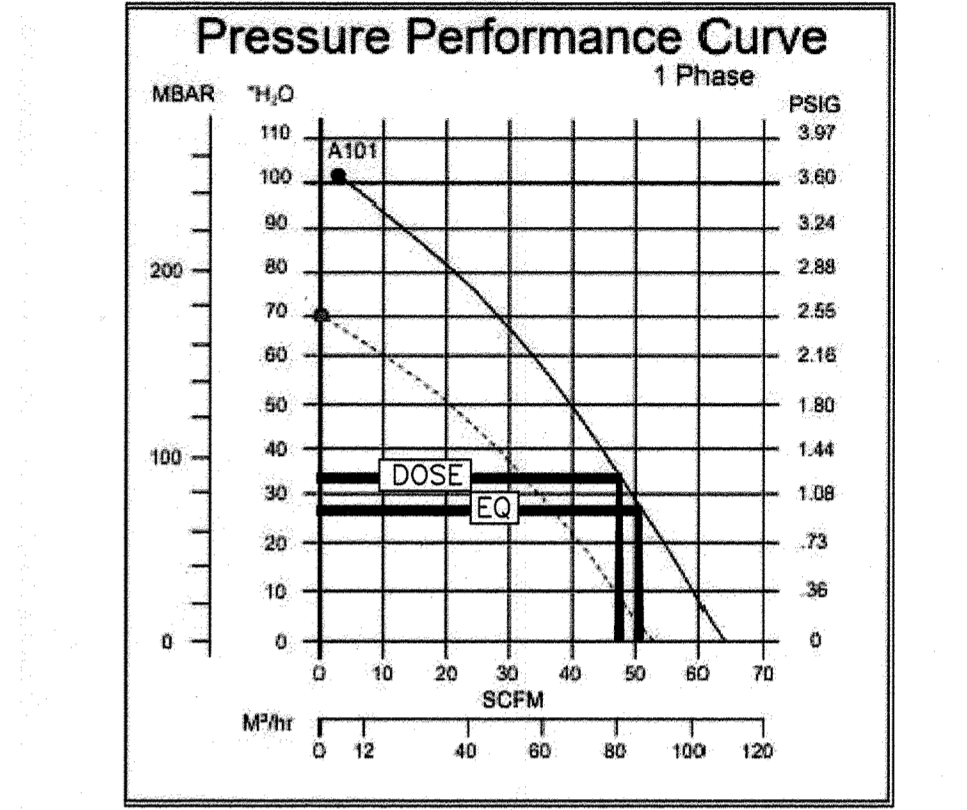
NOTE: DENITRIFICATION CHAMBER CALCULATIONS WERE COMPLETE USING METCALF AND EDDY - WASTEWATER ENGINEERING TREATMENT AND RESOURCE RECOVERY, 5TH EDITION, CHAPTER 9, TABLE 9-19 USING DOWNFLOW SUNKEN MEDIA DNF CRITERIA.



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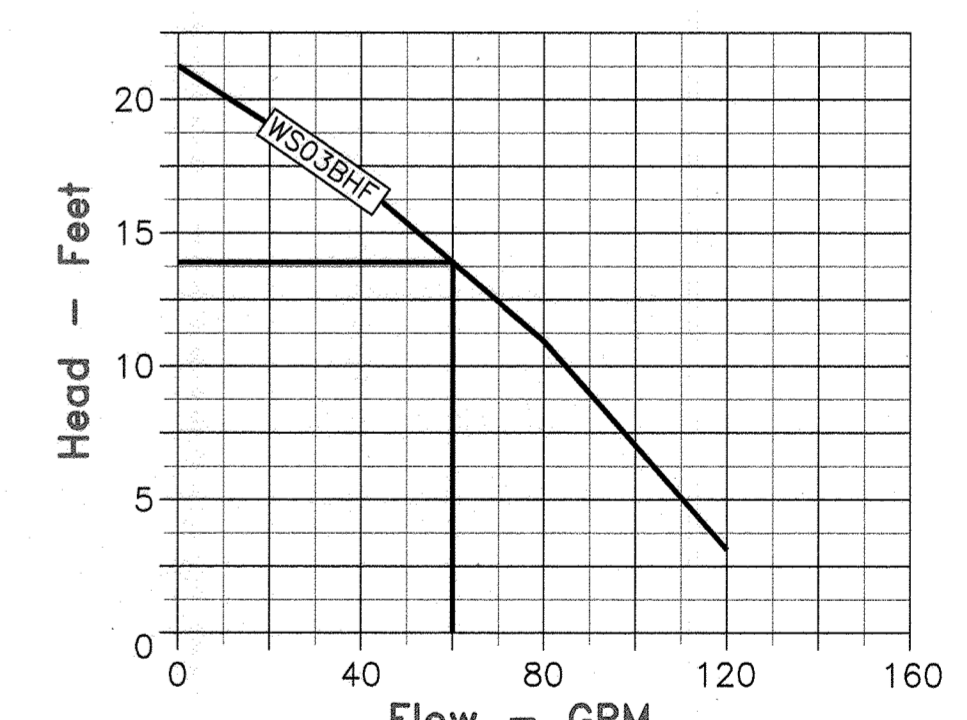
FUJI-CLEAN MAC200R II BLOWER CURVE



AB-202/1 BLOWER CURVE

Equalization & Dose Tank Mixing		
minimum air required for mixing	15	cfm/1000 ft ³
equalization tank volume	2.01	cfm/1000 gal
EQ tank maximum water column	2.3	ft
minimum air required for EQ mixing	15.62	cfm
AB-202/1 split air @ EQ max water column	25	cfm
maximum air per coarse bubble diffuser	7.5	cfm
minimum number of coarse bubble diffusers	4	
dose tank volume	6,061	gal
dose tank maximum water column	2.8	ft
minimum air required for dose mixing	12.15	cfm
AB-202/1 split air @ dose max water column	24	cfm
maximum air per coarse bubble diffuser	7.5	cfm
minimum number of coarse bubble diffusers	4	

MIXING CALCULATIONS



EQUALIZATION PUMP GOULDS WS03BH

5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

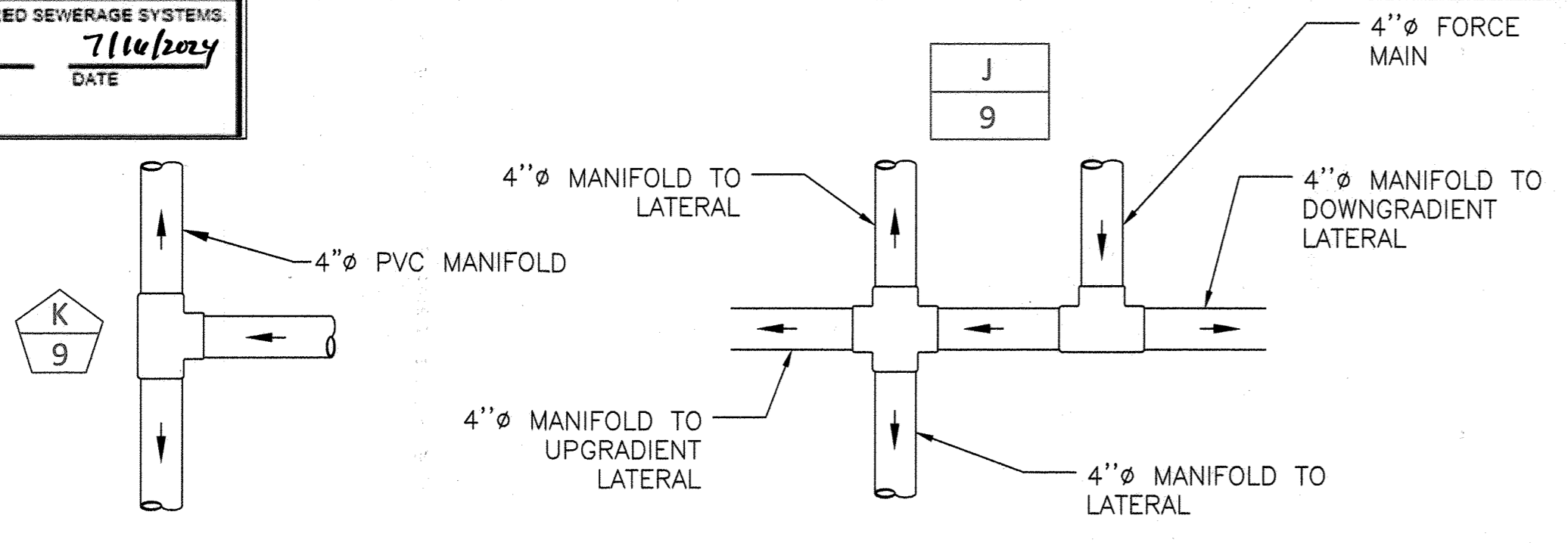
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client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lythus Property**
 title: **Group 2 Treatment Details**
 file no.: **Treatment System_1.dwg**
 draw: **J. Brymmer** date: **5/24/24**
 checked: **M. Hanter** date: **5/24/24**
 in ch: **M. Massobbia** date: **5/24/24**

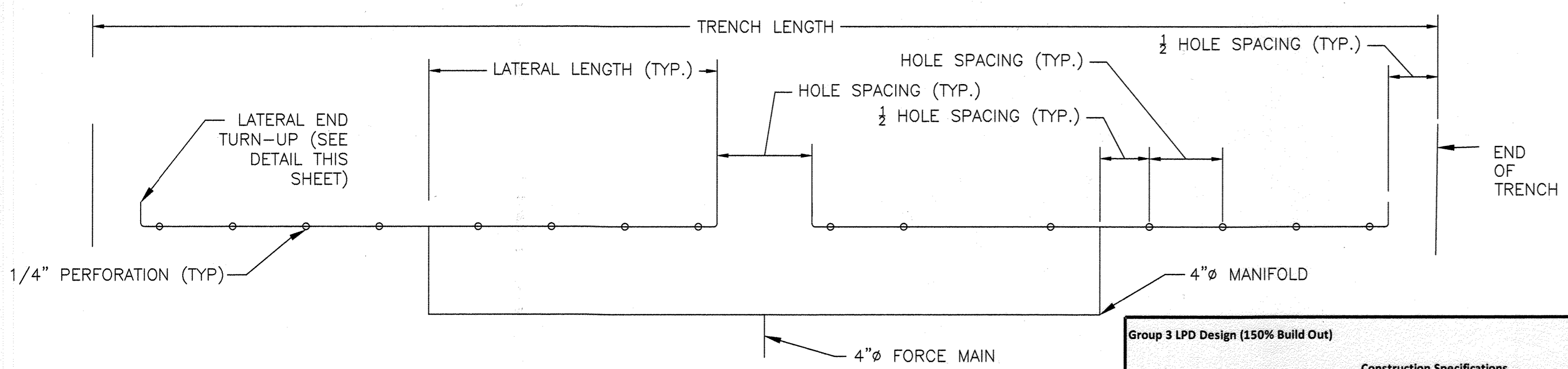
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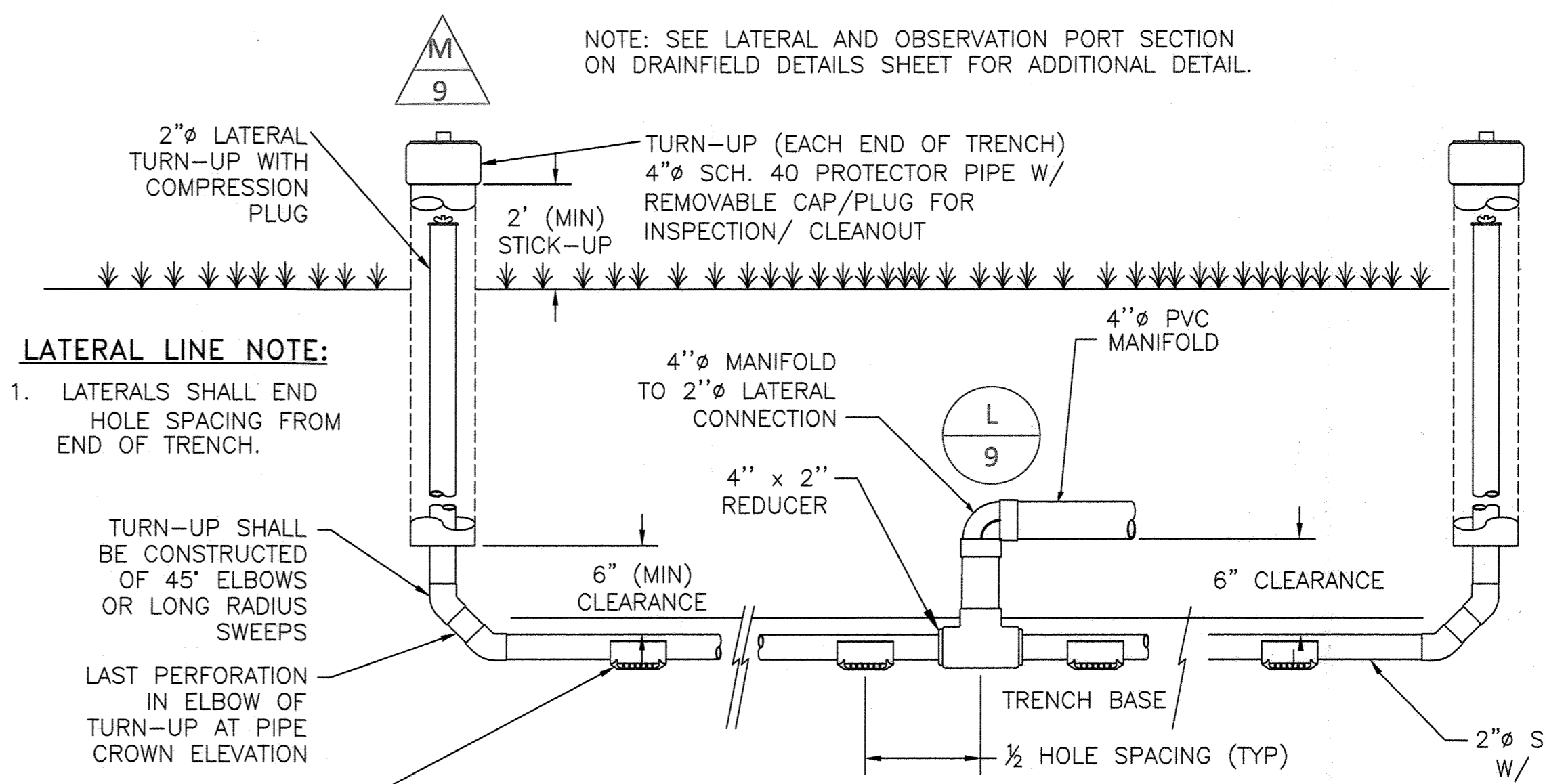
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PIPING CONNECTIONS
NOT TO SCALE



PIPING PLAN LATERAL DETAIL
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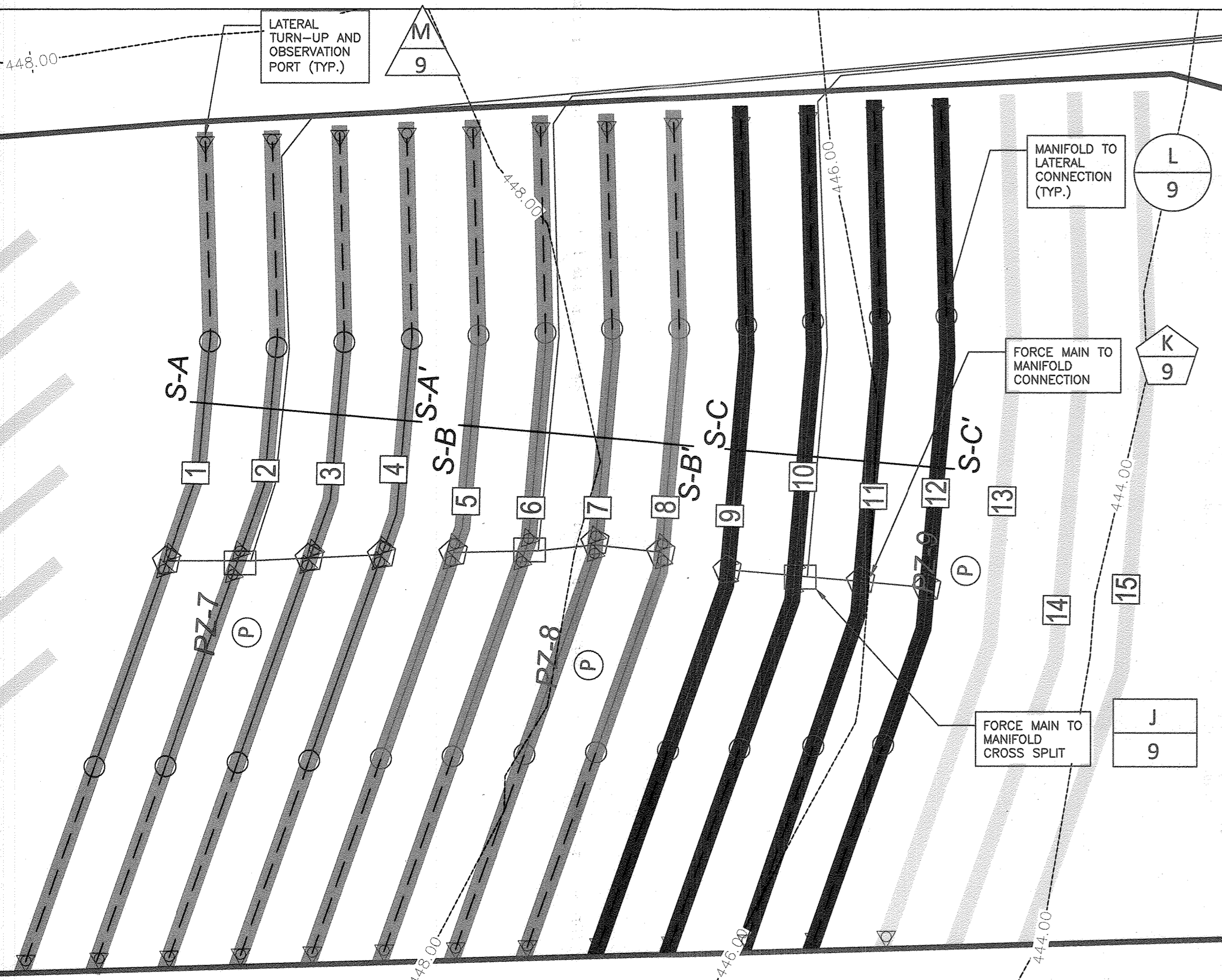


DISTRIBUTION LATERAL DETAIL
NOT TO SCALE

LATERAL LINE NOTE:

- LATERALS SHALL END HOLE SPACING FROM END OF TRENCH.
- TURN-UP SHALL BE CONSTRUCTED OF 45° ELBOWS OR LONG RADIUS SWEEPS
 LAST PERFORATION IN ELBOW OF TURN-UP AT PIPE CROWN ELEVATION
 ORIFICE SHIELD PROTECTING EACH PERFORATION (SEE DETAIL THIS SHEET)

NOTE: SEE LATERAL AND OBSERVATION PORT SECTION ON DRAINFIELD DETAILS SHEET FOR ADDITIONAL DETAIL.



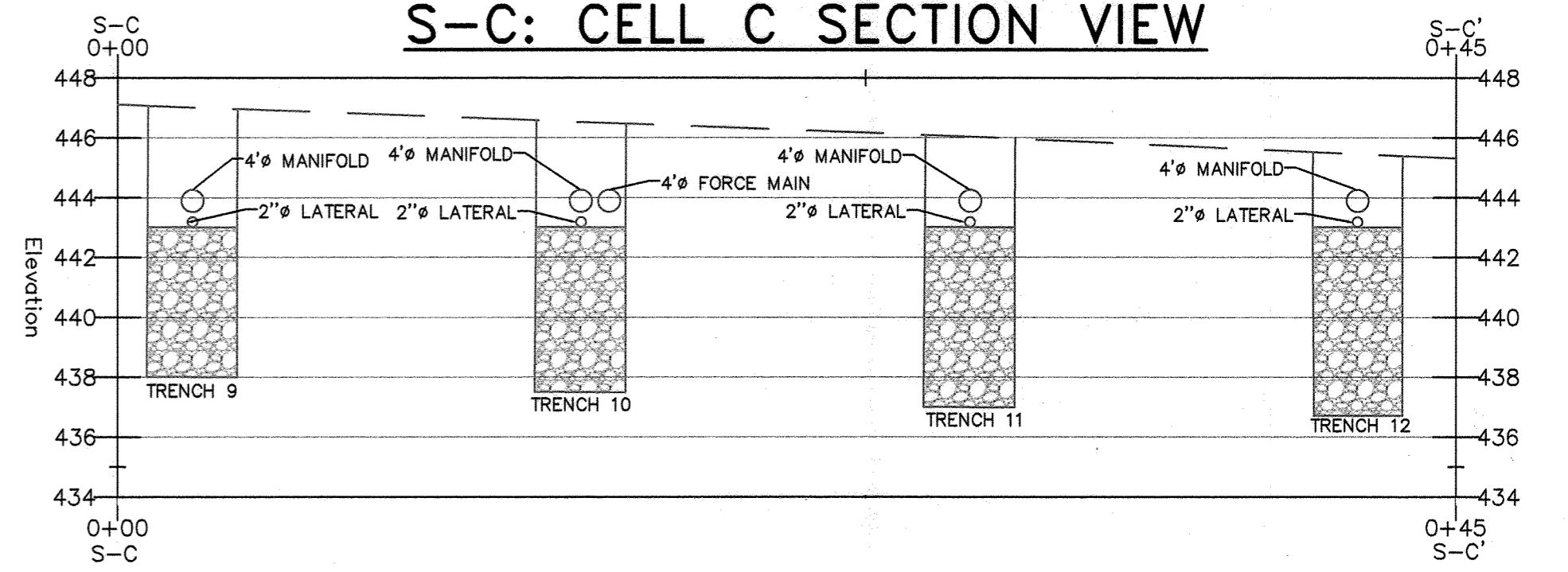
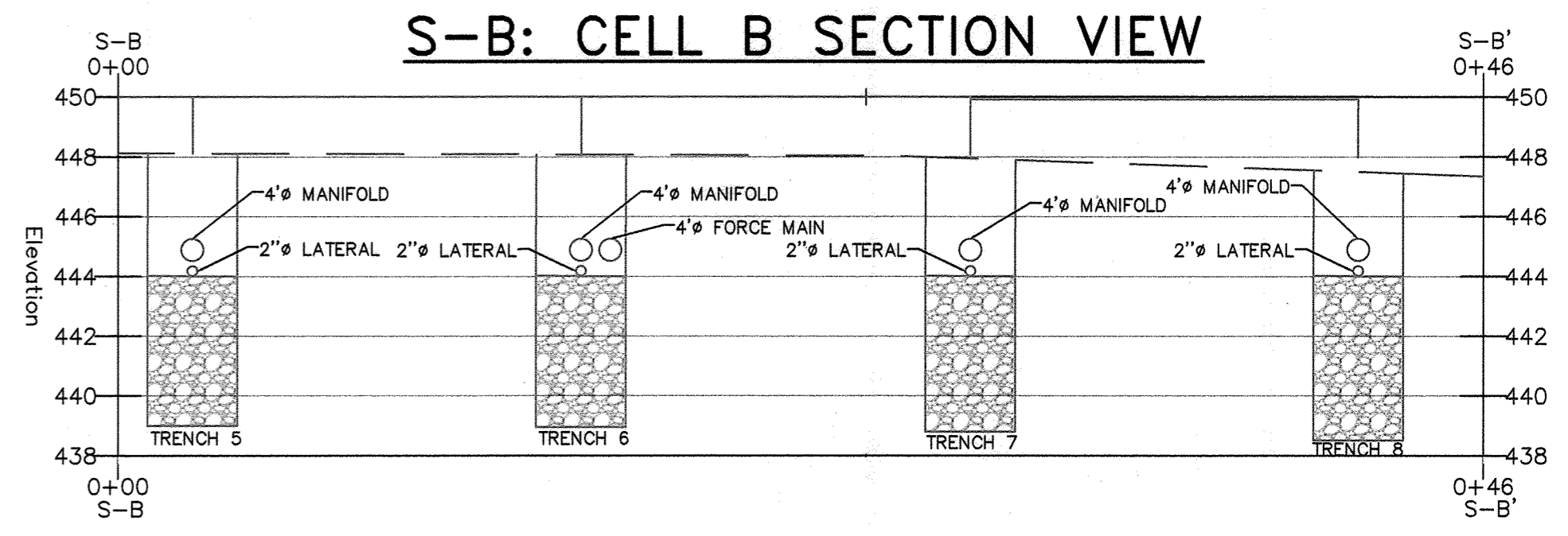
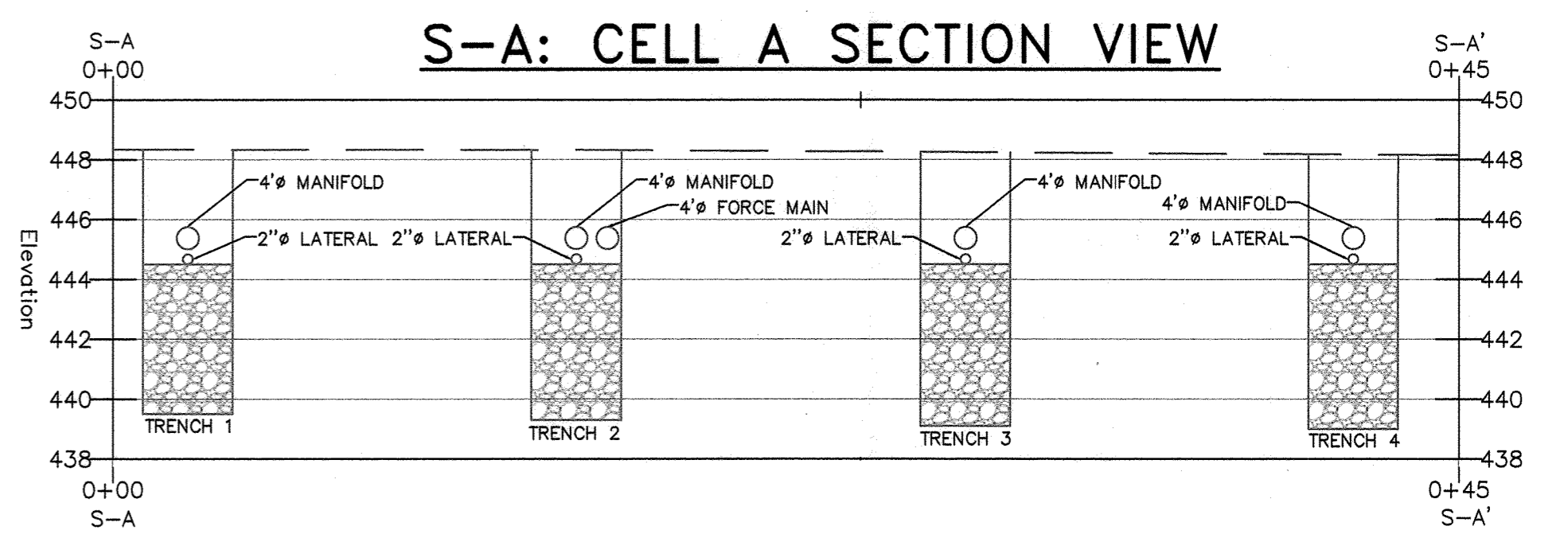
GROUP 3 TRENCH AND LPD PIPING PLAN

Group 3 LPD Design (150% Build Out)											
Construction Specifications										Flow Calculations	
Cell	Trench	average existing ground elevation (feet msl)	side-slope bottom elevation (feet msl)	lateral elevation (feet msl)	total trench length (feet)	number of laterals	lateral length (ft)	total # of holes	# of holes per lateral	hole spacing (feet)	perfor dia (inches)
A	1	448.5	439.5	444.5	169	4	40.0	36	9	4.70	1/4
	2	448.3	439.3	444.5	169	4	40.0	36	9	4.70	1/4
	3	448.1	439.1	444.5	169	4	40.0	36	9	4.70	1/4
	4	448	439.0	444.5	169	4	40.0	36	9	4.70	1/4
B	5	448	439.0	444.0	169	4	40.0	36	9	4.70	1/4
	6	448	439.0	444.0	169	4	40.0	36	9	4.70	1/4
	7	447.8	438.8	444.0	169	4	40.0	36	9	4.70	1/4
	8	447.5	438.5	444.0	169	4	40.0	36	9	4.70	1/4
C	9	447	438.0	443.0	169	4	40.0	36	9	4.70	1/4
	10	446.5	437.5	443.0	169	4	40.0	36	9	4.70	1/4
	11	446	437.0	443.0	169	4	40.0	36	9	4.70	1/4
	12	445.7	436.7	443.0	169	4	40.0	36	9	4.70	1/4

GROUP 3 LPD DESIGN (150% BUILDOUT)

LEGEND

- CELL A TRENCH
- CELL B TRENCH
- CELL C TRENCH
- RESERVE TRENCH
- FORCE MAIN AND MANIFOLD
- 2" DISTRIBUTION LATERAL
- SEPTIC RESERVE AREA BOUNDARY
- PIEZOMETER
- FORCE MAIN TO MANIFOLD CONNECTION
- MANIFOLD TO LATERAL CONNECTION
- FORCE MAIN TO MANIFOLD CROSS SPLIT
- 2" LATERAL TURN-UP AND 4" OBSERVATION PORT



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 7/16/24
 DIRECTOR DATE: 7/16/24



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5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

client: **H&H Rock Companies**
 Project location: 12170 Lime Kiln Road, Fulton, Howard County, MD
 project: Lyhus Property
 title: Group 3 Trench Profiles
 File no.: HTG Profile Exhibit for Lyhus_1.dwg
 date: 7/23/24
 date: 7/23/24
 date: 7/23/24

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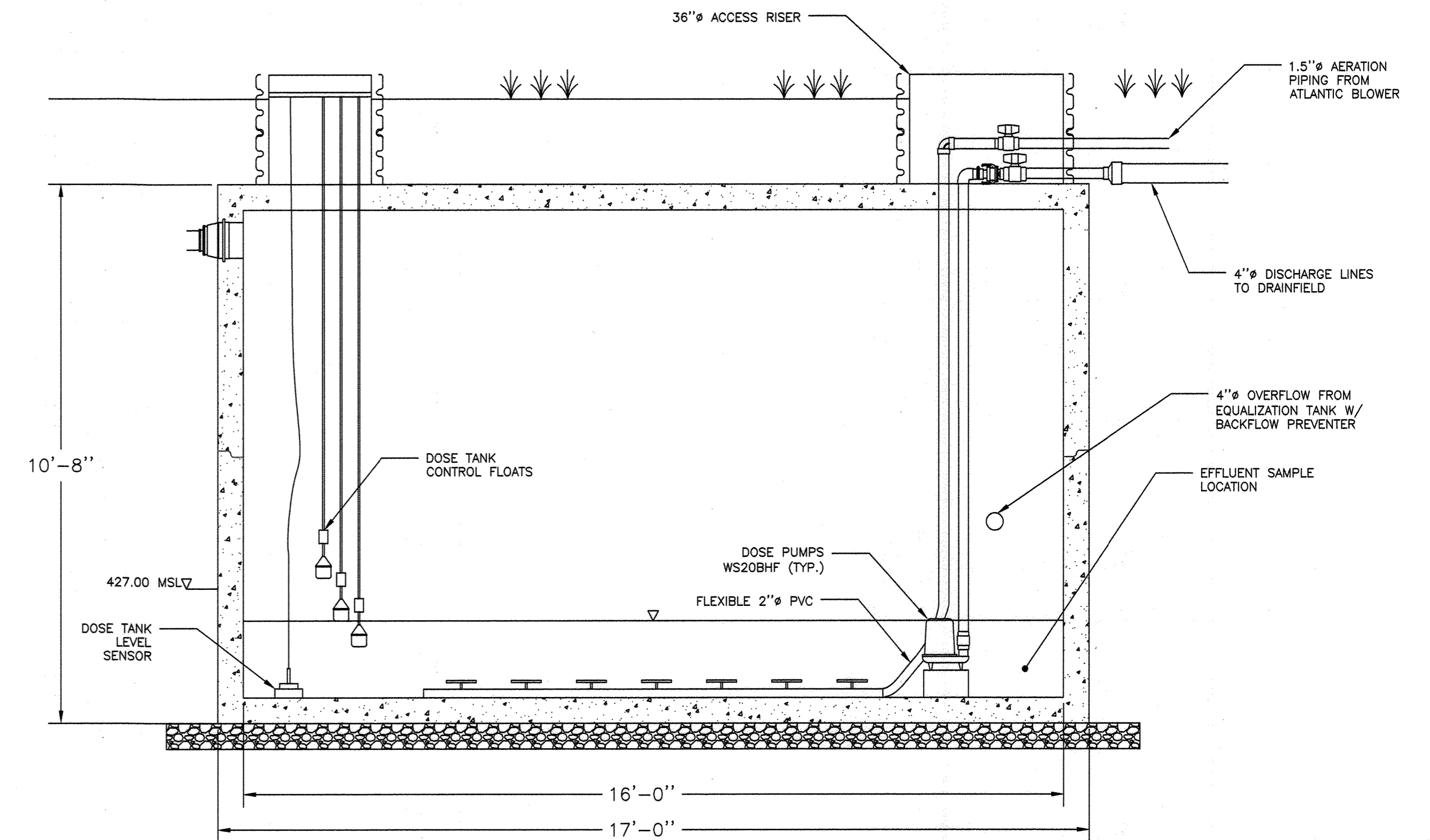
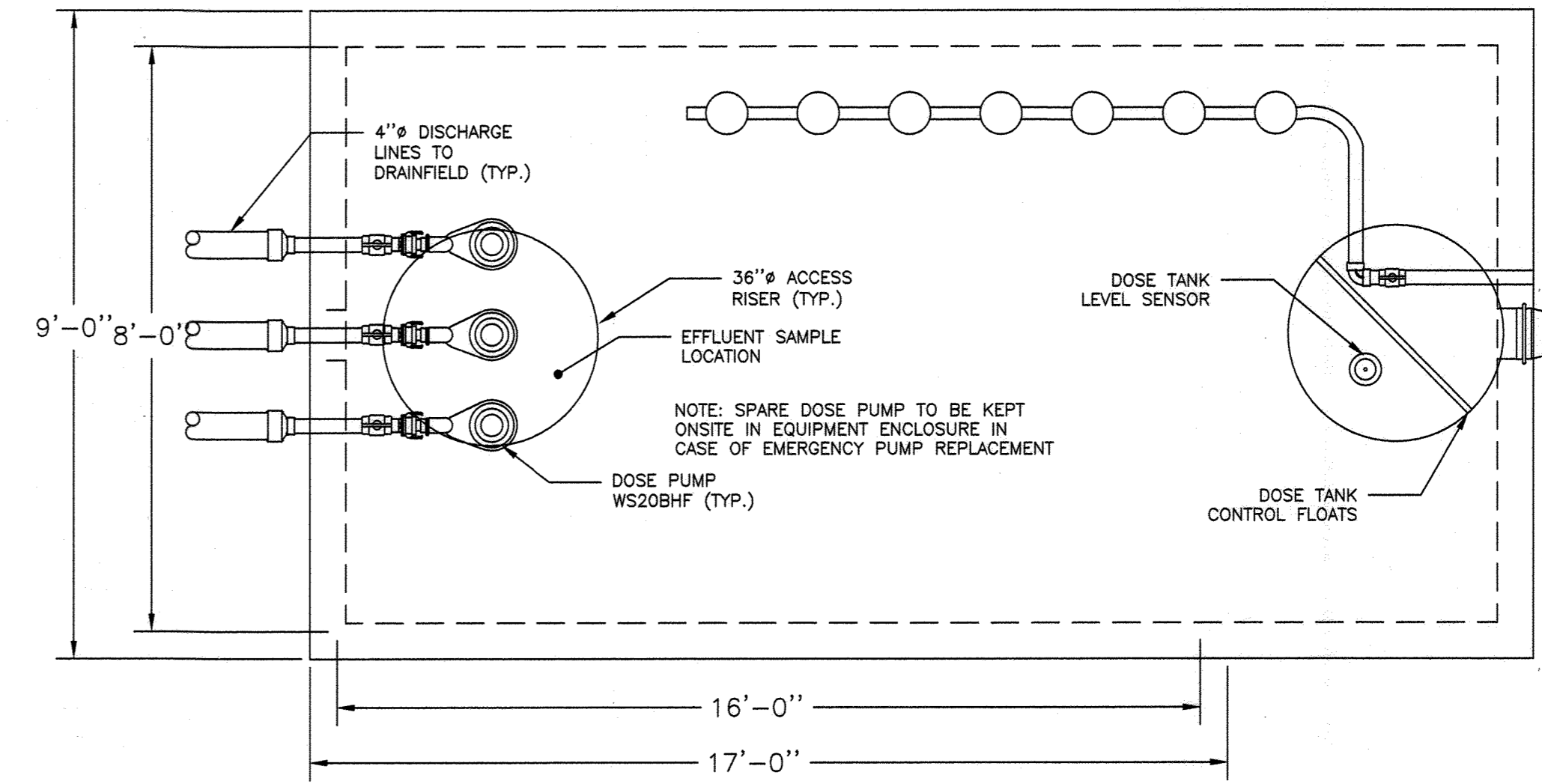
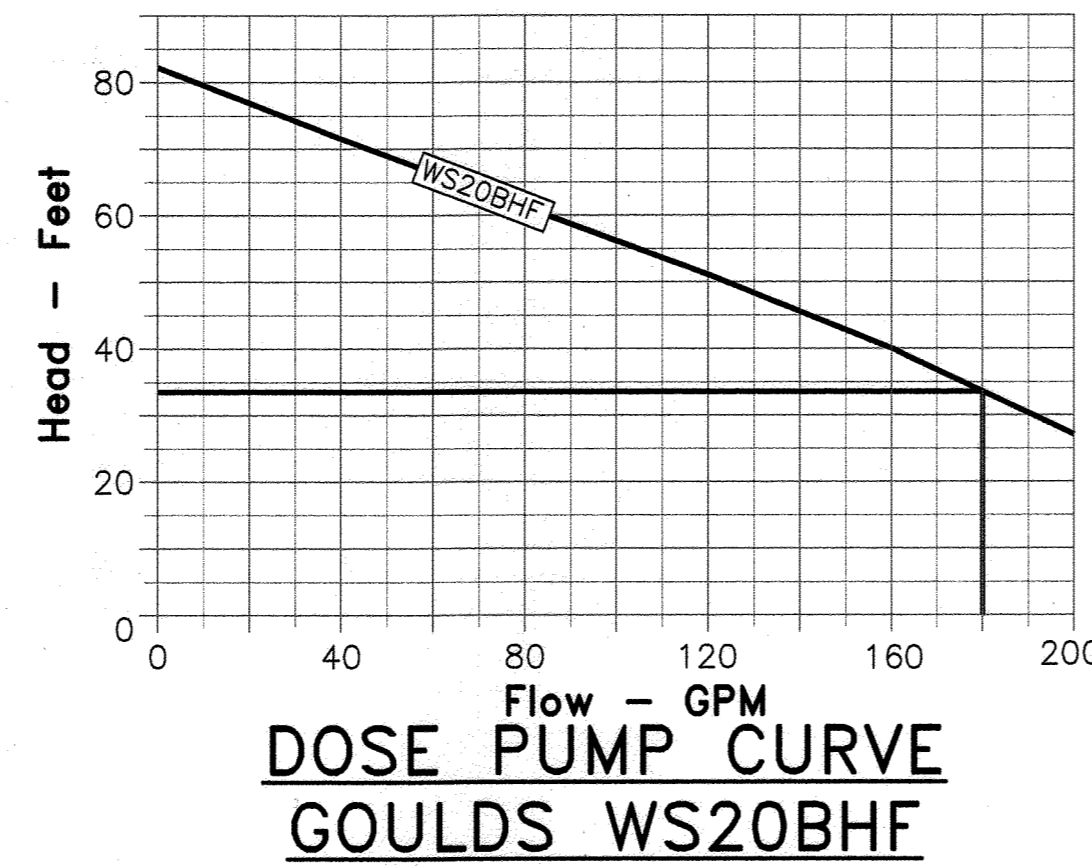
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Design Input		Calculations	
Drainfield Pump Chamber			
pump chamber capacity (gal/inch)	79.8	maximum daily flow (MDF) (gpd)	9,750
pump chamber volume (gal)	8138	average daily flow (ADF) (gpd)	4,875
volume above high water alarm (gal)	4947		
Static Hydraulic Profile (with invert elevations)			
dose chamber surface elev. (feet msl)	435.00		
dose tank influent invert elev. (feet msl)	433.00		
dose tank floor elev. (feet msl)	424.50		
Cell A maximum lateral elev. (feet msl)	444.50	Cell A in-service static lift (feet)	20.0
Cell B maximum lateral elev. (feet msl)	442.00	Cell B in-service static lift (feet)	17.5
Cell C maximum lateral elev. (feet msl)	443.00	Cell C in-service static lift (feet)	18.5
Drainfield Dosing			
cell A flow (gpm)	184	force main velocity (feet/second)	4.7
Cell A force main length (feet)	470	Cell A force main friction loss (feet)	11.7
Cell A minor loss equivalent lengths (feet)	28.8	Cell A max. total dynamic head (feet)	34.9
		Cell A main volume (gal)	306
		Cell A total lateral volume (gal)	118
		Cell A dose vol. @ 5x lateral vol (gal)	590
cell B flow (gpm)	184	force main velocity (feet/second)	4.7
Cell B force main length (feet)	403	Cell B force main friction loss (feet)	10.1
Cell B minor loss equivalent lengths (feet)	28.8	Cell B max. total dynamic head (feet)	30.8
		Cell B main volume (gal)	263
		Cell B total lateral volume (gal)	118
		Cell B dose vol. @ 5x lateral vol (gal)	590
cell C flow (gpm)	184	force main velocity (feet/second)	4.7
Cell C force main length (feet)	386	Cell C force main friction loss (feet)	9.7
Cell C minor loss equivalent lengths (feet)	28.8	Cell C max. total dynamic head (feet)	31.4
		Cell C main volume (gal)	252
		Cell C total lateral volume (gal)	118
		Cell C dose vol. @ 5x lateral vol (gal)	590
dose chamber length (inches)	192	dose tank capacity (gal)	8,138
dose chamber width (inches)	96	dose tank capacity (gals per inch)	79.8
dose chamber height to invert (inches)	102	# cells in service	2
high water alarm/lag pump on height (inches)	40	minimum design dose volume (gals)	590
lead pump on (inches)	24	effective dose volume (gals)	957
low water cutoff (inches)	12	# daily doses @ ADF	5.1
Goolds pump model	WS20BHF	dose time (minutes)	5.2
Three SJE Rhombus IFN21W124H 6A8AC10E16D Control Panels		residual settling volume (gal)	957
		volume above high water alarm (gal)	4,947
Notes		design distal head (feet)= 3.0	
gpd = gallons per day		friction C factor for plastic pipes= 130	
gpm = gallons per minute		force main ID (4" dia sch40PVC, in)= 3.998	
msl = mean sea level in feet		lateral inside diameter (2" dia sch40PVC, in)= 2.057	
calculated values in <i>italics</i>		two cells are always in service, with the third resting	
set floats based on weight +/- 3"			

GROUP 3 DRAINFIELD DOSE DESIGN CALCULATIONS

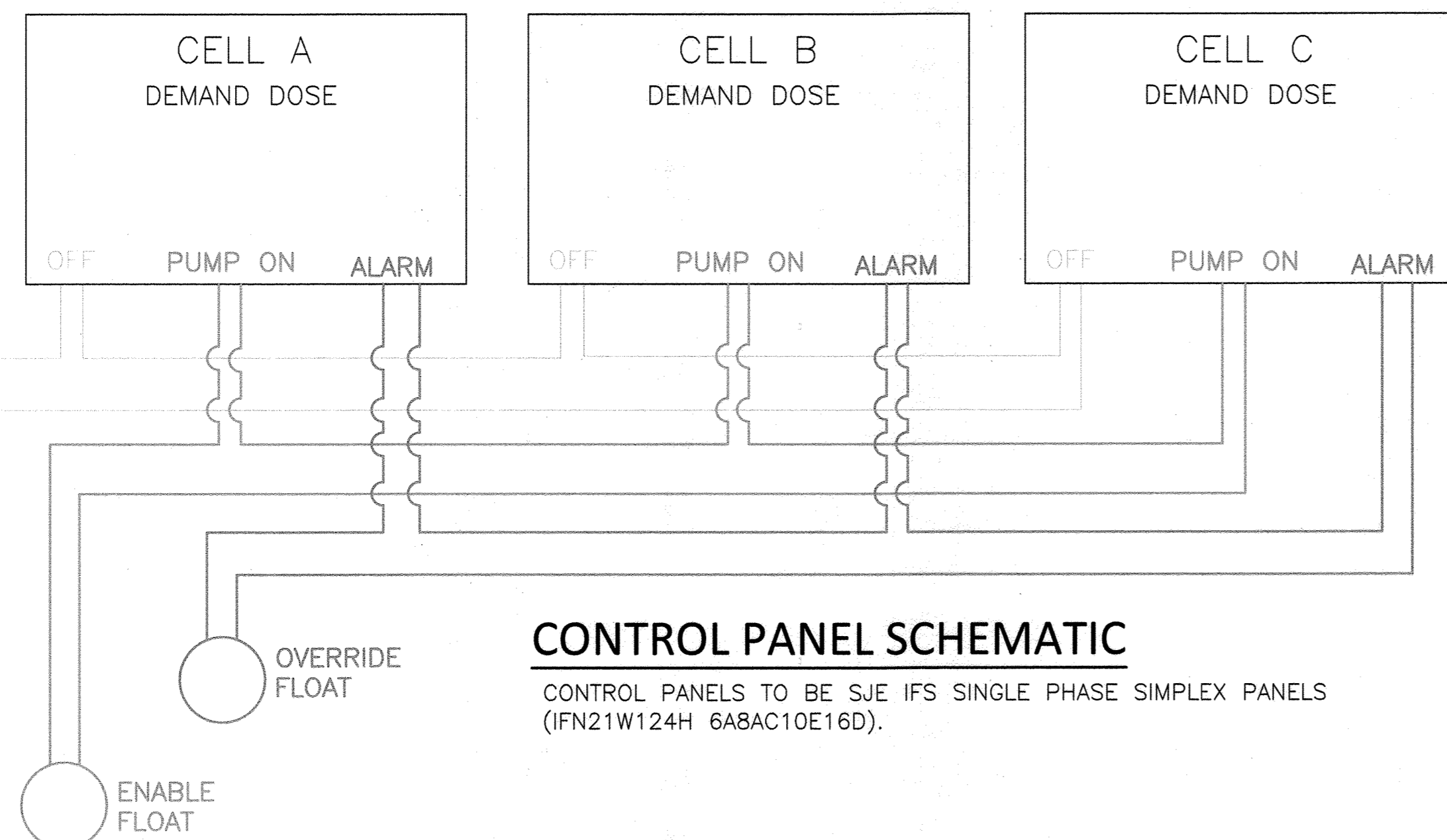
Group 3 WWTS Equalization Balance					
	Primary Settling Tank	EQ Tank	Fuji-Clean Treatment Units	Denitrification Filter Tank	Dose Tank
Normal Operating Volume (gal)	5,000	5,000	11,400	10,000	3,191
Maximum Tank Volume (gal)	5,000	10,000	11,400	10,000	8,138
Available EQ Volume (gal)	0	5,000	0	0	4,947
		Total EQ Volume (gal)			9,947

GROUP 3 EQ VOLUME



GROUP 3 DRAINFIELD DOSE TANK DETAIL (8,000 GALLONS)

1/2" = 1'-0"

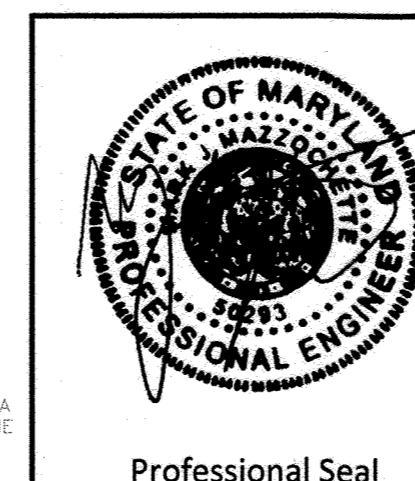


CONTROL PANEL SCHEMATIC

CONTROL PANELS TO BE SJE IFS SINGLE PHASE SIMPLEX PANELS (IFN21W124H 6A8AC10E16D).

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE 7/16/24
 DIRECTOR

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Howell
 Program Manager
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment
 DATE 7/16/2024



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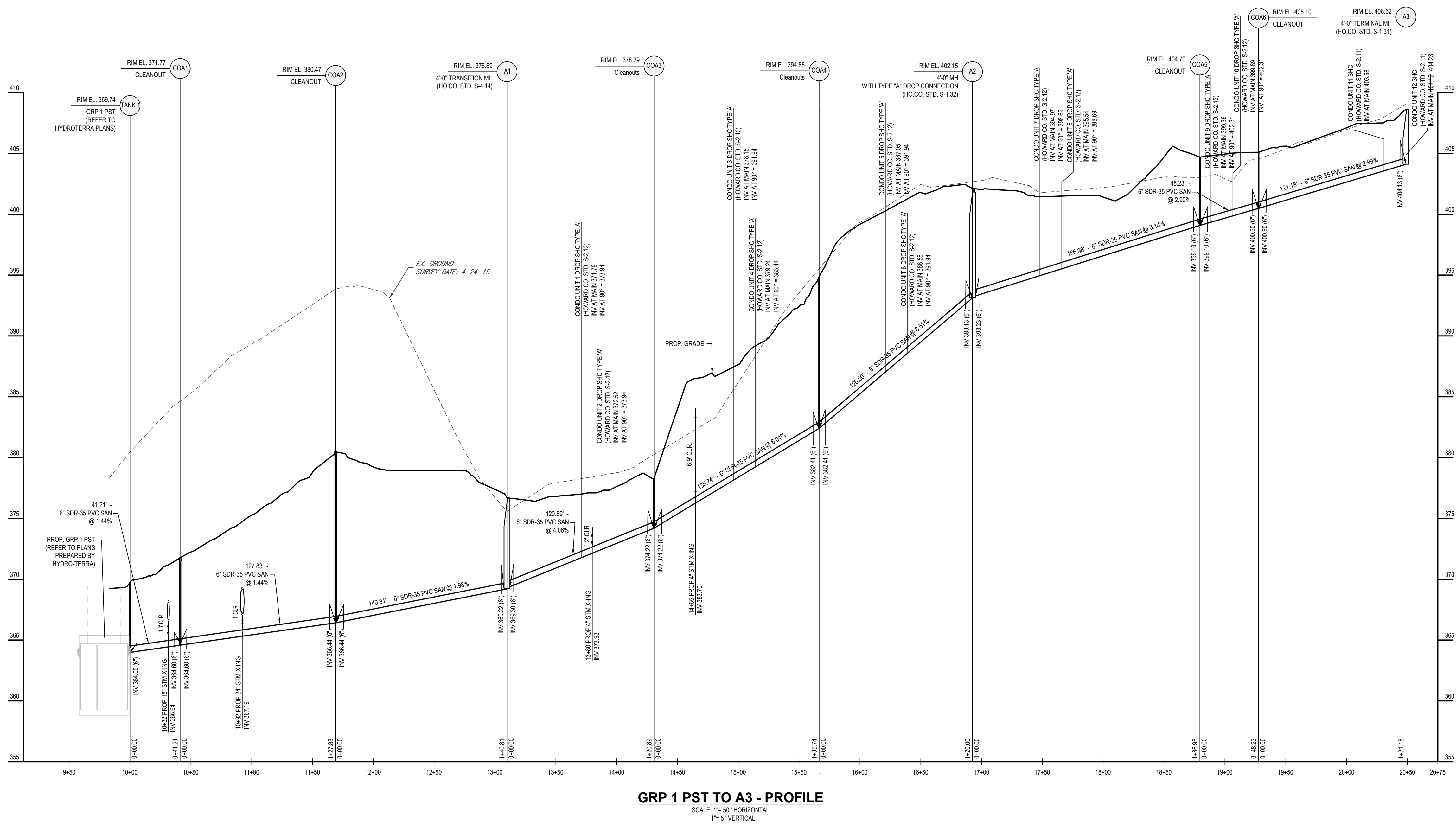
5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

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client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lyhus Property**
 title: **Group 3 Wastewater Details**
 file no.: **Lyhus Drainfield Plans 2024 May Permitting.dwg**
 drawing: **J. Brymes** date: **5/24/24**
 checked: **M. Hawley** date: **5/24/24**
 approved: **M. Mazzochette** date: **5/24/24**

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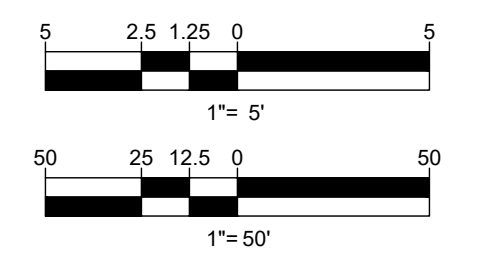
GRP 1 PST TO A3 - PROFILE
 SCALE: 1"= 50' HORIZONTAL
 1"= 5' VERTICAL

JUL 11, 2024
 H:\14401\14007\DRAWINGS\PLAN SET\SITE DEVELOPMENT\PLAN\MD1420672 - PSAN_2 - LAYOUT: 116 SANITARY SEWER PROFILES

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 7/16/2024
 Naomi Howell
 SACRAMENTO PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
 7/16/2024
 Chad Edman
 CHIEF OF DIVISION
 ENGINEERING DIVISION

CHIEF DIVISION OF LAND DEVELOPMENT
 7/16/2024
 Linda Eisinger
 DIRECTOR



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT# 28546-29552		DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKCRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	
PREVIOUS FILE NO.: SF-17-018 ECP-17-056 WP-18-070	BA-20-002C F-20-016 WP-21-011 WP-22-132	WP-24-060	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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 PROGRAM MANAGEMENT
 LANDSCAPE ARCHITECTURE
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REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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DRAWN BY:	MJR
CHECKED BY:	MP
DATE:	07/11/2024
CAD ID.:	MD1420672 - PSAN-2

PROJECT:
SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 MARYLAND LICENSE NO. 40088
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SHEET TITLE:
SANITARY SEWER PROFILES

SHEET NUMBER:
116 OF 146

ORG. DATE - 04/17/24



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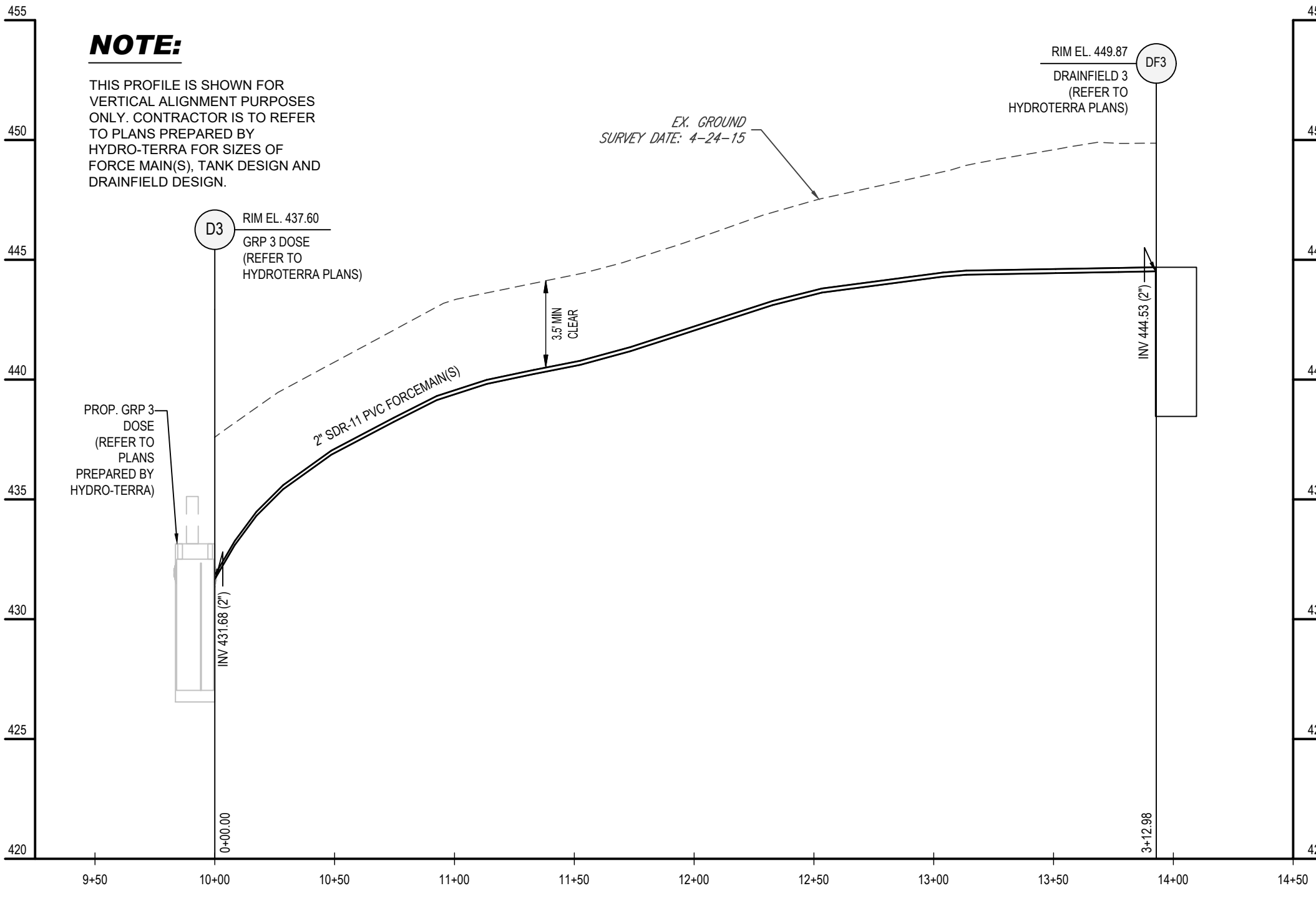
PROJECT No.: MD1420672 MUR
DRAWN BY: MUR
DATE: 07/11/2024
CHECKED BY: MIP
CAD ID: MD1420672 - PSAN-2

SITE DEVELOPMENT PLAN FOR THE HIGHLANDS (FORMERLY LYHUS PROPERTY) PROPOSED AGE-RESTRICTED COMMUNITY 12170 LIME KILN ROAD FULTON HOWARD COUNTY, MD

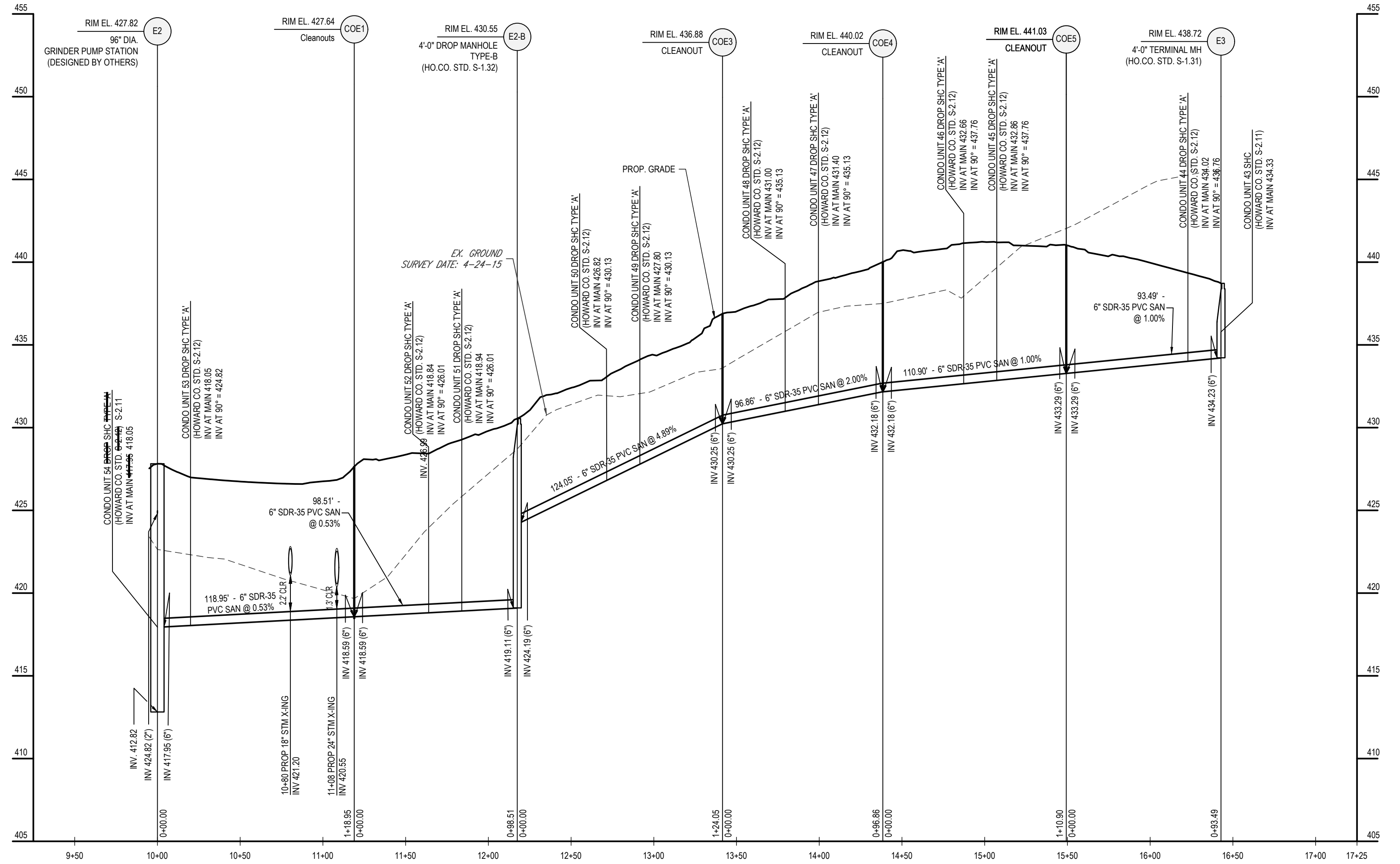
BOHLER 901 DULANEY VALLEY ROAD, SUITE 801 TOWSON, MARYLAND 21204 Phone: (410) 821-7900 Fax: (410) 821-7987 MD@BohlerEng.com

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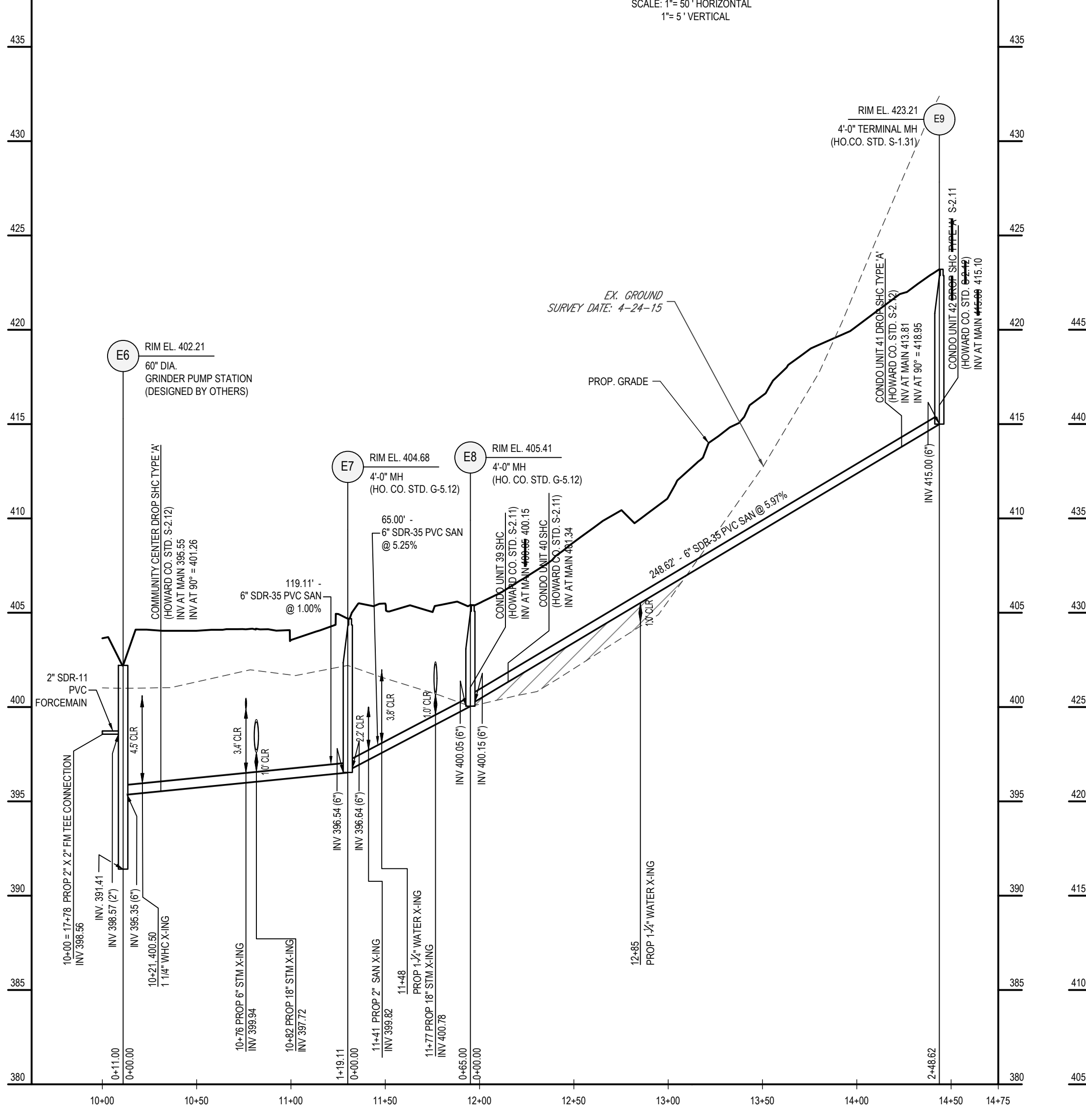
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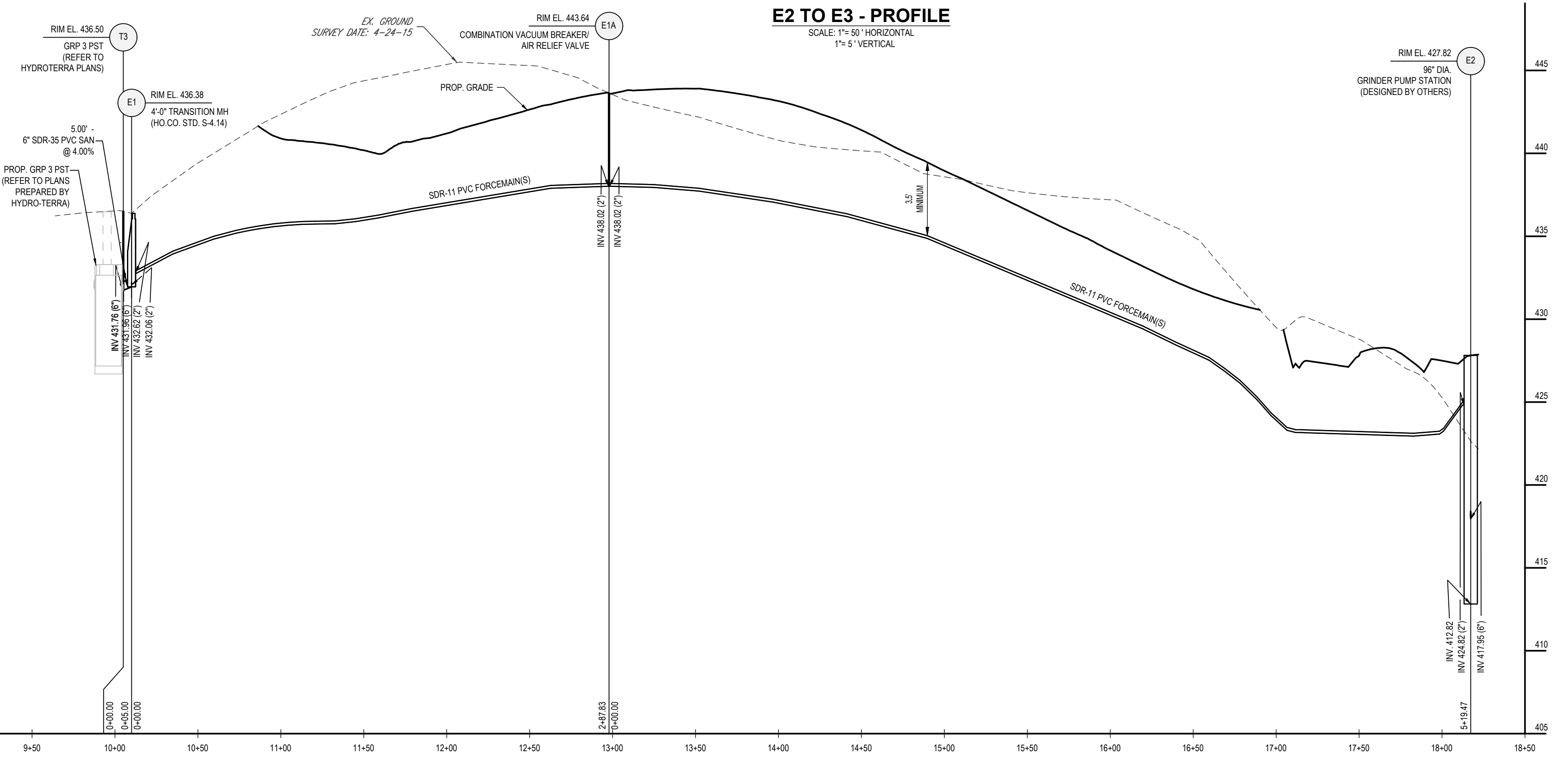
GRP 3 DOSE TANK TO DRAINFIELD 3 - PROFILE SCALE: 1"=50' HORIZONTAL 1"=5' VERTICAL



E2 TO E3 - PROFILE SCALE: 1"=50' HORIZONTAL 1"=5' VERTICAL



E6 TO E9 - PROFILE SCALE: 1"=50' HORIZONTAL 1"=5' VERTICAL



GRP 3 PST TO E2 - PROFILE SCALE: 1"=50' HORIZONTAL 1"=5' VERTICAL

APPROVED: DEPARTMENT OF PLANNING AND ZONING 7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS. DATE: 7/16/2024

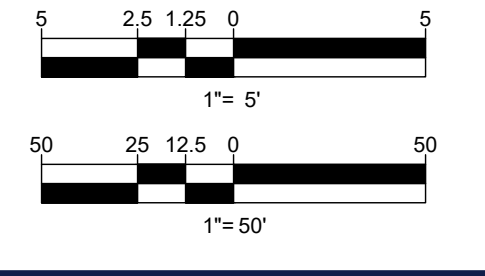


Table with project details: SUBDIVISION NAME, DEVELOPER, PREVIOUS FILE NO., TAX MAP, GRID, ZONED, etc.

PIPE DIA	W	D	TRENCH WIDTH
4"	12"	18"	24"
6"	11"	18"	24"
8"	10"	18"	24"
10"	9"	18"	24"
12"	8"	18"	24"

ALL DIMENSIONS IN INCHES

NOTES:

1. THE "W" DIMENSION SHALL BE USED TO CALCULATE MAXIMUM TRENCH PAY WIDTH.
2. FOR 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".
4. FOR COPPER, PVC AND HDPE PIPE, 3 INCHES OR SMALLER, PIPE EMBLEMMENT ZONE MATERIAL IS FINE AGGREGATE (SAND). "W" DIMENSION IS 8 INCHES MINIMUM AND SECOND THICKNESS UNDER PIPE IS 4" MINIMUM. FOR TRENCHES IN ROCK, MINIMUM BEDDING THICKNESS IS 8 INCHES.
5. SPECIAL DESIGN IS REQUIRED AND SHALL BE SPECIFIED OR DETAILED IN THE CONTRACT DOCUMENTS FOR THE FOLLOWING PIPES:
PVC AWWA C-900 LARGER THAN 12 INCHES
PVC GRADY SANITARY SEWERS LARGER THAN 12 INCHES
HDPE CORRUGATED DRAIN PIPE
STEAM CROSSINGS SEE DETAILS S-3.11 AND S-3.12

Howard County, Maryland
Department of Public Works
Pipe Trench
Plastic & Copper
Detail
G-2.12

NOTES:

1. SEE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON DETAIL G-5.11.
2. FOR PIPE SIZES 27" TO 36" USE DETAIL G-5.13.
3. WHERE A COVER IS MORE THAN 4.5' FEET USE STANDARD PRECAST MANHOLE.
4. MAXIMUM INVERT DIFFERENTIAL FOR SANITARY SEWER IS 6" WITHOUT DROP CONNECTION. (SEE DETAIL S-1.30 FOR DROP CONNECTION).
5. SEE DETAIL G-4.01 REQUIREMENT FOR GRANITE BOTTOM.

4,000 PSI CONCRETE 2-#7 ADDITIONAL

STANDARD PRECAST MANHOLE **SHALLOW PRECAST MANHOLE**

Howard County, Maryland
Department of Public Works
PRECAST MANHOLE
Standard and Shallow
4'-0" for 24" Pipe and smaller
Detail
G-5.12

NOTES:

1. SEE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON DETAIL G-5.11.
2. USE SHALLOW MANHOLE WHERE APPLICABLE. (SEE DETAIL G-5.12 AND G-5.13.)

Howard County, Maryland
Department of Public Works
MANHOLE
Terminal Manhole
Detail
S-1.31

NOTES:

1. FOR USE WITH TAPPING SAIDLES ON EXISTING MAINS ONLY. (SEE DETAIL S-2.21)

Howard County, Maryland
Department of Public Works
SEWER HOUSE CONNECTION
SHC
Detail
S-2.11

NOTES:

1. HEIGHT CRITERIA FOR DROPS SHALL BE AS FOLLOWS:
PIPE SIZE (W/D) (MIN) TYPE A TYPE B
4" (10"/24") 20" 20"
6" (12"/24") 20" 20"
8" (12"/24") 20" 20"
10" (12"/24") 20" 20"
12" (12"/24") 20" 20"
15" (12"/24") 20" 20"
2. SEE GENERAL NOTES APPLICABLE TO ALL PRECAST MANHOLES ON DETAIL G-5.12.
3. U-SHAPED PRECAST CONCRETE COLLARS SHALL BE 1'-0" TO 2'-0" OR 2'-0" TO HEIGHT. PLACE 2" AGGREGATE BETWEEN COLLAR AND UNDISTURBED EARTH AND FOR SAND BETWEEN COLLAR AND PIPE.
4. TYPE "A" AND "B" DROP CONNECTIONS MAY BE PRECAST BY MANHOLE MANUFACTURER.
5. FOR BRICK MANHOLE OR TYPE "X" DROP, USE CAST-IN-PLACE CONCRETE (MIX NO. 1) FROM MANHOLE WALL TO UNDISTURBED EARTH AND MINIMUM 4" PIPE EMBLEMMENT IN ALL OTHER DIRECTIONS.

Howard County, Maryland
Department of Public Works
MANHOLE
Drop Connection
Types "A" and "B"
Detail
S-1.32

NOTES:

1. STANDARD PAYMENT SHALL INCLUDE THE COST OF SONOTUBE AND/OR FULL SONOTUBE SONOTUBE EXCEPT PIPE & BELL FITTINGS #57 AGGREGATE.
2. FOR TYPE "C" DROP HOUSE CONNECTION, (SEE DETAIL S-2.13).
3. DROP CONNECTIONS SHALL BE THE SAME PIPE MATERIAL AS THE MAIN.

Howard County, Maryland
Department of Public Works
SEWER HOUSE CONNECTION
Drop
Types "A" and "B"
Detail
S-2.12

NOTES:

1. USE MIX NO. 1 CONCRETE.
2. CARRY ALL BEARING SURFACES TO UNDISTURBED GROUND OR FIRM SUBGRADE.
3. BUTTRISS SIZES FOR 150 PSI.
4. SEE DETAIL S-4.06 FOR UPPER VERTICAL BENDS.
5. DO NOT ENCASE JOINTS.

Howard County, Maryland
Department of Public Works
PRESSURE SEWER
Blocking
Detail
S-4.04

NOTES:

1. PRIVATE SHC INSTALLED BY PLUMBER MAY BE IN-SO STACK OR CHIMNEY SECTION OR BE REQUIRED TO BE IN AT THE CLEANOUT INSET BRASS UPON SERVICE ELEVATION REQUIREMENT.
2. PROPER SEWER CLEANOUT CONNECTION, CHANGE DIRECTION OR HOUSE SERVICE LINE BETWEEN CLEANOUT FITTING AND BUILDING. NO HORIZONTAL CHANGE IN ALIGNMENT OF CLEANOUT STACK.
3. INSTALL 2" x 6" MARKER BOARD PAINTED GREEN.
4. FOR CLEANOUT COVER ASSEMBLY IN A PAVED AREA, SEE DETAIL S-2.23.

Howard County, Maryland
Department of Public Works
SEWER HOUSE CONNECTION
Cleanout
Detail
S-2.22

NOTES:

1. SEE DETAIL S-4.14 FOR PLAN VIEW.
2. FOR DP SEWER, SEE SPECIFICATIONS FOR SPECIAL INTERIOR FINISHES.
3. PROVIDE WATERPROOF FLOOR AND COVER (SEE DETAIL G-5.22) ON TRANSITION MANHOLE.
4. PROVIDE THE CORRECT APPLICATION OF ELASTOMERIC MATERIAL (SANDS OF T.T. MINIMUM) ON BOTH THE INTERIOR AND EXTERIOR SURFACES OF TRANSITION MANHOLE.

PIPE SIZE	B	C	D	E	F	D
1-1/4" & 1-1/2"	8"	8"	8"	8"	8"	8"
2"	10"	10"	10"	10"	10"	10"
2-1/2"	10"	10"	12"	12"	10"	10"
3"	12"	12"	12"	12"	12"	12"
4"	16"	12"	12"	12"	12"	12"

Howard County, Maryland
Department of Public Works
PRESSURE SEWER
Gravity Transition Manhole
Sections
Detail
S-4.15

NOTES:

1. 3/4" WATER SETTINGS AND 3/4" SERVICE TO BE USED ONLY WITH EXISTING WATER SERVICE CONNECTION FOR RELATION PURPOSE AS REQUIRED.
2. ALL FITTINGS FOR COPPER AND BRASS SHALL BE FLARED TYPE, OR COMPRESSION END WITH ORB JOINTS.
3. TAPPING SAIDLE IS REQUIRED FOR DP MAINS 4" AND SMALLER, ALL PVC MAINS, AND 1 1/2" AND 2" TIPS.
4. CAST-IRON OR POLY-IRON COVER VALVE BOX (SEE DETAIL G-5.01), COVER STYLE ONLY. THE TOP OF THE VALVE TO BE SET 18" INCHES ABOVE GROUND OR FINISHED GRADE.
5. CAST-IRON OR POLY-IRON COVER TO BE ADJUSTED (DOWN) TO FINISHED GRADE BY ORBES.

METER SETTING	SIZE OF SERVICE PIPE AND FITTING
5/8"	3/4"
3/4"	1"
1"	1 1/2"
1 1/2"	1 1/2"
2"	2"

Howard County, Maryland
Department of Public Works
WATER SERVICE CONNECTION
5/8", 3/4", 1", 1 1/2", & 2"
Inside Meter Settings
Detail
W-3.21

NOTES:

1. FOR SECTION A-A, SEE DETAIL S-4.15
2. FOR SECTION B-B, SEE DETAIL S-4.15

Howard County, Maryland
Department of Public Works
PRESSURE SEWER
Gravity Transition Manhole
Detail
S-4.14

APPROVED DEPARTMENT OF PLANNING AND ZONING
7/16/2024

APPROVED DEPARTMENT OF ENVIRONMENTAL ENGINEERING DIVISION
7/16/2024

APPROVED DIVISION OF LAND DEVELOPMENT
7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024

WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED DEPARTMENT OF PLANNING AND ZONING
7/16/2024

APPROVED DEPARTMENT OF ENVIRONMENTAL ENGINEERING DIVISION
7/16/2024

APPROVED DIVISION OF LAND DEVELOPMENT
7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024

WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED DEPARTMENT OF PLANNING AND ZONING
7/16/2024

APPROVED DEPARTMENT OF ENVIRONMENTAL ENGINEERING DIVISION
7/16/2024

APPROVED DIVISION OF LAND DEVELOPMENT
7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024

WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

OWNER: LYHUS DEVELOPMENT, LLC
60 H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

SUBDIVISION NAME: THE HIGHLANDS
(F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED # 14532/00469
PLAT# 20546-29552

PREVIOUS FILE NO.: BA-20-002C
SP-17-0108
ECP-17-056
WP-18-070

DEVELOPER: F-20-016
WP-21-011
WP-22-132

TAX MAP: 40
GRID: 24
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SHEET NUMBER:
122 OF 146

ORG. DATE - 04/17/24

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

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NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
DRAWN BY: MUR
DATE: 07/11/2024
CAD LID: CNDS-

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

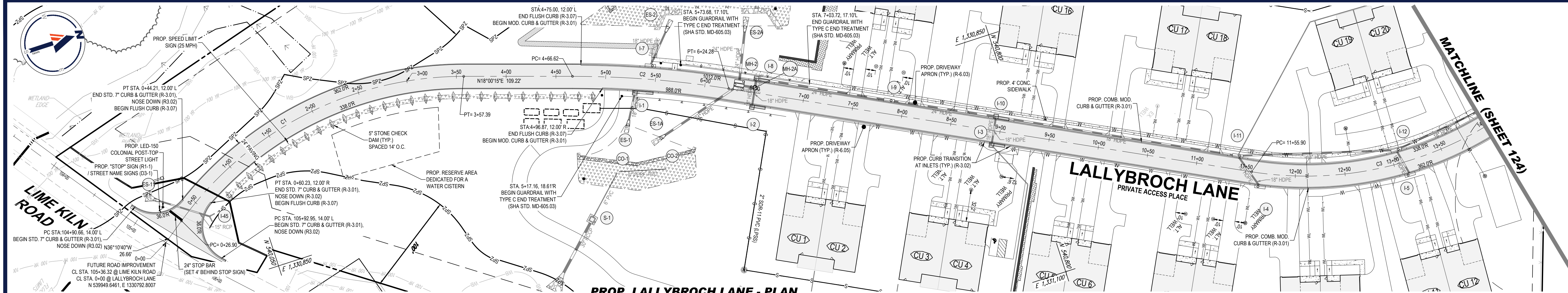
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

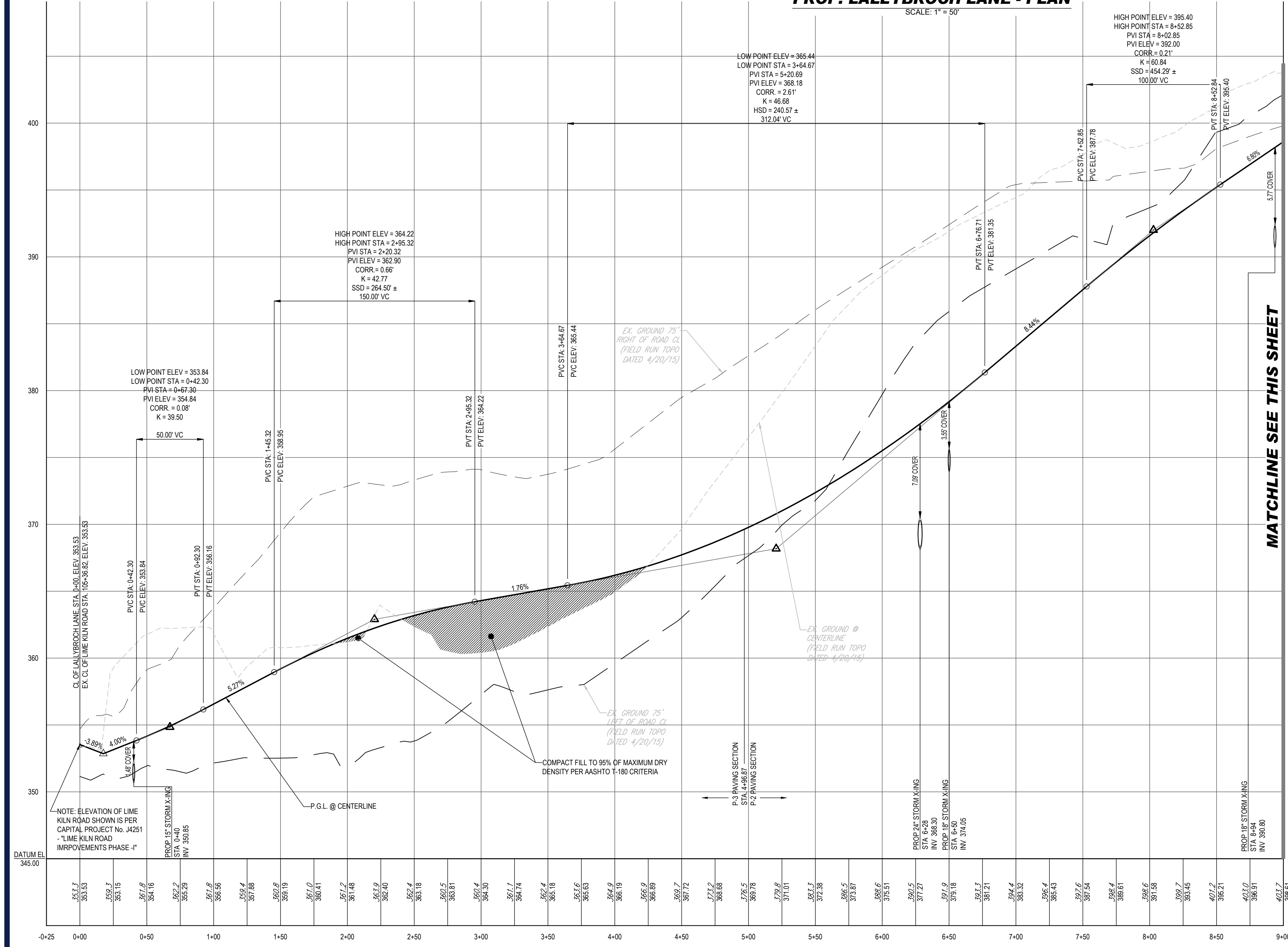
B.R. ROWE
PROFESSIONAL ENGINEER
ANNUAL REISSUE NO. 6839
PROFESSIONAL CERTIFICATION
I BRANDBOX ENGINEERING CERTIFICATION THESE DOCUMENTS WERE PREPARED AND APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 40898 EXPIRATION DATE: 7/30/2025

SHEET TITLE:
WATER AND SEWER DETAILS

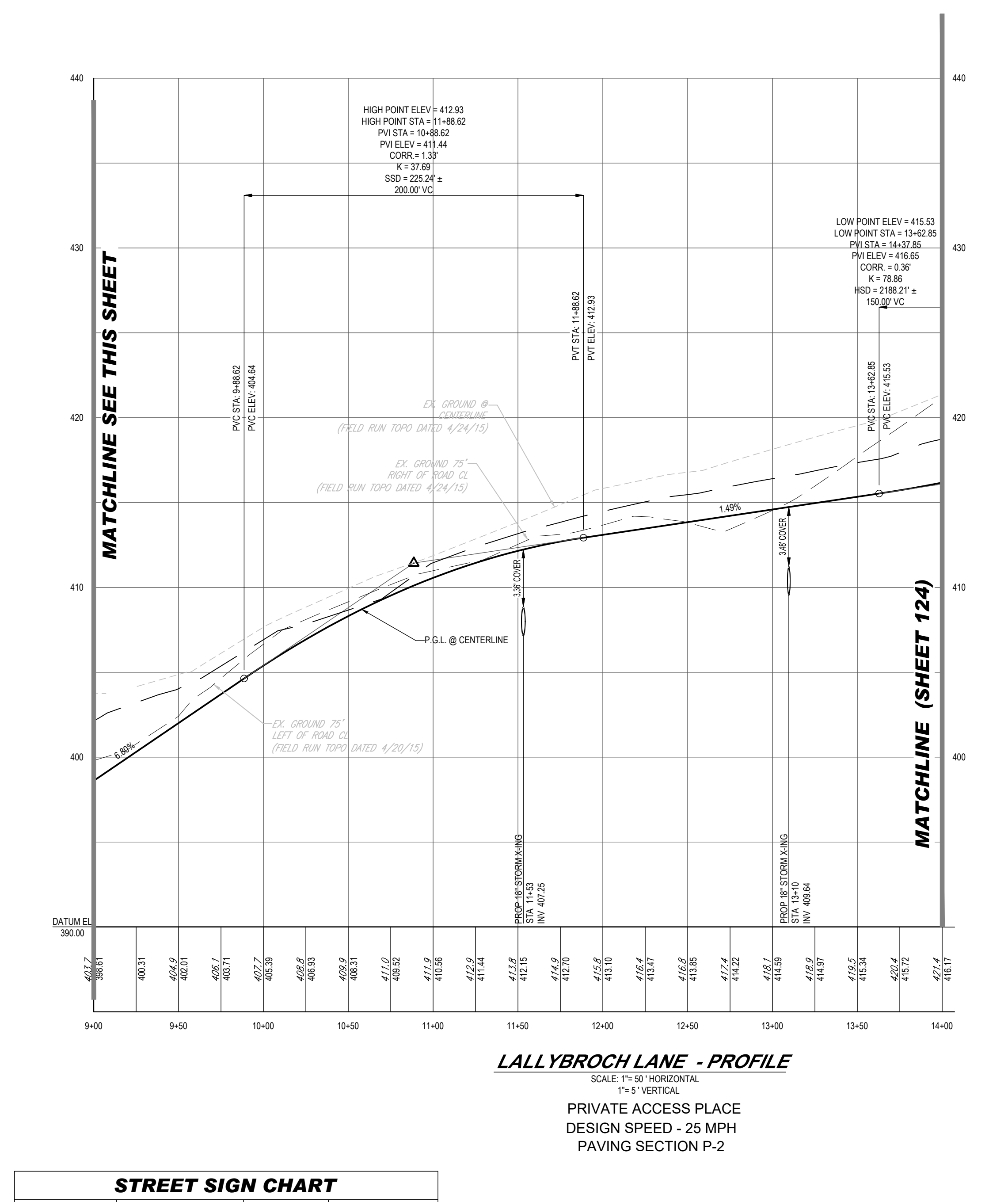
JUL 11, 2024
HY1404D140372DRAWINGS\PLAN\SET SITE DEVELOPMENT PLAN\MD1420672 - CNDS - 2 - LAYOUT: 122 WATER AND SEWER DETAILS



PROP. LALLYBROCH LANE - PLAN
SCALE: 1" = 50'



PROP. LALLYBROCH LANE - PROFILE
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL



LALLYBROCH LANE - PROFILE
SCALE: 1" = 50' HORIZONTAL, 1" = 5' VERTICAL

PRIVATE ACCESS PLACE
DESIGN SPEED - 25 MPH
PAVING SECTION P-2

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
Nancy Howell
DATE
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
7/16/2024
Chad Edman
DATE
CHIEF OF PLANNING AND ZONING DIVISION

APPROVED: DIVISION OF LAND DEVELOPMENT
7/16/2024
Linda Ewing
DATE

NOTE:
ROAD GRADING WITHIN LIME KILN ROAD IS PER COORDINATION WITH CAPITAL IMPROVEMENT PROJECT #J4251 PER 50% PLANS RECEIVED ON 2/10/2020. ROAD GRADING OF PROPOSED LALLYBROCH LANE IS DESIGNED TO TIE INTO THE ULTIMATE BUILD-OUT OF LIME KILN ROAD AND IS SHOWN AS SUCH HERE-IN.

PRIVATE ACCESS PLACE
DESIGN SPEED - 25 MPH
PAVING SECTIONS P-2 & P-3

STREET LIGHT CHART

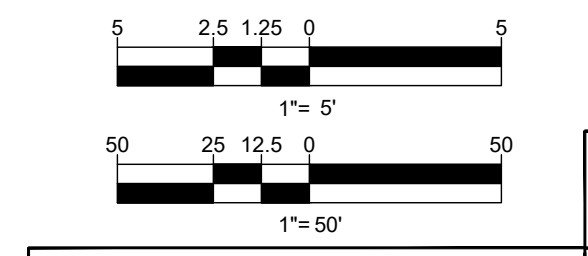
STREET NAME	LOCATION	POLE HEIGHT	POLE TYPE	TYPE
LALLYBROCH LANE (PRIVATE)	0+27.09 23.26' L	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-150 COLONIAL)

CURVE TABLE

Curve #	Radius	Length	Chord Direction	Delta	Tangent
C1	349.49	330.49	N09°05'12.10"W	054.18	178.77
C2	1000.00	157.66	N22°31'15.76"E	009.03	79.00
C3	350.00	350.52	N01°39'10.51"W	057.38	191.55

STREET SIGN CHART

STREET NAME	SIGN TYPE	SIGN SIZE	LOCATION
LALLYBROCH LANE (PRIVATE)	"STOP" SIGN (R1-1)	30" X 30"	0+23.09 24.29' L
LALLYBROCH LANE (PRIVATE)	"LALLYBROCH LANE" STREET NAME SIGN (D3-1)	VARIES X 8" "SEE NOTE"	0+23.09 24.29' L
LALLYBROCH LANE (PRIVATE)	"LIME KILN ROAD" STREET NAME SIGN (D3-1)	VARIES X 8" "SEE NOTE"	0+23.09 24.29' L
LALLYBROCH LANE (PRIVATE)	"25 MPH SPEED LIMIT" SIGN (R2-1)	24" X 30"	1+62.17 15.00' R



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY)
SECTION/AREA: N/A
DEED # 14532/00469
PLAT# 29546-29652

OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELK RIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

PREVIOUS FILE NO.: BA-20-002C
SP-17-0108
ECP-17-056
WP-18-070

TAX MAP: 40
GRID: 24
PARCEL: 135
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

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PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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PROJECT No.: MD1420672
DRAWN BY: MUR
DATE: 07/11/2024
CAD LID: MD1420672 - PROD - 2A

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

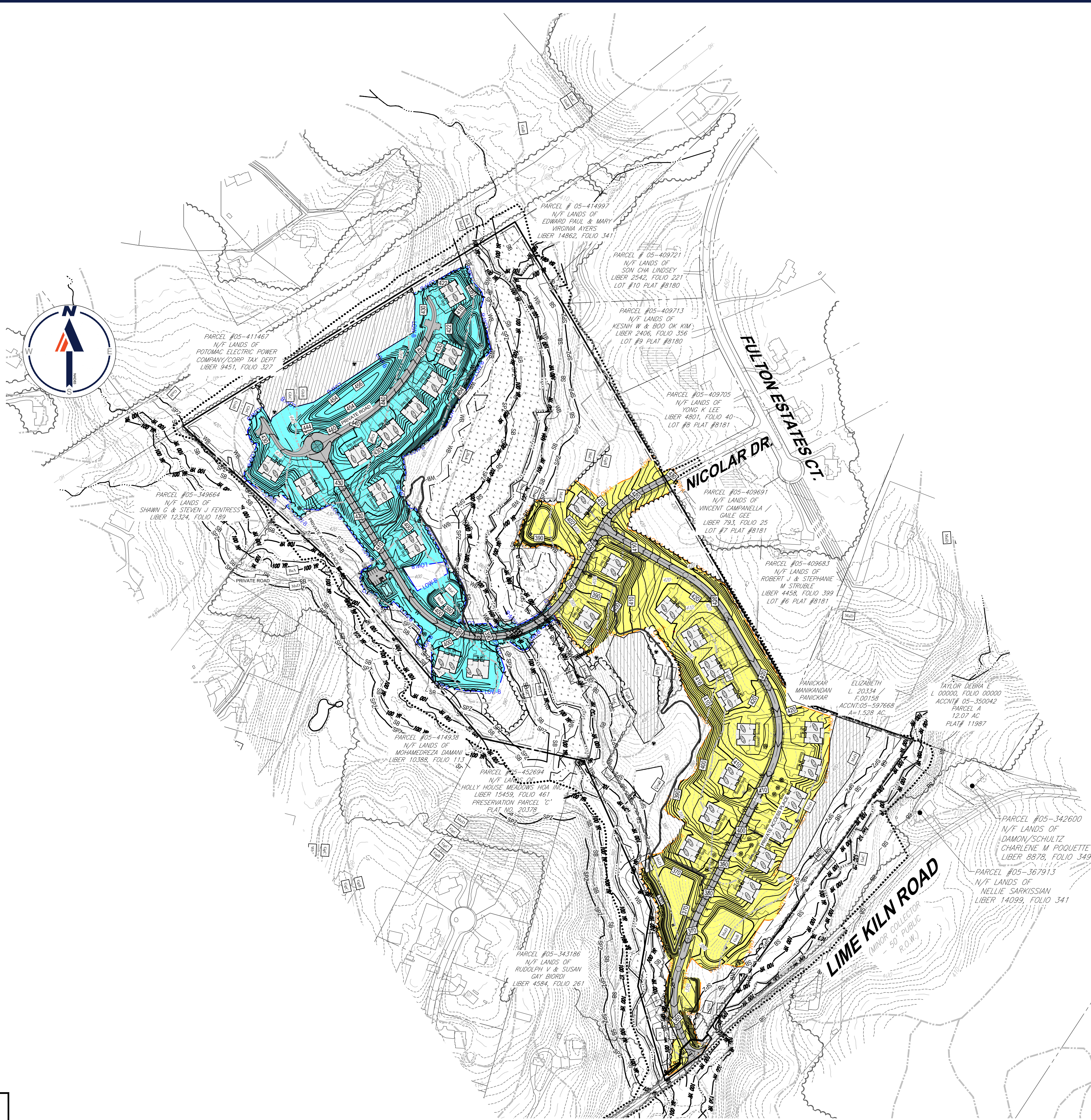
BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
LICENSE NO. 14352
EXPIRATION DATE: 7/30/2025

ROAD PLAN & PROFILES

SHEET NUMBER:
123 OF 146

ORG. DATE - 04/17/24



LEGEND

	STANDARD DUTY ASPHALT PAVEMENT (P-2)		CONCRETE SIDEWALK
	DRIVEWAY (P-1)		STORMWATER MANAGEMENT FACILITY
	NATURAL SURFACE WALKING TRAIL		RIP-RAP
	PROPOSED BUILDING		WETLANDS
	PROPOSED FOREST CONSERVATION AREA		SEWAGE DISPOSAL AREA
	WELL AREA		SOIL STABILIZATION MATTING
	SOIL DIVIDE AND LABEL		PERENNIAL STREAM
	PERCOLATION HOLE (PASSED)		STREAM BANK
	PERCOLATION HOLE (FAILED)		STREAM BUFFER
			TIER II STREAM PROTECTION ZONE
			100-YEAR FLOODPLAIN
			WETLAND BUFFER

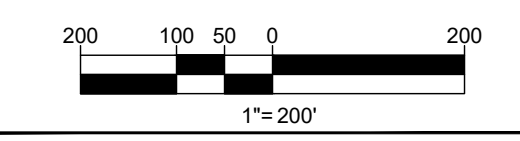
PHASING NOTE:

CONSTRUCTION IS TO TAKE PLACE IN TWO (2) PHASES TO ENSURE THAT THE TOTAL AMOUNT OF DISTURBED AREA IS NEVER GREATER THAN 20 ACRES.

- PHASE A (LOW-A) = 20.00 ACRES
- PHASE B (LOW-B) = 13.74 ACRES

AREAS OUTSIDE OF LOW-A AND LOW-B ARE TO BE CONSTRUCTED AS FOLLOWS:

- SEPTIC DRAINFIELDS SERVICING UNITS WITHIN EACH LOW ARE TO BE CONSTRUCTED AFTER EACH RESPECTIVE LOW HAS BEEN STABILIZED.
- THE NATURAL SURFACE WALKING TRAIL IS TO BE CONSTRUCTED AFTER ALL OTHER DISTURBED AREAS HAVE BEEN STABILIZED.



OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKCRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKCRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14332/00469 PLAT# 28646-2662	PREVIOUS FILE NO.: BA-20-002C SF-17-0108 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132	WP-24-060 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
---------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------	------------------------------------	----------------------------------------------------------------------------

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REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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PROJECT No.: MD1420672
DRAWN BY: MJR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - ORVL - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
AMERICAN INSTITUTE OF PROFESSIONAL ENGINEERS
1 BRANDON BLVD, HERRINGTON, VA 22941
I BRANDED THESE HERETOFORE SIGNED THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 40898, EXPIRATION DATE: 7/30/25

SHEET TITLE:
PHASING DIAGRAM
SHEET NUMBER:
124 OF 124
ORG. DATE - 04/17/24

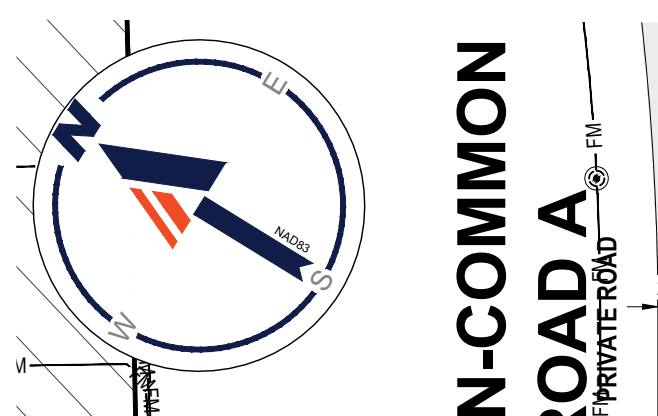
APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Nancy Howell
7/16/2024
SACRAMENTO PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED, DEPARTMENT OF PLANNING AND ZONING
7/16/2024
7/16/2024
7/16/2024
7/16/2024
7/16/2024

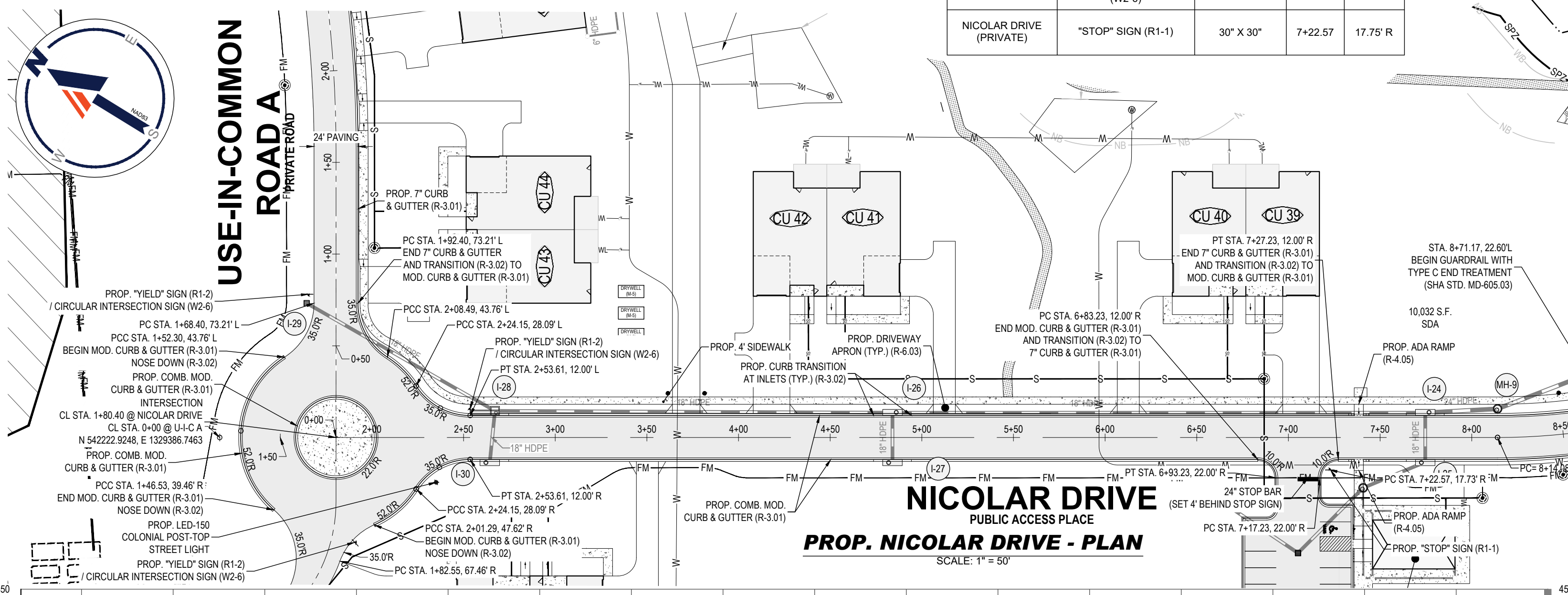
STREET LIGHT CHART					
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSET			
NICOLAR DRIVE (PRIVATE)	2+35.03	24.47' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-150 COLONIAL)

STREET SIGN CHART				
STREET NAME	SIGN TYPE	SIGN SIZE	LOCATION	
			STATION	OFFSET
NICOLAR DRIVE (PRIVATE)	"YIELD" SIGN (R1-2)	30" X 30"	1+90.88	57.50' R
NICOLAR DRIVE (PRIVATE)	CIRCULAR INTERSECTION SIGN (W2-6)	30" X 30"	1+90.88	57.50' R
NICOLAR DRIVE (PRIVATE)	"YIELD" SIGN (R1-2)	30" X 30"	2+53.67	15.00' L
NICOLAR DRIVE (PRIVATE)	CIRCULAR INTERSECTION SIGN (W2-6)	30" X 30"	2+53.67	15.00' L
NICOLAR DRIVE (PRIVATE)	"STOP" SIGN (R1-1)	30" X 30"	7+22.57	17.75' R

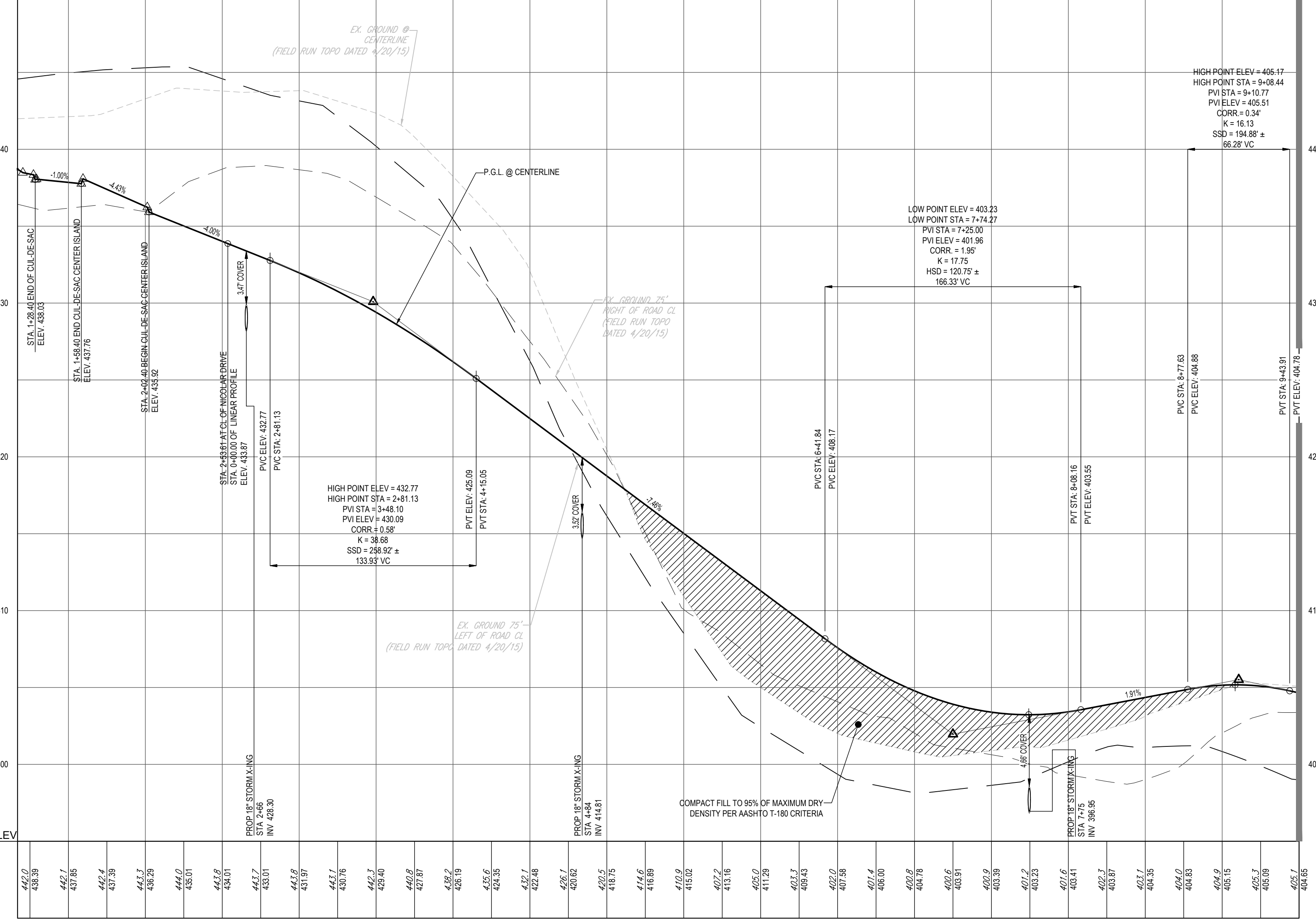
CURVE TABLE					
Curve #	Radius	Length	Chord Direction	Delta	Tangent
C6	350.00	738.64	N87°56'28.83"E	120.92	617.57



USE-IN-COMMON ROAD A



**NICOLAR DRIVE PUBLIC ACCESS PLACE
PROP. NICOLAR DRIVE - PLAN**
SCALE: 1" = 50'



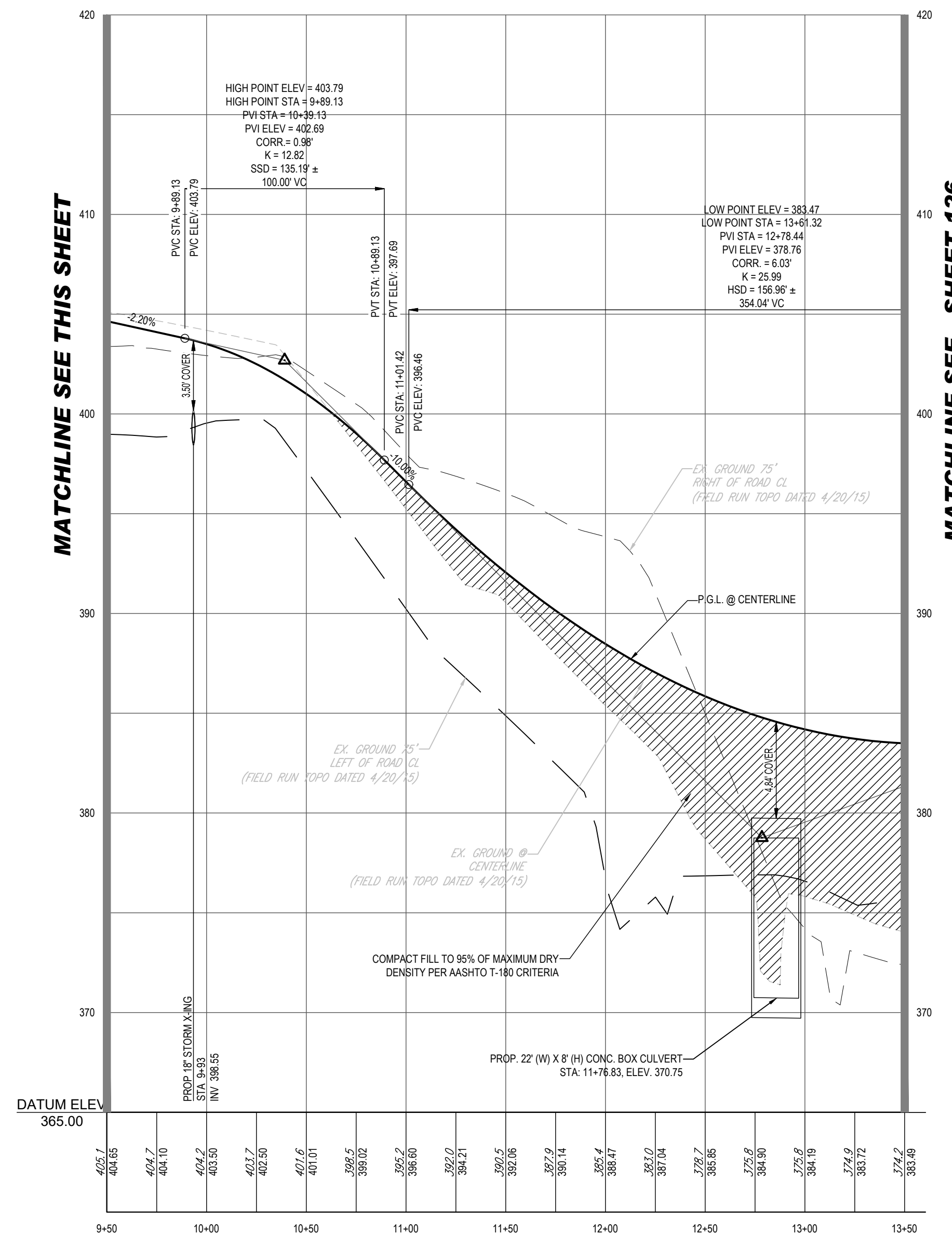
NICOLAR DRIVE - PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

PRIVATE ACCESS PLACE
DESIGN SPEED - 25 MPH
PAVING SECTION P-2

MATCHLINE SEE THIS SHEET

MATCHLINE SEE THIS SHEET

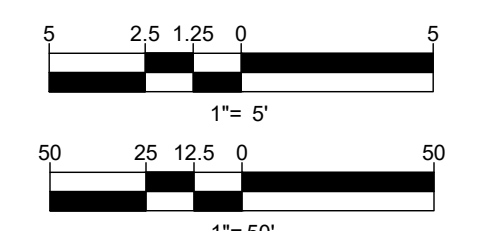
MATCHLINE SEE , SHEET 126



NICOLAR DRIVE - PROFILE
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

PRIVATE ACCESS PLACE
DESIGN SPEED - 25 MPH
PAVING SECTION P-2

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 1453200469 PLAT# 28546-29552	PREVIOUS FILE NO.: BA-20-002C SP-17-018 ECP-17-056 WP-18-070	WP-24-060 F-20-016 WP-21-011 WP-22-132	TAX MAP: 40 GRID: 124 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------	-------------------------------------------------	------------------------------------------------------------------------------------------------------------



APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 7/16/2024
DATE: 7/16/2024
DATE: 7/16/2024
DATE: 7/16/2024

APPROVED: DEPARTMENT OF PLANNING AND ZONING
DATE: 7/16/2024
DATE: 7/16/2024
DATE: 7/16/2024
DATE: 7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
DATE: 7/16/2024
DATE: 7/16/2024
DATE: 7/16/2024
DATE: 7/16/2024

BOHLER
SITE CIVIL AND CONSULTING ENGINEERING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
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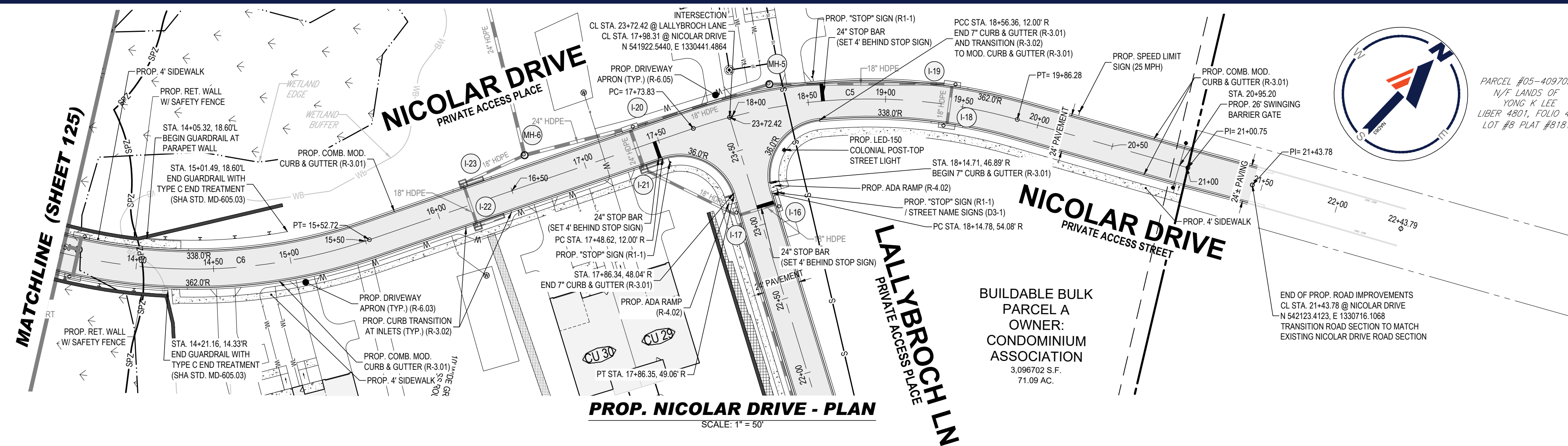
PROJECT No.: MD1420672
DRAWN BY: MUR
DATE: 07/11/2024
CAD LID: MD1420672 - PROD - 2B

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
AMERICAN INSTITUTE OF CERTIFIED PROFESSIONAL ENGINEERS
I BRANDED, ENGINE, HERVEY CERTIFICATION THESE DOCUMENTS WERE PREPARED BY ME AND THAT I AM A DELAWARE REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND LICENSE NO. 40988 EXPIRATION DATE: 7/30/2025

ROAD PLAN & PROFILES
SHEET NUMBER:
125 OF 146
ORG. DATE - 04/17/24



CURVE TABLE					
Curve #	Radius	Length	Chord Direction	Delta	Tangent
C5	350.00	212.46	N44° 52' 22.28"E	034.78	109.61
C6	350.00	738.64	N87° 58' 28.83"E	120.92	617.57

STREET SIGN CHART				
STREET NAME	SIGN TYPE	SIGN SIZE	LOCATION	
			STATION	OFFSET
NICOLAR DRIVE (PRIVATE)	"STOP" SIGN (R1-1)	30" X 30"	17+52.28	15.00' R
NICOLAR DRIVE (PRIVATE)	"STOP" SIGN (R1-1)	30" X 30"	18+54.61	15.00' L
NICOLAR DRIVE (PRIVATE)	"25 MPH SPEED LIMIT" SIGN (R2-1)	24" X 30"	20+23.72	15.00' L

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REVISIONS				
REV	DATE	COMMENT	DRAWN BY	CHECKED BY

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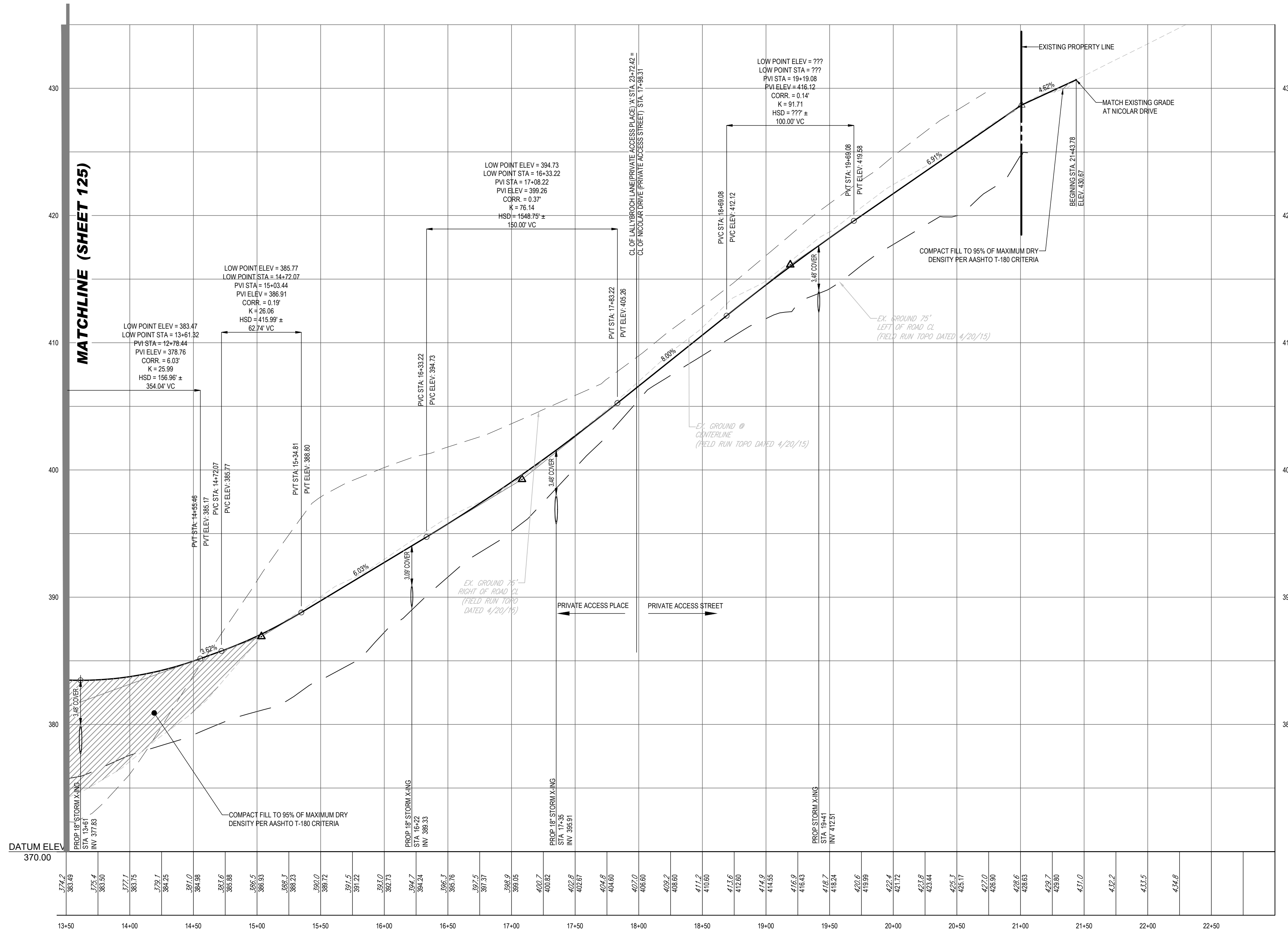
NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420672
DRAWN BY: MUR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - PRD - 2B

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS
(FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

BOHLER
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TOWSON, MARYLAND 21204
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

B.R. ROWE
PROFESSIONAL ENGINEER
LICENSE NO. 10000
EXPIRATION DATE: 7/31/2025



STATION	ELEVATION
13+50	383.49
13+60	379.74
13+70	383.50
13+80	377.71
13+90	383.75
14+00	384.25
14+10	387.0
14+20	384.96
14+30	383.88
14+40	386.93
14+50	388.43
14+60	389.72
14+70	391.22
14+80	392.0
14+90	392.0
15+00	392.0
15+10	392.0
15+20	392.0
15+30	392.0
15+40	392.0
15+50	392.0
15+60	392.0
15+70	392.0
15+80	392.0
15+90	392.0
16+00	392.0
16+10	392.0
16+20	392.0
16+30	392.0
16+40	392.0
16+50	392.0
16+60	392.0
16+70	392.0
16+80	392.0
16+90	392.0
17+00	392.0
17+10	392.0
17+20	392.0
17+30	392.0
17+40	392.0
17+50	392.0
17+60	392.0
17+70	392.0
17+80	392.0
17+90	392.0
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18+10	392.0
18+20	392.0
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18+50	392.0
18+60	392.0
18+70	392.0
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18+90	392.0
19+00	392.0
19+10	392.0
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21+60	392.0
21+70	392.0
21+80	392.0
21+90	392.0
22+00	392.0
22+10	392.0
22+20	392.0
22+30	392.0
22+40	392.0
22+50	392.0

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
7/16/2024
Nancy Powell
SACRAMENTO PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
7/16/2024
C. Edman
CHIEF ENGINEER
DEPARTMENT OF PLANNING AND ZONING

APPROVED: DIVISION OF LAND DEVELOPMENT
7/16/2024
Linda Ewing
DIRECTOR

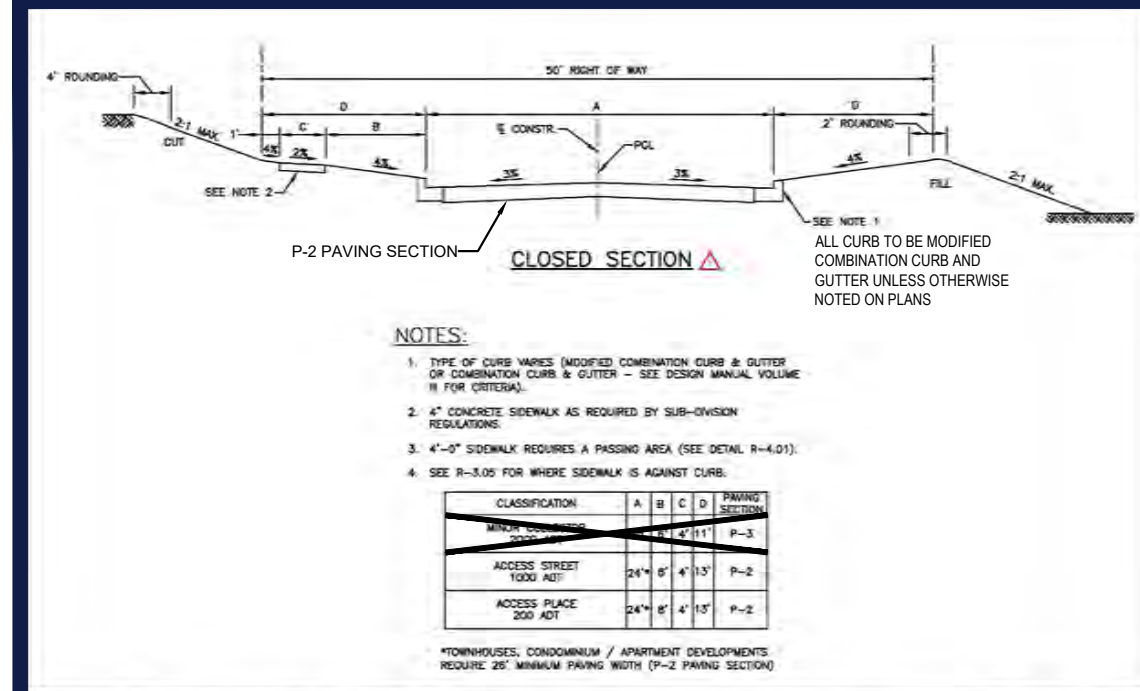
OWNER: LYHUS DEVELOPMENT, LLC
c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
6800 DEERPATH ROAD #100
ELKRIDGE, MARYLAND 21075
CONTACT: JAMES FRASER
PHONE: 410-567-1046

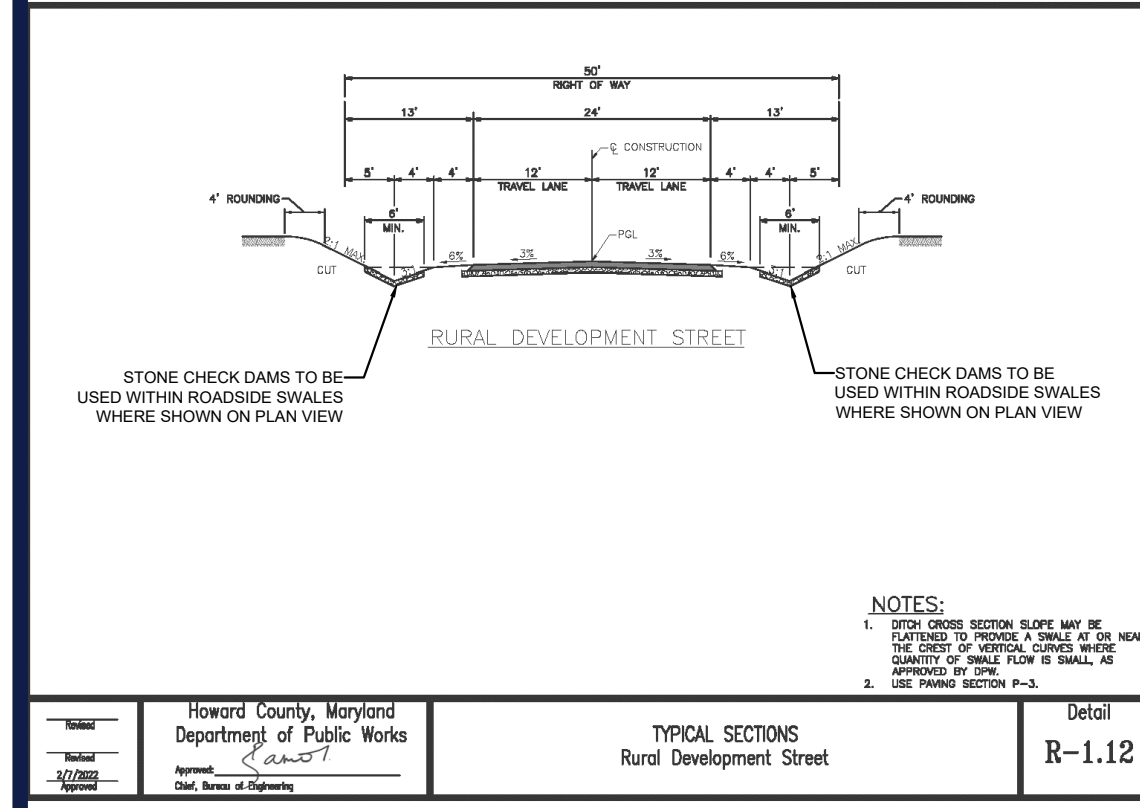
PREVIOUS FILE NO.: BA-20-002C
SP-17-0108
ECP-17-056
WP-18-070

TAX MAP: 40
GRID: 24
PARCEL: 135
ZONED: RR-DEO
5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND

SHEET TITLE:
ROAD PLAN & PROFILES
SHEET NUMBER:
126 OF 146
ORG. DATE: 04/17/24



Howard County, Maryland Department of Public Works	TYPICAL SECTIONS - RESIDENTIAL STREETS Access Place, Access Streets, Minor Collector (Closed Section)	Detail R-1.02
-------------------------------------------------------	----------------------------------------------------------------------------------------------------------	------------------

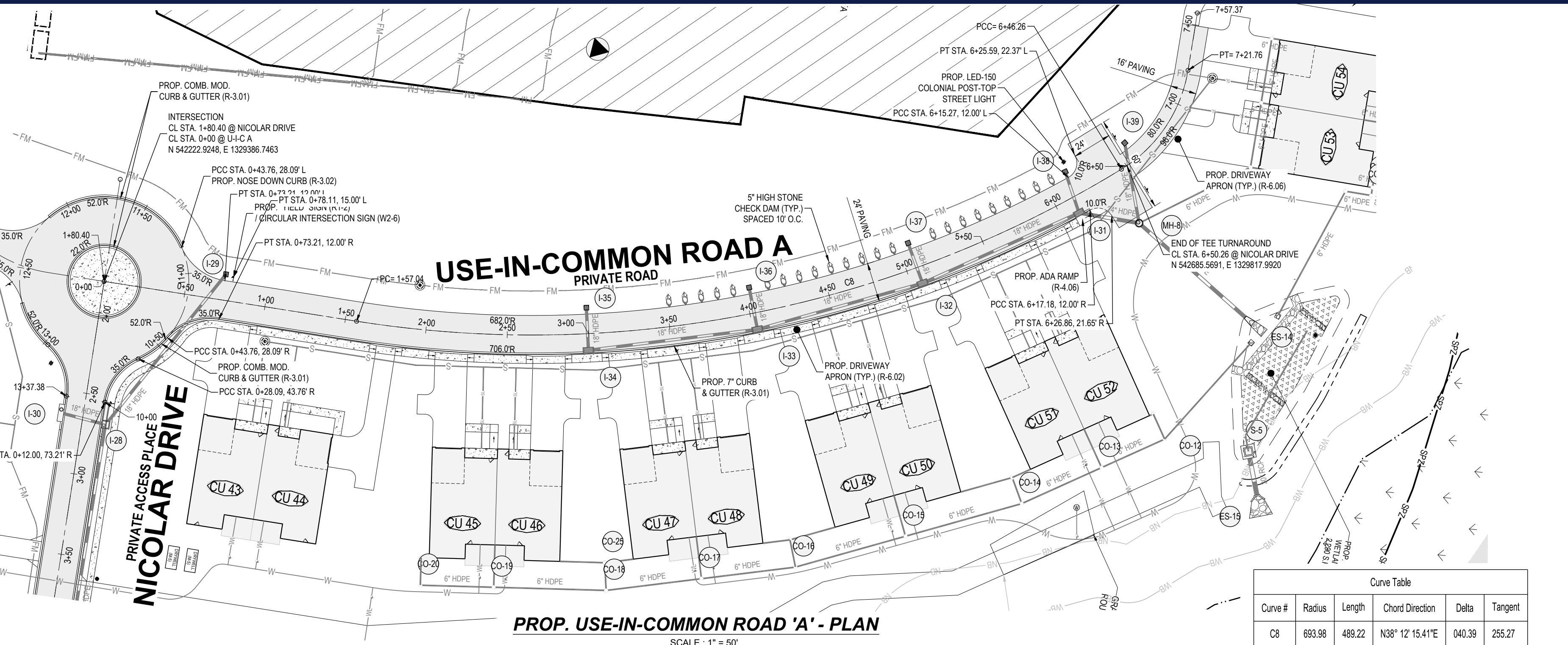


Howard County, Maryland Department of Public Works	TYPICAL SECTIONS Rural Development Street	Detail R-1.12
-------------------------------------------------------	----------------------------------------------	------------------

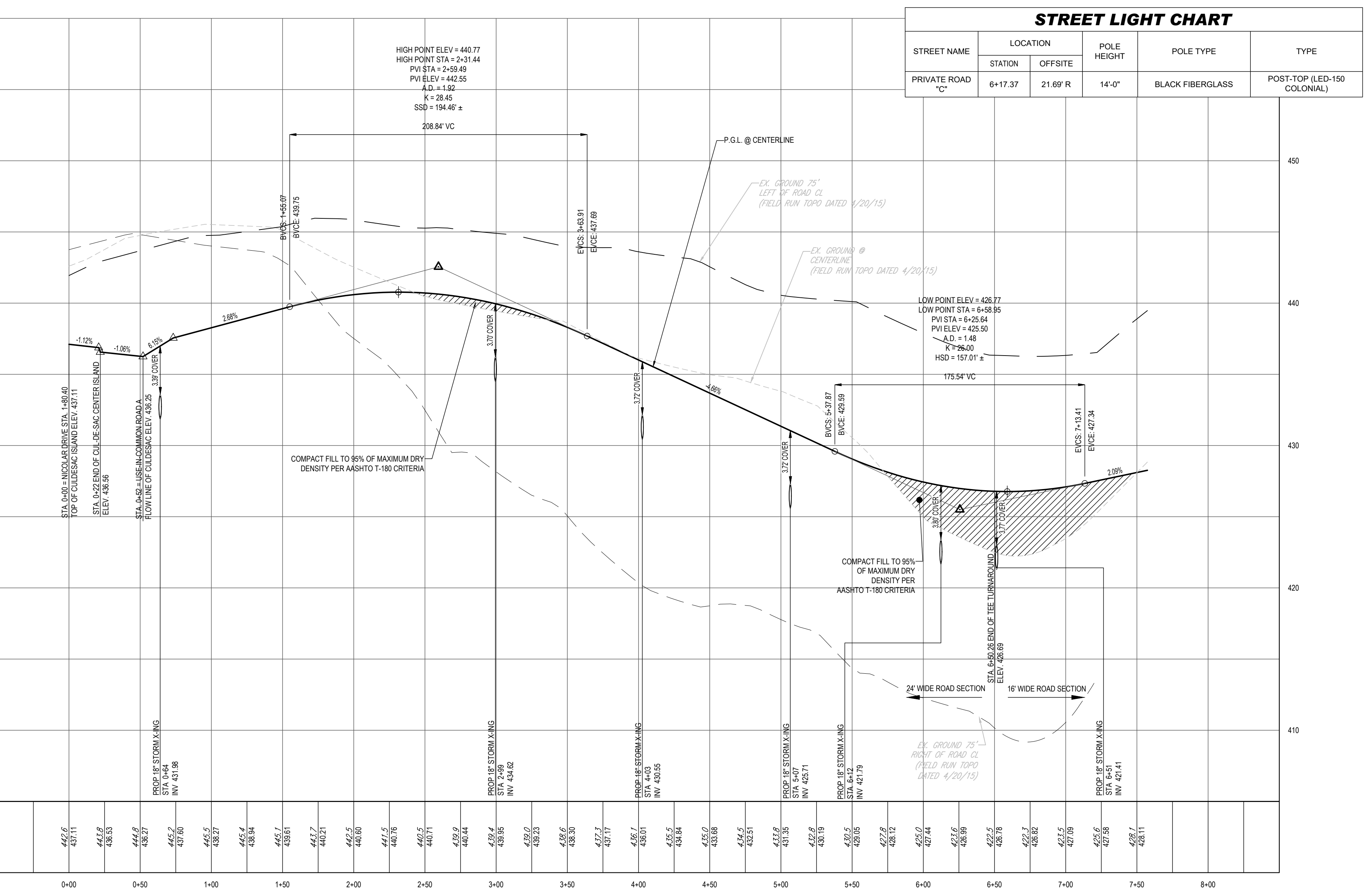
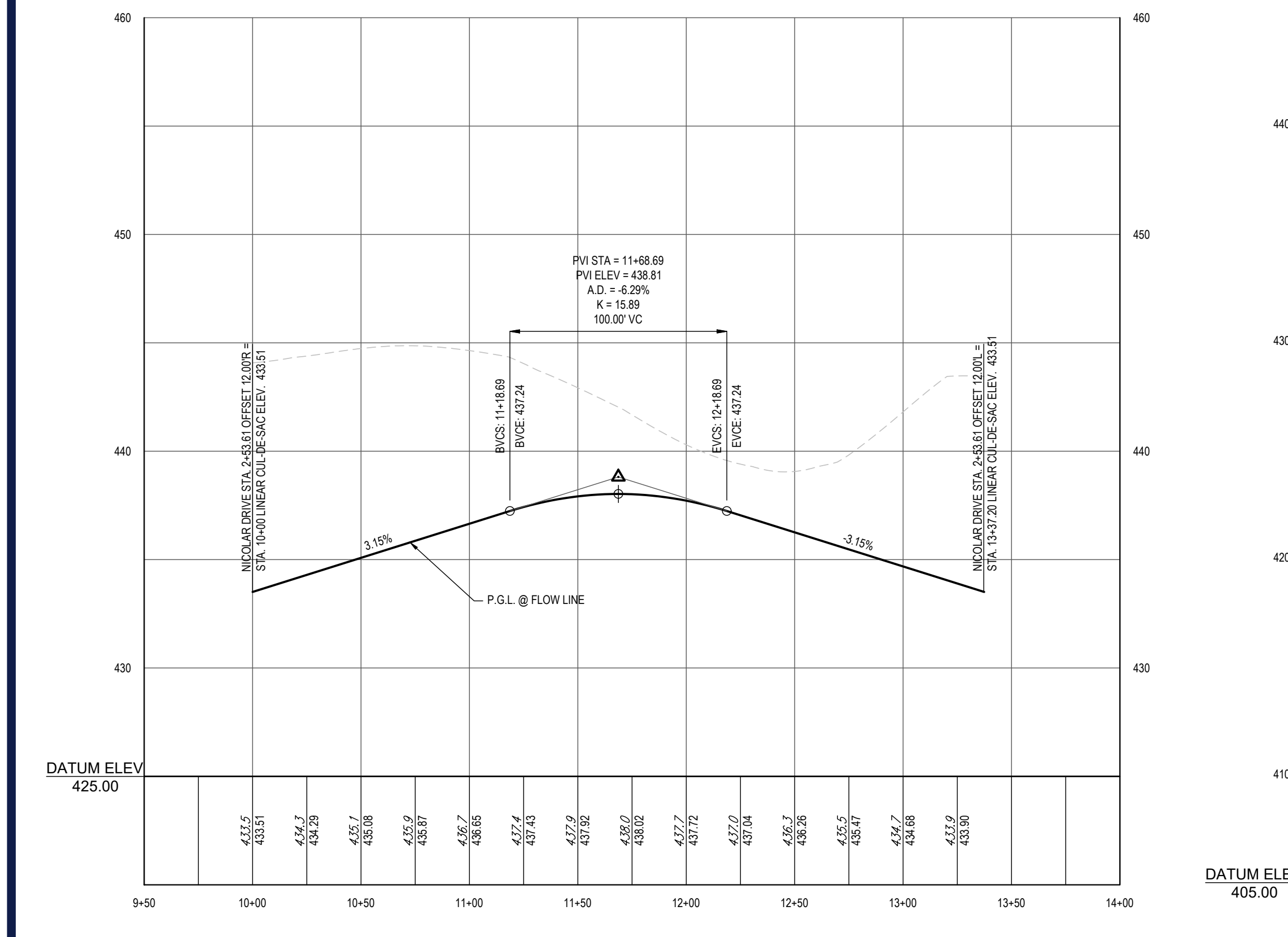
SECTION	NEW STREET TYPE	STREET WIDTH (FEET)	PAVING SECTION	DESIGN SPEED (MPH)	CLASSIFICATION
P-1	PRIVATE ROAD	20	P-1	25	PRIVATE ROAD
P-2	PRIVATE ROAD	20	P-2	25	PRIVATE ROAD
P-3	PRIVATE ROAD	20	P-3	25	PRIVATE ROAD
P-4	PRIVATE ROAD	20	P-4	25	PRIVATE ROAD

Howard County, Maryland Department of Public Works	PAVING SECTIONS P-1 to P-4	Detail R-2.01
-------------------------------------------------------	-------------------------------	------------------

STREET NAME	SIGN TYPE	SIGN SIZE	LOCATION
USE-IN-COMMON (PRIVATE)	"YIELD" SIGN (R1-2)	30" X 30"	0+78.11 15.00' L
USE-IN-COMMON (PRIVATE)	CIRCULAR INTERSECTION SIGN (W2-6)	30" X 30"	0+78.11 15.00' L



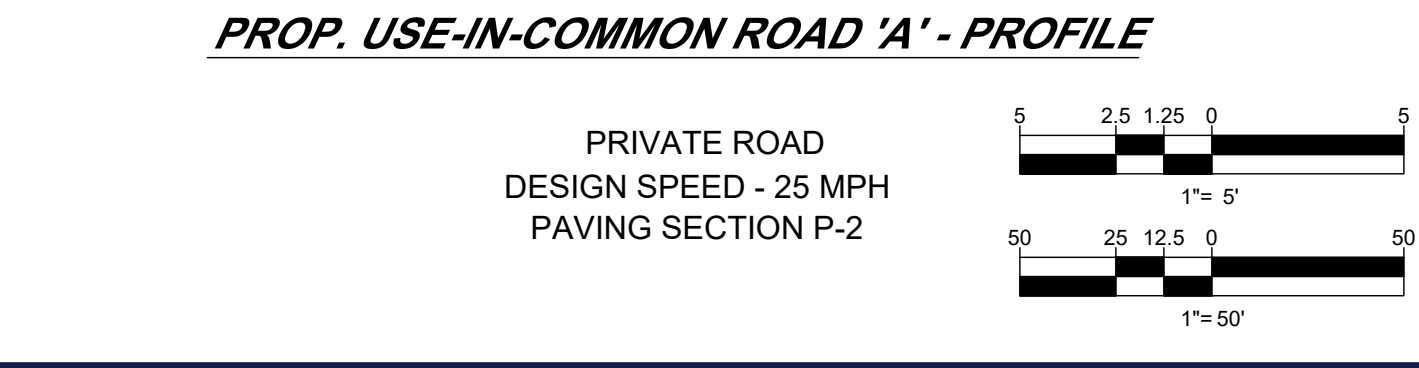
STREET NAME	LOCATION		POLE HEIGHT	POLE TYPE	TYPE
	STATION	OFFSITE			
PRIVATE ROAD "C"	6+17.37	21.69' R	14'-0"	BLACK FIBERGLASS	POST-TOP (LED-150 COLONIAL)



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 DATE: 7/16/2024
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 DATE: 7/16/2024

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 DATE: 7/16/2024
 NAME: [Signature]
 TITLE: [Signature]

ROAD NAME	CLASSIFICATION	DESIGN SPEED (MPH)	HORIZONTAL CURVE (MIN)	CREST VERTICAL CURVE (MIN)	SAG VERTICAL CURVE (MIN)	STOPPING SIGHT DISTANCE (MIN)	MAX SLOPE	INTERSECTION SPACING (MIN)
LALLYBROOK LANE	PRIVATE ACCESS PLACE	25	350'	19	37	200'	10%	250'
NICOLAR DRIVE	PRIVATE ACCESS STREET/PLACE	25	210'	12	26	155'	10%	250'
USE-IN-COMMON ROAD A	PRIVATE ROAD	25	210'	12	26	155'	10%	250'



OWNER: LYHUS DEVELOPMENT, LLC
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075

DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES
 6800 DEERPATH ROAD #100
 ELK RIDGE, MARYLAND 21075
 CONTACT: JAMES FRASER
 PHONE: 410-567-1046

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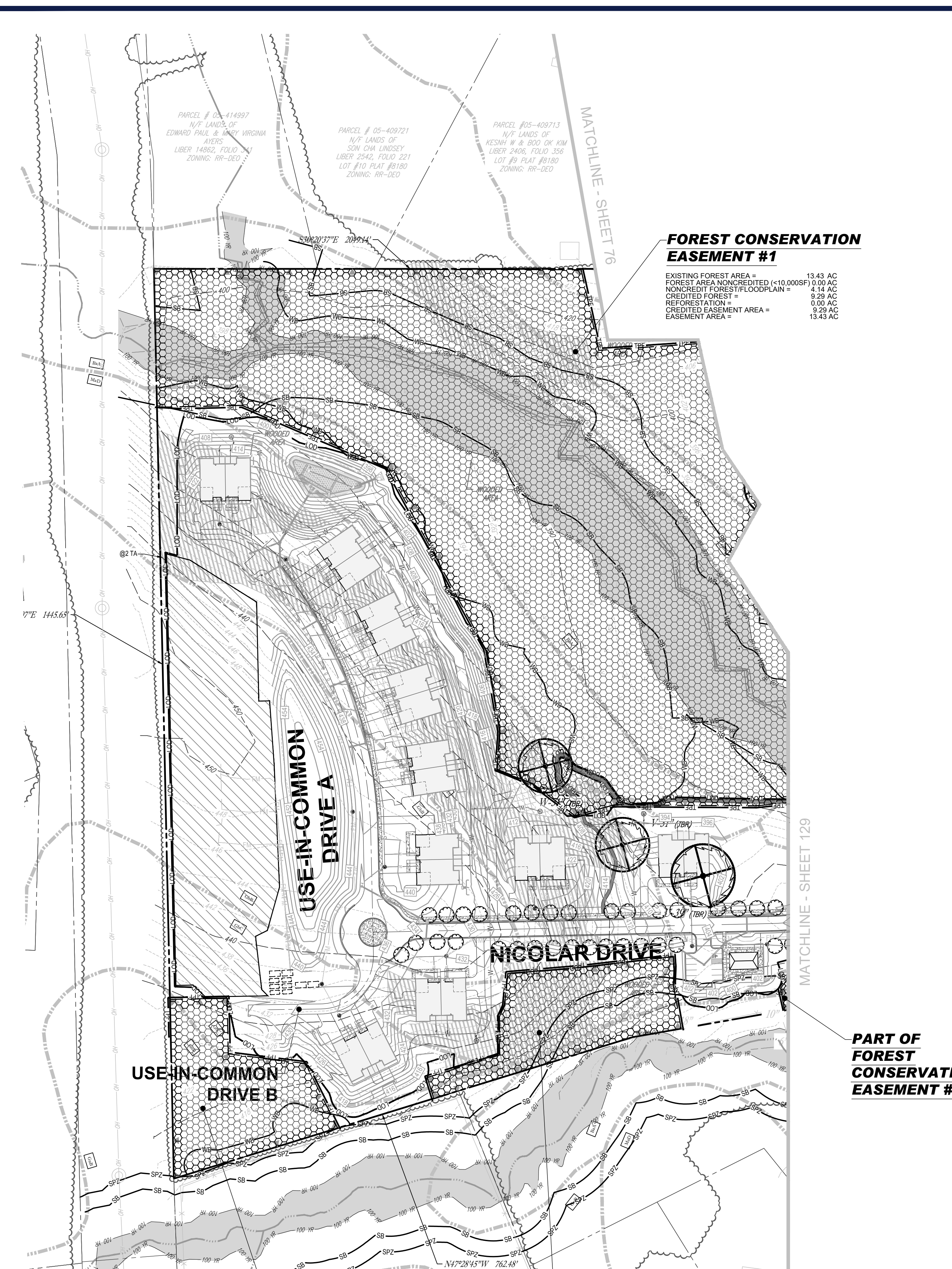
PROJECT No.: MD1420672
 DRAWN BY: MUR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD ID: MD1420672 - PRD - 2C

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS
 (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21284
 Phone: (410) 821-7900
 Fax: (410) 821-7987
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 LICENSE NO. 1732023

ROAD PLAN & PROFILES
 SHEET NUMBER:
127 OF 146
 ORG. DATE - 04/17/24



SITE AREA COMPUTATIONS

GROSS TRACT AREA = 71.10 AC
100 YEAR FLOODPLAIN = 6.87 AC
NET TRACT AREA = 64.22 AC
ZONING = RR-DEO

FORESTED FLOODPLAIN

FOREST = 6.8 AC

FOREST CLEARING

FOREST TO BE CLEARED = 31.19 AC. (INCLUDES 0.5 AC. WITHIN FLOODPLAIN)

FCP NOTES

- 1. ANY FOREST CONSERVATION EASEMENT (FCE) SHOWN HEREON IS SUBJECT TO PROTECTIVE COVENANTS WHICH MAY BE FOUND IN THE LAND RECORDS OF HOWARD COUNTY AND WHICH RESTRICT THE DISTURBANCE AND USE OF THESE AREAS.
- 2. THERE SHALL BE NO CLEARING, GRADING, CONSTRUCTION, OR DISTURBANCE OF VEGETATION AS OUTLINED IN THE FOREST CONSERVATION DEED OF EASEMENT EXCEPT AS PERMITTED BY HOWARD COUNTY.
- 3. NO STOCKPILE, PARKING AREAS, EQUIPMENT CLEANING AREAS, ETC. SHALL OCCUR WITHIN AREAS DESIGNATED IN THE FOREST CONSERVATION EASEMENT.
- 4. PERMANENT SIGNAGE SHALL BE PLACED EVERY 50-100 FEET APART ALONG THE BOUNDARIES OF ALL AREAS INCLUDED IN FOREST CONSERVATION EASEMENTS.

FOREST CONSERVATION EASEMENT #1

EXISTING FOREST AREA = 13.43 AC
FOREST AREA NONCREDITED (<10,000SF) 0.00 AC
NONCREDIT FOREST/FLOODPLAIN = 4.14 AC
CREDITED FOREST = 9.29 AC
REFORESTATION = 0.00 AC
CREDITED EASEMENT AREA = 9.29 AC
EASEMENT AREA = 13.43 AC

FOREST CONSERVATION EASEMENT AREA TABULATION

EASEMENT	GROSS FOREST AREA (AC)	FOREST AREA NONCREDITED (FOR FOREST LESS THAN 10,000 S.F. (AC))	FOREST AREA NONCREDITED (100 YEAR FLOODPLAIN) (AC)	NET FOREST (RETAINED) (CREDITED) (AC)	PLANTED AREA (REFORESTATION) (CREDITED) (AC)	CREDITED EASEMENT AREA (AC)	TOTAL EASEMENT AREA (AC)
FCE #1	13.43	0.00	4.14	9.29	0.00	9.29	13.43
FCE #2	1.04	0.00	0.00	1.04	0.00	1.04	1.04
FCE #3	4.67	0.00	1.80	2.87	0.00	2.87	4.67
FCE #4	0.96	0.00	0.00	0.96	0.00	0.96	0.96
FCE #5	0.35	0.00	0.00	0.35	0.00	0.35	0.35
FCE #6	0.80	0.00	0.52	0.28	0.00	0.28	0.80
TOTAL	21.25	0.00	6.46	14.79	0.00	14.79	21.25

FOREST CONSERVATION NARRATIVE:

THIS FOREST CONSERVATION PLAN PROPOSES THE REMOVAL OF 31.19 ACRES OF FOREST FROM THE PROPOSED LIMIT OF DISTURBANCE. THIS FOREST CLEARING IS UNAVOIDABLE WITH THE SUBDIVISION OF THE PROPERTY. THIS PROJECT IS ZONED RR-DEO WHICH ENCOURAGES A DEVELOPMENT OF THIS DENSITY. THE PROPOSED CLEARING WILL NOT IMPACT HIGH PRIORITY FOREST OR FOREST AREAS.

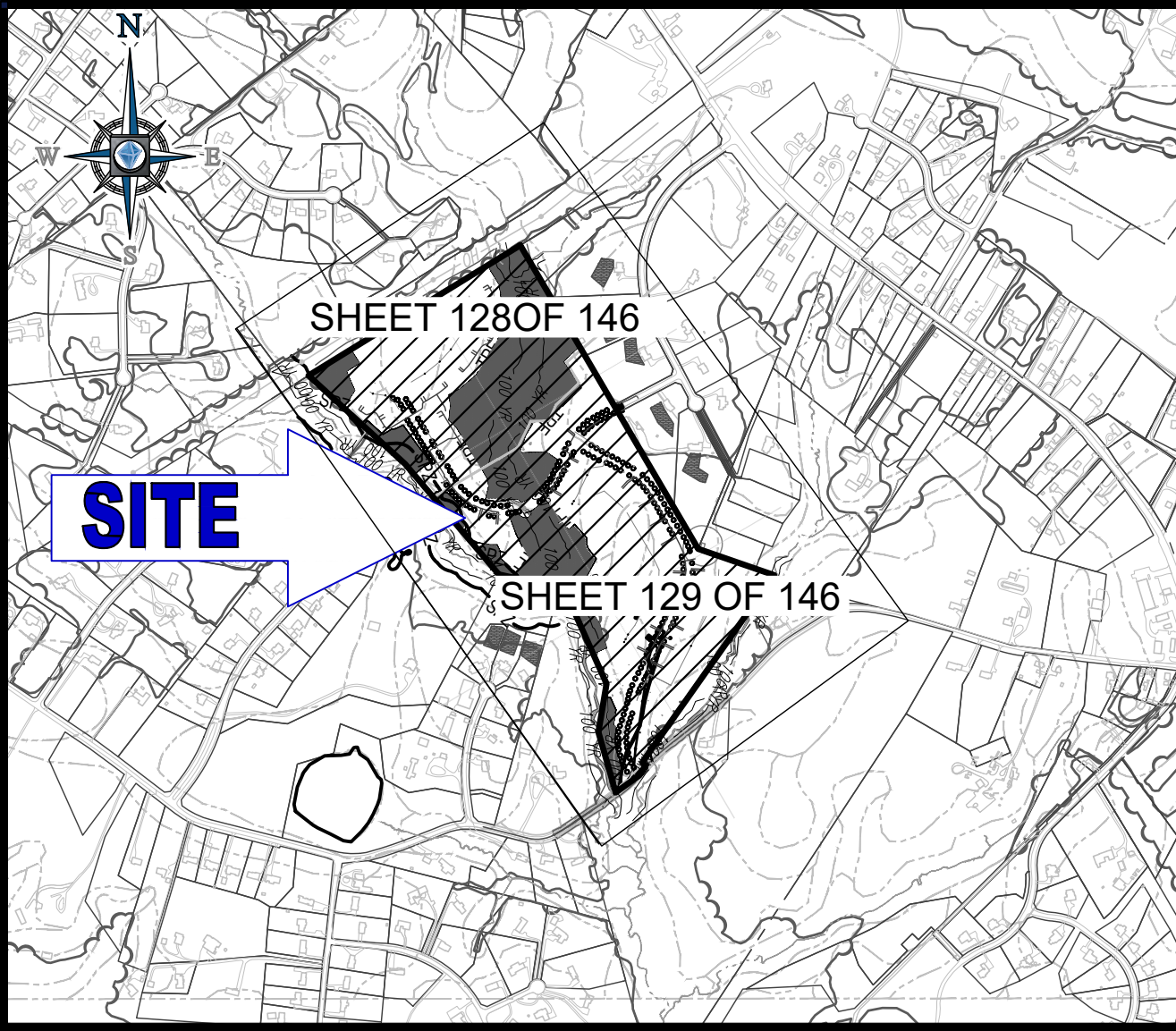
THE PROPOSED RETENTION IS LOCATED WITHIN ENVIRONMENTALLY SENSITIVE AREAS. THIS STAND INCLUDES STEEP SLOPES, STREAM BUFFERS AND MULTIPLE SPECIMEN TREES. FOR THESE REASONS THE FOREST RETENTION AREA IS CONSIDERED THE HIGHEST PRIORITY FOR RETENTION WITHIN THE FOREST STAND DELINEATION.

FOREST CONSERVATION SEQUENCE OF CONSTRUCTION

- 1. PRECONSTRUCTION MEETING SHALL BE HELD BETWEEN DEVELOPER, CONTRACTOR, AND COUNTY INSPECTOR.
- 2. SEDIMENT SHALL BE INSTALLED IN ACCORDANCE WITH GENERAL CONSTRUCTION PLAN FOR SITE. TEMPORARY PROTECTIVE FENCING AND CONSERVATION SIGNAGE SHALL BE INSTALLED AS PER FOREST CONSERVATION PLAN.
- 3. SITE SHALL BE GRADED, INFRASTRUCTURE INSTALLED, AND HOUSES CONSTRUCTED. DISTURBED AREAS SHALL BE STABILIZED. PERMANENT SIGNAGE IN POOR CONDITION SHALL BE REPLACED.
- 4. POST-CONSTRUCTION MEETING SHALL BE HELD WITH COUNTY INSPECTOR TO ENSURE COMPLIANCE WITH DEVELOPMENT PLAN, SEDIMENT CONTROL, AND TEMPORARY PROTECTIVE FENCING UPON STABILIZATION OF SITE AND COMPLETION OF CONSTRUCTION ACTIVITIES.
- 5. CERTIFICATION OF FOREST RETENTION PAPERWORK SHALL BE SUBMITTED TO THE COUNTY.

NOTE:

FOREST CONSERVATION REQUIREMENTS PER SECTION 16.1200 OF THE HOWARD COUNTY CODE AND THE FOREST CONSERVATION MANUAL FOR THIS SUBDIVISION WILL BE FULFILLED BY RETENTION OF EXISTING FOREST IN THE AMOUNT OF 14.71 ACRES. THE REFORESTATION OBLIGATION OF 10.14 ACRES WILL BE PROVIDED BY 20.12 ACRES AT THE SAVAGE PROPERTY FOREST CONSERVATION BANK (F-21-42) AT 2:1 FOR AN OFF-SITE REFORESTATION CREDIT OF 10.08 ACRES AND 0.08 ACRES PROVIDED BY PAYMENT OF FEE-IN-LIEU. THE FEE-IN-LIEU COSTS FOR AFFORESTATION AND REFORESTATION OUTSIDE THE PLANNED SERVICE AREA IS 1.50 PER SQUARE FOOT. THE FEE FOR .08 ACRES (3,485 SQ FT) IS \$5,228.



LOCATION MAP

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PERMIT USE NO. 20602153-5
SCALE: 1"=100'
ADC MAP COORDINATES: 30C/5

10/28/22

FOREST CONSERVATION WORKSHEET

VERSION 1.0
(Enter in Yellow Cells)

NET TRACT AREA:

A. Total tract area.....	71.10
B. Area within 100 year floodplain.....	6.90
C. Area to remain in agricultural production.....	0.00
D. Net tract area.....	64.20

LAND USE CATEGORY: (from table 3.2.1, page 40, Manual)

Input the number "1" under the appropriate land use zoning, and limit to only one entry.

ARA	MDR	IDA	HDR	MPD	CIA
0	1	0	0	0	0

E. Afforestation Threshold.....	20% x D =	12.84
F. Conservation Threshold.....	25% x D =	16.05

EXISTING FOREST COVER:

G. Existing forest cover (excluding floodplain).....	45.90
H. Area of forest above afforestation threshold.....	33.06
I. Area of forest above conservation threshold.....	29.85

BREAK EVEN POINT:

J. Forest retention above threshold with no mitigation.....	22.02
K. Clearing permitted without mitigation.....	23.88

PROPOSED FOREST CLEARING:

L. Total area of forest to be cleared.....	31.19
M. Total area of forest to be retained.....	14.71

PLANTING REQUIREMENTS:

N. Reforestation for clearing above conservation threshold.....	7.46	1.0*
P. Reforestation for clearing below conservation threshold.....	2.68	1.0*
Q. Credit for retention above conservation threshold.....	0.00	
R. Total reforestation required.....	10.14	
S. Total afforestation required.....	0.00	
T. Total reforestation and afforestation required.....	10.14	

NOTES :

- 1. BASED ON MARYLAND DEPARTMENT OF ASSESSMENT & TAXATION, THE PRIMARY STRUCTURE ON THE SUBJECT PROPERTIES WAS BUILT CIRCA 1948.
- 2. THERE ARE NO KNOWN HISTORICAL STRUCTURES ON-SITE.
- 3. THERE ARE NO CHAMPION TREES AND/OR TREES 75% FOR THE SIZE OF ANY CHAMPION TREE.
- 4. THERE ARE NO KNOWN RARE THREATENED AND ENDANGER SPECIES OR THEIR HABITAT ON THIS SITE.

DEVELOPER'S/OWNER'S LANDSCAPE CERTIFICATE

I/WE CERTIFY THAT THE LANDSCAPING SHOWN ON THIS PLAN WILL BE DONE ACCORDING TO THE PLAN, SECTION 16.121 OF THE HOWARD COUNTY CODE AND THE LANDSCAPE MANUAL. I/WE FURTHER CERTIFY THAT UPON COMPLETION A LETTER OF LANDSCAPE INSTALLATION, ACCOMPANIED BY AN EXECUTED ONE-YEAR GUARANTEE OF PLANT MATERIALS, WILL BE SUBMITTED TO THE DEPARTMENT OF PLANNING AND ZONING.

DEVELOPERS / OWNER'S NAME: _____ DATE: 04/12/2024

SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14532/00469 PLAT # 28946-29552	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1046	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6800 DEERPATH ROAD #100 ELKRIDGE, MARYLAND 21075	TAX MAP: 40 GRID: 24 PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE NO.: SF-17-0108 ECP-17-056 WP-18-070	BA-20-002C F-20-016 WP-21-011 WP-22-132	WP-24-060	GRID: 24 PARCEL: 135 ZONED: RR-DEO

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS
7/16/2024
APPROVED DEPARTMENT OF PLANNING AND ZONING
7/16/2024
APPROVED ENVIRONMENTAL ENGINEERING DIVISION
7/16/2024
OFFICE DIVISION OF LAND DEVELOPMENT
7/16/2024

FOREST CONSERVATION EASEMENT #2

EXISTING FOREST AREA = 1.04 AC
FOREST AREA NONCREDITED (<10,000SF) 0.00 AC
NONCREDIT FOREST/FLOODPLAIN = 0.00 AC
CREDITED FOREST = 1.04 AC
REFORESTATION = 0.00 AC
CREDITED EASEMENT AREA = 1.04 AC
EASEMENT AREA = 1.04 AC

FOREST CONSERVATION EASEMENT #4

EXISTING FOREST AREA = 0.96 AC
FOREST AREA NONCREDITED (<10,000SF) 0.00 AC
NONCREDIT FOREST/FLOODPLAIN = 0.00 AC
CREDITED FOREST = 0.96 AC
REFORESTATION = 0.00 AC
CREDITED EASEMENT AREA = 0.96 AC
EASEMENT AREA = 0.96 AC

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REVISIONS

REV	DATE	COMMENT	DRAWN BY

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ALWAYS CALL 811
It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MD1420672
DRAWN BY: MJR
CHECKED BY: MP
DATE: 07/11/2024
CAD ID: MD1420672 - FCE - 2

SITE DEVELOPMENT PLAN
FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)

PROPOSED AGE-RESTRICTED COMMUNITY

12170 LIME KILN ROAD
FULTON
HOWARD COUNTY, MD

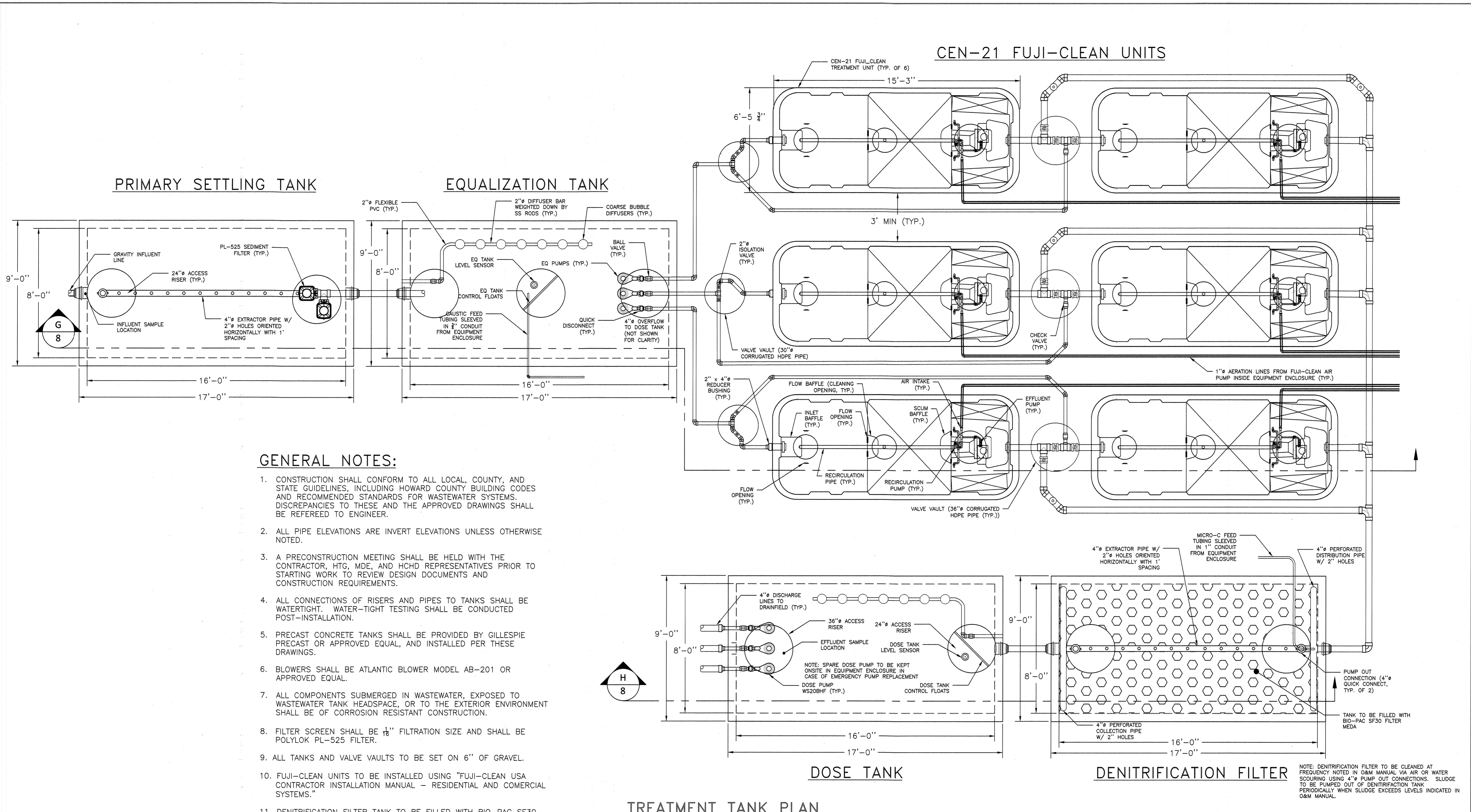
BOHLER
901 DULANEY VALLEY ROAD, SUITE 801
TOWSON, MARYLAND 21284
Phone: (410) 821-7900
Fax: (410) 821-7987
MD@BohlerEng.com

E.R. McWILLIAMS
04/12/2024
REGISTERED LANDSCAPE ARCHITECT
PROFESSIONAL CERTIFICATION
I, E.R. McWILLIAMS, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 9897 EXPIRATION DATE: 9/2024

SHEET TITLE:
FOREST CONSERVATION PLAN

SHEET NUMBER:
128 OF 146

ORG. DATE - 04/17/24



GENERAL NOTES:

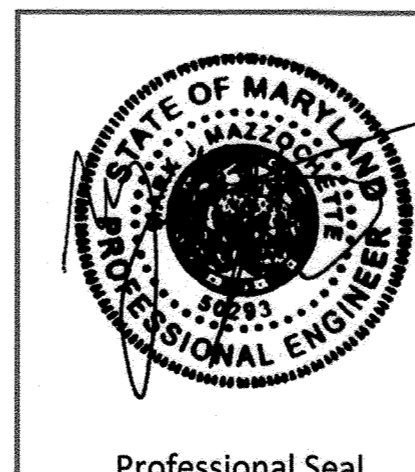
- CONSTRUCTION SHALL CONFORM TO ALL LOCAL, COUNTY, AND STATE GUIDELINES, INCLUDING HOWARD COUNTY BUILDING CODES AND RECOMMENDED STANDARDS FOR WASTEWATER SYSTEMS. DISCREPANCIES TO THESE AND THE APPROVED DRAWINGS SHALL BE REFERRED TO ENGINEER.
- ALL PIPE ELEVATIONS ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
- A PRECONSTRUCTION MEETING SHALL BE HELD WITH THE CONTRACTOR, HTG, MDE, AND HCHD REPRESENTATIVES PRIOR TO STARTING WORK TO REVIEW DESIGN DOCUMENTS AND CONSTRUCTION REQUIREMENTS.
- ALL CONNECTIONS OF RISERS AND PIPES TO TANKS SHALL BE WATERTIGHT. WATER-TIGHT TESTING SHALL BE CONDUCTED POST-INSTALLATION.
- PRECAST CONCRETE TANKS SHALL BE PROVIDED BY GILLESPIE PRECAST OR APPROVED EQUAL, AND INSTALLED PER THESE DRAWINGS.
- BLOWERS SHALL BE ATLANTIC BLOWER MODEL AB-201 OR APPROVED EQUAL.
- ALL COMPONENTS SUBMERGED IN WASTEWATER, EXPOSED TO WASTEWATER TANK HEADSPACE, OR TO THE EXTERIOR ENVIRONMENT SHALL BE OF CORROSION RESISTANT CONSTRUCTION.
- FILTER SCREEN SHALL BE 1/8" FILTRATION SIZE AND SHALL BE POLYLOK PL-525 FILTER.
- ALL TANKS AND VALVE VAULTS TO BE SET ON 6" OF GRAVEL.
- FUJI-CLEAN UNITS TO BE INSTALLED USING "FUJI-CLEAN USA CONTRACTOR INSTALLATION MANUAL - RESIDENTIAL AND COMERCIAL SYSTEMS."
- DENITRIFICATION FILTER TANK TO BE FILLED WITH BIO-PAC SF30 FILTER MEDIA. THIS MEDIA HAS A SURFACE AREA OF 30 FT²/FT³, A 95% VOID RATIO, AND A LOADING/WETTING RATE OF 150 GPD/FT². MEDIA TO BE CLEANED BY ATTACHING BLOWER TO PUMP OUT CONNECTION IN DENITRIFICATION FILTER TANK.
- FLOW THROUGH THE SYSTEM WILL BE MONITORED VOLUMETRICALLY USING DOSE TANK LEVEL INCREASES AND DECREASES DURING FILLING AND PUMPING. THE LEVELS ARE MONITORED EVERY MINUTE USING A PRESSURE TRANSDUCER ACCURATE TO 0.01 INCH, WITH A REMOTE MONITORING SYSTEM (RMS) AND DATA LOGGING.
- THE OPERATOR MUST BE LICENSED FOR CLASS SPECIFIED IN CONSTRUCTION PERMIT.

TREATMENT TANK PLAN

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE 7/16/24
 DIRECTOR

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Howell
 DATE 7/16/2024
 Naomi Howell, Program Manager
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment



Verify Scale
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 If not one inch on this sheet, adjust scales accordingly

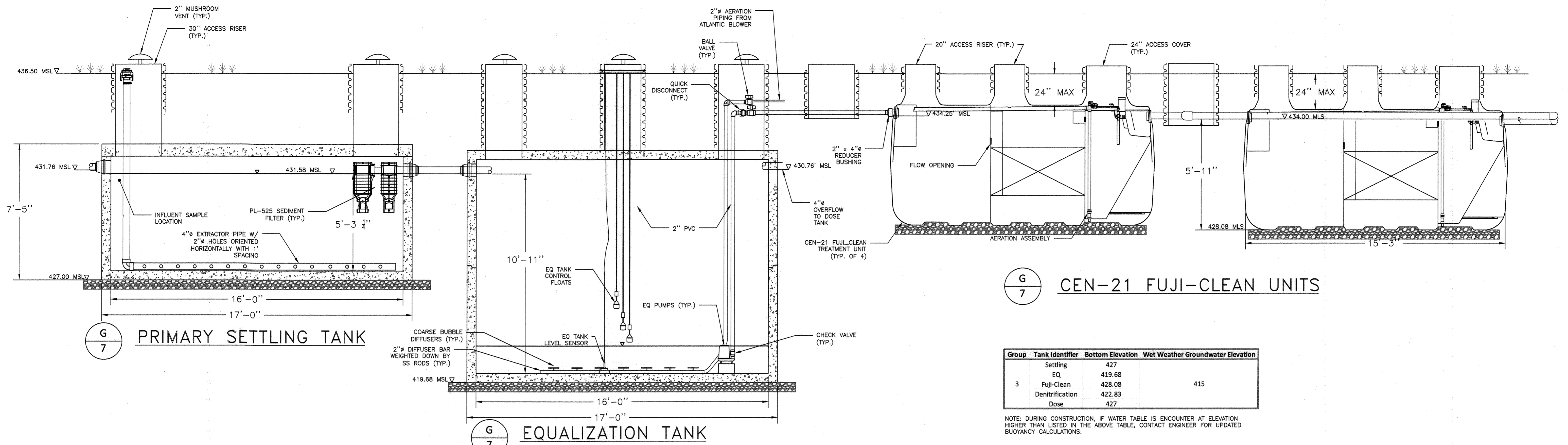
no.	description	date	by	approved

5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

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client: **H&H Rock Companies**
 project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 project: **Lyhus Property**
 title: **Group 3 Treatment Plan**
 file no.: **Treatment System_1.dwg**
 sheet: **112 of 146**

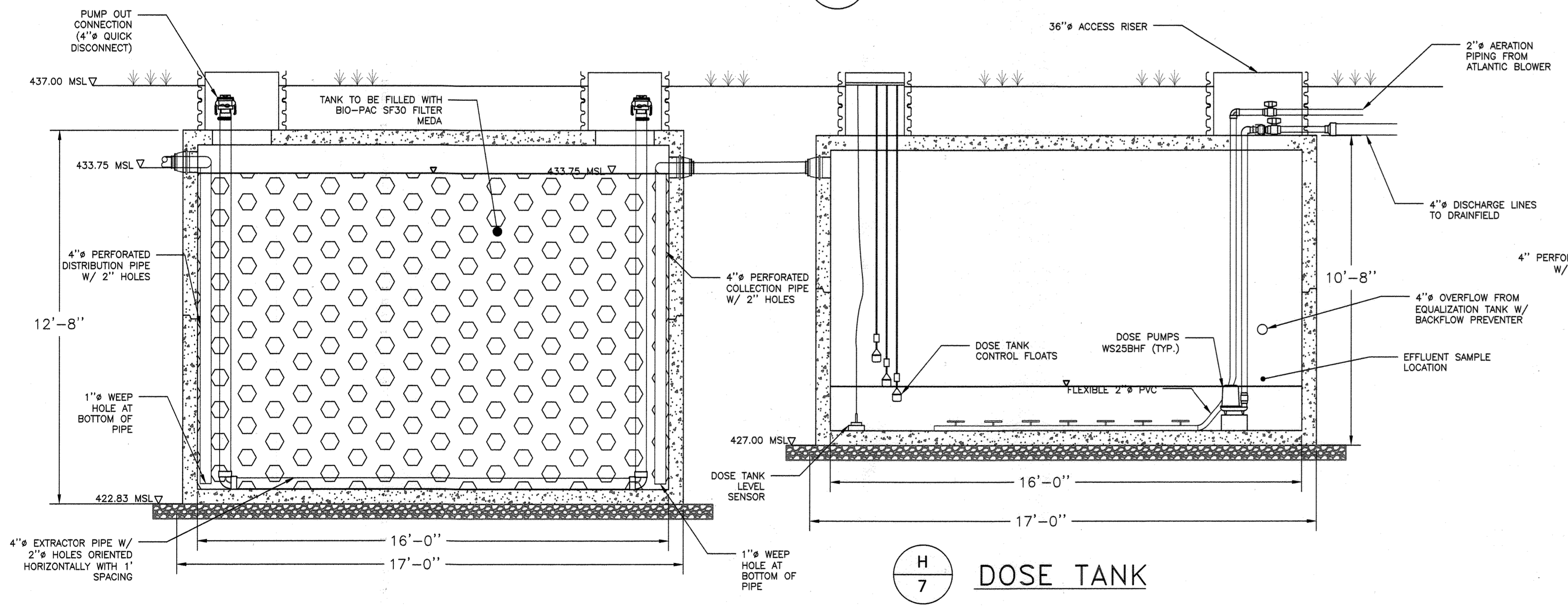
Hydro-Terra GROUP
 www.hydro-terra.com
 (410) 861-5376
 Plotted on: May 24, 2024



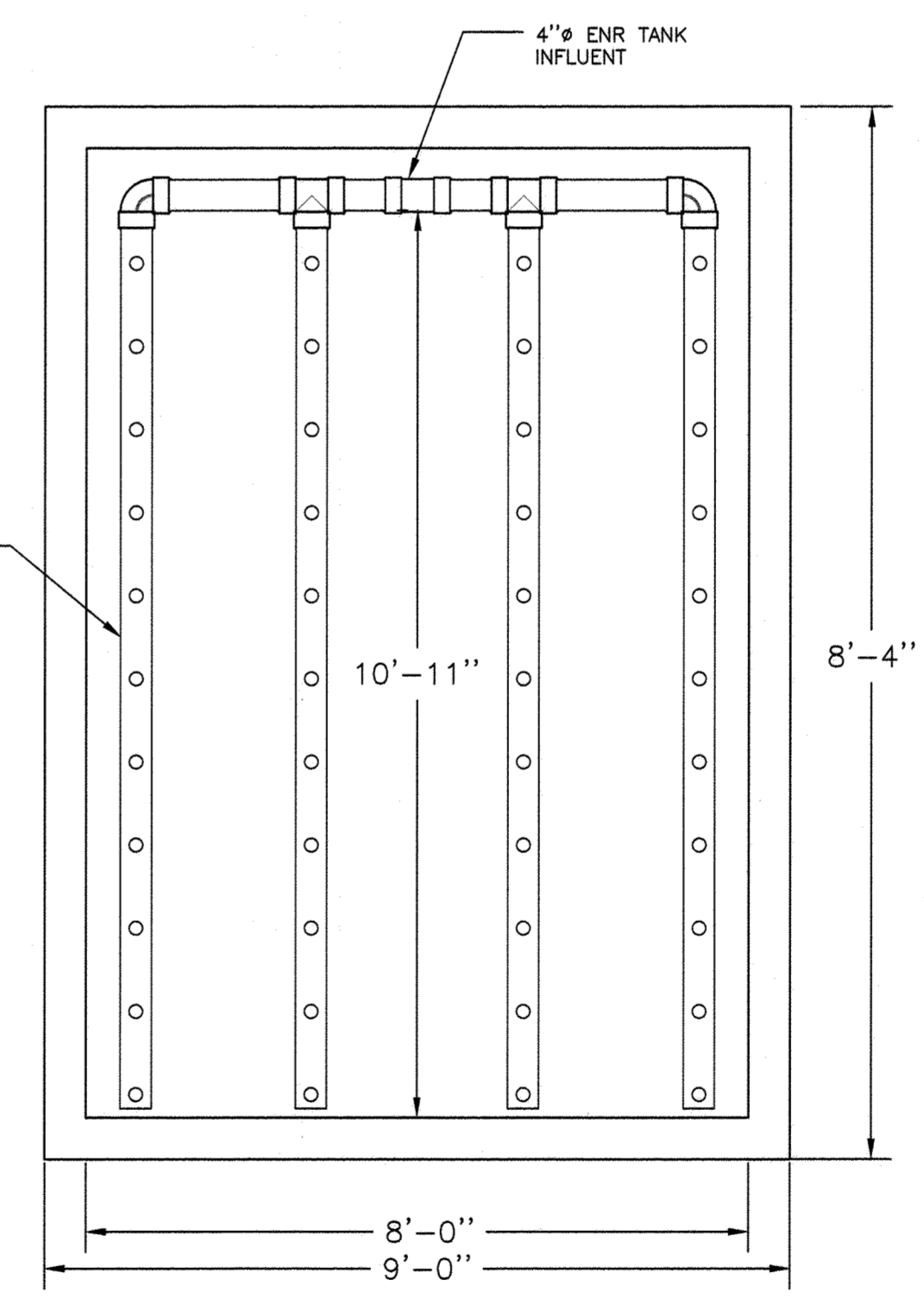
G
7 CEN-21 FUJI-CLEAN UNITS

Group	Tank Identifier	Bottom Elevation	Wet Weather Groundwater Elevation
3	Settling	427	415
	EQ	419.68	
	Fuji-Clean	428.08	
	Denitrification	422.83	
	Dose	427	

NOTE: DURING CONSTRUCTION, IF WATER TABLE IS ENCOUNTER AT ELEVATION HIGHER THAN LISTED IN THE ABOVE TABLE, CONTACT ENGINEER FOR UPDATED BUOYANCY CALCULATIONS.



H
7 DOSE TANK



DENITRIFICATION SECTION VIEW
SCALE: 1/2" = 1'-0"

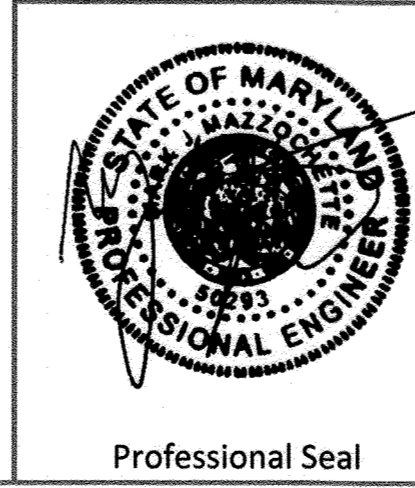
H
7 DENITRIFICATION FILTER

TREATMENT TANK SECTION

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

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT-ENGINEERING DIVISION DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7/16/24
 DIRECTOR DATE 7/16/24

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
 Naomi Howell Program Manager DATE 7/16/2024
 Wastewater Pollution Prevention and Reclamation Program
 Maryland Department of the Environment



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 Bar is one inch on original drawing
 0 1"
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no.	description	date	by	approved
Revisions				

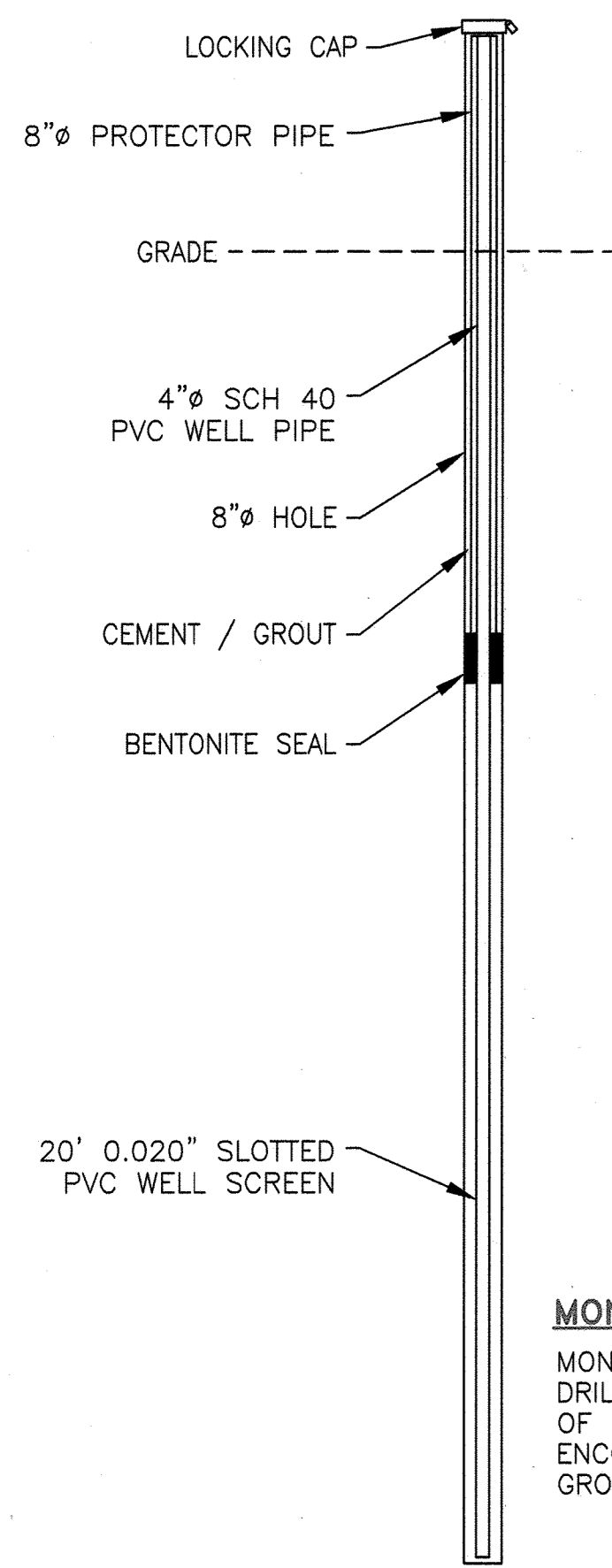
5th ELECTION DISTRICT
 HOWARD COUNTY, MARYLAND
 TAX MAP: 40 GRID: 24 PARCEL: 135

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Client: **H&H Rock Companies**
 Project Location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
 Project: **Lyhus Property**
 Title: **Group 3 Treatment Section**
 File No.: **Treatment System_1.dwg**
 Drawn: **J. Brymmer 5/24/24**
 Checked: **M. Hanfler 5/24/24**
 Approved: **M. Mazzochette 5/24/24**

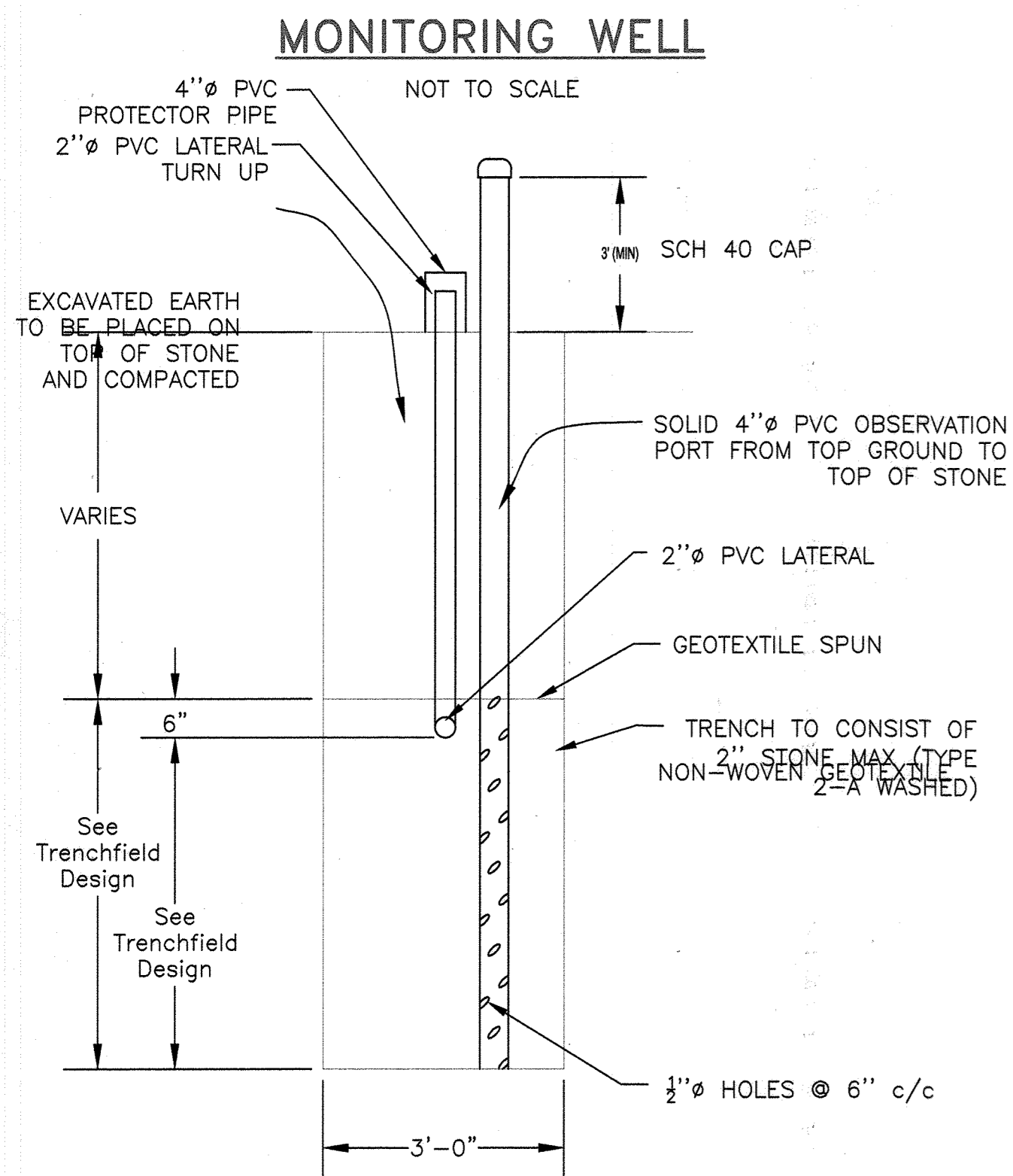
113 of 146
 www.hydro-terra.com
 (410) 861-5376
 Plotted on: May 24, 2024

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. 50293 EXPIRATION DATE IS 12/15/24.



MONITORING WELL NOTE:
MONITORING WELLS SHALL BE DRILLED TO A MINIMUM DEPTH OF 15 FEET BELOW THE FIRST ENCOUNTER WITH GROUNDWATER.

MONITORING WELL

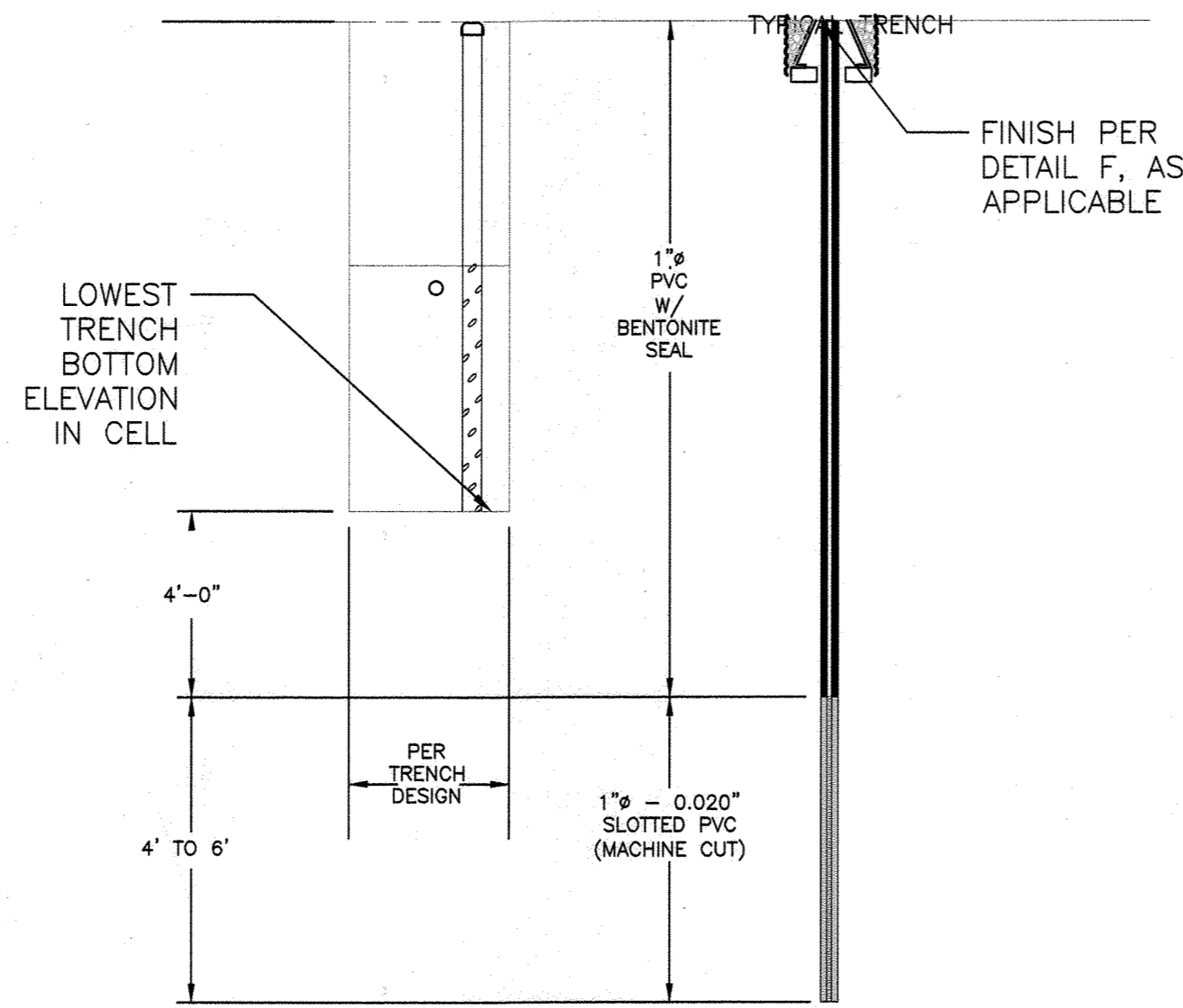


LATERAL AND OBSERVATION PORT SECTION

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Naomi Howell
Naomi Howell, Program Manager
Wastewater Pollution Prevention and Reclamation Program
Maryland Department of the Environment

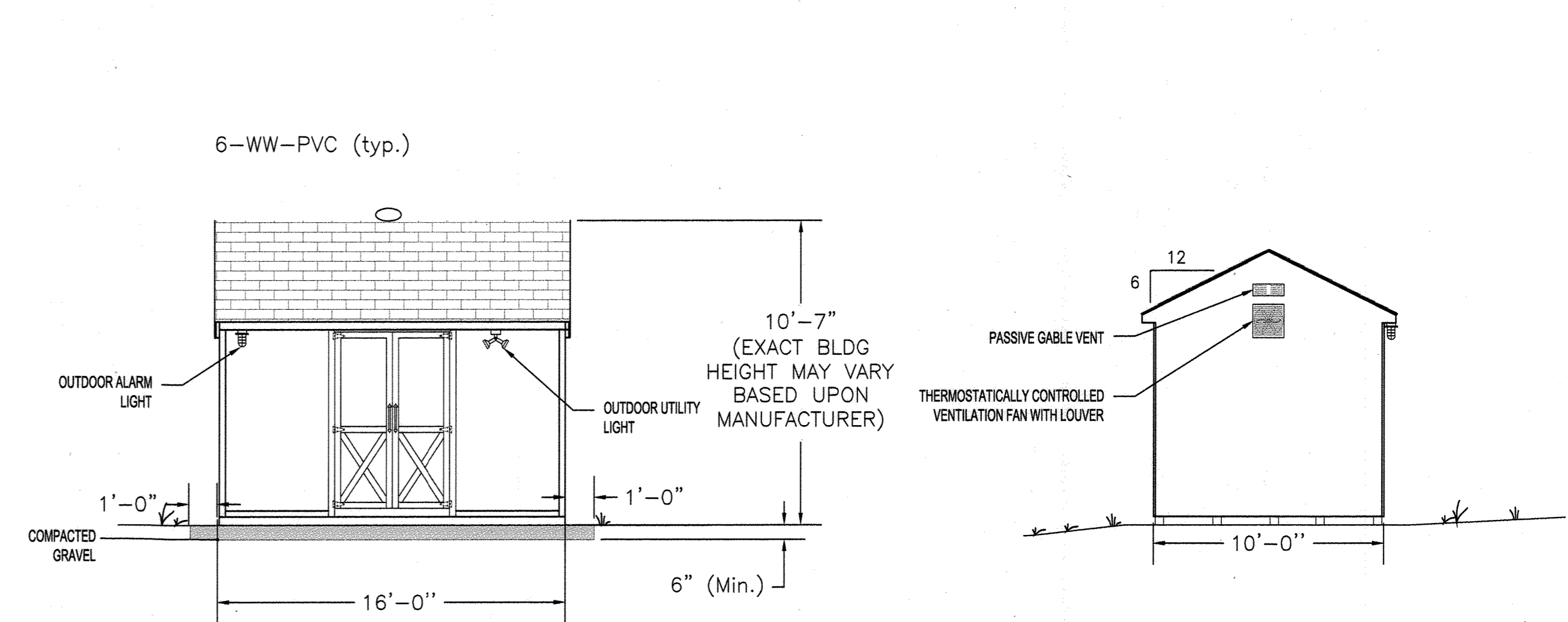
7/16/2024
DATE



PIEZOMETER

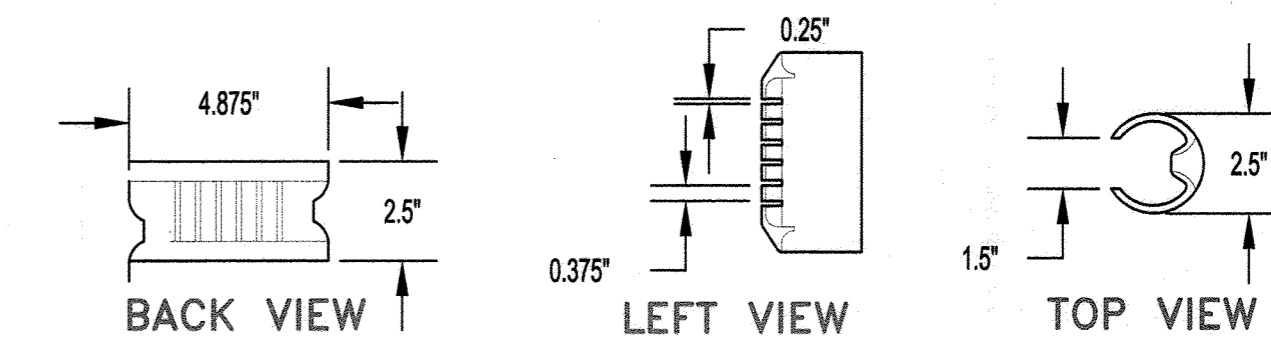
GENERAL NOTES:

- CONSTRUCTION SHALL CONFORM TO ALL LOCAL, COUNTY, AND STATE GUIDELINES INCLUDING HOWARD COUNTY BUILDING CODES AND RECOMMENDED STANDARDS FOR WASTEWATER SYSTEMS. DISCREPANCIES SHALL BE REFERRED TO ENGINEER.
- ALL GRAVITY AND PRESSURE SEWER WILL MEET THE REQUIREMENTS OF VOLUME II & IV OF THE HOWARD COUNTY DESIGN MANUAL.
- CONTRACTOR SHALL NOTIFY MISS UTILITY OF MARYLAND (800-257-7777) AT LEAST 7 DAYS PRIOR TO STARTING WORK.
- SITE MAPPING AND TOPOGRAPHY IS BASED UPON DRAWINGS RECEIVED FROM BOHLER ENGINEERING.
- ALL PIPE ELEVATIONS ARE INVERT ELEVATIONS UNLESS OTHERWISE NOTED.
- ALL TREES, STUMPS, AND ROOTS SHALL BE REMOVED. NO HEAVY TRAFFIC SHALL BE ALLOWED ON SEPTIC RESERVE AREA EXCEPT FOR TRENCH EXCAVATION AND CONSTRUCTION EQUIPMENT. TRACKED EQUIPMENT WHICH DISPERSES VEHICLE LOAD IS PREFERRED.
- A COPY OF THE SEPTIC PERMIT APPROVAL SHALL BE KEPT WITH THE O&M MANUAL. OPERATION AND MAINTENANCE SHALL BE CONDUCTED IN ACCORDANCE WITH THE O&M MANUALS.
- A PRE-CONSTRUCTION MEETING SHALL BE HELD WITH CONTRACTOR, HTG, MDE (410-537-3680), HOWARD COUNTY HEALTH DEPARTMENT AND BUREAU OF UTILITIES & CONSTRUCTION INSPECTIONS REPRESENTATIVES PRIOR TO STARTING WORK TO REVIEW DESIGN DOCUMENTS AND CONSTRUCTION REQUIREMENTS.
- AN OPEN TRENCH INSPECTION SHALL BE CONDUCTED PRIOR TO FILLING WITH GRAVEL.
- SAMPLING OF WASTEWATER (INFLUENT TO AND EFFLUENT FROM THE TREATMENT SYSTEM) AND GROUNDWATER FROM MONITORING WELLS SHALL BE CONDUCTED IN ACCORDANCE WITH THE MDE DISCHARGE PERMIT.
- LOT SALE AGREEMENT(S) SHALL SPECIFICALLY DISALLOW USE OF QUATERNARY AMMONIUM DISINFECTION AND CLEANING PRODUCTS ON THE PREMISES.
- ALL INSPECTION, VIEWING AND PUMP OUT PORTS MUST BE SECURED TO PREVENT ACCIDENTAL OR UNAUTHORIZED ACCESS.
- NO MORE THAN 3' OF FILL SHALL BE PLACED OVER ANY TANK LID.
- ALL TANKS SHALL BE SET UPON 6"-8" OF GRAVEL BEDDING. CONCRETE SHALL BE 5,000 P.S.I.
- MID-SEAM TANKS TO BE WATER TIGHTNESS TESTED PER COUNTY AND STATE GUIDELINES.
- VENT TO BE LOCATED ABOVE FINISHED GRADE TO AVOID INFILTRATION. VENTILATION AREA SHALL BE PROVIDED PER MANUFACTURER'S SPECIFICATION. SECURE WITH STAINLESS STEEL SCREWS.
- ALL VALVES AND QUICK CONNECTS WITHIN PORTS SHALL BE ACCESSIBLE FROM FINISHED GRADE AND SHALL NOT REQUIRE TANK ENTRY FOR SERVICE.
- OBSERVATION PORTS TO BE VOLUME II & IV STANDARD UNLESS OTHERWISE DEPICTED ON PLANS.
- REMOTE MONITORING SYSTEM (RMS) SHALL AUTOMATICALLY NOTIFY THE OPERATOR REMOTELY IN THE EVENT OF A PUMP FAILURE OR HIGH WATER ALARM. REMOTE NOTIFICATION SHALL BE ROUTINELY TESTED AS PART OF REGULAR O&M.
- TRACER WIRE MUST BE INSTALLED ABOVE ALL NON-METALLIC PIPING WITH TEST STATIONS EVERY 300 FEET.
- TREATMENT, CONTROLLING AUTHORITY DETAILS, REQUIREMENTS FROM THE CONTROL AUTHORITY, O&M REQUIREMENTS, AND SAMPLING REQUIREMENTS TO BE INCLUDED IN THE FULLY RADIFIED SHARED FACILITY AGREEMENT.
- HORIZONTAL AND VERTICAL SEPARATION: SEWERS SHALL BE LAID AT LEAST 10 FEET (3M) HORIZONTALLY FROM ANY EXISTING OR PROPOSED WATER MAIN. THE DISTANCE SHALL BE MEASURED EDGE TO EDGE. SEWERS CROSSING WATER MAINS SHALL BE LAID TO PROVIDE A MINIMUM VERTICAL DISTANCE OF 18 INCHES (460 MM) BETWEEN THE OUTSIDE OF THE WATER MAIN AND THE OUTSIDE OF THE SEWER. WHEN IT'S IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL AND VERTICAL SEPARATION AS STIPULATED ABOVE, PLEASE EXPLAIN WHAT CONTROL MEASURES WILL BE TAKEN (PLEASE SEE TEN STATES SECTION 38.3 FOR DETAIL OPTIONS).
- MINIMUM DISTANCE FROM WATER SUPPLY WELLS AND OTHER WATER SUPPLY SOURCES OR STRUCTURES: THE PROPOSED SEWER LINE SHALL SATISFY THE FOLLOWING MINIMUM HORIZONTAL DISTANCE FROM A WATER SUPPLY WELL AND OTHER WATER SUPPLY SOURCES OR STRUCTURES.
 - 100 FEET FROM WELL UTILIZING UNCONFINED AQUIFER, AND SURFACE WATER SUPPLY WITH "P" DESIGNATION.



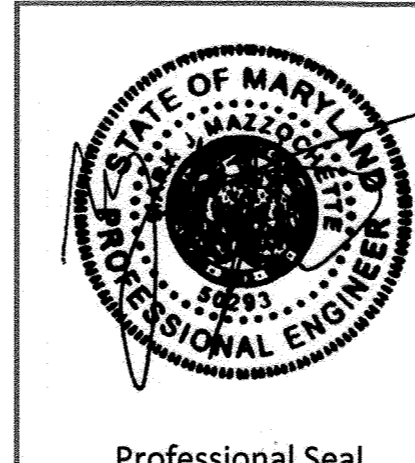
EQUIPMENT ENCLOSURE (SEE SHEET 10 FOR FLOOR PLAN)
NOT TO SCALE

- EQUIPMENT ENCLOSURE TO BE PROVIDED NEAR WASTE WATER TREATMENT SYSTEM WITH CONTROL PANEL MOUNTED INSIDE.
- EQUIPMENT ENCLOSURE TO BE "COTTAGE A-FRAME" STYLE STORAGE BUILDING. VINYL SIDED WITH NOMINAL 7' SIDE WALLS AND NO WINDOWS, WITH ONE DOUBLE DOOR CENTERED ON 12' SIDE OF BUILDING. BUILDING WILL HAVE 10" RIDGE VENT, 4"x4" PRESSURE TREATED SKIDS, 2"x4" FLOOR JOISTS (16" ON CENTER), 5/8" PLYWOOD FLOOR SHEATHING, 2"x4" VENT, ALL WALLS TO BE PLATED AT BOTTOM AND DOUBLE PLATED AT THE TOP, 1/2" ROOF SHEATHING, ARCHITECTURAL SHINGLES, DOORS AND FRAME TO BE REINFORCED, DOOR HINGES MUST BE "T" TYPE OR STRAP TYPE, 3 HINGES PER DOOR SIDE (PIANO HINGES ARE NOT ACCEPTABLE), LOCKS ARE TO BE KEYPED ALIKE WITH BAUER CH751 LOCK.
- A RED ALARM BEACON TO BE MOUNTED ON THE OUTSIDE OF THE BUILDING.
- EQUIPMENT ENCLOSURE TO BE PLACED ON TOP OF 6" (MIN.) COMPACTED STONE.
- GRADING TO BE LEVEL AND COMPACTED PRIOR TO PLACEMENT OF EQUIPMENT ENCLOSURE.
- FIELD PLACEMENT OF PANELS, PIPING, BLOWERS, AND TANKS MUST BE APPROVED BY SITE ENGINEER.
- EQUIPMENT ENCLOSURE WILL HAVE A LOAD CENTER WITH APPROPRIATE CIRCUIT BREAKERS, POWER TO BE PROVIDED TO SERVE ALL EQUIPMENT SPECIFIED HEREIN.
- EQUIPMENT ENCLOSURE TO HAVE AT LEAST 3 DOUBLE-DUPLEX CONVENIENCE OUTLETS, A CEILING LIGHT, OUTDOOR FLOODLIGHTS, AND AN OUTDOOR ALARM LIGHT.
- REMOTE MONITORING SYSTEM (RMS) INSTALLED TO REMOTELY NOTIFY IN THE EVENT OF A PUMP MOTOR FAILURE OR A HIGH WATER ALARM. RMS ALARM SYSTEM TESTING TO BE PART OF REGULAR O&M.
- ADEQUATE VENTILATION SHALL BE PROVIDED FOR SHED TO AVOID EQUIPMENT WEAR DUE TO EXTREME HEAT. (MAX PERMISSIBLE INTERIOR TEMPERATURE IS 104°F).



SIM TECH ORIFICE SHIELD 2"
(STF-106-2.0)
NOT TO SCALE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 7/16/24
CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7/16/24
David Eady DIRECTOR DATE 7/16/24

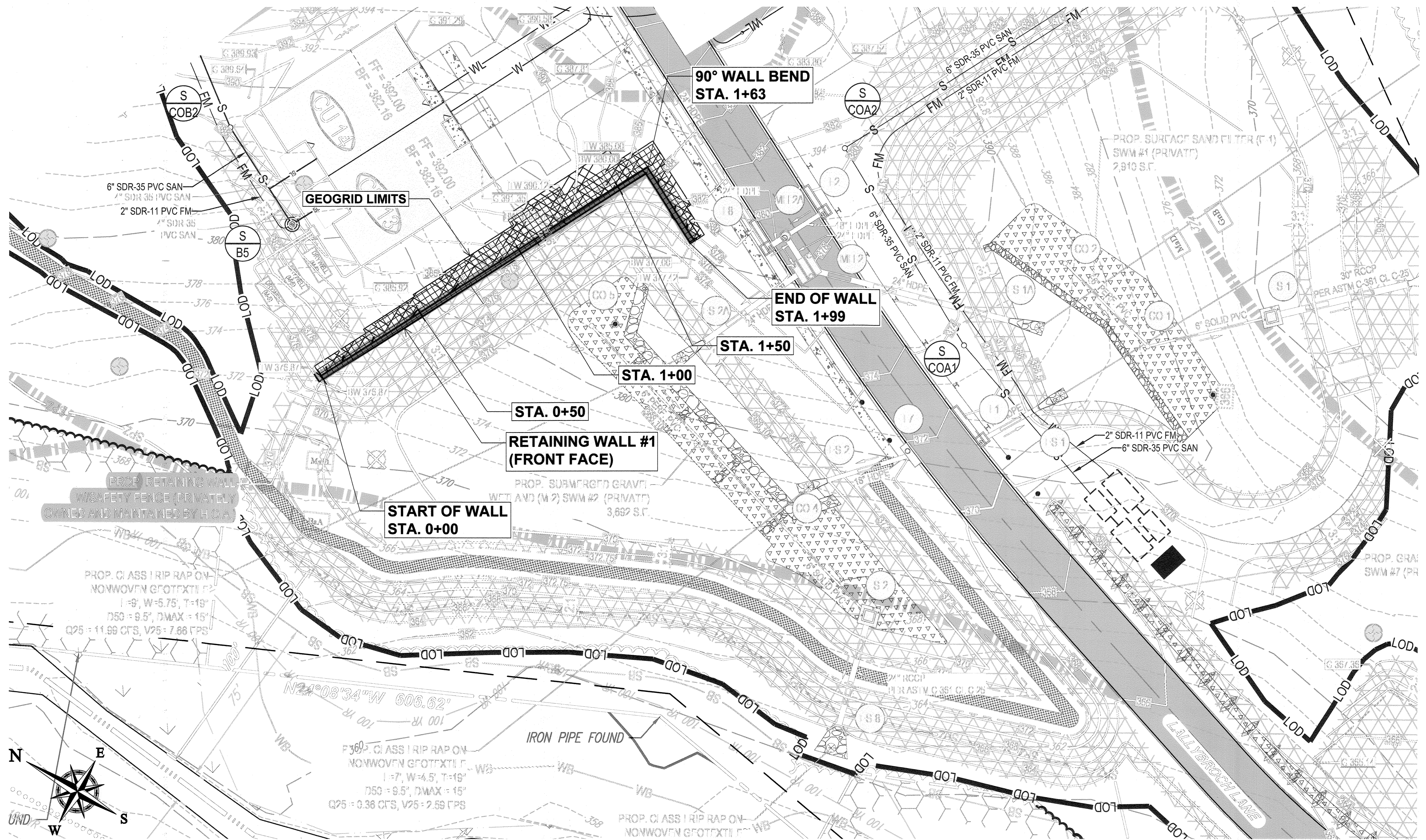


Verify Scale				
Bar is one inch on original drawing	0 1"			
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no.	description	date	by	approved
Revisions				

5th ELECTION DISTRICT
HOWARD COUNTY, MARYLAND
TAX MAP: 40 GRID: 24 PARCEL: 135

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client: **H&H Rock Companies**
project location: **12170 Lime Kiln Road, Fulton, Howard County, MD**
project: **Lyhns Property Drainfield Details**
Hydro-Terra GROUP
115 of 146
www.hydro-terra.com
(410) 861-5376
Plotted on: May 24, 2024



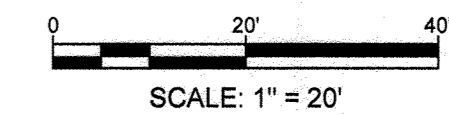
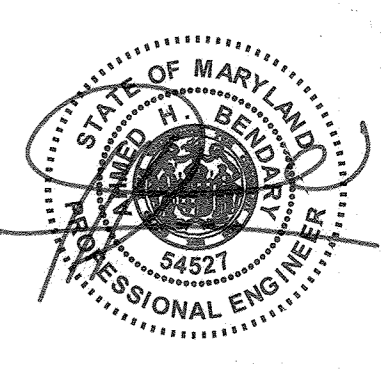
WALL #1 LOCATION PLAN
1" = 20'

SOURCE: PLAN ADAPTED FROM A PREVIOUS PLAN ENTITLED "GRADING, UTILITY STORMWATER MANAGEMENT PLAN" PROJECT "THE HIGHLANDS (FORMERLY LYHUS PROPERTY)" SHEET NUMBER 18 OF 117, PREPARED BY BOHLER ENGINEERING DATED 11/03/22

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7/16/24
Andre Esposito DIRECTOR DATE 7/16/24

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. 54527, EXPIRATION DATE: 08/13/25.

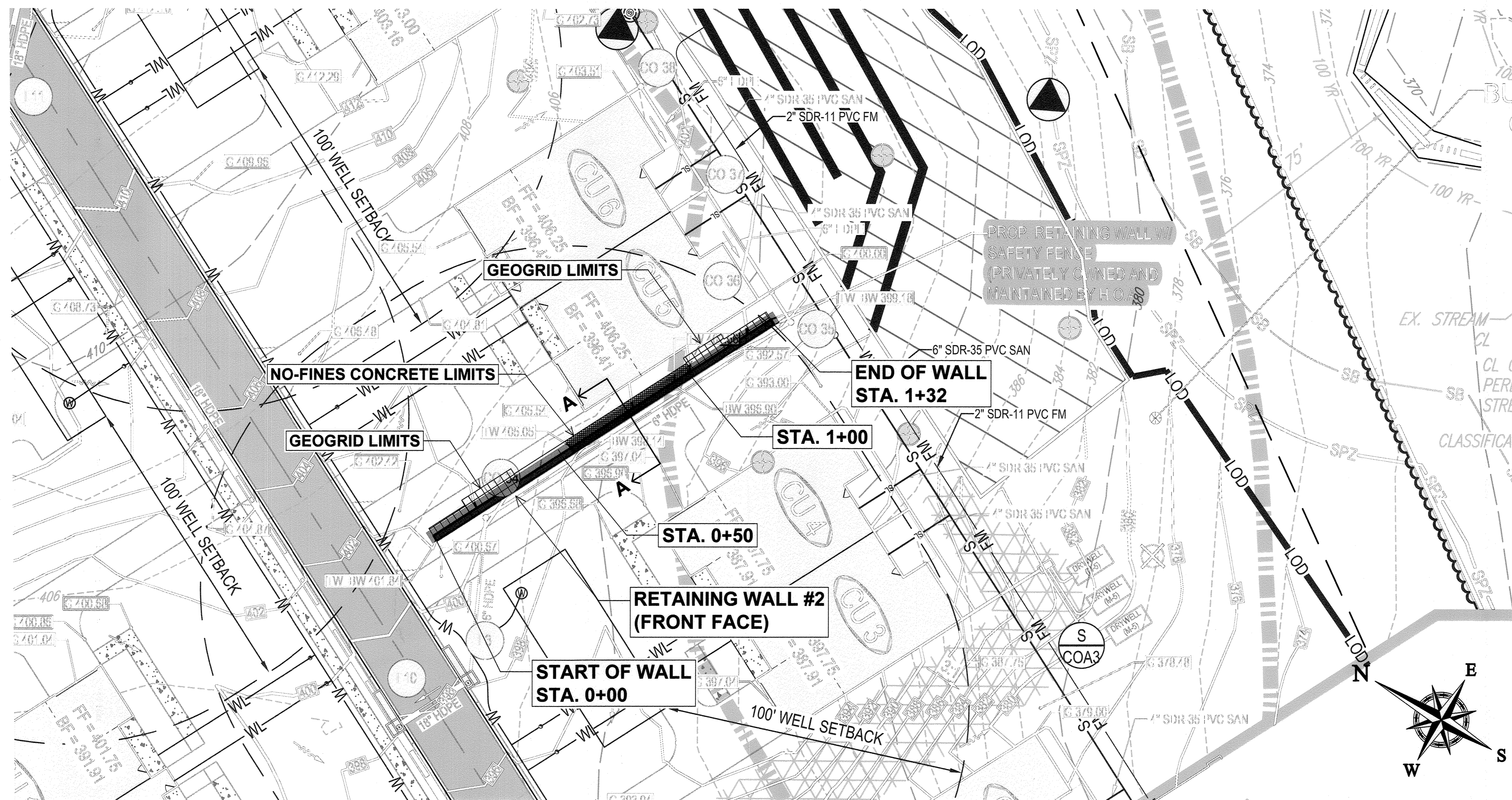


HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 Phone: (410) 880-4788 www.hcae.com Fax: (410) 880-4098

SEGMENTAL RETAINING WALL #1 LOCATION PLAN
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE:	DRAWN BY:
			1" = 20'	JE
			DATE:	APPROVED BY:
			5/31/23	JE

133 OF 146 SHEET

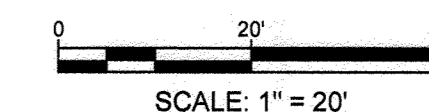


WALL #2 LOCATION PLAN
1" = 20'

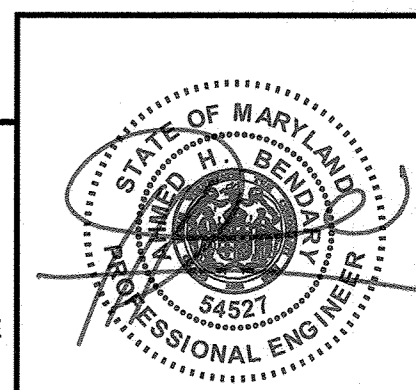
SOURCE: PLAN ADAPTED FROM A PREVIOUS PLAN ENTITLED "GRADING, UTILITY STORMWATER MANAGEMENT PLAN" PROJECT "THE HIGHLANDS (FORMERLY LYHUS PROPERTY)" SHEET NUMBER 19 OF 117, PREPARED BY BOHLER ENGINEERING DATED 11/03/22

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 7/16/24 DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT 7/16/24 DATE
Lynda Eisner 7/16/24 DATE
 DIRECTOR



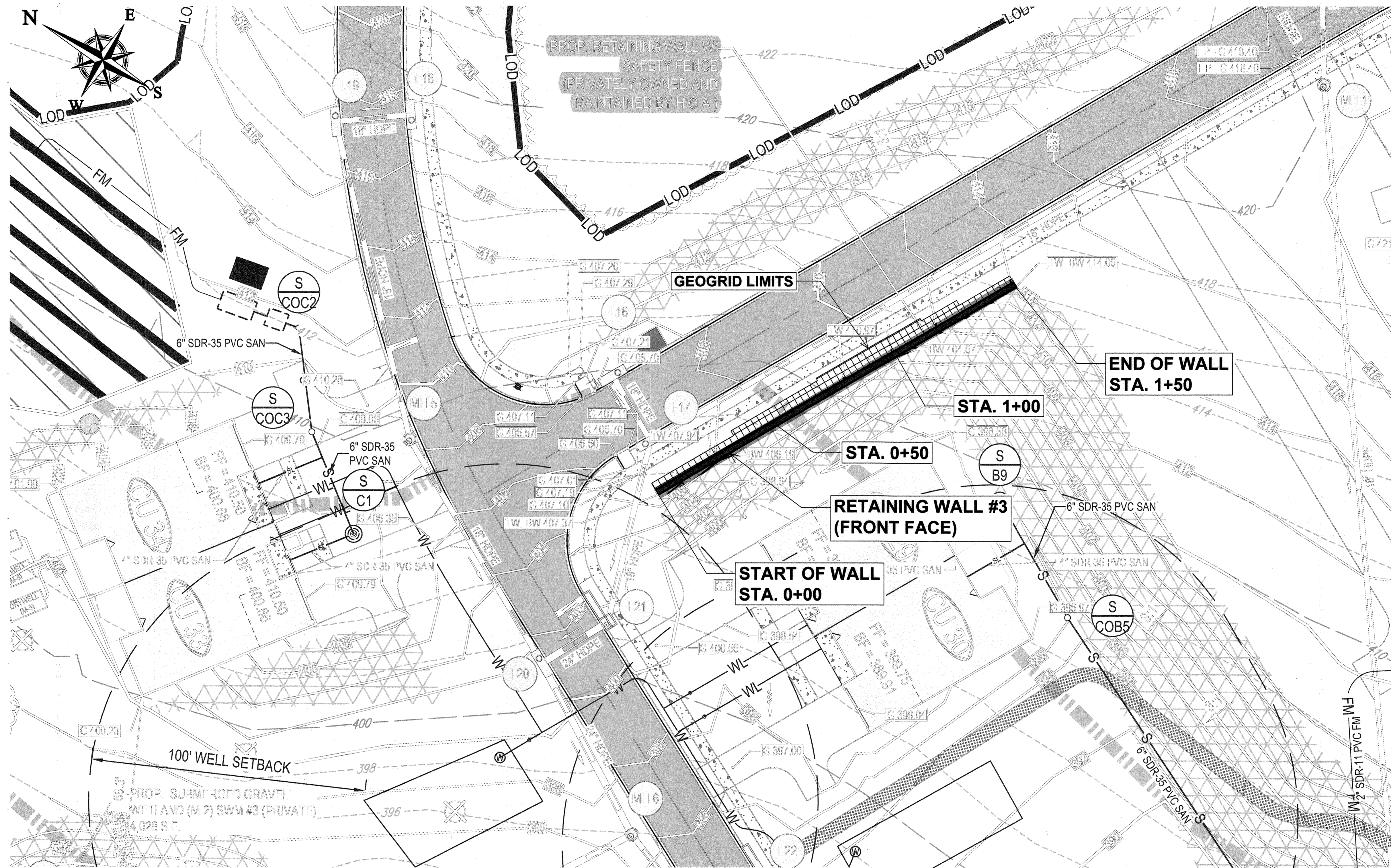
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 54527, EXPIRATION DATE: 06/13/25.



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

SEGMENTAL RETAINING WALL #2 LOCATION PLAN
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:	SCALE:	DRAWN BY:	DATE:	APPROVED BY:	SHEET
			20121A	JE	1" = 20'	JE	5/31/23	HM	134



WALL #3 LOCATION PLAN
1" = 20'

SOURCE: PLAN ADAPTED FROM A PREVIOUS PLAN ENTITLED "GRADING, UTILITY STORMWATER MANAGEMENT PLAN" PROJECT "THE HIGHLANDS (FORMERLY LYHUS PROPERTY)" SHEET NUMBER 20 OF 117, PREPARED BY BOHLER ENGINEERING DATED 11/03/22

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

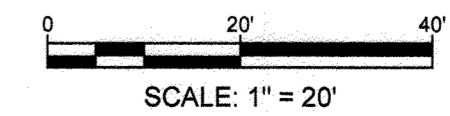
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

7/16/24
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

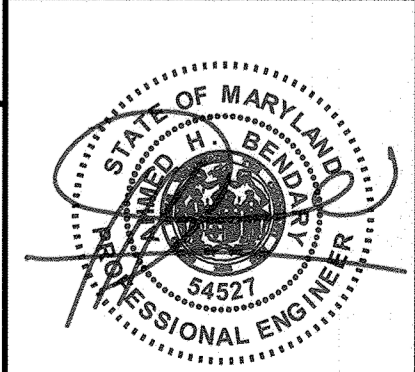
7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

7/14/24
Jane E. Esler
 DIRECTOR 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. 54527, EXPIRATION DATE: 09/13/25.



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 Phone: (410) 880-4788 www.hcae.com Fax: (410) 880-4098

SEGMENTAL RETAINING WALL #3 LOCATION PLAN
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE:	DRAWN BY:
			1" = 20'	JE
			DATE:	APPROVED BY:
			5/31/23	HM

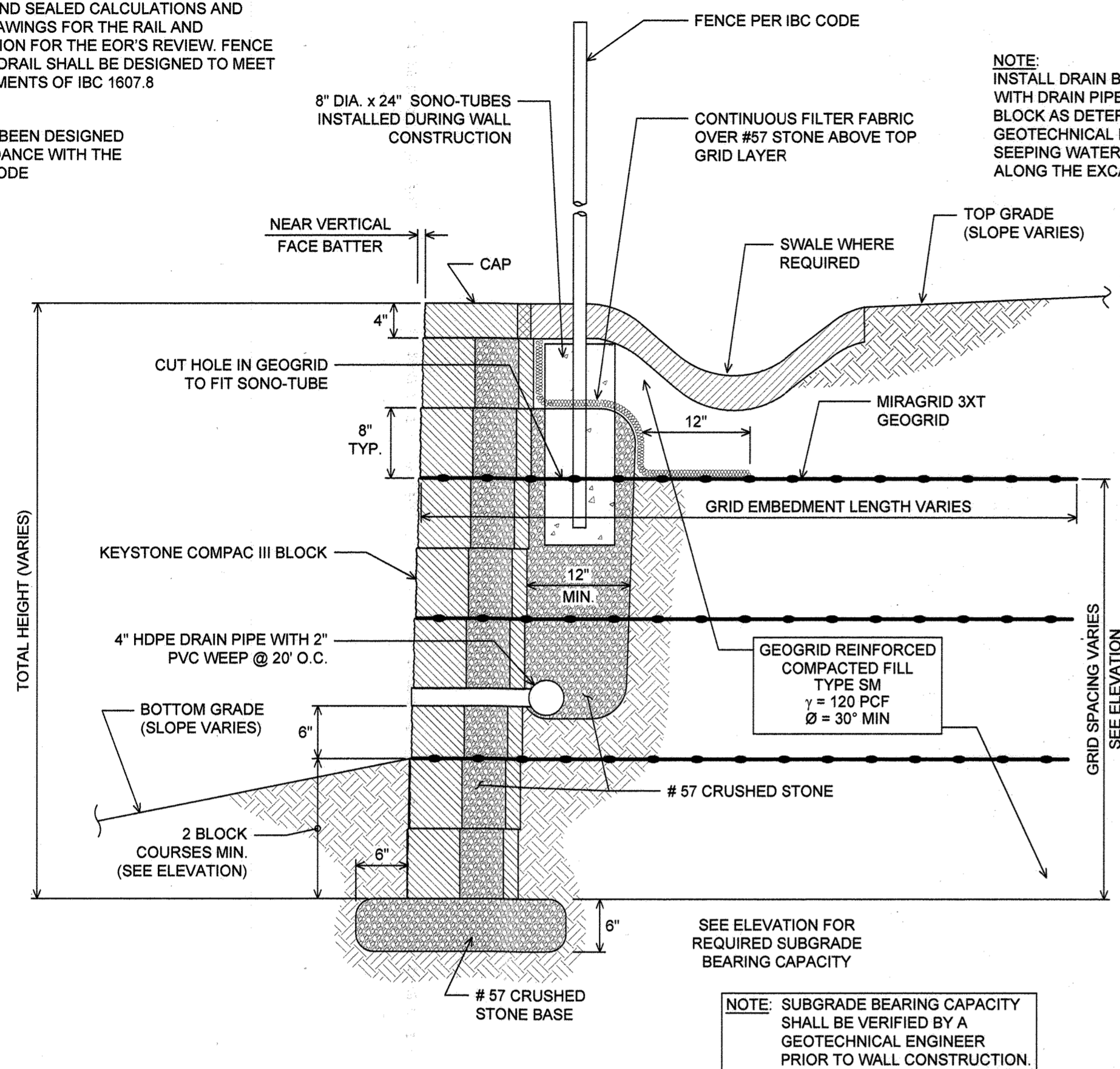
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SHEET

FENCE / GUARDRAIL NOTES:

- FENCE / GUARDRAIL SHALL BE A MIN. 42" ABOVE TOP GRADE AND SHALL NOT ALLOW PASSAGE OF A 4" DIA. SPHERE
- THE FENCE SHALL NOT HAVE AN ORNAMENTAL PATTERN THAT WOULD PROVIDE A LADDER EFFECT
- FENCE / GUARDRAIL AND RAIL FOUNDATION SHALL BE A DELEGATED DESIGN, THE CONTRACTOR'S ENGINEER SHALL SUBMIT SIGNED AND SEALED CALCULATIONS AND SHOP DRAWINGS FOR THE RAIL AND FOUNDATION FOR THE EOR'S REVIEW. FENCE OR GUARDRAIL SHALL BE DESIGNED TO MEET REQUIREMENTS OF IBC 1607.8

NOTE: WALL HAS BEEN DESIGNED IN ACCORDANCE WITH THE 2018 IBC CODE

WALL DESIGN INFORMATION
 Friction Angle = 30 Degrees
 Unit Weight = 120 pcf
 At-rest Earth Pressure = 60 lbs/ft
 Active Earth Pressure = 40 lbs/ft
 Passive Earth Pressure = 360 lbs/ft
 Lateral Earth Pressure Coefficient = 0.50
 Coefficient of sliding = 0.30
 * See geotechnical report by Hillis-Carnes



**TYPICAL WALL SECTION
N.T.S.**

NOTES:

- NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
- RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIV.) CERTIFIED SOILS TECHNICIAN.
- ONE SOIL BORING SHALL BE REQUIRED EVERY ONE HUNDRED FEET ALONG THE ENTIRE LENGTH OF THE WALL. COPIES OF ALL BORING REPORTS SHALL BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO THE START OF CONSTRUCTION.
- THE REQUIRED BEARING PRESSURE BENEATH THE WALL SYSTEM SHALL BE VERIFIED IN THE FIELD BY A CERTIFIED SOILS TECHNICIAN. TESTING DOCUMENTATION MUST BE PROVIDED TO THE HOWARD COUNTY INSPECTOR PRIOR TO START OF CONSTRUCTION. THE REQUIRED BEARING TEST SHALL BE THE DYNAMIC CONE PENETROMETER TEST ASTM STP-399.
- THE SUITABILITY OF FILL MATERIAL SHALL BE CONFIRMED BY THE ON-SITE SOILS TECHNICIAN. EACH 8" LIFT MUST BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY AND THE TESTING REPORT SHALL BE MADE AVAILABLE TO THE HOWARD COUNTY INSPECTOR UPON COMPLETION OF CONSTRUCTION.
- WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
- WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD CO. RIGHT-OF-WAY OR EASEMENT.

SEGMENTAL CONCRETE BLOCK RETAINING WALL

PART 1: GENERAL

1.01 DESCRIPTION

- WORK SHALL CONSIST OF FURNISHING AND CONSTRUCTION OF A SEGMENTAL RETAINING WALL SYSTEM IN ACCORDANCE WITH THESE SPECIFICATIONS AND IN REASONABLY CLOSE CONFORMITY WITH THE LINES, GRADES, DESIGN, AND DIMENSIONS SHOWN ON THE PLANS.
- WORK INCLUDES PREPARING FOUNDATION SOIL, FURNISHING AND INSTALLING LEVELING PAD, UNIT FACING SYSTEM, UNIT DRAINAGE FILL AND REINFORCED BACKFILL TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS.
- WORK INCLUDES FURNISHING AND INSTALLING GEOGRID SOIL REINFORCEMENT OF THE TYPE, SIZE, LOCATION, AND LENGTHS DESIGNATED ON THE CONSTRUCTION DRAWINGS.

1.02 DELIVERY, STORAGE AND HANDLING

- CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.
- CONTRACTOR SHALL PROTECT ALL MATERIALS FROM DAMAGE DUE TO JOB SITE CONDITIONS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMAGED MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK.

PART 2: PRODUCTS

2.01 SEGMENTAL CONCRETE RETAINING WALL UNITS

- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING ARCHITECTURAL REQUIREMENTS:

FACE COLOR - COLOR MAY BE SPECIFIED BY THE OWNER.
 FACE FINISH - HARD SPLIT IN ANGULAR TRI-PLANE OR STRAIGHT FACE CONFIGURATION. OTHER FACE FINISHES WILL NOT BE ALLOWED WITHOUT WRITTEN APPROVAL OF OWNER.

BOND CONFIGURATION - RUNNING WITH BONDS NOMINALLY LOCATED AT MIDPOINT IN VERTICALLY ADJACENT UNITS, IN BOTH STRAIGHT AND CURVED ALIGNMENTS.
 EXPOSED SURFACES OF UNITS SHALL BE FREE OF CHIPS, CRACKS OR OTHER IMPERFECTIONS WHEN VIEWED FROM A DISTANCE OF 20 FEET UNDER DIFFUSED LIGHTING.

- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE FOLLOWING STRUCTURAL AND GEOMETRIC REQUIREMENTS MEASURED IN ACCORDANCE WITH ASTM C140 SAMPLING & TESTING CONCRETE MASONRY UNITS.

COMPRESSIVE STRENGTH = 3000 PSI MINIMUM;
 ABSORPTION = 8% MAXIMUM (6% MAXIMUM IN NORTHERN STATES) FOR STANDARD WEIGHT AGGREGATES.

DIMENSIONAL TOLERANCES = ±1/8" FROM NOMINAL UNIT DIMENSIONS NOT INCLUDING ROUGH SPLIT FACE ±1/8" FROM NOMINAL UNIT HEIGHT; UNIT SIZE - 8" (H) X 18" (W) X 12" (D) MINIMUM FOR COMPAC III UNITS; UNIT SIZE - 8" (H) X 18" (W) X 18" (D) MINIMUM FOR STANDARD UNITS.]

INTER-UNIT SHEAR STRENGTH - 1000 PLF MINIMUM AT 2 PSI NORMAL PRESSURE; AT 2 PSI NORMAL FORCE.

[GEOGRID/UNIT PEAK CONNECTION STRENGTH - 1000 PLF MINIMUM.]

- SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE

FOLLOWING CONSTRUCTABILITY REQUIREMENTS:

VERTICAL SETBACK = 1/8"± PER COURSE (NEAR VERTICAL) OR 1/4"± PER COURSE PER TYPICAL WALL SECTION; ALIGNMENT AND GRID ATTACHING MECHANISM - FIBERGLASS PINS, TWO PER UNIT MINIMUM; MAXIMUM HORIZONTAL GAP BETWEEN ERECTED UNITS SHALL BE 1/2 INCH.

2.02 SHEAR AND REINFORCEMENT PIN CONNECTORS

- SHEAR AND REINFORCEMENT PIN CONNECTORS SHALL BE 1/2 INCH DIAMETER THERMOSET ISOPHTHALIC POLYESTER RESIN PULTRUDED FIBERGLASS REINFORCEMENT RODS OR EQUIVALENT TO PROVIDE CONNECTION BETWEEN VERTICALLY AND HORIZONTALLY ADJACENT UNITS AND GEOSYNTHETIC REINFORCEMENT WITH THE FOLLOWING REQUIREMENTS: FLEXURAL STRENGTH IN ACCORDANCE WITH ASTM D4476; 125,000 PSI MINIMUM; SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4476; 6,400 PSI MINIMUM.

- SHEAR CONNECTORS SHALL BE CAPABLE OF HOLDING THE GEOGRID IN THE PROPER DESIGN POSITION DURING GRID PRE-TENSIONING AND BACKFILLING.

2.03 BASE LEVELING PAD MATERIAL

- MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE OR CONCRETE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

2.04 UNIT DRAINAGE FILL

- UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE.

2.05 REINFORCED BACKFILL

- REINFORCED BACKFILL SHALL BE TYPE SM, FREE OF DEBRIS AND MEET THE FOLLOWING GRADATION TESTED IN ACCORDANCE WITH ASTM D422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

SIEVE SIZE	PERCENT PASSING
1 1/2 INCH	100
3/4 INCH	100-75
NO. 40	0-60
NO. 200	0-35

PLASTICITY INDEX (PI) <15 AND LIQUID LIMIT <40, PER ASTM D4318.

- MATERIAL CAN BE SITE EXCAVATED SOILS WHERE THE ABOVE REQUIREMENTS CAN BE MET. UNSUITABLE SOILS FOR BACKFILL (HIGHLY PLASTIC CLAYS OR ORGANIC SOILS) SHALL NOT BE USED IN THE REINFORCED SOIL MASS.

- CONTRACTOR SHALL SUBMIT REINFORCED FILL SAMPLE AND LABORATORY TEST RESULTS FOR APPROVAL PRIOR TO THE USE OF ANY REINFORCED BACKFILL MATERIAL.

2.06 GEOGRID SOIL REINFORCEMENT

- GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER (PET) YARN.

2.07 DRAINAGE PIPE

- THE DRAINAGE PIPE SHALL BE PERFORATED CORRUGATED HDPE PIPE MANUFACTURED IN ACCORDANCE WITH ASTM D1248.

2.08 GEOTEXTILE FILTER FABRIC

- WHEN REQUIRED, FILTER FABRIC SHALL BE A

NEEDLE-PUNCHED NONWOVEN FABRIC MEETING REQUIREMENTS OF AASHTO M288.

PART 3 EXECUTION

3.01 EXCAVATION

- CONTRACTOR SHALL EXCAVATE TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS. OWNER'S REPRESENTATIVE SHALL BE RESPONSIBLE FOR INSPECTING AND APPROVING THE SUBGRADE PRIOR TO PLACEMENT OF LEVELING MATERIAL OR FILL SOILS.
- RETAINING WALL EXCAVATIONS SHALL BE PERFORMED IN COMPLIANCE WITH MOSH AND OSHA REQUIREMENTS. CARE SHALL BE EXERCISED TO PROPERLY SHORE OR SLOPE BACK EXCAVATIONS TO MAINTAIN STABILITY. IF SLOPE FLATTENING IS NOT ACHIEVABLE, TEMPORARY SUPPORT OF EXCAVATION FOR THE RETAINING WALL CONSTRUCTION SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR AND PERFORMED IN ACCORDANCE WITH ANY JURISDICTIONAL SAFETY STANDARDS.

3.02 BASE LEVELING PAD

- LEVELING PAD MATERIAL SHALL BE PLACED TO THE LINES AND GRADES SHOWN ON THE CONSTRUCTION DRAWINGS, TO A MINIMUM THICKNESS OF 6 INCHES AND EXTEND LATERALLY A MINIMUM OF 6" IN FRONT AND BEHIND THE SEGMENTAL WALL UNIT.

- LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

- COMPACT TO MINIMUM 95% OF STANDARD PROCTOR DENSITY PER ASTM D988.

3.03 SEGMENTAL UNIT INSTALLATION

- FIRST COURSE OF UNITS SHALL BE PLACED ON THE LEVELING PAD AT THE APPROPRIATE LINE AND GRADE. ALIGNMENT AND LEVEL SHALL BE CHECKED IN ALL DIRECTIONS AND INSURE THAT ALL UNITS ARE IN FULL CONTACT WITH THE BASE AND PROPERLY SEATED.

- PLACE THE FRONT OF UNITS SIDE-BY-SIDE. DO NOT LEAVE GAPS BETWEEN ADJACENT UNITS. LAYOUT OF CORNERS AND CURVES SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

- INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

- PLACE AND COMPACT DRAINAGE FILL WITHIN AND BEHIND WALL UNITS. NOT LESS THAN 1.3 CU. FT. OF DRAINAGE FILL SHALL BE USED FOR EACH SQ. FT. OF WALL FACE, UNLESS NOTED OTHERWISE.

- PLACE AND COMPACT REINFORCED BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH BACKFILL.

- MAXIMUM STACKED VERTICAL HEIGHT OF WALL UNITS, PRIOR TO UNIT DRAINAGE FILL AND BACKFILL PLACEMENT AND COMPACTION, SHALL NOT EXCEED TWO COURSES.

3.04 STRUCTURAL GEOGRID INSTALLATION

- GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

- GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.

- THE GEOGRID SHALL BE LAID HORIZONTALLY ON COMPACTED BACKFILL AND ATTACHED TO THE SEGMENTAL WALL UNIT PINS AND WITHIN 1 INCH OF THE FACE OF THE UNITS. PLACE THE NEXT COURSE OF SEGMENTAL CONCRETE UNITS OVER THE GEOGRID. THE

GEOGRID SHALL BE PULLED TAUT, AND ANCHORED PRIOR TO BACKFILL PLACEMENT ON THE GEOGRID.

- GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS GREATER THAN 2 INCHES BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

3.06 REINFORCED BACKFILL PLACEMENT

- REINFORCED BACKFILL SHALL BE PLACED, SPREAD, AND COMPACTED IN SUCH A MANNER THAT MINIMIZES THE DEVELOPMENT OF SLACK IN THE GEOGRID AND INSTALLATION DAMAGE TO GEOGRID.

- REINFORCED BACKFILL SHALL BE PLACED AND COMPACTED IN LIFTS NOT TO EXCEED 6 INCHES WHERE HAND OPERATED COMPACTION EQUIPMENT IS USED, OR 8 - 10 INCHES WHERE HEAVY COMPACTION EQUIPMENT IS USED. LIFT THICKNESS SHALL BE DECREASED TO ACHIEVE THE REQUIRED DENSITY AS REQUIRED.

- REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D998. THE MOISTURE CONTENT OF THE BACKFILL MATERIAL PRIOR TO AND DURING COMPACTION SHALL BE UNIFORMLY DISTRIBUTED THROUGHOUT EACH LAYER AND SHALL BE + 0% TO - 3% OF OPTIMUM.

- ONLY LIGHTWEIGHT HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE BACK OF THE SEGMENTAL CONCRETE UNIT.

- TRACKED CONSTRUCTION EQUIPMENT SHALL NOT BE OPERATED DIRECTLY UPON THE GEOGRID REINFORCEMENT. A MINIMUM FILL THICKNESS OF 6 INCHES IS REQUIRED PRIOR TO OPERATION OF TRACKED VEHICLES OVER THE GEOGRID. TRACKED VEHICLE TURNING SHOULD BE KEPT TO A MINIMUM TO PREVENT TRACKS FROM DISPLACING THE FILL AND DAMAGING OR DISPLACING THE SEGMENTAL CONCRETE UNITS OR GEOGRID.

- RUBBER Tired EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND TURNING SHALL BE AVOIDED.

- AT THE END OF EACH DAY'S OPERATION, THE CONTRACTOR SHALL SLOPE THE LAST LIFT OF REINFORCED BACKFILL AWAY FROM THE WALL UNITS TO DIRECT RUNOFF AWAY FROM WALL FACE. THE CONTRACTOR SHALL NOT ALLOW SURFACE RUNOFF FROM ADJACENT AREAS TO ENTER THE WALL CONSTRUCTION SITE.

3.06 CAP INSTALLATION

- PRIOR TO PLACEMENT OF CAP UNITS, THE UPPER SURFACE OF THE TOP COURSE WALL UNITS SHALL BE CLEANED OF SOIL AND ANY OTHER MATERIAL.

- CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER EXTERIOR CONSTRUCTION ADHESIVE RECOMMENDED BY THE MANUFACTURER.

3.07 FIELD QUALITY CONTROL

- THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.

- AS A MINIMUM, QUALITY ASSURANCE TESTING SHOULD INCLUDE FOUNDATION SOIL INSPECTION, RETAINED SOIL AND BACKFILL TESTING, VERIFICATION OF DESIGN PARAMETERS, AND OBSERVATION OF CONSTRUCTION FOR GENERAL COMPLIANCE WITH DESIGN DRAWINGS AND SPECIFICATIONS.

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

Naomi Howell 7/16/24
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 7/16/24
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

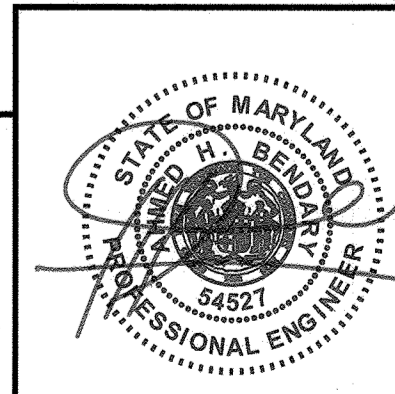
[Signature] 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 7/16/24
 DIRECTOR DATE

**SEGMENTAL BLOCK RETAINING WALL CONSTRUCTION DETAILS
THE HIGHLANDS
HOWARD COUNTY, MARYLAND**

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE: AS SHOWN	DRAWN BY: JE
			DATE: 5/31/23	APPROVED BY: HM

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. 54527, EXPIRATION DATE: 08/13/25

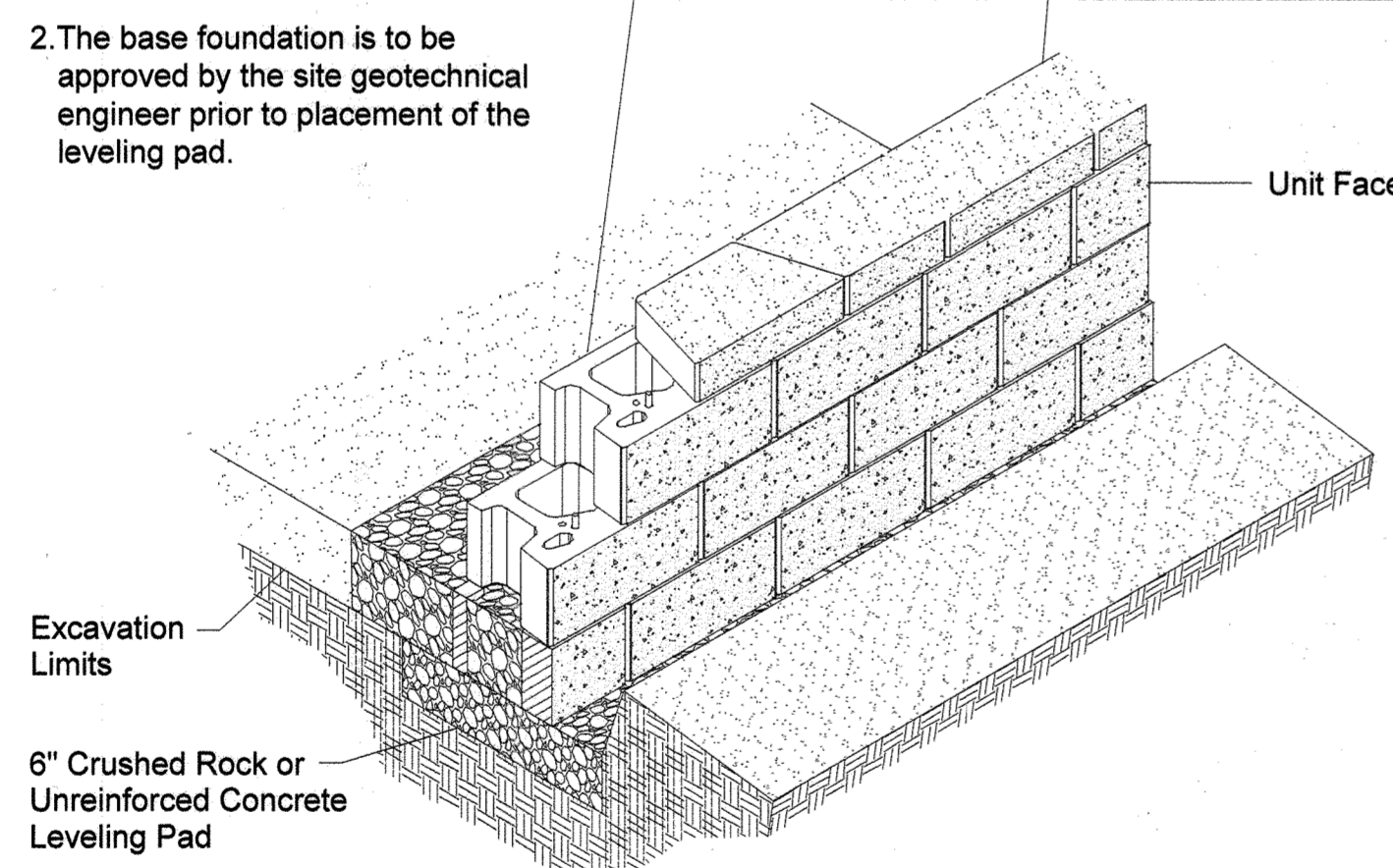


**HILLIS-CARNES
ENGINEERING ASSOCIATES**
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 Phone: (410) 880-4788 www.hceas.com Fax: (410) 880-4098

Base Leveling Pad Notes:

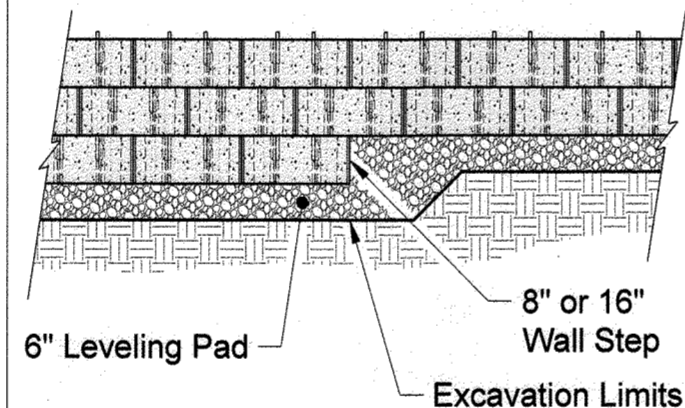
- The leveling pad is to be constructed of crushed stone or 2,000 psi ± unreinforced concrete
- The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

	Compac III Unit	Universal Cap Unit
*Width:	18"	18"/12"
*Depth:	12"	10 1/2"
*Height:	8"	4"
*Weight:	75 lbs	49 lbs



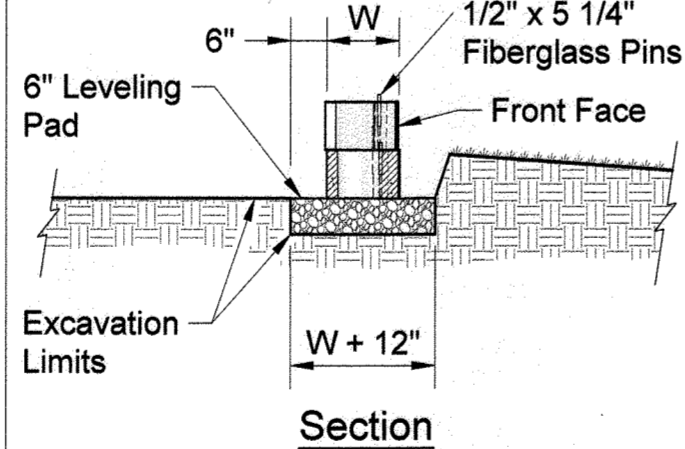
Compac III Unit/Base Pad Isometric Section View

* Dimensions & Weight May Vary by Region

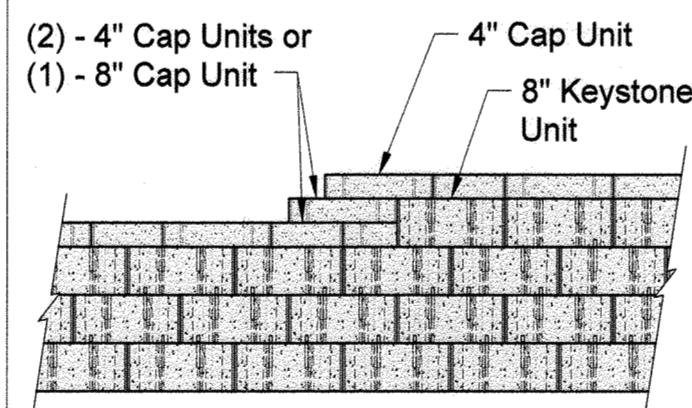


Elevation

- Note:**
- The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.

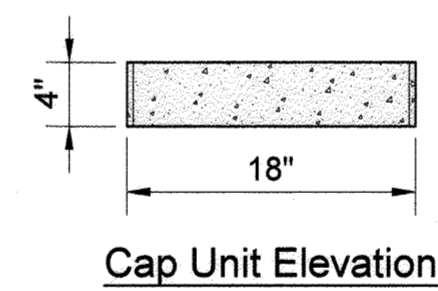


Leveling Pad Detail

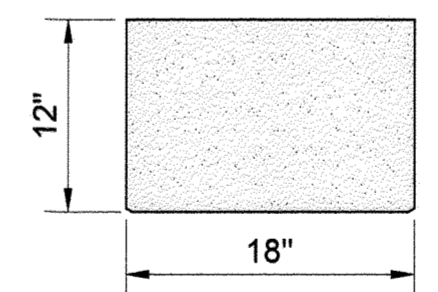


- Note:**
- Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps



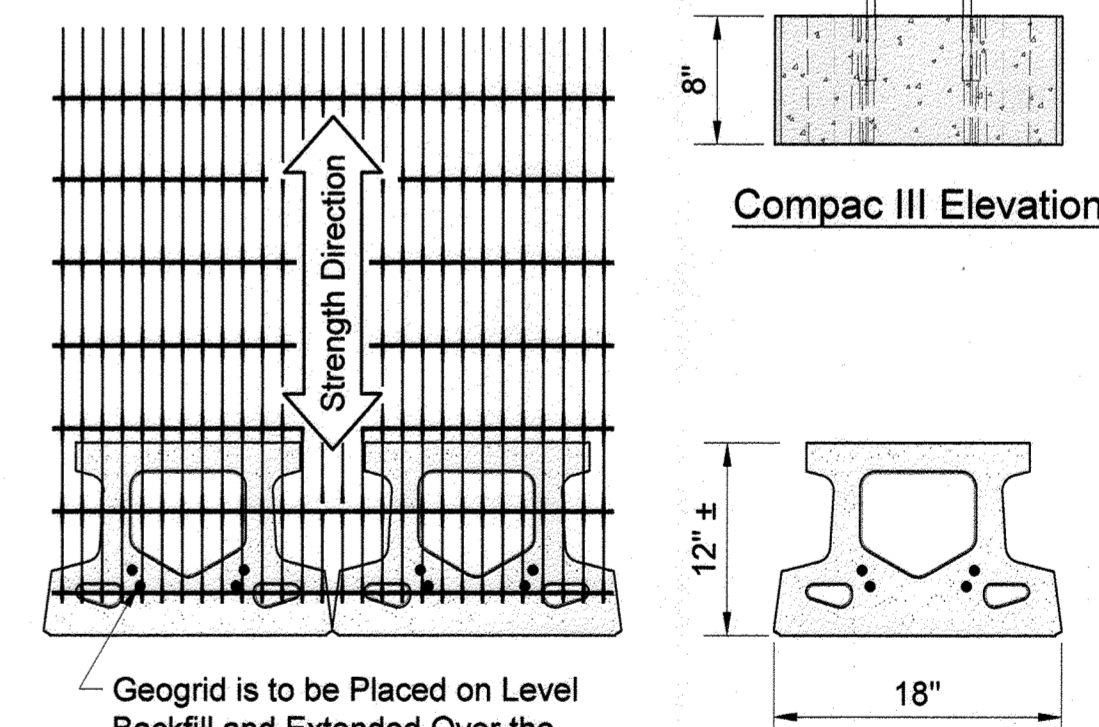
Cap Unit Elevation



Cap Unit Plan

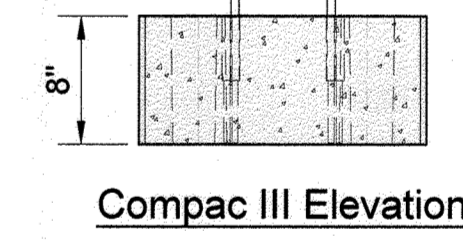
Straight Split Cap Unit

* Dimensions & Availability Will Vary by Region

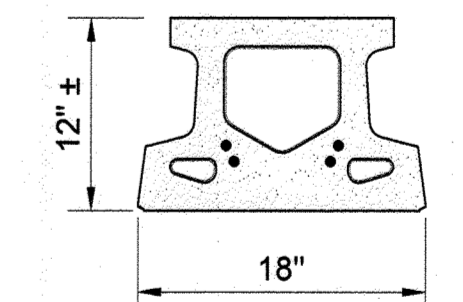


Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection

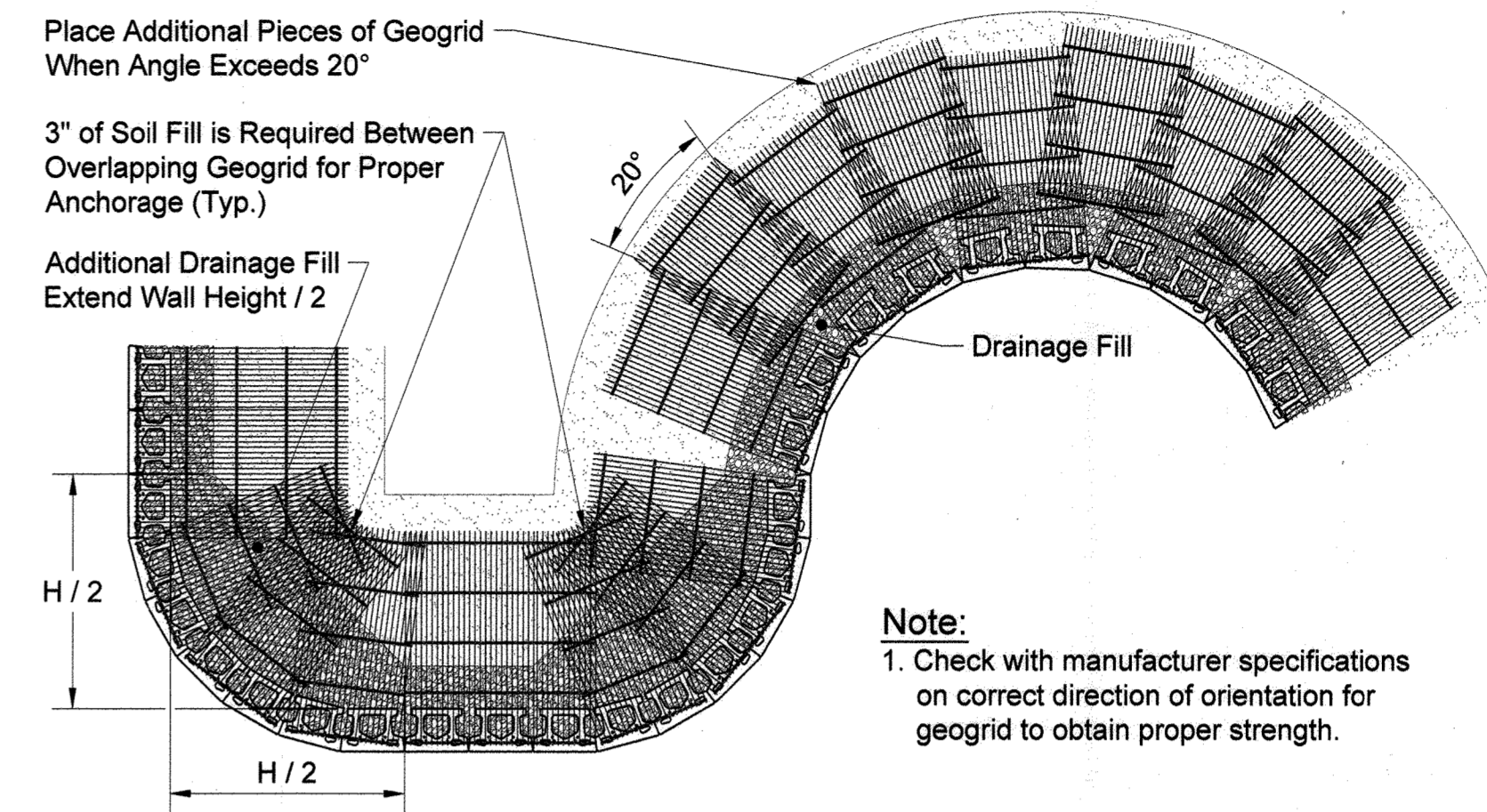


Compac III Elevation



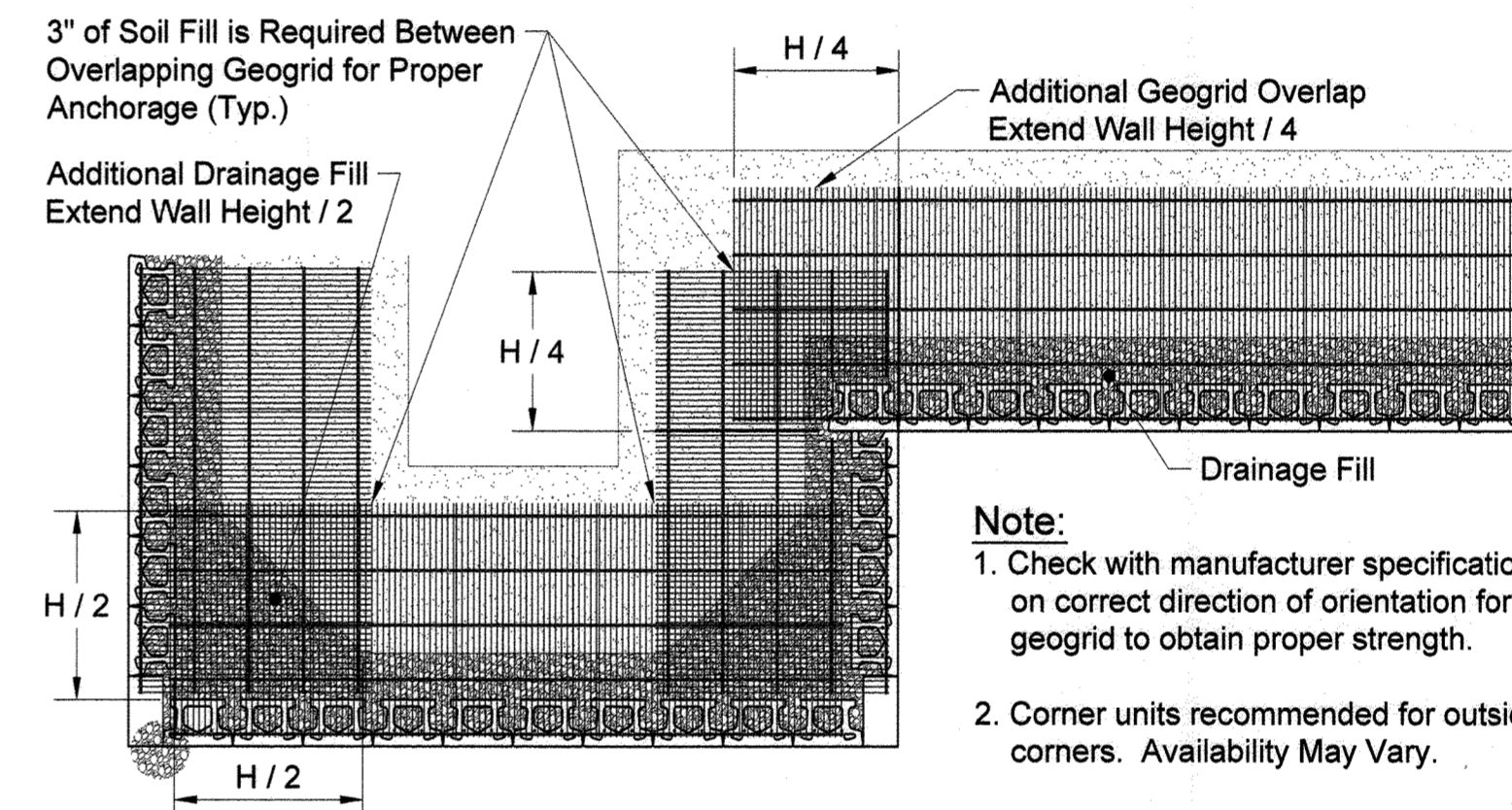
Compac III Plan

Compac III Unit
* Dimensions May Vary by Region



Geogrid Installation on Curves

- Note:**
- Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.



Geogrid Installation at Corners

- Note:**
- Check with manufacturer specifications on correct direction of orientation for geogrid to obtain proper strength.
 - Corner units recommended for outside corners. Availability May Vary.

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 7/16/24
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE
 7/16/24
 DIRECTOR DATE

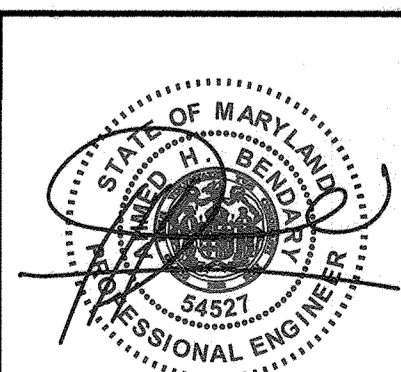
HILLIS-CARNES
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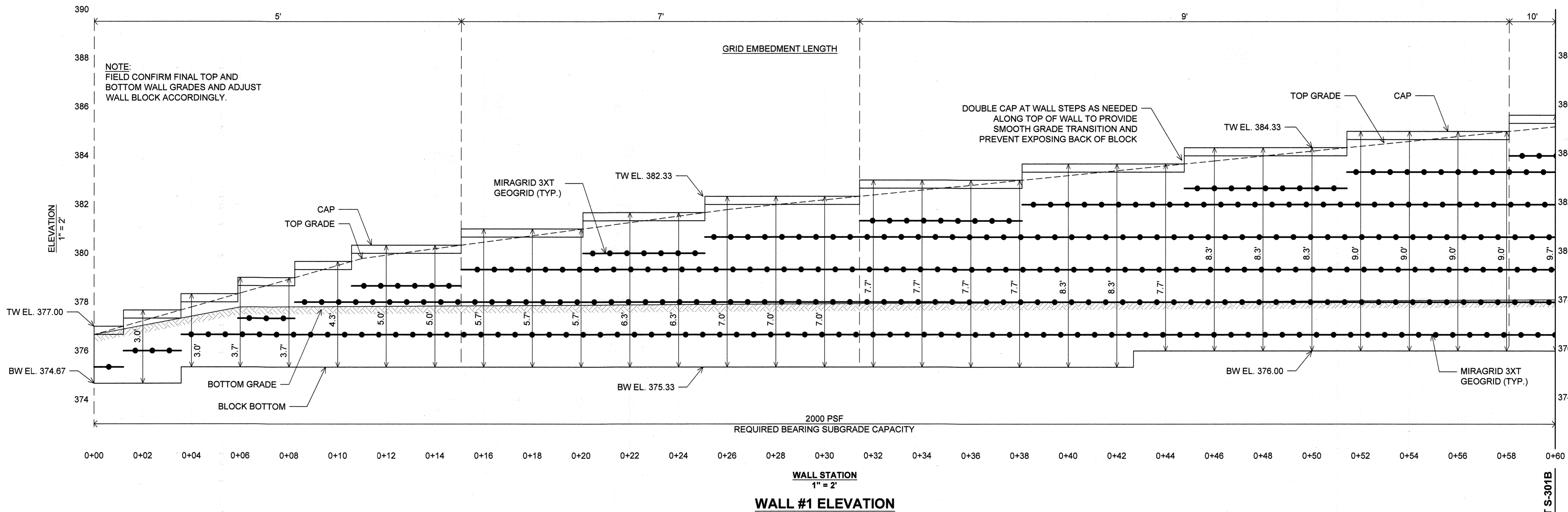
SEGMENTAL BLOCK RETAINING WALL CONSTRUCTION DETAILS
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
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			SCALE: AS SHOWN	DRAWN BY: JE
			DATE: 5/31/23	APPROVED BY: HM

137
SHEET

PROFESSIONAL CERTIFICATION
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MATCH LINE STA. 0+60 SHEET S-301B

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

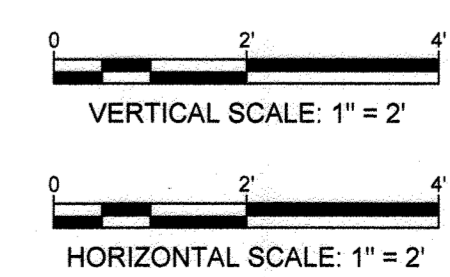
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

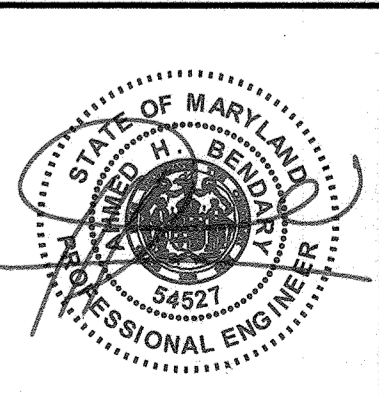
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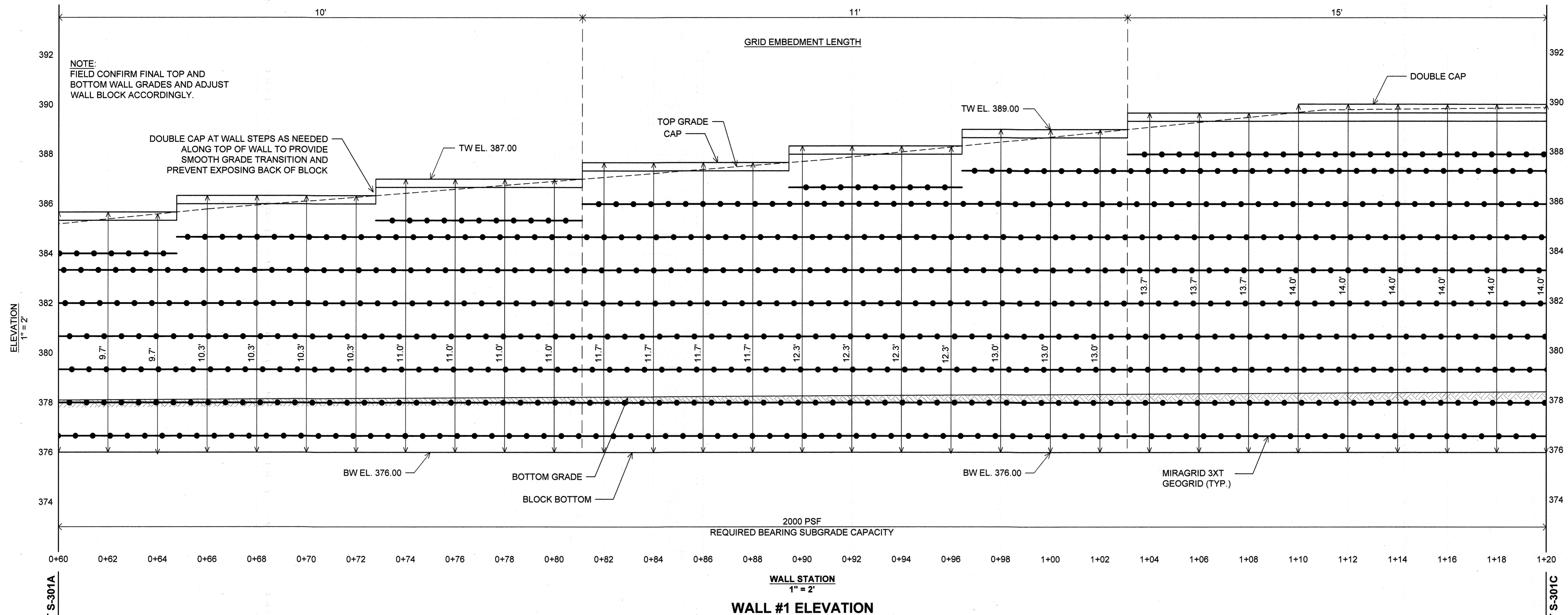


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 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

SEGMENTAL RETAINING WALL #1 ELEVATION STA. 0+00 TO 0+60
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE:	1" = 2'
			DATE:	5/31/23
			APPROVED BY:	HM

139
SHEET



MATCH LINE STA. 0+60 SHEET S-301A

MATCH LINE STA. 1+20 SHEET S-301C

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

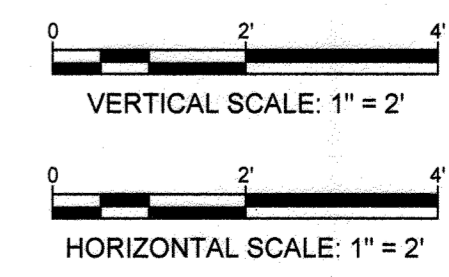
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 7/16/24
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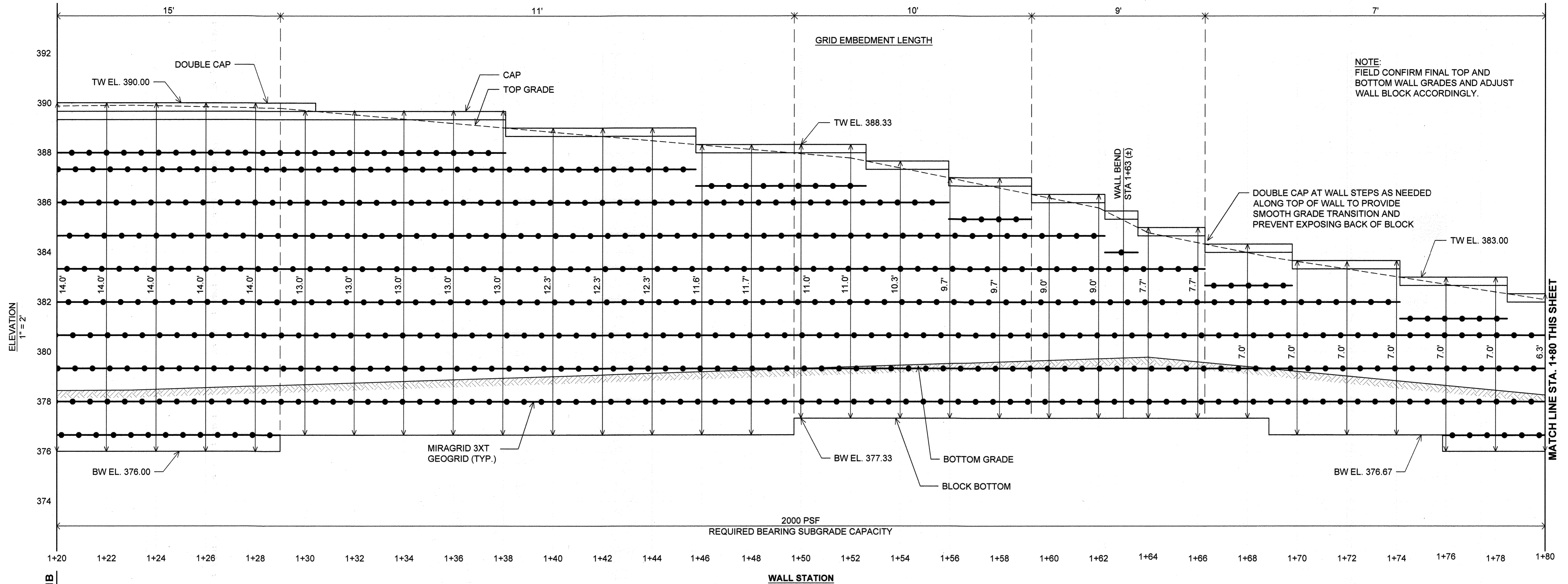
[Signature] 7/16/24
 DIRECTOR DATE



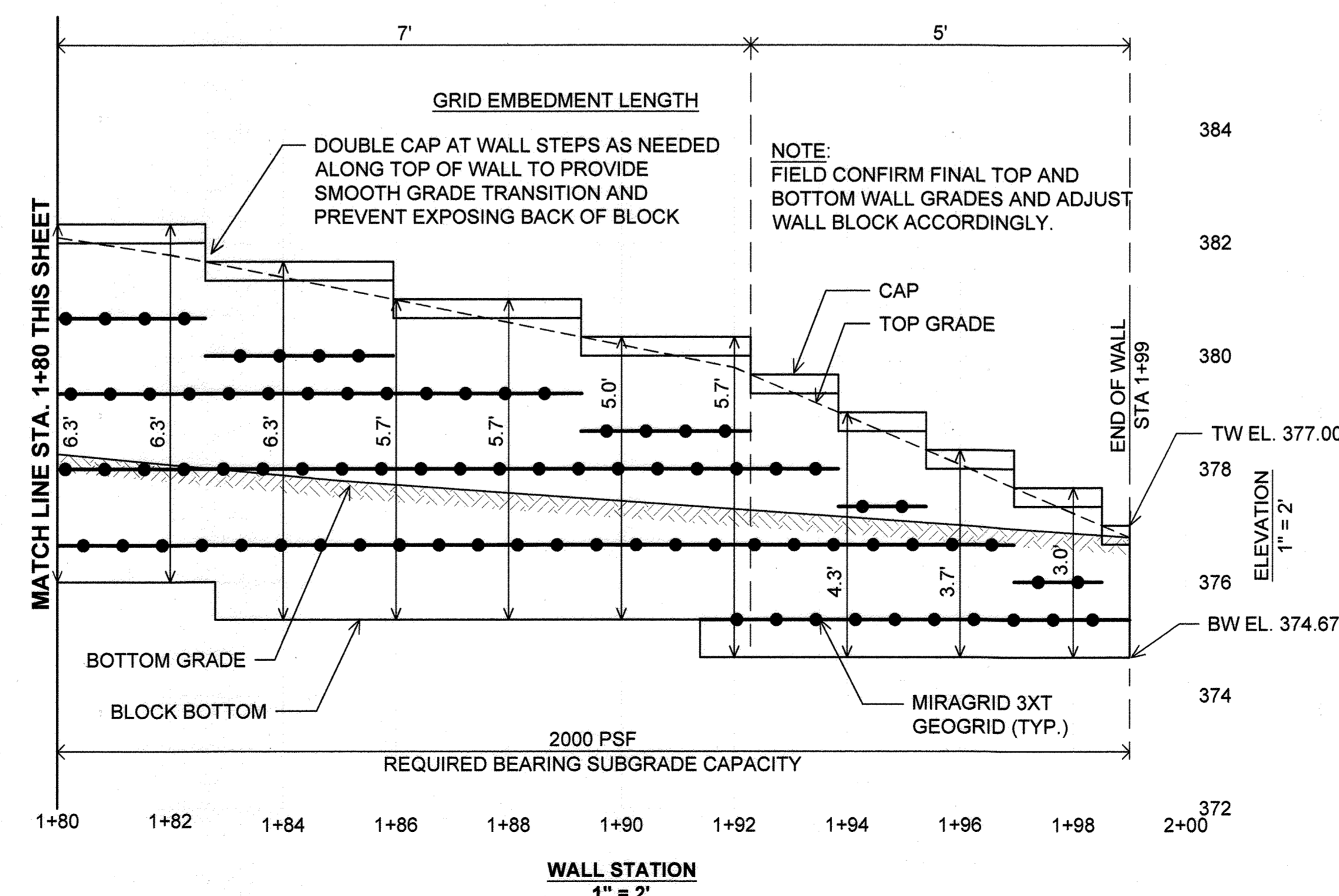
PROFESSIONAL CERTIFICATION
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 54527, EXPIRATION DATE: 06/13/25



HILLIS-CARNES ENGINEERING ASSOCIATES <small>10975 Guilford Road, Suite A Annapolis Junction, Maryland Phone: (410) 880-4788 www.hceas.com Fax: (410) 880-4098</small>	SEGMENTAL RETAINING WALL #1 ELEVATION STA. 0+60 TO 1+20 THE HIGHLANDS HOWARD COUNTY, MARYLAND		REVISION NO. _____ DESCRIPTION _____ DATE _____	JOB NUMBER: 20121A SCALE: 1" = 2' DATE: 5/31/23	DESIGNED BY: JE DRAWN BY: JE APPROVED BY: HM
					140 SHEET



WALL #1 ELEVATION



WALL #1 ELEVATION

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

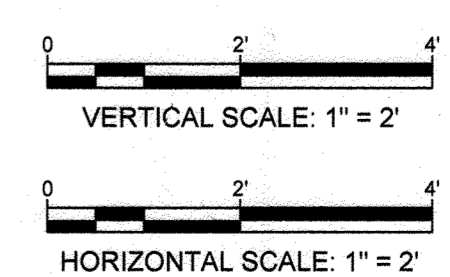
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER DATE
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 7/16/24
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE

[Signature] 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE

[Signature] 7/16/24
 DIRECTOR DATE



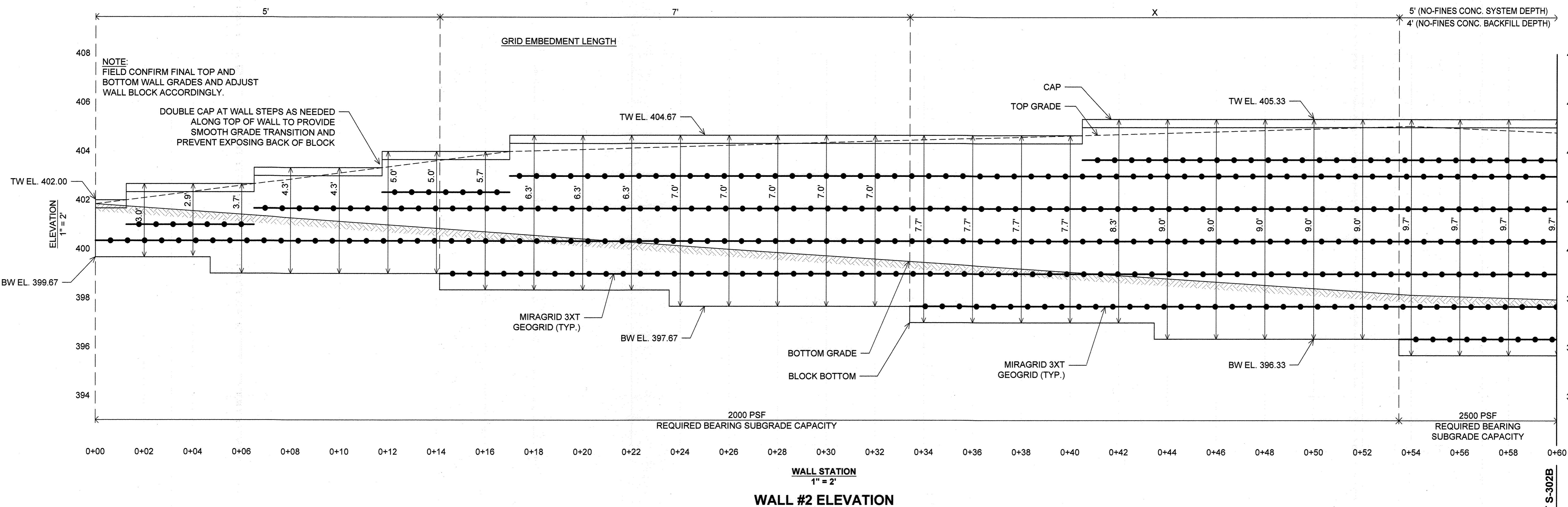
PROFESSIONAL CERTIFICATION
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HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A Annapolis Junction, Maryland
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

SEGMENTAL RETAINING WALL #1 ELEVATION STA. 1+20 TO 1+99
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

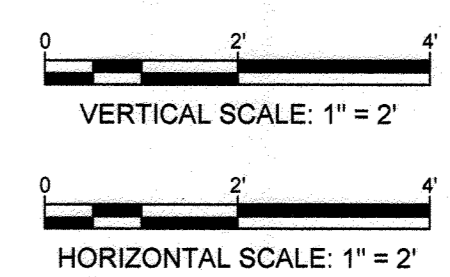
REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE:	JE
			DATE:	HM
			5/31/23	



MATCH LINE STA. 0+60 SHEET S-302B

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 [Signature] 7/16/24
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 [Signature] 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT
 [Signature] 7/16/24
 DIRECTOR



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. 54527, EXPIRATION DATE: 08/13/25.

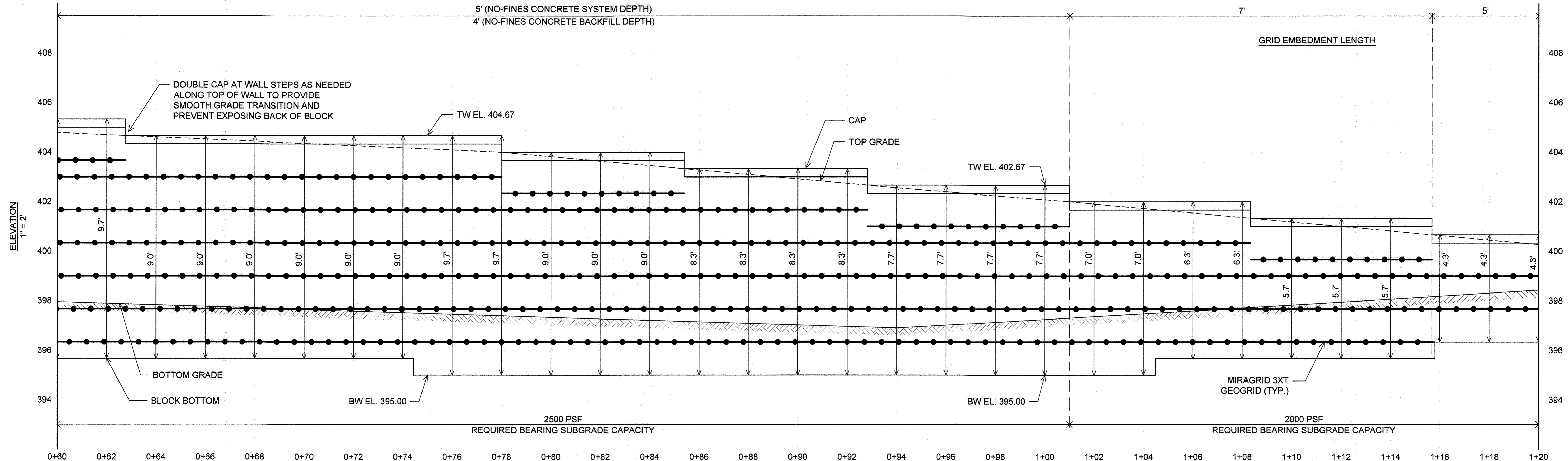


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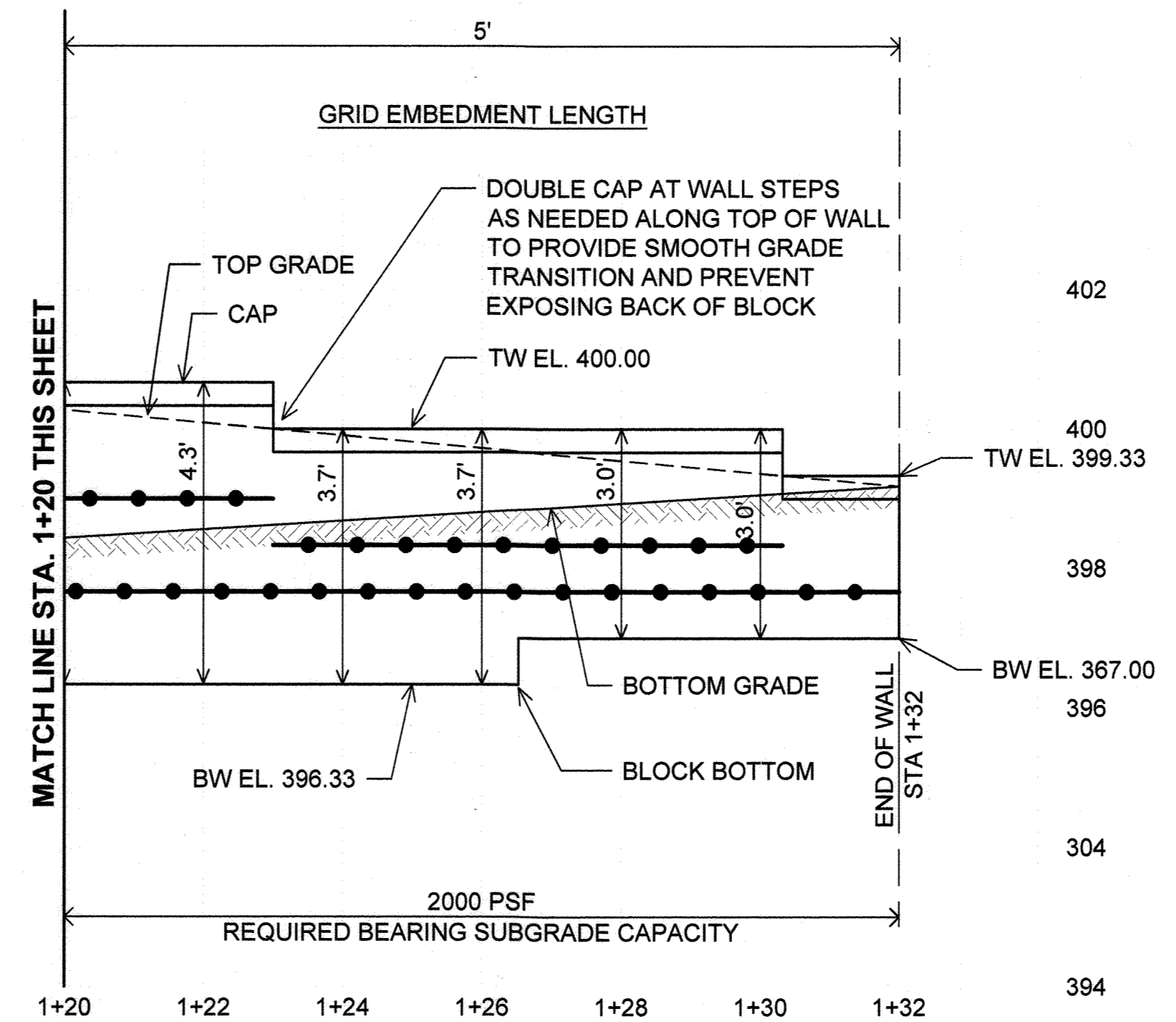
SEGMENTAL RETAINING WALL #2 ELEVATION STA. 0+00 TO 0+60
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE:	JE
			DATE:	HM
			5/31/23	

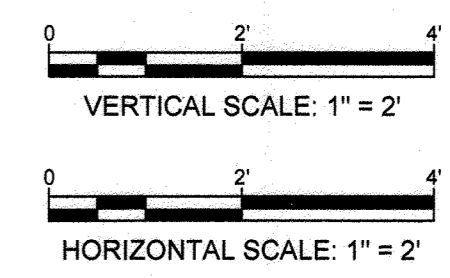
142
SHEET



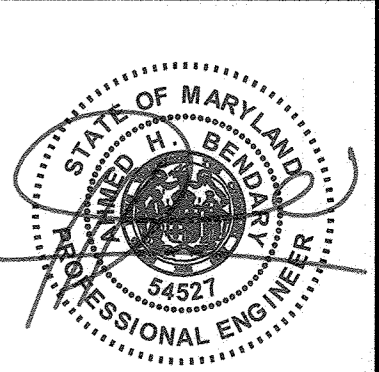
WALL STATION
1" = 2'
WALL #2 ELEVATION



WALL STATION
1" = 2'
WALL #2 ELEVATION



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. 54527, EXPIRATION DATE: 06/13/25.



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Name: Naomi Howell DATE: 7/16/24
NAOMI HOWELL, PROGRAM MANAGER
WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
MARYLAND DEPARTMENT OF THE ENVIRONMENT

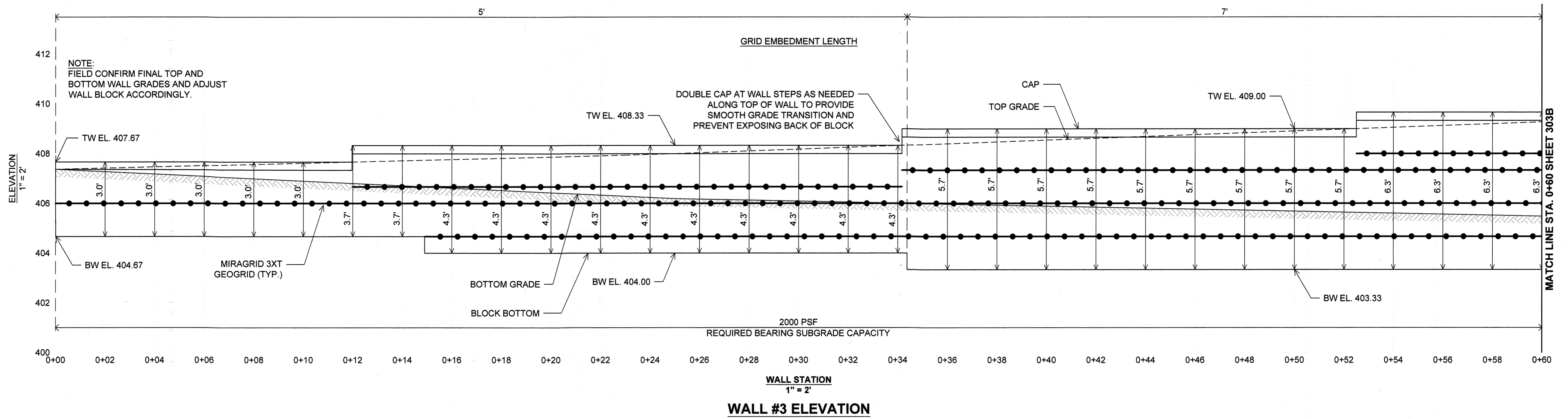
APPROVED: DEPARTMENT OF PLANNING AND ZONING
CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE: 7/16/24
CHIEF, DIVISION OF LAND DEVELOPMENT DATE: 7/16/24
DIRECTOR DATE: 7/16/24

HILLIS-CARNES
ENGINEERING ASSOCIATES
10975 Guilford Road, Suite A Annapolis Junction, Maryland
Phone: (410) 860-4738 www.hcaa.com Fax: (410) 860-4058

SEGMENTAL RETAINING WALL #2 ELEVATION STA 0+60 TO STA 1+32
THE HIGHLANDS
HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE:	DRAWN BY:
			1" = 2'	JE
			DATE:	APPROVED BY:
			5/31/23	HM

143
SHEET



APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.

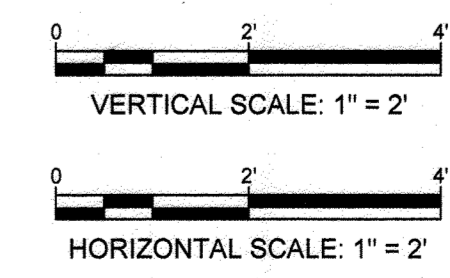
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING

[Signature] 7/16/24
 CHIEF, DEVELOPMENT ENGINEERING DIVISION
 DATE

[Signature] 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT
 DATE

[Signature] 7/16/24
 DIRECTOR
 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. 54527. EXPIRATION DATE: 09/13/25.

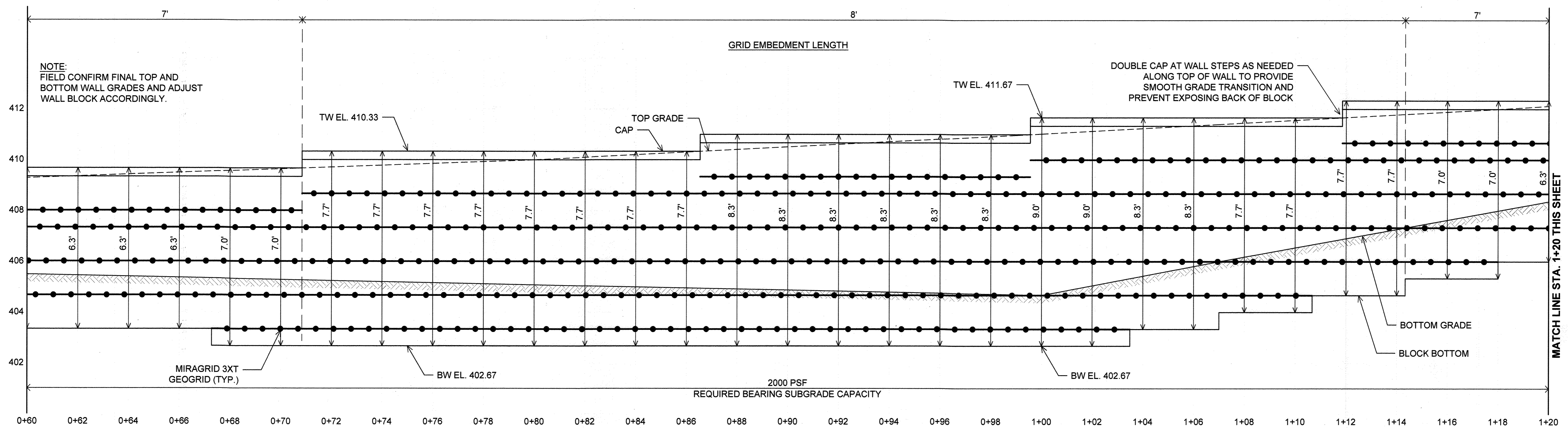


**HILLIS-CARNES
ENGINEERING ASSOCIATES**
 10975 Guilford Road, Suite A, Annapolis Junction, Maryland
 Phone: (410) 880-4788 www.hcaes.com Fax: (410) 880-4098

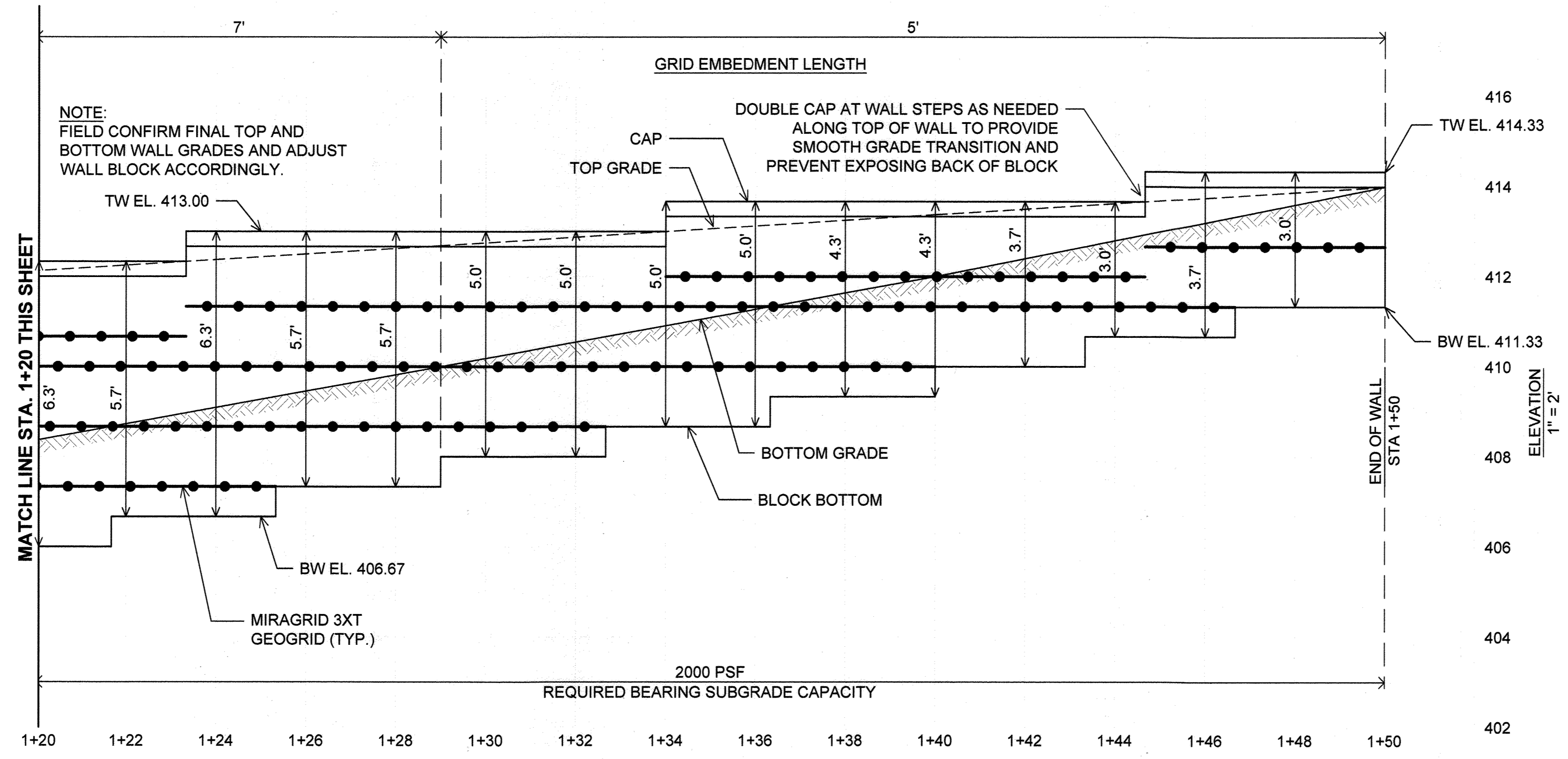
SEGMENTAL RETAINING WALL #3 ELEVATION STA 0+00 TO 0+60
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE:	DRAWN BY:
			1" = 2'	JE
			DATE:	APPROVED BY:
			5/31/23	HM

144
SHEET



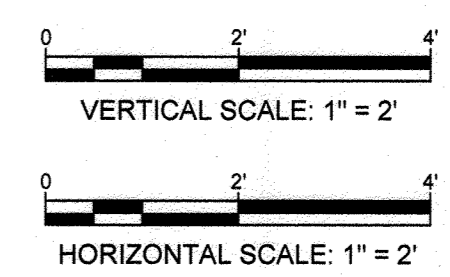
WALL STATION
1" = 2'
WALL #3 ELEVATION



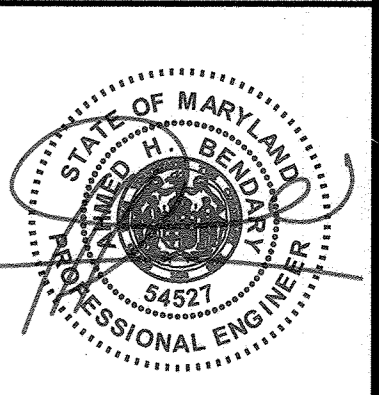
WALL STATION
1" = 2'
WALL #3 ELEVATION

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT 7/16/24
 DIRECTOR 7/16/24



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. 54527, EXPIRATION DATE: 06/13/26.



HILLIS-CARNES
 ENGINEERING ASSOCIATES
 10975 Guilford Road, Suite A
 Phone: (410) 880-4755 www.hca.com Fax: (410) 880-4756

SEGMENTAL RETAINING WALL #3 ELEVATION STA 0+60 TO 1+50
THE HIGHLANDS
 HOWARD COUNTY, MARYLAND

REVISION NO.	DESCRIPTION	DATE	JOB NUMBER:	DESIGNED BY:
			20121A	JE
			SCALE:	JE
			DATE:	HM
			5/31/23	

145 SHEET



LEGEND

	STANDARD DUTY ASPHALT PAVEMENT (P-2)		CONCRETE SIDEWALK
	DRIVEWAY (P-1)		STORMWATER MANAGEMENT FACILITY
	NATURAL SURFACE WALKING TRAIL		RIP-RAP
	PROPOSED BUILDING		WETLANDS
	PROPOSED FOREST CONSERVATION AREA		SEWAGE DISPOSAL AREA
	WELL AREA		SOIL STABILIZATION MATTING
	SOIL DIVIDE AND LABEL		PERENNIAL STREAM
	PERCOLATION HOLE (PASSED)		STREAM BANK
	PERCOLATION HOLE (FAILED)		STREAM BUFFER
			TIER II STREAM PROTECTION ZONE
			100-YEAR FLOODPLAIN
			WETLAND BUFFER

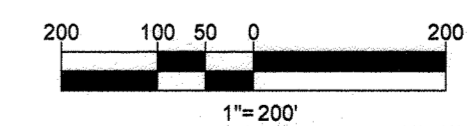
PHASING NOTE:

CONSTRUCTION IS TO TAKE PLACE IN TWO (2) PHASES TO ENSURE THAT THE TOTAL AMOUNT OF DISTURBED AREA IS NEVER GREATER THAN 20 ACRES.

- PHASE A (LOW-A) = 20.00 ACRES
- PHASE B (LOW-B) = 13.74 ACRES

AREAS OUTSIDE OF LOW-A AND LOW-B ARE TO BE CONSTRUCTED AS FOLLOWS:

- SEPTIC DRAINFIELDS SERVICING UNITS WITHIN EACH LOW ARE TO BE CONSTRUCTED AFTER EACH RESPECTIVE LOW HAS BEEN STABILIZED.
- THE NATURAL SURFACE WALKING TRAIL IS TO BE CONSTRUCTED AFTER ALL OTHER DISTURBED AREAS HAVE BEEN STABILIZED.



SUBDIVISION NAME: THE HIGHLANDS (F.K.A. LYHUS PROPERTY) SECTION/AREA: N/A DEED # 14633/00469 PLAT# 26545-26552	DEVELOPER: ROCK REALTY INC. c/o H & H ROCK COMPANIES 6500 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075 CONTACT: JAMES FRASER PHONE: 410-567-1045	OWNER: LYHUS DEVELOPMENT, LLC c/o H & H ROCK COMPANIES 6500 DEERPATH ROAD #100 ELK RIDGE, MARYLAND 21075	TAX MAP: 40 GRID: 24 ZONED: RR-DEO PARCEL: 135 5TH ELECTION DISTRICT, HOWARD COUNTY, MARYLAND
PREVIOUS FILE No.: BA-20-022C SP-17-0106 ECP-17-056 WP-18-070	F-20-016 WP-21-011 WP-22-132	WP-24-080	

BOHLER
 SITE CIVIL AND CONSULTING ENGINEERING
 LAND SURVEYING
 PROGRAM MANAGEMENT
 CONSTRUCTION MANAGEMENT
 LANDSCAPE ARCHITECTURE
 SUSTAINABLE DESIGN
 PERMITTING SERVICES
 TRANSPORTATION SERVICES

REVISIONS

REV	DATE	COMMENT	DRAWN BY	CHECKED BY

811
 Know what's below.
 Call before you dig.
 ALWAYS CALL 811
 It's fast. It's free. It's the law.

NOT APPROVED FOR CONSTRUCTION

PROJECT No.: MD1420872
 DRAWN BY: MJR
 CHECKED BY: MP
 DATE: 07/11/2024
 CAD LD.: MD1420872 - ORVL - 2

SITE DEVELOPMENT PLAN
 FOR
THE HIGHLANDS (FORMERLY LYHUS PROPERTY)
PROPOSED AGE-RESTRICTED COMMUNITY
 12170 LIME KILN ROAD
 FULTON
 HOWARD COUNTY, MD

BOHLER
 901 DULANEY VALLEY ROAD, SUITE 801
 TOWSON, MARYLAND 21204
 Phone: (410) 821-7500
 Fax: (410) 821-7587
 MD@BohlerEng.com

B.R. ROWE
 PROFESSIONAL ENGINEER
 CIVIL ENGINEERING
 LICENSE NO. 40938, EXPIRATION DATE: 7/3/2025

PHASING DIAGRAM
 SHEET TITLE:
 SHEET NUMBER:
146 OF 146
 ORG. DATE - 04/17/24

10/14/2024 10:20:20 AM SITE DEVELOPMENT PLAN (MD) 1420872 - ORVL - 2 - LAYOUT: 146 PHASING DIAGRAM

APPROVED FOR SHARED WATER AND SHARED SEWERAGE SYSTEMS.
Naomi Howell 7/16/2024
 NAOMI HOWELL, PROGRAM MANAGER
 WASTEWATER POLLUTION PREVENTION AND RECLAMATION PROGRAM
 MARYLAND DEPARTMENT OF THE ENVIRONMENT
 APPROVED: DEPARTMENT OF PLANNING AND ZONING
 CHIEF, DEVELOPMENT ENGINEERING DIVISION DATE 7/16/24
 CHIEF, DIVISION OF LAND DEVELOPMENT DATE 7/16/24
 DIRECTOR DATE