

NARRATIVE

THE HDC SCALABLE DATA CENTER SITE WILL INCLUDE A 1,968 SQUARE FOOT BUILDING WITH CONCRETE UTILITY PADS AND SURROUNDING GRAVEL. THE SITE DRAINS TOWARD EXISTING BASIN A ON THE JHU/APL CAMPUS. THIS PROJECT IS LOCATED WITHIN THE PATUXENT RIVER WATERSHED. NEITHER FOREST CONSERVATION EASEMENTS NOR FLOODPLAINS EXIST WITHIN THE PROJECT LIMITS.

TO ACHIEVE STORMWATER MANAGEMENT REQUIREMENTS REQUIRED BY THE MARYLAND DEPARTMENT OF THE ENVIRONMENT (MDE) AND HOWARD COUNTY, THE USE OF ENVIRONMENTAL SITE DESIGN (ESD) TO THE MAXIMUM EXTENT PRACTICABLE (MEP) WILL BE IMPLEMENTED, WHICH WILL RETURN THE POST-DEVELOPMENT PROJECT SITE TO THE HYDROLOGIC CHARACTERISTICS OF WOODS IN GOOD CONDITION.

STORMWATER MANAGEMENT REQUIREMENTS WILL BE ACHIEVED WITH ONE FOCAL POINT FACILITY. THIS FACILITY IS LISTED AS AN ACCEPTABLE PRACTICE BY HOWARD COUNTY AND MDE. QUANTITY CONTROL REQUIREMENTS ARE MET THROUGH EXISTING BASIN A ON CAMPUS. THROUGH THE USE OF THESE STORMWATER MANAGEMENT DEVICES, ESD TO THE MEP IS ACHIEVED.

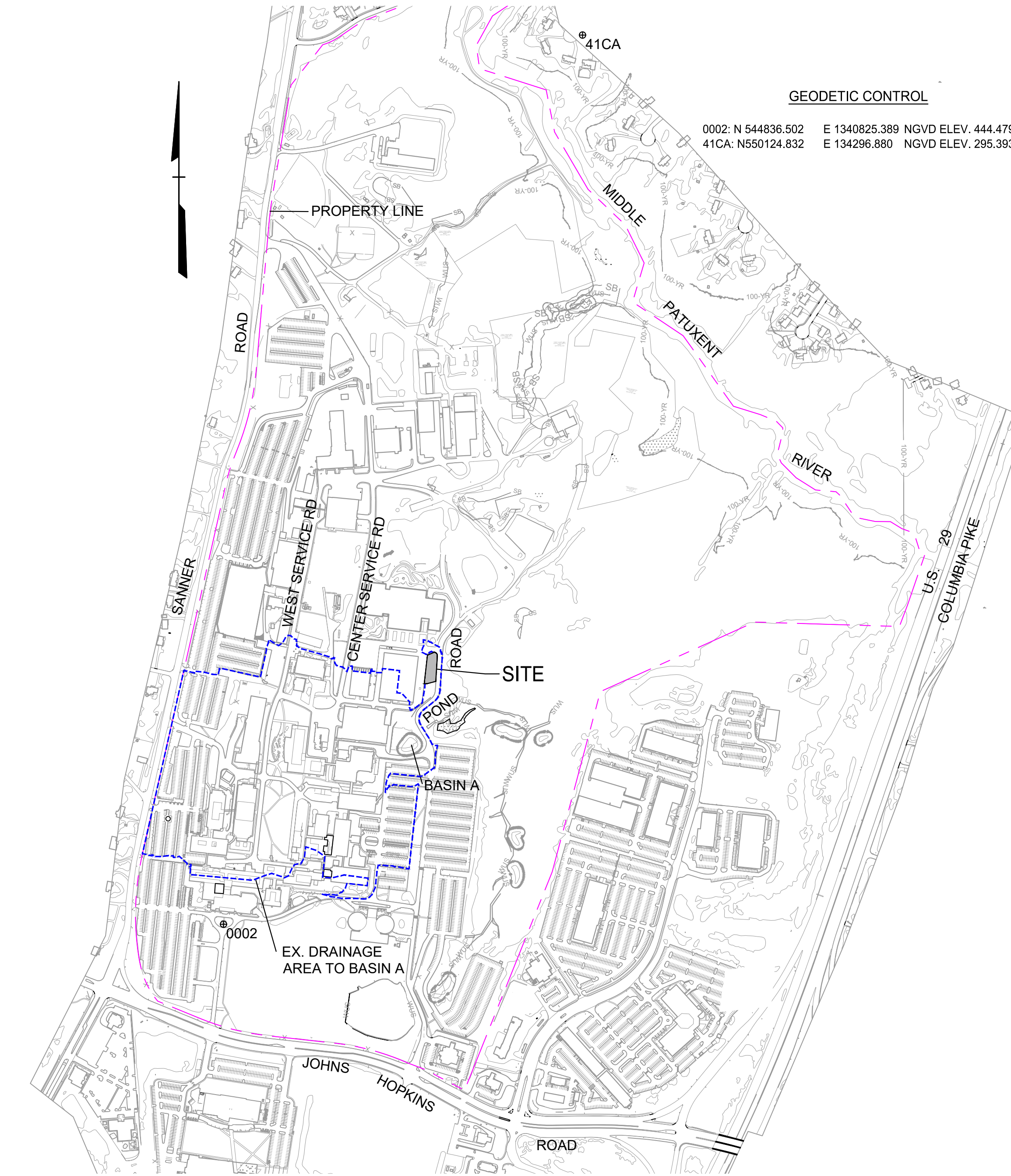
PURPOSE STATEMENT

THE PURPOSE OF THESE PLANS IS TO PROVIDE INFORMATION ON EXISTING SITE CONDITIONS AND PROPOSED IMPROVEMENTS FOR A 1,968 GSF BUILDING.

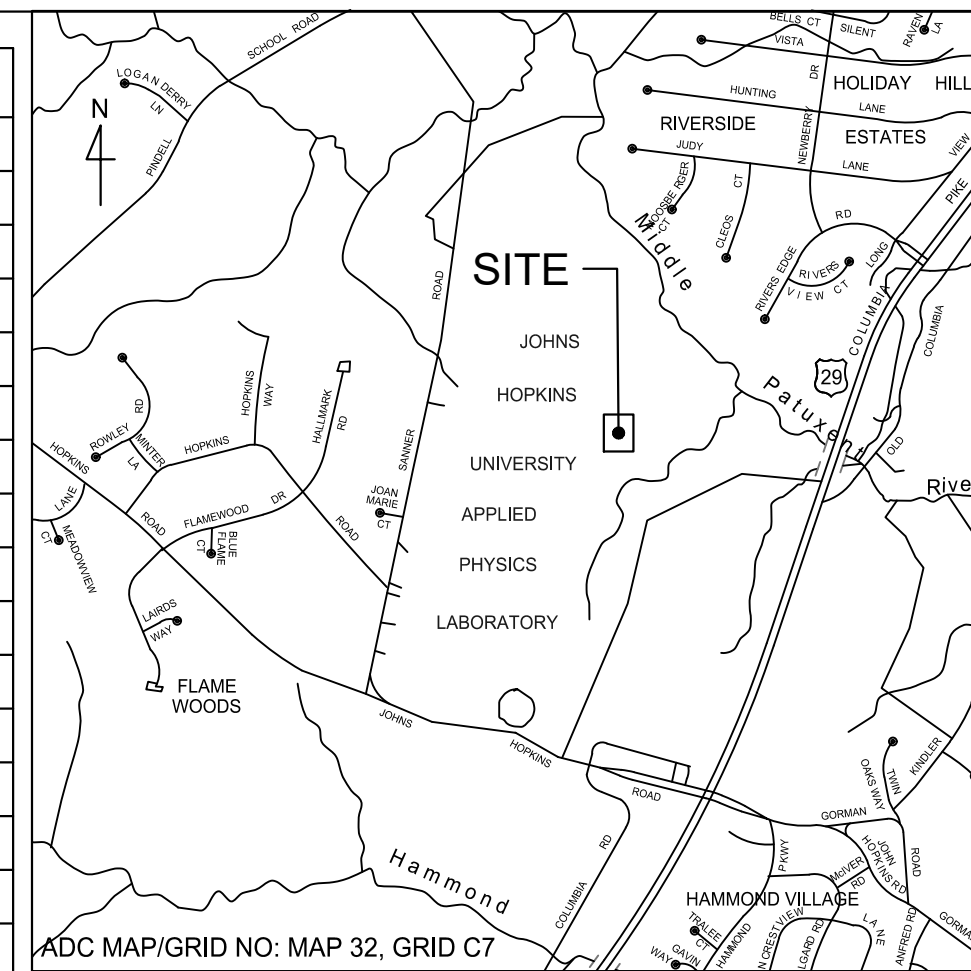
GENERAL NOTES

- 1. THE SUBJECT PROPERTY ZONED PEC (PLANNED EMPLOYMENT CENTER) PER THE OCTOBER 6, 2013 COMPREHENSIVE ZONING PLAN.
2. COORDINATES, BEARINGS AND DISTANCES SHOWN HEREON ARE REFERRED TO THE MARYLAND COORDINATE SYSTEM (NAD83/2011). ELEVATIONS SHOWN HEREON ARE REFERRED TO THE NAVD88 DATUM.
3. TOPOGRAPHIC, SURVEY, AND UTILITY INFORMATION SHOWN WAS OBTAINED FROM LAN ASSOCIATES ON JULY 13, 2023.
4. NO CEMETERIES EXIST ON THIS SITE BASED ON A SITE VISIT AND ON AN EXAMINATION OF THE HOWARD COUNTY CEMETERY INVENTORY MAP.
5. NO HISTORIC STRUCTURES EXIST ON THE SUBJECT PROPERTY.
6. THERE ARE NO EXISTING DWELLINGS ON THIS SITE.
7. PREVIOUS DEPARTMENT OF PLANNING AND ZONING FILE NUMBERS:
SDP-04-76: SERVICES AREA COMPLEX
F-02-40: SWM BASIN 'A', APFO, FOREST CONSERVATION
SDP-02-140: BUILDING 17
SDP-05-042: JHU/LIBRARIES SERVICES CENTER (FOREST CONSERVATION & WETLANDS UPDATES)
SDP-03-043: SANNER ROAD IMPROVEMENTS (NEW APFO NUMBER: 4,600)
F-04-188: FOREST CONSERVATION EASEMENTS RE-PLAT
F-07-035: FOREST CONSERVATION, RE-PLAT EASEMENT
SDP-08-084: SERVICES AND SUPPORT AREA INFRASTRUCTURE FACILITY PHASE I
ECP-24-006: JHU HDC SCALABLE DATA CENTER CONCEPT
8. THIS PLAN HAS BEEN PREPARED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 16.124 OF THE HOWARD COUNTY CODE AND LANDSCAPE MANUAL. PERIMETER LANDSCAPING IS NOT REQUIRED WITH THIS SDP BECAUSE THE PROPOSED BUILDING IS LOCATED INTERNAL TO THE SITE.
9. THE PROPERTY IS LOCATED WITHIN THE METROPOLITAN DISTRICT.
10. EXISTING WATER WITHIN THE PROPERTY BOUNDARIES IS PUBLIC. EXISTING SEWER WITHIN THE PROPERTY BOUNDARIES IS PUBLIC. BOTH THE WATER & SEWER ARE MAINTAINED INDEPENDENTLY ON ITS OWN PRIVATE PREMISES.
11. SOILS INFORMATION TAKEN FROM NRCS WEB SOIL SURVEY DATED AUGUST 1, 2023.
12. STORMWATER MANAGEMENT WILL BE PROVIDED IN ACCORDANCE WITH THE 2010 MDE, CHAPTER 5 REGULATIONS (ESD TO MEP) AND THE LATEST HOWARD COUNTY DESIGN MANUAL, VOL. 1, CHAPTER 5, ADOPTED ON OR ABOUT OCTOBER 7, 2019. RECHARGE VOLUME WILL BE PROVIDED THROUGH THE USE OF A STONE RESERVOIRS. STORMWATER MANAGEMENT FACILITIES WILL BE PRIVATELY OWNED AND MAINTAINED BY JOHNS HOPKINS UNIVERSITY.
13. THIS PROJECT COMPLIES WITH THE REQUIREMENTS OF SECTION 16.1200 OF THE HOWARD COUNTY CODE FOR FOREST CONSERVATION BY F-02-40, F-04-188, AND F-07-035. FOREST CONSERVATION OBLIGATION WAS FULFILLED UNDER F-04-188 AND F-07-035.
14. HEALTH DEPARTMENT APPROVAL OF THIS DEVELOPMENT PLAN DOES NOT ENSURE APPROVAL OF BUILDING PERMIT APPLICATIONS ASSOCIATED WITH THIS PLAN. PLANS FOR CERTAIN FACILITIES TO BE CONSTRUCTED WITHIN THE LIMITS DESCRIBED BY THIS PLAN WILL REQUIRE REVIEW AND APPROVAL BY THE HEALTH DEPARTMENT. SUCH FACILITIES MAY INCLUDE, BUT ARE NOT LIMITED TO, THOSE WHICH HAVE SWIMMING POOLS, OR THAT SELL PREPARED OR PACKAGED FOODS, OR THAT MAY HAVE EQUIPMENT THAT EMITS RADIATION.
15. NO WORK IS PROPOSED IN THE COUNTY RIGHT-OF-WAY. ALL PROPOSED WORK IS INTERIOR TO THE SITE.
16. ONE ESD PRACTICE SHALL BE USED TO ADDRESS THE SITE P_e AND ESD_v.
17. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF HOWARD COUNTY PLUS MD-SHA STANDARDS AND SPECIFICATIONS IF APPLICABLE.
18. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS/BUREAU OF ENGINEERING/CONSTRUCTION INSPECTION DIVISION AT 410-313-1880 AT LEAST (5) WORKING DAYS PRIOR TO START OF WORK.
19. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" AT 1-800-257-7777 AT LEAST 5 DAYS PRIOR TO ANY EXCAVATION WORK.
20. ALL PLAN DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.
21. THERE ARE NO FLOODPLAIN, WETLANDS, OR STREAMS ON SITE.
22. STEEP SLOPES (GREATER THAN 15%) EXIST ON SITE; SEE SITE ANALYSIS DATA SHEET.
23. TRASH PICK UP WILL BE PRIVATELY MAINTAINED.
24. NO OFF-SITE ACTIVITIES ARE PROPOSED FOR THIS PROJECT.
25. THE SITE IS NOT IN THE AIRPORT ZONE.
26. THE CONTRACTOR IS REQUIRED TO OBTAIN ALL NECESSARY PERMITS AND INSPECTIONS.
27. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS.
28. ALL GRADING AND EXCAVATION SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S REPORT AND INSPECTED BY A GEOTECHNICAL ENGINEER.
29. CONSTRUCTION OF SUBGRADE, UNDERDRAINS, AND PAVING SHALL BE INSPECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.
30. EXISTING UTILITIES WHICH ARE NOT TO BE REMOVED OR ABANDONED SHALL REMAIN OPERATIONAL AT ALL TIMES. APPROPRIATE EXISTING UTILITIES SHALL REMAIN IN SERVICE UNTIL REPLACEMENT/RELOCATED UTILITIES ARE OPERATIONAL.
31. ALL DISTURBED AREAS NOT STABILIZED WITH STRUCTURES, PAVING, AND/OR PLANTINGS SHALL BE STABILIZED WITH FOUR INCHES OF TOPSOIL, SEED, MULCH AND WATERED TO ESTABLISH AN ADEQUATE GROWTH OF GRASS AS SPECIFIED ON THE EROSION AND SEDIMENT CONTROL PLANS.
32. NUMERICAL DIMENSIONS AND ELEVATIONS SHOWN SHALL SUPERSEDE ANY DISCREPANCY IN THE SCALING ON THE DRAWINGS.
33. CONTRACTOR SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM ALL EXISTING AND PROPOSED BUILDING ENTRANCES DURING ALL PHASES OF CONSTRUCTION, UNLESS OTHERWISE NOTED IN THESE DOCUMENTS. CONTRACTOR SHALL NOTIFY ENGINEER / OWNER IF EXISTING OR PROPOSED CONDITIONS RESTRICT ABILITY TO ACHIEVE POSITIVE DRAINAGE FROM BUILDINGS PRIOR TO THE START OF CONSTRUCTION.
34. A DESIGN MANUAL WAIVER WAS APPROVED ON NOVEMBER 8TH 2023 TO ALLOW A PUMPHOUSE AND CHILLER IN THE EASEMENT AND TO USE NCMA STANDARDS FOR THE DESIGN OF THE RETAINING WALL.

JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY HDC SCALABLE DATA CENTER SITE DEVELOPMENT PLAN



SHEET INDEX table with 2 columns: Sheet No. and Description. Lists sheets 1 through 20, including SDP Cover Sheet, Demolition Plan, Grading Plan, Retaining Wall Elevation, Utility Plan, Stormwater Management Plan, Drainage Area Map, Erosion and Sediment Control Plan, Foundation Plan, and Construction Details.



VICINITY MAP SCALE: 1"=2000'

SITE ANALYSIS DATA SHEET

Table comparing Environmental Areas (Wetlands, Floodplain, Forests, Steep Slopes, Erodible Soils) and Site Areas (Total Project Area, LOD Area, Proposed Site Use, Green Open Area, Impervious Area) with their respective acreages.

NOTE: INFORMATION IS FOR WORK IN THE PROPOSED LOD ONLY. HIGHLY ERODIBLE SOILS CRITERIA ARE: SLOPE > 15% OR K-FACTOR = K_w-FACTOR > 0.35 WITH SLOPES > 5%.

SITE ANALYSIS DATA CHART

Summary of site analysis data including: TOTAL PROJECT AREA: 357.976 AC, AREA OF PLAN SUBMISSION: 0.50 AC, LIMIT OF DISTURBANCE: 0.50 AC, SWIM STUDY AREA: 0.39 AC, PRESENT ZONING: PEC, PROPOSED USE: DATA CENTER, EXISTING NUMBER OF JHU/APL EMPLOYEES: 4,600, EXISTING MAXIMUM NUMBER OF PARKING SPACES REQUIRED BY ZONING: 2,850 (SDP-05-133), EXISTING ONSITE PARKING SPACES: 4,798 (SDP 05-133), PROPOSED ONSITE PARKING SPACES: 4,798.

CAMPUS SITE PLAN SCALE: 1"=500'

ADDRESS CHART and PERMIT INFORMATION CHART tables. Address chart shows lot/parcel # 1/123 and street address 11100 Johns Hopkins Road. Permit info chart shows subdivision name N/A, section/area N/A, lot/parcel no. 1/123, plat # of ltr. 18968, grid # 16, zoning PEC, tax map no. 41, elect district 5, census tract 605102, water code E21, sewer code 6480000.

STORMWATER MANAGEMENT INFORMATION CHART table with columns: LOT/PARCEL #, FACILITY NAME AND NUMBER, PRACTICE TYPE, OWNERSHIP, TREATMENT VOLUME, PE. Shows facility 1 with M-8 EQUIVALENT practice, private ownership, 1,573 CF volume, and PE 2.2'.

SITE AREA SUMMARY

LIMITS OF DISTURBANCE (LOD): 0.50 AC. STORMWATER MANAGEMENT LOD (EXCLUDES UTILITY TRENCHING): 0.39 AC. PROPOSED IMPERVIOUS AREA: 0.20 AC. PROPOSED PERVIOUS AREA: 0.19 AC.

NEW DEVELOPMENT AREA CALCULATIONS ESDv COMPLIANCE SUMMARY

ESDv REQUIRED: 1,620 CF IART: 8,880 SF
ESDv PROVIDED: 1,625 CF IAT: 8,880 SF
ESDv PROVIDED > ESDv REQUIRED
SITE P_e ACHIEVED = 2.2 INCH
SITE P_e TARGET = 2.2 INCH

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APPROVED: DEPARTMENT OF PLANNING AND ZONING 4/16/2024
Chief, Development Engineering Division
Chief, Division of Land Management
Director



Engineering, Planning, Architecture, Surveying Inc.
700 East Pratt Street, Suite 500, Baltimore, MD 21202



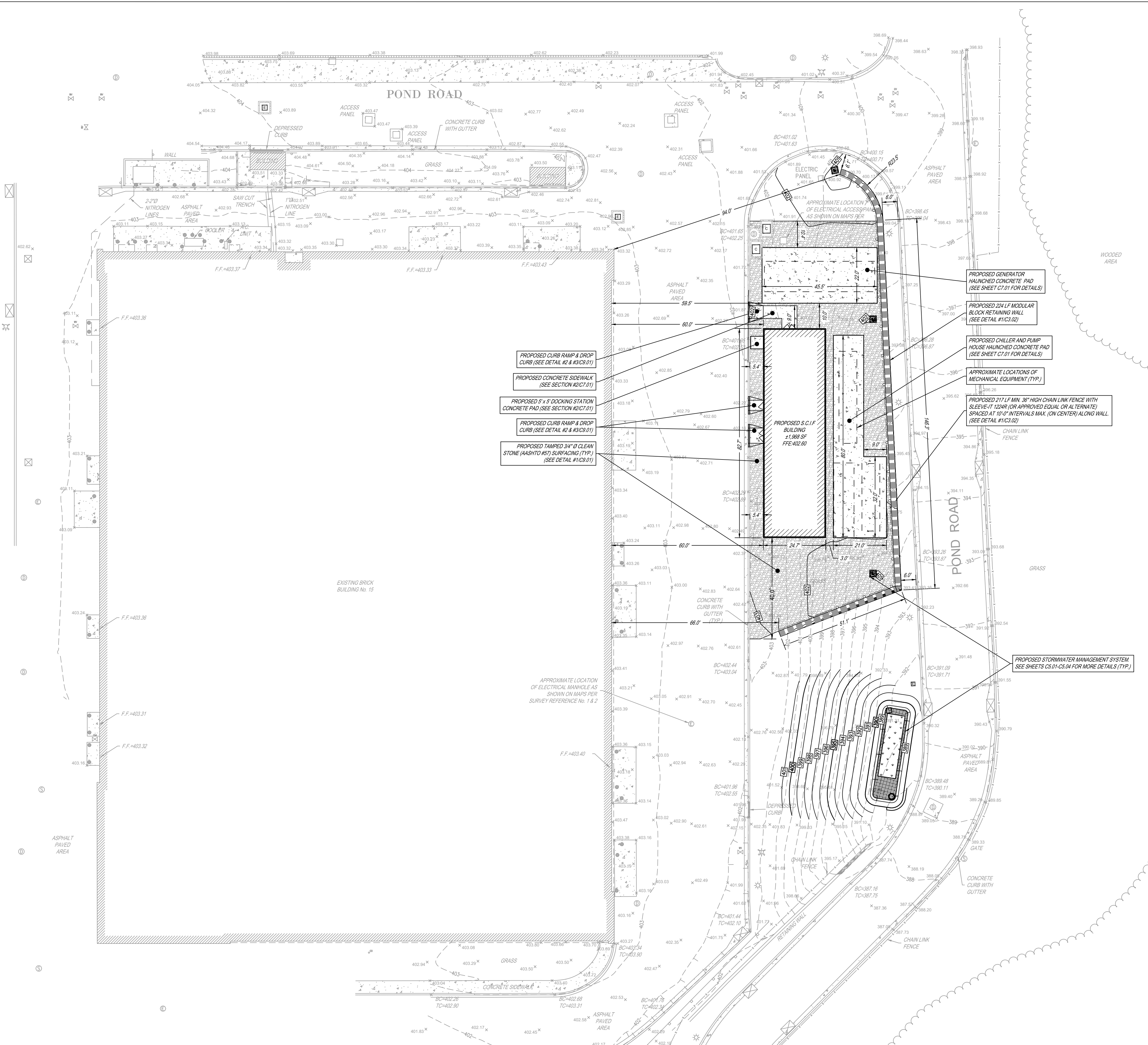
DESIGN BY: DTP, DRAWN BY: EKW, CHECKED BY: CWWM, DATE: 11/13/2023, REVISION table with columns for BY, NO., and DATE.

OWNER/DEVELOPER: JOHNS HOPKINS APPLIED PHYSICS LABORATORY, 11100 JOHNS HOPKINS ROAD, LAUREL, MARYLAND 20723

SDP COVER SHEET: JOHNS HOPKINS UNIVERSITY - APPLIED PHYSICS LABORATORY HDC SCALABLE DATA CENTER, SHEET 1 OF 20, SCALE: 1" = 20'

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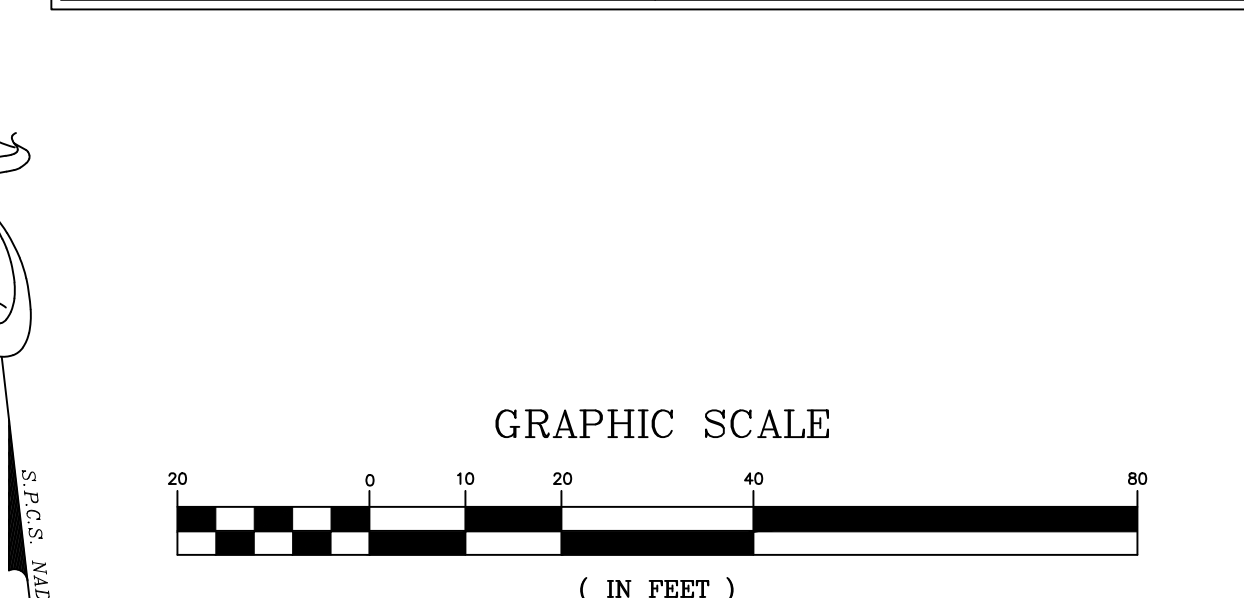
RK&K PROJECT NUMBER: 21047.017, SCALE: 1" = 20'



- GENERAL NOTES**
- THE CONTRACTOR IS RESPONSIBLE FOR THE REQUIREMENTS OUTLINED IN THE CONTRACT DOCUMENTS. THE WORK SHALL COMPLY WITH THE RULES AND REGULATIONS OF ALL GOVERNMENTAL AGENCIES INCLUDING BUT NOT LIMITED TO: IRC CODE STATE UNIFORM CONSTRUCTION CODE, MUNICIPAL CODES AND ORDINANCES, AND FEDERAL, STATE AND LOCAL ENVIRONMENTAL REGULATIONS. CODE REQUIREMENTS SHALL BE CONSIDERED PART OF THESE CONSTRUCTION DOCUMENTS, WHERE CONFLICTS EXIST, THE MORE STRINGENT REQUIREMENTS SHALL TAKE PRECEDENCE.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR VISITING THE SITE AND FAMILIARIZING HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO BIDDING.
 - THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY PRECAUTIONS AND SHALL OBSERVE ALL SAFETY REQUIREMENTS ESTABLISHED BY JURISDICTIONAL AGENCIES AND THE OWNER. WHERE CONFLICTS EXIST, THE MORE STRINGENT REQUIREMENT SHALL APPLY. CARE SHALL BE EXERCISED TO AVOID ENDANGERING PERSONNEL OR STRUCTURES. THESE REQUIREMENTS WILL APPLY CONTINUOUSLY 24 HOURS PER DAY UNTIL FINAL ACCEPTANCE OF THE WORK BY THE OWNER.
 - FURNISH ALL EQUIPMENT THAT MAY BE REQUIRED TO PERFORM THE WORK INDICATED IN A SAFE, ORDERLY, AND FIRST CLASS PROFESSIONAL MANNER BY EXPERIENCED WORKMEN SKILLED IN THEIR TRADE.
 - ALL DIMENSIONS ARE MEASURED TO THE ROUGH UNLESS OTHERWISE NOTED. ELEVATIONS AND DIMENSIONS SHOWN ARE FOR GENERAL REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONDITIONS AND ELEVATIONS IN THE FIELD PRIOR TO THE USE OF SUCH INFORMATION IN BIDDING OR CONSTRUCTION. THE CONTRACTOR SHALL TAKE ALL FIELD MEASUREMENTS NECESSARY TO ASSURE PROPER FIT OF FINISHED WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THEIR ACCURACY. DRAWINGS ARE NOT TO SCALE. NOTIFY THE ENGINEER IMMEDIATELY OF ANY DIMENSIONAL DISCREPANCIES.
 - THE CONTRACTOR SHALL REPAIR IN KIND ANY AND ALL DAMAGE CAUSED DURING OR RESULTING FROM HIS OPERATION. SEPARATE PAYMENT WILL NOT BE MADE FOR THIS WORK BUT THE COST WILL BE INCLUDED IN THE VARIOUS PAY ITEMS IN THE PROPOSAL.
 - ALL WORK SHALL BE SCHEDULED IN COMPLIANCE WITH THE OWNER'S REQUIREMENTS FOR THE USE OF THE EXISTING FACILITY.
 - THE SITE SHALL BE KEPT CLEAN AT ALL TIMES. UPON COMPLETION OF WORK, ALL EXCESS MATERIAL, DEBRIS, ETC. SHALL BE REMOVED AND THE WORK AREA SHALL BE LEFT CLEAN TO THE OWNER'S SATISFACTION.
 - CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ANY AND ALL PERMITS ASSOCIATED WITH THIS WORK. THE CONTRACTOR SHALL COORDINATE AND ASSIST THE ENGINEER AND AUTHORIZING AGENCIES IN PERFORMING INSPECTIONS AS REQUIRED.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RELOCATION AND TEMPORARY SUPPORT OF ANY UTILITIES ENCOUNTERED.
 - THE UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE INFORMATION. ACTUAL LOCATIONS OF ALL ABOVE AND UNDERGROUND UTILITIES WHETHER PUBLIC OR PRIVATE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WITH THE COOPERATION OF THE PUBLIC UTILITY COMPANIES AND/OR A UTILITY LOCATING SERVICE. ALL UTILITIES, SERVICES, ETC. WITHIN TWENTY (20) FEET OF THE PROPOSED LIMITS OF CONSTRUCTION SHALL BE LOCATED AND MARKED OUT PRIOR TO CONSTRUCTION.
 - THE ENGINEER'S OBSERVATION OF THE CONTRACTOR'S PERFORMANCE OF THE WORK IS TO BE SOLELY IN BEHALF OF THE OWNER AND NOT IN BEHALF OF THE CONTRACTOR. THE ENGINEER'S OBSERVATIONS ARE NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES.
 - THE ENGINEER WILL BE THE FIRST INSTANCE THE INTERPRETER OF THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE ENGINEER WILL ALSO HAVE THE AUTHORITY TO REJECT WORK WHICH DOES NOT CONFORM TO THE CONTRACT DOCUMENTS.
 - THE ENGINEER WILL MAKE PERIODIC VISITS TO THE SITE TO FAMILIARIZE HIMSELF GENERALLY WITH THE PROGRESS AND QUALITY OF THE WORK AND TO DETERMINE IN GENERAL, IF THE WORK IS PROCEEDING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. ON THE BASIS OF HIS ON-SITE OBSERVATIONS AS AN ENGINEER HE WILL KEEP THE OWNER INFORMED OF THE PROGRESS OF THE WORK AND WILL ENDEAVOR TO GUARD THE OWNER AGAINST DEFECTS AND DEFICIENCIES IN THE WORK OF THE CONTRACTOR. THE ENGINEER WILL NOT BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, SAFETY PRECAUTIONS, NOR FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 - BACKFILL SHALL BE COMPACTED TO 95% DENSITY (MODIFIED PROCTOR, PER ASTM D 1557), UNLESS OTHERWISE NOTED.
 - BEFORE WORK IS STARTED, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL A LIST OF MATERIALS, WITH TRADE NAMES, PROPOSED TO BE FURNISHED AND SHOP DRAWINGS AS REQUESTED BY THE ENGINEER. SUBMITTALS SHALL BE REPRESENTATIVE OF THE MATERIALS TO BE USED BY THE CONTRACTOR IN COMPLETING HIS WORK.
 - CONTRACTOR SHALL PROVIDE GUARANTEES FOR ALL LABOR AND MATERIALS FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF COMPLETION AND FINAL ACCEPTANCE OF HIS WORK BY THE OWNER WHICH SHALL INCLUDE AN AGREEMENT TO REPAIR AND MAKE GOOD AT HIS OWN EXPENSE ANY AND ALL DEFECTS WHICH MAY APPEAR IN HIS WORK OR MATERIALS.
 - CONTRACTOR SHALL PROVIDE ALL EXCAVATION AND BACKFILL FOR THE DEMOLITION AND CONSTRUCTION AS SHOWN ON THE DRAWINGS. INCLUDED IN THIS ITEM WILL BE THE EXCAVATION AND REMOVAL OF ALL MATERIALS INCLUDING STRUCTURES ABOVE AND BELOW THE GROUND, EARTH, ROCK, TOPSOIL, BITUMINOUS PAVEMENT, CONCRETE, BOGGY WASTE, RUBBISH, ASHES, CONDENSERS, OR ORGANIC MATERIAL SUCH AS DEBRIS OR HAZARDOUS MATERIAL.
 - BACKFILL SHALL CONSIST OF A SUITABLE SELECTED AND APPROVED EARTH GENERALLY FROM STORAGE OF APPROVED EXCAVATED SOIL, FREE FROM REJECTED ORGANIC MATTER, BOGGY HUMUS OR OTHER UNSUITABLE MATERIAL SUCH AS SILT, RUBBISH, WASTE, ASHES, OR CONDENSERS. BACKFILL SHALL BE FREE OF LARGE BOULDERS MORE THAN SIX (6) INCHES IN THE LARGEST DIMENSION AND FROZEN MATERIAL SHALL BE USED. IF SUITABLE MATERIAL FOR BACKFILL IS NOT AVAILABLE FROM THE EXCAVATED MATERIAL, AS DETERMINED BY THE ENGINEER, THE CONTRACTOR SHALL PROCURE ELSEWHERE A SUFFICIENT QUANTITY OF SUITABLE SELECT FILL MATERIAL AND SHALL FURNISH AS NEEDED AS PART OF THE BASE CONTRACT. BACKFILL SHALL BE PLACED AND COMPACTED WITH A VIBRATORY PLATE TAMPER IN MAXIMUM HEIGHT BY 10" LIFTS.
 - CONTRACTOR TO REMOVE & RESET ALL SIGNS IN PROJECT AREA.
 - QUANTITIES SHOWN ARE FOR REFERENCE ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR QUANTITY TAKEOFF.
 - ALL TREES AND SHRUBS WITHIN AREAS OF PROPOSED GRADING ARE TO BE REMOVED UNLESS OTHERWISE NOTED ON THE PLAN. COORDINATE WITH ENGINEER PRIOR TO REMOVAL OF THE VEGETATION.
 - LEGEND LINE TYPES AND SYMBOLS ARE FOR VISUAL DESIGN AND ILLUSTRATIVE PURPOSE ONLY. THEY ARE NOT TO BE SCALED FOR CONSTRUCTION PURPOSES.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO LAWFULLY DISPOSE OF ALL ITEMS INDICATED TO BE REMOVED OR DEMOLISHED.

LEGEND

| EXISTING / PROPOSED | EXISTING / PROPOSED |
|-----------------------|------------------------|
| WATER VALVE | WATER METER |
| FIRE HYDRANT | FIRE SHUT OFF |
| GAS VALVE | GAS METER |
| UTILITY POLE | IRRIGATION CONT. VALVE |
| CATCH BASIN | ELECTRIC METER |
| SEEPAGE PIT | LIGHT POLE |
| SANITARY MANHOLE | WALL-MOUNTED LIGHT |
| ELECTRICAL MANHOLE | BOLLARD |
| COMMUNICATION MANHOLE | TREE |
| STORM MANHOLE | ROCK / BOULDER |
| MONITORING WELL | FLAGPOLE |
| UNKNOWN MANHOLE | MAILBOX |
| HEADWALL | DUMPSTER |
| SAN CLEAN OUT | SIDEWALK |
| HANDICAP SYMBOL | CURB LINE |
| SIGN | |
| PROPERTY LINE (PO) | WATER LINE |
| PROPERTY LINE | GAS LINE |
| SETBACK LINE | ELECTRIC LINE |
| WETLANDS BOUNDARY | TELEPHONE LINE |
| STREAM/BROOK | OVERHEAD WIRES |
| TREE LINE | SANITARY SEWER |
| CHAINLINK FENCE | STORM SEWER |
| WOOD FENCE | GUIDE RAIL |



APPROVED: DEPARTMENT OF PLANNING AND ZONING
4/16/2024
Date
4/17/2024
Date
4/17/2024
Date

LAN ASSOCIATES
Engineering, Planning, Architecture, Surveying Inc.
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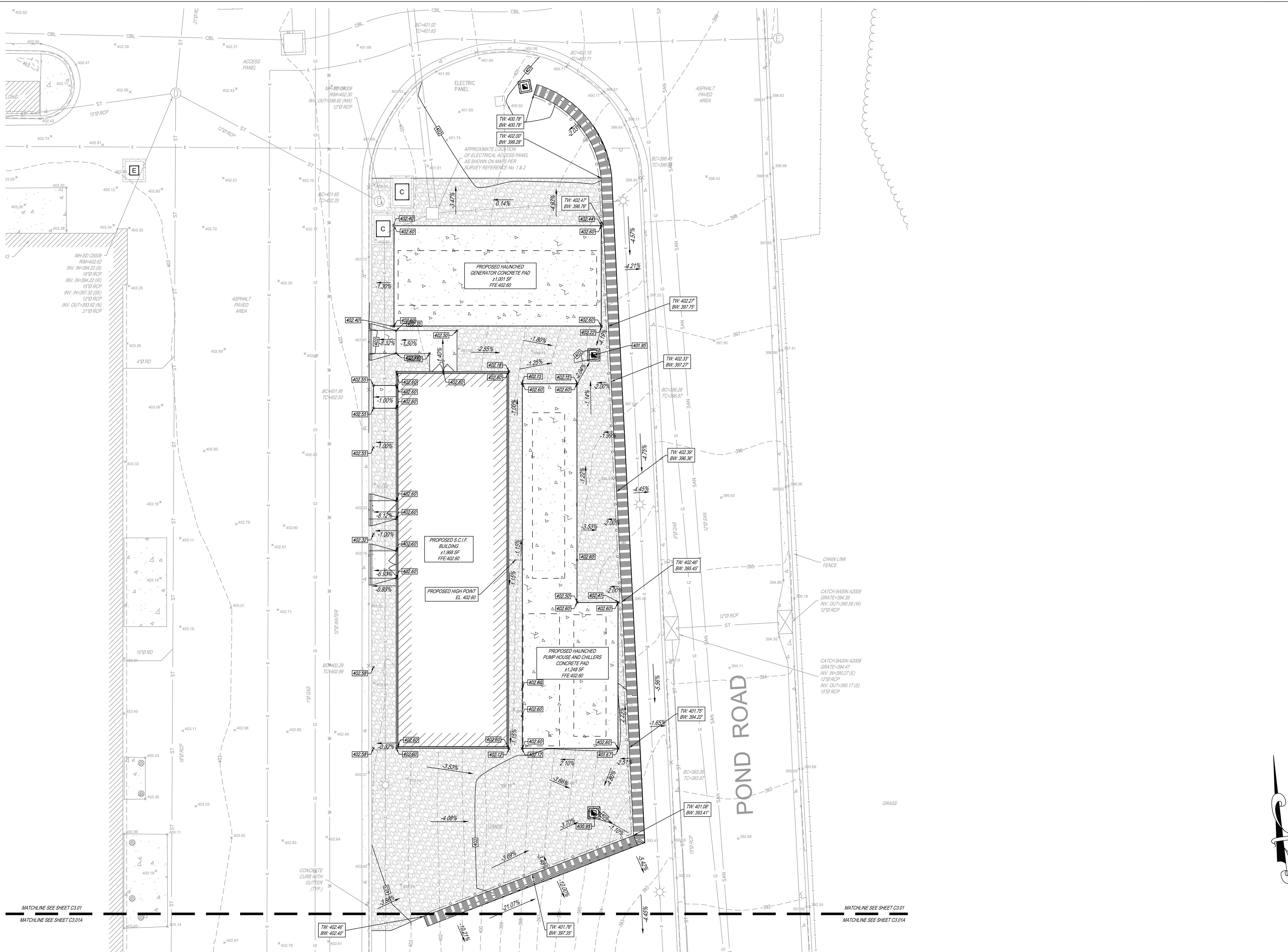
STATE OF MARYLAND
PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43087, EXPIRATION DATE: 12/15/2024

| DESIGN BY: | DRAWN BY: | CHECKED BY: | DATE: | BY | NO. | REVISION | DATE |
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| EQ | EQ | JM | 11/13/2023 | | | | |

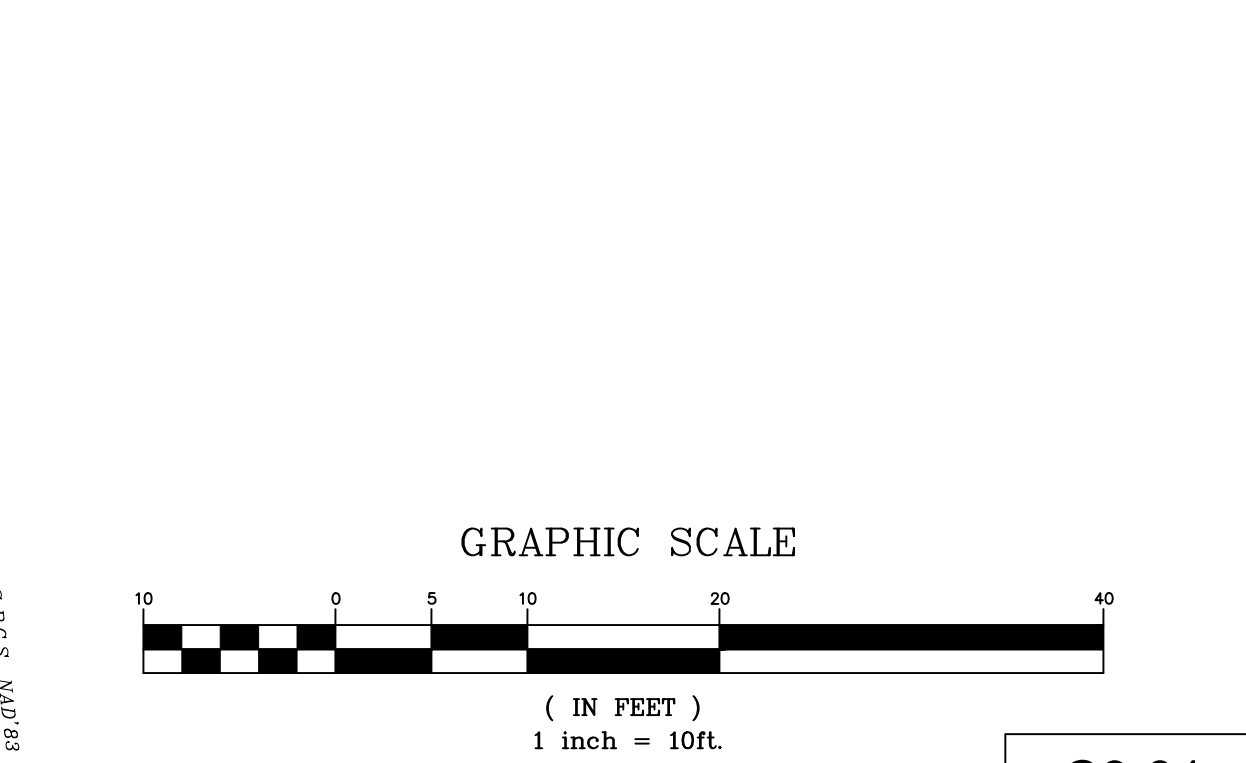
OWNER/DEVELOPER
JOHNS HOPKINS APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

OVERALL PROPOSED SITE PLAN
JOHNS HOPKINS UNIVERSITY - APPLIED PHYSICS LABORATORY HDC SCALABLE DATA CENTER
11100 JOHNS HOPKINS ROAD
TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
ELECTION DISTRICT: 5 HOHARD COUNTY, MARYLAND
SHEET 4 OF 20

C2.00
LAN PROJECT NUMBER
2.3737.83
SCALE:
As Noted



| LEGEND | | | |
|-----------------------|--|------------------------|--|
| EXISTING / PROPOSED | | EXISTING / PROPOSED | |
| WATER VALVE | | WATER METER | |
| FIRE HYDRANT | | FIRE SHUT OFF | |
| GAS VALVE | | GAS METER | |
| UTILITY POLE | | IRRIGATION CONT. VALVE | |
| CATCH BASIN | | ELECTRIC METER | |
| SEEPAGE PIT | | LIGHT POLE | |
| SANITARY MANHOLE | | WALL-MOUNTED LIGHT | |
| ELECTRICAL MANHOLE | | BOLLARD | |
| COMMUNICATION MANHOLE | | TREE | |
| STORM MANHOLE | | ROCK / BOULDER | |
| MONITORING WELL | | FLAGPOLE | |
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| HEADWALL | | DUMPSTER | |
| SAN CLEAN OUT | | SIDEWALK | |
| HANDICAP SYMBOL | | CURB LINE | |
| SIGN | | SIGN | |
| PROPERTY LINE (PO) | | WATER LINE | |
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| WETLANDS BOUNDARY | | TELEPHONE LINE | |
| STREAM/BROOK | | OVERHEAD WIRES | |
| TREE LINE | | SANITARY SEWER | |
| CHAINLINK FENCE | | STORM SEWER | |
| WOOD FENCE | | GUIDE RAIL | |



APPROVED: DEPARTMENT OF PLANNING AND ZONING
4/16/2024
Date
4/17/2024
Date
4/17/2024
Date

LAN ASSOCIATES
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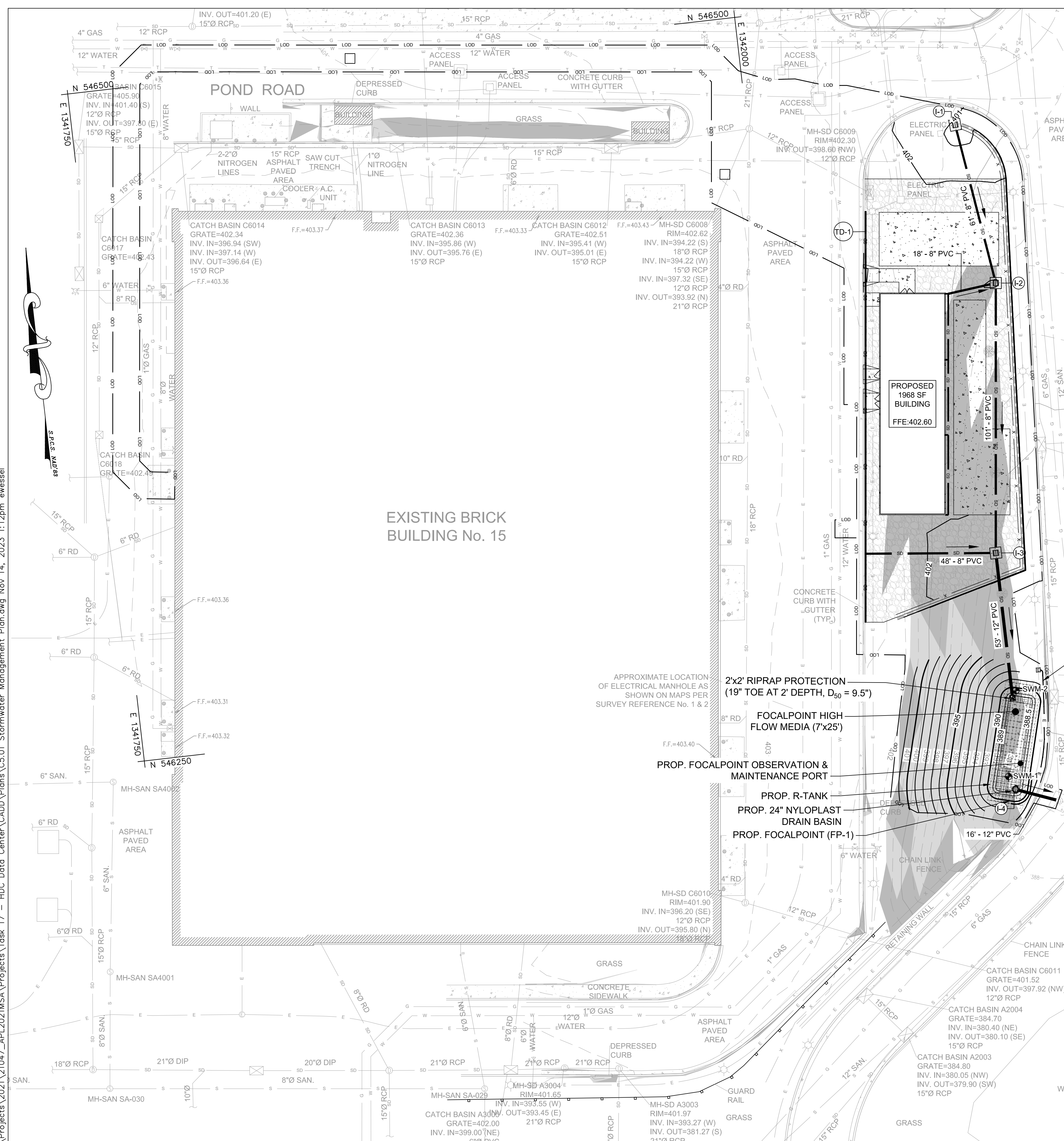
PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 43087, EXPIRATION DATE: 12/15/2024

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| DRAWN BY: | EQ | | | | |
| CHECKED BY: | JM | | | | |
| DATE: | 11/13/2023 | BY | NO. | REVISION | DATE |

OWNER/DEVELOPER
JOHNS HOPKINS APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

PROPOSED GRADING PLAN (SHEET 1 OF 2)
JOHNS HOPKINS UNIVERSITY - APPLIED PHYSICS LABORATORY
HDC SCALABLE DATA CENTER
11100 JOHNS HOPKINS ROAD
TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
ELECTION DISTRICT: 5 HOWARD COUNTY, MARYLAND
SHEET 5 OF 20

C3.01
LAN PROJECT NUMBER
2.3737.83
SCALE:
As Noted



APPLICANT: Johns Hopkins Applied Physics Laboratory
 DESCRIPTION: HDC Data Center
 DATE: 11/10/23
 ESD NUMBER:

| Facility ID | Facility Type | Drainage Area (SF) | Impervious Area (SF) | ESDv Required (CF) | ESDv Provided (CF) | IART (SF) | IAT (SF) | Re, Target (CF) | Re, Provided (CF) | P _t Target (IN) | P _t Provided (IN) |
|--------------|---------------|--------------------|----------------------|--------------------|--------------------|--------------|--------------|-----------------|-------------------|----------------------------|------------------------------|
| FP-1 | FocalPoint | 16,865 | 8,880 | 1,620 | 1,625 | 8,880 | 8,880 | 191 | 196 | 2.2 | 2.2 |
| TOTAL | | 16,865 | 8,880 | 1,620 | 1,625 | 8,880 | 8,880 | 191 | 196 | 2.2 | 2.2 |



PREPARED BY: DTP
 CHECKED BY: CWWM

STORM DRAIN STRUCTURE TABLE

| NAME | NORTHING | EASTING | DESCRIPTION |
|------|-------------|------------|--|
| I-1 | 546449.7908 | 1342074.33 | PRECAST YARD INLET, D-4.12 |
| I-2 | 546389.5611 | 1342082.64 | PRECAST YARD INLET, D-4.12 |
| I-3 | 546289.6759 | 1342071.17 | PRECAST YARD INLET, D-4.12 |
| I-4 | 546201.3739 | 1342068.40 | 24" NYLOPLAST DRAIN BASIN W/ DOMED GRATE |
| TD-1 | 546294.9338 | 1342022.96 | 6" DURASLOT (ADS) DRAIN WITH VARIABLE HEIGHT RISER |

GENERAL NOTES

- TOPOGRAPHIC, SURVEY, AND UTILITY INFORMATION SHOWN WAS OBTAINED FROM LAN ASSOCIATES ON JULY 13, 2023. TOPOGRAPHIC AND UTILITY INFORMATION MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ACTUAL SITE CONDITIONS PRIOR TO THE START OF ANY WORK. THERE IS NO WARRANTY OR GUARANTEE ON THE COMPLETENESS OR CORRECTNESS OF THE EXISTING CONDITION INFORMATION. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER PRIOR TO THE START OF ANY WORK.
- BEARINGS, COORDINATES AND ELEVATIONS SHOWN ON THIS PLAN ARE SHOWN IN MARYLAND STATE PLANE. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88.
- FOR PROJECT GENERAL NOTES, SEE THE COVER SHEET.

SWM STUDY AREA SUMMARY

| | |
|---------------------|------------|
| SWM STUDY AREA | 0.39 ACRES |
| EX. GREEN OPEN AREA | 0.39 ACRES |
| EX. IMPERVIOUS AREA | 0.00 ACRES |
| PR. GREEN OPEN AREA | 0.19 ACRES |
| PR. IMPERVIOUS AREA | 0.20 ACRES |

EXISTING LEGEND

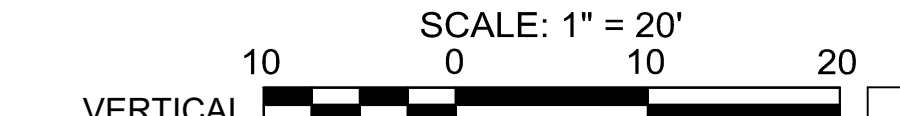
- BUILDING
- CURB AND GUTTER
- TREE LINE / BRUSH LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- DITCH
- ELECTRIC COMMUNICATIONS
- GAS
- STORM
- SANITARY
- WATER
- ELECTRIC POLE / LIGHT POLE
- ELECTRIC MANHOLE
- COMMUNICATIONS ACCESS PANEL
- STORM MANHOLE AND IDENTIFIER
- STORM INLET AND IDENTIFIER
- STORM CLEAN OUT
- SANITARY MANHOLE AND IDENTIFIER
- WATER VALVE
- FIRE HYDRANT
- GAS VALVE
- STEEP SLOPE (15-25%) = 5,133 SF (0.14 AC.)
- STEEP SLOPE (OVER 25%) = 2,750 SF (0.05 AC.)

PROPOSED LEGEND

- LIMITS OF DISTURBANCE (LOD)
- BUILDING
- CURB AND GUTTER
- CONCRETE
- GRAVEL
- MAJOR CONTOUR
- MINOR CONTOUR
- RETAINING WALL
- FENCE
- STORM DRAIN
- YARD INLET
- FOCAL POINT FACILITY (SURFACE STORAGE & FOCAL POINT BED)
- (200) DOUBLE SD R-TANK MODULES
- BORING LOG LOCATION (SEE LOG REPORTS ON SHEET C5.02)

PROPOSED PLANTING LEGEND

- FOCALPOINT SIDE SLOPE: CORNUS SERICEA 'KELSEY' (KELSEY'S DWARF RED-OSIER DOGWOOD)
- FOCALPOINT SURFACE STORAGE PLANT MIX: 40% PANICUM VIRGATUM (SWITCHGRASS), 30% ASTER LAEVIS 'BLUEBIRD' (BLUEBIRD ASTER), 20% MYOSOTIS LAXA (FORGET-ME-NOT)
- FOCALPOINT MEDIA PLANT MIX: 40% ASTER LAEVIS 'BLUEBIRD' (BLUEBIRD ASTER), 40% HYPERICUM PERFORATUM (ST. JOHN'S-WORT), 20% PANICUM VIRGATUM (SWITCHGRASS)



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 4/16/2024
 Chief, Development Engineering Division
 Chief, Division of Land Management
 Director



Engineering, Planning, Architecture, Surveying Inc.



PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 49432, EXPIRATION DATE: 06/01/2024

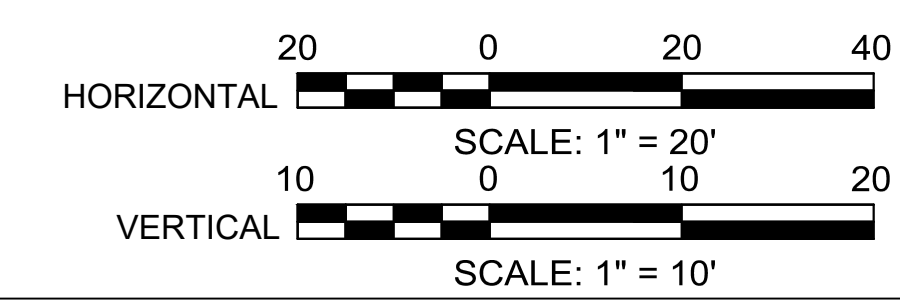
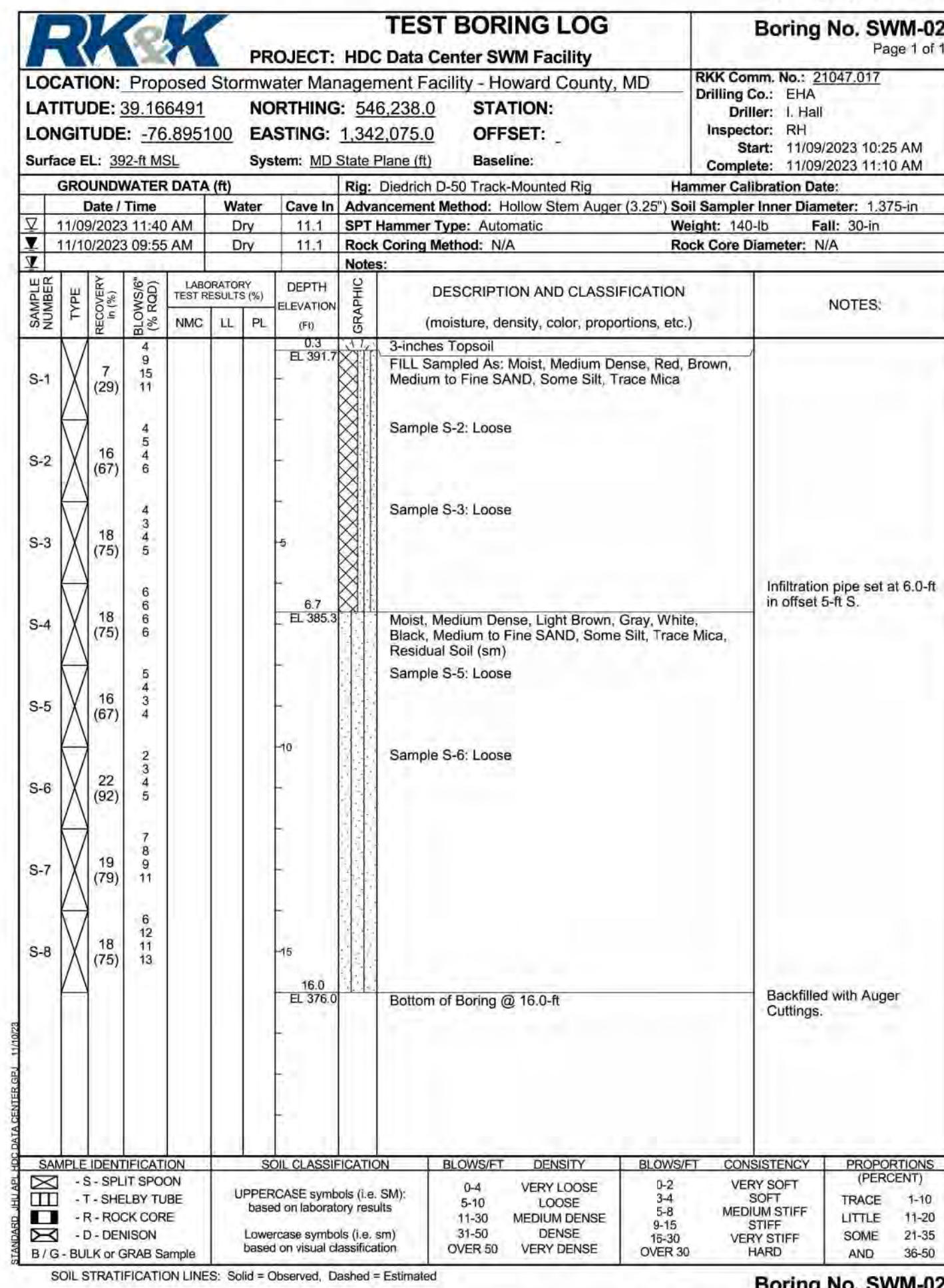
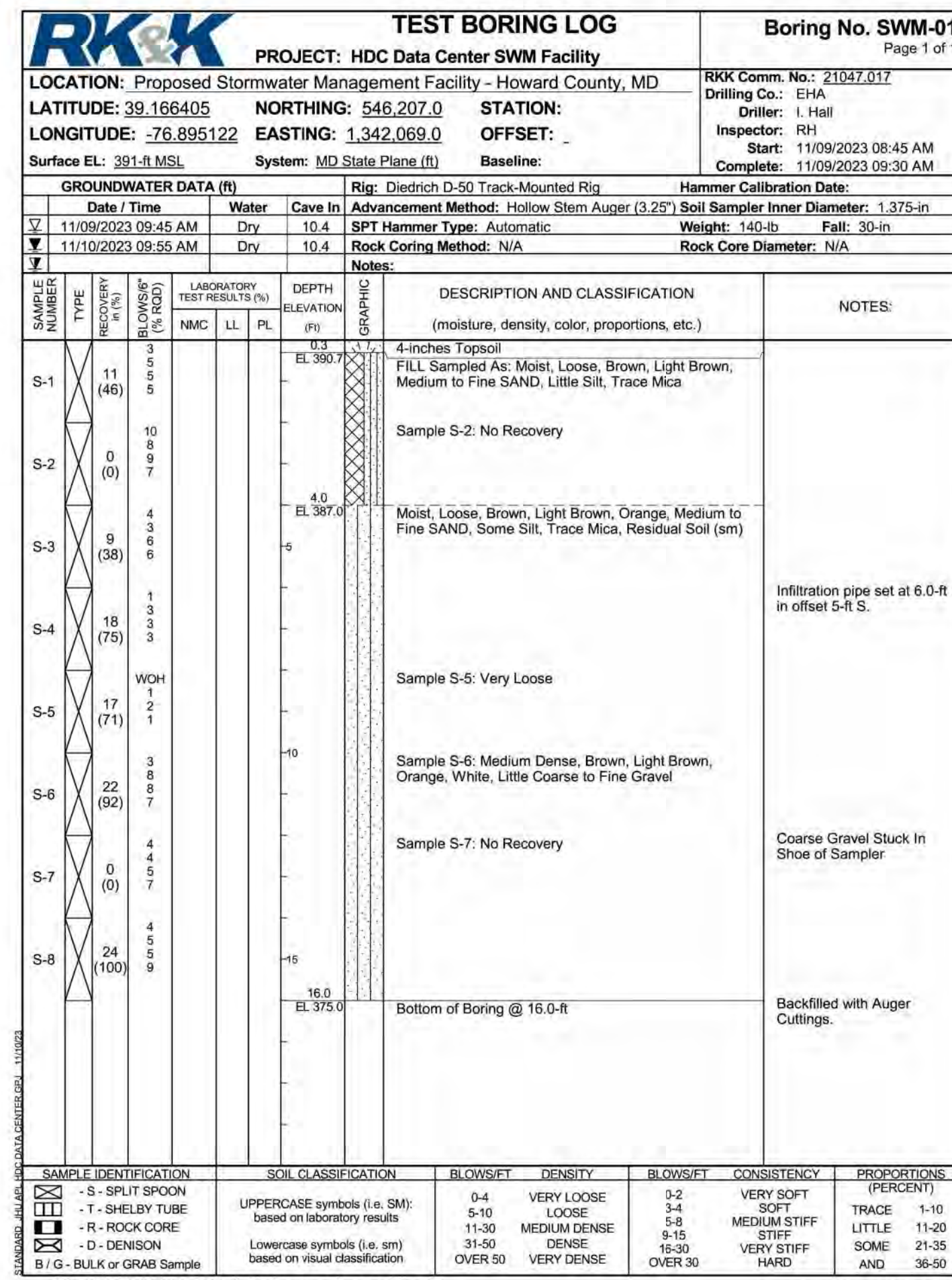
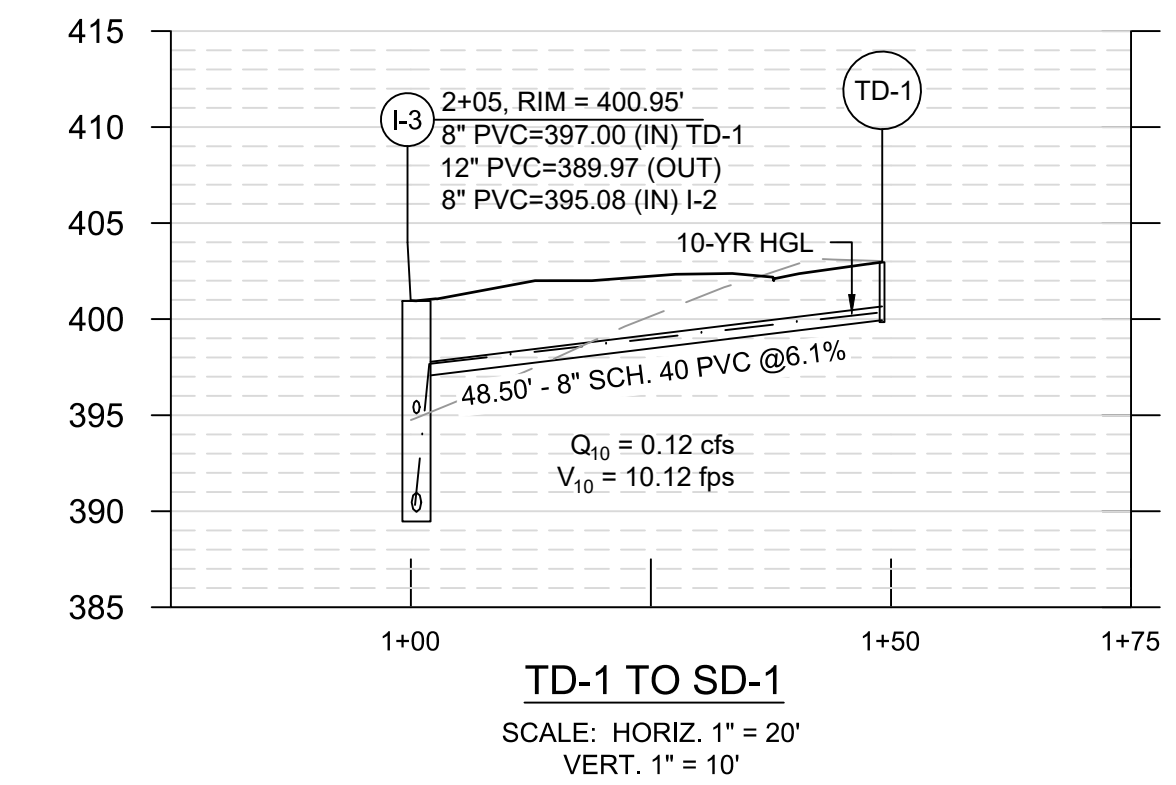
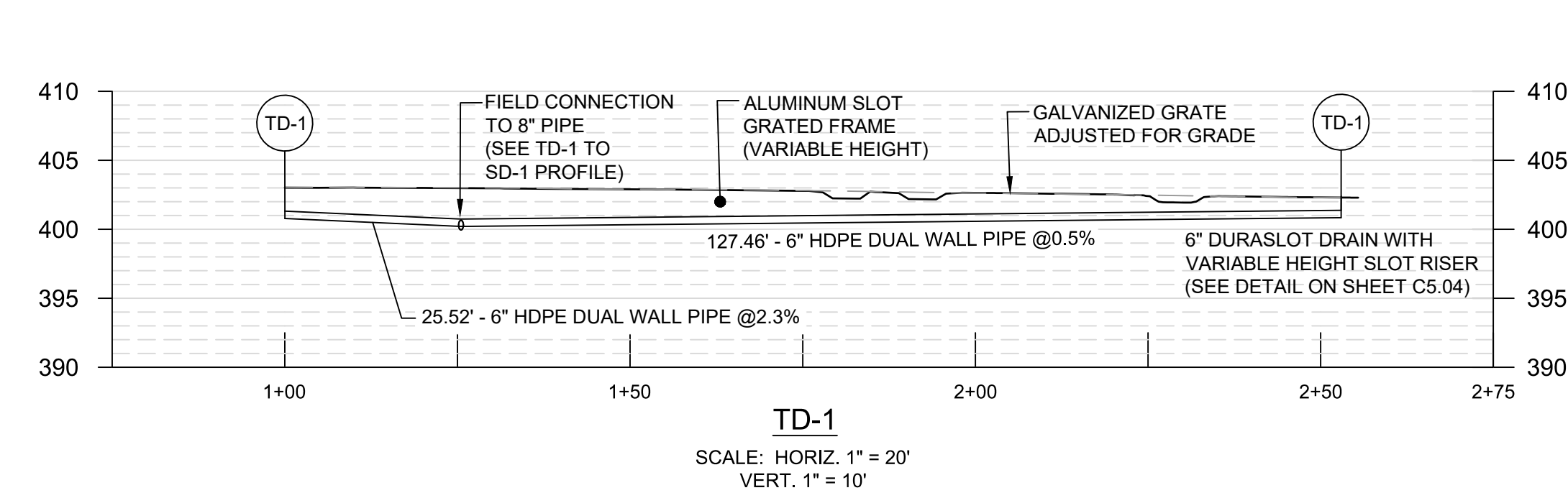
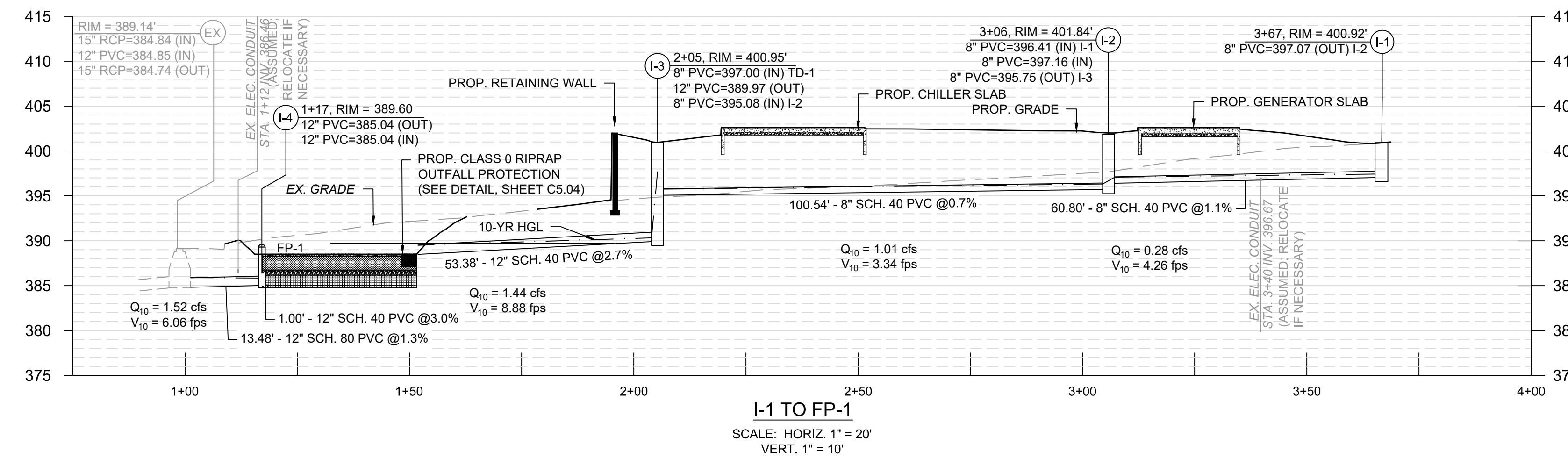
| DESIGN BY: | DTP | | |
|-------------|------------|----------|------|
| DRAWN BY: | EKW | | |
| CHECKED BY: | CWWM | | |
| DATE: | 11/13/2023 | | |
| BY | NO. | REVISION | DATE |
| | | | |

OWNER/DEVELOPER
 JOHNS HOPKINS APPLIED PHYSICS LABORATORY
 11100 JOHNS HOPKINS ROAD
 LAUREL, MARYLAND 20723

PROPOSED STORMWATER MANAGEMENT PLAN
 JOHNS HOPKINS UNIVERSITY - APPLIED PHYSICS LABORATORY
 HDC SCALABLE DATA CENTER
 11100 JOHNS HOPKINS ROAD
 TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
 ELECTION DISTRICT: 5 HOWARD COUNTY, MARYLAND
 SHEET 9 OF 20

C5.01
 RK&K PROJECT NUMBER: 21047.017
 SCALE: 1" = 20'

C:\Users\DPILAC-1\AppData\Local\Temp\AcPublish_12996\C5.01 Stormwater Management Plan.dwg Nov 13, 2023 10:27am dpilacowski



APPROVED: DEPARTMENT OF PLANNING AND ZONING
4/16/2024
Date: 4/17/2024
Date: 4/17/2024
Date: 4/17/2024

LAN ASSOCIATES
445 Godwin Avenue, Suite 9
Midland Park, NJ 07432
T: 201.447.6400 F: 201.447.1233

Engineering, Planning, Architecture, Surveying Inc.

RK&K
RUMMEL, KLEPPER & KAHL, LLP
700 East Pratt Street, Suite 500
Baltimore, MD 21202
PH: 410.728.2900 Contact: Matt Thomasson
www.rkk.com



PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 49432, EXPIRATION DATE: 06/30/2024

DESIGN BY: DTP
DRAWN BY: EKW
CHECKED BY: CWMM
DATE: 11/13/2023

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

OWNER/DEVELOPER
JOHNS HOPKINS APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

PROPOSED STORMWATER MANAGEMENT PROFILES AND BORINGS
JOHNS HOPKINS UNIVERSITY APPLIED PHYSICS LABORATORY
HDC SCALABLE DATA CENTER
11100 JOHNS HOPKINS ROAD
TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
ELECTION DISTRICT: 5 HOWARD COUNTY, MARYLAND
SHEET 10 OF 20

C5.02
RK&K PROJECT NUMBER: 21047.017
SCALE: 1" = 20'

GENERAL NOTES

1. TOPOGRAPHIC, SURVEY, AND UTILITY INFORMATION SHOWN WAS OBTAINED FROM LAN ASSOCIATES ON JULY 13, 2023. TOPOGRAPHIC AND UTILITY INFORMATION MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ACTUAL SITE CONDITIONS PRIOR TO THE START OF ANY WORK. THERE IS NO WARRANTY OR GUARANTEE ON THE COMPLETENESS OR CORRECTNESS OF THE EXISTING CONDITION INFORMATION. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER PRIOR TO THE START OF ANY WORK.
2. BEARINGS, COORDINATES AND ELEVATIONS SHOWN ON THIS PLAN ARE SHOWN IN MARYLAND STATE PLANE. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88.
3. FOR PROJECT GENERAL NOTES, SEE THE COVER SHEET.

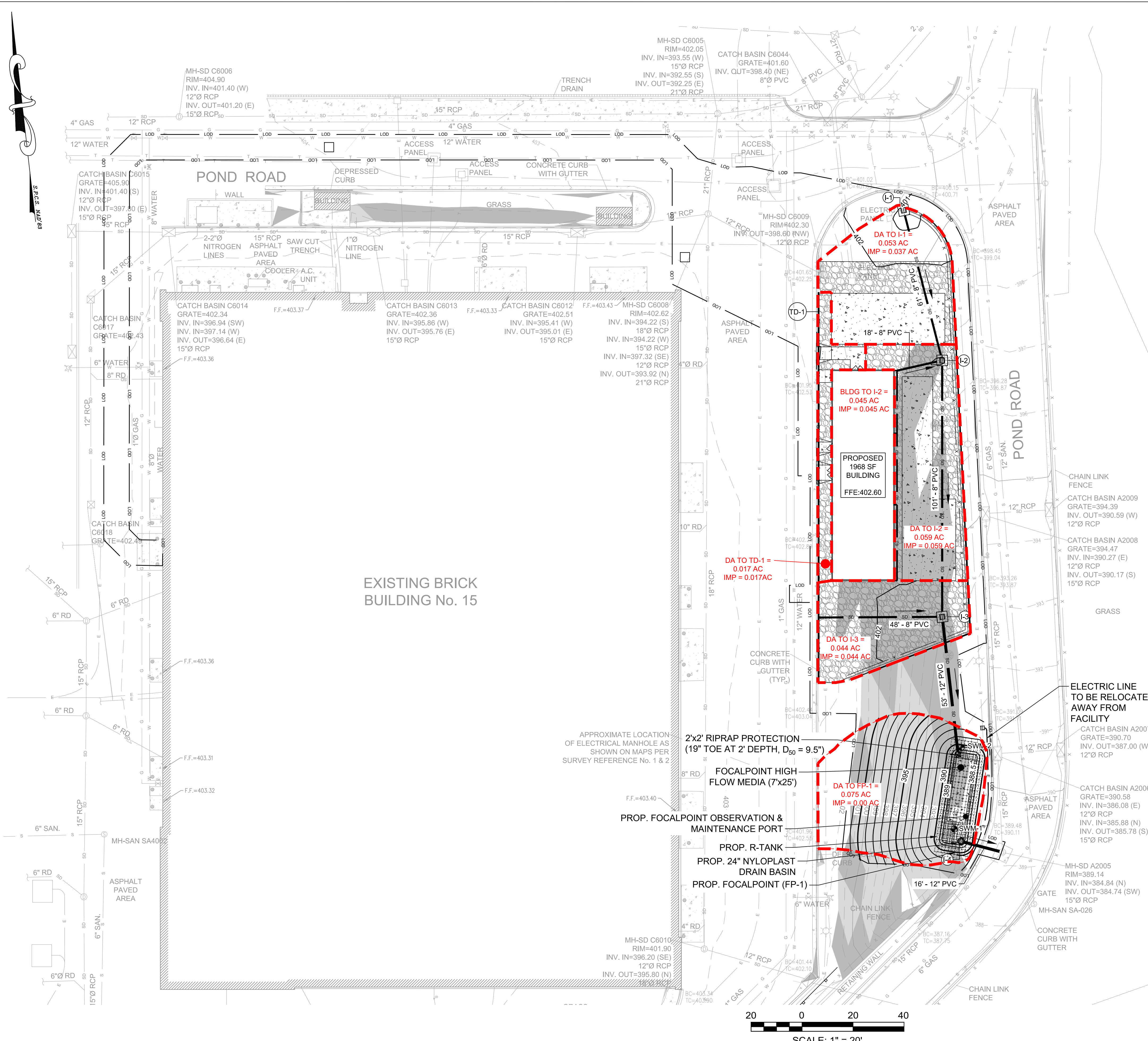
| DRAINAGE AREA SUMMARY TABLE | | | |
|-----------------------------|---------------|------------------|-----------------------|
| NO. | TYPE | TOTAL AREA (AC.) | IMPERVIOUS AREA (AC.) |
| BLDG | ROOF DRAINAGE | 0.045 | 0.045 |
| I-1 | YARD INLET | 0.053 | 0.037 |
| I-2 | YARD INLET | 0.078 | 0.078 |
| TD-1 | TRENCH DRAIN | 0.042 | 0.042 |
| FP-1 | FOCALPOINT | 0.075 | 0.00 |

EXISTING LEGEND

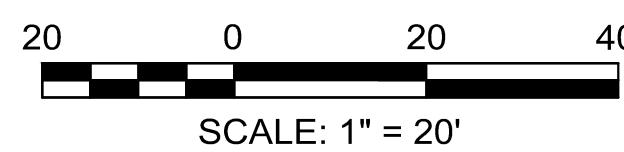
- BUILDING
- CURB AND GUTTER
- TREE LINE / BRUSH LINE
- 405 MAJOR CONTOUR
- 404 MINOR CONTOUR
- DITCH
- ELECTRIC
- COMMUNICATIONS
- GAS
- STORM
- SANITARY
- WATER
- ⊙ ELECTRIC POLE / LIGHT POLE
- ⊙ ELECTRIC MANHOLE
- ⊙ COMMUNICATIONS ACCESS PANEL
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- ⊙ STORM CLEAN OUT
- ⊙ SANITARY MANHOLE AND IDENTIFIER
- ⊙ WATER VALVE
- ⊙ FIRE HYDRANT
- ⊙ GAS VALVE
- ▨ STEEP SLOPE (15-25%) = 5,133 SF (0.14 AC.)
- ▨ STEEP SLOPE (OVER 25%) = 2,750 SF (0.05 AC.)

PROPOSED LEGEND

- LOD LIMITS OF DISTURBANCE (LOD)
- ▭ BUILDING
- CURB AND GUTTER
- ▨ CONCRETE
- ▨ GRAVEL
- 420 MAJOR CONTOUR
- 421 MINOR CONTOUR
- RETAINING WALL
- FENCE
- STORM DRAIN
- ▭ YARD INLET
- ▨ FOCAL POINT FACILITY (SURFACE STORAGE & FOCAL POINT BED)
- ▨ (200) DOUBLE SD R-TANK MODULES
- ⊙ BORING LOG LOCATION (SEE LOG REPORTS ON SHEET C5.02)
- DRAINAGE AREA BOUNDARY



EXISTING BRICK BUILDING No. 15



APPROVED: DEPARTMENT OF PLANNING AND ZONING
 4/16/2024
 Chief, Development Engineering Division
 Date: 4/17/2024
 Chief, Division of Land Management
 Date: 4/17/2024
 Director



Engineering, Planning, Architecture, Surveying Inc.



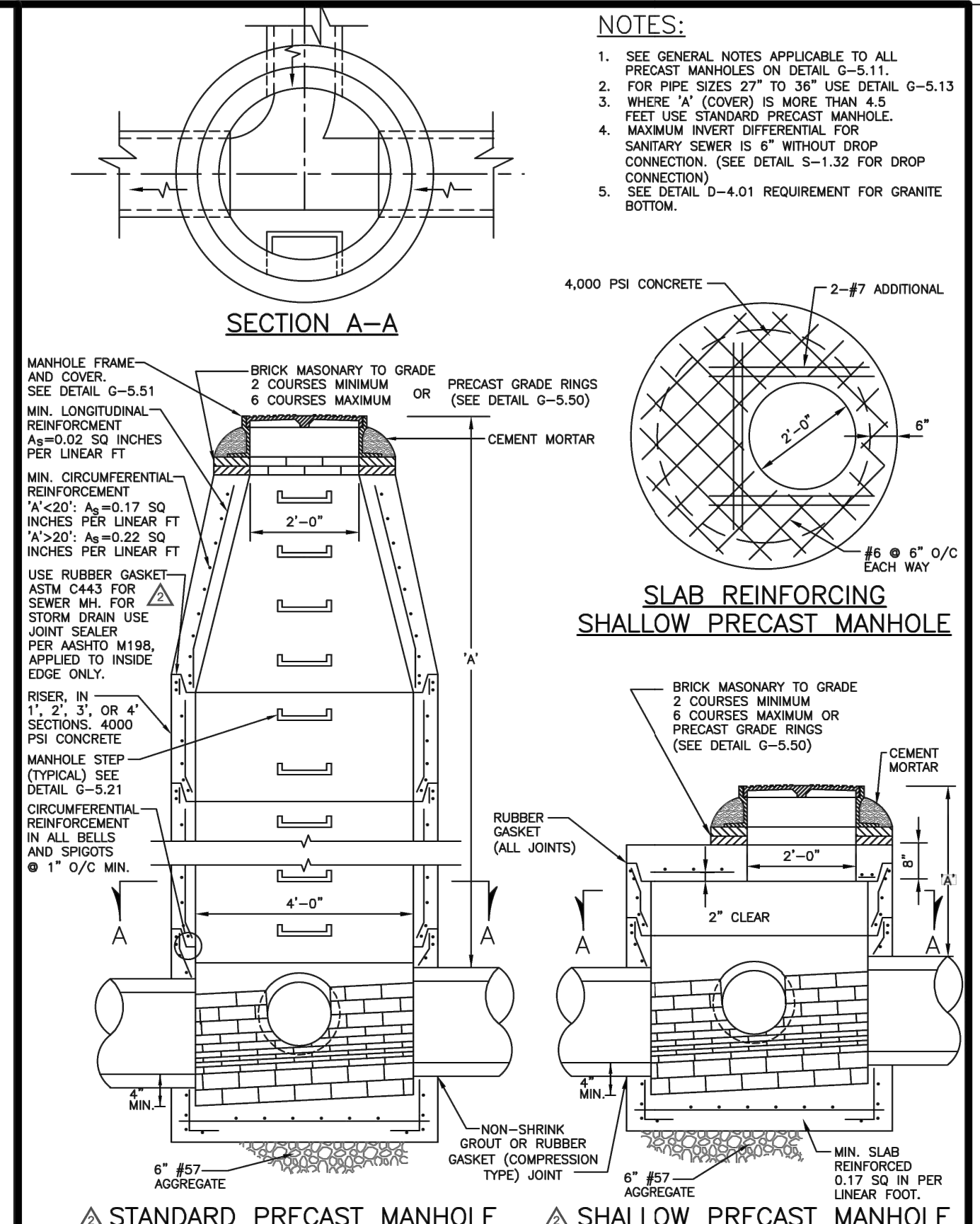
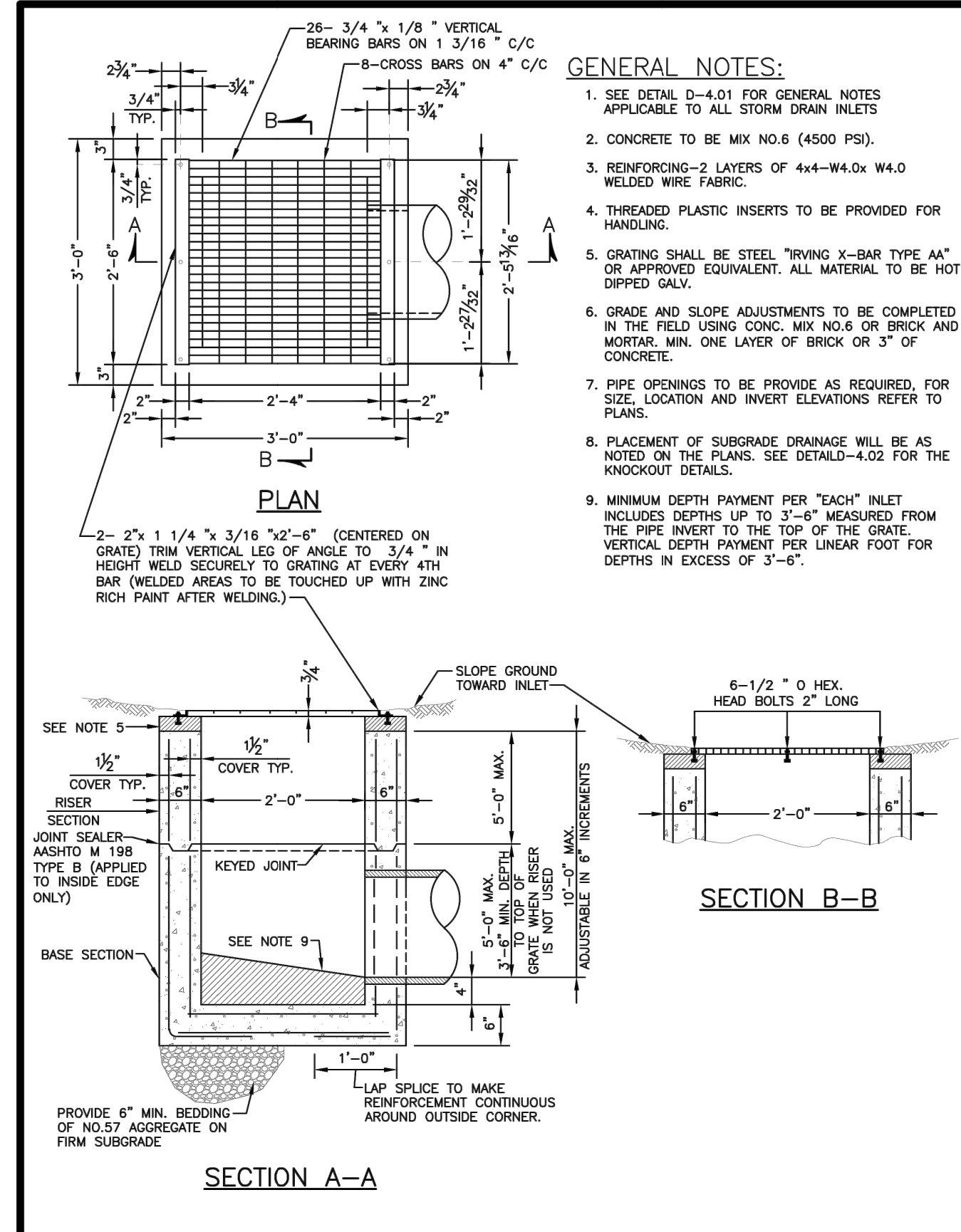
PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 49432, EXPIRATION DATE: 06/30/2024

| | | | |
|-------------|------------|----------|------|
| DESIGN BY: | DTP | | |
| DRAWN BY: | EKW | | |
| CHECKED BY: | CWWM | | |
| DATE: | 11/13/2023 | BY | NO. |
| | | | |
| | | REVISION | DATE |

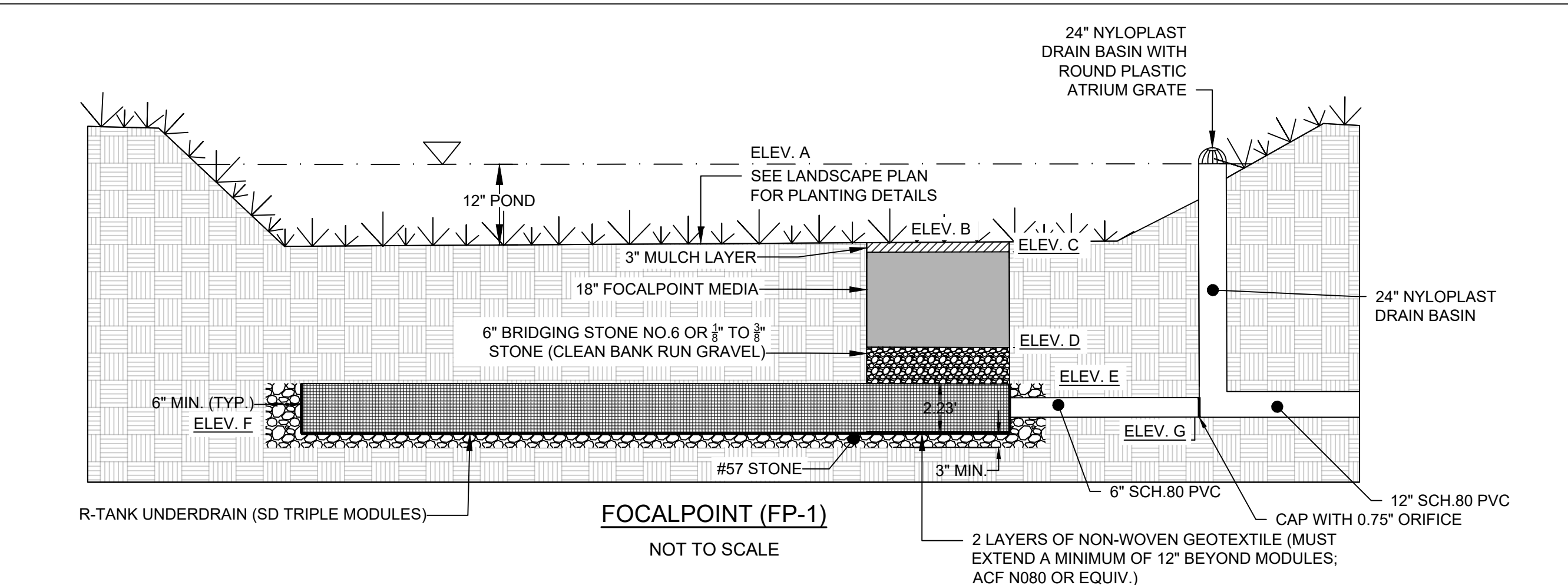
OWNER/DEVELOPER
 JOHNS HOPKINS
 APPLIED PHYSICS LABORATORY
 11100 JOHNS HOPKINS ROAD
 LAUREL, MARYLAND 20723

PROPOSED DRAINAGE AREA MAP
 JOHNS HOPKINS UNIVERSITY - APPLIED PHYSICS LABORATORY
HDC SCALABLE DATA CENTER
 11100 JOHNS HOPKINS ROAD
 TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
 ELECTION DISTRICT: 5 HOWARD COUNTY, MARYLAND
 SHEET 11 OF 20

C5.03
 RK&K PROJECT NUMBER
 21047.017
 SCALE:
 1" = 20'



| AS-BUILT DATA FOR FOCAL POINT | | |
|--|--|-----------|
| *TO BE COMPLETED BY THE CONTRACTOR'S CERTIFYING ENGINEER | | |
| FACILITY NAME: FOCAL POINT FACILITY 1 - FP-1 | | |
| FEATURE | DESIGN | *AS-BUILT |
| OVERFLOW INLET ELEVATION | 389.5' | |
| FILTER BED SURFACE AREA | 175 SF | |
| FILTER BED DIMENSIONS (L X W X D) | 25' X 7' X 2.25' | |
| FILTER BED SURFACE ELEVATION | 388.5' | |
| OUTLET PIPE SIZE / INVERT | 12" / 385.07' | |
| ELEVATION OF BERM | 390' | |
| THICKNESS OF FILTER MEDIA | 1.5' | |
| PLANTINGS | PER FOCALPOINT APPROVED LIST | |
| GEOTEXTILE | 2 LAYERS, EXTEND MIN. 12" BEYOND MODULES | |
| UNDERDRAIN | 200 R-TANK DOUBLE MODULES | |
| COMPOSITION OF FILTER MEDIA | FOCALPOINT MEDIA | |
| OVERFLOW INLET STRUCTURE LOCATION: MD STATE PLANE COORDINATES NAD 83 | 1342071.0891' 546202.4663' | |



| FOCALPOINT DATA | | | | | | | |
|-----------------|--------------------------|-----------------------------|--|---|--|---|---------------------------------|
| FACILITY | TOP OF PONDING (ELEV. A) | TOP OF MULCH LAYER (ELE. B) | TOP OF FOCALPOINT SOIL (FPS) - (ELEV. C) | BOTTOM OF FPS / TOP OF BRIDGING STONE (ELEV. D) | BOTTOM OF CHOKER LAYER / TOP OF R-TANK LAYER (ELEV. E) | BOTTOM OF R-TANK LAYER / GEOTEXTILE (ELEV. F) | OUTLET PIPE INV. ELEV (ELEV. G) |
| FP-1 | 389.50 | 388.50 | 388.25 | 386.75 | 386.25 | 384.74 | 385.07 |

CONTRACTOR AS-BUILT NOTE

AS-BUILT PLANS AND CERTIFICATION ARE REQUIRED FOR THIS STORMWATER MANAGEMENT FACILITY. THESE MUST BE PREPARED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER, OBTAINED BY THE CONTRACTOR, HOWARD COUNTY OR THE OWNER'S ENGINEER WILL NOT PERFORM INSPECTION OR PREPARE THE AS-BUILT PLANS OR CERTIFICATION. THE STORMWATER MANAGEMENT PERMIT SECURITY WILL NOT BE RELEASED UNTIL THE AS-BUILT PLANS AND CERTIFICATION ARE APPROVED BY HOWARD COUNTY.

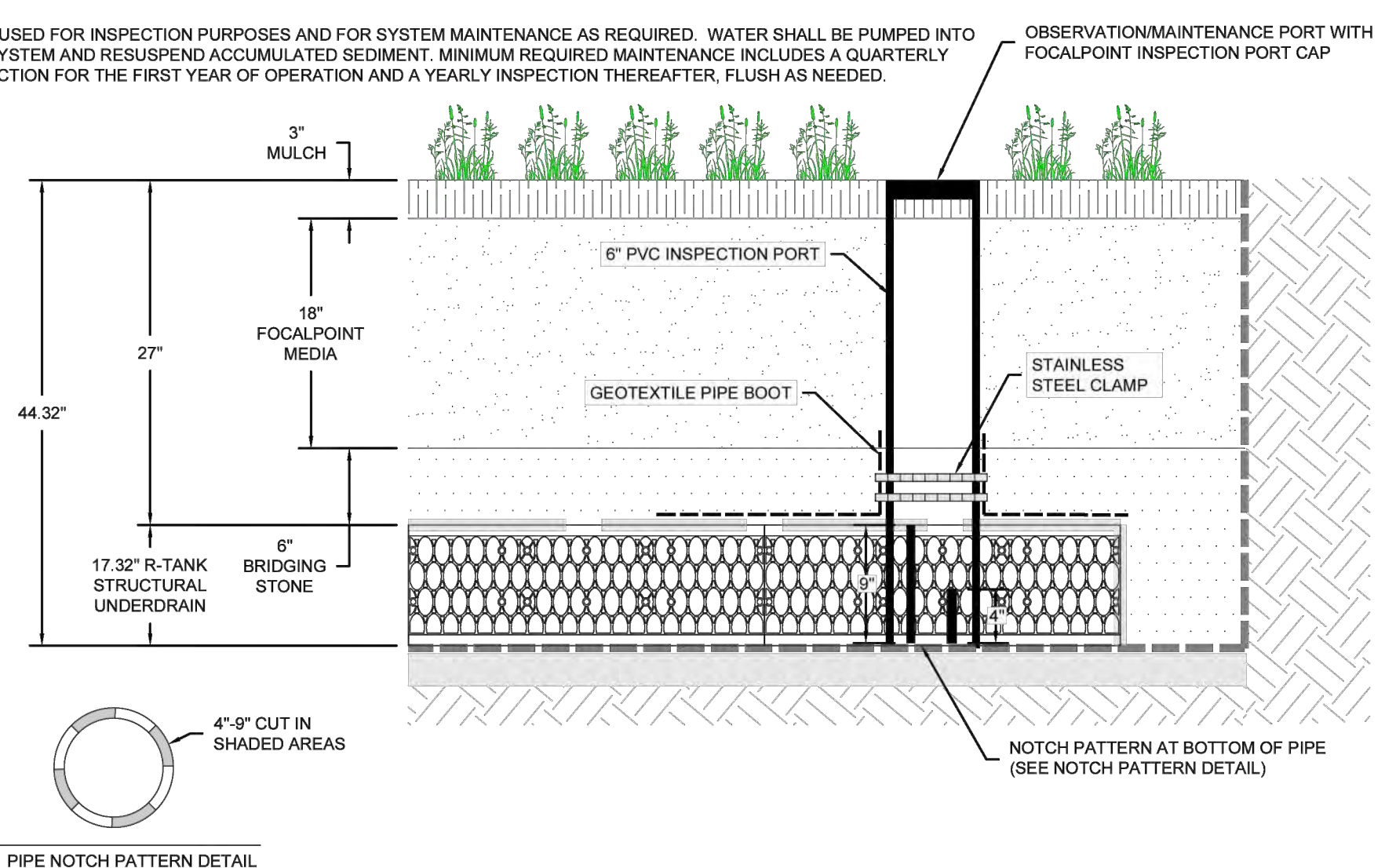
IN ORDER TO PREPARE THE REQUIRED AS-BUILT PLANS AND CERTIFICATION, THIS STORMWATER MANAGEMENT FACILITY MUST BE INSPECTED BY THE CONTRACTOR'S ENGINEER AT SPECIFIC STAGES DURING CONSTRUCTION AND AS REQUIRED BY THE CURRENT HOWARD COUNTY STORMWATER MANAGEMENT POLICY AND DESIGN MANUAL. THE CONTRACTOR SHALL NOTIFY THE CONTRACTOR'S ENGINEER AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING ANY WORK SHOWN ON THESE PLANS.

FOCALPOINT BIOFILTER: OPERATION AND MAINTENANCE

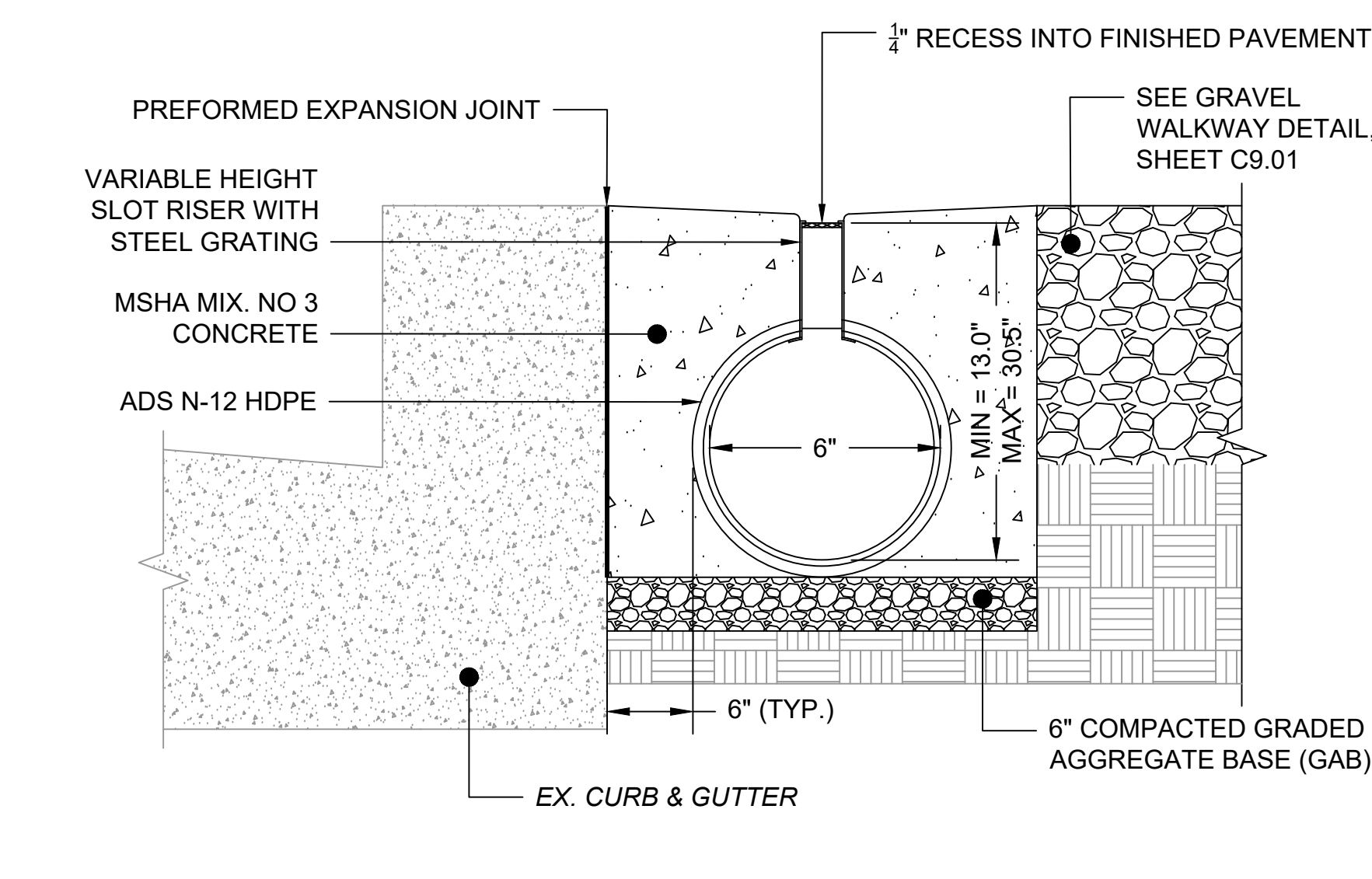
- ANNUAL MAINTENANCE OF PLANT MATERIAL, MULCH LAYER AND SOIL LAYER IS REQUIRED. MAINTENANCE OF MULCH AND SOIL IS LIMITED TO CORRECTING AREAS OF EROSION OR WASH OUT. ANY MULCH REPLACEMENT SHALL BE DONE IN THE SPRING. PLANT MATERIAL SHALL BE CHECKED FOR DISEASE AND INSECT INFESTATION AND MAINTENANCE WILL ADDRESS DEAD MATERIAL AND PRUNING. ACCEPTABLE REPLACEMENT PLANT MATERIAL IS LIMITED TO THE FOLLOWING: 2000 MARYLAND STORMWATER DESIGN MANUAL VOLUME II, TABLE A.4.1 AND 2.
- SCHEDULE OF PLANT INSPECTION WILL BE TWICE A YEAR IN SPRING AND FALL. THIS INSPECTION WILL INCLUDE REMOVAL OF DEAD AND DISEASED VEGETATION CONSIDERED BEYOND TREATMENT, TREATMENT OF ALL DISEASED TREES AND SHRUBS AND REPLACEMENT OF ALL DEFICIENT STAKES AND WIRES.
- MULCH SHALL BE INSPECTED EACH SPRING. REMOVE PREVIOUS MULCH LAYER BEFORE APPLYING NEW LAYER ONCE EVERY 2 TO 3 YEARS.
- SOIL EROSION TO BE ADDRESSED ON AN AS NEEDED BASIS, WITH A MINIMUM OF ONCE PER MONTH AND AFTER HEAVY STORM EVENTS.
- IF SEDIMENT ACCUMULATES BEYOND AN ACCEPTABLE LEVEL IN THE UNDERDRAIN/STORAGE SYSTEM, IT WILL BE NECESSARY TO FLUSH THE UNDERDRAIN. THIS CAN BE DONE BY PUMPING WATER INTO THE OBSERVATION/MAINTENANCE PORT OR ADJACENT OVERFLOW STRUCTURE, ALLOWING THE TURBULENT FLOWS THROUGH THE UNDERDRAIN TO RE-SUSPEND THE FINE SEDIMENTS. SEDIMENT-LADEN WATER CAN BE PUMPED OUT AND EITHER CAPTURED FOR DISPOSAL OR FILTERED THROUGH A DIRTBAG FILTER BAG.

STORMWATER MANAGEMENT SEQUENCE OF CONSTRUCTION

- NOTIFY THE SWM AS-BUILT INSPECTOR AND THE HOWARD COUNTY ESC INSPECTOR IN WRITING AT LEAST FIVE (5) DAYS PRIOR TO BEGINNING WORK ON THE FOCALPOINT FACILITY.
- HOLD AND DOCUMENT SWM PRECONSTRUCTION MEETING BETWEEN THE CONTRACTOR, AS-BUILT INSPECTOR, AND HOWARD COUNTY ESC INSPECTOR TO REVIEW THE PLANS AND ANSWER QUESTIONS REGARDING CONSTRUCTION AND/OR INSPECTION PROCEDURES.
- CONSTRUCTION OF STORMWATER MANAGEMENT FACILITY SHALL BE COORDINATED WITH EROSION AND SEDIMENT CONTROL SEQUENCE OF CONSTRUCTION.
- CONTRACTOR TO PERFORM GEOTECHNICAL BORING TO ENSURE DEPTH TO ROCK AND WATER TABLE IS A MINIMUM OF 4" BELOW PROPOSED FOCALPOINT FACILITY. REPORT RESULTS OF THE GEOTECHNICAL BORING TO THE ENGINEER.
- WITH HOWARD COUNTY ESC INSPECTOR'S WRITTEN APPROVAL, BEGIN EXCAVATION OF FOCALPOINT FACILITY IN A MANNER THAT MINIMIZES COMPACTION OF THE UNDERLYING SOILS. SCARIFY THE BOTTOM OF THE FACILITY PRIOR TO PLACEMENT OF UNDERDRAIN GRAVEL.
- ONCE CONTRIBUTING DRAINAGE AREAS HAVE BEEN STABILIZED BEGIN EXCAVATION OF FOCALPOINT FACILITY AREAS.
- CONTRACTOR TO EXCAVATE THE FOOTPRINT OF THE FOCALPOINT FACILITY TO THE FULL DEPTH OF THE SECTION.
- CONTRACTOR IS TO TAKE EXTRA CARE TO PROTECT THE FOCALPOINT FACILITY DURING CONSTRUCTION FROM BECOMING POLLUTED WITH SEDIMENT. THE CONTRACTOR IS REQUIRED TO PROTECT THE SLOPES INTO THE FOCALPOINT FACILITY DURING CONSTRUCTION FROM EROSION UTILIZING TEMPORARY SEED AND STRAW, JUTE MESH, OR OTHER PROTECTION DEVICES AS REQUIRED. BLOCK ALL ENTRIES TO THE PROPOSED FOCALPOINT FACILITY UNTIL THE ENTIRE SITE HAS BEEN PERMANENTLY STABILIZED PER EROSION AND SEDIMENT CONTROL PLANS.
- REGULAR INSPECTION SHALL BE MADE DURING THE FOLLOWING STAGES OF CONSTRUCTION OF THE FOCALPOINT BIOFILTER:
 - DURING EXCAVATION TO SUBGRADE AND PLACEMENT AND BACKFILL OF UNDERDRAIN SYSTEM
 - DURING PLACEMENT OF OBSERVATION WELLS
 - DURING PLACEMENT OF GEOTEXTILES AND ALL FILTER MEDIA
 - DURING CONSTRUCTION AND INSTALLATION OF THE OUTLET STRUCTURE AND ASSOCIATED PIPING
 - UPON COMPLETION OF FINAL GRADING AND ESTABLISHMENT OF PERMANENT STABILIZATION AND BEFORE ALLOWING RUNOFF TO ENTER THE WETLAND
- INSTALL FOCALPOINT BIOFILTER PLANTINGS.
- CONTRACTOR TO CONTACT THE HOWARD COUNTY INSPECTOR FOR FINAL INSPECTION AND SIGN-OFF LETTER PRIOR TO PREPARING THE AS-BUILTS.
- WITH WRITTEN PERMISSION FROM THE HOWARD COUNTY INSPECTOR, REMOVE BLOCKAGES FROM FLOW ENTRY POINTS INTO FOCALPOINT FACILITY AREAS.
- AFTER OBTAINING SIGN-OFF LETTER FROM THE HOWARD COUNTY INSPECTOR, CONTRACTOR MAY PREPARE THE AS-BUILTS AND SUBMIT THEM TO THE OWNER/ENGINEER FOR REVIEW AND TRANSMISSION TO HOWARD COUNTY. CONTRACTOR AS-BUILT CERTIFYING ENGINEER SHALL SUBMIT STORMWATER MANAGEMENT AS-BUILT PLANS WITHIN 30 DAYS OF COMPLETION.



FOCALPOINT OBSERVATION & MAINTENANCE PORT DETAIL
NOT TO SCALE



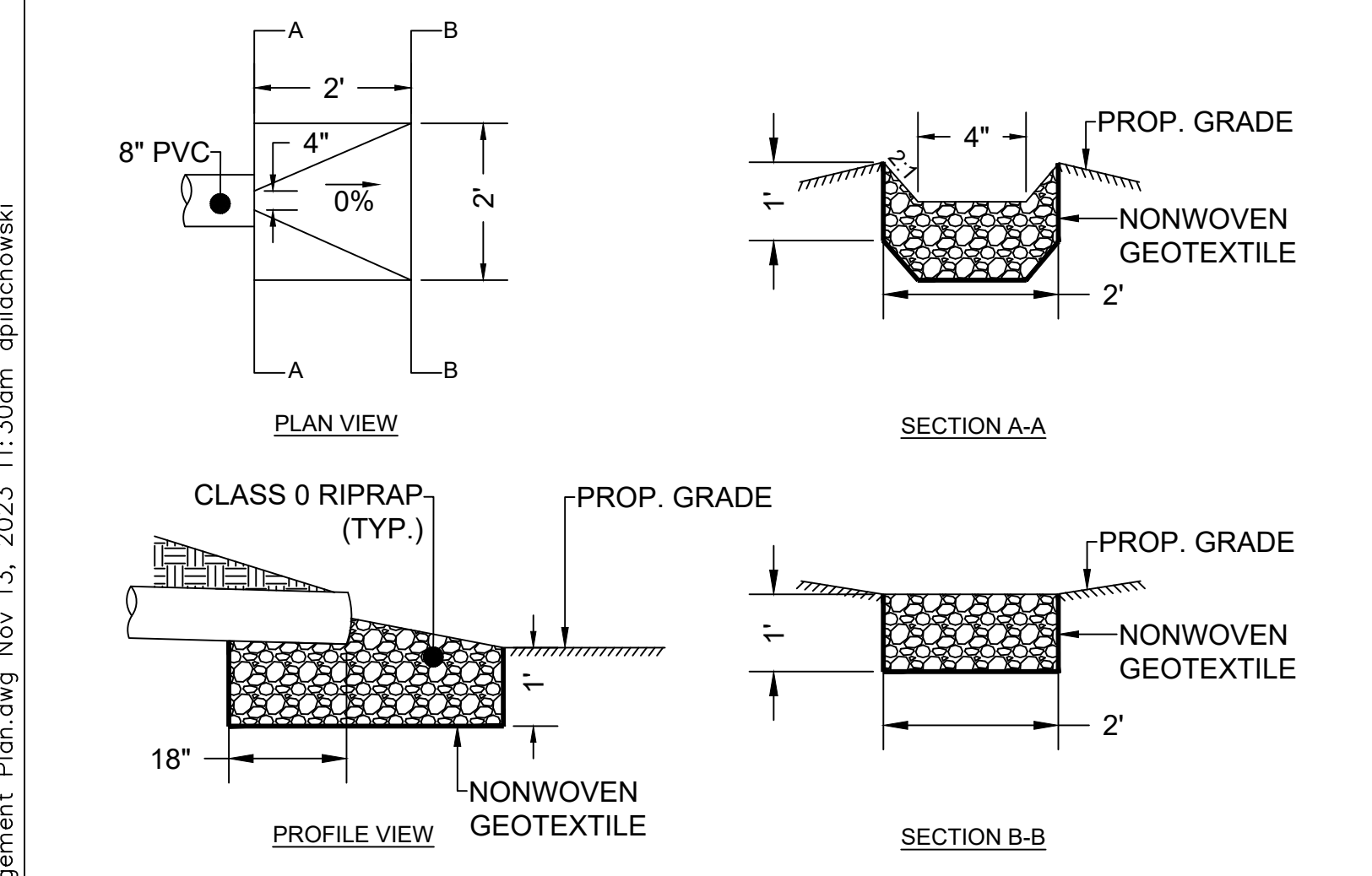
6" VARIABLE HEIGHT DURASLOT SLOTTED PIPE DRAIN (TD-1)
NOT TO SCALE

| | | | |
|---------|--|-----------------------|------------------|
| Revised | Howard County, Maryland Department of Public Works | YARD INLET Precast | Detail D-4.12 |
| Revised | Approved: <i>Promina & South</i> Chief, Bureau of Engineering | | |

| | | | |
|---------|--|---|------------------|
| Revised | Howard County, Maryland Department of Public Works | PRECAST MANHOLE Standard and Shallow 4'-0" for 24" Pipe and smaller | Detail G-5.12 |
| Revised | Approved: <i>Promina & South</i> Chief, Bureau of Engineering | | |

FOCALPOINT HIGH PERFORMANCE SPECIFICATION

- HIGH PERFORMANCE MEDIA**
- HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100" PER HOUR INFILTRATION RATE.
 - FIELD HYDRAULIC CONDUCTIVITY TESTING MUST BE CONDUCTED WITHIN 30 DAYS OF INSTALLATION.
 - FIELD TEST MUST BE CONDUCTED WITH PROSCRIBED INFILTRATOR AND SOP (SEE SPECIFICATION).
 - FAILURE TO MEET FIELD TESTING WILL RESULT IN THE REMOVAL OF MEDIA AND REPLACEMENT FROM ALTERNATE BATCH.
- HIGH PERFORMANCE STRUCTURAL UNDERDRAIN**
- MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
 - MUST MEET H-20 LOADING REQUIREMENTS.
 - CONTRACTOR MUST SUBMIT SIGNED AND SEALED CALCULATIONS BY A MARYLAND LICENSED STRUCTURAL ENGINEER SHOWING THE R-TANK MEETS H-20 LOADING.
 - MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
 - MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.
- PLANT COMPONENT**
- SUPPLIER SHALL PROVIDE LIST OF ACCEPTABLE PLANTS. IF PLANTS ARE NOT INCLUDED IN THE LANDSCAPE CONTRACT/PLANS, SITE CONTRACTOR SHALL PROVIDE PLANTS.
 - PLANTS SHALL BE INSTALLED AT THE TIME THE SYSTEM IS COMMISSIONED FOR USE. PLANTING OUTSIDE THIS TIME REQUIRES APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT OF RECORD.
 - SEE FOCALPOINT INSTALLATION GUIDE FOR PLANT SPACING, PLANTING PROCEDURES ETC.



RIP RAP OUTFALL PROTECTION DETAIL
NOT TO SCALE

RIP RAP OUTFALL PROTECTION NOTES

- RIPRAP AND STONE MUST CONFORM TO CLASS 0.
- ENSURE THAT STONE FOR RIPRAP IS UNIFORMLY GRADED FROM THE SMALLEST TO THE LARGEST PIECES. OPTIMUM GRADATION IS 50 PERCENT OF THE STONE BEING ABOVE AND 50 PERCENT BELOW THE MIDSIZE. REASONABLE VISUAL TOLERANCES WILL APPLY.
- PROTECT NONWOVEN GEOTEXTILE FROM PUNCTURING, CUTTING, OR TEARING. PROVIDE A MINIMUM OF ONE FOOT OF OVERLAP FOR ALL REPAIRS AND FOR JOINING TWO PIECES OF GEOTEXTILE TOGETHER. EXTEND GEOTEXTILE AT LEAST 6 INCHES BEYOND EDGES OF RIPRAP AND EMBED AT LEAST 4 INCHES AT SIDES OF THE RIPRAP.
- EXTEND THE STONE UNDER THE OUTLET PIPE BY A MINIMUM OF 18 INCHES.
- CONSTRUCT APRON WITH 0% SLOPE ALONG ITS LENGTH AND WITHOUT OBSTRUCTIONS. PLACE STONE SO THAT IT BLENDS WITH EXISTING GROUND.

| | |
|--|-----------|
| APPROVED: DEPARTMENT OF PLANNING AND ZONING 4/16/2024 | Date |
| Chief, Development Engineering Division | 4/17/2024 |
| Chief, Division of Land Development | 4/17/2024 |
| Director | Date |

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DESIGN BY: DTP
DRAWN BY: EKW
CHECKED BY: CWWM
DATE: 11/13/2023

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

OWNER/DEVELOPER
JOHNS HOPKINS
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

PROPOSED STORM DRAIN DETAILS
JOHNS HOPKINS UNIVERSITY -
APPLIED PHYSICS LABORATORY
HDC SCALABLE DATA CENTER
11100 JOHNS HOPKINS ROAD
TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
ELECTION DISTRICT: 5 HOWARD COUNTY, MARYLAND
SHEET 12 OF 20

C5.04
RK&K PROJECT NUMBER
21047.017

PERMANENT STABILIZATION NOTE
UNLESS OTHERWISE NOTED, ALL DISTURBED AREAS SHOULD RECEIVE 4" OF TOPSOIL AND SEED MIX CONTAINING 70% TURF TYPE TALL FESCUE AND 30% PERENNIAL RYE, WITH A CURLEX COVERING. LOOSE STRAW IS NOT PERMITTED.

LANDCOVER SUMMARY
LIMITS OF DISTURBANCE.....0.54 AC
EX. IMPERVIOUS AREA.....0.17 AC
PROP. IMPERVIOUS AREA.....0.37 AC
CUT.....40 CU
FILL.....950 CU

HOWARD COUNTY STANDARD SEDIMENT CONTROL NOTES

- 1. ALL VEGETATIVE AND STRUCTURAL PRACTICES ARE TO BE INSTALLED ACCORDING TO THE PROVISIONS OF THIS PLAN AND ARE TO BE IN CONFORMANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND REVISIONS THERETO. FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION IS REQUIRED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED AREAS ON THE PROJECT SITE EXCEPT FOR THOSE AREAS UNDER ACTIVE GRADING.
- 2. ALL DISTURBED AREAS MUST BE STABILIZED WITHIN THE TIME PERIOD SPECIFIED ABOVE IN ACCORDANCE WITH THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL FOR TOPSOIL (SEC. B-4-2), PERMANENT SEEDING (SEC. B-4-5), TEMPORARY SEEDING (SEC. B-4-4) AND MULCHING (SEC. B-4-3). TEMPORARY STABILIZATION WITH MULCH ALONE CAN ONLY BE APPLIED BETWEEN THE FALL AND SPRING SEEDING DATES IF THE GROUND IS FROZEN. INCREMENTAL STABILIZATION (SEC. B-4-1) SPECIFICATIONS SHALL BE ENFORCED IN AREAS WITH +15' OF CUT AND/OR FILL. STOCKPILES (SEC. B-4-8) IN EXCESS OF 20 FT. MUST BE BENCHED WITH STABLE OUTLET. ALL CONCENTRATED FLOW, STEEP SLOPE, AND HIGHLY ERODIBLE AREAS SHALL RECEIVE SOIL STABILIZATION MATTING (SEC. B-4-6).
- 3. ALL SEDIMENT CONTROL STRUCTURES ARE TO REMAIN IN PLACE, AND ARE TO BE MAINTAINED IN OPERATIVE CONDITION UNTIL PERMISSION FOR THEIR REMOVAL HAS BEEN OBTAINED FROM THE CID.
- 4. SITE ANALYSIS:
 - *TOTAL AREA OF SITE: 0.54 ACRES
 - *SWM STUDY AREA DISTURBED: 0.39 ACRES
 - *AREA TO BE ROOFED OR PAVED: 0.3 ACRES
 - *AREA TO BE VEGETATIVELY STABILIZED: 0.17 ACRES
 - *TOTAL CUT: 40 CU. YDS.
 - *TOTAL FILL: 950 CU. YDS.
 - *OFFSITE WASTE/BORROW AREA LOCATION: TBD BY CONTRACTOR (MUST COME FROM A SITE WITH AN ACTIVE GRADING PERMIT)
- 5. ANY SEDIMENT CONTROL PRACTICE WHICH IS DISTURBED BY GRADING ACTIVITY FOR PLACEMENT OF UTILITIES MUST BE REPAIRED ON THE SAME DAY OF DISTURBANCE.
- 6. ADDITIONAL SEDIMENT CONTROL MUST BE PROVIDED, IF DEEMED NECESSARY BY APL, THE SITE AND ALL CONTROLS SHALL BE INSPECTED BY THE CONTRACTOR WEEKLY, AND THE NEXT DAY AFTER EACH RAIN EVENT. A WRITTEN REPORT BY THE CONTRACTOR, MADE AVAILABLE UPON REQUEST, IS PART OF EVERY INSPECTION AND SHOULD INCLUDE:
 - INSPECTION DATE
 - INSPECTION TYPE (ROUTINE, PRE-STORM EVENT, DURING RAIN EVENT)
 - NAME AND TITLE OF INSPECTOR
 - WEATHER INFORMATION (CURRENT CONDITIONS AS WELL AS TIME AND AMOUNT OF LAST RECORDED PRECIPITATION)
 - BRIEF DESCRIPTION OF PROJECT'S STATUS (E.G., PERCENT COMPLETE) AND/OR CURRENT ACTIVITIES
 - EVIDENCE OF SEDIMENT DISCHARGES
 - IDENTIFICATION OF PLAN DEFICIENCIES
 - IDENTIFICATION OF SEDIMENT CONTROLS THAT REQUIRE MAINTENANCE
 - IDENTIFICATION OF MISSING OR IMPROPERLY INSTALLED SEDIMENT CONTROLS
 - COMPLIANCE STATUS REGARDING THE SEQUENCE OF CONSTRUCTION AND STABILIZATION REQUIREMENTS
 - PHOTOGRAPHS
 - MONITORING/SAMPLING
 - MAINTENANCE AND/OR CORRECTIVE ACTION PERFORMED
 - OTHER INSPECTION ITEMS AS REQUIRED BY THE GENERAL PERMIT FOR STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES (NPDES, MDE).
- 7. TRENCHES FOR THE CONSTRUCTION OF UTILITIES IS LIMITED TO THREE PIPE LENGTHS OR THAT WHICH CAN AND SHALL BE BACK-FILLED AND STABILIZED BY THE END OF EACH WORKDAY, WHICHEVER IS SHORTER.
- 8. DISTURBANCE SHALL NOT OCCUR OUTSIDE THE L.O.D.
- 9. WASH WATER FROM ANY EQUIPMENT, VEHICLES, WHEELS, PAVEMENT, AND OTHER SOURCES MUST BE TREATED IN A SEDIMENT BASIN OR OTHER APPROVED WASHOUT STRUCTURE.
- 10. TOPSOIL SHALL BE STOCKPILED AND PRESERVED ON-SITE FOR REDISTRIBUTION ONTO FINAL GRADE.
- 11. A COPY OF THIS PLAN, THE 2011 MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL, AND ASSOCIATED PERMITS SHALL BE ON-SITE AND AVAILABLE WHEN THE SITE IS ACTIVE.
- 12. THE AT-GRADE INLET PROTECTIONS IN POND ROAD ARE TO BE INSTALLED PRIOR TO THE SUPER SILT FENCE.

GENERAL NOTES

- 1. TOPOGRAPHIC, SURVEY, AND UTILITY INFORMATION SHOWN WAS OBTAINED FROM LAN ASSOCIATES ON JULY 13, 2023. TOPOGRAPHIC AND UTILITY INFORMATION MAY NOT REFLECT CURRENT CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ACTUAL SITE CONDITIONS PRIOR TO THE START OF ANY WORK. THERE IS NO WARRANTY OR GUARANTEE ON THE COMPLETENESS OR CORRECTNESS OF THE EXISTING CONDITION INFORMATION. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ENGINEER PRIOR TO THE START OF ANY WORK.
- 2. BEARINGS, COORDINATES AND ELEVATIONS SHOWN ON THIS PLAN ARE SHOWN IN MARYLAND STATE PLANE. ALL VERTICAL CONTROLS ARE BASED ON NAVD 88.
- 3. FOR PROJECT GENERAL NOTES, SEE THE COVER SHEET.

STANDARD STABILIZATION NOTE

FOLLOWING INITIAL SOIL DISTURBANCE OR RE-DISTURBANCE, SEEDING FOR PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED WITHIN THREE (3) CALENDAR DAYS AS TO THE SURFACE OF ALL PERIMETER CONTROLS, DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES GREATER THAN 3 HORIZONTAL TO 1 VERTICAL (3:1); AND SEVEN (7) CALENDAR DAYS AS TO ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE NOT UNDER ACTIVE GRADING. ONCE VEGETATION IS ESTABLISHED, THE SITE SHALL HAVE 95% GROUND COVER TO BE CONSIDERED ADEQUATELY STABILIZED.

Owners/Developer Certification:
"I/We hereby certify that any clearing, grading, construction, or development will be done pursuant to this approved erosion and sediment control plan, including inspecting and maintaining controls, and that the responsible personnel involved in the construction project will have a Certificate of Training at a Maryland Department of the Environment (MDE) approved training program for the control on erosion and sediment prior to beginning the project. I certify right-of-entry for periodic on-site evaluation by Howard County, the Howard Soil Conservation District and/or MDE."
Nicholas A. Laswell, RE., AGS FDC
Date: 9/20/2023
Printed Name & Title

Design Certification:
"I hereby certify that this plan has been designed in accordance with current Maryland erosion and sediment control laws, regulations, and standards, that it represents a practical and workable plan based on my personal knowledge of the site, and that it was prepared in accordance with the requirements of the Howard Soil Conservation District."
Charles W. Mitchell, III
Date: 09/26/2023
Printed Name: Charles W. W. Mitchell, III
MD Registration No. 49432
P.E., R.L.S., or R.L.A. (circle one)

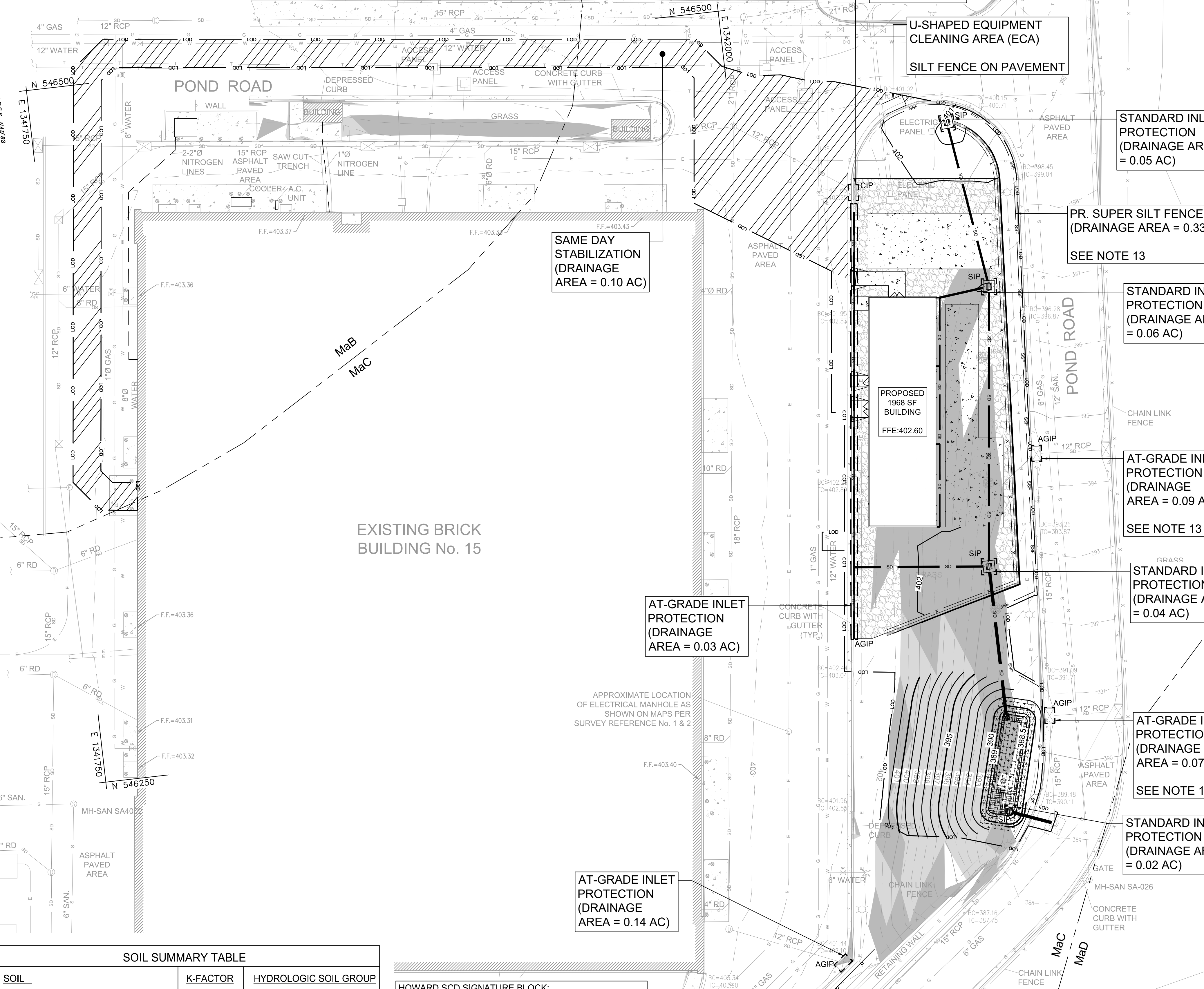
EXISTING LEGEND

- BUILDING
- CURB AND GUTTER
- TREE LINE / BRUSH LINE
- MAJOR CONTOUR
- MINOR CONTOUR
- DITCH
- ELECTRIC
- COMMUNICATIONS
- GAS
- STORM
- SANITARY
- WATER
- ELECTRIC POLE / LIGHT POLE
- ELECTRIC MANHOLE
- COMMUNICATIONS ACCESS PANEL
- STORM MANHOLE AND IDENTIFIER
- STORM INLET AND IDENTIFIER
- STORM CLEAN OUT
- SANITARY MANHOLE AND IDENTIFIER
- WATER VALVE
- FIRE HYDRANT
- GAS VALVE
- STEEP SLOPE (15-25%) = 5,133 SF (0.14 AC.)
- STEEP SLOPE (OVER 25%) = 2,750 SF (0.05 AC.)

ESC LEGEND

- LIMIT OF DISTURBANCE (LOD)
- SUPER SILT FENCE
- SAME DAY STABILIZATION
- AGIP AT-GRADE INLET PROTECTION
- CIP CURB-INLET PROTECTION
- SIP STANDARD INLET PROTECTION
- SOIL BOUNDARY

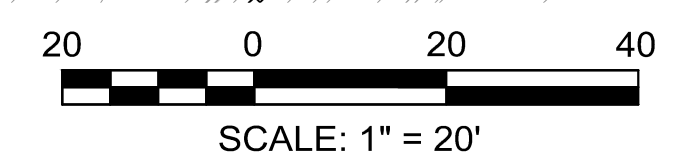
C6.01



SOIL SUMMARY TABLE

| SOIL | K-FACTOR | HYDROLOGIC SOIL GROUP |
|---------------------------------|----------|-----------------------|
| MaB (MANOR LOAM, 3-8% SLOPE) | 0.37 | B |
| MaC (MANOR LOAM, 8-15% SLOPE) | 0.28 | B |
| MaD (MANOR LOAM (15-25% SLOPE)) | 0.28 | B |

HOWARD SCD SIGNATURE BLOCK:
This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
Designed by: Alexander Enathis, 4/17/2024
Howard Soil Conservation District, Date



SEQUENCE OF CONSTRUCTION

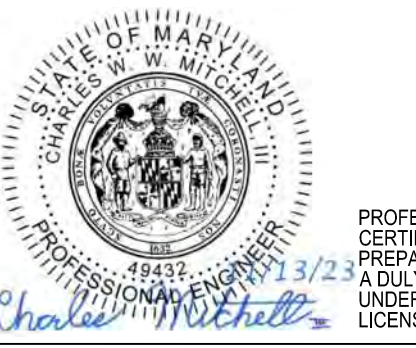
- 1. CLEAR AS NECESSARY FOR INSTALLATION OF THE SEDIMENT CONTROL DEVICES AND MEASURES AS SHOWN ON THE PLAN OR AS DIRECTED BY THE SEDIMENT CONTROL INSPECTOR. 5 DAYS
- 2. INSTALL EROSION AND SEDIMENT CONTROL MEASURES: AT-GRADE INLET PROTECTIONS, STANDARD INLET PROTECTIONS, CURB INLET PROTECTIONS, SILT FENCE ON PAVEMENT, AND SUPER SILT FENCE. 5 DAYS
- 3. BEGIN DEMOLITION AND/OR RELOCATION OF EXISTING STRUCTURES, PAVING, CURB, UTILITY SERVICES, AND SITE FEATURES. 15 DAYS
- 4. BEGIN MASS GRADING FOR BUILDINGS AND PAVEMENT AFTER CLEARING AND GRUBBING AND PROVIDE WITH TEMPORARY STABILIZATION AS REQUIRED AND NECESSARY. 15 DAYS
- 5. INSTALL PROPOSED STORM DRAIN USING TRENCHES AND STABILIZE AREAS AT THE END OF EACH WORK DAY. INSTALL INLET PROTECTION AT INLETS UPON COMPLETION. 30 DAYS
- 6. BEGIN RETAINING WALL CONSTRUCTION. AREA ON HIGHER GRADE TO RESUME CONSTRUCTION UPON COMPLETION AND STABILIZATION OF RETAINING WALL. 30 DAYS
- 7. BEGIN BUILDING CONSTRUCTION. 90 DAYS
- 8. UPON STABILIZATION OF THE ENTIRE CONTRIBUTING DRAINAGE AREA, INSTALL PROPOSED STORMWATER MANAGEMENT PRACTICES PER "STORMWATER MANAGEMENT SEQUENCE OF CONSTRUCTION" ON SHEET C5.04, AND STABILIZE AREAS AT THE END OF EACH WORK DAY. 45 DAYS
- 9. BEGIN FINE GRADING FOR INSTALLATION OF BASE PAVEMENT AND PROVIDE PERMANENT STABILIZATION. 20 DAYS
- 10. INSTALL SURFACE ASPHALT PAVING, CONCRETE PAVING, AND CURB & GUTTER. 10 DAYS
- 11. WITH APPROVAL OF THE SEDIMENT CONTROL INSPECTOR, REMOVE ALL REMAINING SEDIMENT CONTROLS AND STABILIZE AREAS DISTURBED BY THIS OPERATION. 2 DAYS

APPROVED: DEPARTMENT OF PLANNING AND ZONING
4/16/2024
Chief, Development Engineering Division
Chief, Division of Land Development
Director

LAN ASSOCIATES
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PH: 410.728.2900
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PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 49432, EXPIRATION DATE: 09/30/2024

DESIGN BY: DTP
DRAWN BY: EKW
CHECKED BY: CWW
DATE: 11/13/2023

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

OWNER/DEVELOPER
JOHNS HOPKINS APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

EROSION SEDIMENT CONTROL PLAN
JOHNS HOPKINS UNIVERSITY - APPLIED PHYSICS LABORATORY
HDC SCALABLE DATA CENTER
11100 JOHNS HOPKINS ROAD
ELECTION DISTRICT 5 - HOWARD COUNTY, MARYLAND
SHEET 13 OF 20

RK&K PROJECT NUMBER
21047.017
SCALE:
1" = 20'

DETAIL E-9-3 CURB INLET PROTECTION

STANDARD SYMBOL: CIP

CONSTRUCTION SPECIFICATIONS

- USE NOMINAL 2 INCH x 4 INCH LUMBER
- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- NAIL THE 2x4 WEIR TO 9 INCH LONG VERTICAL SPACERS (MAXIMUM 6 FEET APART).
- ATTACH A CONTINUOUS PIECE OF 1/4 INCH GALVANIZED HARDWARE CLOTH, WITH A MINIMUM WIDTH OF 30 INCHES AND A MINIMUM LENGTH OF 4 FEET LONGER THAN THE THROAT OPENING, TO THE 2x4 WEIR, EXTENDING IT 2 FEET BEYOND THROAT ON EACH SIDE.
- PLACE A CONTINUOUS PIECE OF NONWOVEN GEOTEXTILE OF THE SAME DIMENSIONS AS THE HARDWARE CLOTH OVER THE HARDWARE CLOTH AND SECURELY ATTACH TO THE 2x4 WEIR.
- PLACE THE ASSEMBLY AGAINST THE INLET THROAT AND NAIL TO 2x4 ANCHORS (MINIMUM 2 FEET LENGTH). EXTEND THE ANCHORS ACROSS THE INLET TOP AND HOLD IN PLACE BY SANDBAGS OR OTHER APPROVED ANCHORING METHOD.
- INSTALL END SPACERS A MINIMUM OF 1 FOOT BEYOND THE ENDS OF THE THROAT OPENING.
- FORM THE HARDWARE CLOTH AND THE GEOTEXTILE TO THE CONCRETE GUTTER AND FACE OF CURB TO SPAN THE INLET OPENING. COVER THE HARDWARE CLOTH AND GEOTEXTILE WITH CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE.
- AT NON-SUMP LOCATIONS, INSTALL A TEMPORARY SANDBAG OR ASPHALT BERM TO PREVENT INLET BYPASS.
- STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-9-1 STANDARD INLET PROTECTION

STANDARD SYMBOL: SIP

CONSTRUCTION SPECIFICATIONS

- INSTALL 2 3/8 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
- FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 3/8 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
- FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
- PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-3 SUPER SILT FENCE

STANDARD SYMBOL: SSF

CONSTRUCTION SPECIFICATIONS

- INSTALL 2 3/8 INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
- FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2 3/8 INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
- FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
- WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
- EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
- PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

B-4-4 STANDARDS AND SPECIFICATIONS FOR TEMPORARY STABILIZATION

Definition
To stabilize disturbed soils with vegetation for up to 6 months.

Purpose
To use fast growing vegetation that provides cover on disturbed soils.

Conditions Where Practice Applies
Exposed soils where ground cover is needed for a period of 6 months or less. For longer duration of time, permanent stabilization practices are required.

Criteria

- Select one or more of the species or seed mixtures listed in Table B.1 for the appropriate Plant Hardiness Zone (from Figure B.3), and enter them in the Temporary Seeding Summary below along with application rates, seeding dates and seeding depths. If this Summary is not put on the plan and completed, then Table B.1 plus fertilizer and lime rates must be put on the plan.
- For sites having soil tests performed, use and show the recommended rates by the testing agency. Soil tests are not required for Temporary Seeding.
- When stabilization is required outside of a seeding season, apply seed and mulch or straw mulch alone as prescribed in Section B-4-3.A.1.b and maintain until the next seeding season.

| Hardness Zone (from Figure B.3): 7a | | | | | Fertilizer Rate (10-20-20) | | Lime Rate |
|-------------------------------------|-----------------|--------------------------|------------------------------|----------------|----------------------------|--|---------------------------|
| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depths | | | |
| | Forstall Millet | 30 | May 1 - August 14 | 0.5" | | | |
| | Annual Ryegrass | 40 | Feb 15-Apr 30; Aug 15-Nov 30 | 0.5" | 436 lb/ac (10 lb/1000 sf) | | 2 tons/ac (90 lb/1000 sf) |

| Hardness Zone (from Figure B.3): 7a | | | | | Fertilizer Rate (10-20-20) | | | Lime Rate |
|-------------------------------------|---------------------|--------------------------|---------------------------|----------------|-------------------------------------|-------------------------------|--------------------|---------------------------|
| No. | Species | Application Rate (lb/ac) | Seeding Dates | Seeding Depths | N | P ₂ O ₅ | K ₂ O | |
| | Creeping Red Fescue | 60 | 2/15 - 4/30; 8/15 - 10/31 | 1/4 - 1/2 in | 45 pounds per acre (1.0 lb/1000 sf) | 90 lb/ac (2 lb/1000 sf) | 90 lb/ac (1000 sf) | 2 tons/ac (90 lb/1000 sf) |
| | Kentucky Bluegrass | 15 | 2/15 - 4/30; 8/15 - 10/31 | 1/4 - 1/2 in | | | | |

DETAIL E-9-2 AT-GRADE INLET PROTECTION

STANDARD SYMBOL: AGIP

CONSTRUCTION SPECIFICATIONS

- USE NONWOVEN GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS.
- LIFT GRATE AND WRAP WITH NONWOVEN GEOTEXTILE TO COMPLETELY COVER ALL OPENINGS. SECURE WITH WIRE TIES AND SET GRATE BACK IN PLACE.
- PLACE CLEAN 3/4 TO 1 1/2 INCH STONE OR EQUIVALENT RECYCLED CONCRETE 6 INCHES THICK ON THE GRATE.
- STORM DRAIN INLET PROTECTION REQUIRES FREQUENT MAINTENANCE. REMOVE ACCUMULATED SEDIMENT AFTER EACH RAIN EVENT TO MAINTAIN FUNCTION AND AVOID PREMATURE CLOGGING. IF INLET PROTECTION DOES NOT COMPLETELY DRAIN WITHIN 24 HOURS AFTER A STORM EVENT, IT IS CLOGGED. WHEN THIS OCCURS, REMOVE ACCUMULATED SEDIMENT AND CLEAN, OR REPLACE GEOTEXTILE AND STONE.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

DETAIL E-2 SILT FENCE ON PAVEMENT

STANDARD SYMBOL: SFOP

CONSTRUCTION SPECIFICATIONS

- USE NOMINAL 2 INCH x 4 INCH LUMBER.
- USE WOVEN SLIT FILM GEOTEXTILE, AS SPECIFIED IN SECTION H-1 MATERIALS.
- PROVIDE MANUFACTURER CERTIFICATION TO THE AUTHORIZED REPRESENTATIVE OF THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT THE GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
- SPACE UPRIGHT SUPPORTS NO MORE THAN 10 FEET APART.
- PROVIDE A TWO FOOT OPENING BETWEEN EVERY SET OF SUPPORTS AND PLACE STONE IN THE OPENING OVER GEOTEXTILE.
- KEEP SILT FENCE TAUT AND SECURELY STAPLE TO THE UPSLOPE SIDE OF UPRIGHT SUPPORTS. EXTEND GEOTEXTILE UNDER 2x4.
- WHERE TWO SECTIONS OF GEOTEXTILE ADJOIN: OVERLAP, FOLD, AND STAPLE TO POST IN ACCORDANCE WITH THIS DETAIL. ATTACH LATHE.
- PROVIDE A MASTIC SEAL BETWEEN PAVEMENT, GEOTEXTILE, AND 2x4 TO PREVENT SEDIMENT-LADEN WATER FROM ESCAPING BENEATH SILT FENCE INSTALLATION.
- SECURE BOARDS TO PAVEMENT WITH 40D 5 INCH MINIMUM LENGTH NAILS.
- REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN SILT FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. MAINTAIN WATER TIGHT SEAL ALONG BOTTOM. REPLACE STONE IF DISPLACED.

MARYLAND STANDARDS AND SPECIFICATIONS FOR SOIL EROSION AND SEDIMENT CONTROL

U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE 2011 MARYLAND DEPARTMENT OF ENVIRONMENT WATER MANAGEMENT ADMINISTRATION

U-SHAPED EQUIPMENT CLEANING AREA (ECA)

NOTES:

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

B-4-8 STANDARDS AND SPECIFICATIONS FOR STOCKPILE AREA

Definition
A mound or pile of soil protected by appropriately designed erosion and sediment control measures.

Purpose
To provide a designated location for the temporary storage of soil that controls the potential for erosion, sedimentation, and changes to drainage patterns.

Conditions Where Practice Applies
Stockpile areas are utilized when it is necessary to salvage and store soil for later use.

Criteria

- The stockpile location and all related sediment control practices must be clearly indicated on the erosion and sediment control plan.
- The footprint of the stockpile must be sized to accommodate the anticipated volume of material and based on a side slope ratio no steeper than 2:1. Benching must be provided in accordance with Section B-3 Land Grading.
- Runoff from the stockpile area must drain to a suitable sediment control practice.
- Access the stockpile area from the upgrade side.
- Clear water runoff into the stockpile area must be minimized by use of a diversion device such as an earth dike, temporary swale or diversion fence. Provisions must be made for discharging concentrated flow in a non-erosive manner.
- Where runoff concentrates along the toe of the stockpile fill, an appropriate erosion/sediment control practice must be used to intercept the discharge.
- Stockpiles must be stabilized in accordance with the 3/7 day stabilization requirement as well as Standard B-4-1 Incremental Stabilization and Standard B-4-4 Temporary Stabilization.
- If the stockpile is located on an impervious surface, a liner should be provided below the stockpile to facilitate cleanup. Stockpiles containing contaminated material must be covered with impermeable sheeting.

Maintenance
The stockpile area must continuously meet the requirements for Adequate Vegetative Establishment in accordance with Section B-4 Vegetative Stabilization. Side slopes must be maintained at no steeper than a 2:1 ratio. The stockpile area must be kept free of erosion. If the vertical height of a stockpile exceeds 20 feet for 2:1 slopes, 30 feet for 3:1 slopes, or 40 feet for 4:1 slopes, benching must be provided in accordance with Section B-3 Land Grading.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
4/16/2024
Date
4/17/2024
Date
4/17/2024
Date



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| DESIGN BY: | DTP | | | | |
| DRAWN BY: | EKW | | | | |
| CHECKED BY: | CWWM | | | | |
| DATE: | 11/13/2023 | BY | NO. | REVISION | DATE |

OWNER/DEVELOPER
JOHNS HOPKINS
APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

HOWARD SCD SIGNATURE BLOCK:
This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
Developed by: Alexander Enatis
Howard Soil Conservation District
Date: 4/17/2024

EROSION SEDIMENT CONTROL DETAILS
RK&K PROJECT NUMBER: 21047.017
SCALE: 1" = 20'
11100 JOHNS HOPKINS ROAD
TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
ELECTION DISTRICT: 5 HOWARD COUNTY, MARYLAND
SHEET 14 OF 20

C6.02
SDP-24-010

B-4-1 STANDARDS AND SPECIFICATIONS

FOR

INCREMENTAL STABILIZATION

Definition

Establishment of vegetative cover on cut and fill slopes.

Purpose

To provide timely vegetative cover on cut and fill slopes as work progresses.

Conditions Where Practice Applies

Any cut or fill slope greater than 15 feet in height. This practice also applies to stockpiles.

Criteria

A. Incremental Stabilization - Cut Slopes

1. Excavate and stabilize cut slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all cut slopes as the work progresses.
2. Construction sequence example (Refer to Figure B.1):
 - a. Construct and stabilize all temporary swales or dikes that will be used to convey runoff around the excavation.
 - b. Perform Phase 1 excavation, prepare seedbed, and stabilize.
 - c. Perform Phase 2 excavation, prepare seedbed, and stabilize. Overseed Phase 1 areas as necessary.
 - d. Perform final phase excavation, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once excavation has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

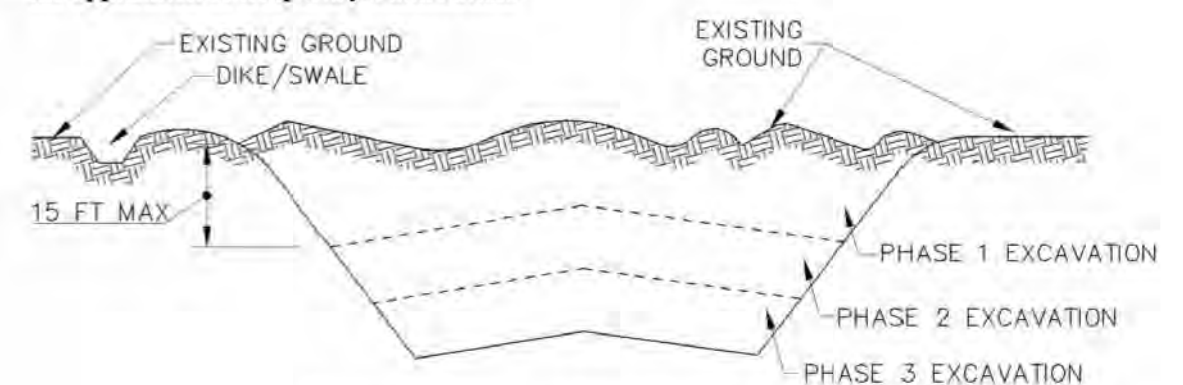


Figure B.1: Incremental Stabilization - Cut

B-4-3 STANDARDS AND SPECIFICATIONS

FOR

SEEDING AND MULCHING

Definition

The application of seed and mulch to establish vegetative cover.

Purpose

To protect disturbed soils from erosion during and at the end of construction.

Conditions Where Practice Applies

To the surface of all perimeter controls, slopes, and any disturbed area not under active grading.

Criteria

A. Seeding

1. Specifications
 - a. All seed must meet the requirements of the Maryland State Seed Law. All seed must be subject to re-testing by a recognized seed laboratory. All seed used must have been tested within the 6 months immediately preceding the date of sowing such material on any project. Refer to Table B.4 regarding the quality of seed. Seed tags must be available upon request to the inspector to verify type of seed and seeding rate.
 - b. Mulch alone may be applied between the fall and spring seeding dates only if the ground is frozen. The appropriate seeding mixture must be applied when the ground thaws.
 - c. Inoculants: The inoculant for treating legume seed in the seed mixtures must be a pure culture of nitrogen fixing bacteria prepared specifically for the species. Inoculants must not be used later than the date indicated on the container. Add fresh inoculants as directed on the package. Use four times the recommended rate when hydroseeding. Note: It is very important to keep inoculant as cool as possible until used. Temperatures above 75 to 80 degrees Fahrenheit can weaken bacteria and make the inoculant less effective.
 - d. Sod or seed must not be placed on soil which has been treated with soil sterilants or chemicals used for weed control until sufficient time has elapsed (14 days min.) to permit dissipation of phyto-toxic materials.
2. Application
 - a. Dry Seeding: This includes use of conventional drop or broadcast spreaders.
 - i. Incorporate seed into the subsoil at the rates prescribed on Temporary Seeding Table B.1, Permanent Seeding Table B.3, or site-specific seeding summaries.
 - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction. Roll the seeded area with a weighted roller to provide good seed to soil contact.

B. Incremental Stabilization - Fill Slopes

1. Construct and stabilize fill slopes in increments not to exceed 15 feet in height. Prepare seedbed and apply seed and mulch on all slopes as the work progresses.
2. Stabilize slopes immediately when the vertical height of a lift reaches 15 feet, or when the grading operation ceases as prescribed in the plans.
3. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
4. Construction sequence example (Refer to Figure B.2):
 - a. Construct and stabilize all temporary swales or dikes that will be used to divert runoff around the fill. Construct silt fence on low side of fill unless other methods shown on the plans address this area.
 - b. At the end of each day, install temporary water conveyance practice(s), as necessary, to intercept surface runoff and convey it down the slope in a non-erosive manner.
 - c. Place Phase 1 fill, prepare seedbed, and stabilize.
 - d. Place Phase 2 fill, prepare seedbed, and stabilize.
 - e. Place final phase fill, prepare seedbed, and stabilize. Overseed previously seeded areas as necessary.

Note: Once the placement of fill has begun the operation should be continuous from grubbing through the completion of grading and placement of topsoil (if required) and permanent seed and mulch. Any interruptions in the operation or completing the operation out of the seeding season will necessitate the application of temporary stabilization.

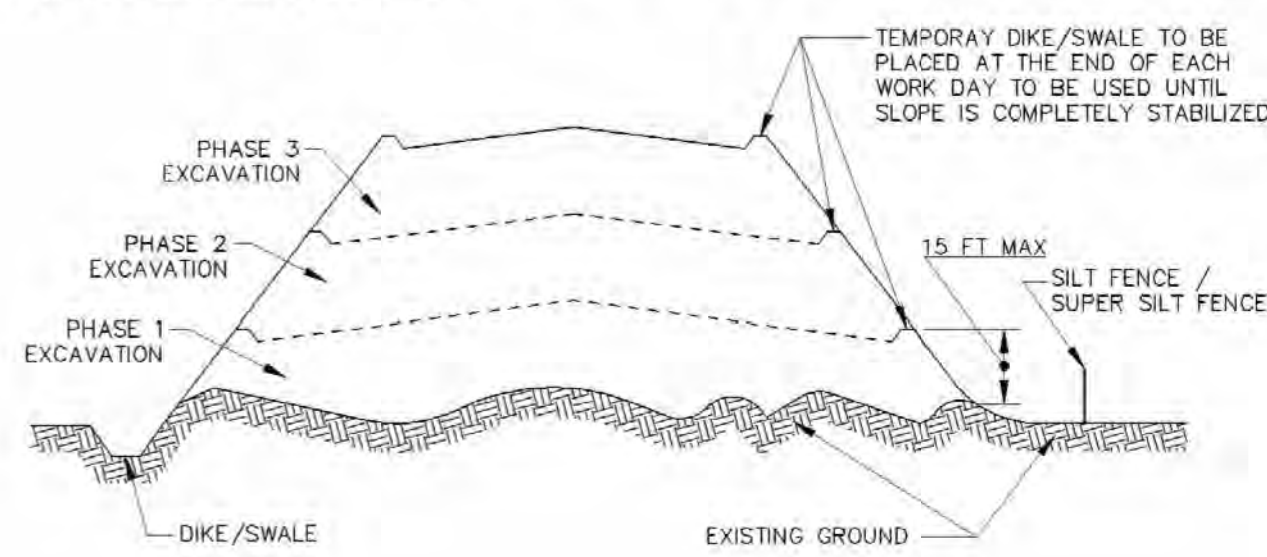


Figure B.2: Incremental Stabilization - Fill

- b. Drill or Cultipacker Seeding: Mechanized seeders that apply and cover seed with soil.
 - i. Cultipacker seeders are required to bury the seed in such a fashion as to provide at least 1/4 inch of soil covering. Seedbed must be firm after planting.
 - ii. Apply seed in two directions, perpendicular to each other. Apply half the seeding rate in each direction.
- c. Hydroseeding: Apply seed uniformly with hydroseeder (slurry includes seed and fertilizer).
 - i. If fertilizer is being applied at the time of seeding, the application rates should not exceed the following: nitrogen, 100 pounds per acre total of soluble nitrogen; P₂O₅ (phosphorous), 200 pounds per acre; K₂O (potassium), 200 pounds per acre.
 - ii. Lime: Use only ground agricultural limestone (up to 3 tons per acre may be applied by hydroseeding). Normally, not more than 2 tons are applied by hydroseeding at any one time. Do not use burnt or hydrated lime when hydroseeding.
 - iii. Mix seed and fertilizer on site and seed immediately and without interruption.
 - iv. When hydroseeding do not incorporate seed into the soil.

B. Mulching

1. Mulch Materials (in order of preference)
 - a. Straw consisting of thoroughly threshed wheat, rye, oat, or barley and reasonably bright in color. Straw is to be free of noxious weed seeds as specified in the Maryland Seed Law and not musty, moldy, caked, decayed, or excessively dusty. **Note: Use only sterile straw mulch in areas where one species of grass is desired.**
 - b. Wood Cellulose Fiber Mulch (WCFM) consisting of specially prepared wood cellulose processed into a uniform fibrous physical state.
 - i. WCFM is to be dyed green or contain a green dye in the package that will provide an appropriate color to facilitate visual inspection of the uniformly spread slurry.
 - ii. WCFM, including dye, must contain no germination or growth inhibiting factors.
 - iii. WCFM materials are to be manufactured and processed in such a manner that the wood cellulose fiber mulch will remain in uniform suspension in water under agitation and will blend with seed, fertilizer and other additives to form a homogeneous slurry. The mulch material must form a blotter-like ground cover, on application, having moisture absorption and percolation properties and must cover and hold grass seed in contact with the soil without inhibiting the growth of the grass seedlings.
 - iv. WCFM material must not contain elements or compounds at concentration levels that will be phyto-toxic.
 - v. WCFM must conform to the following physical requirements: fiber length of approximately 10 millimeters, diameter approximately 1 millimeter, pH range of 4.0 to 8.5, ash content of 1.6 percent maximum and water holding capacity of 90 percent minimum.

B-4-2 STANDARDS AND SPECIFICATIONS

FOR

SOIL PREPARATION, TOPSOILING, AND SOIL AMENDMENTS

Definition

The process of preparing the soils to sustain adequate vegetative stabilization.

Purpose

To provide a suitable soil medium for vegetative growth.

Conditions Where Practice Applies

Where vegetative stabilization is to be established.

Criteria

A. Soil Preparation

1. Temporary Stabilization
 - a. Seedbed preparation consists of loosening soil to a depth of 3 to 5 inches by means of suitable agricultural or construction equipment, such as disc harrows or chisel plows or rippers mounted on construction equipment. After the soil is loosened, it must not be rolled or dragged smooth but left in the roughened condition. Slopes 3:1 or flatter are to be tracked with ridges running parallel to the contour of the slope.
 - b. Apply fertilizer and lime as prescribed on the plans.
 - c. Incorporate lime and fertilizer into the top 3 to 5 inches of soil by disking or other suitable means.
2. Permanent Stabilization
 - a. A soil test is required for any earth disturbance of 5 acres or more. The minimum soil conditions required for permanent vegetative establishment are:
 - i. Soil pH between 6.0 and 7.0.
 - ii. Soluble salts less than 500 parts per million (ppm).
 - iii. Soil contains less than 40 percent clay but enough fine grained material (greater than 30 percent silt plus clay) to provide the capacity to hold a moderate amount of moisture. An exception: if lovegrass will be planted, then a sandy soil (less than 30 percent silt plus clay) would be acceptable.
 - iv. Soil contains 1.5 percent minimum organic matter by weight.
 - v. Soil contains sufficient pore space to permit adequate root penetration.
 - b. Application of amendments or topsoil is required if on-site soils do not meet the above conditions.
 - c. Graded areas must be maintained in a true and even grade as specified on the approved plan, then scarified or otherwise loosened to a depth of 3 to 5 inches.

2. Application

- a. Apply mulch to all seeded areas immediately after seeding.
 - b. When straw mulch is used, spread it over all seeded areas at the rate of 2 tons per acre to a uniform loose depth of 1 to 2 inches. Apply mulch to achieve a uniform distribution and depth so that the soil surface is not exposed. When using a mulch anchoring tool, increase the application rate to 2.5 tons per acre.
 - c. Wood cellulose fiber used as mulch must be applied at a net dry weight of 1500 pounds per acre. Mix the wood cellulose fiber with water to attain a mixture with a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
- 3. Anchoring**
- a. Perform mulch anchoring immediately following application of mulch to minimize loss by wind or water. This may be done by one of the following methods (listed by preference), depending upon the size of the area and erosion hazard:
 - i. A mulch anchoring tool is a tractor drawn implement designed to punch and anchor mulch into the soil surface a minimum of 2 inches. This practice is most effective on large areas, but is limited to flatter slopes where equipment can operate safely. If used on sloping land, this practice should follow the contour.
 - ii. Wood cellulose fiber may be used for anchoring straw. Apply the fiber binder at a net dry weight of 750 pounds per acre. Mix the wood cellulose fiber with water at a maximum of 50 pounds of wood cellulose fiber per 100 gallons of water.
 - iii. Synthetic binders such as Acrylic DLR (Agro-Tack), DCA-70, Petroset, Terra Tax II, Terra Tack AR or other approved equal may be used. Follow application rates as specified by the manufacturer. Application of liquid binders needs to be heavier at the edges where wind catches mulch, such as in valleys and on crests of banks. **Use of asphalt binders is strictly prohibited.**
 - iv. Lightweight plastic netting may be stapled over the mulch according to manufacturer recommendations. Netting is usually available in rolls 4 to 15 feet wide and 300 to 3,000 feet long.

- d. Apply soil amendments as specified on the approved plan or as indicated by the results of a soil test.
- e. Mix soil amendments into the top 3 to 5 inches of soil by disking or other suitable means. Rake lawn areas to smooth the surface, remove large objects like stones and branches, and ready the area for seed application. Loosen surface soil by dragging with a heavy chain or other equipment to roughen the surface where site conditions will not permit normal seedbed preparation. Track slopes 3:1 or flatter with tracked equipment leaving the soil in an irregular condition with ridges running parallel to the contour of the slope. Leave the top 1 to 3 inches of soil loose and friable. Seedbed loosening may be unnecessary on newly disturbed areas.

B. Topsoiling

1. Topsoil is placed over prepared subsoil prior to establishment of permanent vegetation. The purpose is to provide a suitable soil medium for vegetative growth. Soils of concern have low moisture content, low nutrient levels, low pH, materials toxic to plants, and/or unacceptable soil gradation.
2. Topsoil salvaged from an existing site may be used provided it meets the standards as set forth in these specifications. Typically, the depth of topsoil to be salvaged for a given soil type can be found in the representative soil profile section in the Soil Survey published by USDA-NRCS.
3. Topsoiling is limited to areas having 2:1 or flatter slopes where:
 - a. The texture of the exposed subsoil/parent material is not adequate to produce vegetative growth.
 - b. The soil material is so shallow that the rooting zone is not deep enough to support plants or furnish continuing supplies of moisture and plant nutrients.
 - c. The original soil to be vegetated contains material toxic to plant growth.
 - d. The soil is so acidic that treatment with limestone is not feasible.
4. Areas having slopes steeper than 2:1 require special consideration and design.
5. Topsoil Specifications: Soil to be used as topsoil must meet the following criteria:
 - a. Topsoil must be a loam, sandy loam, clay loam, silt loam, sandy clay loam, or loamy sand. Other soils may be used if recommended by an agronomist or soil scientist and approved by the appropriate approval authority. Topsoil must not be a mixture of contrasting textured subsoils and must contain less than 5 percent by volume of cinders, stones, slag, coarse fragments, gravel, sticks, roots, trash, or other materials larger than 1 1/2 inches in diameter.
 - b. Topsoil must be free of noxious plants or plant parts such as Bermuda grass, quack grass, Johnson grass, nut sedge, poison ivy, thistle, or others as specified.
 - c. Topsoil substitutes or amendments, as recommended by a qualified agronomist or soil scientist and approved by the appropriate approval authority, may be used in lieu of natural topsoil.
6. Topsoil Application
 - a. Erosion and sediment control practices must be maintained when applying topsoil.
 - b. Uniformly distribute topsoil in a 5 to 8 inch layer and lightly compact to a minimum thickness of 4 inches. Spreading is to be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations must be corrected in order to prevent the formation of depressions or water pockets.
 - c. Topsoil must not be placed if the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet or in a condition that may otherwise be detrimental to proper grading and seedbed preparation.

C. Soil Amendments (Fertilizer and Lime Specifications)

1. Soil tests must be performed to determine the exact ratios and application rates for both lime and fertilizer on sites having disturbed areas of 5 acres or more. Soil analysis may be performed by a recognized private or commercial laboratory. Soil samples taken for engineering purposes may also be used for chemical analyses.
2. Fertilizers must be uniform in composition, free flowing and suitable for accurate application by appropriate equipment. Manure may be substituted for fertilizer with prior approval from the appropriate approval authority. Fertilizers must all be delivered to the site fully labeled according to the applicable laws and must bear the name, trade name or trademark and warranty of the producer.
3. Lime materials must be ground limestone (hydrated or burnt lime may be substituted except when hydroseeding) which contains at least 50 percent total oxides (calcium oxide plus magnesium oxide). Limestone must be ground to such fineness that at least 50 percent will pass through a #100 mesh sieve and 98 to 100 percent will pass through a #20 mesh sieve.
4. Lime and fertilizer are to be evenly distributed and incorporated into the top 3 to 5 inches of soil by disking or other suitable means.
5. Where the subsoil is either highly acidic or composed of heavy clays, spread ground limestone at the rate of 4 to 8 tons/acre (200-400 pounds per 1,000 square feet) prior to the placement of topsoil.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 4/16/2024
 Date
 Chief, Development Engineering Division
 4/17/2024
 Date
 Chief, Division of Land Development
 4/17/2024
 Date
 Director
 4/17/2024
 Date

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 www.rkk.com

STATE OF MARYLAND
 PROFESSIONAL ENGINEERING BOARD
 CHARLES W. STEWART
 PROFESSIONAL ENGINEER
 LICENSE NO. 49432, EXPIRATION DATE: 05/31/2024

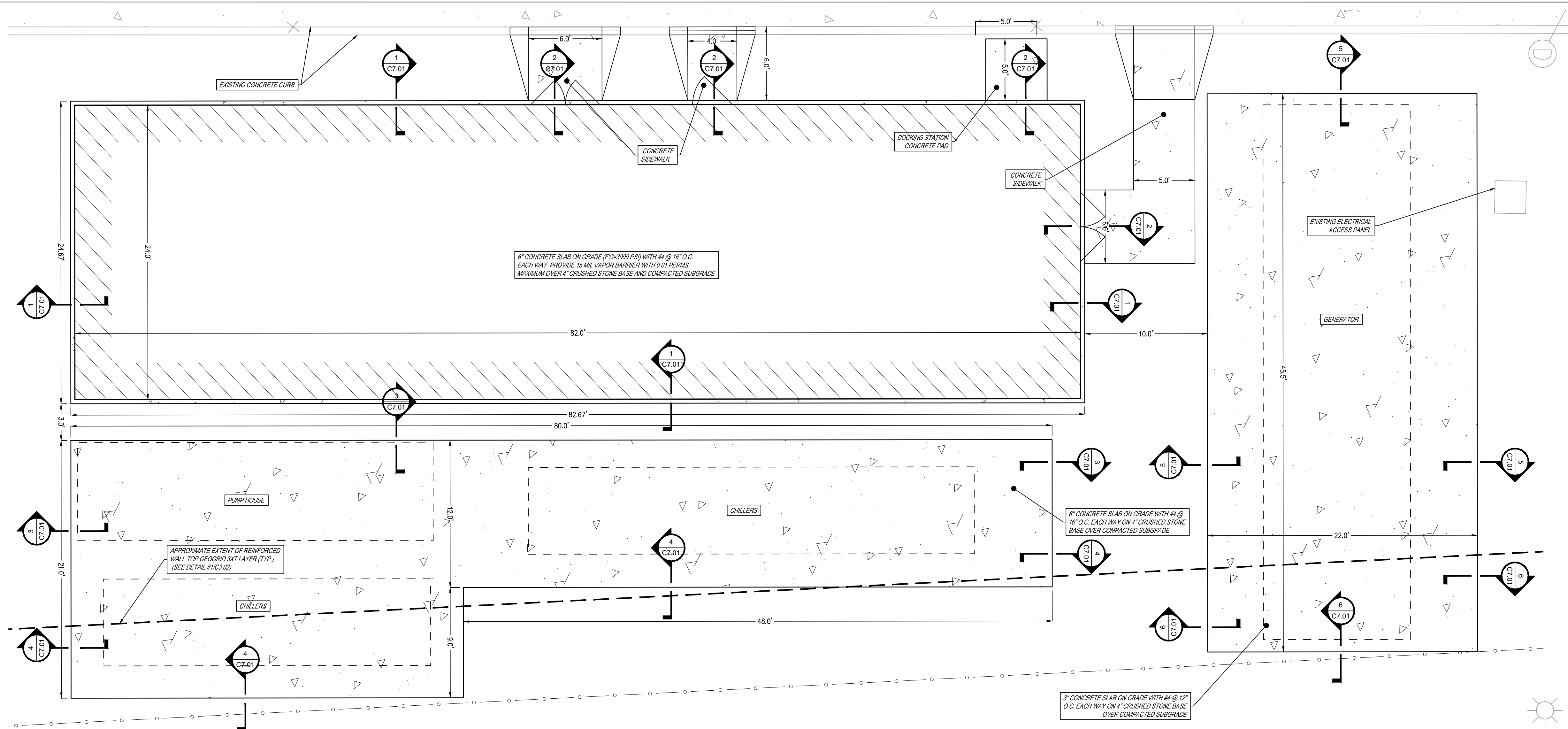
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| DESIGN BY: | DTP | | | | |
| DRAWN BY: | EKW | | | | |
| CHECKED BY: | CWWM | | | | |
| DATE: | 11/13/2023 | BY | NO. | REVISION | DATE |

OWNER/DEVELOPER
JOHNS HOPKINS APPLIED PHYSICS LABORATORY
 11100 JOHNS HOPKINS ROAD
 LAUREL, MARYLAND 20723

HOWARD SCD SIGNATURE BLOCK:
 This plan is approved for soil erosion and sediment control by the Howard Soil Conservation District.
 Prepared by: Alexander Enablis
 Date: 4/17/2024
 Howard Soil Conservation District

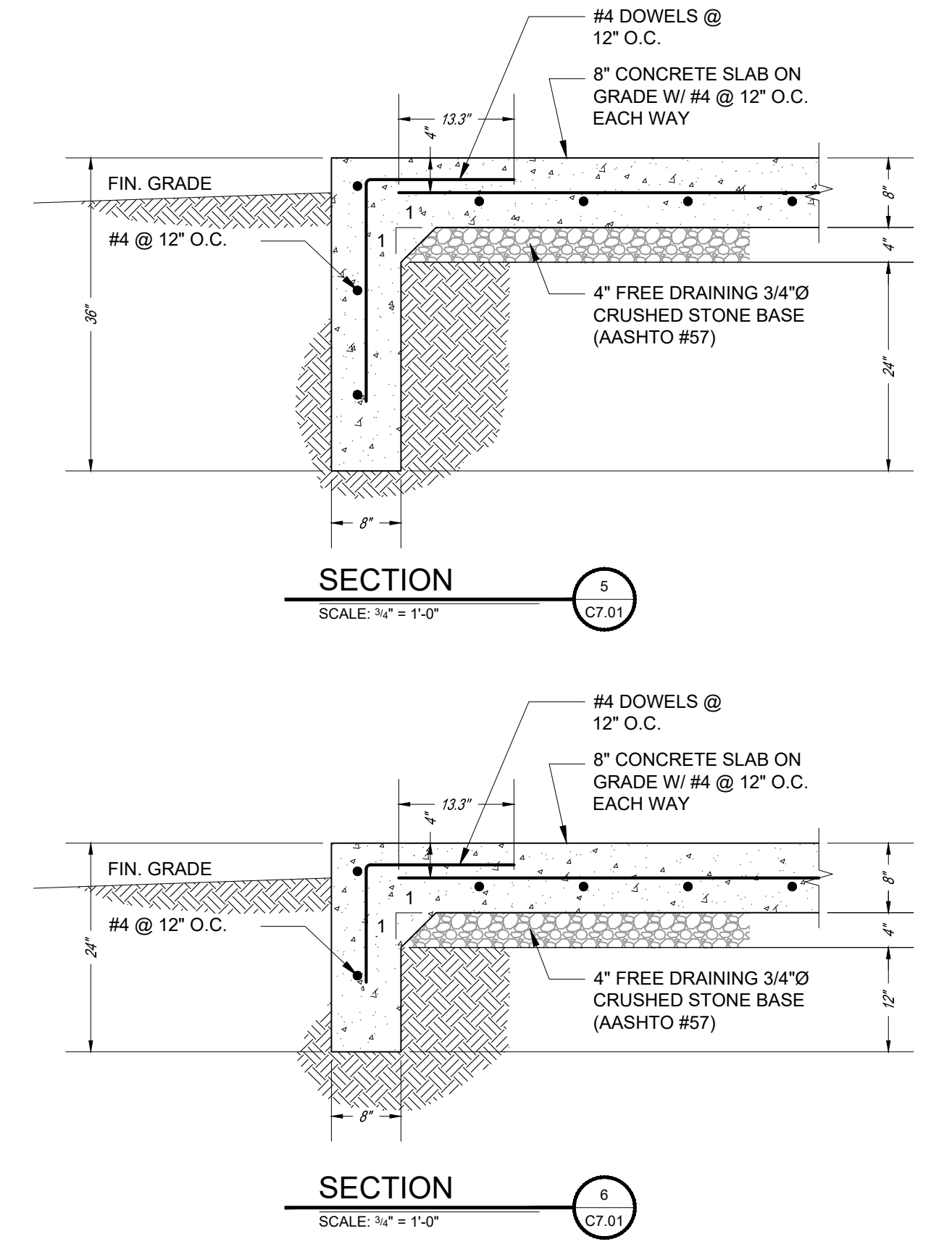
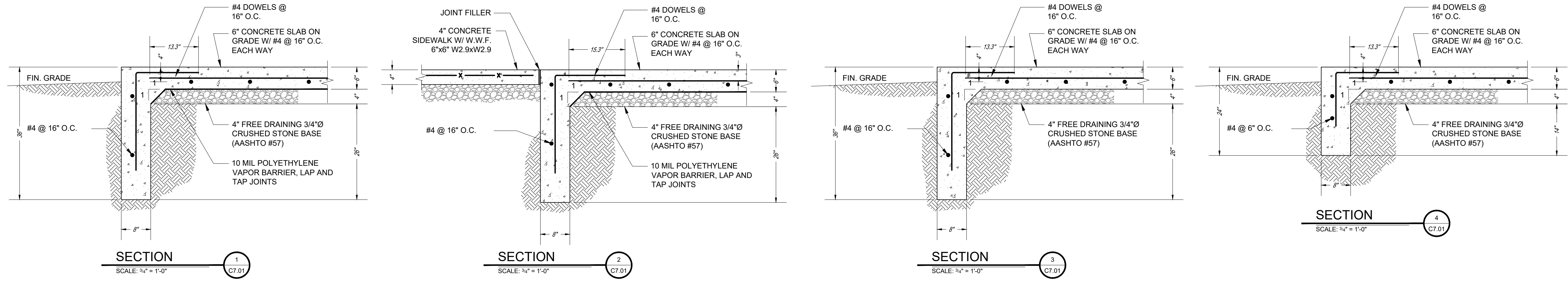
EROSION SEDIMENT CONTROL DETAILS
HDC SCALABLE DATA CENTER
 11100 JOHNS HOPKINS ROAD
 TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
 ELECTION DISTRICT: 5 HOWARD COUNTY, MARYLAND
 SHEET 15 OF 20

C6.03
 RK&K PROJECT NUMBER
 21047.017
 SCALE:
 1" = 20'



| LEGEND | | | |
|-----------------------|--|------------------------|--|
| EXISTING / PROPOSED | | EXISTING / PROPOSED | |
| WATER VALVE | | WATER METER | |
| FIRE HYDRANT | | FIRE SHUT OFF | |
| GAS VALVE | | GAS METER | |
| UTILITY POLE | | IRRIGATION CONT. VALVE | |
| CATCH BASIN | | ELECTRIC METER | |
| SEEPAGE PIT | | LIGHT POLE | |
| SANITARY MANHOLE | | WALL-MOUNTED LIGHT | |
| ELECTRICAL MANHOLE | | BOLLARD | |
| COMMUNICATION MANHOLE | | TREE | |
| STORM MANHOLE | | ROCK / BOULDER | |
| MONITORING WELL | | FLAGPOLE | |
| UNKNOWN MANHOLE | | MAILBOX | |
| HEADWALL | | DUMPSTER | |
| SAN. CLEAN OUT | | SIDEWALK | |
| HANDICAP SYMBOL | | CURB LINE | |
| SIGN | | SIGN | |
| PROPERTY LINE (PO) | | WATER LINE | |
| PROPERTY LINE | | GAS LINE | |
| SETBACK LINE | | ELECTRIC LINE | |
| WETLANDS BOUNDARY | | TELEPHONE LINE | |
| STREAM/BROOK | | OVERHEAD WIRES | |
| TREE LINE | | SANITARY SEWER | |
| CHAINLINK FENCE | | STORM SEWER | |
| WOOD FENCE | | GUIDE RAIL | |

FOUNDATION PLAN
SCALE: 1"= 5'



- FOUNDATION NOTES**
- BOTTOM OF ALL BUILDING FOOTINGS SHALL BE A MINIMUM OF 30" BELOW FINISHED GRADE.
 - ALL FOOTINGS ARE DESIGNED FOR A MINIMUM SOIL BEARING CAPACITY OF 2,000 PSF. BOTTOM OF FOOTING ELEVATION MAY BE LOWERED TO ACHIEVE THE MINIMUM REQUIRED BEARING CAPACITY.
 - BUILDING FLOOR LEVEL SPECIFICATION - FROM THE CENTERLINE OF THE CHANNEL TROUGH, AN AREA OF THE BUILDING FLOOR EQUAL TO EIGHTEEN INCHES WIDE (18" WIDE), NINE INCHES (9") TO EITHER SIDE OF THE CENTERLINE, AND AS LONG AS THE LENGTH OF ALL ASSEMBLED GUARD ARMOR PANEL NOT TO EXCEED 1/2" OVER 8".
 - PITCH SURFACE OF EXTERIOR CONCRETE EQUIPMENT SLABS 1/4" PER FT MINIMUM TOWARDS PERIMETER OF SLAB, AWAY FROM IFORTRESS STRUCTURE.
 - ELEVATIONS ON PLAN ARE REFERENCED FROM 0'-0" AS DATUM. FOR ACTUAL ELEVATION SEE SITE PLAN.
 - CONCRETE PADS SHALL HAVE A TROWELED EDGE WITH BRUSH FINISH.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
4/16/2024
Date: 4/17/2024
Date: 4/17/2024
Date: 4/17/2024

LAN ASSOCIATES
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Baltimore, MD 21202
PH: 410.728.2900 Contact: Matt Thomasson
www.rkk.com

PROFESSIONAL CERTIFICATION, I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 43087, EXPIRATION DATE: 12/15/2024

| | | | |
|-------------|------------|--------|--|
| DESIGN BY: | EQ | | |
| DRAWN BY: | EQ | | |
| CHECKED BY: | JM | | |
| DATE: | 11/13/2023 | BY NO. | |
| REVISION | | DATE | |

OWNER/DEVELOPER
JOHNS HOPKINS APPLIED PHYSICS LABORATORY
11100 JOHNS HOPKINS ROAD
LAUREL, MARYLAND 20723

FOUNDATION PLAN AND SECTIONS
JOHNS HOPKINS UNIVERSITY - APPLIED PHYSICS LABORATORY
HDC SCALABLE DATA CENTER
11100 JOHNS HOPKINS ROAD
TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
ELECTION DISTRICT: 5 HOWARD COUNTY, MARYLAND
SHEET 16 OF 20

C7.01
LAN PROJECT NUMBER
2.3737.83
SCALE:
As Noted

GENERAL

ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF "THE 2021 MARYLAND BUILDING CODE.

WORK THESE DRAWING IN CONJUNCTION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS IN THE FIELD BEFORE COMMENCING WORK. ANY DISCREPANCY BETWEEN EXISTING CONDITIONS OR MEASUREMENTS AND THE INFORMATION SHOWN ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER IMMEDIATELY. NO WORK SHALL CONTINUE UNTIL THE DISCREPANCY IS RESOLVED.

THE CONTRACTOR SHALL PROVIDE THE NECESSARY COORDINATION BETWEEN ALL TRADES WITH REGARD TO THE DRAWINGS. LOCATE BOLTS, SLEEVES, AND TRENCHES AS REQUIRED FOR MECHANICAL TRADES, AND PROVIDE AND INSTALL VARIOUS ITEMS NOT SHOWN ON THESE DRAWINGS BUT AS REQUIRED FOR VARIOUS TRADES.

DO NOT SCALE THE STRUCTURAL DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE STRUCTURAL ENGINEER.

THE CONTRACTOR IS RESPONSIBLE FOR SAFETY WITHIN THE JOB SITE AND FOR MEETING ALL APPLICABLE OSHA REQUIREMENTS DURING CONSTRUCTION.

FOUNDATIONS AND SLABS ON GRADE

ALL FOOTINGS ARE DESIGNED FOR A MINIMUM SOIL BEARING CAPACITY OF 1.5 KIPS PER SQUARE FOOT.

ALL FOOTINGS ARE TO BEAR ON UNDISTURBED VIRGIN SOIL OR CONTROLLED COMPACTED FILL.

THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL EXTEND 2'-6" MINIMUM BELOW FINISHED GRADE.

ALL EXCAVATIONS SHALL BE FREE OF WATER BEFORE POURING CONCRETE.

HAND TRIM SIDES AND BOTTOM OF EARTH FORMS AND REMOVE LOOSE DIRT.

NO SUBSEQUENT EXCAVATION SHALL BE NEARER THAN 2:1 (HORIZONTAL:VERTICAL) TO AN INSTALLED FOOTING OR FOUNDATION.

CONCRETE FOUNDATION WALLS SHALL BE PLACED IN ALTERNATE SECTIONS, NOT MORE THAN 70 FEET IN LENGTH. HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED EXCEPT WHERE SHOWN.

PLACE SLABS ON GROUND PER THICKNESS SHOWN ON DRAWINGS WITH TOP OF SLAB SET TO ACCOMMODATE ARCHITECTURAL FINISHES.

PROVIDE SMOOTH TROWEL FINISH AT INTERIOR SLABS ON GRADE. PROVIDE BROOM FINISH AT EXTERIOR SLABS ON GRADE

PROVIDE SAW CUT CONTROL JOINTS AT AN OPTIMUM TIME AFTER FINISHING. CUT SLABS WITH A 3/16 INCH THICK BLADE TO 1 INCH DEPTH. LOCATE CONTROL JOINTS AT A MAXIMUM SPACING OF 3x TIMES THE SLAB DEPTH AND AT EACH CORNER, COLUMN AND PLAN IRREGULARITY.

THE CONTRACTOR SHALL SUBMIT POUR SEQUENCE AND JOINT LAYOUT TO THE ARCHITECT FOR APPROVAL PRIOR TO POURING CONCRETE SLABS.

SEPARATE SLABS ON GRADE FROM VERTICAL SURFACES WITH JOINT FILLER. EXTEND JOINT FILLER FROM BOTTOM OF SLAB TO WITHIN 1/4 INCH OF FINISHED SLAB SURFACE.

WHERE COMPACTED FILL IS REQUIRED, WELL GRADED GRANULAR MATERIAL SHALL BE PLACED IN LIFTS NOT EXCEEDING 12 INCHES AND COMPACTED TO 95% OF ITS MAXIMUM DRY DENSITY AS PER ASTM D-1557.

VERIFICATION OF BEARING CAPACITY AND INSPECTION OF COMPACTED FILL SHALL BE COMPLETED BY A QUALIFIED LICENSED PROFESSIONAL ENGINEER.

ANY UNEXPECTED SUBGRADE CONDITIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER AND GEOTECHNICAL ENGINEER.

CONCRETE

ALL CONCRETE MATERIALS AND CONSTRUCTION PROCEDURES SHALL BE IN ACCORDANCE WITH ACI 318. EVALUATION AND ACCEPTANCE OF CONCRETE STRUCTURES SHALL BE IN ACCORDANCE WITH ACI 301.

SPECIFIED COMPRESSIVE STRENGTH FC AT 28 DAYS:

FLOOR SLABS ON GRADE: 3500 PSI

SUBMIT PROPOSED MIX DESIGNS AND TEST DATA BEFORE CONCRETE OPERATIONS BEGIN. ESTABLISH THE REQUIRED AVERAGE STRENGTH OF EACH DESIGN MIX ON THE BASIS OF EITHER FIELD EXPERIENCE OR TRIAL MIXTURES AS SPECIFIED IN ACI 301, AND PROPORTION MIXES PER THE RECOMMENDATIONS OF ACI 211.1. EACH MIX SHALL BE IDENTIFIED AS IT WILL APPEAR ON BATCH TICKETS DELIVERED TO PROJECT SITE.

CONCRETE MIX DESIGN SHALL PROVIDE FOR A CONCRETE SLUMP APPROPRIATE FOR PROJECT CONDITIONS. THE CONCRETE SHALL BE SUFFICIENTLY FLUID TO ALLOW FOR EASE OF PLACEMENT AND SUFFICIENTLY STIFF TO PREVENT SEGREGATION.

AGGREGATE SHALL CONFORM TO ASTM C33.

WATER-TO-CEMENT RATIO SHALL NOT EXCEED 0.45 BY WEIGHT. WEIGHT OF WATER SHALL INCLUDE ALL FREE MOISTURE, INCLUDING LIQUID ADMIXTURES.

AIR-ENTRAINING ADMIXTURE SHALL BE ADDED TO ACHIEVE TOTAL AIR CONTENT OF 6 PERCENT FOR EXTERIOR EXPOSED CONCRETE AND 3 PERCENT FOR CONCRETE NOT EXPOSED TO EXTERIOR WITH A TOLERANCE OF 1 PERCENT.

PROVIDE WATER-REDUCING ADMIXTURES CONFORMING TO ASTM C494 AS REQUIRED FOR PLACEMENT AND WORKABILITY AT THE MAXIMUM WATER TO CEMENT RATIO SPECIFIED.

INDICATE TYPE AND QUANTITY OF ADMIXTURES PROPOSED OR REQUIRED. ADMIXTURES CONTAINING MORE THAN 0.1 PERCENT CHLORIDE IONS ARE NOT PERMITTED. WHERE MIX CONTAINS MORE THAN ONE ADMIXTURE, ALL ADMIXTURES SHALL BE SUPPLIED BY ONE MANUFACTURER. MANUFACTURER SHALL CERTIFY THAT ADMIXTURES ARE COMPATIBLE SUCH THAT DESIRABLE EFFECTS OF EACH ADMIXTURE WILL BE REALIZED. LIQUID ADMIXTURES SHALL BE CONSIDERED PART OF THE TOTAL WATER.

WATER SHALL BE CLEAN, POTABLE AND FREE FROM DELETERIOUS MATERIAL.

PROVIDE DATA FOR PROPRIETARY MATERIALS, INCLUDING ADMIXTURES, CURING MATERIALS, AND FINISH MATERIALS.

SUBMIT MATERIAL CERTIFICATIONS FOR CEMENTITIOUS MATERIALS, AGGREGATES AND ADMIXTURES.

PROVIDE DEFORMED REINFORCING BARS COMPLYING WITH ASTM A615, GRADE 60, EXCEPT WHERE OTHERWISE INDICATED. ALL DETAILING OF REINFORCING SHALL BE IN ACCORDANCE WITH ACI STANDARD 315.

WELDED WIRE FABRIC SHALL BE ASTM A1064, COLD-DRAWN STEEL, PLAIN.

SUBMIT BAR PLACEMENT SHOP DRAWINGS SHOWING THE LOCATION OF REINFORCING AND CONSTRUCTION JOINTS. DELIVER REINFORCEMENT TO PROJECT SITE BUNDLED AND TAGGED INDICATING BAR SIZES, LENGTHS, AND OTHER DATA CORRESPONDING TO INFORMATION SHOWN ON PLACEMENT DRAWINGS.

PLACE REINFORCEMENT TO ACHIEVE NOT LESS THAN MINIMUM CONCRETE COVERAGE AS REQUIRED FOR PROTECTION. ACCURATELY POSITION, SUPPORT, AND SECURE REINFORCEMENT TO PREVENT DISPLACEMENT.

CONCRETE PROTECTION FOR REINFORCING STEEL SHALL BE AS FOLLOWS:

- ELEVATED SLABS: 3/4"
BEAMS AND COLUMNS (PEDESTALS): 1 1/2"
INSIDE FACE OF WALLS: 1"
CONCRETE POURED ON GROUND: 3"
EXTERIOR FACE OF WALLS (AGAINST EARTH): 2"

PROVIDE CLASS B TENSION LAP SPLICES COMPLYING WITH ACI 318 UNLESS OTHERWISE INDICATED.

THE CONTRACTOR IS RESPONSIBLE FOR DESIGN, ENGINEERING, AND CONSTRUCTION OF FORMWORK, CAPABLE OF SUPPORTING ALL APPLIED LOADS UNTIL THE CONCRETE IS ADEQUATELY CURED, WITHIN ALLOWABLE TOLERANCES AND DEFLECTION LIMITS.

LOCATE AND INSTALL CONSTRUCTION JOINTS AS INDICATED ON DRAWINGS. IF CONSTRUCTION JOINTS ARE NOT INDICATED, LOCATE IN A MANNER WHICH WILL NOT IMPAIR STRENGTH AND WILL HAVE LEAST IMPACT ON APPEARANCE.

PREPARE PREVIOUSLY PLACED CONCRETE BY CLEANING AND APPLYING BONDING AGENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.

IN LOCATIONS WHERE NEW CONCRETE IS DOWELED TO EXISTING WORK, DRILL HOLES IN EXISTING CONCRETE, INSERT STEEL DOWELS AND PACK SOLID WITH EPOXY GROUT.

FOUNDATION SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED MUST BE FREE FROM STANDING WATER, MUD AND DEBRIS. SURFACES SHALL BE CLEAN AND FREE FROM OIL, OBJECTIONABLE COATINGS, AND LOOSE OR UNSOUND MATERIAL.

ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" X 3/4" CHAMFER, UNLESS SPECIFICALLY INDICATED OTHERWISE ON THE DRAWINGS.

CONSOLIDATE CONCRETE BY MEANS OF MECHANICAL VIBRATORS TO ACHIEVE CONSISTENT CONSOLIDATION WITHOUT SEGREGATION OF COARSE AGGREGATES.

REPAIR SURFACE DEFECTS, INCLUDING TIE HOLES, IMMEDIATELY AFTER REMOVING FORMWORK.

PROTECT CONCRETE FROM SUN AND RAIN. DO NOT PERMIT CONCRETE TO BECOME DRY DURING CURING PERIOD. CONCRETE SHALL NOT BE SUBJECTED TO ANY LOADS UNTIL CONCRETE IS COMPLETELY CURED, AND UNTIL CONCRETE HAS ATTAINED ITS 28 DAY STRENGTH AND 14 DAYS MINIMUM.

UPON COMPLETION OF FINISHING OPERATION, THE SURFACE OF SLABS SHALL BE SEALED AGAINST MOISTURE LOSS FOR 7 DAYS BY THE APPLICATION OF A CURING MEMBRANE OR BLANKET.

CONCRETE IN FORMS SHALL BE KEPT MOIST UNTIL REMOVAL. IMMEDIATELY UPON REMOVAL OF FORMS, AN APPROVED SPRAYED-ON CURING COMPOUND SHALL BE APPLIED TO THE CONCRETE SURFACES IN STRICT COMPLIANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CURING SHALL BE MAINTAINED FOR 7 DAYS.

FORMED SURFACES SHALL COMPLY WITH MINIMUM TOLERANCES ESTABLISHED IN ACI 117, UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED ON THE DRAWINGS.

FINISH EXPOSED CONCRETE TO OFFER SMOOTH, STAIN-FREE FINAL APPEARANCE AND MINIMUM NUMBER OF JOINTS. PROVIDE FORMING MATERIALS WITH SUFFICIENT STRENGTH TO RESIST HYDROSTATIC HEAD WITHOUT BOW OR DEFLECTION IN EXCESS OF ALLOWABLE TOLERANCES.

COMPLY FULLY WITH RECOMMENDATIONS OF ACI 306 WHEN AIR TEMPERATURES ARE EXPECTED TO DROP BELOW 40°F EITHER DURING CONCRETE PLACEMENT OPERATIONS OR BEFORE CONCRETE HAS CURED. PROTECTIVE MEASURES INCLUDE BUT ARE NOT LIMITED TO HEATING OF MATERIALS, HEATED ENCLOSURES, AND INSULATING BLANKETS.

COMPLY FULLY WITH RECOMMENDATIONS OF ACI 305 WHEN AMBIENT TEMPERATURE BEFORE, DURING, OR AFTER CONCRETE PLACEMENT IS EXPECTED TO EXCEED 90°F OR WHEN COMBINATIONS OF HIGH AIR TEMPERATURE, LOW RELATIVE HUMIDITY, AND WIND SPEED ARE SUCH THAT THE RATE OF EVAPORATION FROM FRESHLY POURED CONCRETE WOULD OTHERWISE EXCEED 0.2 POUNDS PER SQUARE FOOT PER HOUR. PROTECTIVE MEASURES INCLUDE BUT ARE NOT LIMITED TO COOLING OF MATERIALS BEFORE OR DURING MIXING, PLACEMENT DURING EVENING TO DAWN HOURS, FOGGING DURING FINISHING AND CURING, SHADING, AND WINDBREAKS

SAMPLE CONCRETE AND MAKE SPECIMENS FOR TESTING PER ASTM C172 AND ASTM C31. TAKE SAMPLES AT POINT OF DISCHARGE AND REPORT RESULTS OF ALL TESTS.

TEST SLUMP OF THE FIRST 2 LOADS OF CONCRETE DELIVERED FOR EACH POUR AND ONCE PER STRENGTH TEST PERFORMED PER ASTM C143 WITH ADDITIONAL TESTS IF CONCRETE CONSISTENCY CHANGES.

TEST AIR CONTENT OF THE FIRST 2 LOADS OF CONCRETE DELIVERED FOR EACH POUR AND ONCE FOR EACH STRENGTH TEST PERFORMED PER ASTM C173 OR ASTM C231.

TEST CONCRETE TEMPERATURE FOR EACH STRENGTH TEST PERFORMED AND HOURLY WHEN AIR TEMPERATURE IS BELOW 40°F OR ABOVE 90°F.

PROVIDE ONE COMPRESSIVE STRENGTH TEST PER ASTM C39 FOR EVERY 50 CUBIC YARDS OR FRACTION THEREOF FOR EACH DAY'S POUR OF EACH CONCRETE CLASS.

MOLD AND CURE ONE SET OF 4 STANDARD CYLINDERS FOR EACH COMPRESSIVE STRENGTH TEST REQUIRED. TEST ONE SPECIMEN PER SET AT 7 DAYS FOR INFORMATION AND TEST 2 SPECIMENS PER SET FOR ACCEPTANCE OF STRENGTH POTENTIAL AT 28 DAYS. RETAIN ONE SPECIMEN FROM EACH SET FOR LATER TESTING, IF REQUIRED.

EVALUATE CONSTRUCTION AND CURING PROCEDURES AND IMPLEMENT CORRECTIVE ACTION WHEN STRENGTH RESULTS FOR FIELD-CURED SPECIMENS ARE LESS THAN 85 PERCENT OF TEST VALUES FOR COMPANION LABORATORY-CURED SPECIMENS.

COST OF ADDITIONAL TESTING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR WHEN UNACCEPTABLE CONCRETE HAS BEEN VERIFIED.

SPECIAL INSPECTIONS

SPECIAL INSPECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 1704 OF "THE 2021 MARYLAND BUILDING CODE."

THE OWNER SHALL EMPLOY A SPECIAL INSPECTION AGENCY TO PERFORM INSPECTIONS AND TESTING DURING CONSTRUCTION.

SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED INDEPENDENT AGENCY MEETING THE REQUIREMENTS OF ASTM E329 - MATERIALS, ASTM D3740 - SOILS, ASTM C1077 - CONCRETE, ASTM A880 - STEEL, AND ASTM E543 - NON-DESTRUCTIVE TESTING.

THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING CODE OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION REQUIRING SPECIAL INSPECTION.

THE SPECIAL INSPECTOR SHALL OBSERVE CONSTRUCTION PROGRESS FOR COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF NOT CORRECTED DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER AND BUILDING OFFICIAL.

THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE BUILDING OFFICIAL, STRUCTURAL ENGINEER, CONTRACTOR, AND OWNER.

THE SPECIAL INSPECTION AGENCY SHALL SUBMIT A FINAL REPORT INDICATING THAT THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED AND IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.

INSPECTIONS SHALL BE CONDUCTED FOR THE MATERIALS AND OPERATIONS LISTED PER THE FOLLOWING STATEMENT OF SPECIAL INSPECTIONS:

GEOTECHNICAL INSPECTIONS:

- BEARING CAPACITY BELOW SHALLOW FOUNDATIONS
DEPTH OF FOOTING
CLASSIFICATION AND TESTING OF FILL MATERIALS
MATERIAL, DENSITY AND LIFT THICKNESS OF COMPACTED FILL

CONCRETE INSPECTIONS:

- PLACEMENT OF REINFORCING STEEL
ANCHOR BOLT LOCATION
VERIFY USE OF REQUIRED MIX DESIGN
SAMPLE CONCRETE FOR STRENGTH TESTS
MEASURE AIR CONTENT, TEMPERATURE, AND SLUMP
FORMWORK FOR SIZE, SHAPE AND LOCATION

DESIGN LOADS

FLOOR
DEAD LOAD : 100 P5F
LIVE LOAD : 250 P5F

ROOF SNOW LOADS
GROUND SNOW LOAD (Pg): 25 PSF
ROOF SNOW LOAD (Pf): 21 PSF
SNOW EXPOSURE FACTOR (Ce): 1.0
SNOW LOAD IMPORTANCE FACTOR (I): 1.2
THERMAL FACTOR (Ct): 1.0

WIND LOADS
ULTIMATE DESIGN WIND SPEED (Vult): 125 MPH
RISK CATEGORY: IV
WIND EXPOSURE CATEGORY: B
INTERNAL PRESSURE COEFFICIENT: ± 0.18

EARTHQUAKE DESIGN DATA
RISK CATEGORY: II
SEISMIC IMPORTANCE FACTOR (I): 1.0
MAPPED SPECTRAL RESPONSE ACCELERATIONS:
- Ss : 0.15
- S1 : 0.041
SITE CLASS: D
SPECTRAL RESPONSE COEFFICIENTS:
- Sds : 0.16
- Sd1 : 0.066
SEISMIC DESIGN CATEGORY: D
SEISMIC FORCE RESISTING SYSTEM:
LIGHT FRAMED SHEAR PANELS
SEISMIC RESPONSE COEFFICIENT (Cs): 0.12
RESPONSE MODIFICATION FACTOR (R): 2.0
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

APPROVED: DEPARTMENT OF PLANNING AND ZONING
4/16/2024
Chief, Development Engineering Division
4/17/2024
Chief, Division of Land Development
4/17/2024
Director

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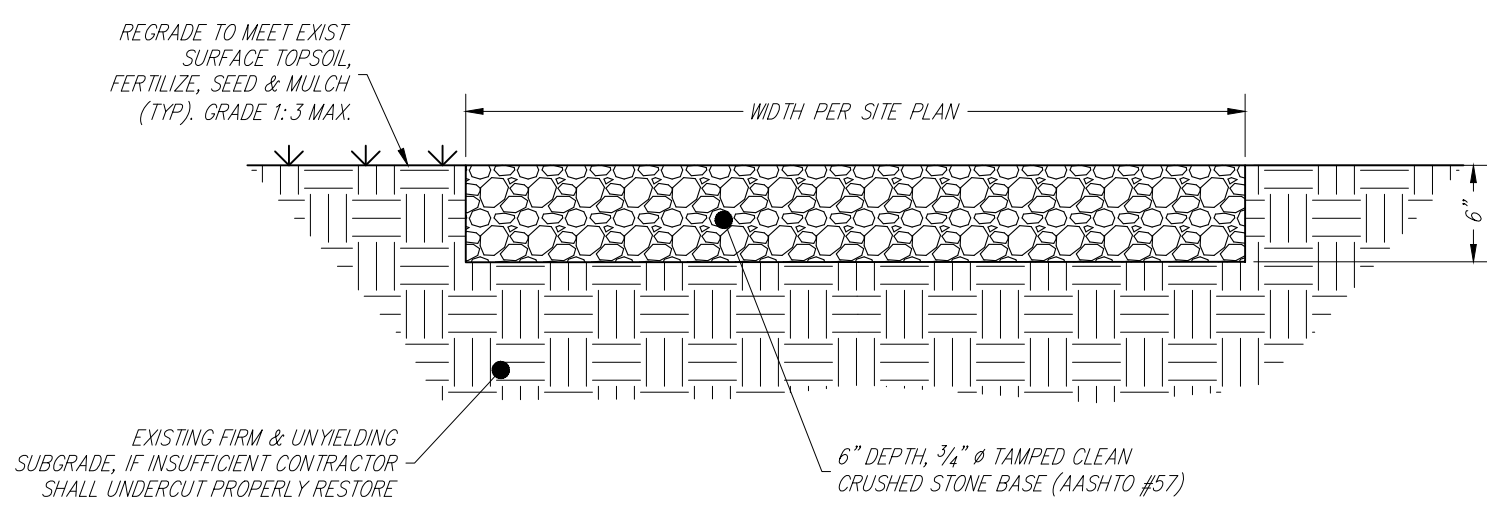
STATE OF MARYLAND
PROFESSIONAL CERTIFICATION. I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. 43087. EXPIRATION DATE: 12/31/2024

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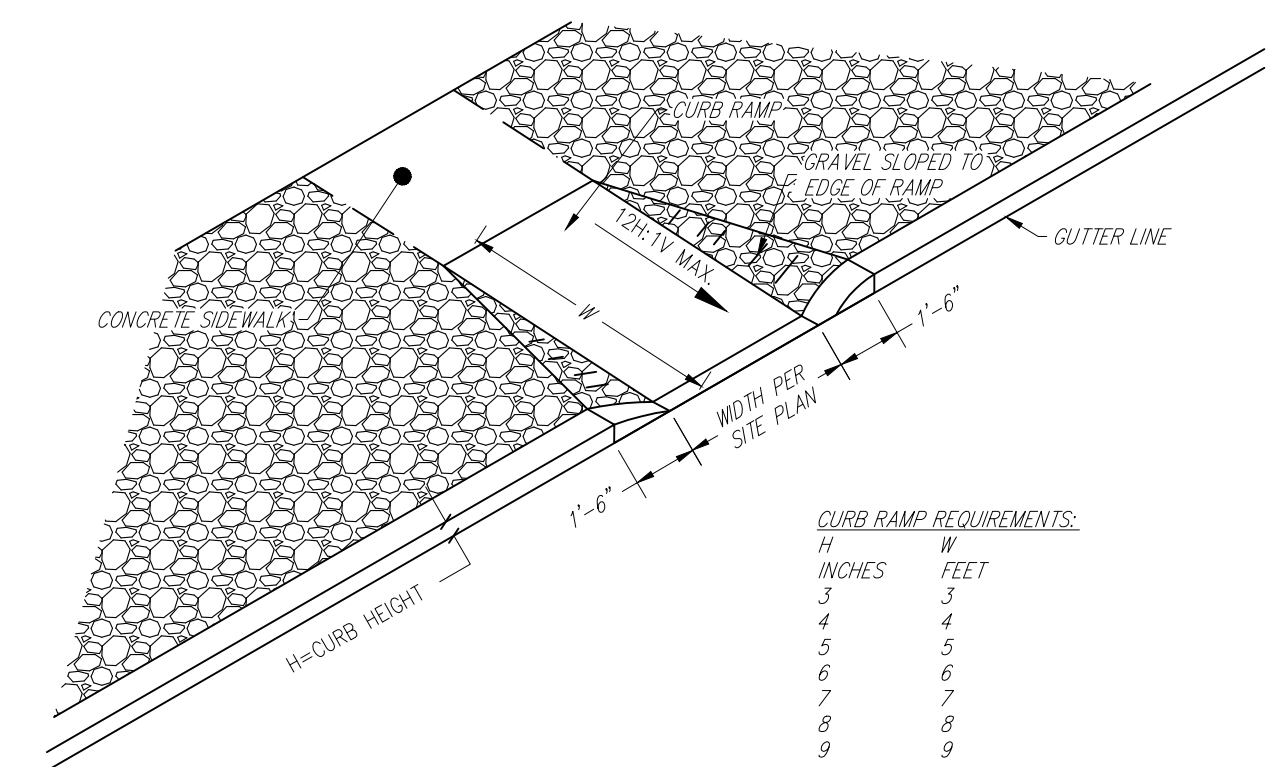
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APPLIED PHYSICS LABORATORY
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LAUREL, MARYLAND 20723

GENERAL NOTES
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TAX MAP: 41 PARCEL: 123 GRID: 16 ZONED: PEC
ELECTION DISTRICT 5 - HOWARD COUNTY, MARYLAND
SHEET 17 OF 20

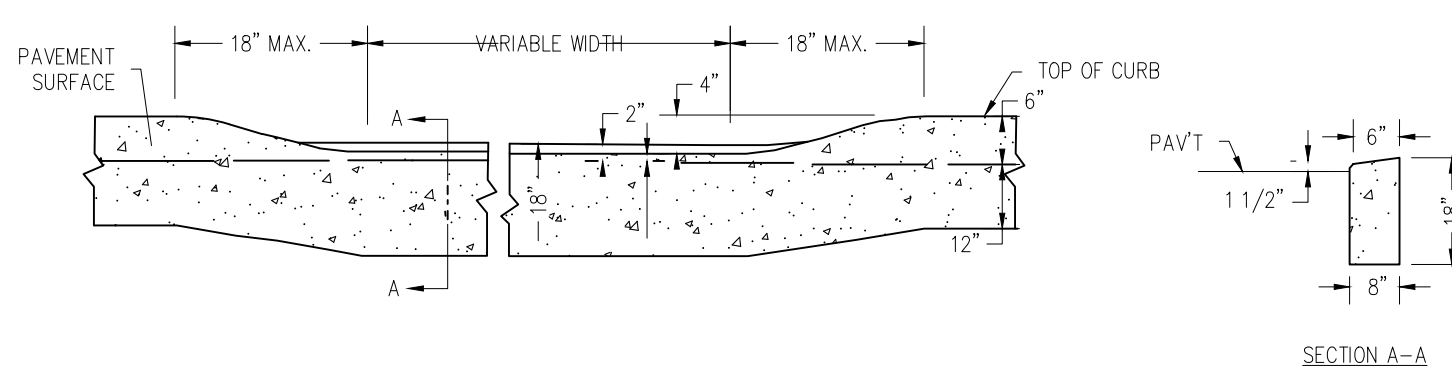
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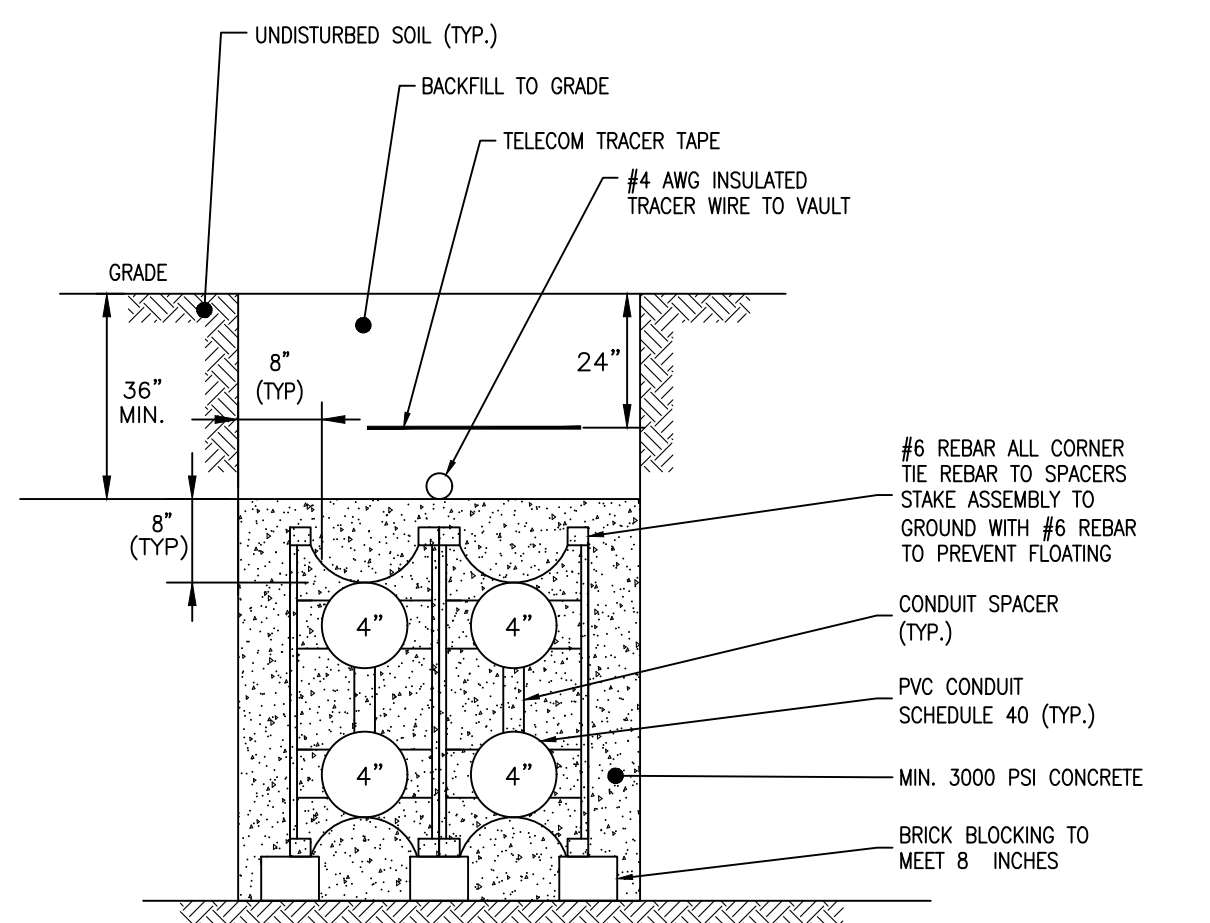
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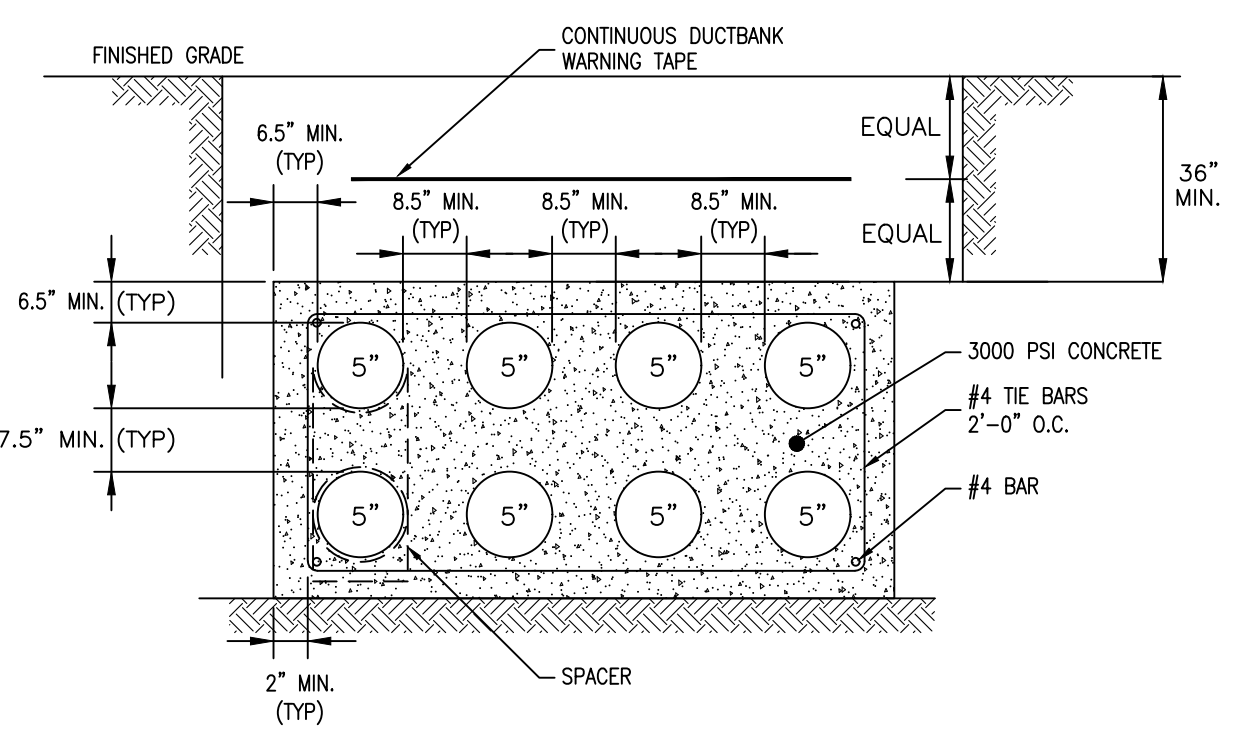
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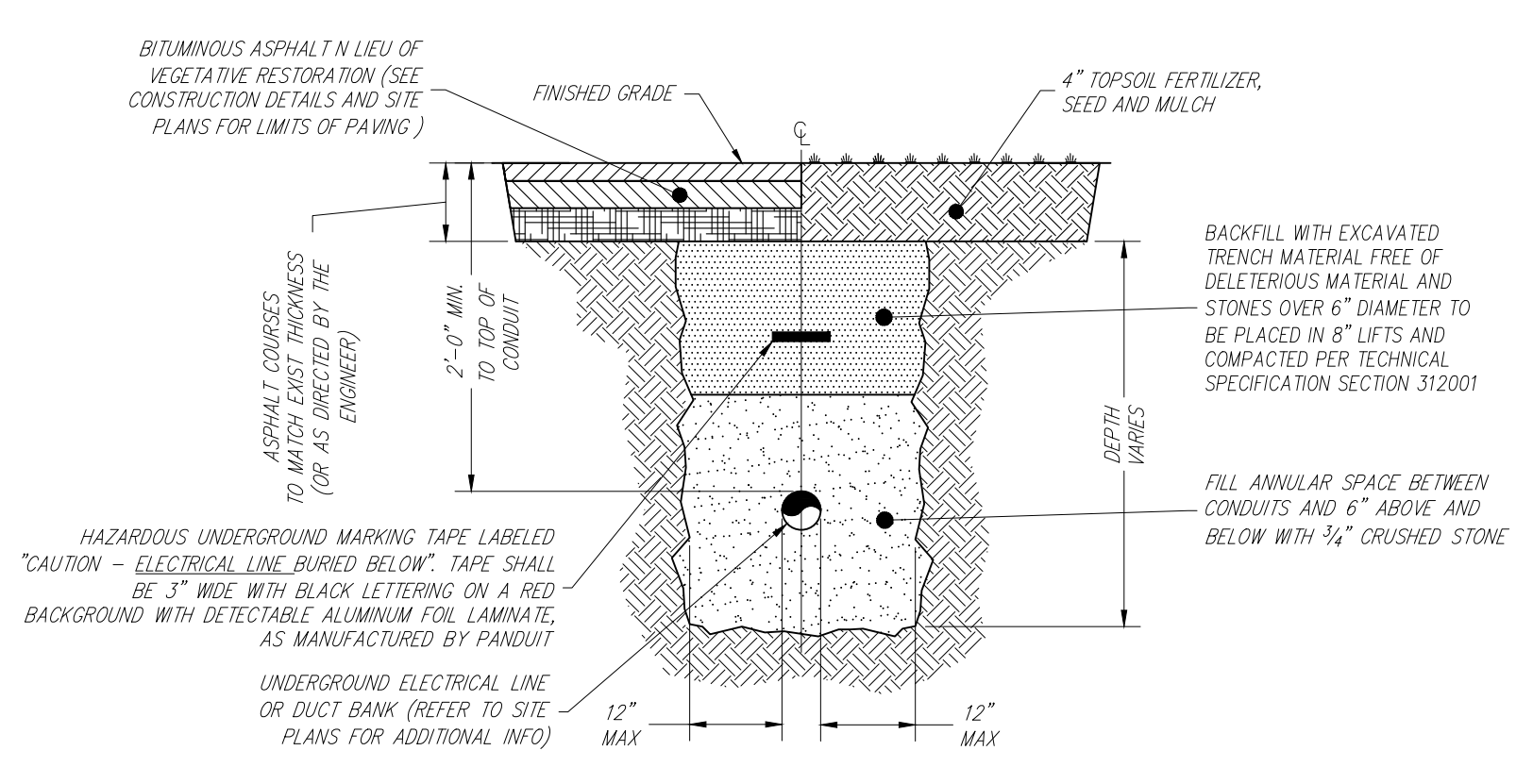
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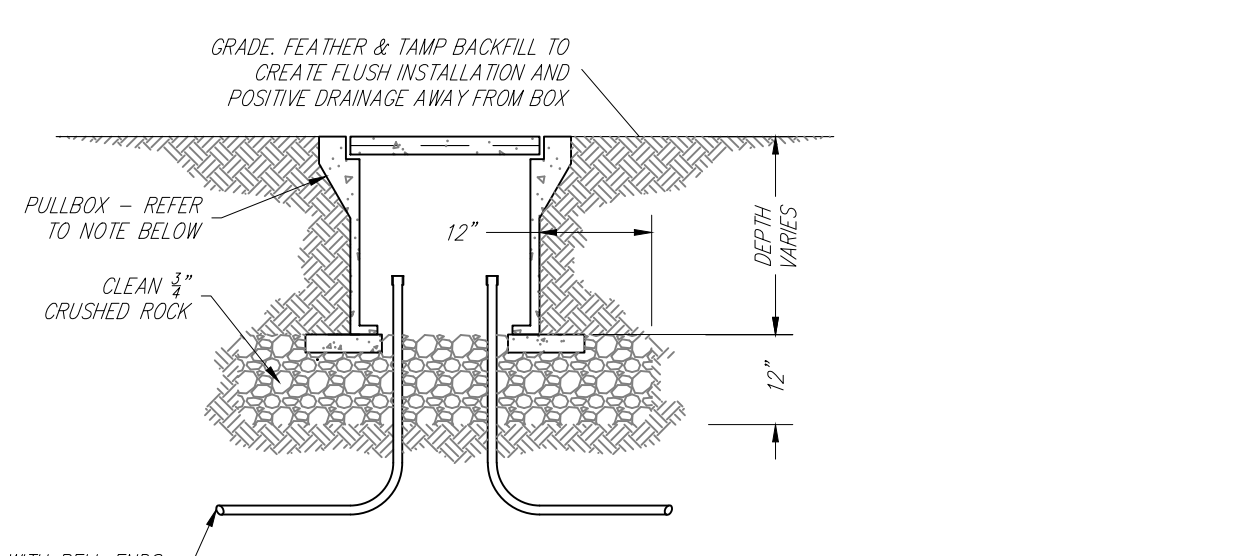
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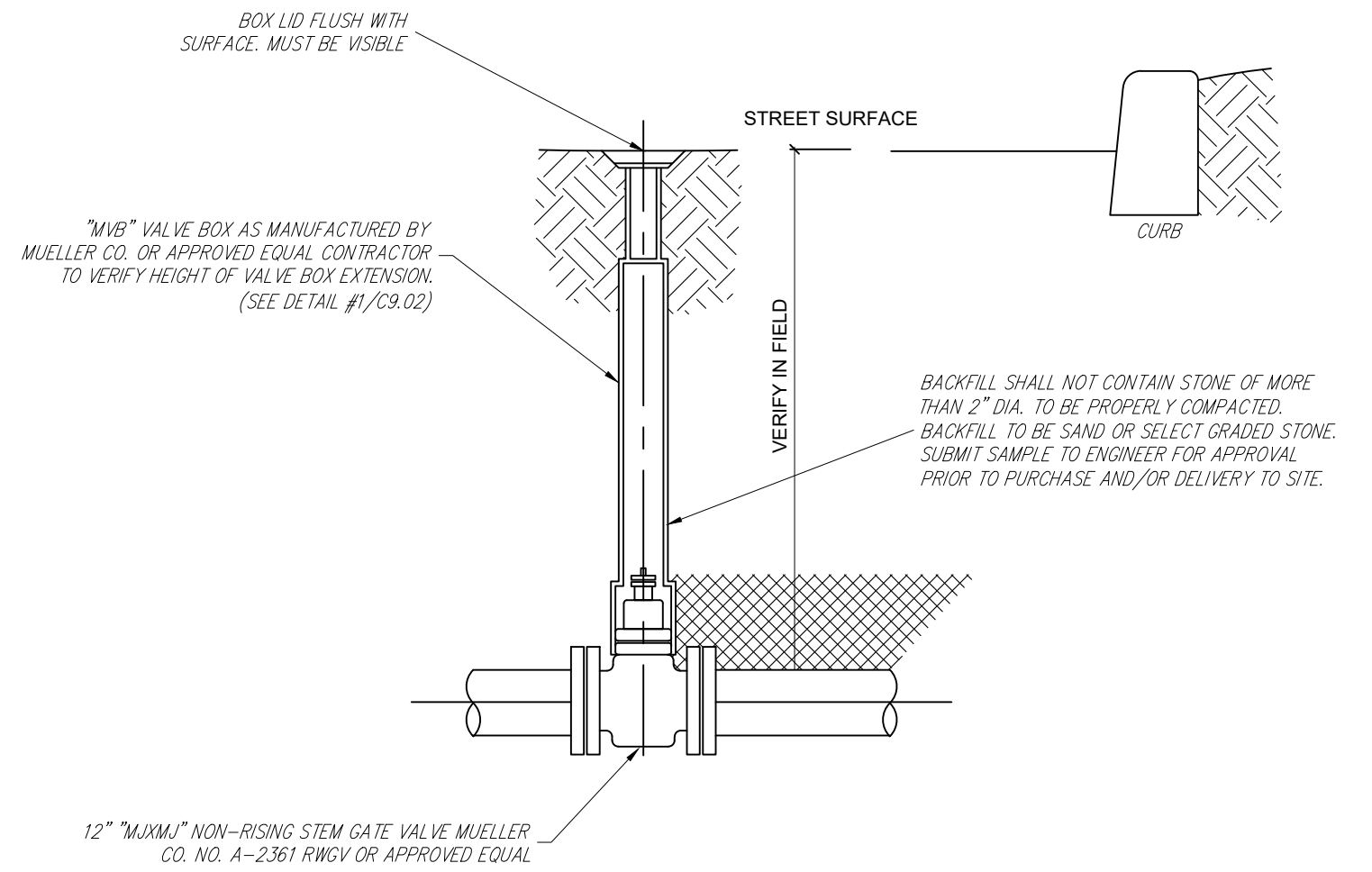
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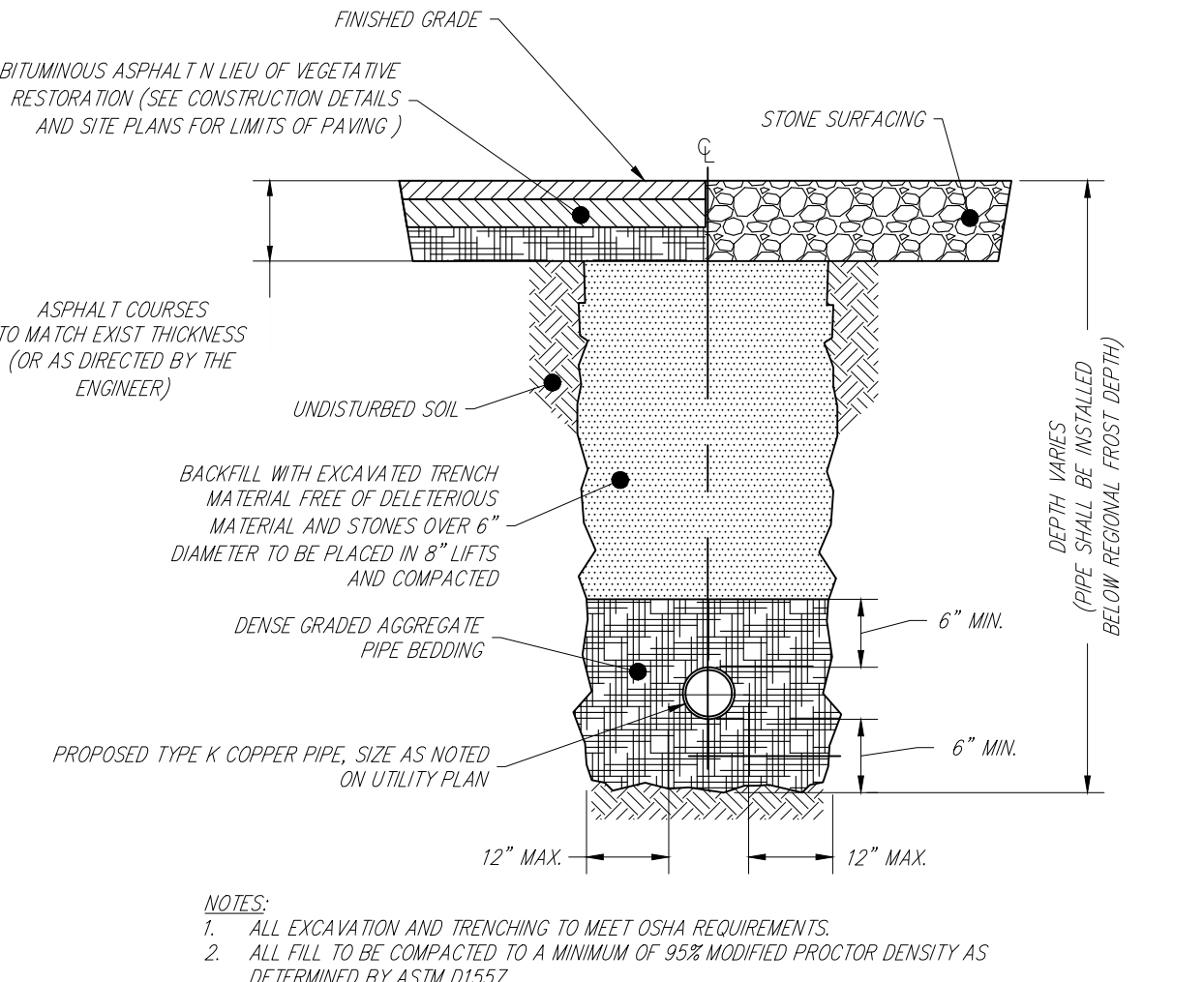
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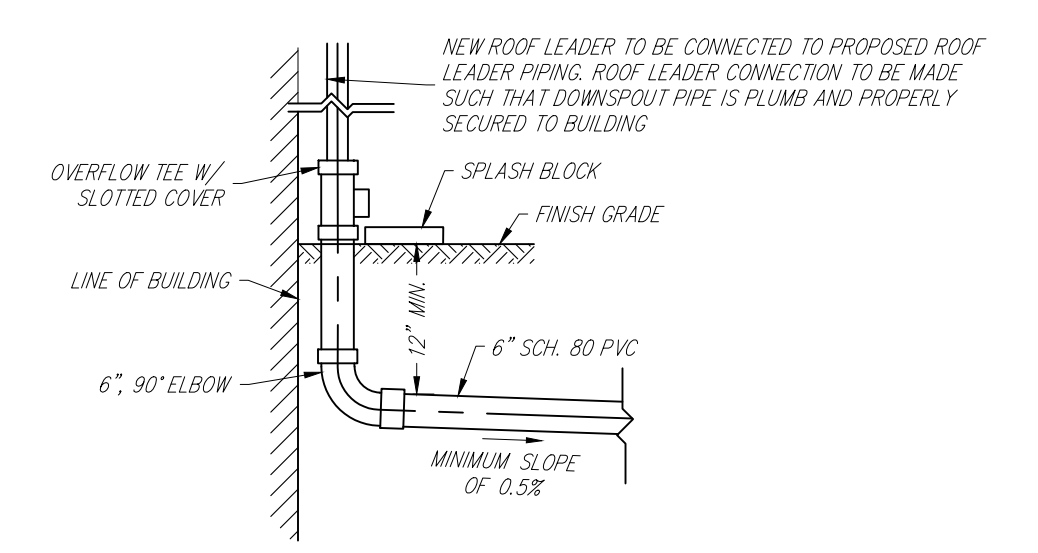
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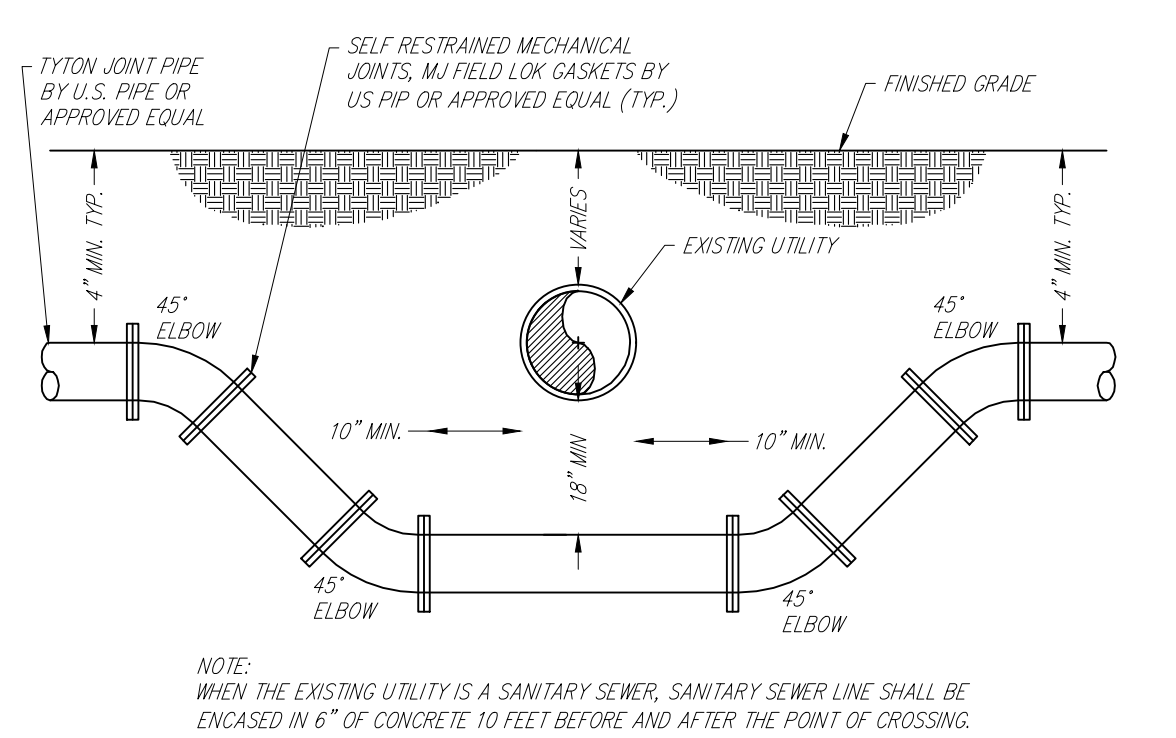
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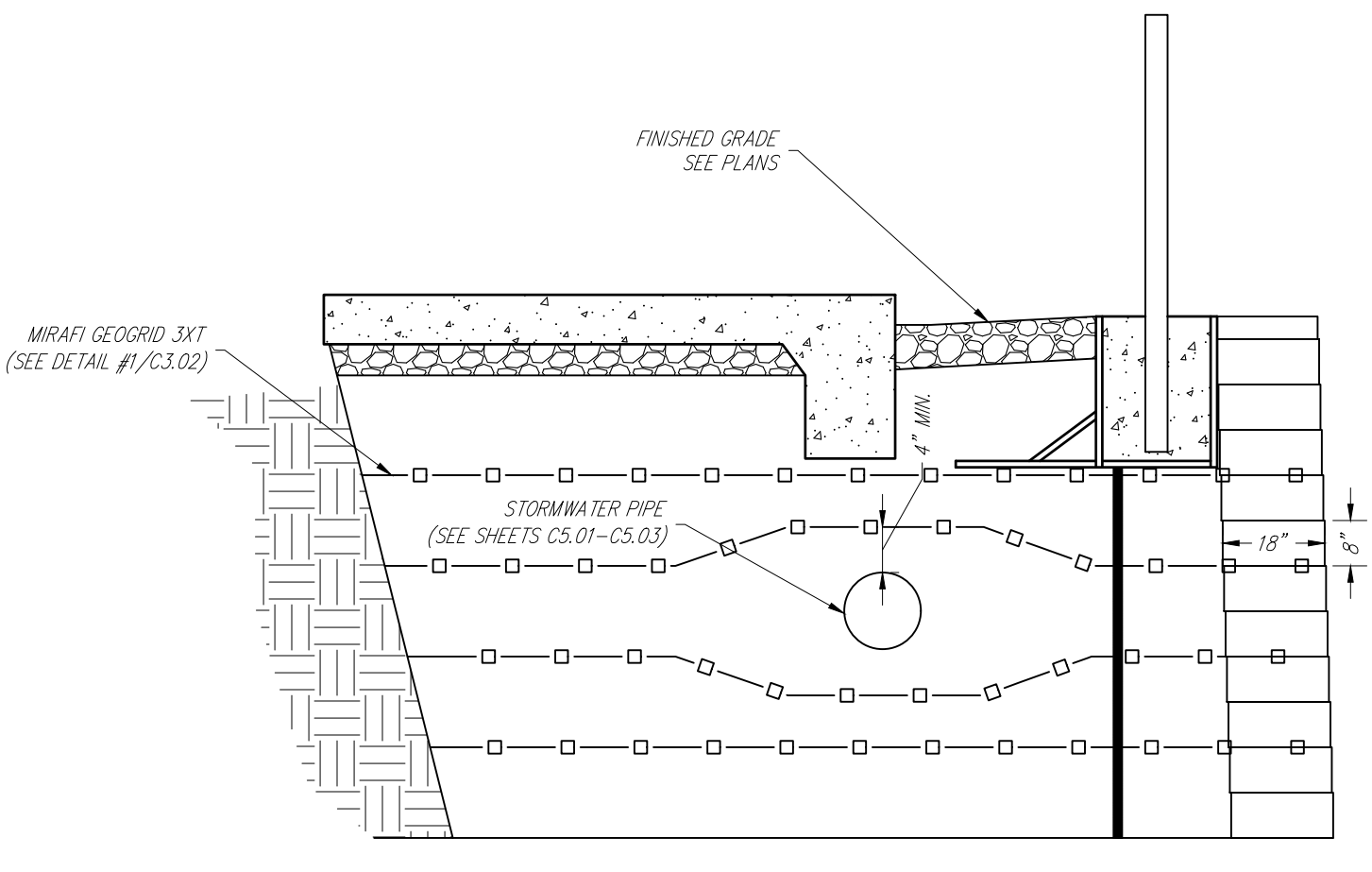
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ROOF LEADER CONNECTION DETAIL
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UTILITY CROSSING DETAIL
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N.T.S.



TYP. GEOGRID OFFSET DETAIL
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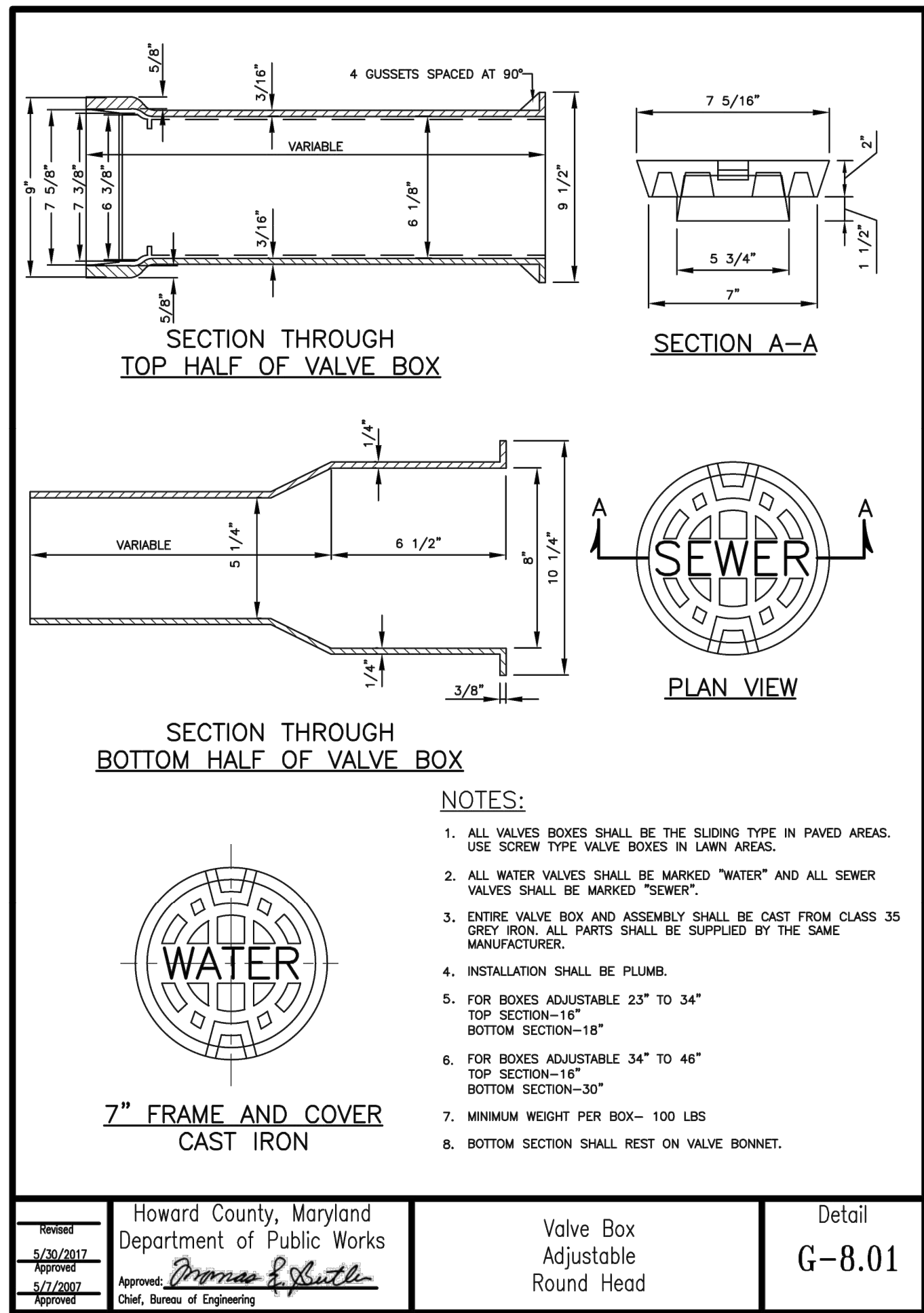
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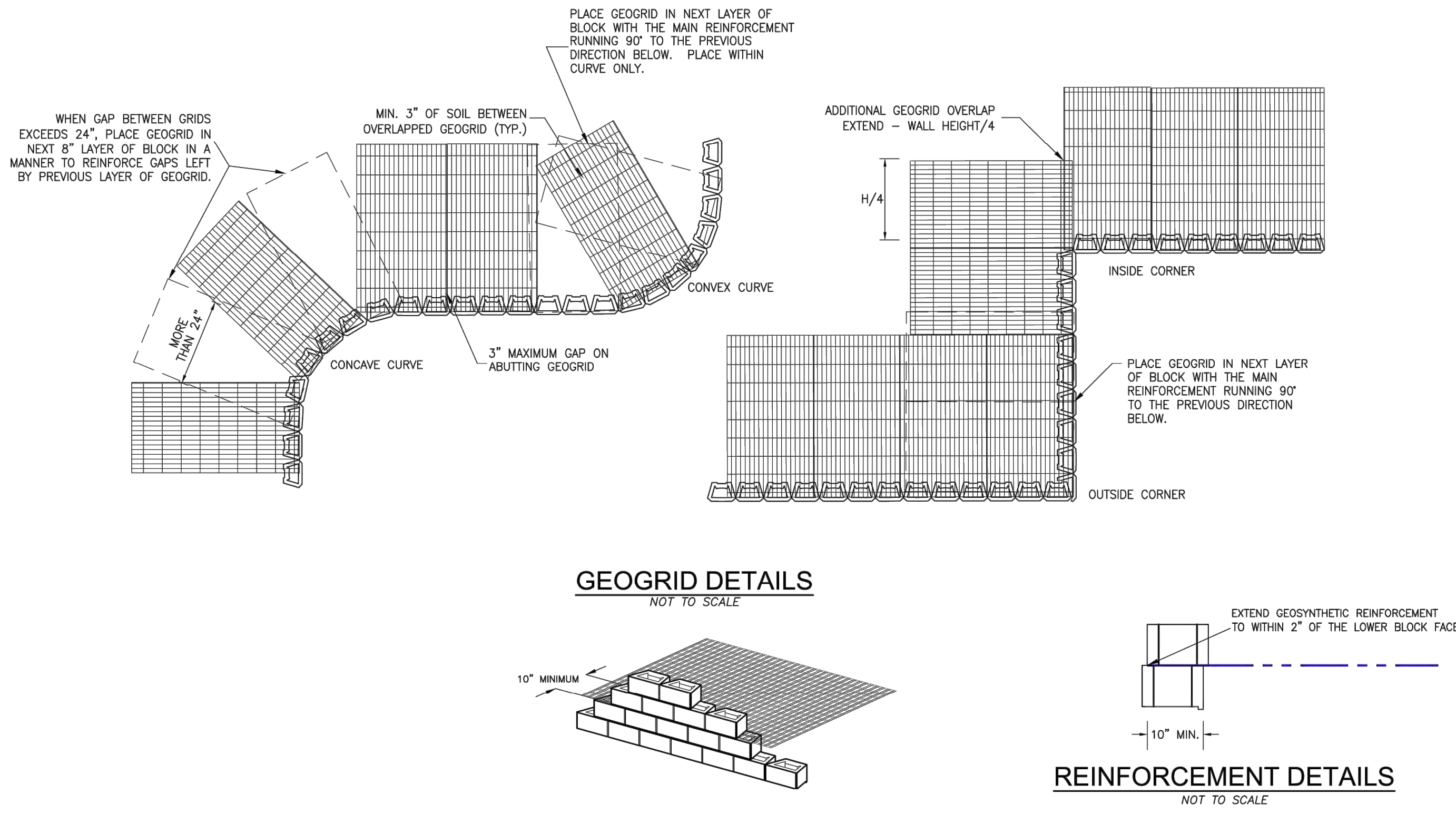
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CONSTRUCTION DETAILS
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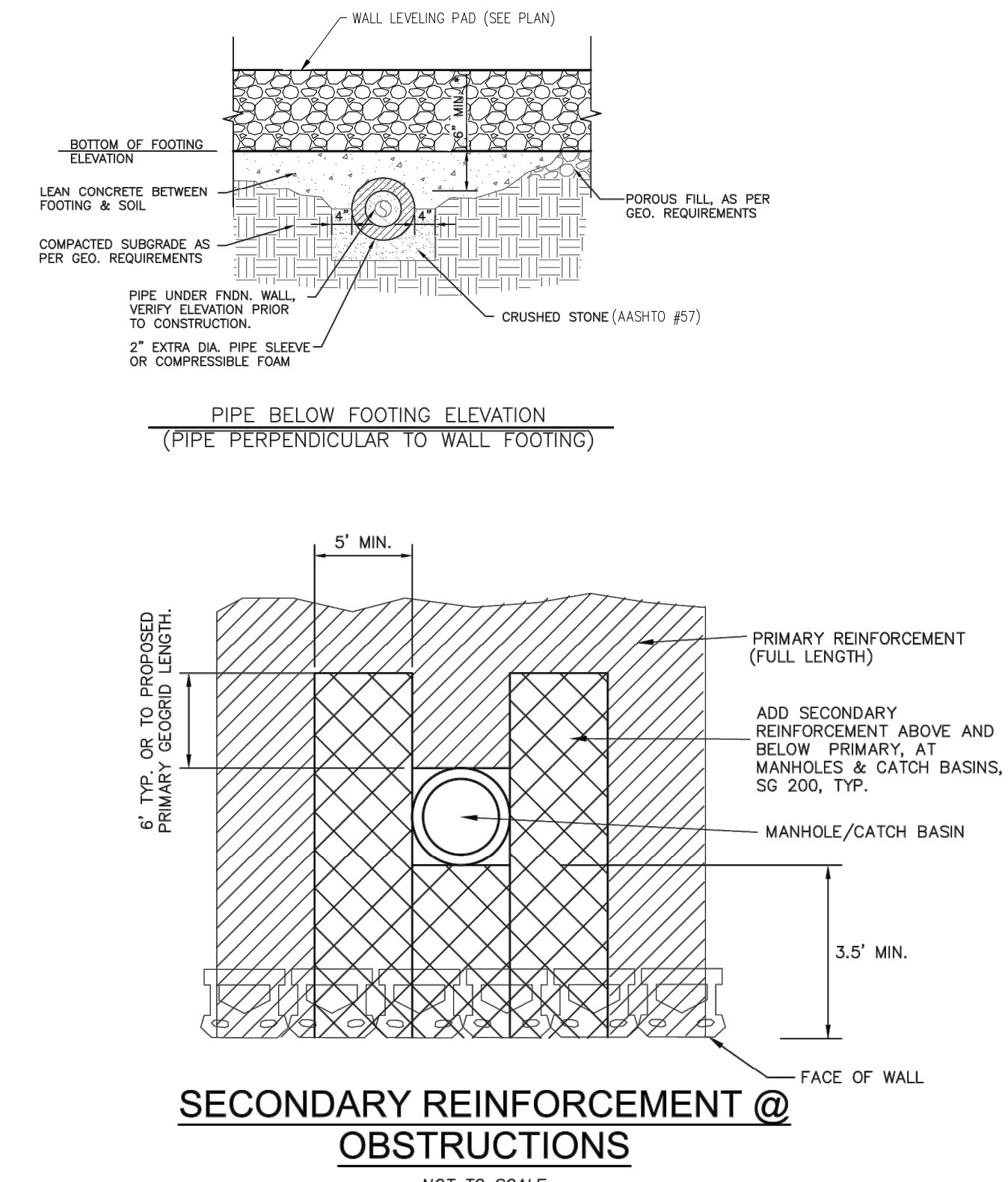
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2.3737.83
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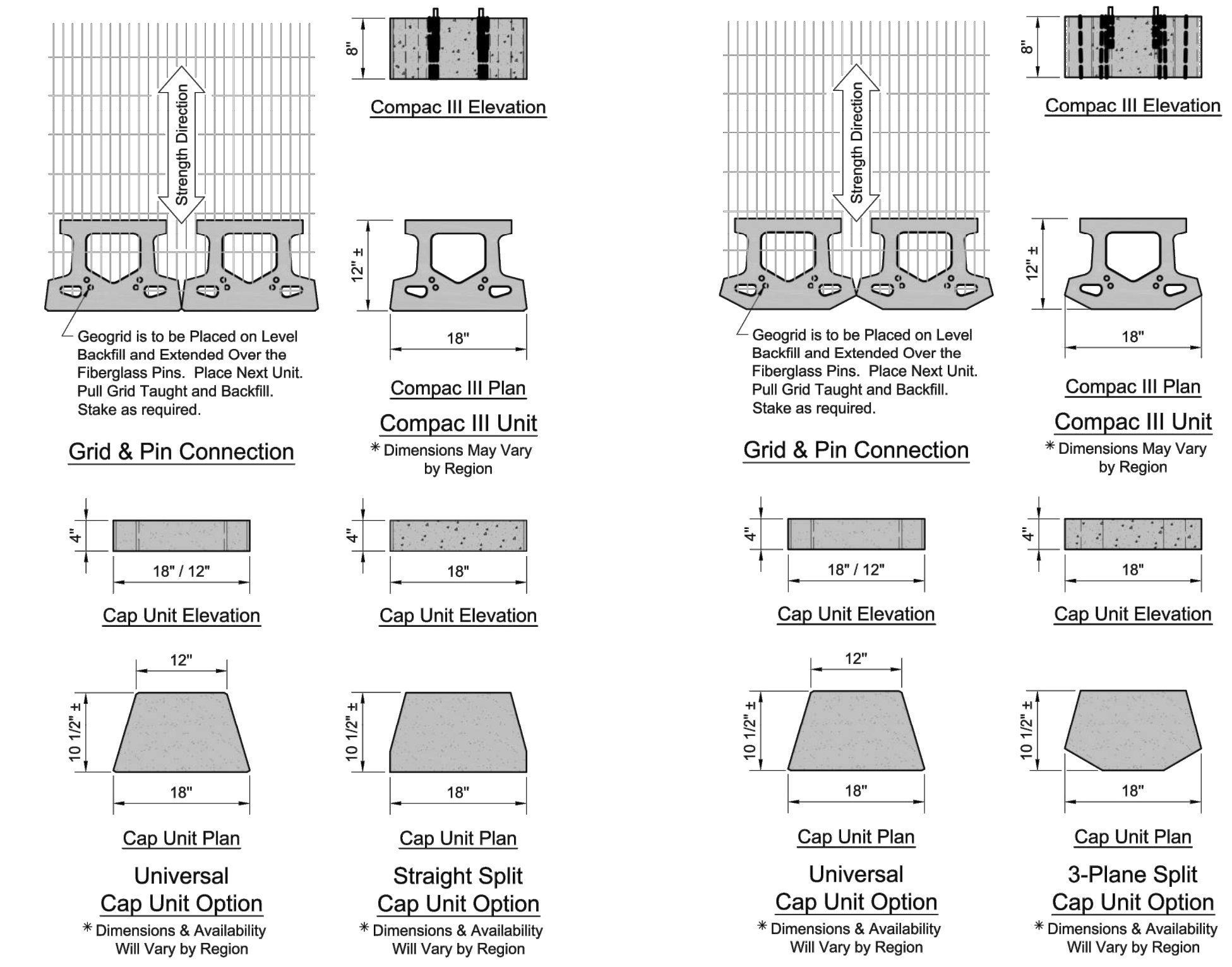
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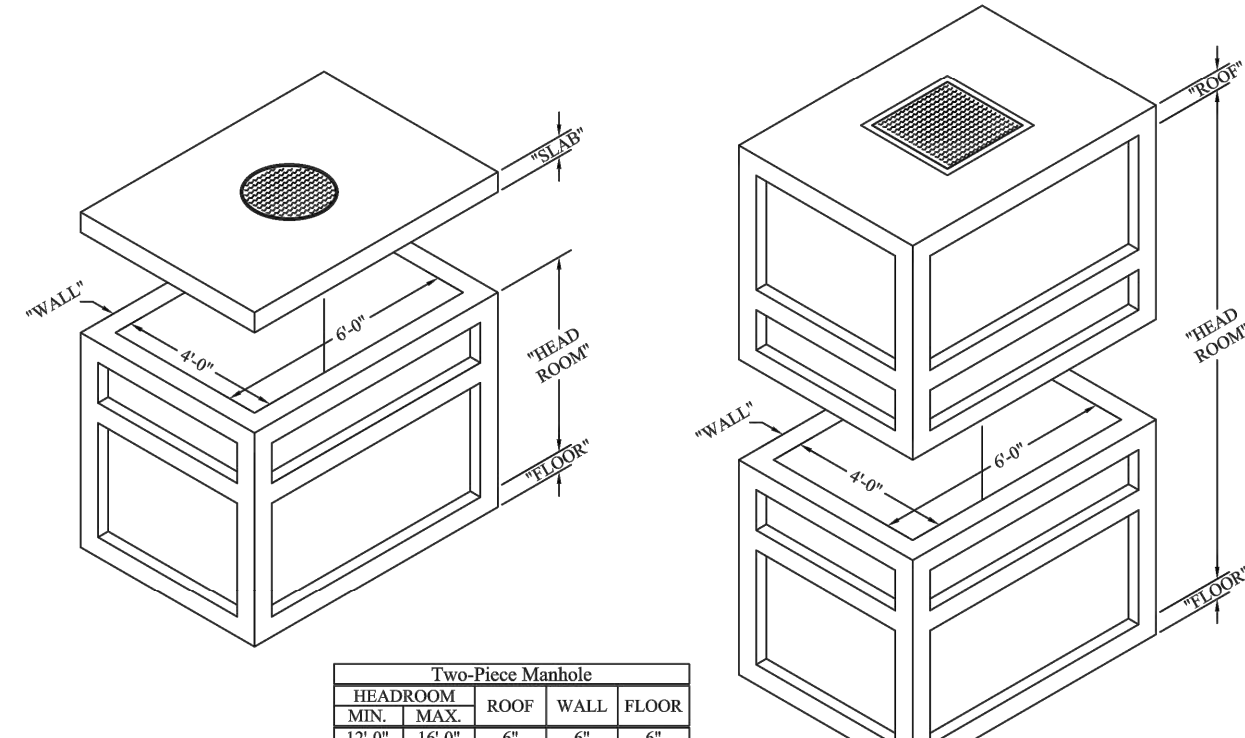
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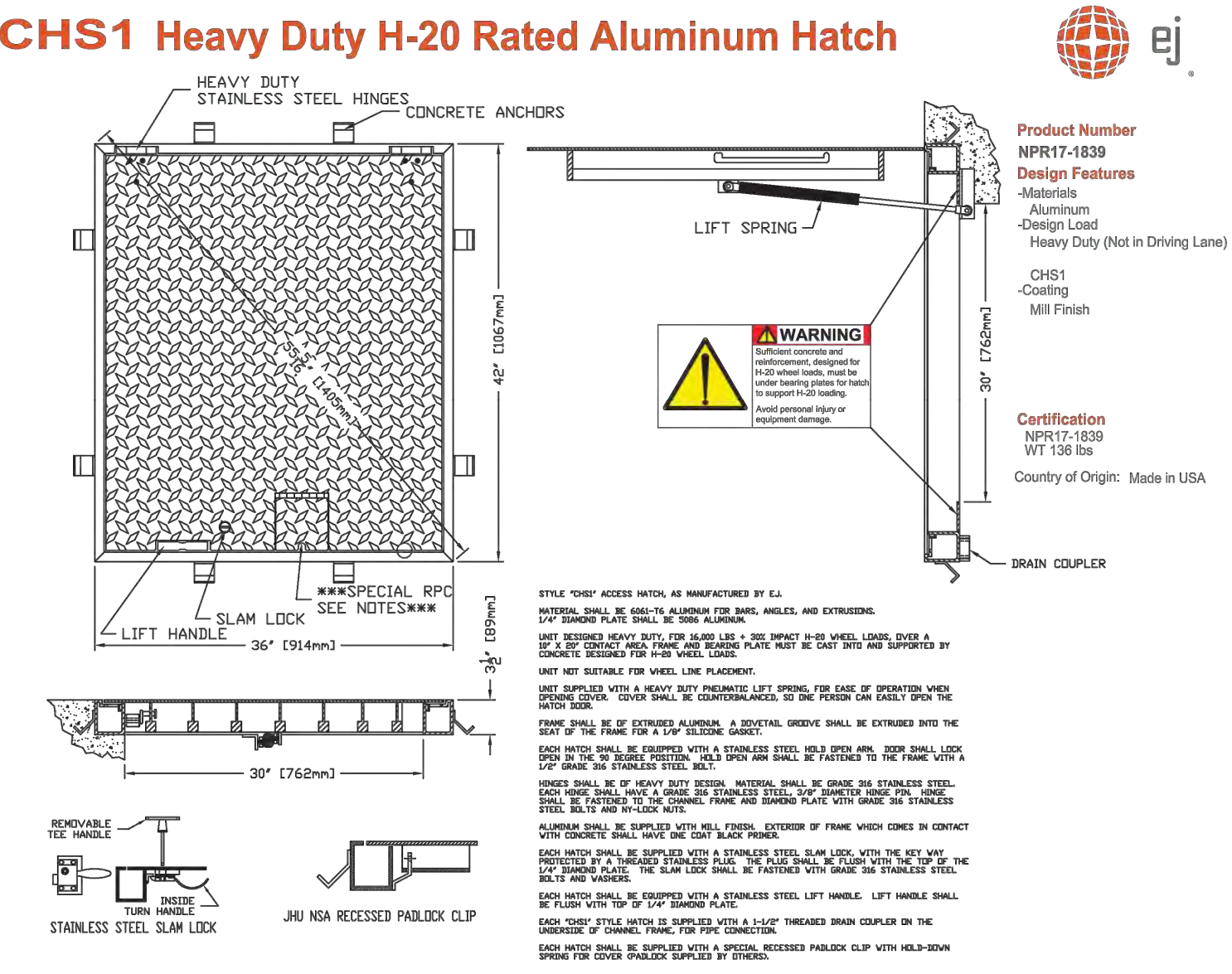
SECONDARY REINFORCEMENT @ OBSTRUCTIONS
 NOT TO SCALE



KEYSTONE COMPAC III BLOCK DETAILS
 N.T.S.



PROPOSED CONCRETE UTILITY VAULT DETAIL
 N.T.S.



PROPOSED CONCRETE UTILITY VAULT COVER DETAIL
 N.T.S.

APPROVED: DEPARTMENT OF PLANNING AND ZONING
 Chief, Development Engineering Division
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 Director

Date: 4/17/2024
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