EAST HILL RESIDENCE HALLS
PRELIMINARY/FINAL LAND DEVELOPMENT

NORTHAMPTON COUNTY, PENNSYLVANIA
JANUARY 30, 2026

PREPARED FOR:

OWNER/DEVELOPER

LEHIGH UNIVERSITY

27 MEMORIAL DRIVE W.

BETHLEHEM, PA 18015

SHEET LIST TABLE				
SHEET	NAME	TITLE	DATE	REVISED DATE
* 1	CS0001	COVER SHEET	2026-01-30	
* 2	CS0002	NOTES SHEET	2026-01-30	
3	CS0003	ZONING PLAN	2026-01-30	
4	CS0200	OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN	2026-01-30	
5	CS0201	EXISTING CONDITIONS AND DEMOLITION PLAN	2026-01-30	
6	CS0202	EXISTING CONDITIONS AND DEMOLITION PLAN	2026-01-30	
7	CS0203	EXISTING CONDITIONS AND DEMOLITION PLAN	2026-01-30	
* 8	CS1000	OVERALL SITE PLAN	2026-01-30	
* 9	CS1001	SITE PLAN	2026-01-30	
* 10	CS1002	SITE PLAN	2026-01-30	
* 11	CS1003	SITE PLAN	2026-01-30	
12	CS1500	OVERALL GRADING AND DRAINAGE PLAN	2026-01-30	
13	CS1501	GRADING AND DRAINAGE PLAN	2026-01-30	
14	CS1502	GRADING AND DRAINAGE PLAN	2026-01-30	
15	CS1503	GRADING AND DRAINAGE PLAN	2026-01-30	
16	CS1700	OVERALL UTILITY PLAN	2026-01-30	
17	CS1701	UTILITY PLAN	2026-01-30	
18	CS1702	UTILITY PLAN	2026-01-30	
19	CS1703	UTILITY PLAN	2026-01-30	
20	CS2200	OVERALL LIGHTING PLAN	2026-01-30	
21	CS2201	LIGHTING PLAN	2026-01-30	
22	CS2202	LIGHTING PLAN	2026-01-30	
23	CS2203	LIGHTING PLAN	2026-01-30	
24	CS2204	LIGHTING DETAILS	2026-01-30	
25	CS3501	UNIVERSITY DRIVE & WATERLINE PROFILES	2026-01-30	
26	CS4001	STORMWATER PROFILES	2026-01-30	
27	CS4002	STORMWATER PROFILES	2026-01-30	
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29	CS6001	SITE DETAILS	2026-01-30	
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31	CS8000	OVERALL EROSION AND SEDIMENTATION CONTROL PLAN	2026-01-30	
32	CS8001	EROSION AND SEDIMENTATION CONTROL PLAN- STAGE 1 &2	2026-01-30	
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36	CS8501	EROSION AND SEDIMENTATION CONTROL NOTES	2026-01-30	
37	CS8502	EROSION AND SEDIMENTATION CONTROL DETAILS	2026-01-30	
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* 39	CS9001	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	2026-01-30	
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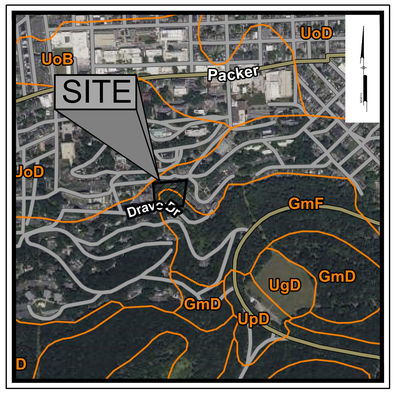
4	I-04	SPRAY IRRIGATION PCSM DETAIL PLAN	2025-09-27	
5	I-05	SPRAY IRRIGATION PCSM O & M SCHEDULE PLAN	2025-09-27	

* - SHEETS MARKED WITH AN ASTERISK ARE CONSIDERED TO BE A COMPLETE RECORD PLAN SET FOR FILLING PURPOSES IN THE NORTHAMPTON COUNTY RECORDER OF DEEDS OFFICE.



SOILS MAP
Scale: 1" = 200'

LOCATION MAP
Scale: 1" = 1000'

USGS MAP
Scale: 1" = 1000'

PREPARED BY:

PENNONI ASSOCIATES INC.

81 Highland Ave, Suite 230
Bethlehem, PA 18017
T 610.231.0600
F 610.231.2033

CALL BEFORE YOU DIG
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA
CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20251921235

DIGSAU

OWNER
Lehigh University
681 Taylor St
Bethlehem PA 18015
v 610-758-4622

ARCHITECT
DIGSAU
340 North 12th Street, Suite 421
Philadelphia, PA 19107
v 215.627.0808
www.digsau.com

CIVIL ENGINEER
Pennoni
81 Highland Ave, Suite 230
Bethlehem, PA 18017
https://www.pennoni.com/
v 855-754-3595

LANDSCAPE ARCHITECT
Omnes
1262 Simon Blvd, B105
Easton, PA 18042
https://omnes.studio/
v 215-882-0500

STRUCTURAL ENGINEER
Keast & Hood
1635 Market St, #1705
Philadelphia, PA 19103
https://keasthood.com/
v 215-625-0099

MEP/FP/TECHNOLOGY ENGINEER
IMEG
623 26th Ave
Rock Island, IL 61201
https://imegcorp.com/
v 215-569-0400

LIGHTING
Arup
77 Water Street
New York, NY 10005
https://www.arup.com/en-us/
v 212-896-3000

ENVELOPE
RWDI
1606 Walnut Street, Suite 1603
Philadelphia, PA 19103
v 267-773-8375

VERTICAL TRANSPORTATION
Lerch Bates
275 S Main St, Suite 2CC
Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

ACOUSTICS
Harrison Acoustics
212 Terminal Ave
Glenside, PA 19038
v 215-720-1530
https://harrison-acoustics.com/

LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	AS NOTED
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:

COVER SHEET

SHEET NUMBER:

CS0001

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU2001 - Lehigh Housing Final Design\DESIGN_SHEETS\CS0001.dwg PLOTTED: 2/3/2026 3:04 PM, BY: Thomas Serpico PLOTSTYLE: Pennoni NCS.ctb

GENERAL NOTES:

1. SITE ADDRESS: UNIVERSITY DRIVE
   BETHLEHEM, PA 18015

   OWNER/APPLICANT: LEHIGH UNIVERSITY
   27 MEMORIAL DRIVE W.
   BETHLEHEM, PA 18015

   ENGINEER: PENNONI ASSOCIATES INC.
   81 HIGHLAND AVE. - STE. 230
   BETHLEHEM, PA 18017

2. THE PURPOSE OF THIS PLAN IS TO DEPICT THE DESIGN OF A RESIDENTIAL HOUSING STRUCTURE AND ASSOCIATED PARKING, UTILITIES AND STORMWATER MANAGEMENT FACILITIES ON THE LEHIGH UNIVERSITY CAMPUS.

3. MUNICIPAL ZONING INFORMATION:

   THIS SITE IS LOCATED IN THE "I" (INSTITUTIONAL) ZONING DISTRICT WITHIN THE CITY OF BETHLEHEM.

4. FLOOD ZONE INFORMATION:

   BY GRAPHIC PLOTTING ONLY, BASED UPON THE FLOOD INSURANCE RATE MAP, PANEL NO. 307 OF 355, COMMUNITY MAP NO. 42095C0307E WITH AN EFFECTIVE DATE OF JULY 16, 2014, THE SITE IS LOCATED IN THE FOLLOWING AREA:

   ZONE X - AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

   NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE AND AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THE DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

5. PENNONI UTILIZED LEHIGH UNIVERSITY MONUMENTS, P-2 AND P-5 AS DESCRIBED IN THE SEPTEMBER 29, 2016 CONTROL SURVEY REPORT WITH ACCEPTABLE SURVEY STANDARDS. THE HORIZONTAL AND VERTICAL DATUM FOR THIS PROJECT REFERENCES THE PA STATE PLANE COORDINATE SYSTEM, NAD83 PENNSYLVANIA STATE PLANES, NORTH ZONE, US FOOT.

6. UNLESS SPECIFICALLY STATED OR SHOWN OTHERWISE TO THE CONTRARY, THIS SURVEY IS MADE SUBJECT TO AND DOES NOT LOCATE OR DELINEATE:

   A. RIGHTS OR INTERESTS OF THE UNITED STATES OF AMERICA OR COMMONWEALTH OF PENNSYLVANIA OVER LANDS NOW OR FORMERLY FLOWED BY TIDEWATER, BUT NO LONGER VISIBLE OR PHYSICALLY EVIDENT, OR LANDS CONTAINING ANY ANIMAL, MARINE, OR BOTANICAL SPECIES REGULATED BY OR UNDER THE JURISDICTION OF ANY FEDERAL, STATE, OR LOCAL AGENCY.

   B. ANY SUBSURFACE OR SUBTERRANEAN CONDITION, EASEMENTS OR RIGHTS, INCLUDING, BUT NOT LIMITED TO MINERAL OR MINING RIGHTS, OR THE LOCATION OF OR RIGHTS TO ANY SUBSURFACE STRUCTURES, CONTAINERS OR FACILITIES OR ANY OTHER NATURAL OR MAN-MADE SUBSURFACE CONDITION WHICH MAY OR MAY NOT AFFECT THE USE OR DEVELOPMENT POTENTIAL OF THE SUBJECT PROPERTY.

6. THE LOCATION OF THE EXISTING UNDERGROUND UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM EXISTING UTILITY RECORDS AVAILABLE AT THE TIME THESE PLANS WERE PREPARED AND FROM SURFACE OBSERVATION OF THE SITE.

7. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.

8. IN ACCORDANCE WITH PA ACT 127 OF 2024, THE CONTRACTOR SHALL NOTIFY ALL UTILITIES WITHIN THE WORK AREA VIA THE PENNSYLVANIA ONE CALL SYSTEM, INC. (800-242-1776) A MINIMUM OF 3 WORKING DAYS BEFORE THE START OF EXCAVATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PLACE PERMANENT COLOR CODED MARKERS OR TRACER WIRE ALONG ALL PRIVATE LATERALS TO INDICATE THE TYPE AND LOCATION OF ALL LATERALS INSTALLED, IN ACCORDANCE WITH THE PA 1 CALL ACT OF 127 OF 2024. THESE MARKERS ARE INTENDED TO ASSIST IN LOCATING EFFORTS OF THE PRIVATE LINES IN THE FUTURE.

9. UTILITY COORDINATION SHALL BE INCLUDED IN THE PROJECT SCHEDULE AND IT IS THE EXPLICIT RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT THE PROJECT SCHEDULE INCLUDES THE NECESSARY RELOCATIONS. THE CONTRACTOR WILL NOT BE PAID ADDITIONALLY FOR THIS COORDINATION.

10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE LOCATIONS AND DEPTHS OF ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES BEFORE THE START OF WORK AND TO TAKE WHATEVER STEPS NECESSARY TO PROVIDE FOR THEIR PROTECTION. THE ENGINEER HAS DILIGENTLY ATTEMPTED TO LOCATE AND INDICATE ALL EXISTING FACILITIES ON THESE PLANS; HOWEVER, THIS INFORMATION IS SHOWN FOR THE CONTRACTOR'S CONVENIENCE ONLY. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE LOCATIONS OF UTILITIES SHOWN OR NOT SHOWN. COMPLETENESS OR ACCURACY OF LOCATION AND DEPTH OF UNDERGROUND UTILITIES AND STRUCTURES IS NOT GUARANTEED.

11. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES FOR EXACT LOCATION AND PROTECTION OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR AND REPLACE ANY AND ALL DAMAGE MADE TO UTILITIES BY THE CONTRACTOR.

12. THE SITE IS TO BE SERVED BY PUBLIC SEWER AND WATER SERVICE.

13. ALL RADII SHOWN ARE 5 FT UNLESS OTHERWISE SPECIFIED.

14. A PRE-CONSTRUCTION MEETING SET UP WITH THE MUNICIPALITY WILL BE REQUIRED BEFORE ANY CONSTRUCTION COMMENCES.

GENERAL NOTES PER CITY OF BETHLEHEM:

1. IN ORDER TO MAINTAIN CONTINUITY BETWEEN PLAN REVISIONS, ANY CHANGES TO A PREVIOUS PLAN SUBMISSION SHALL BE FLAGGED WITH A TRIANGLE. ANY CHANGES NOT FLAGGED MAY BE CONSIDERED NOT APPROVED. FLAGGED CHANGES SHALL BE REFERENCED TO THE APPROPRIATE REVISION DATE IN THE REVISION BLOCK.

2. ACCURATE AS-BUILT PLANS SHALL BE KEPT UP TO DATE DURING THE CONSTRUCTION PROCESS. AT THE COMPLETION OF THE PROJECT, RECORD DRAWINGS SHALL BE DEVELOPED FROM THE AS-BUILT PLANS AND SUBMITTED TO THE CITY ENGINEER'S OFFICE. ALL FINAL DRAWINGS SHALL SHOW NORTH AMERICAN DATUM (NAD) 1983 STATE PLANE COORDINATES IN FEET (PENNSYLVANIA SOUTH, FIPS ZONE 3702) AND THE DIGITAL FILE SHALL BE IN STATE PLANE FEET COORDINATES AS APPLICABLE. THE HARD COPY OF THE RECORD DRAWINGS SHALL BE IN THE FORM OF A MYLAR COPY. THE ENGINEER OF RECORD SHALL CERTIFY (I.E. P.E. STAMPED AND SIGNED) THAT THE RECORD DRAWINGS COMPLY SUBSTANTIALLY WITH THE APPROVED PLAN AND THAT THEY CONFORM TO INDUSTRY STANDARDS. ALL DIGITAL FILES SHALL RESIDE ON PC COMPATIBLE CD ROM CONTAINING THE DIGITAL REPRESENTATION OF THE FINAL PLAN AS PRESENTED ON THE TWENTY-FOUR (24) INCH BY THIRTY-SIX (36) INCH SHEETS. THE DIGITAL MAP SHALL BE AUTOCAD COMPATIBLE. ALL LAYERS INCLUDED IN THE DIGITAL MAPS SHALL BE THE STANDARDIZED LAYERS PREPARED AND UTILIZED BY THE CITY OF BETHLEHEM TO ENSURE COMPATIBILITY WITH THE CITY'S EXISTING CAD STANDARDS AND AS DESCRIBED IN APPENDIX A OF THE CITY'S SUBDIVISION AND LAND DEVELOPMENT ORDINANCE

3. THE PROPOSED SITE WILL BE SERVICED BY PUBLIC WATER SUPPLY AND PUBLIC SEWER AND IN ACCORDANCE WITH ORDINANCE NO. 4342, AT THE TIME OF A REQUEST FOR A BUILDING PERMIT OR AT THE EXECUTION OF THE DEVELOPER'S AGREEMENT, A SANITARY SEWER TAPPING FEE OF $2,527 PER EDU WILL NEED TO BE PAID. THE TOTAL AMOUNT WILL BE DETERMINED WHEN A SANITARY SEWER FACILITIES PLANNING MODULE APPLICATION IS SUBMITTED.

4. ALL ELECTRICAL WORK WILL REQUIRE AN ELECTRICAL PERMIT AND APPLICABLE JOB REQUEST NUMBER.

5. PRIOR TO CONSTRUCTION OF A RETAINING WALL ON-SITE, A PLAN CONTAINING DESIGN AND DETAILS, CERTIFIED BY AN ENGINEER EXPERIENCED IN THE DESIGN OF RETAINING WALLS AND LICENSED IN THE STATE OF PENNSYLVANIA SHALL BE SUBMITTED TO THE CITY FOR REVIEW AND APPROVAL.

6. PER BETHLEHEM CITY ORDINANCE NO. 3821, THE FACILITY WILL BE REQUIRED TO RECYCLE MIXED OFFICE PAPER, CORRUGATED CARDBOARD, AND ALUMINUM. THE OWNER SHALL CONTACT THE RECYCLING OFFICE AT 610-865-7075 TO COORDINATE. THE OWNER IS RESPONSIBLE FOR ESTABLISHING RECYCLE PROCEDURES.

7. SOLID WASTE AND RECYCLING WILL BE COLLECTED AT THE TRASH PAD LOCATION SHOWN ON THE PLANS. THE OWNER WILL CONTRACT WITH A HAULING SERVICE TO REMOVE THE WASTES FROM THE SITE.

8. PERSON DOORS WILL BE PROVIDED ON THE BUILDING PERMIT PLAN. ACCESSIBLE ROUTES FROM THE PARKING LOT TO THE BUILDING WILL BE PROVIDED AT THAT TIME.

9. A KNOX BOX WILL BE INSTALLED PER THE DIRECTION OF THE CITY OF BETHLEHEM FIRE DEPARTMENT.

10. ALL PUBLIC INLETS SHOULD HAVE INLET MARKERS. THE DESIGN OF INLET MARKERS SHALL BE APPROVED BY THE CITY ENGINEER.

11. THE MAINTENANCE OF STORM WATER FACILITIES SHALL BE THE OWNER'S RESPONSIBILITY. THE OWER'S DEED, AND THE DEED TO ANY SUBSEQUENT OWNER, SHALL NOTE THAT THE OWNER SHALL ACCEPT THE MAINTENANCE RESPONSIBILITIES. THE CITY OF BETHLEHEM SHALL BE PERMITTED TO INSPECT THE STORMWATER FACILITIES ON AT LEAST AN ANNUAL SCHEDULE TO ENSURE THAT ANY NECESSARY CORRECTIVE WORK IS PERFORMED IN A TIMELY MANNER.

    THE DRAINAGE EASEMENT PROVIDED FOR THE FLOW OF STORMWATER ACROSS LOTS, AND MAY NOT BE ALTERED WITHOUT THE WRITTEN PERMISSION OF THE CITY ENGINEER. NO OBSTRUCTIONS SUCH AS PLANTING BERMS OR FENCES MAY BE INSTALLED IN THE DRAINAGE EASEMENTS AREAS WITHOUT SUFFICIENT PROVISION OF THE PASSAGE OF STORMWATER AND ANY SUCH PROPOSED PROVISION SHALL BE APPROVED IN WRITING BY THE CITY ENGINEER.

12. UNLESS A GEOLOGICAL SURVEY DEMONSTRATED THE FEASIBILITY OF ENCOURAGING INFILTRATION IN A DETENTION POND, THE DETENTION POND SHALL, GENERALLY, BE LINES WITH A 6 INCH THICK CLAY LINER WITH A PERMEABILITY OF A 1X10_7 CM/SEC OR LESS. THIS CLAY LINER SHALL, IN TURN, BE COVERED BY A 6 INCH LAYER OF VIABLE TOPSOIL ON WHICH A HEALTHY GROWTH OF GRASS SHALL BE ESTABLISHED (UNLESS RIP-RAPPED). THIS LINER SYSTEM SHALL EXTEND FROM THE BOTTOM OF THE POND TO THE ELEVATION OF THE EMERGENCY SPILLWAY. THE LINER PERMEABILITY OF 1X10-7 CM/SEC SHALL BE VERIFIED BY LAB TESTS ON THREE FIELD SAMPLES OR OTHER EQUIVALENT PROCEDURE ACCEPTABLE TO THE CITY ENGINEER. ADDITIONAL TESTS MAY BE REQUIRED BY THE CITY ENGINEER SHOULD ANY OF THE THREE ORIGINAL TESTS YIELD UNACCEPTABLE RESULTS. ALL THE TESTING SHALL BE ARRANGED AND PAID BY THE DEVELOPER; HOWEVER, THE TESTING LAB SHALL BE CERTIFIED IN THIS AREA OF TESTING AND ACCEPTABLE TO THE CITY ENGINEER.

    THE CITY ENGINEER MAY REQUIRE A FULL 12-INCH THICK CLAY LINER WITH PERMEABILITY OF 1X10-7 CM/SEC. OR LESS, WHERE CIRCUMSTANCES SUCH AS WATER DEPTH OR NEARBY UTILITIES NECESSITATE A GREATER DEGREE OF ASSURANCE AGAINST THE FORMATION OF SINKHOLES. ALSO, THE CITY ENGINEER MAY APPROVE A DIFFERENT LINER SYSTEM THAT IS- IN THE OPINION OF THE CITY ENGINEER- EQUAL TO OR BETTER THAN THE ABOVE MENTIONED LINERS.

    THE CONTRACTOR SHALL CLEAN ALL ACCUMULATED SEDIMENT AND SILT FROM THE POND AT THE END OF THE CONSTRUCTION, AND RETURN THE POND TO ITS ORIGINAL DESIGN CONDITIONS.

13. PRIOR TO ANY WORK WITHIN THE RIGHT-OF-WAY, PERMITS MUST BE OBTAINED FROM THE CITY ENGINEERING OFFICE.

14. SUPER PAVE IS REQUIRED AND MUST MEET PENNDOT SPECIFICATIONS PUB. 408.

15. IF ON-LOT DETENTION IS PROPOSED, NO IMPERVIOUS SURFACE FEE IS CHARGED. IMPERVIOUS SURFACES INCLUDE, BUILDING ADDITIONS, DECKS, PATIOS, GARAGES, DRIVEWAYS, SHEDS, SIMILAR STRUCTURES, ROOF, PARKING AREAS, DRIVEWAY AREAS, NEW STREETS, NEW SIDEWALK. EXISTING GRAVEL CRUSHED STONE, HARD PACKED SOIL IS EXEMPT.

16. A EROSION AND SEDIMENTATION CONTROL PLAN IS REQUIRED FOR EARTH DISTURBANCE ACTIVITY OF 5,000 SQUARE FEET OR MORE. THE CITY REQUIRES COUNTY CONSERVATION (LCCD OR NCCD) REVIEW OF 1 ACRE OR MORE.

17. THE LVPC REVIEWS ALL SITE PLANS THAT IT IS REQUIRED TO SIGN PRIOR TO BEING RECORDED IN THE COURTHOUSE OF EITHER NORTHAMPTON OR LEHIGH COUNTY, REGARDLESS OF THE SIZE OF THE SITE OR THE NET AMOUNT OF IMPERVIOUS SURFACES. THE LVPC IS NOT REQUIRED TO REVIEW A STORM WATER MANAGEMENT PLAN FOR A SITE THAT DOES NOT RESULT IN AN INCREASE OF 10,000 SQUARE FEET OF IMPERVIOUS SURFACE.

GENERAL UTILITY NOTES:

1. CONTRACTOR MUST APPLY FOR ALL UTILITY CONNECTION APPLICATIONS. CONTRACTOR IS RESPONSIBLE FOR ALL UTILITY CONNECTION FEES FOR CONSTRUCTION. REFER TO THIS SHEET FOR AVAILABLE UTILITY COMPANY LIST.

2. CONTRACTOR MUST OBTAIN ANY REQUIRED UTILITY DETAILS FOR RECONNECTION OF EXISTING SERVICES OR NEW SERVICE AND IS RESPONSIBLE FOR THE CONSTRUCTION OF EACH NEW SERVICE PER THE APPROPRIATE UTILITY COMPANY'S SPECIFICATIONS.

3. THE LOCATION OF THE EXISTING OVERHEAD UTILITIES SHOWN ON THIS PLAN HAVE BEEN TAKEN FROM FIELD OBSERVATION.

4. ALL NEW UTILITIES SHALL BE INSTALLED UNDERGROUND.

5. THE CONTRACTOR SHALL COORDINATE LOCATION AND INSTALLATION OF ALL UNDERGROUND UTILITIES AND APPURTENANCES TO MINIMIZE DISTURBANCE TO CURBING, PAVING, AND COMPACTED SUB-GRADE.

6. IF CONFLICTS ARE FOUND, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND DESIGN ENGINEER FOR INSTRUCTION BEFORE PROCEEDING WITH WORK.

7. CONTRACTOR SHALL EXCAVATE ONLY ENOUGH TRENCH FOR WHICH PIPE CAN BE INSTALLED AND TRENCH BACKFILLED BY THE END OF EACH WORK DAY.

8. UTILITY TRENCHES TO BE BACKFILLED WITH SAFE CLEAN STRUCTURAL FILL MATERIAL APPROVED BY AND UNDER THE SUPERVISION OF THE GEOTECHNICAL ENGINEER.

9. BEDDING REQUIREMENTS SPECIFIED HEREIN ARE TO BE CONSIDERED AS MINIMUMS FOR RELATIVELY DRY, STABLE EARTH CONDITIONS. ADDITIONAL BEDDING SHALL BE REQUIRED FOR ROCK TRENCHES AND WET AREAS. CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO PROVIDE SUCH ADDITIONAL BEDDING AS MAY BE REQUIRED TO PROPERLY CONSTRUCT THE WORK.

10. COMPACTION OF THE BACKFILL OF ALL TRENCHES SHALL BE COMPACTED TO THE DENSITY OF 95% OF THEORETICAL MAXIMUM DRY DENSITY (ASTM D698). BACKFILL MATERIAL SHALL BE FREE FROM ROOTS, STUMPS, OR OTHER FOREIGN DEBRIS AND SHALL BE PLACED IN LIFTS NOT TO EXCEED 6 INCHES IN COMPACTED FILL THICKNESS. A REPORT FROM A GEOTECHNICAL ENGINEER MAY BE REQUIRED BY THE PUBLIC WORKS INSPECTOR. CORRECTION OF ANY TRENCH SETTLEMENT WITHIN A YEAR FROM THE DATE OF APPROVAL WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

11. CONTRACTOR IS CAUTIONED TO PROTECT ANY STRUCTURES IMMEDIATELY ADJACENT TO HIS EXCAVATION AREAS. ANY DAMAGE TO STRUCTURE SHALL BE REPAIRED BY CONTRACTOR AT HIS OWN COST.

12. THE LOCATIONS AND ELEVATIONS OF THE EXISTING UTILITIES ARE APPROXIMATE. THE ELEVATIONS OF THE EXISTING UTILITIES AT THE TERMINUS CONNECTION POINTS TO THE PROPOSED UTILITIES AND AT PROPOSED UTILITY CROSSINGS MUST BE FIELD CHECKED PRIOR TO CONSTRUCTING THE NEW UTILITIES.

13. CONNECTIONS TO EXISTING SEWERS SHALL BE MADE PER MUNICIPALITY, AUTHORITY, AND/OR UTILITY COMPANY'S REQUIREMENTS AND APPROVALS, AND USING APPROVED MATERIALS. APPROVED DIELECTRIC COUPLINGS SHALL BE USED BETWEEN DISSIMILAR MATERIALS.

14. IF UTILITY CONFLICTS ARE ENCOUNTERED DURING CONSTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY INFORM THE CONSTRUCTION MANAGER/ENGINEER AND MAKE ARRANGEMENTS WITH THE UTILITY OWNER FOR THE RELOCATION OF THE NECESSARY UTILITIES AT NO COST TO THE OWNER OR THE ENGINEER.

15. MANHOLE RIM AND INLET GRATE ELEVATIONS ARE APPROXIMATE, CONTRACTOR SHALL ADJUST RIMS TO MATCH FINAL GRADE ADJACENT TO SAME.

16. CLEANOUT CAPS, GRATES, VALVE BOXES, ETC. SHALL HAVE BLACK FINISH TOPS.

17. IF CONFLICTS EXIST BETWEEN PROPOSED SEWERS SHOWN ON SEWER PROFILES AND THOSE SHOWN ON UTILITY PLANS, CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER / ENGINEER IMMEDIATELY

18. CONTRACTOR IS RESPONSIBLE FOR THE SUPPORT OF ALL EXCAVATIONS AND OF EXISTING UTILITIES WITHIN THE EXCAVATIONS PER OSHA REQUIREMENTS, STATE AND LOCAL CODES, UTILITY COMPANY REQUIREMENTS, ACCEPTED INDUSTRY STANDARDS,OR SPECIFIED REQUIREMENTS, WHICHEVER IS MOST STRINGENT.

19. CONTRACTOR TO CONSTRUCT MANHOLE AND INLET STRUCTURES IN ACCORDANCE WITH LATEST EDITION OF PENNDOT PUBLICATION 72M STANDARDS FOR ROADWAY CONSTRUCTION AND MUNICIPALITY STANDARDS.

20. UTILITY CONNECTION AND UTILITY COMPANY DETAILS FOR RECONNECTION AND NEW SERVICE WERE NOT PROVIDED BY THE UTILITY COMPANIES. CONTRACTOR MUST OBTAIN ANY REQUIRED UTILITY DETAILS FOR RECONNECTION OF EXISTING SERVICES OR NEW SERVICE AND IS RESPONSIBLE FOR THE CONSTRUCTION OF EACH NEW SERVICE PER THE APPROPRIATE UTILITY COMPANIES SPECIFICATIONS.

21. ALL PIPE LENGTHS AND DISTANCES BETWEEN STRUCTURES ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE ALONG A HORIZONTAL PLANE.

22. CONTRACTOR SHALL EXCAVATE ONLY ENOUGH TRENCH FOR WHICH PIPE CAN BE INSTALLED AND TRENCH BACKFILLED BY THE END OF EACH WORK DAY.

23. EXISTING UTILITY LATERALS FOR THE PREVIOUS USE ARE NOT TO BE REUSED UNLESS NOTED ON THE PLANS.

24. RUNOFF FROM IMPERVIOUS AREAS SHALL NOT BE DIRECTED INTO THE SANITARY SEWER NOR ONTO ADJACENT PROPERTIES.

25. ALL WATER MAINS AND APPURTENANCES SHALL MEET THE REQUIREMENTS OF THE MUNICIPALITY AND/OR AUTHORITY'S STANDARD SPECIFICATIONS. WATER MAINS ARE TO BE INSTALLED AT 4'-5" MINIMUM COVER UNLESS OTHERWISE INDICATED.

26. FIRE HYDRANT LOCATIONS AND CONSTRUCTION ARE SUBJECT TO THE APPROVAL OF THE LOCAL FIRE OFFICIALS AND UTILITY COMPANY.

27. DOMESTIC AND FIRE WATER BACKFLOW PREVENTION DEVICES ARE TO BE INSTALLED WITHIN THE BUILDING AND APPROVED BY MUNICIPALITY AND/OR AUTHORITY.

28. FINAL LOCATIONS OF HOSE BIBS AND ROUTING OF SERVICE PIPING SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD AND IN ACCORDANCE WITH THE MEP PLANS.

29. ELECTRICAL TRANSFORMERS, PAD SIZES, AND LOCATIONS TO BE COORDINATED WITH THE UTILITY COMPANY, OWNER/DEVELOPER, AND ARCHITECT. ELECTRIC AND TELECOM UTILITIES ARE SHOWN FOR COORDINATION PURPOSES ONLY. CONSTRUCTION AND INSTALLATION OF THE UTILITIES TO BE IN ACCORDANCE WITH THE UTILITY COMPANY AND MEP PLANS, DETAILS, AND SPECIFICATIONS. CONTRACTOR TO IMMEDIATELY NOTIFY THE ENGINEER OF CONFLICTS AND CHANGES TO THE PLAN.

GENERAL CONSTRUCTION AND GRADING NOTES:

1. ALL WORK SHALL COMPLY WITH APPLICABLE STATE, FEDERAL AND LOCAL CODES AND ALL NECESSARY LICENSES AND PERMITS SHALL BE OBTAINED BY THE CONTRACTOR AT HIS EXPENSE UNLESS PREVIOUSLY OBTAINED BY THE OWNER/DEVELOPER.

2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING STANDARDS, AS APPLICABLE:
   A. PENNDOT SPECIFICATION, PUB 408/2020 OR LATEST REVISION.
   B. PENNDOT STANDARDS FOR ROADWAY CONSTRUCTION, PUBLICATION 72M, LAST REVISED 9/01/23 OR LATEST REVISION.
   C. PENNDOT HANDBOOK OF APPROVED SIGNS, PUB 236/2012 OR LATEST REVISION.
   D. AMERICANS WITH DISABILITIES ACT OF 1991 AS AMENDED.
   E. THE PENNSYLVANIA CLEAN STREAM LAW (35 P.S. SECTION 691.1 ET. SEQ.).
   F. REGULATIONS OF PA CODE TITLE 25, CHAPTER 102.
   G. MUNICIPALITY STANDARDS AND SPECIFICATIONS (LATEST EDITION).
   H. IN EVENT OF A CONFLICT AMONG THESE REQUIREMENTS AND/OR PLANS, THE MORE RESTRICTIVE REGULATION SHALL APPLY OR A CLARIFICATION SHALL BE OBTAINED FROM THE ENGINEER.

3. THE CONTRACTOR SHALL BE REQUIRED TO REVIEW AND ABIDE BY SPECIFICATIONS OF THE PLAN AND ALL SUPPORTING DOCUMENTS, PERMITS, AND REPORTS FOR THIS SITE, INCLUDING NOT BUT NOT LIMITED TO:
   - EROSION AND SEDIMENTATION CONTROL PLAN (IF APPLICABLE)
   - POST CONSTRUCTION STORMWATER MANAGEMENT PLAN (IF APPLICABLE)
   - HIGHWAY OCCUPANCY PLANS (IF APPLICABLE)
   - GEOTECHNICAL REPORT (IF APPLICABLE)

4. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY DISCREPANCIES OR ERROR THEY DISCOVER IN THE PLANS.

5. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR CONSENT OF THE OWNER OR HIS REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE OF THE WORK TO BE UNACCEPTABLE.

6. ALL MATERIALS SHALL BE NEW UNLESS USED OR SALVAGED MATERIALS ARE AUTHORIZED BY THE OWNER.

7. TRAFFIC CONTROL METHODS, SUCH AS BARRICADES, SUFFICIENT LIGHTS, SIGNS, ETC., THAT MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC SHALL BE PROVIDED AND MAINTAINED THROUGHOUT THE CONSTRUCTION.

8. CONTRACTOR SHALL FURNISH AND MAINTAIN ALL NECESSARY BARRICADES AROUND THE WORK AREA.

9. THE CONTRACTOR SHALL MAINTAIN ACCESS FOR EMERGENCY VEHICLES AROUND AND TO ALL BUILDINGS NEAR CONSTRUCTION. IN TIME OF RAIN OR MUD, ROADS SHALL BE ABLE TO CARRY A FIRE TRUCK BEING PAVED OR HAVING A CRUSHED STONE BASE, ETC., WITH A MINIMUM WIDTH OF 20 FEET. ACCESS TO BUILDINGS THAT HAVE SPRINKLER OR STANDPIPE SYSTEMS SHALL BE WITHIN 40 FEET OF THE FIRE DEPARTMENT CONNECTOR. (NFPA 1141 3-1)

10. THE CONTRACTOR WILL ENSURE THAT POSITIVE AND ADEQUATE DRAINAGE IS MAINTAINED AT ALL TIMES WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE, BUT NOT BE LIMITED TO REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED OR REGRADING AS REQUIRED BY THE ENGINEER, EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS AND HAVING SPECIFIC PAY ITEMS IN THE DETAILED ESTIMATE. NO SEPARATE PAYMENT WILL BE MADE FOR ANY COSTS INCURRED TO COMPLY WITH THIS REQUIREMENT.

11. THE CONTRACTOR SHALL PROVIDE ANY AND ALL EXCAVATION AND MATERIAL SAMPLES NECESSARY TO CONDUCT REQUIRED SOIL TESTS. ALL ARRANGEMENTS AND SCHEDULING FOR THE TESTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

12. ALL PERMITS MUST BE OBTAINED PRIOR TO THE START OF CONSTRUCTION.

13. EXISTING GRADES AND ELEVATIONS TO BE TIED INTO AROUND THE SITE SHALL BE VERIFIED BY THE CONTRACTOR. DEVIATIONS OF EXISTING GRADES AND ELEVATIONS FOUND IN THE FIELD BY THE CONTRACTOR SHALL BE IMMEDIATELY REPORTED TO THE DESIGN ENGINEER.

14. DEVIATION FROM THESE PLANS AND NOTES WITHOUT THE PRIOR CONSENT OF THE OWNER OR HIS REPRESENTATIVE OR THE ENGINEER MAY BE CAUSE OF THE WORK TO BE UNACCEPTABLE.

15. MINIMUM PAVEMENT GRADE SHALL BE 1.0% UNLESS NOTED OTHERWISE.

16. MATERIALS SHALL BE NEW UNLESS USED OR SALVAGED MATERIALS ARE AUTHORIZED BY THE OWNER.

17. BEDDING REQUIREMENTS SPECIFIED HEREIN ARE TO BE CONSIDERED AS MINIMUMS FOR RELATIVELY DRY, STABLE EARTH CONDITIONS. ADDITIONALLY BEDDING SHALL BE REQUIRED FOR ROCK TRENCHES AND WET AREAS. CONTRACTOR SHALL HAVE THE RESPONSIBILITY TO PROVIDE SUCH ADDITIONAL BEDDING AS MAY BE REQUIRED TO PROPERLY CONSTRUCT THE WORK.

18. THE CONTRACTOR WILL ENSURE THAT POSITIVE AND ADEQUATE DRAINAGE IS MAINTAINED AT ALL TIMES WITHIN THE PROJECT LIMITS. THIS MAY INCLUDE, BUT NOT BE LIMITED TO REPLACEMENT OR RECONSTRUCTION OF EXISTING DRAINAGE STRUCTURES THAT HAVE BEEN DAMAGED OR REMOVED OR REGRADING AS REQUIRED BY THE ENGINEER, EXCEPT FOR THOSE DRAINAGE ITEMS SHOWN AT SPECIFIC LOCATIONS AND HAVING SPECIFIC PAY ITEMS IN THE DETAILED ESTIMATE. NO SEPARATE PAYMENT WILL BE MADE FOR ANY COSTS INCURRED TO COMPLY WITH THIS REQUIREMENT.

19. SOIL TESTING AND ON-SITE INSPECTION SHALL BE PERFORMED BY AN INDEPENDENT GEOTECHNICAL ENGINEER. A GEOTECHNICAL ENGINEER IS REQUIRED TO INSPECT, TEST AND CERTIFY TO THE COMPACTION OF ALL LOAD BEARING FILLS. THE GEOTECHNICAL ENGINEER SHALL PROVIDE COPIES OF TEST REPORTS TO THE CONTRACTOR, THE OWNER, AND TO THE OWNER'S REPRESENTATIVE AND SHALL PROMPTLY NOTIFY THE OWNER, HIS REPRESENTATIVE AND THE CONTRACTOR, SHOULD WORK PERFORMED BY THE CONTRACTOR FAIL TO MEET THESE SPECIFICATIONS.

20. UNSTABLE SOILS TO BE UNDERCUT, REMOVED, AND REPLACED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.

21. TOPSOIL MOVED DURING THE COURSE OF CONSTRUCTION SHALL BE SAVED AND REDISTRIBUTED ON ALL REGRADED SURFACES - SO AS TO PROVIDE AT LEAST FOUR INCHES OF EVEN COVER TO ALL DISTURBED AREAS OF THE DEVELOPMENT AND SHALL BE STABILIZED BY SEEDING AND PLANTING.

22. MATERIALS AND CONSTRUCTION STANDARDS FOR STREETS, CURBS, AND GUTTERS; STORM AND SANITARY SEWERS; AND SIDEWALKS, SHALL CONFORM TO MUNICIPALITY'S AND/OR PENNDOT STANDARDS. CONSTRUCTION AND INSTALLATION OF ALL FACILITIES SHALL CONFORM TO MUNICIPAL SPECIFICATIONS AND BE SUBJECT TO INSPECTION BY APPROPRIATE MUNICIPAL OFFICIALS.

23. ALL EXTERIOR CONCRETE AREAS TO UTILIZE CONCRETE WATERPROOFING ADMIXTURE.

DEMOLITION NOTES:

1. DEMOLITION WILL BEGIN UPON RECEIPT OF ALL NECESSARY APPROVALS AND PERMITS FROM ALL APPLICABLE GOVERNMENTAL AGENCIES. ALL WORK SHALL COMPLY WITH APPLICABLE FEDERAL, STATE, AND LOCAL CODES.

2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE AREAS FOR BOTH VEHICULAR AND PEDESTRIAN TRAFFIC BE SAFE, CLEAN, AND ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.

3. CONTRACTOR SHALL CONTACT THE PA ONE CALL SYSTEM (1-800-242-1776) PER ACT 287, AS AMENDED, NOT LESS THAN THREE DAYS NOR MORE THAN TEN WORKING DAYS BEFORE COMMENCING WITH DEMOLITION.

4. CONTRACTOR IS RESPONSIBLE FOR UTILIZING APPLICABLE EROSION CONTROL MEASURES PRIOR TO AND DURING DEMOLITION. REFER TO EROSION AND SEDIMENTATION CONTROL PLANS, NOTES AND DETAILS FOR EROSION AND SEDIMENT CONTROL PROCEDURES.

5. THE CONTRACTOR SHALL ENSURE THAT PROPER MECHANISMS ARE IN PLACE TO CONTROL WASTE MATERIALS THAT COULD ADVERSELY IMPACT WATER QUALITY. DEMOLITION WASTES INCLUDE, BUT ARE NOT LIMITED TO, EXCESS SOIL MATERIALS, BUILDING MATERIAL, CONCRETE WASTE WATER, SANITARY WASTES, ETC. MEASURES SHOULD BE PLANNED AND IMPLEMENTED FOR HOUSE KEEPING, MATERIAL MANAGEMENT AND LITTER CONTROL. WHEREVER POSSIBLE, RECYCLING OF EXCESS MATERIALS IS PREFERRED, RATHER THAN DISPOSAL. DIRECT ALL PUMP DISCHARGES RESULTING FROM DEWATERING OPERATIONS TO A SUITABLE FILTERING DEVICE IN ACCORDANCE WITH THE EROSION AND SEDIMENT CONTROL PLAN.

6. THE CONTRACTOR SHALL IMMEDIATELY REMOVE ANY AND ALL DEBRIS THAT MAY FALL ON THE ROADWAY AND/OR MAY BE TRACKED ONTO THE ROADWAY.

7. UTILITY REMOVALS/ABANDONMENT SHALL BE IN ACCORDANCE WITH THE FOLLO

LEGEND

EXISTING	TO BE REMOVED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		GUIDE RAIL
		HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, LIGHT
		POWER, SPOT LIGHT
		POWER, MANHOLE
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER FOUND
		MISC. CORNER FOUND
		CONCRETE MONUMENT FOUND
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC	WaC	SOIL LABEL
		STORM, INLET
		STORM, HEADWALL
		STORM, MANHOLE
		STORM, ROOF DRAIN
		STORM, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION
		VEGETATION, SHRUB
		VEGETATION, STUMP
		VEGETATION, DECIDUOUS
		VEGETATION, CONIFEROUS
		VEGETATION, TREE LINE
		WATER, FIRE HYDRANT
		PAVEMENT SAWCUT
		ANALYSIS AREA (1.88 ACRES)

STEEP SLOPE ANALYSIS

PATTERN	SLOPE	AREA (SQ. FT)	PERCENT OF ANALYSIS AREA
	15% -25%	16,069.88	19.5%
	25% - 35%	18,858.32	22.9%
	SLOPES > 35%	24,328.41	29.5%

EXISTING TREE ANALYSIS

TAG #	SPECIES	DIAMETER (in) (dead stems)
301	flowering dogwood *Cornus florida*	3.7, 2.2, 1.7, 1.4
302	flowering dogwood *Cornus florida*	4.4, (1.7)
303	Norway maple *Acer platanoides*	13.8
304	shagbark hickory *Carya ovata*	15.7
305	Norway maple *Acer platanoides*	14.1
306	Norway maple *Acer platanoides*	7.1
307	Norway maple *Acer platanoides*	11.4
308	flowering dogwood *Cornus florida*	4.0, 2.0
309	Norway maple *Acer platanoides*	17.5
310	Norway maple *Acer platanoides*	10.3, 7.9
311	Norway maple *Acer platanoides*	8.9, 7.1
312	Norway maple *Acer platanoides*	8.1
313	black oak *Quercus velutina*	33.5
314	Norway maple *Acer platanoides*	17.3
315	Norway maple *Acer platanoides*	7.0
316	tree of heaven *Ailanthus altissima*	20.3
317	white ash *Fraxinus americana*	6.3
318	tree of heaven *Ailanthus altissima*	8.0
319	common hackberry *Celtis occidentalis*	21.6
320	common hackberry *Celtis occidentalis*	15.7
321	Norway maple *Acer platanoides*	8.9
322	white ash *Fraxinus americana*	17.5
323	Norway maple *Acer platanoides*	16.0
324	Norway maple *Acer platanoides*	6.5
325	black locust *Robinia pseudoacacia*	14.5
326	white ash *Fraxinus americana*	14.5
327	Norway maple *Acer platanoides*	11.1
328	black locust *Robinia pseudoacacia*	21.5
329	Norway maple *Acer platanoides*	20.1
330	shagbark hickory *Carya ovata*	12.3
331	Norway maple *Acer platanoides*	9.9
332	Norway maple *Acer platanoides*	14.9
333	white ash *Fraxinus americana*	18.3
334	Norway maple *Acer platanoides*	13.6
335	Norway maple *Acer platanoides*	10.3
336	shagbark hickory *Carya ovata*	14.6
337	Norway maple *Acer platanoides*	16.9
338	Norway maple *Acer platanoides*	12.8
339	Norway maple *Acer platanoides*	11.5
340	shagbark hickory *Carya ovata*	13.1
341	shagbark hickory *Carya ovata*	19.8
342	Norway maple *Acer platanoides*	16.5
343	sugar maple *Acer saccharum*	18.0
344	shagbark hickory *Carya ovata*	11.7
345	shagbark hickory *Carya ovata*	15.1
346	flowering dogwood *Cornus florida*	2.3, 1.7, 1.5
347	flowering dogwood *Cornus florida*	2.2, 2.0, 1.5
348	flowering dogwood *Cornus florida*	1.9, 1.7, 1.5, 1.2
349	shagbark hickory *Carya ovata*	13.5
350	shagbark hickory *Carya ovata*	12.5
351	Norway maple *Acer platanoides*	11.5
352	white oak *Quercus alba*	15.0
353	shagbark hickory *Carya ovata*	12.3
354	shagbark hickory *Carya ovata*	14.1
355	chestnut oak *Quercus montana*	26.7
356	shagbark hickory *Carya ovata*	14.2
357	Eastern white pine *Pinus strobus*	5.5
358	chestnut oak *Quercus montana*	18.4
359	red maple *Acer rubrum*	21.7
360	Norway maple *Acer platanoides*	17.5
361	Austrian pine *Pinus nigra*	14.3
362	Austrian pine *Pinus nigra*	13.5
363	sassafras *Sassifras albidum*	10.4
364	Norway maple *Acer platanoides*	6.2
365	shagbark hickory *Carya ovata*	10.0
366	shagbark hickory *Carya ovata*	9.5
367	swamp white oak *Quercus bicolor*	22.4
368	shagbark hickory *Carya ovata*	13.3
369	shagbark hickory *Carya ovata*	16.7
370	Northern red oak *Quercus rubra*	30.5, 29.8, 25.0
371	Norway maple *Acer platanoides*	7.3
372	Norway maple *Acer platanoides*	18.2
373	Norway maple *Acer platanoides*	6.3
374	Norway maple *Acer platanoides*	19.3
375	Norway maple *Acer platanoides*	16.4
376	Norway maple *Acer platanoides*	10.9
377	Norway maple *Acer platanoides*	10.7
378	Norway maple *Acer platanoides*	8.8
379	Japanese maple *Acer palmatum*	9.8, 9.5
380	Japanese maple *Acer palmatum*	10.6, 10.3, 6.2
381	common hackberry *Celtis occidentalis*	20.0
382	Colorado spruce *Picea pungens*	17.5
383	swamp white oak *Quercus bicolor*	29.5
384	white ash *Fraxinus americana*	5.7, 5.5
385	white mulberry *Morus alba*	16.6
386	Kousa dogwood *Cornus kousa*	2.8, 2.5, 2.3, 2.1, 2.0, 1.9
387	Kousa dogwood *Cornus kousa*	2.4, 1.4, 1.4, 1.3
388	Kousa dogwood *Cornus kousa*	3.5, 3.2, 3.1, 2.7, 2.7, 2.6, 1.9, 1.6
389	Kousa dogwood *Cornus kousa*	3.0, 2.8, 2.7, 2.4, 1.5
390	Kousa dogwood *Cornus kousa*	3.4, 2.6, 2.5, 1.5
391	black locust *Robinia pseudoacacia*	27.2
392	Norway maple *Acer platanoides*	20.7
393	Norway maple *Acer platanoides*	19.0
394	chestnut oak *Quercus montana*	31.8
395	chestnut oak *Quercus montana*	22.7
396	Northern red oak *Quercus rubra*	39.1
397	bur oak *Quercus macrocarpa*	23.0, 15.2
398	Norway maple *Acer platanoides*	14.3
399	Northern red oak *Quercus rubra*	26.7
400	swamp white oak *Quercus bicolor*	27.2
401	Norway maple *Acer platanoides*	15.2
402	black oak *Quercus velutina*	20.7
403	Norway maple *Acer platanoides*	15.1
404	shagbark hickory *Carya ovata*	12.5
405	Northern red oak *Quercus rubra*	19.0
406	Norway maple *Acer platanoides*	22.6
407	Norway maple *Acer platanoides*	14.2, 9.0
408	Norway maple *Acer platanoides*	18.8
409	white ash *Fraxinus americana*	16.9
410	shagbark hickory *Carya ovata*	10.8
411	bur oak *Quercus macrocarpa*	17.3
412	shagbark hickory *Carya ovata*	12.8
413	Norway maple *Acer platanoides*	16.0
414	shagbark hickory *Carya ovata*	14.5
415	shagbark hickory *Carya ovata*	13.0
416	Norway maple *Acer platanoides*	18.1
417	bur oak *Quercus macrocarpa*	24.7
418	chestnut oak *Quercus montana*	14.6
419	bur oak *Quercus macrocarpa*	21.5
420	shagbark hickory *Carya ovata*	19.6
421	Northern red oak *Quercus rubra*	16.9
422	pin oak *Quercus palustris*	18.1

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Lehigh University
681 Taylor St.
Bethlehem PA 18015
v 610-758-4622

ARCHITECT
DIGSAU
340 North 12th Street, Suite 421
Philadelphia, PA 19107
v 215.627.0808
www.digsau.com

CIVIL ENGINEER
Pennoni
81 Highland Ave, Suite 230
Bethlehem, PA 18017
https://www.pennoni.com/
v 855-754-3595

LANDSCAPE ARCHITECT
Omnes
1262 Simon Blvd, B105
Easton, PA 18042
https://omnes.studio/
v 215-882-0500

STRUCTURAL ENGINEER
Keast & Hood
1635 Market St, #1705
Philadelphia, PA 19103
https://keasthood.com/
v 215-625-0099

MEP/FP/TECHNOLOGY ENGINEER
IMEG
623 26th Ave
Rock Island, IL 61201
https://imegcorp.com/
v 215-569-0400

LIGHTING
Arup
77 Water Street
New York, NY 10005
https://www.arup.com/en-us/
v 212-896-3000

ENVELOPE
RWDI
1608 Walnut Street, Suite 1603
Philadelphia, PA 19103
v 267-773-8375

VERTICAL TRANSPORTATION
Lerch Bates
275 S Main St, Suite 2CC
Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

ACOUSTICS
Harrison Acoustics
212 Terminal Ave
Glenside, PA 19038
v 215-720-1530
https://harrison-acoustics.com/

LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
ZONING PLAN

SHEET NUMBER:
CS0003

PROJECT PHASE:
DESIGN DEVELOPMENT

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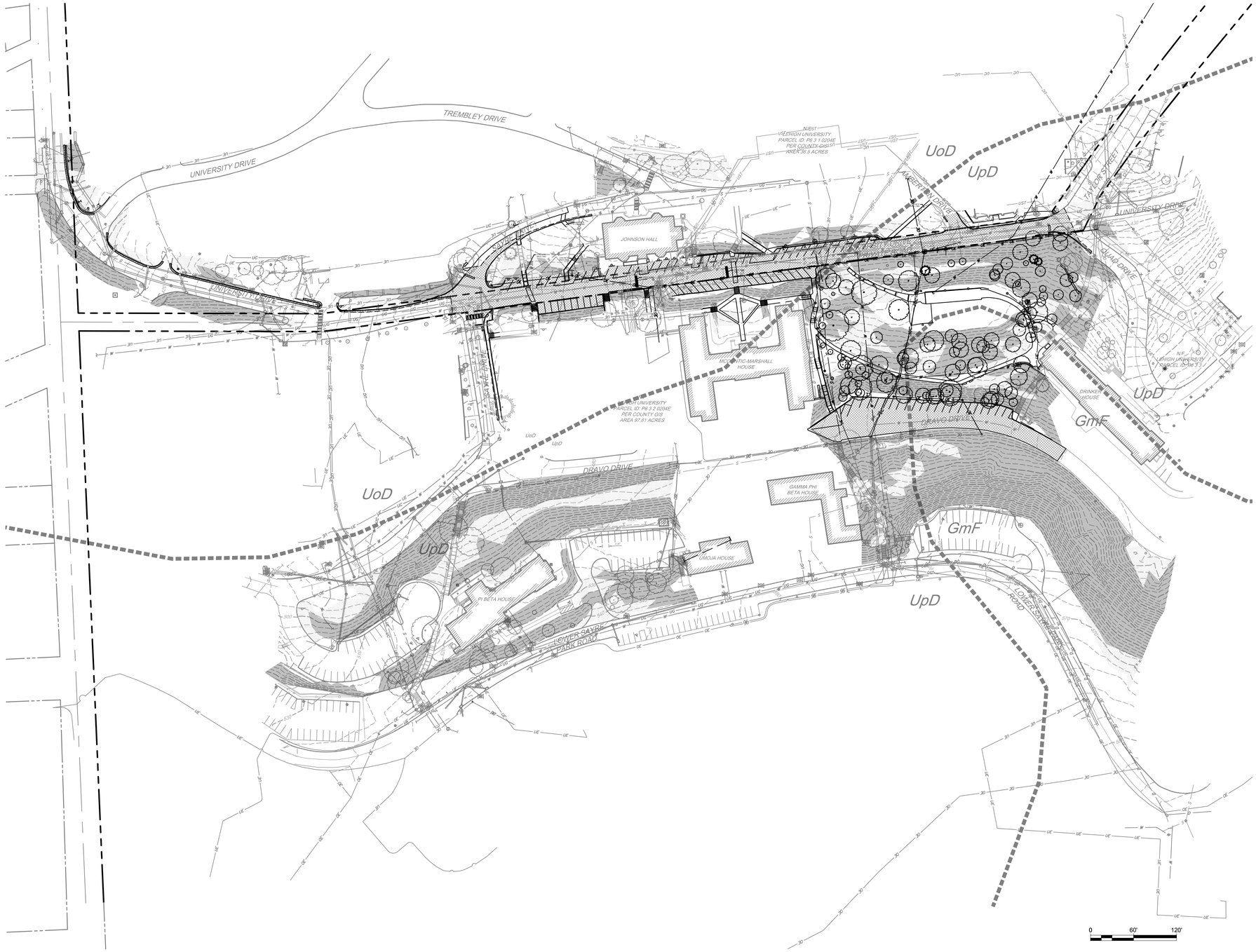
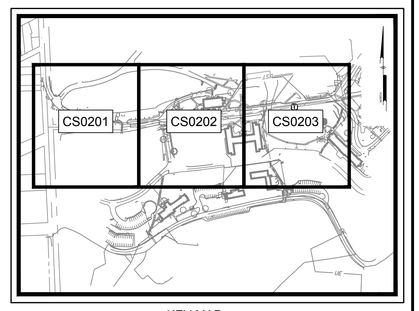
PLOTTED: 1/26/2026 1:01 PM BY: Michael Renolds
PLOTSTYLE: Pennoni NCS.ctb





KEY MAP
NOT TO SCALE

LEGEND

EXISTING	TO BE REMOVED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, LIGHT
		POWER, SPOT LIGHT
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER FOUND
		MISC. CORNER FOUND
		CONCRETE MONUMENT FOUND
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC	WaC	SOIL LABEL
		SANITARY, CLEAN-OUT
		SANITARY, FORCE MAIN
		SANITARY, FORCE MAIN MANHOLE
		SANITARY, FORCE STUB OUT
		SANITARY, LATERAL
		SANITARY, MANHOLE
		SANITARY, UNDERGROUND
		SANITARY, STUB OUT
		SANITARY, VALVE
		STORM, INLET
		STORM, HEADWALL
		STORM, MANHOLE
		STORM, UNDERGROUND
		STORM, ROOF DRAIN
		STORM, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION
		VEGETATION, SHRUB
		VEGETATION, STUMP
		VEGETATION, DECIDUOUS
		VEGETATION, CONIFEROUS
		VEGETATION, TREE LINE
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
		ROAD ASPHALT - TO BE MILLED AND OVERLAYED
		ROAD ASPHALT - TO BE REMOVED
		PAVEMENT SAWCUT
		SLOPES 15% TO 25%
		SLOPES > 25%

NOTE:
EXISTING WATER, ELECTRIC, AND COMMUNICATION SERVICES TO SURROUNDING UNIVERSITY BUILDINGS, INCLUDING EXTERIOR LIGHTING, WHICH WILL BE IMPACTED DURING CONSTRUCTION SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. COORDINATE UTILITY DEMOLITION, INSTALLATION AND RELOCATION WITH LEHIGH UNIVERSITY.

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Bethlehem PA 18015
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v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=60'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
OVERALL EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:
CS0200

PROJECT PHASE:
DESIGN DEVELOPMENT

PLOTTED: 1/26/2026 1:07 PM, BY: Nicolle Gerrow PLOTSTYLE: Pennoni NCS.ctb
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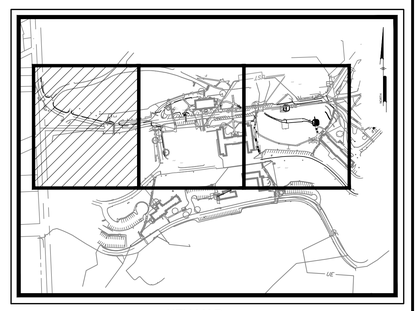

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	TO BE REMOVED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, LIGHT
		POWER, SPOT LIGHT
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER FOUND
		MISC. CORNER FOUND
		CONCRETE MONUMENT FOUND
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC	WaC	SOIL LABEL
		SANITARY, CLEAN-OUT
		SANITARY, FORCE MAIN
		SANITARY, FORCE MAIN MANHOLE
		SANITARY, FORCE STUB OUT
		SANITARY, LATERAL
		SANITARY, MANHOLE
		SANITARY, UNDERGROUND
		SANITARY, STUB OUT
		SANITARY, VALVE
		STORM, INLET
		STORM, HEADWALL
		STORM, MANHOLE
		STORM, UNDERGROUND
		STORM, ROOF DRAIN
		STORM, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
100.5	100.5	SPOT ELEVATION
		VEGETATION, SHRUB
		VEGETATION, STUMP
		VEGETATION, DECIDUOUS
		VEGETATION, CONIFEROUS
		VEGETATION, TREE LINE
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
		WETLAND
		WETLAND BUFFER
		ROAD ASPHALT - TO BE MILLED AND OVERLAYED
		ROAD ASPHALT - TO BE REMOVED
		PAVEMENT SAWCUT
		SLOPES 15% TO 25%
		SLOPES > 25%

NOTE:
EXISTING WATER, ELECTRIC, AND COMMUNICATION SERVICES TO SURROUNDING UNIVERSITY BUILDINGS, INCLUDING EXTERIOR LIGHTING, WHICH WILL BE IMPACTED DURING CONSTRUCTION SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. COORDINATE UTILITY DEMOLITION, INSTALLATION AND RELOCATION WITH LEHIGH UNIVERSITY.

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LU PROJECT #	771073
DA PROJECT #	2512
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FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:
CS0201

PROJECT PHASE:
DESIGN DEVELOPMENT

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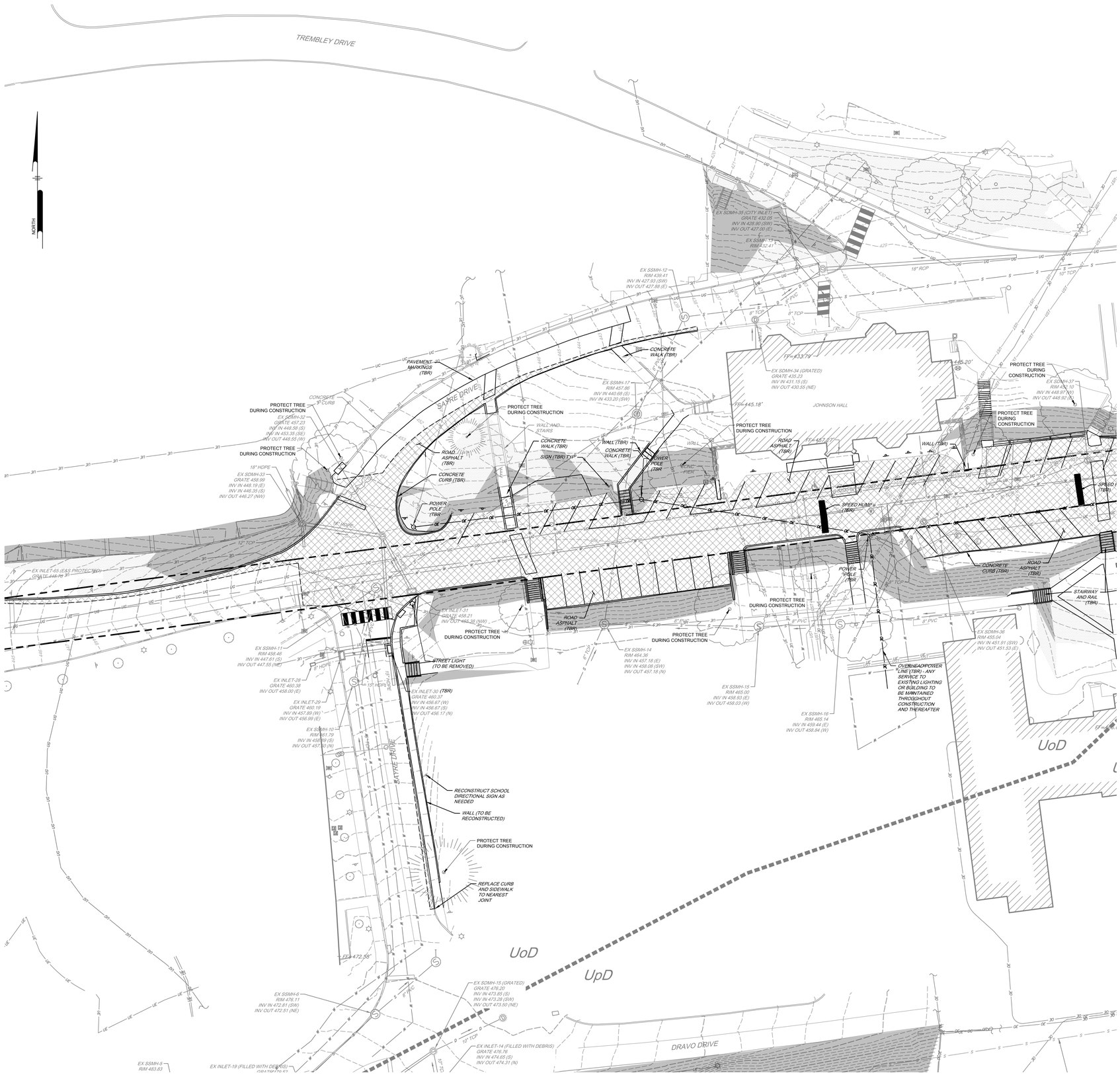

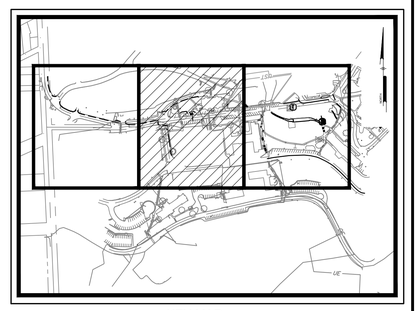

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	TO BE REMOVED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, LIGHT
		POWER, SPOT LIGHT
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER FOUND
		MISC. CORNER FOUND
		CONCRETE MONUMENT FOUND
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WsC	WsC	SOIL LABEL
		SANITARY, CLEAN-OUT
		SANITARY, FORCE MAIN
		SANITARY, FORCE MAIN MANHOLE
		SANITARY, FORCE STUB OUT
		SANITARY, LATERAL
		SANITARY, MANHOLE
		SANITARY, UNDERGROUND
		SANITARY, STUB OUT
		SANITARY, VALVE
		STORM, INLET
		STORM, HEADWALL
		STORM, MANHOLE
		STORM, UNDERGROUND
		STORM, ROOF DRAIN
		STORM, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION
		VEGETATION, SHRUB
		VEGETATION, STUMP
		VEGETATION, DECIDUOUS
		VEGETATION, CONIFEROUS
		VEGETATION, TREE LINE
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
		ROAD ASPHALT - TO BE REMOVED
		PAVEMENT SAWCUT
		SLOPES 15% TO 25%
		SLOPES > 25%

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Exit Design
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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

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LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:
CS0202

PROJECT PHASE:
DESIGN DEVELOPMENT

PLOTTED: 1/30/2026 1:40 PM, BY: Nicole Glennon PLOTSTYLE: Pennoni NCS.stb
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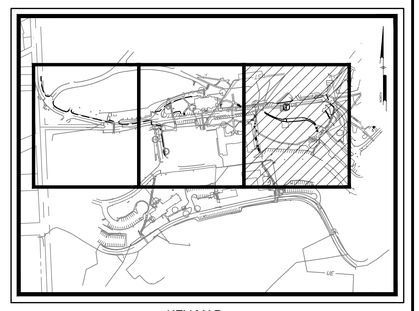

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	TO BE REMOVED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
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		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
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		POWER, OVERHEAD
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		POWER, PANEL BOX
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		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER FOUND
		MISC. CORNER FOUND
		CONCRETE MONUMENT FOUND
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
		SOIL LABEL
		SANITARY, CLEAN-OUT
		SANITARY, FORCE MAIN
		SANITARY, FORCE MAIN MANHOLE
		SANITARY, FORCE STUB OUT
		SANITARY, LATERAL
		SANITARY, MANHOLE
		SANITARY, UNDERGROUND
		SANITARY, STUB OUT
		SANITARY, VALVE
		STORM, INLET
		STORM, HEADWALL
		STORM, MANHOLE
		STORM, UNDERGROUND
		STORM, ROOF DRAIN
		STORM, CLEAN-OUT
		MINOR CONTOUR
		MAJOR CONTOUR
		SPOT ELEVATION
		VEGETATION, SHRUB
		VEGETATION, STUMP
		VEGETATION, DECIDUOUS
		VEGETATION, CONIFEROUS
		VEGETATION, TREE LINE
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		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
		WETLAND
		WETLAND BUFFER
		ROAD ASPHALT - TO BE REMOVED
		PAVEMENT SAWCUT
		SLOPES 15% TO 25%
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DATE:	30 JANUARY 2026

SHEET NAME:
EXISTING CONDITIONS AND DEMOLITION PLAN

SHEET NUMBER:
CS0203

PROJECT PHASE:
DESIGN DEVELOPMENT

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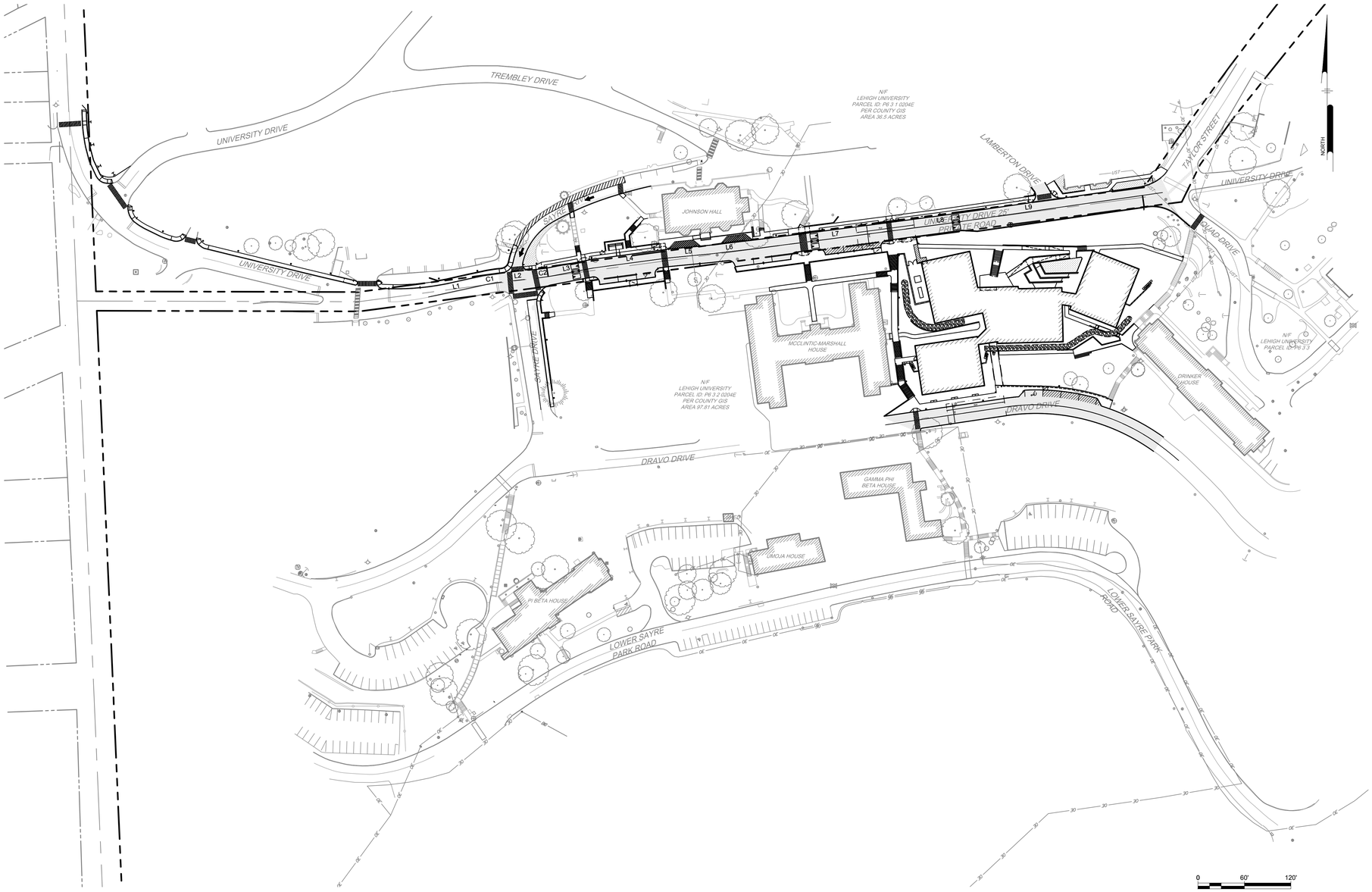

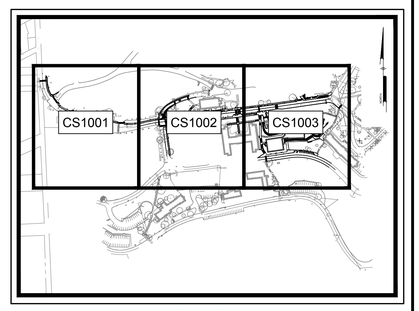

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		FULL DEPTH ASPHALT
		ROAD ASPHALT - MILLED AND OVERLAYED
		PAVEMENT SAWCUT
		LANDSCAPE WALL (WALL HT. < 4')**
		RETAINING WALL (WALL HT. > 4')**
	**	SEE LANDSCAPE PLANS FOR DETAILS
		SEE LANDSCAPE PLANS FOR PAVE TYPES AND DETAILS

SIGN TABLE

SYMBOL	SIGN CHARACTERISTICS	PENNDOT #	SIZE
A	STOP	R1-1	30"X30"
B	RESERVED PARKING	R7-8	12"X18"
C	VAN ACCESSIBLE	R7-8B	12"X6"
D	RESERVED PARKING PENALTIES	R7-8F	12"X18"
E	DO NOT ENTER	R5-1	30"X30"
F	ONE WAY	R6-1L	36"X12"
H	PEDESTRIAN	W11-2	36"X36"
I	DIAGONAL DOWNWARD POINTING ARROW PLAQUE	W16-7P	24"X12"
J	NO PARKING SYMBOL SIGN	R8-3	24"X24"
K	EMERGENCY AND AUTHORIZED VEHICLES ONLY	R5-101	24"X30"

UNIVERSITY DRIVE ALIGNMENT

NUMBER	RADIUS	LENGTH	LINE/CHORD DIRECTION
C1	200.00'	20.23'	N 80°41'21" E
C2	200.00'	15.80'	N 81°19'24" E
L1		75.16'	N 77°47'32" E
L2		51.82'	N 83°35'11" E
L3		52.75'	N 79°03'38" E
L4		97.66'	N 82°21'07" E
L5		54.80'	N 84°31'33" E
L6		51.41'	N 83°24'42" E
L7		176.23'	N 82°37'33" E
L8		76.58'	N 82°25'50" E
L9		285.31'	N 81°48'15" E

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dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

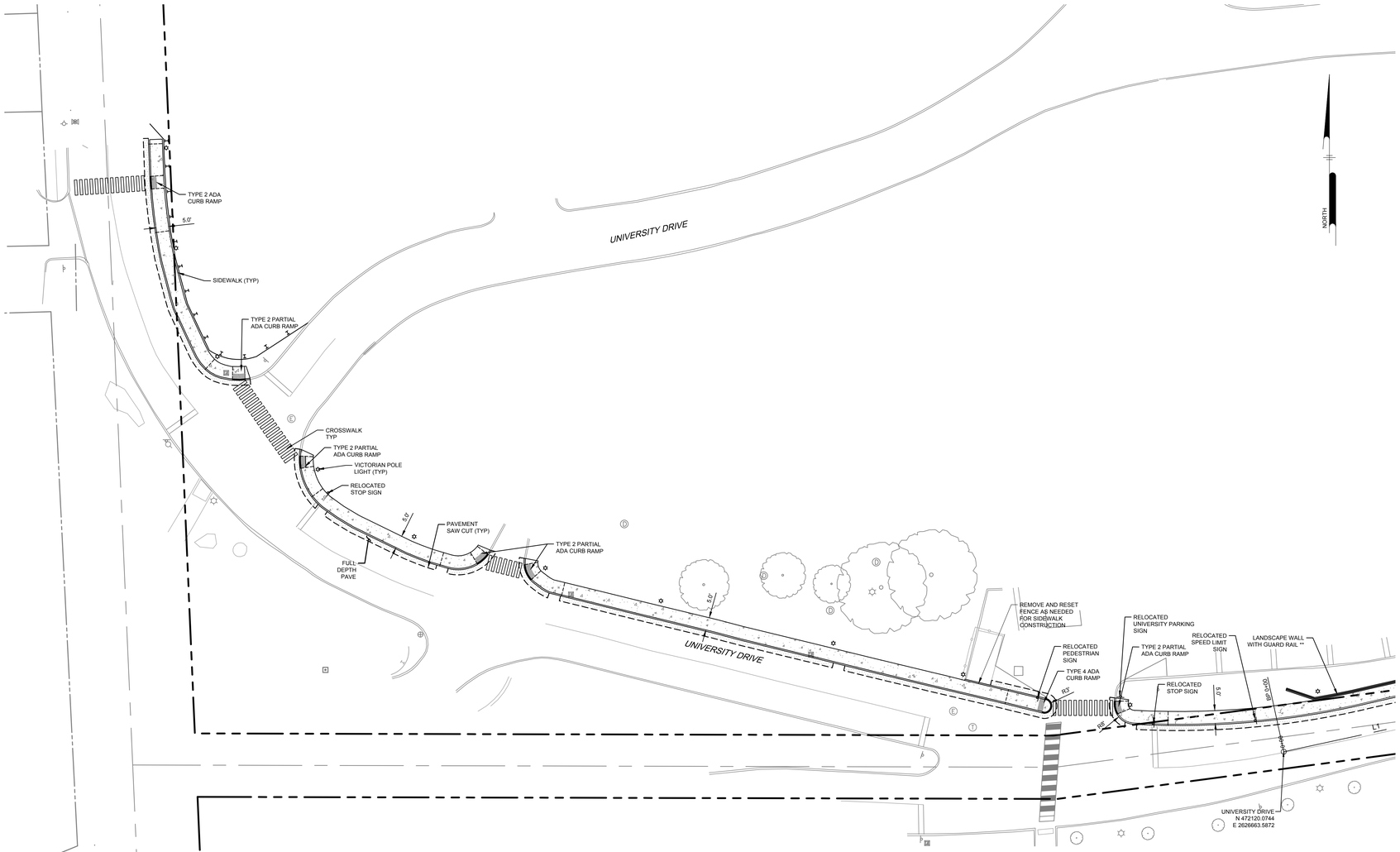
LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=60'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

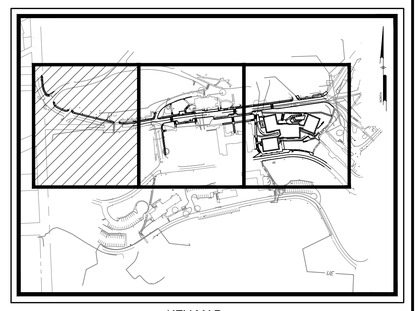
SHEET NAME:
OVERALL SITE PLAN

SHEET NUMBER:
CS1000

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU2501 - Lehigh Housing Final Design\CAD\ARCH_SHEETS\CS1000.dwg PLOTTED: 1/30/2026 1:29 PM, BY: Thomas Serpico PLOTSTYLE: Pennoni NCS.ctb





KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		FULL DEPTH ASPHALT
		PAVEMENT SAWCUT
		LANDSCAPE WALL (WALL HT. < 4'):**
		RETAINING WALL (WALL HT. > 4'):**
	**	SEE LANDSCAPE PLANS FOR DETAILS
		SEE LANDSCAPE PLANS FOR PAVE TYPES AND DETAILS

NOTES:
SEE OVERALL SITE PLAN (CS1000) FOR PROPOSED SIGN TYPES.

UNIVERSITY DRIVE ALIGNMENT			
NUMBER	RADIUS	LENGTH	LINE/CHORD DIRECTION
C1	200.00'	20.23'	N 80°41'21" E
C2	200.00'	15.80'	N 81°19'24" E
L1		75.16'	N 77°47'32" E
L2		51.82'	N 83°35'11" E
L3		52.75'	N 79°03'38" E
L4		97.66'	N 82°21'07" E
L5		54.80'	N 84°31'33" E
L6		51.41'	N 83°24'42" E
L7		176.23'	N 82°37'33" E
L8		76.58'	N 82°25'50" E
L9		285.31'	N 81°48'15" E

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v 610-758-4622

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v 855-754-3595

LANDSCAPE ARCHITECT
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Easton, PA 18042
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v 215-882-0500

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Keast & Hood
1635 Market St, #1705
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v 215-625-0099

MEP/FP/TECHNOLOGY ENGINEER
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https://www.arup.com/en-us/
v 212-896-3000

ENVELOPE
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Philadelphia, PA 19103
v 267-773-8375

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Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

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https://harrison-acoustics.com/

LEED/SUSTAINABILITY
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INTERIOR SIGNAGE/WAYFINDING
Exit Design
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NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
SITE PLAN

SHEET NUMBER:
CS1001

PROJECT PHASE:
DESIGN DEVELOPMENT

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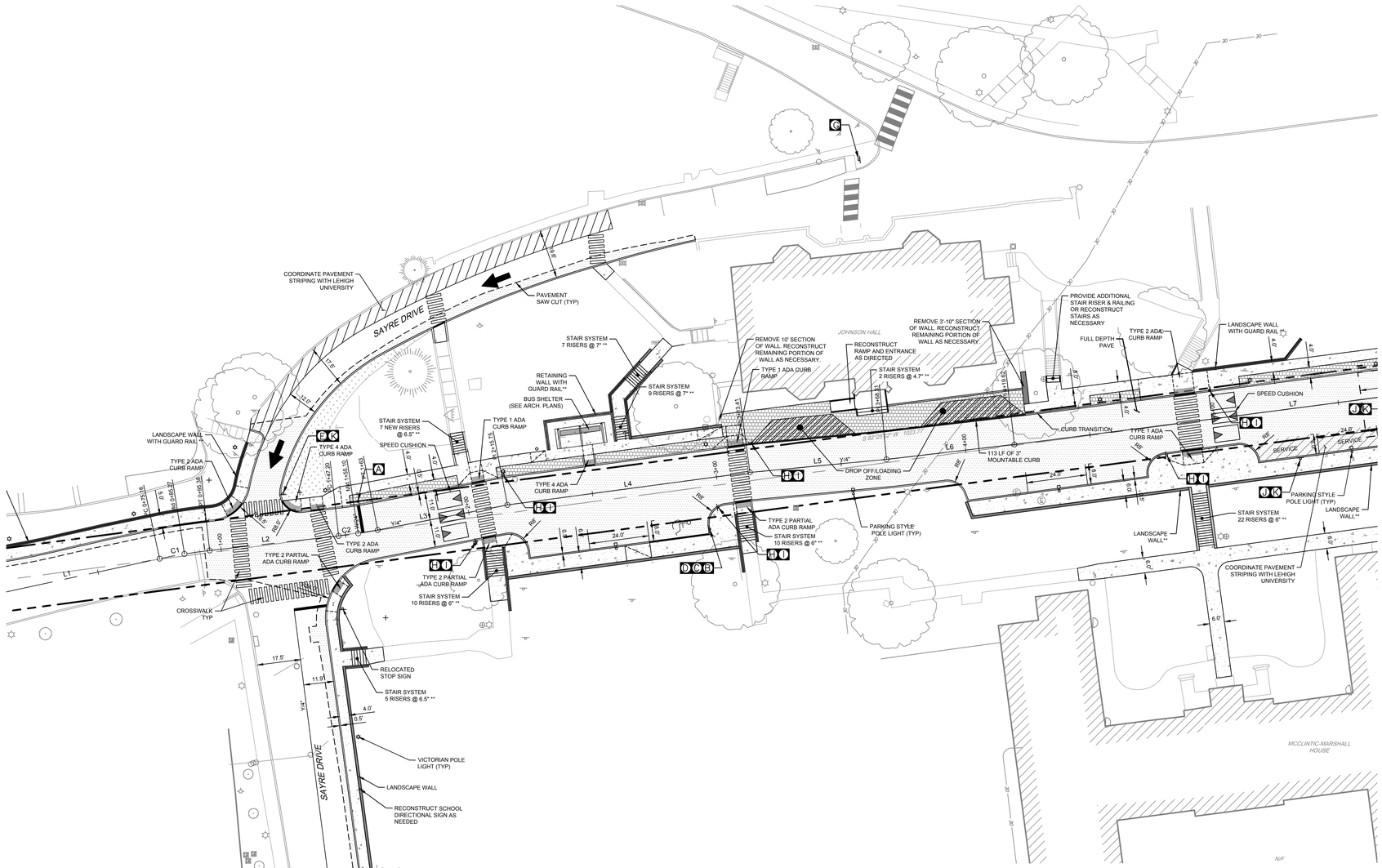

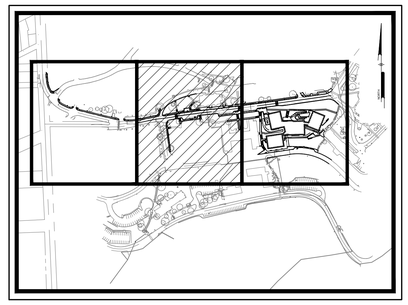

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		FULL DEPTH PAVE
		PAVEMENT SAWCUT
		LANDSCAPE WALL (WALL HT. < 4')**
		RETAINING WALL (WALL HT. > 4')**
		** SEE LANDSCAPE PLANS FOR DETAILS
		SEE LANDSCAPE PLANS FOR PAVE TYPES AND DETAILS

NOTES:
SEE OVERALL SITE PLAN (CS1000) FOR PROPOSED SIGN TYPES.

UNIVERSITY DRIVE ALIGNMENT			
NUMBER	RADIUS	LENGTH	LINE/CHORD DIRECTION
C1	200.00'	20.23'	N 80°41'21" E
C2	200.00'	15.80'	N 81°19'24" E
L1		75.16'	N 77°47'32" E
L2		51.82'	N 83°35'11" E
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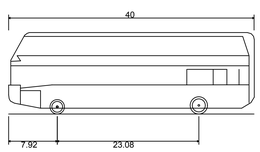
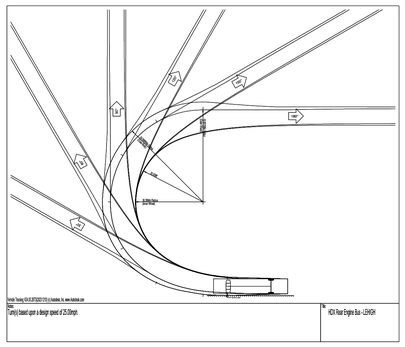
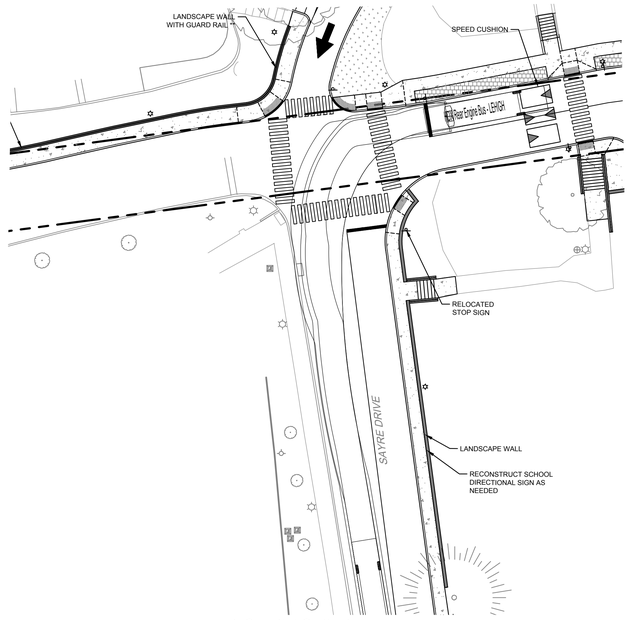
L6		51.41'	N 83°24'42" E
L7		176.23'	N 82°37'33" E
L8		76.58'	N 82°25'50" E
L9		285.31'	N 81°48'15" E



HDX Rear Engine Bus - LEHIGH	
Overall Length	40.000ft
Overall Width	8.000ft
Overall Body Height	13.287ft
Min Body Ground Clearance	0.949ft
Max Track Width	8.000ft
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	36.300ft





BUS TURNING EXHIBIT
SCALE 1" = 20'

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v 610-758-4622

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Omnes
1262 Simon Blvd, B105
Easton, PA 18042
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https://www.lerchbates.com/

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212 Terminal Ave
Glenside, PA 19038
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https://harrison-acoustics.com/

LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
SITE PLAN

SHEET NUMBER:
CS1002
48

PROJECT PHASE:
DESIGN DEVELOPMENT

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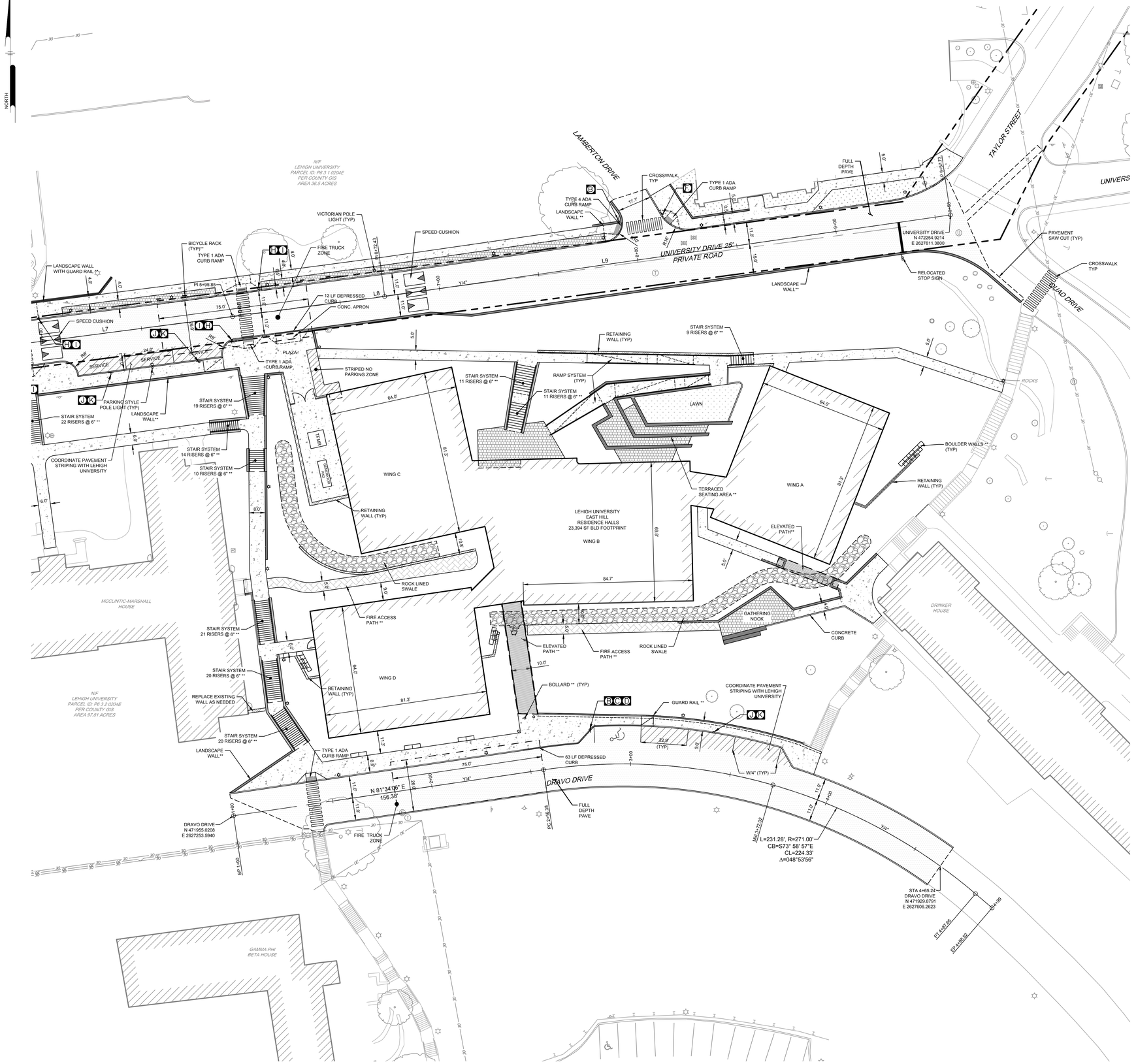

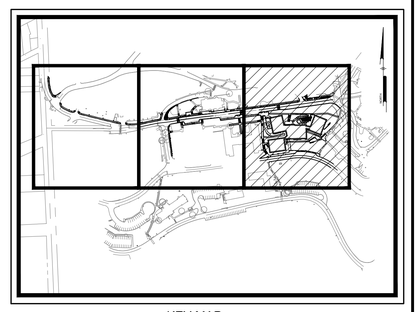

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		FULL DEPTH PAVE
		PAVEMENT SAWCUT
		LANDSCAPE WALL (WALL HT. < 4')**
		RETAINING WALL (WALL HT. > 4')**
	**	SEE LANDSCAPE PLANS FOR DETAILS
		SEE LANDSCAPE PLANS FOR PAVE TYPES AND DETAILS

NOTES:
SEE OVERALL SITE PLAN (CS1000) FOR PROPOSED SIGN TYPES.

UNIVERSITY DRIVE ALIGNMENT			
NUMBER	RADIUS	LENGTH	LINE/CHORD DIRECTION
C1	200.00'	20.23'	N 80°41'21" E
C2	200.00'	15.80'	N 81°19'24" E
L1		75.16'	N 77°47'32" E
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DIGSAU

OWNER
Lehigh University
681 Taylor St.
Bethlehem PA 18015
v 610-758-4622

ARCHITECT
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INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
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NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

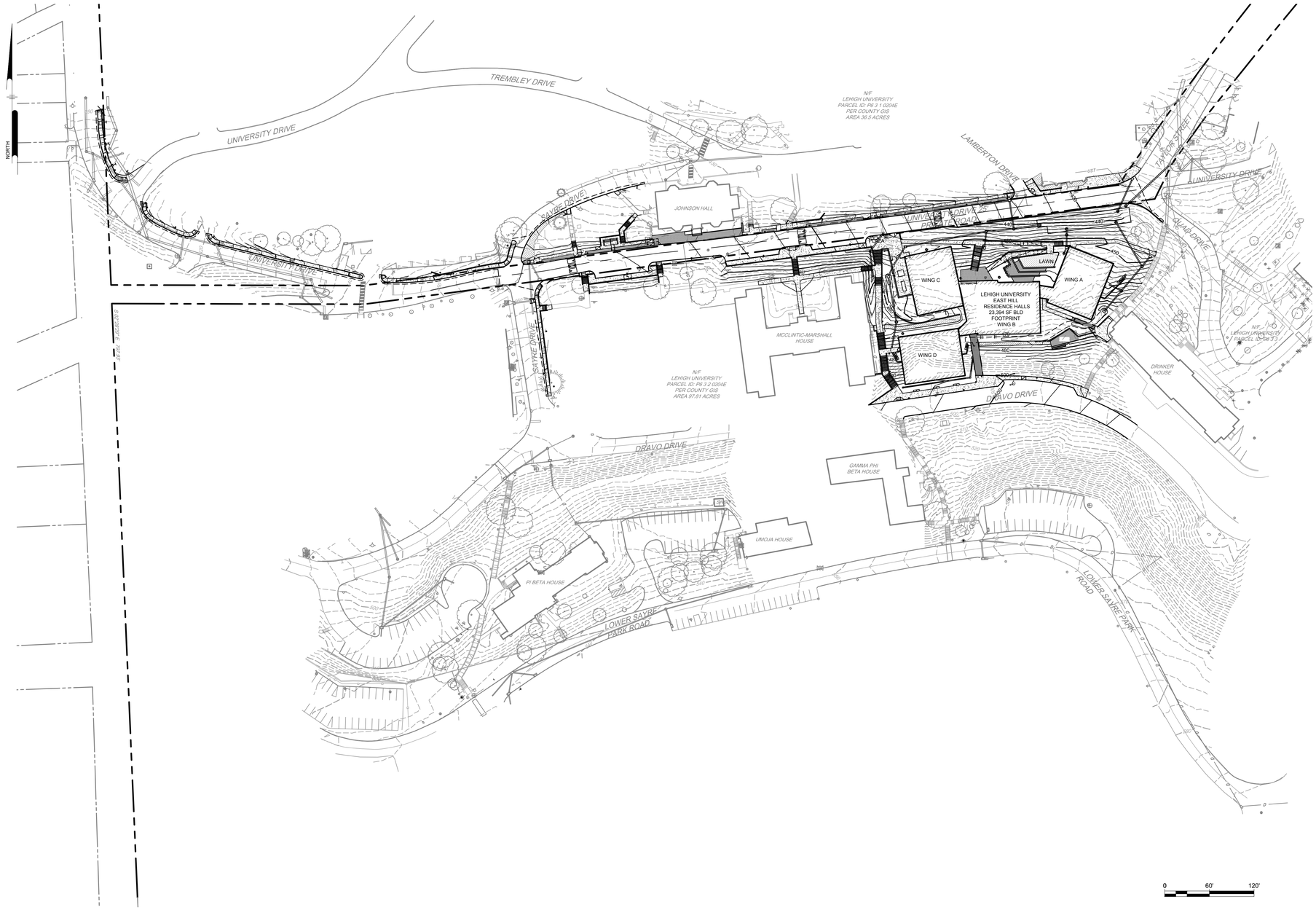
LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

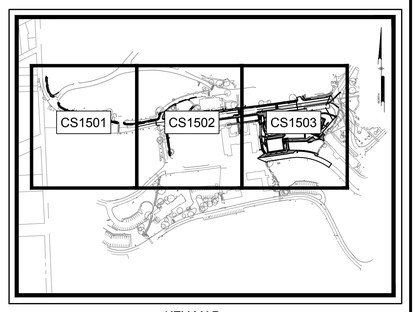
SHEET NAME:
SITE PLAN

SHEET NUMBER:
CS1003

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU2501 - Lehigh Housing Final Design\REVSAVE_SHEETS\CS1003.dwg PLOTTED: 1/29/2026 10:41 AM BY: Travis Ankeff R:\STYLE Pennoni NCS.ctb





KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION

0 60' 120'

OWNER
Lehigh University
681 Taylor St.
Bethlehem PA 18015
v 610-758-4622

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INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
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https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=60'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
OVERALL GRADING AND DRAINAGE PLAN

SHEET NUMBER:
CS1500

PROJECT PHASE:
DESIGN DEVELOPMENT

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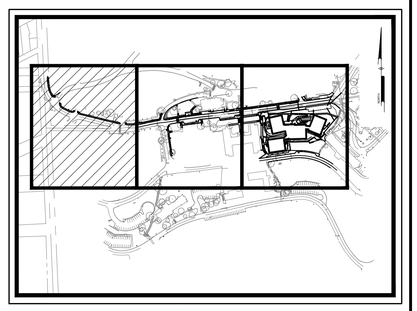
0 20' 40'



KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION

NOTES:

ALL PROPOSED INLETS ARE PENNDOT STANDARD BOXES UNLESS OTHERWISE NOTED.

ALL PROPOSED MANHOLES ARE PENNDOT STANDARD 48" DIA. MANHOLES UNLESS OTHERWISE NOTED.

DIGSAU

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LANDSCAPE ARCHITECT
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1262 Simon Blvd, B105
Easton, PA 18042
https://omnes.studio/
v 215-882-0500

STRUCTURAL ENGINEER
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Philadelphia, PA 19103
https://keasthood.com/
v 215-625-0099

MEP/FP/TECHNOLOGY ENGINEER
IMEG
623 26th Ave
Rock Island, IL 61201
https://imegcorp.com/
v 215-569-0400

LIGHTING
Arup
77 Water Street
New York, NY 10005
https://www.arup.com/en-us/
v 212-896-3000

ENVELOPE
RWDI
1608 Walnut Street, Suite 1603
Philadelphia, PA 19103
v 267-773-8375

VERTICAL TRANSPORTATION
Lerch Bates
275 S Main St, Suite 2CC
Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

ACOUSTICS
Harrison Acoustics
212 Terminal Ave
Glenside, PA 19038
v 215-720-1530
https://harrison-acoustics.com/

LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

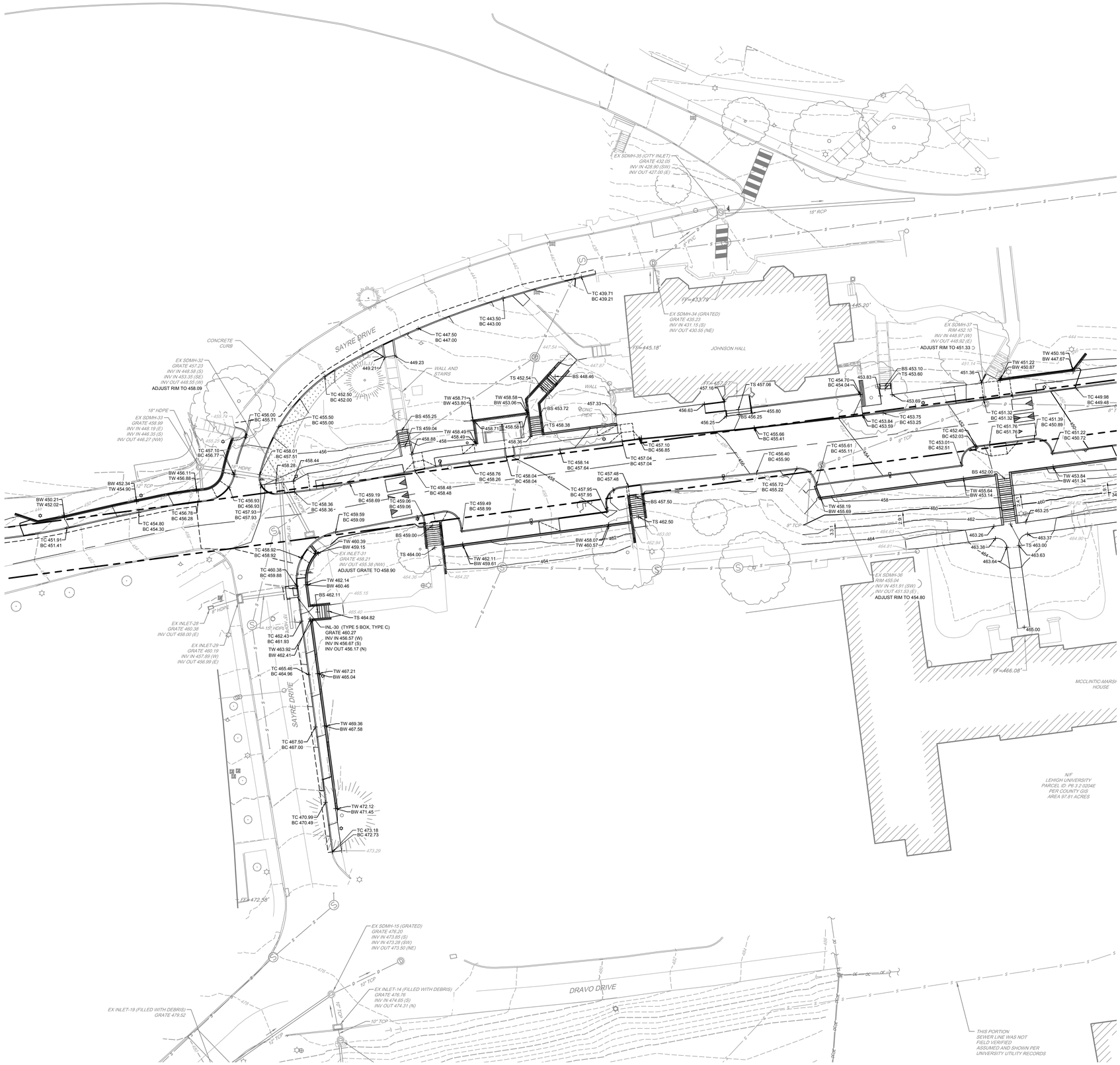
LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

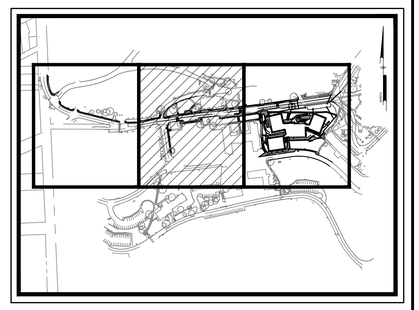
SHEET NAME:
GRADING AND DRAINAGE PLAN

SHEET NUMBER:
CS1501

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU2501 - Lehigh Housing Final Design\DESIGN_SHEETS\CS1501.dwg PLOTTED: 12/7/2026 2:55 PM, BY: Nicole Glennon PLOTSTYLE: Pennoni NCS.stb





KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION

NOTES:

ALL PROPOSED INLETS ARE PENNDOT STANDARD BOXES UNLESS OTHERWISE NOTED.

ALL PROPOSED MANHOLES ARE PENNDOT STANDARD 48" DIA. MANHOLES UNLESS OTHERWISE NOTED.

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SHEET NAME:
GRADING AND DRAINAGE PLAN

SHEET NUMBER:
CS1502

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU2001 - Lehigh Housing Final Design\DESIGN_SHEETS\CS1502.dwg PLOTTED: 12/20/25 2:19 PM, BY: Nicole Gerome PLOTSTYLE: Pennoni.NCS.stb

NORTH
THIS PORTION SEWER LINE WAS NOT FIELD VERIFIED ASSUMED AND SHOWN PER UNIVERSITY UTILITY RECORDS
LAMBERTON DRIVE
TAYLOR STREET
UNIVERSITY
NJF LEHIGH UNIVERSITY PARCEL ID: P6 3 1 0204E PER COUNTY GIS AREA 36.5 ACRES
EX SDMH-05 (PONDING) RIM 446.38 INV IN 442.87 (S) INV IN 443.10 (W) INV OUT 442.11 (N) ADJUST RIM TO 446.26
EX SDMH-26 (GRATED FILLED WITH DEBRIS) GRATE 431.64 INV OUT 425.55 (E) ADJUST RIM TO 432.93
EX SDMH-27 RIM 440.85 INV IN 434.92 (S) INV IN 425.90 (SW) INV IN 437.72 (W) INV OUT 428.35 (N) ADJUST RIM TO 432.84
EX SDMH-28 RIM 440.46 INV IN 414.26 (S) INV OUT 414.00 (NE) INV IN 418.91 (NW)
EX SDMH-29 CITY INLET RIM 435.38 INV OUT 429.75 (N)
WATER TIGHT UNDERGROUND POND TERRE HILL TERRA BOX - 5' DEPTH 2,375 SQ FT. BOTTOM ELEVATION: 422.00
CUT AND CAP PIPE
ADJUST RIM TO 432.29
ADJUST RIM TO 432.76
ADJUST RIM TO 435.26
ADJUST RIM TO 432.78
ADJUST RIM TO 428.32
ADJUST RIM TO 431.72
ADJUST RIM TO 435.02
ADJUST RIM TO 430.02
ADJUST RIM TO 432.52
ADJUST RIM TO 430.00
ADJUST RIM TO 434.62
ADJUST RIM TO 432.16
ADJUST RIM TO 434.64
ADJUST RIM TO 433.77
ADJUST RIM TO 434.64
ADJUST RIM TO 431.96
ADJUST RIM TO 433.72
ADJUST RIM TO 433.73
ADJUST RIM TO 432.04
ADJUST RIM TO 435.12
ADJUST RIM TO 441.78
ADJUST RIM TO 441.28
ADJUST RIM TO 425.00 (W)
ADJUST RIM TO 425.10 (E)
ADJUST RIM TO 441.09
ADJUST RIM TO 438.59
ADJUST RIM TO 435.54
ADJUST RIM TO 438.04
ADJUST RIM TO 438.66
ADJUST RIM TO 438.16
ADJUST RIM TO 442.28
ADJUST RIM TO 441.78
ADJUST RIM TO 442.11
ADJUST RIM TO 444.61
ADJUST RIM TO 445.34
ADJUST RIM TO 444.84
ADJUST RIM TO 445.40
ADJUST RIM TO 445.40
ADJUST RIM TO 444.98
ADJUST RIM TO 447.52
ADJUST RIM TO 446.79
ADJUST RIM TO 446.79
ADJUST RIM TO 446.12
ADJUST RIM TO 446.12
ADJUST RIM TO 446.45
ADJUST RIM TO 446.45
ADJUST RIM TO 446.89
ADJUST RIM TO 446.89
ADJUST RIM TO 447.66
ADJUST RIM TO 447.57
ADJUST RIM TO 446.15
ADJUST RIM TO 446.25
ADJUST RIM TO 447.47
ADJUST RIM TO 447.47
ADJUST RIM TO 448.96
ADJUST RIM TO 448.46
ADJUST RIM TO 450.62
ADJUST RIM TO 450.12
ADJUST RIM TO 449.56
ADJUST RIM TO 449.06
ADJUST RIM TO 451.22
ADJUST RIM TO 450.72
ADJUST RIM TO 449.93
ADJUST RIM TO 447.43
ADJUST RIM TO 452.20
ADJUST RIM TO 449.70
ADJUST RIM TO 453.84
ADJUST RIM TO 451.34
ADJUST RIM TO 446.94
ADJUST RIM TO 449.50
ADJUST RIM TO 449.50
ADJUST RIM TO 446.90
ADJUST RIM TO 447.03
ADJUST RIM TO 446.90
ADJUST RIM TO 448.75
ADJUST RIM TO 447.00
ADJUST RIM TO 457.04
ADJUST RIM TO 457.04
ADJUST RIM TO 457.33
ADJUST RIM TO 456.68
ADJUST RIM TO 457.68
ADJUST RIM TO 458.18
ADJUST RIM TO 458.00
ADJUST RIM TO 463.18
ADJUST RIM TO 460.00
ADJUST RIM TO 463.68
ADJUST RIM TO 462.68
ADJUST RIM TO 461.00
ADJUST RIM TO 461.00
ADJUST RIM TO 458.88
ADJUST RIM TO 458.42
ADJUST RIM TO 458.42
ADJUST RIM TO 459.73
ADJUST RIM TO 459.73
ADJUST RIM TO 461.41
ADJUST RIM TO 465.74
ADJUST RIM TO 465.24
ADJUST RIM TO 465.80
ADJUST RIM TO 465.87
ADJUST RIM TO 465.87
ADJUST RIM TO 466.72
ADJUST RIM TO 464.25
ADJUST RIM TO 460.23
ADJUST RIM TO 467.22
ADJUST RIM TO 461.76
ADJUST RIM TO 467.17
ADJUST RIM TO 463.91
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ADJUST RIM TO 467.15
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ADJUST RIM TO 467.33
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ADJUST RIM TO 475.89
ADJUST RIM TO 476.00
ADJUST RIM TO 476.50
ADJUST RIM TO 481.54
ADJUST RIM TO 476.37
ADJUST RIM TO 481.54
ADJUST RIM TO 476.97
ADJUST RIM TO 476.47
ADJUST RIM TO 487.39
ADJUST RIM TO 486.39
ADJUST RIM TO 486.52
ADJUST RIM TO 497.08
ADJUST RIM TO 496.58
ADJUST RIM TO 496.00
ADJUST RIM TO 496.00
ADJUST RIM TO 496.41
ADJUST RIM TO 496.31
ADJUST RIM TO 496.31
ADJUST RIM TO 497.36
ADJUST RIM TO 496.86
ADJUST RIM TO 498.50
ADJUST RIM TO 498.00
ADJUST RIM TO 498.01
ADJUST RIM TO 497.51
ADJUST RIM TO 499.20
ADJUST RIM TO 499.20
ADJUST RIM TO 500.03
ADJUST RIM TO 500.03
ADJUST RIM TO 500.49
ADJUST RIM TO 500.49
ADJUST RIM TO 501.90
ADJUST RIM TO 501.40
ADJUST RIM TO 503.12
ADJUST RIM TO 502.62
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ADJUST RIM TO 503.56
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ADJUST RIM TO 502.50
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ADJUST RIM TO 501.07
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ADJUST RIM TO 504.00
ADJUST RIM TO 506.24
ADJUST RIM TO 505.74
ADJUST RIM TO 462.00
ADJUST RIM TO 462.00
ADJUST RIM TO 459.37
ADJUST RIM TO 457.87
ADJUST RIM TO 457.79
ADJUST RIM TO 456.29
ADJUST RIM TO 460.01
ADJUST RIM TO 459.41
ADJUST RIM TO 459.86
ADJUST RIM TO 454.54
ADJUST RIM TO 460.17
ADJUST RIM TO 459.54
ADJUST RIM TO 453.00
ADJUST RIM TO 448.62
ADJUST RIM TO 450.81
ADJUST RIM TO 450.69
ADJUST RIM TO 456.31
ADJUST RIM TO 456.31
ADJUST RIM TO 456.27
ADJUST RIM TO 451.27
ADJUST RIM TO 451.75
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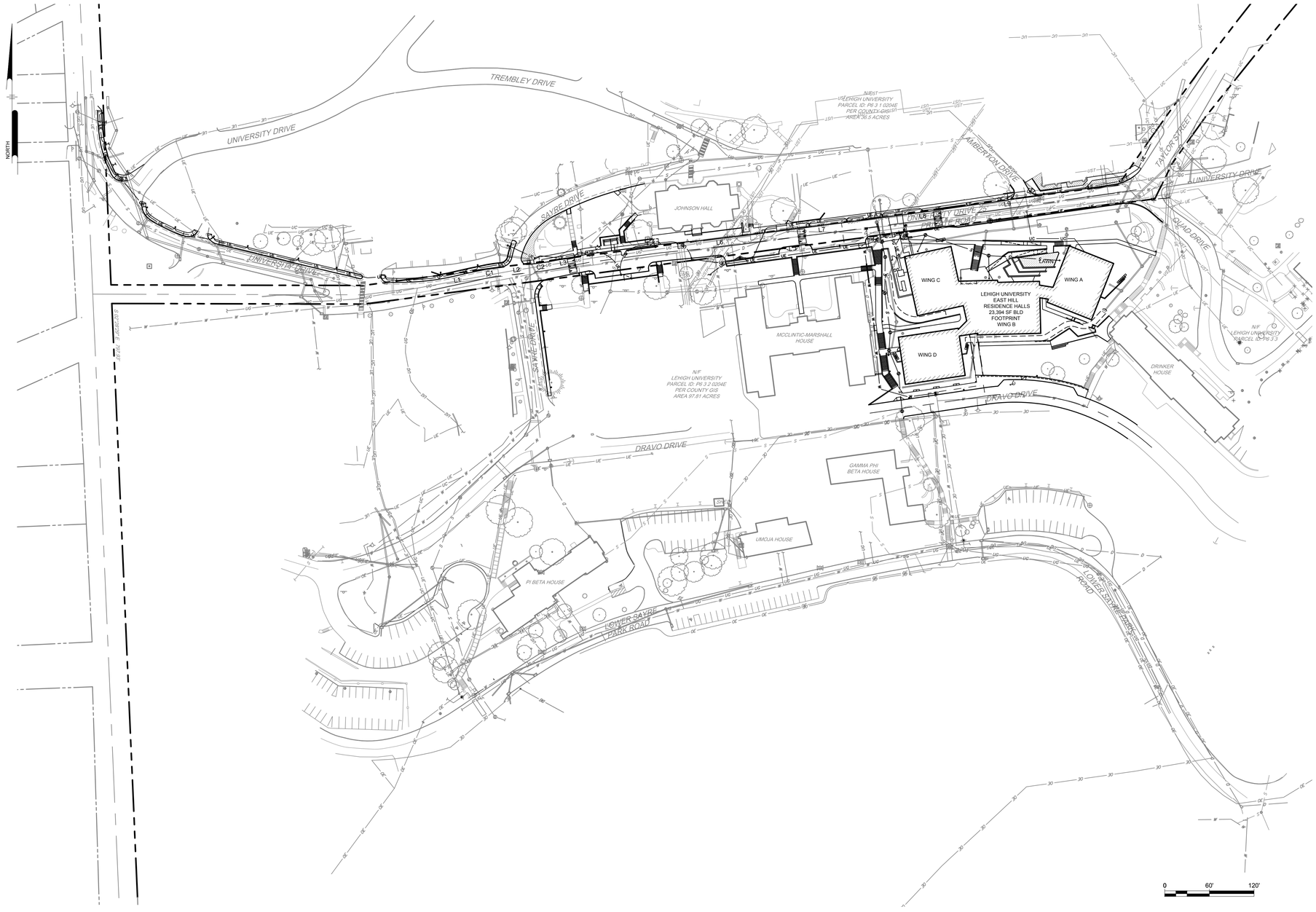
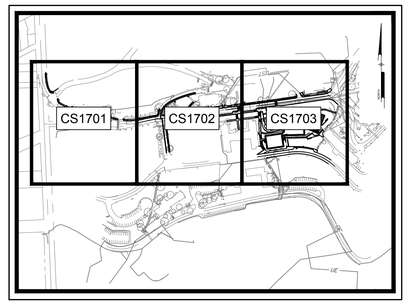
ADJUST RIM TO 451.77





KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
101		MINOR CONTOUR
100		MAJOR CONTOUR
X 100.5	X 100.5	SPOT ELEVATION

NOTE:
EXISTING WATER, ELECTRIC, AND COMMUNICATION SERVICES TO SURROUNDING UNIVERSITY BUILDINGS, INCLUDING EXTERIOR LIGHTING, WHICH WILL BE IMPACTED DURING CONSTRUCTION SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. COORDINATE UTILITY DEMOLITION, INSTALLATION AND RELOCATION WITH LEHIGH UNIVERSITY.

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SCALE:	1"=60'
FORMAT:	30" X 42"
DRAWN:	1005
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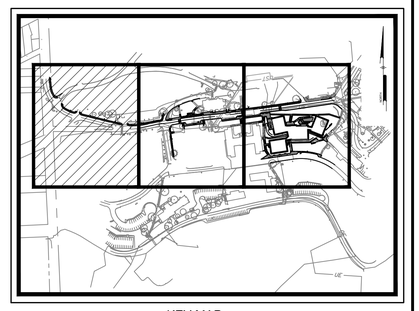
SHEET NAME:
OVERALL
UTILITY PLAN

SHEET NUMBER:
CS1700

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU2001 - Lehigh Housing Final Design\DESIGN_SHEETS\CS1700.dwg PLOTTED: 1/30/2026 3:12 PM, BY: Nicolle Gennow PLOTSTYLE: Pennoni NCS.stb



KEY MAP
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LEGEND

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2. RESET ALL UTILITY MANHOLE RIMS, VALVES, HANDHOLDS AND JOINT BOXES AS NEEDED FOR RE-GRADING.

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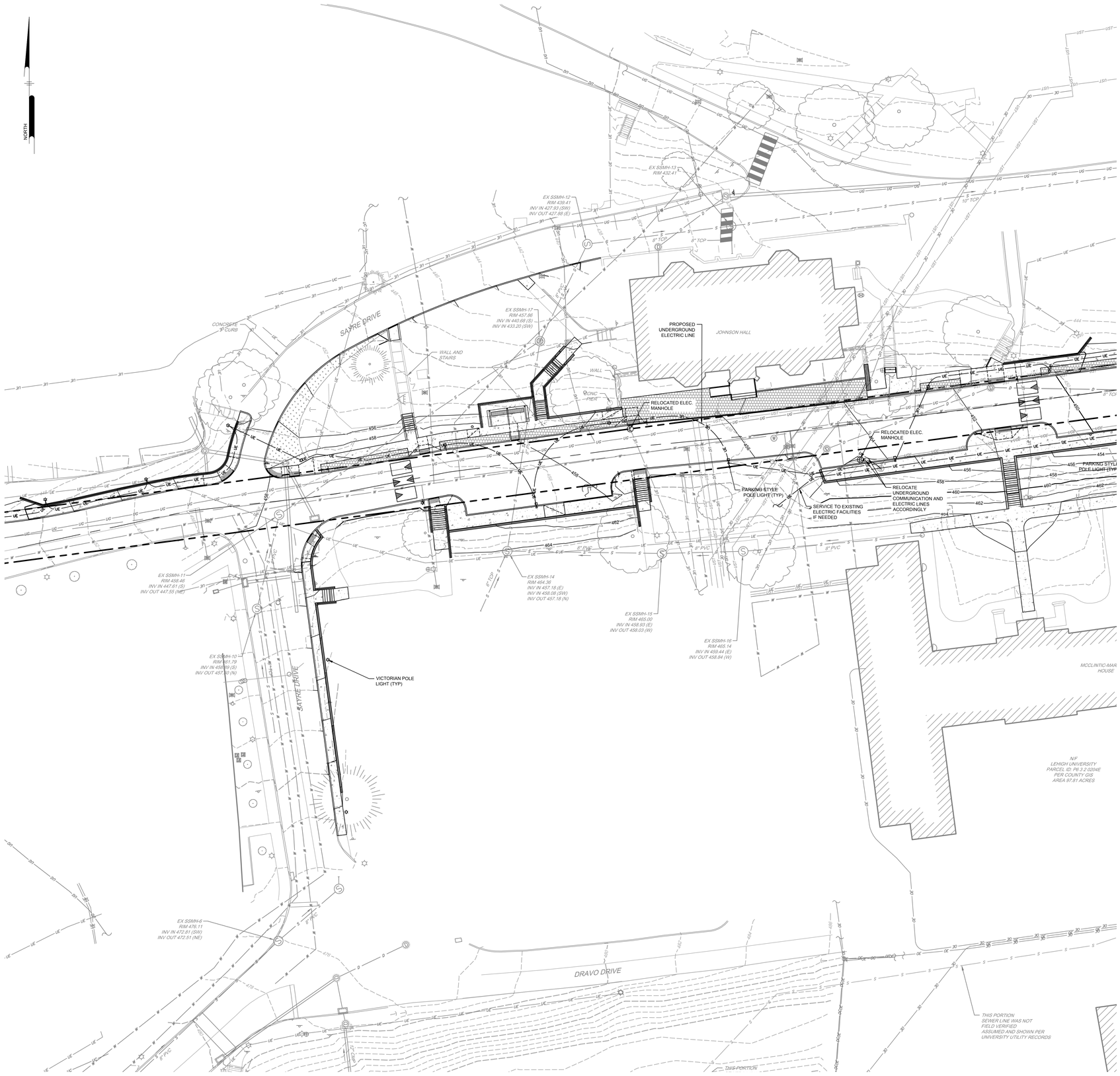
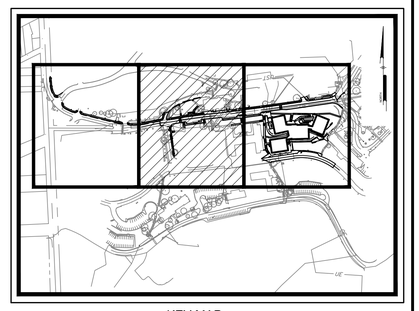
PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\ZK\DGX\DGX12001 - Lehigh Housing Final Design\DESIGN_SHEETS\CS1701.dwg PLOTTED: 1/26/2026 12:21PM BY: Nicole Glennie PLOTSTYLE: Pennoni NCS.stb





KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
X 100.5	X 100.5	SPOT ELEVATION

NOTES:

1. EXISTING WATER, ELECTRIC, AND COMMUNICATION SERVICES TO SURROUNDING UNIVERSITY BUILDINGS, INCLUDING EXTERIOR LIGHTING, WHICH WILL BE IMPACTED DURING CONSTRUCTION SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. COORDINATE UTILITY DEMOLITION, INSTALLATION AND RELOCATION WITH LEHIGH UNIVERSITY.

2. RESET ALL UTILITY MANHOLE RIMS, VALVES, HANDHOLDS AND JOINT BOXES AS NEEDED FOR RE-GRADING.

DIGSAU

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v 610-758-4622

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v 215.627.0808
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LANDSCAPE ARCHITECT
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Easton, PA 18042
https://omnes.studio/
v 215-882-0500

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Philadelphia, PA 19103
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v 215-625-0099

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v 215-569-0400

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https://www.arup.com/en-us/
v 212-896-3000

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Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

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v 215-720-1530
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LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
UTILITY PLAN

SHEET NUMBER:
CS1702

PROJECT PHASE:
DESIGN DEVELOPMENT

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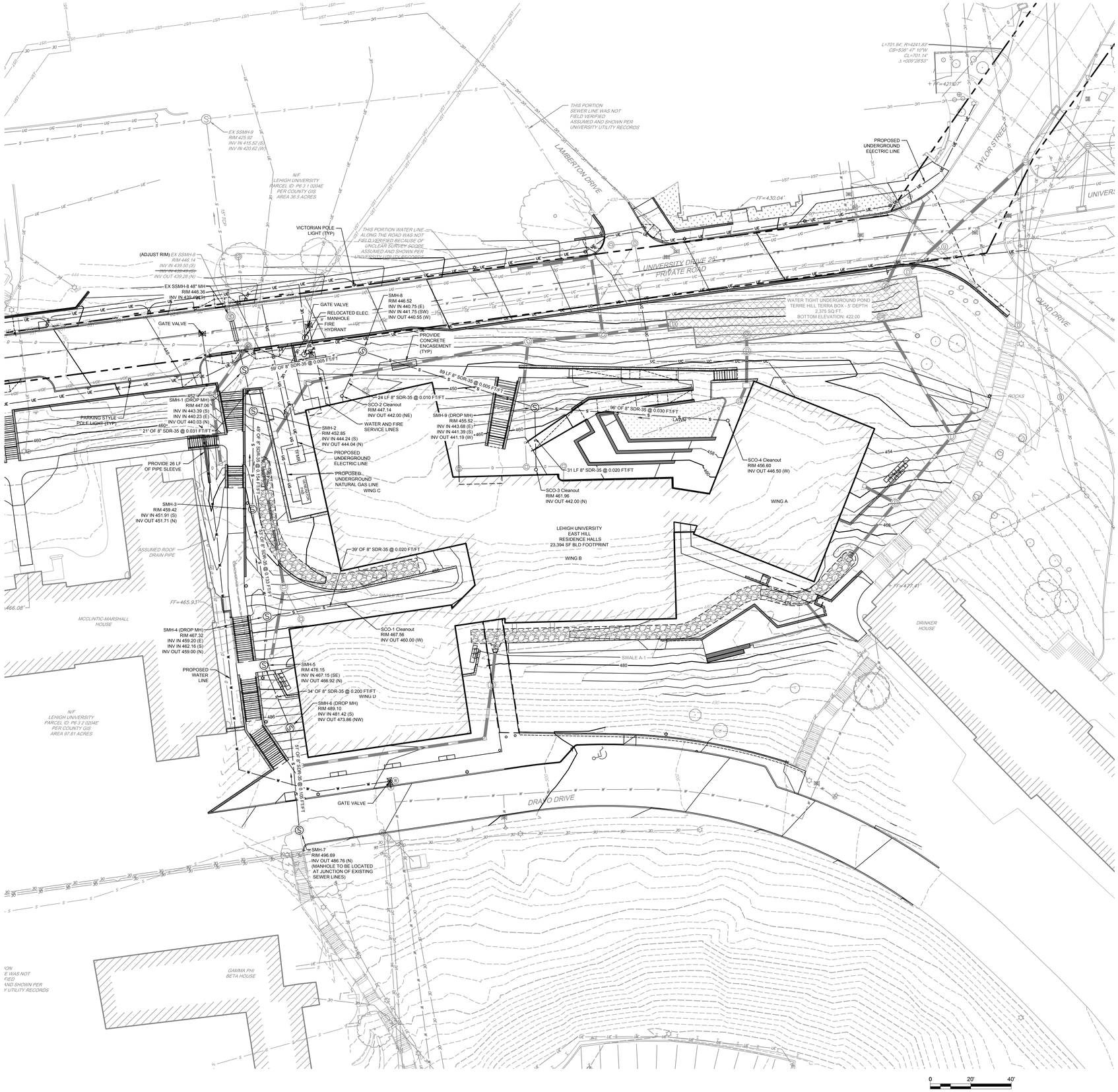

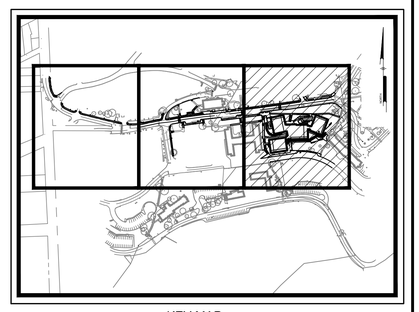

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
100.5	100.5	SPOT ELEVATION

NOTES:

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https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
UTILITY PLAN

SHEET NUMBER:
CS1703

PROJECT PHASE:
DESIGN DEVELOPMENT

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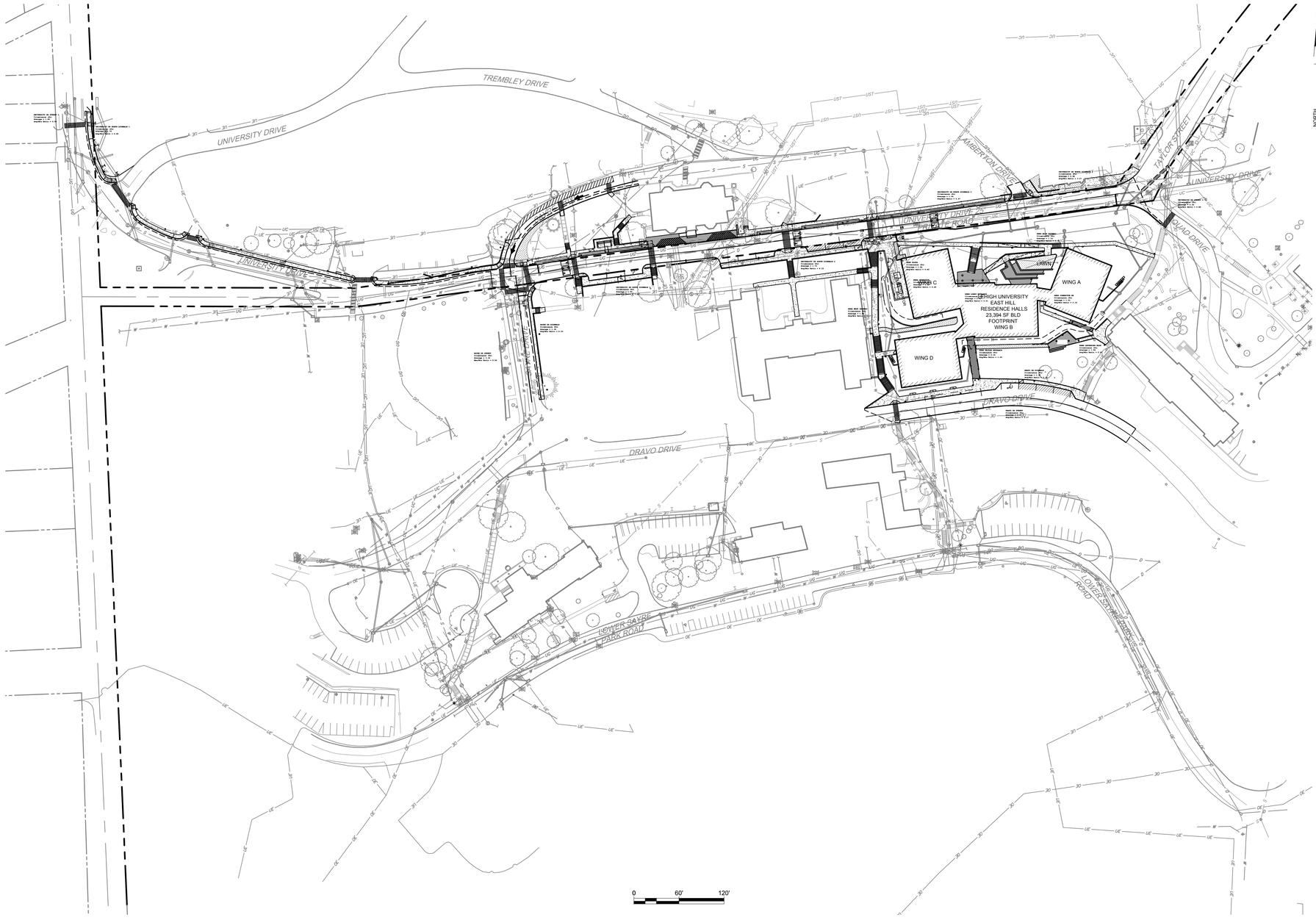

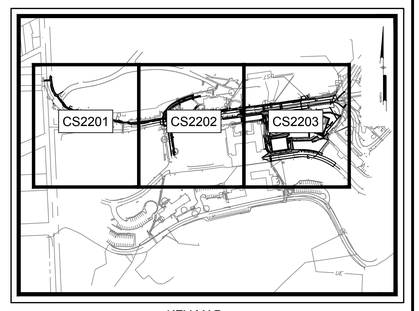

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		POWER, SINGLE HEAD LIGHT
		POWER, LIGHT
		LEGAL RIGHT-OF-WAY
		SITE, BOLLARD
		BUILDING
		SITE, TRAFFIC SIGN
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		VEGETATION, SHRUB
		VEGETATION, STUMP
		VEGETATION, DECIDUOUS
		VEGETATION, CONIFEROUS
		VEGETATION, TREE LINE

Luminaire Schedule

Symbol	Qty	Description	Tag	Luminaire Lumens	Luminaire Watts	LLF	Filename	[MANUFAC]
	47	University Standard Victorian Pole Light, MH: 16'	AE1	4214	37.74	0.700	TX132-G3-C-3-740-3 (1).ies	PHILIPS LIGHTING, LITTLESTOWN
	11	University Standard Parking Style Pole Light, MH: 20'	AE2	14398	122	0.700	ALT1-54L-120-4k7-2.ies	KIM LIGHTING
	28	Pathway 2-Light Pole, MH: 12'	AE3	731	10.886	0.700	AR-LED-X54-WFL-12-11353040_18.ies	B-K LIGHTING
	5	Catenary Light, MH: 12'	AE4	451	9.32004	0.700	DI-LED-TR-e153-30°-NFL-WHP-C-INC-MT-14327079-14327079.21.ies	B-K Lighting
	9	Exterior Wall Mount Light, MH: Above secondary building entrances.	AE5	362	6	0.700	22261_BEGA_IES.ies	BEGA
	10	Bridge Balustrade Light, MH: 4'	AE6	105	3	0.700	BE_22230K3 (1).IES	BEGA
	5	Exterior Soffit Light, MH: 10'	AE7	488	5.09	0.700	IVO6S D 05LM 40K 90CRI MWD P AR LD.ies	BEGA

Calculation Summary

Label	CalcType	Units	Avg	Avg/Min
DRAVO DR SIDEWALK	Illuminance	Fc	1.34	3.35
DRAVO DR STREET	Illuminance	Fc	0.95	3.17
EHRH BRIDGE ENTRANCE	Illuminance	Fc	2.16	1.20
EHRH CONNECTOR AB	Illuminance	Fc	1.53	2.19
EHRH GATHERING NOOK	Illuminance	Fc	1.58	2.63
EHRH GENERATOR	Illuminance	Fc	0.92	4.60
EHRH LOBBY ENTRANCE	Illuminance	Fc	2.43	2.21
EHRH MAIN PATHWAY	Illuminance	Fc	1.16	2.90
EHRH PLAZA	Illuminance	Fc	1.84	4.60
EHRH WEST PATHWAY	Illuminance	Fc	1.90	3.17
SAYRE DR SIDEWALK	Illuminance	Fc	1.30	4.33
SAYRE DR STREET	Illuminance	Fc	3.18	5.30
UNIVERSITY DR NORTH SIDEWALK 1	Illuminance	Fc	1.68	5.60
UNIVERSITY DR NORTH SIDEWALK 2	Illuminance	Fc	1.34	4.47
UNIVERSITY DR NORTH SIDEWALK 3	Illuminance	Fc	0.98	3.27
UNIVERSITY DR SOUTH SIDEWALK 1	Illuminance	Fc	1.55	3.10
UNIVERSITY DR SOUTH SIDEWALK 2	Illuminance	Fc	1.73	4.33
UNIVERSITY DR STREET 1	Illuminance	Fc	1.80	6.00
UNIVERSITY DR STREET 3	Illuminance	Fc	2.35	5.88

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INTERIOR SIGNAGE/WAYFINDING
Exit Design
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v 215-561-1950
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NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

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Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 60'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:

OVERALL LIGHTING PLAN

SHEET NUMBER:

CS2200

PROJECT PHASE:
DESIGN DEVELOPMENT

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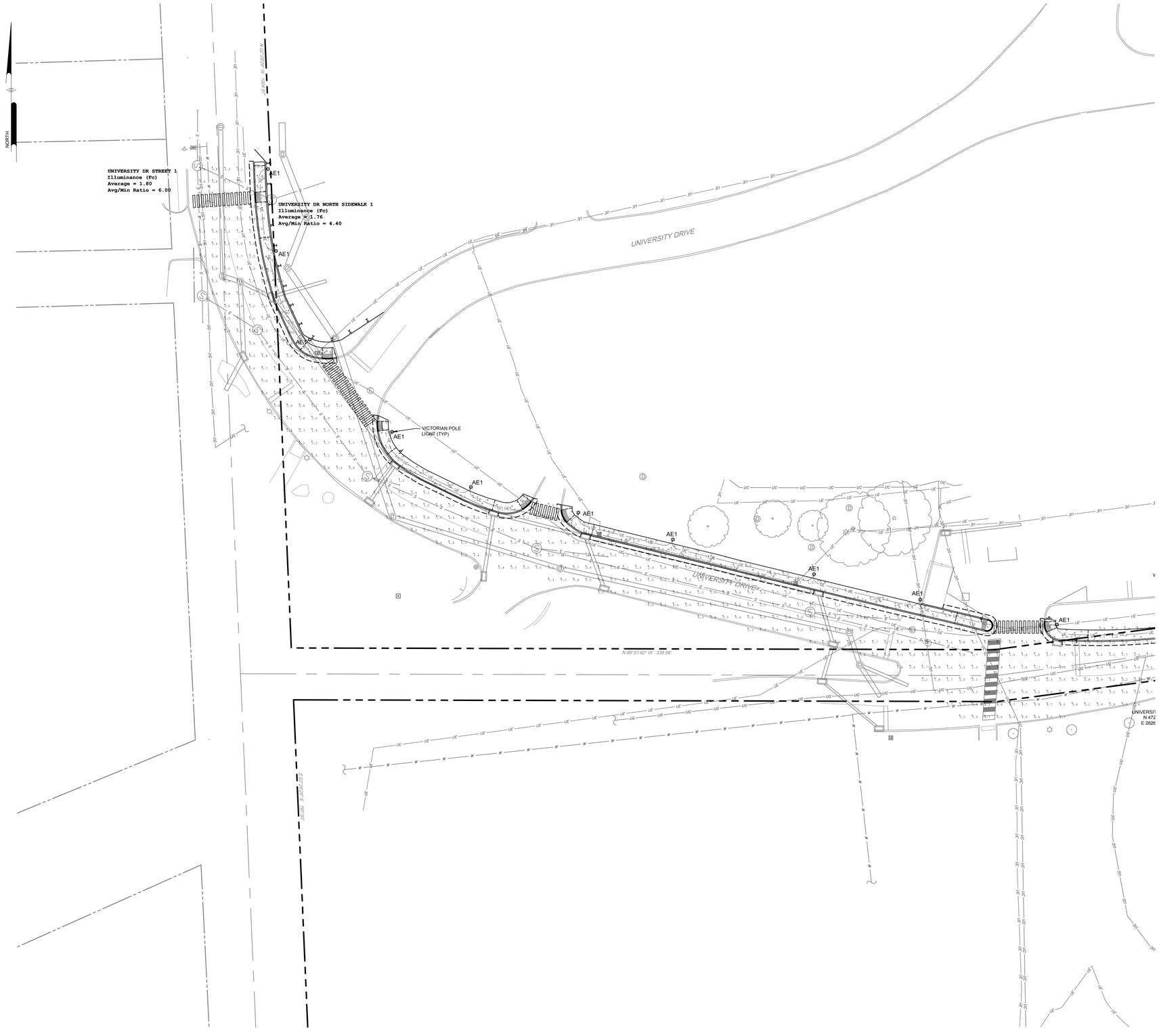

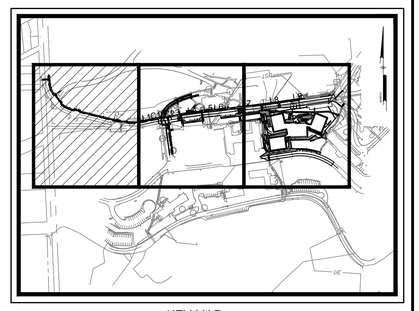

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
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		POWER, SINGLE HEAD LIGHT
		POWER, LIGHT
		LEGAL RIGHT-OF-WAY
		SITE, BOLLARD
		BUILDING
		SITE, TRAFFIC SIGN
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
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		VEGETATION, SHRUB
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		VEGETATION, DECIDUOUS
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Luminaire Schedule

Symbol	Qty	Description	Tag	Luminaire Lumens	Luminaire Watts	LLF	Filename	[MANUFAC]
	47	University Standard Victorian Pole Light, MH: 16'	AE1	4214	37.74	0.700	TX132-G3-C-3-740-3 (1).ies	PHILIPS LIGHTING, LITTLESTOWN
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LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
LIGHTING PLAN

SHEET NUMBER:
CS2201

PROJECT PHASE:
DESIGN DEVELOPMENT

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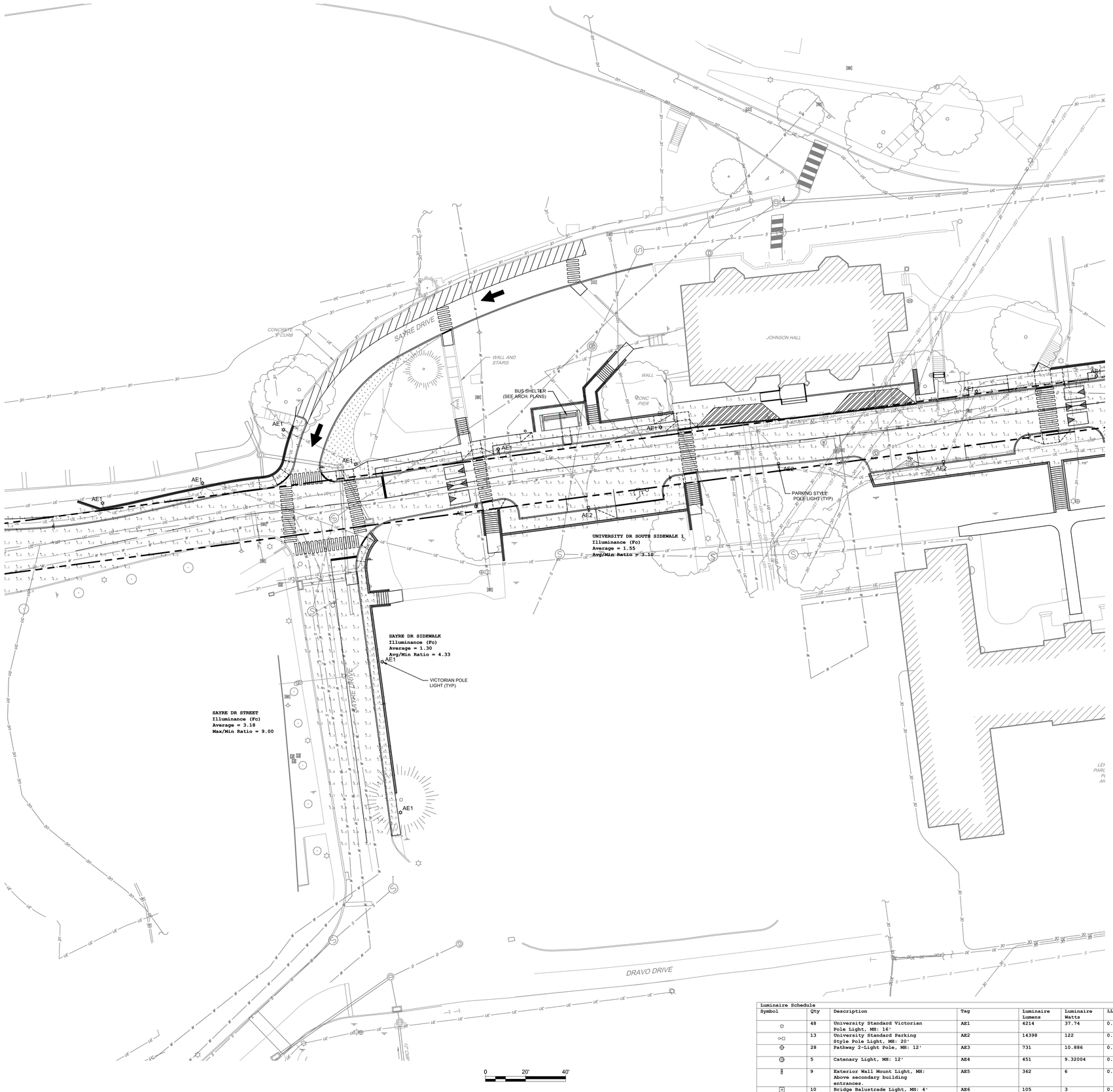

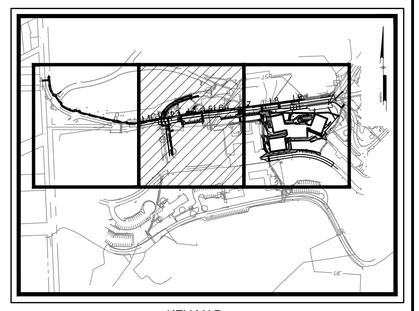

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		POWER, SINGLE HEAD LIGHT
		POWER, LIGHT
		LEGAL RIGHT-OF-WAY
		SITE, BOLLARD
		BUILDING
		SITE, TRAFFIC SIGN
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		VEGETATION, SHRUB
		VEGETATION, STUMP
		VEGETATION, DECIDUOUS
		VEGETATION, CONIFEROUS
		VEGETATION, TREE LINE

Luminaire Schedule

Symbol	Qty	Description	Tag	Luminaire Lumens	Luminaire Watts	LLF	Filename	[MANUFAC]
	48	University Standard Victorian Pole Light, MH: 16'	AE1	4214	37.74	0.700	TX132-G3-C-3-740-3 (1).ies	PHILIPS LIGHTING, LITTLESTOWN
	13	University Standard Parking Style Pole Light, MH: 20'	AE2	14398	122	0.700	ALT1-54L-120-4k7-2.ies	KIM LIGHTING
	28	Pathway 2-Light Pole, MH: 12'	AE3	731	10.886	0.700	AR-LED-X54-WFL-12-11353040_18.ies	B-K LIGHTING
	5	Catenary Light, MH: 12'	AE4	451	9.32004	0.700	DI-LED-TR-e153-30°-WFL-WHP-C-INC-WT-14327079-14327079.21.ies	B-K Lighting
	9	Exterior Wall Mount Light, MH: Above secondary building entrances.	AE5	362	6	0.700	22261_BEGA_IES.ies	BEGA
	10	Bridge Balustrade Light, MH: 4'	AE6	105	3	0.700	BE_22230K3 (1).IES	BEGA
	5	Exterior Soffit Light, MH: 10'	AE7	488	5.09	0.700	IVO6S D 05LM 40K 90CRI MWD P AR LD.ies	BEGA

DIGSAU

OWNER
Lehigh University
681 Taylor St.
Bethlehem PA 18015
v 610-758-4622

ARCHITECT
DIGSAU
340 North 12th Street, Suite 421
Philadelphia, PA 19107
v 215.627.0808
www.digsau.com

CIVIL ENGINEER
Pennoni
81 Highland Ave, Suite 230
Bethlehem, PA 18017
https://www.pennoni.com/
v 855-754-3595

LANDSCAPE ARCHITECT
Omnes
1262 Simon Blvd, B105
Easton, PA 18042
https://omnes.studio/
v 215-882-0500

STRUCTURAL ENGINEER
Keast & Hood
1635 Market St, #1705
Philadelphia, PA 19103
https://keasthood.com/
v 215-625-0099

MEP/FP/TECHNOLOGY ENGINEER
IMEG
623 26th Ave
Rock Island, IL 61201
https://imegcorp.com/
v 215-569-0400

LIGHTING
Arup
77 Water Street
New York, NY 10005
https://www.arup.com/en-us/
v 212-896-3000

ENVELOPE
RWDI
1608 Walnut Street, Suite 1603
Philadelphia, PA 19103
v 267-773-8375

VERTICAL TRANSPORTATION
Lerch Bates
275 S Main St, Suite 2CC
Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

ACOUSTICS
Harrison Acoustics
212 Terminal Ave
Glenside, PA 19038
v 215-720-1530
https://harrison-acoustics.com/

LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
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INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
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NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
LIGHTING PLAN

SHEET NUMBER:
CS2202

PROJECT PHASE:
DESIGN DEVELOPMENT

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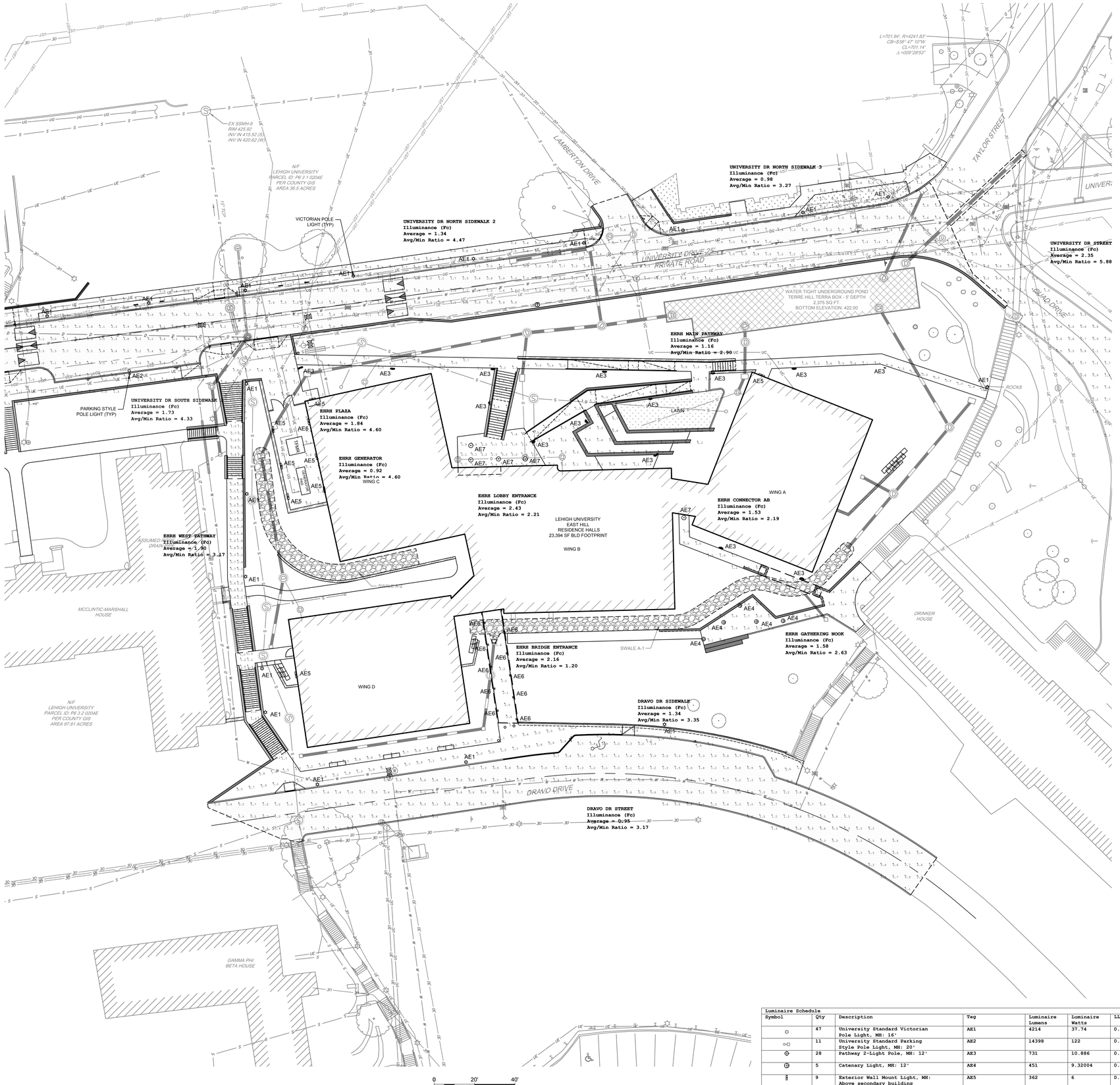

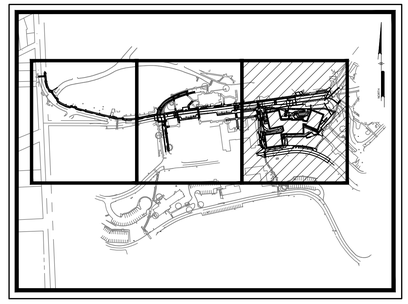

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
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		EASEMENT
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		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		POWER, SINGLE HEAD LIGHT
		POWER, LIGHT
		LEGAL RIGHT-OF-WAY
		SITE, BOLLARD
		BUILDING
		SITE, TRAFFIC SIGN
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
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		STORM SEWER, CLEAN-OUT
		VEGETATION, SHRUB
		VEGETATION, STUMP
		VEGETATION, DECIDUOUS
		VEGETATION, CONIFEROUS
		VEGETATION, TREE LINE

Luminaire Schedule

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	11	University Standard Parking Style Pole Light, MH: 20'	AE2	14398	122	0.700	ALT1-54L-120-4k7-2.ies	KIM LIGHTING
	28	Pathway 2-Light Pole, MH: 12'	AE3	731	10.886	0.700	AR-LED-X54-WFL-12-11353040_10.ies	B-K LIGHTING
	5	Catenary Light, MH: 12'	AE4	451	9.32004	0.700	DI-LED-TR-a153-30"-NFL-WHP-C-INC-MT-14327079-14327079.21.ies	B-K Lighting
	9	Exterior Wall Mount Light, MH: Above secondary building entrances.	AE5	362	6	0.700	22261_BEGA_IES.ies	BEGA
	10	Bridge Balustrade Light, MH: 4'	AE6	105	3	0.700	BE 22230K3 (1).IES	BEGA
	5	Exterior Soffit Light, MH: 10'	AE7	488	5.09	0.700	IVO6S D 05LM 40K 90CRI MWD P AR LD.ies	BEGA

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EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
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DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:

LIGHTING PLAN

SHEET NUMBER:

CS2203

PROJECT PHASE:
DESIGN DEVELOPMENT

PLOTTED: 1/29/2026 1:17 PM, BY: Nicole Gervase PLOTSTYLE: Pennoni NCS.stb
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Luminaire Specification Sheet

Type: AE1
Page 1 of 1

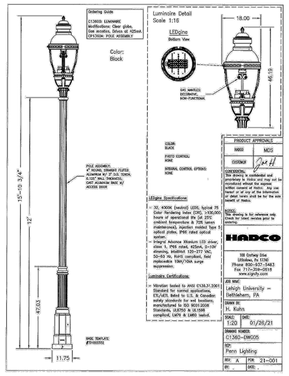
Manufacturer: Hadco Victorian Light
Model: C1360D

Mounting:	12' Pole Mounted	**Max Wattage:**	37 W
Optical Distribution:	N/A	**Voltage:**	277V
Source Color:	4000K	**Driver Location:**	Integral
Min Color Rendering:	75 CRI	**Control Type:**	0-10V
Delivered Lumens:	4214 lm		

LEHIGH UNIVERSITY

DESIGN STANDARDS
26 Electrical
Site Lighting Design Criteria
April 1, 2023

EXAMPLE of Victorian Fixture



Description:
Outdoor Rated Victorian Style Pole Light

Notes:
1. Contractor to provide campus standard product and coordinate with Manufacturer.
2. Provide with concrete base foundation approved by Civil Engineer with only stainless steel fasteners and associated hardware.

ARUP
Project Name: Lehigh EHRH
Project Number: 312228
Phone: 1 212 896 3000

Lehigh University | East Hill Residence Halls
DESIGN DEVELOPMENT – 30 January 2026
DIGSAU

LUMINAIRES
265100 - 98

Luminaire Specification Sheet

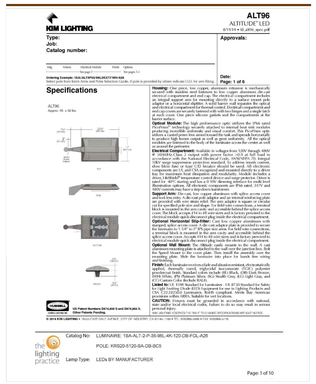
Type: AE2
Page 1 of 10

Manufacturer: KIM Lighting Altitude LED
Model: ALT96

Mounting:	20' Mounting	**Max Wattage:**	N/A W
Optical Distribution:	Type II	**Voltage:**	277V
Source Color:	4000K	**Driver Location:**	Integral
Min Color Rendering:	TBD	**Control Type:**	0-10V
Delivered Lumens:	14398 lm		

LEHIGH UNIVERSITY

DESIGN STANDARDS
26 Electrical
Site Lighting Design Criteria
April 1, 2023


KIM LIGHTING
ALT96
ALTITUDE® LED
Type:
Job:
Catalog number:
Approvals:
Date:
Page: 1 of 8
Specifications
ALTAC
Approx. 96 x 60 lbs
Catalog No: LUMINAIRE: 18A-ALT-2-P-30-96L-4K-120-DB-FGL-A26
POLE: KR620-8-120-SA-DB-BC5
Lamp Type: LEDs BY MANUFACTURER
Page: 1 of 10

Description:
Outdoor Rated Roadway Pole Light

Notes:
1. Contractor to provide campus standard product and coordinate with Manufacturer.
2. Provide with concrete base foundation approved by Civil Engineer with only stainless steel fasteners and associated hardware.

ARUP
Project Name: Lehigh EHRH
Project Number: 312228
Phone: 1 212 896 3000

Lehigh University | East Hill Residence Halls
DESIGN DEVELOPMENT – 30 January 2026
DIGSAU

LUMINAIRES
265100 - 99

Luminaire Specification Sheet

Type: AE3
Page 1 of 4

Manufacturer: B-K Lighting Denali Pole Light
Model: DE-LP-LID-LCB-AL-XX

Mounting:	16' Pole	**Max Wattage:**	13 W
Optical Distribution:	TBD	**Voltage:**	277V
Source Color:	4000K	**Driver Location:**	Integral
Min Color Rendering:	80 CRI	**Control Type:**	0-10V
Delivered Lumens:	731 lm		

Fixtures | Light Pole (formerly Denali Integral Pole / BSL4 with DE-TR)
DENALI - Light Pole - Line Voltage - LED COB - Round Straight Pole - Horizontal
B-K LIGHTING
NEW
IP66
Downloads
Installation Instructions
BIM - Revit (.zip)
Photometry Files (.zip)
Product Variant Examples
Image Coming Soon!
AMERICAN MADE + EMPLOYEE OWNED | 40425 Brickyard Drive, Madera, CA 93636 | +1 (559) 438-5800 | info@bklighting.com | bklighting.com
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Technical information is subject to change at the discretion of B-K Lighting Inc. For the most current technical data, please refer to bklighting.com
1 / 4
Updated 12/18/2025

Description:
Outdoor Rated Pathway Pole Light

Notes:
1. 2 Light Heads per pole.
2. Provide with concrete base foundation approved by Civil Engineer with only stainless steel fasteners and associated hardware.

ARUP
Project Name: Lehigh EHRH
Project Number: 312228
Phone: 1 212 896 3000

Lehigh University | East Hill Residence Halls
DESIGN DEVELOPMENT – 30 January 2026
DIGSAU

LUMINAIRES
265100 - 109

Luminaire Specification Sheet

Type: AE4
Page 1 of 4

Manufacturer: B-K Lighting Catenary Demi LED
Model: CY-DI-LED-XXX

Mounting:	Catenary	**Max Wattage:**	9 W
Optical Distribution:	NFL -Narrow Flood 30°	**Voltage:**	277V
Source Color:	4000K	**Driver Location:**	Integral
Min Color Rendering:	90 CRI	**Control Type:**	0-10V
Delivered Lumens:	451 lm		

CATENARY DEMI LED (INTEGRAL) IP66 RATED
DATE: PROJECT: TYPE:
CATALOG NUMBER LOGIC
CATALOG NUMBER LOGIC
Example: CY-DI - LED - TR - e9S0 - SP - 9 - 11 - C - INC - MT - BLP
MATERIAL
Aluminum
SERIES
CY-DI - Catenary Demi
SOURCE
LED
HOUSING
TR - Integral Driver
LED TYPE
e7S0 - 9W LED,2700K/80CRI e7S2 - 9W LED,3500K/80CRI
e9S1 - 9W LED,3000K/80CRI e9S3 - 9W LED,4000K/80CRI
OPTICS
VNSP - Very Narrow Spot (7°) NSP - Narrow Spot (10°)
SP - Spot (15°) NFL - Narrow Flood (30°) WFL - Wide Flood (49°)
LENS
9 - Clear (Standard) 13 - Rectilinear
SHIELDING
TI - Honeycomb Baffle
CAP STYLE
C - Flush
D - 45° Less Wrap Hole
E - 60° Less Wrap Hole
CONTROL
ELV - Dimming Driver (For use with Electronic Low Voltage Dimmer)*
PNC - Dimming Driver (For use with Incandescent Dimmer)*
DIS - Dimming Driver (For use with 0-10 Dimmer)
INPUT VOLTAGE
MT - 120-277 VAC
FINISH (See page 2 for full color swatches)
Standard Finishes (BZP, BZW, BLP, BLW, WHT, WHW, SAP, VER)
Premium Finish (ABP, AMG, AQW, BCW, BGE, BPP, CAP, CMG, CRM, HUG, NBP, OCP, RMG, SDS, SMG, TSP, WCP, WPI)
Also available in RAL Finishes
*120V only.
B-K LIGHTING MADE IN THE USA 559.438.5800 | INFO@BKLIGHTING.COM | BKLIGHTING.COM
THIS DOCUMENT CONTAINS PROPRIETARY INFORMATION OF BK LIGHTING INC AND ITS RECEIPT OR POSSESSION DOES NOT CONVEY ANY RIGHTS TO REPRODUCE, DISCLOSE ITS CONTENTS, OR TO MANUFACTURE, USE OR SELL ANYTHING IT MAY DESCRIBE. REPRODUCTION, DISCLOSURE OR USE WITHOUT SPECIFIC WRITTEN AUTHORIZATION OF B K LIGHTING INC IS STRICTLY FORBIDDEN.
SH-SCSED REV.1 FEB 2025
Build: 2025.1.20

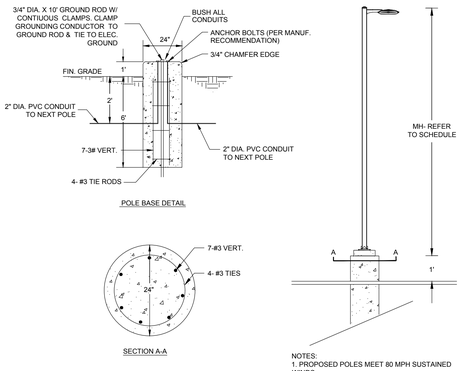
Description:
Outdoor Rated Catenary Light

Notes:
1. Contractor to provide catenary system engineered by the Manufacturer for pole locations on landscape plans with tension and power cables as well as mounting cleats and foundations as determined by Manufacturer to achieve appropriate tension for cable lengths and permitted sag dimensions as approved by Architect.

ARUP
Project Name: Lehigh EHRH
Project Number: 312228
Phone: 1 212 896 3000

Lehigh University | East Hill Residence Halls
DESIGN DEVELOPMENT – 30 January 2026
DIGSAU

LUMINAIRES
265100 - 113



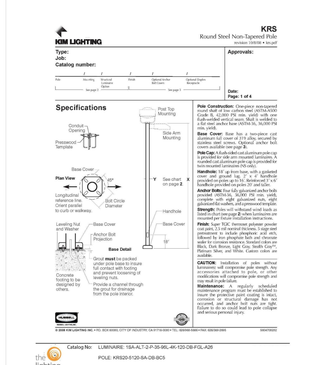
LIGHT POLE DETAIL
NOT TO SCALE

Luminaire Specification Sheet

Type: AE2
Page 7 of 10

LEHIGH UNIVERSITY

DESIGN STANDARDS
26 Electrical
Site Lighting Design Criteria
April 1, 2023


KIM LIGHTING
KRS
Round Steel Non-Tapered Pole
Type:
Job:
Catalog number:
Approvals:
Date:
Page: 1 of 4
Specifications
Catalog No: LUMINAIRE: 18A-ALT-2-P-35-96L-4K-120-DB-FGL-A26
POLE: KR620-9-120-SA-DB-BC5
Lamp Type: LEDs BY MANUFACTURER
Page: 7 of 10

Description:
Outdoor Rated Bridge Balustrade Light

Notes:
1. Contractor to coordinate location of remote driver in accessible location per Architect with weatherproof enclosure, and coordinate concealed wiring path in conduit with wire type per manufacturer recommendations based on total wire length.

ARUP
Project Name: Lehigh EHRH
Project Number: 312228
Phone: 1 212 896 3000

Lehigh University | East Hill Residence Halls
DESIGN DEVELOPMENT – 30 January 2026
DIGSAU

LUMINAIRES
265100 - 105

Luminaire Specification Sheet

Type: AE6
Page 1 of 3

Manufacturer: KLIK MISTIK Rectangle
Model: MKRC-XX

Mounting:	Surface mounted to balustrade	**Max Wattage:**	2.7 W
Optical Distribution:	Asymmetric	**Voltage:**	277V
Source Color:	4000K	**Driver Location:**	Remote
Min Color Rendering:	85 CRI	**Control Type:**	0-10V
Delivered Lumens:	175 lm		

KLIK USA
2843 N Brookfield Rd, Suite 3
Brookfield, WI 53045
PH: 262.505.5124
sales@klikusa.com
www.klikusa.com
Project Name:
Specifier:
Fixture Type:
Location:
Reg Agency:
Product Code:
KLIK MISTIK™ Rectangle
DESCRIPTION
A sleek, surface-mounted minimalist LED sconce that is discreet and easy to install. Suitable for a wide range of exterior and interior surfaces, including railing stanchions, posts, walls, awnings, canopies, and trellises. Offered in both asymmetric and symmetric designs with various lens options available.
HOUSING
The product features an IP65 and IK10 rated brushed 316 stainless steel body, designed with options for either a flat or curved mounting plate, ideal for variety of round posts or surfaces. It is also available in a range of powder-coated colors.
MOUNTING
Brushed 316 stainless steel mounting plate with either a flat or curved mounting surface plate.
• Allow 3/8" in post for power entry
• Can kut the following round post diameter sizes:
Ø1.50" [38mm]
Ø1.64" [42mm]
Ø1.90" [48mm]
Post Diameter
Ø1.50" [38mm] Ø1.64" [42mm] Ø1.90" [48mm]
ELECTRICAL/LED DRIVER
• Input Voltage: 24 VDC
• Primary Driver: KLIK provided Class II, 110 - 277 VAC UL Listed Constant Voltage
• Secondary Driver: 350 - 700mA Constant Current [provided with fixture]
• Control: 0-10V, DMX [not individually addressable]
• Enclosure: [see details below]
• Wire connectors provided; factory pre-wire available, consult factory
LISTINGS
• ETL listed, UL 1598/CSA 22.2; CE
• cETL
• IP65 [wet location]
• All IP-rated luminaires tested to IEC60529:2004 Degrees of protection provided by enclosures [IP Code]
• IK08 or IK10 Impact Resistant
• Class 2 Device
• International Dark Sky Certified
[Color temperature must be Amber or <3000K]
Asymmetrical 10° beam
Symmetrical 130° beam
3.97"
3.94"
ETL listed
UL 1598/CSA 22.2; CE
Weatherproof Rating: IP65 Wet location rated
LED Operating Temp: -40°F ~ 140°F
Impact resistance: IK10
3G Vibration per MIL-STD-810G
Wildlife friendly
BABA Compliant Build Profile Title" is Amount used)
International Dark Sky Association Certified Amber ≤ 3000K
* All IP-rated luminaires tested to IEC60529:2004 Degrees of protection provided by enclosures [IP Code]
KMSTK-SQB-SS-W-24V-CRI90

Description:
Outdoor Rated Bridge Balustrade Light

Notes:
1. Contractor to coordinate location of remote driver in accessible location per Architect with weatherproof enclosure, and coordinate concealed wiring path in conduit with wire type per manufacturer recommendations based on total wire length.

ARUP
Project Name: Lehigh EHRH
Project Number: 312228
Phone: 1 212 896 3000

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DESIGN DEVELOPMENT – 30 January 2026
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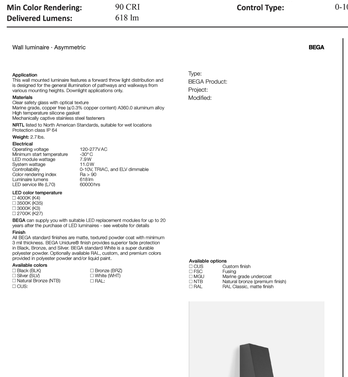
LUMINAIRES
265100 - 118

Luminaire Specification Sheet

Type: AE5
Page 1 of 1

Manufacturer: BEGA Wall luminaire - Asymmetric
Model: B33815

Mounting:	Wall mount	**Max Wattage:**	11 W
Optical Distribution:	Asymmetric	**Voltage:**	277V
Source Color:	4000K	**Driver Location:**	Integral
Min Color Rendering:	90 CRI	**Control Type:**	0-10V
Delivered Lumens:	618 lm		


Wall luminaire - Asymmetric
BEGA
Application
This wall mounted luminaire features a forward throw light distribution and is designed for the general illumination of pathways and walkways from various mounting heights. Downlight applications only.
Materials
Die-cast zinc glass with optical texture
Marine grade, copper free (≤ 0.3% copper content) A360.0 aluminum alloy
High temperature silicone gasket
Mechanically inactive stainless steel fasteners
Mfg. tested to North American Standards, suitable for wet locations
Ingress protection IP 64
Weight: 2.7 lbs.
Electrical
Operating voltage 120-277V AC
Minimum start temperature -30°C
Max. ambient temperature 35°C
System wattage 11.0 W
Controllability 0-10V, TRIAC, and ELV dimmable
Color rendering index Ra≥90
Luminaire lumens 618 lm
LED service life (L70) 60000hrs
LED color temperature
☐ 4000K (K4)
☐ 3500K (K35)
☐ 3000K (K3)
☐ 2700K (K27)
BEGA can supply you with suitable LED replacement modules for up to 20 years after the purchase of LED luminaires - see website for details
Finish
All BEGA standard finishes are matte, textured powder coat with minimum 2.5 mil thickness. The B33815 is available in Graphite Gray and Bronze in Black, Bronze, and Silver. BEGA standard White is a super durable polyester powder. Optionally available RAL, custom, and premium colors provided in polyester powder and/or liquid paint.
Available colors
☐ GRA ☐ Bronze (BNZ)
☐ Silver (SLV) ☐ White (WHT)
☐ Natural Bronze (NTB) ☐ RAL:
☐ CUS:
Type:
BEGA Product:
Project:
Modified:
Available options
☐ CUS Custom finish
☐ MAT Matte
☐ MCU Marine grade undercoat
☐ NTB Natural bronze (premium finish)
☐ RAL Fine, Classic, matte finish
Wall luminaire - Asymmetric
LED A B C
B33815 7.8W 4⅞" 7½" 4⅞"
BEGA 1000 BEGA Way, Carpinteria, CA 93013 (800) 664-0935 info@bega-us.com
Due to the dynamic nature of lighting products and the associated technologies, luminaire data on this sheet is subject to change at the discretion of BEGA North America. For the most current technical data, please refer to: bega-us.com Updated 01/2026
© copyright BEGA 2026

Description:
Outdoor Rated Wall Mounted Light

Notes:
1. Contractor to coordinate conduit path and mounting configuration with facade detailing per Architect.

ARUP
Project Name: Lehigh EHRH
Project Number: 312228
Phone: 1 212 896 3000

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LUMINAIRES
265100 - 117

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△	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	AS NOTED
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:

LIGHTING DETAILS

SHEET NUMBER:

CS2204

PROJECT PHASE:
DESIGN DEVELOPMENT

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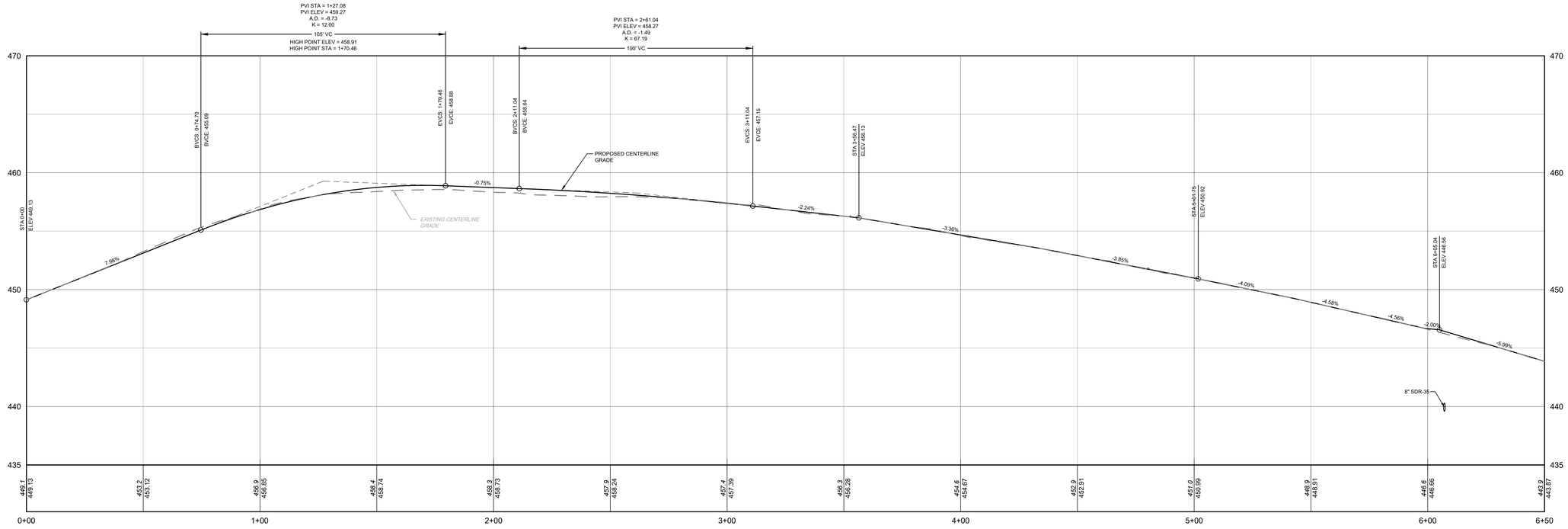
PLOTSTYLE: Pennoni NCS.stb



UNIVERSITY DRIVE STATION 0+00 TO 6+50
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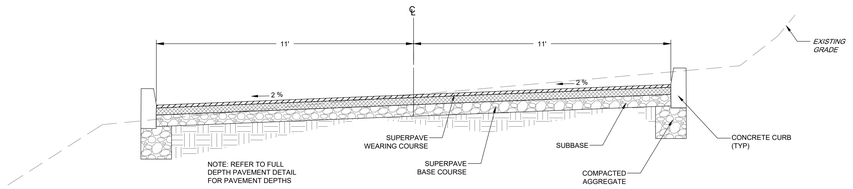
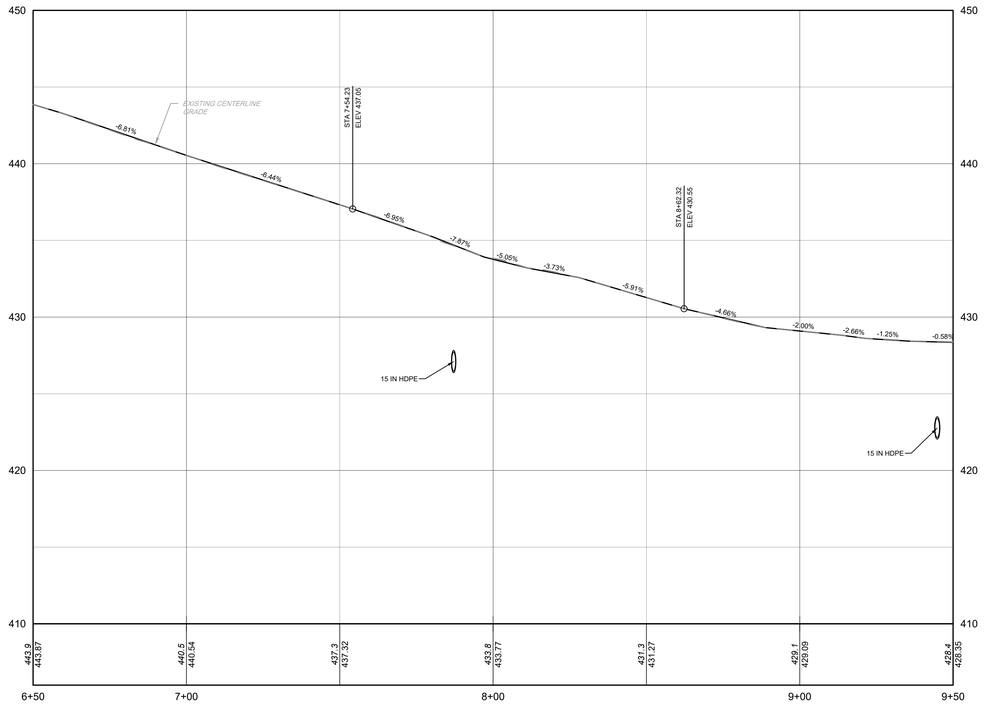
VERTICAL SCALE: 1" = 4'



TYPICAL UNIVERSITY DRIVE CROSS SECTION STA 0+74.70 - 7+86.75
NOT TO SCALE



UNIVERSITY DRIVE STATION 6+50 TO 9+50
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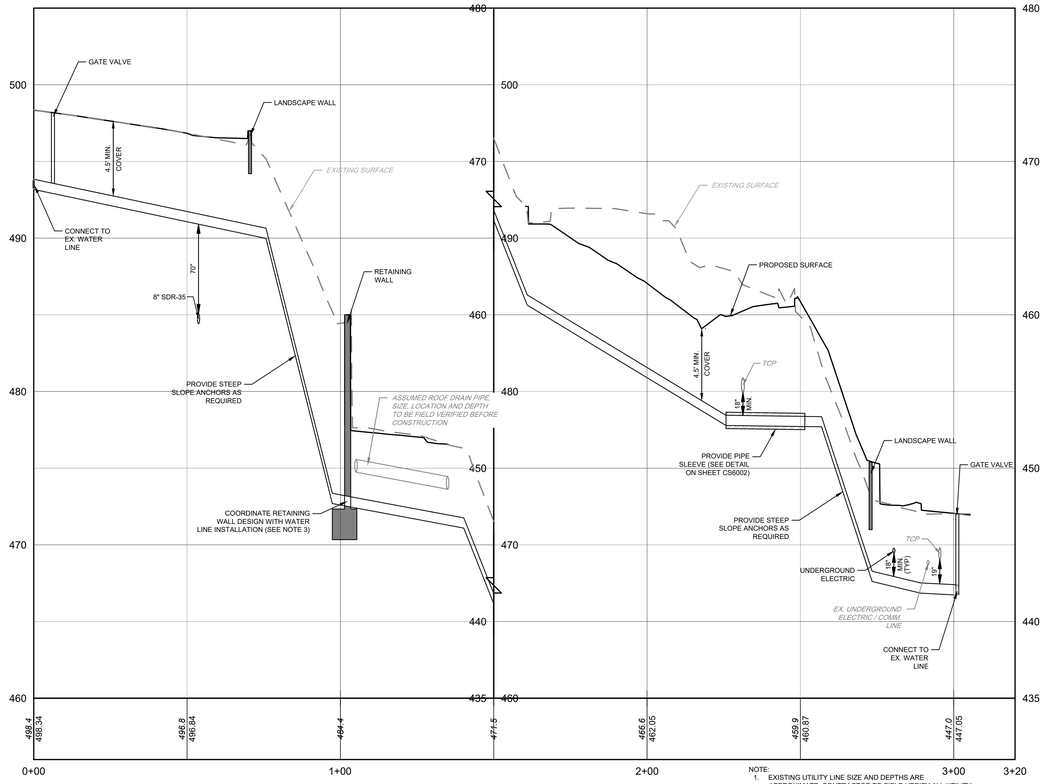
VERTICAL SCALE: 1" = 4'



WATER LINE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

NOTE:
1. EXISTING UTILITY LINE SIZE AND DEPTHS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY ALL UTILITY LINE LOCATION AND DEPTHS PRIOR TO STORM PIPE PLACEMENT.
2. PROPOSED WATER, SANITARY, GAS AND ELECTRICAL LATERALS INSTALLED SHALL BE PLACED IN COORDINATION WITH THE STORMWATER CONVEYANCE RUNS.
3. REFER TO STRUCTURAL PLANS FOR INFORMATION ON RETAINING WALL PENETRATIONS.
4. REFER TO ELECTRICAL PLANS FOR PROPOSED DUCTBANK INFORMATION.

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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	AS NOTED
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
UNIVERSITY DRIVE & WATER LINE PROFILES

SHEET NUMBER:
CS3501

PROJECT PHASE:
DESIGN DEVELOPMENT

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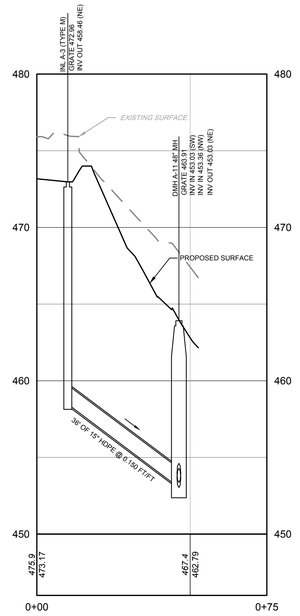

INL A-3 TO DMH A-11
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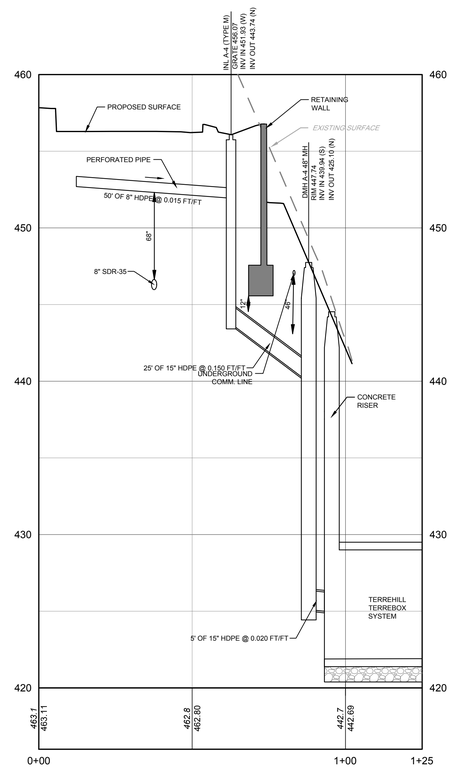
VERTICAL SCALE: 1" = 4'



BASE DRAIN TO DMH A-3
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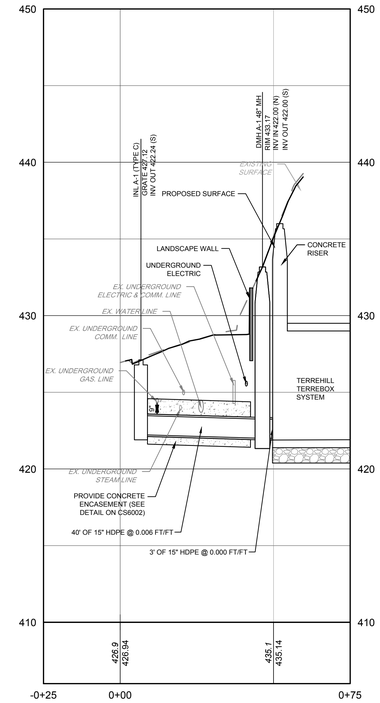
VERTICAL SCALE: 1" = 4'



INL A-1 TO DMH A-1
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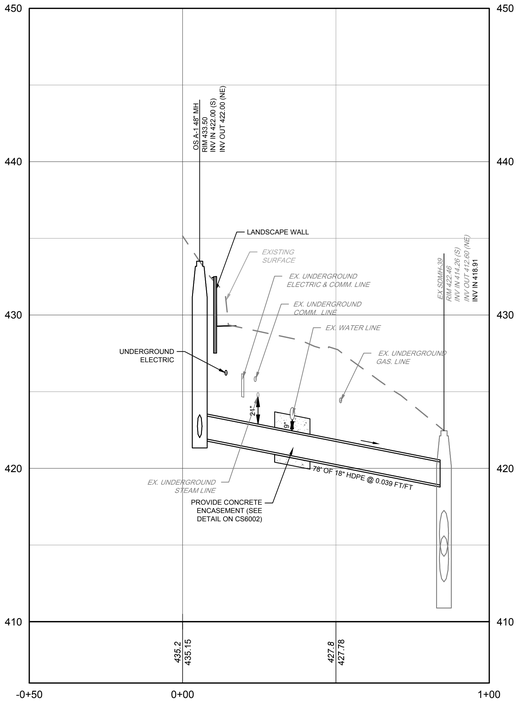
VERTICAL SCALE: 1" = 4'



OS A-1 TO EX SDMH-39
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

NOTE:
1. EXISTING UTILITY LINE SIZE AND DEPTHS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY ALL UTILITY LINE LOCATION AND DEPTHS PRIOR TO STORM PIPE PLACEMENT.
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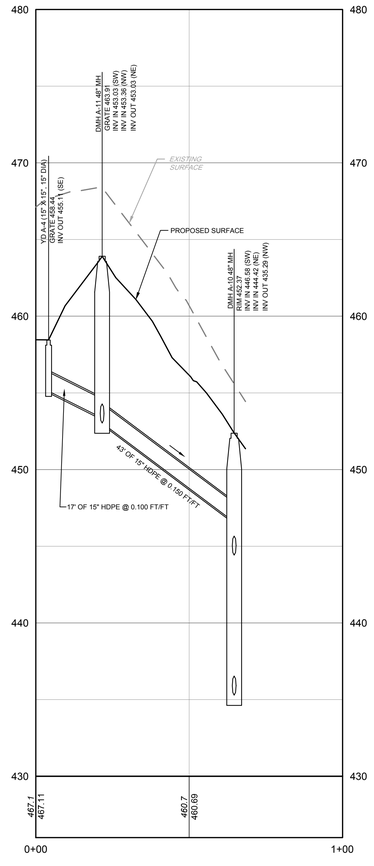
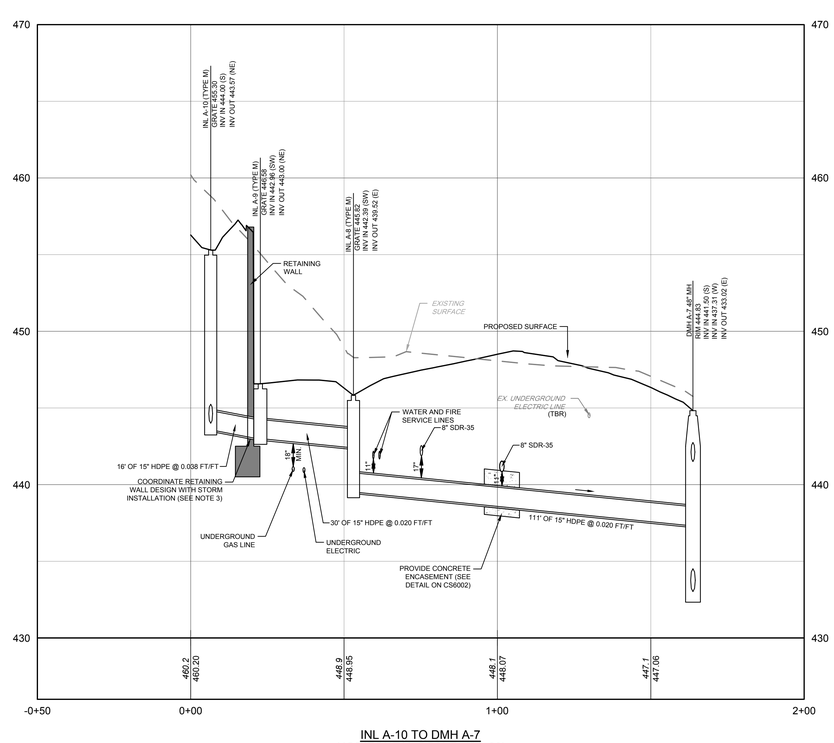
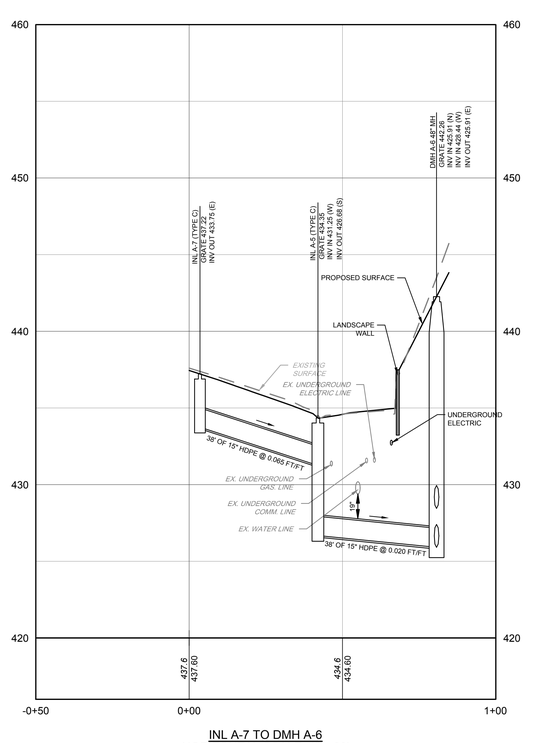
4. REFER TO ELECTRICAL PLANS FOR PROPOSED DUCTBANK INFORMATION.



YD A-4 TO DMH A-10
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



INL A-10 TO DMH A-7
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



INL A-7 TO DMH A-6
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

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DA PROJECT #	2512
SCALE:	AS NOTED
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
STORMWATER PROFILES

SHEET NUMBER:
CS4001

PROJECT PHASE:
DESIGN DEVELOPMENT

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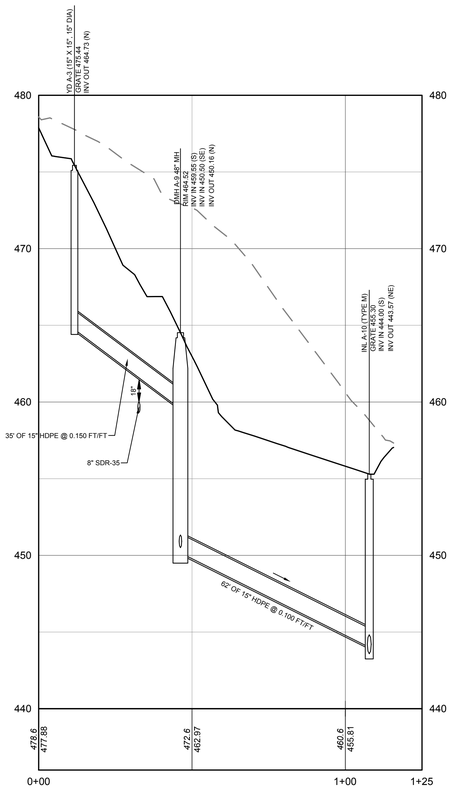

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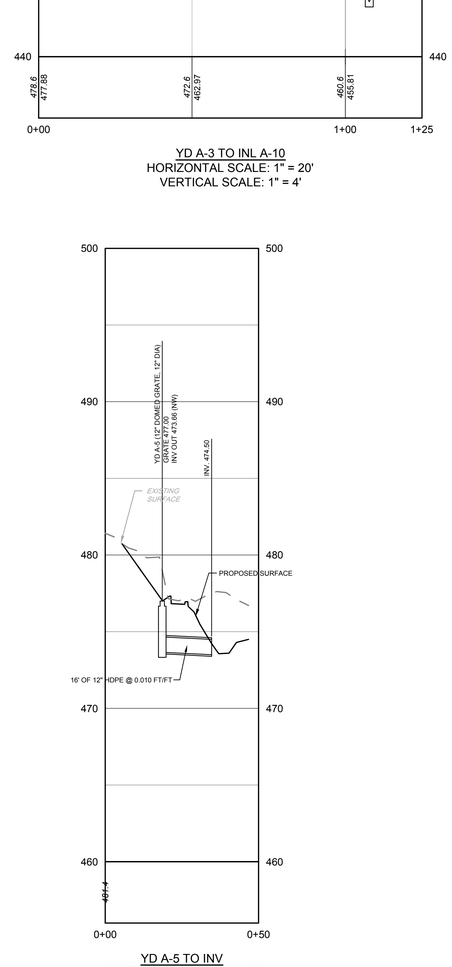
VERTICAL SCALE: 1" = 4'



YD A-5 TO INV
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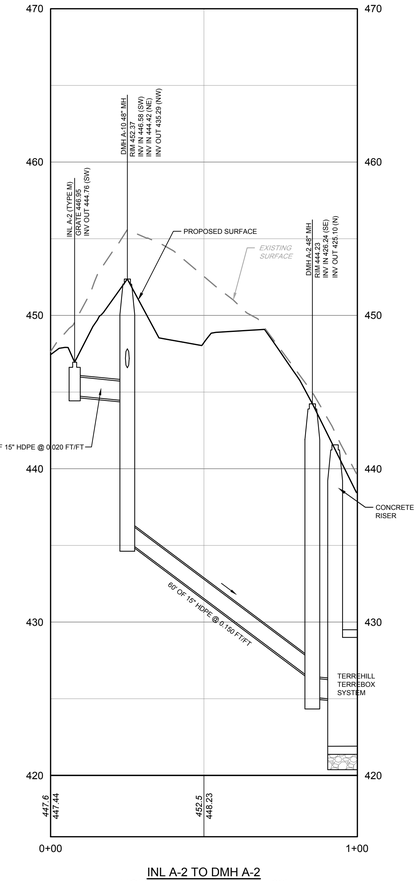
VERTICAL SCALE: 1" = 4'



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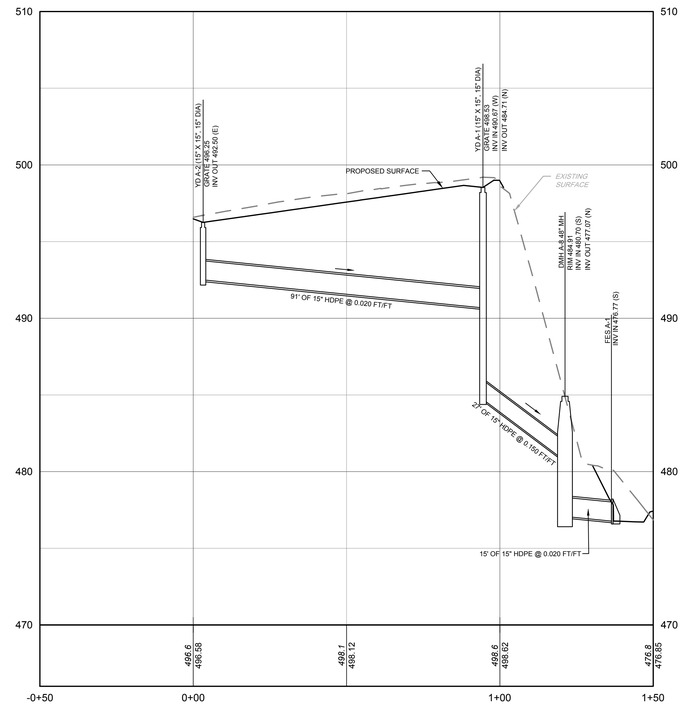
VERTICAL SCALE: 1" = 4'



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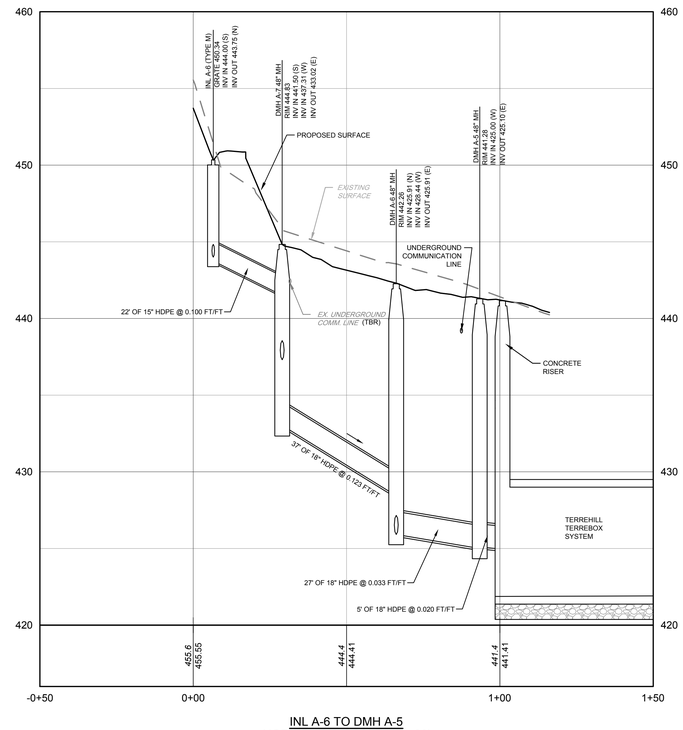
VERTICAL SCALE: 1" = 4'



INL A-6 TO DMH A-5
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

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3. REFER TO STRUCTURAL PLANS FOR INFORMATION ON RETAINING WALL PENETRATIONS.
4. REFER TO ELECTRICAL PLANS FOR PROPOSED DUCTBANK INFORMATION.

PLOTTED: 2/2/2026 4:08 PM, BY: Nicole Gemma PLOTSTYLE: Pennoni NCS.stb
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DATE:	30 JANUARY 2026

SHEET NAME:
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SHEET NUMBER:
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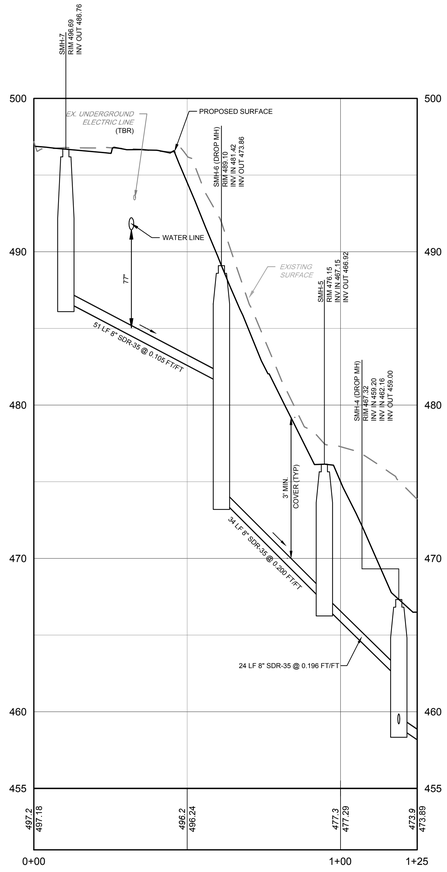
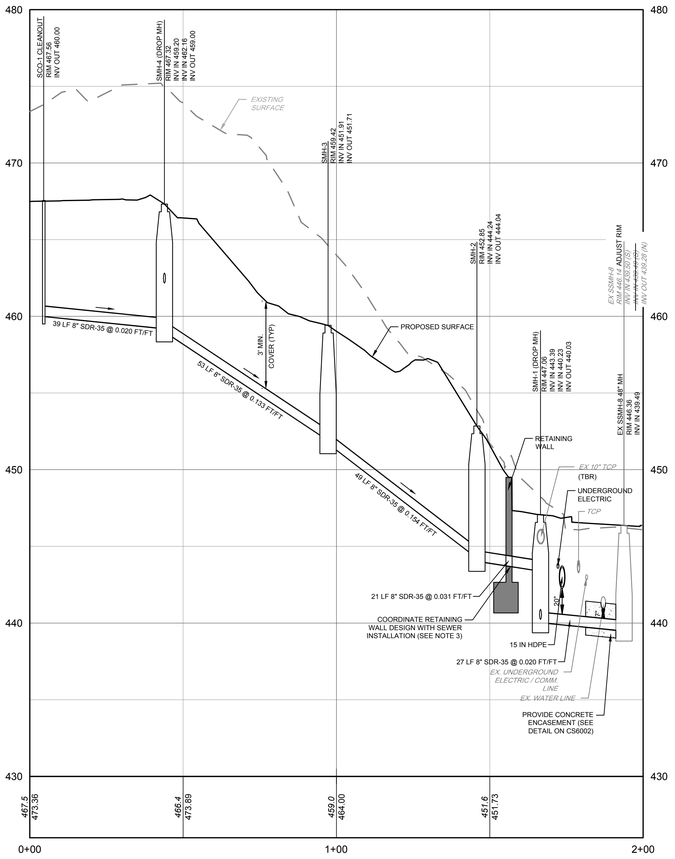
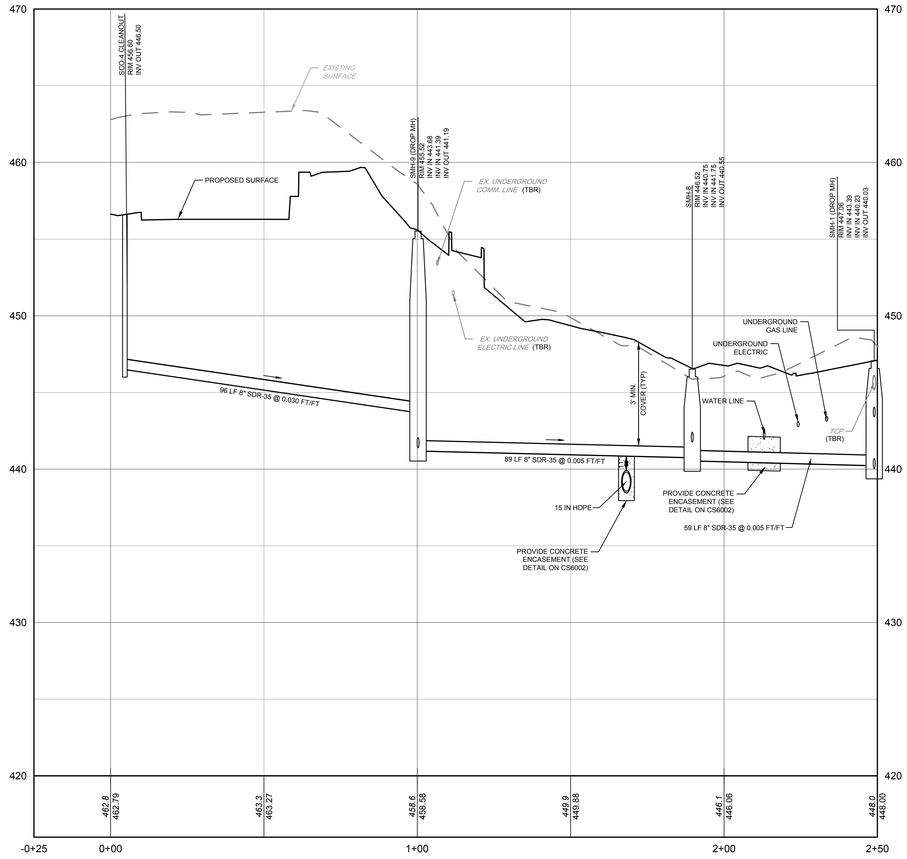
PROJECT PHASE:
DESIGN DEVELOPMENT



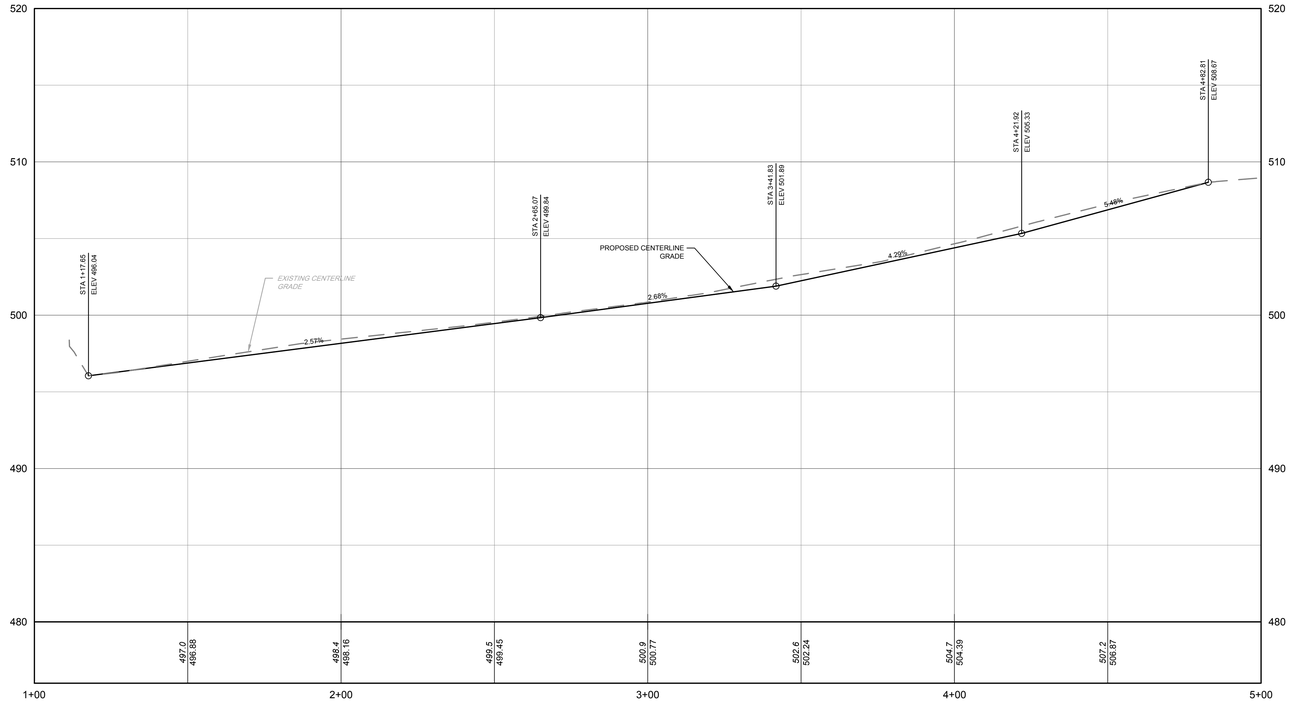
SMH-7 TO SMH-4
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



SCO-1 TO EX SSMH-8
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



SCO-4 TO SMH-1
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'



DRAVO DRIVE
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

NOTE:
1. EXISTING UTILITY LINE SIZE AND DEPTHS ARE APPROXIMATE. CONTRACTOR TO FIELD VERIFY ALL UTILITY LINE LOCATION AND DEPTHS PRIOR TO STORM PIPE PLACEMENT.
2. PROPOSED WATER, SANITARY, GAS AND ELECTRICAL LATERALS INSTALLED SHALL BE PLACED IN COORDINATION WITH THE STORMWATER CONVEYANCE RUNS.
3. REFER TO STRUCTURAL PLANS FOR INFORMATION ON RETAINING WALL PENETRATIONS.
4. REFER TO ELECTRICAL PLANS FOR PROPOSED DUCTBANK INFORMATION.

DIGSAU

OWNER
Lehigh University
681 Taylor St
Bethlehem PA 18015
v 610-758-4622

ARCHITECT
DIGSAU
340 North 12th Street, Suite 421
Philadelphia, PA 19107
v 215.627.0808
www.digsau.com

CIVIL ENGINEER
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LANDSCAPE ARCHITECT
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STRUCTURAL ENGINEER
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https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

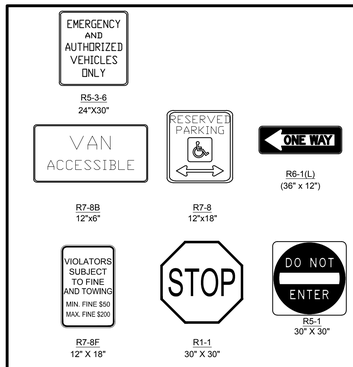
LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	AS NOTED
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
UTILITY & DRAVO DRIVE PROFILES

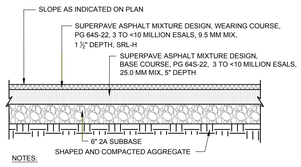
SHEET NUMBER:
CS4501

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU01 - Lehigh Housing Final Design\DESIGN_SHEETS\CS4501.dwg PLOTTED: 1/30/2026 4:53 PM, BY: Nicole Gennow PLOTSTYLE: Pennoni NCS.ctb



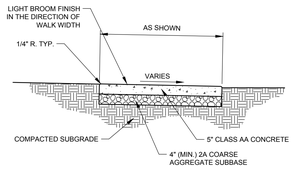
TRAFFIC SIGNS
NOT TO SCALE



NOTES:

1. ALL PAVEMENT MATERIAL AND CONSTRUCTION PROCEDURES SHALL MEET THE REQUIREMENTS OF PaDOT SPECIFICATIONS, FORM 408.
2. PAVEMENT CROSS SECTIONS SHOULD BE CONFIRMED BY A GEOTECHNICAL ENGINEER.

FULL DEPTH PAVEMENT DETAIL
NOT TO SCALE

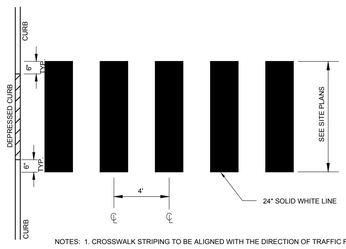


SECTION

SIDEWALK CONSTRUCTION NOTES:

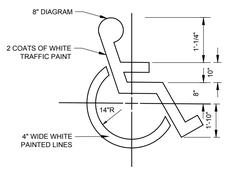
1. PROVIDE MATERIALS AND CONSTRUCTION MEETING THE REQUIREMENTS OF PADOT PUB. 408.
2. THE PRIMARY SURFACE OF THE CONCRETE SIDEWALK SHALL HAVE A BROOM FINISH AND AN AREA OF TWO (2) INCHES IN WIDTH, PARALLEL TO THE CONTROL JOINTS, SHALL HAVE A SMOOTH-TROWLED FINISH.
3. SIDEWALK BLOCKS SHALL HAVE AN AREA OF 25 SQUARE FEET (5'x5'). SLABS HAVING AN AREA OF MORE THAN 100 SQUARE FEET SHALL BE REINFORCED WITH WIRE FABRIC.
4. XYPEX WATERPROOFING ADMIXTURE TO BE ADDED FOR ALL EXTERIOR CONCRETE

CONCRETE SIDEWALK
NOT TO SCALE

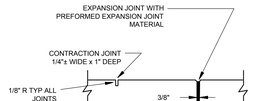


NOTES: 1. CROSSWALK STRIPING TO BE ALIGNED WITH THE DIRECTION OF TRAFFIC FLOW.

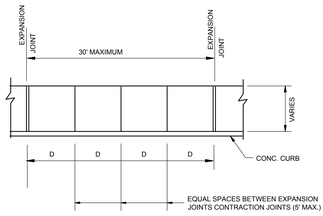
CROSSWALK MARKING
NOT TO SCALE



ADA SYMBOL
NOT TO SCALE

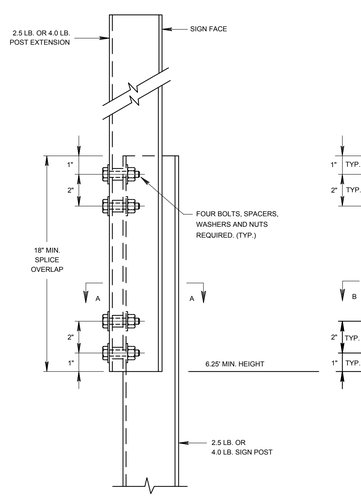


JOINTS



JOINT SPACING
NOT TO SCALE

CONCRETE PAVEMENT JOINT SPACING
NOT TO SCALE

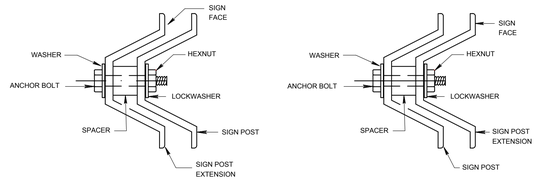


POST EXTENSION SPLICE DETAIL A

FOR USE IN EXTENDING SIGN POSTS

ALTERNATE POST EXTENSION SPLICE DETAIL B

FOR USE IN EXTENDING SIGN POSTS

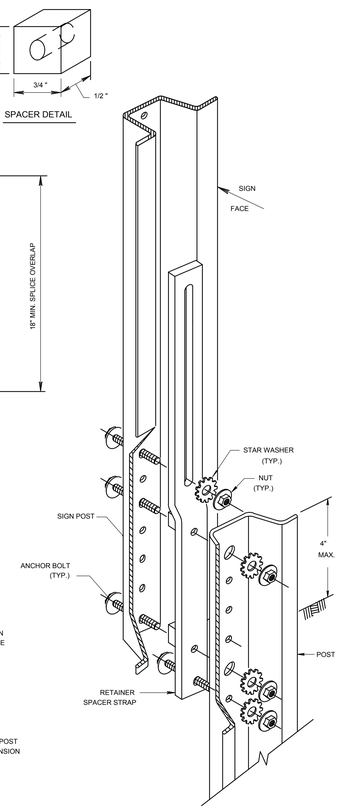


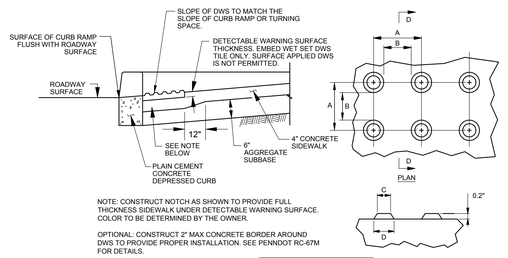
SECTION A-A

SECTION B-B

NOTE:
ALL SIGNS MUST BE PLACED IN ACCORDANCE WITH PUBLICATION 111M.

PENNDOT APPROVED BREAKAWAY SIGN POST DETAIL
NOT TO SCALE





NOTE: CONSTRUCT NOTCH AS SHOWN TO PROVIDE FULL THICKNESS SIDEWALK UNDER DETECTABLE WARNING SURFACE. COLOR TO BE DETERMINED BY THE OWNER.

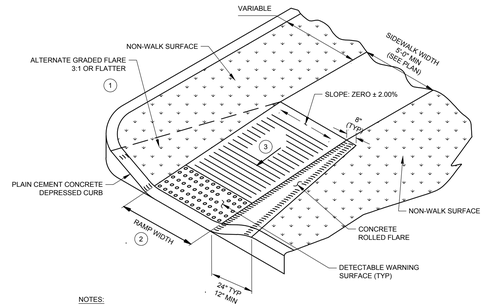
OPTIONAL: CONSTRUCT 2" MAX CONCRETE BORDER AROUND DWS TO PROVIDE PROPER INSTALLATION. SEE PENNDOT RC-67M FOR DETAILS.

DETECTABLE WARNING SURFACE EMBEDDING DETAIL

TRUNCATED DOME DIMENSIONS		
DIM	MIN inch	MAX inch
A	1.6"	2.4"
B	0.65"	1.5"
C	(13)	(13)
D	0.9"	1.4"

(13) THE C DIMENSION IS 50% TO 65% OF THE D DIMENSION.

DETECTABLE WARNING SURFACE (DWS) TRUNCATED DOME DETAILS
NOT TO SCALE



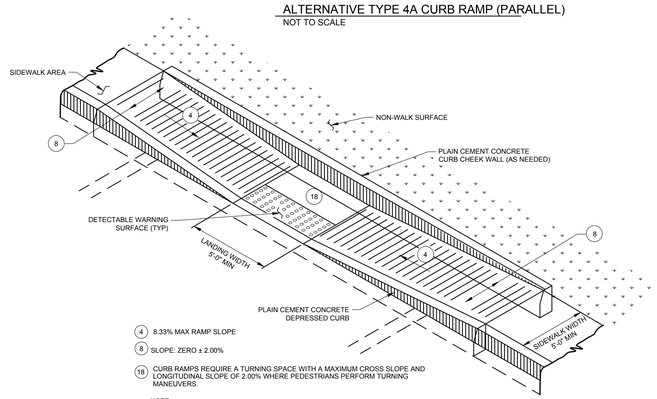
NOTES:

1 CHEEK WALLS ARE PERMITTED WHEN ADJACENT TO NON-WALK AREAS OR ELEVATION DIFFERENCES CANNOT BE ACCOMMODATED BY FLARES OR GRADING. GRADE GRASS AREAS OR OTHER NON-WALK AREAS AT 3:1 OR FLATTER. DO NOT INSTALL CHEEK WALLS THAT INTERSECT THE PEDESTRIAN PATH.

2 CURB RAMP WITH IS EQUAL TO SIDEWALK WIDTH WHEN THE SIDEWALK WIDTH IS GREATER THAN OR EQUAL TO THE MINIMUM 4'-0".

3 8.33% MAX RAMP SLOPE. TO AVOID CHASING GRADE INDEFINITELY WHEN TRAVERSING THE HEIGHT OF CURB, RAMP LENGTH NOT TO EXCEED 15'-0". ADJUST RAMP SLOPE AS NEED TO PROVIDED ACCESS TO THE MAXIMUM EXTENT FEASIBLE.

ALTERNATIVE TYPE 4A CURB RAMP (PARALLEL)
NOT TO SCALE



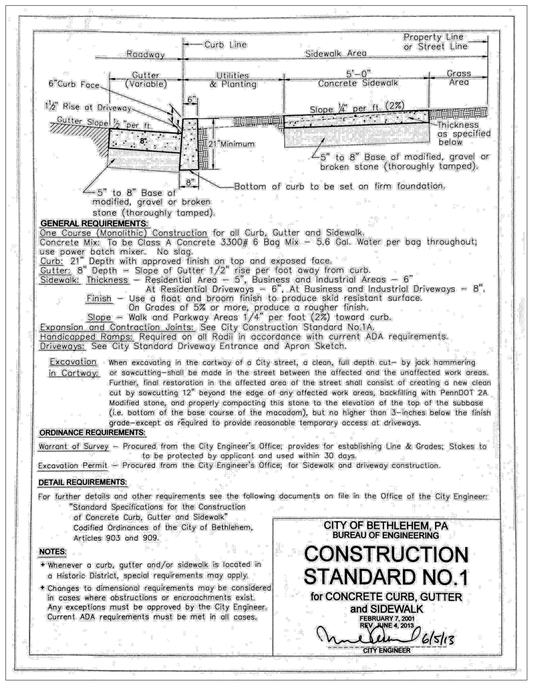
(4) 8.33% MAX RAMP SLOPE

(8) SLOPE: ZERO ± 2.00%

(18) CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS.

NOTE
REFER TO MOST CURRENT PENNDOT PUB 72M, RC-67M FOR ADDITIONAL INFORMATION.

TYPE 2 CURB RAMP
NOT TO SCALE



GENERAL REQUIREMENTS:

One Course (Monolithic) Construction for all Curb, Gutter and Sidewalk.
Concrete Mix: To be Class A Concrete 3300# 6 Bag Mix – 5.6 Gal. Water per bag throughout; use power batch mixer. No slag.
Curb: 21" Depth with approved finish on top and exposed face.
Gutter: 8" Depth – Slope of Gutter 1/2" rise per foot away from curb.
Sidewalk: Thickness – Residential Area – 5", Business and Industrial Areas – 6" At Residential Driveways – 6", At Business and Industrial Driveways – 8".
Finish – Use a float and broom finish to produce skid resistant surface. On Grades of 5% or more, produce a rougher finish.
Slope – Walk and Parkway Areas 1/4" per foot (2%) toward curb.
Expansion and Contraction Joints: See City Construction Standard No.1A.
Handicapped Ramps: Required on all Radii in accordance with current ADA requirements.
Driveways: See City Standard Driveway Entrance and Apron Sketch.

Excavation in Cartway: When excavating in the cartway of a City street, a clean, full depth cut– by jack hammering or sawcutting–shall be made in the street between the affected and the unaffected work areas. Further, final restoration in the affected area of the street shall consist of creating a new clean cut by sawcutting 12" beyond the edge of any affected work areas, backfilling with PennDOT 2A Modified stone, and properly compacting this stone to the elevation of the top of the subbase (i.e. bottom of the base course of the macadam), but no higher than 3–inches below the finish grade–except as required to provide reasonable temporary access at driveways.

ORDINANCE REQUIREMENTS:

Warrant of Survey – Procured from the City Engineer's Office; provides for establishing Line & Grades; Stakes to to be protected by applicant and used within 30 days.
Excavation Permit – Procured from the City Engineer's Office; for Sidewalk and driveway construction.

DETAIL REQUIREMENTS:

For further details and other requirements see the following documents on file in the Office of the City Engineer:
"Standard Specifications for the Construction of Concrete Curb, Gutter and Sidewalk"
Codified Ordinances of the City of Bethlehem, Articles 903 and 909.

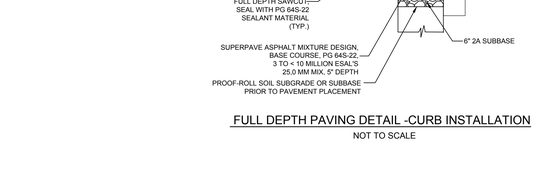
NOTES:

* Whenever a curb, gutter and/or sidewalk is located in a Historic District, special requirements may apply.
* Changes to dimensional requirements may be considered in cases where obstructions or encroachments exist. Any exceptions must be approved by the City Engineer. Current ADA requirements must be met in all cases.

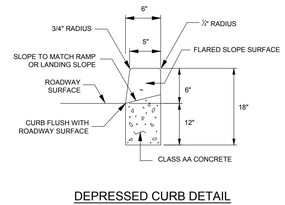
CITY OF BETHLEHEM, PA
BUREAU OF ENGINEERING

CONSTRUCTION STANDARD NO.1
for CONCRETE CURB, GUTTER and SIDEWALK
FEBRUARY 7, 2001
REV. JUNE 4, 2013
6/5/13
CITY ENGINEER

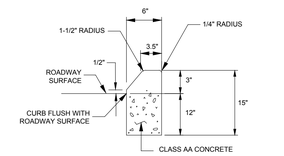
CURB, GUTTER AND SIDEWALK
NOT TO SCALE



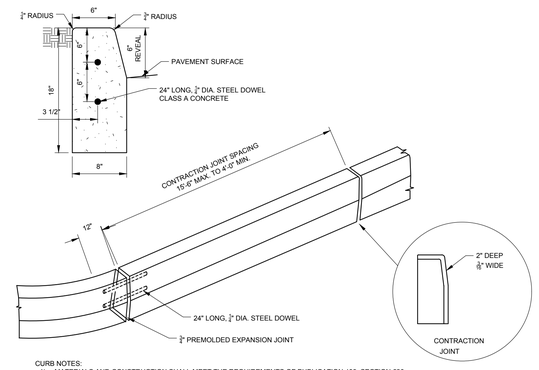
FULL DEPTH PAVING DETAIL -CURB INSTALLATION
NOT TO SCALE



DEPRESSED CURB DETAIL
NOT TO SCALE



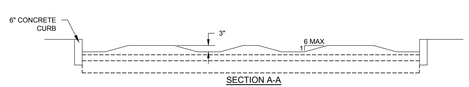
3 INCH MOUNTABLE CURB
NOT TO SCALE



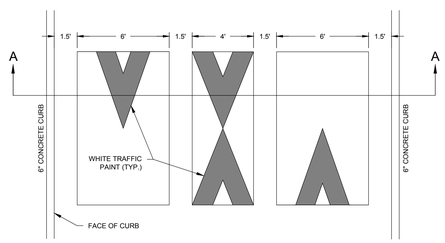
CURB NOTES:

1) MATERIALS AND CONSTRUCTION SHALL MEET THE REQUIREMENTS OF PUBLICATION 408, SECTION 630 FOR PLAIN CEMENT CONCRETE CURB AND DEPRESSED CURB, SECTION 640 FOR PLAIN CEMENT CONCRETE CURB.
2) SPACE CONTRACTION JOINTS IN UNIFORM LENGTHS OR SECTIONS.
3) PLACE 3/4" PREMOLDED EXPANSION JOINTS AT ENDS OF SECTIONS OF CURVED CURBS, AT INTERVALS OF NOT MORE THAN FORTY FIVE (45) FEET OF STRAIGHT CURB, AND AT THE END OF THE WORK DAY. CUT PREMOLDED EXPANSION JOINT MATERIAL TO CONFORM TO CROSS SECTIONAL AREA OF CURB.
4) INSTALL STEEL DOWEL BARS WHEN CURVED CURB JOINS WITH TANGENT CURB AT CURB RETURNS. THE PORTION OF THE BAR EXTENDING INTO THE TANGENT CURB SHALL BE RENDERED BONDLESS BY A COATING OF APPROVED MATERIAL, AND ENCLOSED IN PART IN APPROVED TUBES OR CAPS.

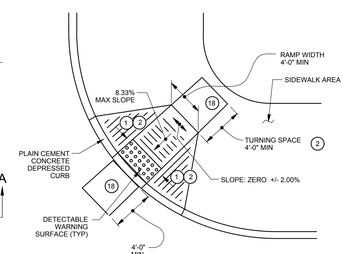
CONCRETE CURB
NOT TO SCALE



SECTION A-A



SPEED CUSHION DETAIL
NOT TO SCALE



NOTES:

1. SIDE FLARE 10.00% MAX. SLOPE
2. IF THE TURNING SPACE IS INDICATED TO BE LESS THAN 4'-0", CONSTRUCT SIDE FLARES AT 8.33% MAX.
18. CURB RAMPS REQUIRE A TURNING SPACE WITH A MAXIMUM CROSS SLOPE AND LONGITUDINAL SLOPE OF 2.00% WHERE PEDESTRIANS PERFORM TURNING MANEUVERS.

TYPE 1 CURB RAMP
NOT TO SCALE

DIGSAU

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https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	AS NOTED
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
SITE DETAILS

SHEET NUMBER:
CS6001

PROJECT PHASE:
DESIGN DEVELOPMENT

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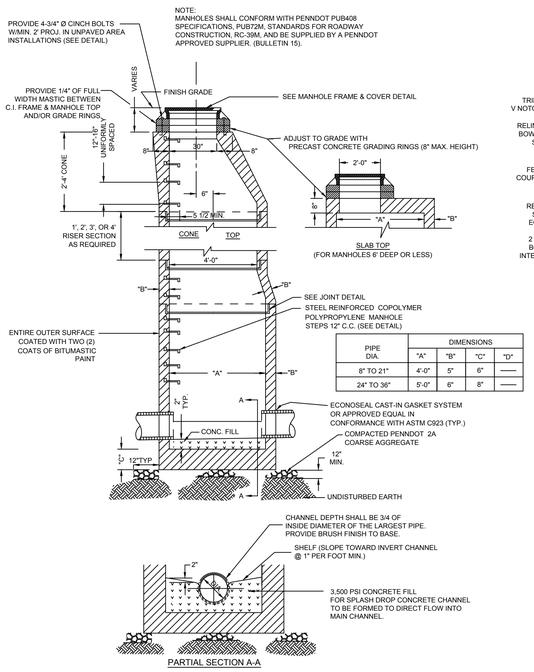
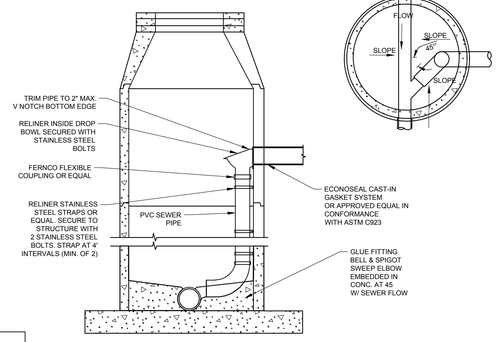


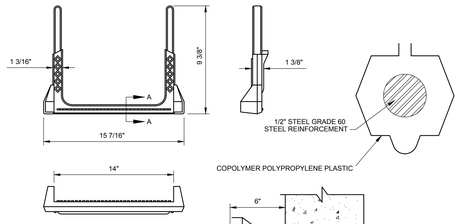
PIPE DIA.	DIMENSIONS			
	"A"	"B"	"C"	"D"
8" TO 21"	4'-0"	5"	6"	——
24" TO 36"	5'-0"	6"	8"	——

PRECAST STANDARD MANHOLE - TYPE 'A'
NOT TO SCALE

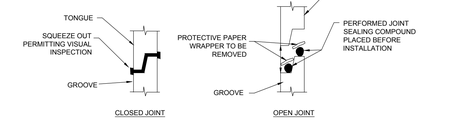


NOTES:
1. ALL INSIDE DROP CONNECTIONS FOR SERVICES AND COLLECTOR SEWERS SHALL USE THE DROP BOWL AS PRODUCED BY: RELINER-DURAN, INC. 53 MT. ARCHER RD, LYME, CT 06371 (860)434-0277 FAX: (860)434-3195
2. SECURE DROP PIPE TO MANHOLE WALL WITH RELINER-DURAN, INC STAINLESS STEEL ADJUSTABLE CLAMPING BRACKETS
3. FOR 4" INSIDE DIGS, CONTRACTOR TO INSTALL 4" TEE, 4" PVC, AND 4" ELBOW INSTEAD OF 8" PVC, 8" ELBOW, AND BOWL AND HOOD

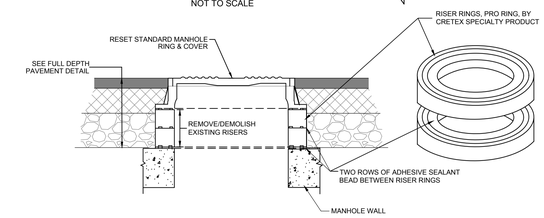
DROP MANHOLE
NOT TO SCALE



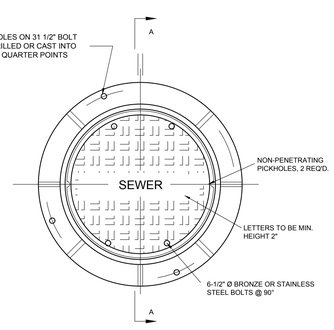
MANHOLE STEP
NOT TO SCALE



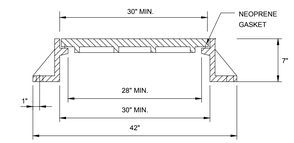
JOINT DETAIL FOR PRECAST MANHOLE
NOT TO SCALE



MANHOLE GRADE ADJUSTMENT DETAIL
NOT TO SCALE



PLAN

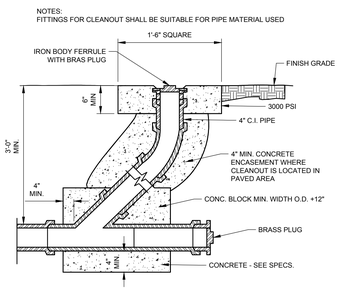


SECTION A-A

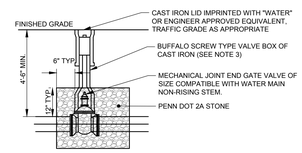
NOTE:
1. ALL CAST IRON MANHOLE FRAMES AND COVERS SHALL BE BOLT DOWN IN ALL UNPAVED AND GREEN AREAS.
2. ALL MANHOLE COVERS SHALL HAVE A NEOPRENE RUBBER GASKET FOR WATERTIGHT SEAL.
3. PROVIDE NEENAH R-1642 OR APPROVED EQUAL.

NOTE:
PROVIDE NEENAH R-1642 WITH TYPE "E" FASTENING DEVICES WITH 4 STAINLESS STEEL HEX BOLTS ON ALL COVERS FOR MANHOLES OUTSIDE PAVED AREAS

CAST IRON MANHOLE FRAME AND COVER
NOT TO SCALE

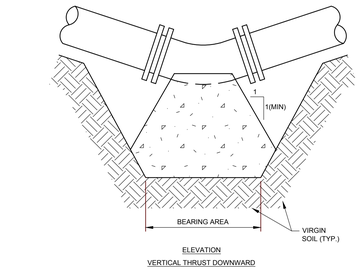


SANITARY SEWER CLEAN OUT
NOT TO SCALE

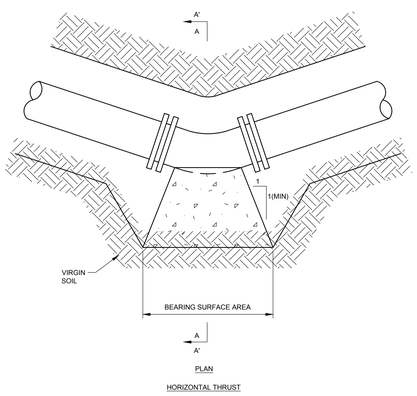


NOTES:
1. SEE SPECIFICATION SECTION 05000-2.3 FOR M.J. RESTRAINT, GATE VALVE & BOXES, AND OTHER REQUIREMENTS.
2. GATE VALVES MUST MEET AWWA SPECIFICATIONS WORKING PRESSURE= 250PSI UNLESS OTHERWISE SPECIFIED APPROVED MODELS: MUELLER CO. MODEL NO. A2360-20 OR ENGINEER APPROVED EQUIVALENT.
3. APPROVED VALVE BOX MODEL: BINGHAM & TAYLOR 5 1/4" SHAFT 2-PIECE SCREW TYPE ADJUSTABLE VALVE BOX MODEL OR ENGINEER APPROVED EQUIVALENT.
4. VALVES OVER 12-INCHES IN SIZE REQUIRE GEARED OPERATORS.

GATE VALVE ASSEMBLY
NOT TO SCALE



ELEVATION
VERTICAL THRUST DOWNWARD

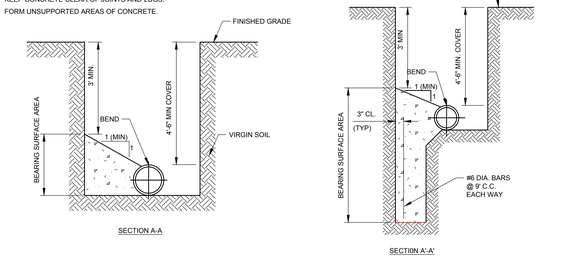


PLAN
HORIZONTAL THRUST

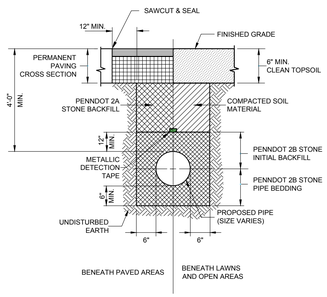
BEARING SURFACE REQUIRED - SQ. FT. THRUST BLOCKING FOR HORIZONTAL AND VERTICAL DOWNWARD THRUSTS * 200 PSI WORKING PRESSURE																
PIPE SIZES		6" AND 8"				10" AND 12"				16", 18" AND 20"				24"		
TYPE OF BEARING MATERIAL	ALLOWABLE LOAD ** TON/SQ FT	DEGREE OF BEND OR DEFLECTION ***														
		22.5	45	90	D.E.	22.5	45	90	D.E.	22.5	45	90	D.E.	22.5	45	90	D.E.
SAND	0.75	6.8	12.0	22.0	14.7	13.4	25.6	46.8	32.5	35.2	69.1	127.6	90.3	52.2	99.5	183.9	130.1
SOFT CLAY	1	5.2	9.2	16.4	11.1	10.0	19.2	35.0	24.4	26.4	51.8	95.7	68.0	39.2	74.7	137.9	97.5
SAND & GRAVEL	2	2.6	4.6	8.2	5.5	5.0	9.6	17.6	12.2	13.2	25.9	47.9	33.9	19.6	37.3	69.0	48.8
CLAY	4	2.0	2.4	4.2	2.8	2.6	4.8	8.8	6.1	6.6	13.0	23.9	16.9	9.8	18.7	34.5	24.4
SOFT ROCK	5	2.0	2.0	3.3	2.2	2.0	3.8	7.0	5.0	5.3	10.4	19.1	13.5	7.8	14.9	27.6	19.5
ROCK	15	2.0	2.0	2.0	0.8	2.0	2.0	2.4	1.6	2.0	3.5	6.4	4.5	2.6	5.0	9.2	6.5

* MUST BE ADJUSTED FOR TEST PRESSURES ABOVE 200 P.S.I.
** SOIL TESTING AGENCY TO ESTABLISH ALLOWABLE BEARING PRESSURE BASED ON FIELD CONDITIONS. AND BEARING AREAS ARE TO BE ADJUSTED ACCORDINGLY. (ALLOWANCES MUST BE MADE FOR SATURATED SOILS.)
*** D.E. DENOTES DEAD END AND APPLIES AT TEES AND PLUGS.

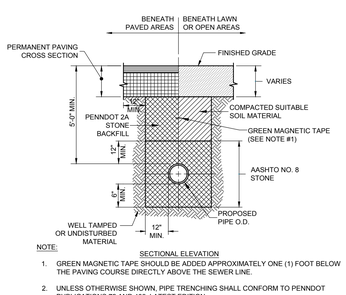
NOTES:
1. CONCRETE TO HAVE 3,000 P.S.I. MINIMUM 28 DAY COMPRESSIVE STRENGTH.
2. REINFORCING STEEL TO BE ASTM A-615, GRADE 60, EPOXY COATED DEFORMED BARS.
3. COVER ALL FITTINGS AND JOINTS WITH POLYETHYLENE FILM BEFORE PLACING CONCRETE
4. COAT ALL EXPOSED FERROUS SURFACES WITH TWO COATS EPOXY, APPLIED PER MFG'S RECOMMENDATIONS.
5. CONCRETE MUST BEAR AGAINST VIRGIN SOIL.
6. KEEP CONCRETE CLEAR OF JOINTS AND LUGS.
7. FORM UNSUPPORTED AREAS OF CONCRETE.



THRUST BLOCKS FOR HORIZONTAL AND VERTICAL DOWNWARD THRUST
NOT TO SCALE



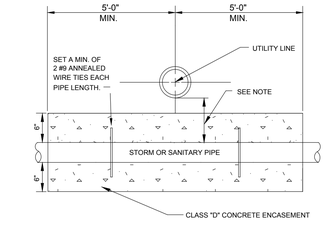
WATERLINE TRENCH
NOT TO SCALE



NOTE:
1. GREEN MAGNETIC TAPE SHOULD BE ADDED APPROXIMATELY ONE (1) FOOT BELOW THE PAVING COURSE DIRECTLY ABOVE THE SEWER LINE.
2. UNLESS OTHERWISE SHOWN, PIPE TRENCHING SHALL CONFORM TO PENNDOT PUBLICATIONS 72 AND 408, LATEST EDITION.

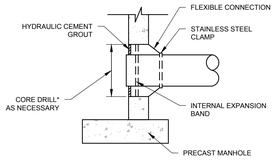
SECTIONAL ELEVATION

SANITARY SEWER TRENCH
NOT TO SCALE



NOTE:
CRADLE OR ENCASEMENT REQUIRED AS SHOWN WHEN CLEARANCE BETWEEN PIPES IS 18" OR LESS

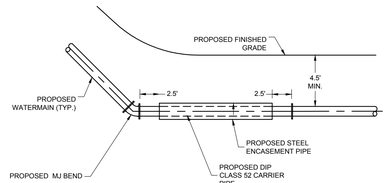
CONCRETE ENCASEMENT AT UTILITY LINE CROSSING
NOT TO SCALE



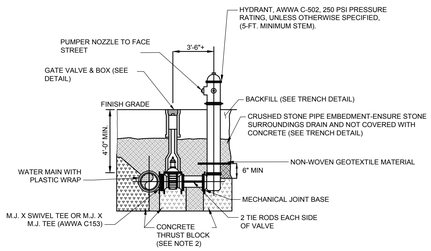
* BRICK MANOLES CANNOT BE CORE DRILLED.

NOTES:
1. CORE DRILL NEW PIPE OPENING.
2. INSERT NEW FLEXIBLE CONNECTOR.
3. AFTER INSERTION OF NEW PIPE, MANHOLE SHALL BE VACUUM TESTED IN ACCORDANCE WITH SPECIFICATIONS.

PIPE CONNECTION TO EXISTING MANHOLE
NOT TO SCALE



PIPE SLEEVE ENCASEMENT
NOT TO SCALE



NOTE:
1. ALL FITTINGS (TEE, VALVE & HYDRANT) MUST BE DUCTILE IRON, MECHANICAL JOINT. UTILIZE MEGALUGS OR APPROVED EQUIVALENT AT EACH M.J. CONNECTION, EXCEPT AT SWIVEL TEE.
2. CONCRETE THRUST BLOCK USE DEPENDENT ON SOIL CONDITIONS.
3. M.J. X SWIVEL TEE MANUFACTURED BY TYLER/UNION, MECHANICAL JOINT C153 DUCTILE IRON COMPACT FITTINGS, OR U.S. PIPE, HYDRANT TEE WITH DUCTILE IRON ROTATABLE MJ GLAND, OR ENGINEER APPROVED EQUIVALENT.

TYPICAL HYDRANT INSTALLATION DETAIL
NOT TO SCALE

DIGSAU

OWNER
Lehigh University
681 Taylor St
Bethlehem PA 18015
v 610-758-4622

ARCHITECT
DIGSAU
340 North 12th Street, Suite 421
Philadelphia, PA 19107
v 215.627.0808
www.digsau.com

CIVIL ENGINEER
Pennoni
81 Highland Ave, Suite 230
Bethlehem, PA 18017
https://www.pennoni.com/
v 855-754-3595

LANDSCAPE ARCHITECT
Omnes
1262 Simon Blvd, B105
Easton, PA 18042
https://omnes.studio/
v 215-882-0500

STRUCTURAL ENGINEER
Keast & Hood
1635 Market St, #1705
Philadelphia, PA 19103
https://keasthood.com/
v 215-625-0099

MEP/FP/TECHNOLOGY ENGINEER
IMEG
623 26th Ave
Rock Island, IL 61201
https://imegcorp.com/
v 215-569-0400

LIGHTING
Arup
77 Water Street
New York, NY 10005
https://www.arup.com/en-us/
v 212-896-3000

ENVELOPE
RWDI
1608 Walnut Street, Suite 1603
Philadelphia, PA 19103
v 267-773-8375

VERTICAL TRANSPORTATION
Lerch Bates
275 S Main St, Suite 2CC
Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

ACOUSTICS
Harrison Acoustics
212 Terminal Ave
Glenside, PA 19038
v 215-720-1530
https://harrison-acoustics.com/

LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
726 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

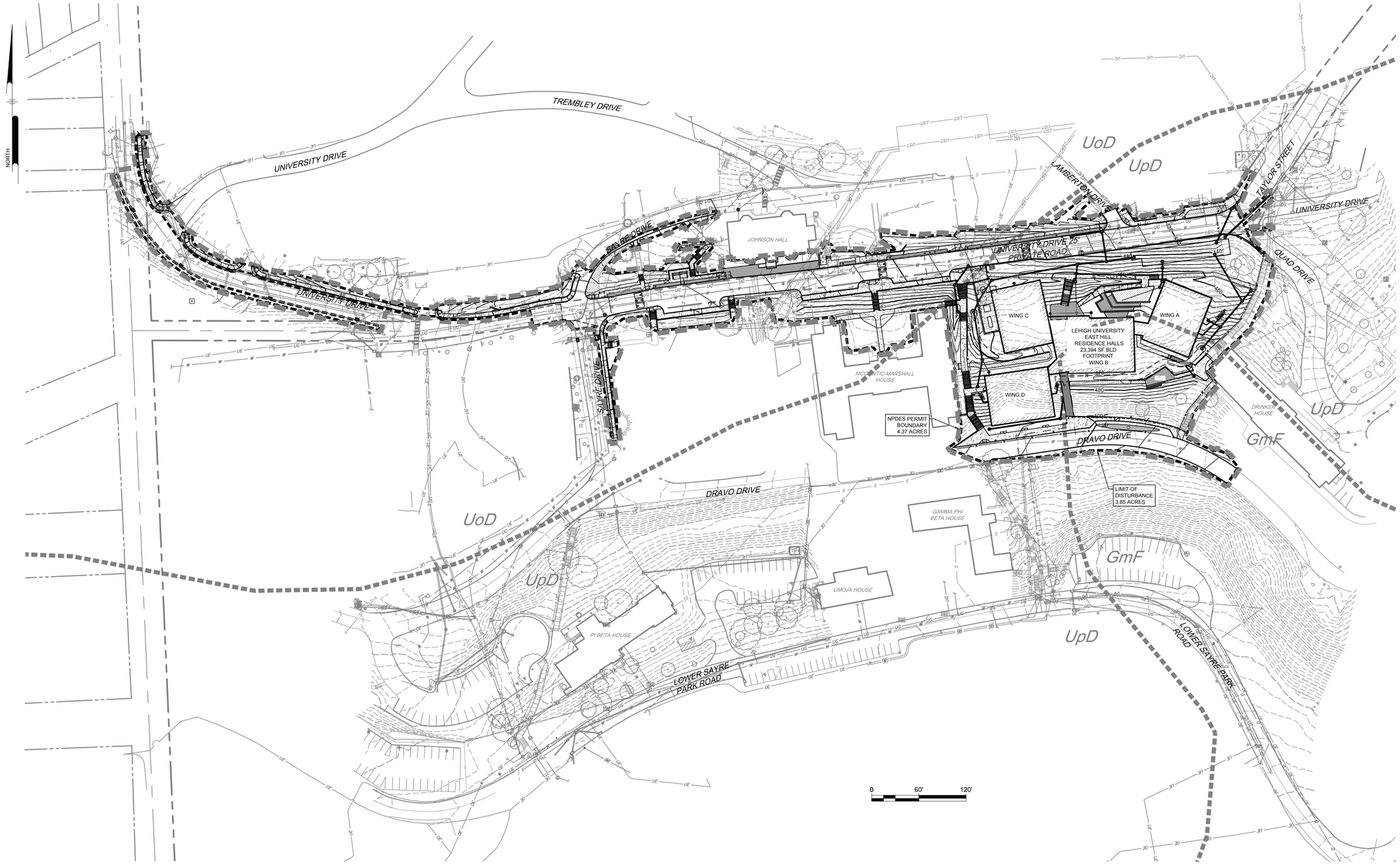
LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	AS NOTED
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
UTILITY DETAILS

SHEET NUMBER:
CS6002

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU25001 - Lehigh Housing Final Design\DESIGN_SHEETS\CS6002.dwg PLOTTED: 1/30/2026 4:25 PM, BY: Michael Ranciglio PLOTSTYLE: Pennoni NCS.ctb



USGS MAP
Scale: 1" = 1000'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
WaC		SOIL BOUNDARY SOIL LABEL
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
X 100.5	X 100.5	SPOT ELEVATION
		TYPE M INLET PROTECTION
		TYPE C INLET PROTECTION
		ROCK CONSTRUCTION ENTRANCE
		STAGING AREA
		TOPSOIL STOCKPILE
		CONCRETE WASHOUT
		CONSTRUCTION FENCE
CFS #	SS	COMPOST FILTER SOCK
		S75 EROSION CONTROL MATTING
		LIMIT OF EARTH DISTURBANCE
		NPDES BOUNDARY

OWNER / APPLICANT:
LEHIGH UNIVERSITY
27 MEMORIAL DRIVE W.
BETHLEHEM, PA 18015

PLAN PREPARER:
THOMAS J. SERPICO, P.E.
81 HIGHLAND AVE. SUITE 230
BETHLEHEM, PA 18017
PHONE: (610) 422-2449

NPDES PERMIT BOUNDARY: 4.37 ACRES

LIMIT OF EARTH DISTURBANCE : 3.85 ACRES

THE SITE DRAINS TO THE LEHIGH RIVER AND IS CLASSIFIED BY PA CODE TITLE 25, CHAPTER 93 AS A WARM WATER FISHES (WWF, MF).

SOILS SUMMARY CHART:

SYMBOL	NAME	GROUP	SLOPES (%)	DEPTH TO SEASONAL HIGH WATER TABLE (IN)	DEPTH TO BEDROCK (IN)	LIMITATIONS	RESOLUTION
UpD	URBAN LAND GLADSTONE COMPLEX	A	8-25	>80	10-100	THIS SOIL HAS VARYING LIMITATIONS TO MOST NONFARM USES. THIS SOIL HAS THE POTENTIAL FOR SINKHOLES.	SEE RESOLUTION NOTES
GmF	GLADSTONE GRAVELLY LOAM	A	25-55	>80	60-100	THIS SOIL HAS VARYING LIMITATIONS TO MOST NONFARM USES. THIS SOIL HAS THE POTENTIAL FOR SINKHOLES.	SEE RESOLUTION NOTES
UoD	URBAN LAND DUFFIELD COMPLEX	B	8-25	>80	10-100	THIS SOIL HAS VARYING LIMITATIONS TO MOST NONFARM USES. THIS SOIL HAS THE POTENTIAL FOR SINKHOLES.	SEE RESOLUTION NOTES

RESOLUTION NOTES:

1. DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE:
   SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOIL TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
2. LOW STRENGTH/LANDSLIDE PRONE:
   SOILS SHOULD NOT BE USED FOR STRUCTURAL FILL UNLESS THEY HAVE BEEN EVALUATED BY A GEOTECHNICAL ENGINEER AND THE GEOTECHNICAL ENGINEER DEEMS THEM SUITABLE AS FILL OR PROVIDES RECOMMENDATIONS TO AMEND SOILS MAKING THEM SUITABLE AS FILL.
3. FROST ACTION:
   SOILS SHOULD BE FREE OF FROZEN OR MUCKY MATERIALS. FILL SHOULD NOT BE PLACED ON SATURATED OR FROZEN SURFACES. EARTHWORK INVOLVING THESE SOILS SHOULD BE LIMITED TO THE WARMER MONTHS WHEN PRACTICAL.
4. WETNESS:
   SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOIL TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
5. PIPING:
   AREAS OF EMBANKMENTS WITH PIPES PASSING THROUGH THEM SHALL HAVE ANTI-SEEP COLLARS INSTALLED PER THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (PA DEP) EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM.
6. EASILY ERODIBLE:
   SOILS SHALL BE STABILIZED, WITH EITHER TEMPORARY OR FINAL STABILIZATION, IN AREAS WHERE EARTHWORK IS DELAYED OR STOPPED FOR FOUR CONSECUTIVE DAYS.
7. SHRINK/SWELL:
   SOILS SHOULD NOT BE USED FOR STRUCTURAL FILL UNLESS THEY HAVE BEEN EVALUATED BY A GEOTECHNICAL ENGINEER AND THE GEOTECHNICAL ENGINEER DEEMS THEM SUITABLE AS FILL OR PROVIDES RECOMMENDATIONS TO AMEND SOILS MAKING THEM SUITABLE AS FILL.
8. CUT BANKS CAVES - ALMOST ALL PENNSYLVANIA SOILS ARE SUSCEPTIBLE TO CAVING OF CUT BANKS. CUT SLOPES WILL BE STABILIZED AS SOON AS POSSIBLE WITH SEED AND MULCH OR EROSION CONTROL BLANKETS TO PREVENT SLIDING. SLOPES ARE DESIGNED TO NOT EXCEED 2H:1V.
9. LOW STRENGTH - MOST OF PENNSYLVANIA SOILS (73%) HAVE RELATIVELY LOW STRENGTH. PRECAUTIONS WILL BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES. SOILS WILL BE EVALUATED DURING CONSTRUCTION TO DETERMINE WHETHER ADDITIONAL MEASURES WILL NEED TO BE TAKEN
10. POOR TOPSOIL -SOIL AMENDMENTS WILL BE ADDED TO SITE SOILS TO PROMOTE VEGETATIVE GROWTH.

EROSION AND SEDIMENTATION CONTROL PLANS

SHEET NUMBER	DRAWING	SHEET TITLE	DATE	LAST REVISED
31	CS8000	OVERALL EROSION AND SEDIMENTATION CONTROL PLAN	2026-01-30	
32	CS8001	EROSION AND SEDIMENTATION CONTROL PLAN - STAGES 1 AND 2	2026-01-30	
33	CS8002	EROSION AND SEDIMENTATION CONTROL PLAN - STAGES 1 AND 2	2026-01-30	
34	CS8003	EROSION AND SEDIMENTATION CONTROL PLAN - STAGE 1	2026-01-30	
35	CS8103	EROSION AND SEDIMENTATION CONTROL PLAN - STAGE 2	2026-01-30	
36	CS8501	EROSION AND SEDIMENTATION CONTROL NOTES	2026-01-30	
37	CS8502	EROSION AND SEDIMENTATION CONTROL DETAILS	2026-01-30	

PENNSYLVANIA ONE CALL SYSTEM INC. 1-800-242-1776 STOP - CALL BEFORE YOU DIG!

CALL BEFORE YOU DIG
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA
CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20251191644

DIGSAU

OWNER
Lehigh University
681 Taylor St.
Bethlehem PA 18015
v 610-758-4622

ARCHITECT
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340 North 12th Street, Suite 421
Philadelphia, PA 19107
v 215.627.0808
www.digsau.com

CIVIL ENGINEER
Pennoni
81 Highland Ave, Suite 230
Bethlehem, PA 18017
https://www.pennoni.com/
v 855-754-3595

LANDSCAPE ARCHITECT
Omnes
1262 Simon Blvd, B105
Easton, PA 18042
https://omnes.studio/
v 215-882-0500

STRUCTURAL ENGINEER
Keast & Hood
1635 Market St, #1705
Philadelphia, PA 19103
https://keasthood.com/
v 215-625-0099

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v 212-896-3000

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v 267-773-8375

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v 877-647-2110
https://www.lerchbates.com/

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v 215-720-1530
https://harrison-acoustics.com/

LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=60'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
OVERALL EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER:
CS8000

PROJECT PHASE:
DESIGN DEVELOPMENT

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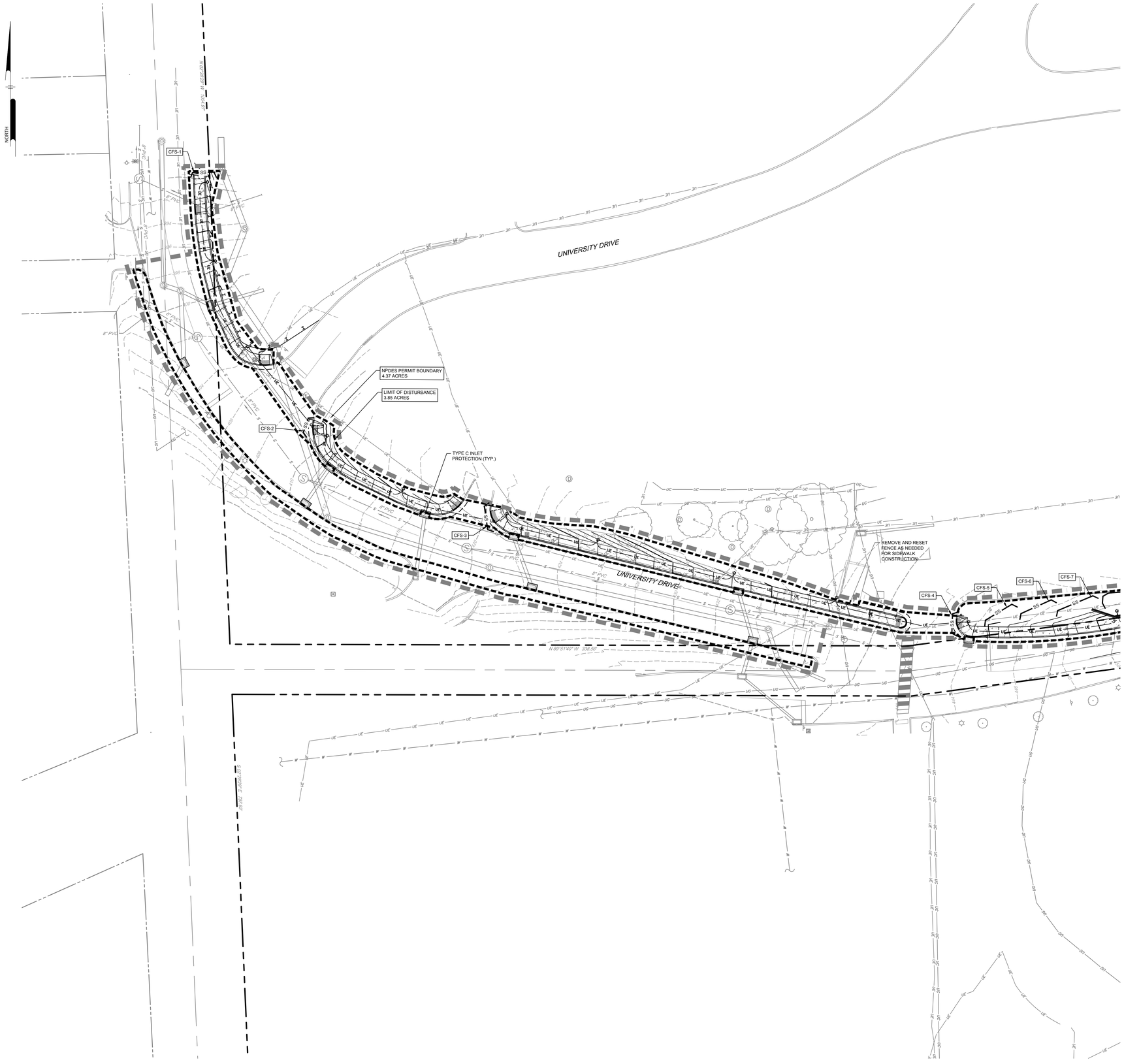
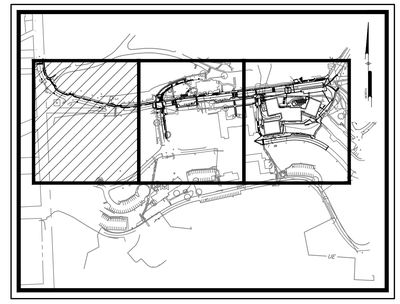
PLOTSTYLE: Pennoni NCS.ctb





KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
100.5	100.5	SPOT ELEVATION
		TYPE M INLET PROTECTION
		TYPE C INLET PROTECTION
	ROCK CONSTRUCTION ENTRANCE	ROCK CONSTRUCTION ENTRANCE
	STAGING AREA	STAGING AREA
	TOPSOIL STOCKPILE	TOPSOIL STOCKPILE
		CONCRETE WASHOUT
		CONSTRUCTION FENCE
	CFS # SS	COMPOST FILTER SOCK
	S75 EROSION CONTROL MATTING	S75 EROSION CONTROL MATTING
		LIMIT OF EARTH DISTURBANCE
		NPDES BOUNDARY

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Exit Design
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v 215-561-1950
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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
EROSION AND SEDIMENTATION CONTROL PLAN-STAGES 1 & 2

SHEET NUMBER:
CS8001

PROJECT PHASE:
DESIGN DEVELOPMENT

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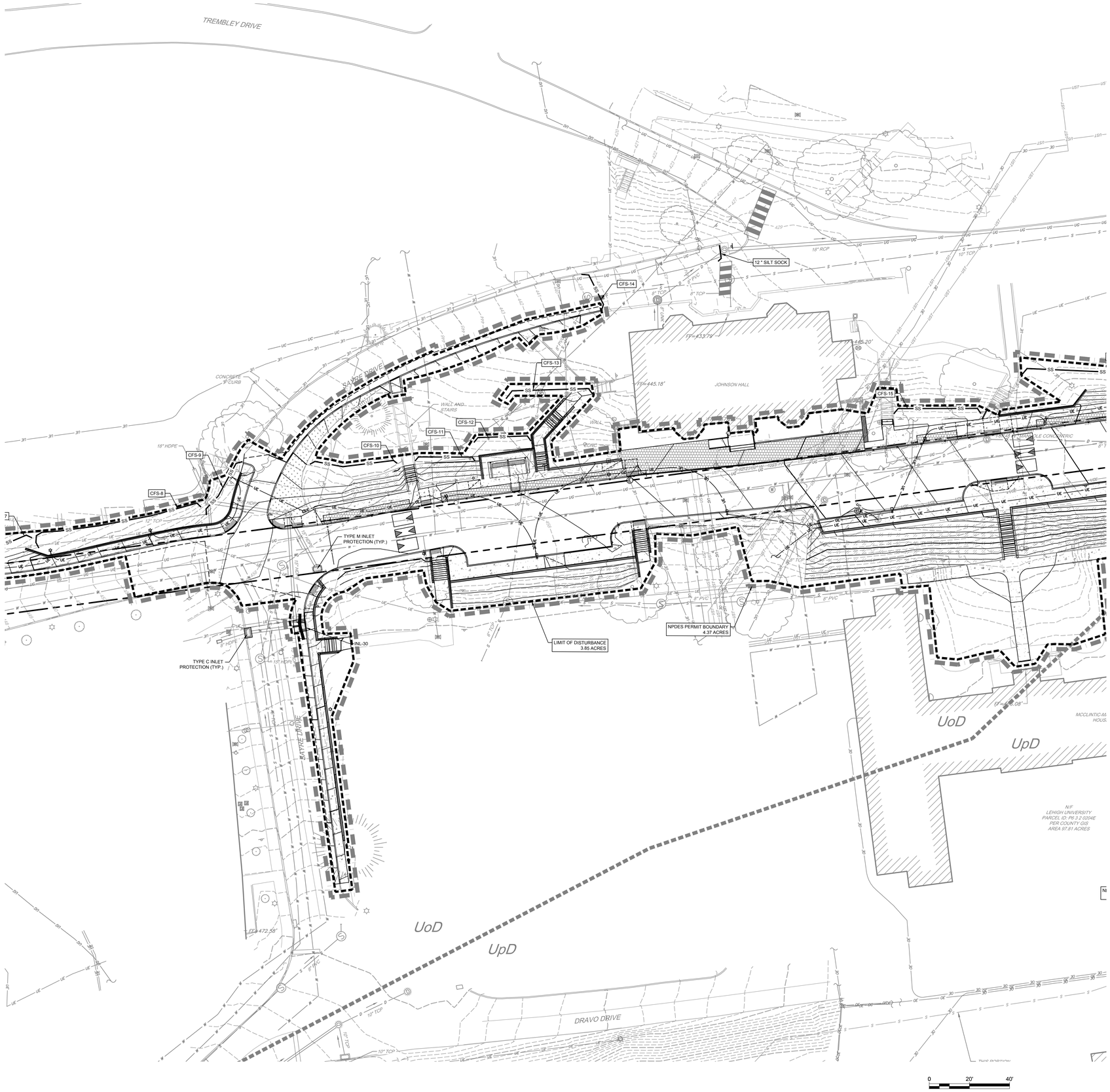

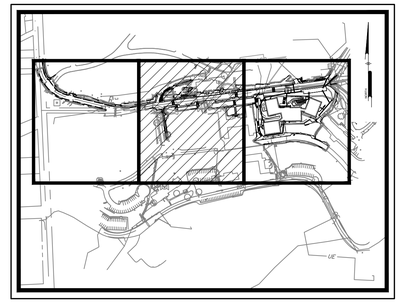

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
WaC		SOIL BOUNDARY SOIL LABEL
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT SANITARY SEWER, VALVE
		STORM SEWER, INLET STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
100.5	100.5	SPOT ELEVATION
		TYPE M INLET PROTECTION
		TYPE C INLET PROTECTION
		ROCK CONSTRUCTION ENTRANCE
		STAGING AREA
		TOPSOIL STOCKPILE
		CONCRETE WASHOUT
		CONSTRUCTION FENCE
CFS #	SS	COMPOST FILTER SOCK
		S75 EROSION CONTROL MATTING
		LIMIT OF EARTH DISTURBANCE
		NPDES BOUNDARY

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INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1"=20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
EROSION AND SEDIMENTATION CONTROL PLAN

SHEET NUMBER:
CS8002

PROJECT PHASE:
DESIGN DEVELOPMENT

PLOTTED: 1/20/2026 2:18 PM, BY: Thomas Seyoo PLOTSTYLE: Pennoni NCS.ctb
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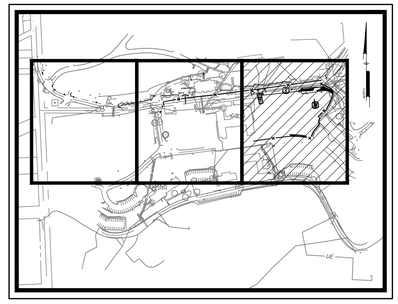

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		NATURAL GAS, METER
		NATURAL GAS, MANHOLE
		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
		NATURAL GAS, UNDERGROUND
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, JUNCTION BOX
		POWER, MANHOLE
		POWER, OVERHEAD
		POWER, METER
		POWER, PANEL BOX
		POWER, STUB OUT
		POWER, TRANSFORMER
		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		SANITARY SEWER, CLEAN-OUT
		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
		WATER, FIRE HYDRANT
		WATER, MANHOLE
		WATER, METER
		WATER, STUB OUT
		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
100.5	100.5	SPOT ELEVATION
		TYPE M INLET PROTECTION
		TYPE C INLET PROTECTION
		ROCK CONSTRUCTION ENTRANCE
		STAGING AREA
		TOPSOIL STOCKPILE
		CONCRETE WASHOUT
		CONSTRUCTION FENCE
	CFS # SS	COMPOST FILTER SOCK
		S75 EROSION CONTROL MATTING
		LIMIT OF EARTH DISTURBANCE
		NPDES BOUNDARY

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INTERIOR SIGNAGE/WAYFINDING
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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
EROSION AND SEDIMENTATION CONTROL PLAN-STAGE 1

SHEET NUMBER:
CS8003

PROJECT PHASE:
DESIGN DEVELOPMENT

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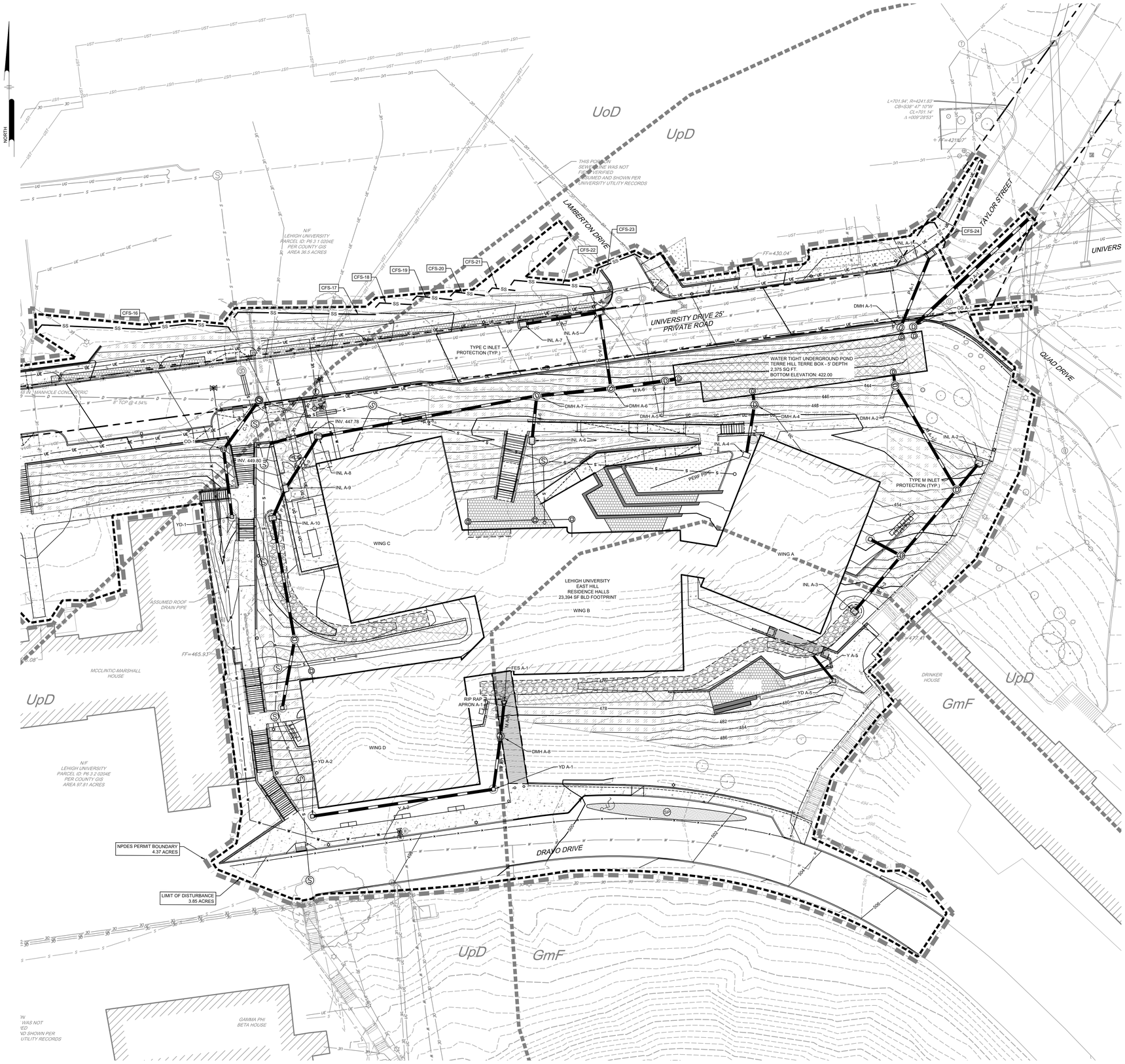

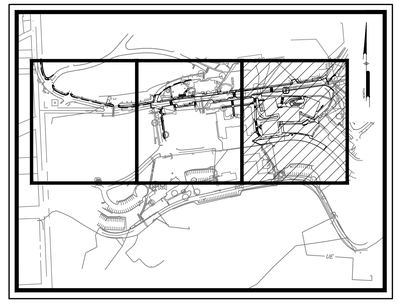

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
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		NATURAL GAS, OVERHEAD
		NATURAL GAS, STUB OUT
		NATURAL GAS,VALVE
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		POWER, UNDERGROUND
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
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		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
WaC		SOIL BOUNDARY SOIL LABEL
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		SANITARY SEWER, FORCE MAIN
		SANITARY SEWER, FM MANHOLE
		SANITARY SEWER, FORCE STUB OUT
		SANITARY SEWER, LATERAL
		SANITARY SEWER, MANHOLE
		SANITARY SEWER, UNDERGROUND
		SANITARY SEWER, STUB OUT
		SANITARY SEWER, VALVE
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		WATER, UNDERGROUND
		WATER, UNDERGROUND FIRE
		WATER, VALVE
101	101	MINOR CONTOUR
100	100 100.5	MAJOR CONTOUR SPOT ELEVATION
		TYPE M INLET PROTECTION
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		ROCK CONSTRUCTION ENTRANCE
		STAGING AREA
		TOPSOIL STOCKPILE
		CONCRETE WASHOUT
		CONSTRUCTION FENCE
	CFS # SS	COMPOST FILTER SOCK
		S75 EROSION CONTROL MATTING
		LIMIT OF EARTH DISTURBANCE
		NPDES BOUNDARY

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DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
EROSION AND SEDIMENTATION CONTROL PLAN-STAGE 2

SHEET NUMBER:
CS8103

PROJECT PHASE:
DESIGN DEVELOPMENT

PLOTTED: 2/3/2026 8:10 AM, BY: Nicole Gimmy PLOTSTYLE: Pennoni NCS.stb
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EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED E&S PLAN. A COPY OF THE APPROVED DRAWINGS (STAMPED, SIGNED AND DATED BY THE REVIEWING AGENCY) MUST BE AVAILABLE AT THE PROJECT SITE AT ALL TIMES. THE REVIEWING AGENCY SHALL BE NOTIFIED OF ANY CHANGES TO THE APPROVED PLAN PRIOR TO IMPLEMENTATION OF THOSE CHANGES. THE REVIEWING AGENCY MAY REQUIRE A WRITTEN SUBMITTAL OF THOSE CHANGES FOR REVIEW AND APPROVAL AT ITS DISCRETION.

2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE OWNER AND/OR OPERATOR SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.

3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.

4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.

5. AREAS TO BE FILLED ARE TO BE CLEARED, GRUBBED, AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS AND OTHER OBJECTIONABLE MATERIAL.

6. CLEARING, GRUBBING, AND TOPSOIL STRIPPING SHALL BE LIMITED TO THOSE AREAS DESCRIBED IN EACH STAGE OF THE CONSTRUCTION SEQUENCE. GENERAL SITE CLEARING, GRUBBING AND TOPSOIL STRIPPING MAY NOT COMMENCE IN ANY STAGE OR PHASE OF THE PROJECT UNTIL THE E&S BMPS SPECIFIED BY THE BMP SEQUENCE FOR THAT STAGE OR PHASE HAVE BEEN INSTALLED AND ARE FUNCTIONING AS DESCRIBED IN THE E&S PLAN.

7. AT NO TIME SHALL CONSTRUCTION VEHICLES BE ALLOWED TO ENTER AREAS OUTSIDE THE LIMIT OF DISTURBANCE BOUNDARIES SHOWN ON THE PLAN MAPS. THESE AREAS MUST BE CLEARLY MARKED AND FENCED OFF BEFORE CLEARING AND GRUBBING OPERATIONS BEGIN.

8. TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED. IF NECESSARY, AT THE LOCATION(S) SHOWN ON THE PLAN MAP(S) IN THE AMOUNT NECESSARY TO COMPLETE THE FINISH GRADING OF ALL EXPOSED AREAS THAT ARE TO BE STABILIZED BY VEGETATION. EACH STOCKPILE SHALL BE PROTECTED IN THE MANNER SHOWN ON THE PLAN DRAWINGS. STOCKPILE HEIGHTS SHALL NOT EXCEED 35 FEET. STOCKPILE SLOPES SHALL BE 2H:1V OR FLATTER.

9. IMMEDIATELY UPON DISCOVERING UNFORESEEN CIRCUMSTANCES POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE OPERATOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES TO MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENT POLLUTION AND NOTIFY THE LOCAL CONSERVATION DISTRICT AND/OR THE REGIONAL OFFICE OF THE DEPARTMENT.

10. ALL BUILDING MATERIALS AND WASTES SHALL BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA. CODE 260.1 ET SEQ., 271.1, AND 287.1 ET. SEQ. NO BUILDING MATERIALS OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THIS SITE.

11. ALL OFF-SITE WASTE AND BORROW AREAS MUST HAVE AN E&S PLAN APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT FULLY IMPLEMENTED PRIOR TO BEING ACTIVATED.

12. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING.

13. ALL PUMPING OF WATER FROM ANY WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN. OVER UNDISTURBED VEGETATED AREAS. ALL PUMPING OF SEDIMENT LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BMP, SUCH AS A PUMPED WATER FILTER BAG DISCHARGING OVER NON-DISTURBED AREAS.

14. VEHICLES AND EQUIPMENT MAY NEITHER ENTER DIRECTLY NOR EXIT DIRECTLY FROM LOTS. VEHICLES AND EQUIPMENT MAY ONLY ENTER AND EXIT THE CONSTRUCTION SITE VIA A STABILIZED ROCK CONSTRUCTION ENTRANCE FROM THE LOCAL DRIVE.

15. UNTIL THE SITE IS STABILIZED, ALL EROSION AND SEDIMENT BMPS SHALL BE MAINTAINED PROPERLY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. THE OPERATOR WILL MAINTAIN AND MAKE AVAILABLE TO LOCAL COUNTY CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF THE E&S BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.

16. A LOG SHOWING DATES THAT E&S BMPS WERE INSPECTED AS WELL AS ANY DEFICIENCIES FOUND AND THE DATE THEY WERE CORRECTED SHALL BE MAINTAINED ON THE SITE AND BE MADE AVAILABLE TO REGULATORY AGENCY OFFICIALS AT THE TIME OF INSPECTION.

17. SEDIMENT TRACKED ONTO ANY PUBLIC ROADWAY OR SIDEWALK SHALL BE RETURNED TO THE CONSTRUCTION SITE BY THE END OF EACH WORK DAY AND DISPOSED IN THE MANNER DESCRIBED IN THIS PLAN. IN NO CASE SHALL THE SEDIMENT BE WASHED, SHOVELED, OR SWEPT INTO ANY ROADSIDE DITCH, STORM SEWER, OR SURFACE WATER.

18. ALL SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. SEDIMENT REMOVED FROM BMPS SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

19. AREAS WHICH ARE TO BE TOPSOILED SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 3 TO 5 INCHES - 6 TO 12 INCHES ON COMPACTED SOILS - PRIOR TO PLACEMENT OF TOPSOIL. AREAS TO BE VEGETATED SHALL HAVE A MINIMUM 4 INCHES OF TOPSOIL IN PLACE PRIOR TO SEEDING AND MULCHING. FILL OUTSLOPES SHALL HAVE A MINIMUM OF 2 INCHES OF TOPSOIL.

20. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC. SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.

21. ALL EARTHEN FILLS SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.

22. FILL MATERIALS SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.

23. FROZEN MATERIALS OR SOFT, MUCKY, OR HIGHLY COMPRESSIBLE MATERIALS SHALL NOT BE INCORPORATED INTO FILLS.

24. FILL SHALL NOT BE PLACED ON SATURATED OR FROZEN SURFACES.

25. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.

26. ALL GRADED AREAS SHALL BE PERMANENTLY STABILIZED IMMEDIATELY UPON REACHING FINISHED GRADE. CUT SLOPES IN COMPETENT BEDROCK AND ROCK FILLS NEED NOT BE VEGETATED. SEEDED AREAS WITHIN 50 FEET OF A SURFACE WATER, OR AS OTHERWISE SHOWN ON THE PLAN DRAWINGS, SHALL BE BLANKETED ACCORDING TO THE STANDARDS OF THIS PLAN.

27. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE IN ANY AREA OR SUBAREA OF THE PROJECT, THE OPERATOR SHALL STABILIZE ALL DISTURBED AREAS. DURING NON-GERMINATING MONTHS, MULCH OR OTHER PROTECTIVE BLANKETING SHALL BE APPLIED AS DESCRIBED IN THE PLAN. AREAS NOT AT FINISHED GRADE, WHICH WILL BE REACTIVATED WITHIN 1 YEAR, MAY BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY STABILIZATION SPECIFICATIONS. THOSE AREAS WHICH WILL NOT BE REACTIVATED WITHIN 1 YEAR SHALL BE STABILIZED IN ACCORDANCE WITH THE PERMANENT STABILIZATION SPECIFICATIONS.

28. PERMANENT STABILIZATION IS DEFINED AS A MINIMUM UNIFORM, PERENNIAL 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED EROSION AND SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. EARTH DISTURBANCE ACTIVITIES BEING INITIATED DURING THE WINTER MONTHS MUST BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.

29. EROSION AND SEDIMENT BMPS MUST BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS WITHIN THE TRIBUTARY AREAS OF THOSE BMPS. E&S BMPS SHALL REMAIN FUNCTIONAL AS SUCH UNTIL ALL AREAS TRIBUTARY TO THEM ARE PERMANENTLY STABILIZED OR UNTIL THEY ARE REPLACED BY ANOTHER BMP APPROVED BY THE LOCAL CONSERVATION DISTRICT OR THE DEPARTMENT.

30. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT FOR AN INSPECTION PRIOR TO REMOVAL/CONVERSION OF THE E&S BMPS.

31. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED OR CONVERTED TO PERMANENT POST CONSTRUCTION STORMWATER MANAGEMENT BMPS. AREAS DISTURBED DURING REMOVAL OR CONVERSION OF THE BMPS SHALL BE STABILIZED IMMEDIATELY. IN ORDER TO ENSURE RAPID REVEGETATION OF DISTURBED AREAS, SUCH REMOVAL/CONVERSIONS ARE TO BE DONE ONLY DURING THE GERMINATING SEASON.

32. UPON COMPLETION OF ALL EARTH DISTURBANCE ACTIVITIES AND PERMANENT STABILIZATION OF ALL DISTURBED AREAS, THE OWNER AND/OR OPERATOR SHALL CONTACT THE LOCAL CONSERVATION DISTRICT TO SCHEDULE A FINAL INSPECTION.

33. FAILURE TO CORRECTLY INSTALL E&S BMPS, FAILURE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE CONSTRUCTION SITE OR FAILURE TO TAKE IMMEDIATE CORRECTIVE ACTION TO RESOLVE FAILURE OF E&S BMPS MAY RESULT IN ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES BEING INSTITUTED BY THE DEPARTMENT AS DEFINED IN SECTION 602 OF THE CLEAN STREAMS LAW. THE CLEAN STREAMS LAW PROVIDES FOR UP TO $10,000 PER DAY IN CIVIL PENALTIES, UP TO $10,000 IN SUMMARY CRIMINAL PENALTIES, AND UP TO $25,000 IN MISDEMEANOR CRIMINAL PENALTIES FOR EACH VIOLATION.

34. CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ON THE PLAN DRAWINGS. IN NO CASE SHALL IT BE ALLOWED TO ENTER ANY SURFACE WATERS OR GROUNDWATER SYSTEMS.

35. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF A SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS.

36. IN THE EVENT OF SINKHOLE DISCOVERY A PROFESSIONAL GEOLOGIST OR ENGINEER WILL BE CONTACTED CONCERNING MITIGATION. ADDITIONALLY, THE LOCAL COUNTY CONSERVATION DISTRICT WILL BE MADE AWARE OF THE SINKHOLE DISCOVERY IMMEDIATELY.

37. THE OPERATOR SHALL ASSURE THAT THE APPROVED EROSION AND SEDIMENT CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED.

38. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE PROVISIONS OF THE APPENDIX 64, EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.

39. THE E&S CONTROL PLAN MAPPING MUST DISPLAY A PA ONE CALL SYSTEM INCORPORATED SYMBOL INCLUDING THE SITE IDENTIFICATION NUMBER. (THIS IS A NUMBERED SYMBOL NOT A NOTE.)

40. STRAW MULCH SHALL BE APPLIED IN LONG STRANDS, NOT CHOPPED OR FINELY BROKEN.

41. ALL PREVENTIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING, MUST BE PREFORMED IMMEDIATELY. IF EROSION AND SEDIMENTATION BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS OR MODIFICATIONS OF THOSE INSTALLED WILL BE NEEDED.

42. WHERE BMPS ARE FOUND TO FAIL TO ALLEVIATE EROSION OR SEDIMENT POLLUTION, THE PERMITTEE OR CO-PERMITTEE SHALL INCLUDE THE FOLLOWING INFORMATION:

42.1. THE LOCATION AND SEVERITY OF THE BMP'S FAILURE AND ANY POLLUTION EVENTS.
42.2. ALL STEPS TAKEN TO, REDUCE, ELIMINATE AND PREVENT THE RECURRENCE OF THE NON-COMPLIANCE.
42.3. THE TIME FRAME TO CORRECT THE NON-COMPLIANCE, INCLUDING THE EXACT DATES WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.
42.4. AFTER FINAL SITE STABILIZATION HAS BEEN ACHIEVED, TEMPORARY EROSION AND SEDIMENT BMPS MUST BE REMOVED. AREAS DISTURBED DURING REMOVAL OF THE BMPS MUST BE STABILIZED IMMEDIATELY

43. AN AREA SHALL BE CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% PERENNIAL VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER WITH A DENSITY SUFFICIENT TO RESIST ACCELERATED SURFACE EROSION AND SUBSURFACE CHARACTERISTICS SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE TEMPORARY VEGETATIVE STABILIZATION SPECIFICATIONS. DISTURBED AREAS WHICH ARE AT FINISHED GRADE OR WHICH WILL NOT BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.

44. UPON COMPLETION OR TEMPORARY CESSATION OF THE EARTH DISTURBANCE ACTIVITY THAT WILL EXCEED 4 DAYS, OR ANY STAGE THEREOF, THE PROJECT SITE SHALL BE IMMEDIATELY STABILIZED WITH THE APPROPRIATE TEMPORARY OR PERMANENT STABILIZATION. (PLEASE NOTE THAT HYDROSEED IS NOT CONSIDERED STABILIZATION UNTIL IT GERMINATES). HAY OR STRAW MULCH MUST BE APPLIED AT 3.0 TONS PER ACRE.

45. CONTRACTOR IS TO ENSURE THAT THE SUBSURFACE BASIN IS PROTECTED FROM SEDIMENTATION UNTIL ALL FLOW SOURCES TO THAT AREA ARE FULLY STABILIZED. ONCE THE SUBSURFACE BASIN IS CONSTRUCTED, IMMEDIATELY INSTALL FILTER SOCKS ALONG THE PERIMETER OF THE SUBSURFACE BASIN TO PREVENT SEDIMENT FROM ENTERING THE SUBSURFACE BASIN. THE SILT SOCKS MUST REMAIN IN PLACE UNTIL THE CONTRIBUTING AREA TO THE SUBSURFACE BASIN ACHIEVES 70% UNIFORM STABILIZATION. IMMEDIATELY INSTALL INLET PROTECTION ON ALL NEW INLETS.

46. CONTRACTOR TO ENSURE THE PROPOSED PIPING HAS AT LEAST ONE AND A HALF FEET OF COVER.

MAINTENANCE PROGRAM AND/OR RECYCLING OF MATERIALS

1. DURING THE LIFE OF THE PROJECT ALL EROSION AND SEDIMENTATION CONTROL DEVICES MUST BE PROPERLY MAINTAINED. MAINTENANCE SHALL INCLUDE THE INSPECTION OF EROSION CONTROL FACILITIES AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. IMMEDIATELY PERFORM CLEANOUT, REPAIR AND REPLACEMENT OF THE FACILITIES AS NEEDED. (REGRADE, RESEED AND MULCH WASHED OUT AREAS)

2. SEEDED AREAS THAT HAVE WASHED AWAY SHALL BE FILLED AND GRADED, AS NECESSARY, AND THEN RESEEDED. A STRAW COVER SHALL BE APPLIED TO RETAIN THE SEED ALONG WITH AN ANCHORING METHOD DESCRIBED IN THE PRODUCT SPECIFICATIONS, UNTIL IT HAS A CHANCE TO ROOT PROPERLY.

3. UNTIL THE SITE IS STABILIZED ALL EROSION AND SEDIMENTATION BMP'S MUST BE MAINTAINED PROPERLY. MAINTENANCE MUST INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENTATION BMP'S AFTER EACH RUNOFF EVEN AND ON A WEEKLY BASIS. ALL SITE INSPECTIONS WILL BE DOCUMENTED IN AN INSPECTION LOG KEPT WITH THIS PURPOSE. THE COMPLIANCE ACTIONS AND THE DATE, TIME AND NAME OF THE PERSON CONDUCTING THE INSPECTION. THE INSPECTION LOG WILL BE KEPT ON SITE AT ALL TIMES AND MADE AVAILABLE TO THE DISTRICT UPON REQUEST.

4. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING AND RENETTING MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENTATION BMP'S FAIL TO PERFORM AS EXPECTED. REPLACEMENT BMP'S OR MODIFICATION OF THOSE INSTALLED WILL BE NEEDED.

5. WHERE BMP'S ARE FOUND TO FAIL TO ALLEVIATED DERISION OR SEDIMENT POLLUTION THE PERMITTEE OR CO-PERMETEE SHALL INCLUDE THE FOLLOWING INFORMATION:

   A. THE LOCATION AND SEVERITY OF THE BMP'S FAILURE AND ANY POLLUTION EVENTS.

   B. ALL STEPS TAKEN TO REDUCE, ELIMINATE AND PREVENT THE RECURRENCE OF THE NON-COMPLIANCE.

   C. THE TIME FRAME TO CORRECT THE NONCOMPLIANCE, INCLUDING THE EXACT DATES WHEN THE ACTIVITY WILL RETURN TO COMPLIANCE.

6. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.

7. SEDIMENT REMOVED FROM BMP's SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAIN OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

8. THE OPERATOR SHALL ASSURE THAT AN EROSION AND SEDIMENT CONTROL PLAN HAS BEEN PREPARED, APPROVED BY THE LOCAL CONSERVATION DISTRICT, AND IS BEING IMPLEMENTED AND MAINTAINED FOR ALL SOIL AND/OR ROCK SPOIL AND BORROW AREAS, REGARDLESS OF THEIR LOCATIONS.

9. THE SITE OWNER SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL EROSION AND SEDIMENT BMPS. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL EROSION AND SEDIMENT CONTROL BMPS AFTER EACH RUNOFF EVENT AND ON A WEEKLY BASIS. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, AND RENETTING, MUST BE PERFORMED IMMEDIATELY. IF EROSION AND SEDIMENT CONTROL BMPS FAIL TO PERFORM AS EXPECTED, REPLACEMENT BMPS, OR MODIFICATIONS OF THOSE INSTALLED WILL BE REQUIRED.

10. THE CONTRACTOR SHALL REMOVE FROM THE SITE, RECYCLE OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENTS SOLID WASTE MANAGEMENT REGULATIONS AT 35 PA CODE 260 1 ET, SEQ., AND 271.1 ET. SEQ.

11. UNTIL SITE ACHIEVES FINAL STABILIZATION, THE OPERATOR SHALL ASSURE THAT THE BEST MANAGEMENT PRACTICES ARE IMPLEMENTED, OPERATED, AND MAINTAINED PROPERLY AND COMPLETELY. MAINTENANCE SHALL INCLUDE INSPECTIONS OF ALL BEST MANAGEMENT PRACTICE FALSITIES AND MAINTAIN AND MAKE AVAILABLE TO THE LOCAL CONSERVATION DISTRICT COMPLETE, WRITTEN INSPECTION LOGS OF ALL THOSE INSPECTIONS. ALL MAINTENANCE WORK, INCLUDING CLEANING, REPAIR, REPLACEMENT, REGRADING, AND RESTABILIZATION SHALL BE PERFORMED IMMEDIATELY.

12. IMMEDIATELY AFTER EARTH DISTURBANCE ACTIVITIES CEASE, THE OPERATOR SHALL STABILIZE ANY AREAS DISTURBED BY THE ACTIVITIES. DURING NON-GERMINATING PERIODS, MULCH MUST BE APPLIED AT THE SPECIFIED RATES. DISTURBED AREAS WHICH ARE NOT AT FINISHED GRADE AND WHICH WILL BE REDISTURBED WITHIN 1 YEAR MUST BE STABILIZED IN ACCORDANCE WITH THE PERMANENT VEGETATIVE STABILIZATION SPECIFICATIONS.

13. SEDIMENT REMOVED FROM BMPs SHALL BE DISPOSED OF IN LANDSCAPED AREAS OUTSIDE OF STEEP SLOPES, WETLANDS, FLOODPLAINS OR DRAINAGE SWALES AND IMMEDIATELY STABILIZED, OR PLACED IN TOPSOIL STOCKPILES.

14. INLET FILTER BAGS SHALL BE CLEANED OUT OR REPLACED WHEN BAG IS HALF FULL.

15. SEDIMENT SHALL BE REMOVED FROM COMPOST FILTER SOCKS WHEN REACHING ONE HALF THE HEIGHT OF THE SOCK, IF USED.

16. THE CONTRACTOR SHALL INSPECT ALL ROCK CONSTRUCTION ENTRANCES ON A DAILY BASIS AND SHALL ENSURE THAT SEDIMENT IS NOT BEING TRACKED ONTO PUBLIC STREETS. SEDIMENT THAT IS TRACKED ONTO PUBLIC STREETS SHALL BE COLLECTED AND RETURNED TO THE SITE OR OTHERWISE PROPERLY REMOVED BY A STREET SWEEPER.

17. EROSION CONTROL BLANKETING SHALL BE INSTALLED ON ALL SLOPES 3H:1V OR STEEPER WITHIN 50 FEET OF SURFACE WATER AND ON ALL OTHER DISTURBED AREAS SPECIFIED ON THE PLAN MAPS AND/OR DETAIL SHEETS, IF USED.

18. FILL MATERIAL FOR EMBANKMENTS SHALL BE FREE OF ROOTS, OR OTHER WOODY VEGETATION, ORGANIC MATERIAL, LARGE STONES, AND OTHER OBJECTIONABLE MATERIALS. THE EMBANKMENT SHALL BE COMPACTED IN MAXIMUM 6 INCH LAYERED LIFTS AT 95% DENSITY.

19. THE CONCRETE WASHOUT AREA (CWA) SHALL BE REPAIRED, CLEANED OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE. CONCRETE MATERIALS, ACCUMULATED IN PIT, SHALL BE REMOVED ONCE THE MATERIALS HAVE REACHED A DEPTH OF 2'.

20. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE IN A WATER-TIGHT CONTAINER AND DISPOSED OF PROPERLY.

21. THE CWA SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.

22. WHEN THE CWA IS REMOVED, COVER THE DISTURBED AREA WITH TOP SOIL, SEED AND MULCH OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE LOCAL JURISDICTION.

23. CONCRETE WASH WATER SHALL BE HANDLED IN THE MANNER DESCRIBED ABOVE. IN NO CASE SHALL IT BE ALLOWED TO ENTER THE SURFACE WATERS OR GROUNDWATER SYSTEMS.

CLEAN FILL & ENVIRONMENTAL DUE DILIGENCE

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ANY MATERIAL BROUGHT ON SITE IS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE PROPERTY OWNER FOR ANY FILL MATERIAL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE BUT QUALIFYING AS CLEAN FILL DUE TO ANALYTICAL TESTING. IF THE SITE WILL NEED TO IMPORT OR EXPORT MATERIAL FROM THE SITE, THE RESPONSIBILITY FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND DETERMINATION OF CLEAN FILL WILL REST WITH THE CONTRACTOR.

2. CLEAN FILL IS DEFINED AS: UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. THE TERM INCLUDES SOIL, ROCK, STONE, DREDGED MATERIAL, USED ASPHALT, AND BRICK, BLOCK OR CONCRETE FROM CONSTRUCTION AND DEMOLITION ACTIVITIES THAT IS SEPARATE FROM OTHER WASTE AND IS RECOGNIZABLE AS SUCH. THE TERM DOES NOT INCLUDE MATERIALS PLACED IN OR ON THE WATERS OF THE COMMONWEALTH UNLESS OTHERWISE AUTHORIZED. (THE TERM "USED ASPHALT" DOES NOT INCLUDE MILLED ASPHALT OR ASPHALT THAT HAS BEEN PROCESSED FOR RE-USE).

3. CLEAN FILL AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE: FILL MATERIALS AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE STILL QUALIFIES AS CLEAN FILL PROVIDED THE TESTING REVEALS THAT THE FILL MATERIAL DOES NOT EXCEED CONCENTRATIONS OF REGULATED SUBSTANCES THAT ARE BELOW THE RESIDENTIAL LIMITS IN TABLES FP-1A AND FP-1B FOUND IN THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

4. ANY PERSON PLACING CLEAN FILL THAT HAS BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE MUST USE FORM FP-001 TO CERTIFY THE ORIGIN OF THE FILL MATERIAL AND THE RESULTS OF THE ANALYTICAL TESTING TO QUALIFY THE MATERIAL AS CLEAN FILL. FORM FP-001 MUST BE RETAINED BY THE OWNER OF THE PROPERTY RECEIVING THE FILL. A COPY OF FORM FP-001 CAN BE FOUND AT THE END OF THESE INSTRUCTIONS.

5. ENVIRONMENTAL DUE DILIGENCE: THE APPLICANT MUST PERFORM ENVIRONMENTAL DUE DILIGENCE TO DETERMINE IF THE FILL MATERIALS ASSOCIATED WITH THE PROJECT QUALIFY AS CLEAN FILL. ENVIRONMENTAL DUE DILIGENCE IS DEFINED AS: INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS. ANALYTICAL TESTING IS NOT A REQUIRED PART OF DUE DILIGENCE UNLESS VISUAL INSPECTION AND/OR REVIEW OF THE PAST LAND USE OF THE PROPERTY INDICATES THAT THE FILL MAY HAVE BEEN SUBJECTED TO A SPILL OR RELEASE OF REGULATED SUBSTANCE. IF THE FILL MAY HAVE BEEN AFFECTED BY A SPILL OR RELEASE OF A REGULATED SUBSTANCE, TESTING TO DETERMINE IF IT QUALIFIES AS CLEAN FILL. TESTING SHOULD BE PERFORMED IN ACCORDANCE WITH APPENDIX A OF THE DEPARTMENT'S POLICY "MANAGEMENT OF FILL".

6. FILL MATERIAL THAT DOES NOT QUALIFY AS CLEAN FILL IS REGULATED FILL. REGULATED FILL IS WASTE AND MUST BE MANAGED IN ACCORDANCE WITH THE DEPARTMENT'S MUNICIPAL OR RESIDUAL WASTE REGULATIONS BASED ON 25 PA. CODE CHAPTERS 287 RESIDUAL WASTE MANAGEMENT OR 271 MUNICIPAL WASTE MANAGEMENT, WHICHEVER IS APPLICABLE. THESE REGULATIONS ARE AVAILABLE ON-LINE AT WWW.PACODE.COM.

FILTREXX RUNOFF DIVERSION INSTALLATION AND DISPOSAL/RECYCLING

INSTALLATION:

1. RUNOFF DIVERSION USED FOR RUNOFF AND EROSION CONTROL SHALL MEET FILTREXX FILTERSOXX MATERIAL SPECIFICATIONS AND USE FILTREXX GROWING MEDIA SOIL AND/OR SAND MAY BE ADDED TO THE FILTREXX GROWING MEDIA AT PERCENT DETERMINED BY THE ENGINEER.
2. CONTRACTOR IS REQUIRED TO BE A FILTREXX CERTIFIED INSTALLER AS DETERMINED BY FILTREXX INT

COMPOST SOCK FABRIC MINIMUM SPECIFICATIONS

MATERIAL TYPE	3 mil HDPE	5 mil HDPE	5 mil HDPE	MULTI-FILAMENT POLYPROPYLENE (MFPP)	HEAVY DUTY MULTI-FILAMENT POLYPROPYLENE (HDMFPP)
MATERIAL CHARACTERISTICS	PHOTODEGRADABLE	PHOTODEGRADABLE	PHOTODEGRADABLE	PHOTODEGRADABLE	PHOTODEGRADABLE
SOCK DIAMETERS	12" 18"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"	12" 18" 24" 32"
MESH OPENING	3/8"	3/8"	3/8"	3/8"	1/8"
TENSILE STRENGTH		26 PSI	26 PSI	44 PSI	202 PSI
ULTRAVIOLET STABILITY % ORIGINAL STRENGTH (ASTM G-155)	23% AT 1000 HR.	23% AT 1000 HR.		100% AT 1000 HR.	100% AT 1000 HR.
MINIMUM FUNCTIONAL LONGEVITY	6 MONTHS	9 MONTHS	6 MONTHS	1 YEAR	2 YEARS
TWO-PLY SYSTEMS					
INNER CONTAINMENT NETTING	HDPE BIAXIAL NET				
	CONTINUOUSLY WOUND				
	FUSION-WELDED JUNCTURES				
	3/4" X 3/4" MAX APERTURE SIZE				
OUTER FILTRATION MESH	COMPOSITE POLYPROPYLENE FABRIC (WOVEN LAYER AND NON-WOVEN FLEECE MECHANICALLY FUSED VIA NEEDLE PUNCH)				
	3/16" MAX APERTURE SIZE				
SOCK FABRICS COMPOSED OF BURLAP MAY BE USED ON PROJECTS LASTING 6 MONTHS OR LESS					

COMPOST STANDARDS

ORGANIC MATTER CONTENT	25 % - 100% (DRY WEIGHT BASIS)
ORGANIC PORTION	FIBROUS AND ELONGATED
pH	5.5 - 8.5
MOISTURE CONTENT	30% - 60%
PARTICLE SIZE	30% - 50% PASS THROUGH 3/8" SLEVE
SOLUBLE SALT CONCENTRATION	5.0 dS/m (MMHOS/CM) MAX

COMPOST FILTER SOCK SCHEDULE

SILT SOCK NUMBER	SILT SOCK SIZE (IN.)	SLOPE LENGTH ABOVE (FT)
CFS-1	18	111
CFS-2	18	91
CFS-3	18	185
CFS-4	18	226
CFS-5	12	18
CFS-6	12	12
CFS-7	12	11
CFS-8	12	11
CFS-9	12	10
CFS-10	12	25
CFS-11	12	15
CFS-12	12	10
CFS-13	12	39
CFS-14	24	254
CFS-15	12	11
CFS-16	12	17
CFS-17	12	15
CFS-18	12	11
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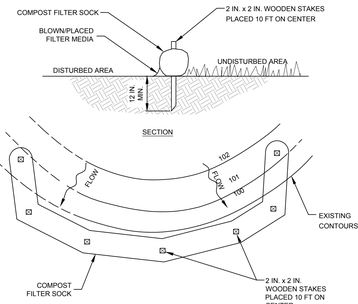
CFS-22	12	12
CFS-23	12	103
CFS-24	12	67



NOTES:

SOCK FABRIC SHALL MEET STANDARDS OF THE TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST FILTER SOCK SHALL BE PLACED AT EXISTING LEVEL GRADE. BOTH ENDS OF THE BARRIER SHALL BE EXTENDED AT LEAST 8 FEET UP SLOPE AT 45 DEGREES TO THE MAIN BARRIER ALIGNMENT. MAXIMUM SLOPE LENGTH ABOVE ANY BARRIER SHALL NOT EXCEED THAT SPECIFIED FOR THE SIZE OF THE SOCK AND THE SLOPE OF ITS TRIBUTARY AREA.

TRAFFIC SHALL NOT BE PERMITTED TO CROSS COMPOST FILTER SOCKS.

ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/2 THE ABOVE GROUND HEIGHT OF THE BARRIER AND DISPOSED IN THE MANNER DESCRIBED ELSEWHERE IN THE PLAN. COMPOST FILTER SOCKS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. DAMAGED SOCKS SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S SPECIFICATIONS OR REPLACED WITHIN 24 HOURS OF INSPECTION.

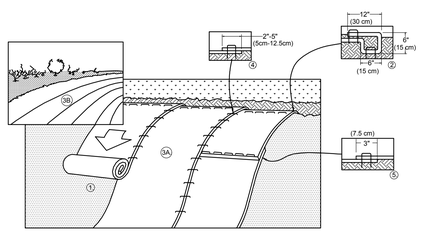
BIODEGRADABLE COMPOST FILTER SOCKS SHALL BE REPLACED AFTER 6 MONTHS; PHOTODEGRADABLE SOCKS AFTER 1 YEAR. POLYPROPYLENE SOCKS SHALL BE REPLACED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.

UPON STABILIZATION OF THE AREA TRIBUTARY TO THE SOCK, STAKES SHALL BE REMOVED. THE SOCK MAY BE LEFT IN PLACE AND VEGETATED OR REMOVED. IN THE LATTER CASE, THE MESH SHALL BE CUT OPEN AND THE MULCH SPREAD AS A SOIL SUPPLEMENT.

COMPOST FILTER SOCK SHALL BE MULTI-FILAMENT POLYPROPYLENE (MFPP)

WHEN INSTALLED ON PAVEMENT, HEAVY CONCRETE BLOCKS SHALL BE USED TO STABILIZE DURING RAINFALL EVENTS.

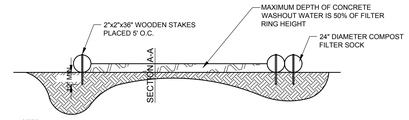
COMPOST FILTER SOCK
NOT TO SCALE



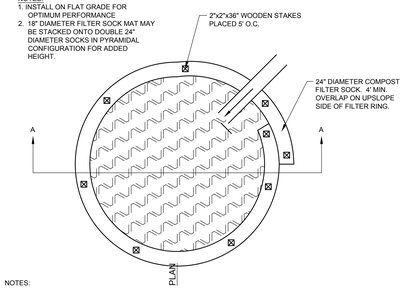
1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF THE LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5 CM -12.5 CM) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.

*NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

SLOPE PROTECTION MATTING DETAIL
NOT TO SCALE



NOTES:
1. INSTALL ON FLAT GRADE FOR OPTIMUM PERFORMANCE
2. 18" DIAMETER FILTER SOCK MAT MAY BE STACKED ONTO DOUBLE 24" DIAMETER SOCKS IN PYRAMIDAL CONFIGURATION FOR ADDED HEIGHT.



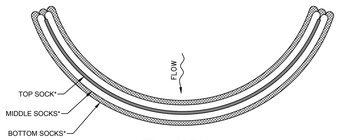
NOTES:

1. A SUITABLE IMPERVIOUS GEOMEMBRANE SHALL BE PLACED AT THE LOCATION OF THE WASHOUT PRIOR TO INSTALLING THE SOCKS.

2. WHENEVER COMPOST SOCK WASHOUTS ARE USED, A SUITABLE IMPERVIOUS GEOMEMBRANE SHOULD BE PLACED AT THE LOCATION OF THE WASHOUT. COMPOST SOCKS SHOULD BE STAKED IN THE MANNER RECOMMENDED BY THE MANUFACTURER AROUND THE PERIMETER OF THE GEOMEMBRANE SO AS TO FORM A RING WITH THE ENDS OF THE SOCK LOCATED AT THE UPSLOPE CORNER (AS SHOWN ABOVE). CARE SHOULD BE TAKEN TO ENSURE CONTINUOUS CONTACT OF THE SOCK WITH THE GEOMEMBRANE AT ALL LOCATIONS. WHERE NECESSARY, SOCKS MAY BE STACKED AND STAKED SO AS TO FORM A TRIANGULAR CROSS SECTION.

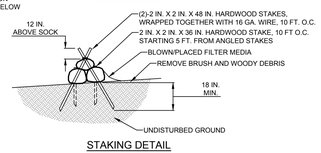
3. ALL CONCRETE WASHOUT FACILITIES SHOULD BE INSPECTED DAILY. DAMAGED OR LEAKING WASHOUTS SHOULD BE DEACTIVATED AND REPAIRED OR REPLACED IMMEDIATLY. ACCUMULATED MATERIALS SHOULD BE REMOVED WHEN THEY REACH 75% CAPACITY. PLASTIC LINERS SHOULD BE REPLACED WITH EACH CLEANING OF THE WASHOUT FACILITY.

COMPOST SOCK CONCRETE WASHOUT
NOT TO SCALE



* NOTE:
FOR SOCK CONFIGURATION AND SIZING SEE CHART BELOW

PLAN VIEW



STAKING DETAIL

DESIGN NOTES:

1. COMPOST SOCK SEDIMENT TRAP SHALL BE SIZED TO PROVIDE 2000 CUBIC FEET OF STORAGE CAPACITY FOR EACH ACRE TRIBUTARY TO THE TRAP.
2. MINIMUM BASE WIDTH IS EQUAL TO THE HEIGHT.
3. SEDIMENT ACCUMULATION SHALL NOT EXCEED 1/3 THE TOTAL HEIGHT OF THE TRAP.
4. SOCKS SHALL BE OF LARGER DIAMETER AT THE BASE OF THE TRAP AND DECREASE IN DIAMETER FOR SUCCESSIVE LAYERS AS SHOWN ON THE PLAN VIEW.
5. ENDS OF THE TRAP SHALL BE A MINIMUM OF 1 FOOT HIGHER IN ELEVATION THAN THE MID-SECTION, WHICH SHALL BE LOCATED AT THE POINT OF DISCHARGE.

NOTES:

SOCK MATERIAL SHALL MEET THE STANDARDS OF TABLE 4.1 OF THE PA DEP EROSION CONTROL MANUAL. COMPOST SHALL MEET THE STANDARDS OF TABLE 4.2 OF THE PA DEP EROSION CONTROL MANUAL.

COMPOST SOCK SEDIMENT TRAPS SHALL NOT EXCEED THREE SOCKS IN HEIGHT AND SHALL BE STACKED IN PYRAMIDAL FORM AS SHOWN ABOVE. MINIMUM TRAP HEIGHT IS ONE 24" DIAMETER SOCK. ADDITIONAL STORAGE MAY BE PROVIDED BY MEANS OF AN EXCAVATED SUMP 12" DEEP EXTENDING 1 TO 3 FEET UPSLOPE OF THE SOCKS ALONG THE LOWER SIDE OF THE TRAP.

COMPOST SOCK SEDIMENT TRAPS SHALL PROVIDE 2,000 CUBIC FEET STORAGE CAPACITY WITH 12" FREEBOARD FOR EACH TRIBUTARY DRAINAGE ACRE. (SEE MANUFACTURER FOR ANTICIPATED SETTLEMENT.)

THE MAXIMUM TRIBUTARY DRAINAGE AREA IS 5.0 ACRES. SINCE COMPOST SOCKS ARE "FLOW-THROUGH," NO SPILLWAY IS REQUIRED.

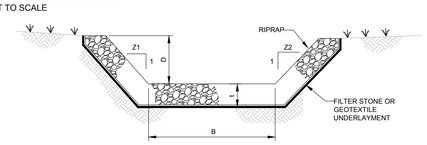
COMPOST SOCK SEDIMENT TRAPS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT. SEDIMENT SHALL BE REMOVED WHEN IT REACHES 1/3 THE HEIGHT OF THE SOCKS.

PHOTODEGRADABLE AND BIODEGRADABLE SOCKS SHALL NOT BE USED FOR MORE THAN 1 YEAR.

SEDIMENT TRAP NO.	EMBANKMENT		CLEANOUT ELEV (FT)	BOTTOM ELEV (FT)
	EMBANKMENT HEIGHT (FT)	TOP OF EMBANKMENT ELEVATION (FT)		
CFST-1	4.5	440.50	437.50	436.00

STACK ORDER (SOCK SIZE)	EMBANKMENT HEIGHT (FT)			
	3.0'	3.5'	4.5'	5.0'
TOP	12"	18"	12"	18"
MIDDLE	N/A	N/A	18"	18"
BOTTOM	24"	24"	24"	24"

COMPOST SOCK SEDIMENT TRAP
NOT TO SCALE



(LOOKING DOWNSTREAM)

CHANNEL CROSS-SECTION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	RIPRAP GRADATION (R-_)	RIPRAP DEPTH t (IN)	UNDERLAYMENT	UNDER-LAYMENT THICKNESS
SWALE A-1	SEE PLANS	3	0.75	2	3	3	9	N/A	N/A
SWALE A-2	SEE PLANS	3	0.75	2	3	3	9	N/A	N/A

NOTES:

FILTER STONE UNDERLAYMENT FOR BED SLOPES ≥ 0.10 FT/FT (10 %) SHALL BE USED.

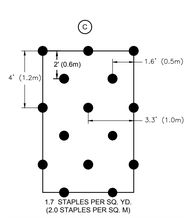
CHANNEL DIMENSIONS ARE FOR THE COMPLETED CHANNEL AFTER ROCK PLACEMENT. CHANNEL MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE VOLUME OF ROCK PLACED WITHIN THE CHANNEL WHILE PROVIDING THE SPECIFIED FINISHED DIMENSIONS.

CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.

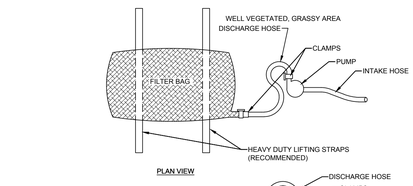
DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

THE MINIMUM ROCK THICKNESS (t) SHALL BE 1.5 TIMES THE MAX ROCK SIZE.

RIPRAP CHANNEL DETAIL
NOT TO SCALE



*STAPLE PATTERN "C" SHALL BE USED FOR SLOPE MATTING ON SITE.



NOTES:

LOW VOLUME FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS. HIGH VOLUME FILTER BAGS SHALL BE MADE FROM WOVEN GEOTEXTILES THAT MEET THE FOLLOWING STANDARDS:

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES SHALL BE PROVIDED. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME 1/2 FULL OF SEDIMENT. SPARE BAGS SHALL BE KEPT AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. BAGS SHALL BE PLACED ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.

BAGS SHALL BE LOCATED IN WELL-VEGETATED (GRASSY) AREA, AND DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOTEXTILE UNDERLAYMENT AND FLOW PATH SHALL BE PROVIDED. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. BAGS SHALL NOT BE PLACED ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.

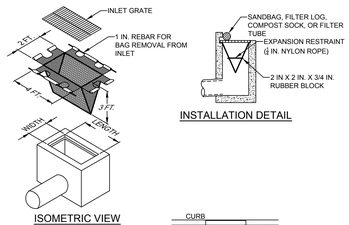
NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. COMPOST BERM OR COMPOST FILTER SOCK SHALL BE INSTALLED BELOW BAGS LOCATED IN HQ OR EV WATERSHEDS, WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE GRASSY AREA IS NOT AVAILABLE.

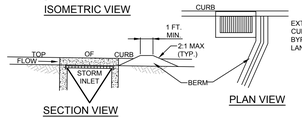
THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED. A PIECE OF PVC PIPE IS RECOMMENDED FOR THIS PURPOSE.

THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR 1/2 THE MAXIMUM SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMP INTAKES SHALL BE FLOATING AND SCREENED.

FILTER BAGS SHALL BE INSPECTED DAILY. IF ANY PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.

PUMPED WATER FILTER BAG
NOT TO SCALE





NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

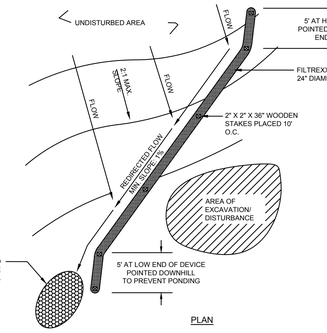
INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

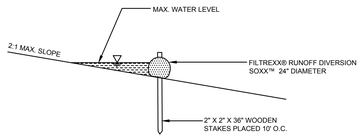
ROLLED EARTHEN BERM SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. SIX INCH MINIMUM HEIGHT ASPHALT BERM SHALL BE MAINTAINED UNTIL ROADWAY SURFACE RECEIVES FINAL COAT.
AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS, A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS

FILTER BAG INLET PROTECTION - TYPE C INLET
NOT TO SCALE





TEMPORARY CFS DIVERSION BERM DIMENSIONS

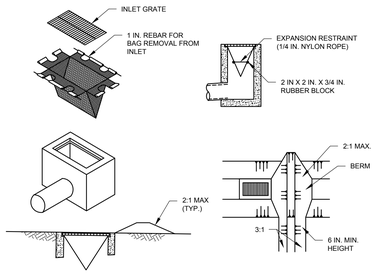
BERM NO.	SILT SOCK SIZE (IN)
DB-1	24

NOTES:
1. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF THE SOXX WHEN ACCUMULATION HAS REACHED ½ OF EFFECTIVE HEIGHT OF SOXX.

2. SLOPES GREATER THAN 5% MAY REQUIRE ADDITIONAL STABILIZATION PRACTICES.

3. SOXX MAY BE SEEDED AT THE TIME OF INSTALLATION.

FILTREXX RUNOFF DIVERSION / INTERCEPTOR
NOT TO SCALE



NOTES:

MAXIMUM DRAINAGE AREA = 1/2 ACRE.

INLET PROTECTION SHALL NOT BE REQUIRED FOR INLET TRIBUTARY TO SEDIMENT BASIN OR TRAP. BERMS SHALL BE REQUIRED FOR ALL INSTALLATIONS.

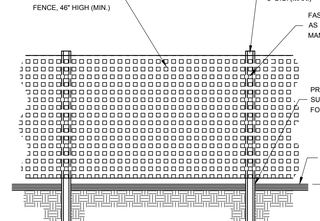
ROLLED EARTHEN BERM IN ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS STONED. ROAD SUBBASE BERM ON ROADWAY SHALL BE MAINTAINED UNTIL ROADWAY IS PAVED. EARTHEN BERM IN CHANNEL SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION IS COMPLETED OR REMAIN PERMANENTLY.

AT A MINIMUM, THE FABRIC SHALL HAVE A MINIMUM GRAB TENSILE STRENGTH OF 120 LBS., A MINIMUM BURST STRENGTH OF 200 PSI, AND A MINIMUM TRAPEZOIDAL TEAR STRENGTH OF 50 LBS. FILTER BAGS SHALL BE CAPABLE OF TRAPPING ALL PARTICLES NOT PASSING A NO. 40 SIEVE.

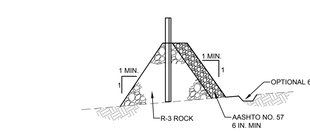
INLET FILTER BAGS SHALL BE INSPECTED ON A WEEKLY BASIS AND AFTER EACH RUNOFF EVENT. BAGS SHALL BE EMPTIED AND RINSED OR REPLACED WHEN HALF FULL OR WHEN FLOW CAPACITY HAS BEEN REDUCED SO AS TO CAUSE FLOODING OR BYPASSING OF THE INLET. DAMAGED OR CLOGGED BAGS SHALL BE REPLACED. A SUPPLY SHALL BE MAINTAINED ON SITE FOR REPLACEMENT OF BAGS. ALL NEEDED REPAIRS SHALL BE INITIATED IMMEDIATELY AFTER THE INSPECTION. DISPOSE ACCUMULATED SEDIMENT AS WELL AS ALL USED BAGS ACCORDING TO THE PLAN NOTES.

DO NOT USE ON MAJOR PAVED ROADWAYS WHERE PONDING MAY CAUSE TRAFFIC HAZARDS

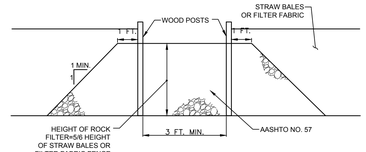
FILTER BAG INLET PROTECTION -TYPE M INLET
NOT TO SCALE



ORANGE CONSTRUCTION FENCE
NOT TO SCALE



OUTLET CROSS-SECTION



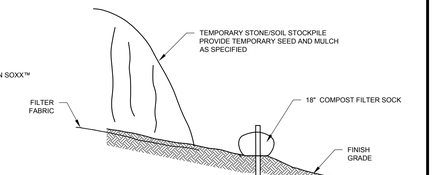
UP-SLOPE FACE

NOTES:

A ROCK FILTER OUTLET SHALL BE INSTALLED WHERE FAILURE OF A SILT FENCE OR STRAW BALE BARRIER HAS OCCURRED DUE TO CONCENTRATED FLOW. ANCHORED COMPOST LAYER SHALL BE USED ON UPSLOPE FACE IN HQ AND EV WATERSHEDS.

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/3 THE HEIGHT OF THE OUTLET.

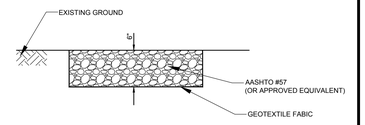
ROCK FILTER OUTLET
NOT TO SCALE



NOTES:

1. SILT FENCE SHALL BE PLACED AT LEAST 8 FEET FROM THE TOE OF SLOPE.
2. STOCKPILE HEIGHTS MUST NOT EXCEED 35 FEET. STOCKPILE SLOPES MUST BE 2:1 OR FLATTER.

TEMPORARY STOCK PILE CONTROL DETAIL
NOT TO SCALE



STAGING AREA DETAIL
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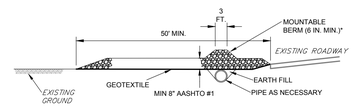
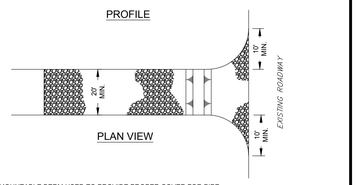


PROFILE



PLAN VIEW

* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

NOTES:

REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE.

RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.

MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.

MAINTENANCE: ROCK CONSTRUCTION ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSIONS BY ADDING ROCK. A STOCKPILE SHALL BE MAINTAINED ON SITE FOR THIS PURPOSE. ALL SEDIMENT DEPOSITED ON PAVED ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE IMMEDIATELY. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON ROADWAY, EXTEND LENGTH OF ROCK CONSTRUCTION ENTRANCE BY 50 FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASHING THE ROADWAY OR SWEEPING THE DEPOSITS INTO ROADWAY DITCHES, SEWERS, CULVERTS, OR OTHER DRAINAGE COURSES IS NOT ACCEPTABLE.

SCD #3-1 - ROCK CONSTRUCTION ENTRANCE
NOT TO SCALE

△	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

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DA PROJECT #	2512
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DRAWN:	1005
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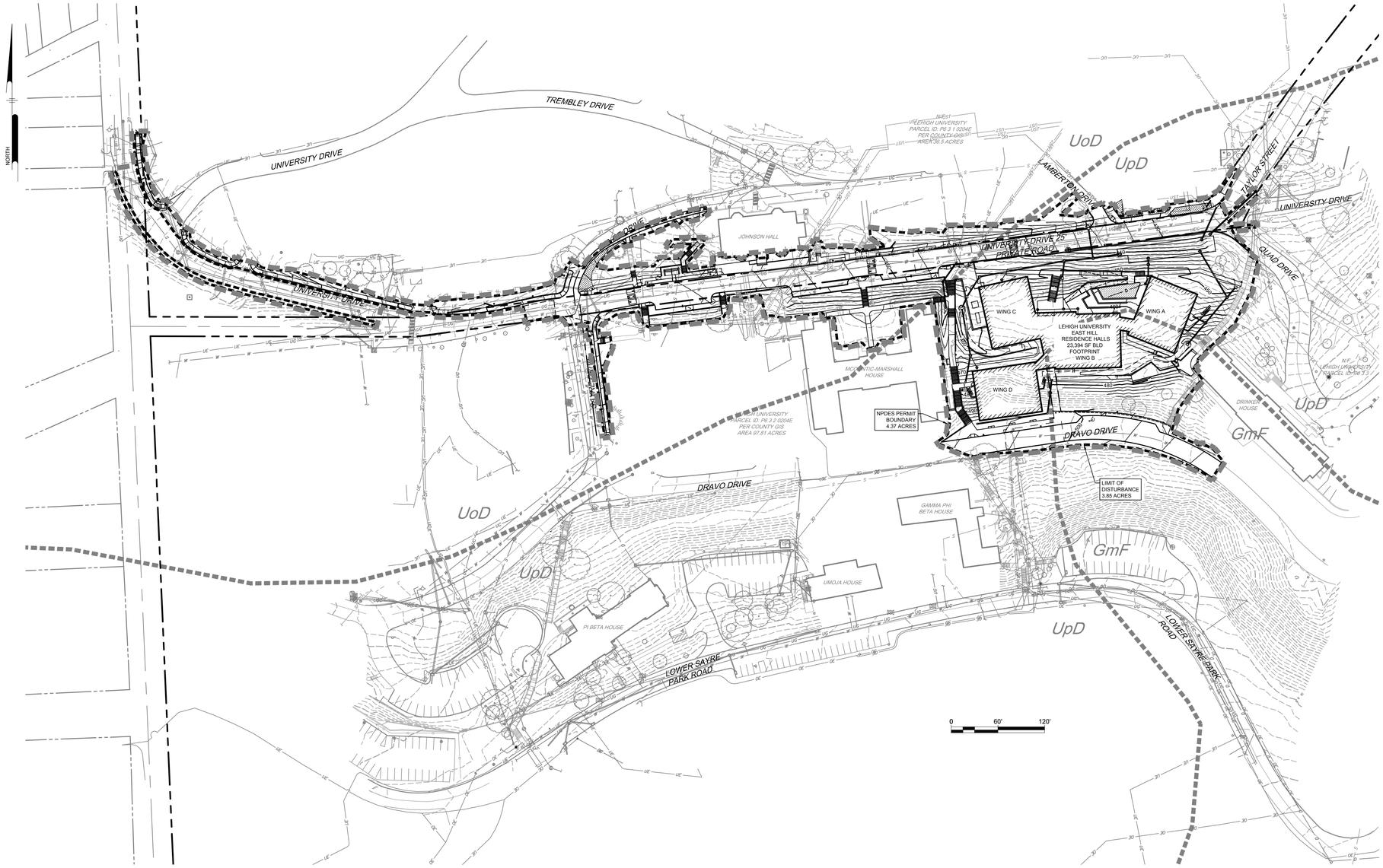

USGS MAP
Scale: 1" = 1000'

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION
		LIMIT OF EARTH DISTURBANCE
		NPDES BOUNDARY

OWNER / APPLICANT:
LEHIGH UNIVERSITY
27 MEMORIAL DRIVE W.
BETHLEHEM, PA 18015

PLAN PREPARER:
THOMAS J. SERPICO, P.E.
81 HIGHLAND AVE. SUITE 230
BETHLEHEM, PA 18017
PHONE: (610) 422-2449

NPDES PERMIT BOUNDARY: 4.37 ACRES

LIMIT OF EARTH DISTURBANCE : 3.85 ACRES

THE SITE DRAINS TO THE LEHIGH RIVER AND IS CLASSIFIED BY PA CODE TITLE 25, CHAPTER 93 AS A WARM WATER FISHES (WWF, MF).

SOILS SUMMARY CHART:

SYMBOL	NAME	GROUP	SLOPES (%)	DEPTH TO SEASONAL HIGH WATER TABLE (IN)	DEPTH TO BEDROCK (IN)	LIMITATIONS	RESOLUTION
UpD	URBAN LAND GLADSTONE COMPLEX	A	8-25	>80	10-100	THIS SOIL HAS VARYING LIMITATIONS TO MOST NONFARM USES. THIS SOIL HAS THE POTENTIAL FOR SINKHOLES.	SEE RESOLUTION NOTES
GmF	GLADSTONE GRAVELLY LOAM	A	25-55	>80	60-100	THIS SOIL HAS VARYING LIMITATIONS TO MOST NONFARM USES. THIS SOIL HAS THE POTENTIAL FOR SINKHOLES.	SEE RESOLUTION NOTES
UoD	URBAN LAND DUFFIELD COMPLEX	B	8-25	>80	10-100	THIS SOIL HAS VARYING LIMITATIONS TO MOST NONFARM USES. THIS SOIL HAS THE POTENTIAL FOR SINKHOLES.	SEE RESOLUTION NOTES

RESOLUTION NOTES:

1. DEPTH TO SATURATED ZONE/SEASONAL HIGH WATER TABLE:
   SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOIL TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
2. LOW STRENGTH/LANDSLIDE PRONE:
   SOILS SHOULD NOT BE USED FOR STRUCTURAL FILL UNLESS THEY HAVE BEEN EVALUATED BY A GEOTECHNICAL ENGINEER AND THE GEOTECHNICAL ENGINEER DEEMS THEM SUITABLE AS FILL OR PROVIDES RECOMMENDATIONS TO AMEND SOILS MAKING THEM SUITABLE AS FILL.
3. FROST ACTION:
   SOILS SHOULD BE FREE OF FROZEN OR MUCKY MATERIALS. FILL SHOULD NOT BE PLACED ON SATURATED OR FROZEN SURFACES. EARTHWORK INVOLVING THESE SOILS SHOULD BE LIMITED TO THE WARMER MONTHS WHEN PRACTICAL.
4. WETNESS:
   SOILS SHOULD BE EVALUATED FOR WETNESS PRIOR TO USE IN SITE WORK. IF GEOTECHNICAL ENGINEER DEEMS SOIL TOO WET FOR SITE WORK, THEN SOILS SHALL BE AMENDED OR DRIED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
5. PIPING:
   AREAS OF EMBANKMENTS WITH PIPES PASSING THROUGH THEM SHALL HAVE ANTI-SEEP COLLARS INSTALLED PER THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S (PA DEP) EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM.
6. EASILY ERODIBLE:
   SOILS SHALL BE STABILIZED, WITH EITHER TEMPORARY OR FINAL STABILIZATION, IN AREAS WHERE EARTHWORK IS DELAYED OR STOPPED FOR FOUR CONSECUTIVE DAYS.
7. SHRINK/SWELL:
   SOILS SHOULD NOT BE USED FOR STRUCTURAL FILL UNLESS THEY HAVE BEEN EVALUATED BY A GEOTECHNICAL ENGINEER AND THE GEOTECHNICAL ENGINEER DEEMS THEM SUITABLE AS FILL OR PROVIDES RECOMMENDATIONS TO AMEND SOILS MAKING THEM SUITABLE AS FILL.
8. CUT BANKS CAVES - ALMOST ALL PENNSYLVANIA SOILS ARE SUSCEPTIBLE TO CAVING OF CUT BANKS. CUT SLOPES WILL BE STABILIZED AS SOON AS POSSIBLE WITH SEED AND MULCH OR EROSION CONTROL BLANKETS TO PREVENT SLIDING. SLOPES ARE DESIGNED TO NOT EXCEED 2H:1V.
9. LOW STRENGTH - MOST OF PENNSYLVANIA SOILS (73%) HAVE RELATIVELY LOW STRENGTH. PRECAUTIONS WILL BE TAKEN TO PREVENT SLOPE FAILURES DUE TO IMPROPER CONSTRUCTION PRACTICES. SOILS WILL BE EVALUATED DURING CONSTRUCTION TO DETERMINE WHETHER ADDITIONAL MEASURES WILL NEED TO BE TAKEN
10. POOR TOPSOIL -SOIL AMENDMENTS WILL BE ADDED TO SITE SOILS TO PROMOTE VEGETATIVE GROWTH.

NOTES:

1. IMPERVIOUS COVERAGE SHALL BE LIMITED TO THE AREAS SHOWN ON THIS PLAN.
2. CONSTRUCTION SHALL LIMIT DISTURBANCE AND CLEARING OF EXISTING VEGETATION TO THE GREATEST DEGREE POSSIBLE.
3. CARE SHALL BE TAKEN TO MINIMIZE COMPACTION OF VEGETATED AREAS.
4. CONSTRUCTION VEHICLES SHALL AVOID TRACKING IN THE BOTTOMS OF THE STORMWATER MANAGEMENT BASINS.
5. THERE ARE NO SURFACE WATERS, WETLANDS, OR RIPARIAN BUFFERS IN THE DEVELOPMENT AREA.
6. AFTER BEING CONVERTED TO PERMANENT INFILTRATION BMPS, BASINS SHALL BE PROTECTED FROM SEDIMENTATION UNTIL ALL UPSLOPE AREAS ARE STABILIZED.
7. IN AREAS WHERE THE LIMIT OF DISTURBANCE INTERSECTS THE PERMIT BOUNDARY, THE LIMIT OF DISTURBANCE AND PERMIT BOUNDARY ARE DELINEATED BY THE SAME LINE.
8. SPECIFIC PROJECT WASTE IS UNKNOWN, HOWEVER, ANY WASTE GENERATED DURING OR AFTER CONSTRUCTION SHALL BE PROPERLY DISPOSED OF OR RECYCLED IN A MANNER APPROPRIATE FOR THOSE ITEMS.

BMP MAINTENANCE NOTES:

1. STORMWATER MANAGEMENT BMPS ARE THE RESPONSIBILITY OF THE PROPERTY OWNER AND SHALL BE MAINTAINED SO THAT THEY PROVIDE STORMWATER MANAGEMENT AND INFILTRATION AS DESIGNED.
2. THE STORMWATER MANAGEMENT SYSTEM SHALL BE INSPECTED ANNUALLY AND AFTER 10-YEAR OR GREATER STORM EVENTS.
3. ACCUMULATED DEBRIS SHALL BE REMOVED FROM BASINS AND SWALES AND DISPOSED OF PROPERLY.
4. THE CITY OF BETHLEHEM AND NORTHAMPTON COUNTY CONSERVATION DISTRICT SHALL BE NOTIFIED OF SIGNIFICANT REPAIRS OR MODIFICATIONS TO THE BMPS.
5. THE OWNER SHALL MINIMIZE COMPACTION OF THE BOTTOM OF THE INFILTRATION SYSTEM.

CRITICAL STAGES OF BMP IMPLEMENTATION

1. CONSTRUCTION OF UNDERGROUND DETENTION BASIN.
2. INSTALLATION OF LANDSCAPING ASSOCIATED WITH GREEN ROOF.

PENNSYLVANIA ONE CALL SYSTEM INC. 1-800-242-1776 STOP - CALL BEFORE YOU DIG!

CALL BEFORE YOU DIG
BEFORE YOU DIG ANYWHERE IN PENNSYLVANIA
CALL 1-800-242-1776
PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC.
SERIAL NUMBER(S): 20251921235
#

POST CONSTRUCTION STORMWATER MANAGEMENT PLANS

SHEET NUMBER	DRAWING	SHEET TITLE	DATE	LAST REVISED
38	CS9000	OVERALL POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	2026-01-30	
39	CS9001	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	2026-01-30	
40	CS9002	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	2026-01-30	
41	CS9003	POST CONSTRUCTION STORMWATER MANAGEMENT PLAN	2026-01-30	
42	CS9501	POST CONSTRUCTION STORMWATER MANAGEMENT NOTES	2026-01-30	
43	CS9502	POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS	2026-01-30	
ALSO PLANS				
1	I-01	SPRAY IRRIGATION PCSM OVERALL SITE PLAN	2025-09-27	
2	I-02	SPRAY IRRIGATION PCSM DATA & DETAILS PLAN	2025-09-27	
3	I-03	SPRAY IRRIGATION PCSM PUMP & DETAILS PLAN	2025-09-27	
4	I-04	SPRAY IRRIGATION PCSM DETAIL PLAN	2025-09-27	
5	I-05	SPRAY IRRIGATION PCSM O & M SCHEDULE PLAN	2025-09-27	

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Bethlehem PA 18015
v 610-758-4622

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Philadelphia, PA 19107
v 215.627.0808
www.digsau.com

CIVIL ENGINEER
Pennoni
81 Highland Ave, Suite 230
Bethlehem, PA 18017
https://www.pennoni.com/
v 855-754-3595

LANDSCAPE ARCHITECT
Omnes
1262 Simon Blvd, B105
Easton, PA 18042
https://omnes.studio/
v 215-882-0500

STRUCTURAL ENGINEER
Keast & Hood
1635 Market St, #1705
Philadelphia, PA 19103
https://keasthood.com/
v 215-625-0099

MEP/FP/TECHNOLOGY ENGINEER
IMEG
623 26th Ave
Rock Island, IL 61201
https://imegcorp.com/
v 215-569-0400

LIGHTING
Arup
77 Water Street
New York, NY 10005
https://www.arup.com/en-us/
v 212-896-3000

ENVELOPE
RWDI
1608 Walnut Street, Suite 1603
Philadelphia, PA 19103
v 267-773-8375

VERTICAL TRANSPORTATION
Lerch Bates
275 S Main St, Suite 2CC
Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

ACOUSTICS
Harrison Acoustics
212 Terminal Ave
Glenside, PA 19038
v 215-720-1530
https://harrison-acoustics.com/

LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
King of Prussia, PA 19406
v 267-217-1612
https://dbhms.com/index.html

INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

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DA PROJECT #	2512
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FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
OVERALL POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

SHEET NUMBER:
CS9000

PROJECT PHASE:
DESIGN DEVELOPMENT

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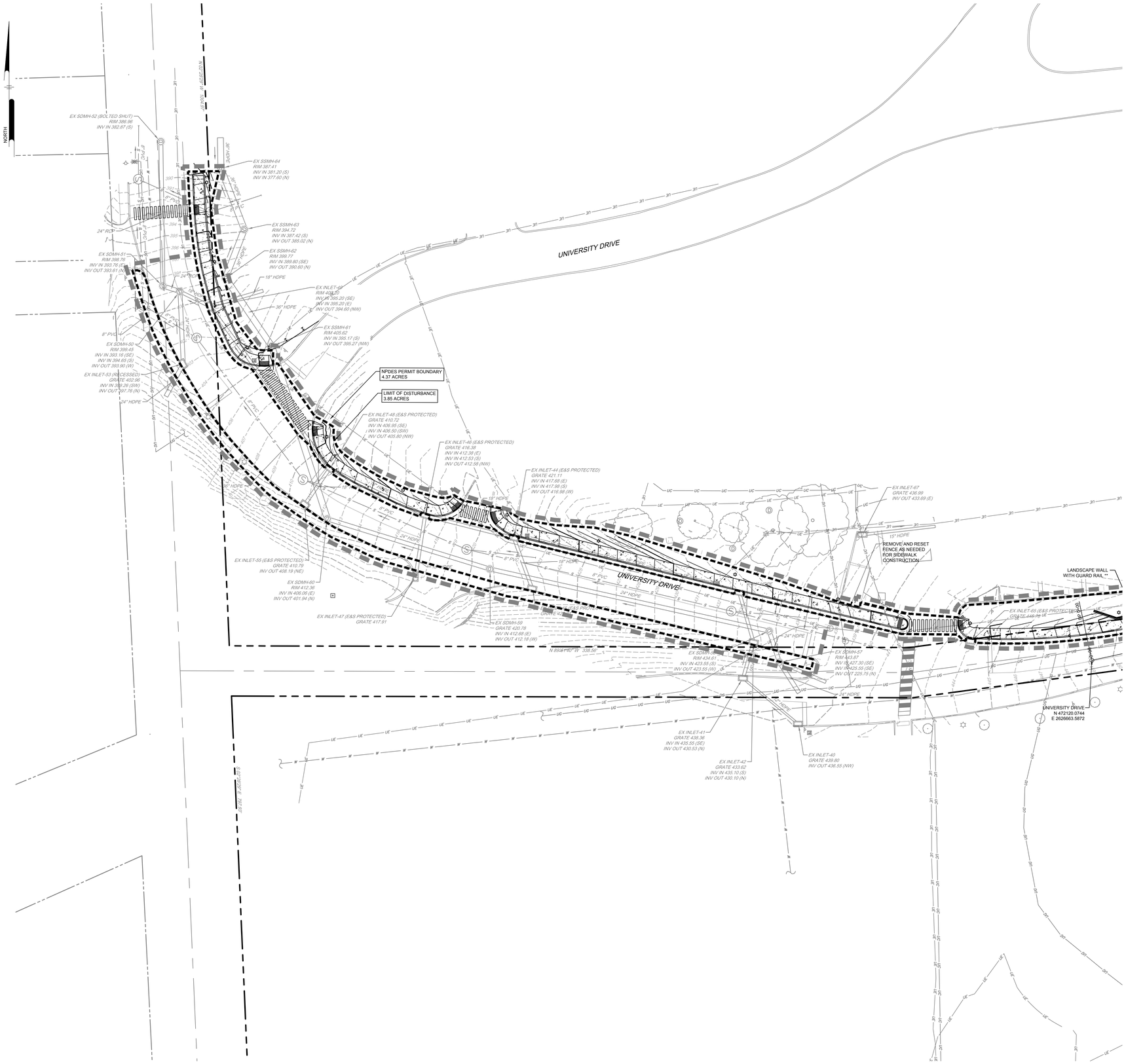

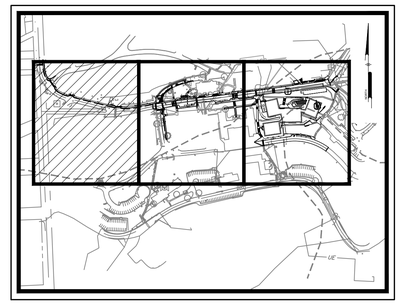

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
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		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION
		LIMIT OF EARTH DISTURBANCE
		NPDES BOUNDARY

NOTES:

ALL PROPOSED INLETS ARE PENNDOT STANDARD BOXES UNLESS OTHERWISE NOTED.

ALL PROPOSED MANHOLES ARE PENNDOT STANDARD 48" DIA. MANHOLES UNLESS OTHERWISE NOTED.

DIGSAU

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725 N. 4th Street
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	DATE:	DESCRIPTION:

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DATE:	30 JANUARY 2026

SHEET NAME:
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

SHEET NUMBER:
CS9001

PROJECT PHASE:
DESIGN DEVELOPMENT

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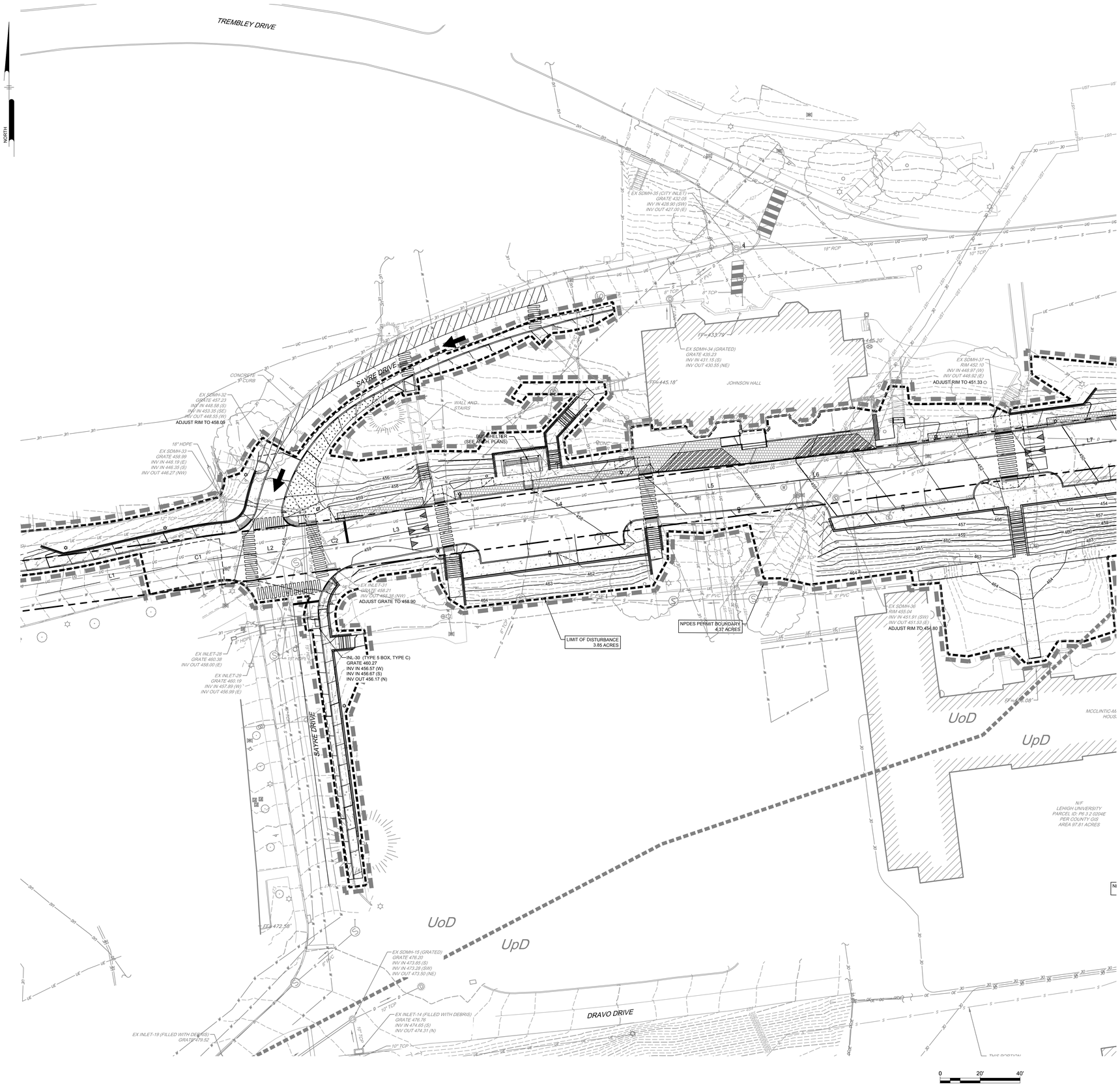

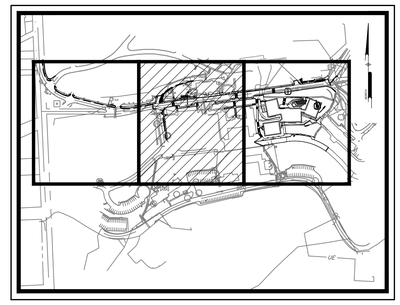

KEY MAP
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LEGEND

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		EASEMENT
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		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
		MISC. CORNER
		CONCRETE MONUMENT
		SITE, BOLLARD
		SITE, BORING LOCATION
		BUILDING
		SITE, POST
		SITE, TRAFFIC SIGN
		SOIL BOUNDARY
WaC		SOIL LABEL
		STORM SEWER, INLET
		STORM SEWER,HEADWALL
		STORM SEWER, MANHOLE
		STORM SEWER, UNDERGROUND
		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION
		LIMIT OF EARTH DISTURBANCE
		NPDES BOUNDARY

NOTES:

ALL PROPOSED INLETS ARE PENNDOT STANDARD BOXES UNLESS OTHERWISE NOTED.

ALL PROPOSED MANHOLES ARE PENNDOT STANDARD 48" DIA. MANHOLES UNLESS OTHERWISE NOTED.

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681 Taylor St.
Bethlehem PA 18015
v 610-758-4622

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340 North 12th Street, Suite 421
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v 215.627.0808
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CIVIL ENGINEER
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81 Highland Ave, Suite 230
Bethlehem, PA 18017
https://www.pennoni.com/
v 855-754-3595

LANDSCAPE ARCHITECT
Omnes
1262 Simon Blvd, B105
Easton, PA 18042
https://omnes.studio/
v 215-882-0500

STRUCTURAL ENGINEER
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1635 Market St, #1705
Philadelphia, PA 19103
https://keasthood.com/
v 215-625-0099

MEP/FP/TECHNOLOGY ENGINEER
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623 26th Ave
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https://imegcorp.com/
v 215-569-0400

LIGHTING
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77 Water Street
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https://www.arup.com/en-us/
v 212-896-3000

ENVELOPE
RWDI
1608 Walnut Street, Suite 1603
Philadelphia, PA 19103
v 267-773-8375

VERTICAL TRANSPORTATION
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Doylestown, PA 18901
v 877-647-2110
https://www.lerchbates.com/

ACOUSTICS
Harrison Acoustics
212 Terminal Ave
Glenside, PA 19038
v 215-720-1530
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LEED/SUSTAINABILITY
dbHMS
840 1st Ave, Suite 400
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v 267-217-1612
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INTERIOR SIGNAGE/WAYFINDING
Exit Design
725 N. 4th Street
Philadelphia, PA 19123
v 215-561-1950
https://exploreexit.com/

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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	1" = 20'
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

SHEET NUMBER:
CS9002

PROJECT PHASE:
DESIGN DEVELOPMENT

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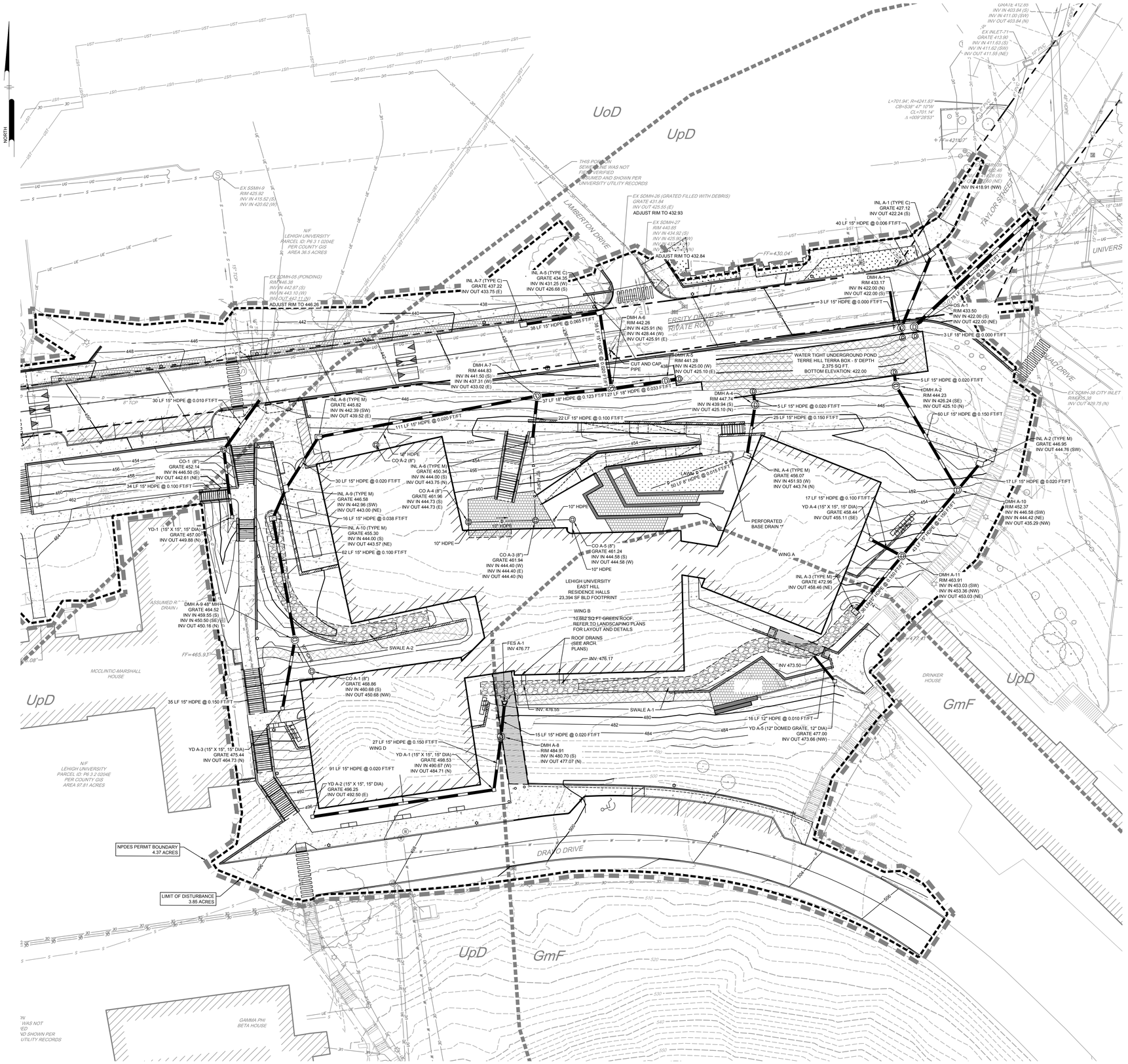

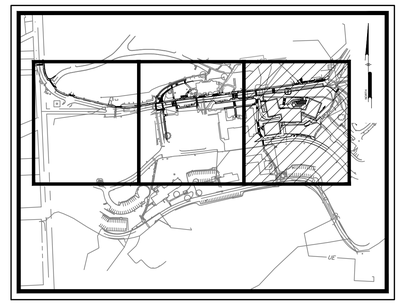

KEY MAP
NOT TO SCALE

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		CURB
		CURB DEPRESSION
		EDGE OF PAVEMENT
		EDGE OF GRAVEL
		EASEMENT
		FENCE
		FLOODPLAIN
		GUIDE RAIL
		MARKING, HANDICAP PARKING
		POWER, GUY POLE
		POWER, GUY WIRE
		POWER, UTILITY POLE
		PROPERTY, LINE
		LEGAL RIGHT-OF-WAY
		CORNER
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		STORM SEWER, ROOF DRAIN
		STORM SEWER, CLEAN-OUT
101	101	MINOR CONTOUR
100	100	MAJOR CONTOUR
x 100.5	x 100.5	SPOT ELEVATION
	**	SEE LANDSCAPE PLANS FOR DETAILS
		LIMIT OF EARTH DISTURBANCE
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SHEET NAME:
POST CONSTRUCTION STORMWATER MANAGEMENT PLAN

SHEET NUMBER:
CS9003

PROJECT PHASE:
DESIGN DEVELOPMENT

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PCSM LONGTERM OPERATION & MAINTENANCE NOTES

UNTIL THE PERMITTEE OR CO-PERMITTEE HAS RECEIVED WRITTEN APPROVAL OF A NOTICE OF TERMINATION, THE PERMITTEE OR CO-PERMITTEE WILL REMAIN RESPONSIBLE FOR COMPLIANCE WITH THE PERMIT TERMS AND CONDITIONS INCLUDING LONG-TERM OPERATION AND MAINTENANCE OF ALL PCSM BMPS ON THE PROJECT SITE AND IS RESPONSIBLE FOR VIOLATIONS OCCURRING ON THE PROJECT SITE. THE DEPARTMENT OR CONSERVATION DISTRICT WILL CONDUCT A FINAL INSPECTION AND APPROVE OR DENY THE NOTICE OF TERMINATION WITHIN 30 DAYS.

FOR ANY PROPERTY CONTAINING A PCSM BMP, THE PERMITTEE OR CO-PERMITTEE SHALL RECORD AN INSTRUMENT WITH THE RECORDER OF DEEDS WHICH WILL ASSURE DISCLOSURE OF THE PCSM BMP AND THE RELATED OBLIGATIONS IN THE ORDINARY COURSE OF A TITLE SEARCH OF THE SUBJECT PROPERTY. THE RECORDED INSTRUMENT MUST IDENTIFY THE PCSM BMP, PROVIDE FOR NECESSARY ACCESS RELATED TO LONG-TERM OPERATION AND MAINTENANCE FOR PCSM BMPS AND PROVIDE NOTICE THAT THE RESPONSIBILITY FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP IS A COVENANT THAT RUNS WITH THE LAND THAT IS BINDING UPON AND ENFORCEABLE BY SUBSEQUENT GRANTEES, AND PROVIDE PROOF OF FILING WITH THE NOTICE OF TERMINATION UNDER § 102.7(B)(5) (RELATING TO PERMIT TERMINATION)

THE PERSON RESPONSIBLE FOR PERFORMING LONG-TERM OPERATION AND MAINTENANCE MAY ENTER INTO AN AGREEMENT WITH ANOTHER PERSON INCLUDING A CONSERVATION DISTRICT, NONPROFIT ORGANIZATION, MUNICIPALITY, AUTHORITY, PRIVATE CORPORATION OR OTHER PERSON, TO TRANSFER THE RESPONSIBILITY FOR PCSM BMPS OR TO PERFORM LONG-TERM OPERATION AND MAINTENANCE AND PROVIDE NOTICE THEREOF TO THE DEPARTMENT.

INSPECTIONS SHALL BE PERFORMED AS NOTED FOR EACH BMP AND ANNUALLY. A WRITTEN REPORT DOCUMENTING EACH INSPECTION AND ALL BMP REPAIR AND MAINTENANCE ACTIVITIES SHALL BE PROVIDED ANNUALLY.

A PERMITTEE OR CO-PERMITTEE THAT FAILS TO TRANSFER LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMP OR OTHERWISE FAILS TO COMPLY WITH THIS REQUIREMENT SHALL REMAIN JOINTLY AND SEVERALLY RESPONSIBLE WITH THE LANDOWNER FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS LOCATED ON THE PROPERTY.

LONGTERM OPERATION AND MAINTENANCE RESPONSIBLE PARTY:

LEHIGH UNIVERSITY
27 MEMORIAL DRIVE
BETHLEHEM, PA, 18015

STORMWATER BMP FAILURE

A STORMWATER BMP FAILURE FOR THIS SITE IS DEFINED AS:

1. THE BIO-RETENTION BASIN NOT DEWATERING WITHIN 72-HOURS. IN THE EVENT THAT THIS OCCURS, THE DESIGN ENGINEER SHOULD BE CONTACTED TO INVESTIGATE THE CAUSE OF THE FAILURE. IF THE BMP HAS NOT DEWATERED WITHIN 72-HOURS AND A PRECIPITATION EVENT IS FORECASTED THE FACILITY SHOULD BE DEWATERED PRIOR TO THE PRECIPITATION EVENT.
2. THE BIO-RETENTION BASIN VEGETATION DIES OR FAILS TO ESTABLISH. IN THE EVENT THAT THIS OCCURS THE LANDSCAPING SHALL BE REPLACED IN KIND.

STORM SEWERS

A STORM SEWER SYSTEM HAS BEEN DESIGNED TO CONVEY RUNOFF TO THE VARIOUS STORMWATER BASINS THROUGHOUT THE SITE. STORM SEWER PIPES ARE ALSO PROPOSED TO CONVEY WATER FROM THE VARIOUS BIO-RETENTION BASINS TO STABLE OUTLETS AND ALSO TO DIVERT WATER FROM OFF-SITE AROUND THE SITE.

OPERATION & MAINTENANCE:

1. THE LOT OWNER OF RECORD IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE STORM SEWER SYSTEM AND PROVIDING A WRITTEN REPORT DOCUMENTING EACH INSPECTION AND ALL BMP REPAIR AND MAINTENANCE ACTIVITIES.
2. THE STORM SEWER SYSTEM SHALL BE INSPECTED AT LEAST FOUR (4) TIMES A YEAR.
3. REMOVE SEDIMENT FROM ALL STRUCTURES AT LEAST ONCE PER YEAR.
4. DISPOSE OF SEDIMENT, DEBRIS/TRASH, AND ANY OTHER WASTE MATERIAL REMOVED FROM THE STORM SEWER SYSTEM AT A SUITABLE DISPOSAL/RECYCLING SITE AND IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL WASTE REGULATIONS.

INSPECTION SCHEDULE:

STORM SEWER SYSTEM SHOULD BE INSPECTED AT LEAST TWO (2) TIMES PER YEAR, AS WELL AS AFTER EVERY STORM GREATER THAN 1-INCH.

STRUCTURAL BMP CREDIT 6.5.1 - VEGETATED ROOF

A PORTION OF THE PROPOSED BUILDING WILL BE DESIGNED TO HAVE A VEGETATED ROOF WHICH WILL REDUCE THE RATE AND VOLUME OF STORMWATER RUNOFF FROM THE SITE.

OPERATION & MAINTENANCE:

1. THE LOT OWNER OF RECORD IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE VEGETATED ROOF AND PROVIDING A WRITTEN REPORT DOCUMENTING EACH INSPECTION AND ALL BMP REPAIR AND MAINTENANCE ACTIVITIES.
2. MAINTENANCE ACTIVITIES AS NEEDED:
   A. PLANT ALTERNATIVE SPECIES IN THE EVENT OF UNSUCCESSFUL ESTABLISHMENT.
   B. DURING PLANT ESTABLISHMENT PERIOD, FOUR (4) INSPECTIONS TO CONDUCT WEEDING, FERTILIZATION, AND IN-FILLING PLANTS IS REQUIRED.
   C. AFTER ESTABLISHMENT, TWO (2) INSPECTIONS PER GROWING SEASON SHOULD BE PERFORMED FOR LIGHT WEEDING.

INSPECTION SCHEDULE:

DURING ESTABLISHMENT, THE VEGETATED ROOF SHOULD BE INSPECTED FOUR (4) TIMES FOR WEEDING, FERTILIZATION, AND IN-FILLING PLANTS. AFTER ESTABLISHMENTS, TWO (2) INSPECTIONS PER GROWING SEASON SHOULD BE PERFORMED FOR LIGHT WEEDING.

STRUCTURAL BMP CREDIT 6.4.2 - SUBSURFACE DETENTION BASIN

A SUBSURFACE DETENTION BASIN HAS BEEN SIZED TO TEMPORARILY STORE RUNOFF ASSOCIATED WITH THE DESIGN STORMS FOR A PORTION OF THE PROPOSED SITE. STORAGE VOLUME IS PROVIDED WITHIN THE PROPOSED UNDERGROUND BASIN STORAGE FACILITY.

OPERATION & MAINTENANCE:

1. THE LOT OWNER OF RECORD IS RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF THE SUBSURFACE DETENTION BASIN AND FOR PROVIDING A WRITTEN REPORT DOCUMENTING EACH INSPECTION AND ALL BMP REPAIR AND MAINTENANCE ACTIVITIES.
2. MAINTENANCE ACTIVITIES TO BE DONE ANNUALLY AND WITHIN 48-HOURS AFTER EVERY MAJOR STORM EVENT (>1 INCH RAINFALL DEPTH)
   D. ALL INLETS SHOULD BE INSPECTED AND CLEANED AT LEAST ONE (1) TIMES PER YEAR.
   E. THE DETENTION BASIN SHOULD BE INSPECTED ANNUALLY FOR SEDIMENT BUILDUP. EXCESSIVE SEDIMENT BUILD-UP SHOULD BE REMOVED AND DISPOSED OF APPROPRIATELY.
   F. THE BASIN OUTLET STRUCTURE SHOULD BE INSPECTED AT LEAST ONE (1) TIMES PER YEAR, AS WELL AS AFTER EVERY STORM GREATER THAN 1-INCH. THE INSPECTION SHOULD ACCESS CLOGGING AT INLETS AND OUTLETS, AND SEDIMENT/DEBRIS ACCUMULATION.
3. MAINTENANCE ACTIVITIES AS NEEDED:
   A. EVALUATE THE DRAIN-DOWN TIME OF THE SUBSURFACE DETENTION BASIN TO ENSURE THAT THE MAXIMUM TIME OF 72 HOURS IS NOT BEING EXCEEDED. IF DRAIN-DOWN TIMES ARE EXCEEDING THE MAXIMUM TIME, DRAIN THE SUBSURFACE DETENTION BASIN VIA PUMPING AND CONTACT THE DESIGN ENGINEER TO DETERMINE THE PROPER REMEDIATION FOR THE SYSTEM.

RECYCLE & DISPOSAL OF MATERIALS

1. POST CONSTRUCTION WASTE INCLUDES, BUT IS NOT LIMITED TO ANYTHING FROM GARAGE SUCH AS PLASTIC DRINK CUP, LUNCH LEFTOVERS, ANIMAL FECES, LEAVES AND ROAD DEBRIS, TYPICAL OFFICE TRASH, LITTER AND SEDIMENT.
2. EXCESSIVE BUILD UP OF SEDIMENT SHALL BE REMOVED. SEDIMENT REMOVAL SHOULD BE CONDUCTED WHEN THE BMP FACILITY IS COMPLETELY DRY. SEDIMENT SHOULD BE DISPOSED OF PROPERLY AND ONCE SEDIMENT IS REMOVED, DISTURBED AREAS NEED TO BE IMMEDIATELY STABILIZED AND VEGETATED.
3. DISPOSE OF SEDIMENT, DEBRIS/TRASH AND OTHER WASTE MATERIAL REMOVED FROM THE STORM SEWER SYSTEM AT A SUITABLE DISPOSAL/RECYCLING SITE AND IN COMPLIANCE WITH LOCAL, STATE, AND FEDERAL WASTE REGULATIONS.

PERMIT REQUIREMENTS:

PCSM REPORTING AND RECORDKEEPING. THE PCSM PLAN, INSPECTION REPORTS AND MONITORING RECORDS SHALL BE AVAILABLE FOR REVIEW AND INSPECTION BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

LICENSED PROFESSIONAL OVERSIGHT OF CRITICAL STAGES. A LICENSED PROFESSIONAL OR A DESIGNEE SHALL BE PRESENT ONSITE AND BE RESPONSIBLE DURING CRITICAL STAGES OF IMPLEMENTATION OF THE APPROVED PCSM PLAN. THE CRITICAL STAGES MAY INCLUDE THE INSTALLATION OF UNDERGROUND TREATMENT OR STORAGE BMPS, STRUCTURALLY ENGINEERED BMPS, OR OTHER BMPS AS DEEMED APPROPRIATE BY THE DEPARTMENT OR THE CONSERVATION DISTRICT.

FINAL CERTIFICATION. THE PERMITTEE SHALL INCLUDE WITH THE NOTICE OF TERMINATION "RECORD DRAWINGS" WITH A FINAL CERTIFICATION STATEMENT FROM A LICENSED PROFESSIONAL, WHICH READS AS FOLLOWS:
"I (NAME) DO HEREBY CERTIFY PURSUANT TO THE PENALTIES OF 18 PA.C.S.A. § 4904 TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF, THAT THE ACCOMPANYING RECORD DRAWINGS ACCURATELY REFLECT THE AS-BUILT CONDITIONS, ARE TRUE AND CORRECT, AND ARE IN CONFORMANCE WITH CHAPTER 102 OF THE RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION AND THAT THE PROJECT SITE WAS CONSTRUCTED IN ACCORDANCE WITH THE APPROVED PCSM PLAN, ALL APPROVED PLAN CHANGES AND ACCEPTED CONSTRUCTION PRACTICES."

(1) THE PERMITTEE SHALL RETAIN A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN.
(2) THE PERMITTEE SHALL PROVIDE A COPY OF THE RECORD DRAWINGS AS A PART OF THE APPROVED PCSM PLAN TO THE PERSON IDENTIFIED IN THIS SECTION AS BEING RESPONSIBLE FOR THE LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS.

PERMIT TERMINATION:

UPON PERMANENT STABILIZATION OF THE EARTH DISTURBANCE ACTIVITY UNDER § 102.22(A)(2) (RELATING TO PERMANENT STABILIZATION), AND INSTALLATION OF BMPS IN ACCORDANCE WITH AN APPROVED PLAN AND PREPARED AND RECORDED IN ACCORDANCE WITH §§ 102.4 AND 102.8 (RELATING TO EROSION AND SEDIMENT CONTROL REQUIREMENTS; AND PCSM REQUIREMENTS), THE PERMITTEE OR CO-PERMITTEE SHALL SUBMIT A NOTICE OF TERMINATION TO THE DEPARTMENT OR CONSERVATION DISTRICT.

THE NOTICE OF TERMINATION MUST INCLUDE:
(1) THE FACILITY NAME, ADDRESS AND LOCATION.
(2) THE OPERATOR NAME AND ADDRESS.
(3) THE PERMIT NUMBER.
(4) THE REASON FOR PERMIT TERMINATION.
(5) IDENTIFICATION OF THE PERSONS WHO HAVE AGREED TO AND WILL BE RESPONSIBLE FOR LONG-TERM OPERATION AND MAINTENANCE OF THE PCSM BMPS IN ACCORDANCE WITH § 102.8(M) AND PROOF OF COMPLIANCE WITH § 102.8(M)(2).

PERMANENT SEEDING NOTE

1. SPREAD AND FINE GRADE 12" TOPSOIL ON ALL AREAS TO BE PERMANENTLY SEEDED.
2. BEFORE SEEDING, APPLY APPROPRIATE SOIL MODIFICATIONS.
3. INSTALL EROSION/SEED BLANKET WHERE NEEDED.
4. WATER AND MAINTAIN ALL LAWN AREAS.
5. RESEED BARE OR THIN AREAS AS DIRECTED BY THE ENGINEER.
6. IF GROUND COVER IS NOT OTHERWISE SPECIFIED ON THE APPROVED LANDSCAPING PLANS, USE SEED MIXTURE 2, AS SHOWN IN TABLE 11.
7. APPLY STRAW MULCH AT 3.0 TON/ACRE IMMEDIATELY AFTER SEEDING.
8. APPLY STRAW AND MULCH DURING NON-GROWING SEASONS (NOVEMBER - MARCH)

SUGGESTED SEEDING MIXTURES

FOR TEMPORARY STABILIZATION
SEED FORMULA: PENNDOT FORMULA E
100% ANNUAL RYEGRASS
1. APPLY GROUND LIMESTONE AT 40 LBS PER 1,000 SQ. YDS.
2. APPLY FORMULA E SEED AT 10 LBS PER 1,000 SQ. YDS.
3. APPLY FERTILIZER (10-10-10) AT 100 LBS. PER 1,000 SQ. YDS.
4. APPLY HAY OR STRAW MULCH AT 3 TONS PER ACRE.
5. PERFORM SEEDING BETWEEN MARCH 15 AND OCTOBER 15.

FOR FALL STABILIZATION
1. APPLY FORMULA E SED AT 10 LBS PER 1,000 SQ. YDS.
2. APPLY HAY OR STRAW MULCH AT 3 TONS PER ACRE.

FOR PERMANENT STABILIZATION
FOR SLOPES 3:1 OR FLATTER-
SEED FORMULA: PENNDOT FORMULA B
20% PERENNIAL RYEGRASS MIXTURE
30% CREEPING RED FESCUE OR CHEWINGS FESCUE
50% KENTUCKY BLUEGRASS MIXTURE
1. APPLY GROUND LIMESTONE AT 800 LBS PER 1,000 SQ. YDS.
2. APPLY FERTILIZER (10-20-20) AT 140 LBS PER 1,000 SQ. YDS.
3. APPLY FORMULA B SEED AT 21 LBS PER 1,000 SQ. YDS.
4. APPLY HAY OR STRAW MULCH AT 3 TONS PER ACRE.
5. PERFORM SEEDING BETWEEN MARCH 15 AND JUNE 1, AND AUGUST 1 AND OCTOBER 15.

FOR PERMANENT STABILIZATION
FOR SLOPES GREATER THAN 3:1-
SEED FORMULA: PENNDOT FORMULA D
70% TALL FESCUE
30% CREEPING RED FESCUE OR CHEWINGS FESCUE
1. APPLY GROUND LIMESTONE AT 800 LBS PER 1,000 SQ. YDS.
2. APPLY FERTILIZER (10-20-20) AT 140 LBS PER 1,000 SQ. YDS.
3. APPLY FORMULA B SEED AT 21 LBS PER 1,000 SQ. YDS.
4. APPLY FERTILIZER (38-0-0) AT 50 LBS PER 1,000 SQ. YDS.
5. APPLY HAY OR STRAW MULCH AT 3 TONS PER ACRE.
6. PERFORM SEEDING BETWEEN MARCH 15 AND JUNE 1, AND AUGUST 1 AND OCTOBER 15.

NATIVE STEEP SLOPE PLANTING NOTES:

INSTALLATION:
1. APPLY GROUND LIMESTONE AT 240 LBS PER 1,000 SQ. FT.
2. APPLY FERTILIZER (10-10-20) AT 25 LBS PER 1000 SQ. FT.
3. APPLY NATIVE STEEP SLOPE MIX WITH ANNUAL RYGRASS, ERNMX-181 AT A RATE OF 1 LB PER 1,000 SQ. FT.
4. APPLY SLOPE PROTECTION MATTING ON THE STEEP SLOPES AND HAY OR STRAW MULCH AT 3 TONS PER ACRE IN OTHER AREAS.

MAINTENANCE:
1. THIN OR BARE AREAS SHALL BE RESEEDED.
2. AREA SHOULD BE MOWED A MAXIMUM OF ONCE A YEAR TO A MINIMUM DEPTH OF 5 INCHES, PREFERABLY BEFORE SPRING. CLIPPINGS SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED COMPOSTING SITE.
3. WEEDS SHOULD BE MONITORED AND CONTROLLED WITHOUT THE USE OF HERBICIDE.

STORMWATER BMP CONSTRUCTION SEQUENCES

VEGETATED ROOF

1. CONFIRM INSTALLATION SEQUENCE WITH ANY PROPRIETY PRODUCT BEING UTILIZED FOR VEGETATED ROOF AREAS, SUCH AS TRAYS, MEDIA ETC. REFER TO PRODUCT INSTALLATION GUIDES AS NECESSARY FOR INSTALLATION REQUIREMENTS.
2. VISUALLY INSPECT THE COMPLETED WATERPROOFING TO IDENTIFY ANY APPARENT FLAWS, IRREGULARITIES, OR CONDITIONS THAT WILL BE INTERFERE WITH THE SECURITY OR FUNCTIONALITY OF THE VEGETATED COVERS SYSTEM. THE WATERPROOFING SHOULD BE TESTED FOR WATERTIGHTNESS BY THE ROOFING APPLICATOR.
3. INSTITUTE A LEAK PROTECTION PROGRAM.
4. INTRODUCE MEASURES TO PROTECT THE FINISHED WATERPROOFING FROM PHYSICAL DAMAGE.
5. INSTALL SLOPE STABILIZATION MEASURES (PITCHED ROOFS WITH PITCHES IN EXCESS OF 2:12). IN SOME INSTALLATIONS SLOPE STABILIZING MEASURES CAN BE INTRODUCED AS PART OF THE ROOF STRUCTURE AND WILL BE ALREADY IN PLACE AT THE START OF THE CONSTRUCTION SEQUENCE.
6. IF THE WATERPROOFING MATERIALS ARE NOT ROOT FAST, INSTALL A ROOT-BARRIER LAYER.
7. LAYOUT KEY DRAINAGE AND IRRIGATION COMPONENTS, INCLUDING DRAIN ACCESS CHAMBERS, INTERNAL DRAINAGE CONDUIT, CONFINEMENT BORDER UNITS, AND ISOLATION FRAMES (FOR ROOF-TOP UTILITIES, HATCHES AND PENETRATIONS).
8. INSTALL WALKWAYS AND PATHS (PROJECTS WITH PUBLIC ACCESS).
9. TEST IRRIGATION SYSTEMS (AS RELEVANT FOR ROOF GARDENS).
10. INSTALL THE DRAINAGE LAYER, DEPENDING ON THE VARIATION TYPE, THIS COULD BE A GEO-COMPOSITE DRAIN, MAT, OR COURSE OF DRAINAGE MEDIA.
11. COVER THE DRAINAGE LAYER WITH THE SEPARATION FABRIC (IN SOME ASSEMBLIES, THE SEPARATION FABRIC IS PRE-BONDED TO A SYNTHETIC DRAINAGE LAYER.
12. INSTALL THE UPPER GROWTH MEDIA LAYER (DUAL MEDIA ASSEMBLIES ONLY).
13. ESTABLISH THE FOLIAGE COVER PLANTINGS FROM CUTTINGS, SEED, PLUGS OR PRE-GROWN MATS.
14. PROVIDE PROTECTION FROM WIND DISRUPTIONS AS WARRANTED BY THE PROJECT CONDITIONS, AND PLAN ESTABLISHMENT METHOD.

STORMWATER BMP CONSTRUCTION SEQUENCES CONT.

SUBSURFACE DETENTION BASIN

1. INSTALL AND MAINTAIN ADEQUATE EROSION AND SEDIMENT CONTROL MEASURES (AS PER THE PENNSYLVANIA EROSION AND SEDIMENTATION CONTROL PROGRAM MANUAL) DURING CONSTRUCTION.
2. THE EXISTING SUBGRADE UNDER THE BED AREAS SHOULD NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO GEOTEXTILE AND STONE BED PLACEMENT.
3. WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHOULD BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 6 INCHES WITH A YORK RAKE (OR EQUIVALENT) AND LIGHT TRACTOR. ALL FINE GRADING SHOULD BE DONE BY HAND. ALL BED BOTTOMS SHOULD BE AT LEVEL GRADE.
4. INSTALL UPSTREAM AND DOWNSTREAM CONTROL STRUCTURES, CLEANOUTS, PERFORATED PIPING, AND ALL OTHER NECESSARY STORMWATER STRUCTURES.
5. GEOTEXTILE AND BED AGGREGATE SHOULD BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION AND INSTALLATION OF STRUCTURES. GEOTEXTILE SHOULD BE PLACED IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF GEOTEXTILE SHOULD OVERLAP A MINIMUM OF 16 INCHES. IT SHOULD ALSO BE SECURED AT LEAST 4 FEET OUTSIDE OF BED IN ORDER TO PREVENT ANY RUNOFF FROM ENTERING THE STORAGE BED. THIS EDGE STRIP SHOULD REMAIN IN PLACE UNTIL ALL BARE SOILS CONTIGUOUS TO BEDS ARE STABILIZED AND VEGETATED. AS THE SITE IS FULLY STABILIZED, EXCESS GEOTEXTILE ALONG BED EDGES CAN BE CUT BACK TO THE EDGE OF THE BED.
6. CLEAN-WASHED, UNIFORMLY GRADED AGGREGATE SHOULD BE PLACED IN THE BED IN MAXIMUM 8-INCH LIFTS. EACH LAYER SHOULD BE LIGHTLY COMPACTED, WITH CONSTRUCTION EQUIPMENT KEPT OFF THE BED BOTTOM AS MUCH AS POSSIBLE.
7. INSTALL TERREHILL TERREBOX SYSTEM PER MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH DETAILS SHOWN ON PLAN.
8. DO NOT REMOVE INLET PROTECTION OR OTHER EROSION AND SEDIMENT CONTROL MEASURES UNTIL SITE IS FULLY STABILIZED.

TYPICAL PIPE INSTALLATION

NOTE:

BEGIN PIPE INSTALLATION AT THE DISCHARGE POINT AND WORK UPHILL. PROTECT ALL UNDERGROUND FACILITIES FROM SEDIMENTATION. LIMIT PIPE INSTALLATION TO THAT AMOUNT WHICH CAN BE BACKFILLED, TESTED FOR COMPACTION AND STABILIZED IN ONE WORKING DAY.

1. EXCAVATE PIPE TRENCH FOR NEW INSTALLATION. EXCAVATED MATERIAL FOR NEW PIPE INSTALLATION SHALL BE PLACED ON THE UPSLOPE SIDE OF THE TRENCH. ALL EXCAVATED MATERIAL SHALL BE STOCK PILED A MINIMUM OF 3 FEET AWAY FROM THE EXCAVATED TRENCH.
2. PLACE AND COMPACT PIPE BEDDING MATERIAL
3. PLACE PIPE AS INDICATED.
4. BACKFILL PIPE TRENCH.
5. PLACE SEED, SOIL SUPPLEMENTS AND MULCH IN ADJACENT DISTURBED AREAS, MAKING SURE THAT MULCH IS ANCHORED ON STEEP SLOPES.

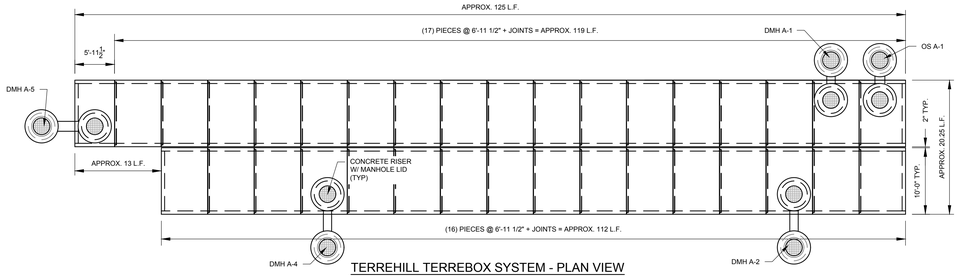
PCSM - CONSTRUCTION SEQUENCE

1. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. EACH STAGE WILL BE COMPLETED IN COMPLIANCE WITH CHAPTER 102 AND CHAPTER 105 REGULATIONS. BEFORE ANY FOLLOWING STAGE IS INITIATED. CLEARING AND GRUBBING SHALL BE LIMITED TO ONLY THOSE AREAS DESCRIBED IN EACH STAGE. LIMIT FINAL GRADING AND COMPACTION DURING FREEZING TEMPERATURES.
2. AT LEAST 7 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, INCLUDING CLEARING AND GRUBBING, THE PERMITTEE/CO-PERMITTEE SHALL INVITE ALL CONTRACTORS, THE LANDOWNER, APPROPRIATE MUNICIPAL OFFICIALS, THE E&S PLAN PREPARER, THE PCSM PLAN PREPARER, THE LICENSED PROFESSIONAL RESPONSIBLE FOR OVERSIGHT OF CRITICAL STAGES OF IMPLEMENTATION OF THE PCSM PLAN, AND A REPRESENTATIVE FROM THE LOCAL CONSERVATION DISTRICT TO AN ON-SITE PRECONSTRUCTION MEETING.
3. AT LEAST 3 DAYS PRIOR TO STARTING ANY EARTH DISTURBANCE ACTIVITIES, OR EXPANDING INTO AN AREA PREVIOUSLY UNMARKED, THE PENNSYLVANIA ONE CALL SYSTEM INC. SHALL BE NOTIFIED AT 1-800-242-1776 FOR THE LOCATION OF EXISTING UNDERGROUND UTILITIES.
4. ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE SEQUENCE PROVIDED ON THE PLAN DRAWINGS. DEVIATION FROM THAT SEQUENCE MUST BE APPROVED IN WRITING FROM THE LOCAL CONSERVATION DISTRICT OR BY THE DEPARTMENT PRIOR TO IMPLEMENTATION.
5. INSTALL ALL EROSION AND SEDIMENTATION CONTROL DEVICES AS REQUIRED BY THE NARRATIVE, PLAN, AND FIELD CONDITIONS. THESE MEASURES SHALL BE MAINTAINED DURING CONSTRUCTION AND UNTIL THE PERMANENT GROUND COVER IS ESTABLISHED IN THE DISTURBED AREAS. TO MAXIMIZE THE EFFECTIVENESS OF THIS PLAN, THE CONTRACTOR SHALL REVIEW WITH PERSONNEL FROM THE LOCAL CONSERVATION DISTRICT AT THE ON-SITE PRECONSTRUCTION MEETING TO DETERMINE HOW TO BEST IMPLEMENT THE PLAN.
6. UPON TEMPORARY CESSATION OF EARTH DISTURBANCE OR ANY STAGE OR PHASE THEREOF WHERE CESSATION WILL EXCEED 4 DAYS, THE DISTURBED AREAS SHALL BE IMMEDIATELY SEEDED, MULCHED OR OTHERWISE PROTECTED FROM ACCELERATED EROSION AND SEDIMENTATION PENDING FUTURE EARTH DISTURBANCE ACTIVITIES. UPON COMPLETION OF ROUGH GRADING OF ANY SECTION OF ACCESS ROADS, INTERNAL ROADS AND PARKING AREAS, STABILIZE THESE AREAS WITH STONE.
7. THE OPERATOR SHALL REMOVE FROM THE SITE, RECYCLE, OR DISPOSE OF ALL BUILDING MATERIALS AND WASTES IN ACCORDANCE WITH THE DEPARTMENT'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE 260.1 ET SEQ. AND 287.1 ET SEQ.
8. AVOIDANCE MEASURE: CONDUCT ANY TREE CUTTING, DISTURBANCE, INUNDATION (FLOODING) AND PRESCRIBED BURNING FROM OCTOBER 1 TO MARCH 31.

RESIDENCE HALL (PRIMARY) SEQUENCE:

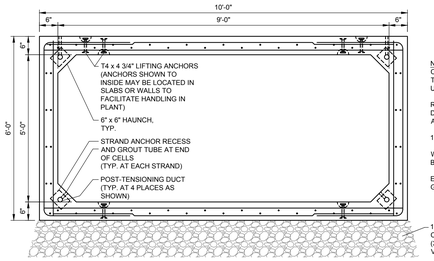
THE GENERAL SEQUENCE OF EARTHMOVING ACTIVITIES FOR THE CONSTRUCTION OF THE RESIDENCE HALL AND ASSOCIATED FEATURES IS AS FOLLOWS:

1. INSTALL CONSTRUCTION FENCING AS SHOWN ON PLANS.
2. INSTALL INLET PROTECTION DEVICES ON EXISTING INLETS AT LOCATIONS SHOWN ON PLANS.
3. INSTALL ROCK CONSTRUCTION ENTRANCE AND TEMPORARY PIPE P T-1 AT LOCATION SHOWN ON PLAN AND IN ACCORDANCE WITH THE ROCK CONSTRUCTION ENTRANCE DETAIL.
4. IDENTIFY AND MARK TREES TO BE PROTECTED DURING CONSTRUCTION.
5. ESTABLISH THE STOCKPILE/LAYDOWN AND STAGING AREA. IMMEDIATELY STABILIZE THE LAYDOWN AND STAGING AREA IN ACCORDANCE WITH DETAIL. STAGING AREA MAY BE MOVED AND/OR INCREASED IN SIZE DURING CONSTRUCTION PHASE AS REQUIRED BY THE CONTRACTOR.
6. CLEAR AND GRUB FOR THE INSTALLATION OF THE UNDERGROUND DETENTION BASIN.
7. CRITICAL STAGE: BEGIN EXCAVATION FOR INSTALLATION OF UNDERGROUND DETENTION SYSTEM. INSTALL STONE BASE AND TERREBOX SECTIONS IN ACCORDANCE WITH PLAN AND DETAILS. REFER TO PIPE INSTALLATION, TRENCH EXCAVATION, AND PROTECTION OF BMPS NOTES. THE CONTRACTOR SHALL PROTECT THE DETENTION AREA FROM COMPACTION DURING EXCAVATION AND CONSTRUCTION. ANY WATER THAT ACCUMULATES DURING CONSTRUCTION SHALL BE PUMPED DOWN USING A PUMPED WATER FILTER BAG IN ACCORDANCE WITH DETAIL.
8. CONCURRENTLY WITH UNDERGROUND DETENTION SYSTEM EXCAVATION AND INSTALLATION, BEGIN INSTALLATION OF STORMWATER CONVEYANCE SYSTEM. INSTALL DMH A-1, DMH A-2, DMH A-3, DMH A-5, OS A-1, AND ALL ASSOCIATED STUB PIPES ENTERING THE SYSTEM. INSTALL DISCHARGE PIPE O A-1 AND TIE INTO EXISTING MANHOLE SDMH-39 AS SHOWN ON PLAN. INSTALL PER PIPE INSTALLATION AND TRENCH EXCAVATION SEQUENCE.
9. CLEAR AND GRUB FOR THE INSTALLATION OF COMPOST FILTER SOCK TRAP CFST-1 AND TEMPORARY DIVERSION BERM DB-1.
10. INSTALL COMPOST FILTER SOCK TRAP CFST-1 AT LOCATION SHOWN ON PLANS. CONTRACTOR TO GRADE AREA SOUTH OF COMPOST FILTER SOCK TRAP IN ACCORDANCE WITH TEMPORARY CONTOURS SHOWN ON PLAN. IMMEDIATELY STABILIZE WITH SEED AND SOIL SUPPLEMENTS AS SPECIFIED ON PLAN.
11. INSTALL TEMPORARY DIVERSION BERM DB-1 AT LOCATION SHOWN ON PLAN IN ACCORDANCE WITH TEMPORARY DIVERSION BERM DETAIL.
12. CLEAR AND GRUB REMAINDER OF SITE TO BE DEVELOPED. STRIP SOIL AND STOCKPILE ON SITE.
13. BEGIN REMOVAL/RELOCATION OF EXISTING UTILITIES AND DEMOLITION OF EXISTING SITE FEATURES AS SPECIFIED ON THE PLANS.
14. COMMENCE BULK SITE EXCAVATION AND ESTABLISH BUILDING FOUNDATION ELEVATIONS. CONTRACTOR TO MAINTAIN POSITIVE DRAINAGE TO TEMPORARY DIVERSION BERM AND COMPOST FILTER SOCK TRAP. AS THE SLOPE EMBANKMENTS REACH FINAL GRADES, STABILIZE WITH TOPSOIL, SEED/NATIVE SPECIES MIX, MULCH, AND SOIL SUPPLEMENTS AS SPECIFIED ON PLANS. ANY WATER TRAPPED ON PAD SHALL BE PUMPED DOWN TO COMPOST FILTER SOCK TRAP.
15. AS BUILDING PAD APPROACHES SUBGRADE ELEVATION, ROUGH GRADE AREA OF SWALE A-2 TO PROVIDE POSITIVE DRAINAGE TO TEMPORARY PIPE P T-1 DURING CONSTRUCTION OF BUILDING FOUNDATION.
16. BEGIN INSTALLATION OF BUILDING IN ACCORDANCE WITH ARCHITECTURAL PLANS.
17. AS FOUNDATION CONSTRUCTION PROGRESSES AND GRADES ALLOW, BEGIN INSTALLATION OF PROPOSED UTILITIES ALONG WESTERN PORTION OF THE SITE. INSTALL NEW WATER LINE AND NEW SANITARY SEWER LINES FROM EXISTING SSMH-8 TO SMH-7. CONTRACTOR TO PROVIDE SHORING AS NECESSARY DURING CONSTRUCTION.
18. CONCURRENTLY WITH THE INSTALLATION OF THE PROPOSED UTILITIES IN THIS AREA, INSTALL PORTION OF THE STORMWATER CONVEYANCE SYSTEM FROM PIPE C-1 TO YARD DRAIN YD-1, WORKING FROM DOWNSTREAM TO UPSTREAM. INSTALL PER PIPE INSTALLATION AND TRENCH EXCAVATION SEQUENCE. IMMEDIATELY INSTALL INLET PROTECTION ON YD-1 AS SHOWN ON PLAN.
19. ROUGH GRADE AREA ADJACENT TO MCCLINTIC-MARSHALL HOUSE TO PROVIDE POSITIVE DRAINAGE TO YD-1 AND PREPARE FOR INSTALLATION OF STAIR SYSTEM.
20. WORKING FROM DOWNSTREAM TO UPSTREAM, INSTALL PIPES AND STRUCTURES FROM DMH A-5 TO YD A-3. INSTALL INL A-5, A-6, A-7, AND ASSOCIATED PIPES. INSTALL PER PIPE INSTALLATION AND TRENCH EXCAVATION SEQUENCE. IMMEDIATELY INSTALL INLET PROTECTION AS SHOWN ON PLANS. CONTRACTOR SHALL ADJUST TEMPORARY DIVERSION BERM DB-1 AS NECESSARY FOR PIPE INSTALLATION.
21. AS THIS PORTION OF THE CONVEYANCE SYSTEM IS INSTALLED, BEGIN THE INSTALLATION OF SWALE A-2 IN ACCORDANCE WITH RIPRAP CHANNEL DETAIL AND IMMEDIATELY STABILIZE AS SPECIFIED ON PLANS.
22. REMOVE TEMPORARY PIPE P T-1.
23. UPON INSTALLATION OF PROPOSED UTILITIES AND CONVEYANCE SYSTE



TERREHILL TERREBOX SYSTEM - PLAN VIEW

NOT TO SCALE



NOTES:
CONCRETE: f'c = 5,000 PSI AT 28 DAYS. TYPE II OR TYPE III CEMENT MAY BE USED.

REINFORCEMENT IS UNCOATED DEFORMED STEEL CONFORMING TO ASTM A615 GRADE 60.

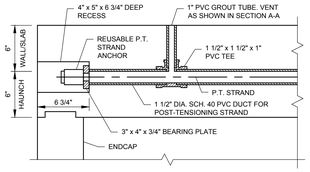
10' MAX. FILL HEIGHT ABOVE SYSTEM.

WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM.

EARTH DENSITY ASSUMED TO BE NO GREATER THAN 120 PCF.

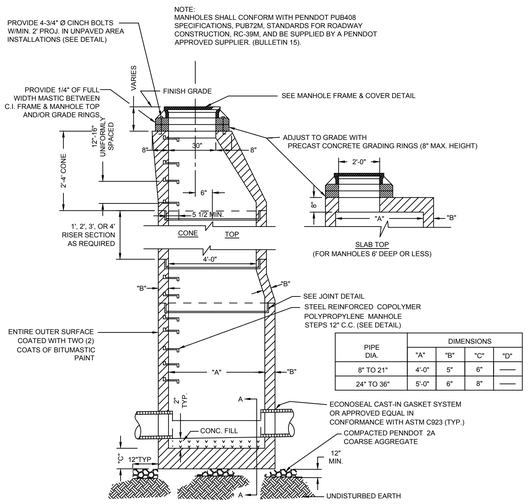
TERREHILL TERREBOX TYPICAL SECTION

NOT TO SCALE

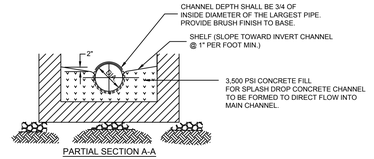


STRAND ANCHOR DETAIL

NOT TO SCALE



PIPE DIA.	DIMENSIONS			
	"A"	"B"	"C"	"D"
8" TO 21"	4'-0"	5"	6"	—
24" TO 36"	5'-0"	6"	8"	—

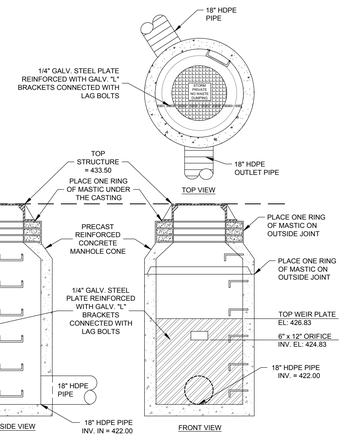


PARTIAL SECTION A-A

PRECAST STANDARD MANHOLE - TYPE 'A'

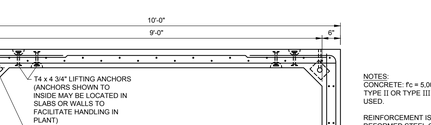
NOT TO SCALE

BASIN 1 STAGE STORAGE	
ELEVATION (FT)	SUM VOL. (CF)
422.00	0
423.00	2375
424.00	4750
425.00	7125
426.00	9500
427.00	11875



TERREBOX SYSTEM - OUTLET STRUCTURE OS A-1

NOT TO SCALE



(LOOKING DOWNSTREAM)

CHANNEL CROSS-SECTION

CHANNEL NO.	STATIONS	BOTTOM WIDTH B (FT)	DEPTH D (FT)	Z1 (FT)	Z2 (FT)	RIPRAP GRADATION (R-_)	RIPRAP DEPTH t (IN)	UNDERLAYMENT	UNDER-LAYMENT THICKNESS
SWALE A-1	SEE PLANS	3	0.75	2	3	3	9	N/A	N/A
SWALE A-2	SEE PLANS	3	0.75	2	3	3	9	N/A	N/A

NOTES:

FILTER STONE UNDERLAYMENT FOR BED SLOPES > 0.10 FT/FT (10 %) SHALL BE USED.

CHANNEL DIMENSIONS ARE FOR THE COMPLETED CHANNEL AFTER ROCK PLACEMENT. CHANNEL MUST BE OVER-EXCAVATED A SUFFICIENT AMOUNT TO ALLOW FOR THE VOLUME OF ROCK PLACED WITHIN THE CHANNEL WHILE PROVIDING THE SPECIFIED FINISHED DIMENSIONS.

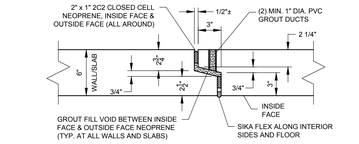
CHANNEL DIMENSIONS SHALL BE CONSTANTLY MAINTAINED. CHANNEL SHALL BE CLEANED WHENEVER TOTAL CHANNEL DEPTH IS REDUCED BY 25% AT ANY LOCATION. SEDIMENT DEPOSITS SHALL BE REMOVED WITHIN 24 HOURS OF DISCOVERY OR AS SOON AS SOIL CONDITIONS PERMIT ACCESS TO CHANNEL WITHOUT FURTHER DAMAGE.

DAMAGED LINING SHALL BE REPAIRED OR REPLACED WITHIN 48 HOURS OF DISCOVERY.

THE MINIMUM ROCK THICKNESS (t) SHALL BE 1.5 TIMES THE MAX ROCK SIZE.

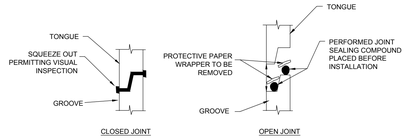
RIPRAP CHANNEL DETAIL

NOT TO SCALE



WATERTIGHT JOINT DETAIL

NOT TO SCALE

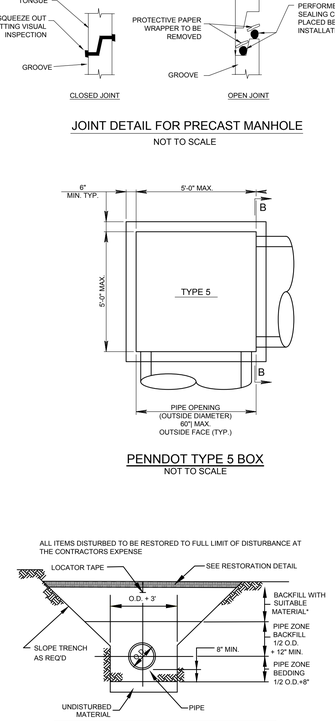


JOINT DETAIL FOR PRECAST MANHOLE

NOT TO SCALE

PENNDOT TYPE 5 BOX

NOT TO SCALE



PIPE TYPE	BEDDING	BACKFILL
PLASTIC	PADOT 2-A	PADOT 2-A
CONCRETE	AASHTO #8	PADOT 2-A
METAL	PADOT 2-A	PADOT 2-A

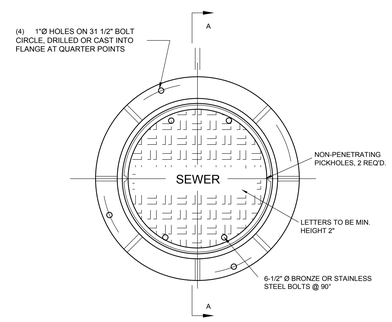
* MATERIAL CONTAINING NO DEBRIS, ORGANIC MATTER, FROZEN MATERIAL OR LARGE STONES WITH A DIAMETER GREATER THAN ONE-HALF THE THICKNESS OF THE COMPACTED LAYERS BEING PLACED.

TYPICAL STORM TRENCH DETAIL

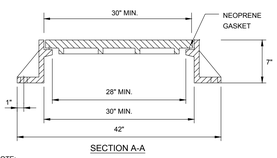
NOT TO SCALE

MANHOLE STEP

NOT TO SCALE



PLAN



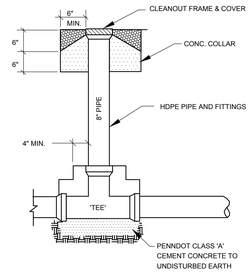
SECTION A-A

NOTE:
1. ALL CAST IRON MANHOLE FRAMES AND COVERS SHALL BE BOLT DOWN IN ALL UNPAVED AND GREEN AREAS.
2. ALL MANHOLE COVERS SHALL HAVE A NEOPRENE RUBBER GASKET FOR WATERTIGHT SEAL.
3. PROVIDE NEENAH R-1642 OR APPROVED EQUAL.

NOTE:
PROVIDE NEENAH R-1642 WITH TYPE "E" FASTENING DEVICES WITH 4 STAINLESS STEEL HEX BOLTS ON ALL COVERS FOR MANHOLES OUTSIDE PAVED AREAS

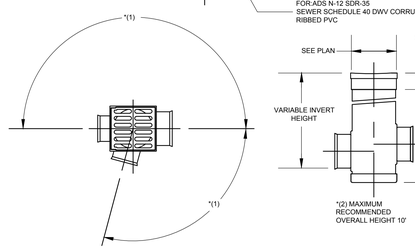
CAST IRON MANHOLE FRAME AND COVER

NOT TO SCALE



STORM CLEANOUT

NOT TO SCALE



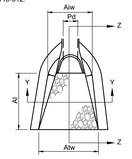
*(2) MAXIMUM RECOMMENDED OVERALL HEIGHT 10'

*(1) ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 359°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

**YARD DRAINS ARE AVAILABLE TO ACCOMODATE PIPES LARGER THAN 12"

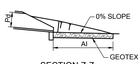
YARD DRAIN

NOT TO SCALE



PLAN VIEW

SECTION Y-Y



SECTION Z-Z

OUTLET NO.	PIPE DIA Pd (IN)	APRON				
		SIZE (R-_)	THICK. Rt (IN)	LENGTH Ai (FT)	INITIAL WIDTH Aiw (FT)	TERMINAL WIDTH Atw (FT)
FES A-1	15	3	9	8	3.75	12

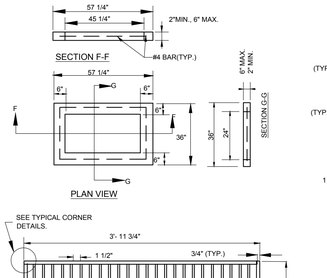
NOTES:

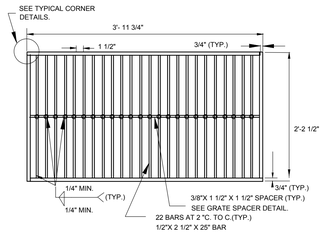
ALL APRONS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN. TERMINAL WIDTHS SHALL BE ADJUSTED AS NECESSARY TO MATCH RECEIVING CHANNELS.

ALL APRONS SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RUNOFF EVENT. DISPLACED RIPRAP WITHIN THE APRON SHALL BE REPLACED IMMEDIATELY.

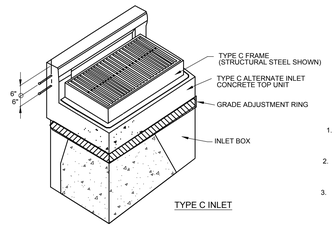
RIPRAP APRON DETAIL

NOT TO SCALE

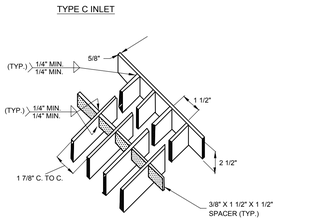




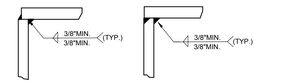
STRUCTURAL STEEL GRATE



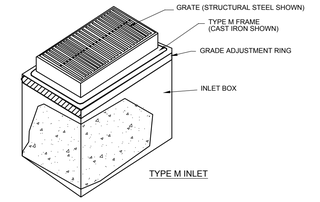
TYPE C INLET



GRATE SPACER DETAIL



TYPICAL CORNER DETAILS



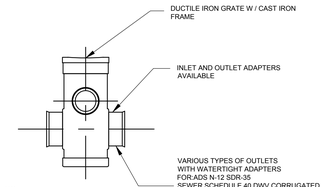
TYPE M INLET

INLET NOTES

1. CONSTRUCT IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECTION 605, FOR CAST-IN-PLACE UNITS AND SECTION 713.2(d) FOR PRECAST CEMENT CONCRETE UNITS.
2. WELD STRUCTURAL STEEL GRATES IN ACCORDANCE WITH THE REQUIREMENTS OF PUBLICATION 408, SECTION 1105.03(R). WELDING SHOPS ARE NOT REQUIRED TO BE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) CERTIFIED.
3. TYPE C FRAMES SHALL MATCH LEHIGH UNIVERSITY STANDARDS.

INLET TYPE C AND M

NOT TO SCALE



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v 215-561-1950
https://exploreexit.com/

NOT FOR CONSTRUCTION

	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

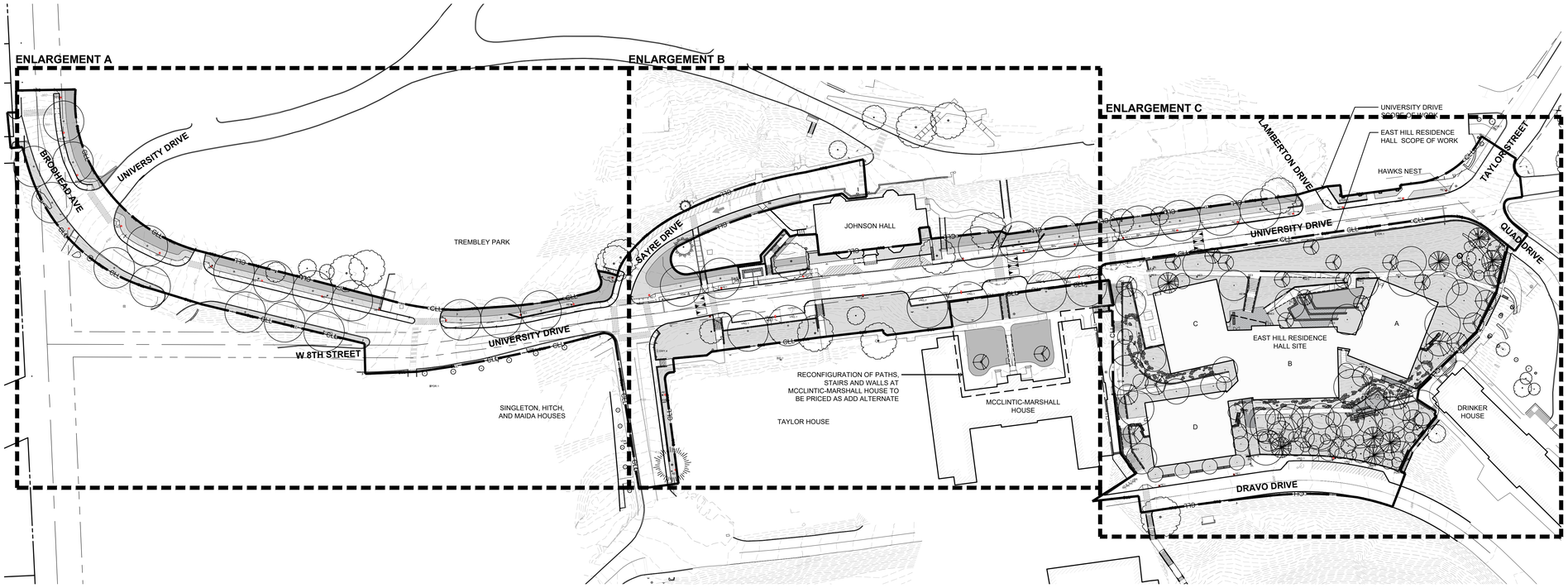
LU PROJECT #	771073
DA PROJECT #	2512
SCALE:	NTS
FORMAT:	30" X 42"
DRAWN:	1005
CHECKED:	TJS
DATE:	30 JANUARY 2026

SHEET NAME:
POST CONSTRUCTION STORMWATER MANAGEMENT DETAILS

SHEET NUMBER:
CS9502

PROJECT PHASE:
DESIGN DEVELOPMENT

U:\Accounts\DIGSAU\DIGSAU001 - Lehigh Housing Final Design\CBS\ADM_SHEETS\CS9502.dwg PLOTTED: 2/2/2026 2:26 PM, BY: Nicolé Gerone PLOTSTYLE: Pennoni NCS.ctb



SITE PLAN / GENERAL NOTES:

1. Existing site information is utilizing a project survey developed by Pennoni Associates Inc. of Bethlehem, PA, dated August 4, 2025. All existing conditions shall be verified in the field.
2. Materials and workmanship shall conform to latest uniform building codes and applicable governing agency codes and ordinances. If non-confirming conditions exist, notify Landscape Architect and Owner.
3. Verify property lines prior to commencing work. No construction item, including footings, shall extend beyond property line. If there is a conflict with the property line, the Contractor shall notify the Landscape Architect and Owner.
4. Verify and stake location of utilities prior to construction and as required by governing agencies. Before the start of work which will be impacted by underground utilities, contract Contact PA One-Call at 8-1-1 or 1-800-242-1776. Any conflicts shall be brought to the attention of the Owner and/or Landscape Architect.
5. Check dimensions and site conditions before starting work. Any discrepancies or possible deficiencies between the drawings and the specifications with field conditions shall be brought to the immediate attention of the Landscape Architect and Owner.
6. The Contractor is to be held liable for damages to existing utilities incurred by installation of the work, and must repair and replace any existing conditions that are damaged during construction.
7. Contractor to give landscape architect a minimum of forty-eight (48) hours of notice for required or requested job site visit.
8. Forms and alignment of site elements shall be reviewed and approved by the Landscape Architect and the Owner prior to installation.
9. Proposed surfaces shall meet existing surfaces with smooth and continuous transition and flush along entire edge, unless otherwise noted.
10. Construction to be plumb and true unless otherwise noted or indicated. Dimensions are from outside face of the building, paving and walls unless otherwise noted. Angles are 90 degrees unless otherwise noted.
11. Paving Contractor should coordinate and cooperate with the electrical, drainage and irrigation systems installation for required sleeves, pipes, and conduits under paving.
12. Unless otherwise noted, all submittals, samples and shop drawings requested shall be submitted to Landscape Architect and the Owner prior to ordering or delivery to site, per the specifications.
13. The Landscape Architect may observe the work at any time. They may reject samples of materials that do not conform to specifications. Rejected materials shall be removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.
14. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions. The Contractor is solely responsible for all site safety.
7. Barricades must be installed prior to any destruction and/or construction activity.
8. The root protection zone shall be the area encompassed by a circle with a radius extending 1.25 ft. from the trunk of the tree for every inch DBH (diameter at breast height) of the tree.
9. Violations of tree protection requirements are subject to penalty per City ordinance
10. All trees on public property are protected by ordinance: no pruning, root pruning of roots over one inch in diameter, and/or tree removal is to be performed without a permit and work must be performed by a City licensed tree contractor.
11. All plant materials are to conform to the American Standard for Nursery Stock, Latest Edition, American Nursery and Landscape Association.

LEGEND:

- PROPERTY LINE
- CLL — CONTRACT LIMIT LINE
- MATCH LINE
- EXISTING TREE TO REMAIN
- PROPOSED TREE
- PROPOSED MULTISTEM TREE
- WALL
- PLANTING
- LAWN
- PERMEABLE UNIT PAVING

0' 25' 50' 100' N

SHEET 44 OF 49

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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT	771073
DA PROJECT	2512
SCALE:	1"=50'-0"
FORMAT:	30" X 42"
DRAWN:	EHVW
CHECKED:	LES
DATE:	30 JANUARY 2026

SHEET NAME:
OVERALL SITE PLAN

SHEET NUMBER:
L000

PROJECT PHASE:
DESIGN DEVELOPMENT

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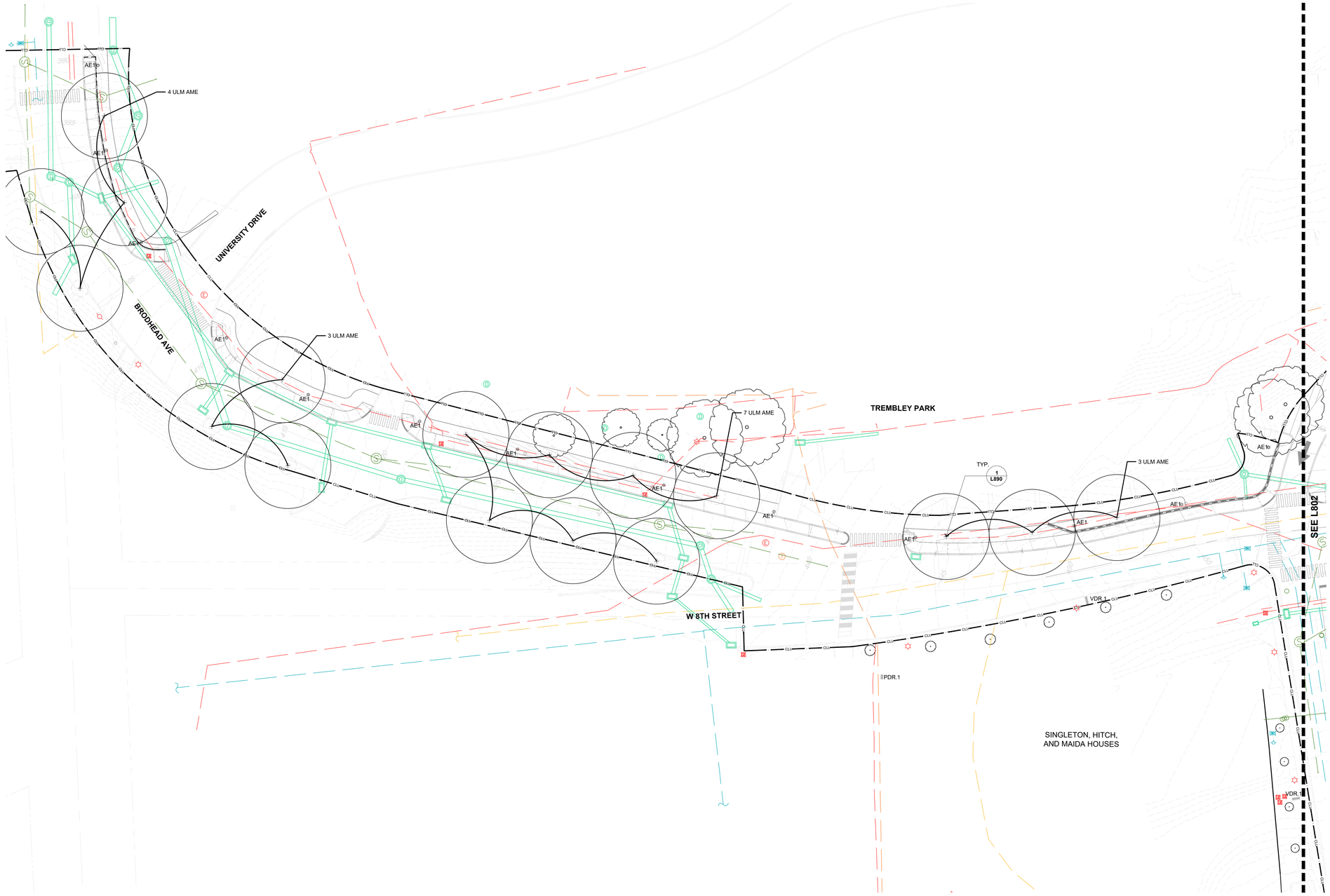

Pattern/Block	Key	Qty	Scientific Name	Common Name	Container	Size	Spacing (ft)	Mature Spread (ft)	Mature Height (ft)	Remarks
Trees										
	ULM AME	17	*Ulmus americana 'Princeton'*	Princeton Elm	B&B	2.5-3.5" CAL.	SEE PLAN	50'	65'	Minimum 7' lowest branching height

PLANTING NOTES:

1. The L-800 series must be printed in color.
2. Contact PA One-Call before the start of work which will be impacted by underground utilities at 8-1-1 or 1-800-242-1776. Any conflicts shall be brought to the attention of the Landscape Architect and Owner.
3. The planting shall be done per the date ranges indicated in the specifications. Consideration for summer/fall dig hazard should be undertaken when organizing the construction schedule.
4. As per the details, all burlap and string around root ball and the root flare shall be removed prior to placement.
5. All trees, vegetation, site elements, and improvements shall be protected and maintained at the end of each work day. Any damages caused to existing or installed elements by the site Contractor shall be repaired or re-installed at the Contractor's expense.
6. The Landscape Architect shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. They shall be afforded sufficient time to schedule visit to the site. Failure of the Landscape Architect to make field observations shall not relieve the Contractor from meeting all the requirements of project specifications.
   a. Site conditions prior to the start of planting: review the soil grading and drainage conditions.
   b. Tree-tagging
   c. Completion of the plant layout staking: review of the plant layout.
   d. Plant quality: review of plant quality at the time of delivery and prior to installation. Review tree and shrub quality prior to unloading where possible, but in all cases prior to planting.
   e. Completion of the planting: review the completed planting.
7. Protect the tree and plant protection areas at all times from: compaction of the soil; damage of any kind to trunks, bark, branches, leaves, and roots of all plants; and contamination of the soil, bark, or leaves with construction materials, debris, silt, fuels, oils, and any chemicals substance. Notify the Owner of any spills, compaction, or damage and take corrective action immediately using methods approved by the Owner and Landscape Architect.
8. Verify the location of all utilities prior to tree, shrub, and perennial installation. Any conflicts shall be brought to the attention of the Landscape Architect and Owner.
9. Substitutions for types or sizes of the specified trees and plants is not allowed unless authorized in writing by the Landscape Architect and approved by the Owner. Consideration will be given to the closest available size or cultivar.
7. Barricades must be installed prior to any destruction and/or construction activity.
8. Unless otherwise noted, the root protection zones shall be the area encompassed by a circle with a radius extending 1.25 ft. from the trunk of the tree for every inch DBH (diameter at breast height) of the tree.
9. Violations of tree protection requirements are subject to penalty per City ordinance
10. All trees on public property are protected by ordinance: no pruning, root pruning of roots over one inch in diameter, and/or tree removal is to be performed without a permit and work must be performed by a City licensed tree contractor.
11. All plant materials are to conform to the American Standard for Nursery Stock, Latest Edition, American Nursery and Landscape Association.
12. Street and parking lot trees shall be a minimum of 14' in height and have a single straight trunk with the first lateral branch at 7' above the root ball. Trees with an upright branching habit, such as Zelkova, may have the first lateral branch at 6' above the root ball.
13. All landscaping shall conform to the current edition of the Arboricultural Specifications and Standards of Practice of the City of Bethlehem.

LEGEND:

- CONTRACT LIMIT LINE
- MATCH LINE
- WATER UTILITY
- GAS UTILITY
- COMMUNICATION UTILITY
- POWER UTILITY
- SANITARY SEWER UTILITY
- STORM SEWER UTILITY
- EXISTING TREE
- PROPOSED TREE
- PROPOSED MULTISTEM TREE
- PLANTING
- HANDRAIL
- GUARDRAIL WITH MESH INFILL, SEE DTL 3/L612
- WALL, SEE L 200 SERIES FOR TYPES
- BL● BLUELIGHT SECURITY TOWER, SEE CIVIL DOCUMENTATION
- DETECTABLE WARNING TILES, SEE CIVIL DOCUMENTATION
- AE1, AE2, AE3 SITE LIGHTING, SEE LIGHTING DOCUMENTATION
- BID.1, PID.2, VRG.1, PDR.1, VDR.1, BUS.1, GWY.4 SITE SIGNAGE, SEE SIGNAGE DOCUMENTATION

0' 10' 20' 40' N

SHEET 45 OF 49

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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT	771073
DA PROJECT	2512
SCALE:	1"=20'-0"
FORMAT:	30" X 42"
DRAWN:	EHVW
CHECKED:	LES
DATE:	30 JANUARY 2026

SHEET NAME:
PLANTING PLAN: ENLARGEMENT A - TREE PLAN

SHEET NUMBER:
L801

PROJECT PHASE:
DESIGN DEVELOPMENT

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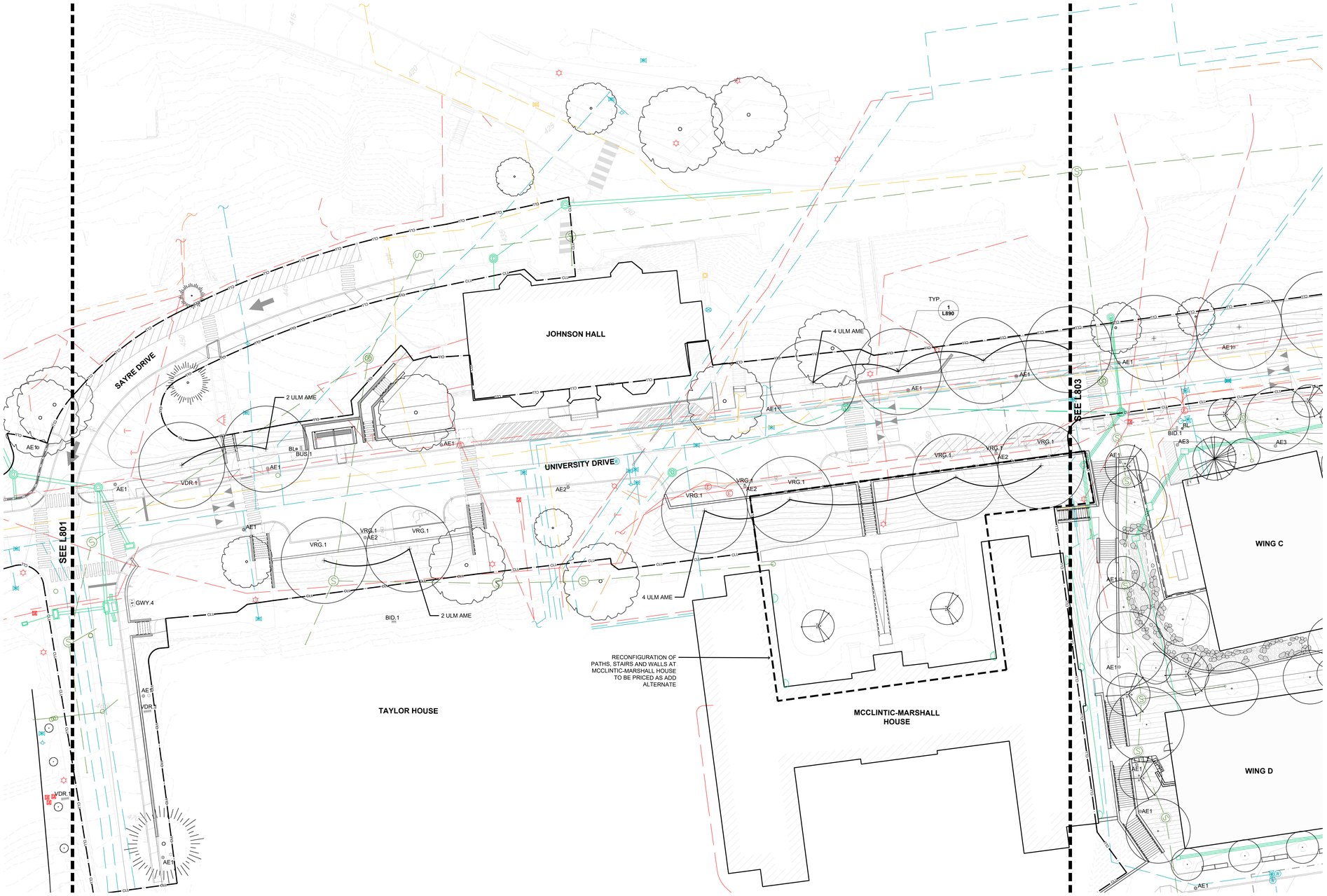

PLANTING PLAN NOTES:

1. See notes on L801.

Pattern/Block	Key	Qty	Scientific Name	Common Name	Container	Size	Spacing (ft)	Mature Spread (ft)	Mature Height (ft)	Remarks
Trees										
	ULM AME	12	*Ulmus americana 'Princeton'*	Princeton Elm	B&B	2.5-3" CAL.	SEE PLAN	50'	65'	Minimum 7' lowest branching height

LEGEND:

- CONTRACT LIMIT LINE
- MATCH LINE
- WATER UTILITY
- GAS UTILITY
- COMMUNICATION UTILITY
- POWER UTILITY
- SANITARY SEWER UTILITY
- STORM SEWER UTILITY
- EXISTING TREE
- PROPOSED TREE
- PROPOSED MULTISTEM TREE
- PLANTING
- HANDRAIL
- GUARDRAIL WITH MESH INFILL, SEE DTL 3/L612
- WALL, SEE L 200 SERIES FOR TYPES
- BL● BLUELIGHT SECURITY TOWER, SEE CIVIL DOCUMENTATION
- DETECTABLE WARNING TILES, SEE CIVIL DOCUMENTATION
- AE1, AE2, AE3 SITE LIGHTING, SEE LIGHTING DOCUMENTATION
- BID.1 PID.2 VRG.1 PDR.1 VDR.1 BUS.1 GWY.4 SITE SIGNAGE, SEE SIGNAGE DOCUMENTATION

0' 10' 20' 40' N

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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT	771073
DA PROJECT	2512
SCALE:	1"=20'-0"
FORMAT:	30" X 42"
DRAWN:	EHVW
CHECKED:	LES
DATE:	30 JANUARY 2026

SHEET NAME:
PLANTING PLAN: ENLARGEMENT B - TREE PLAN

SHEET NUMBER:
L802

PROJECT PHASE:
DESIGN DEVELOPMENT

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PLANTING PLAN NOTES:

1. See notes on L801.
2. See L811-813 for understory plantings.

CITY OF BETHLEHEM LANDSCAPING REQUIREMENTS		
REQUIREMENT	EHRH SITE	UNIVERSITY DRIVE
EXISTING # OF TREES OVER 8"	102*	Unknown
REMOVED # OF TREES OVER 8"	93	5
REQUIRED REPLACEMENT	93	5
PROPOSED # OF TREES	118	33
Note: Tree survey included all trees over 6" caliper; Only trees selected for reclamation in the central zone of the EHRH site were surveyed		

LEGEND:

- CONTRACT LIMIT LINE
- MATCH LINE
- WATER UTILITY
- GAS UTILITY
- COMMUNICATION UTILITY
- POWER UTILITY
- SANITARY SEWER UTILITY
- STORM SEWER UTILITY
- EXISTING TREE
- PROPOSED TREE
- PROPOSED MULTISTEM TREE
- HANDRAIL
- GUARDRAIL WITH HANDRAIL, SEE DTL 1/L612
- GUARDRAIL WITHOUT HANDRAIL, SEE DTL 2/L612
- GUARDRAIL WITH MESH INFILL, SEE DTL 3/L612
- TOE RAIL
- NATIVE STONE BOULDER, SEE SPECIFICATIONS
- AE1 AE2 AE3 — x — SITE LIGHTING, SEE LIGHTING DOCUMENTATION
- DEER FENCING
- BID.1 PID.2 VRG.1 PDR.1 VDR.1 BUS.1 SITE SIGNAGE, SEE SIGNAGE DOCUMENTATION

Pattern/ Block	Key	Qty	Scientific Name	Common Name	Container	Size	Spacing (ft)	Mature Spread (ft)	Mature Height (ft)	Remarks
Trees										
	ACE RUB[1]	5	*Acer rubrum 'Frank Jr.*	Redpointe Maple	B&B	5" CAL.	SEE PLAN	30'	45'	
	ACE RUB[2]	3	*Acer rubrum 'Frank Jr.*	Redpointe Maple	B&B	2" CAL.	SEE PLAN	30'	45'	
	CAR OVA[1]	18	*Carya ovata*	Shagbark Hickory	BARE ROOT	1" CAL.	SEE PLAN	50-70'	70-90'	
	CER CAN[3]	4	*Cercis canadensis*	Eastern Redbud	B&B	3" CAL.	SEE PLAN	30'	25'	Multistem
	CER CAN[2]	4	*Cercis canadensis*	Eastern Redbud	B&B	2" CAL.	SEE PLAN	30'	25'	Multistem
	CER CAN[1]	7	*Cercis canadensis*	Eastern Redbud	BARE ROOT	1" CAL.	SEE PLAN	30'	25'	Multistem
	COR FLO[3]	1	*Cornus florida*	Flowering Dogwood	B&B	3" CAL.	SEE PLAN	20-30'	20-30'	Multistem
	COR FLO[2]	2	*Cornus florida*	Flowering Dogwood	B&B	2" CAL.	SEE PLAN	20-30'	20-30'	Multistem
	COR FLO[1]	1	*Cornus florida*	Flowering Dogwood	BARE ROOT	1" CAL.	SEE PLAN	20-30'	20-30'	Multistem
	GLE TRI[4]	1	*Gleditsia tricanthos 'Shademaster'*	Shademaster Honey Locust	B&B	4" CAL.	SEE PLAN	35'	45'	
	GLE TRI[3]	4	*Gleditsia tricanthos 'Shademaster'*	Shademaster Honey Locust	B&B	3" CAL.	SEE PLAN	35'	45'	
	GLE TRI[2]	4	*Gleditsia tricanthos 'Shademaster'*	Shademaster Honey Locust	B&B	2" CAL.	SEE PLAN	35'	45'	
	LIR TUL[4]	2	*Liriodendron tulipifera*	Tulip Tree	B&B	4" CAL.	SEE PLAN	30-50'	70'	
	LIR TUL[3]	1	*Liriodendron tulipifera*	Tulip Tree	B&B	3" CAL.	SEE PLAN	30-50'	70'	
	LIR TUL[2]	8	*Liriodendron tulipifera*	Tulip Tree	B&B	2" CAL.	SEE PLAN	30-50'	70'	
	LIR TUL[1]	1	*Liriodendron tulipifera*	Tulip Tree	BARE ROOT	1" CAL.	SEE PLAN	30-50'	70'	

Pattern/ Block	Key	Qty	Scientific Name	Common Name	Container	Size	Spacing (ft)	Mature Spread (ft)	Mature Height (ft)	Remarks
Trees										
	MAG LOE[4]	3	*Magnolia loebneri*	Dr Merrill Magnolia	B&B	4" CAL.	SEE PLAN	20-30'	20-30'	Multistem
	MAG LOE[3]	3	*Magnolia loebneri*	Dr Merrill Magnolia	B&B	3" CAL.	SEE PLAN	20-30'	20-30'	Multistem
	MAG LOE[2]	6	*Magnolia loebneri*	Dr Merrill Magnolia	B&B	2" CAL.	SEE PLAN	20-30'	20-30'	Multistem
	NYS SYL[6]	6	*Nyssa sylvatica*	Sour Gum	B&B	5" CAL.	SEE PLAN	20'	35'	
	NYS SYL[2]	12	*Nyssa sylvatica*	Sour Gum	B&B	2" CAL.	SEE PLAN	20'	35'	
	NYS SYL[1]	5	*Nyssa sylvatica*	Sour Gum	BARE ROOT	1" CAL.	SEE PLAN	20'	35'	
	PIN STR[1]	6	*Pinus Strobus*	Eastern White Pine	BARE ROOT	1" CAL.	SEE PLAN	30'	80'	
	PIN THU[5]	1	*Pinus thunbergii*	Japanese Black Pine	B&B	5" CAL.	SEE PLAN	30'	30'	
	PIN THU[2]	1	*Pinus thunbergii*	Japanese Black Pine	B&B	2" CAL.	SEE PLAN	30'	30'	
	QUE MON[2]	4	*Quercus montana*	Chestnut Oak	B&B	2" CAL.	SEE PLAN	50-70'	50-70'	
	QUE MON[1]	1	*Quercus montana*	Chestnut Oak	BARE ROOT	1" CAL.	SEE PLAN	50-70'	50-70'	
	ULM AME	4	*Ulmus americana 'Princeton'*	Princeton Elm	B&B	2.5-3" CAL.	SEE PLAN	50'	65'	Minimum 7' lowest branching height

0' 10' 20' 40' N

SHEET 47 OF 49

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	DATE:	DESCRIPTION:

LEHIGH UNIVERSITY

EAST HILL RESIDENCE HALLS

65-66 University Drive
Bethlehem, Pennsylvania 18015

LU PROJECT	771073
DA PROJECT	2512
SCALE:	1"=20'-0"
FORMAT:	30" X 42"
DRAWN:	EHVW
CHECKED:	LES
DATE:	30 JANUARY 2026

SHEET NAME:
PLANTING PLAN: ENLARGEMENT C - TREE PLAN

SHEET NUMBER:
L803

PROJECT PHASE:
DESIGN DEVELOPMENT

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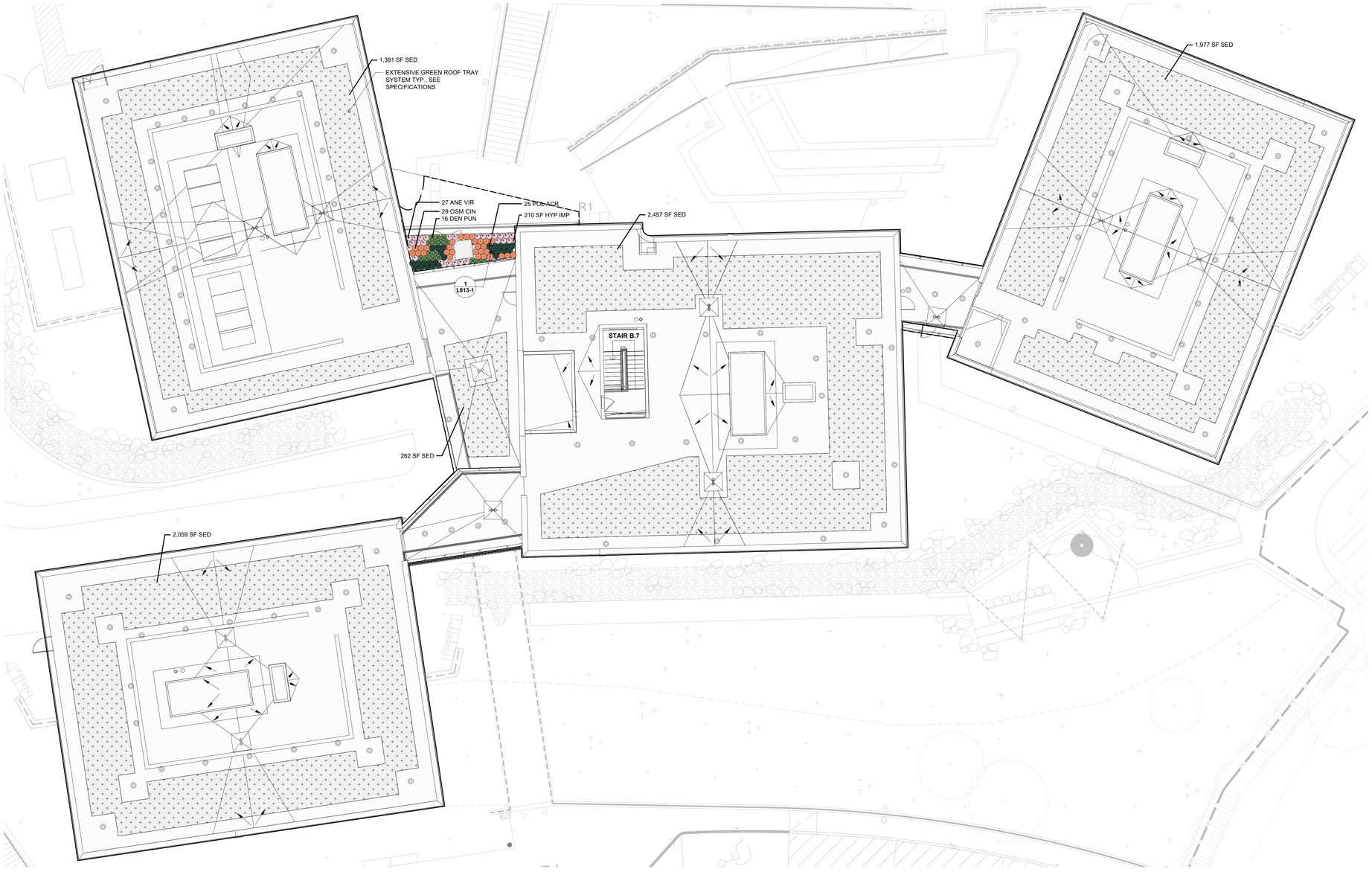


PLANTING PLAN NOTES:

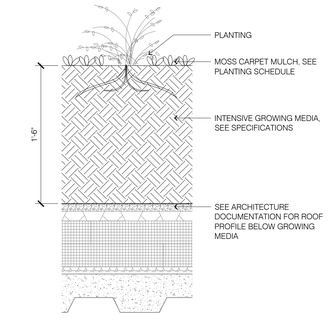
1. See Architecture drawings for roof information including waterproofing, guardrails / parapets, roof drainage, and detailing.
2. See planting notes on L801.

GREEN ROOF MAINTENANCE SCHEDULE

EARLY MAINTENANCE ACTIVITY	FREQUENCY
WATER VEGETATION AT THE END OF EACH DAY FOR TWO WEEKS AFTER PLANTING IS COMPLETED	DAILY FOR TWO WEEKS AFTER INSTALLATION
WATER VEGETATION REGULARLY TO ENSURE SUCCESSFUL ESTABLISHMENT	UNLESS IRRIGATED, EVERY FOUR DAYS DURING PERIODS OF FOUR OR MORE DAYS WITHOUT RAIN, JUNE THROUGH AUGUST FOR THE FIRST YEAR AFTER INSTALLATION
HAND-WEED NON-TARGET / INVASIVE PLANTS	FOUR TIMES PER YEAR FOR THE FIRST 24 MONTHS AFTER PLANTING
INSPECT VEGETATION FOR SIGNS OF DISEASE OR DISTRESS	BIWEEKLY FOR THE FIRST YEAR AFTER INSTALLATION

ONGOING MAINTENANCE ACTIVITY	FREQUENCY
ROOF DRAINS MUST BE CLEARED WHEN SOIL SUBSTRATE, VEGETATION, DEBRIS, OR OTHER MATERIALS CLOG THE DRAIN INLET. UNDER NORMAL OPERATING CONDITIONS, ALL ROOF DISCHARGE MUST BE FILTERED AND MEDIUM MUST NOT BE VULNERABLE TO MIGRATION TOWARD THE DRAINS. SOURCES OF SEDIMENT AND DEBRIS MUST BE IDENTIFIED AND CORRECTED.	INSPECT AT LEAST EVERY TWO WEEKS AND CLEAR DRAINS IF NEEDED
PLANT MATERIAL MUST BE MAINTAINED TO PROVIDE A MINIMUM OF 90% FOLIAGE COVER DURING WARM MONTHS. IF COVERAGE RATE IS DECLINING, DETERMINE THE REASON (E.G., SOIL NUTRITION OR SOIL MOISTURE CONDITIONS) AND IMPLEMENT REMEDIAL MEASURES.	AS NEEDED
PREFERENTIALLY, WEEDING MUST BE DONE MANUALLY, WITH HERBICIDE USE LIMITED TO EXTREME INSTANCES OF WEED INFESTATIONS THAT COMPROMISE PLANT COVER INTEGRITY. WEEDS MUST BE REMOVED ENTIRELY.	AS NEEDED
INSPECT ROOT DEVELOPMENT. IF ROOT ZONE IS NOT WELL DEVELOPED, DETERMINE THE REASON (E.G., SOIL NUTRITION OR SOIL MOISTURE CONDITIONS) AND IMPLEMENT REMEDIAL MEASURES.	QUARTERLY
IRRIGATION MUST BE INSPECTED AND IRRIGATION DOSING RATES ADJUSTED TO OPTIMIZE PLANT PERFORMANCE AND WATER USE EFFICIENCY.	QUARTERLY
GROWING MEDIUM MUST BE INSPECTED FOR EVIDENCE OF EROSION FROM WIND OR WATER. IF EROSION CHANNELS ARE EVIDENT, A PROBLEM WITH THE DRAINAGE SYSTEM OR WITH THE GREEN ROOF MEDIUM IS INDICATED. SURFACE PONDING OR RUNOFF MUST NOT OCCUR EXCEPT DURING VERY LARGE RAINFALL EVENTS. AFTER CORRECTING THE PROBLEM, REFRESH THE AFFECTED AREAS WITH ADDITIONAL GROWTH MEDIUM AND PROVIDE TEMPORARY SOIL STABILIZATION.	QUARTERLY
MANUALLY CUT DETRITAL HERBACEOUS VEGETATION FROM THE PREVIOUS GROWING SEASON TO FOUR TO SIX INCHES ABOVE THE GROUND.	ANNUALLY
INSPECT DRAIN INLET PIPE AND CONTAINMENT SYSTEM.	ANNUALLY
TEST GROWING MEDIUM FOR SOLUBLE NITROGEN CONTENT. FERTILIZE AS NEEDED.	ANNUALLY

Pattern/ Block	Key	Qty	Scientific Name	Common Name	Container	Size	Spacing (in)	Mature Spread (in)	Mature Height (in)	Remarks
PERENNIALS										
	ANE VIR	27	*Anemone virginiana*	Tall Thimbleweed	CONT.	1 GAL.	15" O.C.	1-1.5'	1-2'	
	DEN PUN	16	*Denstaedtia punctilobula*	Hay Scented Fern	CONT.	1 GAL.	15" O.C.	2-3'	1.5-2'	
	OSM CIN	29	*Osmundastrum cinnammeum*	Cinnamon Fern	CONT.	1 GAL.	15" O.C.	2-3'	2-3'	
	POL ACR	25	*Polystichum acrostichoides*	Christmas Fern	CONT.	1 GAL.	15" O.C.	1-2'	1-2'	
	SED	8,136 SF	*Various*	Sedum Mix	TRAY	24"x12"	NA	NA	NA	American Hydrotech Hydrotech InstaGreen GT-4 Tray, containing LiteTop Growing Media and vegetation. 8" growing media depth.
	HYP IMP	210 SF	*Hypnum imponens*	Feather Sheet Moss	MAT	NA	NA	NA	1-5"	Sheet Moss by Moss Acres, Honesdale PA or approved equal



1 DETAIL
INTENSIVE GREEN ROOF PLANTING PROFILE
SCALE = 1' = 1'-0"

0' 5' 10' 20' N

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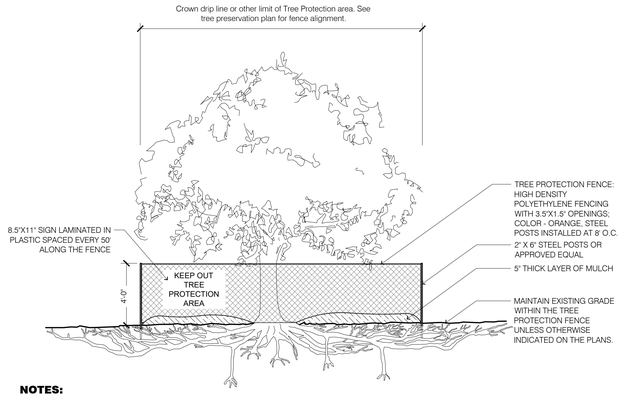
LU PROJECT	771073
DA PROJECT	2512
SCALE:	1"=20'-0"
FORMAT:	30" X 42"
DRAWN:	EHVW
CHECKED:	LES
DATE:	30 JANUARY 2026

SHEET NAME:
PLANTING PLAN: ENLARGEMENT C - ROOF PLAN

SHEET NUMBER:
L813-1

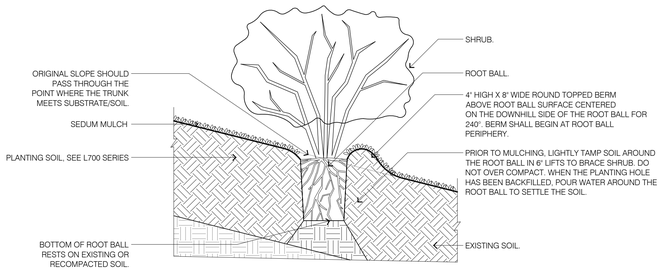
PROJECT PHASE:
DESIGN DEVELOPMENT



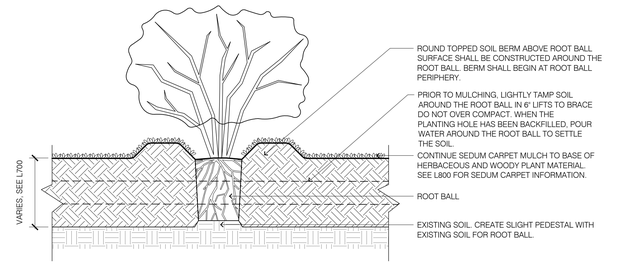
NOTES:

1. SEE SPECIFICATIONS FOR ADDITIONAL TREE PROTECTION REQUIREMENTS.
2. SEE SPECIFICATIONS FOR WATERING REQUIREMENTS.
3. NO PRUNING SHALL BE PERFORMED EXCEPT BY APPROVED ARBORIST.
4. NO EQUIPMENT SHALL OPERATE INSIDE THE PROTECTIVE FENCING INCLUDING DURING FENCE INSTALLATION AND REMOVAL.
5. SEE SITE PREPARATION PLAN FOR ANY MODIFICATIONS WITHIN THE TREE PROTECTION AREA.

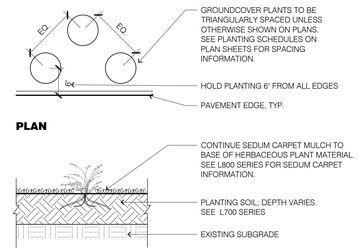
6 | SECTION
TREE PROTECTION ZONE
SCALE = 1/4" = 1'-0"



5 | SECTION
SHRUB ON SLOPE
SCALE = 3/4" = 1'-0"



4 | SECTION
SHRUB PLANTING
SCALE = 3/4" = 1'-0"



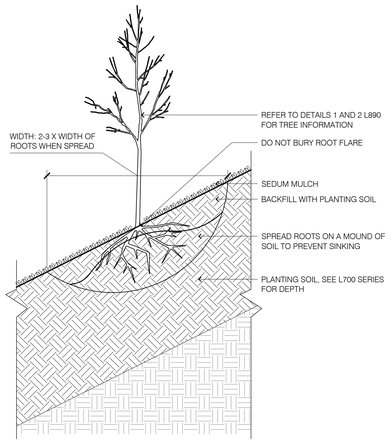
PLAN

SECTION

NOTES:

1. SEE PLANTING SCHEDULES ON PLANTING PLAN SHEETS FOR GROUNDCOVER SPECIES, SIZE, AND SPACING DIMENSIONS.
2. SETTLE SOIL AROUND ROOT BALL OF EACH GROUNDCOVER PRIOR TO MULCHING.

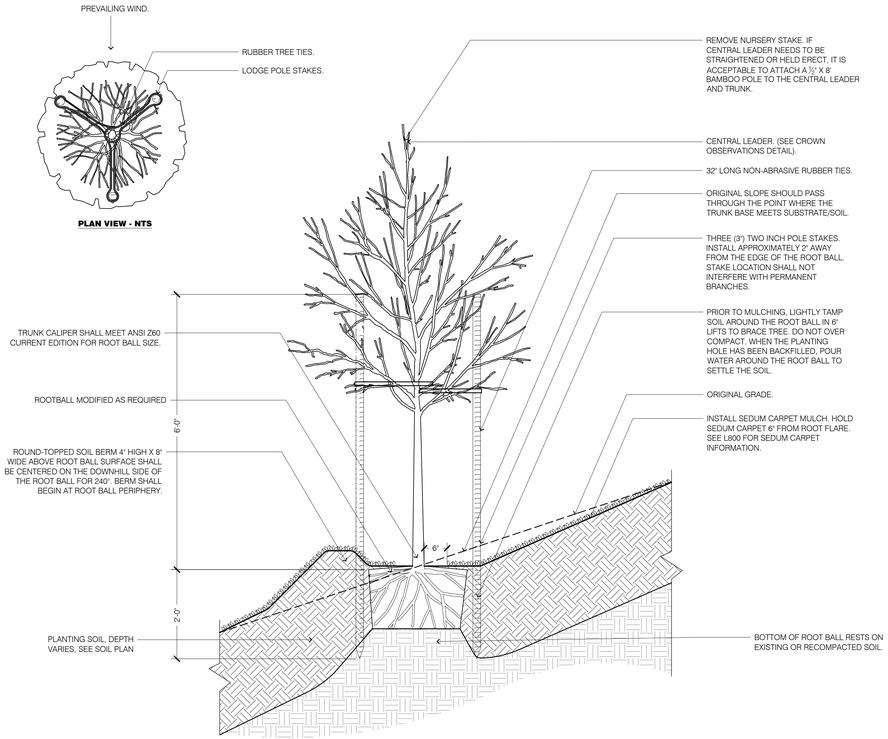
7 | SECTION
PERENNIAL AND GRASS PLANTING
SCALE = 3/4" = 1'-0"



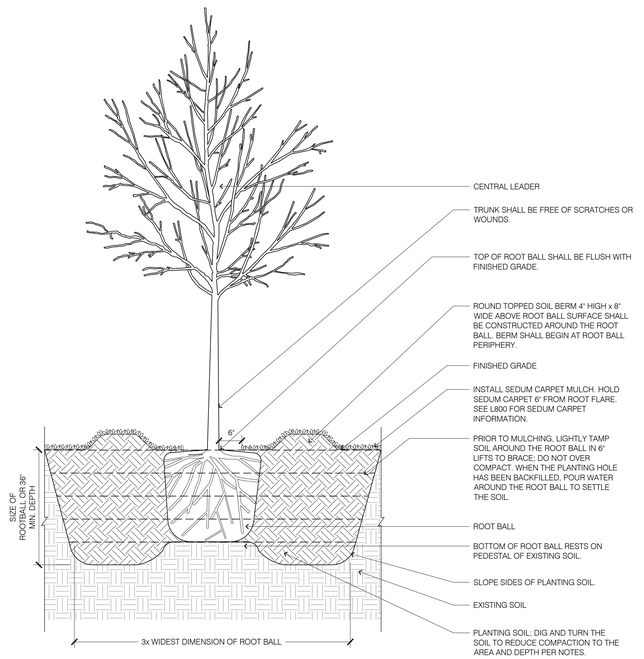
NOTES:

1. SOAK BARE ROOTS IN A BUCKET OF WATER FOR 4-6 HOURS PRIOR TO PLANTING.

3 | SECTION
BARE ROOT TREE ON SLOPE PLANTING
SCALE = 3/4" = 1'-0"



2 | SECTION
TREE PLANTING ON SLOPE
SCALE = 3/4" = 1'-0"



1 | SECTION
TREE PLANTING
SCALE = 3/4" = 1'-0"

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DA PROJECT	2512
SCALE:	VARIES
FORMAT:	30" X 42"
DRAWN:	EHVW
CHECKED:	LES
DATE:	30 JANUARY 2026

SHEET NAME:
PLANTING DETAILS

SHEET NUMBER:
L890

PROJECT PHASE:
DESIGN DEVELOPMENT

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DRAWING INDEX

01 PCSM OVERALL SITE PLAN
02 PCSM DATA & DETAILS PLAN
03 PCSM PUMP & DETAILS PLAN
04 PCSM DETAIL PLAN
05 PCSM O & M SCHEDULE PLAN

PCSM/IRRIGATION SYSTEM TO BE INSTALLED BY A NATIONALLY CERTIFIED IRRIGATION CONTRACTOR

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PA. ACT 287 OF 1974 REQUIRES THREE WORKING DAYS NOTICE TO UTILITIES BEFORE YOU EXCAVATE, DRILL OR BLAST PENNSYLVANIA ONE-CALL SYSTEM, INC. SERIAL NUMBER(S):

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AQUA-MIST
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Allentown, PA 18109
484-460-2690 LIC # 15036

Project Title:

LEHIGH UNIVERSITY
EAST HILL
RESIDENCE HALL

27 MEMORIAL DRIVE
BETHLEHEM

Northampton County Pennsylvania

Legend:

- Rainbird 8005 Rotary Head 9.0 GPM
- Rainbird 5004 Rotary Head 3.78 GPM
- Rainbird 5004 Rotary Head 2.52 GPM
- Rainbird 5004 Rotary Head 1.86 GPM
- Rainbird 1800 Series Spray Head 15' Nozzle
- Rainbird 1800 Series Spray Head 12' Nozzle
- I Rainbird PGA Electric Valve Valve
- VM Rainbird Site Control
- R Rainbird Rain Sensor
- F Rainbird Flow Meter
- P Rainbird VFD Submersible Pump w/ MCA
- D Drain Port
- —EU— Rainbird Maxi Cable (in 1" conduit)
- Class 200, PCSM Main Line Size as noted
- Class 200, SDR21 PVC Lateral Pipe 1" unless noted
- Line Size Isolation Valve
- SD.G Line Surge Protector / Grounding
- A Air Relief Valve

Revisions:
12-30-25: Volume Modification

CLIA CIC

Walter J Mugavin

Walter J Mugavin CIC,CLIA

C AMI Consulting, LLC

Project:

LEHIGH UNIVERSITY
EAST HILL
RESIDENCE HALL

POST CONSTRUCTION
STORMWATER MANAGEMENT
SYSTEM

Overall Site Plan

Date:	Design By:
09-27-25	WJM
Drawn By:	Checked By:
WJM	
Scale:	Sheet #:
1" = 20'	I-01

Chart # 1

Station	Zone	Sprinkler	GPM	Quantity	Flow	Run Time	Gals/Cycle
1	1	1800 Series Spray	1.3	10	13	15	195.00
2	1	8005 Rotary	9	3	27	30	810.00
3	1	8005 Rotary	9	3	27	30	810.00
4	1	5004 Rotary	2.33	7	16.31	30	489.30
5	1	5004 Rotary	3.78	10	37.8	30	1,134.00
6	1	5004 Rotary	2.33	13	30.29	30	908.70
7	1	5004 Rotary	1.86	6	11.16	30	334.80
8	1	1800 Series Spray	1.85	16	29.6	15	444.00
Total				68	192.16		5,125.80

The applicant/owner is responsible to monitor and record the flow through the spray irrigation system to ensure the required volume is being applied

The entire volume of 6,771 Cubic Feet should be utilized within 6 days of the ending of each storm event.

The Spray Irrigation System shall not be activated until Approximately 24hours after any significant precipitation storm event.

Chart # 3

Pressure Loss Chart				Static Pressure		100
Pump	Flow/GPM	Size	Lengthft	Multiplier	Loss/100'	Press Loss
Pump	80					
Main Line	67	3"	300	3	0.37	1.11
Main Line	13	1.5	50	0.5	0.4	0.20
Elevation				68	0.433	29.44
Dynamic Pressure at Stations 1,2 & 3						69.25

PRESSURE REGULATED VALVES AT STATIONS 1 & 8 SET AT 50PSI

PRESSURE REGULATED VALVES AT STATIONS 4,5,6 & 7 SET AT 65PSI

Chart # 4

PIPE SIZE CHART	
GPM	MINIMUM SIZE
1–16	1”
17–26	1.25”
27–39	1.50”
40–60	2”
61–80	2.5”
81–99	3”
100–190	4”
190–400	6”
400–600	8”
600–1000	10”

Chart # 2

SPRAY IRRIGATION DESIGN

Lehigh University Zone 1

STORM INFORMATION								
			ACRE FT		CUBIC FT		GALLONS	
VOLUME TO BE IRRIGATED:	REQUIRED		0.155		6,771.00		50,647.08	
6 Days	PROVIDED		0.160		6,989.73		52,283	
	1 ACRE FT=	325,900 Gallons		1 CUBIC FT =	7.48 GALLONS			
DOSAGE INFORMATION					Cycle & Soak			
NO. OF DOSES =			1		1.7			
VOLUME PER CYCLE =			5,125.80		8,713.86			
PROVIDED RATE OF IRRIGATION =			4,800	GAL / HR	4,800	GAL / HR		
TOTAL REQUIRED HOURS OF IRRIGATION =			1.07		1.82			
MAX RATE OF IRRIGATION (TURF) =		IN/DAY			SQ.FT /ACRE		GAL / SF / HR	
		0.5	27,154		43,560		0.31	
SEASONAL SCHEDULE	MARCH 15TH TO NOVEMBER 15TH							

	LENGTH OF DOSE		TIME OF DAY FOR DOSING		CYCLE & SOAK WAIT TIME
ZONE	HOUR	MINUTES			
1	1	30	12:00 AM	1:30 AM	2.5 Hours
1	1	3	3:00 AM	4:03 AM	

DAILY DOSAGE: 8,713.86 GALLONS DAILY RUN TIME: 4.05 HOURS

MAXIMUM RATE OF IRRIGATION:

ZONE	ABSORPTION AREA PROVIDED FOR IRRIGATION SQ.FT	MAX ALLOWABLE RATE OF IRRIGATION BASED ON ABSRPTION AREA PROVIDED GAL / DAY
1	28,694.00	8,943.49
PROVIDED	28,694.00	8,943.49

ZONE	TOTAL # OF SPRINKLERS	REQUIRED FLOW GPM	PROVIDED IRRIGATION RATE BASED ON SPRINKLER DESIGN GAL / DAY	PERCENT OF MAXIMUM ALLOWABLE IRRIGATION RATE
1	68	80	8,713.86	97.4%
PROVIDED				

Total Square Feet:	28,694.00	Total Gallons Per Day:	8,713.86	Inches Per Day:	0.487
		Cu Ft per Day:	1,164.95		

PCSM/Irrigation Spray Construction Sequence:

CONTRACTOR SHALL CONTACT THE DESIGNER AND ENGINEER FOR INSPECTION OVERSITE. (CRITICAL STAGE)

Contractor Shall make themselves familiar with all aspects of the construction of the PCSM system.
Prior to any trenching construction or installation, the Contractor shall flag out area to ensure the best location of pipe, sprinkler heads, valves, etc.
Any deviations in layout shall be brought to the Owners representative before proceeding.
The Contractor is expected to make minor adjustments of wire, pipe and valve locations as to not conflict with existing or future utilities.
Irrigation Sequence:
Installation of wet well and intake pipe and Screen
Installation of Submersible Pump
Installation of Road and Parking lot Sleeves
Installation of Main line, Valves and Communication Cable
Installation of Central Control System and Sensors
Installation of Lateral Lines
Installation of Sprinkler Heads
Testing of System
Adjustment of all sprinkler heads
Mapping decoders/valves
Decoder Test
Flow Sensor Test
Completion of As-Built Drawings
Contact the Northampton County Conservation District as to any changes in the Spray System and supply the CCD with As-Built and impact of changes.

Spring Startup

1. CLOSE WINTER VALVE
2. OPEN SEASONAL VALVE
3. CHECK POND LEVEL SENSORS
4. SLOWLY FILL MAIN LINE AND CHECK FOR LEAKS
5. CHECK ALL SPRINKLER HEADS FOR FUNCTIONALITY
6. REPAIR AND ADJUST SYSTEM AS REQUIRED FOR PROPER OPERATION
7. ENGAGE PCSM PROGRAM ON CONTROLLER

Winter Procedure:

1. OPERATE SYSTEM TO DRAIN BASINS TO LOWEST POSSIBLE LEVEL
2. BLOW OUT EACH STATION TWICE WITH COMPRESSED AIR.
3. CLOSE SEASONAL VALVE
4. OPEN WINTER VALVE
5. ENGAGE WINTER PROGRAM ON CONTROLLER

Rainbird IQ4 be installed in order to complete the necessary communication and interaction between the pump station, pond level, and seasonal water schedule.
Monitored Control Alert (MCA) to be installed in order to complete the necessary communication and interaction of the pump station touch screen interface panel.

All Communication cable shall be installed in 1" PVC Conduit

Main Line & Lateral Notes:

10" PVC Main Line Depth of Burial:36"
8" PVC Main Line Depth of Burial: 36"
6" PVC Main Line Depth of Burial: 30"
4" PVC Main Line Depth of Burial: 28"
3" PVC Main Line Depth of Burial: 24"
2" - 2.5" PVC Main Line Depth of Burial: 24"
1.5" PVC Lateral Line Depth of Burial: 12"

Winter Discharge:
Pump will engage 24 hours after any significant rain event.
Pump will discharge at a rate not to exceed 67 GPM.
Velocity shall not exceed 5fps.
Pumping will continue until basin is empty

In the event that any changes in the nature or due to substitutions not authorized by the Designer, AMI Consulting LLC is not responsible for any claims, damages, or liability associated with the failure of the PCSM system if not installed as per the approved plans

General Notes:

RAINBIRD IVM W/IQ4 CONTROL CENTRAL CONTROL SYSTEM:

THE INTERACTIVE CENTRAL CONTROL SYSTEM FOR IRRIGATION VIA A 2 WIRE PATH AND DECODERS.

SMART SENSORS:
ALLOWS USE OF PULSE (FLOW) AND STATIC/SWITCH SENSORS TO MONITOR, ALARM AND TAKE ACTION ON MEASURED CONDITIONS

RAIN WATCH:
USES TIPPING BUCKET RAIN CAN TO DETECT AND SUSPEND IRRIGATION WHILE MEASURING RAINFALL.

ESP-LX-IVM CONTROLLER SHALL BE GROUNDED TO LESS THAN 5 OHMS

GENERAL PCSM / IRRIGATION:

PCSM System will be active from March 15th to November 15th, weather permitting.
Winter Program to be in effect Novemnber 16th to March 14th.

WARRANTY & MAINTENANCE:

1. CONTRACTOR SHALL MAINTAIN THE IRRIGATION SYSTEM IN GOOD OPERATING CONDITION AND COORDINATE THE OPERATION OF THE SYSTEM WITH THE ON SITE MANAGER THROUGH MONTHLY INSPECTIONS OF SYSTEM COMPONENTS AND MAKE REPAIRS OR REPLACEMENTS OF PARTS AS NECESSARY. THIS INCLUDES CHECKING AND VERIFYING OPERATION IN EACH STATION, ALIGNMENT OF HEADS, RAIN SENSORS, FREEZE SENSOR AND CENTRAL CONTROL.

Submittals to the components of the system shall be sent to the Engineer and Designer of record to review and approve per the approved plan. If changes are proposed please contact the District to see if a permit amendment is necessary.

The critical stages shall include site visits during installation of the system to ensure basic compliance with the approved plan.

CRITICAL STAGE FOR PUMP STATION
The pump station for distribution of the required volume shall be as specified
Any changes in the pump station must be brought to the attention of the Designer and the Engineer for approval prior to bidding

The pump station must be a pre-packaged platform by a single source manufacturer with a 24-7 customer service center

The pump must have a communication package for monitoring by the maintenance contractor

AQUA MIST IRRIGATION
AQUA-MIST
759 N Fenwick Street
Allentown, PA 18109
484-460-2690 LIC # 15036

Project Title:

LEHIGH UNIVERSITY
EAST HILL
RESIDENCE HALL

27 MEMORIAL DRIVE
BETHLEHEM

Northampton County Pennsylvania

Legend:

- Rainbird 8005 Rotary Head 9.0 GPM
- Rainbird 5004 Rotary Head 3.78 GPM
- Rainbird 5004 Rotary Head 2.52 GPM
- Rainbird 5004 Rotary Head 1.86 GPM
- Rainbird 1800 Series Spray Head 15' Nozzle
- Rainbird 1800 Series Spray Head 12' Nozzle
- Rainbird PGA Electric Valve Valve
- VM Rainbird Site Control
- R Rainbird Rain Sensor
- F Rainbird Flow Meter
- P Rainbird VFD Submersible Pump w/ MCA
- D Drain Port
- —EU— Rainbird Maxi Cable (in 1" conduit)
- Class 200, PCSM Main Line Size as noted
- Class 200, SDR21 PVC Lateral Pipe 1" unless noted
- Line Size Isolation Valve
- SD G Line Surge Protector / Grounding
- A Air Relief Valve

Revisions:
12-30-25: Volume Modification

CLIA CIC
Walter J Mugavin
Walter J Mugavin CIC,CLIA

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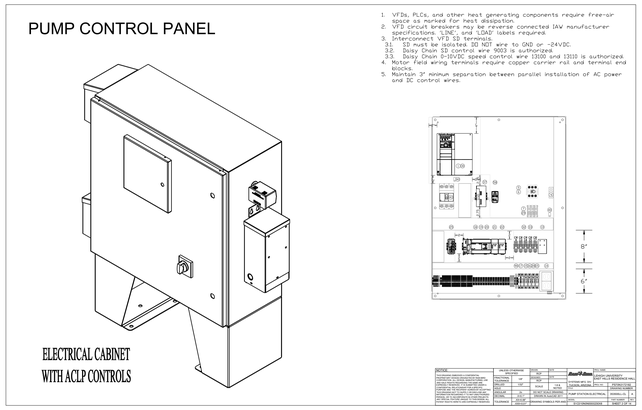
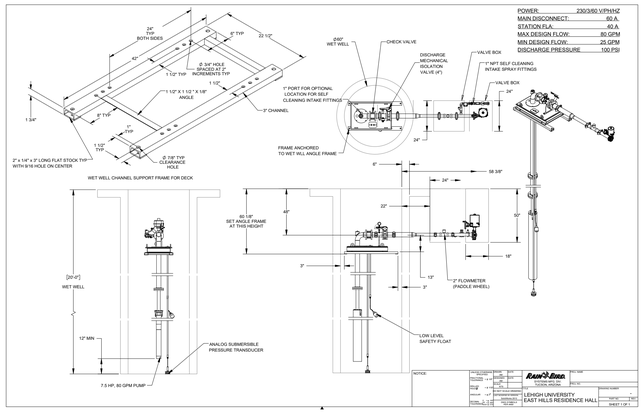
Project:
LEHIGH UNIVERSITY
EAST HILL
RESIDENCE HALL

POST CONSTRUCTION STORMWATER MANAGEMENT SYSTEM

Data & Details

Date:	Design By:
09-27-25	WJM
Drawn By: WJM	Checked By:
Scale: NTS	Sheet #: I-02



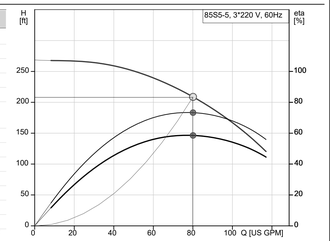


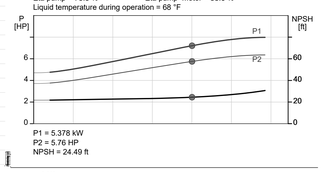
Company name: Rain Bird
Created by: Aqua Mist Irrigation
Phone: 484-460-2690
E-Mail: wmugavin@ aqua-mist.net

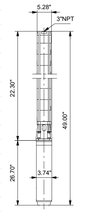
LEHIGH UNIVERSITY
EAST HILLS RESIDENCE HALL

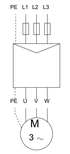
Date: 01-08-26

Description	Value
General information:	
Product name:	85S5-5
Product No:	77S75-15
EAN number:	5700391308505
Technical:	
Pump speed on which pump data are based:	3450 rpm
Actual calculated flow:	80.1 US GPM
Rated flow:	88.1 US GPM
Resulting head of the pump:	210.8 ft
Rated head:	187 ft
Stages:	5
Number of reduced-diameter impellers:	NONE
Approvals:	CULDWUS,CCSAUS
Approvals for motor:	CCSAUS,C_UL_US_NSF 372
Approvals for drinking water:	PROP65
Curve tolerance:	ISO9906:2012 3B
Model:	B
Motor version:	T40
Return valve:	YES
Materials:	
Pump:	Stainless steel
Pump:	EN 1.4301
Pump:	AISI 304
Impeller:	Stainless steel
Impeller:	EN 1.4301
Impeller:	AISI 304
Motor:	Stainless steel
Motor:	EN 1.4301
Motor:	AISI 304
Shaft seal:	HM/Ceramics
Installation:	
Maximum ambient pressure:	870.23 psi
Maximum operating pressure:	870.23 psi
Maximum outlet pressure:	120.38 psi
Type of connection:	NPT(F)
Size of connection:	3 inch
Motor diameter:	4 inch
Minimum borehole diameter:	5.51 in
Liquid:	
Pumped liquid:	Water
Liquid temperature range:	5 .. 104 °F
Selected liquid temperature:	68 °F
Density:	62.29 lb/ft³
Electrical data:	
Motor type:	MS4000
Motor flange design:	Grundfos
Rated power - P2:	7.5 HP
Power (P2) required by pump:	7.5 HP
KVA code:	J
Mains frequency:	60 Hz
Rated voltage:	3 x 208-220-230 V
Service factor:	1.15
Rated current:	24.5-23.4-23.8 A
Starting current:	490-550-570 %
Cos phi - power factor:	0.87-0.84-0.79
Rated speed:	3440-3470-3480 rpm









Pump Station Details

Quantity	*Type*		*Description*
1	**7.5**	HP MOTOR	Submersible main motor: IP68 enclosure, 2-Pole/3600RPM, 1.15SF, operating in accordance with NEMA MG-1 and MG-2
1	**77S75-15**	PUMP	Vertical submersible main pump with stainless steel construction of vital pump components including: impellers, diffusers, shafts, vanes, cable guards, couplings, and hardware.

Control Options

Quantity / Type		Options
24V AC	Included	Pump Start Relay -
1		Paddlewheel Flowmeter Upgrade in lieu of flow switch, *includes PLC*
1		8.4 in. color touch screen with ethernet communication capability.
1		Electric Butterfly Valve
1		Lake level control circuit: Analog submersible transducer. Normal FILL mode and HIGH LEVEL DEWATERING output relay.
1		Rainbird MCA (Monitor -Control-Alert) Pre Installed communication hardware

System Details

Mechanical System

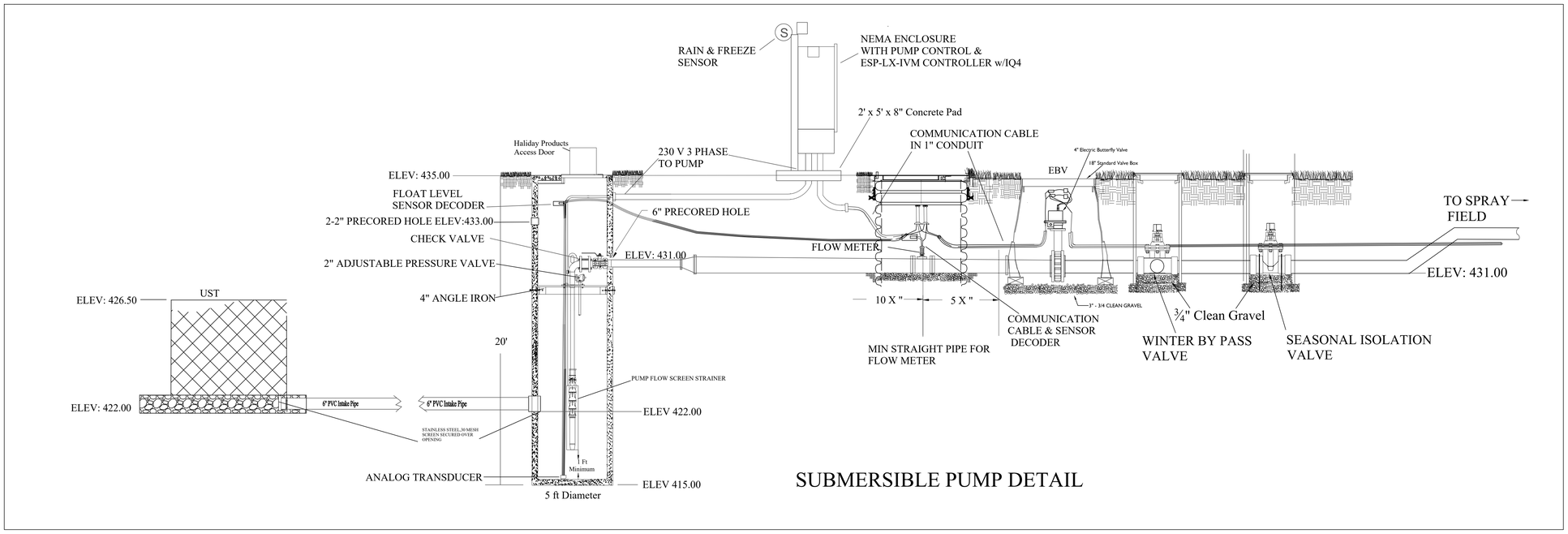
Description

. Variable Frequency Drive [VFD] (Manufactured by Mitsubishi)
. Programmable Logic Controller [PLC] (Manufactured by Mitsubishi)
. 8.4 Color Touch Screen operator interface
. Circuit breaker motor protection
. NEMA 4R electrical enclosure with air circulation fans for cooling
. 4 in. ANSI flanged Discharge station isolation valves
. Individual pump silent check valve and isolation valve
. Flow meter spool with paddle wheel flow meter and OPTO ISOLATOR
. Stainless steel pressure transducer
. Low water level safety float switch to protect against loss of prime
. Liquid filled suction and discharge pressure gauges

Control System

Description

. Automatic pressure ramp-up capability
. VFD fault shutdown
. Automatic system diagnostic utility
. Individual pump lighted HOA switch
. High pressure and low pressure alarms with dry run protection
. Main power line phase/volt monitoring
. Individual motor overload/thermal protection safeties
. Single phase and three phase surge protection safeties



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12-30-25: Volume Modification

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Project:

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EAST HILL
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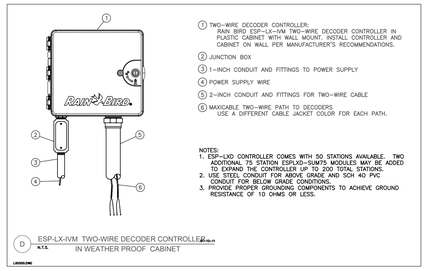
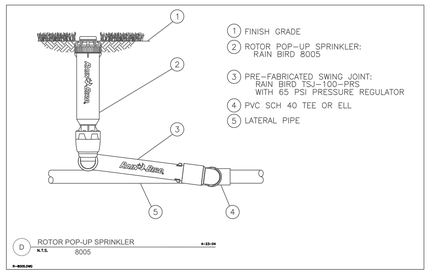
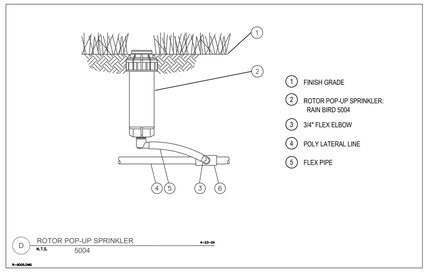
POST CONSTRUCTION STORMWATER MANAGEMENT SYSTEM

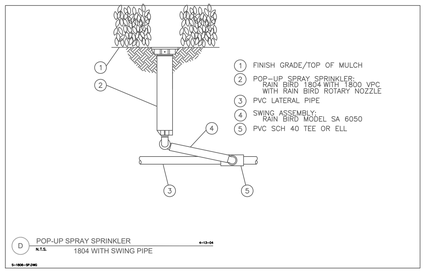
Pump & Details

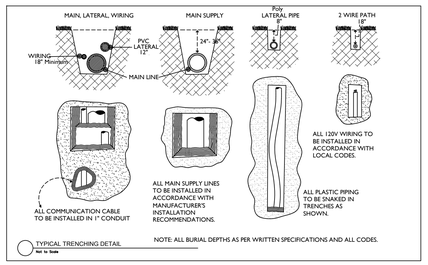
Date:	Design By:
09-27-25	WJM
Drawn By: WJM	Checked By:
Scale: NTS	Sheet #: I-03

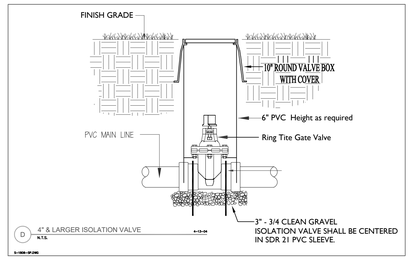


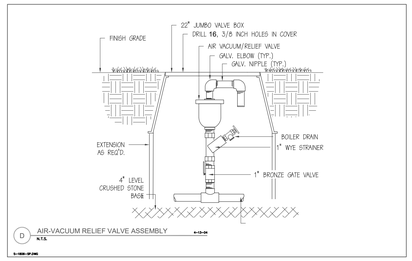


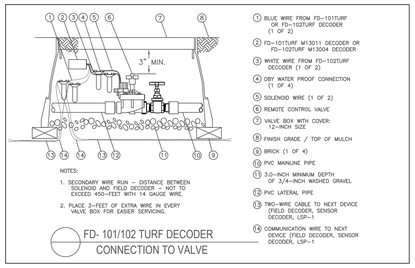


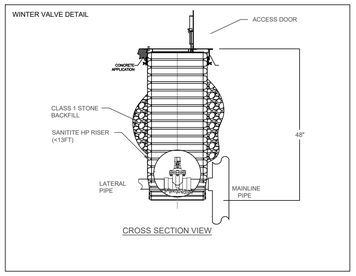


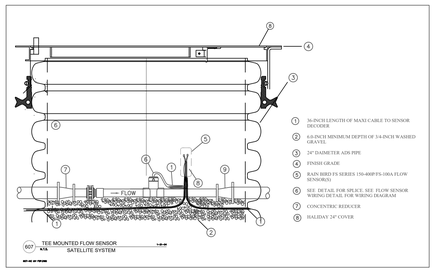


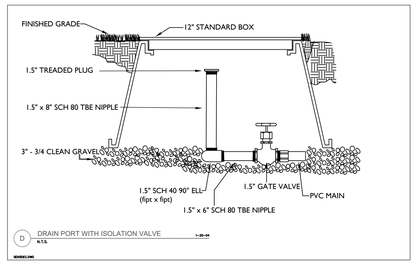


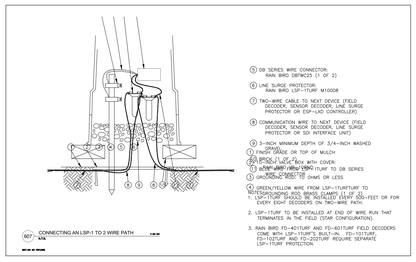


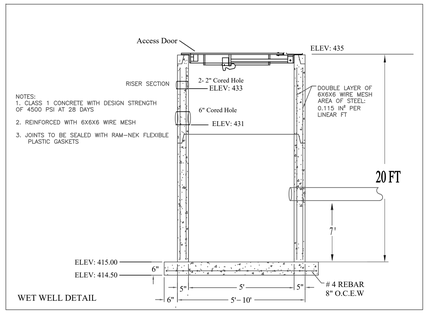


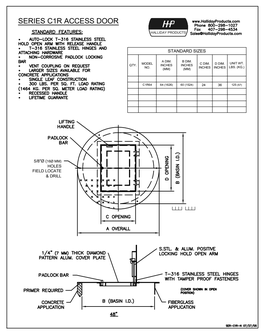


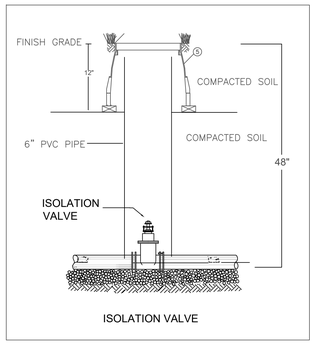












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Walter J Mugavin CIC,CLIA

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Project:

LEHIGH UNIVERSITY
EAST HILL
RESIDENCE HALL

POST CONSTRUCTION
STORMWATER MANAGEMENT
SYSTEM

Details

Date: 09-27-25	Design By: WJM
Drawn By: WJM	Checked By:
Scale: NTS	Sheet #: I-04

OPERATIONS AND MAINTENANCE SCHEDULE:

Page 1

- STORMWATER SPRAY IRRIGATION

The contractor's shall ensure the spray irrigation is in working order and remains so for the period of time specified in the Maintenance Agreement. Following the maintenance agreement period the owner shall contract with a qualified irrigation contractor to provide preventative maintenance, seasonal maintenance, and annual reporting. Maintenance practices include, but are not limited to the following:

1. The contractor shall visit the site once a month for the first season of operation following Final Acceptance. The contractor shall monitor the system, balance the system to function per the performance specification, provide maintenance and repair. He shall also provide on-site consultation with the Owner's operating personnel and assist in submitting the required reports to the Conservation District and DEP.
2. Prior to beginning installation, written Maintenance Agreement with Owner for period specified in said Agreement from date of Final Acceptance for the following:
   a. Costs for additional work required for repair of items not covered by warranty shall be negotiated between Owner and Contractor prior to initiation of any repairs.
   b. Costs for the Maintenance Agreement are over and above Contract Sum, and shall not be included in construction price. Payment for extended maintenance by Owner shall occur upon completion of scheduled service and additional work, if any, as it occurs on monthly basis throughout duration of the Maintenance Agreement.
3. Flushing
   a. Schedule
      1) Spring startup
      2) Mid Season Maintenance Check
      3) Following any repairs

   b. Flush until exiting water is clean

      1) If after a reasonable period of time water remains unclean determine source of contaminants and remediate
      2) Re-flush until water is clean

   c. Following flushing operation pressure at end of runs to assure the pressure is within normal operating range. If pressure is outside of normal operating ranges remediate condition.

4. Submesible Pump: The Submersible pump shall be maintained per the manufacture's requirements.

Page 2

Preventative Maintenance Schedule.
It represents an example of the requirements for pump station operation and maintenance. The actual requirements to be used shall be based on the specific requirements for the submersible pump installed.

5.1 PREVENTATIVE MAINTENANCE SCHEDULE

Warning: the following preventative maintenance items should only be performed by a service provider trained to repair and maintain electrical and rotating equipment.

Caution: immediately remove rust and corrosion from damaged areas and apply touch up paint in accordance with the powder coating touch-up procedure.
Failure to do so will result in reduced service life and possible unsafe conditions.

1. Spring Start Up:
   a. De-energize the pump and check tight all terminal connections and all plumbing connections.
   b. Remove any debris from control panel interior.
   c. Check status of surge arrestors.
   d. Flow test station up to design flow rate and back to zero. Ensure pumps start / stop in sequence properly.
2. Mid Season Check Up:
   a. Check condition and security of all installed equipment.
   b. Check for leaks and blockage of drain lines and control tubes.
   c. Check for signs of rust and corrosion.
   d. Check for any alarm conditions.
   e. De-energize the pump station and check tight all terminal connections and all plumbing connections.
   d. Change oil on vertical hollow-shaft motors.
   f. Clean and inspect pressure transducer. Remove and clear the pressure transducer hydraulic signal line with compressed air.
3. Winter Check Up:
   a. Check condition and security of all installed equipment.
   b. Check for leaks and blockage of drain lines and control tubes.
   c. Check for signs of rust and corrosion.
   d. Check for any alarm conditions.
   e. De-energize the pump station and check tight all terminal connections and all plumbing connections.
   g. Apply power to pump.

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4. Annually:
   a. Perform the motor insulation test procedure on all pump motors. Record the values and keep record that allows year-to-year comparison.
   b. On pump stations equipped with automatic filtration:
      1) Close the main inlet/discharge isolation valve(s).
      2) De-energize and de-pressurize the pump station.
      3) Remove and power wash each filter screen.
      4) Inspect the filter components in accordance with the filter's manufacturer recommendations.
   c. Verify individual pump performance at specified duty point against pump curve.
   e. Inspect all contactors and relays. (power off)
   f. Inspect and tighten all electrical terminals and lugs. (power off)
5. Every 5 Years add an additional Monthly Pump Maintenance Check

Note: the above schedule outlines the minimum required maintenance to ensure a long service life and reliable performance. Additional inspections and more frequent cleaning cycles may be necessary depending on the water quality or as desired.

5.2. Control Valves:

a. Control valves shall be inspected as part of preventative - scheduled maintenance, winterization and start up.

b. Check for water puddles on the surface which may indicate that a drain is stuck in an open position. If so determined repair and or replace as necessary. Automatic control valves shall be repaired only by properly trained personnel.

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6. Sprinkler Heads:
   a. Visually inspect operation of sprinkler heads. Assure uniform distribution and proper range of motion.
   b. Common cause of issues
      1) Foreign objects in water - remove through flushing and cleaning.
      2) Oil or pipe dope - do not use oil, grease or pipe dope. Remove any of these items previously used. Use Teflon tape on connections.
      3) Improper pressure - check per manufacture's specifications.
      4) Damaged parts - repair or replace as necessary. Note that repairs to sprinkler heads should only be made by trained personnel.
   c. Check as necessary to provide proper coverage and prevent overspray into undesirable or unnecessary areas.
   d. If visual observation indicates water puddles or non-uniform application perform a calibration test (sometime referred to as a can or cup test) to verify that loading is uniform. Make necessary adjustments as necessary.
7. Scheduled maintenance - periodic maintenance shall be undertaken during operation. This should be done a minimum of 4 weeks after start-up and 8 weeks thereafter. This schedule should be modified based on climate and past operational conditions. This should include but not be limited to the following:
   a. Visual observation of all system components as mentioned above.
   b. Cleaning of intake and inline screens, filters, etc.
   c. Flushing of system
   d. Pressure tests as necessary
   e. Adjustment of sprinkler head coverage, pressures duration of application, etc.
   f. Repair and replace damaged components.
   g. Review of system operation reports to determine if permit requirements are being meet.
8. Repairs - following all repairs:
   a. Flush system.
   b. Check pressures on repaired line.
   c. Review operation and inspect all zones during operation.
   d. Make additional repairs as necessary.
9. Winterization - following the annual operating cycle, October 15th and

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before freezing temperatures winterize the system.

   a. Comply with manufacturer's instructions.
   b. Winterize the pump per the winterization procedures in the manufacturers
   c. Include valves, filters, Main & Lateral lines, etc.
   d. Blow out lines with compressed air. This includes sprinkler, drip and controlled application lines.
      1) Caution - do not exceed manufacturer's pressure limits. Check limits for all components.
      2) Relieve pressure by opening control valve.
      3) Slowly open all flush valves and drain ports on the mainline.
      4) Apply compressed air, gradually increase flow until no water exits ports. a compressor capable of producing 10 to 25 cfm of air volume with a pressure relief valve to assure pressure does not exceed manufacturer's limits shall be used.
      5) Limit time compressed air is applied to the manufacturer's requirements to prevent damage to system, use of a timer is recommended.
      6) Repeat this procedure on the each individual zone control valve. Start at farthest zone from air connection. Assure that at least one zone control valve is open while there is air flow from the compressor.
      7) All valves must be winterized using blown compressed air to remove water.
      8) To ensure the system is adequately drained, repeat this cycle 2 or more times until there is no longer any water flow.

   e. Winter Procedure:

      1. OPERATE SYSTEM TO DRAIN BASIN TO LOWEST POSSIBLE LEVEL
      2. BLOW OUT EACH STATION TWICE WITH COMPRESSED AIR.
      3. PERFORM PUMP MAINTENANCE CHECK
      4. CLOSE SEASONAL ISOLATION VALVE
      4. OPEN WINTER ISOLATION VALVE
      5. ENGAGE WINTER PROGRAM ON CONTROLLER

   f. File the necessary reports on compliance of operation with the appropriate jurisdictional authorities (PADEP, County Conservation District, and Municipality).

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10. Spring Startup

    1. CLOSE WINTER ISOLATION VALVE
    2. OPEN SEASONAL ISOLATION VALVE
    3. CHECK POND LEVEL SENSORS
    4. SLOWLY FILL MAIN LINE AND CHECK FOR LEAKS
    5. PERFORM PUMP MAINTENANCE CHECK
    6. CHECK ALL SPRINKLER HEADS FOR FUNCTIONALITY
    7. REPAIR AND ADJUST SYSTEM AS REQUIRED FOR PROPER OPERATION
    8. ENGAGE PCSM PROGRAM ON CONTROLLER

    a. Sprinkler Heads
       1) Check clearance around each head
       2) Check to assure heads properly circulate
       3) Replace damaged nozzles (cracked, chipped, worn, etc.)
    b. Valves
       1) Visually inspect operation of each valve
       2) Check any surface areas that appear to be overly wet.
    c. Controller
       1) Re-program controller if settings were lost. check all settings
       2) Run through all cycles
       3) Check and replace back-up battery as necessary
    d. Pump Station
       1) Perform pump annual maintenance per manufacturer
       2) Check pre-installed Monitored Control Alert for remote pump Communication
       3) Check and record operational criteria and compare to design criteria.
       4) If not within normal operating ranges, perform repair or replacement as necessary to operate within the design criteria.

F. Landscaping:

A 15 ft buffer must be maintained at all times form base of Sprinkler Head to any foliage or underbrush. Full trajectory must be maintained at all times. Surrounding area within Spray Field must not exceed 3 to 4 inches.

Inspect seeded areas for failure and if repairs or reseeding are necessary, do them immediately. Re-inspect the seeded areas after a year.

H. Outlet Structures:

The outlet structures should be inspected after heavy rains to see if any erosion around or below the structure has taken place or if stones have been dislodged. All needed repairs should be performed immediately to prevent further damage.

The applicant/owner is responsible to monitor and record the flow through the spray irrigation system to ensure the required volume is being applied

AQUA MIST IRRIGATION

AQUA-MIST

759 N Fenwick Street
Allentown, PA 18109

484-460-2690 LIC # 15036

Project Title:

LEHIGH UNIVERSITY
EAST HILL
RESIDENCE HALL

27 MEMORIAL DRIVE
BETHLEHEM

Northampton County Pennsylvania

Legend:

- Rainbird 8005 Rotary Head 9.0 GPM
- Rainbird 5004 Rotary Head 3.78 GPM
- Rainbird 5004 Rotary Head 2.52 GPM
- Rainbird 5004 Rotary Head 1.86 GPM
- Rainbird 1800 Series Spray Head 15' Nozzle
- Rainbird 1800 Series Spray Head 12' Nozzle
- Rainbird PGA Electric Valve Valve
- FVM Rainbird Site Control
- R Rainbird Rain Sensor
- F Rainbird Flow Meter
- P Rainbird VFD Submersible Pump w/ MCA
- D Drain Port
- —EU— Rainbird Maxi Cable (in 1" conduit)
- Class 200, PCSM Main Line Size as noted
- Class 200, SDR21 PVC Lateral Pipe 1" unless noted
- Line Size Isolation Valve
- SD G Line Surge Protector / Grounding
- A Air Relief Valve

Revisions:

12-30-25: Volume Modification

Walter J Mugavin

Walter J Mugavin CIC,CLIA

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Project:

LEHIGH UNIVERSITY
EAST HILL
RESIDENCE HALL

POST CONSTRUCTION STORMWATER MANAGEMENT SYSTEM

O & M Schedule

Date:	Design By:
09-27-25	WJM
Drawn By: WJM	Checked By:
Scale: NTS	Sheet #: I-05