

GENERAL NOTES

- 1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY AND/OR MSHA STANDARDS AND SPECIFICATIONS IF APPLICABLE... 2. THE CONTRACTOR IS TO NOTIFY THE FOLLOWING UTILITIES OR AGENCIES AT LEAST FIVE DAYS BEFORE STARTING WORK... 3. MISS UTILITY: VERIZON TELEPHONE COMPANY... 4. DEVELOPMENT OR CONSTRUCTION OF THESE LOTS MUST COMPLY WITH SETBACK AND BUFFER REGULATIONS... 5. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION WORK... 6. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT (410) 513-1880 AT LEAST FIVE (5) WORKING DAYS PRIOR TO START OF WORK... 7. THE SUBJECT PROPERTY IS ZONED "CEF-M" PER ZONING BOARD DECISION AND ORDER FOR CASE ZB1105-M, APPROVED ON NOVEMBER 6, 2017 AND IS SUBJECT TO THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS EFFECTIVE 10/27/03 PER COUNCIL BILL 75-2003... 8. THE PETITIONER SHALL MAKE ANY NECESSARY REVISIONS TO THE PARKING AND TABULATION AT THE SITE DEVELOPMENT PLAN STAGE... 9. THE EXISTING TOPOGRAPHY SHOWN HEREON IS BASED ON F-21-011... 10. THIS PLAN IS SUBJECT TO THE AMENDED FIFTH EDITION OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS. REFER TO NOTE 4... 11. THE COORDINATES SHOWN HEREON ARE BASED UPON THE HOWARD COUNTY GEODETIC CONTROL WHICH IS BASED UPON THE MARYLAND STATE PLANE COORDINATE SYSTEM... 12. THE PROPOSED UTILITIES SHALL HAVE AN AUTOMATIC FIRE PROTECTION SPRINKLER SYSTEM... 13. SOIL TYPES SHOWN HEREON ARE IN ACCORDANCE WITH THE WEB SOIL SURVEY HOWARD COUNTY, MARYLAND... 14. TO THE BEST OF THE OWNERS KNOWLEDGE, THERE ARE NO BURIAL GROUNDS, CEMETERIES LOCATED ON THE SUBJECT PROPERTY OR THE COUNTY'S CEMETERY SITE MAP... 15. THE SITE IS NOT LOCATED IN THE HISTORIC DISTRICT OR LISTED ON THE HISTORIC SITES INVENTORY... 16. SHC ELEVATIONS ARE LOCATED AT THE PROPERTY LINE/EDGE OF EASEMENT... 17. WATER AND SEWER SERVICE TO THESE LOTS WILL BE GRANTED UNDER THE PROVISIONS OF SECTION 18.122.B OF THE HOWARD COUNTY CODE... 18. PUBLIC WATER AND SEWER ALLOCATION WILL BE GRANTED AT THE TIME OF ISSUANCE OF THE BUILDING PERMIT IF CAPACITY IS AVAILABLE AT THAT TIME... 19. ALL WATER HOSE CONNECTIONS SHALL BE OUTSIDE METER SETTING UNLESS OTHERWISE NOTED ON THE PLANS OR IN SPECIFICATIONS... 20. THE PRE-SUBMISSION COUNTY MEETING WAS HELD FOR THIS PROJECT ON JULY 25, 2018 AT 6 PM AT THE CHAPELGATE PRESBYTERIAN CHURCH... 21. THIS PROJECT, CHAPELGATE CEF # 14-09, HAS BEEN REVIEWED BY THE HOWARD COUNTY DESIGN ADVISORY PANEL (DAP) ON APRIL 9, 2014... 22. THE ENVIRONMENTAL CONCERN PLAN (ECP-18-062) WAS APPROVED PER LETTER DATED FEBRUARY 21, 2019... 23. STARLIGHT PLACE - PUBLIC ACCESS STREET... 24. ANY DAMAGE TO PUBLIC RIGHT-OF-WAY, PAVING, OR EXISTING UTILITIES WILL BE CORRECTED AT THE CONTRACTOR'S EXPENSE... 25. DRIVEWAY(S) SHALL BE PROVIDED PRIOR TO RESIDENTIAL OCCUPANCY TO ENSURE SAFE ACCESS FOR FIRE AND EMERGENCY VEHICLES PER THE FOLLOWING MINIMUM REQUIREMENTS... 26. ALL DRIVEWAY ENTRANCES SHALL UTILIZE HOWARD COUNTY STANDARD DETAIL NO. R-6.03 OR R-6.05... 27. PUBLIC TRASH AND RECYCLING COLLECTION WILL BE PROVIDED ALONG THE PUBLIC AND PRIVATE ROADS WITHIN 5' OF THE EDGE OF THE ROADWAY... 28. EXISTING UTILITIES LOCATED FROM ROAD CONSTRUCTION PLANS, TOPOGRAPHIC SURVEY, PUBLIC WATER AND SEWER EXTENSION PLANS, AND AS-BUILT DRAWINGS... 29. ANY DAMAGE INCURRED TO THE EXISTING UTILITIES, DUE TO CONTRACTOR'S OPERATIONS, SHALL BE REPAIRED IMMEDIATELY AT THE CONTRACTOR'S EXPENSE... 30. A TRAFFIC STUDY WAS PREPARED BY TRAFFIC GROUP, ENTITLED "TRAFFIC IMPACT ANALYSIS" WAS APPROVED UNDER S-19-001, MARCH 26, 2019... 31. THIS PROPERTY IS WITHIN THE METROPOLITAN DISTRICT... 32. FLOODPLAINS ARE LOCATED ON-SITE... 33. STEEP SLOPES OVER 20,000 SF CONTIGUOUS ARE SHOWN HEREON... 34. WETLANDS AND STREAMS SHOWN ON-SITE ARE BASED ON THE DELINEATION PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES... 35. THE PROPOSED SUBDIVISION AND RELATED CONSTRUCTION WILL NOT IMPACT ENVIRONMENTAL FEATURES OR BUFFERS... 36. THE CHANGING/REMOVAL OF VEGETATIVE COVER OR TREES, PAVING AND NEW STRUCTURES SHALL BE PERMITTED WITHIN THE DEFINED WETLANDS, STREAM(S) OR THEIR BUFFERS... 37. A FOREST STAND DELINEATION WETLAND, FOREST STAND DELINEATION & PRELIMINARY FOREST CONSERVATION PLAN REPORT, DATED JULY 24, 2018 WAS PREPARED BY ECO-SCIENCE PROFESSIONALS, INC. C/O MR. JOHN CANOLES... 38. FOREST CONSERVATION... 39. A NOISE STUDY FOR THIS PROJECT WAS PREPARED BY VOGEL ENGINEERING+TIMMONS GROUP, DATED JULY 2020 AND APPROVED APRIL 19, 2021... 40. THE GEOTECHNICAL REPORT FOR THIS PROJECT WAS PREPARED BY HILLIS CARNES ENGINEERING ASSOCIATES, INC., DATED SEPTEMBER 9, 2019... 41. STORMWATER MANAGEMENT FOR THE PROJECT IS PROVIDED BY THE USE OF ALTERNATE SURFACE AND MICRO-SCALE PRACTICES... 42. ALL SIDEWALKS PROVIDING ACCESS TO STORMWATER MANAGEMENT EASEMENTS / AREAS SHALL BE TRAFFIC BEARING FOR THE LIMITS OF THE ACCESS POINTS / EASEMENTS... 43. IN ACCORDANCE WITH ZONING BOARD DECISION AND ORDER FOR CASE ZB1105-M, THE OPEN SPACE REQUIREMENTS FOR THIS CEF-M PROJECT IS 25% OF GROSS AREA... 44. IN ACCORDANCE WITH ZONING BOARD DECISION AND ORDER FOR CASE ZB1105-M, THE RECREATION OPEN SPACE REQUIREMENTS FOR THIS CEF-M PROJECT IS 1,000 SF/UNIT... 45. THE DEVELOPER WILL BE RESPONSIBLE FOR CONSTRUCTING THE PROJECT "LOOP TRAIL" THROUGH OPEN SPACE LOTS 135-137 AND PARCEL 'A'... 46. A LANDSCAPE PLAN WAS PREPARED IN ACCORDANCE WITH SECTION 16.124 OF THE HOWARD COUNTY SUBDIVISION AND LAND DEVELOPMENT REGULATIONS... 47. PUBLIC STREET TREES ARE PROVIDED FOR THIS PROJECT UNDER F-21-011 IN ACCORDANCE WITH SECTION 16.124(a)(1) OF THE SUBDIVISION REGULATIONS... REFER TO SHEET 2 FOR CONTINUATION OF GENERAL NOTES

PARKING TABULATION:

TOTAL NUMBER OF DWELLING UNITS PROPOSED: 134
SINGLE FAMILY ATTACHED (SFA) = 134 LOTS
OFF-STREET PARKING SPACES REQUIRED: 2 SPACES PER UNIT
134 x 2 = 268 SPACES REQUIRED
PARKING SPACES PROVIDED:
SFA = 1 GARAGE / 1 DRIVEWAY
1 SPACE IN GARAGE = 72 SPACES (FOR 72 UNITS)
1 SPACES ON DRIVEWAY = 72 SPACES (FOR 72 UNITS)
SFA = 2 GARAGE / 2 DRIVEWAY
2 SPACE IN GARAGE = 124 SPACES (FOR 62 UNITS)
2 SPACES ON DRIVEWAY = 124 SPACES (FOR 62 UNITS)
TOTAL OFF STREET PARKING SPACES PROVIDED: = 392 SPACES PROVIDED
OFF-STREET
124 PARKING SPACE EXCESS

THE HOA SHALL BE RESPONSIBLE FOR ENFORCING THE PARKING REQUIREMENTS ON EACH RESIDENTIAL LOT. ONE (1) GARAGE SPACE SHALL REMAIN OPEN FOR VEHICLE PARKING USE. THE GARAGE SPACE MAY NOT BE CONVERTED TO LIVING SPACE AND SHALL ONLY BE UTILIZED AS A VEHICULAR PARKING SPACE
VISITOR PARKING REQUIRED:
SFA = 134 UNITS @ 0.5 SPACES PER UNIT
134 x 0.5 = 67 SPACES REQUIRED
80 ON-STREET INDENTED SPACES PROVIDED
REFER TO 124 PARKING SPACE EXCESS
REFER TO GENERAL NOTE 48, SHEET 2
ON-STREET PARKING SHALL BE MAINTAINED BY THE HOMEOWNERS ASSOCIATION.

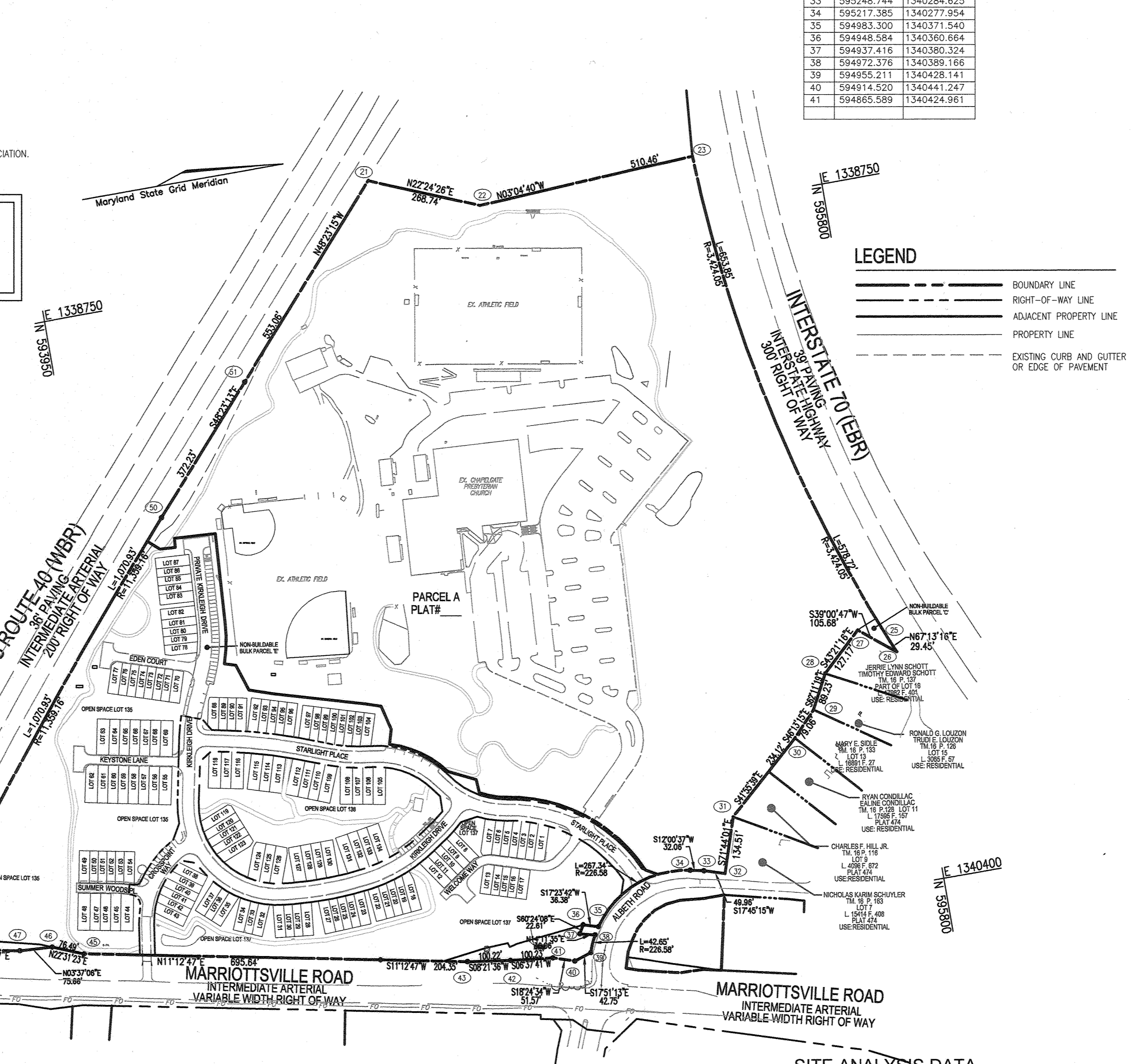
NOTE

THE EXISTING GRADES SHOWN HEREON WILL BE ESTABLISHED UNDER THE FINAL ROAD AND STORM DRAIN CONSTRUCTION PLANS FOR CHAPELGATE WOODS F-21-011

NOTE:

ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.

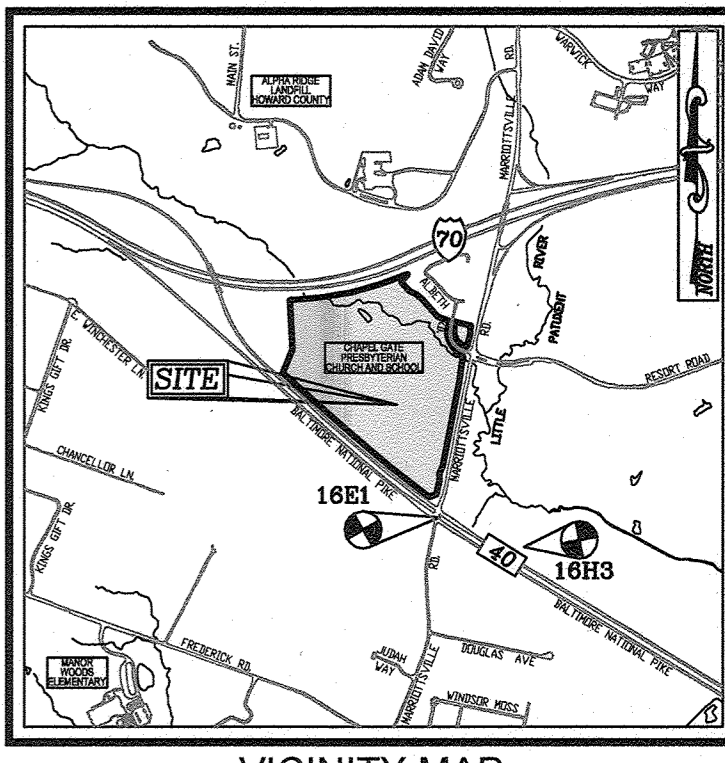
SITE DEVELOPMENT PLAN
CHAPELGATE WOODS
SFA LOTS 1-134
PLATS 26141-26152
HOWARD COUNTY, MD



COORDINATE TABLE with columns for NORTH, EAST, and lot numbers.

BENCHMARKS

HOWARD COUNTY BENCHMARK 16E1 (CONC. MON.)
N 593250.96 E 1340192.70 ELEV. 463.89
LOCATION: ISLE AT CORNER RT-40 & MARRIOTTVILLE ROAD
HOWARD COUNTY BENCHMARK 16H3 (CONC. MON.)
N 592408.04 E 1341523.97 ELEV. 469.71
LOCATION: RT-40, 0.45 MILES WEST OF TURF VALLEY ROAD



LEGEND

- BOUNDARY LINE
RIGHT-OF-WAY LINE
ADJACENT PROPERTY LINE
PROPERTY LINE
EXISTING CURB AND GUTTER OR EDGE OF PAVEMENT

LEGEND

- EXISTING CURB AND GUTTER
PROPERTY LINE
RIGHT-OF-WAY LINE

SHEET INDEX

Table with columns for DESCRIPTION and SHEET NO., listing various plan components like COVER SHEET, SHEET KEY MAP, etc.

SUMMARY OF FINDINGS FOR AFPO TRAFFIC ANALYSIS:

- A. DATE OF REPORT: NOVEMBER 20, 2018
B. DATE OF COUNT(S): APRIL 26, 2018
C. REPORT SUBMITTED AS PART OF PLAN NUMBER: S-19-001
D. PROVIDE STATEMENT THAT SCHOOLS WERE IN SESSION ON THAT DATE(S).
HOWARD COUNTY SCHOOLS WERE IN SESSION THE DAY OF THE TRAFFIC COUNTS.
E. LIST INTERSECTIONS STUDIED, IDENTIFY INTERSECTION AS STATE OR COUNTY JURISDICTION, AND LABEL LOS FOR THE HORIZON YEAR OF EACH INTERSECTION.
--MARRIOTTVILLE ROAD & RESORT ROAD/ALBETH ROAD
--HORIZON YEAR LOS: C IN AM AND F IN PM
--WITH FUTURE CAPITAL PROJECT WIDENING OF MARRIOTTVILLE ROAD: LOS A IN AM AND PM
F. PROVIDE STATEMENT AS TO WHETHER MITIGATION IS REQUIRED AND EXPLAIN THE METHOD OF MITIGATION/IN LIEU FEE.
--MITIGATION IS REQUIRED AND SATISFIED THROUGH THE PROPOSED CONSTRUCTION OF A SOUTHBOUND RIGHT TURN LANE ON MARRIOTTVILLE ROAD AND WIDENING OF ALBETH ROAD TO PROVIDE 2 APPROACH LANES.

MIHU UNITS table showing allocation exemptions tracking for Moderate Income Housing Units.

MIHU AGREEMENT

IN ACCORDANCE WITH SECTION 121.0 OF THE 10/06/13 COMPREHENSIVE ZONING REGULATIONS AND THE BULK REGULATIONS APPROVED UNDER HOWARD COUNTY ZONING BOARD CASE ZB-1105-M BULK REGULATIONS, THE SUBDIVISION IS SUBJECT TO MODERATE INCOME HOUSING UNITS. SEE NOTE 49, SHEET 2 AT LEAST 10% OF THE DWELLINGS SHALL BE MODERATE INCOME HOUSING UNITS (MIHU), 134 X 10% = 14 UNITS.

OWNER/DEVELOPER
U.S. HOME, LLC
SUITE 210
7035 ALBERT EINSTEIN DRIVE
COLUMBIA, MD 211046
LENNARD.COM
410-423-4264

Table with columns for NO., REVISION, and DATE, listing specific revision notes.

SITE DEVELOPMENT PLAN COVER SHEET for CHAPELGATE WOODS SFA LOTS 1-134. Includes project name, address, zoning, and permit information.

VOGEL ENGINEERING + TIMMONS GROUP logo and contact information.

PROFESSIONAL CERTIFICATE section with design, drawing, and check dates.

SITE ANALYSIS DATA

- A. TOTAL PROJECT AREA: 19.86 AC REFER TO CEF AREA (F-21-011)
B. AREA OF PLAN SUBMISSION: 6.25 AC = AREA OF BUILDABLE LOTS
C. LIMIT OF DISTURBANCE: CEF-M
D. PRESENT ZONING DESIGNATION: SINGLE FAMILY DETACHED (SFA)
E. PROPOSED USES FOR SITE AND STRUCTURES:
F. FLOOR SPACE ON EACH LEVEL OF BUILDING PER USE: N/A
G. TOTAL NUMBER OF UNITS ALLOWED FOR PROJECT AS SHOWN ON FINAL PLAN: 134 UNITS
H. TOTAL NUMBER OF UNITS PROPOSED: 134 BUILDABLE SFA LOTS (THIS SFP)
I. IN THIS SUBMISSION:
J. MAXIMUM NUMBER OF EMPLOYEES, TENANTS ON SITE PER USE: N/A
K. NUMBER OF PARKING SPACES REQUIRED BY HO.C. ZONING REGULATIONS: 2.5 PER UNIT
L. NUMBER OF PARKING SPACES PROVIDED ON SITE: SEE PARKING TABULATION HEREON
M. OPEN SPACE ON SITE: REFER TO F-21-011
N. AREA OF RECREATION OPEN SPACE REQUIRED BY SUBDIVISION & LAND DEVELOPMENT REGULATIONS: REFER TO F-21-011
O. BUILDING COVER OF SITE: N/A
P. APPLICABLE DPE FILE REFERENCES: CHAPELGATE, F-09E, SFP-88-037, BA CASE 93-07E, SFP-93-128, PLAT 13157, PLAT 15336, TU-01-01, BA CASE 01-23E, WP-03-94, SFP-02-133K, PLAT 15923-25, SFP-03-122, TU-06-004, SFP-07-133, WP-08-034, PLAT 20074-76, CEF PROJECT: ZB-1105-M, DAP-14-09, WP-19-05E, ECP-18-062, S-19-001, P-20-002, F-21-011, PLAT 26141-26152, F-21-014, PLAT 25942-25954

ADDRESS CHART:

REFER TO SHEET 2 FOR THE ADDRESS ASSIGNED TO EACH INDIVIDUAL LOT

STORMWATER MANAGEMENT NOTE:

REFER TO SHEET 2 FOR THE STORMWATER MANAGEMENT PRACTICE CHARTS WHICH DETAIL THE TYPES OF FACILITIES REQUIRED FOR EACH RESIDENTIAL AND OPEN SPACE LOT.

PERMIT INFORMATION CHART with columns for SUBDIVISION NAME, SECTION/AREA, TAX MAP, etc.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for Chief of Development Engineering and Chief of Division of Land Development.

GENERAL NOTES CONTINUED

48. - IN ACCORDANCE WITH DESIGN MANUAL - VOLUME 3, CHAPTER 2 - SECTION 2.9.B. PARKING IS REQUIRED AT TWO (2) SPACES PER UNIT OFF STREET PARKING TO INCLUDE GARAGE SPACE, DRIVEWAY, PARKING PAD AND COURTS. GARAGES COUNT AS A FULL SPACE. REFER TO TABULATION ON SHEET 1 FOR DETAILS AND ESTIMATES.

SECTION 16.1205(A)(7) REMOVAL OF SPECIMEN TREES 30" IN DIAMETER OR GREATER. THIS REQUEST IS FOR THE REMOVAL OF 27 SPECIMEN TREES (26 TULIP POPLAR AND 1 MAPLE).

SECTION 16.1205(C)(4) SINGLE FAMILY ATTACHED LOTS MAY BE APPROVED WITHOUT PUBLIC ROAD FRONTAGE, PROVIDED THEY FRONT ON A COMMONLY OWNED AREA CONTAINING PARKING AREA OR PRIVATE ROAD NOT EXCEEDING A LENGTH OF 200 FEET MEASURED FROM THE EDGE OF THE PUBLIC RIGHT-OF-WAY ALONG THE CENTERLINE OF THE PRIVATE ROAD.

SECTION 16.116 PROTECTION OF WETLANDS, STREAMS, AND STEEP SLOPES - THE REQUEST IS FOR THE DISTURBANCE TO THE 100' STREAM BUFFER AND 25% STEEP SLOPES TO ACCOMMODATE INSTALLATION OF THE PROPOSED PATHWAY SYSTEM APPROVED AS PART OF THE COMMUNITY ENHANCEMENT REQUIREMENTS PER ZB CASE NO. 1105M.

APPROVAL IS SUBJECT TO THE FOLLOWING CONDITIONS: 1. THE IDENTIFIED SPECIMEN TREES MAY BE REMOVED PROVIDED THEY ARE REPLACED AT A 2:1 RATIO WITH 3" CALIBER NATIVE TREES FOR A TOTAL OF 54 REPLACEMENT TREES. A MINIMUM VARIETY OF THREE NATIVE LARGE SHADE TREE SPECIES SHOULD BE USED TO FULFILL THIS REQUIREMENT.

1. THE DETAILED JUSTIFICATIONS PROVIDED BY VOGEL ENGINEERING-TIMMONS GROUP IN A LETTER DATED MARCH 6, 2019, THE DISTURBANCES ARE NECESSARY FOR PROVIDING ESSENTIAL PUBLIC WATER AND SEWER UTILITIES, AND PUBLIC ROAD ACCESS TO SERVE THE PROPOSED DEVELOPMENT.

APPROVAL OF THE ABOVE DESCRIBED ESSENTIAL OR NECESSARY DISTURBANCES ARE SUBJECT TO THE FOLLOWING: 1. INSTALLATION OF A BOTTOMLESS ARCH CULVERT OR BRIDGE SYSTEM FOR THE PUBLIC ROAD AT STREAM CROSSING;

IN A LETTER DATED JULY 23, 2021, THE DEPARTMENT OF PLANNING & ZONING IN CONSULTATION WITH THE DIRECTOR OF PLANNING, DIRECTOR OF PUBLIC WORKS, AND ADMINISTRATOR OF THE OFFICE OF COMMUNITY SUSTAINABILITY AFFIRMATIVELY APPROVED THE CHAPEL GATE PROPERTY AND CHAPEL GATE WOODS PROJECT TO IMPACT STREAMBANK BUFFERS AND WETLAND BUFFERS AS ESSENTIAL OR NECESSARY DISTURBANCES IN ACCORDANCE WITH SECTION 16.116(C) OF THE SUBDIVISION AND LAND DEVELOPMENT REGULATIONS.

APPROVAL OF THE ABOVE DESCRIBED ESSENTIAL OR NECESSARY DISTURBANCES ARE SUBJECT TO THE FOLLOWING MITIGATION METHODS: - FOR THE STREAM CROSSING, A BOTTOMLESS ARCH CULVERT WILL BE INSTALLED.

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54. PRIVATE RANGE OF ADDRESS SIGN ASSEMBLIES FOR LOTS 1-7, 13-17, 44-54, 55-69 AND 70-77 SHALL BE FABRICATED AND INSTALLED BY HOWARD COUNTY BUREAU OF HIGHWAYS AT THE DEVELOPERS/OWNERS EXPENSE. CONTACT HOWARD COUNTY TRAFFIC DIVISION AT 410-333-5779 FOR DETAILS AND ESTIMATES.

SECTION 16.1205(A)(7) REMOVAL OF SPECIMEN TREES 30" IN DIAMETER OR GREATER. THIS REQUEST IS FOR THE REMOVAL OF 27 SPECIMEN TREES (26 TULIP POPLAR AND 1 MAPLE).

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ADDRESS & ON-LOT STORMWATER MANAGEMENT PRACTICE CHART

Table with columns: LOT # / STREET ADDRESS, FACILITY TYPE, LOT #, FACILITY TYPE, LOT # / STREET ADDRESS, FACILITY TYPE. Lists stormwater management practices for various lots and street addresses.

CEF NOTE - ZONING BOARD CASE ZB-1105-M SUMMARY OF COMMUNITY ENHANCEMENTS:

IN ACCORDANCE WITH THE REFERENCED ZONING BOARD DECISION AND ORDER, THE PROPOSED ENHANCEMENTS ARE PROPORTIONATE TO THE SCALE OF THE CEF DEVELOPMENT, EXCEED MINIMUM STANDARDS REQUIRED BY COUNTY REGULATIONS, AND ARE PROPORTIONATE TO THE INCREASE IN DEVELOPMENT INTENSITY AND IMPACTS ASSOCIATED WITH THE CEF REZONING COMPARED TO THE PREVIOUSLY EXISTING ZONING BASED ON FINDINGS OF FACT 15.A AND 16.C.

- 1. PETITIONER SHALL ENSURE COMPLETION OF CONSTRUCTION OF PEDESTRIAN AND BICYCLE LOOPED TRAIL IN THE MANNER AS SUBSTANTIALLY SHOWN ON THE DEVELOPMENT CONCEPT PLAN...
2. PETITIONER SHALL ENSURE THAT ITS EXISTING SPORTS FIELDS ARE MADE AVAILABLE FREE OF CHARGE TO THE GENERAL PUBLIC SUBJECT TO PETITIONER'S REASONABLE TERMS, RESTRICTIONS AND CONDITIONS...
3. PETITIONER SHALL ENSURE THAT ITS PLAYGROUNDS ARE MADE AVAILABLE FREE OF CHARGE TO THE GENERAL PUBLIC SUBJECT TO PETITIONER'S REASONABLE TERMS, RESTRICTIONS AND CONDITIONS...
4. PETITIONER SHALL ENSURE THAT ALL PICNIC AREAS, PAVILIONS, POCKET PARKS, PARKLAND AND GREEN SPACE AREAS AS SHOWN ON THE DEVELOPMENT CONCEPT PLAN ARE MADE AVAILABLE FREE OF CHARGE TO THE GENERAL PUBLIC SUBJECT TO PETITIONER'S REASONABLE TERMS, RESTRICTIONS AND CONDITIONS...
5. SUBJECT TO THE AGREEMENT OF COVENANTS AND RESTRICTIONS (PETITIONER'S EXHIBIT #2), AS MAY BE AMENDED FROM TIME TO TIME, PETITIONER SHALL ENSURE THAT THE COMMUNITY COMMERCIAL AS SET FORTH ON THE DEVELOPMENT CONCEPT PLAN IS MADE AVAILABLE FREE OF CHARGE TO THE GENERAL PUBLIC SUBJECT TO PETITIONER'S REASONABLE TERMS, RESTRICTIONS AND CONDITIONS...
6. THE PETITIONER'S PRIVATE SCHOOL USE SHALL MEET ALL REQUIREMENTS OF APPLICABLE LAW AND NOT EXCEED THE ENROLLMENT OF 500 STUDENTS...
7. THE PETITIONER'S CHILD DAYCARE/NURSERY SCHOOL USE SHALL MEET ALL REQUIREMENTS OF APPLICABLE LAW AND NOT EXCEED THE ENROLLMENT OF 50 STUDENTS...
8. PETITIONER SHALL COORDINATE WITH HOWARD COUNTY OFFICE OF TRANSPORTATION AND THE DEPARTMENT OF PUBLIC WORKS, THEIR STAFF AND CONSULTANT(S) TO DESIGN, DEVELOP, CONSTRUCT AND DEDICATE TO HOWARD COUNTY A CROSSWALK ACROSS MARRIOTTSTVILLE ROAD TO AND FROM RESORT ROAD TO ALBETH ROAD ("CROSSWALK"). PETITIONER SHALL ENSURE THAT ONE OR MORE OF THE FOLLOWING SHALL BE COMPLETED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT FOR ANY RESIDENTIAL UNIT(S) OF THE DEVELOPMENT CONCEPT PLAN:
(i) COMPLETION OF CONSTRUCTION AND DEDICATION OF THE CROSSWALK TO HOWARD COUNTY;
(ii) EXECUTION OF A FACILITIES CONSTRUCTION AGREEMENT BETWEEN HOWARD COUNTY AND THE PETITIONER TO CONSTRUCT THE CROSSWALK OR
(iii) POSTING OF A BOND/SURETY BY PETITIONER FOR AN AMOUNT ACCEPTABLE TO HOWARD COUNTY TO ENSURE CONSTRUCTION AND DEDICATION OF THE CROSSWALK.
9. PETITIONER SHALL COORDINATE WITH HOWARD COUNTY DEPARTMENT OF PUBLIC WORKS, THEIR STAFF AND CONSULTANT(S) AND THE RESIDENTS OF ALBETH HEIGHTS TO INSTALL THE PROPOSED ALBETH HEIGHTS ENTRY PILLARS ON ALBETH ROAD IN THE MANNER AS SUBSTANTIALLY SHOWN ON THE DEVELOPMENT CONCEPT PLAN ("PILLARS"). PETITIONER SHALL ENSURE THAT ONE OR MORE OF THE FOLLOWING SHALL BE COMPLETED PRIOR TO THE ISSUANCE OF ANY BUILDING PERMIT FOR ANY RESIDENTIAL UNIT(S) OF THE DEVELOPMENT CONCEPT PLAN:
(i) COMPLETION OF CONSTRUCTION AND DEDICATION OF THE PILLARS TO HOWARD COUNTY;
(ii) EXECUTION OF A FACILITIES CONSTRUCTION AGREEMENT BETWEEN HOWARD COUNTY AND THE PETITIONER TO CONSTRUCT THE PILLARS OR
(iii) POSTING OF A BOND/SURETY BY PETITIONER FOR AN AMOUNT ACCEPTABLE TO HOWARD COUNTY TO ENSURE CONSTRUCTION AND DEDICATION OF THE PILLARS.

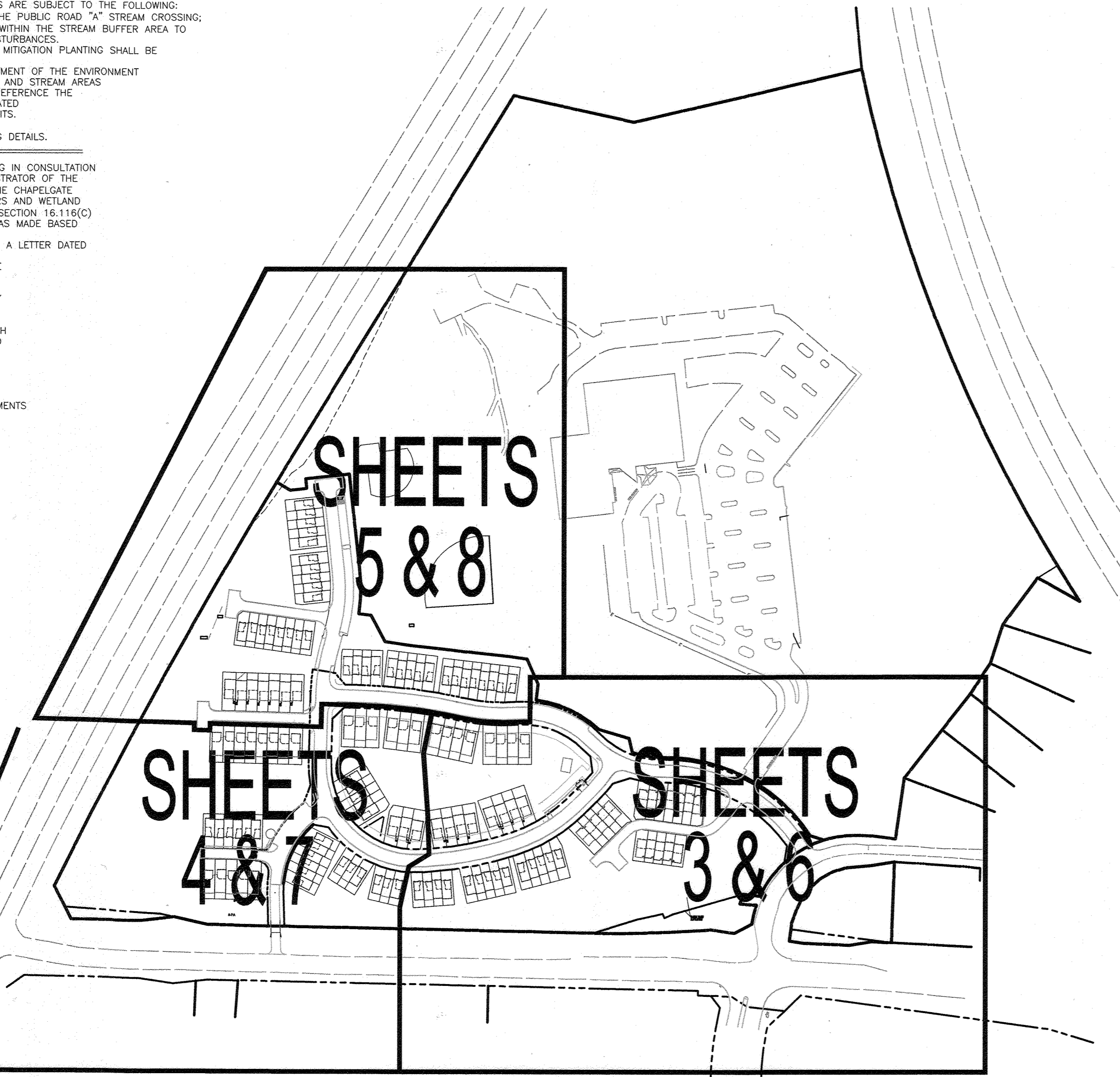
ZB-1105-M ATTACHMENT 2 - JUNE 8, 2017 EMAIL

EMAIL STATED: "ONE OR MORE ENHANCEMENTS WHICH ARE BENEFICIAL TO THE COMMUNITY THAT EXCEED MINIMUM STANDARDS REQUIRED BY THE COUNTY REGULATIONS." THE PROFFERED ENHANCEMENTS ARE NUMEROUS.

- (1) THERE IS OVERALL LESS DISTURBANCE OF LAND FOR THE HOUSING PLAN AND THE CREATION OF MORE CREDITED OPEN SPACE, GREATLY EXCEEDING THE MINIMUM REQUIRED IN R-20 OR THE R-ED OPTION
(2) THERE IS A SYSTEM OF CONNECTED GREEN SPACES IN THE PROPOSED HOUSING DEVELOPMENT PLAN THAT, IN AND OF ITSELF, PROVIDES A VERY GREEN DEVELOPMENT, INCLUDING NON-CREDITED OPEN SPACE, THAT WILL EXCEED DEVELOPMENT STANDARDS IN THE R-20 AND R-ED OPTION
(3) THE LOOP, WALKING TRAIL- AND, WHILE WE DON'T AGREE THIS TO BE THE CASE, WE WILL HAVE THE SECURITY FEATURES TO ENSURE THAT THIS TRAIL WILL NOT BRING CRIME TO THE NEIGHBORHOOD THE LOOP TRAIL WILL CONTAIN:
(4) FITNESS STATIONS - WOULD BE TERRIFIC AMENITIES FOR THE USERS OF THE LOOP TRAIL
(5) A MEDITATION AREA - WE THINK THIS AREA WELL-SITED
(6) BENCHES - FOR THE WEARY
(7) DOG STATIONS - FOR PET OWNERS
(8) BIKE RACKS - FOR THE CYCLISTS IN OUR COMMUNITY
(9) THE PICNIC AREAS THAT ARE GOING TO BE CREATED
(10) THE HOUSING DEVELOPMENT WILL HAVE PAVILIONS THAT PEOPLE CAN USE
(11) THERE ARE NUMEROUS POCKET PARKS DESIGNED THROUGHOUT THE DEVELOPMENT FOR COHESIVENESS AND FUNCTIONALITY AND EXCEED THE ORDINARILY REQUIRED DESIGN STANDARDS FOR R-20 OR R-ED OPTION
(12) THE COMMUNITY COMMERCIAL - AND, YES, THE CHURCH REMAINS COMMITTED TO NOT DOING ANYTHING ON THE COMMUNITY COMMERCIAL WITHOUT THE CONSENT OF OUR NEIGHBORS AND WILL STILL EXCITE THE COVENANTS TO EASE OUR NEIGHBORS' CONCERNS.
(13) BALL FIELDS AND THE PUBLIC'S ACCESS TO THESE BALLFIELDS
(14) PLAYGROUNDS AND THE PUBLIC'S ACCESS TO THESE PLAYGROUNDS
(15) A CROSSWALK ACROSS MARRIOTTSTVILLE ROAD WHICH CREATES CONNECTION BETWEEN THE EAST AND WEST SIDES OF MARRIOTTSTVILLE ROAD AT RESORT ROAD - SOMETHING THAT WILL NOT OCCUR OR BE REQUIRED IF THE CURRENT INGRESS/EGRESS FOR CHAPEL GATE REMAINS
(16) CREATING THE CONNECTION TO A SIGNALIZED INTERSECTION FOR SAFER INGRESS/EGRESS FOR THE CHAPEL GATE COMMUNITY AND EVERY OTHER MOTORIST THAT TRAVELS MARRIOTTSTVILLE ROAD
(17) CREATION AND PRESERVATION OF RECREATION OPEN SPACE SUBSTANTIALLY HIGHER THAN THAT REQUIRED FOR THE R-20 ZONE OR R-ED OPTION
(18) COMMUNITY ENTRANCE FEATURE FOR ALBETH HEIGHTS - WE WILL CONSTRUCT THAT WITH THE INPUT OF OUR NEIGHBORS.

ZB-1105-M ATTACHMENT 3
PETITIONER PROPOSES TO AMEND PETITIONER'S EXHIBIT 12 SO AS TO REQUIRE SUBMITTAL OF AN APPROVED STORMWATER MANAGEMENT PLAN TO THE ZONING BOARD PRIOR TO THE APPROVAL OF A RECORD PLAN TO THE RESIDENTIAL PORTION OF THE APPLICATION, THE STORMWATER MANAGEMENT PLAN FOR THIS CEF DEVELOPMENT SHALL EXCEED THE MINIMUM REQUIREMENTS FOR THE PROPERTY AND BE COLLABORATED WITH THE INPUT OF THE ALBETH HEIGHTS RESIDENTS TO RESULT IN REDUCTION IN FLOODING FOR THE AREA OF ALBETH ROAD FOR MARRIOTTSTVILLE ROAD. PETITIONER IS EXPLORING PRELIMINARY DESIGN CONCEPTS FOR ADDITIONAL STORMWATER FACILITIES SO AS TO LET THE FLOW OF WATER INTO THE STREAM FROM THE CHAPEL GATE PROPERTY. WITH THE APPROVAL OF THIS STORMWATER MANAGEMENT PLAN, PETITIONER BELIEVES IT CAN ENHANCE THE ENVIRONMENTAL STATUS OF THE STREAM SYSTEM AND ESTABLISH YET ANOTHER ENHANCEMENT THAT WILL BENEFIT THE COMMUNITY.

REFER TO SHEET 1 - GENERAL NOTE 44.



SHEET KEY OVERALL MAP
SCALE: 1" = 300'

Table with columns: APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING, Designated by, DATE, CHIEF, DEVELOPMENT ENGINEERING DIVISION, DATE, CHIEF, DIVISION OF LAND DEVELOPMENT, DATE, DIRECTOR, DATE.

OWNER/DEVELOPER
U.S. HOME, LLC
7035 ALBERT EINSTEIN DRIVE
SUITE 200
COLUMBIA, MD 21046
LENARMAR.COM
410-423-4264

Table with columns: NO., REVISION, DATE. Includes a revision entry: REVISION TO ADD RAIN BARREL CONCRETE FOUNDATIONS, REUSE DECK, SHUT HOUSE ON LOTS 16, 18, 105-108 AND LOT 117, ADD SCREENING FENCE AND ADD BAY WINDOWS.

SITE DEVELOPMENT PLAN
SHEET KEY MAP & NOTES
CHAPEL GATE WOODS
SFA LOTS 1-134
PLAT# 26141-26152
P/O PARCEL: 110
TAX MAP: 18 GRD: 10
3RD ELECTION DISTRICT
L 1389/F. 339 (P. 110)
HOWARD COUNTY, MARYLAND
ZONED: CEF-M

VOGEL ENGINEERING
TIMMONS GROUP
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE
DESIGN BY: RHV
DRAWN BY: VE+TC
CHECKED BY: RHV
DATE: AUGUST 2022
SCALE: AS SHOWN
W.O. NO.: 13-36 / 40220
2 SHEET OF 42

**SWM NOTES:**

- 1. REFER TO SHEET 10 FOR SWM NOTES AND DETAILS.
- 2. REFER TO SHEETS 11 & 12 FOR PERMEABLE SURFACE DRIVEWAY OVER/UNDERDRAIN PLAN & PROFILES.

**NOTES:**

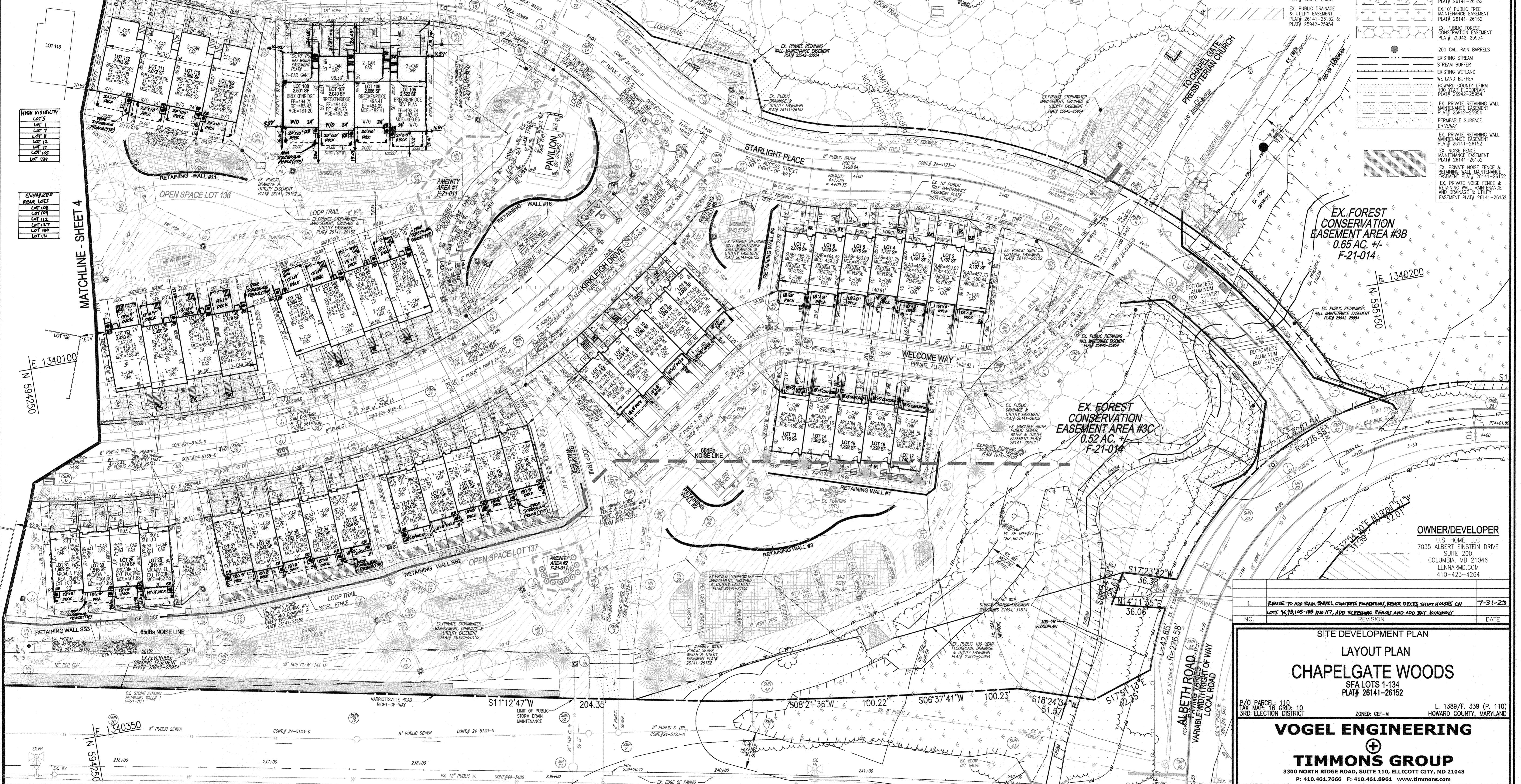
- 1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.
- 2. CONTRACTOR TO CONFIRM ALL SEWER HOUSE CONNECTION ELEVATIONS BEFORE STARTING CONSTRUCTION OF EACH HOUSE.

**MATCHLINE - SHEET 5**

Maryland State Grid Meridian

**LEGEND:**

- EXISTING CURB AND GUTTER
- EXISTING UTILITY POLE
- EXISTING LIGHT POLE
- EXISTING MAILBOX
- EXISTING SIGN
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY LINE
- EXISTING SEWER LINE
- EXISTING FIRE HYDRANT
- EXISTING WATER LINE
- EXISTING TREELINE
- EXISTING STORMDRAIN
- EX. PRIVATE STORMWATER MANAGEMENT DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152 & PLAT# 25942-25954
- EX. PUBLIC DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152 & PLAT# 25942-25954
- EX. PRIVATE STORMWATER MANAGEMENT DRAINAGE & UTILITY EASEMENT PLAT# 25942-25954
- EX. PUBLIC FOREST CONSERVATION EASEMENT PLAT# 25942-25954
- 200 GAL. RAIN BARRELS
- EXISTING STREAM
- STREAM BUFFER
- EXISTING WETLAND
- WETLAND BUFFER
- HOWARD COUNTY DIRM 100 YEAR FLOODPLAIN PLAT# 25942-25954
- EX. PRIVATE RETAINING WALL MAINTENANCE EASEMENT PLAT# 25942-25954
- EX. PRIVATE MOST FENCE MAINTENANCE EASEMENT PLAT# 26141-26152
- EX. PRIVATE NOISE FENCE MAINTENANCE EASEMENT PLAT# 26141-26152
- EX. PRIVATE MOST FENCE RETAINING WALL MAINTENANCE AND DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152
- UNLIMITED 65dBa NOISE LINE
- EXISTING LANDSCAPING F-21-011
- EXISTING STREET TREE F-21-011
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EX. VARIABLE WIDTH PUBLIC WATER, SEWER, AND UTILITY EASEMENT PLAT# 26141-26152
- EX. SPECIMEN TREE
- EX. MICRO BIOTRETION F-21-011
- EX. SIGHT DISTANCE EASEMENT PLAT# 26141-26152
- EX. 10' PUBLIC TREE MAINTENANCE EASEMENT PLAT# 26141-26152
- EX. PUBLIC FOREST CONSERVATION EASEMENT PLAT# 25942-25954



**HIGH VISIBILITY BEAR LOTS**

- LOT 7
- LOT 8
- LOT 12
- LOT 15
- LOT 122
- LOT 132

**ENHANCED BEAR LOTS**

- LOT 109
- LOT 112
- LOT 130
- LOT 131

**EX. FOREST CONSERVATION EASEMENT AREA #3B**  
0.65 AC. +/-  
F-21-014

**EX. FOREST CONSERVATION EASEMENT AREA #3C**  
0.52 AC. +/-  
F-21-014

**OWNER/DEVELOPER**  
U.S. HOME, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
410-423-4264

1	REVISION TO ADD RAIN GUTTER CONCRETE FOUNDATION, REMOV DECK, SHED HOUSE ON LOTS 14, 15, 105 AND 117, ADD SCREENING FENCE AND ADD RAY W/ADJUTANT	7-31-23
NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**LAYOUT PLAN**  
**CHAPEL GATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

P/O PARCEL: 110  
TAX MAP: 1E GRID: 10  
3RD ELECTION DISTRICT

L. 1389/F. 339 (P. 110)  
HOWARD COUNTY, MARYLAND

ZONED: CEF-M

**VOGEL ENGINEERING**  
**TIMMONS GROUP**  
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8963 www.timmons.com

**PROFESSIONAL CERTIFICATE**

DESIGN BY: RHV  
DRAWN BY: VE+TG  
CHECKED BY: RHV  
DATE: AUGUST 2022  
SCALE: AS SHOWN  
W.O. NO.: 13-36 / 40220

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16193, EXPIRATION DATE: 09-27-2022.

**3 SHEET OF 42**

**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**

Chief, Development Engineering Division: **David Edmondson** (11/3/2022)  
Chief, Division of Land Use Administration: **Any Green** (10/26/2022)  
Director: **Any Green** (11/3/2022)

**RETAINING WALL NOTE:**  
THE RETAINING WALLS DESIGNED & DETAILED BY HILLS CARNES ENGINEERING ASSOCIATES SHALL BE MAINTAINED BY THE COMMUNITY HOMEOWNERS ASSOCIATION (H.O.A.)

**NOTE:**  
IN A LETTER DATED FEBRUARY 19, 2023, THE CHIEF OF THE DIVISION OF PUBLIC SERVICES AND PLANNING ADMINISTRATION APPROVED AN ENCROACHMENT OF 'W' INTO THE PRINT SERVICE TO ACCOMMODATE A BELLE LEVINE

**LAYOUT PLAN**  
SCALE: 1" = 30'

**PARKING NOTE:**  
THE H.O.A. SHALL BE RESPONSIBLE FOR ENFORCING THE PARKING REQUIREMENTS ON EACH RESIDENTIAL LOT. ONE (1) GARAGE SPACE SHALL REMAIN OPEN FOR VEHICLE PARKING USE. THE GARAGE SPACE MAY NOT BE CONVERTED TO LIVING SPACE AND SHALL ONLY BE UTILIZED AS A RECREATIONAL PARKING SPACE. SEE PARKING TABULATION SHEET 1.

**NOTES:**  
 1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-328 OUTSIDE METER SETTINGS.  
 2. CONTRACTOR TO CONFIRM ALL SEWER HOUSE CONNECTION ELEVATIONS BEFORE STARTING CONSTRUCTION OF EACH HOUSE.

**PARKING NOTE:**  
 THE H.O.A. SHALL BE RESPONSIBLE FOR ENFORCING THE PARKING REQUIREMENTS ON EACH RESIDENTIAL LOT. ONE (1) GARAGE SPACE SHALL REMAIN OPEN FOR VEHICLE PARKING USE. THE GARAGE SPACE MAY NOT BE CONVERTED TO LIVING SPACE AND SHALL ONLY BE UTILIZED AS A VEHICULAR PARKING SPACE.  
 SEE PARKING TARIFF SHEET T

**SWM NOTES:**  
 1. REFER TO SHEET 10 FOR SWM NOTES AND DETAILS.  
 2. REFER TO SHEETS 11 & 12 FOR PERMEABLE SURFACE DRIVEWAY OVER/UNDERDRAN PLAN & PROFILES

**LOT 38:**  
 IN A LETTER DATED OCTOBER 19, 2023, THE CHIEF OF THE DIVISION OF PUBLIC SERVICE AND ZONING ADMINISTRATION APPROVED AN ENCROACHMENT OF 0.18' INTO THE SIDE SETBACK TO ACCOMMODATE A BRICK LEDGE.

- LEGEND:**
- EXISTING CURB AND GUTTER
  - EXISTING UTILITY POLE
  - EXISTING LIGHT POLE
  - EXISTING MAILBOX
  - EXISTING SIGN
  - EXISTING SANITARY MANHOLE
  - EXISTING SANITARY LINE
  - EXISTING CLEANOUT
  - EXISTING FIRE HYDRANT
  - EXISTING WATER LINE
  - EXISTING TREETRUNK
  - EXISTING STORMDRAIN
  - EX. PRIVATE STORMWATER MANAGEMENT DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152
  - EX. PUBLIC DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152
  - EXISTING LANDSCAPING
  - EXISTING STREET TREE
  - PROPERTY LINE
  - RIGHT-OF-WAY LINE
  - EX. VARIABLE WIDTH PUBLIC SEWER, WATER AND UTILITY EASEMENT PLAT# 26141-26152
  - EX. SPECIMEN TREE
  - EX. MICRO BIOTRETATION
  - EX. PUBLIC SIDEWALK EASEMENT PLAT# 26141-26152
  - EX. 10" PUBLIC TREE MAINTENANCE EASEMENT PLAT# 26141-26152
  - EX. PUBLIC FOREST CONSERVATION EASEMENT PLAT# 25942-25954
  - 200 GAL RAIN BARRELS
  - EXISTING STREAM
  - STREAM BUFFER
  - EX. PRIVATE TEMPORARY EASEMENT PLAT# 25942-25954
  - EX. PRIVATE PERPETUAL EASEMENT PLAT# 25942-25954
  - 65dB NOISE LINE
  - UNMITIGATED 65dB NOISE LINE
  - EX. PERMEABLE PAVING
  - EX. PRIVATE RETAINING WALL MAINTENANCE EASEMENT PLAT# 26141-26152
  - EX. NOISE FENCE MAINTENANCE EASEMENT PLAT# 26141-26152
  - EX. PRIVATE NOISE FENCE & RETAINING WALL MAINTENANCE EASEMENT PLAT# 26141-26152
  - EX. PRIVATE NOISE FENCE & RETAINING WALL MAINTENANCE AND DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152

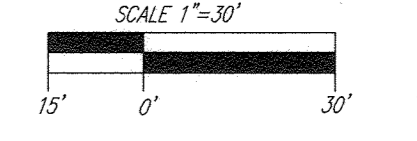
**LOT 37:**  
 IN A LETTER DATED FEBRUARY 14, 2023, THE CHIEF OF THE DIVISION OF PUBLIC SERVICE AND ZONING ADMINISTRATION APPROVED AN ENCROACHMENT OF 0.14' INTO THE FRONT SETBACK TO ACCOMMODATE A BRICK LEDGE.

**LOT 113:**  
 IN A LETTER DATED FEBRUARY 14, 2023, THE CHIEF OF THE DIVISION OF PUBLIC SERVICE AND ZONING ADMINISTRATION APPROVED AN ENCROACHMENT OF 0.07' INTO THE FRONT SETBACK TO ACCOMMODATE A BRICK LEDGE.

**LOT 115:**  
 IN A LETTER DATED FEBRUARY 14, 2023, THE CHIEF OF THE DIVISION OF PUBLIC SERVICE AND ZONING ADMINISTRATION APPROVED AN ENCROACHMENT OF 0.01' INTO THE FRONT SETBACK TO ACCOMMODATE A BRICK LEDGE.

**RETAINING WALL NOTE:**  
 THE RETAINING WALLS DESIGNED & DETAIL BY HILLS CHANGES ENGINEERING ASSOCIATES SHALL BE MAINTAINED BY THE COMMUNITY HOMEOWNERS ASSOCIATION (H.O.A.)

**OWNER/DEVELOPER**  
 U.S. HOME, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARD.COM  
 410-423-4264



NO.	REVISION	DATE
2	REVISE TO ADD BRICK ENCROACHMENT APPROVAL NOTE FOR LOT 38	1-3-24
1	REVISE TO ADD RAIN BARREL CONCRETE FOUNDATIONS, REVISE DECKS, SHUT HOUSES ON LOTS 167B, 105-108 AND 117, AND SCREENING FENCES AND AND BAY WINDOWS	7-31-23

**SITE DEVELOPMENT PLAN**  
**LAYOUT PLAN**  
**CHAPEL GATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

P/O PARCEL: 110  
 TAX MAP: TR GRID: 10  
 SRD ELECTION DISTRICT

ZONED: CEF-M  
 L 1389/F. 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
**TIMMONS GROUP**  
 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV  
 DRAWN BY: VE+TG  
 CHECKED BY: RHV  
 DATE: AUGUST 2022  
 SCALE: AS SHOWN  
 W.O. NO.: 13-36 / 40220

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. 16183 EXPIRATION DATE: 09-27-2022

4 SHEET OF 42



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Designed by: 11/3/2022  
 Chief, Development Engineering Division

Checked by: 10/26/2022  
 Chief, Division of Land Development

Designed by: 11/3/2022  
 Director

**LAYOUT PLAN**  
 SCALE: 1"=30'



**RETAINING WALL NOTE:**  
THE RETAINING WALLS DESIGNED & DETAILED BY HILLS CARRIES ENGINEERING ASSOCIATES SHALL BE MAINTAINED BY THE COMMUNITY HOMEOWNERS ASSOCIATION (H.O.A.)

**NOTES:**  
1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-328 OUTSIDE METER SETTINGS.  
2. CONTRACTOR TO CONFIRM ALL SEWER HOUSE CONNECTION ELEVATIONS BEFORE STARTING CONSTRUCTION OF EACH HOUSE.

**LEGEND:**

[Symbol]	EXISTING CURB AND GUTTER
[Symbol]	EXISTING LIGHT POLE
[Symbol]	EXISTING MAILBOX
[Symbol]	EXISTING SIGN
[Symbol]	EXISTING SANITARY MANHOLE
[Symbol]	EXISTING SANITARY LINE
[Symbol]	EXISTING CLEANOUT
[Symbol]	EXISTING FIRE HYDRANT
[Symbol]	EXISTING WATER LINE
[Symbol]	EXISTING TREELINE
[Symbol]	EXISTING STORMDRAIN
[Symbol]	EX. PRIVATE STORMWATER MANAGEMENT, DRAINAGE & UTILITY EASEMENT PLAT# 25942-25954 & PLAT# 26141-26152
[Symbol]	EX. PUBLIC DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152
[Symbol]	EXISTING LANDSCAPING F.21-011
[Symbol]	EXISTING STREET TREE F.21-011
[Symbol]	EXISTING RIGHT-OF-WAY LINE
[Symbol]	EX. VARIABLE WIDTH PUBLIC SEWER, WATER AND UTILITY EASEMENT PLAT# 26141-26152
[Symbol]	EX. SPECIMEN TREE
[Symbol]	EX. MICRO BORETENTION PLAT# 26141-26152
[Symbol]	EX. PUBLIC SIDEWALK EASEMENT PLAT# 26141-26152
[Symbol]	EX. 10' PUBLIC TREE MAINTENANCE EASEMENT PLAT# 26141-26152
[Symbol]	EX. PUBLIC FOREST CONSERVATION EASEMENT PLAT# 25942-25954
[Symbol]	200 GAL. RAIN BARRELS
[Symbol]	EXISTING STREAM
[Symbol]	EX. PRIVATE RETAINING WALL MAINTENANCE EASEMENT PLAT# 25942-25954
[Symbol]	655bB NOISE LINE
[Symbol]	UNMITIGATED 655bB NOISE LINE
[Symbol]	PERMEABLE SURFACE DRIVEWAY
[Symbol]	EX. PRIVATE RETAINING WALL MAINTENANCE EASEMENT PLAT# 26141-26152
[Symbol]	EX. NOISE FENCE MAINTENANCE EASEMENT PLAT# 26141-26152
[Symbol]	EX. PRIVATE NOISE FENCE & RETAINING WALL MAINTENANCE EASEMENT PLAT# 26141-26152
[Symbol]	EX. PRIVATE NOISE FENCE & RETAINING WALL MAINTENANCE AND DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152

**OWNER/DEVELOPER**  
U.S. HOME, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARD.COM  
410-423-4264

1. REVISE TO ADD RAIN BARREL CONCRETE FOUNDATIONS, REPLACE DECKS, SHIPY HOBBY IN 7-31-23		
NO.	REVISION	DATE

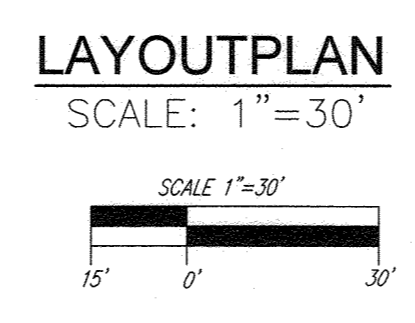
**SITE DEVELOPMENT PLAN  
LAYOUT PLAN**  
**CHAPEL GATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152  
P/O PARCEL: 110  
TAX MAP: TC GRID: 10  
3RD ELECTION DISTRICT  
L 1389/F. 339 (P. 110)  
HOWARD COUNTY, MARYLAND  
ZONED: CEF-M

**VOGEL ENGINEERING**  
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3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

**PROFESSIONAL CERTIFICATE**  
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. 16193, EXPIRATION DATE: 09-27-2022  
**ROBERT H. VOGEL**  
PROFESSIONAL ENGINEER  
DESIGN BY: RHV  
DRAWN BY: VE+TC  
CHECKED BY: RHV  
DATE: AUGUST 2022  
SCALE: AS SHOWN  
W.O. NO.: 13-36 / 40220  
5 SHEET OF 42

**APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING**  
11/3/2022  
10/26/2022  
11/3/2022  
3/3/2022

**NOTE:**  
DECKS AND DECK STAIRS SHOWN HEREON ARE OPTIONAL.



**HIGH UTILITY LOTS**  
LOT 44  
LOT 78  
LOT 88  
LOT 109

**SWM NOTES:**  
1. REFER TO SHEET 10 FOR SWM NOTES AND DETAILS.  
2. REFER TO SHEETS 11 & 12 FOR PERMEABLE SURFACE DRIVEWAY OVER/UNDERDRAIN PLAN & PROFILES

**PARKING NOTE:**  
THE H.O.A. SHALL BE RESPONSIBLE FOR ENFORCING THE PARKING REQUIREMENTS ON EACH RESIDENTIAL LOT. ONE (1) GARAGE SPACE SHALL REMAIN OPEN FOR VEHICLE PARKING USE. THE GARAGE SPACE MAY NOT BE CONVERTED TO LIVING SPACE AND SHALL ONLY BE UTILIZED AS A VEHICULAR PARKING SPACE.  
SEE PARKING TABULATION SHEET 1.

NOTE:

1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.

NOTE:

1. GENERIC HOUSE BOXES ARE SHOWN IN ACCORDANCE WITH HOWARD COUNTY GUIDELINES AND DO NOT LIMIT MODEL TYPES AND OPTIONS THAT MAY FIT ON ANY INDIVIDUAL LOT. 2. TYPICAL DRIVEWAY WIDTH SHOWN HEREON IS 16 FEET WIDE FOR THE PROPOSED 2 CAR GARAGE AND 8 FEET FOR 1 CAR GARAGE. WIDTH SUBJECT TO CHANGE WITH BUILDER DESIGN. 3. DRIVEWAYS WITH SHOWN DRIVEWAY LOCATION CANNOT CHANGE UNLESS NOTED ON THIS SDP CONFIRMING THAT THE GRADING AND DRIVEWAY SLOPES WILL REMAIN THE SAME WHETHER THE DRIVEWAY IS ON THE RIGHT OR LEFT SIDE OF THE HOUSE.

NOTES:

1. REFER TO SHEET 10 FOR RAIN BARREL NOTES & DETAILS. 2. REFER TO SHEET 12 FOR PERMEABLE DRIVEWAY NOTES AND DETAILS. 3. REFER TO SHEET 13 FOR TEST PIT DATA.

\*ACCESSIBLE ROUTE NOTE:

CROSS SLOPE SHALL NOT EXCEED 2% 5' LEVEL LANDINGS SHALL HAVE A 0% CROSS SLOPE

ADA PARKING SPACE PROVIDED AT LOCATION SHOWN HEREON DUE TO KIRKLEIGH DRIVE'S VERTICAL ALIGNMENT. THE SLOPE NEAR 2+00 IS STEEPER THAN THAT REQUIRED FOR ADA PARKING SPACE.

ADA PARKING SPACE PROVIDED AT LOCATION SHOWN HEREON DUE TO KIRKLEIGH DRIVE'S VERTICAL ALIGNMENT. THE SLOPE NEAR 2+00 IS STEEPER THAN THAT REQUIRED FOR ADA PARKING SPACE.

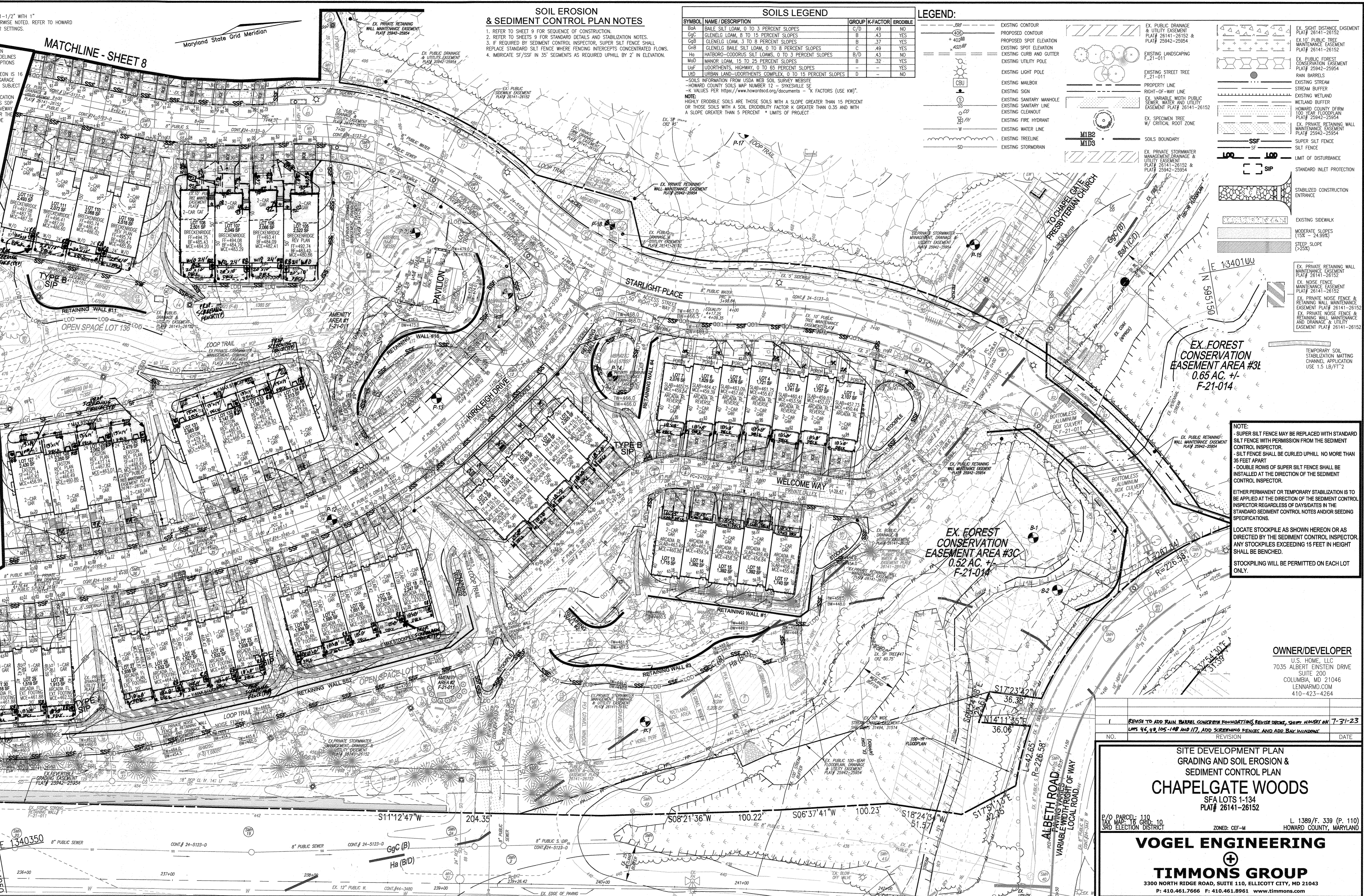
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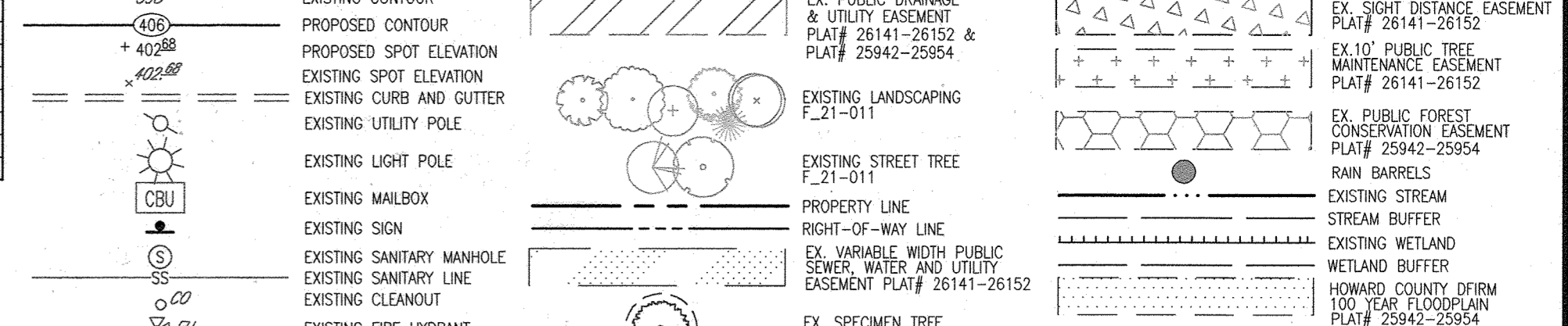
SOIL EROSION & SEDIMENT CONTROL PLAN NOTES

- 1. REFER TO SHEET 9 FOR SEQUENCE OF CONSTRUCTION. 2. REFER TO SHEETS 9 FOR STANDARD DETAILS AND STABILIZATION NOTES. 3. IF REQUIRED BY SEDIMENT CONTROL INSPECTOR, SUPER SILT FENCE SHALL REPLACE STANDARD SILT FENCE WHERE FENCING INTERCEPTS CONCENTRATED FLOWS. 4. IMBRICATE SF/SF IN 35' SEGMENTS AS REQUIRED UPHILL BY 2' IN ELEVATION.

SOILS LEGEND

Table with columns: SYMBOL, NAME/DESCRIPTION, GROUP, K-FACTOR, ERODIBLE. Lists soil types like B0A, G9C, G9B, G9B, Ha, Mad, U9F, U9D.

LEGEND:



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Chief, Development Engineering Division: Matthew Wineman, dated 11/3/2022.

OWNER/DEVELOPER CERTIFICATION: 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...

MARRIOTTVILLE ROAD INTERMEDIATE ARTERIAL 40' PAVING VARIABLE WIDTH RIGHT OF WAY. Approved by Alexander Bratovic, dated 10/25/2022.

GRADING AND SOIL EROSION, SEDIMENT CONTROL PLAN. SCALE: 1" = 30'. Includes a graphic scale bar.

NOTE: NOISE WALL CONSTRUCTION SHALL OCCUR UNDER F-21-011 AS APPROVED AUGUST 31, 2021.

Site development plan for CHAPEL GATE WOODS, SFA LOTS 1-134. Includes owner/developer information for U.S. HOME, LLC and contact info for VOGEL ENGINEERING and TIMMONS GROUP.

Professional Engineer seal for Robert H. Vogel, PE No. 16193, and project details including design date (August 2022) and sheet number (6 of 42).

NOTE:

1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-3.28 OUTSIDE METER SETTINGS.

NOTE:

1. GENERIC HOUSE BOXES ARE SHOWN IN ACCORDANCE WITH HOWARD COUNTY GUIDELINES AND DO NOT LIMIT MODEL TYPES AND OPTIONS THAT MAY FIT ON AN INDIVIDUAL LOT.  
2. TYPICAL DRIVEWAY WIDTH SHOWN HEREON IS 16 FEET WIDE FOR THE PROPOSED 2-CAR GARAGE AND 8 FEET FOR 1-CAR GARAGE. WIDTH SUBJECT TO CHANGE WITH BUILDER RESITE.  
3. DRIVEWAYS: THE SHOWN DRIVEWAY LOCATION CANNOT CHANGE UNLESS NOTED ON THIS SDP CONFIRMING THAT THE GRADING AND DRIVEWAY SLOPES WILL REMAIN THE SAME WHETHER THE DRIVEWAY IS ON THE RIGHT OR LEFT SIDE OF THE HOUSE.

NOTE:

NOISE WALL CONSTRUCTION SHALL OCCUR UNDER F-21-011 AS APPROVED AUGUST 31, 2021.

NOTE:

SUPER SILT FENCE MAY BE REPLACED WITH STANDARD SILT FENCE WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR.  
SILT FENCE SHALL BE CURLED UPHILL. NO MORE THAN 95 FEET APART.  
DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

EITHER PERMANENT OR TEMPORARY STABILIZATION IS TO BE APPLIED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR REGARDLESS OF DAYSIDES IN THE STANDARD SEDIMENT CONTROL NOTES AND/OR SEEDING SPECIFICATIONS.

LOCATE STOCKPILES AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. ANY STOCKPILES EXCEEDING 15 FEET IN HEIGHT SHALL BE BENCHED.

STOCKPILING WILL BE PERMITTED ON EACH LOT ONLY.

NOTES:

1. REFER TO SHEET 10 FOR RAIN BARREL NOTES & DETAILS.  
2. REFER TO SHEET 10 FOR PERMEABLE DRIVEWAY NOTES AND DETAILS.  
3. REFER TO SHEET 13 FOR TEST PIT DATA.

SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE - HOWARD COUNTY SOILS MAP NUMBER 12 - SYKESVILLE SE - "K" VALUES PER <https://www.howarddocs.org/documents> - "K" FACTORS (USE KW)  
NOTE: HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT \* LIMITS OF PROJECT

SOILS LEGEND table with columns: SYMBOL, NAME/DESCRIPTION, GROUP, K-FACTOR, ERODIBLE. Includes entries for Bca, GcC, GcB, GcB, Hb, Mh, Luf, and Lhd.

MATCHLINE - SHEET 8

LEGEND:

- EXISTING CONTOUR, PROPOSED CONTOUR, EXISTING SPOT ELEVATION, EXISTING CURB AND GUTTER, EXISTING UTILITY POLE, EXISTING LIGHT POLE, EXISTING MAILBOX, EXISTING SIGN, EXISTING SANITARY MANHOLE, EXISTING SANITARY LINE, EXISTING CLEANOUT, EXISTING FIRE HYDRANT, EXISTING WATER LINE, EXISTING TRENCH, EXISTING STORMDRAIN, EX. PRIVATE STORMWATER MANAGEMENT, EX. UTILITY EASEMENT, EX. PUBLIC DRAINAGE & UTILITY EASEMENT, 65db NOISE LINE, UNLIMITED 65db NOISE LINE, EXISTING LANDSCAPING, EXISTING STREET TREE, PROPERTY LINE, EX. VARIABLE WIDTH PUBLIC WATER SEWER AND UTILITY EASEMENT, EX. SPECIEN TREE, SOILS BOUNDARY, EX. PUBLIC SIDEWALK EASEMENT, EX. 10' PUBLIC TREE MAINTENANCE EASEMENT, EX. PUBLIC FOREST CONSERVATION EASEMENT, EXISTING STREAM, EX. PRIVATE RETAINING WALL MAINTENANCE EASEMENT, SUPER SILT FENCE, SILT FENCE, LIMIT OF DISTURBANCE, STABILIZED CONSTRUCTION ENTRANCE, EXISTING SIDEWALK, EX. PRIVATE RETAINING WALL MAINTENANCE EASEMENT, EX. NOISE FENCE MAINTENANCE EASEMENT, EX. PRIVATE NOISE FENCE & RETAINING WALL MAINTENANCE EASEMENT, TEMPORARY SOIL STABILIZATION MATING CHANNEL APPLICATION USE 1.5 LB/FT^2



N 1340200, N 594250

OWNER/DEVELOPER: U.S. HOME, LLC, 7035 ALBERT EINSTEIN DRIVE, SUITE 200, COLUMBIA, MD 21046, LENNARD.COM, 410-423-4264

SITE DEVELOPMENT PLAN, GRADING AND SOIL EROSION & SEDIMENT CONTROL PLAN, CHAPEL GATE WOODS, SFA LOTS 1-134, PLAT# 26141-26152, ZONED: CEF-M, HOWARD COUNTY, MARYLAND

VOGEL ENGINEERING, TIMMONS GROUP, 3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043, P: 410.461.7666 F: 410.461.8961 www.timmons.com

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING, Chief, Development Engineering Division, Chief, Division of Planning and Development, Director

OWNER/DEVELOPER CERTIFICATION: I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS GRADING AND SOIL 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...

GRADING AND SOIL EROSION, SEDIMENT CONTROL PLAN, SCALE: 1"=30', THIS DEVELOPMENT PLAN IS APPROVED FOR SOIL EROSION AND SEDIMENT CONTROL BY THE HOWARD SOIL CONSERVATION DISTRICT.

SOIL EROSION & SEDIMENT CONTROL PLAN NOTES, 1. REFER TO SHEET 9 FOR SEQUENCE OF CONSTRUCTION. 2. REFER TO SHEETS 9 FOR STANDARD DETAILS AND STABILIZATION NOTES. 3. IF REQUIRED BY SEDIMENT CONTROL INSPECTOR, SUPER SILT FENCE SHALL REPLACE STANDARD SILT FENCE WHERE FENCING INTERCEPTS CONCENTRATED FLOWS. 4. IMBRICATE SF/SF IN 35' SEGMENTS AS REQUIRED UPHILL BY 2' IN ELEVATION.

PROFESSIONAL CERTIFICATE, 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. 16193, EXPIRATION DATE: 09-27-2022

**NOTE:**

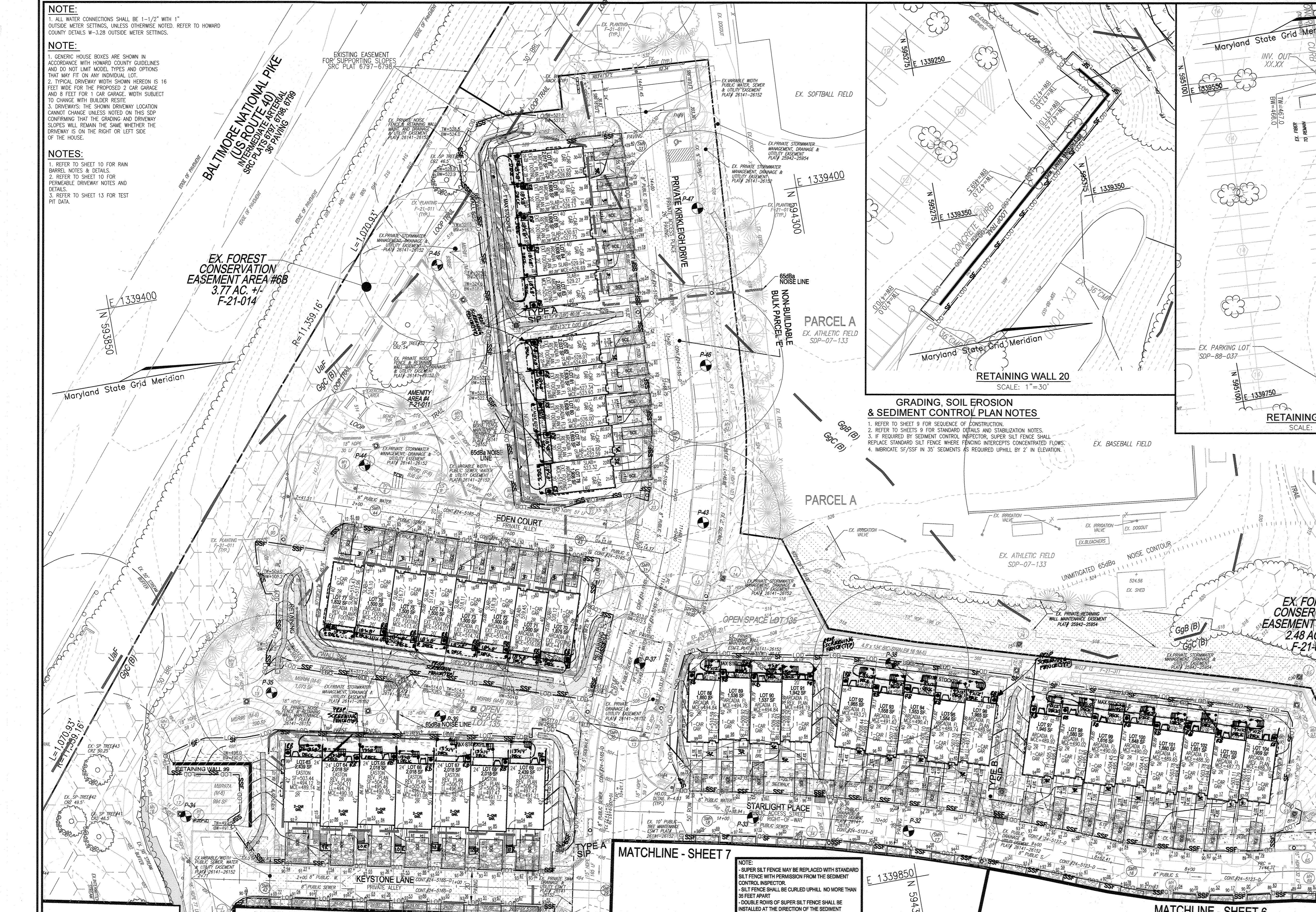
1. ALL WATER CONNECTIONS SHALL BE 1-1/2" WITH 1" OUTSIDE METER SETTINGS, UNLESS OTHERWISE NOTED. REFER TO HOWARD COUNTY DETAILS W-328 OUTSIDE METER SETTINGS.

**NOTE:**

1. GENERIC HOUSE BOXES ARE SHOWN IN ACCORDANCE WITH HOWARD COUNTY GUIDELINES AND DO NOT LIMIT MODEL, TYPES AND OPTIONS THAT MAY FIT ON ANY INDIVIDUAL LOT.  
2. TYPICAL DRIVEWAY WIDTH SHOWN HEREON IS 16 FEET WIDE FOR THE PROPOSED 7 CAR GARAGE AND 8 FEET FOR 1 CAR GARAGE, WIDTH SUBJECT TO CHANGE WITH BUILDER RESIST.  
3. DRIVEWAYS: THE SHOWN DRIVEWAY LOCATION CANNOT CHANGE UNLESS NOTED ON THIS SDP CONFIRMING THAT THE GRADING AND DRIVEWAY SLOPES WILL REMAIN THE SAME WHETHER THE DRIVEWAY IS ON THE RIGHT OR LEFT SIDE OF THE HOUSE.

**NOTES:**

1. REFER TO SHEET 10 FOR RAIN BARREL NOTES & DETAILS.  
2. REFER TO SHEET 10 FOR REMOVABLE DRIVEWAY NOTES AND DETAILS.  
3. REFER TO SHEET 13 FOR TEST PIT DATA.



**LEGEND:**

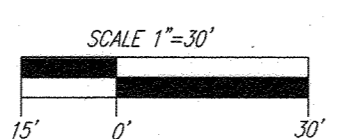
- 0.00 --- EXISTING CONTOUR
- 4.00 --- PROPOSED CONTOUR
- 402.88 --- PROPOSED SPOT ELEVATION
- 402.88 --- EXISTING CURB AND GUTTER
- 402.88 --- EXISTING SPOT ELEVATION
- 402.88 --- EXISTING CURB AND GUTTER
- 402.88 --- EXISTING UTILITY POLE
- 402.88 --- EXISTING LIGHT POLE
- 402.88 --- EXISTING MAILBOX
- 402.88 --- EXISTING SIGN
- 402.88 --- EXISTING SANITARY MANHOLE
- 402.88 --- EXISTING SANITARY LINE
- 402.88 --- EXISTING CLEANOUT
- 402.88 --- EXISTING FIRE HYDRANT
- 402.88 --- EXISTING WATER LINE
- 402.88 --- EXISTING TREELINE
- 402.88 --- EXISTING STORMDRAIN
- 402.88 --- EX. PRIVATE STORMWATER MANAGEMENT DRAINAGE & UTILITY EASEMENT PLAT# 25942-25954 & PLAT# 26141-26152
- 402.88 --- EX. PUBLIC DRAINAGE & UTILITY EASEMENT PLAT# 26141-26152
- 402.88 --- 65dBa NOISE LINE
- 402.88 --- UNMITIGATED 65dBa NOISE LINE
- 402.88 --- EXISTING LANDSCAPING F-21-011
- 402.88 --- EXISTING STREET TREE F-21-011
- 402.88 --- PROPERTY LINE
- 402.88 --- RIGHT-OF-WAY LINE
- 402.88 --- EX. VARIABLE WIDTH PUBLIC WATER, SEWER, AND UTILITY EASEMENT PLAT# 26141-26152
- 402.88 --- EX. SPECIMEN TREE W/ CRITICAL ROOT ZONE
- 402.88 --- MIB2 MID3 --- SOILS BOUNDARY
- 402.88 --- EX. SIGHT DISTANCE EASEMENT PLAT# 26141-26152
- 402.88 --- EX. 10' PUBLIC TREE MAINTENANCE EASEMENT PLAT# 26141-26152
- 402.88 --- EX. PUBLIC FOREST CONSERVATION EASEMENT PLAT# 25942-25954
- 402.88 --- EX. PUBLIC FOREST CONSERVATION EASEMENT PLAT# 26141-26152
- 402.88 --- RAIN BARRELS
- 402.88 --- EXISTING STREAM
- 402.88 --- STREAM BUFFER
- 402.88 --- EX. PRIVATE RETAINING WALL MAINTENANCE EASEMENT PLAT# 25942-25954
- 402.88 --- SUPER SILT FENCE
- 402.88 --- SILT FENCE
- 402.88 --- LIMIT OF DISTURBANCE
- 402.88 --- STANDARD INLET PROTECTION
- 402.88 --- STABILIZED CONSTRUCTION ENTRANCE
- 402.88 --- EXISTING SIDEWALK
- 402.88 --- MODERATE SLOPES (15% - 24.99%)
- 402.88 --- STEEP SLOPE (>25%)
- 402.88 --- TEMPORARY SOIL STABILIZATION MATTING CHANNEL APPLICATION USE 1.5 LB/FT<sup>2</sup>

**GRADING, SOIL EROSION & SEDIMENT CONTROL PLAN NOTES**

- REFER TO SHEET 9 FOR SEQUENCE OF CONSTRUCTION.
- REFER TO SHEETS 9 FOR STANDARD DETAILS AND STABILIZATION NOTES.
- IF REQUIRED BY SEDIMENT CONTROL INSPECTOR, SUPER SILT FENCE SHALL REPLACE STANDARD SILT FENCE WHERE FENCING INTERCEPTS CONCENTRATED FLOWS.
- IMBRICATE SF/SF IN 35' SEGMENTS AS REQUIRED UPHILL BY 2" IN ELEVATION.

**NOTE:**

NOISE WALL CONSTRUCTION SHALL OCCUR UNDER F-21-011 AS APPROVED AUGUST 31, 2021.



**GRADING AND SOIL EROSION, SEDIMENT CONTROL PLAN**

SCALE: 1"=30'

**MATCHLINE - SHEET 7**

**NOTE:**  
- SUPER SILT FENCE MAY BE REPLACED WITH STANDARD SILT FENCE WITH PERMISSION FROM THE SEDIMENT CONTROL INSPECTOR.  
- SILT FENCE SHALL BE CURLED UPHILL, NO MORE THAN 36 FEET APART.  
- DOUBLE ROWS OF SUPER SILT FENCE SHALL BE INSTALLED AT THE DIRECTION OF THE SEDIMENT CONTROL INSPECTOR.

LOCATE STOCKPILE AS SHOWN HEREON OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. ANY STOCKPILES EXCEEDING 16 FEET IN HEIGHT SHALL BE BENCHED.  
STOCKPILES WILL BE PERMITTED ON EACH LOT ONLY.

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

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022

Chief, Development Engineering Division  
10/26/2022

Chief, Division of Planning and Development  
11/3/2022

Director  
DATE

**OWNER/DEVELOPER CERTIFICATION:**  
I HEREBY CERTIFY THAT ANY CLEARING, GRADING, CONSTRUCTION, OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS APPROVED EROSION AND SEDIMENT CONTROL PLAN, INCLUDING INSPECTING AND MAINTAINING CONTROLS, AND THAT ALL RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF ATTENDANCE 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 THAT THE PROJECT WILL PERIODIC ON-SITE EVALUATION BY HOWARD COUNTY, THE HOWARD SOIL CONSERVATION DISTRICT AND/OR MDE.

Matthew Wineman  
8/17/2022  
Matthew Wineman, Vice President

**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 REPRESENTS A PRACTICAL AND WORKABLE PLAN BASED ON MY PERSONAL KNOWLEDGE OF THE SITE AND THAT IT WAS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF THE HOWARD SOIL CONSERVATION DISTRICT.

Robert H. Vogel  
8/18/2022  
Robert H. Vogel

DocuSigned by:  
Alexander Bratohie  
10/25/2022  
Alexander Bratohie

**SOILS LEGEND**

SYMBOL	NAME / DESCRIPTION	GROUP	K-FACTOR	ERODIBLE
Ba	BALE SILT LOAM, 0 TO 3 PERCENT SLOPES	C/D	.49	NO
Gc	GLENELG LOAM, 8 TO 15 PERCENT SLOPES	B	.43	YES
Gg	GLENELG LOAM, 3 TO 8 PERCENT SLOPES	B	.37	YES
Gh	GLENELG BAILE SILT LOAM, 0 TO 8 PERCENT SLOPES	C	.49	YES
Hg	HARBORO-CODORUS SILT LOAMS, 0 TO 3 PERCENT SLOPES	B/D	.43	NO
Md	MAJOR LOAM, 15 TO 25 PERCENT SLOPES	B	.32	YES
Luf	LEIGHTWORTHS HIGHWAY 0 TO 85 PERCENT SLOPES	B	.32	YES
Lud	LEIGHTWORTHS HIGHWAY 0 TO 15 PERCENT SLOPES	D	---	NO

-SOILS INFORMATION FROM USDA WEB SOIL SURVEY WEBSITE -HOWARD COUNTY SOILS MAP NUMBER 12-7, SKEYSVILLE SE.  
-K VALUES PER: <http://www.howard.org/DocumentCenter/View/16183> - K FACTORS (USE KW)  
**NOTE:**  
HIGHLY ERODIBLE SOILS ARE THOSE SOILS WITH A SLOPE GREATER THAN 15 PERCENT OR THOSE SOILS WITH A SOIL ERODIBILITY FACTOR K GREATER THAN 0.35 AND WITH A SLOPE GREATER THAN 5 PERCENT \* LIMITS OF PROJECT

**OWNER/DEVELOPER**  
U.S. HOME, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARD.COM  
410-423-4264

NO.	REVISION	DATE
1	CEASE TO ADD RAIN BARREL CONCRETE FOUNDATIONS, REVERSE DECKS, SHIP HOMES ON LOTS 46, 48, 105-108 AND 117, ADD SCREENING FENCE, AND ADD BAY WINDOW	7-31-23

**SITE DEVELOPMENT PLAN**  
GRADING AND SOIL EROSION & SEDIMENT CONTROL PLAN  
**CHAPEL GATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

P/O PARCEL: 110  
TAX MAP: 18 GRD: 10  
SRD ELECTION DISTRICT

ZONED: CEF-M  
L 1389/F. 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
**TIMMONS GROUP**  
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

DESIGN BY: RHV  
DRAWN BY: VE+TG  
CHECKED BY: RHV  
DATE: AUGUST 2022  
SCALE: AS SHOWN  
W.O. NO.: 13-36 / 40220

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. 16183, EXPIRATION DATE: 09-27-2022.

8 SHEET OF 42





A-2. PERMEABLE PAVEMENTS

CONSTRUCTION CRITERIA:

THE FOLLOWING ITEMS SHOULD BE ADDRESSED DURING CONSTRUCTION OF PROJECTS WITH PERMEABLE PAVEMENT:

- EROSION AND SEDIMENT CONTROL: FINAL GRADING FOR INSTALLATION SHOULD NOT TAKE PLACE UNTIL THE SURROUNDING SITE IS STABILIZED...
- SOIL COMPACTION: SUB SOILS SHALL NOT BE COMPACTED...
- DISTRIBUTION SYSTEMS: OVERDRAIN, UNDERDRAIN, AND DISTRIBUTION PIPES SHALL BE CHECKED TO ENSURE THAT BOTH THE MATERIAL AND PERFORATIONS MEET SPECIFICATIONS...

INSPECTION:

- REGULAR INSPECTIONS SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION:
- DURING EXCAVATION TO SUB GRADE.
- DURING PLACEMENT AND BACKFILL OF ANY DRAINAGE OR DISTRIBUTION SYSTEM(S).
- DURING PLACEMENT OF THE CRUSHED STONE SUBBASE MATERIAL.
- DURING PLACEMENT OF THE SURFACE MATERIAL.

MAINTENANCE CRITERIA:

- THE FOLLOWING PROCEDURES SHOULD BE CONSIDERED ESSENTIAL FOR MAINTAINING PERMEABLE PAVEMENT SYSTEMS:
- PAVEMENTS SHOULD BE USED ONLY WHERE REGULAR MAINTENANCE CAN BE PERFORMED...
- PAVEMENT SURFACES SHOULD BE SWEEP AND VACUUMED TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY...
- DRAINAGE PIPES, INLETS, STONE EDGE DRAINS, AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE SHOULD BE CLEANED OUT AT REGULAR INTERVALS.

OPERATION AND MAINTENANCE SCHEDULE FOR PRIVATELY OWNED AND MAINTAINED PERMEABLE PAVEMENT (A-2)

- A. THE INDIVIDUAL LOT OWNER SHALL PERIODICALLY SWEEP (OR VACUUM POROUS CONCRETE PAVEMENT) THE PAVEMENT SURFACES TO REDUCE SEDIMENT ACCUMULATION AND ENSURE CONTINUED SURFACE POROSITY...
B. THE INDIVIDUAL LOT OWNER SHALL PERIODICALLY CLEAN DRAINAGE PIPES, INLETS, STONE EDGE DRAINS AND OTHER STRUCTURES WITHIN OR DRAINING TO THE SUBBASE...
C. THE INDIVIDUAL LOT OWNER SHALL USE DECISERS IN MODERATION...
D. THE INDIVIDUAL LOT OWNER SHALL ENSURE SNOW PLOWING IS PERFORMED CAREFULLY WITH BLADES SET ONE-INCH ABOVE THE SURFACE.

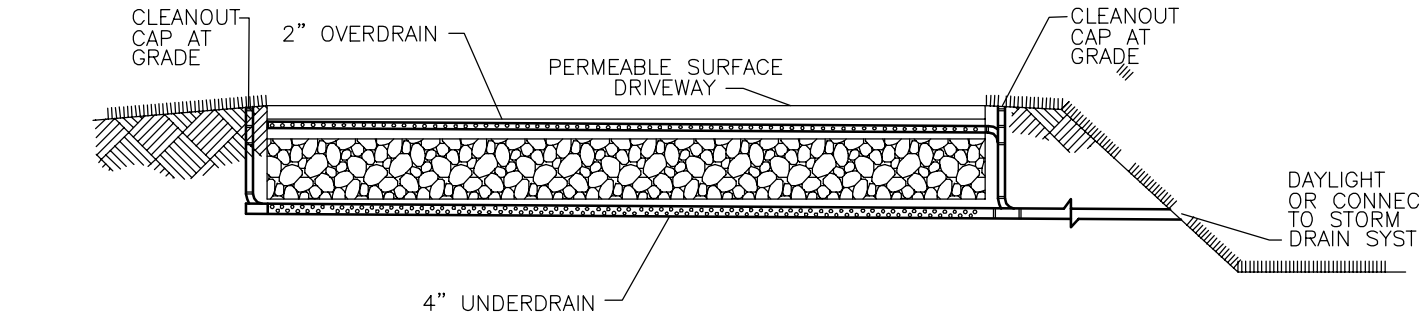
TAKEN FROM 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUMES I & II APPENDIX B.4.B CONSTRUCTION SPECIFICATIONS FOR ESD PRACTICES PERMEABLE PAVEMENTS & REINFORCED TURF

THESE SPECIFICATIONS INCLUDE INFORMATION ON ACCEPTABLE MATERIALS FOR TYPICAL APPLICATIONS AND ARE NOT EXCLUSIVE OR LIMITING. THE DESIGNER IS RESPONSIBLE FOR DEVELOPING SPECIFICATIONS FOR INDIVIDUAL PROJECTS AND SPECIFIC CONDITIONS.

1. PERVIOUS CONCRETE SPECIFICATIONS
DESIGN THICKNESS - PERVIOUS CONCRETE APPLICATIONS SHALL BE DESIGNED SO THAT THE THICKNESS OF THE CONCRETE SLAB SHALL SUPPORT THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED...
MIX & INSTALLATION - TRADITIONAL PORTLAND CEMENTS (ASTM C 150, C 1157) MAY BE USED IN PERVIOUS CONCRETE APPLICATIONS...
AGGREGATE - PERVIOUS CONCRETE CONTAINS A LIMITED FINE AGGREGATE CONTENT...
AD MIXTURES - CHEMICAL AD MIXTURES (E.G. RETARDERS OR HYDRATION-STABILIZERS) ARE USED TO OBTAIN DESIRED PROPERTIES IN PERVIOUS CONCRETE...

2. PERMEABLE INTERLOCKING CONCRETE PAVEMENTS (PICP)
PAVER BLOCKS - BLOCKS SHOULD BE EITHER 3-1/8 IN. OR 4 IN. THICK, AND MEET ASTM C 936 OR CSA A2312 REQUIREMENTS...
INSTALLATION - PERVIOUS CONCRETE APPLICATIONS SHOULD FOLLOW MANUFACTURER'S INSTRUCTIONS...
INFILL MATERIALS AND LEVELING COURSE - OPENINGS SHALL BE FILLED WITH ASTM C-33 GRADED SAND OR SANDY LOAM...
BASE COURSE - THE BASE COURSE SHALL BE ASHTO NO. 3 OR 4 COURSE AGGREGATE WITH AN ASSUMED OPEN PORE SPACE OF 30% (n=0.30).

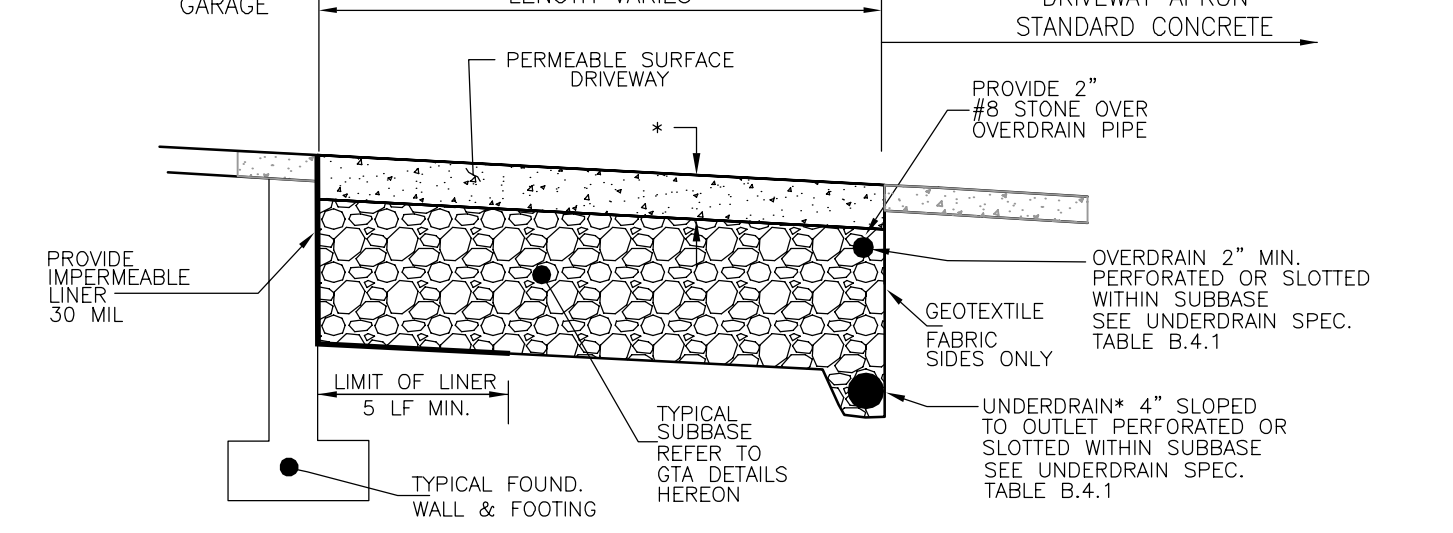
3. REINFORCED TURF
REINFORCED GRASS PAVEMENT (RGP) - WHETHER USED WITH GRASS OR GRAVEL, THE RGP THICKNESS SHALL BE AT LEAST 1-3/4" THICK WITH A LOAD CAPACITY CAPABLE OF SUPPORTING THE TRAFFIC AND VEHICLE TYPES THAT WILL BE CARRIED.



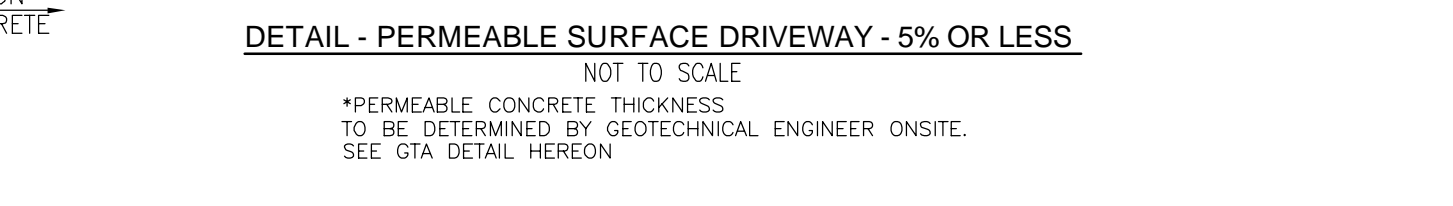
TYPICAL PERMEABLE SURFACE DRIVEWAY UNDERDRAIN / OVERDRAIN OUTLET DETAIL NOT TO SCALE

BUSHMAN Rain Tank advertisement. Includes a photo of the tank, technical drawings showing dimensions (24" width, 30" height), and a list of features and benefits such as 'Water capacity of four 50 gallon rain barrels' and 'High quality rotational-molded polyethylene construction'.

DETAIL OF BUSHMAN RAIN HARVESTING SYSTEM OR EQUIVALENT 200 GALLON RAIN BARREL NOT TO SCALE



- NOTES:
1. UNDERDRAIN SHALL BE LOCATED SUCH THAT IT CAN DAYLIGHT OR CONNECT TO STORM DRAIN SYSTEM
2. OVERDRAIN SHALL COMBINE WITH UNDERDRAIN
3. AN UNDERDRAIN CLEANOUT SHALL BE PROVIDED ON THE HIGH AND LOW SIDE OF THE DRIVEWAY



DETAIL - PERMEABLE SURFACE DRIVEWAY - 5% OR LESS NOT TO SCALE

- NOTES:
1. UNDERDRAIN SHALL BE LOCATED SUCH THAT IT CAN DAYLIGHT TO STORM DRAIN INTO A BIO-RETENTION FACILITY OR TO THE REAR OF THE LOT, AS SHOWN ON SHEET 11 AND 12
2. OVERDRAIN SHALL COMBINE WITH UNDERDRAIN AS DETAIL HEREON
3. ABOVE EXAMPLE ASSUMES 20' DRIVEWAY (HOUSE TO RIGHT-OF-WAY / STANDARD DRIVEWAY APRON), 2% BOTTOM SLOPE
4. THIS SDP WAS PREPARED WITH GENERIC HOUSE BOXES FOR HOUSE SITING ON DRIVEWAYS GREATER THAN 100' UPON FINAL MODEL DETERMINATION, ALTERNATIVE STORMWATER MANAGEMENT MEASURES SHALL BE PROVIDED

DETAIL - PERMEABLE SURFACE DRIVEWAY - 5% TO 10% (MAX) NOT TO SCALE

EP HENRY PERMEABLE INTERLOCKING CONCRETE PAVEMENTS (PICP) OR EQUIVALENT
Permeable Paver Installation Guidelines
Residential Driveways, Patios, and Walkways
MATERIALS NEEDED
PREPARE SUBGRADE SOILS
INSTALL PAVERS

For best results, the finished subgrade should be level. Excavate the soil providing the minimum recommended thickness at the lowest point of the driveway...
Bedding Layer: AASHTO #8 crushed stone is recommended. Calculate the volume for a 2-inch bedding layer over the project area...
Separation Fabric: A non-woven fabric such as Mrafi 180 or Mrafi 140 N is recommended to be installed as a drainage and separation fabric between the # 2 stone open graded base and the natural subgrade soil...

TOOLS
Hammer, hard tooth garden rake, rubber hammer, level, tape measure, flat shovel, wheelbarrow, diamond blade wet saw, chalk line, plate compactor, stiff bristle street broom, wire cutters (or cutting bands on pavers), and 2-inch soiled guide bars.
LAYOUT & PREPARATION
Using screed boards, place a two-inch layer of moistened 3/8" minus AASHTO No. 8 bedding stone onto the open graded base. The coarse sand should be firmly set in the underlying stone.

Boring Summary Table for Project: Chapelgate Woods HCEA Project No.: 19529A. Table with columns: Boring ID, Elevation, Proposed Depth, Depth Drilled, FFI/ Possible Fill Depth, Auger Rotations Encountered (Depth), Auger Rotations Encountered (Elevation), Shallowest Groundwater Encountered (Depth), Highest Groundwater Encountered (Elevation). Rows P-1 through P-51.

Boring Summary Table for Project: Hillis-Carnes Engineering Associates. Table with columns: Boring ID, Elevation, Proposed Depth, Depth Drilled, FFI/ Possible Fill Depth, Auger Rotations Encountered (Depth), Auger Rotations Encountered (Elevation), Shallowest Groundwater Encountered (Depth), Highest Groundwater Encountered (Elevation). Rows P-1 through P-51.

NOTE:
NA - Not Available
NE - Not Encountered
\* - Data obtained from test pit
THE ABOVE INFORMATION WAS TAKEN FROM THE REPORT PREPARED BY: HILLIS-CARNES ENGINEERING ASSOCIATES

REFER TO F-21-011 FOR BORING LOGS

OWNER/DEVELOPER
U.S. HOME, LLC
7035 ALBERT EINSTEIN DRIVE SUITE 200 COLUMBIA, MD 21104 LENNARD.COM 410-423-4246

Table with columns: NO., REVISION, DATE. Contains revision history for the site development plan.

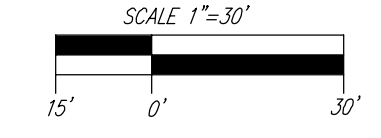
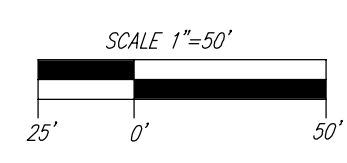
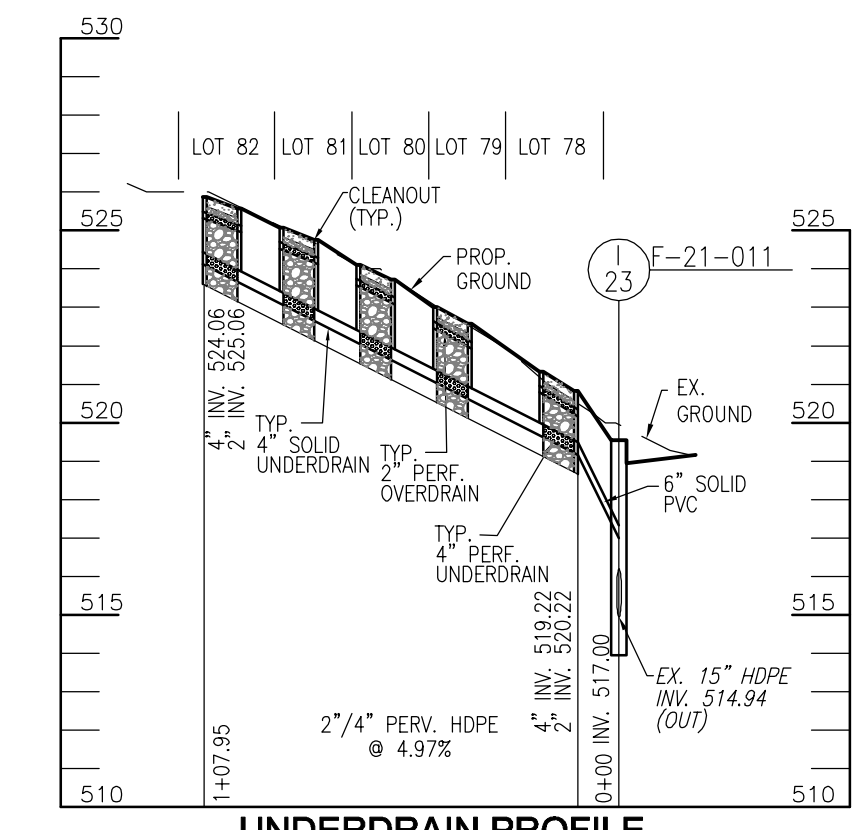
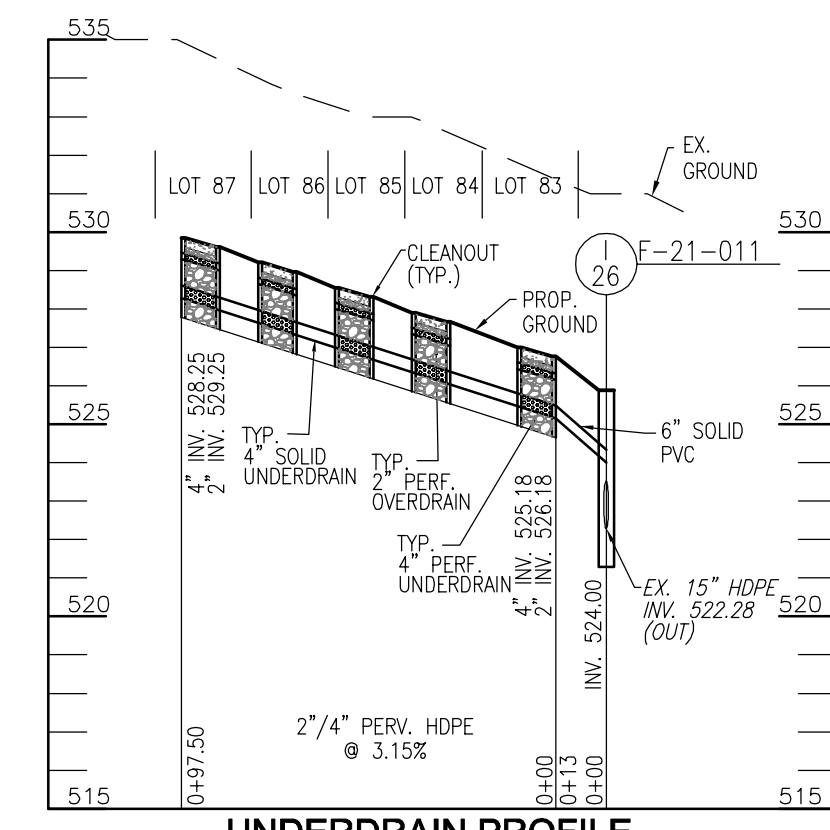
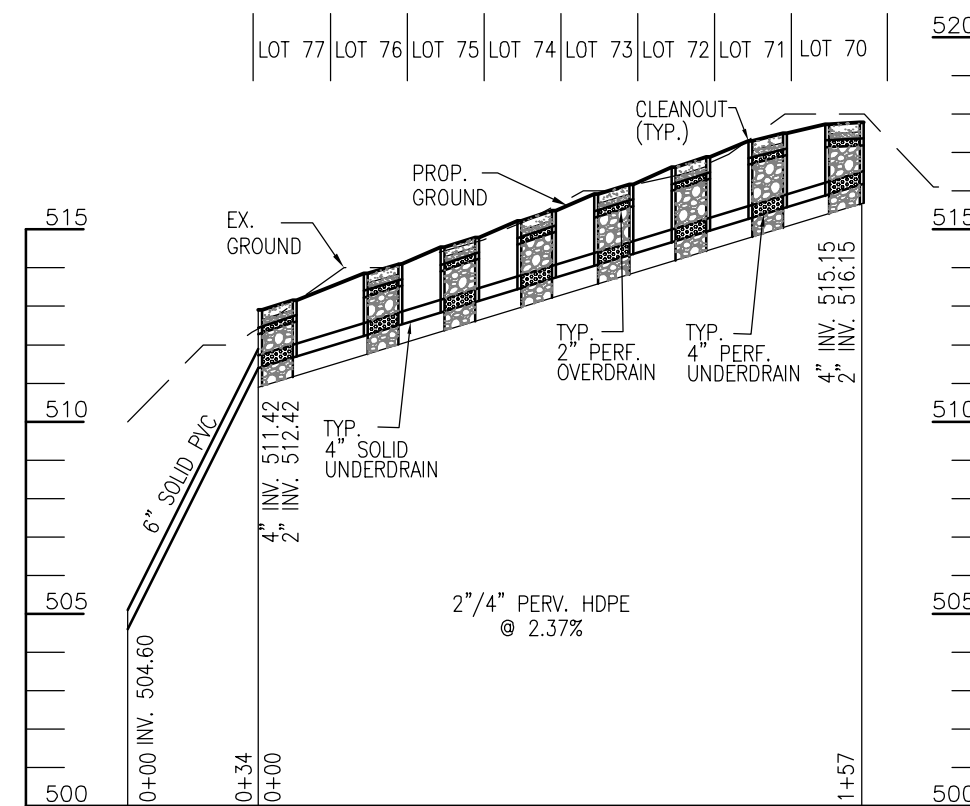
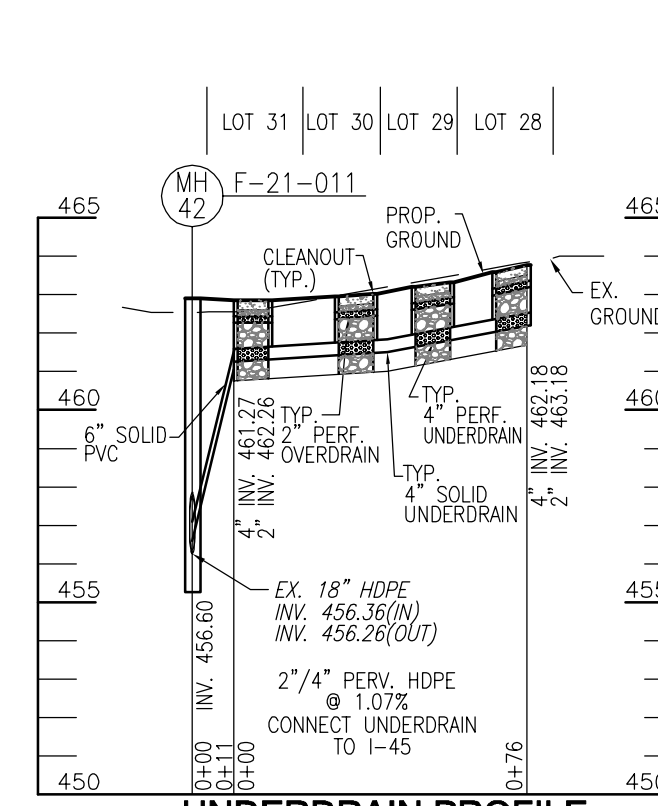
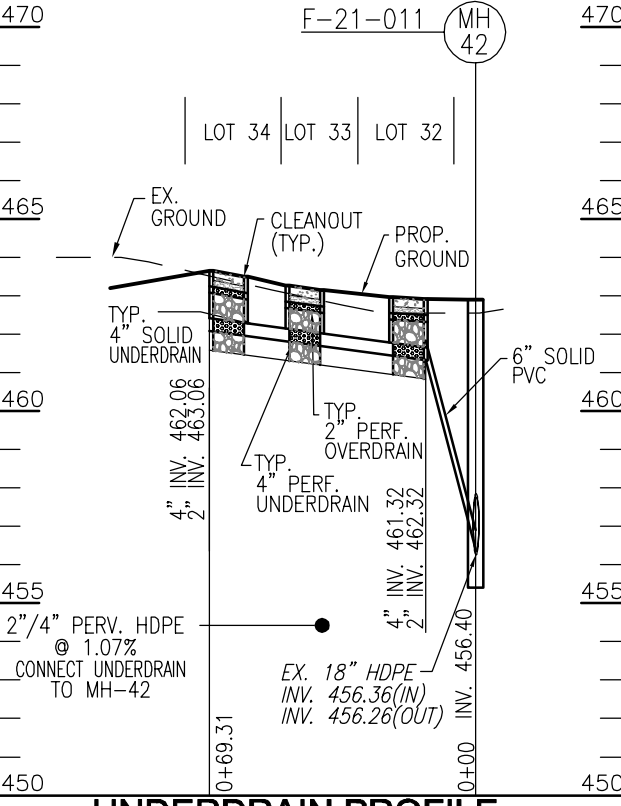
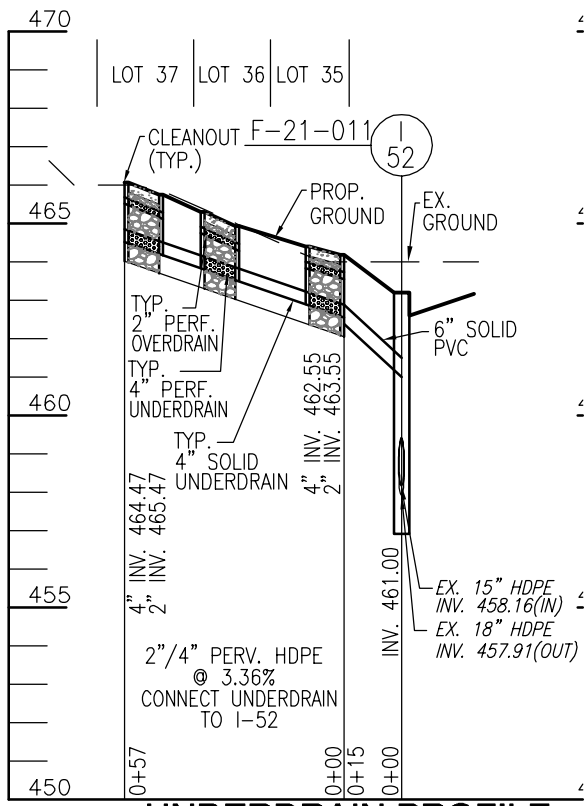
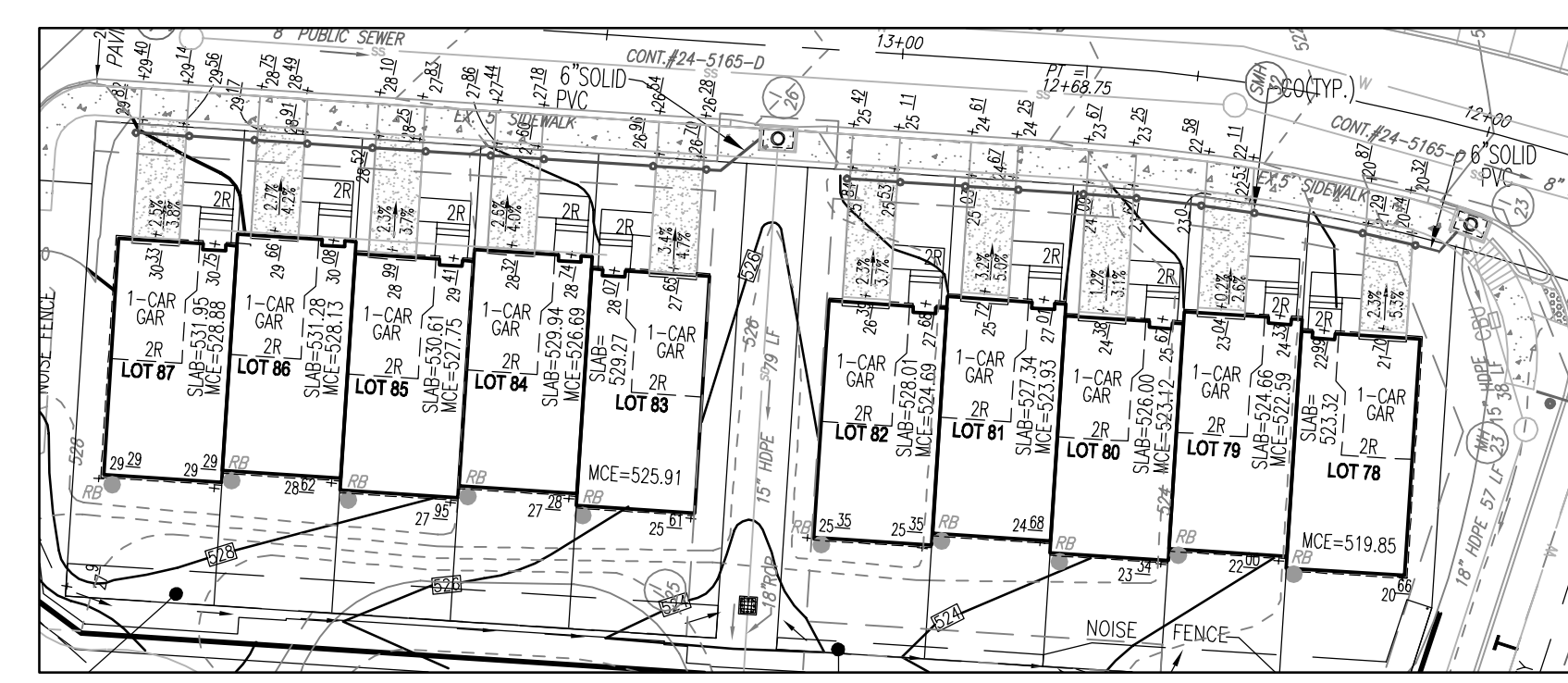
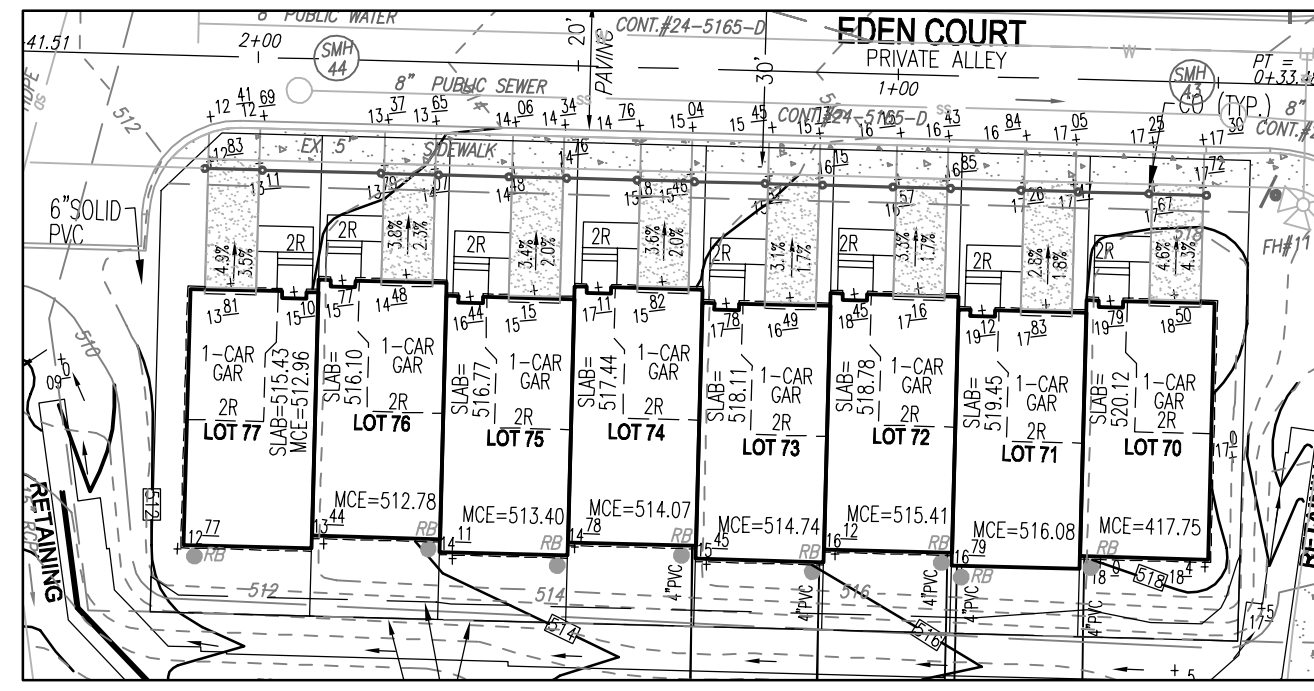
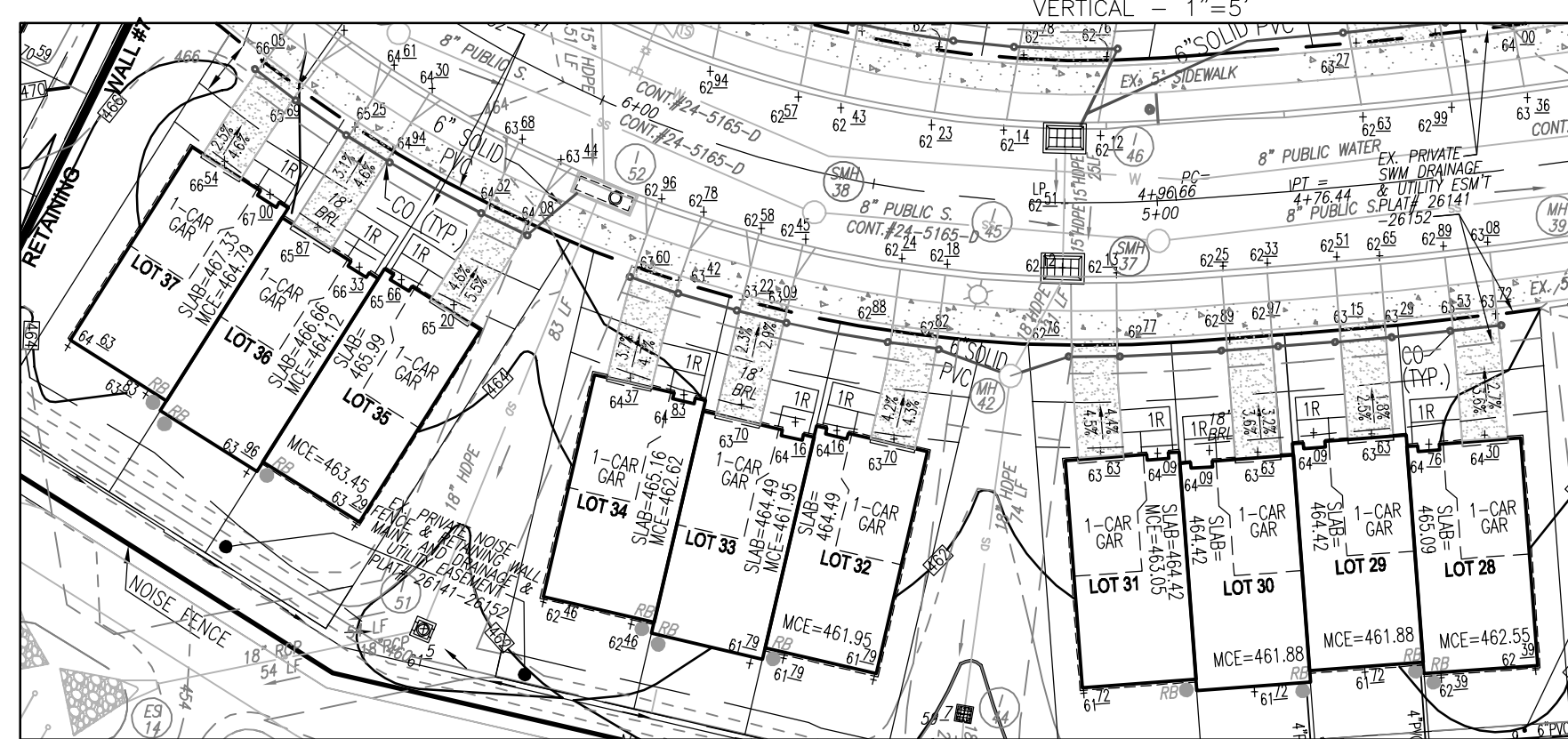
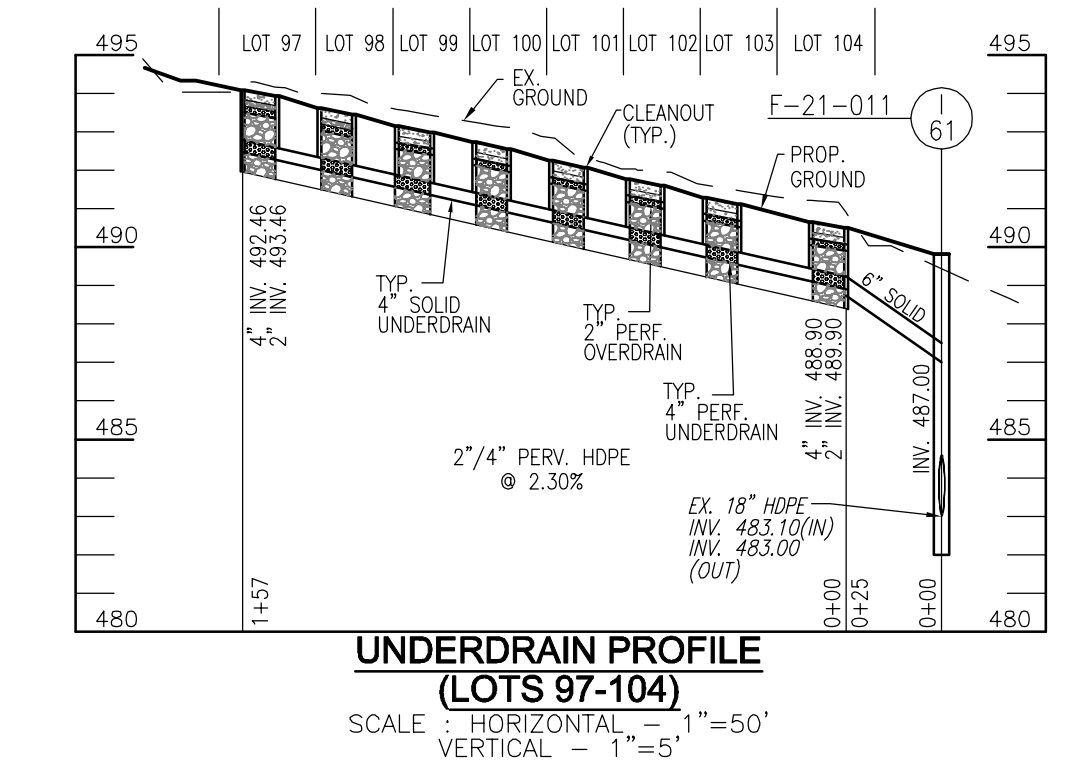
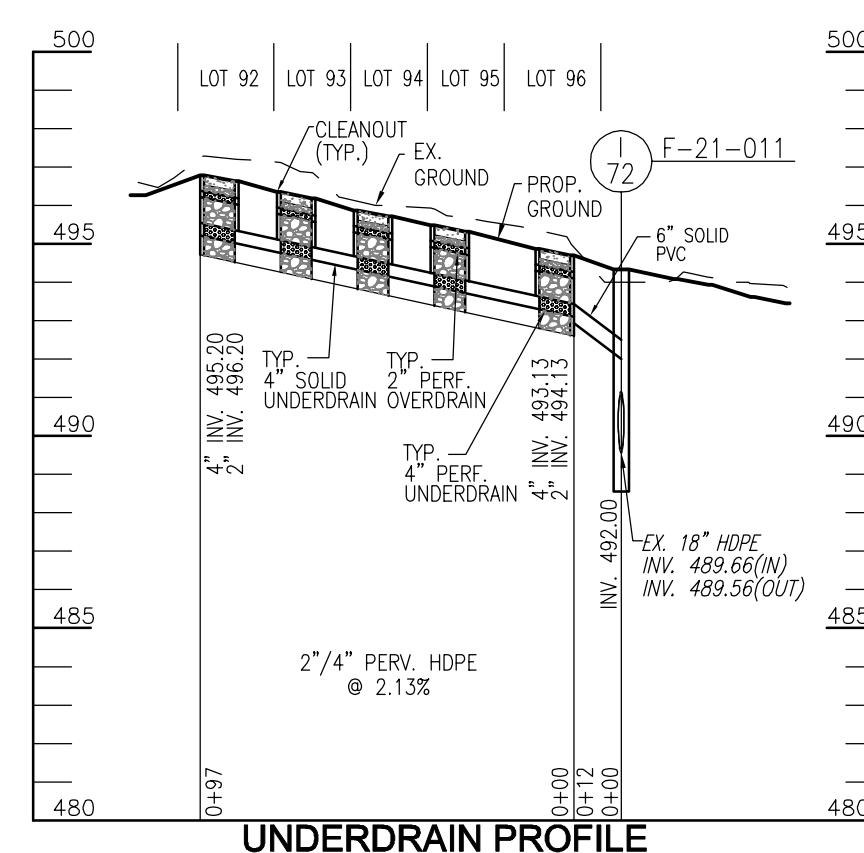
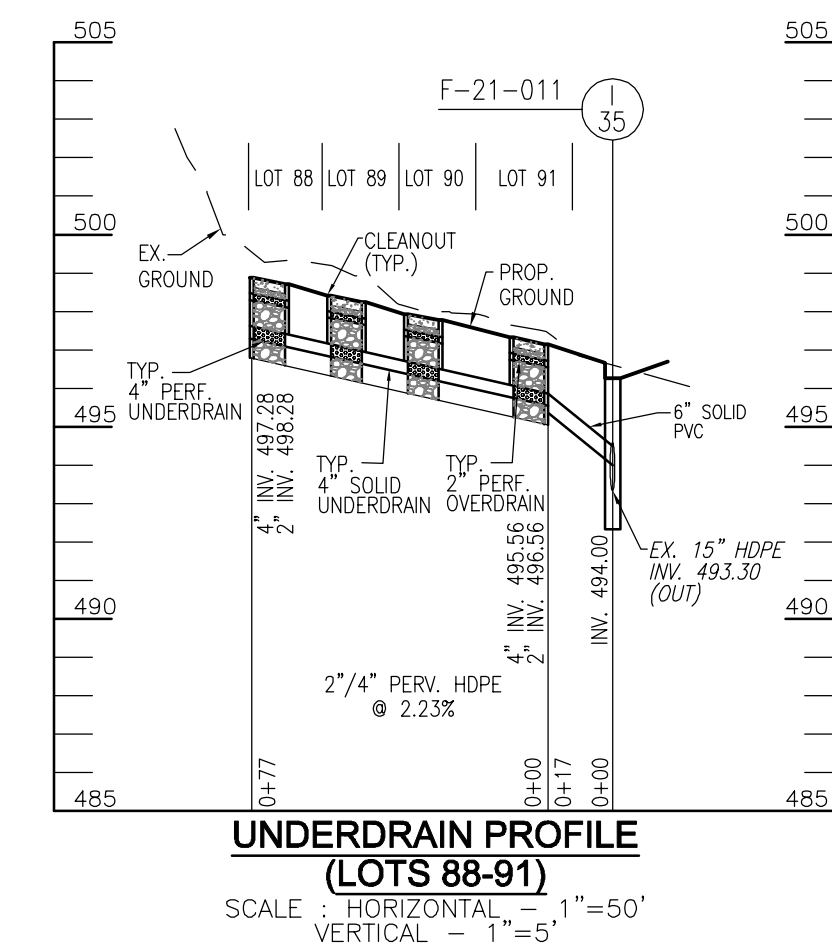
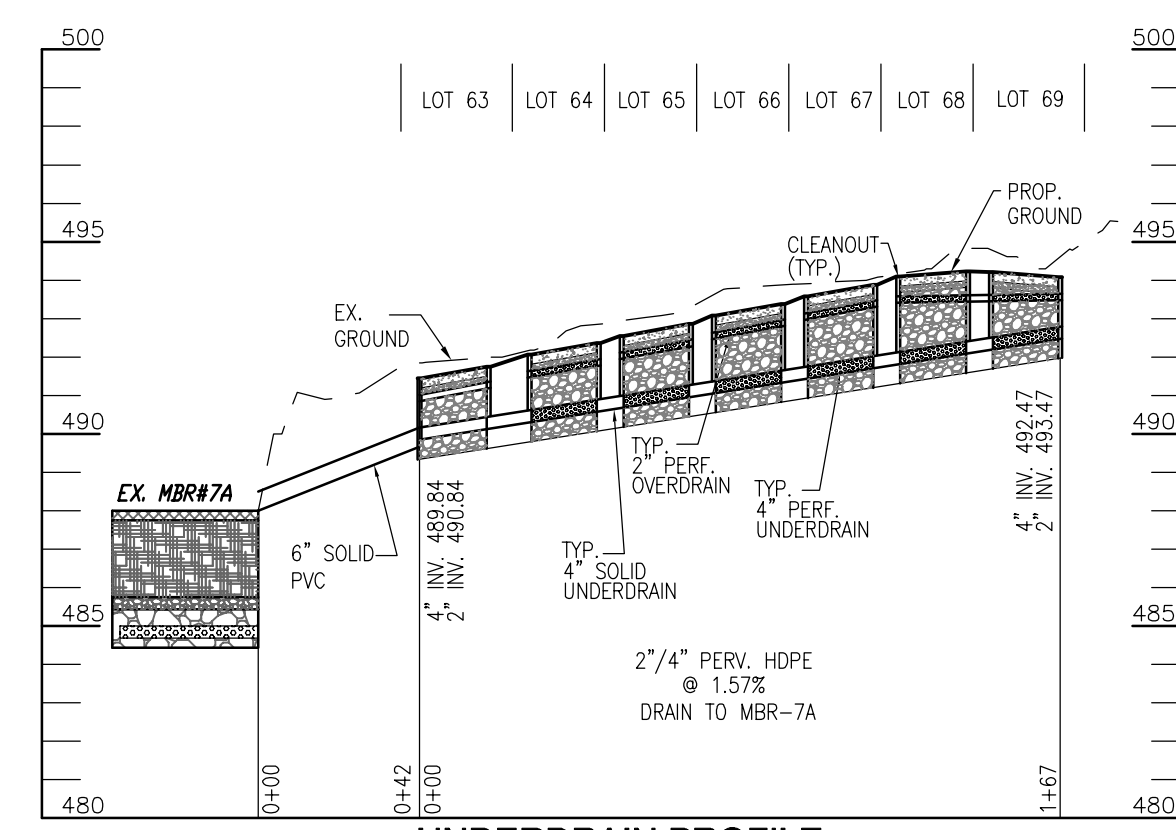
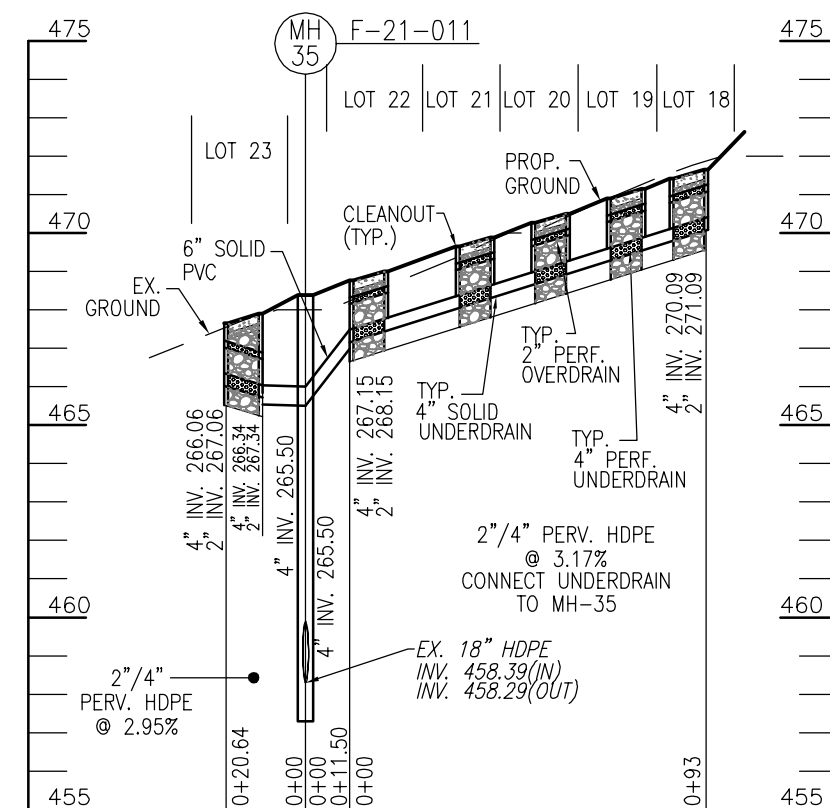
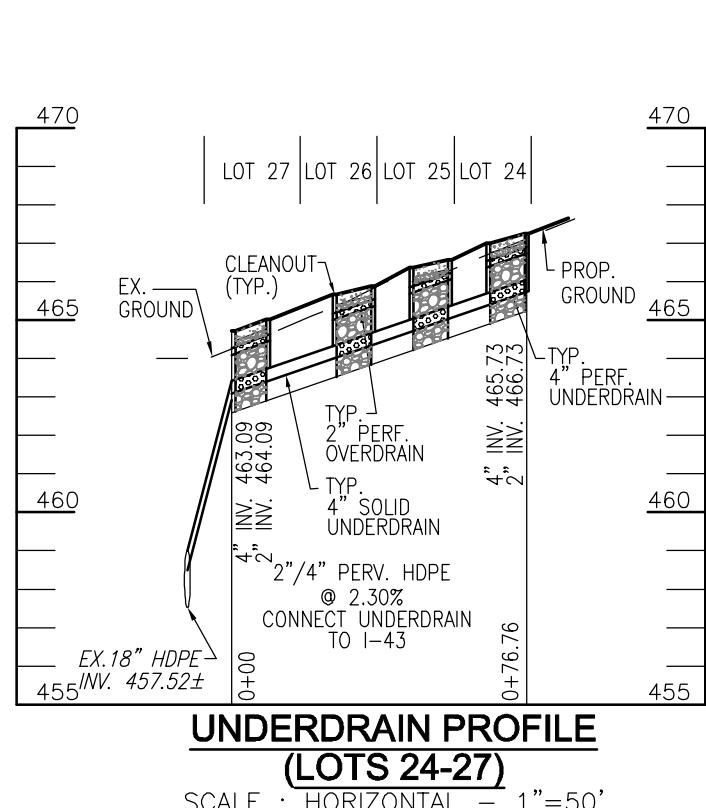
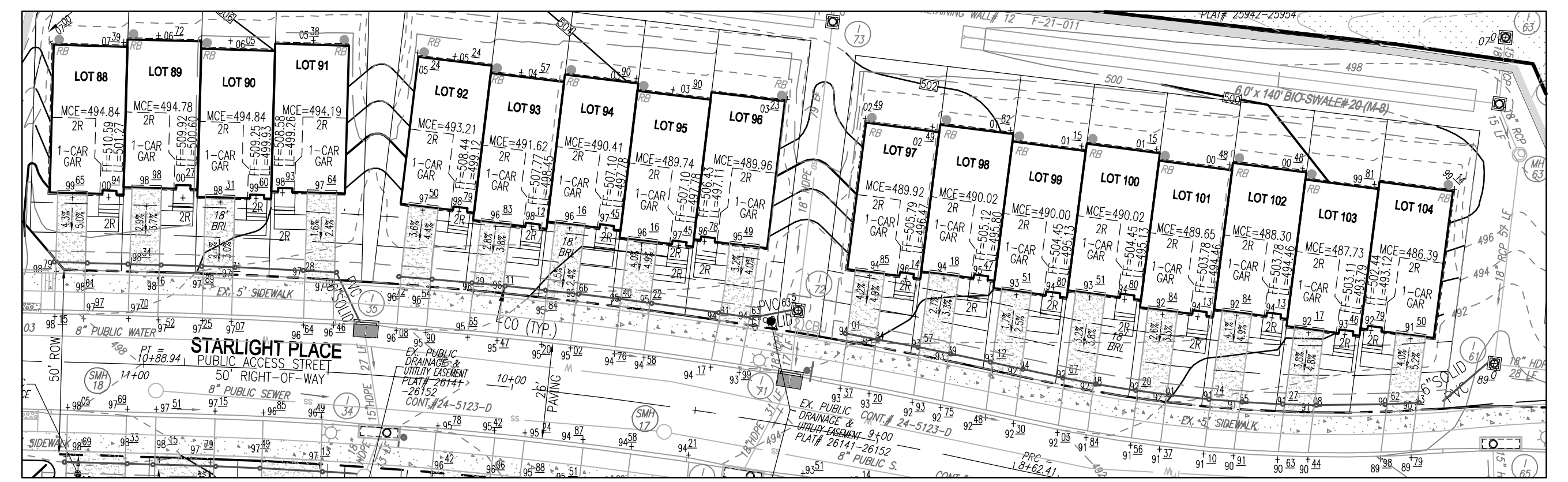
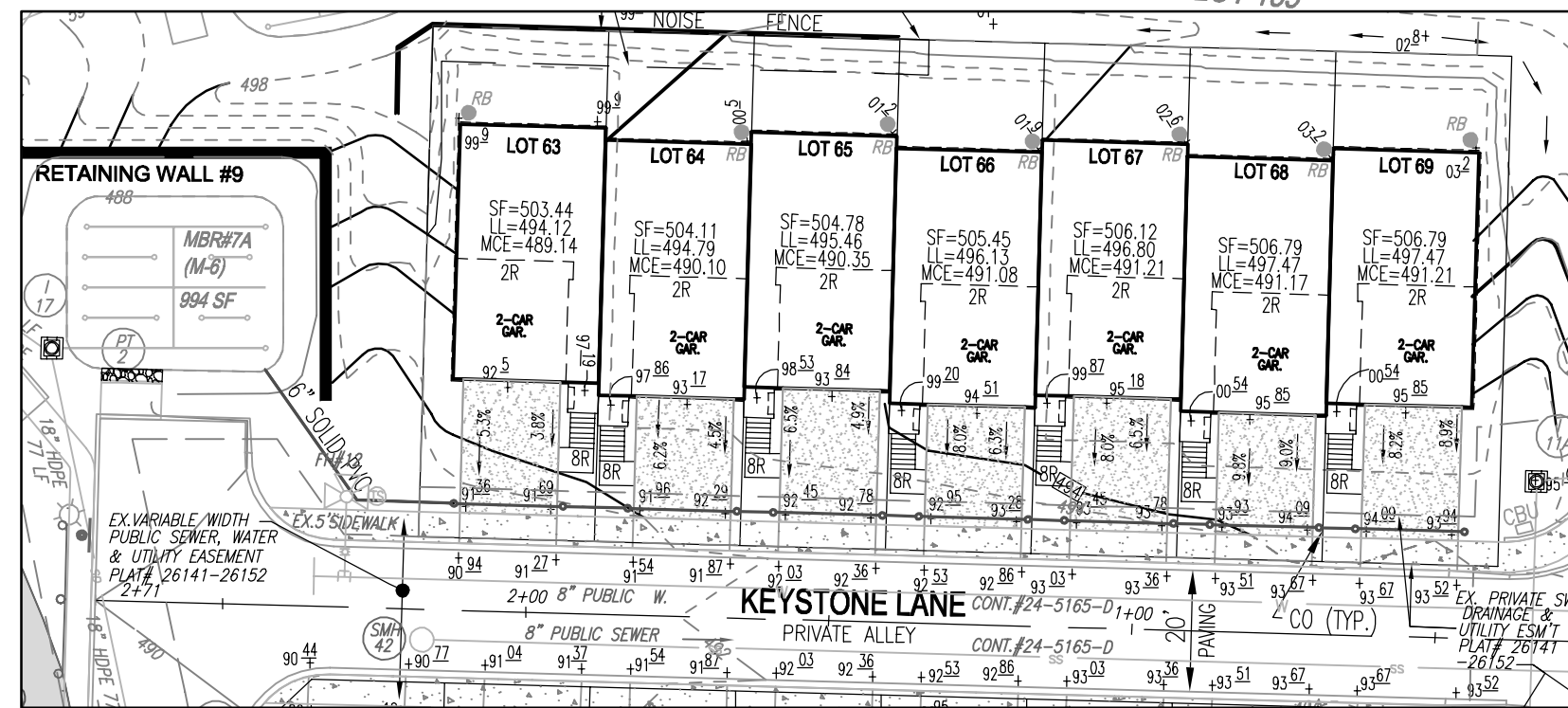
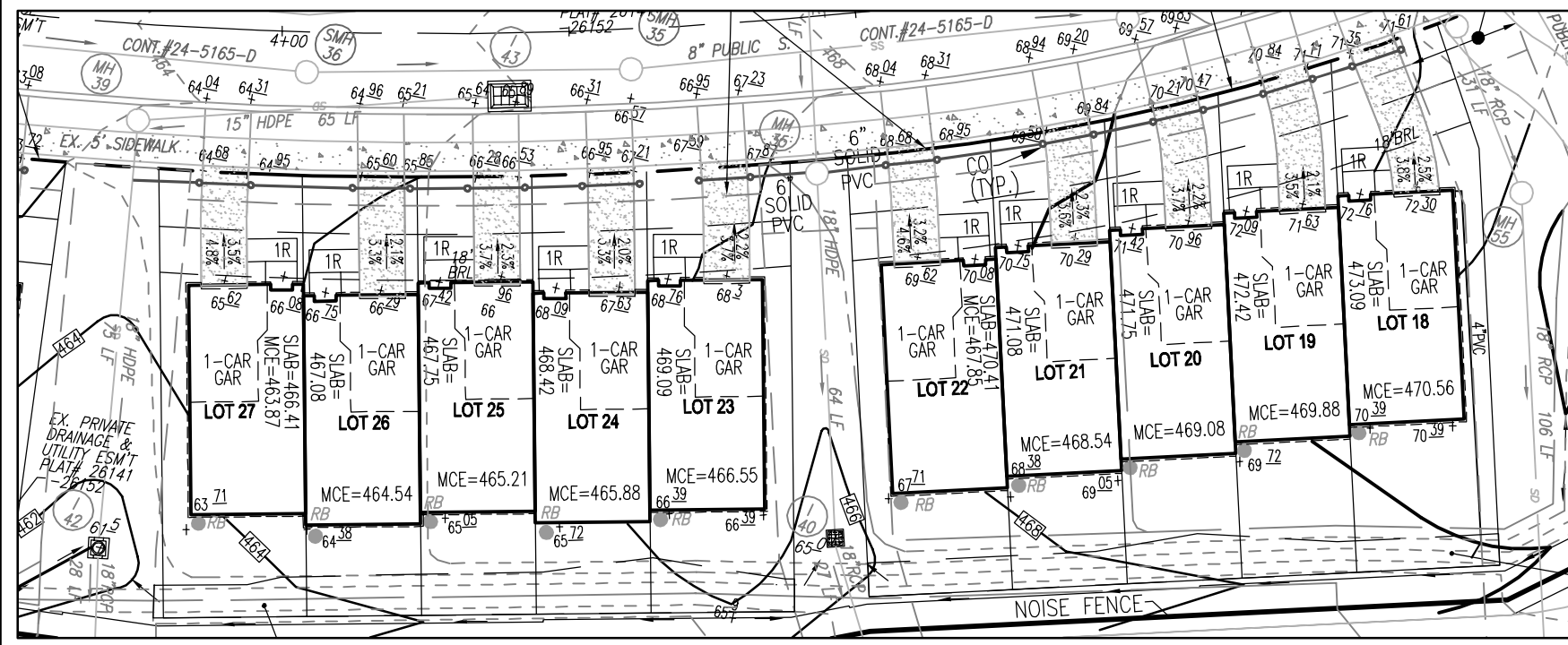
STORMWATER MANAGEMENT NOTES: TO BUILDER / CONTRACTOR

- 1. Lot 18 - The front roof gutter of Lot 18 shall drain away from Lot 19. The roof drain downspout (RD) shall be piped, as shown (Sheet 3), toward the rear of the lot and daylight in the rear yard swale. The rear yard swale shall convey the runoff to Inlet 40...
2. Lot 23 - The front roof gutter downspout of Lot 23 shall be directed toward the roadway. (See Sheet 3)
3. Lot 27 - The front roof gutter of Lot 27 shall drain away from Lot 26. The roof drain downspout (RD) shall be directed overland to the side yard swale. The side yard swale shall convey the runoff to Inlet 40. (See Sheet 3)
4. Lot 29 & 30 - The Lot 29 & 30 4" PVC rain barrel overflow pipes shall connect to a 6" PVC pipe located near the rear property line and piped, as shown (Sheet 3), directly into Inlet 42.

SITE DEVELOPMENT PLAN ENVIRONMENTAL SITE DESIGN (ESD) STORMWATER MANAGEMENT - NOTES & DETAILS

CHapelgate Woods SFA Lots 1-134 PLOT# 26141-26152. Includes contact information for VOGEL ENGINEERING and TIMMONS GROUP, and a professional certificate from the State of Maryland.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING. Includes signatures and dates for the Chief Development Engineering Division and the Chief Division of Planning and Zoning.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
DocuSigned by: **Will Edmondson** 11/3/2022  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
DocuSigned by: **Angie Briscoe** 10/26/2022  
CHIEF, DIVISION OF PLANNING AND DEVELOPMENT  
DocuSigned by: **Rob Vogel** 11/3/2022  
DIRECTOR

OWNER/DEVELOPER  
U.S. HOME, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
410-423-4264

NO. REVISION DATE

SITE DEVELOPMENT PLAN  
PERMEABLE SURFACE DRIVEWAY  
PLAN AND PROFILES  
**CHAPEL GATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

P/O PARCEL: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT

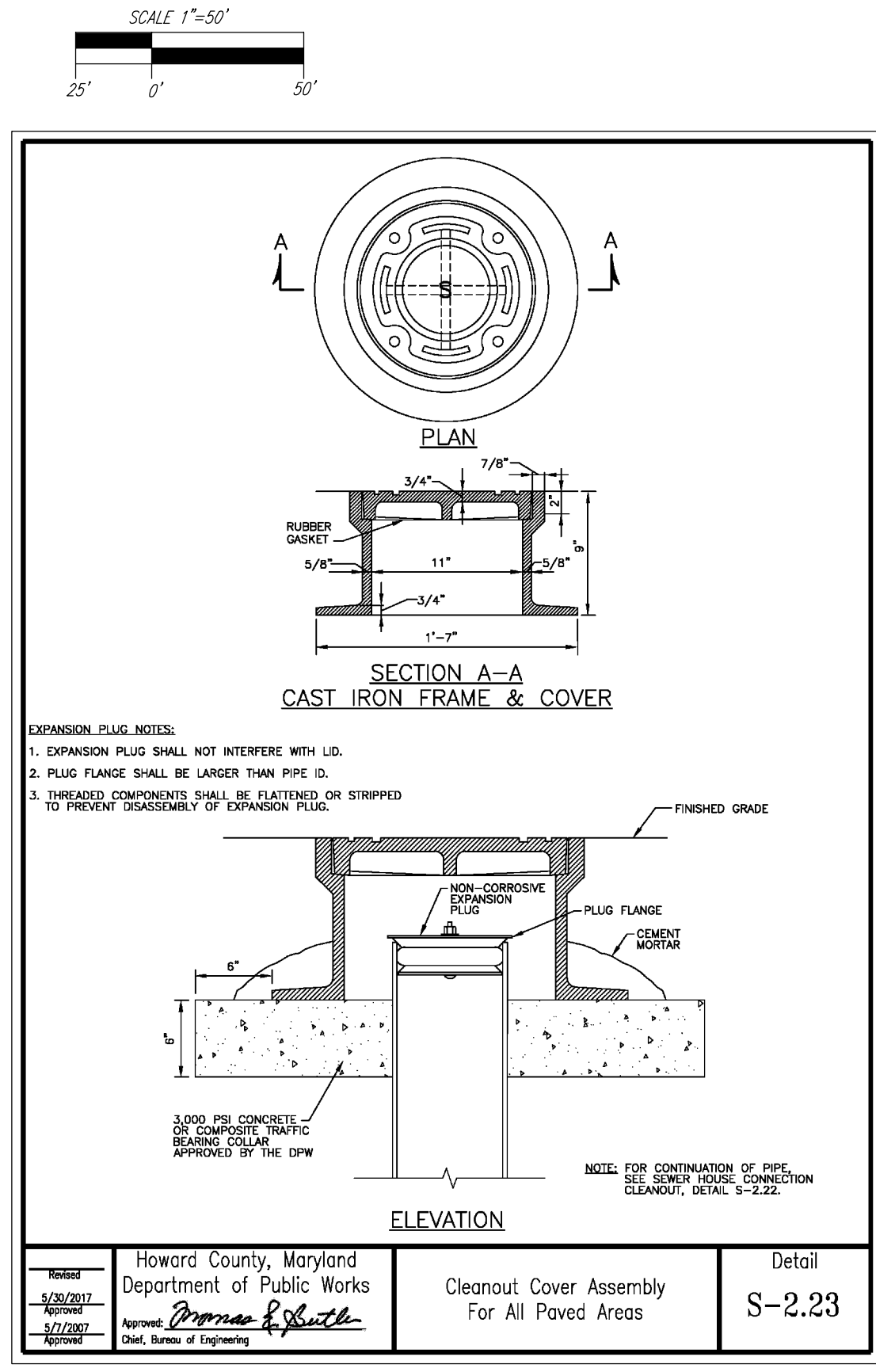
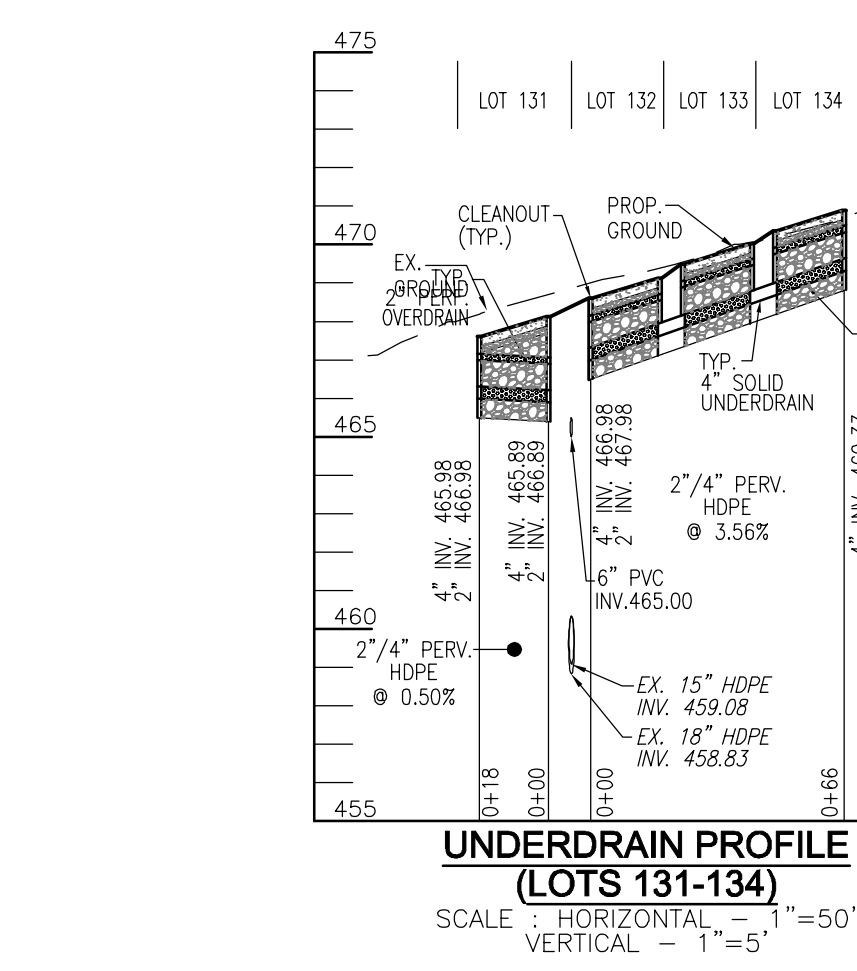
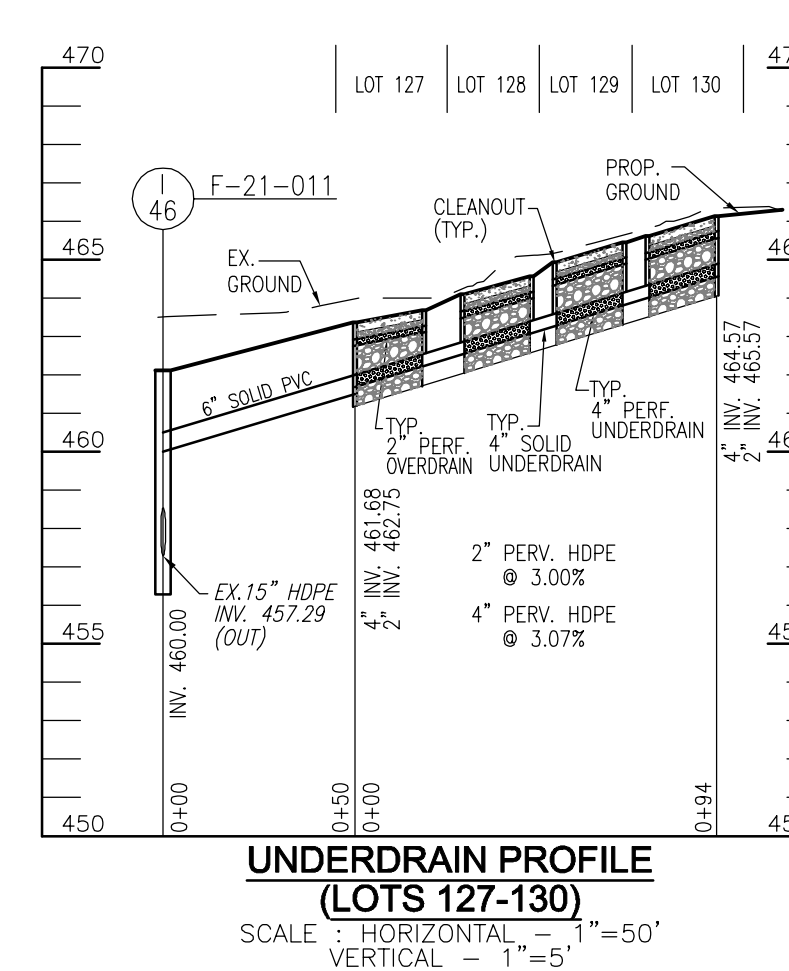
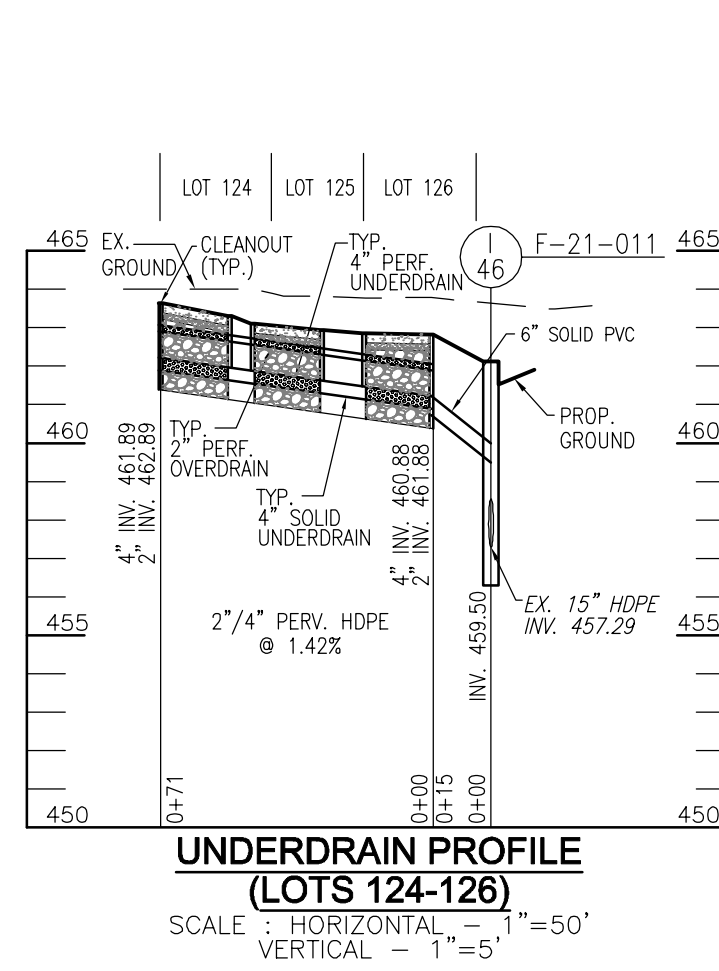
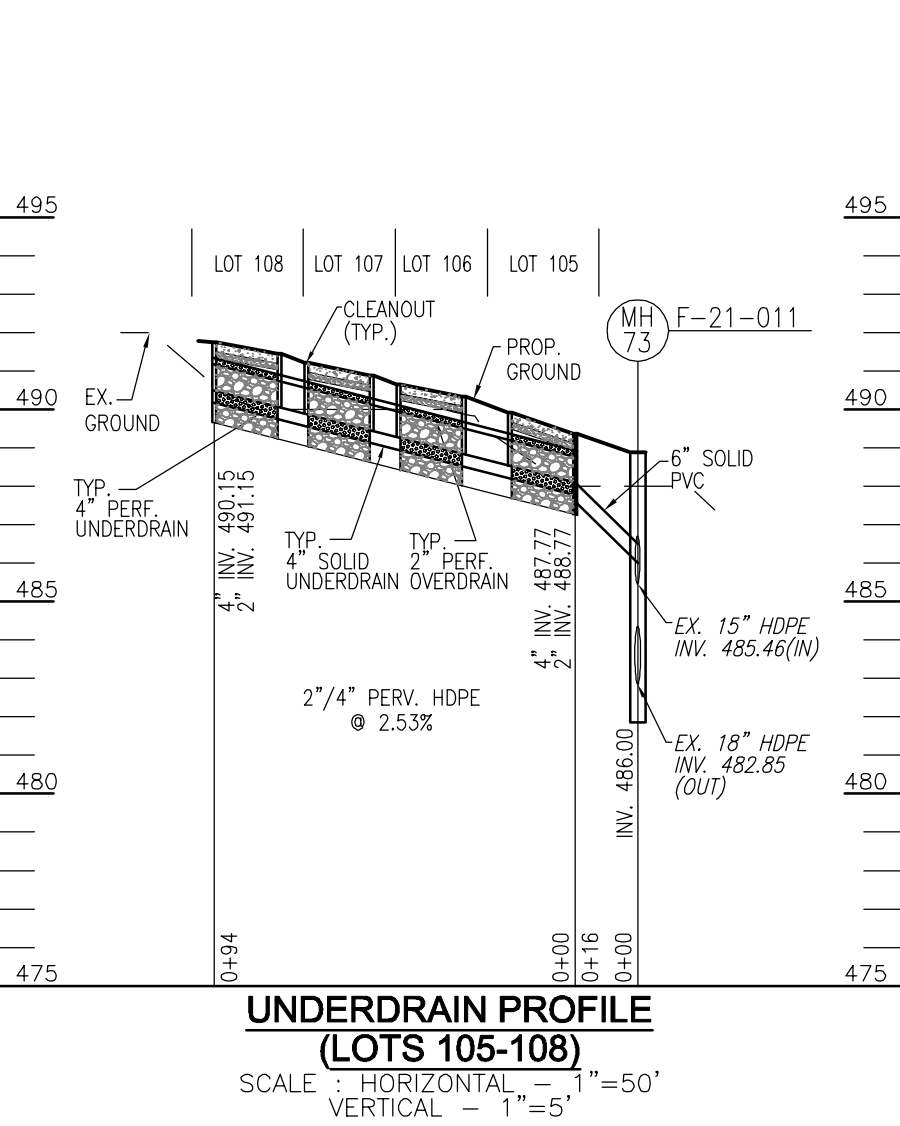
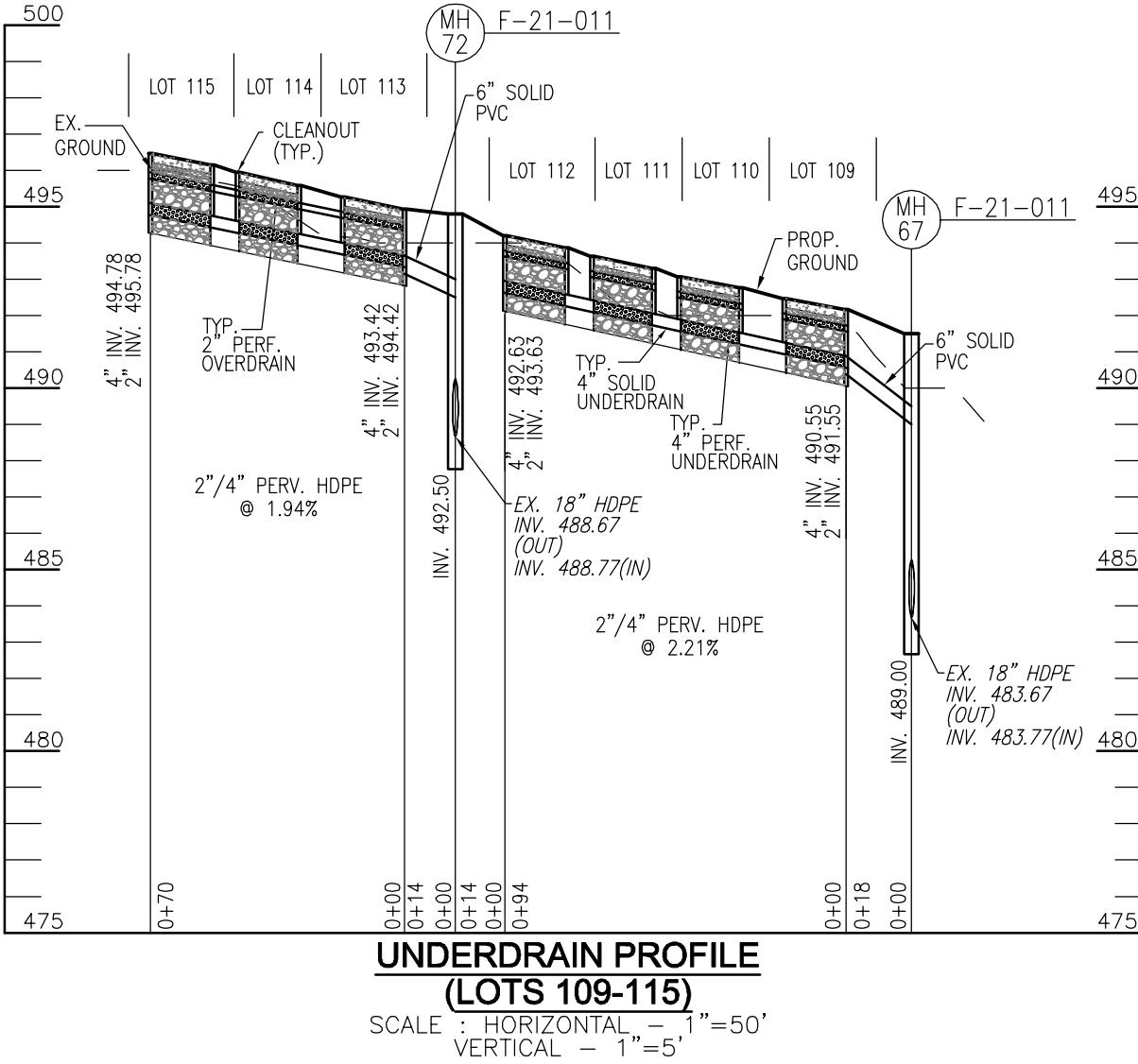
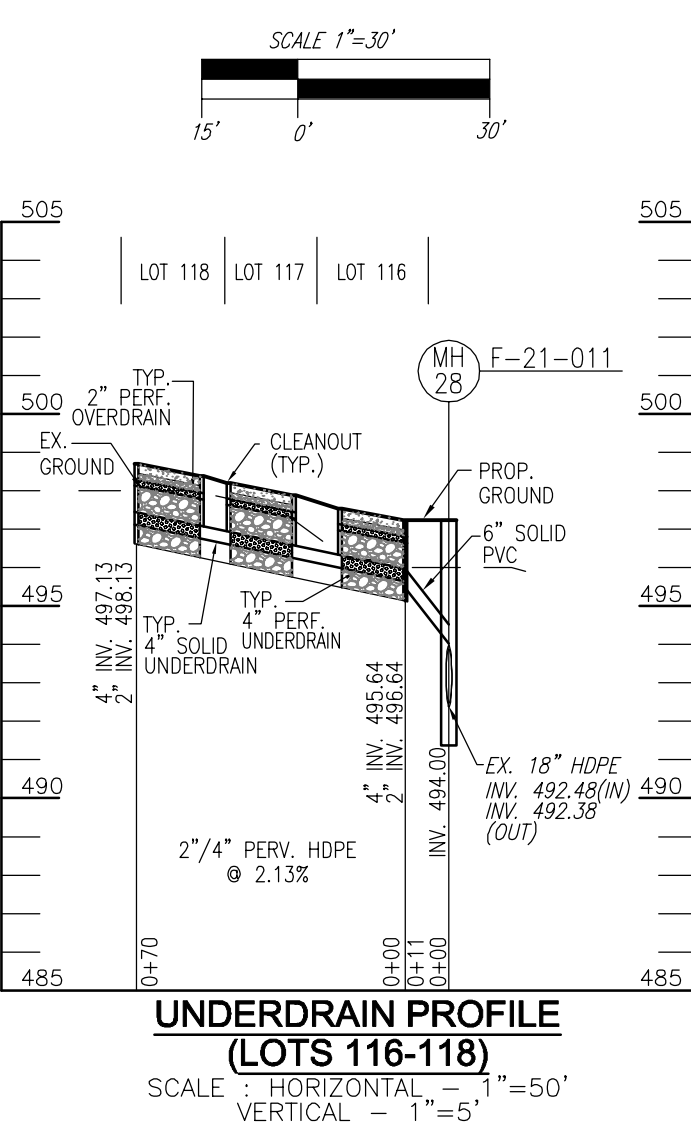
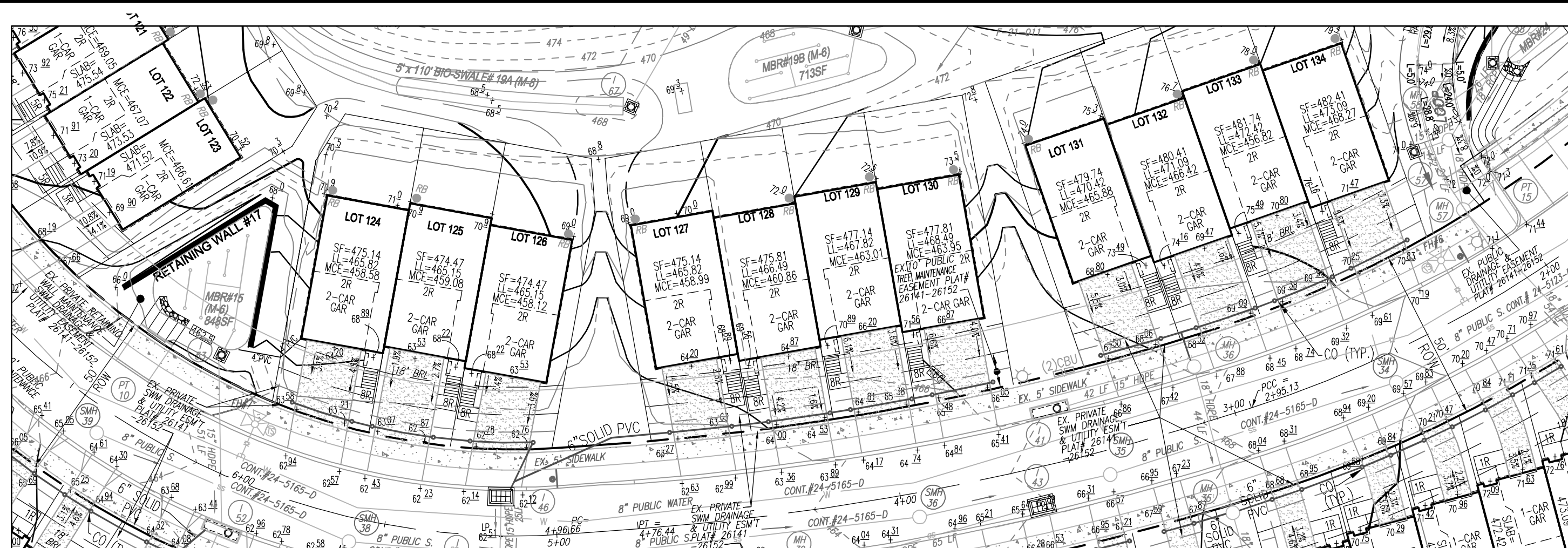
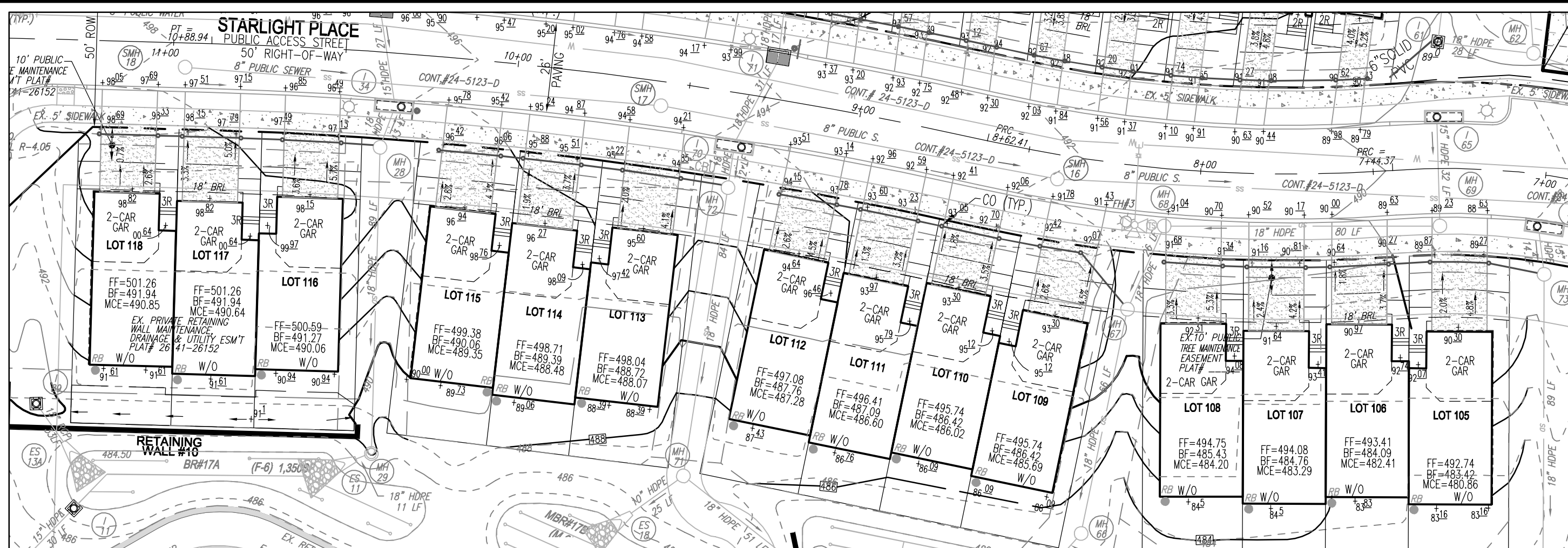
L. 1389/F. 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
**TIMMONS GROUP**  
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410-461-7666 F: 410-461-8961 www.timmsons.com

PROFESSIONAL CERTIFICATE  
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. 16193, EXPIRATION DATE: 09-27-2022

DESIGN BY: RHV  
DRAWN BY: VE+TG  
CHECKED BY: RHV  
DATE: AUGUST 2022  
SCALE: AS SHOWN  
W.O. NO.: 13-36 / 40220

11 SHEET OF 42



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

Countysigned by: 11/3/2022  
 Chief, Development Planning Engineering Division: 10/26/2022  
 Chief, Division of Planning and Development: 11/3/2022  
 Director: 11/3/2022

**OWNER/DEVELOPER**  
 U.S. HOME, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 410-423-4264

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN  
 PERMEABLE SURFACE DRIVEWAY  
 PLAN AND PROFILES**

**CHAPEL GATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

P/O PARCEL: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

L: 1389/F: 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

**VOGEL ENGINEERING**  
 +  
**TIMMONS GROUP**

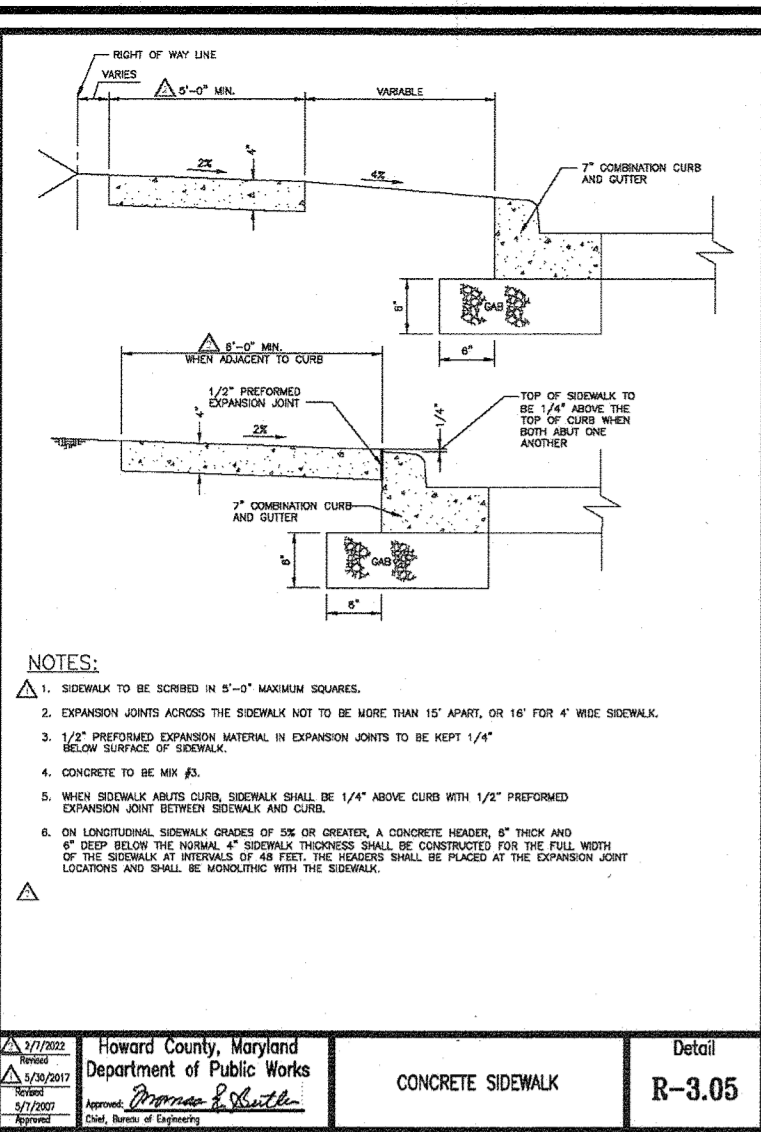
3300 NORTH RIDGE ROAD, SUITE 110, ELLIOTT CITY, MD 21043  
 P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE

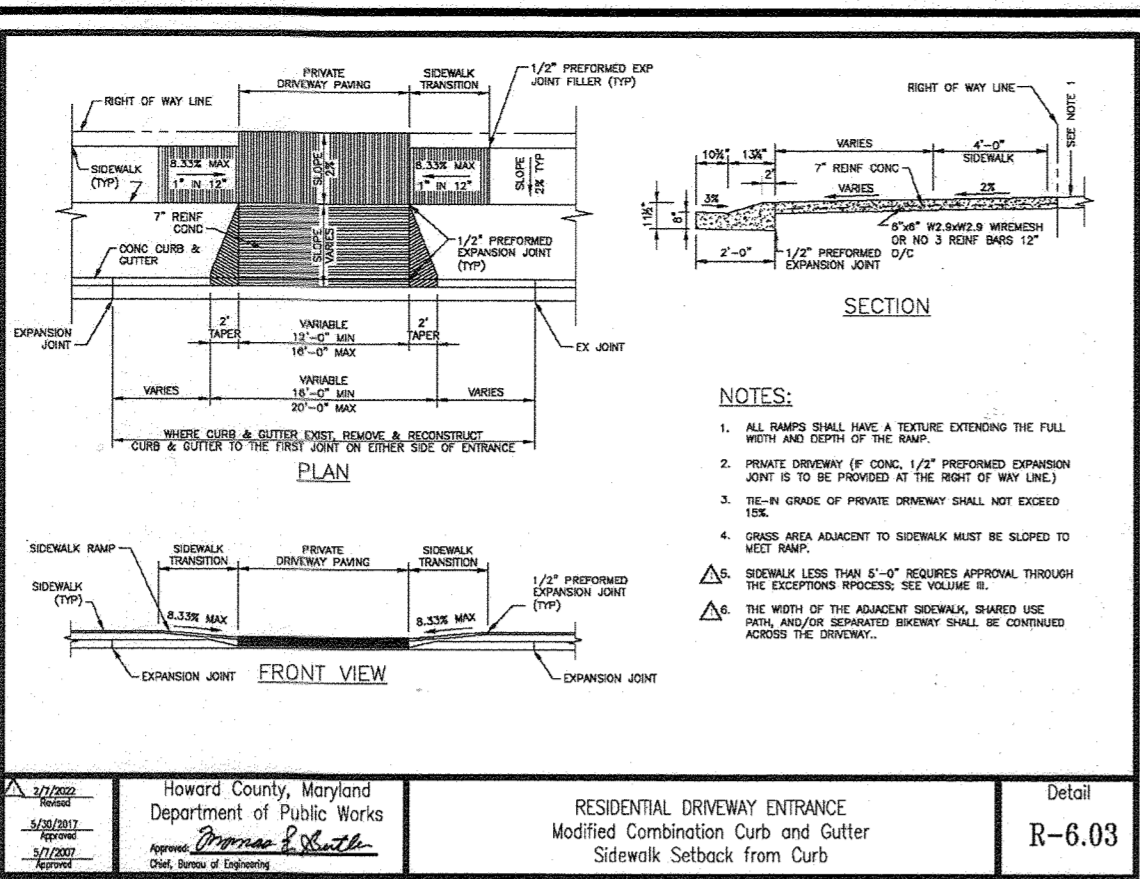
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 DRAWN BY: VE+TG  
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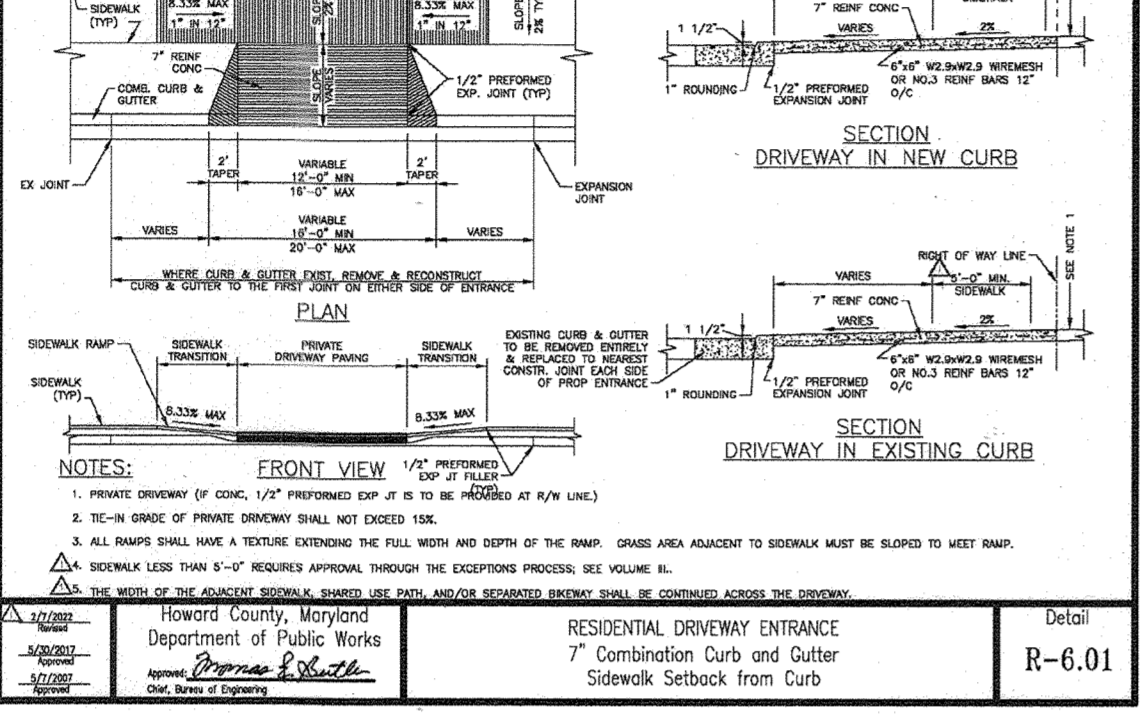
12 SHEET OF 42



CONCRETE SIDEWALK  
Detail  
R-3.05

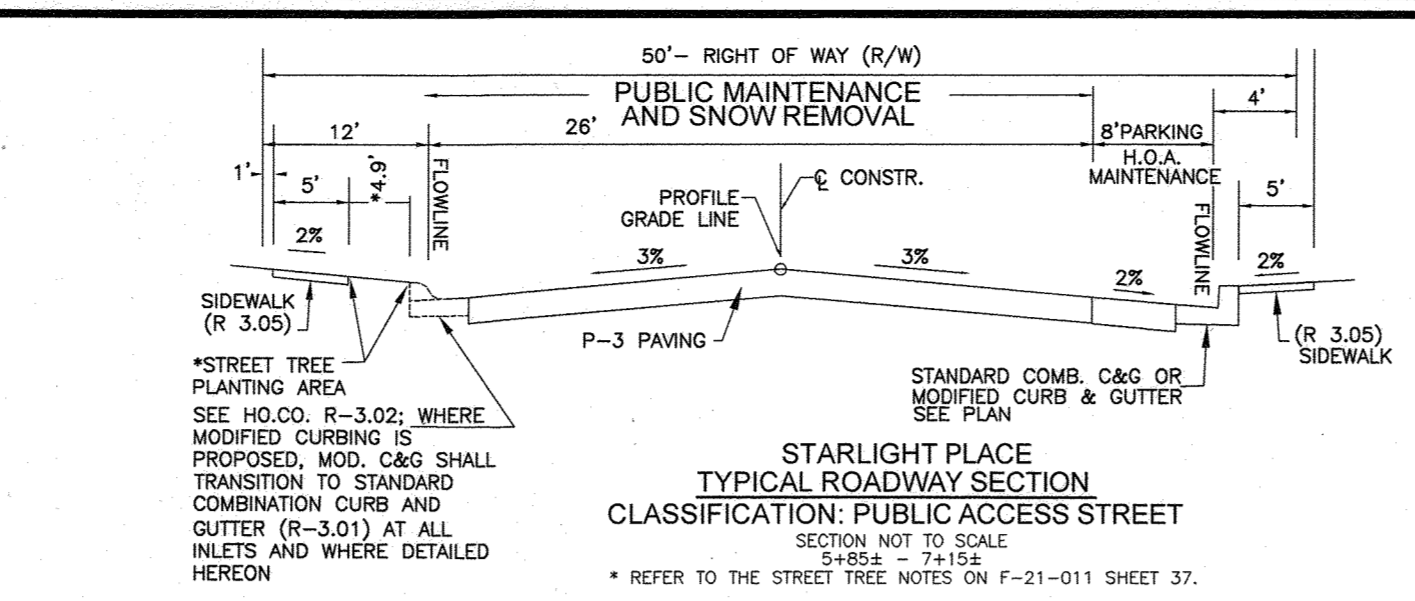


RESIDENTIAL DRIVEWAY ENTRANCE  
Modified Combination Curb and Gutter  
Sidewalk Setback from Curb  
Detail  
R-6.03

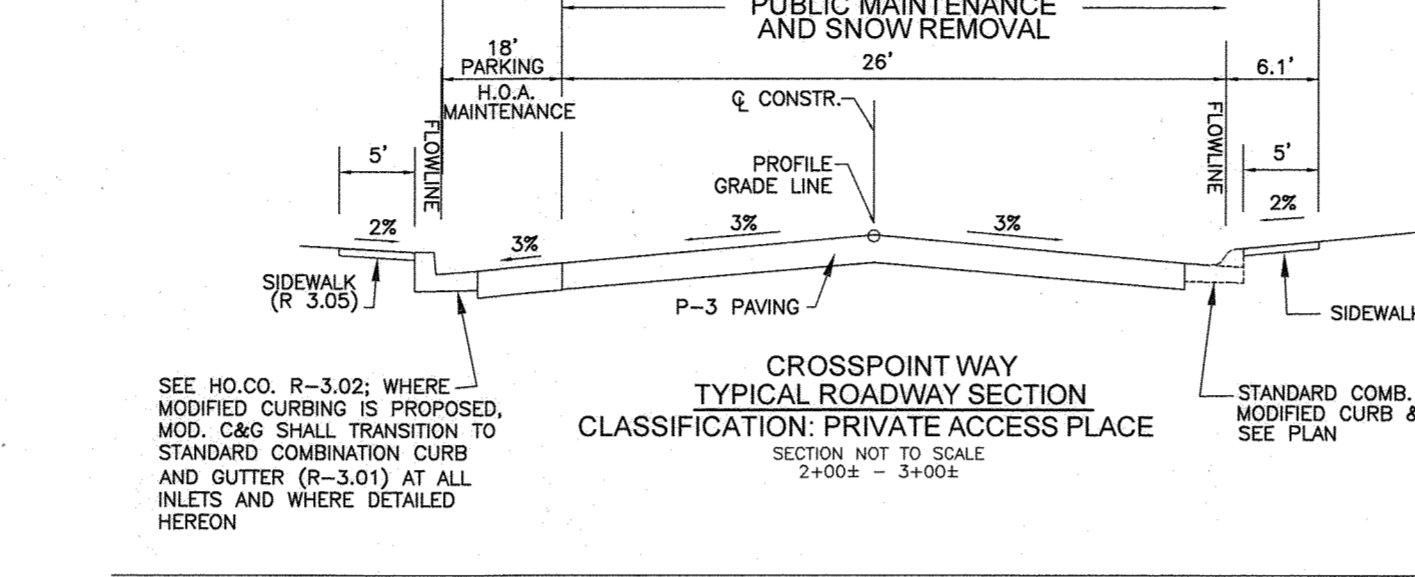


RESIDENTIAL DRIVEWAY ENTRANCE  
7' Combination Curb and Gutter  
Sidewalk Setback from Curb  
Detail  
R-6.01

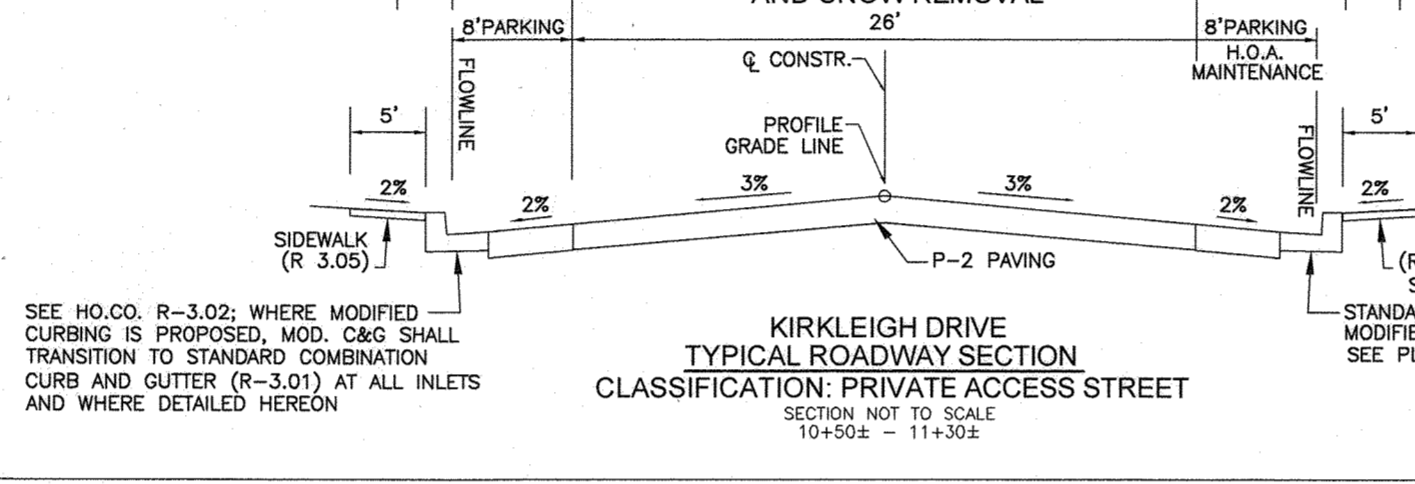
REFER TO LOTS 33, 34 AND 35-37



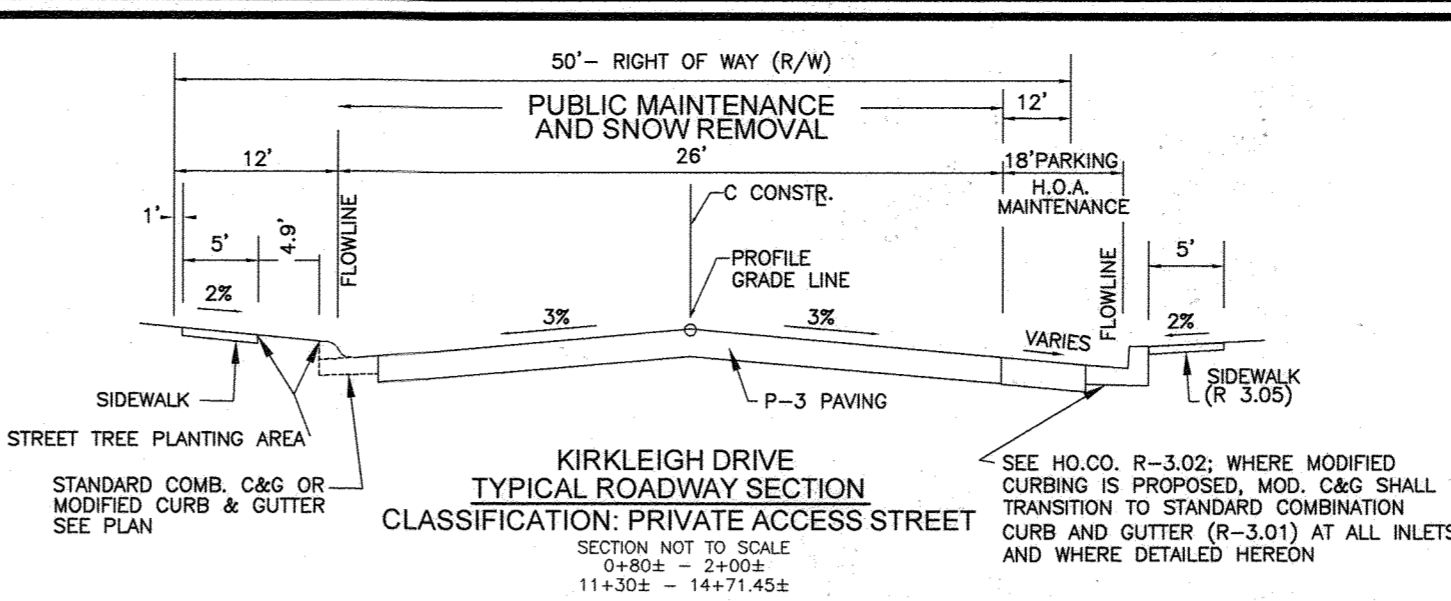
STARLIGHT PLACE  
TYPICAL ROADWAY SECTION  
CLASSIFICATION: PUBLIC ACCESS STREET  
SECTION NOT TO SCALE  
0+80.2 - 7+15.2  
11+30.2 - 14+71.4±



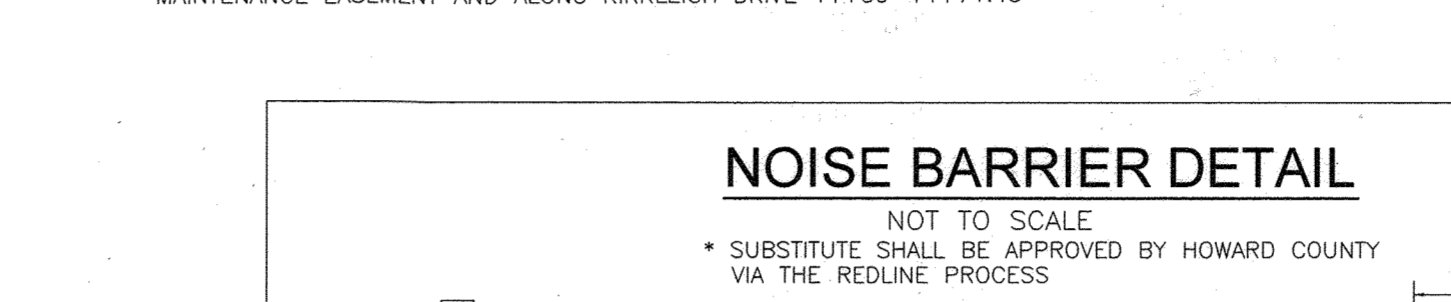
CROSSPOINT WAY  
TYPICAL ROADWAY SECTION  
CLASSIFICATION: PRIVATE ACCESS PLACE  
SECTION NOT TO SCALE  
2+40.2 - 3+40.2



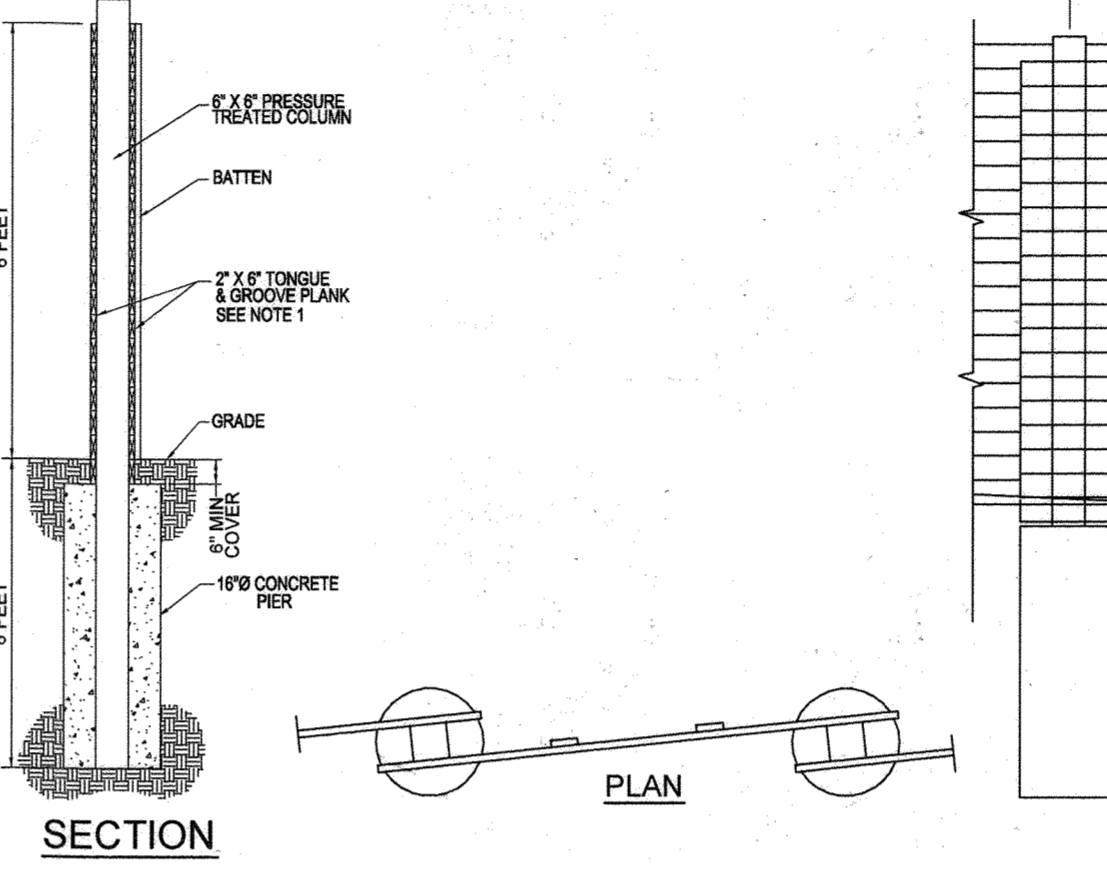
KIRKLEIGH DRIVE  
TYPICAL ROADWAY SECTION  
CLASSIFICATION: PRIVATE ACCESS STREET  
SECTION NOT TO SCALE  
10+50.2 - 11+30.2



KIRKLEIGH DRIVE  
TYPICAL ROADWAY SECTION  
CLASSIFICATION: PRIVATE ACCESS STREET  
SECTION NOT TO SCALE  
0+80.2 - 2+40.2  
11+30.2 - 14+71.4±



NOISE BARRIER DETAIL  
NOT TO SCALE  
\* SUBSTITUTE SHALL BE APPROVED BY HOWARD COUNTY VIA THE REDLINE PROCESS



SECTION  
ELEVATION

NOTE 1: REFER TO HOWARD COUNTY DETAIL R-6.06 FOR MATERIAL SPECIFICATIONS AND TREATMENT (PRESERVATIVE, PAINT OR STAIN)

NOISE FENCE 1 LOCATION CHART					
POINT	NORTHING	EASTING	GROUND	TOP FENCE	WALL HEIGHT
NF20	594009	1340199	463	469	6 FEET TALL
NF21	594024	1340208	463	469	6 FEET TALL
NF22	594055	1340174	464	470	6 FEET TALL
NF23	594110	1340224	463	469	6 FEET TALL
NF24	594230	1340270	461	467	6 FEET TALL
NF25	594349	1340283	463.5	469.5	6 FEET TALL
NF26	594460	1340278	466.5	472.5	6 FEET TALL
NF27	594473	1340275	467	473	6 FEET TALL
NF28	594584	1340265	470.5	476.5	6 FEET TALL
NF29	594600	1340238	470	476	6 FEET TALL

NOISE FENCE 2 LOCATION CHART					
POINT	NORTHING	EASTING	GROUND	TOP FENCE	WALL HEIGHT
NF16	593778	1340154	455	461	6 FEET TALL
NF17	593779	1340166	454	460	6 FEET TALL
NF18	593907	1340191	457.4	463.4	6 FEET TALL

NOISE FENCE LOCATION CHART					
POINT	NORTHING	EASTING	GROUND	TOP FENCE	WALL HEIGHT
NOISE FENCE 5					
NF6	593937	1339610	510	516	6 FEET TALL
NF7	593939	1339637	512	518	6 FEET TALL
NF8	594004	1339658	514	520	6 FEET TALL
NOISE FENCE 4					
NF8-4	593910	1339687	498	504	6 FEET TALL
NF9	593902	1339700	499	505	6 FEET TALL
NF10	593904	1339690	498	504	6 FEET TALL
NF11	593986	1339703	501	507	6 FEET TALL

NOISE FENCE 6 LOCATION CHART					
POINT	NORTHING	EASTING	GROUND	TOP FENCE	WALL HEIGHT
NF1	594105	1339573	520	526	6 FEET TALL
NF2	594091	1339568	519	525	6 FEET TALL
NF3	594091	1339563	520	526	6 FEET TALL
NF4	594102	1339343	527.5	533.5	6 FEET TALL
NF5	594128	1339333	527.5	533.5	6 FEET TALL

A NOISE STUDY FOR THIS PROJECT WAS PREPARED BY VOGEL ENGINEERING+TIMMONS GROUP, DATED JULY 2020 AND APPROVED APRIL 19, 2021.

-THE 65 DBA NOISE CONTOUR LINE DRAWN ON THIS SUBDIVISION PLAN IS ADVISORY AS REQUIRED BY THE HOWARD COUNTY DESIGN MANUAL, CHAPTER 5, REVISED FEBRUARY 1992, AND CANNOT BE CONSIDERED TO EXACTLY LOCATE THE 65 DBA NOISE EXPOSURE. THE 65 DBA NOISE LINE WAS ESTABLISHED BY HOWARD COUNTY TO ALERT DEVELOPERS, BUILDERS AND FUTURE RESIDENTS THAT AREAS BEYOND THIS THRESHOLD MAY EXCEED GENERALLY ACCEPTED NOISE LEVELS ESTABLISHED BY THE U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT.

NOTES:

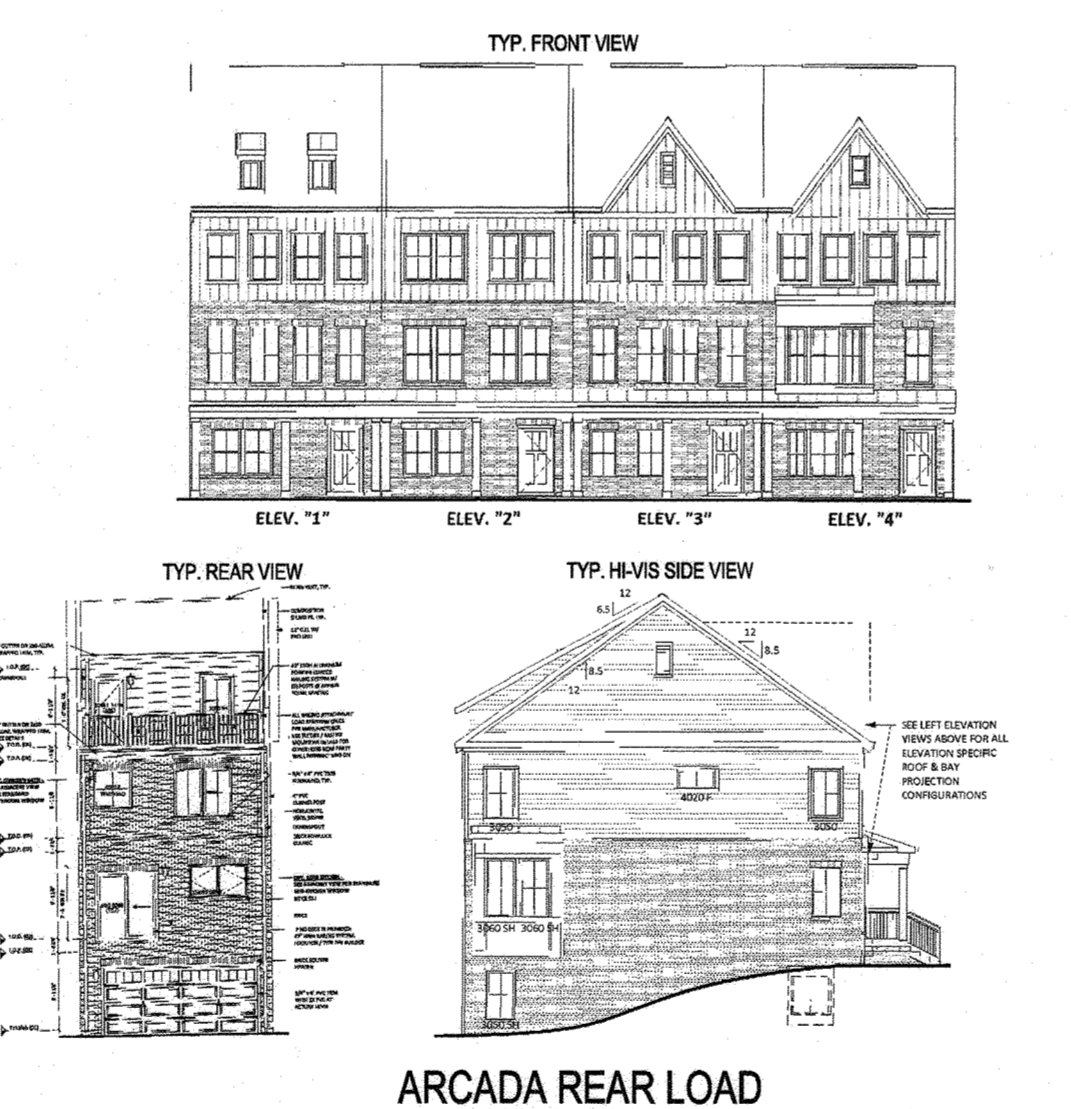
- ADDITIONAL HOUSE TYPES AND OPTIONS MAY FIT ON ANY GIVEN LOT.
- THE STAKING OF FOUNDATIONS PRIOR TO CONSTRUCTION TO ENSURE COMPLIANCE WITH REGULATORY BUILDING RESTRICTION LINES IS RECOMMENDED.
- A MINIMUM OF 10 FEET SHALL BE PROVIDED BETWEEN THE CHOSEN HOME MODEL PUBLIC SEWER, WATER & UTILITY EASEMENT.
- MODEL ELEVATION SHALL NOT EXCEED 45' MAX HEIGHT AS ALLOWED BY CEF-M ZONE.
- IN ACCORDANCE WITH SECTION 128.0.A OF THE HOWARD COUNTY ZONING REGULATIONS, THE MAX ENCROACHMENT INTO SETBACK FOR CORNICES, EAVES AND CANTILEVERED BUILDING FEATURES WHICH DO NOT CONTAIN ANY FLOOR AREA OR EXTENSION OF INTERIOR LIVING SPACE IS: 3 FEET INTO ANY SETBACK.
- MAX ENCROACHMENT INTO SETBACK FOR BAY WINDOWS, WINDOW WELLS, ORIELS, VESTIBULES, BALCONIES AND CHIMNEYS IS: 4 FEET INTO ANY SETBACK OR A REQUIRED DISTANCE BETWEEN BUILDINGS, PROVIDED THE FEATURE HAS A MAXIMUM WIDTH OF 16 FEET AS MEASURED HORIZONTALLY ALONG THE WALL FROM WHICH THE FEATURE EXTENDS.
- MAX ENCROACHMENT INTO SETBACK FOR EXTERIOR STAIRWAYS OR RAMPS, ABOVE OR BELOW GROUND LEVEL EXCLUDING THOSE ATTACHED TO A PORCH OR DECK (SEE E) IS: 10 FEET INTO A FRONT SETBACK OR A SETBACK FROM A PROJECT BOUNDARY OR DIFFERENT ZONING DISTRICT; 16 FEET INTO A REAR SETBACK; 4 FEET INTO A SIDE SETBACK OR A REQUIRED DISTANCE BETWEEN BUILDINGS.
- MAX ENCROACHMENT INTO SETBACK FOR OPEN OR ENCLOSED PORCHES AND DECKS, AND THE STAIRWAYS OR RAMPS ATTACHED THERETO IS: 10 FEET INTO A FRONT OR REAR SETBACK, A SETBACK FROM A PROJECT BOUNDARY, A SETBACK FROM A DIFFERENT ZONING DISTRICT, OR A REQUIRED DISTANCE BETWEEN BUILDINGS.

NOTE:

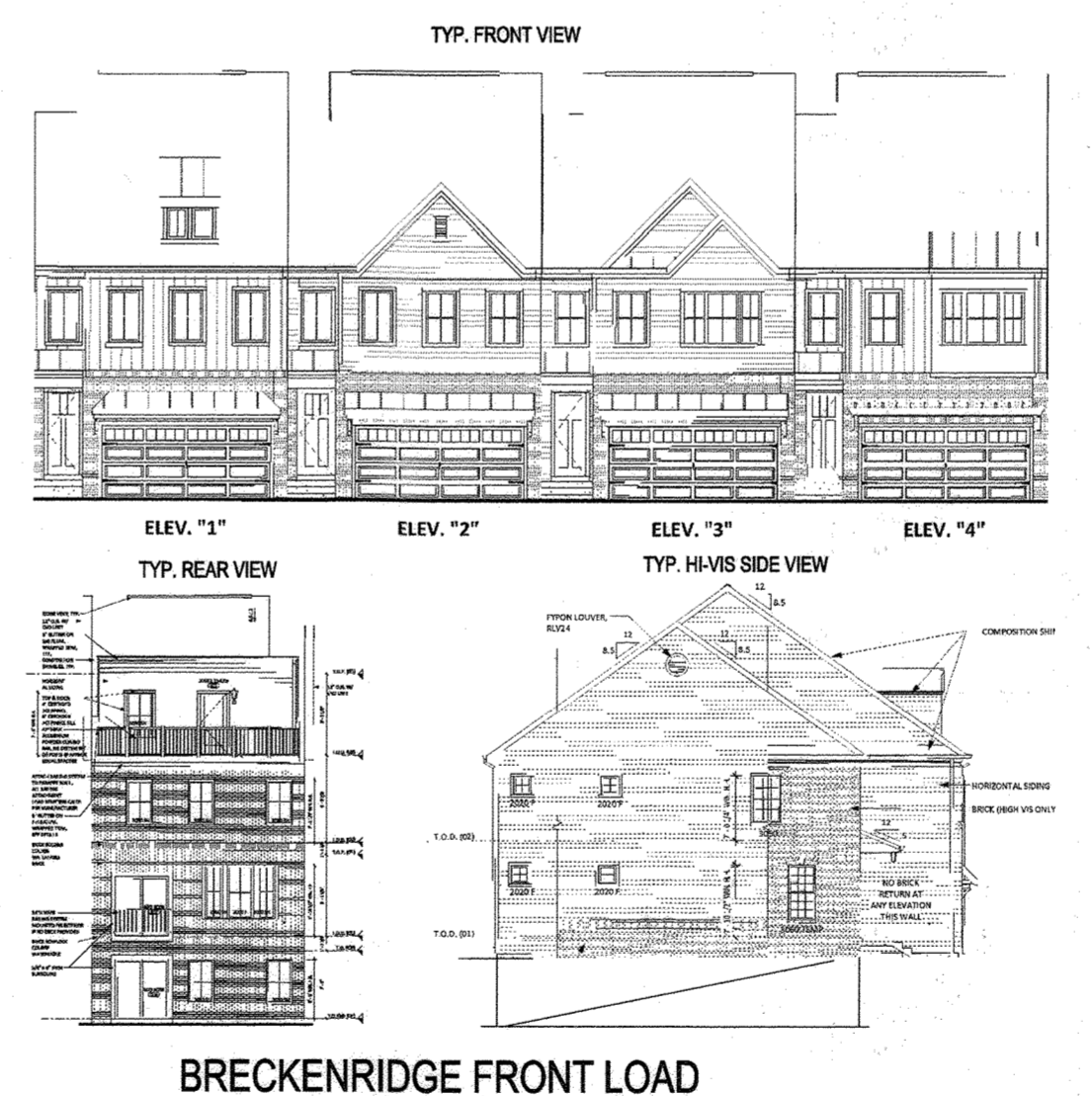
AS STANDARD, UNIT ARTICULATIONS OCCUR AT THE UNIT PARTY WALLS. A 2' STEP (FORWARD OR BACK) IS THE STANDARD. ANY DEVIATION FROM THAT SHOWN HEREON SHALL BE SUBMITTED VIA THE HOWARD COUNTY HOUSE TYPE REVISION PROCESS.



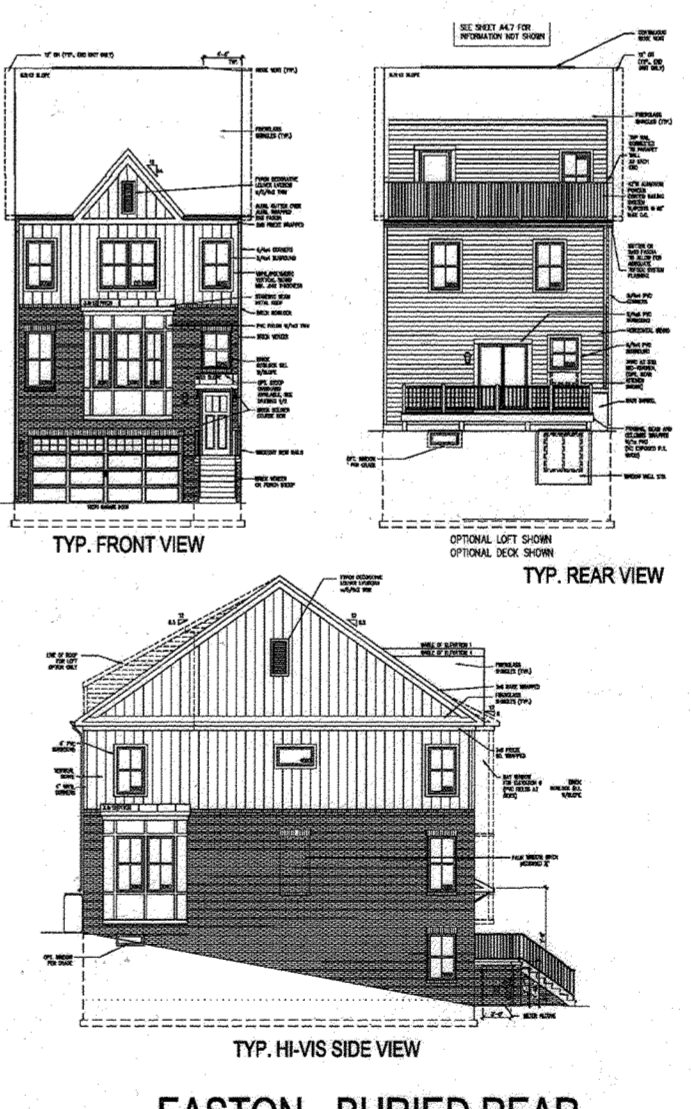
ARCADA FRONT LOAD  
NOT TO SCALE



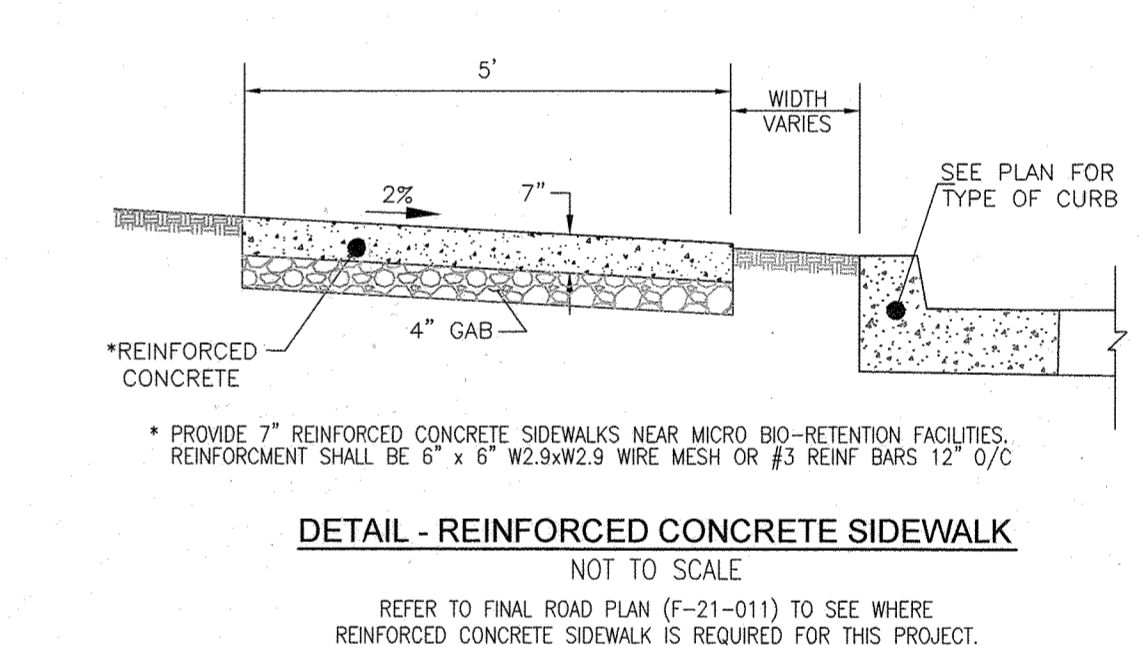
ARCADA REAR LOAD  
NOT TO SCALE



BRECKENRIDGE FRONT LOAD  
NOT TO SCALE



EASTON - BURIED REAR  
NOT TO SCALE



DETAIL - REINFORCED CONCRETE SIDEWALK  
NOT TO SCALE

REFER TO FINAL ROAD PLAN (F-21-011) TO SEE WHERE REINFORCED CONCRETE SIDEWALK IS REQUIRED FOR THIS PROJECT.

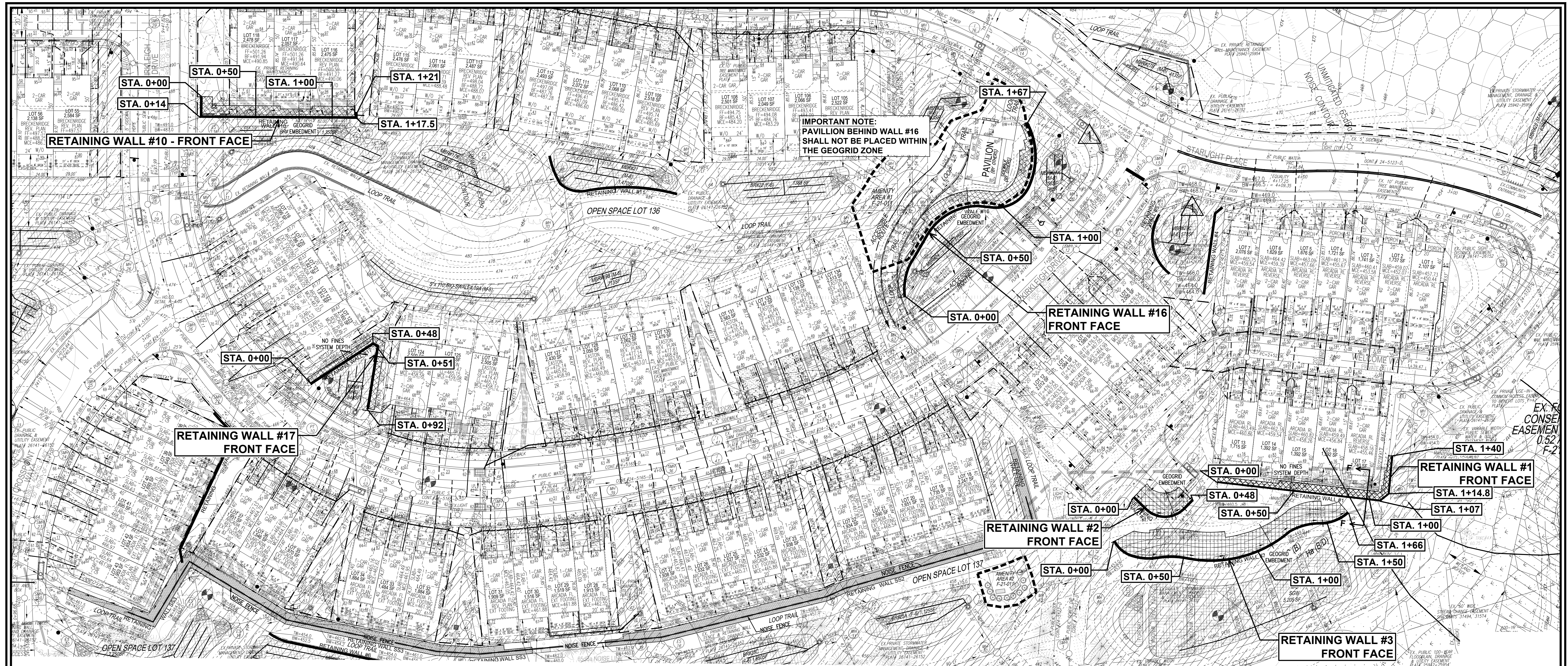
OWNER/DEVELOPER  
U.S. HOME, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
410-423-4264

NO.	REVISION	DATE
1	REVISE TO ADD RAIN BARREL CONCRETE FOUNDATIONS, REUSE DECKS, SHUT HOUSES ON LOTS 36, 48, 105-108 AND 117, ADD SCREENING FENCE AND ADD BAY WINDOWS	7-31-23

SITE DEVELOPMENT PLAN  
SITE DETAILS AND HOUSE TYPES  
**CHAPELGATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152  
P/O PARCEL: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
ZONED: CEF-M  
L 1389/F. 339 (P. 110)  
HOWARD COUNTY, MARYLAND  
**VOGEL ENGINEERING**  
**TIMMONS GROUP**  
3300 NORTH RIDGE ROAD, SUITE 110, ELLICOTT CITY, MD 21043  
P: 410.461.7666 F: 410.461.8961 www.timmons.com

PROFESSIONAL CERTIFICATE  
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. 16193, EXPIRATION DATE: 09-27-2022.  
DESIGN BY: RHV  
DRAWN BY: VE+TC  
CHECKED BY: RHV  
DATE: AUGUST 2022  
SCALE: AS SHOWN  
W.O. NO.: 13-36 / 40220  
13 SHEET OF 42

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
10/26/2022  
CHIEF, DIVISION OF SITE DEVELOPMENT  
11/3/2022  
DIRECTOR



**WALL #1, #2, & #3, #10, #16, & #17 LOCATION PLAN**  
1"=30'

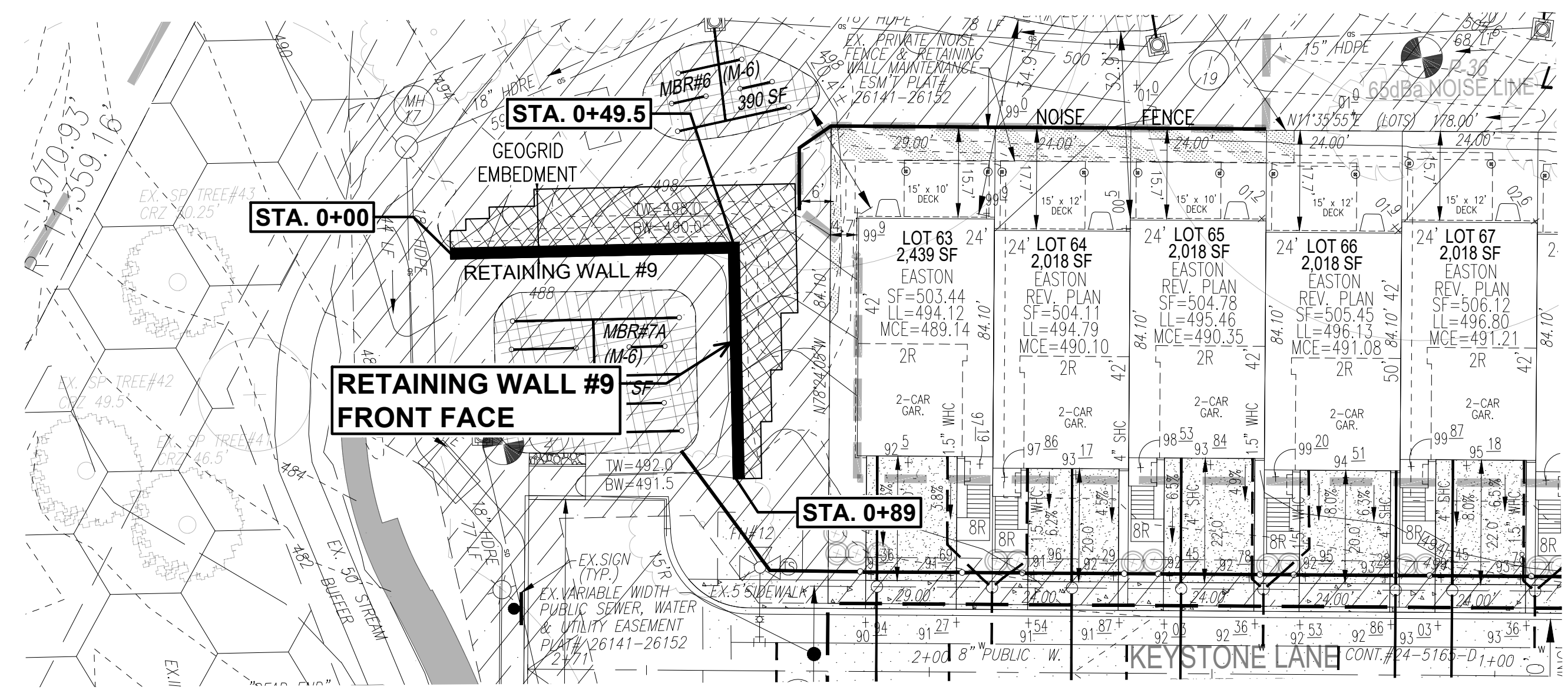
**NOTES FOR RETAINING WALLS #1, #2, AND #3:**

- RETAINING WALL BACKFILL AND RETAINED FILL MATERIAL SHOULD BE TESTED TO HAVE AT LEAST A 32 DEG. PHI, WHEN COMPACTED PER SPEC.
- COMPACTION REQUIREMENT IS SPECIFIED AS "MODIFIED 95%" FOR BETTER COMPACTION EFFORT.

**OWNER/DEVELOPER**

U.S. HOMES, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENVARD.COM  
(410) 423-2264

1	Rev. wall #4 & #5 & removed wall #14 per County Comments	9/30/22
NO.	REVISION	DATE



**WALL #9 LOCATION PLAN**  
1"=20'

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
**CHAD Edmondson**  
CHIEF, DEVELOPMENT-ENGINEERING DIVISION 10/26/2022 DATE  
CHIEF, DIVISION OF PLANNING & DEVELOPMENT 11/3/2022 DATE  
DIRECTOR DATE

**SITE DEVELOPMENT PLAN**  
**MSE RETAINING WALL**  
**#1, #2, #3, #9, #10, #16, & #17 LOCATION PLAN**  
**CHAPEL GATE WOODS**  
SFA LOTS 1-134  
PLATS 26141-26152  
PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
ZONED: CEF-M  
L 1389/F. 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

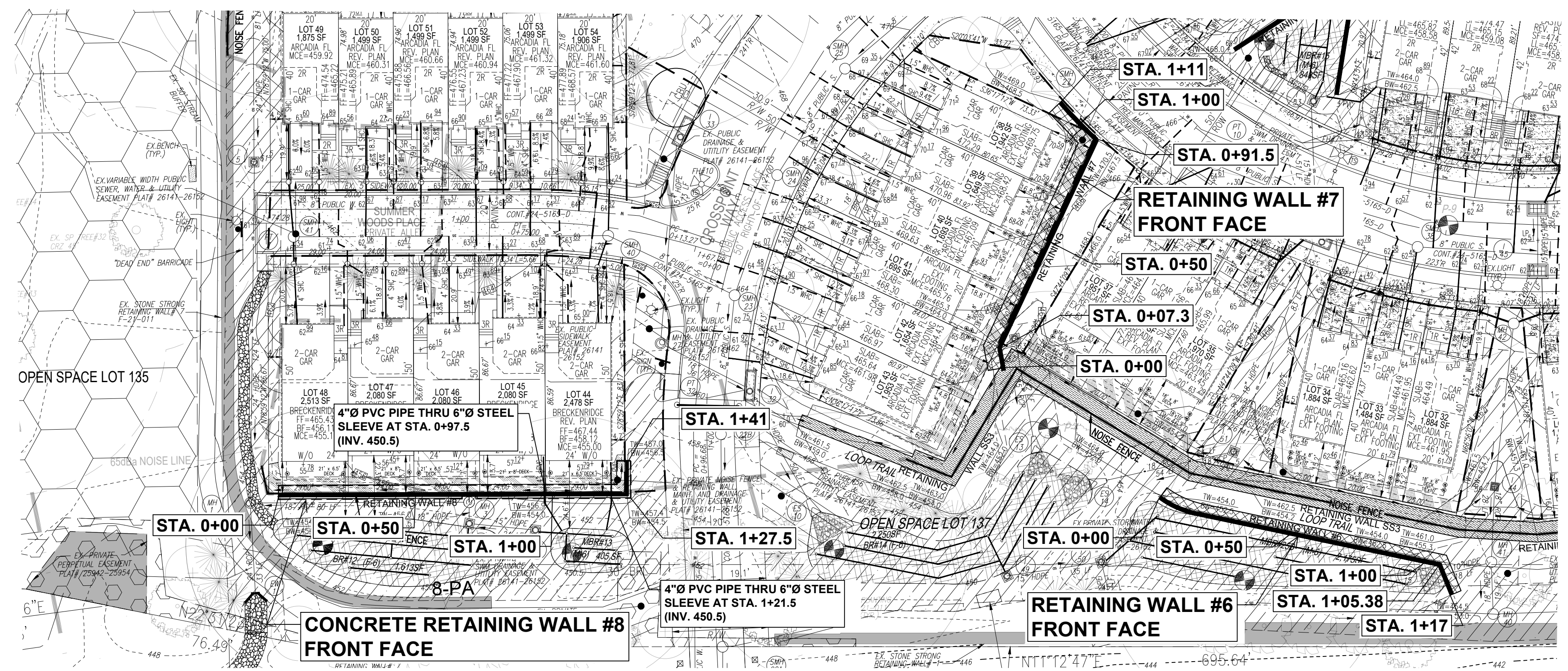


DESIGN BY: HM  
DRAWN BY: HM+AM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

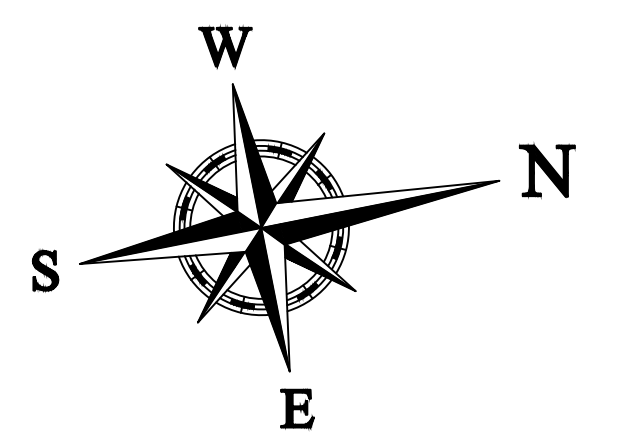
PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE # 14509, EXPIRATION DATE: 02/27/2024.  
**14** SHEET **42**  
OF



**WALL #4, #5, & #11 LOCATION PLAN**  
1"=30'



**WALL #6, #7 & #8 LOCATION PLAN**  
1"=30'



**OWNER/DEVELOPER**  
U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
(410) 423-4264

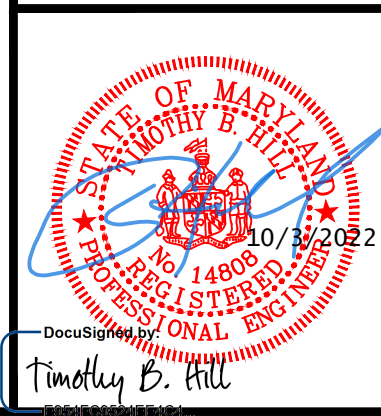
NO.	REVISION	DATE
1	Rev. wall #4 & #5 & removed wall #14 per County Comments	9/30/22

**SITE DEVELOPMENT PLAN**  
**RETAINING WALL LOCATION PLAN**  
**#4, #5, #6, #7, #8 & #11**  
**CHAPEL GATE WOODS**  
SFA LOTS 1-134  
PLATS 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
ORD ELECTION DISTRICT  
ZONED: CEF-M  
L 1389/F. 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**

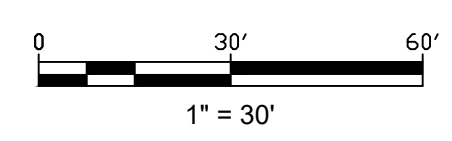
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

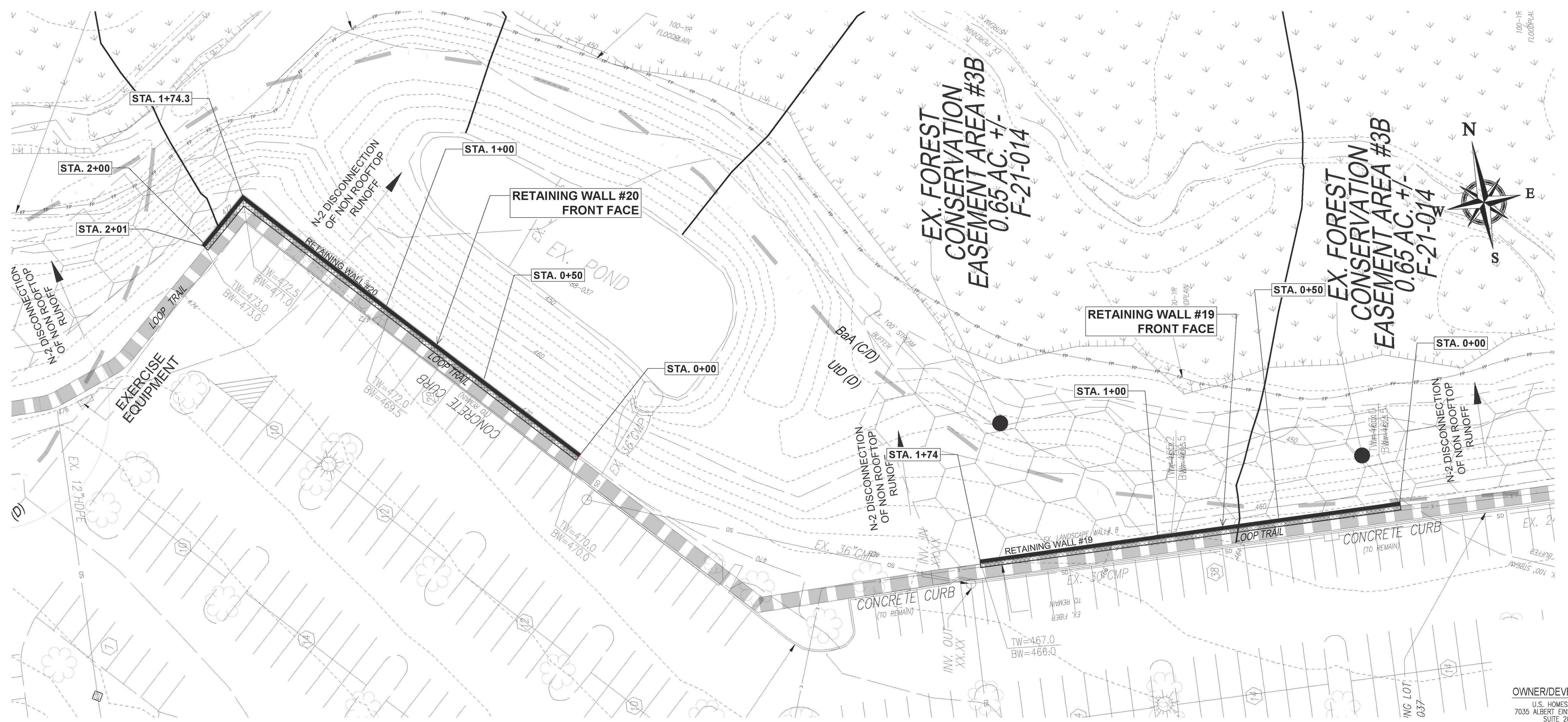


DESIGN BY: \_\_\_\_\_ HM  
DRAWN BY: \_\_\_\_\_ HM+AM  
CHECKED BY: \_\_\_\_\_ HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

PROFESSIONAL CERTIFICATE  
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. 14808  
EXPIRATION DATE: 02/27/2024.  
**15** SHEET **42**  
OF

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
Designed by: **CHAD Edmondson** 11/3/2022  
CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE  
DIRECTOR **Amy Goman** DATE





**WALL #19 & #20 LOCATION PLAN**  
1" = 20'

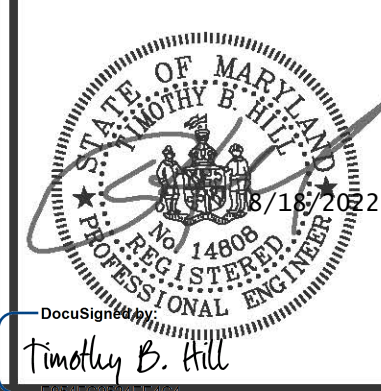
**OWNER/DEVELOPER**  
U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARD.COM  
(410) 423-4264

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**RETAINING WALL LOCATION PLAN**  
**#19 & #20**  
**CHAPEL GATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
SRD ELECTION DISTRICT: 11  
ZONED: CEF-M  
L 1389/F 339 (P. 110)  
HOWARD COUNTY, MARYLAND

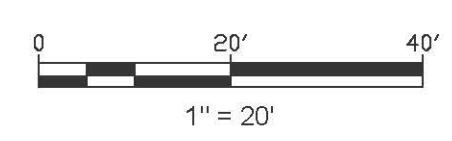
**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098



DESIGN BY: HM  
DRAWN BY: HM+AM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

**PROFESSIONAL CERTIFICATE**  
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. 14809 EXPIRATION DATE: 02/17/2024.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE  
CHIEF, DIVISION OF PLANNING AND DEVELOPMENT 11/3/2022 DATE  
DIRECTOR DATE





# SPECIFICATIONS SEGMENTAL CONCRETE BLOCK RETAINING WALL

**PART 1: GENERAL**

**1.01 DESCRIPTION**

A. 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.

B. 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.

C. 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**

A. CONTRACTOR SHALL CHECK ALL MATERIALS UPON DELIVERY TO ASSURE THAT THE PROPER TYPE, GRADE, COLOR, AND CERTIFICATION HAS BEEN RECEIVED.

B. 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**

A. 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.

B. SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C1372 - STANDARD SPECIFICATIONS FOR SEGMENTAL RETAINING WALL UNITS.

C. 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 ± 1/4" 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.]

D. SEGMENTAL CONCRETE UNITS SHALL CONFORM TO THE

FOLLOWING CONSTRUCTABILITY REQUIREMENTS:

VERTICAL SETBACK = 1/8"± PER COURSE (NEAR VERTICAL) OR 1 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**

A. 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; 128,000 PSI MINIMUM; SHORT BEAM SHEAR IN ACCORDANCE WITH ASTM D4475; 6,400 PSI MINIMUM.

B. 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**

A. MATERIAL SHALL CONSIST OF A COMPACTED #57 CRUSHED STONE BASE OR CONCRETE AS SHOWN ON THE CONSTRUCTION DRAWINGS.

**2.04 UNIT DRAINAGE FILL**

A. UNIT DRAINAGE FILL SHALL CONSIST OF #57 CRUSHED STONE.

**2.05 REINFORCED BACKFILL**

A. REINFORCED BACKFILL SHALL BE TYPE SM, FREE OF DEBRIS AND MEET THE FOLLOWING GRADING TESTED IN ACCORDANCE WITH ASTM D422 AND MEET OTHER PROPERTIES SHOWN ON THE PLAN:

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.

B. 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.

C. 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**

A. GEOSYNTHETIC REINFORCEMENT SHALL CONSIST OF GEOGRIDS MANUFACTURED SPECIFICALLY FOR SOIL REINFORCEMENT APPLICATIONS AND SHALL BE MANUFACTURED FROM HIGH TENACITY POLYESTER (PET) YARN.

B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. 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

NEEDLE-PUNCHED NONWOVEN FABRIC MEETING REQUIREMENTS OF AASHTO M288.

**PART 3 EXECUTION**

**3.01 EXCAVATION**

A. 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.

B. 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**

A. 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.

B. LEVELING PAD SHALL BE PREPARED TO INSURE FULL CONTACT TO THE BASE SURFACE OF THE CONCRETE UNITS.

C. COMPACT TO MINIMUM 95% OF STANDARD PROCTOR DENSITY PER ASTM D698.

**3.03 SEGMENTAL UNIT INSTALLATION**

A. 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.

B. 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.

C. INSTALL SHEAR/CONNECTING DEVICES PER MANUFACTURER'S RECOMMENDATIONS.

D. 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.

E. PLACE AND COMPACT REINFORCED BACKFILL SOIL BEHIND DRAINAGE FILL. FOLLOW WALL ERECTION AND DRAINAGE FILL CLOSELY WITH BACKFILL.

F. 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**

A. GEOGRID SHALL BE ORIENTED WITH THE HIGHEST STRENGTH AXIS PERPENDICULAR TO THE WALL ALIGNMENT.

B. GEOGRID REINFORCEMENT SHALL BE PLACED AT THE STRENGTHS, LENGTHS, AND ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS OR AS DIRECTED BY THE ENGINEER.

C. 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.

D. GEOGRID REINFORCEMENTS SHALL BE CONTINUOUS THROUGHOUT THEIR EMBEDMENT LENGTHS AND PLACED SIDE-BY-SIDE TO PROVIDE 100% COVERAGE AT EACH LEVEL. SPLICED CONNECTIONS BETWEEN SHORTER PIECES OF GEOGRID OR GAPS GREATER THAN 2 INCHES BETWEEN ADJACENT PIECES OF GEOGRID ARE NOT PERMITTED.

**3.05 REINFORCED BACKFILL PLACEMENT**

A. 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.

B. 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.

C. REINFORCED BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY AS DETERMINED BY ASTM D698. 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.

D. ONLY LIGHTWEIGHT HAND-OPERATED COMPACTION EQUIPMENT SHALL BE ALLOWED WITHIN 3 FEET FROM THE BACK OF THE SEGMENTAL CONCRETE UNIT.

E. 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.

F. RUBBER Tired EQUIPMENT MAY PASS OVER GEOGRID REINFORCEMENT AT SLOW SPEEDS, LESS THAN 10 MPH. SUDDEN BRAKING AND TURNING SHALL BE AVOIDED.

G. 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**

A. PRIOR TO PLACEMENT OF CAP UNITS, THE UPPER SURFACE OF THE TOP COURSE WALL UNITS SHALL BE CLEANED OF SOIL AND ANY OTHER MATERIAL.

B. CAP UNITS SHALL BE GLUED TO UNDERLYING UNITS WITH AN ALL-WEATHER EXTERIOR CONSTRUCTION ADHESIVE RECOMMENDED BY THE MANUFACTURER.

**3.07 FIELD QUALITY CONTROL**

A. THE OWNER SHALL ENGAGE INSPECTION AND TESTING SERVICES, INCLUDING INDEPENDENT LABORATORIES, TO PROVIDE QUALITY ASSURANCE AND TESTING SERVICES DURING CONSTRUCTION.

B. 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.

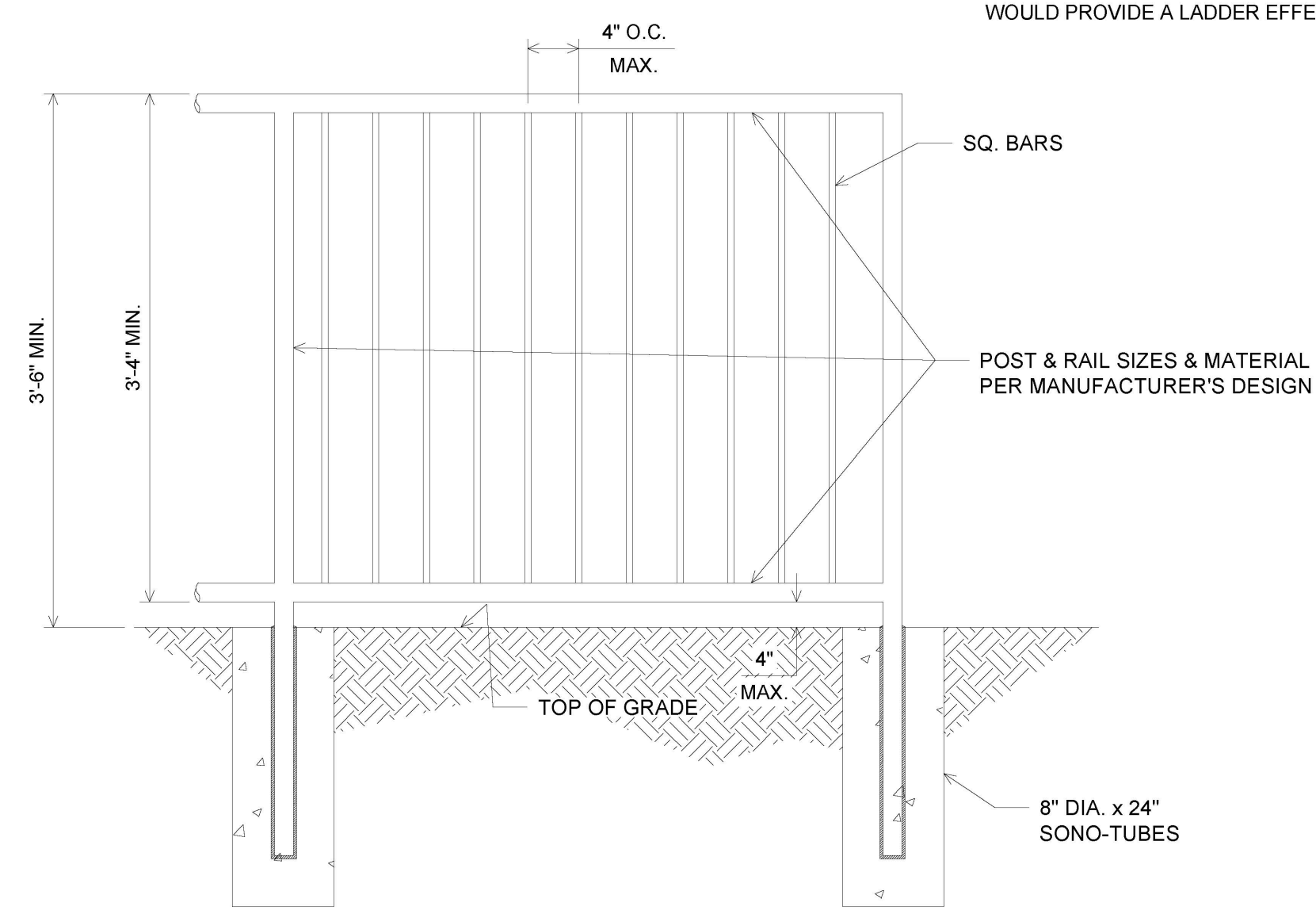
**NOTES:**

- 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.
- IF FUTURE MAINTENANCE OR REPAIR OF THE RETAINING WALL IS NEEDED, SHEETING/SHORING WILL BE REQUIRED FOR ANY STRUCTURES WITHIN THE MAINTENANCE EASEMENT OF THE RETAINING WALL.

**NOTE:**

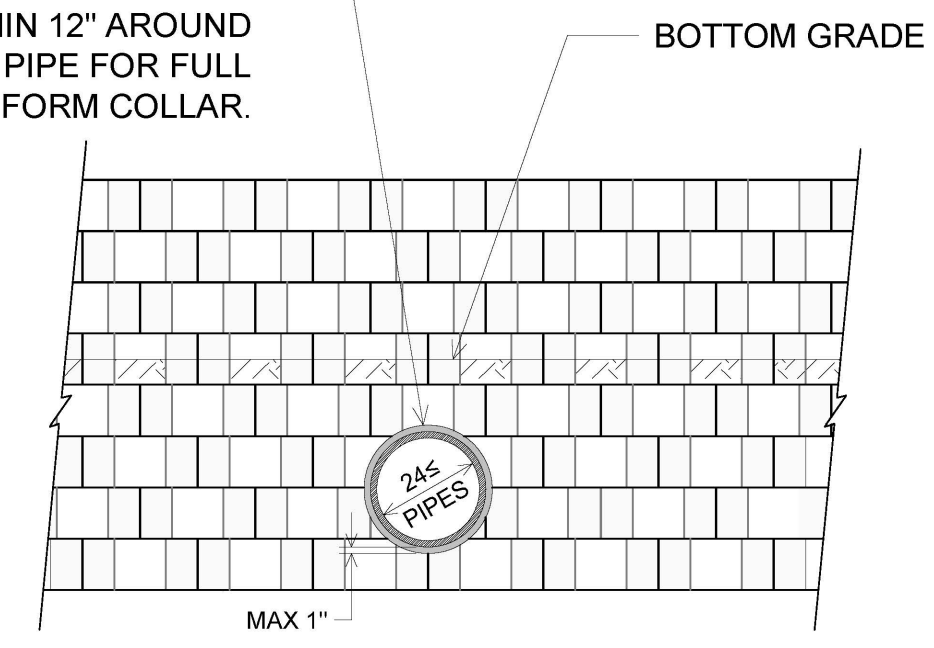
- FENCE SHALL BE A MIN. 42" ABOVE TOP GRADE AND SHALL NOT ALLOW PASSAGE OF A 4" DIA. SPHERE.
- THE FENCE SHALL NOT HAVE AN ORNAMENTAL PATTERN THAT WOULD PROVIDE A LADDER EFFECT.



**TYPICAL FENCE DETAIL  
N.T.S.**

**OWNER/DEVELOPER**  
 U.S. HOMES, LLC.  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 (410) 423-4264

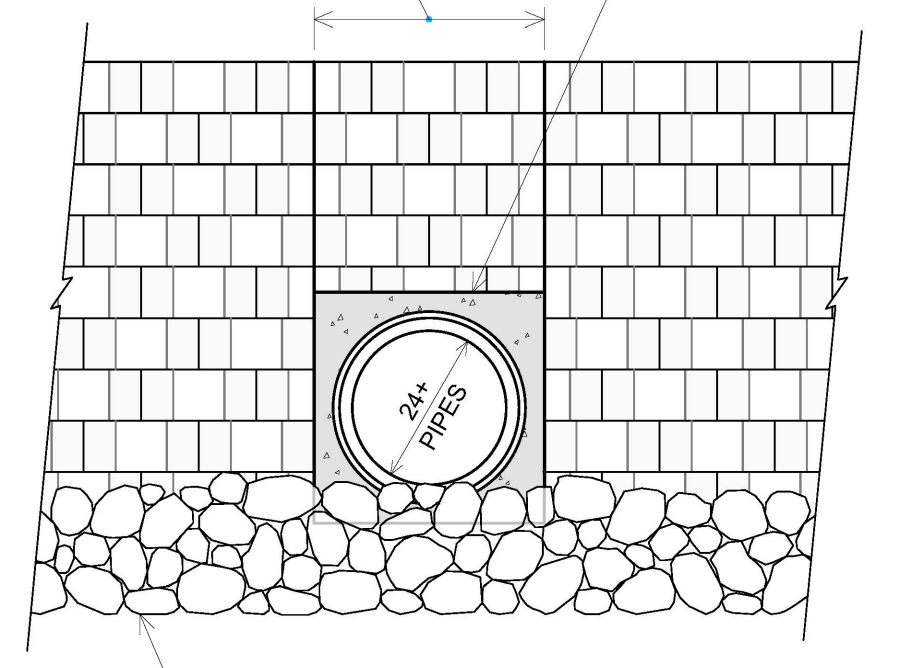
TRIM BLOCK TO WITHIN 1 INCH OF PIPE SHELL. PACK 1800 PSI STRENGTH MORTAR INTO BLOCK VOIDS WITHIN 12" AROUND PERIMETER OF PIPE FOR FULL BLOCK DEPTH TO FORM COLLAR.



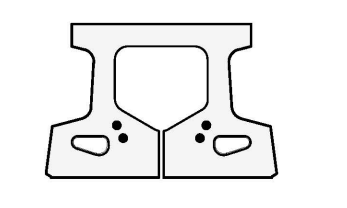
**TYPICAL PIPE OUTLET THRU MSE WALL DETAIL  
N.T.S.**

CONTROL JOINTS AS REQUIRED

3000 PSI CONCRETE COLLAR (IF APPLICABLE)



**TYPICAL PIPE OUTLET THRU MSE WALL DETAIL  
N.T.S.**



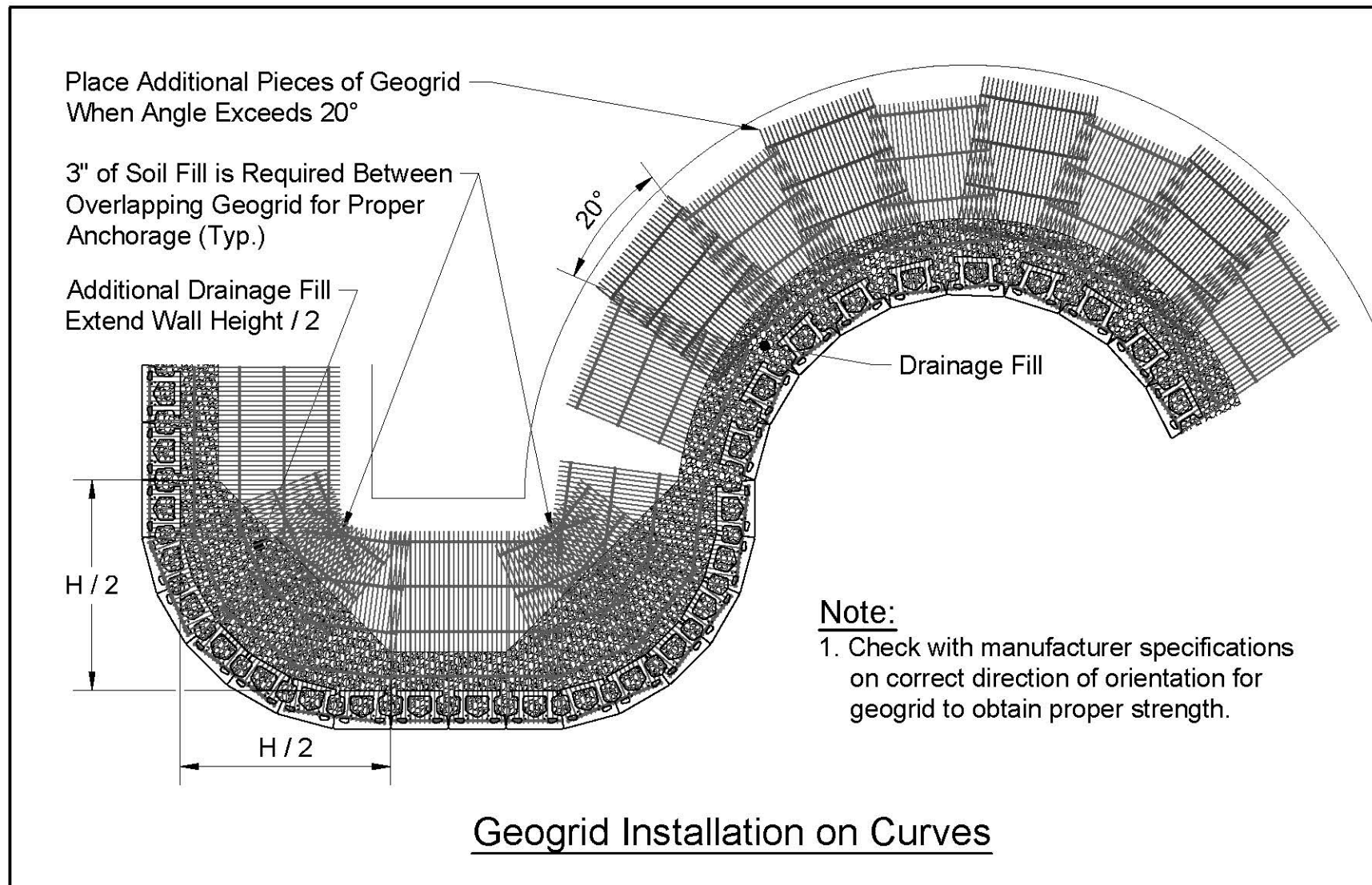
**CONTROL JOINT CUT**

**NOTES:**

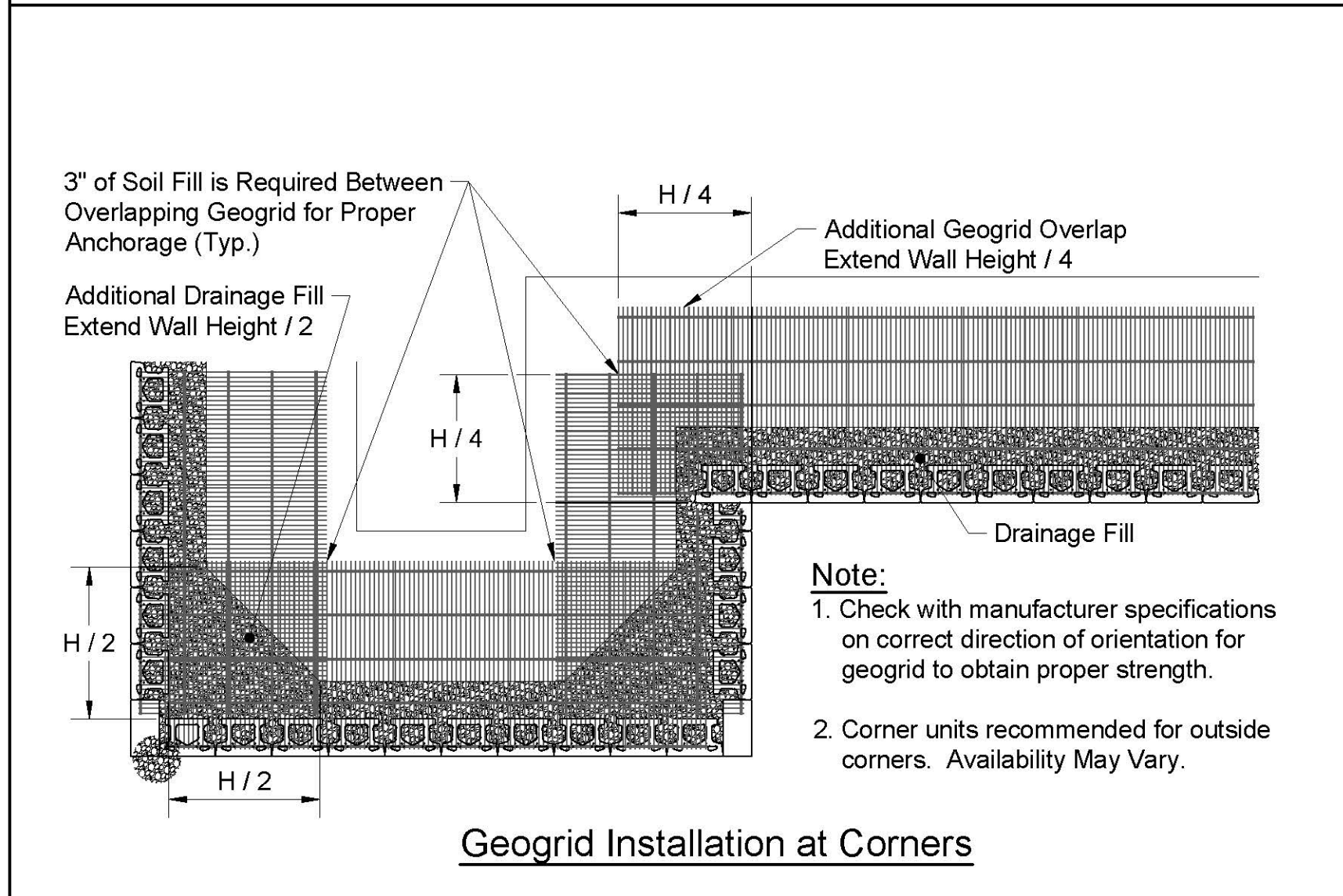
- THE WIDTH OF THE POURED CONCRETE COLLAR SHALL BE AN EVEN INCREMENT OF THE 18-INCHES BLOCK WIDTH OR 9 INCH HALF BLOCK WIDTH.
- A "CONTROL JOINT" SHOULD BE CONSTRUCTED FROM THE TOP OF THE WALL. THIS CONTROL JOINT CONSISTS OF SAW-CUTTING A JOINT, FROM THE FACE OF THE BLOCK BACK 3.5-INCHES MINIMUM AT THE MIDPOINT OF THE UNITS ON EVERY OTHER COURSE.
- PROVIDE SPLASH BLOCK, CONCRETE GUTTER OR RIP-RAP FOR STORM DRAIN PIPE OUTLET FOR SCOUR PROTECTION, AS REQUIRED.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022  
 [Signature]  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE  
 [Signature]  
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE  
 [Signature]  
 DIRECTOR DATE

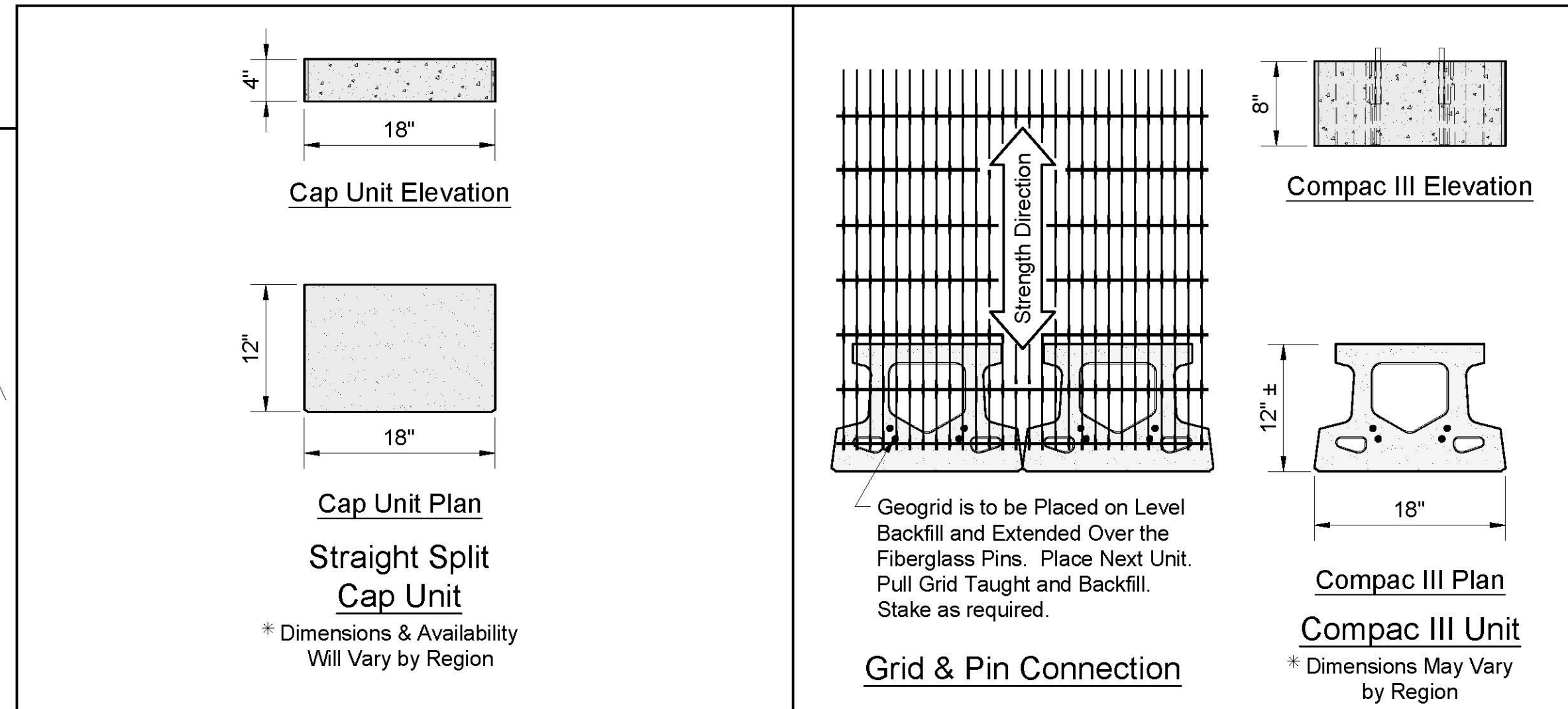
NO.	REVISION	DATE
<b>SITE DEVELOPMENT PLAN          MSE RETAINING WALL          CONSTRUCTION DETAILS          CHAPEL GATE WOODS</b> SFA LOTS 1-134 PLAT# 26141-26152		
PARCELS: 110 TAX MAP: 16 GRID: 10 3RD ELECTION DISTRICT	ZONED: CEF-M	L. 1389/F. 339 (P. 110) HOWARD COUNTY, MARYLAND
<b>HILLIS-CARNES          ENGINEERING ASSOCIATES</b> 10975 Guilford Road, Suite A Annapolis Junction, Maryland Phone: (410) 880-4788 www.hocea.com Fax: (410) 880-4098		
DESIGN BY: _____ HM	PROFESSIONAL CERTIFICATE	
DRAWN BY: _____ HM+AM	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. 14808 EXPIRATION DATE: 02/27/2024.	
CHECKED BY: _____ HM		
DATE: JANUARY 2022	SCALE: AS SHOWN	HCEA NO.: 20441A
17 SHEET OF 42		



**Geogrid Installation on Curves**



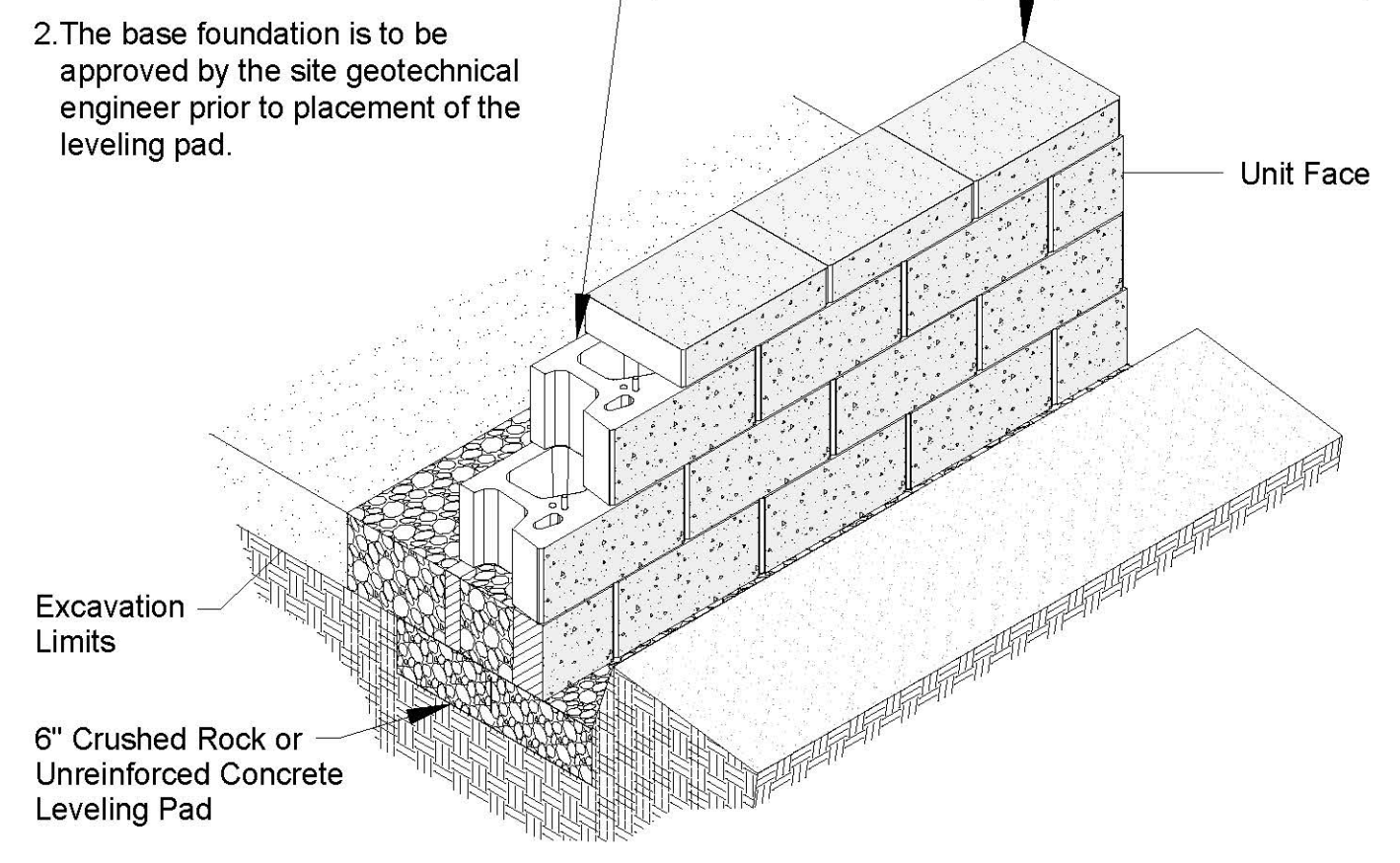
**Geogrid Installation at Corners**



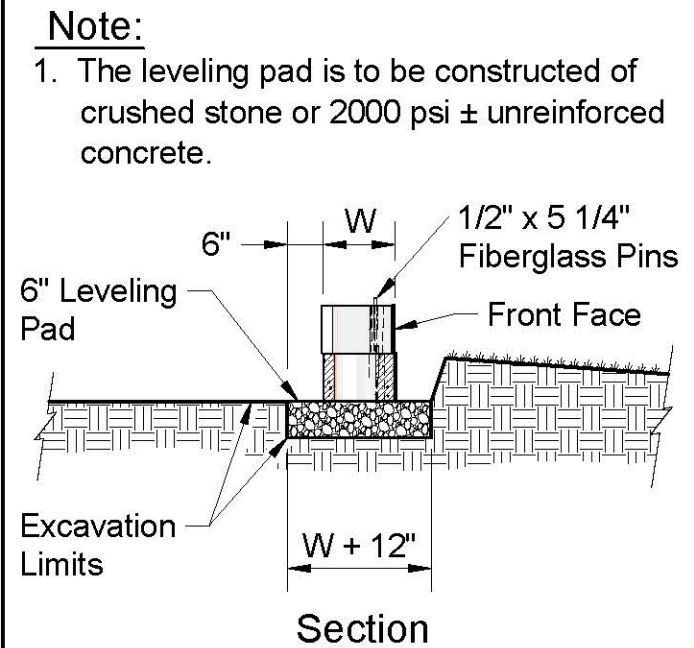
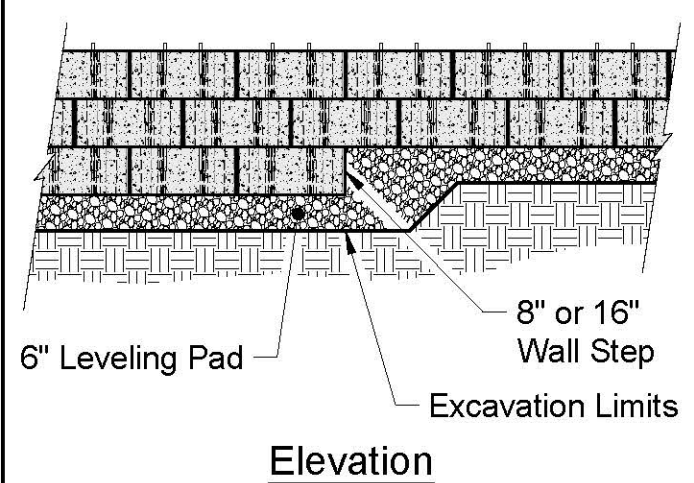
**Base Leveling Pad Notes:**

- 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.

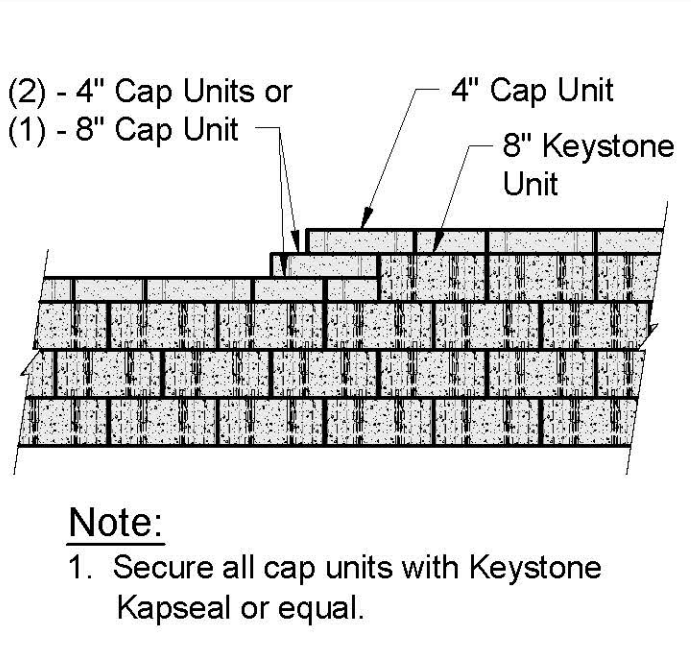
Compac III Unit	Cap Unit
* Width: 18"	* Width: 18"
* Depth: 12"	* Depth: 12"
* Height: 8"	* Height: 4"
* Weight: 75 lbs	* Weight: 67.5 lbs



**Compac III Unit/Base Pad Isometric Section View**  
\* Dimensions & Weight May Vary by Region



**Leveling Pad Detail**



**Top of Wall Steps**

**COMPAC III UNIT - STRAIGHT FACE DETAILS**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 DIRECTOR

OWNER/DEVELOPER  
 U.S. HOMES, LLC.  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LEONARD.COM  
 (410) 423-4264

NO.	REVISION	DATE

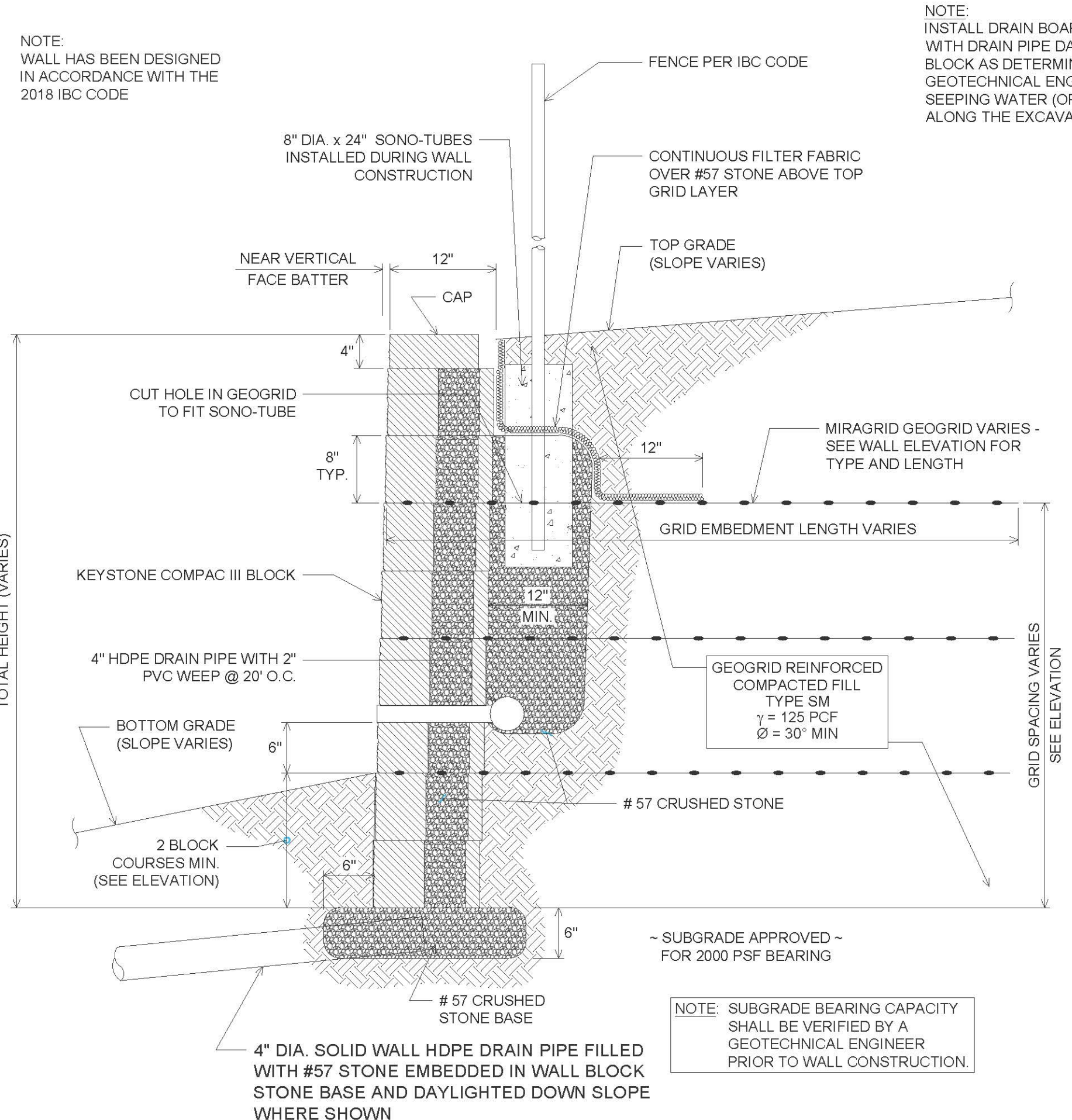
SITE DEVELOPMENT PLAN  
**MSE RETAINING WALL CONSTRUCTION DETAILS**  
**CHAPEL GATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152  
 PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT  
 ZONED: CEF-M  
 L: 1389/F: 339 (P: 110)  
 HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

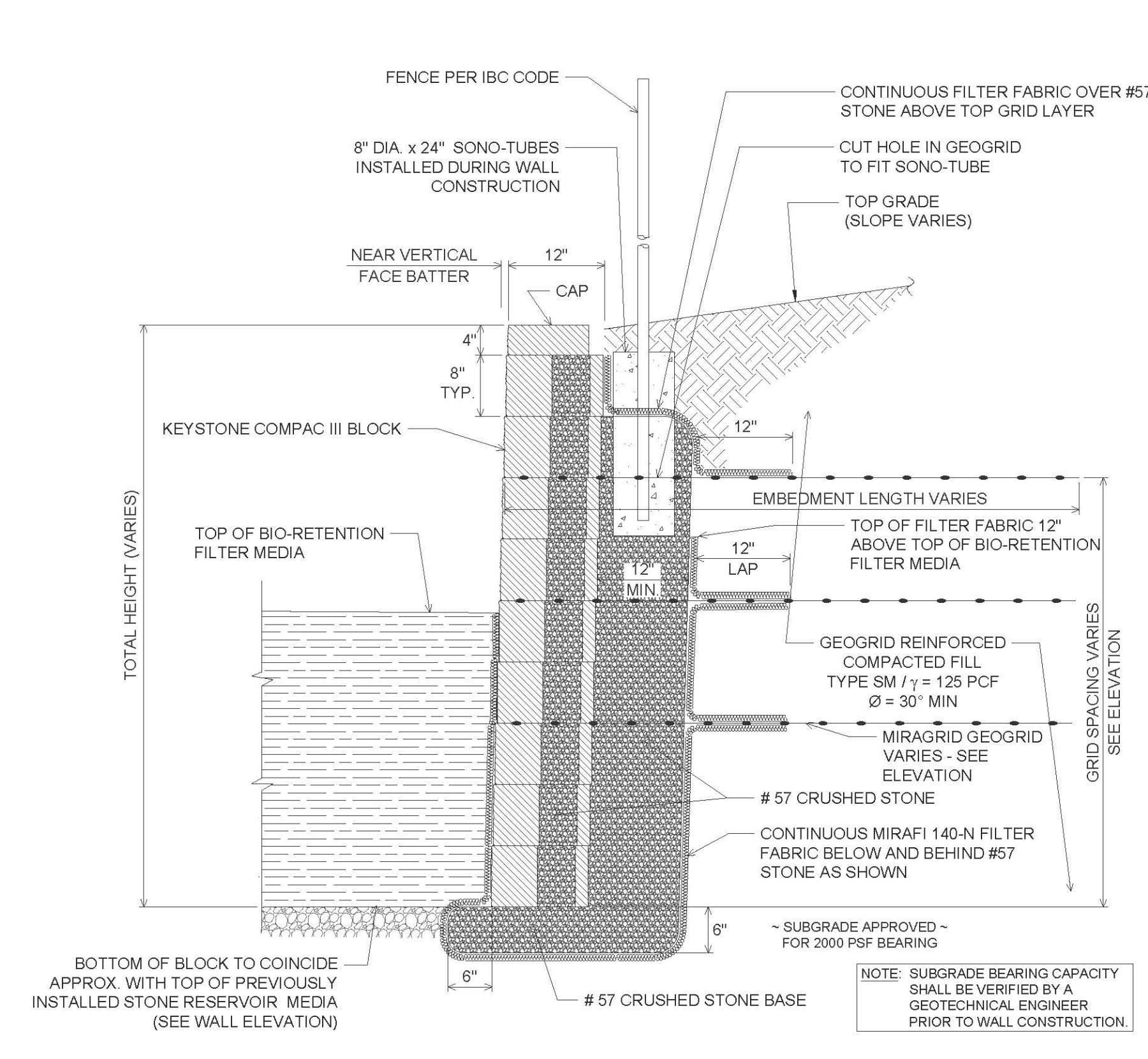
DESIGN BY: \_\_\_\_\_ HM  
 DRAWN BY: \_\_\_\_\_ HM+AM  
 CHECKED BY: \_\_\_\_\_ HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

PROFESSIONAL CERTIFICATE  
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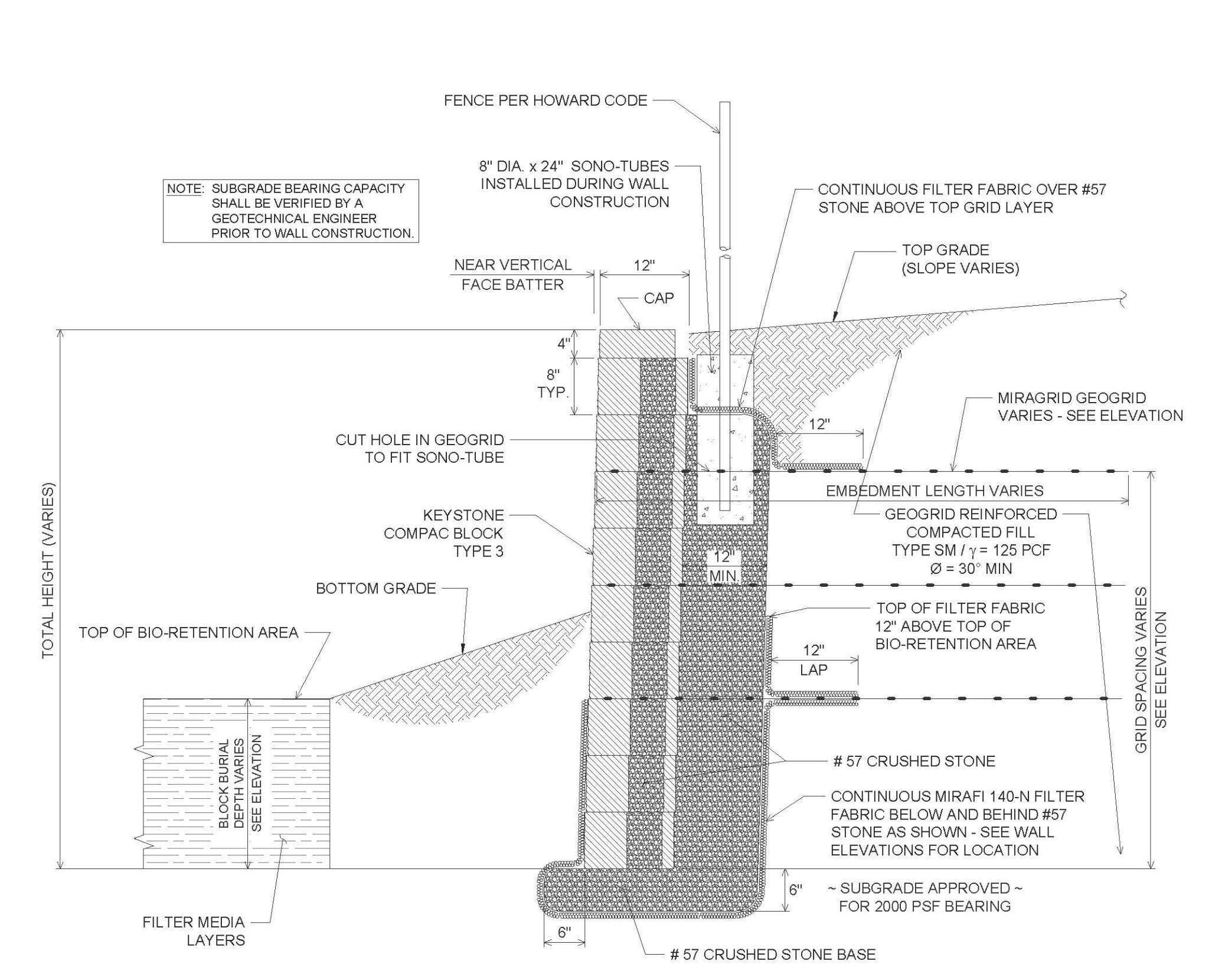
18 SHEET OF 42



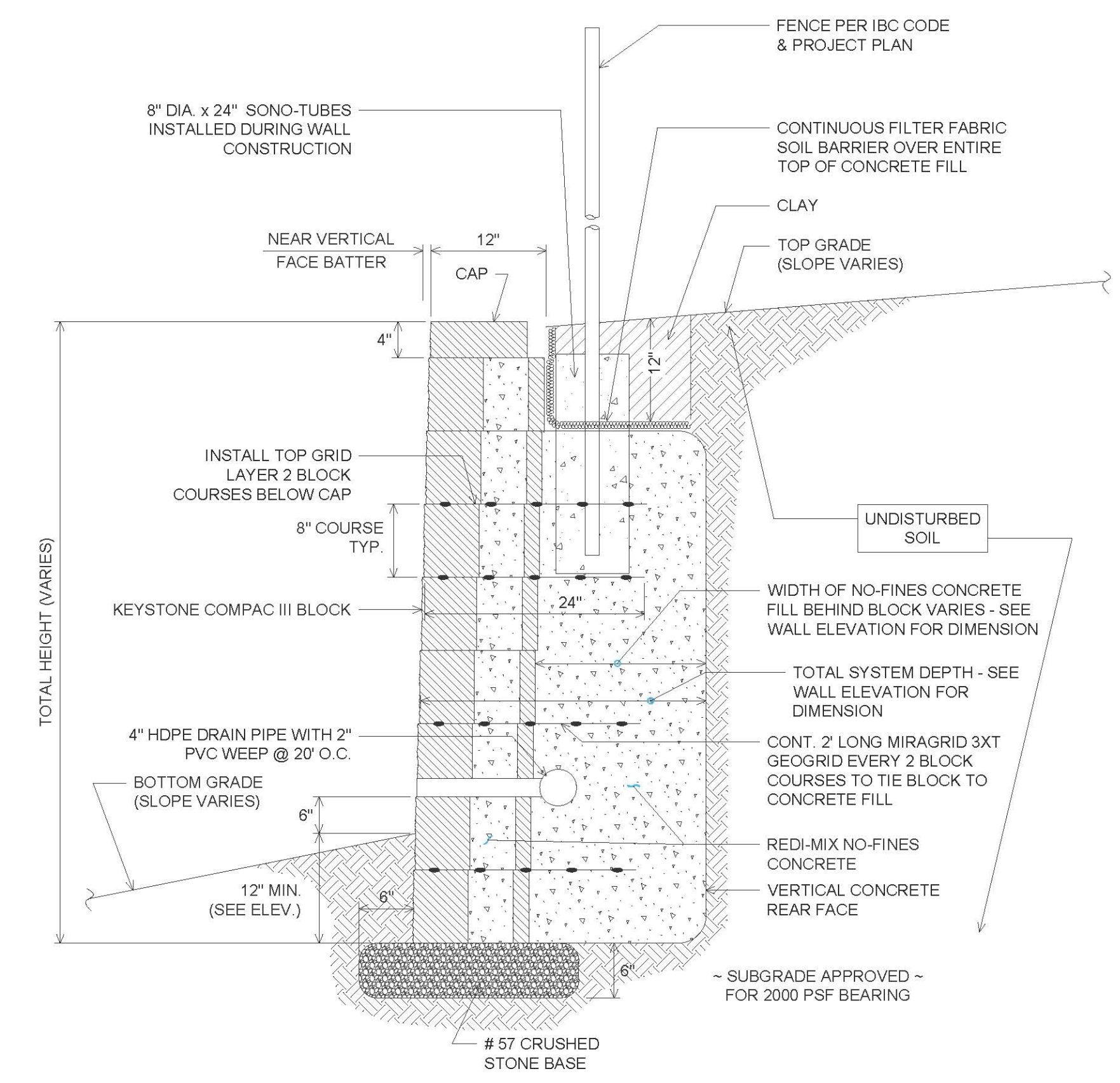
**TYPICAL WALL SECTION**  
N.T.S.



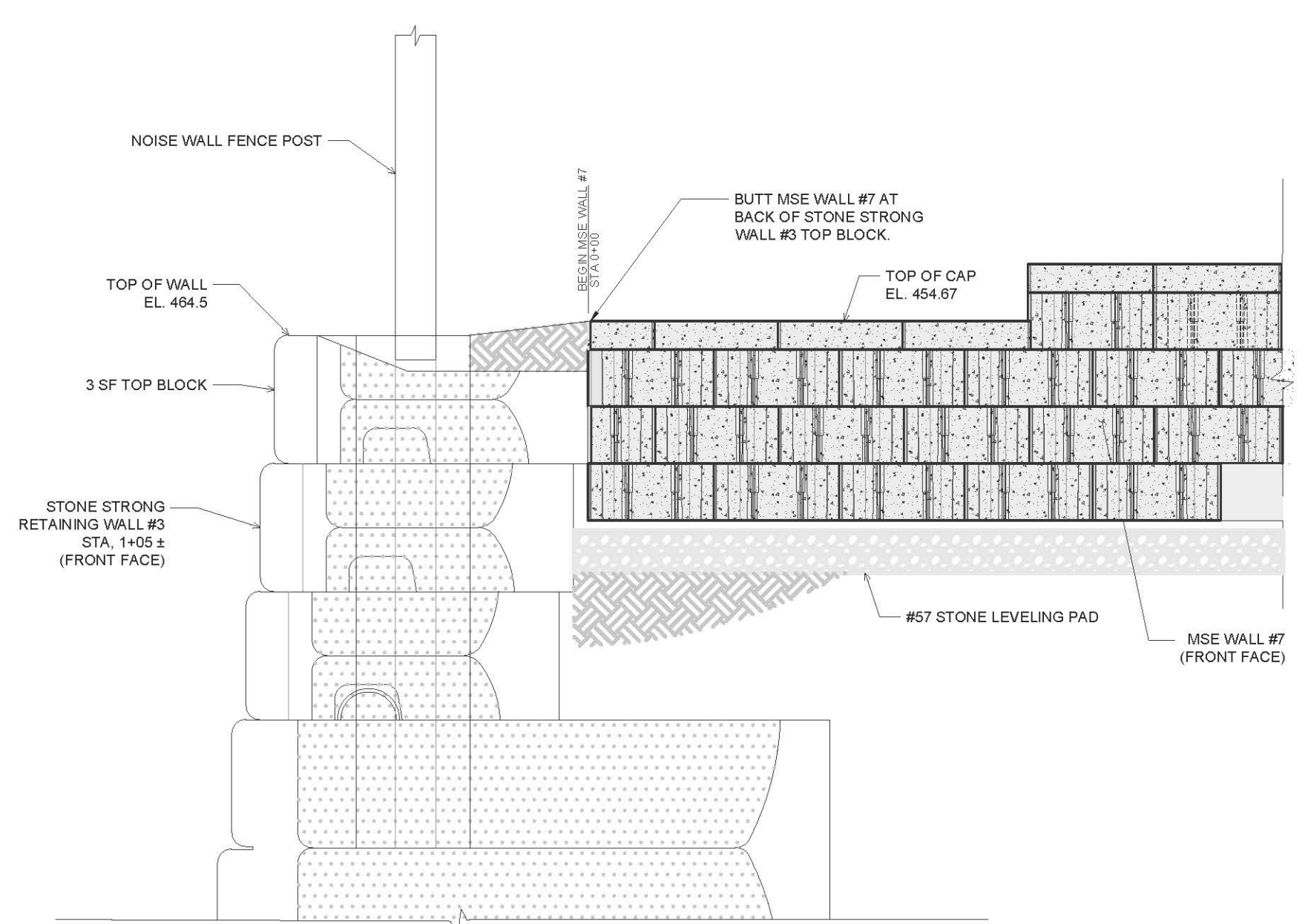
**TYPICAL WALL #6 & #11 SECTION AT MICRO-BIO RETENTION**  
N.T.S.



**TYPICAL WALL #5, #8, & #14 SECTION AT MICRO-BIO RETENTION**  
N.T.S.



**TYPICAL WALL #10 (FROM STA 0+65 TO 0+86)**  
**NO-FINES CONCRETE BACKFILL**  
N.T.S.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE  
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE  
 DIRECTOR DATE

**OWNER/DEVELOPER**  
 U.S. HOMES, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 (410) 423-4264

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**MSE RETAINING WALL**  
**TYPICAL SECTIONS**  
**CHAPELGATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

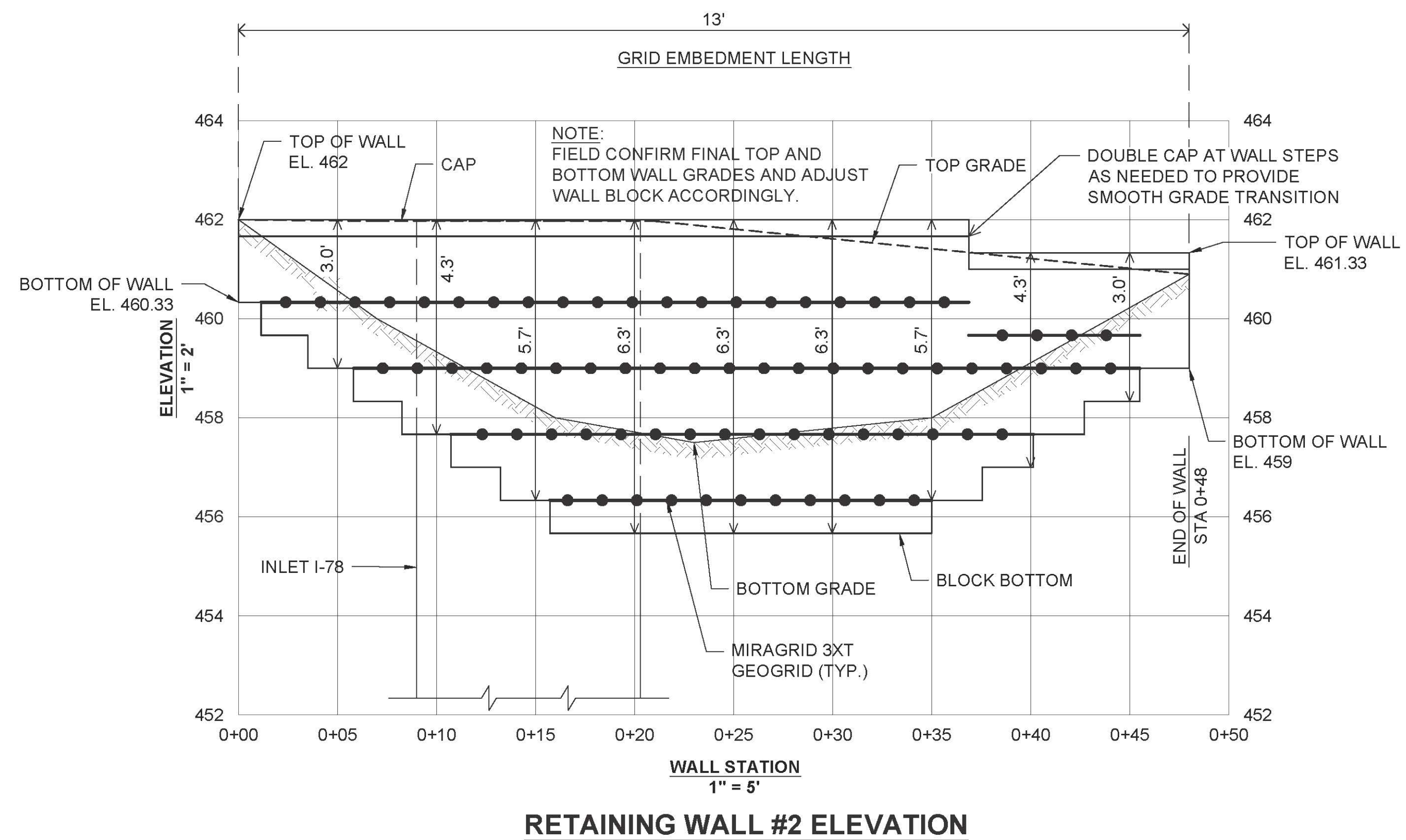
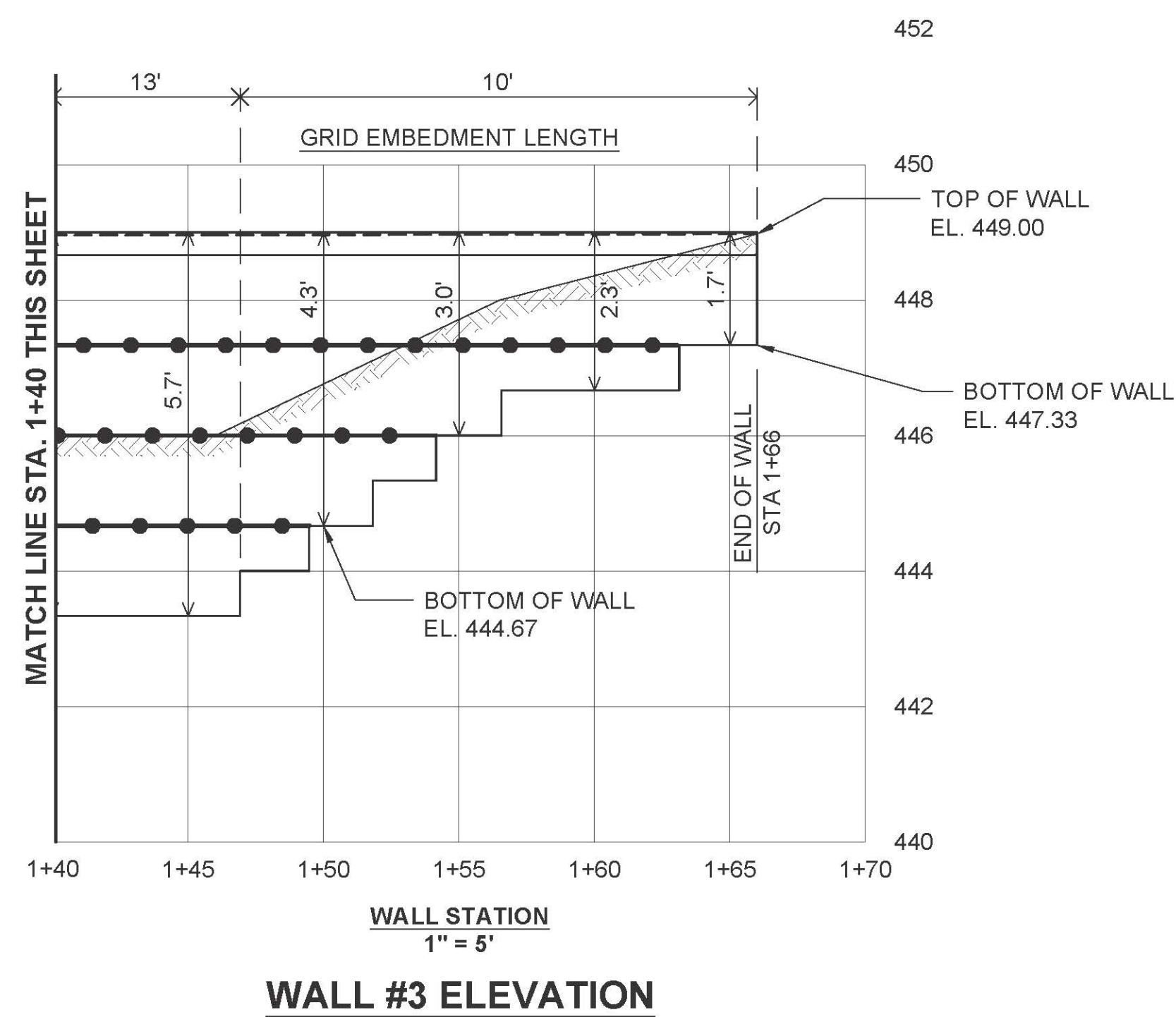
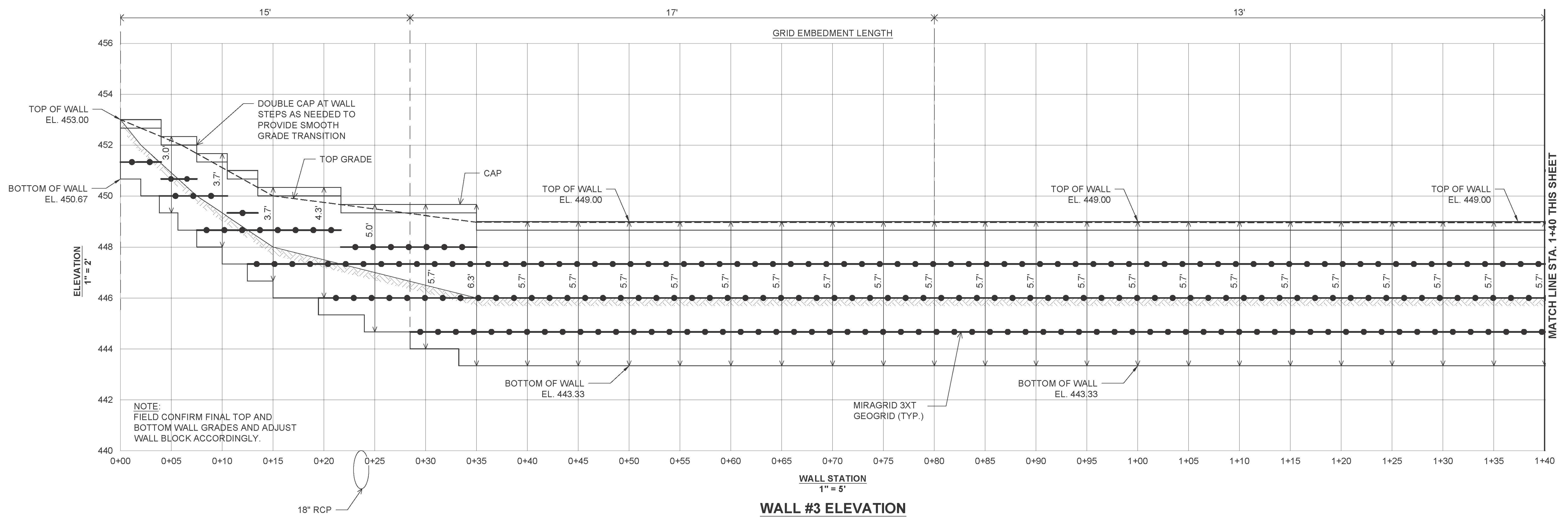
ZONED: CEF-M L: 1389/F: 339 (P: 110)  
 HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

DESIGN BY: \_\_\_\_\_ HM  
 DRAWN BY: \_\_\_\_\_ HM+AM  
 CHECKED BY: \_\_\_\_\_ HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

PROFESSIONAL CERTIFICATE  
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19 SHEET OF 42



OWNER/DEVELOPER  
U.S. HOMES, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
(410) 423-4264

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
**MSE RETAINING WALL #2 & #3 ELEVATIONS**  
**CHAPELGATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT

ZONED: CEF-M

L 1389/F 339 (P 110)  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

DESIGN BY: \_\_\_\_\_ HM  
DRAWN BY: \_\_\_\_\_ HM+AM  
CHECKED BY: \_\_\_\_\_ HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

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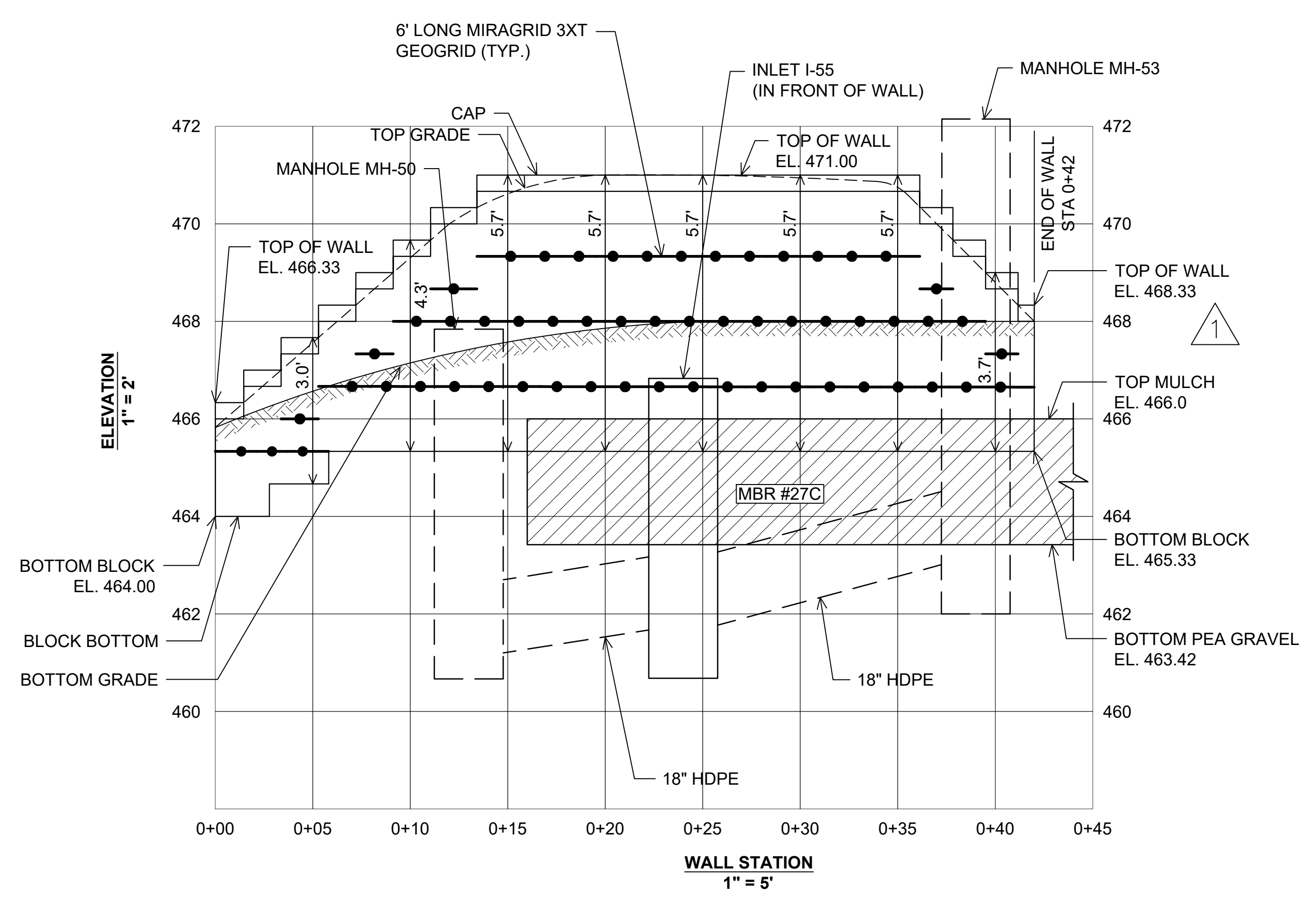
20 SHEET OF 42

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022

*Chad Edmondson*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
10/26/2022 DATE

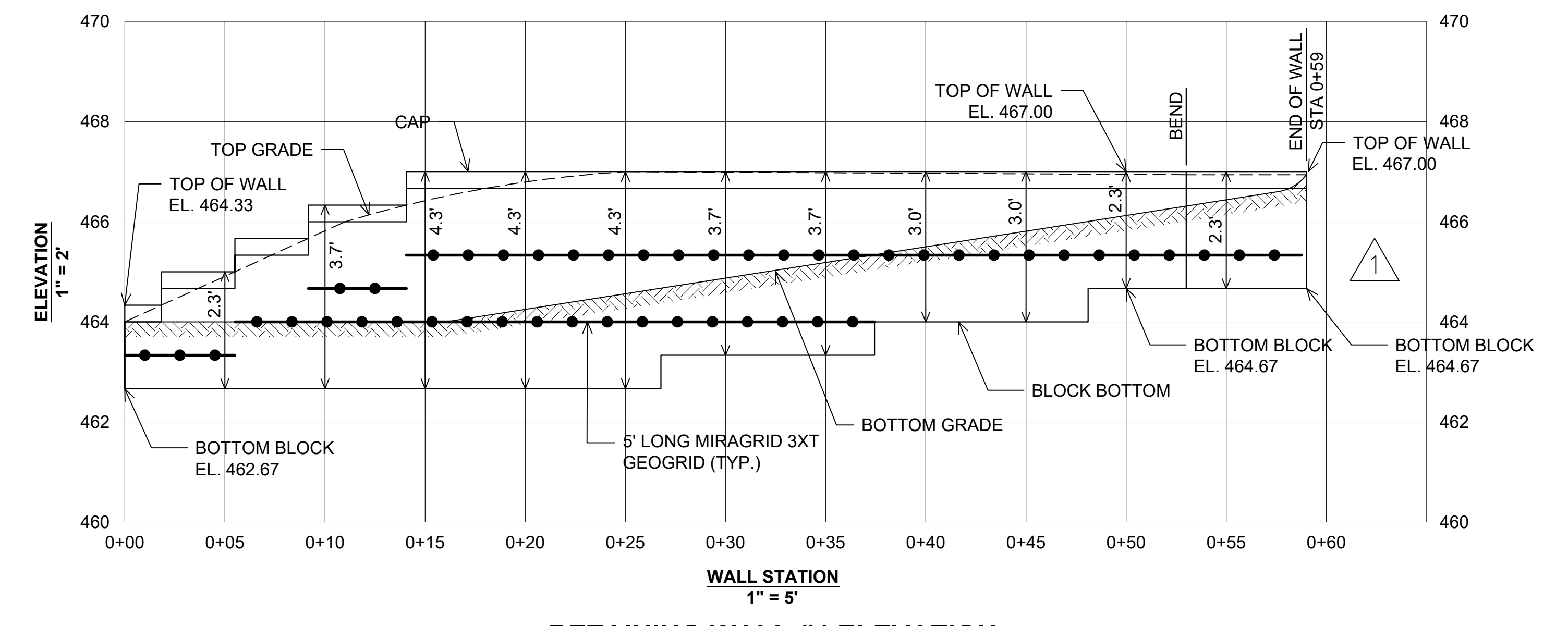
*Ray Groman*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
11/3/2022 DATE

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

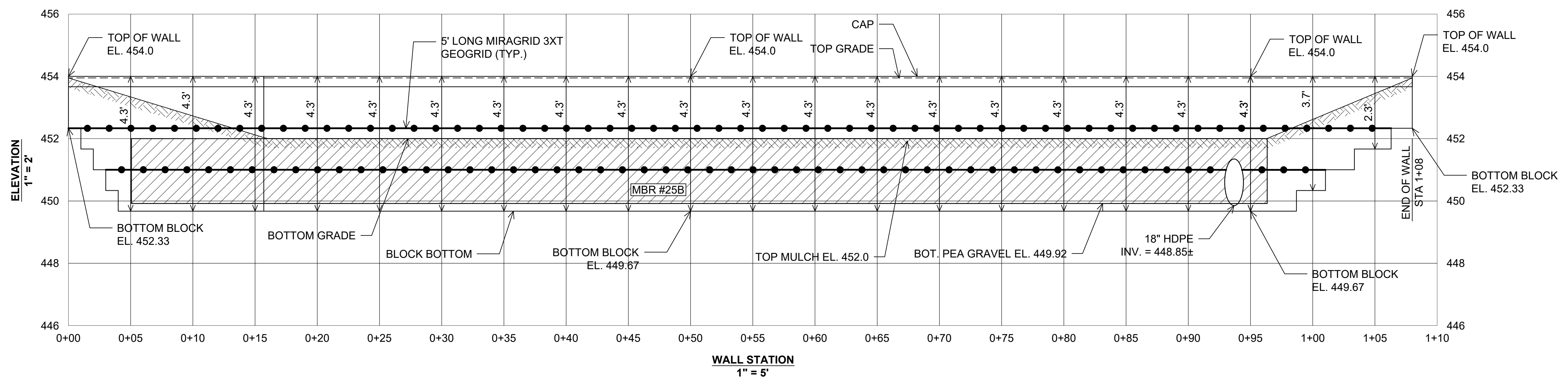


**RETAINING WALL #5 ELEVATION**

NOTE:  
 INSTALL INLET BOX I-55, MANHOLE MH-50, & MANHOLE MH-53 AND ASSOCIATED PIPES DURING WALL CONSTRUCTION. BACKFILL AROUND ENTIRE PERIMETER OF MANHOLE MH-53 BOX (PORTION OF MANHOLE WITHIN GEOGRID ZONE) FOR FULL BOX HEIGHT WITH A 2 FT. THICK WRAP OF COMPACTED SOIL-CEMENT CONSISTING OF A RATIO OF 180 LBS. (2 BAGS) PORTLAND CEMENT THOROUGHLY MIXED WITH 1 CU. YD. OF TYPE SM SOIL AT 3% OVER OPTIMUM MOISTURE. TRIM FULL LENGTH GEOGRIDS AT FACE OF MANHOLE MH-53 BOX AND EMBED IN SOIL-CEMENT WITHIN 1 HOUR OF MIXING.



**RETAINING WALL #4 ELEVATION**



**RETAINING WALL #6 ELEVATION**

**OWNER/DEVELOPER**  
 U.S. HOMES, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 (410) 423-4264

1	Revised Walls 4 & 5 (shortened) per County Comments	9/30/22
NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**MSE RET. WALL #4, #5 & #6 ELEVATIONS**  
**CHAPELGATE WOODS**  
 SFA LOTS 1-134  
 PLATS 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

ZONED: CEF-M  
 L: 1389/F: 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

DESIGN BY: \_\_\_\_\_ HM  
 DRAWN BY: \_\_\_\_\_ HM+AM  
 CHECKED BY: \_\_\_\_\_ HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14809, EXPIRATION DATE: 02/27/2024.

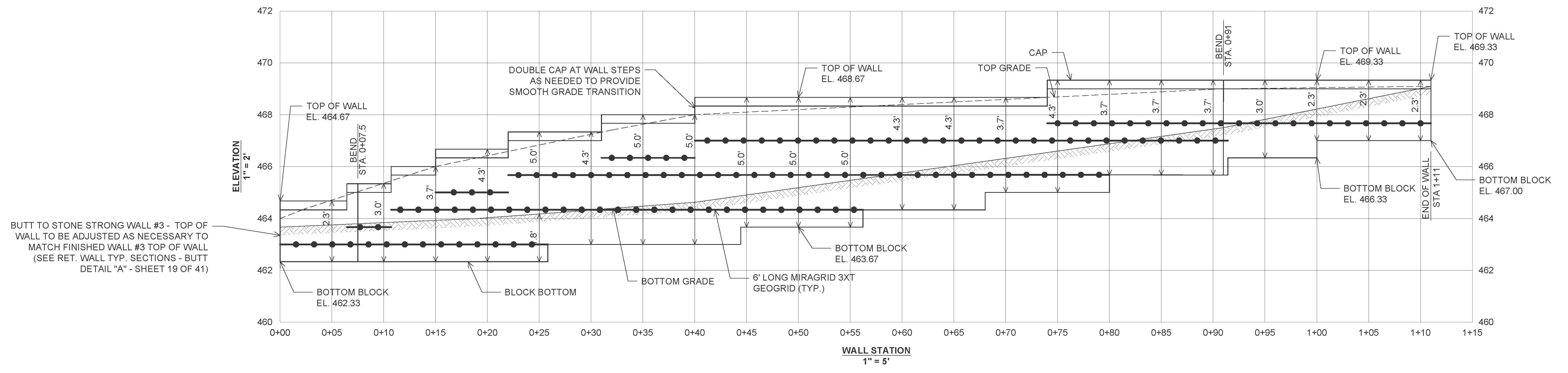
**21** SHEET OF **42**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022

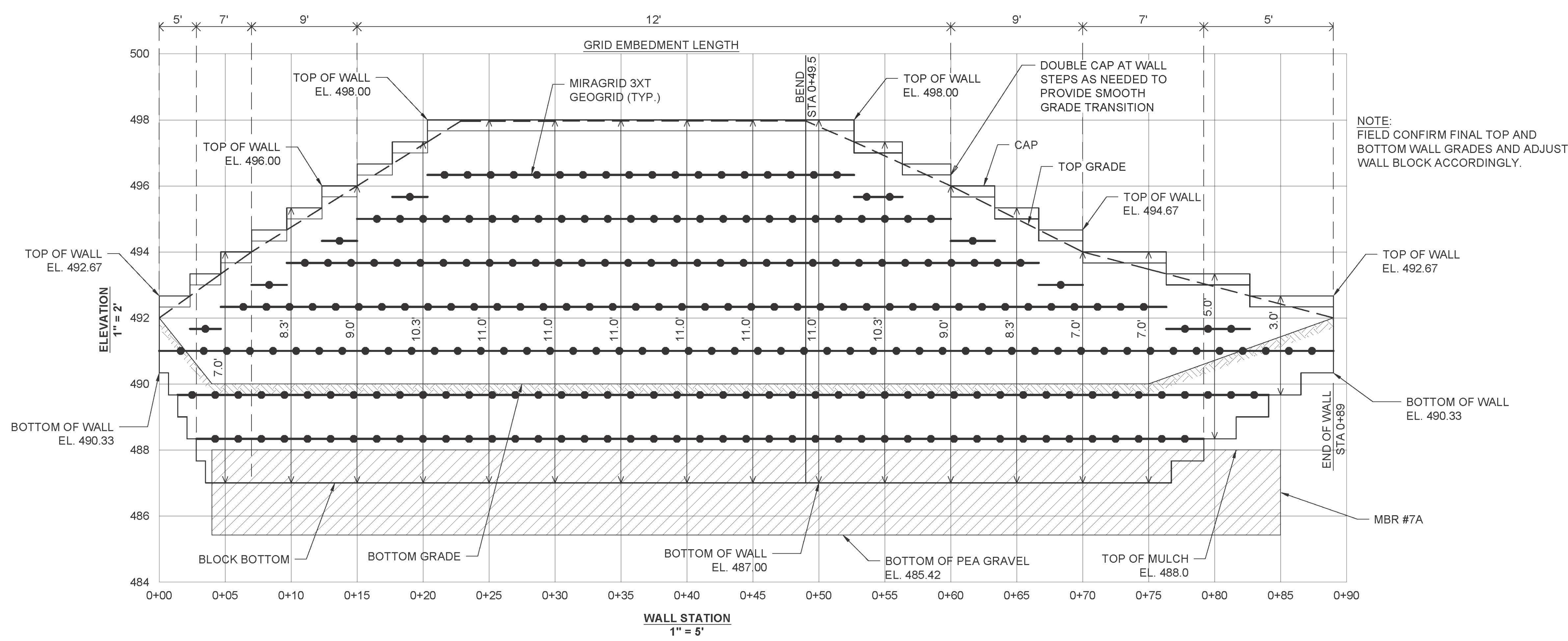
*Chad Edmondson*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE

*Angy Goman*  
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE

DIRECTOR DATE



**RETAINING WALL #7 ELEVATION**



**RETAINING WALL #9 ELEVATION**

**OWNER/DEVELOPER**  
 U.S. HOMES, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 (410) 423-4264

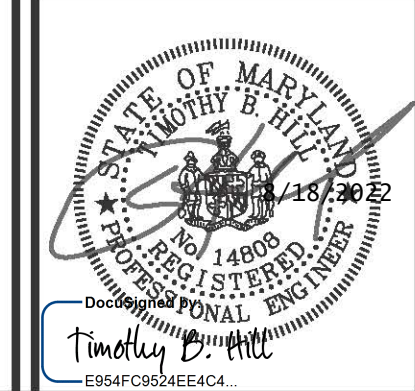
NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**MSE RET. WALL #7 & #9 ELEVATIONS**  
**CHAPELGATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

ZONED: CEF-M  
 L 1389/F 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098



**PROFESSIONAL CERTIFICATE**  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14809, EXPIRATION DATE: 02/27/2024.

DESIGN BY: \_\_\_\_\_ HM  
 DRAWN BY: \_\_\_\_\_ HM+AM  
 CHECKED BY: \_\_\_\_\_ HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

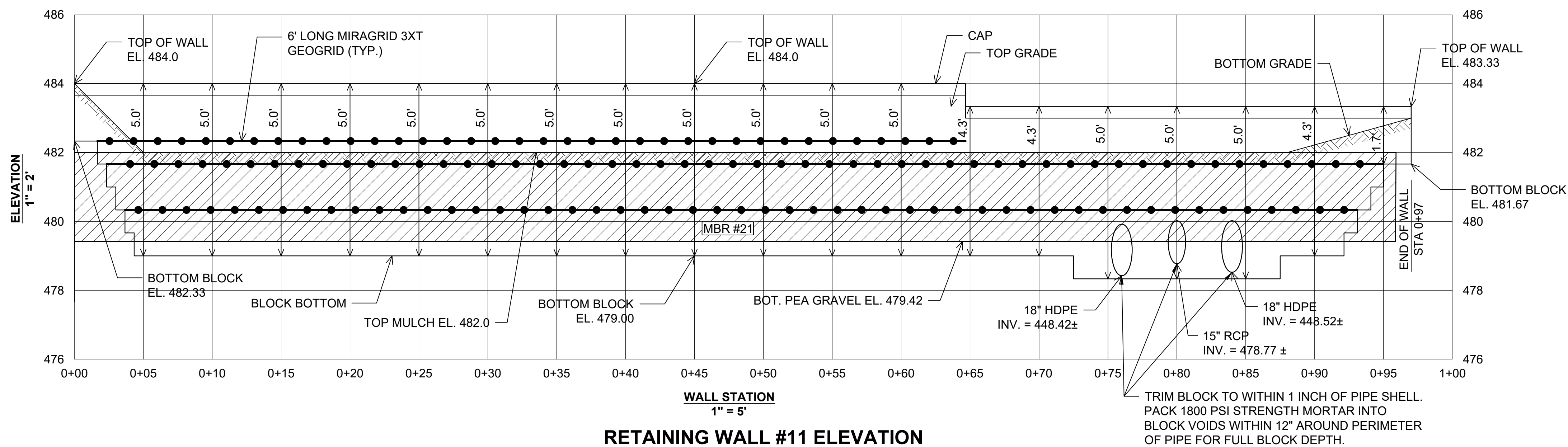
**22** SHEET OF **42**

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022

*Chad Edmondson*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE

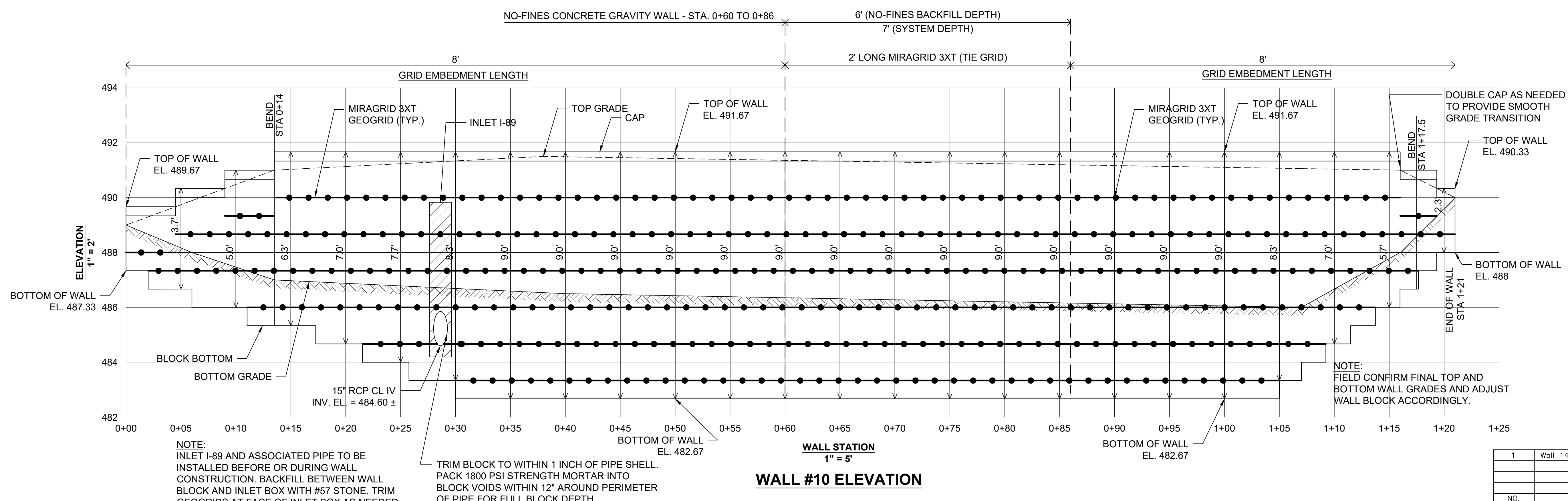
*Ray Groman*  
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE

DIRECTOR \_\_\_\_\_ DATE



**RETAINING WALL #11 ELEVATION**

TRIM BLOCK TO WITHIN 1 INCH OF PIPE SHELL. PACK 1800 PSI STRENGTH MORTAR INTO BLOCK VOIDS WITHIN 12" AROUND PERIMETER OF PIPE FOR FULL BLOCK DEPTH.



**WALL #10 ELEVATION**

NOTE: INLET I-89 AND ASSOCIATED PIPE TO BE INSTALLED BEFORE OR DURING WALL CONSTRUCTION. BACKFILL BETWEEN WALL BLOCK AND INLET BOX WITH #57 STONE. TRIM GEOGRIDS AT FACE OF INLET BOX AS NEEDED.

TRIM BLOCK TO WITHIN 1 INCH OF PIPE SHELL. PACK 1800 PSI STRENGTH MORTAR INTO BLOCK VOIDS WITHIN 12" AROUND PERIMETER OF PIPE FOR FULL BLOCK DEPTH.

NOTE: FIELD CONFIRM FINAL TOP AND BOTTOM WALL GRADES AND ADJUST WALL BLOCK ACCORDINGLY.

OWNER/DEVELOPER  
U.S. HOMES, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.D.COM  
(410) 423-4264

NO.	REVISION	DATE
1	Wall 14 removed per County Comments	9/30/22

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
10/26/2022  
CHIEF, DIVISION OF LAND DEVELOPMENT  
11/3/2022  
DIRECTOR

SITE DEVELOPMENT PLAN  
MSE RET. WALL #10 & #11 ELEVATIONS  
CHAPELGATE WOODS  
SFA LOTS 1-134  
PLATS 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT

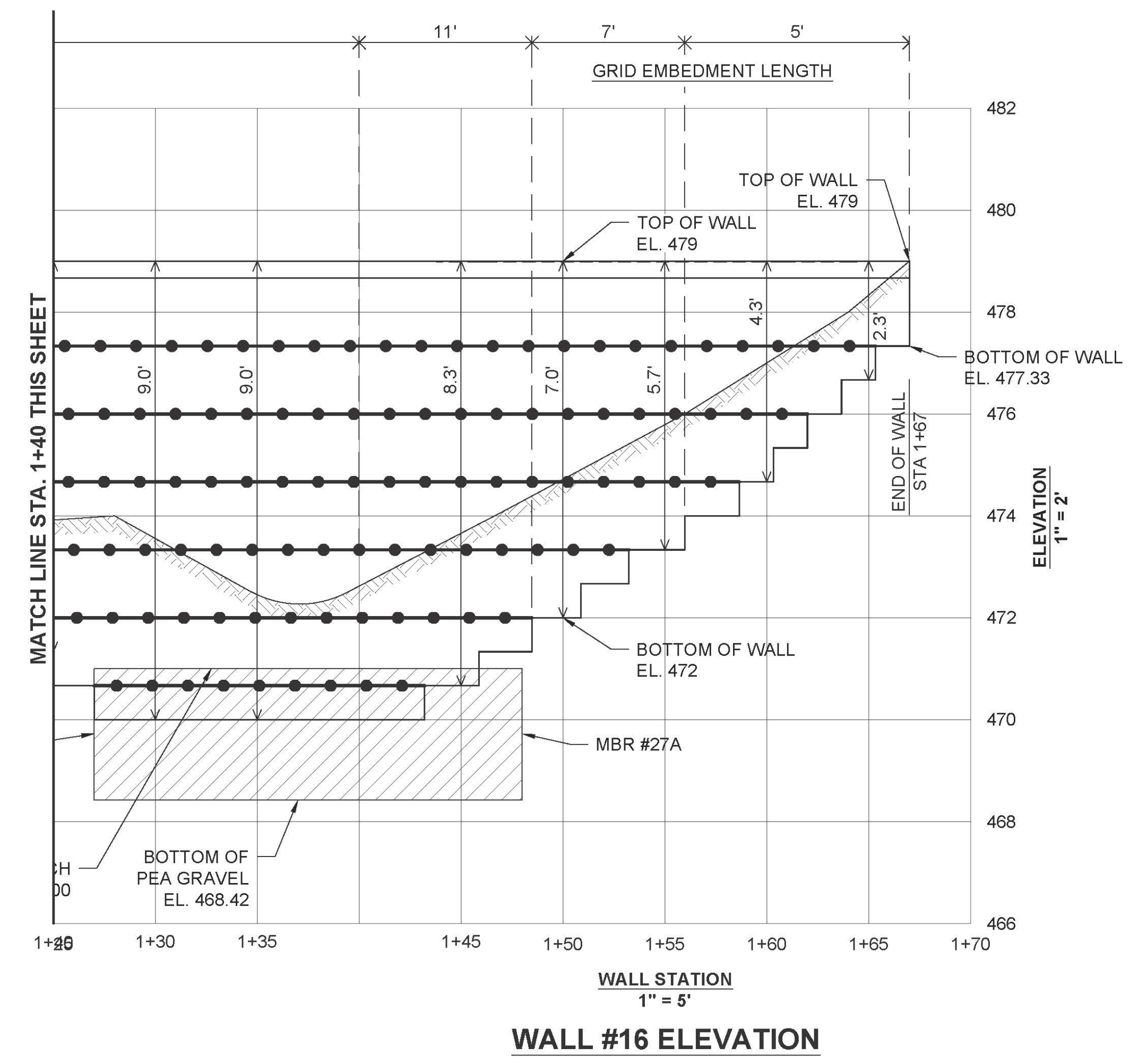
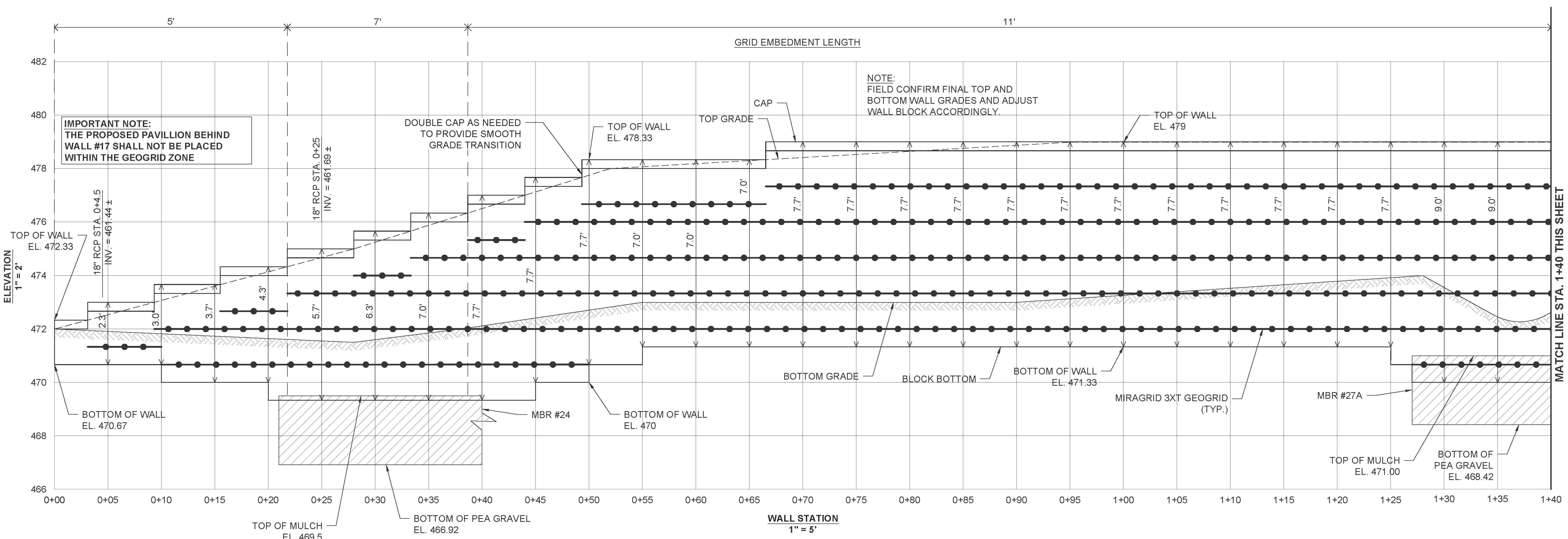
ZONED: CEF-M  
L: 1389/F: 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

DESIGN BY: HM  
DRAWN BY: HM+AM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

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23 SHEET OF 42



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022  
 Chief, Development Engineering Division  
 10/26/2022  
 Chief, Division of Land Development  
 11/3/2022  
 Director

OWNER/DEVELOPER  
 U.S. HOMES, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 (410) 423-4264

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
**MSE RET. WALL #16 ELEVATION**  
**CHAPELGATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

ZONED: CEF-M

L 1389/F 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

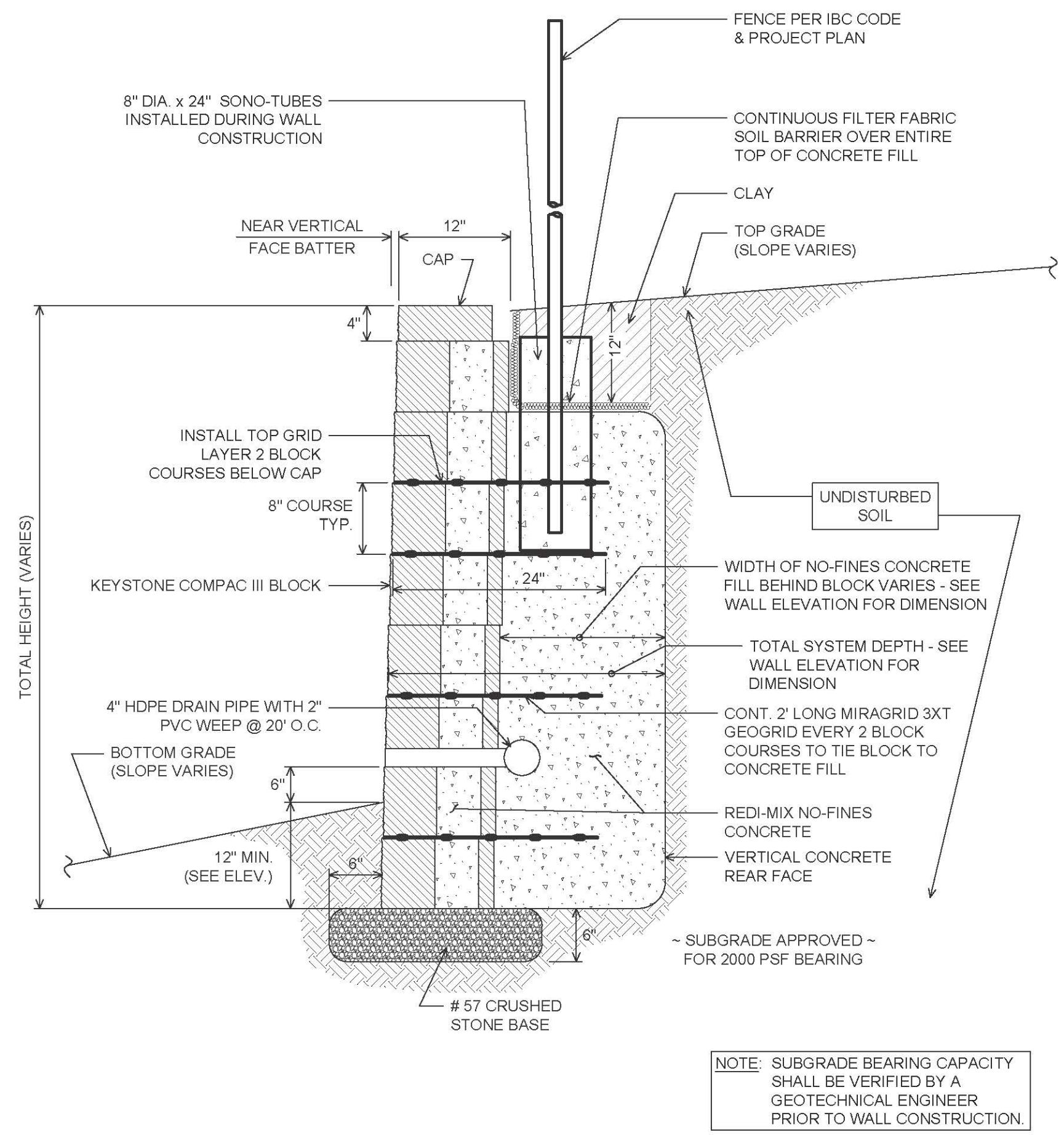
**HILLIS-CARNES**  
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DESIGN BY: \_\_\_\_\_ HM  
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 DATE: JANUARY 2022  
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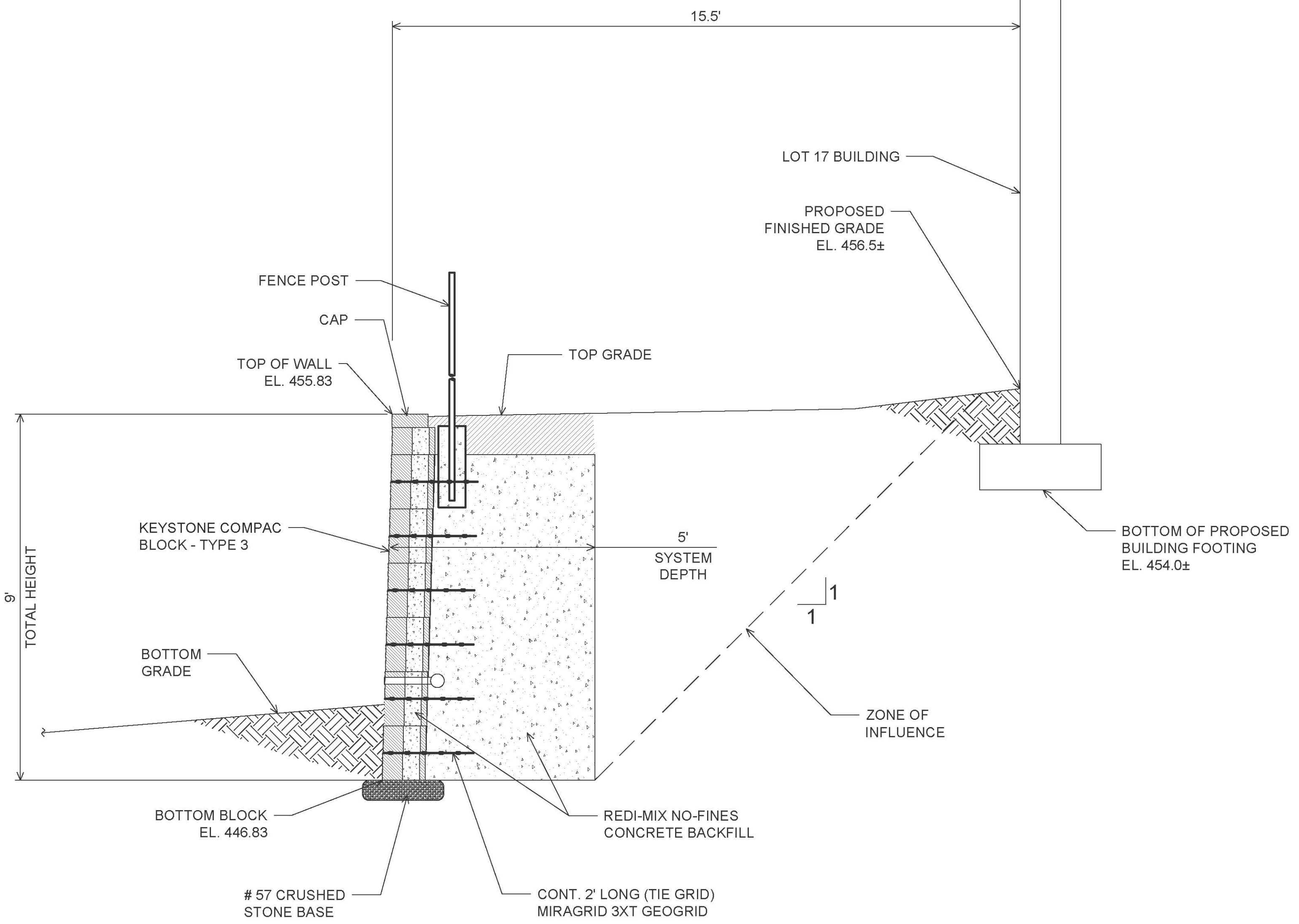
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 ENGINEER UNDER THE LAWS OF THE STATE  
 OF MARYLAND, LICENSE NO. 14809  
 EXPIRATION DATE: 02/27/2024.

24 SHEET OF 42





**TYPICAL WALL #1, #17, #19, & #20**  
N.T.S.



**SECTION F-F**  
**MSE RETAINING WALL #1 STA 0+98**  
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.
- IF FUTURE MAINTENANCE OR REPAIR OF THE RETAINING WALL IS NEEDED, SHEETING/SHORING WILL BE REQUIRED FOR ANY STRUCTURES WITHIN THE MAINTENANCE EASEMENT OF THE RETAINING WALL.

**TYPICAL CONCRETE GRAVITY WALL NOTES**

**"NO-FINES" CONCRETE SPECIFICATION**

"NO-FINES" CONCRETE IS A PERMEABLE CONCRETE MASS THAT IS MADE BY ELIMINATING THE FINE AGGREGATE COMPONENT IN CONCRETE WHICH CREATES A SIGNIFICANT VOID STRUCTURE WITHIN THE CONCRETE. THE MATERIAL IS PLACED IN A SEMI-LIQUID STATE AND ALLOWED TO HARDEN IN PLACE WITH MINIMAL COMPACTION AND PLACEMENT WORK AS REQUIRED TO LEVEL MATERIAL AND FILL ALL VOIDS.

"NO-FINES" CONCRETE SHALL CONSIST OF PORTLAND CEMENT, WATER AND 1/2" - 3/4" COARSE AGGREGATE. FLY ASH MAY ALSO BE USED AS PART OF THE MIX DESIGN AS REQUIRED. THE CONCRETE SHALL BE MIXED BY MACHINE AND THE QUANTITY OF WATER USED SHALL NOT EXCEED THAT REQUIRED TO COMPLETELY COAT ALL THE AGGREGATE PARTICLE WITHOUT FORMING EXCESSIVE GROUT.

**TYPICAL MIX DESIGN**

- CEMENT - PORTLAND CEMENT, TYPE 1 OR II, ASTM C150
- AGGREGATE - NO. 57 OR NO. 6 STONE OR EQUIVALENT, ASTM C33
- AGGREGATE/CEMENT RATIO - APPROX 6:1 BY WEIGHT
- WATER/CEMENT RATIO - 0.35 TO 0.45 BY WEIGHT
- IN-PLACE VOID RATIO - 20% - 30%
- IN-PLACE UNIT WEIGHT = 110 TO 130 LBS/CF
- COMPRESSIVE STRENGTH - 2,000 PSI NOMINALLY @ 28 DAYS

**"NO-FINES" CONCRETE INSTALLATION STEPS**

- SUBGRADE SHALL BE CLEAN AND FIRM BEFORE PLACING CONCRETE.
- PLACE CONCRETE IN 16" (2 BLOCK COURSE) LIFTS, FILLING ALL VOIDS IN BLOCK - ROD CONCRETE AS NEEDED TO CONSOLIDATE.
- PLACE GEOGRID TIES EVERY 2 BLOCK COURSES IN-BETWEEN CONCRETE LIFTS.
- WAIT SEVERAL HOURS BETWEEN CONCRETE LIFTS TO ALLOW CONCRETE TO SUFFICIENTLY HARDEN.

**OWNER/DEVELOPER**

U.S. HOMES, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
(410) 423-4264

NO.	REVISION	DATE

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING	11/3/2022
<i>Chad Edmondson</i>	DATE
CHIEF, DEVELOPMENT ENGINEERING DIVISION	10/26/2022
<i>Ray Goman</i>	DATE
CHIEF, DIVISION OF LAND DEVELOPMENT	11/3/2022
DIRECTOR	DATE

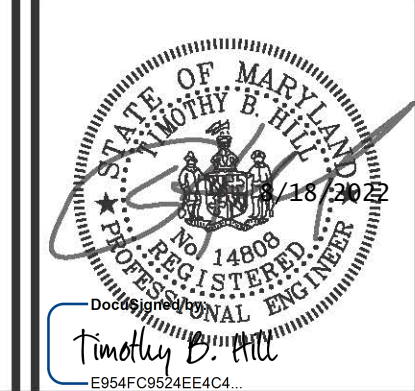
SITE DEVELOPMENT PLAN  
**NO-FINES CONCRETE GRAVITY WALL**  
**CONSTRUCTION DETAILS**  
**CHAPELGATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT

L 1389/F 339 (P. 110)  
SUITE 200  
HOWARD COUNTY, MARYLAND

ZONED: CEF-M

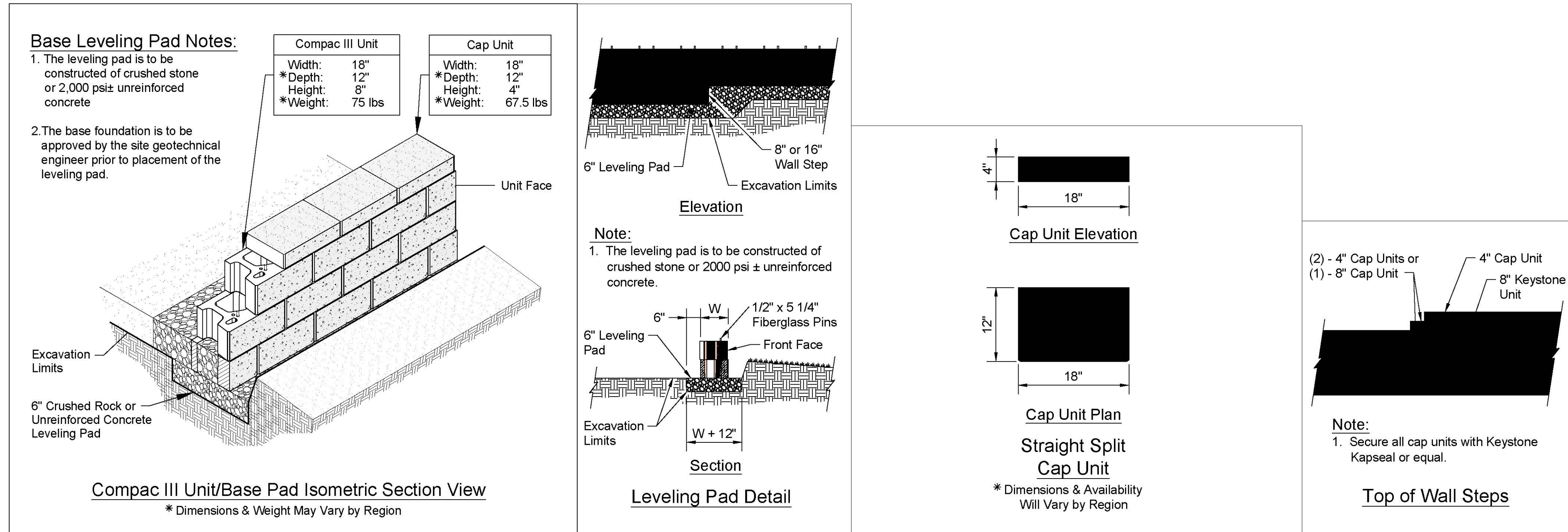
**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098



DESIGN BY: \_\_\_\_\_ HM  
DRAWN BY: \_\_\_\_\_ HM+AM  
CHECKED BY: \_\_\_\_\_ HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14809, EXPIRATION DATE: 02/27/2024.

25 SHEET OF 42



**COMPAC III UNIT - STRAIGHT FACE DETAILS**

**OWNER/DEVELOPER**  
 U.S. HOMES, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 (410) 423-4264

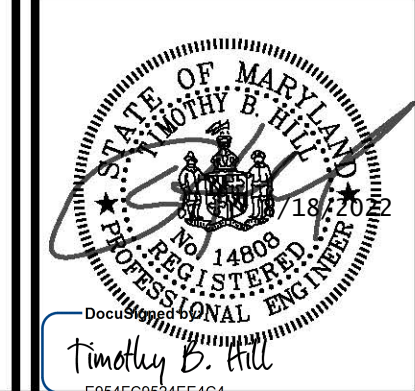
NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
**NO-FINES CONCRETE GRAVITY WALL  
 CONSTRUCTION DETAILS**  
**CHAPEL GATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

L 1389/F 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
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PROFESSIONAL CERTIFICATE

I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 18762, EXPIRATION DATE: 02/27/2024.

DESIGN BY: \_\_\_\_\_ HM  
 DRAWN BY: \_\_\_\_\_ HM+AM  
 CHECKED BY: \_\_\_\_\_ HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

**26** SHEET OF **42**

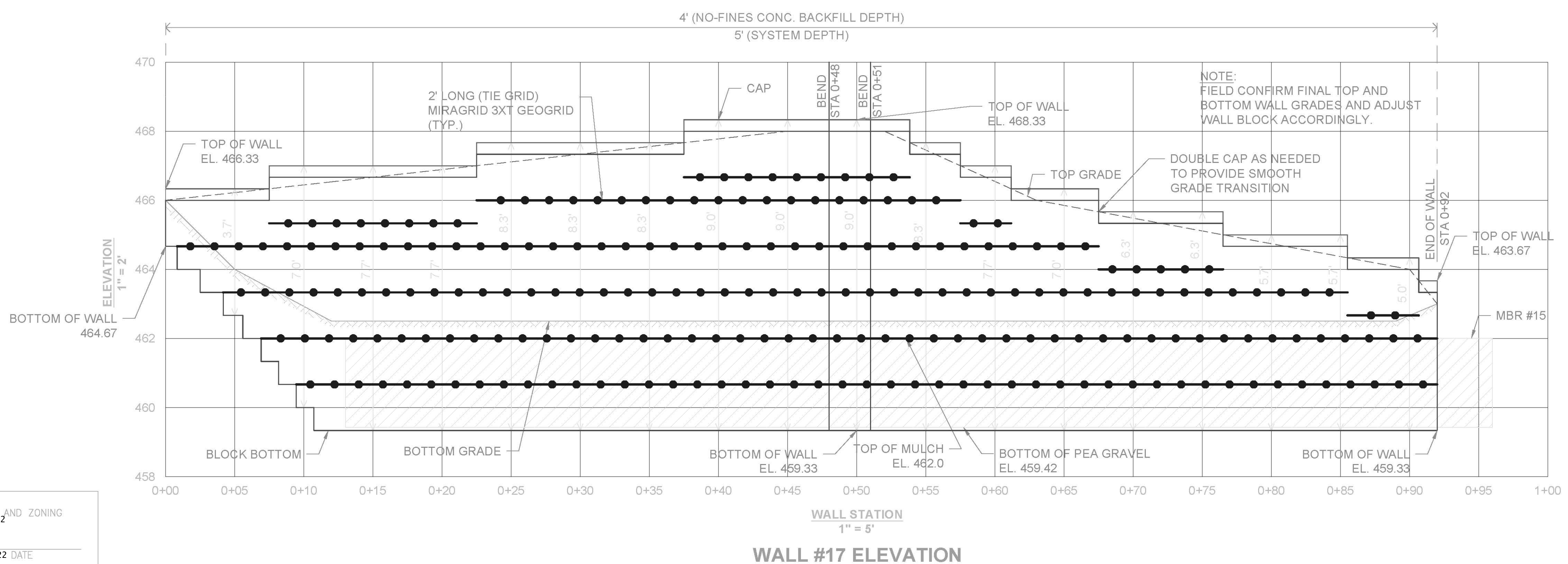
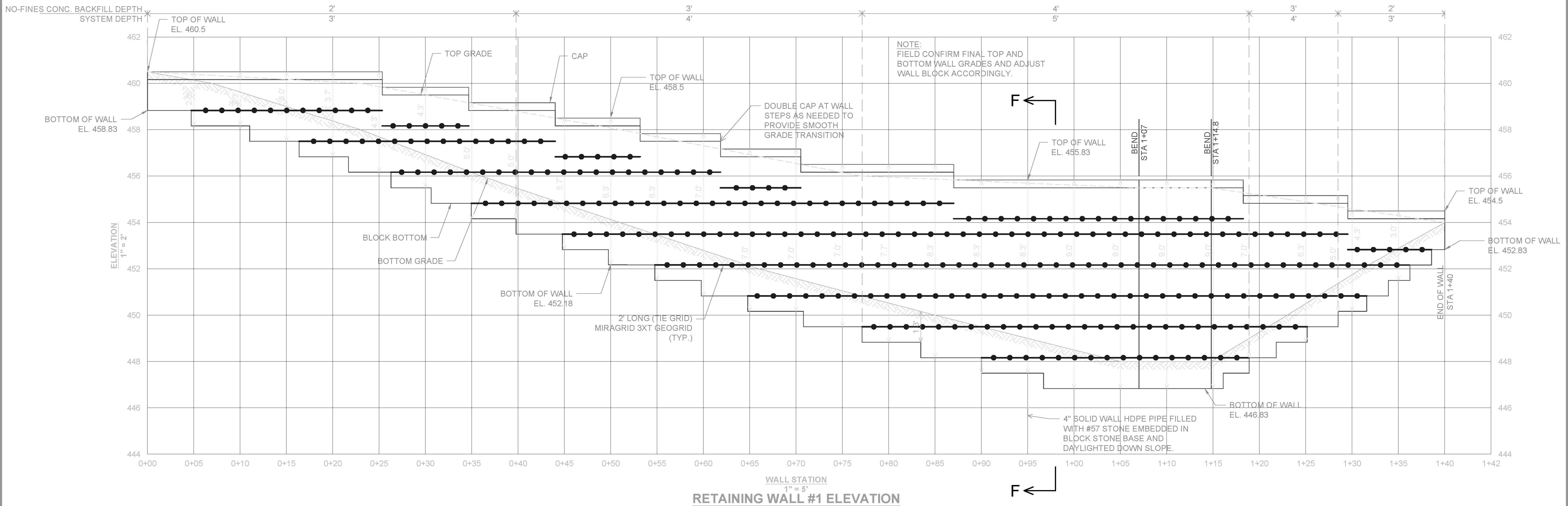
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

11/3/2022

*Carl Edmondson*  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE

*Ray Goman*  
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE

DIRECTOR \_\_\_\_\_ DATE



**OWNER/DEVELOPER**  
 U.S. HOMES, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARMO.COM  
 (410) 423-4264

NO.	REVISION	DATE

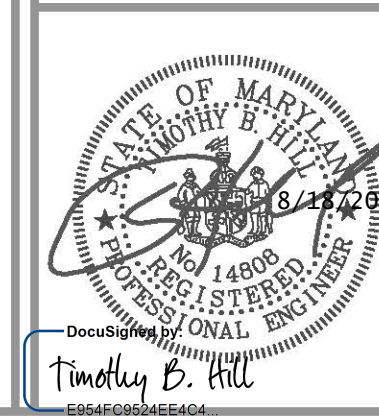
**SITE DEVELOPMENT PLAN**  
**NO-FINES CONCRETE GRAVITY WALL**  
**WALL #1 & #17 ELEVATIONS**  
**CHAPELGATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

ZONED: CEF-M

L 1389/F, 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hceas.com Fax: (410) 880-4098



**PROFESSIONAL CERTIFICATE**

DESIGN BY: HM  
 DRAWN BY: HM-AM  
 CHECKED BY: HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

27 SHEET OF 42

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022

*Carl Edmondson*  
 7965746241499

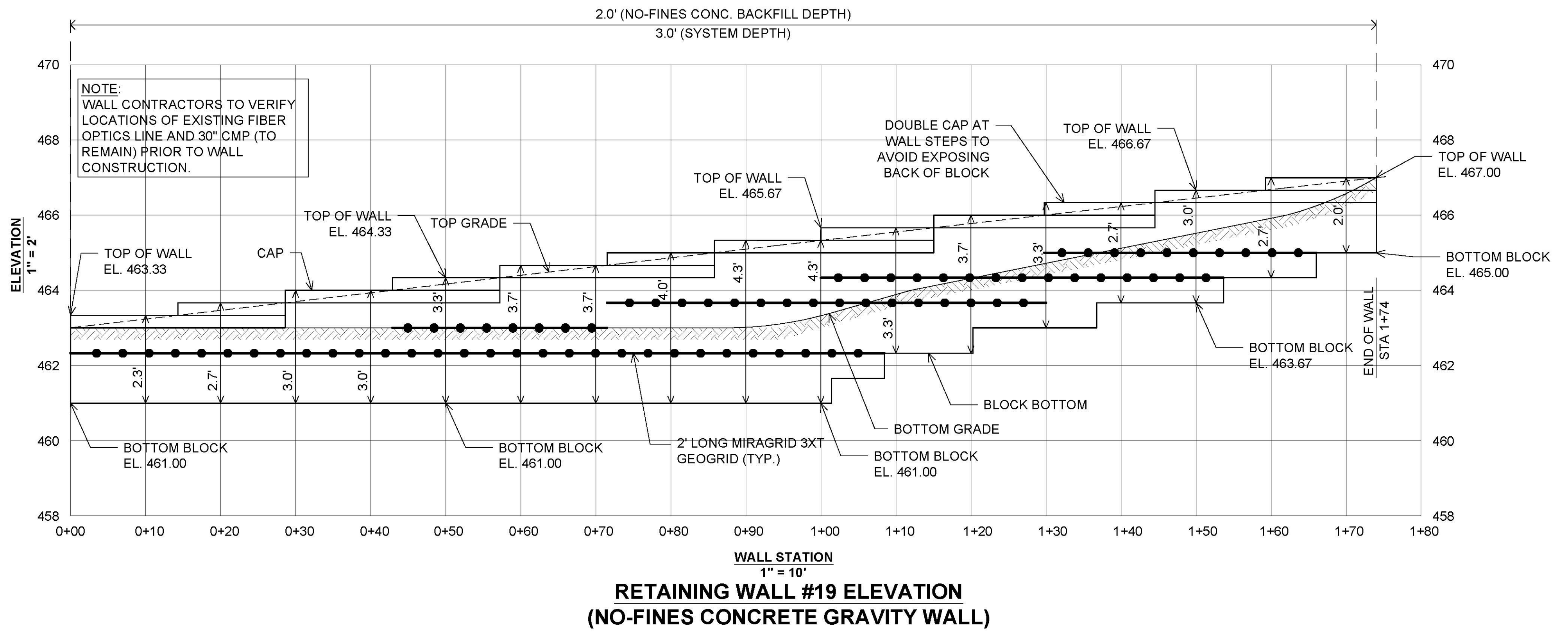
CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE

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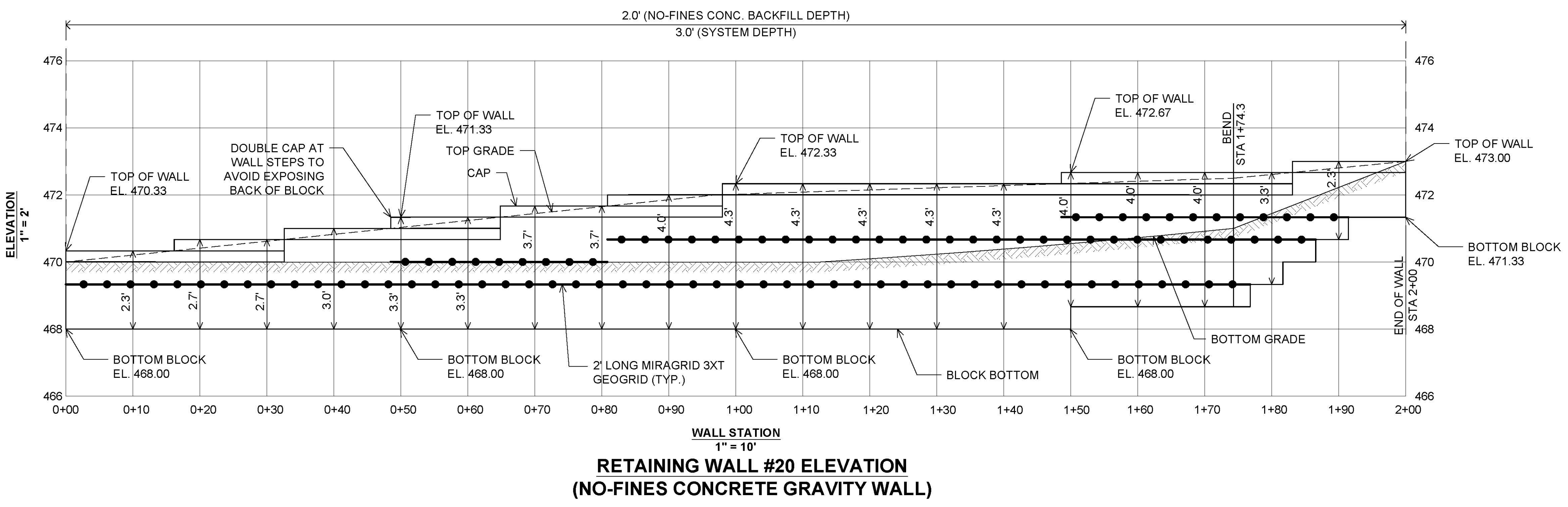
CHIEF, DIVISION OF DEVELOPMENT 11/3/2022 DATE

*Ray Goman*

DIRECTOR DATE



**RETAINING WALL #19 ELEVATION  
(NO-FINES CONCRETE GRAVITY WALL)**



**RETAINING WALL #20 ELEVATION  
(NO-FINES CONCRETE GRAVITY WALL)**

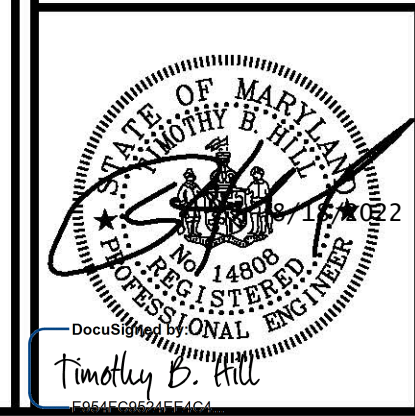
**OWNER/DEVELOPER**  
 U.S. HOMES, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 (410) 423-4264

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN  
 NO-FINES CONCRETE GRAVITY WALL  
 WALL #19 & #20 ELEVATIONS  
 CHAPELGATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT  
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**HILLIS-CARNES**  
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 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
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**PROFESSIONAL CERTIFICATE**  
 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. 14808, EXPIRATION DATE: 02/27/2024.

DESIGN BY: HM  
 DRAWN BY: HM+AM  
 CHECKED BY: HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

**28** SHEET **42**  
 OF

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022  
 Chad Edmondson  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE  
 1E875478A22849A  
 CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE  
 584050D9470C4D4  
 DIRECTOR DATE

**SPECIFICATIONS**

**CAST-IN-PLACE RETAINING WALL**

**CONTRACTOR RESPONSIBILITIES:** THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER THE BUILDING IS FULLY COMPLETED. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE, AND TO ENSURE THE STABILITY OF THE BUILDING AND ITS COMPONENT PARTS, AND THE ADEQUACY OF TEMPORARY OR INCOMPLETE CONNECTIONS, DURING ERECTING. THIS INCLUDES THE ADDITION OF ANY SHORING, SHEETING, TEMPORARY GUYS, BRACINGS OR TIEDOWNS THAT MIGHT BE NECESSARY. SUCH MATERIAL IS NOT SHOWN ON THE DRAWINGS. IF APPLIED, THEY SHALL BE REMOVED AS CONDITIONS PERMIT AND SHALL REMAIN THE CONTRACTOR'S PROPERTY. THE ENGINEER HAS NO EXPERTISE IN, AND TAKES NO RESPONSIBILITY FOR, CONSTRUCTION MEANS AND METHODS OR JOBSITE SAFETY DURING CONSTRUCTION. PROCESSING AND/OR APPROVED SUBMITTALS MADE BY THE CONTRACTOR WHICH MAY CONTAIN INFORMATION RELATED TO CONSTRUCTION METHODS OR SAFETY ISSUES, OR PARTICIPATION IN MEETINGS WHERE SUCH ISSUES MIGHT BE DISCUSSED, SHALL NOT BE CONSTRUED AS VOLUNTARY ASSUMPTION BY THE ENGINEER OF ANY RESPONSIBILITY OF EACH CONTRACTOR TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE ENGINEER IS NOT ENGAGED IN, AND DOES NOT SUPERVISE CONSTRUCTION.

**CONTROLLED FILL AND BACKFILL:** SAMPLES OF ALL MATERIALS THAT THE CONTRACTOR PROPOSES TO USE FOR COMPACTED FILL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER. COMPACTED FILL SHALL CONSIST OF LOCAL MATERIAL FREE OF DELETERIOUS MATTER AND CLASSIFIED SP, SW, SM, SC, GP, GW, GM, OR GC PER ASTM D-2487. THE CONTROL OF THE MOISTURE FOR PLACING THE FILL WILL BE BASED ON THE RESULTS OF COMPACTION TESTS PER AASHTO T-99. ALL COMPACTED FILL SHALL HAVE A DENSITY OF AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY AASHTO T-99. PRIOR TO PLACEMENT OF ANY FILLS, THE SITE SHALL BE STRIPPED OF ALL TOPSOIL, VEGETATION, ROCKS, AND ORGANIC MATERIALS AND THE EXPOSED SUBGRADE SHALL BE COMPACTED IN PLACE TO A CONFIRMED DENSITY OF 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. FILL MATERIAL SHALL BE PLACED IN LOOSE LIFTS NOT EXCEEDING 8" IN THICKNESS AND SHALL BE MIXED, SPREAD AND PLACED IN SUCH A WAY AS TO PRODUCE A UNIFORM THICKNESS OF MATERIAL AFTER PLACING. EACH LAYER OF FILL SHALL BE COMPACTED WITH A MINIMUM OF COMPLETE PASSES ON ALL PORTIONS OF THE SURFACE OF EACH LIFT OF FILL BY RUBBER-TIRED ROLLERS, SHEEPS-FOOT ROLLERS OR OTHER MECHANICAL EQUIPMENT APPROVED BY THE GEOTECHNICAL ENGINEER. COMPACTED FILL PLACED WITHIN 4 FEET OF STRUCTURES AND PIPES SHOULD BE PLACED IN HORIZONTAL LIFTS NOT TO EXCEED 4 INCHES THICKNESS AND COMPACTED WITH HAND TAMPER OR LIGHT COMPACTOR EQUIPMENT TO THE SAME STANDARD. HEAVY COMPACTOR EQUIPMENT SHOULD NOT BE ALLOWED WITHIN 4 FEET OF STRUCTURES UNLESS A MINIMUM 2 FEET DEPTH OF FILL COVERS THE STRUCTURES. WHENEVER IN PLACE DENSITIES ARE FOUND BELOW ACCEPTABLE LIMITS, ADDITIONAL ROLLING TO PRODUCE THE SPECIFIED DENSITIES SHALL BE REQUIRED. THE CONTRACTOR SHALL TAKE ALL MEASURES REQUIRED TO PROVIDE FOR FREE DRAINAGE OF THE SITE AND TO PREVENT PONDING OF WATER. SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED AT ALL TIMES. PLACING OF FILL CONTAINING ORGANIC MATTER, PLACING OF FILL WITH MOISTURE CONTENT TOO HIGH OR TOO LOW FOR PROPER COMPACTION, PLACING OF FILL WHEN FREE WATER IS STANDING ON THE EXISTING FILL SURFACE, PLACING OF FILL IN A FROZEN CONDITION OR ON TOP OF FROZEN MATTER WILL NOT BE PERMITTED. THE SOILS ENGINEER SHALL SUPERVISE THE PLACING OF THE COMPACTED FILL AND ALL THE MATERIAL AND EQUIPMENT USED FOR THIS PURPOSE AND SHALL MAKE SUCH SOILS TESTS AS MAY BE REQUIRED FOR THE COMPLETION OF THE WORK PERFORMING AT LEAST 6 IN PLACE DENSITY TESTS DURING EACH EIGHT HOUR SHIFT.

**FOUNDATIONS-SPREAD FOOTINGS:** BOTTOM OF ALL FOOTINGS SHALL BE A MINIMUM OF 2'-0" BELOW ORIGINAL GRADE OR PLACED IN APPROVED COMPACTED FILL. BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE A MINIMUM OF 2'-6" BELOW FINISHED GRADE. A SOIL BEARING CAPACITY OF 2000 PSF WAS USED IN THE FOUNDATION DESIGN, AND MUST BE FIELD VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER. IF SOIL OF THIS BEARING CAPACITY IS NOT ENCOUNTERED AT THE ELEVATIONS INDICATED ON THE CONTRACT DRAWINGS, FOOTINGS SHALL BE LOWERED OR INCREASED IN SIZE AS DIRECTED BY THE STRUCTURAL ENGINEER. ELEVATIONS SHOWN ON PLAN ARE TO THE BOTTOM OF THE FOOTINGS.

**CONCRETE:** ALL CONCRETE WORK SHALL CONFORM TO ALL THE PROVISIONS OF THE "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) AND TO THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318). ALL STRUCTURAL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4500 PSI UNLESS NOTED OTHERWISE. ADDITIONALLY, THE CONCRETE SHALL CONFORM TO ALL THE PROVISIONS OF "RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING" (ACI 305) AND "RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING" (ACI 308). ALL FORMWORK SHALL BE IN ACCORDANCE WITH THE AMERICAN CONCRETE INSTITUTE "FORMWORK FOR CONCRETE" SPECIAL PUBLICATION NO. 4 AND ACI'S "STANDARD RECOMMENDED PRACTICE FOR CONCRETE FORMWORK" (ACI-347). ALL CONCRETE EXPOSED TO THE WEATHER SHALL HAVE AN AIR ENTRAINMENT OF 6% +/- 1%. THE MAXIMUM WATER CEMENT RATIO W/C SHALL NOT EXCEED 0.56 FOR ALL CONCRETE EXCEPT CONCRETE EXPOSED TO WEATHER WHICH SHALL NOT EXCEED 0.45. NO ADMIXTURES CONTAINING CALCIUM CHLORIDE SHALL BE PERMITTED. THE MAXIMUM SLUMP OF ALL CONCRETE SHALL BE 4" ALL CONCRETE SHALL BE CURED WITH LIQUID SEALING COMPOUND CONFORMING TO ASTM C-309, TYPE I AND FEDERAL SPECIFICATION TT-C-00800 OR OTHER APPROVED METHOD WHICH IS COMPATIBLE WITH FLOORING ADHESIVES AND OTHER SURFACE TREATMENTS. ALL CONCRETE LEFT EXPOSED AT THE COMPLETION OF THE PROJECT SHALL BE TREATED WITH A CLEAR PENETRATING ACRYLIC BASE POLYMER CAPABLE OF PREVENTING INFILTRATION OF WATER BORNE CHLORIDES SUCH AS "CONSPEC CURE & SEAL W/6" BY DAYTON SUPERIOR CORPORATION OR APPROVED EQUAL. LOADS GREATER THAN THE DESIGN LIVE LOADS SHALL NOT BE PLACED ON THE STRUCTURE. A CONCRETE STRUCTURE MAY NOT SUPPORT ITS DESIGN LIVE LOAD FOR 28 DAYS. CONTRACTOR SHALL SUPPORT ADJACENT STRUCTURES, UTILITIES, AND EXCAVATIONS AS REQUIRED FOR COMPLETION OF WORK. ONE SET OF COMPRESSIVE TEST CYLINDERS FOR EACH 100 CUBIC YARDS POURED, BUT NOT LESS THAN ONE SET FOR EACH DAY'S POUR AND EACH CLASS OF CONCRETE, ALONG WITH SLUMP TESTS SHALL BE PERFORMED BY A TESTING LABORATORY APPROVED BY THE STRUCTURAL ENGINEER. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR ALL TEMPORARY FORMWORK INCLUDING STRIPPING PROCEDURES FOR CONCRETE FLAT SLABS, SHEETING, SHORING, UNDERPINNING, ETC. SEALED BY A REGISTERED PROFESSIONAL ENGINEER AS PART OF THE CONTRACTOR'S WORK.

**REINFORCING STEEL:** REINFORCING STEEL SHALL BE DEFORMED BARS IN ACCORDANCE WITH ASTM A-615, GRADE 60. BENDS ARE TO BE FABRICATED AS PER DETAILS. PLACE MAIN REINFORCING STEEL SO AS TO PROVIDE 3" MINIMUM COVER FOR FOUNDATIONS POURED ON EARTH, 2" MINIMUM COVER FOR BEAMS AND COLUMNS, 3/4" MINIMUM COVER FOR SLABS AND 1 1/2" FOR ALL REBAR IN EXPOSED CONCRETE (EXCEPT AS OTHERWISE DETAILED).

**INSPECTION:** ALL WORK SPECIFIED HEREIN SHALL BE INSPECTED IN ACCORDANCE WITH THE BUILDING CODE AND ALL LOCAL ORDINANCES. THE OWNER OR CONTRACTOR SHALL HIRE AN EXPERIENCED QUALIFIED INSPECTOR TO PERFORM ALL REQUIRED INSPECTION WORK. INSPECTION SHALL CONSIST OF VISUAL OBSERVATIONS OF MATERIALS, EQUIPMENT OR CONSTRUCTION WORK FOR THE PURPOSE OF ASCERTAINING THAT THE WORK IS IN SUBSTANTIAL CONFORMANCE WITH THE CONTRACT DOCUMENTS AND WITH THE DESIGN INTENT. THE ENGINEER WILL NOT PERFORM THE REQUIRED INSPECTION AS PART OF THIS PRESENT CONTRACT WITH THE ARCHITECT/OWNER. UNDER THIS PRESENT CONTRACT, THE ENGINEER MAY VISIT THE SITE TO ASCERTAIN GENERAL CONFORMANCE TO THE CONTRACT DOCUMENTS. HOWEVER, SUCH VISITS SHALL NOT BE RELIED UPON BY OTHERS AS ACCEPTANCE OF THE WORK, NOR SHOULD IT BE CONSTRUED TO RELIEVE THE CONTRACTOR IN ANY WAY FROM HIS OBLIGATIONS AND RESPONSIBILITIES UNDER THE CONSTRUCTION CONTRACT. HOWEVER, IF DESIRED, HILLIS-CARNES ENGINEERING ASSOCIATES MAY BE HIRED UNDER A SEPARATE CONTRACT TO PERFORM THIS INSPECTION WORK.

**DESIGN WITHOUT CONSTRUCTION REVIEW:** IT IS AGREED THAT IF HILLIS-CARNES ENGINEERING ASSOCIATES' PROFESSIONAL SERVICES DO NOT EXTEND TO OR INCLUDE THE REVIEW OR SITE OBSERVATION OF THE CONTRACTOR'S WORK OR PERFORMANCE, THEN THE OWNER WILL DEFEND, INDEMNIFY AND HOLD HARMLESS HILLIS-CARNES ENGINEERING ASSOCIATES, FROM ANY CLAIM OR SUIT WHATSOEVER, INCLUDING BUT NOT LIMITED TO ALL PAYMENTS, EXPENSES OR COSTS INVOLVED, ARISING FROM OR ALLEGED TO HAVE ARISEN FROM THE CONTRACTOR'S PERFORMANCE OR THE FAILURE OF THE CONTRACTOR'S WORK TO CONFORM TO THE DESIGN INTENT AND THE CONTRACT DOCUMENTS. HILLIS-CARNES ENGINEERING ASSOCIATES AGREES TO BE RESPONSIBLE FOR ITS OWN OR ITS EMPLOYEES' NEGLIGENT ACTS, ERRORS OR OMISSIONS.

**OWNERSHIP OF DOCUMENTS:** THE CONTRACTOR ACKNOWLEDGES THESE PLANS AND SPECIFICATIONS PREPARED BY HILLIS-CARNES ENGINEERING ASSOCIATES, AS INSTRUMENTS OF PROFESSIONAL SERVICE. NEVERTHELESS, THE PLANS AND SPECIFICATIONS PREPARED UNDER THIS AGREEMENT SHALL REMAIN THE PROPERTY OF HILLIS-CARNES ENGINEERING ASSOCIATES UPON COMPLETION OF THE WORK. THE CONTRACTOR AGREES TO HOLD HARMLESS AND INDEMNIFY HILLIS-CARNES ENGINEERING ASSOCIATES AGAINST ALL DAMAGES, CLAIMS, AND LOSSES, INCLUDING DEFENSE COSTS, ARISING OUT OF ANY REUSE OF THE PLANS AND SPECIFICATIONS WITHOUT THE WRITTEN AUTHORIZATION OF HILLIS-CARNES ENGINEERING ASSOCIATES.

**DESIGN DATA:**  
 Fc = 4500 PSI (WALL FOUNDATIONS)  
 Fc = 4500 PSI (RETAINING WALL)  
 fy = 60000 PSI

**DESIGN EARTH PRESSURES:**  
 NOTE THAT DESIGN EARTH PRESSURES WERE NOT PROVIDED IN GEOTECHNICAL REPORT - THESE DESIGN PRESSURES ARE CONSERVATIVE VALUES BASED ON PREVIOUS EXPERIENCE AND ENGINEERING JUDGMENT

ACTIVE EQUIVALENT FLUID PRESSURE = 40 PSF  
 PASSIVE PRESSURE = 250 PSF  
 FRICTION COEFFICIENT = 0.30  
 PERCENT OF FRICTION USED FOR SLIDING = 100%  
 PERCENT OF PASSIVE USED FOR SLIDING = 75%

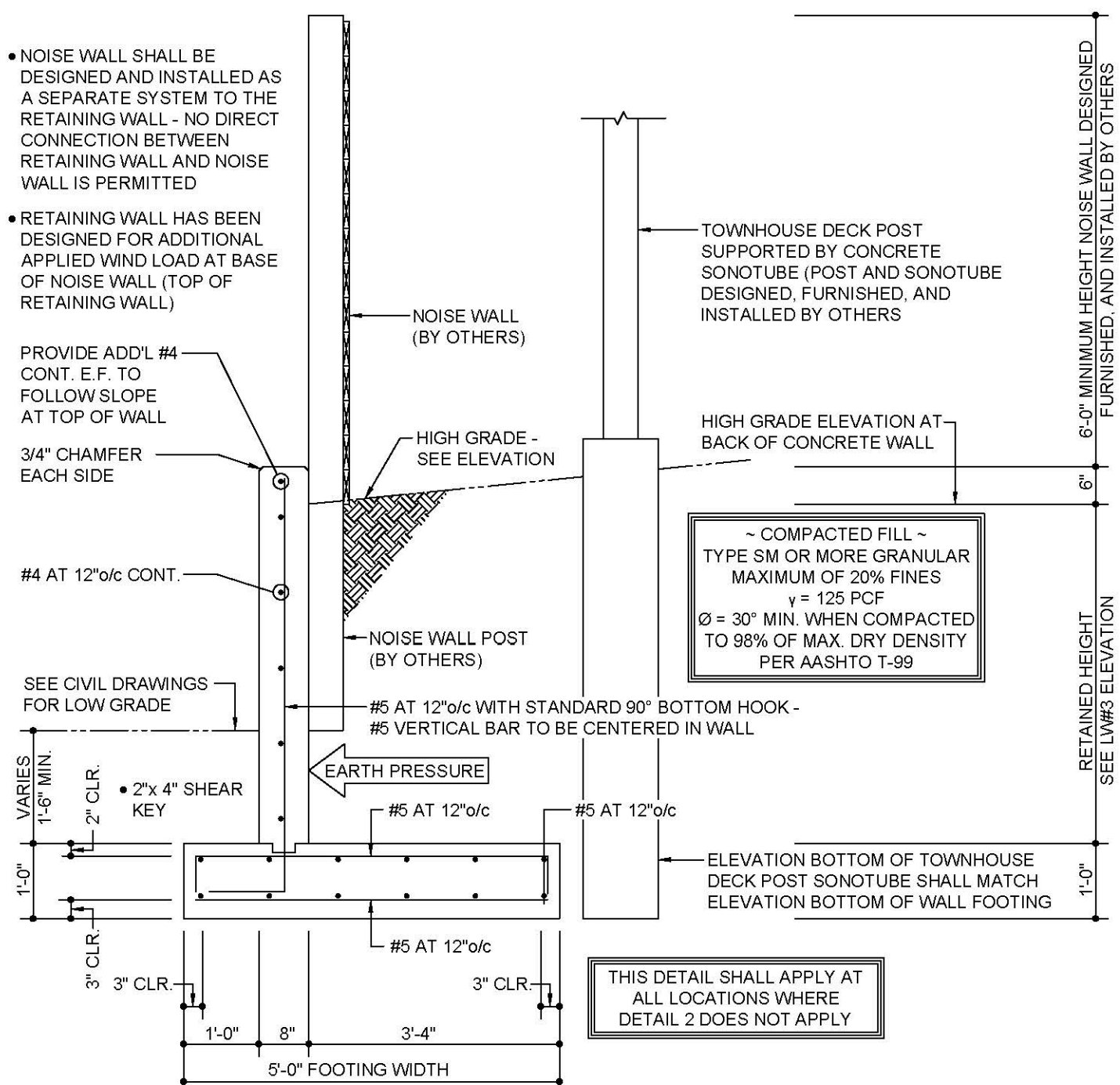
**MINIMUM FACTORS OF SAFETY:**  
 OVERTURNING = 2.0  
 SLIDING = 1.5

**SNOW LOAD:**  
 GROUND SNOW LOAD Pg = 25 PSF  
 SNOW LOAD IMPORTANCE FACTOR I = 1.0  
 SNOW EXPOSURE FACTOR Ce = 1.0  
 THERMAL FACTOR Ct = 1.2  
 FLAT ROOF SNOWLOAD Pf = 21 PSF

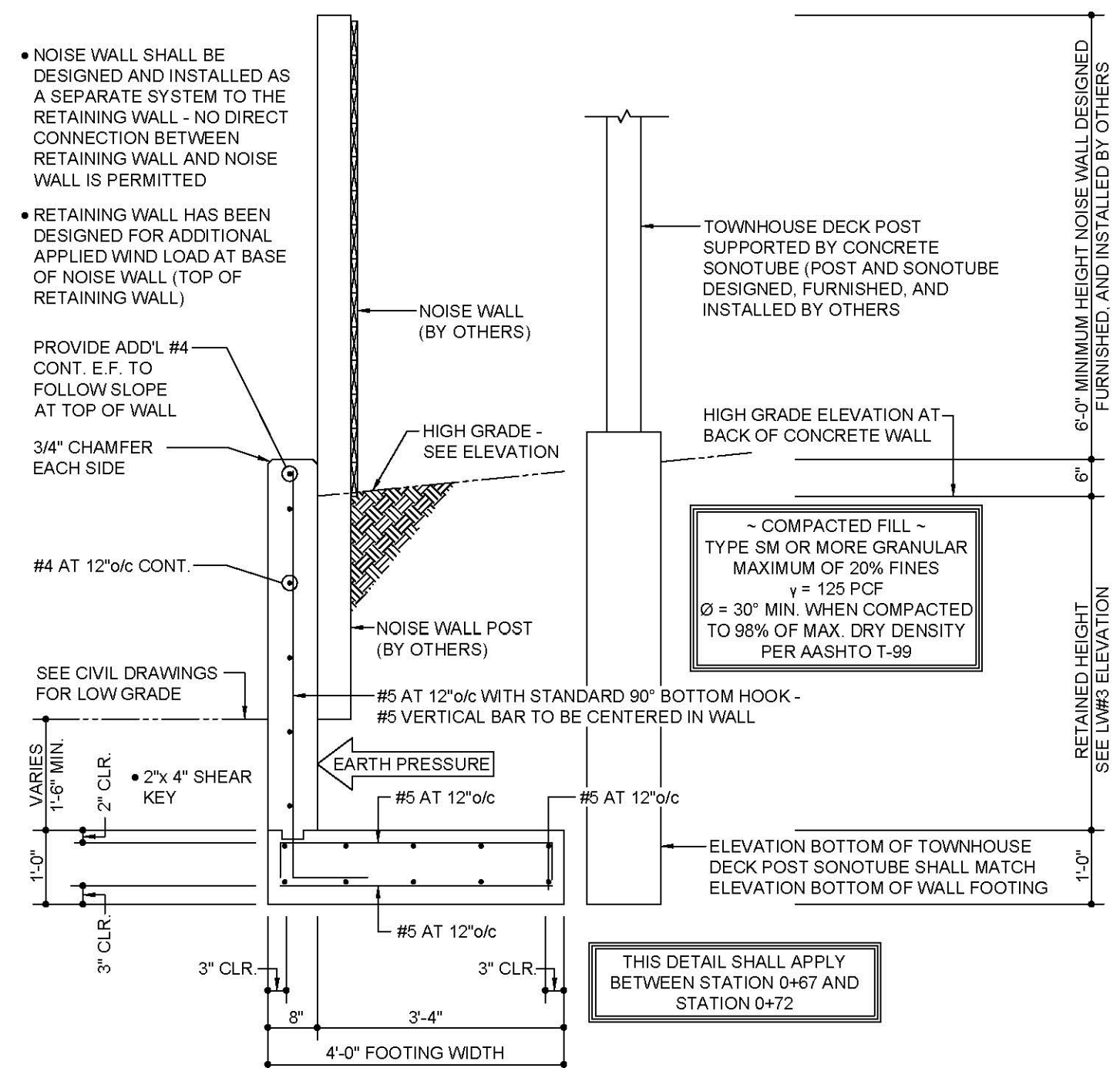
**WIND LOAD:**  
 BASIC WIND SPEED = 115 MPH  
 BUILDING CATEGORY B  
 WIND EXPOSURE II

**EARTHQUAKE LOAD:**  
 RISK CATEGORY II  
 IMPORTANCE FACTOR (Ie) 1.00  
 SITE CLASS D  
 Ss 0.138g  
 S1 0.043g  
 SDS 0.148g  
 SD1 0.069g  
 SEISMIC DESIGN CATEGORY B

**SEISMIC FORCE RESISTING SYSTEM:**  
 ORDINARY REINFORCED CONCRETE SHEAR WALLS  
 RESPONSE MODIFICATION FACTOR (R) 4.0  
 Cs (+ SDS / R) 16  
 EQUIVALENT LATERAL FORCE DESIGN METHOD  
 SEISMIC WEIGHT (W): W = 170.85 KIIPS  
 BASE SHEAR (V = Cs \* W): V = 6.32 KIIPS



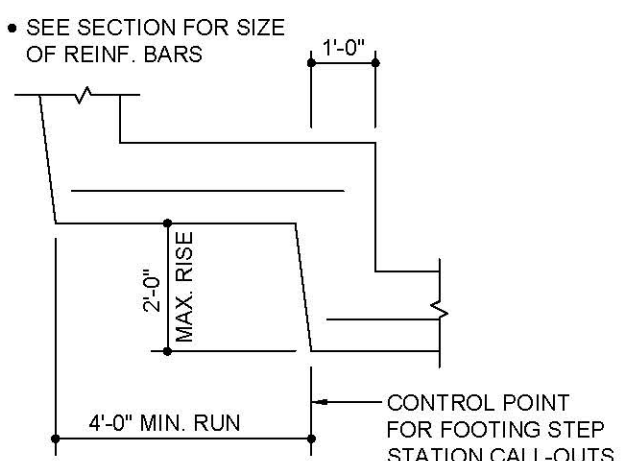
3.1 TYPICAL C.I.P. RETAINING WALL #8



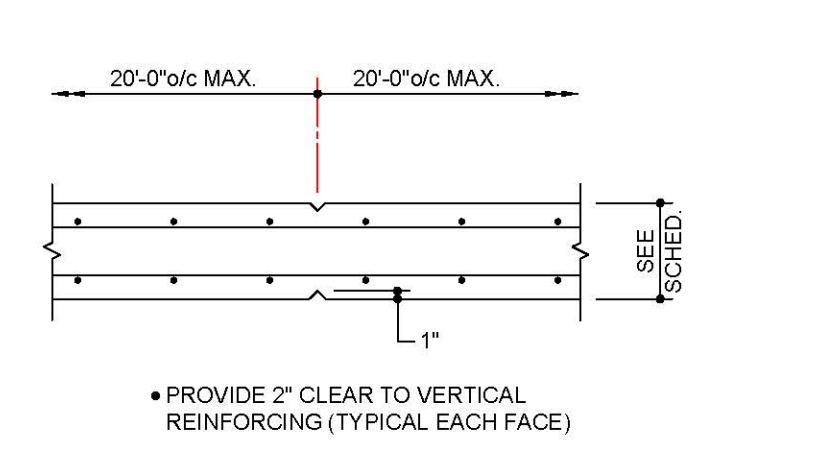
3.2 C.I.P. RETAINING WALL #8 AT MH3

**NOTES FOR DETAILS 3.1 AND 3.2 ON SHEET 4:**

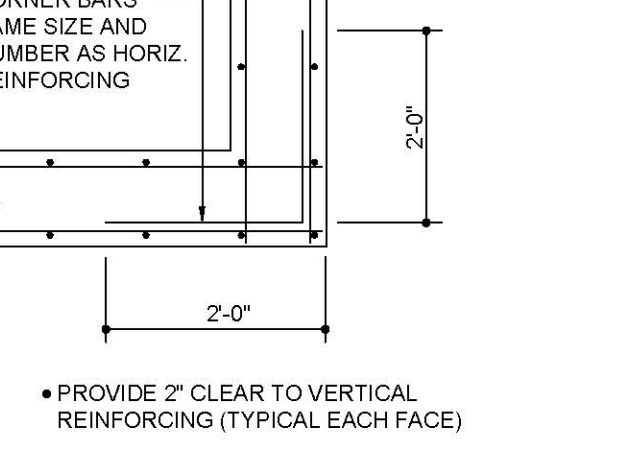
- ALL CONCRETE FOR RETAINING WALL FOOTINGS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,500 PSI
- ALL CONCRETE FOR RETAINING WALLS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,500 PSI
- 2000 PSF AVERAGE NET ALLOWABLE BEARING CAPACITY HAS BEEN EMPLOYED
- ALLOWABLE SOIL BEARING PRESSURES SHALL BE CONFIRMED BY GEOTECHNICAL ENGINEER
- FLICE FOOTINGS AGAINST FLAT UNDISTURBED GROUND
- WALL SHALL NOT BE BACKFILLED UNTIL LOW GRADE HAS BEEN COMPLETED AS PER CIVIL ENGINEER'S GRADING PLAN
- IF FUTURE MAINTENANCE OR REPAIR OF THE RETAINING WALL IS NEEDED, SHEETING/SHORING WILL BE REQUIRED FOR ANY STRUCTURES WITHIN THE MAINTENANCE EASEMENT OF THE WALL.



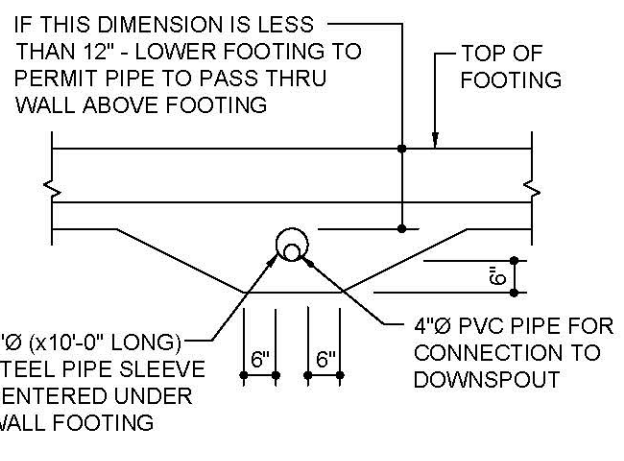
TYP. STEPPED FOOTING



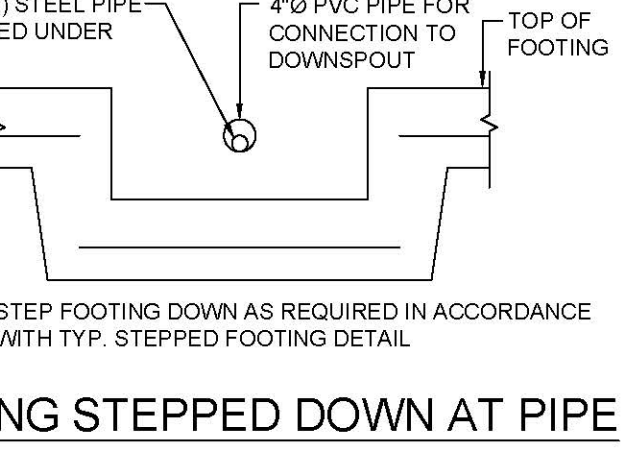
CONTROL JOINT IN CONCRETE WALLS



TYPICAL CORNER BARS



TYPICAL PIPE THRU FOOTING



FOOTING STEPPED DOWN AT PIPE

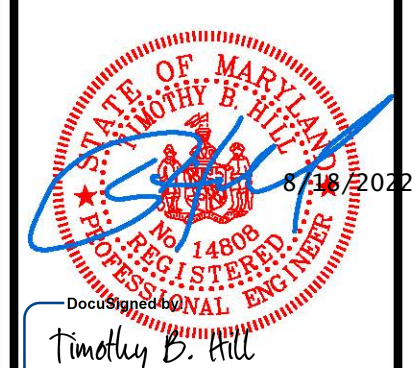
**OWNER/DEVELOPER**  
 U.S. HOMES, LLC.  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARM.COM  
 (410) 423-4264

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**CIP CONCRETE RETAINING WALL**  
**CONSTRUCTION DETAILS**  
**CHAPELGATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110 GRID: 10 L 1389/F 339 (P. 110)  
 3RD ELECTION DISTRICT HOWARD COUNTY, MARYLAND  
 ZONED: CEF-M

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcsea.com Fax: (410) 880-4098



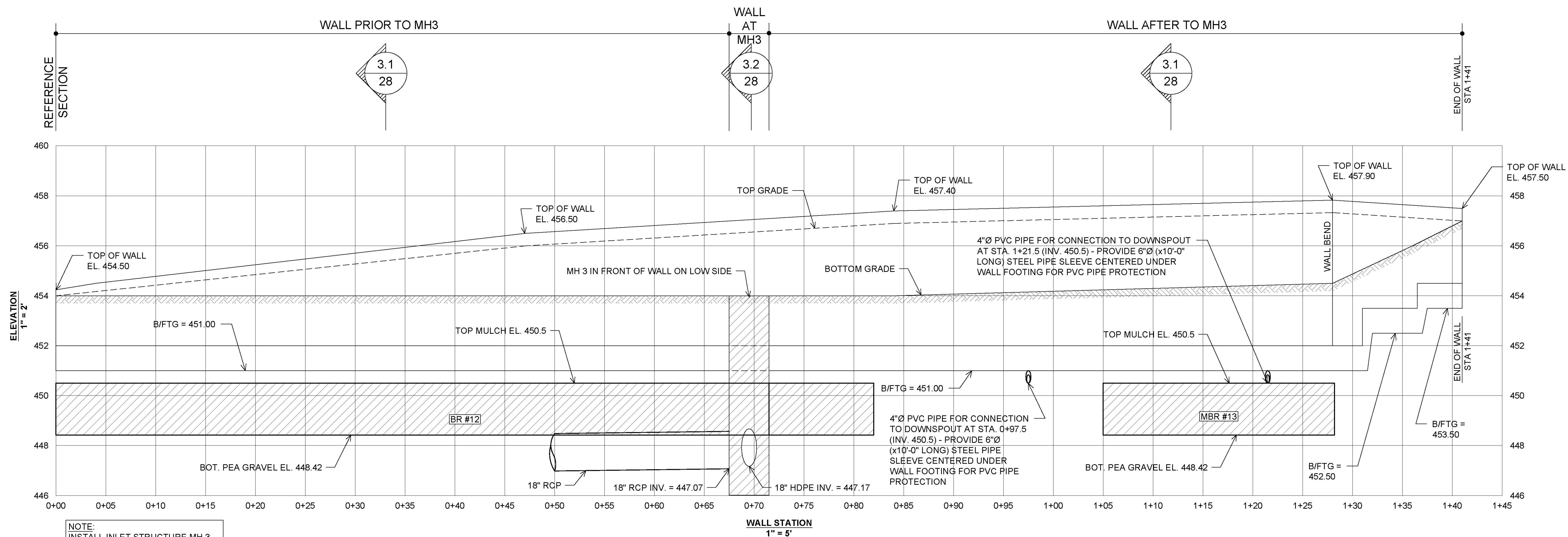
**PROFESSIONAL CERTIFICATE**

DESIGN BY: CS  
 DRAWN BY: CS  
 CHECKED BY: JRE  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14808, EXPIRATION DATE: 02/27/2024.

29 SHEET OF 42

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022  
 Chief, Development Engineering Division  
 Chief, Division of Land Development  
 Director



NOTE:  
INSTALL INLET STRUCTURE MH 3  
AND ASSOCIATED PIPE BEFORE  
OR DURING WALL CONSTRUCTION

**RETAINING WALL #8 ELEVATION  
(CAST-IN-PLACE CONCRETE CANTILEVER WALL)**

OWNER/DEVELOPER  
U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
(410) 423-4264

NO.	REVISION	DATE

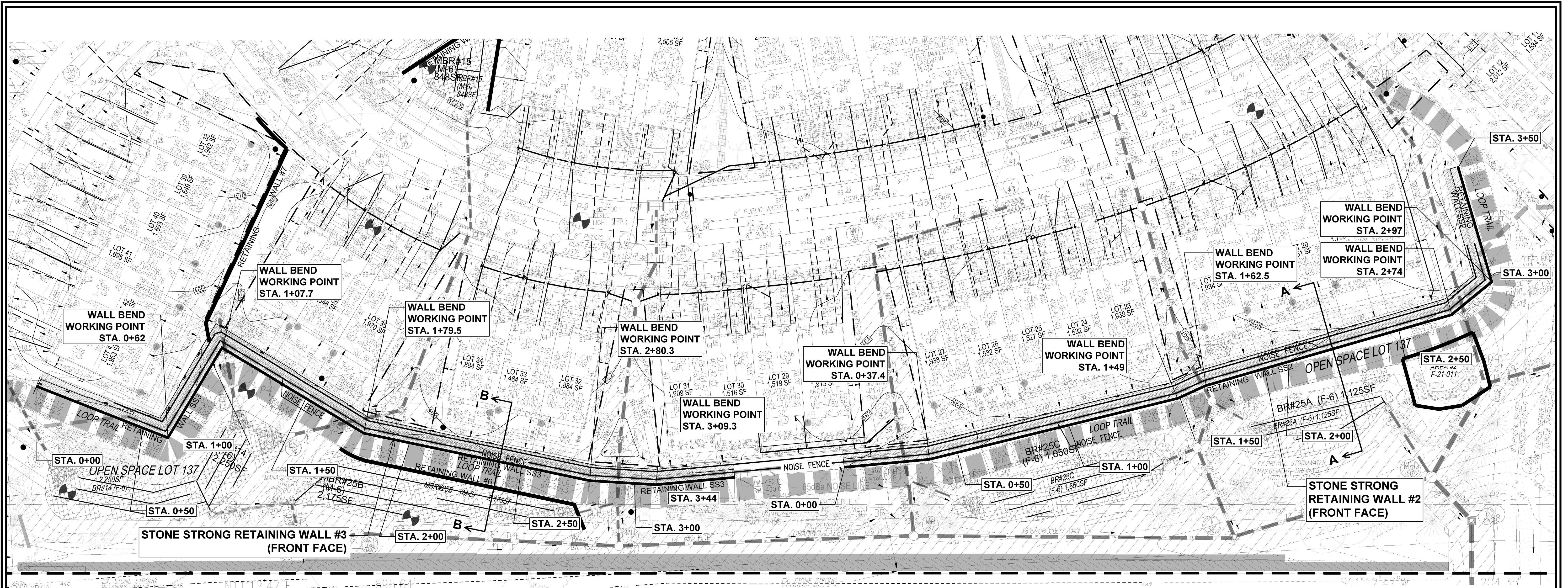
SITE DEVELOPMENT PLAN  
CIP CONCRETE RET. WALL #8 ELEVATION  
CHAPEL GATE WOODS  
SFA LOTS 1-134  
PLAT# 26141-26152  
PARCELS: 110 GRID: 10 L 1389/F 339 (P. 110)  
3RD ELECTION DISTRICT ZONED: CEF-M HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098



DESIGN BY: CS  
DRAWN BY: CS  
CHECKED BY: JRE  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A  
PROFESSIONAL CERTIFICATE  
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THAT I AM A QUALIFIED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE  
OF MARYLAND, LICENSE NO. 14806  
EXPIRATION DATE: 12/31/2024  
30 SHEET OF 42

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
Chief, Development Engineering Division  
Chief, Division of Land Development  
Director



**STONE STRONG  
WALLS SS#2 & SS#3 LOCATION PLAN**  
1"=20'

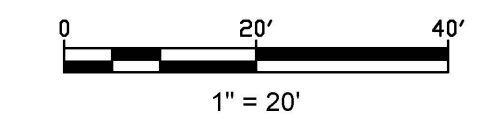
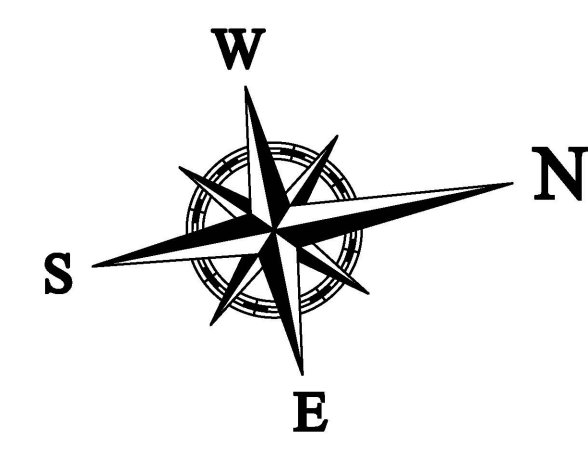
**OWNER/DEVELOPER**  
U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARD.COM  
(410) 423-4264

NO.	REVISION	DATE

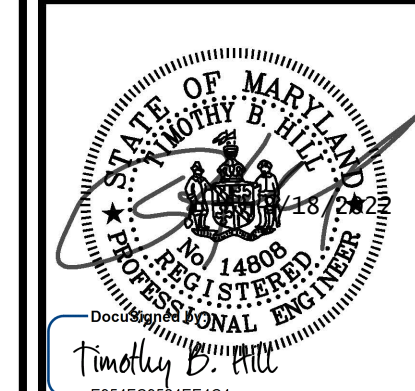
**SITE DEVELOPMENT PLAN  
STONE STRONG RETAINING WALLS  
SS#2 & SS#3 LOCATION PLAN  
CHAPELGATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
L. 1389/F. 339 (P. 110)  
HOWARD COUNTY, MARYLAND  
ZONED: CEF-M

**HILLIS-CARNES  
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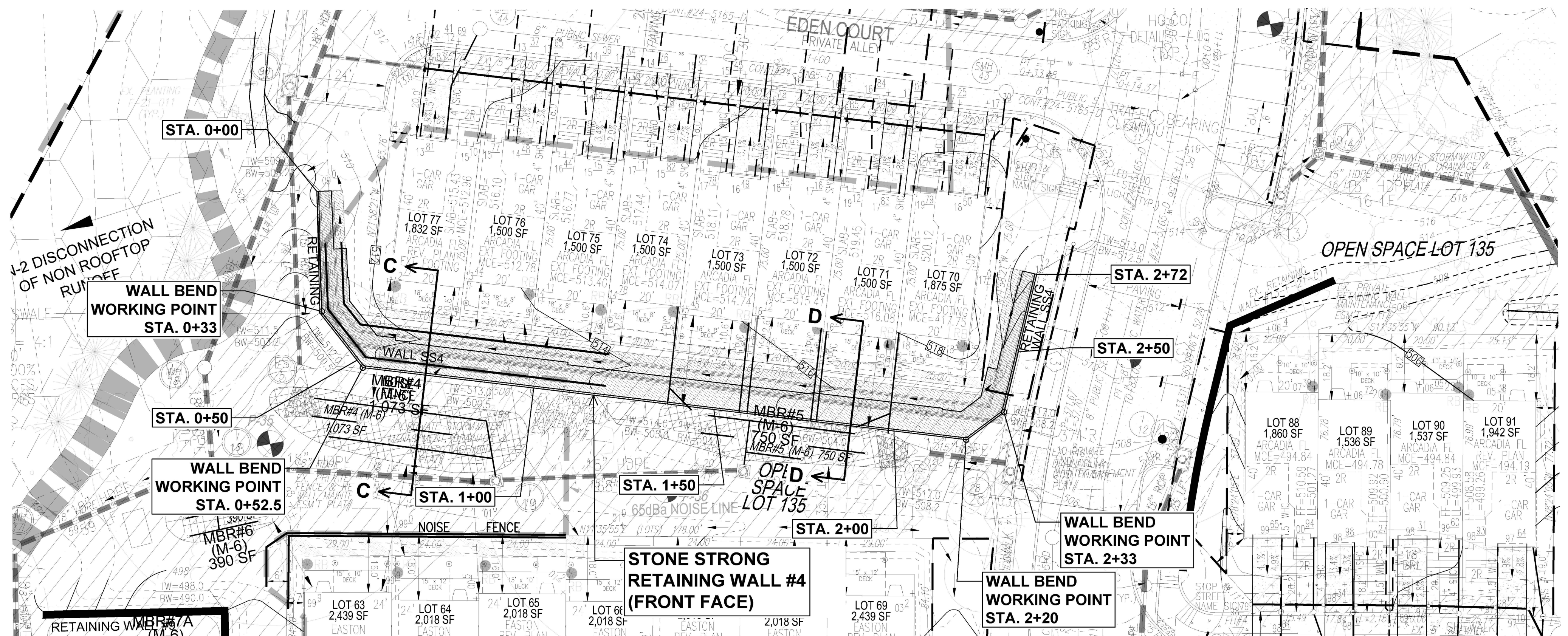
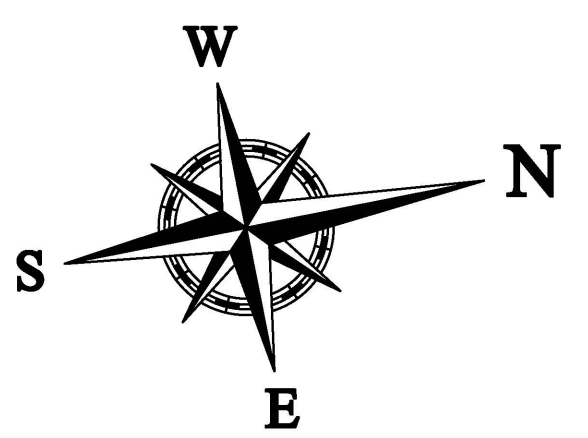


APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
*Chad Edmondson*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION 11/26/2022 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE  
DIRECTOR DATE

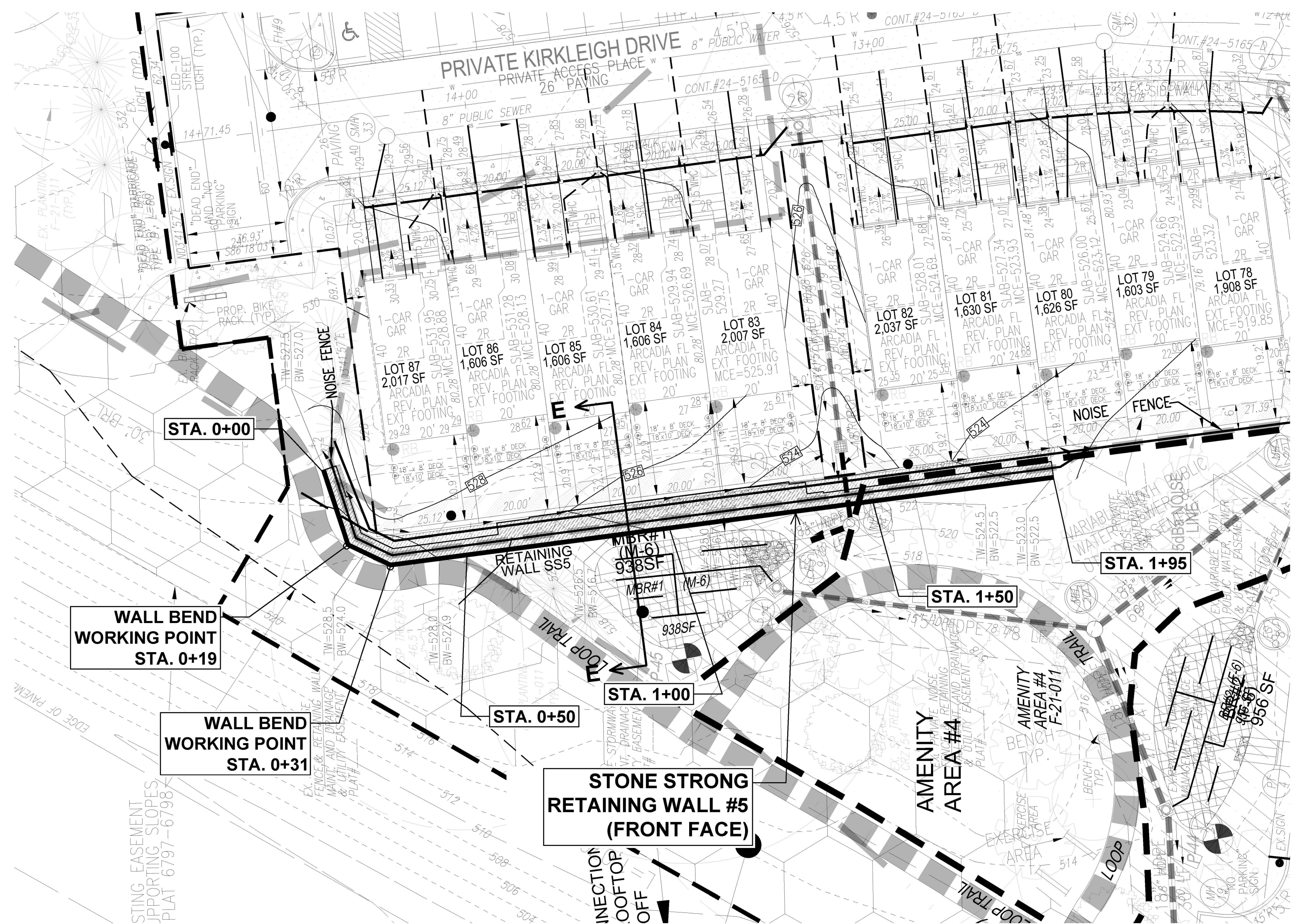


DESIGN BY: HM  
DRAWN BY: HM+AM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

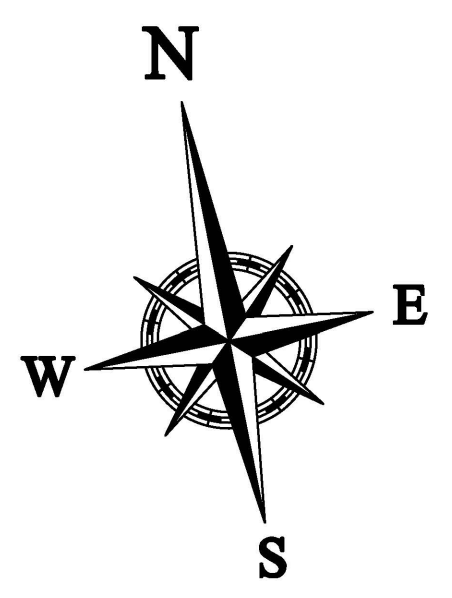
PROFESSIONAL CERTIFICATE  
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WERE PREPARED OR APPROVED BY ME, AND  
THAT I AM A FULLY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE  
OF MARYLAND, LICENSE NO. 14808  
EXPIRATION DATE: 02/27/2024.



**STONE STRONG  
WALL SS#4 LOCATION PLAN**  
1"=20'



**STONE STRONG  
WALL SS#5 LOCATION PLAN**  
1"=20'



**OWNER/DEVELOPER**  
U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARMD.COM  
(410) 423-4264

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
*Chad Edmondson*  
1305734564189  
CHIEF, DEVELOPMENT ENGINEERING DIVISION 11/26/2022 DATE  
CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE  
*Ray Goman*  
1817547822869A  
DIRECTOR 084055024702104  
DATE

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN  
STONE STRONG RETAINING WALLS  
SS#4 & SS#5 LOCATION PLAN  
CHAPEL GATE WOODS**

SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
ZONED: CEF-M  
L 1389/F 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES  
ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

DESIGN BY:            HM  
DRAWN BY:            HM-AM  
CHECKED BY:            HM  
DATE:            JANUARY 2022  
SCALE:            AS SHOWN  
HCEA NO.:            20441A

PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS  
WERE PREPARED OR APPROVED BY ME, AND  
THAT I AM A FULLY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE  
OF MARYLAND, LICENSE NO. 14489  
EXPIRATION DATE: 02/27/2024.

**32 SHEET OF 42**



# STONE STRONG SYSTEMS SPECIFICATIONS FOR PRECAST MODULAR BLOCK RETAINING WALL SYSTEM

## PART 1: GENERAL

### 1.01 DESCRIPTION

- A. WORK INCLUDES FURNISHING AND INSTALLING PRECAST MODULAR BLOCKS (PMB) TO THE LINES AND GRADES SHOWN ON THE PLANS AND AS SPECIFIED HEREIN. ALSO INCLUDED IS FURNISHING AND INSTALLING APPURTENANT MATERIALS REQUIRED FOR CONSTRUCTION OF THE COMPLETE SYSTEM.
- B. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR SAFETY. THE ENGINEER AND OWNER SHALL NOT BE RESPONSIBLE FOR MEANS OR METHODS OF CONSTRUCTION OR FOR SAFETY OF WORKERS OR THE PUBLIC.

### 1.02 DELIVERY, STORAGE, AND HANDLING

- A. CONTRACTOR SHALL CHECK THE MATERIALS UPON DELIVERY TO ASSURE THAT PROPER MATERIALS HAVE BEEN RECEIVED.
- B. CONTRACTOR SHALL PROTECT THE MATERIALS FROM DAMAGE. DAMAGED MATERIAL SHALL NOT BE INCORPORATED INTO THE WALL OR THE REINFORCED SOIL EMBANKMENTS.
- C. CONTRACTOR SHALL PREVENT EXCESSIVE MUD, CONCRETE, ADHESIVES AND OTHER SUBSTANCES THAT MAY ADHERE FROM COMING IN CONTACT WITH THE MATERIALS.
- D. EXPOSED FACES OF PRECAST MODULAR BLOCK UNITS SHALL BE REASONABLY FREE OF CHIPS, CRACKS, OR STAINS WHEN VIEWED FROM A DISTANCE OF 10 FEET.

## PART 2: MATERIALS

### 2.01 WALL UNITS

- A. PRECAST MODULAR BLOCKS SHALL BE STONE STRONG UNITS MANUFACTURED UNDER LICENSE FROM STONE STRONG LLC.
- B. WALL UNITS SHALL CONFORM TO ASTM C1776.
- C. DIMENSION TOLERANCES FOR PRECAST MODULAR BLOCKS SHALL BE +/- 1/8 INCH FOR HEIGHT, +/- 1/8 INCH FOR LENGTH (ALONG FACE), AND +/- 1/2 TO -1/4 INCH FOR WIDTH (FACE TO TAIL).
- D. CONCRETE FOR PRECAST MODULAR BLOCKS SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4,000 PSI. ENTRAINED AIR CONTENT SHALL BE BETWEEN 5 AND 7%.
- E. INTERNAL UNIT REINFORCEMENT OR UNREINFORCED UNITS SHALL BE PROVIDED ACCORDING TO PUBLISHED STONE STRONG ENGINEERING GUIDANCE. REINFORCED UNITS SHALL BE MARKED WITH THE TYPE OF REINFORCEMENT.
- F. THE FACE PATTERN SHALL BE SELECTED FROM THE MANUFACTURER'S STANDARD MOLDS. THE COLOR OF THE UNITS SHALL BE NATURAL GRAY. A CONCRETE STAIN MAY BE FIELD APPLIED TO COLOR THE UNITS IF SPECIFIED BY THE ENGINEER OR OWNER.

### 2.03 WALL BASE

- A. THE WALL BASE SHALL CONSIST OF DENSE GRADED CRUSHED AGGREGATE. A MINIMUM OF 75% OF COARSE MATERIAL SHALL HAVE 2 OR MORE FRACTURED FACES. WALL BASE MATERIAL SHALL MEET THE FOLLOWING GRADATION:  

US STANDARD SIEVE SIZE	PERCENT PASSING
1-1/2"	80-100%
3/4"	50-90%
#4	0-40%
#200	0-10%
- B. THE CONTRACTOR MAY SUBSTITUTE CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3,000 PSI FOR THE GRANULAR BASE MATERIAL. CONCRETE MAY BE PLACED FULL THICKNESS OR AS A TOPPING OVER A COMPACTED GRANULAR THE BASE. IF USED AS A TOPPING, THE CONCRETE SHALL HAVE A MINIMUM THICKNESS OF 3 INCHES.

### 2.04 UNIT FILL

- A. UNIT FILL SHALL CONSIST OF A SCREENED CRUSHED AGGREGATE. A MINIMUM OF 75% OF COARSE MATERIAL SHALL HAVE 2 OR MORE FRACTURED FACES. UNIT FILL MATERIAL SHALL MEET THE FOLLOWING GRADATION:  

US STANDARD SIEVE SIZE	PERCENT PASSING
1-1/2"	100%
3/4"	50-90%
#4	0-10%
#8	0-5%

### 2.05 BACKFILL

- A. IF A SELECT GRANULAR REINFORCED ZONE IS INDICATED, IT SHALL CONSIST OF FILL SAND OR OTHER CLEAN AGGREGATE MEETING THE FOLLOWING GRADATION:  

US STANDARD SIEVE SIZE	PERCENT PASSING
3/4"	100%
#200	0-5%
- B. ALL OTHER BACKFILL BEHIND AND IN FRONT OF THE WALL SHALL CONSIST OF SUITABLE ON-SITE SOIL OR IMPORTED BORROW AND SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER. BACKFILL SHALL GENERALLY CONSIST OF SANDS, SILTS, OR LEAN CLAYS WITH A LIQUID LIMIT LESS THAN 45 AND A PLASTICITY INDEX LESS THAN 20. FAT CLAY SOILS, COBBLES, AND LARGE ROCK SHOULD GENERALLY BE AVOIDED UNLESS APPROVED BY THE GEOTECHNICAL ENGINEER BASED ON LOCAL PRACTICES. FROZEN SOILS, EXCESSIVELY WET OR DRY SOILS, DEBRIS, AND DELETERIOUS MATERIALS SHOULD NOT BE USED.

### 2.06 DRAIN TILE

- A. DRAIN TILE SHALL BE A PERFORATED OR SLOTTED PVC OR CORRUGATED HDPE PIPE. THE DRAIN TILE SHOULD BE CONNECTED TO STORM DRAINS OR DAYLIGHTED AT LOW POINTS AND/OR PERIODICALLY ALONG THE WALL ALIGNMENT AS SHOWN ON THE PLANS.

### 2.07 GEOTEXTILE FABRIC

- A. PROVIDE A GEOTEXTILE FILTER FOR SEPARATION FROM BACKFILL AT THE TAILS OF THE BLOCKS. THE GEOTEXTILE SHALL BE A NEEDLE PUNCHED NON-WOVEN FABRIC WITH A MINIMUM GRAB TENSILE STRENGTH OF 120 POUNDS. THE GEOTEXTILE MAY COVER THE ENTIRE BACK FACE OF THE BLOCKS OR MAY BE CUT IN STRIPS TO COVER THE GAPS BETWEEN TAIL UNITS WITH A MINIMUM OF 6 INCHES OF OVERLAP OVER THE CONCRETE TAIL ON BOTH SIDES.

### 2.08 CONCRETE FOR TAIL EXTENSIONS

## PART 3: EXECUTION

### 3.01 EXCAVATION

- A. EXCAVATE AS REQUIRED FOR INSTALLATION OF THE RETAINING WALL SYSTEM. EXCAVATE TO THE BASE LEVEL FOR A SUFFICIENT DISTANCE BEHIND THE FACE TO PERMIT INSTALLATION OF THE BASE.
- B. SLOPE OR SHORE EXCAVATION AS NECESSARY FOR SAFETY AND FOR CONFORMANCE WITH APPLICABLE OSHA REQUIREMENTS.

### 3.02 WALL BASE

- A. FOUNDATION SOILS SHALL BE EXCAVATED TO THE DIMENSIONS SHOWN ON THE PLANS. FOUNDATION SOIL SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER TO CONFIRM THAT THE BEARING SOILS ARE SIMILAR TO THE DESIGN CONDITIONS OR ASSUMPTIONS.
- B. CONSTRUCT THE WALL BASE TO THE LINES AND GRADES SHOWN ON THE PLANS. PLACE AND CONSOLIDATE CONCRETE, STRIKE, AND FINISH PLANE AND LEVEL. OVEREXCAVATED AREAS SHALL BE FILLED WITH ADDITIONAL CONCRETE OR GRANULAR BASE MATERIAL. COMPACT GRANULAR BASE MATERIAL TO PROVIDE A HARD AND LEVEL SURFACE TO SUPPORT THE

WALL UNITS. BASE MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY (ASTM D698, STANDARD PROCTOR). FINAL BASE ELEVATION SHALL BE WITHIN 0.1 FEET OF PLAN ELEVATION.

- C. PREPARE AND SMOOTH THE GRANULAR MATERIAL TO ENSURE COMPLETE CONTACT OF THE FIRST COURSE WITH THE BASE. THE BASE MAY BE DRESSED WITH FINE AGGREGATE TO AID LEVELING.

### 3.03 UNIT INSTALLATION

- A. PLACE THE FIRST COURSE OF UNITS DIRECTLY ON THE WALL BASE. CHECK UNITS FOR LEVEL AND ALIGNMENT. UNITS SHALL BE WITHIN 1/8 INCH OF LEVEL FROM END TO END AND FROM FRONT TO BACK. ADJACENT UNITS SHOULD BE IN CONTACT. IF POSSIBLE, BEGIN PLACING UNITS AT THE LOWEST SECTION OF THE WALL.
- B. FILL ALL VOIDS BETWEEN AND WITHIN THE BLOCKS WITH GRANULAR UNIT FILL. ADDITIONAL UNIT FILL IS NOT REQUIRED BEHIND THE UNITS, BUT MAY BE PLACED FOR THE CONVENIENCE OF THE CONTRACTOR.
- C. PLACE BACKFILL BEHIND THE UNITS IN MAXIMUM LOOSE LIFTS OF 8 INCHES AND COMPACT. COMPACT ALL BACKFILL TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY (ASTM D698, STANDARD PROCTOR). FOR COHESIVE SOILS, THE MOISTURE CONTENT AT THE TIME OF COMPACTION SHOULD BE ADJUSTED TO WITHIN -2 AND +3 PERCENT OF OPTIMUM. PLACE BACKFILL IN SUCCESSIVE LIFTS UNTIL LEVEL WITH THE TOP OF THE FACING UNIT.
- D. REMOVE ALL EXCESS AGGREGATE AND OTHER MATERIALS FROM THE TOP OF THE UNITS BEFORE LAYING UP THE NEXT COURSE.
- E. PLACE THE NEXT COURSE OF PRECAST MODULAR BLOCK UNITS IN RUNNING BOND WITH THE PREVIOUS COURSE. PLACE THE WEB RECESS OVER THE ALIGNMENT HOOP PROTRUDING FROM THE UNIT BELOW, AND PULL THE UNIT FORWARD TO CONTACT THE HOOP. BATTER SHOULD BE WITHIN 1/4 INCH TOLERANCE (4 INCHES FROM 24 SF UNIT BELOW, 2 INCHES FROM 6 SF UNIT BELOW).
- F. CONTINUE PLACING SUCCESSIVE COURSES TO THE ELEVATIONS SHOWN ON THE PLANS. CONSTRUCT WALL IN LEVEL STAGES, PLACING THE UNITS AT EACH COURSE FOR THE ENTIRE LENGTH OF THE WALL, IF POSSIBLE. UNIT FILL AND BACKFILL SHOULD BE PLACED TO THE LEVEL OF THE TOP OF THE FACING UNIT BEFORE PLACING THE NEXT COURSE.
- G. PROVIDE TEMPORARY SWALES TO DIVERT RUNOFF AWAY FROM WALL EXCAVATION AND AWAY FROM FACE.
- H. FINAL GRADE ABOVE AND BELOW THE RETAINING WALL SHALL PROVIDE FOR POSITIVE DRAINAGE AND PREVENT PONDING. PROTECT COMPLETED WALL FROM OTHER CONSTRUCTION. DO NOT OPERATE LARGE EQUIPMENT OR STORE MATERIALS ABOVE THE WALL THAT EXCEED THE DESIGN SURCHARGE LOADS.

## PART 4: CONSTRUCTION QUALITY CONTROL AND ASSURANCE

### 4.01 CONSTRUCTION QUALITY CONTROL

- A. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL INSTALLATION AND MATERIALS MEET THE QUALITY SPECIFIED IN THE CONSTRUCTION DRAWINGS.
- B. THE CONTRACTOR SHALL VERIFY THAT INSTALLATION IS IN ACCORDANCE WITH THE SPECIFICATIONS AND CONSTRUCTION DRAWINGS.

### 4.02 QUALITY ASSURANCE

- A. THE OWNER IS RESPONSIBLE TO ENGAGE TESTING AND INSPECTION SERVICES TO PROVIDE INDEPENDENT QUALITY CONSTRUCTION ASSURANCE.
- B. COMPACTION TESTING SHALL BE DONE A MINIMUM OF EVERY 1 FOOT OF VERTICAL FILL AND EVERY 100 LINEAL FEET ALONG THE WALL.
- C. TESTING SHALL BE DONE AT A VARIETY OF LOCATIONS TO COVER THE ENTIRE BACKFILL ZONE.
- D. THE INDEPENDENT INSPECTION PROFESSIONAL SHOULD PERFORM SUFFICIENT TESTING AND OBSERVATION TO VERIFY THAT WALL INSTALLATION SUBSTANTIALLY CONFORMS TO THE DESIGN DRAWINGS AND SPECIFICATIONS.

## NOTES:

1. NO TREES SHALL BE PLANTED WITHIN 10 FEET OF THE TOP OF THE RETAINING WALL.
2. RETAINING WALLS SHALL ONLY BE CONSTRUCTED UNDER THE OBSERVATION OF A REGISTERED PROFESSIONAL ENGINEER AND A (NICET, WACEL, OR EQUIV.) CERTIFIED SOILS TECHNICIAN.
3. 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.
4. 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.
5. 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.
6. WALLS SHALL NOT BE CONSTRUCTED ON UNCERTIFIED FILL MATERIALS.
7. WALLS SHALL NOT BE CONSTRUCTED WITHIN A HOWARD CO. RIGHT-OF-WAY OR EASEMENT.
8. IF FUTURE MAINTENANCE OR REPAIR OF THE RETAINING WALL IS NEEDED, SHEETING/SHORING IS REQUIRED FOR ANY STRUCTURES WITHIN THE MAINTENANCE EASEMENT OF THE RETAINING WALL.

## OWNER/DEVELOPER

U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARD.COM  
(410) 423-4264

NO.	REVISION	DATE

### SITE DEVELOPMENT PLAN STONE STRONG RETAINING WALL SPECIFICATIONS AND NOTES CHAPELGATE WOODS

SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
L 1389F 339 (P. 110)  
ZONED: CEF-M  
HOWARD COUNTY, MARYLAND

## HILLIS-CARNES ENGINEERING ASSOCIATES

10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

## PROFESSIONAL CERTIFICATE

DESIGN BY: HM+AM

DRAWN BY: HM+AM

CHECKED BY: HM

DATE: JANUARY 2022

SCALE: AS SHOWN

HCEA NO.: 20441A

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. 14809. EXPIRATION DATE: 02/27/24.

33 SHEET OF 42

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

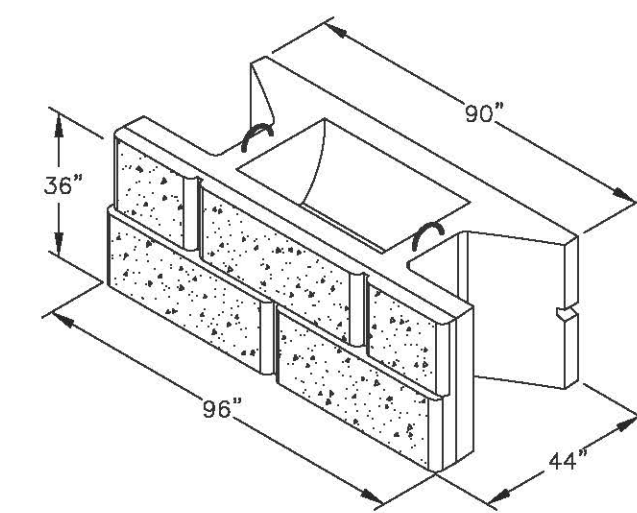
Chad Edmondson 11/3/2022

CHIEF, DEVELOPMENT AND ENGINEERING DIVISION 10/26/2022 DATE

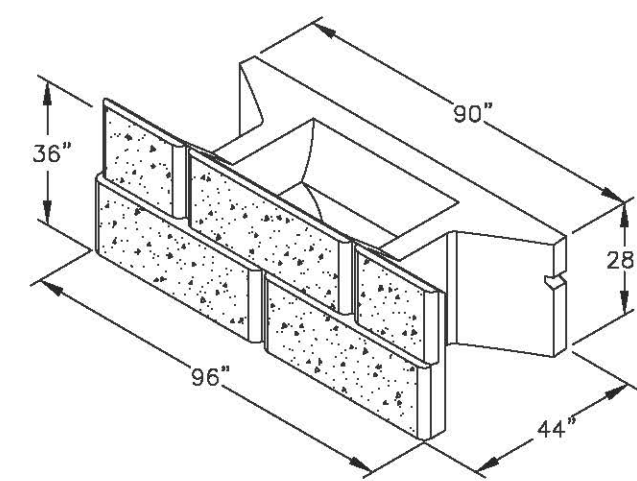
CHIEF, DIVISION OF LAND DEVELOPMENT 11/3/2022 DATE

Ray Groman DATE

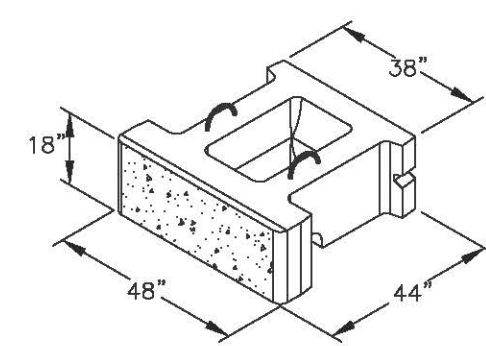
DIRECTOR DATE



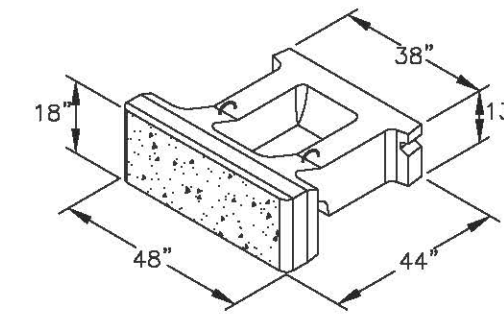
STONE STRONG V24SF UNIT  
BATTERED FACE  
NOT TO SCALE



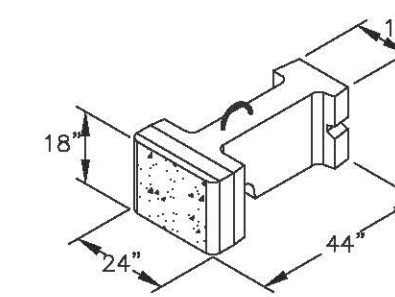
STONE STRONG V24SF TOP UNIT  
BATTERED FACE  
NOT TO SCALE



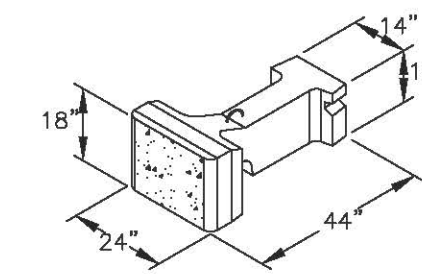
STONE STRONG V6SF UNIT  
NOT TO SCALE



STONE STRONG V6SF TOP UNIT  
NOT TO SCALE

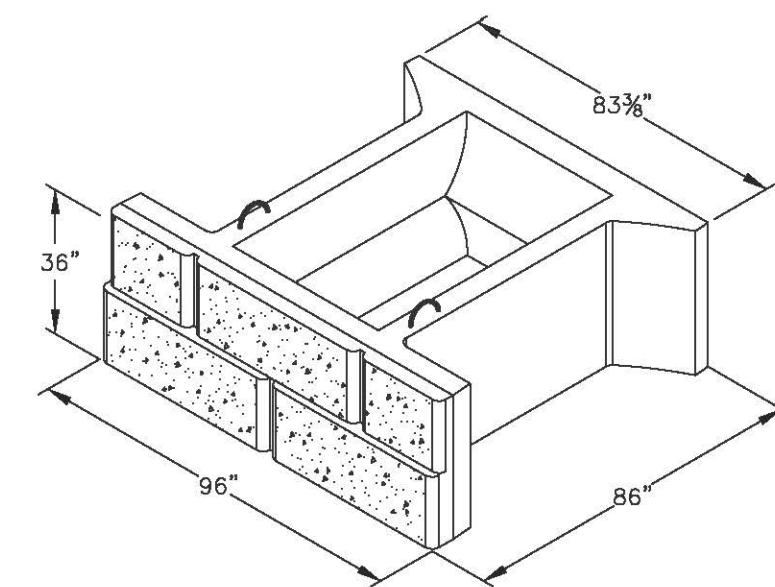


STONE STRONG 3SF UNIT  
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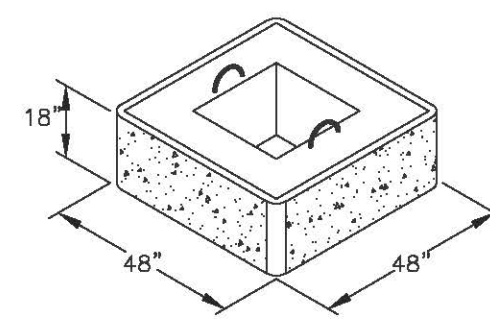


STONE STRONG 3SF TOP UNIT  
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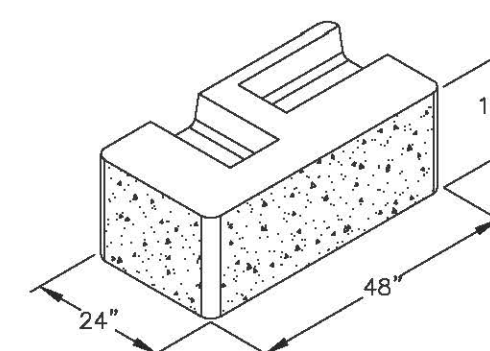
NOTE: ALL WALL BLOCK UNITS ARE VERTICAL FACE.



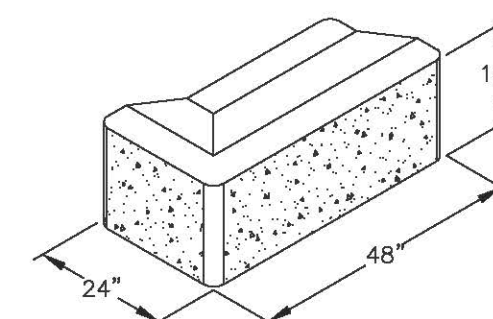
STONE STRONG V24-86 UNIT  
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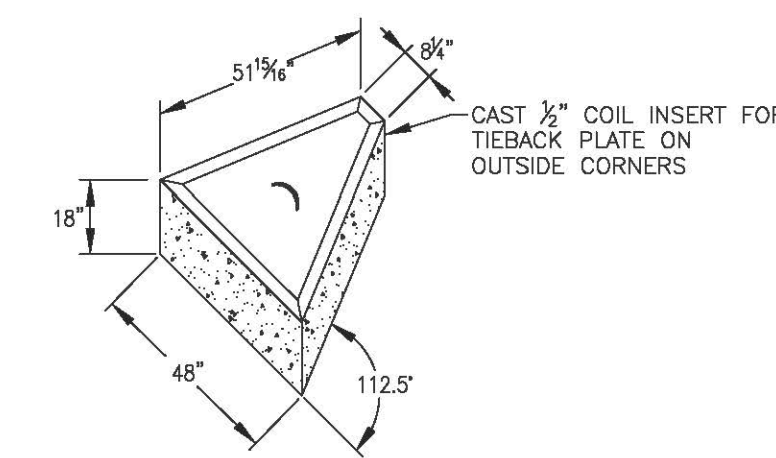
STONE STRONG 90° CORNER UNIT  
NOT TO SCALE



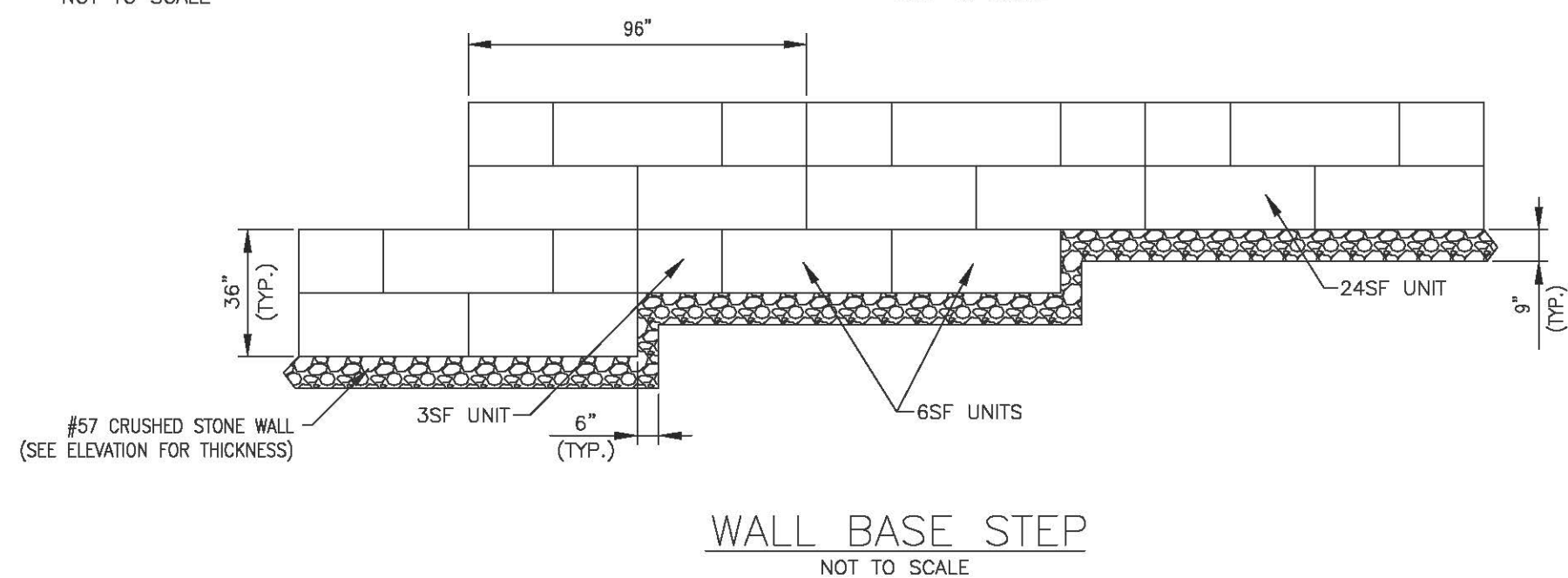
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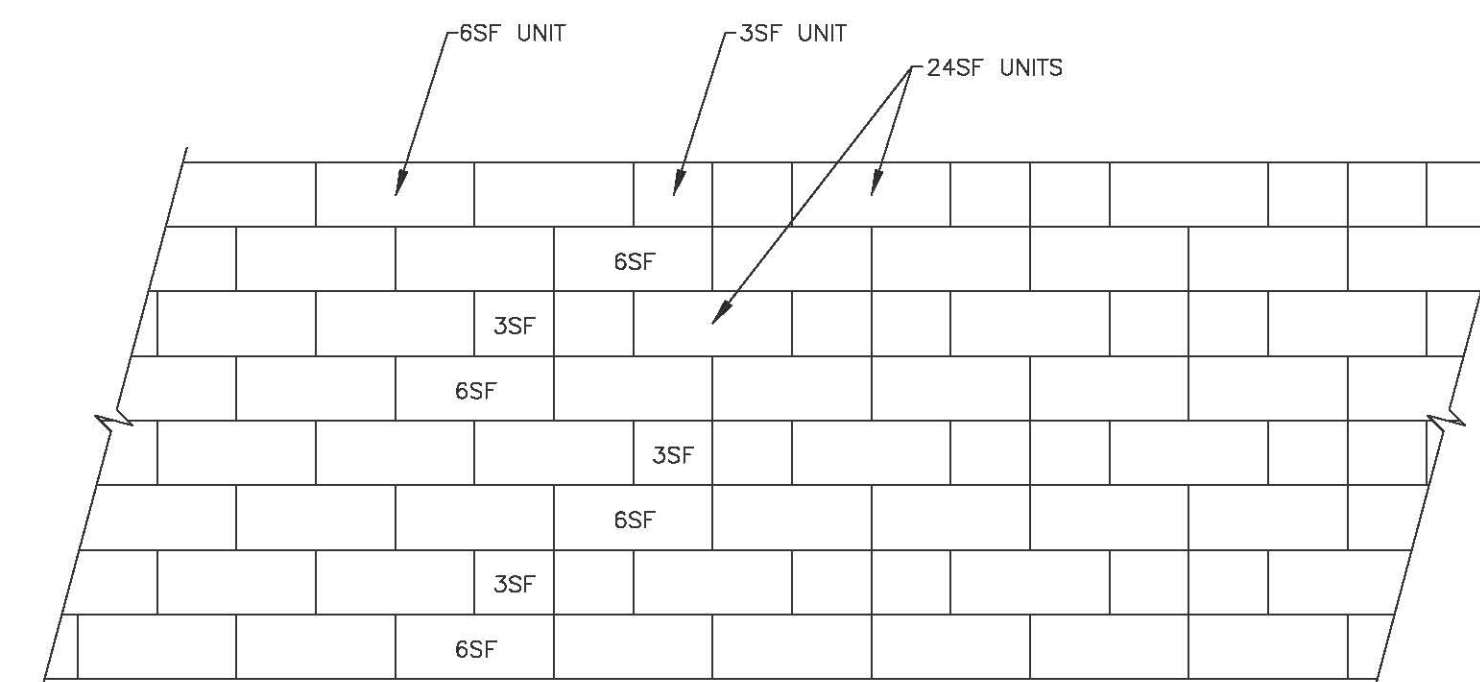
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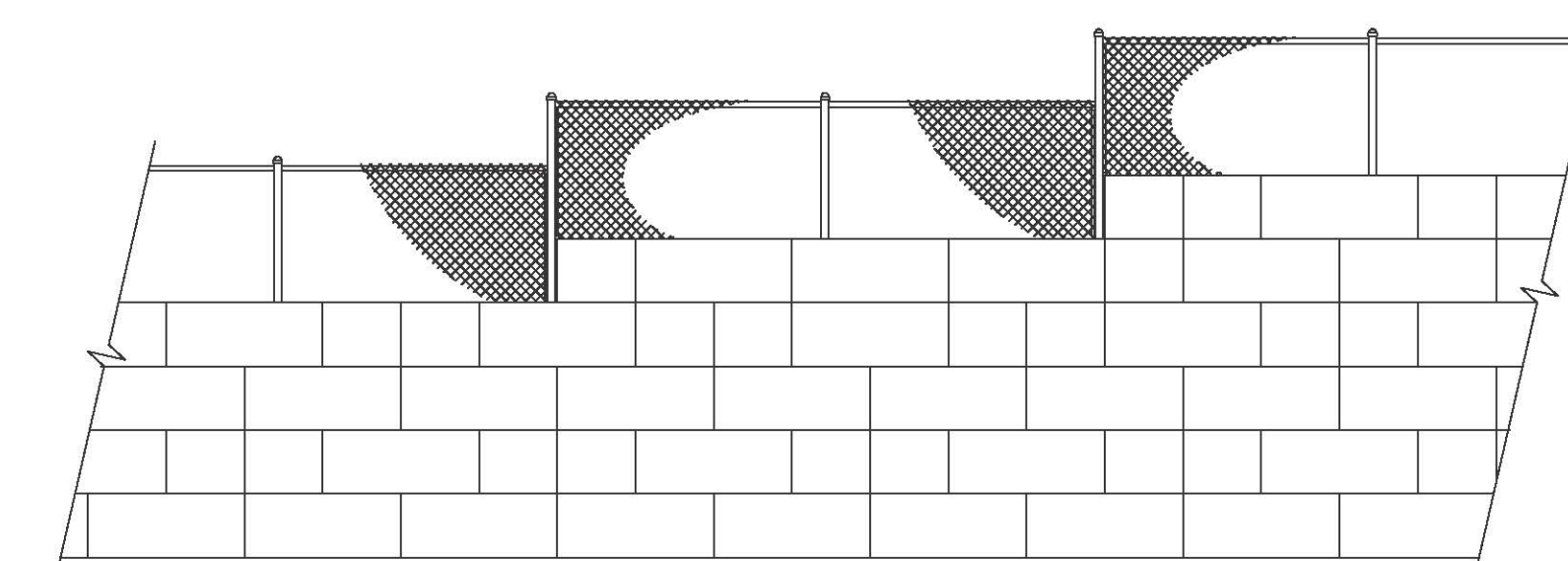
STONE STRONG 45° CORNER UNIT  
NOT TO SCALE



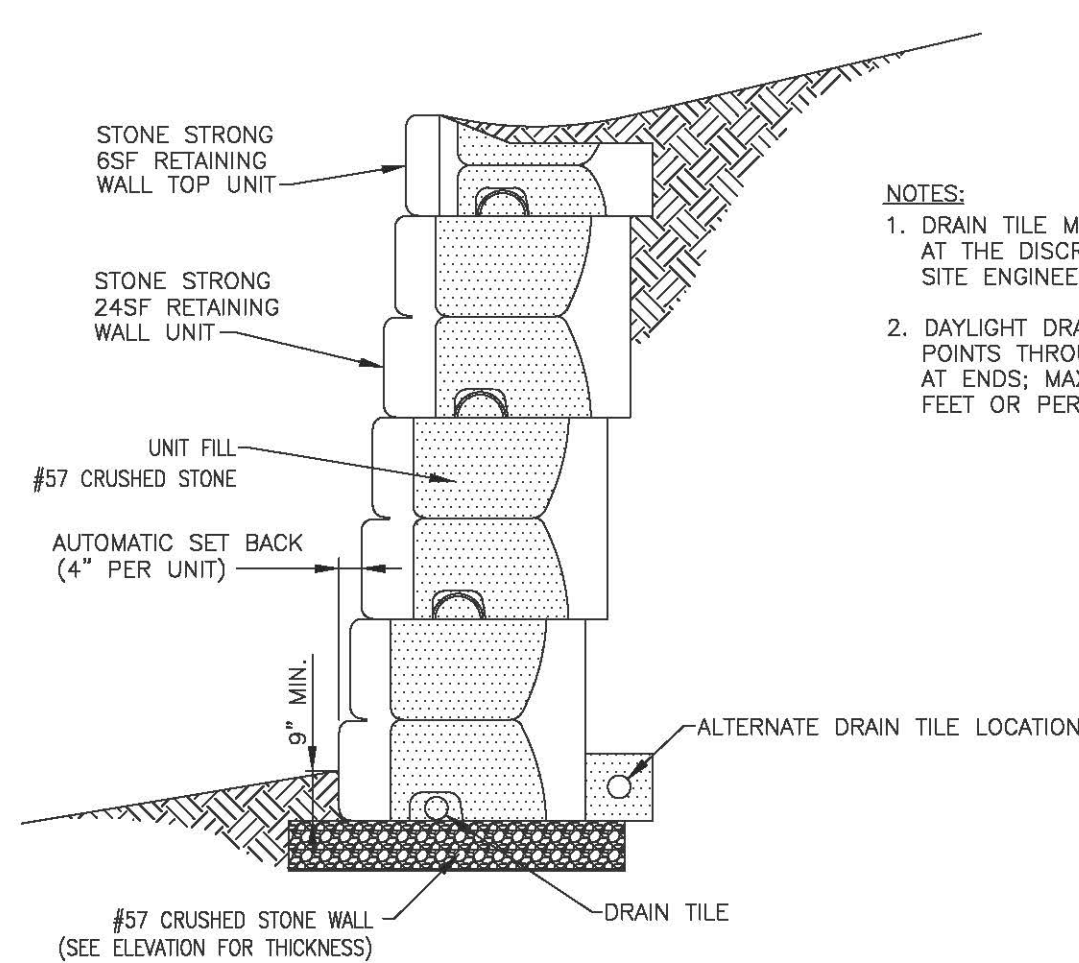
WALL BASE STEP  
NOT TO SCALE



TRANSITION 24SF TO 6SF  
NOT TO SCALE

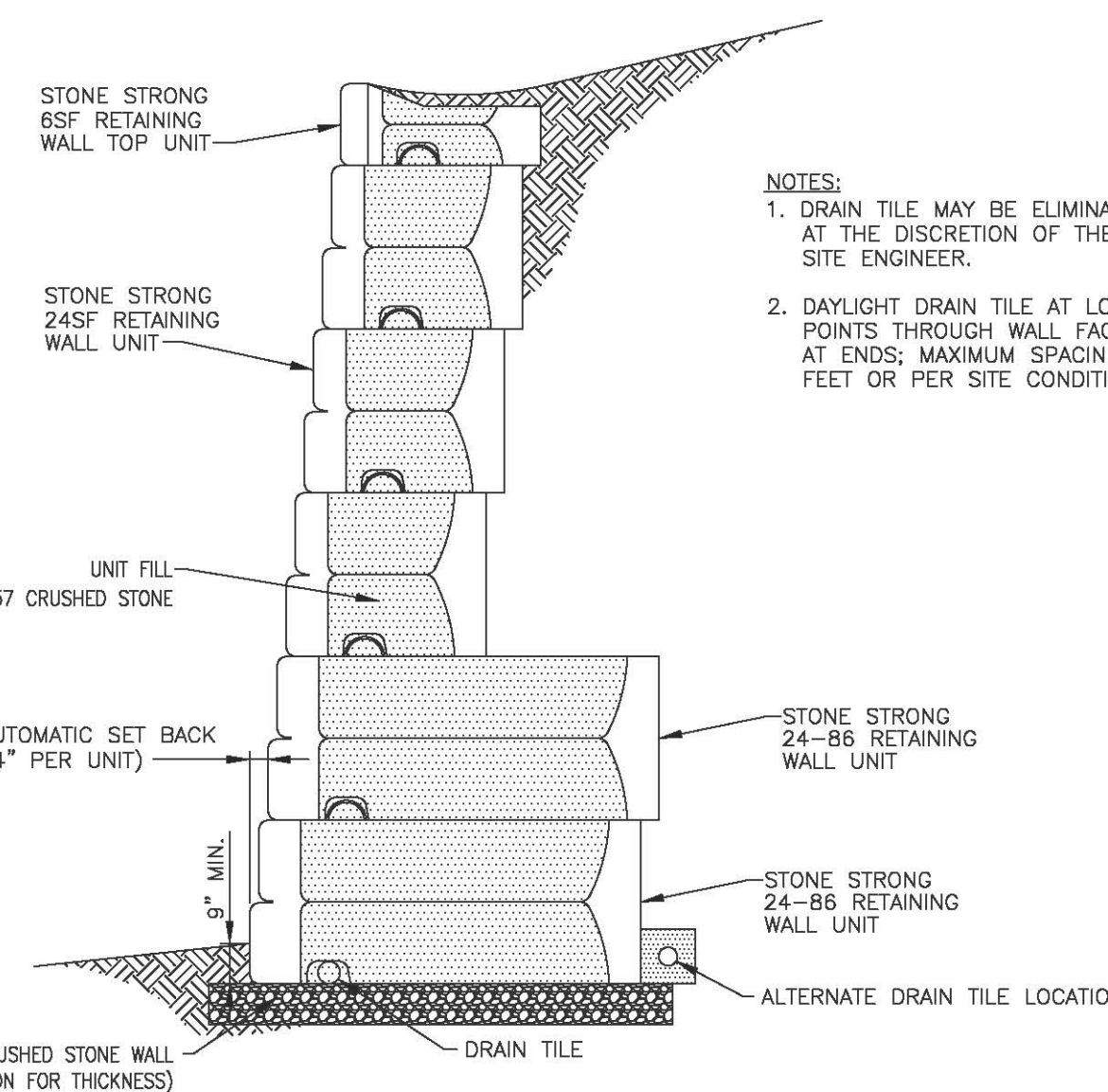


TYPICAL FENCE CONFIGURATION  
NOT TO SCALE



GRAVITY WALL CROSS SECTION  
NOT TO SCALE

- NOTES:
1. DRAIN TILE MAY BE ELIMINATED AT THE DISCRETION OF THE SITE ENGINEER.
  2. DAYLIGHT DRAIN TILE AT LOW POINTS THROUGH WALL FACE OR AT ENDS; MAXIMUM SPACING 100 FEET OR PER SITE CONDITIONS.



GRAVITY WALL CROSS SECTION w/EXTENDED BASE UNITS  
NOT TO SCALE

- NOTES:
1. DRAIN TILE MAY BE ELIMINATED AT THE DISCRETION OF THE SITE ENGINEER.
  2. DAYLIGHT DRAIN TILE AT LOW POINTS THROUGH WALL FACE OR AT ENDS; MAXIMUM SPACING 100 FEET OR PER SITE CONDITIONS.

OWNER/DEVELOPER

U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENVARD.COM  
(410) 423-4264

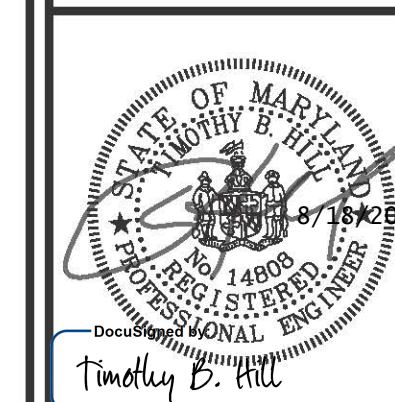
NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
STONE STRONG RETAINING WALL  
CONSTRUCTION DETAILS  
CHAPELGATE WOODS  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
ZONED: CEF-M  
L 1389F, 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES

10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

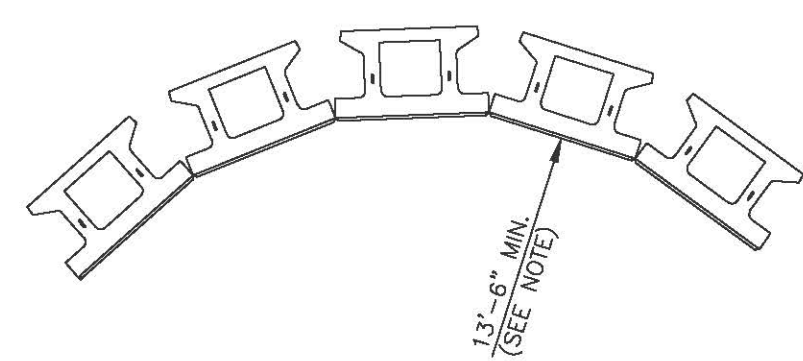


DESIGN BY: HM-HAM  
DRAWN BY: HM-HAM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14899, EXPIRATION DATE: 02/27/24.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

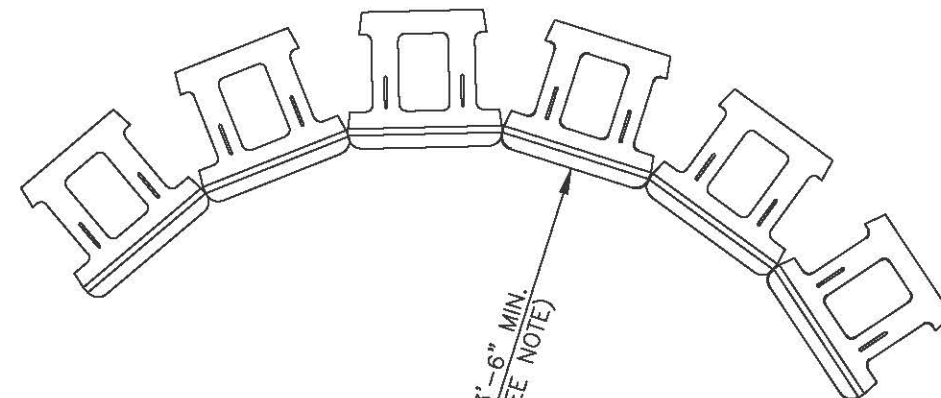
11/3/2022  
 Chad Edmondson  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION  
 10/26/2022  
 CHIEF, DIVISION OF LAND DEVELOPMENT  
 11/3/2022  
 DIRECTOR



Minimum Concave Radius		
Wall Height (ft)	Total # of Courses	Reqd. Radius at Top Course
3	2	13' 8"
4 1/2	3	13' 10"
6	4	14' 0"
7 1/2	5	14' 2"
9	6	14' 4"
10 1/2	7	14' 6"
12	8	14' 8"

NOTE:  
MINIMUM RADIUS OCCURS AT LOWEST COURSE.  
RADIUS INCREASES 2" PER COURSE ABOVE, AS SHOWN ON TABLE.

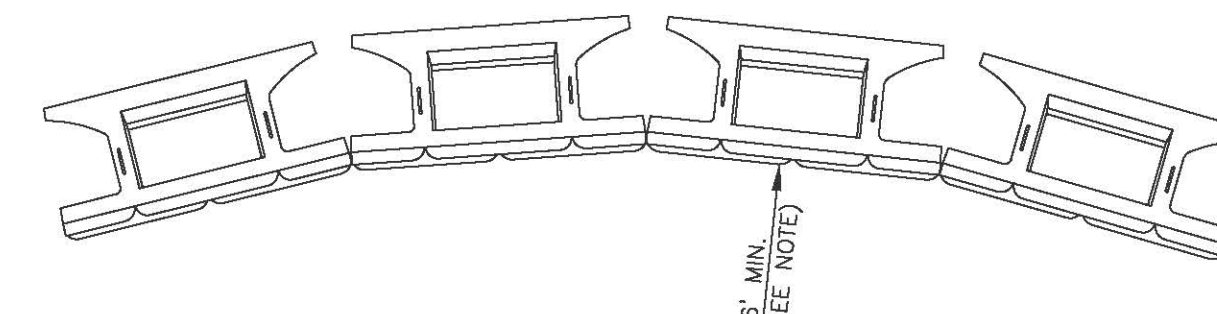
MINIMUM CONCAVE RADIUS-6-28 UNITS  
NOT TO SCALE



Minimum Concave Radius		
Wall Height (ft)	Total # of Courses	Reqd. Radius at Top Course
3	2	13' 8"
4 1/2	3	13' 10"
6	4	14' 0"
7 1/2	5	14' 2"
9	6	14' 4"
10 1/2	7	14' 6"
12	8	14' 8"

NOTE:  
MINIMUM RADIUS OCCURS AT LOWEST COURSE.  
RADIUS INCREASES 2" PER COURSE ABOVE, AS SHOWN ON TABLE.

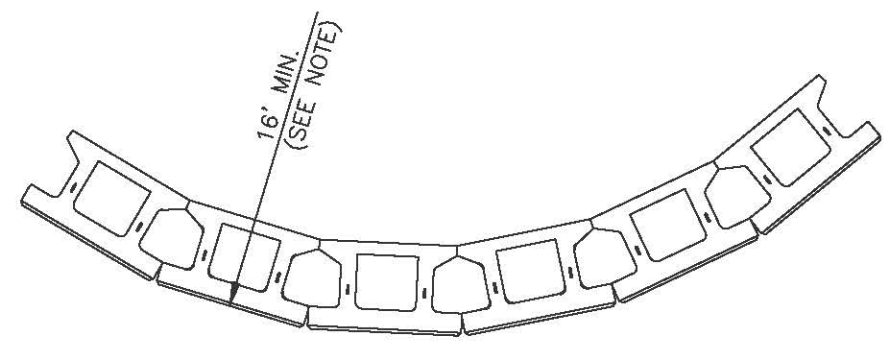
MINIMUM CONCAVE RADIUS-6SF UNITS  
NOT TO SCALE



Minimum Concave Radius		
Wall Height (ft)	Total # of Courses	Reqd. Radius at Top Course
6	2	46' 4"
9	3	46' 8"
12	4	47' 0"
15	5	47' 4"
18	6	47' 8"
21	7	48' 0"
24	8	48' 4"

NOTE:  
MINIMUM RADIUS OCCURS AT LOWEST COURSE.  
RADIUS INCREASES 4" PER COURSE ABOVE, AS SHOWN ON TABLE.

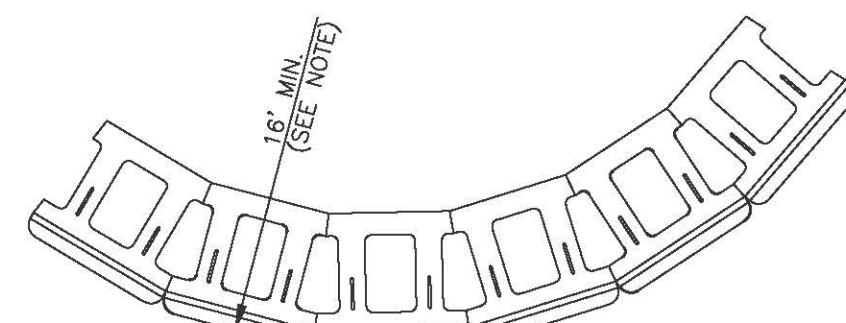
MINIMUM CONCAVE RADIUS-24SF UNITS  
NOT TO SCALE



Minimum Convex Radius		
Wall Height (ft)	Total # of Courses	Reqd. Radius at First Course
3	2	16' 2"
4 1/2	3	16' 4"
6	4	16' 6"
7 1/2	5	16' 8"
9	6	16' 10"
10 1/2	7	17' 0"
12	8	17' 2"

NOTE:  
NOTE: MINIMUM RADIUS OCCURS AT TOP COURSE.  
REQUIRED RADIUS INCREASES 2" PER COURSE BELOW, AS SHOWN ON TABLE.

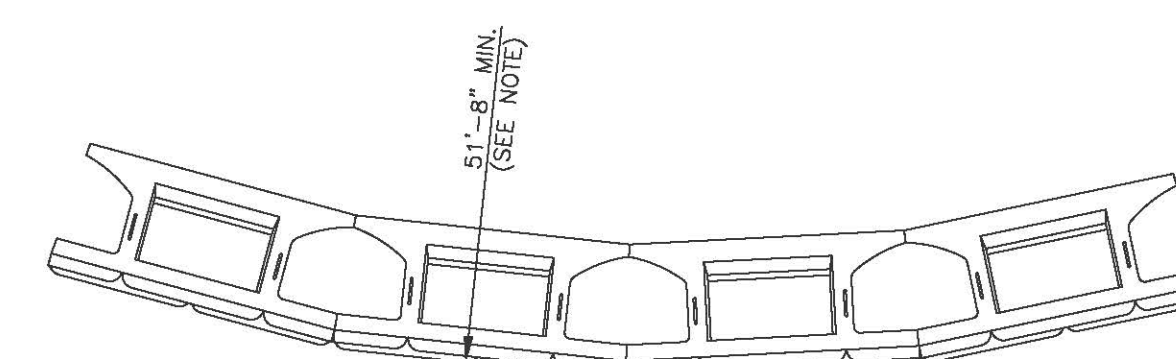
MINIMUM CONVEX RADIUS-6-28 UNITS  
NOT TO SCALE



Minimum Convex Radius		
Wall Height (ft)	Total # of Courses	Reqd. Radius at First Course
3	2	16' 2"
4 1/2	3	16' 4"
6	4	16' 6"
7 1/2	5	16' 8"
9	6	16' 10"
10 1/2	7	17' 0"
12	8	17' 2"

NOTE:  
NOTE: MINIMUM RADIUS OCCURS AT TOP COURSE.  
REQUIRED RADIUS INCREASES 2" PER COURSE BELOW, AS SHOWN ON TABLE.

MINIMUM CONVEX RADIUS-6SF UNITS  
NOT TO SCALE

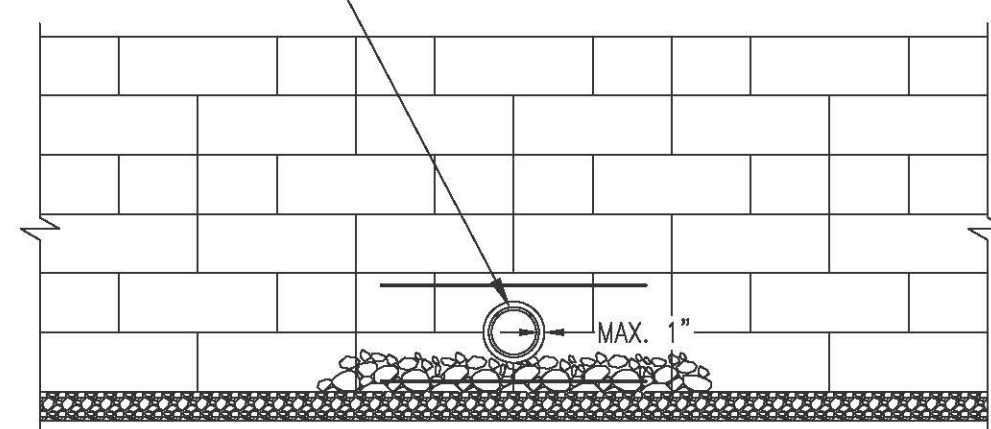


Minimum Convex Radius		
Wall Height (ft)	Total # of Courses	Reqd. Radius at First Course
6	2	52' 0"
9	3	52' 4"
12	4	52' 8"
15	5	53' 0"
18	6	53' 4"
21	7	53' 8"
24	8	54' 0"

NOTE:  
MINIMUM RADIUS OCCURS AT TOP COURSE.  
REQUIRED RADIUS INCREASES 4" PER COURSE BELOW, AS SHOWN ON TABLE.

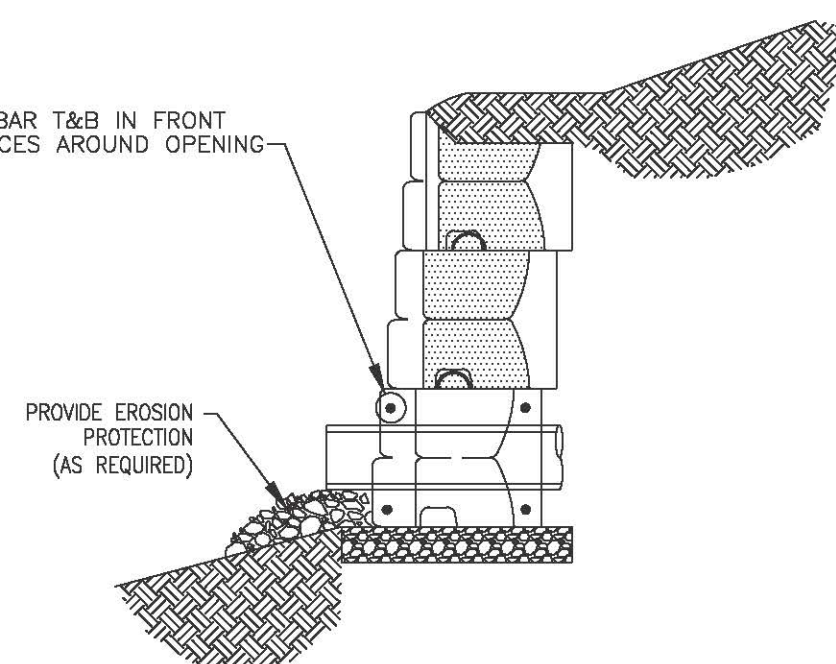
MINIMUM CONVEX RADIUS-24SF UNITS  
NOT TO SCALE

CORE OPENING FOR PIPE THROUGH BLOCK. PACK 1800 PSI STRENGTH MORTAR INTO BLOCK VOIDS AROUND PERIMETER OF PIPE TO FORM COLLAR.



FACE ELEVATION

PROVIDE #6 BAR T&B IN FRONT AND REAR FACES AROUND OPENING

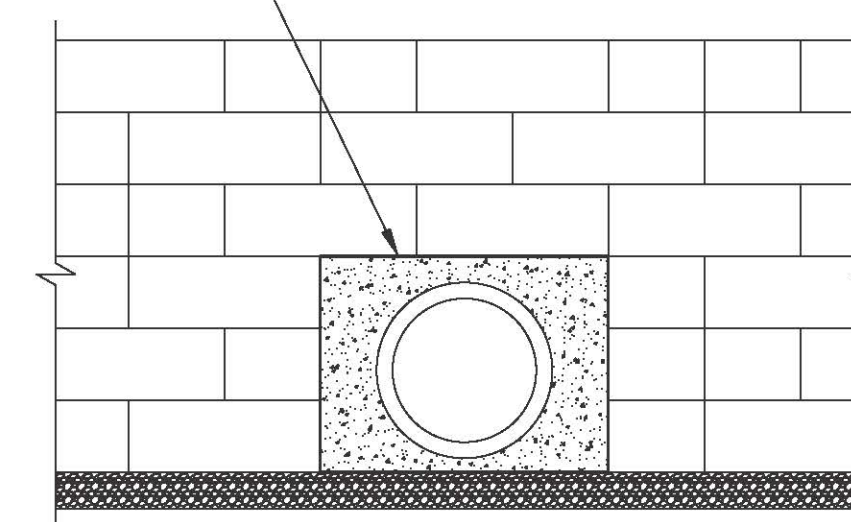


SECTION THROUGH WALL

CORED PIPE (UP TO 24")

SS-1 TYPICAL PIPE OUTLET DETAIL  
NOT TO SCALE

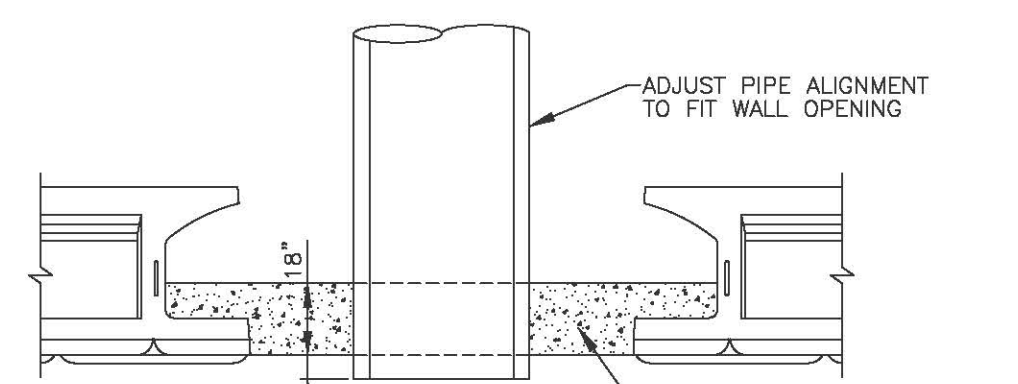
3000 PSI CONCRETE COLLAR



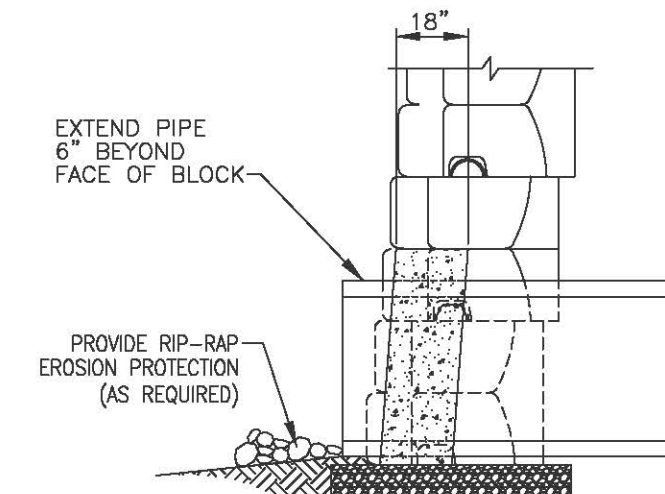
FACE ELEVATION

NOTES:

- AT WALL FACE THE WIDTH OF THE POURED CONCRETE COLLAR SHALL BE AN EVEN INCREMENT OF THE BLOCK WIDTH OR HALF BLOCK WIDTH.
- PROVIDE SPLASH BLOCK, CONCRETE CUTTER OR RIP-RAP FOR STORM DRAIN PIPE OUTLET FOR SCOUR PROTECTION, AS REQUIRED.



PLAN VIEW



CROSS SECTION

CONCRETE HEADWALL DETAIL (OVER 24")

SS-2 TYPICAL PIPE OUTLET DETAIL  
NOT TO SCALE

OWNER/DEVELOPER

U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENVARDMD.COM  
(410) 423-4264

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
STONE STRONG RETAINING WALL  
CONSTRUCTION DETAILS  
CHAPEL GATE WOODS  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
ZONED: CEF-M  
L 1389/F 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

PROFESSIONAL CERTIFICATE

DESIGN BY: HM-HAM  
DRAWN BY: HM-HAM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

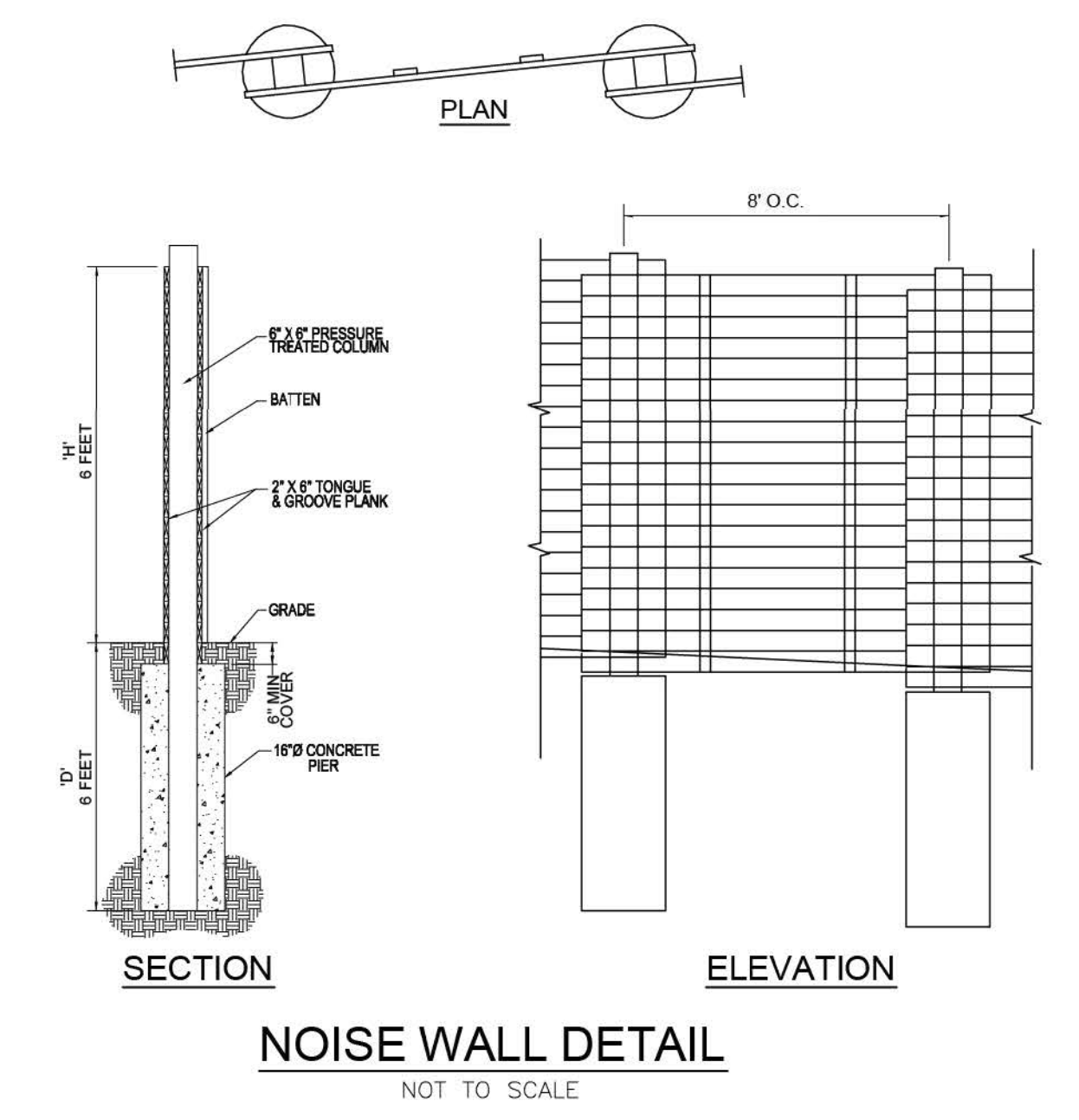
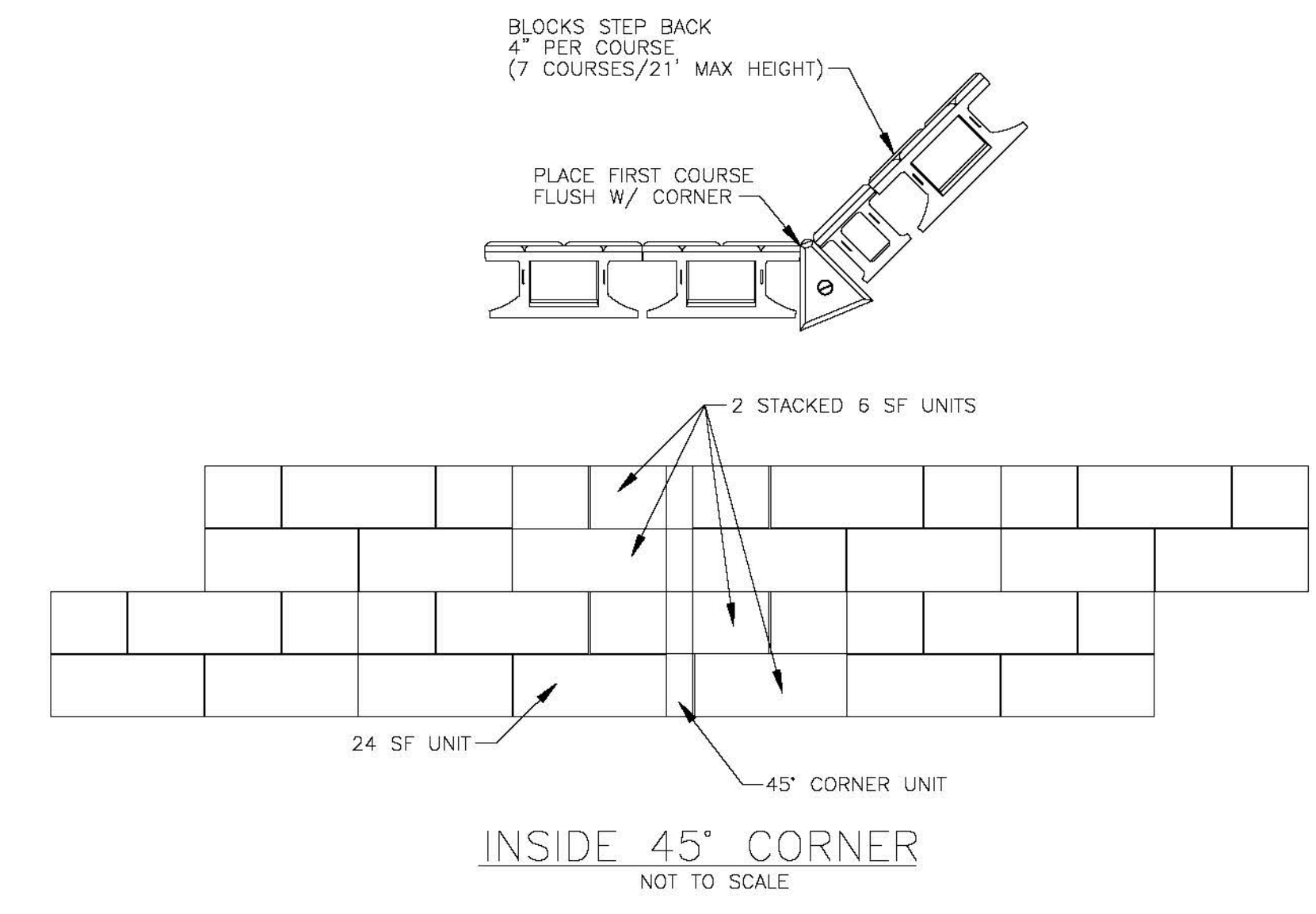
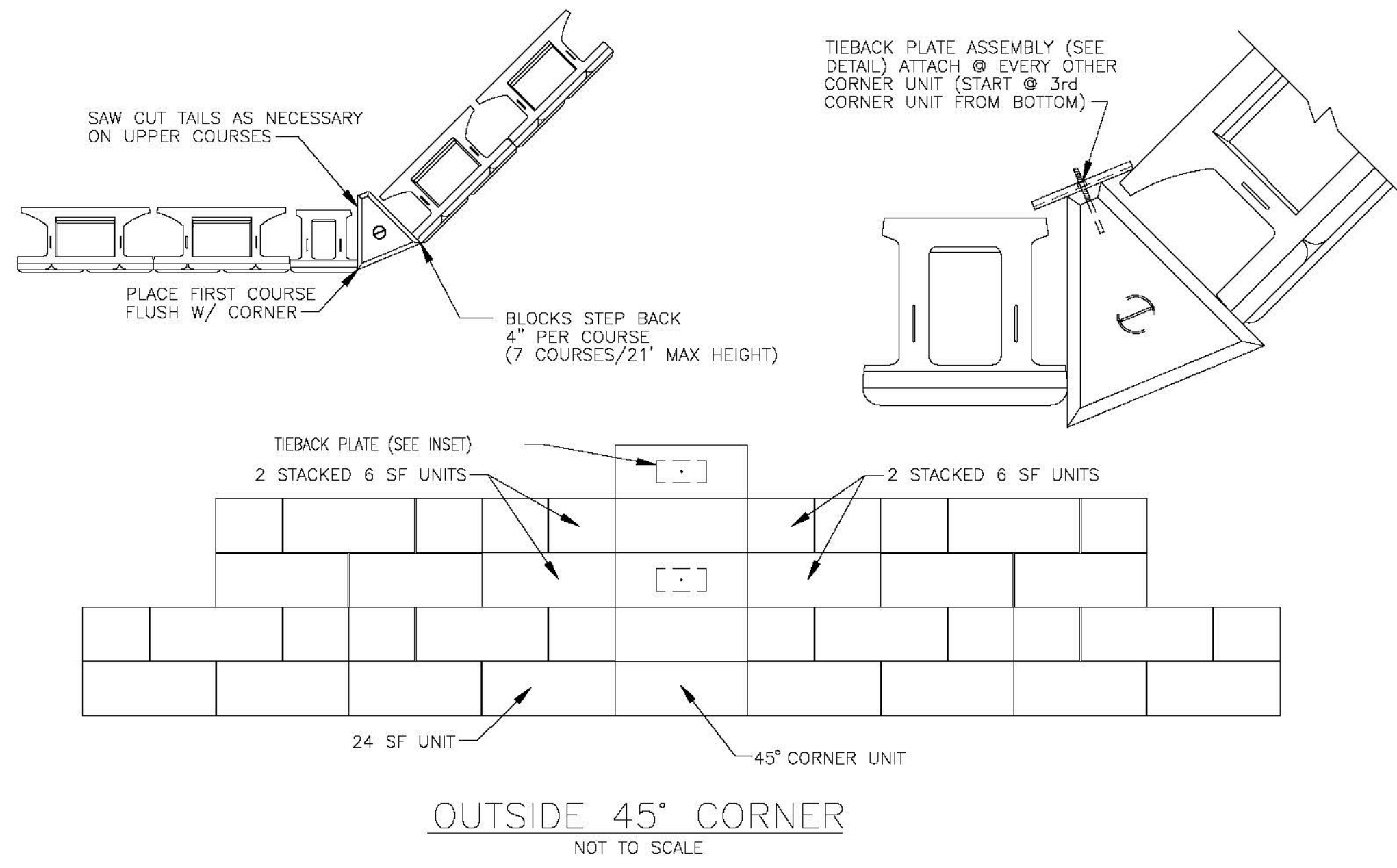
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14809, EXPIRATION DATE: 02/27/24.

35 SHEET OF 42

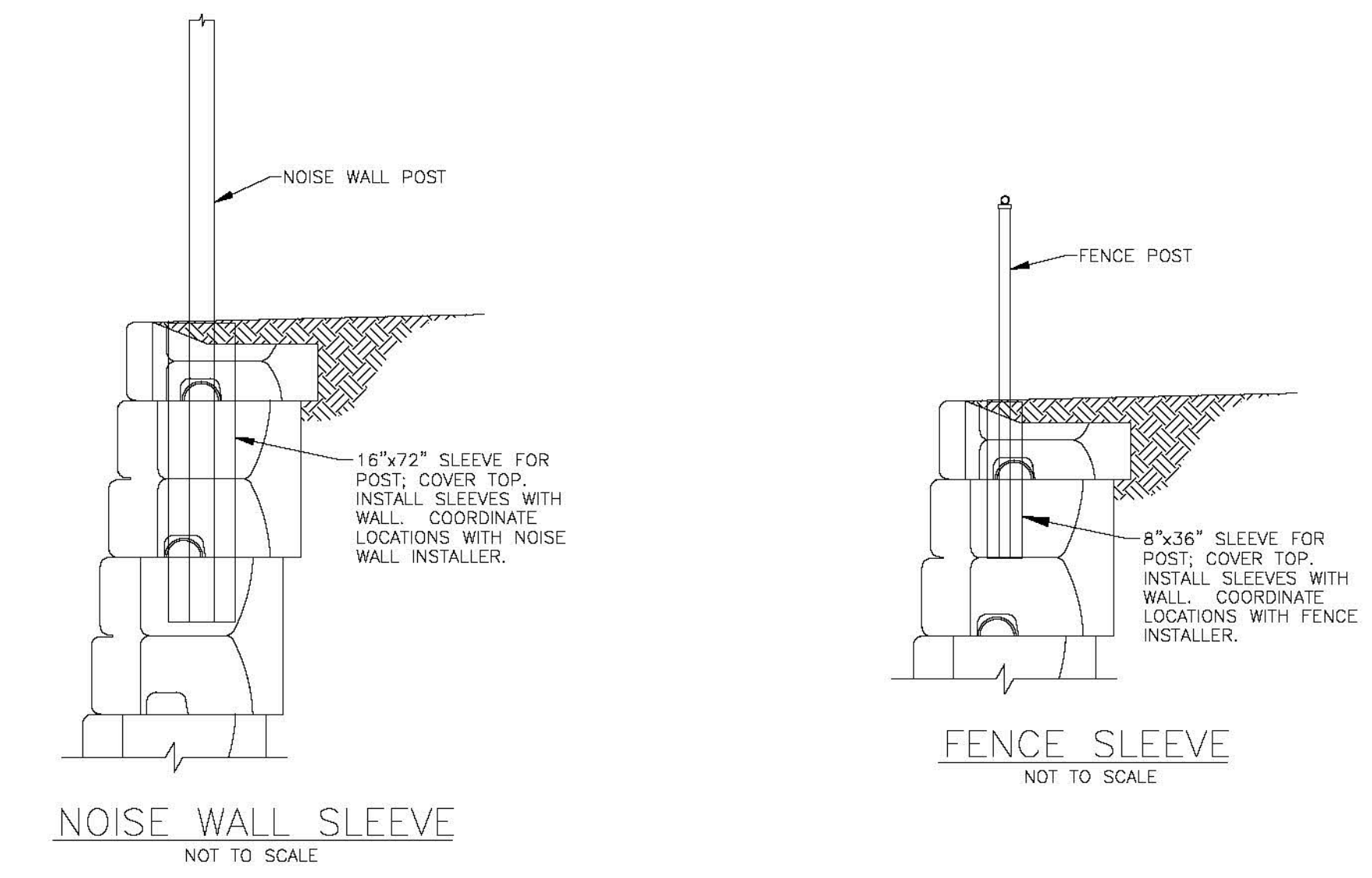
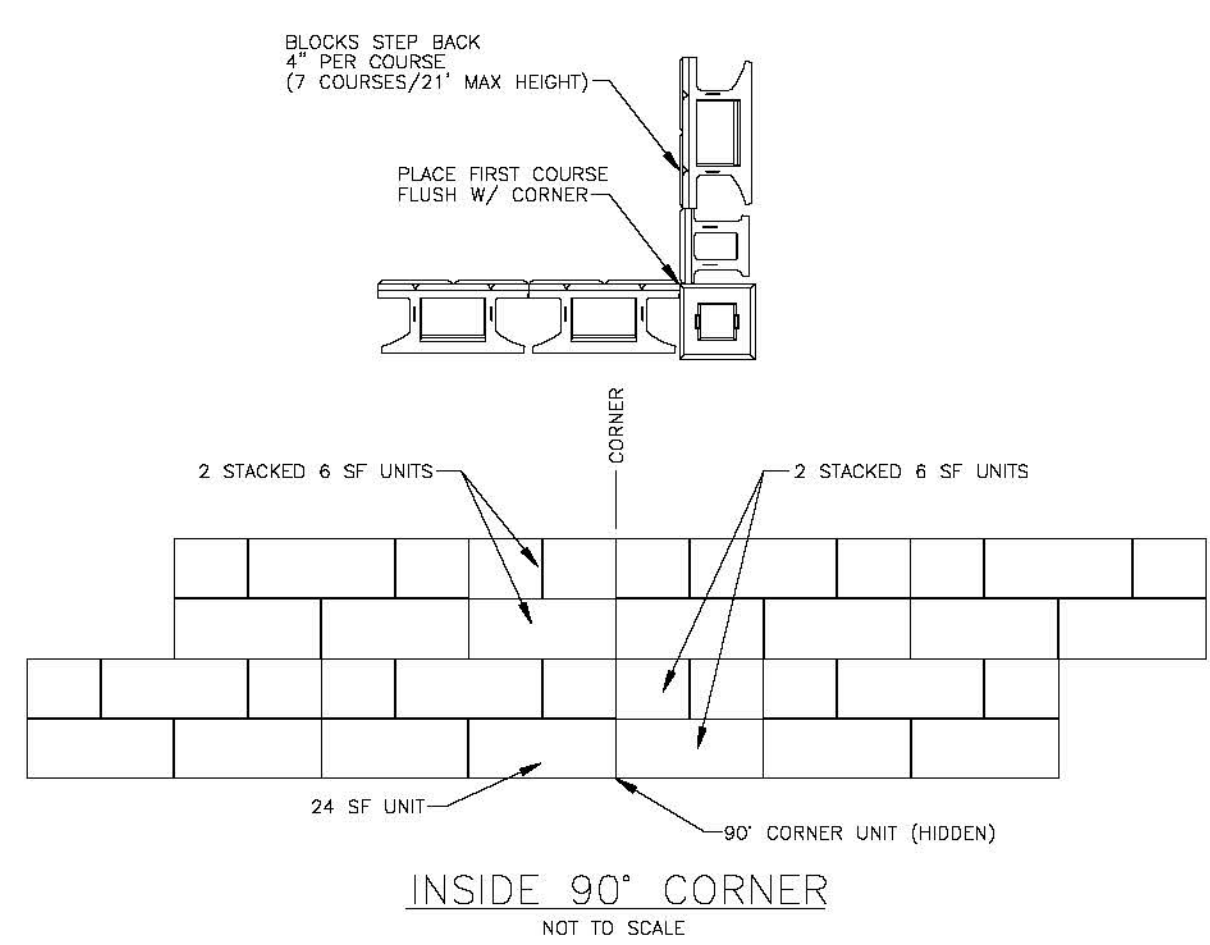
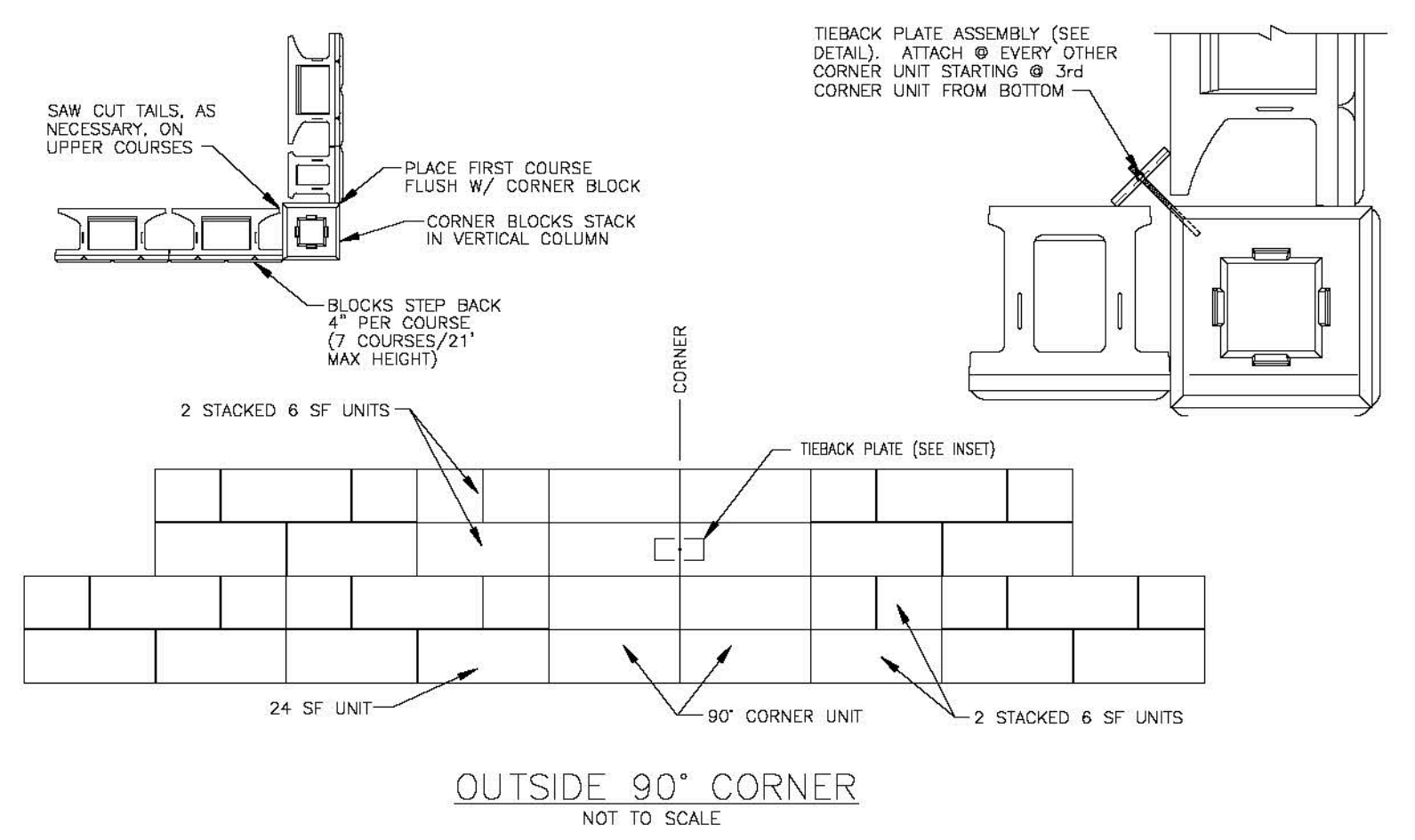
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

11/3/2022  
10/26/2022  
11/3/2022

TYPICAL NOISE WALL DETAILS OR APPROVED EQUAL



NOISE FENCE DETAILING OR APPROVED EQUAL\*  
\* SUBSTITUTE SHALL BE APPROVED BY HOWARD COUNTY VIA THE REDLINE PROCESS



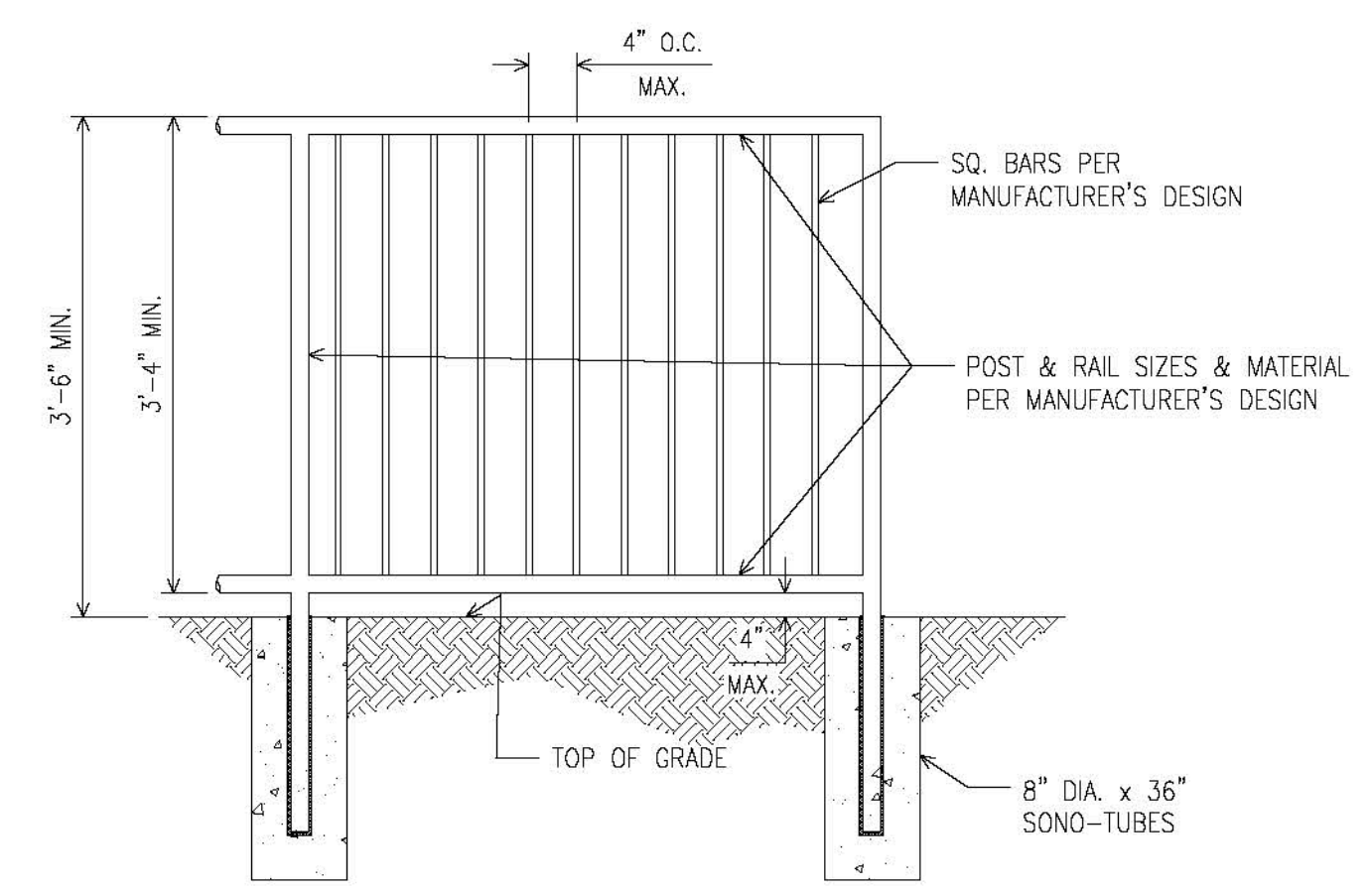
NOISE WALL AND FENCE  
INSTALLED WITHIN STONE STRONG BLOCK VOIDS

OWNER/DEVELOPER  
U.S. HOMES, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
(410) 423-4264

NO.	REVISION	DATE

NOTE:

- FENCE 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.
- TYPICAL FENCE DETAIL PROVIDED. EQUIVALENT DETAIL MAY BE USED AT THE DISCRETION OF THE CONTRACTOR.



APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

*Carol Edmondson* 11/3/2022  
CHIEF, DEVELOPMENT ENGINEERING DIVISION

*Timothy D. Hillis* 10/26/2022  
CHIEF, DIVISION OF LAND DEVELOPMENT

*Ray Goman* 11/3/2022  
DIRECTOR

SITE DEVELOPMENT PLAN  
**STONE STRONG RETAINING WALL CONSTRUCTION DETAILS**  
CHAPEL GATE WOODS  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT

ZONED: CEI-M

L 1369F 339 (P. 110)  
HOWARD COUNTY, MARYLAND

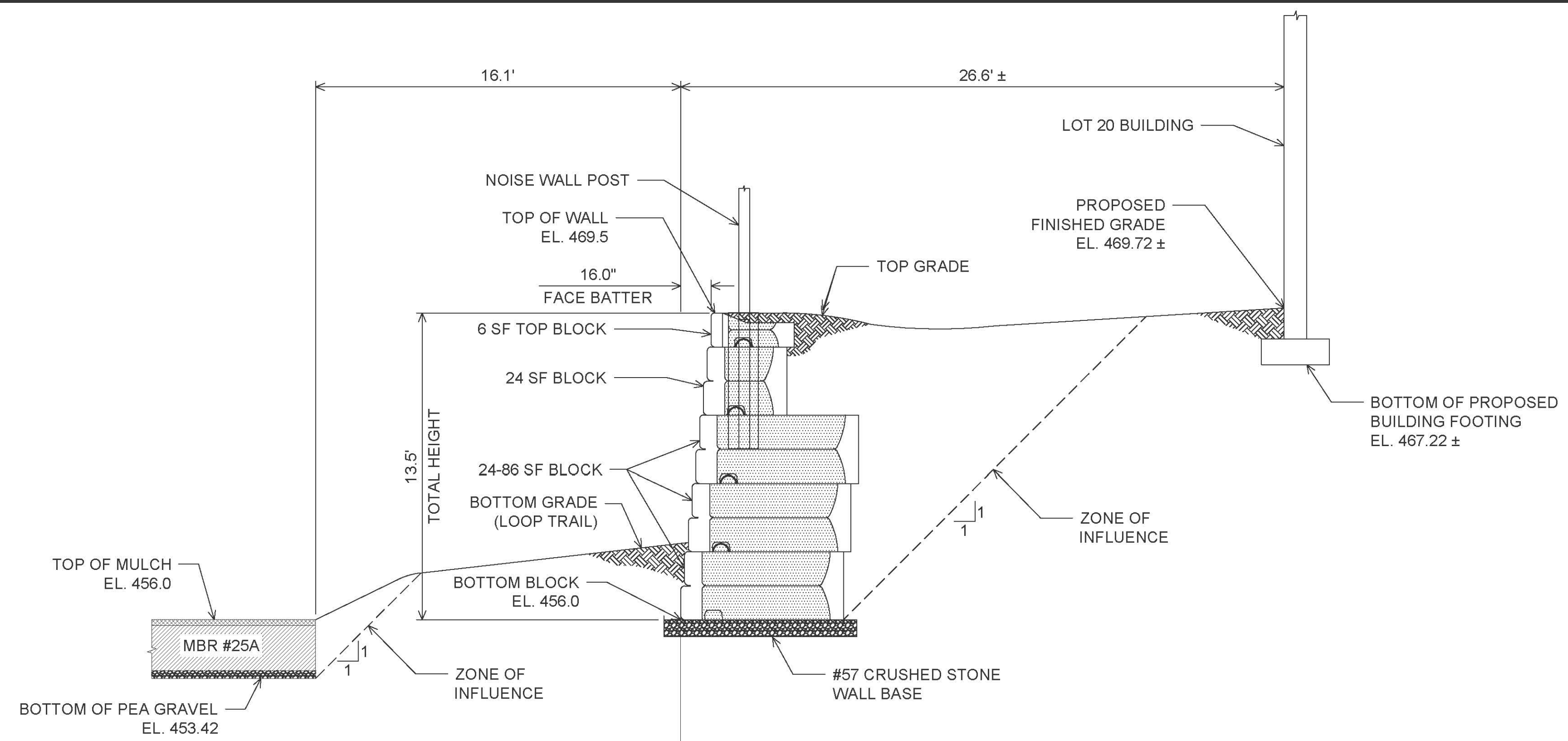
**HILLIS-CARNES ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

DESIGN BY: HM-HAM  
DRAWN BY: HM-HAM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

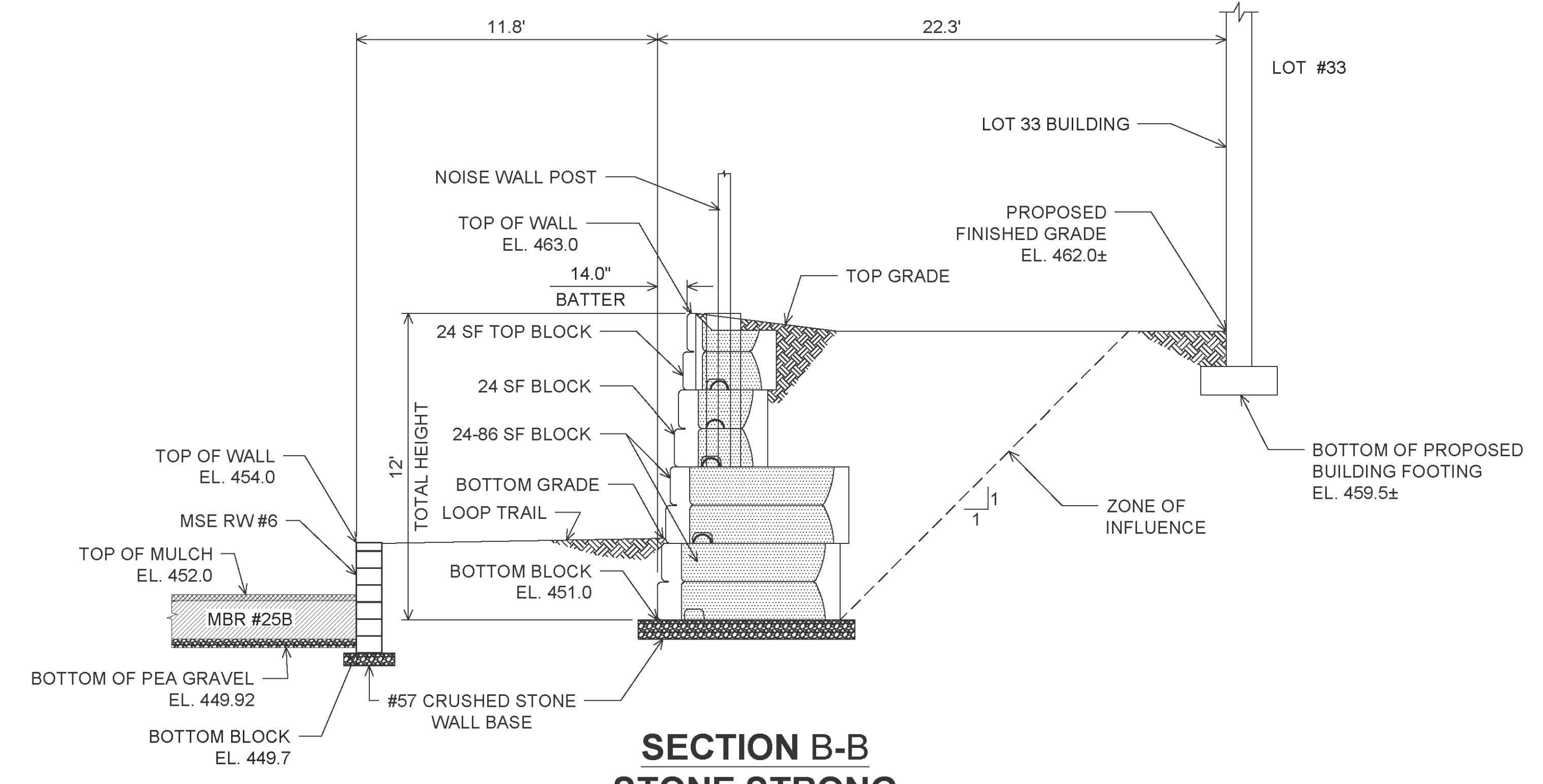
PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14808 EXPIRATION DATE: 02/27/24.

*Timothy D. Hillis*  
REGISTERED PROFESSIONAL ENGINEER

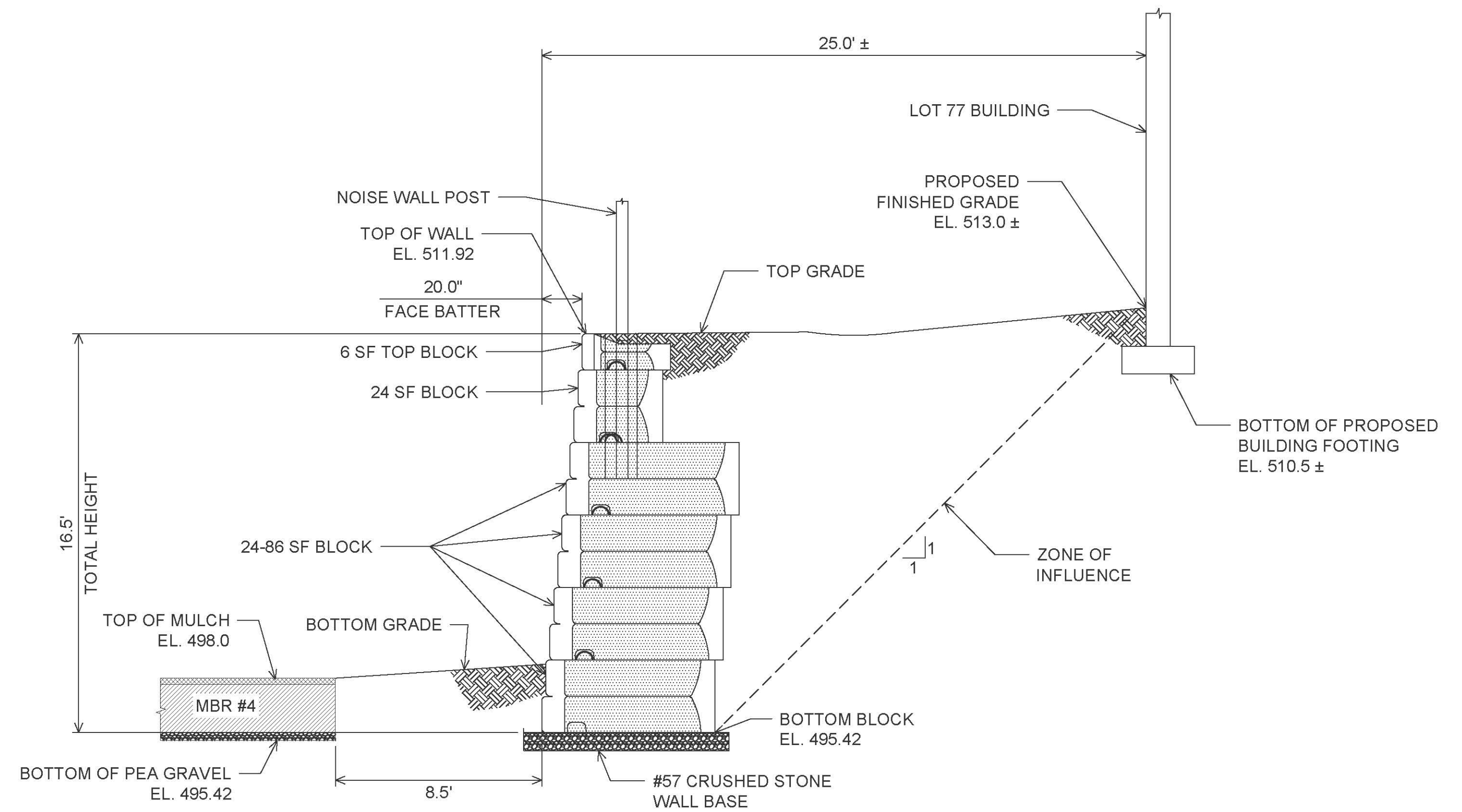
36 SHEET OF 42



**SECTION A-A**  
**STONE STRONG**  
**RETAINING WALL #2 STA. 2+20**



**SECTION B-B**  
**STONE STRONG**  
**RETAINING WALL #3 STA. 2+40**



**SECTION C-C**  
**STONE STRONG**  
**RETAINING WALL #4 STA. 0+70**

OWNER/DEVELOPER

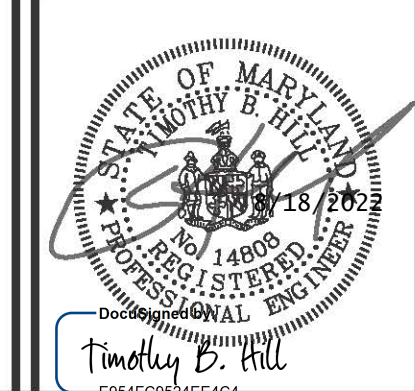
U.S. HOMES, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
(410) 423-4264

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
RETAINING WALL  
SECTIONS  
CHAPEL GATE WOODS  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
L 1389F 339 (P. 110)  
ZONED: CEF-M  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

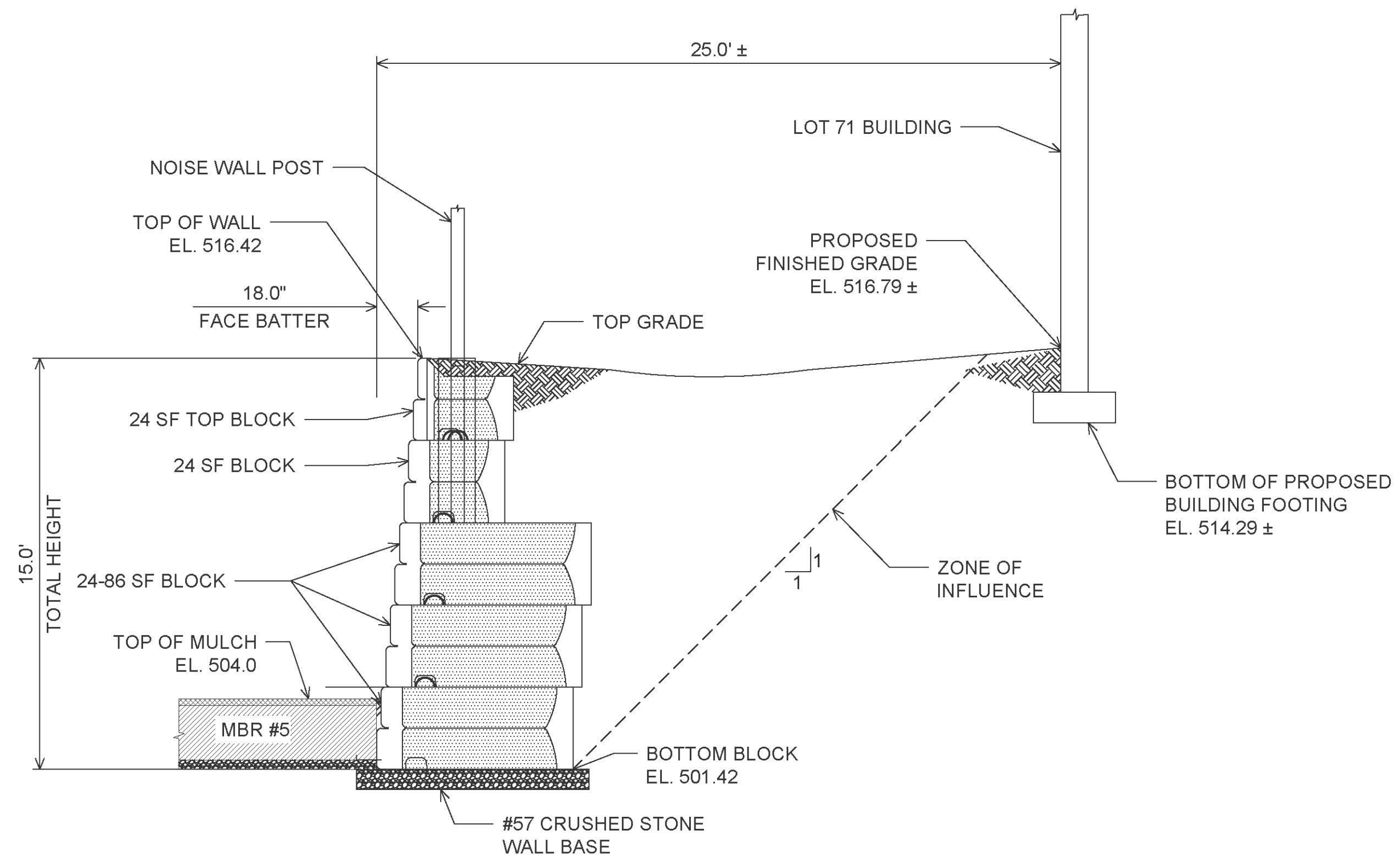


DESIGN BY: HM+AM  
DRAWN BY: HM+AM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

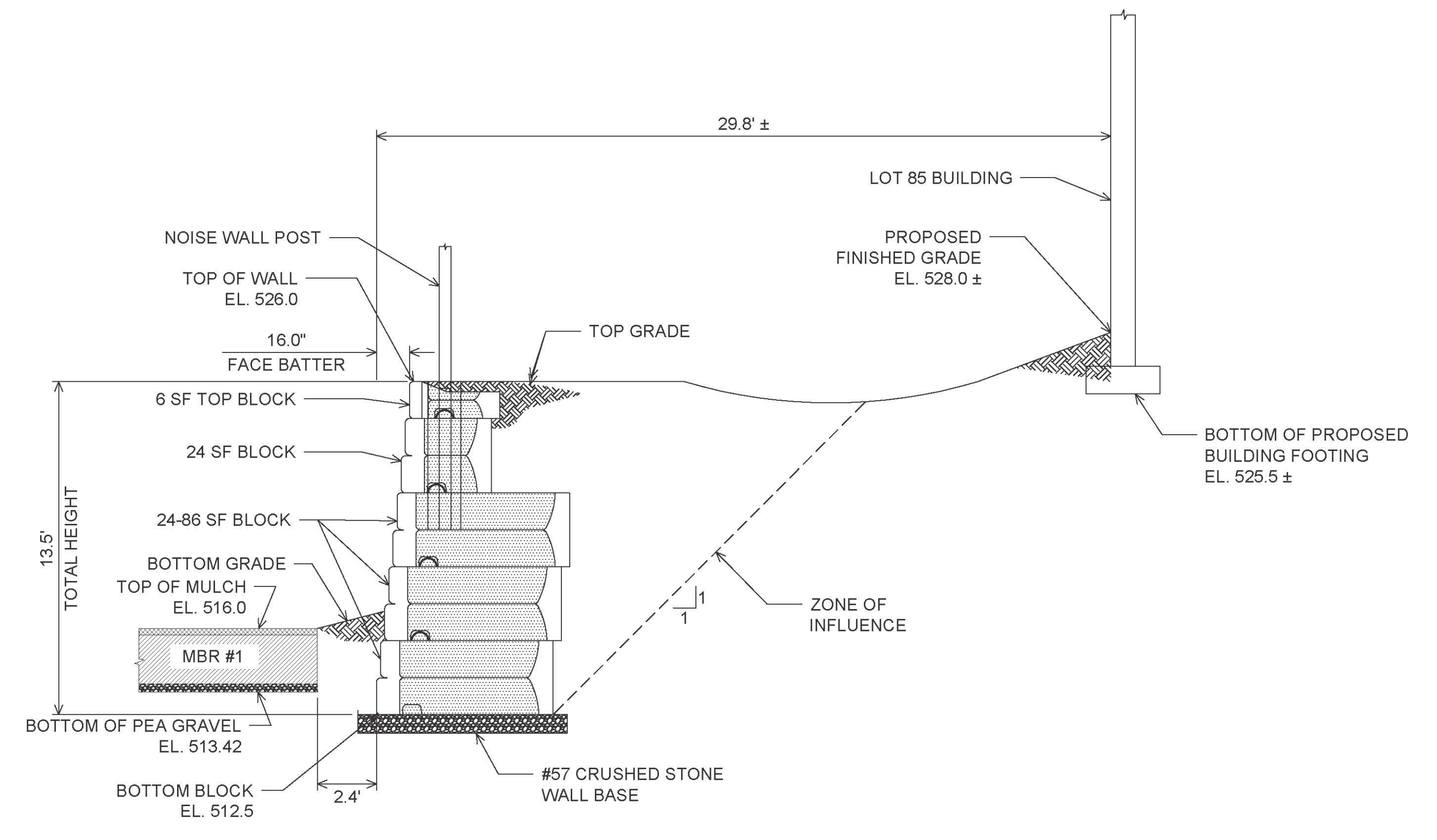
PROFESSIONAL CERTIFICATE  
I HEREBY CERTIFY THAT THESE DOCUMENTS  
WERE PREPARED OR APPROVED BY ME, AND  
THAT I AM A FULLY LICENSED PROFESSIONAL  
ENGINEER UNDER THE LAWS OF THE STATE  
OF MARYLAND, LICENSE NO. 14809  
EXPIRATION DATE: 02/27/24.

37 SHEET OF 42

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
Chief, Development Engineering Division  
10/26/2022  
Chief, Division of Land Development  
11/3/2022  
Director



**SECTION D-D**  
**STONE STRONG**  
**RETAINING WALL #4 STA. 1+85**



**SECTION E-E**  
**STONE STRONG**  
**RETAINING WALL #5 STA. 0+90**

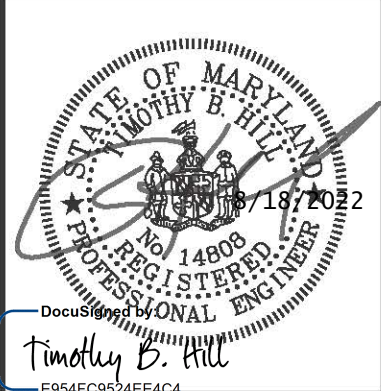
**OWNER/DEVELOPER**  
U.S. HOMES, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
(410) 423-4264

NO.	REVISION	DATE

**SITE DEVELOPMENT PLAN**  
**RETAINING WALL**  
**SECTIONS**  
**CHAPELGATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT  
L 1389/F 339 (P. 110)  
HOWARD COUNTY, MARYLAND  
ZONED: CEF-M

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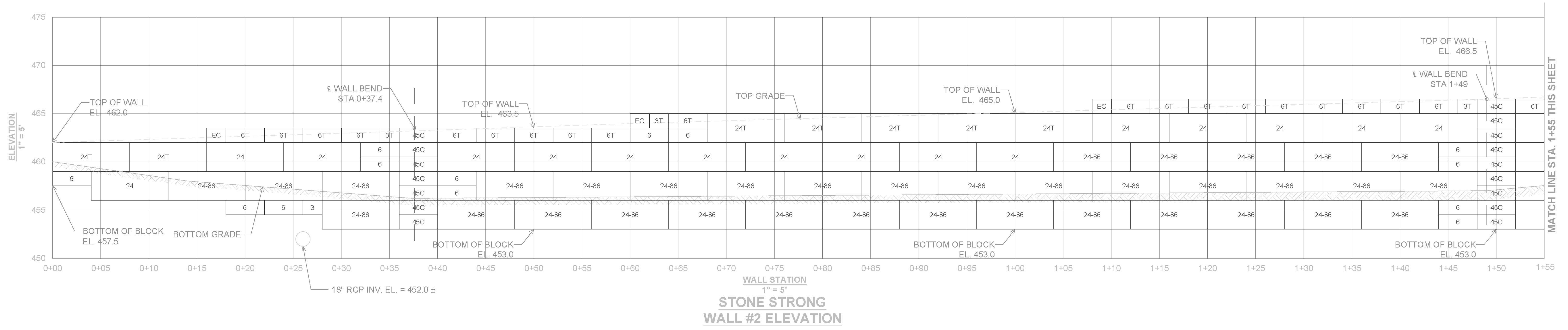


DESIGN BY: HM+AM  
DRAWN BY: HM+AM  
CHECKED BY: HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

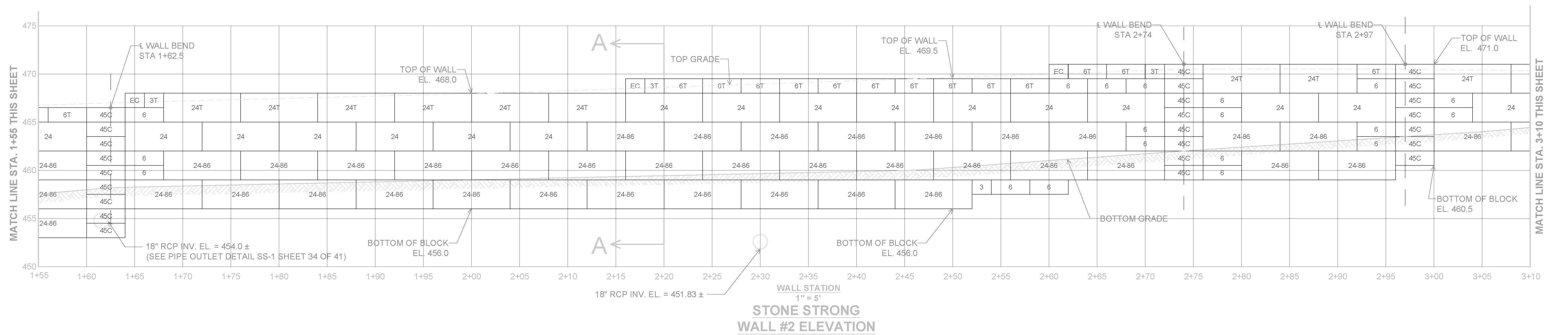
**PROFESSIONAL CERTIFICATE**  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14808, EXPIRATION DATE: 02/27/24.

**38** SHEET OF **42**

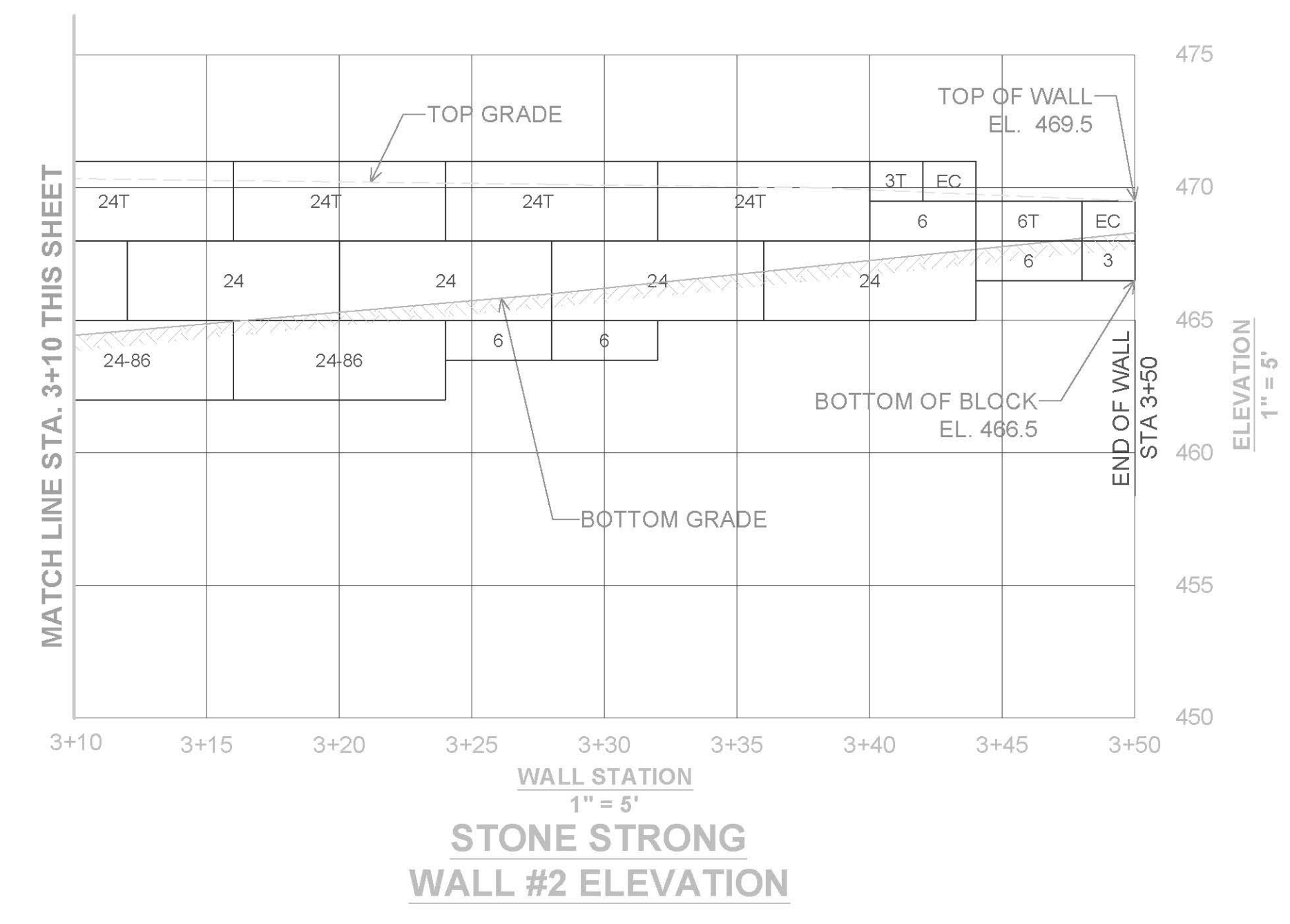
APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022  
Chief, Development Engineering Division  
10/26/2022  
Chief, Division of Land Development  
11/3/2022  
Director



STONE STRONG  
WALL #2 ELEVATION



STONE STRONG  
WALL #2 ELEVATION



STONE STRONG  
WALL #2 ELEVATION

WALL #7 BASE THICKNESS AS FOLLOWS:  
STA 0+00 to STA 3+50 = 9"

NOTE:  
FIELD CONFIRM REQUIRED FINISHED  
TW / BW ELEVATIONS AND ADJUST  
WALL BLOCK ACCORDINGLY.

NOTE:  
FIELD CONFIRM WALL CORNER AND  
BEND LOCATIONS AND ADJUST WALL  
BLOCK ACCORDINGLY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 DocuSigned by: **Chad Edmondson** 11/3/2022  
 CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE  
 CHIEF, DIVISION OF DEVELOPMENT 11/3/2022 DATE  
 DIRECTOR 11/3/2022 DATE

OWNER/DEVELOPER  
 U.S. HOME, LLC  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENRARD@U.S.HOME.COM  
 (410) 423-4264

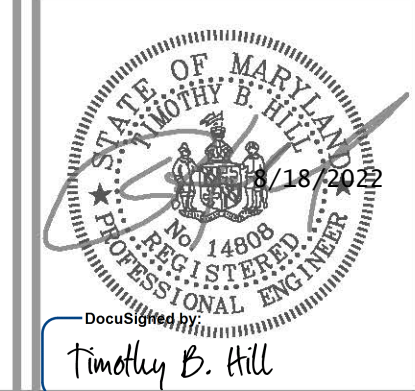
NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
**STONE STRONG RETAINING WALL #2**  
 ELEVATION  
**CHAPEL GATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

ZONED: CEF-M  
 L. 1389F, 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

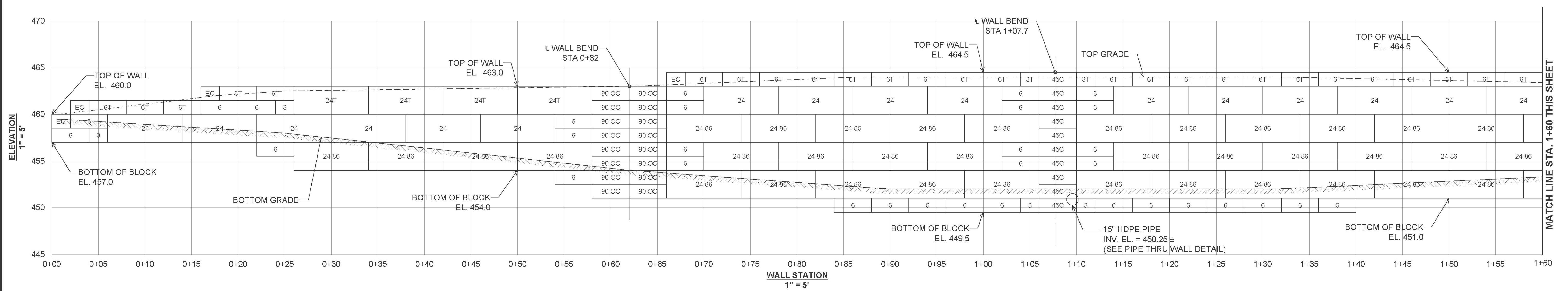
**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098



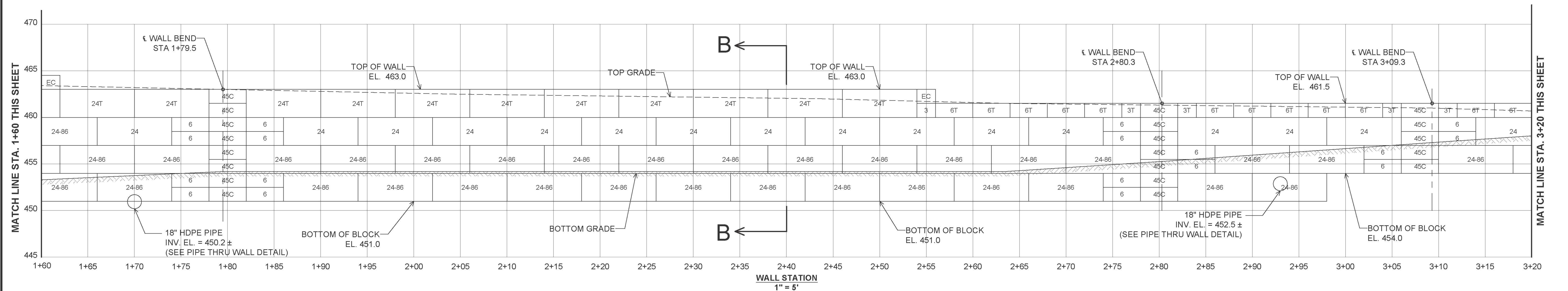
DESIGN BY: HM  
 DRAWN BY: HMAAM  
 CHECKED BY: HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

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 THAT I AM A STATE LICENSED PROFESSIONAL  
 ENGINEER UNDER THE STATE OF MARYLAND  
 EXPIRING DATE: 12/31/2024

39 OF 42

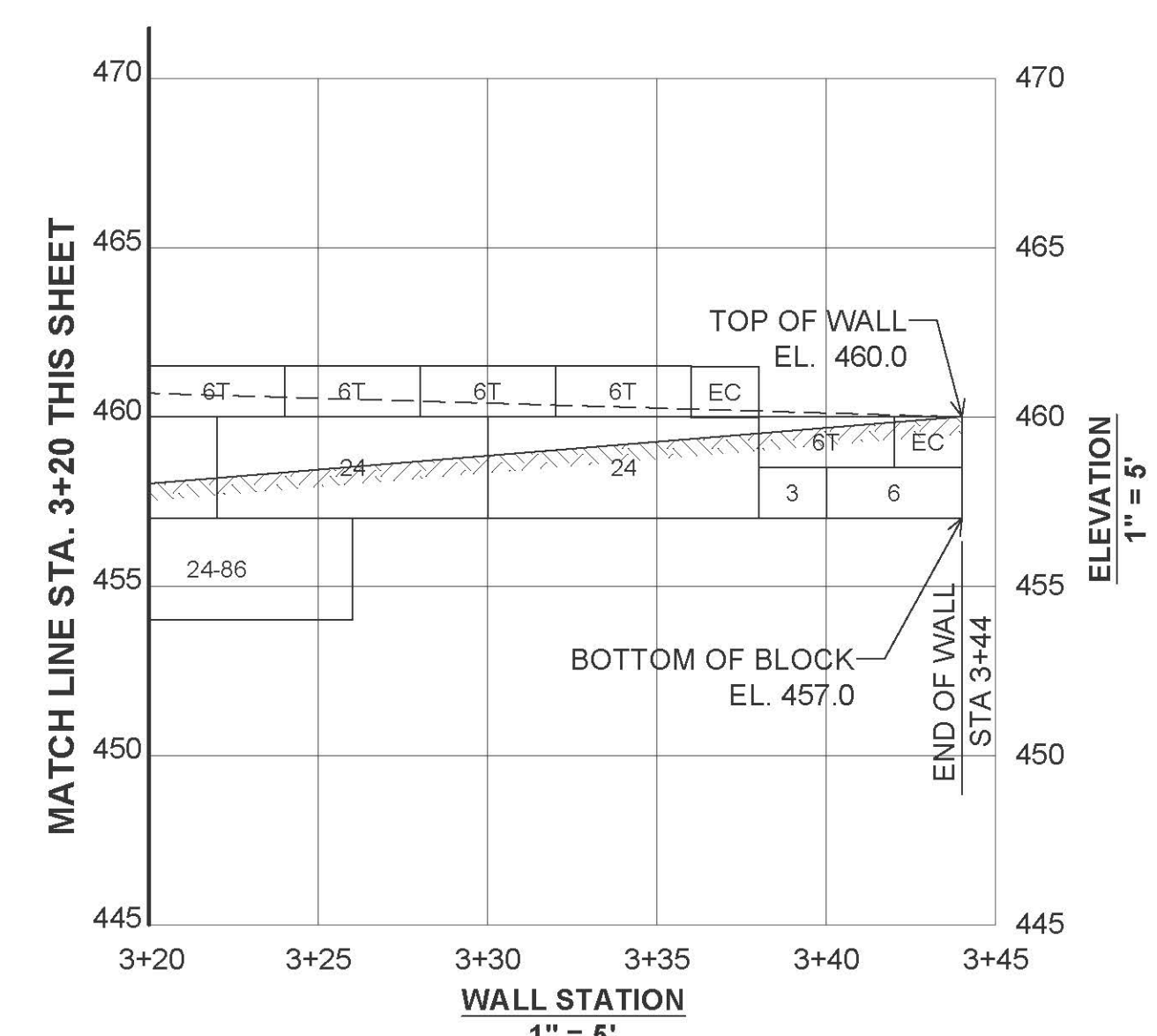


**STONE STRONG WALL #3 ELEVATION**



**STONE STRONG WALL #3 ELEVATION**

WALL #7 BASE THICKNESS AS FOLLOWS:  
 STA 0+00 to STA 1+10 = 9"  
 STA 1+10 to STA 1+40 = 13"  
 STA 1+40 to STA 3+44 = 9"



**STONE STRONG WALL #3 ELEVATION**

NOTE:  
 FIELD CONFIRM REQUIRED FINISHED TW / BW ELEVATIONS AND ADJUST WALL BLOCK ACCORDINGLY.

NOTE:  
 FIELD CONFIRM WALL CORNER AND BEND LOCATIONS AND ADJUST WALL BLOCK ACCORDINGLY.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
 11/3/2022  
 Chief, Development Engineering Division  
 10/26/2022  
 Chief, Division of Land Development  
 11/3/2022  
 Director

OWNER/DEVELOPER  
 U.S. HOME, LLC.  
 7035 ALBERT EINSTEIN DRIVE  
 SUITE 200  
 COLUMBIA, MD 21046  
 LENNARDM.COM  
 (410) 423-4264

NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
**STONE STRONG RETAINING WALL #3**  
 ELEVATION  
**CHAPEL GATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

ZONED: CEF-M  
 L 1389F: 339 (P. 110)  
 HOWARD COUNTY, MARYLAND

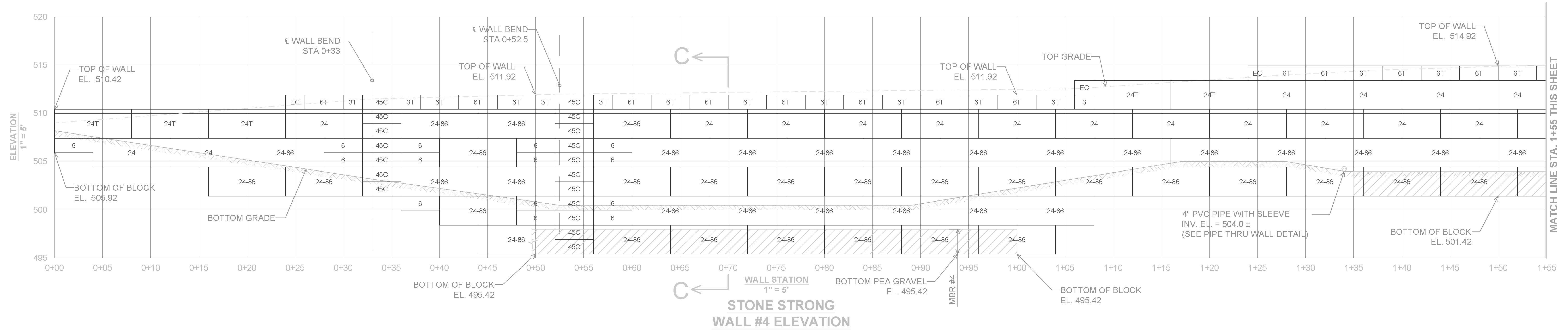
**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

DESIGN BY: HM  
 DRAWN BY: HM+AM  
 CHECKED BY: HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 20441A

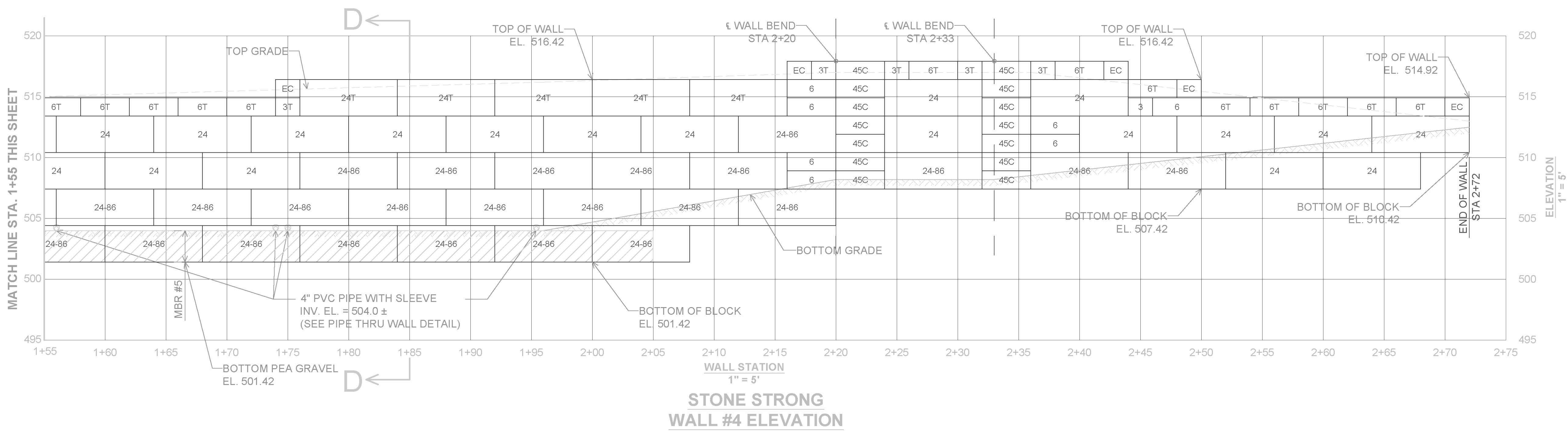
PROFESSIONAL CERTIFICATE  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 14809, EXPIRATION DATE: 02/27/2024.

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**STONE STRONG WALL #4 ELEVATION**



**STONE STRONG WALL #4 ELEVATION**

NOTE:  
FIELD CONFIRM REQUIRED FINISHED  
TW / BW ELEVATIONS AND ADJUST  
WALL BLOCK ACCORDINGLY.

NOTE:  
FIELD CONFIRM WALL CORNER AND  
BEND LOCATIONS AND ADJUST WALL  
BLOCK ACCORDINGLY.

OWNER/DEVELOPER  
U.S. HOME, LLC  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENHARDMD.COM  
(410) 423-4264

NO.	REVISION	DATE

WALL #7 BASE THICKNESS AS FOLLOWS:  
 STA 0+00 to STA 0+43 = 9"  
 STA 0+43 to STA 0+60 = 19"  
 STA 0+60 to STA 2+72 = 9"

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING

DocuSigned by:  
**Chad Edmondson** 11/3/2022

CHIEF, DEVELOPMENT ENGINEERING DIVISION 10/26/2022 DATE

CHIEF, DIVISION OF DEVELOPMENT 11/3/2022 DATE

DIRECTOR DATE

SITE DEVELOPMENT PLAN  
**STONE STRONG RETAINING WALL #4**  
 ELEVATION  
**CHAPELGATE WOODS**  
 SFA LOTS 1-134  
 PLAT# 26141-26152

PARCELS: 110  
 TAX MAP: 16 GRID: 10  
 3RD ELECTION DISTRICT

ZONED: CEF-M  
 HOWARD COUNTY, MARYLAND

L 1389/F 339 (P. 110)

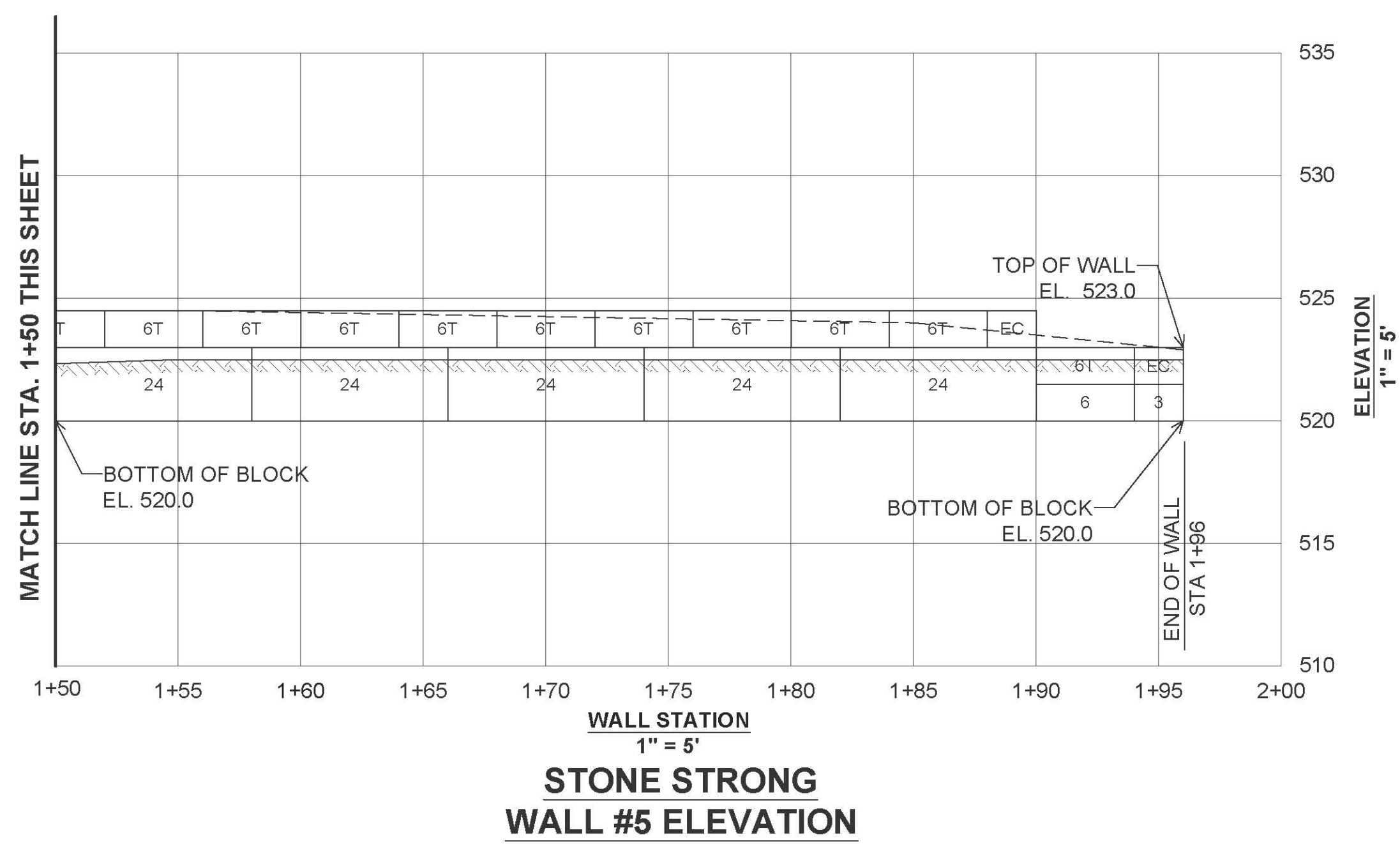
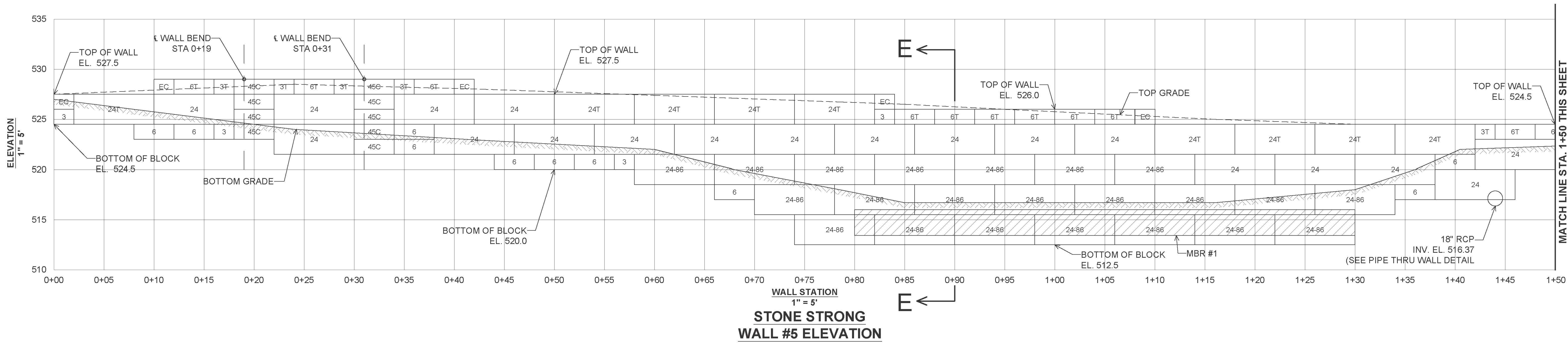
**HILLIS-CARNES**  
**ENGINEERING ASSOCIATES**  
 10975 Guilford Road, Suite A Annapolis Junction, Maryland  
 Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098

PROFESSIONAL CERTIFICATE

DESIGN BY: HM  
 DRAWN BY: HM+AM  
 CHECKED BY: HM  
 DATE: JANUARY 2022  
 SCALE: AS SHOWN  
 HCEA NO.: 30441A

41 SHEET OF 42

DocuSigned by:  
**Timothy B. Hill**



NOTE:  
FIELD CONFIRM REQUIRED FINISHED  
TW / BW ELEVATIONS AND ADJUST  
WALL BLOCK ACCORDINGLY.

NOTE:  
FIELD CONFIRM WALL CORNER AND  
BEND LOCATIONS AND ADJUST WALL  
BLOCK ACCORDINGLY.

WALL #7 BASE THICKNESS AS FOLLOWS:  
STA 0+00 to STA 1+96 = 9"

OWNER/DEVELOPER  
U.S. HOME, LLC.  
7035 ALBERT EINSTEIN DRIVE  
SUITE 200  
COLUMBIA, MD 21046  
LENNARM.COM  
(410) 423-4264

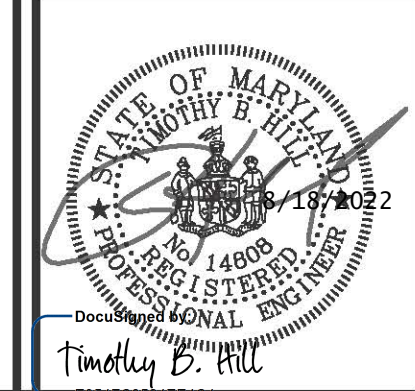
NO.	REVISION	DATE

SITE DEVELOPMENT PLAN  
**STONE STRONG RETAINING WALL #5**  
ELEVATION  
**CHAPELGATE WOODS**  
SFA LOTS 1-134  
PLAT# 26141-26152

PARCELS: 110  
TAX MAP: 16 GRID: 10  
3RD ELECTION DISTRICT

ZONED: CEF-M  
L 1389F, 339 (P. 110)  
HOWARD COUNTY, MARYLAND

**HILLIS-CARNES**  
ENGINEERING ASSOCIATES  
10975 Guilford Road, Suite A Annapolis Junction, Maryland  
Phone: (410) 880-4788 www.hcea.com Fax: (410) 880-4098



DESIGN BY: \_\_\_\_\_ HM  
DRAWN BY: \_\_\_\_\_ HM+AM  
CHECKED BY: \_\_\_\_\_ HM  
DATE: JANUARY 2022  
SCALE: AS SHOWN  
HCEA NO.: 20441A

PROFESSIONAL CERTIFICATE  
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. 14988  
EXPIRATION DATE: 02/27/2024.

APPROVED: HOWARD COUNTY DEPARTMENT OF PLANNING AND ZONING  
11/3/2022

*Chad Edmondson*  
CHIEF, DEVELOPMENT ENGINEERING DIVISION  
10/26/2022 DATE

*Angy Goman*  
CHIEF, DIVISION OF LAND DEVELOPMENT  
11/3/2022 DATE

DIRECTOR \_\_\_\_\_ DATE