

R PARK PHASE 1
ROELAND PARK, KANSAS
PAVILION AND
RESTROOM IMPROVEMENTS
CONSTRUCTION DOCUMENTS



ALL UTILITIES ARE SHOWN BASED ON THE INFORMATION AVAILABLE TO THE ENGINEER. THERE IS NO GUARANTEE ALL FACILITIES ARE SHOWN OR THAT THE LOCATION, DEPTH, AND SIZE OF EACH FACILITY IS CORRECT. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES AND SERVICE LINES PRIOR TO CONSTRUCTION. COORDINATE NECESSARY RELOCATIONS WITH UTILITY COMPANIES.

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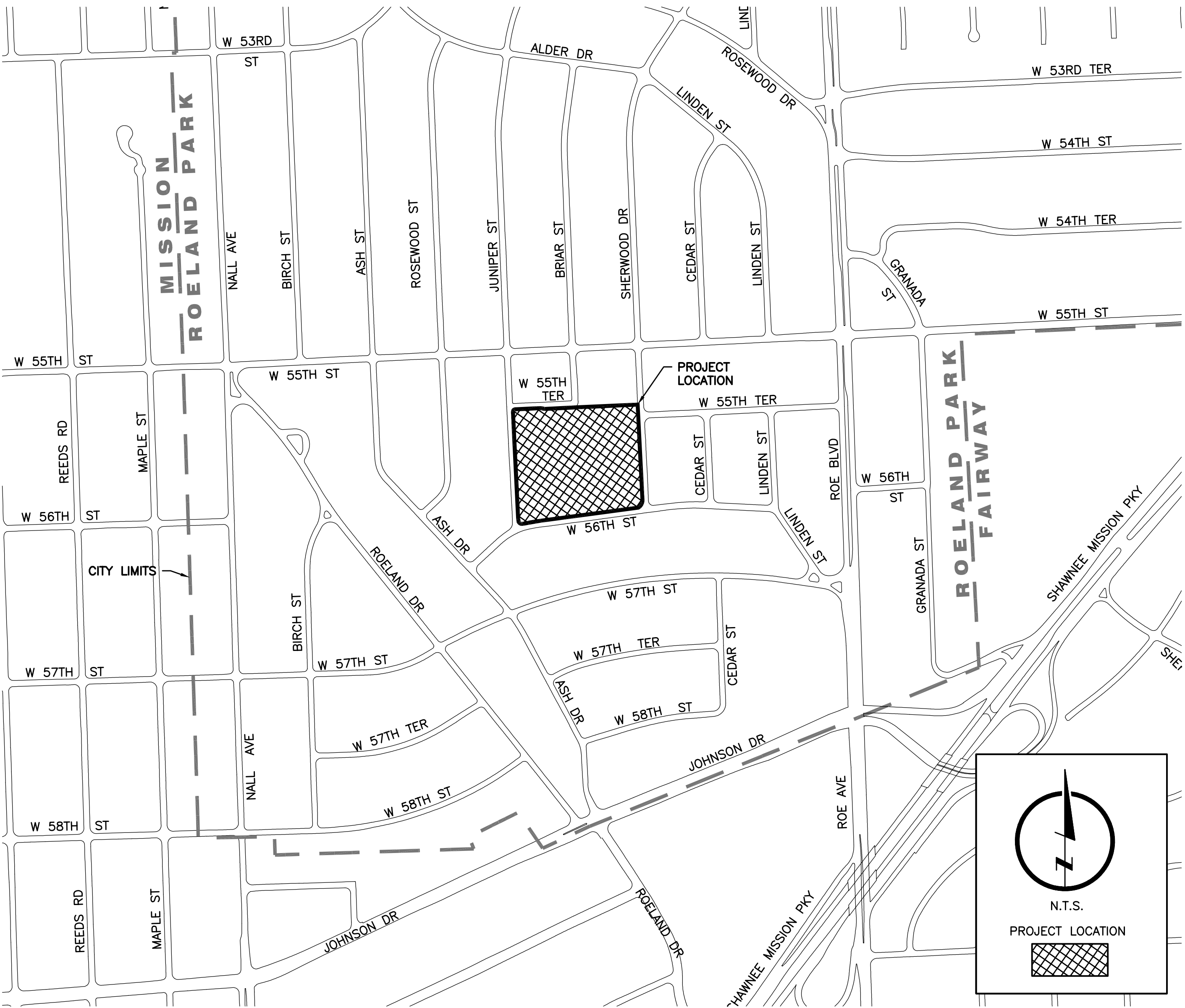
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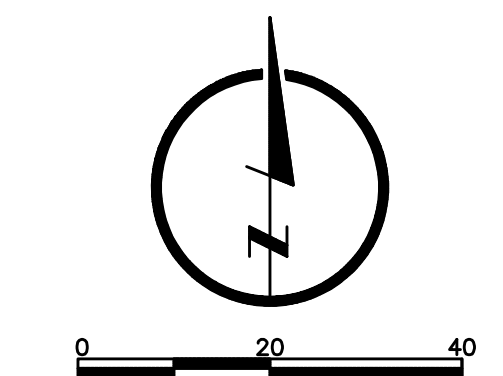
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01-28-2020

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CONSTRUCTION DOCUMENTS

SITE PLAN

**R PARK - PHASE 1
ROELAND PARK, KANSAS**

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DESIGNER / DRAFTER

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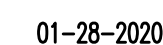
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SHEET

C1



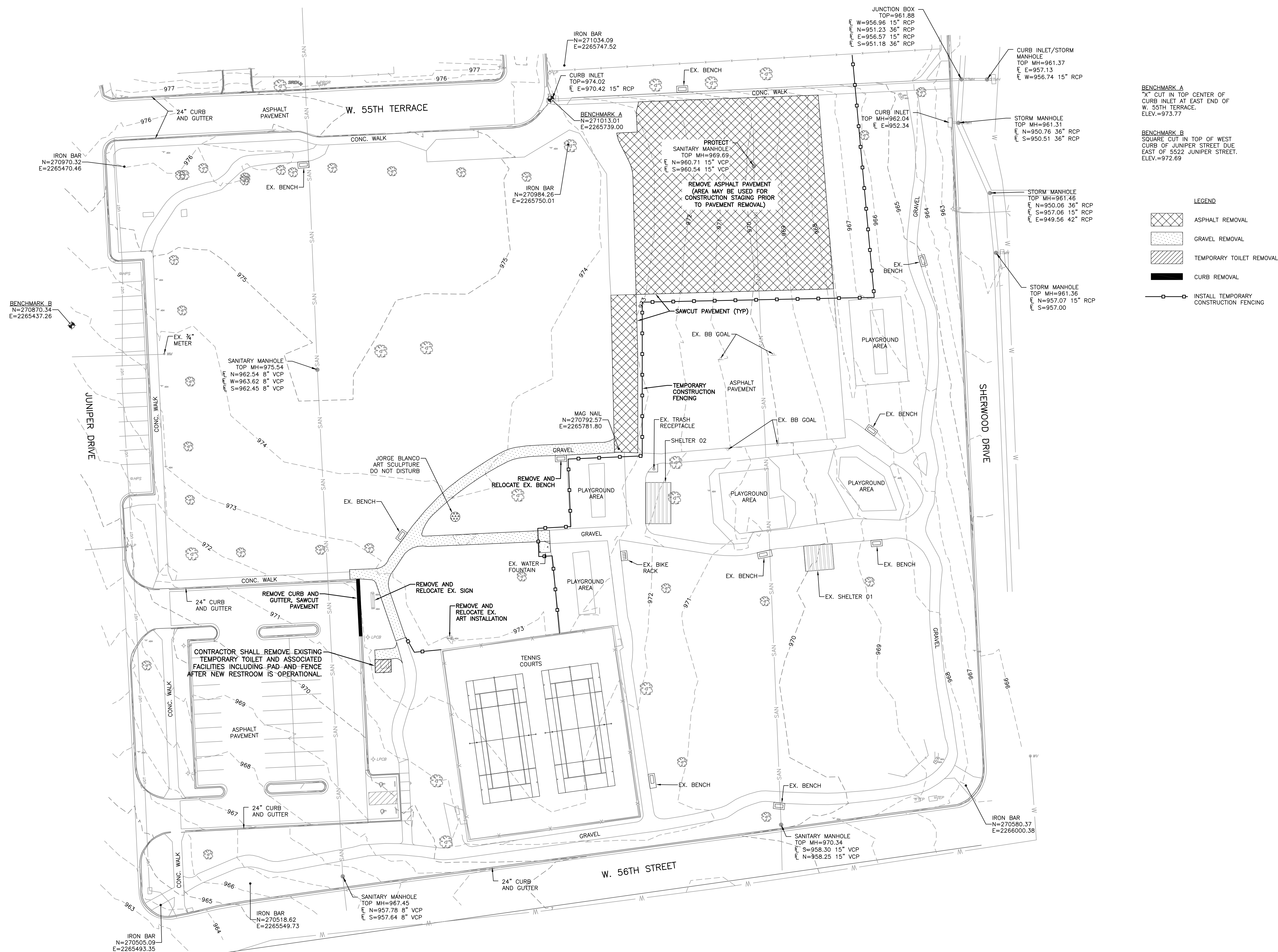


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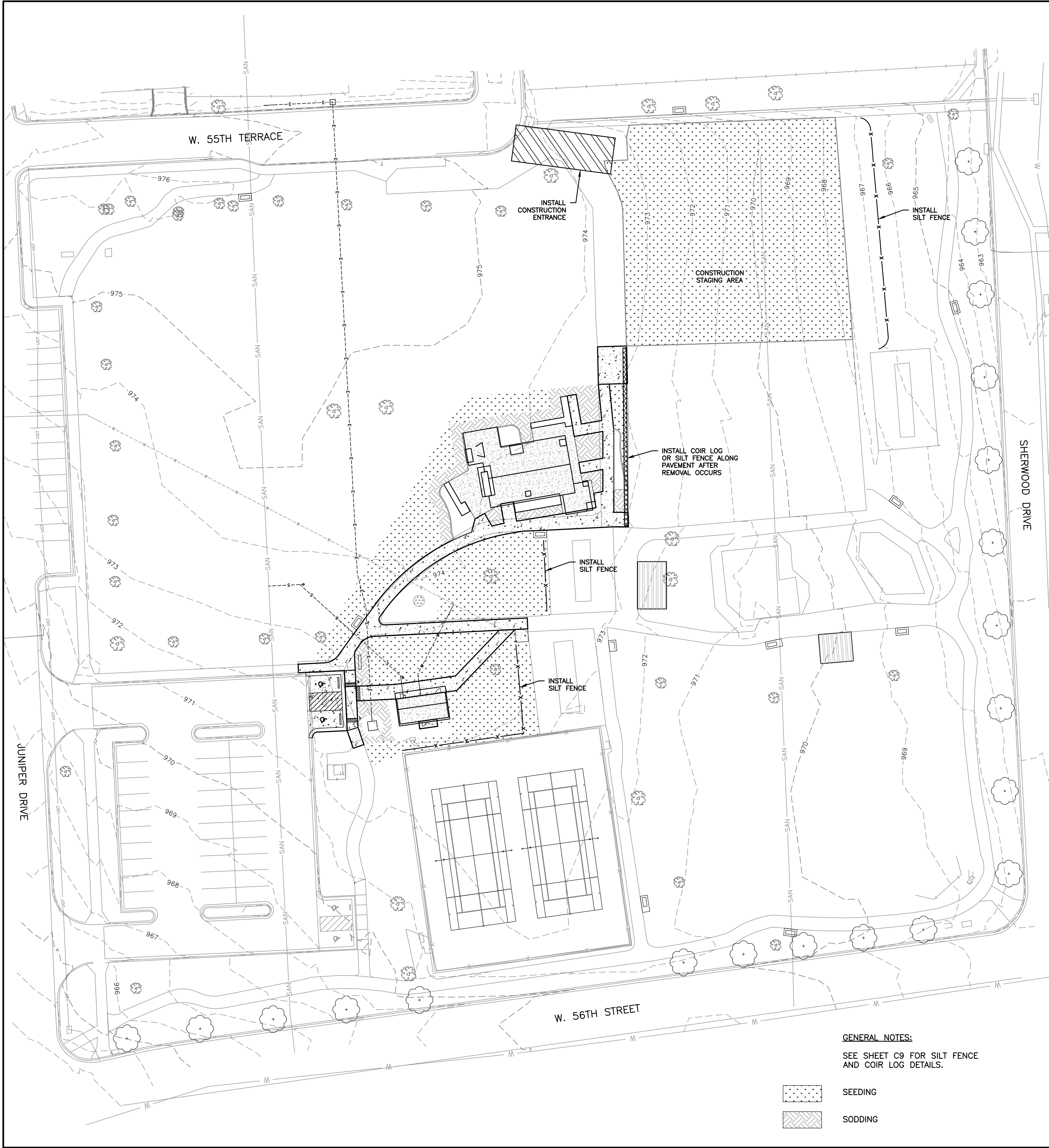
CONSTRUCTION DOCUMENTS EXISTING CONDITIONS AND DEMOLITION SITE PLAN

R PARK - PHASE 1
ROELAND PARK, KANSAS

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DATE
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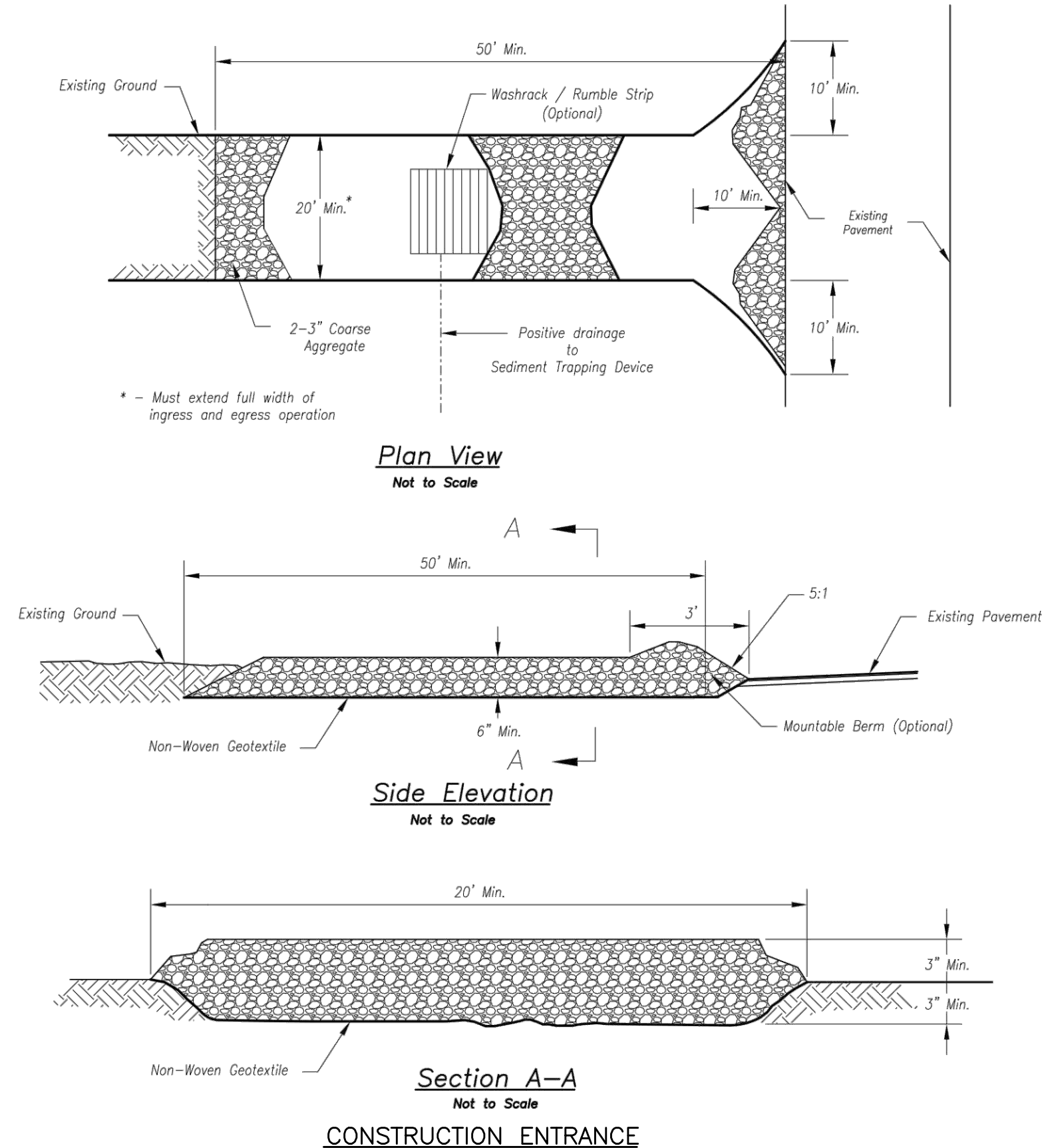
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GENERAL NOTES:

SEE SHEET C9 FOR SILT FENCE AND COIR LOG DETAILS.

- SEEDING
- SODDING



Notes for Construction Entrance:

- Avoid locating on steep slopes, at curves on public roads, or downhill of disturbed area.
- Remove all vegetation and other unsuitable material from the foundation area, grade, and crown for positive drainage.
- If slope towards the public road exceeds 2%, construct a 6- to 8-inch high ridge with 3H:1V side slopes across the foundation approximately 15 feet from the edge of the public road to divert runoff from it.
- Install pipe under the entrance if needed to maintain drainage ditches along public roads.
- Place stone to dimensions and grade as shown on plans. Leave surface sloped for drainage.
- Divert all surface runoff and drainage from the entrance to a sediment control device.
- If conditions warrant, place geotextile fabric on the graded foundation to improve stability.

Maintenance for Construction Entrance:

- Reshape entrance as needed to maintain function and integrity of installation. Top dress with clean aggregate as needed.

Notes for Concrete Washout:

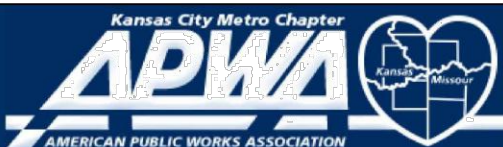
- Concrete washout areas shall be installed prior to any concrete placement on site.
- Concrete washout area shall include a flat subsurface pit sized relative to the amount of concrete to be placed on site. The slopes leading out of the subsurface pit shall be 3:1. The vehicle tracking pad shall be sloped towards the concrete washout area.
- Vehicle tracking control is required at the access point to all concrete washout areas.
- Signs shall be placed at the construction site entrance, washout area and elsewhere as necessary to clearly indicate the location(s) of the concrete washout area(s) to operators of concrete truck and pump rigs.
- A one-piece impervious liner may be required along the bottom and sides of the subsurface pit in sandy or gravelly soils.

Maintenance for Concrete Washout:

- Concrete washout materials shall be removed once the materials have filled the washout to approximately 75% full.
- Concrete washout areas shall be enlarged as necessary to maintain capacity for wasted concrete.
- Concrete washout water, wasted pieces of concrete and all other debris in the subsurface pit shall be transported from the job site in a water-tight container and disposed of properly.
- Concrete washout areas shall remain in place until all concrete for the project is placed.
- When concrete washout areas are removed, excavations shall be filled with suitable compacted backfill and topsoil, any disturbed areas associated with the installation, maintenance, and/or removal of the concrete washout areas shall be stabilized.

CONCRETE WASHOUT

AMERICAN PUBLIC WORKS ASSOCIATION



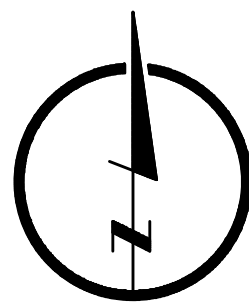
KANSAS CITY METRO CHAPTER

CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT

STANDARD DRAWING NUMBER ESC-01 ADOPTED: 10/24/2016

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CONSTRUCTION DOCUMENTS

EROSION CONTROL PLAN

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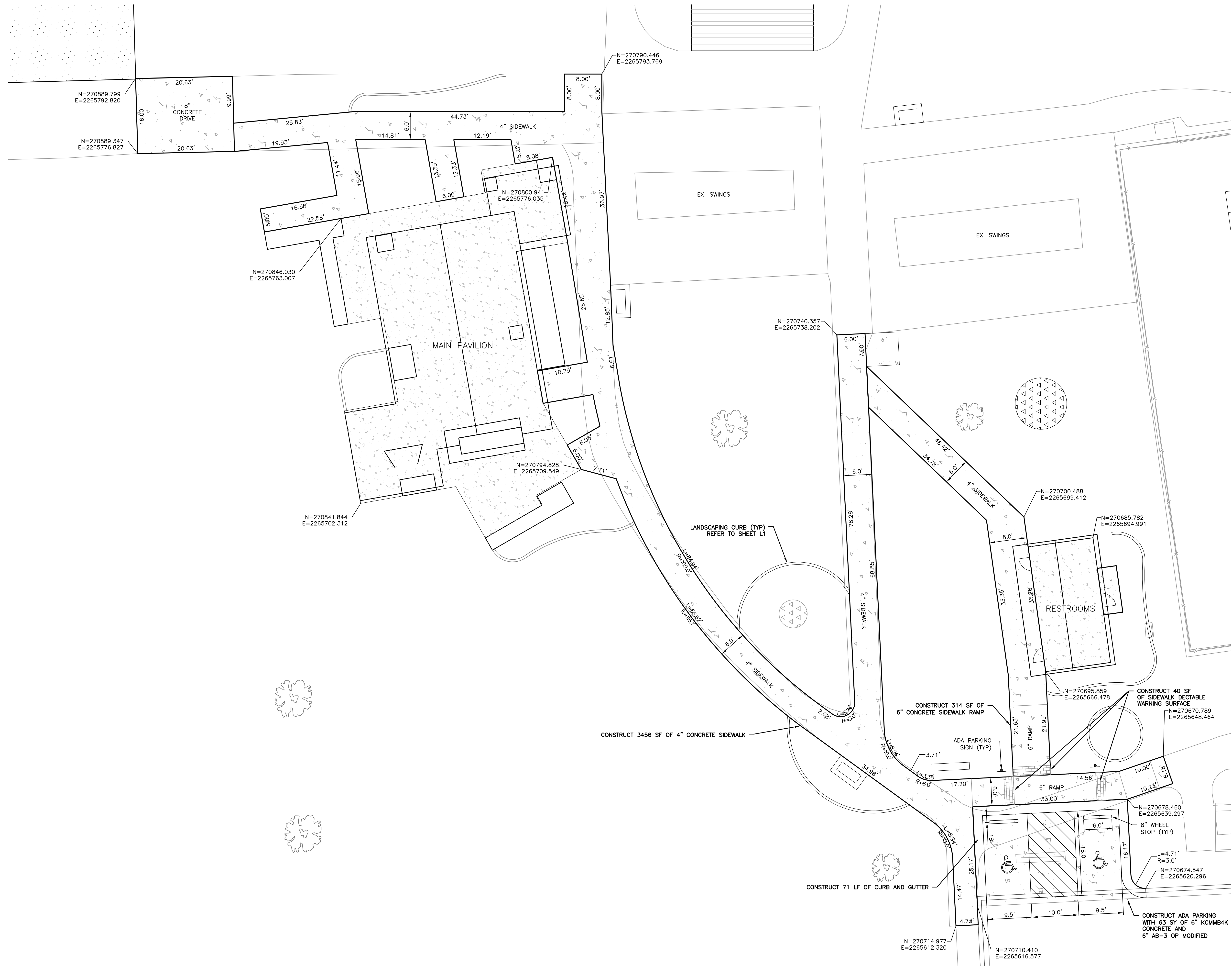
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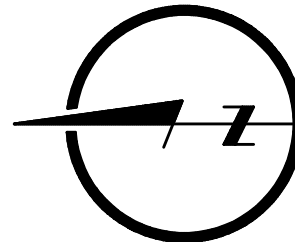
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CONSTRUCTION DOCUMENTS

LAYOUT PLAN

R PARK - PHASE 1
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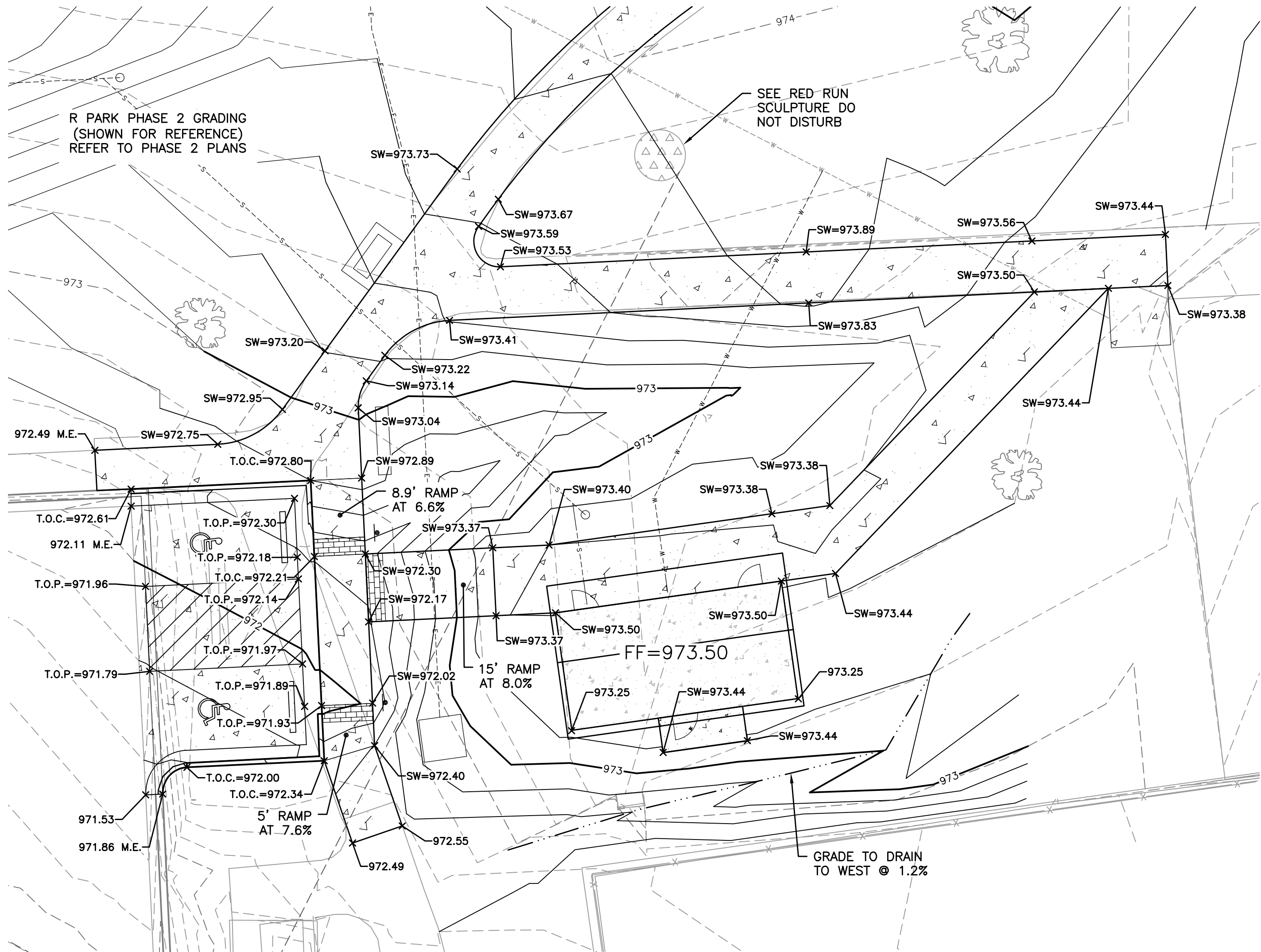
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C4



RESTROOM AND PARKING GRADING PLAN



PAVILLION GRADING PLAN

NOTES:

- EXISTING AND PROPOSED CONTOURS ARE SHOWN AT 0.2'-FT INTERVALS.

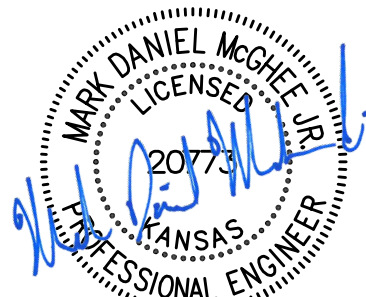
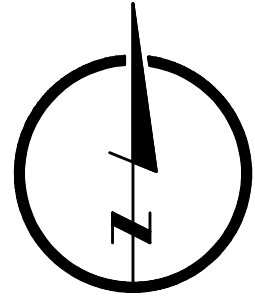
CUT/FILL TABLE (BANK QUANTITIES)	
CUT	84 CY
FILL	140 CY

EARTHWORK CALCULATIONS ARE EXISTING SURFACE CONTOURS TO FINAL SURFACE CONTOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ADJUSTMENTS TO ACCOUNT FOR PAVEMENT THICKNESS, BASE THICKNESS, SUBGRADE THICKNESS, TOPSOIL, REMOVALS, ETC.

ALL EXCAVATION SHALL BE CONSIDERED UNCLASSIFIED. NO DIRECT PAYMENT WILL BE MADE FOR ROCK OR RUBBLE EXCAVATION.

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CONSTRUCTION DOCUMENTS

GRADING PLAN

R PARK - PHASE 1
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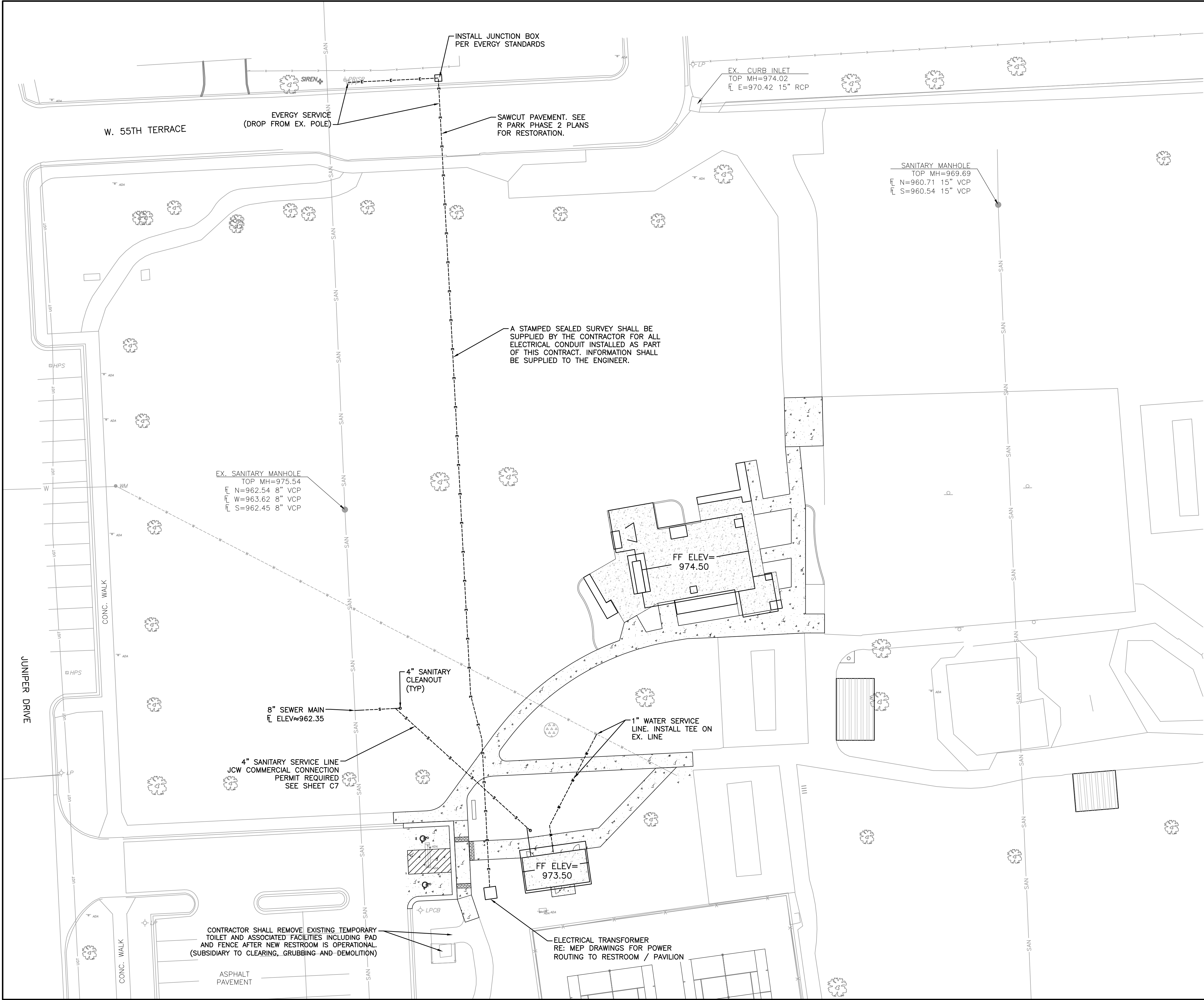
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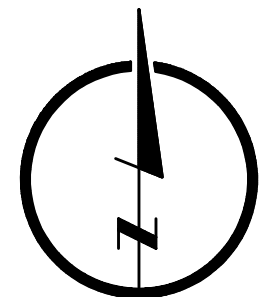
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CONSTRUCTION DOCUMENTS

UTILITY PLAN

R PARK - PHASE 1 ROELAND PARK, KANSAS

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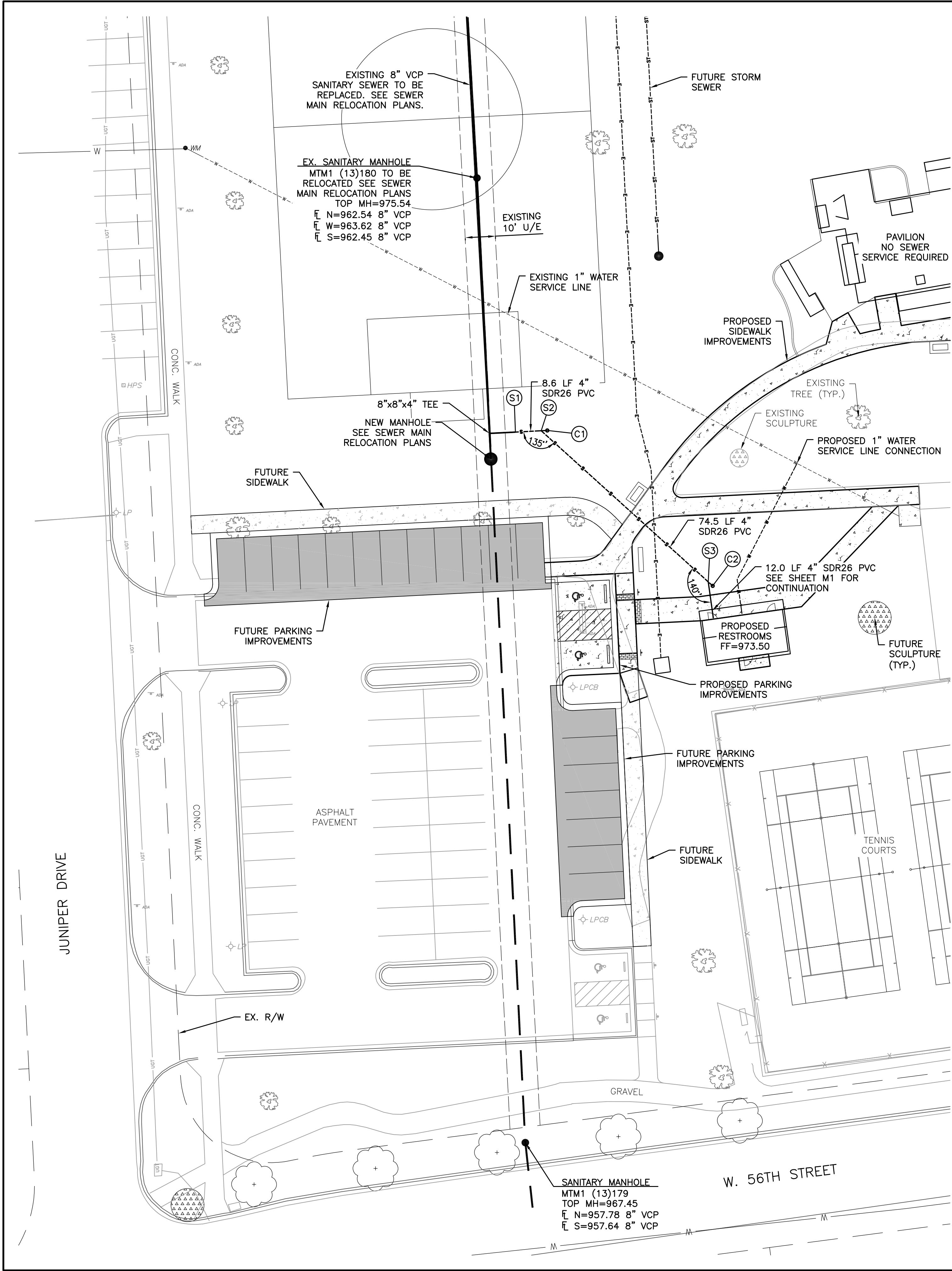
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SANITARY SEWER NOTES:

- SANITARY SEWER SERVICE LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE CURRENT JCW SERVICE LINE DESIGN AND CONSTRUCTION STANDARDS.
- ROOF DRAINS AND FOUNDATION DRAINS SHALL NOT BE CONNECTED TO SANITARY SEWER.
- BMP'S ARE NOT REQUIRED BY THE CITY OF ROELAND PARK AND WILL NOT BE PROVIDED FOR THIS PROJECT.
- CONTRACTOR TO RECORD SEWER CLEAN OUT LOCATIONS FROM 2 FIXED POINTS FOR FUTURE LOCATING.

RESTROOM FINISHED FLOOR EL.=973.50
SERVICE LINE OUT OF BUILDING ℓ =969.50

INSTALL SERVICE LINE AT 3% SLOPE

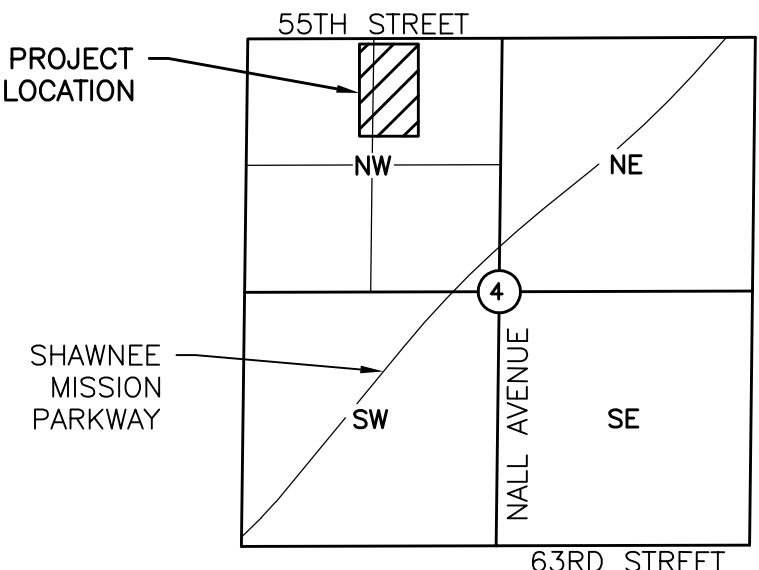
- (S1) CONNECT TO SANITARY SERVICE STUB
EL.= 966.64
- (S2) EL.= 966.90
- (S3) EL.= 969.14

CLEAN OUT TOP ELEVATIONS

- (C1) EL.= 973.60
- (C2) EL.= 973.40

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SITE MAP
SECTION 9, T12S, R25E
JOHNSON COUNTY, KANSAS
SCALE 1"=2000'

PROJECT CONTROL

BENCHMARK A
"X" CUT IN TOP CENTER OF
CURB INLET AT EAST END OF
W. 55TH TERRACE.
ELEV.=973.77

BENCHMARK B
SQUARE CUT IN TOP OF WEST
CURB OF JUNIPER STREET DUE
EAST OF 5522 JUNIPER STREET.
ELEV.=972.69

KANSAS ONE-CALL



KNOW WHAT'S BELOW
CALL BEFORE YOU DIG.

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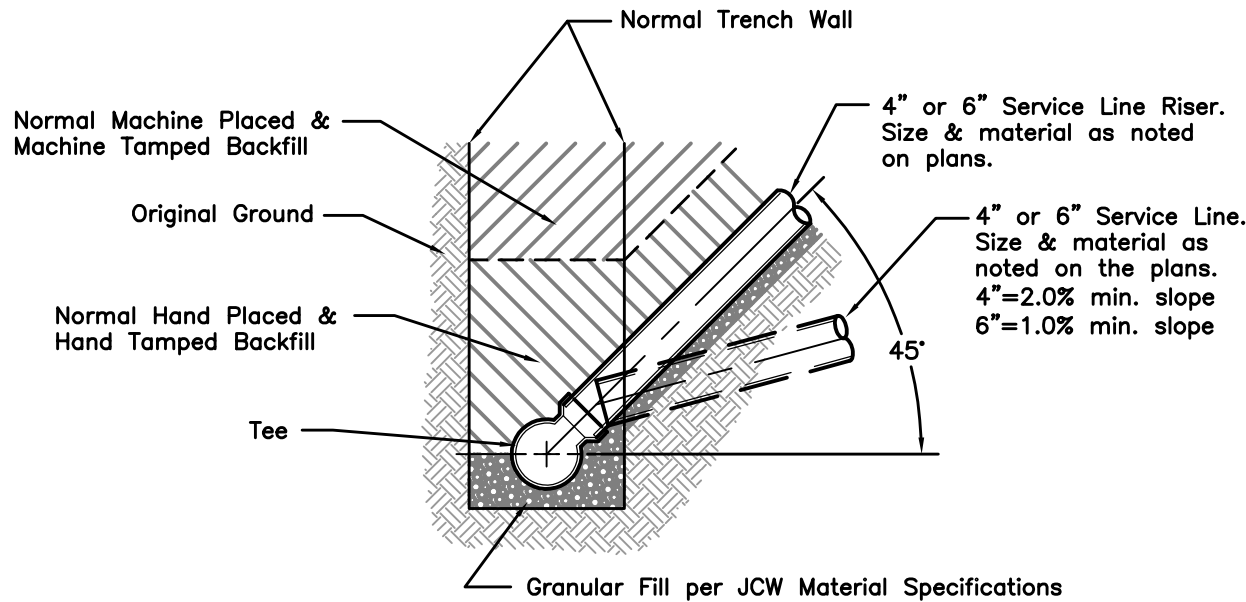
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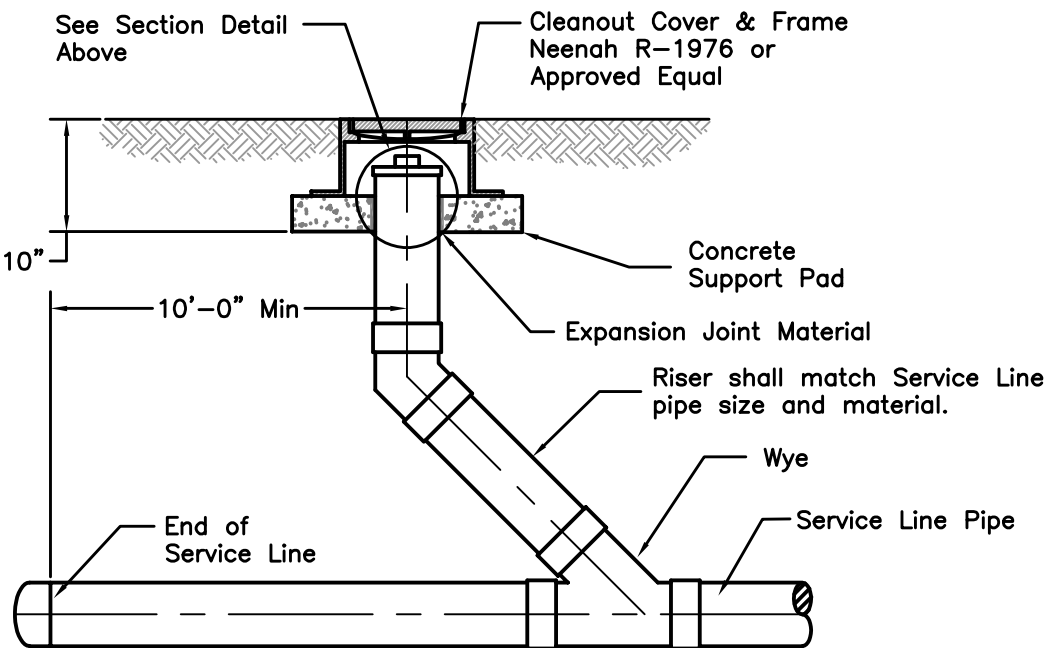
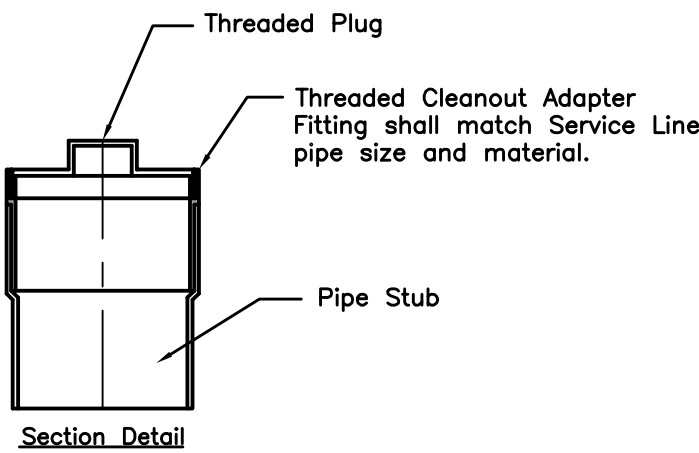
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LMARCUCCI@GOGGLE.COM



TEE ORIENTATION AND RISER DETAIL

Note:

- Concrete anchors will be required where the service line is installed at a grade of 30' or greater. See Section 2536 of the Specifications and detail on this sheet.
- No service line shall be installed with a grade greater than 45'.

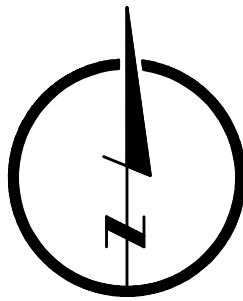


CLEANOUT DETAIL

No Scale

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CONSTRUCTION DOCUMENTS

SANITARY SEWER SERVICE CONNECTION PLAN

R PARK - PHASE 1
ROELAND PARK, KANSAS

REVISIONS

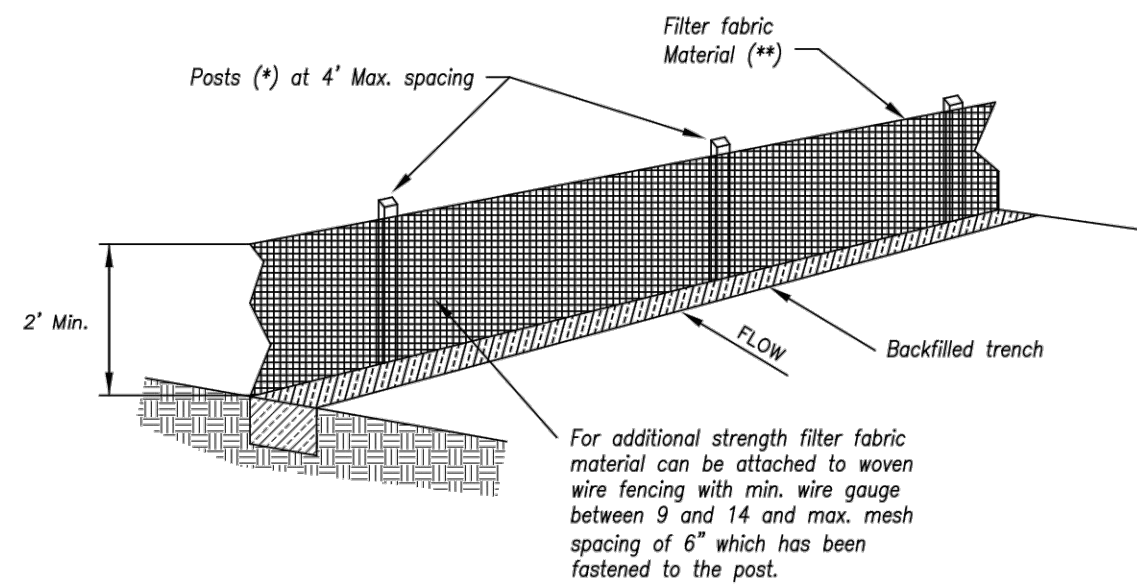
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- (*) POSTS
- MIN. LENGTH 4'
 - HARDWOOD 1 3/8" x 1 3/8"
 - NO.2 SOUTHERN PINE 2 3/8" x 2 3/8"
 - STEEL 1.33 LB/FT

(**) - Geotextile Fabric shall meet the requirements of AASHTO M288

SILT FENCE DETAILS

Not to Scale

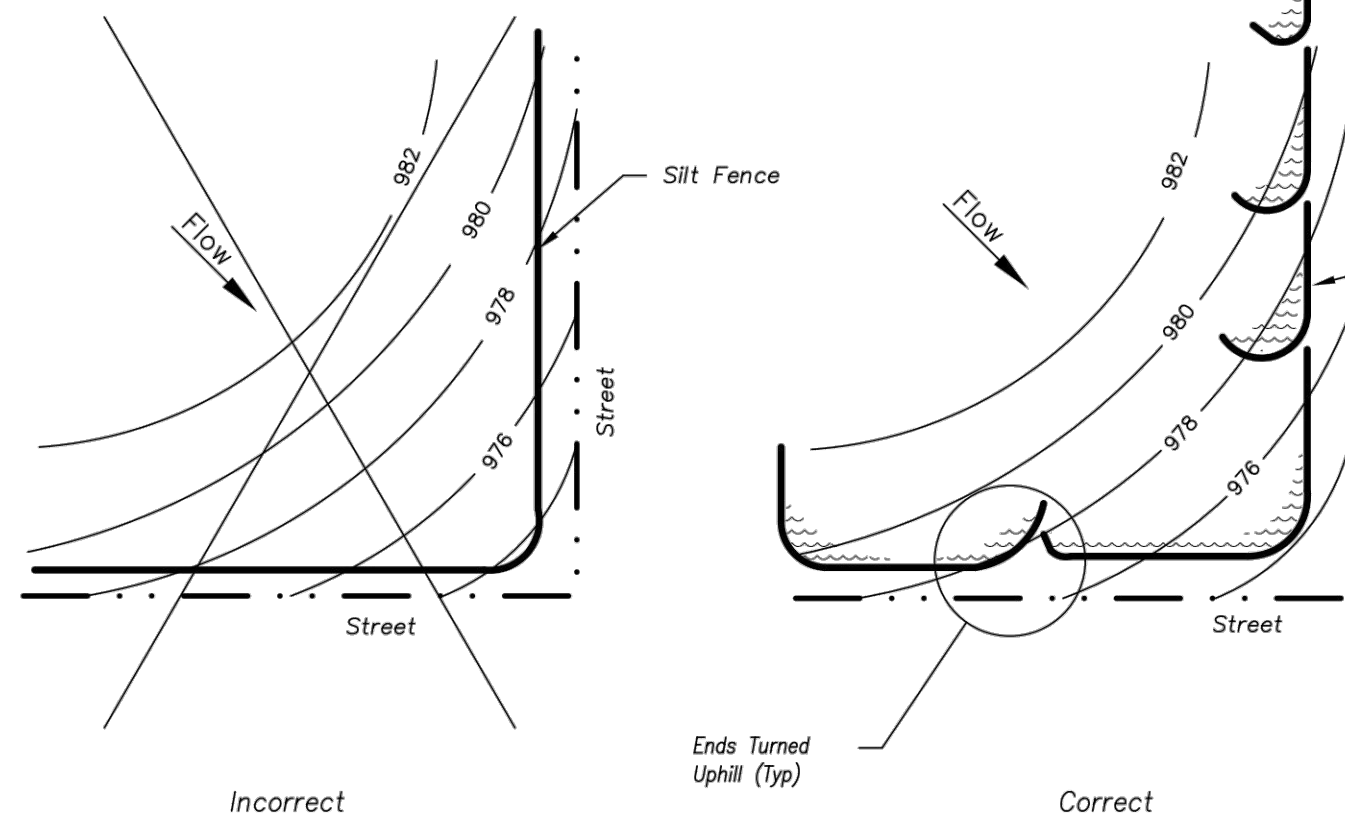
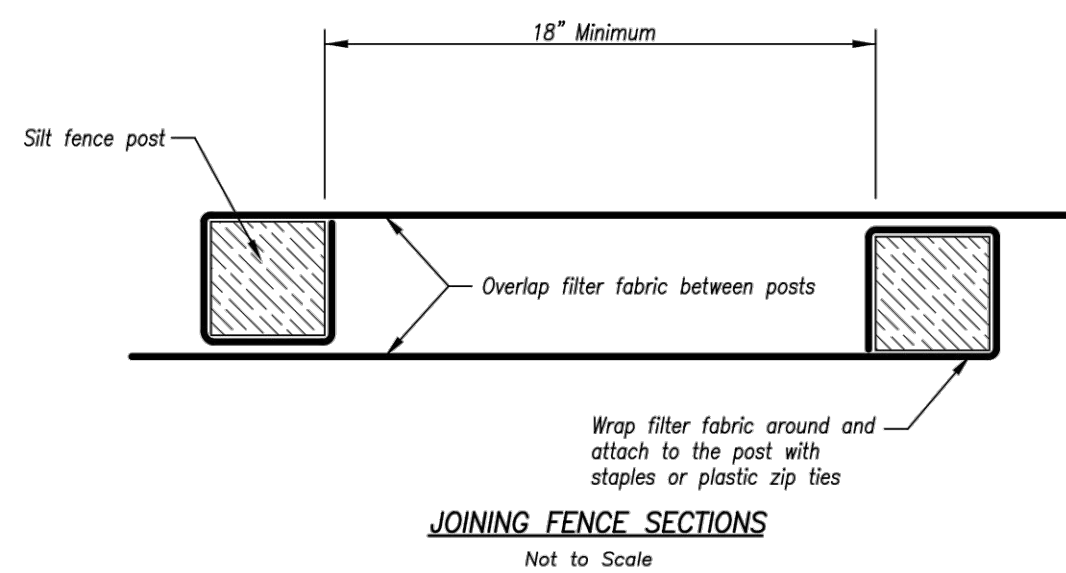


Figure A

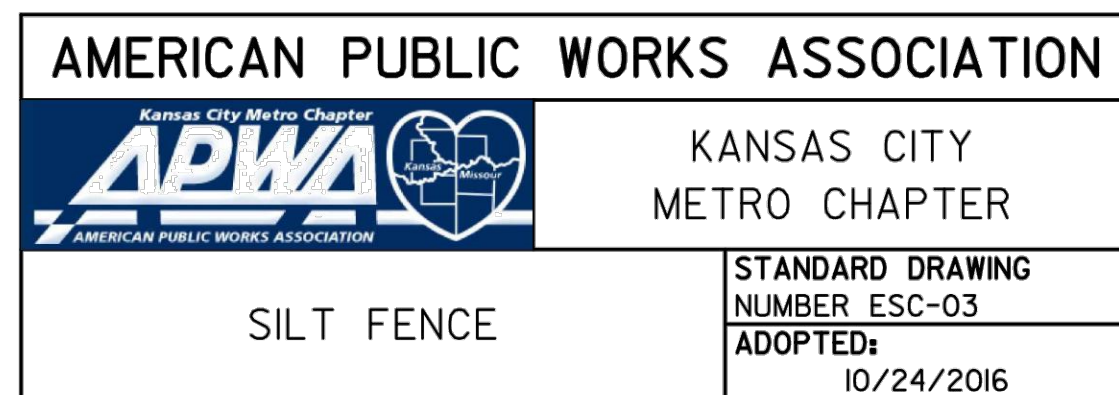


JOINING FENCE SECTIONS

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SILT FENCE LAYOUT

Not to Scale

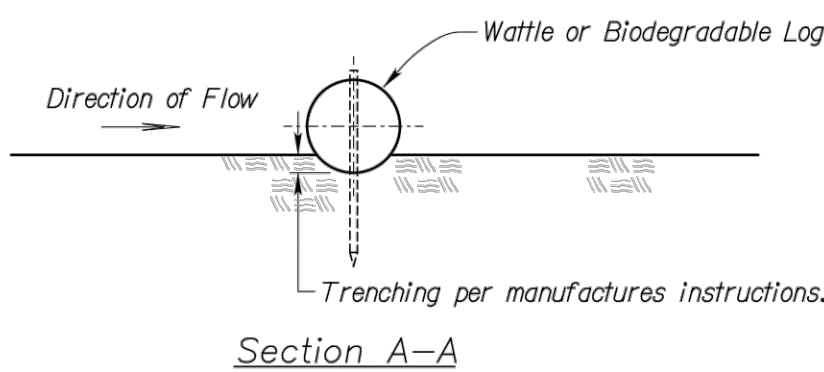
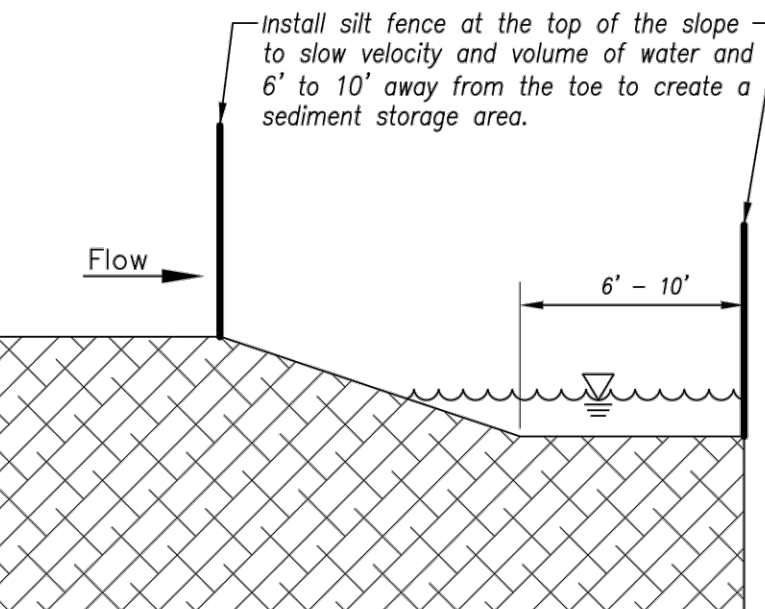


Maintenance:

1. Remove and dispose of sediment deposits when the deposit approaches 1/3 the height of silt fence.
2. Repair as necessary to maintain function and structure.

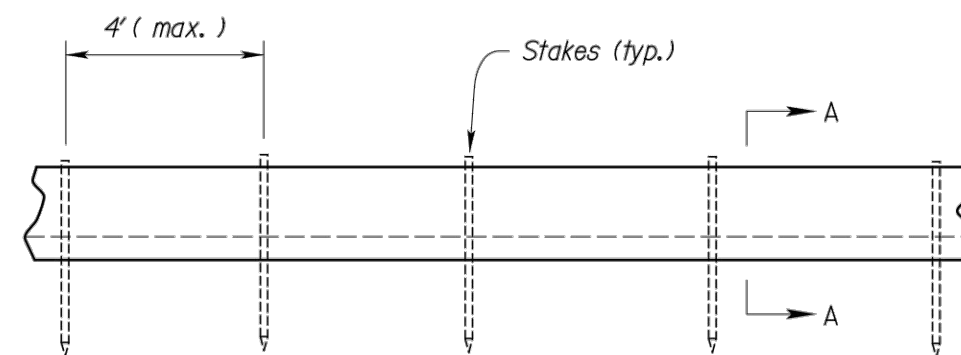
Notes:

1. In order to contain water, the ends of the silt fence must be turned uphill (Figure A).
2. Long perimeter runs of silt fence must be limited to 100'. Runs should be broken up into several smaller segments to minimize water concentrations (Figure A).
3. Long slopes should be broken up with intermediate rows of silt fence to slow runoff velocities.
4. Attach fabric to upstream side of post.
5. Install posts a minimum of 2' into the ground.
6. Trenching will only be allowed for small or difficult installation, where slicing machine cannot be reasonably used.



Section A-A

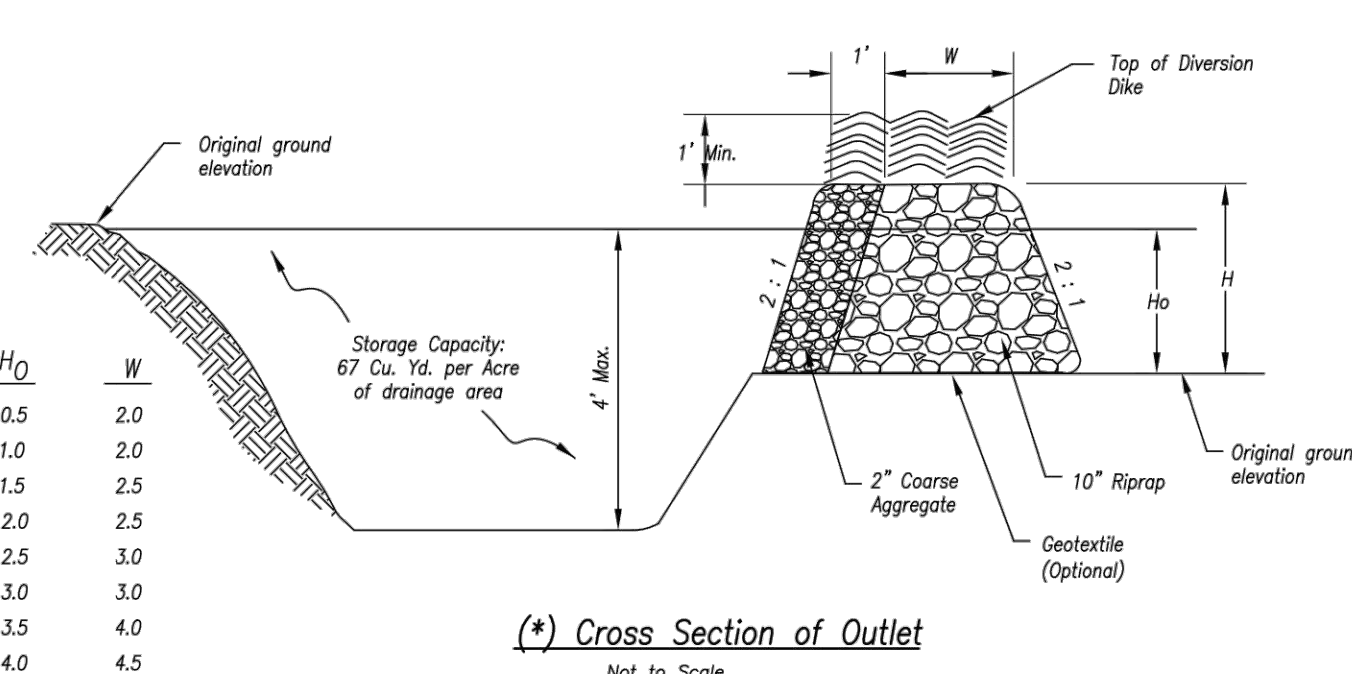
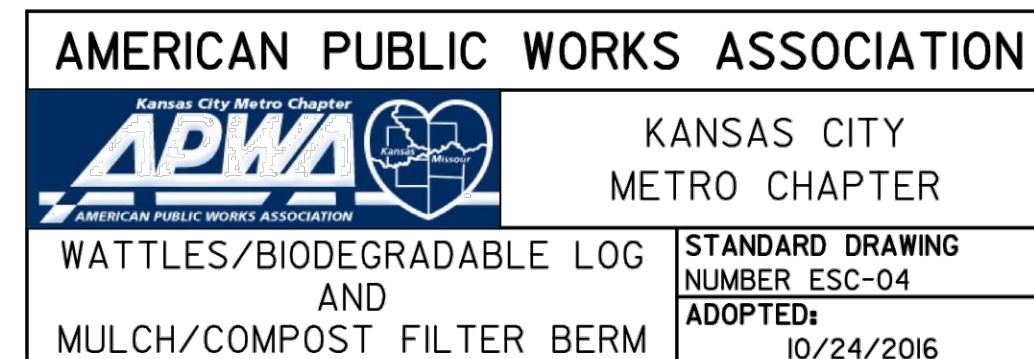
WATTLES AND BIODEGRADABLE LOG



Typical Elevation

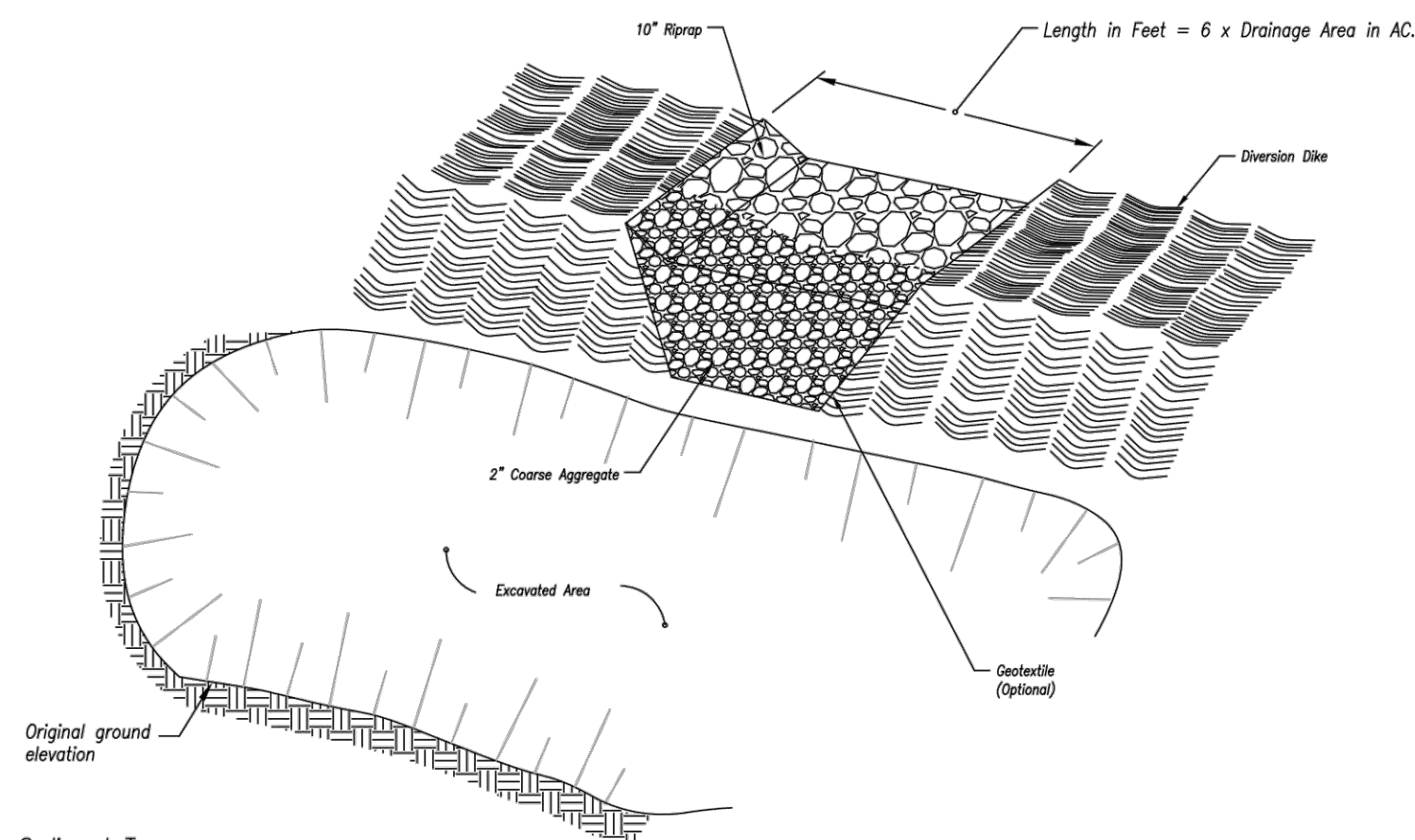
Notes for Wattles and Biodegradable Log Slope Protection:

1. The Slope barriers shall be placed along contour lines, with a short section turned upgrade at each end of the barrier. The maximum length of the slope barrier shall not exceed 250 feet, and the barrier ends need to be staggered.
2. Install wattles and biodegradable logs per manufacturer's instructions.
3. Spacing of stakes per manufacturer's instructions with 4' max. spacing. Length of stakes shall be a minimum of 2 times the diameter of the log with minimum of 24".



(*) Cross Section of Outlet

Not to Scale



(*) Perspective View of Outlet

Not to Scale

Notes for Sediment Trap:

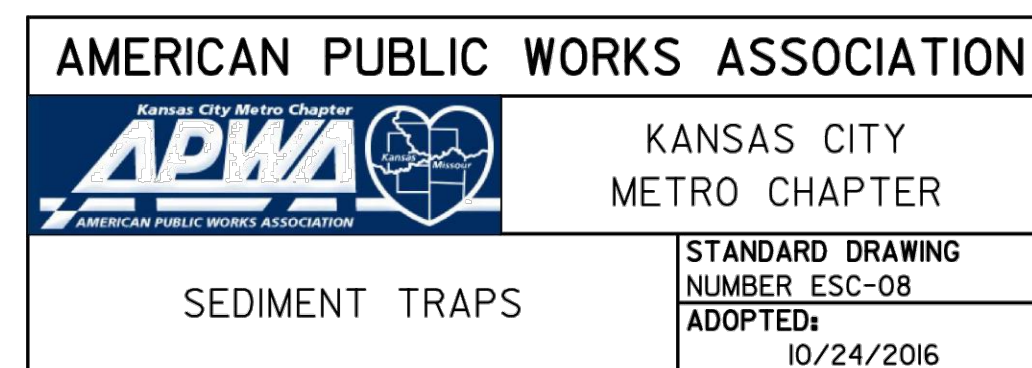
1. The area under the embankment shall be cleared, grubbed, and stripped of any vegetation and root mat.
2. Fill material for the embankment shall be free of roots or other woody vegetation, organic material, large stones, and other objectionable material. The embankment should be compacted in 6-inch layers by traversing with construction equipment.
3. The earthen embankment shall be stabilized immediately after installation.
4. Construction operations shall be carried out to minimize erosion and water pollution.
5. The structure shall be removed and the area stabilized when the upslope drainage area has been stabilized.
6. All cut and fill slopes shall be 2H : 1V or flatter, except for excavated, wet storage areas which may be at a maximum 1H : 1V grade.

(*) - The perspective view and cross section are schematic in nature. Construction plans must provide specific site construction arrangements.

Maintenance for Sediment Trap:

1. Check sediment traps after periods of significant runoff.
2. Remove sediment and restore the trap to its original dimensions when sediment accumulates to 20% of the storage capacity.
3. Immediately repair any erosion damage to the embankment and outlet.
4. Keep outlet and pool area free of all trash and other debris.

SEDIMENT TRAP



REVISIONS

DESIGNER / DRAFTER

MDM/AJM

DATE

01-28-2020

PROJECT NUMBER

0319001.04

BOOK AND PAGE

SHEET

C9

CONSTRUCTION DOCUMENTS

EROSION CONTROL DETAILS

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L:\Engineering\0319001.04 - Roadwork\Drawings\CONSTRUCTION - DRAWINGS\0319001.04 - SPECIFICATIONS.dwg, 1/27/2020 4:50:29 PM, JANE MCQUEERY, LAMP RYNREARSON

TRENCHING, BACKFILLING, AND COMPACTION

1. EMBEDMENT MATERIAL: MATERIAL SHALL BE CLEAN RIVER GRAVEL OR SOUND CRUSHED LIMESTONE, FREE OF CEMENTITIOUS, SHALY OR FLAT AND FLAKY PARTICLES IN AN AMOUNT WHICH WOULD CAUSE THE MATERIAL TO CAKE OR PACK OR OTHERWISE FORM AN UNYIELDING SUPPORT FOR THE PIPE. GRADATION SHALL BE:
- | | | | |
|-------|-------------------|---|-----------------|
| 3/4" | SQUARE MESH SIEVE | — | 100% PASSING |
| 1/2" | SQUARE MESH SIEVE | — | 90–100% PASSING |
| NO. 4 | SQUARE MESH SIEVE | — | 0–15% PASSING |
| NO. 8 | SQUARE MESH SIEVE | — | 0–5% PASSING |
2. WHERE BEDDING ROCK IS NOT REQUIRED, BEDDING MATERIAL SHALL BE SAME AS FILL MATERIAL.
3. FILL MATERIAL: BACKFILL MATERIAL SHALL BE SELECTED EARTH OR GRANULAR FILL MATERIAL, FREE FROM SOD, STICKS AND ROOTS OVER 1/2 INCH IN DIAMETER, AND FREE FROM HARD LUMPS, CLOUDS OR ROCK IN SUCH QUANTITY OR CONCENTRATION AS TO INTERFERE WITH THE SPECIFIED COMPACTION. MATERIAL SHALL BE OF PROPER MOISTURE CONTENT FOR SPECIFIED COMPACTION.

GENERAL

4. TRENCHING WORK SHALL BE PERFORMED IN A SAFE AND PROPER MANNER, WITH SUITABLE PRECAUTIONS BEING TAKEN AGAINST HAZARDS OF EVERY KIND. TRENCHING SHALL PROVIDE ADEQUATE WORKING SPACE AND CLEARANCES FOR THE WORK TO BE PERFORMED THEREIN.
5. TRENCHING AND BACKFILLING DURING FREEZING WEATHER SHALL NOT BE DONE EXCEPT BY PERMISSION OF THE ENGINEER. NO BACKFILL MATERIALS SHALL BE INSTALLED ON FROZEN SURFACES NOR SHALL FROZEN MATERIALS, SNOW OR ICE BE PLACED IN ANY BACKFILL.
6. WHEN OPERATING ON PAVEMENTS OR WALKS ALL EQUIPMENT SHALL BE RUBBER Tired, EXCEPT FOR EXCAVATION EQUIPMENT. EXCAVATING EQUIPMENT, IN SUCH CASES, SHALL NOT HAVE GROUSERS, CLEATS OR LUGS ON THE TRACKS. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE EXISTING PAVEMENTS AND WALKS.
7. NO CLASSIFICATION OF EXCAVATED MATERIALS WILL BE MADE. TRENCHING AND TRENCHING WORK SHALL INCLUDE THE REMOVAL AND SUBSEQUENT HANDLING OF ALL MATERIALS EXCAVATED OR OTHERWISE REMOVED IN PERFORMANCE OF THE CONTRACT WORK, REGARDLESS OF THE TYPE, CHARACTER, COMPOSITION OR CONDITION THEREOF.
8. PIPE LINES AND OTHER EXISTING UNDERGROUND INSTALLATIONS AND STRUCTURES IN THE VICINITY OF THE WORK TO BE DONE HEREUNDER ARE INDICATED ON THE PLANS ACCORDING TO THE BEST INFORMATION AVAILABLE TO THE OWNER. THE OWNER DOES NOT GUARANTEE THE ACCURACY OF SUCH INFORMATION. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO LOCATE ALL UNDERGROUND PIPE LINES, CONDUITS AND STRUCTURES BY CONTACTING OWNERS OF UNDERGROUND UTILITIES AND BY PROSPECTING IN ADVANCE OF TRENCH EXCAVATION. DAMAGE TO ANY EXISTING UNDERGROUND INSTALLATION CAUSED BY THE CONTRACTOR'S OPERATION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
9. ANY DELAYS OR EXTRA COST TO THE CONTRACTOR CAUSED BY PIPE LINES OR OTHER UNDERGROUND STRUCTURES OR OBSTRUCTIONS NOT SHOWN BY THE PLANS, OR FOUND IN LOCATIONS DIFFERENT THAN THOSE INDICATED, SHALL NOT CONSTITUTE A CLAIM FOR EXTRA WORK, ADDITIONAL PAYMENT OR DAMAGES.
10. EROSION CONTROL OF DISTURBED AREAS WILL BE REQUIRED DURING THE CONSTRUCTION PERIOD THROUGH THE USE OF CHECK DAMS, SILTATION POOLS, MULCHING, ETC.
11. USE ALL MEANS NECESSARY TO CONTROL DUST OR MUD THAT MAY INTERFERE WITH OPERATION. MAINTAIN ALL STREETS AND DRIVEWAYS FREE OF DIRT AND MATERIAL FROM CONTRACTOR'S OPERATION.
12. USE ALL MEANS NECESSARY TO PROTECT MATERIAL AND PRESERVE SPECIFICATION REQUIREMENTS.
13. REPLACE ALL DAMAGED MATERIAL OR MATERIAL THAT HAS LOST SPECIFICATION REQUIREMENTS.

TRENCH EXCAVATION

14. THE CONTRACTOR SHALL NOT OPEN MORE TRENCH IN ADVANCE OF PIPE LAYING THAN IS NECESSARY TO EXPEDITE THE WORK. ONE BLOCK OR 400 FEET (WHICHEVER IS THE SHORTER) SHALL BE THE MAXIMUM LENGTH OF OPEN TRENCH PERMITTED ON ANY LINE UNDER CONSTRUCTION.
15. EXCEPT WHERE TUNNELING IS PERMITTED BY THE ENGINEER OR CALLED FOR ON THE PLANS, ALL TRENCH EXCAVATION SHALL BE OPEN CUT FROM THE SURFACE.
16. TRENCH WALLS SHALL BE VERTICAL, AND BRACED WHERE NECESSARY, IN STREETS OR IMPROVED AREA UNLESS OTHERWISE AUTHORIZED BY ENGINEER.
17. ALIGNMENT AND GRADE, SEWER AND STORM SEWER LINES: THE ALIGNMENT AND GRADE OR ELEVATION OF EACH PIPE LINE SHALL BE FIXED AND DETERMINED BY MEANS OF OFFSET STAKES. VERTICAL AND HORIZONTAL ALIGNMENT OF PIPES AND THE MAXIMUM JOINT DEFLECTION USED IN CONNECTION THEREWITH SHALL BE IN CONFORMITY WITH THE REQUIREMENTS OF THE SPECIFICATION COVERING THE INSTALLATION OF THE PIPE BEING LAID IN EACH CASE.
18. ALIGNMENT AND GRADE, WATER LINES: TRENCHES BE CAREFULLY EXCAVATED SO THAT THE MINIMUM COVER OVER TOP OF PIPE WILL BE 42 INCHES TO EXISTING STREET OR GROUND SURFACE, OR TO FUTURE SURFACE WHEN INDICATED. GREATER COVER AT SOME LOCATIONS ALONG THE LINE MAY BE REQUIRED DUE TO STREET OR GROUND PROFILE AND CLEARANCE OF CULVERTS, STRUCTURES, UTILITY LINES, ETC.
19. MINIMUM TRENCH WIDTHS AND PIPE CLEARANCES: TRENCHES SHALL BE EXCAVATED TO A WIDTH WHICH WILL PROVIDE ADEQUATE WORKING SPACE AND PIPE CLEARANCES FOR PROPER PIPE INSTALLATION, JOINTING AND EMBEDMENT. BELOW AN ELEVATION OF 12 INCHES FROM GROUND LEVEL TO THE TOP OF THE INSTALLED PIPE, THE TRENCH WIDTH SHALL BE MAINTAINED AS NARROW AS POSSIBLE. WHERE NECESSARY TO REDUCE THE EARTH LOAD ON TRENCH BANKS TO PREVENT SLIDING AND CAVING, THE BANKS MAY BE CUT BACK ON SLOPES WHICH SHALL NOT EXTEND LOWER THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
20. MECHANICAL EXCAVATION: THE USE OF MECHANICAL EQUIPMENT WILL NOT BE PERMITTED IN LOCATIONS WHERE ITS OPERATION WOULD CAUSE DAMAGE TO BUILDINGS, CULVERTS, OR OTHER EXISTING PROPERTY, UTILITIES, OR STRUCTURES ABOVE OR BELOW GROUND; IN ALL SUCH LOCATIONS, HAND EXCAVATING TOOLS AND METHODS SHALL BE USED.
21. MECHANICAL EQUIPMENT USED FOR TRENCH EXCAVATION SHALL BE OF A TYPE, DESIGN AND CONSTRUCTION AND SHALL BE SO OPERATED, THAT THE ROUGH TRENCH EXCAVATION BOTTOM ELEVATION CAN BE CONTROLLED, THAT UNIFORM TRENCH WIDTHS AND VERTICAL SIDE WALLS ARE OBTAINED AT LEAST FROM AN ELEVATION 1 FOOT ABOVE THE TOP OF THE INSTALLED PIPE TO THE BOTTOM OF THE TRENCH, AND THAT THE TRENCH ALIGNMENT IS SUCH THAT THE PIPE WHEN ACCURATELY LAID TO SPECIFIED ALIGNMENT WILL BE CENTERED IN THE TRENCH WITH ADEQUATE CLEARANCE BETWEEN THE PIPE AND SIDE WALLS OF THE TRENCH. UNDERCUTTING OF THE TRENCH SIDEWALL TO OBTAIN CLEARANCE WILL NOT BE PERMITTED.
22. EXCAVATION BELOW PIPE SUBGRADE: EXCEPT WHERE OTHERWISE REQUIRED, PIPE TRENCHES SHALL BE EXCAVATED BELOW PIPE SUBGRADE ELEVATIONS TO PROVIDE FOR THE INSTALLATION OF GRANULAR FILL PIPE FOUNDATION MATERIAL.
23. UNAUTHORIZED TRENCH WIDTHS: WHERE THE WIDTH OF THE LOWER PORTION OF THE TRENCH AS EXCAVATED AT ANY POINT EXCEEDS THE MAXIMUM PERMITTED, EITHER PIPE OF ADEQUATE STRENGTH, CLASSIFICATION OR GAGE, SPECIAL PIPE EMBEDMENT OR CLASS A CONCRETE ARCH ENCAEMENT (FOR CONCRETE PIPE ONLY), AS REQUIRED BY THE SPECIFICATION CONDITIONS AND AS DETERMINED BY THE ENGINEER, SHALL BE FURNISHED AND INSTALLED BY AND AT THE EXPENSE OF THE CONTRACTOR.
24. GRUBBING: GRUB OUT LIVE ROOTS FOR A DISTANCE OF AT LEAST 6 INCHES BELOW AND 8 INCHES ON SIDES OF OUTSIDE SURFACE OF PIPE.
25. BELL HOLES: BELL HOLES SHALL PROVIDE ADEQUATE CLEARANCE FOR THE TOOLS AND METHODS USED IN INSTALLING THE PIPE. NO PART OF ANY BELL OR COUPLING SHALL BE IN CONTACT WITH THE TRENCH BOTTOM, TRENCH WALLS, OR THE GRANULAR FILL WHEN THE PIPE IS JOINTED.
26. CUTTING CONCRETE PAVEMENT AND WALKS: CUTS IN CONCRETE AND ASPHALT PAVEMENTS SHALL BE NO LARGER THAN NECESSARY TO PROVIDE ADEQUATE WORKING SPACE FOR PROPER INSTALLATION OF PIPE AND PIPE LINE APPURTENANCES. CUTTING SHALL BE STARTED WITH A CONCRETE SAW (OR BY OTHER CUTTING METHOD APPROVED BY THE ENGINEER) AND IN A MANNER WHICH WILL PROVIDE A CLEAN GROOVE AT LEAST 1–1/2 INCHES DEEP ALONG EACH SIDE OF THE TRENCH AND ALONG THE PERIMETER OF CUTS FOR STRUCTURES.
27. PAVEMENT AND BASE PAVEMENT OVER TRENCHES EXCAVATED FOR PIPE LINES SHALL BE REMOVED SO THAT A SHOULDER NOT LESS THAN 6 INCHES IN WIDTH AT ANY POINT IS LEFT BETWEEN THE CUT EDGE OF THE PAVEMENT AND THE TOP EDGE OF THE TRENCH. THE TRENCH WIDTH AT THE BOTTOM SHALL NOT BE GREATER THAN AT THE TOP AND NO UNDERCUTTING WILL BE PERMITTED. PAVEMENT CUTS SHALL BE MADE TO AND BETWEEN STRAIGHT OR ACCURATELY MARKED CURVED LINES WHICH, UNLESS OTHERWISE REQUIRED, SHALL BE PARALLEL TO THE CENTER LINE OF THE TRENCH.

SHEETING AND SHORING

28. EXCEPT WHERE BANKS MAY BE CUT BACK ON A STABLE SLOPE, EXCAVATION FOR TRENCHES SHALL BE PROPERLY AND SUBSTANTIALLY SHEETED, BRACED, AS NECESSARY, TO PREVENT CAVING OR SLIDING, TO PROVIDE PROTECTION FOR THE WORKMEN AND THE WORK, AND TO PROVIDE PROTECTION FOR EXISTING STRUCTURES AND FACILITIES. SHEETING, BRACING AND SHORING SHALL BE DESIGNED AND BUILT TO WITHSTAND ALL LOADS THAT MIGHT BE CAUSED BY EARTH MOVEMENT OR PRESSURE, AND SHALL BE RIGID, MAINTAINING ITS SHAPE AND POSITION UNDER ALL CIRCUMSTANCES.

STABILIZATION

29. TRENCH BOTTOMS SHALL BE FIRM, DENSE AND THOROUGHLY COMPACTED AND CONSOLIDATED; SHALL BE FREE FROM MUD AND MUCK; AND SHALL BE SUFFICIENTLY STABLE TO REMAIN FIRM AND INTACT UNDER THE FEET OF THE WORKMEN.
30. TRENCH BOTTOMS WHICH ARE OTHERWISE SOLID, BUT WHICH BECOME MUCKY ON TOP DUE TO CONSTRUCTION OPERATIONS, SHALL BE REINFORCED WITH ONE OR MORE LAYERS OF GRANULAR FILL MATERIAL OR OTHER CRUSHED STONE OR GRAVEL EMBEDDED THEREIN. NOT MORE THAN 1/2 INCH DEPTH OF MUD OR MUCK SHALL BE ALLOWED TO REMAIN ON STABILIZED TRENCH BOTTOMS WHEN THE PIPE BEDDING MATERIAL IS PLACED THEREON. THE FINISHED ELEVATION OF STABILIZED SUBGRADES FOR CONCRETE STRUCTURES SHALL NOT BE ABOVE THE SUBGRADE ELEVATIONS.
31. ALL STABILIZATION WORK HEREUNDER SHALL BE PERFORMED BY AND AT THE EXPENSE OF THE CONTRACTOR.
32. IF THE SUBGRADE FOR PIPE CAN BE STABILIZED WITH A THICKNESS OF GRANULAR FILL OF 12 INCHES OR LESS BELOW BOTTOM OF PIPE, OR SUBGRADE OF STRUCTURE, SUCH STABILIZATION WILL BE AT THE CONTRACTOR'S EXPENSE.

REMOVAL OF WATER

33. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE DEWATERING EQUIPMENT TO REMOVE AND DISPOSE OF ALL SURFACE AND GROUND WATER ENTERING EXCAVATIONS, TRENCHES, OR OTHER PART OF THE WORK. EACH EXCAVATION SHALL BE KEPT DRY DURING SUBGRADE PREPARATION AND CONTINUALLY THEREAFTER UNTIL THE STRUCTURE TO BE BUILT, OR THE PIPE LINE TO BE INSTALLED, THEREIN IS COMPLETED TO THE EXTENT THAT NO DAMAGE FROM HYDROSTATIC PRESSURE, FLOTATION, OR OTHER CAUSES WILL RESULT.

PIPE EMBEDMENT

34. PLACE PIPE EMBEDMENT MATERIAL ON A SUITABLY PREPARED SUBGRADE IN LIFTS NOT EXCEEDING 6 INCHES AND BRING UP EVENLY ON BOTH SIDES OF PIPE. DO NOT DUMP OVER SIDE OF TRENCH IN ANY MANNER THAT WILL BRING EARTH INTO THE EMBEDMENT MATERIAL OR DISPLACE THE PIPE. COMPACT, VIBRATE, OR SLICE WITH A SHOVEL, IN SUCH MANNER THAT MATERIAL FILL WILL TAKE ITS FINAL COMPACTION AND PROVIDE UNIFORM AND SOLID BEARING UNDER THE PIPE AND ITS HAUNCHES.

TRENCH BACKFILL COMPACTION

35. NINETY PERCENT COMPACTED BACKFILL. UNDER STREETS, DRIVES OR STATE OR COUNTY HIGHWAYS SURFACED WITH GRAVEL, CRUSHED STONE, "BLACKTOP" OR OTHER LOW OR INTERMEDIATE TYPE SURFACING. IN STREET, ROAD, HIGHWAY, RAILWAY OR ALLEY RIGHTS-OF-WAY. IN TRAVELED WAYS. IN ESTABLISHED LAWNS. ANY LINE WITHIN 5 FEET OF BACK OF CURB OR 5 FEET OF STREET SURFACING IF NO CURB, EITHER PERPENDICULAR TO OR PARALLEL TO THE STREET SHALL BE CONSIDERED AS UNDER THE STREET SURFACING, AND 90 PERCENT COMPACTION SHALL APPLY.
36. NINETY-FIVE PERCENT COMPACTED BACKFILL. UNDER CONCRETE, ASPHALTIC CONCRETE, BRICK, CONCRETE STRUCTURES OR OTHER HIGH TYPE PAVEMENTS. UNDER CONCRETE WALKS, CURBS, GUTTERS AND CULVERTS. UNDER ALL TYPES OF STREET SURFACING WHERE TRENCH CUT IS APPROXIMATELY AT RIGHT ANGLE TO ROADWAY. BACKFILL MATERIAL SHALL BE AS DESIGNATED ON THE PLANS OR ELSEWHERE IN THESE SPECIFICATIONS.
37. IN AREAS NOT LISTED ABOVE, BACKFILL SHALL BE COMPACTED TO A DENSITY EQUAL TO THE SURROUNDING GROUND.
38. SIX INCHES OF TOPSOIL SHALL BE PLACED IN THE TOP OF TRENCHES THAT ARE TO BE COVERED WITH SOD OR TO BE SEEDED.
39. IF SPECIFIED DENSITY CANNOT BE OBTAINED WITH AVAILABLE EARTH, THE CONTRACTOR SHALL FURNISH AND HAUL GRANULAR FILL MATERIAL OR SUITABLE EARTH AT HIS EXPENSE. UNSUITABLE EARTH SHALL BE DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
40. THE ENGINEER WILL CALL FOR DENSITY TESTS TO BE MADE WHENEVER DEEMED NECESSARY. THE SPECIFIED DENSITY WILL BE THE MINIMUM ALLOWED AND THE OBTAINMENT THEREOF WILL BE ENTIRELY THE CONTRACTOR'S RESPONSIBILITY.
41. THICKNESS OF BACKFILL LAYERS WILL BE DETERMINED BY THE COORDINATION OF TEST RESULTS WITH FIELD PERFORMANCE AND EQUIPMENT USED. THE CONTRACTOR WILL BE EXPECTED TO MAINTAIN ESTABLISHED PROCEDURES EXCEPT WHERE UNUSUAL CONDITIONS ARISE. IF GREATER THAN 1/2 INCH THICK COMPACTED LAYERS ARE USED, THE CONTRACTOR SHALL HAND CAVE TO THE TEST LEVEL AS DIRECTED BY THE ENGINEER AND THEN REFILL THE TEST EXCAVATION WITH COMPACTED BACKFILL TO THE SPECIFIED DENSITY.
42. ALL COMPLETED LINES SHALL BE RETURNED, IN THE OPINION OF THE ENGINEER, AS NEARLY AS POSSIBLE TO ORIGINAL CONDITION, INCLUDING RESEEDING, RE-SODDING OR REPAVING.
43. EQUIPMENT: THE BUCKET ON AN EXCAVATOR OR BACKHOE IS NOT A PIECE OF COMPACTION EQUIPMENT AND SHALL NOT BE USED AS THE METHOD FOR COMPACTING SOIL OR BASE ROCK UNDER A FUTURE OR CURRENT: STREET, PARKING LOT, SIDEWALK, CURB AND GUTTER, OR DRIVEWAY.
44. PERMITS: THE FOLLOWING ARE AS ALLOWED: SHEEPSFOOT ROLLER, VIBRATORY ROLLER, TAMPER, VIBRATORY PLATE COMPACTOR, PNEUMATIC TYRED ROLLERS, GRID ROLLERS, AND PAD FOOT TAMPING ROLLERS.

DRAINAGE MAINTENANCE

45. TRENCHES ACROSS ROADWAYS, DRIVEWAYS, WALKS, OR OTHER TRAFFIC-WAY'S ADJACENT TO DRAINAGE DITCHES OR WATER COURSES SHALL NOT BE BACKFILLED PRIOR TO COMPLETION OF BACKFILLING THE TRENCH ON THE UPSTREAM SIDE OF THE TRAFFIC-WAY. TO PREVENT IMPOUNDING WATER AFTER THE PIPE HAS BEEN LAID. BRIDGES AND OTHER TEMPORARY STRUCTURES REQUIRED TO MAINTAIN TRAFFIC ACROSS SUCH UNFILLED TRENCHES SHALL BE CONSTRUCTED AND MAINTAINED BY THE CONTRACTOR. BACKFILLING SHALL BE DONE SO THAT WATER WILL NOT ACCUMULATE IN UNFILLED OR PARTIALLY FILLED TRENCHES. ALL MATERIAL DEPOSITED IN ROADWAY DITCHES OR OTHER WATER COURSES CROSSED BY THE LINE OF TRENCH SHALL BE REMOVED IMMEDIATELY AFTER BACKFILLING IS COMPLETED AND THE SECTION, GRADES, AND CONTOURS OF DITCHES OR WATER COURSES SHALL BE RESTORED TO THEIR ORIGINAL CONDITION. SURFACE DRAINAGE SHALL NOT BE OBSTRUCTED LONGER THAN NECESSARY.

FINAL GRADING AND DISPOSAL OF EXCESS EXCAVATED MATERIALS

46. EXCEPT AS OTHERWISE INDICATED, ALL EXCESS EXCAVATED MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR AWAY FROM THE SITE OF THE WORK.
47. PAVEMENT AND PAVEMENT BASE MATERIAL, EXCAVATED ROCK IN EXCESS OF THE AMOUNT PERMITTED TO BE AND ACTUALLY INSTALLED IN TRENCH BACKFILL, JUNK AND DEBRIS ENCOUNTERED IN EXCAVATION WORK, AND OTHER SIMILAR WASTE MATERIALS SHALL BE DISPOSED OF AWAY FROM THE SITE OF THE WORK.
48. THE DISPOSAL OF WASTE AND EXCESS EXCAVATED MATERIALS, INCLUDING HAULING, HANDLING, LEVELING AND SURFACING, SHALL BE AT THE CONTRACTOR'S EXPENSE.
49. UN-COMPACTED BACKFILL: WHERE UN-COMPACTED BACKFILL IS SPECIFIED, EXCESS EARTH FROM EXCAVATIONS, OVER AND ABOVE THAT DISPLACED BY THE PIPE, SHALL BE MOUNDED DIRECTLY OVER THE PIPE TRENCH, IN SUCH MANNER THAT THE EARTH WILL SETTLE INTO THE TRENCH AS NATURAL CONSOLIDATION OCCURS. OPENINGS FOR NATURAL DRAINAGE SHALL BE PROVIDED. THE MOUNDED EARTH SHALL BE GRADED TO A SMOOTH, UNIFORM SURFACE. THAT PORTION OF THE EARTH DISPLACED BY THE PIPE SHALL BE UNIFORMLY AND SMOOTHLY GRADED ADJACENT TO THE TRENCH.
50. OTHER TYPES OF BACKFILL: FOR ALL TYPES OF BACKFILL OTHER THAN UN-COMPACTED, THE CONTRACTOR SHALL DISPOSE OF EXCESS EXCAVATED MATERIAL ABOVE THE SURFACE OF THE GROUND OR SUBGRADE OF PAVEMENT MATERIALS, ETC., UNLESS OTHERWISE DIRECTED. WHERE DIRECTED, THE CONTRACTOR SHALL LEAVE ALL OR A PORTION OF THE EXCESS EARTH AND GRADE SMOOTHLY ALONG AND ADJACENT TO THE TRENCH IN THE MANNER PRESCRIBED BY THE ENGINEER. IF DIRECTED, HE SHALL GRADE EXCESS EARTH INTO ADJACENT LOW AREAS, FINE GRADING AND SLOPING TO DRAIN.
51. FINAL GRADING: JUST PRIOR TO COMPLETION AND ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL FINAL GRADE OVER ALL PIPE TRENCHES AND AROUND STRUCTURES, FILLING IN ANY PLACES THAT MAY HAVE SETTLED DURING THE PERIOD BETWEEN CONSTRUCTION OF EACH LINE AND THE COMPLETION OF THE ENTIRE CONTRACT. FINISHED SURFACE SHALL BE BLADED AND ALIGNED TO A NEAT AND UNIFORM APPEARANCE.
52. FINAL GRADING, IMPROVED YARDS AND LAWNS: FINE GRADE, SUITABLE FOR SEEDING OR SODDING. HAND RAKE EARTH OFF GRASS IN ESTABLISHED LAWN AREAS, UNLESS DIRECTED TO LEAVE EXCESS EARTH AS OUTLINED ABOVE.
53. DEFICIENCY OF BACKFILL: WHEREVER THERE IS A DEFICIENCY OF MATERIAL REQUIRED TO BACKFILL TO THE SPECIFIED SURFACE OR SUBGRADE, THE CONTRACTOR SHALL FURNISH THE NECESSARY AMOUNT OF SUITABLE EARTH AT HIS EXPENSE.
54. RESTORATION OF DISTURBED EARTH: THE CONTRACTOR SHALL RESTORE ALL EARTH AREAS DISTURBED FROM THE ORIGINAL CONDITION BY HIS OPERATIONS. RESTORATION WILL BE BY SEEDING, FERTILIZING AND MULCHING OR BY APPROPRIATE PAVEMENT AND STREET REPAIR.

CONCRETE SIDEWALK

1. ALL SIDEWALKS SHALL BE CONSTRUCTED IN COMPLIANCE WITH THE AMERICAN WITH DISABILITIES ACT OF 1990, 42 U.S.C. 12101 ET SEQ.
2. ALL SIDEWALKS SHALL BE CONSTRUCTED USING KCMMB 4K PORTLAND CEMENT CONCRETE UNLESS OTHERWISE DESIGNATED ON THE DRAWINGS.
3. REINFORCING STEEL, IF DESIGNATED TO BE USED, SHALL BE GRADE 40 SUPPLIED IN ACCORDANCE WITH THESE SPECIFICATIONS.
4. WHEN AN EXISTING SIDEWALK ENTRANCE IS TO BE REMOVED, AND REPLACED, THE CONTRACTOR SHALL NOTIFY THE AFFECTED PROPERTY OWNER OR TENANT TWENTY-FOUR (24) HOURS PRIOR TO THIS WORK. SCHEDULING OF THE CONSTRUCTION OF SIDEWALK ENTRANCES SHALL BE SUCH THAT, WHEREVER POSSIBLE, PLACING OF CONCRETE SHALL BE ACCOMPLISHED WITHIN TWENTY-FOUR (24) HOURS AFTER THE EXISTING MATERIALS HAVE BEEN REMOVED.
5. ALL SIDEWALK CONSTRUCTION SHALL BE CONSTRUCTED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR ESTABLISHED BY THE ENGINEER.
6. THE WIDTH OF ANY SIDEWALK REPAIR SHALL BE THE SAME AS THAT BEING REPLACED, BUT NOT LESS THAN FOUR FOOT IN WIDTH, EXCEPT FOR A MINIMUM DISTANCE TO MATCH THE EXISTING SIDEWALK IF LESS THAN FOUR FOOT IN WIDTH. THE WIDTH OF NEW SIDEWALK CONSTRUCTION SHALL BE AS INDICATED ON THE PLANS. THE MINIMUM WIDTH OF PUBLIC SIDEWALKS SHALL BE FOUR FEET WITH A FIVE-FOOT SQUARE PASSING SPACE EVERY 200 FEET. THE MINIMUM ALLOWABLE THICKNESS SHALL BE FOUR INCHES, EXCEPT WITHIN A DRIVEWAY APPROACH AREA, WHERE THE MINIMUM ALLOWABLE THICKNESS SHALL BE SIX INCHES. SIDEWALKS CONSTRUCTED WITH CONCRETE PAVER BRICK SHALL MEET THE FOLLOWING SPECIFICATIONS: FOUR INCHES OF CONCRETE SHALL BE USED AS A BASE PLUS ONE INCH OF BEDDING SAND FOR THE PAVERS. EDGE RESTRAINT MUST BE PROVIDED IN ANY CASE TO CONFINE THE PAVED SECTION TO THE DESIGN DIMENSIONS.
7. THE CROSS SLOPE ALONG THE LENGTH OF THE WALK SHALL BE AS NEAR PARALLEL TO THE STREET GRADIENT AS PRACTICAL. THE MAXIMUM LONGITUDINAL SLOPE SHALL BE ONE INCH PER FOOT, EXCEPT WHERE A VARIANCE FROM STREET GRADE HAS BEEN APPROVED BY THE ENGINEER. THE CROSS SLOPE IS ONE FOOT PER 100 FEET OR 1%; WITH THE INTENTION OF ENFORCING A 2% MAXIMUM WITH ABSOLUTELY NO TOLERANCE FOR EXCEEDING 2%, DUE TO FEDERAL REQUIREMENTS. THIS MAXIMUM CROSS SLOPE STANDARD ALSO APPLIES WHEN THE WALK CROSSES DRIVES AND SHALL SLOPE TOWARD THE STREET, EXCEPT AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. THE FINISH GRADE OF THE SIDEWALK SHALL BE SUCH THAT THE SLOPE OF THE FINISH GRADE BETWEEN THE CURB AND THE SIDEWALK WILL NOT EXCEED ONE-HALF INCH PER FOOT AND WILL NOT BE LESS THAN ONE-QUARTER INCH PER FOOT AND SHALL SLOPE TOWARD THE STREET, EXCEPT AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER.
8. THE SUBGRADE SHALL BE UNIFORMLY COMPACTED AS DESIGNATED ON THE DRAWINGS OR IN THESE SPECIFICATIONS. THE SUBGRADE SHALL BE EVENLY GRADED TO THE REQUIRED SUBGRADE ELEVATION. ALL LOOSE OR EXTRANEOUS MATERIAL SHALL BE REMOVED FROM THE SUBGRADE AND SOFT SPOTS SHALL BE UNIFORMLY RE-COMPACTED PRIOR TO PLACEMENT OF CONCRETE. SIDEWALK CONCRETE MATERIAL SHALL NOT BE PLACED ON FROZEN SUBGRADE. THE CONTRACTOR SHALL HAVE AVAILABLE ADEQUATE HAND OR MECHANICAL COMPACTION EQUIPMENT TO ACCOMPLISH THE COMPACTION AS SET FORTH IN THESE SPECIFICATIONS. THE SUBGRADE SHALL BE PROPERLY MOISTENED PRIOR TO PLACING CONCRETE.
9. ALL FORMS SHALL BE SUFFICIENTLY STRONG AND RIGID AND SECURELY STAKED AND BRACED TO OBTAIN A FINISHED PRODUCT CORRECT TO THE DIMENSIONS, LINES AND GRADES REQUIRED. FORMS MAY BE OF STEEL OR WOOD AT THE OPTION OF THE CONTRACTOR. EACH FORM SHALL NOT VARY MORE THAN ONE-QUARTER INCH IN LONGITUDINAL AND VERTICAL ALIGNMENT FOR EACH TEN FEET IN LENGTH. ALL FORMS MUST BE CLEANED AND OILED BEFORE EACH USE. A SLIP-FORM MACHINE EQUIPPED WITH ELECTRONICS, MAY BE USED IN LIEU OF THE MACHINE SHALL NOT BE EQUIPPED WITH MECHANICAL INTERNAL VIBRATORS AND SHALL BE CAPABLE OF PLACING THE FINISHED SIDEWALK TO THE CORRECT CROSS SECTION, LINE AND GRADE AS REQUIRED IN THIS SECTION. ADJUSTMENTS OF THE STRING LINE AND/OR SLIP-FORM MACHINE SHALL BE MADE TO GIVE A SMOOTH AND ACCURATE LINE AND GRADE.
10. REINFORCING OF SIDEWALKS WILL NOT BE REQUIRED EXCEPT IN UNUSUAL CONDITIONS WHERE THE ENGINEER MAY REQUIRE REINFORCING OR WELDED WIRE FABRIC. WHEN WELDED WIRE FABRIC IS USED IT SHALL BE PLACED TWO INCHES (2") FROM THE FINISHED SURFACE OF THE SIDEWALK. THE REINFORCEMENT SHALL BE SUPPORTED USING SET SPACING SUCH THAT BETWEEN THE SUPPORTS, THE REINFORCEMENT DOES NOT DEFLECT OR SAG EXCESSIVELY. THERE WILL BE NO DIRECT PAYMENT FOR THIS ITEM, AND IT SHALL BE SUBSIDIARY TO THE UNIT PRICE BID FOR SIDEWALK REPLACEMENT.

PLACING AND FINISHING CONCRETE

11. THE CONTRACTOR SHALL PROVIDE ADEQUATE TOOLS AND EQUIPMENT TO PRODUCE QUALITY WORKMANSHIP IN PLACING AND FINISHING CONCRETE. THE SIDEWALK AND RAMPS SHALL BE FINISHED TO THE TOP OF THE FORMS AND THE SURFACE FINISHED WITH A WOOD OR STEEL FLOAT AND SURFACE TEXTURE SHALL BE A COURSE BROOM FINISH TRANSVERSE TO THE SLOPE OF THE SIDEWALK OR RAMP. NO "PLASTERING" OF THE SURFACE SHALL BE PERMITTED.
12. CONTRACTION JOINTS: THE SIDEWALK SURFACE SHALL BE MARKED OFF INTO NOMINAL SQUARES OF DIMENSIONS EQUAL TO THE WIDTH OF THE SIDEWALK WITH A MAXIMUM DISTANCE BETWEEN JOINTS OF SEVEN FEET.
13. CONTRACTION JOINTS: ALL JOINTS IN FORMED CONCRETE SIDEWALKS SHALL BE TOOLED. A STANDARD JOINT TOOL HAVING A WIDTH OF ONE-EIGHTH INCH AND ONE-INCH-DEEP HAVING A LIP RADIUS OF ONE-EIGHTH INCH TO ONE-QUARTER INCH SHALL BE USED IN FORMING THE JOINTS.
14. CONTRACTION JOINTS: ALL JOINTS IN SLIP-FORMED CONCRETE SIDEWALKS SHALL BE SAVED. IF SAWING JOINTS, THE CONTRACTOR SHALL BEGIN AS SOON AS THE CONCRETE HARDENS SUFFICIENTLY TO PREVENT EXCESSIVE RAVELING. ALONG THE SAW CUT AND SHALL FINISH BEFORE CONDITIONS INDUCE UNCONTROLLED CRACKS, REGARDLESS OF THE TIME OR WEATHER.
15. EXPANSION JOINTS: EXPANSION JOINTS SHALL BE CONSTRUCTED AT LOCATIONS WHERE THE SIDEWALK ABUTS EXISTING CONCRETE CURBS, DRIVEWAYS, AND SIMILAR STRUCTURES, AND EVERY TWO HUNDRED FIFTY FEET AND AS SHOWN ON APPROVED PLANS. EXPANSION JOINTS SHALL BE FORMED WITH ONE-HALF INCH PREFABRICATED NON-EXTRUDING FILLER AND SHALL EXTEND THE FULL DEPTH OF THE SLAB.
16. CURING CONCRETE: SIDEWALK SLABS SHALL BE CURED EITHER BY WET COVERING, WATERPROOF COVERING, OR LIQUID MEMBRANE-FORMING COMPOUND IN ACCORDANCE WITH "CONCRETE CONSTRUCTION". THE CURING PERIOD SHALL BE A MINIMUM OF FIVE DAYS. CURING SHALL BE COMMENCED AS SOON AS POSSIBLE AFTER THE FINISHING OPERATION AND WHEN THE CONCRETE HAS SET SUFFICIENTLY SO THAT IT WILL NOT BE DAMAGED IN THE PROCESS.
17. BACKFILLING CONCRETE: BACKFILLING OPERATIONS SHALL NOT COMMENCE PRIOR TO THE COMPLETION OF THE FIVE-DAY CURING PERIOD, OR UNTIL THE CONCRETE ATTAINS 75% OF DESIGN STRENGTH. ALL BACKFILL MATERIAL SHALL CONSIST OF SOIL SUITABLE FOR VEGETATION. THE AREA SHALL BE PREPARED SUCH THAT SOD CAN BE PLACED ON BARE SOIL.
18. SIDEWALK CURB: SIDEWALK CURB SHALL BE PLACED ON THE BACK OF SIDEWALK AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

CONCRETE SIDEWALK RAMPS

1. AFTER THE CONSTRUCTION OF THE ADJACENT CURB AND GUTTER SECTION, AND NOT LESS THAN ONE WEEK PRIOR TO THE CONSTRUCTION OF ALL WHEELCHAIR RAMPS, THE CONTRACTOR SHALL VERIFY THAT THE CURB RETURN ELEVATIONS AND THE LOCATION OF THE DEPRESSED SECTION IS CONSTRUCTED IN CONFORMANCE WITH THE DESIGN DRAWINGS. IF THE ABSOLUTE ELEVATION OF ANY OF THE CONTROL POINTS SHOWN IN SIDEWALK RAMP DRAWINGS IS NOT WITHIN .5 INCHES, OR IF THE RELATIVE DIFFERENCE BETWEEN ANY TWO CONTROL POINTS IS NOT WITHIN .125 INCHES, OR IF THE DEPRESSION LOCATION IS NOT WITHIN 1" OF THE DESIGN DRAWINGS, THE CONTRACTOR SHALL EITHER 1) REMOVE AND REPLACE THE NON-COMPLIANT CURB, OR 2) SUBMIT A SHOP DRAWING SHOWING HOW THE RAMP CAN BE CONSTRUCTED TO BE ADA COMPLIANT. IN THE EVENT THAT THE ORIGINAL DESIGN DRAWINGS SHOWED A RAMP WITH ELEMENTS THAT WERE NOT ADA COMPLIANT, THE SHOP DRAWING SHALL SHOW THAT THE PROPOSED ELEMENT IS AS OR MORE ADA COMPLIANT THAN THE ORIGINAL DESIGN DRAWING. IF THIS CANNOT BE ACCOMPLISHED, THE CURB SHALL BE REMOVED AND REPLACED.
2. WHEELCHAIR ACCESSIBLE CURB RAMPS SHALL BE CONSTRUCTED AT ALL STREET CROSSINGS, MAXIMUM DESIRABLE SLOPE OF RAMPS SHALL BE ONE INCH PER FOOT. MINIMUM WIDTH SHALL BE FOUR FEET, EXCEPT ALONG THOROUGHFARE CORRIDORS WHERE THE WIDTH SHALL BE FIVE FEET. THE MINIMUM ALLOWABLE THICKNESS FOR WHEELCHAIR ACCESSIBLE CURB RAMPS SHALL BE SIX INCHES. CURBS AT RAMP LOCATIONS MUST PROVIDE A GRADUAL TRANSITION FROM GUTTER LINE TO BACK OF CURB, NOT EXCEEDING ONE INCH IN HEIGHT OR SLOPES OF GREATER THAN ONE INCH PER FOOT. SIDE SLOPES OF RAMPS SHALL NOT EXCEED ONE INCH PER FOOT WHERE SUCH SIDE SLOPES ARE IN THE NORMAL PATH OF PEDESTRIANS. ADJACENT PORTIONS OF SIDEWALK, IF THE STREET CURB HAS NOT BEEN CONSTRUCTED TO RECEIVE THE SIDEWALK RAMP, THE SIDEWALK CONSTRUCTOR SHALL REMOVE A SECTION OF THE CURB AND RECONSTRUCT AS REQUIRED.
3. RAMPS SHALL BE CONSTRUCTED WITH OR WITHOUT A DETECTABLE WARNING SURFACE AS SPECIFIED ON THE PLANS.

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01-28-2020

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CONSTRUCTION DOCUMENTS

CIVIL SPECIFICATIONS

R PARK – PHASE 1
ROELAND PARK, KANSAS

REVISIONS

DESIGNER / DRAFTER

MDM/AJM

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CONCRETE CURB AND GUTTER

1. SECTION 2209 OF THE APWA STANDARD SPECIFICATIONS SHALL GOVERN THE CONSTRUCTION OF CONCRETE CURB AND GUTTER.
2. REINFORCEMENT FOR CURB AND GUTTER SHALL BE THREE NO. 4 BARS IN ACCORDANCE WITH "CONCRETE REINFORCEMENT."
3. CONCRETE FOR CURB AND GUTTER SHALL BE IN ACCORDANCE WITH "CONCRETE CONSTRUCTION".

CONSTRUCTION REQUIREMENTS CONCRETE PLACEMENT

4. A SLIP FORM CURB MACHINE, WITH ELECTRONIC CONTROL, SHALL BE REQUIRED ON ALL CONTINUOUS CURB CONSTRUCTION OF LENGTHS GREATER THAN 100 FEET.
5. THE CONCRETE SHALL NOT BE PLACED UNTIL THE SUBGRADE HAS BEEN INSPECTED FOR COMPACTION AND MOISTURE. THE CONCRETE SHALL BE CONSOLIDATED WITH AN APPROVED INTERNAL TYPE VIBRATOR. THE SURFACE SHALL BE SHAPED BY USE OF A STEEL TOOL TO PRODUCE THE SECTIONS SHOWN ON THE DRAWINGS. THE EDGES SHALL BE ROUNDED WITH EDGERS TO FORM THE RADII INDICATED ON THE DRAWINGS. THE SURFACES SHALL BE FINISHED WITH A WOODEN OR METALLIC FLOAT AND BRUSHED.
6. ALL CONCRETE SHALL BE CURED IN ACCORDANCE WITH THE "CONCRETE CONSTRUCTION" SPECIFICATION.

REINFORCEMENT

7. NO REINFORCEMENT SHALL BE REQUIRED WHEN CURB AND GUTTER IS LAID ON FOUR INCHES OR MORE OF ASPHALTIC CONCRETE BASE.

JOINTS

8. ALL JOINTS SHALL BE FORMED AT RIGHT ANGLES TO THE ALIGNMENT OF THE CURBING.
9. EXPANSION JOINTS SHALL BE PLACED AT POINTS OF CURVATURE, CURB RETURNS, CURB INLET TRANSITIONS, AND AT INTERVALS NOT TO EXCEED 250 FEET. THE EXPANSION JOINTS SHALL CONSIST OF ONE-HALF INCH PRE-MOLDED BITUMINOUS, NON-EXTRUDING AND RESILIENT EXPANSION JOINT MATERIAL CUT TO THE CONFIGURATION OF THE CURB SECTION. THE MATERIAL SHALL EXTEND THROUGH THE FULL CURB SECTION. THE EDGES OF THE JOINTS SHALL BE ROUNDED WITH AN EDGING TOOL OF ONE-QUARTER INCH RADIUS.
10. CURBING SHALL HAVE CONTRACTION JOINTS FORMED AT 15 FEET INTERVALS. THEY SHALL EXTEND ACROSS THE ENTIRE CURB SECTION THE CUT SHALL BE APPROXIMATELY 1/4-INCH-WIDE, AND THE DEPTH SHALL BE ONE-THIRD THE THICKNESS OF THE CURB (MINIMUM) OR AS SHOWN IN THE PLANS. THE CONTRACTION JOINTS MAY BE FORMED BY ANY APPROVED METHOD. IF SAWING JOINTS, THE CONTRACTOR SHALL BEGIN AS SOON AS THE CONCRETE HARDENS SUFFICIENTLY TO PREVENT EXCESSIVE RAVELING ALONG THE SAW CUT AND SHALL FINISH BEFORE CONDITIONS INDUCE UNCONTROLLED CRACKS, REGARDLESS OF THE TIME OR WEATHER.

LINE AND GRADE

11. THE NEW CONCRETE CURB AND GUTTER SHALL BE ACCURATELY PLACED IN ACCORDANCE WITH THE LINE AND GRADE AS ESTABLISHED BY THE ENGINEER. CURBS SHALL BE FORMED TO THE CROSS SECTION AS SHOWN ON THE DRAWINGS WITH A MULE; OR TEMPLATES SUPPORTED ON THE SIDE FORMS AND WITH A FLOAT NOT LESS THAN 4 FEET IN LENGTH, FOR HAND PLACED CURB.
12. THE FINISHED SURFACE OF THE CURB AND GUTTER SHALL BE CHECKED FOR NO MORE THAN 1/4-INCH DEVIATION, BY THE USE OF A 10-FOOT STRAIGHTEDGE, AND CORRECTED IF NECESSARY. WHERE GRADES ARE FLAT AND WHILE THE CONCRETE IS STILL PLASTIC, THE DRAINAGE OF THE GUTTER SHOULD BE CHECKED WITH A 4-FOOT CARPENTER'S LEVEL.

FINISH

13. THE SURFACES OF CURB AND GUTTER SHALL BE FINISHED WITH A WOODEN OR STEEL FLOAT AND BROOMED. BROOMING SHALL BE PERPENDICULAR TO THE CURB LINE. THE BROOMING OPERATION SHALL BE SO EXECUTED THAT THE MARKS WILL BE UNIFORM IN APPEARANCE AND NOT MORE THAN ONE-SIXTEENTH INCH IN DEPTH. BROOMING SHALL BE COMPLETED BEFORE THE CONCRETE IS IN SUCH CONDITION THAT IT WILL BE TORN OR UNDULY ROUGHENED AND BEFORE THE CONCRETE HAS ATTAINED ITS INITIAL SET.

CURING AND BACKFILLING

14. CONCRETE CURBS SHALL BE CURED IN ACCORDANCE WITH "CONCRETE CONSTRUCTION."
15. BACKFILLING OPERATIONS SHALL NOT COMMENCE PRIOR TO THE COMPLETION OF THE CURING PERIOD, OR UNTIL THE CONCRETE ATTAINS 75% DESIGN STRENGTH, AS SHOWN BY COMPRESSIVE TESTS OF FIELD CURED CYLINDERS. ALL BACKFILL MATERIAL SHALL CONSIST OF SOIL SUITABLE FOR VEGETATION. THE AREA SHALL BE PREPARED SUCH THAT SOD CAN BE PLACED ON BARE SOIL.

DRIVEWAYS

1. CONCRETE SHALL BE CLASSIFIED AS KCMMB 4K IN ACCORDANCE WITH "CONCRETE CONSTRUCTION."
2. ALL CONCRETE DRIVEWAYS SHALL BE CONSTRUCTED ON A PREPARED SUBGRADE, COMPACTED TO 95% FOR A DEPTH OF 6 INCHES IN CUT SECTIONS, AND TO A DEPTH OF 18 INCHES IN FILL SECTIONS.
3. WHERE CONSTRUCTION REQUIRES THE REMOVAL AND REPLACEMENT OF EXISTING CONCRETE DRIVEWAYS, SUCH REMOVAL SHALL BE ACCOMPLISHED BY FIRST SAWING THE EXISTING DRIVEWAY AS SHOWN ON THE PLANS, AND REMOVING ALL MATERIAL TO BE REPLACED. A ONE-HALF INCH (1/2") PRE-MOLDED EXPANSION JOINT SHALL BE INSTALLED AT THE SAWED JOINT, AND THE DRIVEWAY AND DRIVE APRON REPLACED WITH CONCRETE. CONCRETE DRIVEWAYS SHALL BE REPLACED TO A MINIMUM THICKNESS OF 6 INCHES, EXCEPT THAT IN NO CASE SHALL IT BE LESS THAN THE SECTION BEING REPLACED, AND IT SHALL INCLUDE WIRE MESH IF THE EXISTING DRIVEWAY IS SO REINFORCED. IF WIRE MESH IS USED, IT SHALL BE 6 INCH X 6 INCH #6 WWF PROVIDED IN SHEET FORM. ROLLED WIRE MESH SHALL NOT BE ALLOWED. ALL CONCRETE SHALL CONFORM TO KCMMB 4K CONCRETE AS DEFINED IN THESE SPECIFICATIONS. DRIVEWAYS SHALL RECEIVE A NONSLIP FINISH OBTAINED BY A WOOD FLOAT AND HAIR BRUSH OR BROOM APPLIED TRANSVERSE TO THE CENTERLINE OF THE DRIVEWAY.
4. ALL JOINTS IN CONCRETE DRIVEWAYS SHALL BE TOOLED, OR AS APPROVED BY THE ENGINEER. JOINTS SHALL BE TOOLED AFTER BROOMING TO PROVIDE A "PICTURE FRAME" APPEARANCE.

STORM SEWER PIPE

1. ALL STORM SEWER MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH APWA SECTION 2600.

DRAINAGE STRUCTURES

1. THIS SECTION COVERS STRUCTURES APPURTENANT TO THE STORM SEWER SYSTEM. THESE STRUCTURES INCLUDE INLETS, MANHOLES, AND JUNCTION BOXES.

CONCRETE CONSTRUCTION

2. ALL NEW INLETS AND JUNCTION BOXES SHALL BE CONSTRUCTED OF CONCRETE IN ACCORDANCE WITH CONCRETE REINFORCEMENT AND CONCRETE SECTION.
3. INLET TOPS SHALL HAVE LIGHT BROOM FINISH.
4. CURB TRANSITIONS SHALL HAVE BROOM FINISH. CONTRACTION JOINTS SHALL BE CUT WHERE SHOWN. CUT EACH A MINIMUM OF 1/4 OF THE CONCRETE DEPTH AND FINISH WITH JOINT TOOL.
5. CONCRETE STRUCTURES MAY BE CAST IN PLACE, OR PRECAST, IN ACCORDANCE WITH THE REQUIREMENTS OF THIS SECTION.
6. CONNECTIONS TO EXISTING PIPES SHALL BE MADE WITH A CONCRETE COLLAR WITH KCMMB 4K CONCRETE AND ANY EXISTING PIPE THAT REQUIRES REPLACING SHALL BE DONE SO SUBSIDIARY TO THE PIPE INLET CONNECTION.

PRECAST INLETS AND JUNCTION BOXES

7. PRECAST CONCRETE INLETS AND JUNCTION BOXES SHALL BE CONSTRUCTED IN ALL RESPECTS, IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS, EXCEPT AS PROVIDED IN THE FOLLOWING ITEMS OF THIS SUBPARAGRAPH. THE USE OF PRECAST STRUCTURES WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO MAKE ANY ADJUSTMENTS TO THE STRUCTURES FOUND TO BE NECESSARY BECAUSE OF FIELD UTILITY CONFLICTS OR OTHER FIELD CONDITIONS. MODIFICATION OF PRECAST STRUCTURES, IF ALLOWED BY THE ENGINEER OR SUBSTITUTION OF AN APPROVED STRUCTURE TO MEET FIELD CONDITIONS SHALL BE ENTIRELY AT THE CONTRACTOR'S EXPENSE.
8. ALL APPLICABLE REQUIREMENTS OF ASTM C-478 SHALL APPLY TO THE MANUFACTURE OF PRECAST CONCRETE MANHOLES.
9. THE MANUFACTURER OF PRECAST CONCRETE INLETS AND JUNCTION BOXES SHALL SUBMIT DETAILED DRAWINGS AND SPECIFICATIONS, FOR THE CONSTRUCTION OF THE BASIC PRECAST UNITS AND APPURTENANCES TO THE ENGINEER, FOR PRIOR APPROVAL. A SHOP DRAWING FOR EACH STRUCTURE SHOWING DIMENSIONS, ELEVATIONS AND OPENINGS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO MANUFACTURING OF THE UNITS. THE CONTRACTOR SHALL VERIFY ALL TOP OF INLET AND MANHOLE ELEVATIONS PRIOR TO CONSTRUCTION OF THE STRUCTURES.
10. MULTIPLE PRECAST UNITS MAY ONLY BE USED AS SPECIFIED ON THE PLANS, OR WITH APPROVAL OF THE ENGINEER. WHERE DIVIDING WALLS ARE USED OR WHERE MULTIPLE PRECAST UNITS ARE USED, THE TOTAL NET LENGTH OF OPENING SHALL EQUAL THE LENGTH OF INLET SPECIFIED ON THE PROJECT PLANS. INTERMEDIATE WALL OPENINGS SHALL BE LARGE ENOUGH SO AS TO NOT CAUSE HYDRAULIC HEAD LOSS. LOCATION AND NUMBER OF MANHOLE OPENINGS, AS WELL AS OPENINGS IN WALLS BETWEEN MULTIPLE UNITS OR IN DIVIDING WALLS, SHALL BE AS REQUIRED TO PROMOTE EASY ACCESS TO ALL PARTS OF THE INLET, SUBJECT TO THE ENGINEER'S APPROVAL.
11. UNLESS OTHERWISE NOTED ON THE PLANS, CONCRETE BASE SLABS FOR PRECAST STRUCTURES SHALL BE CONSTRUCTED MONOLITHIC WITH THE WALLS. THE BASE SLAB SHALL BE REINFORCED IN ACCORDANCE WITH THE PROJECT PLANS, AND THE BOTTOM OF THE BASE SLAB SHALL BE LOCATED TO PROVIDE AT LEAST 4" OF CLEARANCE BETWEEN THE BOTTOM OF THE LOWEST PIPE AND THE TOP OF THE BASE SLAB.
12. MASTIC PIPE JOINT COMPOUND, OR APPROVED PREFORMED MASTIC, SHALL BE USED IN HORIZONTAL JOINTS AND WHERE WALLS OF MULTIPLE SECTIONS JOIN, IN ORDER TO FORM A REASONABLY WATERTIGHT STRUCTURE.
13. ALL CURB INLET, AREA INLET, AND SHALLOW MANHOLE TOP SLABS SHALL BE CAST IN PLACE. WALL STEEL SHALL BE EXTENDED A MINIMUM OF 4.5" INTO THE TOP SLAB FOR 6" THICK CURB INLET TOPS, AND 6.5" FOR 8" THICK MANHOLE TOP SLABS.

MATERIALS FOR MORTAR

14. PORTLAND CEMENT TYPE 1
15. HYDRATED LIME ASTM DESIGNATION C 207, TYPE N.
16. MASONRY CEMENT AASHTO DESIGNATION M 150, TYPE II.
17. SAND. PER KCMMB SPECIFICATIONS.

18. WATER. POTABLE, PER KCMMB SPECIFICATIONS.
19. IRON OXIDE FOR EXPANDING GROUT. EMBECO BY MASTER BUILDERS CO., OR EQUAL.

MORTAR OR PLASTER

20. THE INGREDIENTS SHALL BE PROPORTIONED AS FOLLOWS:

	WEIGHTS	VOLUME
PORTLAND CEMENT	94#	1
HYDRATED LIME	10#	0.15
SAND	200#	3

21. MASONRY CEMENT MAY BE SUBSTITUTED FOR PORTLAND CEMENT AND HYDRATED LIME, PROVIDING SATISFACTORY RESULTS ARE OBTAINED. PROPORTION BY VOLUME SHALL BE ONE (1) PART MASONRY CEMENT TO THREE (3) PARTS SAND.
22. ALL THE MATERIALS EXCEPT WATER SHALL BE MIXED, EITHER IN A TIGHT BOX OR IN AN APPROVED MORTAR MIXER, UNTIL THE MIXTURE ASSUMES A UNIFORM COLOR, AFTER WHICH THE WATER SHALL BE ADDED AND THE MIXING CONTINUED. SUFFICIENT WATER SHALL BE ADDED TO PRODUCE A MORTAR OF SUCH CONSISTENCY THAT IT CAN BE HANDLED EASILY AND SPREAD WITH A TROWEL. MORTAR SHALL BE MIXED ONLY IN THOSE QUANTITIES REQUIRED FOR IMMEDIATE USE. MORTAR THAT IS NOT USED WITHIN 45 MINUTES AFTER WATER HAS BEEN ADDED SHALL BE DISCARDED. RETEMPERING OF MORTAR WILL NOT BE PERMITTED.
23. WORK INVOLVING MORTAR OR PLASTER SHALL NOT BE DONE IN FREEZING WEATHER AND SHALL BE PROTECTED FROM FREEZING FOR THREE DAYS AFTER CONSTRUCTION.
24. EXPANDING MORTAR OR GROUT PROPORTION, MIX AND USE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

WATER TIGHTNESS

25. ALL STRUCTURES SHALL BE CONSTRUCTED SUBSTANTIALLY WATER TIGHT. ALL OBVIOUS LEAKS SHALL BE REPAIRED.
26. CURING SEAL, MOIST CURE OR SHADE SHALL BE USED, WHEN REQUIRED, TO ACCOMPLISH THESE RESULTS AND TO PROVIDE A WATERTIGHT STRUCTURE.
27. MASONRY AND MORTAR AROUND PIPE SHALL BE CAREFULLY CONSTRUCTED TO PROVIDE WATERTIGHT CONNECTIONS.

SETTING TOP CASTINGS

28. TOP CASTINGS FOR ALL STRUCTURES WITH A CONCRETE TOP SLAB SHALL BE CAST IN THE SLAB AT THE TIME OF POURING.
29. TOP CASTINGS FOR MANHOLES SHALL BE SET IN FULL MORTAR BED AND TO REQUIRED ELEVATION AND SLOPE.
30. TOP SHALL BE SHALL BE SET FLUSH, AND ON SAME SLOPE, WITH FINISHED PAVEMENTS OR WALKS. IN NEWLY DEVELOPED AREAS, SET TOP TO DESIGNED STREET SURFACE.
31. IN ESTABLISHED LAWNS, SET TOPS APPROXIMATELY 1 INCH ABOVE NORMAL GRADE AND SLOPE AWAY FROM MANHOLE AT 1 ON 10 SLOPE.

MISCELLANEOUS

32. STEEL ITEMS: ASTM A7 OR A36. PAINTING OR GALVANIZING, AS REQUIRED BY THE PLANS.
33. CAST IRON ITEMS: ASTM A48, CLASS 35, GRAY IRON, EXCEPT FOR THE BURIED PORTION OF MANHOLE STEPS, COAT WITH COAL TAR PITCH, 2 COATS, AT FOUNDRY. CASTINGS SHALL FIT TOGETHER PROPERLY, MATING SURFACES SHALL BE MACHINED, AND BE NON-ROCKING UNDER MOVING LOADS.

SODDING

1. ALL SEEDING AND SODDING INCLUDING MATERIALS, EQUIPMENT, AND MAINTENANCE SHALL BE IN ACCORDANCE WITH APWA SECTION 2400.
2. ACCEPTANCE. INITIAL ACCEPTANCE SHALL BE GIVEN TO THE GENERAL CONTRACTOR BY THE OWNER OR THEIR REPRESENTATIVE UPON SATISFACTORY COMPLETION OF EACH SECTION OR AREA AS INDICATED ON THE DRAWINGS OR AS OTHERWISE SPECIFIED. FINAL ACCEPTANCE WILL BE MADE BY THE OWNER OR THEIR REPRESENTATIVE AT LEAST 30 DAYS AFTER INSTALLATION.
3. SOD PLACED OUT OF SEASON: PAYMENT FOR SOD PLACED OUT OF SEASON WILL BE DEFERRED UNTIL THE SOD HAS BEEN ACCEPTED AFTER AN INSPECTION AT THE APPROPRIATE TIME DURING THE NEXT GROWING SEASON. THE INSPECTION AND ACCEPTANCE WILL CONFORM TO THIS SECTION.

WATERING

4. THE GENERAL CONTRACTOR SHALL SUPPLY ADEQUATE WATER TO THE SITE. FIRST WEEK: THE CONTRACTOR SHALL PROVIDE ALL LABOR AND ARRANGE FOR ALL WATERING NECESSARY FOR ROOTING OF THE TURFGRASS SOD. SOIL ON SOD PADS SHALL BE KEPT MOIST AT ALL TIMES. IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHALL BE PERFORMED DAILY OR AS OFTEN AS NECESSARY DURING THE FIRST WEEK AND IN SUFFICIENT QUANTITIES TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST FOUR INCHES. WATERING SHOULD BE DONE DURING THE HEAT OF THE DAY TO PREVENT WILTING.
5. SECOND AND SUBSEQUENT WEEKS: THE CONTRACTOR SHALL WATER THE TURFGRASS SOD AS REQUIRED TO MAINTAIN ADEQUATE MOISTURE IN THE UPPER FOUR INCHES OF SOIL, NECESSARY FOR THE PROMOTION OF DEEP ROOT GROWTH.
6. FLOODING WILL NOT BE PERMITTED.

TIME LIMITATION

7. DURATION OF MAINTENANCE RESPONSIBILITIES SHALL BE FOR 20 DAYS UNLESS OTHERWISE SPECIFIED.

GUARANTEE

8. ANY PORTION OF THE SOD THAT IS NOT IN GOOD GROWING CONDITION SHALL BE REPLACED WITH FRESH, LIVE SOD IN ACCORDANCE WITH THESE SPECIFICATIONS AND SHALL BE MAINTAINED IN GOOD, LIVE CONDITION UNTIL FINAL ACCEPTANCE OF THE WORK AND AT LEAST 30 DAYS FROM INSTALLATION.

CONCRETE FORM WORK

1. ALL CONCRETE FORM WORK SHALL BE IN ACCORDANCE WITH APWA SECTION 2200.

CONCRETE REINFORCEMENT

1. REINFORCEMENT PLACEMENT AND DETAILING SHALL COMPLY WITH PRACTICE SPECIFIED IN THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" PUBLICATION ACI 315-80 OF THE AMERICAN CONCRETE INSTITUTE OR ITS LATEST REVISION, UNLESS OTHERWISE SPECIFIED HEREIN.
2. ALL REINFORCEMENT SHALL BE FREE FROM RUST, LOOSE MILL SCALE, DIRT COATING, OIL, PAINT, ANY OTHER CONTAMINANTS, OR ANY FOREIGN SUBSTANCE.
3. ALL BARS SHALL BE BILLET STEEL BARS FOR CONCRETE REINFORCEMENT ASTM A615 GRADE 60. ALL REINFORCEMENTS SHALL BE EPOXY COATED.
4. WELDED STEEL WIRE SHALL MEET ASTM A185.
5. ACCESSORIES SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL.

PLACING

6. ACCURATELY PLACE ALL BARS AND TIE IN PLACE BEFORE PLACING CONCRETE, INCLUDE DOWELS. TIE AT ALL INTERSECTIONS WITH 18 GAUGE STEEL WIRE.
7. CORNER BARS REQUIRED FOR HORIZONTAL REINFORCING. UNLESS OTHERWISE NOTED ON PLANS CORNER BARS SHALL BE SAME SIZE AS HORIZONTAL BAR.
8. PRESERVE CLEARANCE BETWEEN BARS OF 1 INCH MINIMUM, NOT LESS THAN ONE BAR DIAMETER OR 1-1/3 TIMES LARGE AGGREGATE, WHICHEVER IS LARGER.
9. PROVIDE FOLLOWING CONCRETE COVERAGE OVER REINFORCING STEEL UNLESS OTHERWISE INDICATED ON PLANS: THREE INCHES ABOVE SUBGRADE - IN EXCAVATION TWO INCHES ABOVE SUBGRADE - SLAB ON FILL TWO INCHES FROM FORM - WALL EXPOSED TO WATER OR EARTH ONE AND ONE-HALF INCHES FROM FORM - NORMAL COVER INTERIOR WALLS, BEAMS, COLUMNS, ETC. ONE AND ONE-HALF INCH ON TOP STEEL - INTERIOR SLABS ONE AND ONE-HALF INCHES ON TOP AND BOTTOM - EXTERIOR SLAB OR SLAB OVER OR UNDER WATER
10. LAP ALL REINFORCING BARS AS REQUIRED BY ACI 318-77 CLASS B LAP WITH A MINIMUM OF 36 DIAMETERS EXCEPT WHERE OTHERWISE SHOWN OR REQUIRED BY ACI.
11. STAGGER SPLICES EXCEPT WHERE OTHERWISE SHOWN.
12. LAP WELDED WIRE TWO SPACES.
13. ALL DOWELS SHALL BE PLACED AND SECURELY ANCHORED BEFORE PLACING CONCRETE.
14. SECURE ALL REINFORCEMENT IN PLACE USING STEEL CHAIRS, SUPPORTS, Z BARS AND OTHER PRODUCTS FABRICATED FOR THE PURPOSE. SUPPORTS SHALL BE SPACED ADEQUATELY TO SUPPORT THE STEEL FIRMLY IN PLACE. USE SAND PLATES OR OTHER APPROVED PRODUCTS WHEN REINFORCEMENT IS PLACED ON SAND OR EARTH SUBGRADE. CHAIRS WILL NOT BE ACCEPTED TO HOLD REINFORCING CLEARANCE ON WALLS.
15. OPENINGS AND OBSTRUCTIONS: PLACE ONE EXTRA NO. 5 BAR, 4 FEET LONG, DIAGONALLY IN EACH FACE AT CORNERS OF OPENINGS. PLACE NO. 4 HOOP AROUND ALL ROUND OPENINGS.
16. OPENINGS AND OBSTRUCTIONS: BEND REINFORCING AROUND OBSTRUCTIONS. PLACE EXTRA REINFORCING WHERE CUTTING IS AUTHORIZED. ENGINEER'S APPROVAL REQUIRED BEFORE CUTTING STEEL. CONSULT ENGINEER ON SPECIAL SITUATIONS.
17. CERTIFY MATERIAL AND TYPE OF DEFORMATION.

CONCRETE

1. ALL PRODUCING AND PLACING OF CONCRETE SHALL CONFORM TO SECTION 400 OF THE KANSAS STANDARD SPECIFICATIONS FOR STATE ROAD AND BRIDGE CONSTRUCTION.

MATERIALS

2. CEMENT: CEMENTITIOUS MATERIALS SHALL MEET THE REQUIREMENTS OF THE KCMMB.
3. FINE AGGREGATE: AGGREGATE FOR CONCRETE SHALL MEET THE REQUIREMENTS OF THE KCMMB.
4. COARSE AGGREGATE: AGGREGATE FOR CONCRETE SHALL MEET THE REQUIREMENTS OF THE KCMMB.
5. MIXING WATER: MIXING WATER FOR CONCRETE SHALL BE POTABLE AND SHALL MEET THE REQUIREMENTS OF THE KCMMB.
6. AIR-ENTRAINING AGENT: AIR-ENTRAINING AGENTS USED TO PRODUCE SPECIFIED AMOUNTS OF AIR ENTRAINMENT SHALL MEET THE REQUIREMENTS OF THE KCMMB.
7. ADMIXTURES: ADMIXTURES LISTED IN THE KCMMB MIX DESIGN AS "OPTIONAL" WILL BE USED ONLY WITH PRIOR APPROVAL OF THE ENGINEER.
8. REINFORCING STEEL: GENERAL: ALL REINFORCING STEEL SHALL BE DEFORMED BARS AND SHALL COMPLY WITH ASTM DESIGNATION A615, GRADE 40 OR 60. BAR SUPPORTS: ALL BOLSTERS AND CHAIRS SHALL BE IN ACCORDANCE WITH ACI STANDARD 513, AND THOSE USED IN THE UNDERSIDE OF THE TOP SLABS SHALL BE PRE-GALVANIZED. ON SUB-GRADE, SUPPORT ON CONTINUOUS CHAIRS. FABRICATION: FABRICATION OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI STANDARD 315. REQUIREMENTS FOR LAPS, SPACING, EDGE DISTANCE, LENGTH AND BENDING OF BARS ARE GIVEN ON THE PLANS. REINFORCING STEEL SHALL BE PROTECTED FROM DAMAGE AT ALL TIMES. THE BARS SHALL BE FIRMLY TIED AT THE ALTERNATE CROSSINGS, OR CLOSER. THE STEEL SHALL BE TIED IN CORRECT POSITION, POSITIVELY SECURED AGAINST DISPLACEMENT, AND INSPECTED BEFORE ANY CONCRETE IS PLACED. CARE SHALL BE EXERCISED TO MAINTAIN PROPER CLEARANCE BETWEEN THE FORMS AND THE REINFORCEMENT. BARS AT THE TOP OF LIFTS SHALL BE HELD SECURELY IN CORRECT POSITION BY MEANS OF APPROVED METAL BAR SUPPORTS. BEFORE ANY CONCRETE IS PLACED, ANY DRIED MORTAR, LOOSE RUST OR MUD SHALL BE CLEANED FROM THE REINFORCING STEEL.
9. WELDED WIRE FABRIC: ASTM DESIGNATION A-185
10. EXPANSION JOINT FILLER: AASHTO M213

READY MIXED CONCRETE

11. READY MIXED CONCRETE, IN ACCORDANCE WITH ASTM DESIGNATION C-94, SHALL BE USED UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER. ANY CONCRETE WHICH IS NOT PLASTIC AND WORKABLE WHEN PLACED ON THE SUBGRADE OR IN THE FORMS SHALL BE REJECTED.

CONCRETE MIX

12. KCMMB 4K CONCRETE CONSTRUCTION: ALL CONCRETE USED IN CONSTRUCTION OF CURB AND GUTTERS, RETAINING WALLS, CULVERT APRONS, INLETS, JUNCTION BOXES, YARD INLETS, MANHOLES, DITCH LINERS, SIDEWALKS, AND INTEGRAL SIDEWALK RETAINING WALLS SHALL BE CLASSIFIED AS CLASS KCMMB 4K UNLESS OTHERWISE STATED IN THE PLANS.

CURING CONCRETE

13. MAINTAIN CONTINUOUSLY FOR 5 DAYS AFTER PLACING.
14. CONCRETE TEMPERATURE AT LEAST 50° F AND NOT OVER 100° F
15. CONCRETE MOISTURE:
WALLS AND STRUCTURES: COVER WITH 6 MIL POLYETHYLENE FILM AND LEAVE FORMS ON 5 DAYS, EXCEPT AS REQUIRED FOR RUBBING. SLABS: POLYETHYLENE MEMBRANE 4 MIL THICK; LAP JOINTS 6". HOLD DOWN WITH L X 4 AT LAPS AND AT 6 FOOT CENTERS. MEMBRANE TO BE TRANSLUCENT OR WHITE IN HOT WEATHER; BLACK IN COLD WEATHER. PAVEMENT, WALKS, CHANNELS, AND OTHER APPROVED STRUCTURES: SPRAY APPROVED MEMBRANE - ONE (1) GALLON TO 200 SQUARE FEET.

SPECIAL WEATHER CONDITIONS - COLD WEATHER

16. AVERAGE DAILY TEMPERATURES AS DEFINED IN ACI 306.1-90 WILL BE DETERMINED AND RECORDED BY THE CITY.
17. CONCRETE TEMPERATURES WILL BE DETERMINED THROUGH THE USE OF HIGH-LOW THERMOMETERS PLACED AND OPERATED BY THE CONTRACTOR BELOW INSULATED BLANKETS, OR WHERE THE CONCRETE IS UNCOVERED, BY CHECKING AIR TEMPERATURES. UNCOVERED CONCRETE, WHICH HAS BEEN SUBJECTED TO FREEZING TEMPERATURES OF ANY DURATION DURING THE FIRST 24 HOURS WILL BE CONSIDERED "FROZEN," AND SHALL BE REJECTED.
18. THE MONTHS OF DECEMBER, JANUARY AND FEBRUARY WILL BE CONSIDERED "COLD WEATHER" AND WILL REQUIRE CONCRETE PROTECTION, REGARDLESS OF TEMPERATURE.
19. CONCRETE SHALL REACH 75% OF ITS DESIGN STRENGTH PRIOR TO BACKFILLING. THIS STRENGTH CAN BE DETERMINED THROUGH THE USE OF FIELD-CURED CYLINDERS, MADE AND TESTED AT CONTRACTOR'S EXPENSE. CONCRETE MUST HAVE 5 DAYS WHERE THE AVERAGE DAILY TEMPERATURE IS ABOVE 50 DEGREES F PRIOR TO BACKFILLING UNLESS FIELD CURED CYLINDERS ARE TAKEN. THESE DAYS DO NOT NEED TO BE CONSECUTIVE.
20. ALL COVERINGS AND HEATING EQUIPMENT SHALL BE ON HAND PRIOR TO BEGINNING PLACEMENT OF THE CONCRETE.

SPECIAL WEATHER CONDITIONS - HOT WEATHER

21. PLACE CONCRETE WITHIN THE TIME AND TEMPERATURE CONDITIONS SHOWN IN TABLE BELOW.

AMBIENT AIR TEMPERATURE AND AGITATED CONCRETE PLACEMENT TIME		
AT+ AMBIENT AIR TEMPERATURE AT TIME OF BATCHING (F)	SPECIMEN ANGE TIME LIMITED AGITATED CONCRETE MUST BE PLACED WITHIN, AFTER ADDITION	ADMIXTURES
T < 75	1 1/2	NONE
75 ≤	1	NONE
75 < T < 90	1 1/2	SET RETARDER

22. IN ALL CASES, IF THE CONCRETE TEMPERATURE AT TIME OF PLACEMENT IS 90°F OR ABOVE, OR UNDER CONDITIONS CONTRIBUTING TO QUICK STIFFENING OF THE CONCRETE, PLACE THE CONCRETE WITHIN 45 MINUTES OF ADDING THE CEMENT TO THE WATER. DO NOT USE CONCRETE THAT HAS DEVELOPED ITS INITIAL SET. REGARDLESS OF THE SPEED OF DELIVERY AD PLACEMENT, THE ENGINEER WILL SUSPEND THE CONCRETING OPERATIONS UNTIL CORRECTIVE MEASURES ARE TAKEN IF THERE IS EVIDENCE THAT THE CONCRETE CANNOT BE ADEQUATELY CONSOLIDATED.

FORMS - WALL

23. FORMS SHALL BE CONSTRUCTED FROM SURFACE FINISHED PLYWOOD AND 2 X 4 STUDS OR APPROVED MANUFACTURED FORMING SYSTEM. ALL FORM MATERIAL SHALL BE IN FIRST CLASS CONDITION AND WITH MORTAR TIGHT JOINTS. PROVIDE CLEANOUTS AT BOTTOM AND REMOVE DEBRIS.
24. FORMS SHALL BE ERECTED TRUE AND RIGID WITH ADEQUATE BRACING TO INSURE ALIGNMENT. PROVIDE CHAMFER FOR ALL EXPOSED CORNERS.

CONCRETE FINISH

25. ALL CONCRETE SHALL BE FINISHED MONOLITHICALLY. NO "TOPPING" OR "PLASTERING". WALLS EXPOSED TO VIEW SHALL BE RUBBED TO PRODUCE UNIFORM SANDY TEXTURE WITHOUT AIR VOIDS, FINS, FORM MARKS OR OFFSETS. TOPS OF ALL WALLS SHALL BE HARD TROWEL FINISH WITH CHAMFERED CORNERS.
26. PAVEMENT SLAB, GRADE PAVING, INLET TOPS, SIDEWALK, AND EXPOSED SLABS OF STRUCTURES SHALL RECEIVE A LIGHT BROOM FINISH.

JOINTS

27. JOINTS SHALL BE CONSTRUCTED AS SHOWN ON THE PLANS. UNLESS SHOWN ON THE PLANS, JOINTS SHALL NOT BE CONSTRUCTED UNLESS APPROVED BY THE ENGINEER.
28. ALL CONTRACTION JOINTS SHALL BE MADE WITH GANTED 2 X 4 AT LEAST 2 INCHES FROM WALL FACE. ALL CONSTRUCTION JOINT CONTACT SURFACES SHALL BE FINISHED WITH WOOD FLOAT FINISH.
29. NORMAL GROUT: FURNISH AND INSTALL NORMAL CEMENT GROUT WHERE CALLED FOR ON THE PLANS. MIX TO BE ONE PART SAND TO 2 PARTS CEMENT BY VOLUME. USE MINIMUM WATER REQUIRED FOR WORKABILITY.
30. EXPANDING GROUT: PROPORTION BY WEIGHT L PART NORMAL PORTLAND CEMENT, L PART SAND AND L PART IRONITE COMPOUND SIMILAR AND EQUAL TO EMBECO (MASTER BUILDERS CO.). THOROUGHLY DRY MIX AND ADD A MINIMUM OF WATER TO A STIFF CONSISTENCY AS LIMITED BY PLACING CONDITIONS. FIRMLY PACK MORTAR INTO THE HOLE OR JOINT AND MOIST CURE FOR THREE DAYS.

CONCRETE EQUIPMENT AND PLACING

31. THE CONTRACTOR'S ATTENTION IS CALLED TO THE SIZE OF CONCRETE POURS REQUIRED. HE SHALL HAVE SUFFICIENT CREWS, VIBRATORS AND OTHER EQUIPMENT TO PROPERLY HANDLE SAME SO THAT NO COLD JOINTS WILL BE CREATED AND THAT CONCRETE SURFACES WILL BE KEPT "ALIVE". THE ENGINEER SHALL BE ADVISED IN ADVANCE OF THE EQUIPMENT TO BE USED.
32. BEFORE DELIVERY OF CONCRETE THE CONTRACTOR SHALL HAVE MADE ALL NECESSARY PREPARATIONS AND SHALL HAVE ALL NECESSARY ITEMS ON HAND NOT ONLY FOR PROPER PLACING BUT FOR COVERING, CURING, HEATING, FINISHING, RUBBING AND/OR AS REQUIRED TO PERFORM IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. FAILURE TO BE PROPERLY PREPARED MAY RESULT IN INABILITY TO PERFORM PROPERLY AND CONSEQUENT REJECTION OF THE WORK.
33. ANY CONCRETE DAMAGED BY THE CONTRACTOR'S EQUIPMENT, OR BY OTHER MEANS DURING CONSTRUCTION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE

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01-28-2020

MARK DANIEL MCGHEE, JR.

KS PE 20773

CONSTRUCTION DOCUMENTS

SPECIFICATIONS

R PARK - PHASE 1
ROELAND PARK, KANSAS

REVISIONS

DESIGNER / DRAFTER

MDM/AJM

DATE

01-28-2020

PROJECT NUMBER

0319001.04

BOOK AND PAGE

SHEET

C12



CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROELAND PARK, KANSAS

ALTERNATES PLAN

REVISIONS

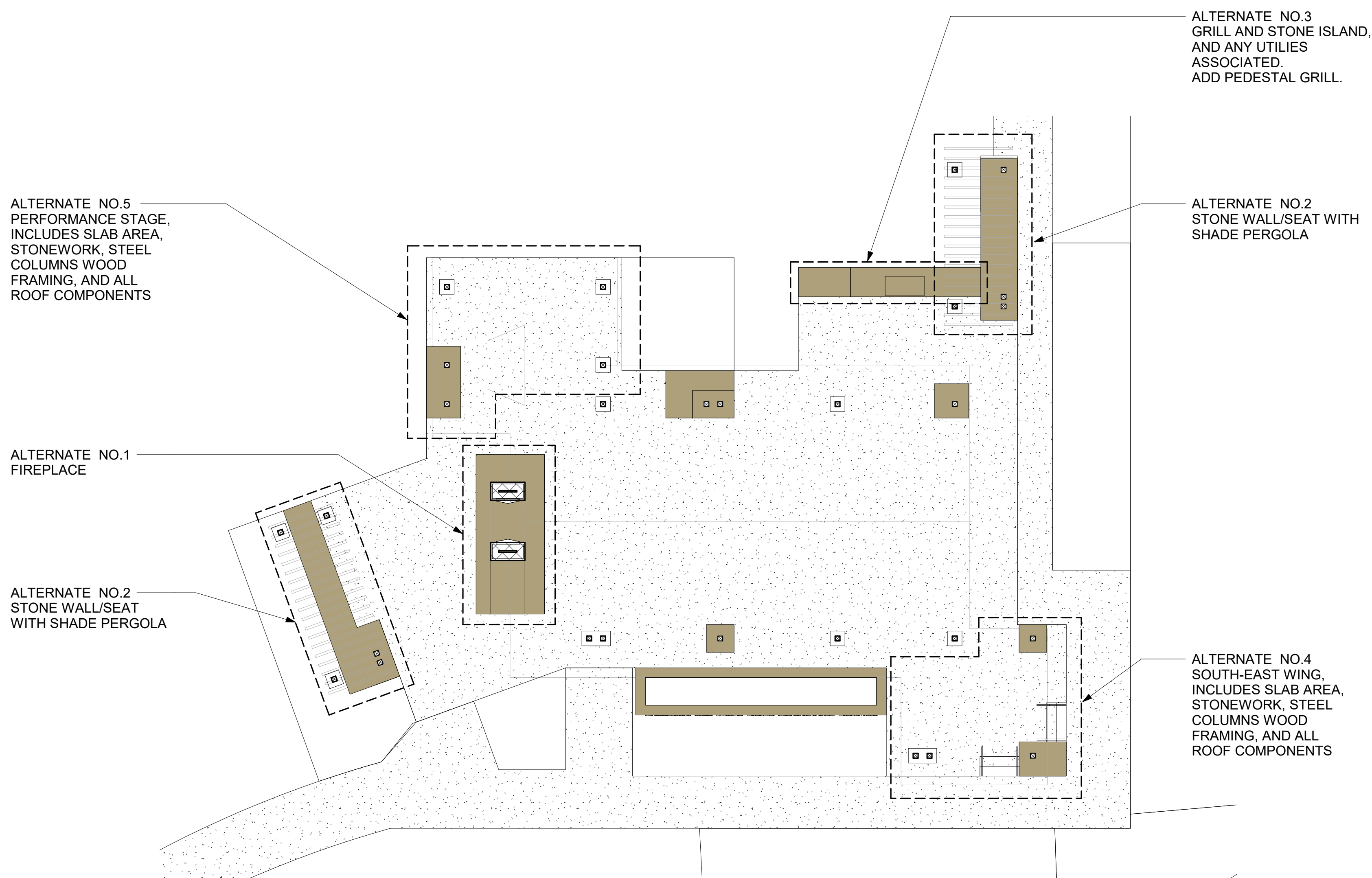
DESIGNER / DRAFTER

DATE 1-15-2020

BOOK AND PAGE

MISSOURI AUTHORIZATION NUMBER

G1



① ALTERNATES PLAN - PAVILION
1/8" = 1'-0"

R PARK - PHASE 1
ROELAND PARK, KANSAS

REVISIONS

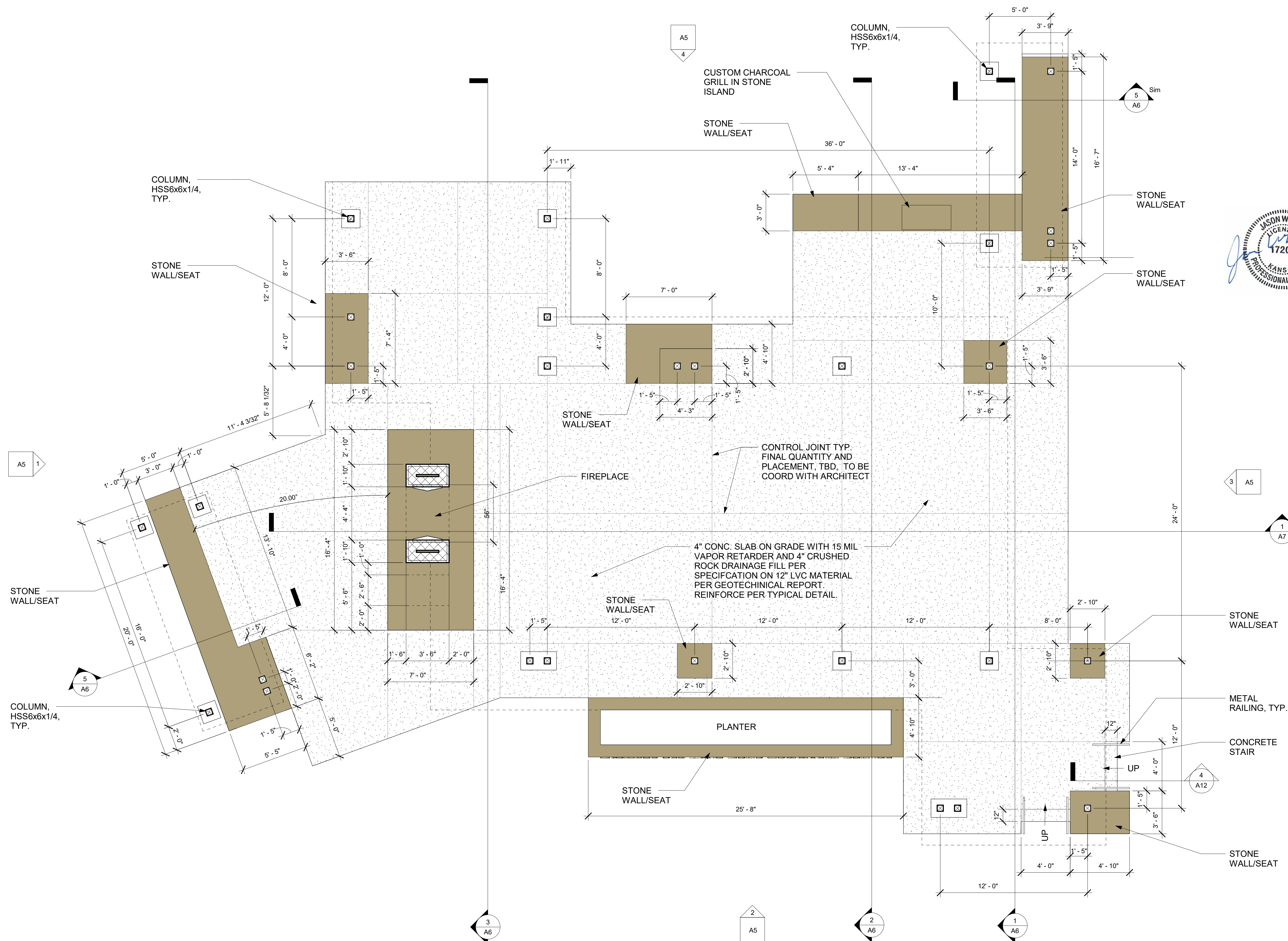
DESIGNER / DRAFTER

DATE 1-15-2020

BOOK AND PAGE

MISSOURI AUTHORIZATION NUMBER

A1



① FLOOR PLAN - PAVILION
1/4" = 1'-0"



CONSTRUCTION DOCUMENTS

ROELAND PARK, KANSAS

REFLECTED
CEILING PLAN

REVISIONS

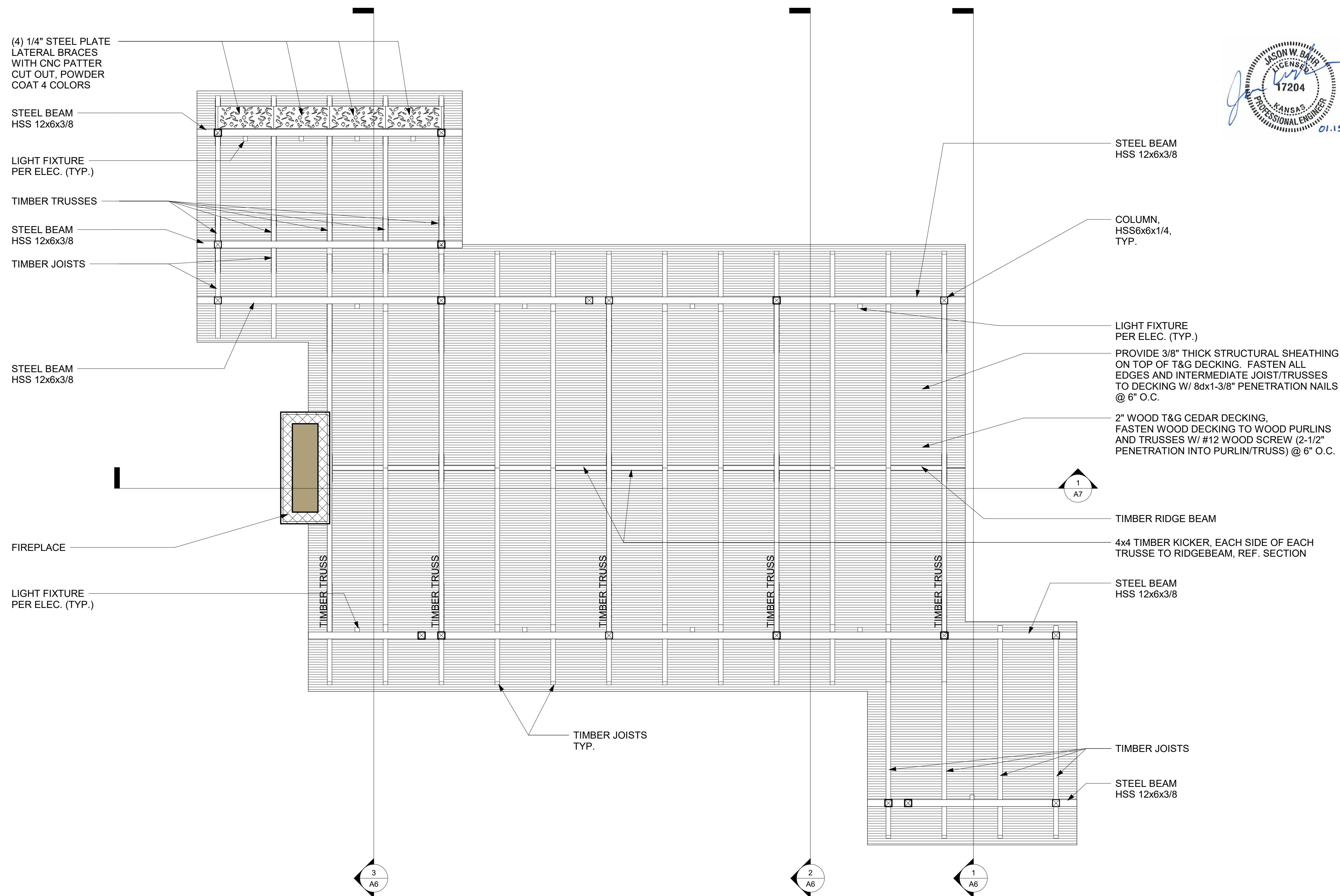
DESIGNER / DRAFTER

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BOOK AND PAGE

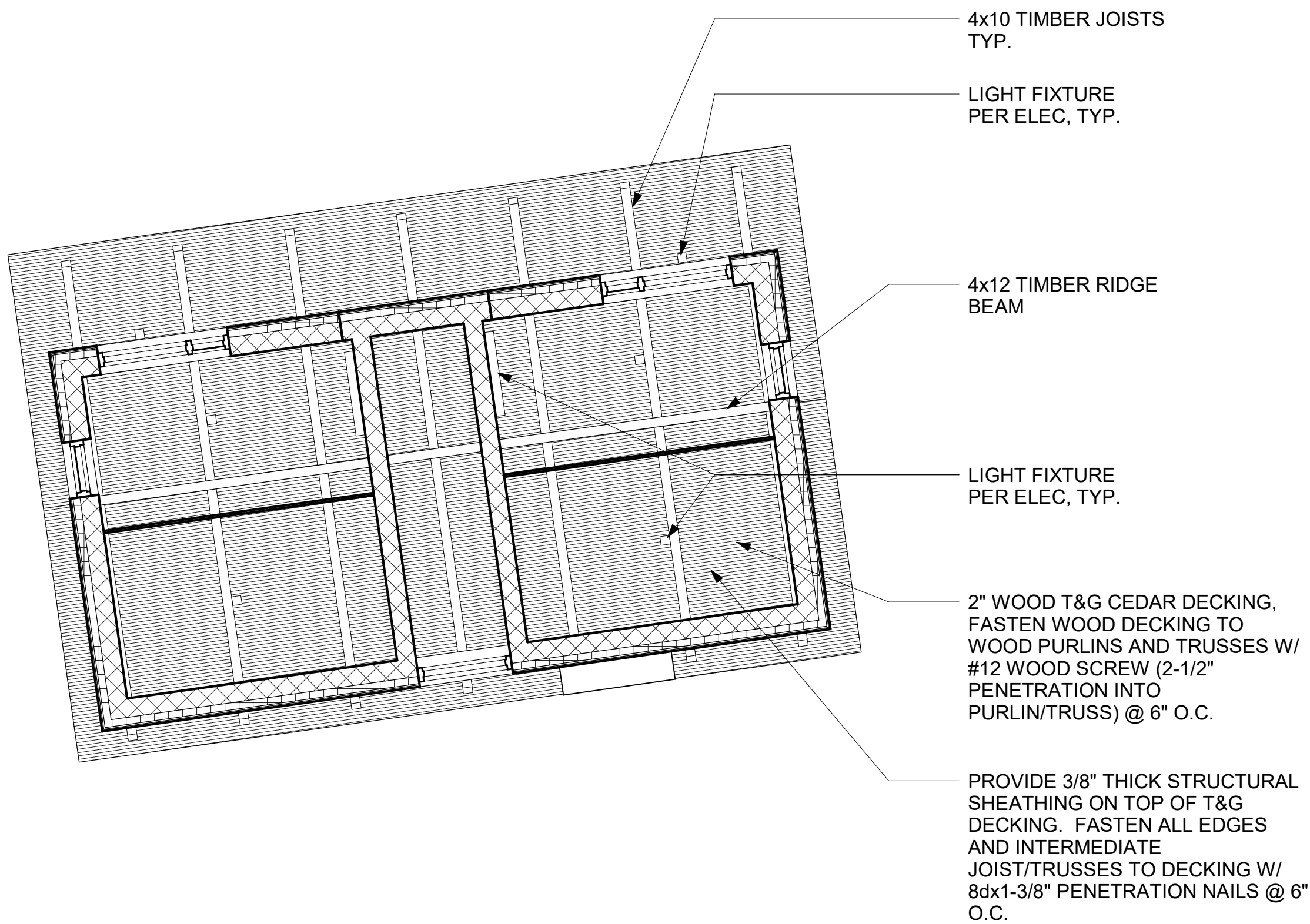
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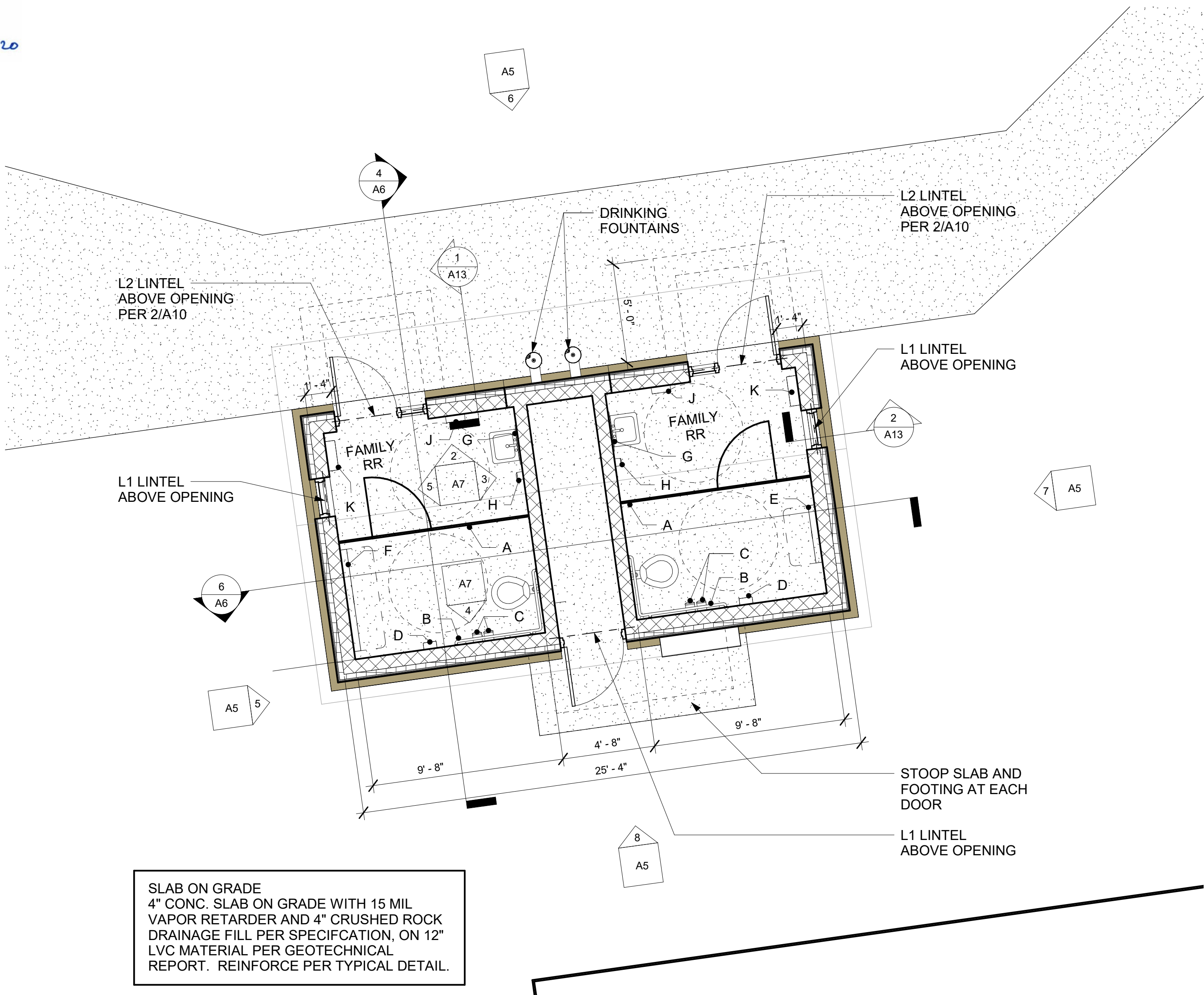


① REFLECTED CEILING PLAN - PAVILION
1/4" = 1'-0"

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② REFLECTED CEILING PLAN -
RESTROOMS
1/4" = 1'-0"



BATHROOM ACCESSORIES

A	TOILET PARTITIONS	BRADLEY, SERIES 400 ,STAINLESS STEEL, SENTIEL OVERHEAD BREACED
B	GRAB BARS	BRADLEY, SERIES 812, 1-1/2" DIA. STAINLESS STEEL, WITH CONCEALED MOUNTING
C	TOILET PAPER DISPENSER	BRADLEY, SERIES 5A10, STAINLESS STEEL, SURFACE MOUNTED
D	NAPKIN DISPOSAL	BRADLEY, SERIES 4791-11, STAINLESS STEEL, SURFACE MOUNTED WITH SHELF
E	BABY CHANGE STATION	FOUNDATIONS, MODEL 100-SSC-SM, STAINLESS STEEL, SURFACE MOUNT
F	ADULT CHANGE STATION	FOUNDATIONS, MODEL 100-SSE-SM, STAINLESS STEEL, SURFACE MOUNT
G	MIRROR	BRADLEY, SERIES 740 FIXED TILT
H	SOAP DISPENSER	BRADLEY, SERIES 6A01, STAINLESS STEEL, FOAM SOAP DISPENSER
J	HAND DRYER	BRADLEY, SERIES 2923 STAINLESS STEEL, HIGH SPEED DUFACE MOUNT
K	TRASH CAN	BRADLEY, SERIES 3565 STAINLESS STEEL, 12 GALLON WASTE RECEPTACLE

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CONSTRUCTION DOCUMENTS

FLOOR PLAN

REVISIONS

DESIGNER / DRAFTER

DATE
1-15-2020

PROJECT NUMBER

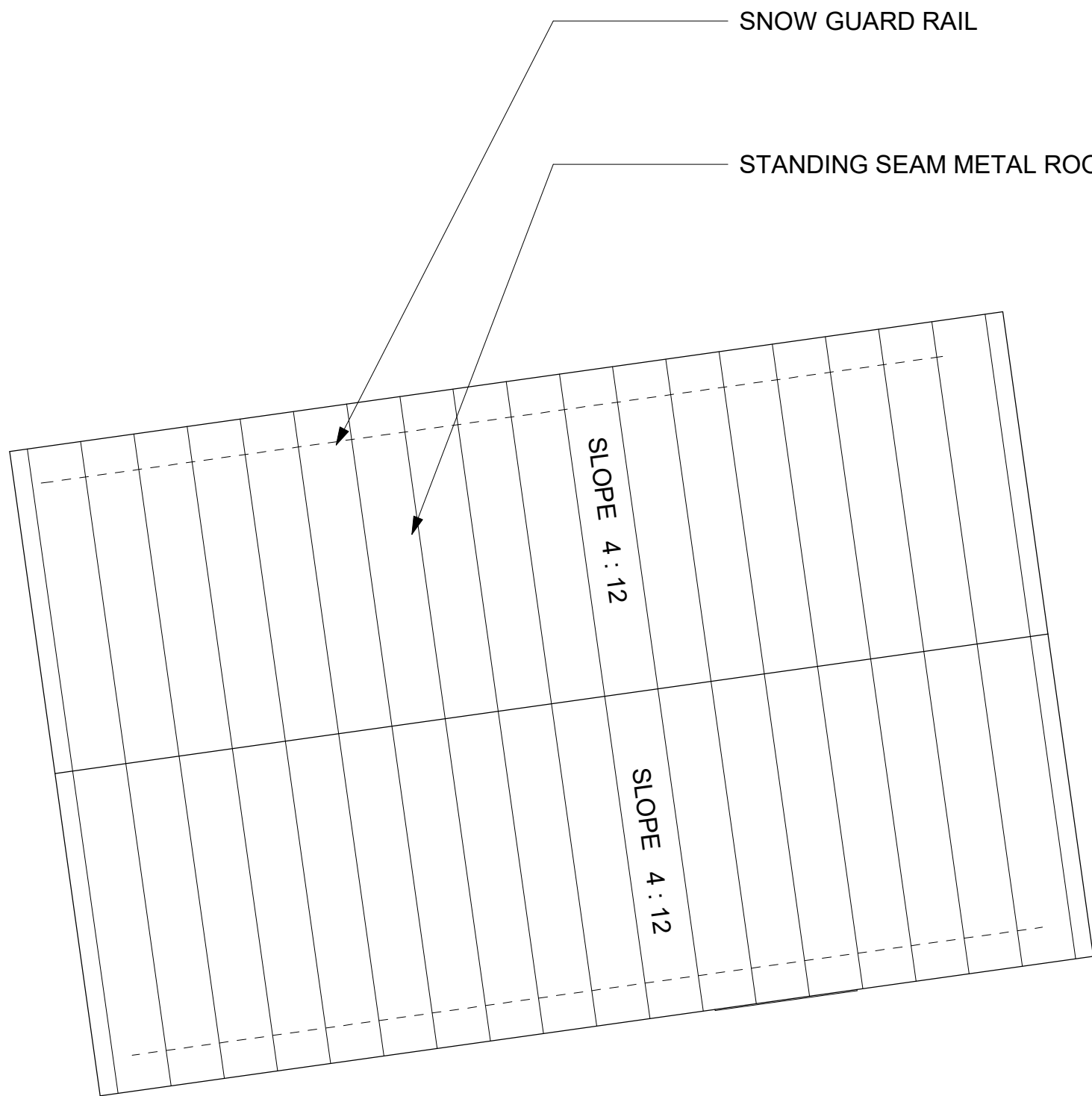
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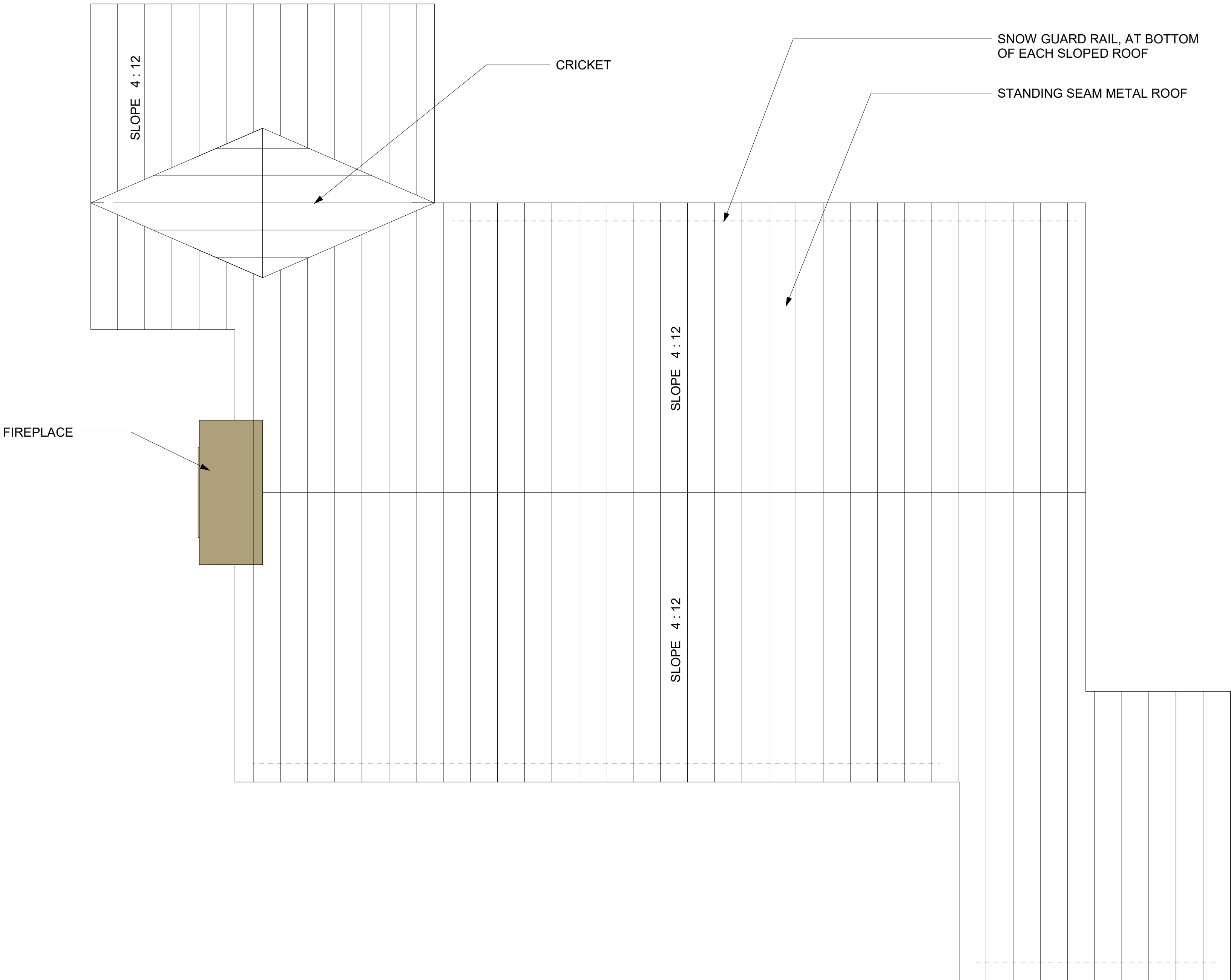
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R PARK - PHASE 1
ROLAND PARK, KANSAS

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② ROOF PLAN - RESTROOMS
1/4" = 1'-0"



① ROOF PLAN - PAVILION
1/4" = 1'-0"

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CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROLAND PARK, KANSAS

ROOF PLANS

REVISIONS

DESIGNER / DRAFTER

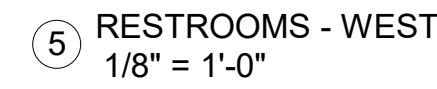
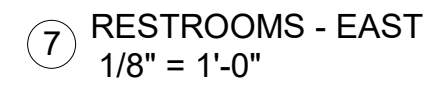
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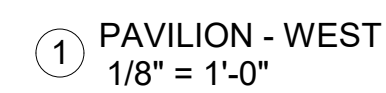
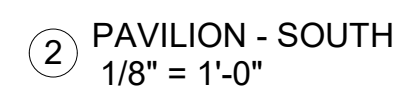
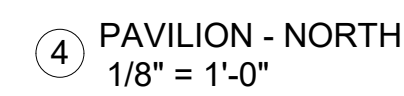
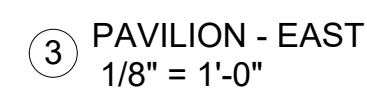
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MISSOURI AUTHORIZATION NUMBER

A4



- STONE: WINTERSET LIMESTONE
- CAST STONE: ROCKCAST, FLAX, WET CAST AS REQUIRED.
- SIDING: FIBERON HORIZON, IPE AND CASTLE GREY
- PATTERN GLASS: BENDHEIM, HOUDINI



A5



CONSTRUCTION DOCUMENTS

ROELAND PARK, KANSAS

BUILDING SECTIONS

REVISIONS

DESIGNER / DRAFTER

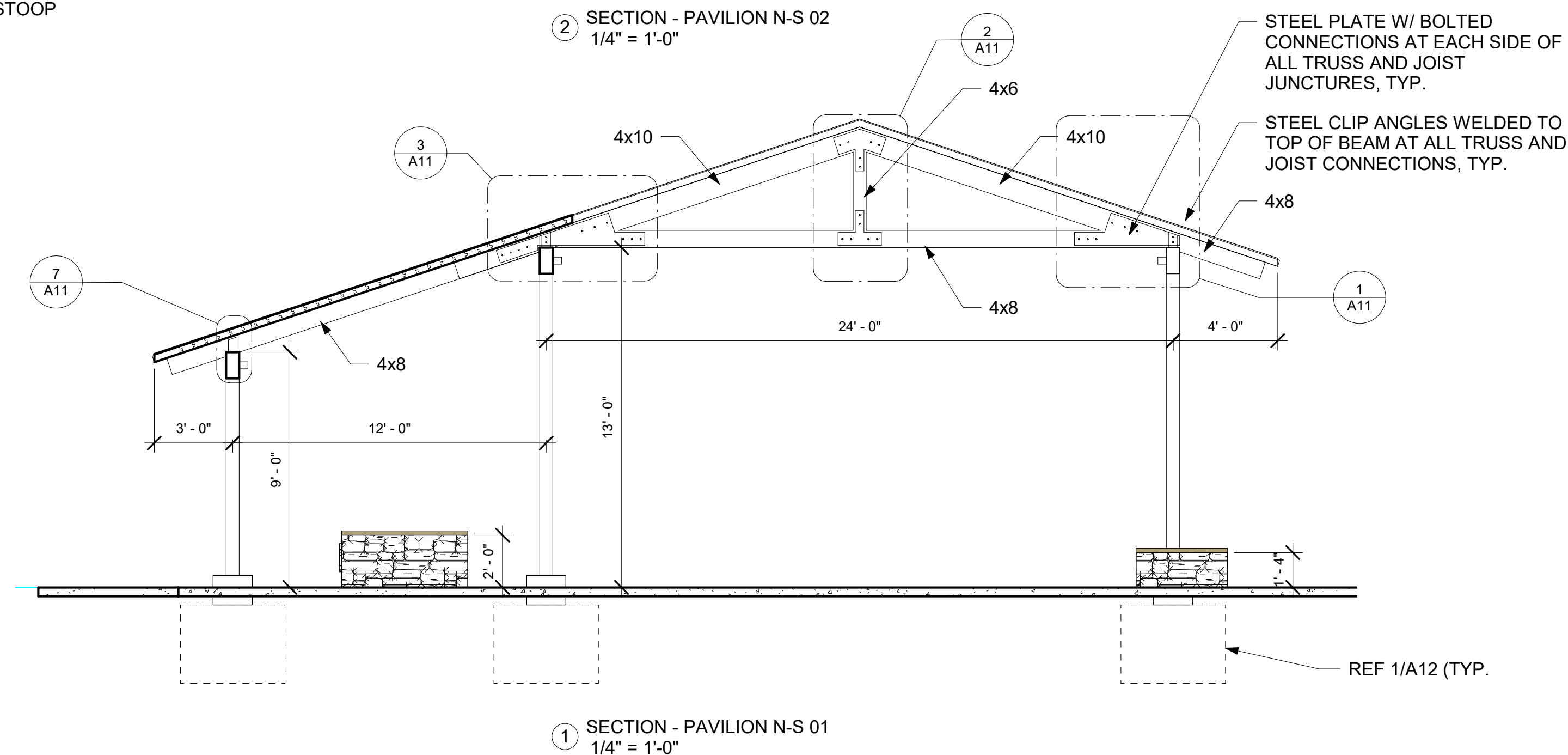
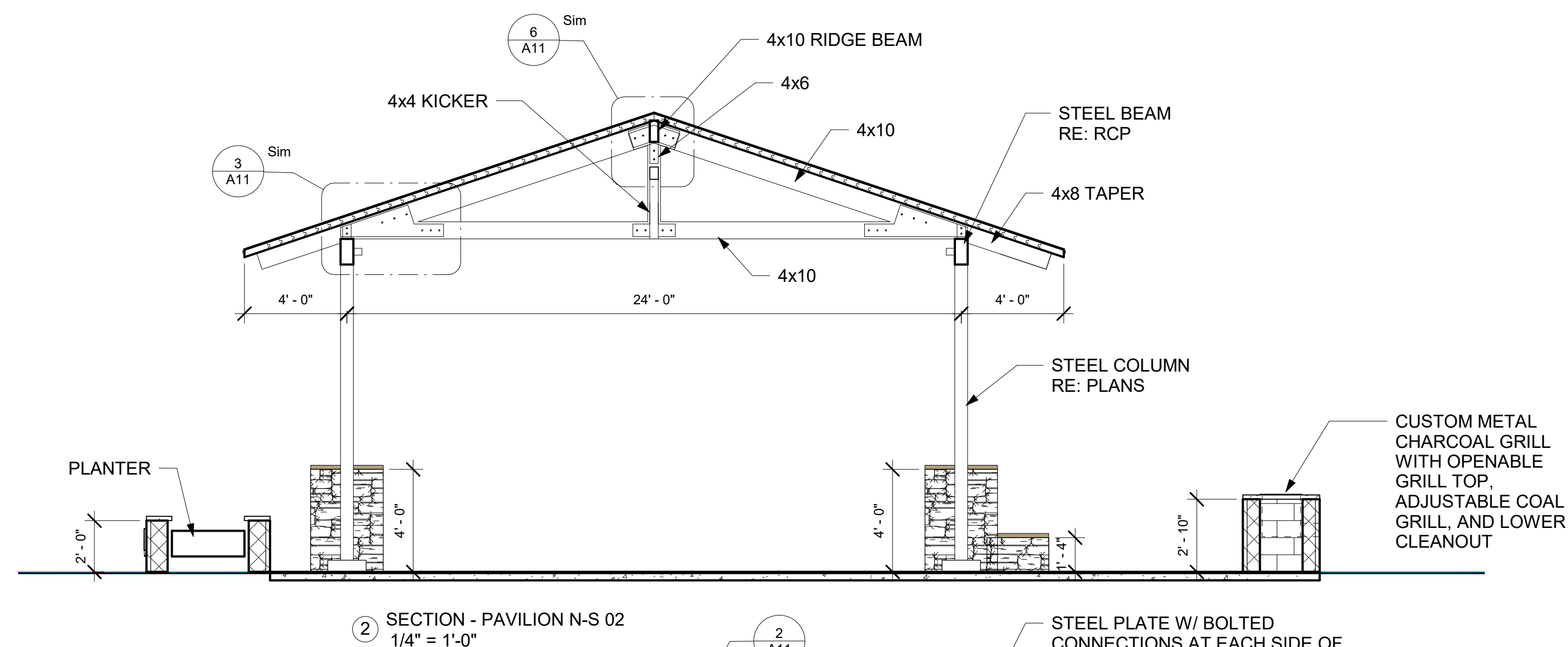
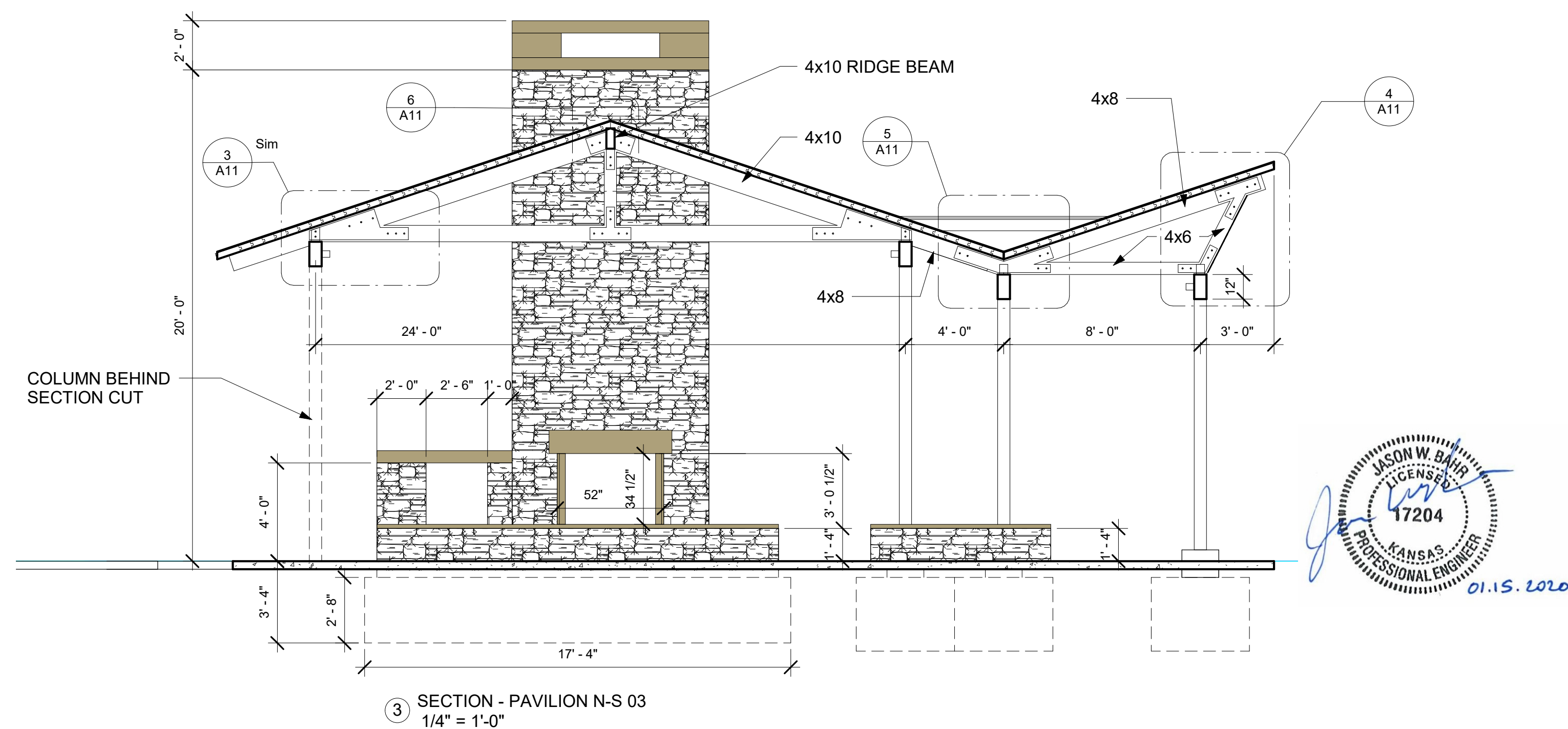
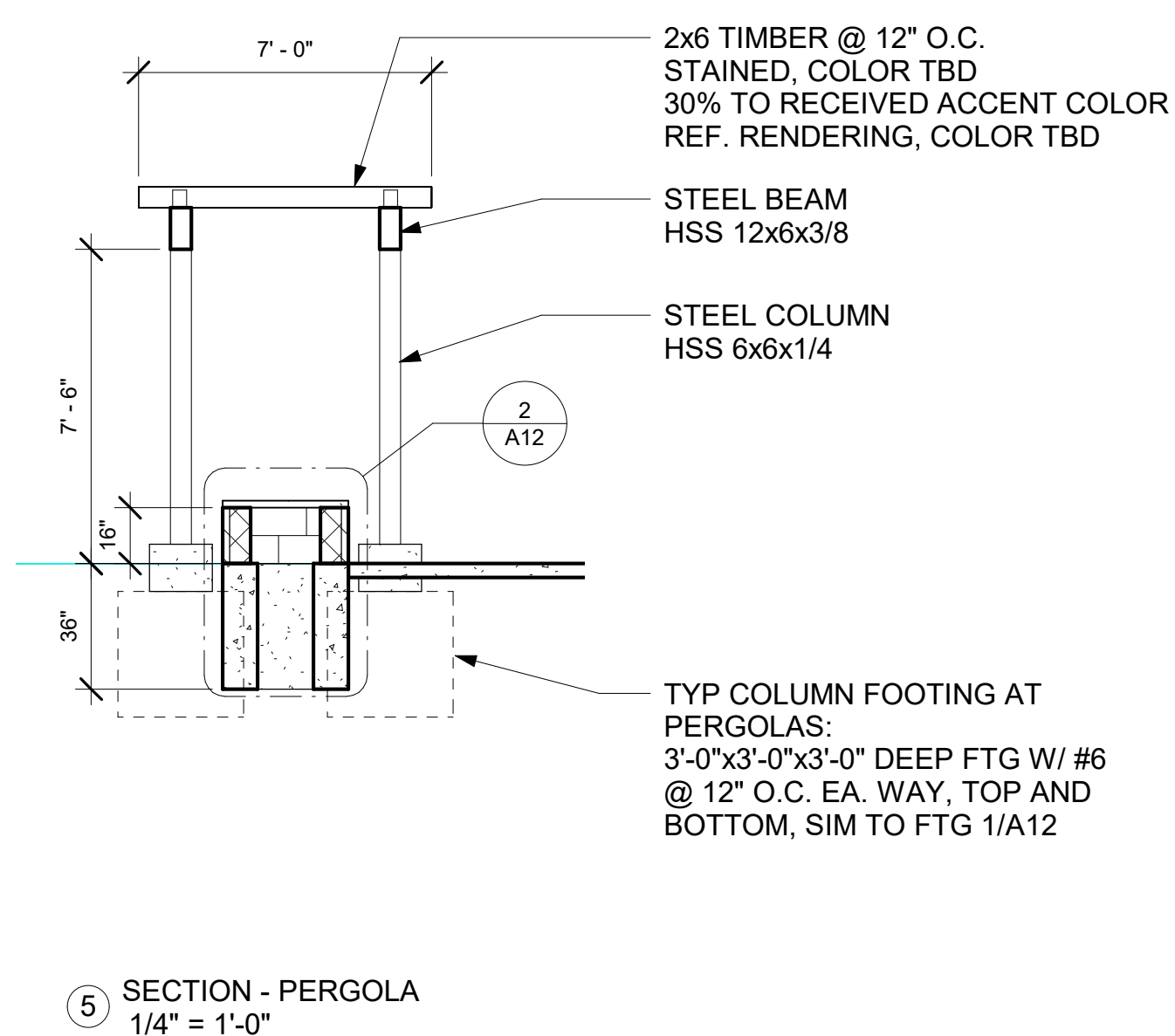
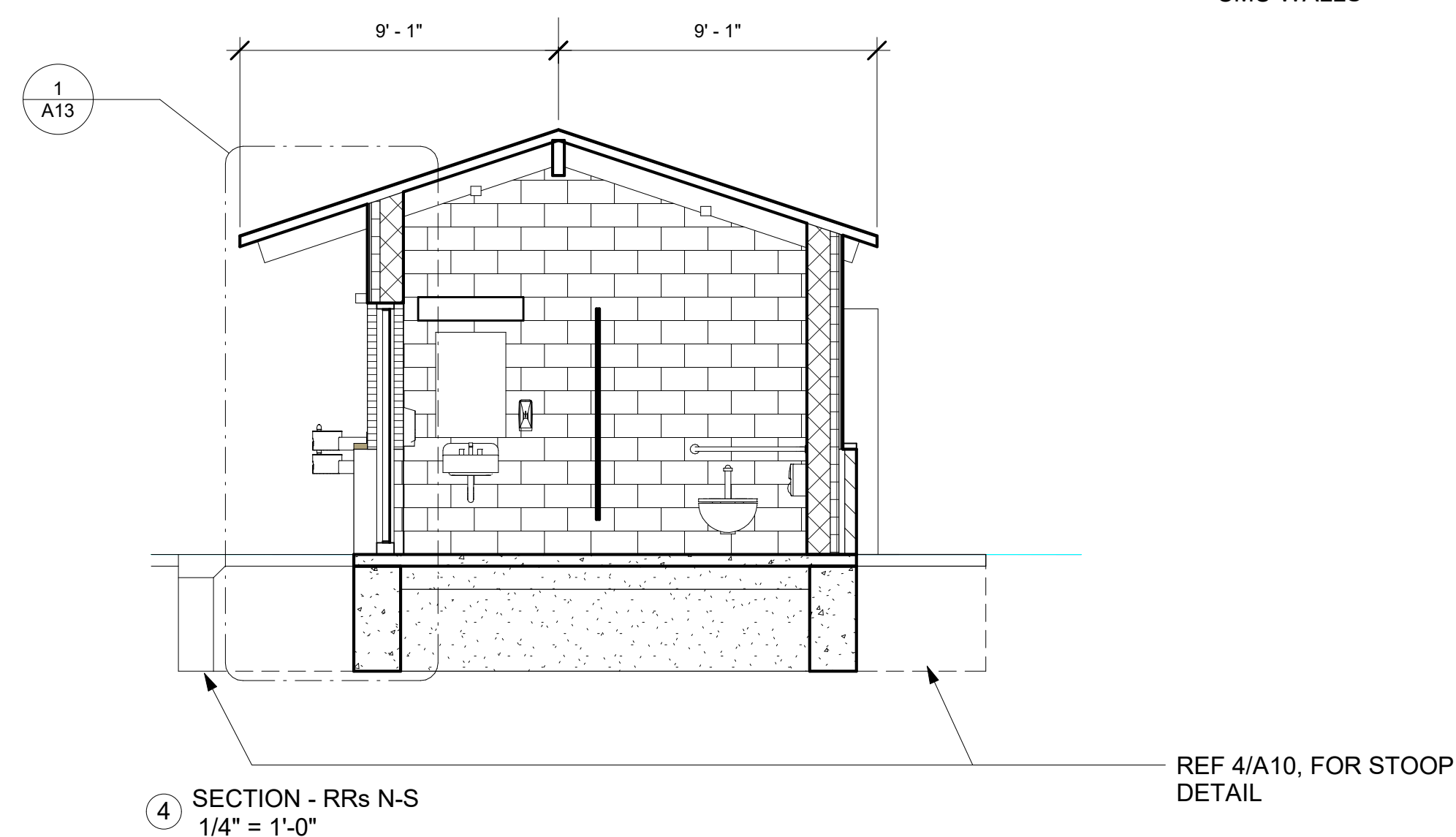
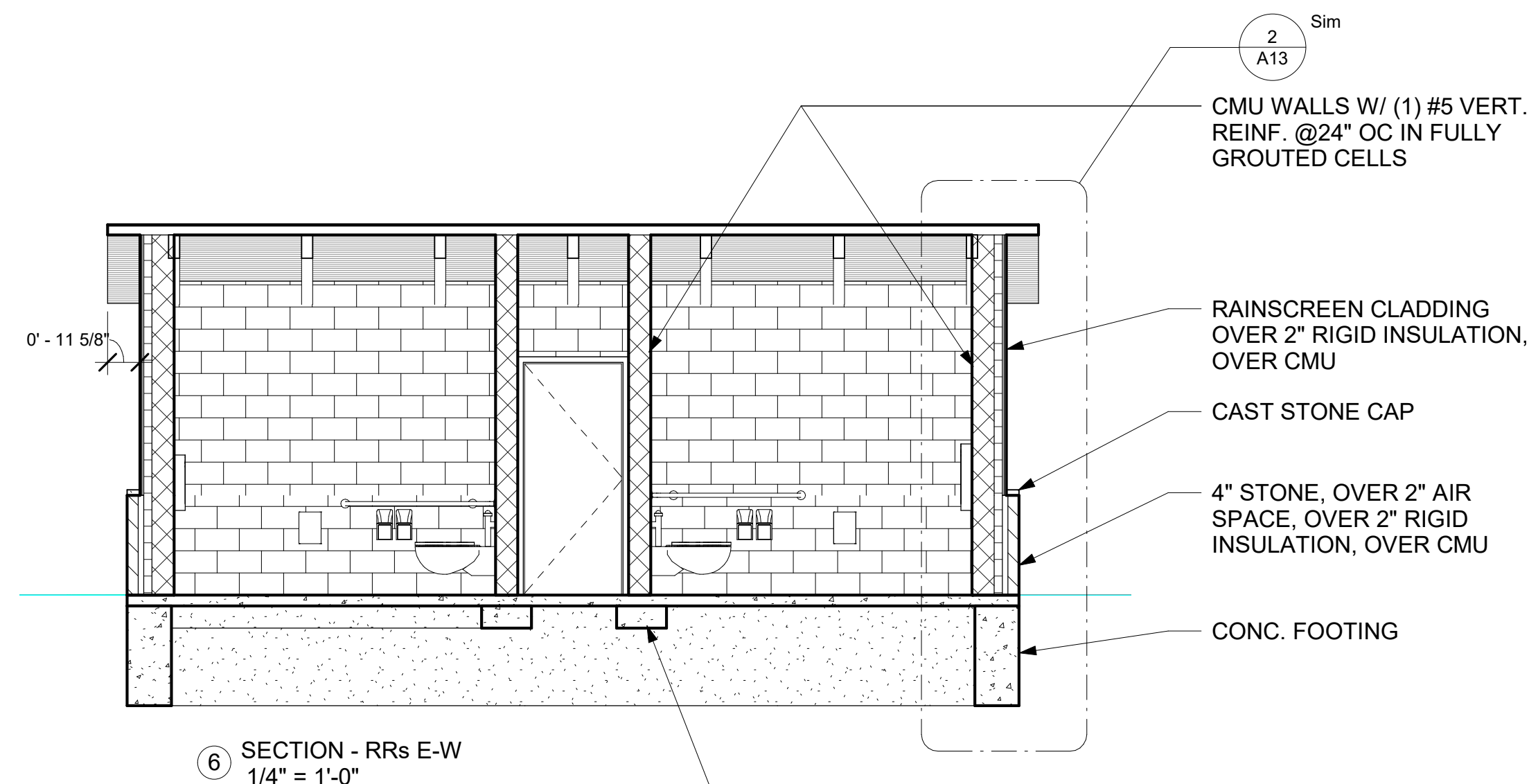
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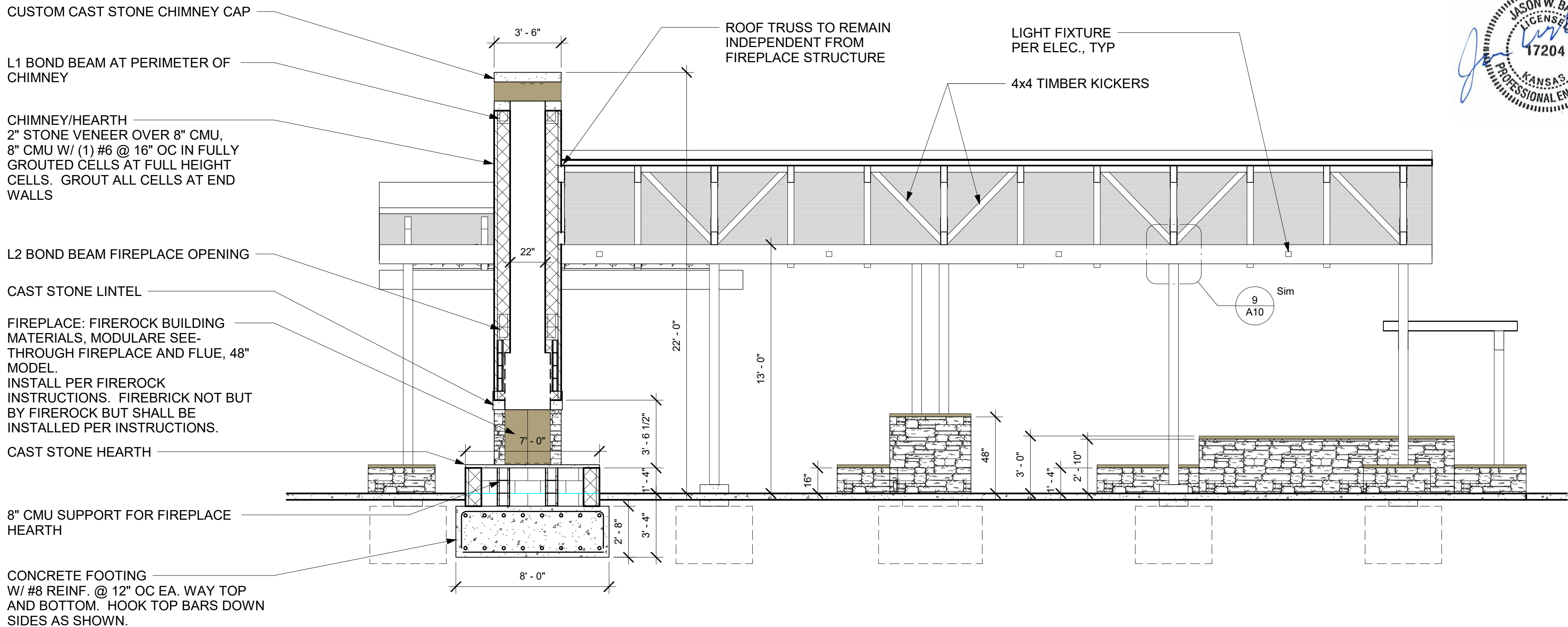
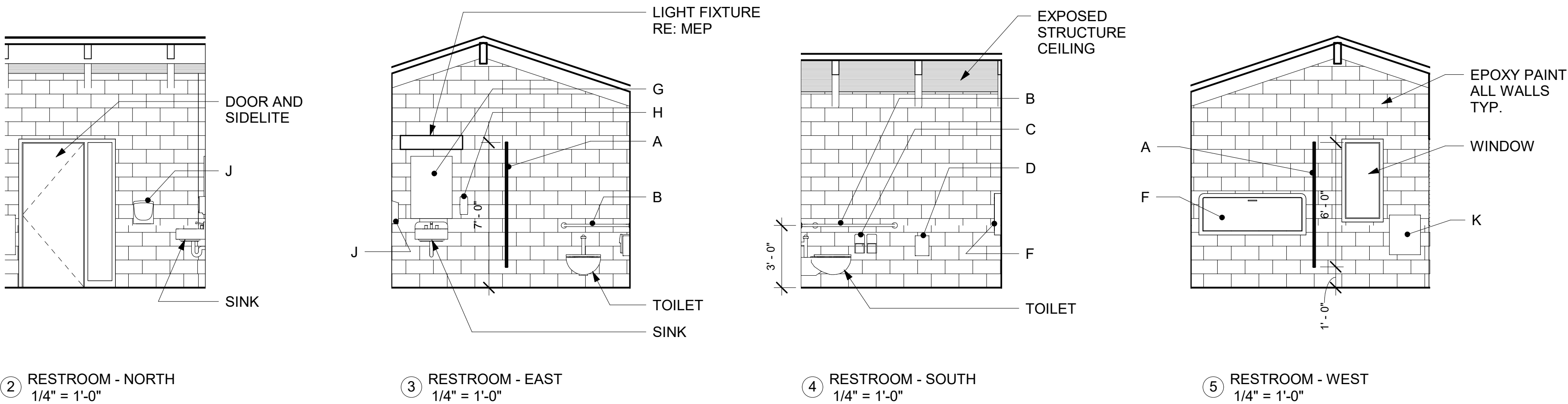
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A6



BATHROOM ACCESSORIES

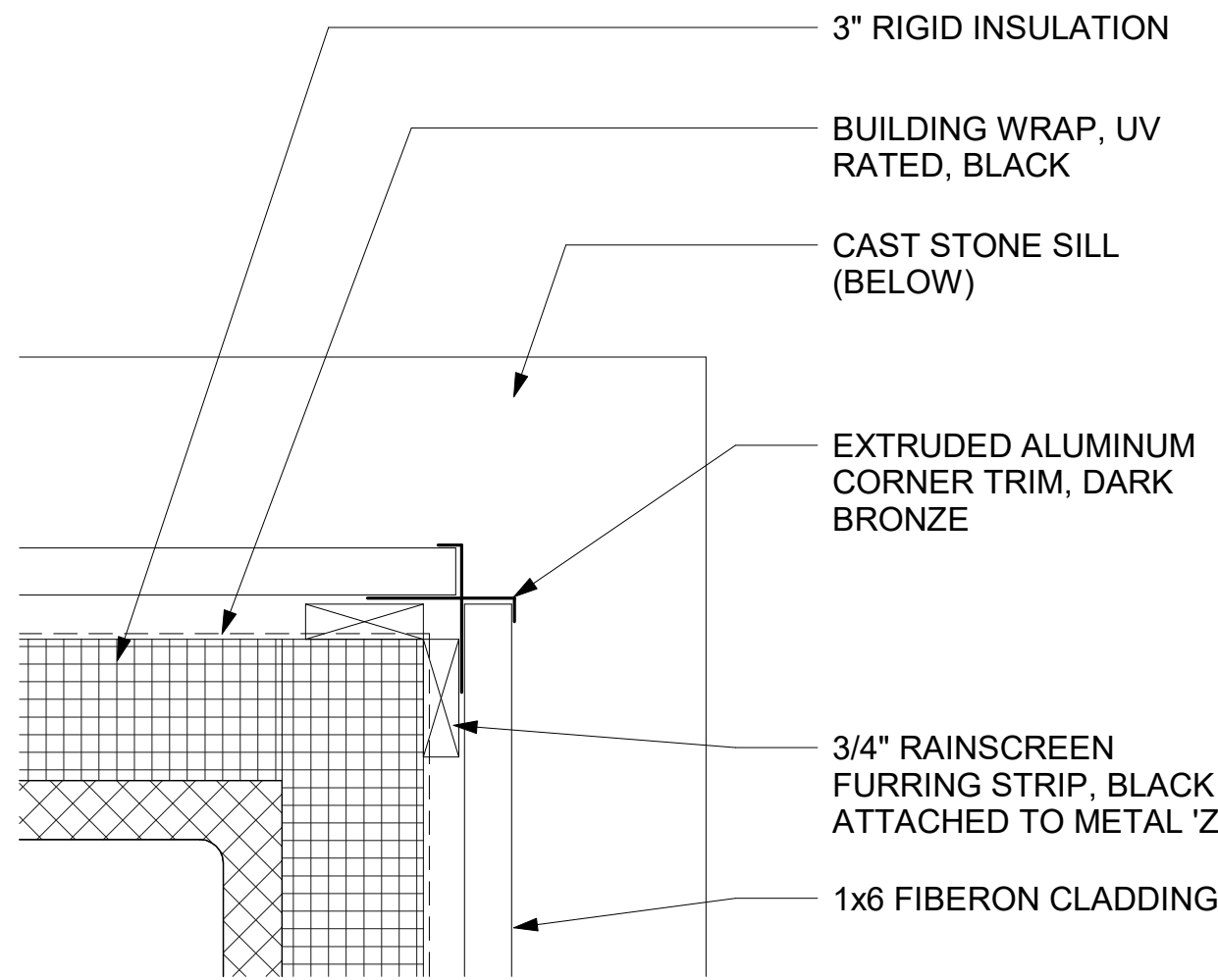
A	TOILET PARTITIONS	BRADLEY, SERIES 400, STAINLESS STEEL, SENTIEL OVERHEAD BREACED
B	GRAB BARS	BRADLEY, SERIES 812, 1-1/2" DIA. STAINLESS STEEL, WITH CONCEALED MOUNTING
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D	NAPKIN DISPOSAL	BRADLEY, SERIES 4791-11, STAINLESS STEEL, SURFACE MOUNTED WITH SHELF
E	BABY CHANGE STATION	FOUNDATIONS, MODEL 100-SSC-SM, STAINLESS STEEL, SURFACE MOUNT
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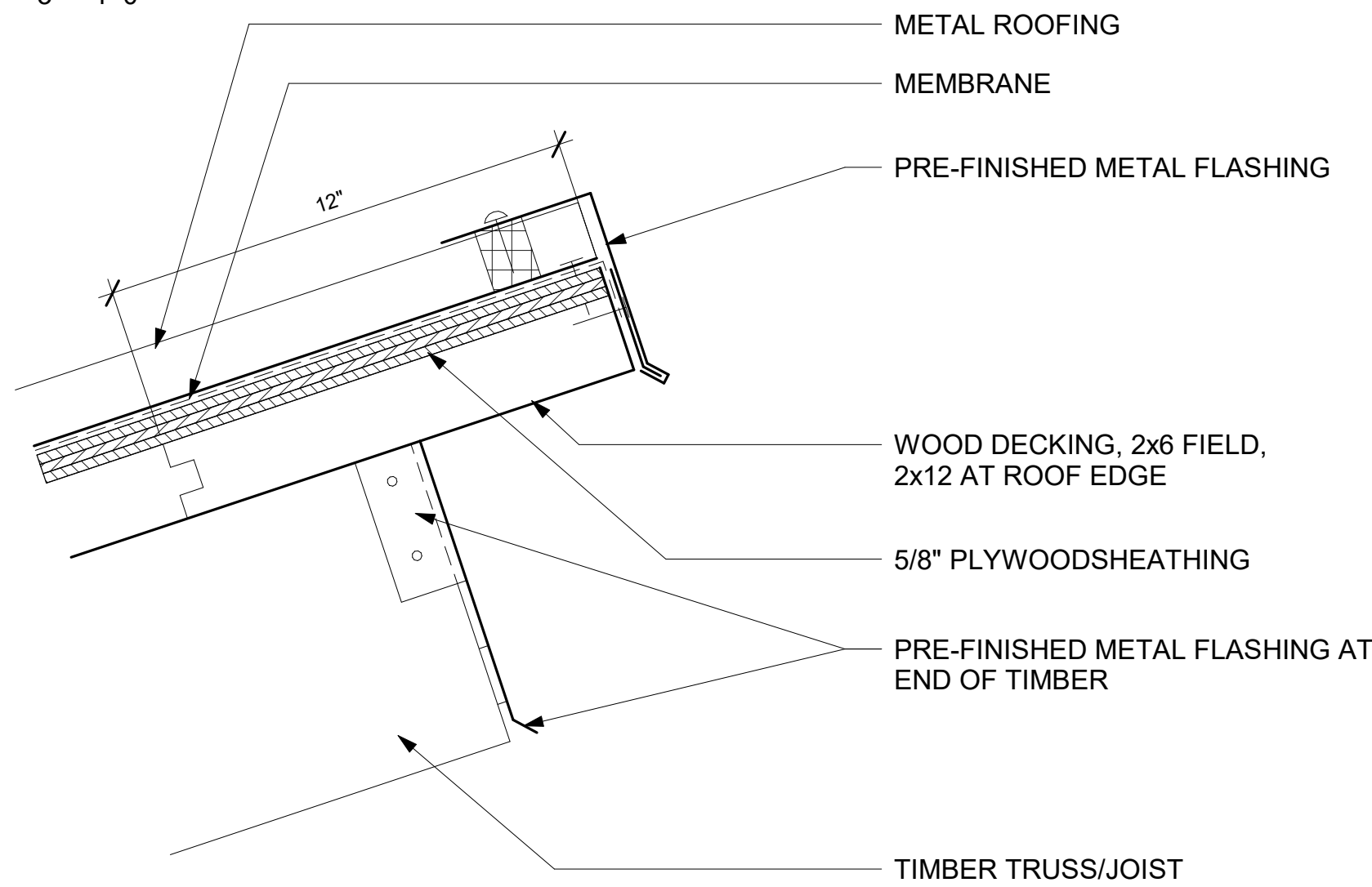
1 SECTION - PAVILION E-W 01
1/4" = 1'-0"



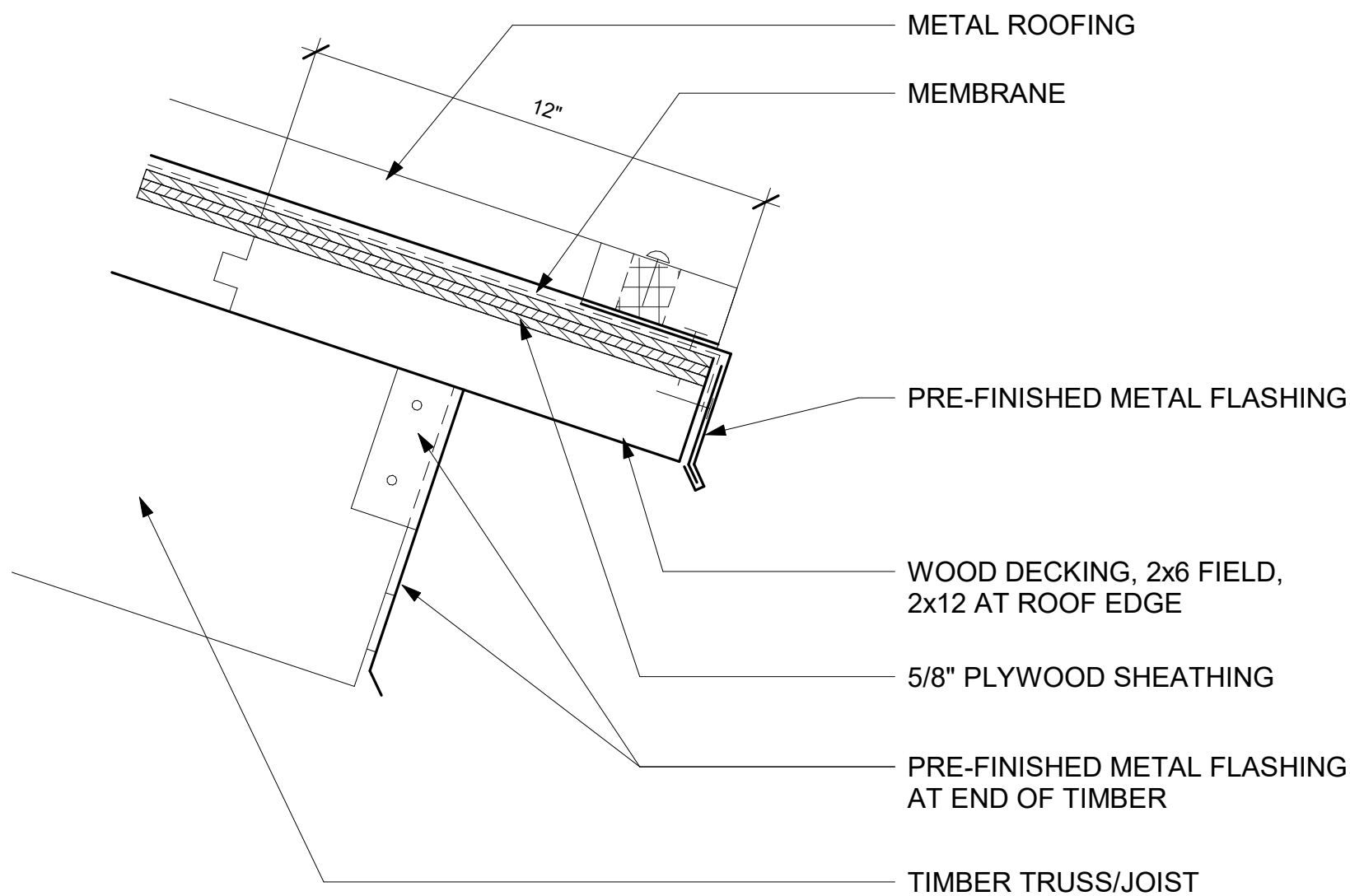
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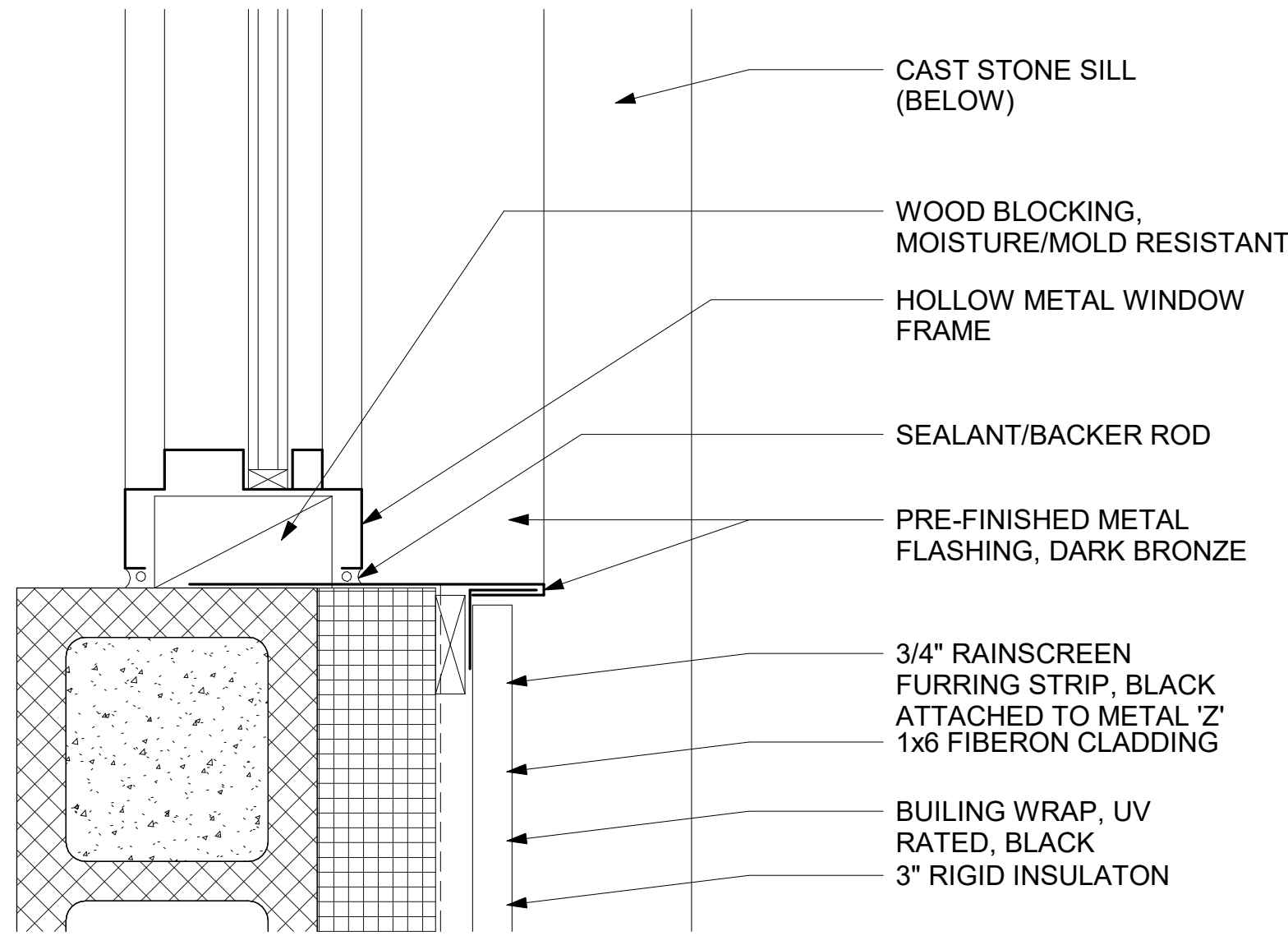
7 DETAIL - CLADDING CORNER
3" = 1'-0"



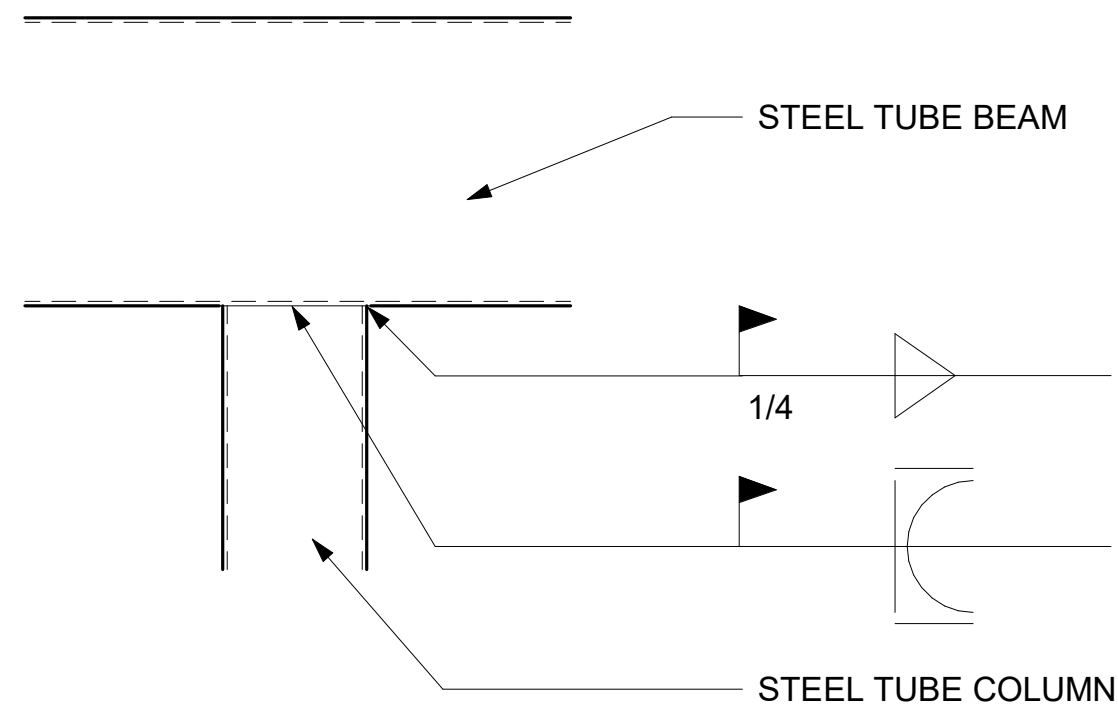
6 DETAIL - TYPICAL EAVE TOP
3" = 1'-0"



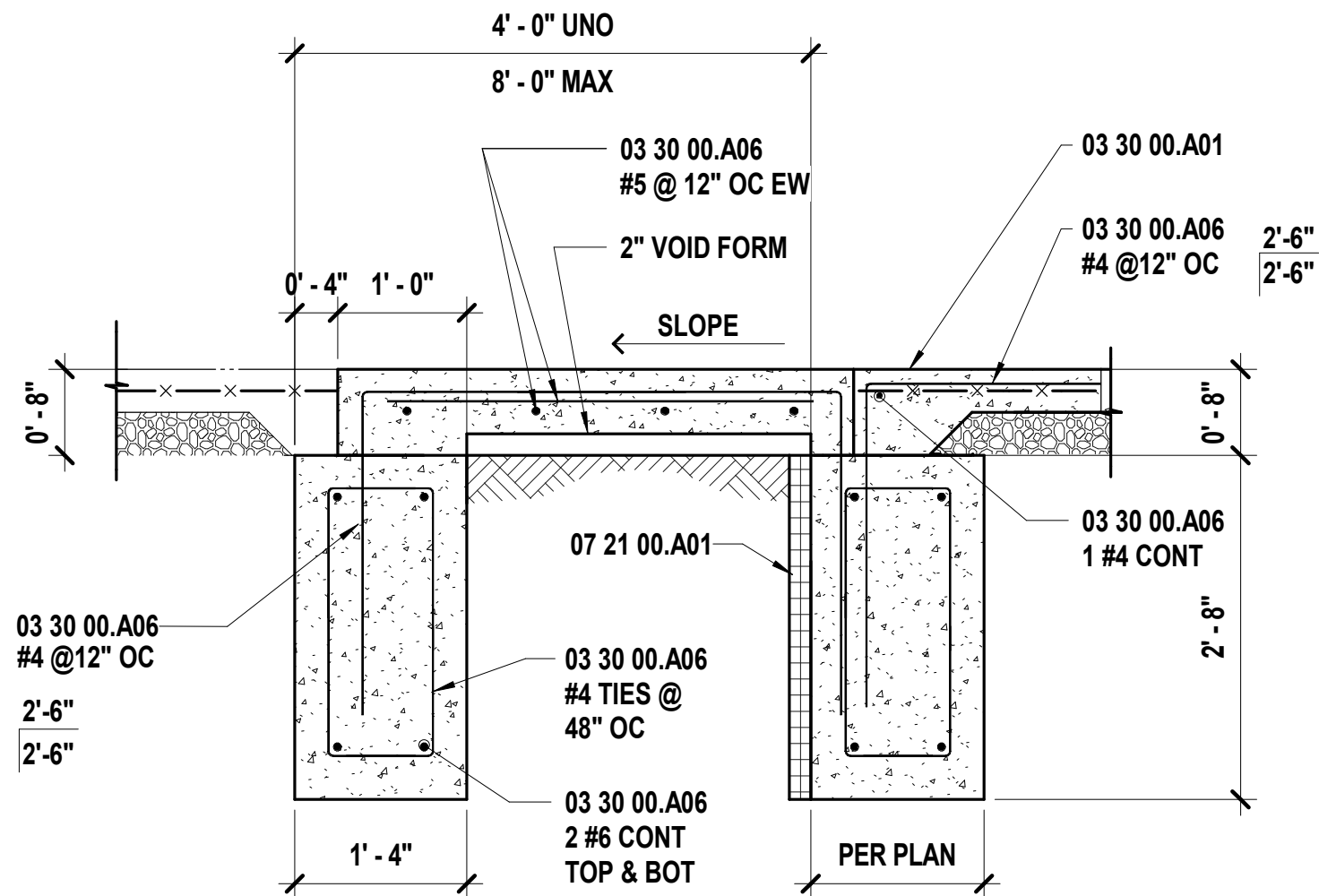
5 DETAIL - TYPICAL EAVE BOTTOM
3" = 1'-0"



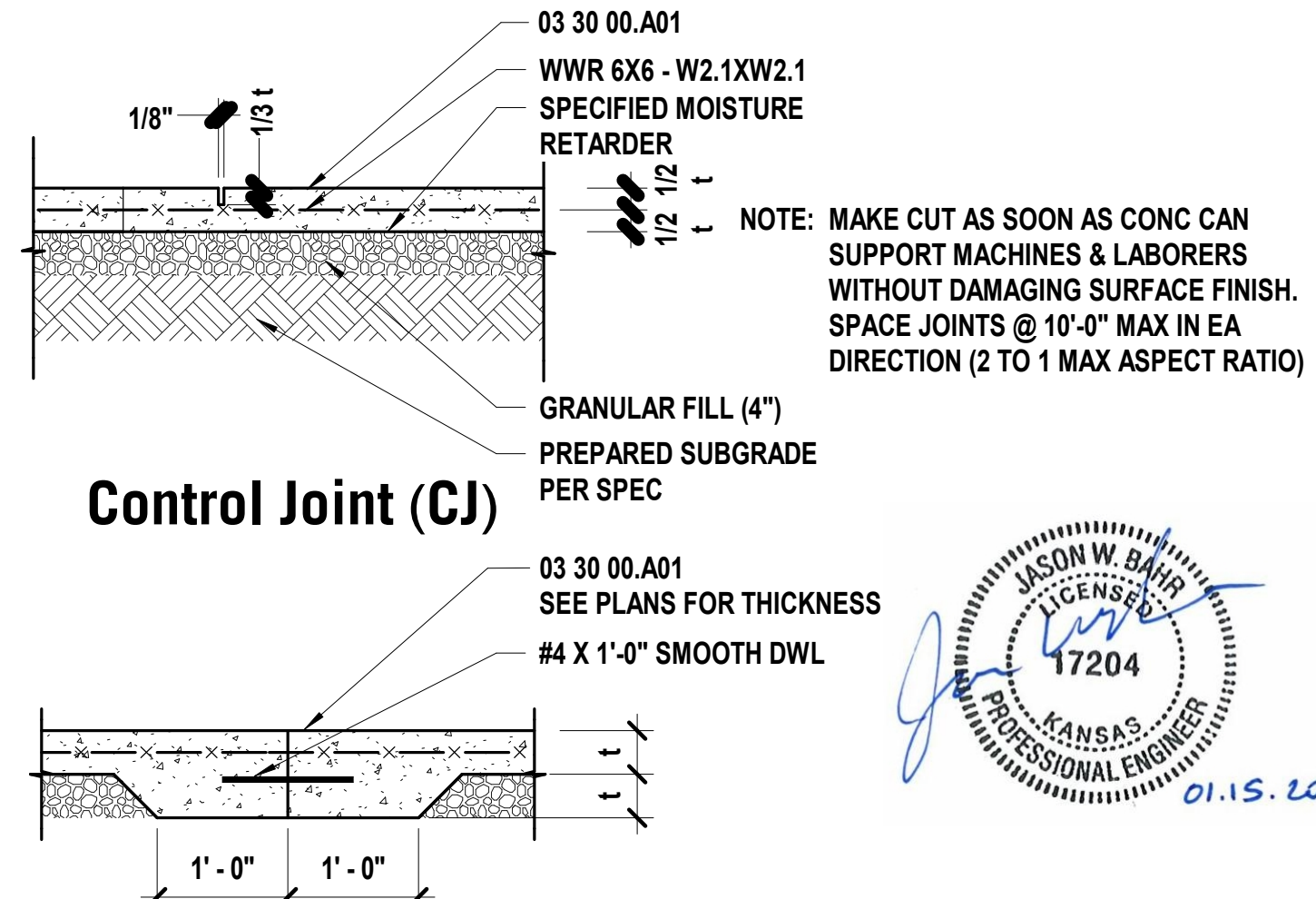
8 DETAIL - WINDOW JAMB
3" = 1'-0"



9 TYPICAL BEAM TO COLUMN
CONNECTION
1 1/2" = 1'-0"



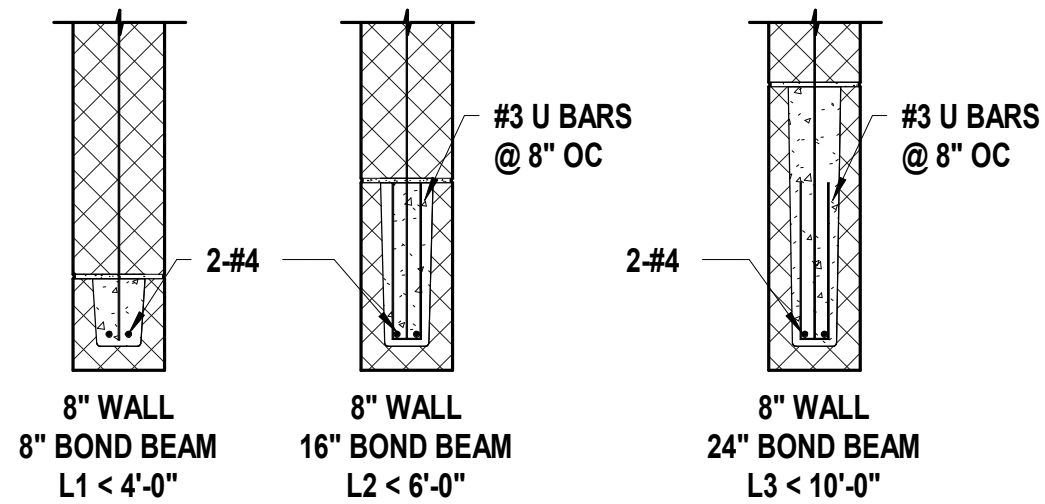
4 Typical Stoop Detail
3/4" = 1'-0"



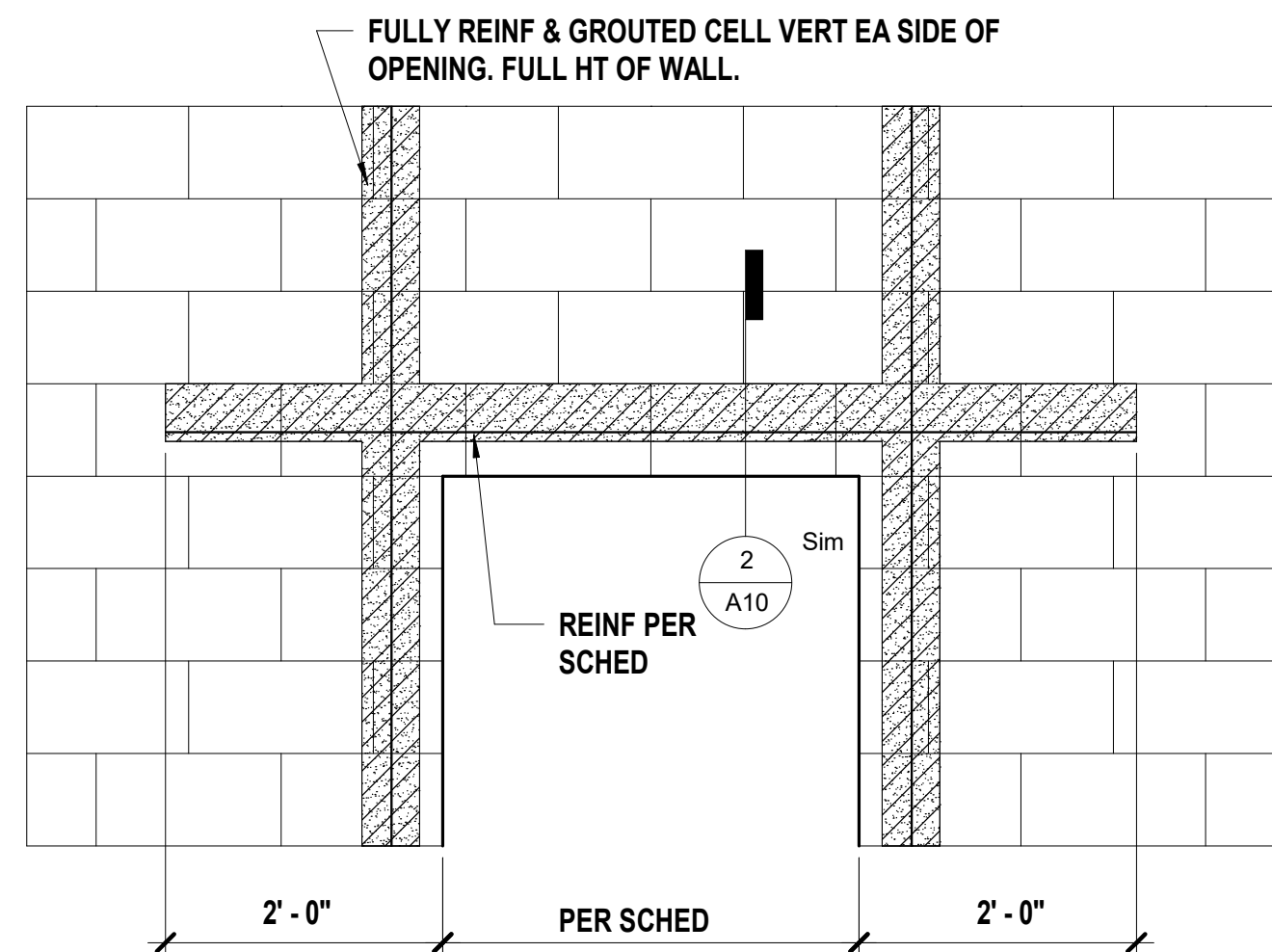
Control Joint (CJ)

Construction Joint

3 Typical Slab on Grade Details
3/4" = 1'-0"



2 Typical Lintel Section
3/4" = 1'-0"



1 Typical Lintel Partial Elevation
3/4" = 1'-0"

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CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROELAND PARK, KANSAS

DETAILS

REVISIONS

DESIGNER / DRAFTER

DATE

1-15-2020

PROJECT NUMBER

BOOK AND PAGE

MISSOURI AUTHORIZATION NUMBER

A10



CONSTRUCTION DOCUMENTS

ROELAND PARK, KANSAS

DETAILS

REVISIONS

DESIGNER / DRAFTER

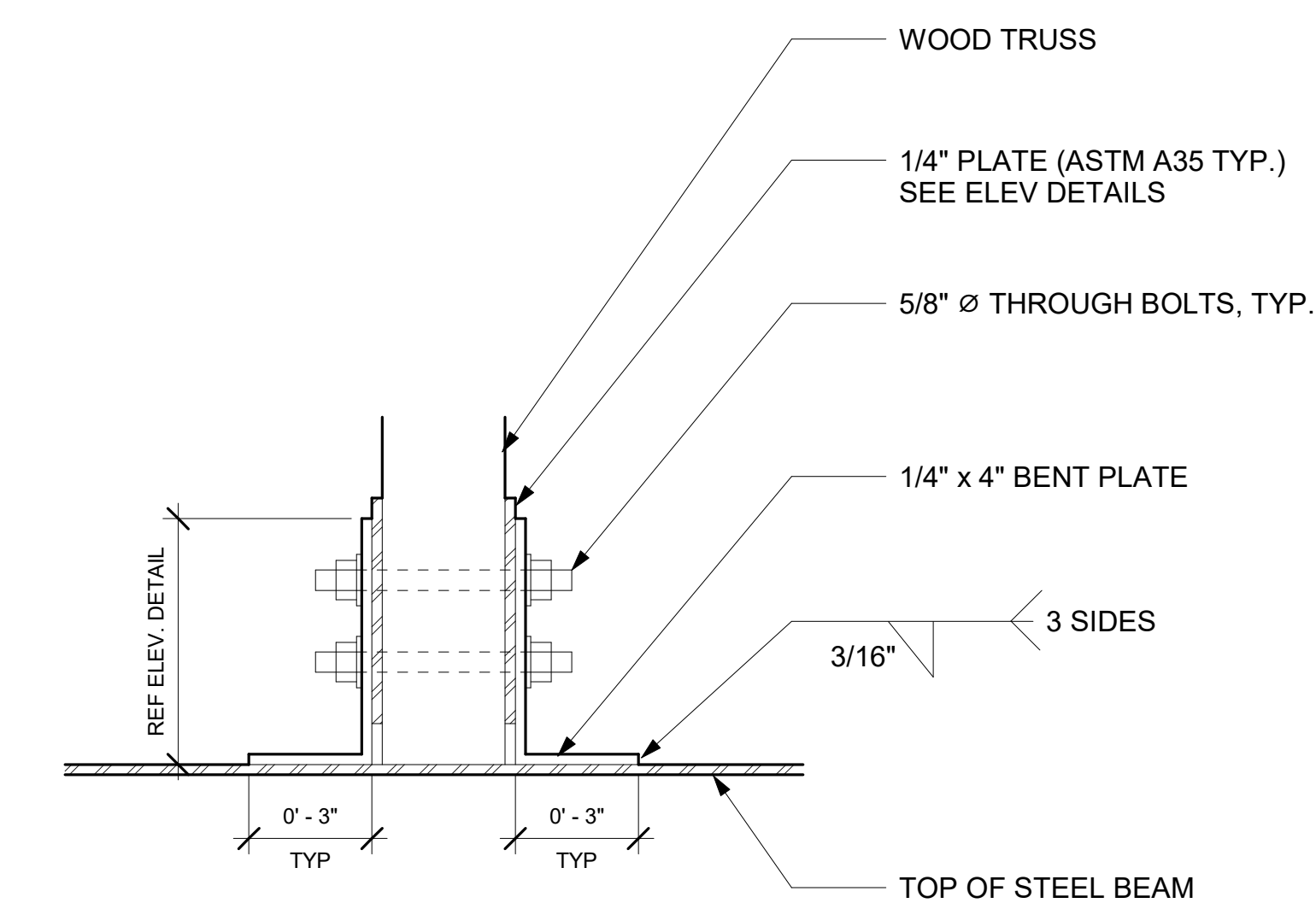
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PROJECT NUMBER

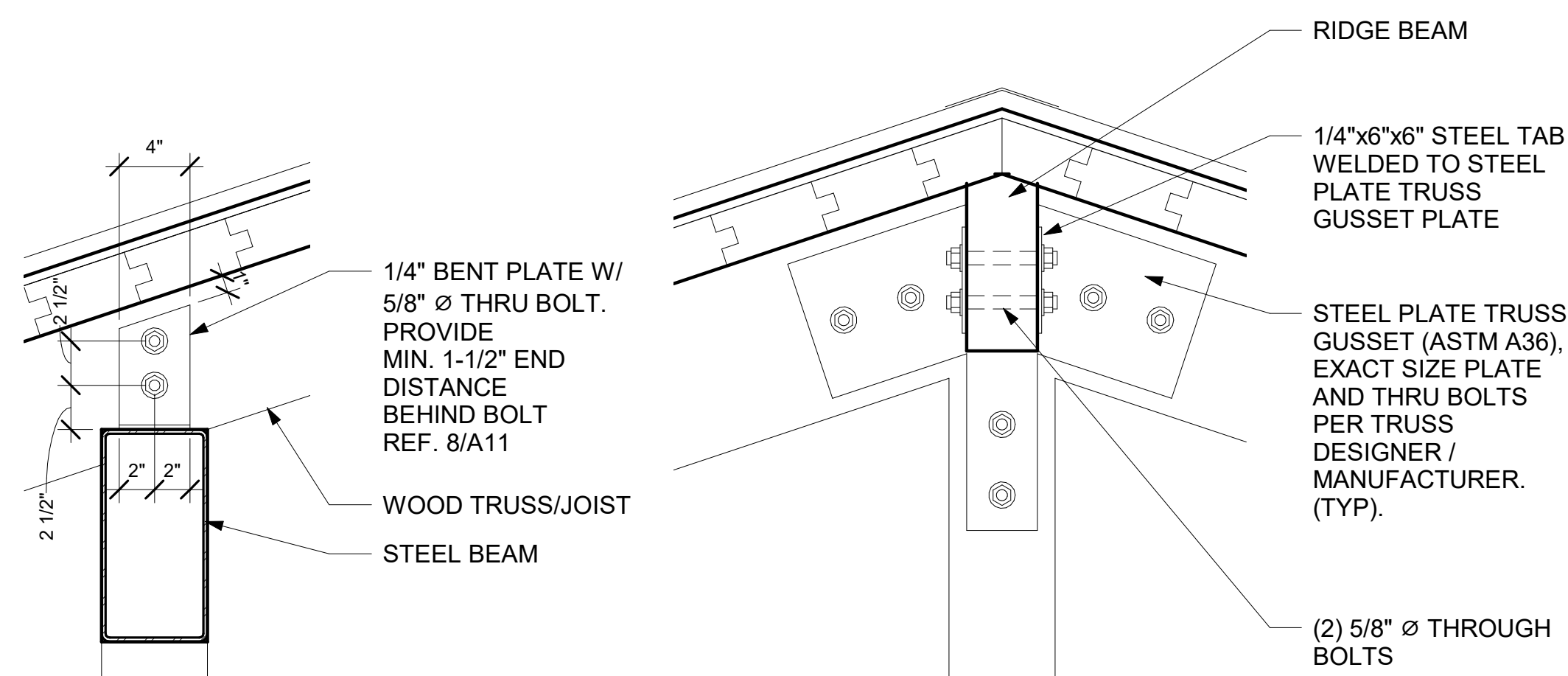
BOOK AND PAGE

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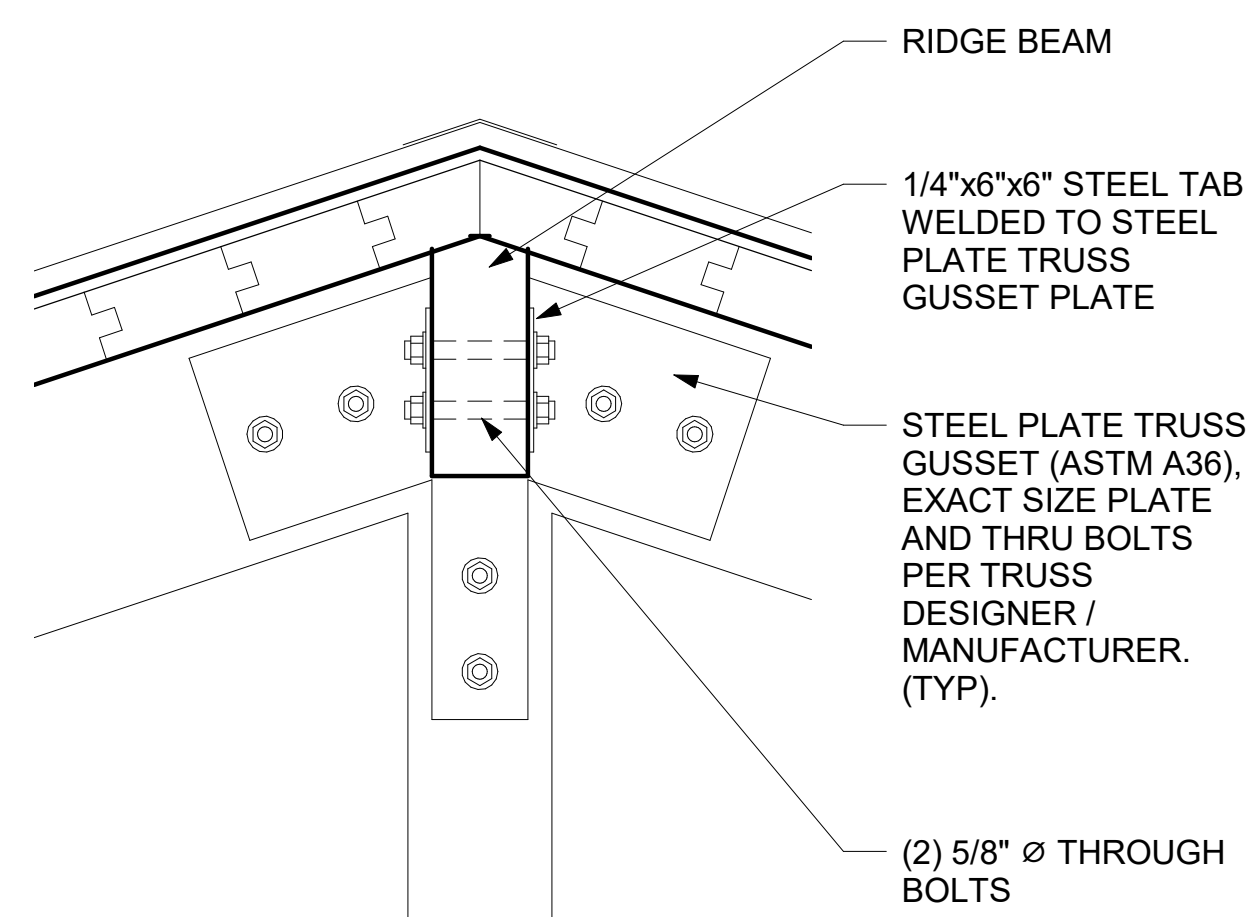
A11



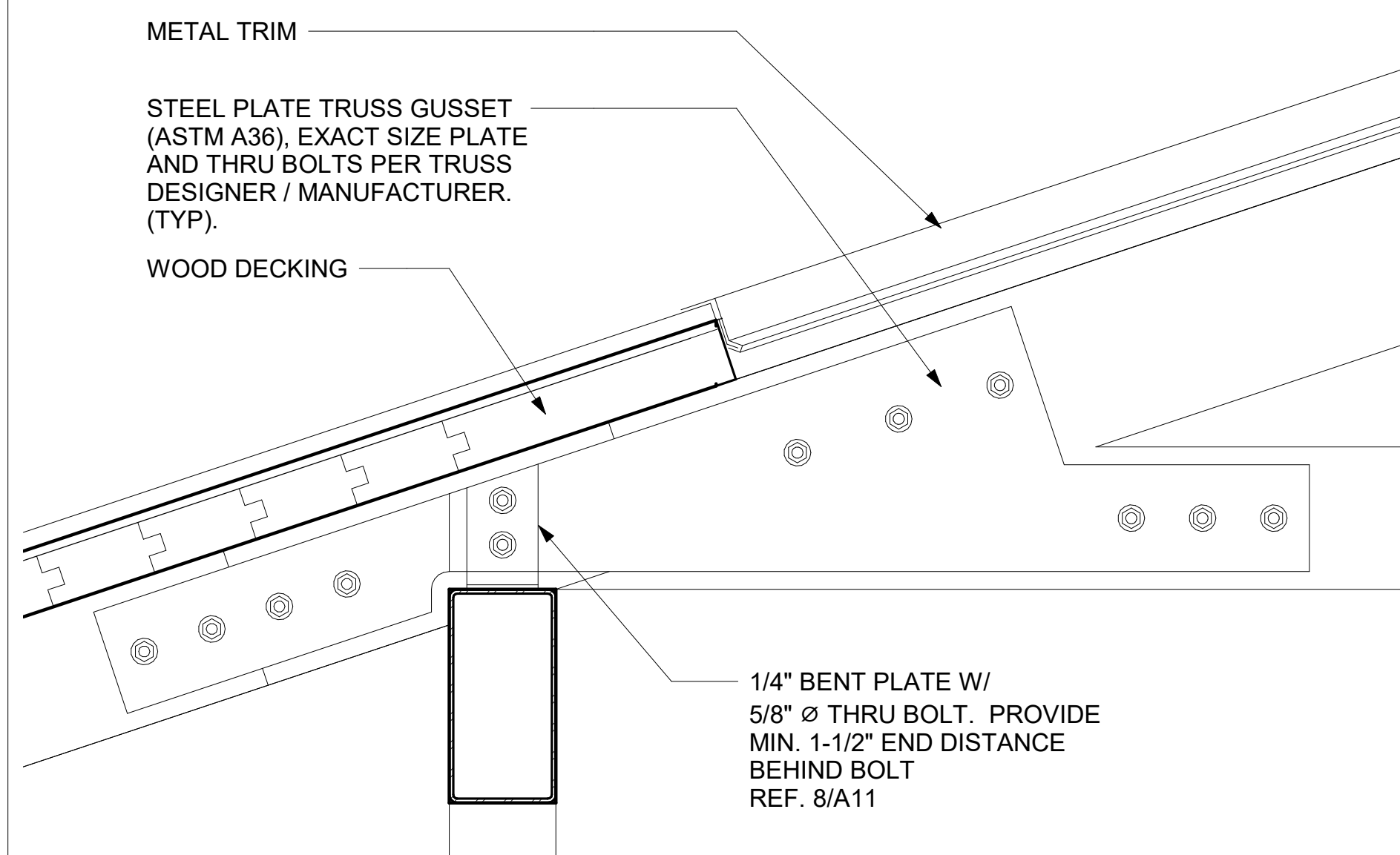
8 DETAIL - TRUSS-BEAM CONNECTION
(TYP)
3" = 1'-0"



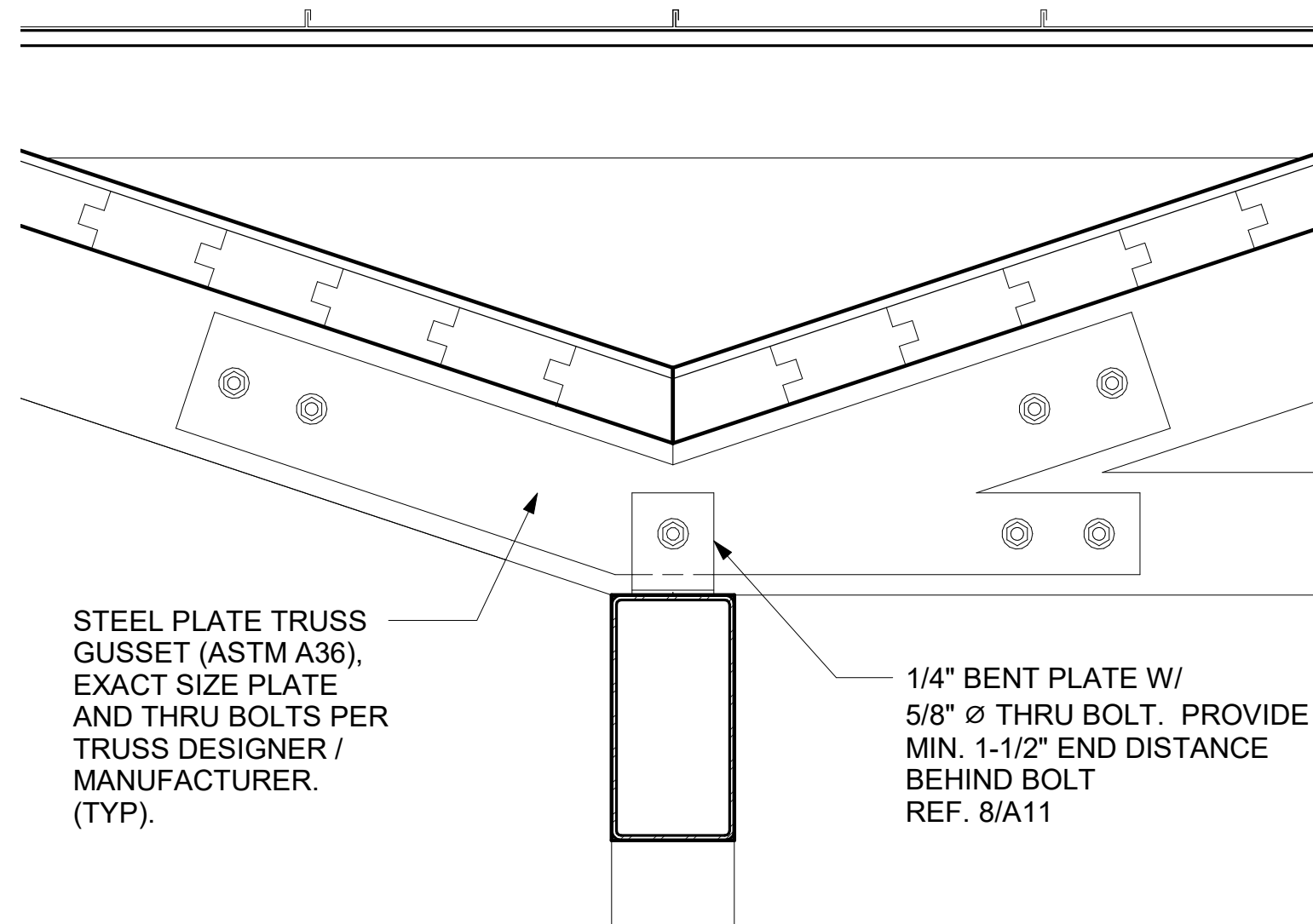
⑦ DETAIL - JOIST PLATE EAVE
1 1/2" = 1'-0"



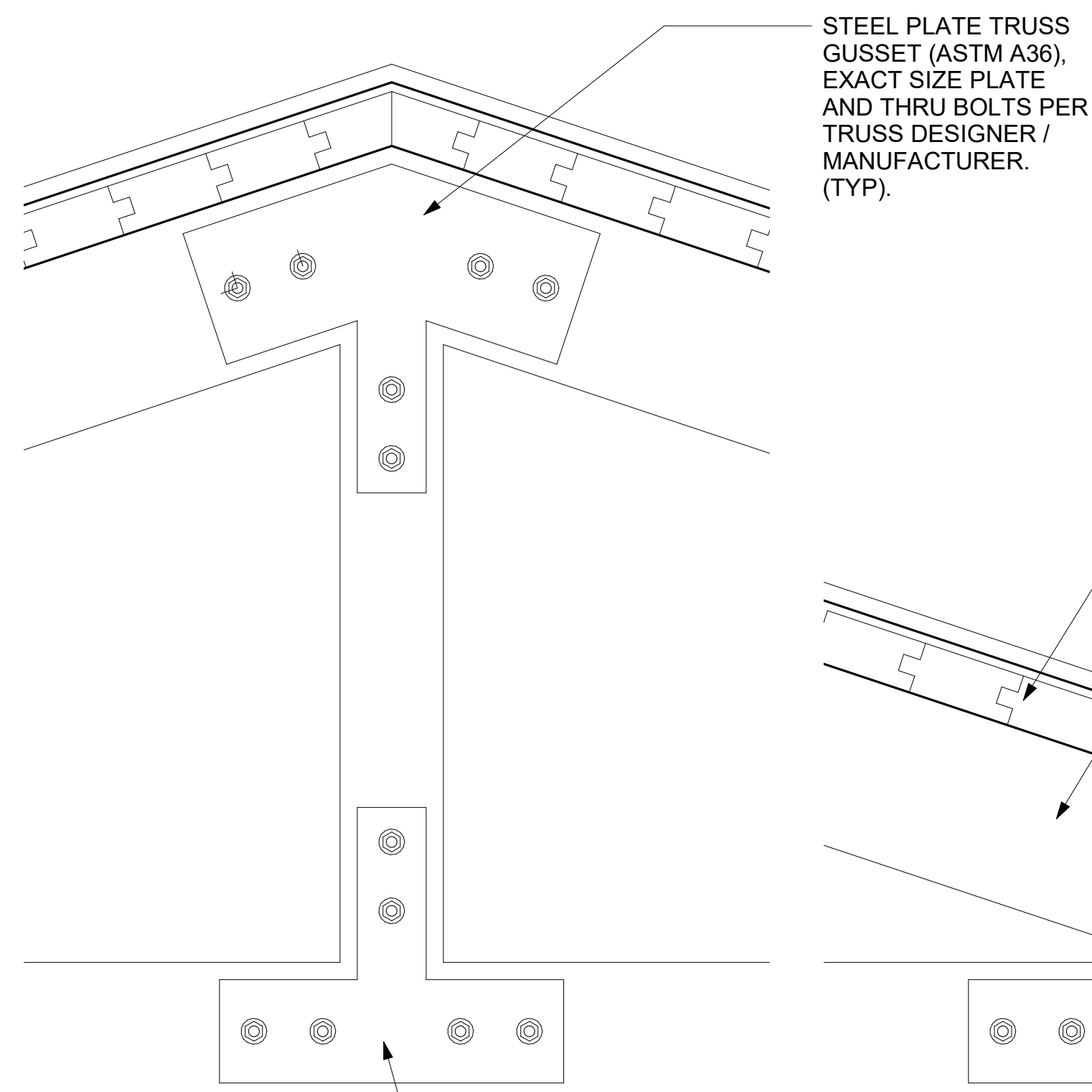
⑥ DETAIL - JOIST RIDGE PLATE
1 1/2" = 1'-0"



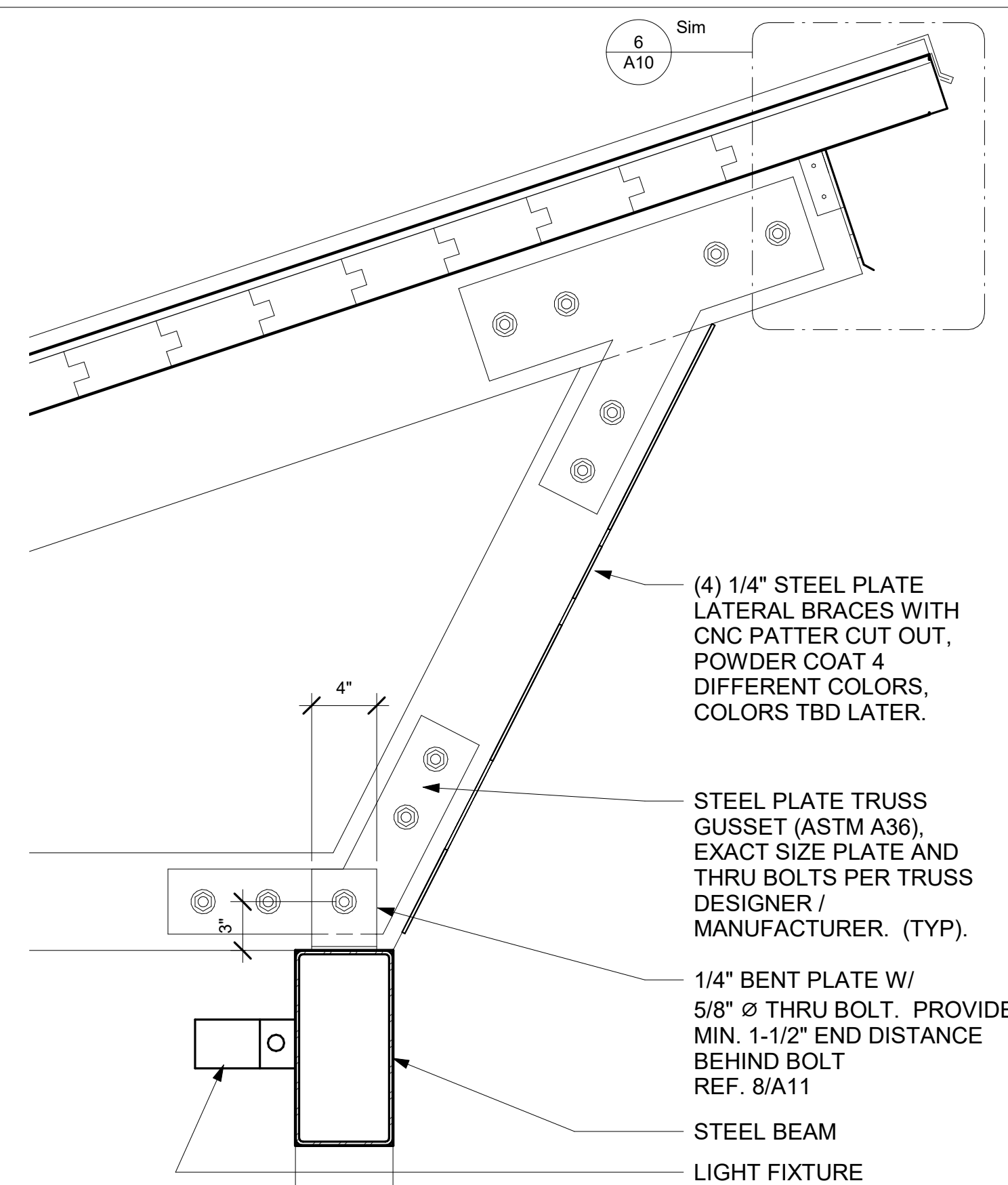
③ DETAIL - TRUSS-JOIST PLATE EAVE
1 1/2" = 1'-0"



⑤ DETAIL - TRUSS-JOIST PLATE VALLEY
1 1/2" = 1'-0"

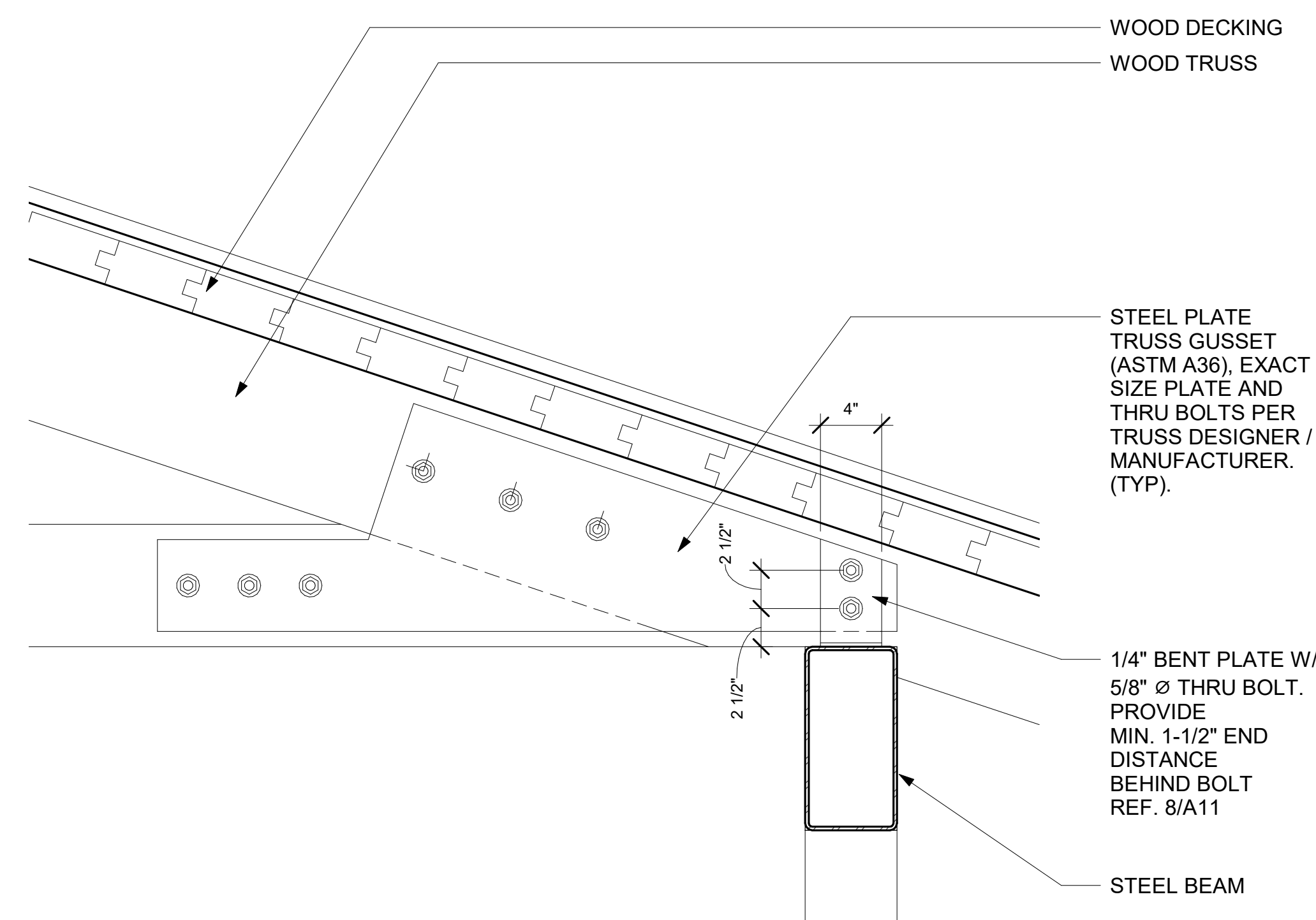


② DETAIL - TRUSS PLATE CENTER
1 1/2" = 1'-0"



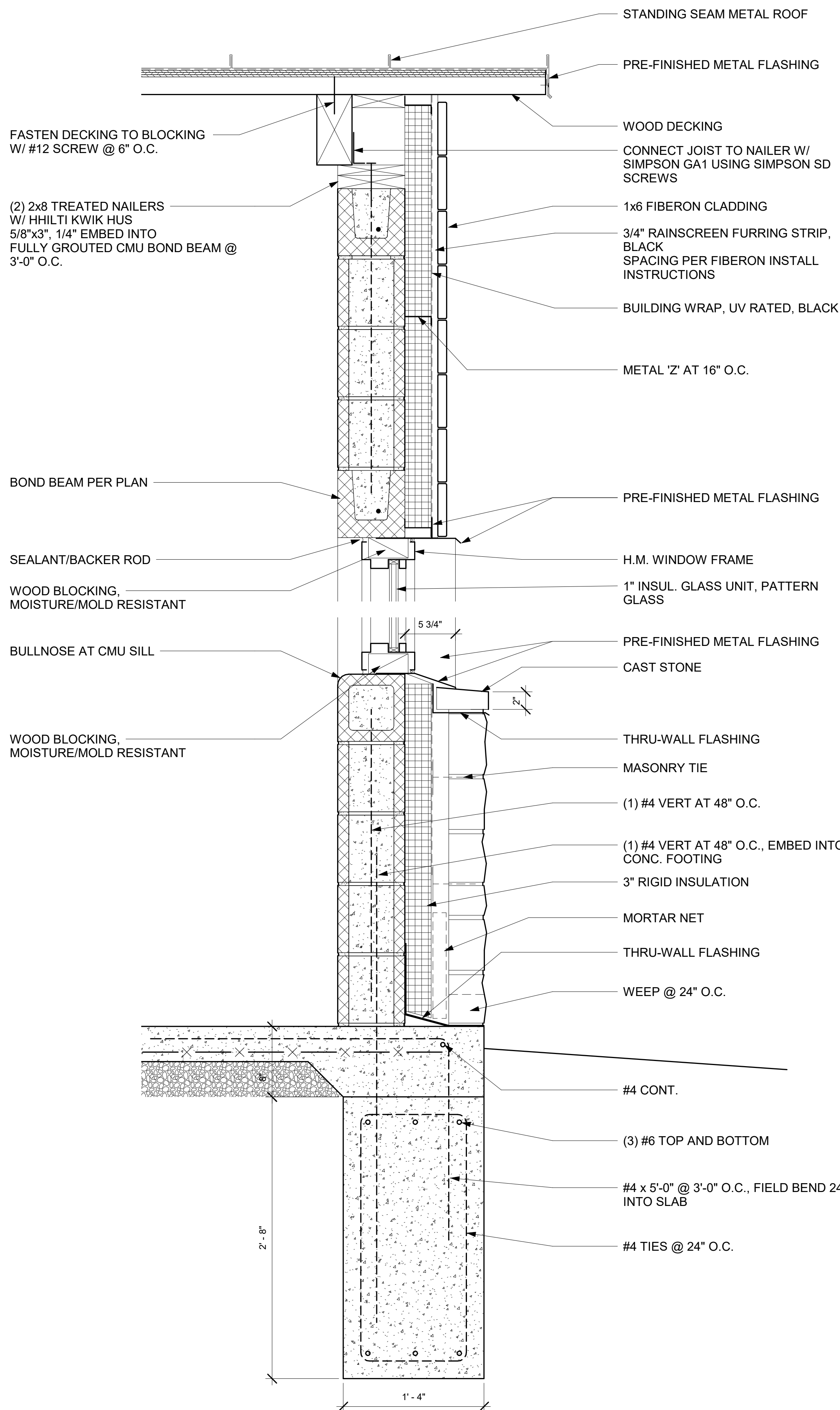
DETAIL - TRUSS PLATE PERFORMANCE
EAVE
④ $1\frac{1}{2}" = 1'-0"$

NOTE:
ALL CONNECTIONS BETWEEN TRUSS MEMBERS ARE
TO BE DESIGNED BY TRUSS
DESIGNER/MANUFACTURER.
CONNECTIONS SHOWN ARE FOR REFERENCE ONLY.

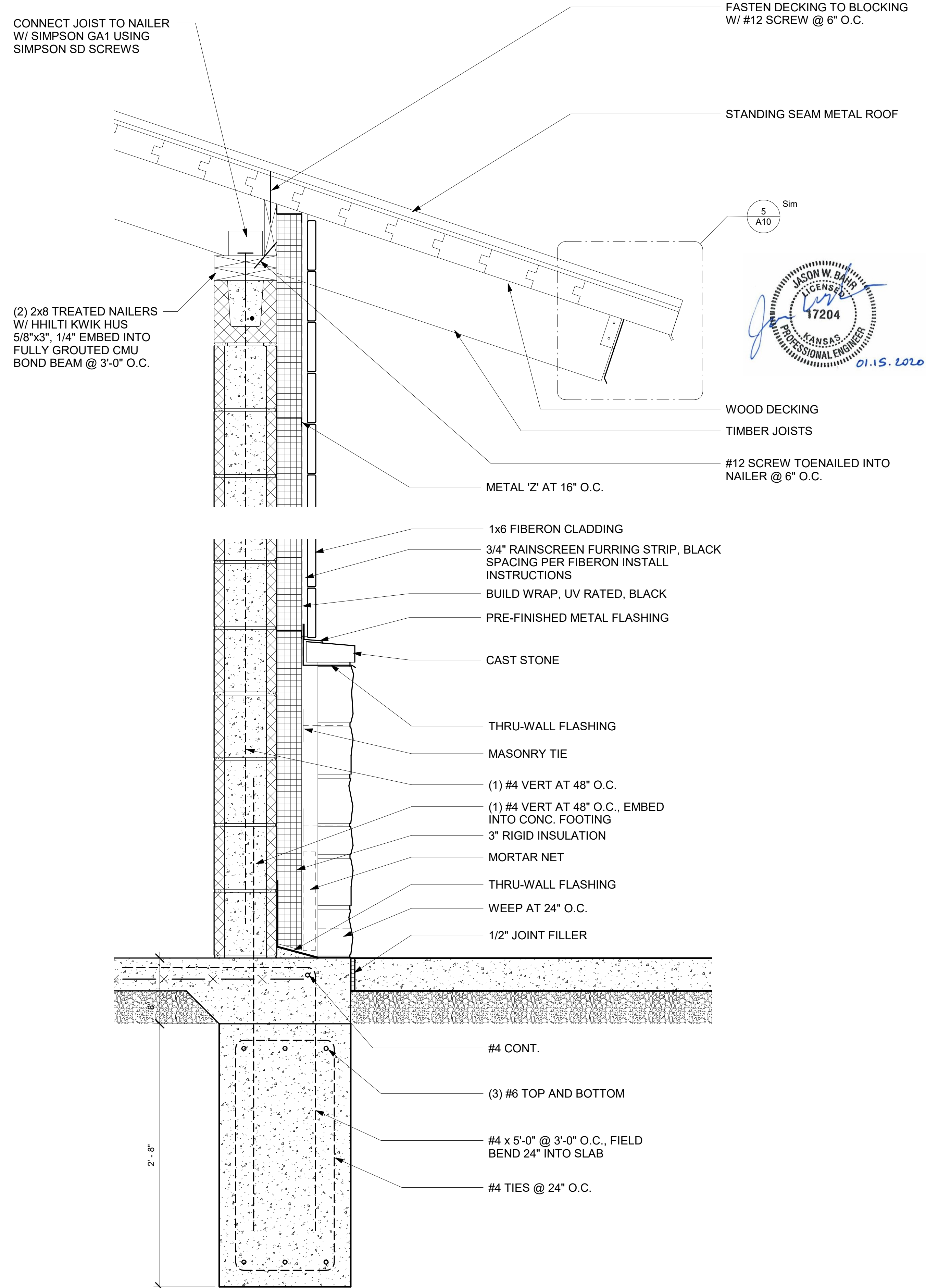


① DETAIL - TRUSS PLATE EAVE
1 1/2" = 1'-0"

V:\proj\2020\1-15-20\1-15-20-RR EAVE\1-15-20-RR EAVE.dwg, 5/13/2019 10:02 PM, JWP, JWP



② WALL SECTION - RAKE
1 1/2" = 1'-0"



① WALL SECTION - RR EAVE
1 1/2" = 1'-0"

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CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROLAND PARK, KANSAS

DETAILS

REVISIONS

DESIGNER / DRAFTER

DATE
1-15-2020

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A13

Requirements of the American Concrete Institute Code, ACI 318 "Building Code Requirements, current edition for "reinforced concrete" and Concrete Reinforcing Steel Institute "Manual of Standard Practice" shall govern the performance of work required under this division.

2. MATERIALS:

- a. Cement used for general construction shall conform to ASTM C-150, Type I.
- b. Fine and coarse aggregate shall be normal weight aggregates complying with ASTM C33, free of spalling - causing deleterious material. Fine and coarse aggregate shall be regarded as separate ingredients. Each size of coarse aggregate, as well as the combination of sizes when two or more are used, shall conform to the appropriate grading requirements of the applicable ASTM specifications. Maximum size of the aggregate shall be as follows:
 - 1) Footings and grade beams max. 3/4"
 - 2) Slabs max. 1"
 - 3) Bond beam fill max. 3/8"
- c. Use only water which is clean and free of oil, acids, alkalis, salts, and organic matter.
- d. Reinforcing Bars: Refer to Drawings.
- e. Welded Wire Reinforcement: All wire reinforcement shall be electrostatically welded wire conforming to ASTM A-185 and A-82. Welded wire reinforcement in slabs on grade shall be laid with a side and end lap of 6".
- f. All spacers, chairs, ties, and other devices necessary for properly placing, spacing, supporting and fastening reinforcement in place shall be used according to the latest edition of the Concrete Reinforcing Steel Institute.
- g. Granular Drainage Fill: Provide 4" thick, clean gravel, particle size 1/2" to 3/4" per ASTM D 448, grading size 57.

3. CONCRETE:

- a. All concrete shall have a water/cement ratio of 0.45 maximum and shall be of a mix which will produce a minimum compressive strength of 4,000 p.s.i., measured at 28 days when tested in accordance with ASTM standard test C-39, current edition.
- b. All concrete shall be batched as per ASTM-C94 and as per ACI-301 and ACI-318.
- c. No additives containing chloride will be permitted in any concrete mix.
- d. No additional admixtures of any kind are permitted without written approval of Architect.
- e. Air-entrainment shall be 6 - 8% and conform to ASTM C 260.

4. HANDLING AND PLACEMENT OF REINFORCEMENT:

- a. Before use, all bars shall be cleaned of rust, scale, and coatings tending to reduce bond. All bonds and splices shall be in strict accordance with the requirements of the Concrete Reinforcing Steel Institute Code of Standard Practice for "placing reinforcing bars" and structural drawings.
- b. All bars must be fabricated as shown or called for in the drawings and must be accurately placed, thoroughly wired at the intersections, and fastened in the forms in such a manner as to hold them firmly in place, while the concrete is being placed. Reinforcing bars and welded wire fabric shall be placed within 1" to 1-1/2" of top of slab. Extreme care shall be used to set reinforcement accurately and to hold firmly in place. Approved chairs and spacers shall be provided, as required.
- c. Where conduits, piping inlets, sleeves, etc., interfere with the placing of reinforcing steel, as shown or called for, the Contractor must consult the Architect and secure from him, in writing, the method of installation before placing any concrete. The bending of bars around openings for sleeves will not be permitted unless authorized by the Architect.
- d. Unless noted otherwise, lap splices shall be 48 bar diameters.
- e. Smooth-Rubbed Finish: Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process. Apply to concrete surfaces exposed to public view on vertical surfaces of sides and of stairs and stair risers.
- f. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

5. PLACING CONCRETE:

- a. Comply with ACI 304 "Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete" and as specified. All concrete shall be deposited in the form as nearly as practicable in its final position to avoid segregation. Spouting directly into forms will not be permitted from more than eight feet in height. Each layer placed shall be thoroughly incorporated with layers previously laid. Concrete shall not be transported by vibrating.
- b. During and after depositing, thoroughly compact concrete by mechanical vibration to achieve a solid homogeneous mass. Where it is impractical to vibrate, the concrete shall be thoroughly spaded so as to secure a solid homogeneous mass. Deposit and consolidate slabs in continuous operation within limits of construction layers previously laid. Deposit and consolidate slabs in continuous operation within limits of construction joints.

6. CONTROL TESTS:

- a. A slump test shall be made from each concrete delivery truck before concrete is deposited. The maximum slump permitted shall be 4" for both regular concrete and air-entrained concrete.
- b. Laboratory test cylinders shall be taken for each 50 cubic yards of concrete and/or for each separate pour exceeding 20 cubic yards. Not less than three cylinders shall be taken for each required test and shall be in accordance with ASTM specifications C-31 and C-172. Compression tests shall be made in accordance with ASTM specification C-39. Samples and tests shall be made by testing laboratory personnel only.
- c. One (1) copy each of all concrete test reports shall be submitted to the Architect, Engineer, and Contractor for their review and record.

7. SLABS:

- a. Concrete slabs on grade shall be poured over prepared and level granular base course.
- b. Slabs shall have dove-tailed construction joints where shown in the drawings. There shall be isolation joints around all columns. In addition to the construction joints, all slabs will be marked off in areas not to exceed 15' square, or as noted in plans, with 1/8" sawed contraction joints, 1/3 the depth of slab. All saw cuts shall be made as soon as possible without dislodging aggregate. Construction joints will have flush edges.
- c. Reinforcing mesh shall be continuous through joints. All reinforcing shall be supported well up into the upper 1/3 to 1/4 of slab, just below contraction joints of the concrete slab.
- d. Monolithic Steel Troweled Finish: For floor slabs, the finish shall be produced by tamping the concrete to force aggregate away from surface and then screeding at proper level. Surfaces shall then be floated and lightly troweled. When concrete has set sufficiently, it shall again be troweled to produce a smooth, dense surface, which shall not exceed a 1/8" variation in any 10' radius.

8. ISOLATION JOINT MATERIAL: For all isolation joints between floor slabs and vertical walls or structures, install 30# non-perforated asphalt-saturated building felt complying with ASTM D 226, Type II terminate 1/2" below top of slab.

9. CURING AND SEALING: Cure all floor slabs using a clear, waterborne, membrane-forming curing and sealing compound. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Cure for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

10. SLAB PROTECTION: All slabs and walks shall be protected from damage due to paints, stains, or chipping during the construction process. No concrete which has been so damaged will be accepted.

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DIVISION 6: CARPENTRY

1. GENERAL: Lumber shall comply with DOC PS 20 "American Softwood Lumber Standard". All dimension and board framing lumber shall as noted on Drawings. All lumber shall be kiln dried to 19% maximum moisture content and each piece shall be factory marked with grade stamp. Wood shall be free from loose or unsound knots, shakes or other damaging imperfections.
- a. Exposed exterior wood shall comply with "Appearance" grade requirements of ALSC National Grading Rule and shall be same species and grade as indicated for Timber Framing.
- b. Beams and stringers (2" to 4" thick, 5" and wider): S4S, No. 2 or better.
- c. All other lumber except as noted (2" to 4" thick, 2" and wider): S4S, No. 2 or better.
- d. Miscellaneous boards: standard or better.
- e. Wood decking shall be 2 x 6 nominal, T&G Western Red Cedar decking.
2. TIMBER FRAMING (061000.A02): Provide heavy timber construction, including connectors, capable of withstanding structural loads shown on Drawings. Comply with AITC 108 "Standard for Heavy Timber Construction". Timber species and grade shall be Western Red Cedar; No. 1, NLGA, WCLIB OR WWPA. Moisture content shall be 19 percent maximum at time of dressing and timbers shall be dressed S4S. For additional requirements refer to Drawings.
- a. Erect heavy timber construction true and plumb. Provide temporary bracing. Install horizontal and sloping members with crown edge up and provide not less than 4" of bearing on supports. Handle timbers to prevent surface damage and other effects that may impair indicated finish. Predrill for fasteners and assembly of units.
3. WOOD PANEL PRODUCTS: All wood panel products shall be appropriately graded to comply with DOC PS 1 "US Product Standard for construction and industrial plywood; products not manufactured under DOC PS-1 provisions shall comply with APA PRP-108. Factory mark each panel with the APA "The Engineered Wood Association" trademark indicating compliance with panel grade requirements specified.
4. SHEATHING:
- a. Fire-Retardant Treated Plywood Sheathing: Plywood wall sheathing shall be 5/8" thick, fire-retardant treated plywood and roof sheathing shall be 5/8" thick, per Drawings. All plywood shall be engineered grade APA rated, with exterior glue as designated. Fire retardant treated plywood shall comply with AWPA C27 requirements and shall receive appropriate classification marking from Underwriter's Laboratory (UL). Provide ACX fire treated plywood as backing panels for telephone and electrical panels.
- b. Miscellaneous plywood shall be 19/32" thick, minimum CDX APA rated.
- c. Cement Board Sheathing for "Adhered Stone Veneer": Comply with ANSI A118.9 and ASTM C 1325. Cement board shall be mold and mildew resistant with a score of 10 per ASTM D 3273. Provide 1/2" thick "PermaBase" as manufactured by National Gypsum Company.
5. WOOD TRUSSES: Comply with requirements set forth in the Structural General Notes and in this Division. Erect and brace trusses to comply with applicable requirements of referenced TPI standards. Erect trusses with plane of truss webs vertical (plumb) and parallel to each other, located accurately at design spacings indicated. Anchor trusses securely at all bearing points to comply with methods and details indicated. Install permanent bracing and related components to enable trusses to maintain design spacing and to withstand live and dead loads including lateral loads and other requirements.
6. Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction". All work shall be accurately laid out, cut and fitted, level and true. Work shall be adequately braced and shall be secured with sufficient [framing anchors,]nails, screws, bolts and adhesives to assure its structural integrity. For further reference, see table II "recommended nailing schedule" of the 2012 International Building Code for recommended nailing schedule. For further reference, refer to Structural Drawings for stud sizes, stud spacing and recommended nailing schedule.
- a. Termite Shields: Install termite shields between top of foundation and wood sill plate.
- b. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
- c. Install joists with crown edge up and support ends of each member with not less than 1-1/2 inches of bearing on wood or metal, or 3 inches on masonry. Where supported on wood members, by toe nailing or by using metal framing anchors.
7. Provide and install all necessary items of wood furring, nailers, blocking, etc., as indicated or required sound construction. Provide blocking for support of toilet accessories, cabinets, etc. Provide and install all necessary bolts, hangers, nails, screws, and other items classed as rough hardware as required for the complete anchoring or wood members.
8. Blocking and Nailers: All wood nailers, cants, blocking, framing members, etc., in connections with roofing, flashing, vapor barriers and waterproofing, wood sills, sleepers blocking, furring, stripping on similar concealed members in contact with masonry or concrete, shall be treated under pressure to resist termites decay and dry rot. Provide ACQ treated lumber and plywood with at least 0.25 retention and kiln dry after treatment to KDAT 19. Treated lumber and plywood shall be separated from adjacent metal with a #30 asphalt felt isolation strip and shall be fastened with stainless steel or double-dipped, hot-dip galvanized fasteners.
10. EXTERIOR AND INTERIOR WOOD TRIM: Provide western red cedar trim, C and better grade, S4S.
- a. Fasteners: Provide stainless steel nails, screws and other anchoring devices of type, size, material and finish required for application indicated to provide secure attachment, concealed where possible.
- b. Back out or kerf backs of standing and running trim, except those with ends exposed in finished work.
- c. Install finished carpentry level, plumb, true and aligned with adjacent materials. Use concealed shims where necessary for alignment. Scribe and cut to fit adjoining work. Any exposed fasteners shall be countersunk, filled and sanded flush. Standing and running trim shall be installed using full length pieces from maximum lengths to minimize number of joints. Predrill pilot holes to avoid splitting.

DIVISION 7: MOISTURE CONTROL AND INSULATION

1. SELF-ADHERING WEATHER RESISTIVE BARRIER: Behind rainscreen cladding provide "VaproShield WrapShield SA" as manufactured by VaproShield LLC or approved comparable product from other manufacturer. Provide weather resistive barrier as a complete system, including but not limited to: self-adhering weather resistive barrier, self-adhering flashing tape and sealants. Weather resistive barrier shall be water vapor permeable, with a perm rating of 40 to 50 per ASTM E 96, Method B. Thickness shall not be less than 0.026". Install in strict accordance with manufacturer's written instructions.
- a. Weather resistive barrier shall meet ICC-ES AC308 "Acceptance Criteria for Water-Resistive Barriers".
2. AIR BARRIER COATING: Provide one-component, fluid-applied, vapor permeable, synthetic polymer air/water resistive barrier coating membrane over exterior faces of concrete masonry units, gypsum and plywood sheathing and at other locations indicated. Air barrier coating shall meet ICC-ES AC 212, ICC-ES AC 148, ASTM d 1970 for nail sealability and ASTM E 2357 for an air barrier assembly. Provide primer, flashing, transition membrane and other related accessories for a complete system.
- a. Air Barrier Coating Performance Criteria. Air barrier coating system shall meet or exceed the following:
- 1) Air leakage per ASTM E 2357: Not more than 0.0001 cfm/sq ft at 1.57 psf.
- 2) Air permeance per ASTM E 2178: Not more than 0.00098 cfm/sq ft at 1.57 psf.
- 3) Water vapor transmission per ASTM E 96, Method B: 18 perms @ 10 mils wet thickness.
- b. Basis of Design Product: ProSoCo, Inc.; R-Guard (2-component) System II or Sto Corp.; Gold Coat (2-part) or DuPont Tyvek Fluid-Applied WB.
- c. Install air barrier coating and accessories in strict accordance with coating manufacturer's written instructions to achieve performance criteria specified. Apply to a wet mil thickness as recommended by manufacturer; not less than 10 mils over plywood sheathing and not less than 20 mils over plywood and CMU.
3. SIDING: Provide wood plastic composite board cladding with polyethylene capping material for a rear-ventilated open-joint rainscreen façade system. Provide all necessary flashing, fasteners, composite board cladding, trim and accessories for a complete system. Board cladding system shall be "Fiberon" as manufactured by Fiber Composites, LLC. Installation shall be as indicated and in strict accordance with cladding manufacturer's written instructions and recommendations.
- a. Cladding board thickness shall be 0.935" total thickness with 0.015" thick capping material.
- b. Cladding board width shall be 5.4".
- c. Cladding board lengths shall be continuous.
- d. Color as indicated.
- e. Fasteners shall be Type 304 stainless steel of gage and length recommended by cladding manufacturer.
- f. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
- g. Battens and vent screens for rain screen shall be VaproShield; VaproBatten and VaproVent Strip.
4. METAL ROOFING SYSTEMS: Provide all necessary metal closures, flashing, fasteners, sealants, 30# felt underlayment or waterproofing underlayment, metal roofing and accessories for a complete roofing system. All metal for the roofing system shall be 24 gauge Kynar coated galvanized steel. Roofing System shall be of the "Snap-Seam" design with at least 1-1/2" high seams spaced at not more than 16". Roofing system shall be UL listed for a wind uplift rating of 90 per UL 580 test procedure and shall pass ASTM E 331 for water resistance and ASTM E 1592 for structural performance. Roofing systems shall be similar to New Tech Machinery Corp.: "RR3 with SS675 panel profile. Pans of panels shall have two "large V" striations, equally spaced in the pan. Metal color shall match Firestone "Medium Bronze." Installation shall be over 2x wood decking and underlayment to meet specified performance criteria and metal roofing system manufacturer's recommendations.
5. SHEET METAL FLASHING AND TRIM: Provide all materials, accessories, detailing, and installation for each item which conforms to the recommendations shown in the "Architectural Sheet Metal Manual" published by the Sheet Metal and Air Conditioning Contractors National Association, Inc., (SMACNA), latest edition and as follows:
- a. Pre-finished Metal Materials: Fabricate sheet metal flashing and trim from coil coated galvanized steel sheet complying with the following: Zinc coated, commercial quality steel sheet conforming to ASTM A 755, G 90 (ASTM A 755M, Z 275) coating designation, coil coated with 70 percent high-performance fluoropolymer coating. Metal shall not be less than 0.0239" thick (24 ga), unless otherwise indicated. Fabricate to configurations indicated.
- b. Metal Finish: Provide a full strength (70%), factory-applied baked fluoropolymer (Kynar). Color will be selected by the Architect from the manufacturer's full line of standard colors.
- c. Cleats: Provide 20 gauge galvanized steel. Fabricate as recommended by SMACNA manual.
- d. Termite Shields: Provide 24 gauge galvanized steel fabricated to configurations indicated and recommended by SMACNA manual, 6th edition, as shown in Figure 4-24. Fabricate with 3/4" flat-locked joints.
- e. Accessories: Provide all prefinished sheet metal trim, fasteners, sealants, etc., for a complete watertight installation.
6. SEALANTS: Prior to installation of sealants, field-test their adhesion to joint substrates for each type of sealant as recommended by sealant manufacturer.
- a. General: All sealants applied against glazing/window framing systems shall be the responsibility of the Glazing Contractor.
- b. Exterior sealant shall be Tremco "Spectrem 4-TS", GE Silicone Silpruf or Dow Corning Silicone. Sealant in contact with exterior masonry shall be non-staining type.
- c. Interior sealant shall be multi-part non-sag urethane sealant; Type M, Grade NS, Class 25; uses NT (nontraffic), M, G, A, and as applicable to nonporous joint substrates indicated O. Provide Dynatrol II" by Pecora Corporation, Dymeric 240/240FC" by Tremco, Inc. or equivalent.
- d. Interior sealant at toilet accessories shall be a one-part, mildew-resistant silicone sealant; complying with National Sanitation Foundation for rating of C2 for Type S; Grade NS; Class 25; Uses NT (nontraffic), G, A, and, as applicable to nonporous joint substrates indicated, O; formulated with fungicide; intended for sealing interior joints with nonporous substrates and subject to in-service exposure to conditions of high humidity and temperature extremes.
- e. Exterior Sealant in Concrete Paving/Sidewalks/Patio shall be multi-part pourable urethane sealant for Use T (traffic): Type M, Grade NS, Class 25. Uses T (traffic), M, A, and O. Provide NR-200 Urexpam" by Pecora Corp. or equivalent.
- f. Backer rod shall be closed cell polyethylene foam.
- Install sealants and backers as recommended by sealant manufacturer to meet conditions involved.

DIVISION 8: DOORS, WINDOWS, GLASS, HARDWARE

1. HOLLOW METAL DOORS: All hollow metal doors shall be of size as shown on drawings. Interior doors shall be ANSI/SDI-A250.8, grade II, heavy duty, Model 1 with 18 gauge faces and flush top and bottom closures. Exterior doors shall be ANSI/SDI-A250.8 grade III extra heavy duty, Model 2 (seamless) with 16 gauge faces and flush top and bottom closures. All doors and frames shall be galvanized prior to shop priming.
- a. Door shall be internally factory reinforced with 12-gauge steel at all door closer locations.
- b. Doors shall be mortised and reinforced in the factory for all hardware and shall be in accordance with templates furnished by the hardware supplier.
2. HOLLOW METAL FRAMES:
- a. Hollow Metal Frames: Hollow metal frames shall be of type and size as shown in the drawings. All frames shall have mitered joints, welded and ground smooth. Frames shall be furnished with 3-rubber mutes on each lock jamb and shall have 3-anchors per jamb up to 7'-0" high and 4 anchors per jamb up to 8'-0" high in masonry walls. All frames are to be galvanized and shall have on coat of baked on prime paint.
- b. The following is a list of gauges to be used in frame construction:
- | | | |
|----|------------------------------------|----------------------|
| A. | exterior frames | 14 gauge, galvanized |
| B. | interior frames (maximum 48" wide) | 16 gauge |
| C. | masonry anchors | 16 gauge |
| D. | stud anchors | 18 gauge |
| E. | hinge reinforcement | 7 gauge x 10" long |
| F. | all other hardware reinforcement | 12 gauge |
| G. | floor knees | 14 gauge |
- c. Place frames in compliance with SDI-105 "Recommended Erection Instructions for Steel Frames". Fit doors accurately in frames within tolerances specified in ANSI/SDI-A250.8. Touch-up paint marred surfaces.
3. HARDWARE: Contractor shall provide all necessary hardware for a complete operation. Hardware to include but not limited to:
- a. Butts.
- b. Lock/latch sets-lever handles and exit devices as required by code.
- c. Stops - wall and/or floor.
- d. Closers at all labeled doors and exterior doors.
- e. Weatherstripping as required, including drip heads on exterior doors.
- f. Silencers and gaskets. Provide listed smoke gasketing at all labeled doors.
- g. Note: All hardware to be medium grade-commercial in brushed stainless steel finish.
4. HARDWARE INSTALLATION
- a. All keying shall be accomplished at hardware manufacturer's plant where adequate records are maintained in order to avoid duplication of changes. Keying system shall match Owner's existing system. Key locks as directed by Owner. Provide 2 change keys per lock.
- b. Carefully inspect doors, frames, and conditions under which hardware will be installed. Do not proceed until unsatisfactory conditions are corrected.
- c. Mount Hardware units at heights indicated in respective DHI Standards, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect. Install each hardware item in compliance with the manufacturer's instructions and written recommendations.
- d. Cut and fit thresholds to door frame profiles. Prepare thresholds for the attachment of strikes and clearance for spindles as required. Set thresholds in a continuously laid bed of polyisobutylene mastic sealant to completely fill voids and exclude moisture from every source.
5. GLASS:
- a. Glass and Glazing Requirements - General:
1. Primary glass of each (ASTM C 1036), Type 1, Class 1, Quality q³.
2. Heat-treated glass of each (ASTM C 1048) condition indicated.
3. Safety Glass: Products complying with ANSI Z97.1 and testing requirements of 16 CFR Part 1201 for Category II materials.
- 1) Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council (SGCC) or other certification agency acceptable to authorities having jurisdiction.
- b. Insulating Glass Certification Program: Provide insulating glass units permanently marked either on spacers or at least one component lite of units with appropriate certification label of inspecting and testing agency.
- c. Monolithic Fully Tempered Float Glass: Provide 1/4" thick clear glass.
- d. Patterned Glass: As indicated.
- e. Clear low-E Insulated Fully Tempered Glass (088000.A20): Provide 1 inch thick unit constructed of 1/4" clear fully tempered exterior lite conforming to ASTM C 1048, Condition A, Kind FT, Type 1, Class 1, Quality q³ , ½" air space and 1/4" clear fully tempered interior lite conforming to ASTM C 1048, Condition A, Kind FT, Type 1, Class 1 and Quality q³. Winter U-value shall not exceed 0.31 and SHGC shall not exceed 0.40.
- f. Provide safety glass where required by code, as specified and where indicated.
- g. Door and window glass to be fully tempered safety glass. Glass panels on each side of doors to be fully tempered safety glass.

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CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROELAND PARK, KANSAS

SPECIFICATIONS

REVISIONS

DESIGNER / DRAFTER

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A31



CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROELAND PARK, KANSAS

RENDERINGS SHELTER

REVISIONS

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A40



PAVILION from the SOUTH



PAVILION from the SOUTH-WEST

PAVILION from the SOUTH-EAST



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CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROLAND PARK, KANSAS

RENDERINGS
SHELTER

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PAVILION from the NORTH-EAST

PAVILION from the NORTH-WEST



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1-15-2020

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BOOK AND PAGE

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PAVILION from the NORTH-EAST
(NO ALTERNATES)

(NO ALTERNATES)
PAVILION from the SOUTH-WEST



CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROELAND PARK, KANSAS

RENDERINGS
SHELTER
(NO ALTS.)

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A44

	ARROWS INDICATE CONDUIT AND WIRE HOME RUN(S) TO PANEL WITH 2-#12 AWG CONDUCTORS UNLESS NOTED OR OTHERWISE REQUIRED.
	CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING.
	CONDUIT RUN UNDERGROUND OR CONCEALED IN FLOOR SLAB.
	TELEPHONE CONDUIT
	LOW VOLTAGE CONDUIT AND WIRING

	BATTERY OPERATED EMERGENCY LIGHT (WALL MOUNTED)
	BATTERY OPERATED EMERGENCY LIGHT (CEILING MOUNTED)
	SURFACE/RECESSED LIGHT FIXTURE
	FLUORESCENT LIGHT FIXTURE
	FLUORESCENT STRIP FIXTURE
	SHADING DENOTES EMERGENCY FIXTURE
	POLE MOUNTED LIGHT FIXTURE
	EXIT LIGHT - DOUBLE FACE - ARROWS AS SHOWN
	EXIT LIGHT - SINGLE FACE - ARROWS AS SHOWN
	LIGHTING SWITCHES—SINGLE POLE, 3-WAY, 4-WAY, KEY, LOW VOLTAGE, PILOT LIGHT
	DIMMER WITH SINGLE POLE SWITCH
	DIMMER WITH THREE WAY SWITCH (WATTAGE NOTED)
	WALL MOUNTED MOTION SENSOR
	CEILING MOUNTED MOTION SENSOR (LETTER DENOTES TYPE)
	SWITCH AND DUPLEX RECEPTACLE
	DENOTES A WALL MOUNTED FIXTURE

	DUPLEX RECEPTACLE.
	LINE THRU DEVICE INDICATES ABOVE COUNTER
	DUPLEX RECEPTACLE WITH ISOLATED GROUND (SINGLE AND FOURPLEX SIMILAR)
	DUPLEX RECEPTACLE - TOP HALF SWITCHED - BOTTOM HALF TO HAVE POWER AT ALL TIMES
	DUPLEX RECEPTACLE ON EMERGENCY POWER (SINGLE AND FOURPLEX SIMILAR)
	FOURPLEX RECEPTACLE
	SINGLE RECEPTACLE
	CEILING MOUNTED RECEPTACLE
	MULTI-SERVICE FLOOR BOX
	DIVIDED POWER POLE
	FLOOR BOX W/DUPLEX RECEPTACLE
	SPECIAL RECEPTACLE W/NEMA CONFIGURATION AS NOTED
	CLOCK RECEPTACLE
	MAIN-OUTLET ASSEMBLY

	TELEPHONE OUTLET
	LINE THRU DEVICE INDICATES ABOVE COUNTER
	DATA OUTLET
	TELEPHONE/DATA OUTLET
	FLOOR BOX WITH COMMUNICATIONS OUTLET
	TELEVISION ANTENNA OUTLET
	TELEPHONE CABINET OR PLYWOOD BOARD

	CLOSED CIRCUIT TV CAMERA
CR	CARD READER
DL	DOOR LOCK
M	SECURITY MONITOR
WT	WATCH TOUR
EDL	ELECTRIC DOOR LOCK
S	MOTION SENSOR – SECURITY
S	MOTION SENSOR (WALL MOUNTED) – SECURITY

	MICROPHONE OUTLET
	SPEAKER. ('H' DENOTES HORN TYPE)
	SPEAKER VOLUME CONTROL
	SPEAKER CONDUIT AND WIRING
	PUBLIC ADDRESS AMPLIFIER AND CABINET
	BUZZER
	BELL
	INTERCOM OUTLET
	INTERCOM OUTLET - MASTER
	CLOCK SYSTEM RECEPTACLE WITH SINGLE FACE ('D' DENOTES DOUBLE FACE)

	THERMOSTAT
	DISCONNECT SWITCH. 30A-3P, NON-FUSED EXCEPT AS NOTED
	MANUAL MOTOR STARTER
	MAGNETIC MOTOR STARTER
	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH
	MOTOR
	PANELBOARD (SEE ONE-LINE)
	DISTRIBUTION PANELBOARD
	CONTACTOR
	AUTOMATIC TRANSFER SWITCH
	PHOTOCELL
	JUNCTION BOX
	PUSHBUTTON
	TRANSFORMER

MANUAL PULL STATION

PHOTOELECTRIC DETECTOR ('D' DENOTES IN DUCT) ('B' DENOTES BEAM-TYPE) ('R' DENOTES IN RETURN AIR PLENUM)

IONIZATION DETECTOR ('D' DENOTES IN DUCT) ('P' DENOTES PLENUM-TYPE)

INFRARED DETECTOR ('D' DENOTES IN DUCT)

THERMODETECTOR ('D' DENOTES IN DUCT) FIXED TEMPERATURE AS NOTED

DOOR HOLDER

CHIME

BELL

FIRE ALARM STROBE LIGHT

FIRE ALARM SPEAKER - ARROWS DENOTE PROJECTORS IF ANY. ('L' DENOTES COMBINATION SPEAKER AND VISUAL FIRE LIGHT)

FIRE HORN. ('L' DENOTES COMBINATION HORN AND VISUAL FIRE LIGHT)

REMOTE ALARM LAMP

POST INDICATOR SWITCH

FLOW SWITCH

GATE SWITCH

FIREMAN'S PHONE JACK

	FIRE PROTECTION PIPING
	FIRE HOSE CABINET
	FIRE DEPARTMENT VALVE
	UPRIGHT SPRINKLER HEAD
	PENDENT SPRINKLER
	RECESSED SPRINKLER
	RECESSED SPRINKLER WITH CLOSURE PLATE
	SIDEWALL SPRINKLER.
	DOUBLE CHECK DETECTOR BACKFLOW PREVENTER
	FIRE PROTECTION SIAMESE CONNECTION
	FIRE PROTECTION SIDEWALK SIAMESE CONNECTION
	POST INDICATOR VALVE

— VAC —	MEDICAL VACUUM
— OX —	OXYGEN
— NO —	NITROUS OXIDE
— MA —	MEDICAL COMPRESSED AIR
— N —	NITROGEN
H-X	OXYGEN OUTLET
H-V	VACUUM OUTLET
H-A	MEDICAL AIR OUTLET
H-NO	NITROUS OXIDE OUTLET
H-N	NITROGEN OUTLET

— CWS —	CHILLED WATER SUPPLY
— CWR —	CHILLED WATER RETURN
— CWS —	CHILLED/HOT WATER SUPPLY
— CHWR —	CHILLED/HOT WATER RETURN
— HWS —	HEATING HOT WATER SUPPLY
— HWR —	HEATING HOT WATER RETURN
— CTS —	COOLING TOWER SUPPLY
— CTR —	COOLING TOWER RETURN
— STM —	LOW PRESSURE STEAM
— RTN —	LOW PRESSURE CONDENSATE RETURN
— STM—50—	HIGH PRESSURE STEAM - NO'S GIVE GAUGE PRESSURE IN P.S.I.
— RTN—50—	HIGH PRESSURE RETURN - NO'S GIVE GAUGE PRESSURE IN P.S.I.
— RD —	REFRIGERANT DISCHARGE
— RL —	REFRIGERANT LIQUID
— RS —	REFRIGERANT SUCTION
— FOS —	FUEL OIL SUPPLY
— FOR —	FUEL OIL RETURN
— A —	COMPRESSED AIR
— D —	DRAIN (CONDENSATE)
H①S	THERMOSTAT - ('S' DENOTES SENSOR)
H①HS	HUMIDISTAT - ('S' DENOTES SENSOR)
H①H	THERMOSTAT/HUMIDITY SENSOR
CO2	CARBON DIOXIDE SENSOR
THC	THERMOSTAT/HUMIDITY SENSOR/CO2 SENSOR
~ ~ ~ ~ ~	HUMIDIFIER
→	SUPPLY AIR FLOW INDICATOR
←	RETURN AND EXHAUST AIR FLOW INDICATOR
☒	SUPPLY DIFFUSER
— — — — —	SUPPLY STRIP DIFFUSER
□	RETURN GRILLE OR EXHAUST REGISTER

— N —	NURSE CALL CONDUIT AND WIRING
— M —	MONITOR CONDUIT AND WIRING
NMS	NURSE CALL MASTER STATION
N	NURSE CALL BEDSIDE STATION - SINGLE PATIENT
N ₂	NURSE CALL BEDSIDE STATION - DOUBLE PATIENT
EP	EMERGENCY PUSHBUTTON STATION (‘P’ DENOTES PULL CORD)
BS	DUTY STATION
SS	STAFF STATION
B	DOME LIGHT - CEILING MOUNTED (‘B’ DENOTES WITH BUZZER)
B	DOME LIGHT - WALL MOUNTED (‘B’ DENOTES WITH BUZZER)
D	ZONE DOME LIGHT
B	CODE BLUE PUSHBUTTON

— — — — —	DOMESTIC COLD WATER
— — — — —	DOMESTIC HOT WATER
— — — — —	RECIRCULATING DOMESTIC HOT WATER
—TW—	DOMESTIC TEMPERED WATER
— + —	SOFT DOMESTIC COLD WATER
— + + —	SOFT DOMESTIC HOT WATER
— + + + —	SOFT RECIRCULATING HOT WATER
—SAN—	SOIL OR WASTE ABOVE GRADE OR FLOOR
—SAN— — —	SOIL OR WASTE BELOW GRADE OR FLOOR
—ST—	STORM ABOVE GRADE OR FLOOR
— ST —	STORM BELOW GRADE OR FLOOR
—ST/O—	STORM OVERFLOW ABOVE GRADE OR FLOOR
— —ST/O—	STORM OVERFLOW BELOW GRADE OR FLOOR
— — V — —	PLUMBING VENT
— G —	GAS (NATURAL)
— LP —	LIQUIFIED PETROLEUM
— PD —	PUMP DISCHARGE
— + —	HOSE BIBB
— + — WH	WALL HYDRANT
— + — WCO	WALL CLEAN OUT
— CO —	CLEAN OUT
⊙ FCO	FLOOR CLEAN OUT
⊙ □	FLOOR DRAIN, AREA DRAIN, FLOOR SINK
RD ⊙ ORD	ROOF DRAIN, OVERFLOW ROOF DRAIN
⏏	SHOWER HEAD.
— Z — Z — Z —	REDUCED PRESSURE BACKFLOW PREVENTER
⊕ P ⊕	PLUMBING VENT RISER CALL-OUT NUMBER

	MECHANICAL NOTE REFERENCE
	ELECTRICAL NOTE REFERENCE
	DEMOLITION NOTE REFERENCE
	REVISION NOTE REFERENCE
	CONNECT TO EXISTING WORK
	DETAIL REFERENCE - NO./SHEET NO.
	SECTION CUT - SECTION/SHEET NO.

	ELBOW DOWN
	ELBOW UP
	TEE UP
	TEE DOWN
	CAP
	UNION
	REDUCER (OR INCREASER)
	PIPE FLEX
	STRAINER
	RISE IN PIPING
	DROP IN PIPING
	GUIDE
	ANCHOR
	PRESSURE GAUGE WITH GAUGE COCK
	TEMPERATURE GAUGE
	FLOW INDICATOR
	THERMOMETER.
	SITE GLASS
	EXPANSION JOINT
	FILTER-DRIER
	D RIP ASSEMBLY
	BASKET STRAINER
	SHUTOFF VALVE
	SHUTOFF VALVE IN RISER
	BALANCING VALVE
	CALIBRATED BALANCING VALVE
	RELIEF VALVE
	TEST PLUG
	TRIPLE DUTY VALVE
	CHECK VALVE.
	AUTOMATIC CONTROL VALVE (2-WAY)
	AUTOMATIC CONTROL VALVE (3-WAY)
	AUTO FLOW CONTROL VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE

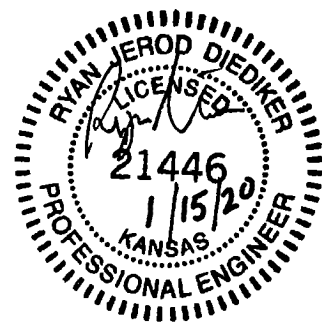
A	AMPS, AIR (COMPRESSED)	DX	DIRECT EXPANSION	HGT	HEATING	MUAF	MAKE UP AIR FAN
A/C	AIR CONDITIONING	EA	EXHAUST AIR	HTR	HEATER	MV	MIXING VALVE
AD	AREA DRAIN, ACCESS DOOR	EAT	ENTERING AIR TEMPERATURE	HVU	HEATING AND VENTILATING UNIT	N	NITROGEN
AFC	ABOVE FINISH CEILING	EC	ELECTRICAL CONTRACTOR, EMPTY CONDUIT	HW	DOMESTIC HOT WATER	N/A	NOT APPLICABLE
AFG	ABOVE FINISH GRADE	EF	EXHAUST FAN	HWR	HOT WATER RETURN	N/C	NORMALLY CLOSED
AHU	AIR HANDLING UNIT	EM	INDICATES EMERGENCY CIRCUIT	HWS	HOT WATER SUPPLY	N/O	NORMALLY OPEN
AFF	ABOVE FINISHED FLOOR	EPO	EMERGENCY POWER OFF	IE	INVERT ELEVATION	NF	INDICATES NON-FUSED DEVICE
BD	BACKDRAFT DAMPER, BLOWDOWN	ER	EXHAUST REGISTER	IG	ISOLATED GROUND	NIC	NOT IN CONTRACT
BFP	BACKFLOW PREVENTER	ETR	EXISTING TO REMAIN	KCMIL	1000 CIRCULAR MILS	NL	NIGHT LIGHT
BKR	BREAKER	EWB	ENTERING WET BULB	KV	KILOVOLT	NO	NITROUS OXIDE
BOD	BOTTOM OF DUCT	EWG	ELECTRIC WATER COOLER	KVA	KILOVOLT AMPS	OA	OUTSIDE AIR
BOP	BOTTOM OF PIPE	EWH	ELECTRIC WATER HEATER, ELEC. WALL HTR.	KW	KILOWATT	ORD	OVERFLOW ROOF DRAIN
BOS	BOTTOM OF STRUCTURE	EXH	EXHAUST	KWH	KILOWATT HOUR	OX	OXYGEN
BTU	BRITISH THERMAL UNIT	F/S	COMBINATION FIRE AND SMOKE DAMPER	LAT	LEAVING AIR TEMPERATURE	PD	PUMP DISCHARGE
C	CONDUIT	FACP	FIRE ALARM CONTROL PANEL	LDB	LEAVING DRY BULB	PH	PHASE
CATV	CABLE TELEVISION SYSTEM	FAACP	FIRE ALARM ANNUNCIATOR CONTROL PANEL	LP	LIQUIFIED PETROLEUM	PIV	POST INDICATOR VALVE
CB	CIRCUIT BREAKER	FCO	FLOOR CLEANOUT	LRA	LOCKED ROTOR AMPS	PNL	PANEL
CCTV	CLOSED CIRCUIT TELEVISION	FCU	FAN COIL UNIT	LV	LOW VOLTAGE	PRV	PRESSURE REDUCING VALVE
CFM	CUBIC FEET PER MINUTE	FD	FIRE DAMPER, FLOOR DRAIN	LWB	LEAVING WET BULB	QTY	QUANTITY
CHWR	CHILLED/HOT WATER RETURN	FLA	FULL LOAD AMPS	LWT	LEAVING WATER TEMPERATURE	RA	RETURN AIR
CHWS	CHILLED/HOT WATER SUPPLY	FLR	FLOOR	MA	MEDICAL AIR	RD	ROOF DRAIN
CKT	CIRCUIT	FOR	FUEL OIL RETURN	MAU	MAKE UP AIR UNIT	REV	REVISION
CO	CLEANOUT, CARBON MONOXIDE	FOS	FUEL OIL SUPPLY	MBH	1000 BTU PER HOUR	RG	RETURN GRILLE
C02	CARBON DIOXIDE	FP	FIRE PROTECTION	MC	MECHANICAL CONTRACTOR	RH	RELATIVE HUMIDITY
CTR	COOLING TOWER RETURN	FPB	FAN POWERED TERMINAL UNIT	MCA	MINIMUM CIRCUIT AMPACITY	RHW	DOMESTIC RECIRCULATION HOT WATER
CTS	COOLING TOWER SUPPLY	FPVAV	FAN POWERED TERMINAL UNIT	MCC	MOTOR CONTROL CENTER	RL	REFRIGERANT LIQUID
CU	COPPER, CONDENSING UNIT	FS	FLOOR SINK	MD	MOTORIZED DAMPER	RLA	RUNNING LOAD AMPS
CUH	CABINET UNIT HEATER	G	GAS (NATURAL), GROUND	MDP	MAIN DISTRIBUTION PANEL	RPM	REVOLUTIONS PER MINUTE
CW	DOMESTIC COLD WATER	GCO	GRADE CLEANOUT	MFR	MANUFACTURER	RS	REFRIGERANT SUCTION
CWR	CHILLED WATER RETURN	GFI/GFCI	GROUND FAULT CIRCUIT INTERRUPTER	MH	MANHOLE	RTN	LOW PRESSURE CONDENSATE RETURN
CWS	CHILLED WATER SUPPLY	GND	GROUND	MLO	MAIN LUGS ONLY	RTU	ROOF TOP UNIT
DDC	DIRECT DIGITAL CONTROL	GPM	GALLONS PER MINUTE	MTD	MOUNTED	SA	SUPPLY AIR
DD	DECK DRAIN	HB	HOSE BIBB	MU	MAKE UP	SAN	SANITARY
DN	DOWN	HOA	HAND OFF AUTOMATIC				

SD	SUPPLY DIFFUSER, SMOKE DAMPER	
SDCW	SOFT DOMESTIC COLD WATER	
SDHW	SOFT DOMESTIC HOT WATER	
SDRHW	SOFT DOMESTIC RECIRCULATION HOT WATER	
SF	SQUARE FEET	
SP	STATIC PRESSURE	
SR	SUPPLY REGISTER	
ST	STORM	
ST/O	STORM OVERFLOW	
STM	LOW PRESSURE STEAM	
SWBD	SWITCHBOARD	
TSTAT	THERMOSTAT	
TU	TERMINAL UNIT	
TW	TEMPERED WATER	
UH	UNIT HEATER	
UL	UNDERWRITERS LABORATORIES INC.	
UNO	UNLESS NOTED OTHERWISE	
UPS	UNINTERRUPTIBLE POWER SUPPLY	
V	VENT PIPE	HIGH TAKEOFF DAMP
VAC	MEDICAL VACUUM	
VAV	VARIABLE AIR VOLUME	
VD	VOLUME DAMPER	48 = LENG
VTR	VENT THROUGH ROOF	08 = INLET
W	WIRE, WATT(S)	SD-2 = TY
W/	WITH	
W/O	WITHOUT	
WB	WET BULB	
WCO	WALL CLEANOUT	
WH	WALL HYDRANT	
WP	WEATHERPROOF	
XFMR	TRANSFORMER	
XP	EXPLOSION PROOF	

"SOME SYMBOLS AND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED. REFER TO FLOOR PLANS FOR ALL SYMBOLS AND ABBREVIATIONS."

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CONSTRUCTION DOCUMENTS

**SYMBOLS AND
ABBREVIATIONS
- MECH./ELEC.**

REVISIONS
DESIGNER / DRAFTER
DATE
01-15-2020
PROJECT NUMBER
BOOK AND PAGE
MISSOURI AUTHORIZATION NUMBER

ME1

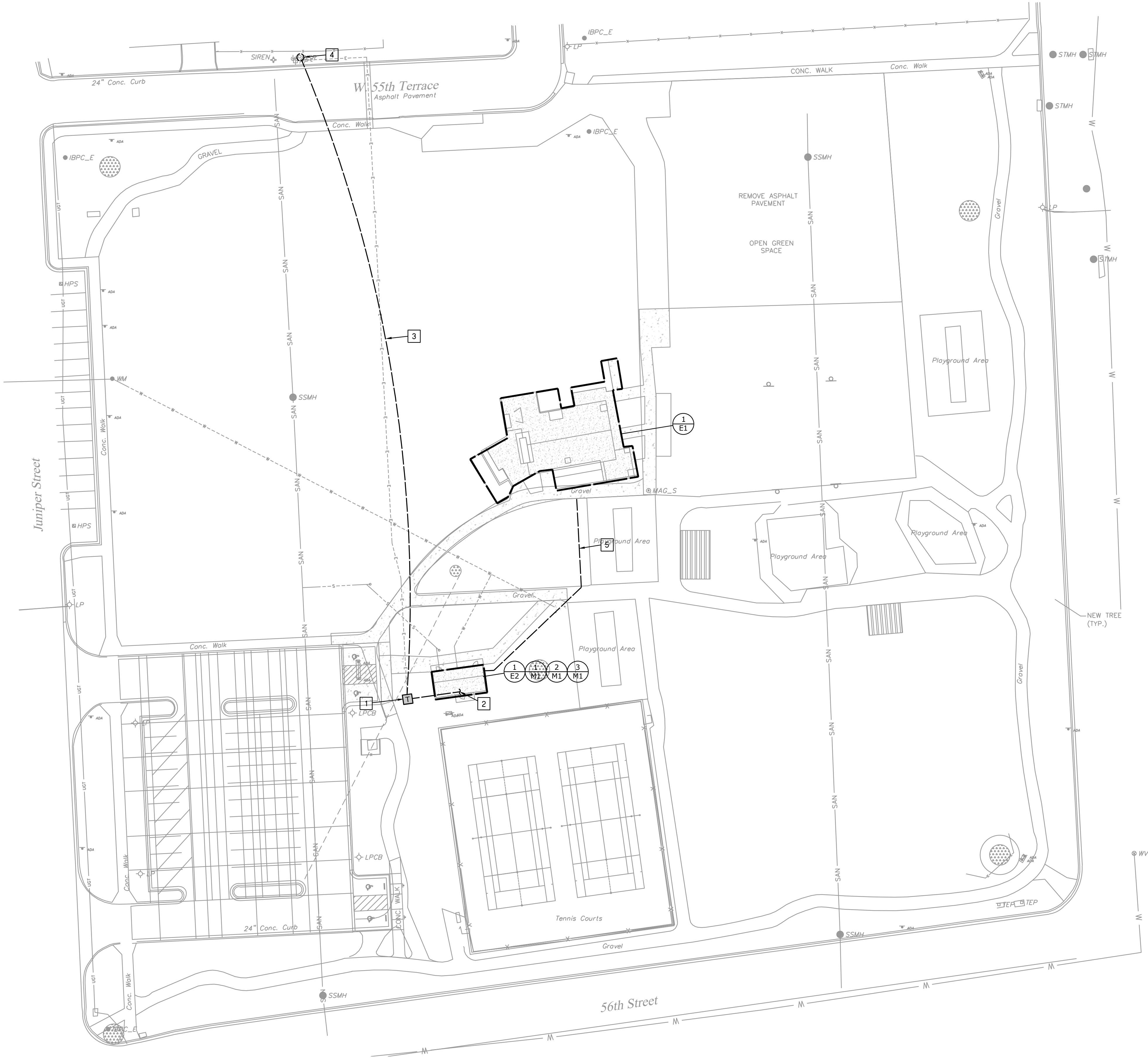
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 PLOTTED BY\DATE\TIME: Charles Booty Monday, January 13, 2020 2:56:02 PM

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PLOTTER: K:\19\19192\1919200 Drawings\01-1919200_ME2.dwg

15 0 15 30 45 75
feet
Scale: 1" = 30'-0"

Revised: 1919200
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Monday, January 13, 2020 2:56:21 PM
Charles Booty

PROJECT NAME: X:\19\19192\1919200 Drawings\01-1919200_ME2.dwg
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SITE PLAN - MECHANICAL AND ELECTRICAL
SCALE: 1"=30'-0"

- PLAN NOTES:
- 1 APPROXIMATE LOCATION OF PAD MOUNTED UTILITY TRANSFORMER. INSTALL CONCRETE PAD PER UTILITY (KCPL) SPECIFICATIONS. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
 - 2 SECONDARY ELECTRICAL UTILITY FEEDER. REFER TO ELECTRICAL ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
 - 3 PRIMARY ELECTRICAL UTILITY FEEDER. PROVIDE (1) 4" CONDUIT WITH PULL STRING FROM UTILITY POLE, COORDINATE ROUTING WITH CIVIL CONTRACTOR AND UTILITY.
 - 4 APPROXIMATE LOCATION OF EXISTING ELECTRICAL UTILITY POLE. PROVIDE (1) 4" SWEEP AND STUD UP ONTO POLE AND CAP. COORDINATE WITH UTILITY.
 - 5 BRANCH CIRCUIT FEEDERS FROM PAVILION TO RESTROOM TO BE RUN UNDER GROUND. COORDINATE ROUTING AND INSTALLATION REQUIREMENTS WITH CONTRACTOR. BORE BELOW GRADE AS NEEDED FOR ROUTING TO BE COMPLETED BY ELECTRICAL CONTRACTOR.

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CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROELAND PARK, KANSAS

**SITE PLAN -
MECH./ELEC.**

REVISIONS
DESIGNER / DRAFTER
DATE
01-15-2020
PROJECT NUMBER
BOOK AND PAGE
MISSOURI AUTHORIZATION NUMBER

ME2

PROJECT NAME: X:\19\19192\1919200 Drawings\01-1919200_ME3.dwg
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DATE: Friday, December 20, 2019 2:56:34 PM
PLOTTER: Jcompbell
PLOTTER DRIVER: Charles Booby

UNIT HEATER SCHEDULE - ELECTRIC			
DESIGNATION	ECH-1	ECH-2	ECH-3
HEATER TYPE	FAN-FORCED	FAN-FORCED	FAN-FORCED
LOCATION	FAMILY	STORAGE	FAMILY
MOUNTING	WALL	WALL	WALL
MANUFACTURER	RAYWALL	RAYWALL	RAYWALL
MODEL	AFA115D	AFA115D	AFA115D
WEIGHT (LBS)			
UNIT DATA	AIRFLOW (CFM)	175	175
	FAN DRIVE	DIRECT	DIRECT
	HEATER KW	1.5	1.5
	VOLTAGE/PHASE	120/1	120/1
ELEC./CTRL. DATA	AMPS	12.5	12.5
	PANEL & CIRCUIT	RP-12	RP-14
	WIRE & CONDUIT	(2) #12, #12 G., 1/2" C.	(2) #12, #12 G., 1/2" C.
	OVERCURRENT DEVICE	20A/1P CB	20A/1P CB
	DISCONNECT	INTEGRAL	INTEGRAL
	CONTROL	NOTE 1	NOTE 1
REFERENCE DRAWING/DETAIL	M1	M1	M1
REMARKS	-	-	-

NOTES:
1. PROVIDE WITH UNIT-MOUNTED DISCONNECT, TRANSFORMER / RELAY AND REMOTE WALL THERMOSTAT.

PLUMBING FIXTURE SCHEDULE					
MARK	MANUFACTURER / MODEL	DESCRIPTION	MANUFACTURER/ MODEL	FITTINGS	
				DESCRIPTION	NOTES
WC-1	AMERICAN STANDARD AF WALL 3353.101	WATER CLOSET: WHITE VITREOUS CHINA, ELONGATED BOWL, WALL MOUNTED FLUSH VALVE BOWL WITH BACK SPUD AND FLAT BOLT COVERS, 1.28 GALLON SIPHON JET FLUSHING ACTION.	SLOAN OPTIMA 152-1.28 ES-S	SENSOR ACTIVATED, CONCEALD WATER CLOSET SINGLE FLUSH VALVE, 1.28 GPF, CHROME PLATED, FLUSH OVERRIDE BUTTON, HARD-WIRED, TRANSFORMER AS REQUIRED, VACUUM BREAKER FLUSH CONNECTION AND SPUD COUPLING FOR 1-1/2" BACK SPUD	1,3,4
	WADE 330-HD	PROVIDE CARRIER AS REQUIRED TO SUIT APPLICATION FOR MOUNTING IN CHASE		PROVIDE WALL AND SPUD FLANGES.	
	CHURCH 9500C	SEAT: SOLID PLASTIC, OPEN FRONT, WHITE, ELONGATED BOWL, INTEGRATED BUMPERS, EXTERNAL CHECK HINGES WITH STAINLESS STEEL POSTS.			
L-1	AMERICAN STANDARD COMRADE	WALL-HUNG LAVATORY: WHITE VITREOUS CHINA, REAR OVERFLOW, 20"x18-1/4".	SLOAN SOLIS EAF-275	HANDSFREE SENSOR OPERATED FAUCET, .5 GPM VANDAL RESISTANT SPRAY, POLISHED CHROME, SINGLE SUPPLY, SOLAR-POWERED, BATTERY BACKUP	1,2,3,4,5
EW-C-1	ELKAY LK4405	MECHANICALLY ACTVATED, OUTDOOR, WALL MOUNTED, NON-FILTERED, NON-REFRIGERATED, FOUNTAIN. VANDAL RESISTANT, FRONT MOUNTED BUBBLER. COORDINATE FINISHWITH ARCHITECT.			
HB-1	JAY R. SMITH 5572	SILLCOCK, INTEGREL VACUUM BREAKER, STAINLESS STEEL VANDAL RESISTANT BOX, 3/4" HOSE THREAD SPOUT, "T" HANDLE KEY,			

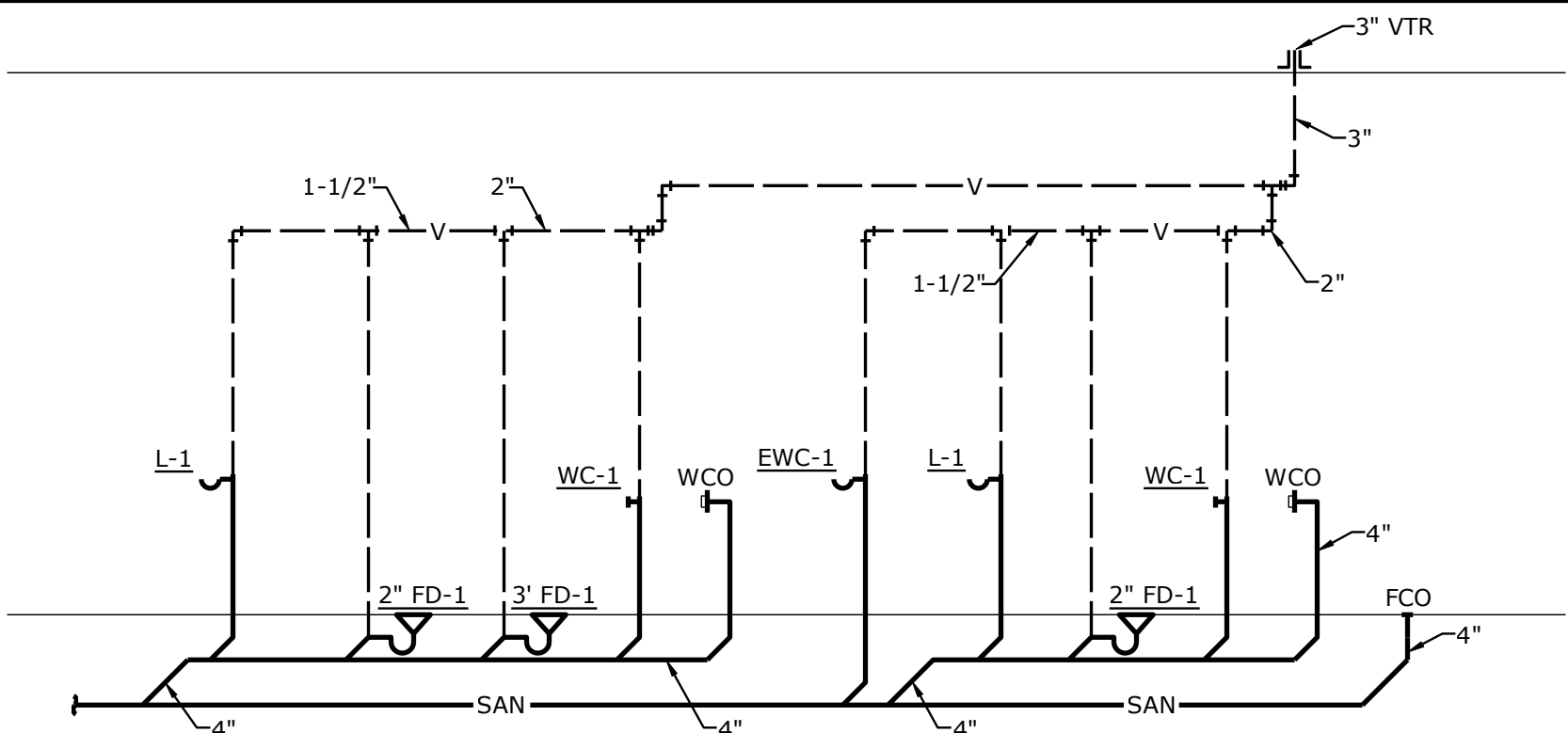
NOTES:
1. PROVIDE WITH ALL MOUNTING HARDWARE AS REQUIRED.
2. PROVIDE WITH CHROME PLATED DRAIN, GRID STAINER, TAILPIECE, AND TRAP.
3. PROVIDE STAINLESS STEEL BRAIDED HOSE WITH KEYED STOP
4. PROVIDE CAULK AROUND FIXTURE CONNECTION TO FLOOR/WALL. COLOR BY ARCHITECT.
5. PROVIDE TRUEBRO LAV GUARD 2 INSULATION KIT. COLOR BY ARCHITECT.

DOMESTIC WATER HEATER - INSTANTANEOUS		
DESIGNATION	IWH-1	IWH-2
UNIT DATA	MANUFACTURER	EEMAX
	MODEL	EX3012
	INPUT (KW)	3.0
	LOCATION	FAMILY
	WATER FLOW (GPM)	0.5
	TEMPERATURE RISE (°F)	41
	OUTLET TEMP. (°F)	90
	VOLTS/PHASE	120/1
ELEC./CTRL. DATA	PANEL & CIRCUIT	RP-13
	WIRE & CONDUIT	(2) #8, #10 G, 3/4" C.
	OVERCURRENT DEVICE	40A/1P CB
	DISCONNECT	NOTE 1
REFERENCE DRAWING/DETAIL	M1	M1
REMARKS	—	—

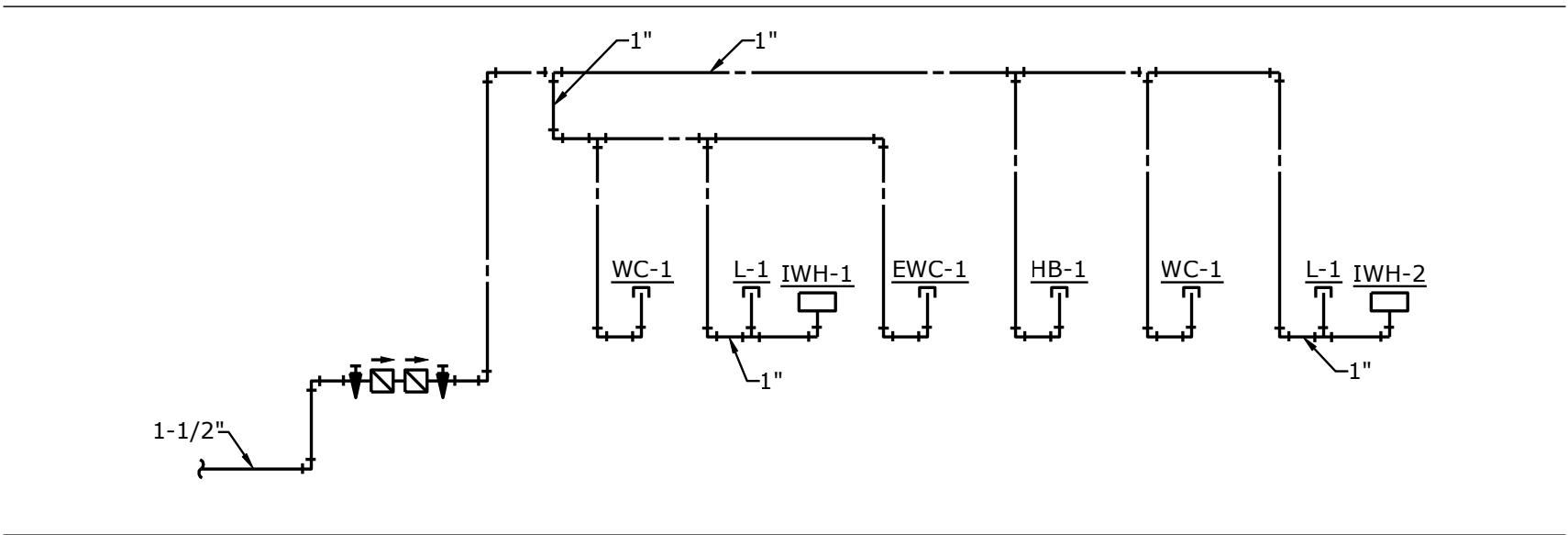
NOTE 1: PROVIDE A 40A RATED TOGGLE SWITCH FOR DISCONNECT AS REQUIRED

EXHAUST FAN SCHEDULE		
DESIGNATION	EF-1	EF-2
SERVICE	EXHAUST	EXHAUST
LOCATION	FAMILY	FAMILY
UNIT DATA	MANUFACTURER	COOK
	MODEL NO.	CBF
	FAN TYPE	CENTRIFIGAL
	CFM	75
	STATIC PRESSURE	0.15
	FAN RPM	1763
	BRAKE HORSEPOWER	40.5W
	MOTOR HORSEPOWER	N/A
	VOLTAGE/PHASE	120/1
	DRIVE	DIRECT
	WEIGHT (LBS)	21
	SONES	3.3
	PANEL & CIRCUIT	LIGHTING CIRCUIT
	WIRE & CONDUIT	(2) #12, #12 G., 1/2" C.
ELEC./CONTROL DATA	OVERCURRENT DEVICE	NOTE 1
	DISCONNECT	TOGGLE SWITCH
	CONTROL	NOTE 1
	DAMPER TYPE	NOTE 2
REFERENCE DRAWING/DETAIL	M1	M1
REMARKS	—	—

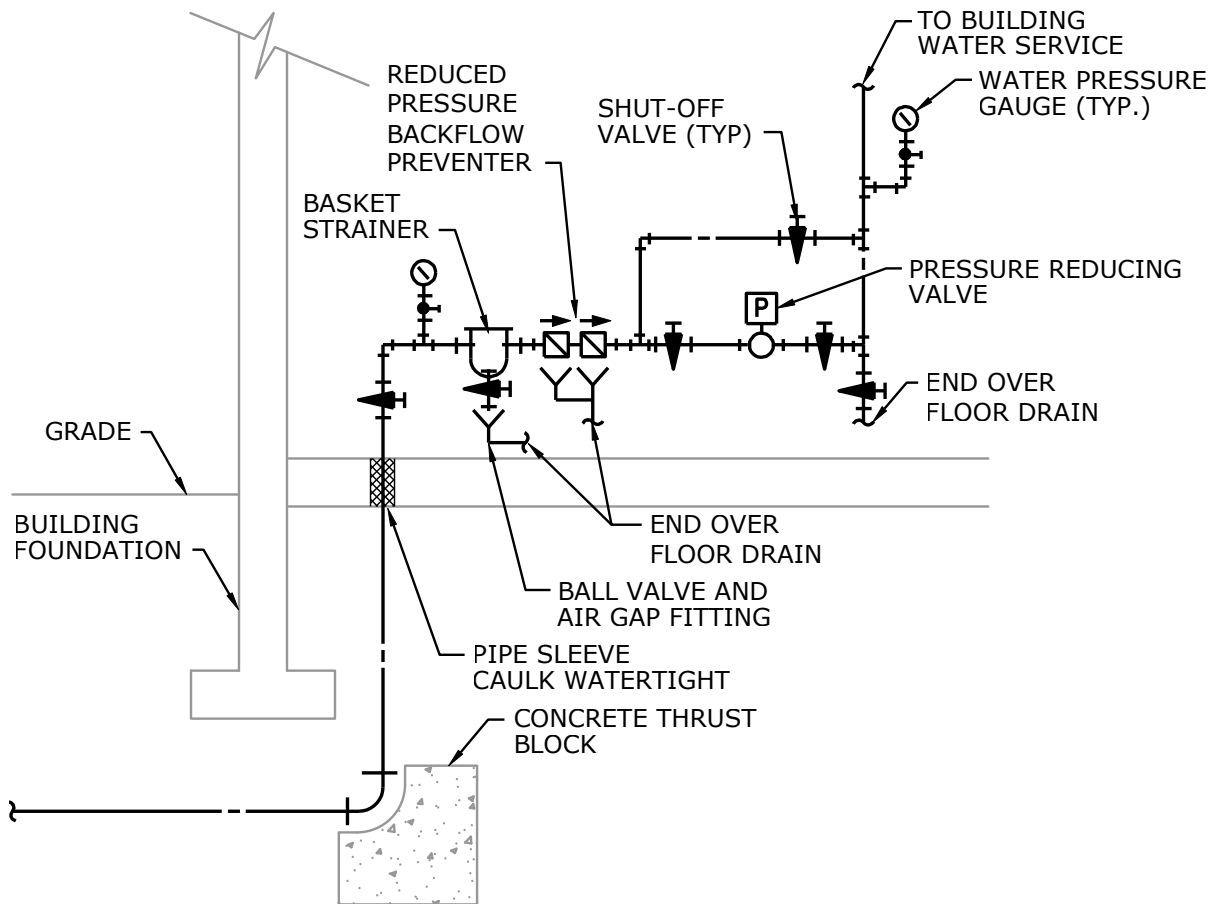
NOTES:
1. INSTALL A LIGHTING POWER PACK FOR FAN THAT OPERATES WITH THE RESTROOM LIGHTS.
2. FURNISH AND INSTALL WITH INTEGRAL BACKDRAFT DAMPER.



SANITARY RISER
NOT TO SCALE



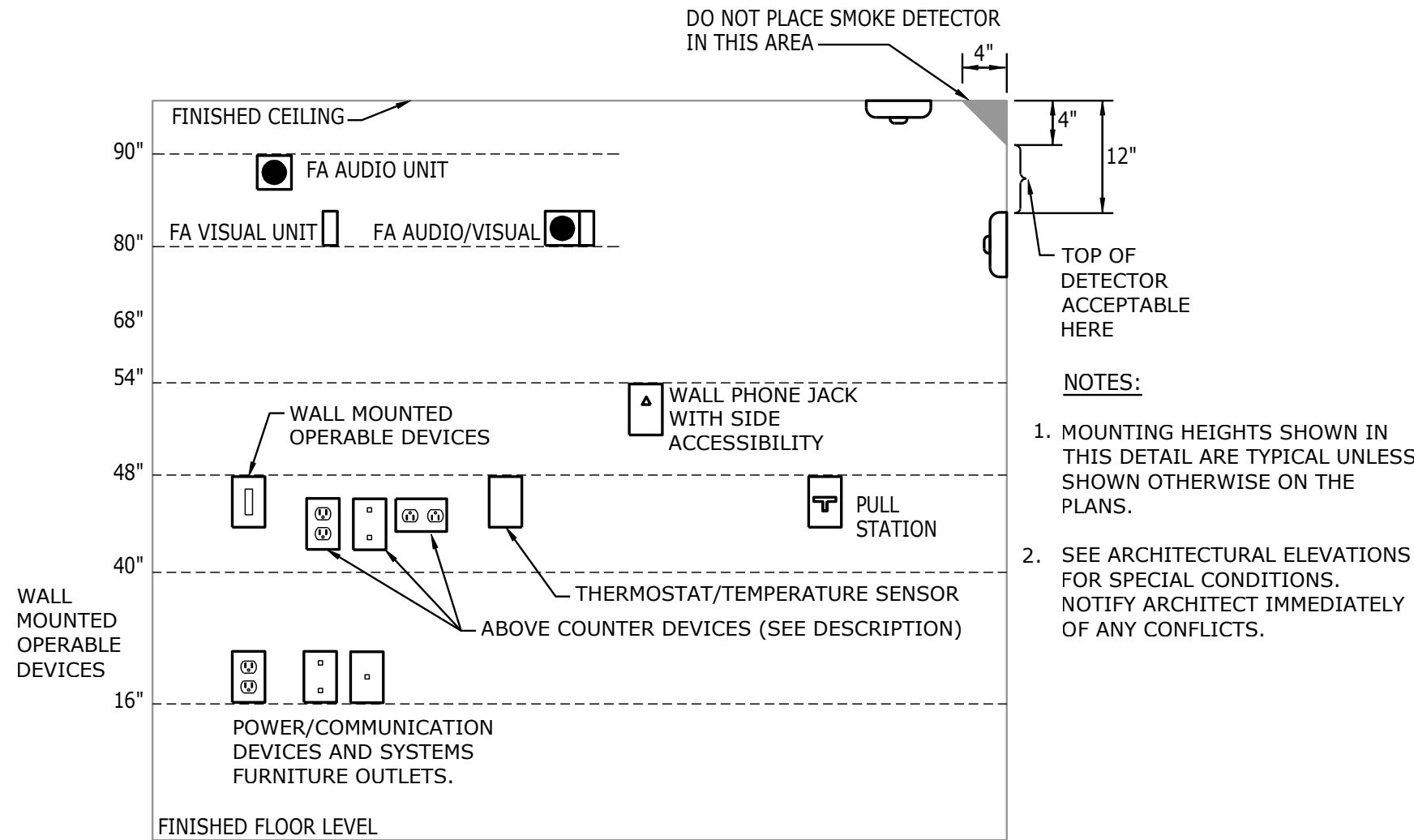
DOMESTIC WATER RISER
NOT TO SCALE



DOMESTIC WATER SERVICE DETAIL
NOT TO SCALE

DRAIN SCHEDULE			
MARK	MANUFACTURER/ MODEL	DESCRIPTION	REMARKS
FD-1	WADE 1100A	CAST IRON DRAIN WITH ADJUSTABLE TOP AND 6" NICKEL BRONZE STRAINER WITH VANDAL RESISTANT SCREWS. PROVIDE WITH TRAP SEAL DEVICE.	1,2
FD-2	WADE 2370	CAST IRON DRAIN WITH 12" SQUARE, NICKEL BRONZE FIXED TOP, SLOTTED GRATE. PROVIDE WITH TRAP SEAL DEVICE.	1,2

NOTES:
1. COORDINATE ALL DRAIN LOCATIONS WITH (BUT NOT EXCLUDING) EQUIPMENT, HOUSE-KEEPING PADS, MILLWORK, AND STRUCTURAL.
2. REFER TO PLANS FOR FLOOR DRAIN OUTLET SIZE.



FA VISUAL UNIT (FIRE ALARM NOTIFICATION DEVICES) DEVICE 80" ABOVE HIGHEST FLOOR LEVEL OR 6" BELOW CEILING WHICH EVER IS LOWER (ADA 1993). BOTTOM OF DEVICE 80" AFF (NFPA).

FA AUDIO UNIT (FIRE ALARM NOTIFICATION DEVICE) TOP OF UNIT AT LEAST 90" AFF OR 6" BELOW CEILING WHICH EVER IS LOWER (NFPA).

FA AUDIO/VISUAL UNIT (FIRE ALARM NOTIFICATION DEVICE) LOCATION DETERMINED BY VISUAL UNIT REQUIREMENTS (NFPA).

FA PULL STATION (FIRE ALARM ACTIVATION DEVICE) HIGHEST OPERABLE PART SHALL NOT BE MORE THAN 48" ABOVE THE FLOOR (FRONT APPROACH) ADA 1993. OPERABLE PART (T-HANDLE) SHALL BE NOT LESS THAN 42" AFF (NFPA).

WALL MOUNTED OPERABLE DEVICES

OPERABLE DEVICES SHALL BE LOCATED 48" AFF. TO THE TOP OF OPERABLE PORTION OF DEVICE. WALL MOUNTED TELEPHONES WITH SIDE ACCESSIBILITY MAY BE MOUNTED UP TO 54" AFF. WALL MOUNTED OPERABLE DEVICES INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
ADJUSTABLE THERMOSTATS, TEMPERATURE SENSORS, HUMIDITY SENSORS, CO2 SENSORS
LIGHTING SWITCHES/DIMMERS/CONTROLS
PUSH BUTTONS
OTHER CONTROL OR "CALL" DEVICES

POWER/COMMUNICATION DEVICES:

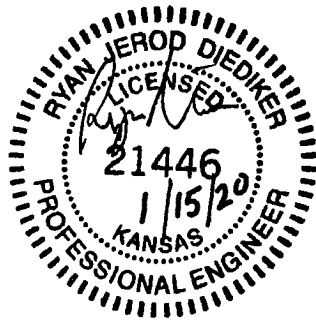
OUTLETS SHALL BE LOCATED 16" AFF TO THE BOTTOM OF THE BOX.
*ABOVE COUNTER DEVICES (PLAN DESIGNATION **FC-1**) SHALL BE LOCATED AT 48" TO THE TOP OF THE BOX, MOUNTED VERTICALLY UNLESS ABOVE CASEWORK. WHEN ABOVE CASEWORK LOCATE THESE DEVICES AT 2" ABOVE BACKSPLASH OF COUNTER TOP MEASURED TO THE BOTTOM OF DEVICE. VERIFY W/ARCHITECTURAL DETAILS.

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CONSTRUCTION DOCUMENTS

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**SCHEDULES &
DETAILS -
MECH./ELEC.**

REVISIONS

DESIGNER / DRAFTER

DATE
01-15-2020
PROJECT NUMBER

BOOK AND PAGE

MISSOURI AUTHORIZATION NUMBER

ME3

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PART 1 - GENERAL REQUIREMENTS - HVAC, PLUMBING, AND FIRE PROTECTION

1.1 SUMMARY OF WORK

- A. THE CONTRACT DOCUMENTS REQUIRE THE FURNISHING AND INSTALLING OF COMPLETE FUNCTIONING MECHANICAL SYSTEMS, AND EACH ELEMENT THEREOF, AS SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS OR REASONABLY INFERRED, TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION THE SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED, INCLUDING EVERY ARTICLE, DEVICE OR ACCESSORY, WHETHER OR NOT SPECIFICALLY CALLED FOR BY ITEM. ELEMENTS OF THE WORK INCLUDE MATERIALS, LABOR, SUPERVISION, SUPPLIES, EQUIPMENT, TRANSPORTATION, AND UTILITIES.
- B. SPECIFICATIONS AND DRAWINGS ARE COMPLEMENTARY AND WHAT IS CALLED FOR IN ONE SHALL BE AS BINDING AS IF CALLED FOR BY BOTH.
- C. ALL WORK PERFORMED UNDER THIS SECTION SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER BY EXPERIENCED MECHANICS OF THE PROPER TRADE.

1.2 COORDINATION, MEASUREMENTS AND LAYOUTS

- A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.
- B. THE CONTRACTOR SHALL EMPLOY A COMPETENT FOREMAN ON THE JOB TO SEE THAT WORK IS DONE IN ACCORDANCE WITH THE BEST PRACTICES AND IN A SATISFACTORY AND WORKMANLIKE MANNER. THE FOREMAN SHALL KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND SHALL EXECUTE HIS WORK IN SUCH A MANNER AS NOT TO INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. WHERE LOCAL CONDITIONS NECESSITATE A REARRANGEMENT, THE CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL, DRAWINGS OF THE PROPOSED REARRANGEMENT. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES THAT MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL OF HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY. FURNISHING SUCH OFFSETS, FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSION.

1.3 PERMITS AND FEES

- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION, OTHER THAN THOSE DEPOSITS OR FEES WHICH ARE FULLY REFUNDABLE TO THE OWNER.

1.4 SUBMITTALS, MATERIALS AND EQUIPMENT

- A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED HEREIN, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.
- B. AS SOON AS POSSIBLE AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SIX COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT TO BE FURNISHED FOR THIS PROJECT. SUBMITTALS SHALL INCLUDE MANUFACTURER'S NAME, MODEL NUMBER, DESCRIPTIVE ENGINEERING DATA AND ALL NECESSARY INFORMATION AS TO FINISH, MATERIAL GAUGES AND ACCESSORIES. AFTER SUCH SHOP DRAWINGS ARE PROCESSED, THREE COPIES WILL BE RETURNED TO THE CONTRACTOR. THE CONTRACTOR SHALL, UPON RECEIPT OF REVIEWED SHOP DRAWINGS PROCEED WITH THE PROCUREMENT AND INSTALLATION OF SUCH EQUIPMENT.

1.5 CODES, LAWS, AND STANDARDS

- A. ALL WORK SHALL BE INSTALLED IN COMPLIANCE WITH ALL GOVERNING CODES, APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES OR STATUTES OF REGULATORY BODIES HAVING JURISDICTION. THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH SAID LAWS, REGULATIONS, ORDINANCES, STATUTES OR CODES, WITHOUT INCREASED COST TO THE OWNER. ANY POINT IN QUESTION SHALL BE REFERRED TO THE ENGINEER FOR APPROVAL. WORK INDICATED ON THE DOCUMENTS THAT IS IN EXCESS OF CODE REQUIREMENTS SHALL NOT BE REDUCED IN QUALITY AND/OR QUANTITY.
- B. COMPLY WITH RULES AND REGULATIONS OF PUBLIC UTILITIES AND MUNICIPAL DEPARTMENTS AFFECTED BY CONNECTIONS OF SERVICES.

1.6 RECORD DOCUMENTS

- A. THIS CONTRACTOR SHALL PREPARE A COMPLETE "AS-BUILT" SET OF DRAWINGS INCORPORATING ALL CHANGES MADE DURING CONSTRUCTION. LOCATION OF UNDERGROUND PIPING SHALL BE LOCATED BY DIMENSION FROM COLUMN LINES.
- B. THIS CONTRACTOR SHALL PREPARE AND SUBMIT TO THE OWNER'S REPRESENTATIVE FIVE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS INCLUDING FINAL COPIES OF EQUIPMENT SHOP DRAWINGS, MANUFACTURER'S LITERATURE FOR ALL EQUIPMENT INSTALLED ON THE PROJECT SHOWING ALL DETAILS OF EQUIPMENT, REPLACEMENT PART DATA AND MAINTENANCE AND OPERATING INSTRUCTIONS. MANUALS SHALL INCLUDE COPIES OF ALL EQUIPMENT WARRANTIES.

1.7 GUARANTEES AND WARRANTIES

- A. THE CONTRACTOR SHALL GUARANTEE COMPLETE SYSTEM OPERATION AND THAT THE MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED WILL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS AND WILL GIVE SATISFACTORY SERVICE UNDER THE SPECIFIED OPERATING CONDITIONS. THE CONTRACTOR AGREES TO REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY PART OF THE APPARATUS WHICH PROVES OR BECOMES DEFECTIVE WITHIN ONE YEAR AFTER THE SYSTEM IS ACCEPTED. NO EQUIPMENT WARRANTY OR GUARANTEE SHALL START UNTIL THE TIME OF BUILDING ACCEPTANCE.
- B. ALL WARRANTIES ISSUED BY EQUIPMENT MANUFACTURERS SHALL BE FILLED OUT IN THE OWNER'S NAME AND GIVEN TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF WORK PERFORMED UNDER THIS SECTION.

1.8 FINAL INSPECTION

- A. AFTER COMPLETION OF THE ENTIRE PROJECT THE CONTRACTOR SHALL REQUEST FINAL INSPECTION OF THIS PROJECT IN WRITTEN FORM ADDRESSED TO THE ARCHITECT ALONG WITH A STATEMENT TO THE EFFECT THAT ALL INSTALLATIONS HAVE BEEN COMPLETED, CHECKED, ADJUSTED AND BALANCED IN ACCORDANCE WITH REQUIREMENTS OF THIS PROJECT. UPON RECEIPT OF WRITTEN NOTIFICATION OF COMPLETION AND REQUEST FOR FINAL INSPECTION THE ENGINEER WILL PERFORM A FINAL INSPECTION OF THIS WORK AND, IF ALL INSTALLATIONS ARE AS REPRESENTED BY THE CONTRACTOR, THE ENGINEER WILL SUBMIT WRITTEN RECOMMENDATION OF ACCEPTANCE.

1.9 CLEANING

- A. DIRT AND REFUSE RESULTING FROM THE PERFORMANCE OF THE WORK SHALL BE REMOVED TO KEEP THE PREMISES REASONABLE CLEAN AT ALL TIMES.
- B. AFTER COMPLETION OF THE WORK DESCRIBED IN THIS SPECIFICATION AND SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED SURFACES AND EQUIPMENT, REMOVE ALL DIRT, DEBRIS, CRATING, CARTONS, ETC., AND LEAVE ALL INSTALLATIONS FINISHED AND READY FOR OPERATION.

1.10 OPENINGS AND SLEEVES

- A. ALL PIPING THROUGH EXTERIOR OR FOUNDATION WALLS SHALL PASS THROUGH SCHEDULE 40 GALVANIZED STEEL SLEEVES WHICH SHALL BE LARGE ENOUGH TO ALLOW FOR PIPE SEAL MATERIAL. SLEEVES IN NEW CONSTRUCTION SHALL HAVE A MINIMUM 2 INCH WATERSTOP IN THE CENTER OF THE SLEEVE. NO SLEEVES ARE PERMITTED THROUGH CONCRETE STRUCTURAL MEMBERS.
1. SPACE BETWEEN PIPE AND SLEEVE IN EXTERIOR UNDERGROUND WALLS SHALL BE SEALED WITH LINK-SEAL, FLEXICRAFT OR METRAFLEX LINK STYLE PIPE SEALS.
2. IN ABOVE GRADE EXTERIOR WALLS PACK THE SPACE BETWEEN PIPE AND SLEEVE WITH MINERAL WOOL AND THEN COMPLETE SEAL WITH APPROVED CAULKING COMPOUND FLUSH WITH FINISHED SURFACE. PROVIDE PIPE COLLAR ON INTERIOR SIDE OF WALL.
- B. ALL PIPING THROUGH FLOORS SHALL BE PROVIDED WITH SCHEDULE 40 GALVANIZED STEEL PIPE SLEEVES, EXTENDING 1 INCH ABOVE THE FLOOR.
- C. FOR OPENINGS IN FLOORS, THE CAULKING SHALL BE APPLIED FROM THE UPPER SIDE TO A MINIMUM OF 3 INCH TOTAL DEPTH RECESSED 1/2 INCH BELOW THE FINISHED FLOOR. THIS 1/2 INCH RECESS SHALL THEN BE FILLED WITH SEALANT TO FLUSH WITH FINISHED FLOOR.

1.11 CUTTING AND PATCHING

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING OF WALLS, FLOORS, CEILINGS AND ROOFS REQUIRED FOR PERFORMANCE OF HIS WORK.
- B. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT.
- C. PATCH ALL OPENINGS TO MATCH ADJACENT CONSTRUCTION IN BOTH MATERIAL AND FINISH.

1.12 EXCAVATION AND BACKFILL

- A. ALL EXCAVATION AND BACKFILL REQUIRED FOR THE INSTALLATION OF THE WORK SHALL BE THE COMPLETE RESPONSIBILITY OF THE CONTRACTOR.
- B. NO EXCAVATION AND BACKFILL SHALL BE DONE WITHIN DRIP LINE OF TREES TO REMAIN. NO TREE SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THE OWNER'S REPRESENTATIVE.
- C. CONTRACTOR SHALL PROVIDE PROTECTION FOR TREES WITHIN 15 FEET OF UTILITY EXCAVATION.
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL TRENCH AREAS AND MAINTAINING A DRY EXCAVATION. ANY DEWATERING OF TRENCHES/EXCAVATION SHALL BE PROVIDED PRIOR TO INSTALLING ANY MATERIAL.
- E. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ALL NECESSARY BARRICADES, FENCING, BRACING, SHEET PILING, SHORING, WARNING SIGNS, PUMPS, ETC., FOR THE PROTECTION OF WORKERS, GENERAL PUBLIC, AND PROPERTIES. EXCAVATION WORK SHALL COMPLY WITH ASA STANDARD A10.2 "SAFETY CODE FOR BUILDING CONSTRUCTION" AND AGC STANDARD "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" AND THE DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH (OSHA) STANDARDS.
- F. LOCATE EXISTING UNDERGROUND UTILITIES IN AREAS OF EXCAVATION WORK. SHOULD UNCHARTED, OR INCORRECTLY CHARTED, PIPING OR OTHER UTILITIES BE ENCOUNTERED DURING EXCAVATION, CONSULT UTILITY OWNER IMMEDIATELY FOR DIRECTIONS.
- G. ALL TRENCHES SHALL BE UNIFORMLY GRADED AND BE FREE OF SOFT SPOTS AND STONE. PROVIDE A 4 INCH SAND BED.
- H. BACKFILL SHALL NOT BEGIN UNTIL INSTALLATION HAS BEEN TESTED AND INSPECTED. CONTRACTOR SHALL CONSULT WITH THE AUTHORITY HAVING JURISDICTION AND THE ARCHITECT/ENGINEER PRIOR TO BACKFILLING.
1. INITIAL BACKFILL SHALL BE SAND TO A POINT 6 INCHES ABOVE TOP OF INSTALLED WORK.
2. FINAL BACKFILL SHALL BE INSTALLED IN LAYERS NOT EXCEEDING 12 INCHES. FILL SHALL BE WELL TAMPED BEFORE ADDITIONAL BACKFILL MATERIAL IS PLACED. BACKFILL SHALL CONSIST OF EARTH OR SAND FREE OF STONE, BRICKS, OR FOREIGN MATTER.

- I. ALL EXCESS EARTH AND OTHER MATERIAL RESULTING FROM THE EXCAVATION SHALL BE REMOVED FROM SITE BY THE CONTRACTOR OR MAY BE PILED AT A LOCATION DESIGNATED AND APPROVED BY THE OWNER. ALL DEBRIS, ROCK AND TRASH SHALL NOT BE ALLOWED TO ACCUMULATE AND SHALL BE REMOVED FROM THE SITE. STREETS, ROADWAYS AND PRIVATE PROPERTY SHALL BE KEPT IN A CLEAN CONDITION.
- J. WHEN THE EXCAVATION IS WITHIN THE AREA WHERE FINISHED SITE WORK IS TO BE DONE UNDER THE GENERAL CONTRACT WORK, BACKFILL TO THE HEIGHT OF ROUGH GRADE. FINAL SURFACING WILL BE UNDER GENERAL CONTRACT WORK.
- K. WHEN THE EXCAVATION IS BEYOND THE AREA OF GENERAL CONSTRUCTION WORK, FINAL SURFACE AND ADJACENT DISTURBED AREAS SHALL BE RESTORED TO MATCH THE ORIGINAL CONDITION BY SODDING, SEEDING, ASPHALT PAVING, CONCRETE, ETC., AS REQUIRED. WORK SHALL CONFORM TO APPLICABLE SECTIONS OF THESE SPECIFICATIONS.
- L. WHEN THE EXCAVATION IS ON PUBLIC PROPERTY, RESTORATION OF SURFACE CONDITIONS SHALL MEET THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- M. WHEN SERVICES ARE TO BE RUN SIDE-BY-SIDE, A COMMON TRENCH MAY BE USED PROVIDING THE REQUIRED VERTICAL AND HORIZONTAL SEPARATION BETWEEN THE VARIOUS SERVICES ARE MAINTAINED AND PROVIDING THE METHODS OF BEDDING AND BACKFILL MEET THE APPROVAL OF THE ENGINEER. CONTRACTORS INVOLVED SHALL MAKE THEIR OWN AGREEMENT AS TO THE SHARING OF THE COST OF THE COMMON TRENCHING AND BACKFILL WORK.

PART 2 - HEATING, VENTILATING AND AIR CONDITIONING

2.1 GENERAL REQUIREMENTS

- A. SEE PART 1 FOR GENERAL REQUIREMENTS.

2.2 BELT DRIVES AND GUARDS

- A. ALL BELT DRIVES SHALL BE OF THE MULTIPLE "V" TYPE, DAYTON, GATES OR EQUAL. STANDARD SLIDE RAILS OR OTHER MEANS OF BELT ADJUSTMENT SHALL BE PROVIDED FOR EACH MOTOR USED WITH A BELT DRIVE.
- B. REMOVABLE STEEL GUARDS WITH EXPANDED METAL SCREENS OF ACCEPTABLE DESIGN SHALL BE PROVIDED OVER ALL EXPOSED BELT DRIVES AND COUPLINGS.

2.3 FILTERS

- A. FILTERS SHALL BE AS MANUFACTURED BY AMERICAN AIR FILTER, CAMFIL FARR OR CAMBRIDGE.

2.4 FLEXIBLE CONNECTORS

- A. THE CONTRACTOR SHALL INSTALL FLEXIBLE DUCT CONNECTIONS BETWEEN EACH PIECE OF EQUIPMENT HAVING A FAN, AND ITS SHEET METAL SUPPLY AND RETURN DUCTWORK CONNECTIONS, WHICH, WHEN COMPLETED SHALL BE AIRTIGHT.
- B. CONNECTORS SHALL PROVIDE A MINIMUM OF 2 INCHES BETWEEN METAL TO INSURE AGAINST TRANSMISSION OF VIBRATION FROM THE FAN UNIT TO THE DUCTWORK.

2.5 MOTORS AND STARTERS

- A. ALL ELECTRIC MOTORS SHALL BE FURNISHED FOR OPERATION ON ELECTRICAL SERVICES AS DESIGNATED AND SHALL HAVE STARTING TORQUE CHARACTERISTICS SUITABLE FOR THE EQUIPMENT SERVED. ANY CHANGES TO THE ELECTRICAL WIRING DUE TO EQUIPMENT BEING FURNISHED, OTHER THAN THAT SPECIFIED, IS THE RESPONSIBILITY OF THE CONTRACTOR.
- B. ACROSS-THE-LINE MANUAL STARTERS AND MAGNETIC STARTERS SHALL BE CUTLER-HAMMER PRODUCTS OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED, OF SIZES REQUIRED FOR THE MOTOR HORSEPOWER AND PHASE SERVED. STARTERS LOCATED IN EQUIPMENT AREAS AND UNFINISHED SPACES MAY BE SURFACE MOUNTED TYPES WITH FUNCTIONS IDENTIFIED BY ENGRAVED PLASTIC PLATES.
- C. THE MECHANICAL CONTRACTOR SHALL FURNISH TO THE ELECTRICAL CONTRACTOR ALL STARTERS AND STARTER OVERLOADS, ALL NECESSARY WIRING DIAGRAMS AND INSTRUCTIONS TO FACILITATE THE INSTALLATION OF POWER AND CONTROL WIRING TO ALL EQUIPMENT.

2.6 SHEET METAL DUCTWORK

- A. SHEET METAL DUCTS AND CONNECTIONS SHALL BE CONSTRUCTED OF G90 GALVANIZED SHEETS OF MILD STEEL. THE DUCTS SHALL BE CONSTRUCTED TO THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA) 2" W.G. PRESSURE CLASS STANDARDS. NO DUCT SHALL BE CONSTRUCTED WITH LESS THAN 24 GAUGE METAL. LOCAL CODES REQUIRING HEAVIER GAUGES SHALL GOVERN. ALL DUCTS SHALL BE SEALED TO SMACNA "B" CLASSIFICATION.
- B. DUCT SECTIONS SHALL BE JOINED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION AND REQUIREMENTS OF THE BUILDING CODE HAVING JURISDICTION.
- C. DUCT DIMENSIONS SHOWN ARE SHEET METAL DIMENSIONS AND DO NOT NEED TO BE ADJUSTED FOR INSULATION/LINING.
- D. CURVED ELBOWS SHALL BE CONSTRUCTED WITH INSIDE RADIUS NOT LESS THAN THE DUCT WIDTH IN THE SAME PLANE. SQUARE ELBOWS SHALL HAVE TURNING VANES. TURNING VANES SHALL BE DESIGNED IN ACCORDANCE WITH ASHRAE RECOMMENDATIONS. MANUFACTURED VANES SHALL BE BY TITUS OR APPROVED EQUAL.
- E. CROSSBREAK ALL DUCTWORK SURFACES OVER 18 INCHES IN WIDTH.
- F. FULL AREAS SHALL BE MAINTAINED IN TRANSITIONS WHERE A CHANGE IN THE CONFIGURATION OF THE DUCT OCCURS. ALL TAPERING JOINTS SHALL BE REDUCED GRADUALLY.
- G. JOINTS IN DUCTS SHALL BE MADE PRACTICALLY AIRTIGHT AND ANY OPEN CORNER SHALL BE NEATLY PATCHED AND SOLDERED TIGHT. DUCT TAPE WILL NOT BE ACCEPTED AS A JOINT PATCH. LOW PRESSURE SYSTEM DUCT LEAKAGE SHALL NOT EXCEED 2%.
- H. CONCEALED ROUND DUCTS SHALL BE CONSTRUCTED TO SMACNA 2" W.G. STANDARDS WITH GROOVED LONGITUDINAL SEAMS AND SLEEVED TYPE TRANSVERSE JOINTS.
- I. EXPOSED ROUND DUCTS SHALL BE CONSTRUCTED TO SMACNA 10" W.G. STANDARDS, SPIRAL LOCK SEAM DUCT AND FITTINGS.

2.7 FLEXIBLE DUCT

- A. FLEXIBLE DUCTS SHALL BE UL181 CLASS THERMAFLEX M-KE, OR APPROVED EQUAL, SHALL NOT BE LONGER THAN 8 FEET AND SHALL NOT HAVE ANY AIR FLOW OBSTRUCTION.

2.8 DUCTWORK SUPPORTS

- A. ALL HORIZONTAL DUCTS SHALL BE SUPPORTED WITH HANGERS SPACED NOT MORE THAN 8'-0" APART. HANGERS FOR DUCTS SMALLER THAN 31 INCHES SHALL CONSIST OF 22 GAUGE GALVANIZED STEEL STRAPS SECURELY FASTENED TO THE DUCT AND THE BUILDING CONSTRUCTION. DUCTS OVER 31 INCHES IN WIDTH SHALL BE HUNG WITH 1/4 INCH STEEL ANGLE ON THE BOTTOM OF THE DUCT SUPPORTED WITH STEEL RODS OF APPROPRIATE SIZE SECURELY FASTENED TO THE BUILDING STRUCTURE. ALL SUPPORTS TO MEET SMACNA STANDARDS.

2.9 GRILLES, REGISTERS, DIFFUSERS AND LOUVERS

- A. FURNISH AND INSTALL ALL GRILLES, REGISTERS, DIFFUSERS AND LOUVERS AS SHOWN AND DESCRIBED ON THE DRAWINGS OR COMPARABLE PRODUCTS OF TITUS OR PRICE.
- B. THE CONTRACTOR SHALL INFORM THE GENERAL CONTRACTOR OF THE REQUIREMENTS FOR OPENING SIZES AND FRAMING FOR ALL EQUIPMENT AND SHALL COORDINATE THE INSTALLATION OF ALL SUCH EQUIPMENT WITH THE STRUCTURAL REQUIREMENTS OF THIS PROJECT.

2.10 OPERATING AND MAINTENANCE MANUALS

- A. THE EQUIPMENT MANUFACTURER SHALL FURNISH THE OWNER TWO BOUND SETS OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL SYSTEMS.

2.11 START-UP/TESTING, ADJUSTING, BALANCING

- A. THE CONTRACTOR SHALL COMPLETE ALL EQUIPMENT INSTALLATIONS, CHECK ALL CONTROL WIRING, START UP AND ADJUST ALL EQUIPMENT AND PLACE ALL SYSTEMS IN OPERATION.
- B. AFTER COMPLETION AND START-UP OF ALL SYSTEMS THE CONTRACTOR SHALL ARRANGE FOR TESTING, ADJUSTING AND BALANCING OF ALL AIR SYSTEMS.
- C. TESTING, ADJUSTING AND BALANCING OF ALL AIR SYSTEMS SHALL BE PERFORMED IN COMPLETE ACCORDANCE WITH NEBB OR SMACNA STANDARDS.
- D. UPON COMPLETION OF TESTING, ADJUSTING AND BALANCING, A COMPLETE REPORT OF ALL FINDINGS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THIS PROJECT. THREE COPIES OF THE REPORT SHALL BE PROVIDED.

2.12 CURBS

- A. CURBS FOR EXHAUSTERS AND DUCTWORK THROUGH ROOF SHALL BE PATE TYPE PC AS REQUIRED BY ROOF CONSTRUCTION, OR COMPARABLE THYCURB PRODUCTS OF THE THYBAR CORP. ALL CURBS AND SUPPORTS SHALL BE CONSTRUCTED AS REQUIRED TO COMPENSATE FOR SLOPES OF THE ROOF STRUCTURE TO PROVIDE LEVEL SUPPORT OF EQUIPMENT. CURB HEIGHTS AT THE HIGH POINTS OF THE BUILDING STRUCTURE SHALL NOT BE LESS THAN 14 INCHES.
- B. CURBS FOR ROOF MOUNTED HEATING, VENTILATING AND AIR CONDITIONING UNITS SHALL BE PROVIDED BY THE EQUIPMENT MANUFACTURER AND SHALL BE DESIGNED TO COMPENSATE FOR SLOPES OF STRUCTURAL STEEL TO PROVIDE LEVEL SUPPORT OF EQUIPMENT. CURBS SHALL BE INSULATED TYPE WITH 1-1/2 INCH THICK INSULATION AND A MINIMUM DENSITY OF 3 POUNDS.

2.13 EXHAUST FANS

- A. EXHAUST FANS SHALL BE AS SHOWN ON THE DRAWINGS OR COMPARABLE PRODUCTS OF GREENHECK, COOK, OR CARNES.
- B. EACH EXHAUSTER SHALL BE PROVIDED WITH A DISCONNECT SWITCH, BACKDRAFT DAMPER AND BIRDSCREEN.
- C. ROOF MOUNTED EXHAUST FANS SHALL BE PROVIDED WITH CURBS AS DESCRIBED ABOVE.
- D. REFER TO PARAGRAPH TITLED "CURBS" IN THIS SECTION OF THE SPECIFICATION.

2.14 PAINTING: (SEE ARCHITECTURAL SECTION "PAINTING")

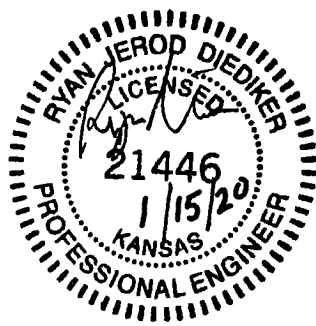
- A. PAINTING, EXCEPT AS SPECIFIED HEREIN, SHALL BE DONE BY OTHERS.
- B. EQUIPMENT WHICH HAS DAMAGED FINISH SHALL BE REPAINTED TO MATCH THE ORIGINAL FACTORY FINISH.
- C. ALL EXPOSED FERROUS METAL FURNISHED UNDER THIS CONTRACT, SUCH AS HANGERS, STRUTS, STRUCTURAL STEEL, ETC., SHALL BE GIVEN ONE COAT OF TNAMEC GRAY PRIMER.

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SPECIFICATIONS
- MECH./ELEC.

REVISES

DESIGNER / DRAFTER

DATE

01-15-2020

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BOOK AND PAGE

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Charles Booty

PART 1 - GENERAL REQUIREMENTS - ELECTRICAL

1.1 SUMMARY OF WORK

- A. THE CONTRACT DOCUMENTS REQUIRE THE FURNISHING AND INSTALLING OF COMPLETE FUNCTIONING ELECTRICAL SYSTEMS, AND EACH ELEMENT THEREOF, AS SPECIFIED OR INDICATED IN THE CONTRACT DOCUMENTS OR REASONABLY INFERRED, TO COMPLETELY CONSTRUCT AND LEAVE READY FOR OPERATION THE SYSTEMS AS SHOWN ON THE DRAWINGS AND HEREIN DESCRIBED, INCLUDING EVERY ARTICLE, DEVICE OR ACCESSORY, WHETHER OR NOT SPECIFICALLY CALLED FOR BY ITEM. ELEMENTS OF THE WORK INCLUDE MATERIALS, LABOR, SUPERVISION, SUPPLIES, EQUIPMENT, TRANSPORTATION, AND UTILITIES.
- B. SPECIFICATIONS AND DRAWINGS ARE COMPLEMENTARY AND WHAT IS CALLED FOR IN ONE SHALL BE AS BINDING AS IF CALLED FOR BY BOTH.
- C. ALL WORK PERFORMED UNDER THIS SECTION SHALL BE DONE IN A NEAT AND WORKMANLIKE MANNER BY EXPERIENCED MECHANICS OF THE PROPER TRADE.

1.2 COORDINATION, MEASUREMENTS AND LAYOUTS

- A. THE CONTRACTOR SHALL INSPECT THE SITE WHERE THIS WORK IS TO BE PERFORMED AND FULLY FAMILIARIZE HIMSELF WITH ALL CONDITIONS RELATED TO THIS PROJECT.
- B. THE CONTRACTOR SHALL EMPLOY A COMPETENT FOREMAN ON THE JOB TO SEE THAT WORK IS DONE IN ACCORDANCE WITH THE BEST PRACTICES AND IN A SATISFACTORY AND WORKMANLIKE MANNER. THE FOREMAN SHALL KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND SHALL EXECUTE HIS WORK IN SUCH A MANNER AS NOT TO INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. WHERE LOCAL CONDITIONS NECESSITATE A REARRANGEMENT, THE CONTRACTOR SHALL PREPARE, AND SUBMIT FOR APPROVAL, DRAWINGS OF THE PROPOSED REARRANGEMENT. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS, AND ACCESSORIES THAT MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL OF HIS WORK AND SHALL ARRANGE SUCH WORK ACCORDINGLY, FURNISHING SUCH OFFSETS, FITTINGS AND ACCESSORIES AS MAY BE REQUIRED TO MEET SUCH CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSION.

1.3 PERMITS AND FEES

- A. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES AND SHALL MAKE ALL DEPOSITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF WORK UNDER THIS SECTION, OTHER THAN THOSE DEPOSITS OR FEES WHICH ARE FULLY REFUNDABLE TO THE OWNER.

1.4 SUBMITTALS, MATERIALS AND EQUIPMENT

- A. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE SPECIFIED HEREIN, FREE FROM DEFECTS AND OF THE BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE.
- B. AS SOON AS POSSIBLE AFTER THE AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR REVIEW ELECTRONIC COPIES OF SHOP DRAWINGS FOR ALL EQUIPMENT TO BE FURNISHED FOR THIS PROJECT. SUBMITTALS SHALL INCLUDE MANUFACTURER'S NAME, MODEL NUMBER, DESCRIPTIVE ENGINEERING DATA AND ALL NECESSARY INFORMATION AS TO FINISH, MATERIAL GAUGES AND ACCESSORIES. AFTER SUCH SHOP DRAWINGS ARE PROCESSED, ELECTRONIC COPIES WILL BE RETURNED TO THE CONTRACTOR. THE CONTRACTOR SHALL, UPON RECEIPT OF REVIEWED SHOP DRAWINGS PROCEED WITH THE PROCUREMENT AND INSTALLATION OF SUCH EQUIPMENT.

1.5 CODES, LAWS, AND STANDARDS

- A. ALL WORK SHALL BE INSTALLED IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE, THE NATIONAL BOARD OF FIRE UNDERWRITERS, THE NATIONAL ELECTRICAL SAFETY CODE, AND ALL GOVERNING CODES, APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES OR STATUTES OF REGULATORY BODIES HAVING JURISDICTION. THE WORK SHALL BE EXECUTED IN ACCORDANCE WITH SAID LAWS, REGULATIONS, ORDINANCES, STATUTES OR CODES, WITHOUT INCREASED COST TO THE OWNER. ANY POINT IN QUESTION SHALL BE REFERRED TO THE ENGINEER FOR APPROVAL. WORK INDICATED ON THE DOCUMENTS THAT IS IN EXCESS OF CODE REQUIREMENTS SHALL NOT BE REDUCED IN QUALITY AND/OR QUANTITY.
- B. COMPLY WITH RULES AND REGULATIONS OF PUBLIC UTILITIES AND MUNICIPAL DEPARTMETNS AFFECTED BY CONNECTIONS OF SERVICES.

1.6 RECORD DOCUMENTS

- A. THIS CONTRACTOR SHALL PREPARE A COMPLETE "AS-BUILT" SET OF DRAWINGS INCORPORATING ALL CHANGES MADE DURING CONSTRUCTION. LOCATION OF UNDERGROUND CONDUIT SHALL BE LOCATED BY DIMENSION FROM COLUMN LINES.
- B. THIS CONTRACTOR SHALL PREPARE AND SUBMIT TO THE OWNER'S REPRESENTATIVE FIVE BOUND SETS OF OPERATING AND MAINTENANCE MANUALS INCLUDING FINAL COPIES OF EQUIPMENT SHOP DRAWINGS, MANUFACTURER'S LITERATURE FOR ALL EQUIPMENT INSTALLED ON THE PROJECT SHOWING ALL DETAILS OF EQUIPMENT, REPLACEMENT PART DATA AND MAINTENANCE AND OPERATING INSTRUCTIONS. MANUALS SHALL INCLUDE COPIES OF ALL EQUIPMENT WARRANTIES.

1.7 GUARANTEES AND WARRANTIES

- A. THE CONTRACTOR SHALL GUARANTEE COMPLETE SYSTEM OPERATION AND THAT THE MATERIAL AND EQUIPMENT FURNISHED AND INSTALLED WILL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIALS AND WILL GIVE SATISFACTORY SERVICE UNDER THE SPECIFIED OPERATING CONDITIONS. THE CONTRACTOR AGREES TO REPLACE, WITHOUT EXPENSE TO THE OWNER, ANY PART OF THE APPARATUS WHICH PROVES OR BECOMES DEFECTIVE WITHIN ONE YEAR AFTER THE SYSTEM IS ACCEPTED. NO EQUIPMENT WARRANTY OR GUARANTEE SHALL START UNTIL THE TIME OF BUILDING ACCEPTANCE.
- B. ALL WARRANTIES ISSUED BY EQUIPMENT MANUFACTURERS SHALL BE FILLED OUT IN THE OWNER'S NAME AND GIVEN TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF WORK PERFORMED UNDER THIS SECTION.

1.8 FINAL INSPECTION

- A. AFTER COMPLETION OF THE ENTIRE PROJECT THE CONTRACTOR SHALL REQUEST FINAL INSPECTION OF THIS PROJECT IN WRITTEN FORM ADDRESSED TO THE ARCHITECT ALONG WITH A STATEMENT TO THE EFFECT THAT ALL INSTALLATIONS HAVE BEEN COMPLETED, CHECKED, ADJUSTED AND BALANCED IN ACCORDANCE WITH REQUIREMENTS OF THIS PROJECT. UPON RECEIPT OF WRITTEN NOTIFICATION OF COMPLETION AND REQUEST FOR FINAL INSPECTION THE ENGINEER WILL PERFORM A FINAL INSPECTION OF THIS WORK AND, IF ALL INSTALLATIONS ARE AS REPRESENTED BY THE CONTRACTOR, THE ENGINEER WILL SUBMIT WRITTEN RECOMMENDATION OF ACCEPTANCE.

1.9 CLEANING

- A. DIRT AND REFUSE RESULTING FROM THE PERFORMANCE OF THE WORK SHALL BE REMOVED TO KEEP THE PREMISES REASONABLE CLEAN AT ALL TIMES.
- B. AFTER COMPLETION OF THE WORK DESCRIBED IN THIS SPECIFICATION AND SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED SURFACES AND EQUIPMENT, REMOVE ALL DIRT, DEBRIS, GRATING, CARTONS, ETC., AND LEAVE ALL INSTALLATIONS FINISHED AND READY FOR OPERATION.

1.10 OPENINGS AND SLEEVES

- A. ALL PIPING THROUGH EXTERIOR OR FOUNDATION WALLS SHALL PASS THROUGH SCHEDULE 40 GALVANIZED STEEL SLEEVES WHICH SHALL BE LARGE ENOUGH TO ALLOW FOR PIPE SEAL MATERIAL. SLEEVES IN NEW CONSTRUCTION SHALL HAVE A MINIMUM 2 INCH WATERSTOP IN THE CENTER OF THE SLEEVE. NO SLEEVES ARE PERMITTED THROUGH CONCRETE STRUCTURAL MEMBERS.
 - 1. SPACE BETWEEN PIPE AND SLEEVE IN EXTERIOR UNDERGROUND WALLS SHALL BE SEALED WITH LINK-SEAL, FLEXICRAFT OR METRAFLEX LINK STYLE PIPE SEALS.
 - 2. IN ABOVE GRADE EXTERIOR WALLS PACK THE SPACE BETWEEN PIPE AND SLEEVE WITH MINERAL WOOL AND THEN COMPLETE SEAL WITH APPROVED CAULKING COMPOUND FLUSH WITH FINISHED SURFACE. PROVIDE PIPE COLLAR ON INTERIOR SIDE OF WALL.

- B. ALL PIPING THROUGH FLOORS SHALL BE PROVIDED WITH SCHEDULE 40 GALVANIZED STEEL PIPE SLEEVES, EXTENDING 1 INCH ABOVE THE FLOOR.
- C. IN FIRE RATED WALLS: CAULKING SHALL BE A PURE CERAMIC FIBER MADE OF ALUMINA-SILICA, "CERAFIBER-FS" BY JOHNS-MANVILLE. SEALANT SHALL BE GUN GRADE. AN ACRYLIC 2-PART GUN APPLIED, FIRE RETARDANT ELASTIC SEALANT, "DYMERIC" BY TREMCO OR EQUAL BY PERMATITE NO. 1113FR.
 - 1. LIMIT THE SIZE OF THE SPACE BETWEEN THE WALL OR FLOOR AND THE OUTSIDE OF THE PIPE OR DUCT TO 1 INCH MAXIMUM. THIS SPACE IS SUFFICIENT TO ALLOW SOME MOVEMENT OF THE PIPES OR DUCT WITHOUT CRACKING THE CAULKING OR SEALANT.
 - 2. FOR OPENINGS IN WALLS, THE CAULKING SHALL BE APPLIED TO A MINIMUM OF 3 INCH TOTAL DEPTH. SEALANT SHALL THEN BE APPLIED ON BOTH SIDES OF THE WALL OPENING A MINIMUM OF 1/2 INCH IN DEPTH, FINISHED FLUSH WITH THE WALL. D.
 - D. FOR OPENINGS IN FLOORS, THE CAULKING SHALL BE APPLIED FROM THE UPPER SIDE TO A MINIMUM OF 3 INCH TOTAL DEPTH RECESSED 1/2 INCH BELOW THE FINISHED FLOOR. THIS 1/2 INCH RECESS SHALL THEN BE FILLED WITH SEALANT TO FLUSH WITH FINISHED FLOOR.

1.11 CUTTING AND PATCHING

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CUTTING OF WALLS, FLOORS, CEILINGS AND ROOFS REQUIRED FOR PERFORMANCE OF HIS WORK.
- B. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT.
- C. PATCH ALL OPENINGS TO MATCH ADJACENT CONSTRUCTION IN BOTH MATERIAL AND FINISH.
- D. ALL CUTTING OF EXISTING CONCRETE FLOORS/SLABS ON GRADE IN THE INTERIOR OF THE BUILDING SHALL BE PERFORMED BY "SAW CUTTING" AND SHALL BE PERFORMED BY THIS CONTRACTOR.

1.12 EXCAVATION AND BACKFILL

- A. ALL EXCAVATION AND BACKFILL REQUIRED FOR THE INSTALLATION OF THE WORK SHALL BE THE COMPLETE RESPONSIBILITY OF THE CONTRACTOR.
- B. NO EXCAVATION AND BACKFILL SHALL BE DONE WITHIN DRIP LINE OF TREES TO REMAIN. NO TREE SHALL BE REMOVED WITHOUT PRIOR APPROVAL OF THE OWNER'S REPRESENTATIVE.
- C. CONTRACTOR SHALL PROVIDE PROTECTION FOR TREES WITHIN 15 FEET OF UTILITY EXCAVATION.
- D. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL TRENCH AREAS AND MAINTAINING A DRY EXCAVATION. ANY DEWATERING OF TRENCHES/EXCAVATION SHALL BE PROVIDED PRIOR TO INSTALLING ANY MATERIAL.
- E. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ALL NECESSARY BARRICADES, FENCING, BRACING, SHEET PILING, SHORING, WARNING SIGNS, PUMPS, ETC., FOR THE PROTECTION OF WORKERS, GENERAL PUBLIC, AND PROPERTIES. EXCAVATION WORK SHALL COMPLY WITH ASA STANDARD A10.2 "SAFETY CODE FOR BUILDING CONSTRUCTION" AND AGC STANDARD "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" AND THE DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH (OSHA) STANDARDS.
- F. LOCATE EXISTING UNDERGROUND UTILITIES IN AREAS OF EXCAVATION WORK. SHOULD UNCHARTED, OR INCORRECTLY CHARTED, PIPING OR OTHER UTILITIES BE ENCOUNTERED DURING EXCAVATION, CONSULT UTILITY OWNER IMMEDIATELY FOR DIRECTIONS.
- G. ALL TRENCHES SHALL BE UNIFORMLY GRADED AND BE FREE OF SOFT SPOTS AND STONE. PROVIDE A 4 INCH SAND BED.
- H. BACKFILL SHALL NOT BEGIN UNTIL INSTALLATION HAS BEEN TESTED AND INSPECTED. CONTRACTOR SHALL CONSULT WITH THE AUTHORITY HAVING JURISDICTION AND THE ARCHITECT/ENGINEER PRIOR TO BACKFILLING.
 - 1. INITIAL BACKFILL SHALL BE SAND TO A POINT 6 INCHES ABOVE TOP OF INSTALLED WORK.
 - 2. FINAL BACKFILL SHALL BE INSTALLED IN LAYERS NOT EXCEEDING 12 INCHES. FILL SHALL BE WELL TAMPED BEFORE ADDITIONAL BACKFILL MATERIAL IS PLACED. BACKFILL SHALL CONSIST OF EARTH OR SAND FREE OF STONE, BRICKS, OR FOREIGN MATTER.
- I. ALL EXCESS EARTH AND OTHER MATERIAL RESULTING FROM THE EXCAVATION SHALL BE REMOVED FROM SITE BY THE CONTRACTOR OR MAY BE PILED AT A LOCATION DESIGNATED AND APPROVED BY THE OWNER. ALL DEBRIS, ROCK AND TRASH SHALL NOT BE ALLOWED TO ACCUMULATE AND SHALL BE REMOVED FROM THE SITE. STREETS, ROADWAYS AND PRIVATE PROPERTY SHALL BE KEPT IN A CLEAN CONDITION.
- J. WHEN THE EXCAVATION IS WITHIN THE AREA WHERE FINISHED SITE WORK IS TO BE DONE UNDER THE GENERAL CONTRACT WORK, BACKFILL TO THE HEIGHT OF ROUGH GRADE. FINAL SURFACING WILL BE UNDER GENERAL CONTRACT WORK.
- K. WHEN THE EXCAVATION IS BEYOND THE AREA OF GENERAL CONSTRUCTION WORK, FINAL SURFACE AND ADJACENT DISTURBED AREAS SHALL BE RESTORED TO MATCH THE ORIGINAL CONDITION BY SODDING, SEEDING, ASPHALT PAVING, CONCRETE, ETC., AS REQUIRED. WORK SHALL CONFORM TO APPLICABLE SECTIONS OF THESE SPECIFICATIONS.
- L. WHEN THE EXCAVATION IS ON PUBLIC PROPERTY, RESTORATION OF SURFACE CONDITIONS SHALL MEET THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- M. WHEN SERVICES ARE TO BE RUN SIDE-BY-SIDE, A COMMON TRENCH MAY BE USED PROVIDING THE REQUIRED VERTICAL AND HORIZONTAL SEPARATION BETWEEN THE VARIOUS SERVICES ARE MAINTAINED AND PROVIDING THE METHODS OF BEDDING AND BACKFILL MEET THE APPROVAL OF THE ENGINEER. CONTRACTORS INVOLVED SHALL MAKE THEIR OWN AGREEMENT AS TO THE SHARING OF THE COST OF THE COMMON TRENCHING AND BACKFILL WORK.

1.13 TEMPORARY HEAT

- A. THE CONTRACTOR SHALL COOPERATE WITH THE GENERAL CONTRACTOR TO PROVIDE TEMPORARY HEAT AS SOON AS POSSIBLE FOR USE DURING CONSTRUCTION IF TEMPORARY HEAT IS REQUIRED. AIR HANDLING EQUIPMENT SHALL NOT BE OPERATED AT ANY TIME WITHOUT FILTERS IN PLACE AND ALL EQUIPMENT SHALL BE PROTECTED FROM DAMAGE. OPERATING THE EQUIPMENT FOR TEMPORARY HEAT SHALL NOT START THE WARRANTY PERIOD OF THE EQUIPMENT USED.

1.14 DEMOLITION AND NEW WORK

- A. THE CONTRACTOR SHALL DO ALL DEMOLITION, ALTERATIONS AND REWORK INDICATED AND/OR REQUIRED TO MAINTAIN THE OPERATION OF ALL EXISTING ELECTRICAL SYSTEMS AND TO INTEGRATE THE NEW SYSTEMS IN THE RENOVATED BUILDING AS REQUIRED. THE CONTRACTOR SHALL INCLUDE ALL WORK WHICH MAY BE REQUIRED TO ALTERATIONS AND DEMOLITION WORK. THIS SHALL INCLUDE ALL REMOVAL, RELOCATION AND REWORKING OF WIRE AND CONDUIT; OUTLET BOXES, JUNCTION BOXES, ETC. EXISTING SYSTEMS AND NEW SYSTEMS SHALL BE COMPLETELY INTEGRATED AS INTENDED AND AS INDICATED ON THE PLANS AND IN THE SPECIFICATIONS.
- B. THE CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF PROPERLY ALL EXISTING MATERIAL AND EQUIPMENT WHICH NO LONGER SERVES A PURPOSE IN ALTERED AREAS. THE CONTRACTOR SHALL REMOVE CONNECTIONS TO EQUIPMENT BACK TO PANEL OR JUNCTION BOX. MAINTAIN CIRCUIT CONNECTIVITY. UNLESS OTHERWISE NOTED, THE CONTRACTOR SHALL MAINTAIN SERVICES TO ALL EXISTING AREAS REQUIRING SUCH SERVICES. THE CONTRACTOR SHALL REROUTE AS REQUIRED SUCH SERVICES WHERE ARE DISRUPTED DUE TO ARCHITECTURAL CHANGES IN THE EXISTING STRUCTURE. ANY EQUIPMENT WHICH IS DESIGNATED TO BE REUSED AND WHICH IS DAMAGED IN THE PROCESS SHALL BE REPLACED BY THE CONTRACTOR WITH NEW EQUIPMENT OF LIKE KIND AT NO COST TO THE OWNER.

1.15 INTERRUPTION OF SERVICES

- A. THE CONTRACTOR SHALL SCHEDULE ANY SERVICE INTERRUPTIONS TO THE EXISTING BUILDING WITH THE OWNER'S REPRESENTATIVE. SUCH INTERRUPTIONS SHALL BE PLANNED SO AS TO BE AT TIMES TO CAUSE THE LEAST INCONVENIENCE AND INTERRUPTION TO THE FACILITY'S SCHEDULE.

1.16 EXISTING CONDITIONS

ALL EXISTING CONDITIONS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE SPECIFICATIONS FOR THIS PROJECT HAVE BEEN DETERMINED FROM AVAILABLE DRAWINGS AND FIELD INVESTIGATIONS. CONTRACTORS MAKING PROPOSALS FOR THIS WORK SHALL INVESTIGATE ALL EXISTING CONDITIONS AND BASE THEIR PROPOSALS ON THEIR OBSERVATIONS TO PROVIDE COMPLETE AND FUNCTIONING INSTALLATIONS IN ACCORDANCE WITH THE INTENT OF THE DRAWING AND SPECIFICATIONS FOR THIS PROJECT AND ALL APPLICABLE GOVERNING CODES, RULES, REGULATIONS AND ORDINANCES. FAILURE TO DETERMINE EXISTING CONDITIONS WHICH CAUSE ADDITIONAL WORK WILL NOT CONSTITUTE GROUNDS FOR ADDITIONAL COMPENSATION.

PART 2 - ELECTRICAL

2.1 GENERAL REQUIREMENTS

- A. SEE PART 1 FOR GENERAL REQUIREMENTS.

2.2 IDENTIFICATION OF SWITCHES AND APPARATUS

- A. ALL CABINETS, SAFETY SWITCHES, AND OTHER APPARATUS USED FOR OPERATION AND CONTROL OF CIRCUITS, APPLIANCES, AND EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY IDENTIFIED BY MEANS OF ENGRAVED PLASTIC PLATES EITHER BLACK WITH WHITE LETTERS OR WHITE WITH BLACK LETTERS.

2.3 GROUNDING

- A. ALL CONDUCTORS, MOTOR FRAMES, RACEWAYS, CABINETS, ETC., THAT REQUIRE GROUNDING SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE, THOSE OF THE SERVING UTILITY AND LOCAL AUTHORITIES HAVING JURISDICTION.

2.4 SAFETY SWITCHES

- A. SAFETY SWITCHES, AS MANUFACTURED BY GENERAL ELECTRIC, CROUSE-HINDS, CUTLER-HAMMER, SQUARE D, SIEMENS, OR APPROVED EQUAL, SHALL BE FURNISHED AND INSTALLED (WHERE NOT FURNISHED BY OTHERS) WHEREVER SHOWN ON THE DRAWINGS SPECIFIED, OR REQUIRED BY THE NATIONAL ELECTRICAL CODE.
- B. SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE, UNDERWRITERS' LABORATORIES SHORT CIRCUIT LABELED FOR AT LEAST 100,000 AMPERES WITH CLASS R REJECTION FUSEHOLDERS SO AS TO COMPLY WITH NEC 100-9. SWITCHES INSIDE OF BUILDING SHALL BE FURNISHED IN NEMA 1 GENERAL PURPOSE ENCLOSURES. SWITCHES OUTSIDE OF BUILDING SHALL BE FURNISHED IN NEMA 3R ENCLOSURES UNLESS OTHERWISE SPECIFIED.
- C. EACH MOTOR SHALL BE PROVIDED WITH A DISCONNECTING MEANS IN ACCORDANCE WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

2.5 CONDUIT

- A. ALL ELECTRICAL WIRING, INCLUDING LOW VOLTAGE WIRING, SHALL BE INSTALLED IN CONDUIT AS HEREIN SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH NOMINAL SIZE SHALL BE USED BELOW GRADE; NO LESS THAN 1/2 INCH NOMINAL SIZE SHALL BE USED ABOVE GRADE.
 - B. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 EPC-40-PVC. ALL CONDUITS SHALL BE INSTALLED WITH MINIMUM 24 INCH COVER.
 - C. CONDUIT INSTALLED IN CONCRETE SLABS OR ABOVE GROUND SHALL BE GALVANIZED RIGID STEEL OR EPC-40-PVC.
 - D. WHEN PVC CONDUITS PENETRATE CONCRETE FLOOR CONSTRUCTION, CONTRACTOR SHALL USE RIGID STEEL OR IMC ELBOWS AND EXTENSION. PVC CONDUIT/FITTINGS SHALL NOT BE PERMITTED TO BE EXPOSED ABOVE THE FLOOR.
 - E. THINWALL TUBING SHALL BE E.M.T.
 - F. ALL FITTINGS SHALL BE OF THE COMPRESSION TYPE AND WATERTIGHT FOR UNDERGROUND AND IN SLAB LOCATIONS. COMPRESSION OR SCREWED FITTINGS FOR INDOOR.
 - G. CONDUIT FOR INTERIOR WIRING, IN GENERAL, SHALL BE THINWALL TUBING UNLESS OTHERWISE NOTED.
 - H. RACEWAYS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND FITTING TO FITTING. A RUN OF CONDUIT BETWEEN OUTLETS OR FITTINGS SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF FOUR QUARTER-BENDS INCLUDING THOSE BENDS LOCATED IMMEDIATELY AT THE OUTLET OR FITTING. THE RADIUS OF BENDS SHALL NEVER BE SHORTER THAN THAT OF THE CORRESPONDING TRADE ELBOW. THE SYSTEM SHALL BE COMPLETE. WITH OUTLETS, DISTRIBUTION BOXES, ETC. SMOOTH INSIDE AND MECHANICALLY SECURE IN PLACE. APPROVED STRAPS, HANGERS, OR SUPPORTS SHALL BE USED TO SECURE CONDUITS IN PLACE. CONDUITS SHALL, IN GENERAL, BE SUPPORTED AT INTERVALS NOT EXCEEDING 10'-0" AND WITHIN 3'-0" OF EACH OUTLET BOX, JUNCTION BOX, CABINET OR FITTING.
 - I. CONDUITS SHALL BE PROTECTED DURING CONSTRUCTION; PLUG AND KEEP CLEAN AND DRY. CONDUIT ENDS SHALL BE BUTTED IN CENTERS OF COUPLINGS. NO CRACKS OR FLATTENED SECTIONS WILL BE PERMITTED AT BENDS OR ELSEWHERE. ALL ENDS OF CONDUIT SHALL BE REAMED TO REMOVE ROUGH EDGES. RUNNING THREADS WILL NOT BE PERMITTED.
 - J. CONDUITS SHALL BE CONCEALED WITHIN THE WALLS, CEILINGS, AND FLOORS WHERE POSSIBLE AND UNLESS OTHERWISE NOTED, EXPOSED CONDUIT SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES WITH THE BUILDING LINES.
- A. WIRE AND CABLE SHALL BE COPPER.
 - B. ALL CONDUCTORS SHALL BE COPPER.
 - C. NO. 10 AWG AND SMALLER CONDUCTORS SHALL BE SOLID WITH TYPE THHN INSULATION AND NO. 8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED WITH TYPE THHN INSULATION EXCEPT THAT CONDUCTORS WITHIN 3 INCHES OF LIGHT FIXTURE BALLASTS SHALL HAVE RHH, THHN, OR EQUAL INSULATION RATED FOR 90 DEGREES C. APPLICATION.

2.7 LOCATIONS OF OUTLETS AND EQUIPMENT

- A. ELECTRICAL OUTLETS AND EQUIPMENT ARE SO LOCATED ON THE DRAWINGS TO SHOW INTENT OF DESIGN. MINOR VARIATIONS IN THESE LOCATIONS MAY BE MADE BY THIS CONTRACTOR TO COMPLY WITH STRUCTURAL AND OTHER REQUIREMENTS AS DETERMINED IN THE COURSE OF CONSTRUCTION. IT SHALL BE THE DUTY OF THIS CONTRACTOR TO TAKE HIS OWN MEASUREMENTS AND BE RESPONSIBLE FOR SAME. THIS CONTRACTOR SHALL ALSO REVIEW THE ARCHITECTURAL DRAWINGS AND THOSE DRAWINGS USED BY OTHER CONTRACTORS IN ORDER TO DETERMINE EXACT LOCATIONS FOR ELECTRICAL OUTLETS AND EQUIPMENT. DO NOT SCALE DRAWINGS FOR OUTLET LOCATIONS.

ITEM	EQUIPMENT MOUNTING HEIGHT	
	FLOOR TO	MOUNTING
INTERIOR RECEPTACLES	BOTTOM	16"
EXTERIOR RECEPTACLES	CENTERLINE	24"
TELEPHONE OUTLETS	BOTTOM	16"
SWITCHES	TOP	48"
RECEPTACLES ABOVE COUNTERS: CENTERLINE 10 INCHES ABOVE COUNTER AND HORIZONTAL		

2.8 WALL PLATES

- A. GROUPS OF SWITCHES, OUTLETS OR SWITCH AND OUTLET COMBINATIONS SHALL BE MOUNTED UNDER ONE GANG-PLATE.
- B. WALL PLATES SHALL FIT AND COVER PROPERLY THE DEVICE AND WALL OPENING. NO OPEN OR UNFINISHED SURFACES SHALL SHOW AFTER INSTALLATION OF THE WALL PLATES.
- C. WALL PLATES SHALL BE SET VERTICAL AND SHALL FINISH FLUSH WITH ALL SURROUNDING SURFACES.
- D. WALL PLATES FOR ALL DEVICES AND TELEPHONE OUTLETS SHALL MATCH THE EXISTING DEVICES.

2.9 WIRING DEVICES

- A. SINGLE-POLE WALL TUMBLER SWITCHES FOR GENERAL USE SHALL BE SPECIFICATION GRADE HUBBELL NO. 1121, OR APPROVED EQUAL, MECHANICALLY SILENT TYPE WITH PLASTIC HANDLES, RATED 20 AMPERES AC, 120/277 VOLTS. GENERAL USE SWITCHES INDICATED ON PLANS AS DOUBLE POLE, 3-WAY, 4-WAY OR LOCK TYPE WITH KEY GUIDE SHALL BE THE SAME SERIES AS THE SINGLE-POLE SWITCHES. DEVICE COLOR SHALL MATCH EXISTING.
- B. CONVENIENCE OUTLETS IN FINISHED SPACES SHALL BE SPECIFICATION GRADE HUBBELL NO. 5362, OR APPROVED EQUAL, DUPLEX GROUNDING TYPE RECEPTACLES RATED 20 AMPERES AC, 120 VOLT. DEVICE COLOR SHALL MATCH EXISTING.
- C. RECEPTACLES DESIGNATED WITH GROUND FAULT PROTECTION SHALL BE HUBBELL NO. GF-5362, OR APPROVED EQUAL, 120 VOLT, 20 AMP GROUND FAULT INTERRUPTER TYPE. DEVICE COLOR SHALL MATCH EXISTING.

2.10 PANELBOARDS

- A. PANELBOARDS SHALL BE GENERAL ELECTRIC, SQUARE D, OR SIEMENS ITE CIRCUIT BREAKER TYPES, WITH CIRCUIT BREAKERS AS NOTED IN THE SCHEDULE ON THE DRAWINGS.
- B. PANELBOARDS SHALL BE EQUIVALENT TO SQUARE D TYPE NQOD, 120/208 VOLT, WITH BOLTED BREAKERS, NEMA RATED FOR THE AVAILABLE FAULT CURRENT.
- C. FURNISH AND INSTALL A TYPEWRITTEN DIRECTORY FOR EACH PANELBOARD, SHOWING THE FUNCTION OF EACH BREAKER.

2.11 LIGHTING FIXTURES

- A. THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL LIGHTING FIXTURES AND LAMPS AS INDICATED ON THE DRAWINGS AND HEREIN DESCRIBED. MATERIAL, EQUIPMENT, OR SERVICES NECESSARY TO COMPLETE THE INSTALLATION OF THESE FIXTURES, BUT NOT SPECIFICALLY MENTIONED, SHALL BE FURNISHED AS THOUGH SPECIFIED. ALL FIXTURES AND LAMPS SHALL BE PROPERLY CLEANED AND ADJUSTED AFTER INSTALLATION.
- B. ALL ADJUSTABLE LIGHTING FIXTURES SHALL BE CAREFULLY POSITIONED BY THIS CONTRACTOR IN THE PRESENCE OF THE ARCHITECT OR HIS REPRESENTATIVE.
- C. LAMPS SHALL BE AS MANUFACTURED BY GENERAL ELECTRIC, SYLVANIA OR PHILLIPS.
- D. BALLASTS SHALL BE AS NOTED IN FIXTURE SCHEDULE. BALLASTS IN FIXTURES DESIGNATED FOR EMERGENCY LIGHTING MUST BE COMPATIBLE WITH THE EMERGENCY UNIT USED WITH MINIMUM LEAKAGE.
- E. THIS CONTRACTOR SHALL FURNISH AND INSTALL FIXTURES HEREIN SPECIFIED OR AS SHOWN ON THE DRAWINGS.
- F. LIGHT FIXTURES SHALL BE SUPPORTED FROM ROOF STRUCTURE PER UBC 47-18.
- G. GENERAL CONTRACTOR SHALL PROVIDE ALL FIRE-RATED ENCLOSURES FOR LIGHT FIXTURES INSTALLED IN FIRE-RATED CEILINGS.

2.12 IDENTIFICATION OF EQUIPMENT

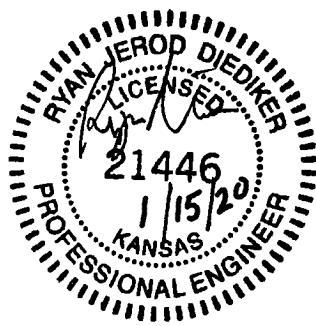
- A. ALL SERVICE ENTRANCE EQUIPMENT, DISCONNECT SWITCHES, PANELBOARDS, RELAYS, MOTOR STARTERS, CONTRACTORS, TELEPHONE TERMINAL CABINETS, TV EQUIPMENT AND RISER JUNCTION BOXES, AND OTHER ELECTRICAL EQUIPMENT UNDER THIS CONTRACT, SHALL BE PROVIDED WITH PROPER IDENTIFICATION. IDENTIFICATION SHALL BE BY THE USE OF ENGRAVED COLOR CODED PLASTIC NAMEPLATES WITH WHITE LETTERING SCREWED TO THE COVER OF THE EQUIPMENT. USE OF EMBOSSED PLASTIC "TAPE" LABELS AS PREPARED BY "TYPEWRITER" TYPE EQUIPMENT SHALL NOT BE USED. COLOR CODING SHALL BE AS FOLLOWS:
 - 1. EQUIPMENT CONNECTED TO A NORMAL POWER SOURCE SHALL BE BLACK WITH WHITE LETTERS.

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CONSTRUCTION DOCUMENTS

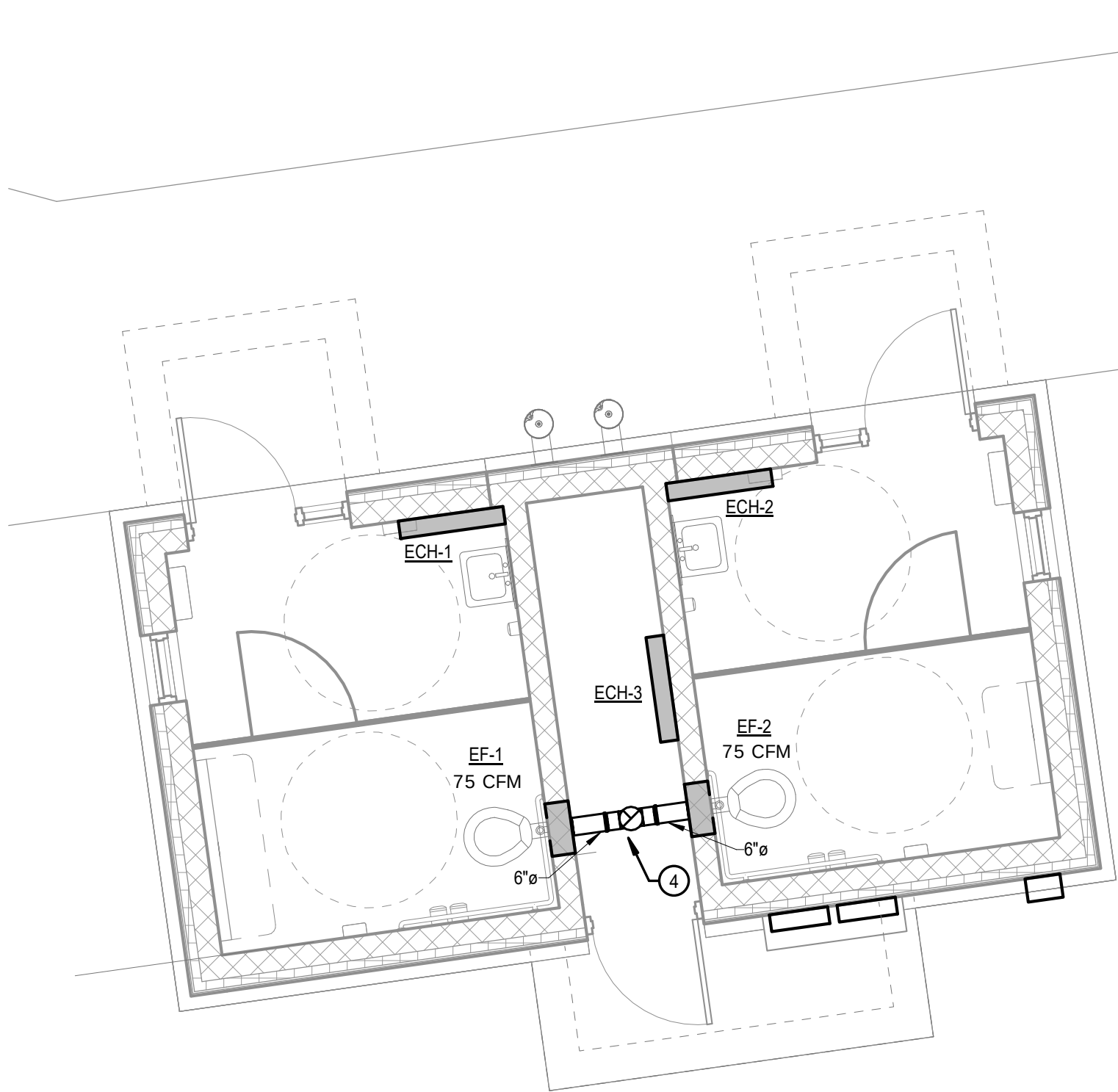
R PARK - PHASE 1
ROLAND PARK, KANSAS

SPECIFICATIONS
- MECH./ELEC.

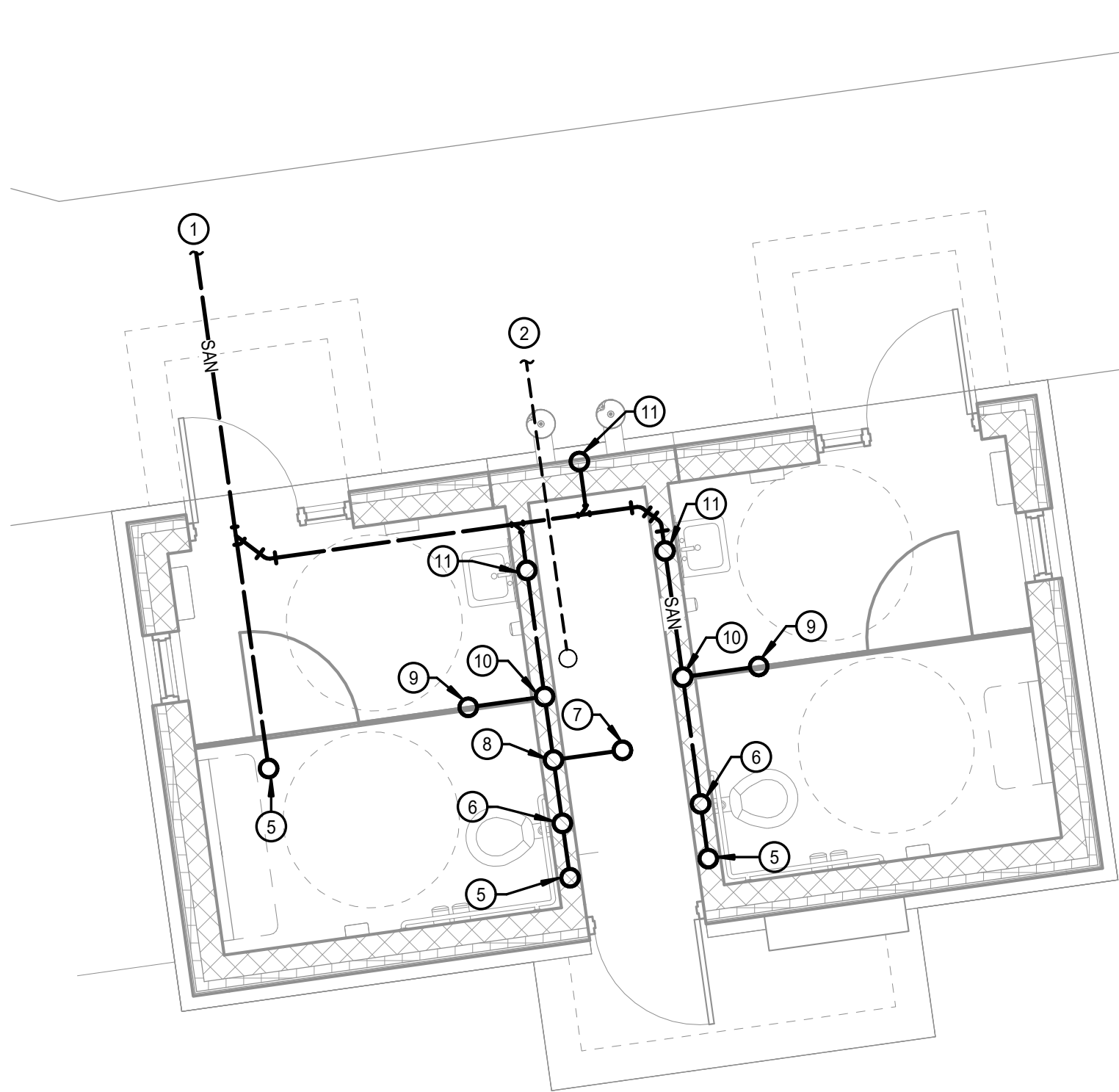
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DATE 01-15-2020
PROJECT NUMBER
BOOK AND PAGE
MISSOURI AUTHORIZATION NUMBER

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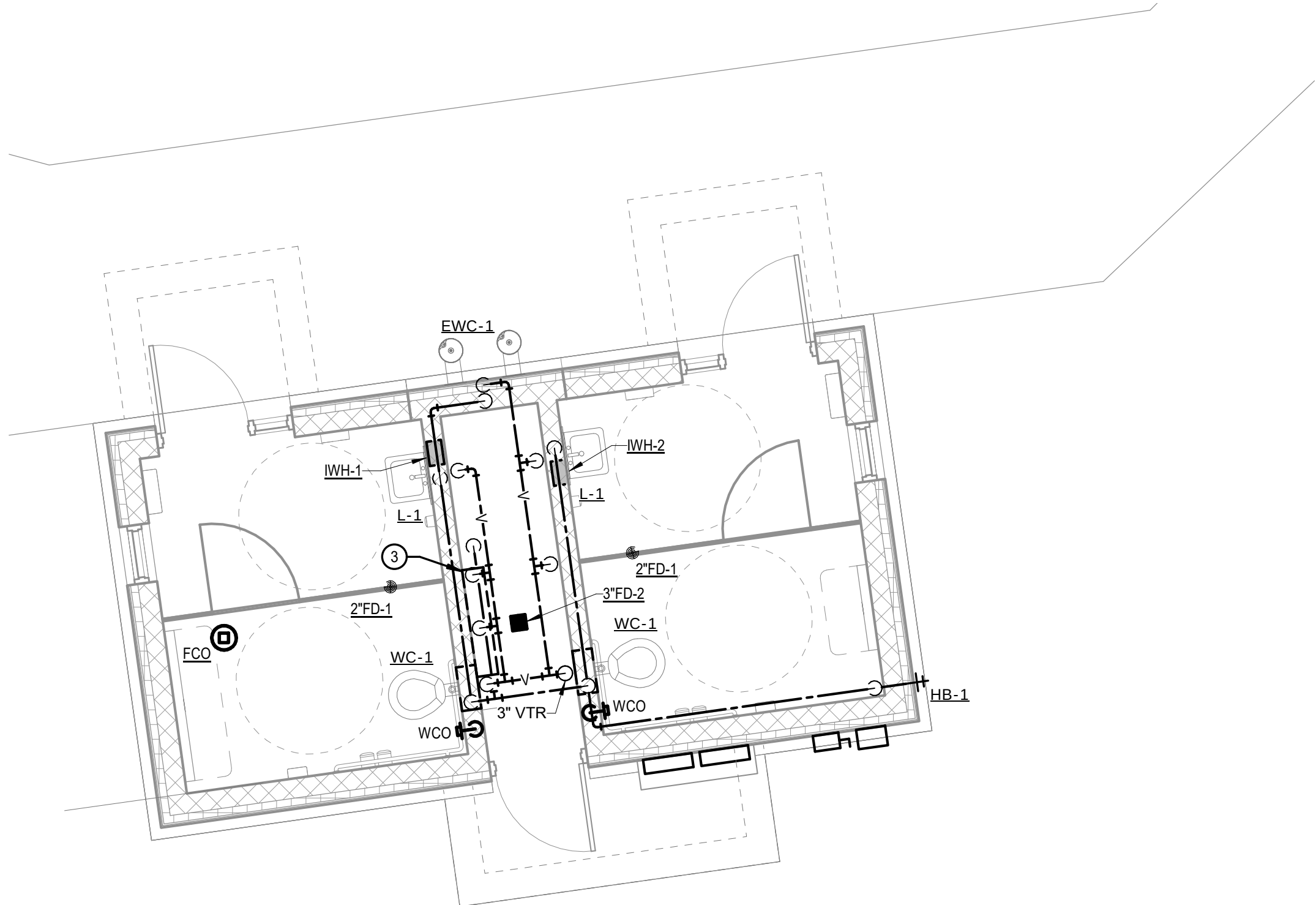
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2 FLOOR PLAN - RESTROOM - HVAC
1/4" = 1'-0"



1 FLOOR PLAN - RESTROOM - PLUMBING - UNDERSLAB
1/4" = 1'-0"



3 FLOOR PLAN - RESTROOM - PLUMBING
1/4" = 1'-0"

GENERAL NOTES:

1. INFORMATION SHOWN ON THE DRAWINGS IS INTENDED TO CONVEY SCOPE AND IS ARRANGED FOR DRAWING CLARITY. IT IS NOT TO BE TAKEN AS AN AS-BUILT CONDITION. THE SYSTEM INSTALLATION SHALL BE COORDINATED WITH STRUCTURE, CEILINGS, WALLS, AND ALL OTHER TRADES TO PROVIDE FOR A COMPLETE AND WORKING SYSTEM.
2. ALL DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT INCLUDE ALL OFFSETS, DROPS, AND RISES. CAREFULLY COORDINATE DUCT AND PIPE ROUTING WITH STRUCTURE AS WELL AS ALL OTHER TRADES TO MAINTAIN EQUIPMENT CLEARANCES, EQUIPMENT ACCESSIBILITY, DESIRED CEILING HEIGHTS, AND AESTHETICS. THE CONTRACTOR SHALL INCLUDE ANY NEEDED OFFSETS AND CHANGES OF DIRECTION IN THE BID PRICING.
3. COORDINATE ALL PIPING AND DUCTWORK PENETRATIONS WITH STRUCTURAL PRIOR TO CORE DRILLING OR CUTTING BEARING WALLS.
4. PROVIDE SHUT OFF VALVES ABOVE ACCESSIBLE CEILING OR OTHER ACCESSIBLE LOCATION FOR ALL BRANCH PIPING AND INDIVIDUAL CONNECTIONS TO PLUMBING FIXTURES. WHERE STOPS ARE PROVIDED FOR INDIVIDUAL FIXTURES SHUT OFF VALVES ARE ALSO REQUIRED AT THE BRANCH CONNECTION. PLUMBING STOPS ARE NOT CONSIDERED A SUBSTITUTE FOR SHUT OFF VALVES.
5. PROVIDE DRAIN DOWN VALVES AT ALL LOW POINTS IN THE DOMESTIC COLD WATER PIPING SYSTEM FOR WINTERIZATION OF THE BUILDING.

PLAN NOTES:

- 1 4" SANITARY SEWER SERVICE ENTRANCE LOCATION. 15 DFU LOAD. APPROXIMATE FLOWLINE 36" BELOW FINISHED FLOOR. REFER TO CIVIL DRAWINGS FOR CONTINUATION. COORDINATE EXACT LOCATION AND DEPTH WITH SITE UTILITIES CONTRACTOR PRIOR TO INSTALLATION. ALL SANITARY SEWER PIPING OUTSIDE THE BUILDING FOUNDATION IS SHOWN ON SHEET C7 SANITARY SEWER SERVICE CONNECTION PLAN (THE JCW PERMIT PLAN). THIS PIPING SHALL MEET JOHNSON COUNTY WASTE WATER STANDARD AND SHALL BE INSPECTED BY JOHNSON COUNTY WASTE WATER.
- 2 1-1/2" DOMESTIC SERVICE ENTRANCE. REFER TO CIVIL DRAWINGS FOR CONTINUATION. COORDINATE EXACT LOCATION AND DEPTH WITH SITE UTILITIES CONTRACTOR PRIOR TO INSTALLATION.
- 3 DOMESTIC COLD WATER SERVICE ENTRANCE, REFER TO DETAILS FOR ADDITIONAL INFORMATION.
- 4 8"ø EXHAUST DUCT UP THROUGH THE ROOF. FURNISH AND INSTALL ROOF CAP AND INSPECT SCREEN.
- 5 4" SAN UP TO CLEANOUT.
- 6 4" SAN UP TO WATER CLOSET.
- 7 3" SAN UP TO FLOOR DRAIN.
- 8 3" SAN UP TO 2" VENT.
- 9 2" SAN UP TO FLOOR DRAIN.
- 10 2" SAN UP TO 1-1/2" VENT.
- 11 2" SAN UP TO SINK/LAV.

CONSTRUCTION DOCUMENTS

FLOOR PLAN
RESTROOM -
PLUMBING

REVISIONS

DESIGNER / DRAFTER

DATE
01-15-2020

PROJECT NUMBER

BOOK AND PAGE

MISSOURI AUTHORIZATION NUMBER

M1

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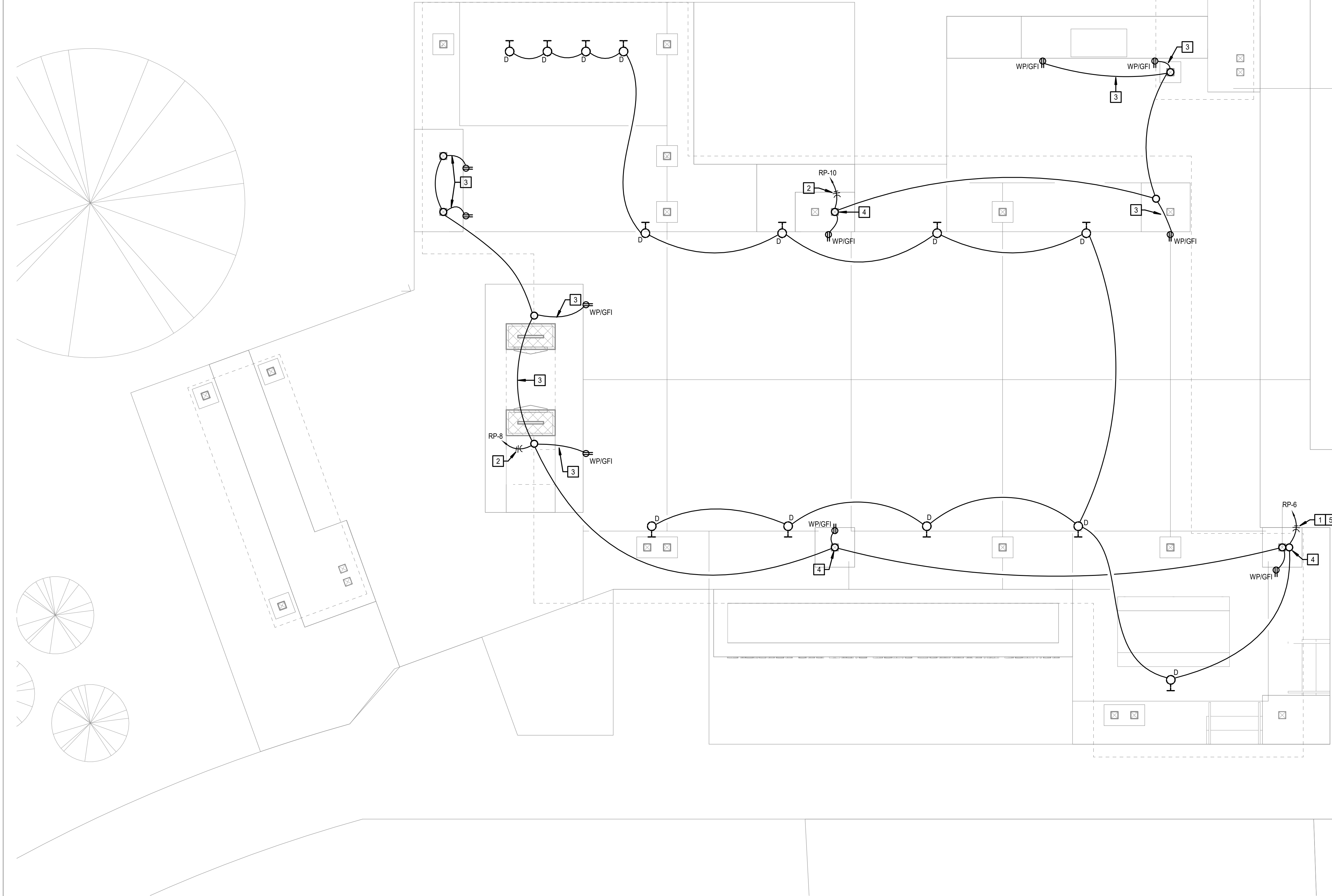
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project number 1919200



R PARK - PHASE 1
ROELAND PARK, KANSAS

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1 FLOOR PLAN - PAVILION - ELECTRICAL
1/4" = 1'-0"

GENERAL NOTES:

1. REFER TO ARCHITECTURAL FLOOR FOR EXACT MOUNTING LOCATIONS OF ALL WALL MOUNTED ELECTRICAL DEVICES.
2. REFER TO M/E SCHEDULES AND DETAILS FOR MECHANICAL EQUIPMENT CIRCUITING INFORMATION.
3. PROVIDE LOW VOLTAGE WIRING BETWEEN OCCUPANCY SENSORS AND TO CORRESPONDING POWER PACKS WITHIN EACH ROOM UNLESS NOTED OTHERWISE. REFER TO WIRING DIAGRAMS ON SHEET ME201 FOR MORE INFORMATION.
4. CONDUCTORS ARE #12, AND CONDUIT IS 1/2" UNLESS NOTED OTHERWISE.
5. ALL EXPOSED CONDUIT TO BE PAINTED. COORDINATE FINISH WITH ARCHITECT.
6. 120 V BRANCH CIRCUITING SHALL BE AS FOLLOWS: (UNLESS SPECIALLY NOTED OTHERWISE.)

0-100' = #12 AWG
101'-150' = #10 AWG
151'-250' = #8 AWG

ELECTRICAL PLAN NOTES:

- 1 (2) #8, #8 G., IN 1" C.
- 2 (2) #4, #4 G., IN 1" C.
- 3 ROUTE CONDUITS CONCEALED THROUGH MASONRY BEFORE ROUTING BELOW GRADE BACK TO PANEL.
- 4 ROUTE CONDUITS DOWN THROUGH COLUMNS TO GRADE FOR ROUTING BELOW GRADE BACK TO PANEL.
- 5 LIGHTING CIRCUIT HOME RUN SHALL BE ROUTED THROUGH ASTRONOMICAL TIME SWITCH FOR LIGHTING CIRCUIT ON/OFF CONTROL.

CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROELAND PARK, KANSAS

FLOOR PLAN
SHELTER -
ELECTRICAL

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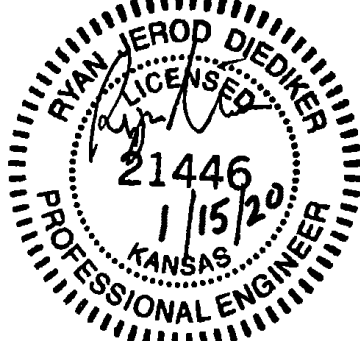
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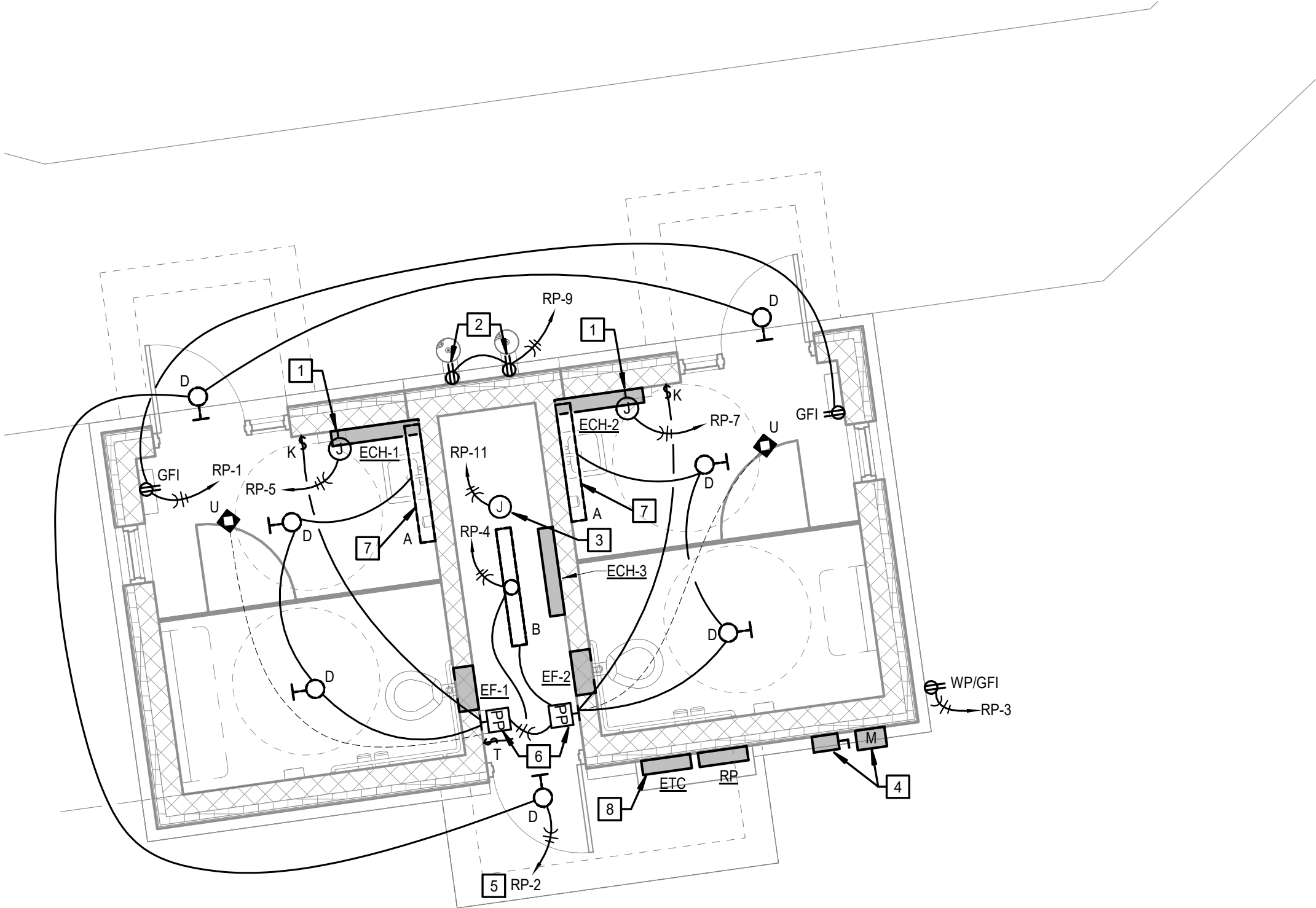
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1 FLOOR PLAN - RESTROOM - ELECTRICAL
1/4" = 1'-0"

GENERAL NOTES:

1. REFER TO SHEET E1 FOR GENERAL NOTES.

ELECTRICAL PLAN NOTES:

- 1 ELECTRIC CONNECTION TO HAND DRYER. PROVIDE AND INSTALL WORLD DRYER SLIMDRI HAND DRYER. VERIFY FINISH WITH ARCHITECT.
- 2 ELECTRICAL CONNECTION TO WATER COOLER.
- 3 HARD WIRED ELECTRIC CONNECTION TO HANDS FREE DEVICES. EXTEND LOW VOLTAGE CABLING TO EACH DEVICE IN RESTROOMS. COORDINATE REQUIRED LOCATION WITH PLUMBING FIXTURE SCHEDULE. PROVIDE STEP-DOWN CONTROL TRANSFORMERS AS REQUIRED. LOCATE ALL JUNCTION BOXES AND TRANSFORMERS WITHIN THE STORAGE/MECHANICAL ROOM.
- 4 200A SELF CONTAINED ELECTRIC SERVICE METER AND 200A/F200 NEMA 3R FUSED SERVICE DISCONNECT. REFER TO ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.
- 5 LIGHTING CIRCUIT HOME RUN SHALL BE ROUTED THROUGH ASTRONOMICAL TIME SWITCH FOR LIGHTING CIRCUIT ON/OFF CONTROL.
- 6 LOCATE POWER PACK FOR THE RESTROOM LIGHTING IN THE MECHANICAL/STORAGE ROOM. EXTEND LOW VOLTAGE CABLING TO THE SENSORS IN THE RESTROOMS.
- 7 VANSTY FIXTURE TO BE MOUNTED ON WALL CENTERED ABOVE MIRROR.
- 8 FURNISH AND INSTALL ASTRONOMICAL TIME SWITCH AND ALL REQUIRED CONDUIT AND WIRING FOR EXTERIOR LIGHTING CIRCUIT CONTROL. ASTRONOMICAL TIME SWITCH SHALL BE PROGRAMMED TO TURN EXTERIOR LIGHT FIXTURES ON AT DUSK AND OFF AT DAWN. ASTRONOMICAL TIME SWITCH BASIS OF DESIGN IS AN INTERMATIC ET8415CR WITH (4) 30 AMP CONTROL CIRCUITS IN A TYPE 3R STEEL ENCLOSURE OR APPROVED EQUAL.

CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROELAND PARK, KANSAS

FLOOR PLAN
RESTROOM -
ELECTRICAL

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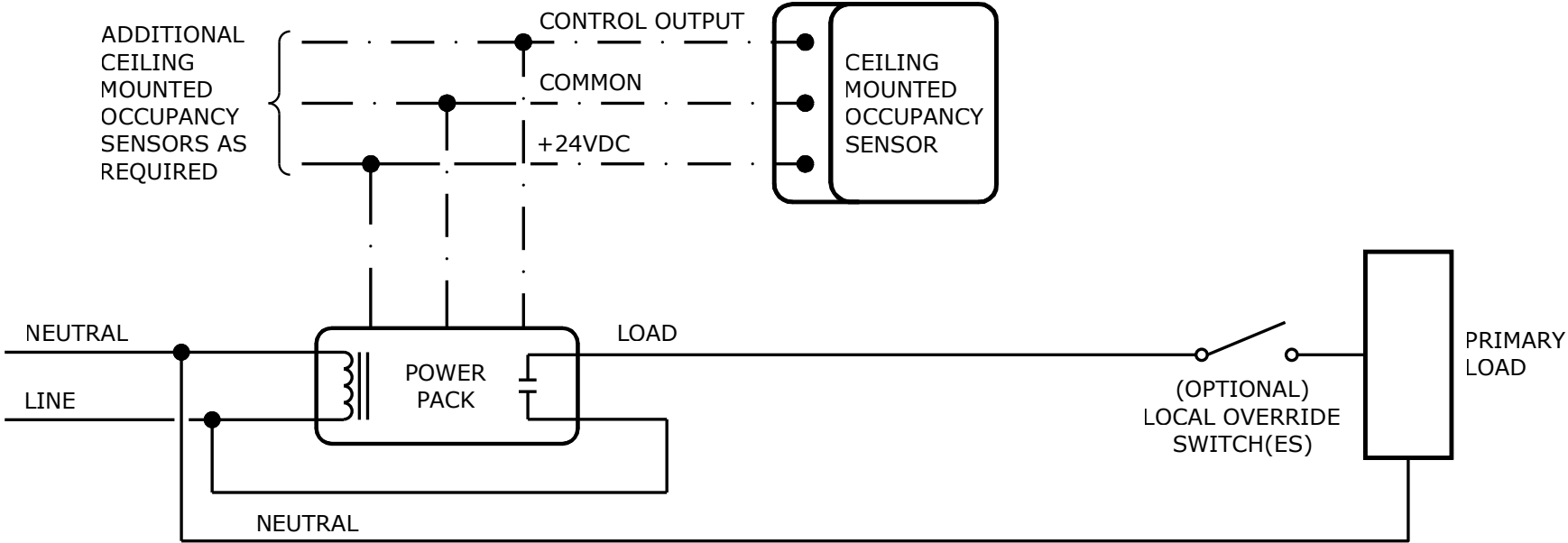
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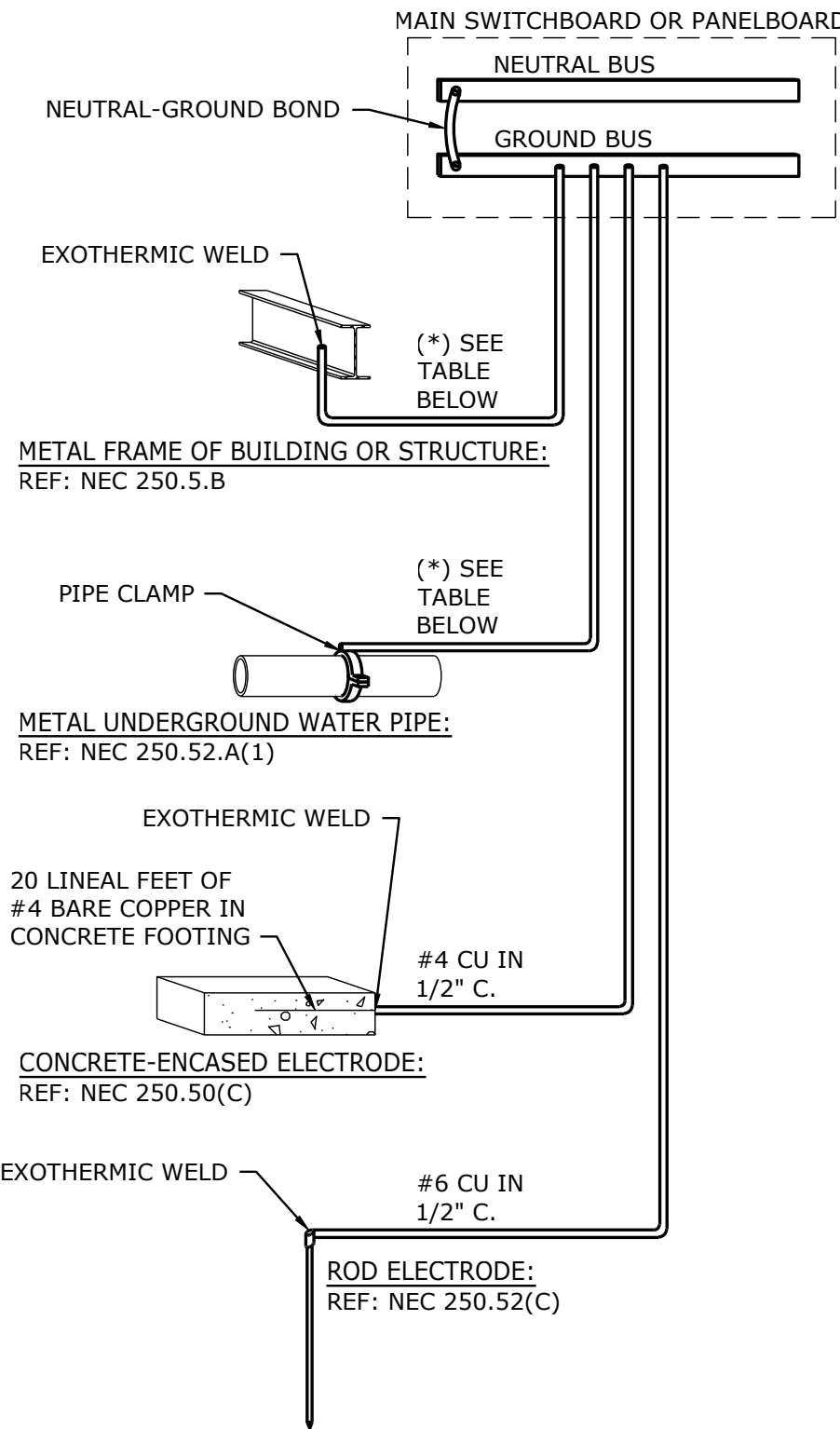
OCCUPANCY CONTROL DEVICE SCHEDULE						
SYMBOL	DESCRIPTION	DETECTION TYPE	MANUAL OVERRIDE	SETTINGS (TYPICAL)	MANUFACTURER/MODEL	NOTES
\$ _T	WALL MOUNTED DIGITAL TIMER SWITCH LINE VOLTAGE - SINGLE RELAY	NONE	INTEGRAL	ON: MANUAL OFF: 2 HOUR DELAY SCROLL: UP WARNING FLASH: ON WARNING SOUND: ON	WATTSTOPPER TS-400	1,2
\$ _K	WALL MOUNTED - KEYED SWITCH LINE VOLTAGE	NONE	(NOTE 4)	ON: MANUAL OFF: MANUAL	LEGRAND PS20 AC/WL	1,2
◊ _U	CEILING MOUNTED OCCUPANCY SENSOR LOW VOLTAGE - 1100 SF COVERAGE	ULTRASONIC	(NOTE 4)	ON: AUTOMATIC OFF: 30 MINUTE DELAY	WATTSTOPPER WT-1100	1,5,6,7
PP	OCCUPANCY SENSOR POWER PACK UNIVERSAL VOLTAGE - SINGLE RELAY	-	-	-	WATTSTOPPER BZ-50	1,3

NOTE 1: THE MANUFACTURERS AND MODELS LISTED ARE THE BASIS OF DESIGN, ALL PRODUCT SUBSTITUTIONS SUBMITTED MUST BE APPROVED AS EQUAL. REFER TO DRAWINGS FOR QUANTITIES.
NOTE 2: ALL WALL MOUNTED LIGHTING CONTROLS MUST HAVE MATCHING FINISHES TO THOSE LISTED IN SPECIFICATION SECTION 262726 - WIRING DEVICES.
NOTE 3: LOCATE DEVICE ABOVE ACCESSIBLE CEILING, LOCATIONS SHOWN ON DRAWINGS ARE SCHEMATIC.
NOTE 4: PROVIDE 8'-0" OF EXCESS CONTROL WIRING, COILED AND TIED, BETWEEN CEILING MOUNTED OCCUPANCY SENSORS AND CORRESPONDING POWER PACKS.
NOTE 5: OCCUPANCY SENSOR LOCATIONS SHOWN ON FLOOR PLANS ARE GENERIC, CONTRACTOR TO MODIFY LOCATIONS AS REQUIRED BASED COVERAGE CAPABILITIES OF SUBMITTED PRODUCTS.
NOTE 6: MODIFY LOCATIONS OF CEILING MOUNTED OCCUPANCY SENSORS AS REQUIRED SO THAT NO OCCUPANCY SENSOR IS WITHIN 4'-0" OF AN HVAC SUPPLY DIFFUSER.



LOW VOLTAGE OCCUPANCY SENSOR WIRING DIAGRAM WITH AUTOMATIC ON OPERATION

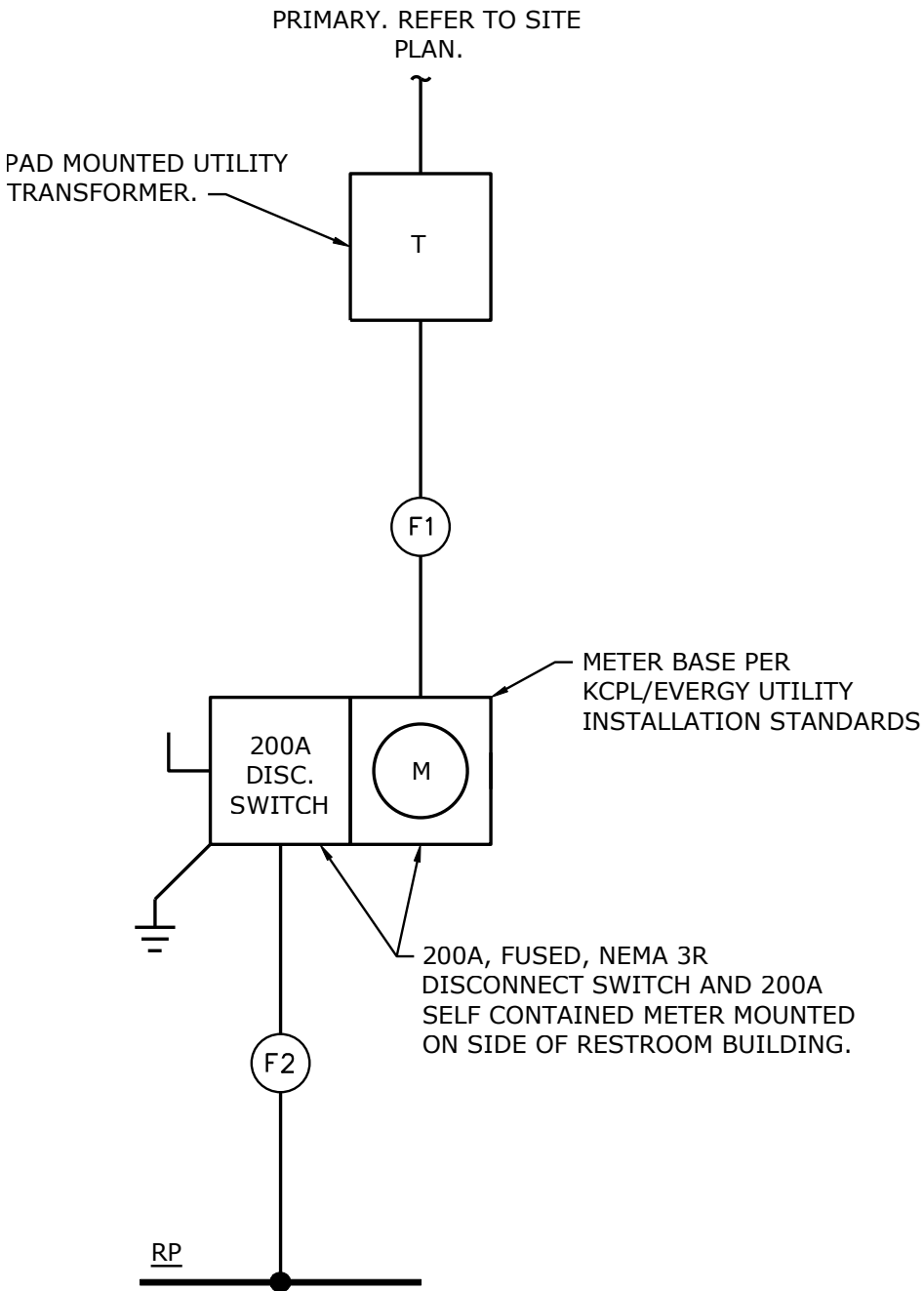
(SYMBOL PP, ◊_U)
NOT TO SCALE



SERVICE SIZE	(*)
400 AMPS OR LESS	#1/0 CU IN 3/4" C.
600 OR 800 AMPS	#2/0 CU IN 3/4" C.
1,000 AMPS OR MORE	#3/0 CU IN 1" C.

SERVICE GROUNDING DIAGRAM

NOT TO SCALE



FEEDER SCHEDULE	
NO.	CONDUCTORS AND CONDUIT
F1	(4)#3/0, 4" C.
F2	(4)#3/0, #6G., 2" C.

ONE LINE DIAGRAM

NOT TO SCALE

LIGHT FIXTURE SCHEDULE						
TYPE	DESCRIPTION	MOUNTING	LAMP	VOLTS	MANUFACTURER	V-A
A	8" WIDE X 4'-0" LONG VANDAL RESISTANT LED FIXTURE FOR EITHER CEILING OR WALL MOUNT. .125" THICK ACRYLIC LENS. TAMPER RESISTANT SCREWS. INTEGRAL DRIVER. COORDINATE EXACT MOUNTING HEIGHT WITH ARCHITECT. 2 ROWS LED, LOW ILLUMINATION LEVEL.	CEILING OR WALL MOUNT	LED 5675 LUMENS (DELIVERED) 4000K	120	FAIL-SAFE SERIES FVS8 OR PRE-BID APPROVED EQUAL	45.5
B	4'-0" LED INDUSTRIAL STRIP FIXTURE. INTEGRAL DRIVER.	CHAIN HANG TO 8'-0" A.F.F. UNLESS NOTED OTHERWISE	LED 4000 LUMENS (MINIMUM) 4000K	120	WILLIAMS SERIES 76-LED LITHONIA SERIES ZL1N DAYBRITE SERIES LF COLUMBIA SERIES LCS LSI SERIES S	48
D	4" WALL MOUNTED SQUARE DIRECT/INDIRECT AREA LIGHT. MEDIUM DISTRIBUTION, DARK BRONZE FINISH PREFERRED, BLACK FINISH ACCEPTABLE. MOUNTED ON STRUCTURE COORDINATED WITH ARCHITECT.	WALL	LED 2X444 LUMENS (DELIVERED) 4000K 90 CRI	120	LIGMAN UGI-31631 OR PRE-BID APPROVED EQUAL	12
F	4'-0" FULLY ENCLOSED LED STRIP WITH ACRYLIC DIFFUSER AND FIBERGLASS HOUSING. INTEGRAL DRIVER.	SURFACE TO BOTTOM OF BEAM	LED 4,000 LUMENS (DELIVERED) 4000K 85 CRI	120	WILLIAMS SERIES 96-LED LITHONIA SERIES FEM-LED DAYBRITE SERIES DW-LED LAMAR SERIES DV-LED COLUMBIA SERIES LXEM	40

ELECTRONIC TIME SWITCH - "ETC"

RELAY #	RELAY AREA DESCRIPTION	WATTS	CIRCUIT	LOCAL OVERRIDE	SCHEDULED ON	SCHEDULED OFF	NOTES
1	RESTROOM EXTERIOR LIGHTING	96	RP-2	NONE	DUSK	11:00 PM	1,2
2	PAVILION LIGHTING	160	RP-6	NONE	DUSK	11:00 PM	1,2
3	SPARE						
4	SPARE						

CABINET REQUIREMENTS:
1. BASIS OF DESIGN IS AN INTERMATIC ET8415CR. ALL PRODUCT SUBSTITUTIONS SUBMITTED MUST BE APPROVED AS EQUAL.
2. ALL RELAYS TO BE RATED FOR 20A (MINIMUM) - NORMALLY CLOSED.
3. ELECTRICAL CONTRACTOR TO PROVIDE CABLING AS REQUIRED BETWEEN THE TIME CLOCK AND PANELBOARDS.
4. SEVEN DAY TIME CLOCK INCLUDING SKIP-A-DAY CAPABILITY.
5. CAPABLE OF RECEIVING LOW VOLTAGE OCCUPANCY SENSOR INPUT FOR OVERRIDE-ON DURING NON-SCHEDULED HOURS OF OPERATION.

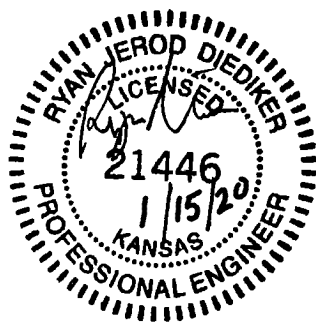
NOTES:
1. CONTROLLED BY TIME CLOCK
2. AFTER-HOURS OVERRIDE BY OCCUPANCY SENSORS CONNECTED TO TIME SWITCH. RELAY TO ONLY OVERRIDE-ON DURING HOURS OF DARKNESS.

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CONSTRUCTION DOCUMENTS

R PARK - PHASE 1
ROLAND PARK, KANSAS

SCHEDULES & DETAILS - ELECTRICAL

REVISIONS

DESIGNER / DRAFTER

DATE
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E3

