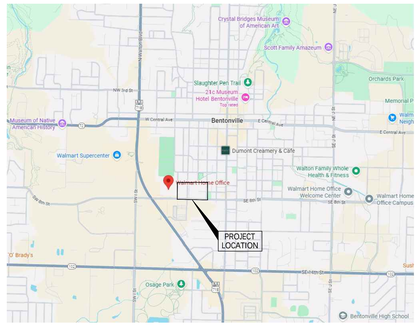
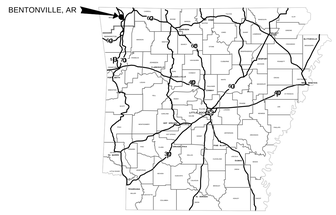
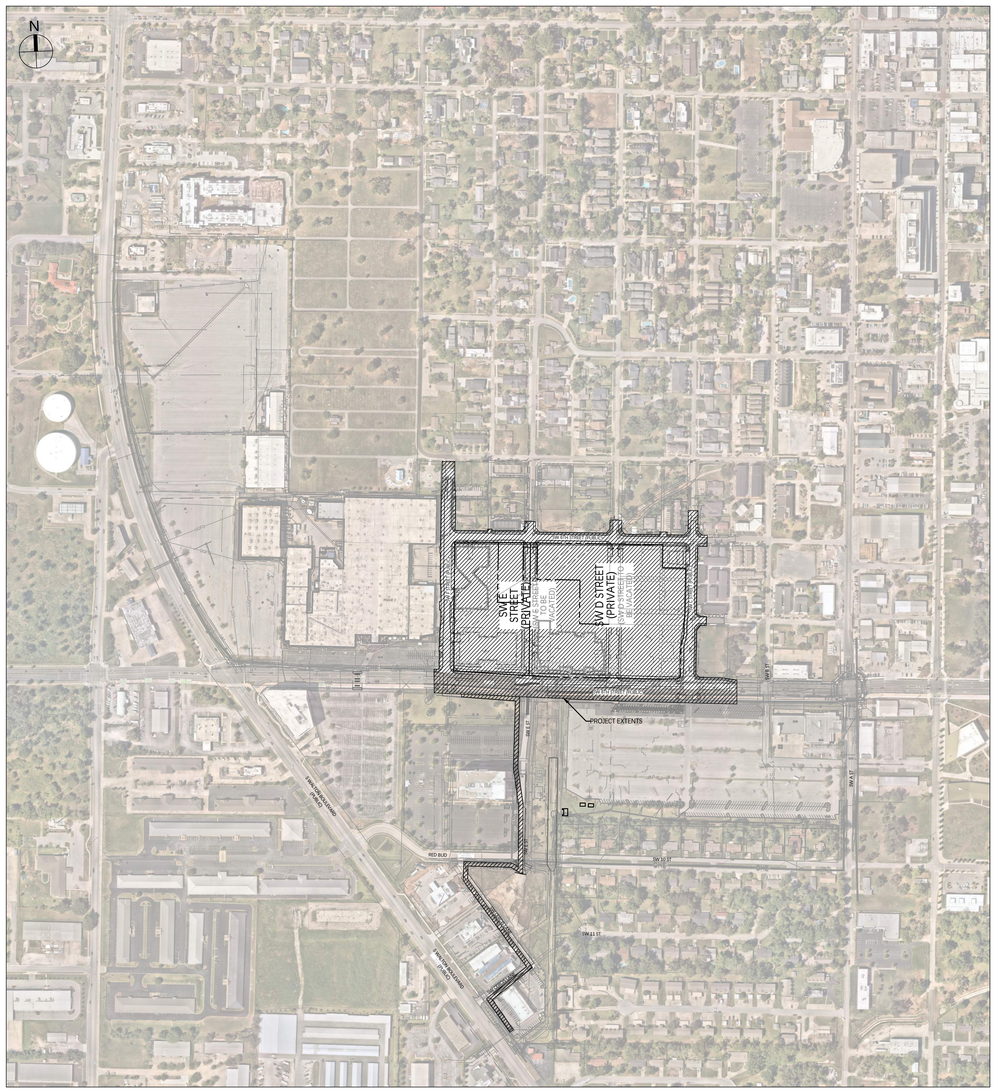
STEM UNIVERSITY - LARGE SCALE DEVELOPMENT PUBLIC PH1 & PRIVATE PH2 PLANS

508 SW 8TH ST, BENTONVILLE, ARKANSAS



VICINITY MAP
N.T.S.





ZIP CODE: 72712

FLOOD INSURANCE RATE MAP

PANEL NO.:	255 OF 560
MAP NO.:	05007C0255K
REVISED:	JUNE 5, 2012
ZONE:	X

VARIANCES

THERE ARE NO WAIVERS OR VARIANCES AT THE TIME OF PREPARING THIS PLAN

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INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

REVISIONS

NO.	DATE	ISSUE
1.	02/18/2026	30% SD
2.	04/27/2026	60% CD
3.	05/17/2026	90% CD
4.	06/17/2026	100% CD
5.	07/17/2026	100% CD 2ND SUBMISSION

JULY 17, 2026

CITY OF BENTONVILLE PROJECT NO.: LSD26-0030
CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

SAFETY IS IN YOUR HANDS.
EVERY DIG. EVERY TIME.

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COVER

C0.001

24-Jul-2026 - 6:26 PM - X:\0080520\25030\07-00 stem university - retail village\Civil3 production\03-sheets\public improvement plans\STEM_PUB_WPM_C-CVR_M080520700.dwg

SHEET LIST	
SHEET #	SHEET NAME
C0.001	COVER
C0.002	SHEET INDEX
C0.003PH1	GENERAL NOTES
C0.004PH1	LEGENDS AND ABBREVIATIONS
C0.005PH1	SURVEY (BASE)
C0.006PH1	SURVEY (BASE)
C0.007PH1	SURVEY (BASE)
C0.008PH1	SURVEY (BASE)
C0.009PH1	SURVEY (UTILITIES AND DRAINAGE)
C0.010PH1	SURVEY (UTILITIES AND DRAINAGE)
C0.011PH1	SURVEY (UTILITIES AND DRAINAGE)
C0.012PH1	SURVEY (UTILITIES AND DRAINAGE-NO AERIAL)
C0.013PH1	SURVEY (UTILITIES AND DRAINAGE-NO AERIAL)
C0.014PH1	SURVEY (UTILITIES AND DRAINAGE-NO AERIAL)
C0.015PH1	SURVEY (SURFACE)
C0.016PH1	SURVEY (SURFACE)
C0.017PH1	SURVEY (SURFACE)
C0.018PH1	SURVEY-PLA-(PLAT)
C0.019PH1	SURVEY-PLA-(PLAT)
C0.020PH1	SURVEY-PLA-(PLAT)
C0.021PH1	SURVEY-PLA-(PLAT)
C0.022PH1	SURVEY-PLA-(PLAT)
C0.023PH1	SURVEY-PLA-(PLAT)
C0.024PH1	SURVEY-PLA-(PLAT)
C0.025PH1	SURVEY CONTROL PLAN
C0.026PH1	GENERAL LAYOUT
C0.027PH1	GENERAL LAYOUT
C0.028PH1	PHASING PLAN
C0.029PH1	PHASING PLAN
C1.000PH1	OVERALL CIVIL SITE DEMOLITION PLAN
C1.001PH1	DEMOLITION PLAN-SW C ST- PUBLIC
C1.002PH1	DEMOLITION PLAN-SW F ST- PUBLIC
C1.003PH1	DEMOLITION PLAN-SW 6TH ST- PUBLIC
C1.004PH1	DEMOLITION PLAN-SW 8TH ST- PUBLIC
C1.005PH1	OFFSITE DEMOLITION PLAN- PUBLIC
C1.006PH1	OFFSITE DEMOLITION PLAN- PUBLIC
C1.007PH1	OFFSITE DEMOLITION PLAN- PUBLIC
C1.008PH1	OFFSITE DEMOLITION PLAN- PUBLIC
C2.000PH1	ALIGNMENT AND CONTROL PLAN
C3.000PH1	TYPICAL SECTION- PUBLIC
C3.001PH1	TYPICAL SECTION- PUBLIC
C3.002PH1	TYPICAL SECTION- PUBLIC
C3.003PH1	TYPICAL SECTION- PUBLIC
C3.004PH1	TYPICAL SECTION- PUBLIC
C4.000PH1	PLAN AND PROFILE-SW C ST- PUBLIC
C4.001PH1	PLAN AND PROFILE-SW C ST- PUBLIC
C4.002PH1	PLAN AND PROFILE-SW F ST- PUBLIC
C4.003PH1	PLAN AND PROFILE-SW F ST- PUBLIC
C4.004PH1	PLAN AND PROFILE-SW 6TH ST- PUBLIC
C4.005PH1	PLAN AND PROFILE-SW 6TH ST- PUBLIC
C4.006PH1	PLAN AND PROFILE-SW 6TH ST- PUBLIC
C4.007PH1	PLAN AND PROFILE-SW 8TH ST- PUBLIC
C4.008PH1	PLAN AND PROFILE-SW 8TH ST- PUBLIC
C4.100PH1	STORM SEWER CROSSING PROFILES PUBLIC
C4.101PH1	STORM SEWER CROSSING PROFILES PUBLIC
C4.102PH1	STORM SEWER CROSSING PROFILES PUBLIC
C4.120PH1	OVERALL OFFSITE STORM PLAN - PUBLIC
C4.121PH1	OFFSITE STORM PLAN AND PROFILE - PUBLIC
C4.122PH1	OFFSITE STORM PLAN AND PROFILE- PUBLIC
C4.123PH1	OFFSITE STORM PLAN AND PROFILE - PUBLIC
C4.124PH1	OFFSITE STORM PLAN AND PROFILE- PUBLIC
C4.200PH1	OVERALL UTILITY PLAN - PUBLIC
C4.201PH1	UTILITY PLAN - PUBLIC
C4.202PH1	UTILITY PLAN - PUBLIC
C4.203PH1	UTILITY PLAN - PUBLIC
C4.204PH1	UTILITY PLAN - PUBLIC
C4.205PH1	OFFSITE UTILITY PLAN - PUBLIC
C4.220PH1	OVERALL SANITARY SEWER PLAN - PUBLIC
C4.221PH1	SANITARY SEWER PLAN AND PROFILE - PUBLIC
C4.222PH1	SANITARY SEWER PLAN AND PROFILE - PUBLIC
C4.223PH1	SANITARY SEWER PLAN AND PROFILE - PUBLIC
C4.224PH1	SANITARY SEWER PLAN AND PROFILE - PUBLIC
C4.225PH1	SANITARY SEWER PLAN AND PROFILE - PUBLIC
C4.226PH1	OFFSITE SANITARY SEWER PLAN AND PROFILE
C4.227PH1	OFFSITE SANITARY SEWER PLAN AND PROFILE
C4.228PH1	OFFSITE SANITARY SEWER PLAN AND PROFILE
C4.229PH1	OFFSITE SANITARY SEWER PLAN AND PROFILE
C4.230PH1	OVERALL WATER LINE PLAN - PUBLIC
C4.231PH1	WATERLINE PLAN AND PROFILE - PUBLIC
C4.232PH1	WATERLINE PLAN AND PROFILE - PUBLIC
C4.233PH1	WATERLINE PLAN AND PROFILE - PUBLIC
C4.234PH1	WATERLINE PLAN AND PROFILE - PUBLIC
C4.235PH1	WATERLINE PLAN AND PROFILE - PUBLIC
C4.236PH1	WATERLINE PLAN AND PROFILE - PUBLIC
C4.237PH1	WATERLINE PLAN AND PROFILE - PUBLIC
C4.238PH1	WATERLINE PLAN AND PROFILE - PUBLIC
C4.300PH1	OVERALL GRADING PLAN - PUBLIC
C4.301PH1	GRADING PLAN-SW C ST- PUBLIC
C4.302PH1	GRADING PLAN-F ST- PUBLIC
C4.303PH1	GRADING PLAN-6TH ST- PUBLIC
C4.304PH1	GRADING PLAN-8TH ST- PUBLIC
C4.305PH1	OFFSITE GRADING PLAN-PUBLIC
C4.306PH1	OFFSITE GRADING PLAN-PUBLIC
C4.307PH1	OFFSITE GRADING PLAN-PUBLIC
C5.000PH1	INTERSECTION LAYOUT DETAILS - PUBLIC
C5.001PH1	INTERSECTION LAYOUT DETAILS - PUBLIC
C5.002PH1	INTERSECTION LAYOUT DETAILS - PUBLIC
C5.003PH1	INTERSECTION LAYOUT DETAILS - PUBLIC
C5.101PH1	DRIVEWAY LAYOUT DETAILS-PUBLIC
C5.102PH1	DRIVEWAY LAYOUT DETAILS-PUBLIC
C6.000PH1	STORM WATER POLLUTION PREVENTION PLAN
C6.001PH1	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C6.002PH1	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C6.003PH1	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C7.000PH1	SITE DETAILS
C7.001PH1	SITE DETAILS
C7.002PH1	SITE DETAILS
C7.003PH1	SITE DETAILS
C7.004PH1	SITE CONDUIT DETAILS
C7.005PH1	SITE CONDUIT DETAILS
C8.000PH1	STORM DETAILS
C8.001PH1	STORM DETAILS
C8.002PH1	STORM DETAILS
C8.003PH1	STORM DETAILS
C8.004PH1	STORM DETAILS
C8.005PH1	STORM DETAILS
C8.006PH1	STORM DETAILS
C8.007PH1	STORM DETAILS
C8.008PH1	STORM DETAILS
C8.009PH1	STORM DETAILS
C8.010PH1	STORM DETAILS
C9.000PH1	SANITARY DETAILS
C9.001PH1	SANITARY DETAILS
C9.002PH1	SANITARY DETAILS
C10.000PH1	WATER DETAILS
C10.001PH1	WATER DETAILS
C10.002PH1	WATER DETAILS
C10.003PH1	WATER DETAILS
C10.004PH1	WATER DETAILS
T1.001PH1	SIGNAGE AND PAVEMENT MARKING LAYOUT SHEET
T1.002PH1	SIGNAGE AND PAVEMENT MARKING LAYOUT SHEET
T1.003PH1	SIGNAGE AND PAVEMENT MARKING LAYOUT SHEET
T1.004PH1	SIGNAGE AND PAVEMENT MARKING LAYOUT SHEET
T2.001PH1	TRAFFIC SIGNAL LAYOUT SHEET
T2.002PH1	WIRING LAYOUT SHEET
T2.003PH1	TRAFFIC SIGNAL LAYOUT SHEET
T2.004PH1	WIRING LAYOUT SHEET
T12.000PH1	TRAFFIC CONTROL DETAILS
T12.001PH1	TRAFFIC CONTROL DETAILS
S1.000PH1	GENERAL NOTES
S1.001PH1	SYMBOLS AND NOTATIONS
S2.000PH1	OVERALL SITE PLAN
S3.000PH1	TYPICAL DETAILS
S3.001PH1	TYPICAL DETAILS
S4.000PH1	UNDERGROUND STRUCTURE DETAILS
PH1-L0-0-01	SHEET INDEX
PH1-L0-0-02	GENERAL NOTES & SYMBOLS
PH1-L0-1-01	OVERALL SITE PLAN
PH1-L0-1-02	KEY PLAN
PH1-L2-1-01	LAYOUT PLAN
PH1-L2-1-02	LAYOUT PLAN
PH1-L2-1-03	LAYOUT PLAN
PH1-L2-1-04	LAYOUT PLAN
PH1-L3-1-01	HARDSCAPE PLAN
PH1-L3-1-02	HARDSCAPE PLAN
PH1-L3-1-03	HARDSCAPE PLAN
PH1-L3-1-04	HARDSCAPE PLAN
PH1-L3-3-01	SITE SECTIONS
PH1-L3-5-01	HARDSCAPE DETAILS
PH1-L3-5-02	HARDSCAPE DETAILS
PH1-L3-6-01	HARDSCAPE SCHEDULE
PH1-L5-0-01	PLANTING- NOTES
PH1-L5-1-01	PLANTING PLAN
PH1-L5-1-02	PLANTING PLAN
PH1-L5-1-03	PLANTING PLAN
PH1-L5-1-04	PLANTING PLAN
PH1-L5-5-01	PLANTING DETAILS
PH1-L5-6-01	PLANTING SCHEDULE
PH1-L5-6-02	PLANTING SCHEDULE
PH1-L5-6-03	PLANTING SCHEDULE
PH1-L7-0-01	IRRIGATION NOTES
PH1-L7-5-01	IRRIGATION DETAILS
PH1-L7-5-02	IRRIGATION DETAILS
PH1-L7-5-03	IRRIGATION DETAILS
PH1-L8-1-01	LIGHTING PLAN
PH1-L8-1-02	LIGHTING PLAN
PH1-L8-1-03	LIGHTING PLAN
PH1-L8-1-04	LIGHTING PLAN
PH1-L8-5-01	LIGHTING DETAILS
PH1-L8-6-01	LIGHTING SCHEDULE
	PRIVATE IMPROVEMENT PLANS -PHASE 2
C0.003PH2	GENERAL NOTES
C0.004PH2	LEGENDS AND ABBREVIATIONS
C0.005PH2	SURVEY (BASE)
C0.006PH2	SURVEY (BASE)
C0.007PH2	SURVEY (BASE)
C0.008PH2	SURVEY (UTILITIES AND DRAINAGE)
C0.009PH2	SURVEY (UTILITIES AND DRAINAGE)
C0.010PH2	SURVEY (UTILITIES AND DRAINAGE)
C0.011PH2	SURVEY (UTILITIES AND DRAINAGE-NO AERIAL)
C0.012PH2	SURVEY (UTILITIES AND DRAINAGE-NO AERIAL)
C0.013PH2	SURVEY (UTILITIES AND DRAINAGE-NO AERIAL)
C0.014PH2	SURVEY (SURFACE)
C0.015PH2	SURVEY (SURFACE)
C0.016PH2	SURVEY (SURFACE)
C0.017PH2	SURVEY CONTROL PLAN
C0.018PH2	OVERALL FIRE PROTECTION PLAN
C0.019PH2	EX VACATED ROW-PL & ESMT
C0.020PH2	GENERAL LAYOUT
C0.021PH2	PHASING PLAN
C0.022PH2	PHASING PLAN
C0.023PH2	ALIGNMENT AND CONTROL PLAN
C1.000PH2	OVERALL DEMOLITION PLAN
C1.010PH2	DEMOLITION PLAN
C1.011PH2	DEMOLITION PLAN
C1.012PH2	DEMOLITION PLAN
C1.013PH2	DEMOLITION PLAN
C2.000PH2	OVERALL LAYOUT PLAN
C2.010PH2	LAYOUT PLAN
C2.011PH2	LAYOUT PLAN
C2.012PH2	LAYOUT PLAN
C2.013PH2	LAYOUT PLAN
C3.000PH2	OVERALL PAVEMENT PLAN
C3.010PH2	PAVEMENT PLAN
C3.011PH2	PAVEMENT PLAN
C3.012PH2	PAVEMENT PLAN
C3.013PH2	PAVEMENT PLAN
C4.000PH2	OVERALL GRADING PLAN
C4.010PH2	GRADING PLAN
C4.011PH2	GRADING PLAN
C4.012PH2	GRADING PLAN
C4.013PH2	GRADING PLAN
C4.014PH2	GRADING PLAN -SW E ST - PRIVATE
C4.015PH2	GRADING PLAN -SW D ST -PRIVATE
C4.016PH2	DRIVEWAY DETAILS -SW E & SW D ST - PRIVATE
C4.050PH2	TYPICAL SECTION - PRIVATE
C4.051PH2	TYPICAL SECTION - PRIVATE
C4.070PH2	PLAN AND PROFILE -SW E ST - PRIVATE
C4.071PH2	PLAN AND PROFILE -SW E ST - PRIVATE
C4.072PH2	PLAN AND PROFILE -SW D ST - PRIVATE
C4.073PH2	PLAN AND PROFILE -SW D ST - PRIVATE
C4.074PH2	STORM SEWER CROSSING PROFILES PRIVATE
C4.075PH2	STORM SEWER CROSSING PROFILES PRIVATE
C5.000PH2	OVERALL STORM PLAN
C5.010PH2	STORM PLAN
C5.020PH2	STORM PLAN
C5.030PH2	STORM PLAN
C5.040PH2	STORM PLAN
C6.000PH2	OVERALL SANITARY SEWER PLAN - PRIVATE
C6.010PH2	SANITARY SEWER PLAN AND PROFILE - PRIVATE
C6.011PH2	SANITARY SEWER PLAN AND PROFILE - PRIVATE
C6.020PH2	OVERALL WATER LINE PLAN - PRIVATE
C6.021PH2	WATERLINE PLAN AND PROFILE - PRIVATE
C6.022PH2	WATERLINE PLAN AND PROFILE - PRIVATE
C6.023PH2	WATERLINE PLAN AND PROFILE - PRIVATE
C7.000PH2	OVERALL UTILITY PLAN - PRIVATE
C7.010PH2	UTILITY PLAN - PRIVATE
C7.011PH2	UTILITY PLAN - PRIVATE
C7.012PH2	UTILITY PLAN - PRIVATE
C7.013PH2	UTILITY PLAN - PRIVATE
C8.000PH2	EXISTING OVERALL DRAINAGE AREA MAP & CALCULATIONS
C8.010PH2	EXISTING DRAINAGE AREA MAP - SITE
C8.011PH2	EXISTING DRAINAGE AREA MAP AND CALCULATIONS - SITE
C8.012PH2	EXISTING BLE MODEL & CALCULATIONS
C8.020PH2	PROPOSED DRAINAGE AREA MAP
C8.021PH2	PROPOSED DRAINAGE AREA MAP CALCULATIONS
C8.022PH2	PROPOSED STORM CALCULATIONS-2 YEAR EVENT
C8.023PH2	PROPOSED STORM CALCULATIONS-10 YEAR EVENT
C8.024PH2	PROPOSED STORM CALCULATIONS-25 YEAR EVENT
C8.025PH2	PROPOSED STORM CALCULATIONS-100 YEAR EVENT
C8.026PH2	PROPOSED STORM SPREAD CALCULATIONS
C9.000PH2	STORMWATER POLLUTION PREVENTION PLAN
C9.010PH2	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C9.011PH2	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C9.012PH2	STORMWATER POLLUTION PREVENTION PLAN DETAILS
C10.000PH2	SITE DETAILS
C10.001PH2	SITE DETAILS
C10.002PH2	SITE DETAILS
C10.003PH2	SITE DETAILS
C10.004PH2	SITE CONDUIT DETAILS
C10.005PH2	SITE CONDUIT DETALS
C10.010PH2	STORM DETAILS
C10.011PH2	STORM DETAILS
C10.012PH2	STORM DETAILS
C10.013PH2	STORM DETAILS
C10.014PH2	STORM DETAILS
C10.015PH2	STORM DETAILS
C10.016PH2	STORM DETAILS
C10.017PH2	STORM DETAILS
C10.018PH2	STORM DETAILS
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C10.021PH2	STORM DETAILS
C10.022PH2	STORM DETAILS
C10.023PH2	STORM DETAILS
C10.024PH2	STORM DETAILS
C10.030PH2	SANITARY DETAILS
C10.031PH2	SANITARY DETAILS
C10.032PH2	SANITARY DETAILS
C10.040PH2	WATER LINE DETAILS
C10.041PH2	WATER LINE DETAILS
C10.042PH2	WATER LINE DETAILS
C10.043PH2	WATER LINE DETAILS
C10.044PH2	WATER LINE DETAILS
T10.060PH2	TRAFFIC CONTROL DETAILS
T10.061PH2	TRAFFIC CONTROL DETAILS
PH2-L0-0-01	SHEET INDEX
PH2-L0-0-02	GENERAL NOTES & SYMBOLS
PH2-L0-1-01	OVERALL SITE PLAN
PH2-L0-1-02	KEY PLAN
PH2-L2-1-01	LAYOUT PLAN
PH2-L2-1-02	LAYOUT PLAN
PH2-L2-1-03	LAYOUT PLAN
PH2-L2-1-04	LAYOUT PLAN
PH2-L3-1-01	HARDSCAPE PLAN
PH2-L3-1-02	HARDSCAPE PLAN
PH2-L3-1-03	HARDSCAPE PLAN
PH2-L3-1-04	HARDSCAPE PLAN
PH2-L3-3-01	SITE SECTIONS
PH2-L3-3-02	SITE SECTIONS
PH2-L3-3-03	SITE SECTIONS
PH2-L3-5-01	HARDSCAPE DETAILS
PH2-L3-5-02	HARDSCAPE DETAILS
PH2-L3-5-03	HARDSCAPE DETAILS
PH2-L3-5-04	HARDSCAPE DETAILS
PH2-L3-6-01	HARDSCAPE SCHEDULE
PH2-L3-6-02	HARDSCAPE SCHEDULE
PH2-L5-0-01	PLANTING- NOTES
PH2-L5-1-01	PLANTING PLAN
PH2-L5-1-02	PLANTING PLAN
PH2-L5-1-03	PLANTING PLAN
PH2-L5-1-04	PLANTING PLAN
PH2-L5-5-01	PLANTING DETAILS
PH2-L5-6-01	PLANTING SCHEDULE
PH2-L5-6-02	PLANTING SCHEDULE
PH2-L5-6-03	PLANTING SCHEDULE
PH2-L7-0-01	IRRIGATION NOTES
PH2-L7-5-01	IRRIGATION DETAILS
PH2-L7-5-02	IRRIGATION DETAILS
PH2-L7-5-03	IRRIGATION DETAILS
PH2-L8-1-01	LIGHTING PLAN
PH2-L8-1-02	LIGHTING PLAN
PH2-L8-1-03	LIGHTING PLAN
PH2-L8-1-04	LIGHTING PLAN
PH2-L8-5-01	LIGHTING DETAILS
PH2-L8-6-01	LIGHTING SCHEDULE
PH2-L9-1-01	SITE FURNITURE PLAN
PH2-L9-1-02	SITE FURNITURE PLAN
PH2-L9-1-03	SITE FURNITURE PLAN
PH2-L9-1-04	SITE FURNITURE PLAN
PH2-L9-6-01	SITE FURNITURE SCHEDULE

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STEM UNIVERSITY - PUBLIC IMPROVEMENT PLANS - PHASE 1

INTERIM REVIEW ONLY
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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
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SHEET INDEX

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0030

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GENERAL NOTES

1. BOUNDARY AND TOPOGRAPHIC INFORMATION OBTAINED FROM A SURVEY BY DEVELOPMENTS CONSULTANTS INCORPORATED, DATED MARCH 13, 2026.

2. BENCHMARK: (NAD83)
TBM
N: 747364.35
E: 660730.57
406 SW 6TH ST
LOT 11A, BLOCK 8
GILMORES ADDITION
TBM
N: 747225.77
E: 660724.34
406 SW 6TH ST
LOT 11A, BLOCK 8
GILMORES ADDITION

3. ALL MATERIALS DEEMED ACCEPTABLE FOR CITY USE SHALL BE PRESERVED, SAVED, AND DELIVERED TO A LOCATION DEEMED BY THE CITY FOR FUTURE USE. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS. CONTRACTOR SHALL TAKE PRECAUTION TO PROTECT EXISTING PIPE CULVERTS FROM DAMAGE DURING THEIR REMOVAL AND SHALL RETURN THE UNDAMAGED PIPE CULVERTS TO THE OWNER.

4. THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR AND SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT.

5. WARRANTY/DISCLAIMER: THE DESIGNS REPRESENTED IN THESE PLANS ARE IN ACCORDANCE WITH THE ESTABLISHED PRACTICES OF CIVIL ENGINEERING FOR THE DESIGN FUNCTIONS AND USES INTENDED BY THE OWNER AT THIS TIME. HOWEVER, NEITHER THE ENGINEER NOR ITS PERSONNEL CAN OR DO WARRANT THESE DESIGNS OR PLANS AS CONSTRUCTED EXCEPT IN THE SPECIFIC CASES WHERE THE ENGINEER INSPECTS AND CONTROLS THE PHYSICAL CONSTRUCTION ON A CONTEMPORARY BASIS AT THE SITE.

6. SAFETY NOTICE TO CONTRACTOR IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING THE PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. ANY CONSTRUCTION OBSERVATION BY THE ENGINEER OF THE CONTRACTOR'S PERFORMANCE IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON OR NEAR THE CONSTRUCTION SITE.

7. WETLANDS NOTE: ANY DEVELOPMENT, EXCAVATION, CONSTRUCTION, OR FILLING IN A U.S. CORPS OF ENGINEERS DESIGNATED WETLAND IS SUBJECT TO LOCAL, STATE AND FEDERAL APPROVALS. THE CONTRACTOR SHALL COMPLY WITH ALL PERMIT REQUIREMENTS AND/OR RESTRICTIONS AND ANY VIOLATION WILL BE SUBJECT TO FEDERAL PENALTY. THE CONTRACTOR SHALL HOLD THE OWNER/DEVELOPER, THE ENGINEER AND THE LOCAL GOVERNING AGENCIES HARMLESS AGAINST SUCH VIOLATION.

8. ALL CONSTRUCTION WITHIN ARKANSAS DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH ARDOT STANDARDS AND PROCEDURES, INCLUDING TRAFFIC CONTROL, WHICH WILL CONFORM TO THE MUTCD LATEST EDITION. FOR GENERAL LANE CLOSURE SEE ARDOT STANDARD LANE CLOSURE DETAILS ON THIS SET OF DRAWING.

9. ALL CONSTRUCTION WITHIN CITY RIGHT-OF-WAY SHALL BE IN ACCORDANCE WITH CITY STANDARDS AND PROCEDURES, INCLUDING TRAFFIC CONTROL, WHICH WILL CONFORM TO THE MUTCD LATEST EDITION.

10. COORDINATE ALL CONSTRUCTION IN ARKANSAS DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY WITH THE ARDOT RESIDENT ENGINEER.

11. THE CONTRACTOR SHALL PROVIDE ALL PAVEMENT MARKINGS AND SIGNS IN ACCORDANCE WITH THE MUTCD LATEST EDITION.

12. CONTRACTOR TO PROVIDE CONSTRUCTION STAKING.

13. ANY PLAN DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO STARTING ANY WORK.

14. THE LAYDOWN YARD AND PARKING AREAS MUST BE INSIDE OF THE LIMITS OF DISTURBANCE INCLUDED IN THE NOI AND NOC.

15. PRINTED DRAWINGS PROVIDED BY ENGINEER ARE PART OF THE CONTRACT DOCUMENTS; HOWEVER, ELECTRONIC DATA IS NOT. ELECTRONIC DATA PROVIDED IS FOR CONTRACTOR'S CONVENIENCE ONLY. IT IS CONTRACTOR'S RESPONSIBILITY TO VERIFY ELECTRONIC DATA AGAINST PRINTED DRAWINGS. USE OF ELECTRONIC DATA IS AT CONTRACTOR'S RISK.

16. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER PRIOR TO DISTURBING ANY AREAS OF VEGETATION AND LANDSCAPING WITHIN TEMPORARY CONSTRUCTION EASEMENTS. CONSTRUCTION ACTIVITIES WITHIN TEMPORARY CONSTRUCTION EASEMENTS SHALL BE KEPT TO A MINIMUM.

17. ALL PIPE LINES, POWER, TELEPHONE AND TELEGRAPH LINES TO BE MOVED OR LOWERED BY THE RESPECTIVE OWNERS AS PER AGREEMENT WITH SUCH OWNERS. CONTRACTOR SHALL COORDINATE WITH RESPECTIVE OWNER PRIOR TO STARTING ANY WORK.

18. ANY EQUIPMENT OR APPURTENANCE THAT INTERFERES WITH THE PROPOSED CONSTRUCTION AND WHICH MAY BE THE PROPERTY OF UTILITY SERVICE ORGANIZATION SHALL BE MOVED BY THE OWNERS UNLESS OTHERWISE PROVIDED. CONTRACTOR SHALL COORDINATE WITH RESPECTIVE OWNER PRIOR TO STARTING ANY WORK.

19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING U.S. MAILBOXES WITHIN THE PROJECT LIMITS IN SUCH A MANNER THAT THE PUBLIC MAY RECEIVE CONTINUED MAIL SERVICE.

20. ALL LAND MONUMENTS LOCATED WITHIN THE CONSTRUCTION AREA SHALL BE PROTECTED IN ACCORDANCE WITH SECTION 107.12 OF THE ARDOT SPECIFICATIONS.

21. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.

22. PROPOSED 2" STREET LIGHT CONDUITS, STREET LIGHTS, TRANSFORMER PANEL, PULL BOXES WITHIN ROW ARE SHOWN ON PLANS FOR REFERENCE ONLY AND TO BE DESIGNED BY BEUD. BEUD DESIGN LAYOUT DRAWING TAKES PRECEDENCE OVER ANY ELECTRIC INFORMATION SHOWN ON THE SITE UTILITY PLAN.

23. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF EXISTING STRUCTURES, RELATED UTILITIES, PAVING, UNDERGROUND STORAGE TANKS AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED. SEE SITE WORK SPECIFICATIONS.

24. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

25. WHEN REQUESTED BY THE OWNER, RESIDENT ENGINEERING SERVICES SHALL BE PROVIDED BY THE ENGINEERS (ON A TIME AND FREQUENCY BASIS) ACCEPTABLE TO THE CITY ENGINEER FOR IMPROVEMENTS TO PUBLIC WATER MAINS, PUBLIC SEWER, AND CITY STREETS. AT THE COMPLETION OF CONSTRUCTION, THE ENGINEER SHALL CERTIFY THE CONSTRUCTION TO BE IN COMPLIANCE WITH THE PLANS AND SPECIFICATIONS, THIS WORK WILL BE AT THE OWNER/DEVELOPER'S DIRECT EXPENSE AND SHALL BE COORDINATED WITH WALTER P MOORE AND ASSOCIATES, INC. IT WILL BE THE CONTRACTORS RESPONSIBILITY TO NOTIFY THE RESIDENT ENGINEER OF ANY PRECONSTRUCTION. CONSTRUCTION CONFERENCES AND ANY PUBLIC CONSTRUCTION 24 HOURS PRIOR TO SAID ACTION.

26. CONTACT BEUD FOR DEMO/REMOVAL OF ANY ELECTRIC OVERHEAD OR UNDERGROUND ELECTRIC LINES.

27. ALL SLOPES AT 4H:1V SHALL HAVE EROSION CONTROL MATTING PLACED THROUGHOUT THE SITE PER MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS.

28. CONTRACTOR TO DETERMINE OPTIMAL STAGING ARE AND WILL PRESERVE ALL DRIVEWAY/PAVING IN PLACE IN THE AREA. INFORM ENGINEER OF INTENDED STAGING AREA PRIOR TO CONSTRUCTION ACTIVITIES.

29. ALL EXISTING TREES TO BE SAVED AND/OR TRANSPLANTED AT A LOCATION TO BE DETERMINED BY THE LANDSCAPE ARCHITECT PER THE TREE PRESERVATION & TRANSPLANT ASSESSMENT REPORT PREPARED ON 02/25/26.

30. THIS LSD IS SUBJECT TO THE STANDARDS DEFINED IN THE STEM UNIVERSITY CDS.

GRADING NOTES

1. STRUCTURAL FILL AND EXCAVATION SHALL BE PLACED ACCORDING TO RECOMMENDATIONS FROM AN ARKANSAS LICENSED GEOTECHNICAL ENGINEER.

2. CONTRACTOR IS ADVISED THAT ALL SECTIONS OF PAVED SIDEWALK AND STAGING AREA SHALL MEET MINIMUM ADA STANDARDS FOR MINIMUM/MAXIMUM GRADES ALLOWED. THE MAXIMUM GRADE ALLOWED IS 4.99%, UNLESS STATED ON PLANS, WITH A MAXIMUM CROSS SLOPE OF 2%.

3. ALL CUT OR FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.

4. EXISTING AND PROPOSED PIPES SHALL BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS AT THE END OF THE PROJECT.

5. EXISTING GRADE CONTOURS SHOWN AT 1 FOOT INTERVALS.

6. PROPOSED GRADE CONTOURS SHOWN AT 1 FOOT INTERVALS.

7. THE CONTRACTOR SHALL ADHERE TO ALL TERMS & CONDITIONS AS OUTLINED IN THE EPA OR APPLICABLE STATE GENERAL N.P.D.E.S. PERMIT FOR STORM WATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES AND THE WALMART SPECIAL CONDITIONS, SECTION 8, ENVIRONMENTAL COMPLIANCE AND STORM WATER POLLUTION PREVENTION.

8. CONTRACTOR SHALL ADJUST AND/OR CUT EXISTING PAVEMENT AS NECESSARY TO ASSURE A SMOOTH FIT AND CONTINUOUS GRADE.

9. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL VEGETATED AND PAVED AREAS.

10. TOPOGRAPHIC INFORMATION IS TAKEN FROM A TOPOGRAPHIC SURVEY BY CEI ENGINEERING. IF THE CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY, AT THEIR EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR TO THE OWNER FOR REVIEW.

11. ALL UNPAVED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES STEEPER THAN 3H:1V. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED. IF ADEQUATE TOPSOIL IS NOT AVAILABLE ON SITE, THE CONTRACTOR SHALL PROVIDE TOPSOIL, APPROVED BY THE OWNER, AS NEEDED. THE AREA SHALL THEN BE SEEDED, FERTILIZED, MULCHED, WATERED AND MAINTAINED UNTIL HARDY GRASS GROWTH IS ESTABLISHED IN ALL AREAS (SEE LANDSCAPE PLAN FOR SEED MIX AND PROPER APPLICATION RATE). ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE PROJECT SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

12. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.

13. 2" MODIFIED CURB TO BE UTILIZED ACROSS ALL DRIVES TO CONFINE DRAINAGE TO STREET EDGE. STREET DRAINAGE SHALL NOT BE ALLOWED TO FLOW INTO PRIVATE DRIVEWAYS.

14. THE CONTRACTOR IS TO MAINTAIN THE STORM WATER DRAINAGE FROM THE CONSTRUCTION SITE. STORM WATER PONDING ON PUBLIC RIGHT OF WAY AND ROADWAYS IS NOT ALLOWED.

15. CONTACT BEUD AT 479-271-3135 BEFORE PERFORMING ANY GRADING WITHIN 5' OF EXISTING OR PROPOSED POWER POLES.

16. CONTRACTOR TO GRADE 3:1 AT LIMITS OF CONSTRUCTION.

17. CONTRACTOR TO MAINTAIN A MINIMUM OF 5 FOOT UNDISTURBED MATERIAL AROUND ALL SIDES OF EXISTING UTILITY POLES AND ACCESS BY UTILITY MAINTENANCE VEHICLES AT ALL TIMES.

18. CONTRACTOR TO MAINTAIN STABLE CONTINUOUS CONSTRUCTION FENCING AROUND THE SITE.

19. CONTRACTOR TO PROVIDE ACCESSIBLE DETOUR ROUTES FOR PUBLIC SIDEWALK DISTURBANCE OR CLOSURE

20. CONTRACTOR TO MAINTAIN FIRE ACCESS THROUGH PUBLIC STREETS.

21. CONTRACTOR AND DESIGN TEAM TO SCHEDULE CITY PRECON MEETING BEFORE ANY WORK BEGINS.

PAVING NOTES

1. ALL DRIVES TO BE RECONSTRUCTED TO EXISTING ROW UTILIZING CONCRETE. CURB TO BE REPLACED IN KIND.

2. THE GENERAL CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING PAVEMENT AND STRIPING THAT IS TO TIE INTO PROPOSED PAVEMENT AND STRIPING. IN THE EVENT OF DAMAGE, THE GENERAL CONTRACTOR SHALL REPLACE AT NO COST TO THE OWNER.

3. UNCLASSIFIED EXCAVATION THE EXISTING ASPHALT PAVEMENT TO BE REMOVED FROM THE REMAINING PAVEMENT SHALL BE SEPARATED BY SAWING ALONG A NEAT LINE. AFTER SAWING, THE PAVEMENT TO BE REMOVED SHALL BE CAREFULLY REMOVED IN A MANNER THAT WILL NOT DAMAGE THE PAVEMENT THAT IS TO REMAIN. ANY DAMAGE OF THE ASPHALT PAVEMENT THAT IS TO REMAIN IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

UTILITY GENERAL NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR RAISING AND REMOVAL OF THE EXISTING STRUCTURES, RELATED UTILITIES, PAVING, UNDERGROUND STORAGE TANKS AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED.

2. RELOCATION OF ANY EXISTING PUBLIC ELECTRICAL FACILITIES SHALL BE AT THE OWNER'S EXPENSE.

3. ALL PROPOSED TREES SHALL BE A MINIMUM OF 5' FROM OUTSIDE EDGE OF ALL PUBLIC UTILITIES.

4. CONTRACTOR IS RESPONSIBLE FOR COMPLYING TO THE SPECIFICATIONS OF THE CITY OF BENTONVILLE (2026 VERSION) WITH REGARDS TO MATERIALS AND INSTALLATION OF THE WATER AND SEWER LINES.

5. ALL FILL MATERIAL IS TO BE IN PLACE, AND COMPACTED BEFORE INSTALLATION OF PROPOSED UTILITIES.

6. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTING TO ANY EXISTING LINE.

7. POTABLE WATER AND SANITARY UTILITIES SHOULD BE KEPT TEN FEET APART (PARALLEL) OR WHEN CROSSING 18 INCHES VERTICAL CLEARANCE (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE).

8. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATER LINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE SANITARY LINE SHALL BE DUCTILE IRON PIPE WITH MECHANICAL JOINTS AT LEAST 10 FEET ON BOTH SIDES OF CROSSING. THE WATER LINE SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE A MINIMUM OF 18 INCHES CLEARANCE MEETING REQUIREMENTS OF ANSI A21.10 OR ANSI 21.11 (AWWA C-151) (CLASS 50).

9. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED AND APPROVED BEFORE BACKFILLING.

10. ALL CONCRETE FOR ENCASEMENTS SHALL HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH AT 3000 P.S.I.

11. EXISTING UTILITIES SHALL BE VERIFIED IN FIELD PRIOR TO INSTALLATION OF ANY NEW LINES.

12. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.

13. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES. THIS AND THE FINAL CONNECTIONS OF THE SERVICE SHALL BE COMPLETED 30 DAYS PRIOR TO STORE POSSESSION.

14. CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES FOR INSTALLATION REQUIREMENTS AND SPECIFICATIONS.

15. CONTRACTOR SHALL COORDINATE ANY DISRUPTIONS TO EXISTING UTILITY SERVICES WITH ADJACENT PROPERTY OWNERS.

16. ALL UTILITY DISCONNECTIONS SHALL BE COORDINATED WITH THE DESIGNATED UTILITY COMPANIES.

17. CONSTRUCTION SHALL NOT START ON ANY PUBLIC UTILITY SYSTEM UNTIL WRITTEN APPROVAL HAS BEEN RECEIVED BY THE ENGINEER FROM THE APPROPRIATE GOVERNING AUTHORITY AND CONTRACTOR HAS BEEN NOTIFIED BY THE ENGINEER.

18. PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, SANITARY SEWER, WATER MAIN OR ANY OF THE DRY UTILITIES, THE CONTRACTOR SHALL EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSINGS AND INFORM THE ENGINEER OF RECORD AND THE OWNER/DEVELOPER OF ANY CONFLICT OR REQUIRED DEVIATIONS FROM THE PLAN. NOTIFICATION SHALL BE MADE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION. THE ENGINEER OF RECORD AND ITS CLIENTS SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION.

19. CONTRACTOR SHALL RAISE ALL EXISTING UTILITY RIMS TO BE FLUSH WITH PROPOSED GRADE ELEVATIONS, UNLESS OTHERWISE NOTED.

20. ELECTRIC FACILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF THE ELECTRIC SPECIFICATIONS FOUND ON THE WEBSITE. CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH THIS DOCUMENT.

21. ALL VALVES BOXES, HYDRANTS AND METERS MUST BE ADJUSTED TO ADJACENT GRADE ACCORDING TO BWU SPECIFICATIONS.

22. ALL MANHOLES SHALL BE ADJUSTED PER BWU SPECIFICATIONS TO ADJACENT GRADE.

SANITARY SEWER NOTES

1. WHEN IN PAVED AREAS, TOPS OF EXITING MANHOLES SHALL BE ADJUSTED AS NECESSARY TO BE FLUSH WITH PROPOSED PAVEMENT ELEVATIONS, AND WHEN IN UNPAVED AREAS, TOPS SHALL BE ONE FOOT ABOVE FINISHED GROUND ELEVATIONS. ALL TOPS SHALL HAVE WATER TIGHT LIDS.

2. PROTECT-IN-PLACE EXISTING STRUCTURE. CONTRACTOR TO PROVIDE FENCING OR APPROVED EQUAL WITH A 5' STANDOFF DISTANCE. IF STRUCTURE IS DAMAGED CONTRACTOR SHOULD RESTORE EXISTING STRUCTURE TO EXISTING OR BETTER CONDITIONS.

3. FITTINGS SHALL BE DUCTILE IRON, DESIGNED FOR WORKING PRESSURE OF ATLEAST 350 PSI, AND SHALL CONFIRM TO ANSI/AWWA C153 A21..JOINTS SHALL BE MECHANICAL JOINT CONFORMING TO ANSI A21.11. ALL NUTS AND RETAINER GLANDS. FITTINGS SHALL BE MANUFACTURED BY U.S.PIPE "TRIM TYTE" ,TYLER ,STAR PIPE PRODUCTS,OR APPROVED EQUAL. ANY ALTERNATE MANUFACTURER SHALL REQUIRE DEPARTMENT APPROVAL PRIOR TO INSTALLATION. ALL FITTINGS SHALL BE PROVIDED WITH A STANDARD EXTERIOR ASPHALTIC COATING,AND LINED ON THE INTERIOR WITH EITHER PROTECTO 401 CERAMIC EPOXY AS MANUFACTURED BY VULCAN PAINTERS,INC OR PERMA-SHIELD SERIES 431 MANUFACTURED BY TNEMEC.

4. TRACER WIRE PORTS WILL BE LOCATED NO FURTHER APART THAN 500' AND PLACED AT EVERY CHANGE IN DIRECTION. THE PORTS ARE TO BE LAID OUT SO THAT THEY ARE LOCATED BY A MANHOLE WHENEVER POSSIBLE FOR EASE OF LOCATING IN THE EVENT THAT THEY GET BURIED. THE TRACER WIRE PORTS WILL CONSIST OF A 4" PIPE RESTING ON THE BEDDING MATERIAL AND EXTENDING TO THE FINAL GRADE ELEVATION. THE TRACER WIRE PORT WILL INCLUDE A CAST IRON LID AND AN 18" PRE-CASTCONCRETE PAD. THE TRACER WIRE WILL BE BROUGHT UP THROUGH THE 4" PIPE AND EXTEND A MINIMUM OF 12" OUT OF THE TOP OF THE PIPE. THE TRACER WIRE WILL BE INSTALLED IN A MANNER THAT WILL ALLOW THE FORCE MAIN TO BE LOCATED IN BOTH DIRECTIONS FROM THE TRACER WIRE PORT.

5. VALVE BOXES SHALL BE TYLER 6850 SERIES OR EQUAL WITH 5 ¼" SHAFTS. SCREW TYPE, 5½" DROP LID WITH "SEWER" ON LID. ALL VALVE BOX MATERIAL SHALL BE DOMESTICALLY MADE.

6. ALL PUBLIC SANITARY SEWER PIPE BEDDING SHALL BE INSTALLED PER CITY OF BENTONVILLE DETAILS (DATED 08/27/2024) AND SPECIFICATIONS (DATED 06/23/2026).

DRAINAGE NOTES

1. IMPROVEMENTS AS SHOWN ON THE DESIGN DRAWINGS SHALL NOT INCREASE THE RISK OF ENDANGERMENT TO LIFE OR HAVE NEGATIVE IMPACTS ON ADJACENT OR DOWNSTREAM PROPERTY OR WATERSHEDS.

2. THE INTERIM GRADING SHALL HAVE PERMANENT SEEDING ESTABLISHED. IF AREAS OF PERMANENT VEGETATION HAS NOT GERMINATED AND/OR ESTABLISHED WITHIN 20 DAYS, THE CONTRACTOR WILL NEED RE-SEED ALL DISTURBED AREAS AND CONTINUE THIS PROCESS TILL PERMANENT VEGETATION IS ESTABLISHED.

3. UPPER 6" OF PARKING DECK, OFFICE BUILDING AND SURFACE LOTS SHALL BE STABILIZED GRAVEL PADS. PADS AT SEDIMENT BASINS TO BE PREPARED AT A FUTURE DATE.

4. ALL STORM SEWER STRUCTURES SHALL BE PROTECTED IN PLACE, EXCEPT FOR GUTTER LIPS WHICH SHALL BE REMOVED TO ENSURE DRAINAGE INTO STRUCTURES.

TREE PROTECTION NOTES

1. TREE PROTECTION FENCING SHALL BE ERECTED AT THE DRIPLINE OR BEYOND PRIOR TO START OF ANY CLEARING, GRADING, OR OTHER CONSTRUCTION ACTIVITY, AND MAINTAINED DURING ALL PHASES OF CONSTRUCTION.

2. THERE SHALL BE NO GATES OR ACCESS POINTS INTO ANY TREE PROTECTION AREA.

3. CONTRACTOR TO PROVIDE TREE PROTECTION SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION.

4. CONTACT OWNER'S REPRESENTATIVE IF ANY PRUNING IS NEEDED PRIOR TO WORK IF POTENTIAL FOR DAMAGE EXISTS.

5. ANY DIGGING, EXCAVATING, TRENCHING, CHANGING OF GRADE, OR OTHER ACTIONS THAT MAY POTENTIALLY IMPACT THE ROOTING ENVIRONMENT MUST BE AUTHORIZED BY THE OWNER PRIOR TO WORK COMMENCEMENT.

6. SYMBOLS ON PLAN ARE REPRESENTATIONAL. PROTECTION SHALL BE BASED ON DETAIL & VERIFIED IN FIELD WITH OWNER'S REPRESENTATIVE.

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026

ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

SAFETY IS IN YOUR HANDS.
EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

GENERAL NOTES

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SURVEY LEGEND

BOUNDARY LINE		POST (AERIAL MAPPING)	
ADJOINING BOUNDARY LINE		FIBER OPTIC WARNING SIGN	
RIGHT-OF-WAY LINE		TELEPHONE WARNING SIGN	
EASEMENT LINE		TRANSFORMER (AERIAL MAPPING)	
BUILDING SETBACK LINE		UNIDENTIFIED OBJECT (AERIAL MAPPING)	
SECTION LINE		ARKANSAS STATE HIGHWAY COMMISSION	ASHC
FLOOD ZONE LINE		ARKANSAS HIGHWAY TRANSPORTATION DEPT.	AHTD
GAS LINE	G	BOOK & PAGE	Bk, Pg
UNDERGROUND FIBER OPTIC CABLE	FOC	BENCHMARK	BM
OVERHEAD ELECTRIC LINE	OHE	BUILDING SETBACK LINE	B.S.L.
SANITARY SEWER LINE	SS	CORRUGATED METAL PIPE	CMP
STORM DRAIN PIPE	(SIZE)	CORRUGATED POLYETHYLENE PIPE	CPP
UNDERGROUND ELECTRIC LINE	UGE	DRAINAGE EASEMENT	D.E.
UNDERGROUND TELEPHONE LINE	UGT	DRAINAGE MANHOLE	DMH
WATER LINE	W	GRATE INLET (CIRCULAR)	GIC
FIRE PROTECTION LINE	FP	IRON PIN FOUND	Ipf
FENCE LINE		QUIT CLAIM DEED	QCD
TREE LINE		REINFORCED CONCRETE PIPE	RCP
BENCHMARK		REBAR FOUND	rbf
BENCHMARK (AERIAL MAPPING)		REBAR SET	rbs
FOUND MONUMENT (AS NOTED)		RIGHT-OF-WAY	ROW
SET 5/8" REBAR "LS#1759"		SANITARY SEWER MANHOLE	SMH
BRASS/ALUMINUM CAP		UTILITY EASEMENT	U.E.
FOUND MAG NAIL (AS NOTED)	MAG	WARRANTY DEED	WD
FOUND MONUMENT (AS NOTED)		VITRIFIED CLAY PIPE	VCP
CHISELED "X" FOUND			
FOUND NAIL (AS NOTED)			
FOUND R/W POST			
GAS METER			
ELECTRIC METER			
WATER METER			
DRAINAGE MANHOLE			
GRATE INLET (CIRCULAR)			
FIRE HYDRANT			
SEWER MANHOLE			
SEWER CLEANOUT			
UNKNOWN MANHOLE			
UNKNOWN MANHOLE (AERIAL MAPPING)			
GUY WIRE/ANCHOR			
UTILITY POLE			
UTILITY POLE (AERIAL MAPPING)			
LIGHT ON UTILITY POLE			
ELECTRIC RISER	E		
FIBER OPTIC RISER	F		
TELEPHONE RISER	T		
WATER VALVE			
TRAFFIC SIGN (TYPE OF SIGN) AERIAL MAPPING			
TRAFFIC SIGNAL (AERIAL MAPPING)			
TRAFFIC SIGNAL CASE (AERIAL MAPPING)			
UTILITY BOX (AERIAL MAPPING)			
AIR CONDITIONER UNIT			
ELECTRIC VAULT	E		
FIBER OPTIC VAULT	F		
TELEPHONE VAULT	T		
MAIL BOX	MB		
SATELITE DISH			

PROPOSED LEGEND

CURB AND GUTTER		STORM SEWER	
DRIVEWAY NO.	D–XXX	NMC (SIGNAL INTERCONNECT FIBER OPTIC)	fo fo
CONCRETE SIDEWALK		FIBER OPTIC CABLE	FOC
CONCRETE PAVEMENT		POTABLE WATER LINE	WPO
ASPHALT ROADWAY PAVEMENT		NON-POTABLE WATER LINE	WNP
CENTER LINE		CHILLED WATER LINE	CWS
ROW		HOT WATER LINE	HWS
EASEMENT		IRRIGATION SLEEVE IN STEEL ENCASEMENT	
STREET LIGHT CONDUIT	UGE	SAW CUT LINE	
ELECTRICAL DUCTBANK		LIMITS OF DISTURBANCE	

TYPICAL CIVIL ABBREVIATIONS

@	AT	MATL	MATERIAL
&	AND	MAX	MAXIMUM
AC	ASPHALTIC CONCRETE	ME	MATCH EXISTING
ADA	AMERICANS DISABILITIES ACT	MECH	MECHANICAL
ADJ	ADJACENT	MFR	MANUFACTURER
ALT	ALTERNATE	m	METER
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MH	MANHOLE
APWA	AMERICAN PUBLIC WORKS ASSOCIATION	MIN	MINIMUM
APPROX	APPROXIMATE	MISC	MISCELLANEOUS
ARCH	ARCHITECTURAL	MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
ASPH	ASPHALT	NA	NOT APPLICABLE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS	NIC	NOT IN CONTRACT
AWWA	AMERICAN WATER WORKS ASSOCIATION	NO	NUMBER
BB	BACK OF CURB TO BACK OF CURB	NTS	NOT TO SCALE
BLDG	BUILDING	OC	ON CENTER
BM	BENCHMARK	OF	OUTSIDE FACE
BW	BOTTOM OF WALL	OPNG	OPENING
c	COEFFICIENT	PAR	PARALLEL
CANTIL	CANTILEVER	PC	POINT OF CURVATURE
CI	CURB INLET	PERF	PERFORATED
CJ	CONTROL JOINT	PERP	PERPENDICULAR
℄	CENTER LINE	PI	POINT OF INTERSECTION
CLR	CLEAR	PL	PROPERTY LINE
CMP	CORRUGATED METAL PIPE	PSF	POUNDS PER SQUARE FOOT
CN	CURVE NUMBER	PSI	POUNDS PER SQUARE INCH
CO	CLEANOUT	PVC	POINT OF CURVATURE ON VERTICAL CURVE
CONC	CONCRETE	PVC	POLYVINYL CHLORIDE PIPE
CONN	CONNECTION		
CONST	CONSTRUCTION	PVT	POINT OF TANGENCY ON VERTICAL CURVE
CONT	CONTINUOUS	QTR	QUARTER
CTRS	CENTERS	QTY	QUANTITY
CU FT	CUBIC FEET	R	RADIUS
CU YD	CUBIC YARD	RCB	REINFORCED CONCRETE BOX
DEG	DEGREE	RCP	REINFORCED CONCRETE PIPE
DEPT	DEPARTMENT	REBAR	REINFORCING STEEL BARS
DET	DETAIL	RE:	REFERENCE
DIA	DIAMETER	REINF	REINFORCE
DIAG	DIAGONAL	REQ	REQUIRE
DIM	DIMENSION	REQD	REQUIRED
DIP	DUCTILE IRON PIPE	REV	REVISION
DN	DOWN	RFI	REQUEST FOR INFORMATION
DS	DOWNSPOUT	RIM	RIM ELEVATION
DWG	DRAWING	ROW	RIGHT OF WAY
EA	EACH	SAN	SANITARY
EJ	EXPANSION JOINT	SCHED	SCHEDULE
EL	ELEVATION	SECT	SECTION
EQ	EQUAL	SF	SQUARE FEET
EQUIP	EQUIPMENT	SHT	SHEET
ESMT	EASEMENT	SIM	SIMILAR
EW	EACH WAY	SPA	SPACING
EXIST	EXISTING	SPECS	SPECIFICATIONS
FDN	FOUNDATION	SQ	SQUARE
FFE	FINISH FLOOR ELEVATION	SQ YD	SQUARE YARD
FG	FINISHED GRADE	STA	STATION
FH	FIRE HYDRANT	STD	STANDARD
FL	FLOW LINE	STL	STEEL
FT	FEET	STRUCT	STRUCTURAL
FTG	FOOTING	SURV	SURVEY
FUT	FUTURE	SYM	SYMMETRICAL
G	GUTTER	TG	TOP OF GRATE
GA	GAGE	THRU	THROUGH
GALV	GALVANIZED	TOB	TOP OF BANK
GEN	GENERAL	TC	TOP OF CURB
gpd	GALLONS PER DAY	TOF	TOP OF FOOTING
gpm	GALLONS PER MINUTE	TP	TOP OF PAVEMENT
GV	GATE VALVE	TYP	TYPICAL
HC	HANDICAP	TS&V	TAPPING SLEEVE & VALVES
HDPE	HIGH DENSITY POLYETHYLENE	UNO	UNLESS OTHERWISE NOTED
HORIZ	HORIZONTAL	VC	VERTICAL CURVE
HP	HIGH POINT	VCP	VITRIFIED CLAY PIPE
IF	INSIDE FACE	VERT	VERTICAL
INCL	INCLUDED	W/	WITH
JB	JUNCTION BOX	W/O	WITHOUT
JT	JOINT	WL	WATER LINE
K	RATE OF VERTICAL CURVATURE	WM	WATER METER
LBS	POUND		
LF	LINEAR FEET		
LP	LOW POINT		

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P.E. Serial No.: 18208
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ASBL COA NO. 719

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SHEET NO: 1

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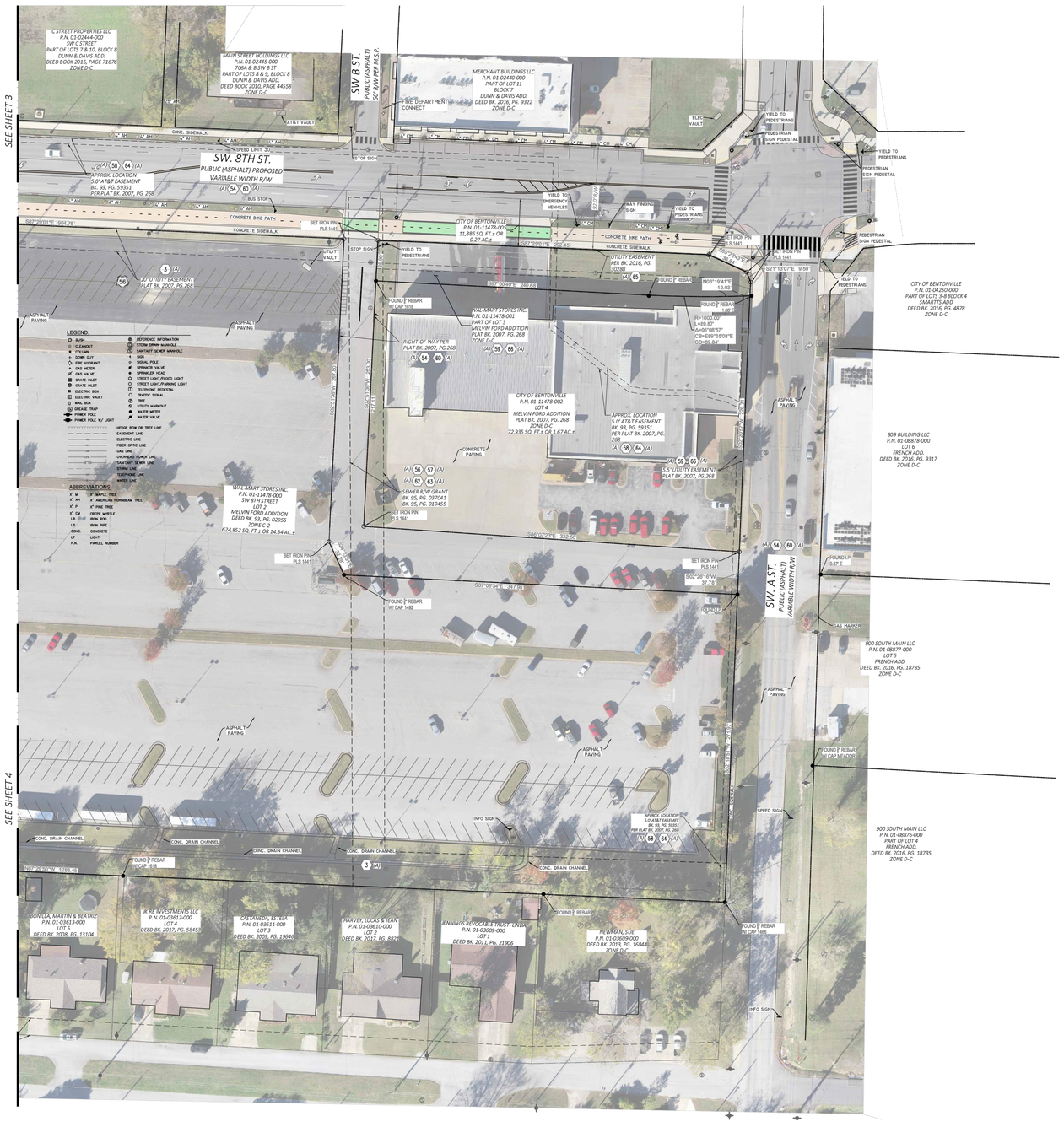

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SURVEY (UTILITIES AND DRAINAGE)

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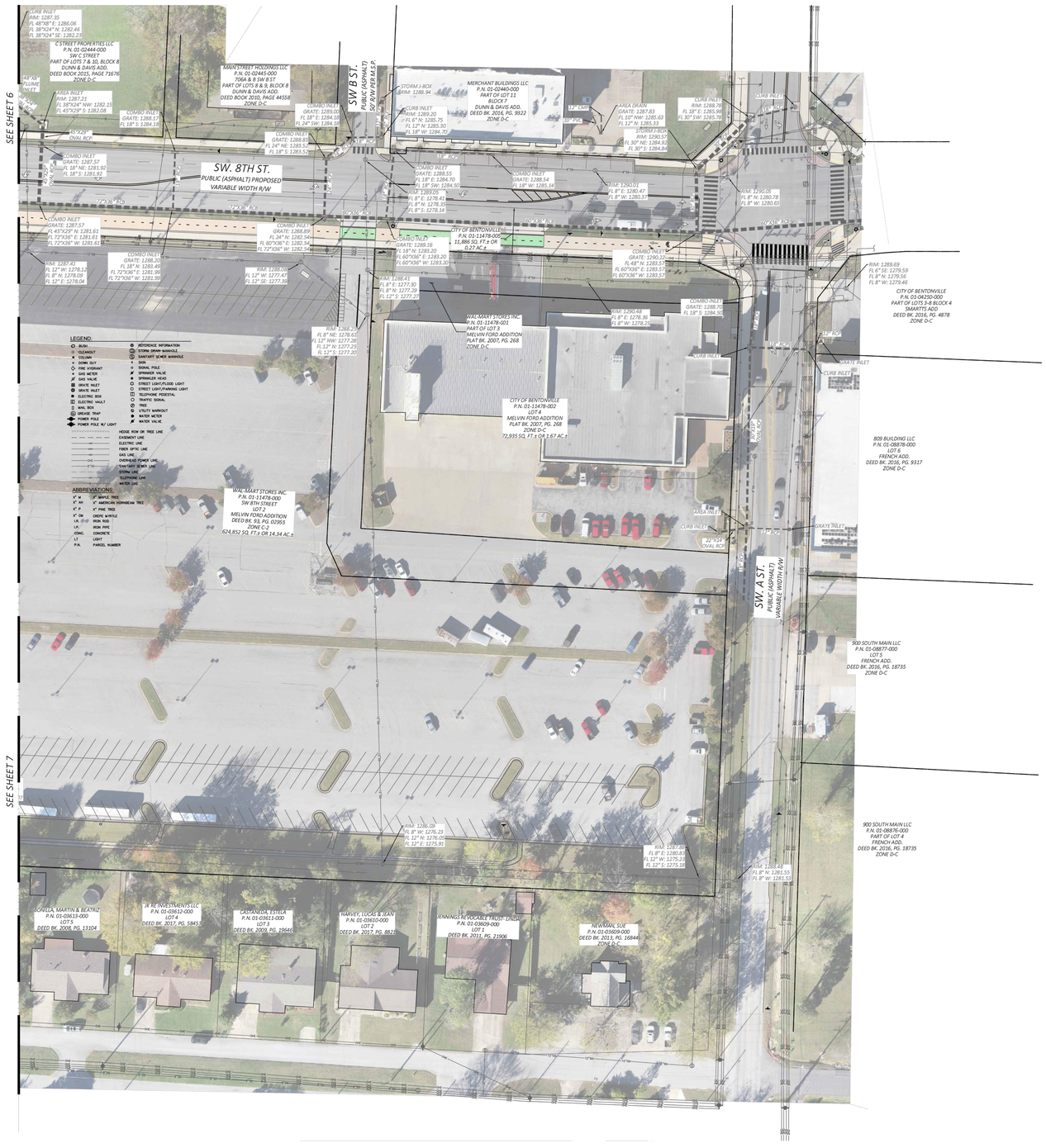

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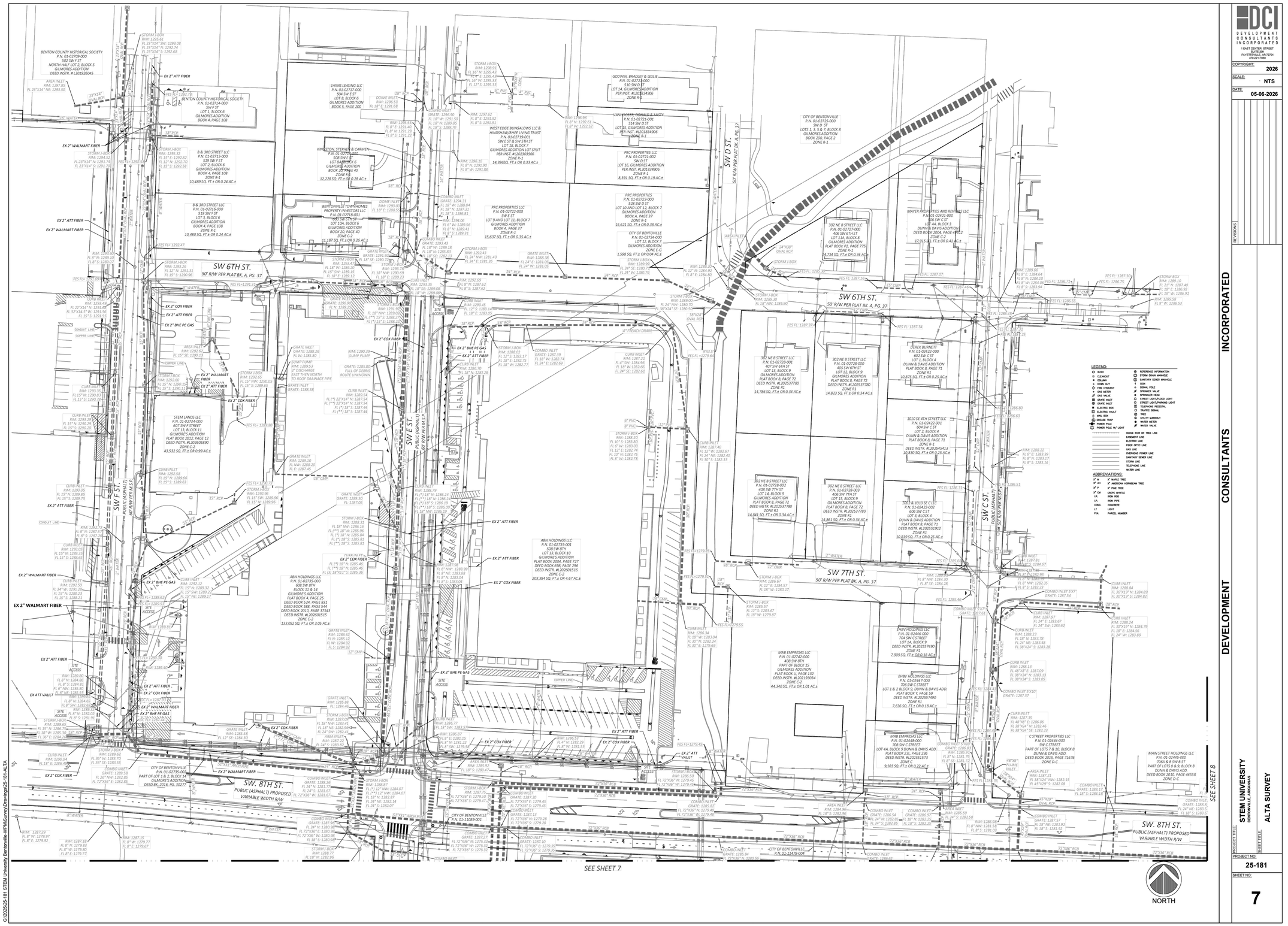

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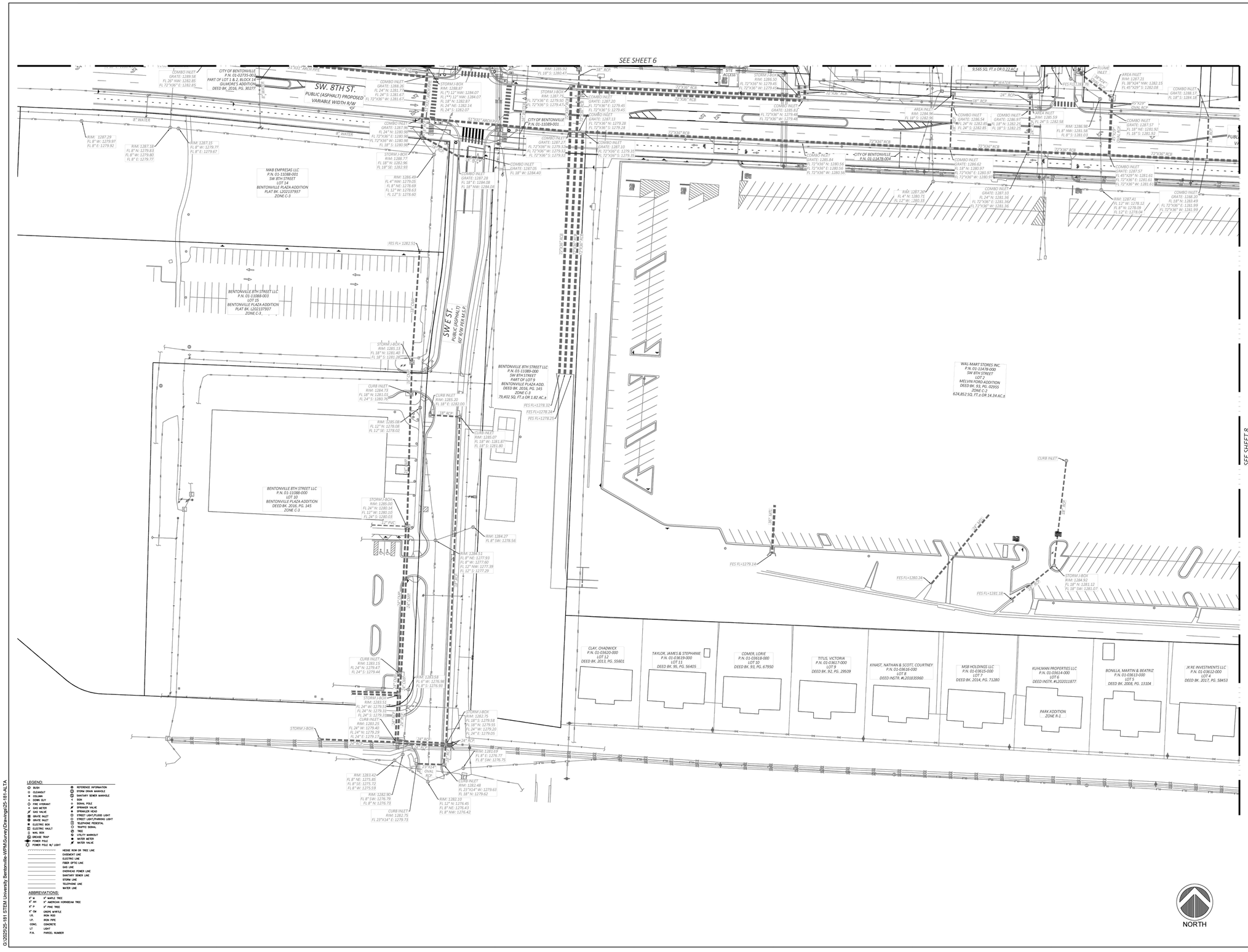

LEGEND:

BUSH	REFERENCE INFORMATION
CLEANOUT	STORM DRAIN MANHOLE
COLUMN	SANITARY SEWER MANHOLE
DOWN GUY	SIGN
FIRE HYDRANT	SIGNAL POLE
GAS METER	SPRINKLER VALVE
GAS VALVE	STEEL BOLLARD
GRATE INLET	STREET LIGHT/FLOOD LIGHT
GRATE INLET	STREET LIGHT/PARKING LIGHT
ELECTRIC BOX	TELEPHONE PEDESTAL
ELECTRIC VAULT	TRAFFIC SIGNAL
GUY WIRE	TREE
MAILBOX 'Post'	UTILITY MARKOUT
POWER POLE	WATER METER
POWER POLE W/ LIGHT	WATER VALVE

HEDGE ROW OR TREE LINE
EASEMENT LINE
ELECTRIC LINE
FIBER OPTIC LINE
OVERHEAD POWER LINE
SANITARY SEWER LINE
STORM LINE
TELEPHONE LINE
WATER LINE

ABBREVIATIONS:

X" M.	X" MAPLE TREE
X" AH	X" AMERICAN HORNBEAM TREE
X" P.	X" PINE TREE
X" CM	CREPE MYRTLE
I.R.	IRON ROD
I.P.	IRON PIPE
CONC.	CONCRETE
LT	LIGHT
P.N.	PARCEL NUMBER

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DEVELOPMENT CONSULTANTS INCORPORATED

PROJECT TITLE: STEM UNIVERSITY BENTONVILLE, ARKANSAS
SHEET TITLE: ALTA SURVEY

PROJECT NO: 25-181
SHEET NO: 8

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
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SURVEY (UTILITIES AND DRAINAGE-NO AERIAL)

C0.012PH2

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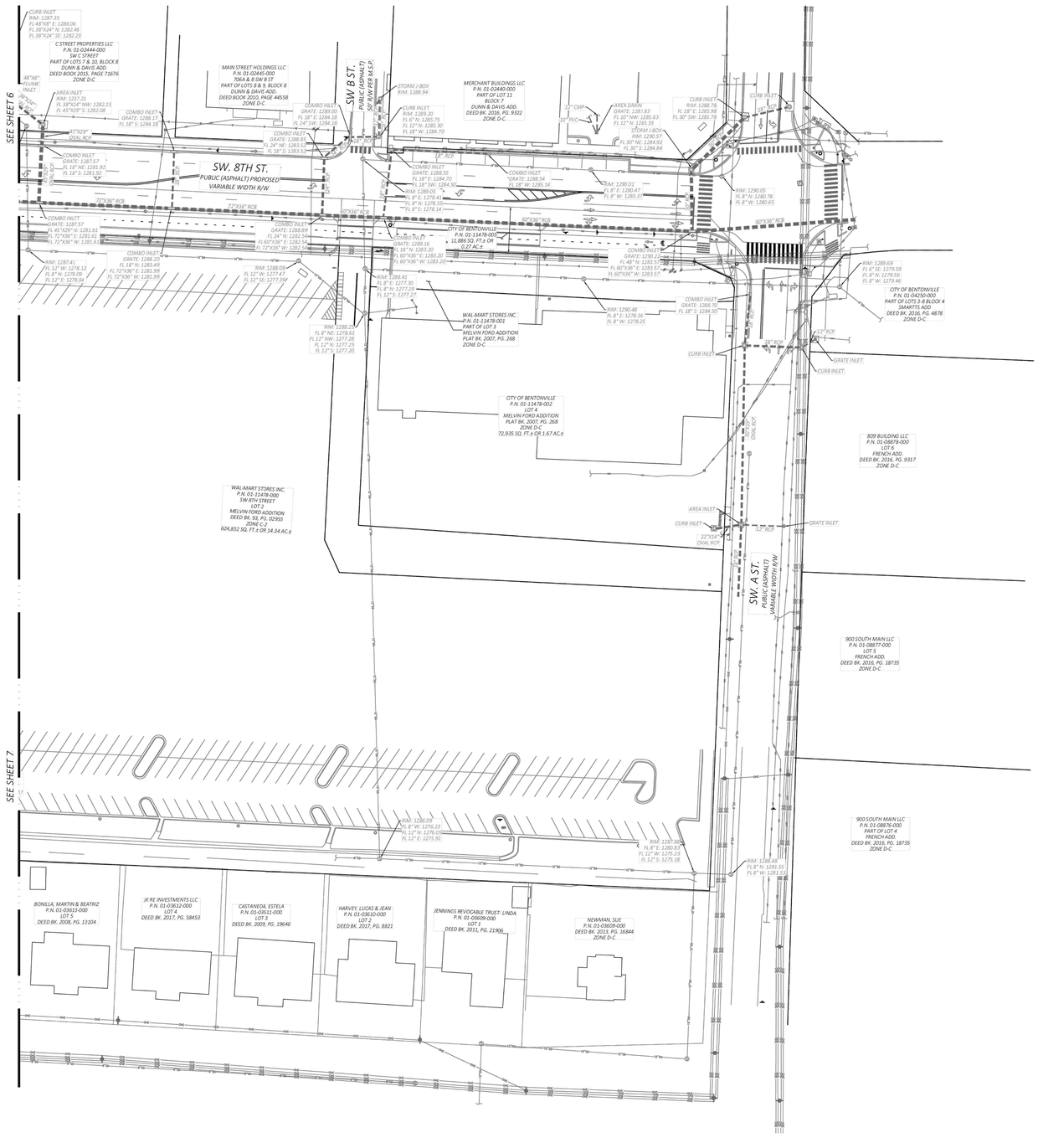

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PROJECT TITLE: STEM UNIVERSITY BENTONVILLE, ARKANSAS
SHEET TITLE: ALTA SURVEY

PROJECT NO: 25-181
SHEET NO: 9

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SURVEY (UTILITIES AND DRAINAGE-NO AERIAL)

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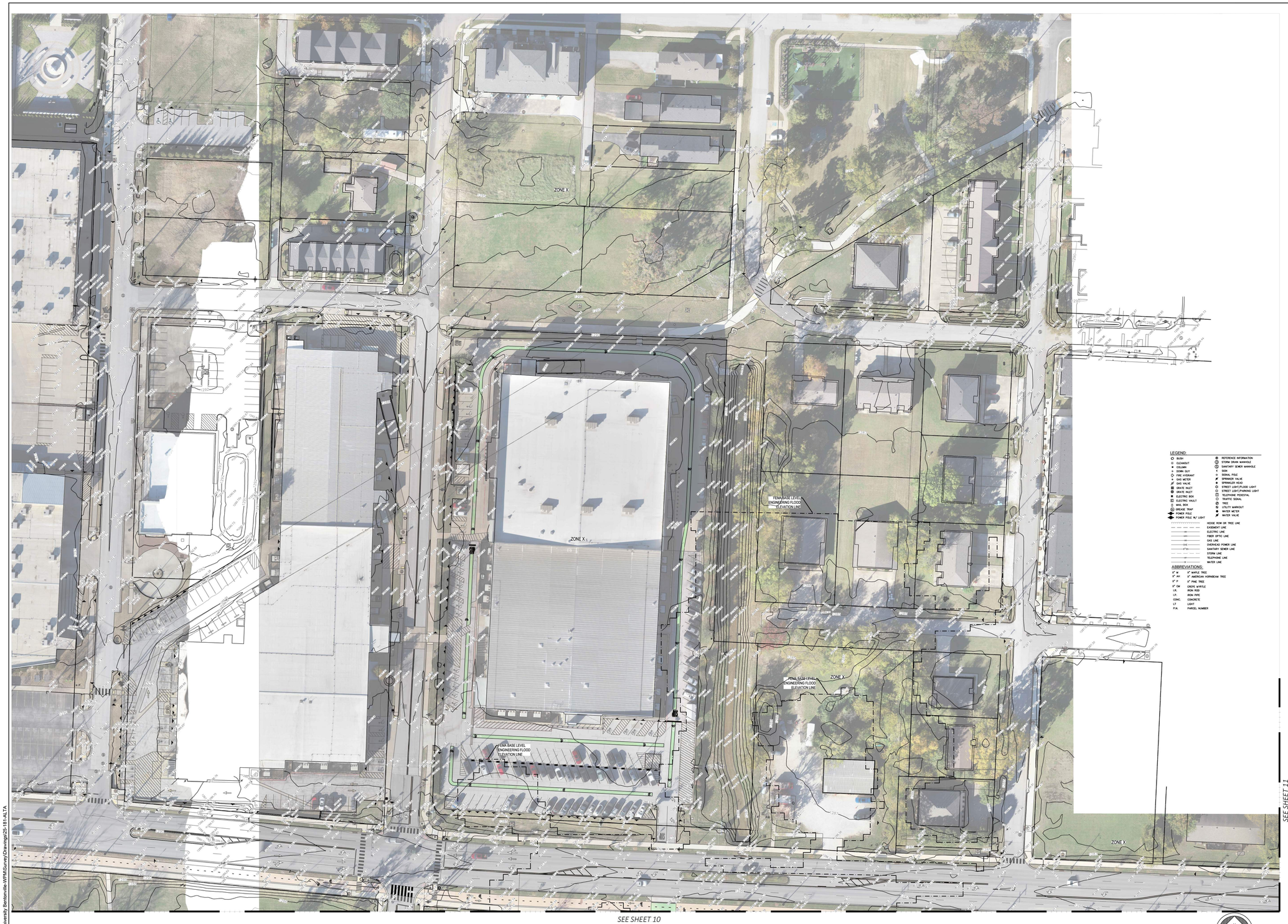

SEE SHEET 10

SEE SHEET 11

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SHEET TITLE: ALTA SURVEY

PROJECT NO: 25-181

SHEET NO: 10

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SURVEY (SURFACE)

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SEE SHEET 9

SEE SHEET 11

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

BOOK/SET TITLE: STEM UNIVERSITY
BENTONVILLE, ARKANSAS

SHEET TITLE: ALTA SURVEY

PROJECT NO: 25-181

SHEET NO: 11

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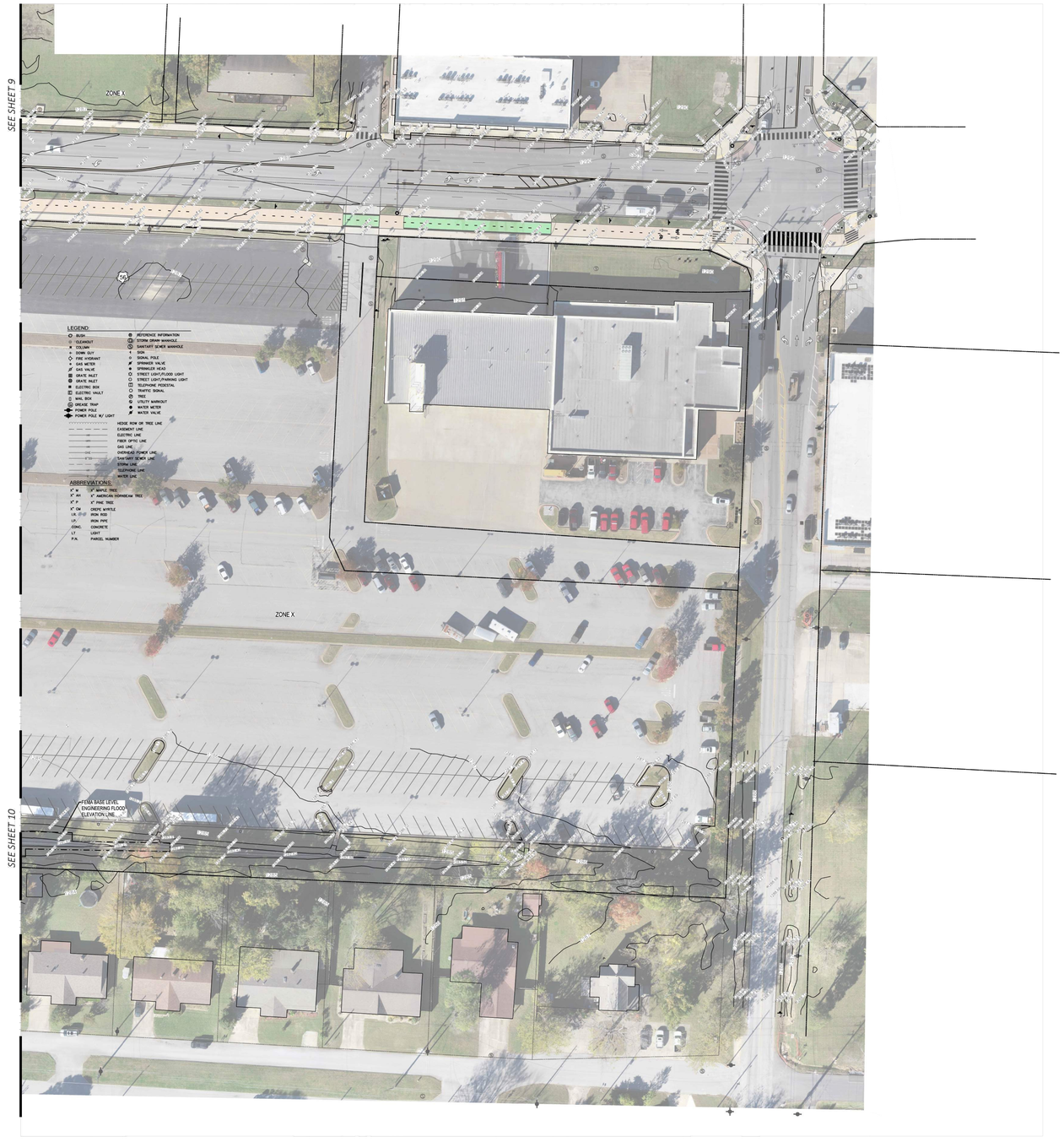

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PROJECT TITLE: STEM UNIVERSITY
BENTONVILLE, ARKANSAS

SHEET TITLE: ALTA SURVEY

PROJECT NO: 25-181

SHEET NO: 12

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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SURVEY (SURFACE)

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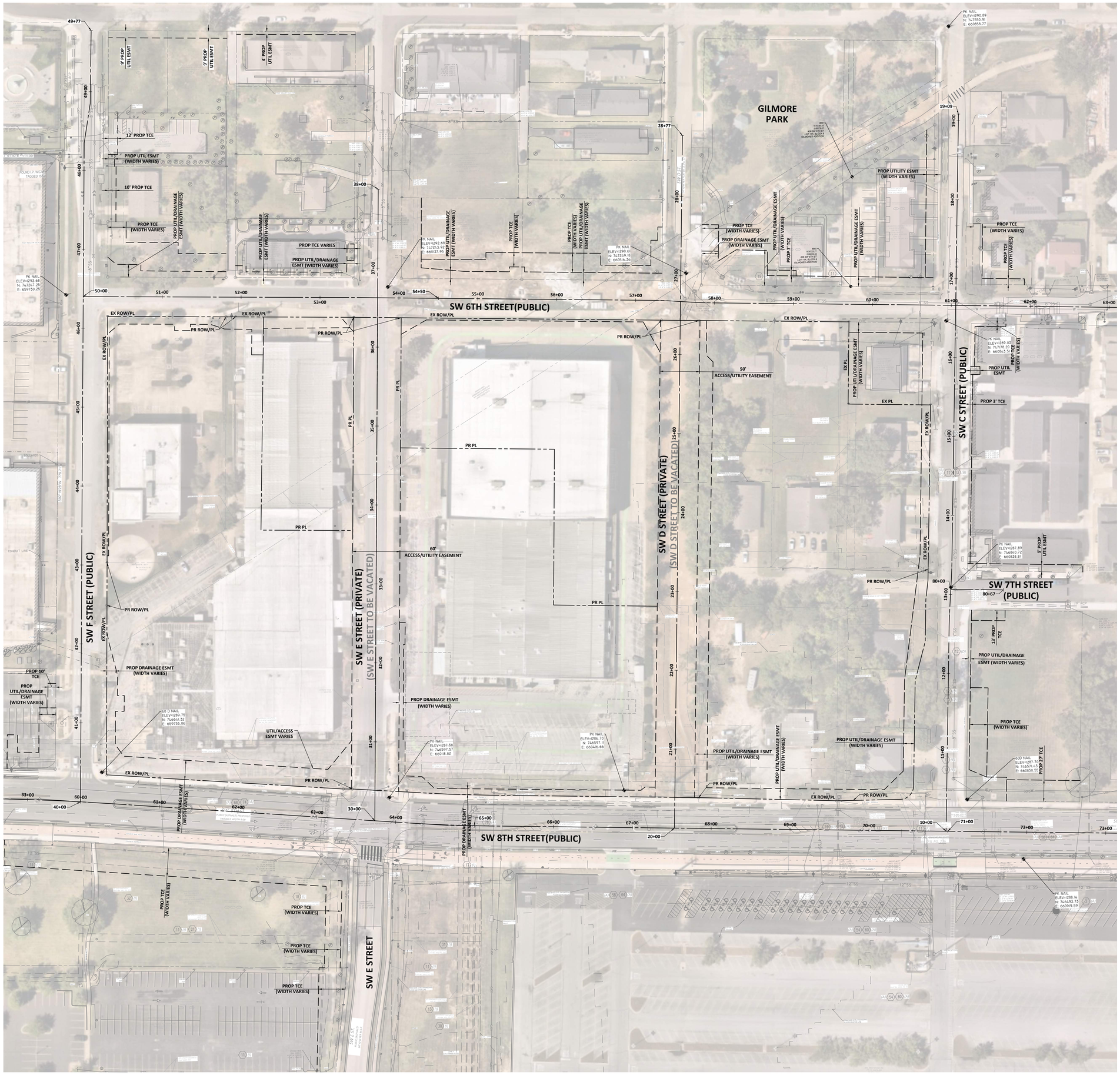

N

40 20 0 40

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

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SURVEY CONTROL PLAN

C0.017PH2

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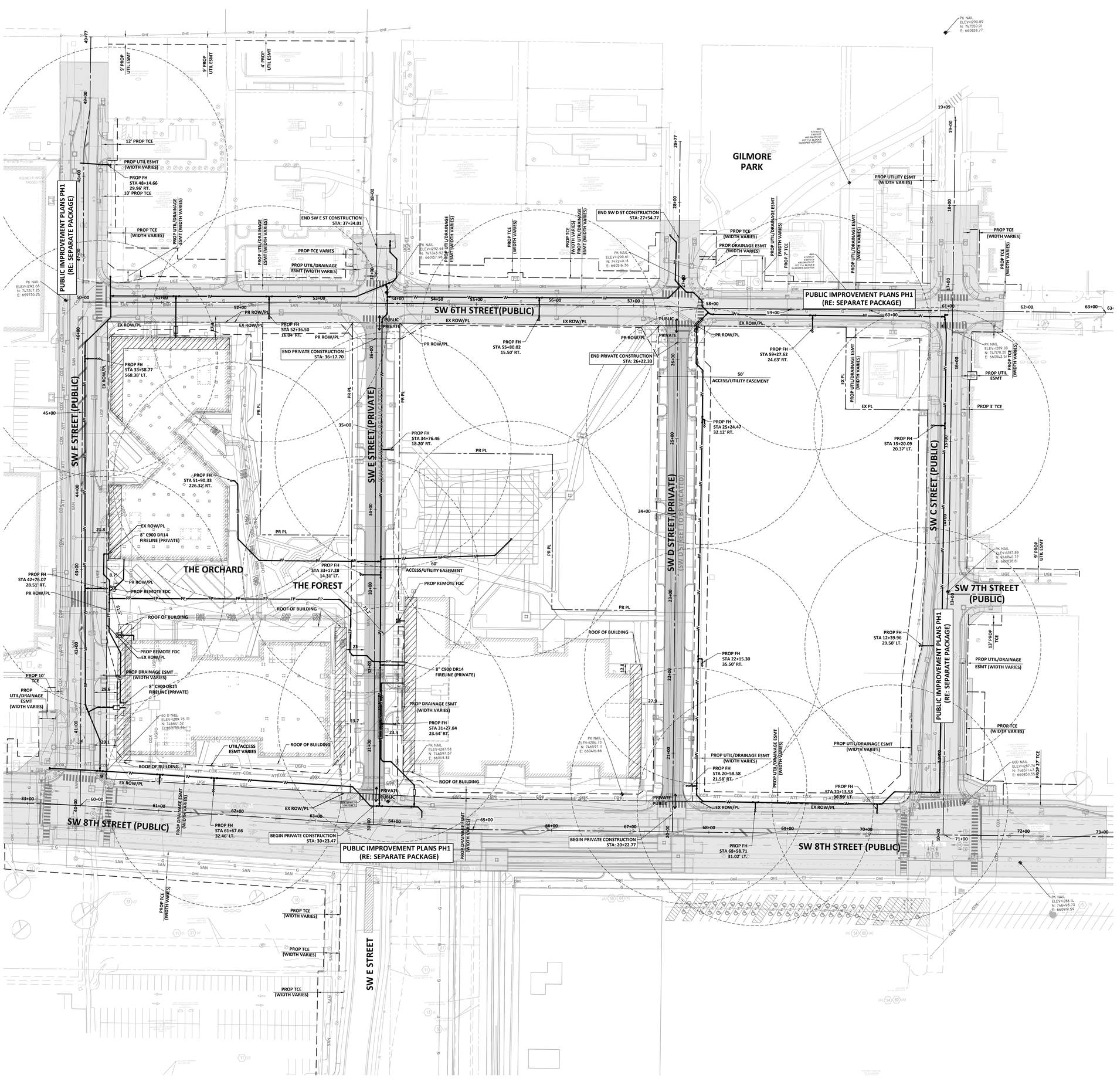

LEGEND:

- EXISTING FIRE HYDRANT COVERAGE
- PROPOSED FIRE HYDRANT COVERAGE
- PROPOSED AERIAL FIRE APPARATUS ACCESS
- PROPOSED FIRE HYDRANT
- PROPOSED FDC LOCATION
- PROPOSED FIRE LANE

HATCH LEGENDS:

- SEPARATE PACKAGE

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OVERALL FIRE PROTECTION PLAN

C0.018PH2

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40 20 0 40

SCALE: 1" = 40'

HATCH LEGENDS:

- VACATED ROW/PL
- VACATED UTILITY EASEMENT
- SEPARATE PACKAGE

GILMORE PARK

SW 6TH STREET (PUBLIC)

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

SW F STREET (PUBLIC)

SW D STREET (PRIVATE) (SW D STREET TO BE VACATED)

SW C STREET (PUBLIC)

SW 7TH STREET (PUBLIC)

SW 8TH STREET (PUBLIC)

SW E STREET (PRIVATE)

SW E STREET

THE ORCHARD

THE FOREST

PK NAIL ELEV=290.89 N: 747550.91 E: 660858.77

PK NAIL ELEV=292.64 N: 747243.97 E: 660157.96

PK NAIL ELEV=290.61 N: 747249.18 E: 660516.36

PK NAIL ELEV=293.68 N: 747267.25 E: 659730.25

PK NAIL ELEV=289.03 N: 747178.20 E: 660843.51

PK NAIL ELEV=287.89 N: 746840.72 E: 660858.81

PK NAIL ELEV=288.14 N: 746493.73 E: 660919.59

60 D NAIL ELEV=289.75 N: 746641.32 E: 659755.86

PK NAIL ELEV=286.70 N: 746597.11 E: 660416.66

PK NAIL ELEV=287.68 N: 746597.57 E: 660518.82

60D NAIL ELEV=287.72 N: 746571.44 E: 660850.57

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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EX VACATED ROW-PL & ESMT

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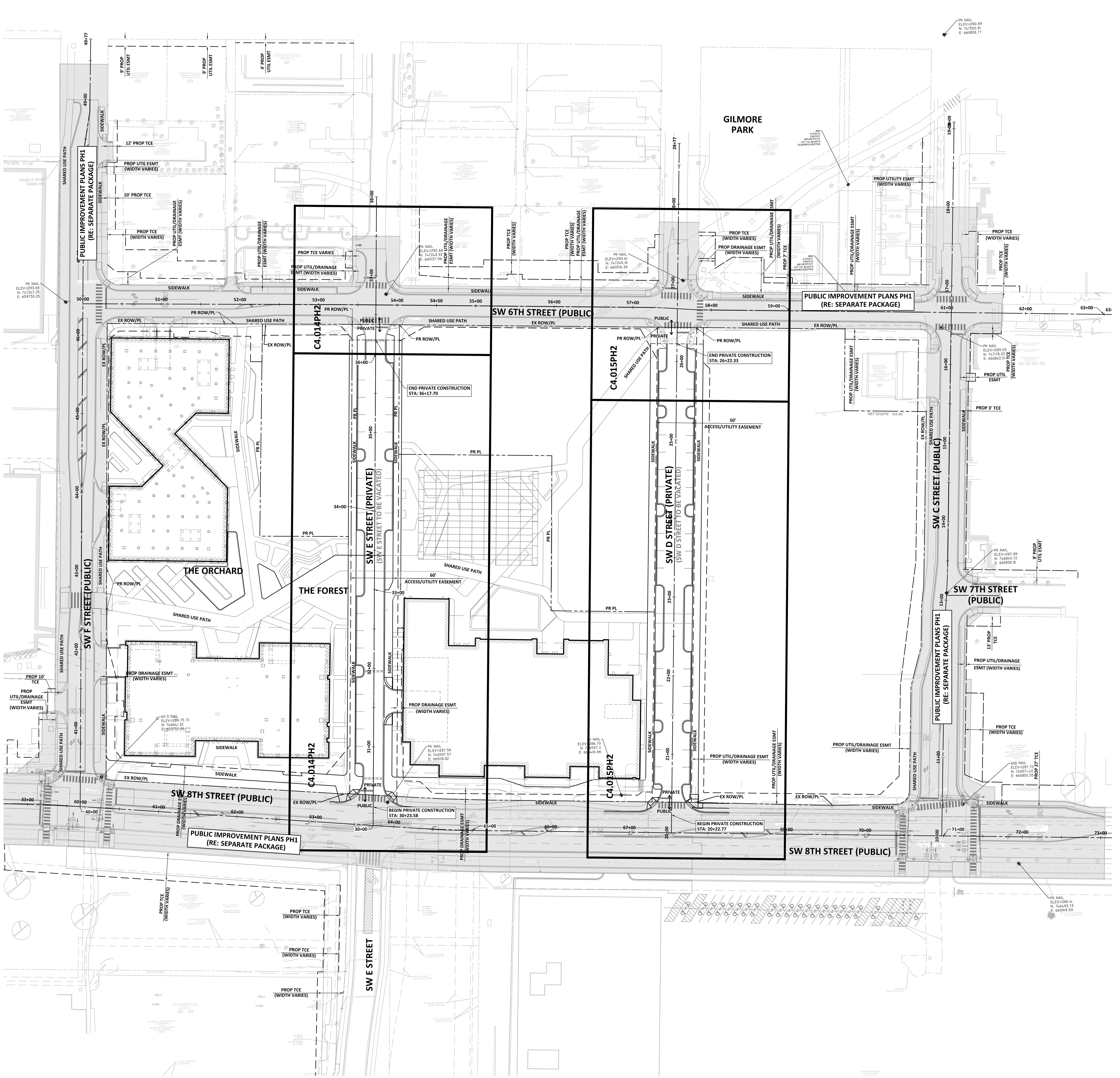

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GENERAL LAYOUT

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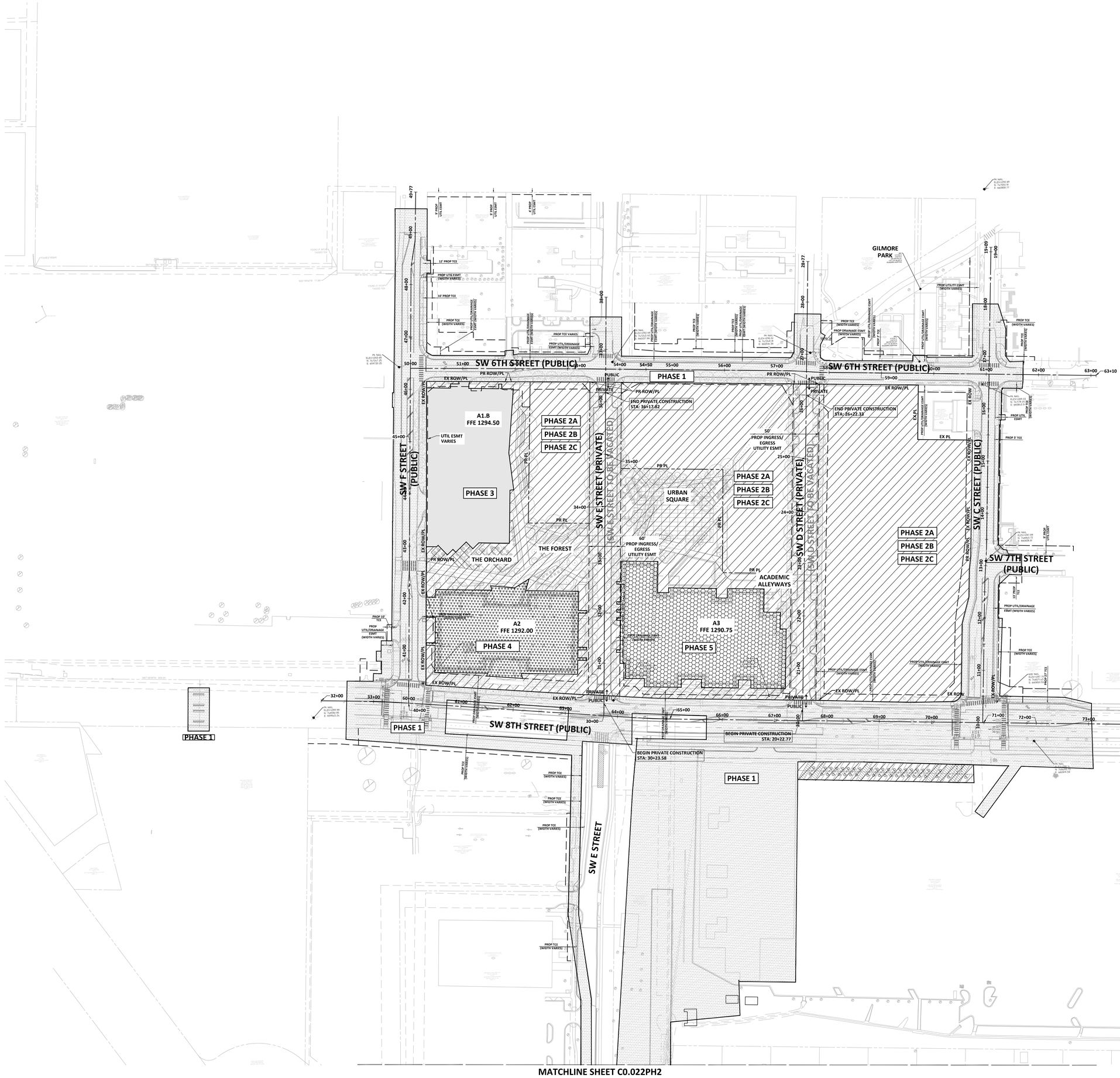

HATCH LEGENDS:

- PHASE 1 - PUBLIC IMPROVEMENTS
- PHASE 2 - PRIVATE IMPROVEMENTS
- PHASE 3 - A1B DORMS
- PHASE 4 - A2 ACADEMIC
- PHASE 5 - A3 CRUCIBLE

PHASING SCHEDULE:

PH 1	SEPT 2026 TO SEPT 2028
PH 2A	PRIVATE RDS AND UTILS SEPT 2026 TO MAR 2028
PH 2B	HARDSCAPE JUNE 2028 TO MAR 2029
PH 2C	SOFTSCAPE OCT 2028 TO MAR 2029
PH 3	OCT 2026 TO MAR 2029
PH 4	OCT 2026 TO MAR 2029
PH 5	OCT 2026 TO MAR 2029

NOTES:

1. EACH PHASE SHALL BE STABILIZED BEFORE FINAL APPROVAL ACCEPTANCE IS ISSUED.
2. FOR ALL RIGHTS-OF-WAY OPEN TO VEHICULAR TRAFFIC, CONTRACTOR SHALL PROVIDE A PEDESTRIAN AND BICYCLE ACCESSIBLE ROUTE DURING ALL PHASES OF CONSTRUCTION.
3. EXISTING BENCH NORTH OF SW F ST AND SW 6TH STREET, REMOVED AND RELOCATED BACK TO EXISTING CONDITION. PROPOSED BENCH WILL BE VICTOR STANLEY "CLASSIC" (MODEL #C-10) OR APPROVED EQUAL.
4. EXISTING BIKE RACK NORTH OF SW F ST AND SW 6TH ST, REMOVED AND RELOCATED BACK TO EXISTING CONDITION. BIKE RACKS WILL BE A DERO SWERVE STYLE OR APPROVED EQUAL. REFERENCE APBP MANUAL FOR DESIGN REQUIREMENTS AND PROVIDE DETAIL DRAWINGS OF BIKE PARKING AREA(S).

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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PHASING PLAN

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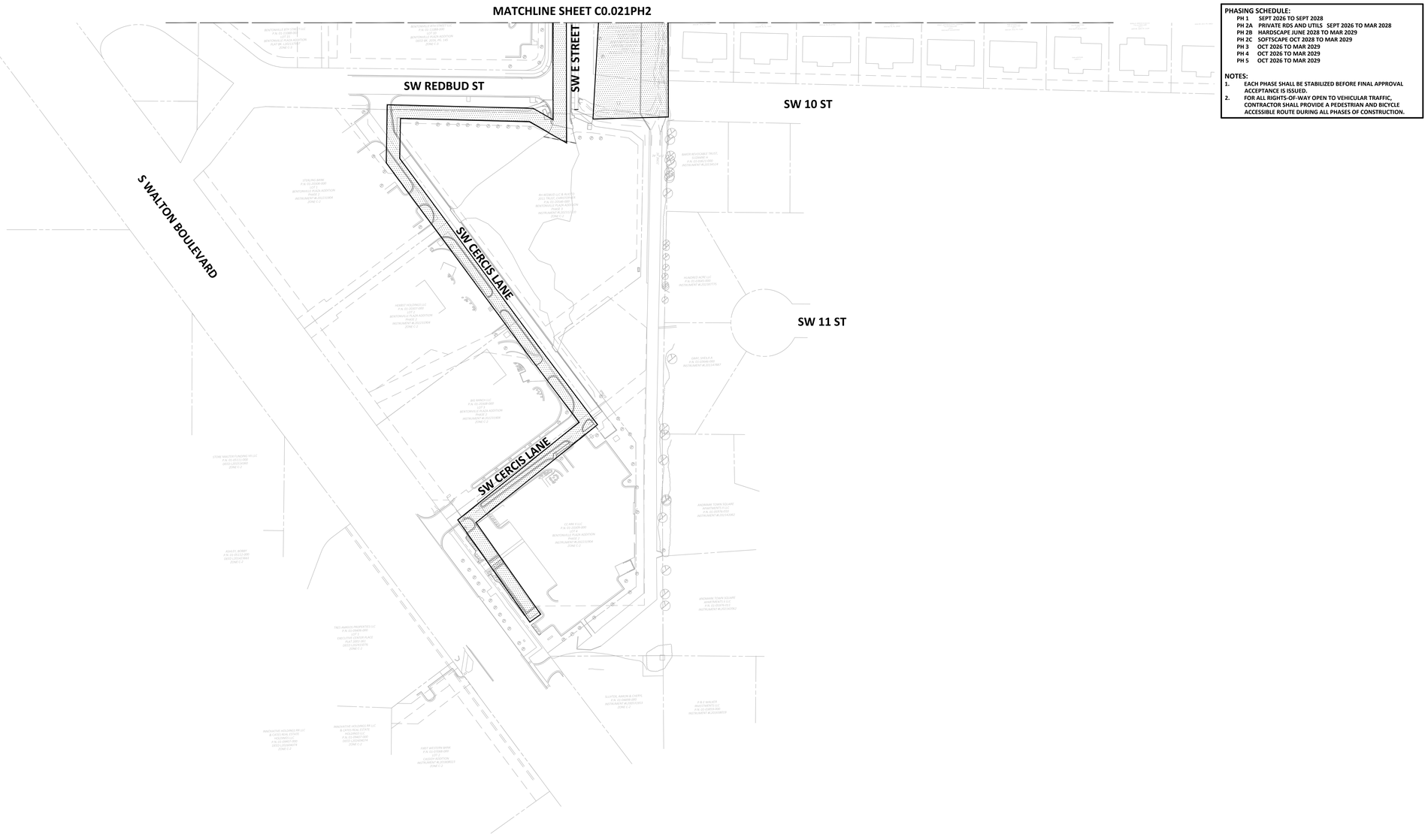

N

60 30 0 60

SCALE: 1" = 60'

HATCH LEGENDS:

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- PHASE 2 - PRIVATE IMPROVEMENTS
- PHASE 3 - A1B DORMS
- PHASE 4 - A2 ACADEMIC
- PHASE 5 - A3 CRUCIBLE

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026

ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

PHASING PLAN

C0.022PH2

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N

40 20 0 40

SCALE: 1" = 40'

HATCH LEGENDS:

SEPARATE PACKAGE

GILMORE PARK

SW 6TH STREET(PUBLIC)

SW E STREET (PRIVATE) (SW E STREET TO BE VACATED)

SW D STREET (PRIVATE) (SW D STREET TO BE VACATED)

SW F STREET (PUBLIC)

SW C STREET (PUBLIC)

SW 7TH STREET (PUBLIC)

SW 8TH STREET(PUBLIC)

SW E STREET

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

END CONSTRUCTION SW E ST℄ STA 37+50 N: 747318.2807 E: 660128.0186

INTERSECTION ALIGNMENT 6TH STREET ℄ STA 53+73 E STREET ℄ STA 36+62.39 N: 747230.7343 E: 660124.6997

END CONSTRUCTION D STREET ℄ STA 27+77.18 N: 747323.6347 E: 660512.9142

END PRIVATE CONSTRUCTION E STREET STA: 36+37.49

INTERSECTION ALIGNMENT 6TH STREET ℄ STA 57+57 D STREET ℄ STA 26+67.06 N: 747213.6157 E: 660508.0800

END PRIVATE CONSTRUCTION D STREET STA: 26+43.23

BEGIN PRIVATE CONSTRUCTION E STREET STA: 30+23.58

BEGIN PRIVATE CONSTRUCTION D STREET STA: 20+23.57

INTERSECTION ALIGNMENT 8TH STREET ℄ STA 63+73.68 E STREET ~~℄ STA 30+00~~ N: 746568.8183 E: 660099.6345

INTERSECTION ALIGNMENT 8TH STREET ℄ STA 67+53.44 C STREET ℄ STA 20+00 N: 746547.1583 E: 660478.7105

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

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PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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ALIGNMENT AND CONTROL PLAN

C0.023PH2

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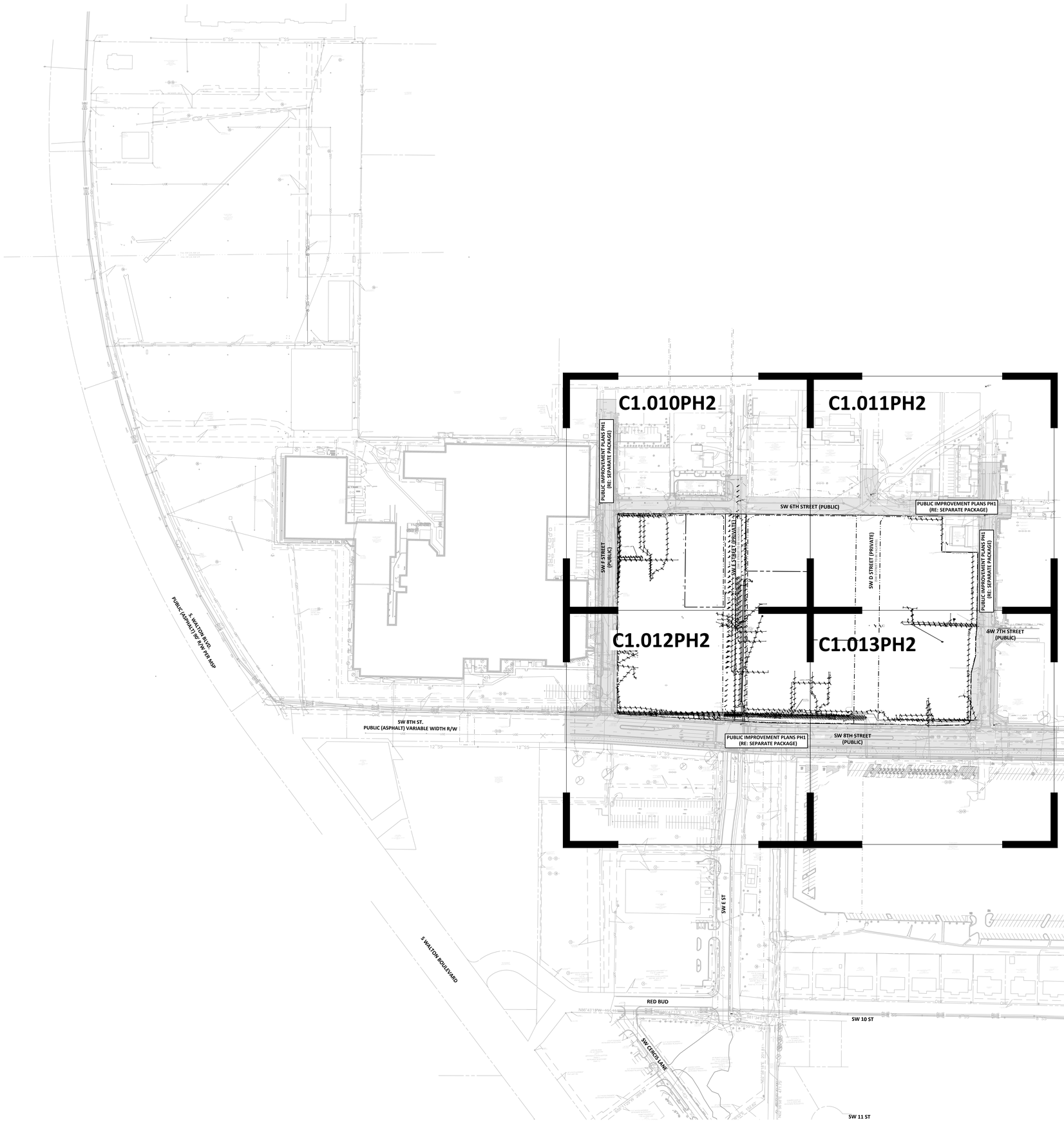

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100 50 0 100

SCALE: 1" = 100'

HATCH LEGENDS:

SEPARATE PACKAGE

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OVERALL DEMOLITION PLAN

C1.000PH2

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MATCHLINE SEE SHEET-C1.011PH2

MATCHLINE SEE SHEET-C1.012PH2

HATCH LEGEND:

- LIMITS OF DISTURBANCE
- FEMA BASE LEVEL ENGINEERING
- RE: LANDSCAPE ARCHITECT PLANS FOR ALL REMOVAL AND/OR RELOCATION OF TREE AND BUSHES
- SEPARATE PACKAGE
- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE SIDEWALK
- REMOVE ASPHALT DRIVEWAY
- REMOVE CONCRETE DRIVEWAY
- REMOVE CONCRETE PAVEMENT
- REMOVE GRAVEL PAVEMENT
- REMOVE RIP RAP
- REMOVE EXISTING LANDSCAPING

SHEET NOTES:

A. CONTRACTOR TO FIELD VERIFY EXISTING UTILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES
B. ALL EXISTING UTILITIES TO BE PROTECTED IN PLACE UNLESS NOTED TO BE REMOVED
C. CONTRACTOR TO COORDINATE WITH EDSA FOR ALL TREE PROTECTION OR REMOVAL ON SITE (RE:LANDSCAPE ARCH FOR REMOVAL AND PROTECTION OF EXISTING TREES) ANY TREES ONSITE NOT SPECIFICALLY NOTED FOR PROTECTION BY EDSA ON SITE SHALL BE REMOVED
D. CONTRACTOR TO COORDINATE WITH FRANCHISE UTILITY PROVIDER FOR REMOVAL OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION
E. CONTRACTOR TO COORDINATE WITH BENTONVILLE ELECTRIC UTILITY DEPARTMENT FOR REMOVAL/RELOCATION OF EXISTING ELECTRICAL SERVICE
F. REMOVE AND SALVAGE ALL LUNCH TABLES, CIGARETTE DISPOSAL UNITS, FLAG POLES, AND ANY OTHER UNFIXED ITEMS ON SITE TO OWNER
G. CONTRACTOR TO IDENTIFY ALL BUILDING UTILITY CONNECTIONS, THEN CAP, CUT AND MARK AT LOCATIONS 5' FROM EDGE OF BUILDING. PRIOR TO CUT, COORDINATE WITH ASSOCIATED UTILITY PROVIDERS
H. ALL EXISTING SIGNS, UTILITY APURTENANCES, OR ANY OTHER MISC SITE INSTALLATIONS WITHIN PUBLIC ROW TO REMAIN IN PLACE UNLESS OTHERWISE CALLED OUT FOR REMOVAL

KEY NOTES:

1. FULL-DEPTH SAWCUT
2. PROTECT IN PLACE EXISTING UTILITY
3. REMOVE EXISTING UTILITY
4. REMOVE EXISTING LIGHTPOLE
5. REMOVE EXISTING WALL
6. REMOVE EXISTING SIGN
7. POWER POLE TO BE RELOCATED BY BEUD OR THEIR CONSULTANT. SEE BEUD DRAWINGS FOR FRANCHISE UTILITY RELOCATION ALONG WITH THE POWER POLE (N/A)
8. PROTECT IN PLACE EXISTING POWER POLE
9. REMOVE EXISTING CONCRETE CURB & GUTTER
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11. PROTECT IN PLACE EXISTING PAVEMENT
12. PROTECT IN PLACE EXISTING CONCRETE CURB & GUTTER
13. PROTECT EXISTING STORM STRUCTURE
14. ABANDON IN PLACE EXISTING UTILITY (N/A)
15. CUT AND CAP EXISTING SANITARY SEWER LINE
16. REMOVE EXISTING FENCE
17. PROTECT IN PLACE EXISTING SIGN
18. CUT AND CAP EXISTING WL AS PER CITY DETAIL (3/C1.005)
19. REMOVE EXISTING DITCH (N/A)
20. COORDINATE WITH CITY OF BENTONVILLE ELECTRIC UTILITY DEPARTMENT FOR DEMOLITION OF EXISTING ELECTRIC
21. COORDINATE W/ BWU FOR METER TO BE ABANDONED AT MAIN LINE. CONTRACTOR TO EXCAVATE TO MAIN LINE. CORP STOP TO BE SHUT OFF BY BWU INSPECTOR CONTRACTOR TO PLACE CAP IN CORP STOP.
22. PROTECTING EXISTING FENCE / PROPERTY IN PLACE
23. COORDINATE WITH STREET DEPARTMENT ON STREET CUTS AND TRAFFIC CONTROL. TRENCH AND BACKFILL PER CITY OF BENTONVILLE WATER UTILITIES DETAILS AND SPECIFICATIONS. IF PAVEMENT CUT IS IN THE STREET, PATCH STREET CUT PER CITY OF BENTONVILLE WATER UTILITIES DETAILS AND SPECIFICATIONS
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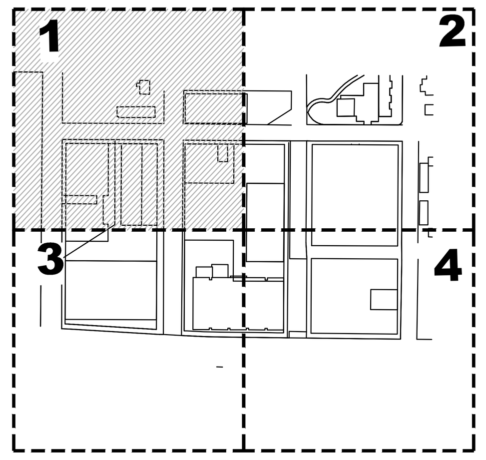
34. REMOVE COMMUNICATIONS SERVICE (WORK TO BE COMPLETED BY UTILITY CONTRACTOR)
35. REMOVE GAS METER/MARKER (WORK TO BE COMPLETED BY UTILITY CONTRACTOR)



KEY MAP

SAFETY IS IN YOUR HANDS.
EVERY DIG. EVERY TIME.

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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DEMOLITION PLAN

C1.010PH2

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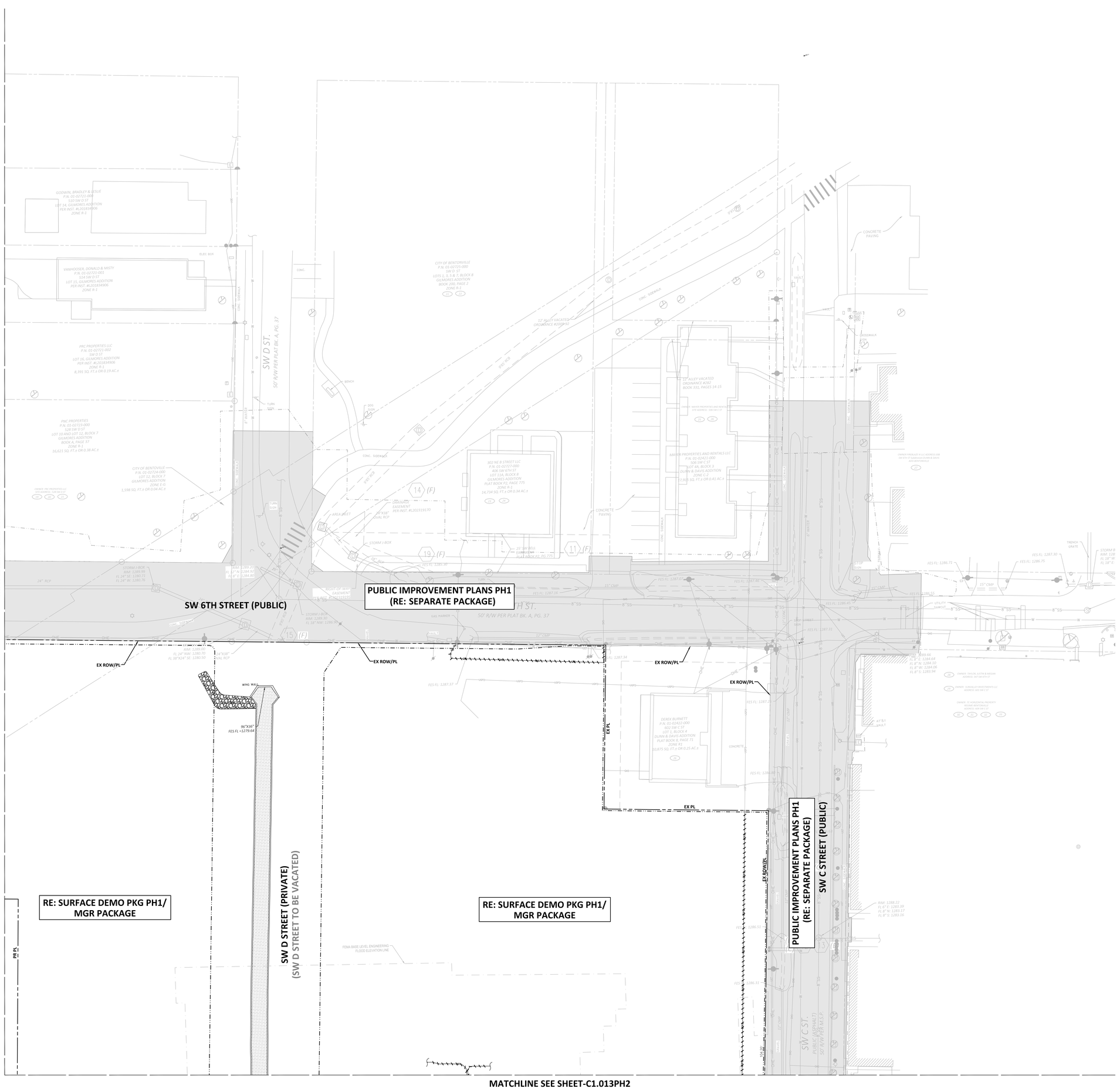

N

20 10 0 20

SCALE: 1" = 20'

HATCH LEGEND:

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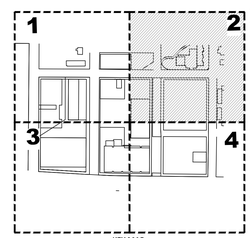

KEY MAP

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DEMOLITION PLAN

C1.011PH2

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MATCHLINE SEE SHEET-C1.010PH2

MATCHLINE SEE SHEET-C1.013PH2

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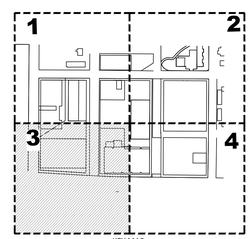

KEY MAP

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DEMOLITION PLAN

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MATCHLINE SEE SHEET-C1.011PH2

MATCHLINE SEE SHEET-C1.012PH2

RE: SURFACE DEMO PKG PH1/ MGR PACKAGE

SW D STREET (PRIVATE)

(SW D STREET TO BE VACATED)

RE: SURFACE DEMO PKG PH1/ MGR PACKAGE

SW 7TH STREET (PUBLIC)

SW C STREET (PUBLIC)

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

SW 8TH STREET (PUBLIC)

EX ROW

EX ROW

FEMA BASE LEVEL ENGINEERING FLOOD ELEVATION LINE

ZONE X

STORM J-BOX RIM: 1285.57 FL 12"S: 1283.47 FL 18" W: 1279.87

FES FL=1279.55

FES FL=1279.45

18" RCP

30" RCP

12" RCP

48" RCP

24" RCP

6" WATER

EX ROW/PL

HEADWALL

STOP SIGN

CONCRETE BIKE PATH

CONCRETE SIDEWALK

ASPHALT PAVING

CITY OF BENTONVILLE P.N. 01-11478-004

WAL-MART STORES INC. P.N. 01-11478-000

LEASE AREA PLAT BK. 2003, PG. 91

COMMUNICATIONS VAULT

(A) 58 64 (A)

(A) 54 60 (A)

N

20 10 0 20

SCALE: 1" = 20'

HATCH LEGEND:

- LIMITS OF DISTURBANCE
- FEMA BASE LEVEL ENGINEERING
- RE: LANDSCAPE ARCHITECT PLANS FOR ALL REMOVAL AND/OR RELOCATION OF TREE AND BUSHES
- SEPARATE PACKAGE
- REMOVE ASPHALT PAVEMENT
- REMOVE CONCRETE SIDEWALK
- REMOVE ASPHALT DRIVEWAY
- REMOVE CONCRETE DRIVEWAY
- REMOVE CONCRETE PAVEMENT
- REMOVE GRAVEL PAVEMENT
- REMOVE RIP RAP
- REMOVE EXISTING LANDSCAPING

SHEET NOTES:

A. CONTRACTOR TO FIELD VERIFY EXISTING UTILITIES AND NOTIFY ENGINEER OF ANY DISCREPANCIES

B. ALL EXISTING UTILITIES TO BE PROTECTED IN PLACE UNLESS NOTED TO BE REMOVED

C. CONTRACTOR TO COORDINATE WITH EDSA FOR ALL TREE PROTECTION OR REMOVAL ON SITE (RE:LANDSCAPE ARCH FOR REMOVAL AND PROTECTION OF EXISTING TREES) ANY TREES ONSITE NOT SPECIFICALLY NOTED FOR PROTECTION BY EDSA ON SITE SHALL BE REMOVED

D. CONTRACTOR TO COORDINATE WITH FRANCHISE UTILITY PROVIDER FOR REMOVAL OF THEIR UTILITIES PRIOR TO STARTING CONSTRUCTION

E. CONTRACTOR TO COORDINATE WITH BENTONVILLE ELECTRIC UTILITY DEPARTMENT FOR REMOVAL/RELOCATION OF EXISTING ELECTRICAL SERVICE

F. REMOVE AND SALVAGE ALL LUNCH TABLES, CIGARETTE DISPOSAL UNITS, FLAG POLES, AND ANY OTHER UNFIXED ITEMS ON SITE TO OWNER

G. CONTRACTOR TO IDENTIFY ALL BUILDING UTILITY CONNECTIONS, THEN CAP, CUT AND MARK AT LOCATIONS 5' FROM EDGE OF BUILDING. PRIOR TO CUT, COORDINATE WITH ASSOCIATED UTILITY PROVIDERS

H. ALL EXISTING SIGNS, UTILITY APURTENANCES, OR ANY OTHER MISC SITE INSTALLATIONS WITHIN PUBLIC ROW TO REMAIN IN PLACE UNLESS OTHERWISE CALLED OUT FOR REMOVAL

KEY NOTES:

1. FULL-DEPTH SAWCUT
2. PROTECT IN PLACE EXISTING UTILITY
3. REMOVE EXISTING UTILITY
4. REMOVE EXISTING LIGHTPOLE
5. REMOVE EXISTING WALL
6. REMOVE EXISTING SIGN
7. POWER POLE TO BE RELOCATED BY BEUD OR THEIR CONSULTANT. SEE BEUD DRAWINGS FOR FRANCHISE UTILITY RELOCATION ALONG WITH THE POWER POLE (N/A)
8. PROTECT IN PLACE EXISTING POWER POLE
9. REMOVE EXISTING CONCRETE CURB & GUTTER
10. PROTECT EXISTING FIRE HYDRANT
11. PROTECT IN PLACE EXISTING PAVEMENT
12. PROTECT IN PLACE EXISTING CONCRETE CURB & GUTTER
13. PROTECT EXISTING STORM STRUCTURE
14. ABANDON IN PLACE EXISTING UTILITY (N/A)
15. CUT AND CAP EXISTING SANITARY SEWER LINE
16. REMOVE EXISTING FENCE
17. PROTECT IN PLACE EXISTING SIGN
18. CUT AND CAP EXISTING WL AS PER CITY DETAIL (3/C1.005)
19. REMOVE EXISTING DITCH (N/A)
20. COORDINATE WITH CITY OF BENTONVILLE ELECTRIC UTILITY DEPARTMENT FOR DEMOLITION OF EXISTING ELECTRIC
21. COORDINATE W/ BWU FOR METER TO BE ABANDONED AT MAIN LINE. CONTRACTOR TO EXCAVATE TO MAIN LINE. CORP STOP TO BE SHUT OFF BY BWU INSPECTOR CONTRACTOR TO PLACE CAP IN CORP STOP.
22. PROTECTING EXISTING FENCE / PROPERTY IN PLACE
23. COORDINATE WITH STREET DEPARTMENT ON STREET CUTS AND TRAFFIC CONTROL. TRENCH AND BACKFILL PER CITY OF BENTONVILLE WATER UTILITIES DETAILS AND SPECIFICATIONS. IF PAVEMENT CUT IS IN THE STREET, PATCH STREET CUT PER CITY OF BENTONVILLE WATER UTILITIES DETAILS AND SPECIFICATIONS
24. EXISTING STRUCTURE TO BE REMOVED
25. EXISTING STRUCTURE TO REMAIN IN PLACE
26. REMOVE BOLLARDS
27. PROTECT EXISTING WALL
28. REMOVE RAIL
29. REMOVE AC/ELECTRICAL UNIT
30. REMOVE RAMP/STAIR
31. REMOVE BIKE RACK
32. REMOVE CANOPY STRUCTURE
33. REMOVE AND CAP SANITARY SEWER SERVICE AT MANHOLE (WORK TO BE COMPLETED BY UTILITY CONTRACTOR)
34. REMOVE COMMUNICATIONS SERVICE (WORK TO BE COMPLETED BY UTILITY CONTRACTOR)
35. REMOVE GAS METER/MARKER (WORK TO BE COMPLETED BY UTILITY CONTRACTOR)

KEY MAP

SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
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3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

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DEMOLITION PLAN

C1.013PH2

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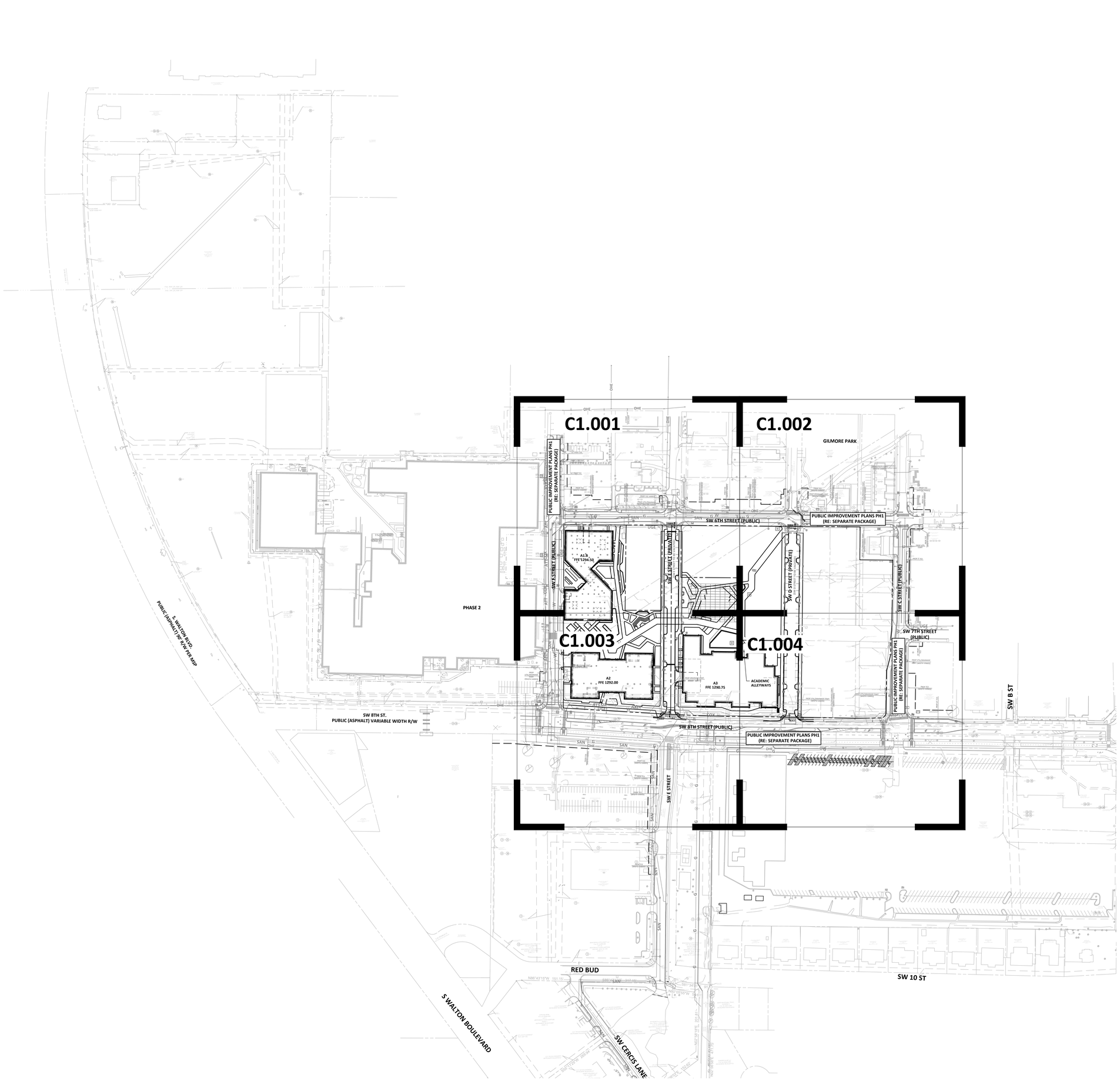

N

100 50 0 100

SCALE: 1" = 100'

HATCH LEGENDS:

SEPARATE PACKAGE

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OVERALL CIVIL SITE LAYOUT PLAN

C1.000

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N

20 10 0 20

SCALE: 1" = 20'

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT

B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT

C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS

KEY NOTES:

1. CONCRETE SIDEWALK
2. SHARED USE PATH
3. LANDSCAPE
4. GRAVEL (RE: LANDSCAPE PLANS FOR DETAILS)
5. PAVERS (RE: LANDSCAPE PLANS FOR DETAILS)
6. DOWELLED ON CONCRETE CURB (RE. SHEET: C10.002PH2)
7. TAPERED CURB TERMINATION (RE. SHEET: C10.001PH2)
8. CONCRETE WHEELSTOP (RE. SHEET: C10.003PH2)
9. STRAIGHT WHEELCHAIR RAMP (RE. SHEET: C10.001PH2)
10. WARNING DETECTORS
11. HANDICAP PARKING SIGN (RE. SHEET: C10.003PH2)
12. PAVEMENT MARKINGS (RE. SHEET: C10.003PH2)
13. BOLLARD (RE. SHEET: C10.000PH2)
14. CONCRETE MOW STRIP
15. RE: ARCHITECTURAL PLANS FOR DETAILS
16. RE: LANDSCAPE PLANS FOR DETAILS
17. RE: STRUCTURAL PLANS FOR DETAILS

HATCH LEGENDS:

- SEPARATE PACKAGE
- BUILDING BASEMENT LINE

END PRIVATE CONSTRUCTION STA: 49+00.00

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

SW 6TH STREET (PUBLIC)

PUBLIC

PRIVATE

SW F STREET (PUBLIC)

SW E STREET (PRIVATE)

(SW E STREET TO BE VACATED)

SHARED USE PATH

SIDEWALK

12' PROP TCE

10' PROP TCE

PROP UTIL ESMT (WIDTH VARIES)

PROP TCE (WIDTH VARIES)

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP TCE VARIES

END E ST CONSTRUCTION STA: 37+34.01

SIGHT TRIANGLE

PK NAIL ELEV=1292.68 N: 747243.92 E: 660137.96

PK NAIL ELEV=1293.68 N: 747247.25 E: 659730.25

IE: BUILDING GRID A-1 N: 747199.22 E: 659787.26

LOADING DOCK

OVERHANG

END PRIVATE CONSTRUCTION STA: 36+17.70

60' ACCESS/UTILITY EASEMENT

MATCHLINE SEE SHEET-C2.011PH2

MATCHLINE SEE SHEET-C2.012PH2

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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P.E. Serial No.: 18206
Date: 07/17/2026
ASBL COA NO. 719

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KEY MAP

811 SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

LAYOUT PLAN

C2.010PH2

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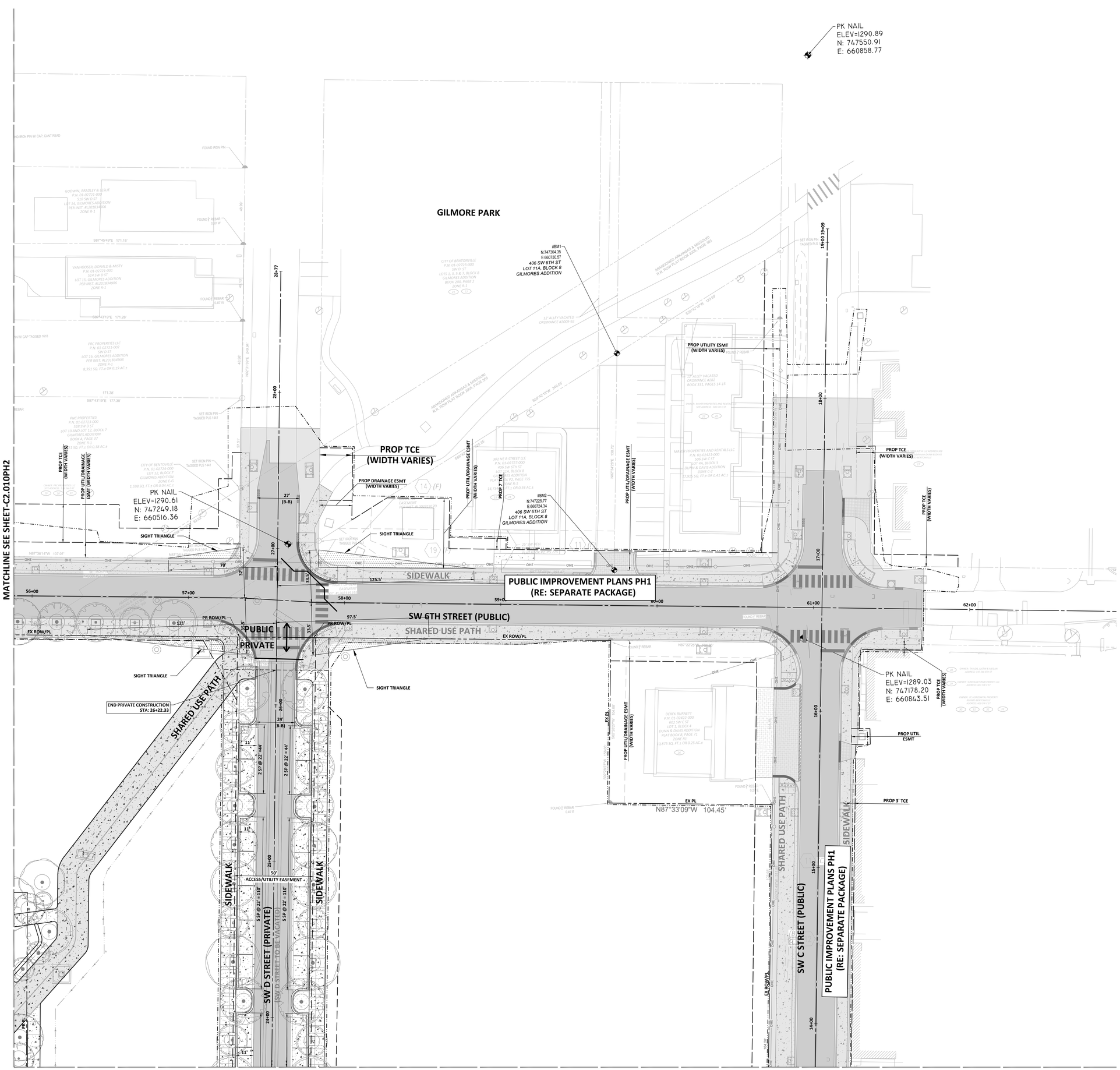

N

20 10 0 20

SCALE: 1" = 20'

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT

B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT

C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS
D. SIGHT TRIANGLES DIMENSIONS ARE FROM CENTERLINE
E. WITHIN SIGHT TRIANGLES, NO MATERIALS BETWEEN 3 FEET AND 8 FEET IN HEIGHT SHALL BE INSTALLED

KEY NOTES:

1. CONCRETE SIDEWALK
2. SHARED USE PATH
3. LANDSCAPE
4. GRAVEL (RE: LANDSCAPE PLANS FOR DETAILS)
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13. BOLLARD (RE. SHEET: C10.000PH2)
14. CONCRETE MOW STRIP
15. RE: ARCHITECTURAL PLANS FOR DETAILS
16. RE: LANDSCAPE PLANS FOR DETAILS
17. RE: STRUCTURAL PLANS FOR DETAILS

HATCH LEGENDS:

SEPARATE PACKAGE

BUILDING BASEMENT LINE

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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P.E. Serial No.: 18208
Date: 07/17/2026
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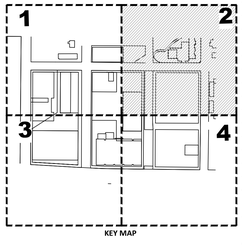

KEY MAP

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
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811
SAFETY IS IN YOUR HANDS.
EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

LAYOUT PLAN

C2.011PH2

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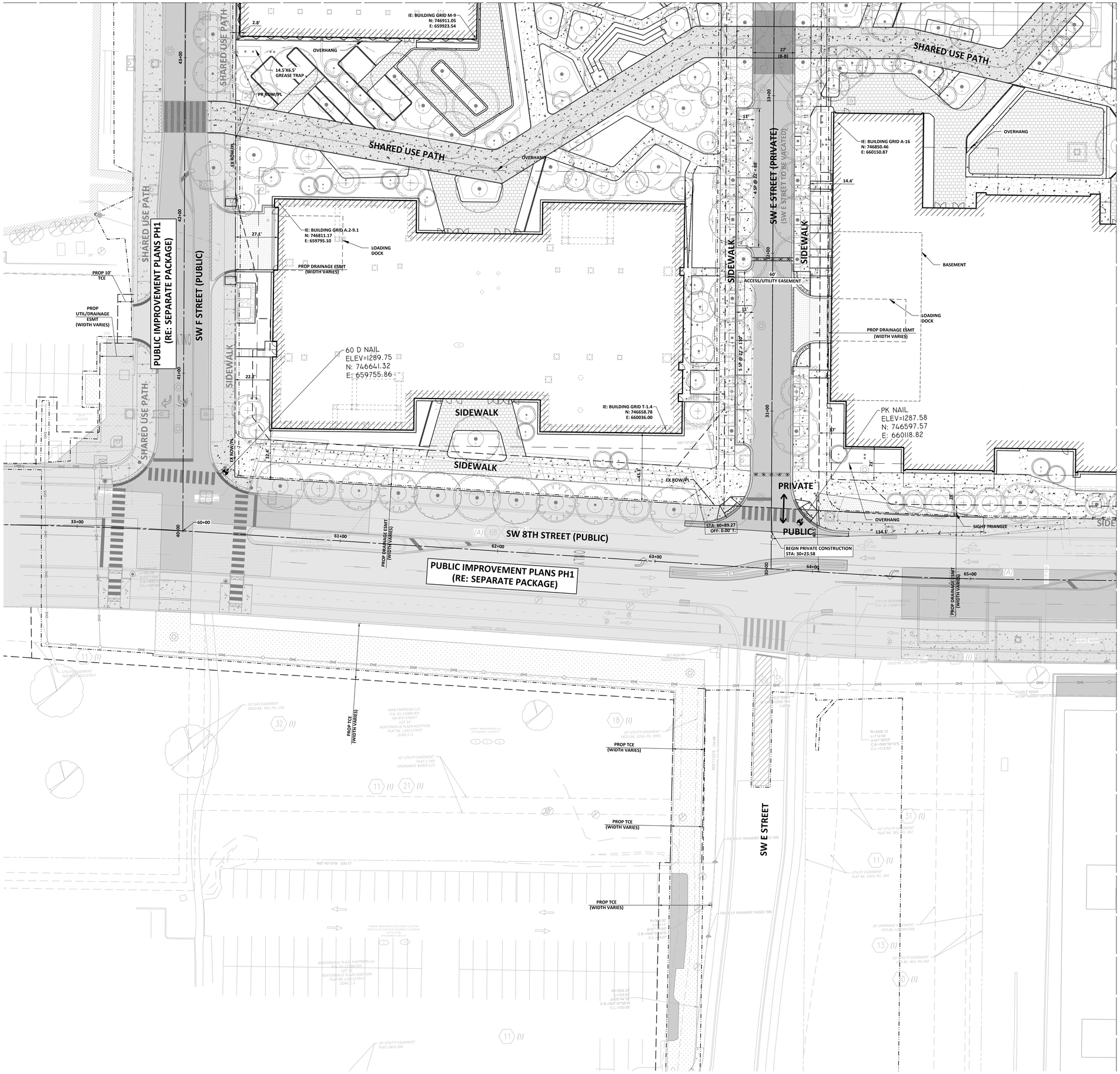
MATCHLINE SEE SHEET-C2.010PH2



MATCHLINE SEE SHEET-C2.013PH2

N

SCALE: 1" = 20'

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HATCH LEGENDS:

SEPARATE PACKAGE
BUILDING BASEMENT LINE

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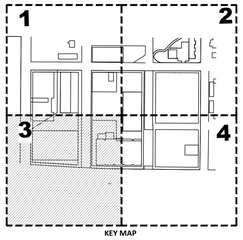

KEY MAP

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LAYOUT PLAN

C2.012PH2

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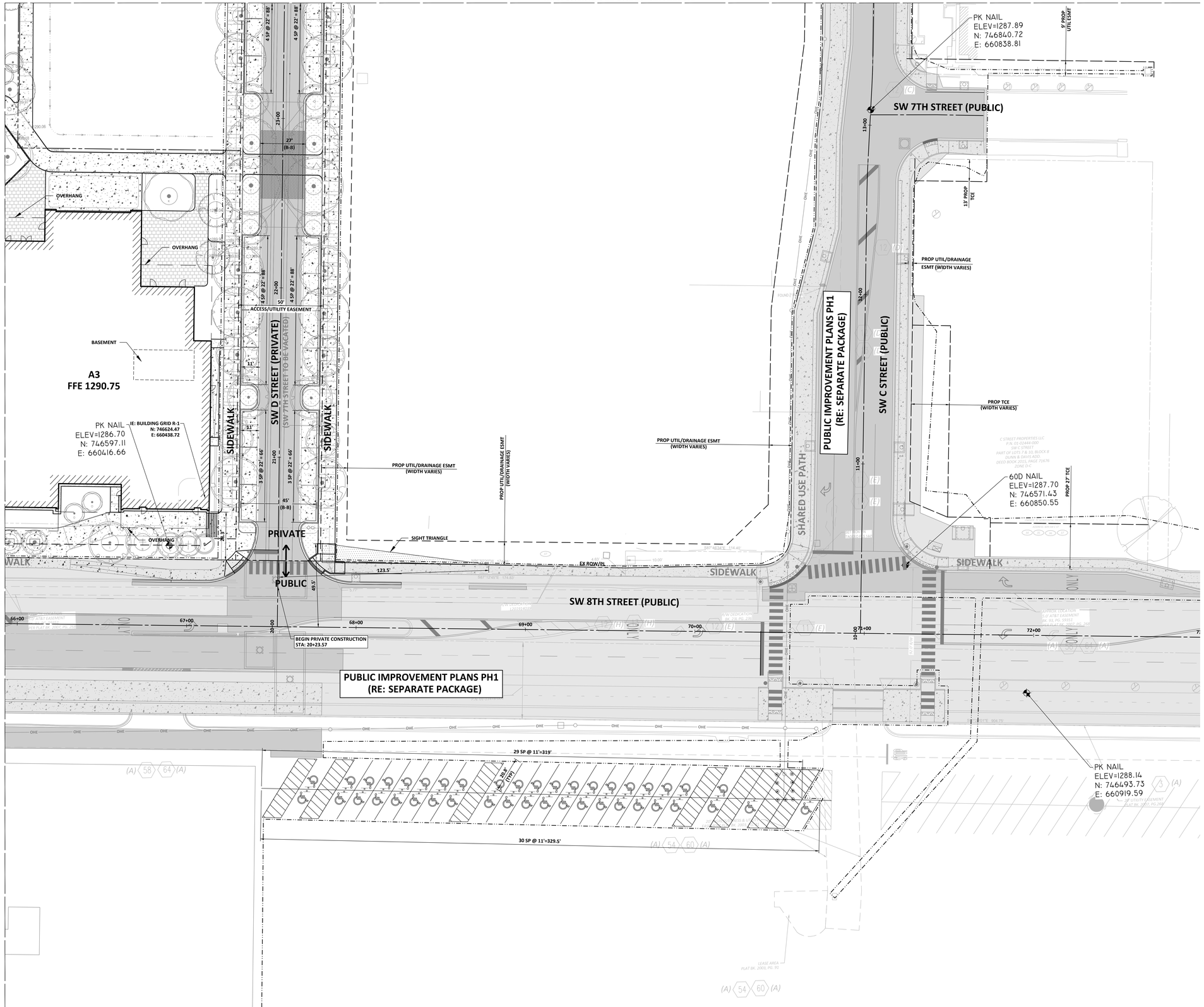
MATCHLINE SEE SHEET-C2.012PH2



N

20 10 0 20

SCALE: 1" = 20'

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17. RE: STRUCTURAL PLANS FOR DETAILS

HATCH LEGENDS:

- SEPARATE PACKAGE
- BUILDING BASEMENT LINE

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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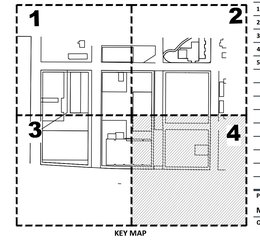

KEY MAP

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LAYOUT PLAN

C2.013PH2

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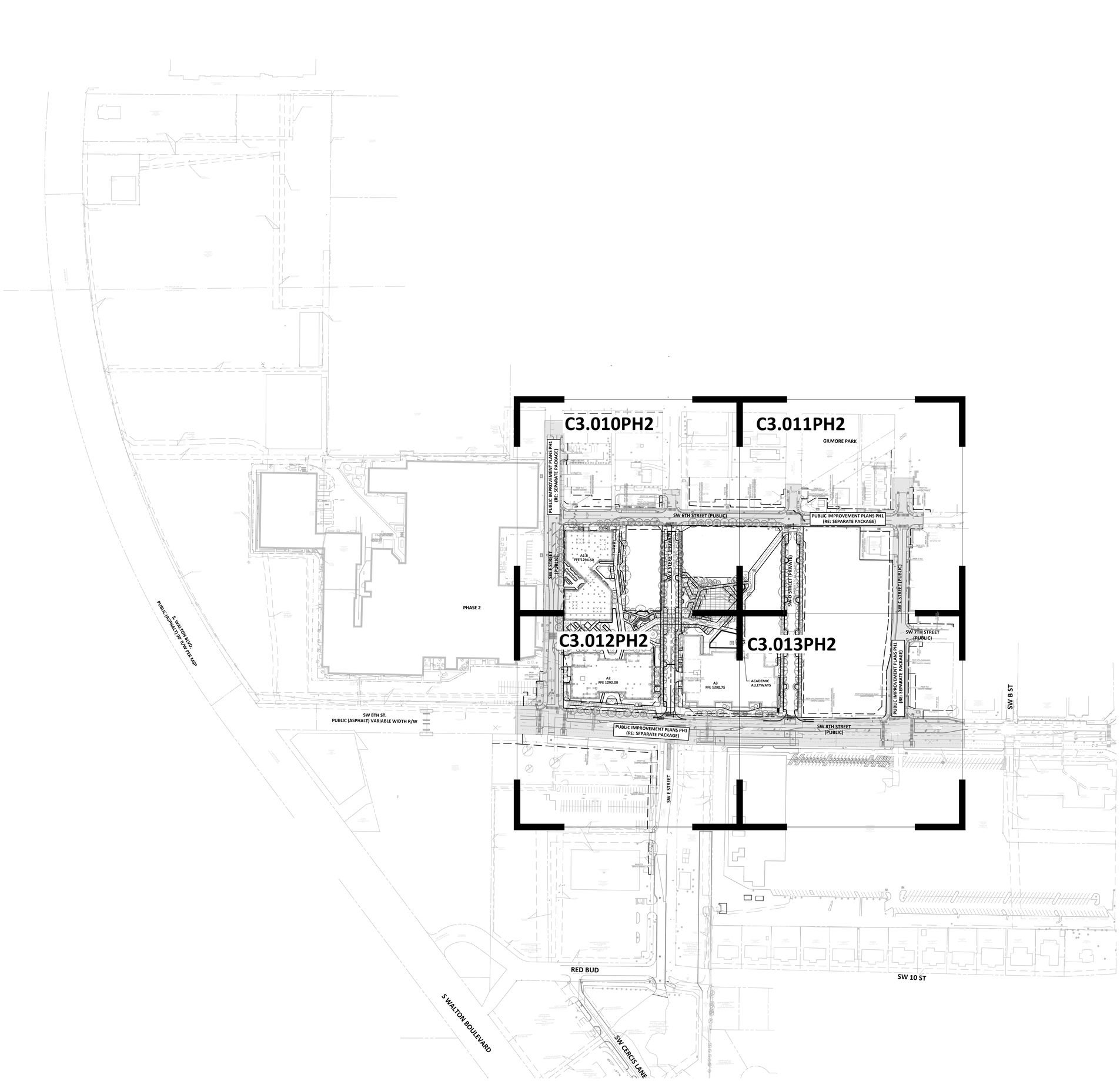

N

100 50 0 100

SCALE: 1" = 100'

HATCH LEGENDS:

SEPARATE PACKAGE

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609 SW 8th St., Suite 600
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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

OVERALL PAVEMENT PLAN

C3.000PH2

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N

20 10 0 20

SCALE: 1" = 20'

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT

B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT

C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS

KEY NOTES:

1. CONCRETE SIDEWALK
2. SHARED USE PATH
3. LANDSCAPE
4. GRAVEL (RE: LANDSCAPE PLANS FOR DETAILS)
5. PAVERS (RE: LANDSCAPE PLANS FOR DETAILS)
6. DOWELLED ON CONCRETE CURB (RE. SHEET: C10.002PH2)
7. TAPERED CURB TERMINATION (RE. SHEET: C10.001PH2)
8. CONCRETE WHEELSTOP (RE. SHEET: C10.003PH2)
9. STRAIGHT WHEELCHAIR RAMP (RE. SHEET: C10.001PH2)
10. WARNING DETECTORS
11. HANDICAP PARKING SIGN (RE. SHEET: C10.003PH2)
12. PAVEMENT MARKINGS (RE. SHEET: C10.003PH2)
13. BOLLARD (RE. SHEET: C10.000PH2)
14. CONCRETE MOW STRIP
15. RE: ARCHITECTURAL PLANS FOR DETAILS
16. RE: LANDSCAPE PLANS FOR DETAILS
17. RE: STRUCTURAL PLANS FOR DETAILS

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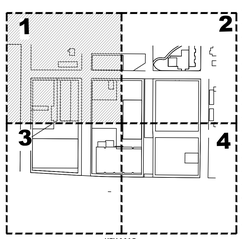

KEY MAP

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PAVEMENT PLAN

C3.010PH2

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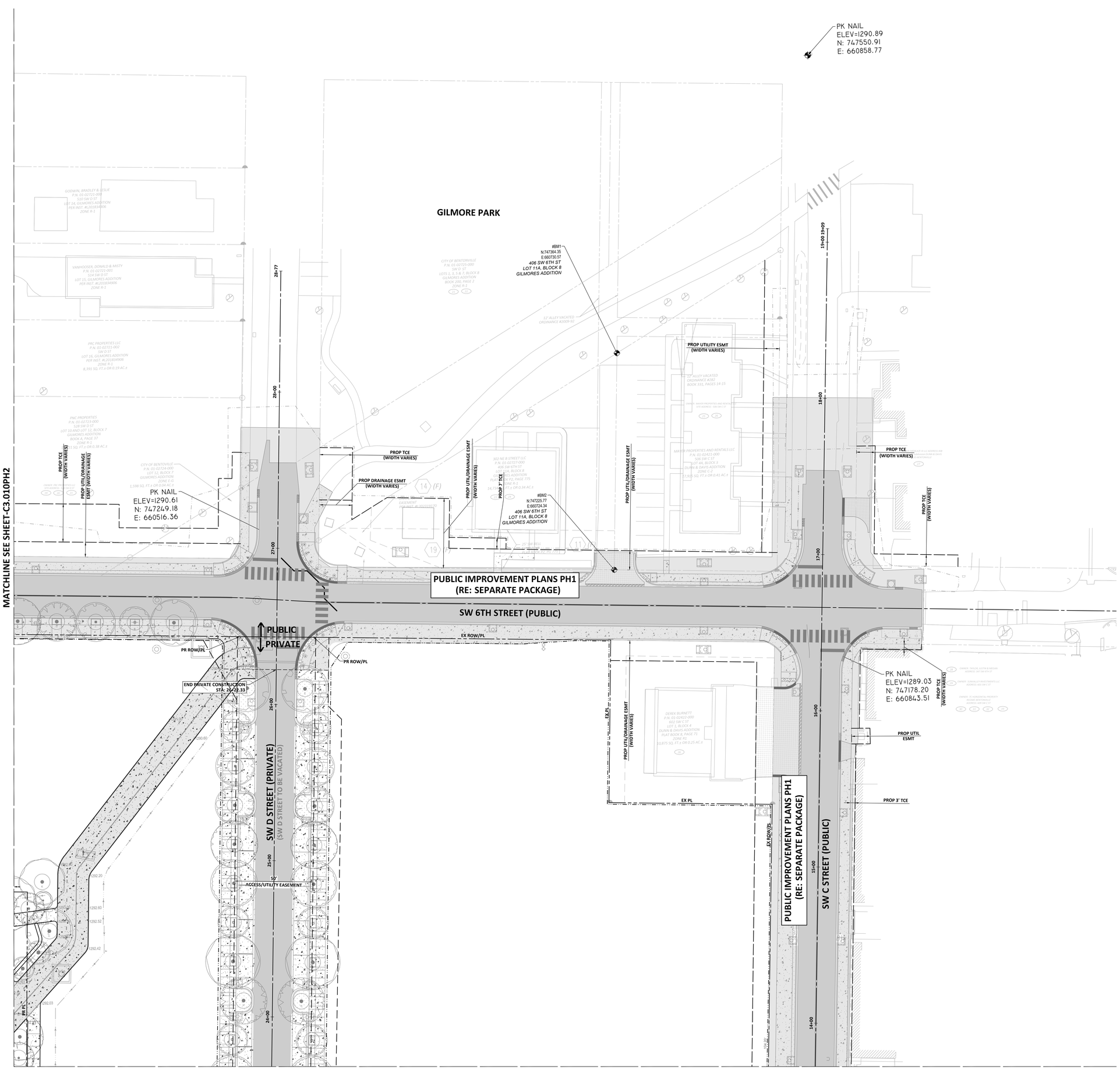

N

20 10 0 20

SCALE: 1" = 20'

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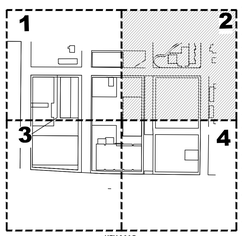

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PAVEMENT PLAN

C3.011PH2

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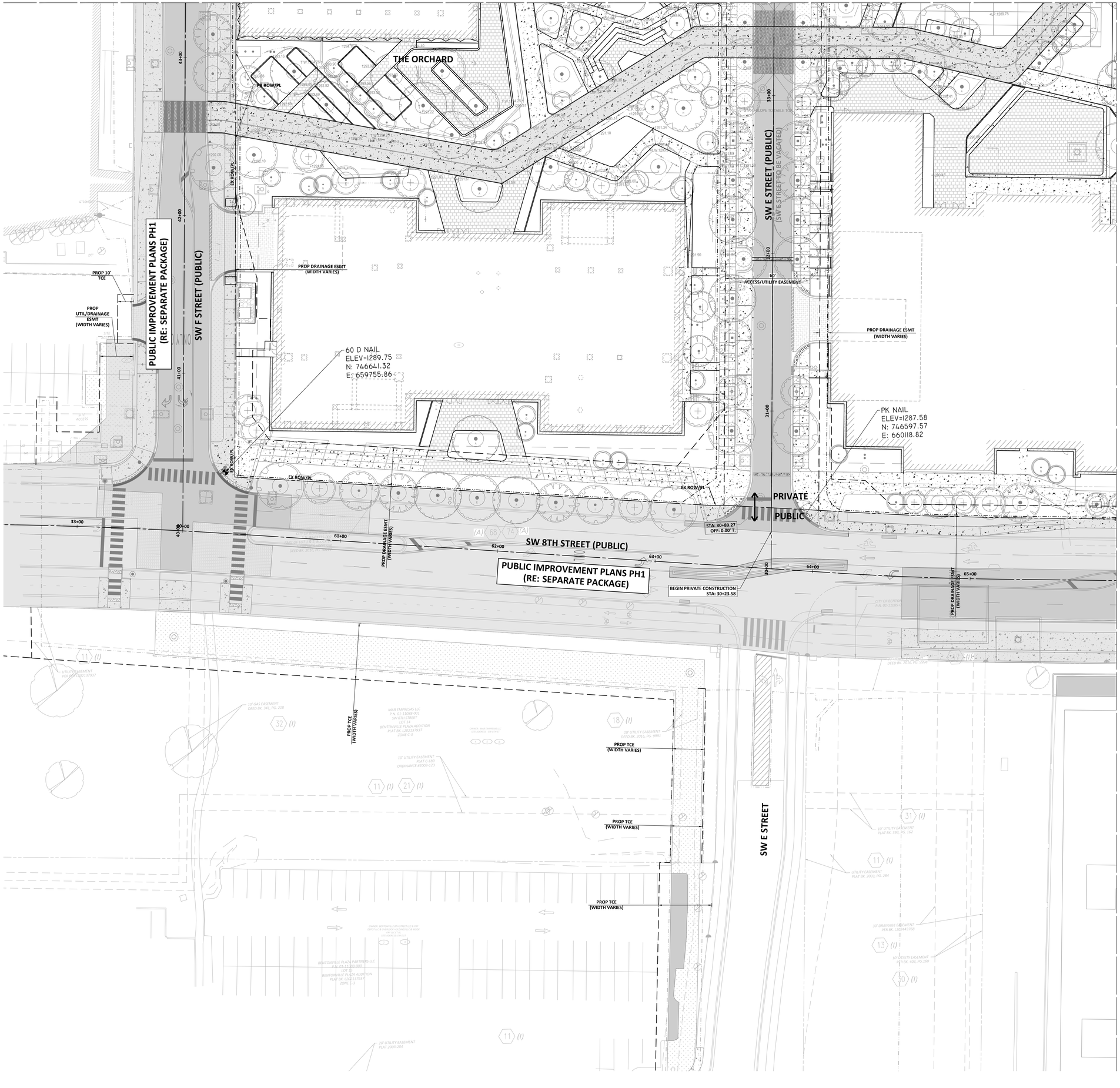
MATCHLINE SEE SHEET-C3.010PH2



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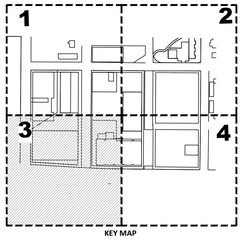

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PAVEMENT PLAN

C3.012PH2

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MATCHLINE SEE SHEET-C3.011PH2

MATCHLINE SEE SHEET-C3.012PH2

PR PL

PR PL

SW D STREET (PRIVATE)
(SW 7TH STREET TO BE VACATED)

50' ACCESS/UTILITY EASEMENT

A3
FFE 1290.75

PK NAIL
ELEV=1286.70
N: 746597.11
E: 660416.66

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PRIVATE
PUBLIC

SW 8TH STREET (PUBLIC)

BEGIN PRIVATE CONSTRUCTION
STA: 20+23.57

PUBLIC IMPROVEMENT PLANS PH1
(RE: SEPARATE PACKAGE)

PUBLIC IMPROVEMENT PLANS PH1
(RE: SEPARATE PACKAGE)

SW C STREET (PUBLIC)

SW 7TH STREET
(PUBLIC)

PK NAIL
ELEV=1287.89
N: 746840.72
E: 660838.81

9' PROP UTIL ESMT

13' PROP TCE

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP TCE (WIDTH VARIES)

60D NAIL
ELEV=1287.70
N: 746571.43
E: 660850.55

PROP 27' TCE

PK NAIL
ELEV=1288.14
N: 746493.73
E: 660919.59

CHY OF BENTONVILLE P.N. 01-11478-004

WAL-MART STORES INC. P.N. 01-11478-000

LEASE AREA PLAT BK. 2003, PG. 93

N

20 10 0 20

SCALE: 1" = 20'

SHEET NOTES:

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KEY MAP

SAFETY IS IN YOUR HANDS.
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PAVEMENT PLAN

C3.013PH2

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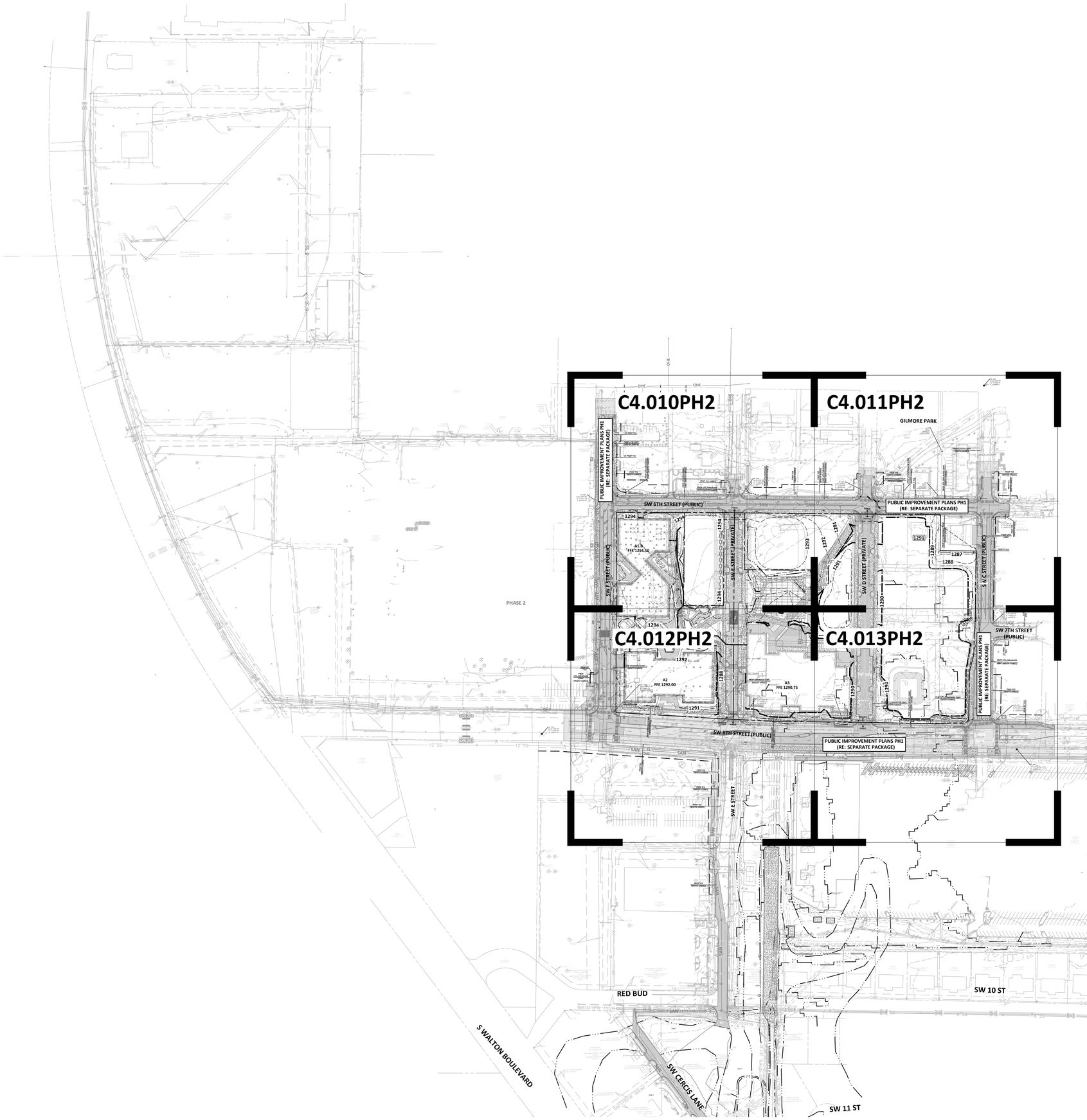

N

100 50 0 100

SCALE: 1" = 100'

SHEET NOTES:

A. IN AREAS WHERE THE PROJECT DESIGN INCORPORATES FILL ADJACENT TO NEIGHBORING LANDOWNERS, THE CONTRACTOR SHALL IMPLEMENT GRADING AND/OR PERIMETER RUNOFF CATCHMENT DEVICES (E.G.- PERIMETER DITCHES) DURING CONSTRUCTION TO ENSURE THAT ADJACENT PARCELS BORDERING THE PROJECT SITE DO NOT EXPERIENCE INTERIM DRAINAGE FLOWS THAT EXCEED PRE-DEVELOPMENT CONDITIONS FOR STORM EVENTS UP TO AND INCLUDING THE CURRENT STORM DRAINAGE DESIGN CRITERIA AT THE TIME OF PERMIT OR CARRY SEDIMENT GENERATED AS PART OF CONSTRUCTION ACTIVITIES. WHERE APPLICABLE, THESE PRACTICES ARE IN ADDITION TO THE STANDARD STORM WATER POLLUTION PREVENTION DESIGN AND SHALL INCLUDE ADDITIONAL DITCHES REDIRECTING SITE DRAINAGE OR TEMPORARY PIPING.

B. NO GRADING IS ALLOWED WITHIN 5-FT OF OVERHEAD ELECTRICAL POLES IN SERVICE. ELECTRICAL INFRASTRUCTURE IS TO BE PROTECTED IN PLACE AT ALL TIMES.

C. BEFORE ANY WORK IN THE RIGHT-OF-WAY COMMENCES, CONTRACTOR AND OR OWNER IS TO OBTAIN RIGHT-OF-WAY PERMIT FROM THE CITY OF BENTONVILLE TRANSPORTATION DEPARTMENT.

HATCH LEGEND:

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OVERALL GRADING PLAN

C4.000PH2

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N

20 10 0 20

SCALE: 1" = 20'

GRADING LEGEND:

- TCXXX.XX - TOP OF CURB ELEVATION
- LCXXX.XX - LIP OF CURB ELEVATION
- GXXX.XX - GUTTER ELEVATION
- XXX.XX - SPOT ELEVATION
- TWXXX.XX - TOP OF WALL ELEVATION
- BWXXX.XX - BOTTOM OF WALL ELEVATION
- HPXXX.XX - HIGH POINT
- LPXXX.XX - LOW POINT
- TGXXX.XX - TOP OF GRATE
- MEXXX.XX - MATCH EXISTING ELEVATION
- FLXXX.XX - FLOW LEVEL
- FGXXX.XX - FINISHED GRADE
- - FLOW ARROW
- XXX - PROPOSED CONTOUR
- XXX - EXISTING CONTOUR
- - RIDGE LINE/HIGHPOINT
- - LIMIT OF CONSTRUCTION
- - ROW/PL
- - FEMA BASE LEVEL ENGINEERING
- - 100YR FLOOD PLAIN ZONE X
- - SEPARATE PACKAGE

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D. CONTRACTOR TO ENSURE THAT FINE GRADES HAVE BEEN SET CORRECTLY PRIOR TO INSTALLING WALKS, FOOTINGS, WALL, AND OTHER STRUCTURES.

E. ALL CROSS SLOPES ON WALKWAYS SHALL NOT EXCEED 2% UNLESS OTHERWISE NOTED.

F. ALL RUNNING SLOPES ON WALKWAYS SHALL NOT EXCEED 5% UNLESS OTHERWISE NOTED.

G. WHERE EXISTING PAVEMENT IS ADJACENT TO PROPOSED PAVEMENT, PROPOSED PAVEMENT SHALL MATCH EXISTING GRADE, UNLESS OTHERWISE.

H. CONTRACTOR TO VERIFY EXISTING GRADES AND INFORM ENGINEER OF DISCREPANCIES THAT PROHIBIT INSTALLATION PER DOCUMENTS PRIOR TO CONSTRUCTION.

I. CONTRACTOR TO ENSURE POSITIVE SLOPES FOR DRAINAGE AREAS.

J. ALL LANDSCAPED SWALES SHALL HAVE 2% MIN SLOPE FOR POSITIVE DRAINAGE UNLESS OTHERWISE NOTED.

K. CONCRETE SIDEWALKS TO BE SLOPED (1% MIN/2%MAX) TO ENSURE COMPLETE SURFACE DRAINAGE AND NO PONDING OCCURS @ ROADWAY/SIDEWALK AND/ OR SIDEWALK LANDING CONNECTIONS.

L. FINISHED EARTHEN SLOPES SHALL BE NO STEEPER THAN 3H:1V UNLESS OTHERWISE NOTED.

M. FINISHED GRADES SHOWN ON PLANS REPRESENT THE FINAL FINISH SURFACE ELEVATION OF ALL WORK INCLUDING BUT NOT LIMITED TO MULCH, PLANTING, AND OTHER SOFTSCAPE MATERIAL REPRESENTED BY THE LANDSCAPE ARCHITECT.

N. ALL BUILDING ENTRY DOORS SHALL HAVE A 1/4" DROP THRESHOLD UNLESS OTHERWISE NOTED.

O. SLOPES WITHIN 6.5' MAINTENANCE STRIP OF ALL BUILDING TO MAINTAIN MAX 2% CROSS SLOPE AND 5% RUNNING SLOPE UNLESS OTHERWISE.

P. LID AND TG SPOT ELEVATIONS SHALL BE TO CENTER OF STRUCTURE.

Q. RE: SHEET SERIES C4.0XXPH1 FOR THE PUBLIC ROAD PROPOSED GRADE LINE DESIGN AND SHEETS C4.01PH-2-C4.01PH2 FOR THE PRIVATE ROAD GRADE LINE DESIGN.

R. CONTRACTOR TO VERIFY EXISTING GRADES AND COORDINATE WITH ENGINEER PRIOR TO FINAL GRADING FOR ANY DISCREPANCIES.

KEY NOTES:

1. ADJUST UTILITY TO PROPOSED GRADES AS NECESSARY

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CIVIL SITE GRADING PLAN

C4.010PH2

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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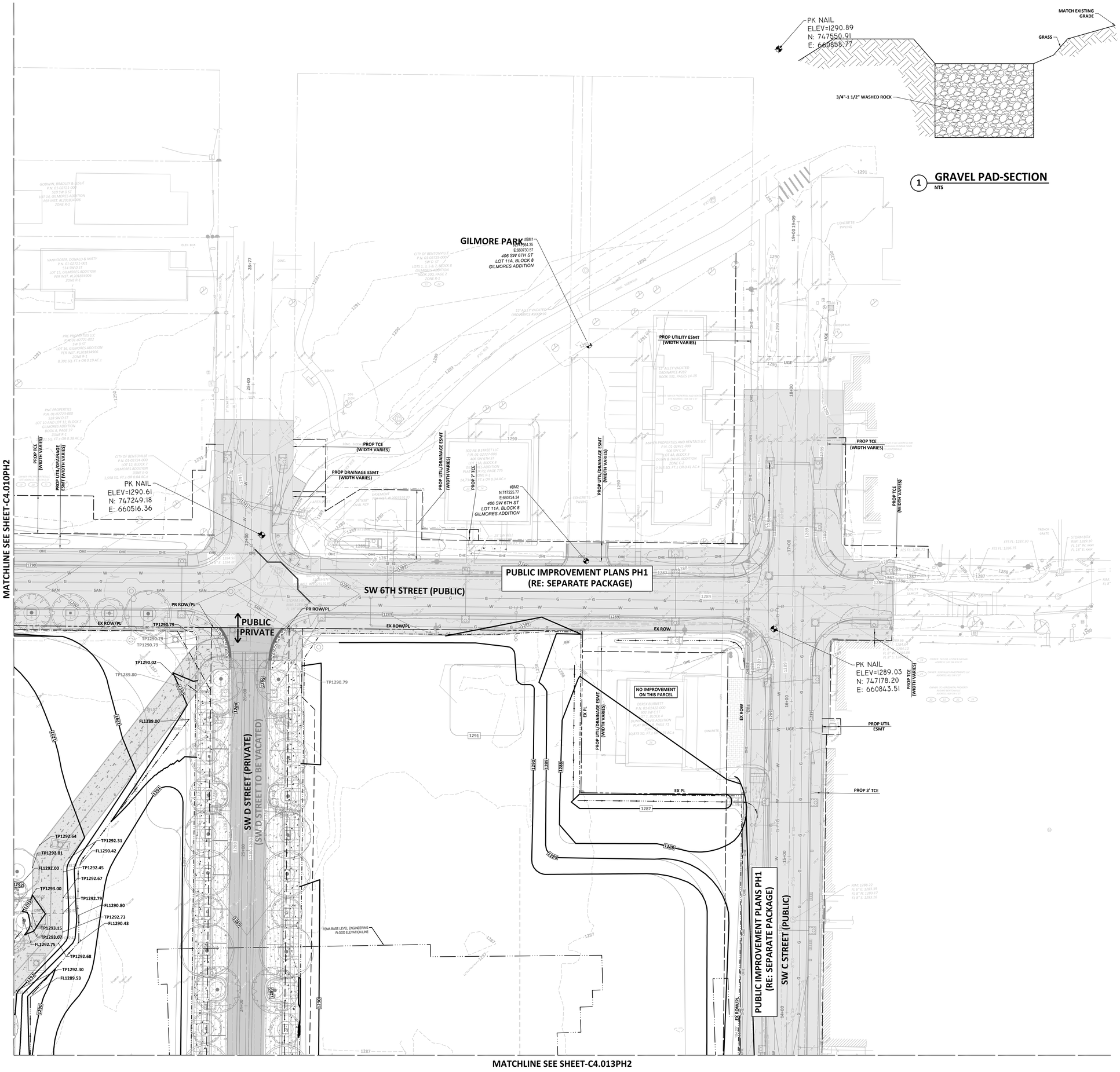
24-Jul-2026 - 6:33 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_WPM_C-GR_M08250700.dwg



1 GRAVEL PAD-SECTION
NTS

GRADING LEGEND:

TCXXX.XX	- TOP OF CURB ELEVATION
LCXXX.XX	- LIP OF CURB ELEVATION
GXXX.XX	- GUTTER ELEVATION
XXX.XX	- SPOT ELEVATION
TWXXX.XX	- TOP OF WALL ELEVATION
BWXXX.XX	- BOTTOM OF WALL ELEVATION
HPXXX.XX	- HIGH POINT
LPXXX.XX	- LOW POINT
TGXXX.XX	- TOP OF GRATE
MEXXX.XX	- MATCH EXISTING ELEVATION
FLXXX.XX	- FLOW LEVEL
FGXXX.XX	- FINISHED GRADE
	- FLOW ARROW
XXX	- PROPOSED CONTOUR
XXX	- EXISTING CONTOUR
	- RIDGE LINE/HIGHPOINT
	- LIMIT OF CONSTRUCTION
	- ROW/PL
	- FEMA BASE LEVEL ENGINEERING
	- 100YR FLOOD PLAIN ZONE X
	- SEPARATE PACKAGE

SHEET NOTES:

A. IN AREAS WHERE THE PROJECT DESIGN INCORPORATES FILL ADJACENT TO NEIGHBORING LANDOWNERS, THE CONTRACTOR SHALL IMPLEMENT GRADING AND/OR PERIMETER RUNOFF CATCHMENT DEVICES (E.G.- PERIMETER DITCHES) DURING CONSTRUCTION TO ENSURE THAT ADJACENT PARCELS BORDERING THE PROJECT SITE DO NOT EXPERIENCE INTERIM DRAINAGE FLOWS THAT EXCEED PRE-DEVELOPMENT CONDITIONS FOR STORM EVENTS UP TO AND INCLUDING THE CURRENT STORM DRAINAGE DESIGN CRITERIA AT THE TIME OF PERMIT OR CARRY SEDIMENT GENERATED AS PART OF CONSTRUCTION ACTIVITIES. WHERE APPLICABLE, THESE PRACTICES ARE IN ADDITION TO THE STANDARD STORM WATER POLLUTION PREVENTION DESIGN AND SHALL INCLUDE ADDITIONAL DITCHES REDIRECTING SITE DRAINAGE OR TEMPORARY PIPING.

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C. BEFORE ANY WORK IN THE RIGHT-OF-WAY COMMENCES, CONTRACTOR AND OR OWNER IS TO OBTAIN RIGHT-OF-WAY PERMIT FROM THE CITY OF BENTONVILLE TRANSPORTATION DEPARTMENT.

D. CONTRACTOR TO ENSURE THAT FINE GRADES HAVE BEEN SET CORRECTLY PRIOR TO INSTALLING WALKS, FOOTINGS, WALL, AND OTHER STRUCTURES.

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L. FINISHED EARTHEN SLOPES SHALL BE NO STEEPER THAN 3H:1V UNLESS OTHERWISE NOTED.

M. FINISHED GRADES SHOWN ON PLANS REPRESENT THE FINAL FINISH SURFACE ELEVATION OF ALL WORK INCLUDING BUT NOT LIMITED TO MULCH, PLANTING, AND OTHER SOFTSCAPE MATERIAL REPRESENTED BY THE LANDSCAPE ARCHITECT.

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Q. RE: SHEET SERIES C4.0XXPH1 FOR THE PUBLIC ROAD PROPOSED GRADE LINE DESIGN AND SHEETS C4.01PH-2-C4.01PH2 FOR THE PRIVATE ROAD GRADE LINE DESIGN.

R. CONTRACTOR TO VERIFY EXISTING GRADES AND COORDINATE WITH ENGINEER PRIOR TO FINAL GRADING FOR ANY DISCREPANCIES.

KEY NOTES:

1. ADJUST UTILITY TO PROPOSED GRADES AS NECESSARY

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

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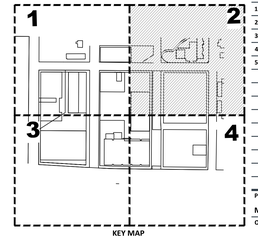

KEY MAP

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

811 SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CIVIL SITE GRADING PLAN

C4.011PH2

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MATCHLINE SEE SHEET-C4.010PH2

MATCHLINE SEE SHEET-C4.013PH2

PUBLIC IMPROVEMENT PLANS PH1
(RE: SEPARATE PACKAGE)

PUBLIC IMPROVEMENT PLANS PH1
(RE: SEPARATE PACKAGE)

SW E STREET (PUBLIC)
(SW E STREET TO BE VACATED)

SW 8TH STREET
(PUBLIC)

PRIVATE

PUBLIC

SW E STREET

PROP 10' TCE

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP DRAINAGE ESMT (WIDTH VARIES)

PROP TCE (WIDTH VARIES)

EX ROW/PL

60 D NAIL
ELEV=1289.75
N: 746641.32
E: 659755.86

PK NAIL
ELEV=1287.58
N: 746597.57
E: 660118.82

STA: 80+89.27
OFF: 0.00' T.

FEMA BASE LEVEL ENGINEERING FLOOD ELEVATION LINE

ZONE X

ZONE X
(0.2% CHANCE FLOOD)

SCALE: 1" = 20'

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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18206
Date: 07/17/2026
ASBL COA NO. 719

KEY MAP

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CIVIL SITE GRADING PLAN

C4.012PH2

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MATCHLINE SEE SHEET-C4.011PH2

MATCHLINE SEE SHEET-C4.012PH2

SW D STREET (PRIVATE)
(SW D STREET TO BE VACATED)

PRIVATE

PUBLIC

SW 7TH STREET
PUBLIC IMPROVEMENT PLANS PH1
(RE: SEPARATE PACKAGE)

PUBLIC IMPROVEMENT PLANS PH1
(RE: SEPARATE PACKAGE)

SW C STREET (PUBLIC

PUBLIC IMPROVEMENT PLANS PH1
(RE: SEPARATE PACKAGE)

SW 8TH STREET (PUBLIC)

PK NAIL
ELEV=1287.89
N: 746840.72
E: 660838.81

PK NAIL
ELEV=1286.70
N: 746597.11
E: 660416.66

60D NAIL
ELEV=1287.70
N: 746571.43
E: 660850.55

PK NAIL
ELEV=1288.14
N: 746493.73
E: 660919.59

FEMA BASE LEVEL ENGINEERING FLOOD ELEVATION LINE

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP TCE (WIDTH VARIES)

EX ROW/PL

5' PROP UTIL ESMT

13' PROP TCE

PROP 23' TCE

8'-6" CONCRETE STEPS W-12" TREAD

ZONE X

ASPHALT PAVING

LEASE AREA PLAT BK. 2003, PG. 91

WAL-MART STORES INC. P.N. 01-11478-000

CITY OF BENTONVILLE P.N. 01-11478-004

N

20 10 0 20

SCALE: 1" = 20'

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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1 2 3 4
KEY MAP

811
SAFETY IS IN YOUR HANDS.
EVERY DIG. EVERY TIME.

CIVIL SITE GRADING PLAN

C4.013PH2

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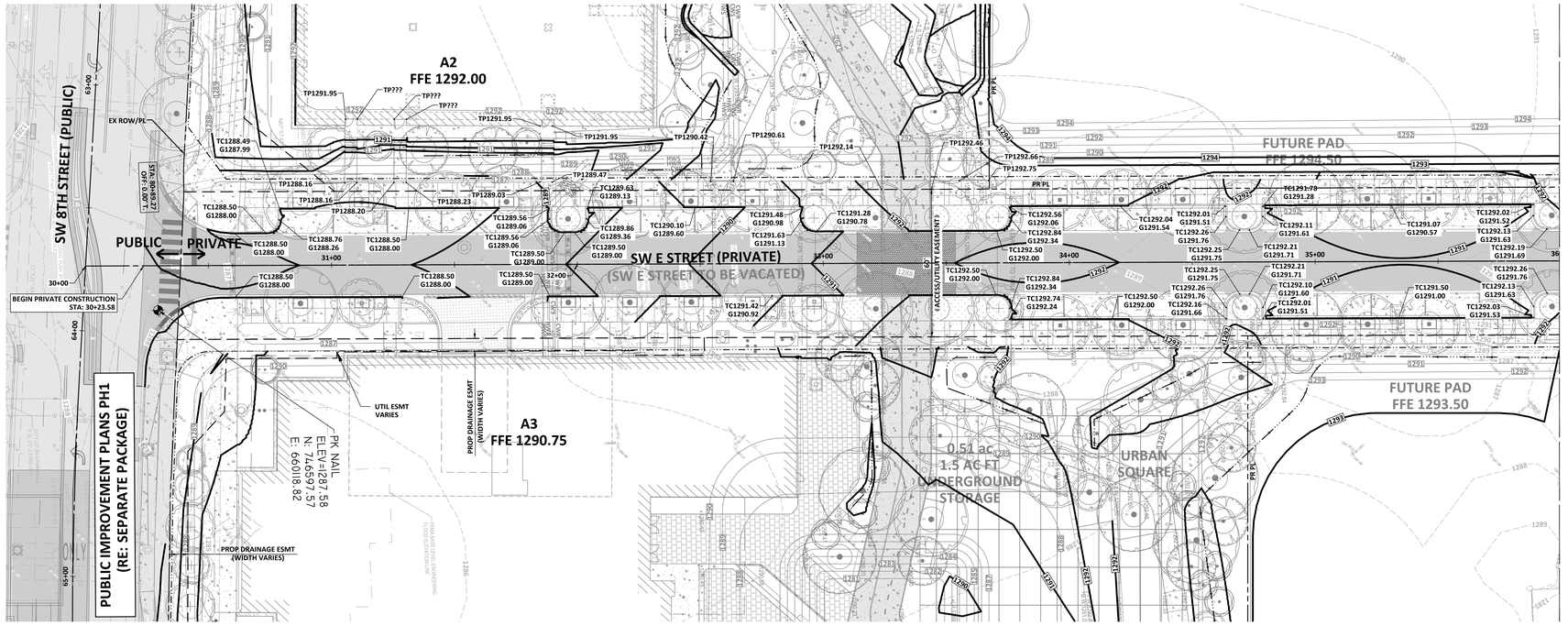

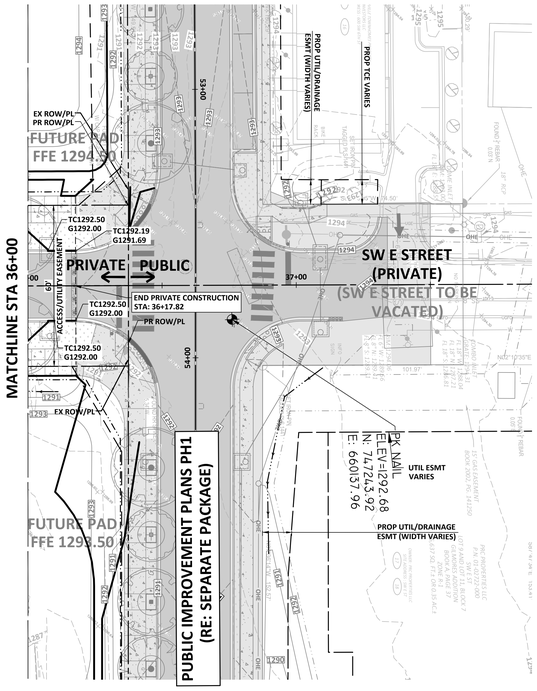

N

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Sheet Notes:

A. CONTRACTOR TO GRADE LANDSCAPED AREA AT MINIMUM OF 5% SLOPE AWAY FROM BUILDING FOR AT LEAST 10 FEET BEYOND PERIMETER OF BUILDING

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STEM UNIVERSITY - PUBLIC IMPROVEMENT PLANS - PHASE 1

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GRADING PLAN -SW E ST - PRIVATE

C4.014PH2

CITY OF BENTONVILLE PROJECT NO.: LSD26-0030

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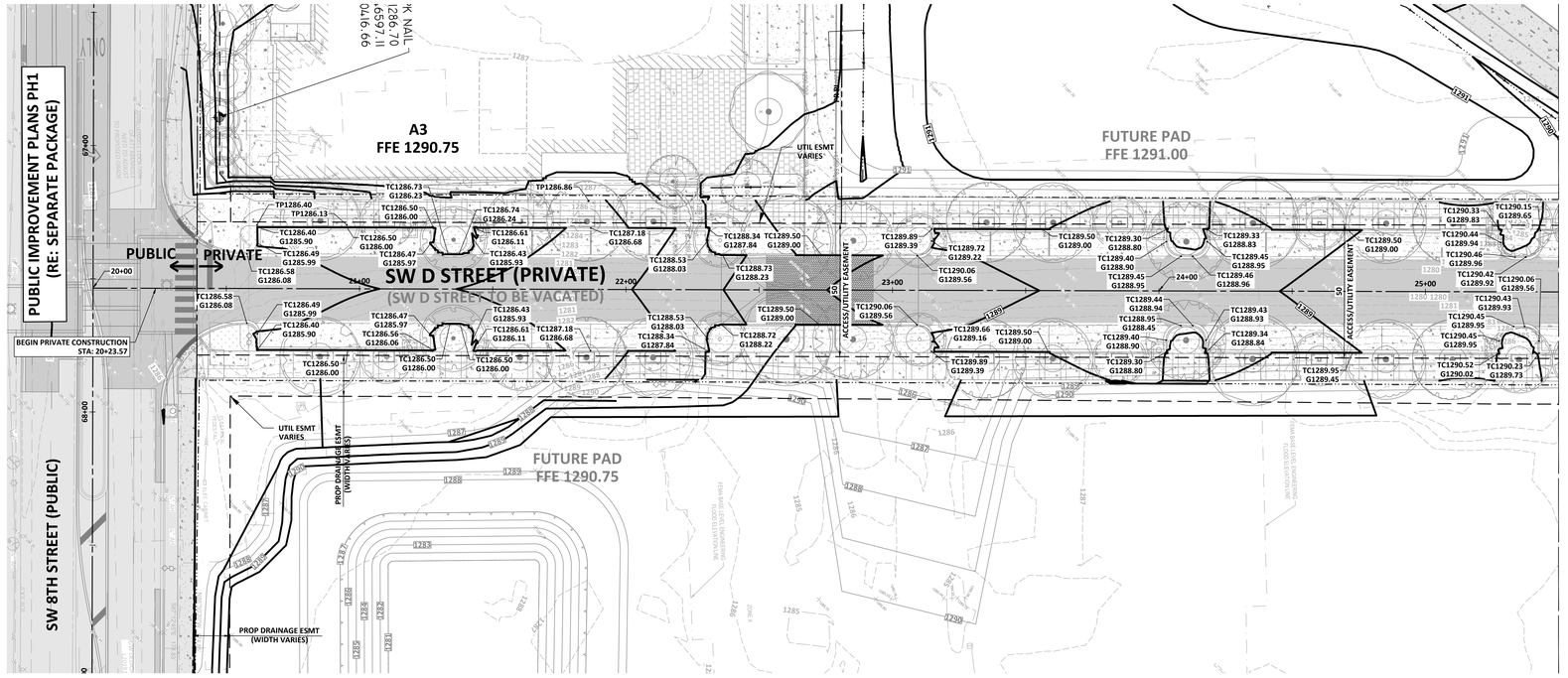

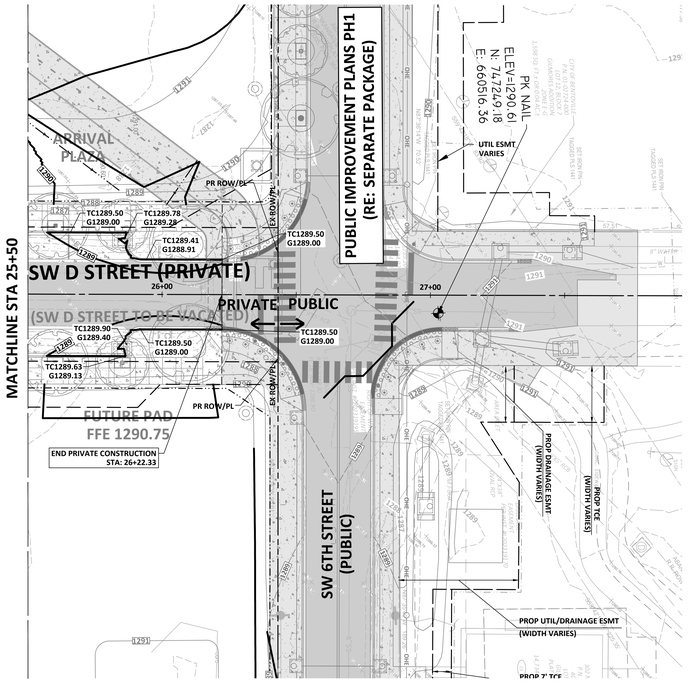

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- - ROW/PL
- - FEMA BASE LEVEL ENGINEERING
- - 100YR FLOOD PLAIN ZONE X
- - SEPARATE PACKAGE

Sheet Notes:

A. CONTRACTOR TO GRADE LANDSCAPED AREA AT MINIMUM OF 5% SLOPE AWAY FROM BUILDING FOR AT LEAST 10 FEET BEYOND PERIMETER OF BUILDING

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STEM UNIVERSITY - PUBLIC IMPROVEMENT PLANS - PHASE 1

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/18/2026	30% SD
2	04/27/2026	60% CD
3	05/17/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

GRADING PLAN -SW D ST -PRIVATE

C4.015PH2

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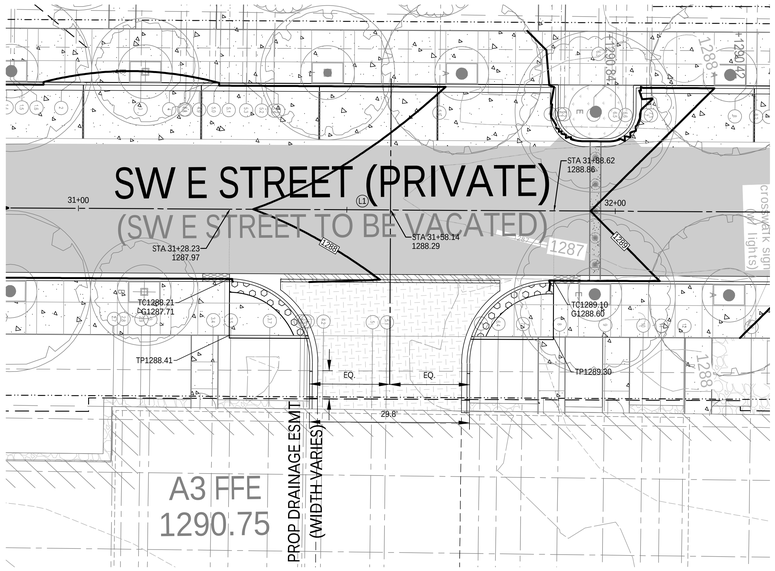
24-Jul-2026 - 6:36 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\05-Sheets\4.5D Plan\STEM_PVT_ VPM_C-E & D ST-GR_M08250700.dwg



1 PRIVATE DRIVE PLAN
STA 31+58.15

10 5 0 10
SCALE: 1" = 10'

NOTES:

1. ALL CONCRETE SIDEWALKS AND SIDEWALK RAMPS ARE TO BE CONSTRUCTED TO MEET THE MOST CURRENT ADA MINIMUM REQUIREMENTS.
2. CONTRACTOR TO ADJUST STRUCTURES TO PROPESED GRADE

GRADING LEGEND:

- TCXXX.XX - TOP OF CURB ELEVATION
- LCXXX.XX - LIP OF CURB ELEVATION
- GXXX.XX - GUTTER ELEVATION
- XXX.XX - SPOT ELEVATION
- TWXXX.XX - TOP OF WALL ELEVATION
- BWXXX.XX - BOTTOM OF WALL ELEVATION
- HPXXX.XX - HIGH POINT
- LPXXX.XX - LOW POINT
- TGXXX.XX - TOP OF GRATE
- MEXXX.XX - MATCH EXISTING ELEVATION
- FLXXX.XX - FLOW LEVEL
- - FLOW ARROW
- XXX - PROPOSED CONTOUR
- XXX - EXISTING CONTOUR
- - RIDGE LINE/HIGHPOINT
- - LIMIT OF CONSTRUCTION
- - ROW/PL

1. ROADWAY PAVEMENT (FLEXIBLE HEAVY DUTY) (RE: 3B/C10.002PH2)
2. COMMERCIAL DRIVE ENTRANCE (RE:13/C10.001PH2)
3. CONCRETE SIDEWALK (RE:1/C10.002PH2)
4. LANDSCAPE AREA
15. SEPARATE PACKAGE
16. TAPERED CURB TERMINATION (RE: 8/C10.001PH2)
17. RIBBON CURB PVMT EDGE (RE: 10/C10.001PH2)
18. FLAT CURB (RE: 4/C10.001PH2)
19. TURNDOWN CURB (RE: 7/C10.001PH2)
20. MODIFIED "DRY"TYPE A CURB (RE: 3/C10.001PH2)
21. TRANSITIONAL CURB
22. 4" FREE STANDING CONCRETE MOUNTABLE CURB AND GUTTER (RE:6/C10.001PH2)
23. CORE DRILL WITH RUBBER GASKET AND GROUTING STORM PENETRATION
26. TYPE "A" CONC CURB AND GUTTER (RE: 1/C10.001PH2)
27. SHARED USE PATH (RE: 2/C10.002PH2)
28. MILL AND OVERLAY
29. MODIFIED CURB AT DRIVE
30. FREE STANDING CURB AND GUTTER (RE: 2/C10.001PH2)
31. DETECTABLE WARNING DEVICE
32. 100YR FLOOD PLAIN ZONE X
33. RESIDENTIAL DRIVE ENTRANCE
34. GRAVEL (RE: LANDSCAPE PLANS FOR DETAILS)
35. PAVERS (RE: LANDSCAPE PLANS FOR DETAILS)

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STEM UNIVERSITY - PUBLIC IMPROVEMENT PLANS - PHASE 1

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DRIVEWAY DETAILS -SW E & SW D ST - PRIVATE

C4.016PH2

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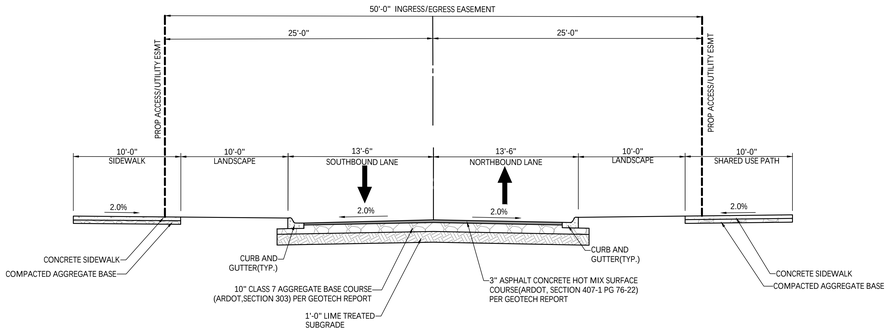
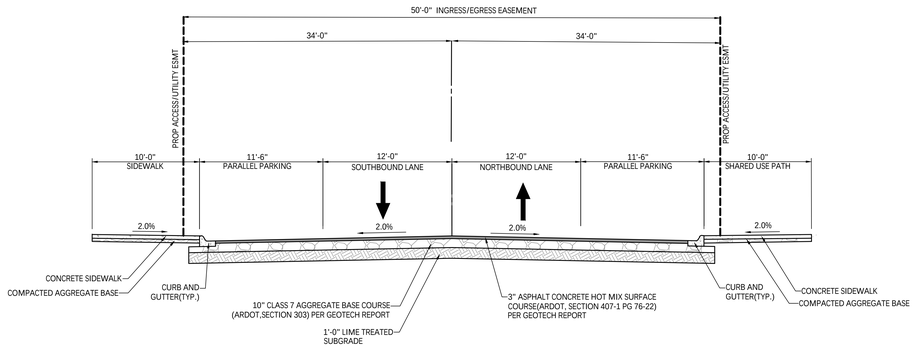


SW D STREET TYPICAL SECTION (PRIVATE)
FROM STA 21+28.00 TO STA 21+42.00
FROM STA 22+31.00 TO STA 23+14.00
FROM STA 24+03.00 TO STA 24+18.00
FROM STA 25+29.00 TO STA 25+43.00
FROM STA 25+88.00 TO STA 26+22.00

1 NTS



SW D STREET TYPICAL SECTION (PRIVATE)
FROM STA 20+61.00 TO STA 21+28.00
FROM STA 21+42.00 TO STA 22+31.00
FROM STA 23+14.00 TO STA 24+03.00
FROM STA 24+18.00 TO STA 25+29.00
FROM STA 25+43.00 TO STA 25+88.00

2 NTS

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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TYPICAL SECTION - PRIVATE

C4.050PH2

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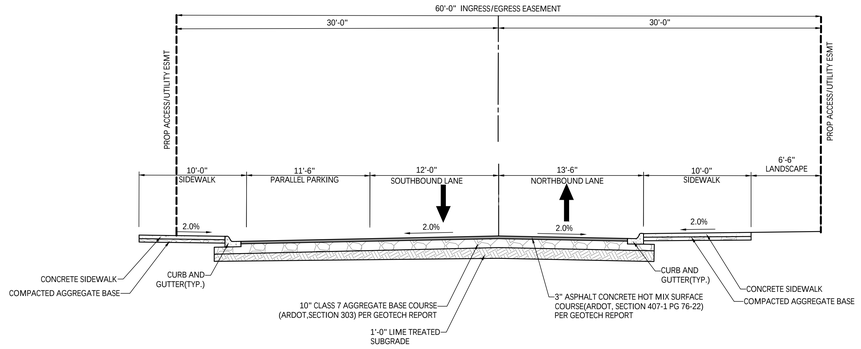
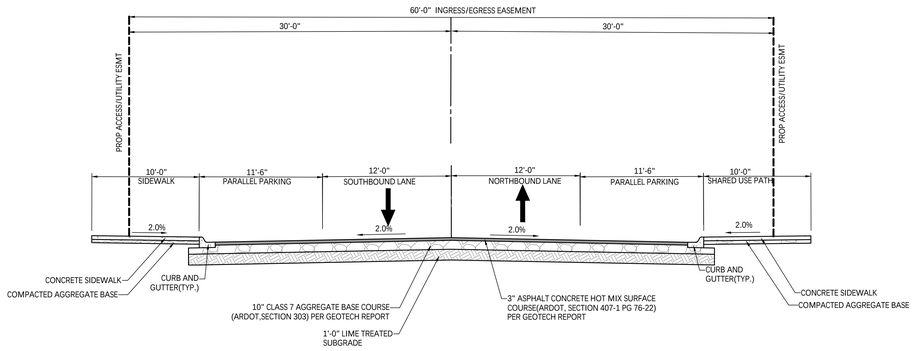


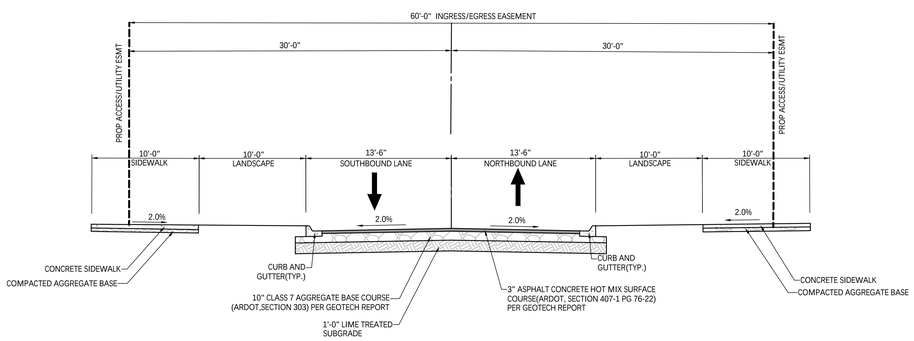
SW E STREET TYPICAL SECTION (PRIVATE)
FROM STA 30+75.00 TO STA 31+90.00
(EXCEPT STA 31+27.00 TO STA 31+88.00
FOR DRIVEWAYS)
FROM STA 32+04.00 TO STA 32+92.00

1 NTS



SW E STREET TYPICAL SECTION (PRIVATE)
FROM STA 33+75.00 TO STA 34+64.00
FROM STA 34+78.00 TO STA 35+90.00

2 NTS



SW E STREET TYPICAL SECTION (PRIVATE)
FROM STA 30+60.00 TO STA 30+78.00
FROM STA 31+90.00 TO STA 32+04.00
FROM STA 32+92.00 TO STA 33+75.00
FROM STA 34+64.00 TO STA 34+78.00
FROM STA 35+90.00 TO STA 36+18.00

3 NTS

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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TYPICAL SECTION - PRIVATE

C4.051PH2

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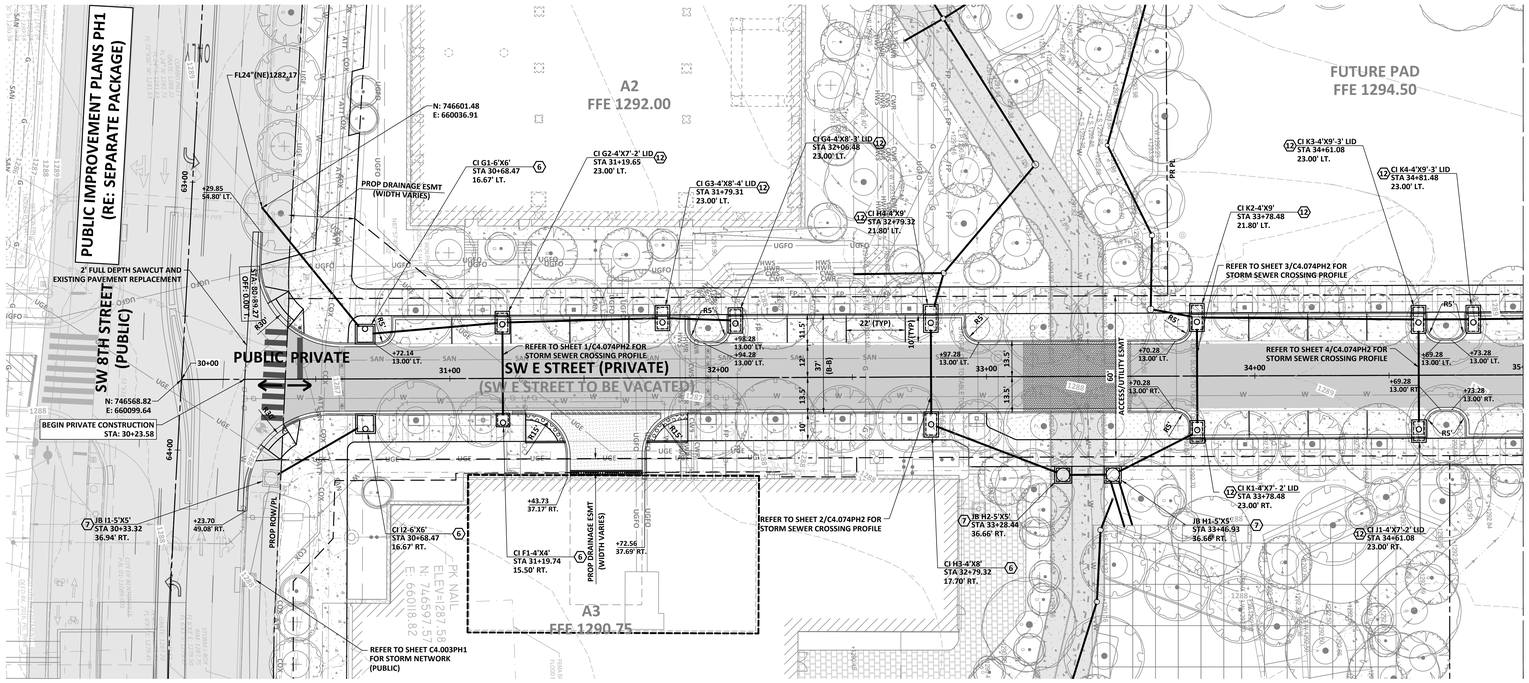
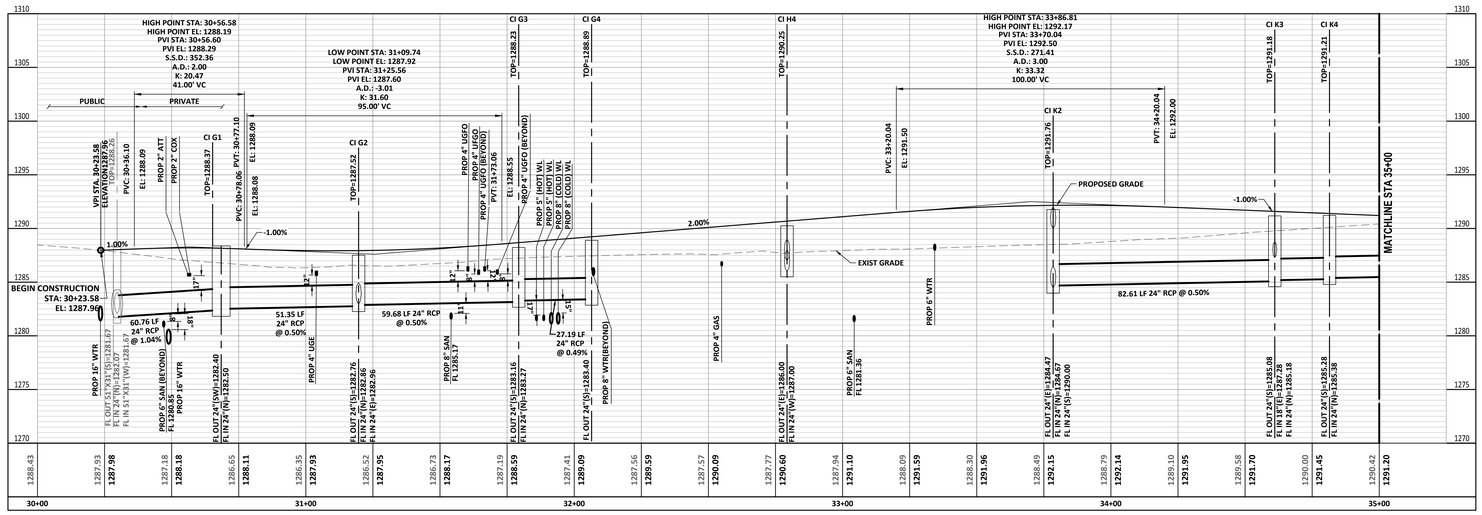


E ST PROFILE WITH LEFT STORM NETWORK



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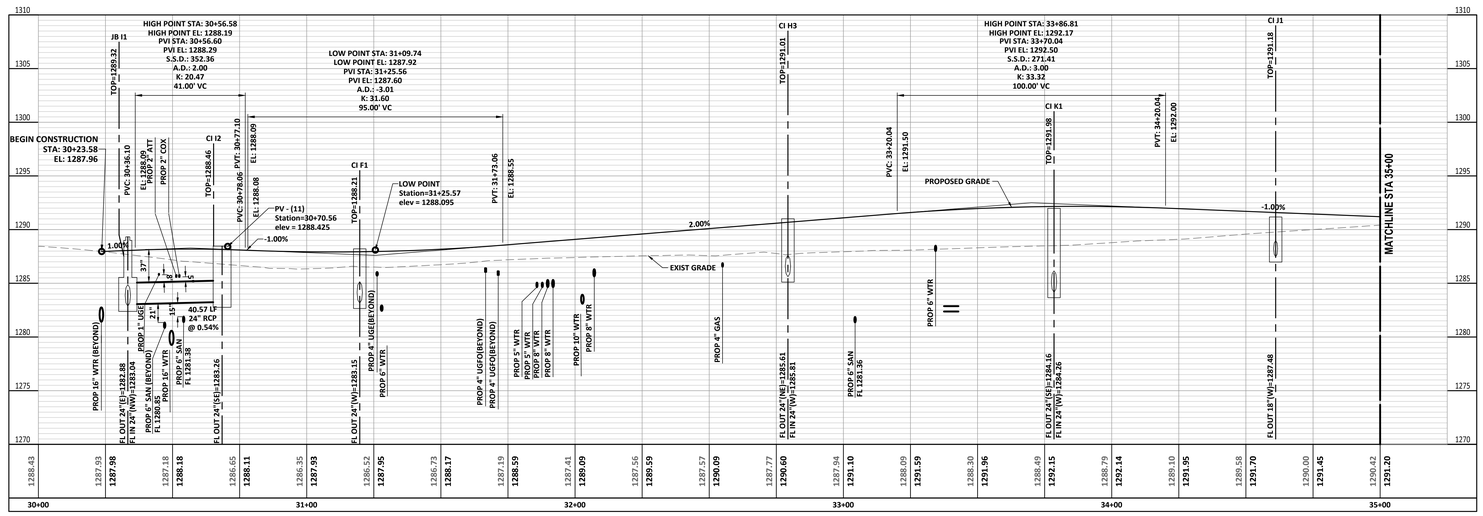

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT

B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT

C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS

KEY NOTES:

- LIMITS OF DISTURBANCE
- (1) ROADWAY PAVEMENT (FLEXIBLE HEAVY DUTY) (RE: 3B/C10.002PH2)
- (2) COMMERCIAL DRIVE ENTRANCE (RE:13/C10.001PH2)
- (3) CONCRETE SIDEWALK (RE:1/C10.002PH2)
- (4) LANDSCAPE AREA
- (5) PAVEMENT MARKINGS
- (6) 1 C10.021PH2 TYPE MO INLET
- (7) 6 C10.016PH2 JUNCTION BOX
- (9) 4 C10.016PH2 GRATE INLET
- (10) 2 C10.023PH2 DOUBLE AREA INLET
- (11) 4 C10.023PH2 AREA INLET
- (12) 7 C10.023PH2 SPECIAL CURB INLET
- (13) 9 C10.023PH2 SIDEWALK FLUME
- (14) RE: MEP FOR TIE-IN DETAILS
- (15) SEPARATE PACKAGE
- (16) TAPERED CURB TERMINATION (RE: 8/C10.001PH2)
- (17) RIBBON CURB PVMT EDGE (RE: 10/C10.001PH2)
- (18) FLAT CURB (RE: 4/C10.001PH2)
- (19) TURNDOWN CURB (RE: 7/C10.001PH2)
- (20) MODIFIED "DRY"TYPE A CURB (RE: 3/C10.001PH2)
- (21) TRANSITIONAL CURB
- (22) 4" FREE STANDING CONCRETE MOUNTABLE CURB AND GUTTER (RE:6/C10.001PH2)
- (23) CORE DRILL WITH RUBBER GASKET AND GROUTING STORM PENETRATION
- (26) TYPE "A" CONC CURB AND GUTTER (RE: 1/C10.001PH2)
- (27) SHARED USE PATH (RE: 2/C10.002PH2)
- (28) MILL AND OVERLAY
- (29) MODIFIED CURB AT DRIVE
- (30) FREE STANDING CURB AND GUTTER (RE: 2/C10.001PH2)
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- (32) 100YR FLOOD PLAIN ZONE X
- (33) RESIDENTIAL DRIVE ENTRANCE
- (34) GRAVEL (RE: LANDSCAPE PLANS FOR DETAILS)
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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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PLAN AND PROFILE -SW E ST - PRIVATE

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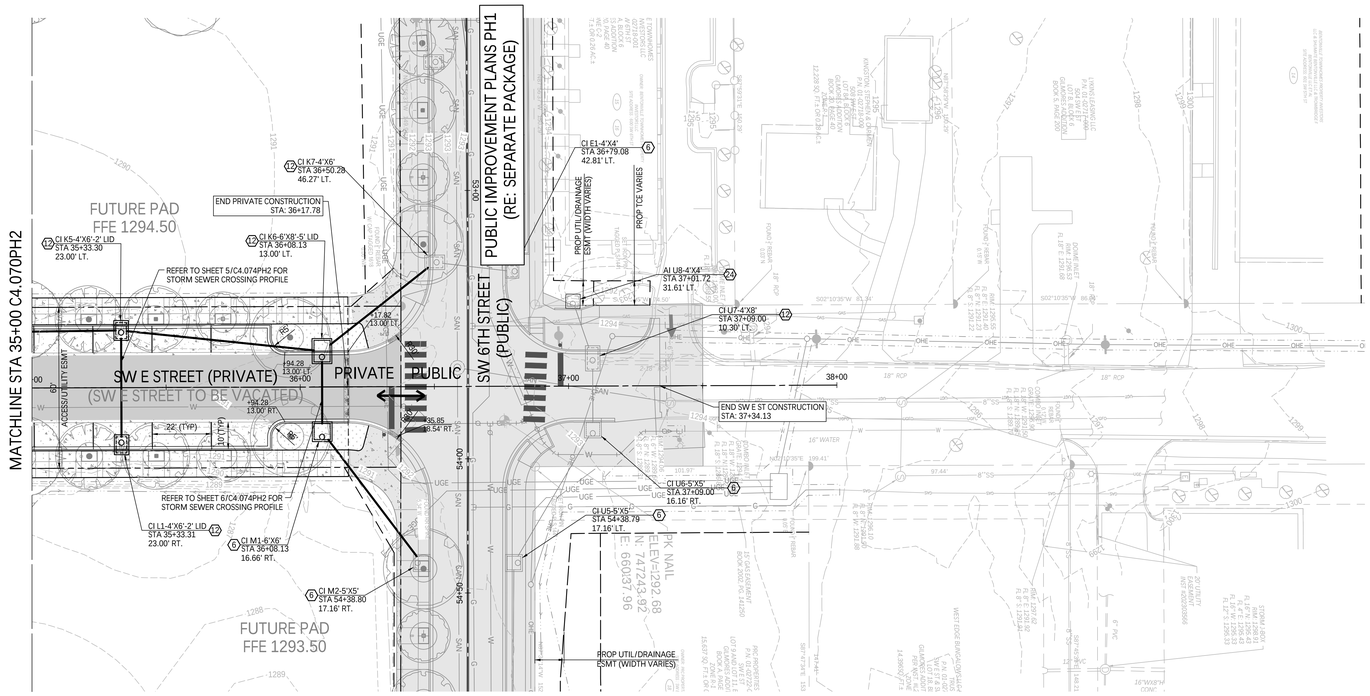
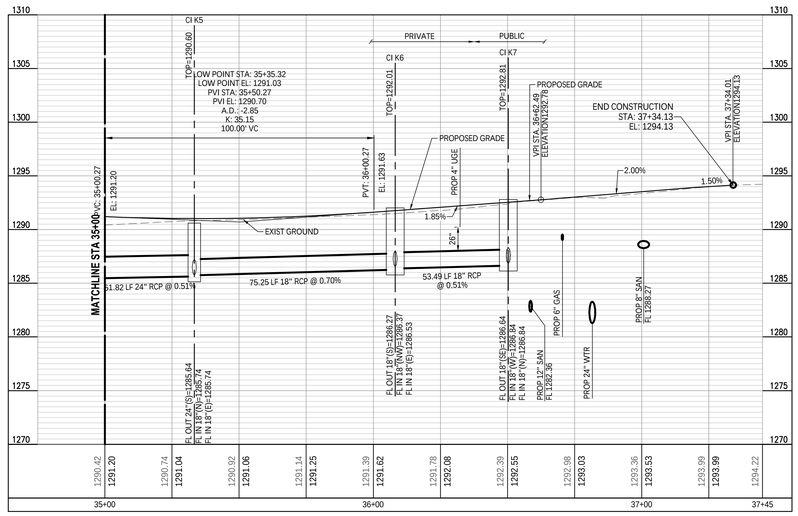


E ST PROFILE WITH LEFT STORM NETWORK



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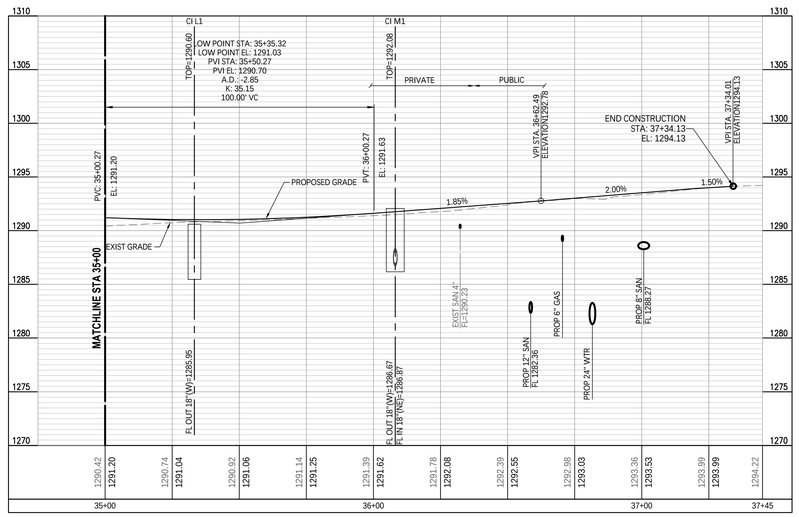

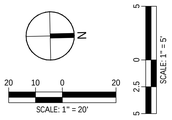

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT
B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT
C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS

KEY NOTES:

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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PLAN AND PROFILE -SW E ST - PRIVATE

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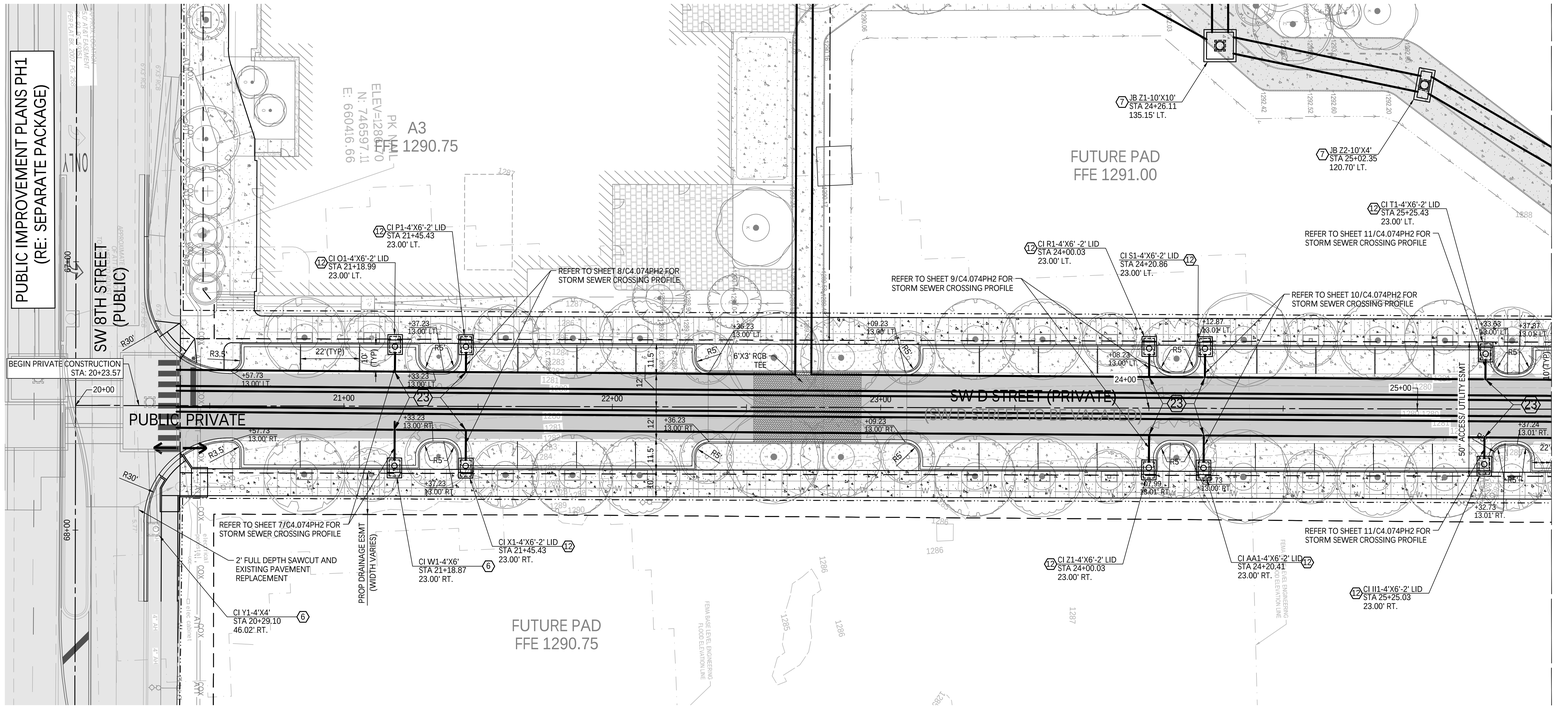

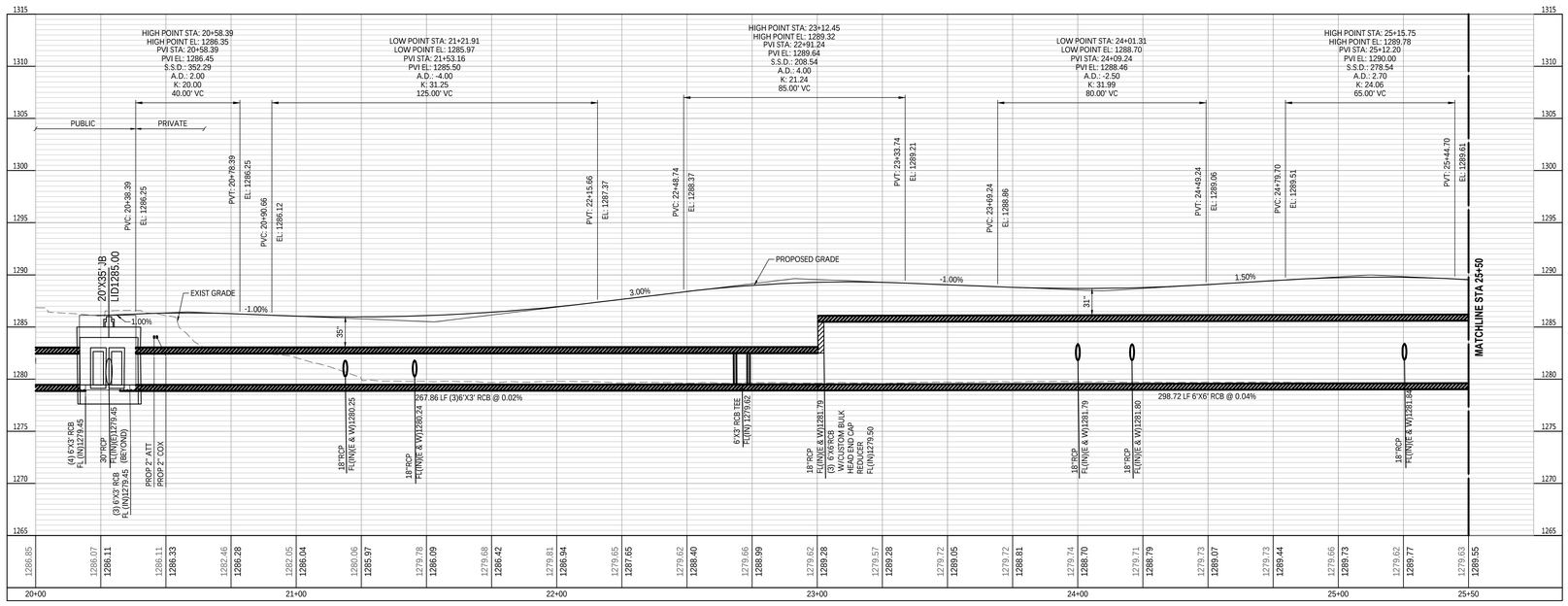

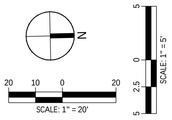

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT
B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT
C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS

KEY NOTES:

- LIMITS OF DISTURBANCE
1. ROADWAY PAVEMENT (FLEXIBLE HEAVY DUTY) (RE: 3B/C10.002PH2)
2. COMMERCIAL DRIVE ENTRANCE (RE:13/C10.001PH2)
3. CONCRETE SIDEWALK (RE:1/C10.002PH2)
4. LANDSCAPE AREA
5. PAVEMENT MARKINGS
6. 1 ×10.021PH2 TYPE MO INLET
7. 8 ×10.016PH2 JUNCTION BOX
9. 7 ×10.016PH2 GRATE INLET
10. 2 ×10.023PH2 DOUBLE AREA INLET
11. 3 ×10.023PH2 AREA INLET
12. 9 ×10.023PH2 SPECIAL CURB INLET
13. 9 ×10.023PH2 SIDEWALK FLUME
14. RE: MEP FOR TIE-IN DETAILS
15. SEPARATE PACKAGE
16. TAPERED CURB TERMINATION (RE: 8/C10.001PH2)
17. RIBBON CURB PVMT EDGE (RE: 10/C10.001PH2)
18. FLAT CURB (RE: 4/C10.001PH2)
19. TURNDOWN CURB (RE: 7/C10.001PH2)
20. MODIFIED "DRY"TYPE A CURB (RE: 3/C10.001PH2)
21. TRANSITIONAL CURB
22. 4" FREE STANDING CONCRETE MOUNTABLE CURB AND GUTTER (RE:6/C10.001PH2)
23. CORE DRILL WITH RUBBER GASKET AND GROUTING STORM PENETRATION
26. TYPE "A" CONC CURB AND GUTTER (RE: 1/C10.001PH2)
27. 4' 4' SHARED USE PATH (RE: 2/C10.002PH2)
28. MILL AND OVERLAY
29. MODIFIED CURB AT DRIVE
30. FREE STANDING CURB AND GUTTER (RE: 2/C10.001PH2)
31. DETECTABLE WARNING DEVICE
32. 100YR FLOOD PLAIN ZONE X
33. RESIDENTIAL DRIVE ENTRANCE
34. GRAVEL (RE: LANDSCAPE PLANS FOR DETAILS)
35. PAVERS (RE: LANDSCAPE PLANS FOR DETAILS)

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

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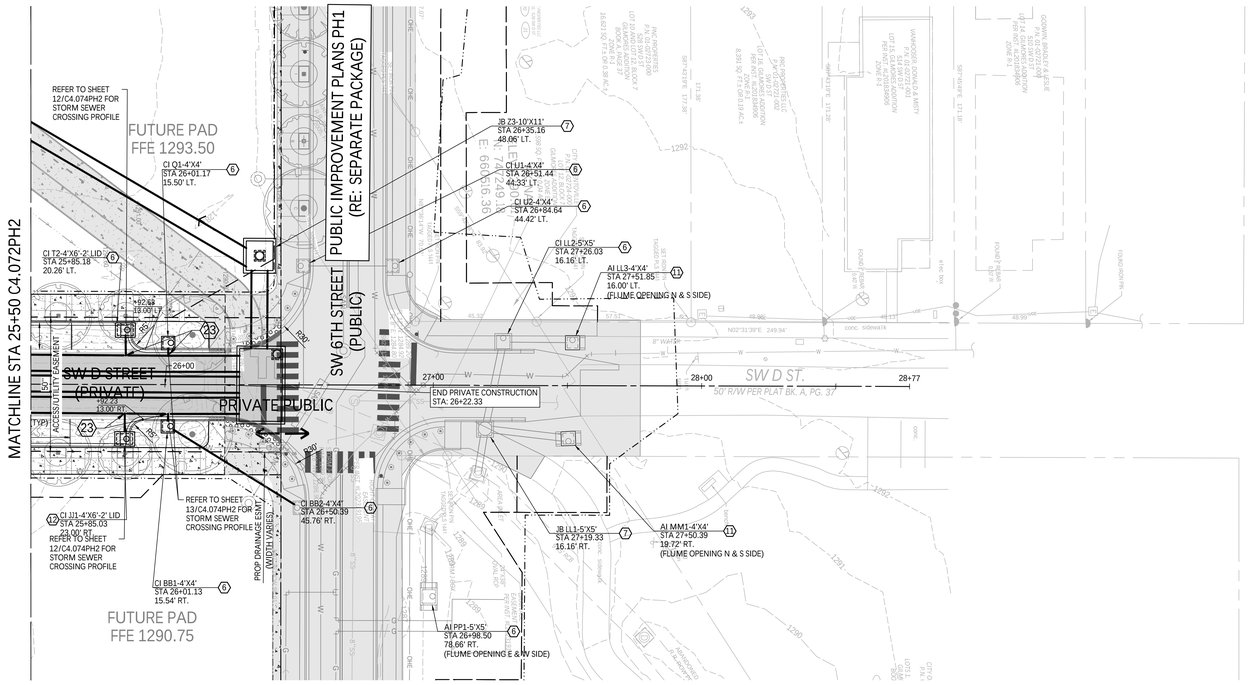

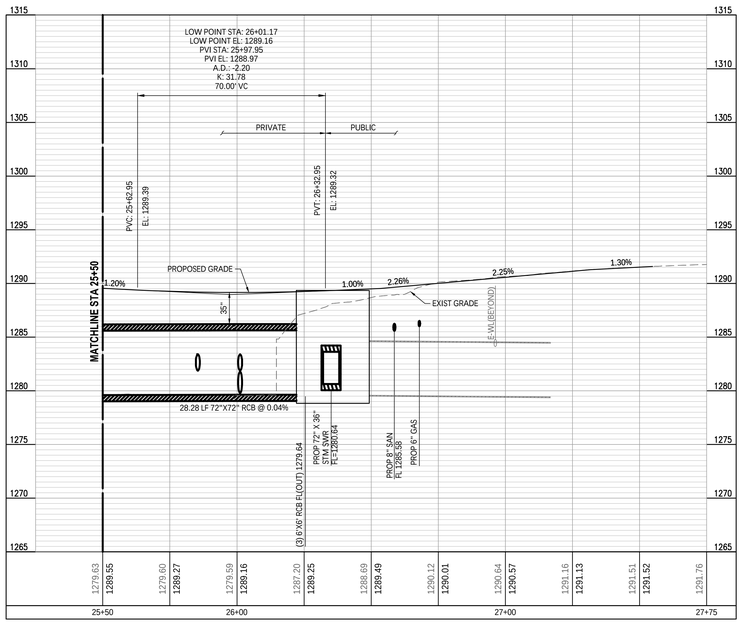

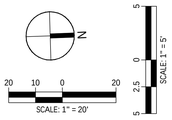

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT

B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT

C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS

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- (23) CORE DRILL WITH RUBBER GASKET AND GROUTING STORM PENETRATION
- (26) TYPE "A" CONC CURB AND GUTTER (RE: 1/C10.001PH2)
- (27) 4 4 SHARED USE PATH (RE: 2/C10.002PH2)
- (28) MILL AND OVERLAY
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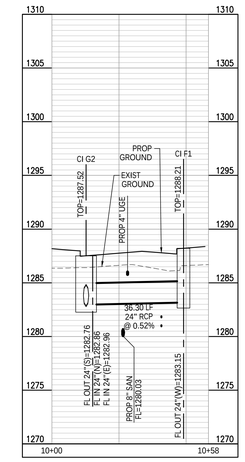
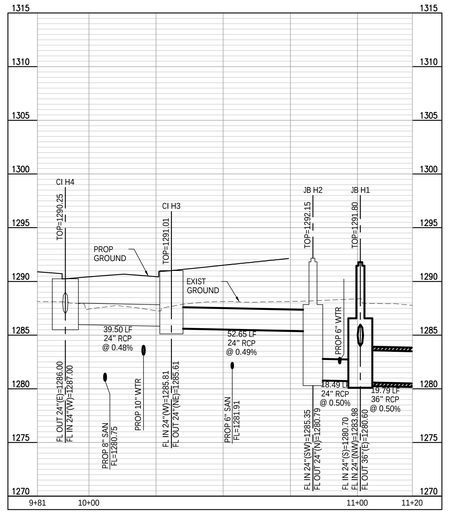


1 STORM SEWER CROSSING
AT E ST
STA 31+19.68



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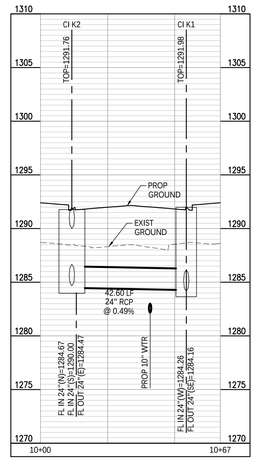
STA 32+79.32



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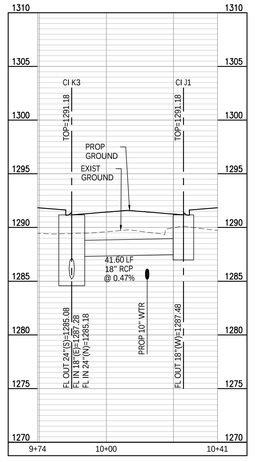
STA 33+78.49



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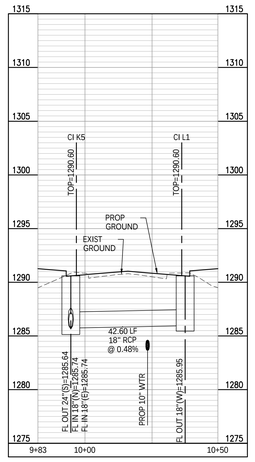
AT E ST
STA 34+61.10



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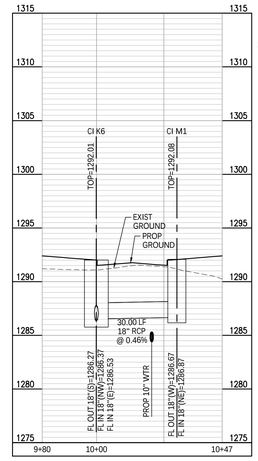
STA 35+33.50



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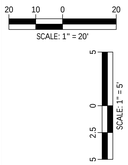
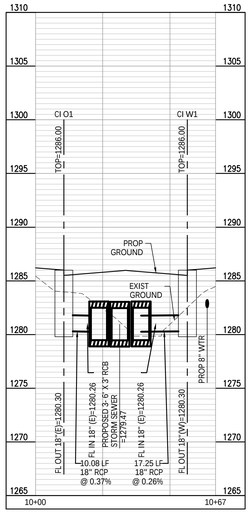
AT E ST
STA 36+14.56





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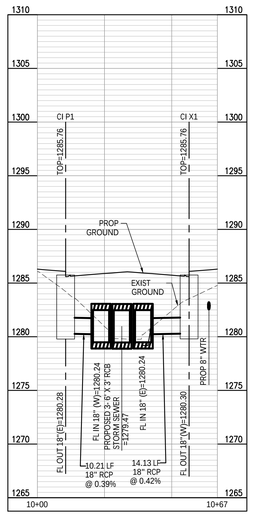
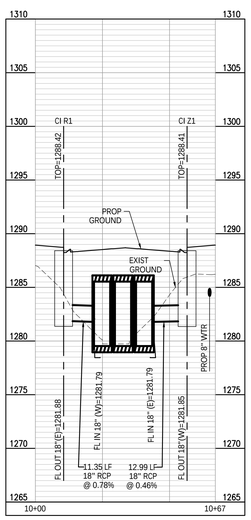
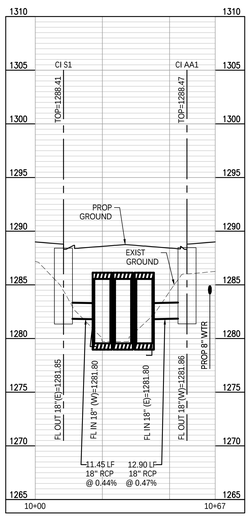
AT D ST
STA 21+18.84



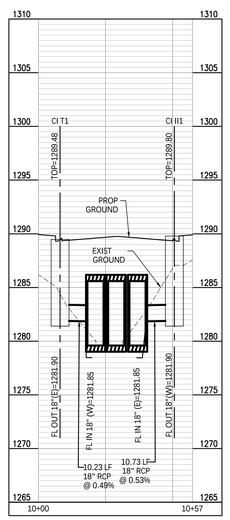
8 STORM SEWER CROSSING
AT D ST
STA 21+45.18



9 STORM SEWER CROSSING
AT D ST
STA 24+00.08



10 STORM SEWER CROSSING
AT D ST
STA 24+20.79



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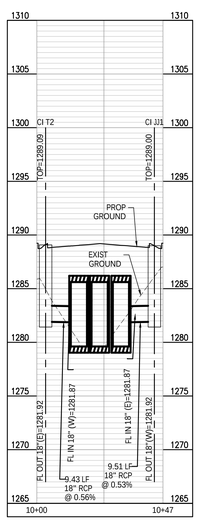
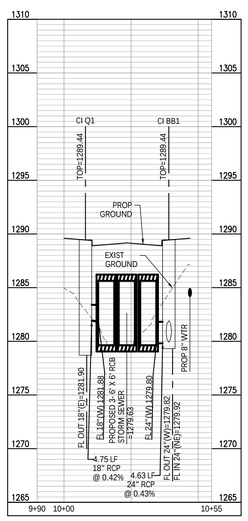
AT D ST
STA 25+25.28



12 STORM SEWER CROSSING
AT D ST
STA 25+85.27



13 STORM SEWER CROSSING
AT D ST
STA 26+01.17

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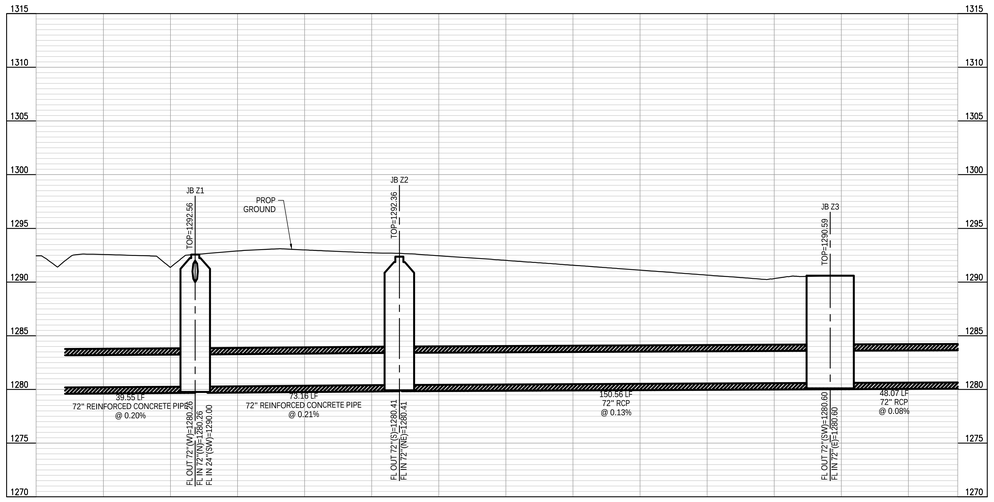
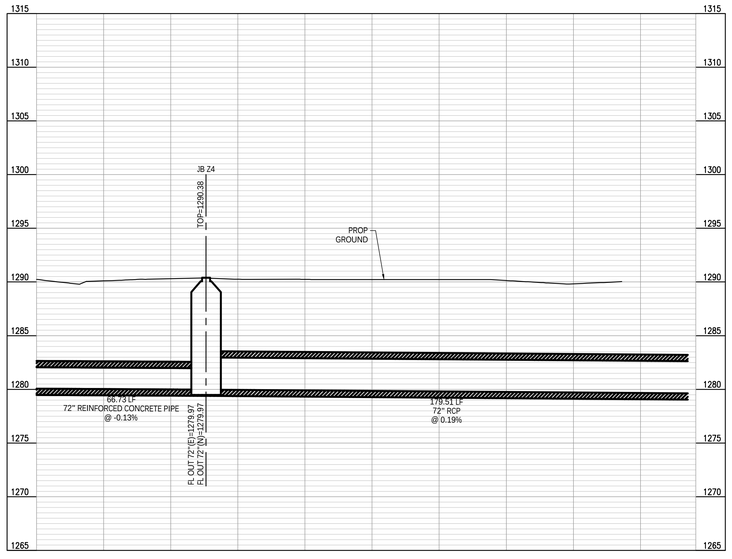


1 STORM SEWER CROSSING AT D ST



2 STORM SEWER CROSSING AT D ST

20 10 0 20
SCALE: 1" = 20'

5 0 2.5 5
SCALE: 1" = 5'

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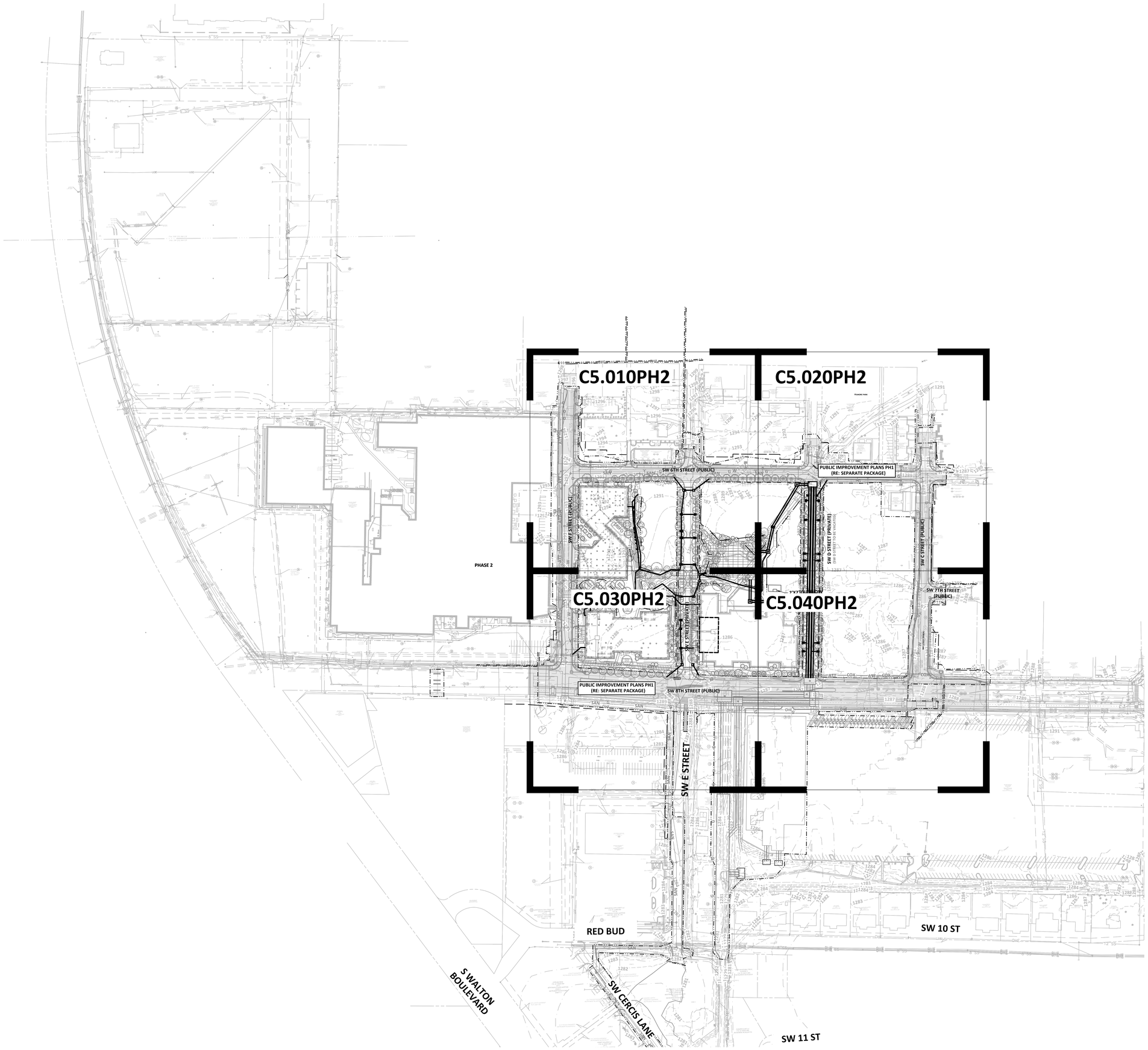

N

100 50 0 100

SCALE: 1" = 100'

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- (8) 1 / C10.023PH2 TYPE SP COMBO INLET
- (9) 3 / C10.019PH2 AREA INLET
- (10) 2,3 / C10.023PH2 AREA INLET WITH OPENING FLUME-2 SIDE
- (11) 4,5 / C10.023PH2 AREA INLET WITH OPENING FLUME-1 SIDE
- (12) 7 / C10.023PH2 SPECIAL NON-SETBACK CURB INLET
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OVERALL STORM PLAN

C5.000PH2

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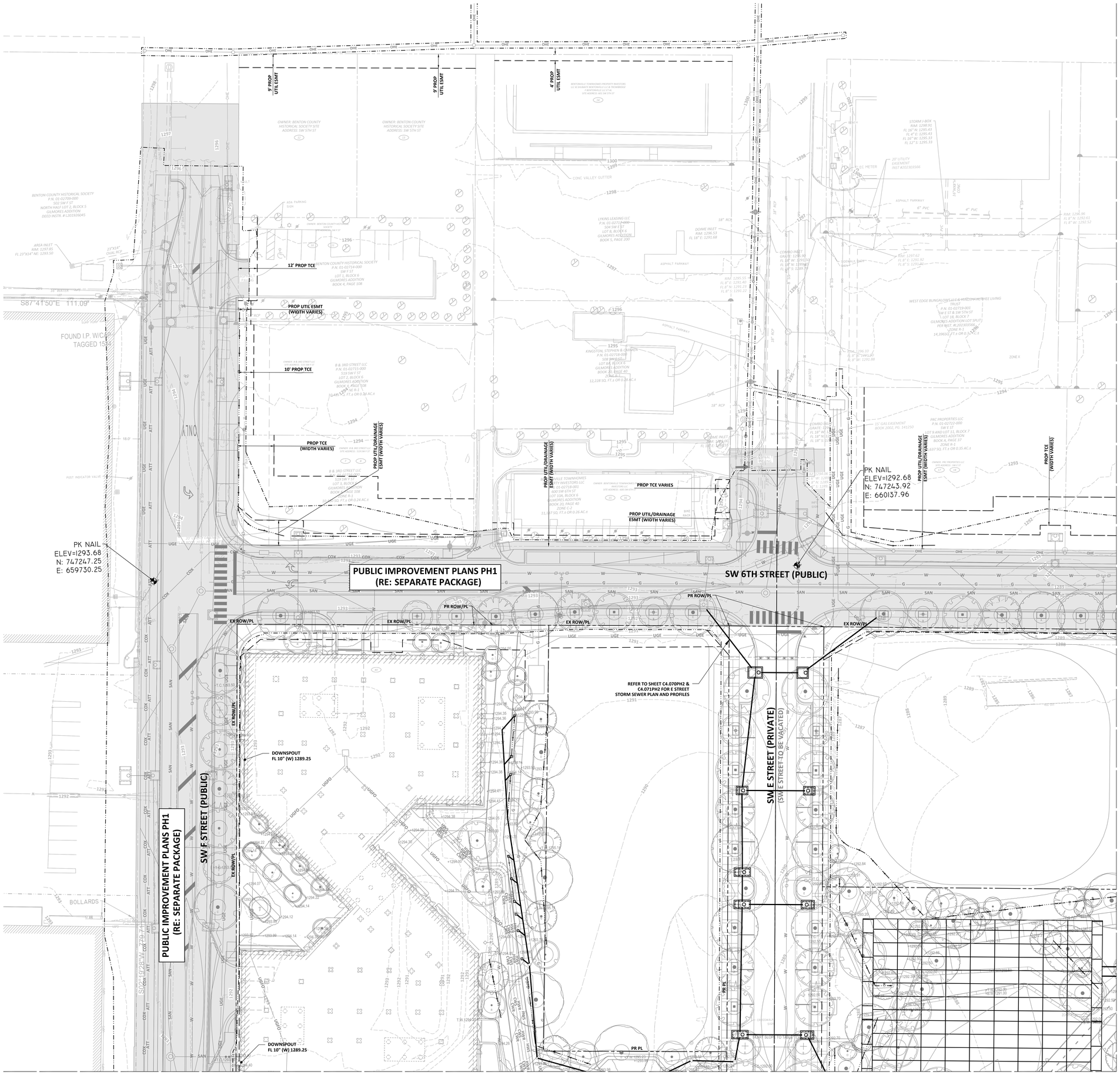

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- (10) 2.3/C10.023PH2 AREA INLET WITH OPENING FLUME-2 SIDE
- (11) 4.5/C10.023PH2 AREA INLET WITH OPENING FLUME-1 SIDE
- (12) 7/C10.023PH2 SPECIAL NON-SETBACK CURB INLET
- (13) 9/C10.023PH2 SIDEWALK FLUME
- (14) RE: MEP FOR TIE-IN DETAILS
- (15) SEPARATE PACKAGE
- (16) TAPERED CURB TERMINATION (RE: 13/C10.001PH2)
- (17) RIBBON CURB PVMT EDGE (RE: 10/C10.001PH2)
- (18) FLAT DRIVEWAY CURB (RE: 4/C10.001PH2)
- (19) TURNDOWN CURB (RE: 7/C10.001PH2)
- (20) MODIFIED "DRY"TYPE A CURB (RE: 3/C10.001PH2)
- (21) 3/C10.010PH2 SINGLE TRAP-STORM TRAP

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			

ORIGINAL ISSUE — DATE

KEY MAP

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STORM PLAN

C5.010PH2

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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PK NAIL
ELEV=1290.89
N: 747550.91
E: 660858.77

N

20 10 0 20

SCALE: 1" = 20'

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT

B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT

C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS

KEY NOTES:

- LIMITS OF DISTURBANCE
- (1) ROADWAY PAVEMENT(FLEXIBLE HEAVY DUTY) (RE: 3/C10.002PH2)
- (2) DRIVEWAY PAVEMENT
- (3) CONCRETE SIDEWALK
- (4) LANDSCAPE AREA
- (5) PAVEMENT MARKINGS
- (6) 1/C10.021PH2 TYPE MO INLET
- (7) 6/C10.016PH2 JUNCTION BOX
- (8) 1/C10.023PH2 TYPE SP COMBO INLET
- (9) 2/C10.023PH2 AREA INLET
- (10) 2,3/C10.023PH2 AREA INLET WITH OPENING FLUME-2 SIDE
- (11) 4,5/C10.023PH2 AREA INLET WITH OPENING FLUME-1 SIDE
- (12) 7/C10.023PH2 SPECIAL NON-SETBACK CURB INLET
- (13) 9/C10.023PH2 SIDEWALK FLUME
- (14) RE: MEP FOR TIE-IN DETAILS
- (15) SEPARATE PACKAGE
- (16) TAPERED CURB TERMINATION (RE: 13/C10.001PH2)
- (17) RIBBON CURB PVMT EDGE (RE: 10/C10.001PH2)
- (18) FLAT DRIVEWAY CURB (RE: 4/C10.001PH2)
- (19) TURNDOWN CURB (RE: 7/C10.001PH2)
- (20) MODIFIED "DRY"TYPE A CURB (RE: 3/C10.001PH2)
- (21) 3/C10.010PH2 SINGLE TRAP-STORM TRAP

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KEY MAP

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STORM PLAN

C5.020PH2

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MATCHLINE SEE SHEET-C5.010PH2

MATCHLINE SEE SHEET-C5.040PH2

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

SW 6TH STREET (PUBLIC)

SW D STREET (PRIVATE) (SW D STREET TO BE VACATED)

SW C STREET (PUBLIC)

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

PK NAIL
ELEV=1290.61
N: 747249.18
E: 660516.36

PK NAIL
ELEV=1289.03
N: 747178.20
E: 660843.51

#BM1
N:747364.35
E:660730.57
406 SW 6TH ST
LOT 11A, BLOCK 8
GILMORES ADDITION

#BM2
N:747225.77
E:660724.34
406 SW 6TH ST
LOT 11A, BLOCK 8
GILMORES ADDITION

PROP TCE (WIDTH VARIES)
PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)
PROP DRAINAGE ESMT (WIDTH VARIES)
PROP UTILITY ESMT (WIDTH VARIES)
PROP UTIL ESMT
PROP 3' TCE
EX PL
PROP 7' TCE

13'X9' JB
15'X4' JB
9'X9' JB
6'X3' RCB S0.15%
S0.35%
S0.15%
TOP1290 FL1279.64 WEIR HT 4.28FT

REFER TO SHEET C4.072PH2 & C4.073PH2 FOR E STREET STORM SEWER PLAN AND PROFILES

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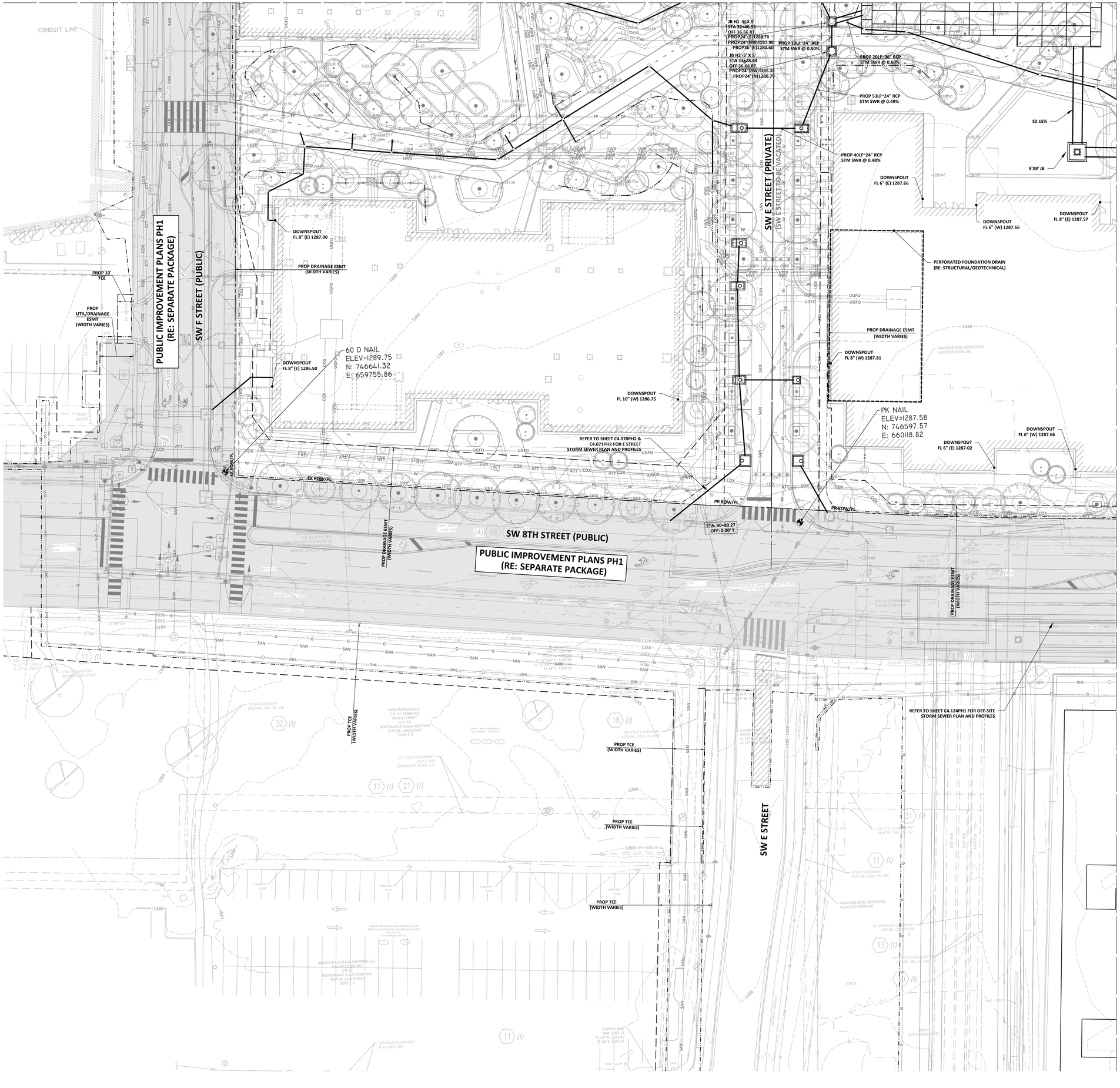
MATCHLINE SEE SHEET-C5.010PH2



N

20 10 0 20

SCALE: 1" = 20'

SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT

B. REFER TO ARCHITECT PLANS FOR BUILDING LAYOUT

C. REFER TO LANDSCAPE ARCHITECT FOR LANDSCAPED AREAS

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4. LANDSCAPE AREA
5. PAVEMENT MARKINGS
6. 1/C10.021PH2 TYPE MO INLET
7. 6/C10.016PH2 JUNCTION BOX
8. 1/C10.023PH2 TYPE SP COMBO INLET
9. 3/C10.019PH2 AREA INLET
10. 2,3/C10.023PH2 AREA INLET WITH OPENING FLUME-2 SIDE
11. 4,5/C10.023PH2 AREA INLET WITH OPENING FLUME-1 SIDE
12. 7/C10.023PH2 SPECIAL NON-SETBACK CURB INLET
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15. SEPARATE PACKAGE
16. TAPERED CURB TERMINATION (RE: 13/C10.001PH2)
17. RIBBON CURB PVMT EDGE (RE: 10/C10.001PH2)
18. FLAT DRIVEWAY CURB (RE: 4/C10.001PH2)
19. TURNDOWN CURB (RE: 7/C10.001PH2)
20. MODIFIED "DRY"TYPE A CURB (RE: 3/C10.001PH2)
21. 3/C10.010PH2 SINGLE TRAP-STORM TRAP

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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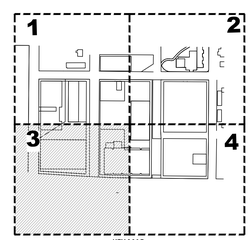

KEY MAP

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STORM PLAN

C5.030PH2

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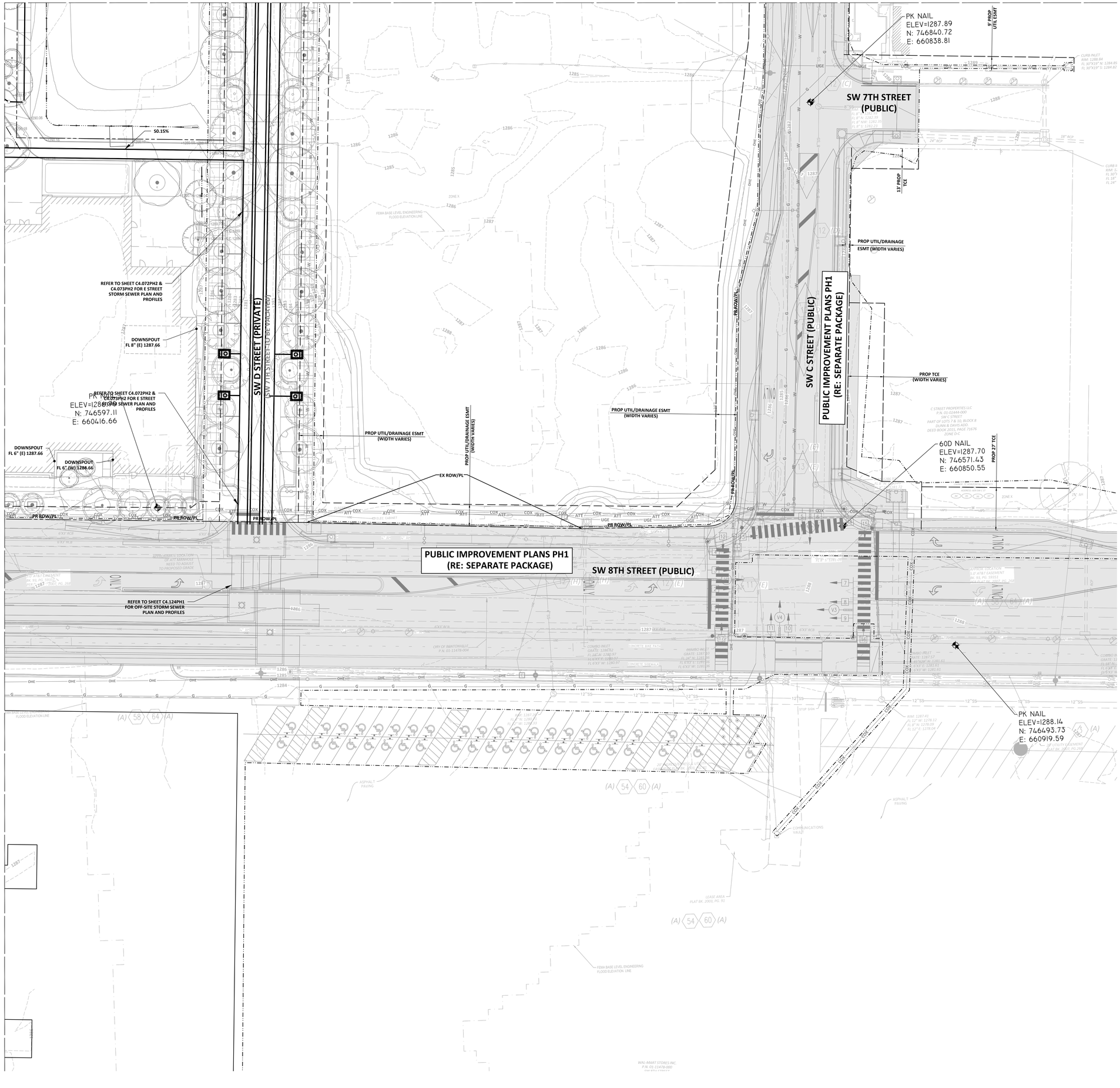
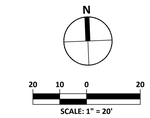
MATCHLINE SEE SHEET-C5.020PH2





SHEET NOTES:

A. ALL DIMENSIONS ARE FROM EITHER FACE OF CURB OR EDGE OF PAVEMENT

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- (19) TURNDOWN CURB (RE: 7/C10.001PH2)
- (20) MODIFIED "DRY"TYPE A CURB (RE: 3/C10.001PH2)
- (21) 3/C10.010PH2 SINGLE TRAP-STORM TRAP

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
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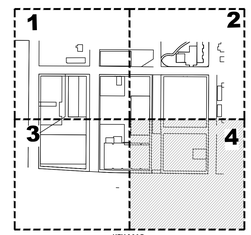
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719



KEY MAP

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1	02/27/2026	LSD SD
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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

STORM PLAN

C5.040PH2

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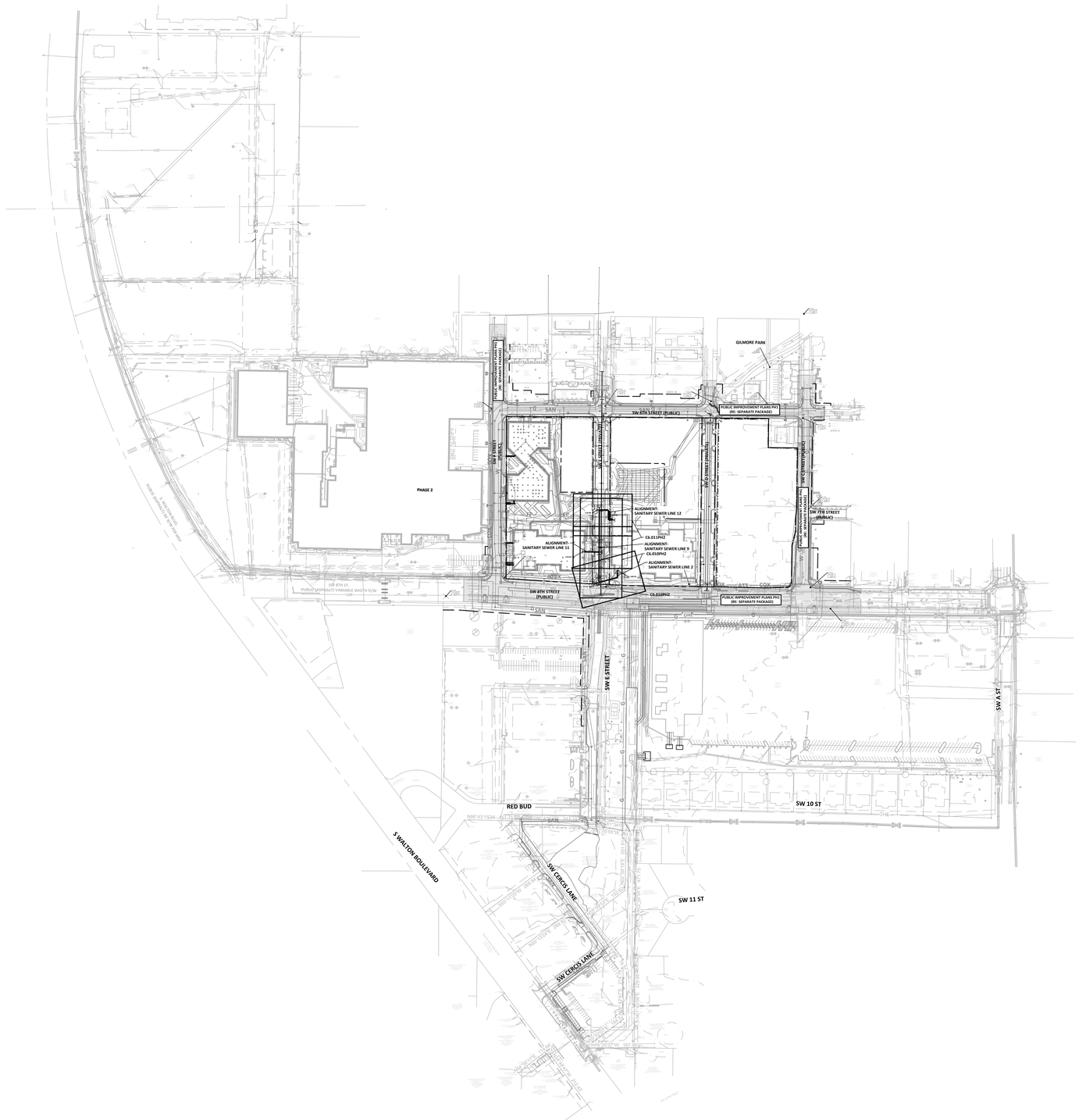

N

150 75 0 150

SCALE: 1" = 150'

HATCH LEGENDS:

SEPARATE PACKAGE

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STEM UNIVERSITY - PUBLIC IMPROVEMENT PLANS - PHASE 1

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OVERALL SANITARY SEWER PLAN - PRIVATE

C6.000PH2

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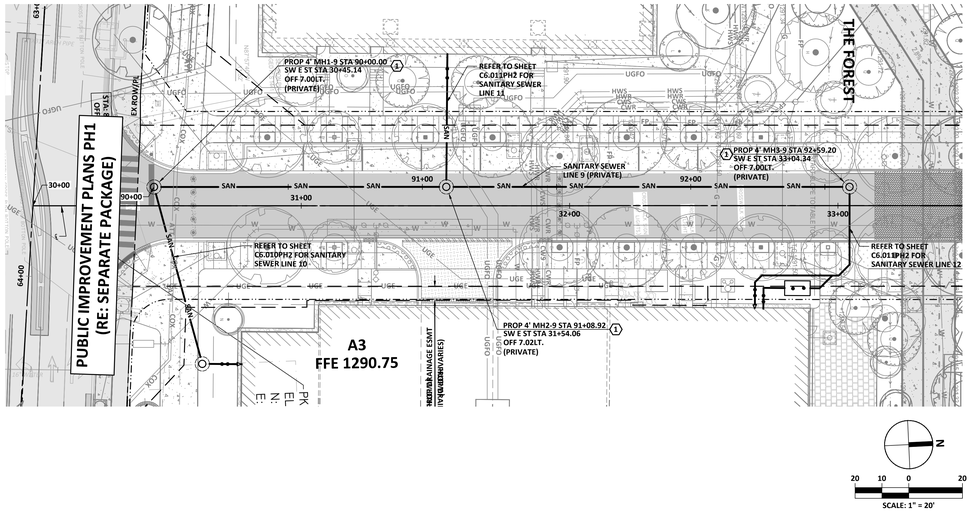
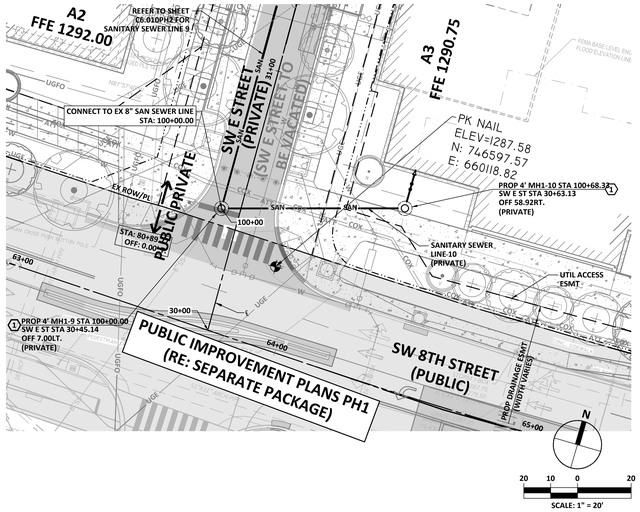




SHEET NOTES:

A. CONTRACTOR TO INSTALL CLAY PLUG FOR ALL UTILITIES PENETRATING PROPOSED BUILDING WALL OR FOUNDATION

B. CONTRACTOR TO FIELD VERIFY UTILITIES AND NOTIFY ENGINEER IF CONFLICT EXISTS

C. ALL WATER LINE BENDS SHALL BE STANDARD BENDS - 90°, 45°, 22.5°, OR 11.25° - UNLESS OTHERWISE SPECIFIED

LEGENDS:

SAN — SAN — SANITARY SEWER PIPE

— · — · — LIMIT OF DISTURBANCE

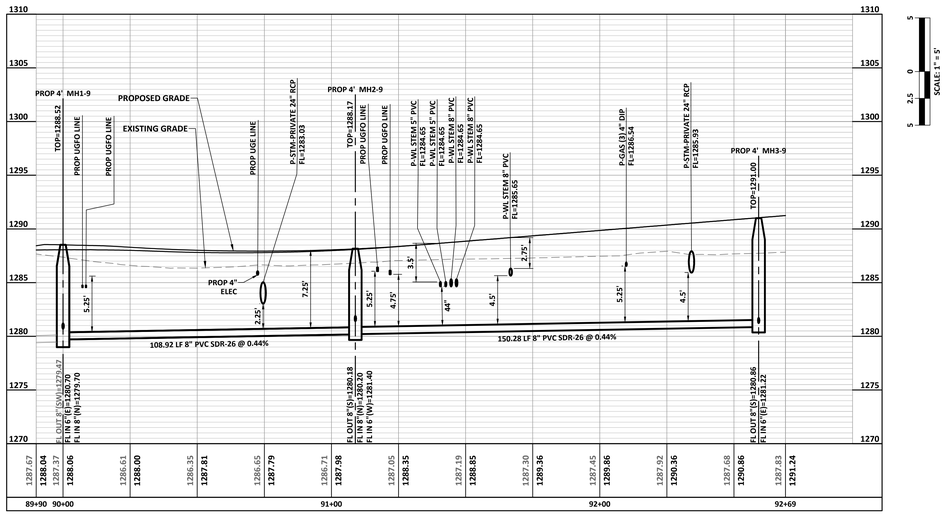
KEY NOTES:

1 ◎ - SANITARY SEWER MANHOLE (RE:1/C10.031PH2)

2 •• - SANITARY SEWER 2-WAY CLEANOUT (RE:2/C10.030PH2)

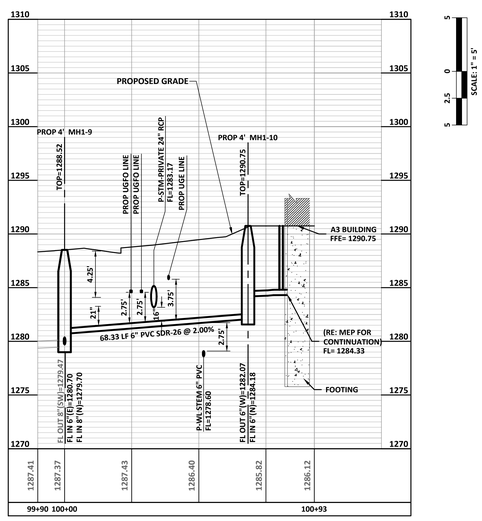
HATCH LEGENDS:

SEPARATE PACKAGE



1 SANITARY SEWER PROFILE LINE 9

1" = 20' (HORIZ) 1" = 5' (VERT)



2 SANITARY SEWER PROFILE LINE 10

1" = 20' (HORIZ) 1" = 5' (VERT)

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STEM UNIVERSITY - PUBLIC IMPROVEMENT PLANS - PHASE 1

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SANITARY SEWER PLAN AND PROFILE - PRIVATE

C6.010PH2

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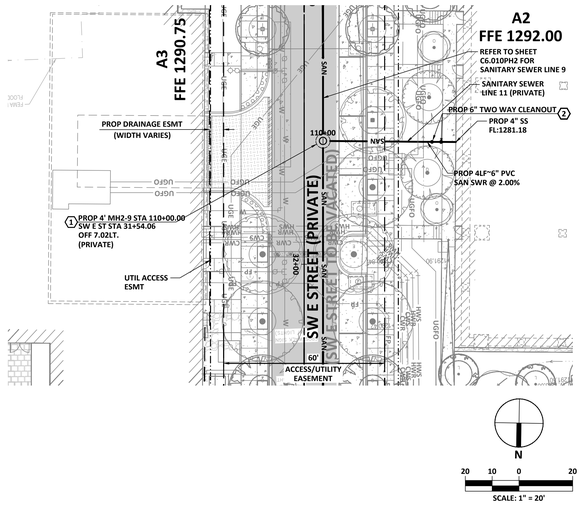

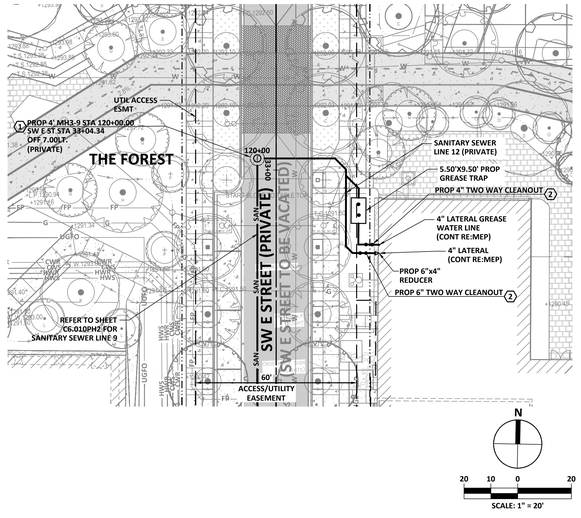

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LEGENDS:

SAN - SANITARY SEWER PIPE

- LIMIT OF DISTURBANCE

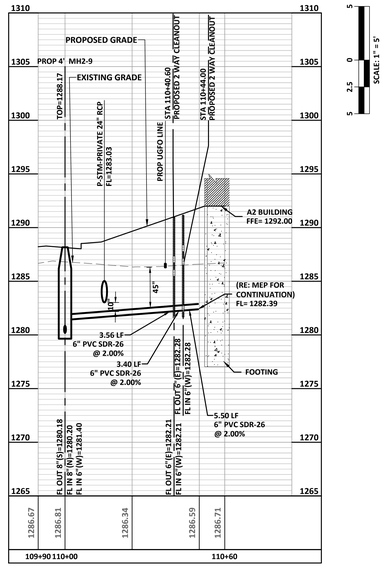
KEY NOTES:

1 - SANITARY SEWER MANHOLE (RE:1/C10.031PH2)

2 - SANITARY SEWER 2-WAY CLEANOUT (RE:2/C10.030PH2)

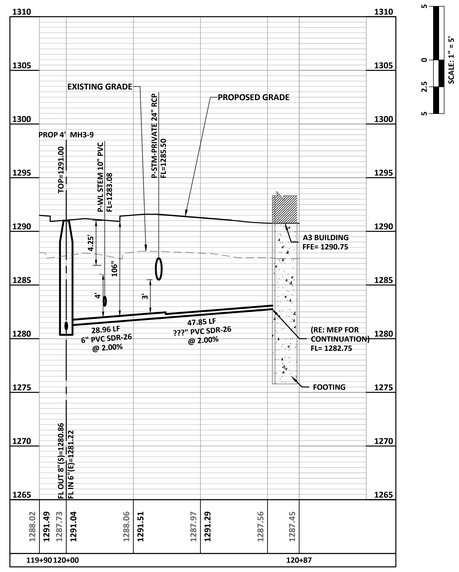
HATCH LEGENDS:

SEPARATE PACKAGE



1 SANITARY SEWER PROFILE LINE 11

1" = 20' (HORIZ) 1" = 5' (VERT)



2 SANITARY SEWER PROFILE LINE 12

1" = 20' (HORIZ) 1" = 5' (VERT)

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STEM UNIVERSITY - PUBLIC IMPROVEMENT PLANS - PHASE 1

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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
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SANITARY SEWER PLAN AND PROFILE - PRIVATE

C6.011PH2

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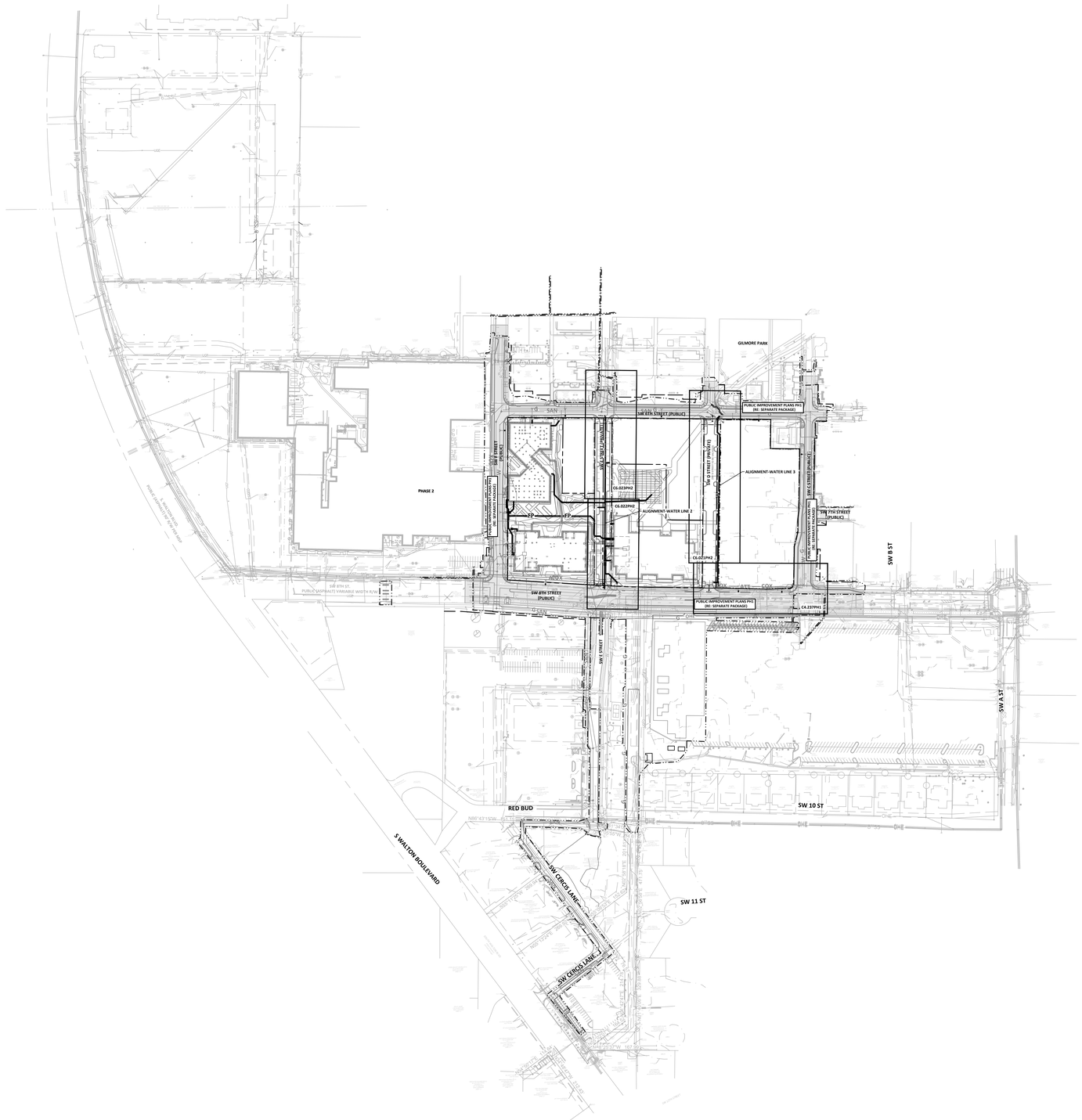

N

150 75 0 150

SCALE: 1" = 150'

HATCH LEGENDS:

SEPARATE PACKAGE

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
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5	07/17/2026	100% CD 2ND SUBMISSION

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811
SAFETY IS IN YOUR HANDS.
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OVERALL WATER LINE PLAN - PRIVATE

C6.020PH2

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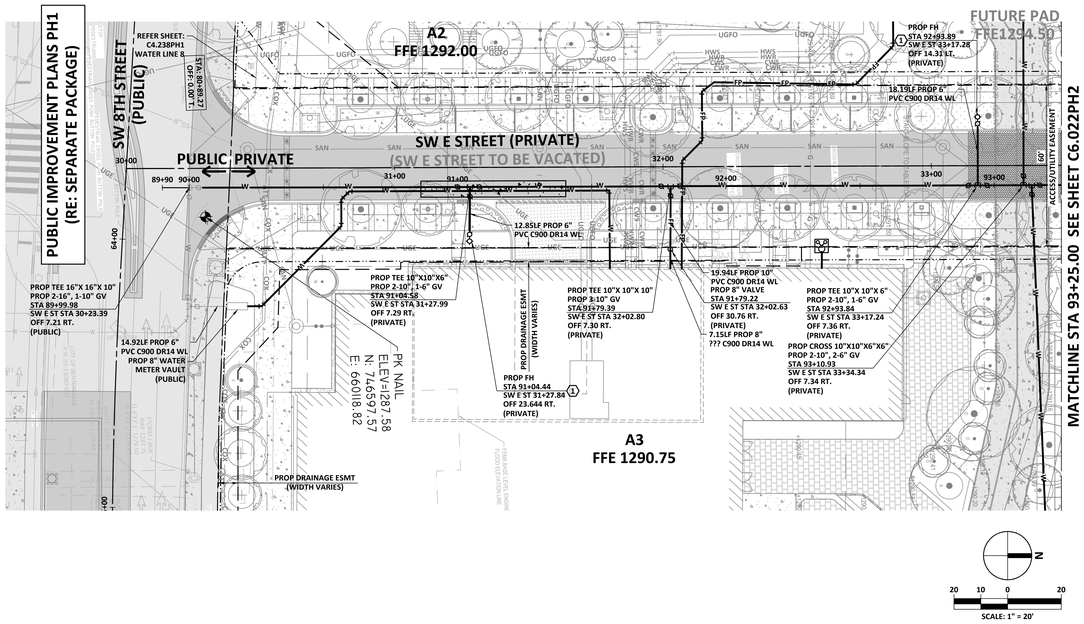

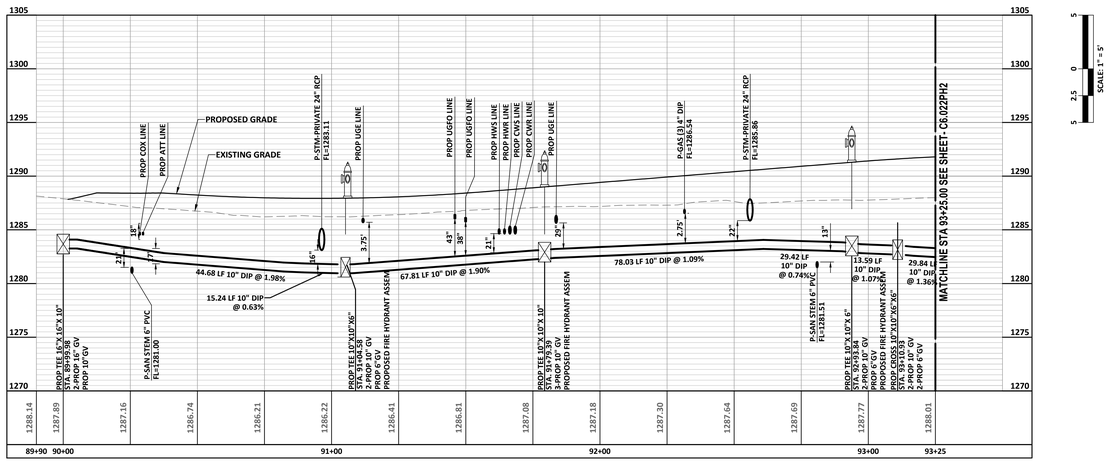

1 WATERLINE PROFILE LINE 9

1" = 20' (HORIZ) 1" = 5' (VERT)

SHEET NOTES:

A. CONTRACTOR TO INSTALL CLAY PLUG FOR ALL UTILITIES PENETRATING PROPOSED BUILDING WALL OR FOUNDATION

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LEGENDS:

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- FP — FIRE PROTECTION
- CWS — COLD WATER SUPPLY
- CWR — COLD WATER RETURN
- HWS — HOT WATER SUPPLY
- HWR — HOT WATER RETURN
- FDC
- LIMIT OF DISTURBANCE

KEY NOTES:

1 ◇ — FIRE HYDRANT (RE: 1/C10.043PH2)

HATCH LEGENDS:

SEPARATE PACKAGE

walter p moore

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609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

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WATERLINE PLAN AND PROFILE - PRIVATE

C6.021PH2

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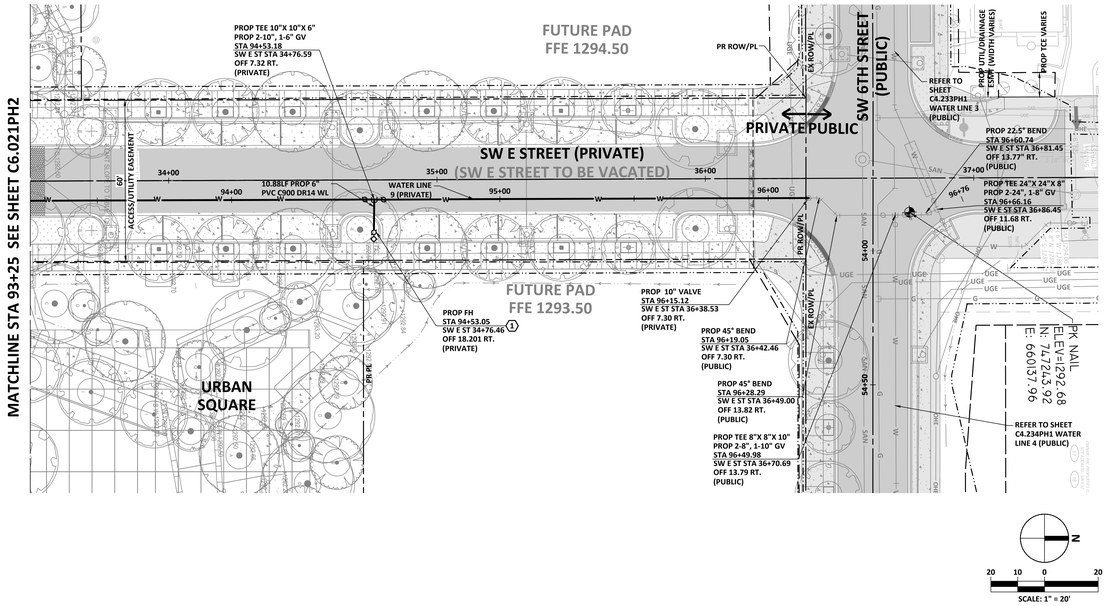

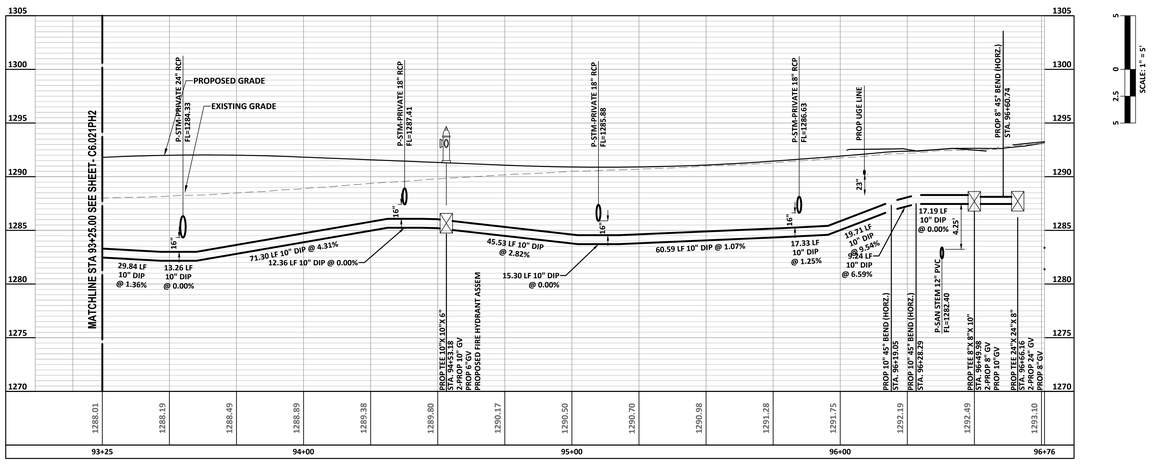

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- LIMIT OF DISTURBANCE

KEY NOTES:

1 ◇ - FIRE HYDRANT (RE: 1/C10.043PH2)

HATCH LEGENDS:

SEPARATE PACKAGE

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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WATERLINE PLAN AND PROFILE - PRIVATE

C6.022PH2

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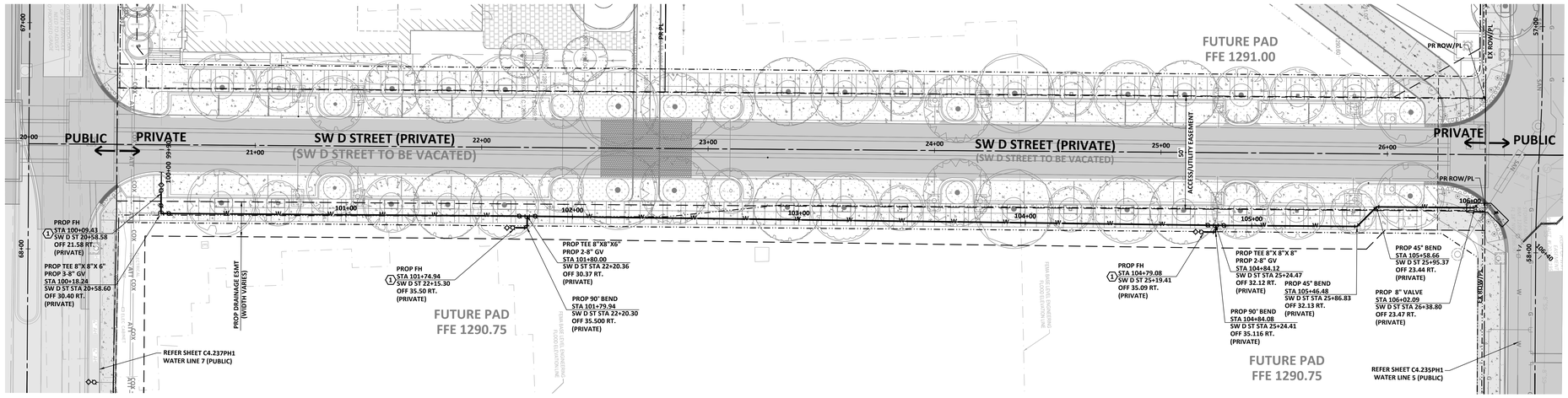

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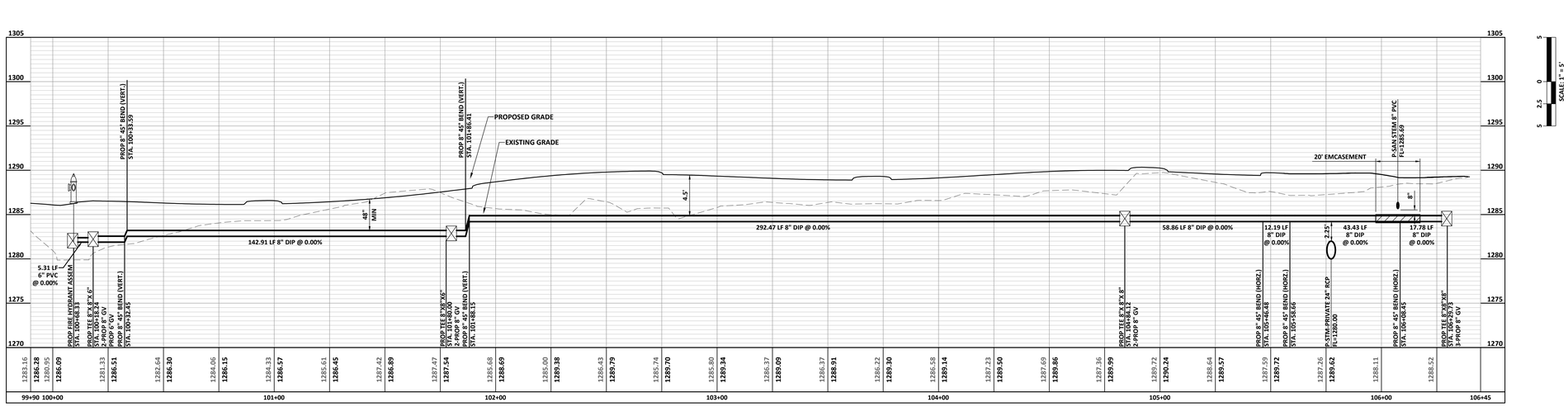
- LIMIT OF DISTURBANCE

KEY NOTES:

① ◇ - FIRE HYDRANT (RE: 1/C10.043PH2)

HATCH LEGENDS:

SEPARATE PACKAGE



① WATERLINE PROFILE LINE 10

1" = 20' (HORIZ) 1" = 5' (VERT)

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
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P.E. Serial No.: 18208
Date: 07/17/2026

ASBL COA NO. 719

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WATERLINE PLAN AND PROFILE - PRIVATE

C6.023PH2

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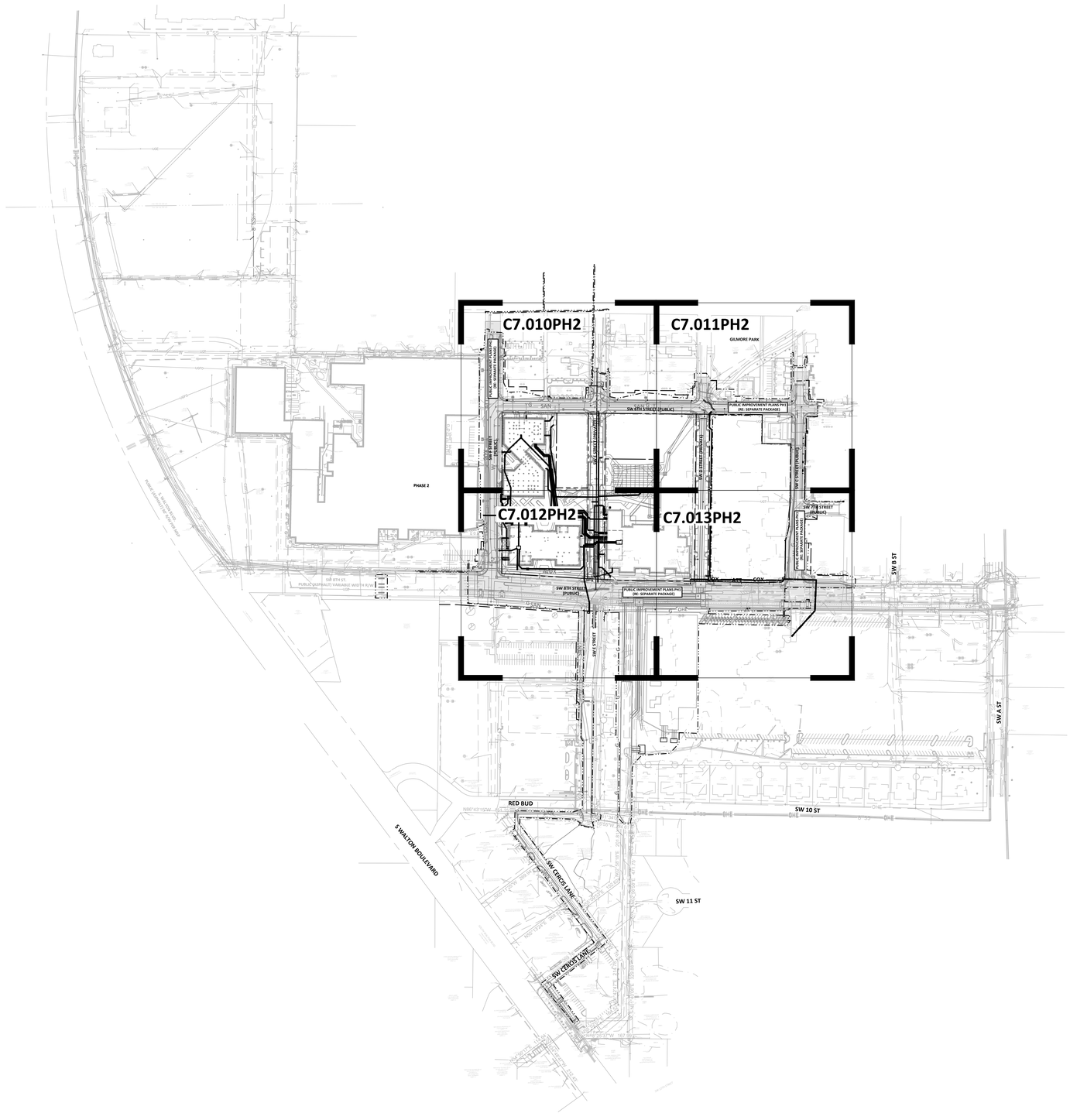

N

150 75 0 150

SCALE: 1" = 150'

SHEET NOTES:

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- LIMIT OF DISTURBANCE

HATCH LEGENDS:

SEPARATE PACKAGE

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OVERALL UTILITY PLAN - PRIVATE

C7.000PH2

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N

20 10 0 20

SCALE: 1" = 20'

SHEET NOTES:

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- LIMIT OF DISTURBANCE

HATCH LEGENDS:

SEPARATE PACKAGE

SW F STREET (PUBLIC)

SW 6TH STREET (PUBLIC)

SW 6TH STREET (PUBLIC)

SW E STREET (PRIVATE) (SW E STREET TO BE VACATED)

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

PUBLIC IMPROVEMENT PLANS PH1 (RE: SEPARATE PACKAGE)

PUBLIC

PRIVATE

9' PROP UTIL ESMT

9' PROP UTIL ESMT

4' PROP UTIL ESMT

12' PROP TCE

PROP UTIL ESMT (WIDTH VARIES)

10' PROP TCE

PROP TCE (WIDTH VARIES)

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP TCE VARIES

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP UTIL/DRAINAGE ESMT (WIDTH VARIES)

PROP TCE (WIDTH VARIES)

PK NAIL
ELEV=1293.68
N: 747247.25
E: 659730.25

PK NAIL
ELEV=1292.68
N: 747243.92
E: 660137.96

STA 52+14.53 OFF 33.28RT.
8'X8' ELEC PAD & TRANSFORMER
& SPECIFICATIONS
N:747203.44
E:659965.14
(RE:MEP)

4" CONDUIT &SPECIFICATIONS (RE:BEUD)

PROP 6" GAS BEND
STA 0+12.64
N:747159.63
E:659956.46
(RE:MEP)

6"X4"X4" TEE

4'X4' MAINTENANCE VAULT (RE:MEP)

4" GAS ENTRY FOR A.L.B

29+63

16+42

PROP UGFO

ISP SERVICE ENTRANCE 4-4" CONDUIT & SPECIFICATIONS (RE:MEP)

PROP COMM BEND

PROP UGFO/SS CROSSING

4'X4'X4' CAMPUS OWNED MAINTENANCE VAULT (RE:MEP)

PROP UGFO/THERMALS CROSSINGS
ADJUST FIBER ROUTING W/ VERT BENDS AS NECESSARY TO AVOID THERMAL LINES. (RE:MEP)

PROP 4" GAS BEND
STA 0+90.53
N:747081.82
E:659953.14
(RE:MEP)

PROP 4" GAS BEND
STA 1+92.63
N:746980.93
E:659968.80
(RE:MEP)

PROP 4" GAS BEND
STA 2+32.24
N:746941.35
E:659967.04
(RE:MEP)

PROP UGFO

PROP COMM BEND

PROP UGFO

PROP COMM BEND

PR ROW/PL

EX ROW/PL

PR PL

ACCESS/UTILITY EASEMENT

MATCHLINE SEE SHEET-C4.203PH1

MATCHLINE SEE SHEET-C4.202PH1

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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UTILITY PLAN - PRIVATE

C7.010PH2

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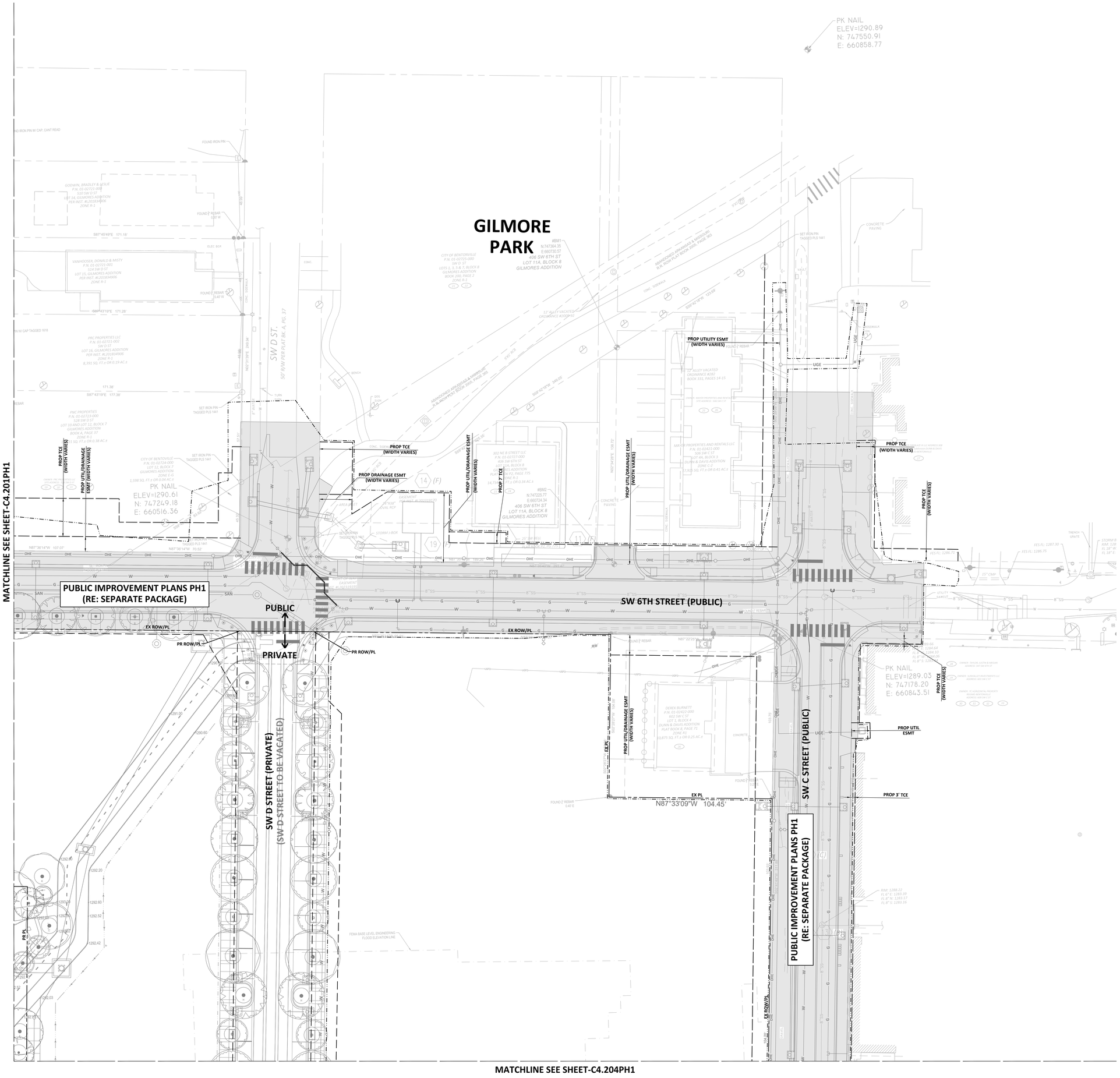

N

20 10 0 20

SCALE: 1" = 20'

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HATCH LEGENDS:

SEPARATE PACKAGE

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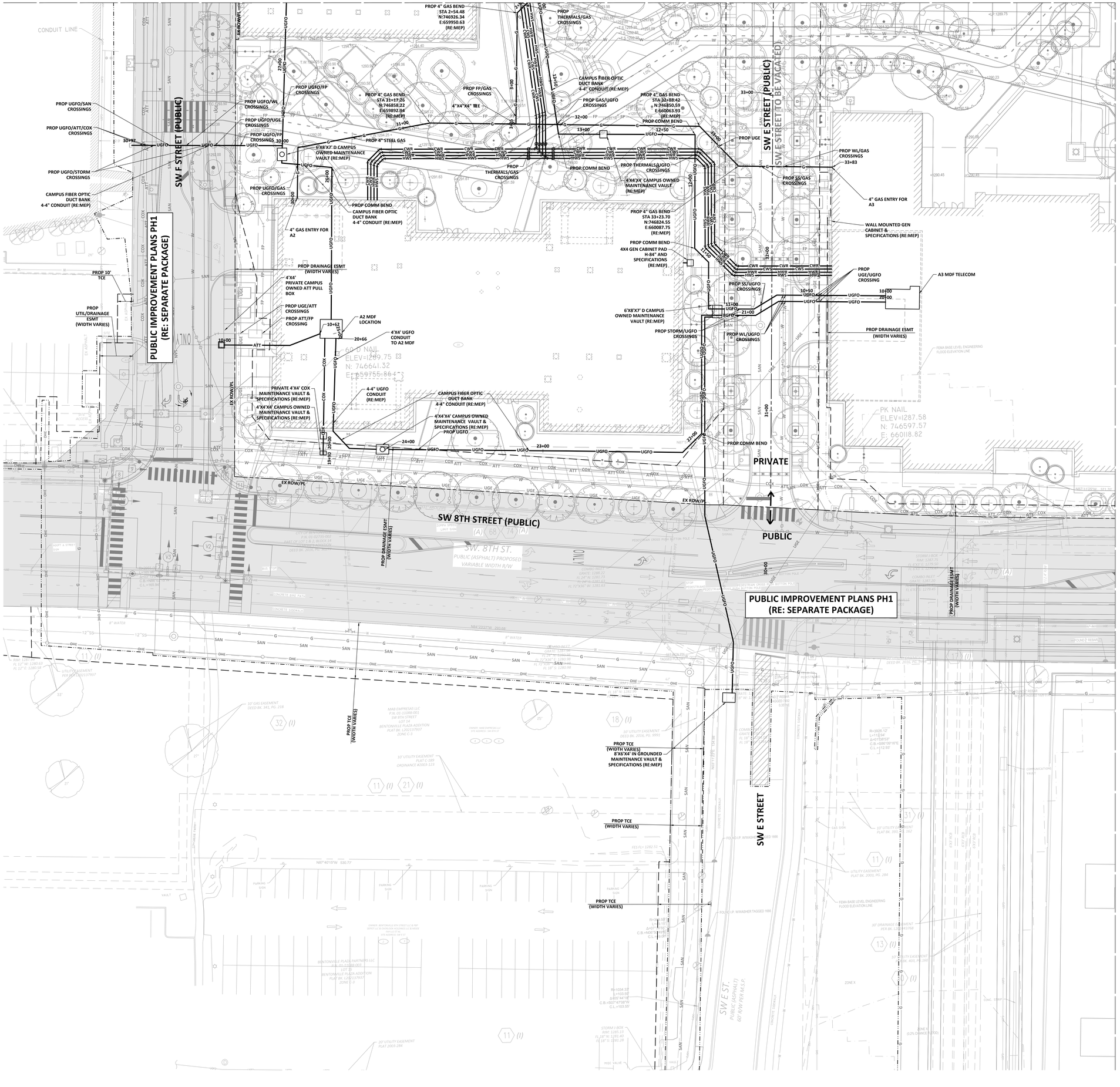
MATCHLINE SEE SHEET-C4.201PH1



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C7.012PH2

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MATCHLINE SEE SHEET-C4.204PH1

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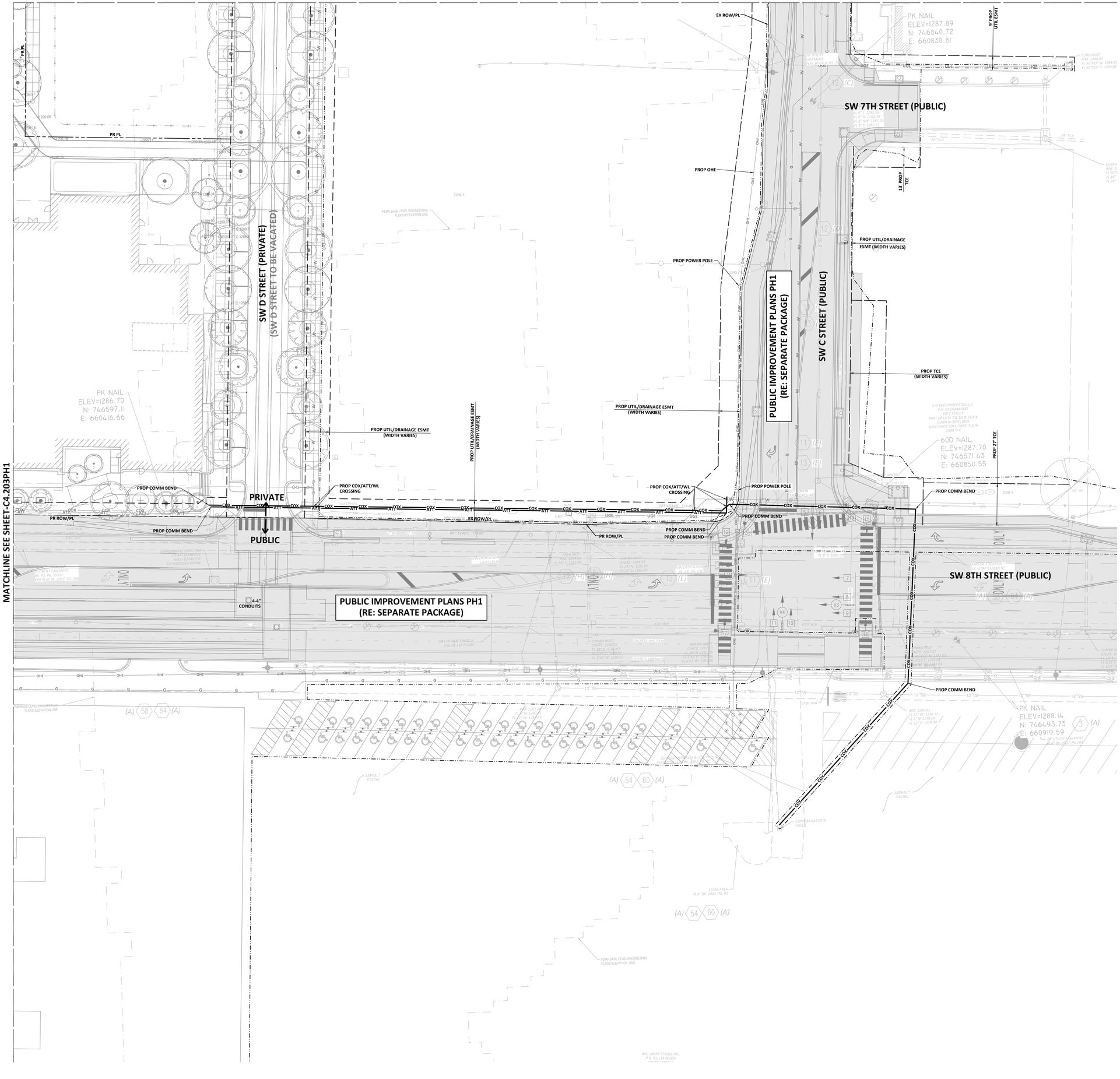
MATCHLINE SEE SHEET-C4.202PH1

MATCHLINE SEE SHEET-C4.203PH1



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20 10 0 20

SCALE: 1" = 20'

SHEET NOTES:

A. CONTRACTOR TO INSTALL CLAY PLUG FOR ALL UTILITIES PENETRATING PROPOSED BUILDING WALL OR FOUNDATION

B. CONTRACTOR TO FIELD VERIFY UTILITIES AND NOTIFY ENGINEER IF CONFLICT EXISTS

C. ALL WATER LINE BENDS SHALL BE STANDARD BENDS - 90°, 45°, 22.5°, OR 11.25° - UNLESS OTHERWISE SPECIFIED

Utility Legends:

- G — GAS MAIN
- UGE — UNDERGROUND ELECTRIC LINE
- OHE — OVERHEAD ELECTRIC LINE
- UGFO — UNDERGROUND FIBER OPTIC LINE
- COX — COX CONDUIT
- ATT — ATT CONDUIT
- LIMIT OF DISTURBANCE

HATCH LEGENDS:

SEPARATE PACKAGE

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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026

ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

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UTILITY PLAN - PRIVATE

C7.013PH2

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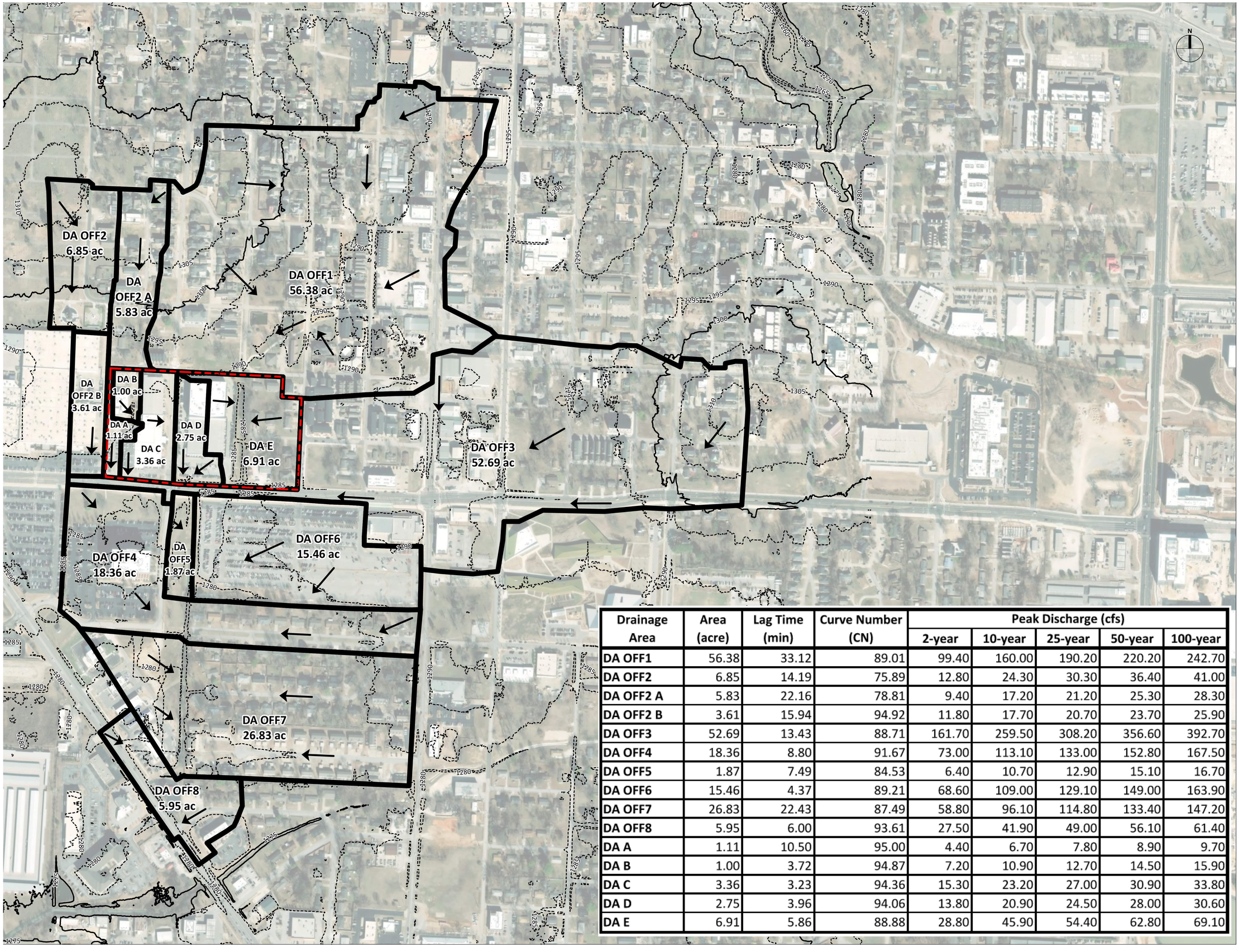

Drainage Area	Area (acre)	Lag Time (min)	Curve Number (CN)	Peak Discharge (cfs)				
				2-year	10-year	25-year	50-year	100-year
DA OFF1	56.38	33.12	89.01	99.40	160.00	190.20	220.20	242.70
DA OFF2	6.85	14.19	75.89	12.80	24.30	30.30	36.40	41.00
DA OFF2 A	5.83	22.16	78.81	9.40	17.20	21.20	25.30	28.30
DA OFF2 B	3.61	15.94	94.92	11.80	17.70	20.70	23.70	25.90
DA OFF3	52.69	13.43	88.71	161.70	259.50	308.20	356.60	392.70
DA OFF4	18.36	8.80	91.67	73.00	113.10	133.00	152.80	167.50
DA OFF5	1.87	7.49	84.53	6.40	10.70	12.90	15.10	16.70
DA OFF6	15.46	4.37	89.21	68.60	109.00	129.10	149.00	163.90
DA OFF7	26.83	22.43	87.49	58.80	96.10	114.80	133.40	147.20
DA OFF8	5.95	6.00	93.61	27.50	41.90	49.00	56.10	61.40
DA A	1.11	10.50	95.00	4.40	6.70	7.80	8.90	9.70
DA B	1.00	3.72	94.87	7.20	10.90	12.70	14.50	15.90
DA C	3.36	3.23	94.36	15.30	23.20	27.00	30.90	33.80
DA D	2.75	3.96	94.06	13.80	20.90	24.50	28.00	30.60
DA E	6.91	5.86	88.88	28.80	45.90	54.40	62.80	69.10

NOT TO SCALE

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EXISTING OVERALL DRAINAGE AREA MAP & CALCULATIONS

C8.000PH2

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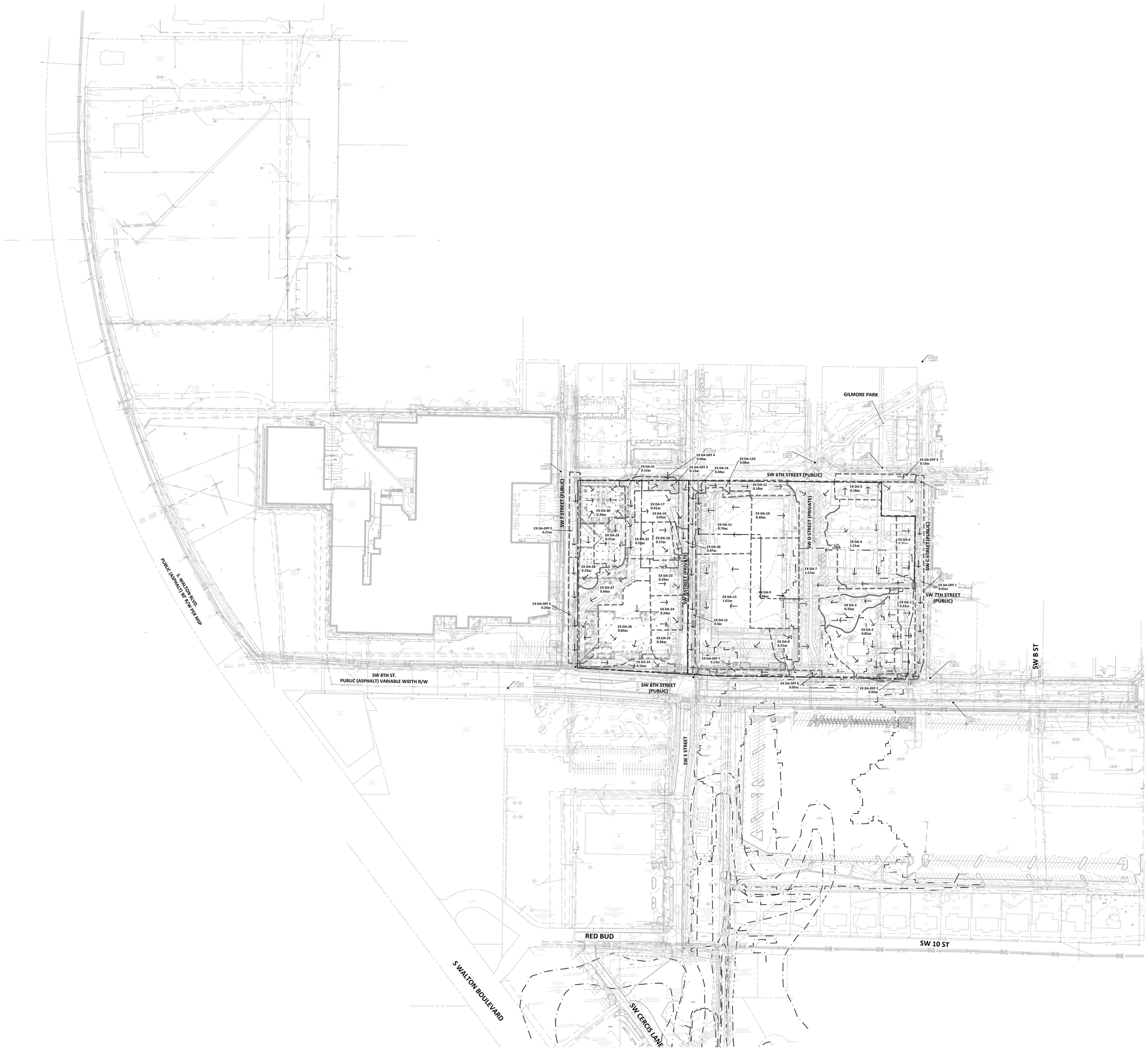

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EXISTING DRAINAGE AREA MAP - SITE

C8.010PH2

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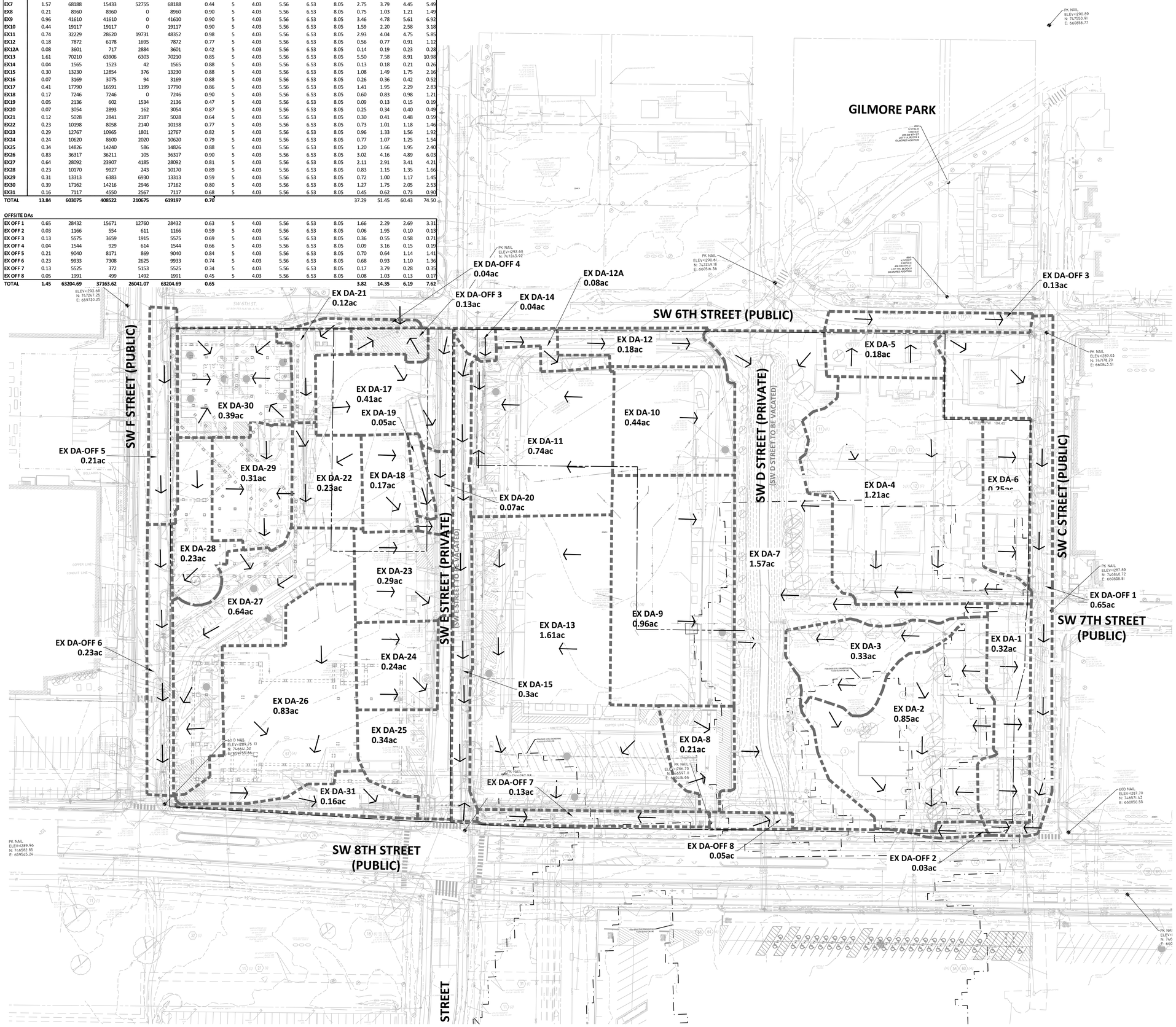
EXISTING DRAINAGE AREAS

LABEL	AREA (ac)	ac->ft	IMPERVIOUS AREA (sq ft)	PERVIOUS AREA (sq ft)	imp+per	runoff coefficient (C)	Time of Concentration (min)	2 year catchment intensity (in/hr)	10 year catchment intensity (in/hr)	25 year catchment intensity (in/hr)	100 year catchment intensity (in/hr)	2 Year tributary runoff (cfs)	10 Year tributary runoff (cfs)	25 Year tributary runoff (cfs)	100 Year tributary runoff (cfs)
EX1	0.32	14136	6515	7621	14136	0.58	5	4.03	5.56	6.53	8.05	0.75	1.04	1.22	1.51
EX2	0.85	37193	6858	30335	37193	0.41	5	4.03	5.56	6.53	8.05	1.41	1.95	2.29	2.82
EX3	0.33	14461	0	14461	14461	0.30	5	4.03	5.56	6.53	8.05	0.40	0.55	0.65	0.80
EX4	1.21	52878	14762	38116	52878	0.47	5	4.03	5.56	6.53	8.05	2.29	3.16	3.71	4.57
EX5	0.18	7867	4435	3432	7867	0.64	5	4.03	5.56	6.53	8.05	0.46	0.64	0.75	0.93
EX6	0.25	10951	6730	4221	10951	0.67	5	4.03	5.56	6.53	8.05	0.68	0.93	1.10	1.35
EX7	1.57	68188	15433	52755	68188	0.44	5	4.03	5.56	6.53	8.05	2.75	3.79	4.45	5.49
EX8	0.21	8960	8960	0	8960	0.90	5	4.03	5.56	6.53	8.05	0.75	1.03	1.21	1.49
EX9	0.96	41610	41610	0	41610	0.90	5	4.03	5.56	6.53	8.05	3.46	4.78	5.61	6.92
EX10	0.44	19117	19117	0	19117	0.90	5	4.03	5.56	6.53	8.05	1.59	2.20	2.58	3.18
EX11	0.74	32229	28620	19731	48352	0.98	5	4.03	5.56	6.53	8.05	2.93	4.04	4.75	5.85
EX12	0.18	7872	6178	1695	7872	0.77	5	4.03	5.56	6.53	8.05	0.56	0.77	0.91	1.12
EX12A	0.08	3601	717	2884	3601	0.42	5	4.03	5.56	6.53	8.05	0.14	0.19	0.23	0.28
EX13	1.61	70210	63906	6303	70210	0.85	5	4.03	5.56	6.53	8.05	5.50	7.58	8.91	10.98
EX14	0.04	1565	1523	42	1565	0.88	5	4.03	5.56	6.53	8.05	0.13	0.18	0.21	0.26
EX15	0.30	13230	12854	376	13230	0.88	5	4.03	5.56	6.53	8.05	1.08	1.49	1.75	2.16
EX16	0.07	3169	3075	94	3169	0.88	5	4.03	5.56	6.53	8.05	0.26	0.36	0.42	0.52
EX17	0.41	17790	16591	1199	17790	0.86	5	4.03	5.56	6.53	8.05	1.41	1.95	2.29	2.83
EX18	0.17	7246	7246	0	7246	0.90	5	4.03	5.56	6.53	8.05	0.60	0.83	0.98	1.21
EX19	0.05	2136	602	1534	2136	0.47	5	4.03	5.56	6.53	8.05	0.09	0.13	0.15	0.19
EX20	0.07	3054	2893	162	3054	0.87	5	4.03	5.56	6.53	8.05	0.25	0.34	0.40	0.49
EX21	0.12	5028	2841	2187	5028	0.64	5	4.03	5.56	6.53	8.05	0.30	0.41	0.48	0.59
EX22	0.23	10198	8058	2140	10198	0.77	5	4.03	5.56	6.53	8.05	0.73	1.01	1.18	1.46
EX23	0.29	12767	10965	1801	12767	0.82	5	4.03	5.56	6.53	8.05	0.96	1.33	1.56	1.92
EX24	0.24	10620	8600	2020	10620	0.79	5	4.03	5.56	6.53	8.05	0.77	1.07	1.25	1.54
EX25	0.34	14826	14240	586	14826	0.88	5	4.03	5.56	6.53	8.05	1.20	1.66	1.95	2.40
EX26	0.83	36317	36211	105	36317	0.90	5	4.03	5.56	6.53	8.05	3.02	4.16	4.89	6.03
EX27	0.64	28092	23907	4185	28092	0.81	5	4.03	5.56	6.53	8.05	2.11	2.91	3.41	4.21
EX28	0.23	10170	9927	243	10170	0.89	5	4.03	5.56	6.53	8.05	0.83	1.15	1.35	1.66
EX29	0.31	13313	6383	6930	13313	0.59	5	4.03	5.56	6.53	8.05	0.72	1.00	1.17	1.45
EX30	0.39	17162	14216	2946	17162	0.80	5	4.03	5.56	6.53	8.05	1.27	1.75	2.05	2.53
EX31	0.16	7117	4550	2567	7117	0.68	5	4.03	5.56	6.53	8.05	0.45	0.62	0.73	0.90
TOTAL	13.84	603075	408522	210675	619197	0.70						37.29	51.45	60.43	74.50

OFFSITE DAs

EX OFF 1	0.65	28432	15671	12760	28432	0.63	5	4.03	5.56	6.53	8.05	1.66	2.29	2.69	3.31
EX OFF 2	0.03	1166	554	611	1166	0.59	5	4.03	5.56	6.53	8.05	0.06	1.95	0.10	0.13
EX OFF 3	0.13	5575	3659	1915	5575	0.69	5	4.03	5.56	6.53	8.05	0.36	0.55	0.58	0.71
EX OFF 4	0.04	1544	929	614	1544	0.66	5	4.03	5.56	6.53	8.05	0.09	3.16	0.15	0.19
EX OFF 5	0.21	9040	8171	869	9040	0.84	5	4.03	5.56	6.53	8.05	0.70	0.64	1.14	1.41
EX OFF 6	0.23	9933	7308	2625	9933	0.74	5	4.03	5.56	6.53	8.05	0.68	0.93	1.10	1.36
EX OFF 7	0.13	5525	372	5153	5525	0.34	5	4.03	5.56	6.53	8.05	0.17	3.79	0.28	0.35
EX OFF 8	0.05	1991	499	1492	1991	0.45	5	4.03	5.56	6.53	8.05	0.08	1.03	0.13	0.17
TOTAL	1.45	63204.69	37163.62	26041.07	63204.69	0.65						3.82	14.35	6.19	7.62



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40 20 0 40

SCALE: 1" = 40'

SITE DRAINAGE LEGEND:

- Drainage Area Number — EX-DA 4
- Drainage Area Acres — 0.24 AC.
- Drainage Area Boundary
- Drainage arrow

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EXISTING DRAINAGE AREA MAP AND CALCULATIONS - SITE

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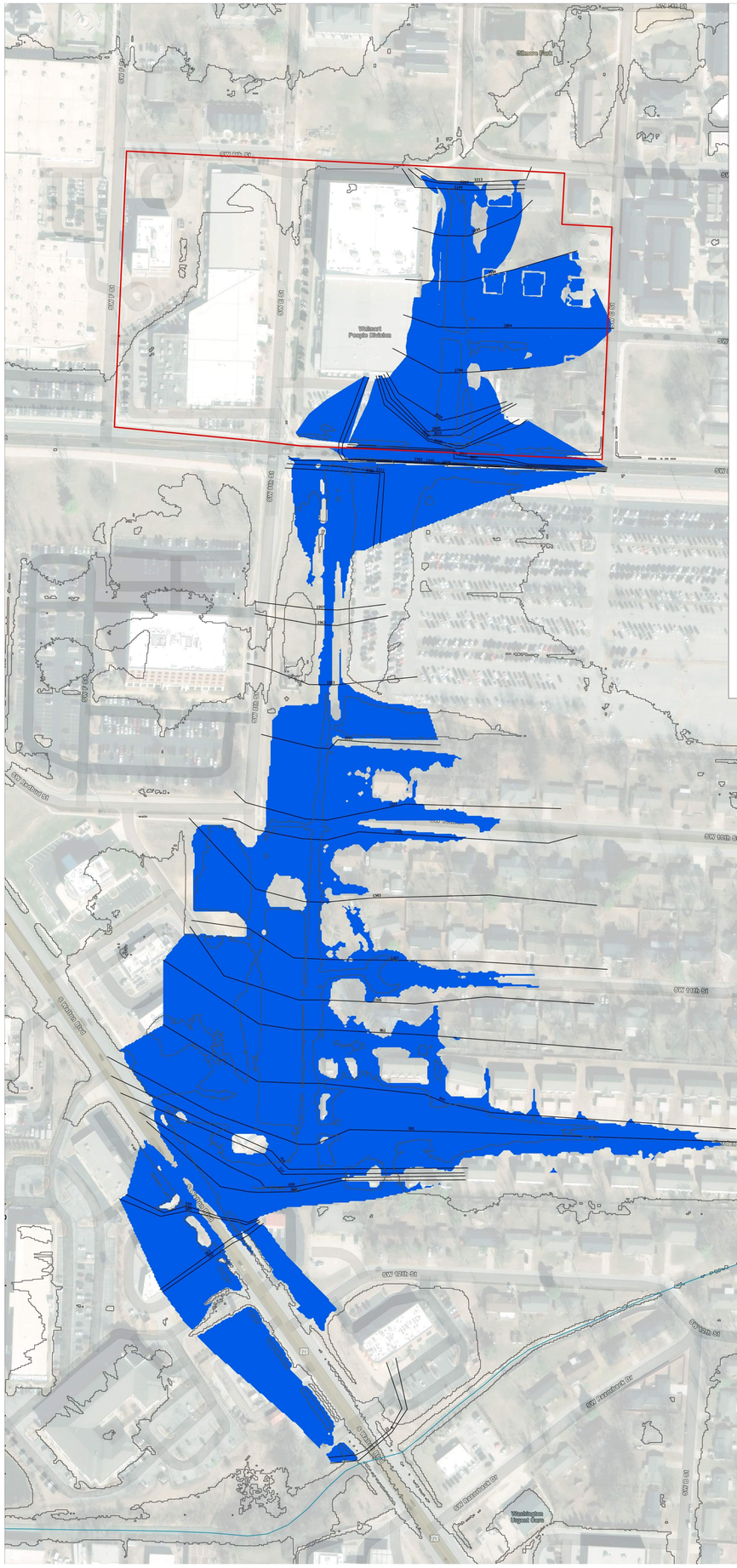

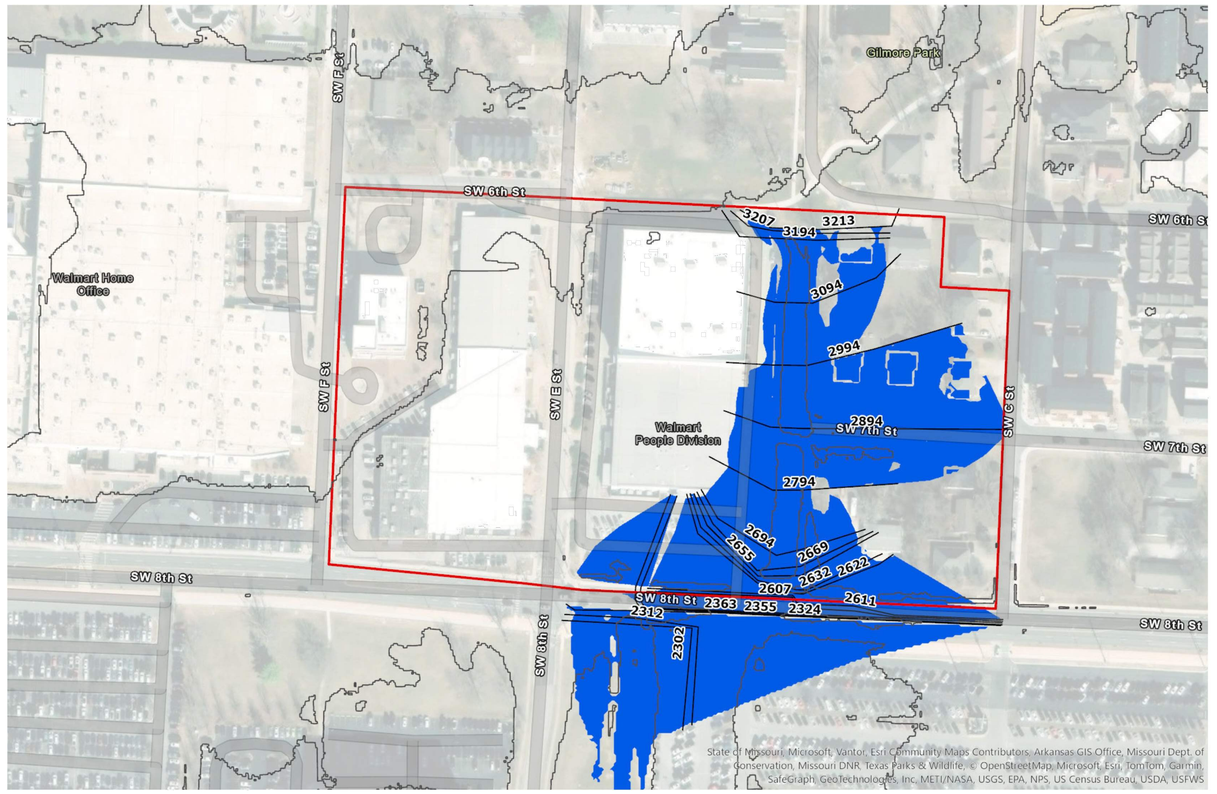

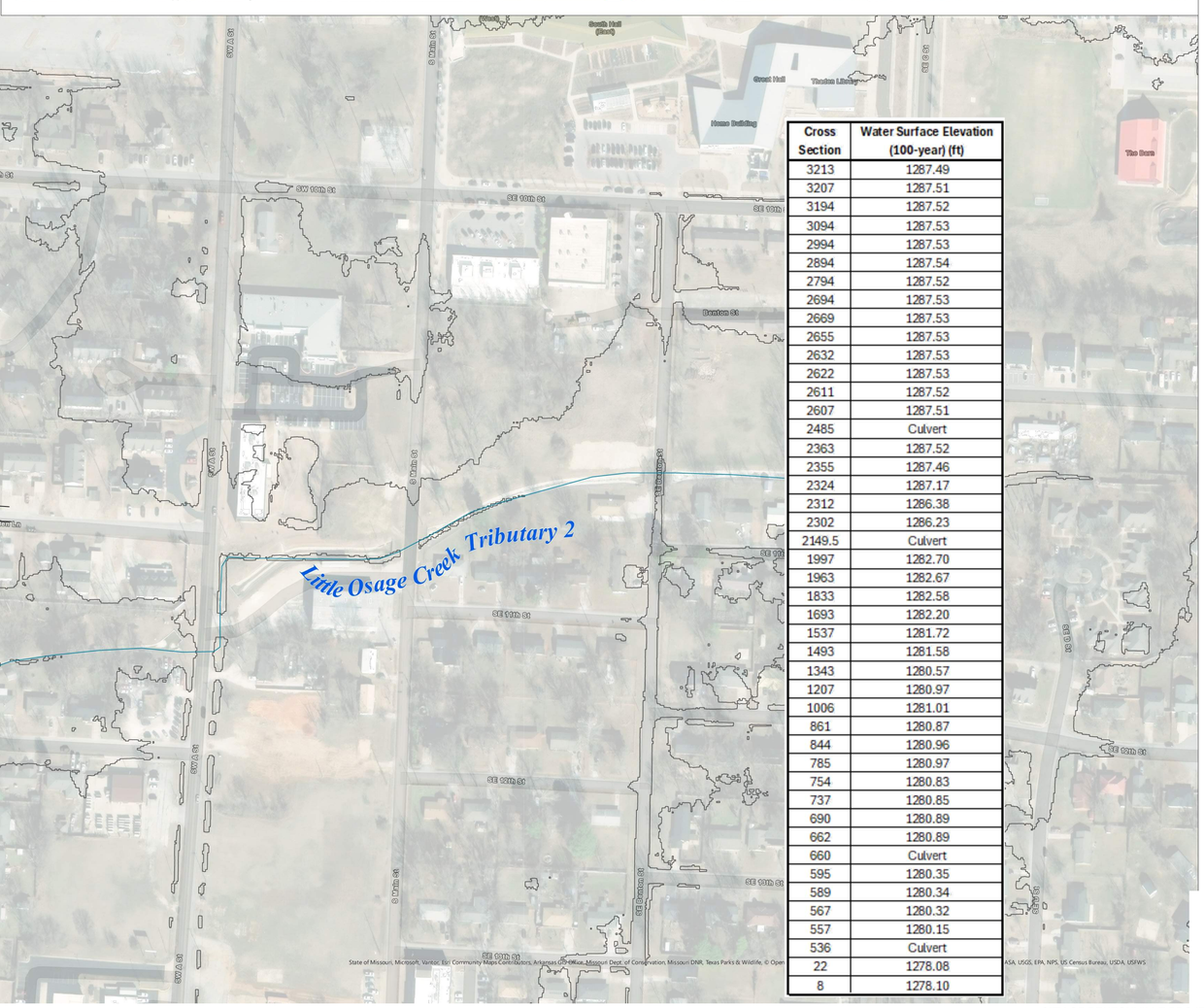

Cross Section	Water Surface Elevation (100-year) (ft)
3213	1287.49
3207	1287.51
3194	1287.52
3094	1287.53
2994	1287.53
2894	1287.54
2794	1287.52
2694	1287.53
2669	1287.53
2655	1287.53
2632	1287.53
2622	1287.53
2611	1287.52
2607	1287.51
2485	Culvert
2363	1287.52
2355	1287.46
2324	1287.17
2312	1286.38
2302	1286.23
2149.5	Culvert
1997	1282.70
1963	1282.67
1833	1282.58
1693	1282.20
1537	1281.72
1493	1281.58
1343	1280.57
1207	1280.97
1006	1281.01
861	1280.87
844	1280.96
785	1280.97
754	1280.83
737	1280.85
690	1280.89
662	1280.89
660	Culvert
595	1280.35
589	1280.34
567	1280.32
557	1280.15
536	Culvert
22	1278.08
8	1278.10

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N

40 20 0 40

SCALE: 1" = 40'

SITE DRAINAGE LEGEND:

Drainage Area Number	DA-4
Drainage Area Acres	0.24 AC.
Drainage Area Boundary	
Drainage arrow	

Q XXX.XX CFS (STEM UNIVERSITY FLOOD STUDY REPORT)

OFF DA-6A 0.03ac
OFF DA-7 0.17ac
OFF DA-6 0.14ac
OFF DA-X 0.10ac
OFF DA-60 0.52ac
OFF DA-59 0.05ac
OFF DA-58 0.03ac
OFF DA-56 3.37ac
OFF DA-55 3.99ac
OFF DA-50 0.21ac
OFF DA-51 0.07ac
OFF DA-8 0.08ac
OFF DA-33 0.07ac
OFF DA-32 0.11ac
OFF DA-19 0.06ac
DA-8 0.02ac
OFF DA-57 0.03ac
OFF DA-31 0.07ac
OFF DA-21 0.07ac
OFF DA-30 0.14ac
OFF DA-23 0.02ac
OFF DA-29 0.02ac
OFF DA-24 0.05ac
OFF DA-54 0.33ac
OFF DA-28 0.35ac
OFF DA-48 0.04ac
OFF DA-53 0.09ac
OFF DA-49 0.07ac
OFF DA-52 0.02ac
OFF DA-27 0.28ac
OFF DA-34 0.06ac
OFF DA-25 0.1ac
OFF DA-35 0.09ac
OFF DA-X 0.52ac
OFF DA-5 0.20ac
OFF DA-18 0.07ac
DA-6 0.05ac
DA-7 0.01ac
OFF DA-20 0.05ac
OFF DA-22 0.14ac
DA-28 0.24ac
DA-29 0.03ac
DA-47 0.03ac
DA-54 0.33ac
DA-46 0.03ac
OFF DA-26 0.12ac
OFF DA-43B 0.17ac
DA-55 0.07ac
OFF DA-36 0.02ac
OFF DA-42 0.03ac
OFF DA-43 0.04ac
OFF DA-37 0.03ac
OFF DA-44 0.08ac
OFF DA-38 0.05ac
DA-5 0.18ac
DA-9 0.21ac
DA-26 0.09ac
DA-30 0.05ac
DA-31 0.02ac
DA-45 0.01ac
DA-44 0.06ac
DA-32 0.15ac
DA-53 0.41ac
OFF DA-9 0.12ac
DA-4 0.14ac
DA-10 0.05ac
DA-11 0.20ac
DA-52 0.37ac
OFF DA-45 0.06ac
DA-56 0.08ac
DA-3 0.21ac
OFF DA-4 0.04ac
DA-25 0.05ac
DA-40 3.09ac
DA-43 0.07ac
DA-51 0.34ac
DA-33 0.18ac
OFF DA-10 0.04ac
OFF DA-X 0.09ac
OFF DA-3 0.04ac
DA-20 2.79ac
DA-12 0.01ac
DA-24 0.01ac
DA-57 0.19ac
OFF DA-39 0.14ac
OFF DA-47D 0.09ac
OFF DA-11 0.12ac
OFF DA-2 0.09ac
DA-13 0.06ac
DA-23 0.08ac
DA-50 0.41ac
OFF DA-46 0.16ac
DA-14 0.05ac
DA-42 0.09ac
OFF DA-47B 0.05ac
OFF DA-12 0.13ac
DA-15 0.02ac
DA-34 0.13ac
DA-49 0.77ac
OFF DA-1 0.13ac
DA-2 0.04ac
DA-16 0.07ac
DA-22 0.18ac
OFF DA-47A 0.11ac
OFF DA-47C 0.59ac
OFF DA-40 0.06ac
DA-39 0.26ac
DA OFF 13 (3.61 ac) TO INFLOW INTO AI N1
DA-1 0.38ac
DA-36 0.35ac
DA-35 0.10ac
DA-48 0.50ac
DA-41 0.06ac
DA-59 0.14ac
DA-58 0.10ac
OFF DA-41 0.01ac
DA-17 0.09ac
DA-37 0.13ac
OFF DA-15 0.22ac
DA-19 0.02ac
DA-18 0.02ac
OFF DA-16 0.16ac
DA-38 0.11ac
DA-21 0.02ac
OFF DA-17A 0.19ac
OFF DA-17C 0.18ac
OFF DA-17D 0.22ac
OFF DA-17E 0.12ac
OFF DA-17F 0.12ac
OFF DA-14 0.11ac
OFF DA-17B 0.04ac

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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

PROPOSED DRAINAGE AREA MAP

C8.020PH2

811 SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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PROPOSED DRAINAGE AREAS

LABEL	AREA (ac)	ac->ft	runoff coefficient (C)	Time of Concentration (min)	2 year catchment intensity (in/hr)	10 year catchment intensity (in/hr)	25 year catchment intensity (in/hr)	100 year catchment intensity (in/hr)	2 Year tributary runoff (cfs)	10 Year tributary runoff (cfs)	25 Year tributary runoff (cfs)	100 Year tributary runoff (cfs)
Orchard & Forest												
DA 1	0.38	16552.8	0.9	5	4.03	5.56	6.53	8.05	1.38	1.90	2.23	2.75
DA 2	0.04	1742.4	0.9	5	4.03	5.56	6.53	8.05	0.15	0.20	0.24	0.29
DA 3	0.21	9147.6	0.9	5	4.03	5.56	6.53	8.05	0.76	1.05	1.23	1.52
DA 4	0.14	6098.4	0.9	5	4.03	5.56	6.53	8.05	0.51	0.70	0.82	1.01
DA 5	0.18	7840.8	0.9	5	4.03	5.56	6.53	8.05	0.65	0.90	1.06	1.30
DA 6	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
DA 7	0.01	435.6	0.9	5	4.03	5.56	6.53	8.05	0.04	0.05	0.06	0.07
DA 8	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
DA 9	0.21	9147.6	0.9	5	4.03	5.56	6.53	8.05	0.76	1.05	1.23	1.52
DA 10	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
DA 11	0.2	8712	0.9	5	4.03	5.56	6.53	8.05	0.73	1.00	1.18	1.45
DA 12	0.01	435.6	0.9	5	4.03	5.56	6.53	8.05	0.04	0.05	0.06	0.07
DA 13	0.06	2613.6	0.9	5	4.03	5.56	6.53	8.05	0.22	0.30	0.35	0.43
DA 14	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
DA 15	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
DA 16	0.07	3049.2	0.9	5	4.03	5.56	6.53	8.05	0.25	0.35	0.41	0.51
DA 17	0.09	3920.4	0.9	5	4.03	5.56	6.53	8.05	0.33	0.45	0.53	0.65
DA 19	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
DA 20	2.79	121532.4	0.9	15	4.03	5.56	6.53	8.05	10.12	13.96	16.40	20.21
Urban Sq. & Plaza												
DA 21	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
DA 22	0.18	7840.8	0.9	5	4.03	5.56	6.53	8.05	0.65	0.90	1.06	1.30
DA 23	0.08	3484.8	0.9	5	4.03	5.56	6.53	8.05	0.29	0.40	0.47	0.58
DA 24	0.01	435.6	0.9	5	4.03	5.56	6.53	8.05	0.04	0.05	0.06	0.07
DA 25	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
DA 26	0.09	3920.4	0.9	5	4.03	5.56	6.53	8.05	0.33	0.45	0.53	0.65
DA 27	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
DA 28	0.24	10454.4	0.9	5	4.03	5.56	6.53	8.05	0.87	1.20	1.41	1.74
DA 29	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
DA 30	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
DA 31	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
DA 32	0.15	6534	0.9	5	4.03	5.56	6.53	8.05	0.54	0.75	0.88	1.09
DA 33	0.18	7840.8	0.9	5	4.03	5.56	6.53	8.05	0.65	0.90	1.06	1.30
DA 34	0.13	5662.8	0.9	5	4.03	5.56	6.53	8.05	0.47	0.65	0.76	0.94
DA 35	0.1	4356	0.9	5	4.03	5.56	6.53	8.05	0.36	0.50	0.59	0.72
DA 36	0.35	15246	0.9	5	4.03	5.56	6.53	8.05	1.27	1.75	2.06	2.54
DA 37	0.13	5662.8	0.9	5	4.03	5.56	6.53	8.05	0.47	0.65	0.76	0.94
DA 38	0.11	4791.6	0.9	5	4.03	5.56	6.53	8.05	0.40	0.55	0.65	0.80
DA 39	0.26	11325.6	0.9	5	4.03	5.56	6.53	8.05	0.94	1.30	1.53	1.88
DA 40	3.09	134600.4	0.9	15	4.03	5.56	6.53	8.05	11.21	15.46	18.16	22.39
Commercial Bldg.												
DA 41	0.06	2613.6	0.9	5	4.03	5.56	6.53	8.05	0.22	0.30	0.35	0.43
DA 42	0.09	3920.4	0.9	5	4.03	5.56	6.53	8.05	0.33	0.45	0.53	0.65
DA 43	0.07	3049.2	0.9	5	4.03	5.56	6.53	8.05	0.25	0.35	0.41	0.51
DA 44	0.06	2613.6	0.9	5	4.03	5.56	6.53	8.05	0.22	0.30	0.35	0.43
DA 45	0.01	435.6	0.9	5	4.03	5.56	6.53	8.05	0.04	0.05	0.06	0.07
DA 46	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
DA 47	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
DA 48	0.5	21780	0.9	5	4.03	5.56	6.53	8.05	1.81	2.50	2.94	3.62
DA 49	0.77	33541.2	0.9	5	4.03	5.56	6.53	8.05	2.79	3.85	4.53	5.58
DA 50	0.41	17859.6	0.9	5	4.03	5.56	6.53	8.05	1.49	2.05	2.41	2.97
DA 51	0.34	14810.4	0.9	5	4.03	5.56	6.53	8.05	1.23	1.70	2.00	2.46
DA 52	0.37	16117.2	0.9	5	4.03	5.56	6.53	8.05	1.34	1.85	2.17	2.68
DA 53	0.41	17859.6	0.9	5	4.03	5.56	6.53	8.05	1.49	2.05	2.41	2.97
DA 54	0.33	14374.8	0.9	5	4.03	5.56	6.53	8.05	1.20	1.65	1.94	2.39
DA 55	0.07	3049.2	0.9	5	4.03	5.56	6.53	8.05	0.25	0.35	0.41	0.51
DA 56	0.08	3484.8	0.9	5	4.03	5.56	6.53	8.05	0.29	0.40	0.47	0.58
DA 57	0.19	8276.4	0.9	5	4.03	5.56	6.53	8.05	0.69	0.95	1.12	1.38
DA 58	0.1	4356	0.9	5	4.03	5.56	6.53	8.05	0.36	0.50	0.59	0.72
DA 59	0.14	6098.4	0.9	5	4.03	5.56	6.53	8.05	0.51	0.70	0.82	1.01
TOTAL	**13.95**	**607662**							**50.60**	**69.81**	**81.98**	**101.07**

LABEL	AREA (ac)	ac->ft	runoff coefficient (C)	Time of Concentration (min)	2 year catchment intensity (in/hr)	10 year catchment intensity (in/hr)	25 year catchment intensity (in/hr)	100 year catchment intensity (in/hr)	2 Year tributary runoff (cfs)	10 Year tributary runoff (cfs)	25 Year tributary runoff (cfs)	100 Year tributary runoff (cfs)
OFFSITE DAs												
F Street												
OFF DA-1	0.13	5662.8	0.9	5	4.03	5.56	6.53	8.05	0.47	0.65	0.76	0.94
OFF DA-2	0.09	3920.4	0.9	5	4.03	5.56	6.53	8.05	0.33	0.45	0.53	0.65
OFF DA-3	0.04	1742.4	0.9	5	4.03	5.56	6.53	8.05	0.15	0.20	0.24	0.29
OFF DA-4	0.04	1742.4	0.9	5	4.03	5.56	6.53	8.05	0.15	0.20	0.24	0.29
OFF DA-5	0.2	8712	0.9	5	4.03	5.56	6.53	8.05	0.73	1.00	1.18	1.45
OFF DA-6	0.14	6098.4	0.9	5	4.03	5.56	6.53	8.05	0.51	0.70	0.82	1.01
OFF DA-6A	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
OFF DA-7	0.17	7405.2	0.9	5	4.03	5.56	6.53	8.05	0.62	0.85	1.00	1.23
OFF DA-8	0.08	3484.8	0.9	5	4.03	5.56	6.53	8.05	0.29	0.40	0.47	0.58
OFF DA-9	0.12	5227.2	0.9	5	4.03	5.56	6.53	8.05	0.44	0.60	0.71	0.87
OFF DA-10	0.04	1742.4	0.9	5	4.03	5.56	6.53	8.05	0.15	0.20	0.24	0.29
OFF DA-11	0.12	5227.2	0.9	5	4.03	5.56	6.53	8.05	0.44	0.60	0.71	0.87
OFF DA-12	0.13	5662.8	0.9	5	4.03	5.56	6.53	8.05	0.47	0.65	0.76	0.94
8th Street												
OFF DA-14	0.11	4791.6	0.9	5	4.03	5.56	6.53	8.05	0.40	0.55	0.65	0.80
OFF DA-15	0.22	9583.2	0.9	5	4.03	5.56	6.53	8.05	0.80	1.10	1.29	1.59
OFF DA-16	0.16	6969.6	0.9	5	4.03	5.56	6.53	8.05	0.58	0.80	0.94	1.16
OFF DA-17A	0.19	8276.4	0.9	5	4.03	5.56	6.53	8.05	0.69	0.95	1.12	1.38
OFF DA-17B	0.04	1742.4	0.9	5	4.03	5.56	6.53	8.05	0.15	0.20	0.24	0.29
OFF DA-17C	0.18	7840.8	0.9	5	4.03	5.56	6.53	8.05	0.65	0.90	1.06	1.30
OFF DA-17D	0.22	9583.2	0.9	5	4.03	5.56	6.53	8.05	0.80	1.10	1.29	1.59
OFF DA-17E	0.12	5227.2	0.9	5	4.03	5.56	6.53	8.05	0.44	0.60	0.71	0.87
OFF DA-17F	0.12	5227.2	0.9	5	4.03	5.56	6.53	8.05	0.44	0.60	0.71	0.87
6th Street												
OFF DA-18	0.07	3049.2	0.9	5	4.03	5.56	6.53	8.05	0.25	0.35	0.41	0.51
OFF DA-19	0.06	2613.6	0.9	5	4.03	5.56	6.53	8.05	0.22	0.30	0.35	0.43
OFF DA-20	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
OFF DA-21	0.07	3049.2	0.9	5	4.03	5.56	6.53	8.05	0.25	0.35	0.41	0.51
OFF DA-22	0.14	6098.4	0.9	5	4.03	5.56	6.53	8.05	0.51	0.70	0.82	1.01
OFF DA-23	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
OFF DA-24	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
OFF DA-25	0.1	4356	0.9	5	4.03	5.56	6.53	8.05	0.36	0.50	0.59	0.72
OFF DA-26	0.12	5227.2	0.9	5	4.03	5.56	6.53	8.05	0.44	0.60	0.71	0.87
OFF DA-27	0.08	3484.8	0.9	5	4.03	5.56	6.53	8.05	0.29	0.40	0.47	0.58
OFF DA-28	0.22	9583.2	0.9	5	4.03	5.56	6.53	8.05	0.80	1.10	1.29	1.59
OFF DA-29	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
OFF DA-30	0.14	6098.4	0.9	5	4.03	5.56	6.53	8.05	0.51	0.70	0.82	1.01
OFF DA-31	0.07	3049.2	0.9	5	4.03	5.56	6.53	8.05	0.25	0.35	0.41	0.51
OFF DA-32	0.11	4791.6	0.9	5	4.03	5.56	6.53	8.05	0.40	0.55	0.65	0.80
OFF DA-33	0.07	3049.2	0.9	5	4.03	5.56	6.53	8.05	0.25	0.35	0.41	0.51
OFF DA-35	0.09	3920.4	0.9	5	4.03	5.56	6.53	8.05	0.33	0.45	0.53	0.65
OFF DA-36	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
C Street												
OFF DA-34	0.06	2613.6	0.9	5	4.03	5.56	6.53	8.05	0.22	0.30	0.35	0.43
OFF DA-37	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
OFF DA-38	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
OFF DA-39	0.14	6098.4	0.9	5	4.03	5.56	6.53	8.05	0.51	0.70	0.82	1.01
OFF DA-40	0.06	2613.6	0.9	5	4.03	5.56	6.53	8.05	0.22	0.30	0.35	0.43
OFF DA-41	0.01	435.6	0.9	5	4.03	5.56	6.53	8.05	0.04	0.05	0.06	0.07
OFF DA-42	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
OFF DA-43	0.21	9147.6	0.9	5	4.03	5.56	6.53	8.05	0.76	1.05	1.23	1.52
OFF DA-44	0.08	3484.8	0.9	5	4.03	5.56	6.53	8.05	0.29	0.40	0.47	0.58
OFF DA-45	0.06	2613.6	0.9	5	4.03	5.56	6.53	8.05	0.22	0.30	0.35	0.43
OFF DA-46	0.16	6969.6	0.9	5	4.03	5.56	6.53	8.05	0.58	0.80	0.94	1.16
OFF DA-47A	0.11	4791.6	0.9	5	4.03	5.56	6.53	8.05	0.40	0.55	0.65	0.80
OFF DA-47B	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
OFF DA-47C	0.59	25700.4	0.3	5	4.03	5.56	6.53	8.05	0.71	0.98	1.16	1.42
OFF DA-48	0.04	1742.4	0.3	5	4.03	5.56	6.53	8.05	0.05	0.07	0.08	0.10
OFF DA-49	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
OFF DA-50	0.1	4356	0.9	5	4.03	5.56	6.53	8.05	0.36	0.50	0.59	0.72
OFF DA-51	0.07	3049.2	0.9	5	4.03	5.56	6.53	8.05	0.25	0.35	0.41	0.51
OFF DA-52	0.02	871.2	0.9	5	4.03	5.56	6.53	8.05	0.07	0.10	0.12	0.14
NORTH 6TH ST												
OFF DA-53	0.08	3484.8	0.3	5	4.03	5.56	6.53	8.05	0.10	0.13	0.16	0.19
OFF DA-54	0.12	5227.2	0.9	5	4.03	5.56	6.53	8.05	0.44	0.60	0.71	0.87
OFF DA-55	0.3	13068	0.6	5	4.03	5.56	6.53	8.05	0.73	1.00	1.18	1.45
OFF DA-56	3.37	146797.2	0.3	15	4.03	5.56	6.53	8.05	4.07	5.62	6.60	8.14
OFF DA-57	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
OFF DA-58	0.03	1306.8	0.9	5	4.03	5.56	6.53	8.05	0.11	0.15	0.18	0.22
OFF DA-59	0.05	2178	0.9	5	4.03	5.56	6.53	8.05	0.18	0.25	0.29	0.36
OFF DA-60	0.52	22651.2	0.3	10	4.03	5.56	6.53	8.05	0.63	0.87	1.02	1.26
TOTAL	**10.59**	**461300.4**							**26.92**	**37.15**	**43.63**	**53.78**

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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

PROPOSED DRAINAGE AREA MAP CALCULATIONS

C8.021PH2

811 SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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Start Node	Stop Node	Label	Catalog Class	Length (unified) (ft)	Diameter (in)	Size	Barrels	Capacity (design) (CFS)	Flow (CFS)	Capacity (Excess Full Flow) (CFS)	Flow / capacity (Design) (%)	Velocity (in) (ft/s)	Velocity (out) (ft/s)	Invert (start) (ft)	Invert (stop) (ft)	Elevation ground (start) (ft)	Elevation Ground (stop) (ft)	Slope (calculated) (ft/ft)	Hydraulic Grade line In (ft)	Hydraulic Grade line out (ft)	Energy Grade Line in (ft)	Energy Grade line out (ft)	depth (ft)	surcharge downstream (ft)	surcharge upstream (ft)
JB A-1	PR CI A-0	A-1	Circle - Concrete	26.9	36	36 inch	1	94.42	19.31	75.11	20.4	5.92	8.78	1,283.16	1,282.62	1,290.69	1,289.80	0.02	1,284.57	1,283.67	1,285.11	1,284.87	0.92	6.13	6.12
EX JB A-1	O-1	A-1	Box - Concrete	38.4		6 x 3 ft	1	839.01	96.19	742.81	11.5	5.56	8.58	1,278.71	1,278.00	1,287.10	1,281.00	0.018	1,279.67	1,278.62	1,280.15	1,279.77	0.56	2.38	7.43
EX CI A-2	EX JB A-1	A-2	Box - Concrete	64		6 x 3 ft	1	344.91	63.96	280.96	18.5	4.39	3.7	1,278.91	1,278.71	1,287.20	1,287.10	0.003	1,279.72	1,279.67	1,280.02	1,279.88	0.77	7.43	7.48
CI A-2	JB A-1	A-2	Circle - Concrete	45.1	36	36 inch	1	94.77	19.31	75.46	20.4	5.92	9.4	1,284.27	1,283.36	1,289.59	1,290.69	0.02	1,285.68	1,284.36	1,286.22	1,285.73	0.92	6.33	3.91
AI A-3	AI A-2	A-2	Box - Concrete	47		6 x 3 ft	1	79.4	62.2	17.2	78.3	5.89	6.94	1,279.42	1,279.35	1,286.65	1,286.15	0.001	1,281.18	1,280.84	1,281.72	1,281.59	2.06	5.31	5.47
CI A-3	CI A-2	A-3	Circle - Concrete	147.1	30	30 inch	1	29.67	5.35	24.32	18	4.21	2.06	1,285.14	1,284.37	1,291.74	1,289.59	0.005	1,285.90	1,285.68	1,286.18	1,285.74	0.72	3.91	5.84
JB N-1	AI A-3	A-3	Box - Concrete	20.1		6 x 3 ft	1	158.99	62.05	96.93	39	2.98	2.94	1,279.45	1,279.42	1,285.00	1,286.65	0.001	1,281.19	1,281.18	1,281.33	1,281.31	1.27	5.47	3.81
AI A-2	EX CI A-2	A-3	Box - Concrete	204.5		6 x 3 ft	1	190.87	62.9	127.97	33	4.65	5.52	1,279.35	1,278.91	1,286.15	1,287.20	0.002	1,280.48	1,279.86	1,280.81	1,280.33	1.13	7.34	5.67
CI A-4	CI A-3	A-4	Circle - Concrete	109.8	30	30 inch	1	29.02	4.87	24.15	16.8	4.1	4.39	1,285.79	1,285.24	1,292.92	1,291.74	0.005	1,286.52	1,285.93	1,286.78	1,286.23	0.69	5.81	6.40
CI A-5	CI A-4	A-5	Circle - Concrete	95.8	30	30 inch	1	29.34	4.73	24.61	16.1	4.07	4.39	1,286.38	1,285.89	1,292.90	1,292.92	0.005	1,287.10	1,286.57	1,287.35	1,286.87	0.68	6.35	5.80
CI A-6	CI A-5	A-6	Circle - Concrete	112.6	30	30 inch	1	26.78	3.81	22.96	14.2	3.83	3.87	1,286.96	1,286.48	1,292.23	1,292.90	0.004	1,287.60	1,287.12	1,287.83	1,287.35	0.64	5.78	4.63
JB A-7	CI A-6	A-7	Circle - Concrete	85.7	21	21 inch	1	18.52	1.91	16.6	10.3	3.39	3.02	1,288.23	1,287.06	1,293.20	1,292.23	0.014	1,288.73	1,287.60	1,288.91	1,287.74	0.38	4.63	4.47
CI A-8	JB A-7	A-8	Circle - Concrete	151.6	21	21 inch	1	11.07	0.58	10.48	5.3	2.44	2.46	1,289.21	1,288.47	1,294.28	1,293.20	0.005	1,289.48	1,288.74	1,289.58	1,288.84	0.27	4.46	4.80
EX JB A-9	CI A-8	A-9	Circle - Concrete	31.9	21	21 inch	1	12.24	0.07	12.16	0.6	1.39	1.44	1,289.59	1,289.40	1,295.67	1,294.28	0.006	1,289.69	1,289.50	1,289.72	1,289.53	0.1	4.78	5.98
CI A-10	EX JB A-9	A-10	Circle - Concrete	122.3	21	21 inch	1	15.63	0.07	15.56	0.5	1.44	1.66	1,290.88	1,289.69	1,296.50	1,295.67	0.01	1,290.98	1,289.78	1,291.01	1,289.82	0.09	5.89	5.52
CI AA-1	MH-29	AA-1	Circle - Concrete	14.8	18	18 inch	1	6.68	1.57	5.11	23.5	3.09	3.31	1,281.86	1,281.80	1,288.40	1,291.50	0.004	1,282.35	1,282.27	1,282.50	1,282.44	0.5	9.23	6.05
EX CI B-1	EX CI F-4	B-1	Box - Concrete	88.9		6 x 3 ft	1	109.1	2.11	106.99	1.9	1.86	0.93	1,281.61	1,281.36	1,287.57	1,287.10	0.003	1,281.80	1,281.74	1,281.85	1,281.75	0.19	5.36	5.77
CI B-1	CI A-2	B-1	Circle - Concrete	40.2	36	36 inch	1	48.23	12.09	36.14	25.1	5.12	3.78	1,284.50	1,284.29	1,289.58	1,289.59	0.005	1,285.60	1,285.68	1,286.01	1,285.90	1.02	3.91	3.98
CI B-2	CI B-1	B-2	Circle - Concrete	145.2	30	30 inch	1	28.88	1.94	26.94	6.7	3.18	1.61	1,285.59	1,284.87	1,292.12	1,289.58	0.005	1,286.04	1,285.60	1,286.20	1,285.64	0.44	3.98	6.08
CI B-3	CI B-2	B-3	Circle - Concrete	205.6	30	30 inch	1	29.03	1.5	27.53	5.2	2.98	3.11	1,286.72	1,285.69	1,293.30	1,292.12	0.005	1,287.12	1,286.08	1,287.26	1,286.23	0.39	6.04	6.18
CI B-4	CI B-3	B-4	Circle - Concrete	113.2	30	30 inch	1	26.7	1.35	25.35	5.1	2.85	2.9	1,287.30	1,286.82	1,292.62	1,293.30	0.004	1,287.68	1,287.20	1,287.81	1,287.33	0.38	6.10	4.94
CI B-5	CI B-4	B-5	Circle - Concrete	69.5	24	24 inch	1	16.28	0.91	15.37	5.6	2.71	2.8	1,288.16	1,287.80	1,293.28	1,292.62	0.005	1,288.49	1,288.12	1,288.60	1,288.24	0.32	4.50	4.79
CI B-7	CI B-5	B-6	Circle - Concrete	165.9	24	24 inch	1	22.49	0.62	21.87	2.8	2.45	3.12	1,289.90	1,288.26	1,293.78	1,293.28	0.01	1,290.17	1,288.49	1,290.26	1,288.64	0.23	4.79	3.61
EX JB B-8	CI B-7	B-8	Ellipse - Concrete	96.1		23x14 inch	1	6.86	0	6.86	0	0	0	1,290.43	1,290.00	1,295.61	1,293.78	0.004	1,290.43	1,290.17	1,290.43	1,290.17	-0.14	3.61	5.18
CI BB-1	MH-41	BB-1	Circle - Concrete	16	24	24 inch	1	14.97	3.55	11.42	23.7	1.39	1.33	1,279.82	1,279.75	1,289.40	1,289.15	0.004	1,281.33	1,281.33	1,281.36	1,281.36	0.66	7.82	8.07
CI BB-2	CI BB-1	BB-2	Circle - Concrete	41	24	24 inch	1	22.36	2.23	20.12	10	1.25	0.88	1,280.22	1,279.82	1,288.72	1,289.40	0.01	1,281.32	1,281.33	1,281.35	1,281.34	0.43	8.07	7.40
CI BB-3	CI BB-2	BB-3	Ellipse - Concrete	94.7		14x23 inch	1	7.15	2.05	5.1	28.6	2.57	1.28	1,280.78	1,280.32	1,288.50	1,288.72	0.005	1,281.33	1,281.32	1,281.43	1,281.35	0.44	7.40	7.17
CI BB-4	CI BB-3	BB-4	Ellipse - Concrete	149.7		14x23 inch	1	7.41	0.88	6.53	11.8	2.59	1.44	1,281.66	1,280.88	1,288.96	1,288.50	0.005	1,281.95	1,281.33	1,282.06	1,281.36	0.29	7.17	7.01
CI BB-5	CI BB-4	BB-5	Ellipse - Concrete	31.8		14x23 inch	1	7.28	0.44	6.84	6	2.14	2.15	1,281.92	1,281.76	1,288.96	1,288.96	0.005	1,282.13	1,281.97	1,282.20	1,282.04	0.21	6.99	6.83
AI BB-6	CI BB-5	BB-6	Circle - Concrete	20.1	18	18 inch	1	10.74	0.15	10.6	1.4	1.75	2.14	1,285.50	1,285.29	1,288.73	1,288.96	0.01	1,285.64	1,285.41	1,285.69	1,285.48	0.12	3.55	3.09
JB C-1	CI B-1	C-1	Circle - Concrete	14.1	24	24 inch	1	20.02	9.68	10.34	48.4	5.39	6.06	1,284.71	1,284.60	1,290.10	1,289.58	0.008	1,285.82	1,285.61	1,286.27	1,286.18	0.98	3.97	4.28
AI C-2	JB C-1	C-2	Circle - Concrete	29.8	24	24 inch	1	17.07	9.68	7.39	56.7	5.39	5.61	1,284.98	1,284.81	1,289.70	1,290.10	0.006	1,286.09	1,285.89	1,286.54	1,286.38	1.08	4.21	3.61
CI CC-1	CI BB-3	CC-1	Circle - Concrete	33	18	18 inch	1	7.09	0.8	6.28	11.3	2.66	2.59	1,281.13	1,280.98	1,288.72	1,288.50	0.005	1,281.47	1,281.33	1,281.58	1,281.43	0.34	7.17	7.25
CI D-1	JB A-7	D-1	Circle - Concrete	50.2	18	18 inch	1	7.11	1.33	5.78	18.7	3.08	3.16	1,288.70	1,288.47	1,293.13	1,293.20	0.005	1,289.14	1,288.90	1,289.29	1,289.06	0.44	4.30	3.99
CI D-2	CI D-1	D-2	Circle - Concrete	38.6	18	18 inch	1	7.56	0.89	6.67	11.8	2.82	2.87	1,289.10	1,288.90	1,293.13	1,293.13	0.005	1,289.45	1,289.25	1,289.58	1,289.38	0.35	3.88	3.68
AI D-3	CI D-2	D-3	Circle - Concrete	15.2	18	18 inch	1	6.03	0.63	5.39	10.5	2.23	2.58	1,289.25	1,289.20	1,293.24	1,293.13	0.003	1,289.58	1,289.50	1,289.65	1,289.60	0.33	3.63	3.66
CI DD-3	JB DD-2	DD-2	Ellipse - Concrete	74.8		30x19 inch	1	19.91	5.74	14.17	28.8	4.9	5.5	1,282.84	1,282.25	1,286.83	1,287.20	0.008	1,283.84	1,283.17	1,284.21	1,283.64	0.92	4.03	2.99
CI DD-4	CI DD-3	DD-3	Ellipse - Concrete	102.8		30x19 inch	1	16.55	4.97	11.58	30	4.62	4.24	1,283.40	1,282.84	1,286.98	1,286.83	0.005	1,284.34	1,283.84	1,284.67	1,284.12	0.94	2.99	2.64
CI DD-5	CI DD-4	DD-4	Ellipse - Concrete	153.7		30x19 inch	1	15.98	3.69	12.28	23.1	4.18	3.43	1,284.18	1,283.40	1,288.33	1,286.98	0.005	1,284.99	1,284.34	1,285.26	1,284.52	0.81	2.64	3.34
CI DD-6	CI DD-5	DD-5	Ellipse - Concrete	90.8		30x19 inch	1	14.69	3.18	11.51	21.6	3.79	4.12	1,284.67	1,284.28	1,288.55	1,288.33	0.004	1,285.45	1,285.02	1,285.68	1,285.28	0.78	3.31	3.10
CI DD-7	CI DD-6	DD-6	Ellipse - Concrete	83.7		30x19 inch	1	16.26	2.45	13.81	15.1	3.83	3.68	1,285.23	1,284.79	1,289.00	1,288.55	0.005	1,285.87	1,285.45	1,286.10	1,285.66	0.64	3.10	3.13
AI DD-8	CI DD-7	DD-7	Ellipse - Concrete	76.1		30x19 inch	1	15.21	1.57	13.64	10.3	3.25	2.69	1,285.62	1,285.27	1,289.20	1,289.00	0.005	1,286.15	1,285.87	1,286.31	1,285.99	0.53	3.13	3.05
JB DD-9	AI DD-8	DD-8	Ellipse - Concrete	55		23x14 inch	1	7.94	1.17	6.77	14.7	3.31	3.34	1,286.05	1,285.72	1,289.58	1,289.20	0.006	1,286.53	1,286.20	1,286.70	1,286.37	0.48	3.00	3.05
AI EE-1	AI EE-0	EE-0	Ellipse - Concrete	8.1		45x29 inch	1	69.61	1.67	67.94	2.4	3.23	4.15	1,282.09	1,282.00	1,287.21	1,289.00	0.011	1,282.56	1,282.40	1,282.73	1,282.67	0.38	6.60	4.65
CI EE-2	AI EE-1	EE-1	Ellipse - Concrete	39.2		45x29 inch	1	48.23	0.95	47.28	2	2.8	1.84	1,282.30	1,282.09	1,287.26	1,287.21	0.005	1,282.66	1,282.56	1,282.78	1,282.62	0.34	4.65	4.60
AI EE1	CI DD10	EE-1	Ellipse - Concrete	48.7		14x23 inch	1	6.57	0.62	5.95	9.5	2.22	2.31	1,286.69	1,286.49	1,288.66	1,289.58	0.004	1,286.95	1,286.74	1,287.02	1,286.82	0.26	2.84	1.71
CI EE-3	CI EE-2	EE-2	Ellipse - Concrete	45.8		38x24 inch	1	25.35	0.91	24.44	3.6	2.65	2.84	1,282.48	1,282.30	1,287.04	1,287.26	0.004	1,282.86	1,282.67	1,282.97	1,282.79	0.38	4.59	4.18
AI EE2	AI EE1	EE-2	Ellipse - Concrete	29		14x23 inch	1	7.38	0.26	7.12	3.5	1.86	0.91	1,286.84	1,286.69	1,288.75	1,288.66	0.005	1,287.00	1,286.95	1,287.05	1,286.96	0.16	1.71	1.75
CI EE-4	CI EE-3	EE-3	Ellipse - Concrete	98.8		38x24 inch	1	30.44	0.69	29.75	2.3	2.64	2.01	1,283.04	1,282.48	1,287.00	1,287.04	0.006	1,283.36	1,282.86	1,283.47	1,282.93	0.31	4.18	3.64
JB EE-5	CI EE-4	EE-4	Ellipse - Concrete	70.8		38x24 inch	1	28.01	0.18	27.83	0.7	1.88	0.7	1,283.38	1,283.04	1,287.50	1,287.00	0.005	1,283.54	1,283.36	1,283.60	1,283.37	0.17	3.64	3.96
JB DD-2	EX CI F-4	EX DD-1	Circle - Concrete	93.1	24	24 inch	1	22.12	5.74	16.38	25.9	4.54	5.91	1,282.25	1,281.36	1,287.20	1,287.10	0.01	1,283.10	1,282.06	1,283.42	1,282.60	0.7	5.04	4.10
AI EE-0	EX CI B-1	EX EE-1	Ellipse - Concrete	92.7		45x29 inch	1	42.76	1.67	41.09	3.9	3.24	3.24	1,282.00	1,281.61	1,289.00	1,287.57	0.004	1,282.47	1,282.08	1,282.64	1,282.25	0.48	5.49	6.53
MH-45	EX CI B-1	EX MM1	Box - Concrete	117.9		6 x 3 ft	1	116.8	0.44	116.36	0.4	1.07	0.39	1,281.99	1,281.61	1,288.20	1,287.57	0.003	1,282.06	1,281.80	1,282.08	1,281.80	0.07	5.77	6.14
CI MM-1	MH-45	EX MM2	Circle - Concrete	88.9	18	18 inch	1	9.78	0.44	9.34	4.5	2.34	2.79	1,284.26	1,283.49	1,288.50	1,288.20	0.009	1,284.50	1,283.71	1,284.59	1,283.83	0.22	4.49	4.00
EX CI F-1	EX JB A-1	F-1	Box - Concrete	268.4		6 x 3 ft	1	96.47	9.16	87.3	9.5	2.92	1.59	1,279.30	1,278.71	1,285.84	1,287.10	0.002	1,279.82	1,279.67	1,279.96	1,279.71	0.5	7.43	6.02
EX CI F-2	EX CI F-1	F-2	Box - Concrete	217.5		6 x 3 ft	1	180.29	9.16	171.12	5.1	3.66	2.92	1,280.97	1,279.30	1,286.62	1,285.84	0.008	1,281.39	1,279.82	1,281.60	1,279.96	0.34	6.02	5.23
EX CI F-3	EX CI F-2	F-3	Circle - Concrete	85.7	18	18 inch	1	12.84	1.32	11.52	10.3	3.15	4.68	1,282.25	1,280.97	1,286.97	1,286.62	0.015	1,282.68	1,281.29	1,282.83	1,281.63	0.32	5.33	4.29
EX CI F-4	EX CI F-2	F-4	Box - Concrete	84.1		6 x 3 ft	1	140.14	7.85	132.29	5.6	3.48	3.14	1,281.36	1,280.97	1,287.10	1,286.62	0.005	1,281.74	1,281.39	1,281.92	1,281.54	0.36	5.23	5.36
CI FF-1	CI DD-6	FF-1	Circle - Concrete	30.9	18	18 inch	1	7.55	0.18	7.37	2.4	0.45	0.29	1,285.03	1,284.87	1,288.88	1,288.55	0.005	1,285.45	1,285.45	1,285.46	1,285.45	0.16	3.10	3.43
JB FF-1	JB DD-9	FF-1	Ellipse - Concrete	60.2		14x23 inch	1	5.12	0.33	4.79	6.4	0.8	0.49	1,286.20	1,286.05	1,289.38	1,289.58	0.002	1,286.54	1,286.53	1,286.55	1,286.53	0.21	3.05	2.84
AI FF-2	JB FF-1	FF-2	Ellipse - Concrete	20.7		14x23 inch	1	14.8	0.33	14.47	2.2	1.99	0.8	1,286.63	1,286.20	1,290.00	1,289.38	0.021	1,286.81	1,286.54	1,286.87	1,286.55	0.13	2.84	3.19
EX CI G-1	EX JB A-1	G-1	Pipe-Arch - Concrete	183.5		51.12 x 31.	1	93.61	23.07	70.54	24.6	5.63	8.57	1,280.98	1,278.71	1,287.96	1,287.10	0.012	1,282.09	1,279.49	1,282.58	1,280.63	0.78	7.61	5.87
CI G-1	EX CI G-2	G-1	Circle - Concrete	70.8	36	36 inch	1	38.01	2.52	35.49	6.6	3.05	2.45	1,282.40	1,282.17	1,288.67	1,288.26	0.003	1,282.92	1,282.78	1,283.07	1,282.87	0.52	5.48	5.75
EX CI G-2	EX CI G-1	G-2	Pipe-Arch - Concrete	74.2		51.12 x 31.	1	81.15	23.07	58.08	28.4	5.63	7.6	1,281.67	1,280.98	1,288.26	1,287.96	0.009	1,282.78	1,281.84	1,283.27	1,282.73	0.84	6.12	5.48
CI G-2	CI G-1	G-2	Circle - Concrete	52.5	30	30 inch	1	18.77	2.12	16.65	11.3	2.58	3.26	1,282.76	1,282.65	1,287.74	1,288.67	0.002	1,283.32	1,283.13	1,283.42	1,283.29	0.57	5.54	4.42
CI G2A	CI G-2	G-2A	Circle - Concrete	30.5	24	24 inch	1	17.86	1.61	16.25	9	3.15	3.53	1,283.15	1,282.96	1,288.31	1,287.74	0.006	1,283.59	1,283.37	1,283.74	1,283.56	0.41	4.37	4.72
PR CI A-0	EX CI G-2	G-3	Pipe-Arch - Concrete	252.3		51.12 x 31.	1	45.89	19.67	26.22	42.9	5	4.8	1,282.42	1,281.67	1,289.80	1,288.26	0.003	1,283.49	1,282.78	1,283.88	1,283.14	1.07	5.48	6.31
CI G-3	CI G-2	G-3	Circle - Concrete	59.1	30	30 inch	1	29.23	0.26	28.98	0.9	1.75	0.41	1,283.16	1,282.86	1,288.69	1,287.74	0.005	1,283.33	1,283.32	1,283.38	1,283.32	0.17	4.42	5.36
CI G-4	CI G-3	G-4	Circle - Concrete	26.2	24	24 inch	1	15.94	0.18	15.76	1.1	1.7	1.78	1,283.40	1,283.27	1,289.89	1,288.69	0.005	1,283.55	1,283.42	1,283.60	1,283.47	0.15	5.27	6.34
CI K-7	CI K-6	G-8	Circle - Concrete	42.2	18	18 inch	1	5.36	1.24	4.12	23.2	2.49	3.1	1,286.64	1,286.53	1,293.27	1,291.60	0.003	1,287.13	1,286.95	1,287.22	1,287.10	0.49	4.65	6.14
CI E-1	CI K-7	G-9	Circle - Concrete	29.6	18	18 inch	1	11.09	0.4	10.69	3.6	2.28	1.7	1,287.17	1,286.84	1,293.28	1,293.27	0.011	1,287.40	1,287.13	1,287.49	1,287.17	0.2	6.14	5.88
CI GG-1	CI DD-7	GG-1	Circle - Concrete	28.8	18	18 inch	1	10.55	0.11	10.44	1	1.28	0.25	1,285.72	1,285.43	1,288.84	1,289.00	0.01	1,285.86	1,285.87	1,285.89	1,285.87	0.11	3.13	2.98
CI K-8	CI K-7	H-1	Circle - Concrete	81.5	18	18 inch	1	7.27	0.26	7.01	3.5	1.93	1.08	1,287.23	1,286.84	1,293.54	1,293.27	0.005	1,287.42	1,287.13	1,287.48	1,287.15	0.19	6.14	6.12
CI HH-1	AI DD-8	HH-1	Ellipse - Concrete	28.3		23x14 inch	1	7.71	0.29	7.42	3.8	1.9	0.98	1,285.88	1,285.72	1,289.10	1,289.20	0.006	1,286.15	1,286.15	1,286.21	1,286.16	0.24	3.05	2.95
JB HH-2	CI HH-1	HH-2		34.1	12		1	2.59	0.07	2.52	2.8	1.45	0.43	1,286.06	1,285.88	1,291.00	1,289.10	0.005	1,286.18	1,286.15	1,286.21	1,286.15	0.12	2.95	4.82
CI HH-3	JB HH-2	HH-3		46.9	12		1	2.27	0.07	2.19	3.2	1.32	1.45	1,286.25	1,286.06	1,291.00	1,291.00	0.004	1,286.37	1,286.18	1,286.40	1,286.21	0.12	4.82	4.63
JB I-1	EX CI A-2	I-1	Circle - Concrete	72.3	24	24 inch	1	41.38	0.07	41.31	0.2	1.41	2.49	1,282.89	1,280.47	1,288.21	1,287.20	0.033	1,282.98	1,280.53	1,283.01	1,280.63	0.06	6.67	5.23
CI I-2	JB I-1	I-2	Circle - Concrete	39.7	24	24 inch	1	14.81	0.07	14.74	0.5	1.22	1.41	1,283.26	1,283.09	1,288.75	1,288.21	0.004	1,283.36	1,283.18	1,283.38	1,283.21	0.1	5.03	5.39
CI II-1	JB EE-5	II-1	Circle - Concrete	38.1	24	24 inch	1	15.98	0.18	15.8	1.1	1.7	1.78	1,283.67	1,283.48	1,287.50	1,287.50	0.005	1,283.82	1,283.63	1,283.87	1,283.68	0.15	3.87	3.68
CI J-1	JB K-0	J-0	Circle - Concrete	98.2	24	24 inch	1	47.06	12.76	34.3	27.1	5.98	4.06	1,285.61	1,281.36	1,290.96	1,292.15	0.043	1,286.90	1,284.00	1,287.45	1,284.25	0.71	8.15	4.06
CI J-2	CI J-1	J-1	Circle - Concrete	30.9	24	24 inch	1	17.74	10.42	7.32	58.7	5.54	5.87	1,286.00	1,285.81	1,290.96	1,290.96	0.006	1,287.16	1,286.91	1,287.63	1,287.45	1.1	4.05	3.80
CI JJ-2	MH-27	JJ-1	Circle - Concrete	16.1	24	24 inch	1	12.62	1.32	11.3	10.4	2.63	2.98	1,281.92	1,281.87	1,289.52	1,289.44	0.003	1,282.35	1,282.27	1,282.46	1,282.40	0.44	7.17	7.17
CI JJ-1	MH-28	JJ-1	Circle - Concrete	15.6	18	18 inch	1	5.95	1.54	4.41	25.8	2.88	3.29	1,281.90	1,281.85	1,289.41	1,290.60	0.003	1,282.41	1,282.32	1,282.54	1,282.48	0.52	8.28	7.00
CI DD10	JB DD-9	JJ-1	Ellipse - Concrete	34.3		23x14 inch	1	7.01	0.84	6.17	12	2.8	3.03	1,286.31	1,286.15	1,289.58	1,289.58	0.005	1,286.74	1,286.56	1,286.86	1,286.70	0.43	3.02	2.84
CI DD11	CI DD10	JJ-2	Ellipse - Concrete	29.9		23x14 inch	1	7.5	0.11	7.39	1.5	1.77	0.8	1,286.65	1,286.49	1,289.84	1,289.58	0.005	1,286.79	1,286.74	1,286.84	1,286.75	0.15	2.84	3.05
CI K-1A	JB K-0	K-0	Circle - Concrete	67.3	24	24 inch	1	46.14	4.83	41.32	10.5	4.3	1.54	1,284.16	1,281.36	1,292.82	1,292.15	0.042	1,284.93	1,284.00	1,285.22	1,284.03	0.44	8.15	7.89
AI K-0	JB K-0	K-0AI	Circle - Concrete	10.5	24	24 inch	1	22.11	11.3	10.81	51.1	3.6	3.6	1,281.46	1,281.36	1,292.15	1,292.15	0.01	1,284.02	1,284.00	1,284.22	1,284.20	1.01	8.15	8.13
CI K-2	CI K-1A	K-1	Circle - Concrete	31.8	24	24 inch	1	18.39	3.88	14.51	21.1	4.03	4.64	1,284.47	1,284.26	1,292.24	1,292.82	0.007	1,285.16	1,284.88	1,285.41	1,285.22	0.62	7.94	7.08
CI K-3	CI K-2	K-2	Circle - Concrete	61.1	24	24 inch	1	18.52	3.84	14.68	20.7	4.02	4.65	1,285.08	1,284.67	1,291.28	1,292.24	0.007	1,285.77	1,285.29	1,286.02	1,285.62	0.62	6.95	5.51
CI K-4	CI K-3	K-3	Circle - Concrete	22.7	24	24 inch	1	15.01	2.92	12.09	19.5	3.7	3.72	1,285.28	1,285.18	1,291.08	1,291.28	0.004	1,285.88	1,285.78	1,286.09	1,285.99	0.6	5.50	5.20
CI K-5	CI K-4	K-4	Circle - Concrete	45.8	24	24 inch	1	20.05	2.74	17.31	13.7	3.65	3.47	1,285.64	1,285.28	1,290.68	1,291.08	0.008	1,286.22	1,285.88	1,286.42	1,286.07	0.5	5.20	4.46
CI K-6	CI K-5	K-5		69.5	12		1	3.11	1.65	1.47	52.9	3.76	4.02	1,286.27	1,285.74	1,291.60	1,290.68	0.008	1,286.81	1,286.26	1,287.03	1,286.51	0.52	4.42	4.79
AI KK-1	JB U4A	KK-1	Circle - Concrete	17	24	24 inch	1	22.64	8.21	14.43	36.3	5.09	6.18	1,283.92	1,283.75	1,289.00	1,290.41	0.01	1,284.94	1,284.63	1,285.34	1,285.22	0.83	5.78	4.06
CI K-3A	CI K-3	L-1	Circle - Concrete	32.1	18	18 inch	1	8.29	0.18	8.11	2.2	1.86	1.91	1,287.48	1,287.28	1,291.64	1,291.28	0.006	1,287.64	1,287.43	1,287.69	1,287.49	0.15	3.85	4.00
CI L-1	CI K-5	L-1	Circle - Concrete	32	18	18 inch	1	8.51	0.33	8.19	3.9	1.61	0.68	1,285.95	1,285.74	1,290.68	1,290.68	0.007	1,286.21	1,286.22	1,286.25	1,286.22	0.2	4.46	4.47
CI LL1	EX JB N-3	LL-1	Circle - Concrete	30.5	30	30 inch	1	52.55	0.73	51.82	1.4	2.46	3.8	1,281.66	1,281.16	1,291.39	1,289.57	0.016	1,281.94	1,281.37	1,282.03	1,281.59	0.21	8.20	9.45
AI LL-3	EX JB N-3	LL-2	Circle - Concrete	33.6	30	30 inch	1	60.02	0.44	59.58	0.7	2.16	3.57	1,282.06	1,281.34	1,292.00	1,289.57	0.021	1,282.27	1,281.49	1,282.35	1,281.69	0.15	8.08	9.73
CI M-1	CI K-6	M-1	Circle - Concrete	28.4	18	18 inch	1	7.37	0.33	7.04	4.5	2.1	1.41	1,286.67	1,286.53	1,293.04	1,291.60	0.005	1,286.89	1,286.81	1,286.95	1,286.85	0.22	4.79	6.15
CI M-2	CI M-1	M-2	Circle - Concrete	58.3	18	18 inch	1	19.99	0.26	19.73	1.3	2.02	1.63	1,288.78	1,286.67	1,292.21	1,293.04	0.036	1,288.97	1,286.89	1,289.03	1,286.93	0.12	6.15	3.24
MH-33	JB N-1	N-1	Box - Concrete	96.1		6 x 3 ft	1	83.96	60.92	23.04	72.6	2.89	2.92	1,279.49	1,279.45	1,289.00	1,285.00	0	1,281.25	1,281.19	1,281.38	1,281.32	1.95	3.81	7.75
MH-32	MH-33	N-2	Box - Concrete	17.9		6 x 3 ft	1	137.61	57.23	80.38	41.6	2.67	2.72	1,279.47	1,279.49	1,289.00	1,289.00	-0.001	1,281.26	1,281.25	1,281.37	1,281.36	(N/A)	7.75	7.74
MH-50	MH-32	N-3A	Box - Concrete	113		6 x 3 ft	1	68.62	53.61	15.01	78.1	2.48	2.5	1,279.50	1,279.47	1,290.26	1,289.00	0	1,281.31	1,281.26	1,281.40	1,281.35	2.05	7.74	8.95
MH-31	MH-50	N-3B	Box - Concrete	66.8		6 x 3 ft	1	68.62	24.73	43.89	36	1.15	1.14	1,279.52	1,279.50	1,291.00	1,290.26	0	1,281.31	1,281.31	1,281.33	1,281.33	1.2	8.95	9.69
MH-30	MH-31	N-4	Box - Concrete	85.9		6 x 6 ft	1	164.51	24.73	139.78	15	1.16	1.15	1,279.54	1,279.52	1,291.00	1,291.00	0	1,281.32	1,281.31	1,281.34	1,281.33	1.27	9.69	9.68
MH-29	MH-30	N-5	Box - Concrete	19.8		6 x 6 ft	1	242.06	21.07	220.98	8.7	0.99	0.99	1,279.55	1,279.54	1,291.50	1,291.00	0.001	1,281.32	1,281.32	1,281.33	1,281.33	0.88	9.68	10.18
MH-28	MH-29	N-6	Box - Concrete	110.3		6 x 6 ft	1	229.61	18.95	210.66	8.3	0.92	0.89	1,279.60	1,279.55	1,290.60	1,291.50	0	1,281.32	1,281.32	1,281.34	1,281.33	0.85	10.18	9.28
MH-27	MH-28	N-7	Box - Concrete	65.6		6 x 6 ft	1	188.23	17.34	170.89	9.2	0.85	0.84	1,279.62	1,279.60	1,289.44	1,290.60	0	1,281.33	1,281.32	1,281.34	1,281.34	0.92	9.28	8.11
MH-41	MH-27	N-8	Box - Concrete	19.4		6 x 6 ft	1	367.55	15.84	351.71	4.3	0.52	0.52	1,279.63	1,279.62	1,289.15	1,289.44	0.001	1,281.33	1,281.33	1,281.33	1,281.33	0.56	8.11	7.82
EX JB N-3	EX JB N-2	N-9	Box - Concrete	89.1		6 x 3 ft	1	255.12	1.27	253.86	0.5	1.39	0.14	1,281.16	1,279.79	1,289.57	1,289.64	0.015	1,281.31	1,281.32	1,281.34	1,281.33	0.08	8.32	8.26
EX JB N-2	MH-41	N-9	Box - Concrete	17.3		6 x 6 ft	1	518.77	12.19	506.58	2.3	1.32	1.2	1,279.79	1,279.63	1,289.64	1,289.15	0.009	1,281.32	1,281.33	1,281.35	1,281.35	0.38	7.82	8.32
AI JJ-1	EX JB N-3	N-10	Circle - Concrete	50.6	30	30 inch	1	98.5	0.1	98.4	0.1	1.47	0.8	1,284.08	1,281.16	1,292.43	1,289.57	0.058	1,284.18	1,281.31	1,284.21	1,281.32	0.06	8.26	8.25
CI O-1	MH-33	O-1	Circle - Concrete	16.2	18	18 inch	1	6.38	1.65	4.74	25.8	1.4	1.31	1,280.30	1,280.24	1,285.62	1,289.00	0.004	1,281.25	1,281.25	1,281.28	1,281.27	0.52	7.75	4.37
CI P-1	MH-32	P-1	Circle - Concrete	14.5	18	18 inch	1	5.52	0.48	5.05	8.6	0.39	0.37	1,280.28	1,280.24	1,286.79	1,289.00	0.003	1,281.26	1,281.26	1,281.26	1,281.26	0.3	7.74	5.53
CI R-1	MH-30	R-1	Circle - Concrete	15.3	18	18 inch	1	8.06	0.66	7.4	8.2	2.6	2.75	1,281.88	1,281.79	1,288.35	1,291.00	0.006	1,282.18	1,282.08	1,282.29	1,282.20	0.29	8.92	6.17
CI S-1	MH-29	S-1	Circle - Concrete	13.6	18	18 inch	1	6.38	0.55	5.83	8.6	2.21	2.48	1,281.85	1,281.80	1,288.41	1,291.50	0.004	1,282.15	1,282.07	1,282.22	1,282.17	0.3	9.43	6.26
CI T-2	MH-27	T-1	Circle - Concrete	17	30	30 inch	1	22.23	0.18	22.04	0.8	1.37	1.73	1,281.92	1,281.87	1,292.13	1,289.44	0.003	1,282.08	1,282.01	1,282.11	1,282.05	0.16	7.43	10.05
CI T-1	MH-28	T-1	Circle - Concrete	13.5	18	18 inch	1	6.4	0.07	6.33	1.1	1.21	1.46	1,281.90	1,281.85	1,289.41	1,290.60	0.004	1,282.01	1,281.95	1,282.04	1,281.98	0.11	8.65	7.40
CI U-1	MH-41	U-1	Circle - Concrete	17.1	18	18 inch	1	3.59	0.11	3.48	3.1	1.03	1.63	1,281.90	1,281.88	1,289.40	1,289.15	0.001	1,282.07	1,282.00	1,282.08	1,282.04	0.18	7.15	7.33
CI U-2	EX JB N-2	U-2	Circle - Concrete	56.1	24	24 inch	1	14.58	10.92	3.66	74.9	5.12	5.63	1,281.86	1,281.63	1,290.53	1,289.64	0.004	1,283.15	1,282.81	1,283.56	1,283.31	1.29	6.83	7.38
CI U-3	CI U-2	U-3	Circle - Concrete	33.2	30	30 inch	1	31.02	10.85	20.18	35	5.2	4.71	1,282.15	1,281.96	1,290.64	1,290.53	0.006	1,283.25	1,283.15	1,283.67	1,283.49	1.02	7.38	7.39
CI U-4	CI U-3	U-4	Circle - Concrete	101.6	24	24 inch	1	16.64	10.77	5.87	64.7	5.6	5.63	1,283.19	1,282.64	1,290.25	1,290.64	0.005	1,284.37	1,283.81	1,284.85	1,284.30	1.17	6.83	5.88
JB U4A	CI U-4	U-5	Circle - Concrete	54.7	24	24 inch	1	15.89	8.87	7.02	55.8	5.2	5.09	1,283.55	1,283.28	1,290.41	1,290.25	0.005	1,284.62	1,284.37	1,285.04	1,284.77	1.07	5.88	5.79
CI U-5	JB U4A	U-6	Circle - Concrete	111.5	24	24 inch	1	16.03	0.66	15.38	4.1	1.05	0.39	1,284.11	1,283.55	1,291.71	1,290.41	0.005	1,284.62	1,284.62	1,284.63	1,284.62	0.28	5.79	7.09
CI U-6	CI U-5	U-7	Circle - Concrete	59.7	24	24 inch	1	24.67	0.4	24.26	1.6	2.19	1.31	1,285.02	1,284.31	1,293.02	1,291.71	0.012	1,285.24	1,284.62	1,285.31	1,284.64	0.18	7.09	7.78
CI U-7	CI U-6	U-8	Circle - Concrete	27.4	24	24 inch	1	16.16	0.29	15.87	1.8	1.98	2.01	1,285.26	1,285.12	1,294.00	1,293.02	0.005	1,285.45	1,285.30	1,285.51	1,285.37	0.19	7.72	8.55
AI U-8	CI U-7	U-9	Circle - Concrete	23.7	18	18 inch	1	26.79	0.18	26.61	0.7	1.86	4.35	1,290.72	1,289.18	1,292.43	1,294.00	0.065	1,290.88	1,289.27	1,290.93	1,289.56	0.09	4.73	1.55
CI V-1	CI U-4	V-1	Circle - Concrete	33.7	18	18 inch	1	7.24	1.39	5.85	19.2	1.09	0.93	1,283.35	1,283.19	1,290.25	1,290.25	0.005	1,284.37	1,284.37	1,284.39	1,284.38	0.45	5.88	5.88
CI W-1	MH-33	W-1	Circle - Concrete	16.5	18	18 inch	1	6.33	2.05	4.28	32.3	1.73	1.63	1,280.30	1,280.24	1,286.66	1,289.00	0.004	1,281.25	1,281.25	1,281.30	1,281.29	0.59	7.75	5.41
CI W-0	JB N-1	W-1	Circle - Concrete	59.9	30	30 inch	1	21.19	1.13	20.06	5.3	0.69	0.56	1,280.27	1,280.11	1,286.46	1,285.00	0.003	1,281.19	1,281.19	1,281.20	1,281.19	0.39	3.81	5.27
CI X-1	MH-32	X-1	Circle - Concrete	16.5	18	18 inch	1	6.33	3.14	3.18	49.7	2.59	2.46	1,280.30	1,280.24	1,286.79	1,289.00	0.004	1,281.27	1,281.26	1,281.38	1,281.35	0.75	7.74	5.52
CI Z-1	MH-30	Z-1	Circle - Concrete	15.4	18	18 inch	1	6.56	3	3.56	45.7	3.67	4.02	1,281.85	1,281.79	1,288.35	1,291.00	0.004	1,282.55	1,282.45	1,282.76	1,282.70	0.71	8.55	5.80
JB Z0	MH-50	Z-1	Box - Concrete	148.5		6 x 3 ft	1	111.82	28.88	82.94	25.8	3.46	2.67	1,279.94	1,279.50	1,290.00	1,290.26	0.003	1,281.33	1,281.31	1,281.52	1,281.42	0.96	8.95	8.67
JB-ZSTM	JB Z0	Z-2	Box - Concrete	131.6		6 x 3 ft	1	43.93	28.88	15.05	65.7	3.27	3.46	1,280.00	1,279.94	1,283.50	1,290.00	0	1,281.47	1,281.33	1,281.64	1,281.52	1.82	8.67	2.03
JB K-0	JB-ZSTM	ZSTM	Circle - Concrete	127.2	24	24 inch	1	23.39	28.88	-5.5	123.5	9.19	9.54	1,281.36	1,280.00	1,292.15	1,283.50	0.011	1,284.00	1,281.84	1,285.31	1,283.26	(N/A)	1.66	8.15

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			

ORIGINAL ISSUE | DATE

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

PROPOSED STORM CALCULATIONS-2 YEAR EVENT

C8.022PH2

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24-Jul-2026 - 1:58 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_WPM_C-PR-DA_M082500700.dwg

Start Node	Stop Node	Label	Catalog Class	Length (unified) (ft)	Diameter (in)	Size	Barrels	Capacity (design) (CFS)	Flow (CFS)	Capacity (Excess Full Flow) (CFS)	Flow / capacity (Design) (%)	Velocity (in) (ft/s)	Velocity (out) (ft/s)	Invert (start) (ft)	Invert (stop) (ft)	Elevation ground (start) (ft)	Elevation Ground (stop) (ft)	Slope (calculated) (ft/ft)	Hydraulic Grade line In (ft)	Hydraulic Grade line out (ft)	Energy Grade Line in (ft)	Energy Grade line out (ft)	depth (ft)	surcharge downstream (ft)	surcharge upstream (ft)
JB A-1	PR CI A-0	A-1	Circle - Concrete	26.9	36	36 inch	1	94.42	26.64	67.78	28.2	6.6	9.42	1,283.16	1,282.62	1,290.69	1,289.80	0.02	1,284.83	1,283.88	1,285.50	1,285.26	1.09	5.92	5.86
EX JB A-1	O-1	A-1	Box - Concrete	38.4		6 x 3 ft	1	839.01	132.71	706.29	15.8	6.19	9.34	1,278.71	1,278.00	1,287.10	1,281.00	0.018	1,279.90	1,278.79	1,280.50	1,280.15	0.69	2.21	7.20
EX CI A-2	EX JB A-1	A-2	Box - Concrete	64		6 x 3 ft	1	344.91	88.24	256.68	25.6	4.75	4.12	1,278.91	1,278.71	1,287.20	1,287.10	0.003	1,279.94	1,279.90	1,280.29	1,280.16	0.95	7.20	7.26
CI A-2	JB A-1	A-2	Circle - Concrete	45.1	36	36 inch	1	94.77	26.64	68.13	28.1	6.6	10.09	1,284.27	1,283.36	1,289.59	1,290.69	0.02	1,285.94	1,284.56	1,286.61	1,286.14	1.09	6.13	3.65
AI A-3	AI A-2	A-2	Box - Concrete	47		6 x 3 ft	1	79.4	85.82	-6.42	108.1	6.6	7.72	1,279.42	1,279.35	1,286.65	1,286.15	0.001	1,281.59	1,281.20	1,282.26	1,282.13	2.6	4.95	5.06
CI A-3	CI A-2	A-3	Circle - Concrete	147.1	30	30 inch	1	29.67	7.38	22.29	24.9	4.62	2.28	1,285.14	1,284.37	1,291.74	1,289.59	0.005	1,286.04	1,285.94	1,286.37	1,286.02	0.85	3.65	5.70
JB N-1	AI A-3	A-3	Box - Concrete	20.1		6 x 3 ft	1	158.99	85.61	73.37	53.8	3.33	3.29	1,279.45	1,279.42	1,285.00	1,286.65	0.001	1,281.59	1,281.59	1,281.77	1,281.75	1.58	5.06	3.41
AI A-2	EX CI A-2	A-3	Box - Concrete	204.5		6 x 3 ft	1	190.87	86.77	104.1	45.5	5.16	6.15	1,279.35	1,278.91	1,286.15	1,287.20	0.002	1,280.75	1,280.09	1,281.16	1,280.67	1.4	7.11	5.40
CI A-4	CI A-3	A-4	Circle - Concrete	109.8	30	30 inch	1	29.02	6.73	22.3	23.2	4.5	4.81	1,285.79	1,285.24	1,292.92	1,291.74	0.005	1,286.65	1,286.06	1,286.96	1,286.42	0.82	5.68	6.27
CI A-5	CI A-4	A-5	Circle - Concrete	95.8	30	30 inch	1	29.34	6.52	22.81	22.2	4.46	4.81	1,286.38	1,285.89	1,292.90	1,292.92	0.005	1,287.23	1,286.69	1,287.54	1,287.05	0.8	6.23	5.67
CI A-6	CI A-5	A-6	Circle - Concrete	112.6	30	30 inch	1	26.78	5.26	21.51	19.7	4.19	4.24	1,286.96	1,286.48	1,292.23	1,292.90	0.004	1,287.72	1,287.23	1,287.99	1,287.51	0.75	5.67	4.51
JB A-7	CI A-6	A-7	Circle - Concrete	85.7	21	21 inch	1	18.52	2.64	15.88	14.3	3.72	3.2	1,288.23	1,287.06	1,293.20	1,292.23	0.014	1,288.82	1,287.72	1,289.03	1,287.88	0.45	4.51	4.38
CI A-8	JB A-7	A-8	Circle - Concrete	151.6	21	21 inch	1	11.07	0.81	10.26	7.3	2.68	2.37	1,289.21	1,288.47	1,294.28	1,293.20	0.005	1,289.53	1,288.82	1,289.64	1,288.91	0.32	4.38	4.75
EX JB A-9	CI A-8	A-9	Circle - Concrete	31.9	21	21 inch	1	12.24	0.1	12.14	0.8	1.54	1.24	1,289.59	1,289.40	1,295.67	1,294.28	0.006	1,289.70	1,289.53	1,289.74	1,289.55	0.11	4.75	5.97
CI A-10	EX JB A-9	A-10	Circle - Concrete	122.3	21	21 inch	1	15.63	0.1	15.53	0.6	1.56	1.83	1,290.88	1,289.69	1,296.50	1,295.67	0.01	1,290.99	1,289.79	1,291.03	1,289.84	0.1	5.88	5.51
CI AA-1	MH-29	AA-1	Circle - Concrete	14.8	18	18 inch	1	6.68	2.17	4.51	32.5	3.39	3.64	1,281.86	1,281.80	1,288.40	1,291.50	0.004	1,282.45	1,282.36	1,282.62	1,282.56	0.59	9.14	5.95
EX CI B-1	EX CI F-4	B-1	Box - Concrete	88.9		6 x 3 ft	1	109.1	2.91	106.19	2.7	1.93	1.04	1,281.61	1,281.36	1,287.57	1,287.10	0.003	1,281.86	1,281.83	1,281.92	1,281.84	0.23	5.27	5.71
CI B-1	CI A-2	B-1	Circle - Concrete	40.2	36	36 inch	1	48.23	16.68	31.55	34.6	5.26	4.2	1,284.50	1,284.29	1,289.58	1,289.59	0.005	1,285.88	1,285.94	1,286.31	1,286.21	1.22	3.65	3.70
CI B-2	CI B-1	B-2	Circle - Concrete	145.2	30	30 inch	1	28.88	2.67	26.2	9.3	3.47	1.44	1,285.59	1,284.87	1,292.12	1,289.58	0.005	1,286.12	1,285.88	1,286.31	1,285.91	0.51	3.70	6.00
CI B-3	CI B-2	B-3	Circle - Concrete	205.6	30	30 inch	1	29.03	2.07	26.96	7.1	3.24	3.42	1,286.72	1,285.69	1,293.30	1,292.12	0.005	1,287.19	1,286.14	1,287.35	1,286.32	0.45	5.98	6.11
CI B-4	CI B-3	B-4	Circle - Concrete	113.2	30	30 inch	1	26.7	1.87	24.84	7	3.13	3.16	1,287.30	1,286.82	1,292.62	1,293.30	0.004	1,287.75	1,287.27	1,287.90	1,287.42	0.45	6.03	4.87
CI B-5	CI B-4	B-5	Circle - Concrete	69.5	24	24 inch	1	16.28	1.26	15.02	7.7	2.95	3.08	1,288.16	1,287.80	1,293.28	1,292.62	0.005	1,288.55	1,288.18	1,288.68	1,288.32	0.38	4.44	4.73
CI B-7	CI B-5	B-6	Circle - Concrete	165.9	24	24 inch	1	22.49	0.86	21.63	3.8	2.66	3.44	1,289.90	1,288.26	1,293.78	1,293.28	0.01	1,290.22	1,288.53	1,290.33	1,288.71	0.27	4.75	3.56
EX JB B-8	CI B-7	B-8	Ellipse - Concrete	96.1		23x14 inch	1	6.86	0	6.86	0	0	0	1,290.43	1,290.00	1,295.61	1,293.78	0.004	1,290.43	1,290.22	1,290.43	1,290.22	-0.14	3.56	5.18
CI BB-1	MH-41	BB-1	Circle - Concrete	16	24	24 inch	1	14.97	4.89	10.07	32.7	1.57	1.56	1,279.82	1,279.75	1,289.40	1,289.15	0.004	1,281.75	1,281.74	1,281.79	1,281.78	0.79	7.41	7.65
CI BB-2	CI BB-1	BB-2	Circle - Concrete	41	24	24 inch	1	22.36	3.08	19.28	13.8	1.19	0.99	1,280.22	1,279.82	1,288.72	1,289.40	0.01	1,281.75	1,281.75	1,281.77	1,281.77	0.5	7.65	6.97
CI BB-3	CI BB-2	BB-3	Ellipse - Concrete	94.7		14x23 inch	1	7.15	2.82	4.33	39.5	1.73	1.6	1,280.78	1,280.32	1,288.50	1,288.72	0.005	1,281.81	1,281.75	1,281.86	1,281.79	0.52	6.97	6.69
CI BB-4	CI BB-3	BB-4	Ellipse - Concrete	149.7		14x23 inch	1	7.41	1.21	6.2	16.3	2.83	0.81	1,281.66	1,280.88	1,288.96	1,288.50	0.005	1,282.01	1,281.81	1,282.13	1,281.82	0.34	6.69	6.95
CI BB-5	CI BB-4	BB-5	Ellipse - Concrete	31.8		14x23 inch	1	7.28	0.61	6.67	8.3	2.34	2.29	1,281.92	1,281.76	1,288.96	1,288.96	0.005	1,282.16	1,282.01	1,282.25	1,282.09	0.24	6.95	6.80
AI BB-6	CI BB-5	BB-6	Circle - Concrete	20.1	18	18 inch	1	10.74	0.2	10.54	1.9	1.91	2.36	1,285.50	1,285.29	1,288.73	1,288.96	0.01	1,285.66	1,285.43	1,285.72	1,285.52	0.14	3.53	3.07
JB C-1	CI B-1	C-1	Circle - Concrete	14.1	24	24 inch	1	20.02	13.35	6.66	66.7	6.09	6.62	1,284.71	1,284.60	1,290.10	1,289.58	0.008	1,286.03	1,285.82	1,286.60	1,286.51	1.19	3.76	4.07
AI C-2	JB C-1	C-2	Circle - Concrete	29.8	24	24 inch	1	17.07	13.35	3.72	78.2	6.01	6.09	1,284.98	1,284.81	1,289.70	1,290.10	0.006	1,286.31	1,286.13	1,286.87	1,286.70	1.33	3.97	3.39
CI CC-1	CI BB-3	CC-1	Circle - Concrete	33	18	18 inch	1	7.09	1.11	5.98	15.7	1.41	1.1	1,281.13	1,280.98	1,288.72	1,288.50	0.005	1,281.82	1,281.81	1,281.85	1,281.83	0.4	6.69	6.90
CI D-1	JB A-7	D-1	Circle - Concrete	50.2	18	18 inch	1	7.11	1.83	5.28	25.8	3.37	3.46	1,288.70	1,288.47	1,293.13	1,293.20	0.005	1,289.22	1,288.98	1,289.40	1,289.17	0.52	4.22	3.91
CI D-2	CI D-1	D-2	Circle - Concrete	38.6	18	18 inch	1	7.56	1.23	6.33	16.2	3.09	3.15	1,289.10	1,288.90	1,293.13	1,293.13	0.005	1,289.51	1,289.31	1,289.66	1,289.46	0.41	3.82	3.62
AI D-3	CI D-2	D-3	Circle - Concrete	15.2	18	18 inch	1	6.03	0.87	5.15	14.5	2.45	2.81	1,289.25	1,289.20	1,293.24	1,293.13	0.003	1,289.63	1,289.55	1,289.73	1,289.67	0.39	3.58	3.61
CI DD-3	JB DD-2	DD-2	Ellipse - Concrete	74.8		30x19 inch	1	19.91	7.92	11.99	39.8	5.42	5.94	1,282.84	1,282.25	1,286.83	1,287.20	0.008	1,284.02	1,283.35	1,284.48	1,283.90	1.1	3.85	2.81
CI DD-4	CI DD-3	DD-3	Ellipse - Concrete	102.8		30x19 inch	1	16.55	6.86	9.69	41.4	4.99	4.69	1,283.40	1,282.84	1,286.98	1,286.83	0.005	1,284.53	1,284.02	1,284.91	1,284.36	1.13	2.81	2.45
CI DD-5	CI DD-4	DD-4	Ellipse - Concrete	153.7		30x19 inch	1	15.98	5.09	10.88	31.9	4.52	3.7	1,284.18	1,283.40	1,288.33	1,286.98	0.005	1,285.15	1,284.53	1,285.47	1,284.74	0.97	2.45	3.18
CI DD-6	CI DD-5	DD-5	Ellipse - Concrete	90.8		30x19 inch	1	14.69	4.39	10.31	29.9	4.1	4.52	1,284.67	1,284.28	1,288.55	1,288.33	0.004	1,285.60	1,285.15	1,285.87	1,285.47	0.93	3.18	2.95
CI DD-7	CI DD-6	DD-6	Ellipse - Concrete	83.7		30x19 inch	1	16.26	3.38	12.88	20.8	4.15	3.81	1,285.23	1,284.79	1,289.00	1,288.55	0.005	1,286.00	1,285.60	1,286.26	1,285.83	0.77	2.95	3.00
AI DD-8	CI DD-7	DD-7	Ellipse - Concrete	76.1		30x19 inch	1	15.21	2.17	13.04	14.3	3.53	2.87	1,285.62	1,285.27	1,289.20	1,289.00	0.005	1,286.25	1,286.00	1,286.44	1,286.12	0.63	3.00	2.95
JB DD-9	AI DD-8	DD-8	Ellipse - Concrete	55		23x14 inch	1	7.94	1.61	6.32	20.3	3.62	3.63	1,286.05	1,285.72	1,289.58	1,289.20	0.006	1,286.62	1,286.29	1,286.82	1,286.49	0.57	2.91	2.96
AI EE-1	AI EE-0	EE-0	Ellipse - Concrete	8.1		45x29 inch	1	69.61	2.3	67.31	3.3	3.52	4.46	1,282.09	1,282.00	1,287.21	1,289.00	0.011	1,282.65	1,282.48	1,282.84	1,282.78	0.44	6.52	4.56
CI EE-2	AI EE-1	EE-1	Ellipse - Concrete	39.2		45x29 inch	1	48.23	1.31	46.91	2.7	3.04	2	1,282.30	1,282.09	1,287.26	1,287.21	0.005	1,282.72	1,282.65	1,282.86	1,282.71	0.4	4.56	4.54
AI EE1	CI DD10	EE-1	Ellipse - Concrete	48.7		14x23 inch	1	6.57	0.86	5.72	13	2.44	2.15	1,286.69	1,286.49	1,288.66	1,289.58	0.004	1,286.99	1,286.82	1,287.08	1,286.89	0.3	2.76	1.67
CI EE-3	CI EE-2	EE-2	Ellipse - Concrete	45.8		38x24 inch	1	25.35	1.26	24.09	5	2.89	3.09	1,282.48	1,282.30	1,287.04	1,287.26	0.004	1,282.93	1,282.73	1,283.06	1,282.88	0.45	4.53	4.11
AI EE2	AI EE1	EE-2	Ellipse - Concrete	29		14x23 inch	1	7.38	0.35	7.02	4.8	2.02	1.01	1,286.84	1,286.69	1,288.75	1,288.66	0.005	1,287.02	1,286.99	1,287.09	1,287.01	0.18	1.67	1.73
CI EE-4	CI EE-3	EE-3	Ellipse - Concrete	98.8		38x24 inch	1	30.44	0.96	29.48	3.1	2.88	2.19	1,283.04	1,282.48	1,287.00	1,287.04	0.006	1,283.42	1,282.93	1,283.54	1,283.01	0.36	4.11	3.58
JB EE-5	CI EE-4	EE-4	Ellipse - Concrete	70.8		38x24 inch	1	28.01	0.25	27.76	0.9	2.04	0.76	1,283.38	1,283.04	1,287.50	1,287.00	0.005	1,283.57	1,283.42	1,283.64	1,283.42	0.19	3.58	3.93
JB DD-2	EX CI F-4	EX DD-1	Circle - Concrete	93.1	24	24 inch	1	22.12	7.92	14.2	35.8	5.03	6.46	1,282.25	1,281.36	1,287.20	1,287.10	0.01	1,283.25	1,282.19	1,283.65	1,282.83	0.83	4.91	3.95
AI EE-0	EX CI B-1	EX EE-1	Ellipse - Concrete	92.7		45x29 inch	1	42.76	2.3	40.46	5.4	3.52	3.52	1,282.00	1,281.61	1,289.00	1,287.57	0.004	1,282.56	1,282.17	1,282.75	1,282.36	0.57	5.40	6.44
MH-45	EX CI B-1	EX MM1	Box - Concrete	117.9		6 x 3 ft	1	116.8	0.61	116.2	0.5	1.21	0.4	1,281.99	1,281.61	1,288.20	1,287.57	0.003	1,282.07	1,281.86	1,282.10	1,281.86	0.08	5.71	6.13
CI MM-1	MH-45	EX MM2	Circle - Concrete	88.9	18	18 inch	1	9.78	0.61	9.17	6.2	2.54	3.07	1,284.26	1,283.49	1,288.50	1,288.20	0.009	1,284.55	1,283.74	1,284.65	1,283.89	0.25	4.46	3.95
EX CI F-1	EX JB A-1	F-1	Box - Concrete	268.4		6 x 3 ft	1	96.47	12.64	83.82	13.1	2.99	1.77	1,279.30	1,278.71	1,285.84	1,287.10	0.002	1,280.00	1,279.90	1,280.14	1,279.95	0.62	7.20	5.84
EX CI F-2	EX CI F-1	F-2	Box - Concrete	217.5		6 x 3 ft	1	180.29	12.64	167.64	7	4.08	2.99	1,280.97	1,279.30	1,286.62	1,285.84	0.008	1,281.49	1,280.00	1,281.75	1,280.14	0.41	5.84	5.13
EX CI F-3	EX CI F-2	F-3	Circle - Concrete	85.7	18	18 inch	1	12.84	1.82	11.02	14.1	3.45	3.37	1,282.25	1,280.97	1,286.97	1,286.62	0.015	1,282.76	1,281.49	1,282.94	1,281.66	0.38	5.13	4.21
EX CI F-4	EX CI F-2	F-4	Box - Concrete	84.1		6 x 3 ft	1	140.14	10.83	129.31	7.7	3.87	3.49	1,281.36	1,280.97	1,287.10	1,286.62	0.005	1,281.83	1,281.49	1,282.06	1,281.68	0.44	5.13	5.27
CI FF-1	CI DD-6	FF-1	Circle - Concrete	30.9	18	18 inch	1	7.55	0.25	7.3	3.3	0.4	0.29	1,285.03	1,284.87	1,288.88	1,288.55	0.005	1,285.60	1,285.60	1,285.61	1,285.61	0.19	2.95	3.28
JB FF-1	JB DD-9	FF-1	Ellipse - Concrete	60.2		14x23 inch	1	5.12	0.45	4.67	8.9	0.8	0.54	1,286.20	1,286.05	1,289.38	1,289.58	0.002	1,286.62	1,286.62	1,286.63	1,286.62	0.25	2.96	2.76
AI FF-2	JB FF-1	FF-2	Ellipse - Concrete	20.7		14x23 inch	1	14.8	0.45	14.35	3.1	2.16	0.8	1,286.63	1,286.20	1,290.00	1,289.38	0.021	1,286.84	1,286.62	1,286.91	1,286.63	0.15	2.76	3.16
EX CI G-1	EX JB A-1	G-1	Pipe-Arch - Concrete	183.5		51.12 x 31.	1	93.61	31.83	61.78	34	6.36	9.5	1,280.98	1,278.71	1,287.96	1,287.10	0.012	1,282.31	1,279.64	1,282.94	1,281.04	0.93	7.46	5.65
CI G-1	EX CI G-2	G-1	Circle - Concrete	70.8	36	36 inch	1	38.01	3.48	34.53	9.2	3.12	2.18	1,282.40	1,282.17	1,288.67	1,288.26	0.003	1,283.04	1,283.00	1,283.20	1,283.08	0.61	5.26	5.63
EX CI G-2	EX CI G-1	G-2	Pipe-Arch - Concrete	74.2		51.12 x 31.	1	81.15	31.83	49.32	39.2	6.36	8.33	1,281.67	1,280.98	1,288.26	1,287.96	0.009	1,283.00	1,282.02	1,283.63	1,283.10	1.01	5.94	5.26
CI G-2	CI G-1	G-2	Circle - Concrete	52.5	30	30 inch	1	18.77	2.93	15.85	15.6	2.84	3.56	1,282.76	1,282.65	1,287.74	1,288.67	0.002	1,283.42	1,283.21	1,283.54	1,283.41	0.67	5.46	4.32
CI G2A	CI G-2	G-2A	Circle - Concrete	30.5	24	24 inch	1	17.86	2.22	15.64	12.4	3.44	3.87	1,283.15	1,282.96	1,288.31	1,287.74	0.006	1,283.67	1,283.44	1,283.85	1,283.67	0.48	4.30	4.64
PR CI A-0	EX CI G-2	G-3	Pipe-Arch - Concrete	252.3		51.12 x 31.	1	45.89	27.14	18.75	59.1	5.48	5.42	1,282.42	1,281.67	1,289.80	1,288.26	0.003	1,283.74	1,283.00	1,284.21	1,283.46	1.32	5.26	6.06
CI G-3	CI G-2	G-3	Circle - Concrete	59.1	30	30 inch	1	29.23	0.35	28.88	1.2	1.34	0.43	1,283.16	1,282.86	1,288.69	1,287.74	0.005	1,283.42	1,283.42	1,283.44	1,283.42	0.19	4.32	5.27
CI G-4	CI G-3	G-4	Circle - Concrete	26.2	24	24 inch	1	15.94	0.25	15.69	1.6	1.87	1.94	1,283.40	1,283.27	1,289.89	1,288.69	0.005	1,283.58	1,283.44	1,283.63	1,283.50	0.18	5.25	6.31
CI K-7	CI K-6	G-8	Circle - Concrete	42.2	18	18 inch	1	5.36	1.71	3.65	32	2.75	3.39	1,286.64	1,286.53	1,293.27	1,291.60	0.003	1,287.22	1,287.02	1,287.33	1,287.20	0.58	4.58	6.05
CI E-1	CI K-7	G-9	Circle - Concrete	29.6	18	18 inch	1	11.09	0.55	10.54	5	2.48	1.6	1,287.17	1,286.84	1,293.28	1,293.27	0.011	1,287.45	1,287.22	1,287.54	1,287.26	0.23	6.05	5.83
CI GG-1	CI DD-7	GG-1	Circle - Concrete	28.8	18	18 inch	1	10.55	0.15	10.4	1.4	0.69	0.25	1,285.72	1,285.43	1,288.84	1,289.00	0.01	1,285.99	1,286.00	1,286.00	1,286.00	0.13	3.00	2.85
CI K-8	CI K-7	H-1	Circle - Concrete	81.5	18	18 inch	1	7.27	0.35	6.91	4.9	2.12	1.02	1,287.23	1,286.84	1,293.54	1,293.27	0.005	1,287.45	1,287.22	1,287.53	1,287.23	0.22	6.05	6.09
CI HH-1	AI DD-8	HH-1	Ellipse - Concrete	28.3		23x14 inch	1	7.71	0.4	7.3	5.2	1.68	1.01	1,285.88	1,285.72	1,289.10	1,289.20	0.006	1,286.25	1,286.25	1,286.29	1,286.26	0.28	2.95	2.85
JB HH-2	CI HH-1	HH-2		34.1	12		1	2.59	0.1	2.49	3.9	0.98	0.39	1,286.06	1,285.88	1,291.00	1,289.10	0.005	1,286.25	1,286.25	1,286.26	1,286.25	0.13	2.85	4.75
CI HH-3	JB HH-2	HH-3		46.9	12		1	2.27	0.1	2.17	4.4	1.45	0.98	1,286.25	1,286.06	1,291.00	1,291.00	0.004	1,286.39	1,286.25	1,286.43	1,286.26	0.14	4.75	4.61
JB I-1	EX CI A-2	I-1	Circle - Concrete	72.3	24	24 inch	1	41.38	0.1	41.28	0.2	1.53	2.74	1,282.89	1,280.47	1,288.21	1,287.20	0.033	1,283.00	1,280.54	1,283.03	1,280.66	0.07	6.66	5.21
CI I-2	JB I-1	I-2	Circle - Concrete	39.7	24	24 inch	1	14.81	0.1	14.71	0.7	1.35	1.53	1,283.26	1,283.09	1,288.75	1,288.21	0.004	1,283.38	1,283.20	1,283.41	1,283.23	0.12	5.01	5.37
CI II-1	JB EE-5	II-1	Circle - Concrete	38.1	24	24 inch	1	15.98	0.25	15.73	1.6	1.88	1.94	1,283.67	1,283.48	1,287.50	1,287.50	0.005	1,283.84	1,283.65	1,283.90	1,283.71	0.17	3.85	3.66
CI J-1	JB K-0	J-0	Circle - Concrete	98.2	24	24 inch	1	47.06	17.6	29.46	37.4	6.91	5.6	1,285.61	1,281.36	1,290.96	1,292.15	0.043	1,287.12	1,285.93	1,287.86	1,286.42	0.85	6.22	3.84
CI J-2	CI J-1	J-1	Circle - Concrete	30.9	24	24 inch	1	17.74	14.38	3.36	81	6.29	6.29	1,286.00	1,285.81	1,290.96	1,290.96	0.006	1,287.37	1,287.18	1,287.98	1,287.79	1.37	3.78	3.59
CI JJ-2	MH-27	JJ-1	Circle - Concrete	16.1	24	24 inch	1	12.62	1.82	10.8	14.4	2.89	3.26	1,281.92	1,281.87	1,289.52	1,289.44	0.003	1,282.43	1,282.34	1,282.56	1,282.50	0.51	7.10	7.09
CI JJ-1	MH-28	JJ-1	Circle - Concrete	15.6	18	18 inch	1	5.95	2.12	3.83	35.6	3.17	3.61	1,281.90	1,281.85	1,289.41	1,290.60	0.003	1,282.51	1,282.40	1,282.66	1,282.60	0.62	8.20	6.90
CI DD10	JB DD-9	JJ-1	Ellipse - Concrete	34.3		23x14 inch	1	7.01	1.16	5.85	16.6	3.04	3.31	1,286.31	1,286.15	1,289.58	1,289.58	0.005	1,286.82	1,286.63	1,286.96	1,286.80	0.51	2.95	2.76
CI DD11	CI DD10	JJ-2	Ellipse - Concrete	29.9		23x14 inch	1	7.5	0.15	7.35	2	1.81	0.74	1,286.65	1,286.49	1,289.84	1,289.58	0.005	1,286.83	1,286.82	1,286.88	1,286.83	0.17	2.76	3.01
CI K-1A	JB K-0	K-0	Circle - Concrete	67.3	24	24 inch	1	46.14	6.66	39.49	14.4	2.22	2.12	1,284.16	1,281.36	1,292.82	1,292.15	0.042	1,285.98	1,285.93	1,286.06	1,286.00	0.51	6.22	6.84
AI K-0	JB K-0	K-0AI	Circle - Concrete	10.5	24	24 inch	1	22.11	15.59	6.53	70.5	4.96	4.96	1,281.46	1,281.36	1,292.15	1,292.15	0.01	1,285.98	1,285.93	1,286.36	1,286.31	1.24	6.22	6.17
CI K-2	CI K-1A	K-1	Circle - Concrete	31.8	24	24 inch	1	18.39	5.35	13.04	29.1	2.09	1.86	1,284.47	1,284.26	1,292.24	1,292.82	0.007	1,285.99	1,285.98	1,286.05	1,286.04	0.74	6.84	6.25
CI K-3	CI K-2	K-2	Circle - Concrete	61.1	24	24 inch	1	18.52	5.3	13.23	28.6	4.43	2.42	1,285.08	1,284.67	1,291.28	1,292.24	0.007	1,285.89	1,285.99	1,286.20	1,286.08	0.73	6.25	5.39
CI K-4	CI K-3	K-3	Circle - Concrete	22.7	24	24 inch	1	15.01	4.04	10.98	26.9	4.05	4.03	1,285.28	1,285.18	1,291.08	1,291.28	0.004	1,285.99	1,285.89	1,286.24	1,286.14	0.71	5.39	5.09
CI K-5	CI K-4	K-4	Circle - Concrete	45.8	24	24 inch	1	20.05	3.78	16.27	18.9	4.01	3.8	1,285.64	1,285.28	1,290.68	1,291.08	0.008	1,286.32	1,285.99	1,286.57	1,286.21	0.59	5.09	4.36
CI K-6	CI K-5	K-5		69.5	12		1	3.11	2.27	0.84	72.9	4.24	4.32	1,286.27	1,285.74	1,291.60	1,290.68	0.008	1,286.91	1,286.37	1,287.19	1,286.66	0.63	4.31	4.69
AI KK-1	JB U4A	KK-1	Circle - Concrete	17	24	24 inch	1	22.64	11.33	11.31	50.1	5.71	6.72	1,283.92	1,283.75	1,289.00	1,290.41	0.01	1,285.13	1,284.81	1,285.64	1,285.51	1	5.60	3.87
CI K-3A	CI K-3	L-1	Circle - Concrete	32.1	18	18 inch	1	8.29	0.25	8.04	3	2.02	2.1	1,287.48	1,287.28	1,291.64	1,291.28	0.006	1,287.67	1,287.46	1,287.73	1,287.53	0.18	3.82	3.97
CI L-1	CI K-5	L-1	Circle - Concrete	32	18	18 inch	1	8.51	0.45	8.06	5.3	1.36	0.72	1,285.95	1,285.74	1,290.68	1,290.68	0.007	1,286.32	1,286.32	1,286.34	1,286.33	0.24	4.36	4.36
CI LL1	EX JB N-3	LL-1	Circle - Concrete	30.5	30	30 inch	1	52.55	1.01	51.54	1.9	2.68	1.17	1,281.66	1,281.16	1,291.39	1,289.57	0.016	1,281.99	1,281.74	1,282.10	1,281.76	0.24	7.83	9.40
AI LL-3	EX JB N-3	LL-2	Circle - Concrete	33.6	30	30 inch	1	60.02	0.61	59.41	1	2.35	1.2	1,282.06	1,281.34	1,292.00	1,289.57	0.021	1,282.31	1,281.74	1,282.40	1,281.76	0.18	7.83	9.69
CI M-1	CI K-6	M-1	Circle - Concrete	28.4	18	18 inch	1	7.37	0.45	6.92	6.2	2.3	1.27	1,286.67	1,286.53	1,293.04	1,291.60	0.005	1,286.92	1,286.91	1,287.01	1,286.94	0.25	4.69	6.12
CI M-2	CI M-1	M-2	Circle - Concrete	58.3	18	18 inch	1	19.99	0.35	19.64	1.8	2.21	1.79	1,288.78	1,286.67	1,292.21	1,293.04	0.036	1,289.00	1,286.92	1,289.07	1,286.97	0.14	6.12	3.21
MH-33	JB N-1	N-1	Box - Concrete	96.1		6 x 3 ft	1	83.96	84.05	-0.09	100.1	3.23	3.27	1,279.49	1,279.45	1,289.00	1,285.00	0	1,281.66	1,281.59	1,281.82	1,281.76	2.46	3.41	7.34
MH-32	MH-33	N-2	Box - Concrete	17.9		6 x 3 ft	1	137.61	78.96	58.65	57.4	2.99	3.04	1,279.47	1,279.49	1,289.00	1,289.00	-0.001	1,281.67	1,281.66	1,281.81	1,281.80	(N/A)	7.34	7.33
MH-50	MH-32	N-3A	Box - Concrete	113		6 x 3 ft	1	68.62	73.96	-5.34	107.8	2.78	2.8	1,279.50	1,279.47	1,290.26	1,289.00	0	1,281.72	1,281.67	1,281.84	1,281.79	2.59	7.33	8.54
MH-31	MH-50	N-3B	Box - Concrete	66.8		6 x 3 ft	1	68.62	34.11	34.5	49.7	1.29	1.28	1,279.52	1,279.50	1,291.00	1,290.26	0	1,281.73	1,281.72	1,281.75	1,281.75	1.49	8.54	9.27
MH-30	MH-31	N-4	Box - Concrete	85.9		6 x 6 ft	1	164.51	34.11	130.39	20.7	1.3	1.29	1,279.54	1,279.52	1,291.00	1,291.00	0	1,281.73	1,281.73	1,281.76	1,281.75	1.59	9.27	9.27
MH-29	MH-30	N-5	Box - Concrete	19.8		6 x 6 ft	1	242.06	29.07	212.98	12	1.11	1.1	1,279.55	1,279.54	1,291.50	1,291.00	0.001	1,281.73	1,281.73	1,281.75	1,281.75	1.09	9.27	9.77
MH-28	MH-29	N-6	Box - Concrete	110.3		6 x 6 ft	1	229.61	26.14	203.46	11.4	1.02	1	1,279.60	1,279.55	1,290.60	1,291.50	0	1,281.74	1,281.73	1,281.76	1,281.75	1.06	9.77	8.86
MH-27	MH-28	N-7	Box - Concrete	65.6		6 x 6 ft	1	188.23	23.93	164.3	12.7	0.94	0.93	1,279.62	1,279.60	1,289.44	1,290.60	0	1,281.74	1,281.74	1,281.76	1,281.75	1.14	8.86	7.70
MH-41	MH-27	N-8	Box - Concrete	19.4		6 x 6 ft	1	367.55	21.86	345.69	5.9	0.57	0.57	1,279.63	1,279.62	1,289.15	1,289.44	0.001	1,281.74	1,281.74	1,281.75	1,281.75	0.69	7.70	7.41
EX JB N-3	EX JB N-2	N-9	Box - Concrete	89.1		6 x 3 ft	1	255.12	1.75	253.38	0.7	0.5	0.15	1,281.16	1,279.79	1,289.57	1,289.64	0.015	1,281.74	1,281.74	1,281.74	1,281.74	0.1	7.90	7.83
EX JB N-2	MH-41	N-9	Box - Concrete	17.3		6 x 6 ft	1	518.77	16.81	501.96	3.2	1.44	1.33	1,279.79	1,279.63	1,289.64	1,289.15	0.009	1,281.74	1,281.74	1,281.77	1,281.77	0.47	7.41	7.90
AI JJ-1	EX JB N-3	N-10	Circle - Concrete	50.6	30	30 inch	1	98.5	0.13	98.36	0.1	1.6	0.16	1,284.08	1,281.16	1,292.43	1,289.57	0.058	1,284.20	1,281.74	1,284.24	1,281.74	0.07	7.83	8.23
CI O-1	MH-33	O-1	Circle - Concrete	16.2	18	18 inch	1	6.38	2.27	4.11	35.6	1.35	1.31	1,280.30	1,280.24	1,285.62	1,289.00	0.004	1,281.66	1,281.66	1,281.69	1,281.68	0.62	7.34	3.96
CI P-1	MH-32	P-1	Circle - Concrete	14.5	18	18 inch	1	5.52	0.66	4.87	11.9	0.38	0.38	1,280.28	1,280.24	1,286.79	1,289.00	0.003	1,281.67	1,281.67	1,281.67	1,281.67	0.35	7.33	5.12
CI R-1	MH-30	R-1	Circle - Concrete	15.3	18	18 inch	1	8.06	0.91	7.15	11.3	2.84	3.02	1,281.88	1,281.79	1,288.35	1,291.00	0.006	1,282.23	1,282.13	1,282.36	1,282.27	0.34	8.87	6.12
CI S-1	MH-29	S-1	Circle - Concrete	13.6	18	18 inch	1	6.38	0.76	5.62	11.9	2.43	2.7	1,281.85	1,281.80	1,288.41	1,291.50	0.004	1,282.20	1,282.12	1,282.29	1,282.24	0.35	9.38	6.21
CI T-2	MH-27	T-1	Circle - Concrete	17	30	30 inch	1	22.23	0.25	21.97	1.1	1.51	1.88	1,281.92	1,281.87	1,292.13	1,289.44	0.003	1,282.11	1,282.03	1,282.14	1,282.09	0.19	7.41	10.02
CI T-1	MH-28	T-1	Circle - Concrete	13.5	18	18 inch	1	6.4	0.1	6.3	1.6	1.34	1.59	1,281.90	1,281.85	1,289.41	1,290.60	0.004	1,282.03	1,281.97	1,282.06	1,282.01	0.13	8.63	7.38
CI U-1	MH-41	U-1	Circle - Concrete	17.1	18	18 inch	1	3.59	0.15	3.44	4.2	1.15	1.77	1,281.90	1,281.88	1,289.40	1,289.15	0.001	1,282.09	1,282.02	1,282.11	1,282.07	0.21	7.13	7.31
CI U-2	EX JB N-2	U-2	Circle - Concrete	56.1	24	24 inch	1	14.58	15.06	-0.48	103.3	5.58	6.42	1,281.86	1,281.63	1,290.53	1,289.64	0.004	1,283.47	1,283.03	1,283.95	1,283.67	1.71	6.61	7.06
CI U-3	CI U-2	U-3	Circle - Concrete	33.2	30	30 inch	1	31.02	14.96	16.06	48.2	5.78	4.84	1,282.15	1,281.96	1,290.64	1,290.53	0.006	1,283.45	1,283.47	1,283.97	1,283.83	1.22	7.06	7.19
CI U-4	CI U-3	U-4	Circle - Concrete	101.6	24	24 inch	1	16.64	14.86	1.78	89.3	5.99	6.38	1,283.19	1,282.64	1,290.25	1,290.64	0.005	1,284.66	1,284.03	1,285.22	1,284.66	1.47	6.61	5.59
JB U4A	CI U-4	U-5	Circle - Concrete	54.7	24	24 inch	1	15.89	12.24	3.65	77	5.56	5.28	1,283.55	1,283.28	1,290.41	1,290.25	0.005	1,284.87	1,284.66	1,285.35	1,285.10	1.32	5.59	5.54
CI U-5	JB U4A	U-6	Circle - Concrete	111.5	24	24 inch	1	16.03	0.91	15.13	5.7	0.83	0.41	1,284.11	1,283.55	1,291.71	1,290.41	0.005	1,284.87	1,284.87	1,284.88	1,284.87	0.32	5.54	6.84
CI U-6	CI U-5	U-7	Circle - Concrete	59.7	24	24 inch	1	24.67	0.55	24.11	2.2	2.37	0.77	1,285.02	1,284.31	1,293.02	1,291.71	0.012	1,285.28	1,284.87	1,285.36	1,284.88	0.21	6.84	7.74
CI U-7	CI U-6	U-8	Circle - Concrete	27.4	24	24 inch	1	16.16	0.4	15.76	2.5	2.18	2.19	1,285.26	1,285.12	1,294.00	1,293.02	0.005	1,285.48	1,285.34	1,285.55	1,285.41	0.22	7.68	8.52
AI U-8	CI U-7	U-9	Circle - Concrete	23.7	18	18 inch	1	26.79	0.25	26.54	0.9	2.02	4.78	1,290.72	1,289.18	1,292.43	1,294.00	0.065	1,290.91	1,289.28	1,290.97	1,289.64	0.1	4.72	1.52
CI V-1	CI U-4	V-1	Circle - Concrete	33.7	18	18 inch	1	7.24	1.92	5.32	26.5	1.16	1.09	1,283.35	1,283.19	1,290.25	1,290.25	0.005	1,284.67	1,284.66	1,284.69	1,284.68	0.53	5.59	5.58
CI W-1	MH-33	W-1	Circle - Concrete	16.5	18	18 inch	1	6.33	2.82	3.51	44.6	1.67	1.63	1,280.30	1,280.24	1,286.66	1,289.00	0.004	1,281.66	1,281.66	1,281.71	1,281.70	0.7	7.34	5.00
CI W-0	JB N-1	W-1	Circle - Concrete	59.9	30	30 inch	1	21.19	1.56	19.63	7.4	0.59	0.51	1,280.27	1,280.11	1,286.46	1,285.00	0.003	1,281.60	1,281.59	1,281.60	1,281.60	0.46	3.41	4.86
CI X-1	MH-32	X-1	Circle - Concrete	16.5	18	18 inch	1	6.33	4.34	1.99	68.6	2.54	2.5	1,280.30	1,280.24	1,286.79	1,289.00	0.004	1,281.69	1,281.67	1,281.79	1,281.77	0.91	7.33	5.10
CI Z-1	MH-30	Z-1	Circle - Concrete	15.4	18	18 inch	1	6.56	4.14	2.42	63.1	4.04	4.46	1,281.85	1,281.79	1,288.35	1,291.00	0.004	1,282.69	1,282.57	1,282.95	1,282.88	0.86	8.43	5.66
JB Z0	MH-50	Z-1	Box - Concrete	148.5		6 x 3 ft	1	111.82	39.85	71.98	35.6	3.67	2.99	1,279.94	1,279.50	1,290.00	1,290.26	0.003	1,281.75	1,281.72	1,281.96	1,281.86	1.19	8.54	8.25
JB-ZSTM	JB Z0	Z-2	Box - Concrete	131.6		6 x 3 ft	1	43.93	39.85	4.09	90.7	3.55	3.67	1,280.00	1,279.94	1,283.50	1,290.00	0	1,281.87	1,281.75	1,282.07	1,281.96	2.29	8.25	1.63
JB K-0	JB-ZSTM	ZSTM	Circle - Concrete	127.2	24	24 inch	1	23.39	39.85	-16.46	170.4	12.68	12.77	1,281.36	1,280.00	1,292.15	1,283.50	0.011	1,285.93	1,281.95	1,288.43	1,284.48	(N/A)	1.55	6.22

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO. M08-25007-00 | DESIGNED BY | REVIEWED BY | DRAWN BY
ORIGINAL ISSUE | DATE

SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

PROPOSED STORM CALCULATIONS-10 YEAR EVENT

C8.023PH2

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Start Node	Stop Node	Label	Catalog Class	Length (unified) (ft)	Diameter (in)	Size	Barrels	Capacity (design) (CFS)	Flow (CFS)	Capacity (Excess Full Flow) (CFS)	Flow / capacity (Design) (%)	Velocity (in) (ft/s)	Velocity (out) (ft/s)	Invert (start) (ft)	Invert (stop) (ft)	Elevation ground (start) (ft)	Elevation Ground (stop) (ft)	Slope (calculated) (ft/ft)	Hydraulic Grade line In (ft)	Hydraulic Grade line out (ft)	Energy Grade Line in (ft)	Energy Grade line out (ft)	depth (ft)	surcharge downstream (ft)	surcharge upstream (ft)
JB A-1	PR CI A-0	A-1	Circle - Concrete	26.9	36	36 inch	1	94.42	31.28	63.14	33.1	7	9.78	1,283.16	1,282.62	1,290.69	1,289.80	0.02	1,284.97	1,284.01	1,285.74	1,285.49	1.19	5.79	5.72
EX JB A-1	O-1	A-1	Box - Concrete	38.4		6 x 3 ft	1	839.01	155.86	683.14	18.6	6.53	9.73	1,278.71	1,278.00	1,287.10	1,281.00	0.018	1,280.04	1,278.89	1,280.70	1,280.36	0.77	2.11	7.06
EX CI A-2	EX JB A-1	A-2	Box - Concrete	64		6 x 3 ft	1	344.91	103.63	241.28	30	4.94	4.34	1,278.91	1,278.71	1,287.20	1,287.10	0.003	1,280.08	1,280.04	1,280.45	1,280.33	1.06	7.06	7.12
CI A-2	JB A-1	A-2	Circle - Concrete	45.1	36	36 inch	1	94.77	31.28	63.48	33	7	10.45	1,284.27	1,283.36	1,289.59	1,290.69	0.02	1,286.08	1,284.68	1,286.85	1,286.38	1.19	6.01	3.51
AI A-3	AI A-2	A-2	Box - Concrete	47		6 x 3 ft	1	79.4	100.79	-21.39	126.9	6.99	8.15	1,279.42	1,279.35	1,286.65	1,286.15	0.001	1,281.82	1,281.41	1,282.58	1,282.44	2.93	4.74	4.83
CI A-3	CI A-2	A-3	Circle - Concrete	147.1	30	30 inch	1	29.67	8.67	21	29.2	4.85	2.42	1,285.14	1,284.37	1,291.74	1,289.59	0.005	1,286.12	1,286.08	1,286.49	1,286.17	0.93	3.51	5.62
JB N-1	AI A-3	A-3	Box - Concrete	20.1		6 x 3 ft	1	158.99	100.55	58.44	63.2	3.52	3.49	1,279.45	1,279.42	1,285.00	1,286.65	0.001	1,281.83	1,281.82	1,282.03	1,282.01	1.77	4.83	3.17
AI A-2	EX CI A-2	A-3	Box - Concrete	204.5		6 x 3 ft	1	190.87	101.91	88.96	53.4	5.45	6.49	1,279.35	1,278.91	1,286.15	1,287.20	0.002	1,280.91	1,280.22	1,281.37	1,280.87	1.57	6.98	5.24
CI A-4	CI A-3	A-4	Circle - Concrete	109.8	30	30 inch	1	29.02	7.9	21.12	27.2	4.72	5.03	1,285.79	1,285.24	1,292.92	1,291.74	0.005	1,286.72	1,286.13	1,287.07	1,286.52	0.89	5.61	6.20
CI A-5	CI A-4	A-5	Circle - Concrete	95.8	30	30 inch	1	29.34	7.66	21.68	26.1	4.68	5.03	1,286.38	1,285.89	1,292.90	1,292.92	0.005	1,287.30	1,286.76	1,287.64	1,287.15	0.87	6.16	5.60
CI A-6	CI A-5	A-6	Circle - Concrete	112.6	30	30 inch	1	26.78	6.18	20.6	23.1	4.39	4.44	1,286.96	1,286.48	1,292.23	1,292.90	0.004	1,287.78	1,287.30	1,288.08	1,287.60	0.82	5.60	4.45
JB A-7	CI A-6	A-7	Circle - Concrete	85.7	21	21 inch	1	18.52	3.1	15.42	16.7	3.9	3.31	1,288.23	1,287.06	1,293.20	1,292.23	0.014	1,288.87	1,287.78	1,289.11	1,287.95	0.48	4.45	4.33
CI A-8	JB A-7	A-8	Circle - Concrete	151.6	21	21 inch	1	11.07	0.95	10.12	8.6	2.8	2.29	1,289.21	1,288.47	1,294.28	1,293.20	0.005	1,289.56	1,288.87	1,289.68	1,288.95	0.35	4.33	4.72
EX JB A-9	CI A-8	A-9	Circle - Concrete	31.9	21	21 inch	1	12.24	0.12	12.12	1	1.62	1.1	1,289.59	1,289.40	1,295.67	1,294.28	0.006	1,289.71	1,289.56	1,289.75	1,289.58	0.12	4.72	5.96
CI A-10	EX JB A-9	A-10	Circle - Concrete	122.3	21	21 inch	1	15.63	0.12	15.51	0.8	1.62	1.92	1,290.88	1,289.69	1,296.50	1,295.67	0.01	1,291.00	1,289.80	1,291.04	1,289.86	0.11	5.87	5.50
CI AA-1	MH-29	AA-1	Circle - Concrete	14.8	18	18 inch	1	6.68	2.55	4.13	38.1	3.54	3.82	1,281.86	1,281.80	1,288.40	1,291.50	0.004	1,282.50	1,282.40	1,282.69	1,282.63	0.64	9.10	5.90
EX CI B-1	EX CI F-4	B-1	Box - Concrete	88.9		6 x 3 ft	1	109.1	3.42	105.69	3.1	1.92	1.1	1,281.61	1,281.36	1,287.57	1,287.10	0.003	1,281.91	1,281.88	1,281.96	1,281.90	0.25	5.22	5.66
CI B-1	CI A-2	B-1	Circle - Concrete	40.2	36	36 inch	1	48.23	19.59	28.64	40.6	5.34	4.44	1,284.50	1,284.29	1,289.58	1,289.59	0.005	1,286.05	1,286.08	1,286.49	1,286.39	1.33	3.51	3.53
CI B-2	CI B-1	B-2	Circle - Concrete	145.2	30	30 inch	1	28.88	3.14	25.74	10.9	3.63	1.38	1,285.59	1,284.87	1,292.12	1,289.58	0.005	1,286.17	1,286.05	1,286.38	1,286.08	0.56	3.53	5.95
CI B-3	CI B-2	B-3	Circle - Concrete	205.6	30	30 inch	1	29.03	2.43	26.6	8.4	3.38	3.59	1,286.72	1,285.69	1,293.30	1,292.12	0.005	1,287.23	1,286.18	1,287.41	1,286.38	0.49	5.94	6.07
CI B-4	CI B-3	B-4	Circle - Concrete	113.2	30	30 inch	1	26.7	2.19	24.51	8.2	3.28	3.29	1,287.30	1,286.82	1,292.62	1,293.30	0.004	1,287.78	1,287.30	1,287.95	1,287.47	0.48	6.00	4.84
CI B-5	CI B-4	B-5	Circle - Concrete	69.5	24	24 inch	1	16.28	1.48	14.8	9.1	3.08	3.22	1,288.16	1,287.80	1,293.28	1,292.62	0.005	1,288.58	1,288.21	1,288.73	1,288.37	0.41	4.41	4.70
CI B-7	CI B-5	B-6	Circle - Concrete	165.9	24	24 inch	1	22.49	1.01	21.48	4.5	2.78	3.61	1,289.90	1,288.26	1,293.78	1,293.28	0.01	1,290.25	1,288.55	1,290.37	1,288.75	0.29	4.73	3.53
EX JB B-8	CI B-7	B-8	Ellipse - Concrete	96.1		23x14 inch	1	6.86	0	6.86	0	0	0	1,290.43	1,290.00	1,295.61	1,293.78	0.004	1,290.43	1,290.25	1,290.43	1,290.25	-0.14	3.53	5.18
CI BB-1	MH-41	BB-1	Circle - Concrete	16	24	24 inch	1	14.97	5.75	9.22	38.4	1.83	1.83	1,279.82	1,279.75	1,289.40	1,289.15	0.004	1,282.00	1,281.99	1,282.05	1,282.04	0.86	7.16	7.40
CI BB-2	CI BB-1	BB-2	Circle - Concrete	41	24	24 inch	1	22.36	3.61	18.74	16.2	1.22	1.15	1,280.22	1,279.82	1,288.72	1,289.40	0.01	1,282.01	1,282.00	1,282.03	1,282.02	0.54	7.40	6.71
CI BB-3	CI BB-2	BB-3	Ellipse - Concrete	94.7		14x23 inch	1	7.15	3.32	3.83	46.4	1.88	1.88	1,280.78	1,280.32	1,288.50	1,288.72	0.005	1,282.10	1,282.01	1,282.16	1,282.06	0.57	6.71	6.40
CI BB-4	CI BB-3	BB-4	Ellipse - Concrete	149.7		14x23 inch	1	7.41	1.42	5.99	19.2	2.34	0.8	1,281.66	1,280.88	1,288.96	1,288.50	0.005	1,282.11	1,282.10	1,282.19	1,282.11	0.36	6.40	6.85
CI BB-5	CI BB-4	BB-5	Ellipse - Concrete	31.8		14x23 inch	1	7.28	0.71	6.57	9.8	2.44	1.66	1,281.92	1,281.76	1,288.96	1,288.96	0.005	1,282.18	1,282.11	1,282.28	1,282.15	0.26	6.85	6.78
AI BB-6	CI BB-5	BB-6	Circle - Concrete	20.1	18	18 inch	1	10.74	0.24	10.51	2.2	1.98	2.48	1,285.50	1,285.29	1,288.73	1,288.96	0.01	1,285.68	1,285.44	1,285.74	1,285.54	0.15	3.52	3.05
JB C-1	CI B-1	C-1	Circle - Concrete	14.1	24	24 inch	1	20.02	15.68	4.33	78.4	6.53	6.45	1,284.71	1,284.60	1,290.10	1,289.58	0.008	1,286.14	1,286.05	1,286.80	1,286.69	1.33	3.53	3.96
AI C-2	JB C-1	C-2	Circle - Concrete	29.8	24	24 inch	1	17.07	15.68	1.39	91.9	6.2	6.53	1,284.98	1,284.81	1,289.70	1,290.10	0.006	1,286.48	1,286.24	1,287.08	1,286.90	1.51	3.86	3.22
CI CC-1	CI BB-3	CC-1	Circle - Concrete	33	18	18 inch	1	7.09	1.3	5.78	18.4	1.07	0.92	1,281.13	1,280.98	1,288.72	1,288.50	0.005	1,282.11	1,282.10	1,282.13	1,282.12	0.44	6.40	6.61
CI D-1	JB A-7	D-1	Circle - Concrete	50.2	18	18 inch	1	7.11	2.15	4.96	30.3	3.53	3.63	1,288.70	1,288.47	1,293.13	1,293.20	0.005	1,289.27	1,289.02	1,289.46	1,289.23	0.57	4.18	3.86
CI D-2	CI D-1	D-2	Circle - Concrete	38.6	18	18 inch	1	7.56	1.44	6.12	19.1	3.23	3.3	1,289.10	1,288.90	1,293.13	1,293.13	0.005	1,289.55	1,289.34	1,289.71	1,289.51	0.44	3.79	3.58
AI D-3	CI D-2	D-3	Circle - Concrete	15.2	18	18 inch	1	6.03	1.03	5	17	2.58	2.94	1,289.25	1,289.20	1,293.24	1,293.13	0.003	1,289.67	1,289.58	1,289.77	1,289.71	0.42	3.55	3.57
CI DD-3	JB DD-2	DD-2	Ellipse - Concrete	74.8		30x19 inch	1	19.91	9.3	10.61	46.7	5.71	6.17	1,282.84	1,282.25	1,286.83	1,287.20	0.008	1,284.13	1,283.46	1,284.63	1,284.05	1.21	3.74	2.70
CI DD-4	CI DD-3	DD-3	Ellipse - Concrete	102.8		30x19 inch	1	16.55	8.06	8.49	48.7	5.17	4.95	1,283.40	1,282.84	1,286.98	1,286.83	0.005	1,284.64	1,284.13	1,285.06	1,284.51	1.24	2.70	2.34
CI DD-5	CI DD-4	DD-4	Ellipse - Concrete	153.7		30x19 inch	1	15.98	5.98	9.99	37.4	4.7	3.84	1,284.18	1,283.40	1,288.33	1,286.98	0.005	1,285.24	1,284.64	1,285.59	1,284.87	1.06	2.34	3.09
CI DD-6	CI DD-5	DD-5	Ellipse - Concrete	90.8		30x19 inch	1	14.69	5.15	9.54	35.1	4.26	4.62	1,284.67	1,284.28	1,288.55	1,288.33	0.004	1,285.69	1,285.24	1,285.98	1,285.57	1.02	3.09	2.86
CI DD-7	CI DD-6	DD-6	Ellipse - Concrete	83.7		30x19 inch	1	16.26	3.97	12.29	24.4	4.32	3.88	1,285.23	1,284.79	1,289.00	1,288.55	0.005	1,286.07	1,285.69	1,286.36	1,285.93	0.84	2.86	2.93
AI DD-8	CI DD-7	DD-7	Ellipse - Concrete	76.1		30x19 inch	1	15.21	2.55	12.66	16.7	3.68	2.96	1,285.62	1,285.27	1,289.20	1,289.00	0.005	1,286.30	1,286.07	1,286.51	1,286.20	0.68	2.93	2.90
JB DD-9	AI DD-8	DD-8	Ellipse - Concrete	55		23x14 inch	1	7.94	1.9	6.04	23.9	3.77	3.8	1,286.05	1,285.72	1,289.58	1,289.20	0.006	1,286.67	1,286.34	1,286.89	1,286.56	0.62	2.86	2.91
AI EE-1	AI EE-0	EE-0	Ellipse - Concrete	8.1		45x29 inch	1	69.61	2.71	66.91	3.9	3.67	3.59	1,282.09	1,282.00	1,287.21	1,289.00	0.011	1,282.70	1,282.62	1,282.91	1,282.82	0.48	6.38	4.51
CI EE-2	AI EE-1	EE-1	Ellipse - Concrete	39.2		45x29 inch	1	48.23	1.54	46.69	3.2	3.17	2.09	1,282.30	1,282.09	1,287.26	1,287.21	0.005	1,282.76	1,282.70	1,282.91	1,282.76	0.44	4.51	4.50
AI EE1	CI DD10	EE-1	Ellipse - Concrete	48.7		14x23 inch	1	6.57	1.01	5.57	15.3	2.57	2.1	1,286.69	1,286.49	1,288.66	1,289.58	0.004	1,287.01	1,286.86	1,287.12	1,286.93	0.32	2.72	1.65
CI EE-3	CI EE-2	EE-2	Ellipse - Concrete	45.8		38x24 inch	1	25.35	1.48	23.87	5.8	3.01	3.22	1,282.48	1,282.30	1,287.04	1,287.26	0.004	1,282.97	1,282.77	1,283.11	1,282.93	0.49	4.49	4.07
AI EE2	AI EE1	EE-2	Ellipse - Concrete	29		14x23 inch	1	7.38	0.41	6.96	5.6	2.12	1.06	1,286.84	1,286.69	1,288.75	1,288.66	0.005	1,287.04	1,287.01	1,287.11	1,287.03	0.2	1.65	1.71
CI EE-4	CI EE-3	EE-3	Ellipse - Concrete	98.8		38x24 inch	1	30.44	1.13	29.32	3.7	3	2.29	1,283.04	1,282.48	1,287.00	1,287.04	0.006	1,283.45	1,282.97	1,283.59	1,283.05	0.39	4.07	3.55
JB EE-5	CI EE-4	EE-4	Ellipse - Concrete	70.8		38x24 inch	1	28.01	0.3	27.71	1.1	2.12	0.79	1,283.38	1,283.04	1,287.50	1,287.00	0.005	1,283.59	1,283.45	1,283.66	1,283.46	0.21	3.55	3.91
JB DD-2	EX CI F-4	EX DD-1	Circle - Concrete	93.1	24	24 inch	1	22.12	9.3	12.82	42	5.32	6.74	1,282.25	1,281.36	1,287.20	1,287.10	0.01	1,283.34	1,282.26	1,283.78	1,282.97	0.9	4.84	3.86
AI EE-0	EX CI B-1	EX EE-1	Ellipse - Concrete	92.7		45x29 inch	1	42.76	2.71	40.06	6.3	3.59	3.67	1,282.00	1,281.61	1,289.00	1,287.57	0.004	1,282.62	1,282.22	1,282.82	1,282.43	0.62	5.35	6.38
MH-45	EX CI B-1	EX MM1	Box - Concrete	117.9		6 x 3 ft	1	116.8	0.71	116.09	0.6	1.3	0.4	1,281.99	1,281.61	1,288.20	1,287.57	0.003	1,282.08	1,281.91	1,282.11	1,281.91	0.09	5.66	6.12
CI MM-1	MH-45	EX MM2	Circle - Concrete	88.9	18	18 inch	1	9.78	0.71	9.07	7.3	2.66	3.22	1,284.26	1,283.49	1,288.50	1,288.20	0.009	1,284.57	1,283.76	1,284.68	1,283.93	0.27	4.44	3.93
EX CI F-1	EX JB A-1	F-1	Box - Concrete	268.4		6 x 3 ft	1	96.47	14.85	81.62	15.4	3	1.87	1,279.30	1,278.71	1,285.84	1,287.10	0.002	1,280.13	1,280.04	1,280.26	1,280.09	0.68	7.06	5.71
EX CI F-2	EX CI F-1	F-2	Box - Concrete	217.5		6 x 3 ft	1	180.29	14.85	165.44	8.2	4.3	3	1,280.97	1,279.30	1,286.62	1,285.84	0.008	1,281.55	1,280.13	1,281.83	1,280.26	0.46	5.71	5.07
EX CI F-3	EX CI F-2	F-3	Circle - Concrete	85.7	18	18 inch	1	12.84	2.13	10.71	16.6	3.62	3.42	1,282.25	1,280.97	1,286.97	1,286.62	0.015	1,282.80	1,281.55	1,283.01	1,281.73	0.41	5.07	4.17
EX CI F-4	EX CI F-2	F-4	Box - Concrete	84.1		6 x 3 ft	1	140.14	12.72	127.42	9.1	4.09	3.68	1,281.36	1,280.97	1,287.10	1,286.62	0.005	1,281.88	1,281.55	1,282.14	1,281.76	0.49	5.07	5.22
CI FF-1	CI DD-6	FF-1	Circle - Concrete	30.9	18	18 inch	1	7.55	0.3	7.26	3.9	0.39	0.3	1,285.03	1,284.87	1,288.88	1,288.55	0.005	1,285.69	1,285.69	1,285.70	1,285.70	0.2	2.86	3.19
JB FF-1	JB DD-9	FF-1	Ellipse - Concrete	60.2		14x23 inch	1	5.12	0.53	4.59	10.4	0.81	0.57	1,286.20	1,286.05	1,289.38	1,289.58	0.002	1,286.68	1,286.67	1,286.69	1,286.68	0.27	2.91	2.70
AI FF-2	JB FF-1	FF-2	Ellipse - Concrete	20.7		14x23 inch	1	14.8	0.53	14.27	3.6	2.26	0.81	1,286.63	1,286.20	1,290.00	1,289.38	0.021	1,286.86	1,286.68	1,286.94	1,286.69	0.16	2.70	3.14
EX CI G-1	EX JB A-1	G-1	Pipe-Arch - Concrete	183.5		51.12 x 31.	1	93.61	37.38	56.23	39.9	6.79	9.99	1,280.98	1,278.71	1,287.96	1,287.10	0.012	1,282.44	1,279.73	1,283.16	1,281.29	1.02	7.37	5.52
CI G-1	EX CI G-2	G-1	Circle - Concrete	70.8	36	36 inch	1	38.01	4.09	33.92	10.8	2.93	2.09	1,282.40	1,282.17	1,288.67	1,288.26	0.003	1,283.15	1,283.13	1,283.29	1,283.20	0.66	5.13	5.52
EX CI G-2	EX CI G-1	G-2	Pipe-Arch - Concrete	74.2		51.12 x 31.	1	81.15	37.38	43.77	46.1	6.79	8.71	1,281.67	1,280.98	1,288.26	1,287.96	0.009	1,283.13	1,282.14	1,283.85	1,283.32	1.12	5.82	5.13
CI G-2	CI G-1	G-2	Circle - Concrete	52.5	30	30 inch	1	18.77	3.44	15.34	18.3	2.99	3.72	1,282.76	1,282.65	1,287.74	1,288.67	0.002	1,283.47	1,283.26	1,283.61	1,283.47	0.72	5.41	4.27
CI G2A	CI G-2	G-2A	Circle - Concrete	30.5	24	24 inch	1	17.86	2.61	15.25	14.6	3.6	4.06	1,283.15	1,282.96	1,288.31	1,287.74	0.006	1,283.71	1,283.48	1,283.91	1,283.73	0.52	4.26	4.60
PR CI A-0	EX CI G-2	G-3	Pipe-Arch - Concrete	252.3		51.12 x 31.	1	45.89	31.88	14.01	69.5	5.71	5.79	1,282.42	1,281.67	1,289.80	1,288.26	0.003	1,283.90	1,283.13	1,284.41	1,283.65	1.48	5.13	5.90
CI G-3	CI G-2	G-3	Circle - Concrete	59.1	30	30 inch	1	29.23	0.41	28.82	1.4	1.19	0.45	1,283.16	1,282.86	1,288.69	1,287.74	0.005	1,283.47	1,283.47	1,283.49	1,283.47	0.21	4.27	5.22
CI G-4	CI G-3	G-4	Circle - Concrete	26.2	24	24 inch	1	15.94	0.3	15.65	1.9	1.96	1.82	1,283.40	1,283.27	1,289.89	1,288.69	0.005	1,283.59	1,283.47	1,283.65	1,283.52	0.19	5.22	6.30
CI K-7	CI K-6	G-8	Circle - Concrete	42.2	18	18 inch	1	5.36	2.01	3.35	37.6	1.14	1.14	1,286.64	1,286.53	1,293.27	1,291.60	0.003	1,288.14	1,288.13	1,288.16	1,288.15	0.64	3.47	5.13
CI E-1	CI K-7	G-9	Circle - Concrete	29.6	18	18 inch	1	11.09	0.65	10.44	5.9	0.54	0.4	1,287.17	1,286.84	1,293.28	1,293.27	0.011	1,288.14	1,288.14	1,288.15	1,288.15	0.25	5.13	5.14
CI GG-1	CI DD-7	GG-1	Circle - Concrete	28.8	18	18 inch	1	10.55	0.18	10.37	1.7	0.58	0.25	1,285.72	1,285.43	1,288.84	1,289.00	0.01	1,286.06	1,286.07	1,286.07	1,286.07	0.14	2.93	2.78
CI K-8	CI K-7	H-1	Circle - Concrete	81.5	18	18 inch	1	7.27	0.41	6.85	5.7	0.37	0.25	1,287.23	1,286.84	1,293.54	1,293.27	0.005	1,288.14	1,288.14	1,288.15	1,288.14	0.24	5.13	5.40
CI HH-1	AI DD-8	HH-1	Ellipse - Concrete	28.3		23x14 inch	1	7.71	0.47	7.23	6.1	1.61	1.03	1,285.88	1,285.72	1,289.10	1,289.20	0.006	1,286.30	1,286.30	1,286.34	1,286.32	0.3	2.90	2.80
JB HH-2	CI HH-1	HH-2		34.1	12		1	2.59	0.12	2.47	4.6	0.8	0.37	1,286.06	1,285.88	1,291.00	1,289.10	0.005	1,286.30	1,286.30	1,286.31	1,286.31	0.15	2.80	4.70
CI HH-3	JB HH-2	HH-3		46.9	12		1	2.27	0.12	2.15	5.2	1.52	0.8	1,286.25	1,286.06	1,291.00	1,291.00	0.004	1,286.41	1,286.30	1,286.44	1,286.31	0.16	4.70	4.59
JB I-1	EX CI A-2	I-1	Circle - Concrete	72.3	24	24 inch	1	41.38	0.12	41.27	0.3	1.59	2.89	1,282.89	1,280.47	1,288.21	1,287.20	0.033	1,283.01	1,280.55	1,283.05	1,280.68	0.08	6.65	5.20
CI I-2	JB I-1	I-2	Circle - Concrete	39.7	24	24 inch	1	14.81	0.12	14.69	0.8	1.41	1.59	1,283.26	1,283.09	1,288.75	1,288.21	0.004	1,283.39	1,283.21	1,283.42	1,283.25	0.13	5.00	5.36
CI II-1	JB EE-5	II-1	Circle - Concrete	38.1	24	24 inch	1	15.98	0.3	15.68	1.9	1.97	2.02	1,283.67	1,283.48	1,287.50	1,287.50	0.005	1,283.86	1,283.67	1,283.92	1,283.73	0.19	3.83	3.64
CI J-1	JB K-0	J-0	Circle - Concrete	98.2	24	24 inch	1	47.06	20.67	26.38	43.9	6.58	6.58	1,285.61	1,281.36	1,290.96	1,292.15	0.043	1,288.38	1,287.56	1,289.05	1,288.23	0.93	4.59	2.58
CI J-2	CI J-1	J-1	Circle - Concrete	30.9	24	24 inch	1	17.74	16.88	0.86	95.2	5.37	5.37	1,286.00	1,285.81	1,290.96	1,290.96	0.006	1,288.55	1,288.38	1,289.00	1,288.83	1.56	2.58	2.41
CI JJ-2	MH-27	JJ-1	Circle - Concrete	16.1	24	24 inch	1	12.62	2.13	10.49	16.9	3.04	3.4	1,281.92	1,281.87	1,289.52	1,289.44	0.003	1,282.47	1,282.38	1,282.61	1,282.56	0.56	7.06	7.05
CI JJ-1	MH-28	JJ-1	Circle - Concrete	15.6	18	18 inch	1	5.95	2.49	3.46	41.9	3.33	3.79	1,281.90	1,281.85	1,289.41	1,290.60	0.003	1,282.56	1,282.45	1,282.73	1,282.67	0.68	8.15	6.85
CI DD10	JB DD-9	JJ-1	Ellipse - Concrete	34.3		23x14 inch	1	7.01	1.36	5.64	19.4	3.16	3.45	1,286.31	1,286.15	1,289.58	1,289.58	0.005	1,286.86	1,286.67	1,287.02	1,286.86	0.55	2.91	2.72
CI DD11	CI DD10	JJ-2	Ellipse - Concrete	29.9		23x14 inch	1	7.5	0.18	7.33	2.4	1.57	0.72	1,286.65	1,286.49	1,289.84	1,289.58	0.005	1,286.87	1,286.86	1,286.91	1,286.87	0.19	2.72	2.97
CI K-1A	JB K-0	K-0	Circle - Concrete	67.3	24	24 inch	1	46.14	7.82	38.32	16.9	2.49	2.49	1,284.16	1,281.36	1,292.82	1,292.15	0.042	1,287.64	1,287.56	1,287.74	1,287.66	0.56	4.59	5.18
AI K-0	JB K-0	K-0AI	Circle - Concrete	10.5	24	24 inch	1	22.11	18.31	3.81	82.8	5.83	5.83	1,281.46	1,281.36	1,292.15	1,292.15	0.01	1,287.63	1,287.56	1,288.16	1,288.09	1.39	4.59	4.52
CI K-2	CI K-1A	K-1	Circle - Concrete	31.8	24	24 inch	1	18.39	6.28	12.11	34.2	2	2	1,284.47	1,284.26	1,292.24	1,292.82	0.007	1,287.66	1,287.64	1,287.73	1,287.70	0.81	5.18	4.58
CI K-3	CI K-2	K-2	Circle - Concrete	61.1	24	24 inch	1	18.52	6.22	12.3	33.6	1.98	1.98	1,285.08	1,284.67	1,291.28	1,292.24	0.007	1,287.71	1,287.66	1,287.77	1,287.73	0.8	4.58	3.57
CI K-4	CI K-3	K-3	Circle - Concrete	22.7	24	24 inch	1	15.01	4.74	10.27	31.6	1.51	1.51	1,285.28	1,285.18	1,291.08	1,291.28	0.004	1,287.72	1,287.71	1,287.76	1,287.75	0.77	3.57	3.36
CI K-5	CI K-4	K-4	Circle - Concrete	45.8	24	24 inch	1	20.05	4.44	15.61	22.2	1.41	1.41	1,285.64	1,285.28	1,290.68	1,291.08	0.008	1,287.74	1,287.72	1,287.77	1,287.75	0.64	3.36	2.94
CI K-6	CI K-5	K-5		69.5	12		1	3.11	2.67	0.45	85.7	3.39	3.39	1,286.27	1,285.74	1,291.60	1,290.68	0.008	1,288.13	1,287.74	1,288.31	1,287.92	0.71	2.94	3.47
AI KK-1	JB U4A	KK-1	Circle - Concrete	17	24	24 inch	1	22.64	13.31	9.33	58.8	6.09	5.93	1,283.92	1,283.75	1,289.00	1,290.41	0.01	1,285.23	1,285.09	1,285.81	1,285.64	1.1	5.32	3.77
CI K-3A	CI K-3	L-1	Circle - Concrete	32.1	18	18 inch	1	8.29	0.3	7.99	3.6	1.82	0.71	1,287.48	1,287.28	1,291.64	1,291.28	0.006	1,287.70	1,287.71	1,287.75	1,287.72	0.19	3.57	3.94
CI L-1	CI K-5	L-1	Circle - Concrete	32	18	18 inch	1	8.51	0.53	7.98	6.3	0.3	0.3	1,285.95	1,285.74	1,290.68	1,290.68	0.007	1,287.74	1,287.74	1,287.74	1,287.74	0.25	2.94	2.94
CI LL1	EX JB N-3	LL-1	Circle - Concrete	30.5	30	30 inch	1	52.55	1.18	51.36	2.3	2.8	0.84	1,281.66	1,281.16	1,291.39	1,289.57	0.016	1,282.01	1,281.98	1,282.14	1,281.99	0.26	7.59	9.38
AI LL-3	EX JB N-3	LL-2	Circle - Concrete	33.6	30	30 inch	1	60.02	0.71	59.31	1.2	2.45	0.71	1,282.06	1,281.34	1,292.00	1,289.57	0.021	1,282.33	1,281.98	1,282.43	1,281.99	0.19	7.59	9.67
CI M-1	CI K-6	M-1	Circle - Concrete	28.4	18	18 inch	1	7.37	0.53	6.84	7.2	0.3	0.3	1,286.67	1,286.53	1,293.04	1,291.60	0.005	1,288.13	1,288.13	1,288.13	1,288.13	0.27	3.47	4.91
CI M-2	CI M-1	M-2	Circle - Concrete	58.3	18	18 inch	1	19.99	0.41	19.58	2.1	2.3	0.24	1,288.78	1,286.67	1,292.21	1,293.04	0.036	1,289.02	1,288.13	1,289.10	1,288.13	0.15	4.91	3.19
MH-33	JB N-1	N-1	Box - Concrete	96.1		6 x 3 ft	1	83.96	98.71	-14.75	117.6	3.42	3.45	1,279.49	1,279.45	1,289.00	1,285.00	0	1,281.90	1,281.83	1,282.08	1,282.02	2.77	3.17	7.10
MH-32	MH-33	N-2	Box - Concrete	17.9		6 x 3 ft	1	137.61	92.73	44.88	67.4	3.17	3.21	1,279.47	1,279.49	1,289.00	1,289.00	-0.001	1,281.91	1,281.90	1,282.07	1,282.06	(N/A)	7.10	7.09
MH-50	MH-32	N-3A	Box - Concrete	113		6 x 3 ft	1	68.62	86.87	-18.25	126.6	2.94	2.97	1,279.50	1,279.47	1,290.26	1,289.00	0	1,281.96	1,281.91	1,282.10	1,282.05	2.92	7.09	8.30
MH-31	MH-50	N-3B	Box - Concrete	66.8		6 x 3 ft	1	68.62	40.07	28.55	58.4	1.36	1.36	1,279.52	1,279.50	1,291.00	1,290.26	0	1,281.97	1,281.96	1,282.00	1,281.99	1.67	8.30	9.03
MH-30	MH-31	N-4	Box - Concrete	85.9		6 x 6 ft	1	164.51	40.07	124.44	24.4	1.37	1.36	1,279.54	1,279.52	1,291.00	1,291.00	0	1,281.98	1,281.97	1,282.01	1,282.00	1.78	9.03	9.02
MH-29	MH-30	N-5	Box - Concrete	19.8		6 x 6 ft	1	242.06	34.14	207.91	14.1	1.17	1.17	1,279.55	1,279.54	1,291.50	1,291.00	0.001	1,281.98	1,281.98	1,282.00	1,282.00	1.22	9.02	9.52
MH-28	MH-29	N-6	Box - Concrete	110.3		6 x 6 ft	1	229.61	30.71	198.9	13.4	1.07	1.05	1,279.60	1,279.55	1,290.60	1,291.50	0	1,281.98	1,281.98	1,282.00	1,282.00	1.18	9.52	8.62
MH-27	MH-28	N-7	Box - Concrete	65.6		6 x 6 ft	1	188.23	28.1	160.13	14.9	0.99	0.98	1,279.62	1,279.60	1,289.44	1,290.60	0	1,281.99	1,281.98	1,282.00	1,282.00	1.27	8.62	7.45
MH-41	MH-27	N-8	Box - Concrete	19.4		6 x 6 ft	1	367.55	25.67	341.88	7	0.6	0.6	1,279.63	1,279.62	1,289.15	1,289.44	0.001	1,281.99	1,281.99	1,281.99	1,281.99	0.76	7.45	7.16
EX JB N-3	EX JB N-2	N-9	Box - Concrete	89.1		6 x 3 ft	1	255.12	2.05	253.07	0.8	0.42	0.16	1,281.16	1,279.79	1,289.57	1,289.64	0.015	1,281.98	1,281.98	1,281.99	1,281.99	0.11	7.66	7.59
EX JB N-2	MH-41	N-9	Box - Concrete	17.3		6 x 6 ft	1	518.77	19.75	499.02	3.8	1.5	1.4	1,279.79	1,279.63	1,289.64	1,289.15	0.009	1,281.98	1,281.99	1,282.02	1,282.02	0.52	7.16	7.66
AI JJ-1	EX JB N-3	N-10	Circle - Concrete	50.6	30	30 inch	1	98.5	0.16	98.34	0.2	1.66	0.11	1,284.08	1,281.16	1,292.43	1,289.57	0.058	1,284.21	1,281.98	1,284.25	1,281.98	0.07	7.59	8.22
CI O-1	MH-33	O-1	Circle - Concrete	16.2	18	18 inch	1	6.38	2.67	3.72	41.8	1.51	1.51	1,280.30	1,280.24	1,285.62	1,289.00	0.004	1,281.91	1,281.90	1,281.94	1,281.93	0.68	7.10	3.71
CI P-1	MH-32	P-1	Circle - Concrete	14.5	18	18 inch	1	5.52	0.77	4.75	13.9	0.44	0.44	1,280.28	1,280.24	1,286.79	1,289.00	0.003	1,281.91	1,281.91	1,281.91	1,281.91	0.38	7.09	4.88
CI R-1	MH-30	R-1	Circle - Concrete	15.3	18	18 inch	1	8.06	1.07	6.99	13.2	2.97	3.16	1,281.88	1,281.79	1,288.35	1,291.00	0.006	1,282.27	1,282.16	1,282.40	1,282.31	0.37	8.84	6.08
CI S-1	MH-29	S-1	Circle - Concrete	13.6	18	18 inch	1	6.38	0.89	5.49	13.9	2.55	2.82	1,281.85	1,281.80	1,288.41	1,291.50	0.004	1,282.23	1,282.15	1,282.33	1,282.27	0.38	9.35	6.18
CI T-2	MH-27	T-1	Circle - Concrete	17	30	30 inch	1	22.23	0.3	21.93	1.3	1.59	1.95	1,281.92	1,281.87	1,292.13	1,289.44	0.003	1,282.12	1,282.05	1,282.16	1,282.10	0.2	7.39	10.01
CI T-1	MH-28	T-1	Circle - Concrete	13.5	18	18 inch	1	6.4	0.12	6.28	1.9	1.4	1.52	1,281.90	1,281.85	1,289.41	1,290.60	0.004	1,282.04	1,281.98	1,282.07	1,282.02	0.14	8.62	7.37
CI U-1	MH-41	U-1	Circle - Concrete	17.1	18	18 inch	1	3.59	0.18	3.41	5	1.21	1.84	1,281.90	1,281.88	1,289.40	1,289.15	0.001	1,282.11	1,282.03	1,282.13	1,282.09	0.23	7.12	7.29
CI U-2	EX JB N-2	U-2	Circle - Concrete	56.1	24	24 inch	1	14.58	17.69	-3.11	121.3	5.93	6.93	1,281.86	1,281.63	1,290.53	1,289.64	0.004	1,283.67	1,283.15	1,284.22	1,283.89	(N/A)	6.49	6.86
CI U-3	CI U-2	U-3	Circle - Concrete	33.2	30	30 inch	1	31.02	17.57	13.45	56.6	5.75	4.91	1,282.15	1,281.96	1,290.64	1,290.53	0.006	1,283.64	1,283.67	1,284.16	1,284.04	1.35	6.86	7.00
CI U-4	CI U-3	U-4	Circle - Concrete	101.6	24	24 inch	1	16.64	17.46	-0.82	104.9	6.11	6.88	1,283.19	1,282.64	1,290.25	1,290.64	0.005	1,284.90	1,284.15	1,285.48	1,284.88	1.75	6.49	5.35
JB U4A	CI U-4	U-5	Circle - Concrete	54.7	24	24 inch	1	15.89	14.38	1.52	90.5	5.52	5.28	1,283.55	1,283.28	1,290.41	1,290.25	0.005	1,285.09	1,284.90	1,285.57	1,285.33	1.49	5.35	5.32
CI U-5	JB U4A	U-6	Circle - Concrete	111.5	24	24 inch	1	16.03	1.07	14.97	6.7	0.69	0.41	1,284.11	1,283.55	1,291.71	1,290.41	0.005	1,285.10	1,285.09	1,285.10	1,285.10	0.35	5.32	6.61
CI U-6	CI U-5	U-7	Circle - Concrete	59.7	24	24 inch	1	24.67	0.65	24.01	2.6	2.47	0.57	1,285.02	1,284.31	1,293.02	1,291.71	0.012	1,285.30	1,285.10	1,285.39	1,285.10	0.22	6.61	7.72
CI U-7	CI U-6	U-8	Circle - Concrete	27.4	24	24 inch	1	16.16	0.47	15.69	2.9	2.28	2.28	1,285.26	1,285.12	1,294.00	1,293.02	0.005	1,285.50	1,285.36	1,285.58	1,285.44	0.24	7.66	8.50
AI U-8	CI U-7	U-9	Circle - Concrete	23.7	18	18 inch	1	26.79	0.3	26.49	1.1	2.11	5.02	1,290.72	1,289.18	1,292.43	1,294.00	0.065	1,290.92	1,289.29	1,290.99	1,289.68	0.11	4.71	1.51
CI V-1	CI U-4	V-1	Circle - Concrete	33.7	18	18 inch	1	7.24	2.25	4.99	31.1	1.27	1.27	1,283.35	1,283.19	1,290.25	1,290.25	0.005	1,284.91	1,284.90	1,284.94	1,284.92	0.57	5.35	5.34
CI W-1	MH-33	W-1	Circle - Concrete	16.5	18	18 inch	1	6.33	3.32	3.01	52.4	1.88	1.88	1,280.30	1,280.24	1,286.66	1,289.00	0.004	1,281.91	1,281.90	1,281.97	1,281.95	0.77	7.10	4.75
CI W-0	JB N-1	W-1	Circle - Concrete	59.9	30	30 inch	1	21.19	1.84	19.36	8.7	0.57	0.51	1,280.27	1,280.11	1,286.46	1,285.00	0.003	1,281.83	1,281.83	1,281.84	1,281.84	0.5	3.17	4.63
CI X-1	MH-32	X-1	Circle - Concrete	16.5	18	18 inch	1	6.33	5.09	1.23	80.5	2.88	2.88	1,280.30	1,280.24	1,286.79	1,289.00	0.004	1,281.95	1,281.91	1,282.08	1,282.04	1.02	7.09	4.84
CI Z-1	MH-30	Z-1	Circle - Concrete	15.4	18	18 inch	1	6.56	4.86	1.7	74.1	4.24	4.72	1,281.85	1,281.79	1,288.35	1,291.00	0.004	1,282.78	1,282.64	1,283.06	1,282.98	0.96	8.36	5.57
JB Z0	MH-50	Z-1	Box - Concrete	148.5		6 x 3 ft	1	111.82	46.8	65.02	41.9	3.8	3.17	1,279.94	1,279.50	1,290.00	1,290.26	0.003	1,281.99	1,281.96	1,282.22	1,282.12	1.33	8.30	8.01
JB-ZSTM	JB Z0	Z-2	Box - Concrete	131.6		6 x 3 ft	1	43.93	46.8	-2.87	106.5	3.69	3.8	1,280.00	1,279.94	1,283.50	1,290.00	0	1,282.11	1,281.99	1,282.33	1,282.22	2.57	8.01	1.39
JB K-0	JB-ZSTM	ZSTM	Circle - Concrete	127.2	24	24 inch	1	23.39	46.8	-23.41	200.1	14.9	14.9	1,281.36	1,280.00	1,292.15	1,283.50	0.011	1,287.56	1,282.11	1,291.01	1,285.56	(N/A)	1.39	4.59

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Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

811 SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

PROPOSED STORM CALCULATIONS-25 YEAR EVENT

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

C8.024PH2

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Start Node	Stop Node	Label	Catalog Class	Length (unified) (ft)	Diameter (in)	Size	Barrels	Capacity (design) (CFS)	Flow (CFS)	Capacity (Excess Full Flow) (CFS)	Flow / capacity (Design) (%)	Velocity (in) (ft/s)	Velocity (out) (ft/s)	Invert (start) (ft)	Invert (stop) (ft)	Elevation ground (start) (ft)	Elevation Ground (stop) (ft)	Slope (calculated) (ft/ft)	Hydraulic Grade line In (ft)	Hydraulic Grade line out (ft)	Energy Grade Line in (ft)	Energy Grade line out (ft)	depth (ft)	surcharge downstream (ft)	surcharge upstream (ft)
JB A-1	PR CI A-0	A-1	Circle - Concrete	26.9	36	36 inch	1	94.42	38.56	55.85	40.8	7.61	10.29	1,283.16	1,282.62	1,290.69	1,289.80	0.02	1,285.18	1,284.19	1,286.08	1,285.84	1.34	5.61	5.51
EX JB A-1	O-1	A-1	Box - Concrete	38.4		6 x 3 ft	1	839.01	192.15	646.86	22.9	7	10.24	1,278.71	1,278.00	1,287.10	1,281.00	0.018	1,280.23	1,279.04	1,281.00	1,280.67	0.89	1.96	6.87
EX CI A-2	EX JB A-1	A-2	Box - Concrete	64		6 x 3 ft	1	344.91	127.75	217.16	37	5.2	4.66	1,278.91	1,278.71	1,287.20	1,287.10	0.003	1,280.27	1,280.23	1,280.69	1,280.57	1.22	6.87	6.93
CI A-2	JB A-1	A-2	Circle - Concrete	45.1	36	36 inch	1	94.77	38.56	56.2	40.7	7.61	10.95	1,284.27	1,283.36	1,289.59	1,290.69	0.02	1,286.29	1,284.86	1,287.19	1,286.72	1.33	5.83	3.30
AI A-3	AI A-2	A-2	Box - Concrete	47		6 x 3 ft	1	79.4	124.25	-44.85	156.5	7.53	8.73	1,279.42	1,279.35	1,286.65	1,286.15	0.001	1,282.17	1,281.72	1,283.05	1,282.91	(N/A)	4.43	4.48
CI A-3	CI A-2	A-3	Circle - Concrete	147.1	30	30 inch	1	29.67	10.69	18.99	36	5.15	2.64	1,285.14	1,284.37	1,291.74	1,289.59	0.005	1,286.24	1,286.29	1,286.65	1,286.40	1.04	3.30	5.50
JB N-1	AI A-3	A-3	Box - Concrete	20.1		6 x 3 ft	1	158.99	123.96	35.03	78	3.79	3.76	1,279.45	1,279.42	1,285.00	1,286.65	0.001	1,282.18	1,282.17	1,282.40	1,282.39	2.05	4.48	2.82
AI A-2	EX CI A-2	A-3	Box - Concrete	204.5		6 x 3 ft	1	190.87	125.64	65.23	65.8	5.83	6.96	1,279.35	1,278.91	1,286.15	1,287.20	0.002	1,281.15	1,280.41	1,281.67	1,281.17	1.82	6.79	5.00
CI A-4	CI A-3	A-4	Circle - Concrete	109.8	30	30 inch	1	29.02	9.74	19.29	33.6	5.03	5.33	1,285.79	1,285.24	1,292.92	1,291.74	0.005	1,286.83	1,286.24	1,287.22	1,286.68	1	5.50	6.09
CI A-5	CI A-4	A-5	Circle - Concrete	95.8	30	30 inch	1	29.34	9.45	19.89	32.2	4.98	5.33	1,286.38	1,285.89	1,292.90	1,292.92	0.005	1,287.41	1,286.87	1,287.79	1,287.31	0.98	6.05	5.49
CI A-6	CI A-5	A-6	Circle - Concrete	112.6	30	30 inch	1	26.78	7.62	19.16	28.5	4.67	4.61	1,286.96	1,286.48	1,292.23	1,292.90	0.004	1,287.88	1,287.41	1,288.22	1,287.74	0.91	5.49	4.35
JB A-7	CI A-6	A-7	Circle - Concrete	85.7	21	21 inch	1	18.52	3.82	14.7	20.6	4.15	3.47	1,288.23	1,287.06	1,293.20	1,292.23	0.014	1,288.94	1,287.88	1,289.21	1,288.06	0.54	4.35	4.26
CI A-8	JB A-7	A-8	Circle - Concrete	151.6	21	21 inch	1	11.07	1.17	9.9	10.6	2.96	2.23	1,289.21	1,288.47	1,294.28	1,293.20	0.005	1,289.60	1,288.94	1,289.73	1,289.02	0.38	4.26	4.68
EX JB A-9	CI A-8	A-9	Circle - Concrete	31.9	21	21 inch	1	12.24	0.15	12.09	1.2	1.71	0.98	1,289.59	1,289.40	1,295.67	1,294.28	0.006	1,289.72	1,289.60	1,289.77	1,289.61	0.13	4.68	5.95
CI A-10	EX JB A-9	A-10	Circle - Concrete	122.3	21	21 inch	1	15.63	0.15	15.49	0.9	1.71	2.04	1,290.88	1,289.69	1,296.50	1,295.67	0.01	1,291.01	1,289.81	1,291.06	1,289.87	0.12	5.86	5.49
CI AA-1	MH-29	AA-1	Circle - Concrete	14.8	18	18 inch	1	6.68	3.14	3.54	47	3.76	4.08	1,281.86	1,281.80	1,288.40	1,291.50	0.004	1,282.58	1,282.47	1,282.80	1,282.73	0.72	9.03	5.82
EX CI B-1	EX CI F-4	B-1	Box - Concrete	88.9		6 x 3 ft	1	109.1	4.21	104.89	3.9	1.92	1.18	1,281.61	1,281.36	1,287.57	1,287.10	0.003	1,281.98	1,281.96	1,282.03	1,281.98	0.28	5.14	5.59
CI B-1	CI A-2	B-1	Circle - Concrete	40.2	36	36 inch	1	48.23	24.15	24.07	50.1	5.54	4.82	1,284.50	1,284.29	1,289.58	1,289.59	0.005	1,286.28	1,286.29	1,286.75	1,286.65	1.5	3.30	3.30
CI B-2	CI B-1	B-2	Circle - Concrete	145.2	30	30 inch	1	28.88	3.87	25.01	13.4	3.84	1.36	1,285.59	1,284.87	1,292.12	1,289.58	0.005	1,286.24	1,286.28	1,286.47	1,286.31	0.62	3.30	5.88
CI B-3	CI B-2	B-3	Circle - Concrete	205.6	30	30 inch	1	29.03	2.99	26.04	10.3	3.58	3.82	1,286.72	1,285.69	1,293.30	1,292.12	0.005	1,287.29	1,286.23	1,287.49	1,286.46	0.54	5.89	6.01
CI B-4	CI B-3	B-4	Circle - Concrete	113.2	30	30 inch	1	26.7	2.7	24	10.1	3.49	3.49	1,287.30	1,286.82	1,292.62	1,293.30	0.004	1,287.84	1,287.36	1,288.03	1,287.55	0.54	5.94	4.78
CI B-5	CI B-4	B-5	Circle - Concrete	69.5	24	24 inch	1	16.28	1.83	14.46	11.2	3.26	3.43	1,288.16	1,287.80	1,293.28	1,292.62	0.005	1,288.63	1,288.25	1,288.79	1,288.43	0.45	4.37	4.65
CI B-7	CI B-5	B-6	Circle - Concrete	165.9	24	24 inch	1	22.49	1.24	21.25	5.5	2.94	3.84	1,289.90	1,288.26	1,293.78	1,293.28	0.01	1,290.28	1,288.58	1,290.42	1,288.81	0.32	4.70	3.50
EX JB B-8	CI B-7	B-8	Ellipse - Concrete	96.1		23x14 inch	1	6.86	0	6.86	0	0	0	1,290.43	1,290.00	1,295.61	1,293.78	0.004	1,290.43	1,290.28	1,290.43	1,290.28	-0.14	3.50	5.18
CI BB-1	MH-41	BB-1	Circle - Concrete	16	24	24 inch	1	14.97	7.08	7.88	47.3	2.25	2.25	1,279.82	1,279.75	1,289.40	1,289.15	0.004	1,282.36	1,282.34	1,282.44	1,282.42	0.97	6.81	7.04
CI BB-2	CI BB-1	BB-2	Circle - Concrete	41	24	24 inch	1	22.36	4.45	17.9	19.9	1.42	1.42	1,280.22	1,279.82	1,288.72	1,289.40	0.01	1,282.37	1,282.36	1,282.40	1,282.39	0.61	7.04	6.35
CI BB-3	CI BB-2	BB-3	Ellipse - Concrete	94.7		14x23 inch	1	7.15	4.09	3.06	57.2	2.31	2.31	1,280.78	1,280.32	1,288.50	1,288.72	0.005	1,282.52	1,282.37	1,282.61	1,282.46	0.64	6.35	5.98
CI BB-4	CI BB-3	BB-4	Ellipse - Concrete	149.7		14x23 inch	1	7.41	1.75	5.65	23.7	1.22	0.99	1,281.66	1,280.88	1,288.96	1,288.50	0.005	1,282.56	1,282.52	1,282.58	1,282.54	0.4	5.98	6.40
CI BB-5	CI BB-4	BB-5	Ellipse - Concrete	31.8		14x23 inch	1	7.28	0.88	6.4	12	0.9	0.69	1,281.92	1,281.76	1,288.96	1,288.96	0.005	1,282.56	1,282.56	1,282.57	1,282.57	0.29	6.40	6.40
AI BB-6	CI BB-5	BB-6	Circle - Concrete	20.1	18	18 inch	1	10.74	0.29	10.45	2.7	2.1	2.64	1,285.50	1,285.29	1,288.73	1,288.96	0.01	1,285.70	1,285.46	1,285.77	1,285.57	0.17	3.50	3.03
JB C-1	CI B-1	C-1	Circle - Concrete	14.1	24	24 inch	1	20.02	19.33	0.68	96.6	7.06	6.87	1,284.71	1,284.60	1,290.10	1,289.58	0.008	1,286.34	1,286.28	1,287.11	1,287.01	1.58	3.30	3.76
AI C-2	JB C-1	C-2	Circle - Concrete	29.8	24	24 inch	1	17.07	19.33	-2.26	113.2	6.61	7.26	1,284.98	1,284.81	1,289.70	1,290.10	0.006	1,286.74	1,286.39	1,287.42	1,287.21	(N/A)	3.71	2.96
CI CC-1	CI BB-3	CC-1	Circle - Concrete	33	18	18 inch	1	7.09	1.61	5.48	22.7	0.94	0.91	1,281.13	1,280.98	1,288.72	1,288.50	0.005	1,282.53	1,282.52	1,282.54	1,282.54	0.49	5.98	6.19
CI D-1	JB A-7	D-1	Circle - Concrete	50.2	18	18 inch	1	7.11	2.65	4.46	37.3	3.73	3.87	1,288.70	1,288.47	1,293.13	1,293.20	0.005	1,289.33	1,289.09	1,289.55	1,289.32	0.63	4.11	3.80
CI D-2	CI D-1	D-2	Circle - Concrete	38.6	18	18 inch	1	7.56	1.78	5.78	23.5	3.43	3.5	1,289.10	1,288.90	1,293.13	1,293.13	0.005	1,289.60	1,289.39	1,289.78	1,289.58	0.49	3.74	3.53
AI D-3	CI D-2	D-3	Circle - Concrete	15.2	18	18 inch	1	6.03	1.27	4.76	21	2.74	3.11	1,289.25	1,289.20	1,293.24	1,293.13	0.003	1,289.71	1,289.62	1,289.83	1,289.77	0.47	3.51	3.53
CI DD-3	JB DD-2	DD-2	Ellipse - Concrete	74.8		30x19 inch	1	19.91	11.47	8.45	57.6	6.15	6.45	1,282.84	1,282.25	1,286.83	1,287.20	0.008	1,284.27	1,283.63	1,284.86	1,284.28	1.38	3.57	2.56
CI DD-4	CI DD-3	DD-3	Ellipse - Concrete	102.8		30x19 inch	1	16.55	9.93	6.62	60	5.41	5.32	1,283.40	1,282.84	1,286.98	1,286.83	0.005	1,284.82	1,284.27	1,285.27	1,284.71	1.42	2.56	2.16
CI DD-5	CI DD-4	DD-4	Ellipse - Concrete	153.7		30x19 inch	1	15.98	7.38	8.6	46.2	4.94	4.02	1,284.18	1,283.40	1,288.33	1,286.98	0.005	1,285.38	1,284.82	1,285.76	1,285.07	1.2	2.16	2.95
CI DD-6	CI DD-5	DD-5	Ellipse - Concrete	90.8		30x19 inch	1	14.69	6.35	8.34	43.2	4.47	4.76	1,284.67	1,284.28	1,288.55	1,288.33	0.004	1,285.83	1,285.38	1,286.14	1,285.73	1.16	2.95	2.72
CI DD-7	CI DD-6	DD-6	Ellipse - Concrete	83.7		30x19 inch	1	16.26	4.89	11.37	30.1	4.54	3.98	1,285.23	1,284.79	1,289.00	1,288.55	0.005	1,286.17	1,285.83	1,286.49	1,286.07	0.94	2.72	2.83
AI DD-8	CI DD-7	DD-7	Ellipse - Concrete	76.1		30x19 inch	1	15.21	3.14	12.07	20.6	3.87	3.09	1,285.62	1,285.27	1,289.20	1,289.00	0.005	1,286.38	1,286.17	1,286.62	1,286.32	0.76	2.83	2.82
JB DD-9	AI DD-8	DD-8	Ellipse - Concrete	55		23x14 inch	1	7.94	2.34	5.6	29.4	3.96	4.04	1,286.05	1,285.72	1,289.58	1,289.20	0.006	1,286.75	1,286.41	1,286.99	1,286.66	0.7	2.79	2.83
AI EE-1	AI EE-0	EE-0	Ellipse - Concrete	8.1		45x29 inch	1	69.61	3.34	66.28	4.8	3.88	3.79	1,282.09	1,282.00	1,287.21	1,289.00	0.011	1,282.76	1,282.69	1,283.00	1,282.91	0.53	6.31	4.45
CI EE-2	AI EE-1	EE-1	Ellipse - Concrete	39.2		45x29 inch	1	48.23	1.9	46.33	3.9	3.35	2.21	1,282.30	1,282.09	1,287.26	1,287.21	0.005	1,282.81	1,282.76	1,282.98	1,282.84	0.48	4.45	4.45
AI EE1	CI DD10	EE-1	Ellipse - Concrete	48.7		14x23 inch	1	6.57	1.24	5.33	18.9	2.74	2.07	1,286.69	1,286.49	1,288.66	1,289.58	0.004	1,287.05	1,286.93	1,287.17	1,287.00	0.36	2.65	1.61
CI EE-3	CI EE-2	EE-2	Ellipse - Concrete	45.8		38x24 inch	1	25.35	1.83	23.52	7.2	3.18	3.41	1,282.48	1,282.30	1,287.04	1,287.26	0.004	1,283.03	1,282.82	1,283.18	1,283.00	0.55	4.44	4.01
AI EE2	AI EE1	EE-2	Ellipse - Concrete	29		14x23 inch	1	7.38	0.51	6.86	6.9	2.24	1.13	1,286.84	1,286.69	1,288.75	1,288.66	0.005	1,287.06	1,287.05	1,287.14	1,287.07	0.22	1.61	1.69
CI EE-4	CI EE-3	EE-3	Ellipse - Concrete	98.8		38x24 inch	1	30.44	1.39	29.05	4.6	3.17	2.42	1,283.04	1,282.48	1,287.00	1,287.04	0.006	1,283.49	1,283.03	1,283.65	1,283.12	0.43	4.01	3.51
JB EE-5	CI EE-4	EE-4	Ellipse - Concrete	70.8		38x24 inch	1	28.01	0.37	27.65	1.3	2.24	0.83	1,283.38	1,283.04	1,287.50	1,287.00	0.005	1,283.61	1,283.49	1,283.69	1,283.50	0.23	3.51	3.89
JB DD-2	EX CI F-4	EX DD-1	Circle - Concrete	93.1	24	24 inch	1	22.12	11.47	10.65	51.8	5.74	7.11	1,282.25	1,281.36	1,287.20	1,287.10	0.01	1,283.47	1,282.38	1,283.98	1,283.17	1.02	4.72	3.73
AI EE-0	EX CI B-1	EX EE-1	Ellipse - Concrete	92.7		45x29 inch	1	42.76	3.34	39.43	7.8	3.79	3.88	1,282.00	1,281.61	1,289.00	1,287.57	0.004	1,282.69	1,282.28	1,282.91	1,282.52	0.69	5.29	6.31
MH-45	EX CI B-1	EX MM1	Box - Concrete	117.9		6 x 3 ft	1	116.8	0.88	115.92	0.8	1.4	0.4	1,281.99	1,281.61	1,288.20	1,287.57	0.003	1,282.09	1,281.98	1,282.12	1,281.98	0.1	5.59	6.11
CI MM-1	MH-45	EX MM2	Circle - Concrete	88.9	18	18 inch	1	9.78	0.88	8.9	9	2.81	3.43	1,284.26	1,283.49	1,288.50	1,288.20	0.009	1,284.61	1,283.79	1,284.73	1,283.98	0.3	4.41	3.89
EX CI F-1	EX JB A-1	F-1	Box - Concrete	268.4		6 x 3 ft	1	96.47	18.31	78.16	19	3.02	2	1,279.30	1,278.71	1,285.84	1,287.10	0.002	1,280.31	1,280.23	1,280.45	1,280.30	0.78	6.87	5.53
EX CI F-2	EX CI F-1	F-2	Box - Concrete	217.5		6 x 3 ft	1	180.29	18.31	161.98	10.2	4.61	3.02	1,280.97	1,279.30	1,286.62	1,285.84	0.008	1,281.63	1,280.31	1,281.96	1,280.45	0.52	5.53	4.99
EX CI F-3	EX CI F-2	F-3	Circle - Concrete	85.7	18	18 inch	1	12.84	2.63	10.21	20.5	3.85	3.5	1,282.25	1,280.97	1,286.97	1,286.62	0.015	1,282.86	1,281.63	1,283.10	1,281.82	0.46	4.99	4.11
EX CI F-4	EX CI F-2	F-4	Box - Concrete	84.1		6 x 3 ft	1	140.14	15.68	124.46	11.2	4.38	3.95	1,281.36	1,280.97	1,287.10	1,286.62	0.005	1,281.96	1,281.63	1,282.25	1,281.87	0.56	4.99	5.14
CI FF-1	CI DD-6	FF-1	Circle - Concrete	30.9	18	18 inch	1	7.55	0.37	7.19	4.8	0.38	0.31	1,285.03	1,284.87	1,288.88	1,288.55	0.005	1,285.83	1,285.83	1,285.83	1,285.83	0.22	2.72	3.05
JB FF-1	JB DD-9	FF-1	Ellipse - Concrete	60.2		14x23 inch	1	5.12	0.66	4.47	12.8	0.82	0.61	1,286.20	1,286.05	1,289.38	1,289.58	0.002	1,286.75	1,286.75	1,286.76	1,286.75	0.3	2.83	2.63
AI FF-2	JB FF-1	FF-2	Ellipse - Concrete	20.7		14x23 inch	1	14.8	0.66	14.14	4.4	2.39	0.82	1,286.63	1,286.20	1,290.00	1,289.38	0.021	1,286.88	1,286.75	1,286.97	1,286.76	0.18	2.63	3.12
EX CI G-1	EX JB A-1	G-1	Pipe-Arch - Concrete	183.5		51.12 x 31.	1	93.61	46.09	47.53	49.2	7.42	10.6	1,280.98	1,278.71	1,287.96	1,287.10	0.012	1,282.63	1,279.88	1,283.48	1,281.63	1.17	7.22	5.33
CI G-1	EX CI G-2	G-1	Circle - Concrete	70.8	36	36 inch	1	38.01	5.04	32.97	13.3	2.69	2.03	1,282.40	1,282.17	1,288.67	1,288.26	0.003	1,283.33	1,283.32	1,283.44	1,283.38	0.74	4.94	5.34
EX CI G-2	EX CI G-1	G-2	Pipe-Arch - Concrete	74.2		51.12 x 31.	1	81.15	46.09	35.07	56.8	7.42	9.23	1,281.67	1,280.98	1,288.26	1,287.96	0.009	1,283.32	1,282.31	1,284.17	1,283.63	1.28	5.65	4.94
CI G-2	CI G-1	G-2	Circle - Concrete	52.5	30	30 inch	1	18.77	4.24	14.54	22.6	3.19	3.9	1,282.76	1,282.65	1,287.74	1,288.67	0.002	1,283.55	1,283.33	1,283.71	1,283.57	0.81	5.34	4.19
CI G2A	CI G-2	G-2A	Circle - Concrete	30.5	24	24 inch	1	17.86	3.21	14.65	18	3.82	4.31	1,283.15	1,282.96	1,288.31	1,287.74	0.006	1,283.78	1,283.53	1,284.00	1,283.82	0.57	4.21	4.53
PR CI A-0	EX CI G-2	G-3	Pipe-Arch - Concrete	252.3		51.12 x 31.	1	45.89	39.29	6.59	85.6	5.99	6.33	1,282.42	1,281.67	1,289.80	1,288.26	0.003	1,284.17	1,283.32	1,284.72	1,283.94	1.75	4.94	5.63
CI G-3	CI G-2	G-3	Circle - Concrete	59.1	30	30 inch	1	29.23	0.51	28.72	1.7	1.06	0.46	1,283.16	1,282.86	1,288.69	1,287.74	0.005	1,283.55	1,283.55	1,283.56	1,283.55	0.23	4.19	5.14
CI G-4	CI G-3	G-4	Circle - Concrete	26.2	24	24 inch	1	15.94	0.37	15.58	2.3	2.09	1.38	1,283.40	1,283.27	1,289.89	1,288.69	0.005	1,283.61	1,283.55	1,283.68	1,283.58	0.21	5.14	6.28
CI K-7	CI K-6	G-8	Circle - Concrete	42.2	18	18 inch	1	5.36	2.48	2.88	46.3	1.41	1.41	1,286.64	1,286.53	1,293.27	1,291.60	0.003	1,291.29	1,291.27	1,291.33	1,291.30	0.72	0.33	1.98
CI E-1	CI K-7	G-9	Circle - Concrete	29.6	18	18 inch	1	11.09	0.8	10.29	7.2	0.45	0.45	1,287.17	1,286.84	1,293.28	1,293.27	0.011	1,291.30	1,291.29	1,291.30	1,291.30	0.27	1.98	1.98
CI GG-1	CI DD-7	GG-1	Circle - Concrete	28.8	18	18 inch	1	10.55	0.22	10.33	2.1	0.5	0.25	1,285.72	1,285.43	1,288.84	1,289.00	0.01	1,286.17	1,286.17	1,286.17	1,286.17	0.15	2.83	2.67
CI K-8	CI K-7	H-1	Circle - Concrete	81.5	18	18 inch	1	7.27	0.51	6.76	7	0.29	0.29	1,287.23	1,286.84	1,293.54	1,293.27	0.005	1,291.30	1,291.29	1,291.30	1,291.30	0.27	1.98	2.24
CI HH-1	AI DD-8	HH-1	Ellipse - Concrete	28.3		23x14 inch	1	7.71	0.58	7.12	7.6	1.55	1.06	1,285.88	1,285.72	1,289.10	1,289.20	0.006	1,286.38	1,286.38	1,286.42	1,286.40	0.34	2.82	2.72
JB HH-2	CI HH-1	HH-2		34.1	12		1	2.59	0.15	2.44	5.6	0.66	0.37	1,286.06	1,285.88	1,291.00	1,289.10	0.005	1,286.39	1,286.38	1,286.39	1,286.39	0.16	2.72	4.61
CI HH-3	JB HH-2	HH-3		46.9	12		1	2.27	0.15	2.12	6.4	1.6	0.66	1,286.25	1,286.06	1,291.00	1,291.00	0.004	1,286.42	1,286.39	1,286.46	1,286.39	0.17	4.61	4.58
JB I-1	EX CI A-2	I-1	Circle - Concrete	72.3	24	24 inch	1	41.38	0.15	41.24	0.4	1.68	3.07	1,282.89	1,280.47	1,288.21	1,287.20	0.033	1,283.02	1,280.56	1,283.06	1,280.70	0.09	6.64	5.19
CI I-2	JB I-1	I-2	Circle - Concrete	39.7	24	24 inch	1	14.81	0.15	14.66	1	1.51	1.68	1,283.26	1,283.09	1,288.75	1,288.21	0.004	1,283.40	1,283.22	1,283.44	1,283.26	0.14	4.99	5.35
CI II-1	JB EE-5	II-1	Circle - Concrete	38.1	24	24 inch	1	15.98	0.37	15.62	2.3	2.1	2.13	1,283.67	1,283.48	1,287.50	1,287.50	0.005	1,283.88	1,283.69	1,283.95	1,283.76	0.21	3.81	3.62
CI J-1	JB K-0	J-0	Circle - Concrete	98.2	24	24 inch	1	47.06	25.49	21.57	54.2	8.11	8.11	1,285.61	1,281.36	1,290.96	1,292.15	0.043	1,291.99	1,290.74	1,293.01	1,291.77	1.05	1.41	-1.03
CI J-2	CI J-1	J-1	Circle - Concrete	30.9	24	24 inch	1	17.74	20.81	-3.07	117.3	6.63	6.63	1,286.00	1,285.81	1,290.96	1,290.96	0.006	1,291.22	1,290.96	1,291.90	1,291.64	(N/A)	0.00	-0.26
CI JJ-2	MH-27	JJ-1	Circle - Concrete	16.1	24	24 inch	1	12.62	2.63	9.99	20.8	3.23	3.61	1,281.92	1,281.87	1,289.52	1,289.44	0.003	1,282.53	1,282.43	1,282.69	1,282.64	0.62	7.01	6.99
CI JJ-1	MH-28	JJ-1	Circle - Concrete	15.6	18	18 inch	1	5.95	3.07	2.88	51.6	3.55	4.05	1,281.90	1,281.85	1,289.41	1,290.60	0.003	1,282.64	1,282.52	1,282.83	1,282.77	0.76	8.08	6.77
CI DD10	JB DD-9	JJ-1	Ellipse - Concrete	34.3		23x14 inch	1	7.01	1.68	5.33	24	3.33	3.52	1,286.31	1,286.15	1,289.58	1,289.58	0.005	1,286.93	1,286.75	1,287.10	1,286.94	0.62	2.83	2.65
CI DD11	CI DD10	JJ-2	Ellipse - Concrete	29.9		23x14 inch	1	7.5	0.22	7.28	2.9	1.32	0.7	1,286.65	1,286.49	1,289.84	1,289.58	0.005	1,286.93	1,286.93	1,286.96	1,286.94	0.21	2.65	2.91
CI K-1A	JB K-0	K-0	Circle - Concrete	67.3	24	24 inch	1	46.14	9.64	36.5	20.9	3.07	3.07	1,284.16	1,281.36	1,292.82	1,292.15	0.042	1,290.87	1,290.74	1,291.01	1,290.89	0.62	1.41	1.95
AI K-0	JB K-0	K-0AI	Circle - Concrete	10.5	24	24 inch	1	22.11	22.57	-0.46	102.1	7.18	7.18	1,281.46	1,281.36	1,292.15	1,292.15	0.01	1,290.85	1,290.74	1,291.65	1,291.55	1.68	1.41	1.30
CI K-2	CI K-1A	K-1	Circle - Concrete	31.8	24	24 inch	1	18.39	7.74	10.65	42.1	2.46	2.46	1,284.47	1,284.26	1,292.24	1,292.82	0.007	1,290.90	1,290.87	1,291.00	1,290.96	0.91	1.95	1.34
CI K-3	CI K-2	K-2	Circle - Concrete	61.1	24	24 inch	1	18.52	7.67	10.85	41.4	2.44	2.44	1,285.08	1,284.67	1,291.28	1,292.24	0.007	1,290.97	1,290.90	1,291.07	1,291.00	0.9	1.34	0.31
CI K-4	CI K-3	K-3	Circle - Concrete	22.7	24	24 inch	1	15.01	5.84	9.17	38.9	1.86	1.86	1,285.28	1,285.18	1,291.08	1,291.28	0.004	1,290.99	1,290.97	1,291.04	1,291.03	0.87	0.31	0.09
CI K-5	CI K-4	K-4	Circle - Concrete	45.8	24	24 inch	1	20.05	5.48	14.57	27.3	1.74	1.74	1,285.64	1,285.28	1,290.68	1,291.08	0.008	1,291.02	1,290.99	1,291.06	1,291.04	0.71	0.09	-0.34
CI K-6	CI K-5	K-5		69.5	12		1	3.11	3.29	-0.17	105.6	4.18	4.18	1,286.27	1,285.74	1,291.60	1,290.68	0.008	1,291.27	1,290.68	1,291.54	1,290.95	0.88	0.00	0.33
AI KK-1	JB U4A	KK-1	Circle - Concrete	17	24	24 inch	1	22.64	16.41	6.23	72.5	5.44	5.25	1,283.92	1,283.75	1,289.00	1,290.41	0.01	1,285.75	1,285.71	1,286.21	1,286.13	1.26	4.70	3.25
CI K-3A	CI K-3	L-1	Circle - Concrete	32.1	18	18 inch	1	8.29	0.37	7.93	4.4	0.21	0.21	1,287.48	1,287.28	1,291.64	1,291.28	0.006	1,290.97	1,290.97	1,290.97	1,290.97	0.21	0.31	0.67
CI L-1	CI K-5	L-1	Circle - Concrete	32	18	18 inch	1	8.51	0.66	7.86	7.7	0.37	0.37	1,285.95	1,285.74	1,290.68	1,290.68	0.007	1,290.68	1,290.68	1,290.68	1,290.68	0.28	0.00	0.00
CI LL1	EX JB N-3	LL-1	Circle - Concrete	30.5	30	30 inch	1	52.55	1.46	51.09	2.8	1.41	0.64	1,281.66	1,281.16	1,291.39	1,289.57	0.016	1,282.32	1,282.34	1,282.35	1,282.34	0.29	7.23	9.07
AI LL-3	EX JB N-3	LL-2	Circle - Concrete	33.6	30	30 inch	1	60.02	0.88	59.14	1.5	2.58	0.48	1,282.06	1,281.34	1,292.00	1,289.57	0.021	1,282.36	1,282.34	1,282.47	1,282.34	0.21	7.23	9.64
CI M-1	CI K-6	M-1	Circle - Concrete	28.4	18	18 inch	1	7.37	0.66	6.72	8.9	0.37	0.37	1,286.67	1,286.53	1,293.04	1,291.60	0.005	1,291.27	1,291.27	1,291.27	1,291.27	0.3	0.33	1.77
CI M-2	CI M-1	M-2	Circle - Concrete	58.3	18	18 inch	1	19.99	0.51	19.48	2.6	0.29	0.29	1,288.78	1,286.67	1,292.21	1,293.04	0.036	1,291.27	1,291.27	1,291.28	1,291.27	0.17	1.77	0.94
MH-33	JB N-1	N-1	Box - Concrete	96.1		6 x 3 ft	1	83.96	121.69	-37.73	144.9	3.68	3.72	1,279.49	1,279.45	1,289.00	1,285.00	0	1,282.25	1,282.18	1,282.46	1,282.39	(N/A)	2.82	6.75
MH-32	MH-33	N-2	Box - Concrete	17.9		6 x 3 ft	1	137.61	114.32	23.29	83.1	3.41	3.46	1,279.47	1,279.49	1,289.00	1,289.00	-0.001	1,282.26	1,282.25	1,282.44	1,282.43	(N/A)	6.75	6.74
MH-50	MH-32	N-3A	Box - Concrete	113		6 x 3 ft	1	68.62	107.09	-38.47	156.1	3.17	3.2	1,279.50	1,279.47	1,290.26	1,289.00	0	1,282.32	1,282.26	1,282.47	1,282.42	(N/A)	6.74	7.94
MH-31	MH-50	N-3B	Box - Concrete	66.8		6 x 3 ft	1	68.62	49.39	19.22	72	1.47	1.46	1,279.52	1,279.50	1,291.00	1,290.26	0	1,282.32	1,282.32	1,282.36	1,282.35	1.94	7.94	8.68
MH-30	MH-31	N-4	Box - Concrete	85.9		6 x 6 ft	1	164.51	49.39	115.11	30	1.47	1.47	1,279.54	1,279.52	1,291.00	1,291.00	0	1,282.33	1,282.32	1,282.36	1,282.36	2.06	8.68	8.67
MH-29	MH-30	N-5	Box - Concrete	19.8		6 x 6 ft	1	242.06	42.09	199.97	17.4	1.26	1.26	1,279.55	1,279.54	1,291.50	1,291.00	0.001	1,282.33	1,282.33	1,282.36	1,282.36	1.41	8.67	9.17
MH-28	MH-29	N-6	Box - Concrete	110.3		6 x 6 ft	1	229.61	37.85	191.76	16.5	1.15	1.13	1,279.60	1,279.55	1,290.60	1,291.50	0	1,282.34	1,282.33	1,282.36	1,282.35	1.36	9.17	8.26
MH-27	MH-28	N-7	Box - Concrete	65.6		6 x 6 ft	1	188.23	34.64	153.59	18.4	1.06	1.05	1,279.62	1,279.60	1,289.44	1,290.60	0	1,282.34	1,282.34	1,282.36	1,282.36	1.46	8.26	7.10
MH-41	MH-27	N-8	Box - Concrete	19.4		6 x 6 ft	1	367.55	31.65	335.9	8.6	0.65	0.65	1,279.63	1,279.62	1,289.15	1,289.44	0.001	1,282.34	1,282.34	1,282.35	1,282.35	0.88	7.10	6.81
EX JB N-3	EX JB N-2	N-9	Box - Concrete	89.1		6 x 3 ft	1	255.12	2.53	252.59	1	0.36	0.17	1,281.16	1,279.79	1,289.57	1,289.64	0.015	1,282.34	1,282.34	1,282.34	1,282.34	0.12	7.30	7.23
EX JB N-2	MH-41	N-9	Box - Concrete	17.3		6 x 6 ft	1	518.77	24.34	494.43	4.7	1.59	1.5	1,279.79	1,279.63	1,289.64	1,289.15	0.009	1,282.34	1,282.34	1,282.38	1,282.38	0.59	6.81	7.30
AI JJ-1	EX JB N-3	N-10	Circle - Concrete	50.6	30	30 inch	1	98.5	0.19	98.3	0.2	1.76	0.09	1,284.08	1,281.16	1,292.43	1,289.57	0.058	1,284.22	1,282.34	1,284.27	1,282.34	0.08	7.23	8.21
CI O-1	MH-33	O-1	Circle - Concrete	16.2	18	18 inch	1	6.38	3.29	3.1	51.5	1.86	1.86	1,280.30	1,280.24	1,285.62	1,289.00	0.004	1,282.26	1,282.25	1,282.31	1,282.30	0.76	6.75	3.36
CI P-1	MH-32	P-1	Circle - Concrete	14.5	18	18 inch	1	5.52	0.95	4.57	17.2	0.54	0.54	1,280.28	1,280.24	1,286.79	1,289.00	0.003	1,282.26	1,282.26	1,282.27	1,282.26	0.42	6.74	4.53
CI R-1	MH-30	R-1	Circle - Concrete	15.3	18	18 inch	1	8.06	1.31	6.74	16.3	3.15	2.29	1,281.88	1,281.79	1,288.35	1,291.00	0.006	1,282.31	1,282.33	1,282.46	1,282.41	0.41	8.67	6.04
CI S-1	MH-29	S-1	Circle - Concrete	13.6	18	18 inch	1	6.38	1.1	5.28	17.2	2.17	1.95	1,281.85	1,281.80	1,288.41	1,291.50	0.004	1,282.34	1,282.33	1,282.42	1,282.39	0.42	9.17	6.07
CI T-2	MH-27	T-1	Circle - Concrete	17	30	30 inch	1	22.23	0.37	21.86	1.6	0.67	0.57	1,281.92	1,281.87	1,292.13	1,289.44	0.003	1,282.34	1,282.34	1,282.35	1,282.35	0.22	7.10	9.79
CI T-1	MH-28	T-1	Circle - Concrete	13.5	18	18 inch	1	6.4	0.15	6.25	2.3	0.34	0.29	1,281.90	1,281.85	1,289.41	1,290.60	0.004	1,282.34	1,282.34	1,282.34	1,282.34	0.16	8.26	7.07
CI U-1	MH-41	U-1	Circle - Concrete	17.1	18	18 inch	1	3.59	0.22	3.37	6.1	0.5	0.47	1,281.90	1,281.88	1,289.40	1,289.15	0.001	1,282.34	1,282.34	1,282.35	1,282.35	0.25	6.81	7.06
CI U-2	EX JB N-2	U-2	Circle - Concrete	56.1	24	24 inch	1	14.58	21.81	-7.23	149.6	6.94	7.79	1,281.86	1,281.63	1,290.53	1,289.64	0.004	1,283.98	1,283.30	1,284.73	1,284.24	(N/A)	6.34	6.55
CI U-3	CI U-2	U-3	Circle - Concrete	33.2	30	30 inch	1	31.02	21.67	9.36	69.8	5.51	5.09	1,282.15	1,281.96	1,290.64	1,290.53	0.006	1,284.02	1,283.98	1,284.49	1,284.39	1.54	6.55	6.62
CI U-4	CI U-3	U-4	Circle - Concrete	101.6	24	24 inch	1	16.64	21.52	-4.88	129.3	6.85	7.72	1,283.19	1,282.64	1,290.25	1,290.64	0.005	1,285.37	1,284.30	1,286.10	1,285.23	(N/A)	6.34	4.88
JB U4A	CI U-4	U-5	Circle - Concrete	54.7	24	24 inch	1	15.89	17.72	-1.83	111.5	5.64	5.64	1,283.55	1,283.28	1,290.41	1,290.25	0.005	1,285.71	1,285.37	1,286.20	1,285.86	(N/A)	4.88	4.70
CI U-5	JB U4A	U-6	Circle - Concrete	111.5	24	24 inch	1	16.03	1.31	14.72	8.2	0.49	0.42	1,284.11	1,283.55	1,291.71	1,290.41	0.005	1,285.71	1,285.71	1,285.71	1,285.71	0.39	4.70	6.00
CI U-6	CI U-5	U-7	Circle - Concrete	59.7	24	24 inch	1	24.67	0.8	23.86	3.3	0.85	0.34	1,285.02	1,284.31	1,293.02	1,291.71	0.012	1,285.70	1,285.71	1,285.71	1,285.71	0.25	6.00	7.32
CI U-7	CI U-6	U-8	Circle - Concrete	27.4	24	24 inch	1	16.16	0.58	15.58	3.6	1.14	0.77	1,285.26	1,285.12	1,294.00	1,293.02	0.005	1,285.70	1,285.70	1,285.72	1,285.71	0.26	7.32	8.30
AI U-8	CI U-7	U-9	Circle - Concrete	23.7	18	18 inch	1	26.79	0.37	26.43	1.4	2.22	5.34	1,290.72	1,289.18	1,292.43	1,294.00	0.065	1,290.94	1,289.30	1,291.02	1,289.75	0.12	4.70	1.49
CI V-1	CI U-4	V-1	Circle - Concrete	33.7	18	18 inch	1	7.24	2.78	4.46	38.3	1.57	1.57	1,283.35	1,283.19	1,290.25	1,290.25	0.005	1,285.39	1,285.37	1,285.43	1,285.41	0.64	4.88	4.86
CI W-1	MH-33	W-1	Circle - Concrete	16.5	18	18 inch	1	6.33	4.09	2.24	64.6	2.31	2.31	1,280.30	1,280.24	1,286.66	1,289.00	0.004	1,282.27	1,282.25	1,282.35	1,282.33	0.88	6.75	4.39
CI W-0	JB N-1	W-1	Circle - Concrete	59.9	30	30 inch	1	21.19	2.26	18.93	10.7	0.56	0.52	1,280.27	1,280.11	1,286.46	1,285.00	0.003	1,282.18	1,282.18	1,282.19	1,282.18	0.55	2.82	4.28
CI X-1	MH-32	X-1	Circle - Concrete	16.5	18	18 inch	1	6.33	6.28	0.05	99.3	3.55	3.55	1,280.30	1,280.24	1,286.79	1,289.00	0.004	1,282.32	1,282.26	1,282.52	1,282.46	1.22	6.74	4.47
CI Z-1	MH-30	Z-1	Circle - Concrete	15.4	18	18 inch	1	6.56	5.99	0.57	91.3	4.54	5.1	1,281.85	1,281.79	1,288.35	1,291.00	0.004	1,282.90	1,282.74	1,283.22	1,283.14	1.13	8.26	5.45
JB Z0	MH-50	Z-1	Box - Concrete	148.5		6 x 3 ft	1	111.82	57.69	54.13	51.6	3.99	3.42	1,279.94	1,279.50	1,290.00	1,290.26	0.003	1,282.35	1,282.32	1,282.60	1,282.50	1.53	7.94	7.65
JB-ZSTM	JB Z0	Z-2	Box - Concrete	131.6		6 x 3 ft	1	43.93	57.69	-13.76	131.3	3.9	3.99	1,280.00	1,279.94	1,283.50	1,290.00	0	1,282.47	1,282.35	1,282.70	1,282.60	(N/A)	7.65	1.03
JB K-0	JB-ZSTM	ZSTM	Circle - Concrete	127.2	24	24 inch	1	23.39	57.69	-34.31	246.7	18.36	18.36	1,281.36	1,280.00	1,292.15	1,283.50	0.011	1,290.74	1,282.47	1,295.98	1,287.71	(N/A)	1.03	1.41

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO. M08-25007-00 | DESIGNED BY | REVIEWED BY | DRAWN BY
ORIGINAL ISSUE | DATE

811
SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

PROPOSED STORM CALCULATIONS-100 YEAR EVENT

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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Structure No.	Street Name	Structure Location	Runoff Coefficient C	Drainage Area A (ac)	Time of Con. Tc (min)	Rainfall Intensity I (in/hr)	Runoff at Inlet CA	Carry Over CA	Total Flow at Inlet Qt (cfs)	Manning's n Gutter	Slope of Gutter S (ft/ft)	Cross Slope S_x (ft/ft)	Pond Width T (ft)	Gutter Depth d (ft)	Gutter Velocity Velocity (ft/s)	Inlet Length L (ft)	Depth Gutter Depression a (in)	Width Gutter Depression W (ft)	Ratio of frontal flow to rtotal flow E_o	Equivalent Cross Slope Se	Inlet Length Lt	Inlet Efficiency E	Intercepted Flow Q_i (cfs)	Clogging Factor RF	Actual Intercepted Flow Q_a (cfs)	Bypass Flow Q_b (cfs)	Carry Over CA
CI DD-3	C ST	11+10.11, 28.00' LT	0.9	0.21	5	7.34	0.19	0.00	1.39	0.016	SAG	0.02	11.87	0.24	--	4	3	1.5	--	--	--	1.00	1.39	--	--	--	--
CI DD-4	C ST	12+21.31, 20.07' LT	0.9	0.35	5	7.34	0.32	0.16	3.51	0.016	SAG	0.02	22.04	0.44	--	4	3	1.5	--	--	--	1.00	3.51	--	--	--	--
CI DD-5	C ST	13+76.00, 13.00' LT	0.9	0.14	5	7.34	0.13	0.09	1.57	0.016	0.01	0.02	8.55	0.17	2.14	4	3	1.5	0.40	0.53	22.76	0.29	0.46	0.80	0.37	1.20	0.16
CI DD-6	C ST	14+52.74, 13.00' LT	0.9	0.08	5	7.34	0.07	0.05	0.91	0.016	0.01	0.02	6.96	0.14	1.87	4	3	1.5	0.48	0.51	18.07	0.36	0.33	0.80	0.26	0.64	0.09
CI DD-7	C ST	15+34.95, 13.00' LT	0.9	0.04	5	7.34	0.04	0.04	0.57	0.016	0.01	0.02	5.87	0.12	1.67	4	3	1.5	0.55	0.50	14.93	0.43	0.25	0.80	0.20	0.38	0.05
CI DD-8	C ST	13+76.00, 13.00' LT	0.9	0.03	5	7.34	0.03	0.04	0.49	0.016	0.01	0.02	5.53	0.11	1.60	4	3	1.5	0.57	0.49	13.94	0.46	0.22	0.80	0.18	0.31	0.04
CI DD-10	C ST	17+12.74, 13.00' LT	0.9	0.07	5	7.34	0.06	0.00	0.46	0.016	0.01	0.02	5.41	0.11	1.58	4	3	1.5	0.58	0.49	13.63	0.47	0.22	0.80	0.17	0.29	0.04
CI EE-2	C ST	10+73.50, 18.00' RT	0.9	0.01	5	7.34	0.01	0.00	0.07	0.016	0.01	0.02	2.61	0.05	0.97	4	3	1.5	0.90	0.41	6.02	0.86	0.06	0.80	0.05	0.02	0.00
CI EE-3	C ST	11+10.11, 18.00' RT	0.9	0.06	5	7.34	0.05	0.00	0.42	0.016	SAG	0.02	5.32	0.11	--	4	3	1.5	--	--	--	1.00	0.42	--	--	--	--
CI EE-4	C ST	12+21.31, 18.00' RT	0.9	0.14	5	7.34	0.13	0.15	2.05	0.016	SAG	0.02	15.40	0.31	--	4	3	1.5	--	--	--	1.00	2.05	--	--	--	--
CI EE-6	C ST	12+93.98, 55.55' RT	0.9	0.05	5	7.34	0.05	0.00	0.33	0.016	0.01	0.02	4.77	0.10	1.45	4	3	1.5	0.63	0.47	11.83	0.52	0.17	0.80	0.14	0.19	0.03
CI EE-7	C ST	13+23.41, 54.50' RT	0.9	0.09	5	7.34	0.08	0.00	0.59	0.016	0.01	0.02	5.95	0.12	1.68	4	3	1.5	0.54	0.50	15.14	0.42	0.25	0.80	0.20	0.39	0.05
CI FF-1	C ST	14+52.74, 13.00' RT	0.9	0.05	5	7.34	0.05	0.06	0.78	0.016	0.01	0.02	6.59	0.13	1.80	4	3	1.5	0.50	0.51	17.00	0.38	0.30	0.80	0.24	0.54	0.07
CI GG-1	C ST	15+35.05, 13.00' RT	0.9	0.03	5	7.34	0.03	0.06	0.67	0.016	0.01	0.02	6.22	0.12	1.73	4	3	1.5	0.52	0.50	15.92	0.41	0.27	0.80	0.22	0.45	0.06
CI HH-1	C ST	16+14.34, 13.00' RT	0.9	0.06	5	7.34	0.05	0.04	0.69	0.016	0.01	0.02	6.30	0.13	1.75	4	3	1.5	0.52	0.50	16.16	0.40	0.28	0.80	0.22	0.47	0.06
CI SS-1	C ST	17+12.38, 13.00' RT	0.9	0.06	5	7.34	0.05	0.00	0.40	0.016	0.01	0.02	5.11	0.10	1.52	4	3	1.5	0.60	0.48	12.77	0.49	0.19	0.80	0.16	0.24	0.03
CI W-1	D ST	21+18.88, 23.00' RT	0.9	0.06	5	7.34	0.05	0.05	0.79	0.016	SAG	0.02	8.15	0.16	--	4	3	1.5	--	--	--	1.00	0.79	--	--	--	--
CI X-1	D ST	21+45.43, 23.00' RT	0.9	0.09	5	7.34	0.08	0.00	0.59	0.016	0.01	0.02	5.95	0.12	1.68	4	3	1.5	0.54	0.50	15.14	0.42	0.25	0.80	0.20	0.39	0.05
CI Z-1	D ST	24+00.03, 23.00' RT	0.9	0.07	5	7.34	0.06	0.03	0.70	0.016	SAG	0.02	7.54	0.15	--	4	3	1.5	--	--	--	1.00	0.70	--	--	--	--
CI AA-1	D ST	24+20.43, 23.00' RT	0.9	0.06	5	7.34	0.05	0.00	0.40	0.016	0.01	0.02	5.11	0.10	1.52	4	3	1.5	0.60	0.48	12.77	0.49	0.19	0.80	0.16	0.24	0.03
CI II-1	D ST	25+25.03, 23.00' RT	0.9	0.01	5	7.34	0.01	0.00	0.07	0.016	0.01	0.02	2.61	0.05	0.97	4	3	1.5	0.90	0.41	6.02	0.86	0.06	0.80	0.05	0.02	0.00
CI JJ-1	D ST	25+81.33, 23.00' RT	0.9	0.03	5	7.34	0.03	0.00	0.22	0.016	0.01	0.02	4.09	0.08	1.31	4	3	1.5	0.70	0.46	9.95	0.60	0.13	0.80	0.11	0.11	0.02
CI LL-2	D ST	27+26.03, 13.00' LT	0.9	0.02	5	7.34	0.02	0.02	0.25	0.016	0.01	0.02	4.27	0.09	1.35	4	3	1.5	0.69	0.46	10.44	0.58	0.14	0.80	0.11	0.13	0.02
CI BB-1	D ST	26+01.17, 13.00' RT	0.9	0.03	5	7.34	0.03	0.04	0.50	0.016	SAG	0.02	6.01	0.12	--	4	3	1.5	--	--	--	1.00	0.50	--	--	--	--
CI O-1	D ST	21+18.88, 23.00' LT	0.9	0.10	5	7.34	0.09	0.08	1.27	0.016	SAG	0.02	11.16	0.22	--	4	3	1.5	--	--	--	1.00	1.27	--	--	--	--
CI P-1	D ST	21+45.43, 23.00' LT	0.9	0.13	5	7.34	0.12	0.00	0.86	0.016	0.01	0.02	6.83	0.14	1.84	4	3	1.5	0.48	0.51	17.67	0.37	0.32	0.80	0.25	0.60	0.08
CI Q-1	D ST	26+01.17, 13.00' LT	0.9	0.03	5	7.34	0.03	0.03	0.43	0.016	SAG	0.02	5.45	0.11	--	4	3	1.5	--	--	--	1.00	0.43	--	--	--	--
CI R-1	D ST	24+00.03, 23.00' LT	0.9	0.18	5	7.34	0.16	0.10	1.90	0.016	SAG	0.02	14.64	0.29	--	4	3	1.5	--	--	--	1.00	1.90	--	--	--	--
CI S-1	D ST	24+20.83, 23.00' LT	0.9	0.15	5	7.34	0.14	0.00	0.99	0.016	0.01	0.02	7.20	0.14	1.91	4	3	1.5	0.46	0.52	18.77	0.35	0.35	0.80	0.28	0.71	0.10
CI T-1	D ST	25+25.43, 23.00' LT	0.9	0.02	5	7.34	0.02	0.00	0.13	0.016	0.01	0.02	3.39	0.07	1.15	4	3	1.5	0.79	0.44	8.05	0.71	0.09	0.80	0.07	0.06	0.01
CI T-2	D ST	25+81.73, 23.00' LT	0.9	0.05	5	7.34	0.05	0.01	0.39	0.016	0.01	0.02	5.07	0.10	1.51	4	3	1.5	0.61	0.48	12.65	0.50	0.19	0.80	0.15	0.23	0.03
CI U-6	E ST	37+09.00, 13.00' RT	0.9	0.03	5	7.34	0.03	0.00	0.20	0.016	0.01	0.02	3.94	0.08	1.28	4	3	1.5	0.72	0.45	9.55	0.62	0.12	0.80	0.10	0.10	0.01
CI U-7	E ST	37+09.00, 5.60' LT	0.9	0.03	5	7.34	0.03	0.00	0.20	0.016	0.01	0.02	3.94	0.08	1.28	4	3	1.5	0.72	0.45	9.55	0.62	0.12	0.80	0.10	0.10	0.01
CI I-2	E ST	30+68.47, 13.00' RT.	0.9	0.02	5	7.34	0.02	0.00	0.13	0.016	0.01	0.02	3.39	0.07	1.15	4	3	1.5	0.79	0.44	8.05	0.71	0.09	0.80	0.07	0.06	0.01
CI F-1	E ST	31+19.74, 13.00' RT.	0.9	0.18	5	7.34	0.16	0.06	1.64	0.016	SAG	0.02	13.24	0.26	--	4	3	1.5	--	--	--	1.00	1.64	--	--	--	--
CI G-1	E ST	30+68.47, 13.00' LT.	0.9	0.02	5	7.34	0.02	0.00	0.13	0.016	0.01	0.02	3.39	0.07	1.15	4	3	1.5	0.79	0.44	8.05	0.71	0.09	0.80	0.07	0.06	0.01
CI C-2	E ST	31+19.65, 23.00' LT.	0.9	0.07	5	7.34	0.06	0.06	0.93	0.016	SAG	0.02	9.09	0.18	--	4	3	1.5	--	--	--	1.00	0.93	--	--	--	--
CI G-3	E ST	31+79.31, 23.00' LT.	0.9	0.02	5	7.34	0.02	0.06	0.57	0.016	0.02	0.02	5.16	0.10	2.16	4	3	1.5	0.60	0.65	18.37	0.36	0.21	0.80	0.16	0.41	0.06
CI G-4	E ST	32+06.48, 23.00' LT.	0.9	0.05	5	7.34	0.05	0.04	0.61	0.016	0.02	0.02	5.28	0.11	2.20	4	3	1.5	0.59	0.65	18.88	0.35	0.21	0.80	0.17	0.44	0.06
CI H-3	E ST	32+79.32, 13.00' RT.	0.9	0.08	5	7.34	0.07	0.00	0.55	0.016	0.02	0.02	5.07	0.10	2.14	4	3	1.5	0.61	0.65	18.03	0.36	0.20	0.80	0.16	0.39	0.05
CI H-4	E ST	32+79.32, 23.00' LT.	0.9	0.06	5	7.34	0.05	0.00	0.42	0.016	0.02	0.02	4.57	0.09	1.99	4	3	1.5	0.65	0.63	16.06	0.40	0.17	0.80	0.13	0.28	0.04
CI J-1	E ST	34+61.08, 23.00' RT.	0.9	0.05	5	7.34	0.05	0.00	0.33	0.016	0.01	0.02	4.77	0.10	1.45	4	3	1.5	0.63	0.47	11.83	0.52	0.17	0.80	0.14	0.19	0.03
CI K-1	E ST	33+78.48, 23.00' RT.	0.9	0.01	5	7.34	0.01	0.00	0.07	0.016	0.01	0.02	2.61	0.05	0.97	4	3	1.5	0.90	0.41	6.02	0.86	0.06	0.80	0.05	0.02	0.00
CI K-2	E ST	33+78.48, 23.00' LT.	0.9	0.01	5	7.34	0.01	0.00	0.07	0.016	0.01	0.02	2.61	0.05	0.97	4	3	1.5	0.90	0.41	6.02	0.86	0.06	0.80	0.05	0.02	0.00
CI K-3	E ST	34+61.08, 23.00' LT.	0.9	0.20	5	7.34	0.18	0.00	1.32	0.016	0.01	0.02	8.02	0.16	2.05	4	3	1.5	0.42	0.53	21.18	0.31	0.41	0.80	0.33	0.99	0.13
CI K-4	E ST	34+81.48, 23.00' LT.	0.9	0.05	5	7.34	0.05	0.13	1.32	0.016	0.01	0.02	8.02	0.16	2.05	4	3	1.5	0.42	0.53	21.17	0.31	0.41	0.80	0.33	0.99	0.13
CI K-5	E ST	35+33.30, 23.00' LT.	0.9	0.21	5	7.34	0.19	0.18	2.73	0.016	SAG	0.02	18.63	0.37	--	4	3	1.5	--	--	--	1.00	2.73	--	--	--	--
CI K-6	E ST	36+08.13, 13.00' LT.	0.9	0.02	5	7.34	0.02	0.05	0.51	0.016	0.02	0.02	4.92	0.10	2.09	4	3	1.5	0.62	0.64	17.43	0.37	0.19	0.80	0.15	0.35	0.05
CI L-1	E ST	35+33.31, 23.00' RT.	0.9	0.09	5	7.34	0.08	0.04	0.85	0.016	SAG	0.02	8.59	0.17	--	4	3	1.5	--	--	--	1.00	0.85	--	--	--	--
CI M-1	E ST	36+08.13, 13.00' RT.	0.9	0.02	5	7.34	0.02	0.00	0.13	0.016	0.02	0.02	2.97	0.06	1.49	4	3	1.5	0.85	0.54	9.91	0.61	0.08	0.80	0.06	0.07	0.01
CI A-2	F ST	40+74.03, 17.00' RT	0.9	0.17	5	7.34	0.15	0.07	1.63	0.016	0.01	0.02	8.68	0.17	2.17	4	3	1.5	0.40	0.54	23.13	0.29	0.47	0.80	0.38	1.25	0.17
CI A-3	F ST	42+19.23, 16.00' RT	0.9	0.09	5	7.34	0.08	0.02	0.74	0.016	0.01	0.02	6.45	0.13	1.78	4	3	1.5	0.51	0.51	16.59	0.39	0.29	0.80	0.23	0.51	0.07
CI A-4	F ST	43+26.69, 14.00' RT	0.9	0.04	5	7.34	0.04	0.00	0.26	0.016	0.01	0.02	4.39	0.09	1.37	4	3	1.5	0.67	0.47	10.77	0.57	0.15	0.80	0.12	0.14	0.02
CI A-5	F ST	44+23.13, 10.31' RT	0.9	0.04	5	7.34	0.04	0.00	0.26	0.016	0.01	0.02	4.39	0.09	1.37	4	3	1.5	0.67	0.47	10.77	0.57	0.15	0.80	0.12	0.14	0.02
CI A-6	F ST	45+18.93, 17.00' RT	0.9	0.20	5	7.34	0.18	0.02	1.47	0.016	0.01	0.02	8.34	0.17	2.11	4	3	1.5	0.41	0.53	22.12	0.30	0.44	0.80	0.35	1.11	0.15
CI A-8	F ST	47+68.62, 17.00' RT	0.9	0.14	5	7.34	0.13	0.00	0.92	0.016	0.01	0.02	7.02	0.14	1.88	4	3	1.5	0.47	0.51	18.23	0.36	0.33	0.80	0.27	0.66	0.09
CI B-1	F ST	40+74.03, 17.00' LT	0.9	0.13	5	7.34	0.12	0.08	1.41	0.016	0.01	0.02	8.22	0.16	2.09	4	3	1.5	0.42	0.53	21.76	0.31	0.43	0.80	0.35	1.06	0.15
CI B-2	F ST	42+15.93, 16.20' LT	0.9	0.12	5	7.34	0.11	0.00	0.79	0.016	0.01	0.02	6.62	0.13	1.81	4	3	1.5	0.51	0.51	17.09	0.38	0.30	0.80	0.24	0.55	0.08
CI B-3	F ST	44+22.25, 15.65' LT	0.9	0.04	5	7.34	0.04	0.00	0.26	0.016	0.01	0.02	4.39	0.09	1.37	4	3	1.5	0.67	0.47	10.77	0.57	0.15	0.80	0.12	0.14	0.02
CI B-4	F ST	45+18.73, 17.00' LT	0.9	0.12	5	7.34	0.11	0.07	1.28	0.016	0.01	0.02	7.92	0.16	2.04	4	3	1.5	0.43	0.53	20.89	0.32	0.41	0.80	0.33	0.95	0.13
CI B-5	F ST	45+88.91, 17.00' LT	0.9	0.08	5	7.34	0.07	0.00	0.53	0.016	0.01	0.02	5.69	0.11	1.63	4	3	1.5	0.56	0.49	14.41	0.44	0.23	0.80	0.19	0.34	0.05
CI B-6	F ST	47+68.62, 17.00' LT	0.9	0.17	5	7.34	0.15	0.00	1.12	0.016	0.01	0.02	7.55	0.15	1.97	4	3	1.5	0.45	0.52	19.78	0.33	0.38	0.80	0.30	0.82	0.11
CI D-1	6TH ST	50+69.59, 17.00' RT	0.9	0.12	5	7.34	0.11	0.00	0.79	0.016	0.01	0.02	6.62	0.13	1.81	4	3	1.5	0.50	0.51	17.09	0.38	0.30	0.80	0.24	0.55	0.08
CI D-2	6TH ST	50+69.59, 17.00' LT	0.9	0.07	5	7.34	0.06	0.00	0.46	0.016	0.01	0.02	5.41	0.11	1.58	4	3	1.5	0.58	0.49	13.63	0.47	0.22	0.80	0.17	0.29	0.04
CI K-7	6TH ST	53+26.72, 14.00' RT.	0.9	0.05	5	7.34	0.05	0.03	0.57	0.016	0.01	0.02	5.86	0.12	1.66	4	3	1.5	0.55	0.50	14.89	0.43	0.25	0.80	0.20	0.37	0.05
CI K-8	6TH ST	52+52.03, 8.60' RT.	0.9	0.06	5	7.34	0.05	0.00	0.40	0.016	0.01	0.02	5.11	0.10	1.52	4	3	1.5	0.60	0.48	12.77	0.49	0.19	0.80	0.16	0.24	0.03
CI M-2	6TH ST	54+38.80, 14.00' RT.	0.9	0.07	5	7.34	0.06	0.00	0.46	0.016	0.01	0.02	5.41	0.11	1.58	4	3	1.5	0.58	0.49	13.63	0.47	0.22	0.80	0.17	0.29	0.04
CI E-1	6TH ST	53+30.22, 14.00' LT.	0.9	0.25	5	7.34	0.23	0.00	1.65	0.016	0.01	0.02	8.72	0.17	2.17	4	3	1.5	0.40	0.54	23.26	0.29	0.48	0.80	0.38	1.27	0.17
CI V-1	6TH ST	56+02.27, 14.00' RT	0.9	0.07	5	7.34	0.06	0.04	0.75	0.016	SAG	0.02	7.89	0.16	--	4	3	1.5	--	--	--	1.00	0.75	--	--	--	--
CI U-1	6TH ST	57+12.41, 14.00' RT	0.9	0.02	5	7.34	0.02	0.00	0.13	0.016	0.01	0.02	3.39	0.07	1.15	4	3	1.5	0.79	0.44	8.05	0.71	0.09	0.80	0.07	0.06	0.01
CI U-2	6TH ST	57+12.38, 14.00' LT	0.9	0.02	5	7.34	0.02	0.00	0.13	0.016	0.01	0.02	3.39	0.07	1.15	4	3	1.5	0.79	0.44	8.05	0.71	0.09	0.80	0.07	0.06	0.01
CI U-3	6TH ST	56+02.27, 14.00' LT	0.9	0.14	5	7.34	0.13	0.21	2.44	0.016	0.01	0.02	10.09	0.20	2.40	4	3	1.5	0.35	0.55	27.39	0.25	0.60	0.80	0.48	1.96	0.27
CI U-5	6TH ST	54+38.80, 14.00' LT	0.9	0.07	5	7.34	0.06	0.20	1.93	0.016	0.01	0.02	9.25	0.18	2.26	4	3	1.5	0.38	0.54	24.84	0.27	0.52	0.80	0.42	1.51	0.21
CI BB-2	6TH ST	58+02.50, 13.00' RT	0.9	0.05	5	7.34	0.05	0.00	0.33	0.016	0.01	0.02	4.77	0.10	1.45	4	3	1.5	0.63	0.47	11.83	0.52	0.17	0.80	0.14	0.19	0.03
CI BB-3	6TH ST	58+95.10, 13.00' RT	0.9	0.1	5	7.34	0.09	0.03	0.85	0.016	0.01	0.02	6.81	0.14	1.84	4	3	1.5	0.49	0.51	17.62	0.37	0.32	0.80	0.25	0.60	0.08
CI BB-4	6TH ST	60+30.08, 13.00' RT	0.9	0.12	5	7.34	0.11	0.00	0.79	0.016	SAG	0.02	8.17	0.16	--	4	3	1.5	--	--	--	1.00	0.79	--	--	--	--
CI BB-5	6TH ST	60+29.99, 13.00' LT	0.9	0.28	5	7.34	0.25	0.00	1.85	0.016	SAG	0.02	14.37	0.29	--	4	3	1.5	--	--	--	1.00	1.85	--	--	--	--
CI CC-1	6TH ST	58+95.10, 13.00' LT	0.9	0.35	5	7.34	0.32	0.00	2.31	0.016	SAG	0.02	16.68	0.33	--	4	3	1.5	--	--	--	1.00	2.31	--	--	--	--
CI HH-3	6TH ST	61+58.04, 12.91' LT	0.9	0.02	5	7.34	0.02	0.00	0.13	0.016	0.01	0.02	3.39	0.07	1.15	4	3	1.5	0.79	0.44	8.05	0.71	0.09	0.80	0.07	0.06	0.01
CI A-0	8TH ST	60+55.17, 26.50' LT	0.9	0.11	5	7.34	0.10	0.00	0.73	0.016	0.01	0.02	6.41	0.13	1.77	4	3	1.5	0.51	0.50	16.47	0.39	0.29	0.80	0.23	0.50	0.07
CI Y-1	8TH ST	67+99.54, 26.60' LT	0.9	0.14	5	7.34	0.13	0.00	0.92	0.016	SAG	0.02	9.06	0.18	--	4	3	1.5	--	--	--	1.00	0.92	--	--	--	--
CI UU-1	8TH ST	72+79.16, 13.00' LT	0.9	0.12	5	7.34	0.11	0.00	0.79	0.016	0.01	0.02	6.62	0.13	1.81	4	3	1.5	0.50	0.51	17.09	0.38	0.30	0.80	0.24	0.55	0.08
CI EE-0	8TH ST	71+67.79, 37.56' LT	0.9	0.12	5	7.34	0.11	0.08	1.34	0.016	0.01	0.02	8.07	0.16	2.06	4	3	1.5	0.42	0.53	21.33	0.31	0.42	0.80	0.34	1.01	0.14

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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

PROPOSED STORM SPREAD CALCULATIONS

C8.026PH2

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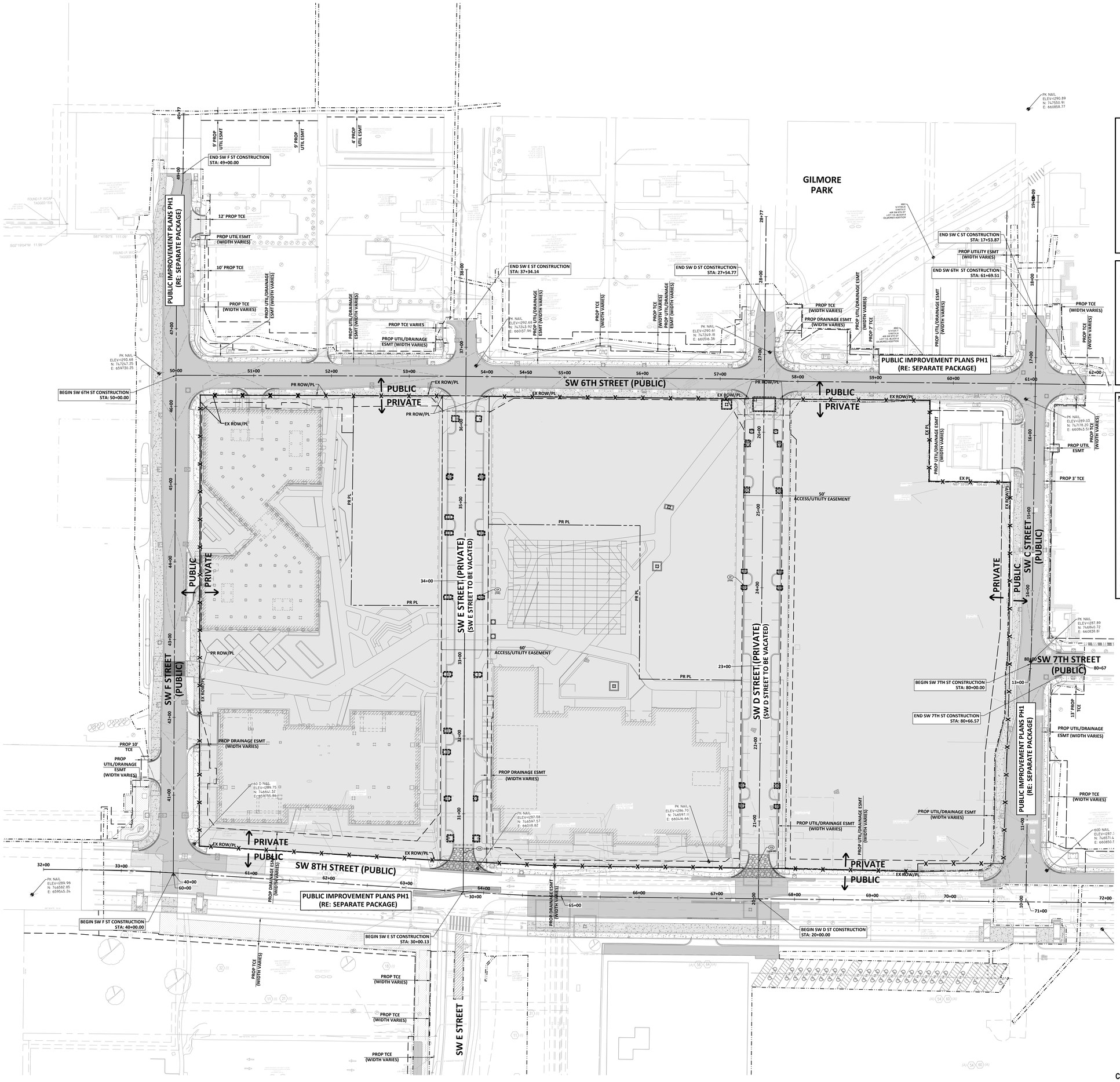
CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

24-Jul-2026 - 12:39 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\00-Sheets\LSD Plan\STEM_PVT_WPM_C-PR-DA_M08250700.dwg



EROSION CONTROL LEGEND

- LIMITS OF DISTURBANCE
- SF - SEDIMENTATION/ SILT FENCE (RE: 3/C9.010PH2)
- TCE - TEMPORARY CONSTRUCTION ENTRANCE/EXIT (RE: 9/C9.010PH2)
- CP - GRAVEL FILTER FOR CURB INLET (INLET PROTECTION) (RE: 8/C9.010PH2)
- IP - GRAVEL FILTER FOR AREA INLET (INLET PROTECTION) (RE: 8/C9.010PH2)

NOTES:

1. ALL AFFECTED INLETS SHALL BE PROTECTED BEFORE CONSTRUCTION ACTIVITIES BEGIN.
2. SEDIMENT AND EROSION CONTROLS INCLUDING NON-STORMWATER DISCHARGES SHALL BE AS PER THE SPECIFICATIONS.

EROSION CONTROL NOTES

1. THIS PROJECT IS SUBJECT TO ENVIRONMENTAL PROTECTION AGENCY (EPA) NATIONAL POLLUTION DISCHARGE ELIMINATIONAL SYSTEM (NPDES) CONSTRUCTION STORM WATER DISCHARGE REGULATIONS AND REQUIREMENTS. THE CONTRACTOR WILL BE REQUIRED TO EXECUTE A NOTICE OF INTENT AND IMPLEMENT THE POLLUTION PREVENTION PLAN INCLUDED IN THE CONTRACT DOCUMENTS AND COMPLY WITH ALL REPORTING AND INSPECTION REQUIREMENTS SET FORTH IN THE NPDES REGULATIONS.
2. REINFORCED SILT FENCES AND INLET PROTECTION TO BE PROVIDED DURING CONSTRUCTION OF THIS PROJECT, AND REMOVED UPON CONSTRUCTION COMPLETION (SEE SPECS. AND DETAILS).
3. CONTRACTOR TO PROVIDE STABILIZED CONSTRUCTION ENTRANCE PER DETAIL AT ALL POINTS OF EGRESS DURING CONSTRUCTION.
4. PRIOR TO REMOVAL OF EROSION CONTROL DEVICES, ALL AREAS DISTURBED ARE TO BE HYDRO-MULCH SEEDED.

NOTES:

STOCKPILING OF CONSTRUCTION SPOIL MATERIAL AT PARTICULAR LOCATIONS SHALL ONLY BE ALLOWED FOR A LIMITED TIME PERIOD, NOT TO EXCEED (6) MONTHS. PRIOR TO A FINAL INSPECTION OF THE GRADING PERMIT, THE FOLLOWING STANDARDS SHALL BE ACHIEVED FOR COMPLETION OF CONSTRUCTION:

DEVELOPMENT AND GRADING WITHIN THE DISTURBED AREA IS COMPLETE AND MATCHES PLANS.

A. THE DISTURBED SOIL AREA IS OBSERVED TO HAVE PERMANENT VEGETATION ESTABLISHED.

B. NO SLOPES STEEPER THAN A 3:1 PITCH UNLESS OTHERWISE APPROVED IN WRITING BY THE DIRECTOR OF ENGINEERING.

C. NOTICE OF VIOLATIONS ISSUED HAVE ALL CORRECTIVE ACTIONS APPROVED WITH AN INSPECTION REPORT SIGNED BY A REPRESENTATIVE OF THE DIRECTOR OF ENGINEERING.

D. ALL HEAVY EQUIPMENT, STOCKPILES, AND CONSTRUCTION SITE MATERIALS HAVE BEEN REMOVED FROM THE CONSTRUCTION SITE.

E. PHASING ON CONSTRUCTION SITES MUST BE UTILIZED ON SITES LARGER THAN 5 AC. CONSTRUCTION SITES REQUIRING CUT AND FILL MUST BE SEEDED ONCE THE CUT AND FILL ACTIVITY IS COMPLETED.

F. INSTALL TEMPORARY FENCING AS REQUIRED, PLACEMENT MAY BE SPECIFIED BY CONTRACTOR.

G. SWPPP INFORMATION SIGN PLACEMENT MAY BE SPECIFIED BY CONTRACTOR.

H. USE EROSION CONTROL BLANKET OR EROSION CONTROL PROTECTION BLANKET ON ANY SLOPES 3:1 OR GREATER (RE: 6,7/C9.010PH2).

I. THE TOTAL DISTURBED AREA FOR THE SITE IS 8.78 AC TOTAL.

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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

STORMWATER POLLUTION PREVENTION PLAN

C9.000PH2

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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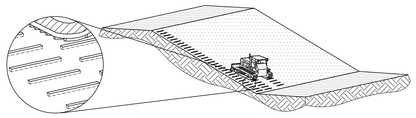
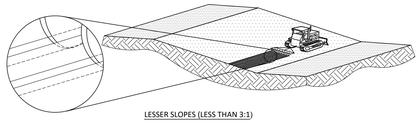


STEEP SLOPES (3:1 OR GREATER)



LESSER SLOPES (LESS THAN 3:1)

GENERAL NOTES:

1. PROVIDE A ROUGH SOIL SURFACE WITH HORIZONTAL DEPRESSIONS.
2. CAN BE COMPLETED WITH A TILLER OR OTHER EQUIPMENT WITH SIMILAR EFFICIENCY.
3. DURING MASS GRADING, MAINTAIN SLOPES IN A ROUGHENED CONDITION WITHOUT FINE GRADING.
4. SURFACE ROUGHENING SHOULD BE PERFORMED AFTER FINE GRADING.
5. ROUGHENING CANNOT BE USED IF SANDY OR ROCKY SOIL IS PRESENT.
6. FILL SLOPES CAN BE CONSTRUCTED WITH A ROUGHENED SURFACE.
7. CUT SLOPES THAT HAVE BEEN SMOOTH GRADED SHALL BE ROUGHENED AS A SUBSEQUENT OPERATION.
8. SIDE SLOPES OF SPOIL STOCKPILES CAN BE CONSTRUCTED WITH A ROUGHENED SURFACE.

PURPOSE:

SURFACE ROUGHENING OR SCARIFICATION IS A TECHNIQUE USED FOR CREATING UNEVENNESS ON BARE SOIL TO REDUCE SLOPE EROSION AND THE FORMATION OF RILLS. THE PRIMARY FUNCTIONS OF SURFACE ROUGHENING ARE TO:

1. REDUCE EROSION POTENTIAL BY DECREASING RUNOFF VELOCITIES
2. TRAP SEDIMENT
3. INCREASE INFILTRATION OF WATER INTO THE SOIL
4. AID IN THE ESTABLISHMENT OF VEGETATIVE COVER VIA MOISTURE STORAGE

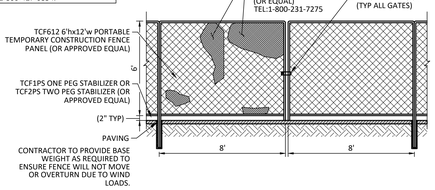
INSTALLATION AND INSPECTION AND MAINTENANCE NOTES:

1. SEE SITE MAPS FOR LOCATION(S) OF SURFACE ROUGHENING.
2. ANY DISTURBED LAND THAT WILL REMAIN INACTIVE FOR MORE THAN 14 CONSECUTIVE DAYS - OR LESS PER APPLICABLE LAW(S) - MUST RECEIVE SURFACE ROUGHENING IN ADDITION TO THE IMPLEMENTATION OF TEMPORARY OR PERMANENT EROSION CONTROL MEASURES.
3. CRESTS AND VALLEYS SHALL BE HORIZONTAL; THAT IS, ALONG THE CONTOUR.
4. SOIL SHALL BE ROUGHENED A MINIMUM OF 6 INCHES DEEP USING RIGID SHANKS.
5. A FARMING DISC SHALL NOT BE USED FOR SURFACE ROUGHENING.
6. FOR STEEP SLOPES (3:1 OR STEEPER), IT IS ACCEPTABLE TO TRACK THE SLOPES, ACCORDING TO THE DETAIL.
7. IN ADDITION TO DAILY INSPECTIONS, THE CONTRACTOR SHALL INSPECT THE SURFACE ROUGHENING AT THE FOLLOWING INTERVALS.

- IMMEDIATELY FOLLOWING INITIAL ROUGHENING.
- IMMEDIATELY FOLLOWING ANY RAIN EVENT.

1 SURFACE ROUGHENING
N.T.S.

CONTRACTOR TO PROVIDE TEMPORARY CONSTRUCTION FENCE PANELS AND STABILIZERS ALONG WITH ANY OTHER MATERIALS TO ADEQUATELY CONSTRUCT AND STABILIZE FENCE. REFERENCE ACADEMY FENCE COMPANY WEB SITE @ www.academyfence.com OR CALL 1-800-427-0854.



2 TEMPORARY DOUBLE GATE
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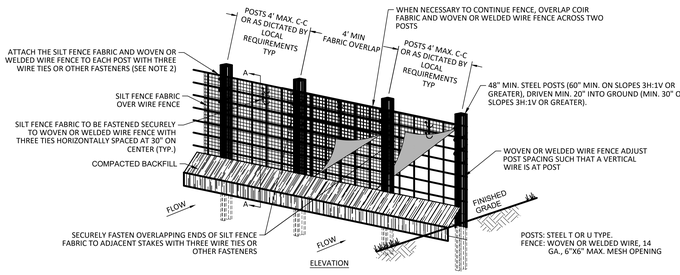

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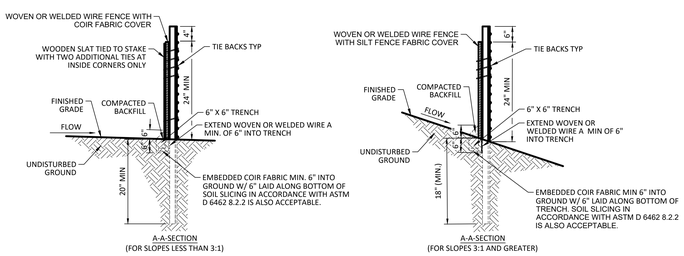
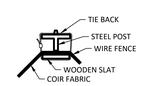




INSIDE CORNER - PLAN VIEW

TABLE 1 TEMPORARY SILT FENCE MATERIAL PROPERTY REQUIREMENTS

		TEST METHOD	UNITS	SUPPORTED* SILT FENCE	UNSUPPORTED* SILT FENCE	TYPE OF VALUE
GRAB STRENGTH		ASTM D 4632	N (LBS)			
	MACHINE DIRECTION			400 (90)	550 (90)	MARV
	X-MACHINE DIRECTION			400 (90)	450 (90)	MARV
PERMITTIVITY †		ASTM D 4491	SEC-1	0.05	0.05	MARV
APPARENT OPENING SIZE°		ASTM D 4751	MM (US SIEVE #)	0.60 (30)	0.60 (30)	MAX. ARV°
ULTRAVIOLET STABILITY		ASTM D 4355	% RETAINED STRENGTH	70% AFTER 500 H OF EXPOSURE	70% AFTER 500 H OF EXPOSURE	TYPICAL

SILT FENCE SUPPORT SHALL CONSIST OF 14 GAGE STEEL WIRE WITH A MESH SPACING OF 150 MM (6 IN.) OR PREFABRICATED POLYMER MESH OF EQUIVALENT STRENGTH. THESE DEFAULT VALUES ARE BASED ON EMPIRICAL EVIDENCE WITH A VARIETY OF SEDIMENTS. FOR ENVIRONMENTALLY SENSITIVE AREAS, A REVIEW OF PREVIOUS EXPERIENCE AND/OR SITE OR REGIONALLY SPECIFIC GEOTEXTILE TESTS IN ACCORDANCE WITH TEST METHOD D 5141 SHOULD BE PERFORMED BY THE AGENCY TO CONFIRM SUITABILITY OF THESE REQUIREMENTS. AS MEASURED IN ACCORDANCE WITH TEST METHOD D 4632.

TABLE 1 TAKEN FROM ASTM D 6461-99 (2007)

POROUS BAFFLE SCHEMATIC

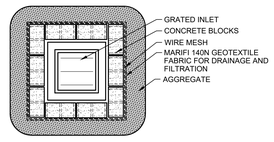
SPECIFICATIONS FOR POROUS BAFFLE INSTALLATION:

1. MATERIALS AND INSTALLATION SHALL COMPLY WITH ASTM D 6462 LATEST EDITION.
2. INSTALL SILT FENCE AT A FAIRLY LEVEL GRADE ALONG THE CONTOUR WITH THE ENDS CURVED UPHILL TO PROVIDE SUFFICIENT UPSTREAM STORAGE VOLUME FOR THE ANTICIPATED RUNOFF.
3. ATTACH THE GEOTEXTILE OR FABRIC TO THE WOVEN OR WELDED WIRE FENCE WITH THREE WIRE TIES OR OTHER FASTENERS (HORIZONTALLY SPACED EVERY 30"), ALL SPACED WITHIN THE TOP 8" OF THE FABRIC. ATTACH EACH TIE DIAGONALLY 45 DEGREES THROUGH THE FABRIC, WITH EACH PUNCTURE AT LEAST 1" VERTICALLY APART. AT EACH POST, ATTACH THE GEOTEXTILE OR FABRIC AND THE WOVEN OR WELDED WIRE FENCE TO THE POST AS PREVIOUSLY STATED. IN ADDITION, EACH TIE PLACED ON A POST SHOULD BE POSITIONED TO HANG ON A POST NIPPLE WHEN TIGHTENED TO PREVENT SAGGING.
4. WHEN TWO SECTIONS OF SILT FENCE FABRIC ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED A MINIMUM OF 60" ACROSS TWO POSTS, AS SHOWN.
5. ALL SILT FENCE SHALL INCLUDE WIRE SUPPORT UNLESS THE STATIC SLICING EQUIPMENT IS UTILIZED TO INSTALL THE FENCE PER DETAIL, "SILT FENCE INSTALLATION (SLICING METHOD)".
6. WRAP APPROXIMATELY 6" OF FABRIC AROUND THE END POSTS AND SECURE WITH 3 TIES.
7. COMPACT THE SOIL IMMEDIATELY NEXT TO THE SILT FENCE FABRIC WITH THE FRONT WHEEL OF THE TRACTOR, SKID STEER, OR ROLLER EXERTING AT LEAST 60 POUNDS PER SQ. INCH. COMPACT THE UPSTREAM SIDE FIRST. COMPACT EACH SIDE TWICE FOR A TOTAL OF FOUR TRIPS.
8. ADD POST CAPS AS NEEDED BASED ON SITE CONDITIONS AND APPLICABLE AGENCY REQUIREMENTS.

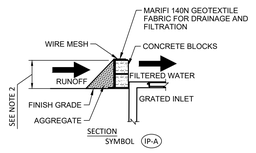
MAINTENANCE NOTES:

1. SILT FENCES SHALL BE INSPECTED ALONG ITS ENTIRETY AND MUST BE CLEANED WHEN SEDIMENT HAS ACCUMULATED TO ONE-THIRD THE HEIGHT OF THE SILT FENCE. MAINTENANCE CLEANOUT MUST BE CONDUCTED REGULARLY TO PREVENT ACCUMULATED SEDIMENTS FROM REACHING ON-THIRD THE HEIGHT OF THE SILT FENCE.
2. ALL MATERIAL EXCAVATED FROM BEHIND SILT FENCE SHALL BE STOCKPILED ON AN UPLAND PORTION OF THE SITE IF SUITABLE FOR REUSE.
3. SPECIAL ATTENTION SHOULD BE PAID TO ENSURE THAT NO UNDERMINING OF SILT FENCE HAS OCCURRED AND THAT NO BYPASS IS OCCURRING AT JOINING SECTIONS.
4. IF EXCESS SEDIMENT IS ACCUMULATING IN ANY SECTION OF SILT FENCE, THE CONTRACTOR SHOULD IMPLEMENT ADDITIONAL UPSTREAM STABILIZATION MEASURES OR ADDITIONAL BMPS (PENDING CEC APPROVAL) TO PREVENT EXCESSIVE BUILDUP ON SILT FENCE.
5. SILT FENCES SHALL BE REPAIRED TO THEIR ORIGINAL CONDITIONS IF DAMAGED.

3 SEDIMENTATION/ SILT FENCE WITH WIRE BACKING
N.T.S.



PLAN



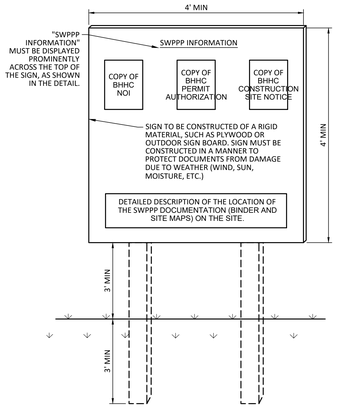
NOTES:

1. PLACE CONCRETE BLOCKS IN A SINGLE ROW AROUND PERIMETER OF INLET ON THEIR SIDES, WITH ENDS OF ADJACENT BLOCKS ABUTTING.
2. HEIGHT OF BARRIER VARIES. USE STACKS OF 4", 8", OR 12" BLOCKS. MIN. HEIGHT OF BARRIER SHALL BE 12" AND MAX. HEIGHT SHALL BE 24 INCH.
3. PLACE HARDWARE CLOTH/WIRE MESH W/ MAX. 1/2" OPENINGS OVER VERTICAL FACE OF CONCRETE BLOCKS.
4. THE AGGREGATE SHALL BE 3/4"-2" ANGULAR CLEAN STONE, WHICH WILL SLOW THE FLOW OF THE WATER AND ALLOW IT TO FILTER THROUGH AND OVER THE MATERIAL BEFORE ENTERING THE INLET.

MAINTENANCE NOTES:

1. INLET PROTECTION DEVICES MUST BE INSPECTED FOR SEDIMENT ACCUMULATION WITHIN THE CATCH BASIN (IF USING INSERT-TYPE OR UPGRADIENT OF THE INLET.
2. REMOVAL OF SEDIMENT ACCUMULATED IN OR ADJACENT TO A STORM DRAIN INLET MUST BEGIN IMMEDIATELY UPON DISCOVERY.WITH COMPLETION OF THE ACTIVITY OCCURRING NO LATER THAN THE END OF THE FOLLOWING BUSINESS DAY.
3. INLET PROTECTION DEVICES SHALL BE INSPECTED FOR UNINTENDED BYPASS OR IMPROPER FLOW-RATES THAT MAY CAUSE DOWNSTREAM FLOODING.
4. CONTACT THE CEC FOR ALTERNATE INLET PROTECTION IF THE DESIGNED PROTECTION MAY IMPACT DOWNSTREAM BMPS, ADJACENT SLOPES, ETC., DUE TO PONDING ISSUES. ENSURE THAT NO UNDERMINING OF INLET PROTECTION DEVICES HAS OCCURRED.
5. INLET PROTECTION DEVICES AND BARRIERS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.

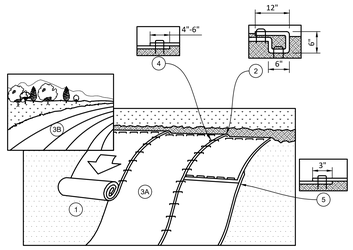
4 BLOCK AND AGGREGATE INLET PROTECTION
N.T.S.



NOTES:

1. THE SWPPP INFORMATION SIGN MUST BE LOCATED IN A PROMINENT, PUBLICLY ACCESSIBLE LOCATION NEAR THE MAIN ENTRANCE OF THE SITE, SUCH THAT THE DOCUMENTATION CAN BE READ WITHOUT ACCESSING THE JOBSITE, BUT NOT OBSTRUCTING VIEWS AS TO CAUSE A TRAFFIC SAFETY HAZARD.
2. ALL POSTED DOCUMENTS MUST BE MAINTAINED IN A CLEARLY READABLE CONDITION AT ALL TIMES THROUGHOUT CONSTRUCTION AND UNTIL THE NOTICE-OF-TERMINATION (NOT) IS FILED FOR THE PERMIT.
3. ALL PAGES OF NOTICES OF INTENT AND PERMIT AUTHORIZATIONS MUST BE POSTED. THE CONTRACTOR MAY UTILIZE ACCESSIBLE WATERPROOF FOLDERS TO STORE THESE DOCUMENTS IF IT WILL BE DIFFICULT TO POST ALL PAGES INDIVIDUALLY.
4. CONTRACTOR SHALL POST OTHER STORMWATER AND/OR EROSION AND SEDIMENT CONTROL RELATED PERMITS ON THE SIGN AS REQUIRED BY THE GOVERNING AGENCIES.
5. SUBSEQUENT PERMIT MODIFICATION REQUESTS OR RENEWAL APPLICATIONS AND THEIR ASSOCIATED AUTHORIZATIONS OR RESPONSES SHALL BE POSTED ON THE SWPPP SIGN.
6. SIGN SHALL BE LOCATED OUTSIDE OF PUBLIC RIGHT-OF-WAY AND EASEMENTS UNLESS APPROVED BY THE GOVERNING AGENCY.
7. CONTRACTOR IS RESPONSIBLE FOR ENSURING STABILITY OF THE SWPPP INFORMATION SIGN.

5 SWPPP INFORMATION SIGN
N.T.S.



NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" 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 SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS PER MANUFACTURES RECOMMENDATION.

4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH MINIMUM 6" OVERLAP. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE 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" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.

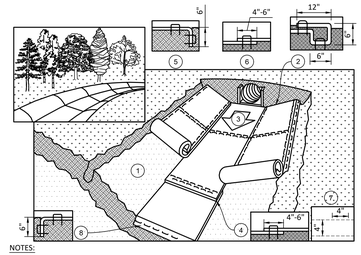
6. PLACE STAPLES/STAKES PER MANUFACTURER'S RECOMMENDATION FOR THE APPROPRIATE SLOPE BEING APPLIED.

NOTES:

1. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

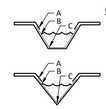
2. FOLLOW EROSION CONTROL TECHNOLOGY COUNCIL SPECIFICATION FOR PRODUCT SELECTION.

6 EROSION CONTROL BLANKET (SLOPE INSTALLATION)
N.T.S.



NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12"APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12"PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS PER MANUFACTURER'S RECOMMENDATIONS.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 4"-6" (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
9. PLACE STAPLE/STAKES PER MANUFACTURER'S RECOMMENDATION FOR THE APPROPRIATE CHANNEL FLOW OR SHORELINE



CRITICAL POINTS:

A. OVERLAPS AND SEAMS
B. PROJECTED WATERLINE
C. CHANNEL BOTTOM/ SIDE SLOPE VERTICES

NOTES:

1. HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.
2. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.
3. FOLLOW EROSION CONTROL TECHNOLOGY COUNCIL SPECIFICATION FOR PRODUCT SELECTION.

7 EROSION PROTECTION BLANKET (CHANNEL INSTALLATION)
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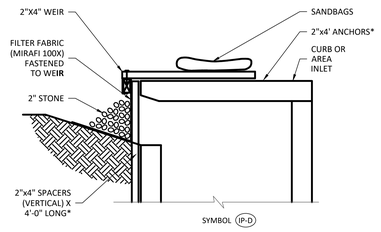
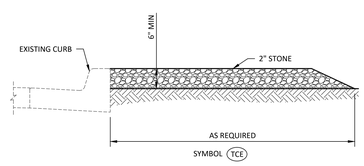


* ANCHORS AND SPACERS SHALL VARY WITH LENGTH OF INLET AND INLET OPENING(S). SPACING MAY VARY BETWEEN 2 FOOT MINIMUM AND 3 FOOT MAXIMUM WITH NO LESS THAN 3 UTILIZED.

8 CURB INLET & AREA INLET TRAP



9 TEMPORARY CONSTRUCTION ENTRANCE

walter p moore

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			

ORIGINAL ISSUE — DATE

STORMWATER POLLUTION PREVENTION PLAN DETAILS

C9.010PH2

SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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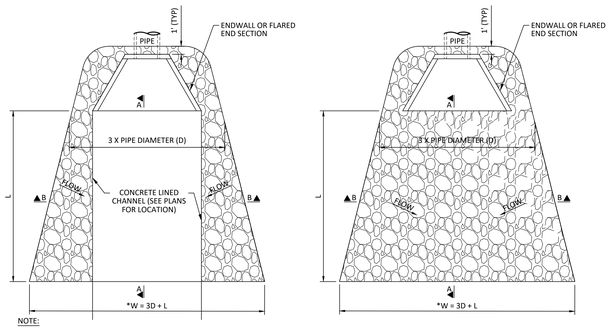
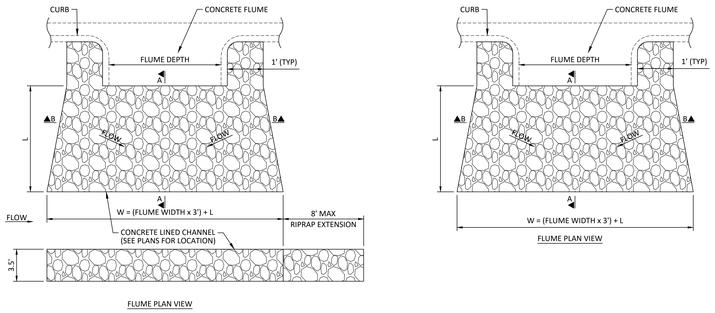


NOTE:

1. WHERE DISCHARGE POINT IS LOCATED IN CHANNEL AREAS, THE RIPRAP PAD WIDTH SHALL BE NO GREATER THAN THE CHANNEL TOP WIDTH.

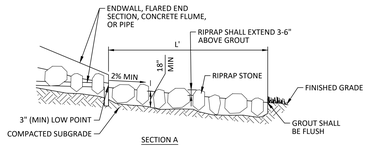
ENDWALL, FLARED END SECTION OR PIPE PLAN VIEW



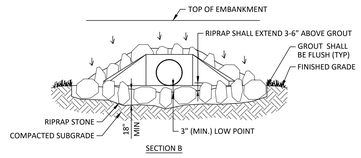
FLUME PLAN VIEW

FLUME PLAN VIEW

1 RIPRAP PAD
N.T.S.



SECTION A



SECTION B

NOTE:

1. RIPRAP PAD THICKNESS MUST BE 1.5x THE MAXIMUM STONE SIZE, BUT NOT LESS THAN 6".

NOTES:

1. PLACE RIPRAP STONE IN AREAS INDICATED ON THE DRAWINGS.
2. RIPRAP STONE SHALL CONSIST OF FIELD STONE OR ROUGH, UNHEWN QUARRY STONE AS NEARLY UNIFORM IN SECTION AS IS PRACTICAL. STONES SHALL BE DENSE, RESISTANT TO THE ACTION OF AIR AND WATER.
3. GRADE SUBGRADE BELOW RIPRAP PAD SMOOTHLY BEFORE PLACING STONE.
4. GROUT AROUND STONES SHALL SLOPE AWAY FROM STRUCTURE TO PROVIDE POSITIVE DRAINAGE.
5. STONES SHALL WEIGH BETWEEN 50 AND 150 POUNDS EACH, AND AT LEAST 60% OF THE STONES SHALL WEIGH MORE THAN 100 POUNDS EACH.
6. RIPRAP SHALL BE GROUTED SO THAT NO CAVITY OR VOIDS SHALL EXIST UNDER THE STONES.
7. RIPRAP PAD SHALL BE GRADED TO PROVIDE POSITIVE DRAINAGE AWAY FROM PIPE, FLUME, ETC.

MAINTENANCE NOTES:

1. ALL MATERIAL EXCAVATED FROM RIPRAP PAD SHALL BE INCORPORATED INTO ON-SITE SOILS OR SPREAD OUT ON AN UPLAND PORTION OF THE SITE AND STABILIZED.
2. VERIFY THAT NO EROSION OR SCOURING IS OCCURRING AROUND THE RIPRAP PAD AND VERIFY THAT SURROUNDING AREAS ARE STABILIZED AND SHOW NO SIGNS OF EROSION.
3. ACCUMULATION OF SEDIMENT WITHIN RIPRAP PAD SHALL BE DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
4. RIPRAP PADS SHALL BE REPAIRED OR REPLACED IF THEY SHOW SIGNS OF UNDERMINING OR DETERIORATION.

walter p moore

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

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STORMWATER POLLUTION PREVENTION PLAN DETAILS

C9.011PH2

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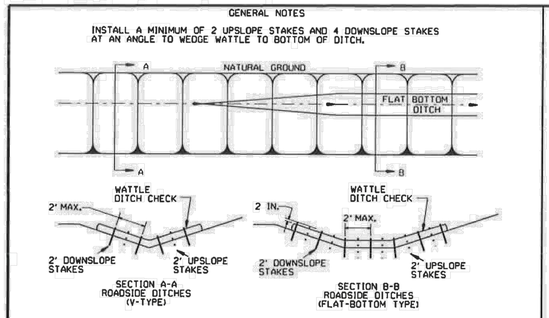
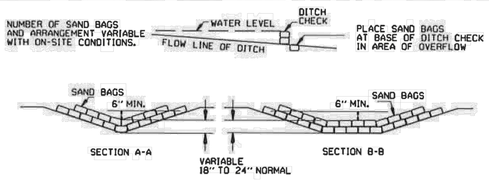
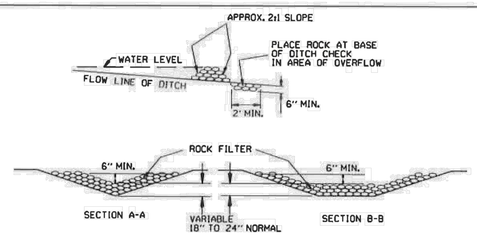


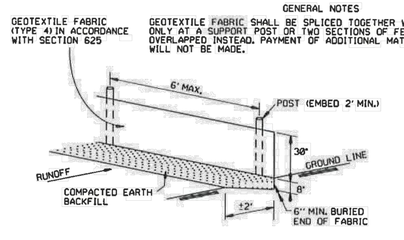
WATTLE DITCH CHECK (E-1)



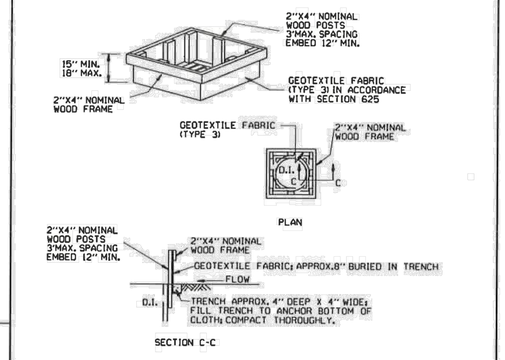
SAND BAG DITCH CHECK (E-5)



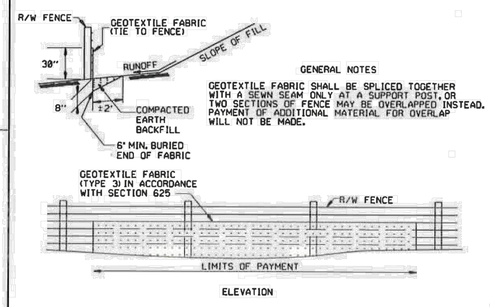
ROCK DITCH CHECK (E-6)



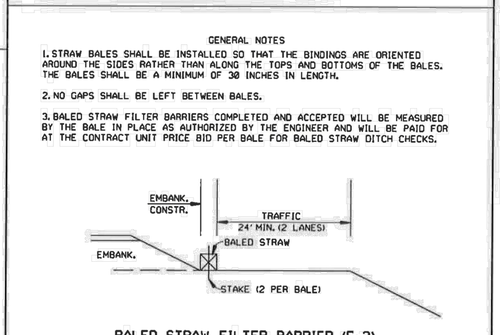
SILT FENCE (E-11)



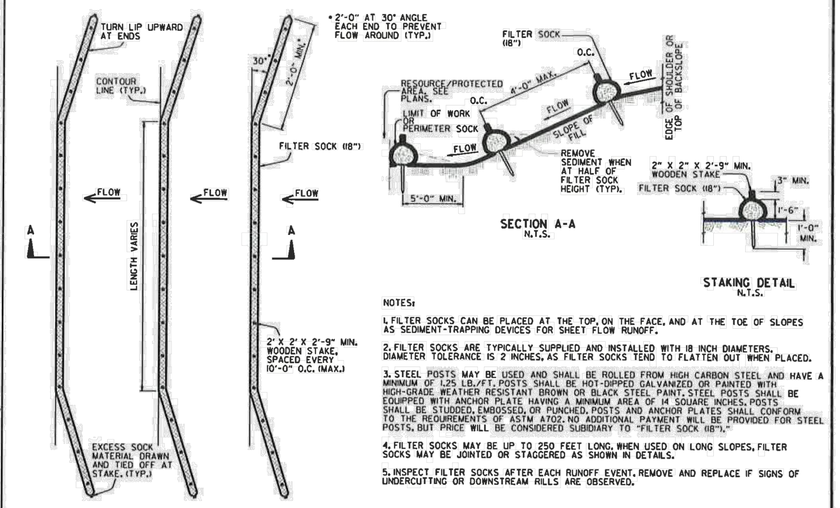
DROP INLET SILT FENCE (E-7)



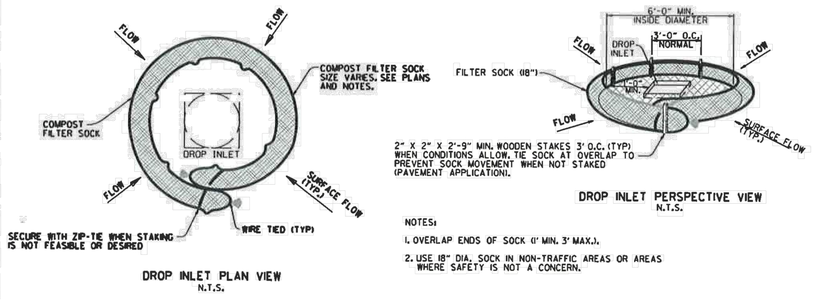
SILT FENCE ON R/W FENCE (E-4)



BALED STRAW FILTER BARRIER (E-2)



FILTER SOCK ALONG SLOPE (E-3)



COMPOST FILTER SOCK DROP INLET PROTECTION (E-13)

DATE	REVISION	FILMED
11-16-17	ADDED FILTER SOCK E-3 AND E-13	
12-15-11	DELETED BALED STRAW DITCH CHECK & ADDED WATTLE DITCH CHECK	
11-18-98	ADDED NOTES	
07-02-98	ADDED BALED STRAW FILTER BARRIER (E-2)	
07-20-95	REVISED SILT FENCE E-4 AND E-8	7-20-95
07-15-94	REV. E-4 & E-8 MIN. 13" BURIED END OF FABRIC	
06-02-94	REVISED E-1,4,7 & 11 DELETED E-2 & 3	6-2-94
04-01-93	REDRAWN	
10-01-92	REDRAWN	
08-02-76	ISSUED R.D.M.	298-7-28-76

ARKANSAS STATE HIGHWAY COMMISSION

TEMPORARY EROSION CONTROL DEVICES

STANDARD DRAWING TEC-1

1 **TEMPORARY EROSION CONTROL DEVICES**
NOT TO SCALE

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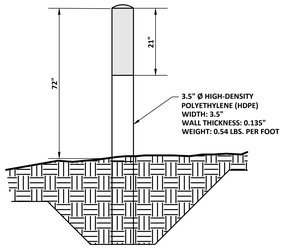
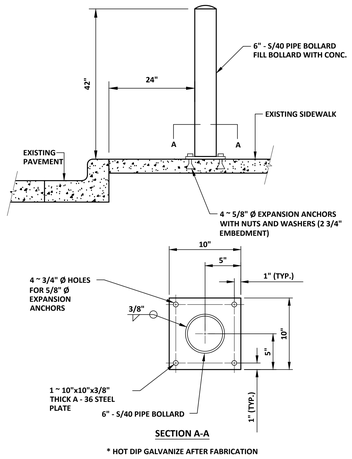
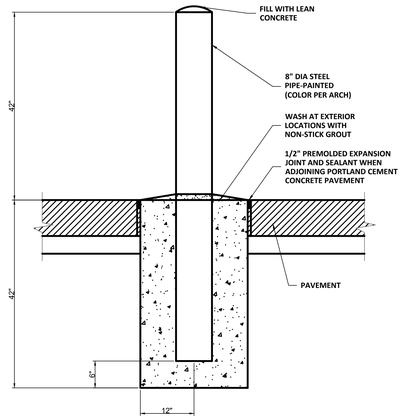


COLOR	UNDERGROUND UTILITY MAINS
ORANGE	TELECOMMUNICATIONS UTILITY: ALARM OR SIGNAL LINES, FIBER OPTIC CABLES, OR CONDUIT
RED	ELECTRIC UTILITY: ELECTRICAL POWER LINES, CABLES OR CONDUIT, AND LIGHTING CABLES
YELLOW	OIL & NATURAL GAS UTILITIES: OIL, STEAM, PETROLEUM, OR OTHER GASEOUS OR FLAMMABLE MATERIAL
BLUE	WATER UTILITY: POTABLE WATER
GREEN	WASTEWATER UTILITY: SEWAGE AND DRAIN LINES
PINK	TEMPORARY SURVEYS
WHITE	PROPOSED EXCAVATION LIMITS OR ROUTE

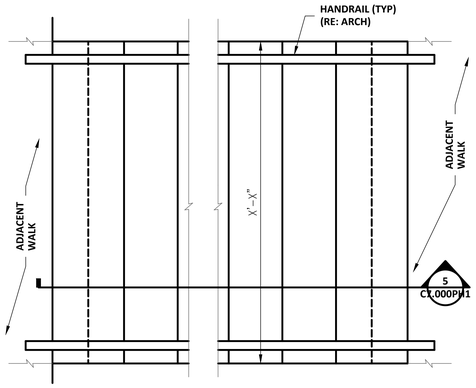
1 UTILITY MARKER
NTS



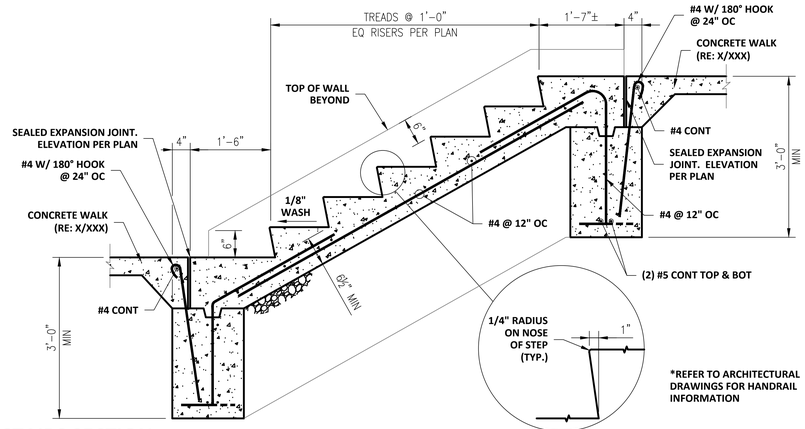
2 BOLLARD-LOADING DOCK
NTS



3 BOLLARD DETAIL
NTS



4 CONCRETE STAIR PLAN
NTS



5 STAIRS SECTION
3/4" = 1'-0"

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SITE DETAILS

C10.000PH2

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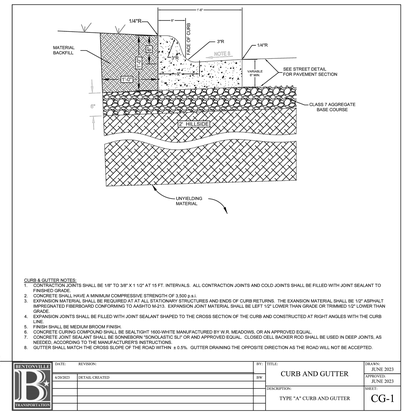

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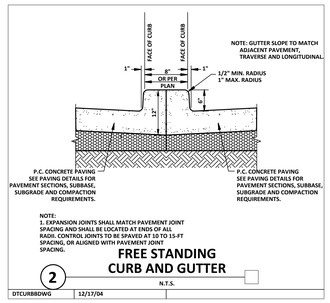
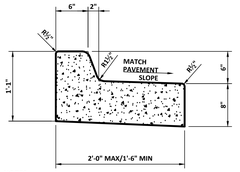


FREE STANDING CURB AND GUTTER

2



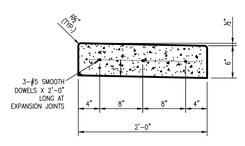
NOTES:

1. 1/2" WIDE ISOLATION JOINTS WITH 5/8" DIA. X 2' SMOOTH DOWELS SHALL BE PLACED A RADIUS POINTS AND AT 150' (MINIMUM) INTERVALS. DOWELS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES, AND POSITIONED USING BAR SUPPORTS.
2. 1" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT CONCRETE PAVEMENT JOINTS. JOINT SHALL PASS ACROSS THE ENTIRE CURB SECTION.

MODIFIED "DRY" TYPE A CURB

NOT TO SCALE

3



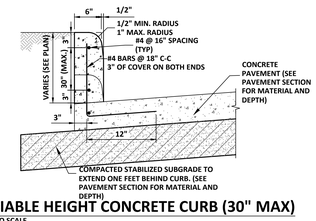
NOTES:

1. ½" WIDE ISOLATION JOINTS WITH ⅝" DIA. X 2' SMOOTH DOWELS SHALL BE PLACED AT RADIUS POINTS AND AT 150' (MINIMUM) INTERVALS. DOWELS SHALL BE GREASED AND WRAPPED ON ONE END WITH EXPANSION TUBES, AND POSITIONED USING BAR SUPPORTS.
2. 1" DEEP CONTRACTION JOINTS SHALL BE INSTALLED AT APPROXIMATELY 10' INTERVALS (OR AT CONCRETE PAVEMENT JOINTS, IF APPLICABLE). JOINT SHALL PASS ACROSS THE ENTIRE CURB SECTION.
3. DEPTH OF CURB SHALL INCREASE TO A MINIMUM OF 8" THROUGH THE HANDICAP ACCESS RAMPS.

FLAT CURB

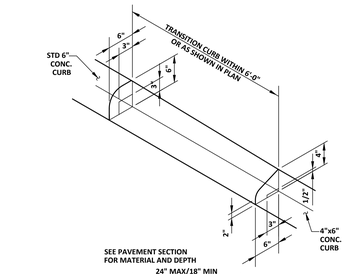
½" = 1'-0"

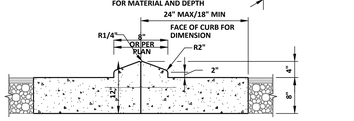
4



VARIABLE HEIGHT CONCRETE CURB (30" MAX)

NOT TO SCALE

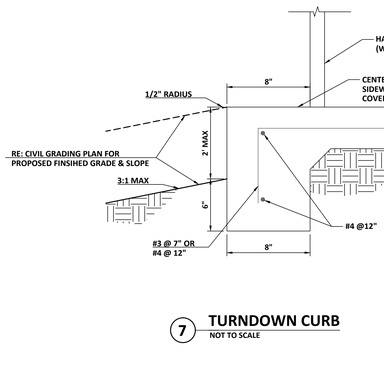




4" FREE STANDING CONCRETE MOUNTABLE CURB AND GUTTER

NOT TO SCALE

6

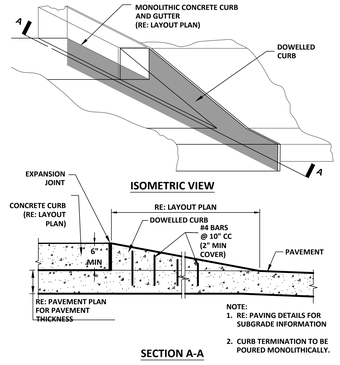


1. PROPOSED TURNDOWN CURB REQUIRED FOR AREAS WHERE THERE IS A 3:1 SLOPE IN LANDSCAPING STARTING AT EDGE OF PROPOSED PAVEMENT (RE: GRADING PLANS FOR PROPOSED FINISHED GRADE ELEVATION)
2. PROPOSED TURNDOWN IS REQUIRED WHERE THERE IS A DROP IN ELEVATION OF 2" OR GREATER FROM THE TOP OF PAVEMENT TO FINISHED GRADE OF LANDSCAPING (RE: GRADING PLANS FOR PROPOSED FINISHED GRADE ELEVATION)

TURNDOWN CURB

NOT TO SCALE

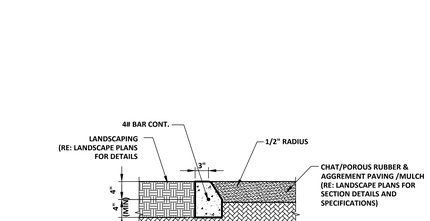
7



TAPERED CURB TERMINATION

NOT TO SCALE

8



1. CONCRETE HEADER TO BE USED ALONG EDGE OF CHAT, POROUS RUBBER & AGGREGATE PAVING , AND MULCHED AREAS.
2. DEPTH OF CONCRETE HEADER TO MATCH DEPTH OF PAVEMENT SECTION IF GREATER THAN 8".

CONCRETE HEADER

NOT TO SCALE

9

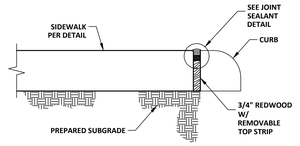
NOTES:

1. JOINTS TO ALIGN WITH ADJACENT PAVEMENT JOINTS WHERE APPLICABLE.
2. CONTROL JOINTS TO BE SPACED AT 10' TO 15' SPACING.
3. CURB EXPANSION JOINTS SHALL MATCH PAVEMENT JOINT SPACING AND SHALL BE LOCATED AT ENDS OF ALL RADII.
4. CONTRACTOR TO COORDINATE WITH WALMART AND GEOTECHNICAL ENGINEER FOR MATERIAL AND MATERIAL REQUIREMENTS.
5. RE: CIVIL GRADING PLAN FOR PROPOSED CURB/PAVEMENT ELEVATIONS.

RIBBON CURB PAVEMENT EDGE

10

TRUNCATED DOMES ALIGNED WITH RADIUS AT BACK OF CURB



SIDEWALK DETAIL AT CURB

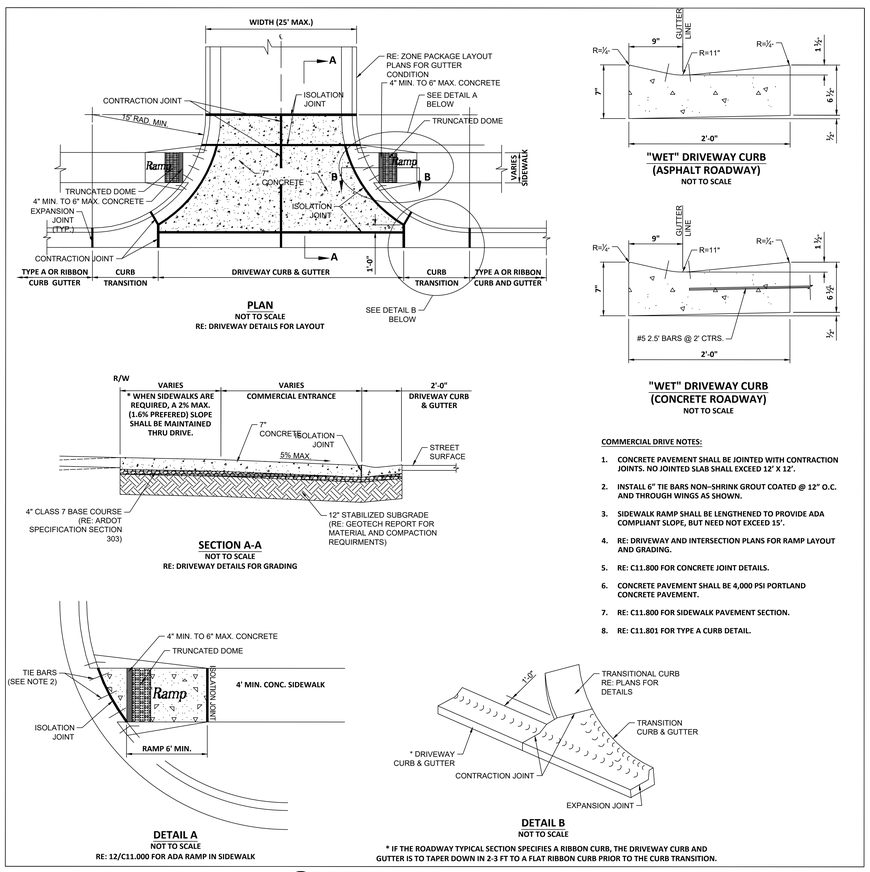
NOT TO SCALE

11

ADA RAMP IN SIDEWALK

N.T.S.

12



CURB TAPER TRANSITION

NOT TO SCALE

13

"WET" DRIVEWAY CURB (ASPHALT ROADWAY)

NOT TO SCALE

"WET" DRIVEWAY CURB (CONCRETE ROADWAY)

NOT TO SCALE

COMMERCIAL DRIVE NOTES:

1. CONCRETE PAVEMENT SHALL BE JOINTED WITH CONTRACTION JOINTS. NO JOINTED SLAB SHALL EXCEED 12' X 12'.
2. INSTALL 6" TIE BARS NON-SHRINK GROUT COATED @ 12" O.C. AND THROUGH WINGS AS SHOWN.
3. SIDEWALK RAMP SHALL BE LENGTHENED TO PROVIDE ADA COMPLIANT SLOPE, BUT NEED NOT EXCEED 15'.
4. RE: DRIVEWAY AND INTERSECTION PLANS FOR RAMP LAYOUT AND GRADING.
5. RE: C11.800 FOR CONCRETE JOINT DETAILS.
6. CONCRETE PAVEMENT SHALL BE 4,000 PSI PORTLAND CONCRETE PAVEMENT.
7. RE: C11.800 FOR SIDEWALK PAVEMENT SECTION.
8. RE: C11.801 FOR TYPE A CURB DETAIL.

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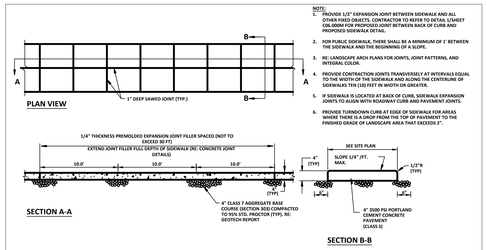
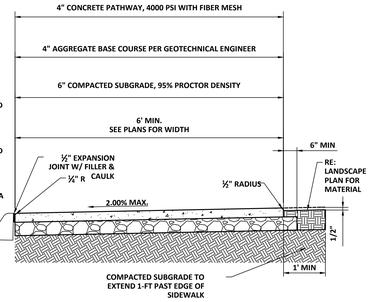


1 CONCRETE SIDEWALK

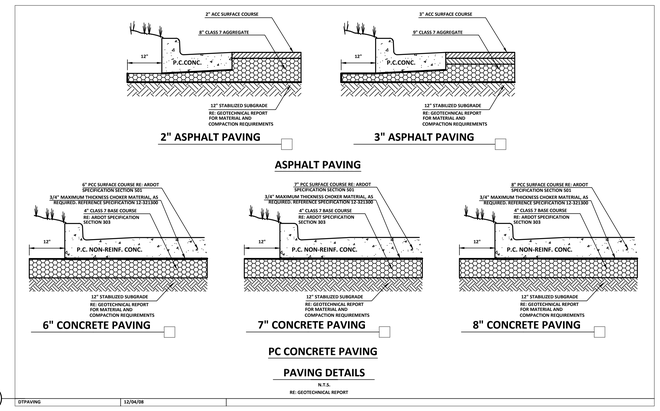
N.T.S.

DTWALKPC | 12/7/04

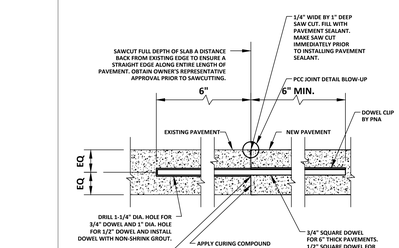


1. STRUCTURAL JOINTS @ 10' MAX. JOINTS TO BE DOWELED. EXPANSION JOINTS @ 100' MAX O.C. TO BE DOWELLED & FILLER. CONTRACTOR SHALL COORDINATE WITH LANDSCAPE PLANS FOR EXACT JOINT SPACING PRIOR TO STARTING ANY WORK.
2. RE: TO LANDSCAPE ARCH PLANS FOR SIDEWALK DIMENSION CONTROL, JOINTS, JOINT PATTERNS, AND INTEGRAL COLOR.
3. IF COMPACTED SUBGRADE DOES NOT PASS DENSITY TESTING, UNDERCUT USING A MINIMUM OF 8" STRUCTURAL FILL AS REQUIRED BY THE GEOTECHNICAL ENGINEER.
4. VERTICAL CLEARANCE TYP. 8' MIN.
5. PROVIDE CONTRACTION JOINTS TRANSVERSELY AT INTERVALS EQUAL TO THE WIDTH OF THE SIDEWALK AND ALONG THE CENTERLINE OF SIDEWALKS TEN (10) FEET IN WIDTH OR GREATER.
6. IF SIDEWALK IS LOCATED AT BACK OF CURB, SIDEWALK EXPANSION JOINTS TO ALIGN WITH ROADWAY CURB AND PAVEMENT JOINTS.
7. PROVIDE TURNDOWN CURB AT EDGE OF SIDEWALK FOR AREAS WHERE THERE IS A DROP FROM TO TOP OF PAVEMENT TO THE FINISHED GRADE OF LANDSCAPE AREA THAT EXCEEDS 2".
8. RE: SIGNING AND STRIPING LAYOUT FOR PAVEMENT MARKINGS.

2 SHARED USE PATH



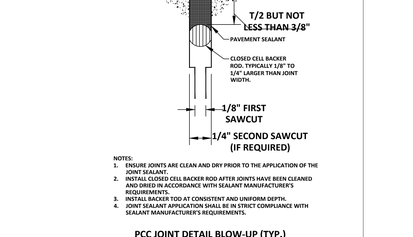
DTPAVING | 12/04/08



NOTES:
1. RE: CIVIL GRADING PLAN FOR PROPOSED GRADING OF SIDEWALK AT FACE.
2. QUARTER INCH THRESHOLD DROP AT ALL OFFICE BUILDING/RETAIL/SHOWER DOOR LOCATIONS. NO QUARTER INCH THRESHOLD DROP AT THE PARKING DECK PEDESTRIAN OPENINGS.
3. COORDINATE WITH STRUCTURAL ENGINEER FOR PROPOSED LEDGE.
4. RE: LANDSCAPE PLANS FOR PAVEMENT COLOR AND FINISH.

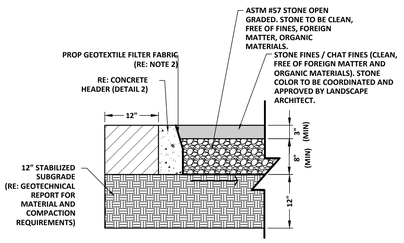
4 TYPICAL SIDEWALK EDGE AT ENTRY

NOT TO SCALE



5 CONCRETE MOW STRIP/SIDEWALK

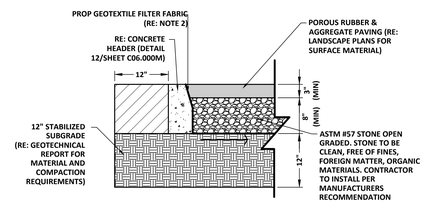
NOT TO SCALE



6 CHAT/STONE FINES PAVING

NOT TO SCALE

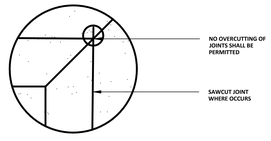
NOTES:
1. PROPOSED CLEANOUTS WITHIN UNPAVED AREAS TO BE BURIED 2" BELOW FINISHED GRADE AND TO BE INSTALLED WITH CONCRETE COLLAR PER DETAIL.
2. A HIGHLY PERMEABLE FABRIC SUCH AS MIRAFI 180N, OR APPROVED EQUAL, IS REQUIRED BETWEEN SUBGRADE & SUBBASE.
3. RE: CIVIL UTILITY PLANS FOR UNDERDRAIN AND CLEANOUT LOCATIONS AND ELEVATIONS.
4. RE: CIVIL GRADING PLANS FOR PROPOSED GRADING
5. PROPOSED SUBSURFACE DRAINAGE TO MATCH SURFACE DRAINAGE.
6. RE: UNDERDRAIN FOR SUBSURFACE DRAINAGE IN FLEXIBLE PAVEMENT



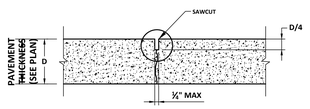
7 PERVIOUS RUBBER & AGGREGATE PAVING

NOT TO SCALE

NOTES:
1. NO CLEANOUTS/UTILITY STRUCTURES ARE TO BE PROPOSED WITHIN POROUS RUBBER & AGGREGATE PAVING.
2. A HIGHLY PERMEABLE FABRIC SUCH AS MIRAFI 180N, OR APPROVED EQUAL, IS REQUIRED BETWEEN SUBGRADE & SUBBASE.
3. RE: CIVIL UTILITY PLANS FOR UNDERDRAIN AND CLEANOUT LOCATIONS AND ELEVATIONS.
4. RE: CIVIL GRADING PLANS FOR PROPOSED GRADING
5. PROPOSED SUBSURFACE DRAINAGE TO MATCH SURFACE DRAINAGE.
6. GRADATION OF BASE MATERIAL TO BE PER SECTION 32 12 43 - POROUS FLEXIBLE PAVING SPECIFICATION.
7. RE: UNDERDRAIN FOR SUBSURFACE DRAINAGE IN FLEXIBLE PAVEMENT (DETAIL 3 ON SHEET C06.002M).



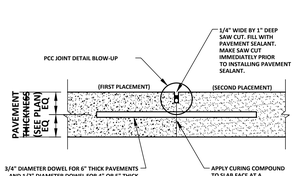
PLAN



NOTE:
1. RE: LANDSCAPE PLANS FOR SIDEWALK JOINT LAYOUT AND PATTERNS.
2. CONTRACTOR TO SAWCUT AT PAVEMENT JOINT. EDGES OF PAVEMENT SHALL BE STRAIGHT, TRUE, WITH NO SHATTER OR OVERCUTTING AT CROSSING OF JOINTS (TYP).

Pavement Thickness (in)	Maximum Joint Spacing (ft)
6	12
7	14
8	15

CONTRACTION JOINT



CONSTRUCTION JOINT

CONSTRUCTION JOINT TO EXISTING PAVEMENT

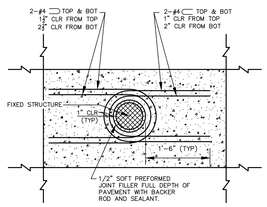
NOTES:
1. ENSURE JOINTS ARE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE JOINT SEALANT.
2. INSTALL CLOSED CELL BACKER ROD AFTER JOINTS HAVE BEEN CLEANED AND DRIED IN ACCORDANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.
3. INSTALL BACKER TOD AT CONSISTENT AND UNIFORM DEPTH.
4. JOINT SEALANT APPLICATION SHALL BE IN STRICT COMPLIANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.

PCC JOINT DETAIL BLOW-UP (TYP.)

8 CONCRETE JOINT DETAILS

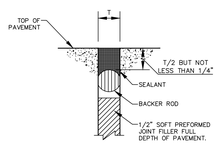
N.T.S.

DTCONJNT | 03-02-12

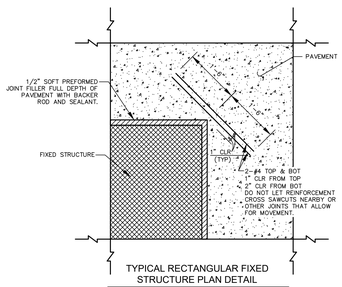


TYPICAL ROUND FIXED STRUCTURE PLAN DETAIL

USES: MANHOLES, LIGHT POLE BASES AND BOLLARDS

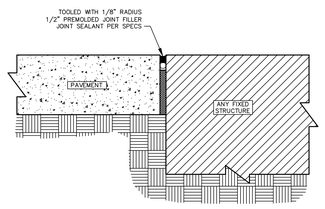


BACKER ROD AND SEALANT SECTION AT FIXED STRUCTURE



TYPICAL RECTANGULAR FIXED STRUCTURE PLAN DETAIL

USES: BUILDINGS, RETAINING WALLS/DOCK WALLS AND DROP INLETS



ISOLATION JOINT

NOTES:

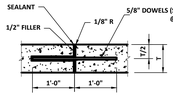
ISOLATION JOINT TO BE USED FOR FIXED STRUCTURES SUCH AS BUILDINGS, RETAINING WALLS/DOCK WALLS, DROP INLETS, MANHOLES, LIGHT POLE BASES AND BOLLARDS.

PAVEMENT IS NOT CONSIDERED A FIXED STRUCTURE.

9 ISOLATION JOINT DETAILS

N.T.S.

DTISOJNT | 12-04-08



NOTES:
1. GREASE DOWEL AND PROVIDE EXPANSION CAP ON ONE END.
2. DOWELLED EXPANSION JOINTS SHALL BE LOCATED AT CURB RETURNS OF INTERSECTIONS FOR SERVICE DRIVES AT EACH DIRECTION.
3. DOWELLED EXPANSION JOINTS ARE NOT REQUIRED FOR GARAGE DRIVEWAY CONNECTIONS.
4. RE: CONCRETE PAVING SPECIFICATIONS FOR PROPOSED EXPANSION JOINT SPACING
5. RE: DETAIL 2/C06.000M FOR BACKER ROD AND SEALANT SECTION.

10 DOWELLED ISOLATION JOINT

NOT TO SCALE

walter p moore

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609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026

ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

SITE DETAILS

C10.002PH2

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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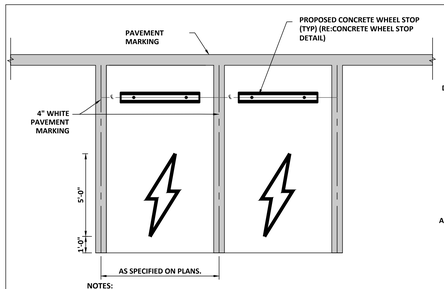
24-Jul-2026 - 7:15 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets_SD Plan\STEM_PVT_WPM_C-MTP DT_M08250700.dwg



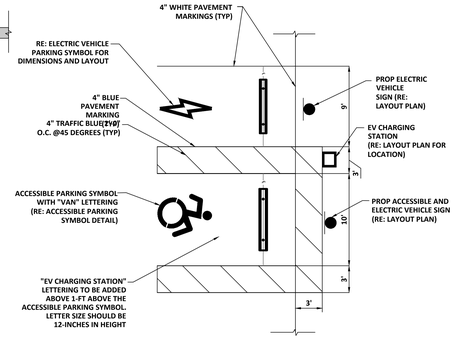
NOTES:

1. RE: SITE PLAN FOR TOTAL LAYOUT.
2. THESE DETAILS ARE FOR REFERENCE AND DIMENSION CONTROL ONLY
3. ALL DIMENSIONS ARE TO ∟ OF STRIPE UNLESS OTHERWISE INDICATED.
4. CONTRACTOR SHALL LEAVE STENCIL WITH OWNER.
5. STENCIL TO BE 5' TALL WIDTH 6" STROKE WIDTH.
6. RE: ARCHITECT FOR VECTOR FILES OF SYMBOL.
7. EMBLEM TO BE WHITE WITH WHITE STENCILED IMAGE.
8. EV ADA PARKING SPACES WILL HAVE THE SAME PAVEMENT MARKING AS THE STANDARD EV SPACES.

ELECTRIC VEHICLE "EV" PARKING SYMBOL

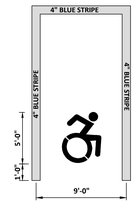
LOCATE AT EDGE OF PARKING SPACE UNLESS INDICATED FOR ADA.

NOT TO SCALE



ELECTRIC VEHICLE PARKING SPACE LAYOUT

NOT TO SCALE

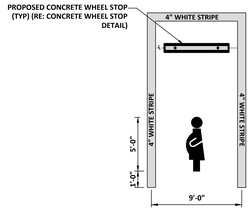


TYPICAL ACCESSIBLE STALL STRIPING

NOT TO SCALE

NOTES:

1. RE: SITE PLAN FOR TOTAL LAYOUT.
2. THESE DETAILS ARE FOR REFERENCE AND DIMENSION CONTROL ONLY
3. ALL DIMENSIONS ARE TO ∟ OF STRIPE UNLESS OTHERWISE INDICATED.
4. ALL COLORS AS SHOWN OR AS SPECIFIED BY LOCAL CODES.
5. CONTRACTOR SHALL LEAVE STENCIL WITH OWNER
6. STENCIL TO BE 5' TALL
7. RE: ARCHITECT FOR VECTOR FILE OF SYMBOL.
8. EMBLEM TO BE WHITE

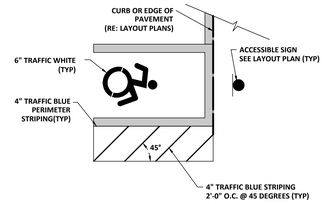


EXPECTANT MOTHER PARKING SPACE LAYOUT

NOT TO SCALE

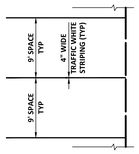
NOTES:

1. RE: SITE PLAN FOR TOTAL LAYOUT.
2. THESE DETAILS ARE FOR REFERENCE AND DIMENSION CONTROL ONLY
3. ALL DIMENSIONS ARE TO ∟ OF STRIPE UNLESS OTHERWISE INDICATED.
4. CONTRACTOR SHALL LEAVE STENCIL WITH OWNER
5. STENCIL TO BE 5' TALL
6. RE: ARCHITECT FOR VECTOR FILE OF SYMBOL.
4. EMBLEM TO BE WHITE



HANDICAP PAVEMENT MARKINGS
TYPICAL PAVEMENT MARKINGS

NOT TO SCALE



TYPICAL PARKING SPACE LAYOUT

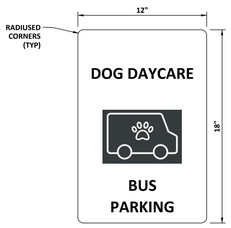
ACCESSIBLE PARKING SYMBOL

LOCATE AT EDGE OF PARKING SPACE UNLESS ACCOMPANIED BY "VAN" LETTERING

NOT TO SCALE

EXPECTANT MOTHER PARKING SYMBOL

NOT TO SCALE

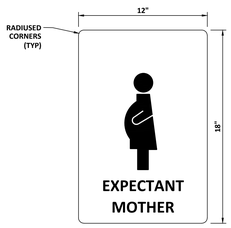


DOG DAYCARE BUS PARKING

NOT TO SCALE

NOTES:

1. RE: ARCHITECT FOR VECTOR FILE OF SYMBOL.
2. SIGN SHALL HAVE WHITE LETTERING AND EMBLEM ON A BLACK BACKGROUND.
3. FINAL DESIGN OF SIGN SHALL BE APPROVED BY ENGINEER PRIOR TO PRODUCTION.

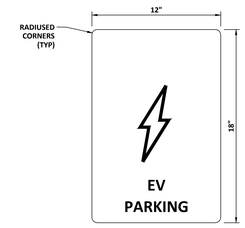


EXPECTANT MOTHER SIGN

NOT TO SCALE

NOTES:

1. RE: ARCHITECT FOR VECTOR FILE OF SYMBOL.
2. SIGN SHALL HAVE WHITE LETTERING AND EMBLEM ON A BLACK BACKGROUND.
3. FINAL DESIGN OF SIGN SHALL BE APPROVED BY ENGINEER PRIOR TO PRODUCTION.



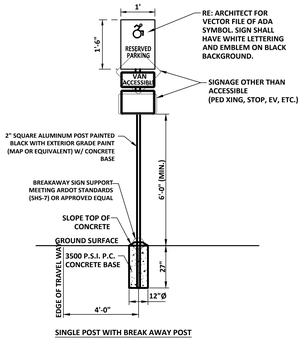
ELECTRIC VEHICLE SIGN

NOT TO SCALE

NOTES:

1. RE: ARCHITECT FOR VECTOR FILE OF SYMBOL.
2. SIGN SHALL HAVE WHITE LETTERING AND EMBLEM ON A BLACK BACKGROUND.
3. FINAL DESIGN OF SIGN SHALL BE APPROVED BY ENGINEER PRIOR TO PRODUCTION.

1 TYPICAL PAVEMENT MARKINGS



SINGLE POST WITH BREAK AWAY POST

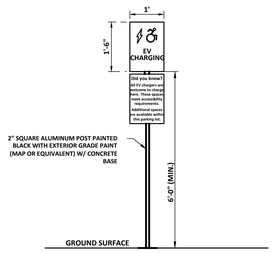
2 ADA/EV SIGN MOUNTING AND BASE

NOT TO SCALE

NOTES FOR SINGLE POST WITH BREAK AWAY POST:

1. ALL SIGNS SHALL COMPLY WITH U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", LOCAL CODES AND AS SPECIFIED. MOUNT SIGNS TO POST IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. 2" SQUARE ALUMINUM POST

   POLE TO BE CAPPED
   POST TUBE SHALL MEET ASTM B 221.
   ALUMINUM USED IN THE PRODUCTION BASE CASTING SHALL BE ACCORDING TO ASTM B 108
3. IF NO SIDEWALK PERPENDICULAR TO PARKING STALL, SIGNAGE TO BE LOCATED 2.5-FT BEHIND BACK OF CURB. IF PROPOSED SIDEWALK PERPENDICULAR TO PARKING STALL, SIGNAGE TO BE LOCATED 1-FT PAST EDGE OF SIDEWALK (RE: LAYOUT PLAN FOR LOCATION).

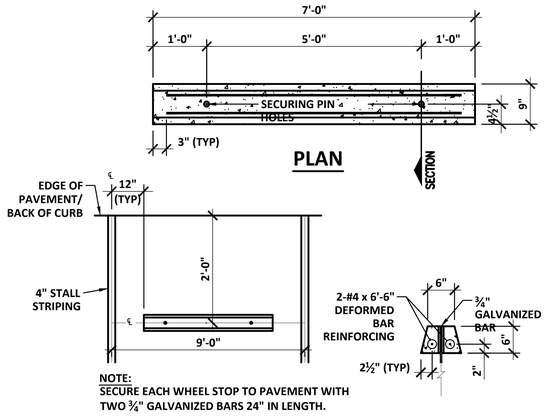


3 ELECTRIC VEHICLE ADA SIGN

NOT TO SCALE

NOTES:

1. RE: ARCHITECT FOR VECTOR FILE OF SYMBOL AND VERBIAGE.
2. SIGN SHALL HAVE WHITE LETTERING AND EMBLEM ON BLACK BACKGROUND.
3. FINAL DESIGN OF SIGN SHALL BE APPROVED BY ENGINEER PRIOR TO PRODUCTION



NOTE:
SECURE EACH WHEEL STOP TO PAVEMENT WITH TWO ¾" GALVANIZED BARS 24" IN LENGTH.

PLACEMENT SECTION

4 CONCRETE WHEEL STOPS

3/4" = 1'-0"

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026

ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

SITE DETAILS

C10.003PH2

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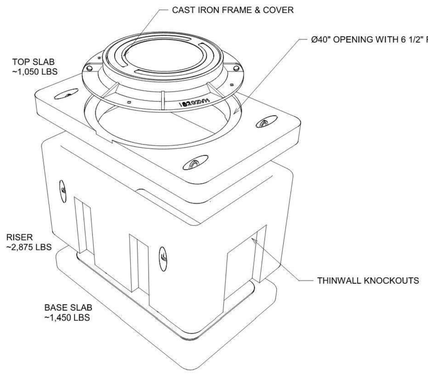
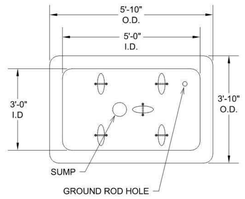
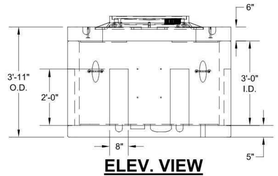




PLAN VIEW (FLOOR)



ELEV. VIEW

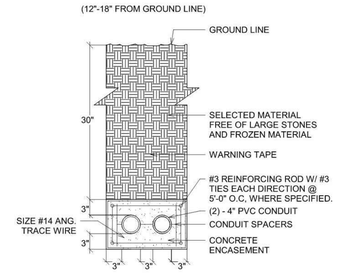
STANDARD SPLICE BOX FEATURES

- Designed for HS-20 Loading
- Thin Wall Knockouts for Easy Cable Splicing (shown)
- Pull Irons Cast In Floor (shown)
- 6" Ø Recessed Sump in Floor (shown)
- 2" Ø Ground Hole in Floor (shown)
- Heavy Duty Cast Iron Frame and Cover (shown)
- Smooth Corners for Safe Installation & Quailit Just Looks Better!

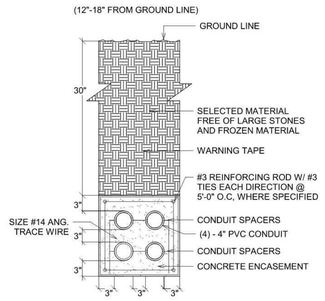
SPLICE BOX OPTIONS

- Unistrut Cast Into Wall for Racking in lieu of Bolt Inserts
- Terminators Cast Into Wall in lieu of Thin Wall Recess
- Non-Metallic Racking
- Plastic Coated Racking
- Cast In Grounding Lug
- Pull Irons - Add or Change Locations
- Divider Plate for Multi-Purpose Boxes

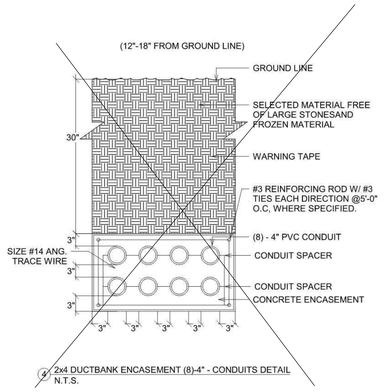
1 3x5x3-SPLICEBOX
N.T.S.



2 1x2 DUCTBANK ENCASEMENT (2)-4" CONDUITS DETAIL
N.T.S.



3 2x2 DUCTBANK ENCASEMENT (4)-4" - CONDUITS DETAIL
N.T.S.



4 2x4 DUCTBANK ENCASEMENT (8)-4" - CONDUITS DETAIL
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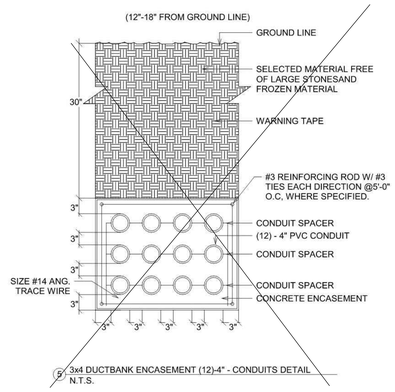
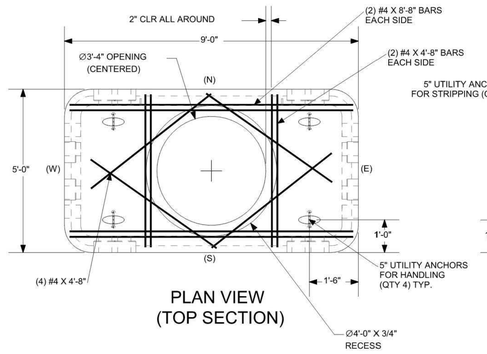
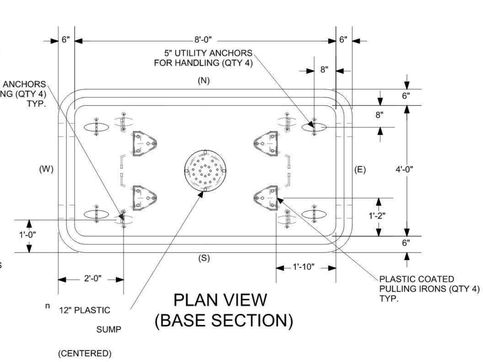


5 3x4 DUCTBANK ENCASEMENT (12)-4" - CONDUITS DETAIL
N.T.S.

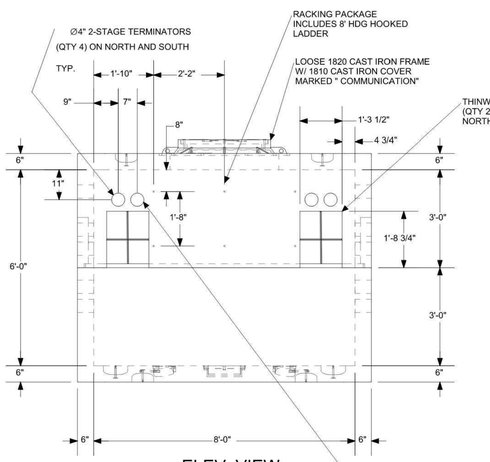


PLAN VIEW
(TOP SECTION)

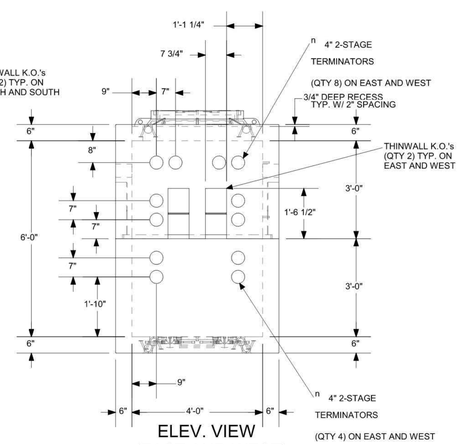


PLAN VIEW
(BASE SECTION)

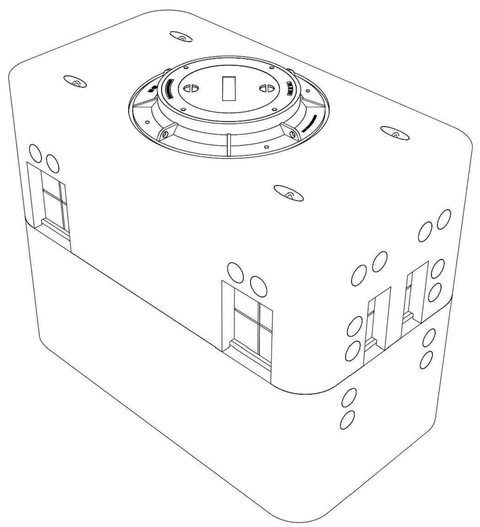
NOTE: PLEASE VERIFY SIZE, QUANTITY, AND LOCATION
OF TERMINATORS AND THINWALL K.O.'s



ELEV. VIEW
(NORTH AND SOUTH)



ELEV. VIEW
(EAST AND WEST)



6 4X8X6 MANHOLE TYPE-D
N.T.S.

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479.367.3250

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete; Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

SITE CONDUIT DETAILS

C10.004PH2

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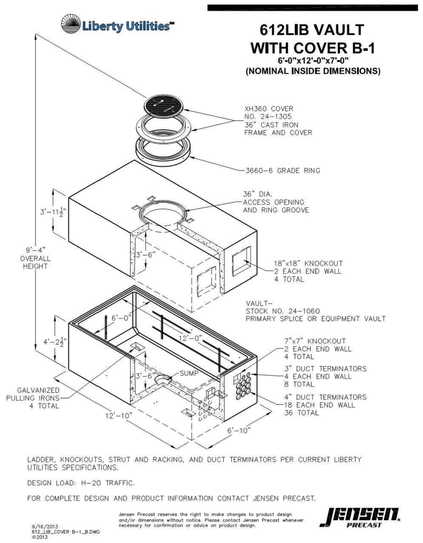
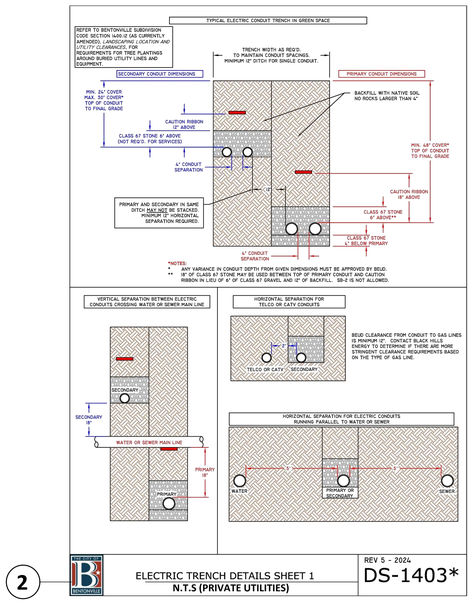
24-Jul-2026 - 7:15 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_VPM_C-MTP DT_M08250700.dwg



1 **PRIMARY ELECTRIC EQUIPMENT VAULT**
NTS



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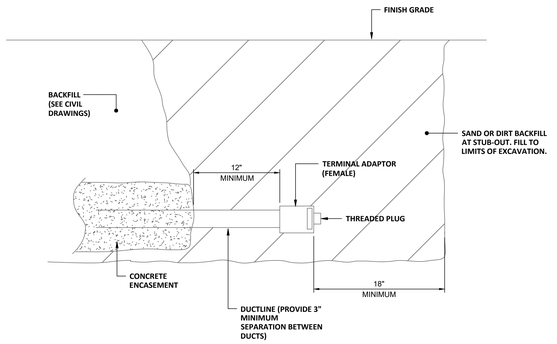
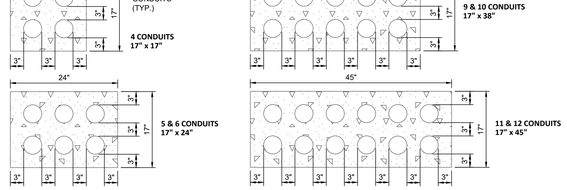


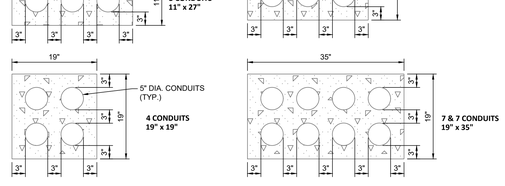
3 **GENERAL ARRANGEMENT (TYP) DUCTLINE STUB-OUT**
NTS



GENERAL NOTES:

1. FOR SMALLER CONDUIT, RESIZE PER CONDUIT SIZE.
2. PROVIDE TAPE MARKER.
3. DUCT BANK SHALL BE MINIMUM OF 24" DEEP.
4. REFER TO SPECIFICATION SECTION 272243 FOR ADDITIONAL REQUIREMENTS.

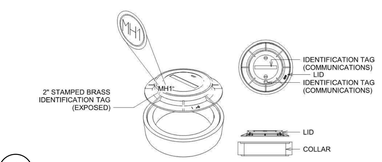
4 **ELECTRICAL DUCT BANK FOR 600V AND BELOW 4" CONDUIT SYSTEM**
NTS



GENERAL NOTES:

1. FOR SMALLER CONDUIT, RESIZE PER CONDUIT SIZE.
2. PROVIDE TAPE MARKER.
3. DUCT BANK SHALL BE MINIMUM OF 36" DEEP.
4. REFER TO SPECIFICATION SECTION 272243 FOR ADDITIONAL REQUIREMENTS.

5 **ELECTRICAL DUCT BANK FOR MEDIUM VOLTAGE 5" CONDUIT SYSTEM**
NTS



6 MAINTENANCE HOLE COLLAR - W ASSEMBLY WITH IDENTIFICATION TAG DETAIL
N.T.S.

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Bentonville, Arkansas 72712
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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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C10.005PH2

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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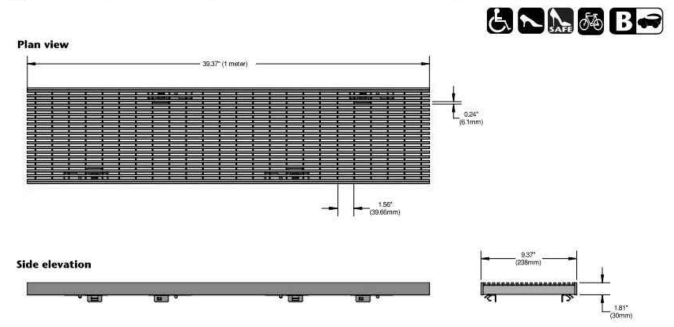
ACO DRAIN

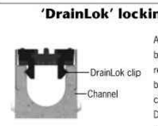
Type 647D/~~648D~~ Longitudinal stainless steel grate (ADA)

Plan view



Description	Part No.	Length inches (*mm*)	Width inches (*mm*)	Weight lbs.
DrainLok grate Type 647D Longitudinal stainless steel grate ~~Type 648D Longitudinal stainless steel grate~~	142219 ~~[illegible]~~	39.37 (*1000*) ~~[illegible]~~	9.37 (*238*) ~~[illegible]~~	17.7 ~~[illegible]~~

'DrainLok' locking mechanism



ACO DrainLok™ is a patented, boltless locking system that removes the need for bolts and bars and improves the hydraulic capacity of the channel. The DrainLok™ mechanism simply clips into the channel edge rail for rapid installation. ACO DrainLok™ grates are fitted with an anti-shunt mechanism that restricts unwanted grate movement when installed, improving durability and longevity of the system.

ACO Specification Information

ACO, Inc.
Northeast Sales Office
9470 Pinecone Drive
Mentor, OH 44060
Tel: (440) 639-7230
Toll free: (800) 543-4764
Fax: (440) 639-7235

West Sales Office
825 W. Beechcraft St.
Casa Grande, AZ 85122
Tel: (520) 421-9988
Toll Free: (888) 490-9552
Fax: (520) 421-9899

Southeast Sales Office
4211 Pleasant Road
Fort Mill, SC 29708
Toll free: (800) 543-4764
Fax: (803) 802-1063

Follow us on

Electronic Contact:
info@ACODrain.us
www.ACODrain.us

SPEC INFO ACO

© April 2018, ACO, Inc. This information is believed to be accurate but it is not guaranteed to be so. We cannot assume liability for results that buyer obtains with our product since conditions of use are beyond the control of the company. It is the customer's responsibility to evaluate suitability and safety of product for his own use. ACO, Inc. reserves the right to change the product and specifications without notice.

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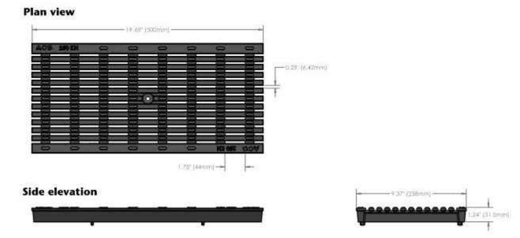
ACO DRAIN

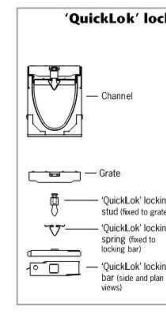
Type 678Q Longitudinal ductile iron grate (ADA)

Plan view



Description	Part No.	Length inches (*mm*)	Width inches (*mm*)	Weight lbs.
QuickLok grate Type 678Q Ductile iron longitudinal grate QuickLok locking bar QuickLok grate removal tool	138129 10457 01318	19.69 (500) - -	9.41 (239) - -	26.0 0.5 0.3

'QuickLok' locking mechanism



ACO 'QuickLok' is a patented boltless locking system, grates are removed and replaced with the minimum time and effort for ease of maintenance. The unique design provides a positive 'snap down' fit into the locking bar. A stud is fixed to the grate which 'locks' into the spring clip in the locking bar.

The 'QuickLok' stud is made from stainless steel and high density nylon, the locking bar and clip are stainless steel, for use in both general purpose and corrosive environments.

ACO Specification Information

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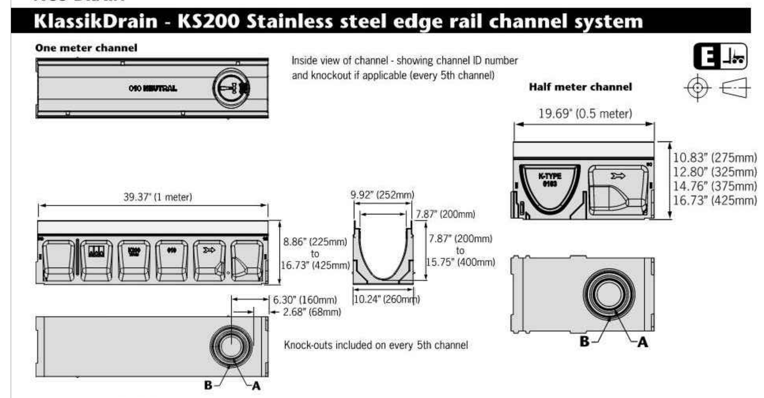
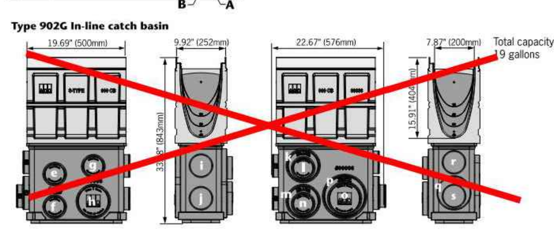
ACO DRAIN

KlassikDrain - KS200 Stainless steel edge rail channel system

One meter channel



Type 902G In-line catch basin

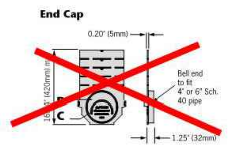


Outlet flow rates

Outlet	Product	Outlet size (Sch. 40)	Invert Depth	GPM	CFS
A	Bottom outlet - KS2-00	4" round	7.87"	153	0.34
A	Bottom outlet - KS2-040	4" round	15.75"	216	0.48
B	Bottom outlet -KS2-00	6" round	7.87"	344	0.77
B	Bottom outlet - KS2-040	6" round	15.75"	486	1.08
C	End outlet - KS2-00	4" round	7.87"	132	0.29
C	End outlet - KS2-40	4" round	15.75"	202	0.45
D	End outlet - KS2-10	6" round	9.84"	320	0.71
D	End outlet - KS2-40	6" round	15.75"	437	0.97
E	Type KS2-902S	4" round	25.33"	263	0.59
F	Type KS2-902S	4" round	31.83"	297	0.66
G	Type KS2-902S	4" round	23.76"	254	0.57
H	Type KS2-902S	6" round	31.83"	658	1.47
I	Type KS2-902S	4" round	23.91"	255	0.57
J	Type KS2-902S	4" round	30.40"	290	0.65
K	Type KS2-902S	6" round	24.68"	570	1.27
L	Type KS2-902S	4" round	24.13"	256	0.57
M	Type KS2-902S	6" round	31.82"	658	1.47
N	Type KS2-902S	4" round	31.26"	294	0.66
O	Type KS2-902S	6" round	31.26"	651	1.45
P	Type KS2-902S	8" round	31.82"	1149	2.56
Q	Type KS2-902S	6" round	30.32"	640	1.43
R	Type KS2-902S	4" round	23.19"	251	0.56
S	Type KS2-902S	4" round	29.90"	288	0.64

Note: These are the pipe flow rates at the specified outlet, **NOT** channel flow rates. *Catch basin flow rates are without trash bucket - using trash bucket reduces flow.

End Cap



ACO Specification Information

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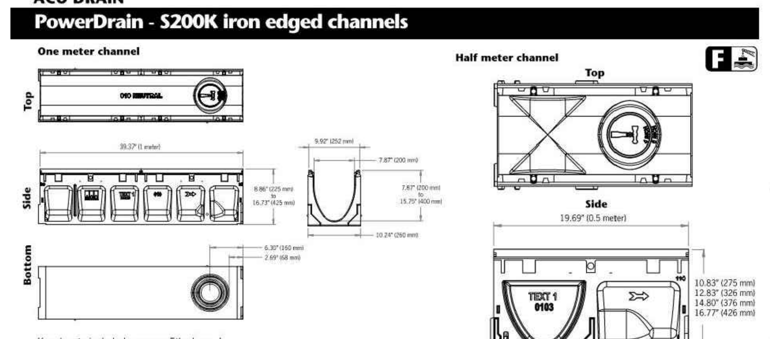
ACO DRAIN

PowerDrain - S200K iron edged channels

One meter channel



Type 902D In-line catch basin

Outlet flow rates

Outlet	Product	Outlet size (Sch. 40)	Invert Depth	GPM	CFS
A	Bottom outlet - SK2-00	4" round	7.87"	153	0.34
A	Bottom outlet - SK2-040	4" round	15.75"	216	0.48
B	Bottom outlet -SK2-00	6" round	7.87"	344	0.77
B	Bottom outlet - SK2-040	6" round	15.75"	486	1.08
C	End outlet - SK2-00	4" round	7.87"	132	0.29
C	End outlet - SK2-40	4" round	15.75"	202	0.45
D	End outlet - SK2-10	6" round	9.84"	320	0.71
D	End outlet - SK2-40	6" round	15.75"	437	0.97
E	Type SK2-902D	4" round	25.33"	263	0.59
F	Type SK2-902D	4" round	31.83"	297	0.66
G	Type SK2-902D	4" round	23.76"	254	0.57
H	Type SK2-902D	6" round	31.83"	658	1.47
I	Type SK2-902D	4" round	23.91"	255	0.57
J	Type SK2-902D	4" round	30.40"	290	0.65
K	Type SK2-902D	6" round	24.68"	570	1.27
L	Type SK2-902D	4" round	24.13"	256	0.57
M	Type SK2-902D	6" round	31.82"	658	1.47
N	Type SK2-902D	4" round	31.26"	294	0.66
O	Type SK2-902D	6" round	31.26"	651	1.45
P	Type SK2-902D	8" round	31.82"	1149	2.56
Q	Type SK2-902D	6" round	30.32"	640	1.43
R	Type SK2-902D	4" round	23.19"	251	0.56
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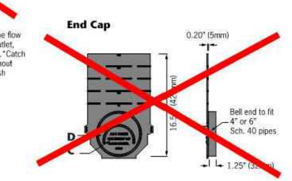
Note: These are the pipe flow rates at the specified outlet, **NOT** channel flow rates. *Catch basin flow rates are without trash bucket - using trash bucket reduces flow.

End Cap



ACO Specification Information

April 2018 www.ACODrain.us ACO

STRUCTURAL DESIGN LOADING CRITERIA

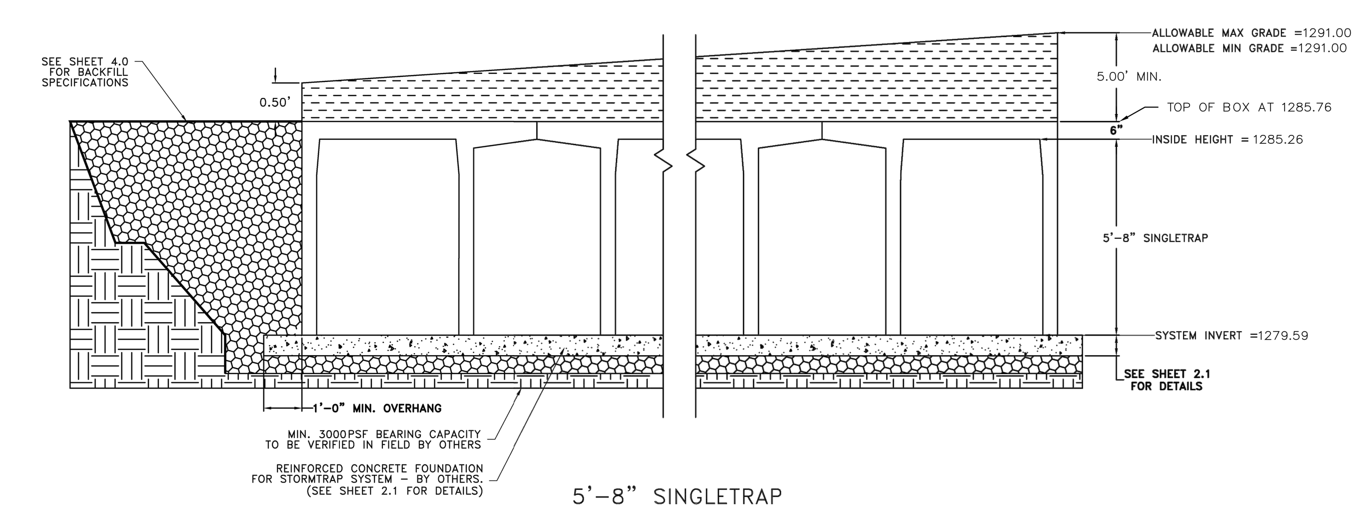
LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857, ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 5'-8" SINGLETRAP
TOTAL STORAGE PROV: 65755.11 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 0.50' MAX. 3.00' CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



5'-8" SINGLETRAP

3

StormTrap®

PATENTS LISTED AT: [HTTP://STORMTRAP.COM/PATENT]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Walter P Moore – Kansas City, MO
Kansas City, MO

PROJECT INFORMATION:
STEM Campus
Bentonville, AR

CURRENT ISSUE DATE: 04/24/2026

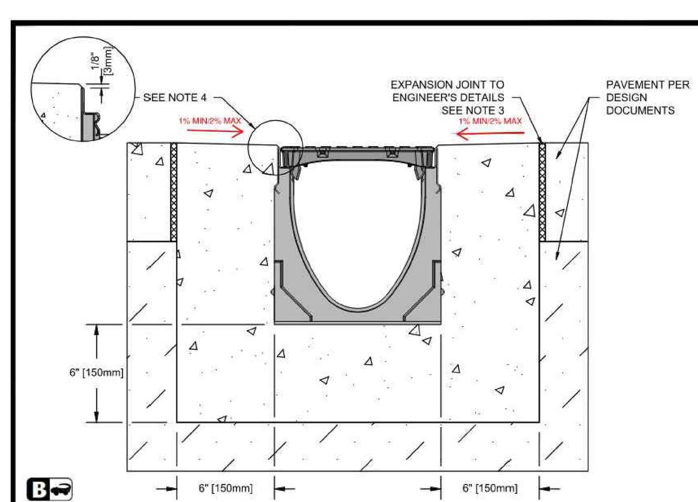
ISSUED FOR: PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
△	04/24/2026	PRELIMINARY	JH

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.1



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

KS200 KLASSIKDRAIN 'DRAINLOK' LOAD CLASS B

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE KS200 CHANNEL SYSTEM WITH STAINLESS STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN STAINLESS STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
DILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 8" (200mm) NOMINAL INTERNAL WIDTH WITH A 10.2" (260mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

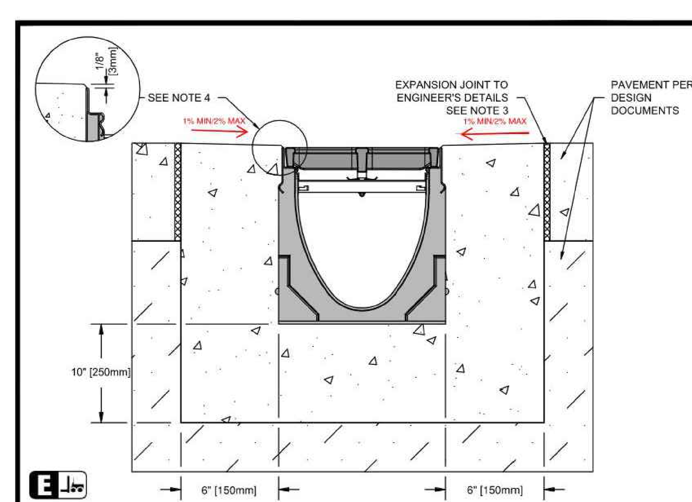
CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'DRAINLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

KS2D-B-ECP | KS200 - KLASSIKDRAIN - LOAD CLASS: B | Exposed Concrete Pavement | INSTALLATION DRAWING - ACO DRAIN | DATE: 08/17/16

ACO Polymer Products, Inc.
825 W. Beechcraft St, Casa Grande, AZ 85122, Tel: 520-421-9988, Fax: 520-421-9899
9470 Pinecone Dr., Mentor, OH 44060, Tel: 440-639-7230, Fax: 440-639-7235
4211 Pleasant Rd., Fort Mill, SC 29708, Tel: 440-639-7230, Fax: 803-802-1063

Arizona Tel: 888-490-9552 e-mail: sales@acousa.com Ohio Tel: 800-543-4764 www.acousa.com South Carolina Tel: 800-543-4764

1 **ACO KLASSIKDRAIN TYPE 647D (OR APPROVED EQUAL) ADA/HEEL PROOF/PEDESTRIAN RATED**
NTS



NOTES:
1. IT IS NECESSARY TO ENSURE MINIMUM DIMENSIONS SHOWN ARE SUITABLE FOR EXISTING GROUND CONDITIONS. *ENGINEERING ADVICE MAY BE REQUIRED.*
2. MINIMUM CONCRETE STRENGTH OF 4,000 PSI IS RECOMMENDED. CONCRETE SHOULD BE VIBRATED TO ELIMINATE AIR POCKETS.
3. EXPANSION AND CONTRACTION CONTROL JOINTS AND REINFORCEMENT ARE RECOMMENDED TO PROTECT CHANNEL AND CONCRETE SURROUND. *ENGINEERING ADVICE MAY BE REQUIRED.*
4. THE FINISHED LEVEL OF THE CONCRETE SURROUND MUST BE APPROX. 1/8" [3mm] ABOVE THE TOP OF THE CHANNEL EDGE.
5. CONCRETE BASE THICKNESS SHOULD MATCH SLAB THICKNESS. ENGINEERING ADVICE MAY BE REQUIRED TO DETERMINE PROPER LOAD CLASS.
6. REFER TO ACO'S LATEST INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS.

SPECIFICATION CLAUSE

KS200 KLASSIKDRAIN - LOAD CLASS E

GENERAL
THE SURFACE DRAINAGE SYSTEM SHALL BE POLYMER CONCRETE KS200 CHANNEL SYSTEM WITH STAINLESS STEEL EDGE RAILS AS MANUFACTURED BY ACO POLYMER PRODUCTS, INC.

MATERIALS
CHANNELS SHALL BE MANUFACTURED FROM POLYESTER RESIN POLYMER CONCRETE WITH AN INTEGRALLY CAST-IN STAINLESS STEEL EDGE RAIL. MINIMUM PROPERTIES OF POLYMER CONCRETE WILL BE AS FOLLOWS:

COMPRESSIVE STRENGTH:	14,000 PSI
FLEXURAL STRENGTH:	4,000 PSI
TENSILE STRENGTH:	1,500 PSI
WATER ABSORPTION:	0.07%
FROST PROOF	YES
DILUTE ACID AND ALKALI RESISTANT	YES
B117 SALT SPRAY TEST COMPLIANT	YES

THE SYSTEM SHALL BE 8" (200mm) NOMINAL INTERNAL WIDTH WITH A 10.2" (260mm) OVERALL WIDTH AND A BUILT-IN SLOPE OF 0.5%. CHANNEL INVERT SHALL HAVE DEVELOPED "V" SHAPE. ALL CHANNELS SHALL BE INTERLOCKING WITH A MALE/FEMALE JOINT.

THE COMPLETE DRAINAGE SYSTEM SHALL BE BY ACO POLYMER PRODUCTS, INC. ANY DEVIATION OR PARTIAL SYSTEM DESIGN AND/OR IMPROPER INSTALLATION WILL VOID ANY AND ALL WARRANTIES PROVIDED BY ACO POLYMER PRODUCTS, INC.

CHANNEL SHALL WITHSTAND LOADING TO PROPER LOAD CLASS AS OUTLINED BY EN 1433. GRATE TYPE SHALL BE APPROPRIATE TO MEET THE SYSTEM LOAD CLASS SPECIFIED AND INTENDED APPLICATION. GRATES SHALL BE SECURED USING 'QUICKLOK' BOLTLESS LOCKING SYSTEM. CHANNEL AND GRATE SHALL BE CERTIFIED TO MEET THE SPECIFIED EN 1433 LOAD CLASS. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

KS2-E-ECP | KS200 - KLASSIKDRAIN - LOAD CLASS: E | Exposed Concrete Pavement | INSTALLATION DRAWING - ACO DRAIN | DATE: 08/25/15

ACO Polymer Products, Inc.
825 W. Beechcraft St, Casa Grande, AZ 85122, Tel: 520-421-9988, Fax: 520-421-9899
9470 Pinecone Dr., Mentor, OH 44060, Tel: 440-639-7230, Fax: 440-639-7235
4211 Pleasant Rd., Fort Mill, SC 29708, Tel: 440-639-7230, Fax: 803-802-1063

Arizona Tel: 888-490-9552 e-mail: sales@acousa.com Ohio Tel: 800-543-4764 www.acousa.com South Carolina Tel: 800-543-4764

2 **ACO KLASSIKDRAIN TYPE 678Q (OR APPROVED EQUAL) ADA/HEEL PROOF/H2O RATED**
NTS

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811 SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

walter p moore
Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712
479.367.3250

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

STORM DETAILS

C10.010PH2

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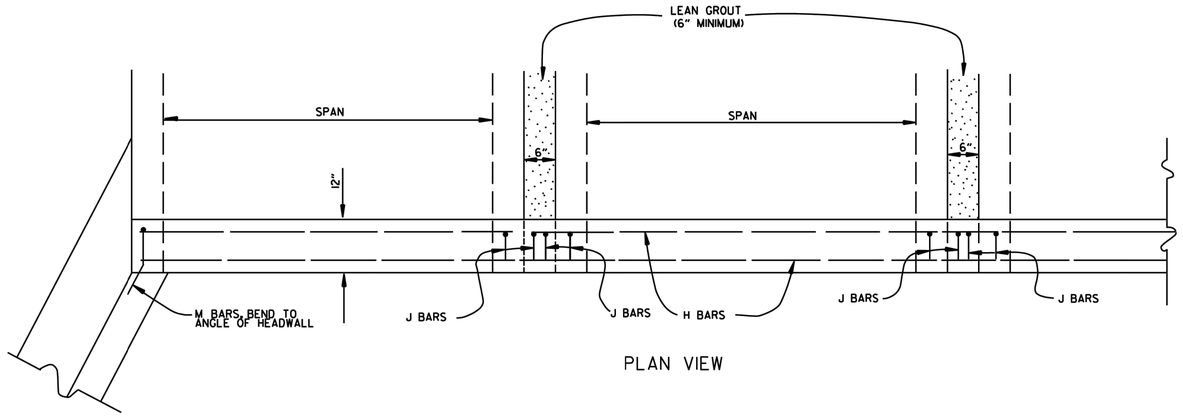
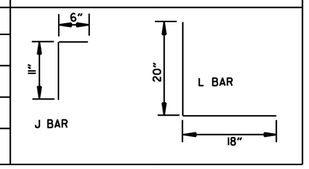


PLAN VIEW

BAR LIST

BAR	NO.	SIZE	LENGTH	BAR BENDING DIAGRAM
H	2	#4	•	
I	•	#4	•	
J	•	#4	1'-5"	
L	•	#4	3'-2"	
M	•	#4	1'-8"	



• NOTE: LENGTH AND NUMBER OF BARS VARIES WITH SIZE OF CULVERT

GENERAL NOTES

WINGS, CURTAIN WALLS AND APRONS SHALL BE TIED TO THE PRECAST CULVERT SECTION BY CASTING BARS IN CULVERT END SECTIONS AS SHOWN OR BY DOWELING AND GROUTING. J BARS AND M BARS SHALL BE EMBEDDED A MINIMUM OF 10" IN PRECAST BOX.

WINGS, FOOTINGS, APRONS AND CURTAIN WALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE APPLICABLE WING DRAWING, STEEL AND CONCRETE QUANTITIES WILL BE ADJUSTED TO FIT THE IN-PLACE WIDTH & HEIGHT OF THE PRECAST CONCRETE BOX CULVERTS.

ALL EXPOSED CORNERS TO HAVE ¾" CHAMFERS.

WINGWALLS AND FOOTINGS MAY BE ADJUSTED IN THE FIELD AS DIRECTED BY THE ENGINEER.

ALL CONCRETE, REINFORCING STEEL, LEAN GROUT, MEMBRANE WATERPROOFING, DRAINAGE FILL MATERIAL, GEOTEXTILE FILTER FABRIC, LABOR, MATERIALS AND EQUIPMENT REQUIRED FOR INSTALLING PRECAST BOX CULVERTS WILL NOT BE PAID FOR DIRECTLY BUT WILL BE CONSIDERED TO BE INCLUDED IN THE PRICE BID FOR THE ITEMS AS SPECIFIED IN SECTION 607 OF THE STANDARD SPECIFICATIONS.

LEAN GROUT SHALL CONSIST OF A SAND CEMENT MIXTURE MEETING THE FOLLOWING REQUIREMENTS:
PORTLAND CEMENT SHALL BE TYPE I AND SHALL MEET THE REQUIREMENTS OF AASHTO M 85.
SAND SHALL MEET THE REQUIREMENTS OF FINE AGGREGATE AS SPECIFIED IN SECTION 802.02 OF THE STANDARD SPECIFICATIONS.
THE SAND CEMENT MIXTURE SHALL CONSIST OF NOT LESS THAN 1.5 SACKS OF PORTLAND CEMENT PER TON OF MATERIAL MIXTURE.
THE MIXTURE SHALL CONTAIN SUFFICIENT WATER TO HYDRATE THE CEMENTS. THE SAND CEMENT MIXTURE SHALL BE PLACED IN MAXIMUM 8 INCH THICK LIFTS, LOOSE MEASURE, AND THOROUGHLY RODDED AND TAMPED AROUND BOX TO THOROUGHLY FILL ALL VOIDS.

MEMBRANE WATERPROOFING CONFORMING TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO ALL BOX CULVERT JOINTS.

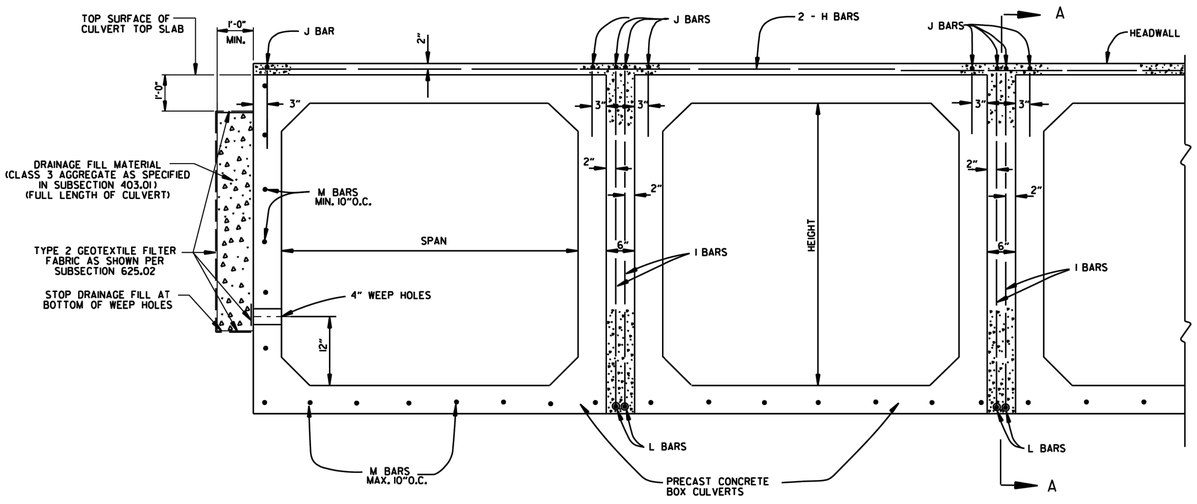
THE MEMBRANE WATERPROOFING WILL BE REQUIRED ON THE TOP EXTERNAL JOINT AND SHALL EXTEND 1 FOOT DOWN THE SIDES OF THE CULVERT.

IN OUTER BARRELS, ONE WEEP HOLE IS REQUIRED IN EXTERIOR WALLS OF EACH PRECAST CULVERT SECTION. WEEP HOLES SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" IN THE ASSEMBLED CULVERT AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

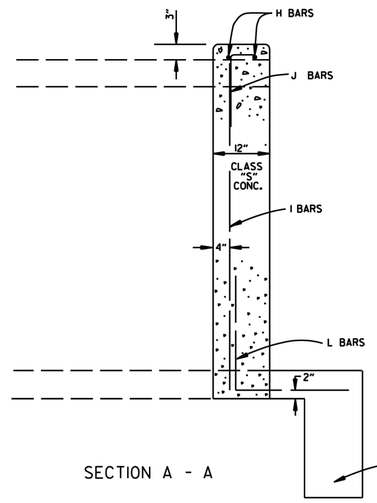
DRAINAGE FILL MATERIAL WITH GEOTEXTILE FABRIC IS REQUIRED AT THE EXTERIOR WALLS OF THE ASSEMBLED CULVERT, SEE DETAILS ON THIS DRAWING.

MINIMUM WIDTH SHALL BE 12" (6" ON EACH SIDE OF JOINT). ON MULTIPLE BARREL CULVERTS, MEMBRANE WATERPROOFING SHALL BE APPLIED TO EACH BARREL AS DESCRIBED ABOVE.

WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR WILL BE ALLOWED TO SUBSTITUTE, AT NO ADDITIONAL COST TO THE DEPARTMENT, FLOWABLE SELECT MATERIAL CONFORMING TO SECTION 206 OF THE STANDARD SPECIFICATIONS IN LIEU OF LEAN GROUT.



END VIEW



SECTION A - A

DATE	REVISION	DATE FILMED
1-28-15	REVISED GEOTEXTILE FABRIC PLACEMENT	
12-15-11	ADDED NOTE & DTLS FOR WEEP HOLE AND DRAINAGE FILL	
10-15-09	ADDED GENERAL NOTE	
11-10-05	REVISED SPACING OF "M" BARS	
4-10-03	REVISED GENERAL NOTES	
10-18-96	CORRECTED AASHTO REF.	
10-1-92	ADDED NOTE FOR MEMBRANE WATERPROOFING	
8-15-91	ADDED NOTE FOR LEAN GROUT	
11- 8-90	REVISED FOR 1991 SPECS	
11-30-89	ISSUED; JABE	

ARKANSAS STATE HIGHWAY COMMISSION

PRECAST CONCRETE BOX CULVERTS

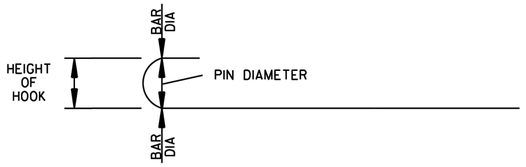
STANDARD DRAWING PBC-1

ACO POLYMER PRODUCT, INC. STANDARD DRAWINGS AND DETAILS APPEARING ON THIS DRAWING HAVE BEEN REPRODUCED IN THEIR ENTIRELY. ONLY PORTIONS OF THESE STANDARD DRAWINGS AND DETAILS MAY BE APPLICABLE TO THIS PROJECT. MY SEAL IS INTENDED TO AUTHENTICATE I HAVE SELECTED THESE STANDARD DRAWINGS AND DETAILS, OR PORTIONS THEREOF, AS APPLICABLE FOR THIS PROJECT AND I HEREBY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN INDICATED BY THESE STANDARD DRAWINGS AND DETAILS

STEEL FABRICATION: REINFORCING STEEL FABRICATION SHALL CONFORM TO THE DIMENSIONS LISTED IN THE TABLE BELOW:

BAR SIZE	PIN DIAMETER	HOOK EXTENSION "K"
3	2¼"	4"
4	3 "	4½"
5	3¾"	5"
6	4½"	6"
7	5¼"	7"
8	6"	8"

IF THE OVERALL HEIGHT OF THE HOOK (SEE DIAGRAM BELOW) FOR A "b", "b1", "b2" or "b3" BENT BAR IS GREATER THAN THE CORRESPONDING TOP OR BOTTOM SLAB THICKNESS, LESS 2¾ INCHES, EACH BENT BAR SHALL BE REPLACED WITH ONE HOOKED BAR AND ONE STRAIGHT BAR, USING LENGTHS AS SHOWN IN THE TABLE BELOW. THE TWO BARS SHALL BE THE SAME DIAMETER AS, AND PLACED AT THE SAME SPACING AS, THE "b", "b1", "b2" OR "b3" BENT BARS THEY REPLACE.



NOTE: DIMENSIONS OF BARS ARE MEASURED OUT TO OUT OF BARS.

OVERALL HEIGHT OF HOOKED BAR DIAGRAM

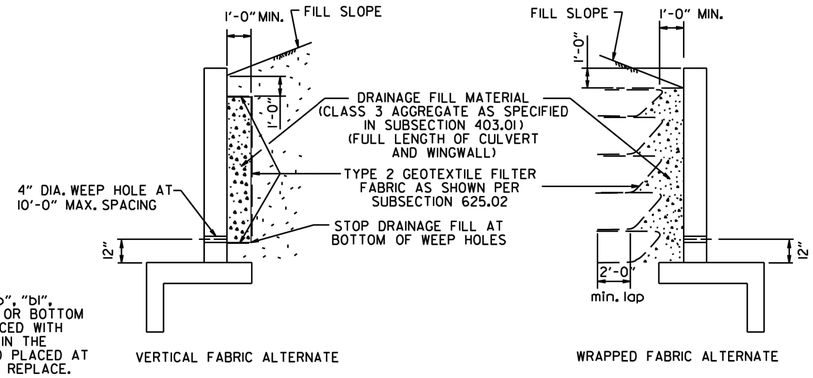
THE HOOKED BARS SHALL BE PLACED IN THE BOTTOM OF THE TOP SLAB AND THE TOP OF THE BOTTOM SLAB. THE STRAIGHT BARS SHALL BE PLACED IN THE TOP OF THE TOP SLAB AND THE BOTTOM OF THE BOTTOM SLAB. SEE TABLE BELOW FOR LENGTHS OF REPLACEMENT HOOKED AND STRAIGHT BARS.

FOR SKEWED CULVERTS, THE REPLACEMENT STRAIGHT BAR MAY HAVE TO BE CUT IN FIELD TO FIT.

REPLACEMENT BAR LENGTHS TABLE

BAR SIZE: "b", "b1", "b2" OR "b3"	LENGTH OF HOOKED BAR	LENGTH OF STRAIGHT BAR
#4	L + 1' - 0"	SEE "c" BAR LENGTH
#5	L + 1' - 2"	SEE "c" BAR LENGTH
#6	L + 1' - 4"	SEE "c" BAR LENGTH
#7	L + 1' - 8"	SEE "c" BAR LENGTH
#8	L + 1' - 10"	SEE "c" BAR LENGTH
#9	L + 2' - 6"	SEE "c" BAR LENGTH

L = "OW" - 3 INCHES



WINGWALL & CULVERT DRAINAGE DETAIL

REINFORCED CONCRETE BOX CULVERT GENERAL NOTES

CONCRETE SHALL BE CLASS S WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.

REINFORCING STEEL SHALL BE AASHTO M 31 OR M 53, GRADE 60.

CONSTRUCTION AND MATERIALS FOR WINGWALL & CULVERT DRAINAGE, INCLUDING WEEP HOLES AND GRANULAR MATERIAL, SHALL BE SUBSIDIARY TO THE BID ITEM, "CLASS S CONCRETE".

MEMBRANE WATERPROOFING SHALL CONFORM TO THE REQUIREMENTS OF SECTION 815 OF THE STANDARD SPECIFICATIONS.

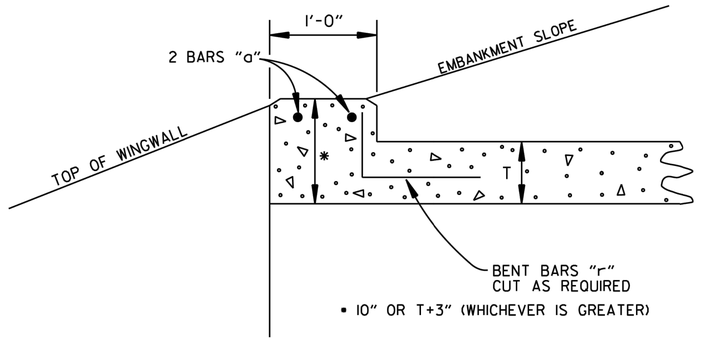
MEMBRANE WATERPROOFING SHALL BE APPLIED TO ALL CONSTRUCTION JOINTS IN THE TOP SLAB AND THE SIDEWALLS OF R.C. BOX CULVERTS AS DIRECTED BY THE ENGINEER. NO PAYMENT SHALL BE MADE FOR THIS ITEM, BUT PAYMENT WILL BE CONSIDERED TO BE INCLUDED IN THE VARIOUS ITEMS BID FOR THE R.C. BOX CULVERT.

REINFORCING STEEL TOLERANCES: THE TOLERANCES FOR REINFORCING STEEL SHALL MEET THOSE LISTED IN "MANUAL OF STANDARD PRACTICE" PUBLISHED BY CONCRETE REINFORCING STEEL INSTITUTE (CRSI) EXCEPT THAT THE TOLERANCE FOR TRUSS BARS SUCH AS FIGURE 3 ON PAGE 7-4 OF THE CRSI MANUAL SHALL BE MINUS ZERO TO PLUS ½ INCH.

WEEP HOLES IN BOX CULVERT WALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE BOTTOM SLAB.

WEEP HOLES IN WINGWALLS SHALL HAVE A MAXIMUM HORIZONTAL SPACING OF 10'-0" AND SHALL BE SPACED TO CLEAR ALL REINFORCING STEEL. THERE SHALL BE A MINIMUM OF TWO (2) WEEP HOLES IN EACH WINGWALL. THE DRAIN OPENING SHALL BE 4" DIAMETER AND SHALL BE PLACED 12" ABOVE THE TOP OF THE WINGWALL FOOTING.

THE REQUIREMENTS SHOWN ON THIS DRAWING SHALL SUPERCEDE THE CORRESPONDING REQUIREMENTS ON ALL REINFORCED CONCRETE BOX CULVERT STANDARD DRAWINGS.



NOTE: FOR ALL SKEWED R.C. BOX CULVERTS THE LENGTH "K" OF THE MODIFIED HEADWALL SHALL BE EQUAL TO THE ROADWAY LENGTH "RL". THE ENDS OF THE HEADWALL SHALL BE CONSTRUCTED PARALLEL TO THE SKEW ANGLE OF THE BOX CULVERT.

R.C. BOX CULVERT HEADWALL MODIFICATIONS

7/26/12	REV. DRAINAGE FILL MATERIAL & DETAIL	
12/15/11	REQUIRE WEEP HOLES IN BOX CULVERT WALLS	
5-25-06	REV. GEN. NOTES AND DETAILS FOR WEEP HOLES; BAR DIAGRAM	
11-16-01	ADDED WINGWALL DRAINAGE DETAIL/EDITED GEN. NOTES	
10-18-96	REV. ASTM REF. TO AASHTO & ADDED BAR DIAGRAM	
10-12-95	MOVED SOLID SODDING DETAIL TO RCB-2	
6-2-94	ADDED SOLID SODDING PLAN DETAIL	
8-5-93	REVISED PIN DIAMETER TO SPECS.	
8-15-91	DRAWN AND ISSUED	
DATE	REVISION	DATE FILMED

ARKANSAS STATE HIGHWAY COMMISSION

REINFORCED CONCRETE BOX CULVERT DETAILS

STANDARD DRAWING RCB-1

ARKANSAS STATE HIGHWAY COMMISSION STANDARD DRAWINGS AND DETAILS APPEARING ON THIS DRAWING HAVE BEEN REPRODUCED IN THEIR ENTIRELY. ONLY PORTIONS OF THESE STANDARD DRAWINGS AND DETAILS MAY BE APPLICABLE TO THIS PROJECT. MY SEAL IS INTENDED TO AUTHENTICATE I HAVE SELECTED THESE STANDARD DRAWINGS AND DETAILS, OR PORTIONS THEREOF, AS APPLICABLE FOR THIS PROJECT AND I HEREBY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN INDICATED BY THESE STANDARD DRAWINGS AND DETAILS

SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

walter p moore

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609 SW 8th St., Suite 600
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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

STORM DETAILS

C10.012PH2

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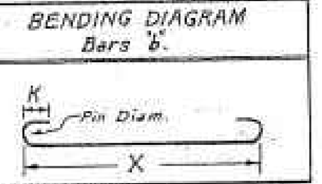
24-Jul-2026 - 7:16 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_VPM_C-MTP-DT_M08250700.dwg

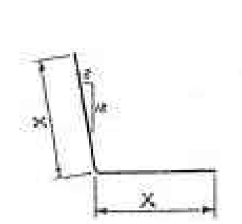
BAR LIST FOR BARREL SECTION 60'-0" IN LENGTH

DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	"a" bars STRAIGHT — In Top and Bottom Slabs of Barrel. 2 Add'l in Apron and Headwall - Each. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	"b" bars BENT - See Diagram below. In Top and Bottom Slabs of Barrel. Alternate with "a" bars. SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH	X	"d" bars STRAIGHT — Longitudinal in Top Slab of Barrel SIZE	SPACING	No. REQ'D	LENGTH	"d1" bars STRAIGHT — Longitudinal in Sidewalls SIZE	SPACING	No. REQ'D	LENGTH	"e" bars STRAIGHT — Longitudinal in Bottom Slab of Barrel SIZE	SPACING	No. REQ'D	LENGTH	"f" bars STRAIGHT — Verticals in Side walls SIZE	SPACING	NUMBER REQ'D 3:1	NUMBER REQ'D 4:1	LENGTH
0'-0" to 5'-0" Maximum	1 @ 4'	2'	#5	13"	120	120	4'-9"	#6	13"	110	110	5'-10"	4'-8"	#5	10½"	6	2 @ 30'-8" for 60'-0" Length Barrel. (1'-8" Lap)	#4	12"	4	2 @ 30'-6" for 60'-0" Length Barrel. (1'-3" Lap)	#4	12"	5	2 @ 31'-6" for 60'-0" Length Barrel. (1'-3" Lap)	#4	12"	120	120	2'-11"
		3'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				6				5				120	120	3'-11"
		4'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				8				5				120	120	4'-11"
		5'			120	120	4'-9"			110	110	5'-10"	4'-8"			6				10				5				120	120	5'-11"
		6'			120	120	4'-11"			110	110	6'-0"	4'-10"			6				12				5				120	120	6'-11"
	1 @ 5'	3'	#6	13"	120	120	5'-9"	#6	13"	110	110	6'-10"	5'-8"	#5	10½"	7		#4	12"	6		#4	12"	6		#4	12"	120	120	4'-0"
		4'			120	120	5'-9"			110	110	6'-10"	5'-8"			7				8				6				120	120	5'-0"
		5'			120	120	5'-9"			110	110	6'-10"	5'-8"			7				10				6				120	120	6'-0"
		6'			120	120	5'-11"			110	110	7'-0"	5'-10"			7				12				6				120	120	7'-0"
		7'			120	120	6'-0"			110	110	7'-1"	5'-11"			7				14				6				120	120	8'-0"
	1 @ 6'	3'	#6	12"	128	128	6'-9"	#6	12"	118	118	7'-10"	6'-8"	#5	10½"	8		#4	12"	6		#4	12"	7		#4	12"	120	120	4'-1"
		4'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				8				7				120	120	5'-1"
		5'			128	128	6'-9"			118	118	7'-10"	6'-8"			8				10				7				120	120	6'-1"
		6'			128	128	6'-11"			118	118	8'-0"	6'-10"			8				12				7				120	120	7'-1"
		7'			128	128	7'-0"			118	118	8'-1"	6'-11"			8				14				7				120	120	8'-1"
		8'			128	128	7'-1"			118	118	8'-2"	7'-0"			8				16				7		#5	12"	120	120	9'-1"
	1 @ 7'	4'	#6	11"	140	140	7'-9"	#6	11"	130	130	8'-10"	7'-8"	#5	10½"	9		#4	12"	8		#4	12"	8		#4	12"	120	120	5'-2"
		5'			140	140	7'-9"			130	130	8'-10"	7'-8"			9				10				8				120	120	6'-2"
		6'			140	140	7'-11"			130	130	9'-0"	7'-10"			9				12				8				120	120	7'-2"
		7'			140	140	8'-0"			130	130	9'-1"	7'-11"			9				14				8				120	120	8'-2"
		8'			140	140	8'-1"			130	130	9'-2"	8'-0"			9				16				8			10"	144	144	9'-2"
		9'			140	140	8'-3"			130	130	9'-4"	8'-2"			9				18				8		#5	12"	120	120	10'-2"
	1 @ 8'	4'	#7	12"	128	128	8'-9"	#6	12"	118	118	9'-10"	8'-8"	#5	10"	11		#4	12"	8		#4	12"	9		#4	12"	120	120	5'-4"
		5'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				10				9				120	120	6'-4"
		6'			128	128	8'-11"			118	118	10'-0"	8'-10"			11				12				9				120	120	7'-4"
		7'			128	128	9'-0"			118	118	10'-1"	8'-11"			11				14				9				120	120	8'-4"
		8'			128	128	9'-1"			118	118	10'-2"	9'-0"			11				16				9			10"	144	144	9'-4"
		9'			128	128	9'-3"			118	118	10'-4"	9'-2"			11				18				9		#5	12"	120	120	10'-4"
		10'			128	128	9'-5"			118	118	10'-6"	9'-4"			11				20				9			11"	132	132	11'-4"
	1 @ 9'	5'	#7	11"	140	140	9'-11"	#6	11"	130	130	11'-0"	9'-10"	#5	10"	12		#4	12"	10		#4	12"	10		#4	12"	120	120	6'-5"
		6'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				12				10				120	120	7'-5"
		7'			140	140	10'-0"			130	130	11'-1"	9'-11"			12				14				10				120	120	8'-5"
		8'			140	140	10'-1"			130	130	11'-2"	10'-0"			12				16				10			10"	144	144	9'-5"
		9'			140	140	10'-3"			130	130	11'-4"	10'-2"			12				18				10		#5	12"	120	120	10'-5"
		10'			140	140	10'-5"			130	130	11'-6"	10'-4"			12				20				10			11"	132	132	11'-5"
		11'			140	140	10'-7"			130	130	11'-8"	10'-6"			12				22				10			10"	144	144	12'-5"
	1 @ 10'	5'	#7	12"	128	128	10'-11"	#7	12"	118	118	12'-2"	10'-10"	#5	10"	13		#4	12"	10		#4	12"	11		#4	12"	120	120	6'-6"
		6'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				12				11				120	120	7'-6"
		7'			128	128	11'-0"			118	118	12'-3"	10'-11"			13				14				11				120	120	8'-6"
		8'			128	128	11'-1"			118	118	12'-4"	11'-0"			13				16				11			10"	144	144	9'-6"
		9'			128	128	11'-3"			118	118	12'-6"	11'-2"			13				18				11		#5	12"	120	120	10'-6"
		10'			128	128	11'-5"			118	118	12'-8"	11'-4"			13				20				11			11"	132	132	11'-6"
		11'			128	128	11'-7"			118	118	12'-10"	11'-6"			13				22				11			10"	144	144	12'-6"
		12'			128	128	11'-9"			118	118	13'-0"	11'-8"			13				24				11		#6	12"	120	120	13'-6"
	1 @ 11'	6'	#7	11"	140	140	12'-1"	#7	11"	130	130	13'-4"	12'-0"	#5	9½"	15		#4	12"	12		#4	12"	12		#4	12"	120	120	7'-7"
		7'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				14				12				120	120	8'-7"
		8'			140	140	12'-1"			130	130	13'-4"	12'-0"			15				16				12			10"	144	144	9'-7"
		9'			140	140	12'-3"			130	130	13'-6"	12'-2"			15				18				12		#5	12"	120	120	10'-7"
		10'			140	140	12'-5"			130	130	13'-8"	12'-4"			15				20				12			11"	132	132	11'-7"
		11'			140	140	12'-7"			130	130	13'-10"	12'-6"			15				22				12			10"	144	144	12'-7"
		12'			140	140	12'-9"			130	130	14'-0"	12'-8"			15				24				12		#6	12"	120	120	13'-7"
	1 @ 12'	6'	#8	12"	128	128	13'-1"	#7	12"	118	118	14'-4"	13'-0"	#5	9½"	16		#4	12"	12		#4	12"	13		#4	12"	120	120	7'-9"
		7'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				14				13				120	120	8'-9"
		8'			128	128	13'-1"			118	118	14'-4"	13'-0"			16				16				13			10"	144	144	9'-9"
		9'			128	128	13'-3"			118	118	14'-6"	13'-2"			16				18				13		#5	12"	120	120	10'-9"
		10'			128	128	13'-5"			118	118	14'-8"	13'-4"			16				20				13			11"	132	132	11'-9"
		11'			128	128	13'-7"			118	118	14'-10"	13'-6"			16				22				13			10"	144	144	12'-9"
		12'			128	128	13'-9"			118	118	15'-0"	13'-8"			16				24				13		#6	12"	120	120	13'-9"

BAR SIZE	PIN DIAM.	K	ADD FOR 2 HOOKS	BENDING DIAGRAM Bars "b".
#6	3"	5"	1'-2"	
#7	3½"	5⅞"	1'-4"	

NOTE:- Dimensions are to centers of bars.

DOWEL BARS FOR TWO HEADWALLS

SPAN	SIZE	SPACING	No. REQ'D	LENGTH	X	Bars "r" Dowel bars in Headwalls.
4'	#4	11"±	12	2'-6"	1'-3"	
5'	#4	11"±	14	2'-7"	1'-3½"	
6'	#4	11"±	16	2'-8"	1'-4"	
7'	#4	11"±	18	2'-9"	1'-4½"	
8'	#4	11½"±	20	2'-11"	1'-5½"	
9'	#4	11½"±	22	3'-0"	1'-6"	
10'	#4	11½"±	24	3'-1"	1'-6½"	
11'	#4	12"±	26	3'-2"	1'-7"	
12'	#4	12"±	28	3'-3"	1'-7½"	

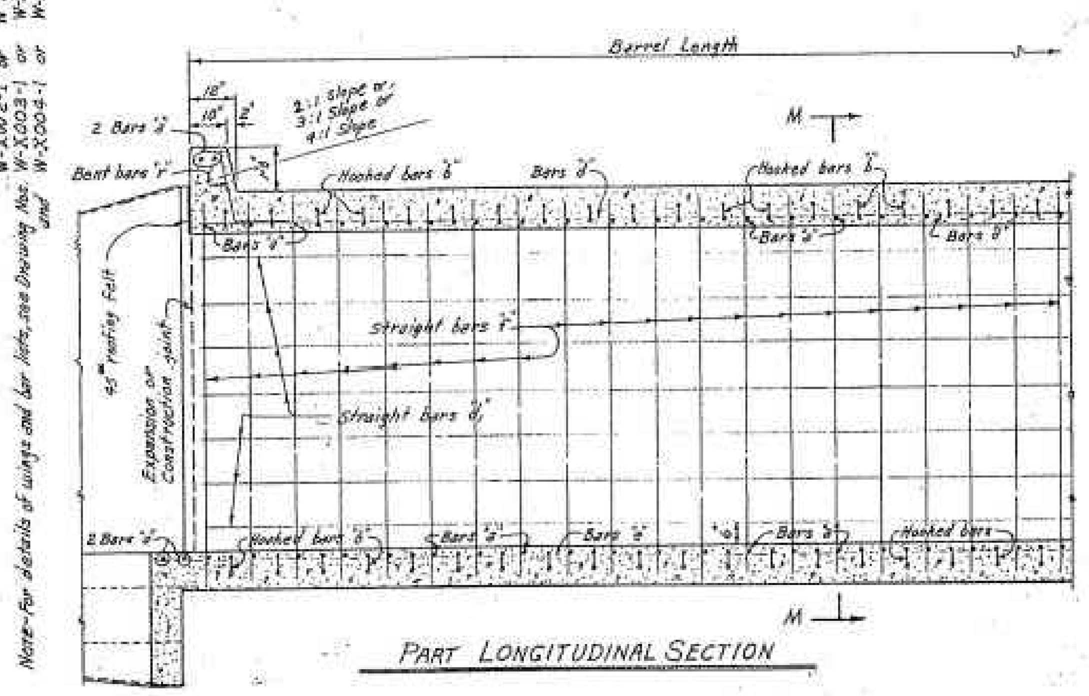
Designed By:- W.C.H. 1-23-63. Checked By:- [illegible] 5-8-63
Drawn By:- W.C.H. 2-8-63. Checked By:- [illegible] 5-24-63
Quantities By:- W.C.R. 2-12-63. Checked By:- [illegible] 5-24-63

DIMENSIONS / QUANTITIES

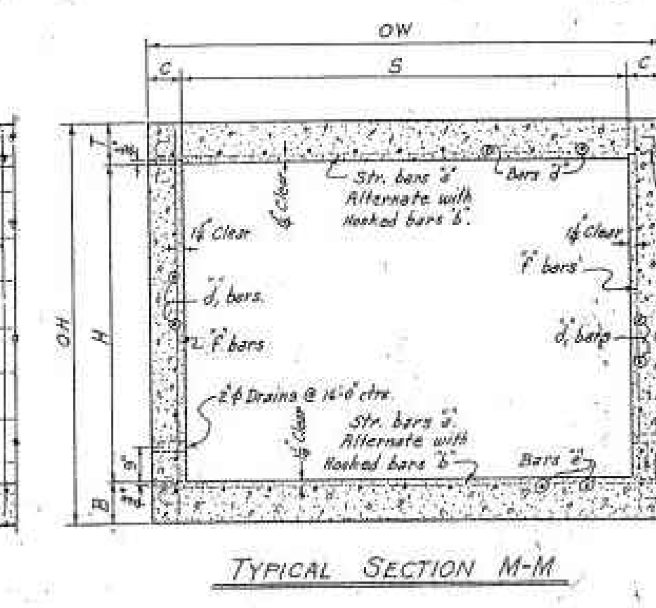
MAX. DESIGN DEPTH OF COVER D	CLEAR SPAN S	CLEAR HEIGHT H	SQ. FT. OPENING A	OVERALL WIDTH OW	THICKNESS OF TOP SLAB T	THICKNESS OF SIDEWALLS C	THICKNESS OF BOTTOM SLAB B	OVERALL HEIGHT OH	CLASS S CONC. PER LIN. FT. OF BARREL CU.YD.	REINFORCING STEEL PER LIN. FT. OF BARREL LB.	ADDITIONAL PER LAP LB.	ADDITIONAL TWO HEADWALLS & APRONS LB.
5'-0"	1 @ 4'	2'	8	5'-0"	7"	6"	6½"	3'-1½"	0.282	41.49	17.95	66.35
		3'	12	5'-0"		6"		4'-1½"	0.319	44.16	19.62	66.35
		4'	16	5'-0"		6"		5'-1½"	0.356	46.83	21.29	66.35
		5'	20	5'-0"		6"		6'-1½"	0.394	49.50	22.96	66.35
		6'	24	5'-2"		7"		7'-1½"	0.474	52.96	24.63	67.75
	1 @ 5'	3'	15	6'-0"	7½"	6"	7"	4'-2½"	0.380	55.55	22.19	101.27
		4'	20	6'-0"		6"		5'-2½"	0.417	58.23	23.86	101.27
		5'	25	6'-0"		6"		6'-2½"	0.454	60.90	25.53	101.27
		6'	30	6'-2"		7"		7'-2½"	0.535	64.49	27.20	103.27
		7'	35	6'-3"		7½"		8'-2½"	0.604	67.63	28.87	104.27
	1 @ 6'	3'	18	7'-0"	8"	6"	7½"	4'-3½"	0.446	66.29	24.76	118.96
		4'	24	7'-0"		6"		5'-3½"	0.483	68.96	26.43	118.96
		5'	30	7'-0"		6"		6'-3½"	0.520	71.64	28.10	118.96
		6'	36	7'-2"		7"		7'-3½"	0.602	75.31	29.77	120.96
		7'	42	7'-3"		7½"		8'-3½"	0.671	78.98	31.44	121.97
		8'	48	7'-4"		8"		9'-3½"	0.746	88.97	33.11	122.97
	1 @ 7'	4'	28	8'-0"	8½"	6"	8½"	5'-5"	0.568	81.32	29.01	136.88
		5'	35	8'-0"		6"		6'-5"	0.605	84.00	30.68	136.88
		6'	42	8'-2"		7"		7'-5"	0.688	87.76	32.35	138.88
		7'	49	8'-3"		7½"		8'-5"	0.757	90.98	34.02	139.88
		8'	56	8'-4"		8"		9'-5"	0.832	96.65	35.69	140.88
		9'	63	8'-6"		9"		10'-5"	0.946	105.59	37.36	142.89
	1 @ 8'	4'	32	9'-0"	9½"	6"	9½"	5'-7"	0.676	95.26	33.32	194.07
		5'	40	9'-2"		7"		6'-7"	0.754	99.12	34.99	196.80
		6'	48	9'-2"		7"		7'-7"	0.797	101.79	36.66	196.80
		7'	56	9'-3"		7½"		8'-7"	0.867	105.05	38.33	198.16
		8'	64	9'-4"		8"		9'-7"	0.942	110.81	40.00	199.52
		9'	72	9'-6"		9"		10'-7"	1.057	119.98	41.67	202.25
		10'	80	9'-8"		10"		11'-7"	1.184	126.67	43.34	209.97
	1 @ 9'	5'	45	10'-2"	10"	7"	10"	6'-8"	0.894	114.72	37.56	219.61
		6'	54	10'-3"		7½"		7'-8"	0.910	118.04	39.23	220.97
		7'	63	10'-3"		7½"		8'-8"	0.957	120.71	40.90	220.97
		8'	72	10'-4"		8"		9'-8"	1.033	126.54	42.57	222.33
		9'	81	10'-6"		9"		10'-8"	1.148	135.80	44.24	225.06
		10'	90	10'-8"		10"		11'-8"	1.276	142.48	45.91	227.78
		11'	99	10'-10"		11"		12'-8"	1.416	150.40	47.58	230.51
	1 @ 10'	5'	50	11'-2"	10½"	7"	11"	6'-9½"	0.957	130.64	40.13	242.64
		6'	60	11'-3"		7½"		7'-9½"	1.024	133.99	41.80	244.00
		7'	70	11'-3"		7½"		8'-9½"	1.071	136.66	43.47	244.00
		8'	80	11'-4"		8"		9'-9½"	1.147	142.55	45.14	245.36
		9'	90	11'-6"		9"		10'-9½"	1.263	151.92	46.81	248.09
		10'	100	11'-8"		10"		11'-9½"	1.391	158.89	48.48	250.81
		11'	110	11'-10"		11"		12'-9½"	1.532	166.71	50.15	253.54
		12'	120	12'-0"		12"		13'-9½"	1.685	178.67	51.82	256.26
	1 @ 11'	6'	66	12'-4"	11"	8"	11½"	7'-10½"	1.153	156.16	46.12	268.62
		7'	77	12'-4"		8"		8'-10½"	1.202	157.89	47.79	268.62
		8'	88	12'-4"		8"		9'-10½"	1.252	163.06	49.46	268.62
		9'	99	12'-6"		9"		10'-10½"	1.368	172.60	51.13	271.34
		10'	110	12'-8"		10"		11'-10½"	1.497	179.70	52.80	274.07
		11'	121	12'-10"		11"		12'-10½"	1.638	187.67	54.97	276.79
		12'	132	13'-0"		12"		13'-10½"	1.792	199.79	56.14	279.52
	1 @ 12'	6'	72	13'-4"	11¾"	8"	12¼"	8'-0"	1.284	172.20	48.69	357.62
		7'	84	13'-4"		8"		9'-0"	1.333	174.87	50.36	357.62
		8'	96	13'-4"		8"		10'-0"	1.383	180.15	52.03	357.62
		9'	108	13'-6"		9"		11'-0"	1.500	189.85	58.70	361.18
		10'	120	13'-8"		10"		12'-0"	1.630	197.07	55.37	364.74
		11'	132	13'-10"		11"		13'-0"	1.772	205.16	57.04	368.30
		12'	144	14'-0"		12"		14'-0"	1.926	217.45	58.71	371.06

Note:- For details of wings and bar lists, see Drawing Nos. W-X002-1 or W-X003-1 or W-X004-1 and W-X002-2, W-X003-2, W-X004-2.

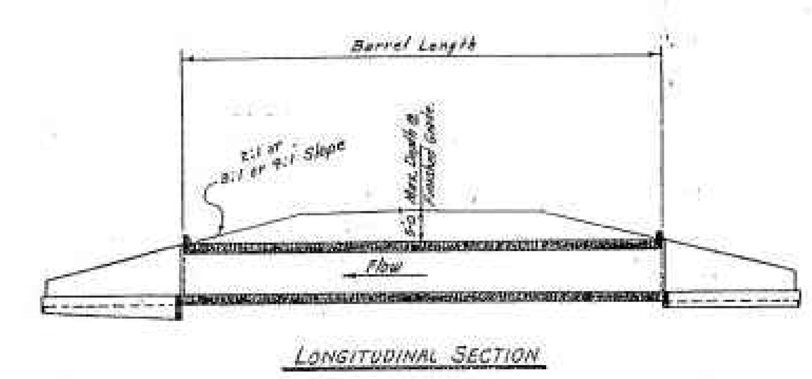
FED. ROAD No.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					



PART LONGITUDINAL SECTION



TYPICAL SECTION M-M



LONGITUDINAL SECTION

GENERAL NOTES:-
CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.
REINFORCING STEEL:- Reinforcing to be deformed bars of intermediate or hard grade.
BAR LAP:- In computing the quantities of steel from the tables add one lap for each additional 33'-0" length of barrel over 32'-0". Lap longitudinal bars 30 diameters.
CONSTRUCTION JOINTS:- Construction joints between wingwalls, sidewalls and slabs shall be only where shown on plans.
SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

DESIGN LIVE LOAD
H20-S16 LOADING A.A.S.H.O. 1961
AND
SPECIAL MILITARY LOADING
Two 24,000 Lb. Axles @ 4'-0" ctrs.
UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Drawing Nos. W-X003-1 or W-X003-2 and W-X004-1 or W-X004-2. Also Drawing Nos. W-X002-1 or W-X002-2.

CLASS S CONCRETE

ARKANSAS STATE HIGHWAY COMMISSION
DETAILS OF STANDARD BARREL SECTIONS
FOR
REINFORCED CONCRETE BOX CULVERTS
4,5,6,7,8,9,10,11 & 12' SPANS — 3:1 OR 4:1 SLOPES
SINGLES — UNDER 5'-0" COVER
STANDARD DRAWING NO. R-100X-0

9

walter p moore
Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712
479.367.3250

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

ARKANSAS STATE HIGHWAY COMMISSION STANDARD DRAWINGS AND DETAILS APPEARING ON THIS DRAWING HAVE BEEN REPRODUCED IN THEIR ENTIRELY. ONLY PORTIONS OF THESE STANDARD DRAWINGS AND DETAILS MAY BE APPLICABLE TO THIS PROJECT. MY SEAL IS INTENDED TO AUTHENTICATE I HAVE SELECTED THESE STANDARD DRAWINGS AND DETAILS, OR PORTIONS THEREOF, AS APPLICABLE FOR THIS PROJECT AND I HEREBY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN INDICATED BY THESE STANDARD DRAWINGS AND DETAILS

SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

STORM DETAILS

C10.013PH2

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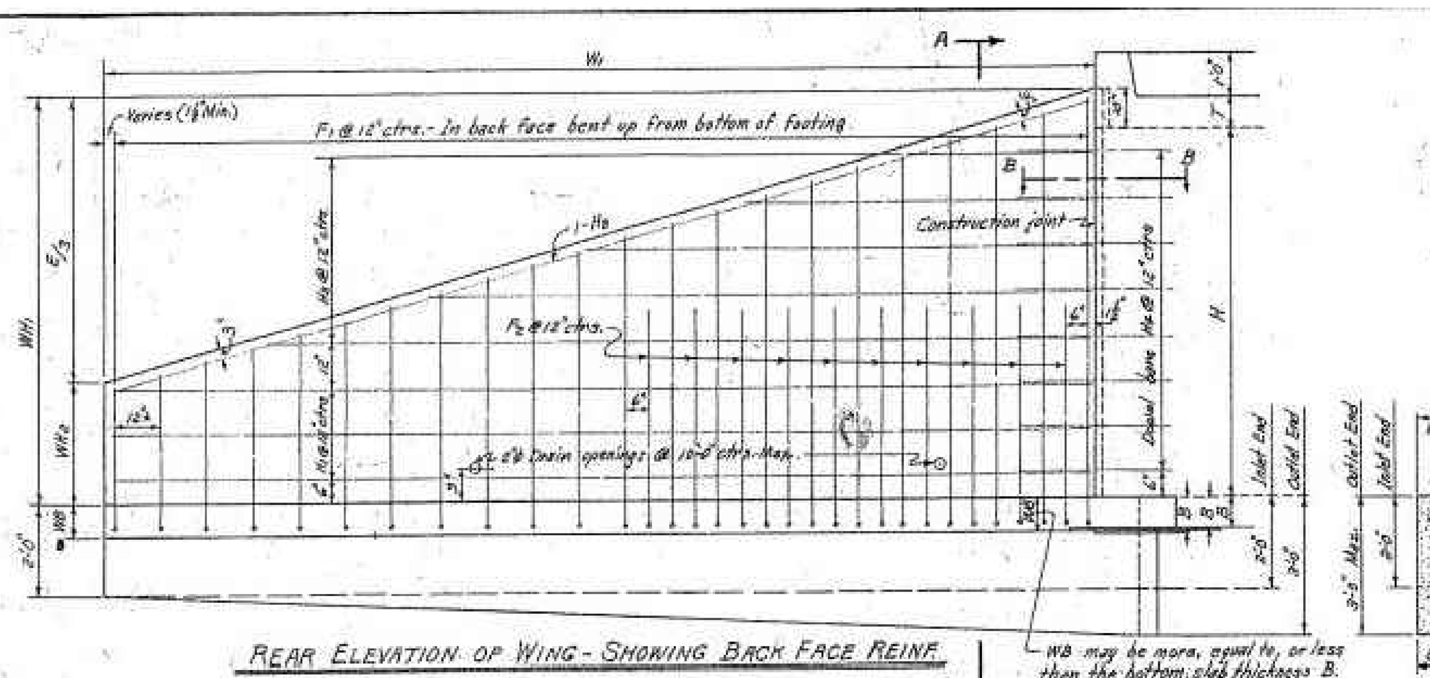
24-Jul-2026 - 7:16 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_WPM_C-MTP DT_M082500700.dwg

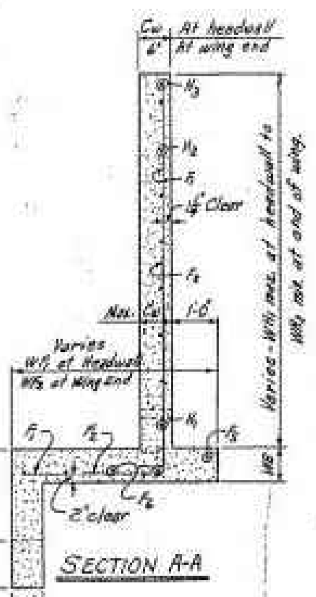
24-Jul-2026 - 7:16 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_WPM_C-MTP DT_M082500700.dwg

FED. ROAD NO.	STATE	FED. AID PROJECT	FISCAL YEAR	SHEET No.	TOTAL SHEETS
6	ARK.				
JOB No.					

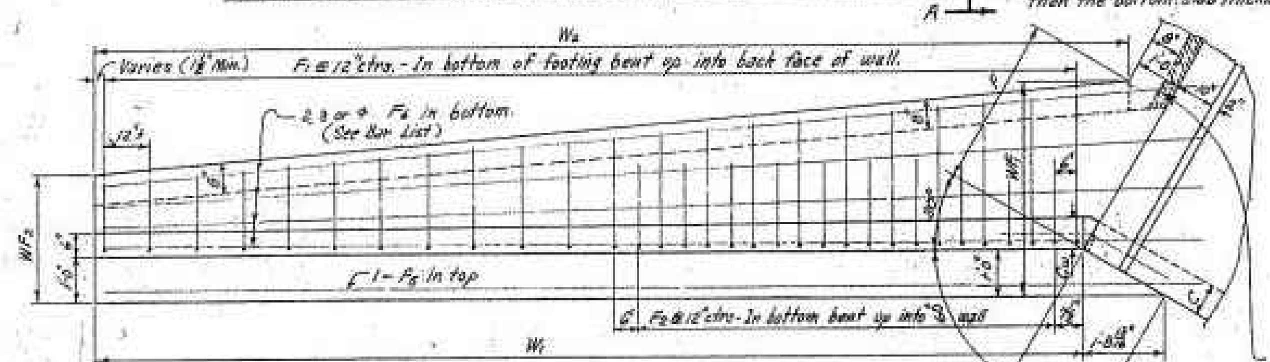


REAR ELEVATION OF WING - SHOWING BACK FACE REINF.

WB may be more, equal to, or less than the bottom slab thickness B.



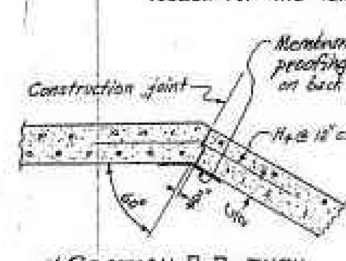
SECTION A-A



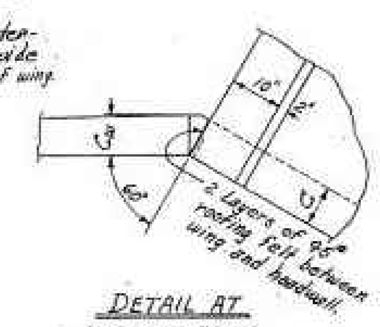
PLAN OF WING - SHOWING FOOTING REINF.

When B is more than WB, the shaded portion of the apron shall be made the same thickness as the barrel base B.

END VIEW OF WING



SECTION B-B THRU CONSTRUCTION JOINT



DETAIL AT TOP OF WING

Note:- Payment for membrane waterproofing and roofing felt to be included in the price bid for Class S Concrete.

WING DIMENSIONS

Clear Height of Box	Thickness of Wing Footing	Thickness of Wing at Headwall = C	Wingwall Heights: At Headwall	Wingwall Heights: At End of Wing	Widths of Wing Footings: At Headwall	Widths of Wing Footings: At End of Wing	Perpendicular Footing Dimension	Perpendicular Dist. from Hdwl. to End of Wing	Length of Wingwalls	Inside Footing Dimension	* Quantity per Wing Class S Concrete: Inlet End	Outlet End
H	WB	Cw	WH1	WH2	WF1	WF2	F	E	W1	W2	Cu.Yd.	Cu.Yd.
2'	7"	6"	2'-10"	0'-8"	2'-4"	2'-0"	0'-11⅞"	6'-6"	7'-6"	7'-1½"	0.889	0.986
3'	7"	6"	3'-10"	1'-0"	2'-8"	2'-1½"	1'-4⅜"	8'-6"	9'-9⅞"	9'-7½"	1.338	1.466
4'	7"	6"	4'-10"	1'-4"	3'-0"	2'-3"	1'-9"	10'-6"	12'-1⅝"	12'-1½"	1.868	2.027
5'	7"	6"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-5⅜"	14'-7½"	2.478	2.668
		7"	5'-10"	1'-8"	3'-4"	2'-4½"	2'-1⅝"	12'-6"	14'-5⅜"	14'-7½"	2.582	2.772
6'	8"	7"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅛"	14'-6"	16'-9"	17'-1½"	3.490	3.661
		7½"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅛"	14'-6"	16'-9"	17'-1½"	3.511	3.732
		8"	6'-10"	2'-0"	3'-8"	2'-6"	2'-6⅛"	14'-6"	16'-9"	17'-1½"	3.582	3.803
7'	8½"	7½"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-8⅜"	4.505	4.758
		8"	7'-10"	2'-4"	4'-2"	2'-7½"	3'-1⅛"	16'-6"	19'-0⅝"	19'-8⅜"	4.597	4.851
8'	9"	8"	8'-10"	2'-8"	4'-8"	2'-9"	3'-8"	18'-6"	21'-4¼"	22'-4"	5.761	6.047

* Quantity per wing does not include headwall or that portion of apron or toewall for the length W3.

APRON DIMENSION W3

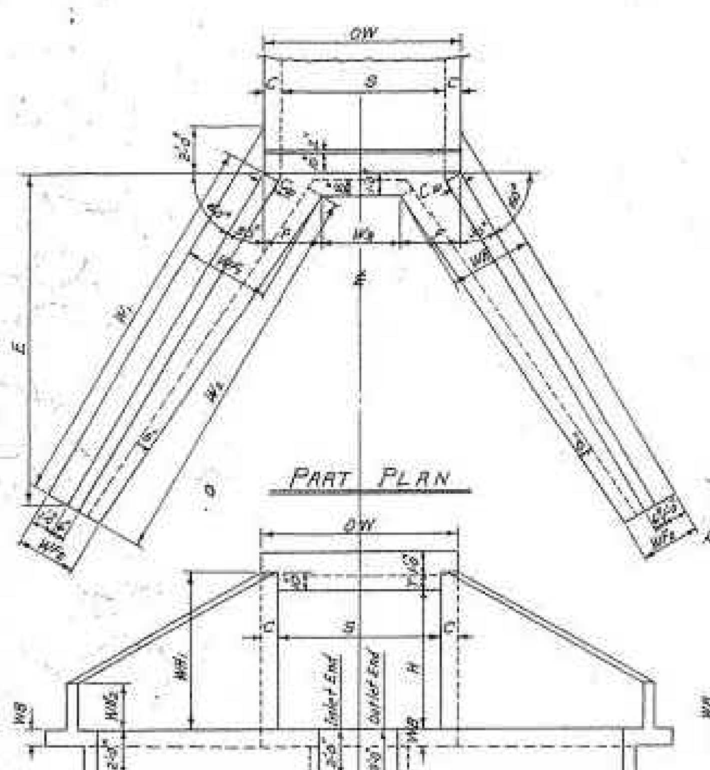
W3 = (OW - 2F)

Clear Span	Clear Height	2 × Footing Dimension	Single Barrel Culvert OW	Single W3	Double Barrel Culvert OW	Double W3	Triple Barrel Culvert OW	Triple W3	Quadruple Barrel Culvert OW	Quadruple W3	Quintuple Barrel Culvert OW	Quintuple W3
S	H	2F	OW	W3	OW	W3	OW	W3	OW	W3	OW	W3
4'	2'	1'-11⅞"	5'-0"	3'-0⅛"	9'-8"	7'-8⅛"	14'-4"	12'-4⅛"	19'-0"	17'-0⅛"	23'-8"	21'-8⅛"
	3'	2'-8⅞"	5'-0"	2'-3⅛"	9'-8"	6'-11⅛"	14'-4"	11'-7⅛"	19'-0"	16'-3⅛"	23'-8"	20'-11⅛"
	4'	3'-6"	5'-0"	1'-6"	9'-8"	6'-2"	14'-4"	10'-10"	19'-0"	15'-6"	23'-8"	20'-2"
	5'	4'-3⅝"	5'-0"	0'-8⅜"	9'-8"	5'-4⅜"	14'-4"	10'-0⅜"	19'-0"	14'-8⅜"	23'-8"	19'-4⅜"
	6'	5'-0½"	5'-2"	0'-1½"	9'-11"	4'-10½"	14'-8"	9'-7½"	19'-5"	14'-4½"	24'-2"	19'-1½"
5'	3'	2'-8⅞"	6'-0"	3'-3⅛"	11'-8"	8'-11⅛"	17'-4"	14'-7⅛"	23'-0"	20'-3⅛"	28'-8"	25'-11⅛"
	4'	3'-6"	6'-0"	2'-6"	11'-8"	8'-2"	17'-4"	13'-10"	23'-0"	19'-6"	28'-8"	25'-2"
	5'	4'-3⅝"	6'-0"	1'-8⅜"	11'-8"	7'-4⅜"	17'-4"	13'-0⅜"	23'-0"	18'-8⅜"	28'-8"	24'-4⅜"
	6'	5'-0½"	6'-2"	1'-1½"	11'-11"	6'-10½"	17'-8"	12'-7½"	23'-5"	18'-4½"	29'-2"	24'-1½"
	7'	6'-2⅛"	6'-3"	0'-0⅞"	12'-1"	5'-10⅞"	17'-11"	11'-8⅞"	23'-9"	17'-6⅞"	29'-7"	23'-4⅞"
6'	3'	2'-8⅞"	7'-0"	4'-3⅛"	13'-8"	10'-11⅛"	20'-4"	17'-7⅛"	27'-0"	24'-3⅛"	33'-8"	30'-11⅛"
	4'	3'-6"	7'-0"	3'-6"	13'-8"	10'-2"	20'-4"	16'-10"	27'-0"	23'-6"	33'-8"	30'-2"
	5'	4'-3⅝"	7'-0"	2'-8⅜"	13'-8"	9'-4⅜"	20'-4"	16'-0⅜"	27'-0"	22'-8⅜"	33'-8"	29'-4⅜"
	6'	5'-0½"	7'-2"	2'-1½"	13'-11"	8'-10½"	20'-8"	15'-7½"	27'-5"	22'-4½"	34'-2"	29'-1½"
	7'	6'-2⅛"	7'-3"	1'-0⅞"	14'-1"	7'-10⅞"	20'-11"	14'-8⅞"	27'-9"	21'-6⅞"	34'-7"	28'-4⅞"
	8'	7'-4"	7'-4"	0'-0"	14'-2"	6'-10"	21'-0"	13'-8"	27'-10"	20'-6"	34'-8"	27'-4"
7'	4'	3'-6"	8'-0"	4'-6"	15'-8"	12'-2"	23'-4"	19'-10"	31'-0"	27'-6"	38'-8"	35'-2"
	5'	4'-3⅝"	8'-0"	3'-8⅜"	15'-8"	11'-4⅜"	23'-4"	19'-0⅜"	31'-0"	26'-8⅜"	38'-8"	34'-4⅜"
	6'	5'-0½"	8'-2"	3'-1½"	15'-11"	10'-10½"	23'-8"	18'-7½"	31'-5"	26'-4½"	39'-2"	34'-1½"
	7'	6'-2⅛"	8'-3"	2'-0⅞"	16'-1"	9'-10⅞"	23'-11"	17'-8⅞"	31'-9"	25'-6⅞"	39'-7"	33'-4⅞"
	8'	7'-4"	8'-4"	1'-0"	16'-2"	8'-10"	24'-0"	16'-8"	31'-10"	24'-6"	39'-8"	32'-4"
8'	4'	3'-6"	9'-0"	5'-6"	17'-6"	14'-2"	26'-4"	22'-10"	35'-0"	31'-6"	43'-8"	40'-2"
	5'	4'-3⅝"	9'-2"	4'-10⅝"	17'-11"	13'-7⅝"	26'-8"	22'-9⅝"	35'-5"	31'-1⅝"	44'-2"	39'-10⅝"
	6'	5'-0½"	9'-2"	4'-1½"	17'-11"	12'-10½"	26'-8"	21'-7½"	35'-5"	30'-4½"	44'-2"	39'-1½"
	7'	6'-2⅛"	9'-3"	3'-0⅞"	18'-1"	11'-10⅞"	26'-11"	20'-8⅞"	35'-9"	29'-6⅞"	44'-7"	38'-4⅞"
	8'	7'-4"	9'-4"	2'-0"	18'-2"	10'-10"	27'-0"	19'-8"	35'-10"	28'-6"	44'-8"	37'-4"
9'	5'	4'-3⅝"	10'-2"	5'-10⅝"	19'-11"	15'-7⅝"	29'-8"	25'-4⅝"	39'-5"	35'-1⅝"	49'-2"	44'-10⅝"
	6'	5'-0½"	10'-3"	5'-2½"	20'-1"	15'-0½"	29'-11"	24'-10½"	39'-9"	34'-8½"	49'-7"	44'-6½"
	7'	6'-2⅛"	10'-3"	4'-0⅞"	20'-1"	13'-10⅞"	29'-11"	23'-8⅞"	39'-9"	33'-6⅞"	49'-7"	43'-4⅞"
	8'	7'-4"	10'-4"	3'-0"	20'-2"	12'-10"	30'-0"	22'-8"	39'-10"	32'-6"	49'-8"	42'-4"
10'	5'	4'-3⅝"	11'-2"	6'-10⅝"	21'-11"	17'-7⅝"	32'-8"	28'-4⅝"	43'-5"	39'-1⅝"	54'-2"	49'-10⅝"
	6'	5'-0½"	11'-3"	6'-2½"	22'-1"	17'-0½"	32'-11"	27'-10½"	43'-9"	38'-8½"	54'-7"	49'-6½"
	7'	6'-2⅛"	11'-3"	5'-0⅞"	22'-1"	15'-10⅞"	32'-11"	26'-8⅞"	43'-9"	37'-6⅞"	54'-7"	48'-4⅞"
	8'	7'-4"	11'-4"	4'-0"	22'-2"	14'-10"	33'-0"	25'-8"	43'-10"	36'-6"	54'-8"	47'-4"
11'	6'	5'-0½"	12'-4"	7'-3½"	24'-2"	19'-1½"	36'-0"	30'-11½"	47'-10"	42'-9½"		
	7'	6'-2⅛"	12'-4"	6'-1⅞"	24'-2"	17'-11⅞"	36'-0"	29'-9⅞"	47'-10"	41'-7⅞"		
	8'	7'-4"	12'-4"	5'-0"	24'-2"	16'-10"	36'-0"	28'-8"	47'-10"	40'-6"		
12'	6'	5'-0½"	13'-4"	8'-3½"	26'-2"	21'-1½"	39'-0"	33'-11½"	51'-10"	46'-9½"		
	7'	6'-2⅛"	13'-4"	7'-1⅞"	26'-2"	19'-11⅞"	39'-0"	32'-9⅞"	51'-10"	45'-7⅞"		
	8'	7'-4"	13'-4"	6'-0"	26'-2"	18'-10"	39'-0"	31'-8"	51'-10"	44'-6"		

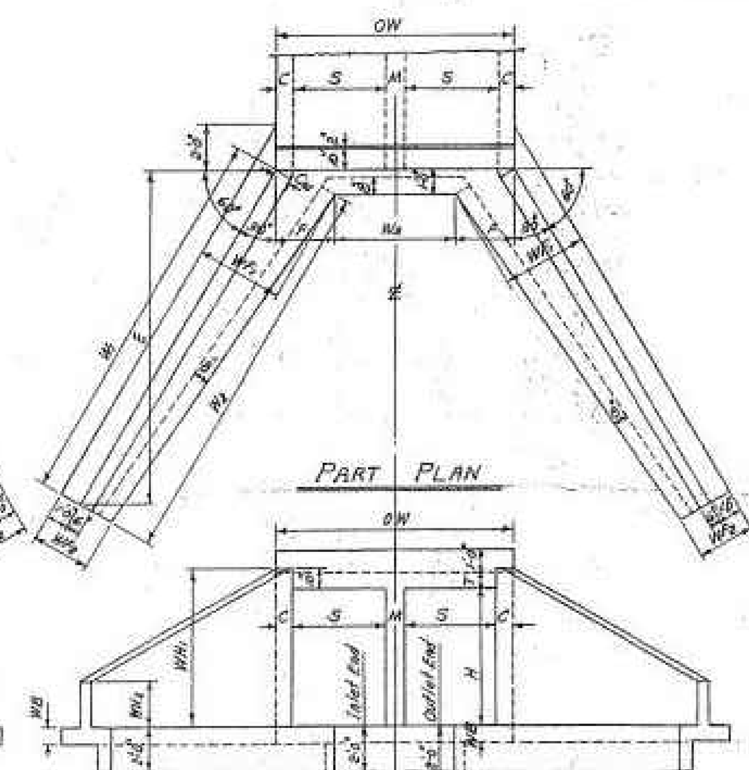
QUANTITIES

Clear Span	Clear Height	Thickness of Wing at Headwall	Thickness of Wing Footing	⊗ Reinforcing Steel - for 4 Wings	Class S Concrete - 4 Wings (Headwalls, Wingwalls, Footings, Toewalls and Aprons): Single Barrel Culvert	Double Barrel Culvert	Triple Barrel Culvert	Quadruple Barrel Culvert	Quintuple Barrel Culvert
S	H	Cw	WB	Lb.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.	Cu.Yd.
4'	2'	6"	7"	108.0	4.50	5.46	6.42	7.38	8.34
	3'	6"	7"	164.4	6.26	7.21	8.17	9.13	10.09
	4'	6"	7"	254.6	8.33	9.28	10.24	11.20	12.16
	5'	6"	7"	357.8	10.72	11.68	12.64	13.60	14.56
	6'	7"	8"	583.1	14.55	15.53	16.52	17.51	18.49
5'	3'	6"	7"	164.4	6.97	7.68	8.79	9.96	11.12
	4'	6"	7"	254.6	8.54	9.70	10.87	10.03	13.20
	5'	6"	7"	357.8	10.94	12.10	13.26	14.43	15.59
	6'	7"	8"	583.1	14.77	15.36	17.15	18.34	19.54
	7'	7½"	8½"	1134.6	18.94	20.15	21.37	22.59	23.80
6'	3'	6"	7"	164.4	6.68	8.06	9.42	10.80	12.18
	4'	6"	7"	254.6	8.75	10.14	11.49	12.87	14.25
	5'	6"	7"	357.8	11.15	12.53	13.89	15.27	16.65
	6'	7"	8"	583.1	14.98	16.39	17.78	19.18	20.59
	7'	7½"	8½"	1134.6	19.15	20.58	22.00	23.43	24.86
	8'	8"	9"	1425.6	24.09	25.53	26.96	28.39	29.83
7'	4'	6"	7"	254.6	8.97	10.58	12.15	13.76	15.35
	5'	6"	7"	357.8	11.36	12.97	14.54	16.15	17.75
	6'	7"	8"	583.1	15.20	16.82	18.42	20.04	21.66
	7'	7½"	8½"	1139.6	19.38	21.02	22.64	24.28	25.92
	8'	8"	9"	1425.6	24.32	25.97	27.60	29.25	30.89
8'	4'	6"	7"	259.6	9.19	11.03	12.82	14.65	16.45
	5'	7"	7"	357.8	12.03	13.89	15.70	17.55	19.36
	6'	7"	8"	583.1	15.92	17.27	19.09	20.93	22.75
	7'	7½"	8½"	1134.6	19.59	21.46	23.30	25.16	26.99
	8'	8"	9"	1425.6	24.54	26.41	28.24	30.11	31.96
9'	5'	7"	7"	357.8	12.26	14.34	16.87	18.45	20.47
	6'	7½"	8"	583.1	15.94	18.04	20.09	22.19	24.23
	7'	7½"	8½"	1134.6	19.81	21.91	23.96	26.06	28.10
	8'	8"	9"	1425.6	24.74	26.86	28.91	31.00	33.05
10'	5'	7"	7"	357.8	12.49	14.80	17.65	19.26	21.52
	6'	7½"	8"	583.1	16.17	18.50	20.77	22.99	25.28
	7'	7½"	8½"	1134.6	20.04	22.37	24.64	26.67	29.15
	8'	8"	9"	1425.6	24.98	27.31	29.58	31.81	34.10
11'	6'	8"	8"	583.1	16.69	19.27	21.76	24.23	
	7'	8"	8½"	1134.6	20.64	23.22	25.71	28.18	
	8'	8"	9"	1425.6	25.19	27.77	30.27	32.74	
12'	6'	8"	8"	583.1	16.92	19.75	22.45	25.18	
	7'	8"	8½"	1139.6	20.87	23.69	26.40	29.15	
	8'	8"	9"	1425.6	25.42	28.25	30.96	33.69	

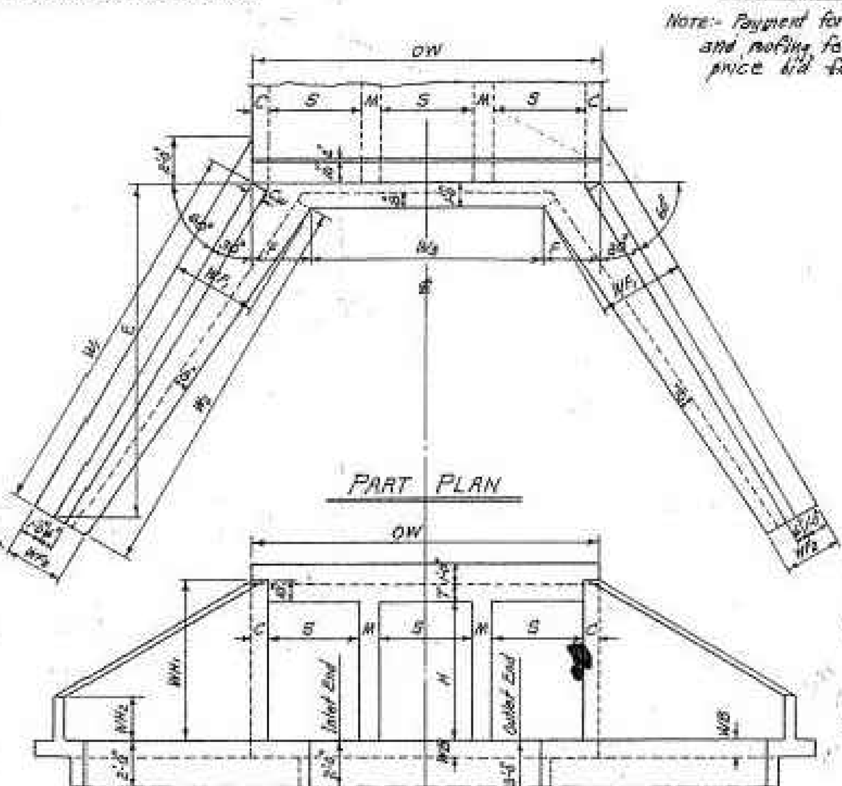
⊗ For reinforcing steel in Headwalls and Aprons, See Details of Standard Barrel Sections for R.C. Box Culverts for the desired Span and Height.



SINGLE BARREL CULVERT

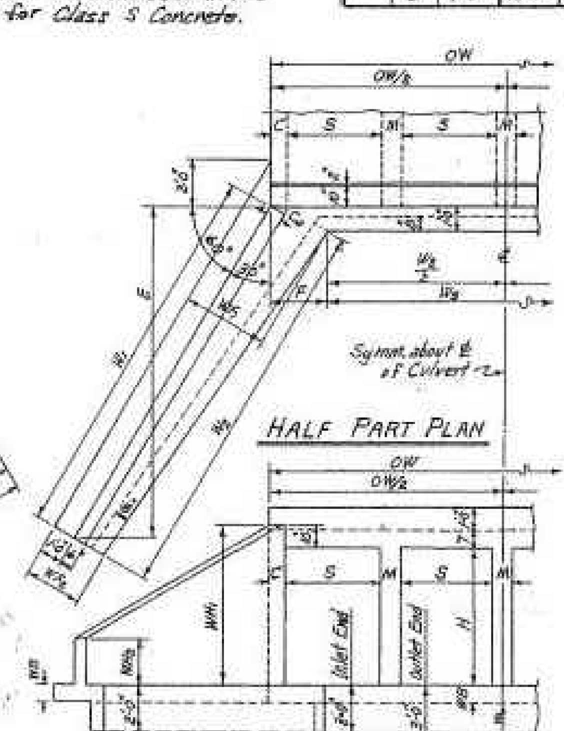


DOUBLE BARREL CULVERT

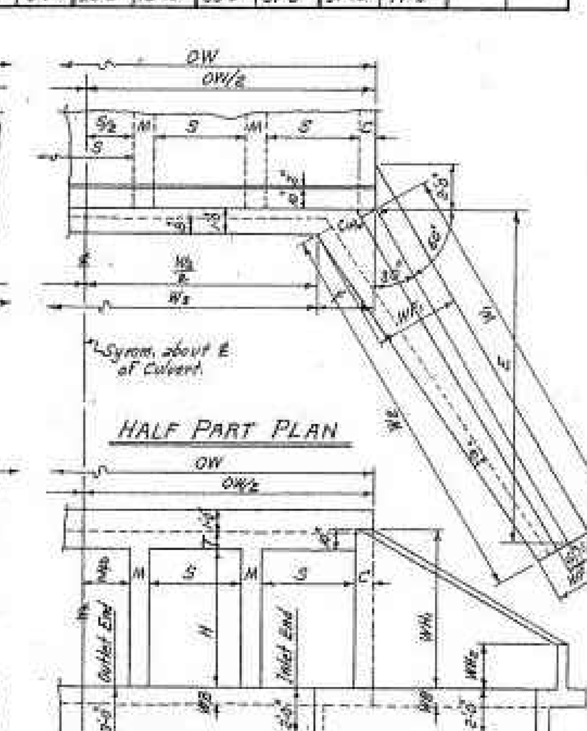


TRIPLE BARREL CULVERT

NOTE:- Plans and Elevations are not to scale.



QUADRUPLE BARREL CULVERT



QUINTUPLE BARREL CULVERT

MEMBRANE:- A membrane waterproofing 12" wide, consisting of three moppings of waterproofing asphalt and two alternate layers of treated cotton fabric shall be applied to the back face of wing to cover the construction joints in wings.

GENERAL NOTES:-

CONCRETE:- All concrete to be Class S, and shall be poured in the dry. All exposed corners to have ¾" chamfers.

REINFORCING STEEL:- Reinforcing steel to be deformed bars of intermediate or hard grade.

CONSTRUCTION JOINTS:- Construction joints between wingwall, footings and sidewalls shall be only where shown on plans.

SPECIFICATIONS:- Arkansas State Highway Commission Standard Specifications for Highway Construction and applicable Special Provisions.

UNIT STRESSES:-
Class S Concrete (n=10) 1200#/□"
Reinforcing Steel 20,000#/□"

NOTE:- This drawing to be used in conjunction with Standard Barrel Sections, Drawing Nos. as listed below.

Singles	Doubles	Triples	Quadruples	Quintuples
R-100X-0	R-200X-0	R-300X-0	R-400X-0	R-500X-0
R-100X-X1	R-200X-X1	R-300X-X1	R-400X-X1	R-500X-X1
R-100X-X2	R-200X-X2	R-300X-X2	R-400X-X2	
	R-200X-X3	R-300X-X3		

CLASS S CONCRETE

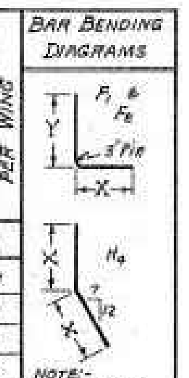
BAR LIST FOR ONE WING - 4 REQUIRED

Clear Height	F1 Bent – In bottom of footing, bent up into back face of wing. One bar of each length.: Size	Spacing	No. Req'd	Lengths Vary Min.	Lengths Vary Max.	X Min.	X Max.	Y Min.	Y Max.	F2 Bent – In bottom of footing, bent up into back face of wing. Alt. with F1 bars.: Size	Spacing	No. Req'd	Length	X	Y
H															
2'	#3	12"	8	1'-6"	3'-10"	0'-8"	1'-0"	0'-11"	2'-11"	—	—	—	—	—	—
3'	#3	12"	10	2'-2"	5'-2"	0'-8"	1'-3"	1'-5"	4'-0"	—	—	—	—	—	—
4'	#3	12"	13	2'-4"	6'-6"	0'-11"	1'-7"	1'-6"	5'-0"	—	—	—	—	—	—
5'	#3	12"	15	2'-11"	7'-10"	1'-1"	1'-11"	1'-11"	6'-0"	#3	12"	4	3'-6"	1'-1"	2'-6"
6'	#4	12"	17	3'-6"	9'-3"	1'-2"	2'-3"	2'-5"	7'-1"	#3	12"	4	4'-6"	1'-4"	3'-3"
7'	#4	12"	20	3'-9"	10'-9"	1'-8"	2'-9"	2'-7"	8'-1"	#4	12"	7	5'-6"	1'-7"	4'-0"
8'	#4	12"	22	4'-4"	12'-3"	1'-5"	3'-2"	3'-0"	9'-2"	#4	12"	10	6'-6"	1'-10"	4'-9"

Clear Height	F5 Straight – Longitudinal in top of wing footing heel: Size	No. Req'd	Length	F6 Straight – Longitudinal in bottom of wing footing toe: Size	No. Req'd	Length	H1 Straight – Horizontal in back face of wing: Size	Spacing	No. Req'd	Length
H										
2'	#3	1	9'-8"	#3	2	8'-6"	#3	12"	1	7'-2"
3'	#3	1	12'-0"	#3	2	11'-0"	#3	12"	1	9'-6"
4'	#3	1	14'-4"	#3	3	13'-6"	#3	12"	1	11'-10"
5'	#3	1	16'-8"	#3	3	16'-0"	#3	12"	2	14'-2"
6'	#3	1	19'-0"	#3	3	18'-6"	#3	12"	2	16'-6"
7'	#4	1	21'-4"	#4	4	21'-0"	#4	12"	2	18'-9"
8'	#4	1	23'-8"	#4	4	23'-9"	#4	12"	3	21'-1"

Clear Height	H2 Straight – Horizontal in back face of wing. One bar of each length.: Size	Spacing	No. Req'd	Lengths Vary Max.	Lengths Vary Min.	H3 Straight – In back face of wing at top-on slope: Size	No. Req'd	Length	H4 Bent – Dowels thru construction joint at headwall: Size	Spacing	No. Req'd	Length	X	Quantity Reinforcing Steel per Wing Lb.
H														
2'	#3	12"	1	—	4'-6"	#3	1	7'-4"	#3	12"	2	2'-8"	1'-4"	27.0
3'	#3	12"	2	7'-6"	4'-6"	#3	1	9'-9"	#3	12"	3	2'-8"	1'-4"	41.1
4'	#3	12"	3	10'-11"	4'-6"	#3	1	12'-2"	#3	12"	4	2'-8"	1'-4"	63.7
5'	#3	12"	3	10'-11"	4'-6"	#3	1	14'-7"	#3	12"	5	2'-8"	1'-4"	89.5
6'	#3	12"	4	14'-4"	4'-6"	#3	1	17'-0"	#3	12"	6	2'-8"	1'-4"	145.8
7'	#4	12"	5	17'-9"	4'-6"	#4	1	19'-5"	#4	12"	7	3'-6"	1'-9"	283.7
8'	#4	12"	5	17'-9"	4'-6"	#4	1	21'-10"	#4	12"	8	3'-6"	1'-9"	356.4

BAR BENDING DIAGRAMS



NOTE:- Dimensions are to bar centers.

Designed By- W.C.H. 8-20-62. Checked By- RHS 1-9-63
Drawn By- W.C.H. 12-4-62. Checked By- RHS 1-31-63
Quantities By- W.C.H. 12-19-62. Checked By- RHS Rechecked By- RHS 3-29-63

REVISIONS:- Membrane added. 5-10-66 W.C.H.

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF STANDARD WINGS FOR REINFORCED CONCRETE BOX CULVERTS

4', 5', 6', 7', 8', 9', 10', 11' & 12' SPANS — 3:1 SLOPES
SINGLES, DOUBLES, TRIPLES, QUADRUPLES & QUINTUPLES. — ALL DEPTHS OF COVER FOR H = 8'-0" OR LESS

STANDARD DRAWING NO. W-X003-1

ARKANSAS STATE HIGHWAY COMMISSION STANDARD DRAWINGS AND DETAILS APPEARING ON THIS DRAWING HAVE BEEN REPRODUCED IN THEIR ENTIRELY. ONLY PORTIONS OF THESE STANDARD DRAWINGS AND DETAILS MAY BE APPLICABLE TO THIS PROJECT. MY SEAL IS INTENDED TO AUTHENTICATE I HAVE SELECTED THESE STANDARD DRAWINGS AND DETAILS, OR PORTIONS THEREOF, AS APPLICABLE FOR THIS PROJECT AND I HEREBY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN INDICATED BY THESE STANDARD DRAWINGS AND DETAILS

SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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479.367.3250

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

STORM DETAILS

C10.014PH2

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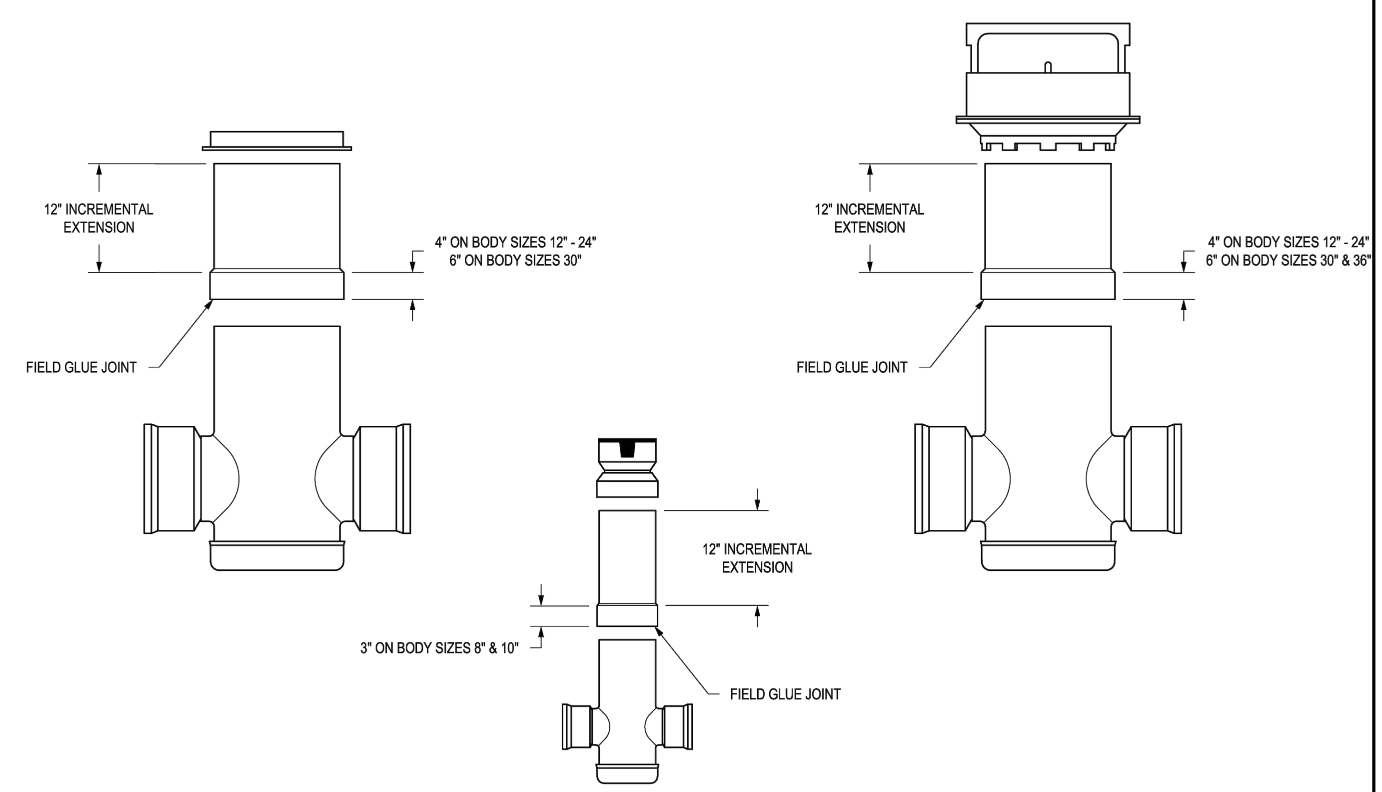
NYLOPLAST RISER EXTENSION: 29 _ _ AG



1. NYLOPLAST RISER JOINTS SHALL BE FIELD INSTALLED USING THE GUIDELINES OUTLINED IN ASTM D2855.
2. PVC CEMENT USED SHALL MEET THE REQUIREMENTS OF ASTM D2564.
3. PVC PRIMER USED SHALL MEET THE REQUIREMENTS OF ASTM F656.

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Nyloplast — 3130 VERONA AVE, BUFORD, GA 30518, PHN (770) 932-2443, FAX (770) 932-2490, www.nyloplast-us.com

TITLE: 8 IN - 36 IN RISER EXTENSION
DWG NO. 7001-110-065 REV E

NOT TO SCALE

1

WHEN ARE INLINE DRAINS USED?

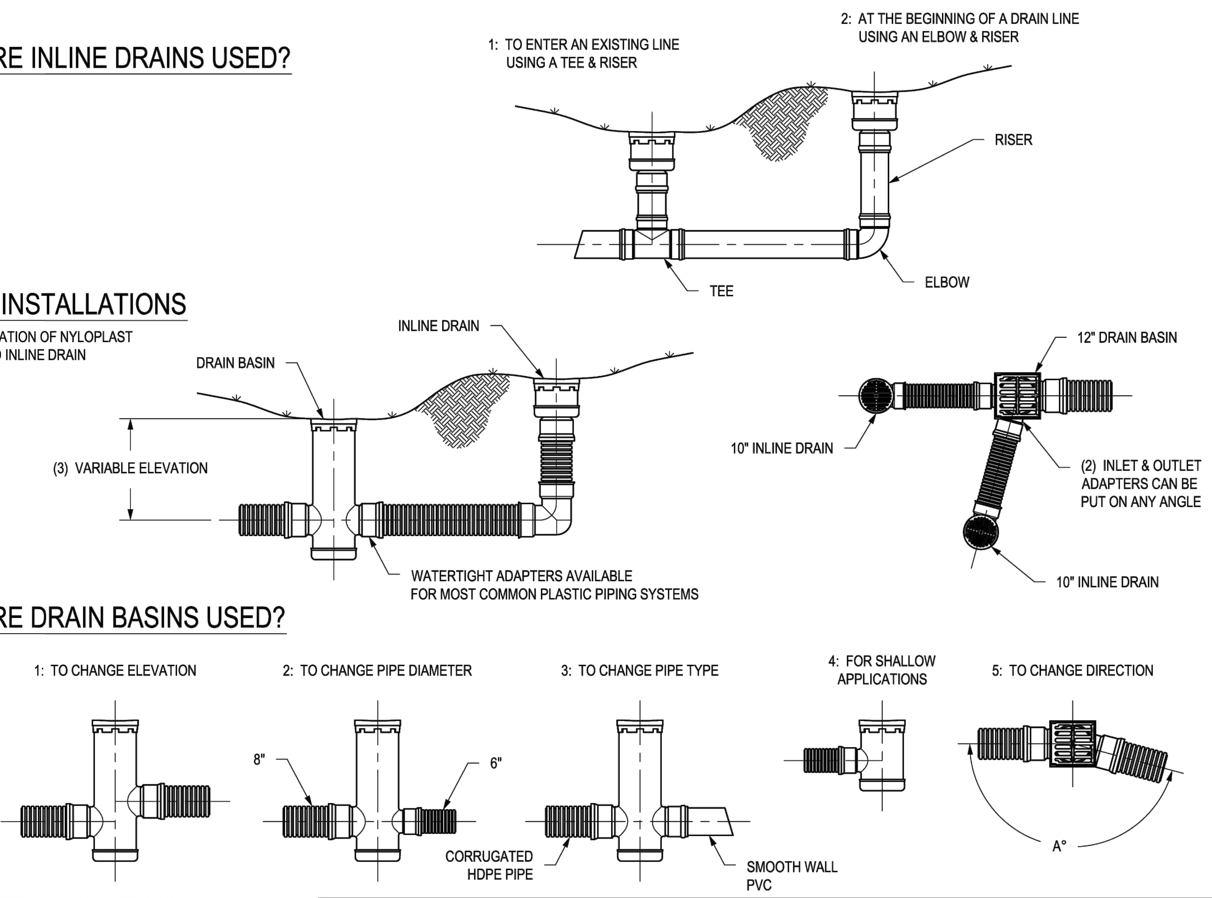
2708AG _ _ X
2710AG _ _ X
2712AG _ _ X
2715AG _ _ X
2718AG _ _ X
2724AG _ _ X
2730AG _ _ X

TYPICAL INSTALLATIONS

TYPICAL INSTALLATION OF NYLOPLAST DRAIN BASIN AND INLINE DRAIN

WHEN ARE DRAIN BASINS USED?

2808AG _ _ X
2810AG _ _ X
2812AG _ _ X
2815AG _ _ X
2818AG _ _ X
2824AG _ _ X
2830AG _ _ X



1 - STRUCTURES & ADAPTERS AVAILABLE IN SIZES 8" - 30"
2 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°, TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS SEE DRAWING NO. 7001-110-065

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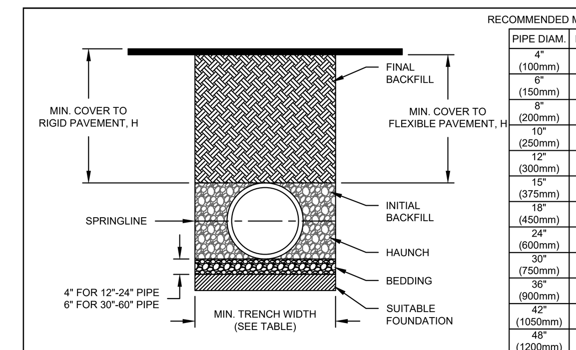
Nyloplast — 3130 VERONA AVE, BUFORD, GA 30518, PHN (770) 932-2443, FAX (770) 932-2490, www.nyloplast-us.com

TITLE: 8 IN - 30 IN TYPICAL INSTALLATION OPTIONS
DWG NO. 7001-110-042 REV D

NOT TO SCALE

2



RECOMMENDED MINIMUM TRENCH WIDTHS

PIPE DIAM.	MIN. TRENCH WIDTH
4" (100mm)	21" (533mm)
6" (150mm)	23" (584mm)
8" (200mm)	26" (660mm)
10" (250mm)	28" (711mm)
12" (300mm)	30" (762mm)
15" (375mm)	34" (864mm)
18" (450mm)	39" (991mm)
24" (600mm)	48" (1219mm)
30" (750mm)	56" (1422mm)
36" (900mm)	64" (1626mm)
42" (1050mm)	72" (1829mm)
48" (1200mm)	80" (2032mm)
60" (1500mm)	96" (2438mm)

MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS**

PIPE DIAM.	SURFACE LIVE LOADING CONDITION: H-25	HEAVY CONSTRUCTION (75T AXLE LAOD) *
12" - 48" (300mm - 1200mm)	12" (305mm)	48" (1219mm)
60" (1500mm)	24" (610mm)	60" (1524mm)

* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER
**SEE BACKFILL REQUIREMENTS IN NOTE 6.

MAXIMUM RECOMMENDED COVER BASED ON VECHICLE LOADING CONDITIONS

PIPE DIAM.	CLASS I COMPACTED	CLASS I DUMPED	CLASS II 95%	CLASS II 90%	CLASS III 95%
4" (100mm)	37 (11.3m)	18 (5.5m)	25 (7.6m)	18 (5.5m)	18 (5.5m)
6" (150mm)	44 (13.4m)	20 (6.1m)	29 (8.8m)	20 (6.1m)	21 (6.4m)
8" (200mm)	32 (9.8m)	15 (4.6m)	22 (6.7m)	15 (4.6m)	16 (4.9m)
10" (250mm)	38 (11.6m)	18 (5.5m)	26 (7.9m)	18 (5.5m)	18 (5.5m)
12" (300mm)	35 (10.7m)	17 (5.2m)	24 (7.3m)	17 (5.2m)	17 (5.2m)
15" (375mm)	38 (11.6m)	17 (5.2m)	25 (7.6m)	17 (5.2m)	18 (5.5m)
18" (450mm)	36 (11.0m)	17 (5.2m)	24 (7.3m)	17 (5.2m)	17 (5.2m)
24" (600mm)	28 (8.5m)	13 (4.0m)	20 (6.1m)	13 (4.0m)	14 (4.3m)
30" (750mm)	28 (8.5m)	13 (4.0m)	20 (6.1m)	13 (4.0m)	14 (4.3m)
36" (900mm)	26 (7.9m)	12 (3.7m)	18 (5.5m)	13 (4.0m)	13 (4.0m)
42" (1050mm)	23 (7.0m)	11 (3.4m)	16 (4.9m)	11 (3.4m)	11 (3.4m)
48" (1200mm)	25 (7.6m)	11 (3.4m)	17 (5.2m)	11 (3.4m)	12 (3.7m)
60" (1500mm)	25 (7.6m)	11 (3.4m)	17 (5.2m)	11 (3.4m)	12 (3.7m)

FILL HEIGHT TABLE GENERATED USING AASHTO SECTION 12, LOAD RESISTANCE FACTOR DESIGN (LRFD) PROCEDURE WITH THE FOLLOWING ASSUMPTIONS:
NO HYDROSTATIC PRESSURE,
UNIT WEIGHT OF SOIL (Ys) = 120 PCF

NOTES:

1. ALL PIPE SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ASTM D2321, "STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY FLOW APPLICATIONS", LATEST ADDITION

2. MEASURES SHOULD BE TAKEN TO PREVENT MIGRATION OF NATIVE FINES INTO BACKFILL MATERIAL, WHEN REQUIRED.

3. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH SUITABLE MATERIAL AS SPECIFIED BY THE ENGINEER. AS AN ALTERNATIVE AND AT THE DISCRETION OF THE DESIGN ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A GEOTEXTILE MATERIAL.

4. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. UNLESS OTHERWISE NOTED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"-24" (100mm-600mm); 6" (150mm) FOR 30"-60" (750mm-1500mm).

5. INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III IN THE PIPE ZONE EXTENDING TO THE CROWN OF PIPE. THE CONTRACTOR SHALL PROVIDE DOCUMENTATION FOR MATERIAL SPECIFICATION TO ENGINEER. MATERIAL SHALL BE INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

6. MINIMUM COVER: MINIMUM COVER, H, IN NON-TRAFFIC APPLICATIONS (GRASS OR LANDSCAPE AREAS) IS 12" FROM THE TOP OF PIPE TO GROUND SURFACE. ADDITIONAL COVER MAY BE REQUIRED TO PREVENT FLOTATION. FOR TRAFFIC APPLICATIONS, MINIMUM COVER, H, IS 12" UP TO 48" DIAMETER PIPE AND 24" OF COVER FOR 60" DIAMETER PIPE, MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TO TOP OF RIGID PAVEMENT. FOR TRAFFIC APPLICATIONS WITH LESS THAN FOUR FEET OF COVER, EMBEDMENT OF THE PIPE SHALL BE USING ONLY A CLASS I OR CLASS II BACKFILL.

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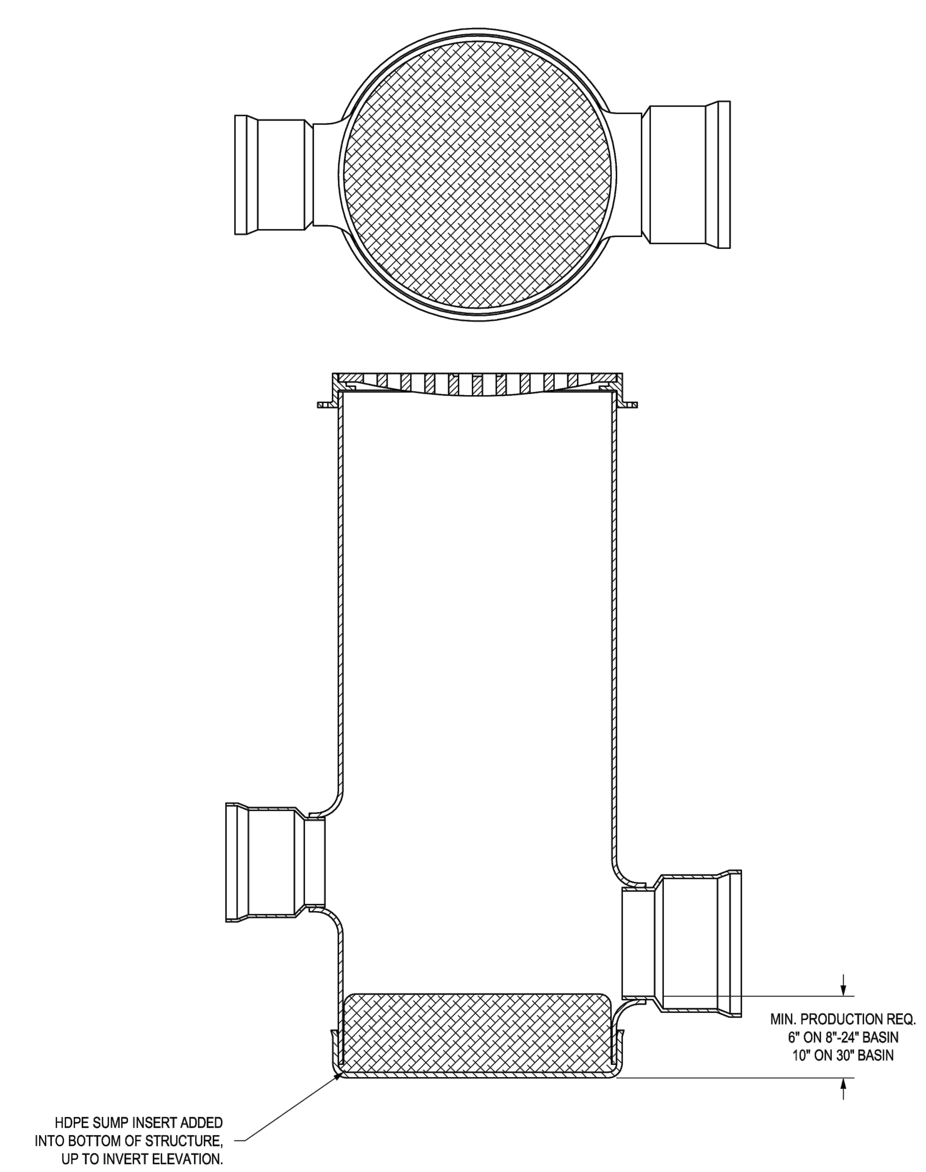
REV.	DESCRIPTION	BY	MM/DD/YY	CHK'D
6	INITIAL BACKFILL	JAB	04/02/20	

TRENCH INSTALLATION DETAIL (N-12 PER AASHTO)
DRAWING NUMBER: STD-101
ADS — ADVANCED DRAINAGE SYSTEMS, INC., 4640 TRUEMAN BLVD, HILLIARD, OHIO 43026
TJR | 12/29/16 | NTS | 1 OF 1

3



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Nyloplast — 3130 VERONA AVE, BUFORD, GA 30518, PHN (770) 932-2443, FAX (770) 932-2490, www.nyloplast-us.com

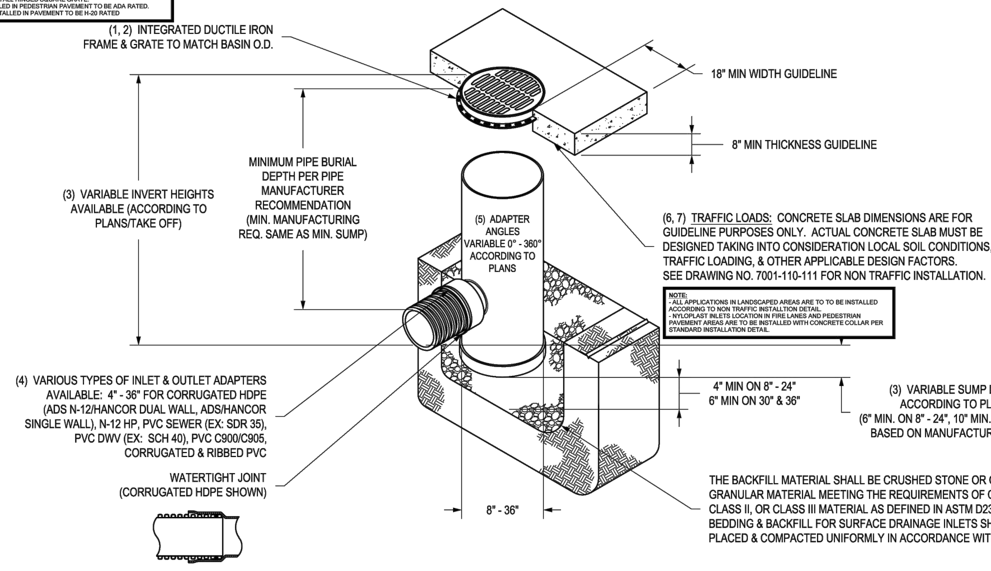
TITLE: 12" - 30" DRAIN BASIN WITH HDPE SUMP INSERT QUICK SPEC INSTALLATION DETAIL
DWG NO. 7001-110-413 REV B

4

MIN/MAX SIZES FOR FRAME AND GRATE OPTIONS (RE: STORM PLANS FOR SIZE):
- COURTYARD AREAS - 15" MAX/12" MIN
- LAWN/MANICURED LANDSCAPED AREAS - 18" MAX/12" MIN
- PLAZA AREAS THAT ARE LANDSCAPED - 18" MAX/12" MIN
- PLAZA AREAS THAT ARE PAVED - 18" MAX/12" MIN
- BIOSWALES - 18" MAX/12" MIN (CIRCULAR/FLAT GRATE)
- PLANTER AREA - 18" MAX/12" MIN (CIRCULAR/FLAT GRATE)
- PARK LAND AREAS/NATURAL LANDSCAPE - 24" MAX/12" MIN

NOTE:
- FOR 12" AND 15" GRATES NOT LOCATED IN PLANTER OR BIOSWALE, CONTRACTOR TO INSTALL HINGED SQUARE GRATE.
- ALL GRATES INSTALLED IN PEDESTRIAN PAVEMENT TO BE ADA RATED.
- ALL GRATES/LID INSTALLED IN PAVEMENT TO BE H-20 RATED

NYLOPLAST DRAIN BASIN WITH STANDARD GRATE



1 - 8" - 30" STANDARD GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2 - 12" - 30" FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05. 8" & 10" STANDARD GRATES FIT DIRECTLY ONTO DRAIN BASINS WITH THE USE OF A PVC BODY TOP. SEE DRAWING NO. 7001-110-045.
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-065.
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER (4" - 36").
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.
6 - 12" - 30" STANDARD GRATES SHALL MEET H-20 LOAD RATING.
7 - 8" & 10" STANDARD GRATES ARE RATED FOR LIGHT DUTY APPLICATIONS ONLY; NO CONCRETE COLLAR NEEDED FOR LIGHT DUTY RATING.

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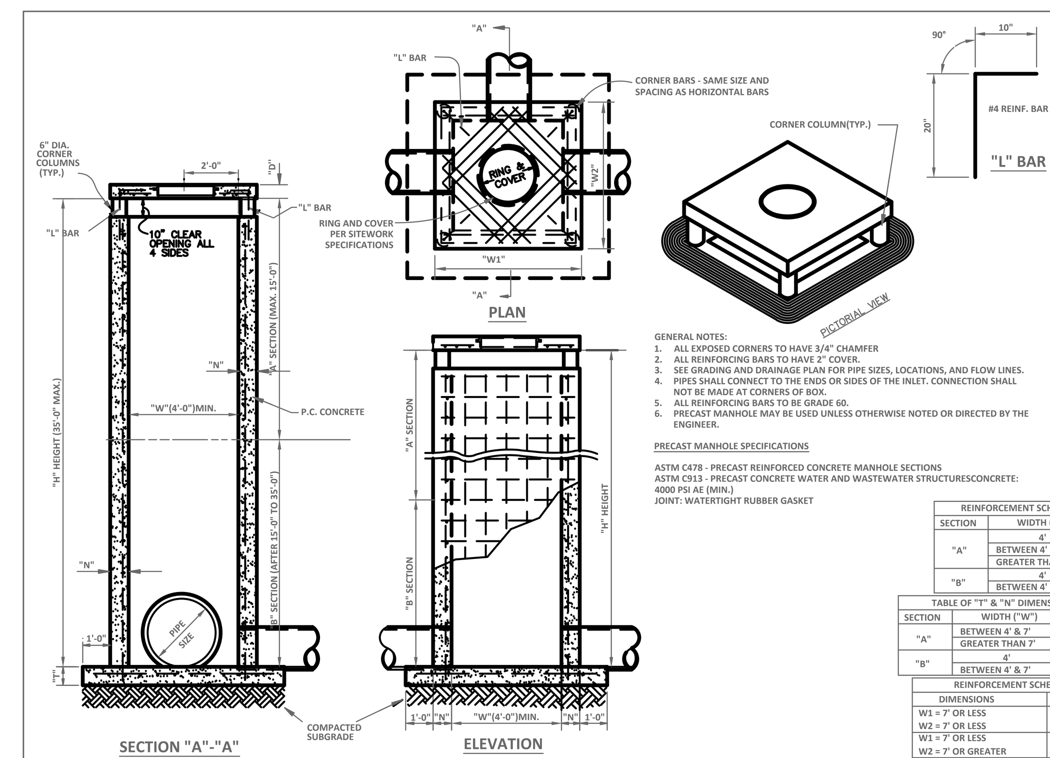
Nyloplast — 3130 VERONA AVE, BUFORD, GA 30518, PHN (770) 932-2443, FAX (770) 932-2490, www.nyloplast-us.com

TITLE: DRAIN BASIN WITH STANDARD GRATE QUICK SPEC INSTALLATION DETAIL
DWG NO. 7001-110-144 REV J

5



GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER
2. ALL REINFORCING BARS TO HAVE 2" COVER.
3. SEE GRADING AND DRAINAGE PLAN FOR PIPE SIZES, LOCATIONS, AND FLOW LINES.
4. PIPES SHALL CONNECT TO THE ENDS OR SIDES OF THE INLET. CONNECTION SHALL NOT BE MADE AT CORNERS OF BOX.
5. ALL REINFORCING BARS TO BE GRADE 60.
6. PRECAST MANHOLE MAY BE USED UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

PRECAST MANHOLE SPECIFICATIONS

ASTM C478 - PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
ASTM C913 - PRECAST CONCRETE WATER AND WASTEWATER STRUCTURESCONCRETE: 4000 PSI AE (MIN.)
JOINT: WATERTIGHT RUBBER GASKET

REINFORCEMENT SCHEDULE, BASE

SECTION	
"A"	#4's @ 6" E.W.
"B"	#6's @ 6" E.W.

TABLE OF 'W' DIMENSIONS

PIPE SIZE	SKEW OF CROSS DRAIN: STRAIGHT	30°	45°
SINGLE			
24"	4'-0"	4'-0"	4'-10"
30"	4'-0"	4'-7"	5'-8"
36"	4'-0"	5'-3"	6'-5"
42"	5'-3"	5'-11"	7'-3"
48"	5'-10"	6'-7"	8'-0"
60"	7'-0"	7'-10"	9'-8"
DOUBLE	FOR "A" SECTION ONLY		
24"	7'-0"	7'-10"	9'-5"
30"	8'-2"	9'-2"	11'-0"
36"	9'-4"	10'-6"	12'-6"
42"	10'-6"	11'-10"	14'-2"
48"	11'-8"	13'-2"	15'-10"

REINFORCEMENT SCHEDULE, WALLS

SECTION	WIDTH ("W")	HOR.	VERT.
"A"	4'	#4's @ 9"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 9"	#4's @ 10"
	GREATER THAN 7'	#5's @ 4 1/2"	#4's @ 10"
"B"	4'	#4's @ 6"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 6"	#4's @ 10"

TABLE OF "T" & "N" DIMENSIONS

SECTION	WIDTH ("W")	"T"	"N"	"D"
"A"	BETWEEN 4' & 7'	6" + PIPE THICKNESS	8"	6"
	GREATER THAN 7'	6" + PIPE THICKNESS	8"	8"
"B"	4'	6" + PIPE THICKNESS	8"	8"
	BETWEEN 4' & 7'	6" + PIPE THICKNESS	10"	8"

REINFORCEMENT SCHEDULE, TOP

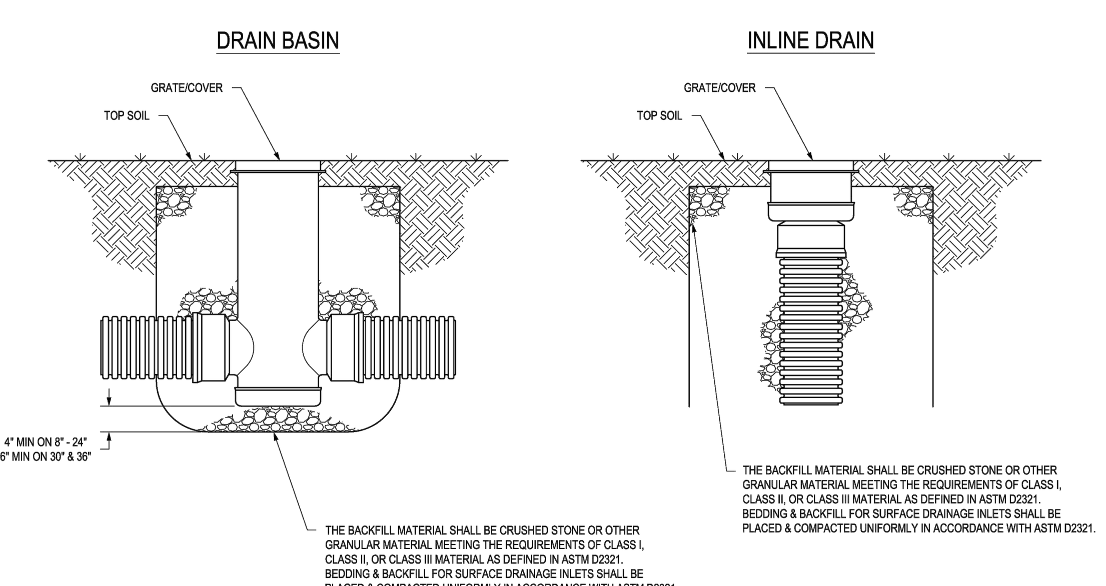
DIMENSIONS	STEEL	SPECIAL PATTERN
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4'S @ 6" E.W.	DIAGONAL @ COVER
W1 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER

AREA INLET
N.T.S.

DTAREAIN | 10/12/09

6

NON TRAFFIC INSTALLATION



THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.

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DRAWN BY CJA | DATE 9-30-99 | REVISED BY NMH | DATE 03-11-16 | DWG SIZE A | MATERIAL | PROJECT NO./NAME | SCALE 1:25 | SHEET 1 OF 1

Nyloplast — 3130 VERONA AVE, BUFORD, GA 30518, PHN (770) 932-2443, FAX (770) 932-2490, www.nyloplast-us.com

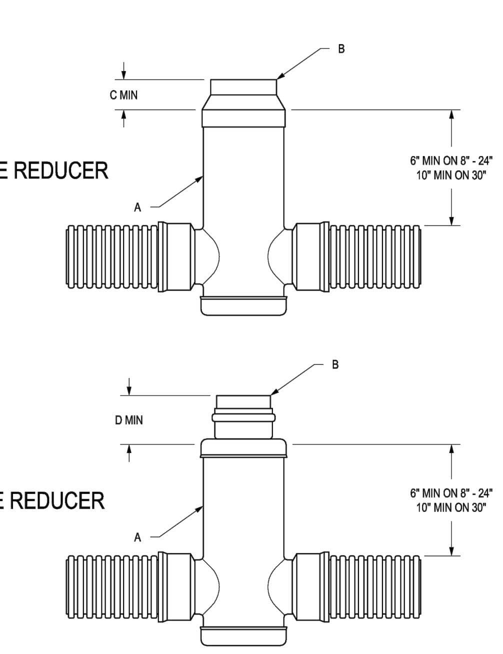
TITLE: DRAIN BASIN & INLINE DRAIN NON TRAFFIC INSTALLATION
DWG NO. 7001-110-111 REV F

7

A	B	C	D
10"	8"		9.00
12"	8"		9.00
12"	10"		10.00
15"	8"		9.00
15"	10"		10.00
15"	12"	6.50	
18"	8"		9.00
18"	10"		10.00
18"	12"		11.50
18"	15"	7.00	
24"	8"		9.00
24"	10"		10.00
24"	12"		11.00
24"	15"		12.00
24"	18"	11.00	
30"	8"		9.00
30"	10"		10.00
30"	12"		11.50
30"	15"		12.00
30"	18"		14.50
30"	24"	13.50	

CONE STYLE REDUCER

CAP STYLE REDUCER



NOTE: DIMENSIONS ARE FOR REFERENCE ONLY ACTUAL DIMENSIONS MAY VARY

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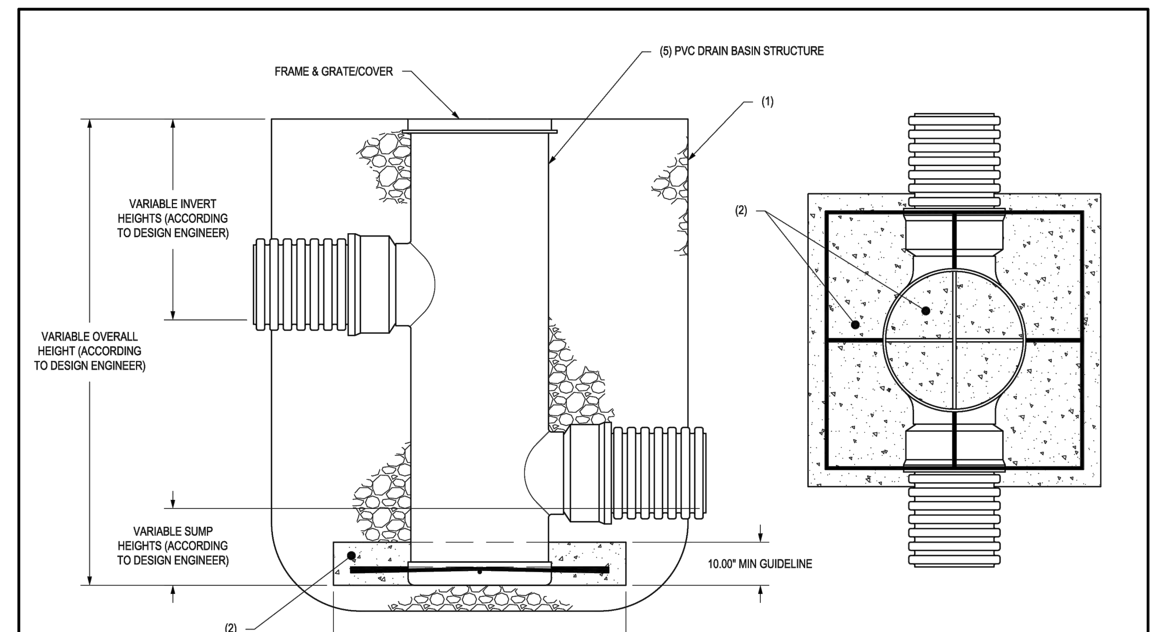
DRAWN BY CJA | DATE 2-6-03 | REVISED BY NMH | DATE 12-05-23 | DWG SIZE A | MATERIAL | PROJECT NO./NAME | SCALE 1:25 | SHEET 1 OF 1

ADS Nyloplast — 3130 VERONA AVE, BUFORD, GA 30518, PHN (770) 932-2443, FAX (770) 932-2490, www.nyloplast-us.com

TITLE: DRAIN BASIN WITH REDUCER OPTIONS
DWG NO. 7001-110-104 REV E

8



1 - THE BACKFILL MATERIAL SHALL BE CRUSHED STONE OR OTHER GRANULAR MATERIAL MEETING THE REQUIREMENTS OF CLASS I, CLASS II, OR CLASS III MATERIAL AS DEFINED IN ASTM D2321. BEDDING & BACKFILL FOR SURFACE DRAINAGE INLETS SHALL BE PLACED & COMPACTED UNIFORMLY IN ACCORDANCE WITH ASTM D2321.
2 - CONCRETE ANTI-FLOATATION FOOTING WITH REBAR REINFORCEMENT (APPROX. 3900 LBS PER CU YD).
3 - ACTUAL FOOTING DESIGN TO BE DETERMINED BY DESIGN ENGINEER.
4 - SEE DRAWING NO. 7001-110-144 FOR COMPLETE DRAIN BASIN DETAILS & SPECIFICATIONS.
5 - IF THE STRUCTURE IS ABOVE GRADE OR WILL HAVE PROLONGED EXPOSURE TO UV RAYS, THE EXPOSED SURFACES SHOULD BE COATED IN A LATEX BASED PAINT OR SIMILAR COATING (PROVIDED BY OTHERS) THAT WILL NOT DEGRADE THE PVC MATERIAL.
6 - THIS DETAIL IS INTENDED FOR HIGH GROUND WATER APPLICATIONS. **NYLOPLAST DOES NOT RECOMMEND THE USE OF THE PVC STRUCTURES IN POND APPLICATIONS.**

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DRAWN BY CJA | DATE 10-22-04 | REVISED BY NMH | DATE 03-16-16 | DWG SIZE A | MATERIAL | PROJECT NO./NAME | SCALE 1:25 | SHEET 1 OF 1

Nyloplast — 3130 VERONA AVE, BUFORD, GA 30518, PHN (770) 932-2443, FAX (770) 932-2490, www.nyloplast-us.com

TITLE: DRAIN BASIN ANTI-FLOATATION INSTALLATION
DWG NO. 7001-110-142 REV H

9

NYLOPLAST STANDARD DRAWINGS AND DETAILS APPEARING ON THIS DRAWING HAVE BEEN REPRODUCED IN THEIR ENTIRELY. ONLY PORTIONS OF THESE STANDARD DRAWINGS AND DETAILS MAY BE APPLICABLE TO THIS PROJECT. MY SEAL IS INTENDED TO AUTHENTICATE I HAVE SELECTED THESE STANDARD DRAWINGS AND DETAILS, OR PORTIONS THEREOF, AS APPLICABLE FOR THIS PROJECT AND I HEREBY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN INDICATED BY THESE STANDARD DRAWINGS AND DETAILS

SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

walter p moore
Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712
479.367.3250

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HENDERSON ENGINEERS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO. M08-25007-00 | DESIGNED BY | REVIEWED BY | DRAWN BY
ORIGINAL ISSUE | DATE

STORM DETAILS

C10.015PH2

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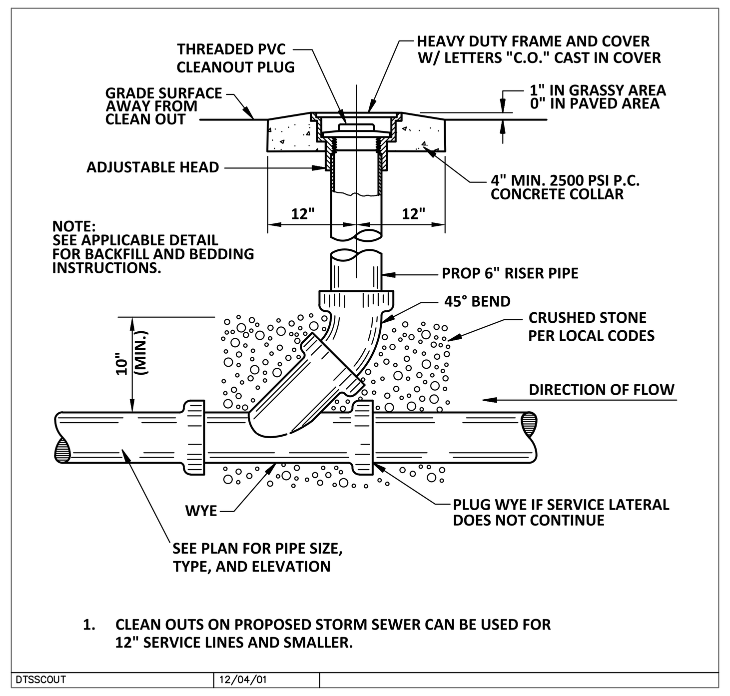
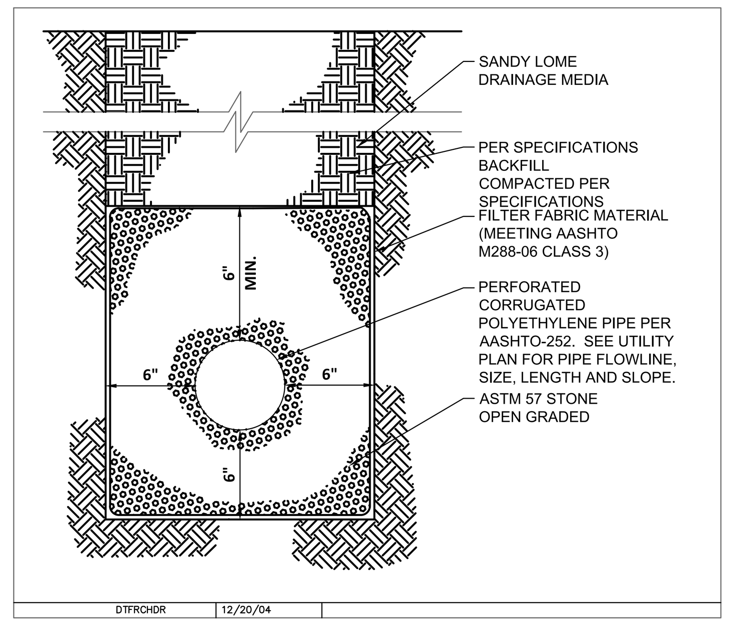
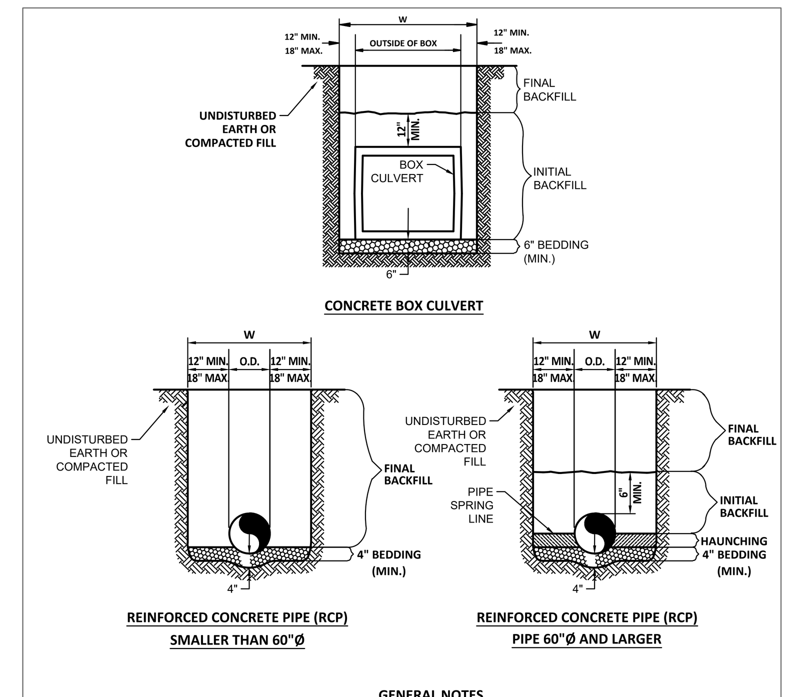


1 STORM SEWER CLEAN OUT
NTS



2 FRENCH DRAIN
NTS

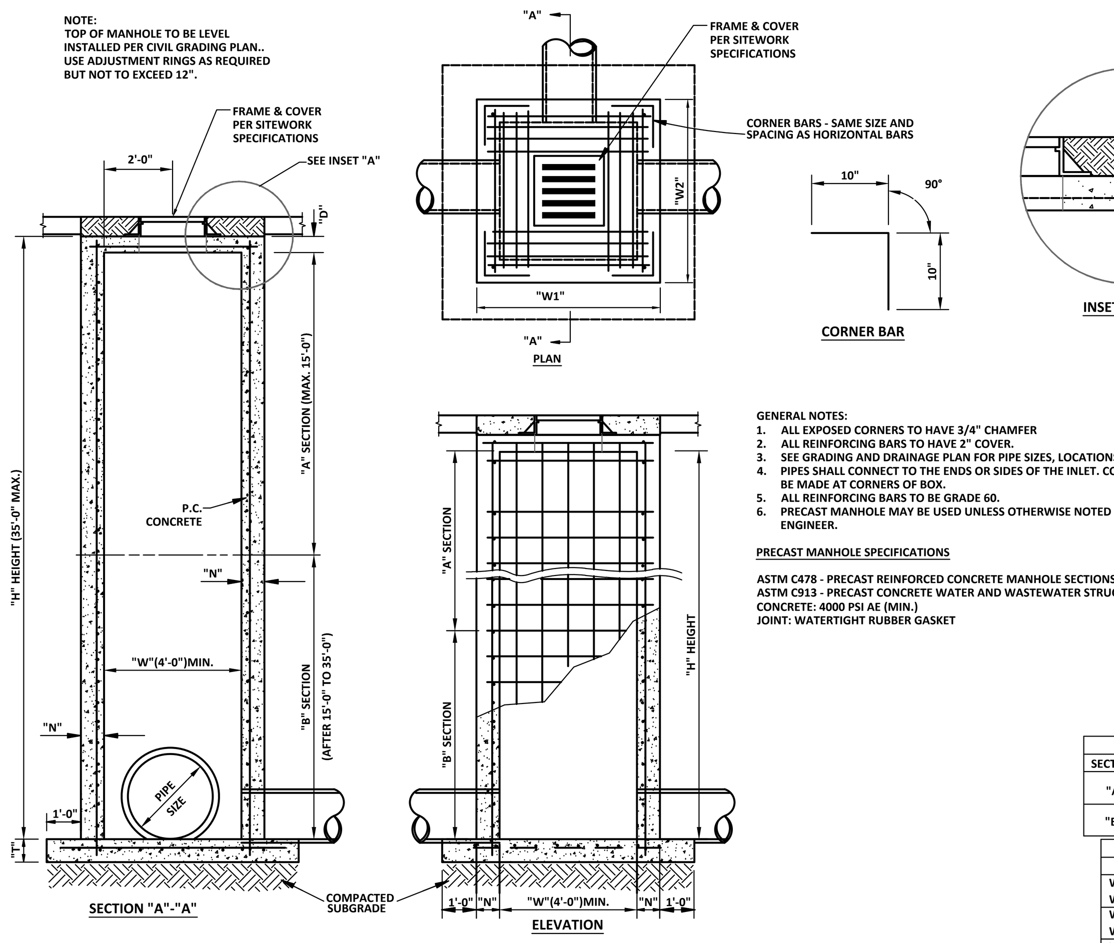


GENERAL NOTES

1. BEDDING SHALL BE CLASS I-A WORKED BY HAND. IF GROUNDWATER IS ANTICIPATED, THEN BEDDING SHALL BE CLASS I-B COMPACTED TO 85% STANDARD PROCTOR.
2. HAUNCHING SHALL BE WORKED AROUND THE PIPE BY HAND TO ELIMINATE VOIDS AND SHALL BE CLASS I-A OR CLASS I-B OR CLASS II COMPACTED TO 85% PROCTOR.
3. INITIAL BACKFILL SHALL BE CLASS I-A WORKED BY HAND, OR CLASS I-B OR CLASS II COMPACTED TO 85% STANDARD PROCTOR.
4. INITIAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS III COMPACTED TO 90% STANDARD PROCTOR.
5. FINAL BACKFILL SHALL BE CLASS I, II, OR III COMPACTED AS NOTED IN NOTES 3. AND 4.
6. FINAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS IV-A COMPACTED TO 95% STANDARD PROCTOR.
7. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D 2321-LATEST EDITION.
8. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LOOSE LIFTS IN ACCORDANCE WITH ASTM D 698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED NEAR OPTIMUM MOISTURE CONTENT.
9. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS AND ROCKS LARGER THAN 3".
10. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES. (SEE SPECIFICATIONS)

3 STORM SEWER TRENCH AND BEDDING
NTS

NOTE:
TOP OF MANHOLE TO BE LEVEL INSTALLED PER CIVIL GRADING PLAN.. USE ADJUSTMENT RINGS AS REQUIRED BUT NOT TO EXCEED 12".



IF STRUCTURE IS LOCATED IN PAVEMENT, CONTRACTOR TO PROVIDE 1-FT MIN CONCRETE COLLAR AROUND MANHOLE RIM PER DETAIL 11/SHEET C03.007M. IF MANHOLE IS NOT LOCATED IN PAVEMENT, CONTRACTOR TO INSTALL TOP SOIL FROM TOP OF STRUCTURE TO TOP OF FRAME PER LANDSCAPE SPECIFICATIONS WITH NO CONCRETE COLLAR. RE: GRADING FOR PAVING/FG GRADING.

"P" = PAVEMENT THICKNESS
"F" = FRAME HEIGHT

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER
2. ALL REINFORCING BARS TO HAVE 2" COVER.
3. SEE GRADING AND DRAINAGE PLAN FOR PIPE SIZES, LOCATIONS, AND FLOW LINES.
4. PIPES SHALL CONNECT TO THE ENDS OR SIDES OF THE INLET. CONNECTION SHALL NOT BE MADE AT CORNERS OF BOX.
5. ALL REINFORCING BARS TO BE GRADE 60.
6. PRECAST MANHOLE MAY BE USED UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

PRECAST MANHOLE SPECIFICATIONS

ASTM C478 - PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
ASTM C913 - PRECAST CONCRETE WATER AND WASTEWATER STRUCTURES
CONCRETE: 4000 PSI AE (MIN.)
JOINT: WATERTIGHT RUBBER GASKET

REINFORCEMENT SCHEDULE, BASE

SECTION	
"A"	#4's @ 6" E.W.
"B"	#6's @ 6" E.W.

TABLE OF 'W' DIMENSIONS

PIPE SIZE	SKEW OF CROSS DRAIN		
SINGLE	STRAIGHT	30°	45°
24"	4'-0"	4'-0"	4'-10"
30"	4'-0"	4'-7"	5'-8"
36"	4'-0"	5'-3"	6'-5"
42"	5'-3"	5'-11"	7'-3"
48"	5'-10"	6'-7"	8'-0"
60"	7'-0"	7'-10"	9'-8"
DOUBLE	FOR "A" SECTION ONLY		
24"	7'-0"	7'-10"	9'-5"
30"	8'-2"	9'-2"	11'-0"
36"	9'-4"	10'-6"	12'-6"
42"	10'-6"	11'-10"	14'-2"
48"	11'-8"	13'-2"	15'-10"

REINFORCEMENT SCHEDULE, WALLS

SECTION	WIDTH ("W")	HOR.	VERT.
"A"	4'	#4's @ 9"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 9"	#4's @ 10"
	GREATER THAN 7'	#5's @ 4 1/2"	#4's @ 10"
"B"	4'	#4's @ 6"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 6"	#4's @ 10"

TABLE OF "T" & "N" DIMENSIONS

SECTION	WIDTH ("W")	"T"	"N"	"D"
"A"	BETWEEN 4' & 7'	6" + PIPE THICKNESS	8"	6"
	GREATER THAN 7'	6" + PIPE THICKNESS	8"	8"
"B"	4'	6" + PIPE THICKNESS	8"	8"
	BETWEEN 4' & 7'	6" + PIPE THICKNESS	10"	8"

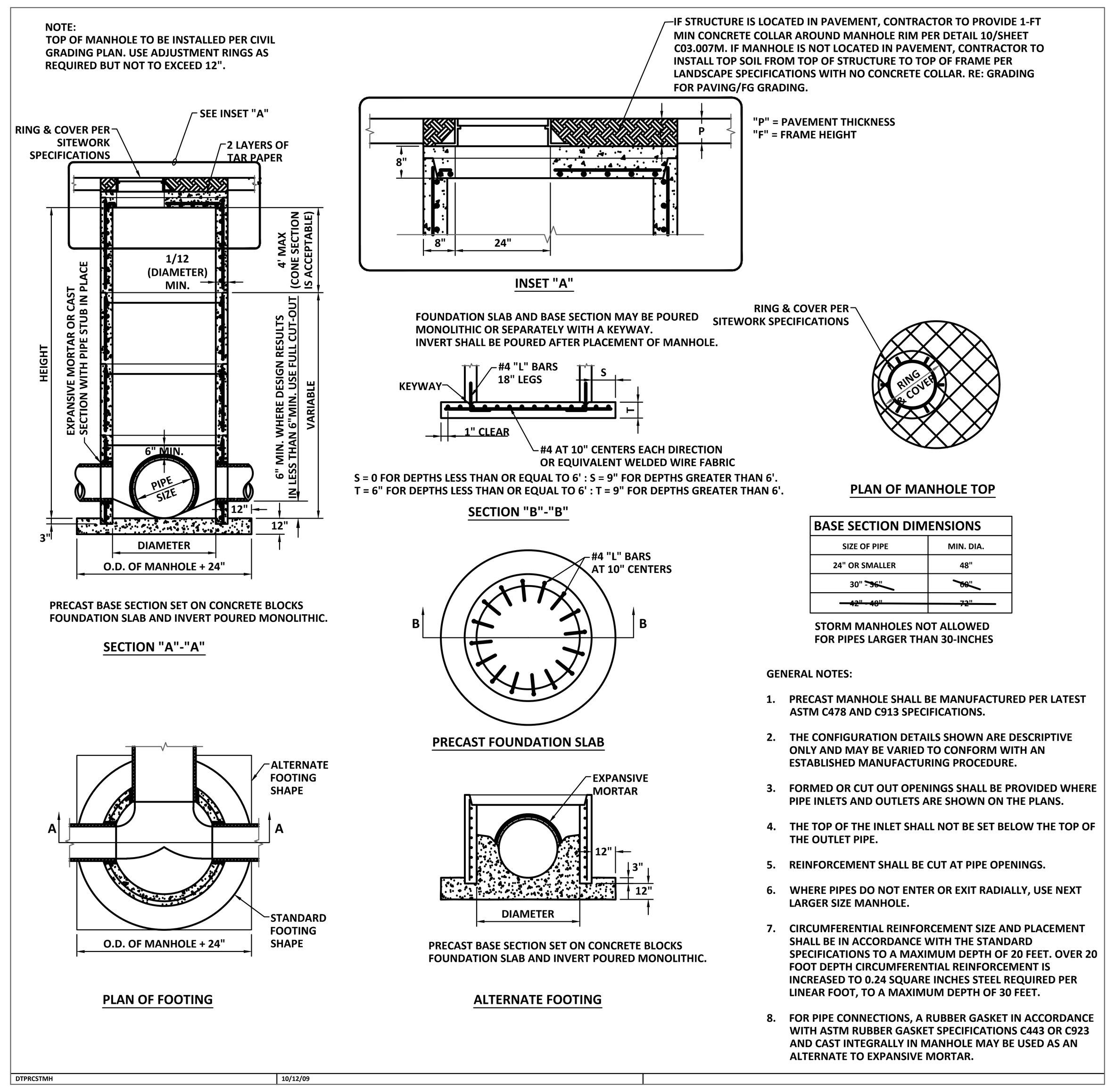
REINFORCEMENT SCHEDULE, TOP

DIMENSIONS	STEEL	SPECIAL PATTERN
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4'S @ 6" E.W.	DIAGONAL @ COVER
W1 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER

4 GRATE INLET
NTS

NOTE:
TOP OF MANHOLE TO BE INSTALLED PER CIVIL GRADING PLAN. USE ADJUSTMENT RINGS AS REQUIRED BUT NOT TO EXCEED 12".

IF STRUCTURE IS LOCATED IN PAVEMENT, CONTRACTOR TO PROVIDE 1-FT MIN CONCRETE COLLAR AROUND MANHOLE RIM PER DETAIL 10/SHEET C03.007M. IF MANHOLE IS NOT LOCATED IN PAVEMENT, CONTRACTOR TO INSTALL TOP SOIL FROM TOP OF STRUCTURE TO TOP OF FRAME PER LANDSCAPE SPECIFICATIONS WITH NO CONCRETE COLLAR. RE: GRADING FOR PAVING/FG GRADING.



BASE SECTION DIMENSIONS

SIZE OF PIPE	MIN. DIA.
24" OR SMALLER	48"
30" - 36"	60"
42" - 48"	72"

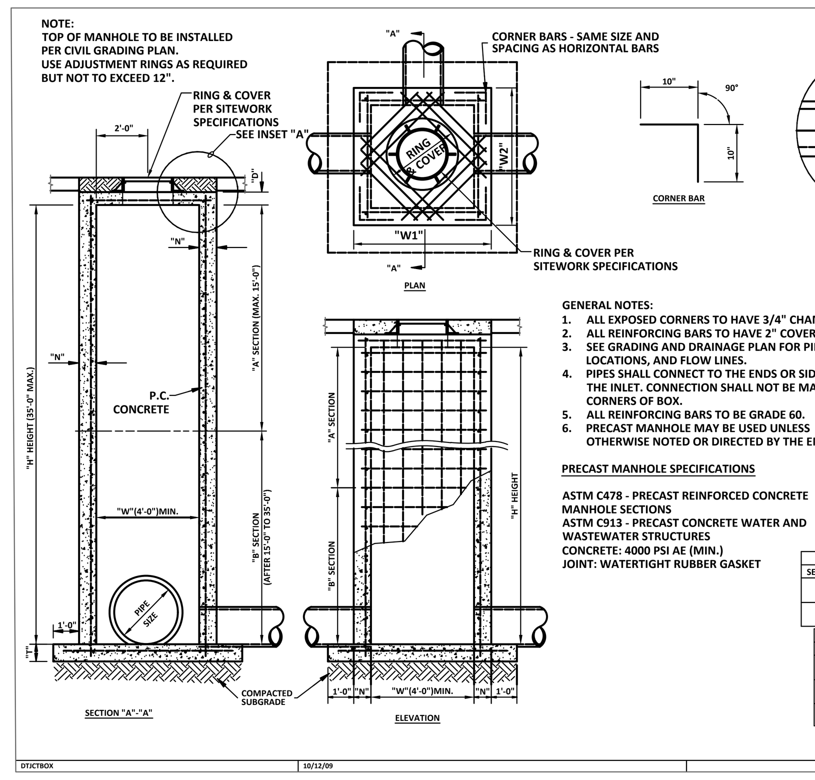
STORM MANHOLES NOT ALLOWED FOR PIPES LARGER THAN 30-INCHES

GENERAL NOTES:

1. PRECAST MANHOLE SHALL BE MANUFACTURED PER LATEST ASTM C478 AND C913 SPECIFICATIONS.
2. THE CONFIGURATION DETAILS SHOWN ARE DESCRIPTIVE ONLY AND MAY BE VARIED TO CONFORM WITH AN ESTABLISHED MANUFACTURING PROCEDURE.
3. FORMED OR CUT OUT OPENINGS SHALL BE PROVIDED WHERE PIPE INLETS AND OUTLETS ARE SHOWN ON THE PLANS.
4. THE TOP OF THE INLET SHALL NOT BE SET BELOW THE TOP OF THE OUTLET PIPE.
5. REINFORCEMENT SHALL BE CUT AT PIPE OPENINGS.
6. WHERE PIPES DO NOT ENTER OR EXIT RADIALLY, USE NEXT LARGER SIZE MANHOLE.
7. CIRCUMFERENTIAL REINFORCEMENT SIZE AND PLACEMENT SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS TO A MAXIMUM DEPTH OF 20 FEET. OVER 20 FOOT DEPTH CIRCUMFERENTIAL REINFORCEMENT IS INCREASED TO 0.24 SQUARE INCHES STEEL REQUIRED PER LINEAR FOOT, TO A MAXIMUM DEPTH OF 30 FEET.
8. FOR PIPE CONNECTIONS, A RUBBER GASKET IN ACCORDANCE WITH ASTM RUBBER GASKET SPECIFICATIONS C443 OR C923 AND CAST INTEGRALLY IN MANHOLE MAY BE USED AS AN ALTERNATE TO EXPANSIVE MORTAR.

5 PRECAST MANHOLE
NTS

NOTE:
TOP OF MANHOLE TO BE INSTALLED PER CIVIL GRADING PLAN. USE ADJUSTMENT RINGS AS REQUIRED BUT NOT TO EXCEED 12".



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"P" = PAVEMENT THICKNESS
"F" = FRAME HEIGHT

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER
2. ALL REINFORCING BARS TO HAVE 2" COVER.
3. SEE GRADING AND DRAINAGE PLAN FOR PIPE SIZES, LOCATIONS, AND FLOW LINES.
4. PIPES SHALL CONNECT TO THE ENDS OR SIDES OF THE INLET. CONNECTION SHALL NOT BE MADE AT CORNERS OF BOX.
5. ALL REINFORCING BARS TO BE GRADE 60.
6. PRECAST MANHOLE MAY BE USED UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

PRECAST MANHOLE SPECIFICATIONS

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CONCRETE: 4000 PSI AE (MIN.)
JOINT: WATERTIGHT RUBBER GASKET

REINFORCEMENT SCHEDULE, BASE

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"A"	#4's @ 6" E.W.
"B"	#6's @ 6" E.W.

TABLE OF 'W' DIMENSIONS

PIPE SIZE	SKEW OF CROSS DRAIN		
SINGLE	STRAIGHT	30°	45°
24"	4'-0"	4'-0"	4'-10"
30"	4'-0"	4'-7"	5'-8"
36"	4'-0"	5'-3"	6'-5"
42"	5'-3"	5'-11"	7'-3"
48"	5'-10"	6'-7"	8'-0"
60"	7'-0"	7'-10"	9'-8"
DOUBLE	FOR "A" SECTION ONLY		
24"	7'-0"	7'-10"	9'-5"
30"	8'-2"	9'-2"	11'-0"
36"	9'-4"	10'-6"	12'-6"
42"	10'-6"	11'-10"	14'-2"
48"	11'-8"	13'-2"	15'-10"

REINFORCEMENT SCHEDULE, WALLS

SECTION	WIDTH ("W")	HOR.	VERT.
"A"	4'	#4's @ 9"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 9"	#4's @ 10"
	GREATER THAN 7'	#5's @ 4 1/2"	#4's @ 10"
"B"	4'	#4's @ 6"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 6"	#4's @ 10"

TABLE OF "T" & "N" DIMENSIONS

SECTION	WIDTH ("W")	"T"	"N"	"D"
"A"	BETWEEN 4' & 7'	6" + PIPE THICKNESS	8"	6"
	GREATER THAN 7'	6" + PIPE THICKNESS	8"	8"
"B"	4'	6" + PIPE THICKNESS	8"	8"
	BETWEEN 4' & 7'	6" + PIPE THICKNESS	10"	8"

REINFORCEMENT SCHEDULE, TOP

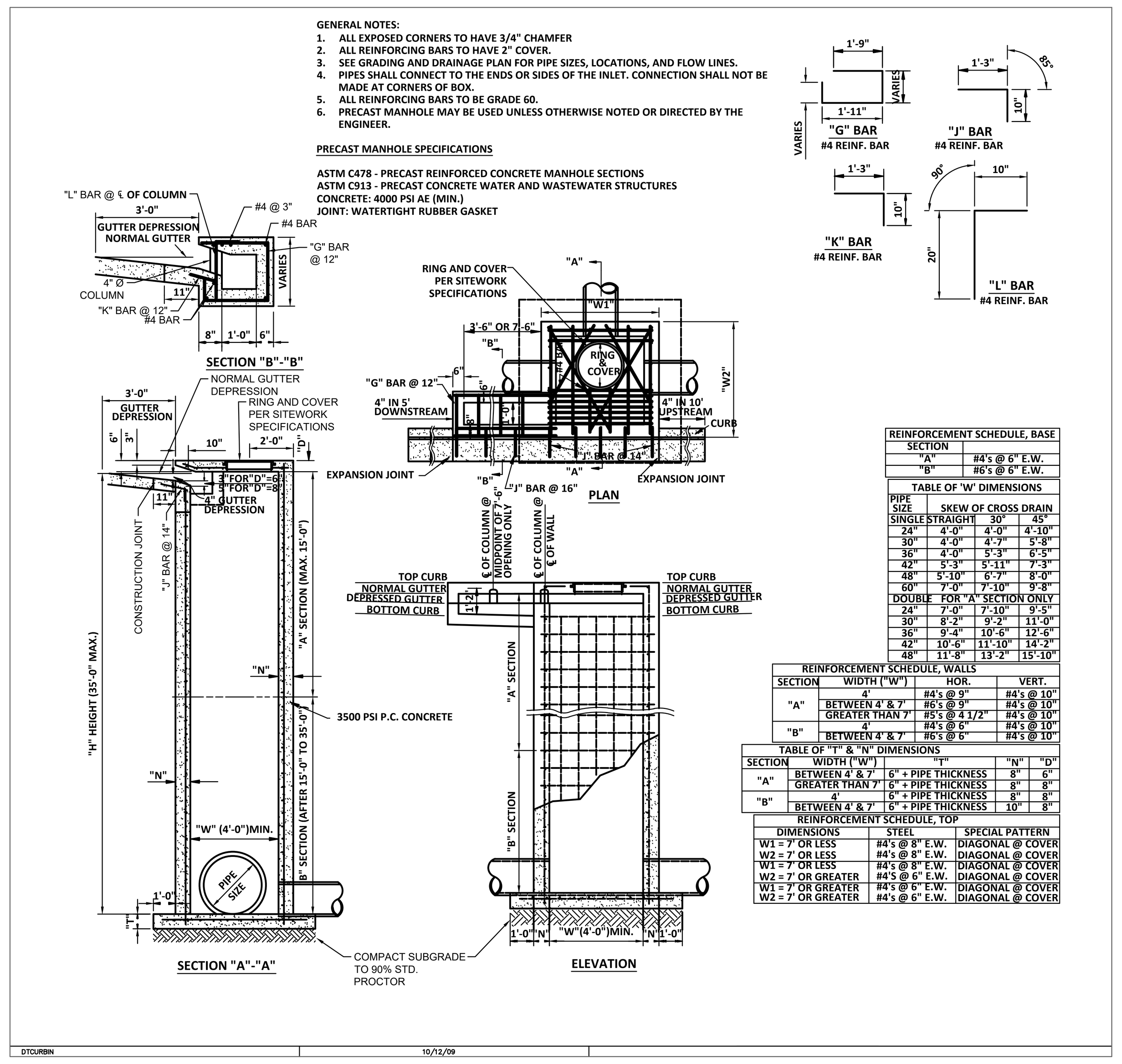
DIMENSIONS	STEEL	SPECIAL PATTERN
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4'S @ 6" E.W.	DIAGONAL @ COVER
W1 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER

6 JUNCTION BOX
NTS

GENERAL NOTES:
1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER
2. ALL REINFORCING BARS TO HAVE 2" COVER.
3. SEE GRADING AND DRAINAGE PLAN FOR PIPE SIZES, LOCATIONS, AND FLOW LINES.
4. PIPES SHALL CONNECT TO THE ENDS OR SIDES OF THE INLET. CONNECTION SHALL NOT BE MADE AT CORNERS OF BOX.
5. ALL REINFORCING BARS TO BE GRADE 60.
6. PRECAST MANHOLE MAY BE USED UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

PRECAST MANHOLE SPECIFICATIONS

ASTM C478 - PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
ASTM C913 - PRECAST CONCRETE WATER AND WASTEWATER STRUCTURES
CONCRETE: 4000 PSI AE (MIN.)
JOINT: WATERTIGHT RUBBER GASKET



REINFORCEMENT SCHEDULE, BASE

SECTION	
"A"	#4's @ 6" E.W.
"B"	#6's @ 6" E.W.

TABLE OF 'W' DIMENSIONS

PIPE SIZE	SKEW OF CROSS DRAIN		
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30"	4'-0"	4'-7"	5'-8"
36"	4'-0"	5'-3"	6'-5"
42"	5'-3"	5'-11"	7'-3"
48"	5'-10"	6'-7"	8'-0"
60"	7'-0"	7'-10"	9'-8"
DOUBLE	FOR "A" SECTION ONLY		
24"	7'-0"	7'-10"	9'-5"
30"	8'-2"	9'-2"	11'-0"
36"	9'-4"	10'-6"	12'-6"
42"	10'-6"	11'-10"	14'-2"
48"	11'-8"	13'-2"	15'-10"

REINFORCEMENT SCHEDULE, WALLS

SECTION	WIDTH ("W")	HOR.	VERT.
"A"	4'	#4's @ 9"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 9"	#4's @ 10"
	GREATER THAN 7'	#5's @ 4 1/2"	#4's @ 10"
"B"	4'	#4's @ 6"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 6"	#4's @ 10"

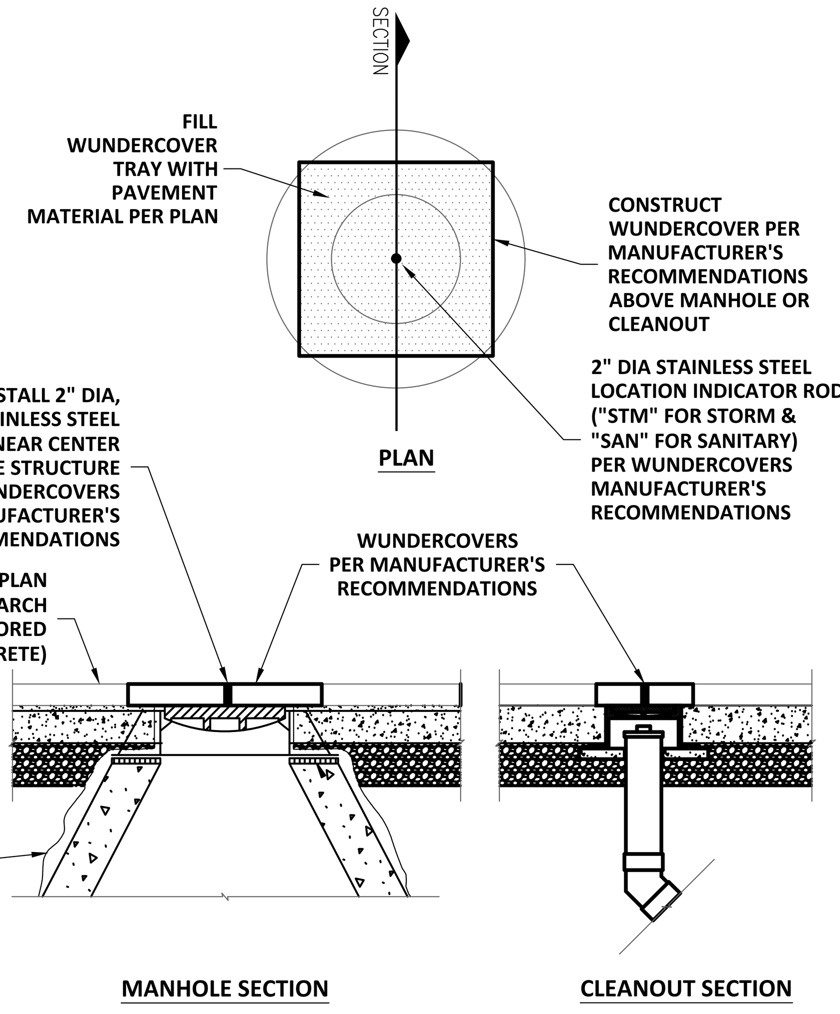
TABLE OF "T" & "N" DIMENSIONS

SECTION	WIDTH ("W")	"T"	"N"	"D"
"A"	BETWEEN 4' & 7'	6" + PIPE THICKNESS	8"	6"
	GREATER THAN 7'	6" + PIPE THICKNESS	8"	8"
"B"	4'	6" + PIPE THICKNESS	8"	8"
	BETWEEN 4' & 7'	6" + PIPE THICKNESS	10"	8"

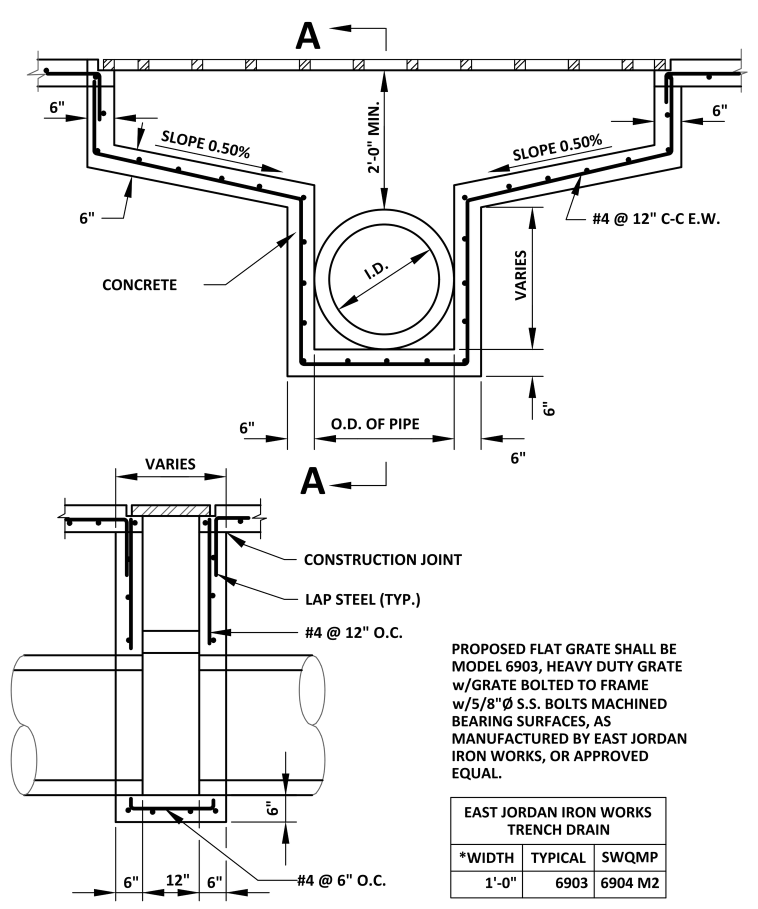
REINFORCEMENT SCHEDULE, TOP

DIMENSIONS	STEEL	SPECIAL PATTERN
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4'S @ 6" E.W.	DIAGONAL @ COVER
W1 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER

7 MODIFIED CURB INLET
NTS



8 WUNDER COVER
NTS



* COORDINATE WIDTH PER DESIGN, AND SPEC CORRECT GRATE PER TABLE BELOW

PROPOSED FLAT GRATE SHALL BE MODEL 6903, HEAVY DUTY GRATE w/GRATE BOLTED TO FRAME w/5/8"Ø S.S. BOLTS MACHINED BEARING SURFACES, AS MANUFACTURED BY EAST JORDAN IRON WORKS, OR APPROVED EQUAL.

EAST JORDAN IRON WORKS TRENCH DRAIN

*WIDTH	TYPICAL	SWQMP
1'-0"	6903	6904 M2

9 TRENCH DRAIN (LOADING DOCK ONLY)
NTS

walter p moore
Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712
479.367.3250

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Geotechnical, Environmental, and Materials Engineers
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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
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STORM DETAILS

C10.016PH2

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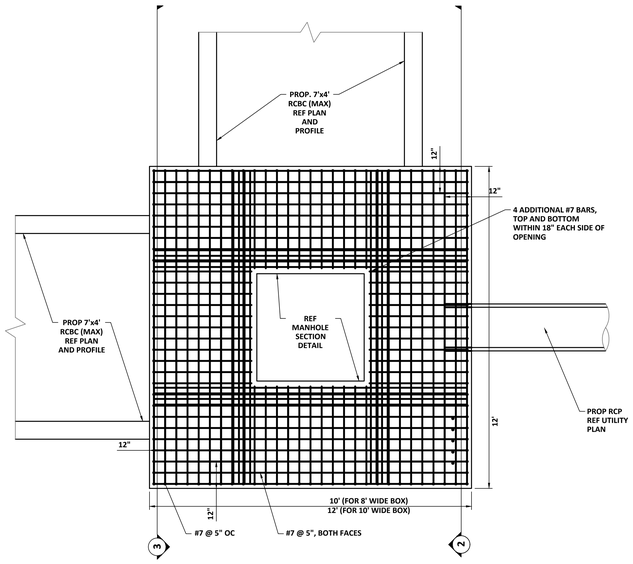
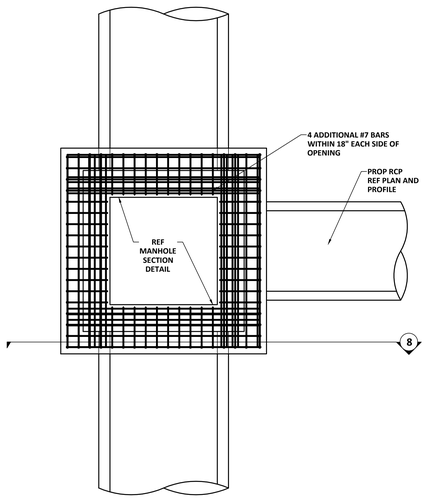
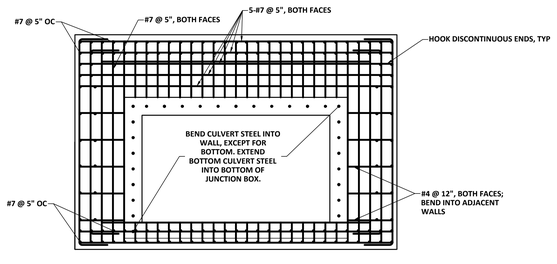
24-Jul-2026 - 7:16 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_WPM_C-MTP DT_M082500700.dwg



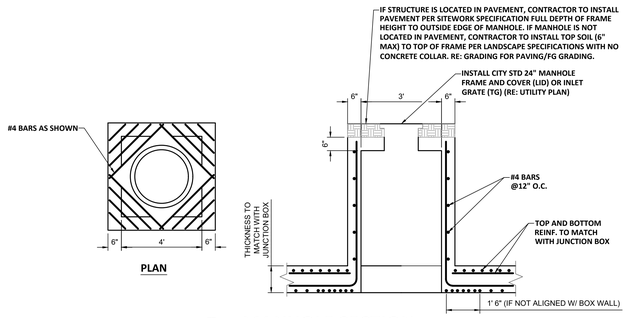
1 8' & 10' WIDE JUNCTION BOX PLAN
1/2" = 1'-0"



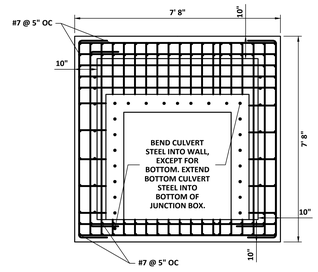
2 4' & 6' WIDE JUNCTION BOX PLAN
1/2" = 1'-0"



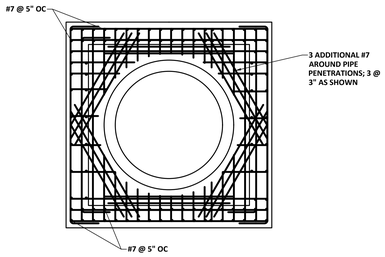
3 6' & 7' WIDE BOX CONNECTION
1/2" = 1'-0"



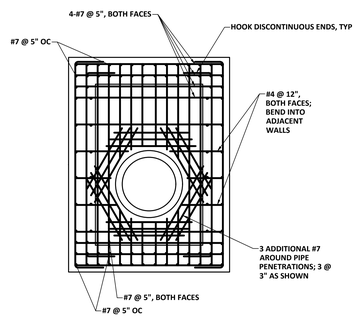
4 MANHOLE SECTION
1/2" = 1'-0"



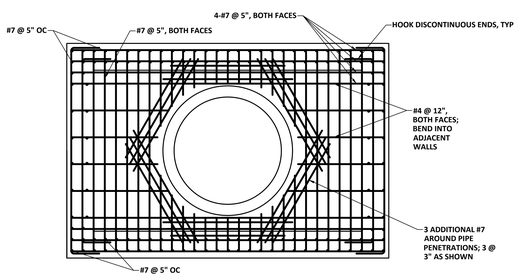
5 4' WIDE BOX CONNECTION
1/2" = 1'-0"



6 6' WIDE PIPE PENETRATION
1/2" = 1'-0"



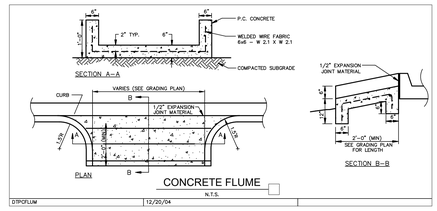
7 4' WIDE PIPE PENETRATION
1/2" = 1'-0"



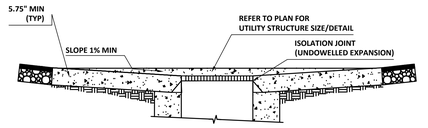
8 10' WIDE PIPE PENETRATION
1/2" = 1'-0"

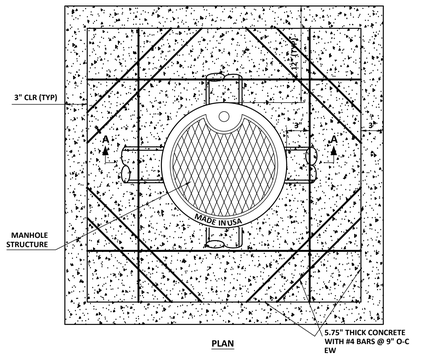
GENERAL NOTES

1. LENGTH REFERENCES IN DETAIL TITLES REFER TO INSIDE DIMENSIONS
2. BOX WALL THICKNESS SHALL BE BASED ON MAXIMUM INSIDE DIMENSIONS. 8' AND 10' MAX DIMENSIONS USE 12" THICK WALLS THROUGHOUT. 4' AND 6' MAX DIMENSIONS USE 10" THICK WALLS THROUGHOUT.



9 CONCRETE FLUME
NTS

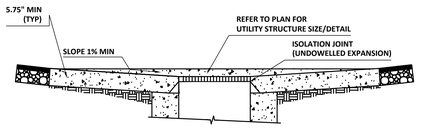


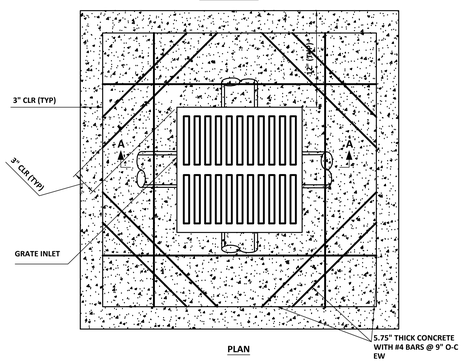


NOTES:

1. REBAR TO HAVE 3" CLR ON SIDES AND 2" CLR ON TOP AND BOTTOM
2. CONCRETE STRENGTH SHALL BE 4,500 PSI MIN. AT 28 DAYS
3. ALL EDGES WILL BE SEALED WITH CSSI OR APPROVED EQUAL. ALL TOP EDGES WILL BE TACKED AND SAND SEALED
4. IF INLET STRUCTURE, COLLAR TO BE SLOPED TOWARDS THE INLET AT 1% MINIMUM. IF SOLID LID/MANHOLE, CONTRACTOR TO SLOPE COLLAR AND RIM TO ALIGN WITH PROPOSED SITE GRADING.
5. SQUARE PERIMETER REBAR TO BE CONTINUOUS AND LAPPED 10-INCHES.

10 CIRCULAR STRUCTURE CONCRETE COLLAR
NTS





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5. SQUARE PERIMETER REBAR TO BE CONTINUOUS AND LAPPED 10-INCHES.

11 SQUARE STRUCTURE CONCRETE COLLAR
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walter p moore

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Bentonville, Arkansas 72712

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

STORM DETAILS

C10.017PH2

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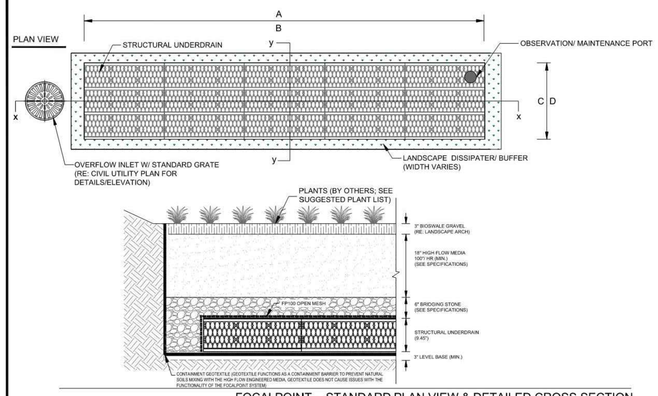
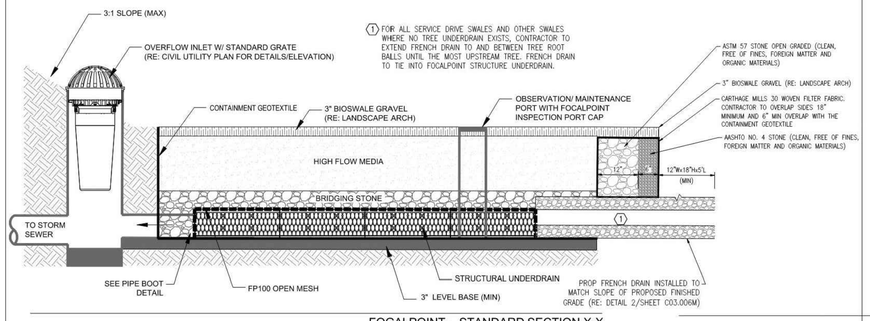


FOCALPOINT - STANDARD PLAN VIEW & DETAILED CROSS SECTION

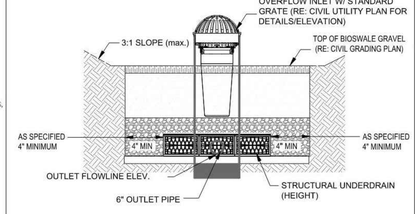
RE: UTILITY PLAN FOR LOCATION, SIZE, AND DEPTH OF STORM SEWER AND INLET STRUCTURE.

CONTRACTOR TO PROVIDE CLEANOUT ON UPSTREAM END OF FRENCH DRAIN (RE: DETAILS &2/SHEET C03.006M). CONTRACTOR TO INSTALL CONNECTION TO FOCAL POINT AS SHOWN OR DIRECTLY TO NYLOPLAST IF ON OPPOSITE SIDE.



FOCALPOINT - STANDARD SECTION X-X

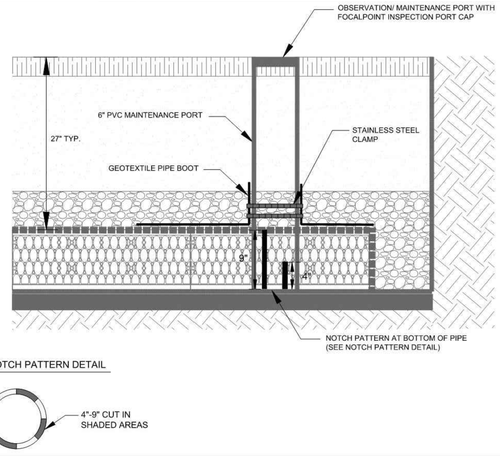
RE: UTILITY PLAN FOR OVERFLOW DRAIN ELEVATION



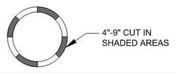
FOCALPOINT - STANDARD SECTION Y-Y

DATE	REVISION

FOR ADDITIONAL INFORMATION PLEASE CONTACT:
CONSTRUCTION ECO SERVICES
832-456-1000
www.ecosvs.com

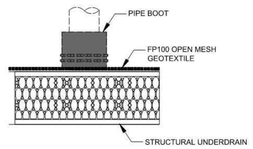


PIPE NOTCH PATTERN DETAIL

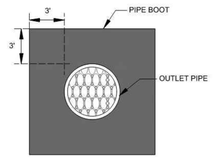


FOCALPOINT - STANDARD OBSERVATION/MAINTENANCE PORT

OBSERVATION/ MAINTENANCE PORT CONNECTION

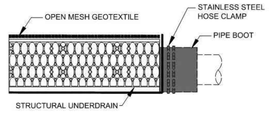


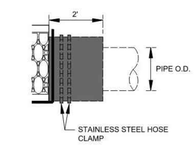
PIPE BOOT DETAIL



FRONT VIEW

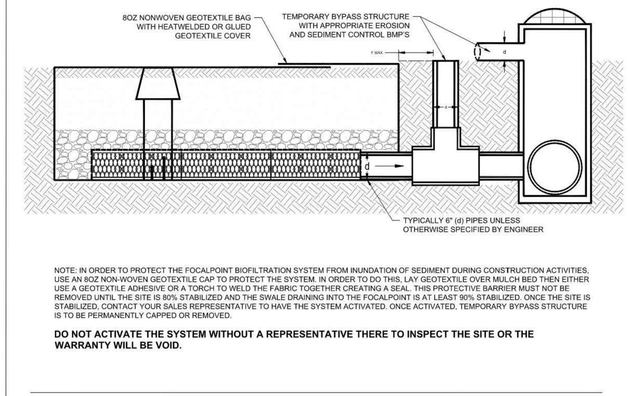
OUTLET/ INLET PIPE CONNECTION





SIDE VIEW

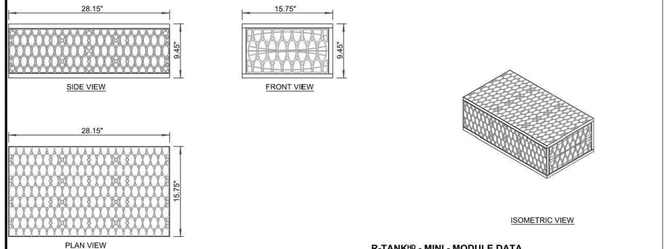
FOCALPOINT - STANDARD PIPE CONNECTION



NOTE: IN ORDER TO PROTECT THE FOCALPOINT BIOFILTRATION SYSTEM FROM INUNDATION OF SEDIMENT DURING CONSTRUCTION ACTIVITIES, USE AN 8OZ NON-WOVEN GEOTEXTILE CAP TO PROTECT THE SYSTEM. IN ORDER TO DO THIS, LAY GEOTEXTILE OVER MULCH BED THEN EITHER USE A GEOTEXTILE ADHESIVE OR A TORCH TO WELD THE FABRIC TOGETHER CREATING A SEAL. THIS PROTECTIVE BARRIER MUST NOT BE REMOVED UNTIL THE SITE IS 80% STABILIZED AND THE SWALE DRAINING INTO THE FOCALPOINT IS AT LEAST 90% STABILIZED. ONCE THE SITE IS STABILIZED, CONTACT YOUR SALES REPRESENTATIVE TO HAVE THE SYSTEM ACTIVATED. ONCE ACTIVATED, TEMPORARY BYPASS STRUCTURE IS TO BE PERMANENTLY CAPPED OR REMOVED.

DO NOT ACTIVATE THE SYSTEM WITHOUT A REPRESENTATIVE THERE TO INSPECT THE SITE OR THE WARRANTY WILL BE VOID.

FOCALPOINT - STANDARD BYPASS INLET STRUCTURE



R-TANK^{HD} - MINI - MODULE DATA

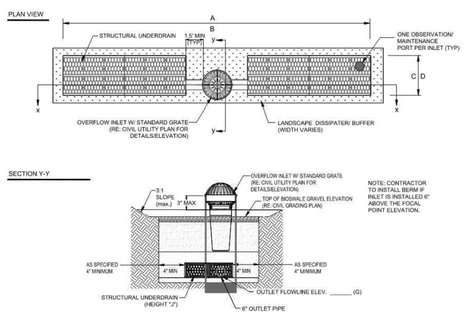
GEOMETRY: LENGTH = 28.15 IN. (715 MM)	**LOAD RATING:** 33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS25, (WITH ACF COVER SYSTEM)
HEIGHT = 9.45 IN. (240 MM)	**MATERIAL:** 100% RECYCLED
TANK VOLUME = 2.42 CF	POLYPROPYLENE
STORAGE VOLUME = 2.30 CF	**SMALL PLATES PER**
VOID INTERNAL VOLUME: 95%	**SEGMENT/TOTAL:** 5/5
VOID SURFACE AREA: 90%	

R-TANK^{HD} - MINI MODULE DETAIL

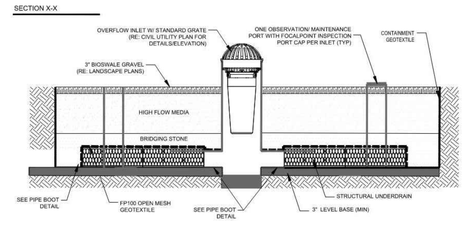
FOCALPOINT HP PERFORMANCE SPECIFICATION:

HIGH PERFORMANCE MEDIA:
HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100" PER HOUR INFILTRATION RATE. FIELD HYDRAULIC CONDUCTIVITY TESTING MUST BE CONDUCTED WITHIN 30 DAYS OF INSTALLATION. FIELD TEST MUST BE CONDUCTED WITH PROCORED INFILTROMETER AND SOP (SEE SPECIFICATION). FAILURE TO MEET FIELD TESTING WILL RESULT IN THE REMOVAL OF MEDIA AND REPLACEMENT FROM ALTERNATE BATCH.

HIGH PERFORMANCE STRUCTURAL UNDERDRAIN
MUST HAVE A MINIMUM OF 14 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
MUST MEET H20 LOADING REQUIREMENTS.
MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.



FOCALPOINT HP CONSTRUCTION DETAIL



FOCALPOINT HP SECTION X-X

REV. 3/18/16

NOTE: ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

NOTE:
- FOR FOCAL POINT MEDIA/STRUCTURE ADJACENT TO PROPOSED LIGHTPOLES. ELECTRICAL CONTRACTOR TO COORDINATE WITH ECOSERVICES FOR ROUTING ELECTRICAL CONDUIT.
- RE: LANDSCAPE ARCHITECT FOR BIOSWALE GRAVEL
- INSPECTION PORTS TO BE LOCATED IN THE FIELD
- CONTRACTOR TO INSTALL ROOT BARRIER WHEN PROPOSED TREE IS LESS THAN 5-FT FROM THE FOCAL POINT EXCAVATION (RE: C03.010M FOR ROOT BARRIER DETAIL)

FOCALPOINT DETAILS

PROJECTNAME
ADDRESS1

PROJECT NO.
0
DATE
12/15/2022
SHEET NO.
6

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

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M08-25007-00			
ORIGINAL ISSUE			DATE

STORM DETAILS

C10.018PH2

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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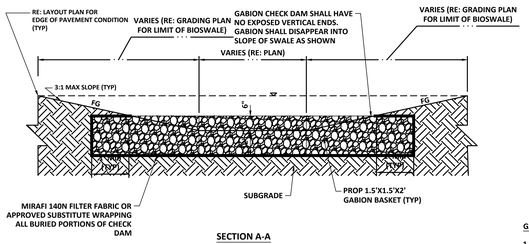
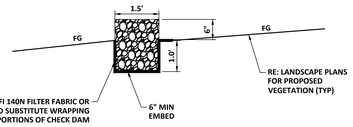
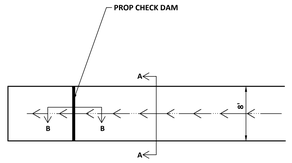


SECTION A-A



SECTION B-B

1 6" GABION CHECK DAM
NTS



LAYOUT VIEW

GABION BASKETS:

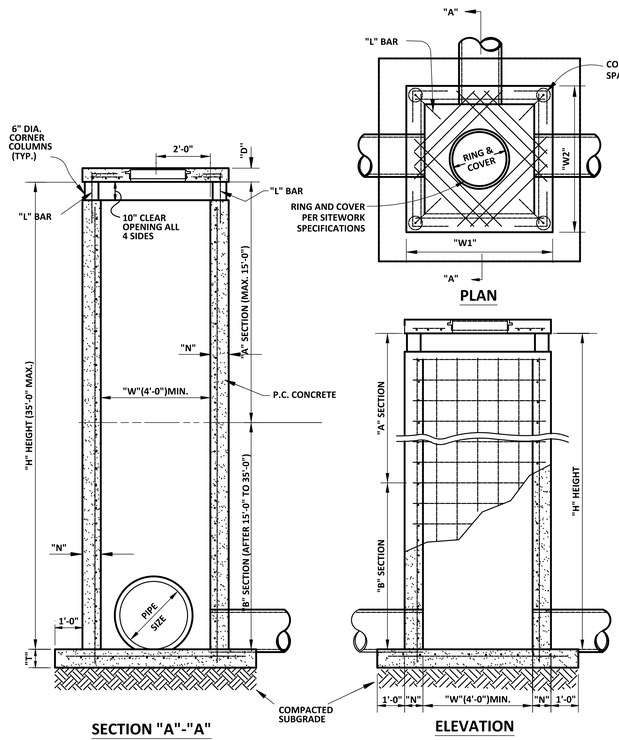
1. GABION STRUCTURE SHALL CONSIST OF WELDED STEEL WIRE MESH WITH OPENING OF APPROXIMATELY 1 INCH BY 2 INCH. WIRE USED IN THE CONSTRUCTION OF THE GALFAN COATED GABIONS SHALL BE GALVANIZED STEEL WITH WIRE DIAMETER OF 0.1062". ALL WIRE USED IN THE CONSTRUCTION OF GABIONS, INCLUDING TIE WIRE, SHALL CONFORM TO ASTM A853-91 AND ASTM A-641.
2. ALL GABIONS ON THIS PROJECT SHALL BE GALFAN COATED UNLESS OTHERWISE NOTED IN THE PLANS.
3. THE GABION SHALL BE CLEAN, HARD, DURABLE, ANGULAR, WASHED LIMESTONE, 2" TO 4" IN SIZE. RE: LANDSCAPE PLANS FOR ROCK COLOR.
4. SPENAX HIGH TENSILE RINGS MAY BE USED AS AN ALTERNATE FASTENING METHOD IN PLACE OF THE WIRE LACING METHOD AS SHOWN IN THE PLANS AND SPECIFICATIONS. RINGS SHALL BE PLACED USING A SPENAX PNEUMATIC TOOL OR SPENAX HAND TOOL. OVERLAP OF COMPLETED RINGS SHALL BE 1/2" MINIMUM WITH NOT MORE THAN ONE INCH TOTAL OVERLAP. SPACING OF RINGS SHALL NOT EXCEED FOUR INCHES.

FILTER FABRIC:

1. A HIGHLY PERMEABLE FILTER FABRIC SUCH AS MIRAFI 140N, US FABRIX US 100NW, SKAPPS GT-140, OR APPROVED SUBSTITUTE SHALL WRAP ALL BURIED PORTIONS OF THE PROPOSED GABIONS.

GENERAL NOTES:

1. NO MULCH OR COARSE SANDY SOIL TO BE USED WITHIN THE PROPOSED BIOSWALE.
2. FOR SWALES WITH LOW VELOCITY (LESS THAN 3% SLOPE), 2 TO 6" DIAMETER GRAVEL CAN BE USED TO LINE THE SWALE. FOR SWALES WITH HIGH VELOCITY (3-5% SLOPE), 4 TO 8" GRAVEL CAN BE USED TO LINE THE SWALE. CONTRACTOR TO COORDINATE WITH ENGINEER FOR EXHIBIT LOCATING SWALE SLOPE WITHIN THE ZONES.
3. FINISHED GRADES SHOWN ON PLANS REPRESENT THE FINAL FINISH SURFACE ELEVATION OF ALL WORK INCLUDING BUT NOT LIMITED TO MULCH, PLANTING, AND OTHER SOFTSCAPE MATERIAL REPRESENTED BY THE LANDSCAPE ARCHITECT.

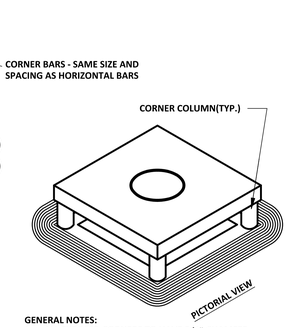


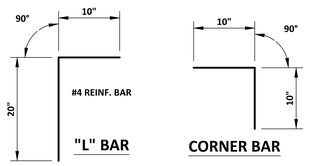
SECTION "A"-"A"

PLAN

ELEVATION

2 AREA INLET
N.T.S.





GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER
2. ALL REINFORCING BARS TO HAVE 2" COVER.
3. SEE GRADING AND DRAINAGE PLAN FOR PIPE SIZES, LOCATIONS, AND FLOW LINES.
4. PIPES SHALL CONNECT TO THE ENDS OR SIDES OF THE INLET. CONNECTION SHALL NOT BE MADE AT CORNERS OF BOX.
5. ALL REINFORCING BARS TO BE GRADE 60.
6. PRECAST MANHOLE MAY BE USED UNLESS OTHERWISE NOTED OR DIRECTED BY THE ENGINEER.

PRECAST MANHOLE SPECIFICATIONS

ASTM C478 - PRECAST REINFORCED CONCRETE MANHOLE SECTIONS
ASTM C913 - PRECAST CONCRETE WATER AND WASTEWATER STRUCTURESCONCRETE:
4000 PSI AE (MIN.)
JOINT: WATERTIGHT RUBBER GASKET

REINFORCEMENT SCHEDULE, BASE	
SECTION	
"A"	#4's @ 6" E.W.
"B"	#6's @ 6" E.W.

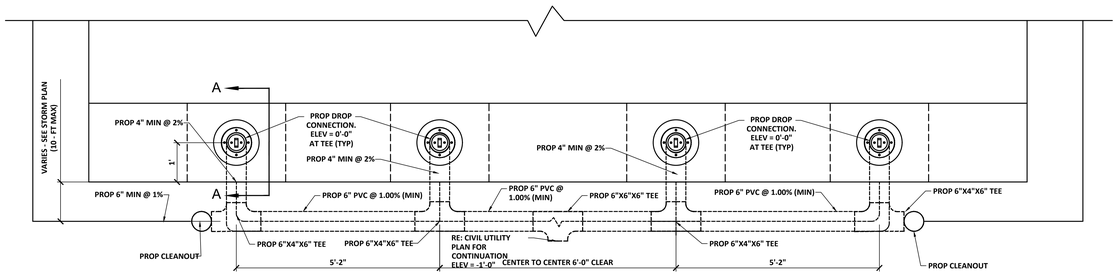
TABLE OF 'W' DIMENSIONS			
PIPE SIZE	SKEW OF CROSS DRAIN		
SINGLE	STRAIGHT	30°	45°
24"	4'-0"	4'-0"	4'-10"
30"	4'-0"	4'-7"	5'-8"
36"	4'-0"	5'-3"	6'-5"
42"	5'-3"	5'-11"	7'-3"
48"	5'-10"	6'-7"	8'-0"
60"	7'-0"	7'-10"	9'-8"
DOUBLE	FOR "A" SECTION ONLY		
24"	7'-0"	7'-10"	9'-5"
30"	8'-2"	9'-2"	11'-0"
36"	9'-4"	10'-6"	12'-6"
42"	10'-6"	11'-10"	14'-2"
48"	11'-8"	13'-2"	15'-10"

REINFORCEMENT SCHEDULE, WALLS			
SECTION	WIDTH ("W")	HOR.	VERT.
"A"	4'	#4's @ 9"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 9"	#4's @ 10"
	GREATER THAN 7'	#5's @ 4 1/2"	#4's @ 10"
"B"	4'	#4's @ 6"	#4's @ 10"
	BETWEEN 4' & 7'	#6's @ 6"	#4's @ 10"

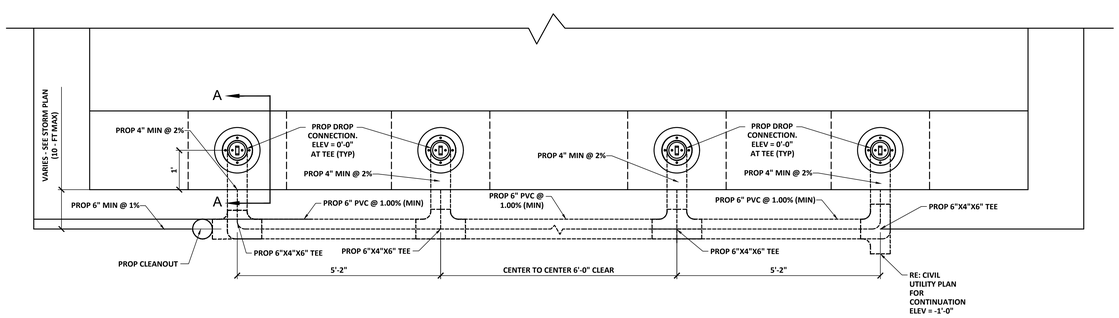
TABLE OF "T" & "N" DIMENSIONS				
SECTION	WIDTH ("W")	"T"	"N"	"D"
"A"	BETWEEN 4' & 7'	6" + PIPE THICKNESS	8"	6"
	GREATER THAN 7'	6" + PIPE THICKNESS	8"	8"
"B"	4'	6" + PIPE THICKNESS	8"	8"
	BETWEEN 4' & 7'	6" + PIPE THICKNESS	10"	8"

REINFORCEMENT SCHEDULE, TOP		
DIMENSIONS	STEEL	SPECIAL PATTERN
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W1 = 7' OR LESS	#4's @ 8" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER
W1 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER
W2 = 7' OR GREATER	#4's @ 6" E.W.	DIAGONAL @ COVER

DTAREAIN	10/12/09	



LAYOUT (OPTION 1)
NOT TO SCALE

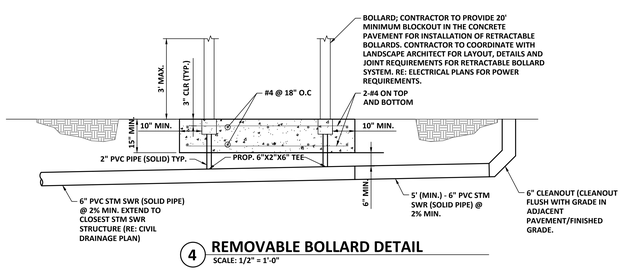


LAYOUT (OPTION 2)
NOT TO SCALE

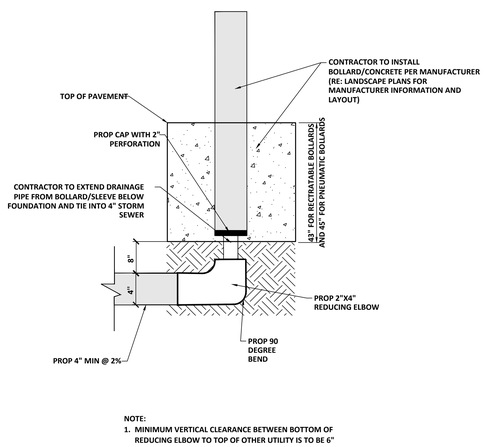
NOTES:

1. CONTRACTOR TO SUBMIT SHOP DRAWING TO ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
2. RE: LANDSCAPE PLANS FOR BOLLARD DETAIL/LAYOUT. RE: MANUFACTURER'S INFORMATION FOR INSTALLATION AND SPECIFICATIONS.
3. RE: CIVIL UTILITY PLAN FOR STORM SEWER CONTINUATION.

3 BOLLARD DRAINAGE DETAIL
NOT TO SCALE



4 REMOVABLE BOLLARD DETAIL
SCALE: 1/2" = 1'-0"



NOTE:

1. MINIMUM VERTICAL CLEARANCE BETWEEN BOTTOM OF REDUCING ELBOW TO TOP OF OTHER UTILITY IS TO BE 6"

SECTION A-A
NOT TO SCALE

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

STORM DETAILS

C10.019PH2

SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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24-Jul-2026 - 7:17 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_WPM_C-MTP DT_M08250700.dwg

StormTrap
MODULAR CONCRETE STORMWATER MANAGEMENT

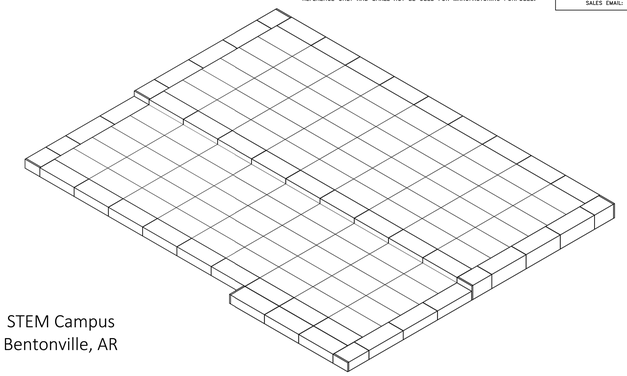
SHEET INDEX

PAGE	DESCRIPTION
0.0	COVER SHEET
1.0	GENERAL NOTES
1.1	SINGLETRAP DESIGN CRITERIA
1.2	SINGLETRAP DESIGN CRITERIA
2.0	SINGLETRAP SYSTEM LAYOUT
2.1	SINGLETRAP FOUNDATION LAYOUT
3.0	SINGLETRAP INSTALLATION SPECIFICATION
3.1	SINGLETRAP INSTALLATION SPECIFICATION
4.0	SINGLETRAP BACKFILL SPECIFICATION
5.0	PIPE/ACCESS OPENING SPECIFICATION
6.0	SINGLETRAP MODULE TYPES

STORMTRAP CONTACT INFORMATION

STORMTRAP SUPPLIER: STORMTRAP
CONTACT NAME: Tony Stratage
CELL PHONE: (816) 446-9895
SALES EMAIL: tdstratage@stormtrap.com

THE STORMTRAP DRAWINGS SHALL NOT BE ALTERED OR MANIPULATED IN WHOLE OR IN PART WITHOUT WRITTEN CONSENT OF STORMTRAP. USE OF THESE DRAWINGS IS STRICTLY GRANTED TO YOU, OUR CLIENT, FOR THE SPECIFIED AND NAMED PROJECT ONLY. THESE DRAWINGS ARE FOR YOUR REFERENCE ONLY AND SHALL NOT BE USED FOR MANUFACTURING PURPOSES.



STEM Campus
Bentonville, AR

StormTrap
IMAGES USED AS [WWW.STORMTRAP.COM/IMAGES]
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ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Walter P Moore
Kansas City, MO

PROJECT INFORMATION:
STEM Campus
Bentonville, AR

CURRENT ISSUE DATE:
6/4/2026

ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
2	6/4/2026	PRELIMINARY	JPH
1	6/1/2026	PRELIMINARY	JPH

SCALE: NTS

SHEET TITLE: COVER SHEET

SHEET NUMBER: 0.0

GENERAL NOTES:

1. STRUCTURE PROXIMITY LOADING DISCLAIMER:

   STORMTRAP MODULES AND FOUNDATION ARE NOT DESIGNED TO ACCEPT ANY ADDITIONAL LOADING FROM ANY NEARBY STRUCTURES NEXT TO OR OVER THE TOP OF STORMTRAP. EXAMPLES OF NEARBY STRUCTURES MAY INCLUDE BUT ARE NOT LIMITED TO BUILDINGS, FOUNDATION ELEMENTS, RETAINING WALLS, LIGHT POLES, BOLLARDS, SIGNPOSTS, FENCES. ADDITIONALLY, STORMTRAP IS NOT RESPONSIBLE FOR INSTALLATION CONFLICTS ARISING FROM ANY OF THESE NEARBY STRUCTURES. IF ADDITIONAL LOADING CONSIDERATIONS ARE REQUIRED FOR STRUCTURAL DESIGN OF STORMTRAP, PLEASE CONTACT STORMTRAP IMMEDIATELY. FOR LIGHT POLES SHOWN OVER THE TOP OF THE SYSTEM, STORMTRAP WILL PROVIDE A 5'-0" LATERAL DISTANCE CAVITY AROUND THE LIGHT POLE TO ACCOMMODATE IT. THE EOR TO TAKE RESPONSIBILITY FOR ENSURING THE LIGHT POLE IS NOT INFLICTING ANY LOADING ON THE STORMTRAP MODULES AND FOUNDATION.

2. TREE LOADING DISCLAIMER:

   THE NUMBER OF TREES OR WEIGHT OF TOTAL PLANT MATERIAL PRESENT ON TOP OF A SINGLE STORMTRAP MODULE SHALL NOT EXCEED 16,000 LBS. THE REQUIREMENTS LISTED HERE APPLY AT BOTH THE TIME OF INSTALLATION AND FOR THE LIFE OF THE TREES AND PLANTS IN QUESTION. THE EOR AND LANDSCAPE ARCHITECT ARE RESPONSIBLE FOR ENSURING THAT TREE AND OTHER PLANT ROOTS DO NOT INTERFERE WITH OR COMPROMISE THE FUNCTIONAL AND STRUCTURAL INTEGRITY OF STORMTRAP'S UNDERGROUND MODULES. APPROPRIATE MEASURES SHOULD BE TAKEN TO PREVENT ROOT GROWTH INTO THE STORMTRAP SYSTEM FROM ADJACENT OR OVERHEAD TREES. FURTHERMORE, THE ROOTS OF THE TREES MUST BE CONTAINED TO PREVENT FUTURE DAMAGE TO THE STORMTRAP SYSTEM. STORMTRAP ACCEPTS NO LIABILITY FOR DAMAGES CAUSED BY TREES OR OTHER VEGETATION PLACED AROUND OR ON TOP OF THE SYSTEM.

3. OUTLET CONTROL STRUCTURE DISCLAIMER (IF SHOWN ON THESE PLANS):

   IF A WATERTIGHT SOLUTION IS REQUIRED FOR AN OUTLET CONTROL STRUCTURE, ALL EXTERIOR COLD JOINTS, INCLUDING JOINT BETWEEN TOP AND BASE MODULES, BETWEEN TOP AND BASE OF ADJOINING SYMONS WALLS, AND JOINTS BETWEEN MODULE AND ADJACENT END PANELS WILL BE THE SOLE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO PROVIDE AND INSTALL THE WATERTIGHT APPLICATION PER THE EOR'S SPECIFICATION.

STRUCTURAL DESIGN LOADING CRITERIA

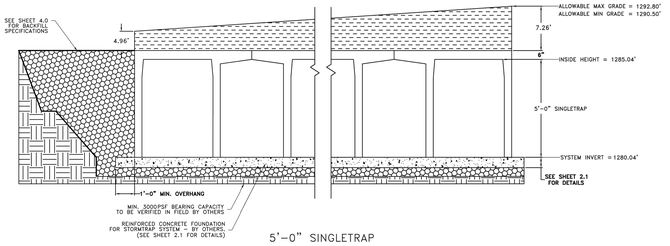
LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE: 35 PSF/FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857 ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 3'-0" SINGLETRAP
TOTAL STORAGE PROV: 44674.81 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 5.24" MAX. 5.24" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



5'-0" SINGLETRAP

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.1

STRUCTURAL DESIGN LOADING CRITERIA

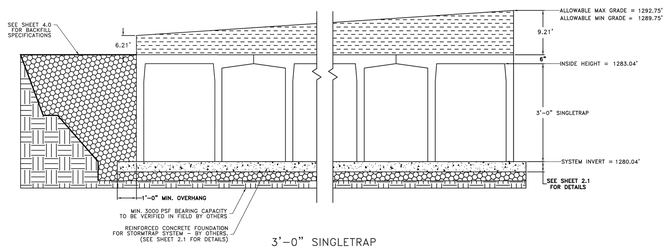
LIVE LOADING: AASHTO HS-20 HIGHWAY LOADING
GROUND WATER TABLE: BELOW INVERT OF SYSTEM
SOIL BEARING PRESSURE: 3000PSF
SOIL DENSITY: 120 PCF
EQUIVALENT UNSATURATED LATERAL ACTIVE EARTH PRESSURE: 35 PSF / FT.
EQUIVALENT SATURATED LATERAL ACTIVE EARTH PRESSURE: 80 PSF/FT. (IF WATER TABLE PRESENT)
APPLICABLE CODES: ASTM C857 ACI-318
BACKFILL TYPE: SEE SHEET 4.0 FOR BACKFILL OPTIONS

STORMTRAP SYSTEM INFORMATION

UNIT HEADROOM: 3'-0" SINGLETRAP
TOTAL STORAGE PROV: 20869.46 CUBIC FEET

SITE SPECIFIC DESIGN CRITERIA

1. STORMTRAP UNITS SHALL BE MANUFACTURED AND INSTALLED ACCORDING TO SHOP DRAWINGS APPROVED BY THE INSTALLING CONTRACTOR AND ENGINEER OF RECORD. THE SHOP DRAWINGS SHALL INDICATE SIZE AND LOCATION OF ROOF OPENINGS AND INLET/ OUTLET PIPE TYPES, SIZES, INVERT ELEVATIONS AND SIZE OF OPENINGS.
2. COVER RANGE: MIN. 7.24" MAX. 7.24" CONSULT STORMTRAP FOR ADDITIONAL COVER OPTIONS.
3. ALL DIMENSIONS AND SOIL CONDITIONS, INCLUDING BUT NOT LIMITED TO GROUNDWATER AND SOIL BEARING CAPACITY ARE REQUIRED TO BE VERIFIED IN THE FIELD BY OTHERS PRIOR TO STORMTRAP INSTALLATION.
4. FOR STRUCTURAL CALCULATIONS THE GROUND WATER TABLE IS ASSUMED TO BE BELOW INVERT OF SYSTEM IF WATER TABLE IS DIFFERENT THAN ASSUMED, CONTACT STORMTRAP.
5. SYSTEM DESIGN MAY ALLOW FOR INCIDENTAL LEAKAGE AND WILL NOT BE SUBJECT TO LEAKAGE TESTING.



3'-0" SINGLETRAP

SCALE: NTS

SHEET TITLE: SINGLETRAP DESIGN CRITERIA

SHEET NUMBER: 1.2

BILL OF MATERIALS

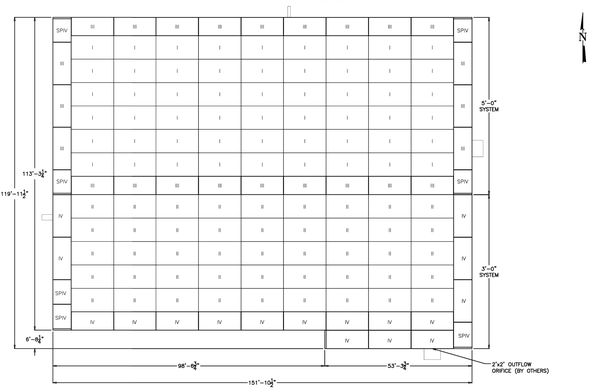
QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
54	I	5'-0" SINGLETRAP	15493
0	II	5'-0" SINGLETRAP	0
24	III	5'-0" SINGLETRAP	15412
0	IV	5'-0" SINGLETRAP	0
0	VII	5'-0" SINGLETRAP	0
0	VII-1	5'-0" SINGLETRAP	0
0	VII-2	5'-0" SINGLETRAP	0
0	VII-3	5'-0" SINGLETRAP	0
0	VII-4	5'-0" SINGLETRAP	0
0	SPIII	5'-0" SINGLETRAP	0
4	SPIV	5'-0" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	0
4	T4 PANEL	6" THICK PANEL	2733
0	T7 PANEL	6" THICK PANEL	0
16	JOINTWRAP	150' PER ROLL	
40	JOINTAPE	14.5' PER ROLL	
	TOTAL PIECES = 82		
	TOTAL PANELS = 4		
	HEAVIEST PICK WEIGHT = 17,906		

BILL OF MATERIALS

QTY.	UNIT TYPE	DESCRIPTION	WEIGHT
0	I	5'-0" SINGLETRAP	–
45	II	5'-0" SINGLETRAP	14886
0	III	5'-0" SINGLETRAP	–
17	IV	5'-0" SINGLETRAP	13188
0	VII	5'-0" SINGLETRAP	–
0	VII-1	5'-0" SINGLETRAP	–
0	VII-2	5'-0" SINGLETRAP	–
0	VII-3	5'-0" SINGLETRAP	–
0	VII-4	5'-0" SINGLETRAP	–
0	SPIII	5'-0" SINGLETRAP	VARIES
3	SPIV	5'-0" SINGLETRAP	VARIES
0	T2 PANEL	6" THICK PANEL	0
3	T4 PANEL	6" THICK PANEL	1739
0	T7 PANEL	6" THICK PANEL	–
12	JOINTWRAP	150' PER ROLL	
24	JOINTAPE	14.5' PER ROLL	
	TOTAL PIECES = 65		
	TOTAL PANELS = 3		
	HEAVIEST PICK WEIGHT = 14,886		

DESIGN CRITERIA
ALLOWABLE MAX GRADE = SEE SHEET 1.1 & 1.2
ALLOWABLE MIN GRADE = SEE SHEET 1.1 & 1.2
INSIDE HEIGHT ELEVATION = SEE SHEET 1.1 & 1.2
SYSTEM INVERT = 1280.04'

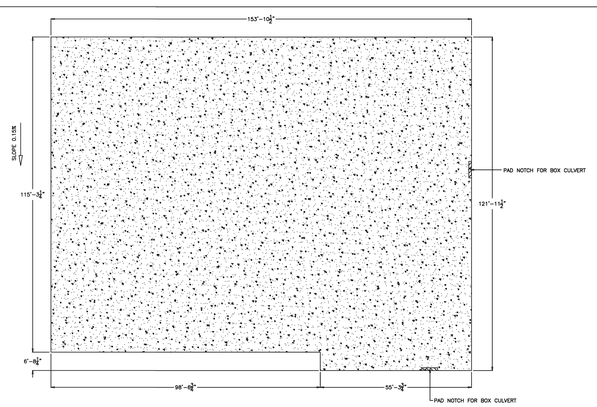
NOTES:
1. DIMENSIONING OF STORMTRAP SYSTEM SHOWN BELOW ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
2. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
3. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.
4. SP — INDICATES A MODULE WITH MODIFICATIONS.
5. P — INDICATES A MODULE WITH A PANEL ATTACHMENT.
6. CONTRACTORS RESPONSIBILITY TO ENSURE CONSISTENCY/ACCURACY TO FINAL ENGINEER OF RECORD PLAN SET.
7. IN ORDER FOR STORMTRAP TO GENERATE APPROVAL DRAWINGS, CIVIL ENGINEERING DRAWINGS MUST BE PROVIDED TO STORMTRAP AND SHALL INCLUDE ALL PIPE SIZES, PIPE MATERIAL, PIPE INVERT ELEVATIONS, ACCESS OPENING SIZE AND SHAPE, IN ADDITION, FINAL GRADING PLANS SHALL ALSO INCLUDE MINIMUM AND MAXIMUM GRADES OVER THE TOP OF THE STORMTRAP SYSTEM.



SCALE: NTS

SHEET TITLE: SINGLETRAP SYSTEM LAYOUT

SHEET NUMBER: 2.0



CONCRETE FOUNDATION NOTES:
1. CONCRETE FOUNDATION TO BE SUPPLIED AND INSTALLED BY OTHERS.
2. CONCRETE STRENGTH @ 28 DAYS, 5%-8% ENTRAINED AIR, 3"-5" MAX SLUMP.
3. NET ALLOWABLE SOIL PRESSURE AS INDICATED ON SHEET 1.1.
4. SOIL CONDITIONS TO BE VERIFIED ON SITE BY OTHERS.
5. REBAR: ASTM A615-GRADE 60, # BAR SIZE.
6. DIMENSION OF FOUNDATION MUST HAVE 1'-0" OVERHANG BEYOND EXTERNAL FACE OF MODULE.
7. DIMENSION OF STORMTRAP SYSTEM ALLOW FOR A 3/4" GAP BETWEEN EACH MODULE.
8. ALL DIMENSIONS TO BE VERIFIED IN THE FIELD BY OTHERS.
9. SEE SHEET 3.0 FOR INSTALLATION SPECIFICATIONS.

STORMTRAP FOUNDATION DETAIL

HS-20 & HS-25 LOADING – (ACI 318, ST2)

MAXIMUM SYSTEM COVER	SLAB THICKNESS	CONCRETE STRENGTH	REINFORCEMENT (BOTH DIRECTIONS)	"A" CLEAR COVER
0'-6" – 1'-0"	8"	4000 PSI	#4 @ 18" O.C.	3.5"
1'-1" – 2'-0"	8"	4000 PSI	#4 @ 16" O.C.	3.5"
2'-1" – 3'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
3'-1" – 5'-0"	8"	4000 PSI	#4 @ 12" O.C.	3.5"
4'-1" – 5'-0"	8"	4000 PSI	#5 @ 18" O.C.	3.375"
5'-1" – 6'-0"	8"	4000 PSI	#5 @ 16" O.C.	3.375"
6'-1" – 7'-0"	8"	4000 PSI	#5 @ 12" O.C.	3.375"
7'-1" – 8'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
8'-1" – 9'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"
9'-1" – 10'-0"	9"	4000 PSI	#5 @ 12" O.C.	3.875"

SCALE: NTS

SHEET TITLE: SINGLETRAP FOUNDATION LAYOUT

SHEET NUMBER: 2.1

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
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M08-25007-00			
ORIGINAL ISSUE		DATE	

STORM DETAILS

C10.020PH2

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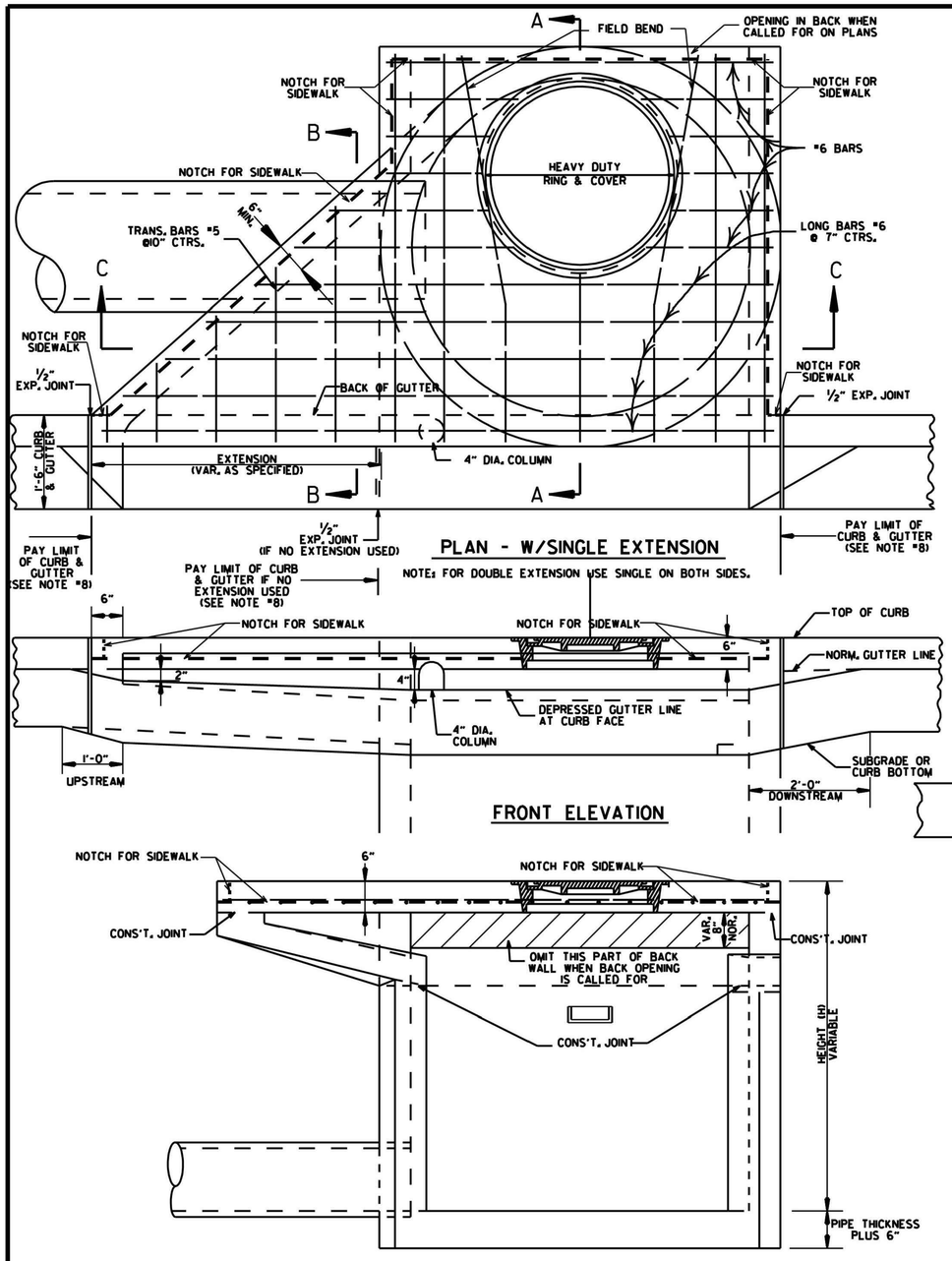
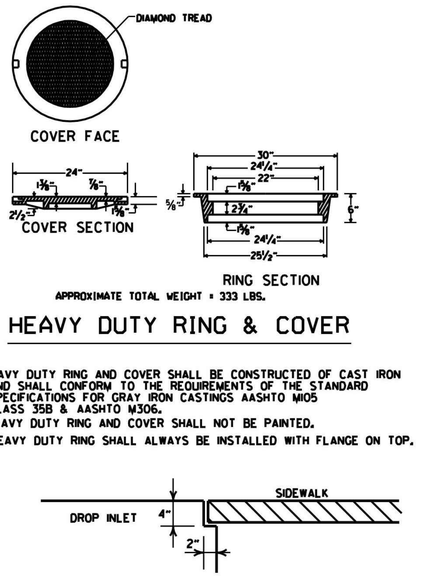
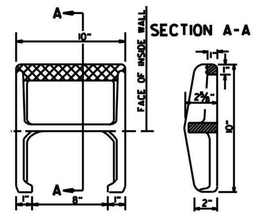




HEAVY DUTY RING & COVER

1. HEAVY DUTY RING AND COVER SHALL BE CONSTRUCTED OF CAST IRON AND SHALL CONFORM TO THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR GRAY IRON CASTINGS AASHTO M105 CLASS 35B & AASHTO M306.
2. HEAVY DUTY RING AND COVER SHALL NOT BE PAINTED.
3. HEAVY DUTY RING SHALL ALWAYS BE INSTALLED WITH FLANGE ON TOP.

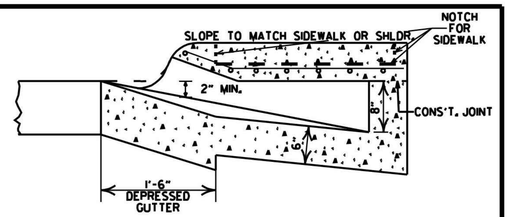
DETAIL OF NOTCH FOR SIDEWALKS



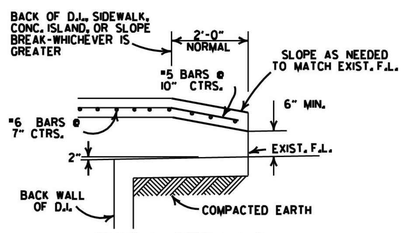
PLAN

NOTE: THIS DETAIL IS TYPICAL, OTHERS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.

DETAIL OF STEP FOR DROP INLET



SECTION B-B

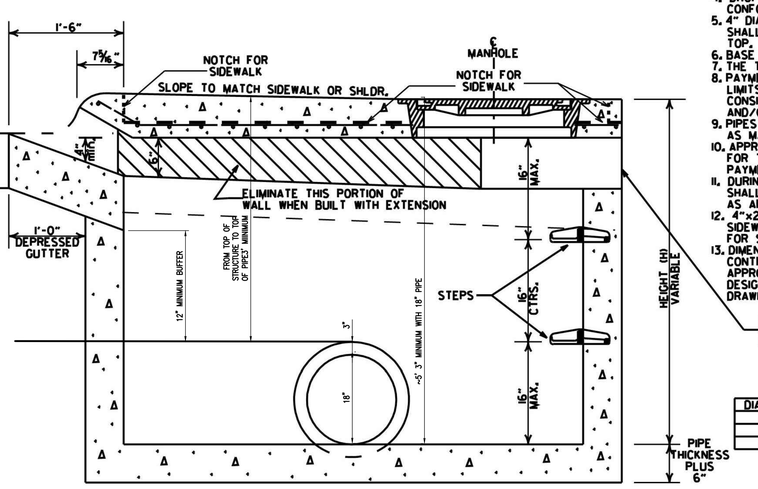


BACK OPENING

WHEN OPENING IN BACK IS CALLED FOR ON PLANS EXTEND OPENING AS SHOWN IN DETAIL. PAYMENT TO BE INCLUDED IN PRICE BID FOR DROP INLET (TYPE MO).

GENERAL NOTES:

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" HIGH AND OVER OR AS DIRECTED BY THE ENGINEER.
3. ALL REINFORCING BARS SHALL BE GRADE 60 AND HAVE MIN. 1 1/2" COVER.
4. DROP INLETS AND EXTENSION ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURB.
5. 4" DIA. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLET AND EXTENSION TO SUPPORT TOP.
6. BASE AND INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE GUTTER.
8. PAYMENT FOR CURB AND/OR CURB AND GUTTER WITHIN THE LIMITS OF DROP INLETS AND DROP INLET EXTENSIONS SHALL BE CONSIDERED INCLUDED IN PAYMENT MADE FOR DROP INLETS AND/OR DROP INLET EXTENSIONS.
9. PIPES MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.
10. APPROPRIATE SIZE TYPE C DROP INLETS MAY BE SUBSTITUTED FOR TYPE MO DROP INLETS AS APPROVED BY THE ENGINEER. PAYMENT TO BE AS DROP INLET (TYPE MO).
11. DURING CONSTRUCTION OF THE ROADWAY THE CONTRACTOR SHALL MAINTAIN DRAINAGE INTO OR AROUND THE DROP INLET AS APPROVED BY THE ENGINEER.
12. 4"x2" NOTCH SHALL BE FORMED IN ALL DROP INLETS TO SUPPORT SIDEWALK CONSTRUCTION. REFER TO DETAIL OF NOTCH FOR SIDEWALKS.
13. DIMENSIONS SHOWN FOR RING AND COVER ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR CASTINGS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR CASTING DESIGNS MAY BE MADE BY REFERRING TO PREVIOUSLY APPROVED DRAWINGS.



LEAVE OPENING IN BACK WHEN CALLED FOR ON PLANS REFER TO BACK OPENING DETAIL

SECTION A-A

DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS	
		CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

8-22-02	ADDED PAY LIMIT CURB NOTES TO SECTIONS A-A & B-B	
11-16-01	ADDED NOTE 13	
1-12-00	REVISED HEAVY DUTY RING & COVER	
5-13-99	ADDED NOTCH DETAIL FOR SIDEWALKS	
7-02-98	REP. NOTE 8, NEW PLAN DET., REV. PICTURE FOR NEW RING & COVER, ADDED HEAVY DUTY RING & COVER AND DETAIL OF STEP FOR DROP INLET	
4-26-96	ADDED NOTE 11 AND OPENING DIMENSION	
10-12-95	CORRECTED #5 BAR SPACING	
7-20-95	CORRECTED DIAMETER OF D.I. IN BOX	
2-2-95	(TYPE K TO MO (OPEN BACK DETAIL)	
8-5-94	REVISED GENERAL NOTES	11-3-94
4-15-93	REV. BACK OPEN. DETAIL & NOTE	4-15-93
8-5-91	REVISED NOTES #12 & ADDED BK.OPEN DETAIL	8-5-91
11-30-88	ADDED NOTE NO.12	11-30-88
11-21-88	ADDED NOTE 8, MINIMUM WALL THICKNESS	11-21-88
7-15-88	ADDED EXTEND NOTE TO SECTION A-A	6-29-88
1-14-87	MODIFIED WALL THICKNESS	7-15-87
6-12-87	ISSUED	6-12-87
DATE	REVISIONS	DATE FILMED

1

ARKANSAS STATE HIGHWAY COMMISSION

DETAILS OF DROP INLET (TYPE MO)

STANDARD DRAWING FPC-9M

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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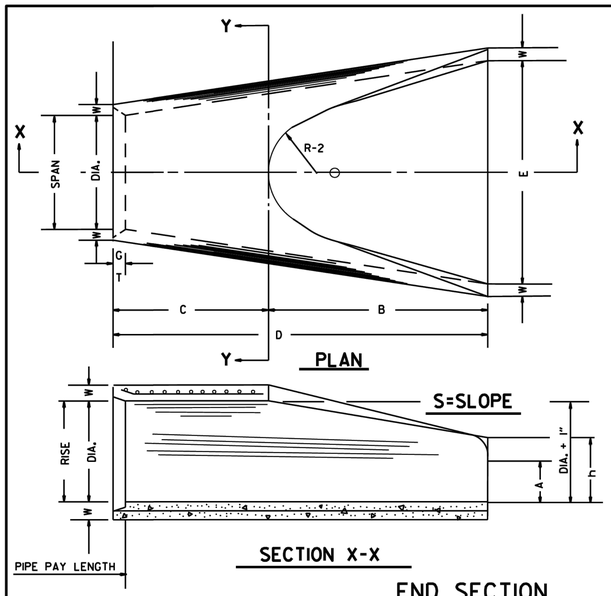
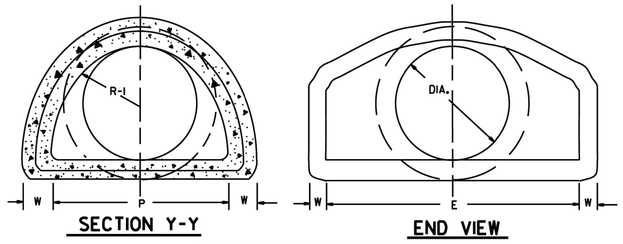


END SECTION FOR REINFORCED CONCRETE PIPE CULVERTS

TABLE OF DIMENSIONS

DIA.	WALL	A	B	C	D	E	S	DIA. + I"	P	R-I	R-2	G-T	WT.	h
18"	2½"	9"	2'-3"	3'-10"	6'-1"	3'-0"	3±I	19"	29"	15½"	12"	2"	1000	1'-0½"
24"	3"	9½"	3'-7½"	2'-6"	6'-1½"	4'-0"	3±I	25"	33⅜"	16⅛"	14"	2½"	1600	1'-1½"
30"	3½"	1'-0"	4'-6"	1'-7¾"	6'-1¾"	5'-0"	3±I	31"	37"	18½"	15"	3¼"	1940	1'-4⅝"
36"	4"	1'-3"	5'-3"	2'-10¼"	8'-1¾"	6'-0"	3±I	37"	47⅛"	24⅝"	20"	3½"	4100	1'-8"
42"	4½"	1'-9"	5'-3"	2'-11"	8'-2"	6'-6"	3±I	43"	53⅛"	27½"	22"	3½"	5380	2'-2½"
48"	5"	2'-0"	6'-0"	2'-2"	8'-2"	7'-0"	3±I	49"	56½"	28½"	22"	3½"	6550	2'-6"
54"	5½"	2'-4"	6'-6"	1'-10"	8'-4"	7'-6"	3±I	55"	65½"	33¼"	24"	4"	8750	2'-10½"
60"	6"	2'-10"	6'-6"	1'-10"	8'-4"	8'-0"	3±I	61"	72½"	36⅛"	24"	4"	9270	3'-5"
72"	7"	3'-10"	6'-6"	1'-10"	8'-4"	9'-0"	3±I	73"	77⅛"	38⅝"	24"	5"	13250	4'-6"

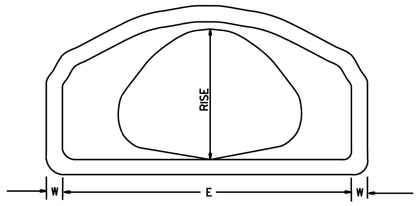


NOTE: TONGUE END ON UPSTREAM SECTION
GROOVE END ON DOWNSTREAM SECTION

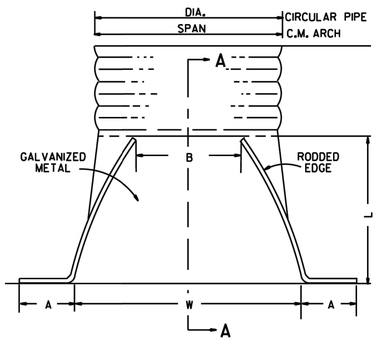
ARCH PIPE

EQUIV. DIA.	• SPAN AASHTO M 206	• SPAN AHD NOMINAL	• RISE AASHTO M 206	• RISE AHD NOMINAL	W	A	B	C	D	E	P	R2	G-T	S
	INCHES													
15	18	18	11	11	2"	4"	2'-0"	4'-0"	6'-0"	3'-0"	29"	12"	1½"	2½±I
18	22	22	13½	14	2½"	5"	2'-0"	4'-1"	6'-1"	3'-6"	32⅛"	13"	2½"	2½±I
21	26	26	15½	16	2¾"	7"	2'-3"	3'-10"	6'-1"	4'-0"	34⅛"	14"	2½"	2½±I
24	28½	29	18	18	3"	9"	2'-3"	3'-10"	6'-1"	5'-0"	36⅝"	15"	2½"	2½±I
30	36¼	36	22½	23	3½"	10"	3'-1"	3'-0½"	6'-1½"	6'-0"	47⅛"	20"	3"	2½±I
36	43¾	44	26⅝	27	4"	10½"	4'-0"	2'-1½"	6'-1½"	6'-6"	54⅝"	22"	3½"	2½±I
42	51⅛	51	31⅝	31	4½"	11½"	4'-7"	1-10¼"	6'-5¼"	7'-2"	59½"	23"	3¾"	2½±I
48	58½	59	36	36	5"	1'-3"	5'-3"	2'-10¾"	8'-1¾"	7'-10"	70⅝"	24"	4¼"	2½±I
54	65	65	40	40	5½"	1'-7"	5'-3"	2'-11"	8'-2"	8'-6"	72⅛"	24"	4¾"	2¼±I
60	73	73	45	45	6"	1'-10"	5'-6"	2'-8"	8'-2"	9'-0"	77⅛"	24"	5"	2¼±I

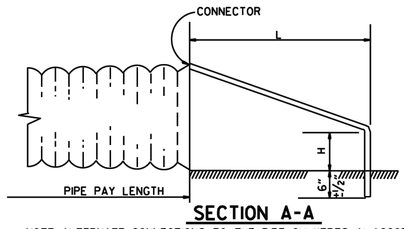
• THE MEASURED SPAN AND RISE SHALL NOT VARY MORE THAN ± 2 PER CENT FROM THE VALUES SPECIFIED BY AASHTO M 206.



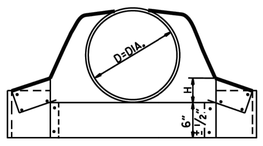
END VIEW
CONCRETE ARCH PIPE



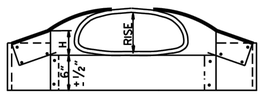
PLAN



SECTION A-A



CIRCULAR PIPE



C.M. ARCH PIPE

CIRCULAR PIPE

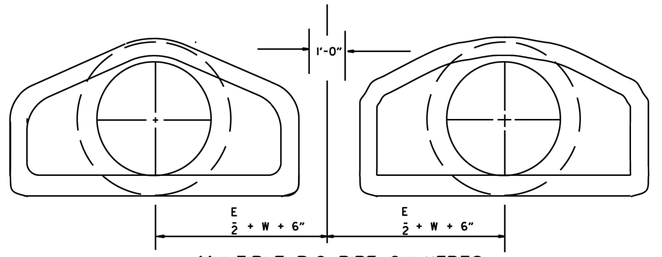
D. DIA.	GAUGE	A I" ±	B. MAX.	H I" ±	L 1½" ±	W 2" ±	S
		INCHES					
12	16	6	6	6	21	24	2½±I
15	16	7	8	6	26	30	2½±I
18	16	8	10	6	31	36	2½±I
21	16	9	12	6	36	42	2½±I
24	16	10	13	6	41	48	2½±I
30	14	12	16	8	51	60	2½±I
36	14	14	19	9	60	72	2½±I
42	12	16	22	11	69	84	2½±I
48	12	18	27	12	78	90	2½±I
54	12	18	30	12	84	102	2±I
60	12	18	33	12	87	114	1½±I
66	12	18	36	12	87	120	1½±I
72	12	18	39	12	87	126	1 1/3±I

C.M. ARCH PIPE

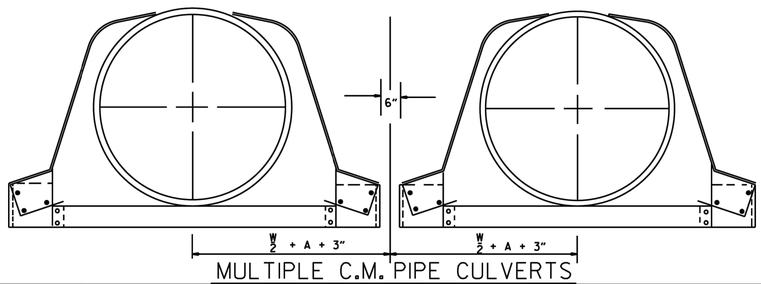
EQUIV. DIA.	SPAN	RISE	A I" ±	B MAX.	H I" ±	L 1½" ±	W 2" ±	S	GAUGE
	INCHES								
15"	17	13	7	9	6	19	30	2½±I	16
18"	21	15	7	10	6	23	36	2½±I	16
21"	24	18	8	12	6	28	42	2½±I	16
24"	28	20	9	14	6	32	48	2½±I	16
30"	35	24	10	16	6	39	60	2½±I	14
36"	42	29	12	18	8	46	75	2½±I	14
42"	49	33	13	21	9	53	85	2½±I	12
48"	57	38	18	26	12	63	90	2½±I	12
54"	64	43	18	30	12	70	102	2¼±I	12
60"	71	47	18	33	12	77	114	2¼±I	12

NOTE: ALTERNATE CONNECTIONS TO THE PIPE CULVERTS, IN ACCORDANCE WITH MANUFACTURER'S STANDARD PRACTICES, MAY BE MADE SUBJECT TO THE APPROVAL OF THE ENGINEER.

END SECTIONS FOR CORRUGATED METAL PIPE CULVERTS



MULTIPLE R.C. PIPE CULVERTS



MULTIPLE C.M. PIPE CULVERTS

DATE	REVISION	FILMED
10-18-96	REVISED ASTM REF. TO AASHTO	
5-15-80	REVISED DISTANCE BETWEEN MULTIPLE R.C.P. F.E.S.	664-5-15-80
7-14-78	C.M. ARCH SIZES TO CONFORM WITH AASHTO SIZES	752-7-14-78
8-22-75	ADDED MULTIPLE PIPE CULVERTS	517-8-22-75
12-5-74	REMOVED NOTE RE REINF. FOR R.C. F.E.S.	500-12-5-74
5-24-73	CMP END SECTION, SHOW PIPE PAY LENGTH	627-5-24-73
10-2-72	REVISED AND REDRAWN	760-10-2-72

ARKANSAS STATE HIGHWAY COMMISSION

FLARED END SECTION

STANDARD DRAWING FES-2

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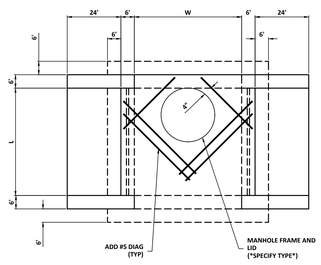
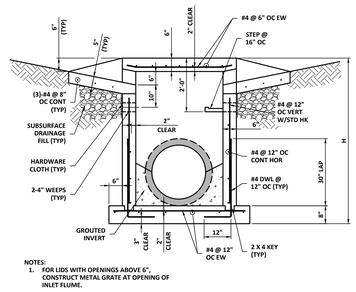
1 NOT USED



2 DOUBLE AREA INLET - PLAN VIEW
NTS



3 DOUBLE AREA INLET - SECTION VIEW
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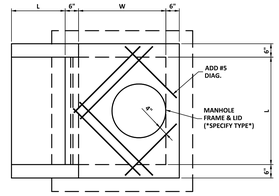
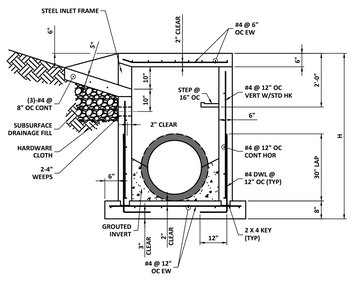
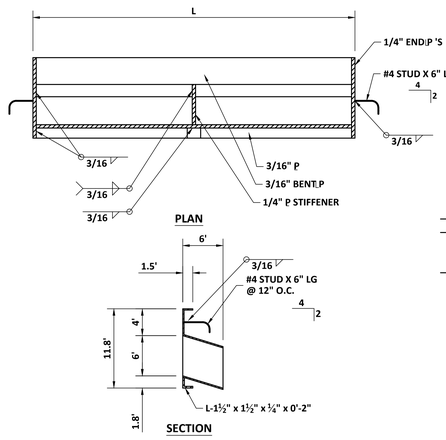


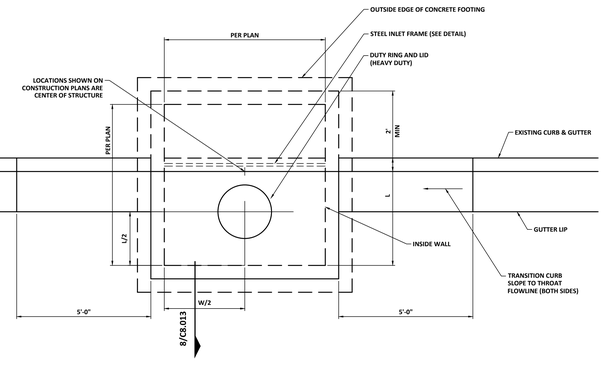
4 AREA INLET - PLAN VIEW
1/2" = 1'-0"



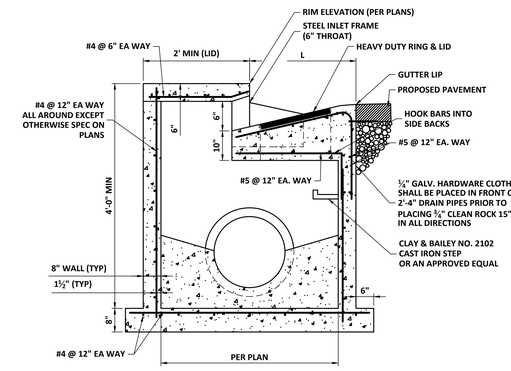
5 AREA INLET - SECTION VIEW
1/2" = 1'-0"



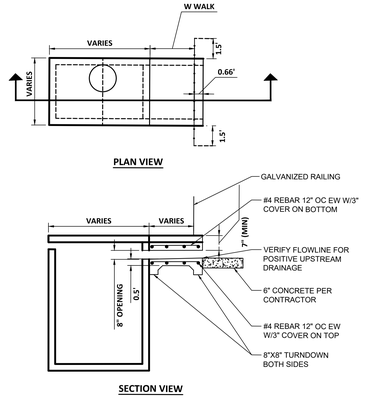
6 6-INCH STEEL INLET FRAME
1½" = 1'-0"



7 SPECIAL CURB INLET PLAN
1/2" = 1'-0"



8 SECTION
3/4" = 1'-0"



9 SIDEWALK FLUME
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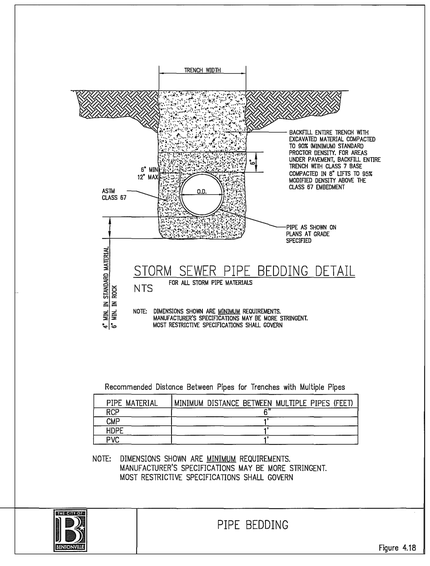

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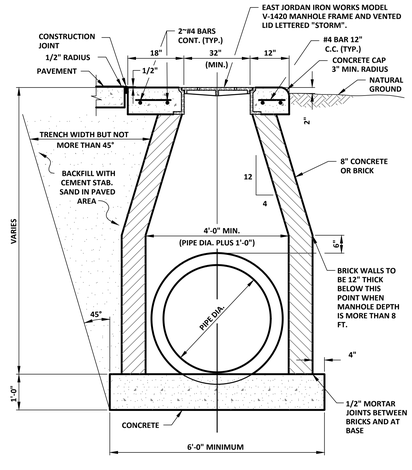

11 STORM SEWER MANHOLE
NOT TO SCALE

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
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ORIGINAL ISSUE			DATE

811 SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

STORM DETAILS

C10.023PH2

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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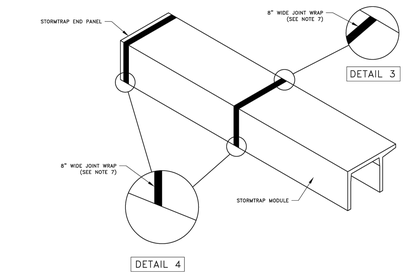
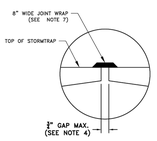
STORMTRAP INSTALLATION SPECIFICATION

1. STORMTRAP SHALL BE INSTALLED IN ACCORDANCE WITH ASTM C891 (STANDARD PRACTICE FOR INSTALLATION OF UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES). THE FOLLOWING ADDITIONS AND/OR EXCEPTIONS ARE PROVIDED FOR EMPHASIS. THE MENTION OF THESE ITEMS DOES NOT PRECLUDE THE INSTALLING CONTRACTOR FROM FOLLOWING ASTM C891 IN ITS ENTIRETY AND IMPLEMENTING ALL APPROPRIATE MEASURES. THE INSTALLING CONTRACTOR OWNS AND IS RESPONSIBLE FOR THE STORMTRAP SYSTEM UPON REMOVAL OF THE MODULES FROM THE DELIVERY TRUCK THROUGH "FINAL CONSTRUCTION". FINAL CONSTRUCTION IS ACHIEVED WHEN ALL MODULES ARE SET, FULLY BACKFILLED, AND WHEN FINAL FINISHED GRADES ARE REACHED. THE CONTRACTOR IS RESPONSIBLE FOR ANY COUNTERMEASURES NECESSARY TO RESIST UPLIFT/BUOYANCY BEFORE "FINAL CONSTRUCTION" IS ACHIEVED.
2. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT PROPER/ADEQUATE EQUIPMENT IS USED TO SET/INSTALL THE MODULES.
3. STORMTRAP MODULES SHALL BE PLACED ON A LEVEL CONCRETE FOUNDATION (SEE SHEET 2.1) WITH A 1'-0" OVERHANG ON ALL SIDES THAT SHALL BE POURED IN PLACE BY INSTALLING CONTRACTOR. A QUALIFIED GEOTECHNICAL ENGINEER WILL BE EMPLOYED, BY OWNER, TO PROVIDE ASSISTANCE IN EVALUATING THE EXISTING SOIL CONDITIONS TO ENSURE THAT THE SOIL BEARING PRESSURE MEETS OR EXCEEDS THE STRUCTURAL DESIGN LOADING CRITERIA AS SPECIFIED ON SHEET 1.1.
4. THE STORMTRAP MODULES SHALL BE PLACED SUCH THAT THE MAXIMUM SPACE BETWEEN ADJACENT MODULES DOES NOT EXCEED 3" (SEE DETAIL 2). IF THE SPACE EXCEEDS 3", THE MODULES SHALL BE RESET WITH APPROPRIATE ADJUSTMENT MADE TO LINE AND GRADE TO BRING THE SPACE INTO SPECIFICATION.
5. STORMTRAP MODULES ARE NOT WATERTIGHT.
6. THE PERIMETER HORIZONTAL JOINT BETWEEN THE STORMTRAP MODULES AND THE CONCRETE FOUNDATION SHALL BE SEALED TO THE FOUNDATION WITH PRE-FORMED MASTIC JOINT SEALER ACCORDING TO ASTM C891, 8.8 AND 8.12 (SEE DETAIL 1). THE MASTIC JOINT TAPE DOES NOT PROVIDE A WATERTIGHT SEAL.
7. ALL EXTERIOR ROOF AND EXTERIOR VERTICAL WALL JOINTS BETWEEN ADJACENT STORMTRAP MODULES SHALL BE SEALED WITH 8" WIDE PRE-FORMED, COLD-APPLIED, SELF-ADHERING ELASTOMERIC RESIN, BONDED TO A WOVEN HIGHLY PUNCTURE RESISTANT POLYMER WRAP, CONFORMING TO ASTM C891 AND SHALL BE INTEGRATED WITH PRIMER SEALANT AS APPROVED BY STORMTRAP (SEE DETAILS 2, 3, & 4). THE JOINT WRAP DOES NOT PROVIDE A WATERTIGHT SEAL. THE SOLE PURPOSE OF THE JOINT WRAP IS TO PROVIDE A DLT AND SOIL FIGHT SYSTEM. THE ADHESIVE EXTERIOR JOINT WRAP SHALL BE INSTALLED ACCORDING TO THE FOLLOWING INSTALLATION INSTRUCTIONS:
   - 7.1. USE A BRUSH OR WET CLOTH TO THOROUGHLY CLEAN THE OUTSIDE SURFACE AT THE POINT WHERE JOINT WRAP IS TO BE APPLIED.
   - 7.2. A RELEASE PAPER PROTECTS THE ADHESIVE SIDE OF THE JOINT WRAP. PLACE THE ADHESIVE TAPE (ADHESIVE SIDE DOWN) AROUND THE STRUCTURE, REMOVING THE RELEASE PAPER AS YOU GO. PRESS THE JOINT WRAP FIRMLY AGAINST THE STORMTRAP MODULE SURFACE WHEN APPLYING.
8. IF THE CONTRACTOR NEEDS TO CANCEL ANY SHIPMENTS, THEY MUST DO SO 48 HOURS PRIOR TO THEIR SCHEDULED ARRIVAL AT THE JOB SITE. IF CANCELED AFTER THAT TIME, PLEASE CONTACT THE PROJECT MANAGER.
9. IF THE STORMTRAP MODULE(S) IS DAMAGED IN ANY WAY PRIOR, DURING, OR AFTER INSTALL, STORMTRAP MUST BE CONTACTED IMMEDIATELY TO ASSESS THE DAMAGE AND DETERMINE WHETHER OR NOT THE MODULE(S) WILL NEED TO BE REPLACED. IF ANY MODULE ARRIVES AT THE JOBSITE DAMAGED DO NOT UNLOAD IT; CONTACT STORMTRAP IMMEDIATELY. ANY DAMAGE NOT REPORTED BEFORE THE TRUCK IS UNLOADED WILL BE THE CONTRACTOR'S RESPONSIBILITY.
10. STORMTRAP MODULES CANNOT BE ALTERED IN ANY WAY AFTER MANUFACTURING WITHOUT WRITTEN CONSENT FROM STORMTRAP.

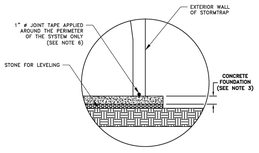


DETAIL 3

DETAIL 4



DETAIL 2



DETAIL 1

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ENGINEER INFORMATION:
Walter P Moore
Kansas City, MO

PROJECT INFORMATION:
STEM Campus
Bentonville, AR

CURRENT ISSUE DATE:
6/4/2026

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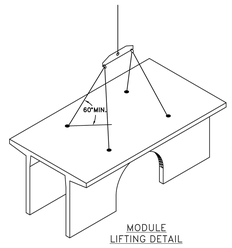
SCALE: NTS

SHEET TITLE: SINGLETRAP INSTALLATION SPECIFICATION

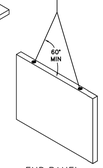
SHEET NUMBER: 3.0

STORMTRAP MODULE LIFTING SPECIFICATION

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL (4) CHAINS/CABLES ARE SECURED PROPERLY TO THE LIFTING ANCHORS AND IN EQUAL TENSION WHEN LIFTING THE STORMTRAP MODULE.
2. MINIMUM 7'-0" CHAIN/CABLE LENGTH TO BE USED TO LIFT STORMTRAP MODULES (SUPPLIED BY CONTRACTOR).
3. CONTRACTOR TO ENSURE MINIMUM LIFTING ANGLE IS 60° FROM TOP SURFACE OF STORMTRAP MODULE. SEE DETAIL.
4. IT IS UNDERSTOOD AND AGREED THAT AT ALL TIMES DURING WHICH HOISTING AND RIGGING EQUIPMENT IS BEING SUPPLIED TO THE PURCHASER, OPERATOR OF SUCH EQUIPMENT SHALL BE IN CHARGE OF HIS ENTIRE EQUIPMENT AND SHALL AT ALL TIMES BE THE JUDGE OF THE SAFETY AND PROPERTY OF ANY SUGGESTION TO HIM FROM THE SELLER, ITS AGENTS OR EMPLOYEES. PURCHASER AGREES TO SAVE, INDEMNIFY AND HOLD HARMLESS SELLER FROM ALL LOSS, CLAIMS, DEMANDS OR CAUSES OF ACTION, WHICH MAY ARISE FROM THE EXISTENCE OR OPERATION OF SAID EQUIPMENT.



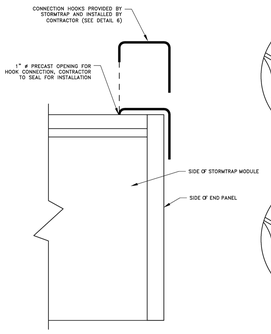
MODULE LIFTING DETAIL



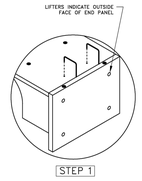
END PANEL LIFTING DETAIL

END PANEL ERECTION/INSTALLATION SPECIFICATION

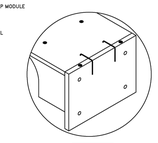
1. END PANELS WILL BE SUPPLIED TO CLOSE OFF OPEN ENDS OF ROWS.
2. PANELS SHALL BE INSTALLED IN A TILT UP FASHION DIRECTLY ADJACENT TO OPEN END OF MODULE (REFER TO SHEET 2.0 FOR END PANEL LOCATIONS). SIDE WITH LIFTERS INDICATES OUTSIDE FACE.
3. CONNECTION HOOKS WILL BE SUPPLIED WITH END PANELS TO SECURELY CONNECT PANEL TO ADJACENT STORMTRAP MODULE (SEE PANEL CONNECTION ELEVATION VIEW).
4. ONCE CONNECTION HOOK IS ATTACHED, LIFTING CLUTCHES MAY BE REMOVED.
5. JOINT WRAP SHALL BE PLACED AROUND PERIMETER JOINT PANEL (SEE SHEET 3.0).



PANEL CONNECTION ELEVATION VIEW



STEP 1


STEP 2

DETAIL 6

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SCALE: NTS

SHEET TITLE: SINGLETRAP INSTALLATION SPECIFICATION

SHEET NUMBER: 3.1

ZONE CHART

ZONES	ZONE DESCRIPTIONS	REMARKS
ZONE 1	FOUNDATION AGGREGATE	#5 (3") STONE ANGULAR AGGREGATE (SEE NOTE 4)
ZONE 2	BACKFILL	UNIFIED SOILS CLASSIFICATION (GW, GP, SW, SP) OR SEE BELOW FOR APPROVED BACKFILL OPTIONS
ZONE 3	FINAL COVER OVERTOP	MATERIALS NOT TO EXCEED 120 PCF

APPROVED ZONE 2 BACKFILL OPTIONS

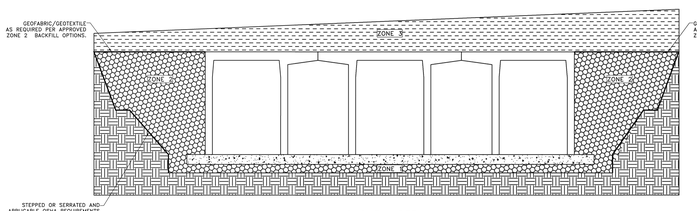
OPTION	REMARKS
3/4" STONE AGGREGATE	THE STONE AGGREGATE SHALL CONSIST OF CLEAN AND FREE DRAINING ANGULAR MATERIAL THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL (ASTM SIZE #57) AS DETERMINED BY THE GEOTECHNICAL ENGINEER.
SAND	IMPORTED PURE SAND IS PERMITTED TO BE USED AS BACKFILL IF IT IS CLEAN AND FREE DRAINING. THE SAND USED FOR BACKFILLING SHALL HAVE LESS THAN 40% PASSING #40 SIEVE AND LESS THAN 5% PASSING #200 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE SAND BACKFILL.
CRUSHED CONCRETE AGGREGATE	CLEAN, FREE DRAINING CRUSHED CONCRETE AGGREGATE MATERIAL CAN BE USED AS BACKFILL FOR STORMTRAP'S MODULES. THE SIZE OF THIS MATERIAL SHALL HAVE 100% PASSING THE 1" SIEVE WITH 0% TO 5% PASSING THE #8 SIEVE. THIS MATERIAL SHALL BE SEPARATED FROM NATIVE MATERIAL USING GEOFABRIC AROUND THE PERIMETER OF THE BACKFILL.
ROAD PACK	STONE AGGREGATE 100% PASSING THE 1-1/2" SIEVE WITH LESS THAN 12% PASSING THE #200 SIEVE (ASTM SIZE #467). GEOFABRIC AS PER GEOTECHNICAL ENGINEER RECOMMENDATION.

FILL DEPTH	TRACK WIDTH	MAX VEHICLE WEIGHT (KIPS)	MAX GROUND PRESSURE
12"	12"	51.8	1690 psf
	18"	56.1	1219 psf
	24"	68.1	1111 psf
	30"	76.7	1000 psf
	36"	85.0	924 psf

NOTE:
TRACK LENGTH NOT TO EXCEED 15'-4".
ONLY TWO TRACKS PER VEHICLE.

STORMTRAP ZONE INSTALLATION SPECIFICATION/PROCEDURE

1. THE FILL PLACED AROUND THE STORMTRAP MODULES MUST BE DEPOSITED ON BOTH SIDES AT THE SAME TIME AND TO APPROXIMATELY THE SAME ELEVATION. AT NO TIME SHALL THE FILL BEHIND ONE SIDE WALL BE MORE THAN 2'-0" HIGHER THAN THE FILL ON THE OPPOSITE SIDE. BACKFILL SHALL EITHER BE COMPACTED AND/OR VIBRATED TO ENSURE THAT BACKFILL AGGREGATE/STONE MATERIAL IS WELL SEATED AND PROPERLY INTER LOCKED. CARE SHALL BE TAKEN TO PREVENT ANY WEDGING ACTION AGAINST THE STRUCTURE, AND ALL SLOPES WITHIN THE AREA TO BE BACKFILLED MUST BE STEPPED OR SERRATED TO PREVENT WEDGING ACTION. CARE SHALL ALSO BE TAKEN AS NOT TO DISRUPT THE JOINT WRAP FROM THE JOINT DURING THE BACKFILL PROCESS. BACKFILL MUST BE FREE-DRAINING MATERIAL. SEE ZONE 2 BACKFILL CHART ON THIS PAGE FOR APPROVED BACKFILL OPTIONS. IF NATIVE EARTH IS SUSCEPTIBLE TO MIGRATION, CONFIRM WITH GEOTECHNICAL ENGINEER AND PROVIDE PROTECTION AS REQUIRED (PROVIDED BY OTHERS). ALL MODULES MUST BE SET AND ALL SIDES MUST BE FULLY BACKFILLED BEFORE TRAVEL OVERTOP THE SYSTEM IS PERMITTED. SEE NOTE 2 FOR EXCEPTIONS AND LIMITATIONS.
2. THE FILL PLACED OVERTOP THE SYSTEM SHALL BE PLACED IN MINIMUM 6" LIFTS. AT NO TIME SHALL MACHINERY OR VEHICLES GREATER THAN THE DESIGN LIVE LOAD LISTED ON SHEET 1.1 TRAVEL OVERTOP THE SYSTEM. IF TRAVEL OVER THE SYSTEM OCCURS BEFORE THE MINIMUM DESIGN COVER IS ACHIEVED, IT MAY BE NECESSARY TO REDUCE THE ULTIMATE LOAD/BURDEN OF THE OPERATING MACHINERY SO AS TO NOT EXCEED THE DESIGN CAPACITY OF THE SYSTEM. VEHICLES AND MACHINERY USED TO PLACE FILL MATERIAL ON TOP OF THE SYSTEM SHALL TRAVEL PARALLEL TO THE LONGITUDINAL AXIS OF THE STORMTRAP MODULES WHENEVER POSSIBLE.
3. THE VIBRATORY FUNCTION OF ANY ROLLER, COMPACTOR, VEHICLE, ETC. SHALL NOT BE USED OVERTOP THE SYSTEM WITHOUT PRIOR APPROVAL FROM STORMTRAP. IN SOME CASES, HAND COMPACTION MAY BE NECESSARY TO ENSURE THAT THE ALLOWABLE DESIGN LOADING IS NOT EXCEEDED.
4. STONE AGGREGATE FOUNDATION IN ZONE 1 IS FOR LEVELING PURPOSES.



BACKFILL DETAIL

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SCALE: NTS

SHEET TITLE: SINGLETRAP BACKFILL SPECIFICATION

SHEET NUMBER: 4.0

ACCESS OPENING SPECIFICATION

1. A TYPICAL ACCESS OPENING FOR THE STORMTRAP SYSTEM ARE 2'-0" IN DIAMETER. ACCESS OPENINGS LARGER THAN 5'-0" IN DIAMETER NEED TO BE APPROVED BY STORMTRAP. ALL OPENINGS MUST RETAIN AT LEAST 3'-0" OF CLEARANCE FROM THE END OF THE STORMTRAP MODULE UNLESS NOTED OTHERWISE. ALL ACCESS OPENINGS TO BE LOCATED ON INSIDE LEG UNLESS OTHERWISE SPECIFIED. SEE SHEET 2.0 FOR SIZES AND LOCATIONS.
2. UNLESS OTHERWISE SPECIFIED, PLASTIC COATED STEPS ARE PROVIDED INSIDE ANY MODULE WHERE DEEMED NECESSARY. THE HIGHEST STEP IN THE MODULE IS TO BE PLACED A DISTANCE OF 1'-0" FROM THE INSIDE EDGE OF THE STORMTRAP MODULES. ALL ENSUING STEPS SHALL BE PLACED AT A DISTANCE BETWEEN 10" MIN AND 14" MAX BETWEEN THEM. STEPS MAY BE MOVED OR ALTERED TO AVOID OPENINGS OR OTHER IRREGULARITIES IN THE MODULE.
3. STORMTRAP LIFTING INSERTS MAY BE RELOCATED TO AVOID INTERFERENCE WITH ACCESS OPENINGS OR THE CENTER OF GRAVITY OF THE MODULE AS NEEDED.
4. STORMTRAP ACCESS OPENINGS MAY BE RELOCATED TO AVOID INTERFERENCE WITH INLET AND/OR OUTLET PIPE OPENINGS SO PLACEMENT OF STEPS IS ATTAINABLE.
5. ACCESS OPENINGS SHOULD BE LOCATED IN ORDER TO MEET THE APPROPRIATE MUNICIPAL REQUIREMENTS. STORMTRAP RECOMMENDS AT LEAST TWO ACCESS OPENINGS PER SYSTEM FOR ACCESS AND INSPECTION.
6. USE PRECAST ADJUSTING RINGS AS NEEDED TO MEET GRADE. STORMTRAP RECOMMENDS FOR COVER OVER 2' TO USE PRECAST BARREL OR CONE SECTIONS. (PROVIDED BY OTHERS)

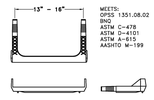
PIPE OPENING SPECIFICATION

1. MINIMUM EDGE DISTANCE FOR AN OPENING ON THE OUTSIDE WALL SHALL BE NO LESS THAN 1'-0".
2. CONNECTING PIPES MAY BE INSTALLED WITH A 1'-0" CONCRETE COLLAR AND AN AGGREGATE CRADLE (AS REQUIRED) FOR AT LEAST ONE PIPE LENGTH (SEE PIPE CONNECTION DETAIL). A STRUCTURAL GRADE CONCRETE OR HIGH STRENGTH, NON-SHRINK GROUT WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI MAY BE USED.
3. THE ANNULAR SPACE BETWEEN THE PIPE AND THE HOLE SHALL BE FILLED WITH HIGH STRENGTH NON-SHRINK GROUT.

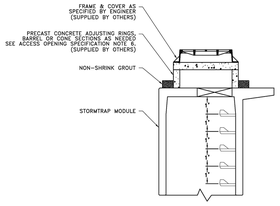
PIPE INSTALLATION INSTRUCTIONS

1. CLEAN AND LIGHTLY LUBRICATE ALL OF THE PIPE TO BE INSERTED INTO STORMTRAP.
2. IF PIPE IS CUT, CARE SHOULD BE TAKEN TO ALLOW NO SHARP EDGES. BEVEL AND LUBRICATE LEAD END OF PIPE.
3. ALIGN CENTER OF PIPE TO CORRECT ELEVATION AND INSERT INTO OPENING.

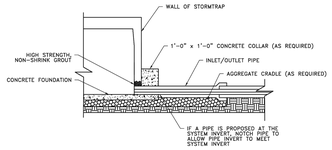
NOTE: ALL ANCILLARY PRODUCTS/SPECIFICATIONS RECOMMENDED AND SHOWN ON THIS SHEET INCLUDING BUT NOT LIMITED TO CONCRETE COLLARS, AGGREGATE CRADLES, GRADE RINGS, RISER SECTIONS, ETC., ARE RECOMMENDATIONS ONLY AND SUBJECT TO CHANGE PER THE INSTALLING CONTRACTOR AND/OR PER LOCAL MUNICIPAL CODE/REQUIREMENTS.



STEP DETAIL



RISER/STAIR DETAIL



NOTCHED PIPE CONNECTION DETAIL WHEN PIPE INVERT IS AT INVERT OF STORMTRAP SYSTEM

StormTrap
PATENTS ISSUED AT: [HTTPS://STORMTRAP.COM/PATENTS]
1287 WINDHAM PARKWAY
ROMEOVILLE, IL 60446
P:815-941-4549 / F:331-318-5347

ENGINEER INFORMATION:
Walter P Moore
Kansas City, MO

PROJECT INFORMATION:
STEM Campus
Bentonville, AR

CURRENT ISSUE DATE:
6/4/2026

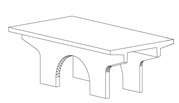
ISSUED FOR:
PRELIMINARY

REV.	DATE:	ISSUED FOR:	DWN BY:
2	6/4/2026	PRELIMINARY	JPH
1	6/1/2026	PRELIMINARY	JPH

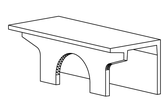
SCALE: NTS

SHEET TITLE: PIPE / ACCESS OPENING SPECIFICATION

SHEET NUMBER: 5.0


TYPE I

TYPE II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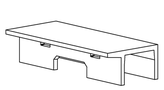
TYPE IV

TYPE IV END PANEL

NOTES:
1. OPENING LOCATIONS AND SHAPES MAY VARY.
2. SP – INDICATES A MODULE WITH MODIFICATIONS.
3. P – INDICATES A MODULE WITH A PANEL ATTACHMENT.
4. POCKET WINDOW OPENINGS ARE OPTIONAL.

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ROMEOVILLE, IL 60446
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1	6/1/2026	PRELIMINARY	JPH

SCALE: NTS

SHEET TITLE: SINGLETRAP MODULE TYPES

SHEET NUMBER: 6.0

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Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712
479.367.3250

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
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STORM DETAILS

C10.024PH2

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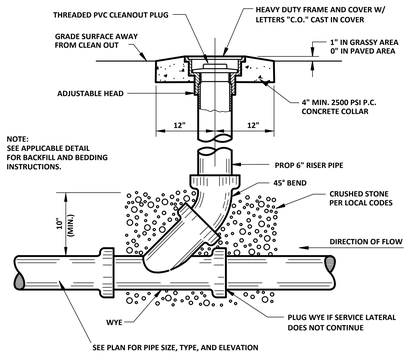
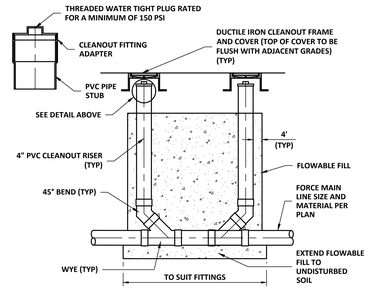


CLEAN OUTS ON PROPOSED SANITARY SEWER CAN BE USED FOR 6" SERVICE LINES AND SMALLER.

1 SANITARY SEWER CLEANOUT (PRIVATE UTILITIES)

NTS



2 TWO-WAY CLEANOUT STRUCTURE

NTS

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026

ASBL COA NO. 719

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ORIGINAL ISSUE			DATE

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SANITARY DETAILS

C10.030PH2

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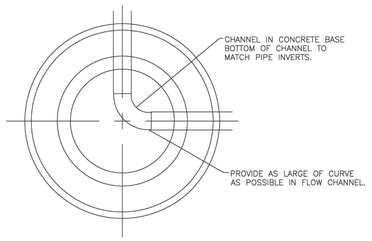
SANITARY SEWER EXTERIOR DROP MANHOLE



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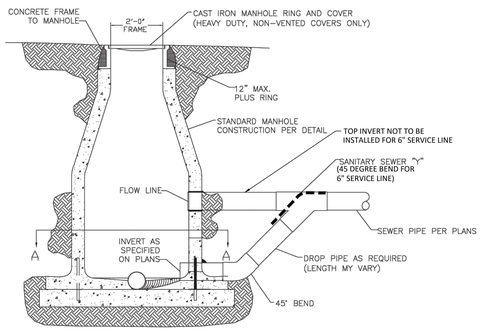
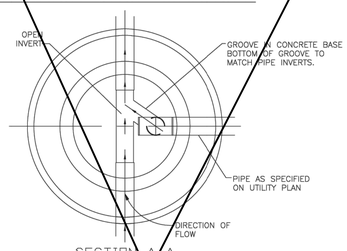


SANITARY SEWER INTERIOR DROP MANHOLE



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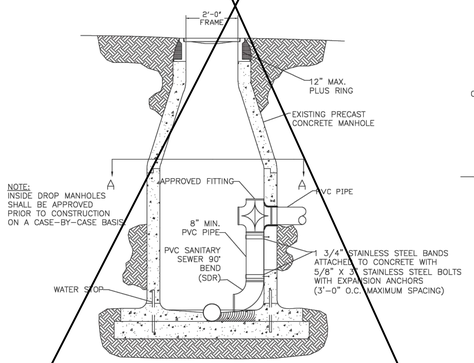
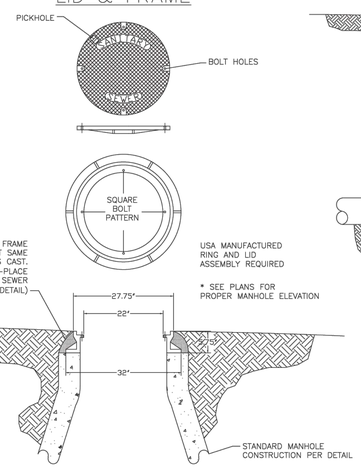
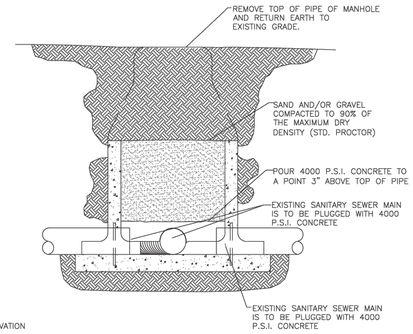


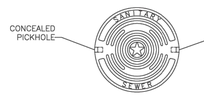
WATER TIGHT BOLTED MANHOLE LID & FRAME



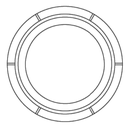
SANITARY SEWER MANHOLE ABANDONMENT



HEAVY DUTY MANHOLE LID & FRAME

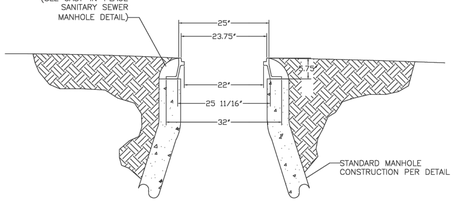


MINIMUM 260LB IN STREETS

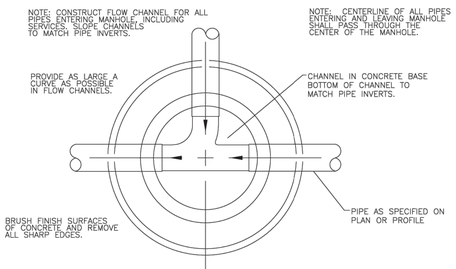


USA MANUFACTURED RING AND LID ASSEMBLY REQUIRED

* SEE PLANS FOR PROPER MANHOLE ELEVATION

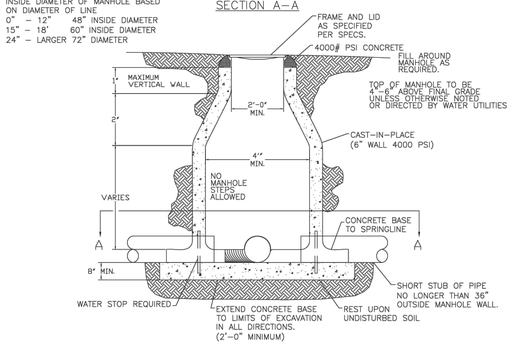


SANITARY SEWER MANHOLE CAST-IN-PLACE

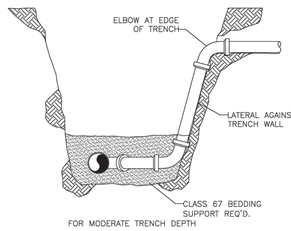


NOTE:
INSIDE DIAMETER OF MANHOLE BASED ON DIAMETER OF LINE
0" – 12" 48" INSIDE DIAMETER
15" – 18" 60" INSIDE DIAMETER
24" – LARGER 72" DIAMETER

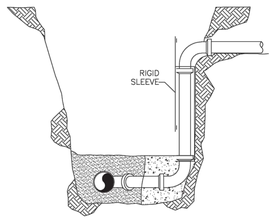
SECTION A–A



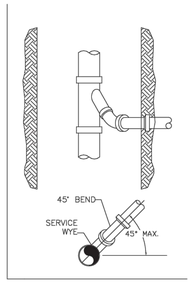
SANITARY SEWER SERVICE WYE

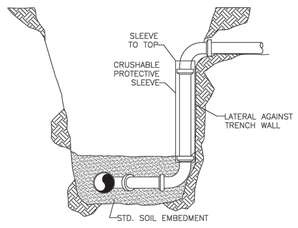


FOR MODERATE TRENCH DEPTH

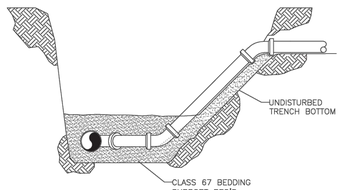


RIGID SLEEVE FOR ANY TRENCH (CONCRETE MUST SUPPORT SLEEVE)





CRUSHABLE SLEEVE – ANY DEPTH (SLEEVE OF NEAR ZERO COLUMN STRENGTH)



SLOPING LATERAL TRENCH – ANY DEPTH (SLOPE AT 1:1 OR FLATTER)

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SAN.SEWER DETAILS

811 CALL BEFORE YOU DIG – 2 BUSINESS DAYS – 811.ORG – ARKANSAS ONE-CALL SYSTEM, INC.

REVISIONS:

Adopted by City Council 1/14/2003
Ordinance Number: 2003-18

Bentonville Wastewater Department
Note added Per Mike Bender and
Mike Roberts by CAO. 3/14/2007

Changes Proposed by Water Dept.
4/10/2007
10/04/2007
04/16/2008

Changes Proposed by Health Dept.
5/9/2007

NOTES:

DRAWN BY: CAO | DATE: 10/4/2007
APPROVED BY: XXX | DATE: XX/XX/XXXX

SHEET NUMBER: 1 OF 2

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
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Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

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M08-25007-00			
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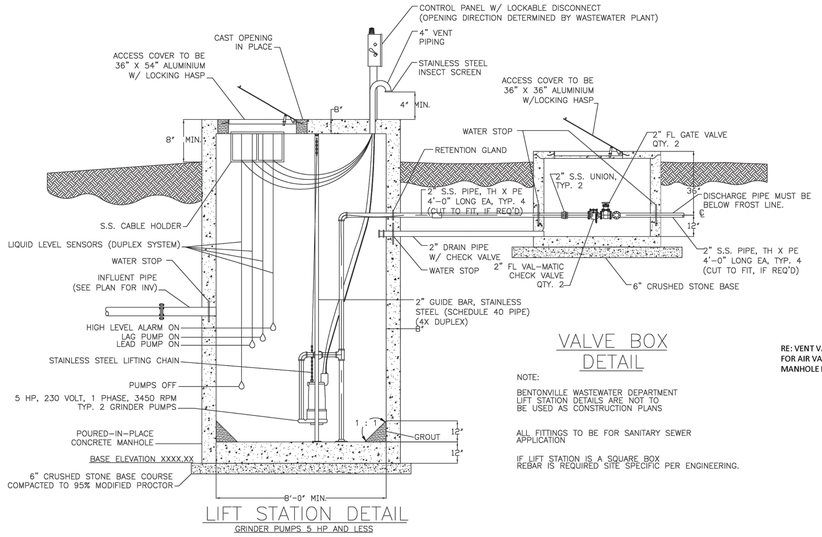


LIFT STATION DETAIL

GRINDER PUMPS 5 HP AND LESS

VALVE BOX DETAIL

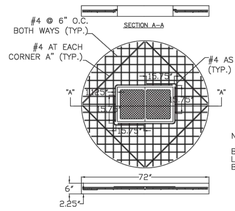
NOTE:

BENTONVILLE WASTEWATER DEPARTMENT LIFT STATION DETAILS ARE NOT TO BE USED AS CONSTRUCTION PLANS

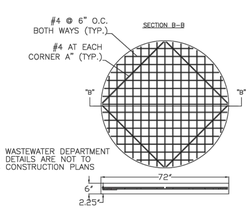
ALL FITTINGS TO BE FOR SANITARY SEWER APPLICATION

IF LIFT STATION IS A SQUARE BOX REBAR IS REQUIRED SITE SPECIFIC PER ENGINEERING.

WET WELL AND VALVE VAULT TOP SLAB REINFORCEMENT DETAIL



WET WELL AND VALVE VAULT BOTTOM SLAB REINFORCEMENT DETAIL

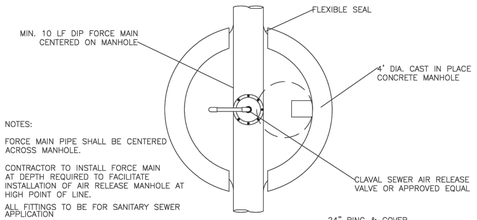


NOTE:

BENTONVILLE WASTEWATER DEPARTMENT LIFT STATION DETAILS ARE NOT TO BE USED AS CONSTRUCTION PLANS

AIR VACUUM/RELEASE MANHOLE FOR FORCE MAIN

NOT TO SCALE



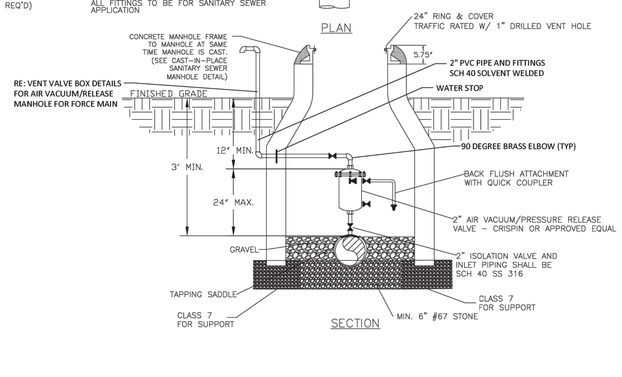
NOTES:

FORCE MAIN PIPE SHALL BE CENTERED ACROSS MANHOLE.

CONTRACTOR TO INSTALL FORCE MAIN AT DEPTH REQUIRED TO FACILITATE INSTALLATION OF AIR RELEASE MANHOLE AT HIGH POINT OF LINE.

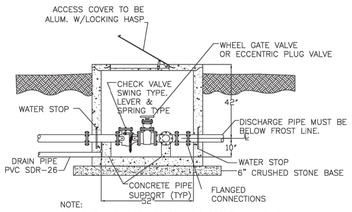
ALL FITTINGS TO BE FOR SANITARY SEWER APPLICATION

PLAN



SECTION

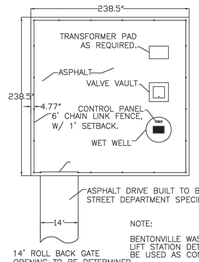
LIFT STATION VALVE VAULT DETAIL



NOTE:

REBAR IS REQUIRED SITE SPECIFIC PER ENGINEERING.

LIFT STATION SITE DETAIL

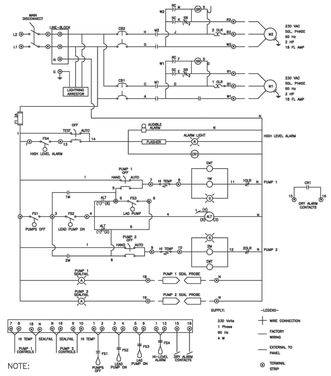


NOTE:

BENTONVILLE WASTEWATER DEPARTMENT LIFT STATION DETAILS ARE NOT TO BE USED AS CONSTRUCTION PLANS

DUPLEX PUMP CONTROL PANEL

230 V / SINGLE PHASE

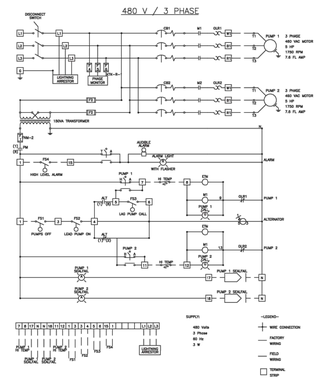


NOTE:

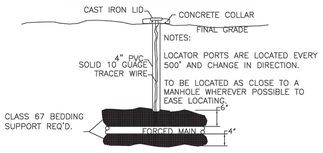
BENTONVILLE WASTEWATER DEPARTMENT LIFT STATION DETAILS ARE NOT TO BE USED AS CONSTRUCTION PLANS

DUPLEX PUMP CONTROL PANEL

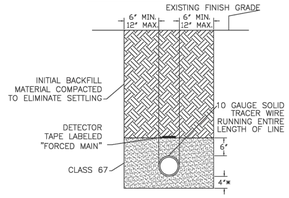
480 V / 3 PHASE



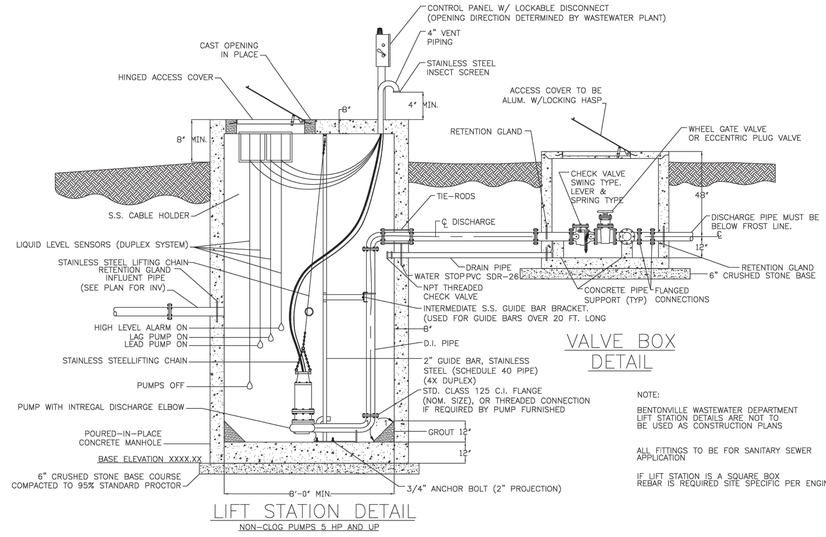
TRACER WIRE PORT



TYPICAL BEDDING DETAIL FOR FORCED MAIN



* IF IN ROCK 6" MIN. CLASS #67 STONE REQUIRED.



LIFT STATION DETAIL

NON-CLOG PUMPS 5 HP AND UP

VALVE BOX DETAIL

NOTE:

BENTONVILLE WASTEWATER DEPARTMENT LIFT STATION DETAILS ARE NOT TO BE USED AS CONSTRUCTION PLANS

ALL FITTINGS TO BE FOR SANITARY SEWER APPLICATION

IF LIFT STATION IS A SQUARE BOX REBAR IS REQUIRED SITE SPECIFIC PER ENGINEERING.

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

walter p moore

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Bentonville, Arkansas 72712

479.367.3250

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SAN.SEWER DETAILS

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

REVISIONS:

Adopted by City Council 1/14/2003
Ordinance Number: 2003-18

Changes Proposed by Water Dept.
4/10/2007
10/04/2007
04/16/2008

Changes Proposed by Health Dept.
5/9/2007

NOTES:

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

DRAWN BY:	CAO	DATE:	10/04/2007
APPROVED BY:	XXX	DATE:	XX/XX/XXXX
SHEET NUMBER:	2	OF	2

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

SANITARY DETAILS

C10.032PH2

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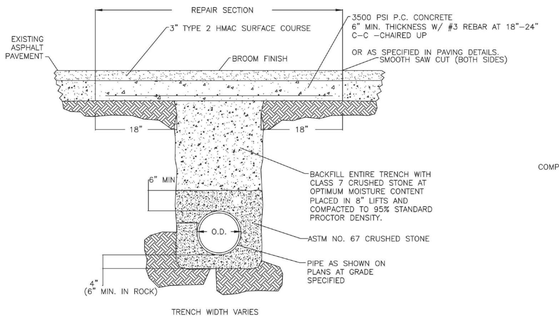
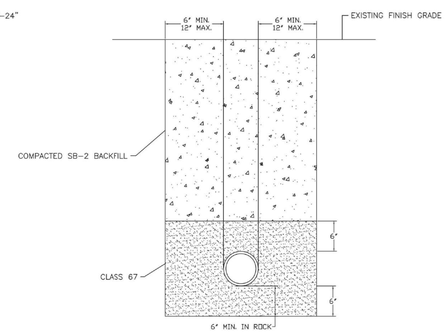
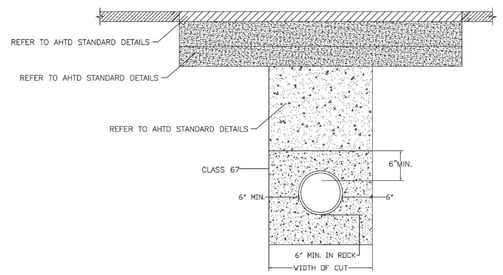
24-Jul-2026 - 7:19 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plans\STEM_PVT_WPM_C-MTP-DT_M08250700.dwg



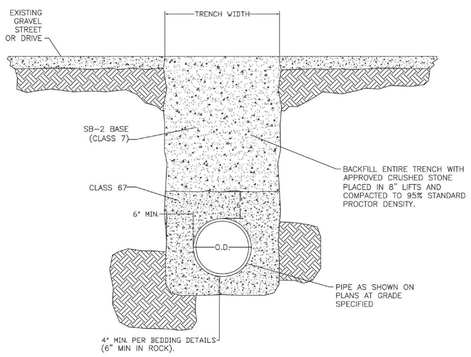
NOTE: FLOWABLE FILL MAY BE USED IN LIEU OF CLASS 7 CRUSHED STONE
IF APPROVED BY CITY ENGINEER

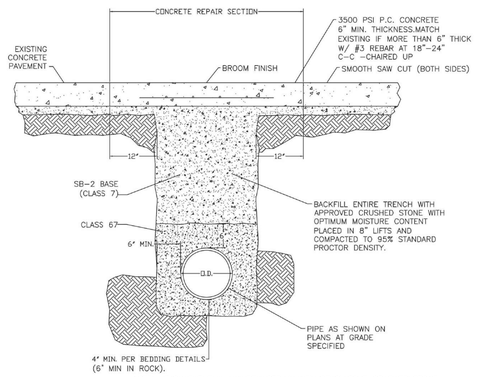
NOTE: IF A FINAL REPAIR CANNOT BE STARTED WITH IN 24 HOURS OF AN OPEN CUT, THEN THE TRENCH SHALL BE BACKFILLED PER DEATIL WITH IN A 1" MIN OF EXISTING SURFACE, THEN APPLY TEMPORARY COMPATED COLD ASPHALT PATCH AND MAINTAIN UNTIL THE PERMINENT REPAIRE IS MADE.





NOTE: IMPROVED PRIVATE DRIVEWAYS AND PARKING AREAS BACKFILLED AS SHOWN ABOVE.
SUBSURFACE MATERIAL TO EQUAL OR EXCEED EXISTING SURFACE.
ASPHALTIC CONCRETE WALKS – MINIMUM THICKNESS 4"
CONCRETE DRIVES OR PARKING AREAS – MINIMUM THICKNESS 6".





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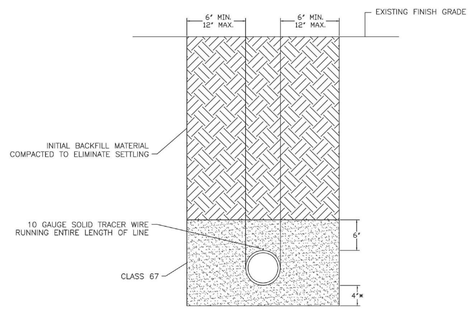

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Ph: (479) 271-3140
www.bentonvillear.com

WATER/SEWER DETAILS

REVISIONS:

Adopted by City Council 1/14/2003 Ordinance Number: 2003-18

Changes Proposed by Water Dept. 4/10/2007

Changes Proposed by Water Dept. 10/10/2007

Changes Approved by Health Dept. 05/08/2007

NOTES:

DRAWN BY: CAO DATE: 10/10/2007

APPROVED BY: XXX DATE: XX/XX/XXXX

SHEET NUMBER: 1 OF 2

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Bentonville, Arkansas 72712

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

WATER LINE DETAILS

C10.040PH2

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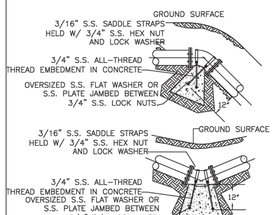
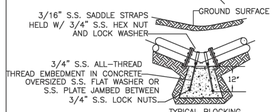
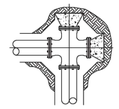
24-Jul-2026 - 7:19 PM - X:\M08\25\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets_SD Plan\STEM_PV1_WPM_C-ATTP-DT_M08250700.dwg

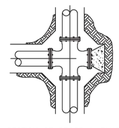




TYPICAL BLOCKING FOR VERTICAL BENDS



TYPICAL SECTION OF CROSS & 2 PLUG BLOCKING (WHEN DIRECTED BY WATER DEPT.)



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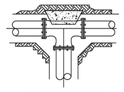
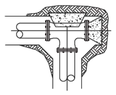
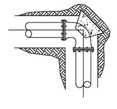


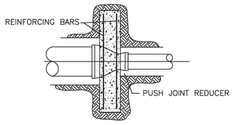
BLOCKING FOR TEE



* SPECIAL BLOCKING OF TEE & PLUG (WHEN DIRECTED BY WATER DEPT.)



TYPICAL BLOCKING FOR HORIZONTAL BENDS

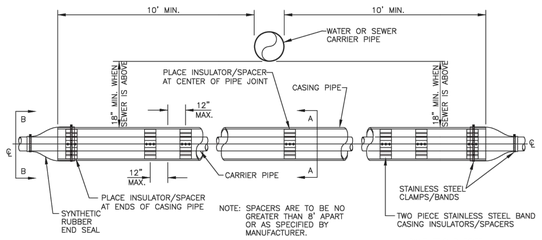


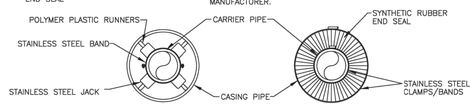
THRUST SUPPORT FOR REDUCER (SIZE TO BE DETERMINED BY WATER DEPT.)

NOTES
1. ALL BLOCKING SHALL BE AGAINST UNDISTURBED SOIL USING 4,000 PSI CONCRETE.
2. WHERE SOIL CONDITIONS MAKE IT NECESSARY TO POUR CONCRETE OVER JOINTS, THE ENDS OF THE ADJACENT PIPES MUST HAVE A THRUST BLOCK TO RESIST MOVEMENT OF THESE JOINTS.
3. WEIGHT CALCULATIONS TO BE BASED ON REACTION BACKING TABLE (SEE GWS03).
4. WHEN BLOCKING AGAINST FITTINGS, FITTINGS SHALL BE COVERED WITH POLYETHYLENE WRAP TO PREVENT BONDING OF CONCRETE.
5. WHERE SHEAR BECOMES A PROBLEM PROPER REINFORCING MUST BE INSTALLED INTO THE BLOCKING.
6. CLEARANCE SHALL BE A MINIMUM OF 6" BETWEEN PIPE AND OBSTRUCTIONS.
7. CLEARANCE ON PIPES BELONGING TO OIL/GAS COMPANIES SHALL BE 18" UNLESS SPECIAL PERMISSION IS GIVEN BY THESE COMPANIES.
8. 12" OF ALL THREAD EMBEDDED IN CONCRETE

SIZE	REQUIRED SQ. FT. OF UNDISTURBED EARTHWALL FOR REACTION BACKING					
	TYPE OF FITTINGS					
	TEE	90°	45°	22 1/2°	11 1/4°	PLUG
2"	1	1	1	1	1	1
3"	1	1	1	1	1	1
4"	1	2	1	1	1	2
6"	3	3	2	1	1	3
8"	4	6	3	2	1	4
10"	6	8	5	3	1	6
12"	8	12	6	3	2	8
14"	11	16	9	4	2	11
16"	14	20	11	6	3	14
18"	18	25	14	7	4	18
20"	22	31	17	9	4	22
24"	32	45	24	12	6	32
30"	48	68	37	19	10	48
36"	69	98	53	27	14	69

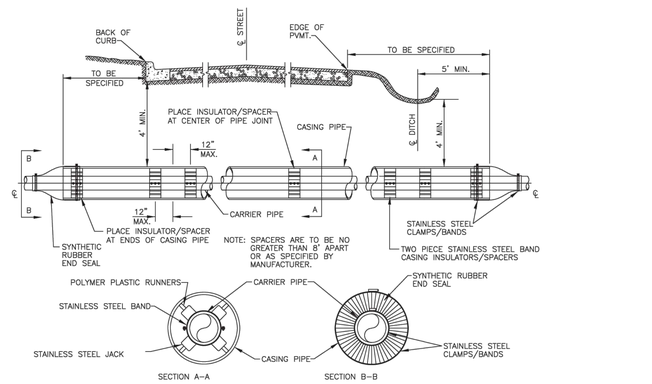
NOTES:
1. ALL FITTINGS SHALL BE MECHANICAL JOINTS.
2. DO NOT COVER BELLS OR FLANGES WITH CONCRETE.
3. WRAP ALL FITTINGS WITH POLY WRAP.
4. BACK ALL TEES ACCORDING TO SIZE OF BRANCH.
5. BACKING FUTURE LINE EXTENSIONS SHALL BE SUCH THAT LATER REMOVAL IS POSSIBLE.
6. ALL BENDS WHERE FITTINGS ARE USED, BOTH HORIZONTAL OR VERTICAL, SHALL BE BACKED WITH CONCRETE.
7. REACTION BACKING TABLE IS BASED ON 150 PSI AND SOIL BEARING PRESSURE OF 2,000 LB/SQ. FT. ADDITIONAL BACKING MAY BE REQUIRED IN SOME AREAS AS REQUIRED BY CITY WATER DEPARTMENT.





CARRIER & CASING SIZES								
CARRIER	4"	6"	8"	10"	12"	14"	16"	18"	20"
CASING	16"	16"	16"	18"	20"	24"	30"	30"	36"
CASING/WALL THICKNESS	.219	.219	.219	.250	.281	.344	.406	.406	.500

NOTE: DUCTILE IRON, OR PVC PIPE REQUIRED FOR WATER, OR SEWER.



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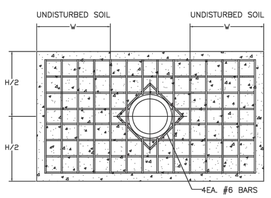
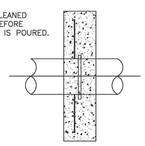
NOTE: DUCTILE IRON, OR PVC PIPE REQUIRED FOR WATER, OR SEWER.

ANCHOR COLLAR SCHEDULE						
PIPE SIZE	DIMENSIONS				REINFORCING BARS	
	W	H	T	M	"A" BARS	"B" BARS
6"	1.5'	2.0'	1.0'	M.J. RETAINER GLAND	#6@6"	#6@6"
8"	1.5'	2.5'	1.0'	M.J. RETAINER GLAND	#6@6"	#6@6"
12"	2.0'	4.0'	1.5'	M.J. RETAINER GLAND	#6@6"	#6@6"
16"	3.0'	4.5'	1.5'	M.J. RETAINER GLAND	#6@6"	#6@6"
20"	3.0'	5.0'	2.0'	M.J. RETAINER GLAND	#6@6"	#6@6"
24"	3.5'	5.5'	2.0'	M.J. RETAINER GLAND	#7@6"	#6@10"
30"	6.5'	6.0'	2.5'	4"	#8@6"	#7@10"
36"	7.0'	7.0'	2.5'	4"	#8@6"	#7@10"



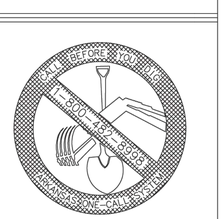
ANCHOR COLLAR (ELEVATION)

NOTE:
PIPE SURFACES SHALL BE CLEANED OF ALL FOREIGN MATERIAL BEFORE 4000 PSI CONCRETE COLLAR IS POURED.



ANCHOR COLLAR (SIDE)

NOTE:
USE M.J. RETAINER GLANDS FOR PIPE 24" AND SMALLER.



THE CITY OF BENTONVILLE
501 SE 3rd Steet
Bentonville, AR 72712
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WATER/SEWER DETAILS

REVISIONS:
Adopted by City Council 1/14/2003 Ordinance Number: 2003-18
Changes Proposed by Water Dept. 4/10/2007
Changes Proposed by Water Dept. 10/10/2007
Changes Proposed by Water Dept. 02/11/2008

NOTES:

DRAWN BY: CAO	DATE: 10/10/2007
APPROVED BY: XXX	DATE: XX/XX/XXXX
SHEET NUMBER: 2	OF 2

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
1	02/27/2026	LSD SD
2	04/27/2026	60% CD
3	05/22/2026	90% CD
4	06/17/2026	100% CD
5	07/17/2026	100% CD 2ND SUBMISSION

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00			
ORIGINAL ISSUE			DATE

WATER LINE DETAILS

C10.041PH2

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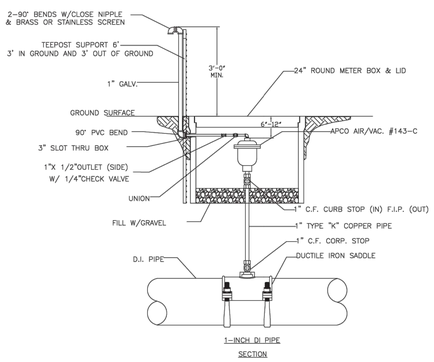
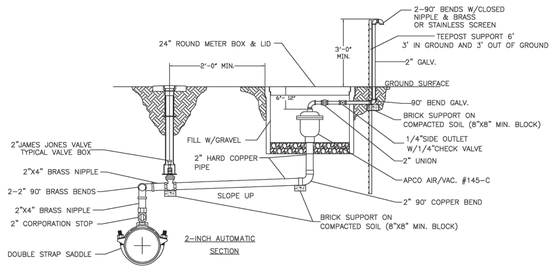
24-Jul-2026 - 7:19 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_WPM_C-MTP DT_M08250070.dwg

1" COMBINATION AIR/VACUUM VALVE DETAIL



NOTES:
1. ALL THREADED CONNECTIONS SHALL HAVE A DOUBLE WRAP OF TEFLON TAPE ON THREADS.
2. DRILL HOLE IN SIDE OF METER BOX FOR OUTLET PIPING.
3. VALVES WILL BE PIPED TO POINT BEYOND PAVEMENT AND SHOULDER.

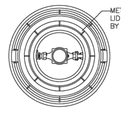
2" COMBINATION AIR/VACUUM VALVE DETAIL



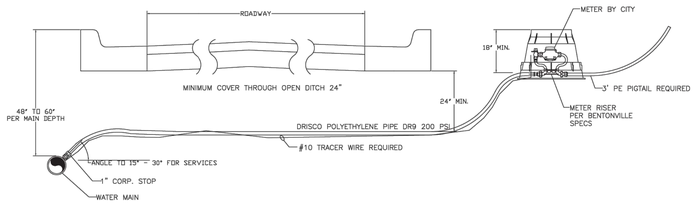
NOTES:
1. ALL THREADED CONNECTIONS SHALL HAVE A DOUBLE WRAP OF TEFLON TAPE ON THREADS.
2. DRILL HOLE IN SIDE OF METER BOX FOR OUTLET PIPING.
3. VALVES WILL BE PIPED TO POINT BEYOND PAVEMENT AND SHOULDER.

WATER SERVICE DETAIL 1"

NOTE:
1" DRISCO TUBING WILL SUPPLY WATER ONLY TO A SINGLE 1" METER SERVICE.

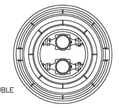


SINGLE SET

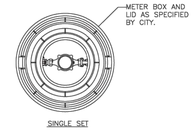


WATER SERVICE DETAIL 5/8"

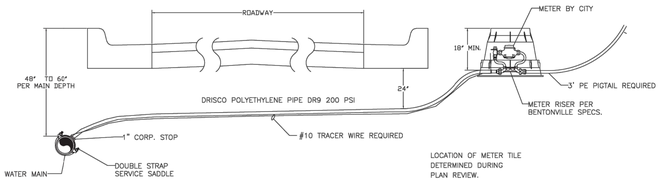
NOTE:
1" DRISCO TUBING WILL SUPPLY WATER TO A SINGLE 5/8" METER SERVICE OR A DOUBLE 5/8" METER SERVICE.



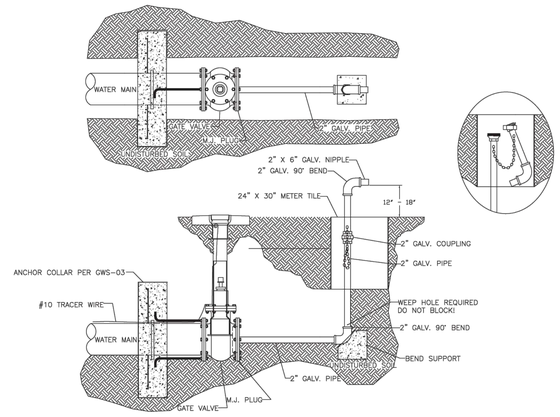
DOUBLE SET



SINGLE SET

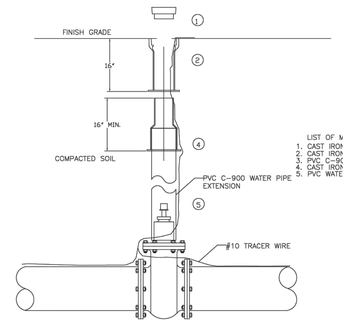


RESTRAINED GATE VALVE W/ 2" BLOW-OFF



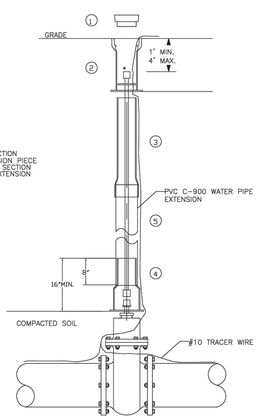
NOTES:
1. END BLOW OFF'S TO BE INSTALLED AS REQUIRED BY THE PLANS.
2. ALL THREADED OUTLETS SHALL HAVE A DOUBLE WRAP OF TEFLON TAPE ON THREADS.
3. VALVE BOXES SHALL BE INSTALLED ON ALL BLOW OFF VALVES.

VALVE BOX VALVE STEM & TRACER WIRE INSTALLATION



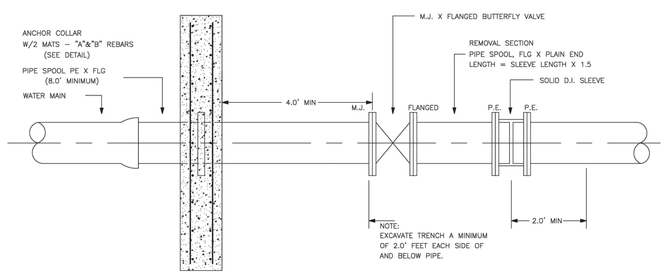
LIST OF MATERIAL
1. CAST IRON COVER
2. CAST IRON TOP SECTION
3. PVC C-900 EXTENSION PIECE
4. CAST IRON BOTTOM SECTION
5. PVC WATER PIPE EXTENSION

NOTES:
1. IF EXTENSION PIECE IS NEEDED, PVC C-900 WATER PIPE MAY BE USED.
2. EXTENSION PIECE CAN BE CUT TO LENGTH REQUIRED.
3. TRACER WIRE NEEDS TO EXTEND OUT OF THE VALVE BOX A MINIMUM OF 6"
PROVIDE VALVE STEM EXTENSION WITH CENTERING DEVICE IF GREATER THAN 4.0' DEEP.



TYPICAL BUTTERFLY VALVE INSTALLATION

(16" AND LARGER PIPE)



Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

THE CITY OF BENTONVILLE
501 SE 3rd Steet
Bentonville, AR 72712
Ph: (479) 271-3140
www.bentonvillear.com

WATER DETAILS

CALL BEFORE YOU DIG 1-800-482-8998 ARKANSAS ONE-CALL SYSTEM, INC.

REVISIONS:

Adopted by City Council 1/14/2003
Ordinance Number: 2003-18

Changes Proposed by Water Dept.
04/10/2007
10/10/2007
02/11/2008
04/16/2008

Changes Approved by Health Dept.
05/09/2008

NOTES:

DRAWN BY:	CAO	DATE:	10/10/2007
APPROVED BY:	XXX	DATE:	XX/XX/XXXX
SHEET NUMBER:	1	OF	2

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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WATER LINE DETAILS

C10.042PH2

CITY OF BENTONVILLE STANDARD DRAWINGS AND DETAILS APPEARING ON THIS DRAWING HAVE BEEN REPRODUCED IN THEIR ENTIRELY. ONLY PORTIONS OF THESE STANDARD DRAWINGS AND DETAILS MAY BE APPLICABLE TO THIS PROJECT. MY SEAL IS INTENDED TO AUTHENTICATE I HAVE SELECTED THESE STANDARD DRAWINGS AND DETAILS, OR PORTIONS THEREOF, AS APPLICABLE FOR THIS PROJECT AND I HEREBY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN INDICATED BY THESE STANDARD DRAWINGS AND DETAILS

811 SAFETY IS IN YOUR HANDS. EVERY DIG. EVERY TIME.

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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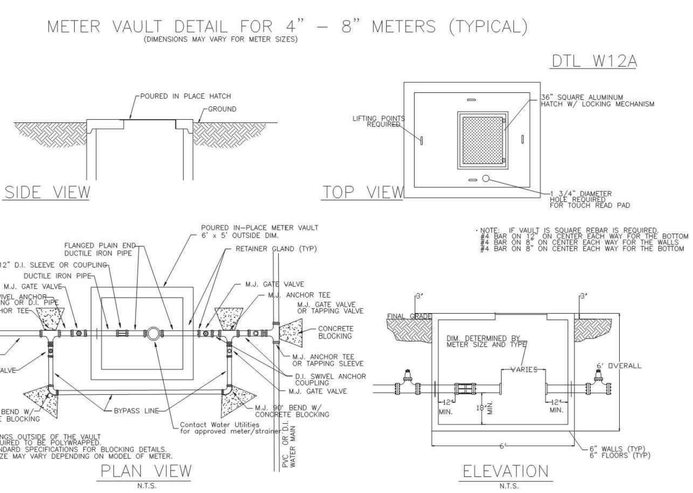
METER VAULT DETAIL FOR 4" – 8" METERS (TYPICAL)

(DIMENSIONS MAY VARY FOR METER SIZES)

DTL W12A



METER VAULT DETAIL FOR 4" – 8" METERS (TYPICAL)

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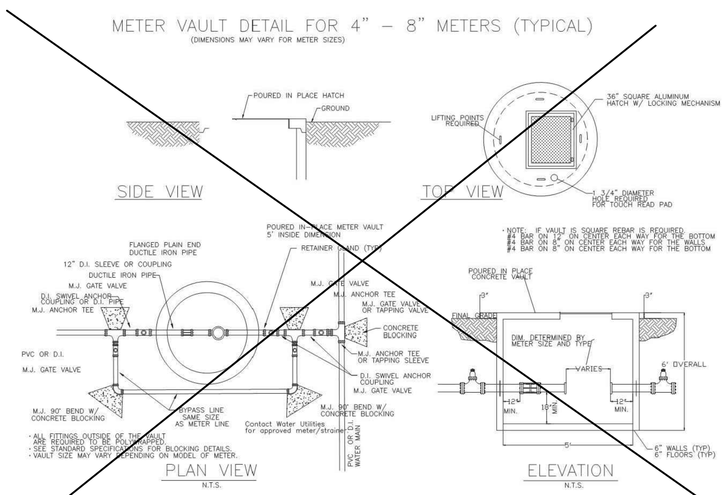
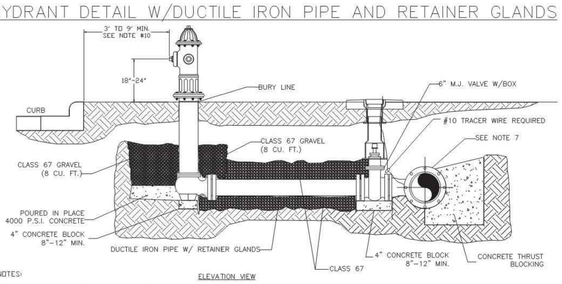


FIRE HYDRANT DETAIL W/DUCTILE IRON PIPE AND RETAINER GLANDS

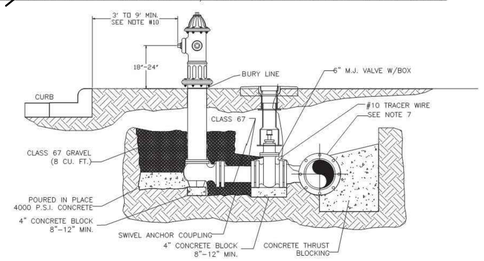


ELEVATION VIEW

NOTES:

1. DRAINAGE BED SHALL CONSIST OF 8 CU FT OF CLASS 67 GRAVEL.
2. USE 6" D.I. NIPPLE WITH M.J. RETAINER GLANDS IF DISTANCE BETWEEN VALVE AND HYDRANT MUST BE GREATER THAN 13" SWIVEL ADAPTER.
3. FIRE HYDRANT TO BE BLOCKED AGAINST FIRM SOIL AS SHOWN.
4. ALL HYDRANTS SHALL BE INSTALLED PLUMB.
5. LARGE NOZZLE SHALL FACE CURB UNLESS OTHER-WISE NOTED. ROTATE BARREL AS REQUIRED.
6. HYDRANT SHOULD NOT BE SET CLOSER THAN 4.0' TO OBSTRUCTIONS THAT ARE IN LINE WITH NOZZLE.
7. M.J. ANCHOR TEE, TAPPING SLEEVE OR TAPPING SADDLE MAY BE USED (SEE MATERIAL SPECIFICATIONS)
8. HYDRANTS TO BE SET AT DEPTHS GREATER THAN 6.0' SHALL BE SET WITH A MODIFIED FIRE HYDRANT SETTING.
9. POLYWRAP ENTIRE HYDRANT ASSEMBLY. DO NOT COVER WEEP HOLE DRAIN.
10. HYDRANTS WILL BE SET AT A MINIMUM OF 3' TO 9' BACK OF CURB OR EDGE OF DRAINING SURFACE, NOT IN SIDEWALK, FIRE LANE, OR RADIUS OR AS DIRECTED BY BENTONVILLE WATER DEPARTMENT.

FIRE HYDRANT DETAIL W/SWIVEL ANCHOR COUPLING



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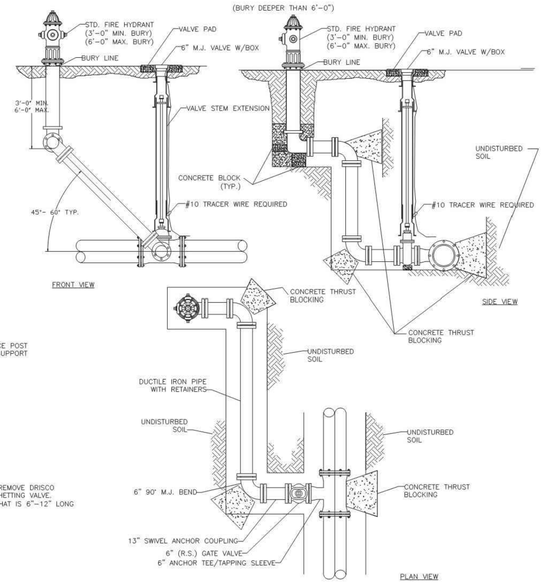
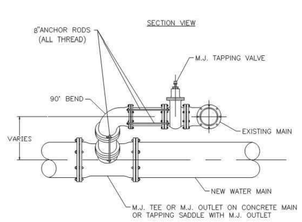
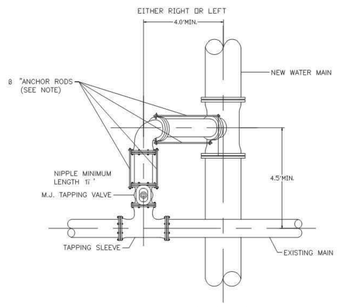
DEEP BURY FIRE HYDRANTS

(BURY DEEPER THAN 6'-0")



SWING CONNECTION – NEW MAIN TO EXISTING MAIN





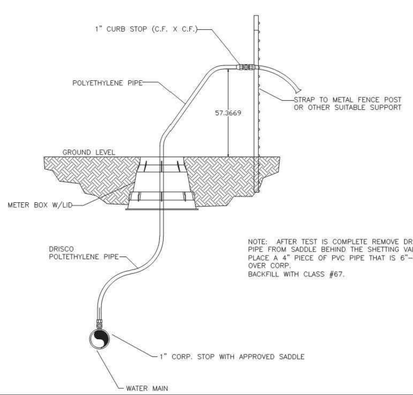
THRUST BLOCKING REQUIRED AT TEES AND ELBOWS.

PIPE SIZE	6"	8"	12"
RODS PER NIPPLE	2	2	4

NOTES:

1. CONTRACTOR SHALL LOCATE EXISTING MAIN IN ADVANCE OF LAYING NEW LINE IN ORDER TO ASSURE ADEQUATE LENGTH TO ADJUST DEPTH OF NEW MAIN.
2. DIMENSIONS SHOWN ARE RECOMENDED MINIMUMS TO PROVIDE ADEQUATE ROOM FOR TIGHTENING BOLTS ON JOINTS. (OTHER DIMENSIONS MAY BE USED.)
3. PROVIDE STAINLESS STEEL "ALL THREAD" TIE RODS WITH EYE BOLTS FOR ANCHORING ALL JOINTS.
4. RODS SHALL BE FIELD CUT TO FIT & SHALL BE PROTECTED WITH POLYWRAP.
5. ROTATE TEE UP & ELBOW DOWN AS REQUIRED TO MATCH.
6. USE TYPICAL CONCRETE BLOCKING REQUIRED.

TEMPORARY 1" BLOW OFF ASSEMBLY SAMPLE POINTS



NOTE: AFTER TEST IS COMPLETE REMOVE DRISCO PIPE FROM SADDLE BEHIND THE SHETTING VALVE. PLACE A 4" PIECE OF PVC PIPE THAT IS 6"-12" LONG OVER CORP. BACKFILL WITH CLASS #67.

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Bentonville, Arkansas 72712

479.367.3250

501 SE 3rd Steet
Bentonville, AR 72712
Ph: (479) 271-3140
www.bentonvillear.com

WATER DETAILS

REVISIONS:

Adopted by City Council 1/14/2003 Ordinance Number: 2003-18

Changes Proposed by Water Dept. 4/10/2007

Changes Proposed by Water Dept. 10/10/2007

Changes Approved by Health Dept. 05/09/2008

NOTES:

DRAWN BY:	CAO
DATE:	10/10/2007
APPROVED BY:	XXX
DATE:	XX/XX/XXXX
SHEET NUMBER:	2
OF	2

STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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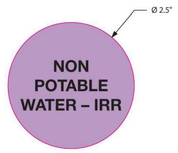
WATER LINE DETAILS

C10.043PH2

24-Jul-2026 - 7:19 PM - X:\M08\2025\25007-00 STEM University - Retail Village\Civil\3-Production\03-Sheets\LSD Plan\STEM_PVT_WPM_C-MTP DT_M025007.dwg



NON POTABLE WATER - SLEEVE CROSSING MARKER

— = dieline, does not print Tolerance = ± .02"

WILLIAM FRICK & COMPANY
Innovations in Identification
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☐ APPROVED AS IS
☐ APPROVED WITH CORRECTIONS
☐ CORRECTED PROOF REQUESTED

Signature Date

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Part #: WPM-CM2.5 **Rev:** 000
File: WPM-CM2_5-D.ai
Date: 06/09/20
Proof: D-
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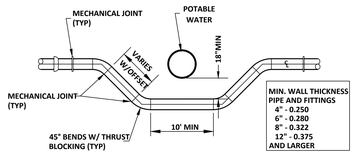
Scale: 100%
Const.: 15 Mil White Rigid Vinyl w/ Clear Mylar UV Resistant Dome
Artist: AML
QC:

1

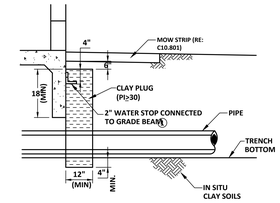


NOTES:

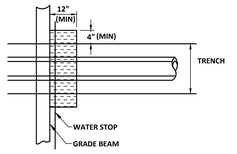
1. FOR ALL POTABLE AND NON-POTABLE CROSSINGS, THE NON-POTABLE WATER LINE SHALL BE OFFSET WITH 18" OF VERTICAL CLEARANCE.
2. ALL WATER LINE SHALL BE INSTALLED PER CITY OF BENTONVILLE REQUIREMENTS WITH BEDDING PER DETAIL ON SHEET C4.000.
3. THRUST BLOCKING SHALL BE INSTALLED PER DETAIL ON SHEET C4.001.

WATER LINE OBSTRUCTION CROSSING (PRIVATE UTILITIES)

2 NTS



SECTION

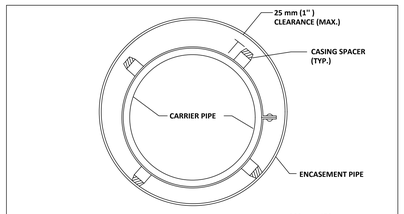


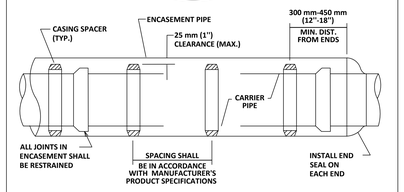
PLAN

NOTES:
1. WATER STOP MAY BE PLASTIC OR METAL ADHERED TO THE GRADE BEAM AND EXTENDED A MINIMUM OF 2 INCHES HORIZONTALLY IN TO THE CLAY PLUG.

CLAY PLUG (PRIVATE UTILITIES)

3 NTS





NOTES:
1. END SEALS SHALL BE NEOPRENE RUBBER WITH STAINLESS STEEL CLAMPS.
2. CASING SPACERS SHALL MEET THE FOLLOWING REQUIREMENTS:
   A. METAL COMPONENTS SHALL BE TYPE 304 STAINLESS STEEL. BANDS SHALL BE 14-GAUGE (0.075")
   B. RUNNERS SHALL BE POLYMER PLASTIC.
   C. FOR PIPE UP TO 12" DIAMETER, SPACERS SHALL BE 8" LONG, HAVING RUNNERS AT LEAST 1" WIDE. FOR PIPE OVER 12" DIAMETER, SPACERS SHALL BE 12" LONG, HAVING RUNNERS AT LEAST 2" WIDE.
   D. IN CASES WHERE CARRIER PIPE IS METALLIC CASING SPACER BANDS SHALL HAVE INSULATING LINERS.
3. NUMBER OF CASING SPACERS AND CONFIGURATION SHALL COMPLY WITH CARRIER PIPE MANUFACTURES APPROVED SHOP SUBMITTAL.
4. ENCASEMENT PIPE SHALL BE SOLID WELDED WITH A MINIMUM WALL THICKNESS OF 0.219 INCHES. IT SHALL BE COATED WITH COAL TAR ENAMEL INSIDE AND OUT.

ENCASEMENT PIPE DETAIL (PRIVATE UTILITIES)

4 NTS

walter p moore

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

INTERIM REVIEW ONLY
Document Incomplete: Not intended for permit or construction.
Engineer: TED T. VUONG, P.E.
P.E. Serial No.: 18208
Date: 07/17/2026
ASBL COA NO. 719

NO.	DATE	REVISION
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M08-25007-00			
ORIGINAL ISSUE			DATE

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WATER LINE DETAILS

C10.044PH2

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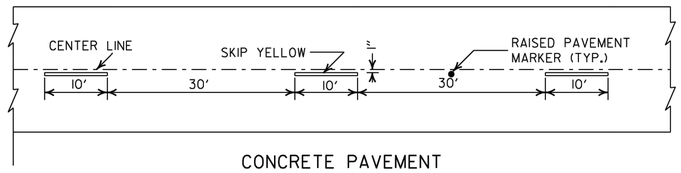
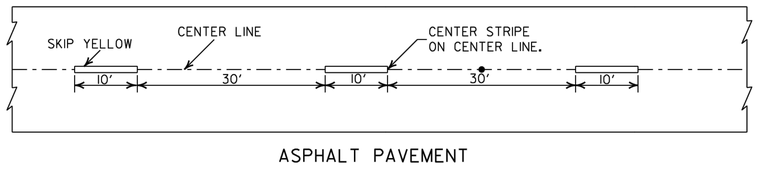
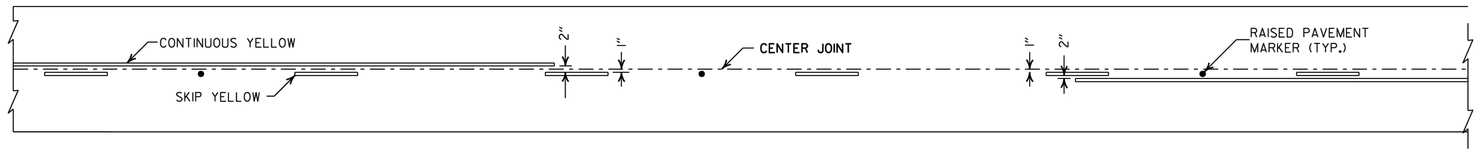


CONCRETE PAVEMENT

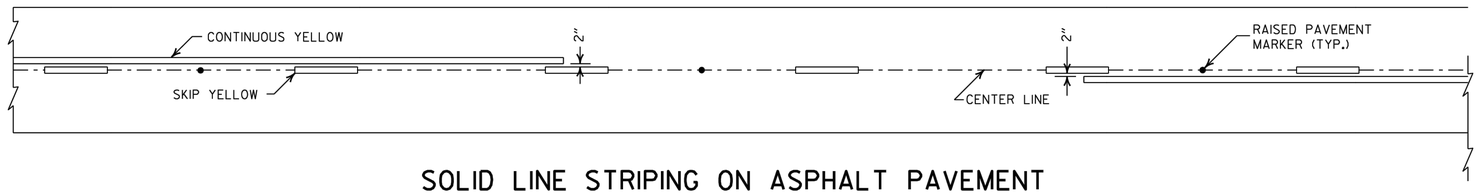


ASPHALT PAVEMENT

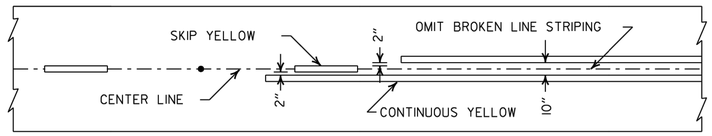
BROKEN LINE STRIPING



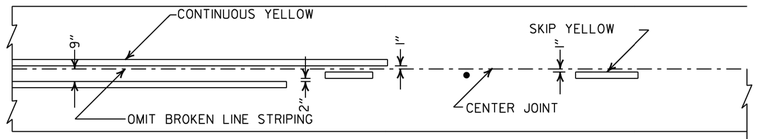
SOLID LINE STRIPING ON CONCRETE PAVEMENT



SOLID LINE STRIPING ON ASPHALT PAVEMENT

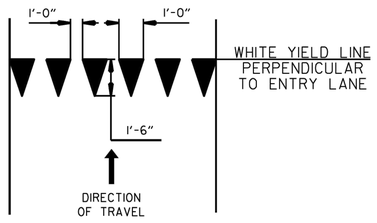


ASPHALT PAVEMENT

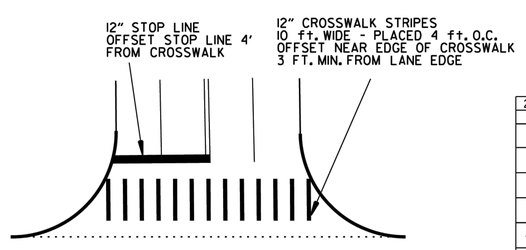


CONCRETE PAVEMENT

STRIPING AT ADJACENT NO PASSING LANES

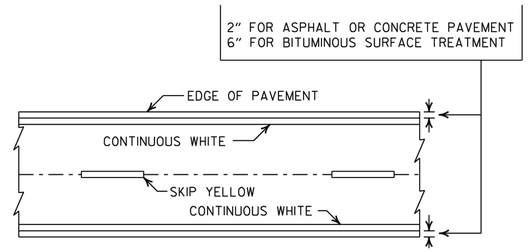


YIELD LINE DETAIL



CROSSWALK AND STOP LINE DETAILS

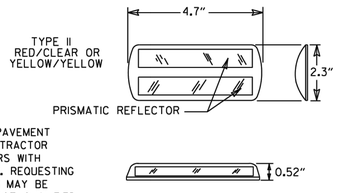
NOTES:
1. REFER TO THE STRIPING DETAILS FOR PAVEMENT MARKING LINE WIDTHS.
2. THIS DRAWING SHALL BE USED IN CONJUNCTION WITH THE LATEST REVISED ADDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
3. RAISED PAVEMENT MARKERS SHALL BE PLACED ON AN 80 FEET SPACING UNLESS OTHERWISE SHOWN IN THE PLANS.



PAVEMENT EDGE LINE MARKING

NOTE:
THE RED LENS OF THE TYPE II R.P.M. SHALL FACE THE INCORRECT TRAFFIC MOVEMENT.

NOTE:
DIMENSIONS SHOWN FOR RAISED PAVEMENT MARKERS ARE TYPICAL. THE CONTRACTOR MAY SUBSTITUTE SIMILAR MARKERS WITH THE APPROVAL OF THE ENGINEER. REQUESTING APPROVAL FOR SIMILAR MARKERS MAY BE MADE BY REFERRING TO THE ARDOT QUALIFIED PRODUCTS LIST.



DETAIL OF STANDARD RAISED PAVEMENT MARKERS

DATE	REVISION	FILMED
2-27-20	REVISED STOP LINE DETAILS	
6-1-17	ADDED YIELD LINE DETAIL	
5-12-16	REVISED LINE WIDTHS, SPACING, & NOTES	
9-12-13	REVISED DETAIL OF STANDARD RAISED PAVEMENT MARKERS	
11-17-10	REVISED GENERAL NOTES & REMOVED PLOWABLE PVMT MRKRS	
11-18-04	REVISED NOTE 2 & GENERAL NOTES	
8-22-02	ADDED CROSSWALK & STOPBAR DTLS.	
7-02-98	ADDED DETAILS OF STD. RAISED PAV'T. MARKERS	
4-26-96	REV. NOTES 3&4; ADDED R.P.M.	
9-30-80	DRAWN	1-9-30-80

ARKANSAS STATE HIGHWAY COMMISSION

PAVEMENT MARKING DETAILS

STANDARD DRAWING PM-1

ARKANSAS STATE HIGHWAY COMMISSION STANDARD DRAWINGS AND DETAILS APPEARING ON THIS DRAWING HAVE BEEN REPRODUCED IN THEIR ENTIRETY. ONLY PORTIONS OF THESE STANDARD DRAWINGS AND DETAILS MAY BE APPLICABLE TO THIS PROJECT. MY SEAL IS INTENDED TO AUTHENTICATE I HAVE SELECTED THESE STANDARD DRAWINGS AND DETAILS, OR PORTIONS THEREOF, AS APPLICABLE FOR THIS PROJECT AND I HEREBY DISCLAIM ANY RESPONSIBILITY FOR THE DESIGN INDICATED BY THESE STANDARD DRAWINGS AND DETAILS

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Bentonville, Arkansas 72712

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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TRAFFIC CONTROL DETAILS

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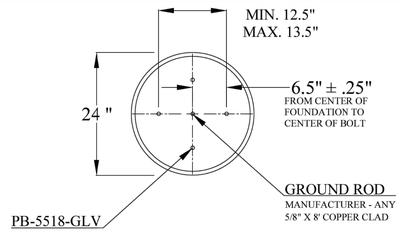
*OBTAIN FREE ENERGY BALANCE REPORT DIRECTLY FROM CARMANAH AT: HTTPS://CARMANAHTRAFFIC.COM/REQUEST-ENERGY-BALANCE-REPORT-EBR/ OR CALL 1-877-722-8877 TO DETERMINE PROPER SOLAR ENGINE SIZING.

**DENOTES SIGN OPTIONS AS SHOWN BELOW AS APPROVED BY THE CITY OF BENTONVILLE

FRONT VIEW
W11-15 - (FYG) (IF REQUIRED)
COMBINED BIKE-PED SIGN
N.T.S.

FRONT VIEW
S1-1 - (FYG) (IF REQUIRED)
SCHOOL ZONE SIGN
N.T.S.



TOP VIEW
RRFB FOUNDATION BOLT PATTERN
N.T.S.

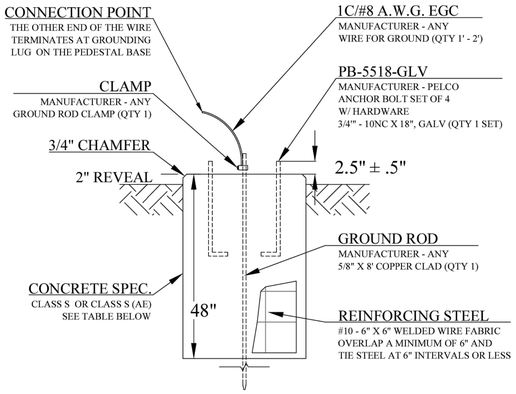
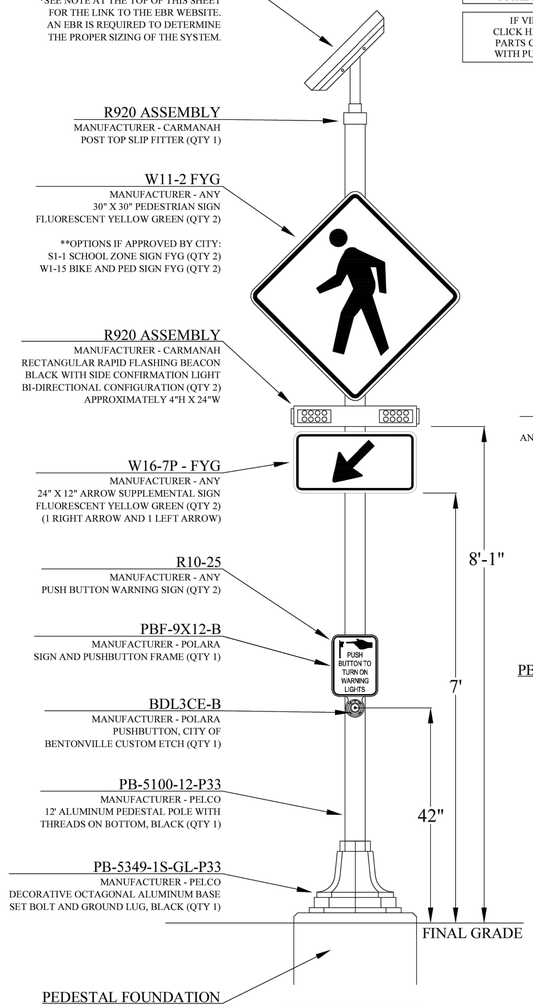


TABLE 802-1 - ARDOT SPECIFICATION (2014 ED.)		
CHARACTERISTIC	CLASS S	CLASS S (AE)
MIN. STRENGTH (PSI)	3500	4000
MIN. CEMENT (BAGS/CY)	6.50	6.50
MAX WATER (GAL/BAG)	5.50	5.00
SLUMP RANGE (IN.)	1" TO 4"	1" TO 4"
AIR CONTENT (%)	----	6 ± 2

SIDE VIEW
RRFB FOUNDATION WITH GROUND
N.T.S.

ALL REQUESTS TO USE PASSIVE DETECTION SHALL BE REVIEWED AND APPROVED BY THE TRANSPORTATION DEPARTMENT.

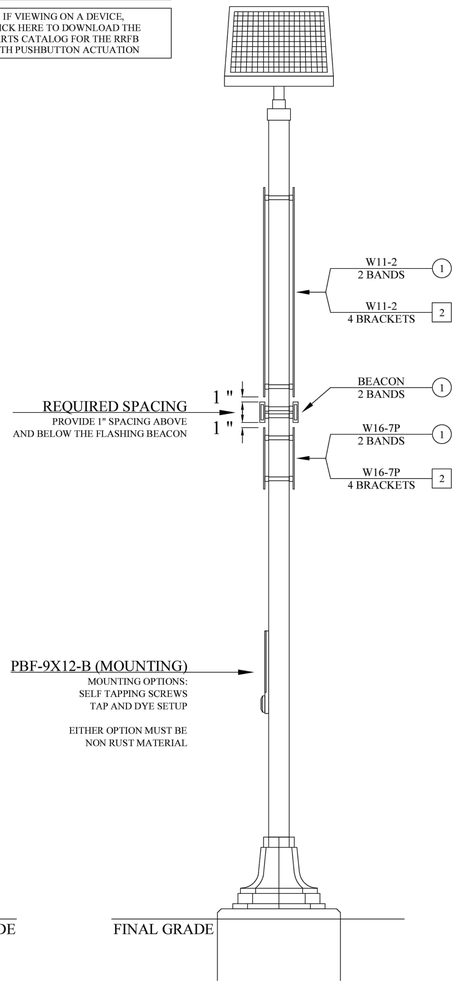


FRONT VIEW
RRFB W/ PUSHBUTTON ACTUATION
N.T.S.

0.75" X 0.030" MIN BAND (1)
MANUFACTURER - PELCO
STAINLESS STEEL BAND (TYPICAL)
(WORM DRIVE HOSE CLAMPS ACCEPTABLE)
TOTAL BAND QUANTITY - 6

US-8120-31 (2)
MANUFACTURER - PELCO
1-BOLT FLARED LEG BRACKET
(ZINC PLATED) WITH FIBER WASHER
TOTAL BRACKET QUANTITY - 8

IF VIEWING ON A DEVICE, CLICK HERE TO DOWNLOAD THE PARTS CATALOG FOR THE RRFB WITH PUSHBUTTON ACTUATION



SIDE VIEW
RRFB W/ PUSHBUTTON ACTUATION
N.T.S.

GENERAL NOTES:

- THE CITY OF BENTONVILLE SPECIFICATIONS, ORDINANCES AND STANDARDS SHALL GOVERN UNLESS APPROVED IN WRITING BY THE CITY ENGINEER.
- UNLESS APPROVED BY LARGE SCALE DEVELOPMENT OR PRELIMINARY PLAT, ALL WORK WITHIN THE CITY OF BENTONVILLE RIGHT OF WAY SHALL NEED THE PROPER PERMIT.
- IF WORK IS BEING PERFORMED IN ARDOT RIGHT OF WAY, A COPY OF THE PERMIT AND REQUIREMENTS SHALL BE SUBMITTED TO THE CITY OF BENTONVILLE TRANSPORTATION OFFICE.
- TO SCHEDULE AN INSPECTION OR TEST WITH THE CITY OF BENTONVILLE TRANSPORTATION DEPARTMENT, INSPECTIONS MUST BE CALLED IN BY THE ENGINEER OF RECORD 24 HOURS IN ADVANCE BEFORE 10AM FOR AN INSPECTION THE FOLLOWING DAY. CALL (479) 271-3168 TO SCHEDULE AN INSPECTION.
- THE ENGINEER OF RECORD MUST CERTIFY THAT THE RRFB WAS CONSTRUCTED AND INSTALLED PER PLAN. IF WARRANTED, AN ENGINEERING ESTIMATE FOR THE COST OF CONSTRUCTION SHALL BE SUBMITTED AND A MAINTENANCE BOND SHALL BE SUPPLIED.
- EQUIPMENT AND MATERIAL SUBMITTALS AND A TRAFFIC CONTROL PLAN WILL BE REQUIRED AND SHALL BE APPROVED BEFORE ANY CONSTRUCTION BEGINS.
- ALL TRAFFIC CONTROL DEVICES USED ON ROAD CONSTRUCTION SHALL CONFORM TO MUTCD, LATEST EDITION, AND TO THE STANDARD HIGHWAY SIGNS, LATEST EDITION, OR AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION.
- CONTRACTOR SHALL LOCATE THEIR OWN LAYDOWN YARD. CONTRACTOR SHALL PROVIDE PERIMETER BMP'S ON THE DOWNSTREAM SIDE OF THE LAYDOWN AREA.

SITE NOTES:

- THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING ALL PHASES OF CONSTRUCTION. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND SHALL NOT BE LIMITED TO CONSTRUCTION PHASES OF THE PROJECT.
- CONTRACTOR ASSUMES ALL LIABILITY IF ANY ACCIDENTS OR INJURIES OCCUR DUE TO EQUIPMENT BEING TURNED ON PREMATURELY OR BEFORE ALL PEDESTRIAN ACCESSES ARE IN PLACE AND FINALLY CONSTRUCTED.
- CONTRACTOR SHALL COORDINATE AND COMPLY WITH ALL UTILITY COMPANIES INVOLVED IN THE PROJECT AND PAY ALL REQUIRED FEES AND COSTS.
- ALL DISTURBED AREAS AND SLOPES SHALL BE GRADED SMOOTH, RECEIVE 4" OF TOP SOIL AND SOD. NO FINISHED GRADE SLOPES SHALL EXCEED 3:1.
- CONTRACTOR SHALL CONSTRUCT BMP'S TO PREVENT SILT RUNOFF.
- CONTRACTOR SHALL INSPECT, REPAIR AND MAINTAIN ALL EROSION CONTROL DEVICES THROUGHOUT ALL PHASES OF CONSTRUCTION.
- CONTRACTOR WILL BE RESPONSIBLE FOR SETTING UP UTILITY LOCATES FOR THE PROJECT AND ALL COORDINATION REQUIRED TO FULFILL THIS ITEM.
- BEFORE ANY EQUIPMENT IS TURNED ON FOR OPERATION, CONTRACTOR SHALL NOTIFY THE CITY OF BENTONVILLE TRANSPORTATION DEPARTMENT 5 DAYS IN ADVANCE.
- CONTRACTOR SHALL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGE TO EXISTING PAVEMENT STRIPING THAT IS TO TIE INTO PROPOSED STRIPING. IN THE EVENT OF DAMAGE, CONTRACTOR SHALL REPLACE ANY OF SAID STRIPING AT NO COST TO THE OWNER.

FOUNDATION NOTES:

- FOUNDATION MUST BE LEVEL AND SMOOTH.
- CONCRETE FOUNDATION SHALL BE PLACED IN UNDISTURBED SOIL.
- CONCRETE FOUNDATION SHOULD BE 2' BACK OF CURB MINIMUM WITH 4' TYPICAL TO FACE OF FOUNDATION. ANY DEVIATION FROM THESE DIMENSIONS WILL NEED TO BE REVIEWED AND APPROVED BY THE TRANSPORTATION DEPARTMENT.
- 2" REVEAL SHALL BE PROVIDED AND FINISH APPLIED FOR AESTHETICS.
- TOP OF BOLTS SHALL BE 2.5" ± .5" ABOVE THE FINISHED FOUNDATION SURFACE. CUTTING BOLTS TO LENGTH WILL NOT BE PERMITTED AND FOUNDATION MAY NEED TO BE REPLACED.
- GROUND ROD SHALL BE INSTALLED IN THE CENTER OF THE FOUNDATION AND SHALL BE 4" ABOVE THE FINISHED FOUNDATION SURFACE.
- 1C/#8 COPPER WIRE SHALL BE USED FOR GROUNDING. PROPER GROUNDING CLAMP OR WELD SHALL SECURE COPPER WIRE TO GROUNDING ROD. THE OTHER END OF THE COPPER WIRE SHALL TERMINATE AT GROUNDING LUG ON THE PEDESTAL BASE.
- GROUND WIRE RESISTANCE SHALL BE LESS THAT 25Ω. SUPPLEMENTAL GROUND RODS MAY BE NECESSARY IF MORE THAN 25Ω.

RRFB NOTES:

- RRFB'S SHALL BE CONSTRUCTED ACCORDING TO THESE DETAILS AND SPECIFICATIONS. ANY DEVIATION FROM THESE PLANS MUST BE APPROVED BY THE CITY OF BENTONVILLE TRANSPORTATION DEPARTMENT.
- ALL SIGNAGE FOR RRFB'S SHALL BE DIAMOND GRADE OR DG3 RETRO-REFLECTIVE SHEETING OF FLUORESCENT YELLOW GREEN (FYG) WITH 0.080 GUAGE ALUMINUM BACKING.
- ANY HOLES DRILLED INTO POLE SHALL BE DEBURRED USING A FILE OR A ROTARY TOOL.
- RRFB POLE SHALL BE PLUMB. POLES OUT OF PLUMB SHALL BE REMOVED AND A SOLUTION SHALL BE PRESENTED TO THE CITY OF BENTONVILLE TRAFFIC SIGNAL DIVISION.
- ADVANCED WARNING SIGNS ARE REQUIRED WITH THE INSTALLATION OF THE RRFB. ALL SIGNS MUST MEET MUTCD REQUIREMENTS AND BE APPROVED BY THE CITY OF BENTONVILLE.
- STOP SIGN MAY BE REQUIRED AT CROSSING. CONTACT THE CITY OF BENTONVILLE PARKS DEPARTMENT FOR MORE DETAILS.

REQUIRED INSPECTIONS:

BELOW ARE A LIST OF REQUIRED INSPECTIONS THAT WILL NEED TO BE PERFORMED BEFORE FINAL ACCEPTANCE WILL BE GIVEN:

- **INITIAL STORMWATER BMP (IF GROUND IS BEING DISTURBED)**
- **CONDUITS (IF PART OF THE DESIGN)**
- **FOUNDATION LOCATION (LOCATES AND STAKING NEED TO BE IN PLACE)**
- **FOUNDATION FORMS AND REINFORCING STEEL**
- **FOUNDATION FORM REMOVAL (PERFORMED BEFORE BACKFILLING FOUNDATION)**
- **INITIAL START-UP**
- **FINAL INSPECTION**

FINAL ACCEPTANCE:

DOCUMENTS REQUIRED BEFORE FINAL ACCEPTANCE OF THE PROJECT IS GIVEN:

- **FINAL ENERGY BALANCE REPORT FOR EACH RRFB**
- **ENGINEERING ESTIMATE FOR CONSTRUCTION (ONLY IF PART OF A LSD OR PRELIM. PLAT)**
- **MAINTENANCE GUARANTY (IF REQUIRED)**
- **ALL MANUFACTURER WARRANTIES AND SUPPORTING DOCUMENTATION**

THE CITY OF BENTONVILLE
TRANSPORTATION DEPART.
3200 SW MUNICIPAL DRIVE
BENTONVILLE AR, 72712

Arkansas 811 Know what's below. Call before you dig.
ACA §§ 14-271-101 through 115
CHAPTER 271 - UNDERGROUND FACILITIES DAMAGE PREVENTION ACT

PROJECT NAME:
PROJECT LOCATION / INTERSECTION:

BY	DESCRIPTION	DATE	REV
BW	DEVELOPMENT OF RRFB DETAILS FOR CONSTRUCTION	11/26/2018	1.0

DETAIL NAME:
SOLAR POWER RRFB WITH PUSHBUTTON ACTUATION (BI-DIRECTIONAL)

DETAIL #:
RRFB-PUSH-1.0

SHEET:

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

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STEM UNIVERSITY - SITE DEVELOPMENT IMPROVEMENTS - PHASE 2

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TRAFFIC CONTROL DETAILS

T10.061PH2

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INDEX

SHEET	DESCRIPTION	#1 LARGE SCALE DEVELOPMENT 05/22/2026	#2 LARGE SCALE DEVELOPMENT 06/17/2026	#3 LARGE SCALE DEVELOPMENT 07/17/2026
L0-0-01	SHEET INDEX	●	●	●
L0-0-02	GENERAL NOTES & SYMBOLS	●	●	●
L0-1-01	OVERALL SITE PLAN	●	●	●
L0-1-02	KEY PLAN	●	●	●
L2-1-01	LAYOUT PLAN	●	●	●
L2-1-02	LAYOUT PLAN	●	●	●
L2-1-03	LAYOUT PLAN	●	●	●
L2-1-04	LAYOUT PLAN	●	●	●
L3-1-01	HARDSCAPE PLAN	●	●	●
L3-1-02	HARDSCAPE PLAN	●	●	●
L3-1-03	HARDSCAPE PLAN	●	●	●
L3-1-04	HARDSCAPE PLAN	●	●	●
L3-3-01	SITE SECTIONS	●	●	●
L3-3-02	SITE SECTIONS	●	●	●
L3-3-03	SITE SECTIONS	●	●	●
L3-5-01	HARDSCAPE DETAILS	●	●	●
L3-5-02	HARDSCAPE DETAILS	●	●	●
L3-5-03	HARDSCAPE DETAILS	●	●	●
L3-5-04	HARDSCAPE DETAILS		●	●
L3-6-01	HARDSCAPE SCHEDULE	●	●	●
L3-6-02	HARDSCAPE SCHEDULE		●	●
L5-0-01	PLANTING NOTES	●	●	●
L5-1-01	PLANTING PLAN	●	●	●
L5-1-02	PLANTING PLAN	●	●	●
L5-1-03	PLANTING PLAN	●	●	●
L5-1-04	PLANTING PLAN	●	●	●
L5-5-01	PLANTING DETAILS	●	●	●
L5-6-01	PLANTING SCHEDULE	●	●	●
L5-6-02	PLANTING SCHEDULE		●	●
L5-6-03	PLANTING SCHEDULE		●	●
L7-0-01	IRRIGATION NOTES		●	●
L7-5-01	IRRIGATION DETAILS		●	●
L7-5-02	IRRIGATION DETAILS		●	●
L7-5-03	IRRIGATION DETAILS		●	●
L8-1-01	LIGHTING PLAN			●
L8-1-02	LIGHTING PLAN			●
L8-1-03	LIGHTING PLAN			●
L8-1-04	LIGHTING PLAN			●
L8-5-01	LIGHTING DETAILS			●
L8-6-01	LIGHTING SCHEDULE			●
L9-1-01	SITE FURNITURE PLAN	●	●	●
L9-1-02	SITE FURNITURE PLAN	●	●	●
L9-1-03	SITE FURNITURE PLAN	●	●	●
L9-1-04	SITE FURNITURE PLAN	●	●	●
L9-6-01	SITE FURNITURE SCHEDULE	●	●	●

walter p moore

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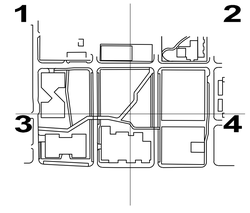
NOT FOR CONSTRUCTION

811
SAFETY IS IN YOUR HANDS.
EVERY DIG. EVERY TIME.



CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1509
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
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	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

SHEET INDEX

PH2-L0-0-01

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GENERAL NOTES:

1. LOCATIONS, ELEVATIONS AND DIMENSIONS OF EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES WERE PROVIDED TO EDSA IN SURVEY DATED 10/21/2025 BY BLEW AND ASSOCIATES, P.A. AND ARE SHOWN ACCORDING TO THE BEST INFORMATION AVAILABLE AT THE TIME OF THE PREPARATION OF THESE CONTRACT DOCUMENTS. EDSA AND ANY OF THEIR CONSULTANTS SHALL NOT BE HELD RESPONSIBLE FOR THE ACCURACY AND/OR COMPLETENESS OF THAT INFORMATION SHOWN HEREIN OR ANY ERRORS OR OMISSIONS RESULTING FROM SUCH.
2. THE CONTRACTOR SHALL FIELD LOCATE, VERIFY AND FURTHER IDENTIFY THE LOCATIONS, ELEVATIONS AND DIMENSIONS OF ALL EXISTING UTILITIES, STRUCTURES AND OTHER FEATURES ABOVE AND BELOW GRADE AFFECTING ANY COMPONENT OF THE WORK CONTAINED IN THE CONTRACT DOCUMENTS PRIOR TO THE START OF ANY PHASE OF CONSTRUCTION. DISCREPANCIES, CONFLICTS, OR POTENTIAL DEVIATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE IN WRITING WITHIN 48 HOURS OF DISCOVERY. NO CLAIM FOR EXPENSES INCURRED BY THE CONTRACTOR DUE TO SUCH CONDITIONS WILL BE AWARDED IF WRITTEN NOTIFICATION IS NOT PROVIDED PRIOR TO THE START OF ANY PHASE OF CONSTRUCTION.
3. DO NOT TAKE ADVANTAGE OF ANY APPARENT ERROR OR OMISSION DISCOVERED IN THE CONTRACT DOCUMENTS. IMMEDIATELY NOTIFY THE OWNERS REPRESENTATIVE OF ANY SUCH DISCOVERY. THE OWNERS REPRESENTATIVE WILL PROVIDE DIRECTION REGARDING ANY CORRECTION OR INTERPRETATION NECESSARY TO REFLECT THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.
4. ALL EXISTING SITE FACILITIES TO REMAIN SHALL BE PROTECTED FROM ANY DAMAGE THROUGHOUT ALL CONSTRUCTION PHASES. THE CONTRACTOR SHALL REPAIR ANY DAMAGE TO SAID FACILITIES THAT OCCURS DUE TO WORK PREFORMED BY THE CONTRACTOR CALLED FOR IN THE CONTRACT DOCUMENTS.
5. ALL WORK SHALL COMPLY WITH THE CODES, STANDARDS, REGULATIONS, REQUIREMENTS AND ORDINANCES OF ANY GOVERNMENTAL AGENCY HAVING JURISDICTION OVER THE WORK. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO THE START OF CONSTRUCTION AND SCHEDULE ALL INSPECTIONS AND TESTING ACCORDING TO THE REQUIREMENTS OF SAID AGENCIES AND THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH RELATED CONTRACTORS AND WITH THE GENERAL CONSTRUCTION OF THE PROJECT SO AS NOT TO IMPEDE THE PROGRESS OF THE WORK OF OTHERS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE PUBLIC AND ALL PERSONNEL ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT. ALL SAFETY REGULATIONS REQUIRED BY APPLICABLE CODES, REGULATIONS AND RECOGNIZED LOCAL PRACTICES SHALL BE ENFORCED DURING THE CONSTRUCTION AND/OR MAINTENANCE OF THIS PROJECT.
8. THE OWNERS REPRESENTATIVE SHALL HAVE THE RIGHT AT ANY STAGE OF THE OPERATION TO REJECT ALL WORK OR MATERIALS WHICH IN THEIR OPINION DO NOT MEET THE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
9. ALL REQUIRED SEDIMENT AND EROSION CONTROL MEASURES INSTALLED AS PART OF THIS PROJECT SHALL REMAIN IN PLACE AND SHALL BE MAINTAINED IN GOOD CONDITION UNTIL CONSTRUCTION IS COMPLETE. SEE THE CIVIL ENGINEERING CONTRACT DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
10. EXISTING TREES DESIGNATED TO REMAIN SHALL BE PROTECTED BY BARRICADES ERECTED PRIOR TO COMMENCEMENT OF ANY SITE DEMOLITION, CLEARING, OR GRADING. SEE DEMOLITION/SITE CLEARING NOTES FOR ADDITIONAL REQUIREMENTS.
11. THE CONTRACTOR SHALL REFER TO THE LANDSCAPE NOTES, SPECIFICATIONS AND THE CONTRACT DOCUMENTS PREPARED BY BUT NOT LIMITED TO ARCHITECTURAL, MEP, IRRIGATION, STRUCTURAL AND CIVIL ENGINEERING CONSULTANTS FOR ADDITIONAL REQUIREMENTS.

HARDSCAPE NOTES:

1. PRIOR TO THE COMMENCEMENT OF HARDSCAPE CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE CONDITION AND COMPLETENESS OF ALL WORK PERFORMED BY OTHER CONTRACTORS WORKING ON THIS PROJECT IN RELATION TO THE WORK RESPONSIBILITIES DEPICTED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE OWNERS REPRESENTATIVE IN WRITING OF ANY POTENTIAL DEVIATIONS WITHIN 48 HRS OF DISCOVERY. NO CLAIM FOR EXPENSES INCURRED BY THE CONTRACTOR DUE TO SUCH CONDITIONS WILL BE AWARDED IF WRITTEN NOTIFICATION IS NOT PROVIDED PRIOR TO THE START OF HARDSCAPE CONSTRUCTION.
2. THE CONTRACTOR SHALL SURVEY, LAYOUT AND STAKE THE LOCATION OF ALL FOOTINGS, PIERS, WALLS, COLUMNS AND PAVEMENT FOR REVIEW BY THE OWNERS REPRESENTATIVE PRIOR TO COMMENCEMENT OF HARDSCAPE CONSTRUCTION. THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR ANY RECONSTRUCTION OF HARDSCAPE CONSTRUCTION RESULTING FROM UNAUTHORIZED CONSTRUCTION.
3. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND/OR FIELD MOCKUPS FOR ALL ITEMS LISTED ON THE FINISH SCHEDULE UNLESS SPECIFICALLY NOTED OTHERWISE. MOCKUPS SHALL BE SET UP IN A SECURED LOCATION ON THE SITE FOR REFERENCE AS DIRECTED BY THE OWNERS REPRESENTATIVE. MOCKUPS WILL REMAIN ON SITE UNTIL THE COMPLETION OF HARDSCAPE CONSTRUCTION.
4. ANY REFERENCE IN THE HARDSCAPE CONSTRUCTION DOCUMENTS TO BRANDED PRODUCTS, PROCEDURES OR PATENTED PROCESSES ARE ASSUMED TO CARRY AN IMPLIED STATEMENT OF "OR APPROVED EQUAL" UNLESS SPECIFICALLY NOTED OTHERWISE WITH "NO SUBSTITUTIONS PERMITTED"
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES REQUIRED FOR THE SAFE EXECUTION AND COMPLETION OF THE WORK.
6. THE CONTRACTOR SHALL VERIFY ALL MEASUREMENTS AT THIS SITE AND BE RESPONSIBLE FOR THE ACCURACY AND CORRECTNESS OF SAME.
7. THE CONTRACTOR SHALL EMPLOY AS REQUIRED BY THE CONSTRUCTION DOCUMENTS AND/OR GOVERNING AUTHORITIES, A TESTING LABORATORY APPROVED BY THE OWNERS REPRESENTATIVE TO CONDUCT ALL TESTS NECESSARY TO ENSURE COMPLIANCE WITH THE CONTRACT DOCUMENTS, APPLICABLE STANDARDS AND CODES.
8. WRITTEN DIMENSIONS, COORDINATES AND/OR ELECTRONIC FILES PREVAIL OVER SCALED DIMENSIONS. DO NOT SCALE FROM THE CONTRACT DOCUMENTS.
9. REFER TO ARCHITECTURAL PLANS FOR ALL BUILDING DIMENSIONS.
10. REFER TO CIVIL PLANS FOR OVERALL SITE LAYOUT/DIMENSIONS.
11. HARDSCAPE DIMENSIONS ARE FROM THE FACE AND/OR CENTERLINE OF THE OBJECT AT 90 DEGREE ANGLES UNLESS NOTED OTHERWISE. ALL RADII AND CURVES ARE TO HAVE SMOOTH AND CONTINUOUS TRANSITIONS WITHOUT ABRUPT CHANGES OR BENDS.
12. PAVER DIMENSIONS ARE NOMINAL. VERIFY ACTUAL PAVER DIMENSIONS PRIOR TO LAYOUT OF PAVER FIELDS.
13. ALL REFERENCES TO "GRAY CONCRETE" SHALL MEAN NATURAL CONCRETE WITH NO COLOR ADDITIVE.
14. INFORMATION ON STRUCTURAL REINFORCEMENT, ANCHORS, FASTENERS, FOUNDATIONS OR OTHER STRUCTURAL ELEMENTS SHOWN ON THE SITE HARDSCAPE DOCUMENTS RELATED TO WALLS, SLABS, STRUCTURES AND ALL CAST IN PLACE CONCRETE IS SHOWN FOR MATERIAL RELATIONSHIPS ONLY. REFER TO CONTRACT DOCUMENTS PREPARED BY BUT NOT LIMITED TO ARCHITECTURAL, MEP, STRUCTURAL AND CIVIL ENGINEERING CONSULTANTS FOR ACTUAL CONSTRUCTION DOCUMENTATION.
15. CROSS SLOPE ON HARDSCAPE PAVEMENT SHALL NOT EXCEED 2%. RUNNING SLOPE SHALL NOT EXCEED 5% UNLESS NOTED OTHERWISE. SEE LANDSCAPE GRADING FOR ADDITIONAL REQUIREMENTS.
16. SITE FURNISHINGS SHALL BE INSTALLED AS DETAILED IN THE CONSTRUCTION DOCUMENTS UNLESS NOTED OTHERWISE. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ANCHORING DETAILS WITH THE ITEM'S MANUFACTURER PRIOR TO PURCHASE/INSTALLATION.
17. HARDSCAPE ON-STRUCTURE: SITE HARDSCAPE ELEMENTS FOR ALL PODIUM, ROOF LEVEL AND BUILDING RELATED SURFACES ARE SHOWN FOR MATERIAL RELATIONSHIP ONLY. REFER TO CONTRACT DOCUMENTS PREPARED BY BUT NOT LIMITED TO ARCHITECTURAL. MEP AND STRUCTURAL ENGINEERING CONSULTANTS FOR ACTUAL CONSTRUCTION DOCUMENTATION FOR ALL ANCHORS, REINFORCING, WATERPROOFING, DRAINAGE FIXTURES, MATERIAL ATTACHMENTS, SETTING METHODS AND SLAB PENETRATIONS FOR PAVING, IRRIGATION, DRAINAGE AND ELECTRICAL FIXTURES.
18. WATER FEATURES: SITE HARDSCAPE ELEMENTS SHOWN FOR FOUNTAINS, POOLS, SPA WATERFALLS AND OTHER WATER FEATURES ARE SHOWN FOR MATERIAL RELATIONSHIP ONLY. REFER TO CONTRACT DOCUMENTS PREPARED BY BUT NOT LIMITED TO ARCHITECTURAL, MEP, STRUCTURAL AND FOUNTAIN/POOL ENGINEERS FOR ACTUAL CONSTRUCTION DOCUMENTATION.
19. LIGHT FIXTURES: LIGHT FIXTURES ARE SHOWN FOR MATERIAL RELATIONSHIP AND ORIENTATION WITH HARDSCAPE/LANDSCAPE ELEMENTS ONLY. REFER TO CONTRACT DOCUMENTS PREPARED BY BUT NOT LIMITED TO ELECTRICAL ENGINEER FOR ACTUAL CONSTRUCTION DOCUMENTATION.

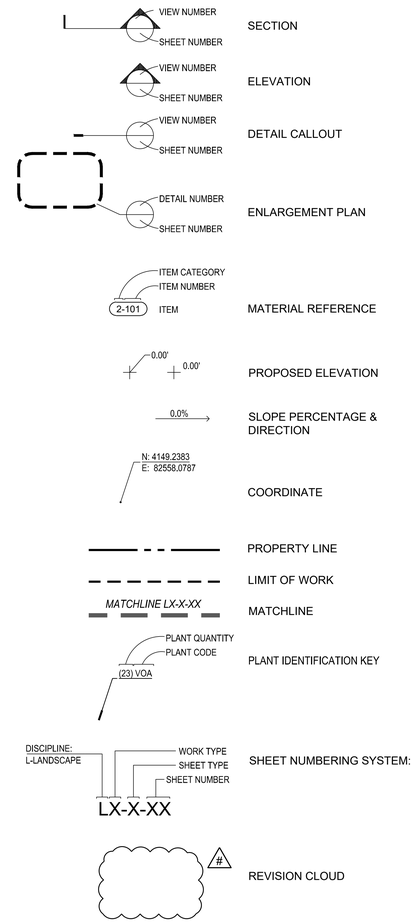
LANDSCAPE GRADING NOTES:

1. LANDSCAPE GRADES ARE COMPLEMENTARY. REFER TO THE CIVIL ENGINEERING CONTRACT DOCUMENTS FOR ROUGH GRADING OF THE SITE, FINISH GRADES FOR ALL VEHICULAR PAVEMENT, BUILDINGS, DRAINAGE AND UTILITY STRUCTURES.
2. PRIOR TO INITIATING LANDSCAPE GRADING THE CONTRACTOR SHALL INSPECT THE SITE TO CONFIRM THAT ROUGH GRADING AND DRAINAGE STRUCTURES HAVE BEEN COMPLETED IN ACCORDANCE WITH THE CIVIL ENGINEERING CONTRACT DOCUMENTS. THE CONTRACTOR SHALL SUBMIT IN WRITING TO THE OWNERS REPRESENTATIVE ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND FIELD CONDITIONS. THE OWNERS REPRESENTATIVE WILL PROVIDE DIRECTION REGARDING ANY CORRECTION OR INTERPRETATION NECESSARY TO RESOLVE ANY DISCREPANCIES.
3. NUMEROUS UNDERGROUND UTILITIES, CONDUITS, SLEEVES AND UTILITY STRUCTURES ABOVE AND BELOW GRADE HAVE BEEN PREVIOUSLY INSTALLED. THE CONTRACTOR SHALL CONDUCT FINE GRADING TO AVOID DAMAGE TO THESE ELEMENTS.
4. ALL PEDESTRIAN PAVEMENT AND LANDSCAPE AREAS SHALL BE GRADED TO POSITIVELY DRAIN AWAY FROM VERTICAL ELEMENTS INCLUDING BUT NOT LIMITED TO BUILDINGS, WALLS AND COLUMNS TOWARD AND INTO DRAINAGE STRUCTURES. LANDSCAPE AREAS SHALL BE SMOOTH AND EVEN IN TRANSITION AND VOID OF WATER HOLDING DEPRESSIONS.
5. PROPOSED SPOT ELEVATIONS REPRESENT FINISHED PAVEMENT OR GROUND SURFACE GRADES UNLESS OTHERWISE NOTED. MAKE ALLOWANCES FOR PAVEMENT THICKNESS AND THE DEPTH OF PREPARED PLANTING SOIL WHERE APPLICABLE.
6. THE CONTRACTOR SHALL NOT SUBSTANTIALLY VARY FINE GRADING FROM THE GRADING PLAN WITHOUT APPROVAL FROM THE OWNERS REPRESENTATIVE. THE OWNERS REPRESENTATIVE MAY ADJUST FINE GRADING SHOWN ON THE PLANS TO ACCOMMODATE UNFORESEEN FIELD CONDITIONS OR TO ACCOMPLISH DESIGN INTENT.
7. PROTECT SITE FEATURES TO REMAIN, INCLUDING BUT NOT LIMITED TO BENCH MARKS, SURVEY CONTROL POINTS, EXISTING STRUCTURES AND PAVING FROM DAMAGE BY GRADING EQUIPMENT.
8. MATCH PROPOSED PAVEMENT GRADES WITH EXISTING CONDITIONS TO REMAIN TO PROVIDE FLUSH INTERFACES WITH ABUTTING SURFACES.
9. GRADES FOR SOD AREAS SHALL BE HELD ONE INCH (1") BELOW ADJACENT PAVEMENT GRADES TO ALLOW FOR INSTALLATION OF SOD.
10. GRADES OF PREPARED SUBGRADE AND PLANTING SOIL FOR PLANTING AREAS SHALL BE HELD TWO INCHES (2") BELOW ADJACENT PAVEMENT TO ALLOW FOR THE INSTALLATION MULCH AND PLANT MATERIAL.
11. FILL REQUIRED TO BRING THE SITE TO THE REQUIRED LINES AND FINISHED GRADES CONTAINED IN THE CONTRACT DOCUMENTS SHALL BE AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
12. FILL SHALL BE COMPACTED AS FOLLOWS:
    A. UNDER PEDESTRIAN PAVEMENT: AS RECOMMENDED BY CIVIL/GEOTECHINCAL ENGINEER.
    B. LANDSCAPE AREAS: COMPACT OR DECOMPACT TOP TWELVE INCHES (12") BELOW SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL TO 80% MAXIMUM DRY DENSITY ACCORDING TO ASTM D698. REFER TO SOIL PREPARATION NOTES FOR SPECIFIC SUBGRADE COMPOSITION AND PREPARATION REQUIREMENTS.
13. CONTOURS FOR LANDSCAPE BERMS, MOUNDS AND SWALES SHALL BE SMOOTH CONTINUOUS ARCS VOID OF SURFACE IRREGULARITIES AND SHALL BLEND INTO SURROUNDING TERRAIN IN A NATURAL MANOR.
14. ALL LANDSCAPE AREAS SHALL BE DRAGGED WITH A DRAG MAT TO BLEND IN SMALL IMPERFECTIONS AND ROUND OFF AND SHARP EDGES.
15. FINE GRADE TOLERANCES FOR LANDSCAPE AREAS...PLUS OR MINUS (+/-) 0.04 FOOT (').
16. FINE GRADE TOLERANCES FOR HARDSCAPE AREAS...PLUS OR MINUS (+/-) 0.02 FOOT(').
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZING GRADES AND TO REPAIR AND CLEAN UP AREAS WHERE SETTLEMENT, WASHOUTS, EROSION OR OTHER GRADE CHANGES OCCUR UNTIL FINAL ACCEPTANCE.

STANDARD ABBREVIATIONS:

ARCH	ARCHITECTURE	EW	EACH WAY	REQ'D	REQUIRED
ADA	AMERICANS WITH DISABILITIES ACT	FG	FINISHED GRADE	REV	REVISION
		FL	FLOW LINE	S	SOUTH
BC	BOTTOM OF CURB	FOC	FACE OF CURB	SF	SQUARE FOOT
BLDG	BUILDING	FT	FOOT (FEET)	SHT	SHEET
BOC	BACK OF CURB	FTG	FOOTING	SIM	SIMILAR
BR	BOTTOM OF RAMP	FFE	FINISHED FLOOR ELEVATION	SPECS	SPECIFICATIONS
BS	BOTTOM OF STEP	GALV	GALVINIZED	SS	STAINLESS STEEL
BW	BOTTOM OF WALL	GA	GUAGE	STD	STANDARD
B&B	BALLED AND BURLAPPED	GEN	GENERAL	SY	SQUARE YARD
BFP	BACKFLOW PREVENTER	H20	WATER	SYM	SYMMETRICAL
CAL	CALIPER	HP	HIGH POINT	TOC	TOP OF COLUMN
CB	CATCH BASIN	HT	HEIGHT	TOPO	TOPOGRAPHY
CF	CUBIC FEET	HWL	HIGH WATER LINE	TR	TOP OF RAMP
CLR	CLEARANCE	ID	INSIDE DIAMETER	TYP	TYPICAL
CM	CENTIMETER	IN	INCH	TW	TOP OF WALL
CY	CUBIC YARD	INV	INVERT ELEVATION	TS	TOP OF STEP
CIP	CAST-IN-PLACE	LF	LINEAR FEET (FOOT)	TC	TOP OF CURB
CJ	CONSTRUCTION JOINT	LP	LOW POINT	VAR	VARIES
CL	CENTER LINE	MISC	MISCELLANEOUS	VOL	VOLUME
CMU	CONCRETE MASONRY UNIT	MAX	MAXIMUM	W	WEST
COORD	COORDINATE	MHW	MEAN HIGH WATER	WL	WATER LEVEL
CONT	CONTINUOUS	MIN	MINIMUM	YD	YARD DRAIN
DEG	DEGREE	NWL	NATURAL WATER LINE		
DIM	DIMENSION	NIC	NOT IN CONTRACT		
DTL	DETAIL	NTS	NOT TO SCALE		
DWG	DRAWING	N	NORTH		
DEMO	DEMOLITION	OD	OUTSIDE DIAMETER		
DIA	DIAMETER	OC	ON CENTER		
DI	DRAIN INLET	PA	PLANTING AREA		
E	EAST	PL	PROPERTY LINE		
EL	ELEVATION	PT	PAINT		
ENG	ENGINEER	QTY	QUANTITY		
EXIST	EXISTING	R	RADIUS		
EJ	EXPANSION JOINT	RIM	RIM ELEVATION		
EQ	EQUAL	ROW	RIGHT-OF-WAY		
ESMT	EASEMENT	REINF	REINFORCE (D)		

STANDARD DRAWING SYMBOLS:



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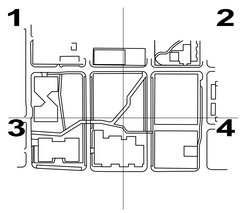

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

ARKANSAS REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1705
STATE OF ARKANSAS

DATE: 07/17/2026
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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

GENERAL NOTES & SYMBOLS

PH2-L0-0-02

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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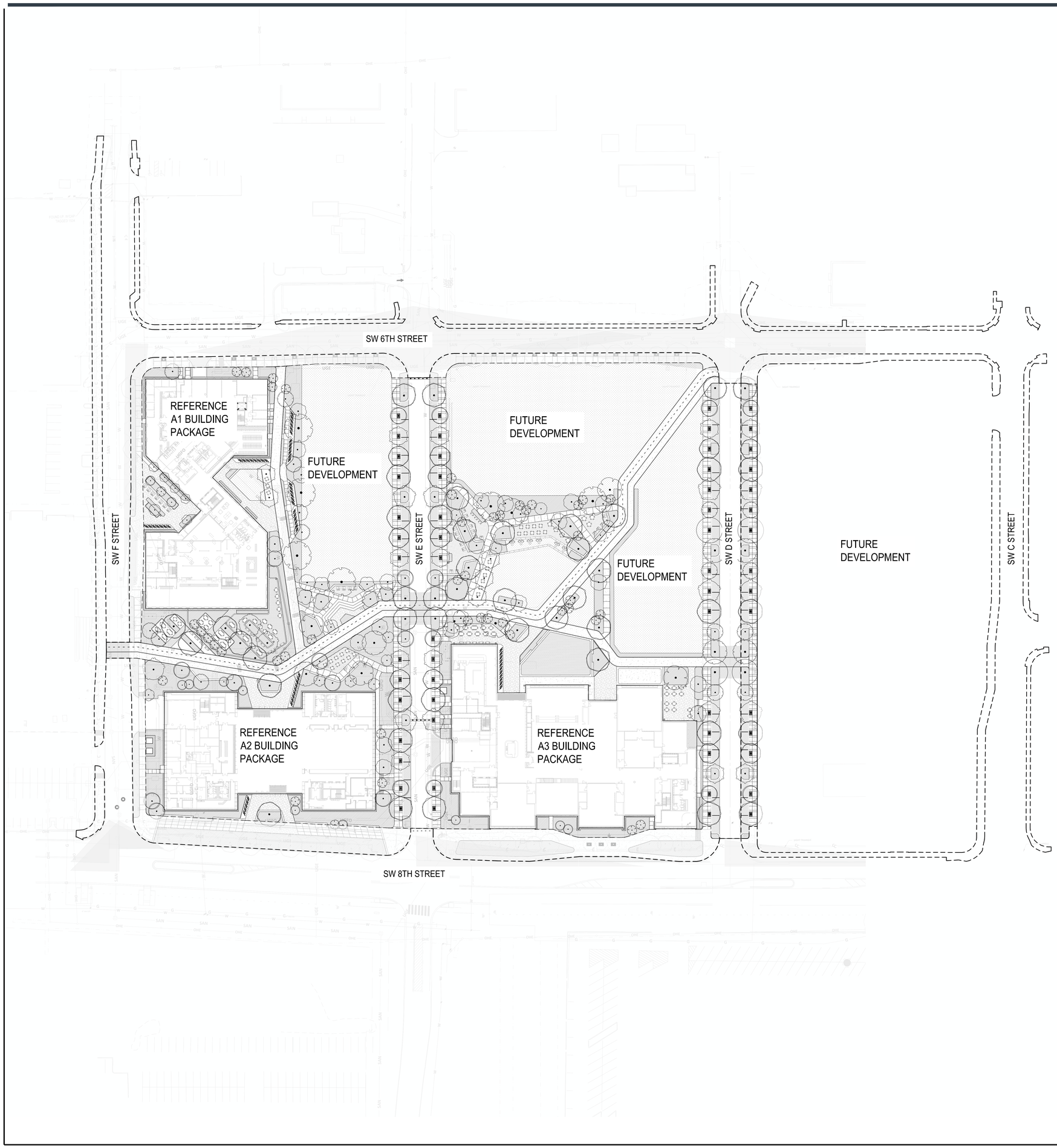

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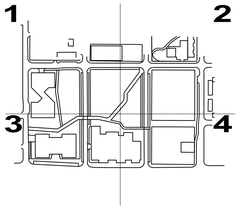

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGORY SUTTON
13936
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

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ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

OVERALL SITE PLAN

PH2-L0-1-01

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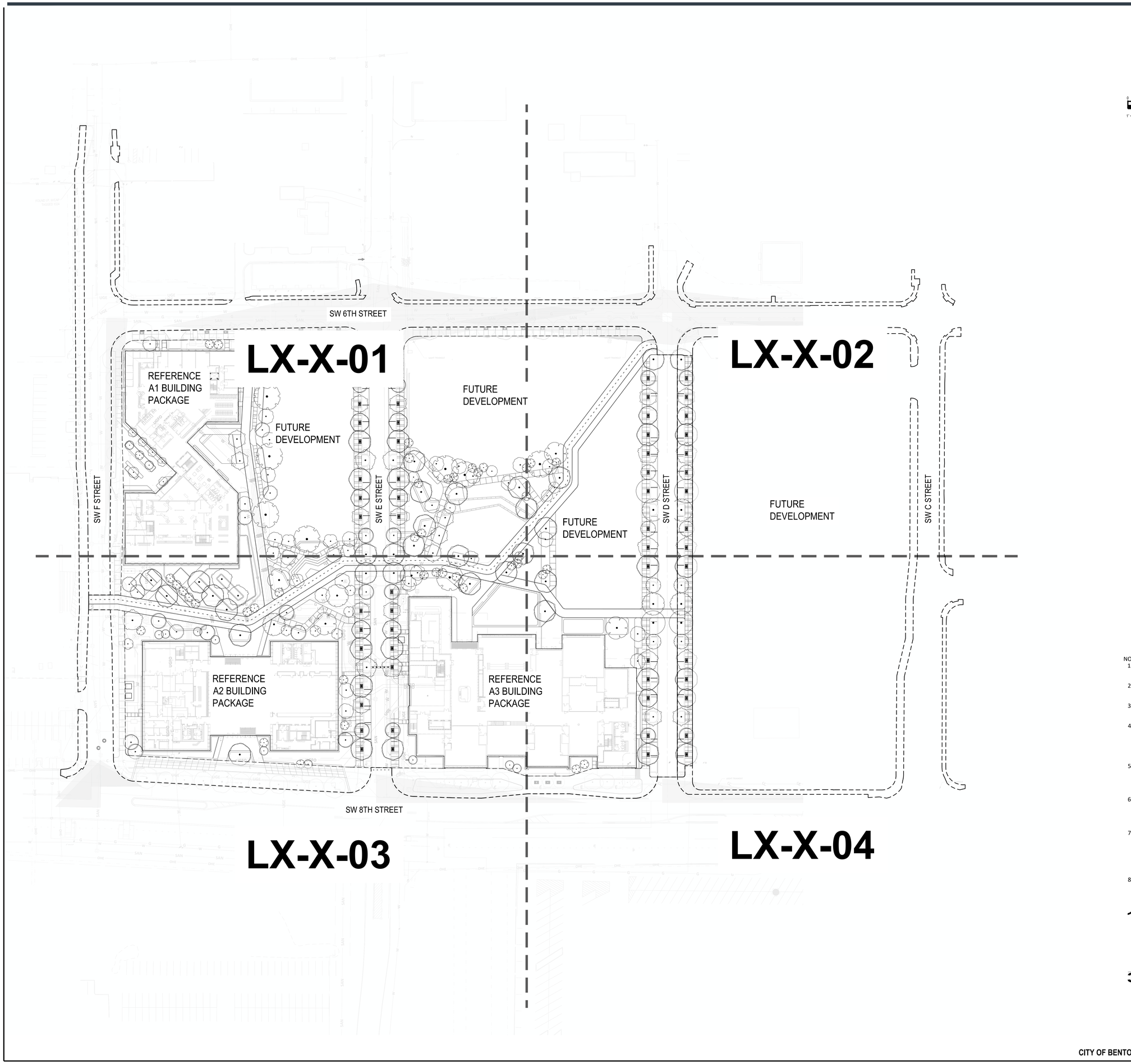

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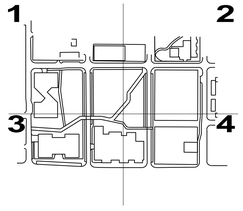
NOT FOR CONSTRUCTION

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO. DATE	REVISION
05-22-26	#1 LARGE SCALE DEVELOPMENT
06-17-26	#2 LARGE SCALE DEVELOPMENT
07-17-26	#3 LARGE SCALE DEVELOPMENT



PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

KEY PLAN

PH2-L0-1-02

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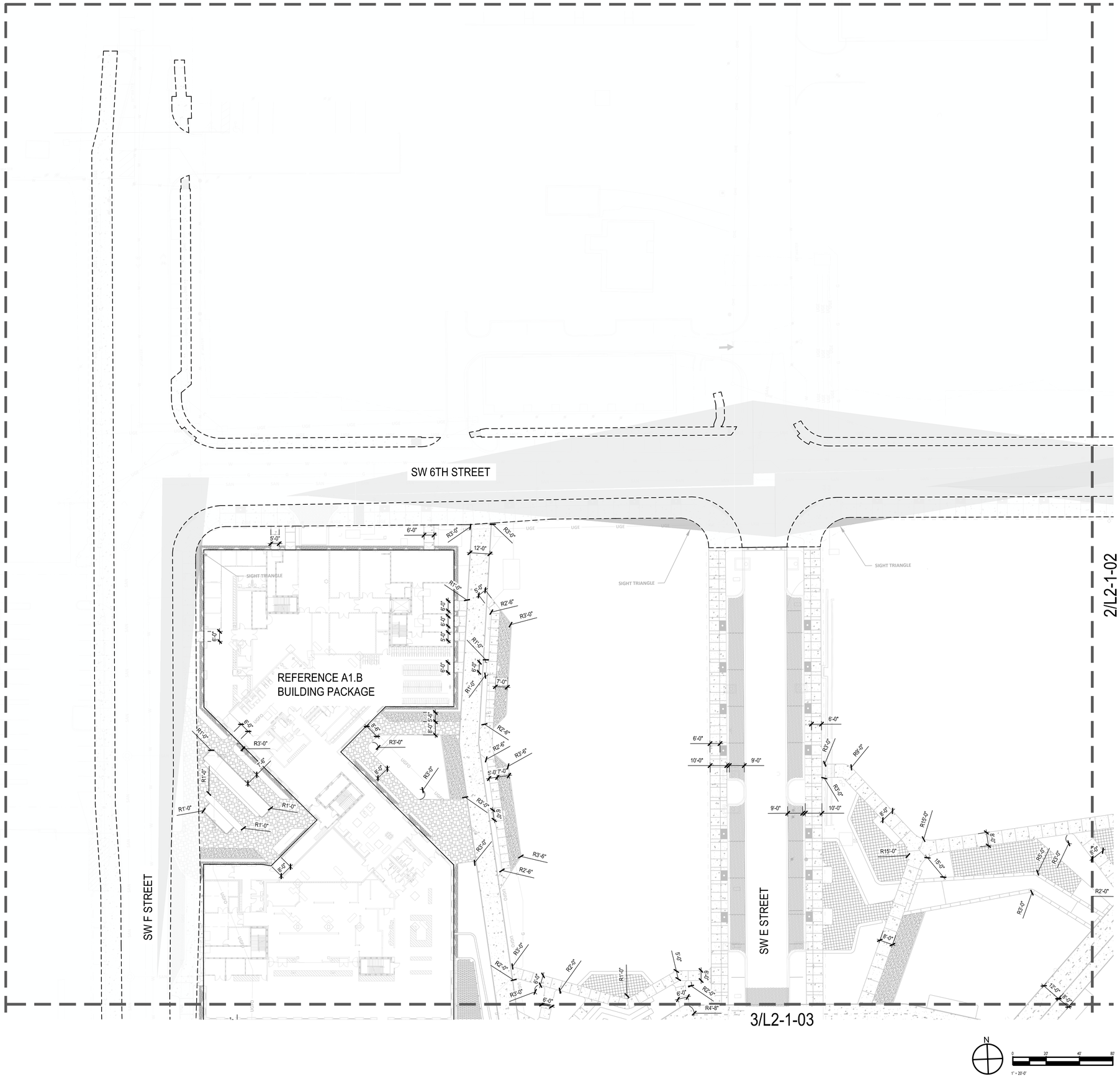

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NOT FOR CONSTRUCTION

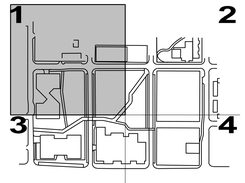
STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

ARKANSAS REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
#1559
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT



PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

LAYOUT PLAN

PH2-L2-1-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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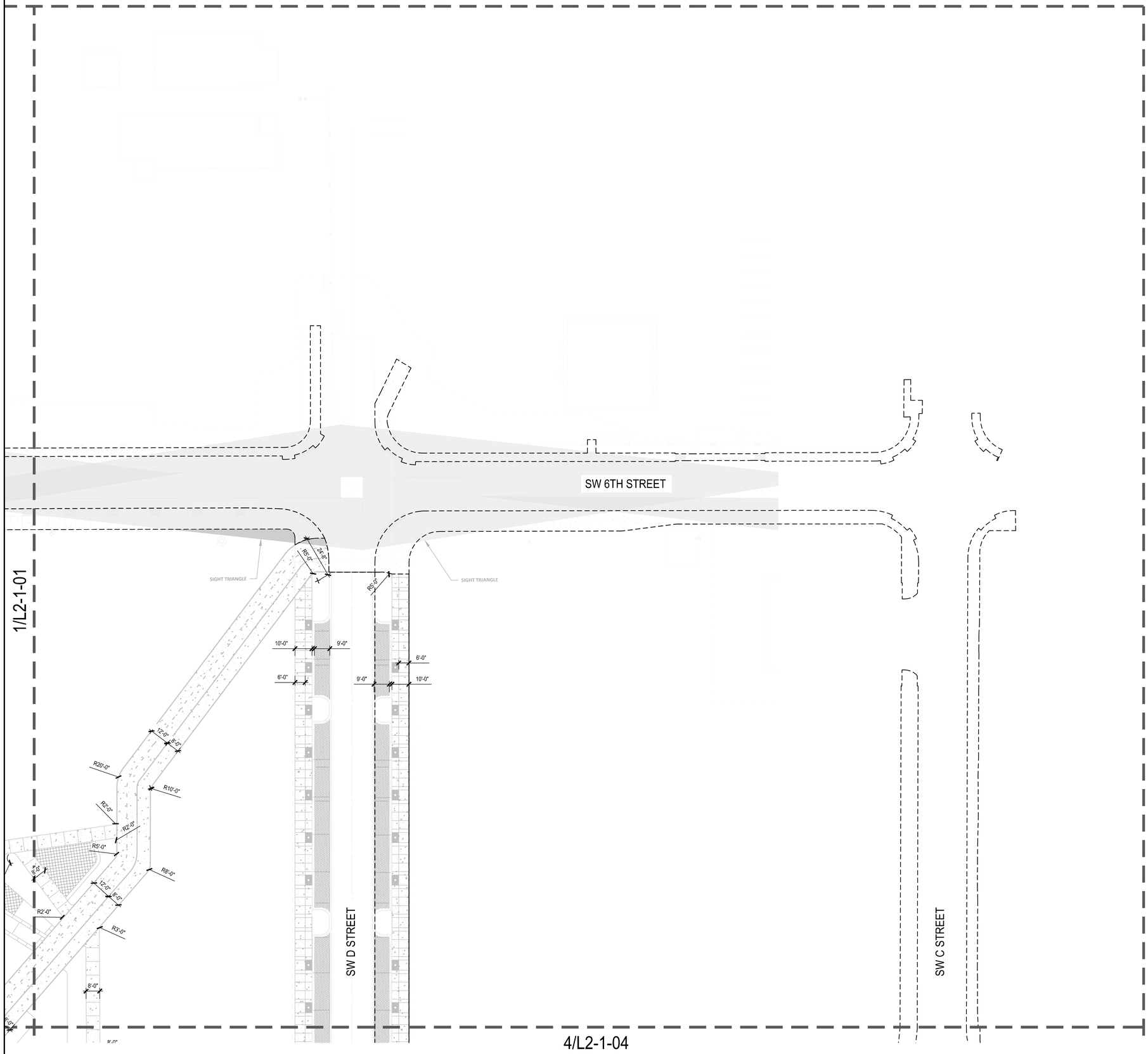

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NOT FOR CONSTRUCTION

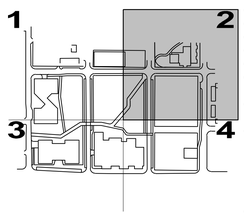
STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
13936
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
05-22-26		#1 LARGE SCALE DEVELOPMENT
06-17-26		#2 LARGE SCALE DEVELOPMENT
07-17-26		#3 LARGE SCALE DEVELOPMENT



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M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

LAYOUT PLAN

PH2-L2-1-02

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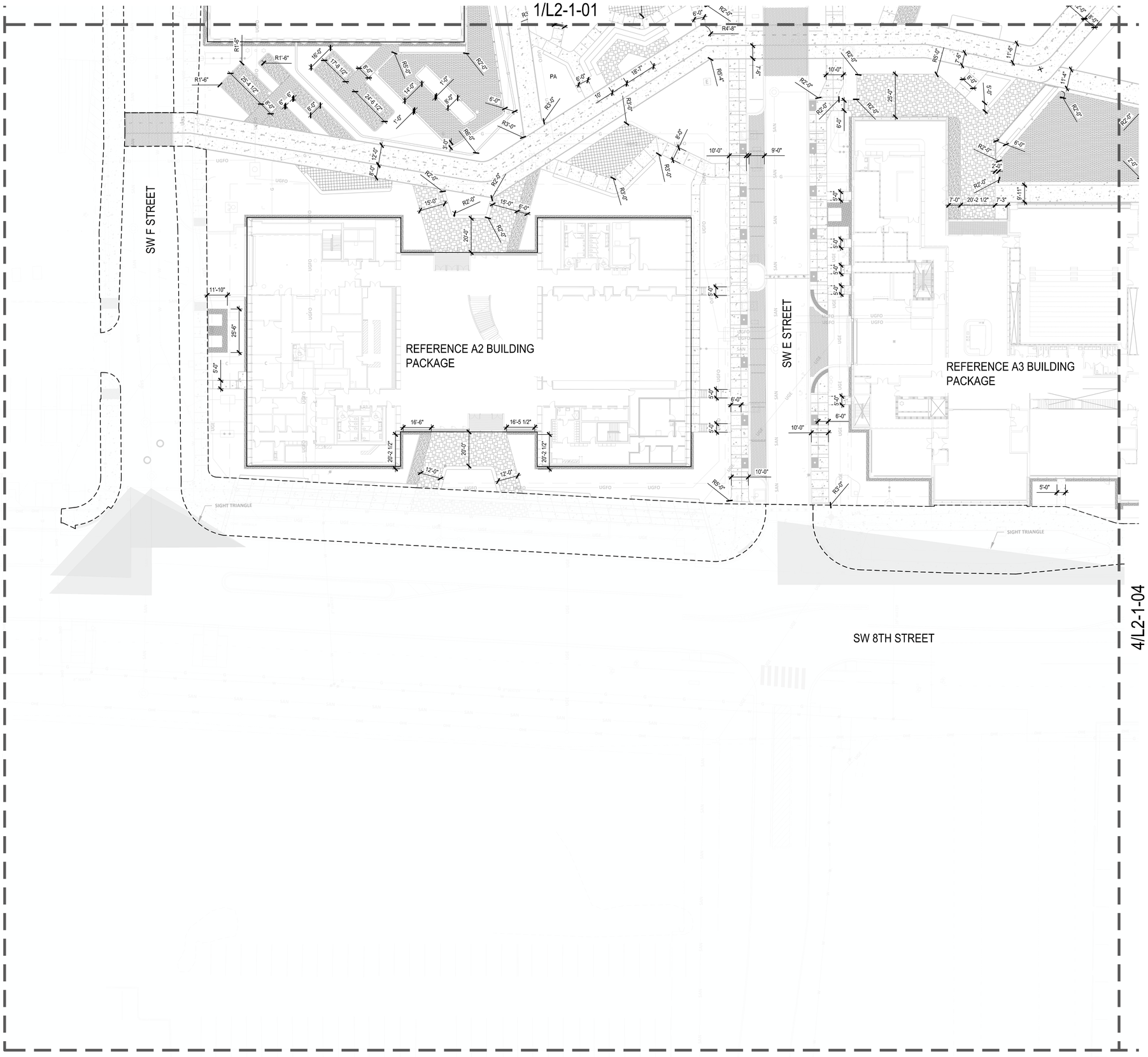

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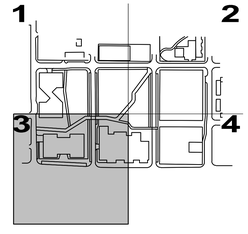
STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1320
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO. DATE	REVISION
05-22-26	#1 LARGE SCALE DEVELOPMENT
06-17-26	#2 LARGE SCALE DEVELOPMENT
07-17-26	#3 LARGE SCALE DEVELOPMENT



PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
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ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

LAYOUT PLAN

PH2-L2-1-03

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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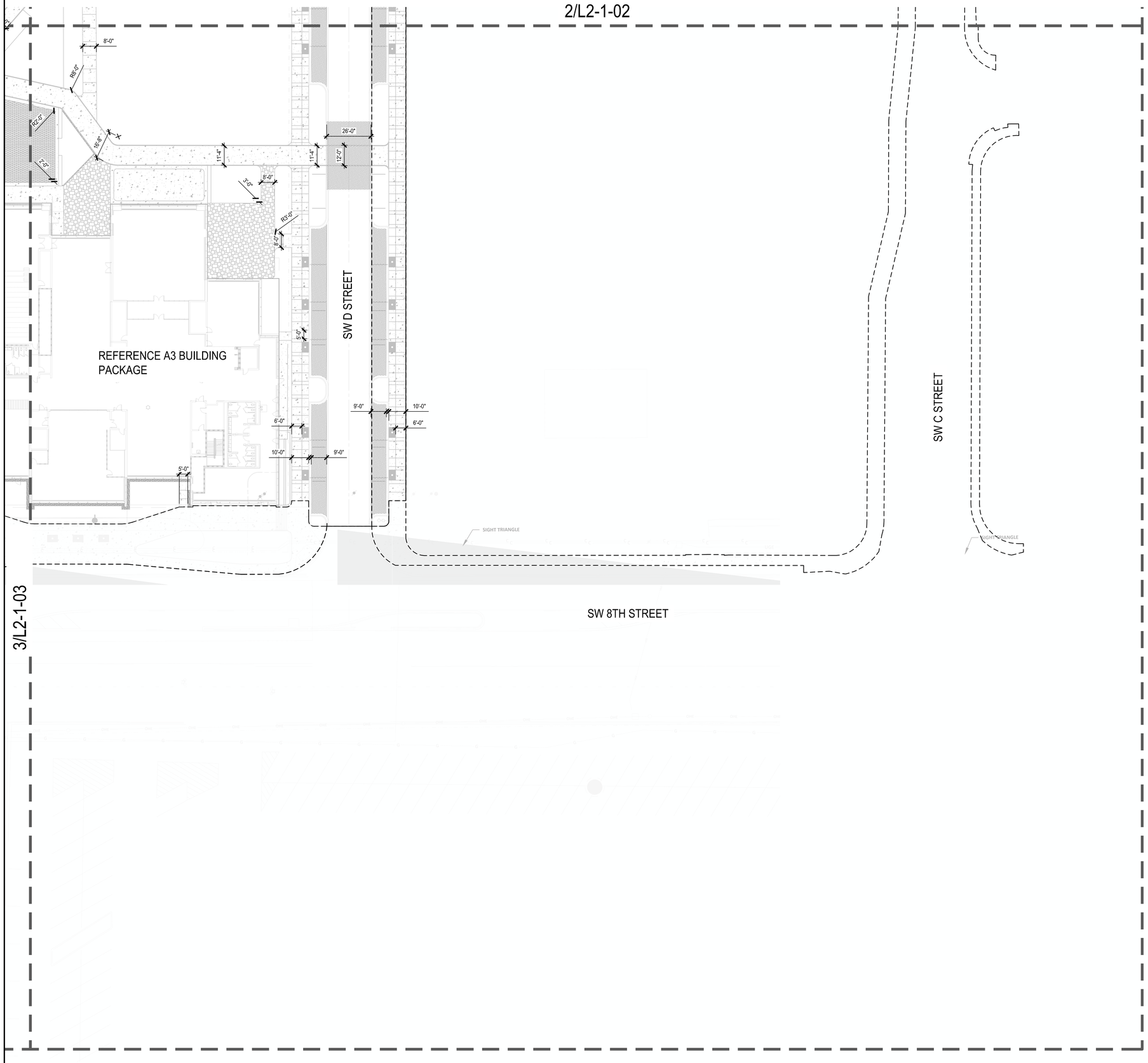

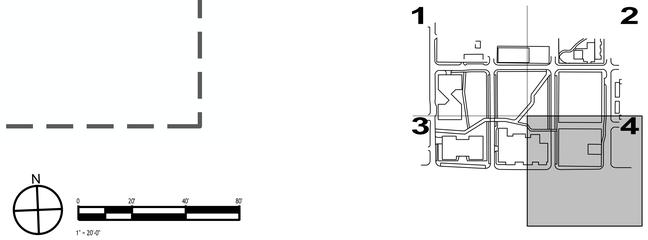

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1939
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
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	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

LAYOUT PLAN

PH2-L2-1-04

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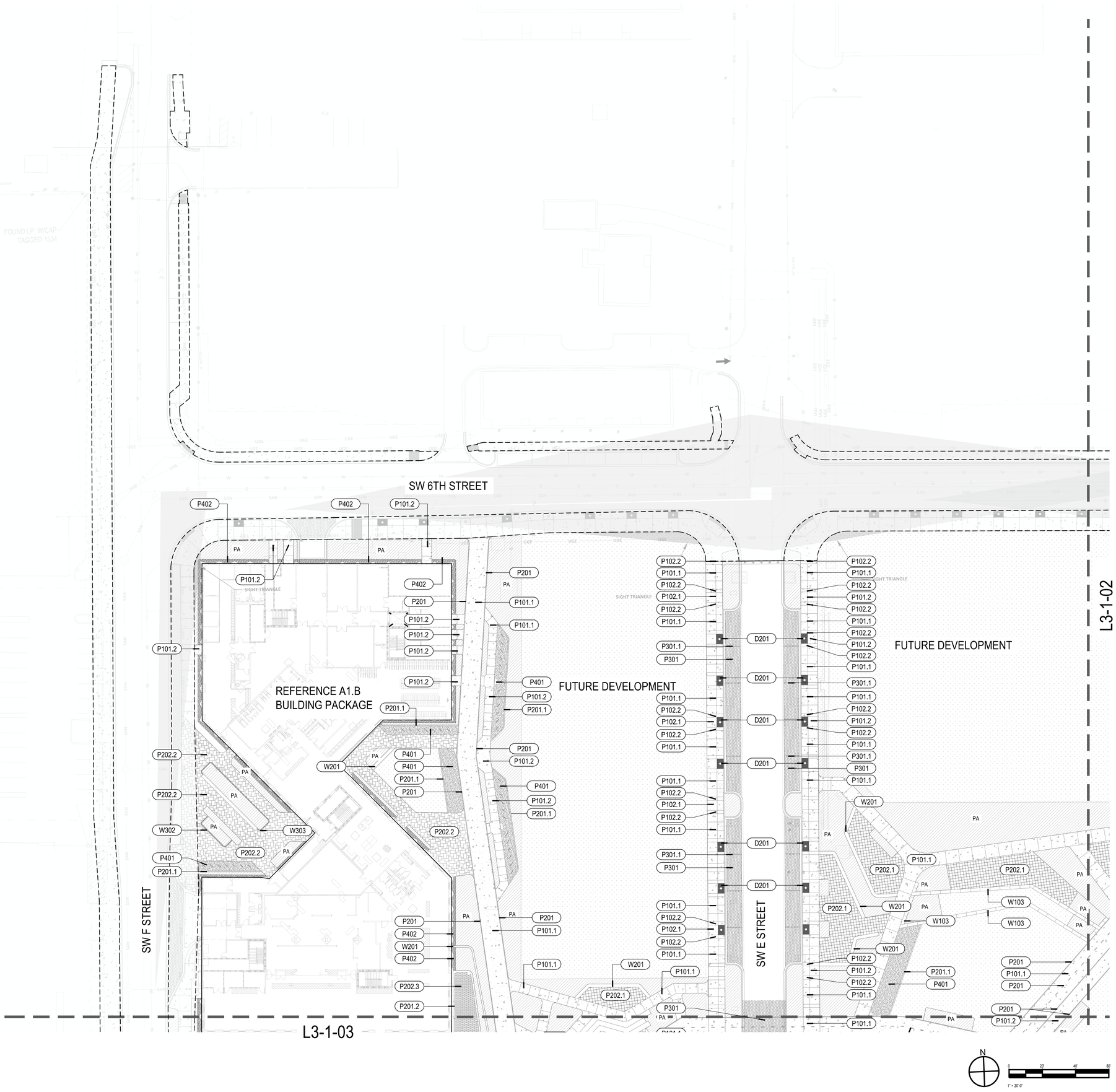

HARDSCAPE SCHEDULE

PAVING

CODE	DESCRIPTION	DETAIL
A100	TRUNCATED DOME PAVER	REFER TO CIVIL
P101.1	STANDARD CONCRETE PAVING TYPE 1	1 / L3-5-01 & 2 / L3-5-01
P101.2	STANDARD CONCRETE PAVING TYPE 2	1 / L3-5-01 & 2 / L3-5-01
P102.1	INTEGRAL COLOR CONCRETE PAVING TYPE 1	2 / L3-5-01
P102.2	INTEGRAL COLOR CONCRETE PAVING TYPE 2	2 / L3-5-01
P201	CONCRETE PAVER BANDING	8 / L3-5-01
P201.1	CONCRETE BAND/FLUSH CURB	6 / L3-5-02
P201.2	CONCRETE BAND/FLUSH CURB	7/ L3-5-02
P202.1	CONCRETE PAVER TYPE 1	9 / L3-5-01 & 4/L3-5-01
P202.2	CONCRETE PAVER TYPE 2	9 / L3-5-01 & 4 / L3-5-01
P202.3	CONCRETE PAVER TYPE 3	9 / L3-5-01 & 2 / L3-5-01
P301	VEHICULAR RATED CONCRETE PAVER	4 / L3-5-01
P301.1	VEHICULAR RATED CONCRETE PAVER BANDING	7 / L3-5-01
P401	DECOMPOSED GRANITE	7 / L3-5-01
P402	RIVER ROCK EDGING	10 / L3-5-01
P403	ALUMINUM EDING	10 / L3-5-01

WALLS, STAIRS, & COLUMNS

CODE	DESCRIPTION	DETAIL
W102	VERTICAL STONE WALL	7 / L3-5-03
W103	STONE SEAT	4 / L3-5-03 & 5 / L3-5-03 & 6 / L3-5-03
W201	CONCRETE WALL W/ WOOD TOPPER SEATING	3 / L3-5-03
W302	PLANTER	1 / L3-5-03
W303	PLANTER WITH BENCH	2 / L3-5-03
W401	CONCRETE STAIRS (2 RISERS)	1 / L3-5-01
W402	CONCRETE STAIRS (3 RISERS)	1 / L3-5-01
W403	CONCRETE STAIRS (4 RISERS)	1 / L3-5-01
W404	CONCRETE STAIRS (6 RISERS)	1 / L3-5-01

WALLS, STAIRS, & COLUMNS

CODE	DESCRIPTION	DETAIL
R101	STAIR HANDRAIL	2 / L3-5-04

DRAINS & GRATES

CODE	DESCRIPTION	DETAIL
D201	TREE GRATE	1 / L3-5-02 & 2 / L3-5-02

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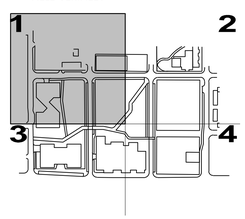

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT GREGGORY SUTTON 1539 STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
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SCHEMATIC DESIGN			05-22-2026

HARDSCAPE PLAN

PH2-L3-1-01

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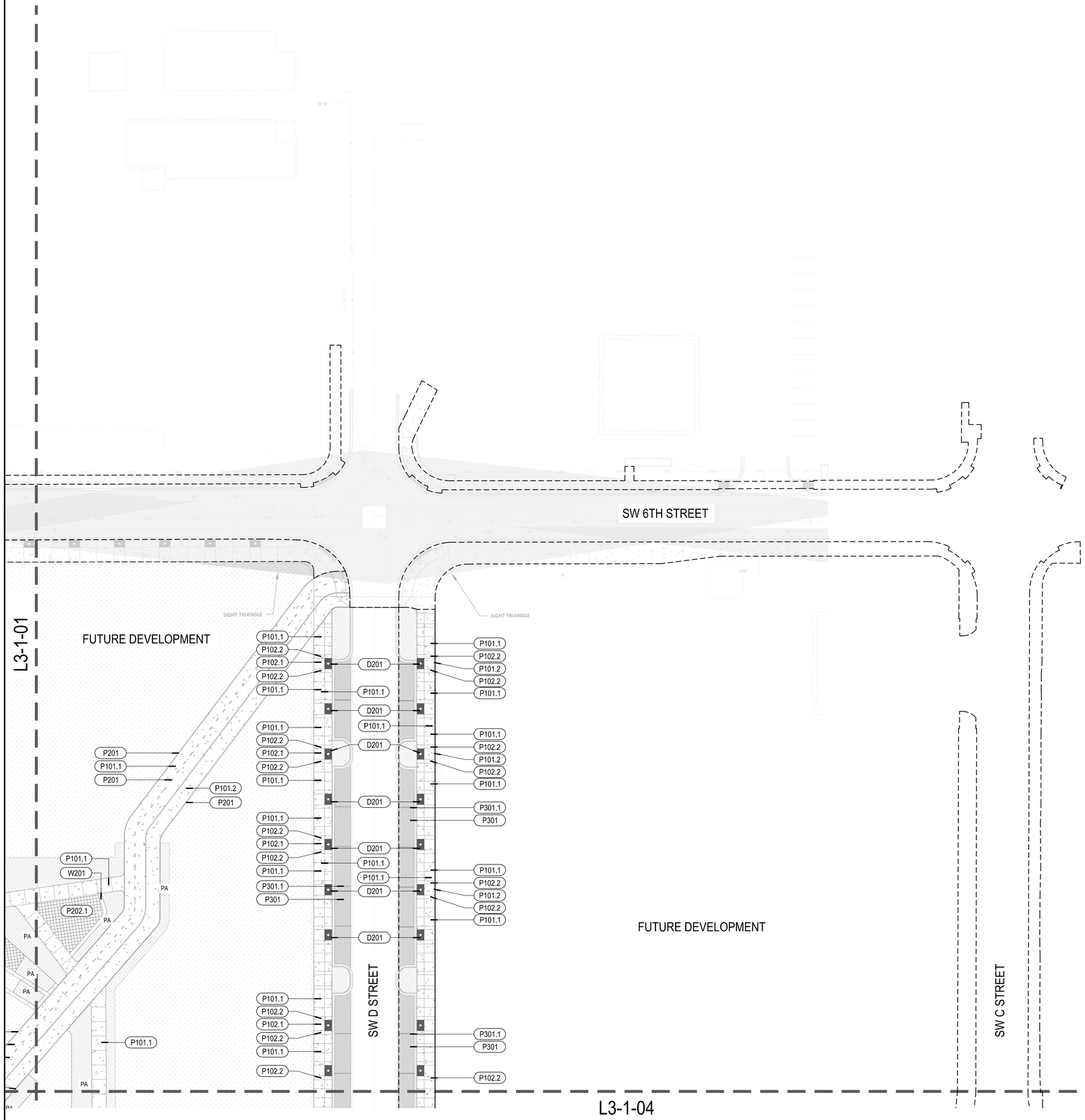

HARDSCAPE SCHEDULE

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P102.1	INTEGRAL COLOR CONCRETE PAVING TYPE 1	2 / L3-5-01
P102.2	INTEGRAL COLOR CONCRETE PAVING TYPE 2	2 / L3-5-01
P201	CONCRETE PAVER BANDING	8 / L3-5-01
P201.1	CONCRETE BAND FLUSH CURB	6 / L3-5-02
P201.2	CONCRETE BAND FLUSH CURB	7/ L3-5-02
P202.1	CONCRETE PAVER TYPE 1	9 / L3-5-01 & 4/L3-5-01
P202.2	CONCRETE PAVER TYPE 2	9 / L3-5-01 & 4 / L3-5-01
P202.3	CONCRETE PAVER TYPE 3	9 / L3-5-01 & 2 / L3-5-01
P301	VEHICULAR RATED CONCRETE PAVER	4 / L3-5-01
P301.1	VEHICULAR RATED CONCRETE PAVER BANDING	7 / L3-5-01
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WALLS, STAIRS, & COLUMNS

CODE	DESCRIPTION	DETAIL
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CODE	DESCRIPTION	DETAIL
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CODE	DESCRIPTION	DETAIL
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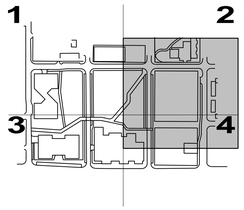
NOT FOR CONSTRUCTION



N

0 20' 40' 80'

1" = 20'-0"

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT GREGORY SUTTON 17378 STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

HARDSCAPE PLAN

PH2-L3-1-02

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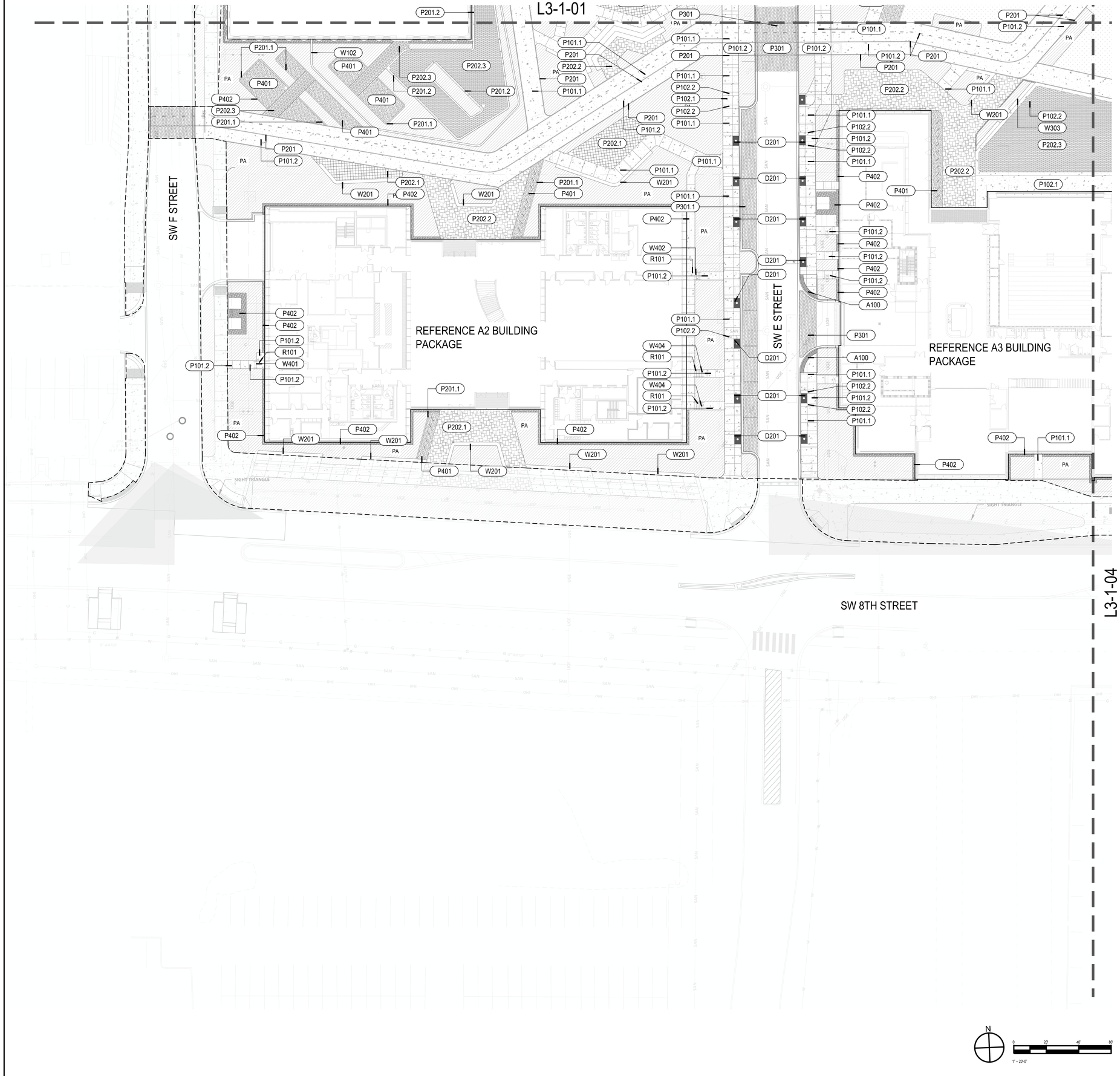

HARDSCAPE SCHEDULE

PAVING

CODE	DESCRIPTION	DETAIL
A100	TRUNCATED DOME PAVER	REFER TO CIVIL
P101.1	STANDARD CONCRETE PAVING TYPE 1	1 / L3-5-01 & 2 / L3-5-01
P101.2	STANDARD CONCRETE PAVING TYPE 2	1 / L3-5-01 & 2 / L3-5-01
P102.1	INTEGRAL COLOR CONCRETE PAVING TYPE 1	2 / L3-5-01
P102.2	INTEGRAL COLOR CONCRETE PAVING TYPE 2	2 / L3-5-01
P201	CONCRETE PAVER BANDING	8 / L3-5-01
P201.1	CONCRETE BAND FLUSH CURB	6 / L3-5-02
P201.2	CONCRETE BAND FLUSH CURB	7/ L3-5-02
P202.1	CONCRETE PAVER TYPE 1	9 / L3-5-01 & 4/L3-5-01
P202.2	CONCRETE PAVER TYPE 2	9 / L3-5-01 & 4 / L3-5-01
P202.3	CONCRETE PAVER TYPE 3	9 / L3-5-01 & 2 / L3-5-01
P301	VEHICULAR RATED CONCRETE PAVER	4 / L3-5-01
P301.1	VEHICULAR RATED CONCRETE PAVER BANDING	7 / L3-5-01
P401	DECOMPOSED GRANITE	7 / L3-5-01
P402	RIVER ROCK EDGING	10 / L3-5-01
P403	ALUMINUM EDING	10 / L3-5-01

WALLS, STAIRS, & COLUMNS

CODE	DESCRIPTION	DETAIL
W102	VERTICAL STONE WALL	7 / L3-5-03
W103	STONE SEAT	4 / L3-5-03 & 5 / L3-5-03 & 6 / L3-5-03
W201	CONCRETE WALL W/ WOOD TOPPER SEATING	3 / L3-5-03
W302	PLANTER	1 / L3-5-03
W303	PLANTER WITH BENCH	2 / L3-5-03
W401	CONCRETE STAIRS (2 RISERS)	1 / L3-5-01
W402	CONCRETE STAIRS (3 RISERS)	1 / L3-5-01
W403	CONCRETE STAIRS (4 RISERS)	1 / L3-5-01
W404	CONCRETE STAIRS (6 RISERS)	1 / L3-5-01

WALLS, STAIRS, & COLUMNS

CODE	DESCRIPTION	DETAIL
R101	STAIR HANDRAIL	2 / L3-5-04

DRAINS & GRATES

CODE	DESCRIPTION	DETAIL
D201	TREE GRATE	1 / L3-5-02 & 2 / L3-5-02

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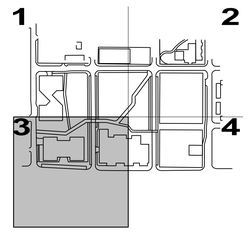

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

DATE: 07/17/2026
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ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

HARDSCAPE PLAN

PH2-L3-1-03

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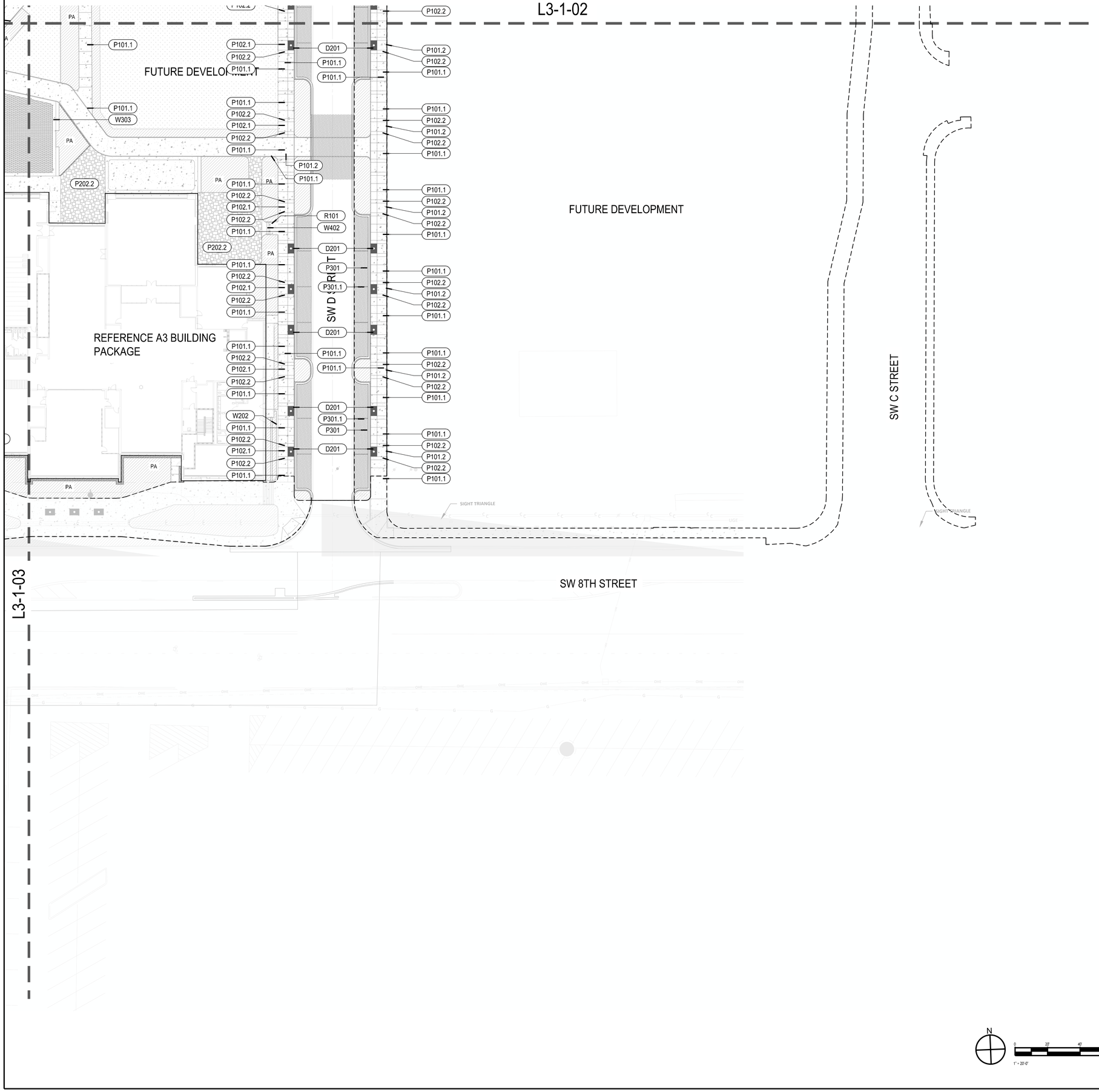

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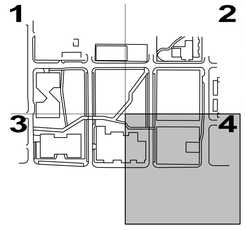

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1339
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

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HARDSCAPE PLAN

PH2-L3-1-04

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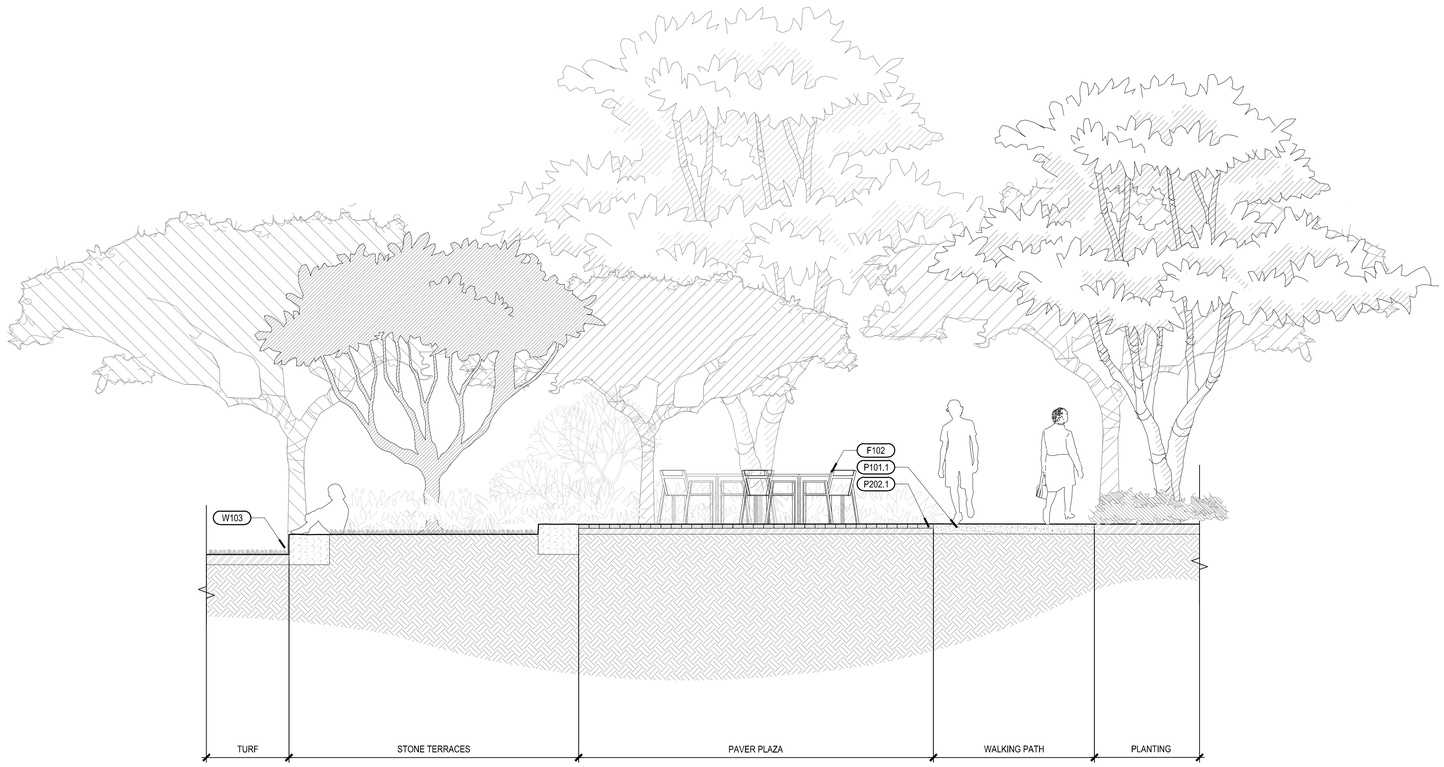
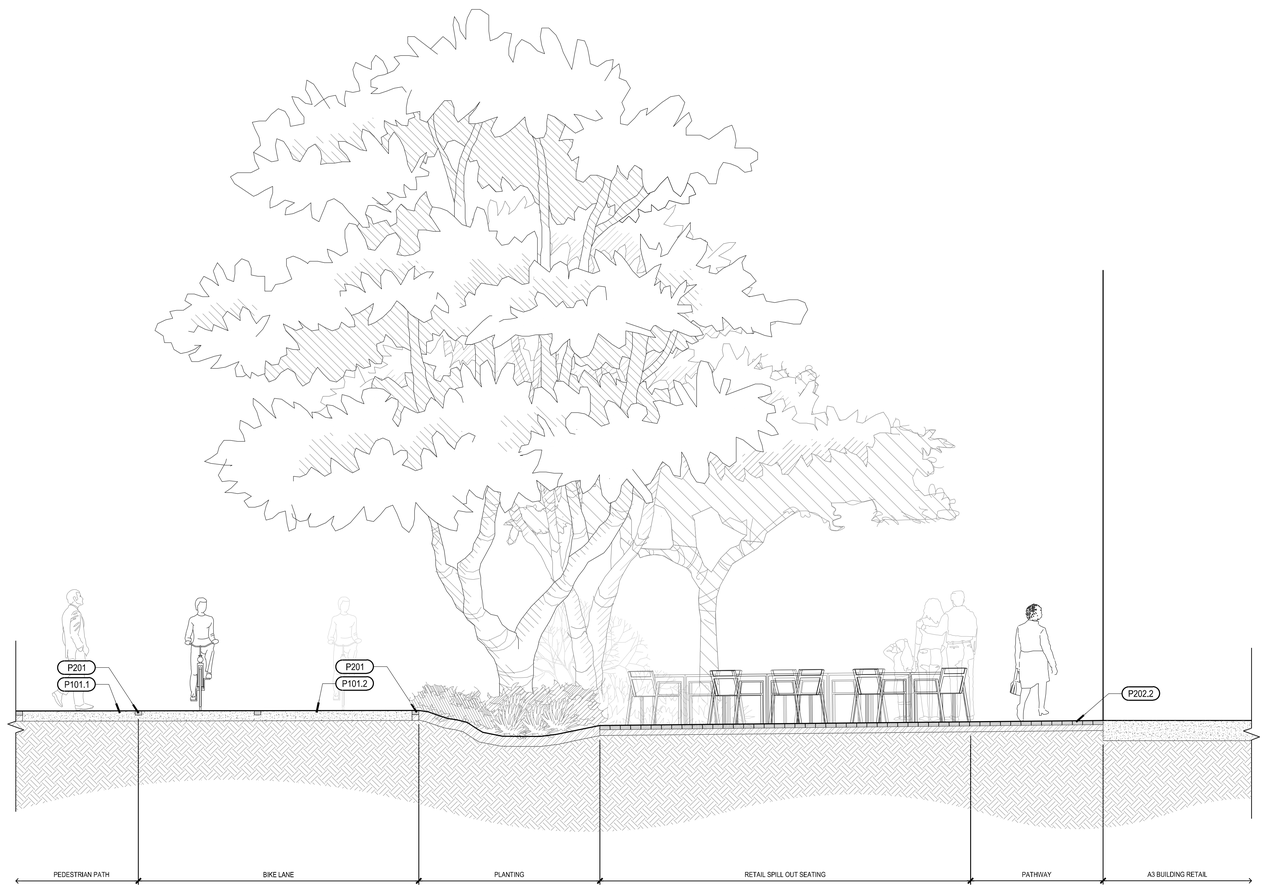


1 TERRACED LAWN SECTION
SCALE - 3/8" = 1'-0"



2 A3 RETAIL SECTION
SCALE - 3/8" = 1'-0"

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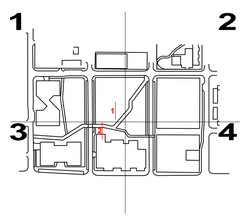

NOT FOR CONSTRUCTION

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
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SCHEMATIC DESIGN			05-22-2026

SITE SECTIONS

PH2-L3-3-01

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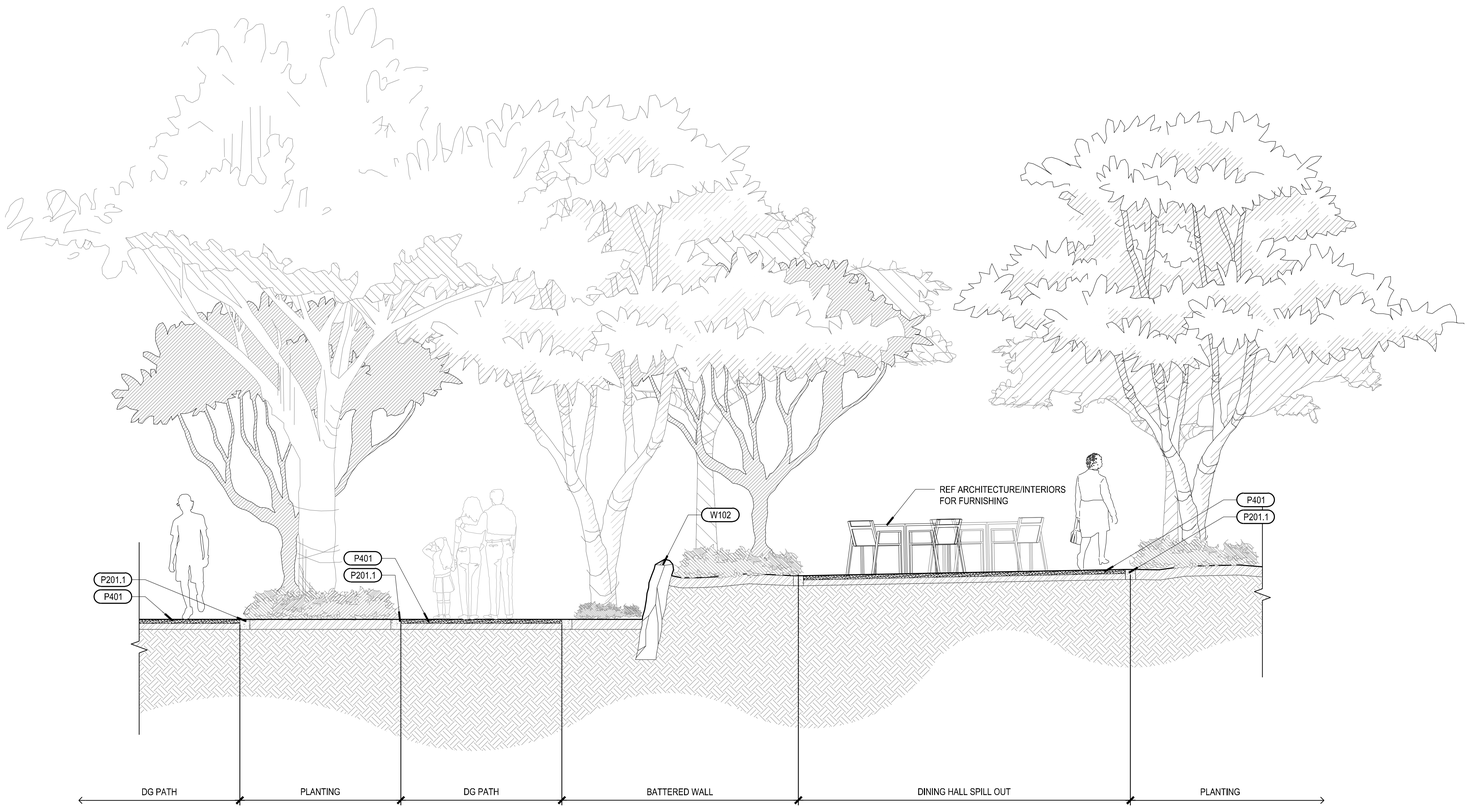
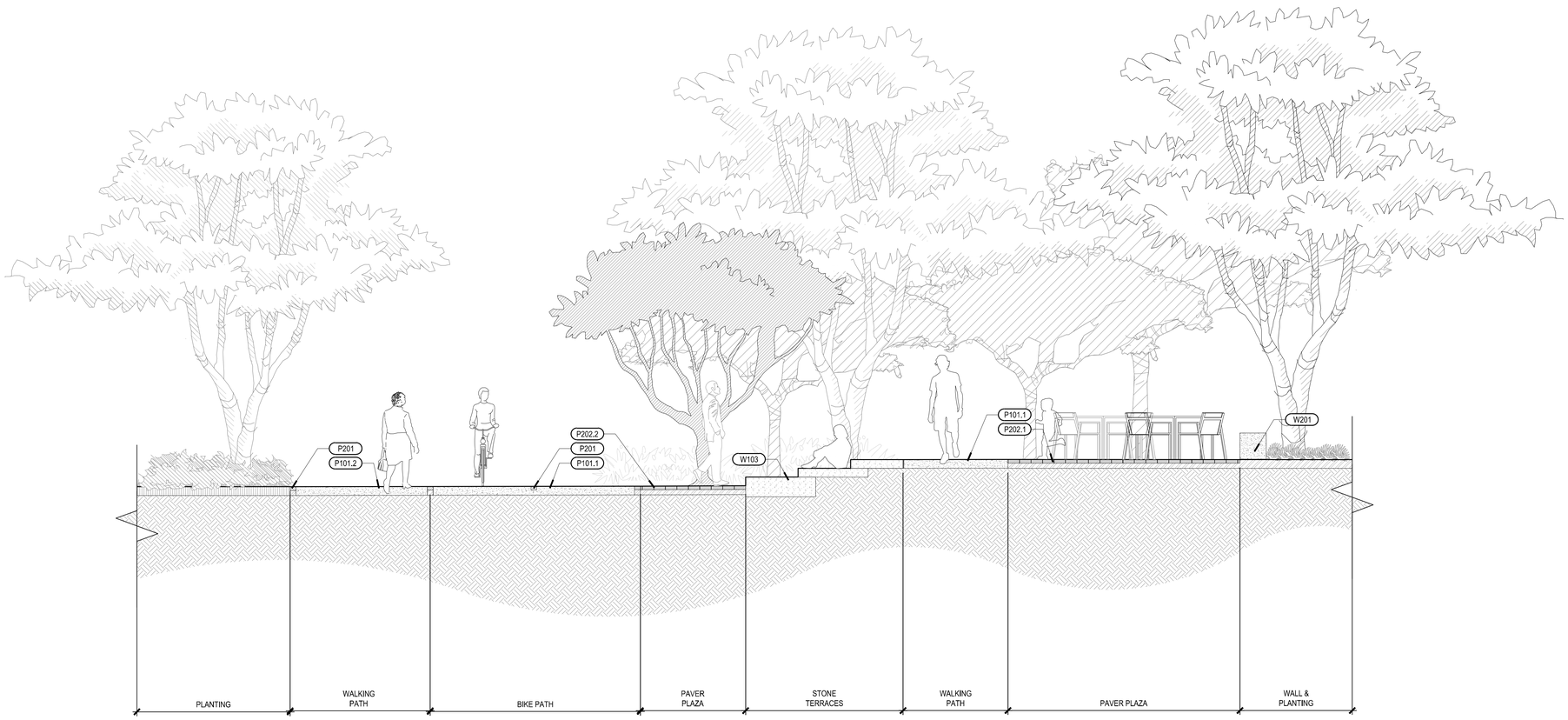


1 DINING HALL SECTION
SCALE - 3/8" = 1'-0"



2 TERRACED SEATING SECTION
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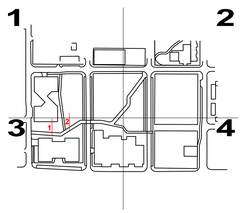

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
STATE OF ARKANSAS
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SITE SECTIONS

PH2-L3-3-02

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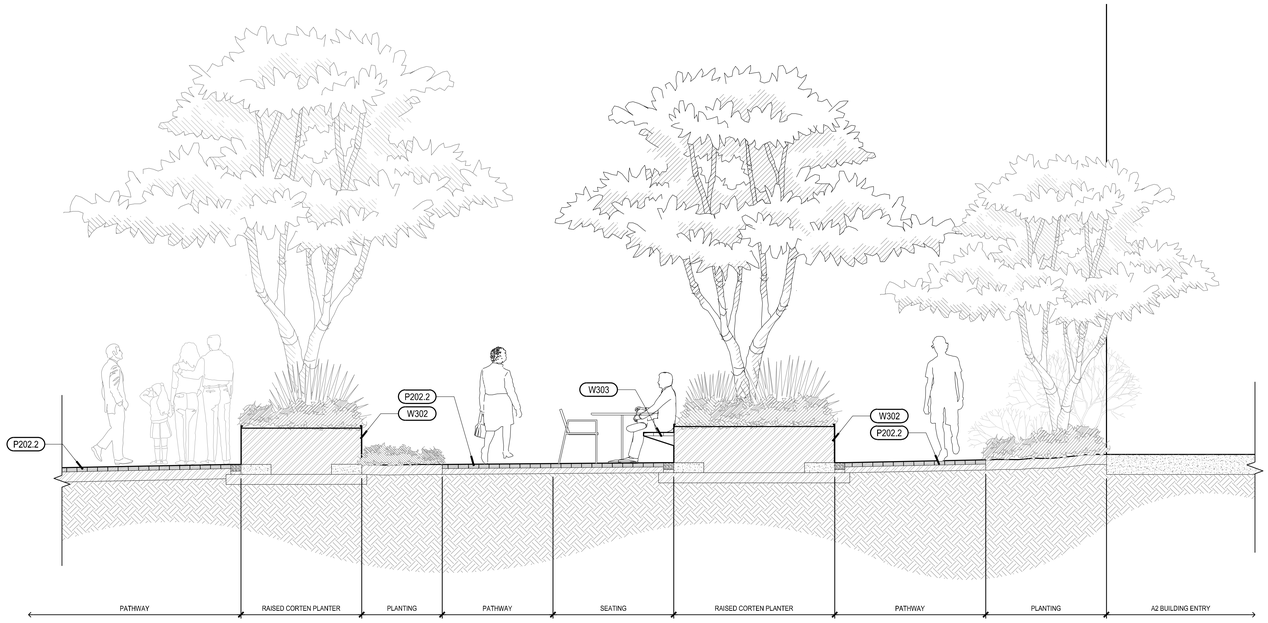
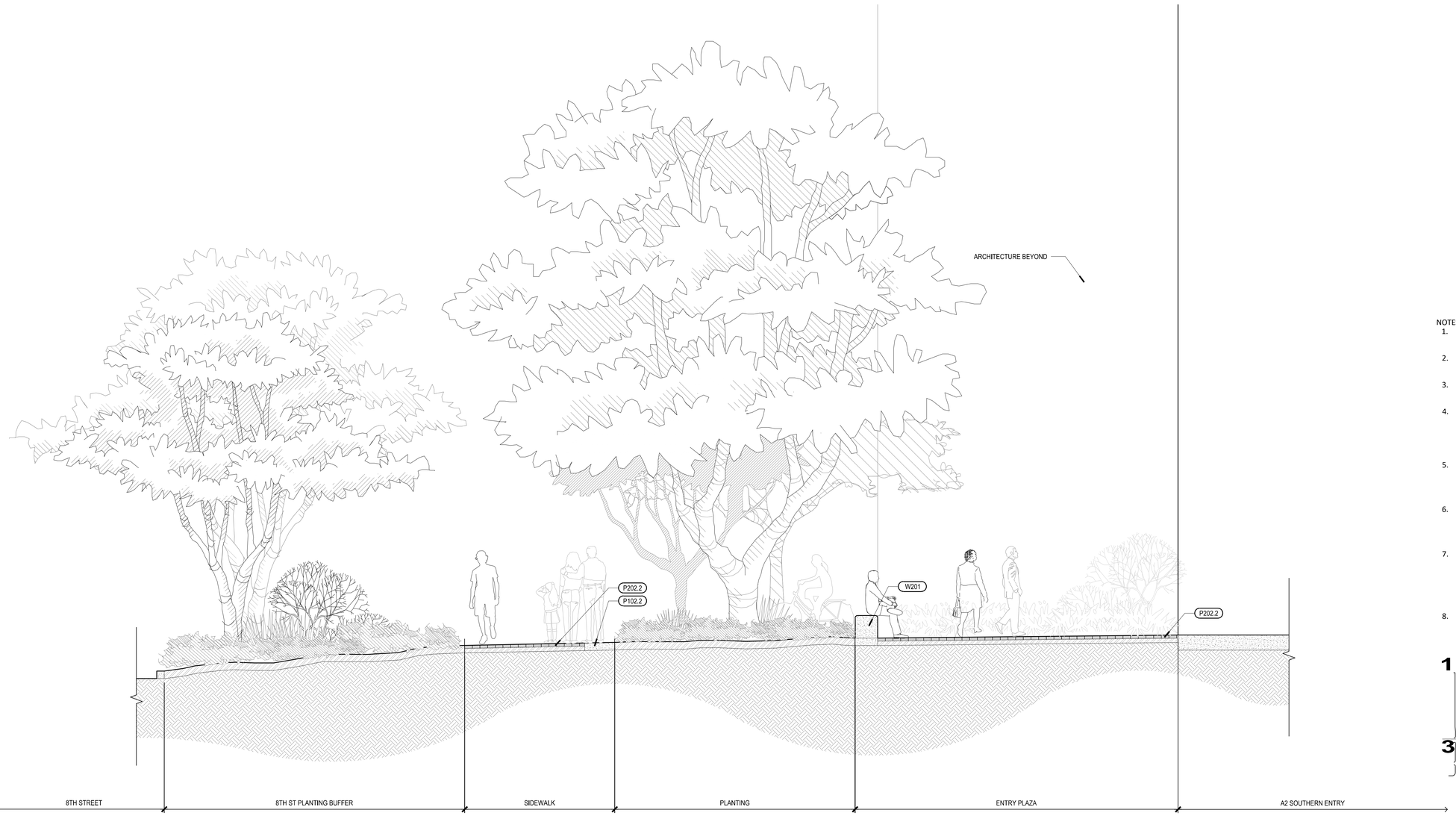


1 A1.B ARRIVAL SECTION
SCALE - 3/8" = 1'-0"



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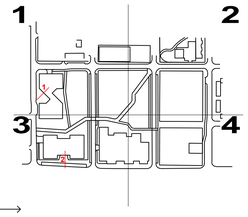

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HENDERSON ENGINEERS

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
13836
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
05	22-26	#1 LARGE SCALE DEVELOPMENT
06	17-26	#2 LARGE SCALE DEVELOPMENT
07	17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

SITE SECTIONS

PH2-L3-3-03

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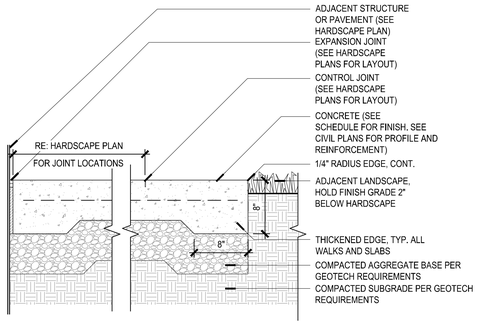
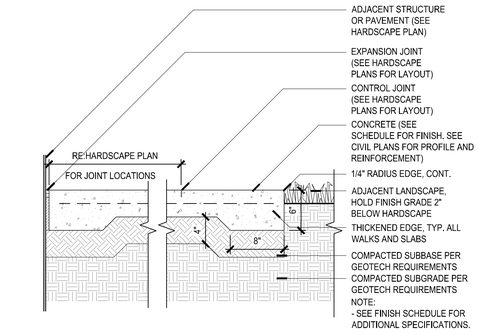


1 VEHICULAR CONCRETE PAVING W AGGREGATE BASE
SCALE -1 1/2" = 1'-0"



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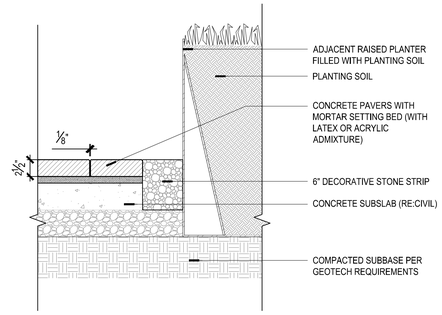
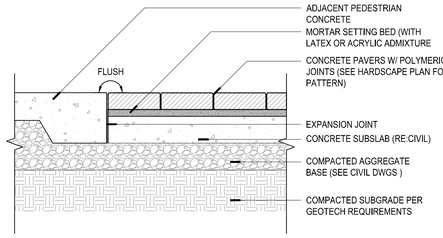
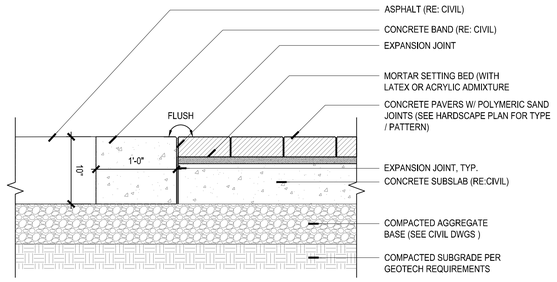


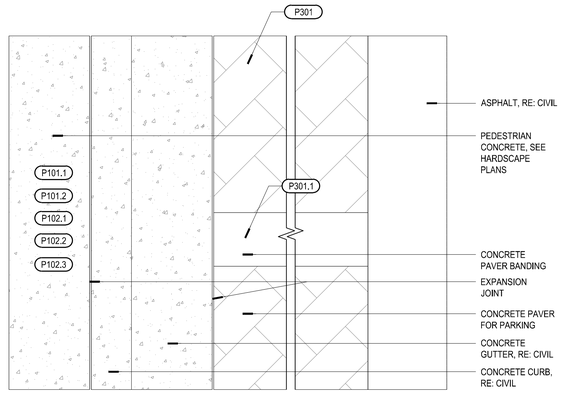
3 CONC. PAVERS TO STONE STRIP TO RAISED PLANTER
SCALE -1 1/2" = 1'-0"



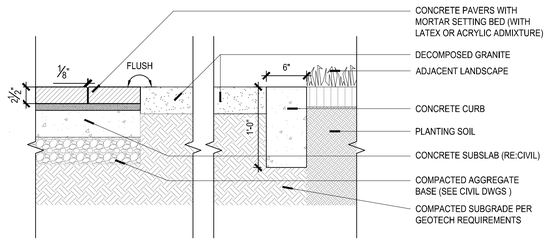
4 PEDESTRIAN CONC. PAVERS ADJACENT CONC. WALK
SCALE -1 1/2" = 1'-0"



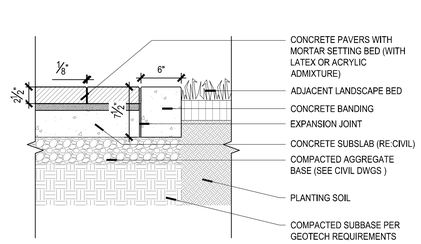
5 VEHICULAR CONC. PAVERS AT CONC. BAND AND ASPHALT
SCALE -1 1/2" = 1'-0"



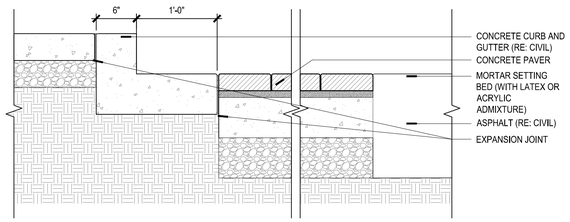
PLAN



7 CONC. PAVERS TO DECOMP. GRANITE TO CURB TO LANDSCAPE
SCALE -1 1/2" = 1'-0"

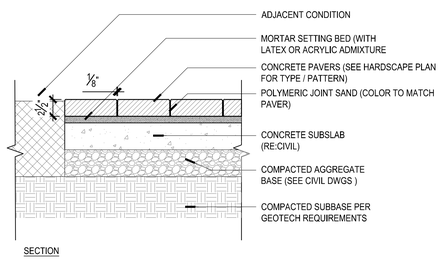


8 PAVER TO CONCRETE BANDING
SCALE -1 1/2" = 1'-0"



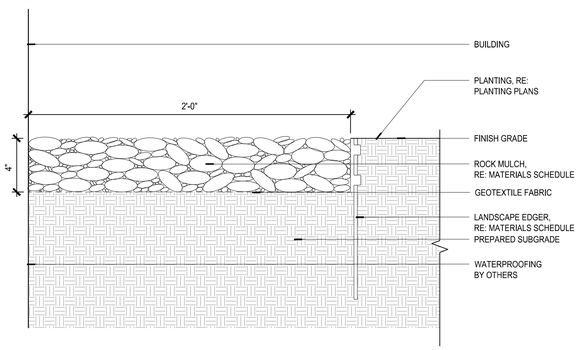
SECTION

6 VEHICULAR CONC. PAVERS AT CURB AND ASPHALT
SCALE -1 1/2" = 1'-0"



SECTION

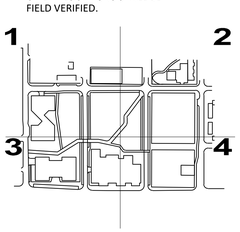
9 PEDESTRIAN CONC. PAVERS
SCALE -1 1/2" = 1'-0"



10 ROCK MULCH BAND AT BUILDING EDGE
SCALE -3" = 1'-0"

NOTES:

1. NO SIGNAGE IS KNOWN AT THIS TIME. ALL PROPOSED SIGNAGE WILL REQUIRE SEPARATE PERMIT.
2. NO FENCING IS KNOWN AT THIS TIME. ALL PROPOSED FENCING WILL REQUIRE SEPARATE PERMIT.
3. WITHIN SIGHT TRIANGLES, NO MATERIAL BETWEEN 3' AND 8' IN HEIGHT SHALL BE PLACED.
4. FOR ALL RIGHTS-OF-WAY OPEN TO VEHICULAR TRAFFIC, CONTRACTOR SHALL PROVIDE A PEDESTRIAN AND BICYCLE ACCESSIBLE ROUTE DURING ALL PHASES OF CONSTRUCTION.
5. ALL PLANT MATERIAL MUST BE MAINTAINED IN A HEALTHY LIVING CONDITION. ANY PLANT MATERIAL THAT DIE MUST BE REPLACED. SEC 50-510(j)(7)(i)(1).
6. TREE TOPPING IS NOT ALLOWED. TREES MUST BE PRUNED IN ACCORDANCE WITH ANSI A300. STANDARDS FOR TREE CARE. SEC 50-510(j)(7)(i)(2).
7. HEALTHY TREES MUST NOT BE REMOVED EXCEPT WHERE APPROVED BY THE DIRECTOR. TREES MUST BE MAINTAINED USING APPROVED PRUNING METHODS AS DESCRIBED IN ANSI A300.SEC 50-510(j)(7)(i)(3).
8. WHERE A POTENTIAL UTILITY CONFLICTS WITH LANDSCAPING, UTILITY LOCATIONS SHALL BE FIELD VERIFIED.



NOT FOR CONSTRUCTION

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

walter p moore

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609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

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LERA
POLK | STANLEY | WILCOX
HENDERSON ENGINEERS

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

ARKANSAS LANDSCAPE ARCHITECT GREGGORY SUTTON 1999 STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

HARDSCAPE DETAILS

PH2-L3-5-01

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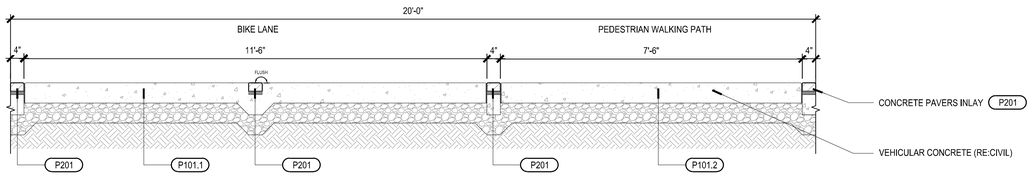
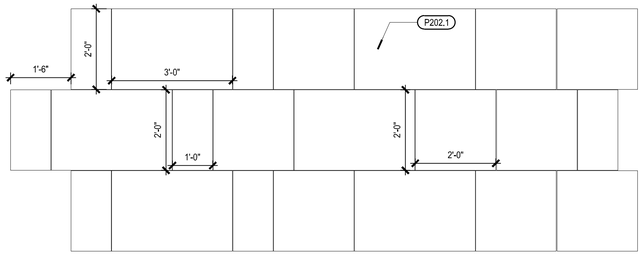
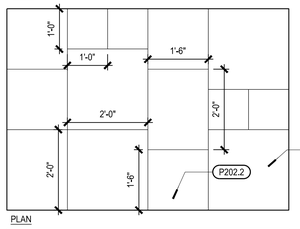


1 PAVER INLAY BIKE LANE & PEDESTRIAN WALK
SCALE -3/4" = 1'-0"



NOTES:
1. IF LESS THAN 1/2 PAVER IS REQUIRED FOR EDGE CONDITION, SUBSTITUTE FOR OVERSIZE PAVER TO AVOID PAVERS LESS THAN 1/2 OF FULL SIZE
2. PAVER LAYOUT IS FOR DESIGN INTENT ONLY. CONTRACTOR TO PROVIDE PAVER SHOP DRAWINGS FOR REVIEW AND APPROVAL BY CLIENT AND LANDSCAPE ARCHITECT.
3. INSTALL PER MANUFACTURER'S SPECIFICATION.

PLAN



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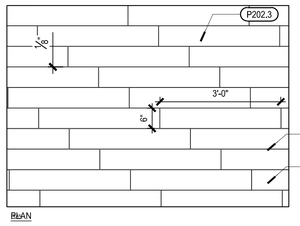
3. INSTALL PER MANUFACTURER'S SPECIFICATION.

CONCRETE PAVER (SEE HARDSCAPE SCHEDULE FOR COLOR, PATTERN, AND MANUFACTURER)

PLAN



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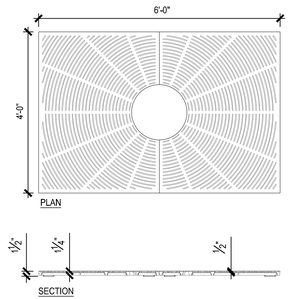
2. PAVER LAYOUT IS FOR DESIGN INTENT ONLY. CONTRACTOR TO PROVIDE PAVER SHOP DRAWINGS FOR REVIEW AND APPROVAL BY CLIENT AND LANDSCAPE ARCHITECT.
3. INSTALL PER MANUFACTURER'S SPECIFICATION.

POLYMERIC SAND SWEPT JOINTS, SUBMIT COLOR SAMPLE FOR APPROVAL

CONCRETE PAVER (SEE HARDSCAPE SCHEDULE FOR COLOR, PATTERN, AND MANUFACTURER)

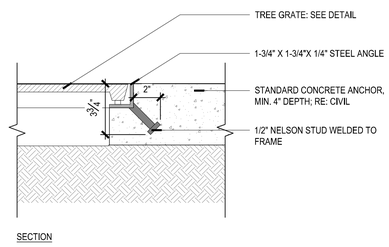
PLAN

2 PAVER PATTERNS
SCALE -3/4" = 1'-0"



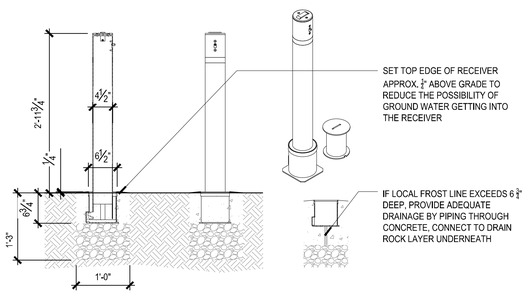
NOTES:
1. INSTALL PER MANUFACTURER'S SPECIFICATION.
2. SEE MATERIAL SCHEDULE FOR COLOR AND FINISH.

3 TREE GRATE
SCALE -3/4" = 1'-0"



NOTES:
1. INSTALL PER MANUFACTURER'S SPECIFICATION.

4 TREE GRATE INSTALLATION
SCALE -3" = 1'-0"



5 SITE BOLLARDS
SCALE - 1" = 1'-0"

NOTES:
1. NO SIGNAGE IS KNOWN AT THIS TIME. ALL PROPOSED SIGNAGE WILL REQUIRE SEPARATE PERMIT.
2. NO FENCING IS KNOWN AT THIS TIME. ALL PROPOSED FENCING WILL REQUIRE SEPARATE PERMIT.
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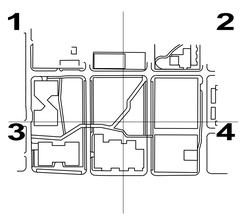
8. WHERE A POTENTIAL UTILITY CONFLICTS WITH LANDSCAPING, UTILITY LOCATIONS SHALL BE FIELD VERIFIED.



NOT FOR CONSTRUCTION

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT GREGGORY SUTTON 1759 STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

HARDSCAPE DETAILS

PH2-L3-5-02

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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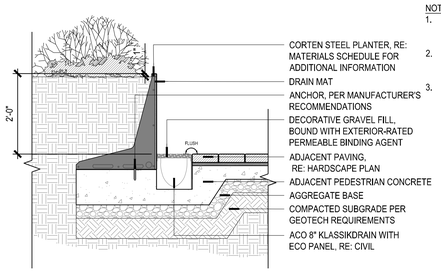
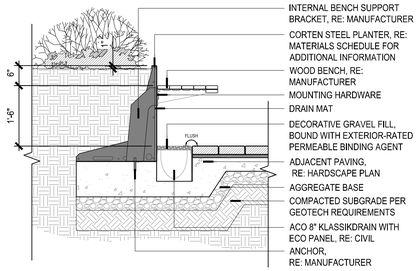


NOTES:
1. REFER TO MATERIALS SCHEDULE FOR PRODUCT INFORMATION AND FINISHES.
2. REFER TO PLANS FOR ADJACENT HARDSCAPE CONDITIONS.
3. REFER TO MANUFACTURER'S SPECIFICATIONS FOR ALL MOUNTING HARDWARE AND INSTALLATION REQUIREMENTS.

1 PLANTER WALL
SCALE -3/4" = 1'-0"



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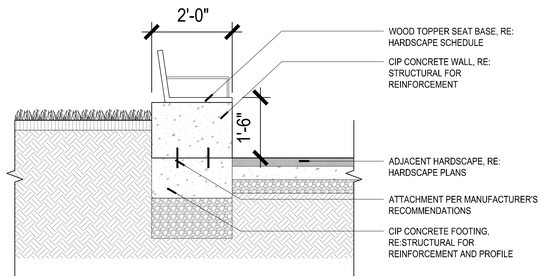
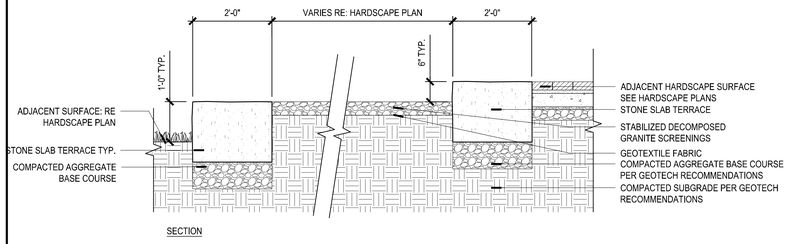
2. REFER TO PLANS FOR ADJACENT HARDSCAPE CONDITIONS.
3. REFER TO MANUFACTURER'S SPECIFICATIONS FOR ALL MOUNTING HARDWARE AND INSTALLATION REQUIREMENTS.

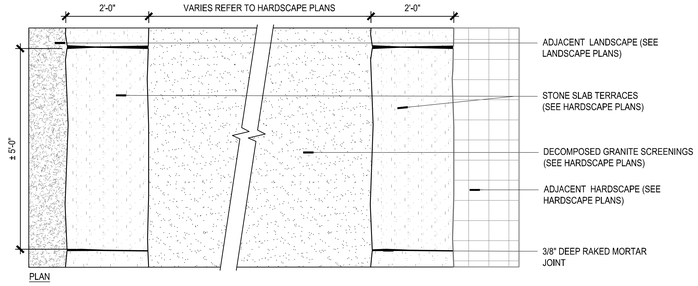
2 PLANTER WALL WITH BENCH
SCALE -3/4" = 1'-0"



3 CONCRETE WALL WITH WOOD TOPPER SEATING
SCALE -3/4" = 1'-0"



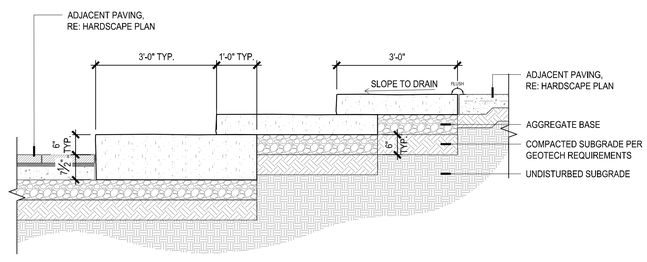
SECTION



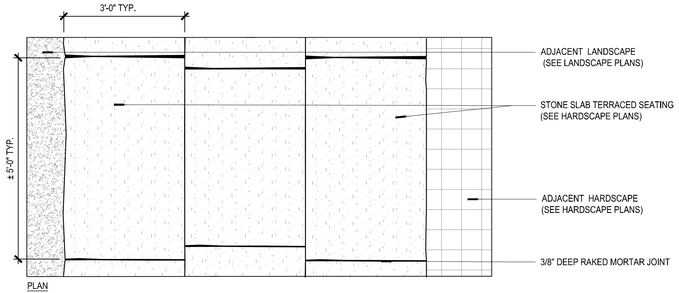
PLAN

NOTES:
1. VERIFY ALL DIMENSIONS, ELEVATIONS, SLOPES AND SITE CONDITIONS PRIOR TO INSTALLATION.
2. INSTALL STONE SLABS TRUE TO LINE AND GRADE WITH SMOOTH, EVEN TRANSITIONS BETWEEN ADJACENT UNITS.
3. MAINTAIN CONSISTENT JOINT WIDTHS THROUGHOUT INSTALLATION.
4. PROVIDE DEEP RAKED JOINTS BETWEEN STONE SLABS. JOINTS SHALL BE RECESSED BELOW FINISHED STONE SURFACE TO CREATE DEFINED SHADOW LINES.

4 TERRACED SEATING
SCALE -3/4" = 1'-0"



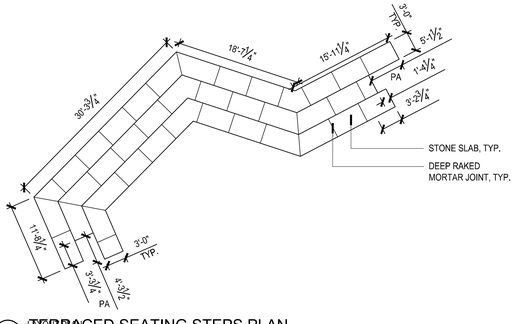
SECTION
3/4" = 1'-0"



PLAN
3/4" = 1'-0"

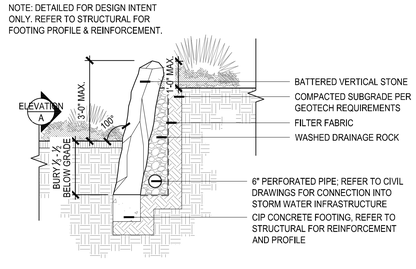
NOTES:
1. VERIFY ALL DIMENSIONS, ELEVATIONS, SLOPES AND SITE CONDITIONS PRIOR TO INSTALLATION.
2. INSTALL STONE SLABS TRUE TO LINE AND GRADE WITH SMOOTH, EVEN TRANSITIONS BETWEEN ADJACENT UNITS.
3. MAINTAIN CONSISTENT JOINT WIDTHS THROUGHOUT INSTALLATION.
4. PROVIDE DEEP RAKED JOINTS BETWEEN STONE SLABS. JOINTS SHALL BE RECESSED BELOW FINISHED STONE SURFACE TO CREATE DEFINED SHADOW LINES.

5 TERRACED SEATING STEPS
SCALE -3/4" = 1'-0"



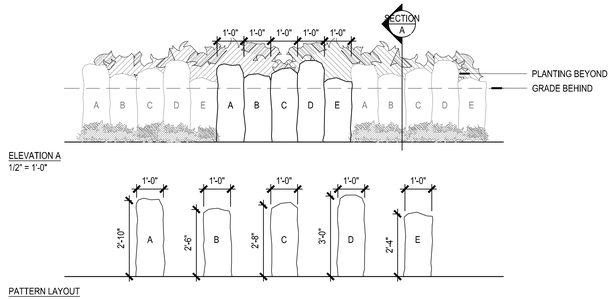
STONE SLAB, TYP.
DEEP RAKED MORTAR JOINT, TYP.

TERRACED SEATING STEPS PLAN
1/8" = 1'-0"
SCALE -1/8" = 1'-0"



SECTION A
1/2" = 1'-0"

7 BATTERED STONE WALL
SCALE -1/2" = 1'-0"



ELEVATION A
1/2" = 1'-0"

PATTERN LAYOUT
1/2" = 1'-0"

NOTES:
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2. NO FENCING IS KNOWN AT THIS TIME. ALL PROPOSED FENCING WILL REQUIRE SEPARATE PERMIT.
3. WITHIN SIGHT TRIANGLES, NO MATERIAL BETWEEN 3' AND 8' IN HEIGHT SHALL BE PLACED.
4. FOR ALL RIGHTS-OF-WAY OPEN TO VEHICULAR TRAFFIC, CONTRACTOR SHALL PROVIDE A PEDESTRIAN AND BICYCLE ACCESSIBLE ROUTE DURING ALL PHASES OF CONSTRUCTION.
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8. WHERE A POTENTIAL UTILITY CONFLICTS WITH LANDSCAPING, UTILITY LOCATIONS SHALL BE FIELD VERIFIED.

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Bentonville, Arkansas 72712
479.367.3250

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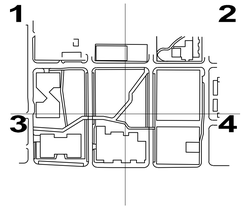
STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT GREGORY SUTTON 1339 STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT



PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

HARDSCAPE DETAILS

PH2-L3-5-03

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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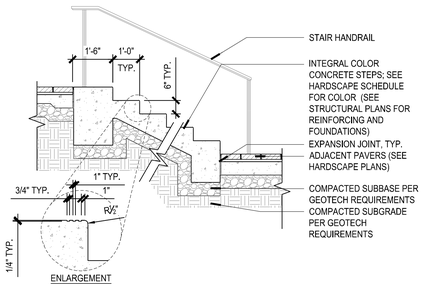
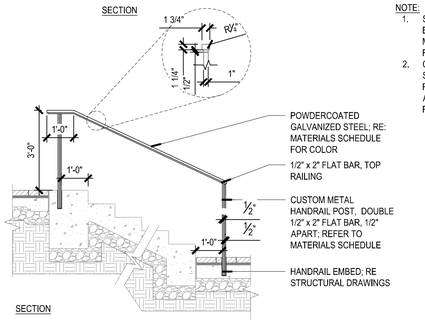


NOTE:
1. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW BY LANDSCAPE ARCHITECT AND OWNERS REPRESENTATIVE.
2. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND HANDRAIL CONFIGURATIONS IN THE FIELD PRIOR TO FABRICATION AND INSTALLATION.
3. WHERE EXISTING HANDRAILS ARE DAMAGED OR INCONSISTENT, NOTIFY THE DESIGN PROFESSIONAL FOR DIRECTION PRIOR TO PROCEEDING.
4. TIE NEW HANDRAILS INTO EXISTING WHERE INDICATED TO PROVIDE A CONTINUOUS, UNIFORM SYSTEM.
5. STAIR HANDRAIL TO MATCH EXISTING SITE HANDRAILS IN MATERIAL, COLOR, AND FINISH.

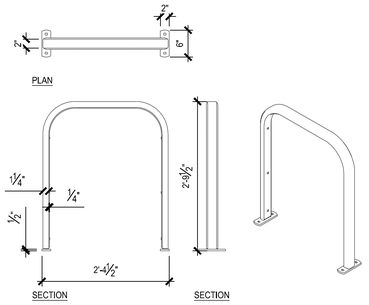
REFERENCE IMAGERY:

1 SITE STAIR
SCALE -1/2" = 1'-0"



NOTE:
1. STAIR HANDRAIL TO MATCH EXISTING SITE HANDRAILS IN MATERIAL, COLOR AND FINISH.
2. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR REVIEW BY LANDSCAPE ARCHITECT AND OWNERS REPRESENTATIVE

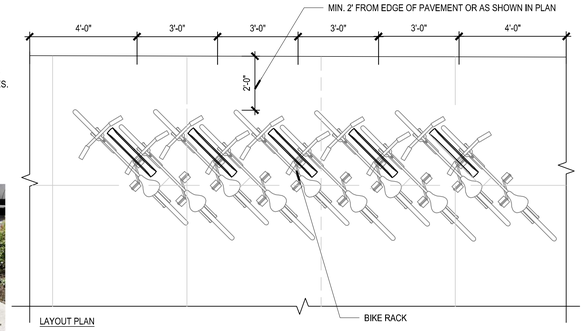
2 STAIR HANDRAIL
SCALE -1/2" = 1'-0"



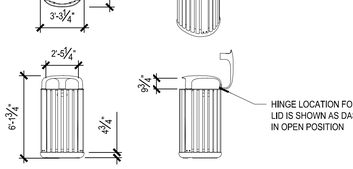
NOTES:
1. INSTALL PER MANUFACTURER'S SPECIFICATION.
2. SEE MATERIAL SCHEDULE FOR COLORS AND FINISHES.

REFERENCE IMAGERY:

3 BIKE RACK
SCALE -1" = 1'-0"



4 BIKE RACK LAYOUT PLAN
SCALE -1/2" = 1'-0"



NOTES:
1. INSTALL PER MANUFACTURER'S SPECIFICATION.
2. SEE MATERIALS SCHEDULE FOR COLOR AND FINISH.

REFERENCE IMAGERY:

5 WASTE RECEPTACLE
SCALE -1/4" = 1'-0"

NOTES:
1. NO SIGNAGE IS KNOWN AT THIS TIME. ALL PROPOSED SIGNAGE WILL REQUIRE SEPARATE PERMIT.
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3. WITHIN SIGHT TRIANGLES, NO MATERIAL BETWEEN 3' AND 8' IN HEIGHT SHALL BE PLACED.
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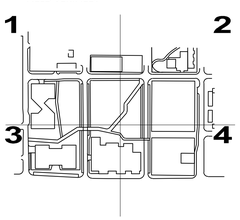

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1315
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

HARDSCAPE DETAILS

PH2-L3-5-04

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HARDSCAPE SCHEDULE

PAVING

CODE	DESCRIPTION	DETAIL	COLOR	FINISH	PATTERN	SIZE	MODEL NO.	MANUFACTURER/SUPPLIER
A100	TRUNCATED DOME PAVER	REFER TO CIVIL	A-100	PRESSED CONCRETE	-	12"X12"X2 ¾"		WAUSAU TILE WEB: https://wausautile.com/
P101.1	STANDARD CONCRETE PAVING TYPE 1	1 / L3-5-01 & 2 / L3-5-01	TAN	LIGHT BROOM	REFER TO HARDSCAPE PLANS	-		-
P101.2	STANDARD CONCRETE PAVING TYPE 2	1 / L3-5-01 & 2 / L3-5-01	STANDARD GRAY	LIGHT BROOM	REFER TO HARDSCAPE PLANS	-		-
P102.1	INTEGRAL COLOR CONCRETE PAVING TYPE 1	2 / L3-5-01	238 THYME	LIGHT BROOM	REFER TO HARDSCAPE PLANS	-		SOLOMON COLORS PH: 800.624.0261 WEB: https://www.solomoncolors.com/
P102.2	INTEGRAL COLOR CONCRETE PAVING TYPE 2	2 / L3-5-01	920 SLATE	LIGHT BROOM	REFER TO HARDSCAPE PLANS	-		SOLOMON COLORS PH: 800.624.0261 WEB: https://www.solomoncolors.com/
P201	CONCRETE PAVER BANDING	1 / L3-5-02	MATRIX #1428	TUDOR #13	REFER TO HARDSCAPE PLANS	3"X9"X4"	PLANKSTONE PAVER	HANOVER ARCHITECTURAL PRODUCTS PH: 717.637.0500 EM: info@hanoverpavers.com WEB: https://hanoverpavers.com/contact-us/
P201.1	CONCRETE BAND/FLUSH CURB	7 / L3-5-02	STANDARD GRAY	LIGHT BROOM	-	REFER TO DETAIL		
P201.2	CONCRETE BAND/FLUSH CURB	8 / L3-5-02	TAN	LIGHT BROOM	-	REFER TO DETAIL		
P202.1	CONCRETE PAVER TYPE 1	9 / L3-5-01 & 4/L3-5-01	30% LIGHT GRAY, 40% GRAY, 30% DARK GRAY	SUNBLASTED	IRREGULAR	-	NATURAL STONE PAVER	RHODES ARCHITECTURAL STONE PH: 206.327.0833 EM: jason@rhodes-stone.com WEB: https://www.rhodes-stone.com/contact-rhodes-stone
P202.2	CONCRETE PAVER TYPE 2	9 / L3-5-01 & 4 / L3-5-01	30% NATURAL, 50% TAN, 20% BROWN	TUDOR	DESIGN A	12"X12"X2 ¾", 18"X18"X2 ¾", 18"X24"X2 ¾", 24"X24"X2 ¾"	PREST PAVER	HANOVER ARCHITECTURAL PRODUCTS PH: 717.637.0500 EM: info@hanoverpavers.com WEB: https://hanoverpavers.com/contact-us/
P202.3	CONCRETE PAVER TYPE 3	9 / L3-5-01 & 2 / L3-5-01	CREAM	TUDOR	RUNNING BOND QUARTER	6"X36"X4"	PLANKSTONE PAVER	HANOVER ARCHITECTURAL PRODUCTS PH: 717.637.0500 EM: info@hanoverpavers.com WEB: https://hanoverpavers.com/contact-us/
P301	VEHICULAR RATED CONCRETE PAVER	1/L3-5-01	SHALE GREY, GREYED NICEL	SMOOTH	HERRINGBONE	12" x 8" x 4"	HYDRA PAVERS	TECHO BLOC: PH: 877.832.4625 EM: info@techo-bloc.com
P301.1	VEHICULAR RATED CONCRETE PAVER BANDING	5/L3-5-01	ONYX BLACK	SMOOTH	RUNNING BOND	12" x 8" x 4"	HYDRA PAVERS	TECHO BLOC: PH: 877.832.4625 EM: info@techo-bloc.com
P401	DECOMPOSED GRANITE	7/L3-5-01	DARK GRAY	-	-	#789 (⅜")	#789 (⅜")	
P402	RIVER ROCK EDGING	10 / L3-5-01	DARK GRAY	-	-	1-2" DIA.	PERUVIAN BEACH PEBBLE - 1"-2"	PERUVIAN BEACH PEBBLE - 1"-2"
P403	ALUMINUM EDING	10 / L3-5-01	BLACK	DURAFLEX	-	3/16" X 8"	PERMALOC CLEANLINE XL	PERMALOC CLEANLINE XL

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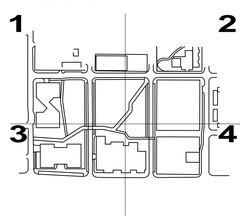

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

ARKANSAS LANDSCAPE ARCHITECT
GREGGORY SUTTON
#1598
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

HARDSCAPE SCHEDULE

PH2-L3-6-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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CODE	DESCRIPTION	DETAIL	COLOR	FINISH	PATTERN	SIZE	MODEL NO.	MANUFACTURER/SUPPLIER
W102	VERTICAL STONE WALL	7 / L3-5-03	-	-	-	REFER TO HARDSCAPE PLAN FOR LOCATION, REFER TO GRADING PLAN FOR HEIGHT	CUSTOM	MEZGER STONE PH: 254.547.8207 WEB: https://www.mezgerstone.com/benches-and-blocks
W103	STONE SEAT	4 / L3-5-03 & 5 / L3-5-03 & 6 / L3-5-03	TAN	-		REFER TO HARDSCAPE PLAN	STONE CUT SLABS/CUSTOM CUT	STONE CUT SLABS/CUSTOM CUT
W201	CONCRETE WALL W/ WOOD TOPPER SEATING	3 / L3-5-03	CONCRETE SEAT COLOR: STANDARD GRAY / SOCA XWAYS SEAT COLOR: HEATHER GRAY	CONCRETE SEAT FINISH: SMOOTH/ SOCA XWAYS SEAT FINISH: UNTREATED SAND	-	-	CUSTOM	SOCA CROSSWAY: PH: +44 136.424.2731 EM: hello@factoryfurniture.co.uk
W202	CONCRETE SITE WALL	-	STANDARD GREY	RUBBED	--	-	-	-
W302	PLANTER	1 / L3-5-03	NATURAL	PRE-WEATHER STEEL	REFER TO HARDSCAPE PLAN	REFER TO HARDSCAPE PLAN	KITSAP STEEL MODULAR PLANTER	TOURNESOL PH: (800) 542.2282 WEB: https://tournesol.com/products/kitsap-steel-modular-planter-walls
W303	PLANTER WITH BENCH	2 / L3-5-03	NATURAL	PRE-WEATHER STEEL	REFER TO HARDSCAPE PLAN	REFER TO HARDSCAPE PLAN	INTEGRAL COLOR STAIR	
W401	CONCRETE STAIRS (2 RISERS)	1 / L3-5-01	GRAY	LIGHT BROOM	-	-	INTEGRAL COLOR STAIR	
W402	CONCRETE STAIRS (3 RISERS)	1 / L3-5-01	GRAY	LIGHT BROOM	-	-	INTEGRAL COLOR STAIR	
W403	CONCRETE STAIRS (4 RISERS)	1 / L3-5-01	GRAY	LIGHT BROOM	-	-	INTEGRAL COLOR STAIR	
W404	CONCRETE STAIRS (6 RISERS)	1 / L3-5-01	GRAY	LIGHT BROOM	-	-	INTEGRAL COLOR STAIR	

WALLS, STAIRS, & COLUMNS

CODE	DESCRIPTION	DETAIL	COLOR	FINISH	PATTERN	SIZE	MODEL NO.	MANUFACTURER/SUPPLIER
R101	STAIR HANDRAIL	2 / L3-5-04	BLACK MATTE	POWDERCOATED	-	-	CUSTOM	-

DRAINAGE & GRATE

CODE	DESCRIPTION	DETAIL	COLOR	FINISH	PATTERN	SIZE	MODEL NO.	MANUFACTURER/SUPPLIER
D201	TREE GRATE	1 & 2 / L3-5-02	OLYMPIAN	CAST IRON	-	48" x 72"	-	-

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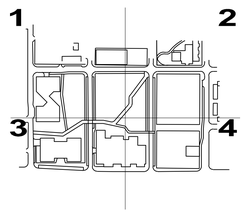

NOT FOR CONSTRUCTION

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1705
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

HARDSCAPE SCHEDULE

PH2-L3-6-02

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GENERAL NOTES:

1. PRIOR TO PLANTING INSTALLATION, THE CONTRACTOR SHALL CONFIRM THE AVAILABILITY OF ALL THE SPECIFIED PLANT MATERIALS. THE CONTRACTOR SHALL SUBMIT DATED PHOTOGRAPHS OF ALL PLANT MATERIAL NOT TAGGED BY THE OWNERS REPRESENTATIVE TO THE OWNERS REPRESENTATIVE FOR REVIEW PRIOR TO DELIVERY OF MATERIALS TO THE PROJECT. ALL PHOTOGRAPHS OF TREES AND PALMS SHALL HAVE A MEASURING DEVICE AND PERSON IN THE PHOTO FOR SCALE. NURSERY SOURCE, HEIGHT, WIDTH AND CALIPER OF PLANT MATERIAL SHALL BE INCLUDED WITH THE PHOTOGRAPH.
2. THE PLANT MATERIAL QUANTITIES SHOWN IN THE CONTRACT DOCUMENTS ARE FOR THE CONVENIENCE OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL PLANT MATERIAL QUANTITIES AND NOTIFYING THE OWNERS REPRESENTATIVE OF ANY DISCREPANCIES FOR CLARIFICATION PRIOR TO THE AWARD OF CONTRACT AND COMMENCEMENT OF WORK.
3. THE OWNERS REPRESENTATIVE SHALL HAVE THE RIGHT AT ANY STAGE OF THE OPERATION TO REJECT ANY PLANT MATERIALS THAT DO NOT COMPLY WITH THE REQUIREMENTS AS SPECIFIED HEREIN AND REQUIRE THE CONTRACTOR TO REPLACE THE REJECTED MATERIAL WITH MATERIAL MEETING THE SPECIFICATIONS. MAINTENANCE OF REPLACED MATERIAL SHALL CONTINUE UNTIL FINAL ACCEPTANCE.
4. THE OWNERS REPRESENTATIVE MAY ADJUST THE LOCATIONS OF THE PLANT MATERIAL SHOWN ON THE PLANS TO ACCOMMODATE UNFORESEEN FIELD CONDITIONS OR TO ACCOMPLISH DESIGN INTENT.
5. NO PLANT MATERIAL SUBSTITUTIONS SHALL BE MADE WITHOUT THE WRITTEN CONSENT OF THE OWNERS REPRESENTATIVE.
6. THE INSTALLATION OF ALL PLANT MATERIALS SHALL COMPLY WITH THE CODES, STANDARDS, REGULATIONS REQUIREMENTS AND ORDINANCES OF ANY GOVERNMENTAL AGENCY HAVING JURISDICTION OVER THE WORK.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR THIS WORK PRIOR TO THE START OF CONSTRUCTION.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND BEAR ALL COSTS RELATED TO THE TESTING OF EXISTING SOILS, PREPARED PLANTING MIXES AND AMENDMENTS.
9. THE CONTRACTOR SHALL PROTECT ALL PLANT MATERIAL TO REMAIN. THE CONTRACTOR SHALL INSTALL AND/OR MAINTAIN BARRICADES AS DETAILED ON THE DRAWINGS AND AS OUTLINED IN THE DEMOLITION/SITE CLEARING NOTES.
10. THE CONTRACTOR SHALL REFER TO THE GENERAL, FINE GRADING AND HARDSCAPE NOTES, SPECIFICATIONS AND THE CONTRACT DOCUMENTS PREPARED BY BUT NOT LIMITED TO ARCHITECTURAL, MEP, IRRIGATION, STRUCTURAL AND CIVIL ENGINEERING CONSULTANTS FOR ADDITIONAL REQUIREMENTS.
11. ALL PLANT MATERIAL SHALL MEET OR EXCEED THE FOLLOWING:
    A. AMERICAN STANDARDS FOR NURSERY STOCK, ASNI Z60.1.
12. PLANTS SHALL BE SYMMETRICAL AS IS TYPICAL FOR THEIR VARIETY AND SPECIES. THEY SHALL BE FREE FROM PLANT DISEASE, INSECTS OR THEIR EGGS.
13. NURSERY GROWN STOCK SHALL BE GROWN UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT.
14. ALL PLANT MATERIAL SIZES SPECIFIED ARE MINIMUM SIZES. HEIGHT AND SPREAD TAKE PRECEDENCE OVER CALIPER AND CONTAINER SIZES.
15. CONTAINER PLANTS SHALL HAVE BEEN GROWN IN A RIGID CONTAINER FOR A MINIMUM TIME AS FOLLOWS:
    A. TREES.....2 YEARS.
    B. SHRUBS....1 YEAR.
    C. GROUNDCOVERS....6 MONTHS.
16. ALL CONTAINER PLANTS SHALL HAVE ROOTS SUFFICIENTLY DEVELOPED TO HOLD THE SOIL TOGETHER WHEN REMOVED FROM ITS CONTAINER. NO PLANT MATERIAL SHALL BE BOUND TO THE CONTAINER NOR HAVE CIRCULAR ROOTS.
17. BALLED AND BURLAPPED PLANTS WILL NOT BE ACCEPTED WHEN THE ROOT BALL HAS BEEN CRACKED OR BROKEN.
18. PLANTS GROWN IN GROW BAGS ARE PROHIBITED.
19. SOD SHALL BE THE SPECIES AS CALLED FOR ON THE DRAWINGS. SOD SHALL BE WELL MATTED WITH HEAVY ROOT DEVELOPMENT AND FREE OF WEEDS, FUNGUS AND OTHER DISEASES.
20. SOD SHALL BE MACHINE CUT TO A COMMERCIAL SIZE WITH A UNIFORM THICKNESS OF 1-1/4 TO 1-1/2 INCH THICKNESS.

PLANTING NOTES:

1. PRIOR TO THE INSTALLATION OF PLANT MATERIALS, THE CONTRACTOR SHALL CONFIRM IN WRITING TO THE OWNERS REPRESENTATIVE THAT THE FINISHED GRADES IN ALL AREAS WHERE PLANT MATERIALS ARE TO BE INSTALLED CONFORM TO THE PROPOSED GRADES NOTED ON THE GRADING PLANS.
2. PLANTING SHALL NOT COMMENCE UNTIL IRRIGATION HAS BEEN INSTALLED AND IS OPERATIONAL. TREES MAY BE INSTALLED PRIOR TO THE INSTALLATION OF IRRIGATION PROVIDED THAT A HAND WATERING SCHEDULE IS SUBMITTED TO AND APPROVED BY THE OWNERS REPRESENTATIVE.
3. THE CONTRACTOR SHALL SUBMIT WEED CONTROL PRODUCTS THAT DO NOT INCLUDE GLYPHOSATE. PROTECT EXISTING PLANTS TO REMAIN FROM OVERSPRAY. DO NOT APPLY WITHIN ROOT ZONES OF EXISTING PLANT MATERIAL TO REMAIN. CONTRACTOR TO ENSURE TOTAL WEED ERADICATION PRIOR TO INSTALLATION OF PLANT MATERIAL.
4. REGARDLESS OF SUBGRADE PREPARATION AND APPROVAL REQUIREMENTS ABOVE, CONTRACTOR SHALL CONFIRM THAT ALL ORGANICS, SOD, WEEDS, ROOTS AND DEBRIS HAVE BEEN REMOVED TO A DEPTH OF TWELVE INCHES (12") FROM ALL AREAS WHERE PLANT MATERIALS ARE TO BE INSTALLED. ALL PAVEMENT AND PAVEMENT BASE MATERIAL SHALL BE REMOVED COMPLETELY IN ALL AREAS WHERE PLANT MATERIALS ARE TO BE INSTALLED.
5. ANY DEPRESSIONS OR EXCAVATIONS BELOW THE APPROVED FINISHED GRADES CREATED FOR OR BY THE REMOVAL OF SUCH OBJECTS SHALL BE REFILLED WITH CLEAN COARSE SAND AND COMPACTED TO A DENSITY CONFORMING TO THE SURROUNDING GROUND.
6. THE CONTRACTOR SHALL PAINT THE OUTLINE OF EACH SHRUB AND GROUNDCOVER BED AND STAKE THE LOCATION OF ALL TREES FOR APPROVAL OF THE OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.
7. TREE PITS SHALL BE TESTED FOR VERTICAL DRAINAGE BY FILLING WITH WATER TWICE IN SUCCESSION. CONDITIONS PERMITTING THE RETENTION OF MORE THAN 6 INCHES OF WATER IN 1 HOUR SHALL BE BROUGHT TO THE ATTENTION OF THE OWNERS REPRESENTATIVE. THE CONTRACTOR SHALL SUBMIT A WRITTEN PROPOSAL FOR CORRECTION OF SUCH CONDITIONS BEFORE PROCEEDING WITH INSTALLATION.
8. UNIFORMLY APPLY REQUIRED AMENDMENTS TO AREAS TO RECEIVE SOD AND CULTIVATE BY MECHANICAL TILLING INTO THE TOP 6 INCHES OF SOIL.
9. AREAS TO RECEIVE SOD SHALL BE GRADED TO LEVEL OUT ALL UNDULATIONS OR IRREGULARITIES IN THE SURFACE RESULTING FROM TILLAGE, FERTILIZING OR OTHER OPERATIONS. THE RESULTING SURFACE SHALL BE ROLLED WITH THE RESULTING GRADE TO BE NO HIGHER THAN THE ADJACENT PAVING OR OTHER GRADE ELEMENTS AFTER SOD HAS BEEN INSTALLED.
10. PLANTING BEDS SHALL THEN BE FINE GRADED TO A SMOOTH AND EVEN SURFACE ASSURING POSITIVE DRAINAGE AWAY FROM STRUCTURES AND ELIMINATING ANY DEPRESSIONS WHICH MAY COLLECT WATER.
11. "SURFLAN" OR OWNER REPRESENTATIVE APPROVED EQUAL PRE-EMERGENT HERBICIDE SHALL BE APPLIED TO ALL PLANTING BEDS IN ACCORDANCE WITH THE MANUFACTURES RECOMMENDED RATE.

PLANTING NOTES: (cont.)

12. ALL PLANT PITS SHALL BE EXCAVATED TO A WIDTH AND DEPTH AS INDICATED ON THE DRAWINGS.
13. PLANT MATERIALS SHALL BE CENTERED IN THEIR PITS, FACED FOR BEST EFFECT AND SET PLUMB FOR BACKFILLING.
14. SHRUB/GROUNDCOVER PLANTINGS SHOWN IN MASS PLANTING BEDS SHALL BE PLACED ON A TRIANGULAR SPACING CONFIGURATION. SEE DRAWINGS FOR TRIANGULAR SPACING DETAIL AND PLANT MATERIAL LIST FOR ON-CENTER PLANT SPACING.
15. BALLED AND BURLAPPED PLANTS SHALL HAVE THE BURLAP, STRINGS, STRAPS AND WIRE CAGES REMOVED FROM THE TOP 1/3 OF THE ROOT BALL.
16. PLACE BACKFILL IN PLANT PITS IN LAYERS NOT TO EXCEED 1/3 THE DEPTH OF THE ROOT BALL AND TAMP FIRMLY IN PLACE. PRIOR TO PLACING THE FINAL LAYER, THE PIT SHALL BE FILLED WITH WATER AND THE SOIL ALLOWED TO SETTLE.
17. AFTER SETTLEMENT THE CROWN OF THE ROOT BALL SHALL BE ABOVE FINISHED GRADE AS INDICATED ON THE DRAWINGS. PLANTS WITH ROOT BALLS SET BELOW INDICATED HEIGHTS WILL BE REQUIRED TO BE REMOVED AND REPLANTED.
18. TREES SHALL BE STAKED ACCORDING TO THE DETAILS ON THE DRAWINGS.
19. MULCH AS DESIGNATED ON THE DRAWINGS SHALL BE PLACED THROUGHOUT ALL PLANTING AREAS.
20. NO MULCH SHALL BE PLACED OVER SHRUB/GROUNDCOVER ROOT BALLS OR WITHIN 4" OF TREE OR PALM TRUNKS.
21. SOD SHALL BE PLACED WITH STAGGERED BUTT TIGHT JOINTS. THERE SHALL BE NO VOIDS OR OVERLAPPING OF EDGES BETWEEN SOD PIECES.
22. SOD SHALL BE ROLLED IMMEDIATELY AFTER BEING PLACED. CLEAN BUILDERS' SAND SHALL BE USED TO FILL ANY RESULTING VOIDS OR UNEVENNESS IN THE SOD SURFACE. ANY AREAS REQUIRING EXCESSIVE TOP-DRESSING SHALL HAVE THE SOD REMOVED, THE AREA REGRADED AND RE-SODDED.
23. THE CONTRACTOR SHALL REFER TO THE LANDSCAPE PLANTING DETAILS AND/OR SPECIFICATIONS FOR ADDITIONAL PLANTING INSTRUCTIONS.

POST PLANTING NOTES :

1. MAINTENANCE:
    A. DURING THE PROJECT WORK PERIOD PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE, THE CONTRACTOR SHALL MAINTAIN ALL PLANT MATERIAL.
    B. MAINTENANCE DURING THE WORK PERIOD PRIOR TO THE SUBSTANTIAL COMPLETION ACCEPTANCE SHALL CONSIST OF WATERING, CULTIVATING, WEEDING, MULCHING, REMOVAL OF DEAD MATERIAL, REPAIRING/TIGHTENING OF STAKES AND GUYS, RESETTING PLANTS TO PROPER GRADES AND UPRIGHT POSITION AND FURNISHING AND APPLYING SUCH SPRAYS AS NECESSARY TO KEEP PLANT MATERIAL REASONABLY FREE OF DAMAGING INSECTS AND DISEASE.
    C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAND WATERING ALL PLANT MATERIAL AS REQUIRED TO SUPPLEMENT IRRIGATION AND RAINFALL IN ORDER TO ENSURE PLANT MATERIAL ESTABLISHMENT.
2. SUBSTANTIAL COMPLETION ACCEPTANCE:
    A. UPON WRITTEN NOTICE FROM THE CONTRACTOR, THE OWNERS REPRESENTATIVE SHALL REVIEW THE WORK AND DETERMINE IF THE WORK IS SUBSTANTIALLY COMPLETE.
    B. FOR THE PURPOSE OF ACCEPTANCE ALL PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS, UNDAMAGED, FREE OF WEEDS AND DISEASE, AND EXHIBITING EVIDENCE OF ESTABLISHING NEW ROOTS. PLANT MATERIAL DEEMED UNACCEPTABLE SHALL BE REMOVED AND REPLACED.
    C. THE DATE OF SUBSTANTIAL COMPLETION OF THE PLANTING SHALL BE THE DATE WHEN THE OWNERS REPRESENTATIVE ACCEPTS IN WRITING THAT ALL WORK RELATED TO PLANTING IS COMPLETE.
3. WARRANTY:
    A. ALL PLANT MATERIAL SHALL BE WARRANTED IN WRITING BY THE CONTRACTOR FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF WRITTEN NOTIFICATION OF SUBSTANTIAL COMPLETION . REPLACEMENT OF PLANT MATERIAL DURING THE WARRANTY PERIOD SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL HAVE THE SAME WARRANTY PERIOD OF ONE (1) YEAR FROM DATE OF REPLACEMENT.

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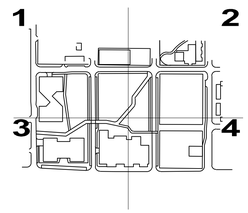

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT GREGGORY SUTTON 2159 STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

PLANTING NOTES

PH2-L5-0-01

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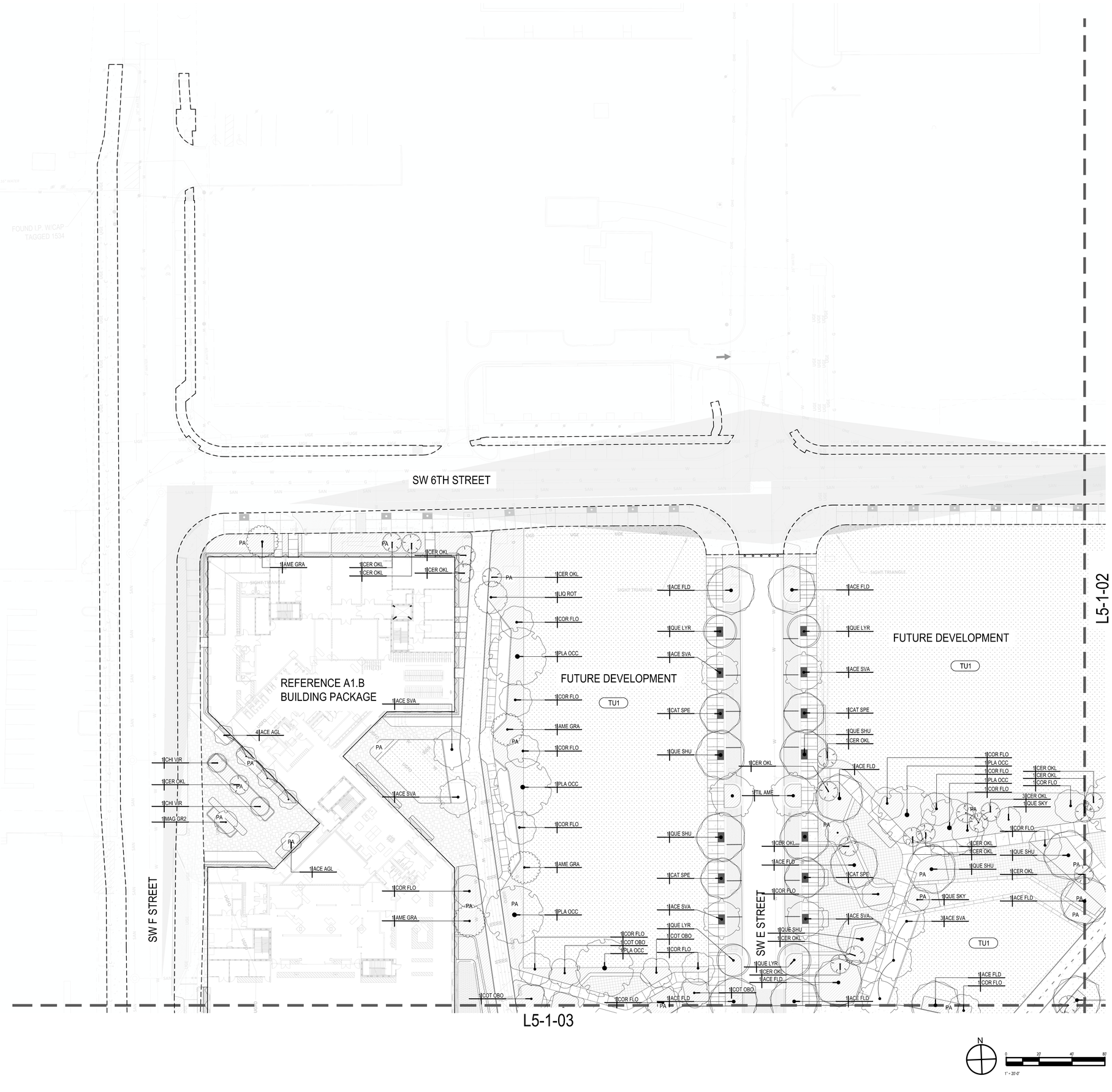

PLANT SCHEDULE		
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	ACE AGL	ACER RUBRUM 'JFS-KW78'
	ACE SVA	ACER RUBRUM 'SUN VALLEY'
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	CAT SPE	CATALPA SPECIOSA
	CER OKL	CERCIS CANADENSIS TEXENSIS 'OKLAHOMA'
	CHI VIR	CHIONANTHUS VIRGINICUS
	COR FLO	CORNUS FLORIDA
	COT OBO	COTINUS OBOVATUS
	ILE JUD	ILEX OPACA 'JUDY EVANS'
	LIQ ROT	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'
	MAG GRA	MAGNOLIA GRANDIFLORA
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	PLA OCC	PLATANUS OCCIDENTALIS
	PLA ACE	PLATANUS X ACERIFOLIA
	QUE LYR	QUERCUS LYRATA
	QUE SKY	QUERCUS ROBUR 'FASTIGIATA'
	QUE SHU	QUERCUS SHUMARDII
	TIL AME	TILIA AMERICANA
	ULM PRI	ULMUS AMERICANA 'PRINCETON'

CODE		DESCRIPTION
	PA	SHRUBS
	TU1	TURF

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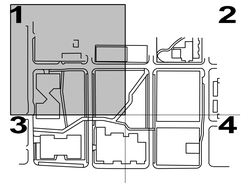

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

GREGORY SUTTON 17208 STATE OF ARKANSAS REGISTERED LANDSCAPE ARCHITECT

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PLANTING PLAN

PH2-L5-1-01

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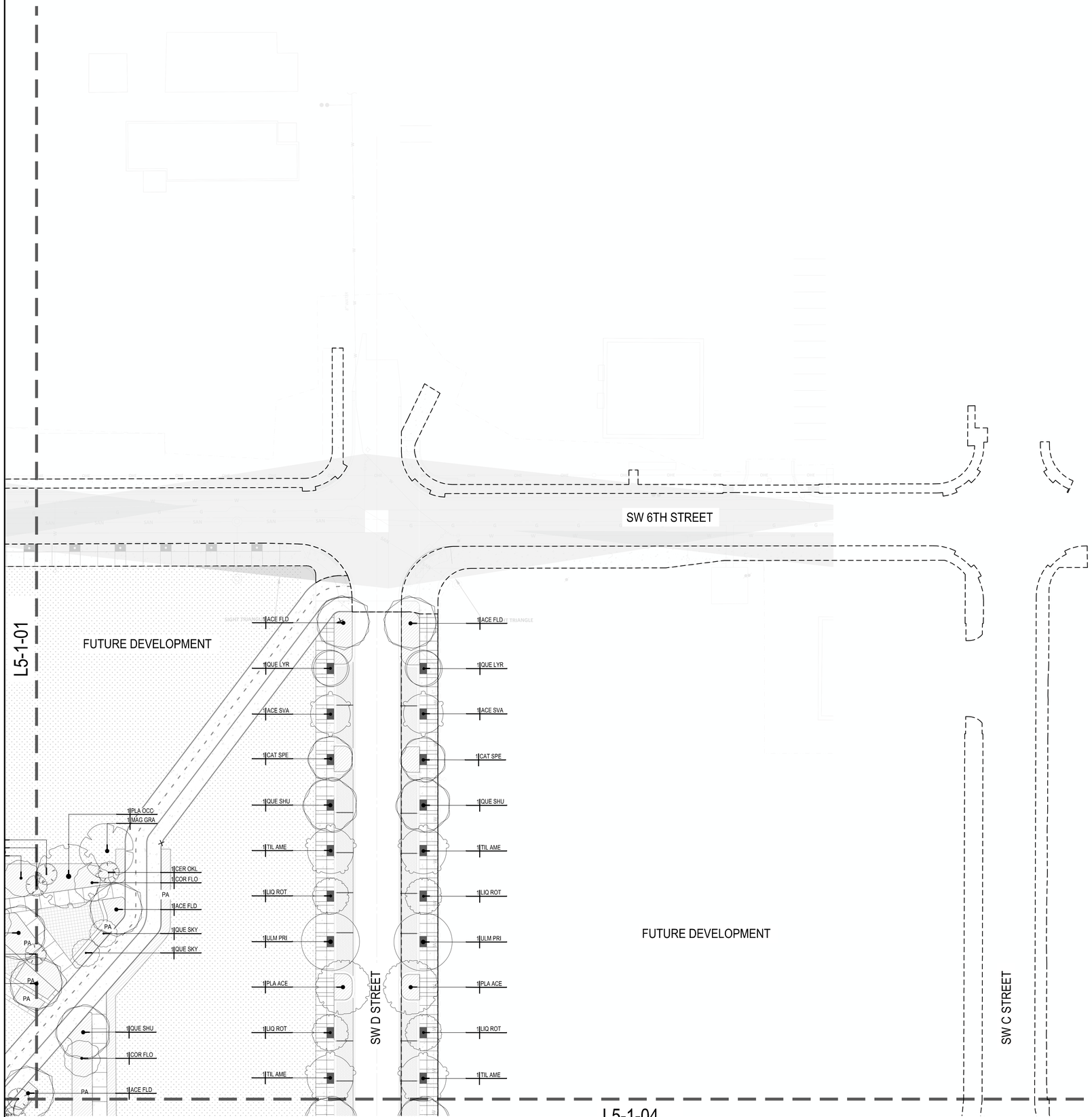

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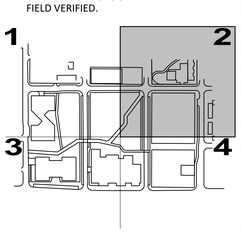

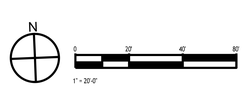

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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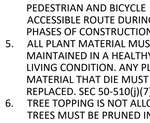
STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS



DATE: 07/17/2026
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ORIGINAL ISSUE			DATE
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PLANTING PLAN

PH2-L5-1-02

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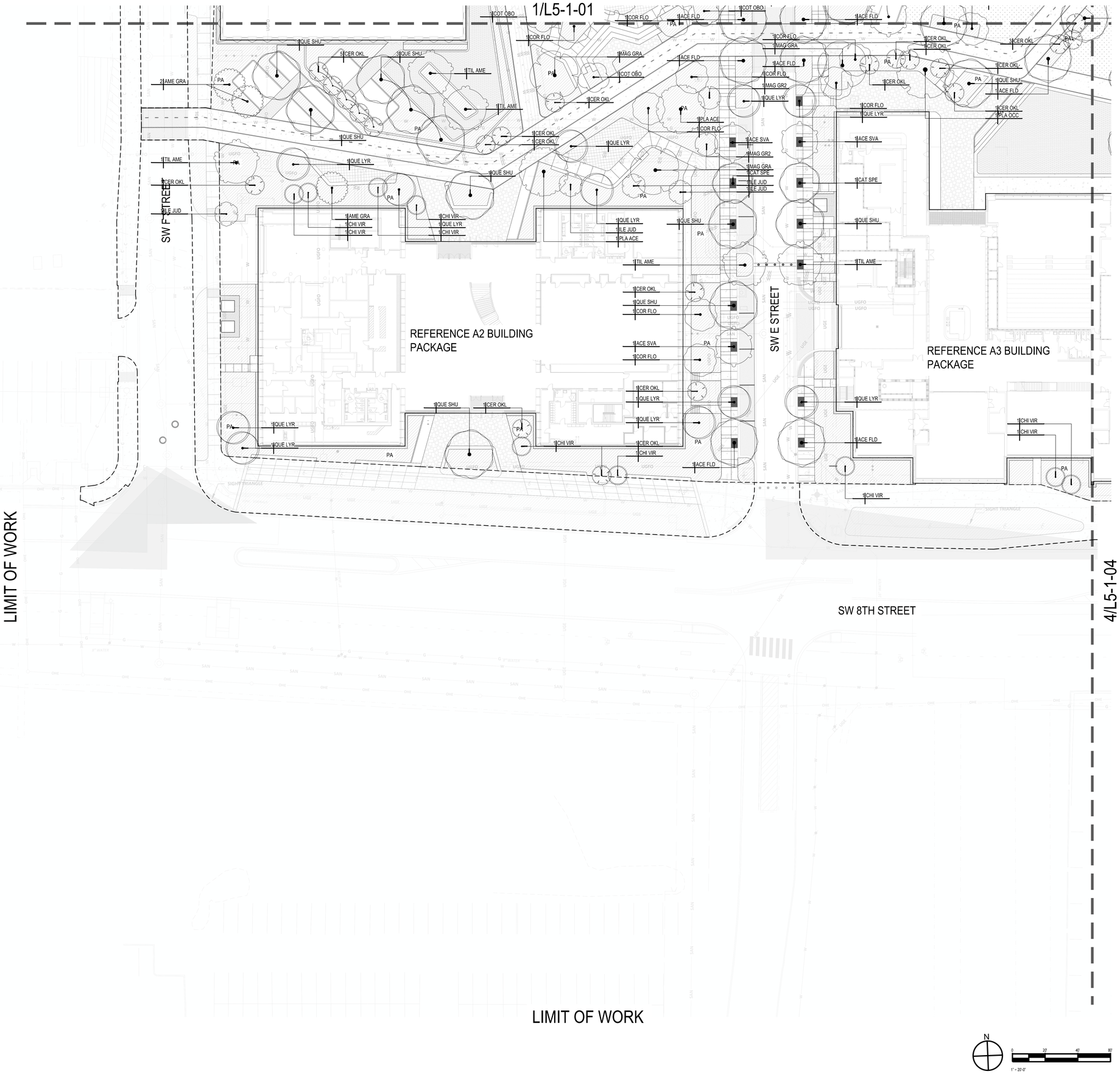

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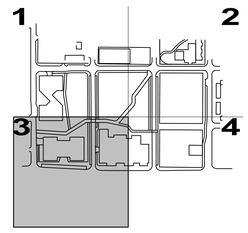

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
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11928
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	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

PLANTING PLAN

PH2-L5-1-03

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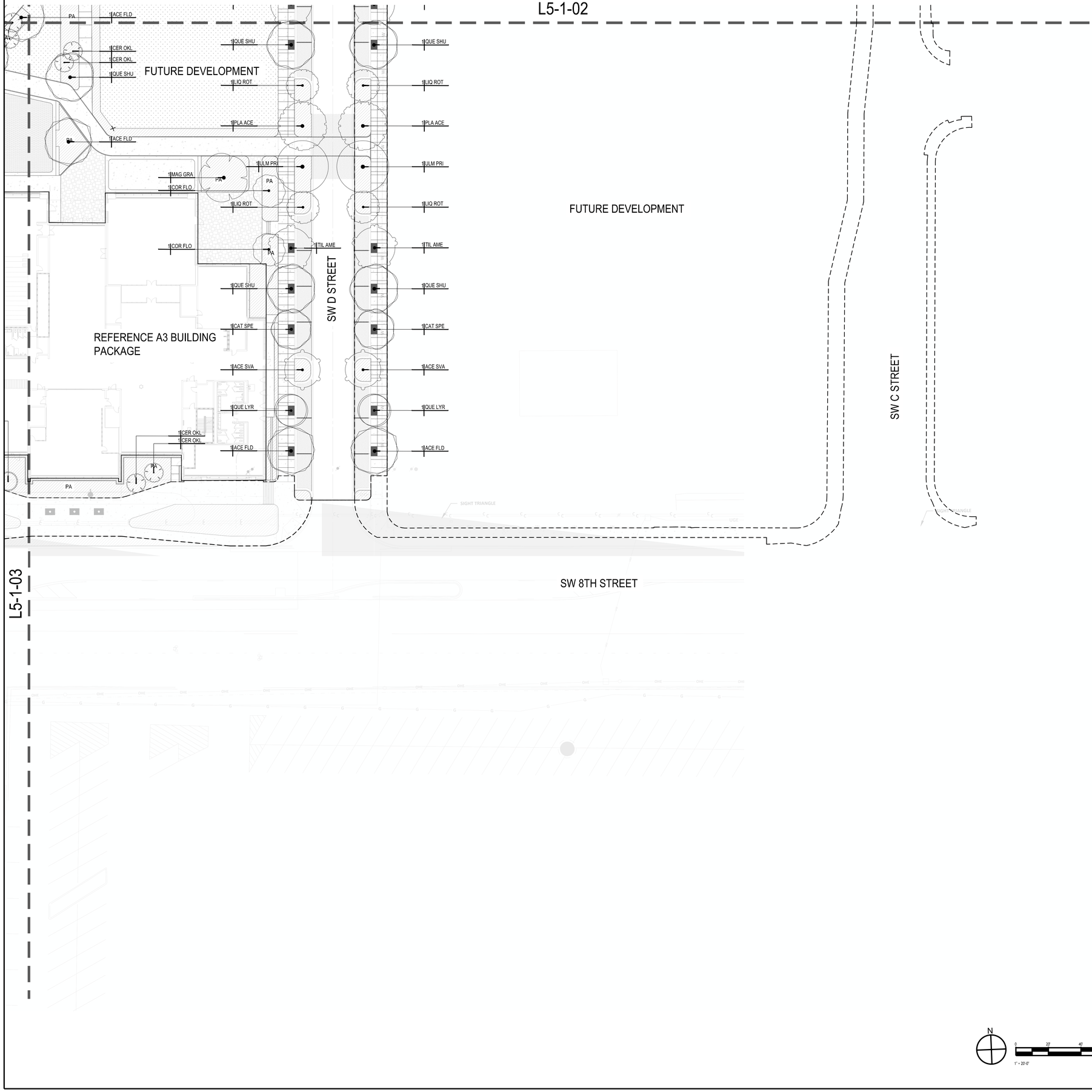


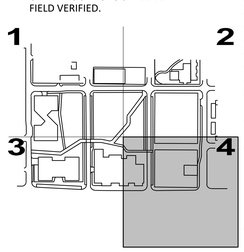
PLANT SCHEDULE		
SYMBOL	CODE	BOTANICAL NAME
TREES		
	ACE FLD	ACER FLORIDANUM
	ACE AGL	ACER RUBRUM 'JFS-KW78'
	ACE SVA	ACER RUBRUM 'SUN VALLEY'
	AME GRA	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'
	CAT SPE	CATALPA SPECIOSA
	CER OKL	CERCIS CANADENSIS 'TEXENSIS 'OKLAHOMA'
	CHI VIR	CHIONANTHUS VIRGINICUS
	COR FLO	CORNUS FLORIDA
	COT OBO	COTINUS OBOVATUS
	ILE JUD	ILEX OPACA 'JUDY EVANS'
	LIQ ROT	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'
	MAG GRA	MAGNOLIA GRANDIFLORA
	MAG GR2	MAGNOLIA VIRGINIANA 'GREEN SHADOW'
	PLA OCC	PLATANUS OCCIDENTALIS
	PLA ACE	PLATANUS X ACERIFOLIA
	QUE LYR	QUERCUS LYRATA
	QUE SKY	QUERCUS ROBUR 'FASTIGIATA'
	QUE SHU	QUERCUS SHUMARDII
	TIL AME	TILIA AMERICANA
	ULM PRI	ULMUS AMERICANA 'PRINCETON'

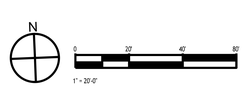
CODE		DESCRIPTION
	PA	SHRUBS
	TU1	TURF

ALL TREES AND LANDSCAPE PLANTING ARE PLANNED FOR INSTALLATION AS PART OF PHASE 2 TO PREVENT DAMAGE AND MINIMIZE CONFLICTS DURING ONGOING BUILDING CONSTRUCTION ACTIVITIES. TEMPORARY SITE STABILIZATION MEASURES, INCLUDING EROSION AND SEDIMENT CONTROL AS REQUIRED, WILL BE IMPLEMENTED DURING PHASE 1 TO ENSURE SITE INTEGRITY AND ENVIRONMENTAL COMPLIANCE UNTIL PERMANENT LANDSCAPING IS INSTALLED.

NOTES:

1. NO SIGNAGE IS KNOWN AT THIS TIME. ALL PROPOSED SIGNAGE WILL REQUIRE SEPARATE PERMIT.
2. NO FENCING IS KNOWN AT THIS TIME. ALL PROPOSED FENCING WILL REQUIRE SEPARATE PERMIT.
3. WITHIN SIGHT TRIANGLES, NO MATERIAL BETWEEN 3' AND 8' IN HEIGHT SHALL BE PLACED.
4. FOR ALL RIGHTS-OF-WAY OPEN TO VEHICULAR TRAFFIC, CONTRACTOR SHALL PROVIDE A PEDESTRIAN AND BICYCLE ACCESSIBLE ROUTE DURING ALL PHASES OF CONSTRUCTION.
5. ALL PLANT MATERIAL MUST BE MAINTAINED IN A HEALTHY LIVING CONDITION. ANY PLANT MATERIAL THAT DIE MUST BE REPLACED. SEC 50-510(j)(7)(i)(1).
6. TREE TOPPING IS NOT ALLOWED. TREES MUST BE PRUNED IN ACCORDANCE WITH ANSI A300. STANDARDS FOR TREE CARE. SEC 50-510(j)(7)(i)(2).
7. HEALTHY TREES MUST NOT BE REMOVED EXCEPT WHERE APPROVED BY THE DIRECTOR. TREES MUST BE MAINTAINED USING APPROVED PRUNING METHODS AS DESCRIBED IN ANSI A300.SEC 50-510(j)(7)(i)(3).
8. WHERE A POTENTIAL UTILITY CONFLICTS WITH LANDSCAPING, UTILITY LOCATIONS SHALL BE FIELD VERIFIED.





CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

NOT FOR CONSTRUCTION

walter p moore

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1705
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

PLANTING PLAN

PH2-L5-1-04

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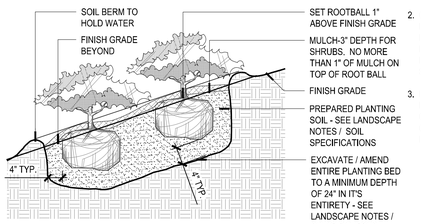
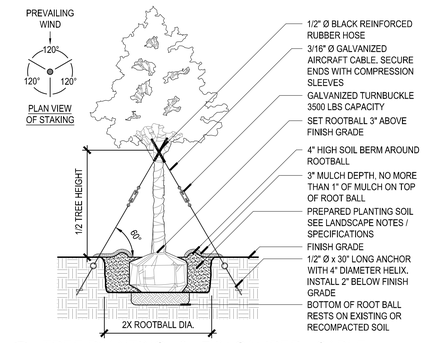


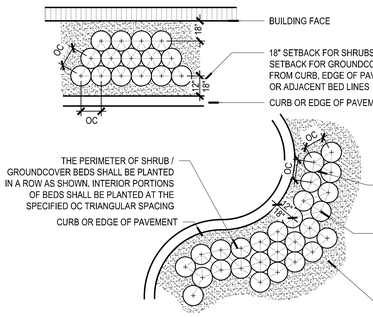
NOTES:
1. CONTRACTOR TO DELINEATE OUTLINE OF PLANTING BEDS FOR REVIEW AND APPROVAL BY OWNER'S REPRESENTATIVE.
2. CONTRACTOR TO ASSURE PERCOLATION IN ALL PLANTING BEDS PRIOR TO INSTALLATION (SEE LANDSCAPE NOTES / SPECIFICATIONS.
3. LAY OUT SHRUBS AT BED EDGE FIRST TO ESTABLISH CONTINUOUS LINE. BEST FACE OF SHURB TO FACE FRONT OF PLANTING BED.

1 SHRUB PLANTING ON SLOPE
SCALE -3/4" = 1'-0"



NOTE:
- CONTRACTOR TO STAKE LOCATION OF TREES FOR APPROVAL BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- CONTRACTOR TO ASSURE PERCOLATION IN ALL PLANTING PITS PRIOR TO INSTALLATION (SEE LANDSCAPE NOTES / SPECIFICATIONS).
- ALL TREES TO BE SET PLUMB IN PLANTING PIT.
- REMOVE BURLAP FROM TOP 1/3 OF ROOTBALL. COMPLETELY REMOVE ANY SYNTHETIC WRAPPING MATERIALS.

2 TREE PLANTING_ 3 - 7 IN CALIPER - CABLE
SCALE -1/4" = 1'-0"



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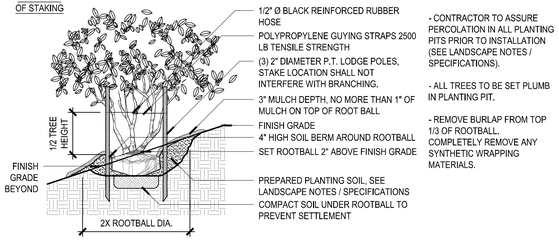
3 SHRUB_GROUNDCOVER - SPACING
SCALE -3/8" = 1'-0"



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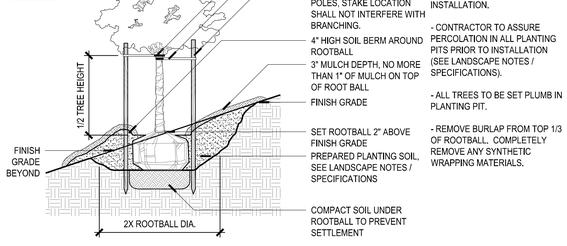
4 TREE PLANTING_ MULTI-TRUNK TREE ON SLOPE
SCALE -1/4" = 1'-0"



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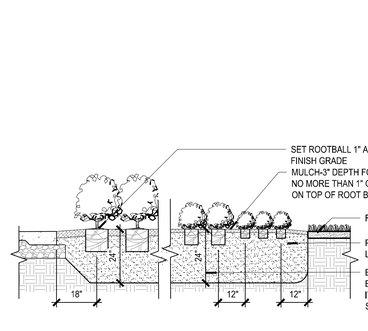
5 TREE PLANTING 3 IN. CALIPER ON SLOPE
SCALE -3/8" = 1'-0"



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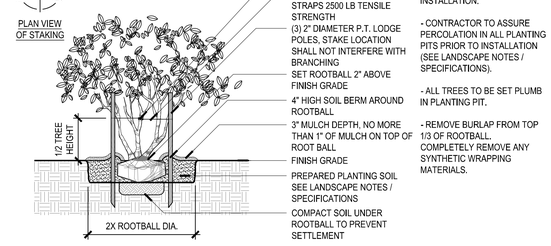
6 SHRUB_GROUNDCOVER PLANTING
SCALE -1/2" = 1'-0"



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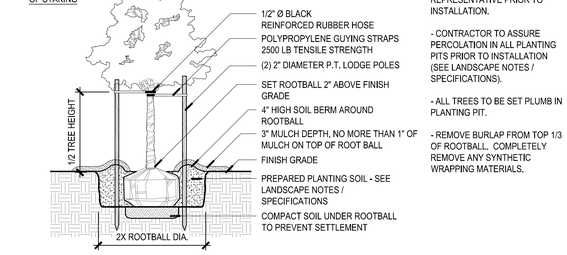

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SCALE -3/8" = 1'-0"

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

DATE: 07/17/2026
EXP. 01/31/2027

NO.	DATE	REVISION
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	06-17-26	#2 LARGE SCALE DEVELOPMENT
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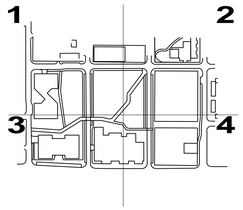

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M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
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PLANTING DETAILS

PH2-L5-5-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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TREE SCHEDULE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CALIPER	HEIGHT	REMARKS
TREES								
	ACE FLD	21	ACER FLORIDANUM	SOUTHERN SUGAR MAPLE	B&B	3" CAL.	18' HT. X 12' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	ACE AGL	5	ACER RUBRUM 'JFS-KW78'	ARMSTRONG GOLD® MAPLE	B&B	3" CAL.	16' HT. X 5' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	ACE SVA	16	ACER RUBRUM 'SUN VALLEY'	SUN VALLEY RED MAPLE	B&B	3" CAL.	17' HT. X 7' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	AME GRA	7	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE APPLE SERVICEBERRY	B&B	MULTI. TRUNK	12' HT. X 10' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	CAT SPE	10	CATALPA SPECIOSA	NORTHERN CATALPA	B&B	3" CAL.	16' HT. X 10' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	CER OKL	45	CERCIS CANADENSIS TEXENSIS 'OKLAHOMA'	OKLAHOMA TEXAS REDBUD	B&B	3" CAL.	12' HT. X 10' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	CHI VIR	11	CHIONANTHUS VIRGINICUS	WHITE FRINGETREE	B&B	3" CAL.	8' HT. X 7' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	COR FLO	26	CORNUS FLORIDA	FLOWERING DOGWOOD	B&B	3" CAL.	10' HT. X 8' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	COT OBO	5	COTINUS OBOVATUS	AMERICAN SMOKE TREE	B&B	3" CAL.	10' HT. X 8' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	ILE JUD	4	ILEX OPACA 'JUDY EVANS'	JUDY EVANS AMERICAN HOLLY	B&B	3" CAL.	12' HT. X 8' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	LIQ ROT	9	LIQUIDAMBAR STYRACIFLUA 'ROTUNDILOBA'	ROUND-LOBED SWEET GUM	B&B	3" CAL.	18' HT. X 10' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	MAG GRA	5	MAGNOLIA GRANDIFLORA	SOUTHERN MAGNOLIA	B&B	3" CAL.	18' HT. X 10' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	MAG GR2	3	MAGNOLIA VIRGINIANA 'GREEN SHADOW'	GREEN SHADOW SWEETBAY MAGNOLIA	B&B	3" CAL.	10' HT. X 7' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	PLA OCC	8	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	B&B	3" CAL.	18' HT. X 12' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	PLA ACE	6	PLATANUS X ACERIFOLIA	LONDON PLANE TREE	B&B	3" CAL.	18' HT. X 12' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	QUE LYR	19	QUERCUS LYRATA	OVERCUP OAK	B&B	3" CAL.	17' HT. X 8' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	QUE SKY	5	QUERCUS ROBUR 'FASTIGIATA'	SKYROCKET® ENGLISH OAK	B&B	3" CAL.	18' HT. X 8' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE
	QUE SHU	26	QUERCUS SHUMARDII	SHUMARD OAK	B&B	3" CAL.	17' HT. X 8' W.	HEIGHT AND SPREAD ARE BASED ON INSTALL SIZE

SHRUB SCHEDULE

CODE	BOTANICAL NAME	COMMON NAME	REMARKS
SHRUBS			
ABE ICS	ABELIA X GRANDIFLORA 'ROSE CREEK'	ROSE CREEK ABELIA	FULL SUN/PART SHADE (2-3' HT. X 3-4' W.)
AUC JPN	AUCUBA JAPONICA	JAPANESE LAUREL	PART SHADE/FULL SHADE (6-9' HT. X 5-9' W.)
BUD XBC	BUDDLEJA X 'BLUE CHIP'	LO & BEHOLD® BLUE CHIP BUTTERFLY BUSH	FULL SUN (2.5' HT. X 2.5' W.)
BUX WGM	BUXUS MICROPHYLLA JAPONICA 'WINTER GEM'	WINTER GEM JAPANESE BOXWOOD	FULL SUN/PART SHADE (5-8' HT. X 5-6' W.)
CAL AME	CALLICARPA AMERICANA	AMERICAN BEAUTYBERRY	FULL SUN/PART SHADE (3-6' HT. X 3-6' W.)
CLE FCE	CLETHRA ALNIFOLIA 'RIPPLE EFFECT'	RIPPLE EFFECT SUMMERSWEET	PART SUN/PART SHADE (3-6' HT. X 3-6' W.)
COR FA4	CORNUS SERICEA 'FARROW'	ARCTIC FIRE® RED TWIG DOGWOOD	FULL SUN/PART SHADE (3-4' HT. X 3-4' W.)
COT DAM	COTONEASTER DAMMERI	BEARBERRY COTONEASTER	FULL SUN/PART SHADE (1' HT. X 4-6' W.)
HYD ACG	HYDRANGEA PANICULATA 'LITTLE LIME'	LITTLE LIME HYDRANGEA	FULL SUN/PART SHADE (3-5' HT. X 3-5' W.)
HYD WEE	HYDRANGEA QUERCIFOLIA 'PEE WEE'	PEE WEE OAKLEAF HYDRANGEA	FULL SUN/PART SHADE (3-4' HT. X 3-4' W.)
ILE HPE	ILEX CRENATA 'BURFORDII'	BURFORD JAPANESE HOLLY	FULL SUN/PART SHADE (6-8' HT. X 8-12' W.)
ILE WI3	ILEX VERTICILLATA	WINTERBERRY	FULL SUN/PART SHADE (6-12' HT. X 6-12' W.)
ITE HGL	ITEA VIRGINICA 'LITTLE HENRY SWEETSPIRE'	LITTLE HENRY SWEETSPIRE	FULL SUN (1.5-2' HT. X 2-2.5' W.)
JUN CJF	JUNIPERUS CONFERTA	SHORE JUNIPER	FULL SUN (1' HT. X 6-7' W.)
JUN PFT	JUNIPERUS X PFITZERIANA	PFITZER JUNIPER	FULL SUN /PART SHADE (6-12' HT. X 8-12' W.)
PHY LIT	PHYSOCARPUS OPULIFOLIUS 'LITTLE DEVIL'	LITTLE DEVIL™ DWARF NINEBARK	FULL SUN (3-4' HT. X 3-4' W.)
RHU GRO	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	FULL SUN/PART SHADE (1.5' HT. X 6-8' W.)
ANNUALS/PERENNIALS			
AMS HU2	AMSONIA HUBRICHTII	ARKANSAS BLUESTAR	FULL SUN/PART SHADE (2-3' HT. X 2-3' W.)
ANE HON	ANEMONE X HYBRIDA 'HONORINE JOBERT'	HONORINE JOBERT JAPANESE ANEMONE	FULL SUN/PART SHADE (3-4' HT.X 1.5-2' W.)
ASC TUB	ASCLEPIAS TUBEROSA	BUTTERFLY MILKWEED	FULL SUN (1-2' HT. X 1-1.5' W.)
DIC ALB	DICENTRA SPECTABILIS 'ALBA'	WHITE JAPANESE BLEEDING HEART	PART SHADE/FULL SHADE (2-2.5' HT. X 1.5-2' W.)
ECH ANG	ECHINACEA ANGUSTIFOLIA	NARROW LEAF CONEFLOWER	FULL SUN (1-2' HT. X 1-1.5' W.)
HEM WIN	HEMEROCALLIS X 'LITTLE WINE CUP'	LITTLE WINE CUP DAYLILY	FULL SUN (1.5-2' HT. X 1.5-2' W.)
LIR ROY	LIRIOPE MUSCARI 'ROYAL PURPLE'	ROYAL PURPLE LILYTURF	FUL SUN/PART SHADE/FULL SHADE (1-2' HT. X 1-2' W.)
PEN MAR	PENSTEMON HETEROPHYLLUS 'MARGARITA BOP'	MARGARITA BOP PENSTEMON	FULL SUN (1.5-2' HT. X 1.5-2' W.)
RUD HIR	RUDBECKIA HIRTA	BLACK-EYED SUSAN	FULL SUN (3' HT. X 2.5' W.)
SAL FMN	SALVIA OFFICINALIS	SAGE	FULL SUN (2-2.5' HT. X 2-2.5' W.)
VER XPU	VERONICA SPICATA 'PURPLE ILLUSION'	MAGIC SHOW® PURPLE ILLUSION SPEEDWELL	FULL SUN/PART SHADE (1.5' HT. X 1.5' W.)
VIN CO2	VINCA MINOR	COMMON PERIWINKLE	FULL SUN/PART SHADE (4-6" HT. X 6-12" W.)
ORNAMENTAL GRASSES			
CAL KAR	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	FULL SUN/PART SHADE (3-4' HT. 2-3' W.)
PAN SHD	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	FULL SUN (3' HT. X 2-3' W.)
SCH ST2	SCHIZACHYRIUM SCOPARIUM 'STANDING OVATION'	STANDING OVATION LITTLE BLUESTEM	FULL SUN (3-4' HT. X 1-2' W.)
SPO HET	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED	FULL SUN (3' HT. 2' W.)

SHRUBS			
SYMBOL	DESCRIPTION	REMARKS	AREA
PA	80% SHRUBS, 10% ORNAMENTAL GRASS, 10% PERENNIAL	ALL SHRUBS TO BE 5 GAL. ALL ORNAMENTAL GRASSES TO BE 3 GAL. ALL PERENNIAL TO BE 1 GAL.	21173.45 SQ. FT.

Tree Diversity Compliance

Metric	Code Limit	Project Input	Calculated Limit	Percentage	Compliance	Notes
Total proposed trees	—	155		—		
Largest single species	50% maximum	46	77	29.7%	YES	
Ornamental trees	25% maximum	93	38	60.0%	NO	Compliant if combine with Public Improvement Plans
Evergreen trees	No minimum in T5	11	N/A	7.1%	YES	General 10% evergreen minimum does not apply in T5

Species / Type	Quantity	% of Total Trees	Maximum Allowed	Compliance	Notes
Acer 'JFS-KW78' Armstrong Gold	5	3.2%	50	YES	
Acer floridanum	10	6.5%	50	YES	
Acer rubrum 'Sun Valley'	2	1.3%	50	YES	
Liquidambar styraciflua 'Rotundiloba'	1	0.6%	50	YES	
Plantanus x acerfolia	2	1.3%	50	YES	
Plantanus occidentalis	8	5.2%	50	YES	
Quercus lyrata	3	1.9%	50	YES	
Quercus rubra Fastigia	5	3.2%	50	YES	
Quercus shumardii	13	8.4%	50	YES	
Tilia americana	1	0.6%	50	YES	
Ilex opaca 'Judy Evans'	3	1.9%	50	YES	
Magnolia grandiflora	5	3.2%	50	YES	
Magnolia virginicus 'Green Shadow'	3	1.9%	50	YES	
Amelanchier x gradiflora 'Autumn Brilliance'	7	4.5%	50	YES	
Cercis canadensis texensis	46	29.7%	50	YES	
Chinoanthus virginicus	8	5.2%	50	YES	
Cornus florida	28	18.1%	50	YES	
Cotinus obovatus	4	2.6%	50	YES	

Plant Material Standards

Plant Type	Code Minimum	Proposed Standard	Container / Caliper	Height	Compliance	Notes
Shade tree	2.5-IN caliper and 6 FT tall	3-IN caliper	B&B / 3-IN	Varies; schedule shows 16–18 FT for many species	YES	
Ornamental tree	2-IN caliper and 6 FT tall	3-IN caliper	B&B / 3-IN	Varies; schedule shows 8–12 FT for many species	YES	
Evergreen tree	8 FT tall	12 FT tall	B&B	Varies; schedule shows 10–18 FT for many species	N/A	No evergreen minimum in T5
Shrub	3-gallon and 18 IN tall	5-gallon	5 GAL	18" Min Height	YES	
Ornamental grass	Per approved plans/specifications	3-gallon	3 GAL	18" Min Height	YES	
Perennial	Per approved plans/specifications	1-gallon	1 GAL	6" Min Height	YES	

Existing Tree Preservation and Mitigation

Tree ID	Species	DBH (IN)	Condition	Significant Tree	Disposition	Preservation Credit	Replacement Required	Notes
EX-01	None							
EX-02	None							
EX-03	None							

Preservation Credit Reference	DBH Range	Credit	Notes
Small significant tree	4–7.9 IN	2	Credit toward required trees
Medium	8–17.9 IN	4	
Large	18–23.9 IN	6	
Very large	24–29.9 IN	8	
Legacy	30+ IN	10	

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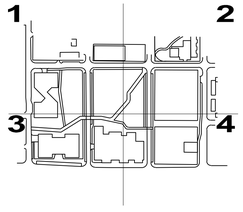

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT GREGGORY SUTTON 1599 STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
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	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

PLANTING SCHEDULE

PH2-L5-6-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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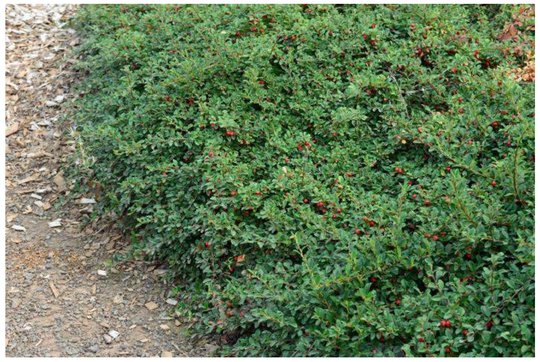
EVERGREEN SHRUBS

Aucuba japonica - Japanese Aucuba



Cotoneaster dammeri - Bearberry Cotoneaster

Ilex crenata 'Burfordii' - Burford Japanese Holly

Cephalotaxus haringtonia 'Hedgehog' - Hedgehog Plum Yew

Buxus microphylla var japonica - Japanese Boxwood

Juniperus pfitzeriana - Pfitzer Juniper

Juniperus conferta - Shore Juniper

ORNAMENTAL GRASSES

Schizachyrium scoparium 'Standing Ovation' - Standing Ovation Little Bluestem

Calamagrostis x acutiflora 'Karl Foerster' - Karl Foerster Feather Reed Grass

Sporobolus heterolepis - Prairie Dropseed

Panicum virgatum 'Shenandoah' - Shenandoah Switch Grass

PERENNIALS

Amsonia hubrichtii - Arkansas Bluestar

Rudbeckia hirta - Black Eyed Susan

Asclepias tuberosa - Butterfly Weed

Rhus aromatica 'Gro-Low' - Gro Low Fragrant Sumac

Anemone x hybrida 'Honorine Jobert' - Honorine Jobert Japanese Anemone

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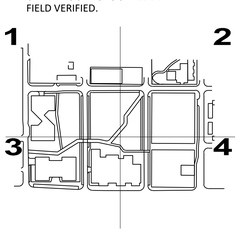

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

GREGGORY SUTTON
ARKANSAS REGISTERED LANDSCAPE ARCHITECT
DATE: 07/17/2026
EXP: 01/31/2027

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PLANTING SCHEDULE

PH2-L5-6-02

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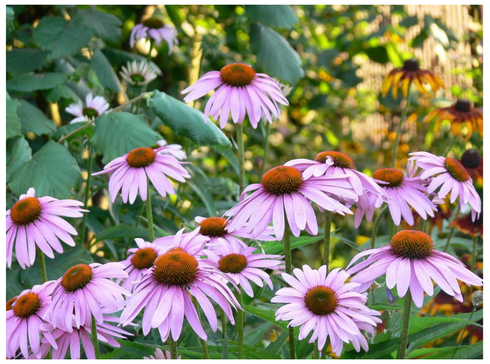
PERENNIALS

Hemerocallis x 'Little Wine Cup' - Little Wine Cup Daylily

Penstemon heterophyllus 'Margarita BOP' - Margarita BOP Penstemon



Echinacea angustifolia - Narrow Leaved Coneflower

Veronica spicata 'Purple Illusion' - Purple Illusion Speedwell

Liriope muscari 'Royal Purple' - Royal Purple Lilyturf

Salvia officinalis - Sage

Vinca minor - Common Periwinkle

SHRUBS

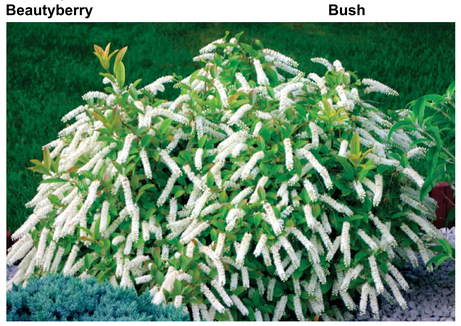
Callicarpa americana - American Beautyberry

Buddleia x 'Blue Chip' - Blue Chip Butterfly Bush

Cornus sericea 'Farrow' - Farrow Red-Twig Dogwood

Physocarpus opulifolius 'Little Devil' - Little Devil Ninebark

Hydrangea paniculata 'Little Lime' - Little Lime Hydrangea



Itea virginica 'Little Henry' - Little Henry Sweetspire

Hydrangea quercifolia 'Pee Wee' - Pee Wee Oakleaf Hydrangea

Clethra alnifolia 'Ripple Effect' - Ripple Effect Summersweet

Abelia x grandiflora 'Rose Creek' - Rose Creek Abelia

TURF

RTF Tall Fescue

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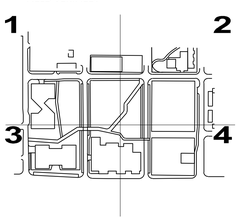

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

ARKANSAS LICENSED LANDSCAPE ARCHITECT GREGGORY SUTTON 2159 STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

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PLANTING SCHEDULE

PH2-L5-6-03

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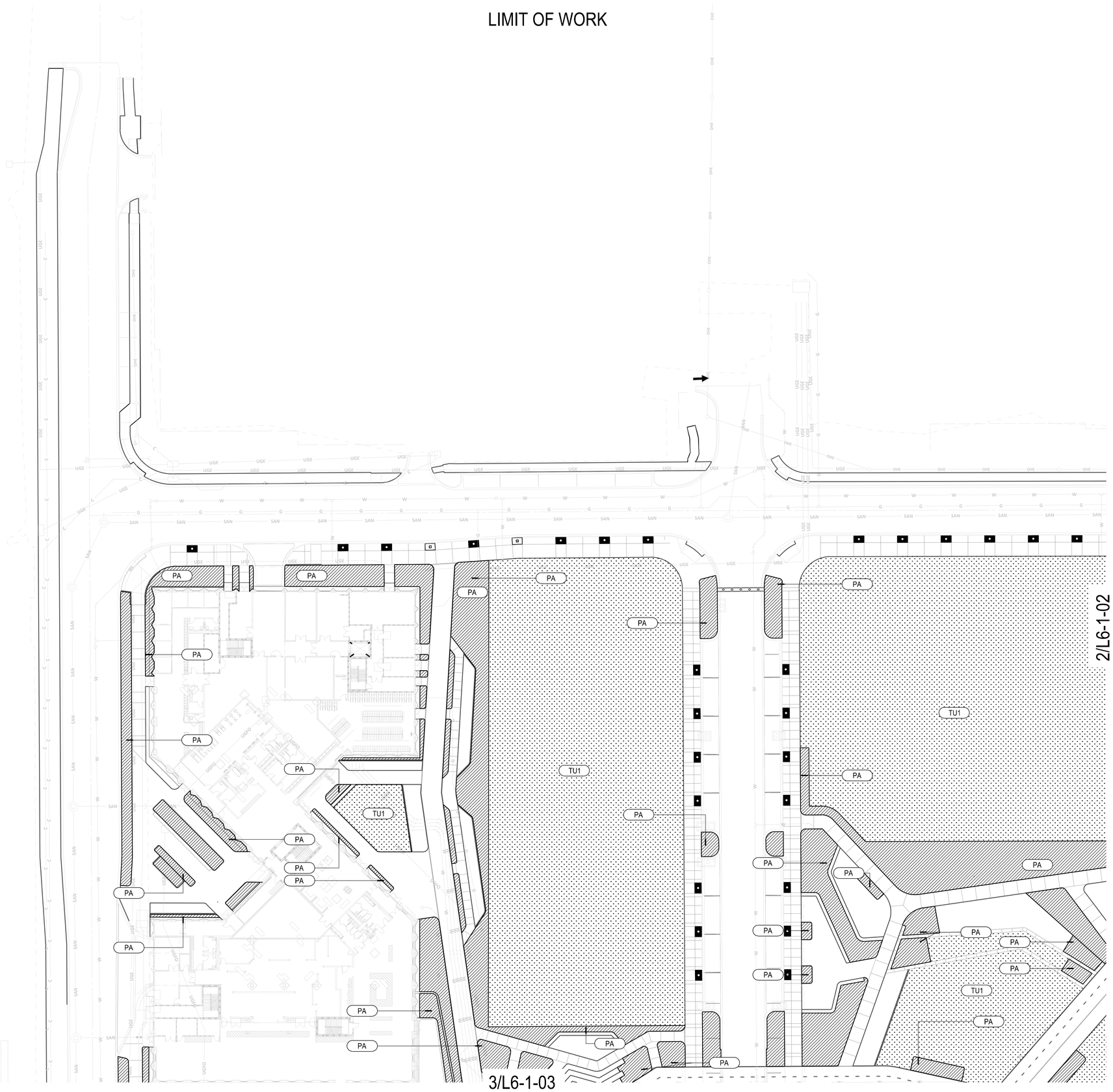

PLANTING LEGEND		
SHRUBS & TURF		
CODE		DESCRIPTION
	PA	SHRUBS
	TU1	TURF

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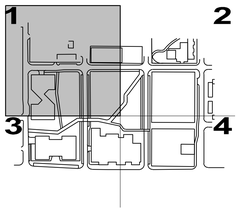

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
STATE OF ARKANSAS
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PLANTING PLAN

PH2-L6-1-01

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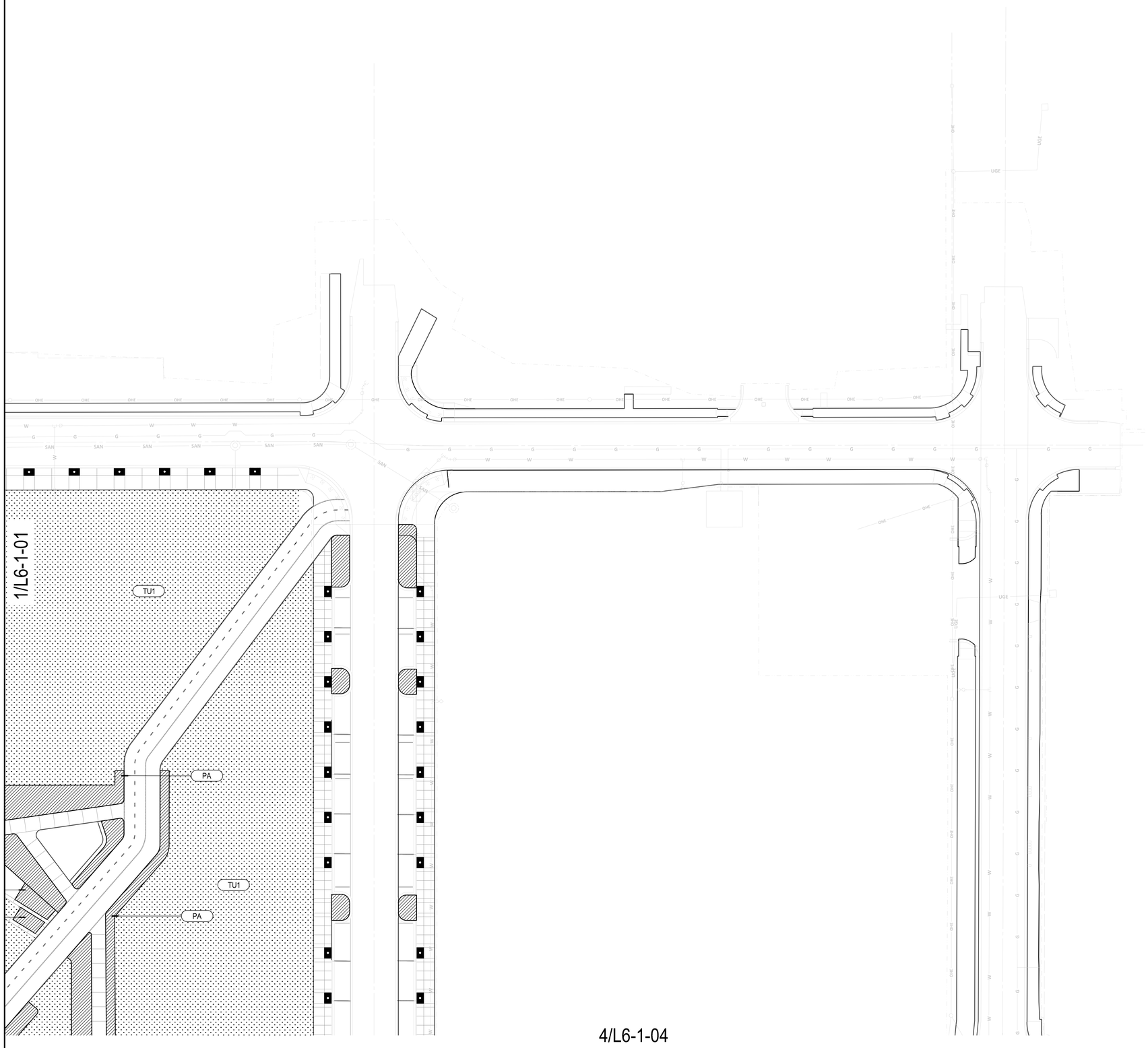
LIMIT OF WORK

PLANTING LEGEND		
SHRUBS & TURF		
CODE		DESCRIPTION
	PA	SHRUBS
	TU1	TURF



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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

ARKANSAS REGISTERED LANDSCAPE ARCHITECT GREGORY SUTTON 2705 STATE OF ARKANSAS

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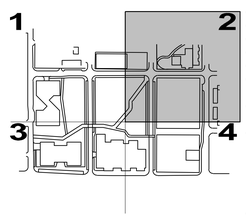

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PH2-L6-1-02

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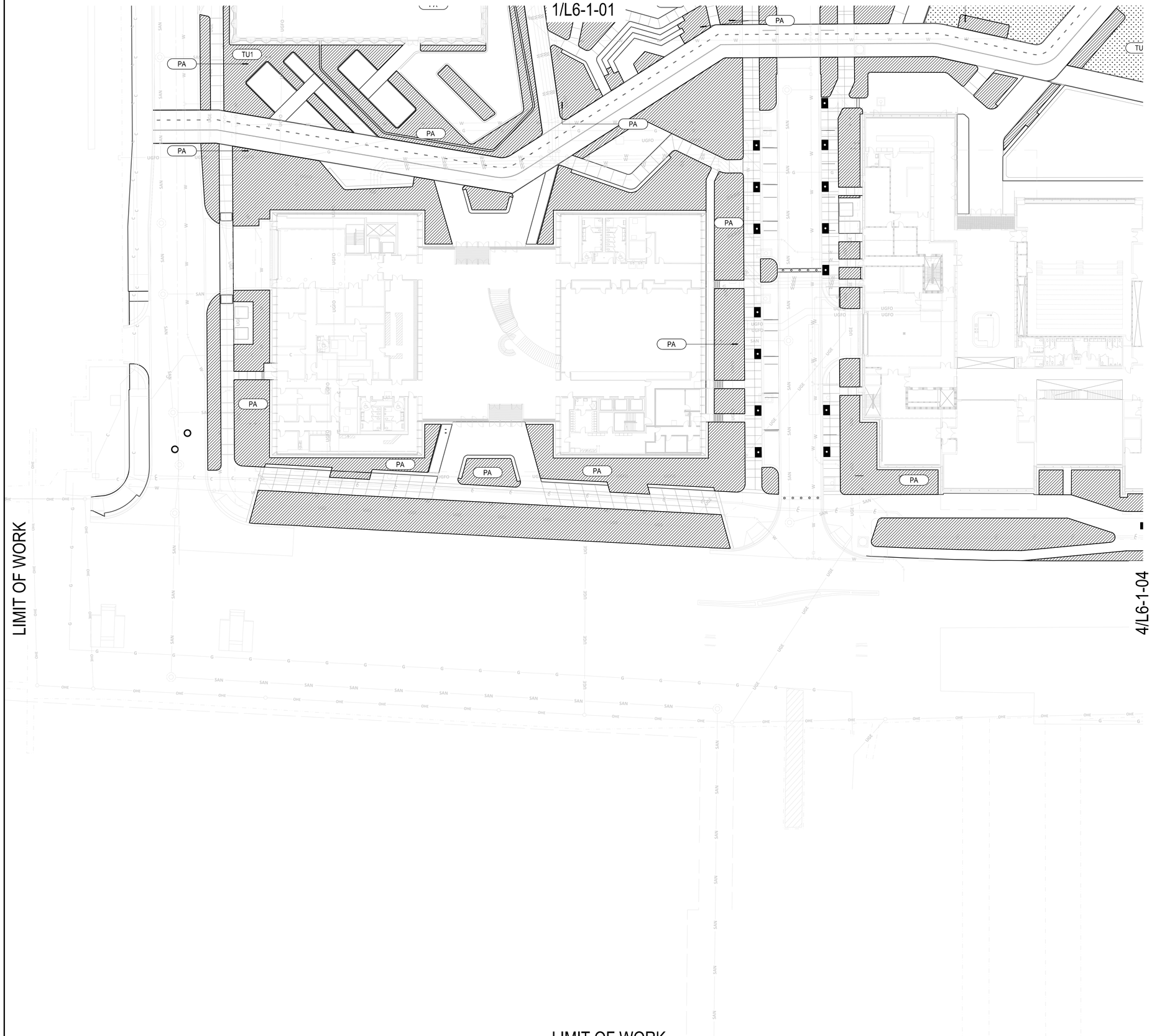

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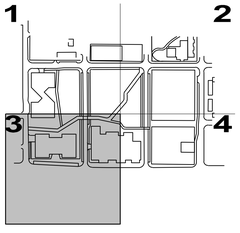
8. WHERE A POTENTIAL UTILITY CONFLICTS WITH LANDSCAPING, UTILITY LOCATIONS SHALL BE FIELD VERIFIED.

NOT FOR CONSTRUCTION



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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1293
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO. DATE	REVISION
05-22-26	#1 LARGE SCALE DEVELOPMENT
06-17-26	#2 LARGE SCALE DEVELOPMENT
07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

PLANTING PLAN

PH2-L6-1-03

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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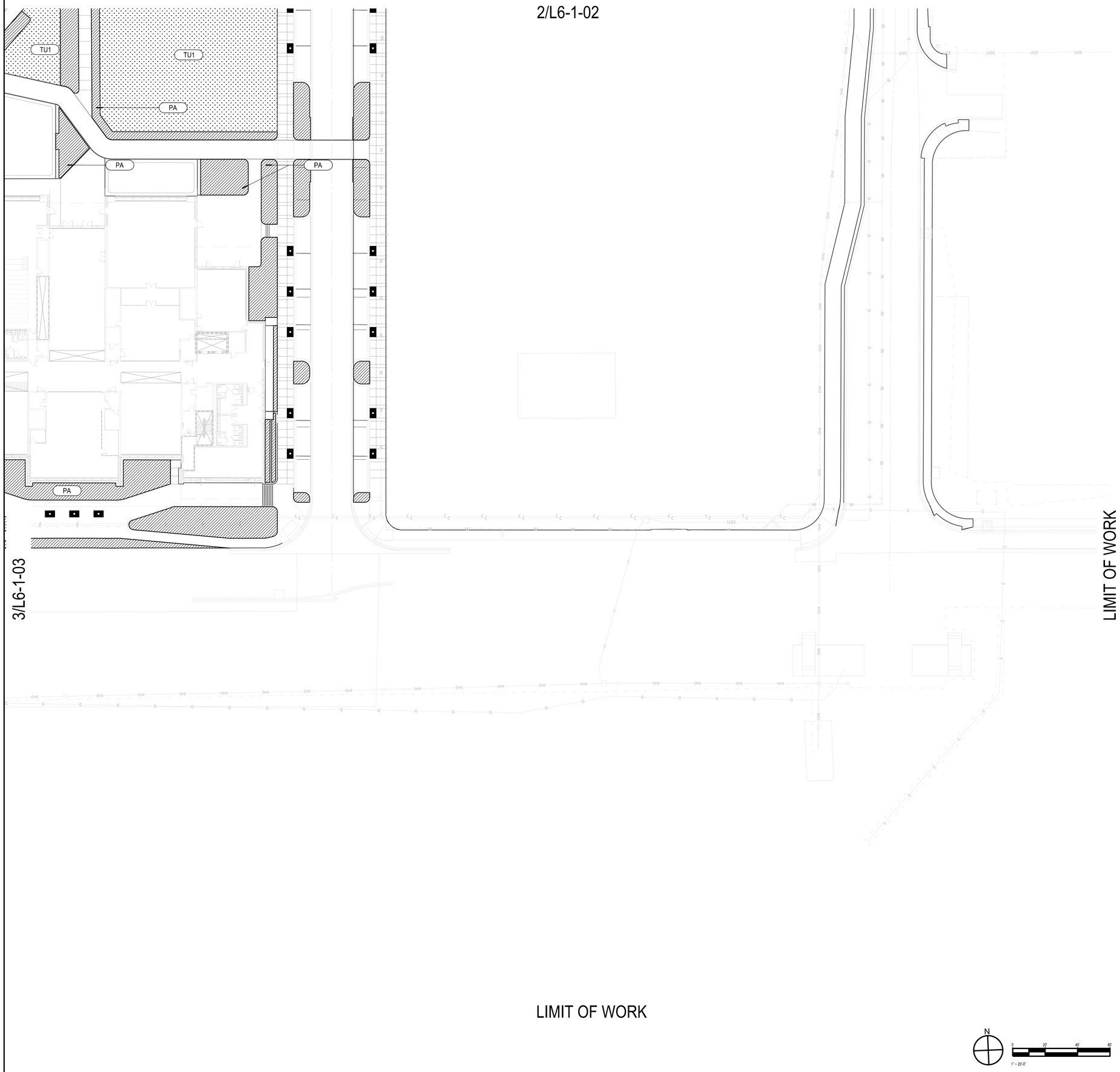

PLANTING LEGEND		
SHRUBS & TURF		
CODE		DESCRIPTION
	PA	SHRUBS
	TU1	TURF

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NOTES:
1. NO SIGNAGE IS KNOWN AT THIS TIME. ALL PROPOSED SIGNAGE WILL REQUIRE SEPARATE PERMIT.
2. NO FENCING IS KNOWN AT THIS TIME. ALL PROPOSED FENCING WILL REQUIRE SEPARATE PERMIT.
3. WITHIN SIGHT TRIANGLES, NO MATERIAL BETWEEN 3' AND 8' IN HEIGHT SHALL BE PLACED.
4. FOR ALL RIGHTS-OF-WAY OPEN TO VEHICULAR TRAFFIC, CONTRACTOR SHALL PROVIDE A PEDESTRIAN AND BICYCLE ACCESSIBLE ROUTE DURING ALL PHASES OF CONSTRUCTION.
5. ALL PLANT MATERIAL MUST BE MAINTAINED IN A HEALTHY LIVING CONDITION. ANY PLANT MATERIAL THAT DIE MUST BE REPLACED. SEC 50-510(j)(7)(i)(1).
6. TREE TOPPING IS NOT ALLOWED. TREES MUST BE PRUNED IN ACCORDANCE WITH ANSI A300. STANDARDS FOR TREE CARE. SEC 50-510(j)(7)(i)(2).
7. HEALTHY TREES MUST NOT BE REMOVED EXCEPT WHERE APPROVED BY THE DIRECTOR. TREES MUST BE MAINTAINED USING APPROVED PRUNING METHODS AS DESCRIBED IN ANSI A300.SEC 50-510(j)(7)(i)(3).
8. WHERE A POTENTIAL UTILITY CONFLICTS WITH LANDSCAPING, UTILITY LOCATIONS SHALL BE FIELD VERIFIED.

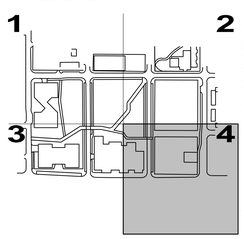
NOT FOR CONSTRUCTION

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1320
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO. DATE	REVISION
05-22-26	#1 LARGE SCALE DEVELOPMENT
06-17-26	#2 LARGE SCALE DEVELOPMENT
07-17-26	#3 LARGE SCALE DEVELOPMENT



PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

PLANTING PLAN

PH2-L6-1-04

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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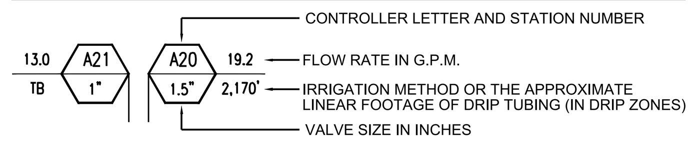
IRRIGATION MATERIAL LEGEND

SYMBOL (Q T H F)	MANUFACTURER	MODEL NO. / DESCRIPTION	FLOW RATE (GPM)	PSI	RADIUS	P.R. (TRI.)	DETAIL
	RAIN BIRD	RD-06-S-P30-F 6" POP-UP TURF HEAD WITH 5Q/5H NOZZLES	.10, .20	30	5 FT	1.78 IN./HR.	A
	RAIN BIRD	RD-06-S-P30-F 6" POP-UP TURF HEAD WITH AN 8 SERIES HE-VAN ADJUSTABLE ARC NOZZLE	.29, .39, .59, 1.17	30	8 FT	2.03 IN./HR.	A
	RAIN BIRD	RD-06-S-P30-F 6" POP-UP TURF HEAD WITH AN 10 SERIES HE-VAN ADJUSTABLE ARC NOZZLE	.45, .59, .89, 1.78	30	10 FT	1.98 IN./HR.	A
	RAIN BIRD	RD-06-S-P30-F 6" POP-UP TURF HEAD WITH AN 12 SERIES HE-VAN ADJUSTABLE ARC NOZZLE	.59, .79, 1.18, 2.37	30	12 FT	1.83 IN./HR.	A
	RAIN BIRD	RD-06-S-P30-F 6" POP-UP TURF HEAD WITH AN 15 SERIES HE-VAN NOZZLE	.93, 1.23, 1.85, 3.70	30	15 FT	1.83 IN./HR.	A
	RAIN BIRD	RD-06-S-P30-F 6" POP-UP TURF HEAD WITH LCS/RCS/15SST NOZZLES	.61, 1.21	30	4X15 FT 4X30 FT	1.95 IN./HR.	A
	RAIN BIRD	RD-6-S-P45-F 6" POP-UP TURF HEAD WITH R-VAN14 (Q/T/H) / R-VAN14-360 NOZZLES	.32, .42, .63, 1.27	45	14 FT	0.70 IN./HR.	A
	RAIN BIRD	RD-6-S-P45-F 6" POP-UP TURF HEAD WITH R-VAN18 (Q/T/H) / R-VAN18-360 NOZZLES	.50, .62, 1.17, 1.85	45	18 FT	0.70 IN./HR.	A
	RAIN BIRD	RD-6-S-P45-F 6" POP-UP TURF HEAD WITH R-VAN24 (Q/T/H) / R-VAN24-360 NOZZLES	.84, 1.16, 1.68, 3.48	45	24 FT	0.70 IN./HR.	A
	RAIN BIRD	5006-PL-PC-SAM-R 6" POP-UP TURF ROTOR WITH MPR-25 NOZZLES (RED)	1.00, 1.38, 1.98, 3.82	45	25 FT	0.70 IN./HR.	B
	RAIN BIRD	5006-PL-PC-SAM-R 6" POP-UP TURF ROTOR WITH MPR-30 NOZZLES (GREEN)	1.40, 1.85, 2.96, 5.78	45	30 FT	0.70 IN./HR.	B
	RAIN BIRD	5006-PL-PC-SAM-R 6" POP-UP TURF ROTOR WITH MPR-35 NOZZLES (BEIGE)	1.92, 2.46, 3.81, 7.58	45	35 FT	0.70 IN./HR.	B
	RAIN BIRD	RD-12-S-P30-F 12" POP-UP SHRUB HEAD WITH 5Q/5H NOZZLES	.10, .20	30	5 FT	1.78 IN./HR.	A
	RAIN BIRD	RD-12-S-P30-F 12" POP-UP SHRUB HEAD WITH 8 SERIES HE-VAN ADJUSTABLE ARC NOZZLE	.29, .39, .59, 1.17	30	8 FT	2.03 IN./HR.	A
	RAIN BIRD	RD-12-S-P30-F 12" POP-UP SHRUB HEAD WITH 10 SERIES HE-VAN ADJUSTABLE ARC NOZZLE	.45, .59, .89, 1.78	30	10 FT	1.98 IN./HR.	A
	RAIN BIRD	RD-12-S-P30-F 12" POP-UP SHRUB HEAD WITH 12 SERIES HE-VAN ADJUSTABLE ARC NOZZLE	.59, .79, 1.18, 2.37	30	12 FT	1.83 IN./HR.	A
	RAIN BIRD	RD-12-S-P30-F 12" POP-UP SHRUB HEAD WITH 15 SERIES HE-VAN ADJUSTABLE ARC NOZZLE	.93, 1.23, 1.85, 3.70	30	15 FT	1.83 IN./HR.	A
	RAIN BIRD	RD-12-S-P30-F 12" POP-UP SHRUB HEAD WITH LCS/RCS/SS530 NOZZLES	.61, 1.21	30	4X15 FT 4X30 FT	1.95 IN./HR.	A
	RAIN BIRD	RD-12-S-P45-F 12" POP-UP SHRUB HEAD WITH R-VAN14 (Q/T/H) / R-VAN14-360 NOZZLES	.32, .42, .63, 1.27	45	14 FT	0.70 IN./HR.	A
	RAIN BIRD	RD-12-S-P45-F 12" POP-UP SHRUB HEAD WITH R-VAN18 (Q/T/H) / R-VAN18-360 NOZZLES	.50, .62, 1.17, 1.85	45	18 FT	0.70 IN./HR.	A
	RAIN BIRD	RD-12-S-P45-F 12" POP-UP SHRUB HEAD WITH R-VAN24 (Q/T/H) / R-VAN24-360 NOZZLES	.84, 1.16, 1.68, 3.48	45	24 FT	0.70 IN./HR.	A
	RAIN BIRD	5012-PL-PC-SAM-R 12" POP-UP SHRUB ROTOR WITH MPR-25 NOZZLES (RED)	1.00, 1.38, 1.98, 3.82	45	25 FT	0.70 IN./HR.	B
	RAIN BIRD	5012-PL-PC-SAM-R 12" POP-UP SHRUB ROTOR WITH MPR-30 NOZZLES (GREEN)	1.40, 1.85, 2.96, 5.78	45	30 FT	0.70 IN./HR.	B
	RAIN BIRD	5012-PL-PC-SAM-R 12" POP-UP SHRUB ROTOR WITH MPR-35 NOZZLES (BEIGE)	1.92, 2.46, 3.81, 7.58	45	35 FT	0.70 IN./HR.	B
	RAIN BIRD	RD-06-S-NP 6" POP-UP BUBBLER HEAD WITH A HUNTER MSBN-50Q STREAM BUBBLER NOZZLE. EACH SYMBOL REPRESENTS TWO (2) BUBBLER TO PROVIDE A TOTAL OF TWO (2) BUBBLERS PER TREE. PLACE THE BUBBLER HEADS SIX (6) INCHES FROM THE ROOT BALL OF THE TREE AND ON OPPOSITE SIDES OF THE TREE. ADJUST BUBBLER STREAMS TO WET THE ROOT BALL AND ADJACENT AMENDED SOIL WITHOUT HITTING THE TRUNK OF THE TREE.	.50 (1.00 TOTAL)	30	1.5 FT	1.50 IN./HR.	A,C
	NETAFIM	SUB-SURFACE INLINE DRIP TUBING AS DESCRIBED BELOW: TLHCVXR5-CS-12 SUBSURFACE DRIP TUBING (BROWN EXTERIOR COLOR WITH COPPER OXIDE STRIPE) WITH 0.53 GPH, PRESSURE COMPENSATING EMITTERS INTERNALLY INSTALLED IN THE DRIP TUBING AT 12" O.C. SPACING. DRIP TUBING SHALL BE EQUIPPED WITH COPPER OXIDE INFUSED EMITTERS, AND A CONTINUOUS COPPER OXIDE STRIPE ON THE EXTERIOR OF THE TUBING TO PREVENT ROOT INTRUSION INTO THE DRIP EMITTER. DRIP EMITTERS SHALL BE CONTINUOUS FLUSHING TYPE AND EQUIPPED WITH A CHECK VALVE AND ANTI-SIPHON FEATURE. DRIP TUBING SHALL BE LASER ENGRAVED WITH THE MODEL NUMBER OF THE TUBING ON THE EXTERIOR OF THE TUBING. TUBING BE INSTALLED 2" BELOW FINISHED SOIL GRADE (NOT COUNTING MULCH) AND IN PARALLEL ROWS A MAXIMUM OF 18" ON CENTER. THE PERIMETER ROW OF DRIP TUBING SHALL BE INSTALLED A MAXIMUM OF 4" FROM THE EDGE OF ANY HARDSCAPE OR TURF EDGE. ALL SUBSEQUENT INTERIOR ROWS SHALL BE ADJUSTED TO PROVIDE AN EVEN SPACING ACROSS THE PLANTER WITHOUT EXCEEDING 18" MAXIMUM SPACING. INSTALL 9" PVC COATED GALVANIZED TUBING STAKES A MAXIMUM OF FIVE (5) FEET ON CENTER ALONG THE LENGTH OF THE TUBING. TUBING STAKES SHALL BE MODEL #GDTS140900 AS MANUFACTURED BY GPH IRRIGATION PRODUCTS (866) 582-9684. THE HATCH PATTERN SYMBOLS ON THE PLANS REPRESENT THE APPROXIMATE DIRECTION AND SPACING OF THE DRIP TUBING ROWS, SEE SPACING REQUIREMENTS ABOVE AND IN DETAILS.	0.53 GPH / EMITTER	40	N/A	0.70 IN./HR.	D,E
NO SYMBOL	NETAFIM	CONNECTION BETWEEN INLINE DRIP TUBING AND PVC SUPPLY AND DISCHARGE HEADERS SHALL BE MADE USING SCH. 40 PVC SXT FITTINGS, TL BARBED DRIP TUBING FITTINGS AND BLANK DRIP TUBING. USE A SCH. 40 PVC LATERAL X LATERAL X 1/2" SxSxT TEE (OR A LATERAL X 1/2" SxT 90° ELBOW) FITTING ON THE PVC LATERAL LINE HEADER, A TL050MA BARB X 1/2" MALE ADAPTER, A SHORT LENGTH OF BLANK DRIP TUBING, AND A TLTEE BARBED TEE FITTING. ALL END RUNS OF TUBING SHALL BE CONNECTED WITH A PVC DISCHARGE HEADER. NO HEATING OF TUBING SHALL BE ALLOWED FOR ASSEMBLY.					D,E
NO SYMBOL	NETAFIM	TL SERIES 17mm BARBED FITTINGS FOR CONNECTIONS BETWEEN DRIP TUBING (TUBING-TO-TUBING ONLY). NO HEATING OF TUBING SHALL BE ALLOWED.					D,E
	AS APPROVED	PVC SUPPLY AND DISCHARGE HEADERS SHALL BE PVC LATERAL LINE PIPE (AS SHOWN BELOW), 1 1/4" MINIMUM SIZE WITH SCH. 40 PVC FITTINGS.					D,E
	GPH IRRIGATION/ RAIN BIRD	GDFN DRIP FLUSH / INDICATOR NOZZLE, ORANGE IN COLOR, INSTALLED ONTO A RAIN BIRD RD-12-S-P45-F SPRINKLER BODY. THE FLUSH NOZZLE SHALL BE CLOSED FOR NORMAL OPERATION OF THE DRIP SYSTEM.					E,F
	P.O.C.	1.5" OR 2" CONNECTION FROM THE POTABLE WATER NETWORK. VERIFY SIZE, LOCATION AND PRESSURE IN THE FIELD.					N/A
	HYDROPOINT / WEATHERTRAK	WTF3-XXX-PD-NC 1.5" OR 2" NORMALLY CLOSED, THREADED PHOTO DIODE HYDROMETER (COMBINATION FLOW SENSOR AND MASTER VALVE). CONNECT THE HYDROMETER TO THE TWO-WIRE PATH USING BOTH A MODEL WT2W-H2O-FS FLOW SENSOR DECODER AND A MODEL WT2W-H2O-MV MASTER VALVE DECODER. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND INSIDE A STANDARD RECTANGULAR VALVE BOX. USE A 1.5" HYDROMETER WITH 1.5" WATER POC'S AND A 2" HYDROMETER FOR ALL 2" POC'S.					G
	LEEMCO	LMV-XX-BBHDSS SELF RESTRAINING, RESILIENT WEDGE GATE VALVE FOR HDPE PIPE, SIZE PER MAINLINE (2" - 4"). GATE VALVE INCLUDES TWO (2) STAINLESS STEEL PIPE STIFFENERS, AND DOUBLE C-CLAMP PIPE RESTRAINTS. INSTALL INSIDE A 10" ROUND VALVE BOX.					H
	LASCO	V20101HD-SC 2" SLO-CLOSE SCH. 80 PVC TRUE-UNION BALL VALVE WITH HDPE FUSED CONNECTIONS, AS A MANIFOLD ISOLATION VALVE TO BE INSTALLED UP STREAM OF THE REMOTE CONTROL VALVE MANIFOLDS. ALL REMOTE CONTROL VALVES ARE INTENDED TO BE INSTALLED IN MANIFOLDS OFF OF THE HDPE MAINLINE, SEE DETAILS. INSTALL INSIDE A 10" ROUND VALVE BOX.					I,J
	RAIN BIRD	44-LRC 1" QUICK COUPLER VALVE WITH LOCKING, YELLOW VINYL COVER AND A LASCO G1MS-218 SWING JOINT. INSTALL INSIDE A 10" ROUND VALVE BOX. FOR HDPE MAINLINES INSTALL A LASCO P330-251 2" HDPE X 1 1/2" FEMALE ACME THREADED TAP'T HYBRID COUPLING TO CONNECT TO THE PVC SWING JOINT WITH A MALE ACME THREADED INLET.					K,J
	RAIN BIRD	XX0-PGA-PRS-D PLASTIC, PRESSURE REGULATING, REMOTE CONTROL VALVE (RCV), SIZES AS SHOWN (1", 1 1/2" AND 2" SIZES). SET THE PRS-D PRESSURE REGULATOR TO PROVIDE THE STATED OPERATING PRESSURE OF THE SPRINKLER OR BUBBLER AT THE HIGHEST OR FARTHEST HEAD ON THE RCV ZONE. INSTALL THE RCV INSIDE A STANDARD RECTANGULAR VALVE BOX. INSTALL THE RCV WITH A VALVE DECODER AS DESCRIBED BELOW.					L,J
	RAIN BIRD	1X0-PGA PLASTIC, DRIP REMOTE CONTROL VALVE (DRCV) SIZES AS SHOWN (1" AND 1 1/2" SIZES). EACH 1" DRCV SHALL BE INSTALLED WITH A QKCHK-100 1" DRIP BASKET FILTER (200 MESH FILTER ELEMENT AND A "QUICK CHECK" CAP), AND A PSI-H40X-100 1" HIGH FLOW, INLINE PRESSURE REGULATOR. EACH 1 1/2" DRCV SHALL BE INSTALLED WITH A LCRBY200D 2" LARGE CAPACITY DRIP WYE FILTER (120 MESH DISCK FILTER), AND A PSI-H40X-150 1 1/2" HIGH FLOW, INLINE PRESSURE REGULATOR. THE 1" DRCV ASSEMBLY SHALL BE INSTALLED INSIDE A STANDARD RECTANGULAR VALVE BOX AND THE 1 1/2" DRCV INSIDE A "JUMBO" RECTANGULAR VALVE BOX. INSTALL THE RCV WITH A VALVE DECODER AS DESCRIBED BELOW.					M,N,J
NO SYMBOL	LASCO	ALL RCV'S AND DRCV'S SHALL BE INSTALLED OFF OF THE MAINLINE ONTO A 2" MANIFOLD MAINLINE AND BE ISOLATED WITH A 2" BALL VALVE.					J
NO SYMBOL	HYDROPOINT / WEATHERTRAK	PRE-PROGRAMMED, STATION VALVE DECODERS SHALL BE INSTALLED TO CONNECT EACH RCV AND DRCV TO THE TWO-WIRE PATH. TWO (2) STATION DECODERS, MODEL WT2W-H2O-2VDP, ARE REQUIRED FOR MANIFOLDS WITH TWO OR MORE CONTROL VALVES. USE OF SINGLE (1) STATION DECODERS, MODEL WT2W-H2O-1VDP, SHALL BE LIMITED TO SINGLE CONTROL VALVES OR WHEN ODD NUMBERS OF VALVES OCCUR WITHIN A VALVE MANIFOLD.					O
	HYDROPOINT / WEATHERTRAK	WT2W-H2O-SA TWO-WIRE LINE SURGE ARRESTOR DECODER (SAD). INSTALL ONE (1) SAD WITHIN 25 FEET OF THE CONTROLLER LOCATION, AND WITH ADDITIONAL SAD DEVICES ALONG THE TWO-WIRE PATH AS FOLLOWS: ONE (1) DEVICE INSTALLED EVERY 500 FEET ALONG TWO-WIRE PATH, ONE (1) AT EACH END OF THE TWO-WIRE PATH BRANCHES LONGER THAN TWENTY-FIVE (25) FEET. THE CONTRACTOR IS TO STAKE OUT THE PROPOSED LOCATIONS OF THE DEVICE FOR APPROVAL AND DOCUMENT FINAL LOCATIONS ON THE AS-BUILT RECORD DRAWINGS.					P
	HYDROPOINT / WEATHERTRAK	WTPRO3-C+H2OXX-SPT-AX 48 OR 96 STATION (SEE THE CONTROLLER NOTE), TWO WIRE (DECODER TYPE) CONTROLLER COMPLETE WITH LTE CELLULAR MODEM AND TEN YEARS OF THE WEATHERTRAK CENTRAL AND AUTOMATIC WEATHER SERVICE. CONTROLLER MODEL NUMBER INCLUDES A HEAVY-DUTY, STAINLESS STEEL, SLOPE TOP ENCLOSURE. INSTALL THE ENCLOSURE ONTO A V.I.T. PRODUCTS QP-16 "QUICK PAD" MOUNTING PAD. PROVIDE A WTUPD-KEY CLOUD UPDATE KEY AND A WTOF-KEY OPTIFLOW KEY TO BE INSTALLED FOR EACH CONTROLLER. GROUND THE CONTROLLER AS RECOMMENDED BY THE MANUFACTURER.					Q,R
	HYDROPOINT	WT-RS WIRED RAIN SENSOR, MOUNT ON SIDE OF THE ENCLOSURE AND WIRE TO CONTROLLER INSTALL THE RAIN SENSOR INSIDE A V.I.T. PRODUCTS RGVRSS RAIN SENSOR ENCLOSURE.					Q
NO SYMBOL	PAIGE ELECTRIC	THE CONTROLLER SHALL BE GROUNDED USING A #182000 5/8" X 8 FOOT COPPER CLAD GROUND ROD, A #182005 CAST BRONZE ROD CLAMP AND THE REQUIRED LENGTH OF #6AWG BARE, SINGLE STRAND COPPER GROUND WIRE. GROUND ROD AND CLAMPS SHALL ALSO BE USED TO GROUND THE SURGE ARRESTOR DECODERS (SAD) AS REQUIRED BY THE MANUFACTURER. INSTALL GROUND RODS INSIDE A 10" ROUND VALVE BOX.					R,P
	N/A	120 VOLT ELECTRICAL POWER FOR CONTROLLER, PROVIDED BY ELECTRICIAN, VERIFY ACTUAL LOCATION IN FIELD					N/A
	AS APPROVED	PVC PIPE 3/4" - 3" CL. 200, SOLVENT WELD WITH SCH. 40 PVC FITTINGS, AS LATERAL LINES INSTALLED 12" BELOW FINISHED GRADE					S
	CMF GLOBAL / AQUAFUSE	HDPE IRON PIPE SIZE (IPS) PRESSURE PIPE (PE4710), DR 11 (RATED AT 202 PSI) 2" - 4" SIZES, AS MAINLINE PIPE INSTALLED DOWNSTREAM OF THE MASTER MASTER CONTROL VALVE AND FLOW SENSOR ASSEMBLY. ALL HDPE PIPE SHALL BE FULLY FUSED USING A MANUFACTURER APPROVED FUSING DEVICE, SEE FUSING AND FITTING REQUIREMENTS BY SIZE BELOW. HDPE MAINLINE SHALL BE INSTALLED 24" BELOW FINISHED GRADE. FOR CONTROL VALVE MANIFOLDS THE HDPE PIPING SHALL BE 2" SIZE WITH 2" HDPE RISERS TO THE CONTROL VALVES REGARDLESS OF CONTROL VALVE SIZE.					S
	AS APPROVED	PVC PIPE SCH. 40 AS SLEEVING, TWICE THE DIAMETER OF PIPE OR WIRE BUNDLE CARRIED (2" MINIMUM SIZE). INSTALL ALL PIPE AND WIRE UNDER PAVING, HARDSCAPE, ETC. (OR AS DIRECTED BY ARCHITECT) INSIDE SLEEVES. SLEEVES UNDER PEDESTRIAN PAVING SHALL BE 24" BELOW FINISHED GRADE. SLEEVES UNDER VEHICULAR PAVING SHALL BE INSTALLED 36" BELOW FINISHED GRADE.					T
NO SYMBOL	LASCO	ALL PVC FITTINGS USED WITH SOLVENT WELD LATERAL LINE PIPE SHALL BE SCH. 40 PVC FITTINGS, WHITE IN COLOR, AND SIZED TO MATCH THE LATERAL LINE PIPE. ALL THREADED PVC NIPPLES SHALL BE SCH. 80 PVC PIPE, DARK GRAY IN COLOR, WITH MOLDED THREADS.					N/A
NO SYMBOL	WELD-ON	ALL SOLVENT WELD CONNECTIONS FOR LATERAL LINE SHALL BE MADE USING THE TWO-STEP PROCESS OF PRIMER AND SOLVENT CEMENT. PRIMER SHALL BE P-70 LOW VOC "PURPLE PRIMER". LATERAL LINE SOLVENT CEMENT SHALL BE 705 LOW VOC, GRAY COLORED, MEDIUM BODIED CEMENT. USE DAUBERS SIZED AT LEAST ONE-HALF THE SIZE OF THE LARGEST PIPE BEING JOINED. ALL SOLVENT CEMENTED JOINTS SHALL BE MADE PER THE PIPE AND FITTING MANUFACTURER'S RECOMMENDATIONS.					N/A
NO SYMBOL	CMF GLOBAL / AQUAFUSE	HDPE PIPE (MAINLINES) MAY BE INSTALLED WITH BENDS ALLOWABLE BY THE MANUFACTURER BASED ON THE SIZE OF THE PIPE. WHERE TEES AND / OR OTHER DIRECTIONAL CHANGES ARE REQUIRED, THE FITTINGS SHALL BE BUTT FUSED OR SOCKET FUSED TYPES OF THE SAME SUPPLIER AS THE HDPE PIPE. THE FITTINGS SHALL BE AQUAFUSE HDPE IRON PIPE SIZE (IPS) PRESSURE PIPE (PE4710), DR 11 (RATED AT 202 PSI). ALL HDPE MAINLINE 2" - 3" SIZE MAY BE BUTT FUSED OR SOCKET FUSED. HDPE PIPE 4" IN SIZE MUST BE BUTT FUSED. ALL 2" HDPE MANIFOLDS SHALL HAVE SOCKET FUSED FUSED HDPE FITTINGS. ALL HDPE MAINLINE AND MANIFOLD PIPE SHALL HAVE 100% FUSED CONNECTIONS.					N/A
NO SYMBOL	CHRISTY'S	TA-DT-3-BPW 3" WIDE, POTABLE WATER LINE, DETECTABLE METALLIC TAPE INSTALLED 6" ABOVE THE MAINLINE PIPE RUNNING CONTINUOUSLY FOR THE ENTIRE LENGTH OF PIPE. TAPE SHALL BE GREEEN COLOR CODED AND IMPRINTED WITH BLACK LETTERING WITH THE WORDS "CAUTION - POTABLE WATER LINE BURIED BELOW" IDENTIFYING THE PIPE UNDER THE TAPE AS CARRYING POTABLE WATER.					S
NO SYMBOL	PAIGE	P7072-D (2 - #14 PARALLEL CONDUCTORS, RED AND BLACK INSULATION) TWO-WIRE PATH TO BE INSTALLED BETWEEN THE CONTROLLER AND ALL OF THE REMOTE CONTROL VALVES ON THE PROJECT. THE TWO-WIRE PATH SHALL HAVE A GREEN OUTER JACKET COLOR. TWO-WIRE PATH SHALL FOLLOW THE MAINLINE AND TO BE DIRECT BURIAL (NO CONDUIT). TAPE TWO-WIRE PATH TO THE MAINLINE AT INTERVALS OF 10 FEET ON CENTER. PROVIDE A 24" EXPANSION COIL OF THE TWO-WIRE PATH AT EACH DIRECTIONAL CHANGE OF 45° OR GREATER.					S,T,U,V
NO SYMBOL	AS APPROVED	LOW VOLTAGE CONTROL WIRE SPLICES SHALL BE MADE IN A VALVE BOX OR A SEPARATELY DEDICATED STANDARD RECTANGULAR PULL BOX. WHERE SYMBOLS ARE SHOWN ON PLANS, INSTALL A PULL BOX FOR THE TWO-WIRE PATH, WHERE SPLICES ARE REQUIRED, INSTALL A PULL BOX REGARDLESS OF SYMBOL LOCATION. ALL PULL BOXES SHALL BE NOTED ON FIELD RECORD DRAWINGS.					U
NO SYMBOL	3M	DBR/Y-6 DIRECT BURIAL (U.L. APPROVED) WATER-PROOF WIRE CONNECTORS FOR USE ON ALL WIRE SPLICES AND CONNECTIONS					V
NO SYMBOL	CHRISTY'S	ID-MAX-Y2 MAXI, YELLOW VALVE ID TAG WITH THE CONTROLLER STATION NUMBER IMPRINTED ONTO ONE SIDE. INSTALL ONE TAG PER REMOTE CONTROL VALVE AND DRIP REMOTE CONTROL VALVE.					L,M,N
	CRISPIN	AR-10 LOW VOLUME, MAINLINE PRESSURE AIR RELEASE VALVE, 1" SIZE, INSTALL INSIDE A STANDARD RECTANGULAR VALVE BOX					W
NO SYMBOL	RAIN BIRD	ALL VALVE BOXES SHALL BE VB SERIES, PLASTIC TYPE WITH OVERLAPPING LIDS. VALVE BOX BODIES AND LIDS SHALL BE BLACK IN COLOR. ALL BOX LIDS SHALL BE SECURED WITH A RAIN BIRD VB-LOCK-H HEXAGON HEAD BOLT, WASHER AND CLIP. BOXES SHALL BE AS SHOWN BELOW:					N/A

DESCRIPTION	BLACK BOXES AND BLACK LIDS
10" ROUND BOXES	VB-10RNDB (BOX) AND VB-10RNDBKL (LID)
STANDARD RECTANGULAR BOXES	VB-STDB (BOX) AND VB-STDBKL (LID)
JUMBO RECTANGULAR BOXES	VB-JMBB (BOX) AND VB-JMBBKL (LID)

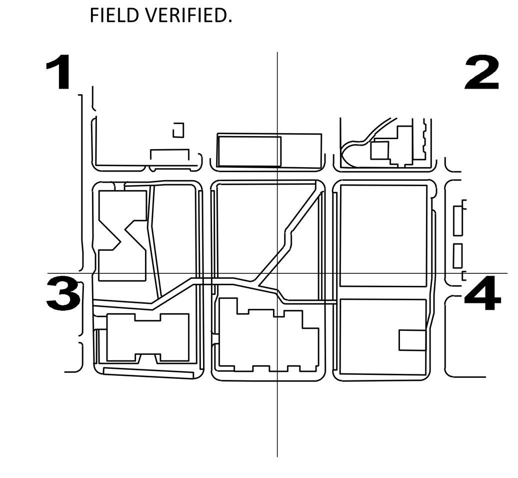
VALVE CALLOUT LEGEND



IRRIGATION METHOD DESCRIPTION CHART	
LETTERS	DESCRIPTION OF THE IRRIGATION
SS	SHRUB SPRAY HEADS
TS	TURF SPRAY HEADS
SRV	SHRUB R-VAN HEADS
TRV	TURF R-VAN HEADS
SR	SHRUB ROTOR HEADS
TR	TURF ROTOR HEADS
DT	DRIP TUBING
TB	TREE BUBBLERS

NOTES:
1. NO SIGNAGE IS KNOWN AT THIS TIME. ALL PROPOSED SIGNAGE WILL REQUIRE SEPARATE PERMIT.
2. NO FENCING IS KNOWN AT THIS TIME. ALL PROPOSED FENCING WILL REQUIRE SEPARATE PERMIT.
3. WITHIN SIGHT TRIANGLES, NO MATERIAL BETWEEN 3' AND 8' IN HEIGHT SHALL BE PLACED.
4. FOR ALL RIGHTS-OF-WAY OPEN TO VEHICULAR TRAFFIC, CONTRACTOR SHALL PROVIDE A PEDESTRIAN AND BICYCLE ACCESSIBLE ROUTE DURING ALL PHASES OF CONSTRUCTION.
5. ALL PLANT MATERIAL MUST BE MAINTAINED IN A HEALTHY LIVING CONDITION. ANY PLANT MATERIAL THAT DIE MUST BE REPLACED. SEC 50-510(j)(7)(i)(1).
6. TREE TOPPING IS NOT ALLOWED. TREES MUST BE PRUNED IN ACCORDANCE WITH ANSI A300. STANDARDS FOR TREE CARE. SEC 50-510(j)(7)(i)(2).
7. HEALTHY TREES MUST NOT BE REMOVED EXCEPT WHERE APPROVED BY THE DIRECTOR. TREES MUST BE MAINTAINED USING APPROVED PRUNING METHODS AS DESCRIBED IN ANSI A300.SEC 50-510(j)(7)(i)(3).
8. WHERE A POTENTIAL UTILITY CONFLICTS WITH LANDSCAPING, UTILITY LOCATIONS SHALL BE FIELD VERIFIED.

NOT FOR CONSTRUCTION



Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
112030
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO. DATE	REVISION
05-22-26	#1 LARGE SCALE DEVELOPMENT
06-17-26	#2 LARGE SCALE DEVELOPMENT
07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

IRRIGATION NOTES

PH2-L7-0-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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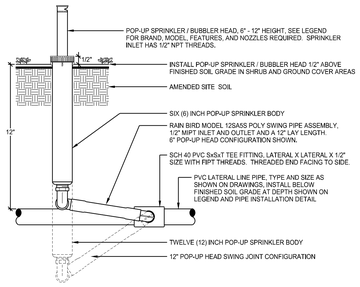

NOTE:
INSTALL SPRINKLER HEADS 4" FROM PAVING EDGE IN TURF AREAS.
INSTALL SPRINKLER HEADS 6" FROM PAVING EDGE IN SHRUB AND GROUND COVER AREAS.
INSTALL SPRINKLER HEADS 12" FROM THE FACE OF BUILDING WALLS OR WINDOWS.

INSTALL SPRINKLER HEADS PLUMB. ADJUST NOZZLES TO COVER THE LANDSCAPE AREA WITHOUT OVERSPRAY ONTO PAVING, FENCES, WALLS OR BUILDINGS.

SECTION VIEW - N.T.S.

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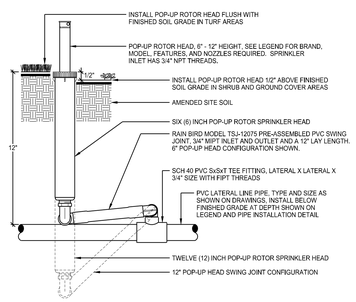
A POP-UP BUBBLER, SPRAY OR ROTATOR (6" AND 12")



NOTE:
INSTALL ROTOR HEADS 24" FROM PAVING EDGE IN SHRUB AND GROUND COVER AREAS.
INSTALL ROTOR HEADS 12" FROM THE FACE OF BUILDINGS, WALLS OR WINDOWS.

INSTALL ROTOR HEADS PLUMB. ADJUST NOZZLE STREAM TO COVER THE LANDSCAPE AREA WITHOUT OVERSPRAY ONTO PAVING, FENCES, WALLS OR BUILDINGS.

SECTION VIEW - N.T.S.

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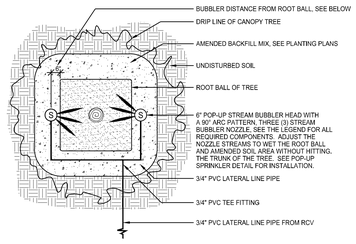
B POP-UP ROTOR HEAD (6" AND 12")



PLAN VIEW - N.T.S.

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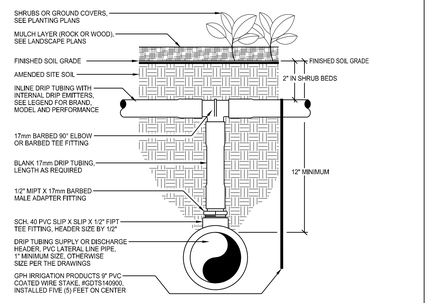
C TREE BUBBLER LAYOUT



NOTE:
DRIP TUBING CONNECTION REQUIRED FOR ALL CONNECTIONS BETWEEN DRIP TUBING AND PVC HEADERS.
FOR CONNECTIONS AT END RUNS OF TUBING, USE A POWER-LOC 90° ELL FITTING.
FOR CONNECTIONS IN THE MIDDLE OF RUNS OF TUBING, USE A POWER-LOC TEE FITTING.

SECTION VIEW - N.T.S.

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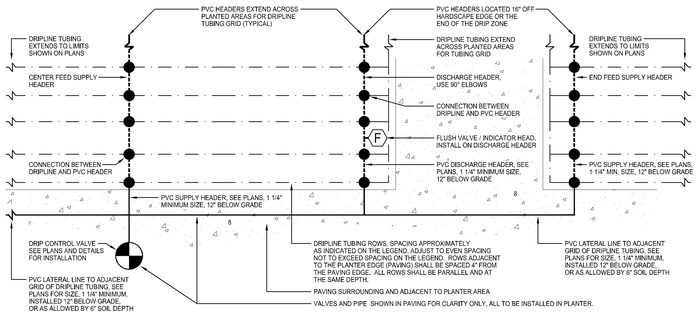
D DRIP TUBING CONNECTION



NOTE:
INSTALL PURPLE COLORED INDICATOR NOZZLE ON POP-UP HEAD AND ADJUST TO FULLY CLOSED.

PLAN VIEW - N.T.S.

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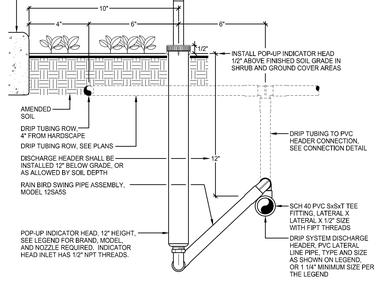
E SUB-SURFACE DRIP TUBING LAYOUT



NOTE:
INSTALL INDICATOR HEAD 10" FROM THE EDGE OF PAVING OR THE PLANTER EDGE.

INSTALL ORANGE COLORED INDICATOR NOZZLE ON POP-UP HEAD AND ADJUST TO FULLY CLOSED.

SECTION VIEW - N.T.S.

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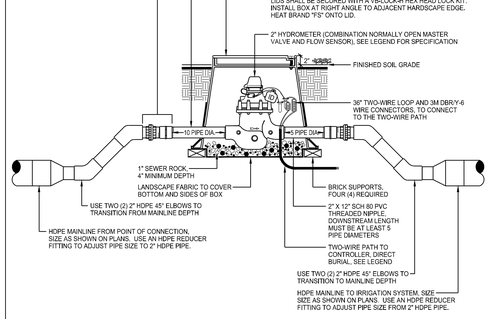
F FLUSH NOZZLE / INDICATOR HEAD



NOTE:
INSTALL A HYDROPOINT WT2W-H2O-MV MASTER VALVE DECODER TO THE MASTER VALVE PORTION OF THE HYDROMETER.
INSTALL A HYDROPOINT WT2W-H2O-FS FLOW SENSOR DECODER TO THE FLOW SENSOR PORTION OF THE HYDROMETER.

CONNECT THE SENSOR DECODER TO THE TWO-WIRE PATH FOR COMMUNICATION WITH CONTROLLER.

USE STANDARD OPENINGS PROVIDED IN VALVE BOX FOR PIPE, DO NOT CUT BOX.

SECTION VIEW - N.T.S.

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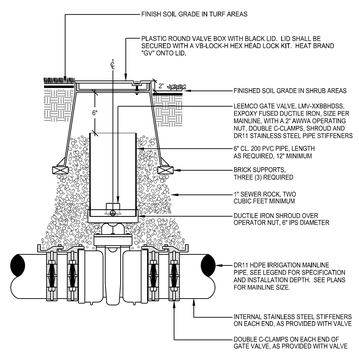
G HYDROMETER (MASTER VALVE AND FLOW SENSOR)



NOTE:
PROVIDE A TOTAL OF ONE (1) 5 FOOT LONG, STEEL OPERATING KEYS, WITH 2" AWWA OPERATING NUT RECEPTACLES, FOR THE PROJECT AS TURNOVER ITEMS.

SECTION VIEW - N.T.S.

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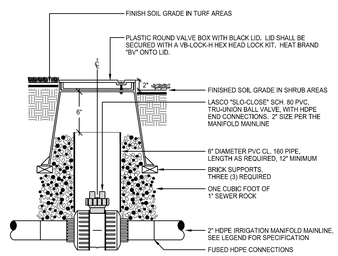
H MAINLINE ISOLATION (GATE) VALVE



NOTE:
PROVIDE ONE (1) 30" LONG STEEL "VALVE KEY" FOR EACH TEN (10) BALL VALVES INSTALLED ON THE PROJECT.

SECTION VIEW - N.T.S.

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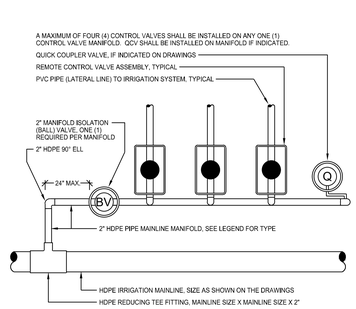
I MANIFOLD ISOLATION (BALL) VALVE



PLAN VIEW - N.T.S.

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J VALVE MANIFOLD OFF OF MAINLINE

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

walter p moore

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609 SW 8th St., Suite 600
Bentonville, Arkansas 72712

479.367.3250

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POLK | STANLEY | WILCOX
HENDERSON ENGINEERS

NOT FOR CONSTRUCTION

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

NOTES:
1. NO SIGNAGE IS KNOWN AT THIS TIME. ALL PROPOSED SIGNAGE WILL REQUIRE SEPARATE PERMIT.
2. NO FENCING IS KNOWN AT THIS TIME. ALL PROPOSED FENCING WILL REQUIRE SEPARATE PERMIT.
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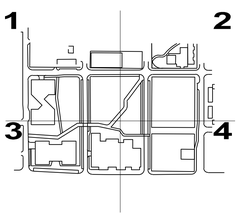

REGISTERED LANDSCAPE ARCHITECT
GREGORY SUTTON
11559
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

IRRIGATION DETAILS

PH2-L7-5-00

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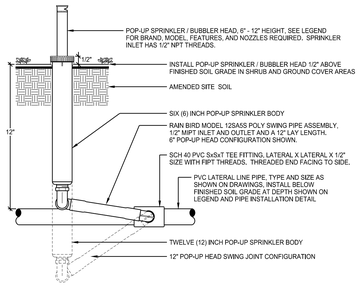

NOTE:
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INSTALL SPRINKLER HEADS 6" FROM PAVING EDGE IN SHRUB AND GROUND COVER AREAS.
INSTALL SPRINKLER HEADS 12" FROM THE FACE OF BUILDING WALLS OR WINDOWS.

INSTALL SPRINKLER HEADS PLUMB. ADJUST NOZZLES TO COVER THE LANDSCAPE AREA WITHOUT OVERSPRAY ONTO PAVING, FENCES, WALLS OR BUILDINGS.

SECTION VIEW - N.T.S.

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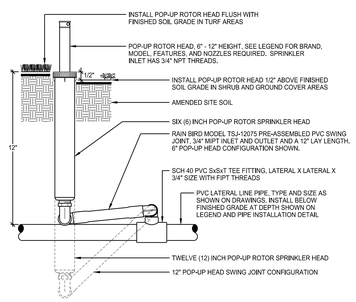
A POP-UP BUBBLER, SPRAY OR ROTATOR (6" AND 12")



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SECTION VIEW - N.T.S.

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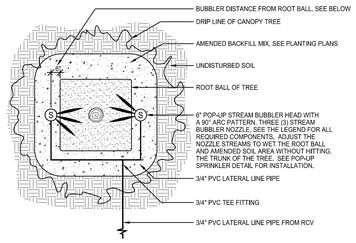
B POP-UP ROTOR HEAD (6" AND 12")



PLAN VIEW - N.T.S.

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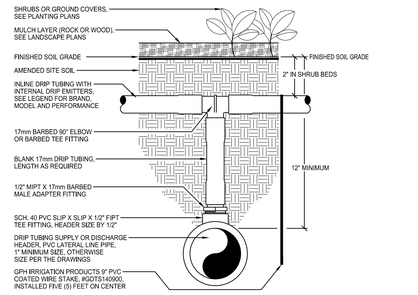
C TREE BUBBLER LAYOUT



NOTE:
DRIP TUBING CONNECTION REQUIRED FOR ALL CONNECTIONS BETWEEN DRIP TUBING AND PVC HEADERS.
FOR CONNECTIONS AT END RUNS OF TUBING, USE A POWERLOC 90° ELL FITTING.
FOR CONNECTIONS IN THE MIDDLE OF RUNS OF TUBING, USE A POWERLOC TEE FITTING.

SECTION VIEW - N.T.S.

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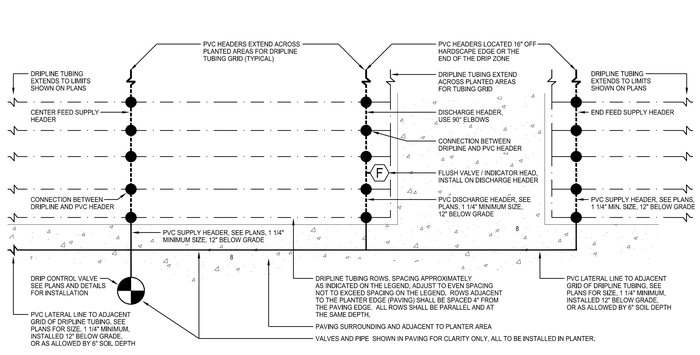
D DRIP TUBING CONNECTION



NOTE:
INSTALL PURPLE COLORED INDICATOR NOZZLE ON POP-UP HEAD AND ADJUST TO FULLY CLOSED.

PLAN VIEW - N.T.S.

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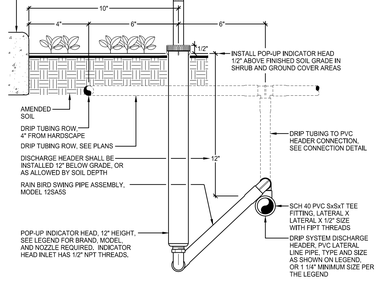
E SUB-SURFACE DRIP TUBING LAYOUT



NOTE:
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SECTION VIEW - N.T.S.

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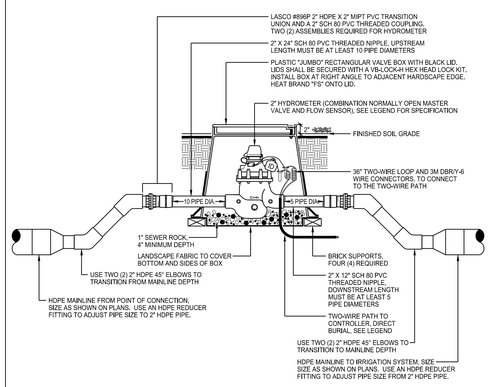
F FLUSH NOZZLE / INDICATOR HEAD



NOTE:
INSTALL A HYDROPOINT WT2W-H2O-MV MASTER VALVE DECODER TO THE MASTER VALVE PORTION OF THE HYDROMETER.
INSTALL A HYDROPOINT WT2W-H2O-FS FLOW SENSOR DECODER TO THE FLOW SENSOR PORTION OF THE HYDROMETER.

CONNECT THE SENSOR DECODER TO THE TWO-WIRE PATH FOR COMMUNICATION WITH CONTROLLER.

USE STANDARD OPENINGS PROVIDED IN VALVE BOX FOR PIPE, DO NOT CUT BOX.

SECTION VIEW - N.T.S.

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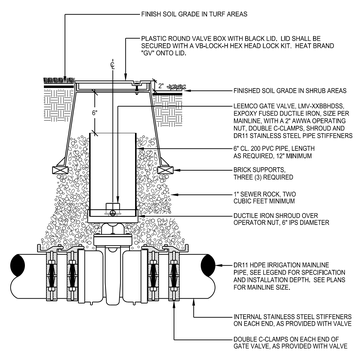
G HYDROMETER (MASTER VALVE AND FLOW SENSOR)



NOTE:
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SECTION VIEW - N.T.S.

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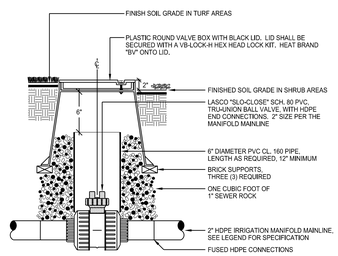
H MAINLINE ISOLATION (GATE) VALVE



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SECTION VIEW - N.T.S.

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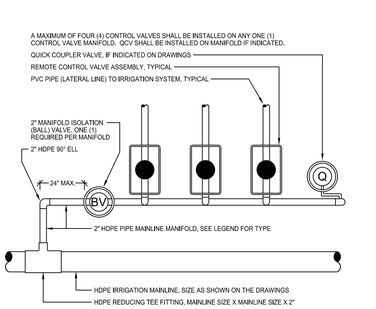
I MANIFOLD ISOLATION (BALL) VALVE



PLAN VIEW - N.T.S.

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J VALVE MANIFOLD OFF OF MAINLINE

sweeney + associates
IRRIGATION DESIGN AND CONSULTING
S+A
30700 Sky Canyon Drive, Suite C
Evergreen, CO 80439
e: info@sweeneyassoc.com t: (951) 461-4830
w: www.sweeneyassoc.com f: (951) 461-4850

walter p moore
Walter P. Moore and Associates, Inc.
609 SW 8th St., Suite 600
Bentonville, Arkansas 72712
479.367.3250

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AT&T
BUILDING & EARTH
Geotechnical, Environmental, and Materials Engineers
The Benchmark for Professional Service Firms
LERA
POLK | STANLEY | WILCOX
HENDERSON ENGINEERS

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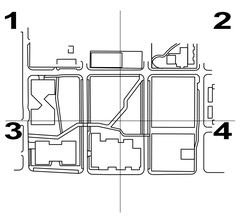

NOT FOR CONSTRUCTION

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGORY SUTTON
11550
STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

IRRIGATION DETAILS

PH2-L7-5-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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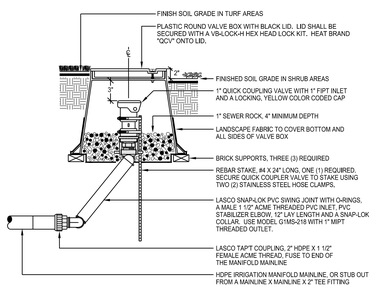

NOTE:
WHEN QCV IS LOCATED ON THE MAINLINE AND NOT AS PART OF AN RCV MANIFOLD, INSTALL A MAINLINE SIZED X 2" HDPE TEE FITTING ON THE MAINLINE AND STUB OUT FOR THE QCV ASSEMBLY.

USE A NON-HARDENING, TEFLON ASSEMBLY PASTE ON ALL THREADED FITTINGS.

SECTION VIEW - N.T.S.

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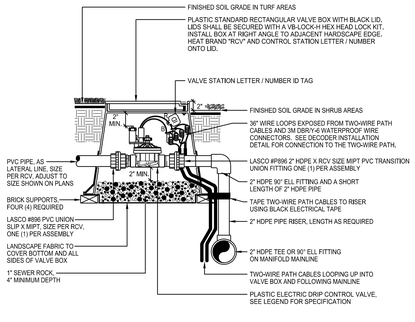
K QUICK COUPLER VALVE



NOTE:
INSTALL A HYDROPOINT TWO-WIRE VALVE DECODER WITH THE REMOTE CONTROL VALVE. SEE LEGEND FOR TYPE. CONVENTIONAL WIRED RCV SHOWN. FOR TWO-WIRE INSTALLATIONS, SEE DECODER INSTALLATION DETAIL.

USE AN APPROVED, TEFLON ASSEMBLY PASTE ON ALL THREADED FITTINGS.

USE STANDARD BOX OPENINGS FOR ALL PIPING INTO THE BOX. DO NOT CUT THE BOX.

SECTION VIEW - N.T.S.

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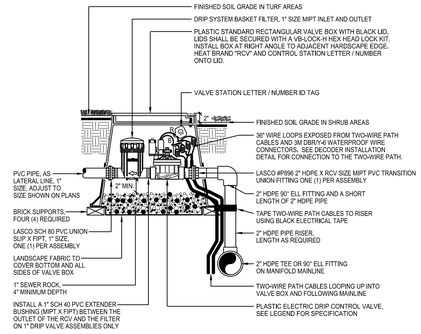
L REMOTE CONTROL VALVE



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1" DRIP ZONES SHALL BE INSTALLED WITH ONE (1) 1" BASKET FILTER INSIDE A STANDARD RECTANGULAR VALVE BOX. 1 1/2" DRIP ZONES SHALL BE INSTALLED WITH TWO (2) 1" BASKET FILTERS INSIDE A "JUMBO" RECTANGULAR VALVE BOX.

USE AN APPROVED, TEFLON ASSEMBLY PASTE ON ALL THREADED FITTINGS.

USE STANDARD BOX OPENINGS FOR ALL PIPING INTO THE BOX, DO NOT CUT THE BOX.

1" DRIP CONTROL VALVE ASSEMBLY TO BE CONSTRUCTED OF COMPONENTS SHOWN AND AS SPECIFIED ON THE LEGEND. NO MANUFACTURER ASSEMBLED KITS SHALL BE ACCEPTABLE.

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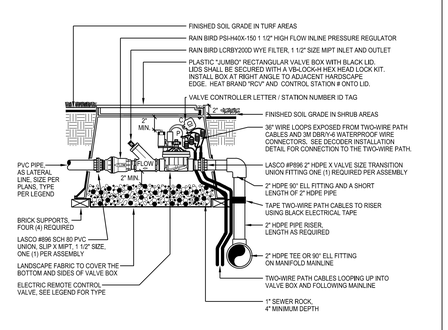
M 1" DRIP REMOTE CONTROL VALVES



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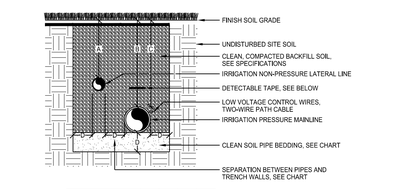
N 1 1/2" DRIP REMOTE CONTROL VALVES



NOTE:
INSTALL A HYDROPOINT TWO (2) OR SINGLE STATION DECODER WITH THE REMOTE CONTROL VALVE (SEE LEGEND). DETAIL ONLY FOR DECODER INSTALLATION, REFER TO THE CONTROL VALVE DETAIL FOR SPECIFIC COMPONENTS AND REQUIREMENTS FOR CONTROL VALVE INSTALLATION.

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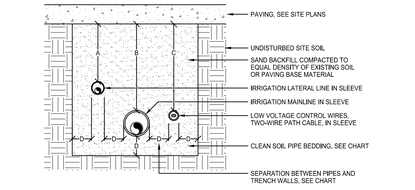
O TWO-WIRE VALVE DECODER



NOTE:
CONTRACTOR IS REQUIRED TO CONTACT 811 OR DIGALERT A MINIMUM OF TWO (2) DAYS PRIOR TO ANY EXCAVATION ON THE PROJECT AND SPECIFICALLY PRIOR TO THE INSTALLATION OF ANY GROUNDING RODS. DIAL 811 OR LOG ONTO WWW.DIGALERT.ORG.

QUANTITY AND LOCATION OF THE LINE SURGE PROTECTORS SHALL BE AS DESCRIBED IN THE MATERIALS LEGEND. DO NOT EXCEED MANUFACTURER'S RECOMMENDATIONS.

LINE SURGE ARRESTOR MAY BE INSTALLED IN REMOTE CONTROL VALVE BOX, WHERE LINE SURGE ARRESTOR IS NOT LOCATED ADJACENT TO AN RCV INSTALL IN ROUND BOX AS SHOWN.

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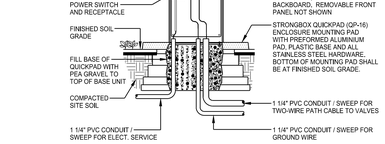
P LINE SURGE ARRESTOR



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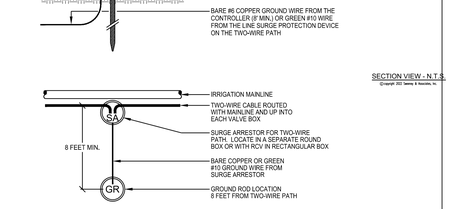
Q CONTROLLER IN ENCLOSURE



NOTE:
IF SOIL DEPTH IS INSUFFICIENT FOR THE INSTALLATION OF THE GROUNDING ROD, OR IF SOIL IS TOO HARD AND ROCKY FOR INSTALLATION OF THE GROUND ROD, THE GROUND ROD MAY BE REPLACED WITH THE GROUNDING PLATE.

CONTRACTOR IS REQUIRED TO CONTACT 811 OR DIGALERT A MINIMUM OF TWO (2) DAYS PRIOR TO ANY EXCAVATION ON THE PROJECT AND SPECIFICALLY PRIOR TO THE INSTALLATION OF ANY GROUNDING RODS. DIAL 811 OR LOG ONTO WWW.DIGALERT.ORG.

A MINIMUM OF ONE GROUND ROD SHALL BE INSTALLED PER CONTROLLER. SEE LEGEND, DETAILS AND SPECIFICATIONS FOR ADDITIONAL GROUNDING REQUIREMENTS.

LOCATE GROUND ROD A MINIMUM OF 8 FEET FROM THE TWO WIRE PATH WHEN GROUNDING LINE SURGE ARRESTORS.

PLAN VIEW - N.T.S.

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R GROUNDING ROD

PIPE SIZES	A	B	C	D
SIZES 3/4" TO 2 1/2"	12"	18"	18"	4"
SIZES 3" AND 4"	12"	24"	24"	4"

NOTE:
DETECTABLE TAPE SHALL BE 3" WIDE, COLOR CODED BLUE AND IMPRINTED WITH BLACK LETTERING WITH THE WORDS "CAUTION - POTABLE WATER LINE BURIED BELOW" IDENTIFYING THE PIPE UNDER THE TAPE AS CARRYING RAW WATER.

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CLEAN BACKFILL SOIL SHALL BE SITE SOIL FREE OF DEBRIS AND ROCKS LARGER THAN 1/2" IN SIZE. SAND BACKFILL IS ACCEPTABLE FOR BEDDING BUT NOT REQUIRED.

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S PIPE INSTALLATION

PIPE SIZES	A	B	C	D
ALL SIZES UNDER PEDESTRIAN PAVING	24"	24"	24"	4"
ALL SIZES UNDER VEHICULAR PAVING	36"	36"	36"	6"

NOTE:
CONTRACTOR IS REQUIRED TO CONTACT 811 OR DIGALERT A MINIMUM OF TWO (2) DAYS PRIOR TO ANY EXCAVATION ON THE PROJECT AND SPECIFICALLY PRIOR TO THE INSTALLATION OF ANY GROUNDING RODS. DIAL 811 OR LOG ONTO WWW.DIGALERT.ORG.

SLEEVES SHALL BE TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE CARRIED

SLEEVES SHALL EXTEND 12" PAST THE EDGE OF PAVING INTO THE PLANTER.

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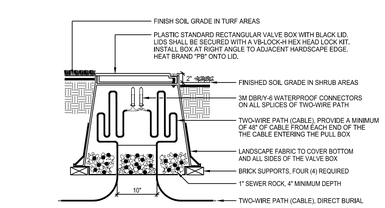
T SLEEVE INSTALLATION



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U TWO-WIRE CABLE PULL BOX

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3. WITHIN SIGHT TRIANGLES, NO MATERIAL BETWEEN 3' AND 8' IN HEIGHT SHALL BE PLACED.
4. FOR ALL RIGHTS-OF-WAY OPEN TO VEHICULAR TRAFFIC, CONTRACTOR SHALL PROVIDE A PEDESTRIAN AND BICYCLE ACCESSIBLE ROUTE DURING ALL PHASES OF CONSTRUCTION.
5. ALL PLANT MATERIAL MUST BE MAINTAINED IN A HEALTHY LIVING CONDITION. ANY PLANT MATERIAL THAT DIE MUST BE REPLACED. SEC 50-510(j)(7)(i)(1).
6. TREE TOPPING IS NOT ALLOWED. TREES MUST BE PRUNED IN ACCORDANCE WITH ANSI A300. STANDARDS FOR TREE CARE. SEC 50-510(j)(7)(i)(2).
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NOT FOR CONSTRUCTION

walter p moore

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Bentonville, Arkansas 72712

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e: info@sweeneyassoc.com | t: (951) 461-6850
w: www.sweeneyassoc.com | f: (951) 461-6850

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

GREGGORY SUTTON — REGISTERED LANDSCAPE ARCHITECT — STATE OF ARKANSAS
DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
	05-22-26	#1 LARGE SCALE DEVELOPMENT
	06-17-26	#2 LARGE SCALE DEVELOPMENT
	07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

IRRIGATION DETAILS

PH2-L7-5-02

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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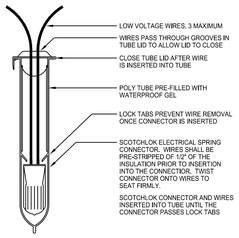

NOTE:
WIRE CONNECTOR SHALL BE A 3M DBRY-6 DIRECT BURY SPLICE KIT (U.L. APPROVED).

KIT SHALL INCLUDE A SCOTCHLOK Y SPRING CONNECTOR, A POLYPROPYLENE TUBE AND A WATERPROOF SEALING GEL. TUBE SHALL BE SUPPLIED PREFILLED WITH GEL.

DIRECT BURY SPLICE KIT SHALL BE USED TO ELECTRICALLY CONNECT 2 - 3 #14 OR 2 #12 PRE-STRIPPED COPPER WIRES. LARGER WIRES OR GREATER QUANTITIES OF WIRES SHALL REQUIRE A LARGER APPROVED WIRE CONNECTION.

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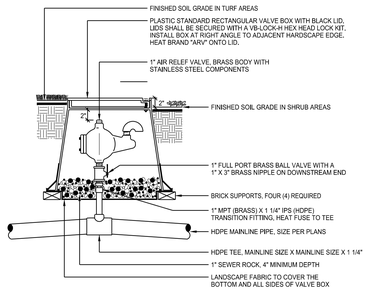
Ⓥ WATERPROOF WIRE CONNECTIONS



NOTE:
INSTALL AIR RELEASE VALVE AT HIGH POINT ON MAINLINE. PRIOR TO MAINLINE INSTALLATION, LOCATE THE HIGH POINTS ON THE PROJECT SITE AND STAKE OUT PROPOSED LOCATION OF AIR RELEASE FOR APPROVAL BY THE ARCHITECT. ARVS ON PLANS ARE LOCATED APPROXIMATELY AND MAY NOT BE AT FINAL LOCATION REQUIRED.
MAINLINE PIPE SLOPE SHOWN EXAGGERATED ON DETAIL FOR CLARITY.

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Ⓦ MAINLINE AIR RELEASE VALVE

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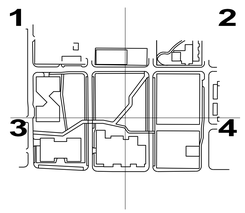

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CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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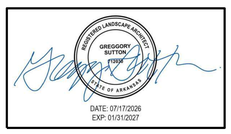
STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS



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M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

IRRIGATION DETAILS

PH2-L7-5-03

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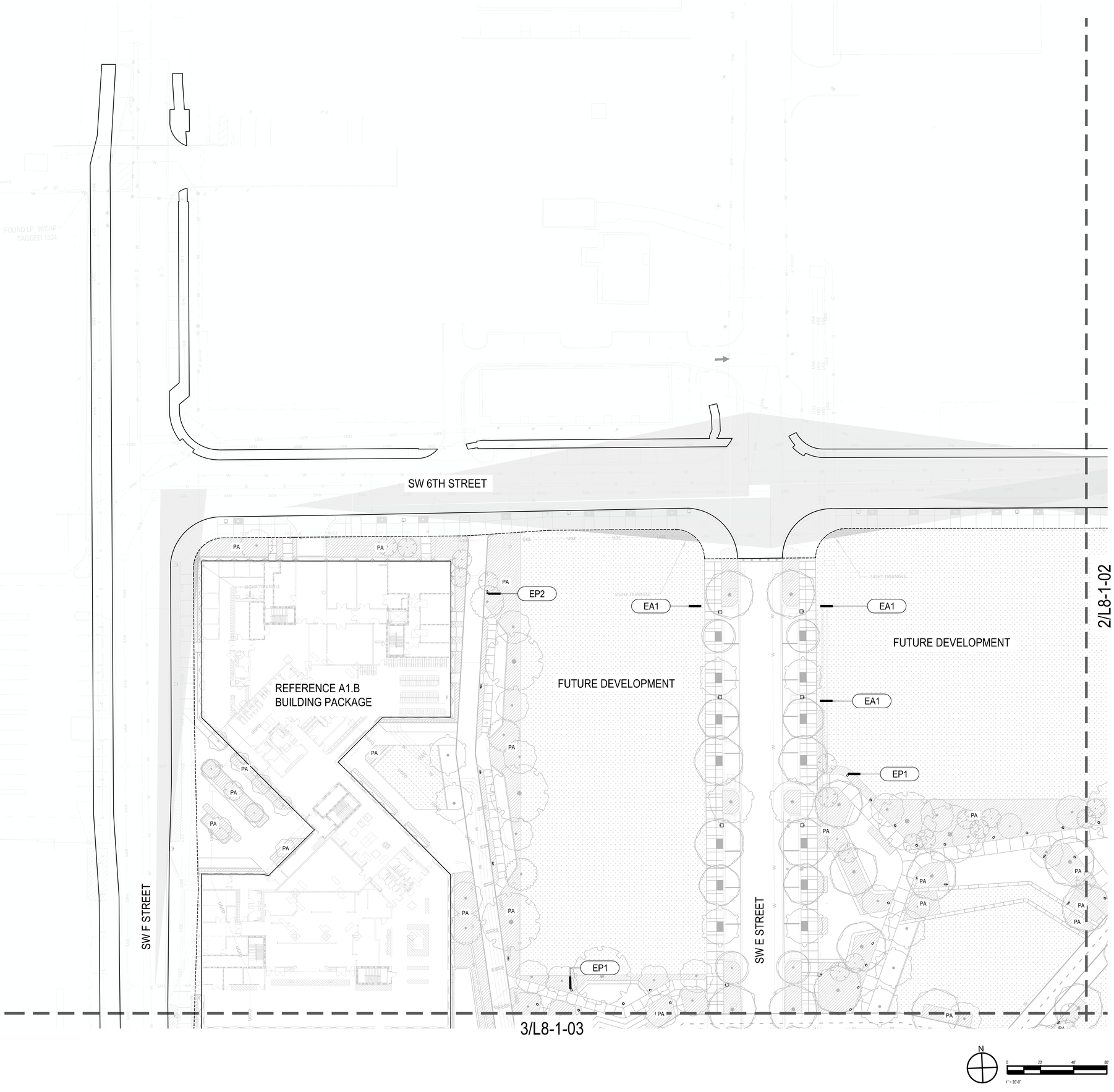

LIGHTING SCHEDULE

LIGHTING

CODE		DESCRIPTION
	EA1	VEHICULAR STREET LIGHTS
	EP2	PEDESTRIAN LIGHTS
	EP1	BOLLARD LIGHTS

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REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
13036
STATE OF ARKANSAS

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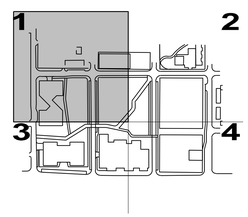

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF

ORIGINAL ISSUE	DATE
SCHEMATIC DESIGN	05-22-2026

LIGHTING PLAN

PH2-L8-1-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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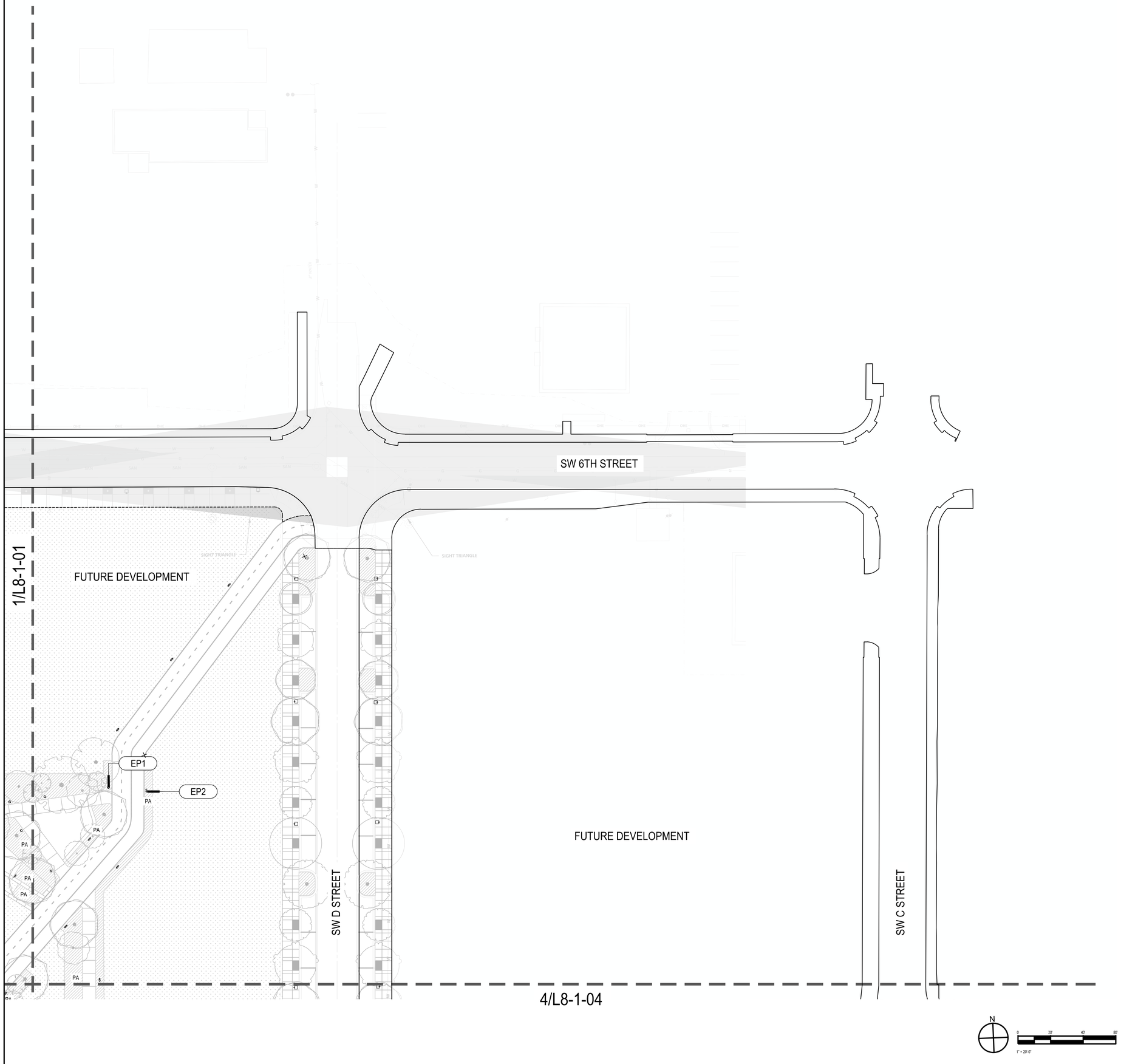

LIGHTING SCHEDULE

LIGHTING

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	EP2	PEDESTRIAN LIGHTS
	EP1	BOLLARD LIGHTS

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NOT FOR CONSTRUCTION

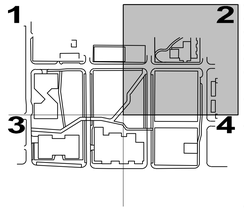
STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
13030
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO. DATE	REVISION
05-22-26	#1 LARGE SCALE DEVELOPMENT
06-17-26	#2 LARGE SCALE DEVELOPMENT
07-17-26	#3 LARGE SCALE DEVELOPMENT



PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

LIGHTING PLAN

PH2-L8-1-02

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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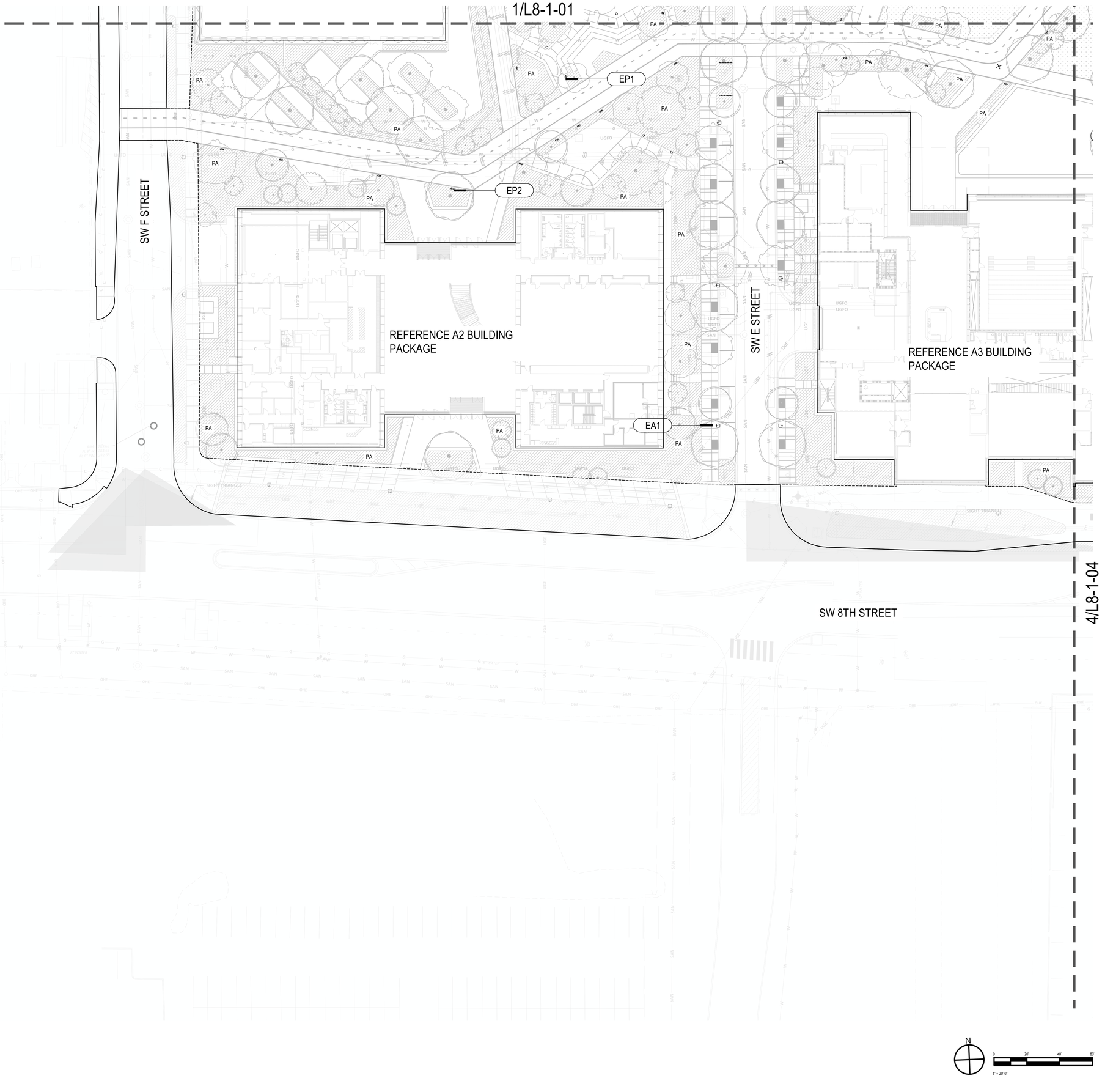

LIGHTING SCHEDULE

LIGHTING

CODE		DESCRIPTION
	EA1	VEHICULAR STREET LIGHTS
	EP2	PEDESTRIAN LIGHTS
	EP1	BOLLARD LIGHTS

NOTES:

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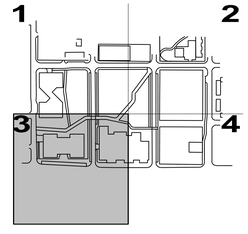

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGORY SUTTON
13936
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO. DATE	REVISION
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06-17-26	#2 LARGE SCALE DEVELOPMENT
07-17-26	#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

LIGHTING PLAN

PH2-L8-1-03

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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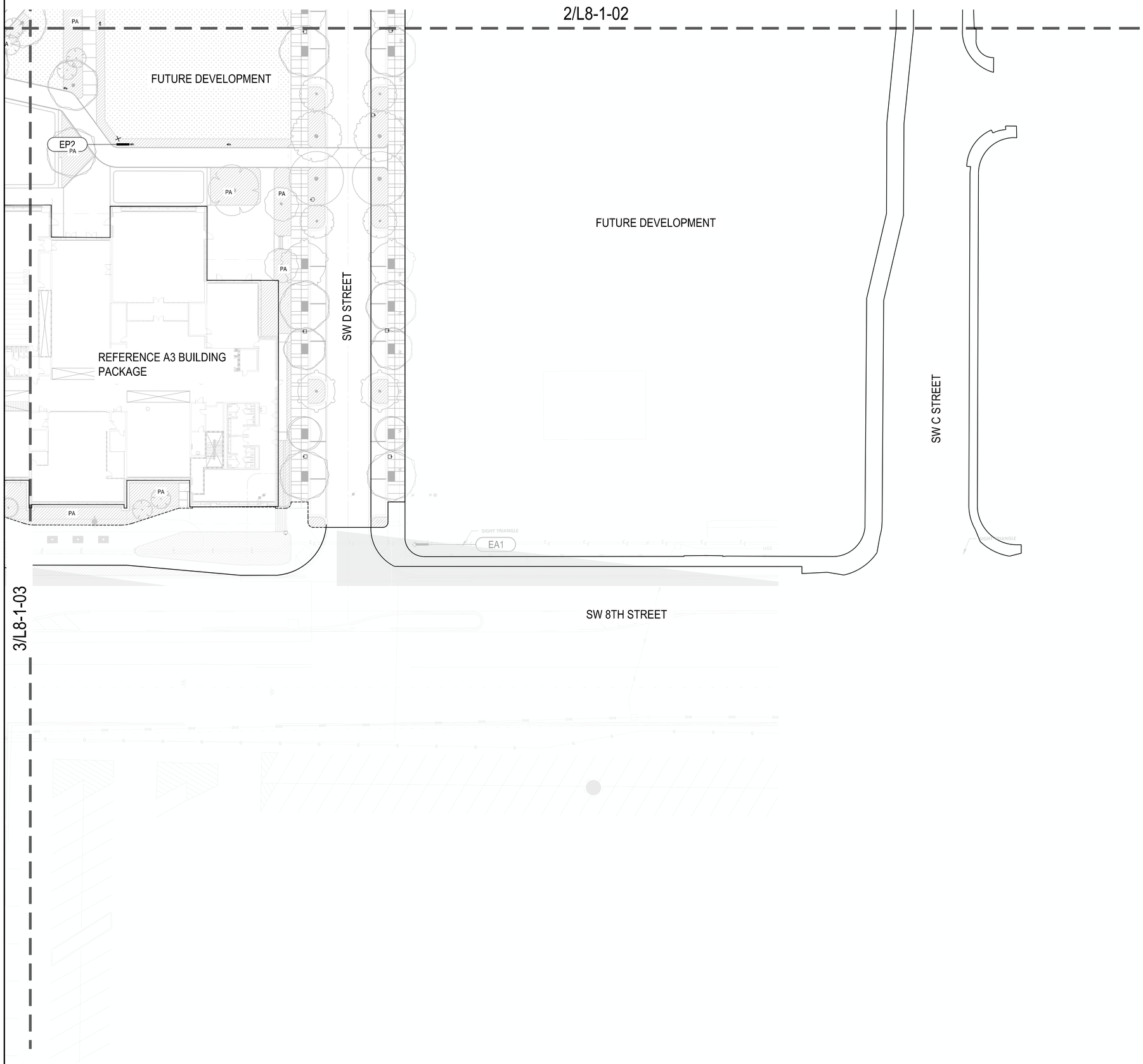

LIGHTING SCHEDULE		
LIGHTING		
CODE		DESCRIPTION
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	EP2	PEDESTRIAN LIGHTS
	EP1	BOLLARD LIGHTS

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
STATE OF ARKANSAS
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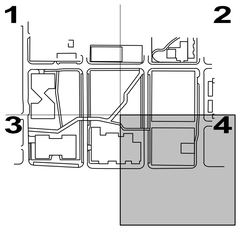

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

LIGHTING PLAN

PH2-L8-1-04

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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Project		Catalog #		Type	
Prepared by		Notes		Date	

McGRAW-EDISON
GALN Galleon II

Area / Site Luminaire

Product Features

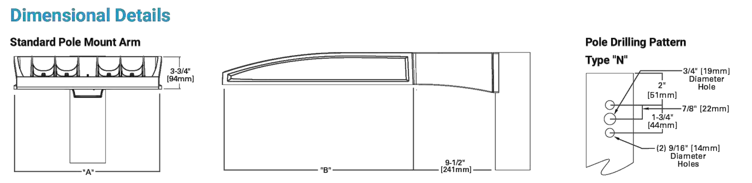
Interactive Menu
- Ordering Information page 2
- Mounting Details page 3
- Optical Distributions page 5
- Product Specifications page 5
- Energy and Performance Data page 6
- Control Options page 17

Product Certifications

Quick Facts
- Lumen packages range from 3,300 - 102,700 (33W - 658W)
- 22 optical distributions
- Efficacy up to 178 LPW

Connected Systems
- Wavelinx LITE Wireless
- Wavelinx PRO Wireless
- AirMesh Wireless

Dimensional Details



Number of Light Squares	Width "A"	Housing Length "B"	Weight with Standard or QM Arm	EPA with Standard or QM Arm
1-4	16"	22"	29 lb	0.95
5-6	22"	22"	39 lb	0.95
7-9	22"	28-1/8"	48 lb	1.1

NOTES: For arm selection requirements and additional line art, see Mounting Details section.

NOTES:
1. IDA Certified (3000K CCT and warmer only, fixed mounting options)

COOPER Lighting Solutions
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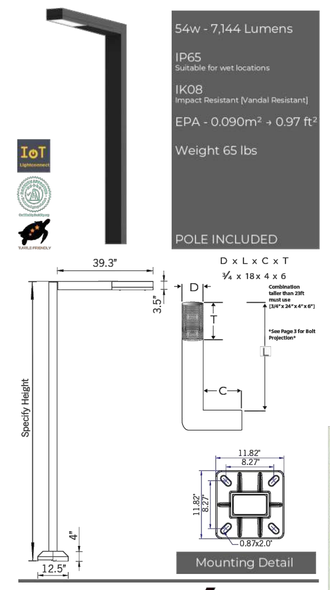
1 EA1 - VEHICULAR STREET LIGHTS
SCALE -N.T.S.

ULI-21171
Light Linear PT 3 Single Head Streetlight

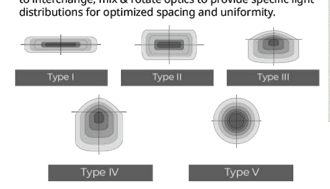
microVos TECHNOLOGY

LIGMAN NORTH AMERICA

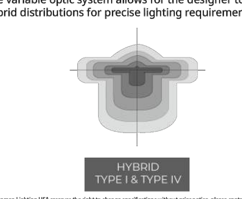


microVos TECHNOLOGY

Ligman's micro Variable Optical System provides the ability to interchange, mix & rotate optics to provide specific light distributions for optimized spacing and uniformity.



The variable optic system allows for the designer to create hybrid distributions for precise lighting requirements.



Construction

Aluminum
Less than 0.1% copper content – Marine Grade 6060 extruded & LM6 Aluminum High Pressure die casting provides excellent mechanical strength , clean detailed product lines and excellent heat dissipation.

Pre paint
8 step degrease and phosphate process that includes deoxidizing and etching as well as a zinc and nickel phosphate process before product painting.

Memory Retentive -Silicon Gasket
Provided with special injection molded "fit for purpose" long life high temperature memory retentive silicon gaskets. Maintains the gaskets exact profile and seal over years of use and compression.

Thermal management
LM6 Aluminum is used for its excellent mechanical strength and thermal dissipation properties in low and high ambient temperatures. The superior thermal heat sink design by Ligman used in conjunction with the driver, controls thermals below critical temperature range to ensure maximum luminous flux output, as well as providing long LED service life and ensuring less than 10% lumen depreciation at 50,000 hours.

Surge Suppression
Standard 10kv surge suppressor provided with all fixtures.

BUG Rating
B1-U0-G1 | B2-U0-G2

Finishing
All Ligman products go through an extensive finishing process that includes fettling to improve paint adherence.

Paint
UV Stabilized 4.9Mil thick powder coat paint and baked at 200 Deg C. This process ensures that Ligman products can withstand harsh environments. Rated for use in natatoriums.

MicroPRIM Finishes
MicroPRIM is Ligman's trade marked decorative powder coating technology that permanently infuses colors, patterns, or imagery directly into the surface of luminaires and poles while providing protections that standard powder coating does not offer.

MicroPRIM finishes include nature-inspired wood grains and stone aesthetics, material-inspired finishes such as brushed metal, concrete, and carbon fiber, Solid colors in Ligman standard colors, as well as any RAL or Pantone color, Decorative patterns, custom imagery and more.

Coating and Infusion Process

Metal components are pre-treated and powder coated with a proprietary polyurethane-based coating engineered for outdoor architectural use. Decorative patterns or imagery are then permanently infused into the cured powder coat through a heat-based process, creating a durable, integrated finish.

Performance and Validation

MicroPRIM finishes are suitable for indoor and outdoor applications and meet AAMA2605 architectural coating requirements. Performance is validated through laboratory and real-world testing to ASTM standards for UV exposure, adhesion, abrasion, impact, salt spray, chemical resistance, and graffiti resistance.

All MicroPRIM finishes are backed by Ligman's 10-year warranty.

Key Performance Attributes
•Anti-graffiti resistance
•UV and weather resistance
•Scratch and abrasion resistance
•Natatorium Rated for installation in corrosive environments

Hardware
Provided Hardware is Marine grade 316 Stainless steel.

Anti Seize Screw Holes
Tapped holes are infused with a special anti seize compound designed to prevent seizure of threaded connections, due to electrolysis from heat, corrosive atmospheres and moisture.

Crystal Clear Low Iron Glass Lens
Provided with tempered, impact resistant crystal clear low iron glass ensuring no green glass tinge.

Optics & LED
Precise optic design provides exceptional light control and precise distribution of light.
LED CRI > 80

Lumen - Maintenance Life
L80 /B10 at 50,000 hours (This means that at least 90% of the LED still achieve 80% of their original flux)

Public realm contemporary column family. Stylish but technically precise area lighting solutions as part of a large flexible family.

Light Linear PT is a sophisticated, minimalistic lighting column engineered to complement both modern and classic architectural environments. Designed for projects that demand visual guidance with exceptional visual comfort, this luminaire combines advanced technology with aesthetic appeal.

The dual-sealed optical chamber, integrated with high-efficiency heat sinks, ensures durability and thermal management. It houses a range of field-interchangeable, optically controlled LEDs that deliver precise light distribution options, including Type II, III, IV, and V patterns. For projects requiring tailored illumination, mixed configurations—such as combining Type II and Type IV optics within the same fixture—are available.

This product range offers multiple wattage options and is available in single- and double-head styles. Customer-specific wattages can also be accommodated; please contact the factory for details.

Dark Sky Compliance: Light Linear PT meets Dark Sky requirements when 3000K or warmer LEDs are selected and the luminaire is fixed-mounted (±15° adjustment allowed for leveling). This ensures reduced light pollution and environmentally responsible illumination.

Applications: Ideal for pedestrian precincts, building surrounds, shopping centers, squares, parks, and parking lots. Its sleek, minimalistic form creates distinctive lighting effects at night while serving as a decorative urban element during the day.

Design Continuity: Complementary bollard and wall-mounted luminaires are available to maintain consistent aesthetics across the project.
Pole Features: Poles can be supplied with GFCI boxes positioned at customer-specified heights. A flat, low-profile hand hole cover with vandal-resistant screws ensures secure and easy installation.

WATT-ADJ: Each luminaire includes a programmable driver, allowing factory-set wattage adjustments to meet specific project requirements (see options on page 2).

Approved for Canada: Add "-CSA" to the part number for Canadian compliance.

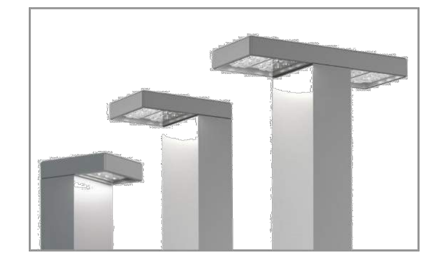
Additional Options (Consult Factory For Pricing)

LIGHTCONNECT IoT Ready Light Linear
(Shown with up & down configuration)

Ligman Lighting USA reserves the right to change specifications without prior notice, please contact factory for latest information. Due to the continual improvements in LED technology data and components may change without notice.

2 EP2 - PEDSTRIAN STREET LIGHTS
SCALE -N.T.S.

Project		Catalog #		Type	
Prepared by		Notes		Date	



Lumière
Eon 303 Bollard

Bollard

Typical Applications
• Hospitality • Commerical Landscape • Outdoor Area/Site • Residential • Architectural

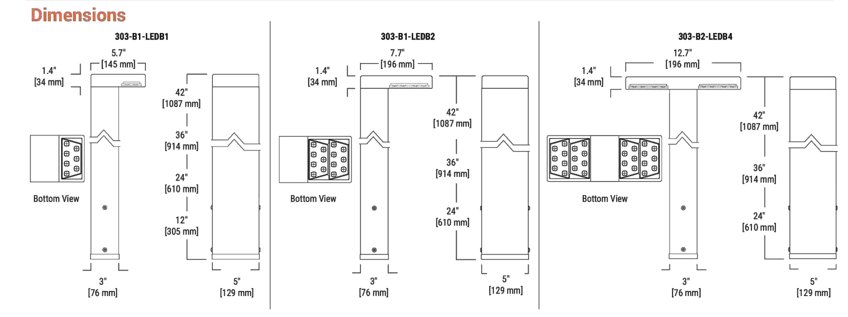
Interactive Menu
- Order Information page 2
- Product Specifications page 2
- Lumen Maintenance page 3
- Options page 4
- Mounting Details page 4

Product Certification

Product Features

Top Product Features
- Available in one- or two-direction models
- Zero uplight Type II, Type IV, and Type V distributions
- Patented AccuLED Optics™ System behind a sealed clear glass lens
- 12", 24", 36", and 42" heights
- 120-277V input with ELV or 0-10V dimming options

Dimensions



COOPER Lighting Solutions
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3 EP1 - BOLLARD LIGHTS
SCALE -N.T.S.

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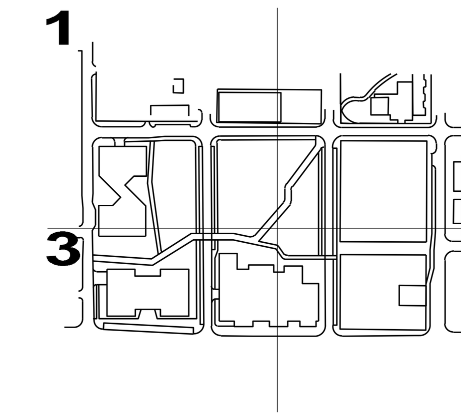

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

DATE: 07/17/2026
EXP: 01/31/2027

NO. DATE	REVISION
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06-17-26	#2 LARGE SCALE DEVELOPMENT
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PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
M08-25007-00	DD	BO	EF
ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

LIGHTING DETAIL

PH2-L8-5-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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LIGHTING SCHEDULE (PRIVATE)

LIGHTING

CODE		DETAILS	DESCRIPTION	QTY.	MODEL NO.	MANUFACTURER/SUPPLIER
	EA1	1/L8-5-01	VEHICULAR STREET LIGHTS	14	MCGRAW-EDISON GALN GALLEON II	COOPER LIGHTING SOLUTION
	EP2	2/L8-5-01	PEDESTRIAN LIGHTS	33	ULI-21171	LIGMAN NORTH AMERICA
	EP1	3/L8-5-01	BOLLARD LIGHTS	28	LUMIERE EON 303	COOPER LIGHTING SOLUTION

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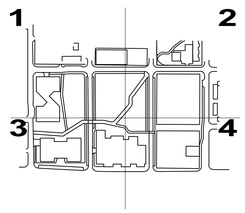

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ORIGINAL ISSUE			DATE
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LIGHTING SCHEDULE

PH2-L8-6-01

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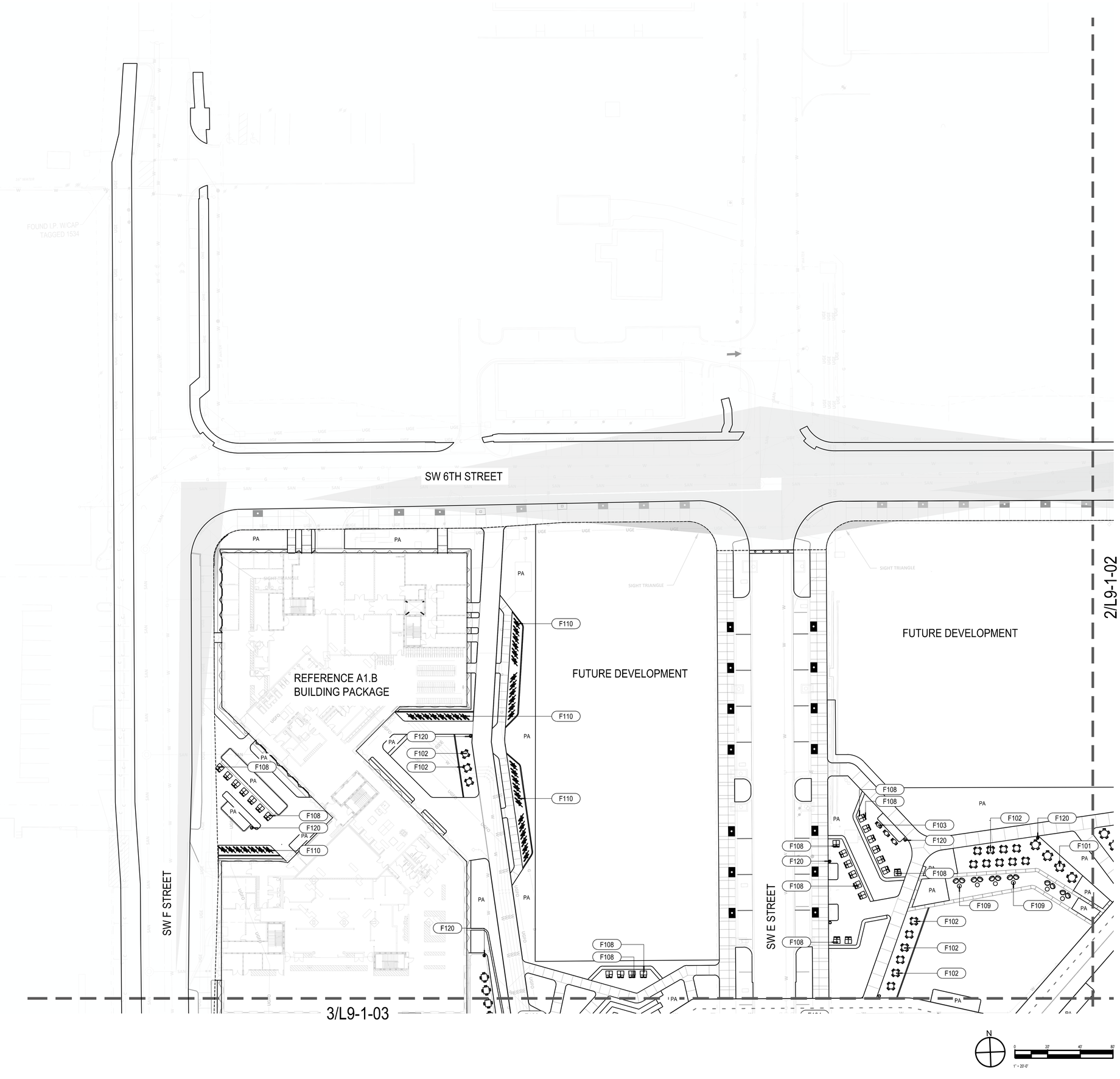

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

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GREGGORY SUTTON
13836
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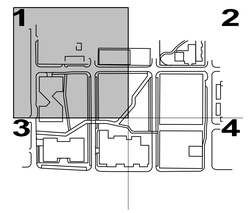

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
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ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

SITE FURNITURE PLAN

PH2-L9-1-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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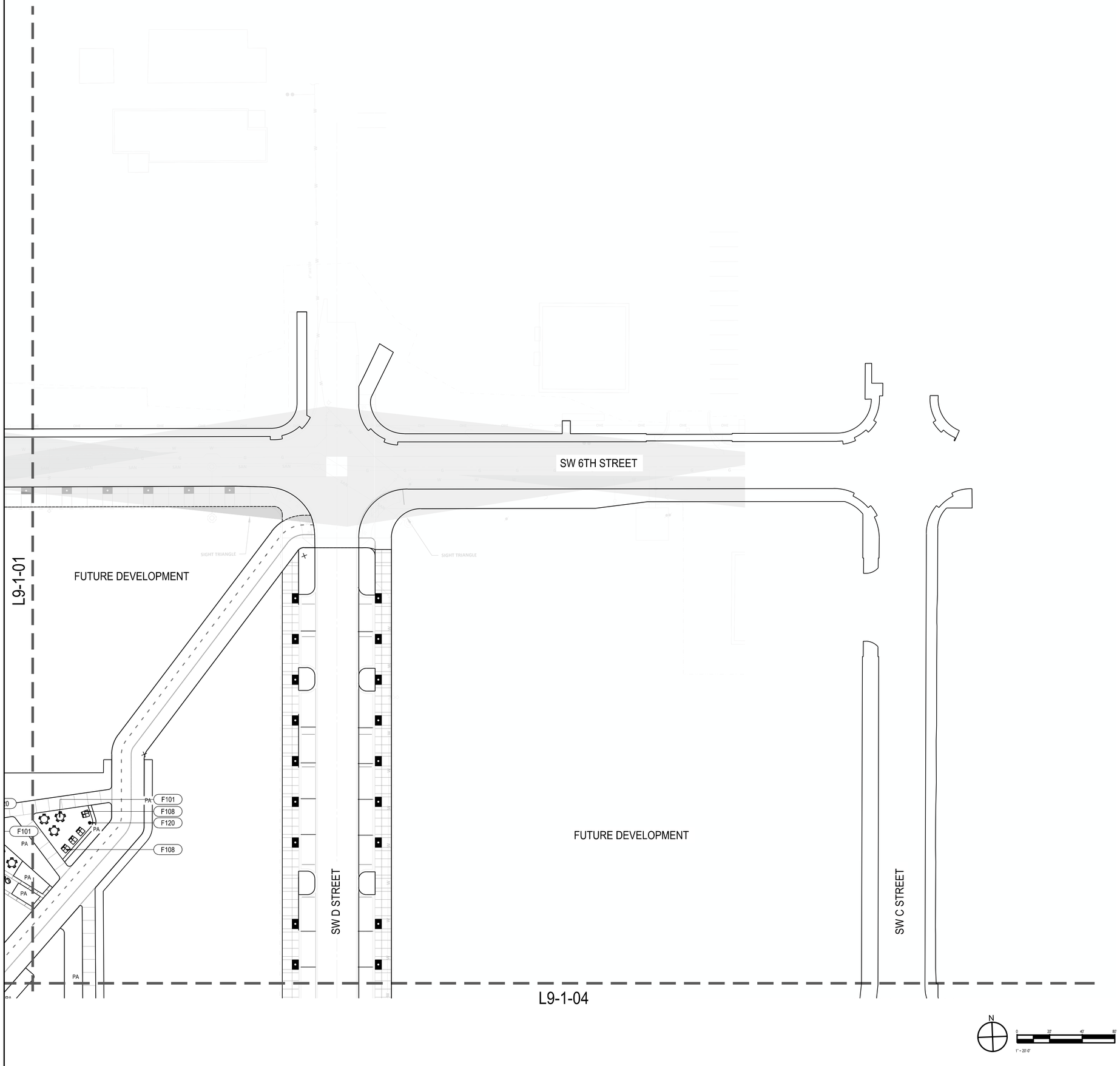

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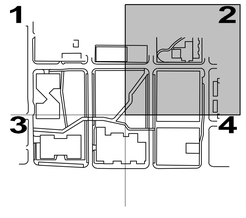

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
13936
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

NO.	DATE	REVISION
05-22-26		#1 LARGE SCALE DEVELOPMENT
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07-17-26		#3 LARGE SCALE DEVELOPMENT

PROJECT NO.	DESIGNED BY	REVIEWED BY	DRAWN BY
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ORIGINAL ISSUE			DATE
SCHEMATIC DESIGN			05-22-2026

SITE FURNITURE PLAN

PH2-L9-1-02

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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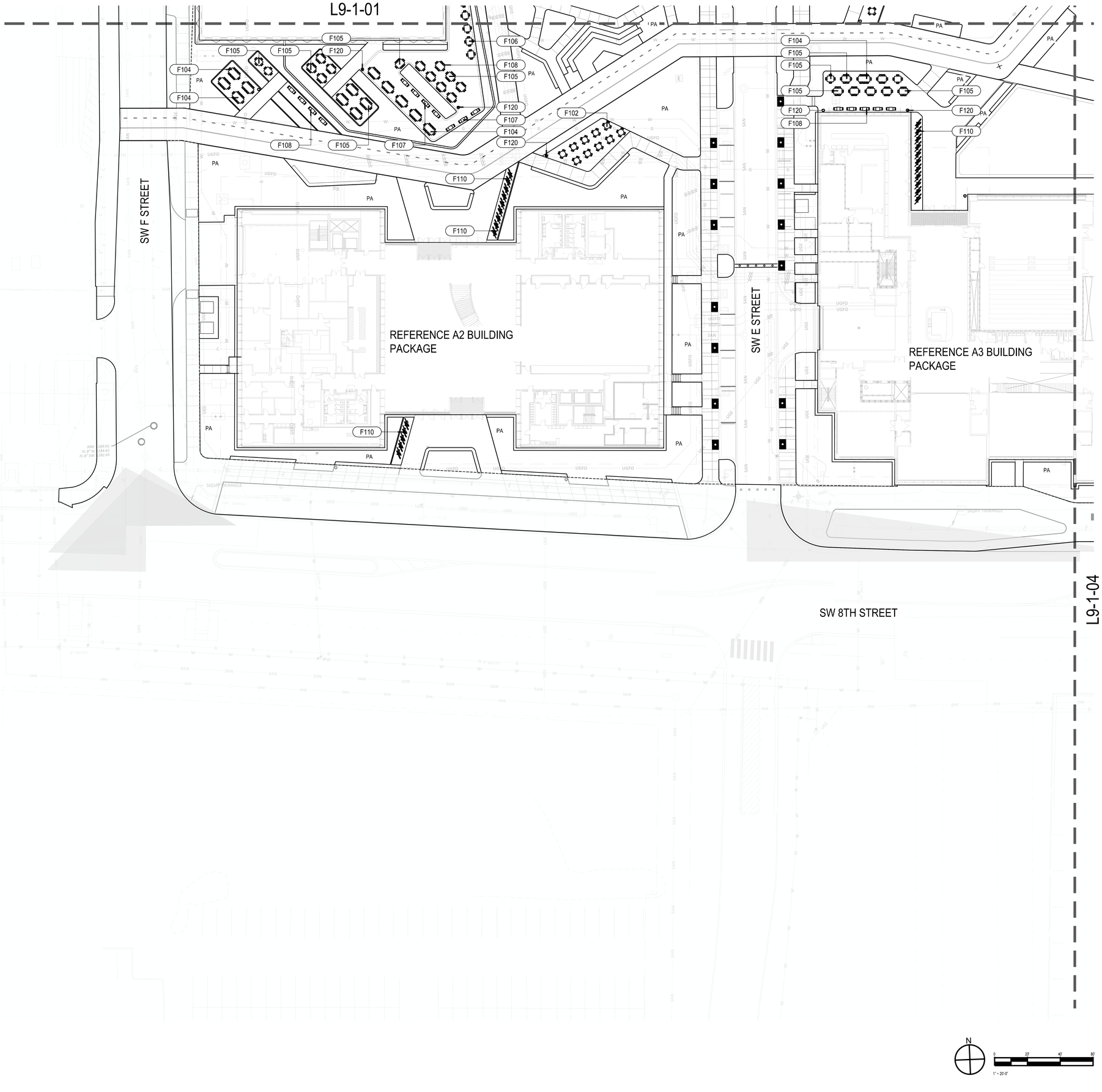

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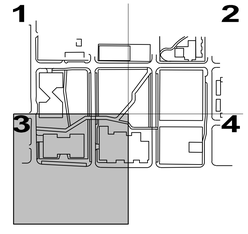

STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
#1939
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

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SITE FURNITURE PLAN

PH2-L9-1-03

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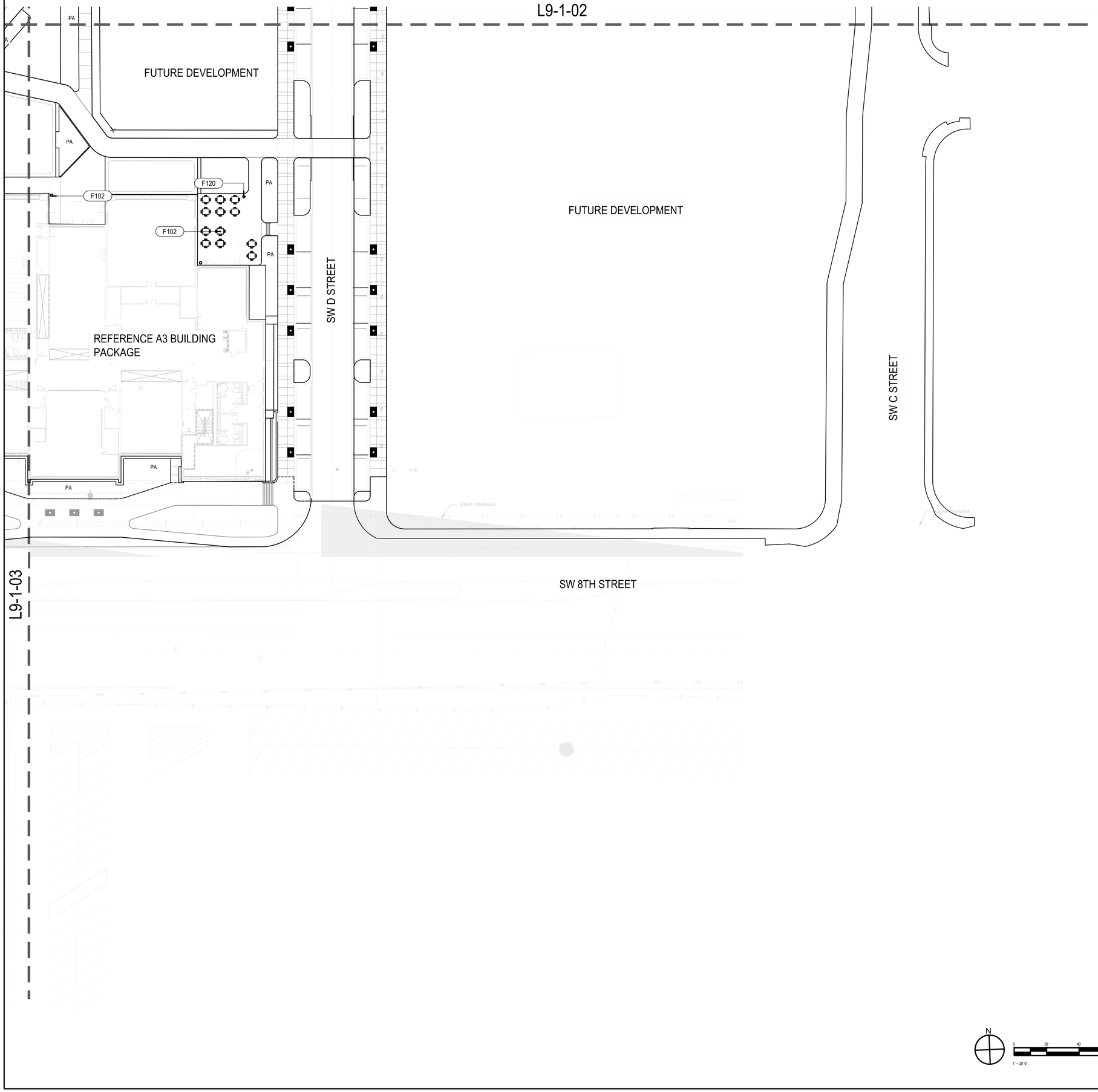

SITE FURNITURE SCHEDULE

SITE FURNISHINGS + AMENITIES

CODE	DESCRIPTION
F101	ROUND OUTDOOR DINING TABLE - GROUP OF 5
F102	ROUND OUTDOOR DINING TABLE - GROUP OF 4
F103	ROUND OUTDOOR CAFE TABLE - GROUP OF 2
F104	RECTANGULAR OUTDOOR DINING TABLE - GROUP OF 8
F105	RECTANGULAR OUTDOOR DINING TABLE - GROUP OF 6
F106	SQUARE OUTDOOR DINING TABLE - GROUP OF 2
F107	OUTDOOR CAFE TABLE - GROUP OF 2
F108	OUTDOOR BOOTH TABLE - GROUP OF 2
F109	OUTDOOR CAFE TABLE & LOUNGE CHAIR
F110	BIKE RACK
F120	TRASH RECEPTACLE

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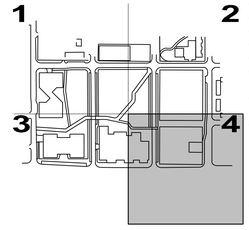

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SITE FURNITURE PLAN

PH2-L9-1-04

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F101

OUTDOOR DINING TABLE ROUND - GROUP OF 5

MODEL: HARVEST
TOP COLOR: CHARCOAL GREY
FRAME COLOR: MERCURY METALLIC
MATERIAL: POWDERCOATED STEEL
STYLE: CASUAL HEIGHT
SIZE: 62" DIA.
HEIGHT: 30"

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/harvest-round-table

	Style	Width	Height	Product Weight
	Dining Height	62"	00"	153 lbs

OUTDOOR DINING GROUP OF 5 ROUND TABLE CHAIR

MODEL: HARVEST
SEAT PANEL COLOR: SILVER METALLIC
FRAME COLOR: DUSK
MATERIAL: POWDERCOATED STEEL

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/21-lounge-chair

	Style	Depth	Width	Height	Product Weight
	With Arms	26.75"	28.25"	27"	25.5 lbs

F102

OUTDOOR DINING TABLE ROUND - GROUP OF 4

MODEL: CHIPMAN ROUND DINING TABLE - 45"
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/chipman-table

	Style	Width	Height	Product Weight
	Round Dining Table	45"	29.25"	85 lb

OUTDOOR DINING CHAIR - GROUP OF 4

MODEL: CHIPMAN CHAIR - ARMS
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH: 269.381.0396
WEB: https://www.landscapeforms.com/products/chipman-chair

	Style	Depth	Width	Height	Product Weight
	Arms	22"	24"	33"	20 Lb

F103

OUTDOOR CAFE TABLE ROUND - GROUP OF 2

MODEL: CHIPMAN ROUND DINING TABLE - 31"
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://vestre.com/products/tables/april-round-table

	Style	Width	Height	Product Weight
	Round Dining Table	31"	29.25"	55 lb

OUTDOOR DINING CHAIR - GROUP OF 4

MODEL: CHIPMAN CHAIR - ARMS
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/chipman-chair

	Style	Depth	Width	Height	Product Weight
	Arms	22"	24"	33"	20 Lb

F104

OUTDOOR DINING TABLE RECTANGULAR - GROUP OF 8

MODEL: HARPO - 118" TABLE
FINISH: POWDER COATED ARCHITECTURAL SERIES
WOOD GRAIN: DOMESTICALLY SOURCED THERMALLY MODIFIED ASH
FRAME COLOR: FOG
MATERIALS: FSC 100% CUMARU

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/harpo-table

	Style	Depth	Width	Height	Product Weight
	118" Table	32.5"	118"	30.25"	235 lb

F105

OUTDOOR DINING TABLE RECTANGULAR - GROUP OF 6

MODEL: HARPO - 69" TABLE
FINISH: POWDER COATED ARCHITECTURAL SERIES
WOOD GRAIN: DOMESTICALLY SOURCED THERMALLY MODIFIED ASH
FRAME COLOR: FOG
MATERIALS: FSC 100% CUMARU

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/harpo-table

	Style	Depth	Width	Height	Product Weight
	69" Table	32.5"	69"	30.25"	170 lb

F106

OUTDOOR DINING TABLE SQUARE - GROUP OF 4

MODEL: CHIPMAN SQUARE DINING TABLE - 37"
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://vestre.com/products/tables/april-round-table

	Style	Width	Height	Product Weight
	Square Dining Table	37"	29.25"	82 lb

OUTDOOR DINING CHAIR - GROUP OF 4

MODEL: CHIPMAN CHAIR - ARMS
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH: 269.381.0396
WEB: https://www.landscapeforms.com/products/chipman-chair

	Style	Depth	Width	Height	Product Weight
	Arms	22"	24"	33"	20 Lb

F107

OUTDOOR CAFE TABLE - GROUP OF 2

MODEL: CHIPMAN SQUARE DINING TABLE - 32"
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://vestre.com/products/tables/april-round-table

	Style	Width	Height	Product Weight
	Square Dining Table	32"	29.25"	68 lb

OUTDOOR DINING CHAIR - GROUP OF 2

MODEL: CHIPMAN CHAIR - ARMS
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH: 269.381.0396
WEB: https://www.landscapeforms.com/products/chipman-chair

	Style	Depth	Width	Height	Product Weight
	Arms	22"	24"	33"	20 Lb

F108

OUTDOOR BOOTH TABLE - GROUP OF 2

MODEL: CHIPMAN SQUARE DINING TABLE - 27"
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://vestre.com/products/tables/april-round-table

	Style	Width	Height	Product Weight
	Square Dining Table	27"	29.25"	55 lb

OUTDOOR DINING CHAIR - GROUP OF 2

MODEL: CHIPMAN CHAIR - ARMS
FINISH: POWDER COATED STEEL
TABLE TOP COLOR: FOG
TABLE SUPPORT COLOR: FOG
FREESTANDING

SOURCE: LANDSCAPE FORM
PH: 269.381.0396
WEB: https://www.landscapeforms.com/products/chipman-chair

	Style	Depth	Width	Height	Product Weight
	Arms	22"	24"	33"	20 Lb

F109

OUTDOOR CAFE TABLE

MODEL: HARVEST
TOP COLOR: CHARCOAL GREY
FRAME COLOR: MERCURY METALLIC
MATERIAL: POWDERCOATED STEEL
STYLE: CASUAL HEIGHT
SIZE: 40" DIA.
HEIGHT 15"

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/harvest-side-table

	Style	Width	Height	Product Weight
	Side Table	40"	15"	49 lbs

OUTDOOR CAFE LOUNGE CHAIR

MODEL: AMERICANA
SEAT COLOR: CHARCOAL GREY
FRAME COLOR: FOG
MATERIAL: POWDERCOATED STEEL
STYLE: SINGLE LOUNGE CHAIR

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/americana

	Style	Depth	Width	Height	Product Weight
	Single Lounge Chair	37.5"	33.5"	39.25"	70 lbs

F110

BIKE RACKS

MODEL: THE BURNSIDE BIKE RACK
CONSTRUCTION/ MATERIAL:
OUTER: 2" X 1" STAINLESS STEEL RECTANGULAR TUBING
INNER BAR: .25" X 2" STAINLESS STEEL FLAT BAR
BUMPER: SANTOPRENE TPV
FLANGES: 2" X 6" STAINLESS STEEL
FINISH: STAINLESS STEEL BEAD BLAST FINISH
SIZE: 28" LENGTH, 6" WIDTH
HEIGHT: 33.4"

SOURCE: STREETLIFE
PH: 215 247 0148
EM: USA@STREETLIFE.COM
WEB: https://www.streetlife.com/en-US/products/bicycle-parking/solid-bike-racks?v=22479#fsl-tabs-block-edit-group-materials-tab

F120

TRASH RECEPTACLE

MODEL: FGP LITTER RECEPTACLE
WOOD COLOR: JARRAH PREMIUN LF80
POWERCOAT COLOR: MERCURY METALLIC

SOURCE: LANDSCAPE FORM
PH.269.381.0396
WEB: https://www.landscapeforms.com/products/fgp-litter

	Style	Depth	Width	Height	Product Weight
	litter	19"	20"	37"	Ipe: 91 lb Jarrah: 87 lb

F201

REMOVABLE BOLLARDS

MODEL: R-8464 STAINLESS STEEL REMOVABLE BOLLARD
FINISH: STAINLESS STEEL
REFLECTIVE STRIP: YELLOW

SOURCE: RELIANCE FOUNDRY
EM: info@reliance-foundry.com
WEB: https://www.reliance-foundry.com/shop/bollard/stainless/r-8464-bollard

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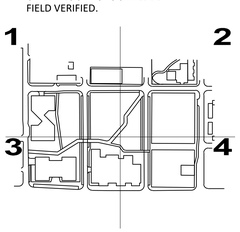

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STEM UNIVERSITY - PRIVATE IMPROVEMENT PLANS PHASE 2

LARGE-SCALE DEVELOPMENT PLANS

REGISTERED LANDSCAPE ARCHITECT
GREGGORY SUTTON
1709
STATE OF ARKANSAS

DATE: 07/17/2026
EXP: 01/31/2027

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SITE FURNITURE SCHEDULE

PH2-L9-6-01

CITY OF BENTONVILLE PROJECT NO.: LSD26-0031

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