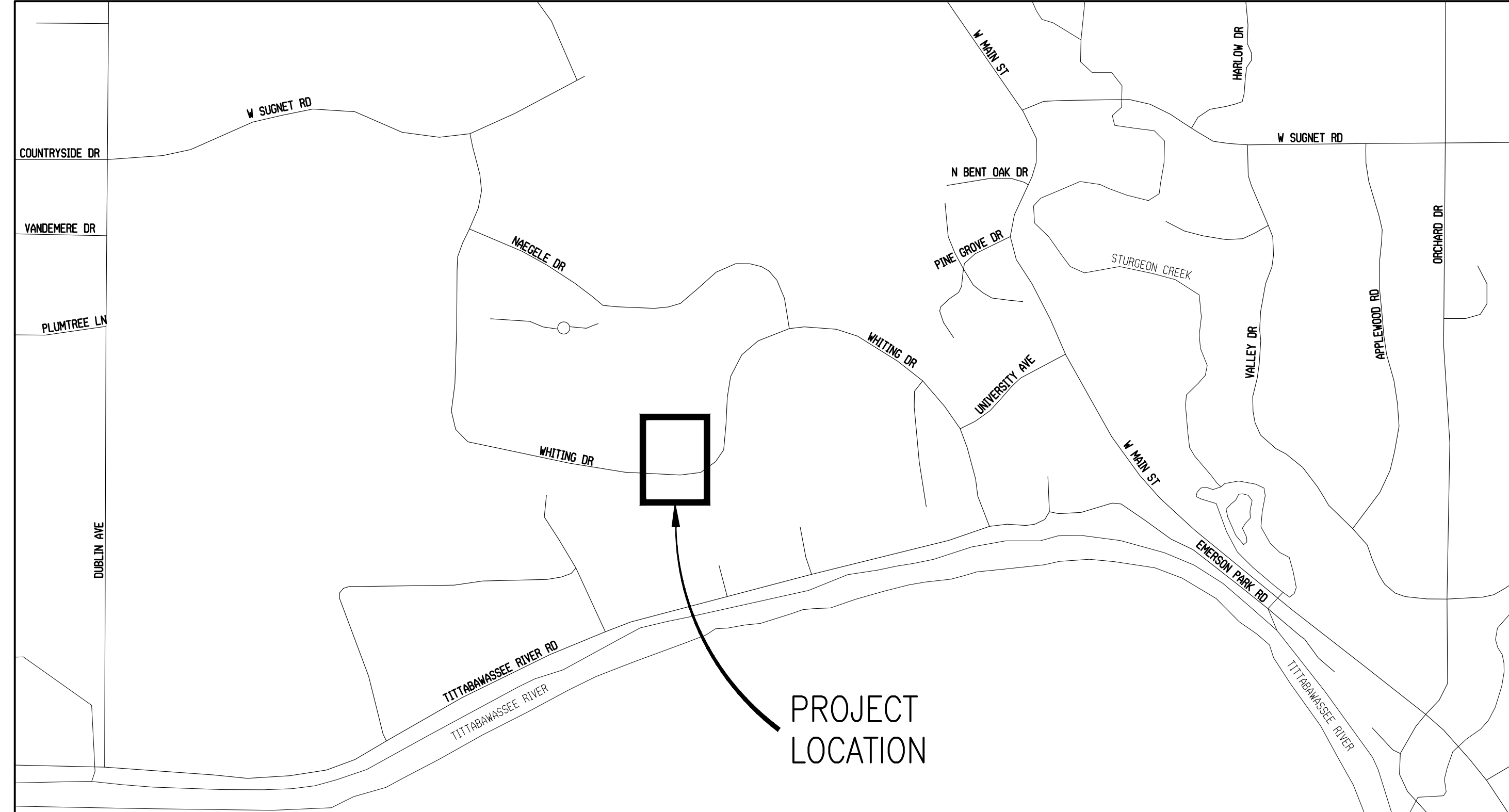


DRAWING PATH: P:\5000_54985076250010_NU_Morey_Plaza_Area_C\Drawings\Civil\Misc\250010COV.dwg Oct 26, 2025 - 9:25am

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C-130	CIVIL SITE LAYOUT PLAN
C-140	UTILITY PLAN
C-170	DETAILED GRADING PLAN
C-501	CIVIL DETAILS
C-502	CIVIL DETAILS
C-700	SOIL EROSION AND SEDIMENTATION CONTROL PLAN
L-120	LANDSCAPE SITE LAYOUT PLAN
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E-601	ELECTRICAL SCHEDULES

NORTHWOOD UNIVERSITY MOREY PLAZA IMPROVEMENTS CITY OF MIDLAND MIDLAND COUNTY, MICHIGAN



LOCATION MAP
NOT TO SCALE



Know what's below.
Call before you dig.



ISSUED FOR:	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	DATE

NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
 MIDLAND, MI
COVER

C-001

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FLOODPLAIN INFORMATION

CITY OF MIDLAND
MIDLAND COUNTY, MICHIGAN
PANEL 0169E
COMMUNITY NUMBER: 260140
MAP NUMBER: 26111C0169E
EFFECTIVE DATE: MAY 4, 2009
ZONE: X - AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN
100 YEAR FLOODPLAIN ELEVATION - 615.50

UTILITIES

THE FOLLOWING UTILITY COMPANIES HAVE FACILITIES WITHIN THE PROJECT LIMITS:

- FOR WATER AND SEWER
CITY OF MIDLAND
333 W. ELLSWORTH STREET
MIDLAND, MI 48640
PH: 989-837-3354
- FOR ELECTRIC AND GAS
CONSUMERS ENERGY
2400 WEISS STREET
SAGINAW, MI 48602
PH: 989-791-5903
- FOR TELEPHONE
AT&T
ENGINEERING DEPT., ROOM 525A
309 S. WASHINGTON AVE.
SAGINAW, MI 48607
PH: 989-776-4070

BENCHMARKS

BM #201 - TOP BIG ARM OF HYD ON N SIDE OF N WALK OF WHITING DR ±15' W
OF WALK ALONG E SIDE OF LIBRARY
ELEVATION = 619.66

BM #202 - NW CORNER OF CONC WALL ON W SIDE OF STAIR CASE ON
SW SIDE OF JORDON HALL
ELEVATION = 624.94

ELEVATIONS BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988,
(NAVD 88)

UTILITY NOTE

THE UTILITY LOCATIONS ARE BASED ON FIELD OBSERVATIONS AND A CAREFUL REVIEW OF MUNICIPAL AND UTILITY RECORDS. HOWEVER, IT IS NOT POSSIBLE TO DETERMINE THE PRECISE SIZE, LOCATION, DEPTH, PRESSURE, OR ANY OTHER CHARACTERISTICS OF UNDERGROUND UTILITIES, TANKS OR SEPTIC FIELDS WITHOUT EXCAVATION. THEREFORE, WE CANNOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE BURIED UTILITY INFORMATION HEREON SHOWN. THE CONTRACTOR SHALL CALL MISS DIG (811) A MINIMUM OF THREE WORKING DAYS PRIOR TO ANY EXCAVATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THESE UTILITY LOCATIONS PRIOR TO CONSTRUCTION AND MAKE EVERY EFFORT TO PROTECT AND/OR RELOCATE THEM AS REQUIRED. THE CONTRACTOR SHALL NOTIFY THE ENGINEER / SURVEYOR AS SOON AS POSSIBLE IN THE EVENT A DISCREPANCY IS FOUND.

GENERAL NOTES

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO SECURE ALL PERMITS AND POST ALL BONDS PRIOR TO CONSTRUCTION, OR ENSURE THAT ALL REQUIRED PERMITS AND BONDS HAVE BEEN OBTAINED PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING MISS-DIG (811) AT LEAST 3 WORKING DAYS PRIOR TO EXCAVATION.
- THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL EXISTING UTILITIES DURING CONSTRUCTION. ALL UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED WITH LIKE MATERIAL. THE EXACT LOCATION OF EXISTING UTILITIES SHALL BE LOCATED BY HAND DIGGING.
- ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES ARE TO BE IN PLACE PRIOR TO STARTING REMOVALS.
- THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO STREETS, SIDEWALKS OTHER STRUCTURES AND ADJACENT AREAS CAUSED BY DEMOLITION OR HAULING OPERATIONS.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY ACTIONS TO ENSURE WORKER SAFETY AND COMPLIANCE WITH MI-OSHA GUIDELINES.
- DIMENSIONS ARE TO FACE OF CURB, OUTSIDE FACE OF BUILDING, EDGE OF PAVEMENT, CENTER OF STRUCTURE OR OTHERWISE INDICATED. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS PRIOR TO CONSTRUCTION. ADJUST WORK AS REQUIRED TO MEET FIELD DIMENSIONS AT NO ADDITIONAL COST TO THE OWNER.
- CONTRACTOR SHALL COORDINATE CONSTRUCTION STAGING AND ACCESSIBILITY WITH OWNER.
- THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE PROPOSAL AND ACCOMPANYING SPECIFICATIONS FOR THIS PROJECT INCLUDING THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, ASHTO'S 2011 POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, CITY OF MIDLAND, MDOT, AND THE STATE OF MICHIGAN DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS.
- THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES FOR NOISE LEVELS, HOURS OF OPERATION FOR CONSTRUCTION ACTIVITY, VIBRATIONS, OR ANY OTHER RESTRICTIONS.
- ANY QUANTITIES AND DIMENSIONS SHOWN IN PLANS ARE PROVIDED FOR INFORMATION ONLY, CONTRACTOR SHALL FIELD VERIFY PRIOR TO CONSTRUCTION.

REMOVAL

- REMOVALS SHALL BE DONE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- SAW CUTTING FOR PAVEMENT REMOVAL AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER SHALL BE TO THE DEPTH REQUIRED FOR NEAT REMOVAL OF PAVEMENT OR CONCRETE.
- SAW CUTTING DEPTH SHALL BE ADEQUATE TO PREVENT SPALLING, CHIPPING, OR DAMAGE TO EXISTING PAVEMENT EDGES LEFT IN PLACE AS DIRECTED.
- ANY ADDITIONAL TREE REMOVALS, CLEARING, GRADING, ETC. NEEDED FOR THE CONTRACTOR'S STAGING AND/OR WORK OPERATIONS SHALL BE COMPLETED AND AREA RESTORED TO THE SATISFACTION OF THE OWNER WITHOUT ADDITIONAL COMPENSATION.
- ADDITIONAL WORK OUTSIDE OF THE LIMITS AS SHOWN ON THE PLAN SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING THE ADDITIONAL WORK.
- MATERIALS REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND BE PROPERLY DISPOSED OF AT AN OFF SITE LOCATION.

AGGREGATE CONSTRUCTION

- AGGREGATE USED FOR PAVEMENT BASE SHALL MEET THE REQUIREMENTS OF SECTION 902 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SHALL BE MDOT CLASS 22A OR 21AA OR AS APPROVED BY THE ENGINEER.
- AGGREGATE BASE CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH SECTION 302 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

HMA CONSTRUCTION

- HMA USED FOR PAVEMENT SHALL MEET THE REQUIREMENTS OF SECTION 501 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND GRADE SHALL BE AS NOTED PER PLANS AND DETAILS OR AS APPROVED BY THE ENGINEER.
- HMA PAVEMENT CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH SECTION 501 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- HMA BOND COAT WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF HMA PAVING.

PAVEMENT MARKING AND SIGNAGE

- ACCESSIBLE PARKING SIGNS (R7-8 AND R7-8B) SHALL BE INSTALLED ON 3 LB STEEL POST IN ACCORDANCE WITH MDOT SIGNING SPECIAL DETAIL SIGN-200-A AND SECTION 810 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- 12" CROSSWALK THERMOPLASTIC PAVEMENT MARKINGS SHALL MEET THE REQUIREMENTS OF SECTION 920 AND BE APPLIED IN ACCORDANCE WITH SECTION 811 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- ACCESSIBLE PARKING PAVEMENT MARKING SYMBOLS SHALL BE IN ACCORDANCE WITH MDOT STANDARD PAVEMENT MARKING STANDARD PLAN PAVE-956-A
- PARKING STALL SPACES TO BE 4" SOLID YELLOW PAINT STRIPES, HANDICAP PARKING TO BE 4" SOLID BLUE PAINT STRIPES W/ BARRIER FREE STRIPING OF 4" SOLID BLUE @ 2" O.C. ON 45° ANGLE.

MAINTENANCE OF TRAFFIC

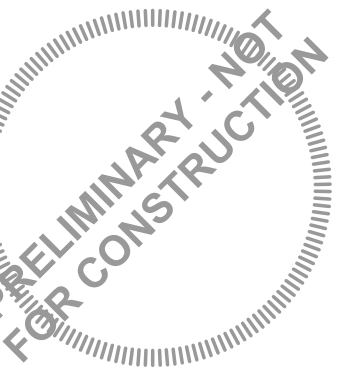
- TRAFFIC SHALL BE MAINTAINED IN ACCORDANCE WITH THE 2011 MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND MDOT MAINTAINING TRAFFIC TYPICAL PLANS.
- CONTRACTOR TO PROVIDE NECESSARY SIGNAGE, BARRICADES, AND OTHER DEVICES FOR PROTECTION OF THE PUBLIC AND CONSTRUCTION WORKERS PRIOR TO PERFORMING ANY WORK.

CONCRETE CONSTRUCTION

- CONCRETE USED FOR CURB AND SIDEWALK SHALL MEET THE REQUIREMENTS OF SECTION 601 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION AND SHALL BE MDOT GRADE P1 WITH A MINIMUM CEMENT CONTENT OF 526 LB/CYD OR AS APPROVED BY THE ENGINEER.
- CONCRETE PAVEMENT CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH SECTION 602 OF THE 2020 MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- CONCRETE SIDEWALKS SHALL BE CONSTRUCTED ACCORDING TO MDOT STANDARD DETAIL R-29 SERIES.
- EXPANSION JOINTS WITH EXPANSION FILLER SHALL BE PLACED WHERE THE CONCRETE PAVEMENT ABUTS AN EXISTING PAVED SURFACE OR BUILDING OR AS DIRECTED BY THE ENGINEER.
- PROPOSED SIDEWALK CUT JOINTS SHALL BE CONSTRUCTED TO DIVIDE THE SIDEWALK INTO APPROXIMATELY 25 SQUARE FOOT AREAS OR AS DIRECTED BY THE ENGINEER.
- ALL SIDEWALKS AND BARRIER FREE RAMPS SHALL BE CONSTRUCTED WITH A MAXIMUM 1:48 CROSS-SLOPE AND A MAXIMUM 1:12 LONGITUDINAL SLOPE.
- ALL SIDEWALKS EXCEEDING THE MAXIMUM LONGITUDINAL SLOPE SHALL BE PROVIDED WITH HAND RAILS ON BOTH SIDES AS DIRECTED BY THE ENGINEER.
- SIDEWALK CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MDOT STANDARD PLAN R-28 SERIES.

RESTORATION

- THE CONTRACTOR SHALL RESTORE ALL DISTURBED AREAS UPON COMPLETION OF THE PROJECT.
- ALL DISTURBED AREAS SHALL BE BROUGHT TO FINAL GRADE AND STABILIZED AS SOON AS POSSIBLE AFTER BEING DISTURBED. PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED WITHIN FIVE CALENDAR DAYS OF COMPLETING FINAL GRADING.
- ALL PERMANENT SLOPES STEEPER THAN 4:1 SHALL BE STABILIZED USING MULCH BLANKETS AS LISTED ON THE PLANS.
- CONTRACTOR SHALL PLACE 3" OF TOPSOIL, SEED AND MULCH AS INDICATED ON ALL DISTURBED AREAS NOT UNDER PAVEMENT OR OTHERWISE LABELED.
- ALL FILL SHALL BE CLEAN INERT MATERIAL.



ISSUED FOR: 2023-10-30
REVISION: _____ DATE: _____
DESCRIPTION: _____

PROJECT NUMBER: 5076-23-0010
DISCIPLINE LEAD: PM AV
CLIENT PROJECT NO: _____

NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI

NOTES

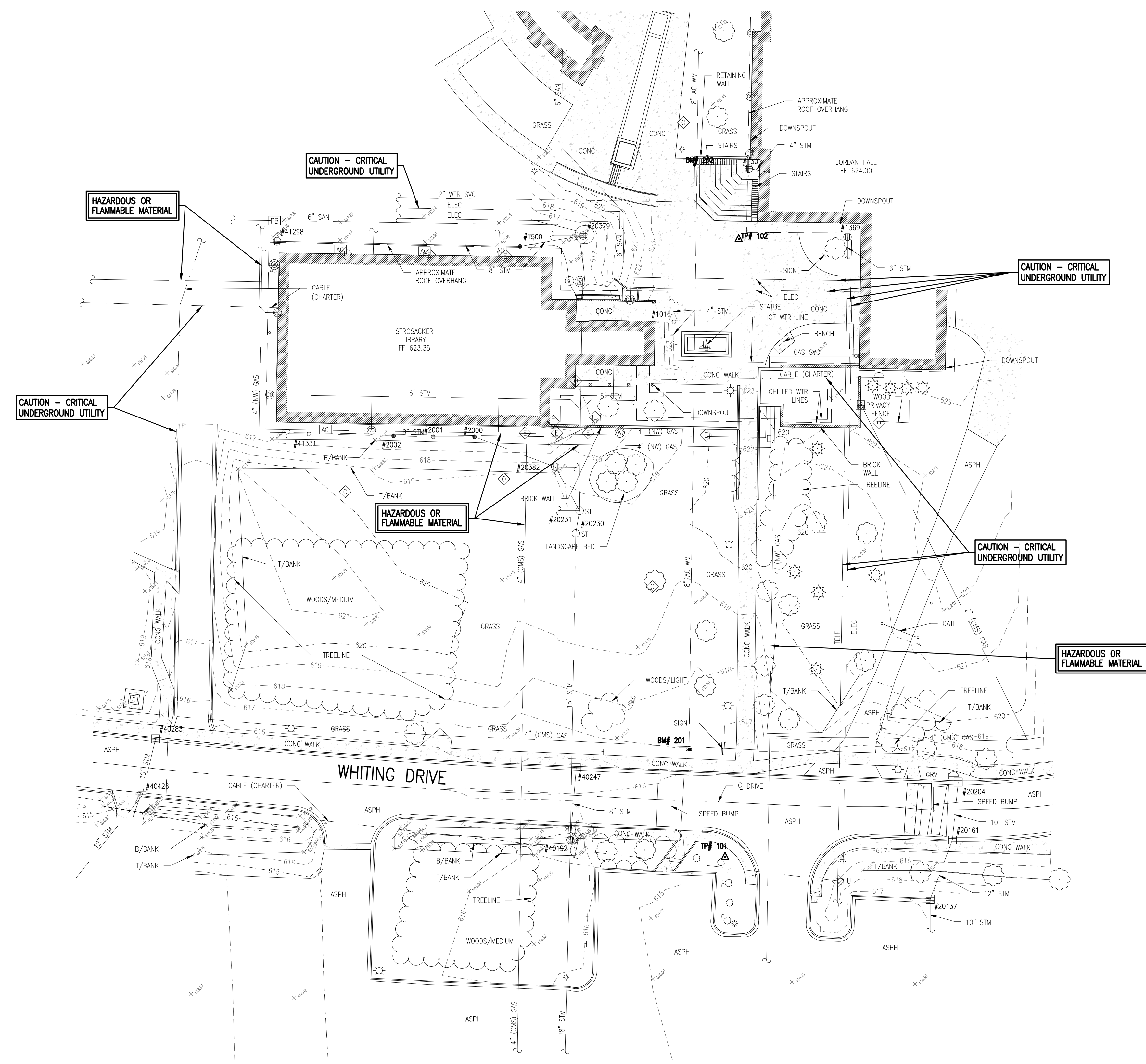
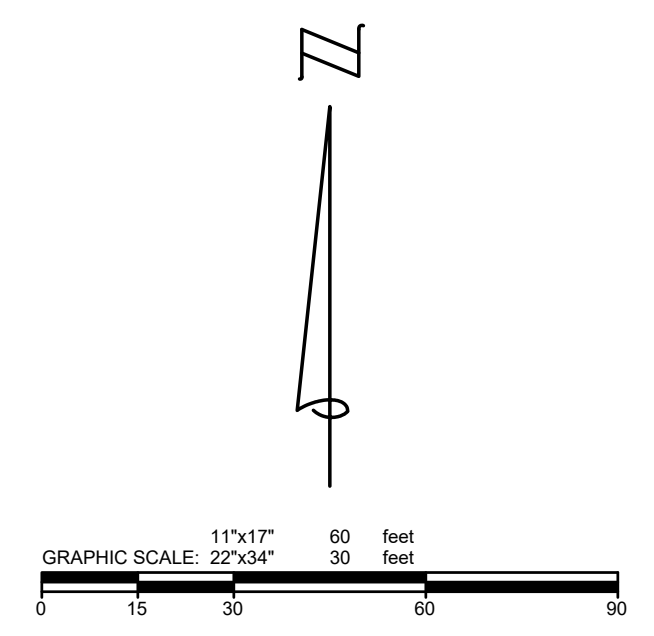
C-002

JOB BENCHMARK # 201
TOP BIG ARM OF HYD ON N SIDE
OF N WALK OF WHITING DR ±15' W
OF WALK ALONG E SIDE OF LIBRARY
ELEV 619.66

JOB BENCHMARK # 202
NW CORNER OF CONC WALL ON
W SIDE OF STAIR CASE ON
SW SIDE OF JORDAN HALL
ELEV 624.94

TRAVERSE POINT # 101
N 775546.239
E 47282.32 ELEV 616.45

TRAVERSE POINT # 102
N 775843.341
E 47288.90 ELEV 623.57



LEGEND - EXISTING

- | | |
|-------------------|---------------------------------|
| MONUMENT \ STATUE | GAS VALVE |
| POST | UTILITY MARKER |
| ROCK | TELEPHONE RISER |
| SIGN | EMERGENCY TELEPHONE TOWER |
| CONIFEROUS SHRUB | SANITARY MANHOLE |
| CONIFEROUS TREE | CLEAN OUT |
| DECIDUOUS TREE | ROUND STORM CATCHBASIN |
| AC UNIT | SQUARE STORM CATCHBASIN |
| ELEC RISER | STORM MANHOLE |
| ELEC TRANSFORMER | IRRIGATION VALVE |
| LIGHT POST | SPRINKLER HEAD |
| ELECTRICAL OUTLET | WATER SPIGOT/FOUNTAIN |
| UTILITY HAND HOLE | FIRE HYDRANT |
| UTILITY POLE | BM SURVEY BENCHMARK |
| GAS METER | TP SURVEY TRAVERSE POINT |

- ELEC (COMPANY) ELECTRICAL *
- CABLE/TEL (COMPANY) CABLE/TELEPHONE *
- *OH = OVERHEAD, UG = UNDERGROUND
- GAS (COMPANY) GAS \ OIL
- 12" WM WATER MAIN/SERVICE
- 12" SAN SANITARY SEWER
- 12" STM STORM SEWER
- FENCE
- SHRUB LINE
- TREE LINE
- EXISTING SPOT GRADE
- EXISTING CONTOUR
- EXISTING SLOPE
- BRICK PAVER
- CONCRETE

STORM SEWER INVENTORY

#1016 MANHOLE T/CAST 622.94 4" CPP INV N 622.19 4" PVC INV S 622.24	#2031 STORM MANHOLE T/CAST 619.49 18" CPP INV W 605.84 18" CPP INV S 605.84
#1301 CATCH BASIN (ROUND) T/CAST 612.03 6" INV E 610.53	#20379 CATCH BASIN (ROUND) T/CAST 615.45 18" CCP INV W 605.95 18" RCP INV S 605.95
#1369 CATCH BASIN (ROUND) T/CAST 623.20 4" CPP INV S 622.10	#20382 CATCH BASIN (ROUND) T/CAST 618.69 12" CPP INV SSE 612.29 8" PVC INV SE 610.45
#1500 YARD DRAIN T/CAST 615.60 8" CPP INV E 612.90 8" CPP INV W 612.90	#40148 CATCH BASIN (BEEHIVE) T/CAST 611.44 12" RCP INV N 606.54 15" RCP INV SE 606.44
#2000 YARD DRAIN T/CAST 615.63 8" CPP INV E 613.38 8" CPP INV W 613.38	#40149 CATCH BASIN (BEEHIVE) T/CAST 611.86 10" PVC INV NE 607.66 12" RCP INV S 607.46
#2001 YARD DRAIN T/CAST 615.67 8" CPP INV E 613.52 8" CPP INV W 613.52	#40192 CATCH BASIN (BEEHIVE) T/CAST 614.36 8" PVC INV N 612.36 18" RCP INV N 605.16
#2002 YARD DRAIN T/CAST 615.75 8" CPP INV E 613.15 8" CPP INV W 613.15	#40247 CATCH BASIN (SQUARE) T/CAST 615.37 10" RCP INV S 613.02
#20137 CATCH BASIN (SQUARE) T/CAST 615.86 10" RCP INV S 611.86 12" RCP INV N 611.71	#40283 CATCH BASIN (SQUARE) T/CAST 615.07 10" RCP INV N 611.29 12" RCP INV SW 611.29
#20161 CATCH BASIN (SQUARE) T/CAST 616.24 10" RCP INV N 611.29 12" RCP INV SW 611.29	#20204 CATCH BASIN (SQUARE) T/CAST 616.09 10" RCP INV S 611.39
#20230 STORM MANHOLE T/CAST 619.21 18" CPP INV N 607.56 W/ BACKFLOW PREVENTER 18" CPP INV S 605.91	#20230 STORM MANHOLE T/CAST 619.21 18" CPP INV N 607.56 12" RCP INV S 612.18
#41298 CATCH BASIN (SQUARE) T/CAST 616.33 8" PVC INV E 614.33	#41298 CATCH BASIN (SQUARE) T/CAST 616.33 8" PVC INV E 614.33
#41331 YARD DRAIN T/CAST 615.99 8" CPP INV E 613.64 8" CPP INV W 613.64	

NOTES:

- EXISTING CONDITIONS ARE PRESENTED AS A COMPILATION OF:
 - TOPOGRAPHIC SURVEY BY OHM ADVISORS
 - CITY OF MIDLAND RECORD DRAWINGS
 - FRANCHISE UTILITY RECORD DRAWINGS
- CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS



ISSUED FOR:	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	

PROJECT NUMBER: 3076-23-010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: ES

**NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS**
MIDLAND, MI

EXISTING CONDITIONS



Know what's below.
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C-100

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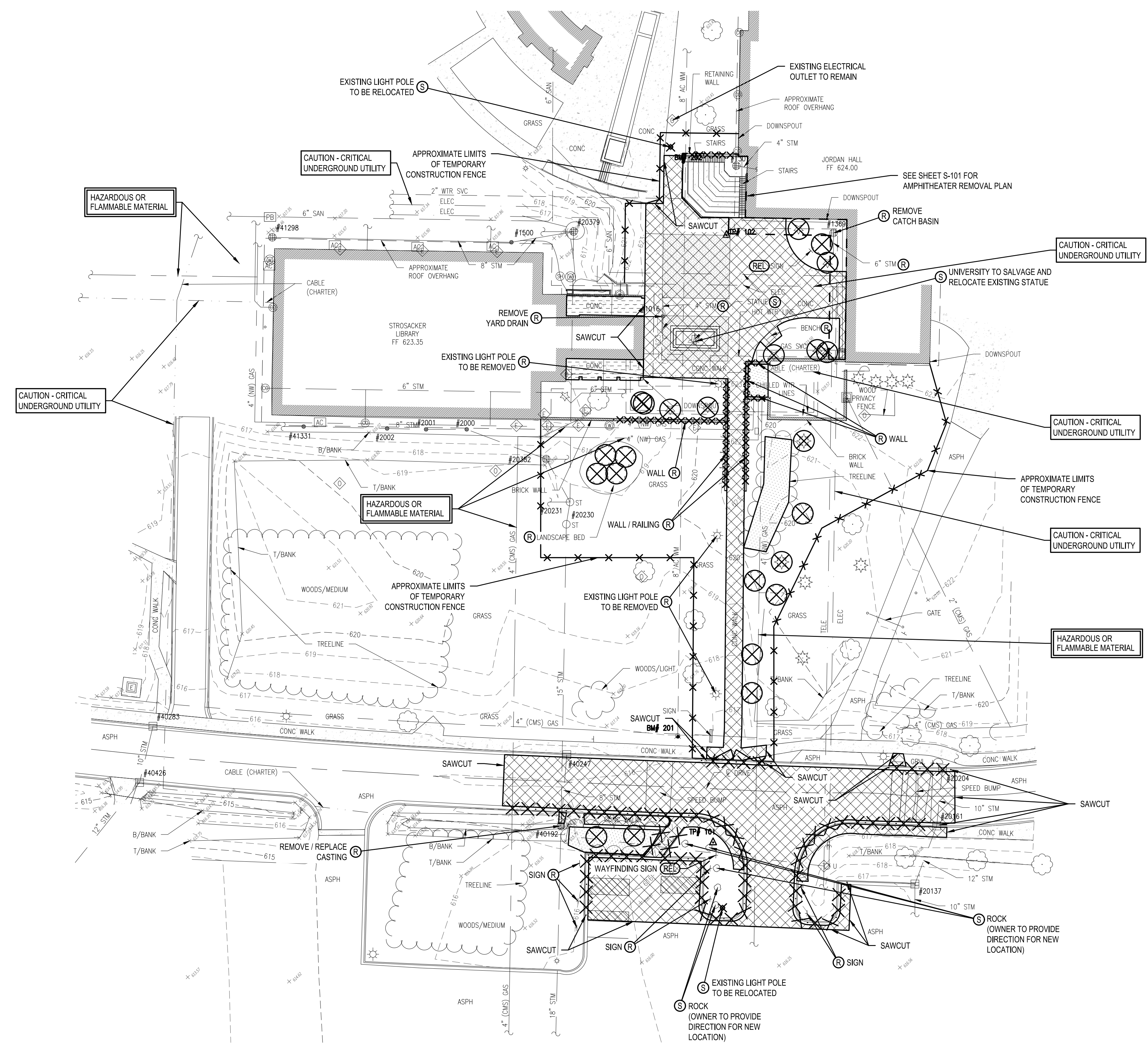
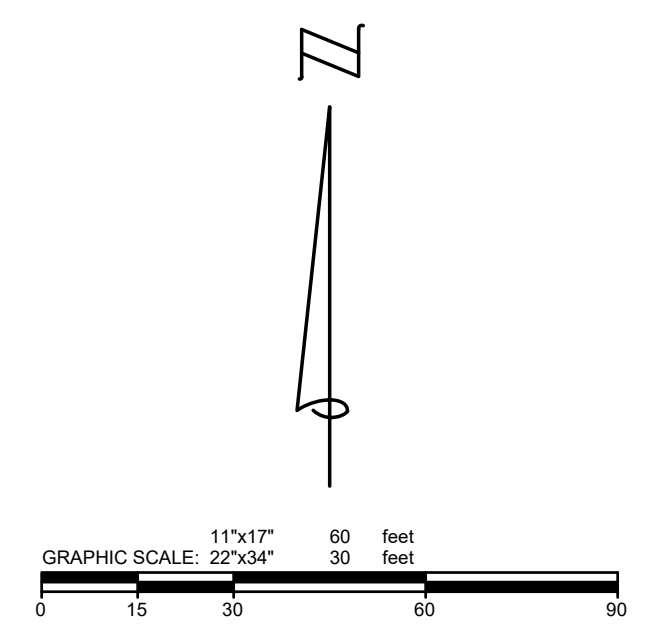
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JOB BENCHMARK # 201
TOP BIG ARM OF HYD ON N SIDE
OF N WALK OF WHITING DR ±15' W
OF WALK ALONG E SIDE OF LIBRARY
ELEV 619.66

JOB BENCHMARK # 202
NW CORNER OF CONC WALL ON
W SIDE OF STAIR CASE ON
SW SIDE OF JORDON HALL
ELEV 624.94

TRAVERSE POINT # 101
N 775546.239 ELEV 616.45
E 47282.32

TRAVERSE POINT # 102
N 775843.341 ELEV 623.57
E 47288.90



LEGEND

- PAVEMENT REMOVAL
- CONCRETE SURFACE GRINDING
- CLEARING
- CURB TO BE REMOVED
- WALL REMOVAL
- SHRUB/TREE REMOVAL
- LIGHTS TO BE SALVAGED AND RELOCATED
- ABANDON
- BULKHEAD
- CLEARING
- RELOCATE
- REMOVE
- SALVAGE

NOTE:
CONTRACTOR SHALL INVESTIGATE EXISTING STORM SEWER AND MAKE CONNECTIONS TO EXISTING STORM STRUCTURES AS NECESSARY SO AS NOT TO CUT OFF EXISTING DRAINAGE FLOW.



ISSUED FOR:	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	

PROJECT NUMBER: 5076-23-0010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
REMOVAL PLAN



Know what's below.
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C-110

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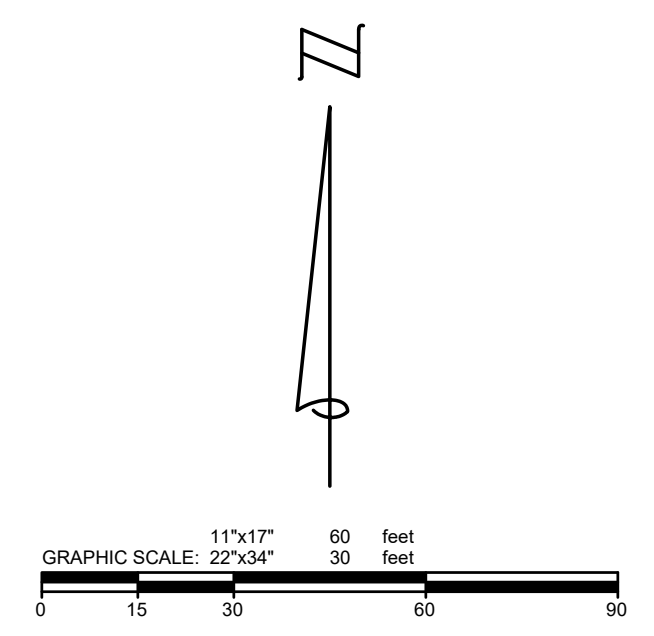
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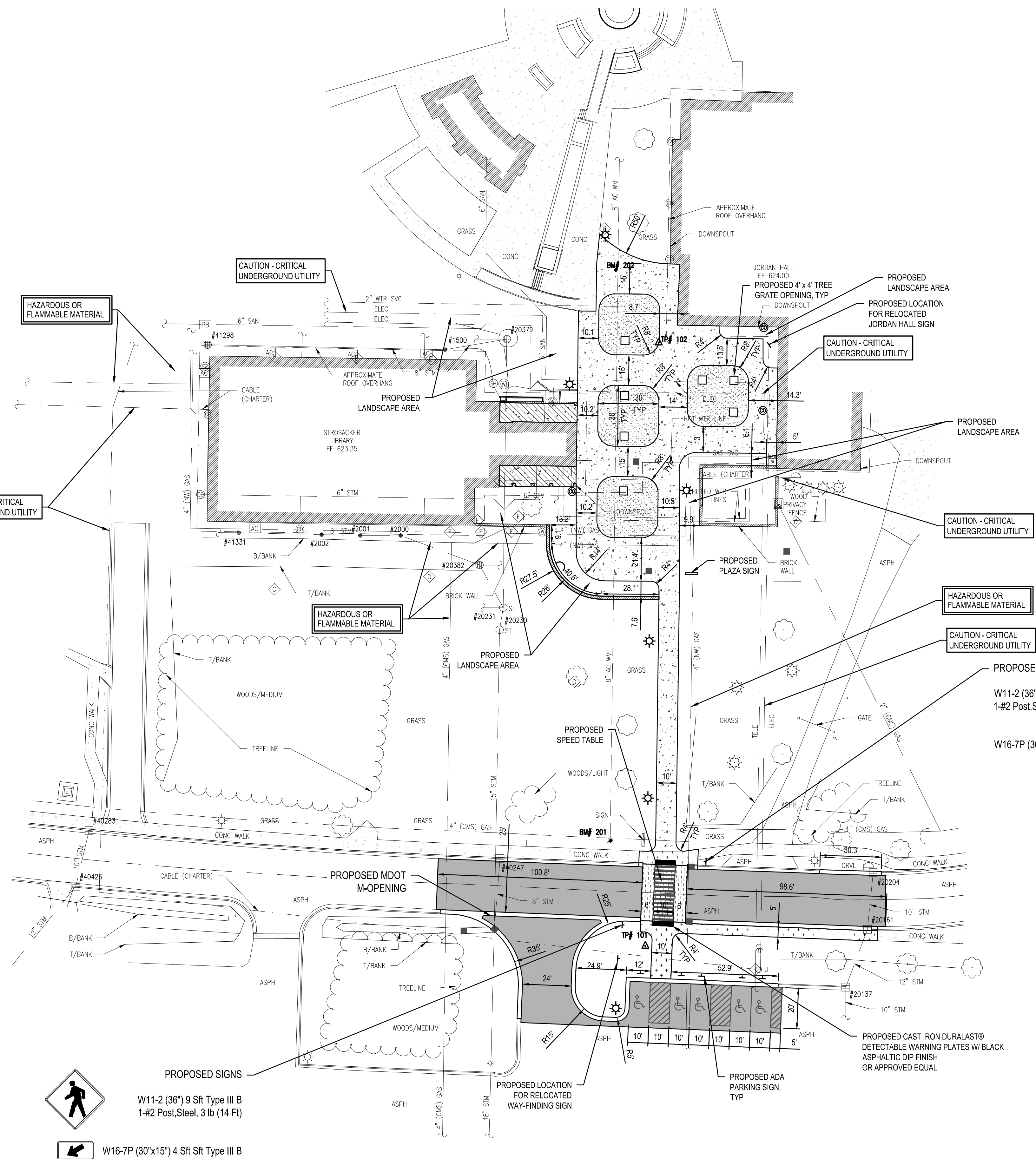


LEGEND

- PROPOSED CURB (MDOT F4)
- PROPOSED CONCRETE PLAZA
- PROPOSED CONCRETE WALKWAY
- PROPOSED CONCRETE RESURFACING
- PROPOSED CONCRETE SPEED TABLE
- PROPOSED DETECTABLE WARNING
- PROPOSED DECORATIVE CONCRETE
- PROPOSED HMA PAVEMENT
- PROPOSED WALL
- PROPOSED CATCHBASIN
- PROPOSED CLEAN-OUT
- PROPOSED / RELOCATED LIGHT POLE



ISSUED FOR:	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	



W11-2 (36") 9 Sft Type III B
1-#2 Post, Steel, 3 lb (14 Ft)



W16-7P (30"x15") 4 Sft Sft Type III B



W11-2 (36") 9 Sft Type III B
1-#2 Post, Steel, 3 lb (14 Ft)



W16-7P (30"x15") 4 Sft Sft Type III B



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Call before you dig.

PROJECT NUMBER: 3076-23-0010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: ES
DATE: 2023-10-30

NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI

CIVIL SITE LAYOUT PLAN

C-130

DRAWING PATH: P:\5000_5499\5076230010_NU_Morey_Plaza_Area_CDrawings\CivilPlans_Constr\230101SITE.dwg, Oct 26, 2023, 9:26am

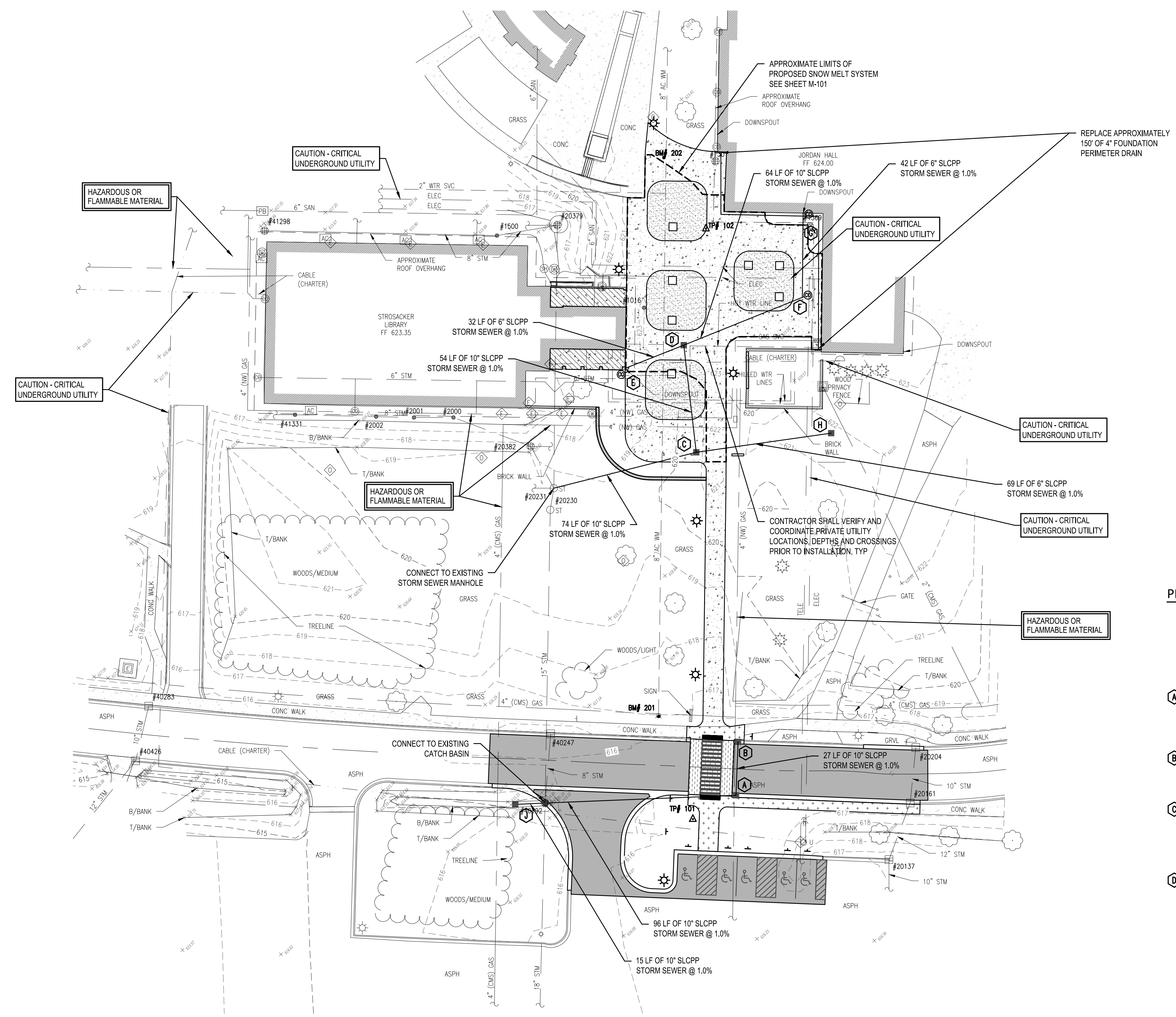
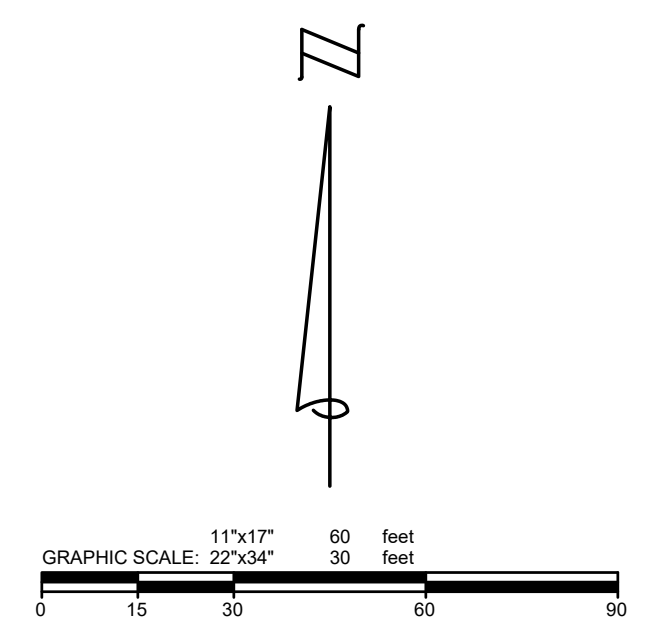
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TRAVERSE POINT # 102
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- LEGEND**
- PROPOSED CURB (MDOT F4)
 - PROPOSED CONCRETE PLAZA
 - PROPOSED CONCRETE WALKWAY
 - PROPOSED CONCRETE RESURFACING
 - PROPOSED CONCRETE SPEED TABLE
 - PROPOSED DETECTABLE WARNING
 - PROPOSED DECORATIVE CONCRETE
 - PROPOSED HMA PAVEMENT
 - PROPOSED WALL
 - PROPOSED CATCHBASIN
 - PROPOSED CLEAN-OUT
 - PROPOSED / RELOCATED LIGHT POLE
 - PROPOSED SNOWMELT LIMITS

PROPOSED STORM SEWER INVENTORY

#20231 STORM MANHOLE T/CAST 619.49 18" CPP INV W 605.84 18" CPP INV S 605.84 12" CPP INV NW 611.89 18" RCP INV N 605.89 10" SLCPP INV E 610.69 10" SLCPP INV E 615.49	#40192 CATCH BASIN (PEDESTRIAN) REPLACE W/ CURB CAST T/CAST 614.90 8" PVC INV N 612.36 8" INV N 605.16 18" RCP INV S 605.11 10" SLCPP INV E 610.69 10" SLCPP INV W 611.15
A 3' DIAMETER PRECAST CONCRETE CATCH BASIN T/CAST 616.10 10" INV N 611.65 10" INV W 611.65	E CLEANOUT T/CAST 623.25 6" INV NE 619.26
B 3' DIAMETER PRECAST CONCRETE CATCH BASIN T/CAST 615.92 10" INV S 611.92	F CLEANOUT T/CAST 623.85 6" INV N 619.58 6" INV SW 619.58
C 2' DIAMETER NYLOPLAST CATCH BASIN (PEDESTRIAN GRATE) T/CAST 622.25 (PEDESTRIAN GRATE) 10" INV N 618.40 10" INV W 616.23 6" INV E 618.40	G CLEANOUT T/CAST 624.00 6" INV S 620.00
D 2' DIAMETER NYLOPLAST CATCH BASIN (PEDESTRIAN GRATE) T/CAST 622.75 (PEDESTRIAN GRATE) 10" INV S 618.94 6" INV NE 618.94 6" INV SW 618.94	H 2' DIAMETER NYLOPLAST CATCH BASIN (DOME GRATE) T/CAST 621.20 (DOME GRATE) 6" INV W 619.09
	J 2' DIAMETER NYLOPLAST CATCH BASIN (DOME GRATE) T/CAST 614.30 (DOME GRATE) 10" INV E 611.30

NOTE:

CONTRACTOR SHALL INVESTIGATE EXISTING STORM SEWER AND MAKE CONNECTIONS TO PROPOSED STORM STRUCTURES AS NECESSARY SO AS NOT TO CUT OFF EXISTING DRAINAGE FLOW.

CONTRACTOR SHALL COORDINATE WITH CITY OF MIDLAND WATER DEPARTMENT IF ANY WATER MAIN ADJUSTMENTS ARE NECESSARY DUE TO CONFLICTS.



ISSUED FOR:	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	

PROJECT NUMBER: 30762-23-010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
UTILITY PLAN



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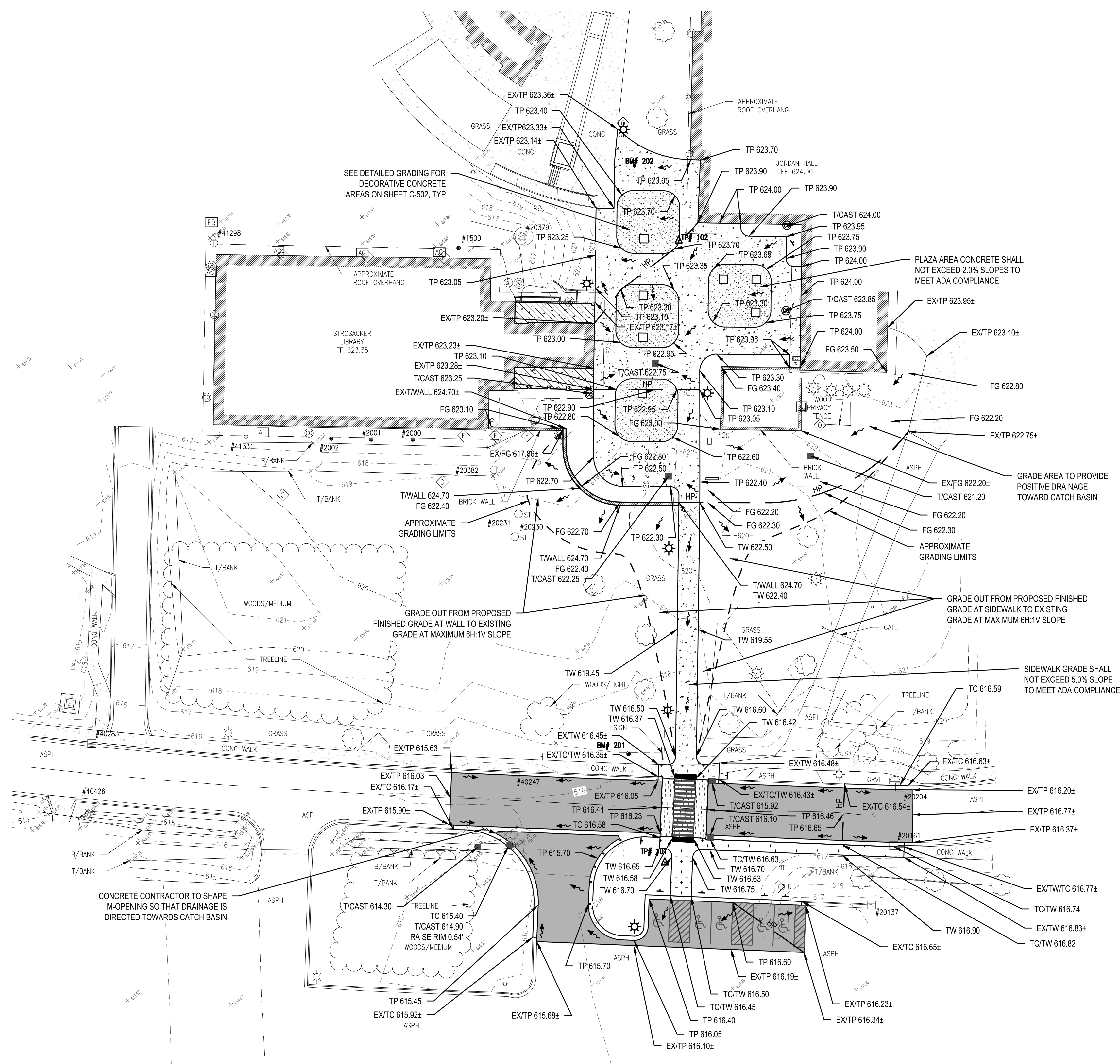
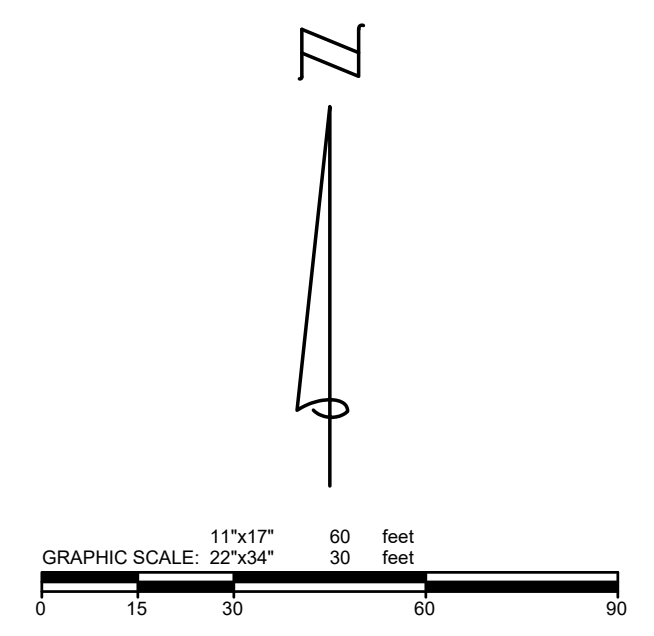
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JOB BENCHMARK # 201
TOP BIG ARM OF HYD ON N SIDE
OF N WALK OF WHITING DR ±15' W
OF WALK ALONG E SIDE OF LIBRARY
ELEV 619.66

JOB BENCHMARK # 202
NW CORNER OF CONC WALL ON
W SIDE OF STAIR CASE ON
SW SIDE OF JORDON HALL
ELEV 624.94

TRAVERSE POINT # 101
N 775546.239 ELEV 616.45
E 47282.32

TRAVERSE POINT # 102
N 775843.341 ELEV 623.57
E 47288.90



LEGEND

- EX EXISTING
- FG FINISH GRADE / SURFACE (NON-PAVED AREA)
- HP HIGH POINT
- T/CAST TOP OF STRUCTURE CASTING
- TP TOP OF PAVEMENT
- TW TOP OF WALK
- TWALL TOP OF WALL
- FG 749.25 PROPOSED SPOT GRADE
- PROPOSED GRADING LIMIT BOUNDARY
- HP PROPOSED HIGH POINT/GRADE BREAK
- PROPOSED DRAINAGE FLOW ARROW
- == PROPOSED CURB AND GUTTER, NORMAL SLOPE
- == PROPOSED CURB AND GUTTER, REVERSE SLOPE
- PROPOSED RETAINING WALL
- EXISTING CONTOUR
- EXISTING CONTOUR
- PROPOSED CONTOUR



ISSUED FOR	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	

PROJECT NUMBER	DISCIPLINE LEAD	CLIENT PROJ.NO
5076-23-0010	AV	ES

NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI

DETAILED GRADING PLAN

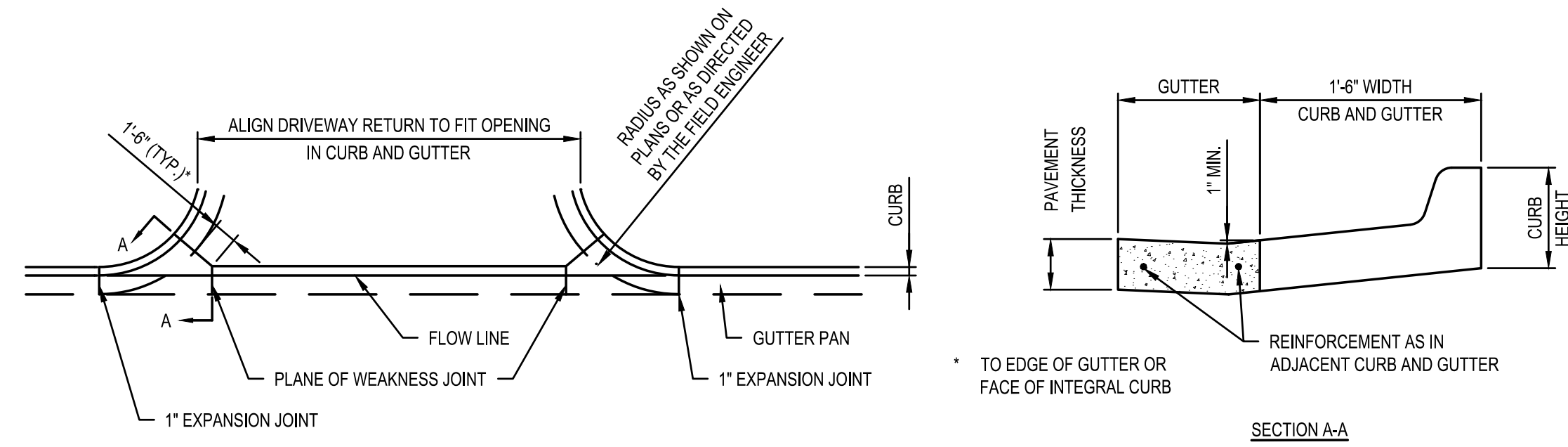


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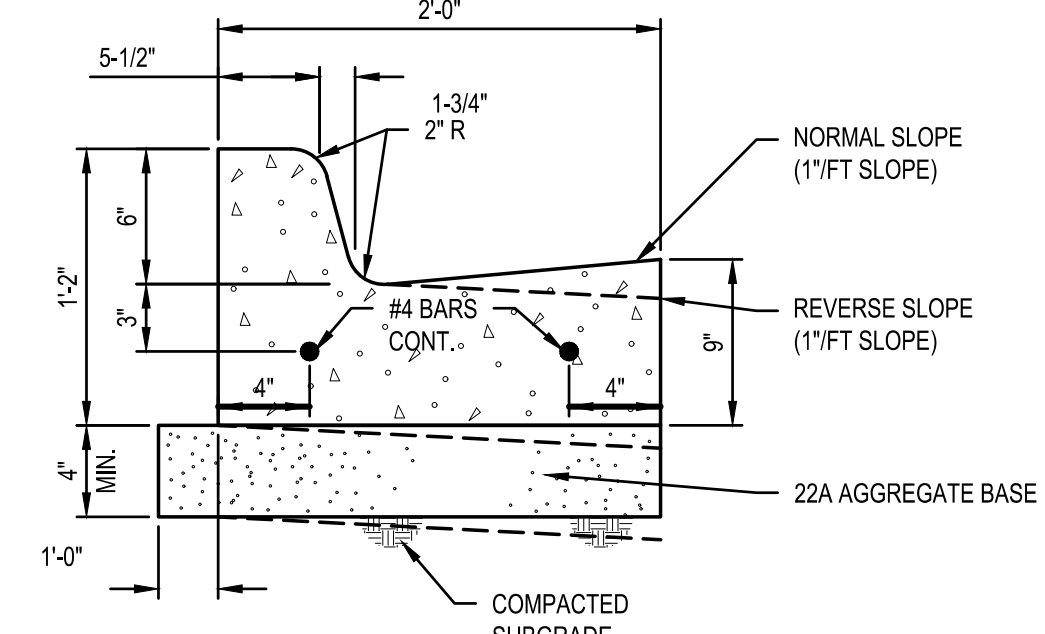
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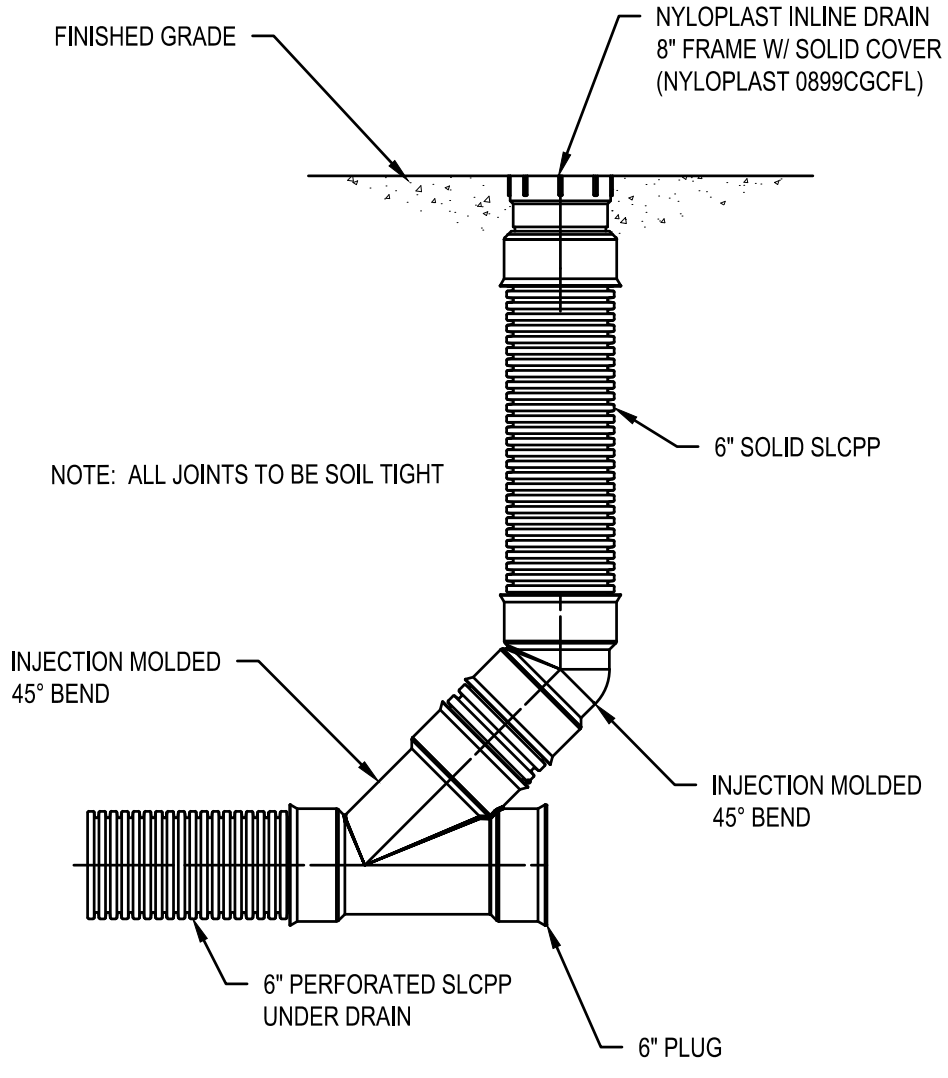
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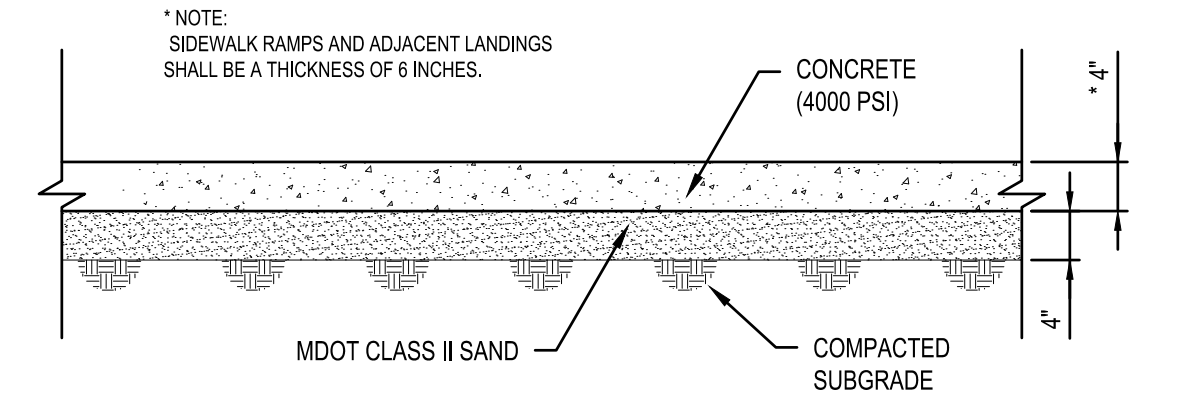
CONCRETE DRIVEWAY OPENING - DETAIL M
NO SCALE



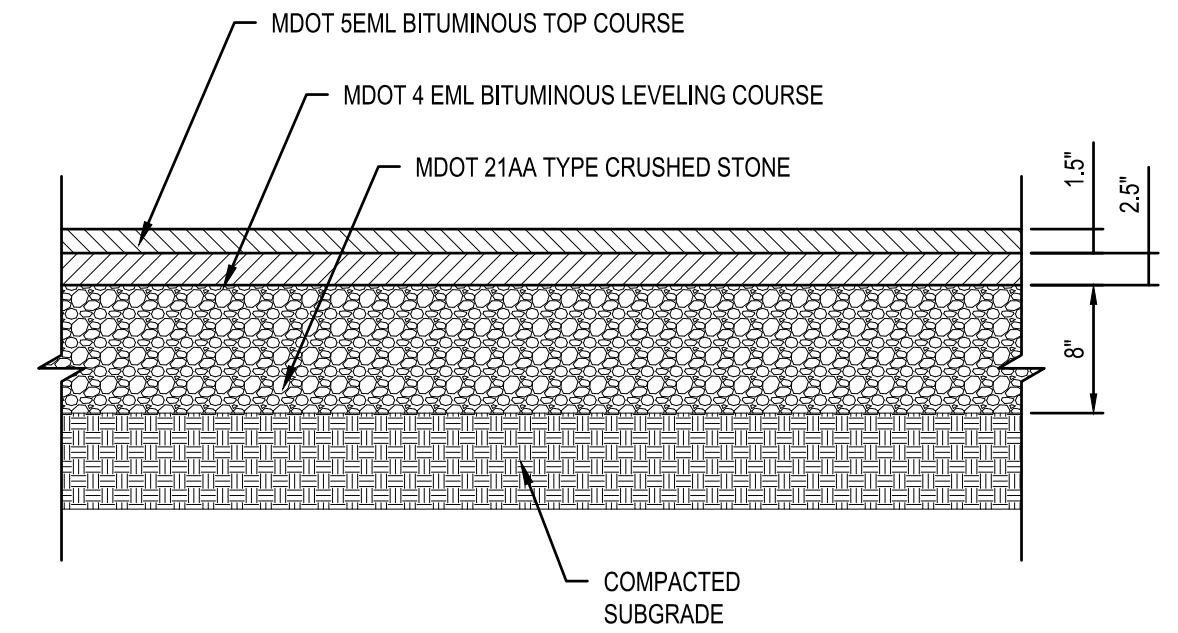
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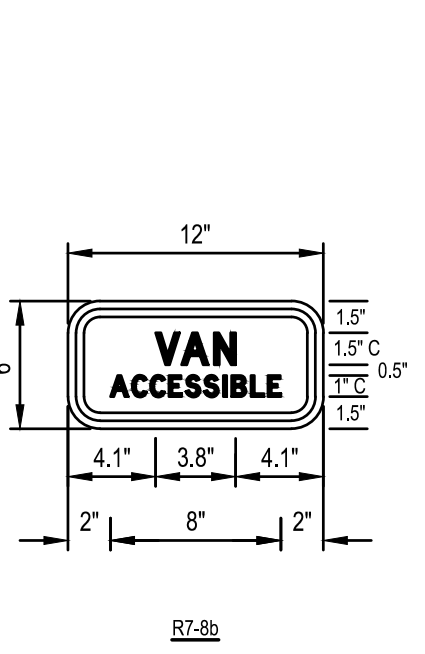
45 DEGREE STORM WYE CLEANOUT DETAIL
NO SCALE



CONCRETE WALKWAY
NO SCALE

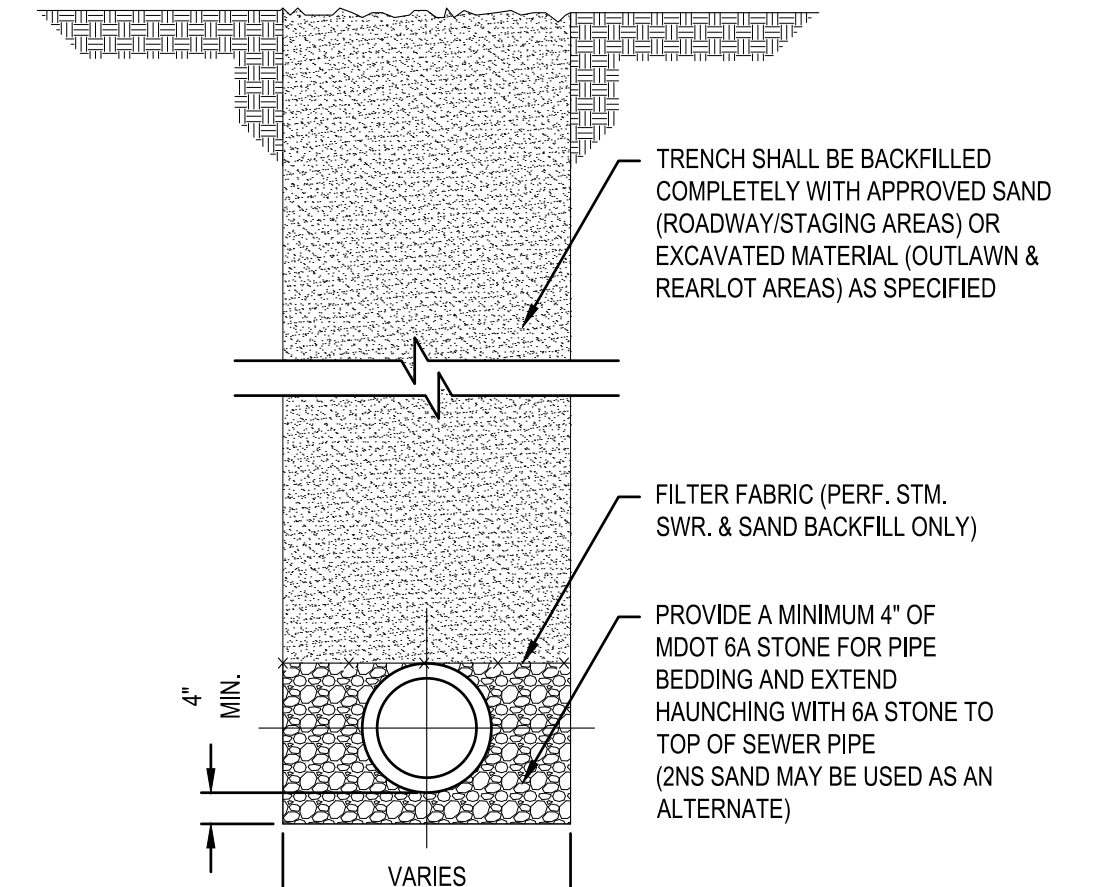
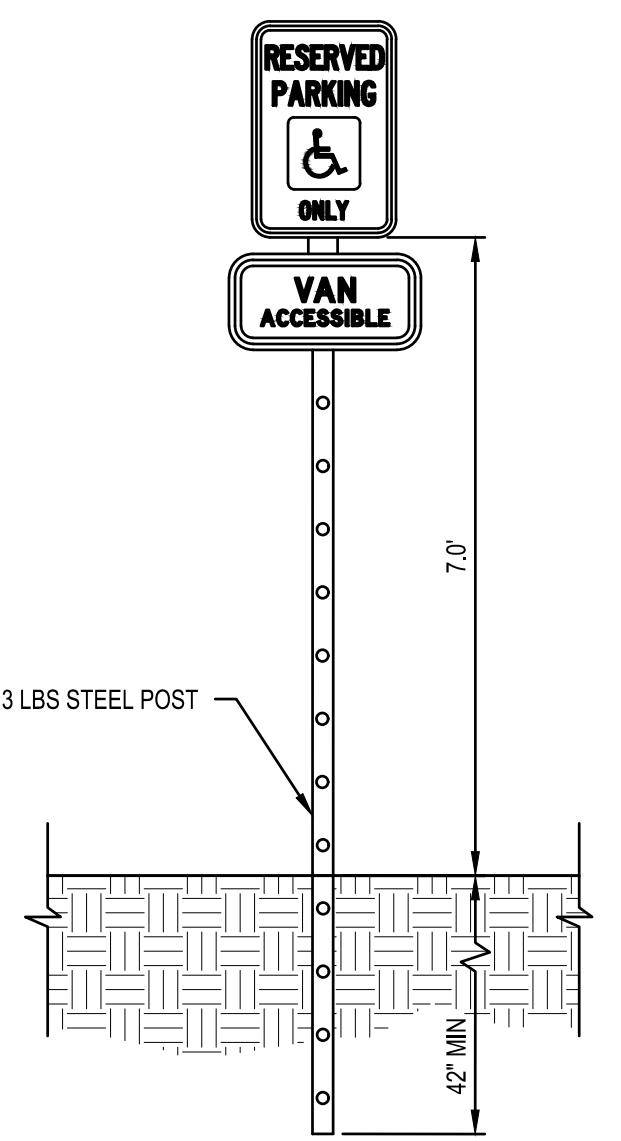


PAVEMENT SECTION
NO SCALE

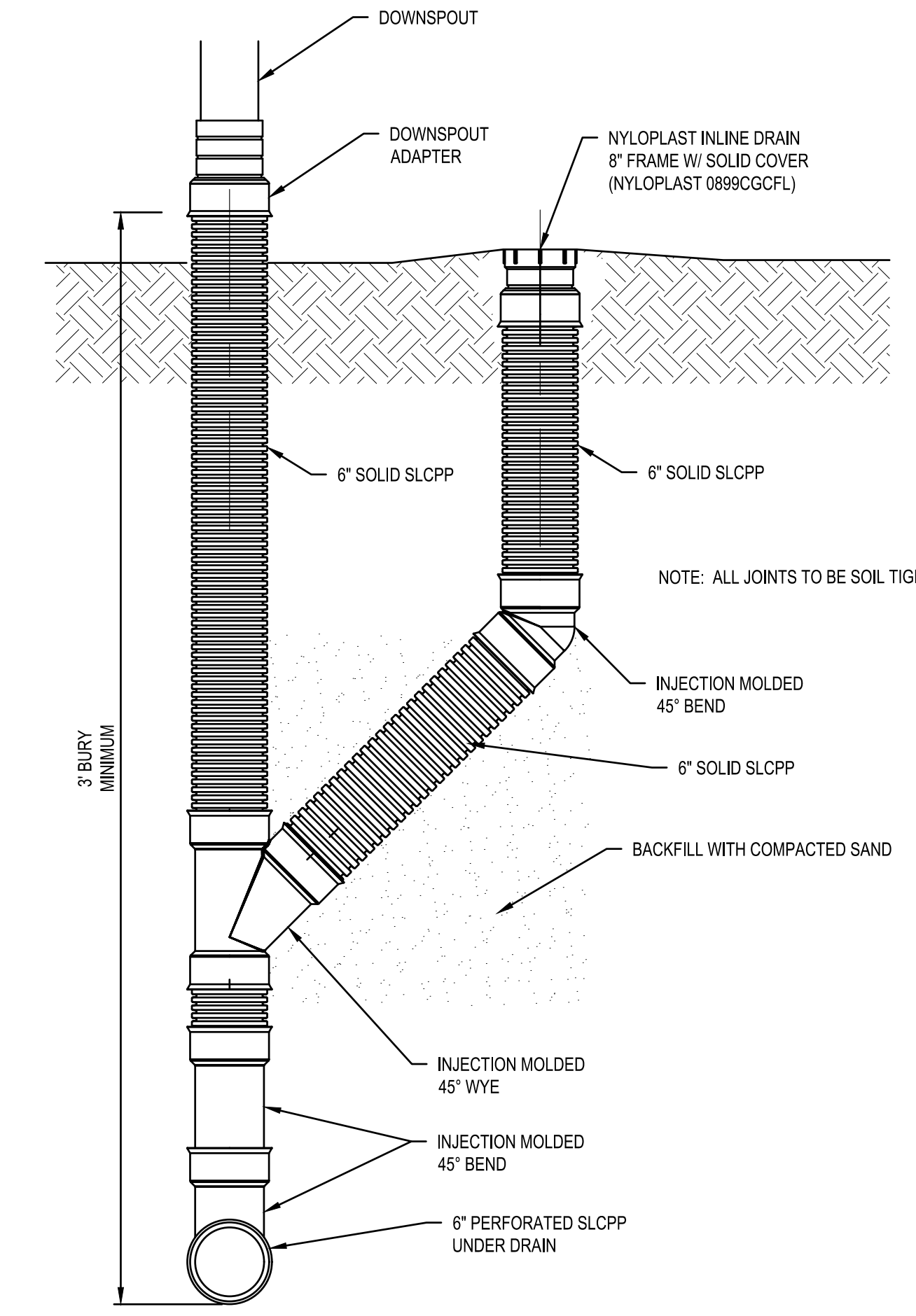


- NOTES:
1. DIMENSIONS IN INCHES
2. 0.080\"/>

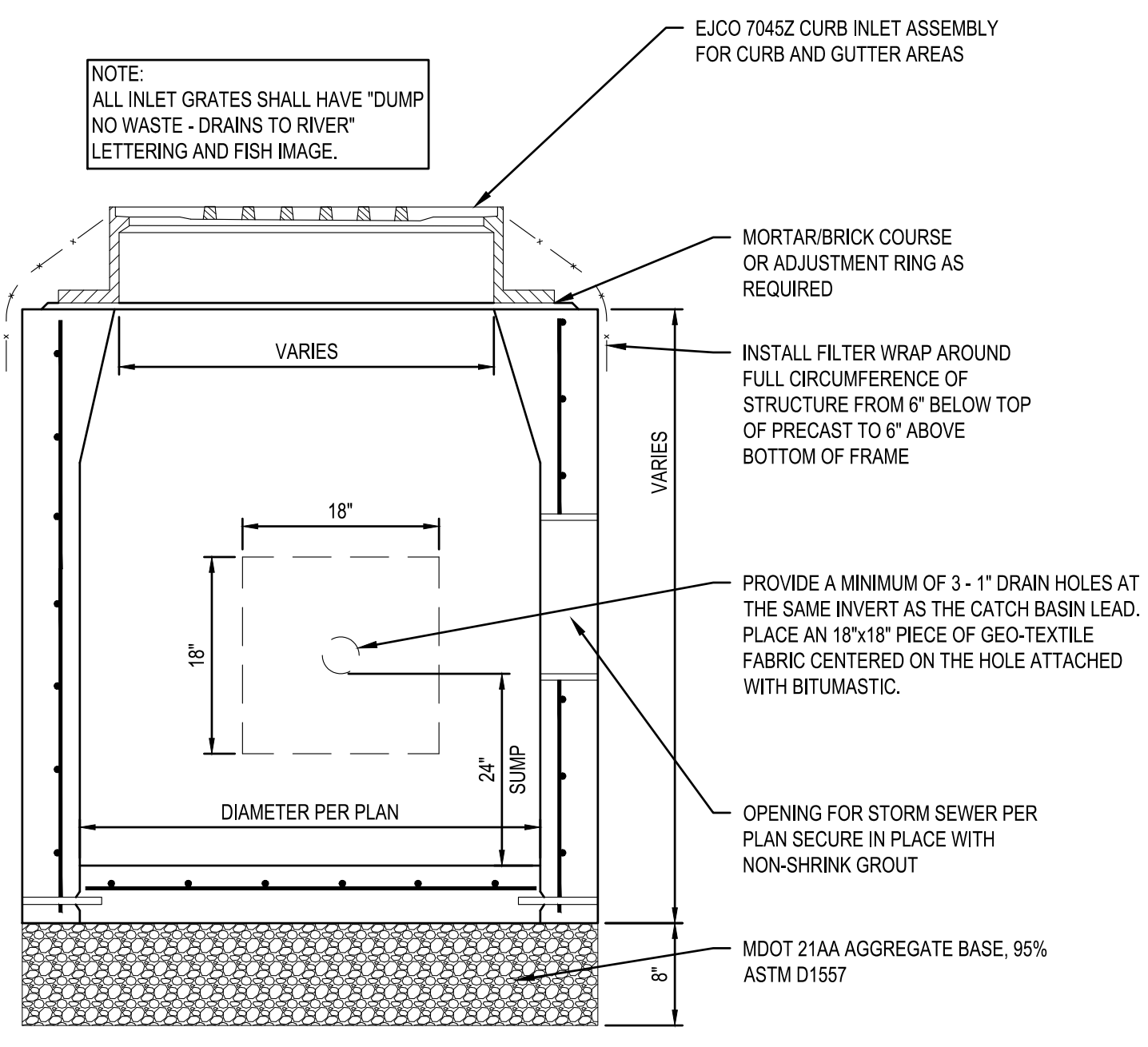
ACCESSIBLE PARKING SIGN DETAIL
NO SCALE



HDPE, SLCPP & PVC SEWER TRENCH DETAIL
NO SCALE



DOWNSPOUT CONNECTION AND CLEAN-OUT DETAIL
NO SCALE



CONCRETE CATCH BASIN DETAIL
NO SCALE

**NYLOPLAST 24\"/>

(1, 2) INTEGRATED DUCTILE IRON FRAME & GRATE TO MATCH BASIN O.D.
18\"/>

(3) VARIABLE INVERT HEIGHTS AVAILABLE (ACCORDING TO PLANS/TAKE OFF)
MINIMUM PIPE BURIAL DEPTH PER PIPE MANUFACTURER RECOMMENDATION (MIN. MANUFACTURING REQ. SAME AS MIN. SUMP)

(4) VARIOUS TYPES OF INLET & OUTLET ADAPTERS AVAILABLE:
4\"/>

(5) ADAPTER ANGLES VARIABLE 0\"/>

TRAFFIC LOADS: CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY. ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, & OTHER APPLICABLE DESIGN FACTORS. SEE DRAWING NO. 7001-110-111 FOR NON TRAFFIC INSTALLATION.

(3) VARIABLE SUMP DEPTH ACCORDING TO PLANS (6\"/>

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.

GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	2499CGP	7001-110-216
STANDARD	MEETS H-20	2499CDS	7001-110-217
SOLID COVER	MEETS H-20	2499CSC	7001-110-218
DOME	N/A	2499CDD	7001-110-219
GRCP IN GRATE	LIGHT DUTY	2499CGR	7001-110-215

1. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84\"/>

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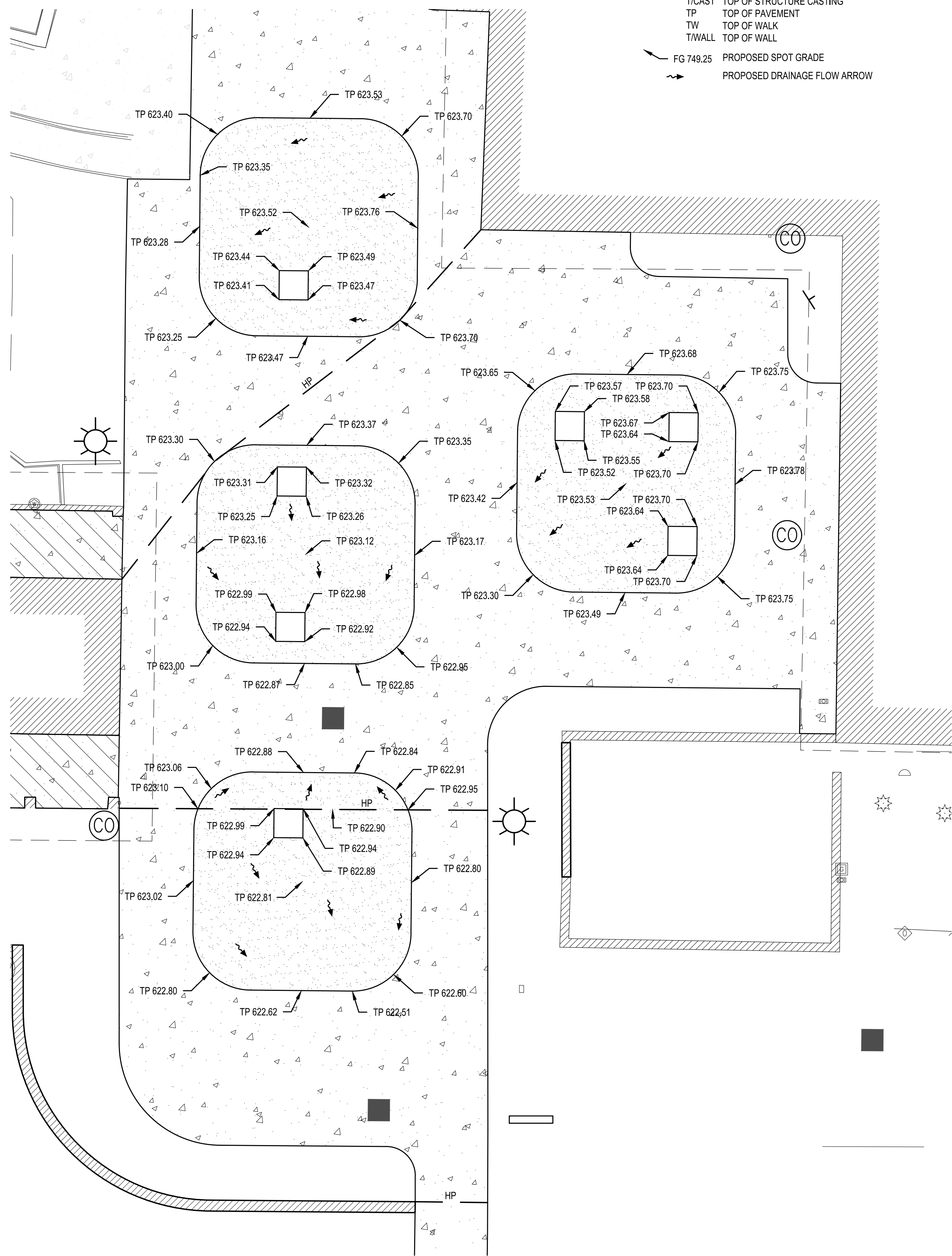
3130 VERONA AVE
BUFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com

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Nyloplast

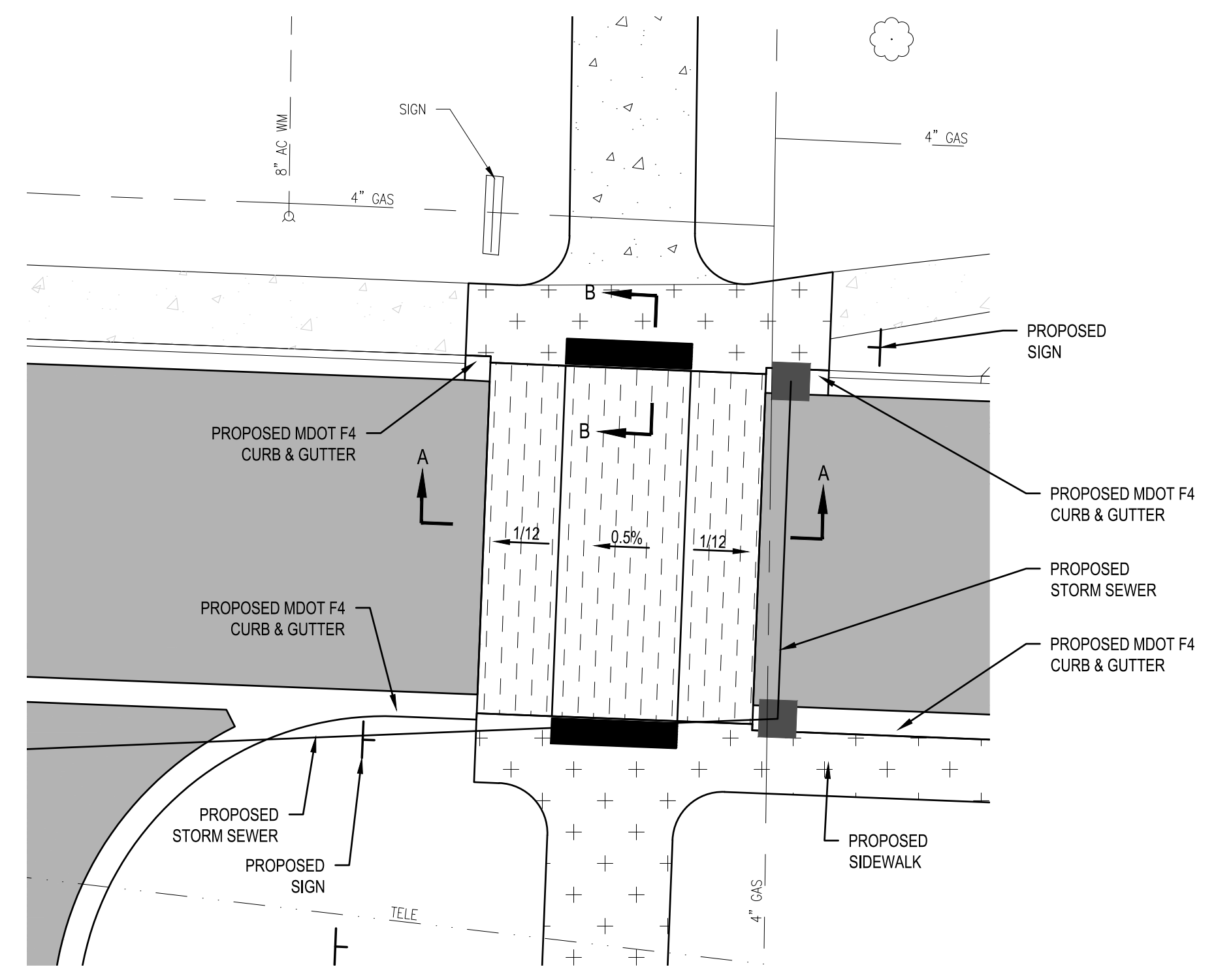
DRAWN BY: EBC MATERIAL: 3130 VERONA AVE, BUFORD, GA 30518
DATE: 04-03-06
REVISED BY: NMH PROJECT NO./NAME: 3130 VERONA AVE, BUFORD, GA 30518
DATE: 03-14-16
DWG SIZE: A SCALE: 1:40 SHEET: 1 OF 1
DWG NO.: 7001-110-192 REV: E**

LEGEND

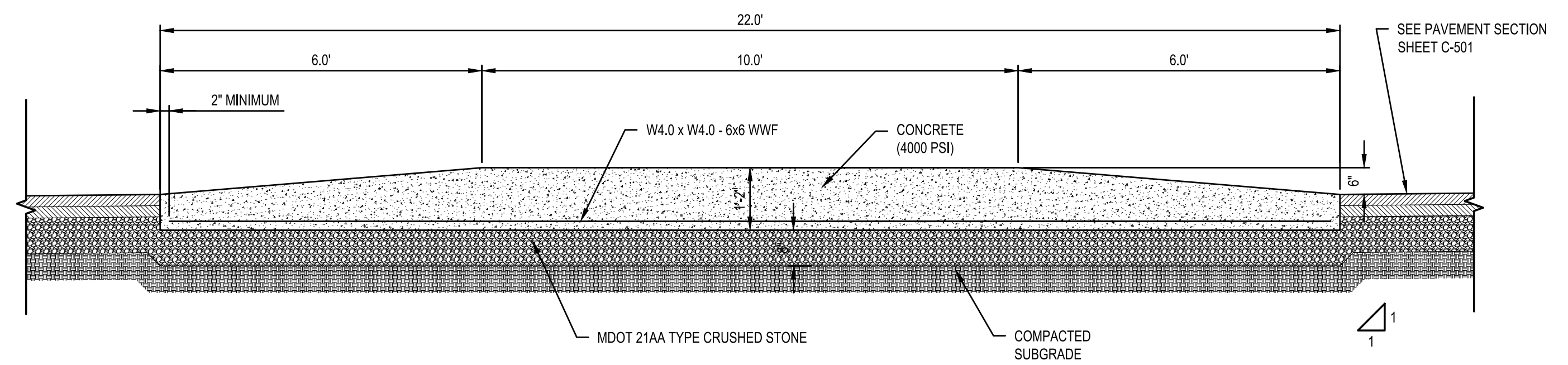
- EX EXISTING
- FG FINISH GRADE / SURFACE (NON-PAVED AREA)
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- TP TOP OF PAVEMENT
- TW TOP OF WALK
- T/WALL TOP OF WALL
- FG 749.25 PROPOSED SPOT GRADE
- PROPOSED DRAINAGE FLOW ARROW



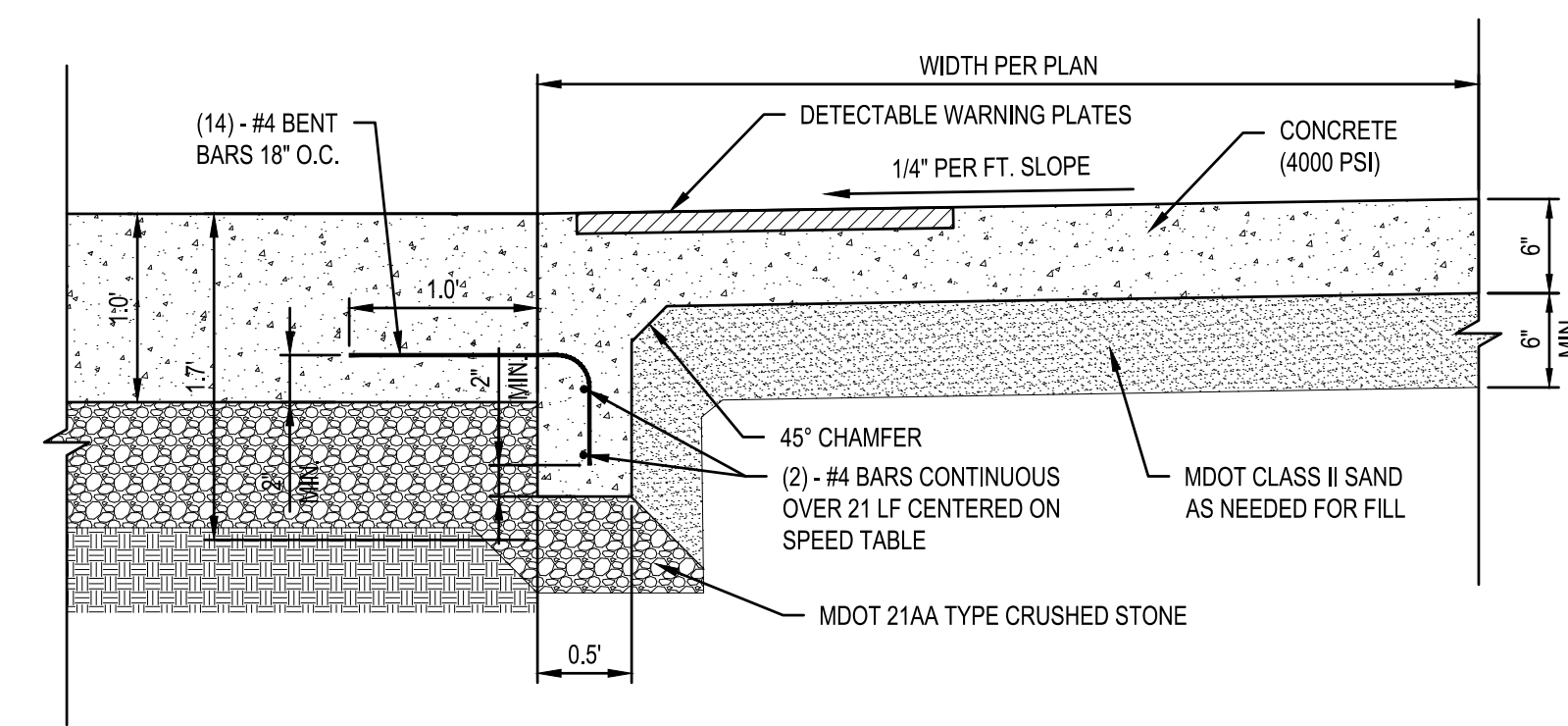
DETAILED GRADING PLAN VIEW
SCALE - 1" = 10'



CONCRETE SPEED TABLE - PLAN VIEW
SCALE - 1" = 10'



CONCRETE SPEED TABLE - SECTION A-A
NO SCALE



SPEED TABLE / SIDEWALK CONNECTION - SECTION B-B
NO SCALE

JOB BENCHMARK # 201
TOP BIG ARM OF HYD ON N SIDE
OF N WALK OF WHITING DR ±15' W
OF WALK ALONG E SIDE OF LIBRARY
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TRAVERSE POINT # 101
N 775546.239
E 47282.32 ELEV 616.45

TRAVERSE POINT # 102
N 775843.341
E 47288.90 ELEV 623.57

SESC GENERAL NOTES

- SOIL CONDITIONS:
OoB - OAKVILLE FINE SAND, 0 TO 6 PERCENT SLOPES
PdB - PIPESTONE SAND, ERIE-HURON LAKE PLAIN, 0 TO 3 PERCENT SLOPES
SOURCE: websurveys.nrcs.usda.gov
- TOTAL AREA OF DISTURBED EARTH APPROXIMATELY 0.9 ACRES.
- NEAREST OPEN WATER IS THE TITABAWASSEE RIVER APPROXIMATELY 975 FEET SOUTH OF THE SITE.

MAINTENANCE NOTES

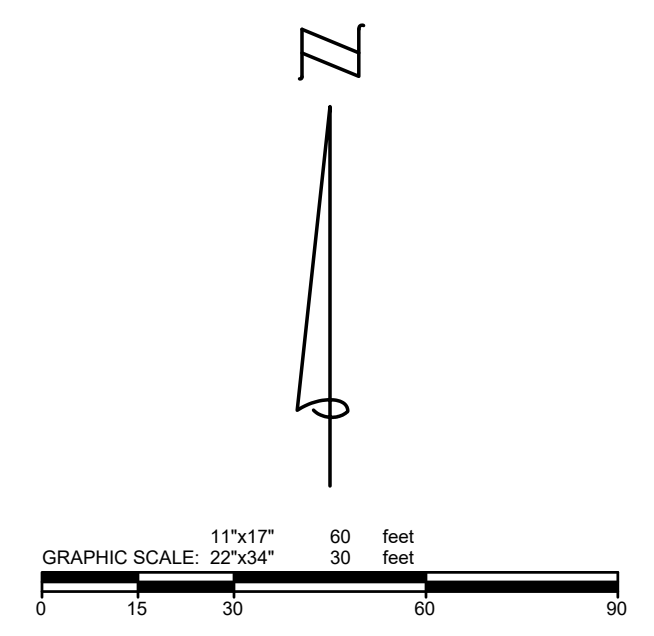
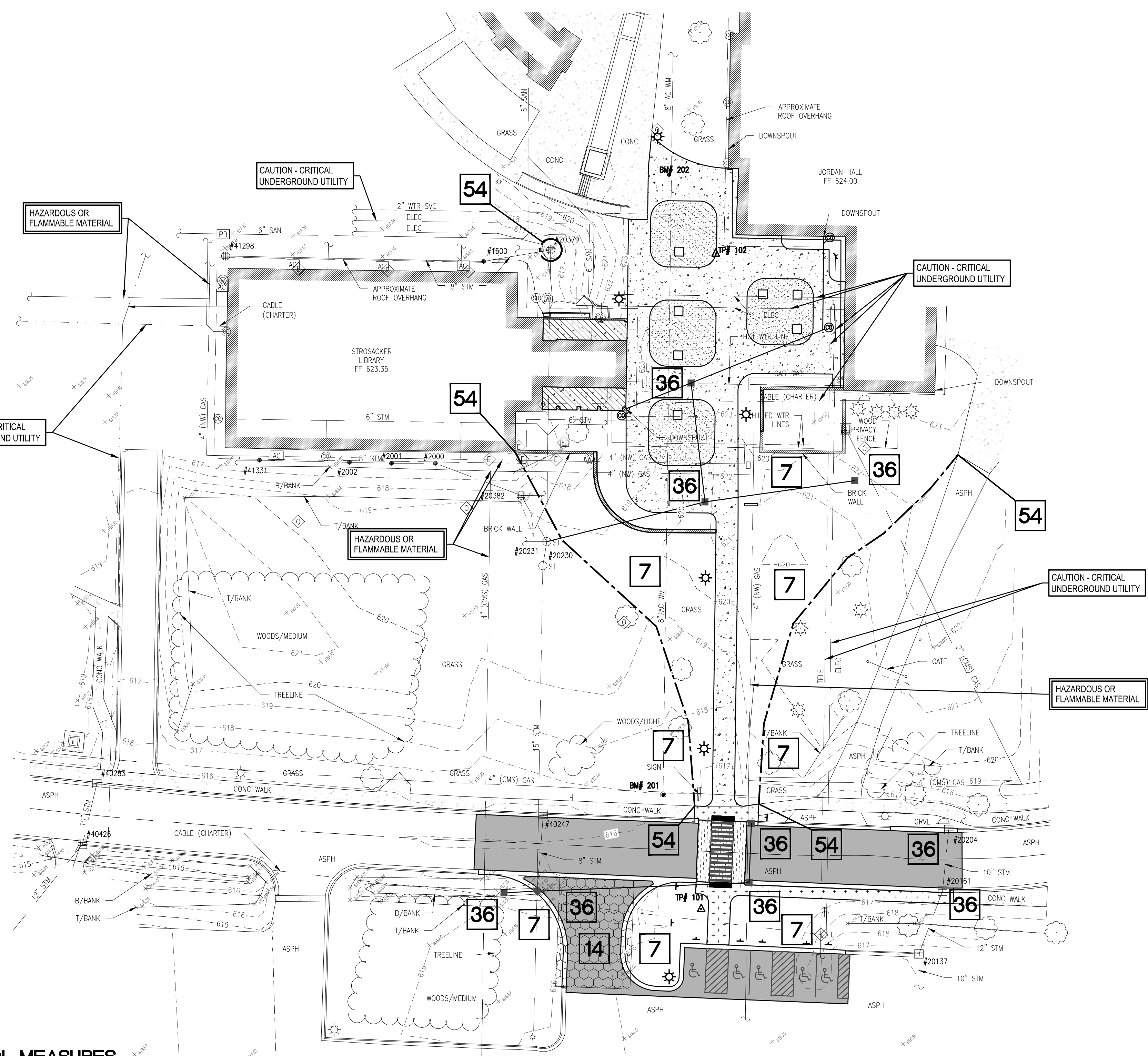
- SOIL STOCKPILES
PERIODIC INSPECTIONS SHOULD BE DONE TO ENSURE EXCESSIVE EROSION HAS NOT OCCURRED. IF RUNOFF OR WIND EROSION HAS OCCURRED, REDUCE THE SIDE SLOPES OF THE SPOIL PILE, OR RE-STABILIZE THE STOCKPILE BY PROVIDING TEMPORARY SEEDING. WHEN FILTER FENCING IS USED AROUND A SPOIL PILE, PERIODIC CHECKS SHOULD BE MADE TO ENSURE THAT PIPING HAS NOT OCCURRED UNDER THE FENCING, AND TO ENSURE THE FENCE HAS NOT COLLAPSED DUE TO SOIL SLIPPAGE OR ACCESS BY CONSTRUCTION EQUIPMENT. REPAIR ANY DAMAGED FENCING IMMEDIATELY. BERMS AT THE BASE OF THE SPOIL PILE WHICH BECOME DAMAGED SHOULD BE REPLACED.
- DUST CONTROL
TO PREVENT DUST FROM BECOMING A PUBLIC NUISANCE AND CAUSING OFF-SITE DAMAGES, DUST CONTROL SHOULD BE ONGOING DURING EARTH CHANGE ACTIVITIES.
- SILT FENCE
SILT FENCE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. SILT FENCES SHOULD BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND SEVERAL TIMES DURING PROLONGED RAINFALLS. IF THE FENCE IS SAGGING OR THE SOIL HAS REACHED ONE HALF (1/2) THE HEIGHT OF THE FABRIC, THE SOIL BEHIND THE FABRIC MUST BE REMOVED AND DISPOSED OF IN A STABLE UPLAND SITE. THE SOIL CAN BE ADDED TO THE SOIL STOCKPILE. IF THE FABRIC IS BEING UNDERCUT (I.E. IF WATER IS SEEPING UNDER THE FENCE), THE FENCE SHOULD BE REMOVED AND REINSTALLED FOLLOWING THE PROCEDURES GIVEN ABOVE. FABRIC WHICH DECOMPOSES OR OTHERWISE BECOMES INEFFECTIVE SHOULD BE REMOVED AND REPLACED WITH NEW FILTER FABRIC IMMEDIATELY. SILT FENCES SHOULD BE REMOVED ONCE VEGETATION IS WELL ESTABLISHED AND THE UP-SLOPE AREA IS FULLY STABILIZED.
- INLET FILTERS
PERIODIC INSPECTIONS SHOULD BE DONE TO ENSURE THAT THE INTEGRITY OF THE GEOTEXTILE FILTER IS MAINTAINED. THE FABRIC SHALL BE REMOVED AND REPLACED SHOULD IT BECOME SEDIMENT LADEN. THE INLET GEOTEXTILE FILTER SHALL BE REMOVED AFTER THE ESTABLISHMENT OF FINAL GRADE AND PRIOR TO PAVEMENT INSTALLATION.
- SEEDING
NEWLY SEEDED AREAS NEED TO BE INSPECTED FREQUENTLY FOR THE FIRST FEW MONTHS TO ENSURE THE GRASS IS GROWING. IF THE SEEDED AREA IS DAMAGED DUE TO RUNOFF, ADDITIONAL STORMWATER MEASURES MAY BE NEEDED. SPOT SEEDED CAN BE DONE ON SMALL AREAS TO FILL IN BARE SPOTS WHERE GRASS DIDN'T GROW PROPERLY.
- MULCHING
MULCHED AREAS SHOULD BE CHECKED FOLLOWING EACH RAIN TO ENSURE THE MULCH IS STAYING IN PLACE. ADDITIONAL TACKING MATERIALS OR NETTING MAY NEED TO BE APPLIED TO HOLD THE MULCH IN PLACE.
- STREET MAINTENANCE
CONTRACTOR SHALL SCRAPE ALL PUBLIC ROADS AT LEAST ON A DAILY BASIS. IN ADDITION, CONTRACTOR SHALL PROVIDE SWEEPING OF PUBLIC ROADS AT LEAST ON A WEEKLY BASIS.

CONSTRUCTION SEQUENCE

- PROVIDE EROSION CONTROL MEASURES THAT WILL BE USED AS PART OF THIS WORK. INSTALL ADDITIONAL MEASURES AS REQUIRED BY THESE DRAWINGS AND AS FIELD CONDITIONS DICTATE IN ACCORDANCE WITH THE MIDLAND COUNTY REQUIREMENTS.
- IMPLEMENT TEMPORARY SOIL EROSION CONTROL MEASURES, INCLUDING SILT FENCE INSTALLATION.
- STRIP TOPSOIL AND STOCKPILE.
- INSTALL UTILITIES.
- INSTALL ALL PAVEMENT.
- BEGIN PERMANENT AND TEMPORARY SEEDING AND MULCHING. ALL CUT AND FILL SLOPES SHALL HAVE PERMANENT STABILIZATION COMPLETED WITHIN 5 DAYS OF FINAL GRADE.
- DAILY, OR AS REQUIRED, CONSTRUCT AND MAINTAIN TEMPORARY BERMS, DRAINS, SILT FENCE, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.
- FINISH GRADE, REDISTRIBUTE TOPSOIL AND ESTABLISH VEGETATION ON ALL DISTURBED GROUND AREAS.
- CLEAN PAVEMENT AND STORM SEWERS OF ALL SEDIMENT.
- REMOVE SOIL EROSION CONTROL MEASURES AFTER PERMANENT VEGETATION HAS BEEN ESTABLISHED.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL SOIL EROSION CONTROL MEASURES ARE INSTALLED AND MAINTAINED.

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES

7		Effective on large areas. Match tacking agent used to provide immediate protection until grass is rooted. Should include prepared topsoil bed.	PERMANENT MEASURE
14		Tracking Mat - replenish stone as required due to rutting. 1"-3" crushed concrete 8" thick on geo-fabric. 30' wide by 50' long. Temporary measure, remove after completion of construction.	TEMPORARY MEASURE
36		Collects high velocity concentrated runoff. Use filter cloth over inlet. (Alt. Silt-Sok tm.)	TEMPORARY MEASURE
54		Filters and detains runoff. Shown on plan as - - - - -	TEMPORARY MEASURE



LEGEND

- PROPOSED CURB (MDOT F4)
- PROPOSED CONCRETE PLAZA
- PROPOSED CONCRETE WALKWAY
- PROPOSED CONCRETE RESURFACING
- PROPOSED CONCRETE SPEED TABLE
- PROPOSED DETECTABLE WARNING
- PROPOSED DECORATIVE CONCRETE
- PROPOSED HMA PAVEMENT
- PROPOSED WALL
- PROPOSED CATCHBASIN
- PROPOSED CLEAN-OUT
- PROPOSED / RELOCATED LIGHT POLE

SOIL EROSION AND SEDIMENTATION CONTROL OPERATION TIME SCHEDULE

CONSTRUCTION SEQUENCE	NOV/DEC	JAN/FEB	MARCH/APRIL	MAY/JUNE	JULY/AUG	SEP/OCT
TEMPORARY EROSION CONTROL MEASURES						
DEMOLITION / CLEARING						
STRIP & STOCKPILE TOPSOIL / ROUGH GRADE						
INSTALL STORM SEWER						
SITE CONSTRUCTION & PAVEMENT						
PERMANENT EROSION CONTROL MEASURES						
FINISH GRADING / LANDSCAPING						

SOIL EROSION AND SEDIMENTATION CONTROL MAINTENANCE SCHEDULE

TASK	FREQUENCY	RIPRAP	SILT FENCE	INLET FILTERS	STORM SEWER	CB Sumps	VEGETATION
INSPECT FOR SEDIMENT ACCUMULATION	WEEKLY		X	X	X	X	
REMOVE ACCUMULATED SEDIMENT	AS NEEDED			X	X	X	
INSPECT FOR FLOATABLES AND DEBRIS	WEEKLY			X	X	X	
REMOVE FLOATABLES AND DEBRIS	AS NEEDED				X	X	
INSPECT FOR PERMIT PERFORMANCE	AFTER RAIN	X	X	X			
RESTORE TO PERMIT PERFORMANCE	AS NEEDED	X	X	X			
INSPECT FOR SOIL EROSION	AFTER RAIN						X
RESTORE TO PREVENT EROSION	AS NEEDED						X
SCAPE STREET	DAILY						
SWEEP STREET	WEEKLY						



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PROJECT NUMBER: 3076-23-010
DISCIPLINE LEAD: AV
CLIENT PROJECT: ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
SOIL EROSION AND SEDIMENTATION CONTROL PLAN

C-700

DRAWING PATH: P:\6000_5498\507623010 NU Morey Plaza Area C\Drawings\Civil\Plans_Consist\23010ISEC.dwg Oct 26, 2023 - 9:28am

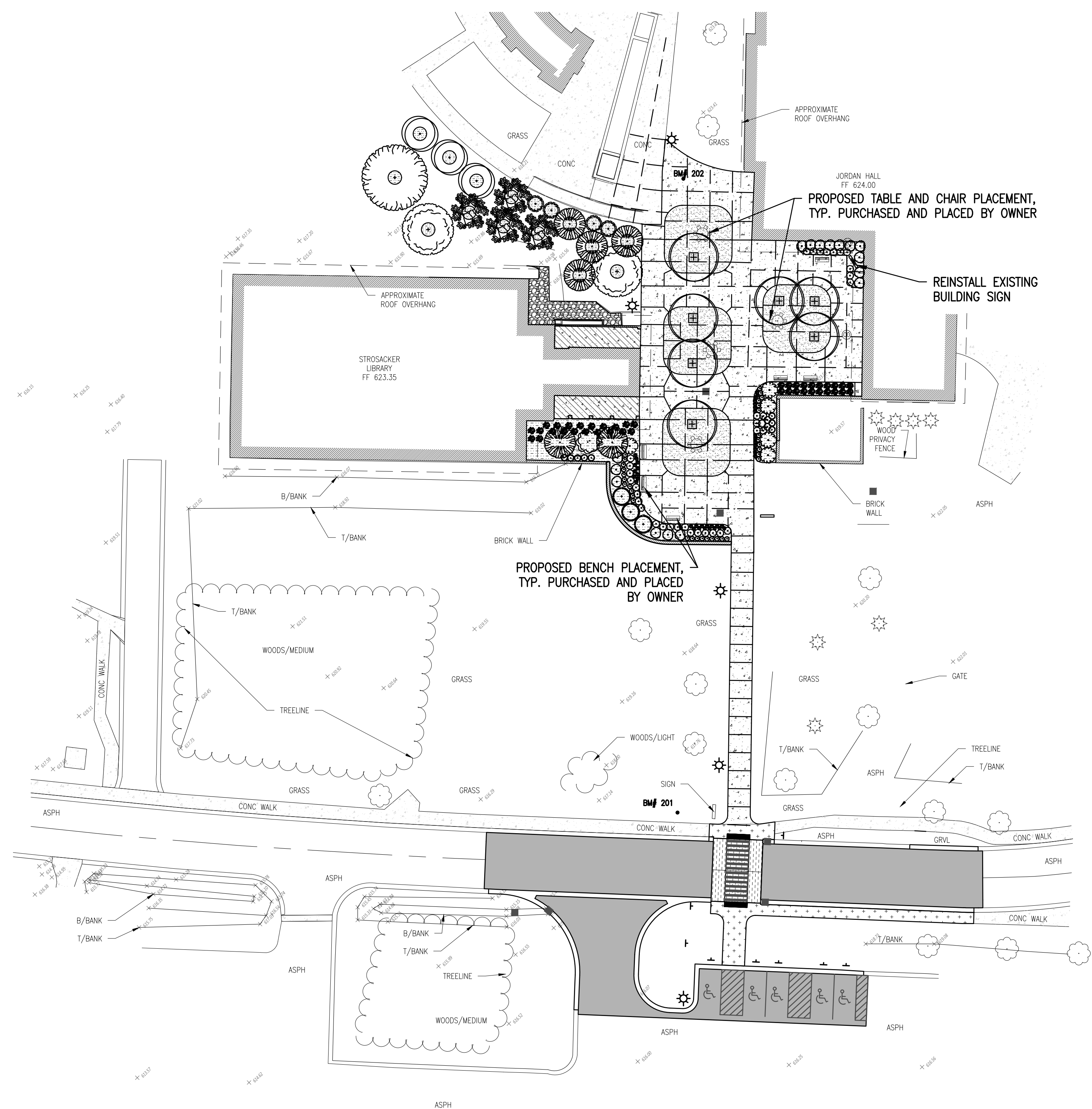
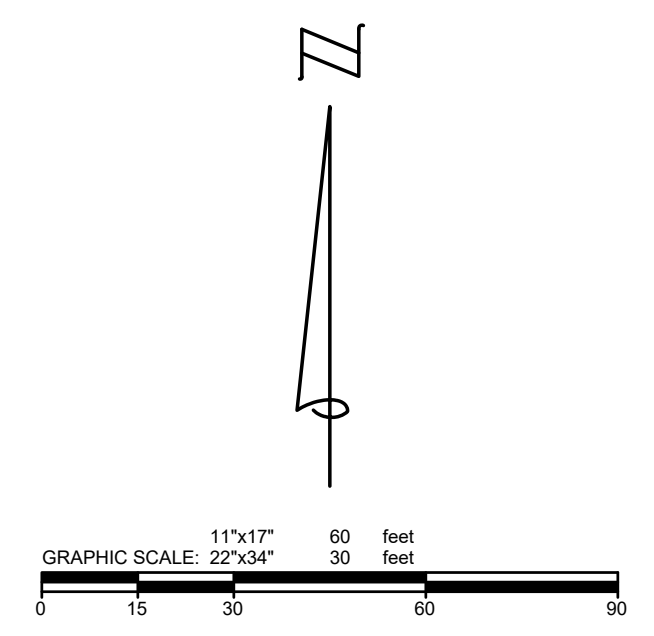
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TOP BIG ARM OF HYD ON N SIDE
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- LEGEND**
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 - PROPOSED CONCRETE PLAZA
 - PROPOSED CONCRETE WALKWAY
 - PROPOSED CONCRETE RESURFACING
 - PROPOSED CONCRETE SPEED TABLE
 - PROPOSED DETECTABLE WARNING
 - PROPOSED DECORATIVE CONCRETE
 - PROPOSED HMA PAVEMENT
 - PROPOSED WALL
 - PROPOSED CATCHBASIN
 - PROPOSED TREE GRATE
 - PROPOSED CONCRETE JOINTS

NOTE: OWNER WILL CONTRACT DIRECTLY WITH DECORATIVE CONCRETE AND CONCRETE RESURFACING VENDOR. CONTRACTOR SHALL COORDINATE WITH OWNER & VENDOR FOR THE PLACEMENT SCHEDULING. APPLIES TO THE 3,268 SQFT OF DECORATIVE CONCRETE AND 735 SQFT OF CONCRETE RESURFACING

NOTE: CONTRACTOR SHALL INSTALL ZIP STRIP EXPANSION JOINTS AT ALL PROPOSED CONCRETE INTERFACES WITH EXISTING CONCRETE AND EXISTING BUILDINGS

NOTE: CONTRACTOR SHALL COORDINATE WITH OWNER TO EXTEND IRRIGATION TO LANDSCAPE BEDS AS DIRECTED



REVISION	DESCRIPTION	DATE

PROJECT NUMBER: 3076-23-0010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: ES

NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI

LANDSCAPE SITE LAYOUT PLAN



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PLANT SCHEDULE						
QTY.	SYMBOL	KEY	BOTANICAL NAME	COMMON NAME	SIZE	NOTE
32		AG	ALLIUM GIGANTEUM	ORNAMENTAL ONION	1 GALLON	CONTAINER
41		AF	ATHYRIUM FILIX-FEMINA	LADY FERN	1 GALLON	CONTAINER
4		BN	BETULA NIGRA	RIVER BIRCH	8-10' IN HEIGHT	BALLED IN BURLAP
16		BM	BUXUS MICROPHYLLA VAR. JAPONICA 'WINTER GEM'	WINTER GEM BOXWOOD	3 GALLON	CONTAINER
3		CC	CARPINUS CAROLINIANA	AMERICAN HORNBEEAM	3" CALIPER	BALLED IN BURLAP
7		GT	GLEDITSIA TRIACANTHOS VAR. INERMIS 'SKYLINE'	SKYLINE HONEYLOCUST	4" CALIPER	BALLED IN BURLAP
6		HV	HAMAMELIS VIRGINIANA	WITCHHAZEL	2" CALIPER	BALLED IN BURLAP
3		IM	ILEX X MESERVEAE	BLUE HOLLY	5 GALLON	CONTAINER
8		JS	JUNIPERUS SCOPULORUM 'BLUE ARROW'	BLUE ARROW JUNIPER	5 GALLON	CONTAINER
1		PS	PINUS STROBUS	EASTERN WHITE PINE	8-10' IN HEIGHT	BALLED IN BURLAP
36		SP	SALVIA PRATENSIS	MEADOW SAGE	1 GALLON	CONTAINER
38		SBB	SCABIOSA 'BUTTERFLY BLUE'	PINCUSHION FLOWER	3 GALLON	CONTAINER
2		TC	TSGUA CANADENSIS	EASTERN HEMLOCK	8'-10' IN HEIGHT	BALLED IN BURLAP
9		VP	VIBURNUM PLICATUM TOMENTOSUM 'MARIESI'	DOUBLEFILE VIBURNUM	5 GALLON	CONTAINER

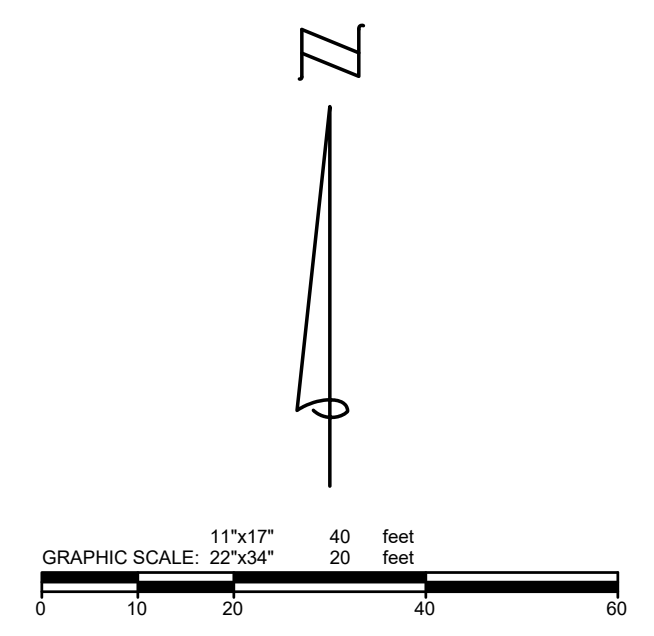
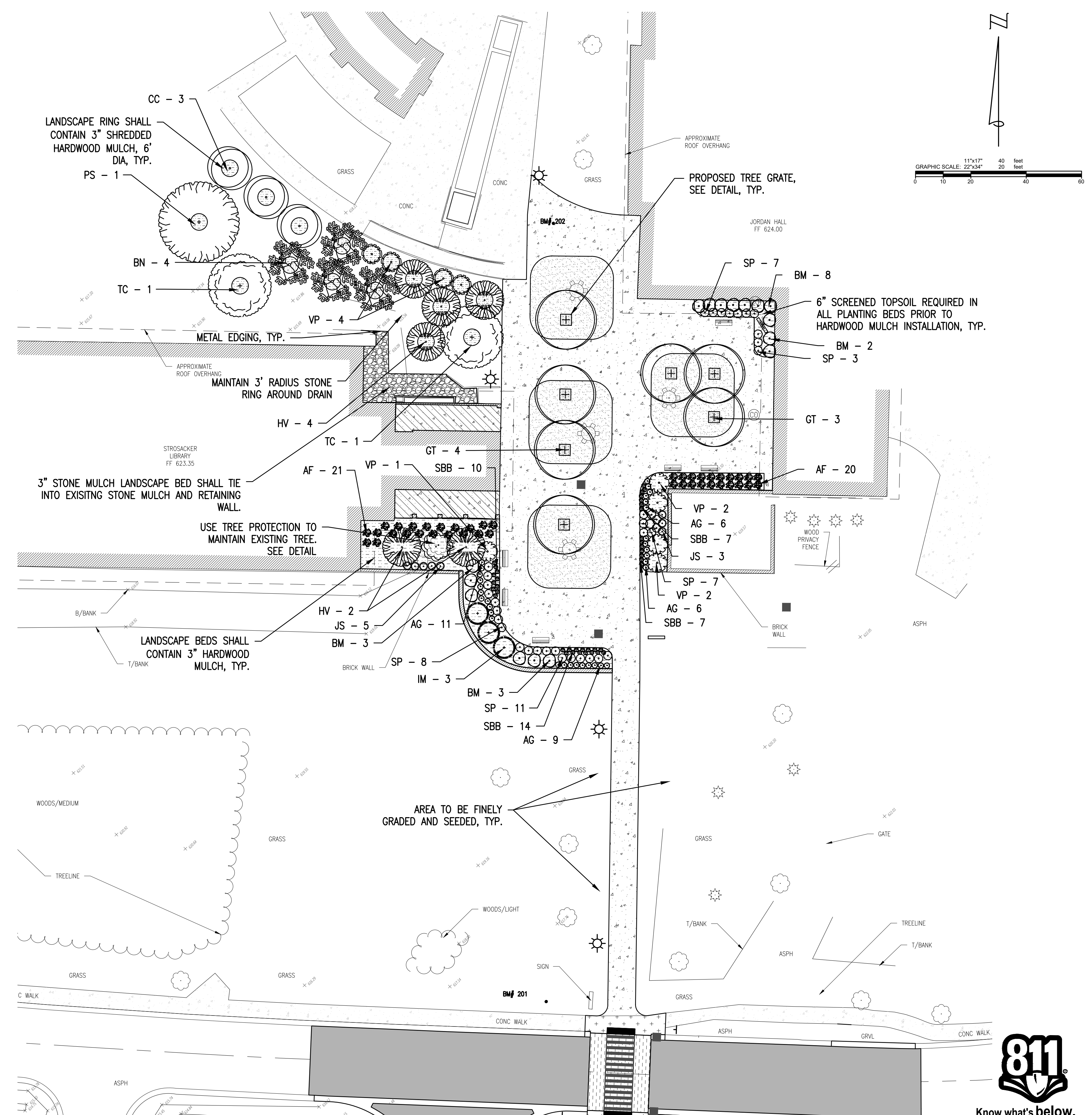
NOTE: TREES TO BE PLANTED UPRIGHT AND PLUMB.

NOTE: FOR PLANTS LOCATED ON SLOPES, CONSTRUCT A BERM OF PREPARED SOIL HALF WAY AROUND EACH PLANT ON THE DOWN SLOPE SIDE. CONSTRUCT THE BERM OF PREPARED SOIL WITH AN INSIDE DIAMETER EQUAL TO THE PLANTING HOLE DIAMETER, AND NO GREATER THAN 6 INCHES HIGH. DO NOT MAKE THE BASE OF THE BERM MORE THAN 18 INCHES WIDE.

LEGEND

- 3" SHREDDED HARDWOOD MULCH
- 3" STONE MULCH PLACED ON WEED BARRIER FABRIC

NOTE: 6" SCREENED TOPSOIL REQUIRED IN BEDS PRIOR TO MULCH AND PLANTING VEGETATION



2023.10.30	DATE
ISSUED FOR: ISSUED FOR BID	DESCRIPTION
REVISION	

PROJECT NUMBER: 3076-23-010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
LANDSCAPE PLANTING PLAN

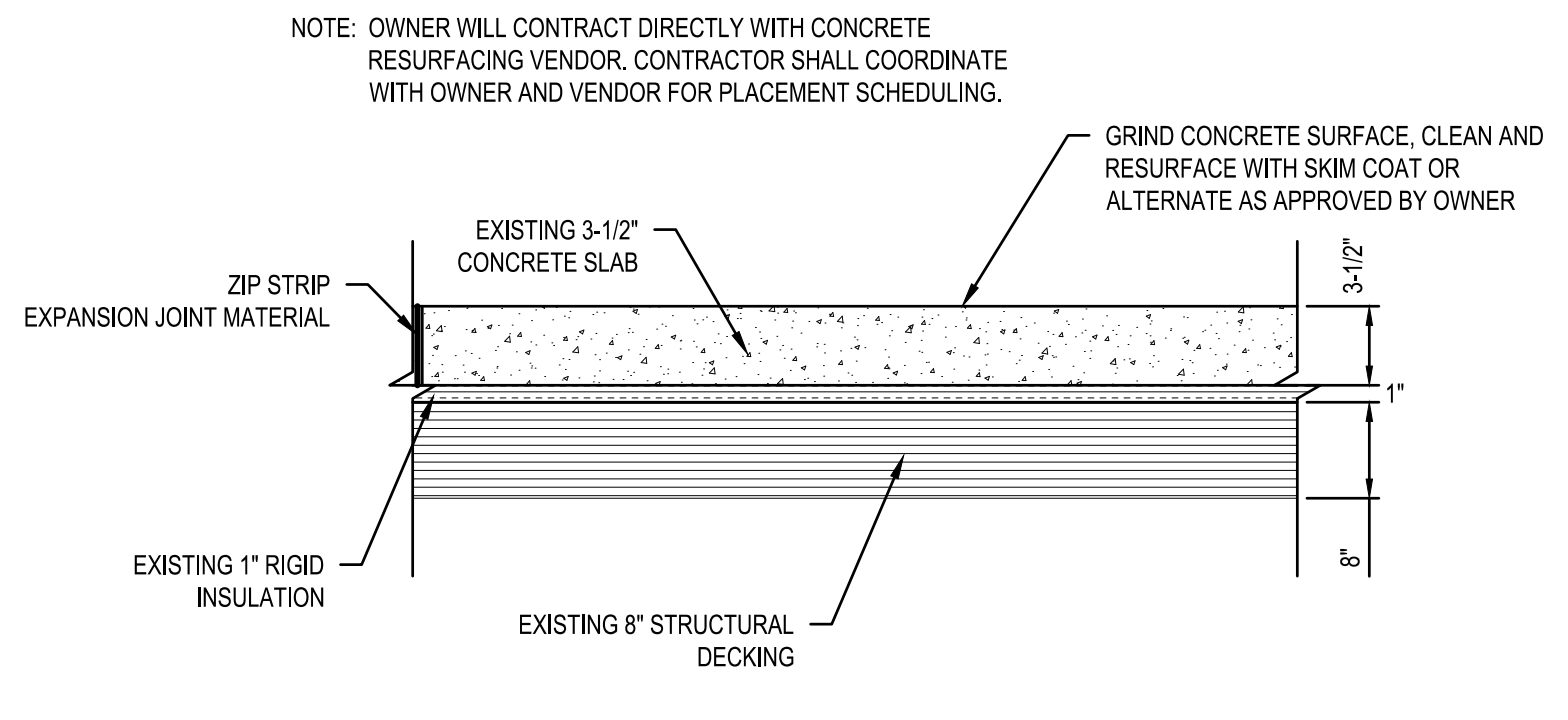


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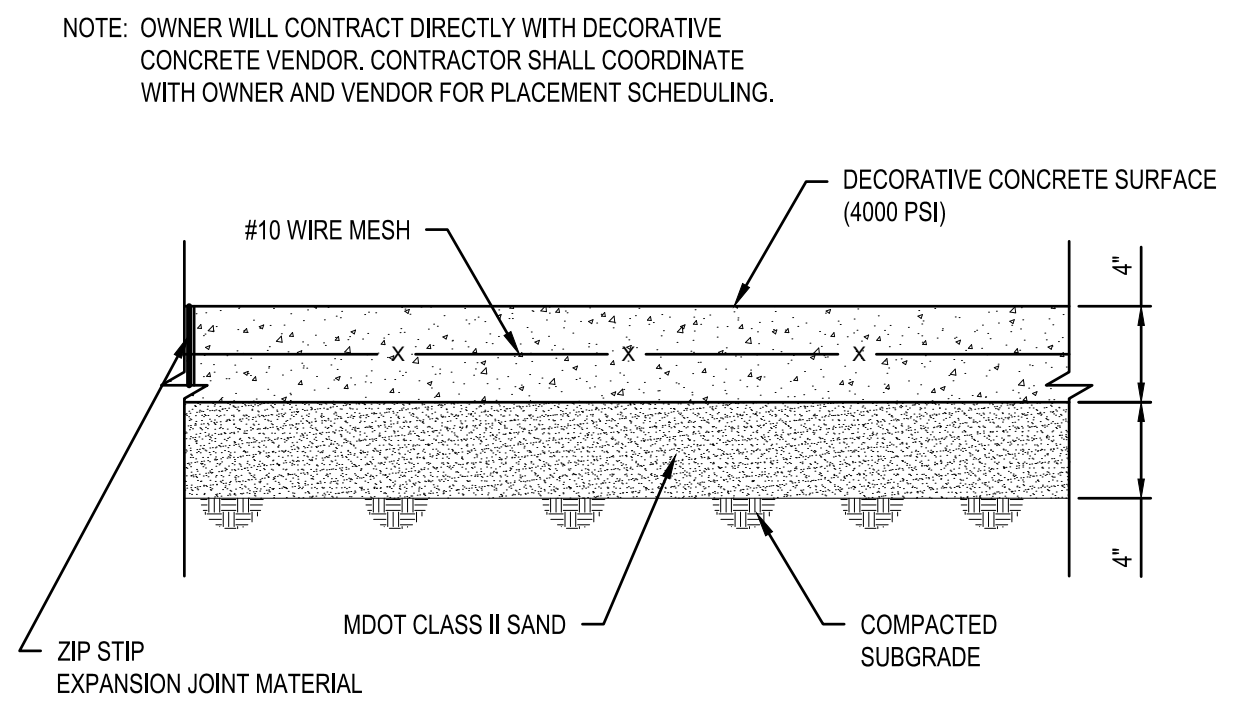
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REVISION	DESCRIPTION	DATE
ISSUED FOR BID		2023-10-30

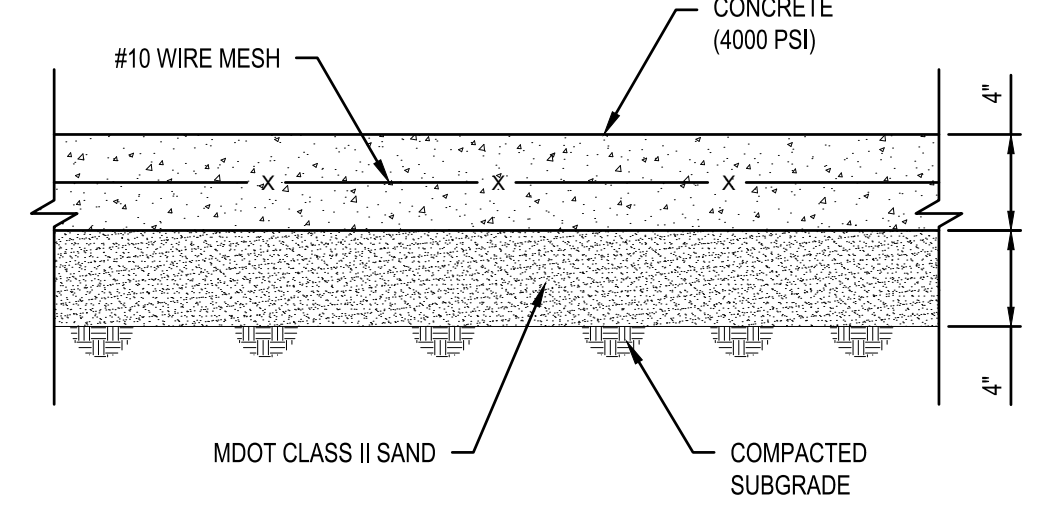
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3076-23-010	AV	
NORTHWOOD UNIVERSITY MOREY PLAZA IMPROVEMENTS MIDLAND, MI		
LANDSCAPE DETAILS		



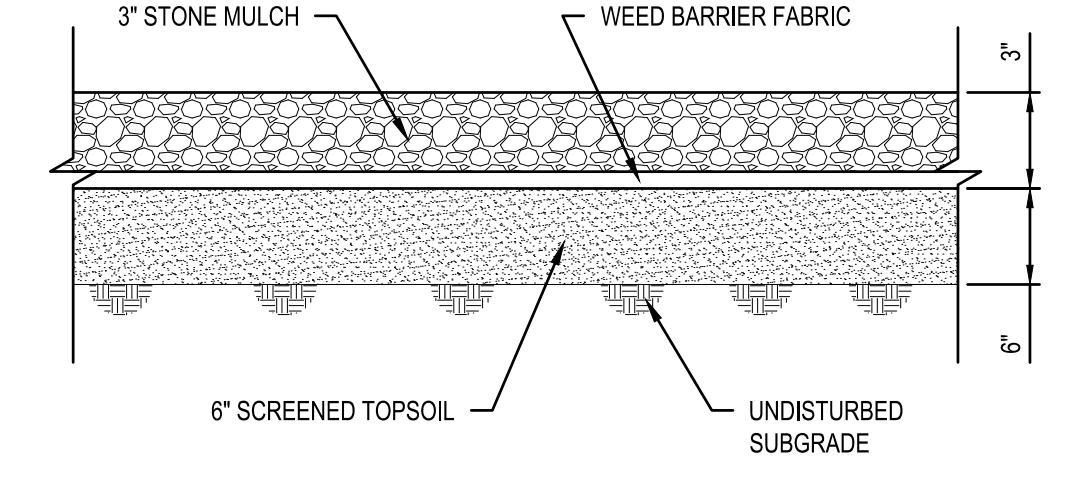
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NO SCALE
FOR INFORMATION ONLY, NIC



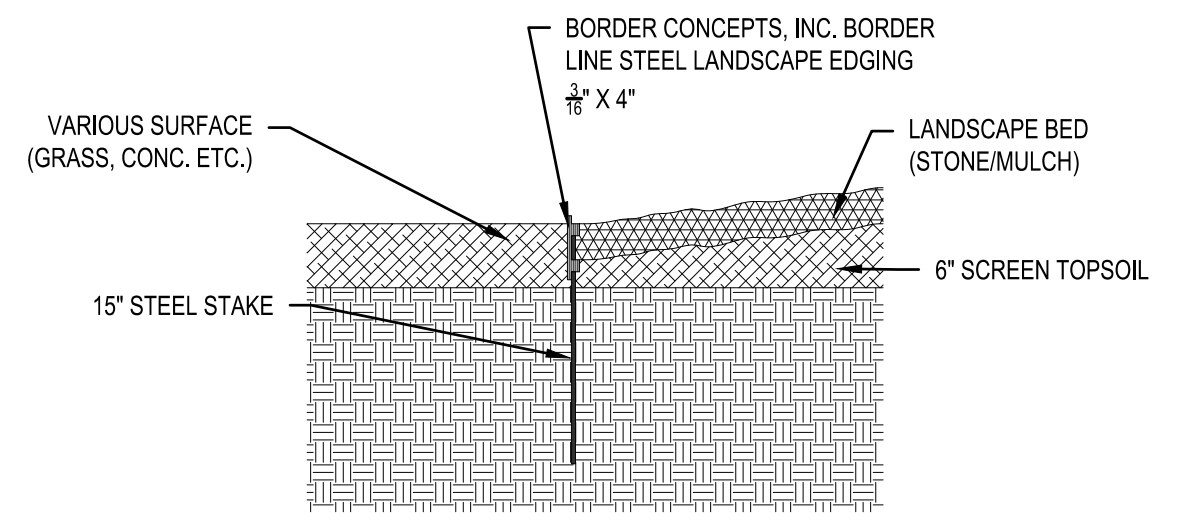
DECORATIVE CONCRETE DETAIL
NO SCALE
FOR INFORMATION ONLY, NIC



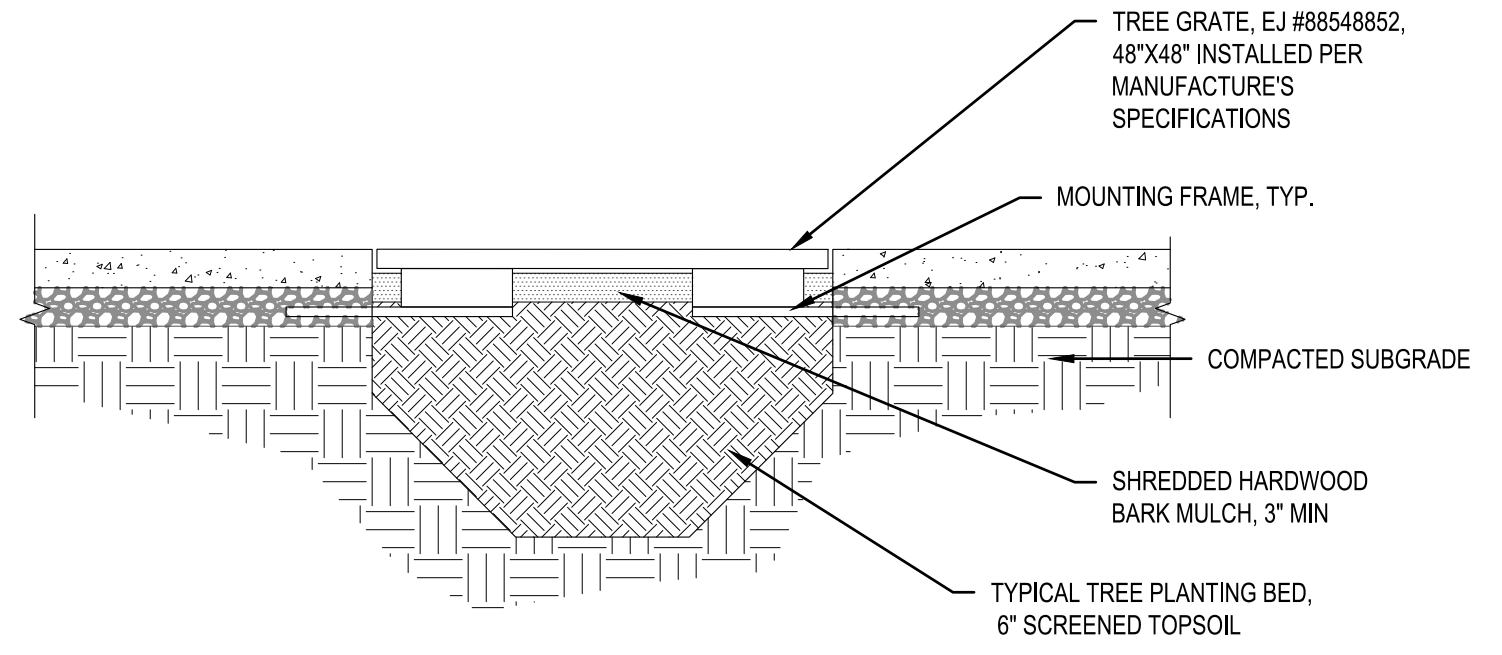
PLAZA CONCRETE DETAIL
NO SCALE



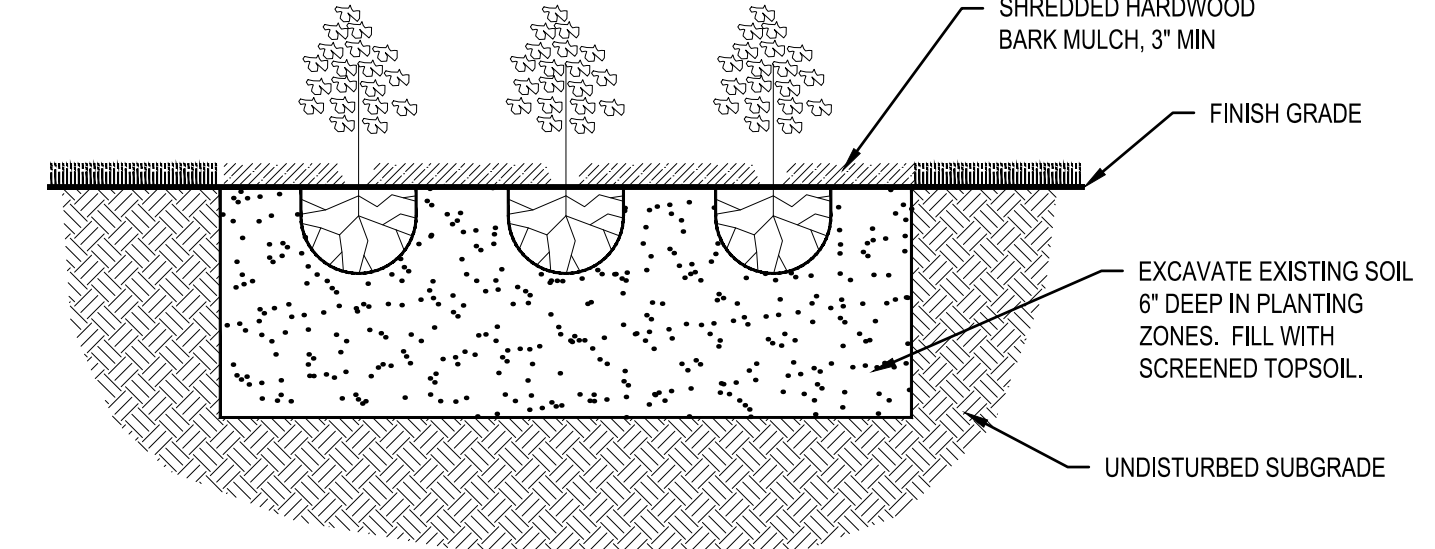
STONE MULCH DETAIL
NO SCALE



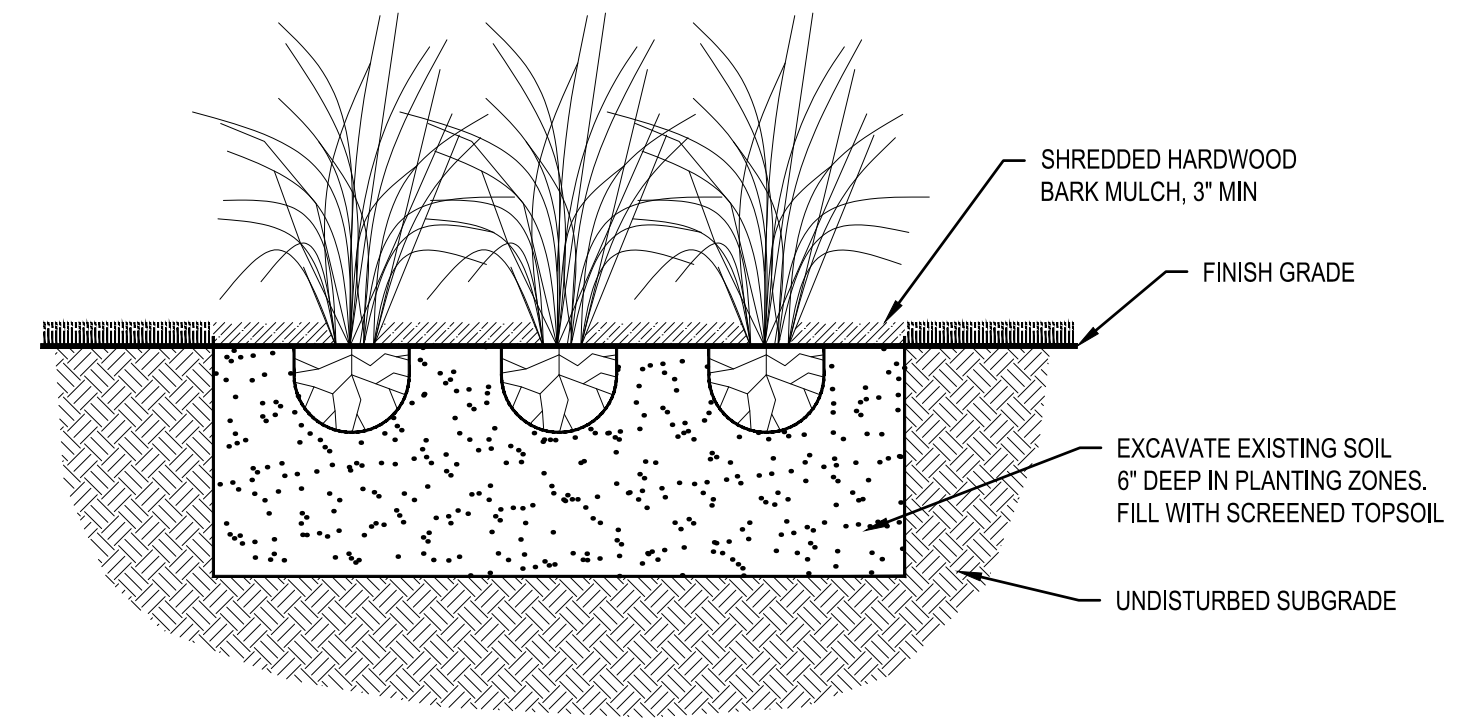
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NO SCALE



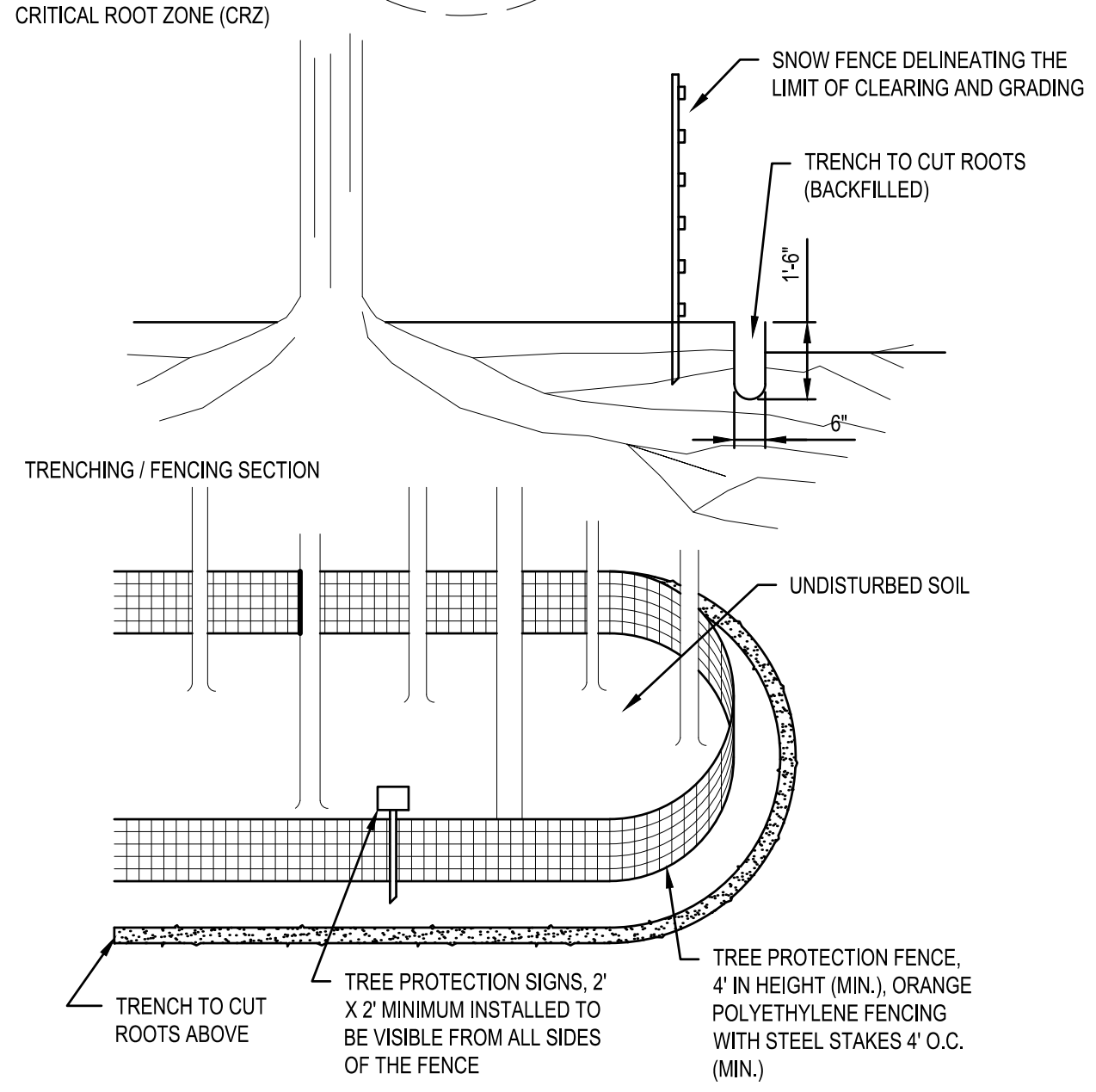
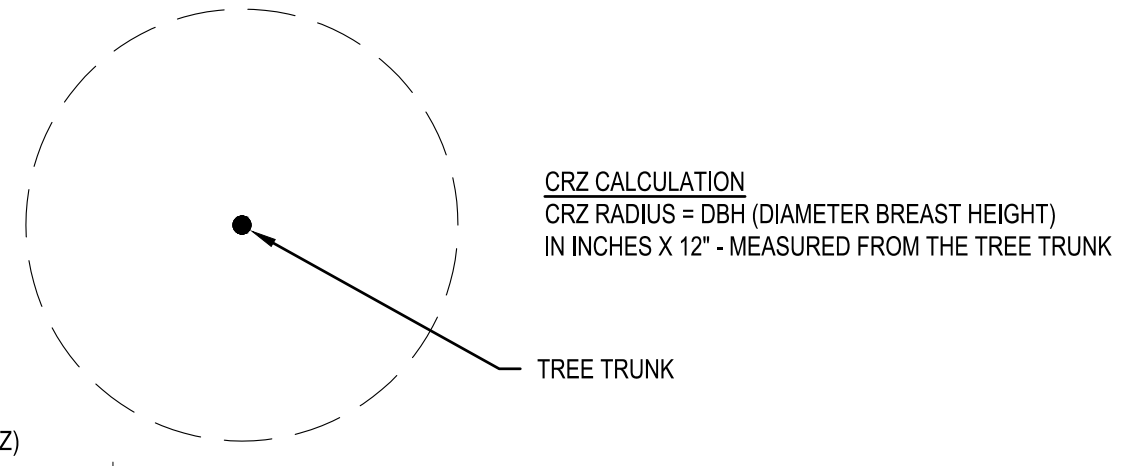
TREE GRATE DETAIL
NO SCALE



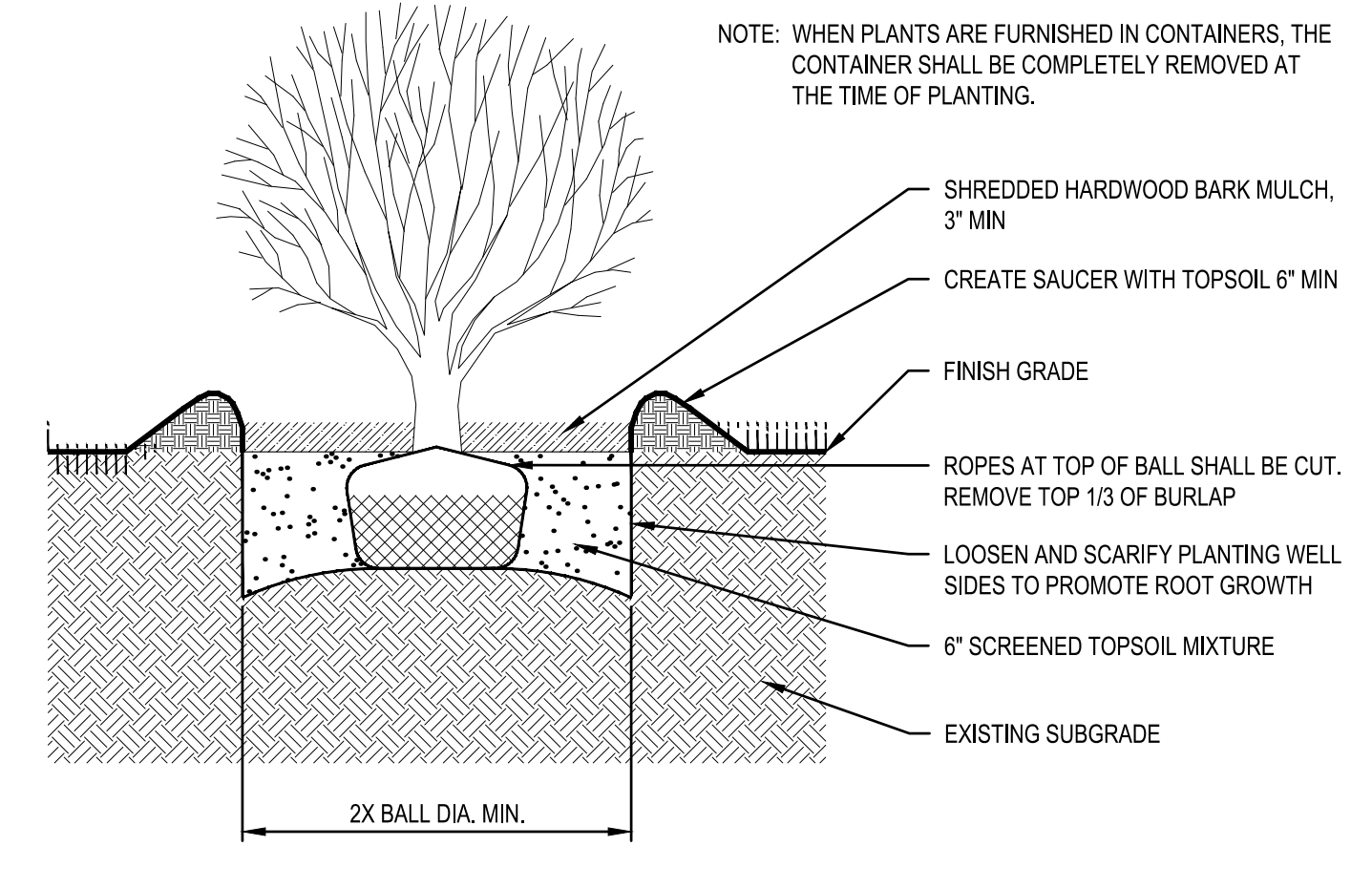
TYPICAL PERENNIAL PLANTING
NO SCALE



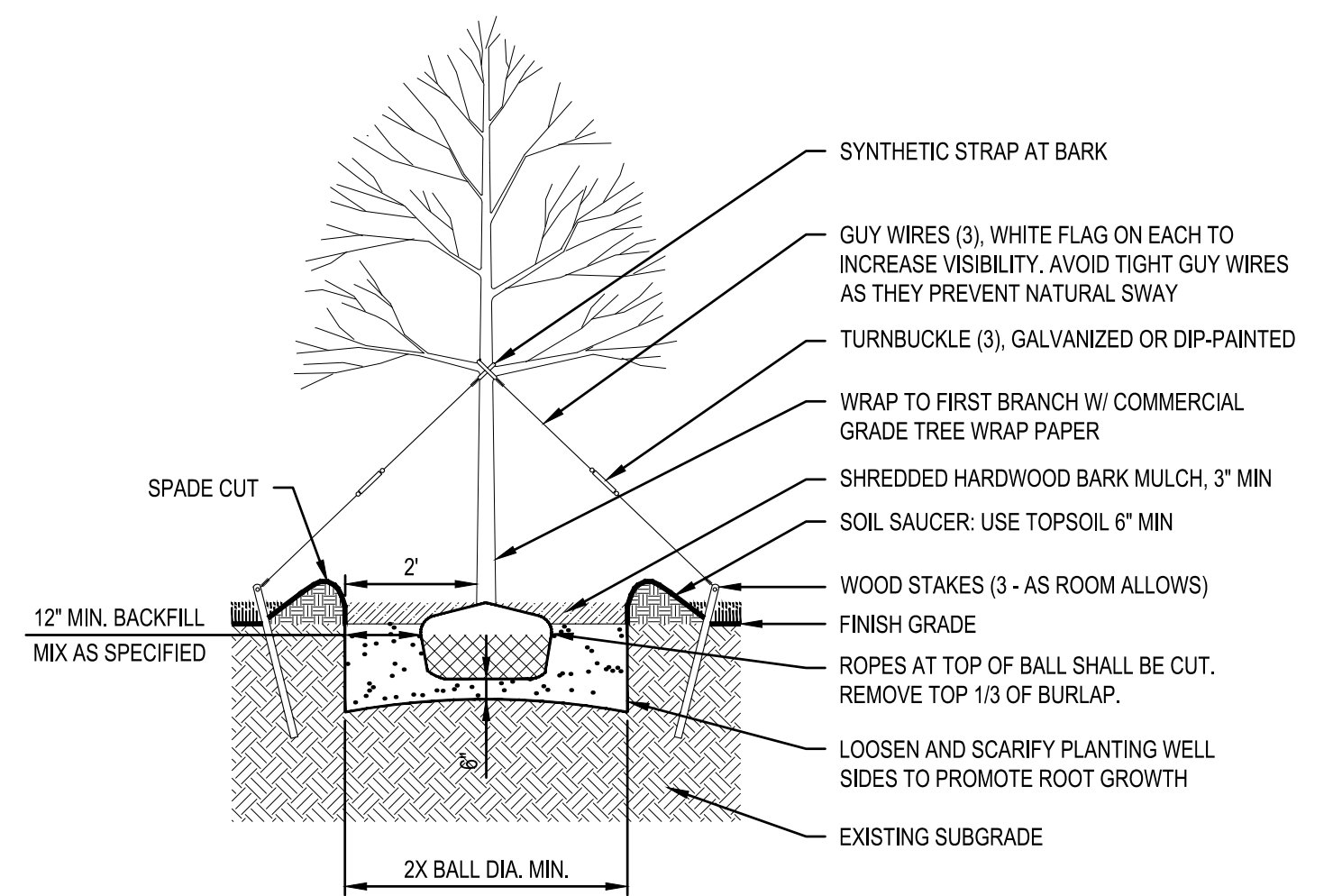
TYPICAL GRASS PLANTING
NO SCALE



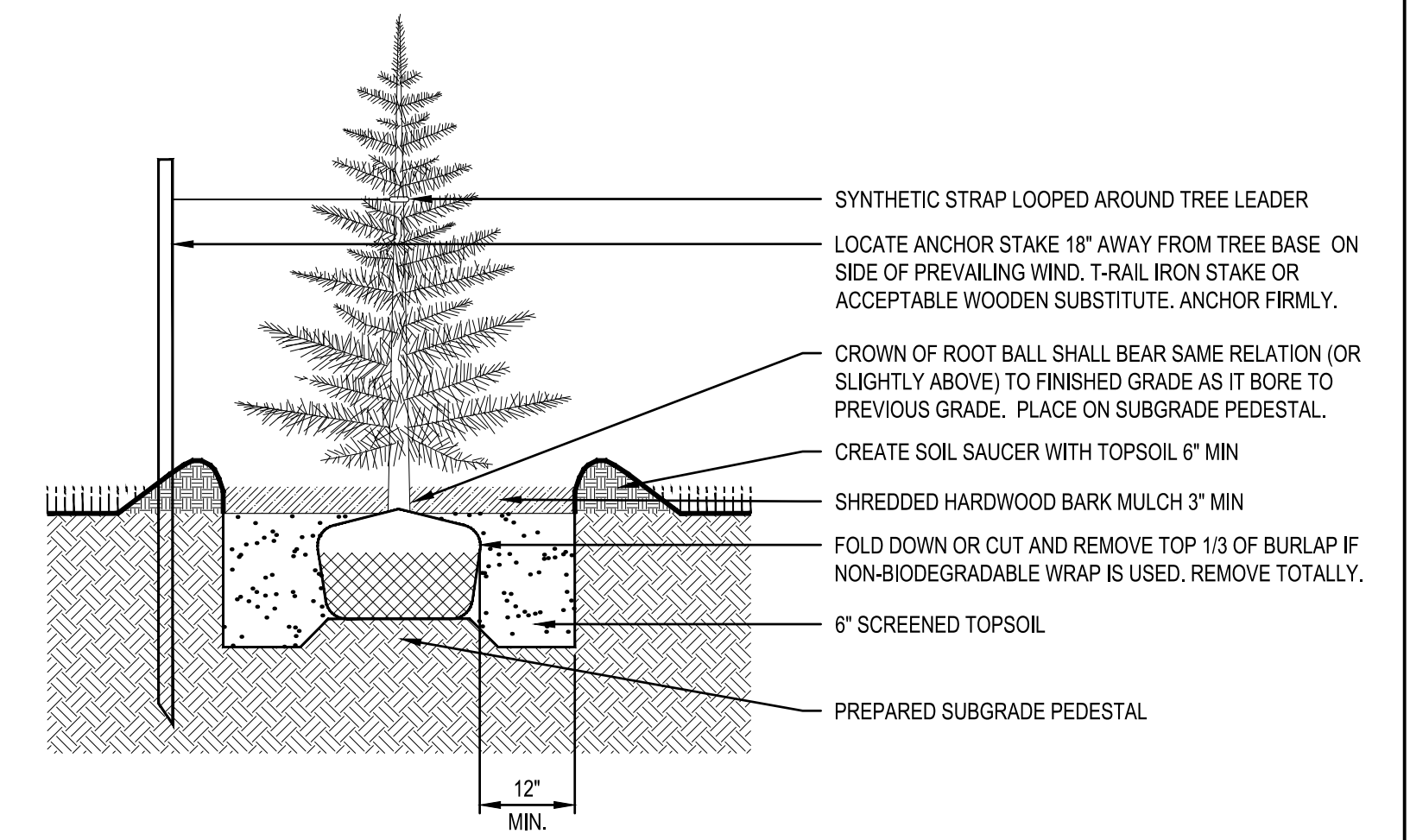
TREE PROTECTION DETAIL
NO SCALE



TYPICAL SHRUB PLANTING
NO SCALE



TYPICAL TREE PLANTING
NO SCALE



TYPICAL EVERGREEN PLANTING
NO SCALE

DRAWING PATH: P:\0500_54895076250010_NU_Morey_Plaza_Area_C\Drawings\PLN_UD\Drawings\2301010.LSC_DET.dwg Oct 26, 2023 - 9:27am

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DRAWING PATH: P:\0000_54895762\23010_NU_Morey_Plaza_Area_CDrawings\Civil\Removal\23010REM.dwg Oct 26, 2023 - 9:27am

GENERAL STRUCTURAL NOTES

- GENERAL STRUCTURAL NOTES
1. THE GENERAL STRUCTURAL NOTES ARE INTENDED TO AUGMENT THE DRAWINGS AND SPECIFICATIONS. SHOULD CONFLICTS OCCUR BETWEEN DOCUMENTS, THE STRICTEST PROVISION SHALL GOVERN.
2. THE CONTRACTOR SHALL LIMIT THE AMOUNT OF LOAD IMPOSED UPON THE STRUCTURAL FRAMING SYSTEM DURING CONSTRUCTION. LOADS, INCLUDING CONSTRUCTION LOADS, MUST NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.
3. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED SELF SUPPORTING, STABLE STRUCTURE UNLESS OTHERWISE INDICATED.
4. ALL MATERIALS AND WORKMANSHIP SHALL MEET OR EXCEED THE MINIMUM REQUIREMENTS OF THE GOVERNING BUILDING CODE: MICHIGAN BUILDING CODE, CURRENT EDITION.
5. ALL SHOP DRAWINGS PREPARED BY SUPPLIERS, SUBCONTRACTORS, ETC. SHALL BE REVIEWED BY THE ARCHITECT/ENGINEER FOR CONFORMANCE WITH DESIGN INTENT ONLY.
6. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS.
7. MECHANICAL FRAMING LOADS, OPENINGS AND SUPPORT STRUCTURE ARE SHOWN FOR BIDDING PURPOSES ONLY.
8. THE CONTRACTOR SHALL INFORM THE ENGINEER/ARCHITECT OF ANY DEVIATIONS FROM THE DRAWINGS.
9. DRAWINGS ARE INTENDED TO BE PRINTED PER THE SCALE PROVIDED.
10. CONTRACTOR SHALL NOT MIX GALVANIZED AND STAINLESS STEEL AT ANY TIME.
11. CONTRACTOR SHALL RECOGNIZE EFFECTS OF THERMAL MOVEMENTS AND MOISTURE CONTENT CHANGES OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.
12. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING COMPLETE AND FUNCTIONING SYSTEMS, INCLUDING BUT NOT LIMITED TO, PROVIDING (AT NO ADDITIONAL COST) ITEMS NOT SPECIFICALLY SHOWN IN THESE DRAWINGS WHICH ARE NORMALLY CONSIDERED NECESSARY.

GENERAL STRUCTURAL NOTES (cont)

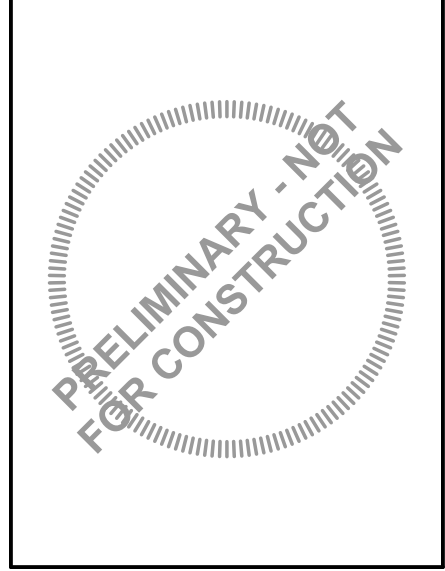
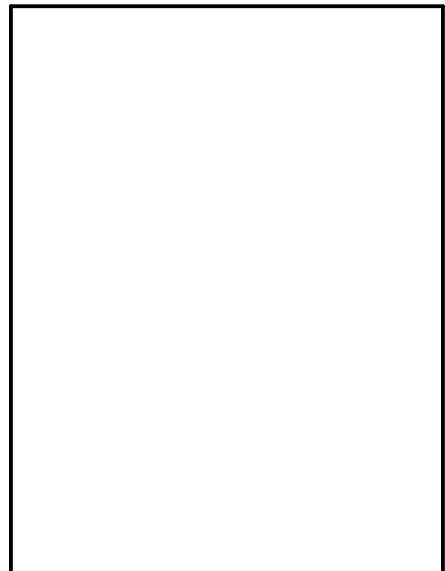
- SOILS AND EARTHWORK
1. SOILS INVESTIGATION REPORT DATED MARCH, 2021 BY MCDOWELL AND ASSOC. INDICATES AN ALLOWABLE GROSS SOIL PRESSURE OF 2500 PSF.
2. SPECIAL DESIGN AND CONSTRUCTION PROVISIONS FOR THIS PROJECT'S FOUNDATIONS:
A. NONE
3. INCLUDE IN THE WORK PROVIDING ALL EQUIPMENT, MATERIAL, AND QUALIFIED LABOR NECESSARY FOR EXCAVATION, SHORING, DEWATERING SYSTEMS, BACKFILL, AND COMPACTION OF SOILS, AS REQUIRED TO CONSTRUCT STRUCTURES TO THE LINE AND GRADE AS SHOWN ON THE PLANS.
4. FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL TELEPHONE (800) 482-7171 NOT LATER THAN THREE BUSINESS DAYS PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES.
5. EXCAVATE TO ELEVATIONS AND DIMENSIONS SHOWN ON THE PLANS WITHIN A TOLERANCE OF +/- 0.10 FEET.
6. NOTIFY THE ENGINEER FOR AN INSPECTION WHEN THE EXCAVATION HAS REACHED SUB-GRADE ELEVATION.
7. SATISFACTORY SOIL MATERIALS ARE DEFINED AS GRANULAR MATERIALS CLASSIFIED AS GW, GP, GM, SW, SP, SW-SM, SP-SM OR SM BY THE UNIFIED SOILS CLASSIFICATION SYSTEM, ASTM D2487.
8. UNSATISFACTORY SOIL MATERIALS ARE DEFINED AS SOILS CLASSIFIED AS GC, SW-SC, SP-SC, SC, ML, MH, CL, CH, OL, OH, AND PT BY THE UNIFIED SOIL CLASSIFICATION SYSTEM.
9. BACKFILL ALL STRUCTURAL WORK WITH SATISFACTORY SOIL MATERIALS AND ENGINEERED FILL AS SHOWN ON PLANS.
10. COMPACT SOILS BELOW FOOTINGS TO A MINIMUM OF 95% OF THE MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR, ASTM D1557.
11. COMPACT BACKFILL IN LAYERS TO MINIMUM 95% MAXIMUM DENSITY AS DETERMINED BY MODIFIED PROCTOR, OR MICHIGAN CONE TEST.

GENERAL STRUCTURAL NOTES (cont)

- CONCRETE
1. PROVIDE MINIMUM 28-DAY CONCRETE COMPRESSIVE STRENGTH OF 4,000 PSI (f'c = 4,000 PSI), OR AS SPECIFIED FOR EACH USE.
2. PROVIDE READY-MIX CONCRETE CONFORMING TO ASTM C-94.
3. CONCRETE SHALL BE PLACED IN ACCORDANCE WITH ACI 117 301, 305R, 306.1, AND 308.1, LATEST APPLICABLE EDITION.
4. PLACE ANCHOR RODS SET IN CONCRETE TO RECEIVE STRUCTURAL STEEL WITHIN TOLERANCES SPECIFIED IN THE LATEST APPLICABLE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" IN LIEU OF TOLERANCES SPECIFIED IN ACI "STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS".
5. REINFORCING STEEL CONFORMING TO ASTM A-615, GRADE 60 IS REQUIRED.
6. CONFORM TO ASTM A706/A706M, GRADE 60 FOR REINFORCING STEEL TO BE WELDED.
7. REINFORCING STEEL SHALL HAVE A MINIMUM CONCRETE COVER AS LISTED BELOW UNLESS OTHERWISE NOTED.
8. POST INSTALLED ANCHORS OR REBAR SHALL BE ANCHORED INTO CONCRETE WITH POWERS PE1000+ EPOXY INJECTION ADHESIVE.
REINFORCEMENT LAP SPlice LENGTH+
Table with columns: BAR SIZE, f'c= 3,000 psi, f'c= 4,000 psi, f'c= 5,000 psi. Rows #3 to #8.
* TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF FRESH CONCRETE BELOW BAR.
+ LAP SPlice LENGTHS SHOWN ARE CLASS B SPlice LENGTHS FOR UNCOATED OR GALVANIZED BARS WITH CLEAR COVER OF 4db OR MORE AND WITH CLEAR SPACING OF 2db OR MORE.

GENERAL STRUCTURAL NOTES (cont)

- MASONRY
1. CONSTRUCT MASONRY IN ACCORDANCE WITH ACI 530.1/ASCE 6-CURRENT EDITION.
2. PROVIDE NORMAL WEIGHT CONCRETE UNIT MASONRY UNITS MANUFACTURED IN ACCORDANCE WITH ASTM C90.
3. GROUT VOIDS AS INDICATED ON THE DRAWINGS, WITH GROUT CONFORMING TO ASTM C476.
4. LAY UNIT MASONRY IN A RUNNING BOND PATTERN UNLESS SPECIFICALLY SHOWN OTHERWISE ON THE PLANS.
5. MORTAR TYPE M OR S MADE WITH MORTAR CEMENT, AND COMPLYING WITH ASTM C270 IS REQUIRED.
6. PROTECT MASONRY BY COVERING TOP OF WALLS WITH WATERPROOF SHEETING AT THE END OF EACH DAY.
7. GROUT ALL CORES CONTAINING REBAR AND VOIDS WHERE INDICATED.
8. ALL CORES BELOW GRADE SHALL BE GROUTED SOLID UP TO FINISHED FLOOR ELEVATION.
9. CORES CONTAINING EXPANSION OR ADHESIVE ANCHORS SHALL BE GROUTED SOLID.
10. ALL VERTICAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH BOND BEAMS.
11. COORDINATE WALL OPENINGS AND OTHER WALL CONFIGURATIONS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, CIVIL, AND OTHER DISCIPLINES.
12. POST INSTALLED ANCHORS OR REBAR SHALL BE ANCHORED INTO MASONRY WITH POWERS PE1000+ EPOXY INJECTION ADHESIVE.
13. PROVIDE HORIZONTAL JOINT REINFORCEMENT IN ALTERNATE COURSES (16" OC) USING 2-WIRE 9 GA LADDER STYLE REINFORCEMENT OR EQUAL.
Table with columns: BAR SIZE, MINIMUM LAP SPlice f'm= 1,500 PSI, MINIMUM LAP SPlice f'm= 1,900 PSI, COMMENTS. Rows #3 to #8.
* LAP SPlice LENGTHS SHOWN ARE FOR UNCOATED BARS WITH 2" MINIMUM CLEAR COVER AND 2" MINIMUM CLEAR SPACING.



PROJECT NUMBER: PM AV 50762-23-0010
DISCIPLINE LEAD: NS
CLIENT PROJ NO:
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
RETAINING SEAT WALL DETAILS

ISSUED FOR BID 2023-10-30
REVISION
DESCRIPTION

S-001

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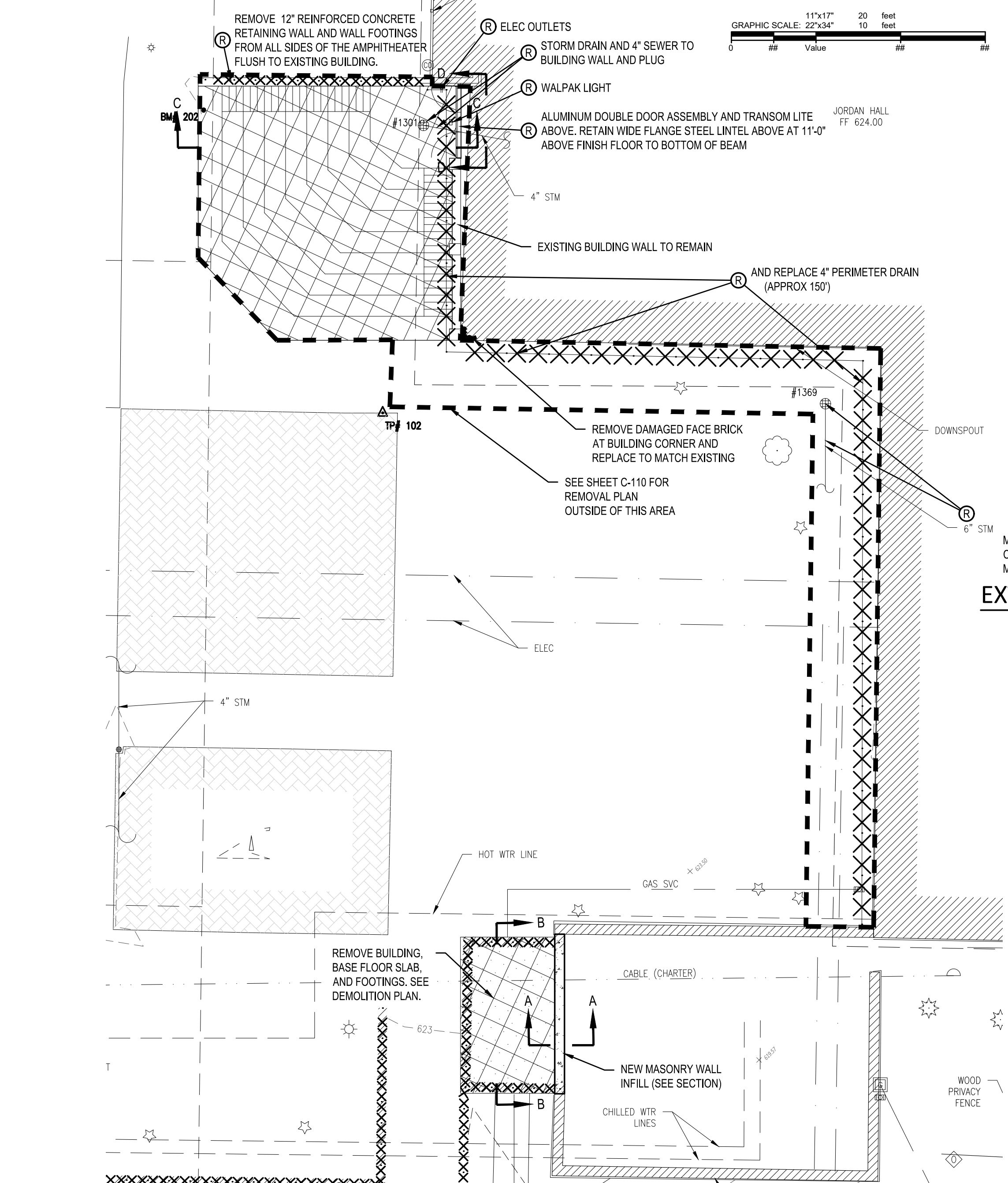
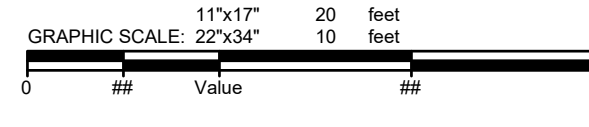
JOB BENCHMARK # 201
TOP BIG ARM OF HYD ON N SIDE
OF N WALK OF WHITING DR ±15' W
OF WALK ALONG E SIDE OF LIBRARY
ELEV 619.66

JOB BENCHMARK # 202
NW CORNER OF CONC WALL ON
W SIDE OF STAIR CASE ON
SW SIDE OF JORDAN HALL
ELEV 624.94

TRAVERSE POINT # 101
N 775546.239 ELEV 616.45
E 47282.32

TRAVERSE POINT # 102
N 775843.341 ELEV 623.57
E 47288.90

NOTE:
PROTECT EXISTING
CONSTRUCTION TO REMAIN

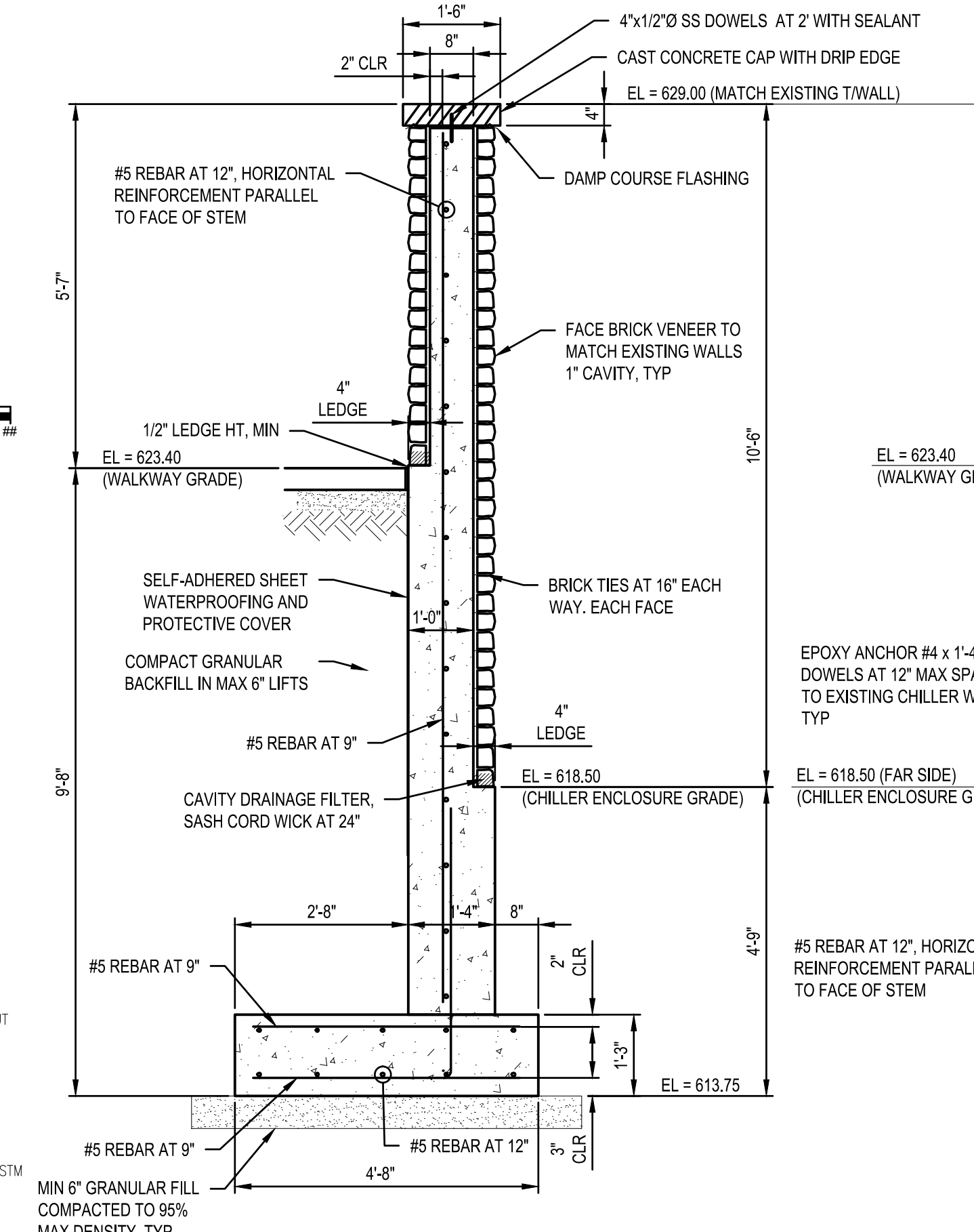


LEGEND

	CONCRETE REMOVAL
	UTILITY TO BE ABANDONED OR REMOVED
(A)	ABANDON
(B)	BULKHEAD
(R)	REMOVE

AMPHITHEATER/CHILLER WALL DEMO PLAN

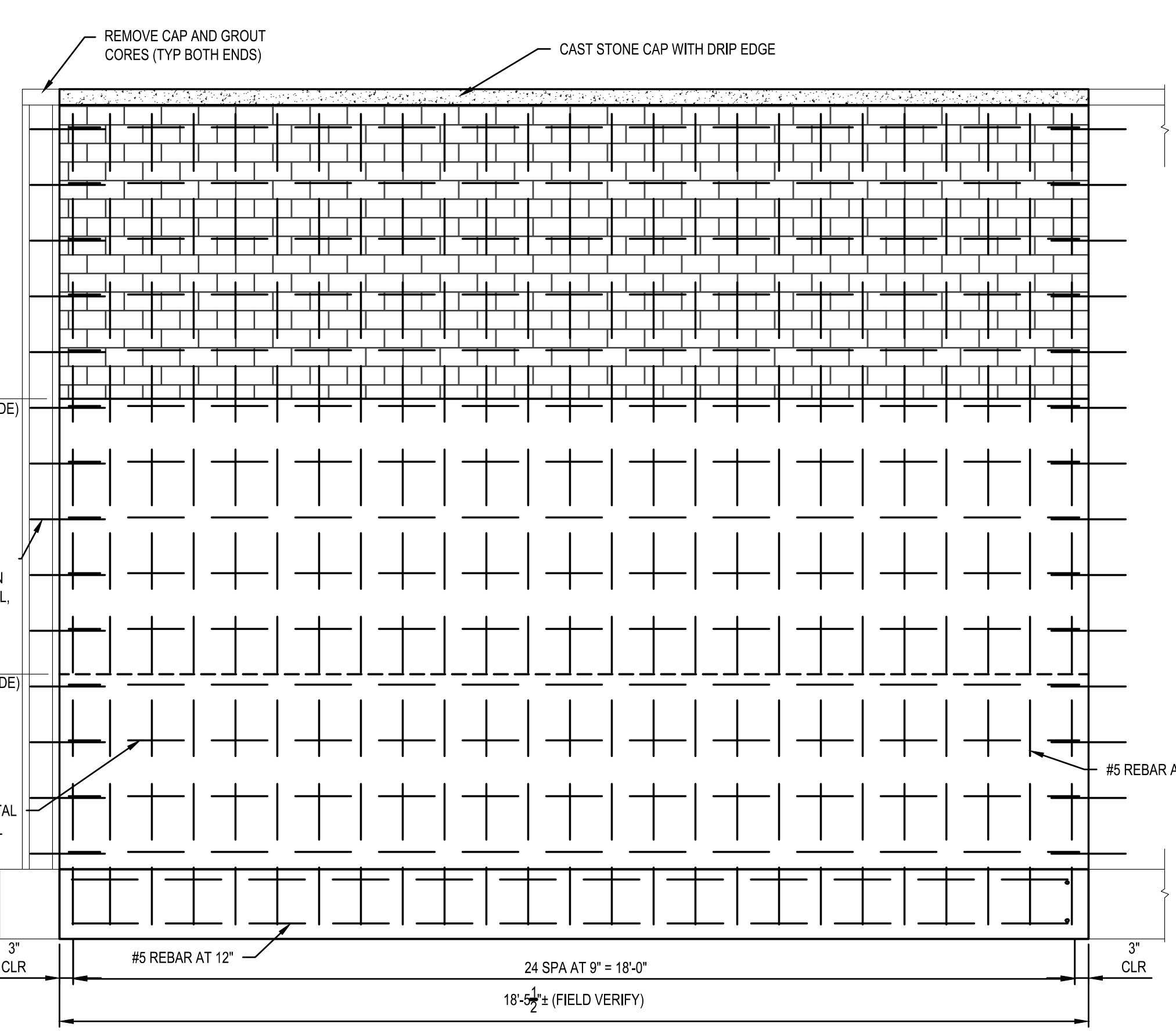
NOTE:
CONTRACTOR SHALL INVESTIGATE EXISTING STORM SEWER AND
MAKE CONNECTIONS TO PROPOSED STORM STRUCTURES AS
NECESSARY SO AS NOT TO CUT OFF EXISTING DRAINAGE FLOW.



EXTERIOR WALL SECTION AT CHILLER - SECTION A-A

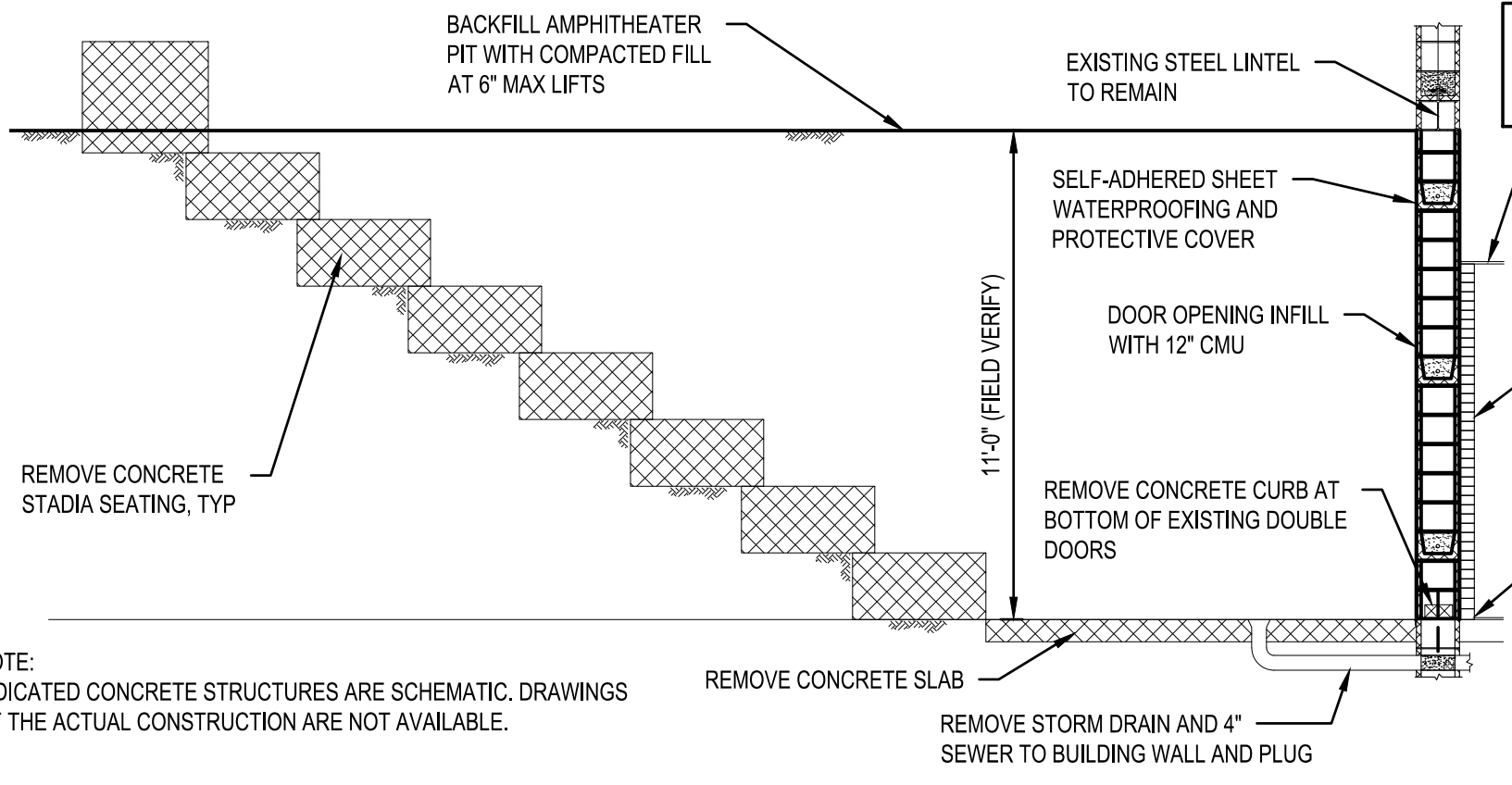
SCALE: 1/2"=1'-0"

NOTE:
BRICK FACADE TO MATCH EXISTING BELDEN
BRICK & SUPPLY BLEND:
-10211-BELD - BELCREST 350 MOD
-10212-BELD - BELCREST 360 MOD
-10222-BELD - BELCREST 650 MOD



EXTERIOR WALL INFILL AT CHILLER - SECTION B-B

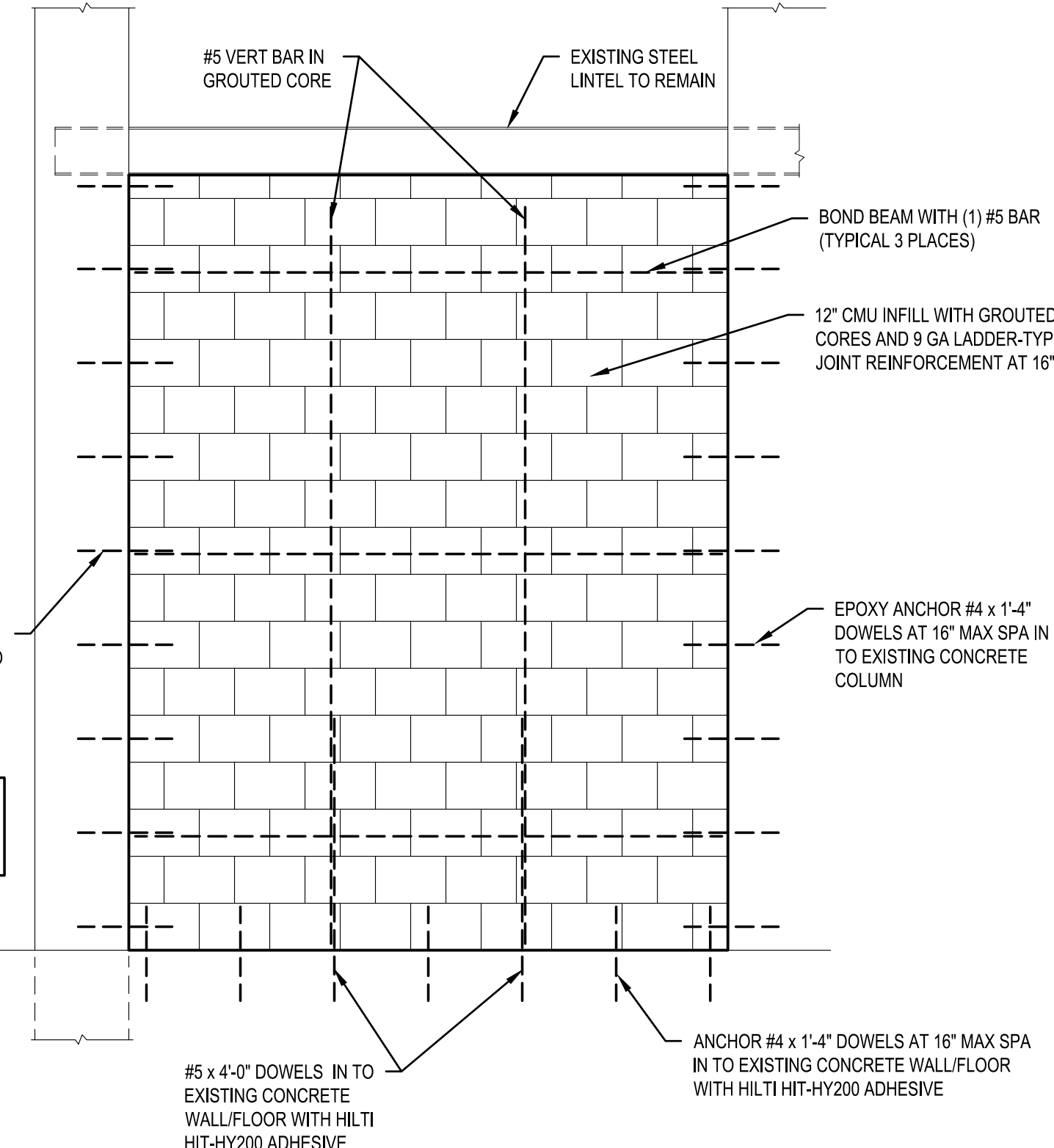
SCALE: 1/2"=1'-0"



EXTERIOR WALL BACKFILL AT AMPHITHEATER - SECTION C-C

SCALE: 1/4"=1'-0"

NOTE:
INDICATED CONCRETE STRUCTURES ARE SCHEMATIC. DRAWINGS
OF THE ACTUAL CONSTRUCTION ARE NOT AVAILABLE.



EXTERIOR WALL INFILL AT AMPHITHEATER - SECTION D-D

SCALE: 1/2"=1'-0"

NOTE:
SEE ELECTRICAL SHEETS FOR
ADDITIONAL INFORMATION



Know what's below.
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2023-10-30	DATE
ISSUED FOR: ISSUED FOR BID	DESCRIPTION
REVISION	REVISION

PROJECT NUMBER: 3076-23-010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: MS
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
AMPHITHEATER REMOVAL PLAN

S-101

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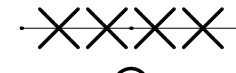



JOB BENCHMARK # 201
TOP BIG ARM OF HYD ON N SIDE
OF N WALK OF WHITING DR ±15' W
OF WALK ALONG E SIDE OF LIBRARY
ELEV 619.66

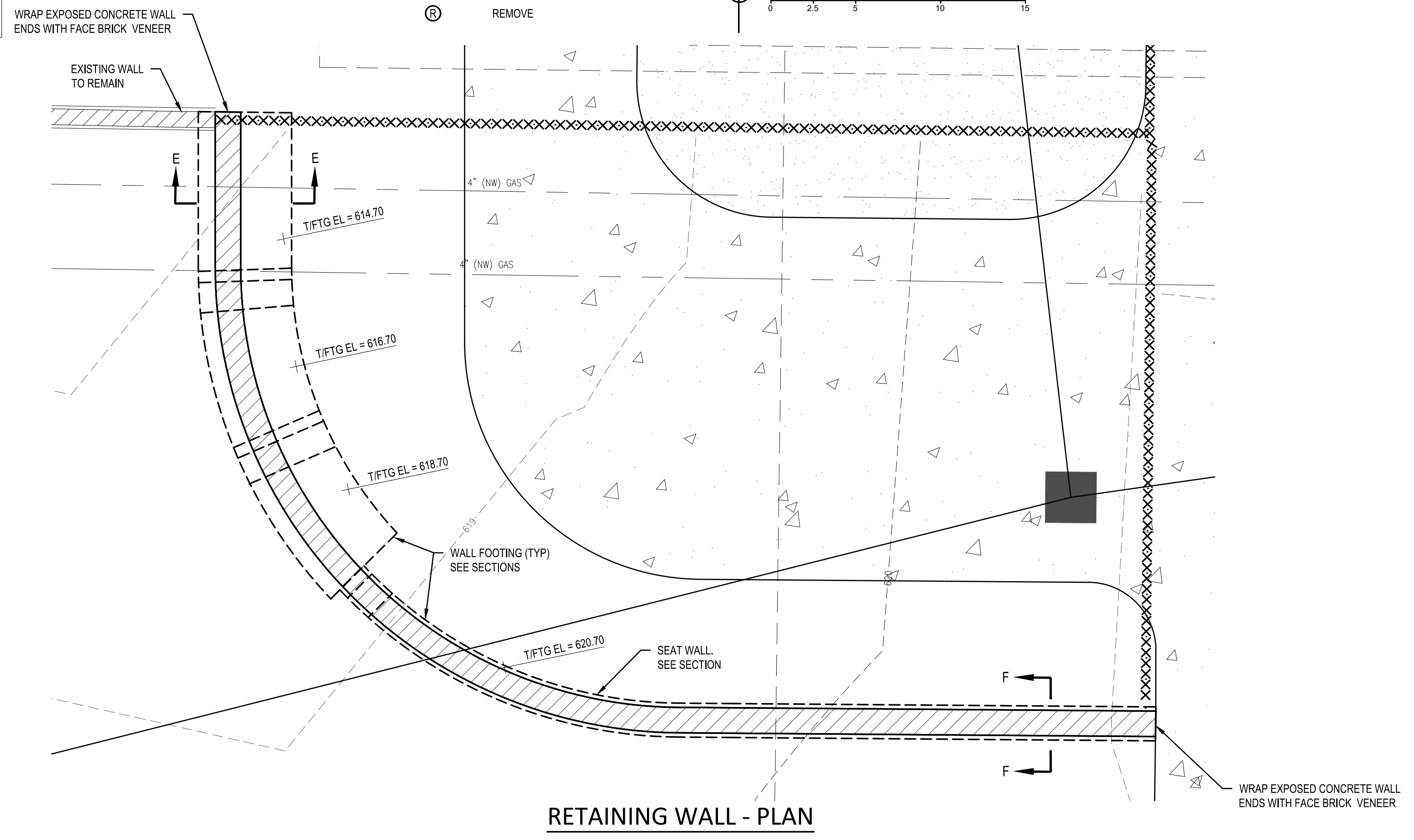
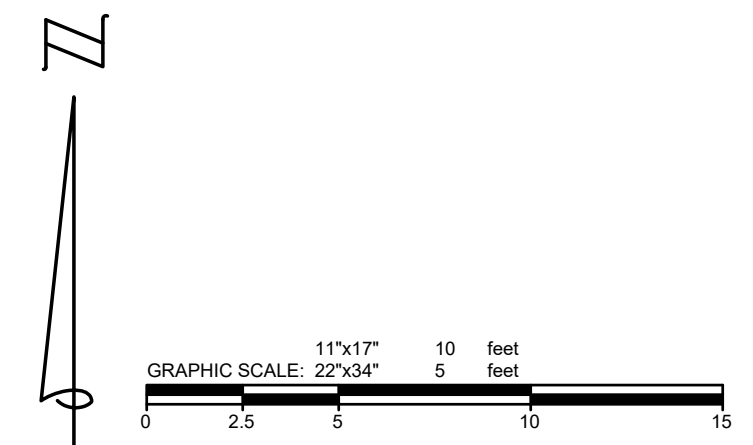
JOB BENCHMARK # 202
NW CORNER OF CONC WALL ON
W SIDE OF STAIR CASE ON
SW SIDE OF JORDON HALL
ELEV 624.94

TRAVERSE POINT # 101
N 775546.239
E 47282.32
ELEV 616.45

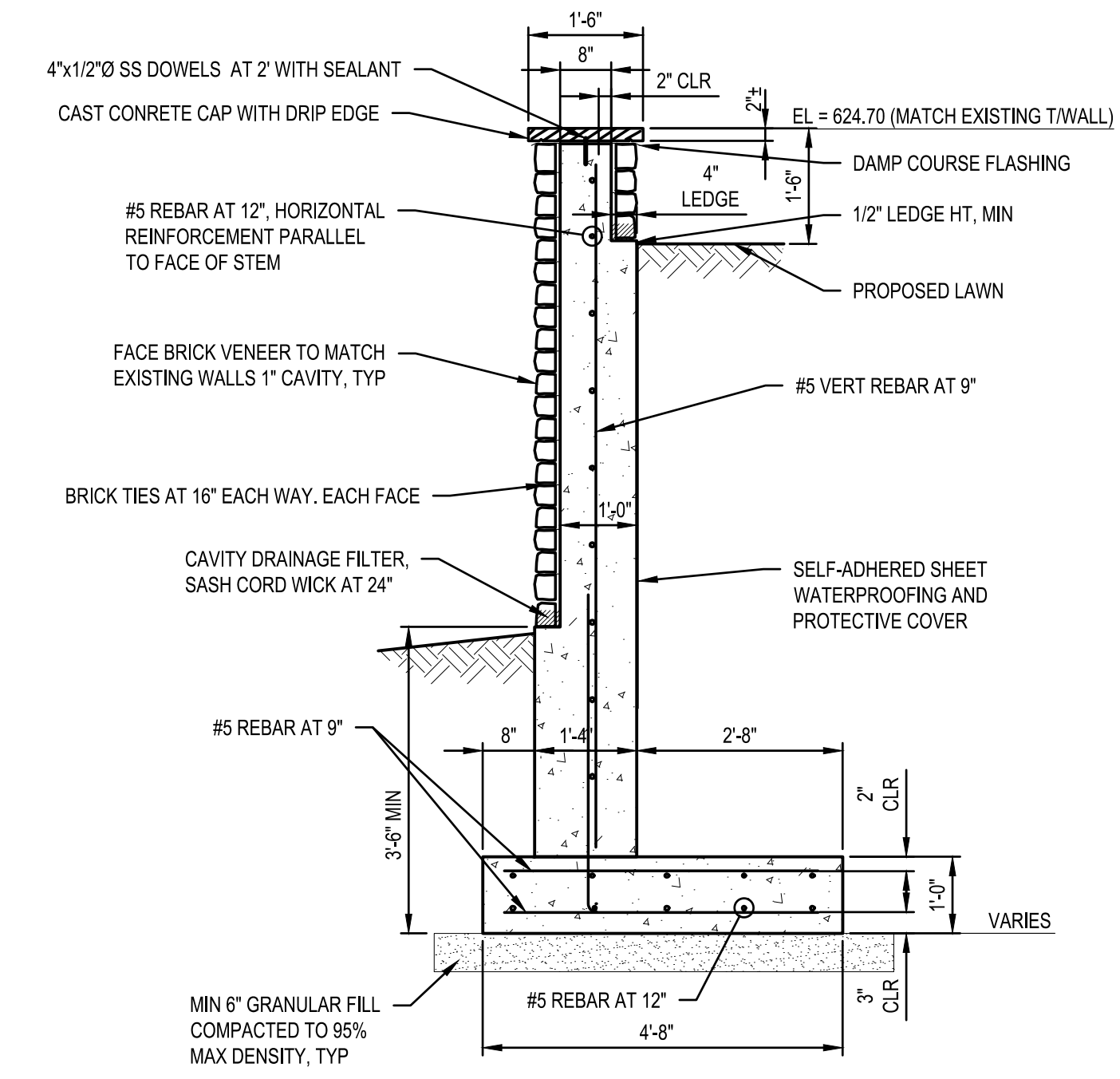
TRAVERSE POINT # 102
N 773843.341
E 47288.90
ELEV 623.57

LEGEND

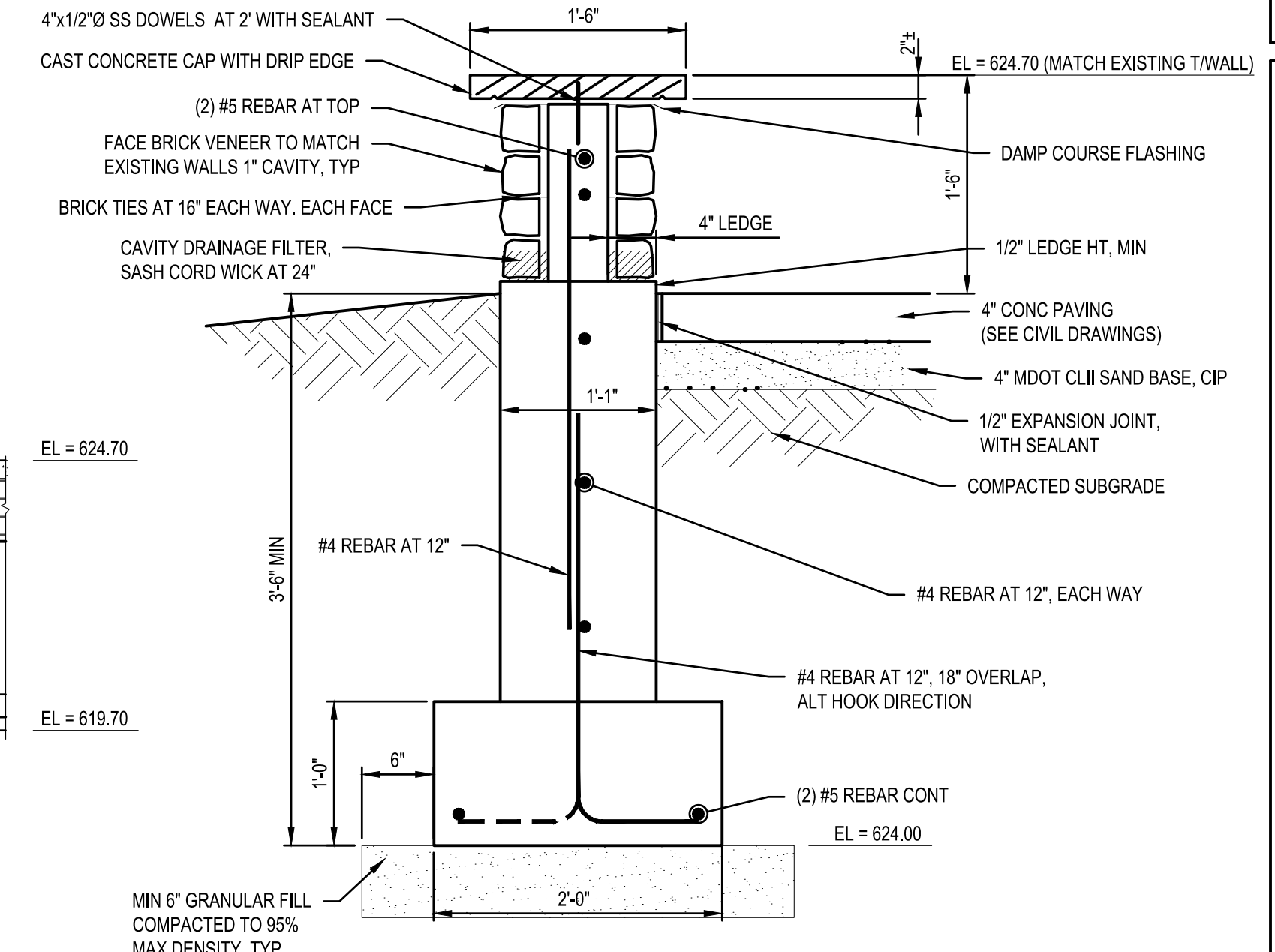
-  CONCRETE REMOVAL
-  UTILITY TO BE ABANDONED OR REMOVED
-  ABANDON
-  BULKHEAD
-  REMOVE



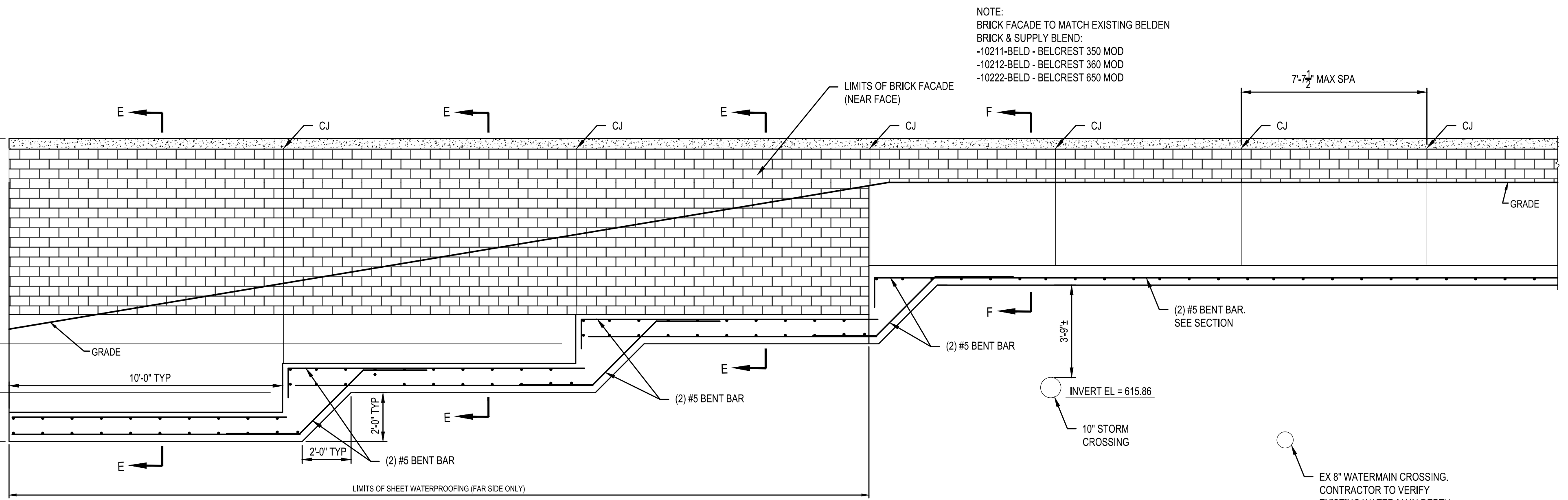
RETAINING WALL - PLAN



MASONRY RETAINING WALL WITH CAST STONE CAP - SECTION E-E
SCALE: 1/2"=1'-0"



MASONRY SEAT WALL WITH CAST STONE CAP - SECTION F-F
SCALE: 1"=1'-0"



RETAINING SEAT WALL - ELEVATION
SCALE: 1/32"=1'-0"

NOTE:
BRICK FACADE TO MATCH EXISTING BELDEN
BRICK & SUPPLY BLEND:
-10211-BELD - BELCREST 350 MOD
-10212-BELD - BELCREST 360 MOD
-10222-BELD - BELCREST 650 MOD

EX 8" WATERMAIN CROSSING.
CONTRACTOR TO VERIFY
EXISTING WATER MAIN DEPTH
AND LOCATION.



ISSUED FOR: ISSUED FOR BID
REVISION: DESCRIPTION

PROJECT NUMBER: 3076-23-010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: MS
DATE: 2023-10-30

NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI

RETAINING SEAT WALL DETAILS



Know what's below.
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DRAWING PATH: P:\6000_5498\507623010 NU Morey Plaza Area C\Drawings\Civil\Removal\23010\REIM.dwg Oct 26, 2023 - 9:27am

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GENERAL NOTES - MECHANICAL

- FIELD VERIFY LOCATIONS OF EXISTING PIPING THAT MAY CONFLICT WITH NEW CONSTRUCTION AND RELOCATE AS NEEDED.
- COORDINATE LOCATIONS OF THE THERMOSTATS WITH OTHER TRADES.
- PROVIDE BALANCE DAMPERS FOR EACH DIFFUSER/GRILLE AND BRANCH DUCT.
- COORDINATE EQUIPMENT SIZES WITH ARCHITECTURAL TRADES PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATION, ELEVATIONS, AND DETAILS OF ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF ALL EQUIPMENT AND MATERIALS IN A "NEW" CONDITION DURING CONSTRUCTION.
- ALL EXTERNALLY ISOLATED HVAC EQUIPMENT SHALL HAVE FLEXIBLE DUCT CONNECTORS.
- ALL CONDENSATE DRAIN PIPING TO TERMINATE TO DRAIN VIA AIR GAP.
- DRAWINGS INDICATE REQUIRED SIZES AND POINTS OF TERMINATION OF PIPES AND DUCTS AND SUGGESTED ROUTES. IT IS THE NOT INTENTION THE OF DRAWINGS TO INDICATE ALL NECESSARY OFFSETS. INSTALL WORK IN MANNER TO CONFORM TO STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE HEADROOM AND KEEP OPENINGS AND PASSAGEWAYS CLEAR. DO NOT SCALE FROM DRAWINGS.

PRELIMINARY - NOT FOR CONSTRUCTION

ABBREVIATIONS

A	AIR
AAV	AUTOMATIC AIR VENT
AD	ACCESS DOOR
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
APD	AIR PRESSUR DROP
AS	AIR SEPARATOR
B	BOILER
BDD	BACKDRAFT DAMPER
BFP	BACK FLOW PREVENTER
C	CUBIC FEET PER MINUTE
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
COND	CONDENSING UNIT
CONV	CONVECTOR
CR	CONDENSATE RETURN
CUH	CABINET UNIT HEATER
D	DRY BULB
DB	DIAMETER
DIA Ø	DOWN
E	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
ERV	ENERGY RECOVERY VENTILATOR
ET	EXPANSION TANK
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING
F	FURNACE
FCU	FAN COIL UNIT
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
FTR	FIN TUBE RADIATION
G	NATURAL - LP GAS
GA	GAUGE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HOT WATER COIL
HC	HORSEPOWER
HP	HIGH PRESSURE STEAM
HPS	HIGH PRESSURE STEAM
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HRU	HEAT RECOVERY UNIT
HVAC	HEATING VENTILATION & AIR CONDITIONING
HX	HEAT EXCHANGER
I	INCH
K	

ABBREVIATIONS

KH	KITCHEN HOOD
L	LOUVER
LVR	LEAVING AIR TEMPERATURE
LAT	LEAVING DRY BULB
LDB	LEAVING DRY BULB
LF	LINEAR FEET
LPS	LOW PRESSURE STEAM
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
M	MAXIMUM
MAX	THOUSAND BTU PER HOUR
MBH	MINIMUM CIRCUIT AMPS
MCA	MINIMUM
MIN	MISCELLANEOUS
MISC	MOUNTED
MTD	MAKE UP AIR UNIT
MUA	
O	OUTSIDE AIR
OA	OPPOSED BLADE DAMPER
OBD	
P	PUMP
PH	PHASE
PH φ	PRESSURE REDUCING VALVE
PRV	POUNDS PER SQUARE INCH
PSI	POUNDS PER SQUARE INCH GAUG
PSIG	
R	SUPPLY REGISTER
RA	RETURN AIR
RAD	RADIANT HEATER
RD	ROUND DIFFUSER
RE	REMOVE
RF	RETURN FAN
RH	GRAVITY RELIEF HOOD
RPM	REVOLUTIONS PER MINUTE
RTH	RADIANT TUBE HEATER
RTU	ROOF TOP UNIT
S	SUPPLY AIR
SA	STEAM COIL
SC	SMOKE DAMPER
SD	SUPPLY FAN
SF	STATIC PRESSURE
SP	STEAM
STM	SIDE WALL GRILLE
SWG	SIDE WALL REGISTER
SWR	
T	TYPICAL
U	UNIT HEATER
UH	
V	VENT
V	VARIABLE AIR VOLUME
VAV	VANED DIFFUSER
VD	
W	WATER PRESSURE DROP
WPD	WATER HEATER
WH	

HVAC LEGEND

DUCT	PROPOSED				EXISTING				DEMOLITION			
	RECTANGULAR DROP	RECTANGULAR RISE	ROUND DROP	ROUND RISE	RECTANGULAR DROP	RECTANGULAR RISE	ROUND DROP	ROUND RISE	RECTANGULAR DROP	RECTANGULAR RISE	ROUND DROP	ROUND RISE
EXHAUST AIR												
OUTSIDE AIR												
RETURN AIR												
SUPPLY AIR												

DIFFUSERS, GRILLES, TAGS & SYMBOLS

	CEILING DIFFUSER		VOLUME DAMPER		CHECK VALVE
	LINEAR SLOT DIFFUSER		MOTORIZED DAMPER		GATE VALVE
	WALL DIFFUSER/GRILLE		FIRE DAMPER		BALL VALVE
	FLOOR REGISTER		SMOKE DAMPER		BUTTERFLY VALVE
	CEILING GRILLE		COMBINATION DAMPER		2 WAY ELECTRONIC CONTROL VALVE
	TURNING VANES		THERMOSTAT		3 WAY ELECTRONIC CONTROL VALVE
	16x12 DUCT WIDTH X HEIGHT		HUMIDISTAT		2 WAY PNEUMATIC CONTROL VALVE
	120 ROUND DUCT DIAMETER		HUMIDISTAT		3 WAY PNEUMATIC CONTROL VALVE
	EQUIPMENT TAG		REVISION TAG		SOLENOID VALVE
	KEY NOTE TAG		CONNECT TO EXISTING		RELIEF VALVE
	BREAK LINE		PIPE BREAK		CIRCUIT SETTER
	DIGITAL INPUT TO THE CONTROLLER		AVERAGING TEMPERATURE SENSOR		BALANCE VALVE
	DIGITAL OUTPUT TO THE CONTROLLER		AVERAGING TEMPERATURE SENSOR		TRIPLE DUTY VALVE
	ANALOG INPUT TO THE CONTROLLER		PUMP		MOTORIZED VALVE
	ANALOG OUTPUT TO THE CONTROLLER		DIFFERENTIAL PRESSURE SENSOR/SWITCH		OCCUPANCY SENSOR
	RELAY		SMOKE DETECTOR		CO2 SENSOR
	CURRENT SWITCH		AIRFLOW MEASURING STATION		FAN
	FINNED TUBE OR RADIANT PANEL		CHILLED WATER COOLING COIL		FILTER BANK
	REFRIGERANT COOLING COIL		GAS HEAT SECTION		

PIPING

	PROPOSED	EXISTING	DEMOLITION
HEATING WATER RETURN			
HEATING WATER SUPPLY			
CONDENSATE RETURN			
NATURAL - LP GAS			

ISSUED FOR BID 2023-10-30

REVISION DESCRIPTION

PROJECT NUMBER 8076-23-0010

DISCIPLINE LEAD AV

CLIENT PROJ.NO. AV

NORTHWOOD UNIVERSITY

MOREY PLAZA IMPROVEMENTS

MIDLAND, MI

GENERAL MECHANICAL INFORMATION

M-001

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUED FOR:	2023-10-30
REVISION:	DATE
DESCRIPTION:	

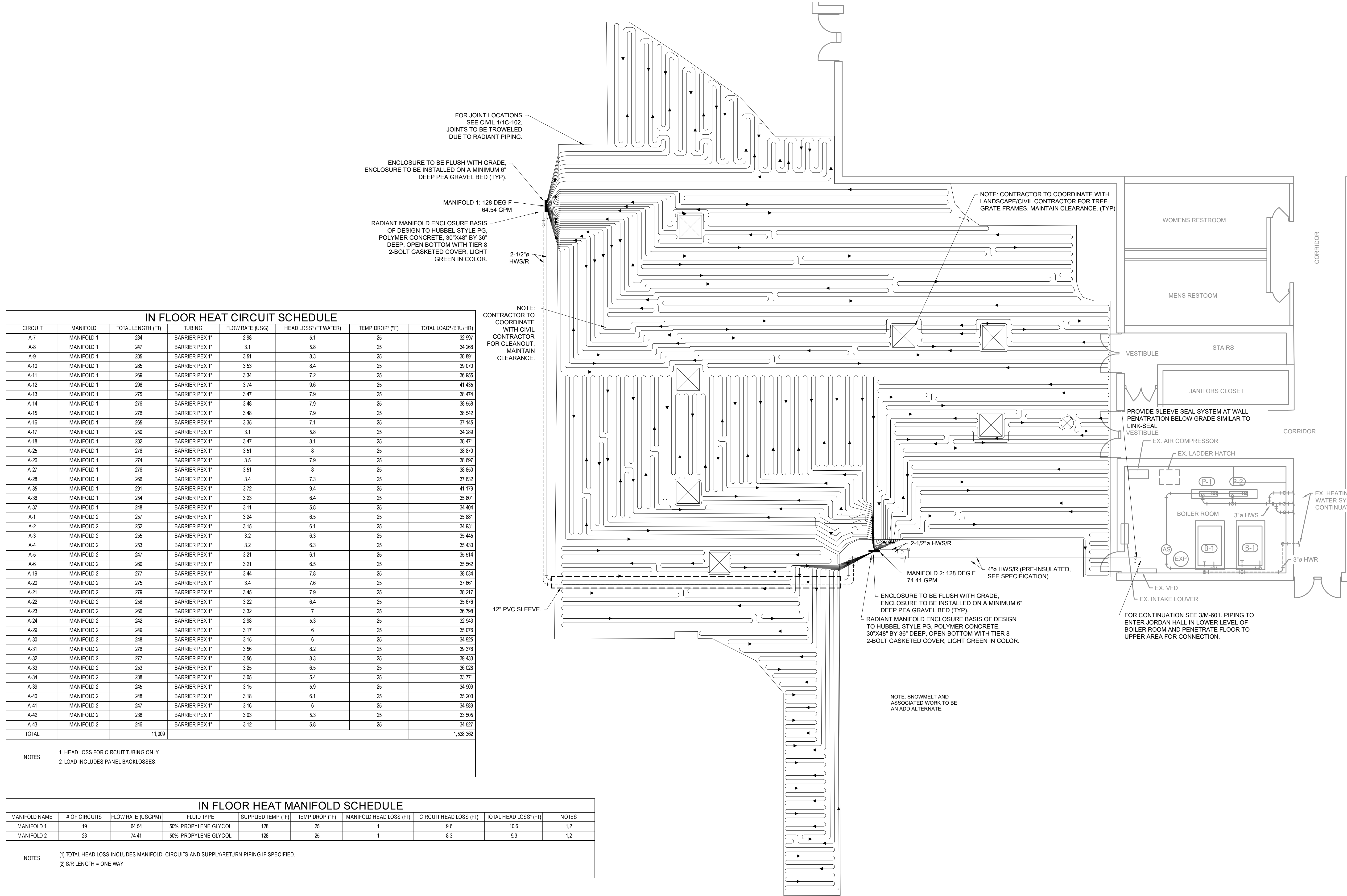
PROJECT NUMBER: 5076-23-0010
DISCIPLINE LEAD: AV
CLIENT PROJ. NO: ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
SNOWMELT PIPING PLAN

CIRCUIT	MANIFOLD	TOTAL LENGTH (FT)	TUBING	FLOW RATE (USG)	HEAD LOSS ¹ (FT WATER)	TEMP DROP ² (°F)	TOTAL LOAD ² (BTU/HR)
A-7	MANIFOLD 1	234	BARRIER PEX 1"	2.98	5.1	25	32,997
A-8	MANIFOLD 1	247	BARRIER PEX 1"	3.1	5.8	25	34,288
A-9	MANIFOLD 1	265	BARRIER PEX 1"	3.51	8.3	25	38,891
A-10	MANIFOLD 1	285	BARRIER PEX 1"	3.53	8.4	25	39,070
A-11	MANIFOLD 1	269	BARRIER PEX 1"	3.34	7.2	25	36,955
A-12	MANIFOLD 1	296	BARRIER PEX 1"	3.74	9.6	25	41,435
A-13	MANIFOLD 1	275	BARRIER PEX 1"	3.47	7.9	25	38,474
A-14	MANIFOLD 1	276	BARRIER PEX 1"	3.48	7.9	25	38,588
A-15	MANIFOLD 1	276	BARRIER PEX 1"	3.48	7.9	25	38,542
A-16	MANIFOLD 1	265	BARRIER PEX 1"	3.35	7.1	25	37,145
A-17	MANIFOLD 1	290	BARRIER PEX 1"	3.1	5.8	25	34,289
A-18	MANIFOLD 1	282	BARRIER PEX 1"	3.47	8.1	25	38,471
A-25	MANIFOLD 1	276	BARRIER PEX 1"	3.51	8	25	38,870
A-26	MANIFOLD 1	274	BARRIER PEX 1"	3.5	7.9	25	38,667
A-27	MANIFOLD 1	276	BARRIER PEX 1"	3.51	8	25	38,880
A-28	MANIFOLD 1	266	BARRIER PEX 1"	3.4	7.3	25	37,632
A-35	MANIFOLD 1	291	BARRIER PEX 1"	3.72	9.4	25	41,179
A-36	MANIFOLD 1	254	BARRIER PEX 1"	3.23	6.4	25	35,801
A-37	MANIFOLD 1	248	BARRIER PEX 1"	3.11	5.8	25	34,404
A-1	MANIFOLD 2	257	BARRIER PEX 1"	3.24	6.5	25	35,881
A-2	MANIFOLD 2	252	BARRIER PEX 1"	3.15	6.1	25	34,931
A-3	MANIFOLD 2	255	BARRIER PEX 1"	3.2	6.3	25	35,445
A-4	MANIFOLD 2	253	BARRIER PEX 1"	3.2	6.3	25	35,430
A-5	MANIFOLD 2	247	BARRIER PEX 1"	3.21	6.1	25	35,514
A-6	MANIFOLD 2	260	BARRIER PEX 1"	3.21	6.5	25	35,562
A-19	MANIFOLD 2	277	BARRIER PEX 1"	3.44	7.8	25	38,034
A-20	MANIFOLD 2	275	BARRIER PEX 1"	3.4	7.6	25	37,661
A-21	MANIFOLD 2	279	BARRIER PEX 1"	3.45	7.9	25	38,217
A-22	MANIFOLD 2	256	BARRIER PEX 1"	3.22	6.4	25	35,676
A-23	MANIFOLD 2	266	BARRIER PEX 1"	3.32	7	25	36,798
A-24	MANIFOLD 2	242	BARRIER PEX 1"	2.98	5.3	25	32,943
A-29	MANIFOLD 2	249	BARRIER PEX 1"	3.17	6	25	35,076
A-30	MANIFOLD 2	248	BARRIER PEX 1"	3.15	6	25	34,925
A-31	MANIFOLD 2	276	BARRIER PEX 1"	3.55	8.2	25	39,376
A-32	MANIFOLD 2	277	BARRIER PEX 1"	3.55	8.3	25	39,433
A-33	MANIFOLD 2	253	BARRIER PEX 1"	3.25	6.5	25	36,028
A-34	MANIFOLD 2	238	BARRIER PEX 1"	3.05	5.4	25	33,771
A-39	MANIFOLD 2	245	BARRIER PEX 1"	3.15	5.9	25	34,909
A-40	MANIFOLD 2	248	BARRIER PEX 1"	3.18	6.1	25	35,203
A-41	MANIFOLD 2	247	BARRIER PEX 1"	3.16	6	25	34,989
A-42	MANIFOLD 2	238	BARRIER PEX 1"	3.03	5.3	25	33,505
A-43	MANIFOLD 2	246	BARRIER PEX 1"	3.12	5.8	25	34,527
TOTAL		11,009					1,538,352

NOTES
1. HEAD LOSS FOR CIRCUIT TUBING ONLY.
2. LOAD INCLUDES PANEL BACKLOSSES.

MANIFOLD NAME	# OF CIRCUITS	FLOW RATE (USGPM)	FLUID TYPE	SUPPLIED TEMP (°F)	TEMP DROP (°F)	MANIFOLD HEAD LOSS (FT)	CIRCUIT HEAD LOSS (FT)	TOTAL HEAD LOSS ¹ (FT)	NOTES
MANIFOLD 1	19	64.54	50% PROPYLENE GLYCOL	128	25	1	9.6	10.6	1.2
MANIFOLD 2	23	74.41	50% PROPYLENE GLYCOL	128	25	1	8.3	9.3	1.2

NOTES
(1) TOTAL HEAD LOSS INCLUDES MANIFOLD, CIRCUITS AND SUPPLY/RETURN PIPING IF SPECIFIED.
(2) S/R LENGTH = ONE WAY



1 SNOWMELT PIPING PLAN
1/8" = 1'

EXPANSION TANK SCHEDULE								
MARK	SERVICE	LOCATION	FLUID	CAPACITY (GALLONS)	ACCEPTANCE (GALLONS)	MANUFACTURER	MODEL	NOTES
ET-1	SNOWMELT	BOILER ROOM	50% PROPYLENE GLYCOL	63	34	BELL & GOSSETT	D120	1,2

NOTES:
 1. EXPANSION TANK SHALL BE PROVIDED WITH PURGE VALVE
 2. TANK SHALL BE PRE-CHARGED AT MINIMUM 15 PSI.

AIR SEPARATOR SCHEDULE									
MARK	SERVICE	LOCATION	FLUID	GPM	MAX PRESSURE DROP (FT-WG)	CONNECTION SIZE (IN)	MANUFACTURER	MODEL	NOTES
AS-1	SNOWMELT	BOILER ROOM	50% PROPYLENE GLYCOL	142	2	5	BELL & GOSSETT	RL-5F	1,2,3

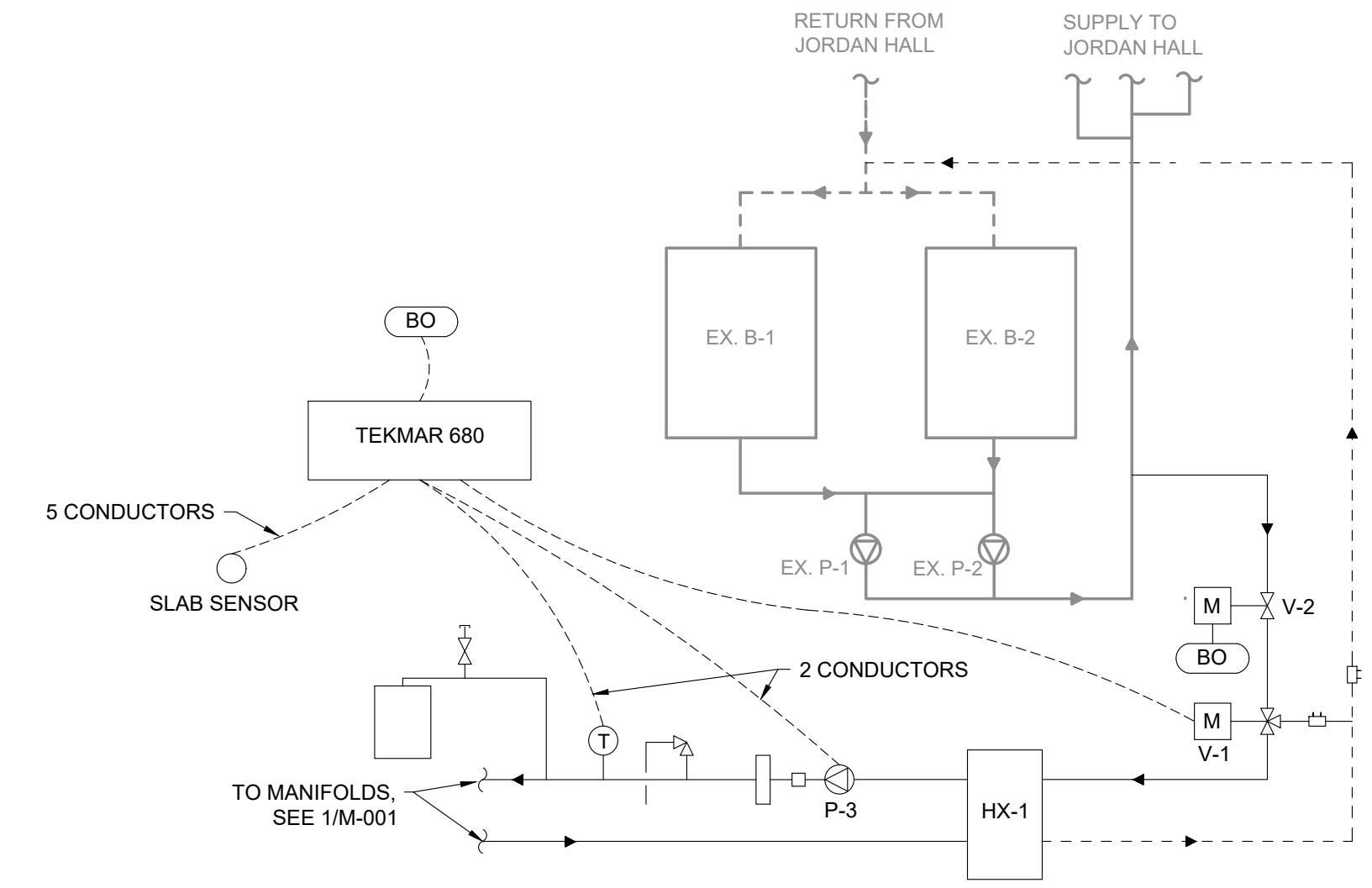
NOTES:
 1. CONTRACTOR SHALL PROVIDE INSULATION AND JACKETING ON AIR SEPARATOR TO MATCH PIPING.
 2. PROVIDE DRAIN VALVE, MOUNTING BRACKETS, AND HIGH CAPACITY AIR VENT.
 3. AIR SEPARATOR MUST REMOVE 100% OF VISIBLE AIR AND 99.9% OF DISSOLVED AIR.

PUMP SCHEDULE																
MARK	SERVICE	LOCATION	TYPE	FLUID	GPM	HEAD (FT)	CONNECTIONS		MOTOR DATA			ELECTRICAL	STARTER	MANUFACTURER	MODEL	NOTES
							SUCTION	DISCHARGE	HP	BHP	RPM					
P-3	SNOWMELT	BOILER	IN LINE	50% PROPYLENE GLYCOL	142	45	2	2	5	2.4	3357	460/3/60	VFD	BELL & GOSSETT	E-90	1

NOTES: 1. PROVIDE WITH TRIPLE DUTY VALVE.

HEAT EXCHANGER SCHEDULE														
MARK	SERVICE	CAPACITY (MBH)	PLATES	50% PROPYLENE GLYCOL				HOT WATER				MANUFACTURER	MODEL	NOTES
				GPM	WPD (FT-WG)	EWI / LWT (°F)	CONNECTION (IN)	GPM	WPD (FT-WG)	EWI / LWT (°F)	CONNECTION (IN)			
HX-1	SNOWMELT	1,573	74	142	5	125/150	4	64.2	1	180/130	4	BELL & GOSSETT	BPX	1,2

NOTES:
 1. 316 SS PLATES.
 2. EPDM GASKETS.



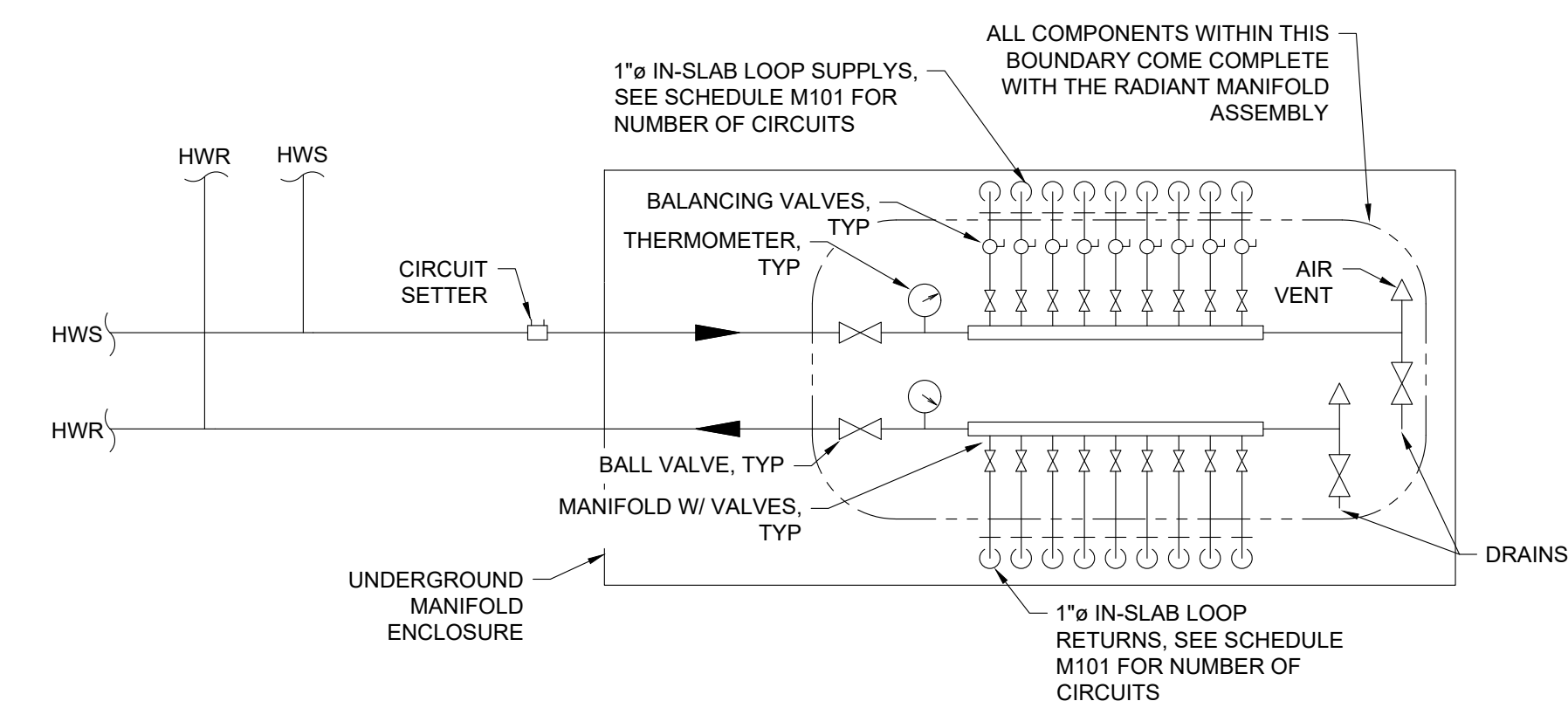
2 EXISTING BOILER SEQUENCE OF OPERATION
NO SCALE

- A. UPON A CALL FOR HEAT BY ANY PIECE OF HEATING EQUIPMENT.
 - A. AT AN ADJUSTABLE 55°F OUTSIDE AIR TEMPERATURE.
 - B. BY OPERATOR COMMAND.
 - 3. ONCE SYSTEM IS ENABLED, THE BMS SHALL SEND ENABLE COMMAND TO THE RESPECTIVE HEATING SYSTEM LEAD CIRCULATION PUMP. AFTER A ONE MINUTE HOLD (ADJ.) TO ESTABLISH FLOW IN SYSTEM, THE BMS SHALL SEND ENABLE COMMAND TO THE MULTIPLE BOILER CASCADING CONTROLLER.
 - 4. THE BMS SHALL MODULATE HEATING HOT WATER SYSTEM LEAD PUMP VARIABLE FREQUENCY CONTROLLER TO MAINTAIN A DIFFERENTIAL PRESSURE SETPOINT (ADJ.) BETWEEN SUPPLY AND RETURN SYSTEM LINES. COORDINATE LOCATION WITH ENGINEER. IF THE LEAD PUMP IS NOT ABLE TO MAINTAIN DIFFERENTIAL PRESSURE THE LAG PUMP SHALL BE ENABLED AND BOTH PUMPS SHALL BE MODULATED TO MAINTAIN DIFFERENTIAL PRESSURE. SETPOINT TO BE DETERMINED BY TEST AND BALANCE CONTRACTOR.
 - A. THE BMS SHALL MONITOR HEATING HOT WATER SYSTEM GPM USING FLOW METER IN RETURN MAIN. COORDINATE MINIMUM FLOW RATE WITH ACTUAL BOILERS INSTALLED.
 - 6. ONCE SYSTEM HAS BEEN ENABLED, THE BMS SHALL MONITOR THE STATUS OF HEATING HOT WATER SYSTEM PUMPS AND SHALL START LAG PUMP SHOULD LEAD PUMP FAIL. INCLUDE ALTERNATING OF LEAD AND LAG STATUS (15 DAYS ADJUSTABLE) TO EVEN OUT OPERATING TIME OF EACH PUMP.
 - 7. ONCE SYSTEM HAS BEEN ENABLED, THE MULTIPLE BOILER CASCADING CONTROLLER WILL MONITOR SUPPLY MAIN WATER TEMPERATURE AND ENABLE THE REQUIRED QUANTITY OF MODULAR BOILERS AND MODULATE BOILER FIRING TO MAINTAIN SUPPLY MAIN WATER TEMPERATURE SETPOINTS AS RECEIVED FROM BUILDING MANAGEMENT SYSTEM.
 - A. THE BMS SHALL MONITOR HEATING EQUIPMENT CONTROL VALVE POSITIONS AND
- UPON A CALL FOR HEAT, WILL ENABLE HEATING HOT WATER SYSTEM AND PROVIDE THE BOILER CONTROLLER WITH A SUPPLY WATER MAIN WATER TEMPERATURE AS FOLLOWS:
- A. UPON INITIAL STARTUP, SET SUPPLY WATER TEMPERATURE SETPOINT AT 100°F (ADJ.).
 - B. WHENEVER ANY HEATING EQUIPMENT CONTROL VALVE POSITIONS ARE ABOVE 95% OPEN (ADJ.), RESET SETPOINT UP TO A MAXIMUM ADJUSTABLE SUPPLY WATER TEMPERATURE SETPOINT OF 140°F. TO MAINTAIN A MAXIMUM CONTROL VALVE POSITION OF 95% OPEN (ADJ.).
 - 8. UPON NO CALL FOR HEAT, AT AN ADJUSTABLE 60°F OUTDOOR AIR TEMPERATURE OR BY OPERATOR COMMAND, THE BUILDING MANAGEMENT SYSTEM SHALL PERFORM THE FOLLOWING:
 - A. SEND DISABLE COMMAND TO BOILER CONTROLLER.
 - B. AFTER A FIVE (5) MINUTE (ADJUSTABLE) H.O.D., THE HEATING HOT WATER LEAD CIRCULATION PUMP SHALL STOP.
 - C. LEAD BOILER ISOLATION VALVE SHALL BE OPEN.
 - 9. PROVIDE DIFFERENTIAL PRESSURE SENSOR ACROSS SIDE STREAM FILTER TO MONITOR AND ALARM FILTER LOADING.
 - A. ALARM BUILDING MANAGEMENT SYSTEM AT AN ADJUSTABLE PRESSURE DIFFERENTIAL OF 10 PSID.

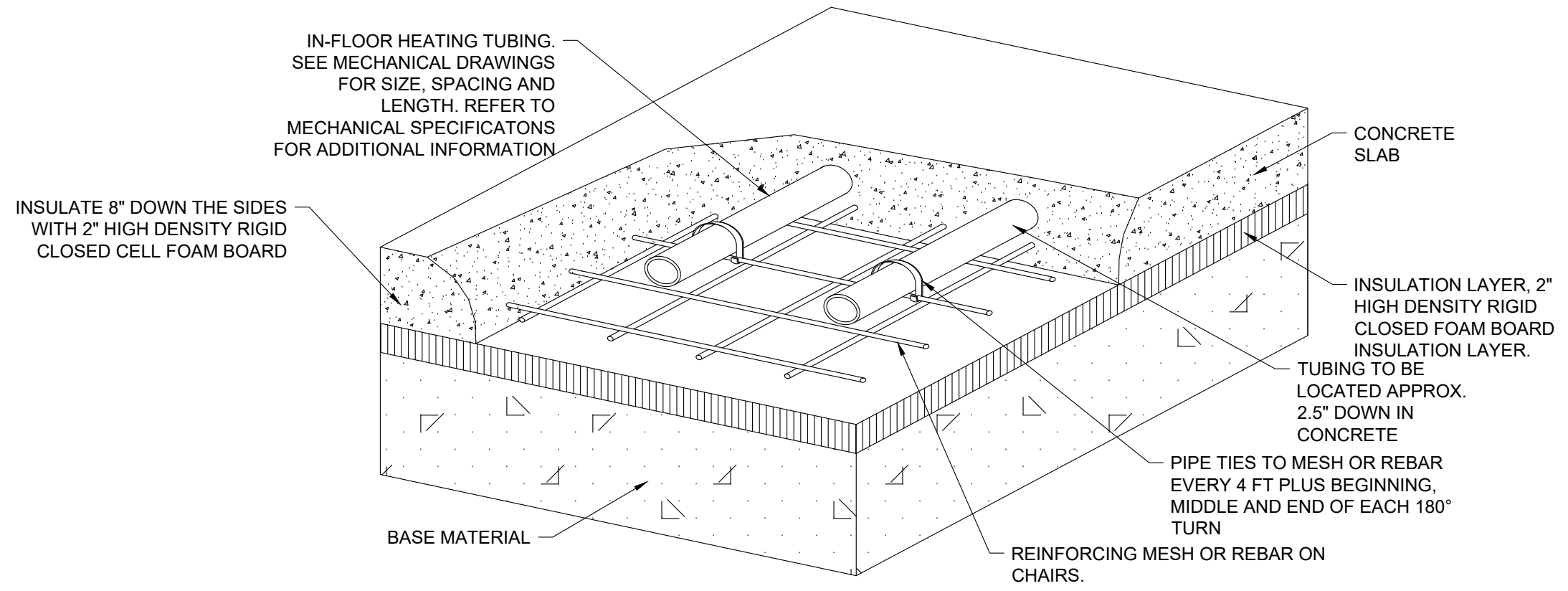
3 SNOWMELT CONTROLS AND SEQUENCE OF OPERATION
NO SCALE

WHEN THE OUTSIDE TEMPERATURE IS BELOW SETPOINT (39 DEG. ADJ.), THE SYSTEM SHALL AUTOMATICALLY START. THE TEKMAR CONTROLLER SHALL ENABLE PUMP P-3 AND PROVIDE SIGNAL TO EXISTING BAS TO RESET BOILER SUPPLY WATER TEMPERATURE TO 180 DEG F (ADJ.). THE TEKMAR CONTROLLER SHALL MODULATE THE THREE WAY VALVE (V-1) TO MAINTAIN RADIANT SUPPLY TEMPERATURE. THE CONCRETE SLAB SHALL BE PROTECTED FROM THERMAL EXPANSION STRESS BY LIMITING THE THERMAL RATE OF RISE BETWEEN THE SUPPLY WATER TEMPERATURE AND THE SLAB TEMPERATURE. THE EXISTING BAS SHALL MONITOR MAIN BOILER SUPPLY WATER TEMPERATURE AND IF THE SUPPLY WATER TEMPERATURE FALLS BELOW SETPOINT BY 3 DEGREES (ADJ.) FOR 30 MINS (ADJ) AND THE BOILERS #1 AND #2 ARE AT 100% FIRE THE BAS SHALL CLOSE VALVE V-2. PUMP P-3 SHALL CONTINUE TO CIRCULATE. VALVE V-2 SHALL REMAIN CLOSED UNTIL AT LEAST ONE BOILER FIRING RATE IS BELOW 75% FOR 30 MN (ADJ)

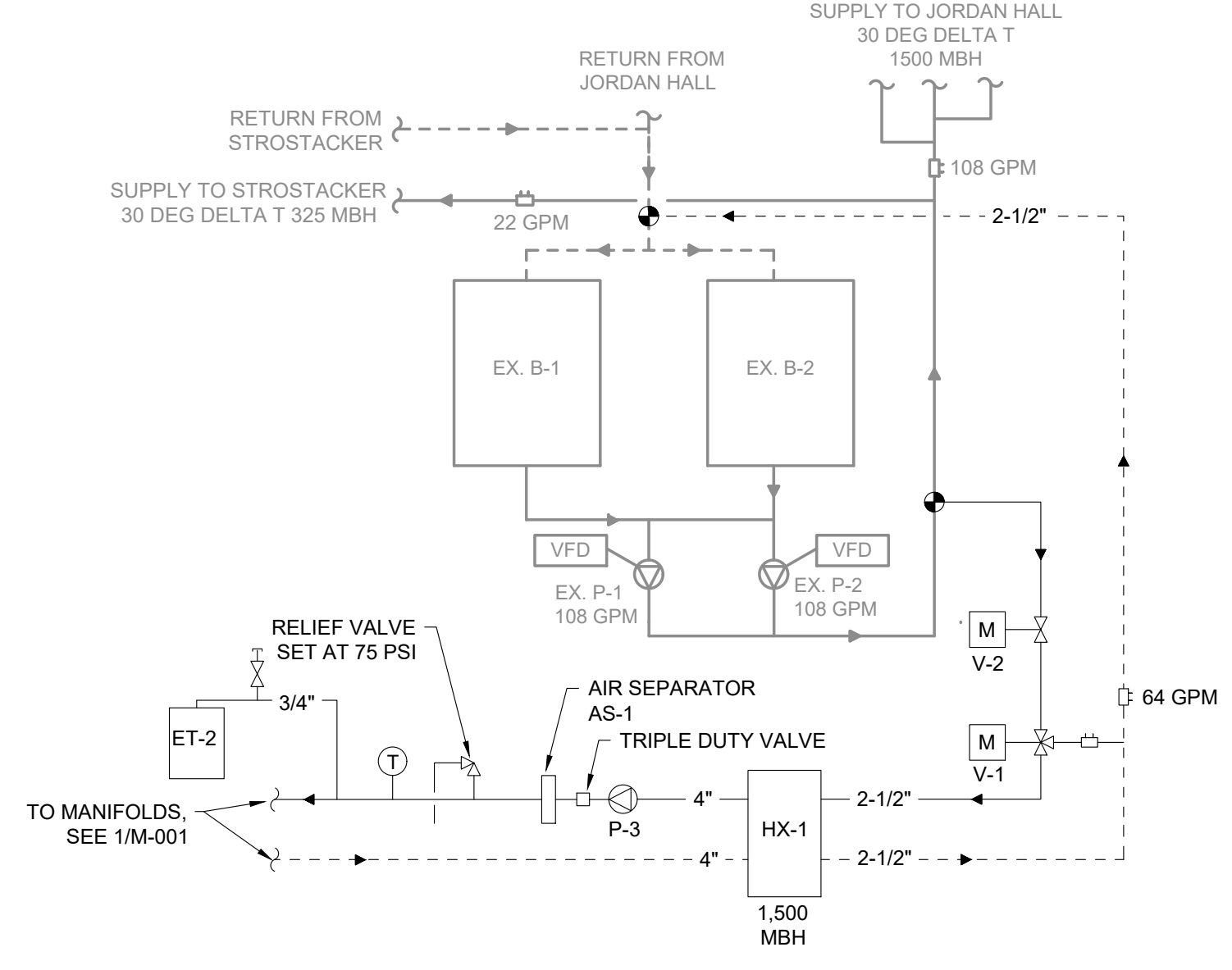
THE SYSTEM SHALL RUN UNTIL THE OUTSIDE TEMPERATURE IS ABOVE SETPOINT. SYSTEM SHALL HAVE ABILITY TO BE MANUALLY STARTED AND SHUT OFF USING TEKMAR CONTROLLER.



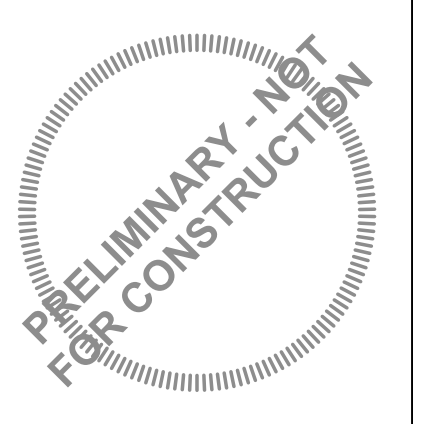
5 SNOW MELT RADIANT MANIFOLD DETAIL (TYP)
NO SCALE



4 IN-SLAB SNOW MELT PIPING DETAIL
NO SCALE



3 PIPING DIAGRAM
NO SCALE



ISSUED FOR:	2023-10-30	DATE
REVISION:		DESCRIPTION

PROJECT NUMBER: 5076-23-0010
 DISCIPLINE LEAD: AV
 CLIENT PROJ NO: ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
 MIDLAND, MI
MECHANICAL SEQUENCES

M-601

PRELIMINARY - NOT
FOR CONSTRUCTION

ISSUED FOR: 2023-10-30	DATE
REVISION	DESCRIPTION

PROJECT NUMBER: 8076-22-0010
DISCIPLINE: LEAD
CLIENT PROJECT NO: AV

NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI

GENERAL ELECTRICAL INFORMATION

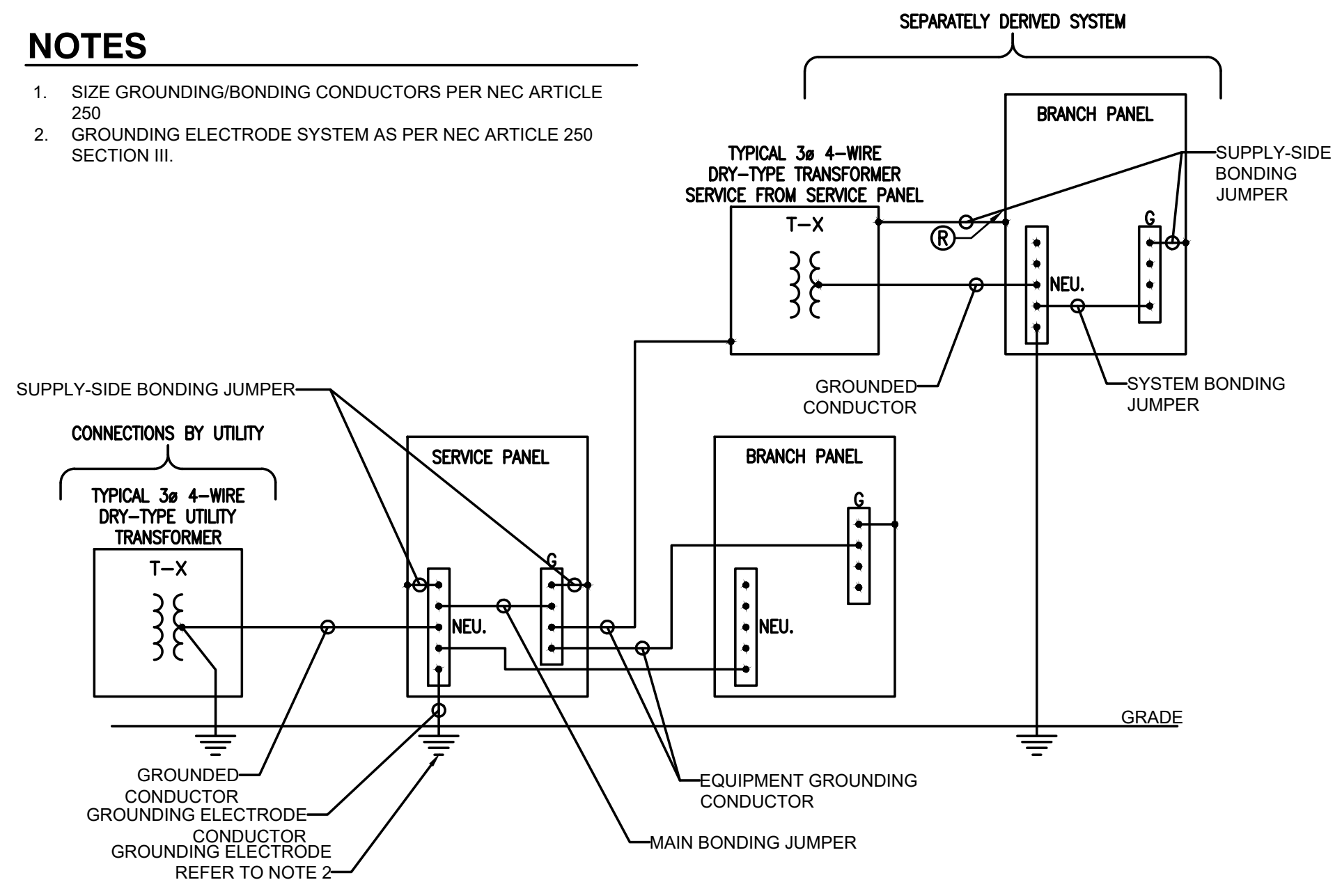
ELEC. ABBREVIATIONS GENERAL NOTES - ELECTRICAL

<p>_SPECIAL</p> <p>Ø PHASE</p> <p>A AMPERE</p> <p>AFF ABOVE FINISHED FLOOR</p> <p>ATS AUTOMATIC TRANSFER SWITCH</p> <p>C CONDUIT</p> <p>CAT CATALOGUE</p> <p>CB CIRCUIT BREAKER</p> <p>CMU CONCRETE MASONRY UNIT</p> <p>CO. COMPANY</p> <p>CUH CABIN UNIT HEATER</p> <p>E ELECTRICAL CONTRACTOR</p> <p>EF EXHAUST FAN</p> <p>EWC ELECTRIC WATER COOLER</p> <p>F FIRE ALARM</p> <p>G GROUND FAULT CIRCUIT INTERRUPTER</p> <p>GND EQUIPMENT GROUND</p> <p>H HIGH INTENSITY DISCHARGE</p> <p>HOA HAND OFF AUTO</p> <p>HPS HIGH PRESSURE SODIUM HEATING VENTILATION & AIR CONDITIONING</p> <p>K KEY OPERATED DEVICE</p> <p>KVA KILOVOLT-AMPERES</p> <p>KW KILO-WATTS</p> <p>L LIGHT EMITTING DIODE</p> <p>M MAIN CIRCUIT BREAKER</p> <p>MDP MAIN DISTRIBUTION PANEL</p> <p>MH METAL HALIDE</p> <p>MISC MISCELLANEOUS</p> <p>MLO MAIN LUG ONLY MOUNTED</p> <p>N NEUTRAL NUMBER</p> <p>NO NUMBER</p> <p>P PILOT</p> <p>PL PILOT</p> <p>R RECEPTACLE</p> <p>T TELEPHONE</p> <p>TRANS TRANSFORMER</p> <p>TV TELEVISION</p> <p>TYP TYPICAL</p> <p>U UNDERGROUND ELECTRIC UNIT HEATER</p> <p>UH UNIT NOTED OTHERWISE</p> <p>V VOLT</p> <p>VA VOLT-AMPERES</p> <p>W WIRE</p> <p>WNC WIRELESS NETWORK CONTROLLER</p> <p>WP WEATHERPROOF</p>	<p>1. ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE AND ANY STATE/LOCAL AMENDMENTS.</p> <p>2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE ACQUISITION OF AN ELECTRICAL PERMIT AND SCHEDULING OF THE NECESSARY INSPECTIONS. UPON COMPLETION OF THE WORK THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE OWNER EVIDENCE OF INSPECTION APPROVAL.</p> <p>3. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION REQUIRED WITH THE ELECTRIC UTILITY SERVING THE FACILITY. UTILITY COSTS SHALL BE PAID BY OWNER.</p>
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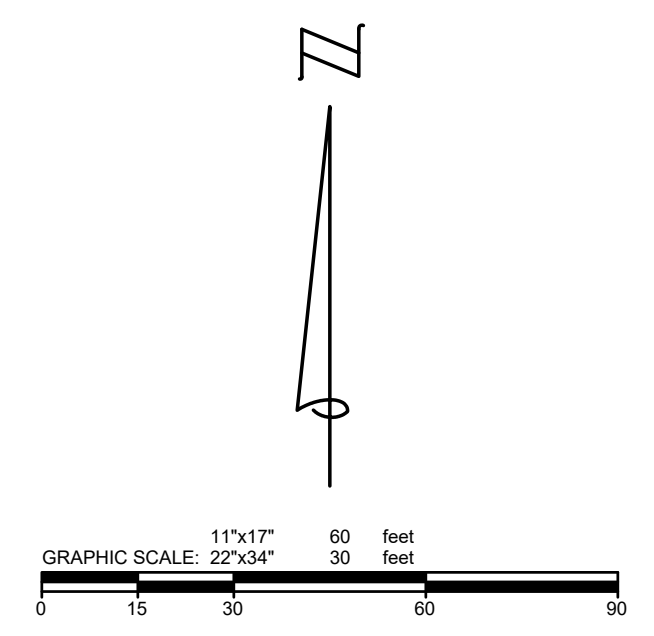
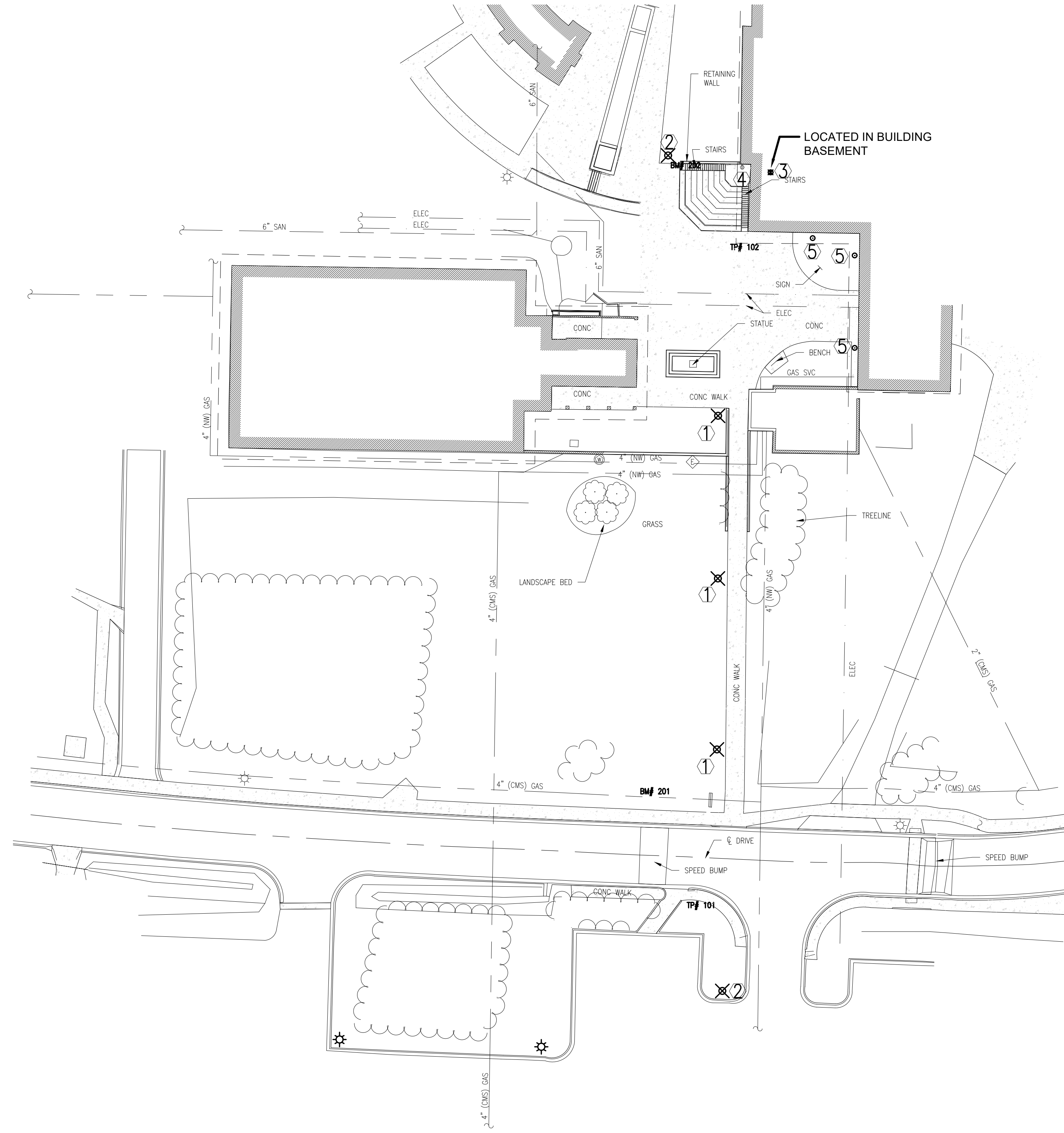
ELECTRICAL LEGEND																														
<p>LIGHT FIXTURES</p> <p>□ SURFACE / CEILING MOUNT</p> <p>■ EMERGENCY SURFACE / CEILING MOUNT</p> <p>□ PENDANT / CHAIN MOUNT</p> <p>■ EMERGENCY PENDANT / CHAIN MOUNT</p> <p>□ RECESSED MOUNT</p> <p>■ EMERGENCY RECESSED MOUNT</p> <p>— TRACK STRIP</p> <p>○ WALL MOUNT (INT.) (EXT.)</p> <p>○ EMERGENCY WALL MOUNT (INT.) (EXT.)</p> <p>○ EXTERIOR POLE MOUNT</p> <p>○ EXTERIOR POST MOUNT</p> <p>○ BOLLARD</p> <p>□ INTERIOR EMERGENCY WALL PACK</p> <p>⊗ EXIT SIGN (WALL)(CEILING)</p> <p>⊗ CEILING FAN (LIGHT)(NO LIGHT)</p>	<p>RECEPTACLE OUTLETS</p> <p>□ SIMPLEX RECEPTACLE</p> <p>□ DUPLEX GROUNDED RECEPTACLE</p> <p>□ CTR MOUNTED ABOVE COUNTER</p> <p>□ G GFCI</p> <p>□ GC GFCI - MOUNTED ABOVE CTR</p> <p>□ U DUAL USB PORTS</p> <p>□ UC DUAL USB PORTS ABOVE CTR</p> <p>□ WP WEATHERPROOF COVER W/ GFCI</p> <p>□ T TAMPERPROOF</p> <p>□ TC TAMPERPROOF ABOVE COUNTER</p> <p>□ TGC TAMPERPROOF GFCI ABOVE COUNTER</p> <p>□ 208V, 1Ø STRAIGHT BLADE RECEPTACLE</p> <p>□ D DRYER RECEPTACLE</p> <p>□ R RANGE RECEPTACLE</p> <p>□ QUADRUPLEX RECEPTACLE</p> <p>□ DUPLEX RECEPT ON EMERGENCY POWER</p> <p>□ FLOOR BOX</p> <p>□ 3Ø RECEPTACLE</p> <p>SWITCH OUTLETS</p> <p>SWITCHES: X = DESIGNATION BELOW Z = ZONE DESIGNATION</p> <p>1 SINGLE POLE</p> <p>2 TWO POLE</p> <p>3 THREE WAY</p> <p>4 FOUR WAY</p> <p>DM DIMMER</p> <p>F FAN</p> <p>K KEY OPERATED</p> <p>LV LOW VOLTAGE</p> <p>M MOTION DETECTION</p> <p>P PILOT LIGHT</p> <p>T TIMER</p> <p>SENSORS: X = DESIGNATION BELOW</p> <p>□ DAYLIGHT</p> <p>□ OCCUPANCY</p> <p>□ VACANCY</p> <p>PB EMERGENCY STOP SWITCH</p> <p>□ PUSH BUTTON SWITCH</p> <p>□ PHOTOCELL</p> <p>□ CEILING MOUNTED PULL SWITCH</p> <p>□ WIRELESS NETWORK LIGHTING CONTROLLER</p> <p>□ XX = CONTROLLER INDICATOR</p> <p>SECURITY</p> <p>□ CR CARD READER</p> <p>□ MS MAGNETIC SWITCH (DOOR CONTACT)</p> <p>□ EL ELECTRONIC DOOR LOCK</p> <p>□ MO MOTORIZED DOOR OPERATOR</p> <p>□ J JUNCTION BOX (CEILING WALL SURFACE)</p> <p>□ SINGLE PHASE MOTOR</p> <p>□ THREE PHASE MOTOR</p> <p>□ SECURITY CAMERA (CEILING WALL)</p>	<p>FIRE ALARM SYSTEM</p> <p>□ OUTDOOR BELL / CHIME</p> <p>□ SMOKE DETECTOR</p> <p>□ SA SMOKE DETECTOR WITH AUDIBLE BASE</p> <p>□ SMO SMOKE/CARBON MONOXIDE DETECTOR</p> <p>□ DSD DUCT SMOKE DETECTOR</p> <p>□ HD HEAT DETECTOR</p> <p>□ CEILING WALL</p> <p>□ FIRE ALARM HORN/STROBE</p> <p>□ FIRE ALARM STROBE</p> <p>□ FIRE ALARM HORN</p> <p>□ FIRE ALARM SPEAKER/STROBE</p> <p>□ FIRE ALARM SPEAKER</p> <p>□ FIRE ALARM PULL STATION</p> <p>□ H MAG DOOR HOLD OPEN</p> <p>□ ELR END OF LINE RESISTOR</p> <p>□ FLS FIRE ALARM FLOW SWITCH</p> <p>□ FPS FIRE ALARM PRESSURE SWITCH</p> <p>□ FTS FIRE ALARM TAMPER SWITCH</p> <p>□ FAA FIRE ALARM ANNUCIATOR PANEL</p> <p>□ FACFP FIRE ALARM CONTROL PANEL</p> <p>□ HSS HOOD SUPPRESSION SYSTEM FIRE ALARM CONTACT</p> <p>TELEPHONE/COMMUNICATIONS</p> <p>□ CEILING WALL FLOOR FURNITURE</p> <p>X=NUMBER AND TYPE OF PORTS</p> <p>C COAXIAL PORT</p> <p>D DATA PORT</p> <p>P PHONE PORT</p> <p>W WIRELESS ACCESS POINT</p> <p>□ SPEAKER (CEILING WALL)</p> <p>□ INTERCOM CALL BOX</p> <p>□ ENTRANCE CALL SYSTEM</p> <p>□ BELL</p> <p>□ MICROPHONE JACK</p> <p>□ PS POWER SUPPLY</p> <p>WG REQUIRES WIRE GUARD</p> <p>□ NURSE NURSE CALL MAIN PANEL</p> <p>□ NURSE CALL PULL STATION</p> <p>□ NURSE CALL LIGHT</p> <p>□ CLOCK</p>																												
<p>POWER DISTRIBUTION</p> <p>□ DISCONNECT SWITCH</p> <p>□ FUSED DISCONNECT SWITCH</p> <p>□ COMBINATION MOTOR STARTER WITH DISCONNECT SWITCH</p> <p>□ MOTOR STARTER</p> <p>□ ELECTRICAL METER</p> <p>DP # DISTRIBUTION PANEL</p> <p>P # ELECTRICAL POWER PANEL SURFACE MOUNT</p> <p>P # ELECTRICAL POWER PANEL FLUSH MOUNT</p> <p>R RELAY</p> <p>T ELECTRICAL TRANSFORMER</p> <p>PB ELECTRICAL PULL BOX</p> <p>VFD VARIABLE FREQUENCY DRIVE</p> <p>□ JUNCTION BOX (CEILING WALL SURFACE)</p> <p>□ SINGLE PHASE MOTOR</p> <p>□ THREE PHASE MOTOR</p>	<p>RACEWAY NOTES</p> <p>1. MINIMUM SIZE OF RIGID CONDUIT SHALL BE 3/4"</p> <p>2. MINIMUM SIZE OF FLEX CONDUIT SHALL BE 1/2"</p> <p>3. MINIMUM SIZE WALL BOX IN CMU SHALL BE 4"x4"</p> <p>4. MINIMUM SIZE OF UNDERGROUND CONDUIT SHALL BE 1 1/4"</p>	<p>WIRES</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>PROPOSED</th> <th>EXISTING</th> <th>DEMOLISH</th> </tr> </thead> <tbody> <tr> <td>POWER CIRCUIT WIRING</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>UNDERGROUND WIRING</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>SWITCH LOOP WIRING</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>UN-SWITCHED HOT WIRING</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>LOW VOLTAGE WIRING</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>DATA WIRING</td> <td>---</td> <td>---</td> <td>---</td> </tr> </tbody> </table>		PROPOSED	EXISTING	DEMOLISH	POWER CIRCUIT WIRING	---	---	---	UNDERGROUND WIRING	---	---	---	SWITCH LOOP WIRING	---	---	---	UN-SWITCHED HOT WIRING	---	---	---	LOW VOLTAGE WIRING	---	---	---	DATA WIRING	---	---	---
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DATA WIRING	---	---	---																											

NOTES

1. SIZE GROUNDING/BONDING CONDUCTORS PER NEC ARTICLE 250
2. GROUNDING ELECTRODE SYSTEM AS PER NEC ARTICLE 250 SECTION III.



DRAWING PATH: P:\5000_5498\50763010_NU_Morey_Plaza_Area_C\Drawings\Civil\Removal\23010\ELECREM.dwg - 02.26.2023 - 9:28am



ISSUED FOR:	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	

PROJECT NUMBER: 5076-23-010
 DISCIPLINE LEAD: AV
 CLIENT PROJ. NO: ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
 MIDLAND, MI
ELECTRICAL REMOVAL PLAN

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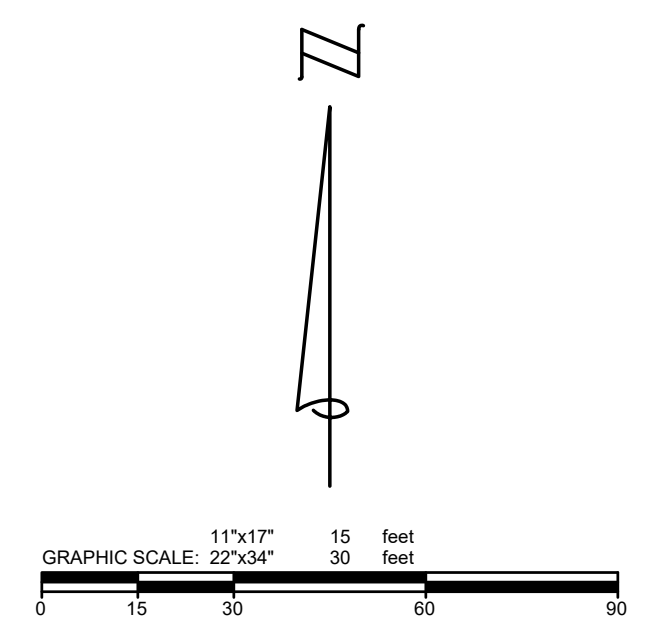
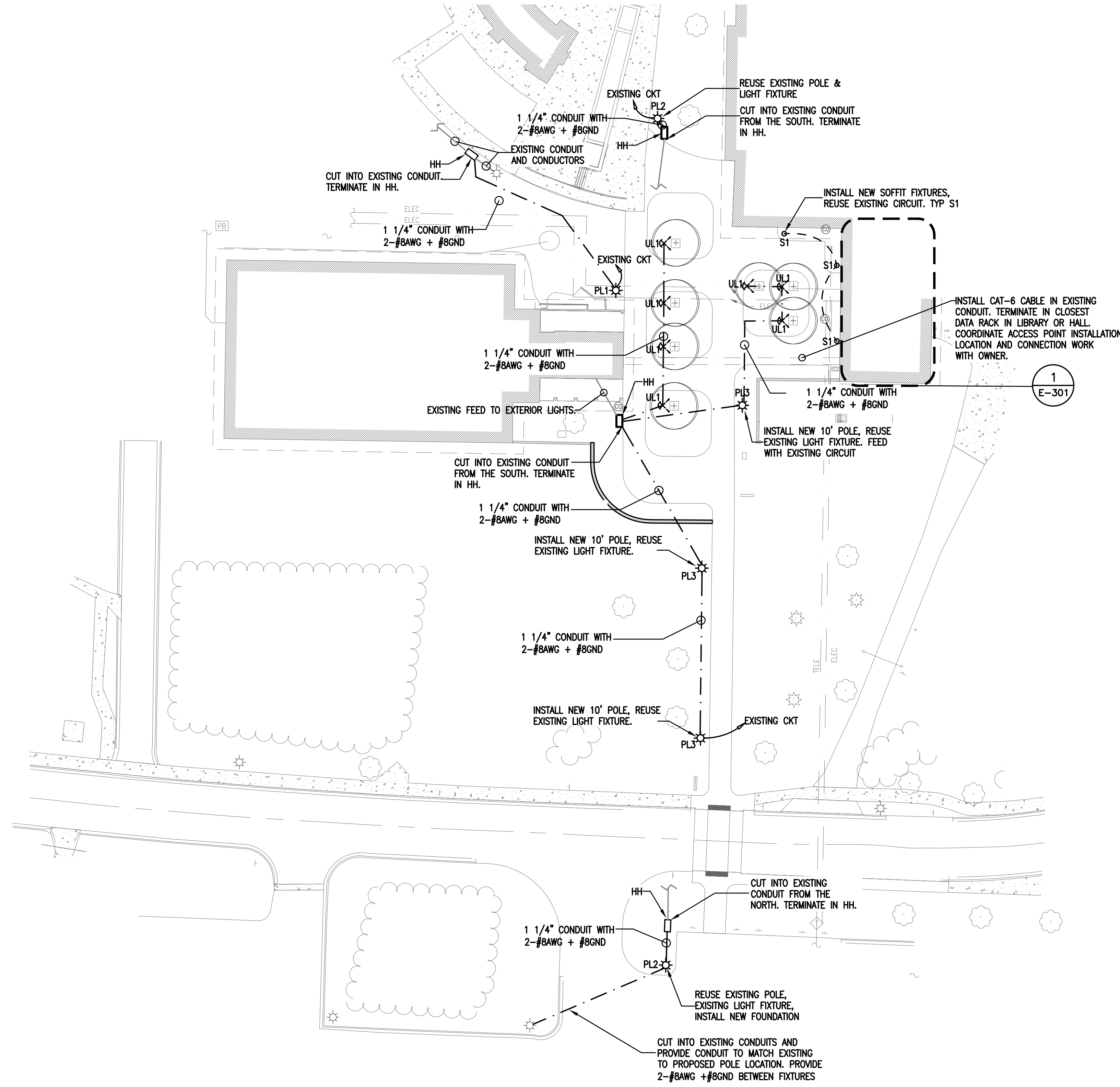
ELECTRICAL DEMOLITION KEYNOTES:

- #
- 1. REMOVE POLE & LIGHT FIXTURE. SALVAGE LIGHT FIXTURE FOR REUSE. REMOVE FOUNDATION. REMOVE CONDUIT AND CONDUCTORS BACK TO LOCATION SHOWN ON E-101.
- 2. REMOVE AND SALVAGE EXISTING POLE AND LIGHT FIXTURE FOR REUSE. REMOVE FOUNDATION. REMOVE CONDUIT AND CONDUCTORS BACK TO LOCATION SHOWN ON E-101.
- 3. REMOVE EXIT SIGN. REMOVE CONDUIT AND CONDUCTORS BACK TO NEAREST DEVICE TO REMAIN. MAINTAIN CIRCUIT INTEGRITY TO EXISTING DEVICES TO REMAIN.
- 4. REMOVE RECEPTACLE. REMOVE CONDUCTORS BACK TO NEAREST DEVICE TO REMAIN. MAINTAIN CIRCUIT INTEGRITY TO EXISTING DEVICES TO REMAIN.
- 5. REMOVE SOFFIT LIGHT FIXTURES. CONDUIT AND CONDUCTORS TO REMAIN.



Know what's below.
 Call before you dig.

DRAWING PATH: P:\5000_5495\507625010_NU_Morey_Plaza_Area_C\Drawings\Civil\Plans_Constr\23010ELEC.dwg Oct 26, 2023 - 9:28am



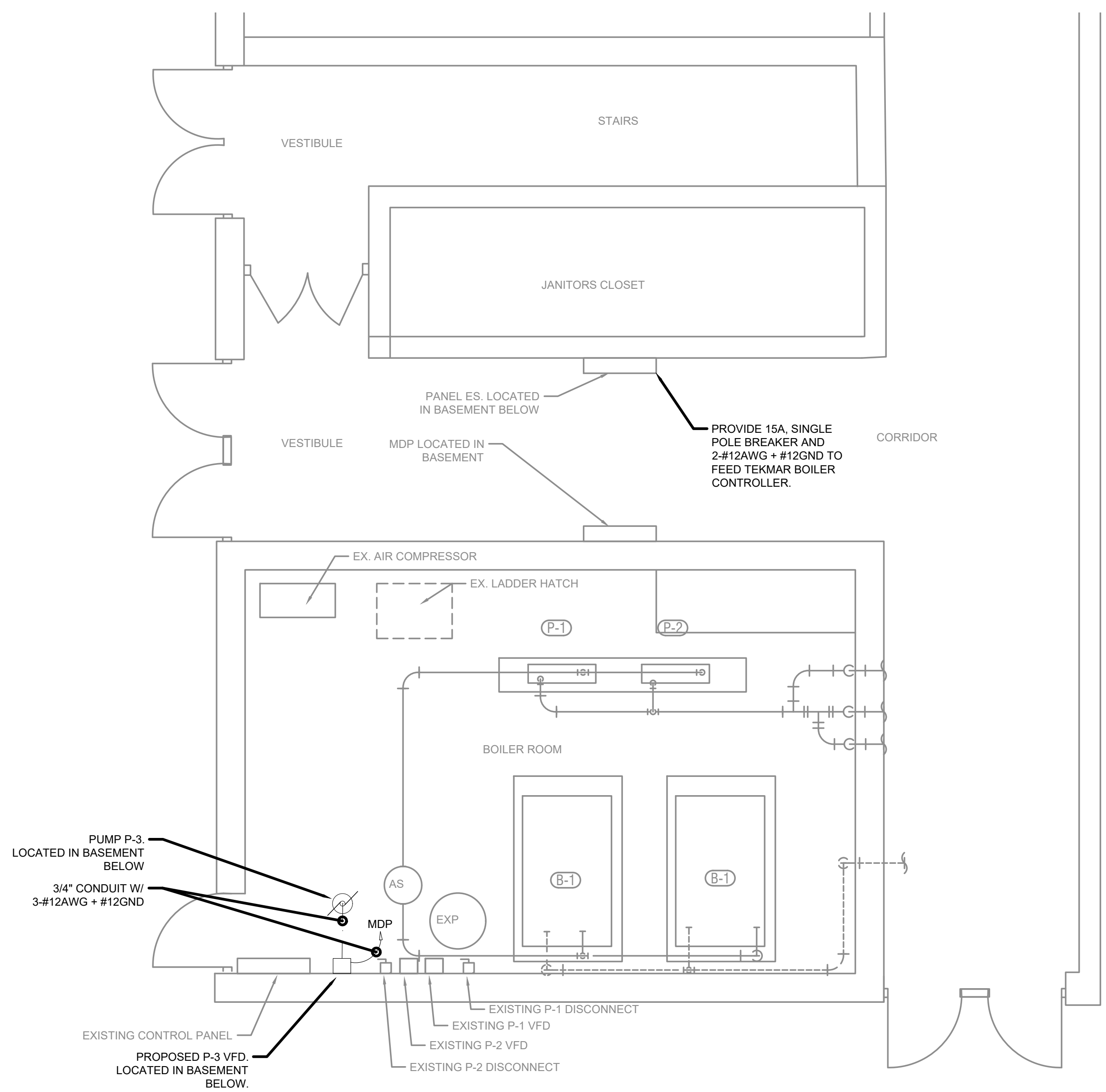
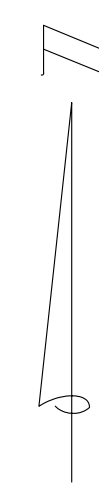
ISSUED FOR:	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	

PROJECT NUMBER: 5076-23-010
 DISCIPLINE LEAD: AV
 CLIENT PROJ NO: ES
 NORTHWOOD UNIVERSITY
 MOREY PLAZA IMPROVEMENTS
 MIDLAND, MI
 ELECTRICAL SITE PLAN

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1 PARTIAL JORDAN HALL ELECTRICAL PLAN
1/4" = 1'

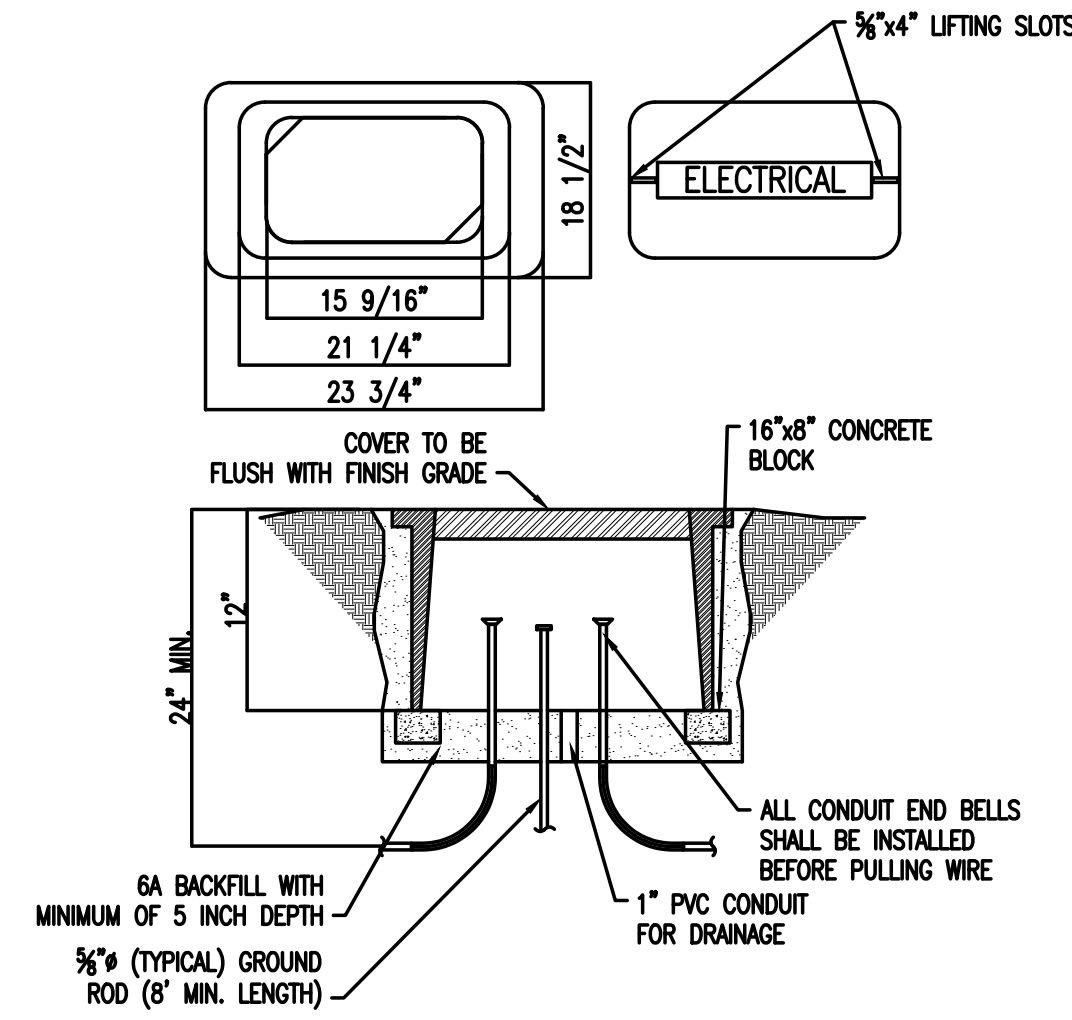
PRELIMINARY - NOT FOR CONSTRUCTION

ISSUED FOR:	ISSUED FOR BID	DATE
REVISION	DESCRIPTION	

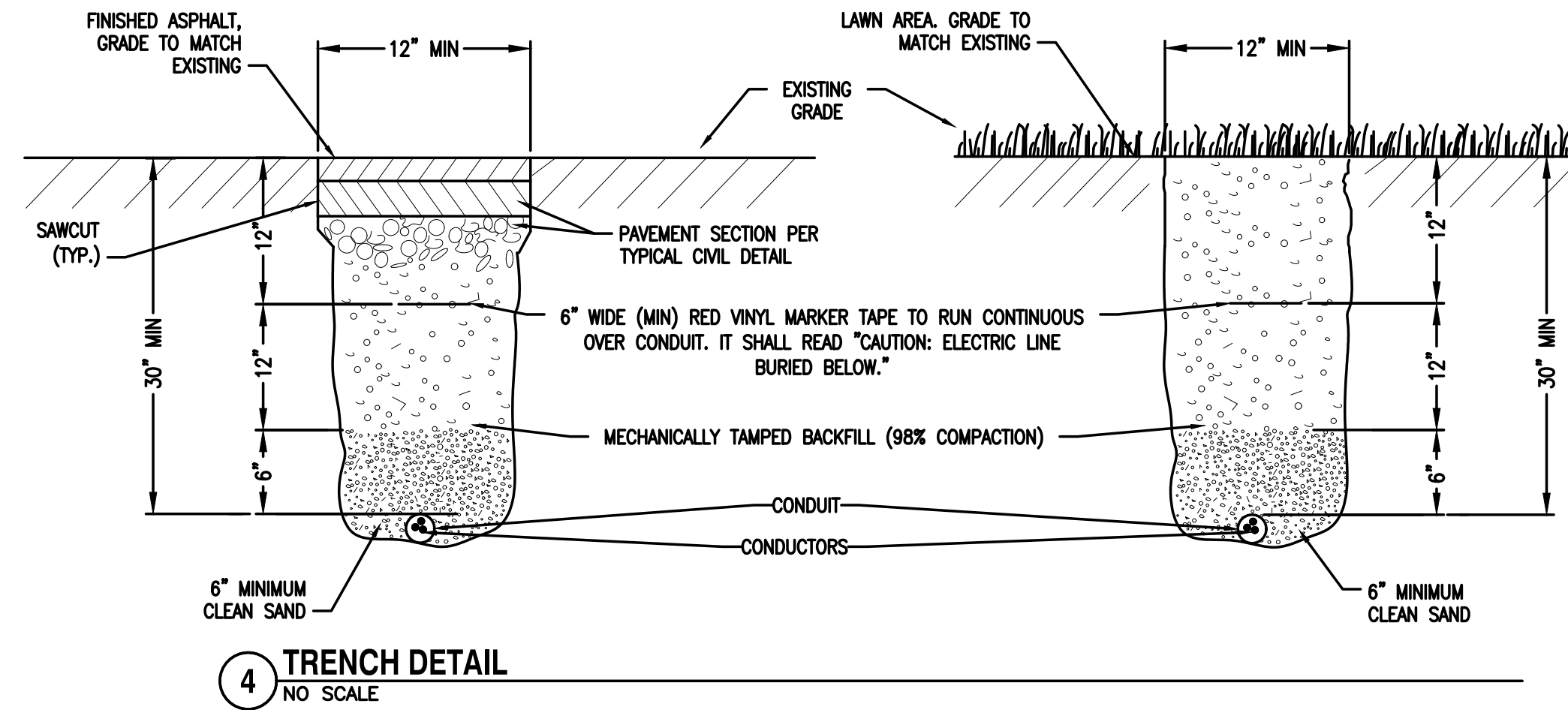
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DISCIPLINE LEAD: AV
CLIENT PROJ/NO: ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
SNOWMELT ELECTRICAL PLAN

NOTES:

- BOX AND COVER SHALL BE CONCRETE OR COMPOSITE. METAL COVER IS ACCEPTABLE.
- COVERS SHALL BE SECURED WITH 3/8" BOLTS, NUTS, AND WASHERS. WHICH SHALL BE BRASS, STAINLESS STEEL OR OTHER CORROSION RESISTANT MATERIAL. STAINLESS STEEL SHALL HAVE A CHROMIUM CONTENT OF NOT LESS THAN 18% AND A NICKEL CONTENT OF NOT LESS THAN 8%, NUTS SHALL BE RECESSED BELOW TOP SURFACE OF COVER.
- COVER LETTERING SHALL BE 1/2" MINIMUM LETTERS CAST IN STANDARD MARKINGS: (ELECTRICAL).
- CONDUIT ENTERING THE BOX SHALL HAVE 90° LONG RADIUS BEND (INSIDE THE BOX). THE CONDUITS OPENING, INSIDE THE BOX, SHALL BE AT LEAST 4" BELOW THE LID, OPENING SHALL HAVE SMOOTH EDGE. IF THE CONDUIT IS P.V.C. A SLIP COUPLING MUST BE USED. IF THE CONDUIT IS RIGID PIPE, A PROTECTIVE BUSHING SHALL BE USED.
- CONDUCTORS SHALL HAVE A MINIMUM OF 24" SLACK FROM CONDUIT BELL END.
- BACKFILL WITH EXCAVATED MATERIAL AND THOROUGHLY COMPACT.
- WHERE PULLBOXES ARE INSTALLED IN CONCRETE AREAS, 1/2" PREMOLDED EXPANSION JOINT SHALL BE INSTALLED AROUND THE BOX.
- BOXES IN NON-VEHICLE TRAFFIC AREAS TO BE TIER 8 AND IN VEHICLE TRAFFIC AREAS TO BE TIER 22 UNLESS OTHERWISE NOTED.



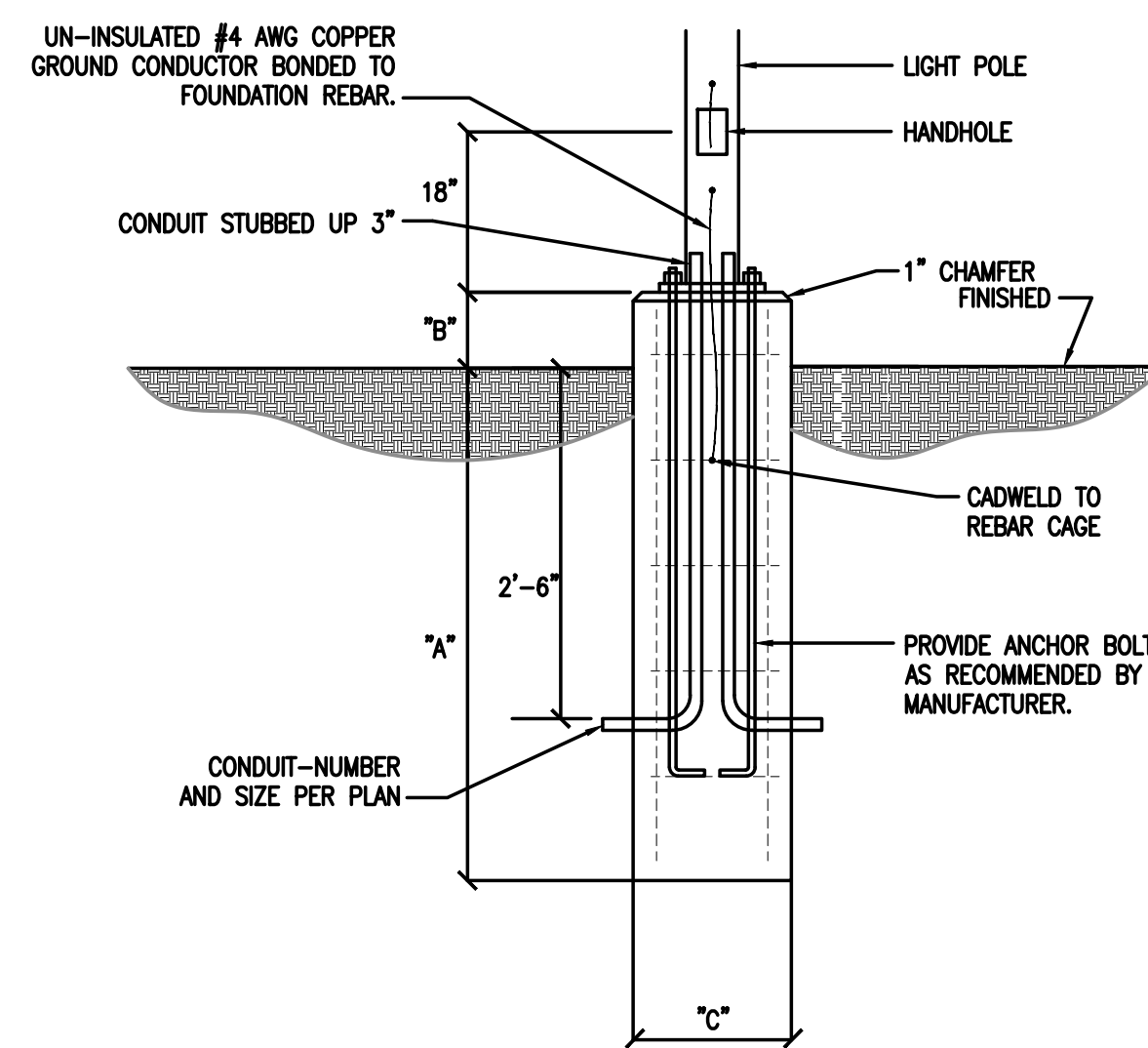
3 HAND HOLE DETAIL
NO SCALE



4 TRENCH DETAIL
NO SCALE

PL2 EXISTING POLE SCHEDULE

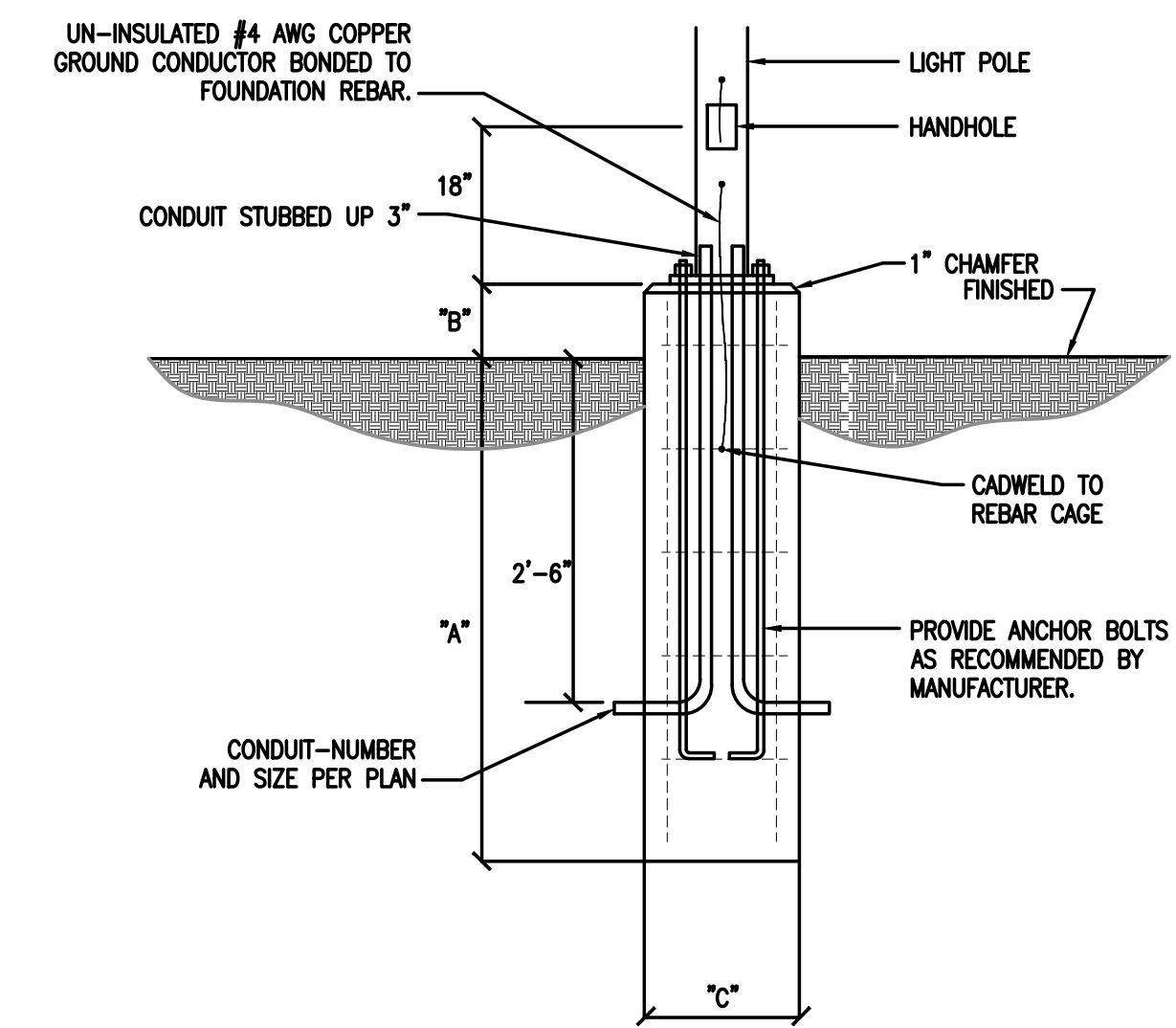
POLE HEIGHT	"A"	"B"	"C"
EXISTING	7'-0"	3'-0"	24" DIA. CONCRETE BASE. (6) #8 BARS VERTICAL, #3 TIES @ 12" OC



2 EXISTING LIGHT POLE BASE DETAIL
NO SCALE

PL1, PL3 POLE SCHEDULE

POLE PART: SEE LIGHT FIXTURE SCHEDULE			
POLE HEIGHT	"A"	"B"	"C"
10' HIGH	6'-0"	0'-1"	18" DIA. CONCRETE BASE. (5) #6 BARS VERTICAL, #3 TIES @ 12" OC



1 LIGHT POLE BASE DETAIL
NO SCALE

PRELIMINARY - NOT FOR CONSTRUCTION

ISSUED FOR: 2023-10-30
REVISION: 2023-10-30
DESCRIPTION: DATE

PROJECT NUMBER: 5076-23-0010
DISCIPLINE LEAD: AV
CLIENT PROJ. NO.:
ES
NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI
ELECTRICAL DETAILS

PRELIMINARY - NOT
FOR CONSTRUCTION

ISSUED FOR:	ISSUED FOR BID	2023-10-30
REVISION	DESCRIPTION	DATE

PROJECT NUMBER: 5076-23-0010
DISCIPLINE LEAD: AV
CLIENT PROJ NO: ES

NORTHWOOD UNIVERSITY
MOREY PLAZA IMPROVEMENTS
MIDLAND, MI

ELECTRICAL SCHEDULES

RPD										DESCRIPTION: EXISTING PANEL SURFACE MOUNT, 208/120V, 3φ, 4W, 225A, MCB, 42 CIRCUIT, SCCR, LOCATED IN STORAGE ROOM										22k
IDENTIFICATION	KVA LOAD			WIR E	POL E	AM P	CIRCUIT	CIRCUIT	AM P	POL E	WIR E	KVA LOAD			IDENTIFICATION					
	A	B	C									C	B	A						
EAST SITE LIGHTS	-	-	-	#8	1	20	1	2				0.00								
WEST SITE LIGHTS	-	-	-	#6	1	20	3	4				0.00			FOUNTAIN CONTROL PANEL					
IRRIGATION CONTROLLER	-	-	-	#12	1	20	5	6				0.00								
EXTERIOR FIREPLACE IGNITER	-	-	-	#12	1	20	7	8*	20	1	#12	-	-	-	CHARGING STATIONS					
STATUE AREA LIGHTING	-	-	-	#8	1	20	9	10	20	1	#12	-	-	-	MAIN BUILDING RECEPPTS					
SPARE	-	-	-	-	1	20	11	12	20	1	#12	-	-	-	4-SEASON LIGHTING					
SPARE	-	-	-	-	1	20	13	14	20	1	#12	-	-	-	4-SEASON EXTERIOR LIGHTING					
DECORATIVE LIGHTING	-	-	-	#12	1	20	15	16	20	1	#12	-	-	-	STORAGE RM RECEPPTS					
SPARE	-	-	-	-	1	20	17	18	20	1	#12	-	-	-	INTERIOR FIREPLACE					
TREE UPLIGHT LV XFMR	-	-	-	#12	1	20	19	20	20	1	#12	-	-	-	LIGHTING RELAY PANEL					
CHARGING STATIONS	-	-	-	#12	1	20	21*	22	20	1	-	-	-	-	SPARE					
CHARGING STATIONS	-	-	-	#12	1	20	23*	24	20	1	#12	-	-	-	SPARE					
SPARE	-	-	-	-	1	20	25	26				-	-	-						
							27	28				-	-	-						
							29	30				-	-	-						
							31	32				-	-	-						
							33	34				-	-	-						
							35	36				-	-	-						
							37	38				-	-	-						
							39	40				-	-	-						
							41	42				-	-	-						
CONNECTED LOAD	###	###	###									0.00	0.00	0.00	CONNECTED LOAD					

MDP										DESCRIPTION: EXISTING PANEL SURFACE MOUNT, 480/277V, 3φ, 4W, 800A									
IDENTIFICATION	KVA LOAD			WIR E	POL E	AM P	CIRCUIT	CIRCUIT	AM P	POL E	WIR E	KVA LOAD			IDENTIFICATION				
	A	B	C									C	B	A					
												0.00							
												0.00							
								800		3					MAIN				
XFMR LPC																			
XFMR AIR																			
															POWER METER				
MTS																			
LPE															CHILLER				
CWP															DP-2				
CWP															LPA				
XFMR KB								15		3	12	2.72			P-3				
XFMR KA												2.72							
SPD															SPACE				
EX-1															STROSACKER LIBRARY				
CONNECTED LOAD	###	###	###									0.00	0.00	0.00	CONNECTED LOAD				

LIGHT FIXTURE SCHEDULE					
TYPE	DESCRIPTION	MANUFACTURER	CATALOG #	LAMPS	REMARKS
PL1	POLE LIGHT, LED	CREE	ARE-EDR-5M-R4-06-E-UL-BZ-700-40K	4000K,80CR,134W,	PROVIDE FOUNDATION. POLE KW INDUSTRIES SSP10-4.0-11-K813-OPEN TOP-BC-CREE BRONZE.
PL2	EXISTING POLE LIGHT, LED				EXISTING POLE AND LIGHT FIXTURE ON NEW FOUNDATION
PL3	EXISTING POLE LIGHT, LED				EXISTING LIGHT FIXTURE ON NEW POLE & FOUNDATION. POLE KW INDUSTRIES SSP10-4.0-11-K813-OPEN TOP-BC-CREE BRONZE
S1	SOFFIT LIGHT, LED	LSI INDUSTRIES	XSPS-S-LED-SS-CW-120-DFL	5000K,80CRI,31W	
UL1	TREELIGHT, LED	HEVY LITE	HL-367-BZ-8LED-E-30K-FL-12-GL11BZ	MR16 LED, 8.4W	PURCHASE WITH TREE STRAP PART # SM2-2-X. PROVIDE APPROPRIATE HEAVY LITE TRANSFORMER.

CONTRACTOR MUST PROVIDE CUT SHEETS FOR ALL STREET LIGHTING ITEMS FOR ENGINEER'S REVIEW AND APPROVAL PRIOR TO ORDERING MATERIALS. SEE SPECIFICATIONS FOR SHOP DRAWING APPROVAL PROCESS.