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# SUMMIT WAVES WAVE POOL ADDITION

CONSTRUCTION DOCUMENTS
APRIL 2019

FOR



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95% REVIEW SET

FOR REVIEW ONLY
Not for construction or permit purposes.

Kimley > Horn

A. MARK HATCHEL
2011010334 APRIL 2019

### GENERAL CONSTRUCTION NOTES

- ALL MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE CITY OF LEE'S SUMMIT MUNICIPAL CODES.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH ALL MATERIAL AND LABOR TO CONSTRUCT THE FACILITY AS SHOWN AND DESCRIBED IN THE CONSTRUCTION DOCUMENTS IN ACCORDANCE WITH THE APPROPRIATE APPROVING AUTHORITIES, SPECIFICATIONS AND REQUIREMENTS.
- 3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT THE VARIOUS UTILITY COMPANIES WHICH MAY HAVE UNDERGROUND OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PROVIDE 48 HOURS MINIMUM NOTICE TO ALL UTILITY COMPANIES AND THE CITY OF LEE'S SUMMIT PRIOR TO BEGINNING CONSTRUCTION. AN INFORMAL LIST OF UTILITY COMPANIES ARE AS FOLLOWS:
- ELECTRIC KANSAS CITY POWER AND LIGHT
- PHONE: (816) 701-7800 GAS - SPIRE ENERGY
- PHONE: (314) 776-9517
- CABLE COMCAST PHONE: 1-866-641-1625
- TELEPHONE AT&T PHONE: (816) 275-2721
- WATER LEE'S SUMMIT WATER UTILITIES PHONE: (816) 969-1900
- SANITARY SEWER LEE'S SUMMIT WATER UTILITIES PHONE: (816) 969-1900
- 4. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL PUBLIC UTILITIES IN THE CONSTRUCTION OF THIS PROJECT. ALL MANHOLES, CLEANOUTS, VALVE BOXES, FIRE HYDRANTS, ETC., MUST BE ADJUSTED TO PROPER GRADE BY THE CONTRACTOR PRIOR TO AND AFTER PLACING OF PERMANENT PAVING. UTILITIES MUST BE MAINTAINED TO PROPER LINE AND GRADE DURING CONSTRUCTION OF THE PAVING FOR THIS PROJECT.
- 5. BRACING OF UTILITY POLES MAY BE REQUIRED BY UTILITY COMPANIES WHEN TRENCHING OR EXCAVATION IS IN CLOSE PROXIMITY TO THE POLES. THE COST OF BRACING POLES WILL BE BORNE BY THE CONTRACTOR AND IS INCIDENTAL TO
- 6. THE LOCATIONS, ELEVATIONS, AND DIMENSIONS OF EXISTING UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE UTILITY COMPANY RECORDS AND PLANS AND ARE CONSIDERED APPROXIMATE. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO VERIFY LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ADJACENT AND/OR CONFLICTING UTILITIES SUFFICIENTLY IN ADVANCE OF CONSTRUCTION IN ORDER THAT ADJUSTMENTS CAN BE MADE TO PROVIDE ADEQUATE CLEARANCES. THE CONTRACTOR SHALL PRESERVE AND PROTECT PUBLIC UTILITIES AT ALL TIMES DURING CONSTRUCTION. ANY DAMAGE TO UTILITIES RESULTING FROM CONTRACTOR'S OPERATIONS SHALL BE RESTORED AT CONTRACTOR'S EXPENSE. THE ARCHITECT/ENGINEER SHALL BE IMMEDIATELY NOTIFIED WHEN PROPOSED GRADES CONFLICT WITH EXISTING UTILITIES.
- 7. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATION AND DEPTH OF ALL FRANCHISE UTILITY SERVICES AND ANY REQUIRED RELOCATIONS AND/OR EXTENSIONS
- 8. THE CONTRACTOR SHALL IMMEDIATELY REPAIR OR REPLACE ANY PHYSICAL DAMAGE TO OWNER'S PROPERTY OR ANY ADJACENT PROPERTIES, INCLUDING, BUT NOT LIMITED TO FENCES, WALLS, PAVEMENT, GRASS, TREES, AND LAWN SPRINKLER AND IRRIGATION SYSTEMS AT NO COST TO THE OWNER, OR OWNER'S AGENTS.
- 9. THE CONTRACTOR SHALL REMOVE AND DISPOSE ALL SURPLUS MATERIALS, SPOILS, AND DEBRIS OFF SITE. THIS WORK IS INCIDENTAL TO THE CONTRACT.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS AND APPROVALS PRIOR TO CONSTRUCTION.
- 11. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE AT ALL TIMES ONE COPY OF THE CONTRACT DOCUMENTS INCLUDING PLANS, SPECIFICATIONS, AND SPECIAL CONDITIONS, COPIES OF ANY REQUIRED CONSTRUCTION PERMITS, EROSION CONTROL PLANS, SWPPP AND INSPECTION REPORTS.
- 12. ANY DISCREPANCIES ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS FROM DESIGN ARE TO BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER AND NOTIFICATION TO THE ARCHITECT/ ENGINEER.
- 13. ALL COPIES OF COMPACTION, CONCRETE AND OTHER REQUIRED TEST RESULTS ARE TO BE SENT TO THE OWNER, ARCHITECT AND ENGINEER. ALLIANCE GEOTECHNICAL GROUP WILL PROVIDE TESTING FOR CONSTRUCTION.
- 14. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES,
  JURISDICTIONAL AGENCIES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED
  PRIOR TO THE FINAL CONNECTION OF SERVICES.
- 15. CONTRACTOR SHALL VERIFY BENCHMARKS AND DATUMS PRIOR TO COMMENCING CONSTRUCTION OR STAKING OF IMPROVEMENTS. CONTRACTOR SHALL IMMEDIATELY REPORT DISCREPANCIES TO THE ARCHITECT AND ENGINEER.
- 16. CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, LANDSCAPE, MEP, ARCHITECTURAL, AND OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. OWNER AND ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY PRIOR TO COMMENCING WITH CONSTRUCTION.
- 17. ALL HORIZONTAL DIMENSIONS GIVEN ARE TO BACK OF CURB AND TO PIPE CENTERLINES, UNLESS OTHERWISE NOTED ON PLANS.
- 18. REFER TO REMOVAL ITEMS SHEET FOR ALL TREE REMOVAL REQUIREMENTS.
- 19. CONTRACTOR ADJUSTMENTS TO SPOT GRADES TO MAINTAIN POSITIVE DRAINAGE IS ALLOWED WITH THE PRIOR APPROVAL OF THE ARCHITECT / ENGINEER.
- 20. THE CONTRACTOR SHALL SALVAGE AND PROTECT ALL EXISTING POWER POLES, SIGNS, MANHOLES, TELEPHONE RISERS, WATER VALVES, ETC. DURING ALL CONSTRUCTION PHASES UNLESS NOTED OTHERWISE.
- 21. CONTRACTOR STAGING AREA TO BE AGREED UPON BY OWNER PRIOR TO CONSTRUCTION.
- 22. ALL EXISTING CONCRETE PAVING, SIDEWALK, STRUCTURES AND CURBS NOTED FOR DEMOLITION SHALL BE REMOVED IN THEIR ENTIRETY AND DISPOSED OF BY THE CONTRACTOR, OFFSITE UNLESS OTHERWISE DIRECTED BY THE OWNER, ARCHITECT / ENGINEER.
- 23. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL PROVIDE AS-BUILT PLANS IDENTIFYING ALL DEVIATIONS OR VARIATIONS OF ORIGINAL PLANS.
- 24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF DUST AND DIRT RISING AND SCATTERING IN THE AIR DURING CONSTRUCTION AND SHALL PROVIDE WATER SPRINKLING OR OTHER SUITABLE METHODS OF CONTROL. THE CONTRACTOR SHALL COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION. THIS OR ANY OTHER MEANS OF CONTROL SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- 25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TAKING MEASURES TO MINIMIZE DAMAGE TO TREE LIMBS, TREE TRUNKS, AND TREE ROOTS ALONG THE ROUTE OF THE PROJECT. ALL SUCH MEASURES SHALL BE CONSIDERED AS INCIDENTAL WORK INCLUDED IN THE CONTRACT UNIT PRICE BID FOR APPLICABLE SITE WORK OR STRUCTURE INSTALLATION. WHEN CONSTRUCTION PASSES BY OR CLOSE TO TREES, THE CONTRACTOR SHALL ERECT TEMPORARY CONSTRUCTION FENCE TO LIMIT ACTIVITY OUTSIDE OF THE EASEMENT IN THE TREE AREAS. NO PARKING WILL BE ALLOWED UNDER DRIP LINE OR MINIMUM OF TEN (10) FEET OF ANY TREE TO REMAIN. CONTRACTOR SHALL INSPECT EACH WORK SITE IN ADVANCE AND ARRANGE TO HAVE ANY TREE LIMBS PRUNED THAT MIGHT BE DAMAGED BY EQUIPMENT OPERATIONS. THE OWNER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO ANY TREE TRIMMING WORK. NOTHING SHALL BE STORED OVER THE TREE ROOT SYSTEM WITHIN THE DRIP LINE AREA OF ANY TREE. THE CONTRACTOR SHALL EMPLOY A QUALIFIED LANDSCAPER FOR ALL THE WORK REQUIRED FOR TREE CARE TO ENSURE UTILIZATION OF THE BEST AGRICULTURAL PRACTICES AND PROCEDURES.

### **GRADING NOTES**

- 1. ALL PUBLIC WORKS CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LOCAL DESIGN AND TECHNICAL CONSTRUCTION
- 2. CONTRACTOR SHALL FIELD VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL EXISTING UTILITIES BEFORE CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR PROTECTING EXISTING UTILITIES (SHOWN OR NOT SHOWN) WITHIN SCOPE OF CONSTRUCTION. IF ANY EXISTING UTILITIES ARE DAMAGED, THE CONTRACTOR SHALL REPLACE THEM AT HIS
- 3. UPON COMPLETION OF CONSTRUCTION, CONTRACTOR SHALL PROVIDE AS-BUILT PLANS IDENTIFYING ALL DEVIATIONS OR VARIATIONS OF ORIGINAL PLANS.
- 4. ALL SPOT ELEVATIONS ARE PROPOSED PAVEMENT, OR TOP OF GRADE ELEVATIONS UNLESS OTHERWISE NOTED. TC= TOP OF CURB, EX= EXIST. GRADE, FF= FINISH FLOOR, ME = MATCH EXISTING, TD = TOP OF DRAIN, TW = TOP OF WALL, BW= BOTTOM OF WALL, TS = TOP OF STAIRS
- 5. THE CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, VAULT LIDS, FIRE HYDRANTS, POWER POLES, GUY WIRES, AND TELEPHONE BOXES WHICH ARE TO REMAIN IN PLACE AND UNDISTURBED DURING CONSTRUCTION.
- 6. REFERENCE GEOTECH REPORT AND SPECIFICATIONS PREPARED BY INTERTEK PSI, DATED DECEMBER 14TH, 2018 FOR BUILDING SLAB, POOL, PAVEMENT PREPARATION, COMPACTION, AND ALL EARTHWORK OPERATIONS.
- 7. THE CONTRACTOR SHALL CLEAR AND GRUB THE SITE AND PLACE, COMPACT, AND MOISTURE CONDITION ALL FILL PER THE GEOTECHNICAL ENGINEER'S SPECIFICATIONS. ANY FILL MATERIAL TO BE USED SHALL BE APPROVED BY THE GEOTECHNICAL
- 8. ALL SLOPES AND AREAS DISTURBED BY CONSTRUCTION SHALL BE GRADED SMOOTH. THE AREAS SHALL THEN BE SEEDED, IRRIGATED, AND STABILIZED AS INDICATED IN THE PLANS AND SPECIFICATIONS, AND MAINTAINED UNTIL SOIL IS STABILIZED IN ALL AREAS. ANY AREAS DISTURBED FOR ANY REASON PRIOR TO FINAL ACCEPTANCE OF THE CONSTRUCTION SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL EARTHEN AREAS WILL BE STABILIZED AND MULCHED AS SHOWN ON THE LANDSCAPE, GRADING, AND EROSION CONTROL PLANS.
- 9. ALL CUT OR FILL SLOPES SHALL BE 4:1 OR FLATTER UNLESS OTHERWISE INDICATED.

"VAN-ACCESSIBLE" MOUNTED BELOW THE SYMBOL OF ACCESSIBILITY.

### **ACCESSIBILITY NOTES**

ENGINEER PRIOR TO PLACEMENT.

- 1. ALL ACCESSIBLE SPACES AND ACCESSIBLE ROUTES SHALL COMPLY WITH THE CITY OF LEE'S SUMMIT AND MISSOURI ACCESSIBILITY STANDARDS AND CITY REQUIREMENTS.
- 2. PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.
- 3. EACH ACCESSIBLE PARKING SPACE SHALL BE DESIGNATED AS RESERVED BY A VERTICALLY MOUNTED OR SUSPENDED SIGN SHOWING THE SYMBOL OF ACCESSIBILITY. VAN ACCESSIBLE SPACES SHALL HAVE AN ADDITIONAL SIGN
- (A) CHARACTERS AND SYMBOLS ON SUCH SIGNS SHALL BE LOCATED 60" (1525 MM) MINIMUM ABOVE THE GROUND, FLOOR, OR PAVING SURFACE SO THEY CANNOT BE OBSCURED BY A VEHICLE PARKED IN THE SPACE.
- (B) SIGNS LOCATED WITHIN AN ACCESSIBLE ROUTE SHALL COMPLY WITH THE LATEST STANDARDS.
- (C) CHARACTERS AND SYMBOLS ON OVERHEAD SIGNS SHALL COMPLY WITH THE LATEST STANDARDS.
- 4. SLOPES OF CURB RAMPS SHALL COMPLY WITH 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN. TRANSITIONS FROM RAMPS TO WALKS, GUTTERS, OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20.
- 5. ALL ACCESSIBLE RAMPS, CURB RAMPS, STRIPING, AND PAVEMENT MARKING SHALL CONFORM TO ADA, LATEST EDITION.6. CURB RAMPS ALONG PUBLIC STREETS AND IN THE PUBLIC RIGHT-OF-WAY SHALL BE CONSTRUCTED BASED ON THE CITY STANDARD CONSTRUCTION DETAIL AND SPECIFICATIONS.
- 7. PRIVATE CURB RAMPS ON THE SITE (I.E. OUTSIDE PUBLIC STREET RIGHT-OF-WAY) SHALL CONFORM TO ADA AND SHALL HAVE A DETECTABLE WARNING SURFACE THAT IS FULL WIDTH AND FULL DEPTH OF THE CURB RAMP, NOT INCLUDING
- 8. CONTRACTOR SHALL CONSTRUCT PROPOSED PAVEMENT TO MATCH EXISTING PAVEMENT WITH A SMOOTH, FLUSH, CONNECTION
- 9. CONTRACTOR SHALL FURNISH AND INSTALL ALL PAVEMENT MARKING FOR FIRE LANES, PARKING STALLS, HANDICAPPED PARKING SYMBOLS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AND AROUND BUILDING AS SHOWN ON THE PLANS. ALL PAINTED AND PAVEMENT MARKINGS SHALL ADHERE TO CITY AND OWNER STANDARDS.
- 10. BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE ACCESSIBLE PEDESTRIAN ROUTES (PER ADA, AND FHA) EXIST TO AND FROM EVERY DOOR AND ALONG SIDEWALKS, ACCESSIBLE PARKING SPACES, ACCESS AISLES, AND ACCESSIBLE ROUTES. IN NO CASE SHALL AN ACCESSIBLE RAMP SLOPE EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPE EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPE EXCEED 5.0 PERCENT. ACCESSIBLE PARKING SPACES AND ACCESS AISLES SHALL NOT EXCEED 2.0 PERCENT SLOPE IN ANY DIRECTION
- 11. CONTRACTOR SHALL TAKE FIELD SLOPE MEASUREMENTS ON FINISHED SUBGRADE AND FORM BOARDS PRIOR TO PLACING PAVEMENT TO VERIFY THAT ADA SLOPE REQUIREMENTS ARE PROVIDED. CONTRACTOR SHALL CONTACT ENGINEER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDER WILL BE ACCEPTED FOR ADA SLOPE COMPLIANCE ISSUES.

### PAVING AND STRIPING NOTES

- 1. PAVEMENT DESIGN AND SOIL PREPARATION RECOMMENDATIONS GIVEN IN THE GEOTECHNICAL REPORT PREPARED BY INTERTEK PSI, DATED DECEMBER 14TH, 2018 (REPORT NO. 03381842) SHALL BE ADHERED TO FOR BOTH MATERIALS AND PRACTICE OF INSTALLATION.
- 2. ALL SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE "MISSOURI" MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" (M.U.T.C.D.) AND CITY STANDARDS.
- 3. CONTRACTOR SHALL FURNISH ALL PAVEMENT MARKINGS FOR FIRE LANES, ROADWAY LANES, PARKING STALLS, HANDICAPPED PARKING SYMBOLS, ACCESS AISLES, STOP BARS AND SIGNS, AND MISCELLANEOUS STRIPING WITHIN PARKING LOT AS SHOWN ON THE PLANS.
- 4. ALL JOINTS SHALL EXTEND THROUGH THE CURB.
- 5. THE MINIMUM LENGTH OF OFFSET JOINTS AT RADIUS POINTS SHALL BE 2 FEET.
- 6. ALL JOINTS, INCLUDING EXPANSION JOINTS SHALL BE SEALED WITH JOINT SEALANT.
- 7. THE MATERIALS AND PROPERTIES OF ALL CONCRETE SHALL MEET THE APPLICABLE REQUIREMENTS IN THE A.C.I. (AMERICAN CONCRETE INSTITUTE) MANUAL OF CONCRETE PRACTICE.
- 8. CONTRACTOR SHALL APPLY A SECOND COATING OVER ALL PAVEMENT MARKINGS PRIOR TO ACCEPTANCE BY OWNER. REFER TO SECTION 02580 IN THE PROJECT MANUAL FOR COMPLETE SPECIFICATION
- 9. ANY EXISTING PAVEMENT, CURBS AND/OR SIDEWALKS DAMAGED OR REMOVED WILL BE REPAIRED BY THE CONTRACTOR AT HIS EXPENSE TO THE SATISFACTION OF THE OWNER.
- 10. BEFORE PLACING PAVEMENT, CONTRACTOR SHALL VERIFY THAT SUITABLE HANDICAPPED ROUTES (PER A.D.A.) EXIST TO AND FROM EVERY DOOR. IN NO CASE SHALL HANDICAP RAMP SLOPES EXCEED 1 VERTICAL TO 12 HORIZONTAL. IN NO CASE SHALL SIDEWALK CROSS SLOPES EXCEED 2.0 PERCENT. IN NO CASE SHALL LONGITUDINAL SIDEWALK SLOPES EXCEED 5.0 PERCENT. CONTRACTOR SHALL CONTACT OWNER PRIOR TO PAVING IF ANY EXCESSIVE SLOPES ARE ENCOUNTERED. NO CONTRACTOR CHANGE ORDERS WILL BE ACCEPTED FOR A.D.A. COMPLIANCE ISSUES.

### STORM DRAINAGE NOTES

- ALL STORM SEWER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION DETAILS
   AND SPECIFICATIONS.
- 2. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE INSTALLATION OF THE STORM SEWER.
- 3. THE CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING STORM SEWER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY STORM
- 4. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF CURB INLETS AND GRATE INLETS AND ALL UTILITIES CROSSING THE STORM SEWER.

SEWER, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED

- 5. FLOW LINE, TOP-OF-CURB, RIM, THROAT, AND GRATE ELEVATIONS OF PROPOSED INLETS SHALL BE VERIFIED WITH THE GRADING PLAN AND FIELD CONDITIONS PRIOR TO THEIR INSTALLATION.
- 6. ALL PUBLIC STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY PUBLIC WORKS
- STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.

  7. ALL PRIVATE STORM SEWER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE
- PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.

  8. ALL PVC TO RCP CONNECTIONS AND ALL STORM PIPE CONNECTIONS ENTERING STRUCTURES OR OTHER STORM PIPES
- SHALL HAVE A CONCRETE COLLAR AND BE GROUTED TO ASSURE THE CONNECTION IS WATERTIGHT.
- 9. ALL PUBLIC STORM SEWER LINES SHALL BE MINIMUM CLASS III RCP. PRIVATE STORM SEWER LINES 18-INCHES AND GREATER SHALL BE CLASS III RCP OR OTHER APPROVED MATERIAL.
- 10. WHERE COVER EXCEEDS 20-FEET OR IS LESS THAN 2-FEET, CLASS IV RCP SHALL BE USED.
- 11. IF CONTRACTOR PROPOSES TO USE HDPE OR PVC IN LIEU OF RCP FOR PRIVATE STORM SEWER, CONTRACTOR SHALL SUBMIT TECHNICAL DATA TO THE OWNER, ENGINEER AND CITY ENGINEER/INSPECTOR FOR APPROVAL PRIOR TO ORDERING THE MATERIAL. ANY PROPOSED HDPE AND PVC SHALL BE WATERTIGHT.
- 13. EMBEDMENT FOR ALL STORM SEWER LINES. PUBLIC OR PRIVATE. SHALL BE PER CITY STANDARD DETAILS.
- 14. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT PRIOR WRITTEN APPROVAL OF THE CITY
- 15. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

### WATER AND WASTEWATER NOTES

- ALL WATER AND WASTEWATER MATERIALS AND CONSTRUCTION SHALL COMPLY WITH CITY STANDARD CONSTRUCTION
  DETAILS AND SPECIFICATIONS
- 2. CONTRACTOR SHALL FIELD VERIFY THE SIZE, CONDITION, HORIZONTAL, AND VERTICAL LOCATIONS OF ALL EXISTING WATER AND WASTEWATER FACILITIES THAT ARE TO BE CONNECTED TO, PRIOR TO START OF CONSTRUCTION OF ANY WATER OR WASTEWATER CONSTRUCTION, AND SHALL NOTIFY THE ENGINEER OF ANY CONFLICTS DISCOVERED.
- 3. CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS SHOWN, INCLUDING THE HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITY SERVICES ENTERING THE BUILDING.
- 4. THE CONTRACTOR SHALL FIELD VERIFY THE ELEVATION OF ALL UTILITY CROSSINGS PRIOR TO THE INSTALLATION OF ANY PIPE
- 5. THE SITE UTILITY CONTRACTOR SHALL PROVIDE ALL MATERIALS AND APPURTENANCES NECESSARY FOR COMPLETE
- INSTALLATION OF THE WATER AND WASTEWATER IMPROVEMENTS.

  6. ALL PUBLIC WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO CITY
- PUBLIC WORKS STANDARD DETAILS AND SPECIFICATIONS. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
- 7. ALL PRIVATE WATER AND WASTEWATER CONSTRUCTION, PIPE, STRUCTURES, AND FITTINGS SHALL ADHERE TO THE APPLICABLE PLUMBING CODE. CONTRACTOR SHALL ARRANGE FOR REQUIRED CITY INSPECTIONS.
- 8. EMBEDMENT FOR ALL WATER AND WASTEWATER LINES, PUBLIC OR PRIVATE, SHALL BE PER CITY STANDARD DETAILS.
- 9. CONTRACTOR SHALL TAKE REQUIRED SANITARY PRECAUTIONS, FOLLOWING ANY CITY, MDNR, AND AWWA STANDARDS, TO KEEP WATER PIPE AND FITTINGS CLEAN AND CAPPED AT TIMES WHEN INSTALLATION IS NOT IN PROGRESS.
- 10. ALL WATER AND WASTEWATER SERVICES SHALL TERMINATE 5-FEET OUTSIDE THE BUILDING, UNLESS NOTED OTHERWISE.
- 11. CONTRACTOR SHALL COMPLY WITH CITY REQUIREMENTS FOR WATER AND WASTEWATER SERVICE DISRUPTIONS AND THE AMOUNT OF PRIOR NOTICE THAT IS REQUIRED, AND SHALL COORDINATE DIRECTLY WITH THE APPROPRIATE CITY DEPARTMENT.
- 12. CONTRACTOR SHALL SEQUENCE WATER AND WASTEWATER CONSTRUCTION TO AVOID INTERRUPTION OF SERVICE TO
- 13. CONTRACTOR SHALL MAINTAIN WATER SERVICE AND WASTEWATER SERVICE TO ALL CUSTOMERS THROUGHOUT CONSTRUCTION (IF NECESSARY, BY USE OF TEMPORARY METHODS APPROVED BY THE CITY AND OWNER). THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
- 14. THE CONTRACTOR IS RESPONSIBLE TO PROTECT ALL WATER AND WASTEWATER LINES CROSSING THE PROJECT. THE CONTRACTOR SHALL REPAIR ALL DAMAGED LINES IMMEDIATELY. ALL REPAIRS OF EXISTING WATER MAINS, WATER SERVICES, SEWER MAINS, AND SANITARY SEWER SERVICES ARE SUBSIDIARY TO THE WORK, AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
- 15. VALVE ADJUSTMENTS SHALL BE CONSTRUCTED SUCH THAT THE COVERS ARE AT FINISHED SURFACE GRADE OF THE PROPOSED PAVEMENT.
- 16. THE ENDS OF ALL EXISTING WATER MAINS THAT ARE CUT, BUT NOT REMOVED, SHALL BE PLUGGED AND ABANDONED IN PLACE. THIS WORK SHALL BE CONSIDERED AS A SUBSIDIARY COST TO THE PROJECT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.
- 17. ALL FIRE HYDRANTS, VALVES, TEES, BENDS, WYES, REDUCERS, FITTINGS, AND ENDS SHALL BE MECHANICALLY RESTRAINED AND/OR THRUST BLOCKED TO CITY STANDARDS.
- 18. CONTRACTOR SHALL INSTALL A FULL SEGMENT OF WATER OR WASTEWATER PIPE CENTERED AT ALL UTILITY CROSSINGS SO THAT THE JOINTS ARE GREATER THAN 9-FEET FROM THE CROSSING.
- 19. ALL CROSSINGS AND LOCATIONS WHERE WASTEWATER IS LESS THAN 9-FEET FROM WATER, WASTEWATER

CONSTRUCTION AND MATERIALS SHALL COMPLY WITH MDNR STANDARDS.

MATERIALS SHALL COMPLY WITH MDNR STANDARDS.

- 20. ALL CROSSING AND LOCATIONS WHERE WATER IS LESS THAN 9-FEET FROM WASTEWATER, WATER CONSTRUCTION AND
- 21. ALL WATER AND WASTEWATER SHALL BE TESTED IN ACCORDANCE WITH THE CITY, AWWA, AND MDNR STANDARDS AND SPECIFICATIONS. AT A MINIMUM, THIS SHALL CONSIST OF THE FOLLOWING:
- 22. ALL WATERLINES SHALL BE HYDROSTATICALLY TESTED AND CHLORINATED BEFORE BEING PLACED INTO SERVICE.

  CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THEIR REQUIRED PROCEDURES AND SHALL ALSO COMPLY WITH

  MDNR REGUI ATIONS
- 23. WASTEWATER LINES AND MANHOLES SHALL BE PRESSURE TESTED. CONTRACTOR SHALL COORDINATE WITH THE CITY FOR THEIR REQUIRED PROCEDURES AND SHALL ALSO COMPLY WITH MDNR REGULATIONS. AFTER COMPLETION OF THESE TESTS, A TELEVISION INSPECTION SHALL BE PERFORMED AND PROVIDED TO THE CITY AND OWNER ON A DVD.
- 24. CONTRACTOR SHALL INSTALL DETECTABLE WIRING OR MARKING TAPE A MINIMUM OF 12" ABOVE WATER AND WASTEWATER LINES. MARKER DECALS SHALL BE LABELED "CAUTION WATER LINE", OR "CAUTION SEWER LINE". DETECTABLE WIRING AND MARKING TAPE SHALL COMPLY WITH CITY STANDARDS, AND SHALL BE INCLUDED IN THE COST OF THE WATER AND WASTEWATER PIPE.
- 25. DUCTILE IRON PIPE SHALL BE PROTECTED FROM CORROSION BY A LOW-DENSITY POLYETHYLENE LINER WRAP THAT IS AT LEAST A SINGLE LAYER OF 8-MIL. ALL DUCTILE IRON JOINTS SHALL BE BONDED.
- 26. WATERLINES SHALL BE INSTALLED AT NO LESS THAN THE MINIMUM COVER REQUIRED BY THE CITY.
- 27. CONTRACTOR SHALL PROVIDE CLEAN-OUTS FOR PRIVATE SANITARY SEWER LINES AT ALL CHANGES IN DIRECTION AND 100-FOOT INTERVALS, OR AS REQUIRED BY THE APPLICABLE PLUMBING CODE. CLEAN-OUTS REQUIRED IN PAVEMENT OR SIDEWALKS SHALL HAVE CAST IRON COVERS FLUSH WITH FINISHED GRADE.
- 28. CONTRACTOR SHALL PROVIDE BACKWATER VALVES FOR PLUMBING FIXTURES AS REQUIRED BY THE APPLICABLE PLUMBING CODE (E.G. FLOOR ELEVATION OF FIXTURE UNIT IS BELOW THE ELEVATION OF THE MANHOLE COVER OF THE NEXT UPSTREAM MANHOLE IN THE PUBLIC SEWER). CONTRACTOR SHALL REVIEW BOTH MEP AND CIVIL PLANS TO CONFIRM WHERE THESE ARE REQUIRED.
- 29. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND SUBMITTING A TRENCH SAFETY PLAN, PREPARED BY A PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI, TO THE CITY PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TRENCH SAFETY REQUIREMENTS IN ACCORDANCE WITH CITY, STATE, AND FEDERAL REQUIREMENTS, INCLUDING OSHA FOR ALL TRENCHES. NO OPEN TRENCHES SHALL BE ALLOWED OVERNIGHT WITHOUT
- PRIOR WRITTEN APPROVAL OF THE CITY.

  30. THE CONTRACTOR SHALL KEEP TRENCHES FREE FROM WATER.

### **EROSION CONTROL NOTES**

SPECIFICATIONS FOR THE PROJECT.

- 1. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL EROSION CONTROL AND WATER QUALITY REQUIREMENTS, LAWS, AND ORDINANCES THAT APPLY TO THE CONSTRUCTION SITE LAND DISTURBANCE.
- 2. EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN FOR THE PROJECT SHALL BE INSTALLED PRIOR
- 3. ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND
- 4. CONTRACTOR IS SOLELY RESPONSIBLE FOR INSTALLATION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL EROSION CONTROL DEVICES, BEST MANAGEMENT PRACTICES (BMPS), AND FOR UPDATING THE EROSION CONTROL PLAN DURING CONSTRUCTION AS FIELD CONDITIONS CHANGE.
- 5. CONTRACTOR SHALL DOCUMENT THE DATES OF INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL FOR EACH BMP EMPLOYED IN THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE.
- 6. AS STORM SEWER INLETS ARE INSTALLED ON-SITE, TEMPORARY EROSION CONTROL DEVICES SHALL BE INSTALLED AT EACH INLET PER APPROVED DETAILS.
- 7. THE EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL THE AREA IT PROTECTS HAS BEEN PERMANENTLY STABILIZED.
- 8. CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL DEVICES NEEDED DUE TO PROJECT PHASING.
- 9. CONTRACTOR SHALL OBSERVE THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES AND MAKE FIELD ADJUSTMENTS AND MODIFICATIONS AS NEEDED TO PREVENT SEDIMENT FROM LEAVING THE SITE. IF THE EROSION CONTROL DEVICES DO NOT EFFECTIVELY CONTROL EROSION AND PREVENT SEDIMENTATION FROM WASHING OFF THE SITE, THEN THE CONTRACTOR SHALL NOTIFY THE ENGINEER.
- 10. OFF-SITE SOIL BORROW, SPOIL, AND STORAGE AREAS (IF APPLICABLE) ARE CONSIDERED AS PART OF THE PROJECT SITE AND MUST ALSO COMPLY WITH THE EROSION CONTROL REQUIREMENTS FOR THIS PROJECT. THIS INCLUDES THE INSTALLATION OF BMP'S TO CONTROL EROSION AND SEDIMENTATION AND THE ESTABLISHMENT OF PERMANENT GROUND COVER ON DISTURBED AREAS PRIOR TO FINAL APPROVAL OF THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP AND EROSION CONTROL PLAN TO INCLUDE BMPS FOR ANY OFF-SITE THAT ARE NOT ANTICIPATED OR SHOWN ON THE EROSION CONTROL PLAN.
- 11. ALL STAGING, STOCKPILES, SPOIL, AND STORAGE SHALL BE LOCATED SUCH THAT THEY WILL NOT ADVERSELY AFFECT STORM WATER QUALITY. PROTECTIVE MEASURES SHALL BE PROVIDED IF NEEDED TO ACCOMPLISH THIS REQUIREMENT, SUCH AS COVERING OR ENCIRCLING THE AREA WITH AN APPROPRIATE BARRIER.
- 12. CONTRACTORS SHALL INSPECT ALL EROSION CONTROL DEVICES, BMPS, DISTURBED AREAS, AND VEHICLE ENTRY AND EXIT AREAS WEEKLY AND WITHIN 24 HOURS OF ALL RAINFALL EVENTS OF 0.5 INCHES OR GREATER, AND KEEP A RECORD OF THIS INSPECTION IN THE SWPPP BOOKLET IF APPLICABLE, TO VERIFY THAT THE DEVICES AND EROSION CONTROL PLAN ARE FUNCTIONING PROPERLY.
- 13. CONTRACTOR SHALL CONSTRUCT A STABILIZED CONSTRUCTION ENTRANCE AT ALL PRIMARY POINTS OF ACCESS IN ACCORDANCE WITH CITY SPECIFICATIONS. CONTRACTOR SHALL ENSURE THAT ALL CONSTRUCTION TRAFFIC USES THE STABILIZED ENTRANCE AT ALL TIMES FOR ALL INGRESS/EGRESS.
- SITE ENTRY AND EXITS SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT THE TRACKING AND FLOWING OF SEDIMENT AND DIRT ONTO OFF-SITE ROADWAYS. ALL SEDIMENT AND DIRT FROM THE SITE THAT IS DEPOSITED ONTO AN OFF-SITE ROADWAY SHALL BE REMOVED IMMEDIATELY.
   THE CONTRACTOR IS RESPONSIBLE FOR REMOVING ALL SILT AND DEBRIS FROM THE AFFECTED OFF-SITE ROADWAYS
- THAT ARE A RESULT OF THE CONSTRUCTION, AS REQUESTED BY OWNER AND CITY. AT A MINIMUM, THIS SHOULD OCCUR ONCE PER DAY FOR THE OFF-SITE ROADWAYS.

16. WHEN WASHING OF VEHICLES IS REQUIRED TO REMOVE SEDIMENT PRIOR TO EXITING THE SITE, IT SHALL BE DONE IN AN

- AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP BMP.

  17. ALL FINES IMPOSED FOR SEDIMENT OR DIRT DISCHARGED FROM THE SITE SHALL BE PAID BY THE RESPONSIBLE
- 18. WHEN SEDIMENT OR DIRT HAS CLOGGED THE CONSTRUCTION ENTRANCE VOID SPACES BETWEEN STONES OR DIRT IS BEING TRACKED ONTO A ROADWAY, THE AGGREGATE PAD MUST BE WASHED DOWN OR REPLACED. RUNOFF FROM THE WASH-DOWN OPERATION SHALL NOT BE ALLOWED TO DRAIN DIRECTLY OFF SITE WITHOUT FIRST FLOWING THROUGH ANOTHER BMP TO CONTROL SEDIMENTATION. PERIODIC RE-GRADING OR NEW STONE MAY BE REQUIRED TO MAINTAIN THE EFFECTIVENESS OF THE CONSTRUCTION ENTRANCE.
- 19. TEMPORARY SEEDING OR OTHER APPROVED STABILIZATION SHALL BE INITIATED WITHIN 14 DAYS OF THE LAST DISTURBANCE OF ANY AREA, UNLESS ADDITIONAL CONSTRUCTION IN THE AREA IS EXPECTED WITHIN 21 DAYS OF THE LAST DISTURBANCE.
- 20. CONTRACTOR SHALL FOLLOW GOOD HOUSEKEEPING PRACTICES DURING CONSTRUCTION, ALWAYS CLEANING UP DIRT, LOOSE MATERIAL, AND TRASH AS CONSTRUCTION PROGRESSES.
- 21. UPON COMPLETION OF FINE GRADING, ALL SURFACES OF DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED.
  STABILIZATION IS ACHIEVED WHEN THE AREA IS EITHER COVERED BY PERMANENT IMPERVIOUS STRUCTURES, SUCH AS BUILDINGS. SIDEWALK. PAVEMENT. OR A UNIFORM PERENNIAL VEGETATIVE COVER.
- 22. AT THE CONCLUSION OF THE PROJECT, ALL INLETS, DRAIN PIPE, CHANNELS, DRAINAGEWAYS AND BORROW DITCHES AFFECTED BY THE CONSTRUCTION SHALL BE DREDGED, AND THE SEDIMENT GENERATED BY THE PROJECT SHALL BE REMOVED AND DISPOSED IN ACCORDANCE WITH APPLICABLE REGULATIONS

## STORM WATER DISCHARGE AUTHORIZATION NOTES

- CONTRACTOR SHALL COMPLY WITH ALL MDNR AND EPA STORM WATER POLLUTION PREVENTION REQUIREMENTS.
- 2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IF APPLICABLE, INCLUDING POSTING SITE NOTICE, INSPECTIONS, DOCUMENTATION, AND SUBMISSION OF ANY INFORMATION REQUIRED BY THE MONR AND EPA (F.G. NOI)
- 3. ALL CONTRACTORS AND SUBCONTRACTORS PROVIDING SERVICES RELATED TO THE SWPPP SHALL SIGN THE REQUIRED CONTRACTOR CERTIFICATION STATEMENT ACKNOWLEDGING THEIR RESPONSIBILITIES AS SPECIFIED IN THE SWPPP.
- 4. A COPY OF THE SWPPP, INCLUDING NOI, SITE NOTICE, CONTRACTOR CERTIFICATIONS, AND ANY REVISIONS, SHALL BE SUBMITTED TO THE CITY BY THE CONTRACTOR AND SHALL BE RETAINED ON-SITE DURING CONSTRUCTION.
- 5. A NOTICE OF TERMINATION (NOT) SHALL BE SUBMITTED TO MDNR BY ANY PRIMARY OPERATOR WITHIN 30 DAYS AFTER ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND A UNIFORM VEGETATIVE COVER HAS BEEN ESTABLISHED ON ALL UNPAVED AREAS AND AREAS NOT COVERED BY STRUCTURES, A TRANSFER OF OPERATIONAL CONTROL HAS OCCURRED, OR THE OPERATOR HAS OBTAINED ALTERNATIVE AUTHORIZATION UNDER A DIFFERENT PERMIT. A COPY OF THE NOT SHALL BE PROVIDED TO THE OPERATOR OF ANY MS4 RECEIVING DISCHARGE FROM THE SITE.

Suite 700, Dallas, Texas 75240
0-5600 FAX: 214-420-5680
IIMLEY-HORN.COM
STRATION NUMBER 001512

13455 Noel Road, Suite 700, I PHONE: 214-420-5600 FA WWW.KIMLEY-HC MISSOURI REGISTRATION

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LA MARK HATCHEL

2011010334 Date APRIL 2019

SUMMIT WAVES

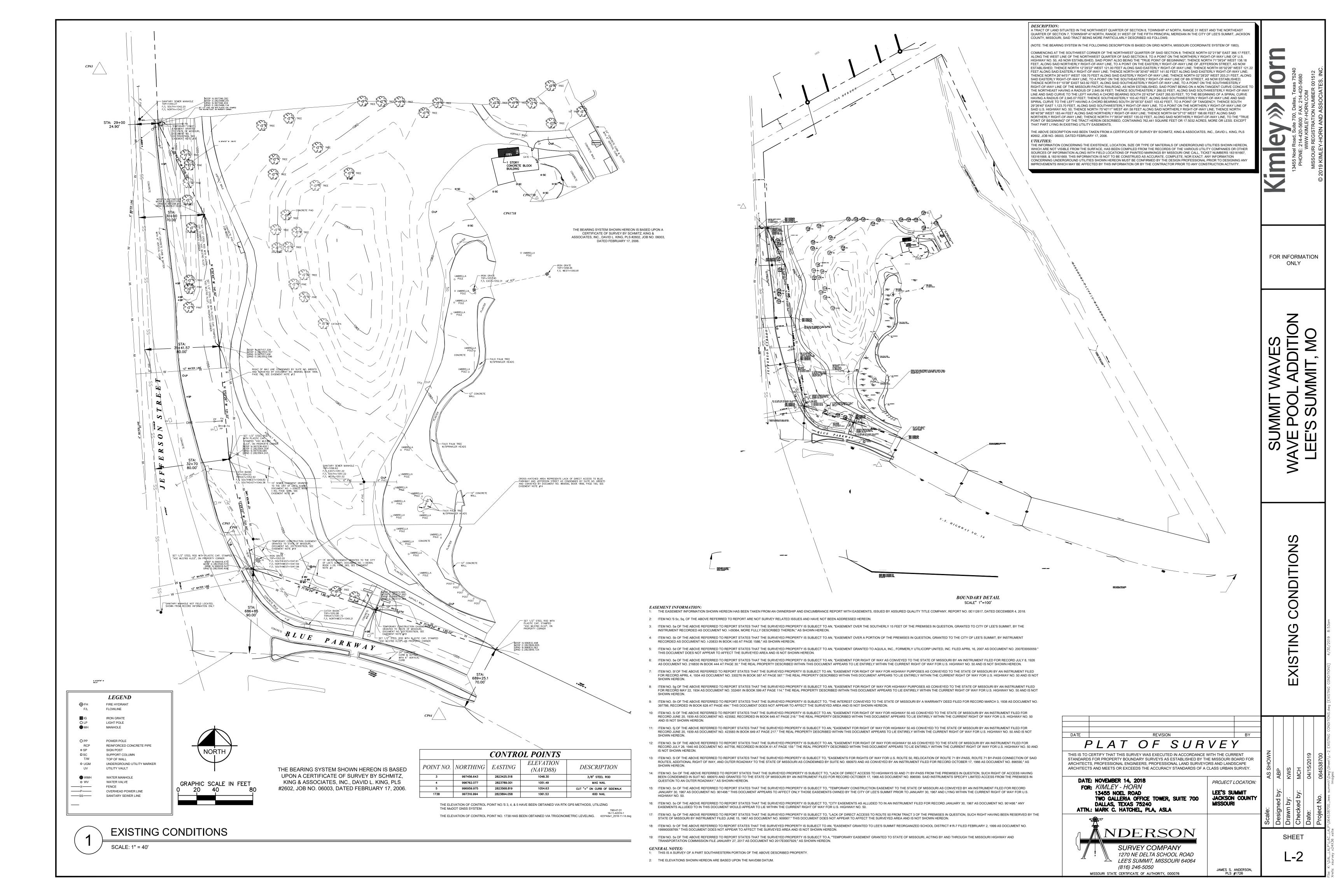
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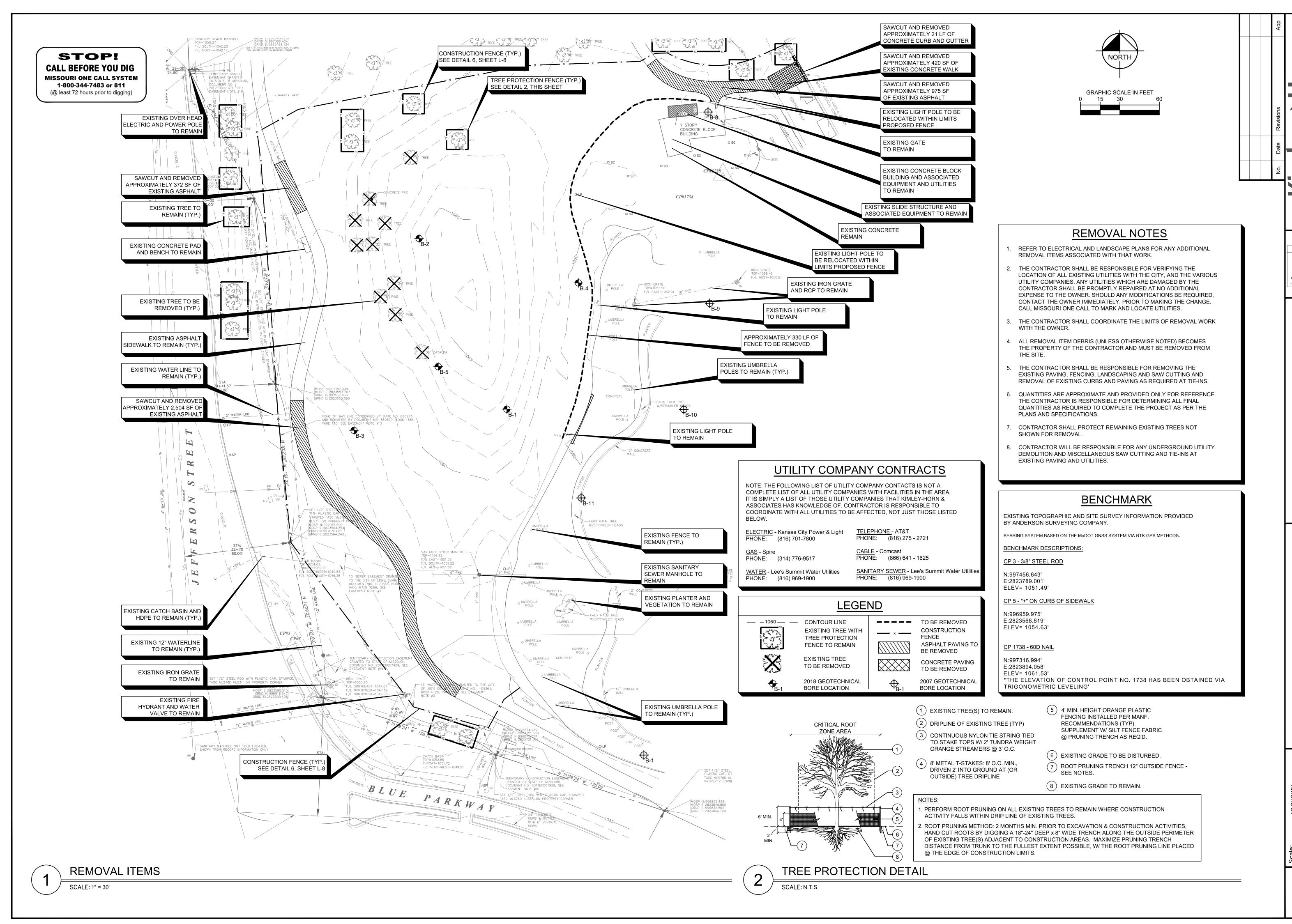
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A, No. 2011010334 Date APRIL 2019

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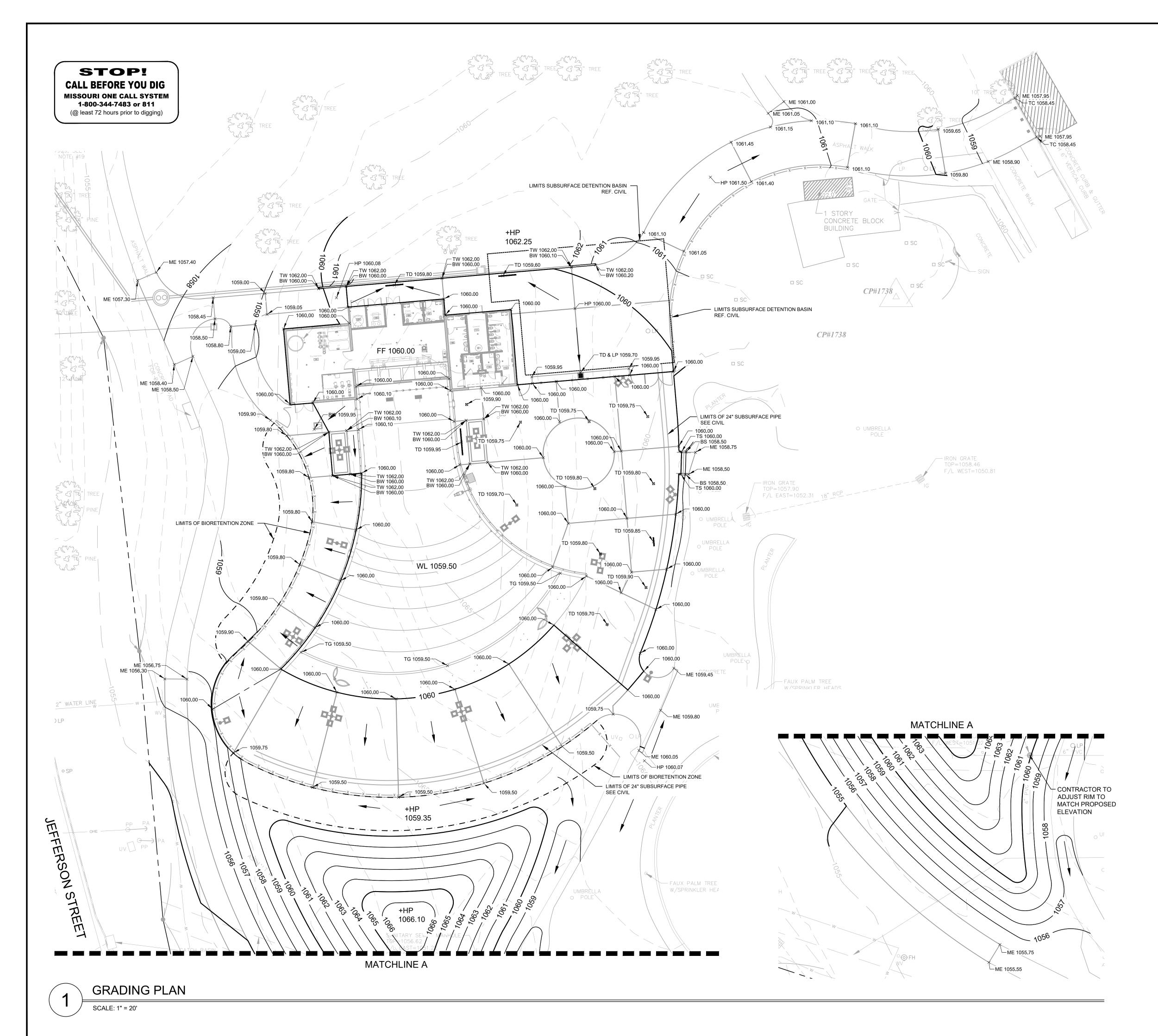
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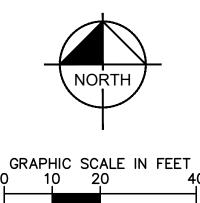
REMOVAL ITEMS

7 by: KWS

Ked by: MCH
04/15/2019
ct No. 064538700
ct No. 064538700

Check Date: Date:





### LEGEND

<del></del> 1060	PROPOSED CONTOUR
<u> </u>	EXISTING CONTOUR
FF	FINISHED FLOOR
TD	TOP OF DRAIN
TC	TOP OF CURB
BC	BOTTOM OF CURB
TR	TOP OF RAMP
BR	BOTTOM OF RAMP
ME	MATCH EXISTING
WL	WATER LEVEL
TS	TOP OF STAIR
BS	BOTTOM OF STAIR
x 1060.00	PROPOSED ELEVATION
HP	HIGH POINT
LP	LOW POINT

### **GRADING NOTES**

- REFER TO ARCHITECTURAL PLANS FOR EXACT GRADE REQUIREMENTS OF PAVEMENT AT DOORS TO MEET BUILDINGS AND ADA REQUIREMENTS AND FLOOR DRAIN/SLAB GRADING.
- THE CONTRACTOR SHALL EMPLOY A LICENSED PUBLIC SURVEYOR TO SET ALL GRADES, SPOT ELEVATIONS, FLOWLINES, POOL COPING AND FLOOR LEVELS, ETC.
- SHOULD ANY MODIFICATIONS BE REQUIRED TO THE PROPOSED SPOT GRADES DUE TO CONDITIONS ENCOUNTERED IN THE FIELD, CONTACT THE ENGINEER IMMEDIATELY PRIOR TO MAKING ANY
- ALL CURBS ARE 6" HIGH TYPICAL. CROSS SLOPES ON WALKS AND PARKWAY AT HANDICAP ACCESSIBLE POINTS SHALL NOT EXCEED 2% MAX. HANDICAP ACCESSIBLE ROUTES SHALL NOT EXCEED 5%
- NO DEPRESSIONS, "BIRD BATHS", ETC. SHALL BE PERMITTED IN THE PAVING. SHOULD ANY MODIFICATIONS BE REQUIRED TO THE PROPOSED GRADES TO ACHIEVE POSITIVE DRAINAGE, CONTACT THE ENGINEER IMMEDIATELY.
- 6. ALL MANHOLES, CLEANOUTS, VALVE BOXES, ETC., SHALL BE ADJUSTED TO MATCH PROPOSED GRADES.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF EXISTING UTILITIES WITH THE OWNER. SHOULD ANY UTILITIES BE DAMAGED, THE CONTRACTOR SHALL PROMPTLY REPAIR ANY SUCH DAMAGE AT NO ADDITIONAL EXPENSE TO THE OWNER AND THE VARIOUS UTILITY COMPANIES.

## NOTES

- 1. REFER TO JOINTING PLAN & DETAIL KEY FOR ADDITIONAL SITE PLAN ANNOTATIONS.
- 2. ADA COMPLIANCE: ALL NEW PAVING MUST COMPLY WITH ADA. NON-CONFORMING PAVEMENT WILL BE REMOVED AND REPLACED BY CONTRACTOR AT THEIR OWN EXPENSE.

### **TOTAL STATION LAYOUT**

KIMLEY-HORN WILL PROVIDE AN AUTOCAD FILE OF THIS PLAN TO THE CONTRACTOR'S SURVEYOR TO USE FOR LAYOUT, VIA TOTAL STATION.

### **BENCHMARK**

EXISTING TOPOGRAPHIC INFORMATION PROVIDED BY ANDERSON SURVEYING COMPANY.

BEARING SYSTEM BASED ON THE MoDOT GNSS SYSTEM VIA RTK GPS METHODS.

**BENCHMARK DESCRIPTIONS:** 

<u>CP 3 - 3/8" STEEL ROD</u>

N:997456.643' E:2823789.001'

ELEV= 1051.49'

CP 5 - "+" ON CURB OF SIDEWALK

N:996959.975'

E:2823568.819' ELEV= 1054.63'

CP 1738 - 60D NAIL

N:997316.994' E:2823894.058' ELEV= 1061.53'

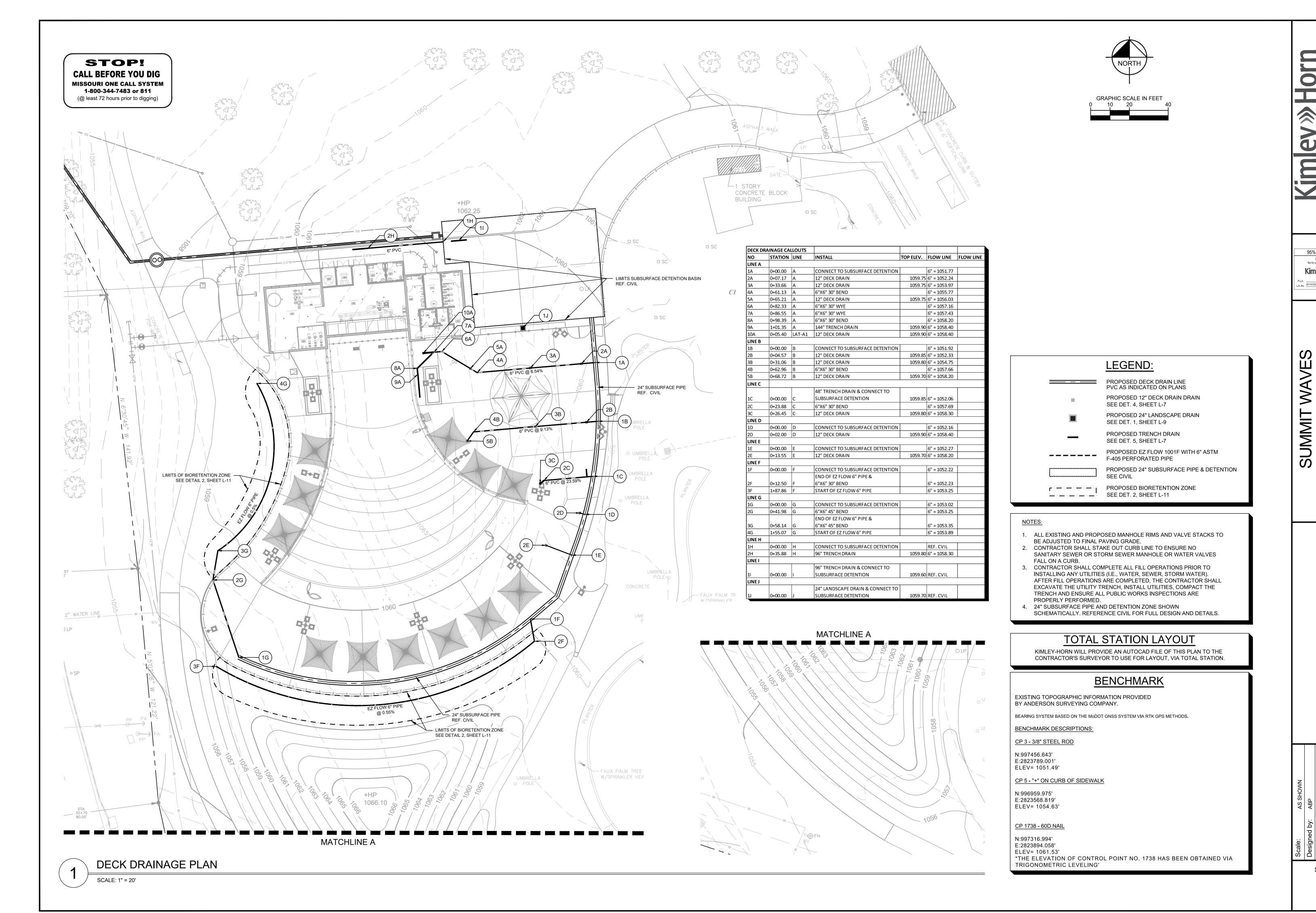
\*THE ELEVATION OF CONTROL POINT NO. 1738 HAS BEEN OBTAINED VIA TRIGONOMETRIC LEVELING'

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SUMMIT AVE POOI LEE'S SUN

GRADING



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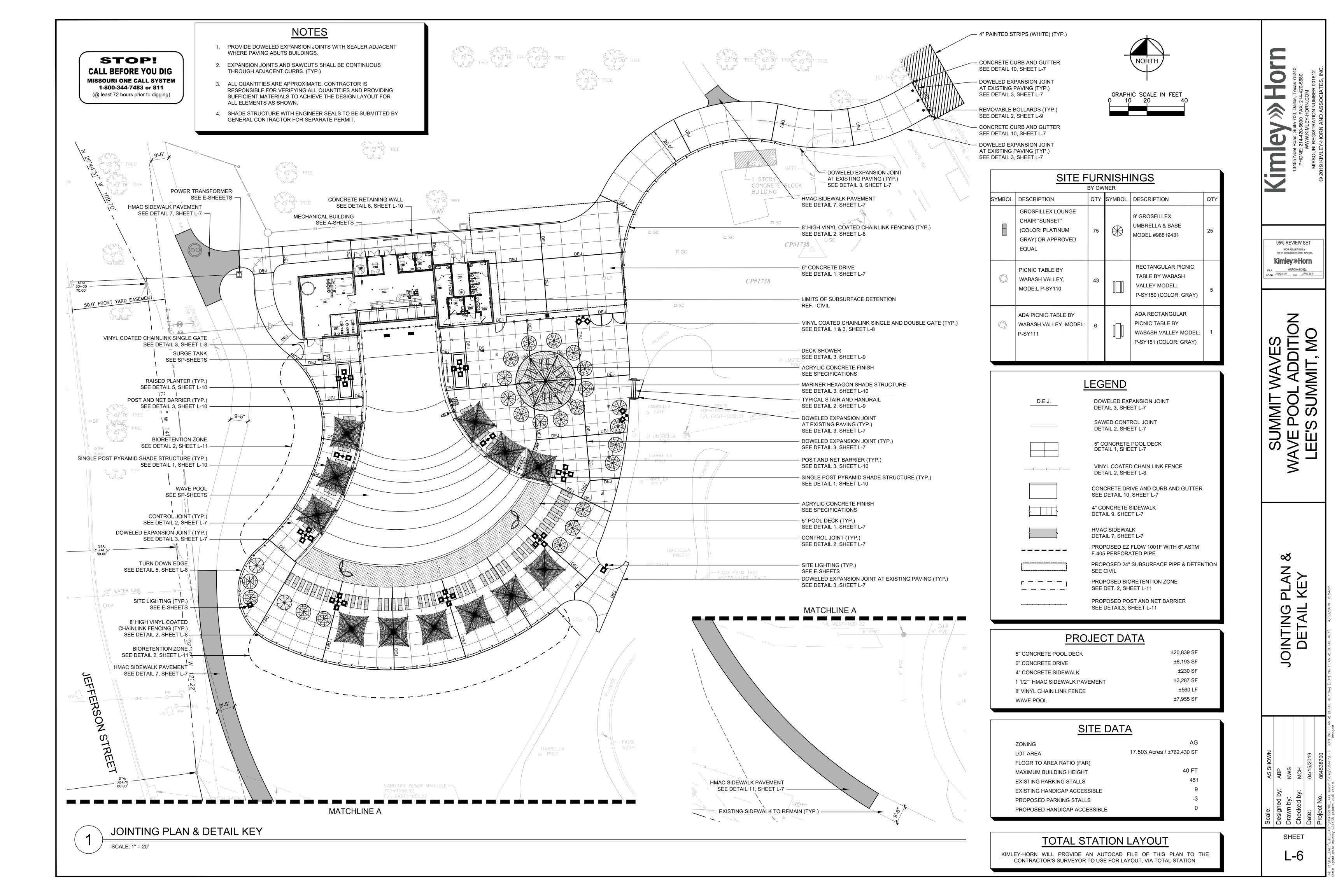
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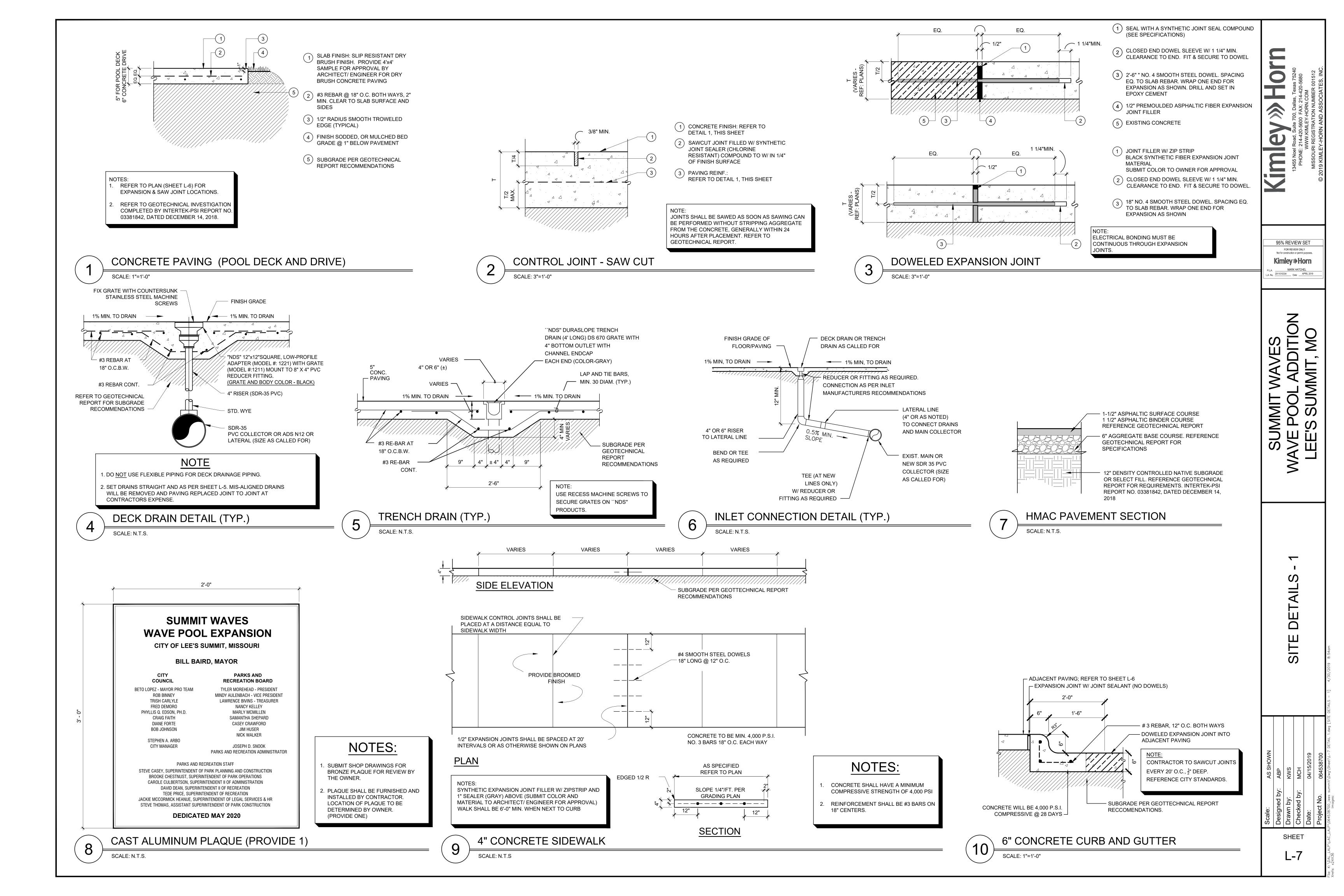
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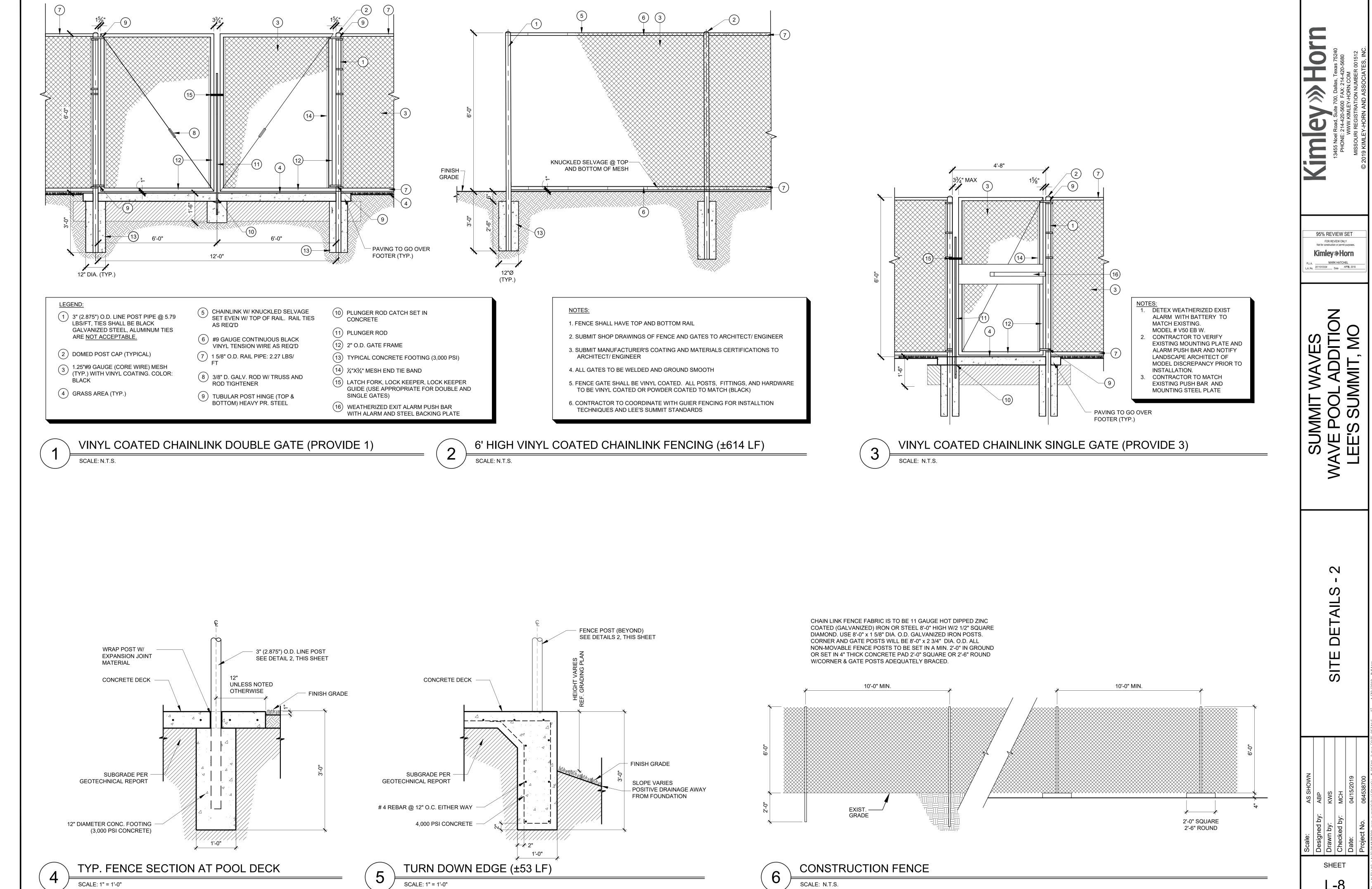
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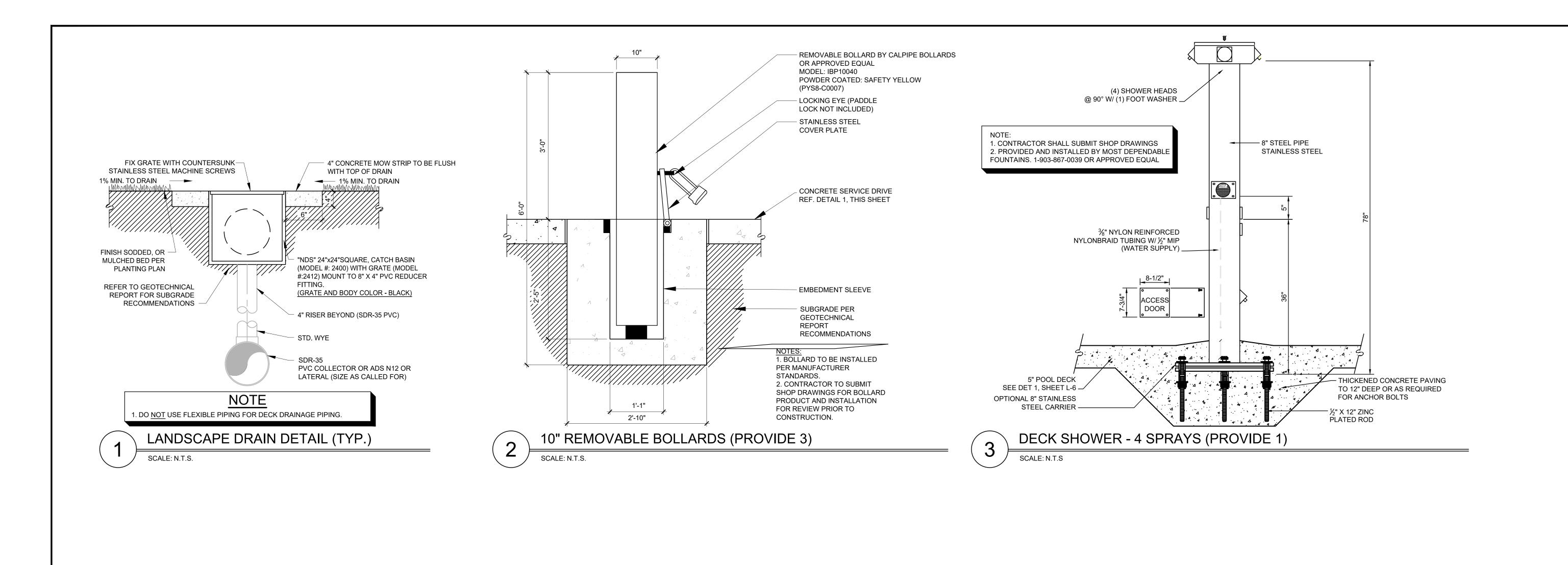
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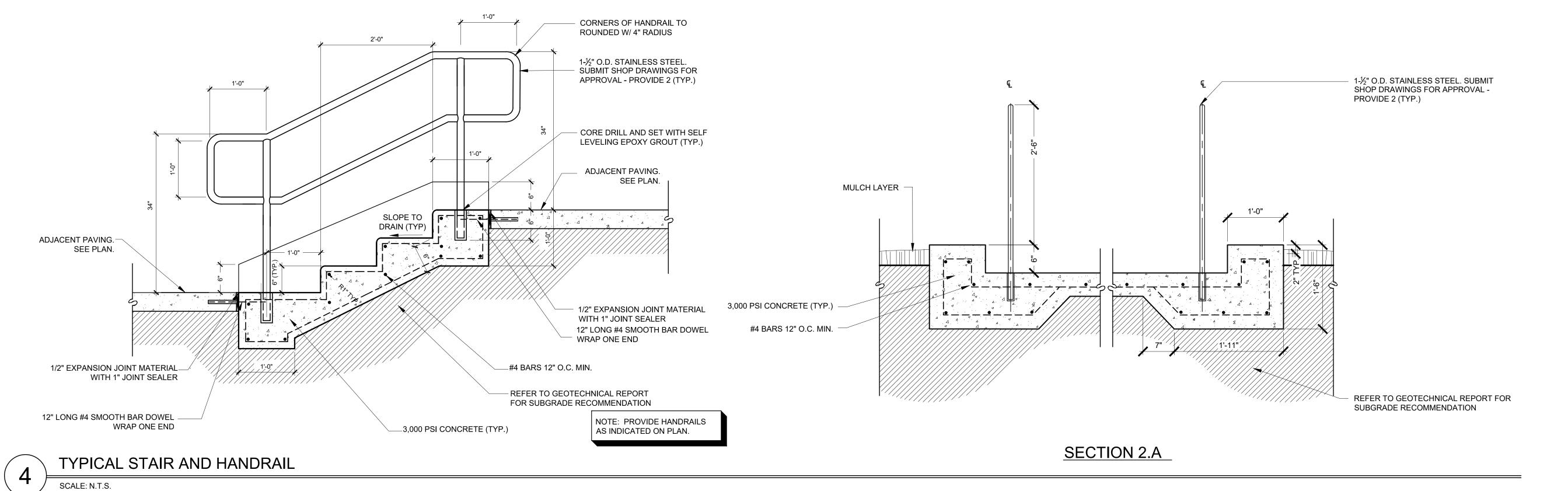
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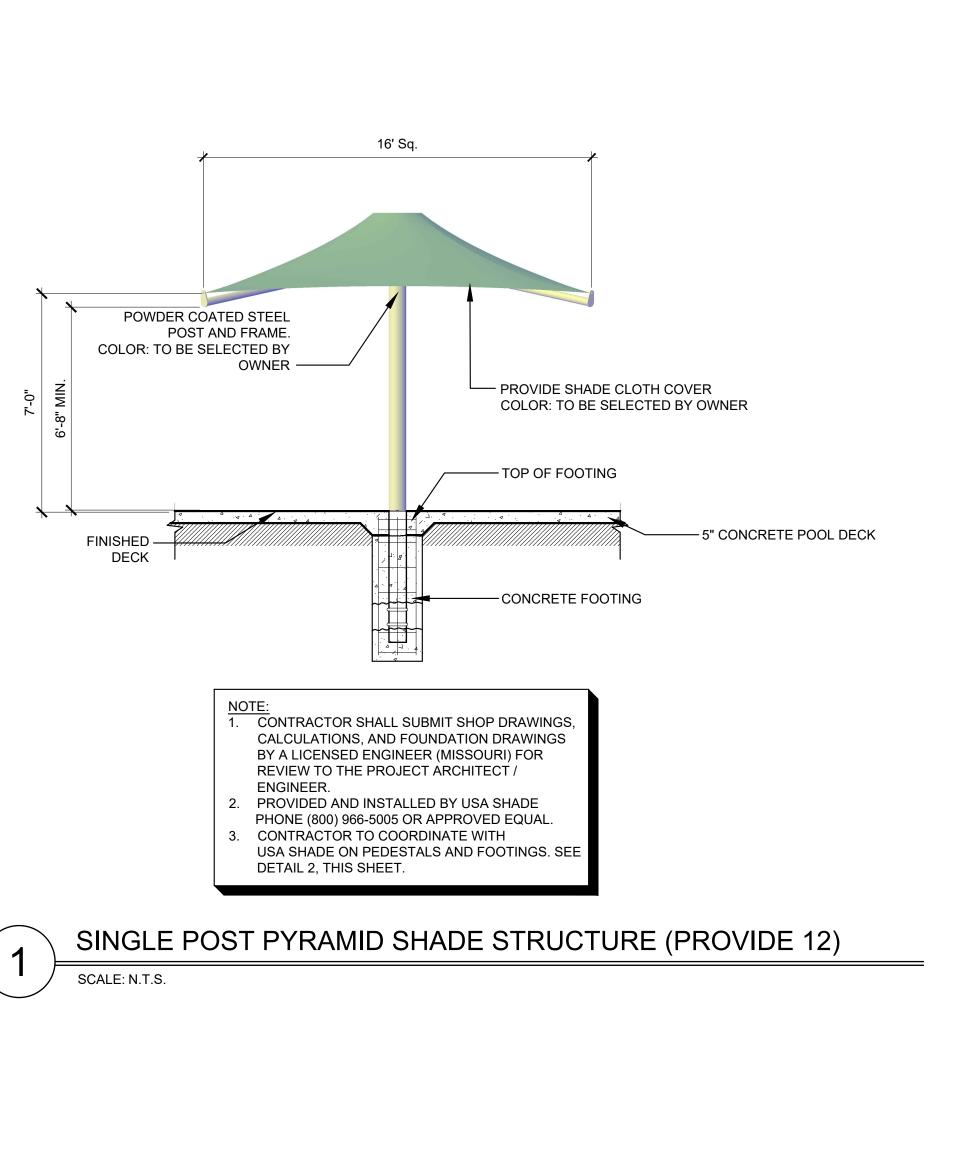
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L.A. No. 2011010334 Date APRIL 2019



- DIRECT EMBED POST INSTALLATION - CONCRETE POOL DECK (SEE DETAIL 1, SHEET L-7) SLOPE CONCRETE AWAY FROM POLE — AT 1/4" PER FOOT (MAX) (EXCESSIVE SLOPE WILL NOT BE ACCEPTABLE) 1. LEVELNESS OF POST IS CRUCIAL TO THE TWILIGHT STRUCTURE ERECTION. ALL POLES SHALL BE GALVANIZED AND PAINTEI CONTRACTOR SHALL SUBMIT SHOP DRAWINGS CALCULATIONS, AND FOUNDATION DRAWINGS BY A LICENSED ENGINEER (MISSOURI) FOR REVIEW TO THE PROJECT ARCHITECT / ENGINEER.

> SINGLE POST PYRAMID EMBED DETAIL SCALE: N.T.S.

-CROSSPIECE RAFTER - COLUMN - PROVIDE SHADE CLOTH COVER. COLOR TO BE SELECTED BY ARCHITECT/ENGINEER FABRIC-GALVANIZE AND POWDER COAT STEEL STRUCTURE (TYP.) COLOR TO BE SELECTED BY ARCHITECT/ENGINEER. 8' POST ==<del>\*</del>========== - CROSSPIECE -RAFTER NOTE:
1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS, CALCULATIONS, AND FOUNDATION DRAWINGS BY A LICENSED ENGINEER (MISSOURI) FOR REVIEW TO THE PROJECT ARCHITECT / ENGINEER. PROVIDED AND INSTALLED BY USA SHADE PHONE (800) 966-5005 OR APPROVED EQUAL. CONTRACTOR TO COORDINATE WITH

MARINER HEXAGON SHADE STRUCTURE (PROVIDE 1)

SCALE: 1" = 10'

STEEL COLUMN -GALVANIZED AND POWDER COATED CONCRETE POOL DECK SLOPE CONCRETE AWAY FROM (SEE DETAIL 1, SHEET L-7) POLE AT 1/4" PER FOOT 4 (FOUR) STEEL ANCHORS BASE PLATE Ø 3/4" x 3'-0" — BASE PLATE TYP. 8 3/4" PROJECTION LOCK NUT 1'-0" <u>PLAN</u> CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND FOUNDATION DRAWINGS BY A LICENSED ENGINEER (MISSOURI) FOR REVIEW TO THE PROJECT ARCHITECT / 3,000 PSI-CONCRETE (TYP.) ENGINEER. **SECTION** 

MARINER HEXAGON SHADE STRUCTURE FOOTING (TYP.)

SCALE: N.T.S.

2" TYP. 1/2" CHAMFER (TYP.) ADJACENT GRADE 2- #5 CONT. GRAVEL WRAPPED W/ SOIL #4 TIES @ 16" O.C. FILTER FABRIC FOR 2-#4 EACH FACE DRAINAGE CONCRETE FINISH SMOOTH RUBBED CONCRETE FREE OF BLEMISHES AND VOIDS WEEP HOLE TO BE FLUSH WITH FACE OF WALL GRAVEL WRAPPED CONCRETE PAVING W/SOIL FILTER FABRIC , SEE DETAIL 1, SHEET L-6 FOR DRAINAGE. CONNECT TO DECK EXPANSION JOINT WITH DRAINAGE SYSTEM JOINT FILLER (TYP.) #4 HORIZ. @ 16" O.C. PROVIDE VERTICAL SUBGRADE PER RUSTICATION JOINTS EVER GEOTECHNICAL REPORT 10' O.C. EQUAL SPACING. TO BE 1' DEEP BY 1/2" WIDE CONCRETE RAISED PLANTER (PROVIDE ±110 LF)

SCALE: 1" = 1'-0"

- 1/2" CHAMFER (TYP.) ADJACENT GRADE - 2- #5 CONT. GRAVEL WRAPPED W/ SOIL FILTER FABRIC FOR DRAINAGE - #4 TIES @ 16" O.C. - 2-#4 EACH FACE CONCRETE FINISH SMOOTH RUBBED CONCRETE FREE OF BLEMISHES AND VOIDS WEEP HOLE TO BE FLUSH WITH FACE OF WALL GRAVEL WRAPPED  $^-$  6" CONCRETE PAVING TO BE W/SOIL FILTER FABRIC , SLOPED TOWARDS DRAIN INLET FOR DRAINAGE. SEE DETAIL 1, SHEET L-6 **CONNECT TO DECK** EXPANSION JOINT WITH DRAINAGE SYSTEM JOINT FILLER (TYP.) #4 HORIZ. @ 16" O.C. PROVIDE VERTICAL SUBGRADE PER RUSTICATION JOINTS EVER GEOTECHNICAL REPORT 10' O.C. EQUAL SPACING. TO BE 1' DEEP BY 1/2" WIDE CONCRETE RETAINING WALL (PROVIDE ±125 LF)

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L.A. No. 2011010334 Date APRIL 2019

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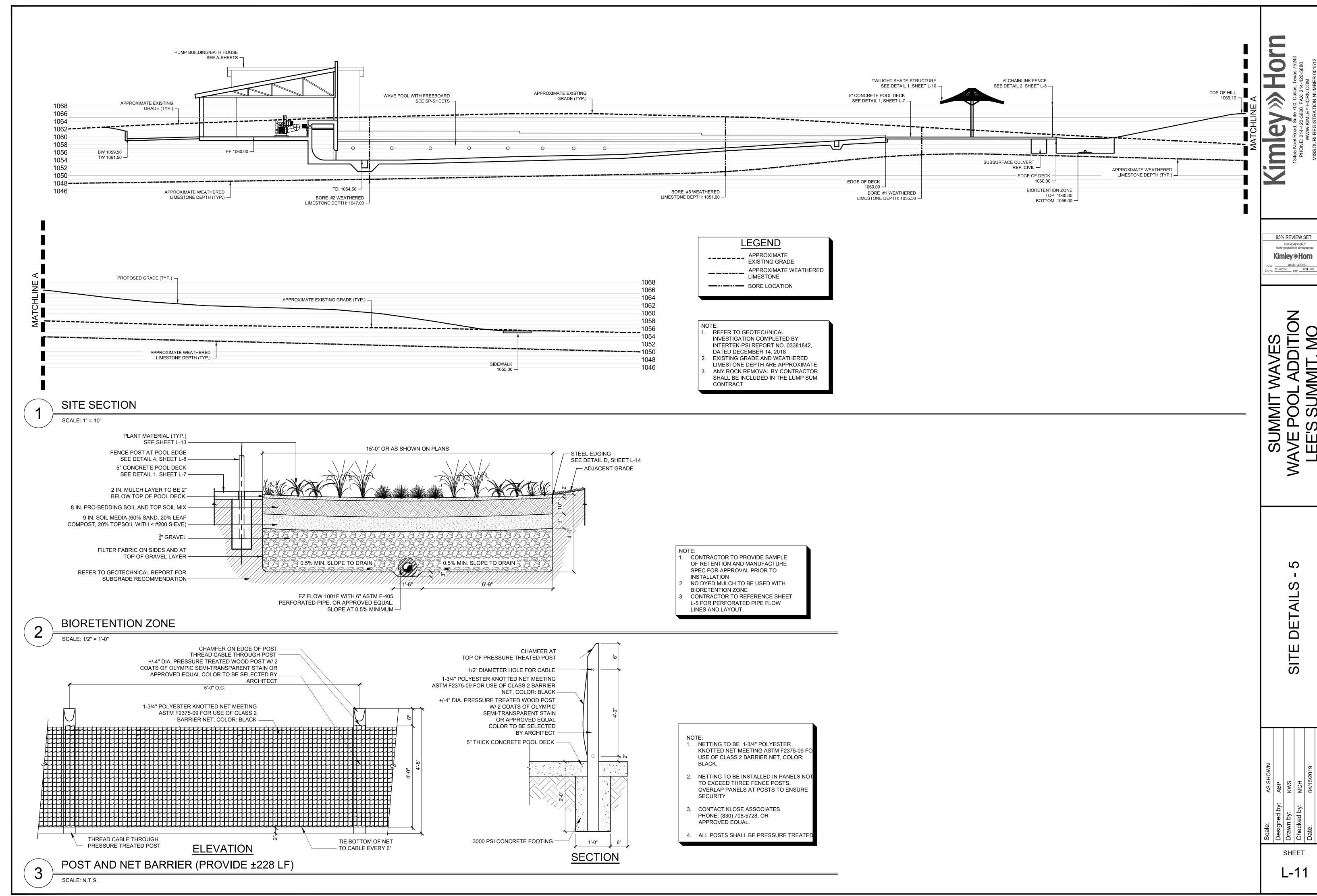
USA SHADE ON PEDESTALS AND FOOTINGS. SEE

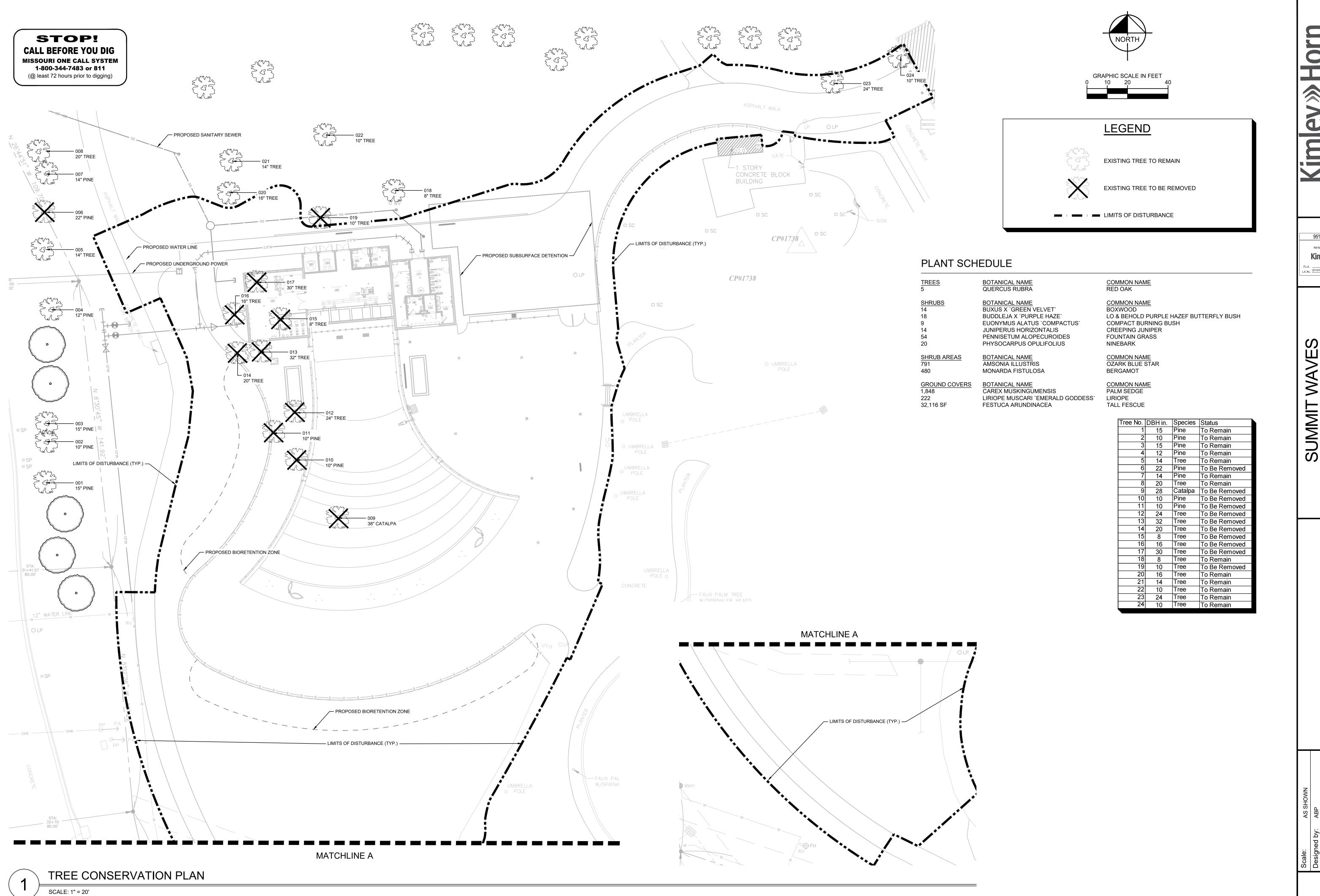
DETAIL 4, THIS SHEET.

SHEET

L-10

SCALE: 1" = 1'-0"





EXAMPLEY-HORN.COM

Road, Suite 700, Dallas, Texas 75240
214-420-5600 FAX: 214-420-5680

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P.L.A.
LA. No.

MARK HATCHEL

2011010334
Date

APRIL 2019

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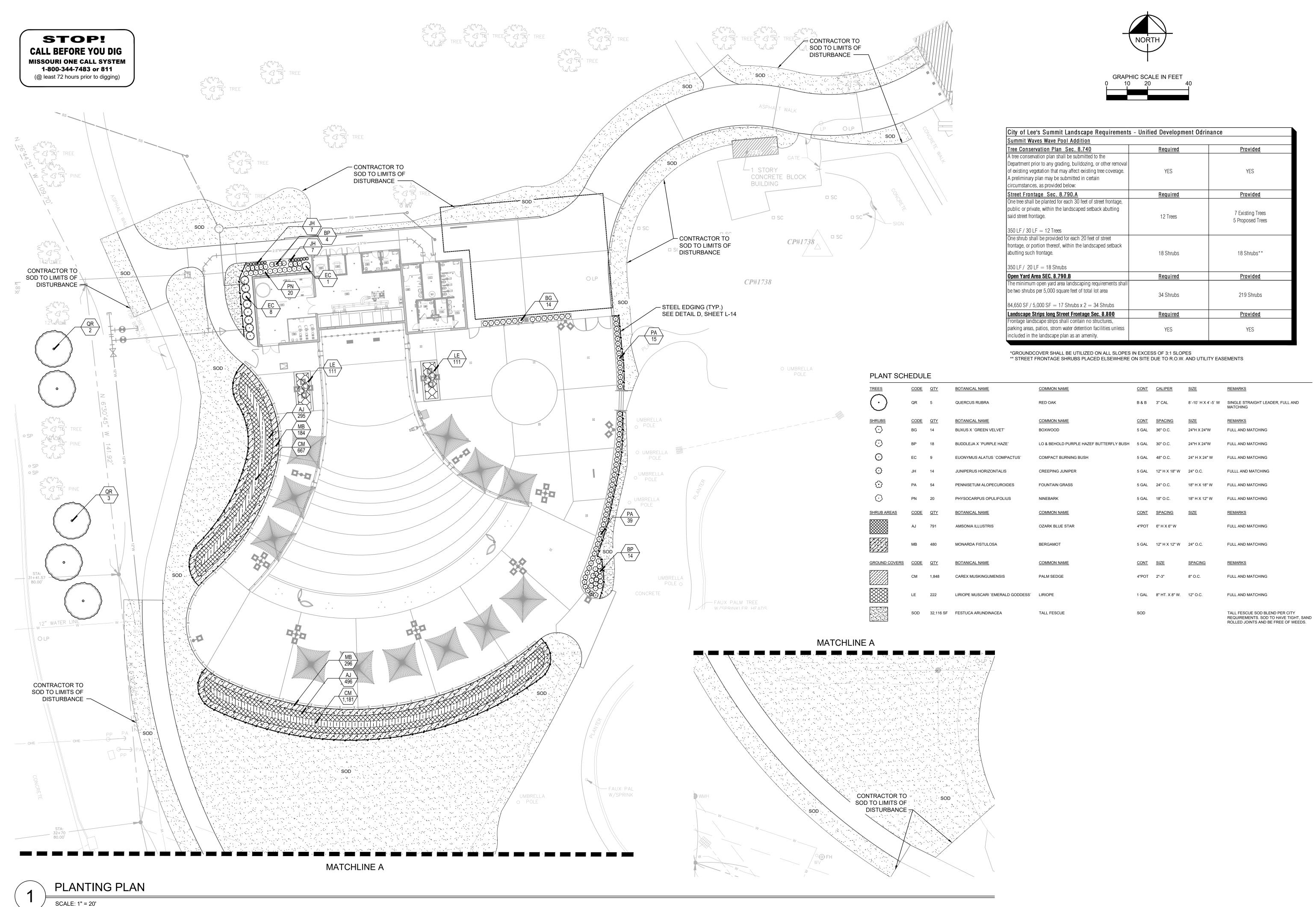
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Date: 04/15/207

Project No. 06453870

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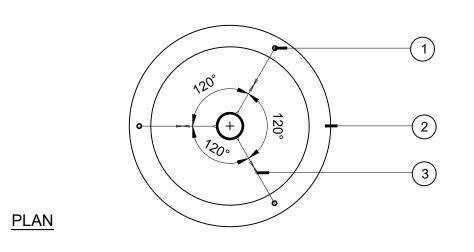
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PLANTING PLAN

ed by: MCH
04/15/2019
: No. 064538700

OLIGES SUMMIT\Dwg\Sheet\L-13 PLANTING PLAN.dwg [PLAN

SHEET



1) 2"X2"X8' STEEL FENCE 'T' POST, 3 PER TREE, EQUALLY SPACED, MATERIAL PER NOTES AND/OR SPECIFICATIONS.

2 4" EARTH SAUCER

GALVANIZED GUY WIRE; ADD TURNBUCKLES AS NECESSARY TO STABILIZE TREE.

(4) RUBBER CHAFING GUARDS

5 WARNING FLAGS

6 2" MULCH PER SPECIFICATIONS

7 ROOT BALL: REMOVE FROM CONTAINER. REMOVE ALL PLASTIC LINERS, AND OTHER SYNTHETIC MATERIALS FROM THE ENTIRE ROOTBALL.

8 PLANTING PIT EXCAVATED 12" LARGER (MIN.) THAN WIDTH OF ROOTBALL. PIT DEPTH AS NEEDED TO SET ROOTBALL COLLAR AT PROPOSED FINISHED GRADE. PLACE ROOTBALL ON SOLID SOIL AND NOT LOOSE BACKFILL.

9) PIT BACKFILL SOIL PER SPECIFICATIONS

(10) UNDISTURBED EARTH





2 3" HIGH EARTH SAUCER

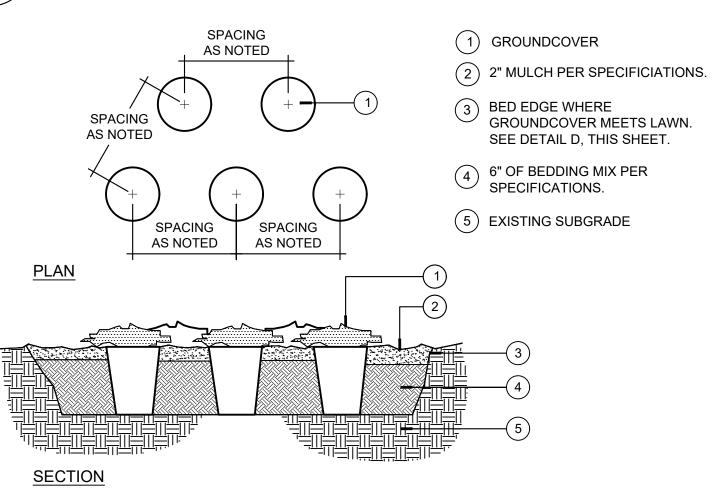
3 PLANTING PIT: EXCAVATE 6" LARGER (MIN.) THAN WIDTH OF ROOTBALL, W/ PIT DEPTH AS NEEDED TO SET ROOTBALL @ PROPOSED FINISHED GRADE. PLACE ROOTBALL ON SOLID SOIL AND NOT LOOSE BACKFILL. SCARIFY SIDES OF PIT. PROVIDE CONTINUOUS PIT FOR MASSED BED PLANTINGS.

4 ROOT BALL: REMOVE FROM CONTAINER. GENTLY SCARIFY GIRDLED ROOTS AS NEEDED. REMOVE ALL TAGS & TWINE.

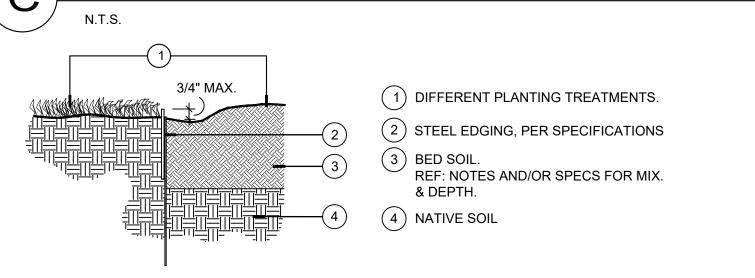
5) PIT BACKFILL W/ PREPARED SOIL BED MIX PER SPECIFICATIONS. PROVIDE CONTINUOUS SOIL BED MIX IN MASS PLANTINGS.

6 UNDISTURBED EARTH

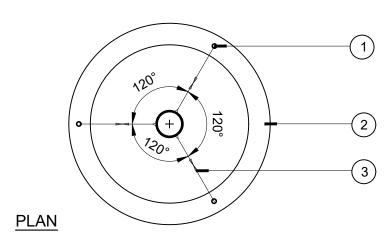
B SHRUB PLANTING

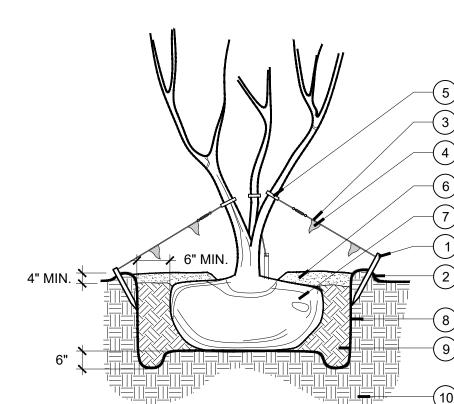


GROUNDCOVER PLANTING



STEEL EDGING (+/- 505 LF)





1) 2"X2"X24" WOOD STAKE, 3 PER TREE, MATERIAL PER NOTES AND/OR SPECIFICATIONS

2 4" EARTH SAUCER

3 GALVANIZED GUY WIRE; ADD TURNBUCKLES AS NECESSARY TO STABILIZE TREE.

(4) WARNING FLAGS

5 RUBBER CHAFING GUARDS

(6) 4" MULCH PER SPECIFICATIONS

7 ROOT BALL: REMOVE BURLAP, BURLAP TIES, AND WIRE BASKET FROM TOP 1/3 OF ROOTBALL. REMOVE ALL NYLON STRINGS, PLASTIC LINERS, AND OTHER SYNTHETIC MATERIALS FROM THE ENTIRE ROOTBALL.

8 PLANTING PIT EXCAVATED 12" LARGER (MIN.) THAN WIDTH OF ROOTBALL. PIT DEPTH AS NEEDED TO SET ROOTBALL COLLAR AT PROPOSED FINISHED GRADE. PLACE ROOTBALL ON SOLID SOIL AND NOT LOOSE BACKFILL.

9 PIT BACKFILL SOIL PER SPECIFICATIONS

(10) UNDISTURBED EARTH

ORNAMENTAL TREE DETAIL

N.T.S.

### PLANTING NOTES

- ALL PLANT MATERIAL SHALL BE INSTALLED ACCORDING TO SOUND NURSERY PRACTICES AND SHALL MEET ALL STANDARDS AS STATED IN THE LATEST EDITION OF "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- 2. NO SUBSTITUTIONS IN PLANT MATERIALS SHALL BE MADE WITHOUT WRITTEN AUTHORIZATION FROM OWNER OR LANDSCAPE ARCHITECT. IN THE EVENT OF DISCREPANCIES BETWEEN THE DRAWING AND THE PLANT LIST, THE DRAWING SHALL PREVAIL.
- 3. LOCATE ALL UTILITIES PRIOR TO ANY DIGGING OPERATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO EXISTING UTILITIES INCURRED BY HIS WORK.
- 4. ALL LANDSCAPED AREAS SHALL BE FULLY IRRIGATED WITH AN AUTOMATIC IRRIGATION SYSTEM.
- 5. STAKING AND GUYING ALTERNATIVES: METHODS INDICATED IN DRAWING DETAILS ARE PREFERRED. CONTRACTOR MAY SUGGEST ALTERNATE METHODS, ASSUMING FULL RESPONSIBILITY FOR THEIR IMPLEMENTATION. CONTRACTOR SHALL REPLACE, PLANT, OR UPRIGHT ANY TREES BLOWN OVER OR DAMAGED DUE TO INADEQUATE STAKING AT NO ADDITIONAL COST TO THE OWNER.
- 6. PLANTS MASSED IN BEDS SHALL BE ARRANGED USING TRIANGULAR SPACING.
- 7. PROVIDE A STEEL EDGE OR SPADE EDGE BETWEEN ALL PLANTING BEDS AND LAWN AREAS AS CALLED FOR ON PLANS.
- 8. ALL PLANTING BEDS TO BE TOP DRESSED WITH A MINIMUM OF 2" SHREDDED CYPRESS BARK MULCH.
- 9. PROVIDE GRASS SEEDING OR LAY SOD FOR PROPOSED LAWN AREAS TO ALL EDGES OF PAVEMENT AND/ OR LIMITS OF DISTURBANCE OUTSIDE R.O.W. OR PROPOSED LANDSCAPE EASEMENT.
- THE CONTRACTOR, SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPING UNTIL FINAL ACCEPTANCE. ALL REQUIRED LANDSCAPING SHALL BE MAINTAINED IN A NEAT AND ORDERLY MANNER AT ALL TIMES. THE WORK SHALL INCLUDE, BUT NOT TO BE LIMITED TO, MOWING, EDGING, PRUNING, FERTILIZING, WATERING, WEEDING, AND OTHER SUCH ACTIVITIES COMMON TO THE MAINTENANCE OF LANDSCAPING. ALL PLANT MATERIALS SHALL BE MAINTAINED IN A HEALTHY AND GROWING CONDITION AS IS APPROPRIATE FOR THE SEASON OF THE YEAR. PLANT MATERIAL THAT DIES SHALL BE REPLACED WITH THE PLANT MATERIAL OF SIMILAR SIZE AND VARIETY.
- 11. CONTRACTOR SHALL WARRANTY PLANT MATERIAL TO REMAIN ALIVE AND HEALTHY FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE. WARRANTY SHALL NOT INCLUDE DAMAGE FOR LOSS OF PLANT MATERIAL DUE TO NATURAL CAUSES, ACTS OF VANDALISM OR NEGLIGENCE ON THE PART OF THE OWNER.
- 12. QUANTITIES ARE APPROXIMATE AND ARE PROVIDED ONLY FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR VERIFYING QUANTITIES AND PROVIDING SUFFICIENT QUANTITIES OF MATERIAL FOR COVERAGE BASED ON THE AREAS TO BE COVERED AND PLANT SPACING CALLED FOR.
- 13. ALL DISTURBED AREAS ON SITE NOT CALLED TO BE SODDED, SHALL BE REESTABLISHED WITH SEED OR HYDROMULCH.

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Kimley» Horn

P.I.A. MARK HATCHEL

LA. No. 2011010334 Date APRIL 2019

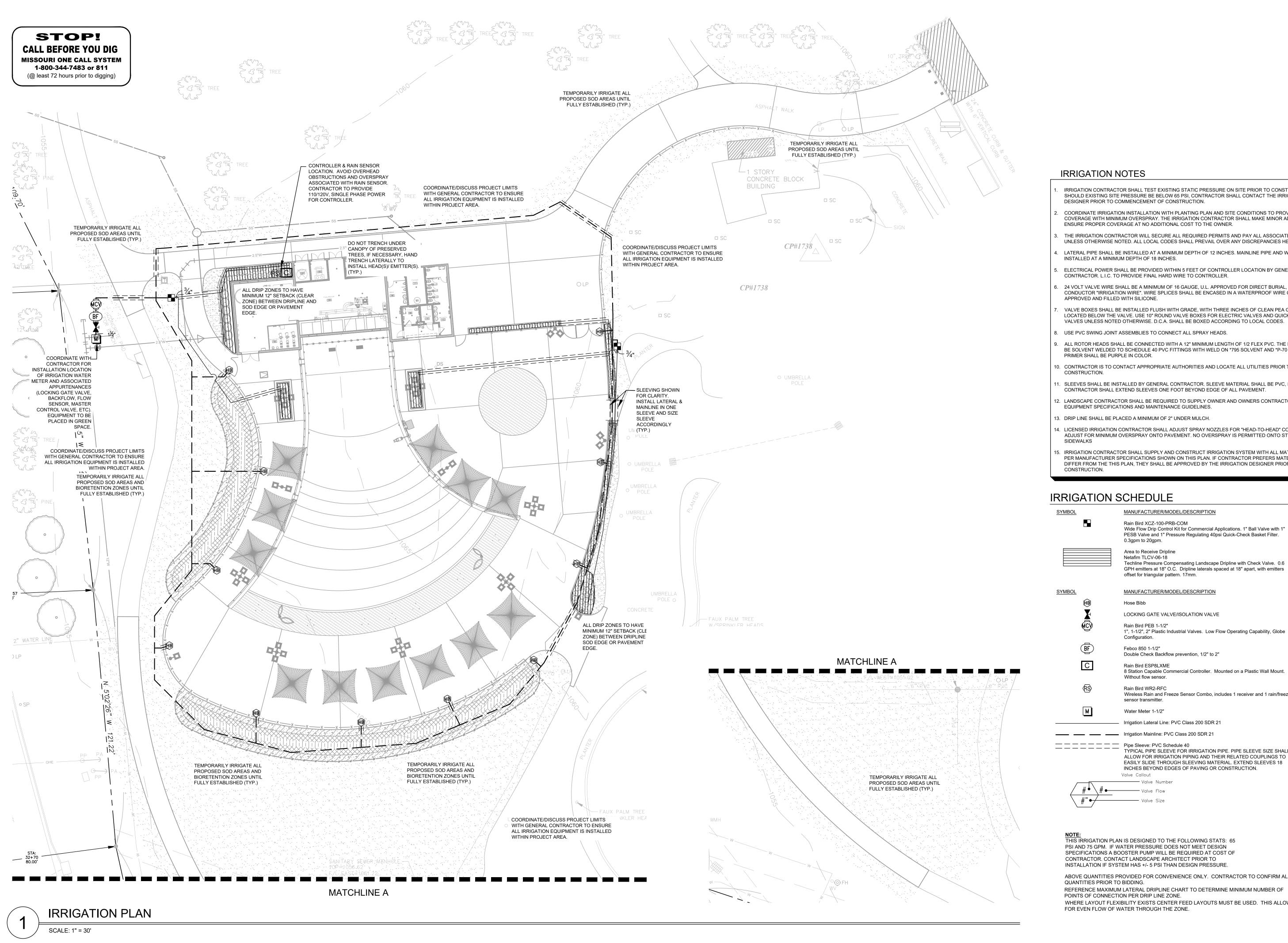
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PLANTING DETAILS

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### **IRRIGATION NOTES**

IRRIGATION CONTRACTOR SHALL TEST EXISTING STATIC PRESSURE ON SITE PRIOR TO CONSTRUCTION. SHOULD EXISTING SITE PRESSURE BE BELOW 65 PSI, CONTRACTOR SHALL CONTACT THE IRRIGATION DESIGNER PRIOR TO COMMENCEMENT OF CONSTRUCTION.

COORDINATE IRRIGATION INSTALLATION WITH PLANTING PLAN AND SITE CONDITIONS TO PROVIDE COMPLETE COVERAGE WITH MINIMUM OVERSPRAY. THE IRRIGATION CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO ENSURE PROPER COVERAGE AT NO ADDITIONAL COST TO THE OWNER.

THE IRRIGATION CONTRACTOR WILL SECURE ALL REQUIRED PERMITS AND PAY ALL ASSOCIATED FEES UNLESS OTHERWISE NOTED. ALL LOCAL CODES SHALL PREVAIL OVER ANY DISCREPANCIES HEREIN.

LATERAL PIPE SHALL BE INSTALLED AT A MINIMUM DEPTH OF 12 INCHES. MAINLINE PIPE AND WIRES SHALL BE

ELECTRICAL POWER SHALL BE PROVIDED WITHIN 5 FEET OF CONTROLLER LOCATION BY GENERAL

CONTRACTOR. L.I.C. TO PROVIDE FINAL HARD WIRE TO CONTROLLER. 24 VOLT VALVE WIRE SHALL BE A MINIMUM OF 16 GAUGE, U.L. APPROVED FOR DIRECT BURIAL, SINGLE

CONDUCTOR "IRRIGATION WIRE". WIRE SPLICES SHALL BE ENCASED IN A WATERPROOF WIRE CONNECTOR UL APPROVED AND FILLED WITH SILICONE. VALVE BOXES SHALL BE INSTALLED FLUSH WITH GRADE, WITH THREE INCHES OF CLEAN PEA GRAVEL LOCATED BELOW THE VALVE. USE 10" ROUND VALVE BOXES FOR ELECTRIC VALVES AND QUICK COUPLING

USE PVC SWING JOINT ASSEMBLIES TO CONNECT ALL SPRAY HEADS.

ALL ROTOR HEADS SHALL BE CONNECTED WITH A 12" MINIMUM LENGTH OF 1/2 FLEX PVC. THE FLEX PVC SHALL BE SOLVENT WELDED TO SCHEDULE 40 PVC FITTINGS WITH WELD ON \*795 SOLVENT AND \*P-70 PRIMER.

IO. CONTRACTOR IS TO CONTACT APPROPRIATE AUTHORITIES AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.

SLEEVES SHALL BE INSTALLED BY GENERAL CONTRACTOR. SLEEVE MATERIAL SHALL BE PVC, SCHD. 40. CONTRACTOR SHALL EXTEND SLEEVES ONE FOOT BEYOND EDGE OF ALL PAVEMENT.

12. LANDSCAPE CONTRACTOR SHALL BE REQUIRED TO SUPPLY OWNER AND OWNERS CONTRACTOR WITH ALL EQUIPMENT SPECIFICATIONS AND MAINTENANCE GUIDELINES.

13. DRIP LINE SHALL BE PLACED A MINIMUM OF 2" UNDER MULCH.

4. LICENSED IRRIGATION CONTRACTOR SHALL ADJUST SPRAY NOZZLES FOR "HEAD-TO-HEAD" COVERAGE AND ADJUST FOR MINIMUM OVERSPRAY ONTO PAVEMENT. NO OVERSPRAY IS PERMITTED ONTO STREETS OR

IRRIGATION CONTRACTOR SHALL SUPPLY AND CONSTRUCT IRRIGATION SYSTEM WITH ALL MATERIALS AND PER MANUFACTURER SPECIFICATIONS SHOWN ON THIS PLAN. IF CONTRACTOR PREFERS MATERIALS THAT DIFFER FROM THE THIS PLAN, THEY SHALL BE APPROVED BY THE IRRIGATION DESIGNER PRIOR TO

### IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	Rain Bird XCZ-100-PRB-COM Wide Flow Drip Control Kit for Commercial Applications. 1" Ball Valve with 1" PESB Valve and 1" Pressure Regulating 40psi Quick-Check Basket Filter. 0.3gpm to 20gpm.	2
	Area to Receive Dripline Netafim TLCV-06-18 Techline Pressure Compensating Landscape Dripline with Check Valve. 0.6 GPH emitters at 18" O.C. Dripline laterals spaced at 18" apart, with emitters offset for triangular pattern. 17mm.	730.7 l.f.
<u>SYMBOL</u>	MANUFACTURER/MODEL/DESCRIPTION	<u>QTY</u>
HB	Hose Bibb	11
X	LOCKING GATE VALVE/ISOLATION VALVE	1
(CV)	Rain Bird PEB 1-1/2" 1", 1-1/2", 2" Plastic Industrial Valves. Low Flow Operating Capability, Globe Configuration.	1
BF	Febco 850 1-1/2" Double Check Backflow prevention, 1/2" to 2"	1
С	Rain Bird ESP8LXME 8 Station Capable Commercial Controller. Mounted on a Plastic Wall Mount. Without flow sensor.	1
(RS)	Rain Bird WR2-RFC Wireless Rain and Freeze Sensor Combo, includes 1 receiver and 1 rain/freeze sensor transmitter.	1
M	Water Meter 1-1/2"	1
	Irrigation Lateral Line: PVC Class 200 SDR 21	462.5 l.f.
	Irrigation Mainline: PVC Class 200 SDR 21	1,043 l.f.
======	Pipe Sleeve: PVC Schedule 40 TYPICAL PIPE SLEEVE FOR IRRIGATION PIPE. PIPE SLEEVE SIZE SHALL ALLOW FOR IRRIGATION PIPING AND THEIR RELATED COUPLINGS TO EASILY SLIDE THROUGH SLEEVING MATERIAL. EXTEND SLEEVES 18 INCHES BEYOND EDGES OF PAVING OR CONSTRUCTION.  Valve Callout	291.6 l.f.

NOTE:
THIS IRRIGATION PLAN IS DESIGNED TO THE FOLLOWING STATS: 65 PSI AND 75 GPM. IF WATER PRESSURE DOES NOT MEET DESIGN SPECIFICATIONS A BOOSTER PUMP WILL BE REQUIRED AT COST OF CONTRACTOR. CONTACT LANDSCAPE ARCHITECT PRIOR TO INSTALLATION IF SYSTEM HAS +/- 5 PSI THAN DESIGN PRESSURE.

ABOVE QUANTITIES PROVIDED FOR CONVENIENCE ONLY. CONTRACTOR TO CONFIRM ALL QUANTITIES PRIOR TO BIDDING.

REFERENCE MAXIMUM LATERAL DRIPLINE CHART TO DETERMINE MINIMUM NUMBER OF POINTS OF CONNECTION PER DRIP LINE ZONE. WHERE LAYOUT FLEXIBILITY EXISTS CENTER FEED LAYOUTS MUST BE USED. THIS ALLOWS

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P.L.A. MARK HATCHEL
L.A. No. 2011010334 Date APRIL 2019

**RRIGATION** 

APPROVAL: WHEREVER THE TERMS "APPROVE" OR "APPROVED" ARE USED IN THE SPECIFICATIONS. THEY SHALL MEAN THE APPROVAL OF THE OWNER'S CONSTRUCTION REPRESENTATIVE IN WRITING. 3. BEFORE ANY WORK IS STARTED, A CONFERENCE SHALL BE HELD BETWEEN THE CONTRACTOR AND THE

4. COORDINATION: COORDINATE AND COOPERATE WITH OTHER CONTRACTORS TO ENABLE THE WORK TO PROCEED AS RAPIDLY AND EFFICIENTLY AS POSSIBLE

OWNER'S CONSTRUCTION REPRESENTATIVE CONCERNING THE WORK UNDER THIS CONTRACT.

5. INSPECTION OF SITE: A. CONTRACTOR SHALL ACQUAINT HIMSELF WITH ALL SITE CONDITIONS. SUBMISSION OF HIS PROPOSAL SHALL BE CONSIDERED EVIDENCE THAT THE EXAMINATION HAS BEEN CONDUCTED. SHOULD UTILITIES NOT SHOWN ON THE

B. CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENTS IN THE LAYOUT AS MAY BE REQUIRED TO CONNECT TO EXISTING STUBOUTS, SHOULD SUCH STUBS NOT BE LOCATED EXACTLY AS SHOWN, AND AS MAY BE REQUIRED TO

FOR ANY AND ALL DAMAGE THERETO ARISING FROM HIS OPERATIONS SUBSEQUENT TO DISCOVERY OF SUCH

PLANS BE FOUND DURING EXCAVATIONS, CONTRACTOR SHALL PROMPTLY NOTIFY THE OWNER'S CONSTRUCTION

REPRESENTATIVE FOR INSTRUCTIONS AS TO FURTHER ACTION. FAILURE TO DO SO WILL MAKE CONTRACTOR LIABLE

WORK AROUND EXISTING WORK AT NO INCREASE IN COST TO THE OWNER'S CONSTRUCTION REPRESENTATIVE. 6. PROTECTION OF EXISTING PLANTS AND SITE CONDITIONS: THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PROTECT SITE CONDITIONS TO REMAIN. SHOULD DAMAGE BE INCURRED, THE CONTRACTOR

7. THE OWNER RESERVES THE RIGHT TO SUBSTITUTE, ADD, OR DELETE ANY MATERIAL OR WORK AS THE WORK PROGRESSES. ADJUSTMENTS TO THE CONTRACT PRICE SHALL BE NEGOTIATED IF DEEMED NECESSARY BY THE OWNER ON A PER DIEM BASIS.

SHALL REPAIR THE DAMAGE TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

8. THE OWNER RESERVES THE RIGHT TO REJECT MATERIAL OR WORK WHICH DOES NOT CONFORM TO THE CONTRACT DOCUMENTS. REJECTED WORK SHALL BE REMOVED OR CORRECTED AT THE EARLIEST TIME POSSIBLE.

9. WORK SCHEDULE: WITHIN 10 DAYS AFTER AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT TO THE

OWNER A WORK SCHEDULE 10. "AS-BUILT" IRRIGATION DRAWINGS: PREPARE AN "AS-BUILT" DRAWING ON A BLUEPRINT WHICH SHALL SHOW DEVIATIONS FROM THE BID DOCUMENTS MADE DURING CONSTRUCTION AFFECTING THE MAIN LINE PIPE, CONTROLLER LOCATIONS. REMOTE CONTROL VALVES AND QUICK COUPLING VALVES. THE DRAWINGS SHALL ALSO

INDICATE AND SHOW APPROVED SUBSTITUTIONS OF SIZE, MATERIAL AND MANUFACTURERS NAME AND CATALOG NAME AND CATALOG NUMBER. THE DRAWINGS SHALL BE DELIVERED TO THE TENANT'S CONSTRUCTION REPRESENTATIVE BEFORE FINAL ACCEPTANCE OF WORK 11. FINAL ACCEPTANCE: FINAL ACCEPTANCE OF THE WORK MAY BE OBTAINED FROM THE OWNER'S CONSTRUCTION

REPRESENTATIVE UPON THE SATISFACTORY COMPLETION OF ALL WORK. 12. GUARANTEE: ALL WORK SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF ACCEPTANCE AGAINST ALL

DEFECTS IN MATERIAL. EQUIPMENT AND WORKMANSHIP, GUARANTEE SHALL ALSO COVER REPAIR OF DAMAGE TO ANY PART OF THE PREMISES RESULTING FROM LEAKS OR OTHER DEFECTS IN MATERIAL, EQUIPMENT AND WORKMANSHIP TO THE SATISFACTION OF THE TENANT'S CONSTRUCTION REPRESENTATIVE. REPAIRS, IF REQUIRED, SHALL BE DONE PROMPTLY AT NO COST TO THE OWNER.

13. A LAMINATED PLAN (8 1/2 X 11) SHOWING THE DIFFERENT IRRIGATION ZONES IN COLOR, PREPARED BY THE IRRIGATION CONTRACTOR, SHALL BE POSTED IN THE MECHANICAL ROOM.

C. MATERIALS:

1. GENERAL: ALL MATERIALS THROUGHOUT THE SYSTEM SHALL BE NEW AND IN PERFECT CONDITION 2. PLASTIC PIPING: ALL MAIN LINES AND LATERAL LINES SHALL BE CLASS 200 POLYVINYL CHLORIDE (PVC) PIPE AND SHALL COMPLY WITH ONE OF THE FOLLOWING STANDARDS: ASTM D 1785, ASTM D-2241, AWWA C-900, OR AWWA C-905. SDR-PR PIPE SHALL HAVE A MINIMUM WALL THICKNESS AS REQUIRED BY SDR-26. PVC GASKETS FITTINGS SHALL CONFORMING TO ASTM D 3139. GASKETS SHALL CONFORM TO ASTM F 477. SOLVENT-WELD PVC FITTINGS SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM D 2466. THREADED PVC PIPE FITTINGS SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM D 2464. CONFORMING TO ASTM D-1784

3. PLASTIC FITTINGS: ALL SOLVENT-WELD PVC FITTINGS SHALL MEET THE REQUIREMENTS OF SCHEDULE 40 AS SET FORTH IN ASTM D 2466. SCHEDULE 40 SOLVENT-WELD, POLYVINYL CHLORIDE (PVC) STANDARD WEIGHT AS MANUFACTURED BY SLOANE, LASCO, OR APPROVED EQUAL.

4. SOLVENT CEMENT: PVC CEMENT SHALL MEET ASTM D 2564 AND PVC CLEANER-TYPE SHALL MEET ASTM F 656.

5. SPRINKLER HEAD RISERS: SCHEDULE 40 PVC FOR RISERS. PIPE SHALL BE CUT WITH A STANDARD PIPE CUTTING TOOL WITH SHARP CUTTERS, REAM ONLY TO FULL DIAMETER OF PIPE AND CLEAN ALL ROUGH EDGES OR BURRS. CUT ALL THREADS ACCURATELY WITH SHARP DIES. NOT MORE THAN THREE(3) FULL THREADS SHALL SHOW BEYOND FITTINGS WHEN PIPE IS MADE UP. ASSEMBLIES SHALL BE AS DETAILED.

6. AUTOMATIC CONTROLLER: SEE LEGEND

7. REMOTE CONTROL VALVES: SEE LEGEND

MINIMUM PVC SCHEDULE 40 PLASTIC PIPE

8. CONTROL WIRING: 24 VOLT SOLID UL APPROVED FOR DIRECT BURIAL IN GROUND. MINIMUM WIRE SIZE: 16 GAUGE. ALL SPLICES SHALL BE MADE WITHIN VALVE BOX. 9. SLEEVES FOR CONTROL WIRING: UNDER ALL WALKS AND PAVED AREAS AND WHERE INDICATED ON DRAWINGS.

10. SPRINKLER HEADS/ DRIP LINE: SEE LEGEND

11. QUICK COUPLING VALVES: SHALL BE NOTED ON DRAWINGS.

# GENERAL IRRIGATION SPECIFICATIONS AND NOTES

1. LAY OUT WORK AS ACCURATELY AS POSSIBLE TO THE DRAWINGS. THE DRAWINGS, THOUGH CAREFULLY DRAWN, ARE GENERALLY DIAGRAMMATIC TO THE EXTENT THAT SWING JOINTS, OFFSETS, AND ALL FITTINGS ARE NOT

2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULL AND COMPLETE COVERAGE OF ALL IRRIGATED AREAS AND SHALL MAKE ANY NECESSARY MINOR ADJUSTMENTS AT NO ADDITIONAL COST TO THE OWNER'S CONSTRUCTION

3. ANY MAJOR REVISIONS TO THE IRRIGATION SYSTEM MUST BE SUBMITTED AND ANSWERED IN WRITTEN FORM, ALONG WITH ANY CHANGE IN CONTRACT PRICE.

E. INSTALLATION:

1. EXCAVATION AND TRENCHING:

A. PERFORM ALL EXCAVATIONS AS REQUIRED FOR THE INSTALLATION OF THE WORK INCLUDING UNDER THIS SECTION, INCLUDING SHORING OF EARTH BANKS TO PREVENT CAVE-INS. RESTORE ALL SURFACES, EXISTING UNDERGROUND INSTALLATIONS, ETC., DAMAGED OR CUT AS A RESULT OF THE EXCAVATIONS TO AND IN A MANNER

B. TRENCHES SHALL BE MADE WIDE ENOUGH TO ALLOW A MINIMUM OF 6 INCHES BETWEEN PARALLEL PIPE LINES TRENCHES FOR PIPE LINES SHALL BE MADE OF SUFFICIENT DEPTHS TO PROVIDE THE MINIMUM COVER FROM FINISH GRADE AS FOLLOWS:

1) 24" MINIMUM BELOW BOTTOM PAVEMENT PER SLEEVING INSTALLATION DETAIL THIS SHEET

2) MINIMUM COVER OVER IRRIGATION LINES TO HEADS/ DRIPLINE EXCEPT VEHICLE TRAFFIC AREAS ARE AS FOLLOWS:

> 12" COVER OVER LATERALS 18" COVER OVER MAINLINE

C. MAINTAIN ALL WARNING SIGNS, SHORING, BARRICADES, FLARES AND RED LANTERNS AS REQUIRED BY THE SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY AND LOCAL ORDINANCES.

A. INSTALL REMOTE CONTROL VALVES WHERE SHOWN AND GROUP TOGETHER WHERE PRACTICAL, PLACE NO CLOSER THAN 6 INCHES TO WALK EDGES, BUILDINGS AND WALLS.

B. PLASTIC PIPE AND FITTINGS SHALL BE SOLVENT WELDED USING SOLVENTS AND METHODS RECOMMENDED BY MANUFACTURER OF THE PIPE, EXCEPT WHERE SCREWED CONNECTIONS ARE REQUIRED. PIPE AND FITTINGS SHALL BE THOROUGHLY CLEANED OF DIRT, DUST AND MOISTURE BEFORE APPLYING SOLVENT WITH A NON-SYNTHETIC

C. PIPE MAY BE ASSEMBLED AND WELDED ON THE SURFACE. SNAKE PIPE FROM SIDE TO SIDE OF TRENCH BOTTOM TO ALLOW FOR EXPANSION AND CONTRACTION.

D. MAKE ALL CONNECTIONS BETWEEN PLASTIC PIPE AND METAL VALVES OR STEEL PIPE WITH THREADED FITTINGS USING PLASTIC MALE ADAPTERS.

3. SPRINKLER HEADS/ DRIPLINE:

A. INSTALL ALL SPRINKLERS/ DRIPLINE AS DETAILED ON DRAWINGS. B. DO NOT SCALE PLANS FOR EXACT HEAD LOCATION.

C. PROVIDE A MINIMUM OF 4" BETWEEN SPRINKLERS/ DRIPLINE AND PAVEMENT/ BUILDINGS.

4. CLOSING OF PIPE AND FLUSHING LINES:

A. CAP OR PLUG ALL OPENINGS AS SOON AS LINES HAVE BEEN INSTALLED TO PREVENT THE ENTRANCE OF MATERIALS THAT WOULD OBSTRUCT THE PIPE. LEAVE IN PLACE UNTIL REMOVAL IS NECESSARY FOR COMPLETION OF INSTALLATION

B. THOROUGHLY FLUSH OUT ALL WATER LINES BEFORE INSTALLING HEADS, DRIPLINE, VALVES AND OTHER HYDRANTS.

C. TEST IN ACCORDANCE WITH PARAGRAPH ON HYDROSTATIC TESTS. D. UPON COMPLETION OF THE TESTING, THE CONTRACTOR SHALL COMPLETE ASSEMBLY AND ADJUST SPRINKLER

HEADS FOR PROPER DISTRIBUTION.

5. INSPECTIONS:

A. SPRINKLER/ DRIPLINE LAYOUT AND SPACING INSPECTION: VERIFICATION THAT THE IRRIGATION DESIGN IS ACCURATELY INSTALLED IN THE FIELD. IT WILL ALSO PROVIDE FOR ALTERATION OR MODIFICATION OF THE SYSTEM TO MEET FIELD CONDITIONS. SPACING SHOULD BE WITHIN 5% OF THE DESIGN SPACING. B. PIPE INSTALLATION DEPTH INSPECTION: ALL PIPES IN THE SYSTEM SHALL BE INSTALLED TO DEPTHS AS PREVIOUSLY DESCRIBED IN SECTION 'E' OF THESE SPECIFICATIONS.

C. OPEN TRENCH INSPECTION: THE TRENCH AND ALL JOINTS AND EVERY TRANSITION IN PIPE SIZE, WILL BE OPEN WHERE OPEN TRENCH INSPECTION IS REQUIRED. D. INSPECTIONS WILL BE PERFORMED THROUGHOUT THE DURATION OF THE INSTALLATION. INSPECTION MAY BE

MADE BY THE GOVERNING AGENCY/ OWNER TO ENSURE COMPLIANCE WITH DESIGN INTENT, SPECIFICATIONS, AND THE IRRIGATION CODES

A. REQUEST THE PRESENCE OF THE OWNER IN WRITING AT LEAST 48 HOURS IN ADVANCE OF TESTING.

B. TESTING TO BE ACCOMPLISHED AT THE EXPENSE OF THE CONTRACTOR AND IN THE PRESENCE OF THE OWNER. C. CENTER LOAD PIPING WITH SMALL AMOUNT OF BACKFILL TO PREVENT ARCHING OR SLIPPING UNDER PRESSURE

D. APPLYING A CONTINUOUS AND STATIC WATER PRESSURE OF 125 PSI WHEN WELDED PLASTIC JOINTS HAVE CURED AT LEAST 3 HOURS AND WITH THE RISERS CAPPED AS FOLLOWS:

1) MAIN LINES AND SUBMAINS TO BE TESTED

2) NO PRESSURE LOSS IS ALLOWED FOR SOLVENT WELD MAINLINE/ PIPE.

E. FOR PVC AND O-RING GASKET PIPE THE ALLOWABLE LEAKAGE SHALL NOT EXCEED THE NUMBER OF GALLONS PER HOUR AS DETERMINED BY THE FOLLOWING FORMULA:

L=NPD<sup>1/2</sup>/ 1,850

IN WHICH: L=ALLOWABLE LEAKAGE, IN GALLONS PER HOUR N=NUMBER OF JOINTS D=PIPE DIAMETER IN INCHES

P=AVERAGE TEST PRESSURE IN PSI GAUGE

F. REPAIR LEAKS RESULTING FROM TESTS.

7. AUTOMATIC CONTROLLERS: A. CONNECT REMOTE CONTROL VALVES TO CONTROLLER IN A CLOCKWISE SEQUENCE TO CORRESPOND WITH

STATION SETTING BEGINNING WITH STATIONS 1, 2, 3, ETC

8. AUTOMATIC CONTROL WIRING:

A. INSTALL CONTROL WIRING, SPRINKLER MAINS AND LATERALS IN COMMON TRENCHES WHEREVER POSSIBLE.

B. INSTALL CONTROL WIRES AT LEAST 18" BELOW FINISHED GRADE AND SNAKE WIRE SIDE TO SIDE IN TRENCH BELOW MAIN LINE. EXPANSION CURLS SHALL BE PROVIDED WITHIN THREE (3') FEET OF EACH WIRE CONNECTION TO SOLENOID AND AT LEAST EVERY THREE HUNDRED (300') FEET IN LENGTH. (EXPANSION CURLS ARE FORMED BY WRAPPING AT LEAST FIVE (5) TURNS OF WIRE AROUND A ROD OR PIPE 1" OR MORE IN DIAMETER, THEN WITHDRAWING THE ROD).

C. CONTROL WIRE SPLICES WILL BE ALLOWED ONLY RUNS OVER 1000 FT. CONNECTIONS SHALL BE IN VALVE BOX AND LOCATION TO BE SHOWN ON AS-BUILT PLANS D. ALL WIRING PASSING UNDER EXISTING OR FUTURE PAVING, CONSTRUCTION, ETC., SHALL BE ENCASED IN

PLASTIC OR GALVANIZED STEEL CONDUIT EXTENDING AT LEAST 24" BEYOND EDGES OF PAVING OR CONSTRUCTION.

9. BACKFILL AND COMPACTING:

A. AFTER SYSTEM IS OPERATING AND REQUIRED TESTS AND INSPECTIONS HAVE BEEN MADE, BACKFILL EXCAVATIONS AND TRENCHES WITH CLEAN SOIL, FREE OF RUBBISH, INITIAL BACKFILL MATERIAL TO 6 INCHES ABOVE THE TOP OF PIPE SHALL BE FREE OF ROCKS OR STONES LARGER THAN ONE INCH IN DIAMETER FINAL BACKFILL MATERIAL SHALL BE FREE OF ROCKS OR STONES LARGER THAN 3 INCHES IN DIAMETER.

B. BACKFILL FOR ALL TRENCHES, REGARDLESS OF THE TYPE OF PIPE COVERED, SHALL BE COMPACTED TO MINIMUM 90% DENSITY

C. COMPACT TRENCHES IN AREAS TO BE PLANTED BY THOROUGHLY FLOODING THE BACKFILL. JETTING PROCESS MAY BE USED IN THOSE AREAS.

D. DRESS OFF ALL AREAS TO FINISH GRADES.

10. PROTECTIVE RADIUS OF EXISTING TREES: A. AN AUGER IS TO BE USED TO TUNNEL UNDER EXISTING TREES IF IRRIGATION IS INSTALLED WITHIN THE PROTECTIVE RADIUS OF EXISTING TREES AND ONLY IF THERE IS NO OTHER OPTION OR TO DO SO CREATES AN UNREASONABLE HARDSHIP.

F. CLEAN-UP:

1. REMOVE FROM THE SITE ALL DEBRIS RESULTING FROM WORK OF THIS SECTION.

LINE FLUSHING VALVE #F-TLFV-1 COMPRESSION RING BLANK TL (TYP.) LATERAL (OR EXHAUST HEADER) (INSTALL PER SPECS) SHUT-OFF VALVE #TLSOV (BLANK TUBING MAY BE ATTACHED TO OUTLET) <sup>/</sup> 3/4" GRAVFL SUMP (1 CUBIC FOOT) BRICK SUPPORTS (THREE)

LINE FLUSHING VALVE

(2) MAINLINE PIPE 1" SCH. 40 (3) LATERAL PIPE (4) WIRING IN CONDUIT TIE A 24-INCH LOOP IN ALL WIRING AT CHANGES OF DIRECTION OF 30° OR FLUSH CAP-(LOW POINT) GREATER. UNTIE AFTER ALL CONNECTIONS HAVE BEEN MADE. ALL SOLVENT WELD PLASTIC PIPING TO BE SNAKED IN TRENCH AS SHOWN. 1" SCH. 40 MANIFOLD — FROM CURB TYPICAL ALL SOLVENT WELD PLASTIC PIPING TO PVC TO HOSE -BE RAN IN TRENCH AS SHOWN. COMPRESSION ADAPTER (8) RUN WIRING BENEATH AND BESIDE INSTALL FLUSH CAP/AIR VENTS AT HIGHEST AND LOWEST POINT. MAINLINE. TAPE AND BUNDLE AT STAKE DRIP HOSE AT EVERY 3RD EMITTER. 10-FOOT INTERVALS. USE HUNTER INSERT FIITINGS FOR DRIP CONNECTIONS TYPICAL DRIP IRRIGATION INSTALLATION DETAIL

JUMBO BOX -

FEBCO 1 1/2" 850 DOUBLE

BACKFLOW PREVENTER

CHECK ASSEMBLY

10" PLASTIC BOX -

FINISH GRADE-

AIR / VACUUM -RELIEF VALVE

3/4"M x 1/2"F TxT-

3/4" PVC COUPLING -

3/4" SCH 80 RISER -

BRICK SUPPORTS ----

CLAMPED TO PVC

AIR/VACUUM RELIEF

1 30-INCH LINEAR LENGTH OF WIRE, COILED

WATERPROOF CONNECTIO

REMOTE CONTROL VALVE:

VALVE BOX WITH COVER

FINISH GRADE/TOP OF MULCH

PVC SCH 80 NIPPLE (CLOSE)

RAIN BIRD VB-STD

PVC SCH 40 ELL

BRICK (1 OF 4)

SCH 40 ELL

PVC SCH 80 NIPPLE

PVC MAINLINE PIPE

SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND

PVC SCH 40 TEE OR ELL

PVC LATERAL PIPE

(HIGH POINT)

- PVC LATERAL

PROFESSIONAL LANDSCAPE

DRIP LINE INSERT FITTINGS

PVC SCH 40 MALE ADAPTER

(16) 3.0-INCH MINIMUM DEPTH OF

3/4-INCH WASHED GRAVE

DETAIL - N.T.S.

(3) ID TAG: RAIN BIRD VID SERIES

3/4" CRUSHED

GRAVEL SUMP

(PLUMBED TO POLY

-3/4" MINUS WASHED

PEB SERIES VALVE

-AIR VENT AT HIGH POINT

OF EACH DRIP VALVE

REDUCTION BUSHING

(LENGTH AS REQUIRED):

VALVE BOX -

STAINLESS STEEL

1 1/2" MASTER VALVE -

1) FINISH GRADE

2 ) QUICK-COUPLING VALVE

3) VALVE BOX WITH COVER

(4) 3/4" MINUS WASHED GRAVEL

6 ) PVC SCH 40 STREET ELL-1

BRICK SUPPORTS (2)

))PVC SCH 40

TEE OR ELL X 1'

) PVC SCH 40 STREET ELL-1'

DETAIL - N.T.S

5) PVC SCH 80 NIPPLE-1"

ONE-PIECE BODY WITH 1 INCH INLET

FINISHED GRADE

-WASHED GRAVEL

1. FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO (11) PVC SCH 40 ELL-1"

HOSE BIBB

MAINLINE, LATERAL AND WIRING IN THE

SAME TRENCH

10" PLASTIC BOX

3/4" MINUS

WASHED GRAVEL

4" MIN. CLEARANCE

24" MINIMUM TO

24" MAX.

FINISHED GRADE

PVC CAP (TYPICAL)

DOUBLE CHECK ASSEMBLY BACKFLOW PREVENTER

1 1/2" LOCKING ISOLATION/GATE VALVE -

NEW WATER METER

BRICK SUPPORTS TYP.

SECTION VIEW

1. ALL IRRIGATION SLEEVES TO BE SCHEDULE 40 PVC.

TO 24-INCHES MINIMUM ABOVE FINISHED GRADE.

SECTION VIEW

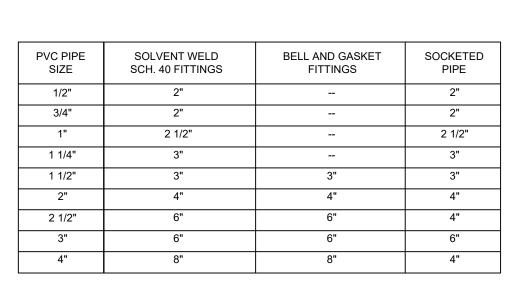
4. MECHANICALLY TAMP TO 95° PROCTOR.

SLEEVE DETAIL

. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT

3. WHERE THERE IS MORE THAN ONE SLEEVE. EXTEND THE SMALLER SLEEVE

STANDARD VALVE -



SLEEVE SCHEDULE

1. SLEEVE BELOW ALL HARDSCAPE

OR WITH BUNDLE WITHIN.

SEE SPECIFICATIONS.

N.T.S.

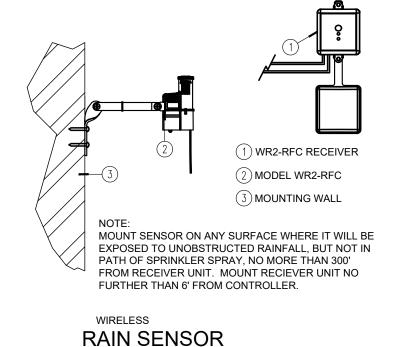
ELEMENTS WITH SCHD. 40 PVC

2. FOR PIPE AND WIRE BURIAL DEPTHS

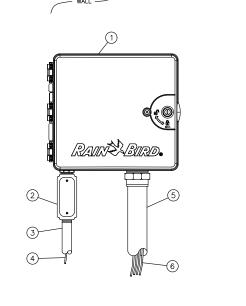
TWICE THE DIAMETER OF THE PIPE

PIPE AND WIRE TRENCHING





DETAIL - N.T.S.



ESP8-LXME CONTROLLER

CABINET WITH WALL MOUNT, INSTALL CONTROLLER

JUNCTION BOX 1-INCH CONDUIT AND FITTINGS TO POWER SUPPLY POWER SUPPLY WIRE 2-INCH CONDUIT AND FITTINGS FOR STATION WIRES WIRES TO REMOTE CONTROL VALVES

IRRIGATION CONTROLLER:

RECOMMENDATIONS.

ESP-LXME CONTROLLER IS AVAILABLE IN 8- OR 12-STATION BASE MODELS, ADDITIONAL MODULES IN 4-, 8- AND 12-STATION VERSIONS MAY BE ADDED TO BRING THE CONTROLLER UP TO 48 STATIONS MAXIMUM. 2. FOR EASE OF INSTALLATION INTO A CONTROLLER WITH MORE THAN 24 STATIONS, INSTALL A JUNCTION BOX AT THE BASE OF CONTROLLER AND

RAIN BIRD ESP8-LXME CONTROLLER IN PLASTIC

AND CABINET ON WALL PER MANUFACTURER'S

AWG MULTI CONDUCTOR WIRE TO BE USED IN CONTROLLER. 3. USE STEEL CONDUIT FOR ABOVE GRADE AND SCH 40 PVC CONDUIT FOR BELOW GRADE CONDITIONS.

4. PROVIDE PROPER GROUNDING COMPONENTS TO ACHIEVE GROUND

TRANSITION LARGER VALVE AND COMMON WIRES FROM FIELD TO 18

RESISTANCE OF 10 OHMS OR LESS.

DETAIL - N.T.S.

W/ SHUT-OFF VALVE

95% REVIEW SET

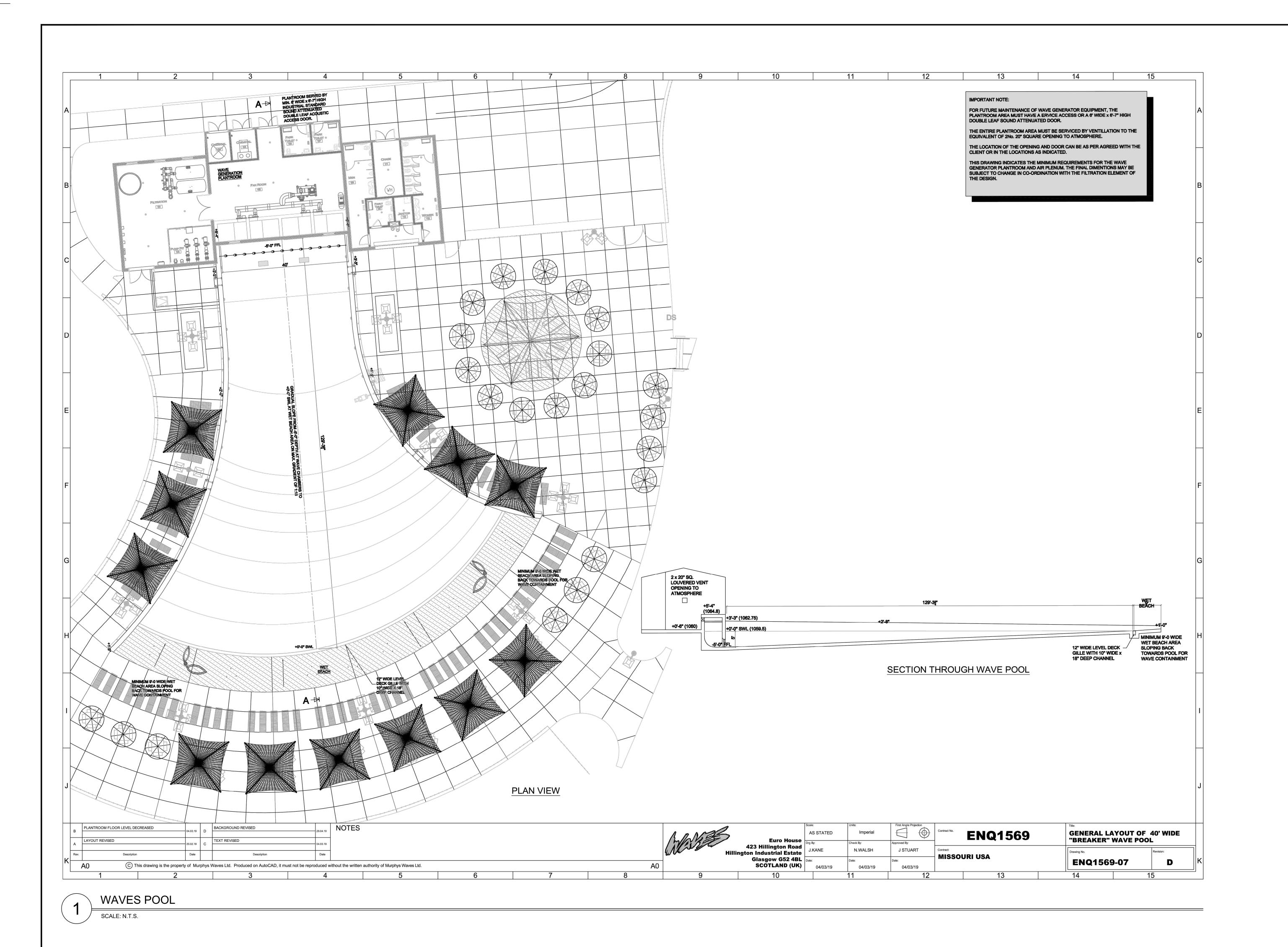
FOR REVIEW ONLY

Kimley » Horn

.A. No. 2011010334 Date APRIL 2019

**S** 

MARK HATCHEL



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MISSOURI REGISTRATION NUMBER 001512

FOR INFORMATION ONLY

SUMMIT WAVES
WAVE POOL ADDITIO

VES EQUIPMENT

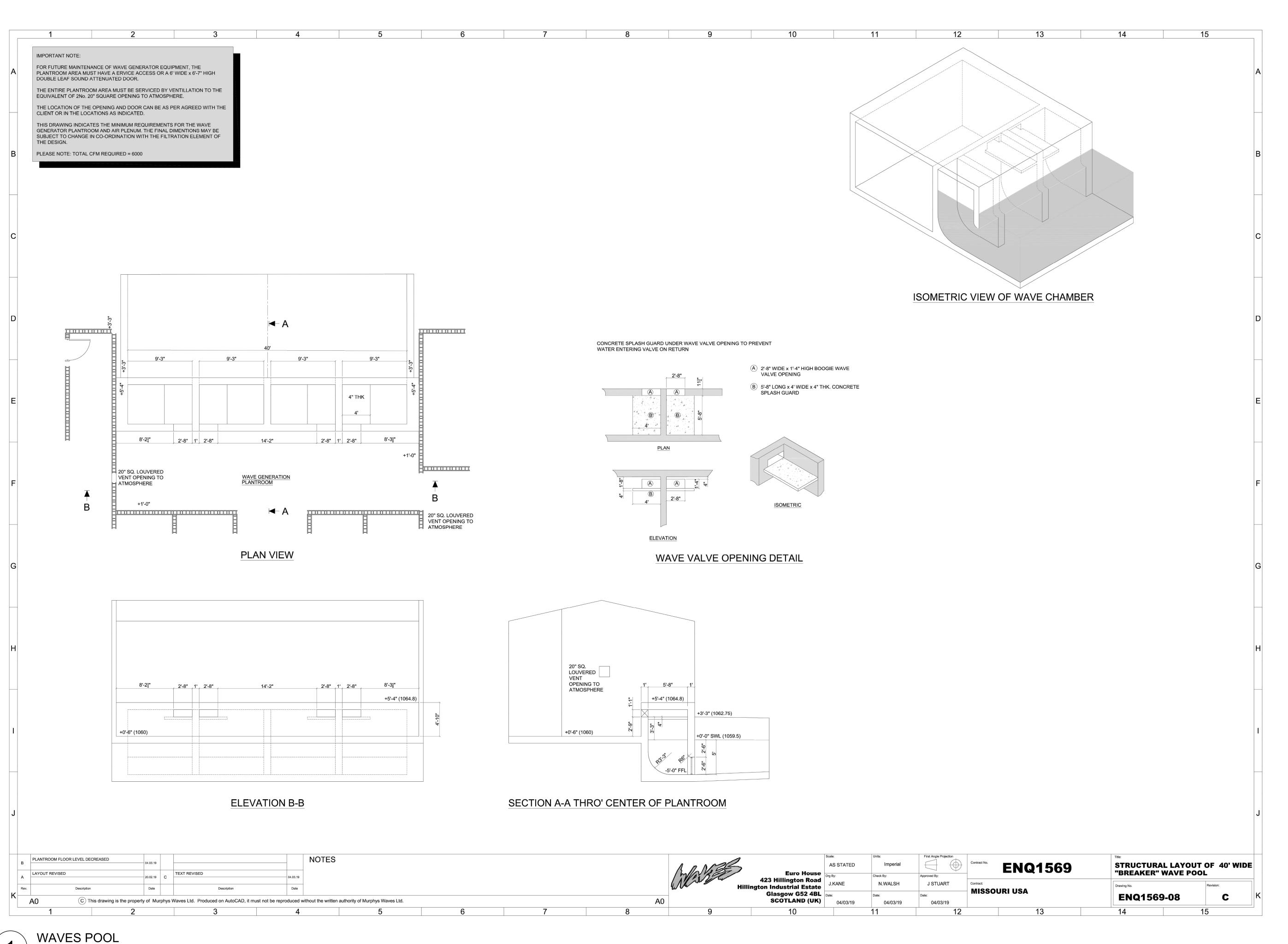
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MISSOURI REGISTRATION NUMBER 001512

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SUMMIT WAVES
WAVE POOL ADDITION
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VES EQUIPMENT 2

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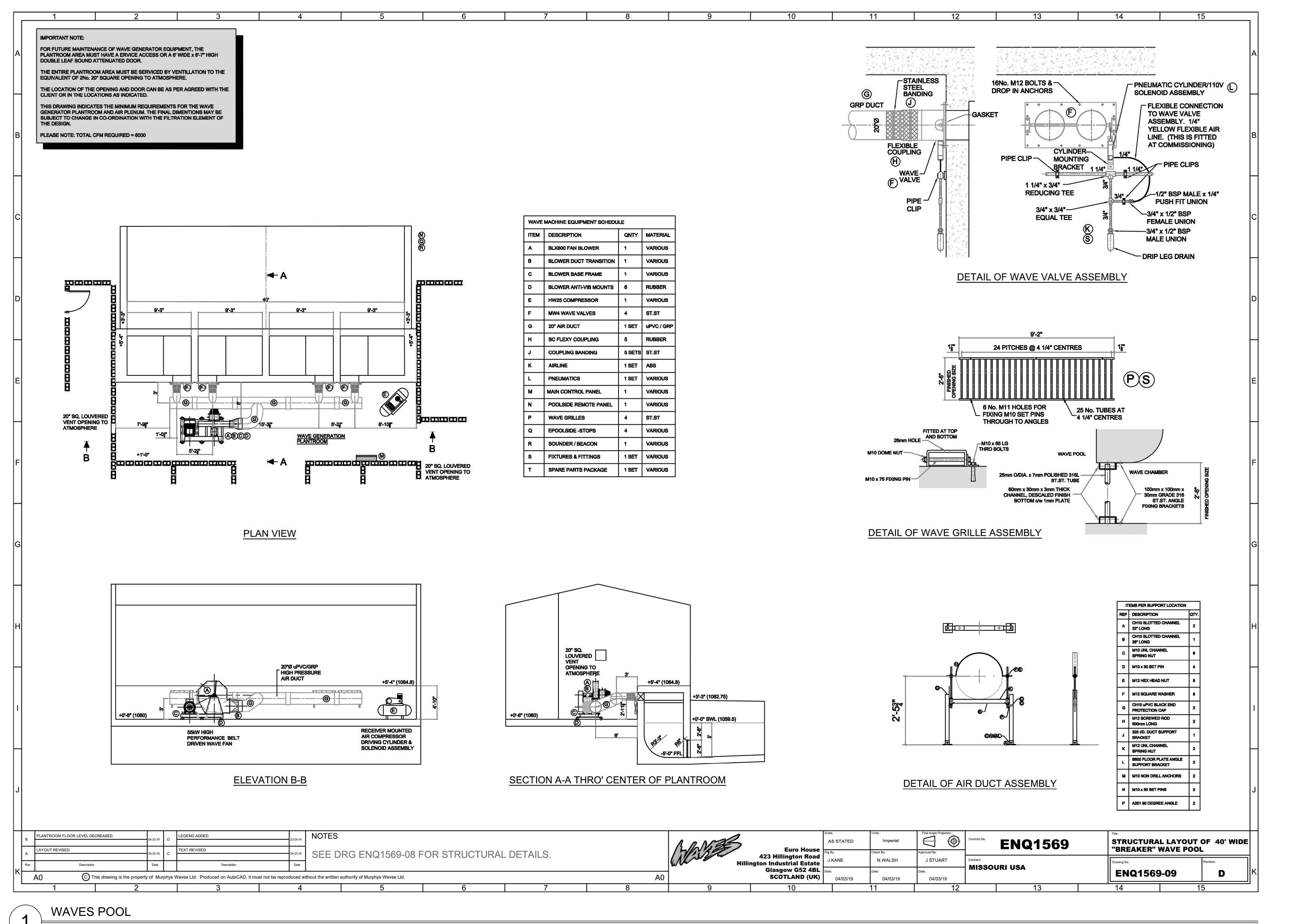
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Date: 04/15/2
Project No. 064538

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SCALE: N.T.S.



SCALE: N.T.S.

SHEET

FOR INFORMATION

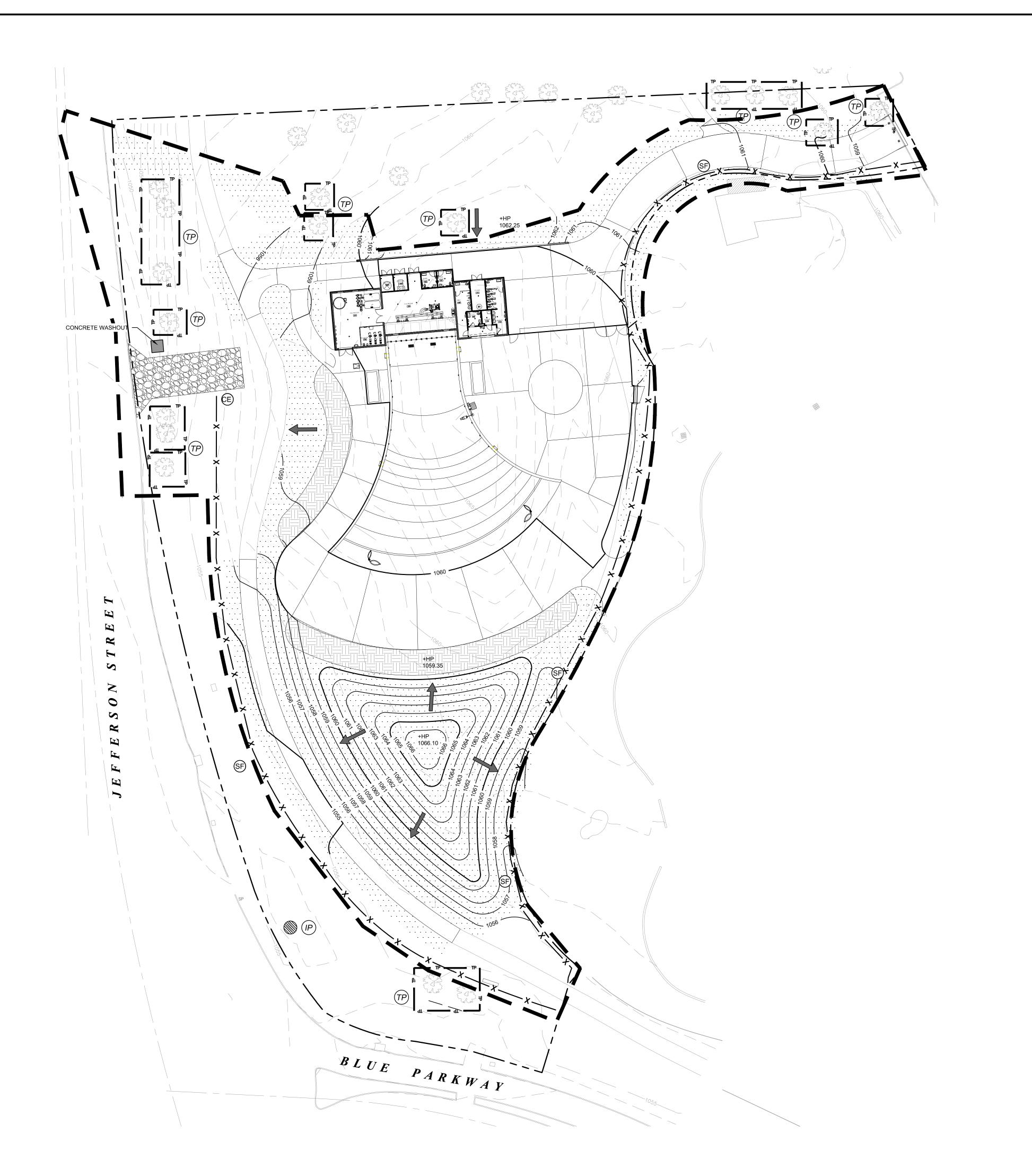
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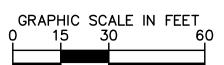
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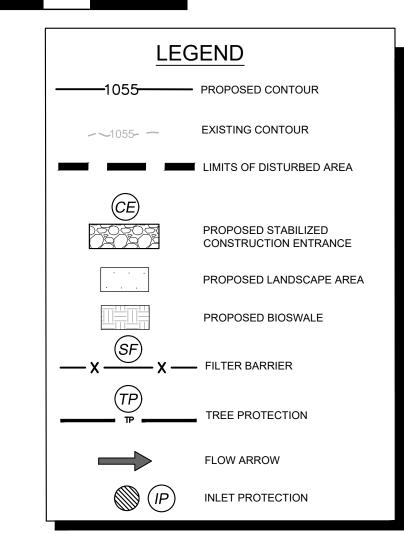
EQUIPMEN

STOP! **CALL BEFORE YOU DIG** MISSOURI ONE CALL SYSTEM 1-800-344-7483 or 811 (@ least 72 hours prior to digging)









### SITE MAP-GENERAL NOTES

- 1. CONTRACTOR IS SOLELY RESPONSIBLE FOR SELECTION, IMPLEMENTATION, MAINTENANCE, AND EFFECTIVENESS OF ALL SWPPP CONTROLS - CONTROLS SHOWN ON THIS SITE MAP ARE SUGGESTED
- 2. CONTRACTOR SHALL RECORD INSTALLATION, MAINTENANCE OR MODIFICATION, AND REMOVAL DATES FOR EACH BMP EMPLOYED (WHETHER CALLED OUT ON ORIGINAL SWPPP OR NOT) DIRECTLY ON THE SITE MAP.
- 4. TEMPORARY AND PERMANENT STABILIZATION PRACTICES AND BMP'S SHALL BE INSTALLED AS PER THE STORM WATER POLLUTION PREVENTION PLAN. AS AN EXAMPLE, PERIMETER SILT FENCE SHALL BE INSTALLED PRACTICABLE AND SHALL BE MAINTAINED UNTIL FINAL SITE STABILIZATION IS ATTAINED. CONTRACTOR SHALL ALSO REFERENCE CIVIL AND LANDSCAPE PLANS SINCE PERMANENT STABILIZATION IS PROVIDED BY LANDSCAPING, THE BUILDING(S), AND SITE PAVING.
- 5. BMP'S HAVE BEEN LOCATED AS INDICATED ON THIS PLAN IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES IN ORDER TO MINIMIZE SEDIMENT TRANSFER, FOR EXAMPLE: SILT FENCES

### EROSION CONTROL SCHEDULE AND SEQUENCING

- A. NOTIFY ALL APPLICABLE AUTHORITIES AT LEAST 48 HOURS PRIOR TO BEGINNING ANY WORK; CALL THE 'MISSOURI ONE CALL CENTER' AT1-800-344-7482 FOR UTILITY LOCATIONS. INSTALL TEMPORARY EROSION CONTROLS AND TREE PROTECTION FENCING PRIOR TO ANY CLEARING AND
- DEMOLISH AREAS INDICATED ON EXISTING CONDITIONS AND REMOVAL ITEMS SHEET. (IF APPLICABLE)
- CLEAR AND GRUB AND STRIP TOPSOIL. STOCKPILE TOPSOIL FOR LATER USE.
- CONSTRUCT TEMPORARY RETENTION/DETENTION POND. (IF APPLICABLE)
- ROUGH GRADE SITE PER GRADING PLAN. INSTALL STORM SEWER LINES AND APPURTENANCES.
- INSTALL TEMPORARY EROSION/SEDIMENTATION Controls ON NEW STORM SEWER INLETS. INSTALL WATER AND WASTE WATER LINES AND APPURTENANCES.
- ENSURE THAT ALL UNDERGROUND UTILITY CROSSINGS ARE COMPLETED.
- RAISE MANHOLE FRAMES AND COVERS TO TOP OF NATURAL GROUND. CONSTRUCT PAVED AREAS, CURBS. ISLANDS AND INSTALL INLET EROSION PROTECTION.
- M. COMPLETE RESTORATION OF SITE VEGETATION. WRITE CONCURRENCE LETTER AND SCHEDULE FINAL INSPECTION WITH INSPECTOR.
- REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROLS WHEN RESTORATION HAS BEEN ACCEPTED.
- COMPLETE ANY NECESSARY FINAL DRESS UP OF AREAS DISTURBED BY ITEM "O"

### TOTAL STATION LAYOUT

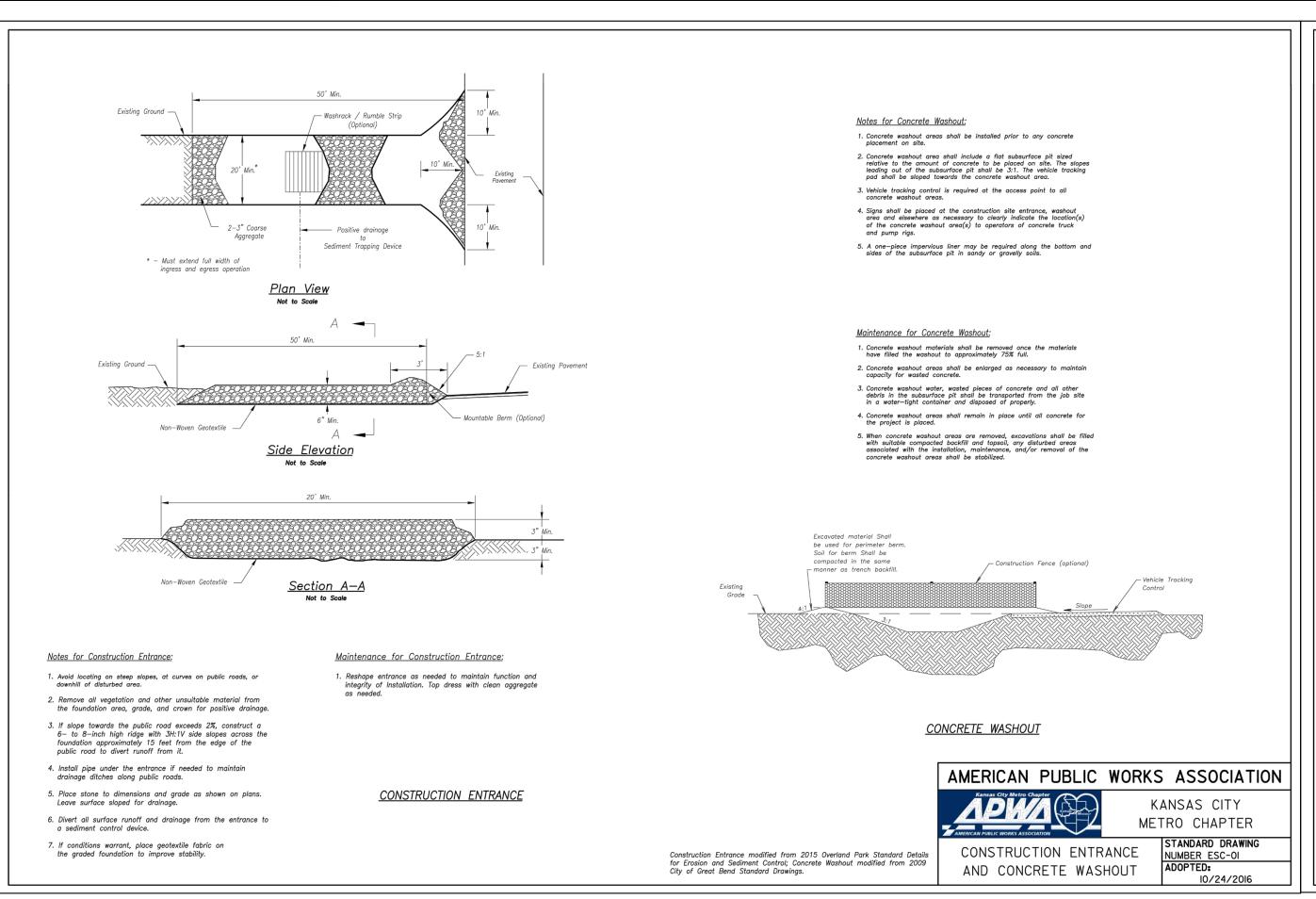
KIMLEY-HORN WILL PROVIDE AN AUTOCAD FILE OF THIS PLAN TO THE CONTRACTOR'S SURVEYOR TO USE FOR LAYOUT, VIA TOTAL STATION.

### SITE MAP-SITE SPECIFIC NOTES

- CONSTRUCTION ENTRANCE SHALL BE LOCATED SO AS TO PROVIDE THE LEAST AMOUNT OF DISTURBANCE TO THE FLOW OF TRAFFIC IN AND OUT OF THE SITE. ADDITIONALLY, CONSTRUCTION ENTRANCE SHALL BE LOCATED TO COINCIDE WITH THE PHASING OF THE PAVEMENT REPLACEMENT.
- . THE NATURE OF THIS SITE'S CONSTRUCTION CONSISTS OF:
- A. DEMOLITION PRELIMINARY GRADING
- UTILITY INSTALLATION PAVEMENT CONSTRUCTION
- FINAL GRADING AND STABILIZATION
- CONTRACTOR TO REFERENCE GEOTECHNICAL REPORT PREPARED BY INTERTEK PSI (PROJECT NO. 03381842 DATED DECEMBER 14, 2018) FOR SOIL CONDITIONS.
- . ALL STORM WATER ON-SITE WILL SHEET FLOW INTO THE ON-SITE UNDERGROUND STORM DRAINAGE SYSTEM OR CONTINUE ALONG EXISTING DRAINAGE ROUTE
- NO SEDIMENTATION BASINS HAVE BEEN PROVIDED ON THIS SITE BECAUSE THE AREA OF DISTURBANCE IS LESS THAN 10.0 ACRES.
- POST CONSTRUCTION STORM WATER POLLUTION CONTROL MEASURES INCLUDE STABILIZATION BY
- PERMANENT PAVING, DRAINAGE SYSTEM STRUCTURE, OR LANDSCAPING.
- VELOCITY DISSIPATION DEVICES (RIP-RAP) WILL NOT BE USED.
- DISTURBED PORTIONS OF SITE MUST BE STABILIZED. STABILIZATION PRACTICES MUST BE INITIATED WITHIN 14 DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION HAS BEEN EITHER TEMPORARILY OR PERMANENTLY CEASED, UNLESS EXCEPTED WITHIN THE NPDES PERMIT. CONTRACTOR SHALL REMOVE TEMPORARY EROSION CONTROL DEVICES UPON COMPLETION OF STABILIZATION OR PERMANENT DRAINAGE FACILITIES.
- PER FIRM MAP NO. 29095C0417G EFFECTIVE 01-20-2017, THE SITE IS LOCATED WITHIN FEMA DESIGNATED "X"
- ). CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE SWPPP/SITE MAP TO INCLUDE BMP'S FOR ANY OFF-SITE MATERIAL WASTE, BORROW OR EQUIPMENT STORAGE AREAS.
- 1. CONTRACTOR SHALL INSPECT DISTURBED AREAS, MATERIAL STORAGE AREAS EXPOSED TO PRECIPITATION, STRUCTURAL CONTROL MEASURES, AND VEHICLE ENTRY AND EXIT AREAS AT LEAST ONCE EVERY 14 CALENDAR DAYS AND WITHIN 24 HOURS OF A STORM EVENT OF 0.5 INCHES OR GREATER.

95% REVIEW SET FOR REVIEW ONLY **Kimley** »Horn KEVIN S. GASKEY

P.E. No. 28441 Date APRIL 2019



Top of silt fence below top of downstream berm to

Early Stage Area Inlet Sediment Barrier to be installed immediately after inlet or junction box is constructed.

is removed and Late Stage Area Inlet is being installed.

Backfill excavated area ONLY after final grading of the site. Stabilization of the site is to immediately follow.

Wire reinforced silt fence may be used in place of silt fence attached to wood frame.

(Typical all sides)

Plan

Not to Scale

(Area inlets at final grade and existing inlets)

accumulation of sediment is visible.

Modified from 2015 Overland Park Standard Details for Erosion and Sediment Control.

Remove deposited sediment from excavated storage areas when available storage has been reduced by 20%.

2. Remove deposited sediment from filter socks or similar when any

3. Repair or replace as necessary to maintain function and integrity

AREA INLET AND

JUNCTION BOX PROTECTION

AMERICAN PUBLIC WORKS ASSOCIATION

Place biodegradable log, staked wattles or other approved sediment control device in front of each inlet opening. (Not to be placed in throat of inlet).

KANSAS CITY

METRO CHAPTER

NUMBER ESC-07
ADOPTED:

prevent bypass

- Wire Reinforced Silt Fence

-Wire Reinforced Silt Fence-

Not to Scale

EARLY STAGE AREA INLET

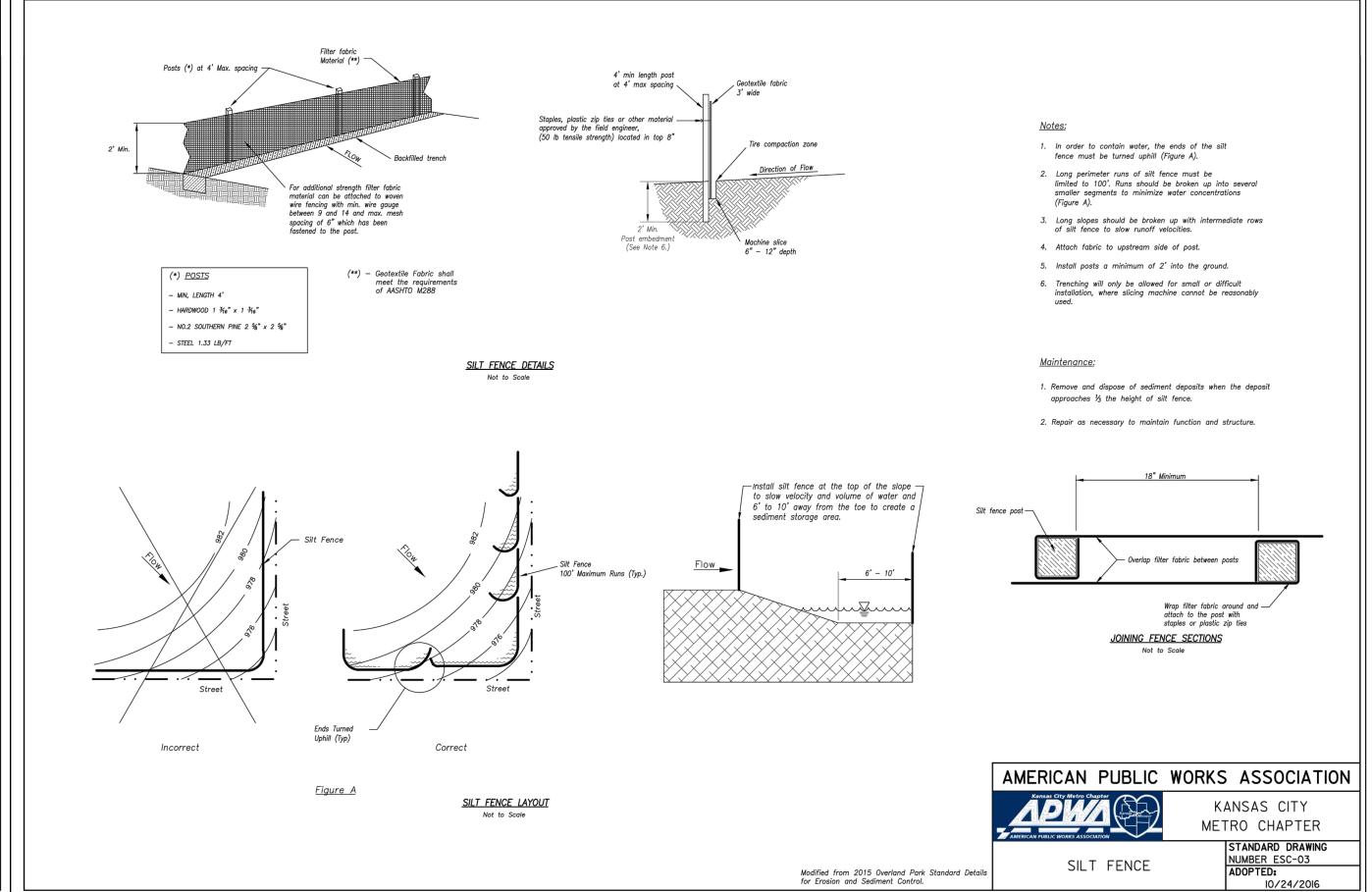
(All open boxes and inlets not at final grade)

\* — Contractor shall field verify that Ponded Water Depth will not cause excessive unintended flooding.

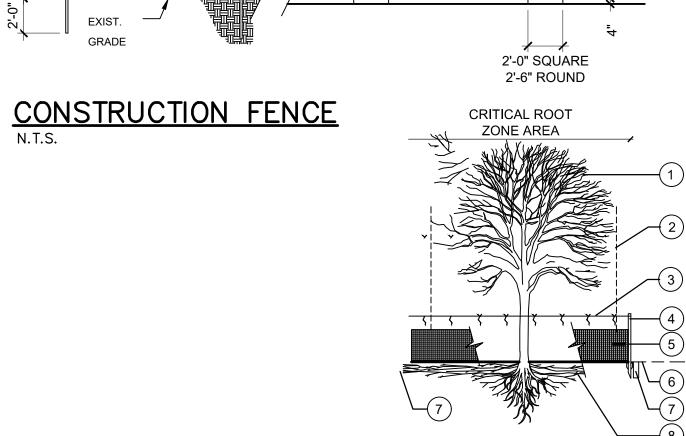
Proposed —/ Finished Grade

vated Area for

(See Silt Fence Detail for Installation Requirements)



CHAIN LINK FENCE FABRIC IS TO BE 11 GAUGE HOT DIPPED ZINC COATED (GALVANIZED) IRON OR STEEL 8'-0" HIGH W/2 1/2" SQUARE DIAMOND. USE 8'-0" x 1 5/8" DIA. O.D. GALVANIZED IRON POSTS. CORNER AND GATE POSTS WILL BE 8'-0" x 2 3/4" DIA. O.D. ALL NON-MOVABLE FENCE POSTS TO BE SET IN A MIN. 2'-0" IN GROUND OR SET IN 4" THICK CONCRETE PAD 2'-0" SQUARE OR 2'-6" ROUND W/CORNER & GATE POSTS ADEQUATELY BRACED. 10'-0" MIN.



- (1) EXISTING TREE(S) TO REMAIN.
- (2) DRIPLINE OF EXISTING TREE (TYP) (3) CONTINUOUS NYLON TIE STRING TIED TO STAKE TOPS W/ 2' TUNDRA WEIGHT

ORANGE STREAMERS @ 3' O.C.

- $\left( ext{ 4 } 
  ight)$  8' METAL T-STAKES: 8' O.C. MIN., DRIVEN 2' INTO GROUND AT (OR OUTSIDE) TREE DRIPLINE
- (6) EXISTING GRADE TO BE DISTURBED.

(5) 4' MIN. HEIGHT ORANGE PLASTIC

RECOMMENDATIONS (TYP).

FENCING INSTALLED PER MANF.

@ PRUNING TRENCH AS REQ'D.

SUPPLEMENT W/ SILT FENCE FABRIC

- (7) ROOT PRUNING TRENCH 12" OUTSIDE FENCE -SEE NOTES.
- (8) EXISTING GRADE TO REMAIN.

- 1. PERFORM ROOT PRUNING ON ALL EXISTING TREES TO REMAIN WHERE CONSTRUCTION ACTIVITY FALLS WITHIN DRIP LINE OF EXISTING TREES.
- 2. ROOT PRUNING METHOD: 2 MONTHS MIN. PRIOR TO EXCAVATION & CONSTRUCTION ACTIVITIES, HAND CUT ROOTS BY DIGGING A 18"-24" DEEP x 8" WIDE TRENCH ALONG THE OUTSIDE PERIMETER OF EXISTING TREE(S) ADJACENT TO CONSTRUCTION AREAS. MAXIMIZE PRUNING TRENCH DISTANCE FROM TRUNK TO THE FULLEST EXTENT POSSIBLE, W/ THE ROOT PRUNING LINE PLACED @ THE EDGE OF CONSTRUCTION LIMITS.

# TREE PROTECTION DETAIL

VEGETATIVE STABILIZATION REQUIREMENTS

### TEMPORARY SEEDING ALL DISTURBED AREAS WHICH WILL BE LEFT DORMANT FOR GREATER THAN 14 DAYS SHALL BE SEEDED WITH FAST-GERMINATING TEMPORARY VEGETATION IMMEDIATELY FOLLOWING GRADING OPERATIONS. SELECTION OF THE SEED WILL DEPEND ON THE TIME OF YEAR IT IS APPLIED (SEE DESCRIPTIONS IN TABLE 2). REFERENCE LANDSCAPE PLAN FOR PERMANENT STABILIZATION REQUIREMENTS. VEGETATION TABLE\* TEMPORARY SEEDING PLANTING RATE <u>SPECIES</u> CRIMSON CLOVER *7#/ACRE*

\*USE ONLY USDA CERTIFIED SEED.

<u>PLANTING—DATES</u> 8/15 - 11/30 *30#/ACRE* MILLET, FOXTAIL 5/1 - 8/31 RYEGRASS, ANNUAL 8/15 - 9/30 *30#/ACRE* SPRANGLETOP, GREEN 2.5#/ACRE 2/1 - 5/1 9/1 - 10/15 *TALL FESCUE* 7#-10#/1000 SF

SURFACE PREPARATION FOR TEMPORARY SEEDING

1. INSTALL EROSION STRUCTURES SUCH AS DIKES, DIVERSIONS, ETC. PRIOR TO SEEDING.

2. FURROW SLOPES STEEPER THAN 3:1 ON THE CONTOUR LINE BEFORE SEEDING.

3. ENSURE SEED BED IS PULVERIZED, LOOSE, AND UNIFORM.

### <u>APPLICATION</u>

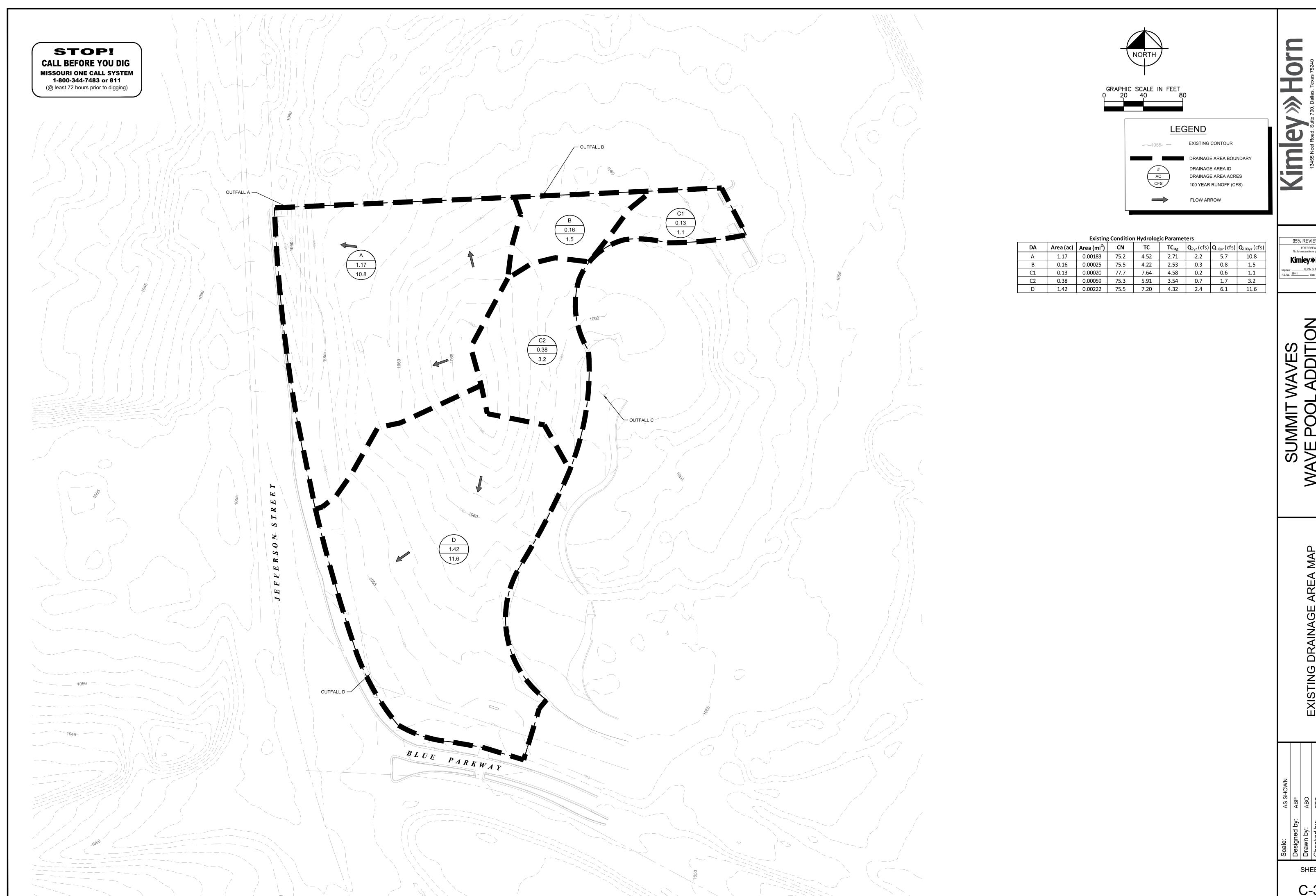
1. WHEN HYDROMULCHING IS USED, DO NOT MIX SEED AND

FERTILIZER MORE THAN 30 MINUTES PRIOR TO APPLICATION.

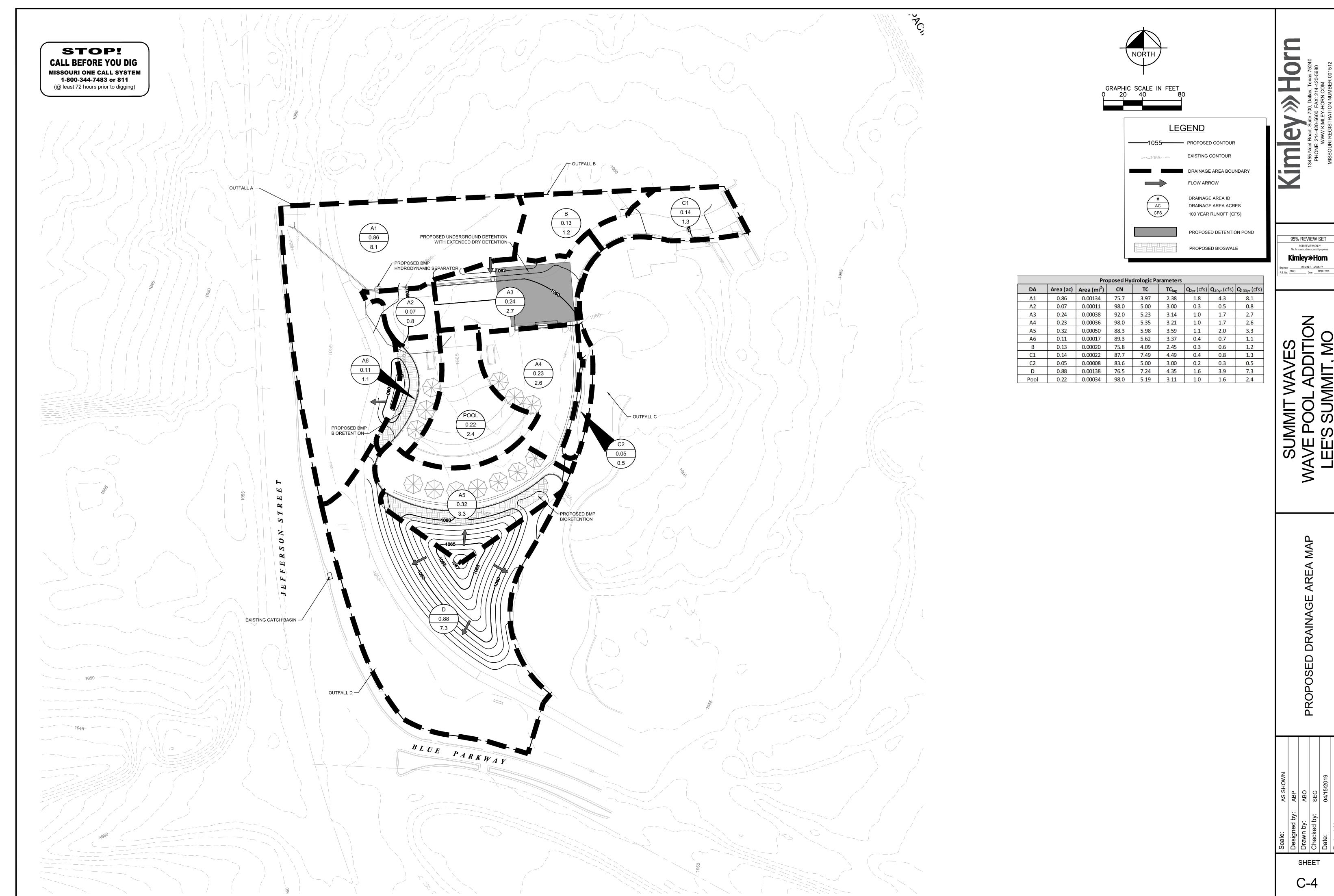
2. APPLY SEED EVENLY USING PROPER EQUIPMENT AND WATER TO AID VEGETATION GROWTH.

3. EROSION CONTROL NETTING SHALL BE INSTALLED OVER FILL SLOPES WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDED TO PROTECT AGAINST EROSION. MULCH (STRAW OR FIBER) SHALL BE USED ON RELATIVELY FLAT SLOPES.

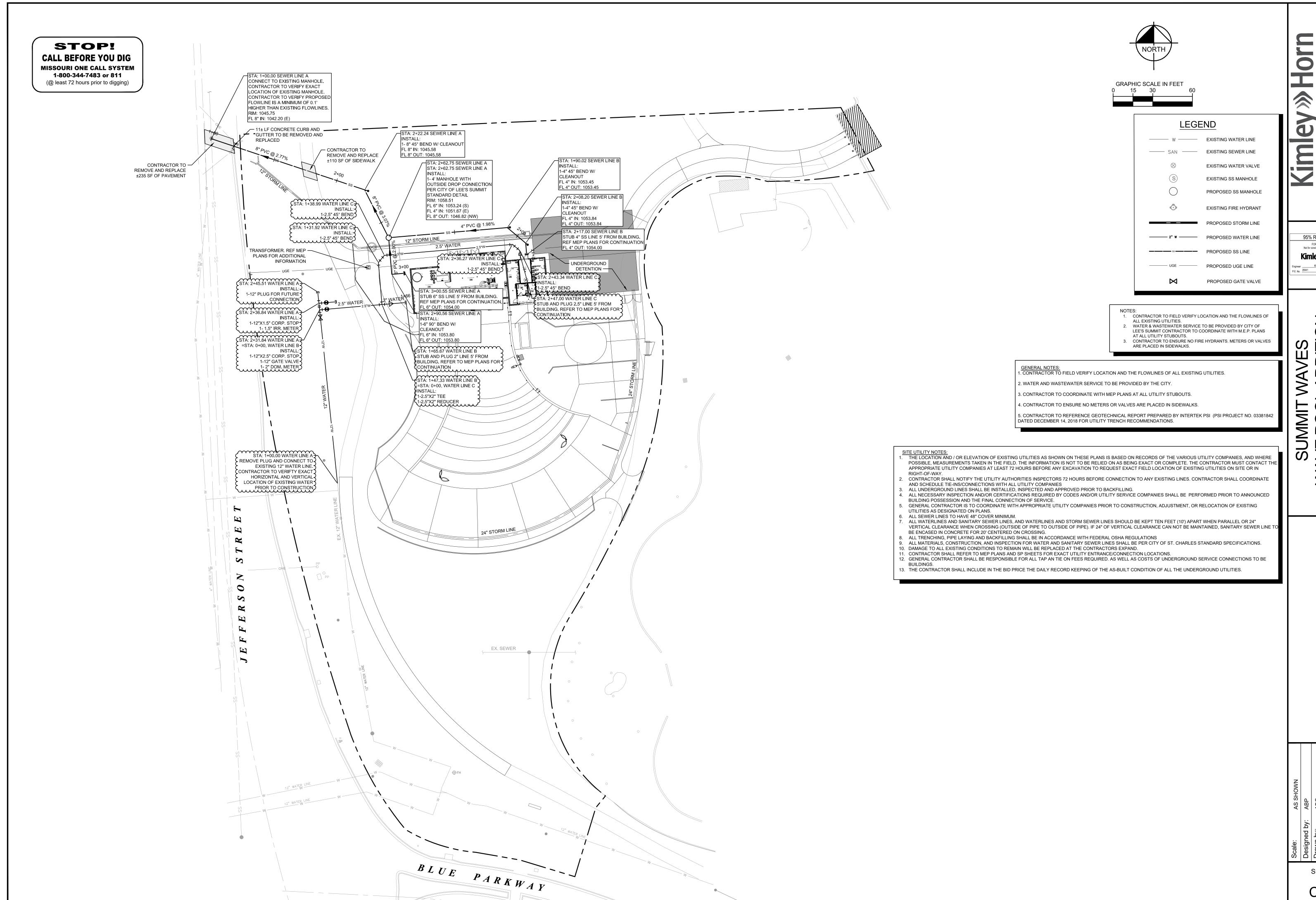
95% REVIEW SET FOR REVIEW ONLY Not for construction or permit purposes Kimley»Horn Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019



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Not for construction or permit purposes. **Kimley**Horn | Engineer | KEVIN S. GASKEY | P.E. No. | 28441 | Date | APRIL 2019 |



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Not for construction or permit purposes, **Kimley**»Horn



700, Dallas, Texas 75240 00 FAX: 214-420-5680 EY-HORN.COM ATION NUMBER 001512

13455 Noel Road, Suite 700, Dalla PHONE: 214-420-5600 FAX: 2 WWW.KIMLEY-HORN. MISSOURI REGISTRATION NU

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Kimley»Horn

KEVIN S. GASKEY

Kimley» Horn

Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019

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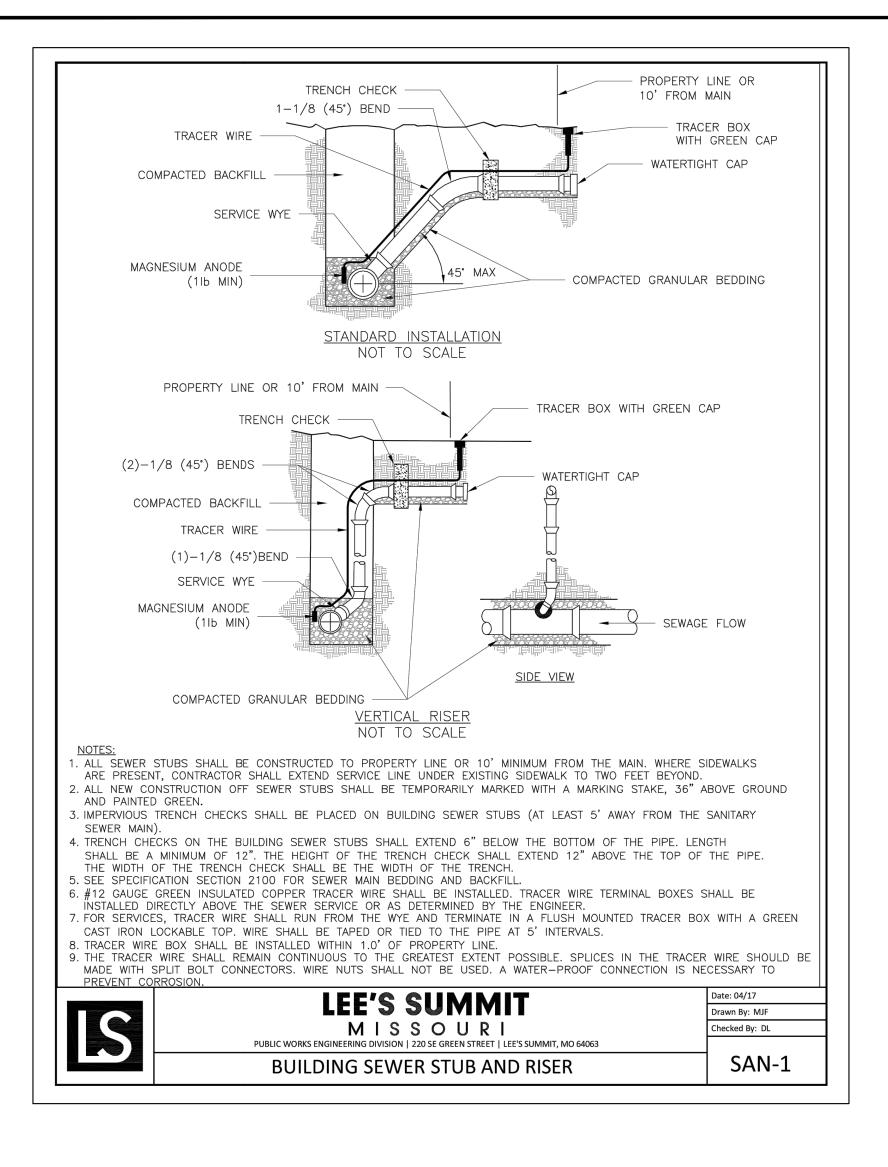
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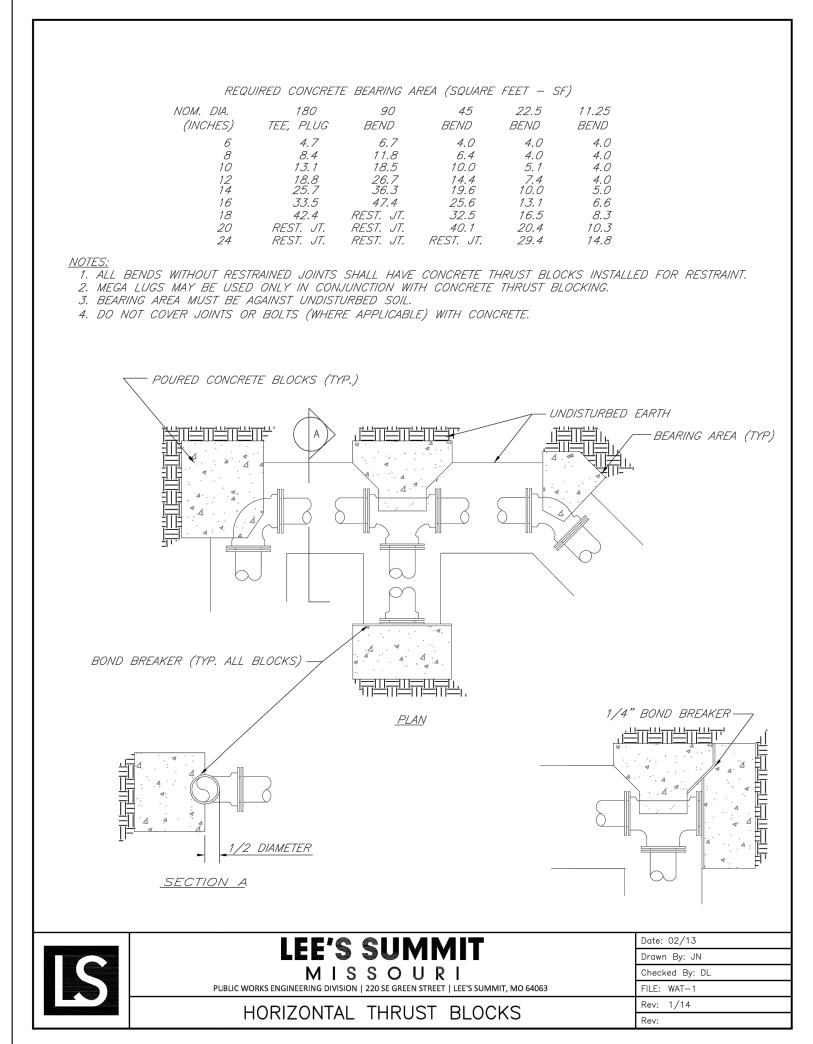
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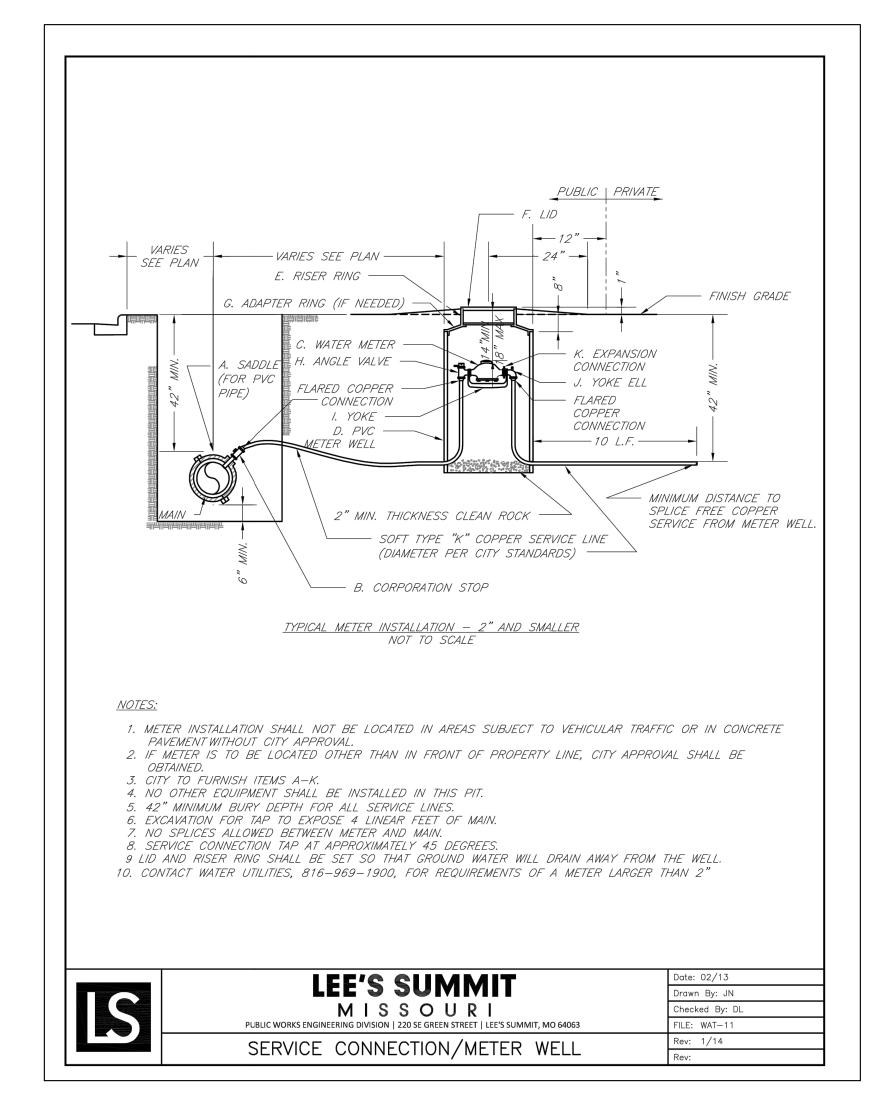
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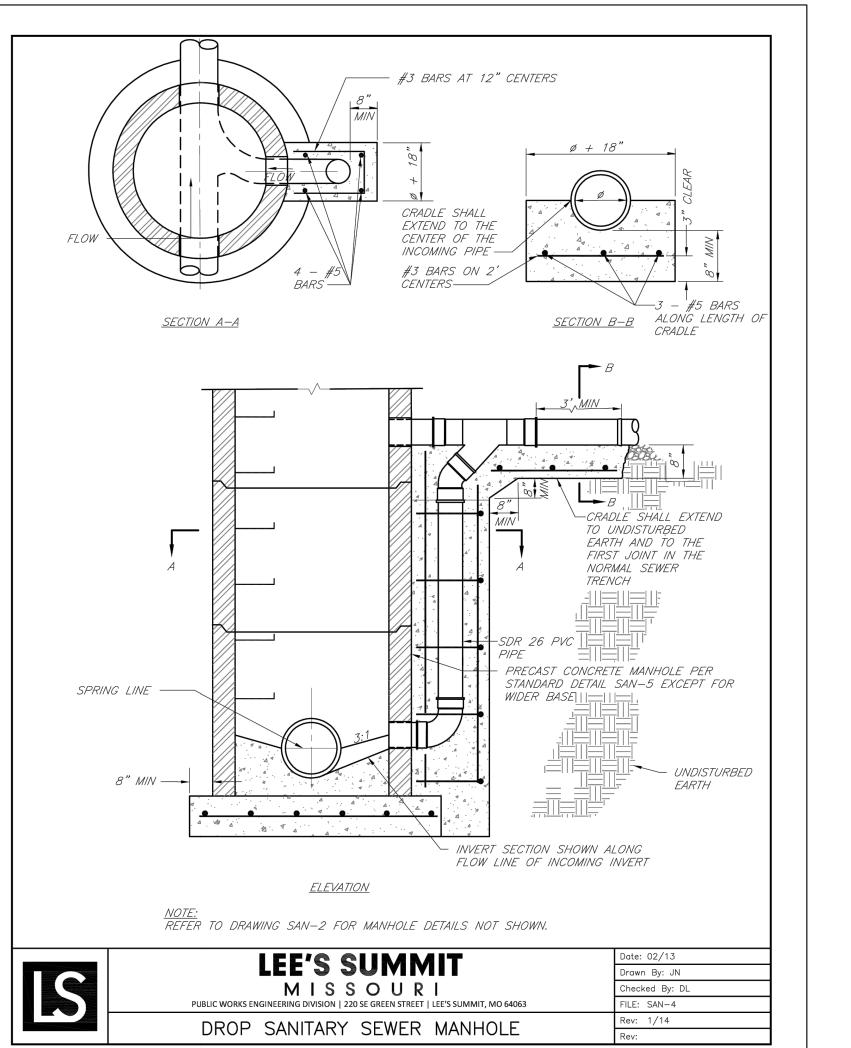
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Kimley>>> Horn

Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019

WAVE POOL ADDITION LEE'S SUMMIT, MO

UTILITY DETAILS

 Drawn by:
 ABO

 Checked by:
 SEG

 Date:
 04/15/2019

 Project No.
 064538700



STA: 1+00.00 STORM LINE A

1-12" FLARED WING HEADWALL

STA: 1+99.52 STORM LINE A

STA: 2+09.71 STORM LINE A

1-VORTSENTRY STRUCTURE

STORM LINE A

INSTALL:

1-12" 45° BEND

INSTALL:

RIM: 1058.09

FL 12" IN: 1049,58 FL 12" OUT: 1049.58 CONNECT TO UNDERGROUND

STA: 3+27.84 STORM LINE A

DETENTION OUTFALL

JUNCTION BOX PER

DETAIL (THIS SHEET)

FL 12" OUT: 1050.20

DETENTION POND

FL 12": 1050.22

INSTALL:

RIM: 1060.40 FL 12" IN: 1050.20

POOL DRAIN

FL 4": 1051.60

STA: 2+20.44 STORM LINE C

1-4" 45° BEND

Δ=65°34'46"-

R=140.00'

BLUE PARKWAY

CB=S82°29'40"W

STA: 2+40.90 STORM LINE C

CONTRACTOR TO REFERENCE SP SHEETS

FOR EXACT HORIZONTAL AND VERTICAL LOCATION OF WINTERIZATION DRAIN

- STORMTRAP UNDERGROUND DETENTION SYSTEM

STA: 1+00.00 STORM LINE B

UNDERGROUND DETENTION

STA: 1+23.24 STORM LINE B

STA: 1+32.71 STORM LINE B POINT OF CURVATURE

STA: 1+53.56 STORM LINE B

DECK DRAINAGE CONNECTION

REFERENCE DECK DRAINAGE PLAN

DECK DRAINAGE CONNECTION

REFERENCE DECK DRAINAGE PLAN

CONNECT TO

FL 24" IN: 1050.66

FOR CONTINUATION

FL 24": 1050.77

L 24": 1050.82

FOR CONTINUATION

STA: 1+82.09 STORM LINE B

DECK DRAINAGE CONNECTION REFERENCE DECK DRAINAGE PLAN

STA: 2+02.18 STORM LINE B DECK DRAINAGE CONNECTION REFERENCE DECK DRAINAGE PLAN

FL 24": 1050.92

FOR CONTINUATION L 24": 1051.06

FOR CONTINUATION FL 24": 1051.16 STA: 2+18.50 STORM LINE B POINT OF TANGENCY FL 24": 1051.24

STA: 2+24.24 STORM LINE B DECK DRAINAGE CONNECTION REFERENCE DECK DRAINAGE PLAN

FOR CONTINUATION FL 24": 1051.27

INSTALL:

1-24" 30° BEND

FOR CONTINUATION

FL 24": 1051.47

STA: 2+64.85 STORM LINE B POINT OF CURVATURE

DECK DRAINAGE CONNECTION REFERENCE DECK DRAINAGE PLAN

STA: 2+46.81 STORM LINE B

(SEE SHEET C-10 FOR DETAILS)

Δ=24°34'35"— R=200.00'

L=85.79'

C=85.13'

CB=S7°24'59"W

INSTALL:

STA: 1+93.85 STORM LINE A

1-4" 45° BEND

FL 4": 1050.18

STA: 1+65.71 STORM LINE C

1-4" 30° BEND

FL 4": 1050.65

STA: 1+90.00 STORM LINE C

DECK DRAINAGE CONNECTION

FOR CONTINUATION

BIORETENTION AREA -

REFERENCE DECK DRAINAGE PLAN

1-4" 30° BEND

FL 4": 1050.96

BIORETENTION AREA -

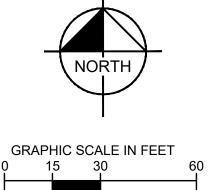
STA: 1+27.79 STORM LINE C

= STA: 1+00, STORM LINE C

INSTALL

1-12"X4" 45° WYE

FL 12": 1049.49



LEGEND

— W — EXISTING WATER LINE

——— SAN ——— EXISTING SEWER LINE

EXISTING WATER VALVE

EXISTING SS MANHOLE

PROPOSED SS MANHOLE

EXISTING FIRE HYDRANT

PROPOSED STORM LINE

PROPOSED UGE LINE

PROPOSED GATE VALVE

PROPOSED SS LINE

### **DETENTION OUTFALL JUNCTION BOX DETAILS**

WSEL<sub>100-YR</sub>=1054.30 WSEL<sub>10-YR</sub>=1052.80 WSEL<sub>2-YR</sub>=1051.70 -

WSEL<sub>WQV</sub>=1051.30

1051.3 1050.20

FRONT VIEW

**TOP VIEW** 

### WEIR CALCULATIONS:

 $Q = C*L*H^{1.5}$ C = 3.0

 $Q = C*A*(2*g*H)^{0.5}$ 

**ORIFICE CALCULATIONS:** 

C = 0.6 $g = 32.2 FT/S^2$ 

OPENING #1 (WQV) D = 1 IN

**OPENING #2** D = 6 IN $A = 0.20 \text{ FT}^2$ 

 $A = 0.01 \text{ FT}^2$ INVERT ELEVATION = 1050.20 INVERT ELEVATION = 1051.55

H = WSEL - CENTROID

H = WSEL - CENTROID

Outfall Structure Summary									
	Volume	Elevation	Ор	(	Total				
<b>Design Storm</b>	(ac-ft)	(ft)	Weir	Weir	Orifice	Actual	Actual		
WQV	0.11	1051.30	0.29	0.03	0.03	0.00	0.00	0.00	0.03
2-year	0.20	1051.70	0.46	0.03	0.03	0.38	0.37	0.37	0.40
10-year	0.30	1052.80	1.05	0.04	0.04	2.76	1.06	1.06	1.10
100-year	0.43	1054.30	2.08	0.05	0.05	7.79	1.57	1.57	1.62

	Elevation Discharge Summary Table									
Elevation	Ор	Opening #1			Opening #2	2	Total			
Elevation	Weir	Orifice	Actual	Weir	Orifice	Actual	Actual			
1050.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
1051.2	0.25	0.03	0.03	0.00	0.00	0.00	0.03			
1052.2	0.71	0.04	0.04	1.28	0.76	0.76	0.80			
1053.2	1.30	0.05	0.05	3.93	1.21	1.21	1.26			
1054.2	2.00	0.05	0.05	7.41	1.54	1.54	1.59			
1054.72	2.40	0.06	0.06	9.49	1.68	1.68	1.74			

Stage Sto	orage Sumr	nary Table
Elevation	Area	Volume
(ft)	(ac)	(ac-ft)
1050.20	0.10	0.00
1054.72	0.10	0.45

THE DETENTION DESIGN BELOW ASSUMES THE RUNOFF FROM THE POOL WOULD BE DETAINED AND TREATED TO MEET WATER QUANTITY AND QUALITY REQUIREMENTS. KIMLEY-HORN RECEIVED FEEDBACK FROM THE CITY DURING THE DRC PRE-SUBMITTAL MEETING THAT THE POOL DOES NOT NEED TO BE COUNTED IN THE STORM WATER QUALITY AND DETENTION CALCULATIONS. KIMLEY-HORN WILL REVISE THE DESIGN WITH THE 100% SUBMITTAL TO SHOW THE POOL BYPASSING THE DETENTION

STRUCTURE AND WATER QUALITY DEVICES.

- CONTRACTOR TO FIELD VERIFY LOCATION AND THE FLOWLINES OF ALL EXISTING UTILITIES.
- 2. WATER & WASTEWATER SERVICE TO BE PROVIDED BY CITY OF LEE'S SUMMIT CONTRACTOR TO COORDINATE WITH M.E.P. PLANS AT ALL UTILITY STUBOUTS.
- 3. CONTRACTOR TO ENSURE NO FIRE HYDRANTS. METERS OR VALVES ARE PLACED IN SIDEWALKS.

- 1. CONTRACTOR TO FIELD VERIFY LOCATION AND THE FLOWLINES OF ALL EXISTING UTILITIES.
- 2. WATER AND WASTEWATER SERVICE TO BE PROVIDED BY THE CITY.
- 3. CONTRACTOR TO COORDINATE WITH MEP PLANS AT ALL UTILITY STUBOUTS.
- 4. CONTRACTOR TO ENSURE NO METERS OR VALVES ARE PLACED IN SIDEWALKS.

5. CONTRACTOR TO REFERENCE GEOTECHNICAL REPORT PREPARED BY INTERTEK PSI (PSI PROJECT NO. 03381842 DATED DECEMBER 14, 2018 FOR UTILITY TRENCH RECOMMENDATIONS

- . THE LOCATION AND / OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF EXISTING UTILITIES ON SITE OR IN RIGHT-OF-WAY. CONTRACTOR SHALL NOTIFY THE UTILITY AUTHORITIES INSPECTORS 72 HOURS BEFORE CONNECTION TO ANY EXISTING LINES.
- CONTRACTOR SHALL COORDINATE AND SCHEDULE TIE-INS/CONNECTIONS WITH ALL UTILITY COMPANIES
- ALL UNDERGROUND LINES SHALL BE INSTALLED, INSPECTED AND APPROVED PRIOR TO BACKFILLING. ALL NECESSARY INSPECTION AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE
- PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICE. GENERAL CONTRACTOR IS TO COORDINATE WITH APPROPRIATE UTILITY COMPANIES PRIOR TO CONSTRUCTION, ADJUSTMENT, OR

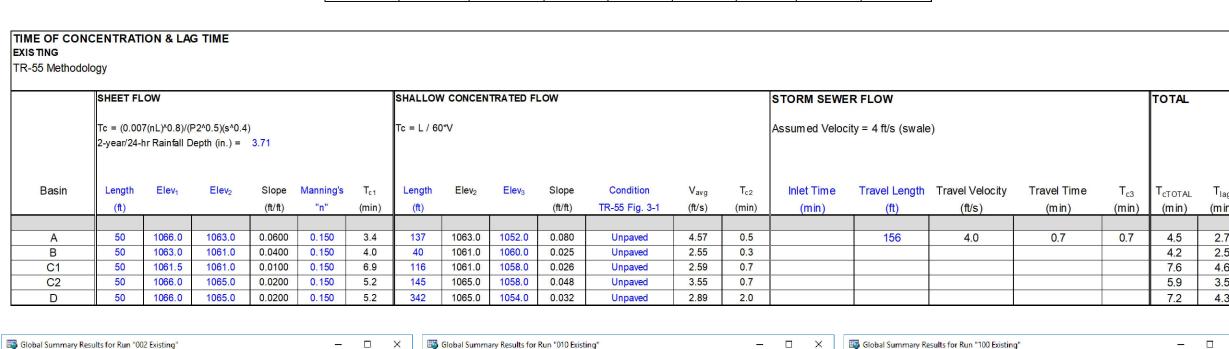
ALL WATERLINES AND SANITARY SEWER LINES, AND WATERLINES AND STORM SEWER LINES SHOULD BE KEPT TEN FEET (10') APART

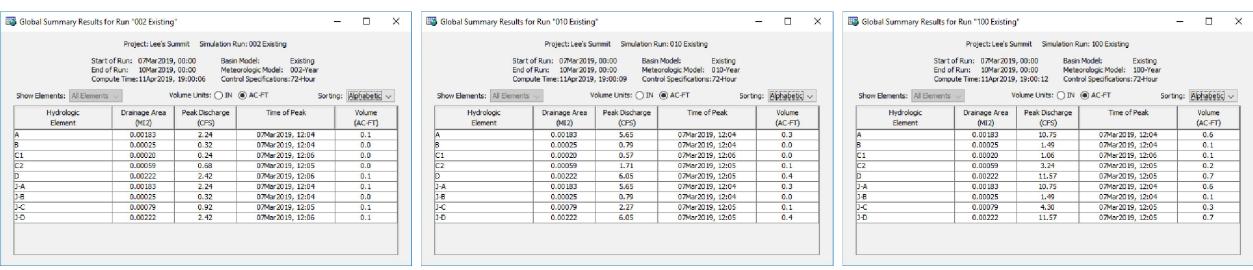
- RELOCATION OF EXISTING UTILITIES AS DESIGNATED ON PLANS. ALL SEWER LINES TO HAVE 48" COVER MINIMUM.
- WHEN PARALLEL OR 24" VERTICAL CLEARANCE WHEN CROSSING (OUTSIDE OF PIPE TO OUTSIDE OF PIPE). IF 24" OF VERTICAL CLEARANCE CAN NOT BE MAINTAINED, SANITARY SEWER LINE TO BE ENCASED IN CONCRETE FOR 20' CENTERED ON CROSSING.
- ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL BE IN ACCORDANCE WITH FEDERAL OSHA REGULATIONS
- ALL MATERIALS, CONSTRUCTION, AND INSPECTION FOR WATER AND SANITARY SEWER LINES SHALL BE PER CITY OF ST. CHARLES
- STANDARD SPECIFICATIONS. 10. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED AT THE CONTRACTORS EXPAND.
- 11. CONTRACTOR SHALL REFER TO MEP PLANS AND SP SHEETS FOR EXACT UTILITY ENTRANCE/CONNECTION LOCATIONS. 12. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TAP AN TIE ON FEES REQUIRED. AS WELL AS COSTS OF UNDERGROUND SERVICE CONNECTIONS TO BE BUILDINGS.
- 13. THE CONTRACTOR SHALL INCLUDE IN THE BID PRICE THE DAILY RECORD KEEPING OF THE AS-BUILT CONDITION OF ALL THE UNDERGROUND UTILITIES.

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 Engineer
 KEVIN S. GASKEY

 P.E. No.
 28441
 Date
 APRIL 2019

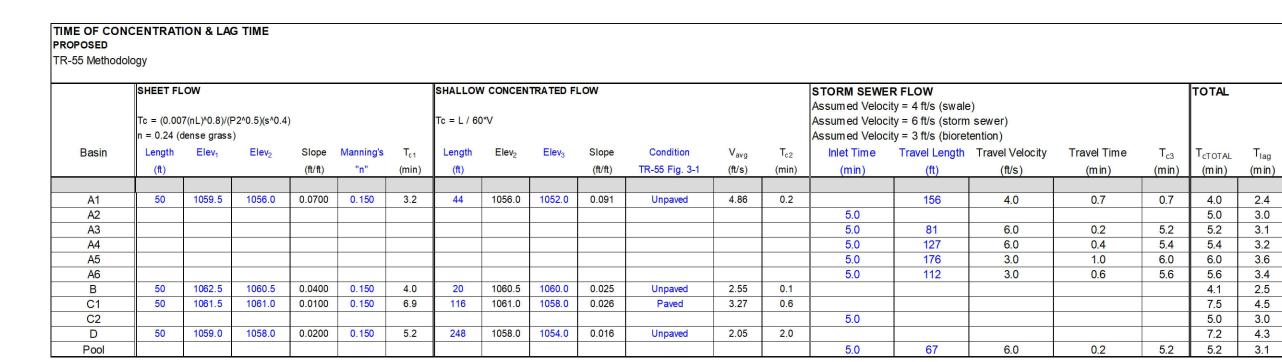
**Existing Condition Hydrologic Parameters** DA Area (ac) Area (mi<sup>2</sup>) CN TC  $TC_{lag}$   $Q_{2yr}$  (cfs)  $Q_{10yr}$  (cfs)  $Q_{100yr}$  (cfs) A 1.17 0.00183 75.2 4.52 2.71 2.2 5.7 0.16 | 0.00025 | 75.5 | 4.22 | 2.53 | 0.3 | 0.8 C1 0.13 0.00020 77.7 7.64 4.58 0.2 0.6 C2 0.38 0.00059 75.3 5.91 3.54 0.7 1.7 D 1.42 0.00222 75.5 7.20 4.32 2.4 6.1 11.6

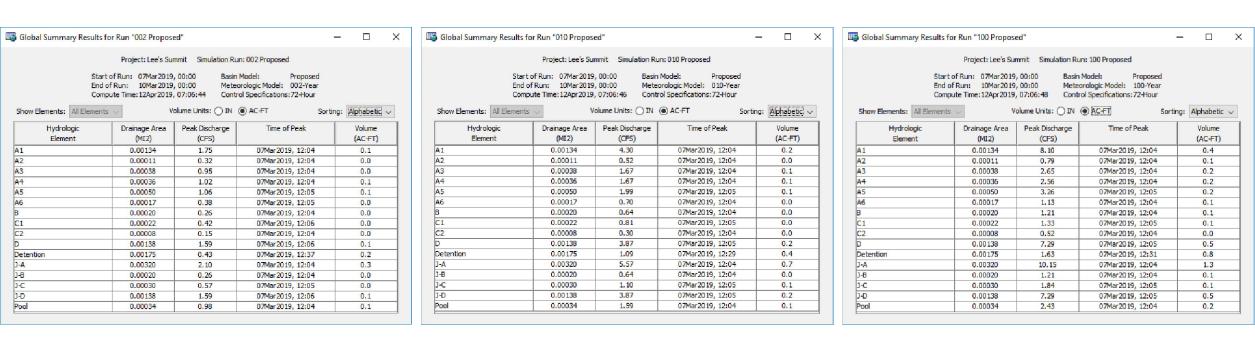




### HYDROLOGIC CALCULATIONS - PROPOSED CONDITIONS

	Proposed Hydrologic Parameters							
DA	Area (ac)	Area (mi²)	CN	TC	TC <sub>lag</sub>	Q <sub>2yr</sub> (cfs)	Q <sub>10yr</sub> (cfs)	Q <sub>100yr</sub> (cfs)
A1	0.86	0.00134	75.7	3.97	2.38	1.8	4.3	8.1
A2	0.07	0.00011	98.0	5.00	3.00	0.3	0.5	0.8
A3	0.24	0.00038	92.0	5.23	3.14	1.0	1.7	2.7
A4	0.23	0.00036	98.0	5.35	3.21	1.0	1.7	2.6
A5	0.32	0.00050	88.3	5.98	3.59	1.1	2.0	3.3
A6	0.11	0.00017	89.3	5.62	3.37	0.4	0.7	1.1
В	0.13	0.00020	75.8	4.09	2.45	0.3	0.6	1.2
C1	0.14	0.00022	87.7	7. <b>4</b> 9	4.49	0.4	0.8	1.3
C2	0.05	0.00008	83.6	5.00	3.00	0.2	0.3	0.5
D	0.88	0.00138	76.5	7.24	4.35	1.6	3.9	7.3
Pool	0.22	0.00034	98.0	5.19	3.11	1.0	1.6	2.4



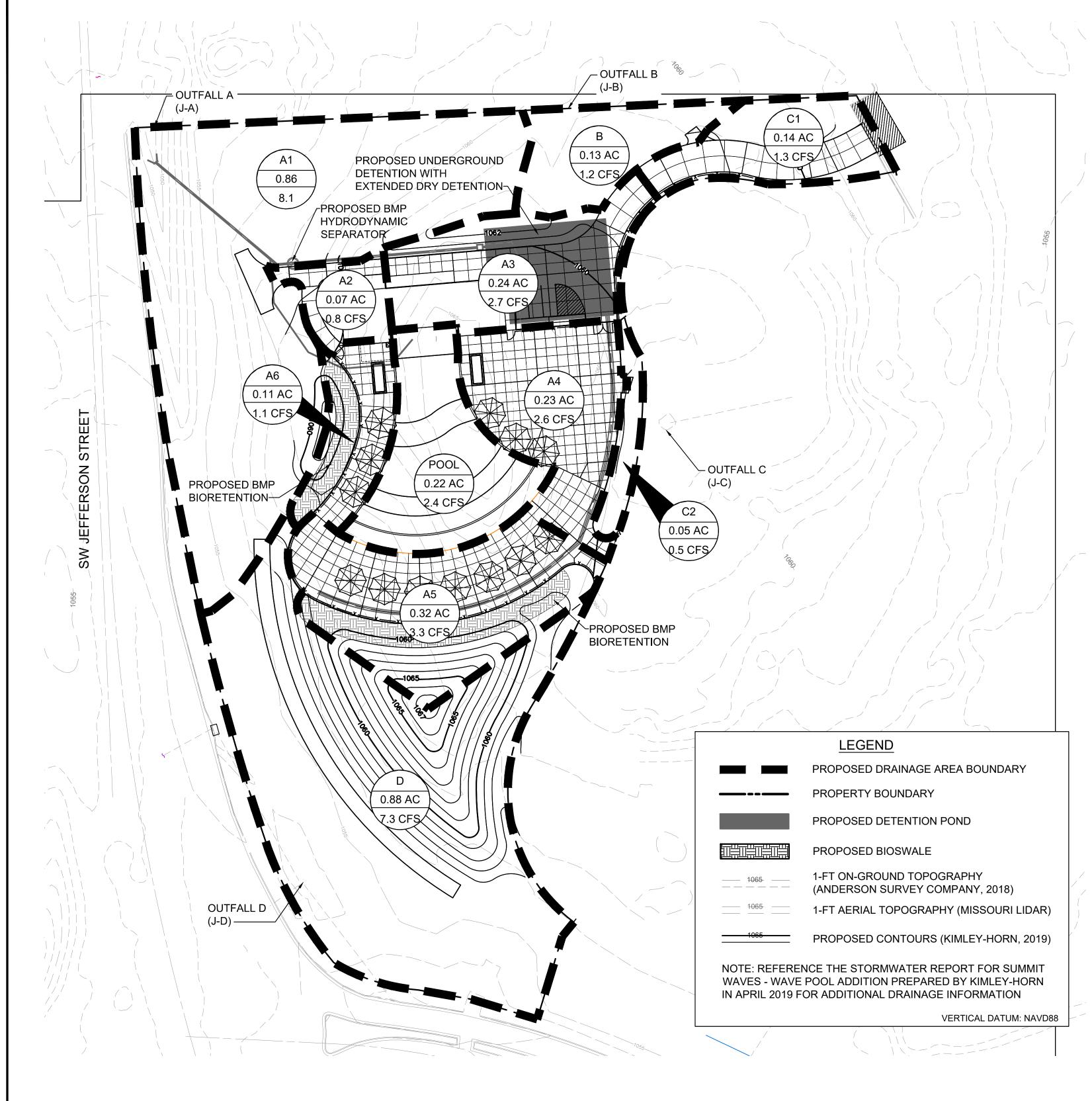


Summary Results for Re	Servoir Deter	ition				X
Pro	ject: Lee's Sum	mit Simula	ation Run: 002 Propose	d		
	R	eservoir: De	tention			
Start of Run	07Mar 2019,	00:00	Basin Model:	Proposed		
End of Run:	10Mar 2019,	00:00	Meteorologic Model:	002-Year		
Compute Tim	e:12Apr2019,	07:06:44	Control Specifications	s:72-Hour		
	Volume	Units: () IN	AC-FT			
Computed Results						
Peak Inflow:	4.37 (CFS)	Date/Time	e of Peak Inflow: 07	Mar2019, 12	2:04	
Peak Discharge:	0.43 (CFS)	Date/Time	e of Peak Discharge:07	Mar 2019, 12	2:37	
Inflow Volume:	0.2 (AC-FT)	Peak Stor	rage: 0.	1 (AC-FT)		
Discharge Volume	:0.2 (AC-FT)	Peak Elev	ation: 10	51.7 (FT)		

Summary Results for Re	eservoir "Detent	tion"		_	×
Pro		nit Simula servoir: Det	tion Run: 100 Propos tention	sed	
End of Run:	: 07Mar 2019, 0 10Mar 2019, 0 ie:12Apr 2019, 0 Volume U	0:00 7:06:48	Basin Model: Meteorologic Mode Control Specification		
Computed Results					
Peak Inflow: Peak Discharge: Inflow Volume: Discharge Volume	0.8 (AC-FT)		of Peak Discharge: age:	07Mar 2019, 12 07Mar 2019, 12 0.4 (AC-FT) 1054.3 (FT)	

■ Summary	Results for Re	servoir "Deten	tion"		-	
	Pro		nit Simula servoir: Det	tion Run: 010 Propose tention	ed	
	End of Run:	07Mar2019, 0 10Mar2019, 0 e:12Apr2019, 0	0:00	Basin Model: Meteorologic Model: Control Specification		
Computed R	esults	Volume U	Jnits: O IN	AC-FT		
Pe	esults eak Inflow: eak Discharge: flow Volume:	7.61 (CFS) 1.09 (CFS)	Date/Time	of Peak Inflow: 0' of Peak Discharge:0'		

Junction	2 YR				10 YR		100 YR			
Junction	Existing	Proposed	Difference	Existing	Proposed	Difference	Existing	Proposed	Difference	
J-A	2.24	2.10	-0.14	5.65	5.57	-0.08	10.75	10.15	-0.60	
J-B	0.32	0.26	-0.06	0.79	0.64	-0.15	1.49	1.21	-0.28	
J-C	0.92	0.57	-0.35	2.27	1.10	-1.17	4.30	1.84	-2.46	
J-D	2.42	1.59	-0.83	6.05	3.87	-2.18	11.57	7.29	-4.28	



### WATER QUALITY CALCULATIONS - PROPOSED CONDITIONS

# Water Quality Calculations - Outfall A (Disturbed Area):

Land Use	Area	CN	CN*A
Grass	1.27	74	93.98
Pavement	0.01	98	0.98
,	C	N <sub>PreWeighted</sub> =	74.2

Land Use	Area	CN	CN*A
Grass	0.32	74	23.68
Pavement	0.97	98	95.06
	C	N <sub>PostWeighted</sub> =	92.0

# C. Level of Service (LS) Calculation

CN <sub>PreWeighted</sub> =	74.2
CN <sub>PostWeighted</sub> =	92.0
Difference =	17.9
LS Requried	8
(Table 4.2)=	0

D. Proposed B	BMP Package				
DA	Cover/BMP Description	Treatment Area	VR	VR*Area	
A1 (Bypass, Disturbed)	None	0.10	0.00	0.00	
A2 (Bypass)	Bypass) None		0.00	0.00	
А3	A3 Extended Dry Detention + Hydrodynamic Seperator		8.00	1.92	
A4	Extended Dry Detention + Hydrodynamic Seperator	0.23	8.00	1.84	
A5	Bioretention, Extended Dry Detention, + Hydrodynamic  0.32			5.28	
A6	A6 Bioretention, Extended Dry Detention, + Hydrodynamic		16.50	1.82	
Pool	Extended Dry Detention + Hydrodynamic Seperator	0.22	8.00	1.76	
Total =					
Weighted VR =					
Required VR =					

% Site Impervious	75%
₹v	0.73
WQV (in)	1.00
WQV (ac-ft)	0.11
Release Rate (hr)	40
Q <sub>wqv</sub> (cfs)	0.03

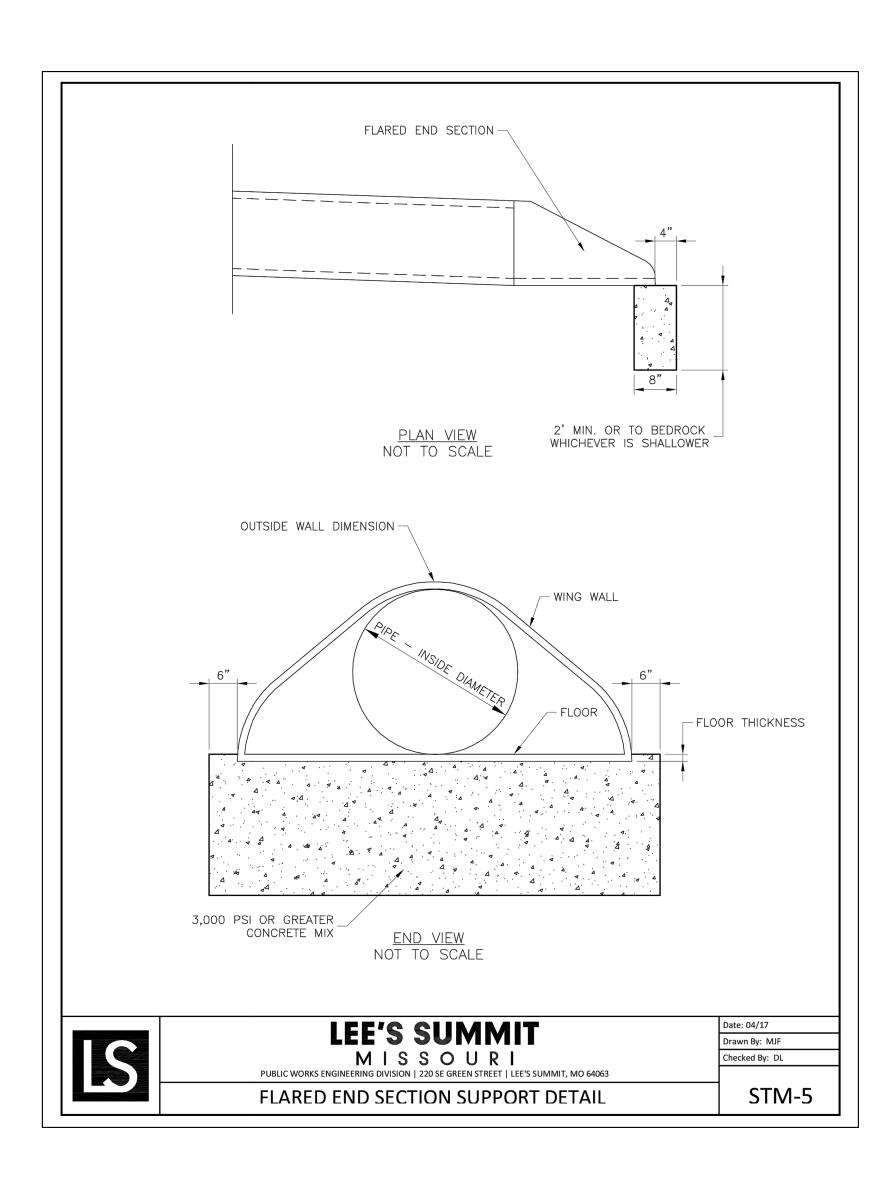
olume'		A. Predevelopm	ent CN	l		A. Predevelopm	ent CN	I	
	75%	Land Use	Area	CN	CN*A	Land Use	Area	CN	CN*A
	0.73	Grass	1.33	74	98.42	Grass	0.15	74	11.1
	1.00	Pavement	0.09	98	8.82	Pavement	0.01	98	0.98
	0.11			CN <sub>PreWeighted</sub> =	75.5			$CN_{PreWeighted} =$	75.5
	40								
	0.03	B. Postdevelopr	B. Postdevelopment CN			B. Postdevelopn	nent Cl	N	
		Land Use	Area	CN	CN*A	Land Use	Area	CN	CN*A
		Grass	0.79	74	58.46	Grass	0.12	74	8.88
		Pavement	0.10	98	9.8	Pavement	0.01	98	0.98
				CN <sub>PostWeighted</sub> =	76.7			CN <sub>PostWeighted</sub> =	75.8

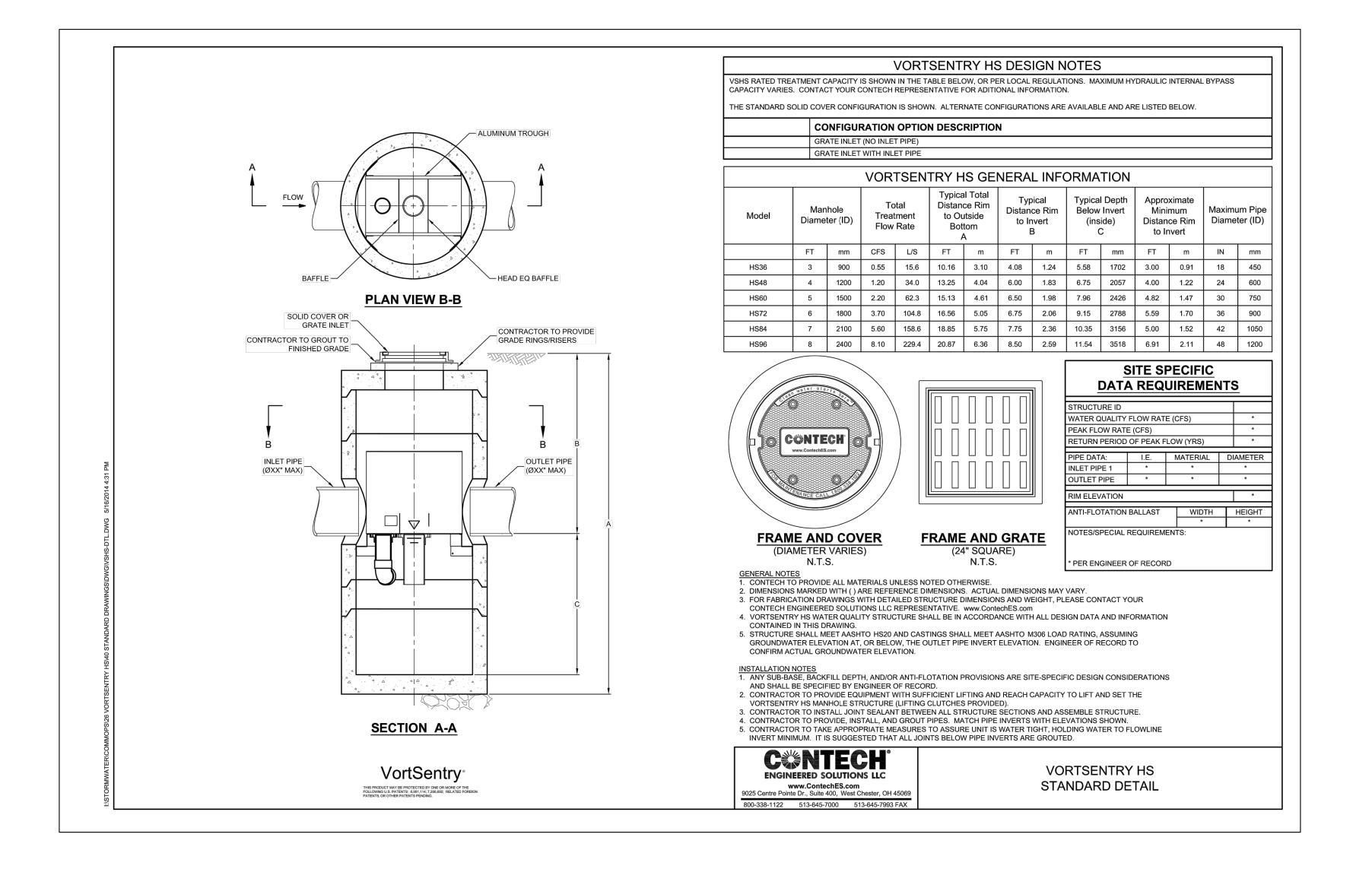
C. Level of Service	e (LS)	Calculation
$CN_{PreWeighted} =$	75.5	
$CN_{PostWeighted} =$	76.7	
Difference =	1.2	
LS Requried	n /o	
(Table 4.2)=	n/a	

Water Quality Calculations - Outfall D:

C. Level of Service (LS) Calculatio							
$CN_{PreWeighted} =$	75.5						
$CN_{PostWeighted} =$	75.8						
Difference =	0.3						
LS Requried	n/a						
(Table 4.2)=	II/a						

Water Quality Calculations - Outfall B:





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Kimley» Horn

Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019

SUMMIT WAVES
AVE POOL ADDITION
LEE'S SUMMIT, MO

CONSTRUCTION DETAILS

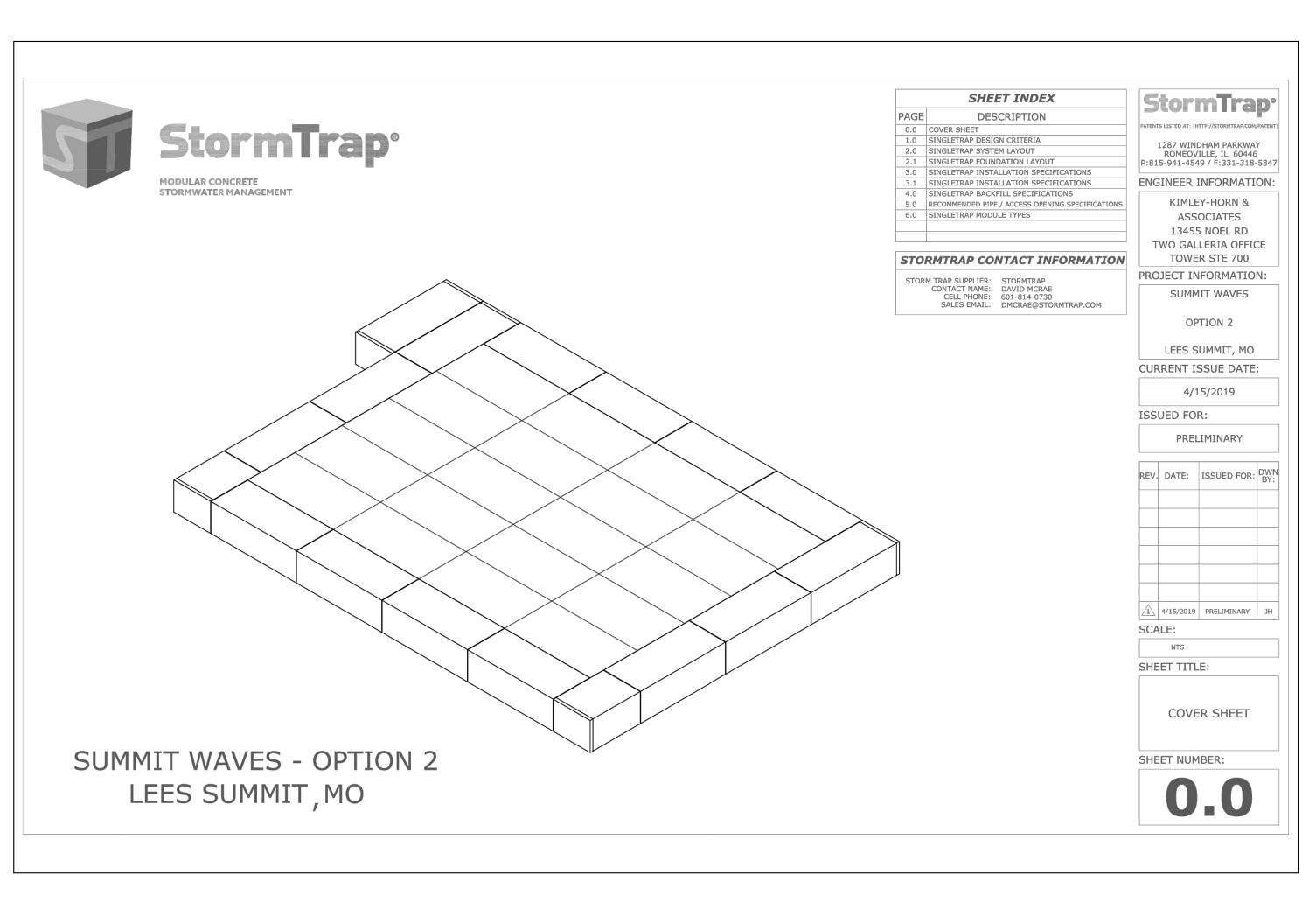
Checked by: SEG

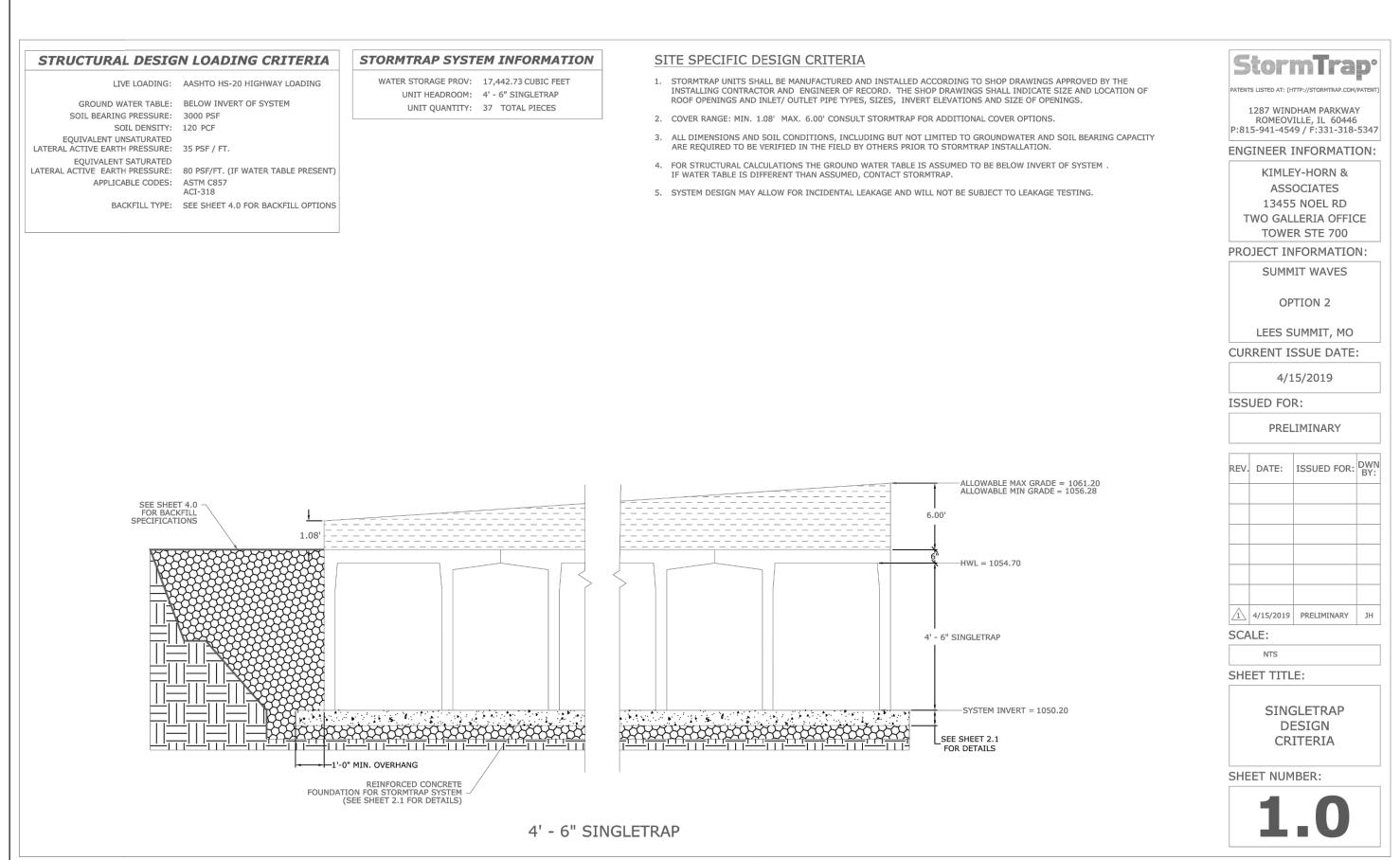
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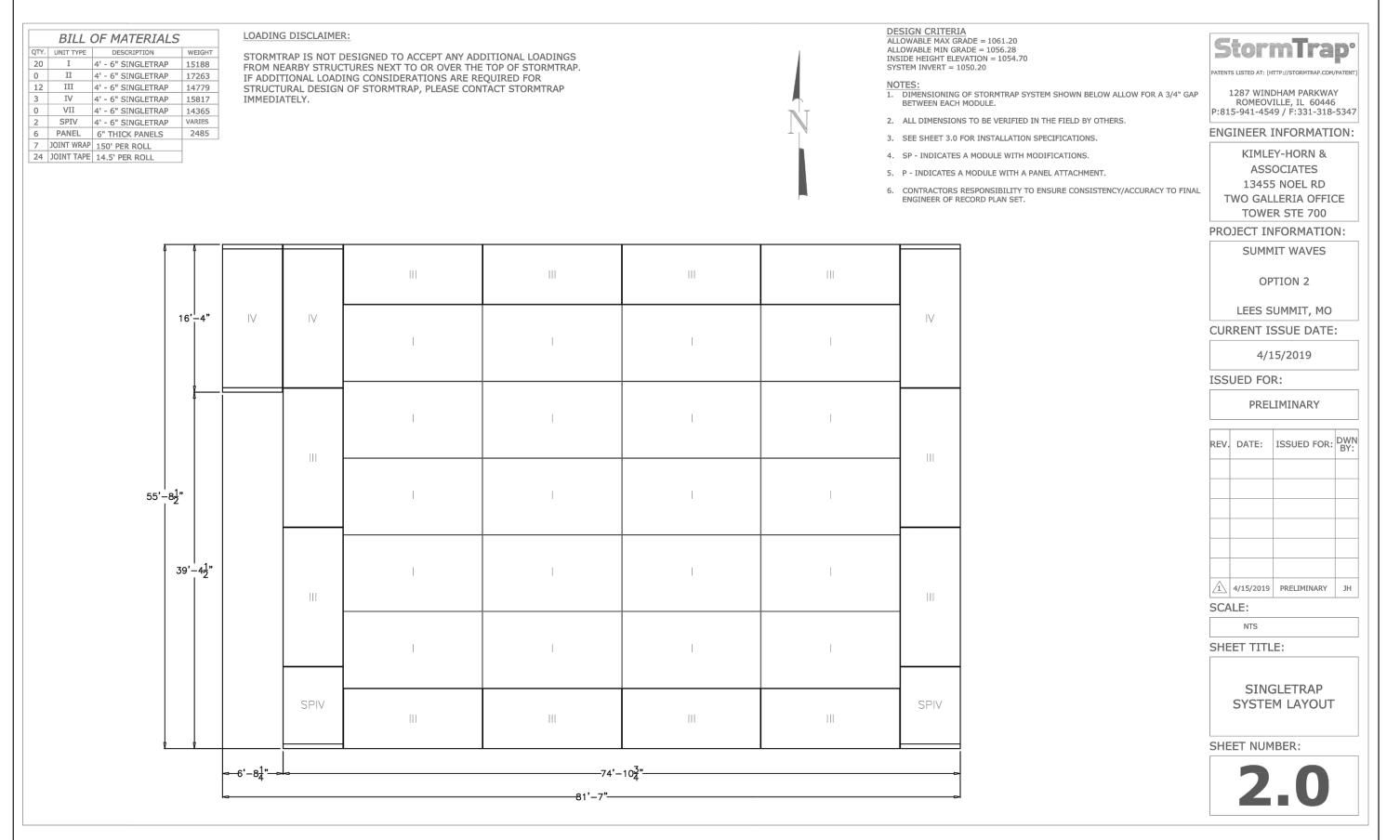
Project No. 064538700

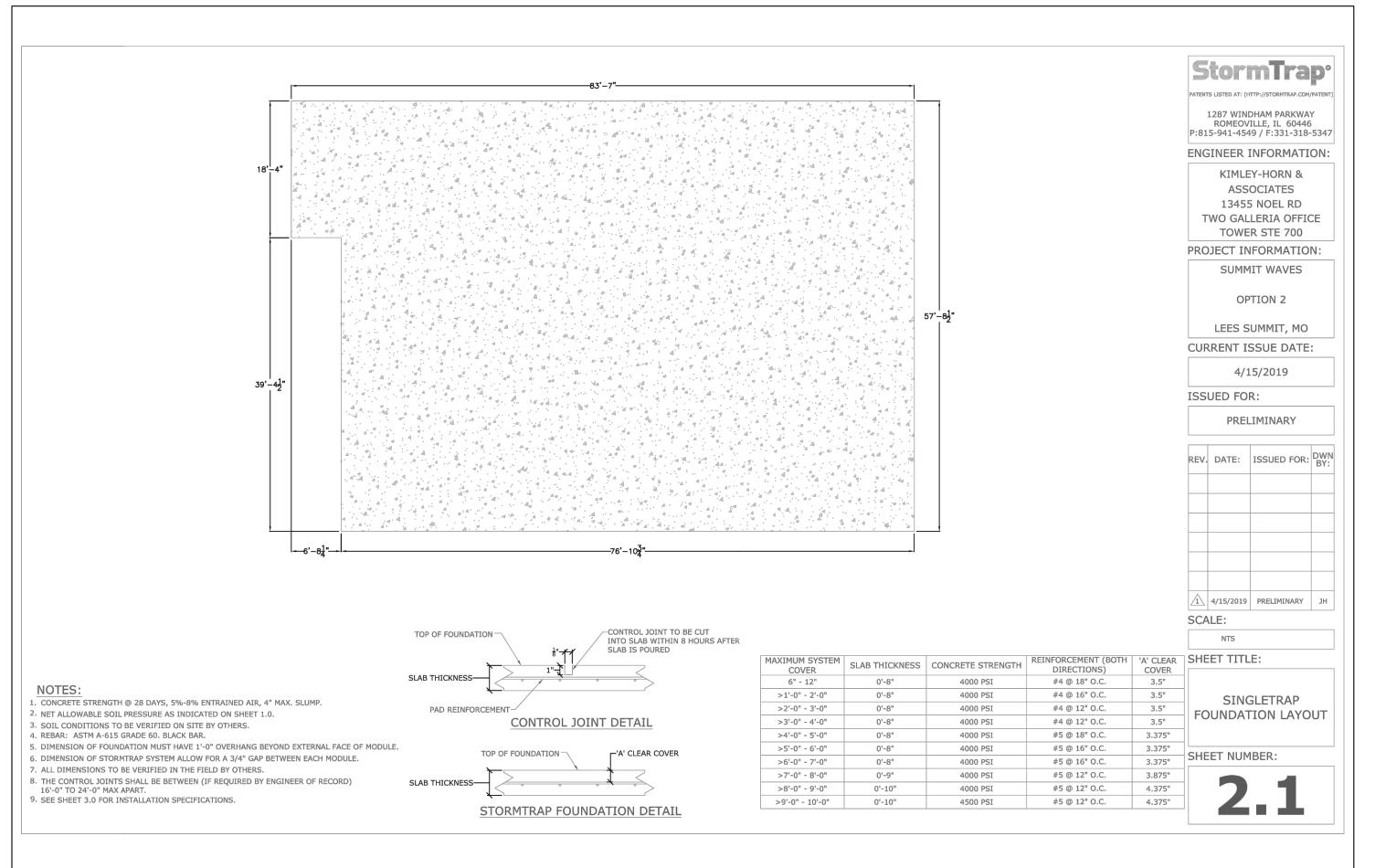
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Engineer

KEVIN S. GASKEY
P.E. No. 28441 \_\_\_ Date \_\_\_APRIL 2019

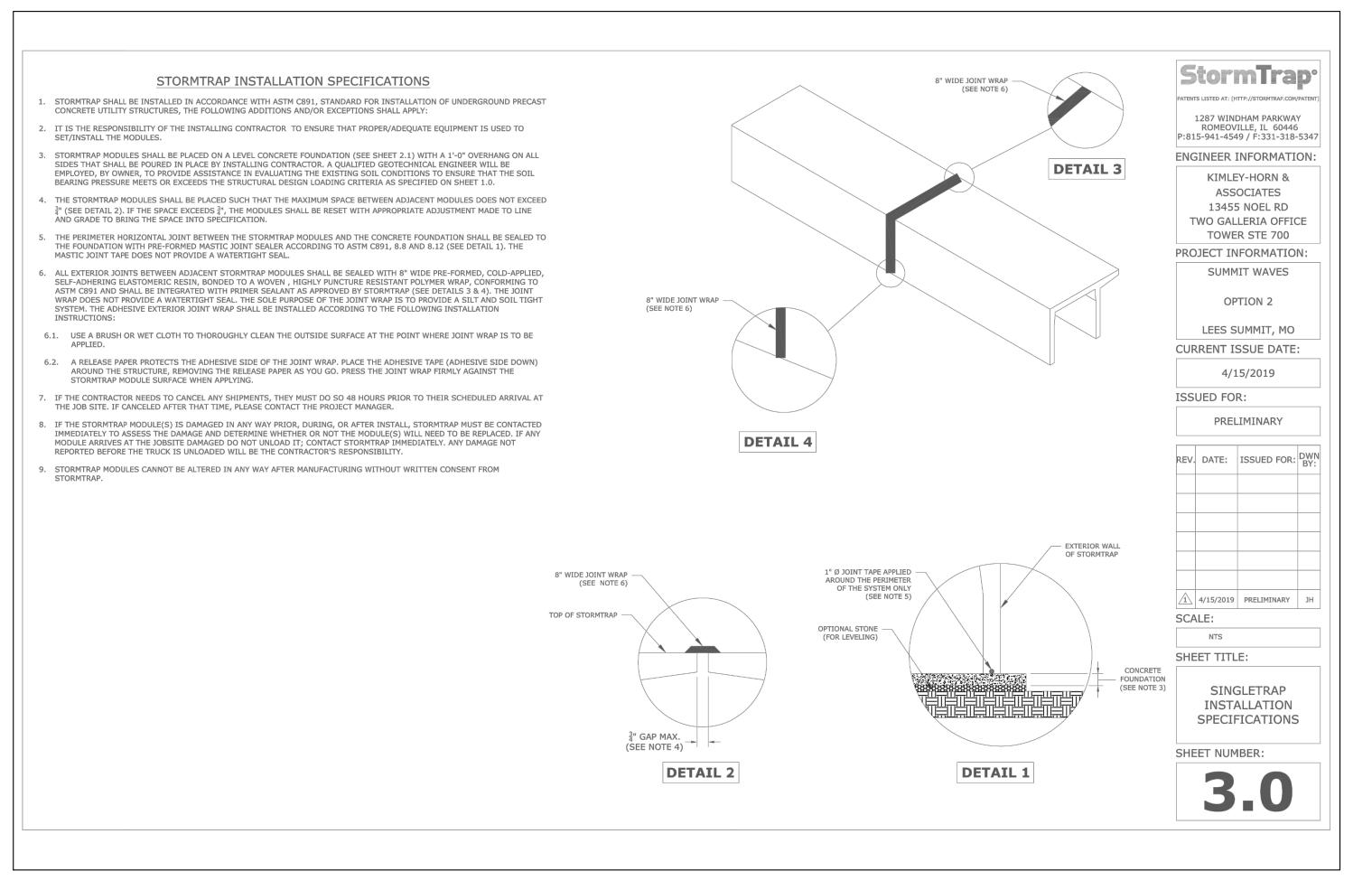
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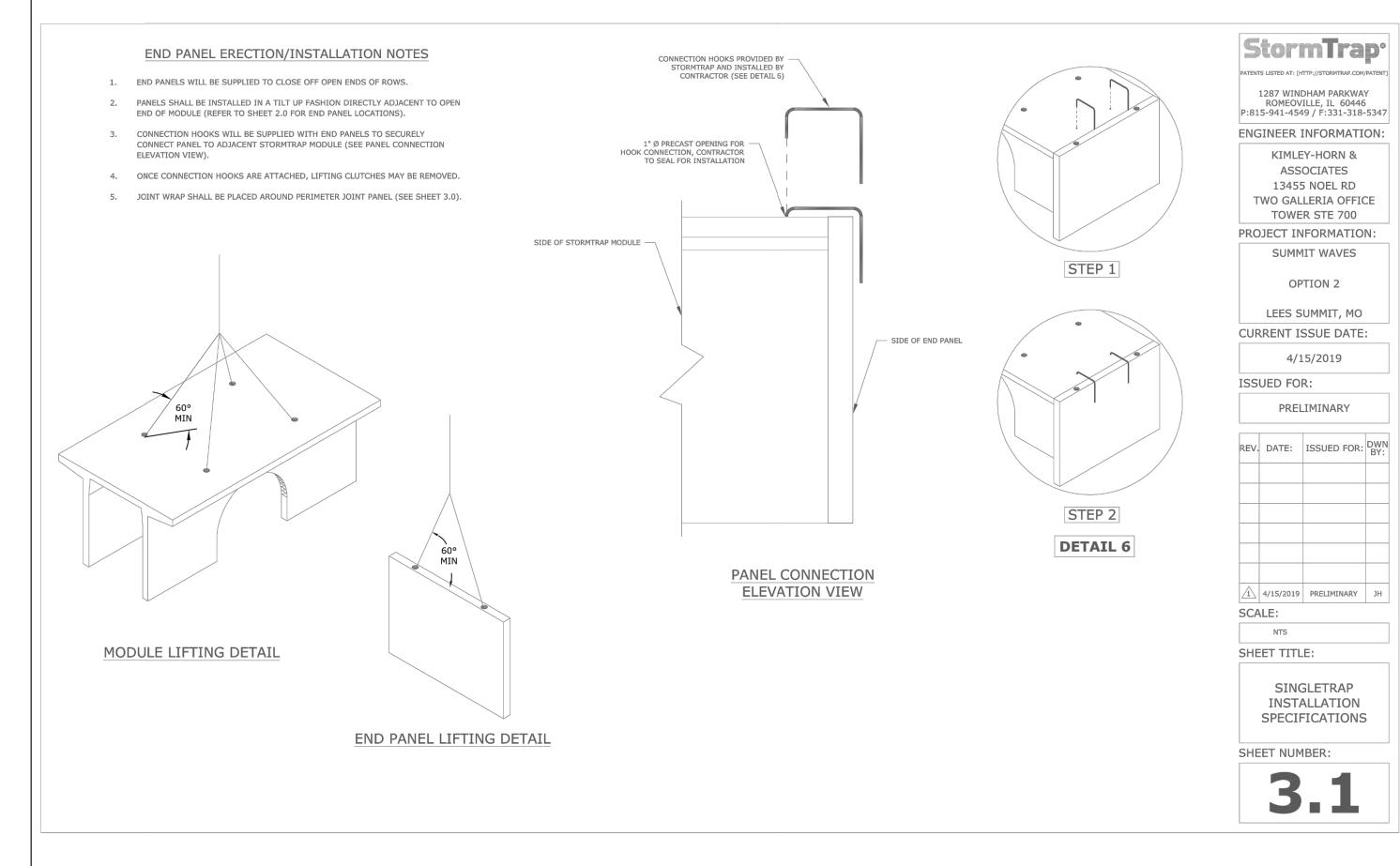
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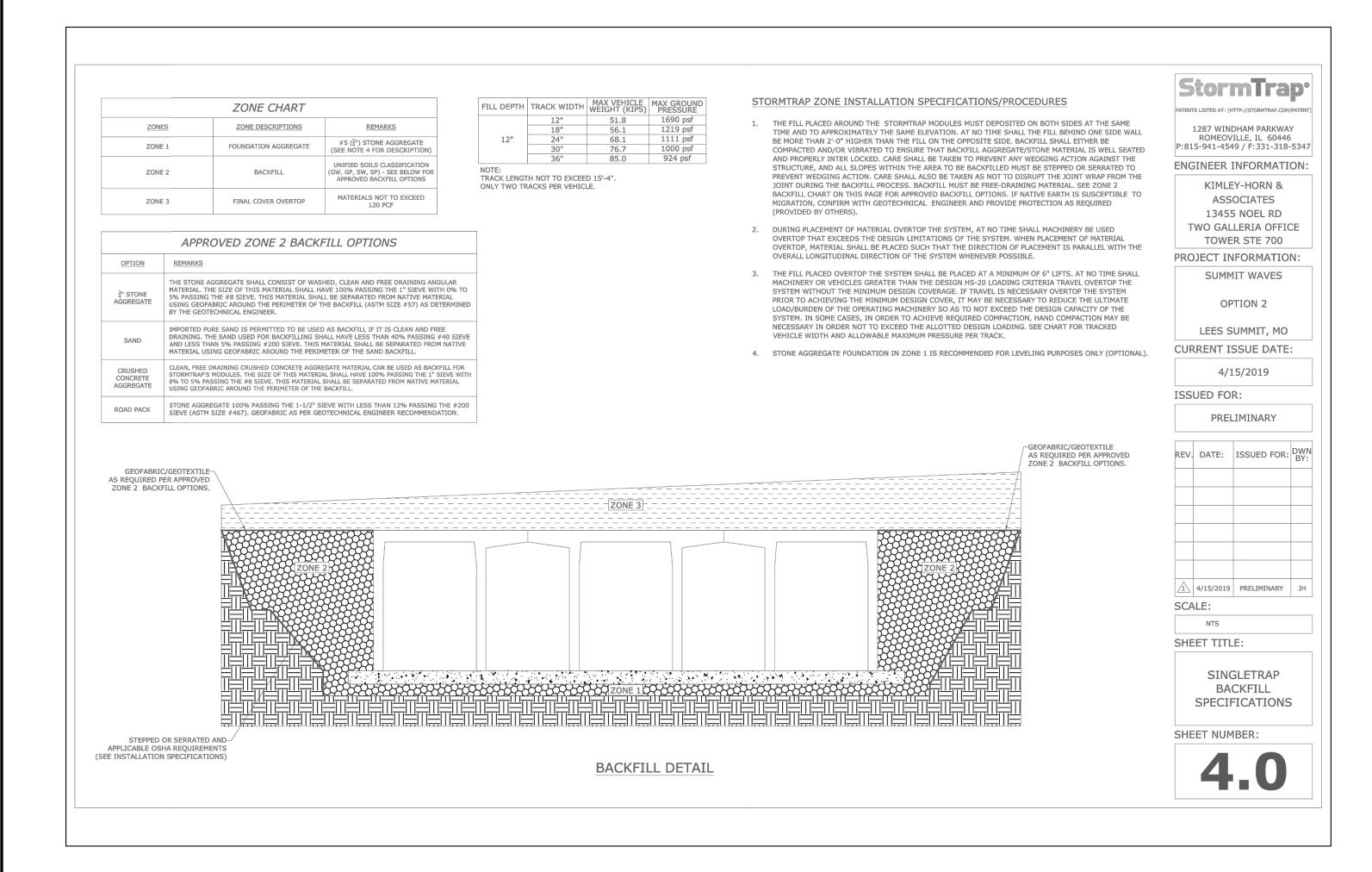
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id by: SEG
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No. 064538700

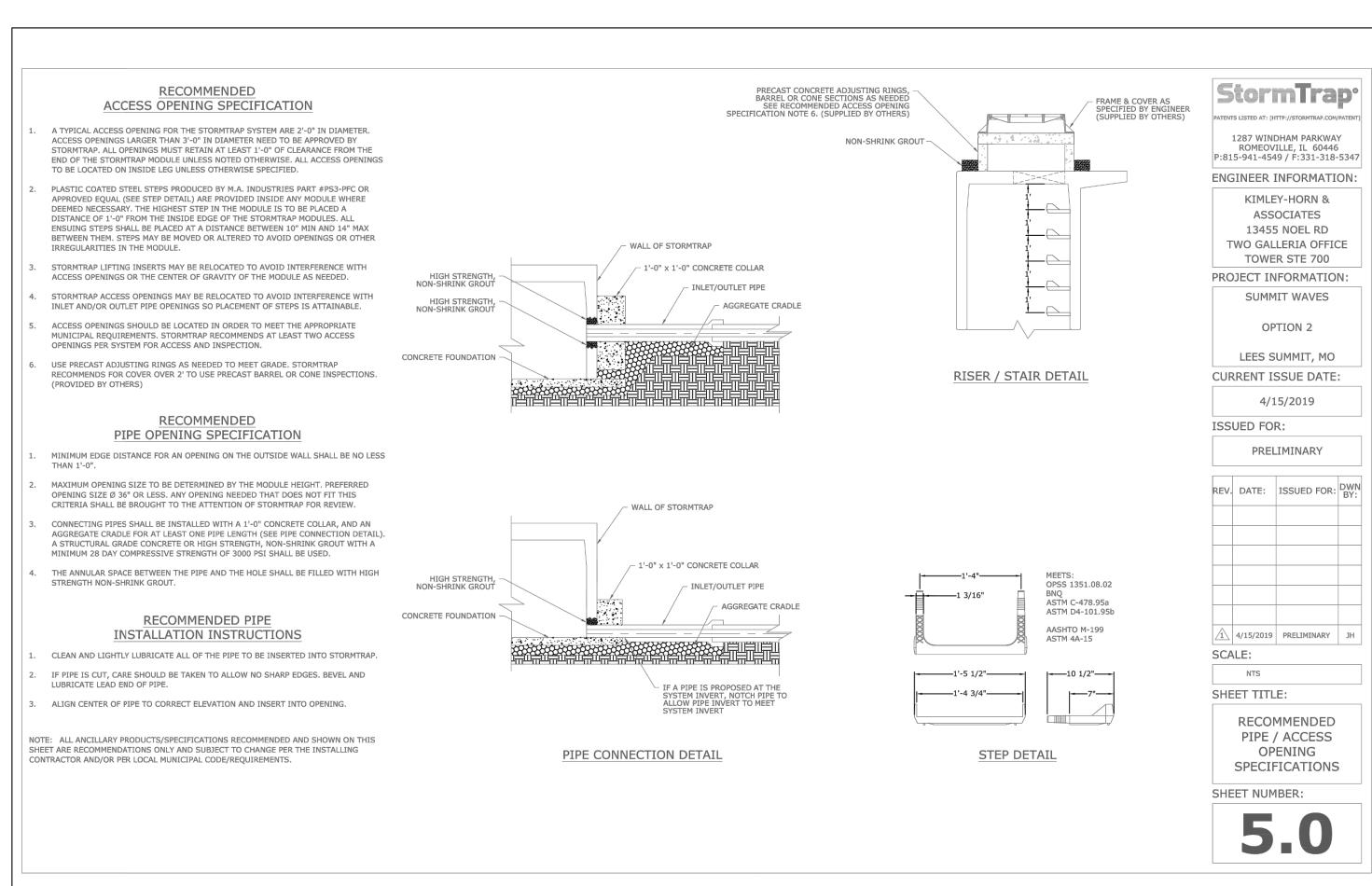
Date:
Project No.

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Kimley» Horn

Engineer

Engineer

END REVIEW SET

APRIL 2019

APRIL 2019

IMIT WAVES
OOL ADDITION
SUMMIT, MO

TENTION DETAILS

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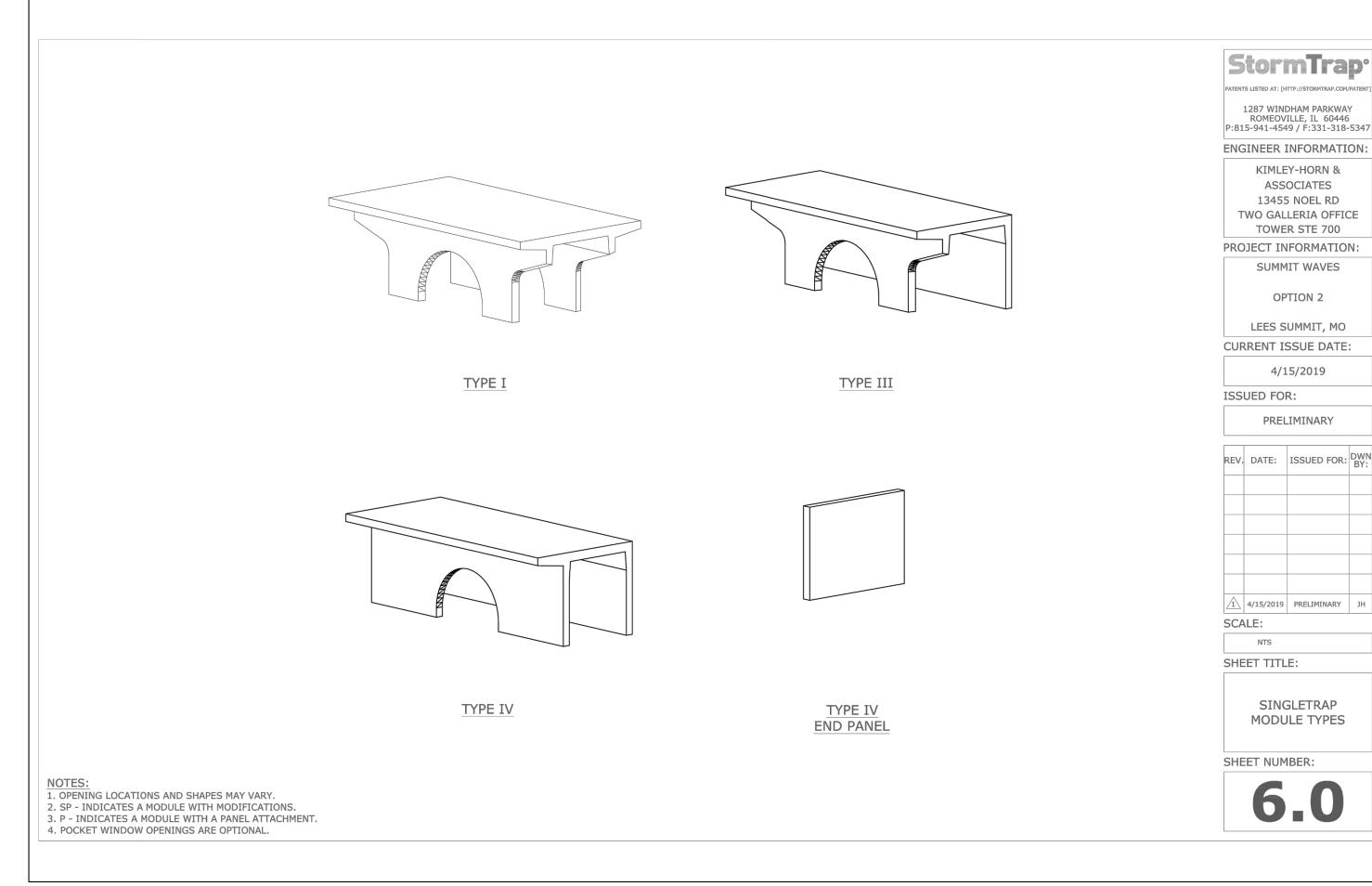
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scked by: SEG

e: 04/15/2019

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StormTrap<sup>o</sup> 1287 WINDHAM PARKWAY ROMEOVILLE, IL 60446 P:815-941-4549 / F:331-318-5347 ENGINEER INFORMATION: REV. DATE: ISSUED FOR: DWN BY:

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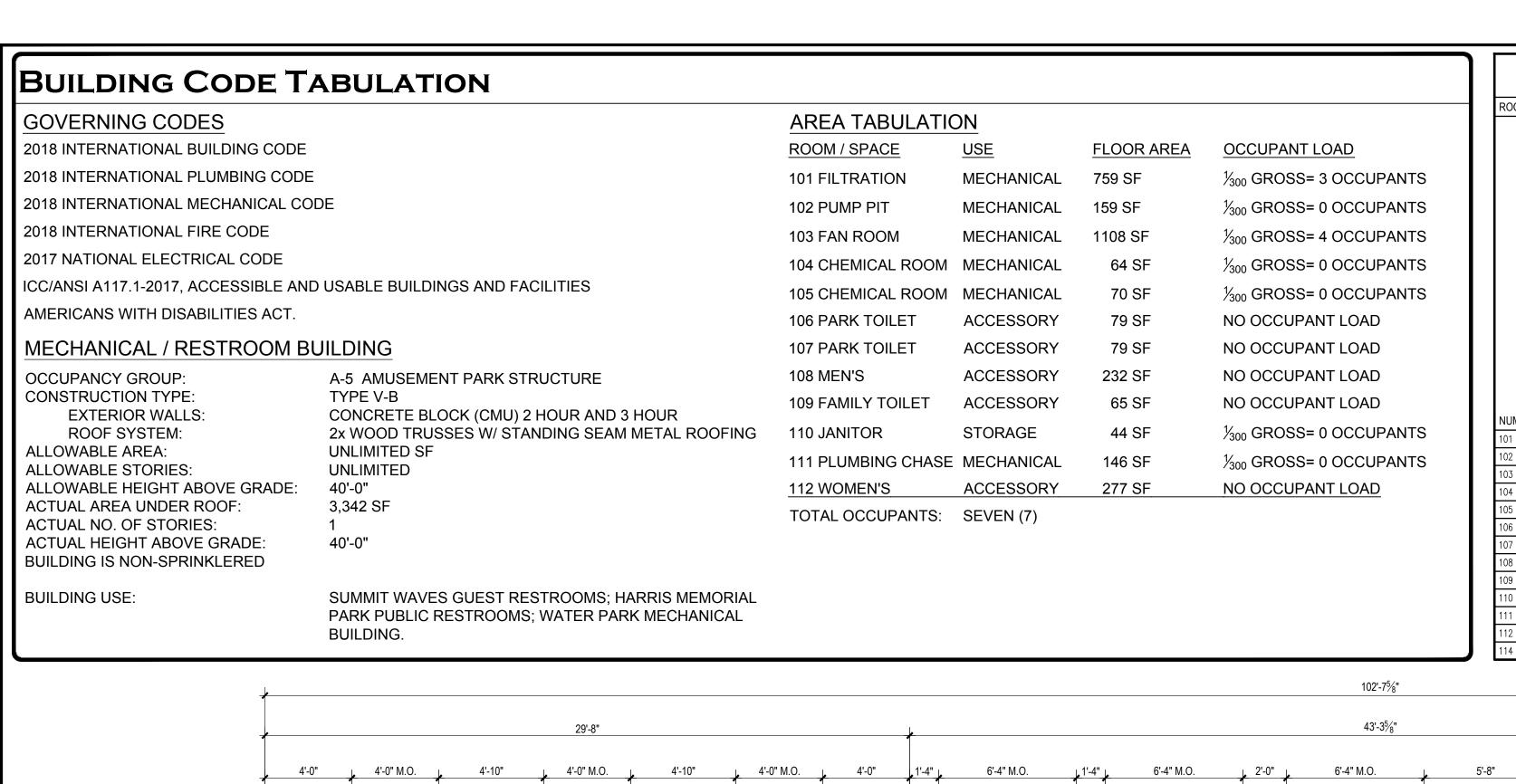
Engineer KEVIN S. GASKEY
P.E. No. 28441 Date APRIL 2019

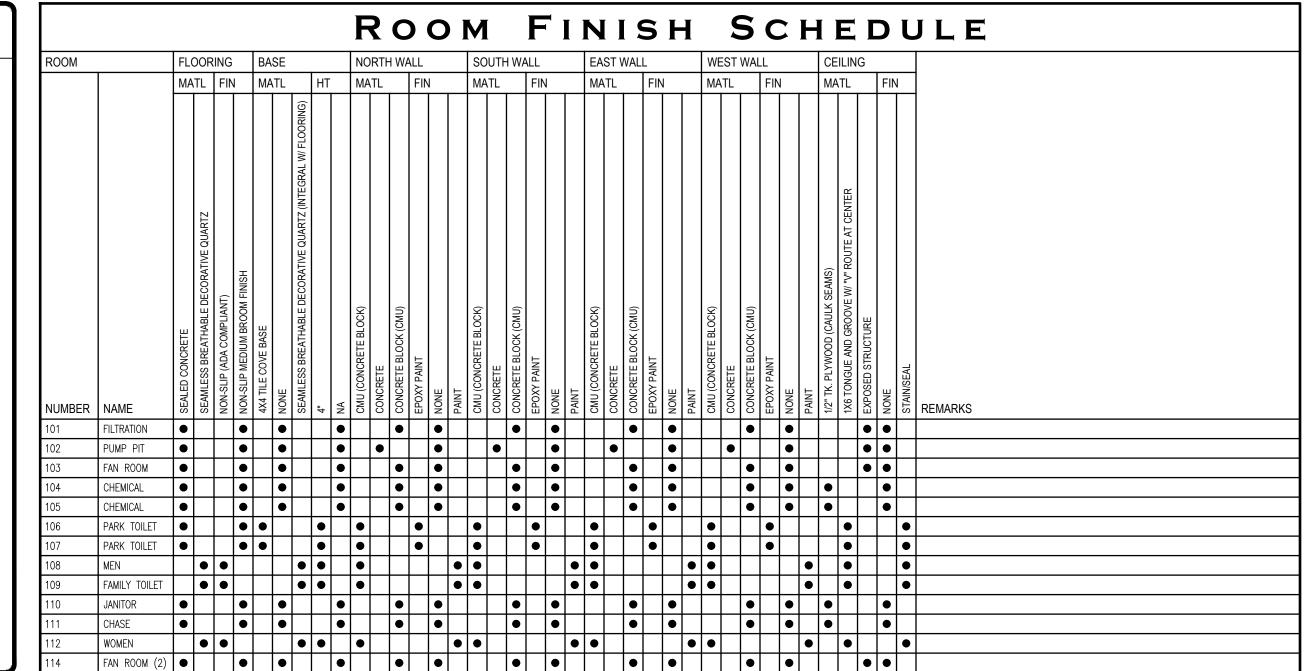
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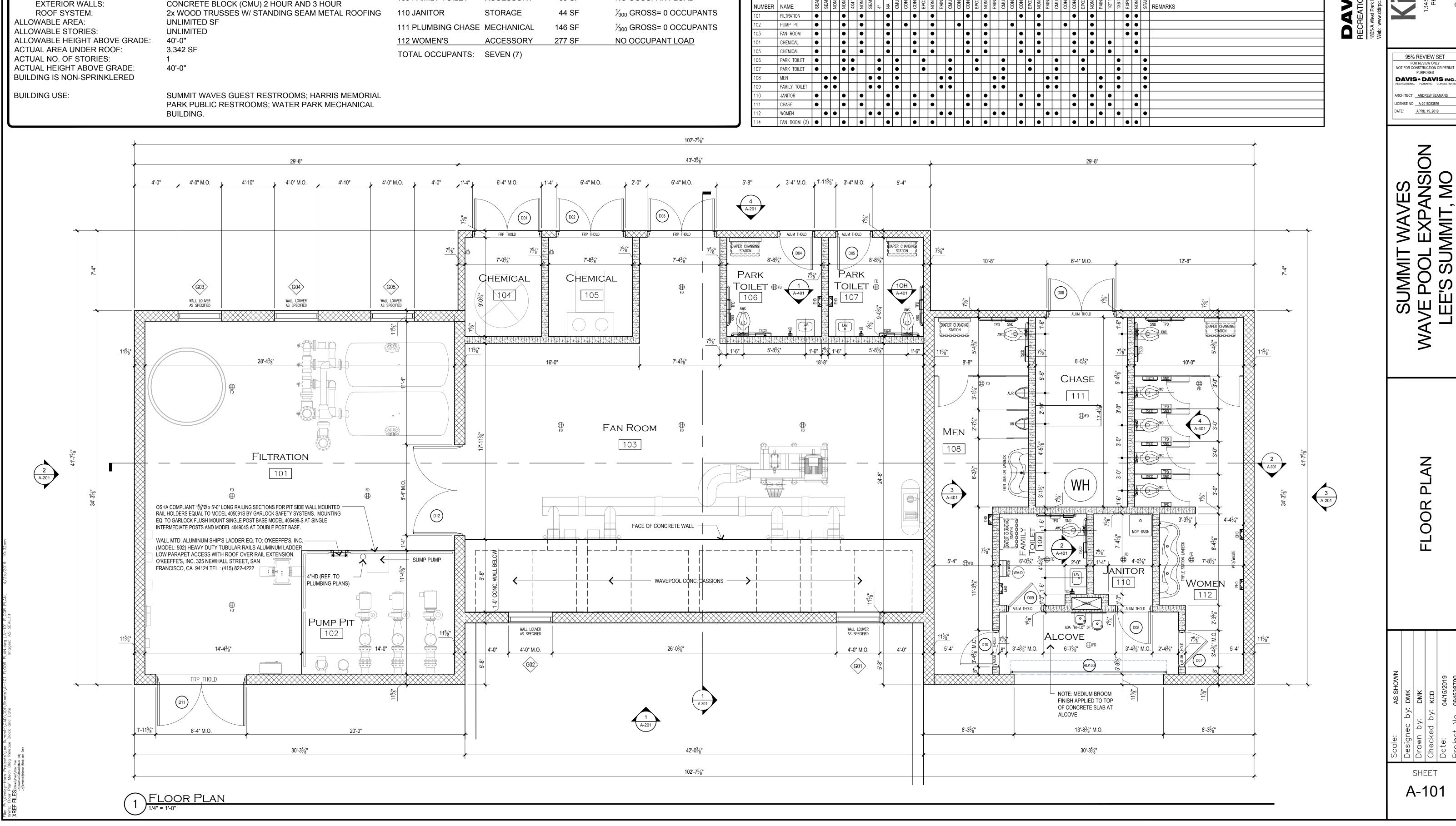
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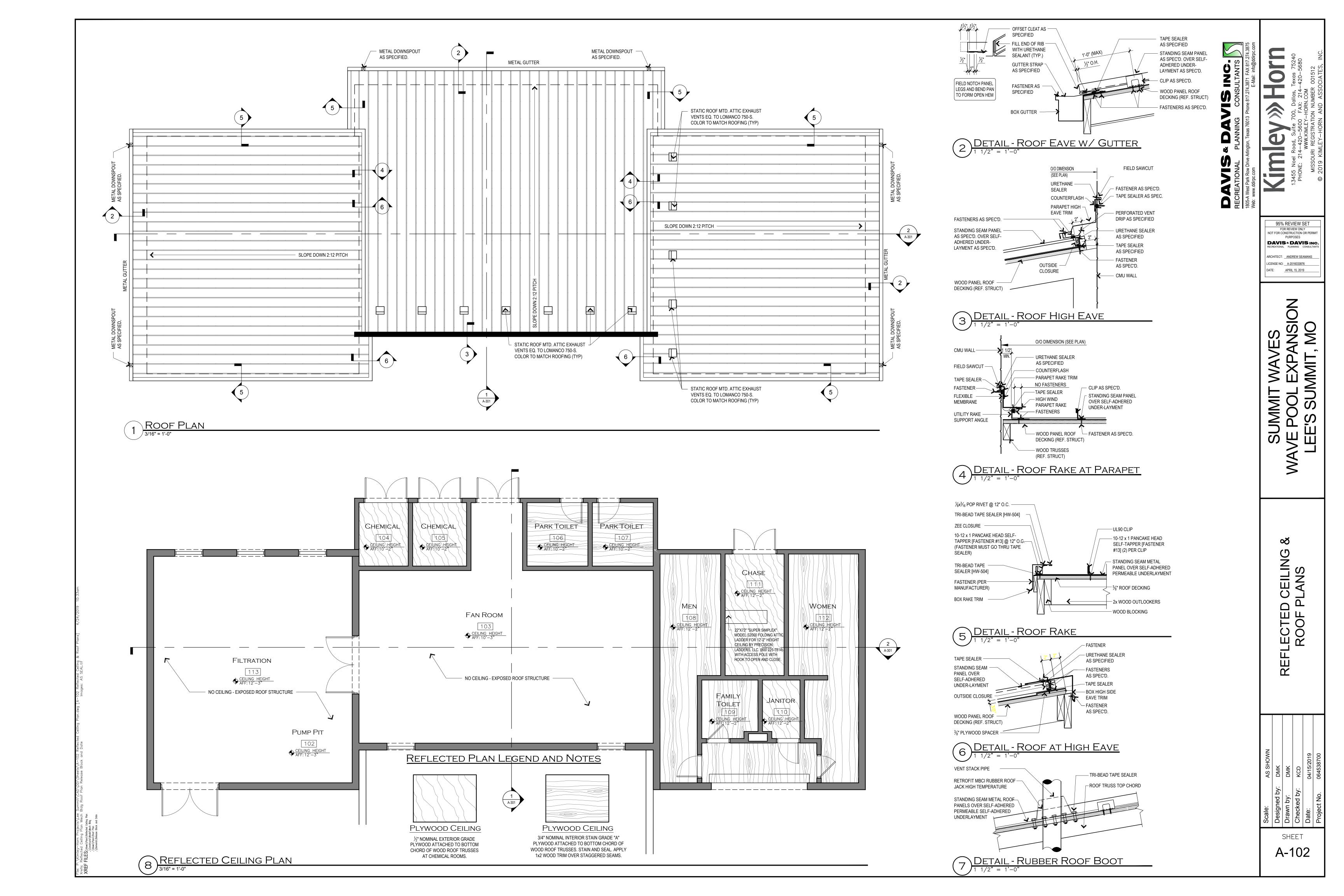
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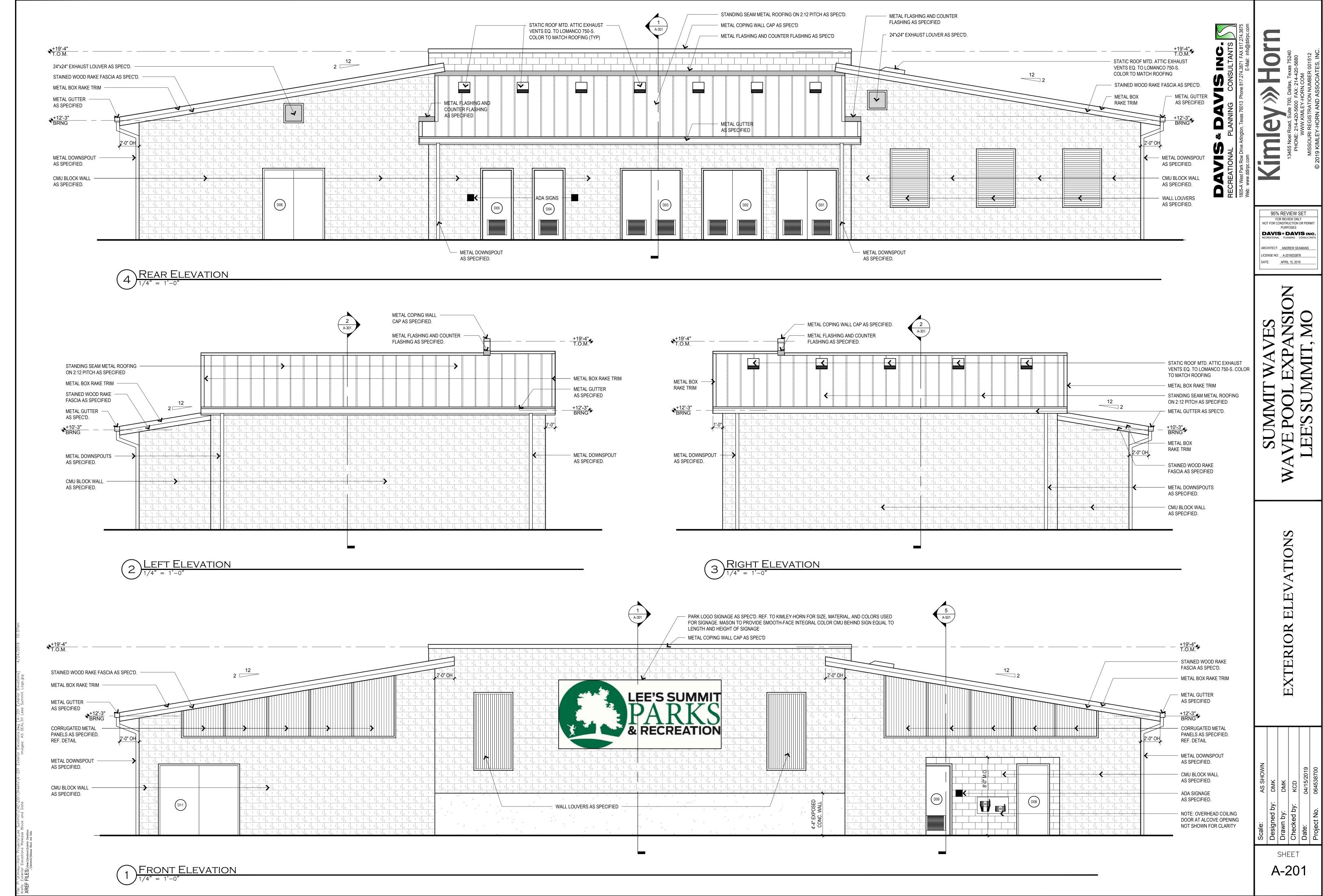


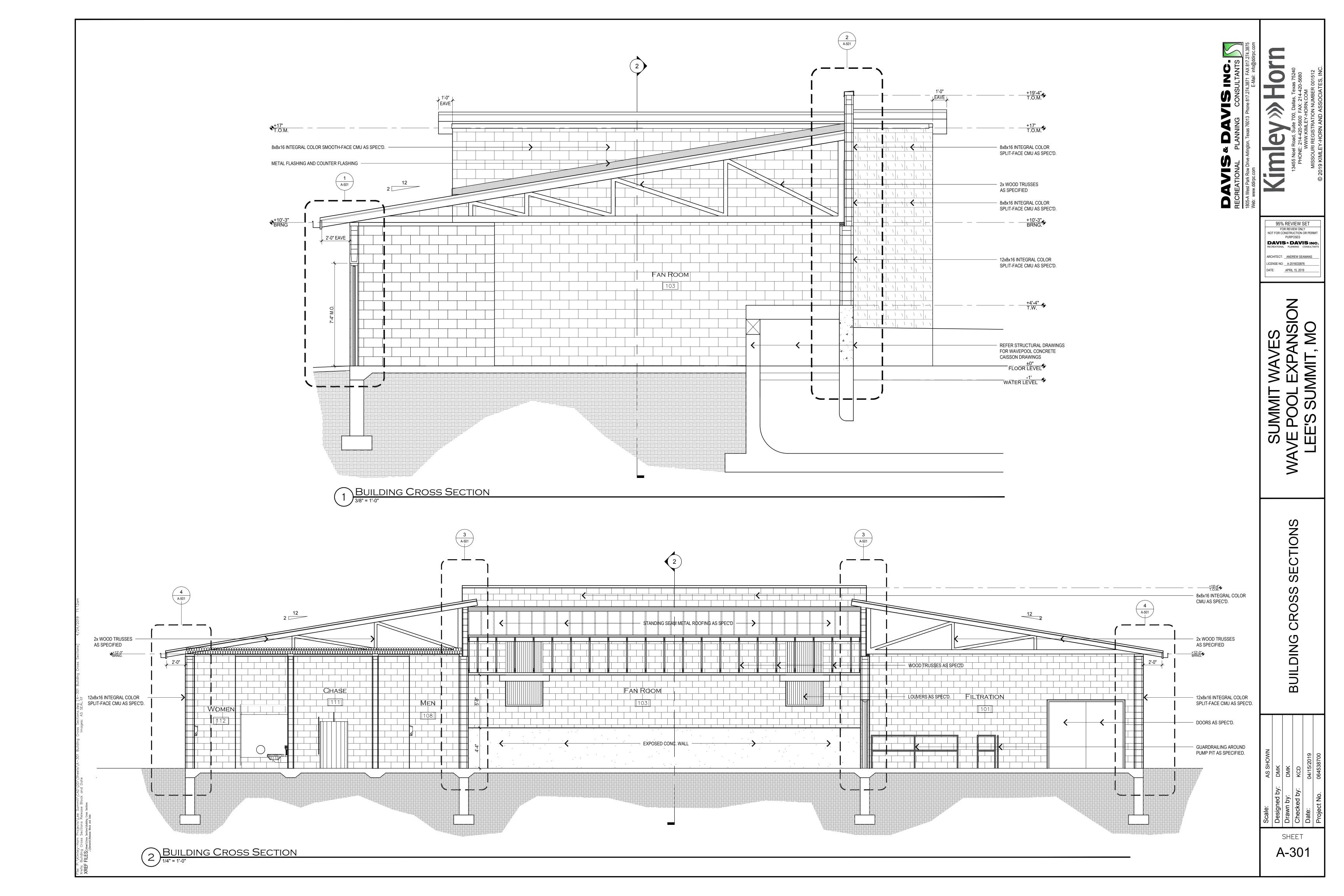


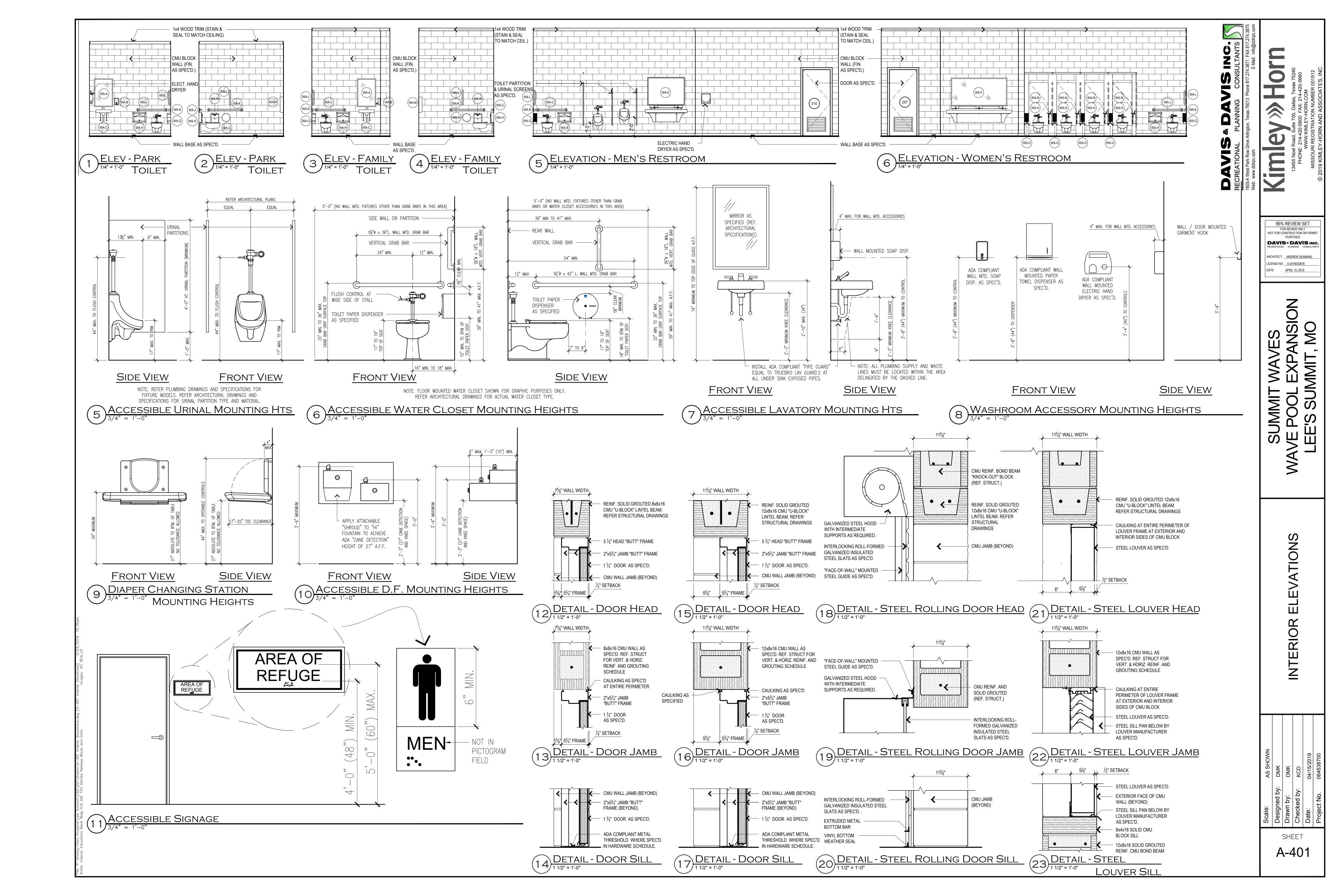


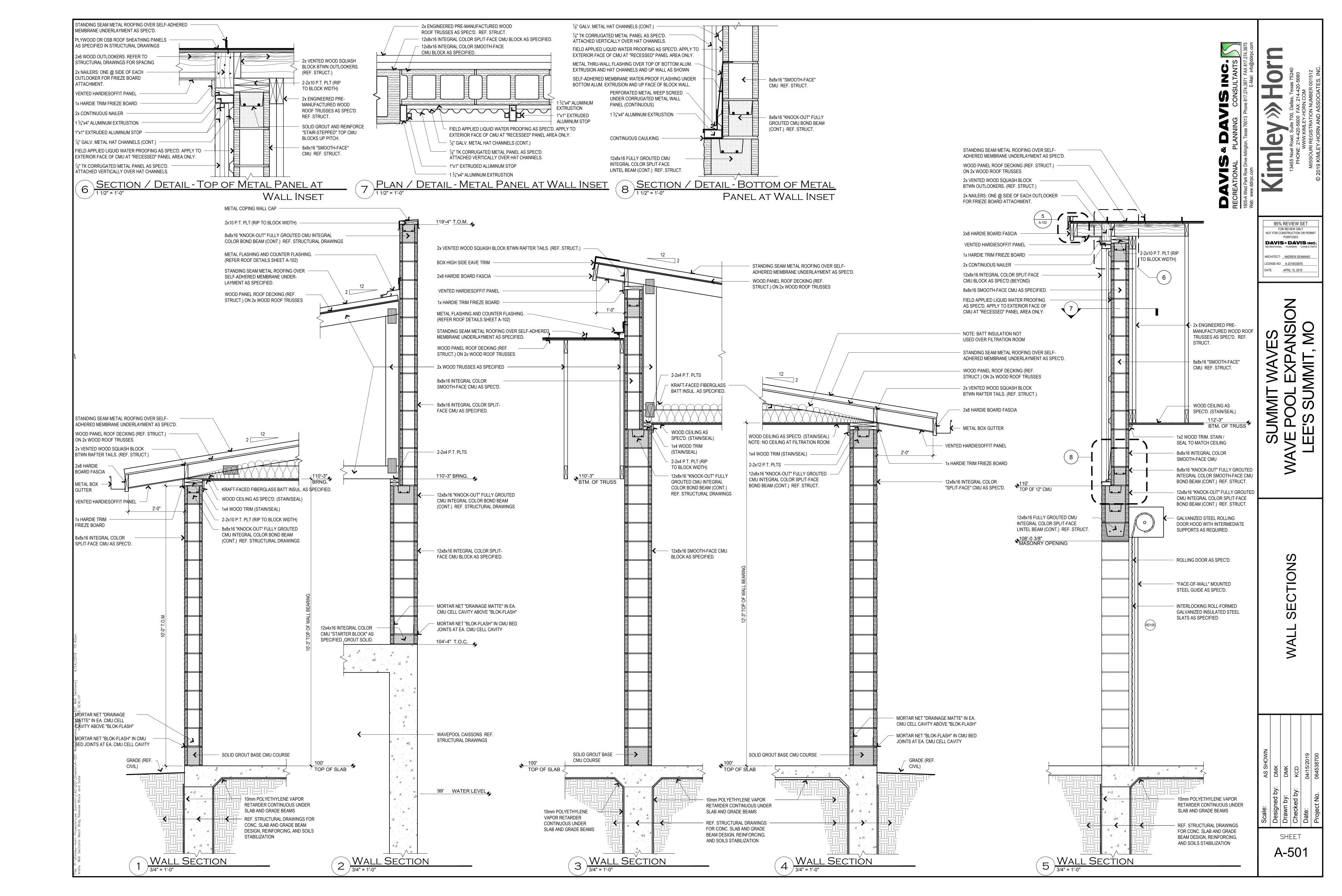
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																							DOC	R FRAME										
												DOOR CON	STRUC <sup>*</sup>	ΓΙΟΝ														FRAN	ME SIZE	7				
DOOR	IDEN.	DOOR	DIMENS	SIONS		DOOR DES	SIGN / MANUF	FACTURER		С	CORE	FACING	LC	UVER		DOOF	R FINISH						FRAME CONSTRU	JCTION			FRAME	WIDTH	FRAME DEPTH	FRA	ME DET	TAILS	REMARKS	
MARK	ELEV.	WxH	THK I	LEAVES	TYPE	STYLE	OPERATION	N DOOR SWIN	G MANUF.	TYPE	MAT'L	MATERIAL	_ WxH	MAT'L	RATING	EXT.	INT.	HARDWARE	ELEV.	MANUF	F. TYF	PE	STYLE	MATERIAL	RATING	FINISH	JAMB	HEAD	FRAME DEPTH	HEAD	JAMB	3 SILL		
D01	С	PR 3'-0" x 7'-2"	1 3/4"	2	FRP	PAIR - LOUVERED (L)	SWINGING	RHRA	REF. SPECS.	FOAM	URETHANE	FIBERGLASS	24"X18"	FIBERGLASS	NA	PAINT	PAINT	REF. SPECS.	F-2	REF. SPEC	S. FIBERGLASS BU	JTTED FRAME	FIBERGLASS DOUBLE RABBET	FIBERGLASS	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D02	С	PR 3'-0" x 7'-2"	1 3/4"	2	FRP	PAIR - LOUVERED (L)	SWINGING	RHRA	REF. SPECS.	FOAM	URETHANE	FIBERGLASS	24"X18"	FIBERGLASS	NA	PAINT	PAINT	REF. SPECS.	F-2	REF. SPEC	S. FIBERGLASS BU	JTTED FRAME	FIBERGLASS DOUBLE RABBET	FIBERGLASS	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D03	С	PR 3'-0" x 7'-2"	1 3/4"	2	FRP	PAIR - LOUVERED (L)	SWINGING	RHRA	REF. SPECS.	FOAM	URETHANE	FIBERGLASS	24"X18"	FIBERGLASS	NA	PAINT	PAINT	REF. SPECS.	F-2	REF. SPEC	S. FIBERGLASS BU	JTTED FRAME	FIBERGLASS DOUBLE RABBET	FIBERGLASS	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D04	D	3'-0" x 7'-2"	1 3/4"	1	HOLLOW METAL	LOUVERED (L)	SWINGING	LH	REF. SPECS.	FOAM	URETHANE	18 GA. STEEL	24"X18"	STEEL	NA	PAINT	PAINT	REF. SPECS.	F-1	REF. SPEC	S. HM BUTTED FRA	AME	WELDED DOUBLE RABBET	16 GA. STEEL	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D05	D	3'-0" x 7'-2"	1 3/4"	1	HOLLOW METAL	LOUVERED (L)	SWINGING	RH	REF. SPECS.	FOAM	URETHANE	18 GA. STEEL	24"X18"	STEEL	NA	PAINT	PAINT	REF. SPECS.	F-1	REF. SPEC	S. HM BUTTED FRA	AME	WELDED DOUBLE RABBET	16 GA. STEEL	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D06	В	PR 3'-0" x 7'-2"	1 3/4"	2	HOLLOW METAL	PAIR - FLUSH (F)	SWINGING	RHRA	REF. SPECS.	FOAM	URETHANE	18 GA. STEEL	NA	NA	NA	PAINT	PAINT	REF. SPECS.	F-2	REF. SPEC	S. HM BUTTED FRA	AME	WELDED DOUBLE RABBET	16 GA. STEEL	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D07	D	3'-0" x 7'-2"	1 3/4"	1	HOLLOW METAL	LOUVERED (L)	SWINGING	RH	REF. SPECS.	FOAM	URETHANE	18 GA. STEEL	24"X18"	STEEL	NA	PAINT	PAINT	REF. SPECS.	F-1	REF. SPEC	S. HM BUTTED FRA	AME	WELDED DOUBLE RABBET	16 GA. STEEL	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D08	Α	3'-0" x 7'-2"	1 3/4"	1	HOLLOW METAL	FLUSH (F)	SWINGING	RHR	REF. SPECS.	FOAM	URETHANE	18 GA. STEEL	NA	NA	NA	PAINT	PAINT	REF. SPECS.	F-1	REF. SPEC	S. HM BUTTED FRA	AME	WELDED DOUBLE RABBET	16 GA. STEEL	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D09	D	3'-0" x 7'-2"	1 3/4"	1	HOLLOW METAL	LOUVERED (L)	SWINGING	LH	REF. SPECS.	FOAM	URETHANE	18 GA. STEEL	24"X18"	STEEL	NA	PAINT	PAINT	REF. SPECS.	F-1	REF. SPEC	S. HM BUTTED FRA	AME	WELDED DOUBLE RABBET	16 GA. STEEL	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D10	D	3'-0" x 7'-2"	1 3/4"	1	HOLLOW METAL	LOUVERED (L)	SWINGING	LH	REF. SPECS.	FOAM	URETHANE	18 GA. STEEL	24"X18"	STEEL	NA	PAINT	PAINT	REF. SPECS.	F-1	REF. SPEC	S. HM BUTTED FRA	AME	WELDED DOUBLE RABBET	16 GA. STEEL	NA	PAINT	2"	2"	5 3/4"	12:A-401	13:A-401	14:A-401		
D11	В	PR 4'-0" x 7'-2"	1 3/4"	2	FRP	FLUSH (F)	SWINGING	RHRA	REF. SPECS.	FOAM	URETHANE	FIBERGLASS	NA	NA	NA	PAINT	PAINT	REF. SPECS.	F-2	REF. SPEC	S. FIBERGLASS BU	JTTED FRAME	FIBERGLASS DOUBLE RABBET	FIBERGLASS	NA	PAINT	2"	2"	5 3/4"	15:A-401	16:A-401	17:A-401		
D12	В	PR 4'-0" x 7'-2"	1 3/4"	2	FRP	FLUSH (F)	SWINGING	RHRA	REF. SPECS.	FOAM	URETHANE	FIBERGLASS	NA	NA	NA	PAINT	PAINT	REF. SPECS.	F-2	REF. SPEC	S. FIBERGLASS BU	JTTED FRAME	FIBERGLASS DOUBLE RABBET	FIBERGLASS	NA	PAINT	2"	2"	5 3/4"	15:A-401	16:A-401	17:A-401		





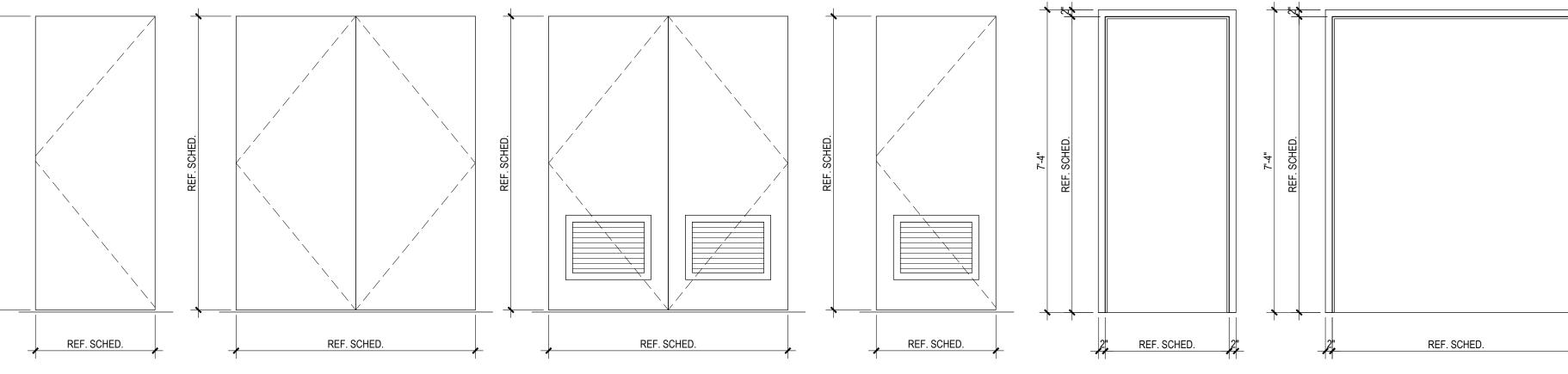
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			FOR REVIEW ONLY NOT FOR CONSTRUCTION OR

DAVIS & DAVIS INC. ARCHITECT: ANDREW SEAMANS LICENSE NO: A-2016033876 DATE: APRIL 15, 2019

 $\Box$ 

Drawn by: Checked by:	DMK
Date: Project No.	04/15/2019
•	

SHEET A-601



Function & Diag. Description Outside Lever  ANSI No. Grade Latch operated by Locked by Unlocked by		side Lever	Insid	e Lever					
	Latch operated by	Locked by	Unlocked by	Locked by	Unlocked by	R.H.	Right hand door (swing in)	R.H.	Pair of doors (swing in)
ingle Ke <b>y</b> ed	*						Interior	Active	Interior
AB-Entry	Rotating inside lever, OR Rotating outside lever– only when inside push button is out, OR Turning key in outside lever.	Pushing inside button, OR Pushing and turning the inside button. Turning the button keeps the outside lever locked until the button is turned back.	Turning the key in the outside lever, (only when the button is not turned) OR Rotating the inside lever (only when the button is not turned) OR Closing the door (only when		Always unlocked		Exterior Cylinder Side		Exterior Cylinder Side
24			the button is not turned).			R.H.R	Right hand reverse door (swing out)	R.H.R.	Pair of doors (swing out)
Storeroom	Turning key in the outside lever, OR Rotating inside lever	Always locked	Cannot be unlocked	Cannot be locked	Always unlocked	N-11-X	Interior	Active	Interior Cylinder Side
F86-Grade 2							Exterior		Cyllinder Side
L-Privacy	Rotating inside lever, OR Rotating outside lever— only when inside push button is out.	Pushing inside button	Rotating the outside slotted button,     OR     Rotating the inside lever,     OR     Closing the door.	Cannot be locked	Always unlocked	L.H.	Cylinder Side  Left hand door (swing in)  Interior	L.H. Active	Pair of doors (swing in)
F <b>76</b> -Grade 2	<b>D</b>		XI L L L		Alleran				
I-Passage F75-Grade 2	<ul> <li>Rotating inside lever, <u>OR</u></li> <li>Rotating outside lever.</li> </ul>	Cannot be locked	Always unlocked	Cannot be locked	Always unlocked	L.H.R.	Exterior Cylinder Side  eft hand reverse door (swing out)	L.H.R. Active	Pair of doors (swing out)
Classroom	Rotating inside lever,	Turning key in outside	Turning key in outside	Cannot be locked	Always unlocked		Interior C		
	OR  Turning key in outside lever when outside lever is locked, OR  Rotating outside lever when not locked by key.	lever	lever		Tillusyo uiliookou		Exterior Cylinder Side		Interior  Exterior Cylinder Side
F84-Grade 2	Datation the incide laws	Na artaida larran Dlamb	Na antalala lawan	Council by Indicad	Almana malaaka d	Single	Single door - Center hung	Pair	Pair of doors - Center hung
Y-Exit  Grade 2	Rotating the inside lever	No outside lever-Blank rose	No outside lever- Blank rose	Cannot be locked	Always unlocked	Single Double Acting	Interior	Double Acting	Interior
DT-Single	This is a single, surface-more	unted lever for an inactive d	loor or a non-latching door		L		Exterior Cylinder Side		Exterior Cylinder Side

Grade 2

# ROLLING DOOR SCHEDULE DOOR TRACK / GUIDES DESCRIPTION DOOR TYPE | MANUFACTURER | MODEL | MOUNTING | MATERIAL | FINISH | RATING | TYPE | MATERIAL | FINISH | WIDTH | DEPTH

PARK TOILET ROOM 106, 107; 108; 109; 112

WASHROOM ACCESSORY SCHEDULE

36" HEIGHT, SURFACE-MOUNTED OVER LAVATORY.

36" HEIGHT, SURFACE-MOUNTED OVER LAVATORY.

36" HEIGHT, SURFACE-MOUNTED OVER LAVATORY.

AT ADA COMPLIANT HEIGHT AND LOCATION.

SIDE OF WATER CLOSET. REFER DETAIL 2, SHEET A1-601.

WA-J (1) STAINLESS STEEL PEENED GRIP GRAB BAR, 36" LONG AND MOUNTED

WA-K (1) STAINLESS STEEL PEENED GRIP GRAB BAR, 42" LONG AND MOUNTED

WA-M (1) SURFACE-MOUNTED "HORIZONTAL" DIAPER CHANGING STATION.

WA-N (1) SURFACE-MOUNTED STAINLESS STEEL SANITARY NAPKIN DISPOSAL UNIT.

ADJACENT TO LAVATORY - BY OWNER.

UNDER SINK EXPOSED PIPES.

DESCRIPTION\_

WA-A (1) MIRROR - LAMINATED GLASS IN STAINLESS STEEL CHANNEL FRAME, 24" WIDE x

WA-C (1) ADA COMPLIANT "PIPE GUARD" EQUIVALENT TO TRUEBRO LAV GUARD 2 AT ALL

WA-D (1) SURFACE-MOUNTED STAINLESS STEEL COMBINATION PAPER TOWEL DISPENSER AND WASTE RECEPTACLE AS SPECIFIED. MOUNT TO BE ADA COMPLIANT.

WA-E (1) MIRROR - LAMINATED GLASS IN STAINLESS STEEL CHANNEL FRAME, 48" WIDE x

WA-F (1) MIRROR - LAMINATED GLASS IN STAINLESS STEEL CHANNEL FRAME, 72" WIDE x

WA-G (1) SURFACE-MOUNTED JUMBO ROLL ADA COMPLIANT TOILET PAPER DISPENSER AT

WA-H (1) SURFACE-MOUNTED STAINLESS STEEL TOILET SEAT COVER DISPENSER. MOUNT

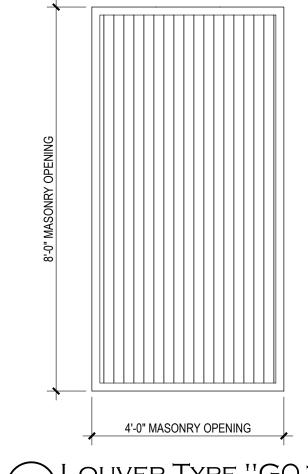
HORIZONTALLY BEHIND ACCESSIBLE WATER CLOSET AS SHOWN IN DETAIL 2, SHEET

HORIZONTALLY AT THE SIDE OF ACCESSIBLE WATER CLOSET AS SHOWN IN DETAIL

AT THE SIDE OF ACCESSIBLE WATER CLOSET AS SHOWN IN DETAIL 2, SHEET A1-601.

WA-L (1) STAINLESS STEEL PEENED GRIP GRAB BAR, 18" LONG AND MOUNTED VERTICALLY

WA-B (1) STAINLESS STEEL ADA COMPLIANT LIQUID SOAP DISPENSER MOUNTED



		4'-N	" MA	so	NR	ΥO	PFN	VIN	G			
7		, ,	1417					****	<u> </u>		_	

- THE DETAILS, DESIGNATED AS "TYPICAL DETAILS," APPLY GENERALLY
   TO THE DRAWINGS IN ALL AREAS WHERE CONDITIONS ARE SIMILAR TO
   THOSE DESCRIBED IN THE DETAILS.
- 2. SLEEVES AND BLOCKOUTS REQUIRED FOR PASSAGE OF DUCTWORK, PIPING, DRAINS, CONDUIT, ETC., AND ANCHORS REQUIRED FOR ANCHORING EQUIPMENT AND PIPING ARE NOT GENERALLY INDICATED ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL DETERMINE SUCH REQUIREMENTS FROM OTHER SERIES DRAWINGS, SUBCONTRACTORS, AND SUPPLIERS AND SHALL COORDINATE THE LOCATIONS AND DETAILS FOR THESE ITEMS PRIOR TO FABRICATION OR CONSTRUCTION OF THE STRUCTURE. ANY CONFLICTS BETWEEN THESE ITEMS AND THE BUILDING STRUCTURE SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT
- 3. VERIFY, OR ESTABLISH, LOCATIONS AND DIMENSIONS OF ALL FRAMED OPENINGS RELATED TO EQUIPMENT OR DUCTWORK, INCLUDING INSULATION, IF ANY. WHERE SUBSTANTIAL RELOCATION OR RECONFIGURATION IS REQUIRED, SUBMIT A DRAWING TO THE ARCHITECT
- 4. MATERIALS OR PRODUCTS SUBMITTED FOR APPROVAL WHICH ARE NOT AS SPECIFIED IN THE DOCUMENTS SHALL BE ACCOMPANIED BY A CURRENT I.C.B.O. (INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS) REPORT. MATERIALS OR PRODUCTS THAT DO NOT HAVE I.C.B.O. REPORTS INDICATING THE SUBSTITUTED MATERIAL OR PRODUCT TO BE EQUAL TO THAT SPECIFIED, WILL NOT BE CONSIDERED.
- 5. PLANS, SECTIONS AND DETAILS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.
- THE CONTRACTOR SHALL VERIFY JOB SITE CONDITIONS, UNDERGROUND UTILITIES, ETC., THAT MAY CONFLICT WITH THE PROPOSED

## **EXISTING CONDITIONS**

- 1. FIELD VERIFY ALL RELEVANT DIMENSIONS AND CONDITIONS AT EXISTING STRUCTURES PRIOR TO STARTING SHOP DRAWINGS AND THE CONSTRUCTION PROCESS IN THOSE AREAS.
- 2. EXISTING CONDITIONS WHICH REQUIRE MODIFICATIONS TO THE DESIGN OF THE PROPOSED CONSTRUCTION SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.

## **SUBSTITUTIONS**

1. ALL REQUESTS FOR SUBSTITUTIONS OF MATERIALS OR DETAILS SHOWN IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED FOR APPROVAL DURING THE BIDDING PERIOD. ONCE BIDS ARE ACCEPTED, PROPOSED SUBSTITUTIONS WILL BE CONSIDERED ONLY WHEN THEY ARE OFFICIALLY SUBMITTED WITH AN IDENTIFIED SAVINGS TO BE DEDUCTED FROM THE CONTRACT.

## **DESIGN LOADS**

١.	DEAD LOADS INCLUDE THE WEIGHT OF THE STRUCTURAL COMPONENTS, PERMANENT FIXTURES (CEILINGS, MECHANICAL EQUIPMENT, ETC.)	20 PSF
2.	DESIGN LIVE LOADING IS AS FOLLOWS:	
	ROOF	20 PSF
	WIND SPEED	130 MPH
	UPLIFT LOAD	26.77 PSF
	WIND LOAD 0'-15'	51.01 PSF
	WIND LOAD 15'-20'	52.48 PSF
	WIND LOAD 20'-25'	53.66 PSF
	WIND LOAD 25'-30'	54.84 PSF
	WIND LOAD 30'-40'	56.60 PSF
	SEISMIC ZONE	0
3.	MECHANICAL LOADS @ FILTRATION BLDG	RE: MECH

## CODES AND DESIGN SPECIFICATIONS

- 1. IBC 2012
- . STRUCTURAL STEEL: "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
- 3. STRUCTURAL CONCRETE: "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-LATEST EDITION)," THE AMERICAN CONCRETE INSTITUTE.
- 4. WHERE THERE IS A CONFLICT BETWEEN THE BUILDING CODE AND THE MATERIAL CODES, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.

## FOUNDATION DESIGN

1. FOUNDATION DESIGN IS BASED ON THE FOLLOWING CRITERIA:

SOIL REPORT BY:	intertek psi
DATE OF REPORT:	DECEMBER 14, 2018
REPORT NUMBER:	03381842
RECOMMENDED FOUNDATION TYPE:	FOOTINGS, SLAB-ON-
BEARING STRATA:	IMPROVED SUBGRADE
ALLOWABLE BEARING:	2000 PSF

- 2. TEMPLATES SHALL BE USED FOR PLACEMENT OF ANCHOR BOLTS AND/OR DOWELS TO CONCRETE COLUMNS, BEAMS, WALLS OR FOOTINGS
- 3. CONTRACTOR SHALL REVIEW THE GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION.

## **CONCRETE REINFORCEMENT**

- 1. REINFORCING STEEL SHALL BE NEW DOMESTIC DEFORMED BILLET STEEL, CONFORMING TO ASTM A 615, GRADE 60.
- 2. DETAIL REINFORCING BARS AND PROVIDE BAR SUPPORTS AND SPACERS IN ACCORDANCE WITH THE ACI DETAILING MANUAL.
- 3. ALL BAR SPLICES IN BEAMS AND SLABS, SHALL BE 33
  BAR DIAMETERS, EXCEPT THAT SPLICES IN HORIZONTAL WALL
  BARS AND INTERMEDIATE BEAM BARS SHALL BE 45 BAR
- 4. PROVIDE CORNER BARS FOR EACH HORIZONTAL BAR AT THE INSIDE AND OUTSIDE FACES OF INTERSECTING BEAMS OR WALLS. REFER TO CORNER BAR TYPICAL DETAIL.
- 5. PROVIDE FOUNDATION DOWELS TO MATCH MASONRY WALL REINFORCEMENT.
  DOWELS SHALL EXTEND A MINIMUM OF 44 BAR DIAMETERS ABOVE AND
  BELOW TOP OF FOUNDATION.
- 6. REINFORCING CLEAR COVER:
- A. GRADEBEAMS:

### 1 1/2" TOP, 2" SIDES, 3" BOTTOM

## STRENGTH OF MATERIALS

(1)	CONCRETE:	REFER	TO	CAST	IN	PLACE	CONCRETE	SECTION	

2)	REINFORCING:	ASTM A615	U.N.O.

#3 BARS:	GRADE -
ALL OTHER:	GRADE

(3) STRUCTURAL STEEL:

STRUCTURAL STEEL SHAPES: AND PLATES: (NORMAL STRENGTH):	ASTM 36
ANCHOR BOLTS: THROUGH BOLTS:	ASTM A307

(4) WOOD FRAMING: NO. 2 SOUTHERN PINE (19% MAX. MOISTURE CONTENT). BASIC DESIGN VALUES:

MEMBER (THICK. x WIDTH)	MIN. BENDING STRESS Fb (PSI)	MIN. COMPRESSIVE STRESS Fc (PSI)		MIN. MODULUS O ELASTICITY (PSI)
2"-4" x 2"-4" 2"-4" x 5"-6" 2"-4" x 8" 2"-4" x 10" 2"-4" x 12"	1500 1250 1200 1050 975	1650 1600 1550 1500 1450	90	1,600,000
5"x5" & LARGER	1100	625	95	1,400,000

## WOOD FRAMING

- ALL FRAMING MEMBERS SHALL BE NO. 2 SOUTHERN YELLOW PINE. DO NOT USE FINGER JOINTED STUDS.
- 2. USE COMMON WIRE NAILS, UNLESS NOTED OTHERWISE. ALL NAILS IN EXTERIOR WORK SHALL BE GALVANIZED OR OR NON-FERROUS METAL.

## **SLAB-ON-GRADE**

- THE SLAB-ON GRADE DESIGN IS BASED ON A SOILS REPORT #03381842 FROM TERRACON. DATED DECEMBER 14, 2018.
- 2. THE FLOOR SLAB SHALL BE FIVE INCH (5") THICK CONCRETE OVER IMPROVED SUBGRADE, AS SPECIFIED IN THE SOILS REPORT TO LIMIT THE POTENTIAL VERTICAL RISE (PVR) TO ONE (I) INCH. REFER TO THE GEOTECHNICAL REPORT FOR SUBGRADE SPECIFICATIONS.
- 3. REINFORCE SLAB WITH #4 @ 16" ON CENTER PLACED 2" FROM TOP OF SLAB.
- 4. A METAL CONSTRUCTION JOINT FORM MAY BE USED. REMOVE METAL FORMS BEFORE PLACING SECOND POUR.
- 5. PROVIDE A SIX (6) MILL VAPOR BARRIER OVER IMPROVED SUBGRADE.
- \* NOTE TO OWNER: SOME SLAB MOVEMENT MAY OCCUR FOR SLABS SUPPORTED ON GRADE CAUSING COSMETIC CRACKING IN THE SLAB AND NON-STRUCTURAL ELEMENTS. THE INDUSTRY STANDARD FOR ALLOWABLE POTENTIAL VERTICAL RISE (PVR) IS 1 INCH. IF THIS AMOUNT OF MOVEMENT IS UNACCEPTABLE TO THE OWNER, NOTIFY THE CORE GROUP FOR ALTERNATIVE SOLUTIONS.

## **CAST-IN-PLACE CONCRETE**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE REQUIRE— MENTS OF THE AMERICAN CONCRETE INSTITUTE CODE (ACI 318-99).
- 2. CONCRETE MIX SCHEDULE:

CLASS	STRENGTH PSI	AGG. TYPE	AGG. SIZE	SLUMP IN'S	<u>USAGE</u>
Α	4000	HRC	1"	3-5	POOL SLAB
В	4000	HRC	3/4"	3-5	POOL WALLS (CAST-IN-PLACE)
С	4000	HRC	1/2"	1 1/2 - 3"	POOL WALLS (SHOTCRETE)
D	4000	HRC	1"	3-5	FOOTINGS, SLAB-ON-GRADE, WALLS

- 3. STRENGTH LISTED SHALL BE MINIMUM DESIGN STRENGTH AT TWENTY— EIGHT (28) DAYS AS SPECIFIED BY THE AMERICAN CONCRETE INSTITUTE (ACI 318).
- "HRC" REFERS TO HARDROCK CONCRETE HAVING AN AIR DRY UNIT WEIGHT OF APPROXIMATELY 145 PCF.
- 4. FIVE TO SEVEN PERCENT (5 −7%) AIR ENTRAINMENT SHALL BE ADDED TO CONCRETE MIXES FOR STRUCTURAL ELEMENTS PERMANENTLY EXPOSED TO WEATHER.
- 5. ADMIXTURES MAY BE INCLUDED IN ANY CLASS OF CONCRETE AT THE CONTRACTOR'S OPTION, TO IMPROVE WORKABILITY OR STRENGTH CHARACTERISTICS. LIMIT WATER—CEMENT RATIO TO .48 FOR ALL CAST—IN—PLACE POOL CONTAINMENT STRUCTURES. LIMIT WATER CEMENT RATIO TO .40 WHEN THE SHOTCRETE METHOD IS USED.
- 6. CALCIUM CHLORIDE SHALL NOT BE ADDED TO CONCRETE MIXTURES WITHOUT WRITTEN APPROVAL.
- 7. FORMED CONCRETE IS THE PREFERRED METHOD OF CONSTRUCTION FOR POOL WALLS. HOWEVER, THE WET-MIXED SHOTCRETE METHOD OF CONCRETE PLACEMENT CAN BE USED, PROVIDED THAT THE CONTRACTOR CAN DEMONSTRATE THE ABILITY TO PRODUCE EQUIVALENT CONSTRUCTION QUALITY COMPARED TO CAST-IN-PLACE FORMED CONCRETE.
- 8. ALL CONCRETE USED FOR THE SHOTCRETE METHOD SHALL BE READY—MIXED BY THE CONCRETE SUPPLIER AND DELIVERED TO THE SITE.
- 9. REFERENCE ACI 506.2 FOR SHOTCRETE TESTING PROCEDURES TO BE FOLLOWED IN PRECONSTRUCTION AND CONSTRUCTION. VERIFY THAT THE WATER ABSORPTION RATE IS EQUAL TO THAT OF THE CAST—IN—PLACE CONCRETE.
- 10. THE USE OF CURING COMPOUNDS SHOULD BE REVIEWED BY THE CONTRACTOR/MANUFACTURER, WHERE THE FINAL CONCRETE FINISH COAT WILL BE PAINT.
- 11. PROVIDE CONSTRUCTION JOINTS IN POOL AND LAZY RIVER WALLS THAT EXCEED 80'-0", OR AS NOTED ON PLAN.

## PRE-FABRICATED WOOD TRUSSES

- ALL TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH THE LOADS INDICATED ON PLAN AND IN THE GENERAL NOTES. INCLUDE ALL LOADS FROM ROOF TOP UNITS SHOWN ON PLAN.
- 2. TRUSS MANUFACTURER SHALL SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS TO THE CORE GROUP FOR REVIEW.
- . TRUSS MANUFACTURER SHALL PROVIDE ALL NECESSARY BRIDGING.
- 4. ALL TRUSSES SHALL BE DESIGNED WITH THE FOLLOWING DEFLECTION CRITERIA:
- (A) ALLOWABLE LL DEFLECTION L/360
- (B) ALLOWABLE TL DEFLECTION L/240
- 5. ALL TRUSSES SHALL BE FASTENED TO SUPPORTING BEAMS WITH GAVANIZED METAL CONNECTORS AS INDICATED IN FRAMING DETAILS.
- 6. TRUSS PLATE CONNECTIONS HAVE NOT BEEN SHOWN. TRUSS MFR. TO DESIGN CONNECTION PLATES FOR REQUIRED LOADING. THESE PLATES SHOULD NOT EXCEED THE BOUNDARY EDGES OF THE CONNECTING MEMBERS FOR ARCH'L. REASONS. SUBMIT CONNECTION DETAILS TO ARCHITECT FOR REVIEW PRIOR TO FABRICATION.
- ERECT WOOD TRUSS IN ACCORDANCE WITH TRUSS PLATE INSTITUTE (TPI) PUBLICATION "COMMENTARY AND RECOMMENDATIONS FOR HANDLING AND ERECTING WOOD TRUSSES" AND MFR'S. RECOMMENDATIONS. BRACE WOOD TRUSSES IN ACCORDANCE WITH TRUSS PLATE INSTITUTE (TPI) PUBLICATION "BRACING WOOD TRUSSES: COMMENTARY AND RECOMMENDATIONS" AND MFR'S. RECOMMENDATIONS. SUBMIT TRUSS DESIGN SHOP DWGS. FOR APPROVAL PRIOR TO FABRICATION. TRUSS DESIGN SHOP DWGS. TO BE SIGNED AND SEALED BY REGISTERED STRUCTURAL ENGINEER.

## **ROOF SHEATHING**

1. ROOF DECK U.N.O.:
USE 5/8" APA RATED EXTERIOR EXPOSURE ROOF DECKING THROUGHOUT. FACE GRAIN
SHOULD BE PLACED PERPENDICULAR TO DIRECTION OF JOISTS AND SHOULD BE
CONSTRUCTED WITH THREE (3) SPAN MIN. CONDITION. FIELD NAILING PROVISIONS FOR
10d NAILS ARE AS FOLLOWS:

UNDARY NAILING:	4" O.C.
ERMEDIATE NAILING:	12" O.C.
HER EDGES:	4" O.C.
OCKING REO'D	

WALL CUEATURIO LINIO

INT

MORTAR:

"Z" TIES:

LEAST 4'-0".

WALL SHEATHING U.N.O.:

USE 5/8" APA RATED EXTERIOR SHEATHING THROUGHOUT. FACE GRAIN SHOULD BE
PLACED PERPENDICULAR TO DIRECTION OF WALL STUDS AND SHOULD BE CONSRUCTED
WITH THREE (3) SPAN MIN. CONDITION. FIELD NAILING PROVISIONS FO 10d NAILS ARE
AS FOLLOWS:

DUNDARY NAILING:	4" O.C.
TERMEDIATE NAILING:	12" O.C.
THER EDGES:	4" O.C.
LOCKING REQ'D.	SEE SCHED.

## STRUCTURAL MASONRY

1 STRUCTURAL PROPERTIES: ASSUMED PRISM F'm = 1500 PSI - SEE ARCHITECTURAL SPECIFICATIONS FOR

COLORS, TEXTURES AND SPECIAL REQUIREMENTS.

NORMAL WT ASTM C90 WITH A MINIMUM

CONCRETE MASONRY UNITS:

NORMAL WT ASTM C90 WITH A MINIMUM COMPRESSIVE STRENGTH ON THE NET AREA OF 3300 PSI.

ASTM C270 TYPE "S" WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI.

COARSE GROUT: ASTM C476, 3/8" AGGREGATE WITH A MINIMUM COMPRESSIVE STRENGTH OF

2000 PSI.

REINFORCING ASTM A615 GRADE 60

ASTM A82, 3/16" DIAMETER WIRE, GALVANIZED.

- HORIZONTAL JOINT REINFORCING SHALL BE DUR-O-WALL TRUSS TYPE OR EQUAL AS FOLLOWS:
- (A) 8" MASONRY WALL: 2 HOR. WIRES SPACED AT 16" O.C. VERTICALLY WITH CONTINUOUS DIAGONAL WIRES.
- (B) PROVIDE SPECIAL "L" AND "T" SHAPED SECTIONS AT WALL INTERSECTIONS. LAP HORIZONTAL WIRES AT LEAST 12" AT
- 3 HORIZONTAL REINFORCING IN BOND BEAM SHALL BE LAPPED 30 BAR DIAMETERS AT SPLICES. STAGGER SPLICES IN ADJACENT BARS AT
- 4 THE FIRST CELL, IN EACH WYTHE, AT CORNERS, END OF WALLS, AND EACH SIDE OF OPENINGS SHALL BE GROUTED AND REINFORCED WITH ONE (1) #4 VERTICALLY (8" WALLS) AND (1) #5 VERTICALLY
- 5 PROVIDE DOUBLE LINTEL BOND BEAMS, REINFORCED WITH 2-#4
  CONTINUOUS EACH BEAM, AT ALL MANDOOR HEADER CONDITIONS. THE LINTEL
  SHALL EXTEND 8" EITHER SIDE OF OPENING.

REFERENCE TYPICAL DETAIL FOR ADDITIONAL REINFORCEMENT REQUIREMENTS.

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SHEET S1

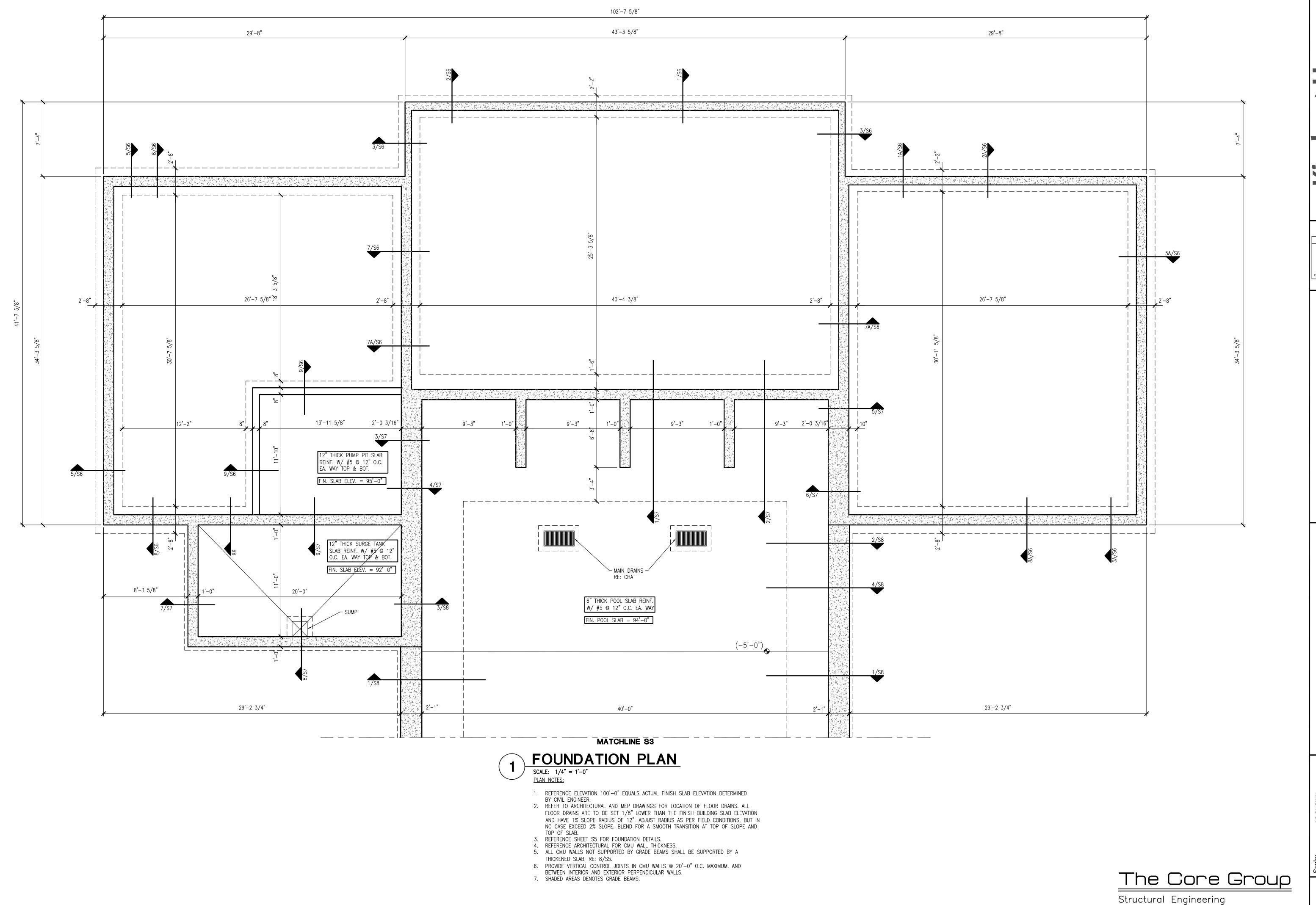
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The Core Group



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SUMMIT WAVES AVE POOL ADDITION EE'S SUMMIT, MO

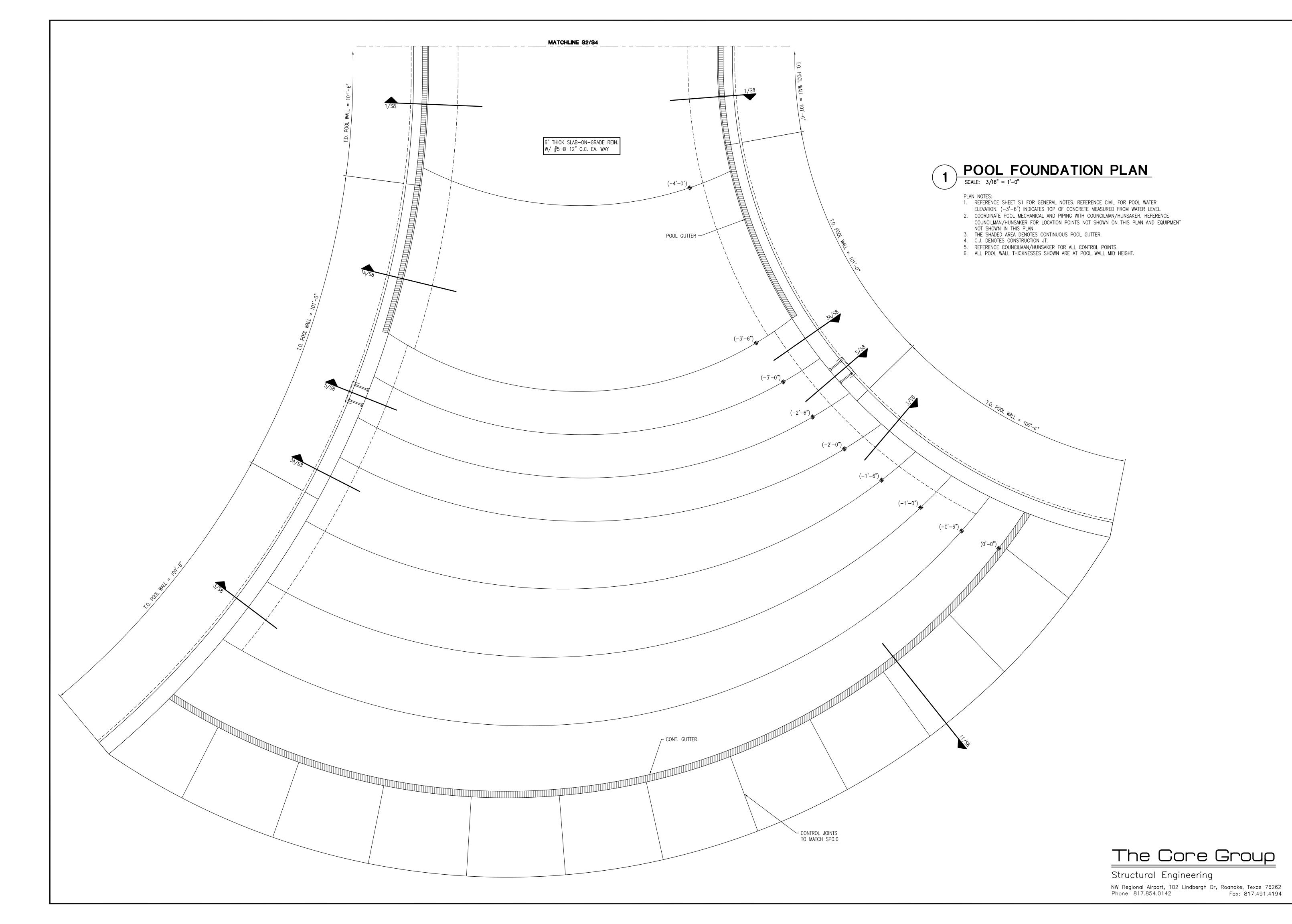
FOUNDATION PLAN

by: TC 04/15/2019
0. 064538700

Desi Cher Date

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S2

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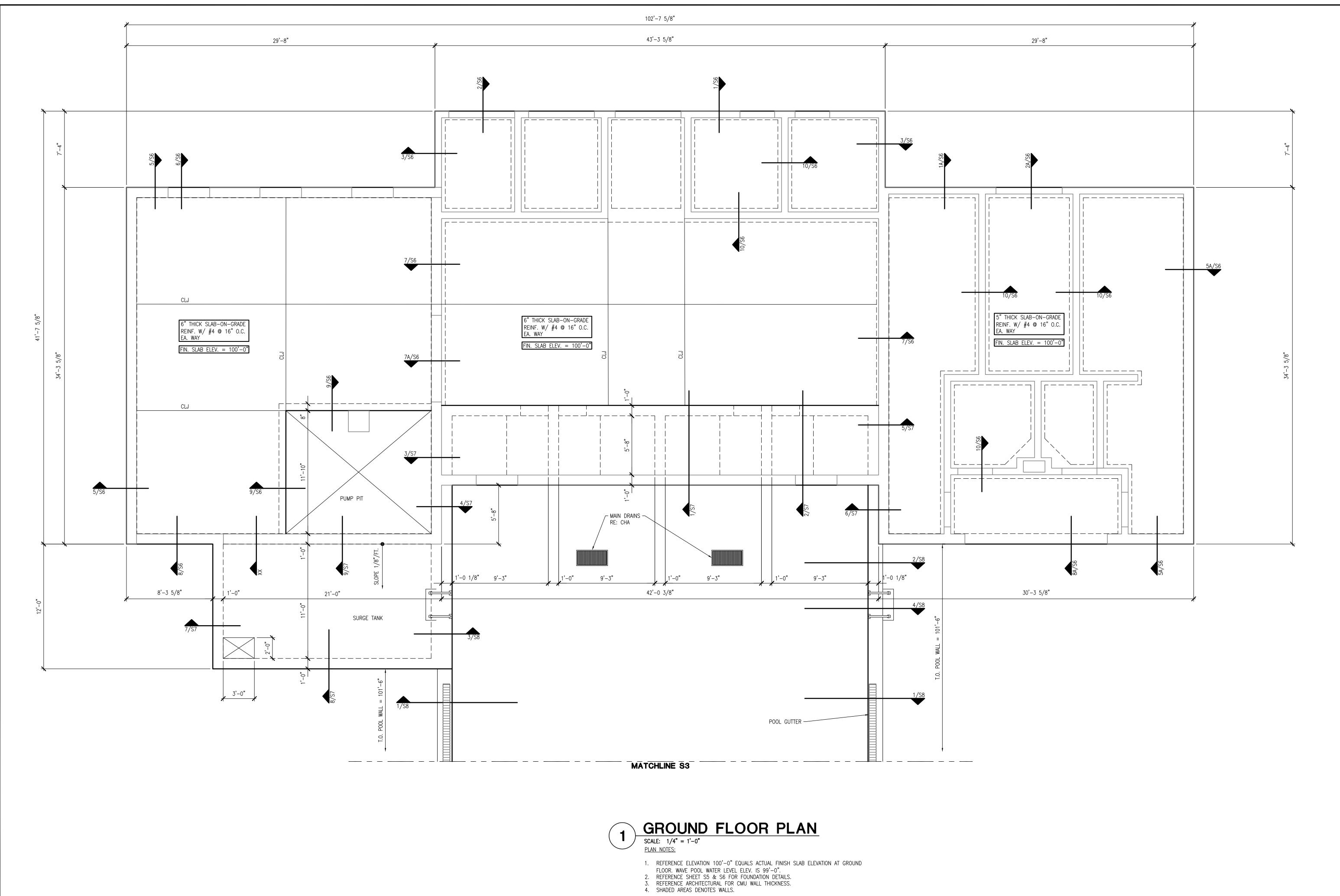
SUMMIT WAVES
WAVE POOL ADDITION
LEE'S SUMMIT, MO

FOUNDATION PLAN

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Designed by: TC
Drawn by: SS
Checked by: TC
Date: 04/15/2

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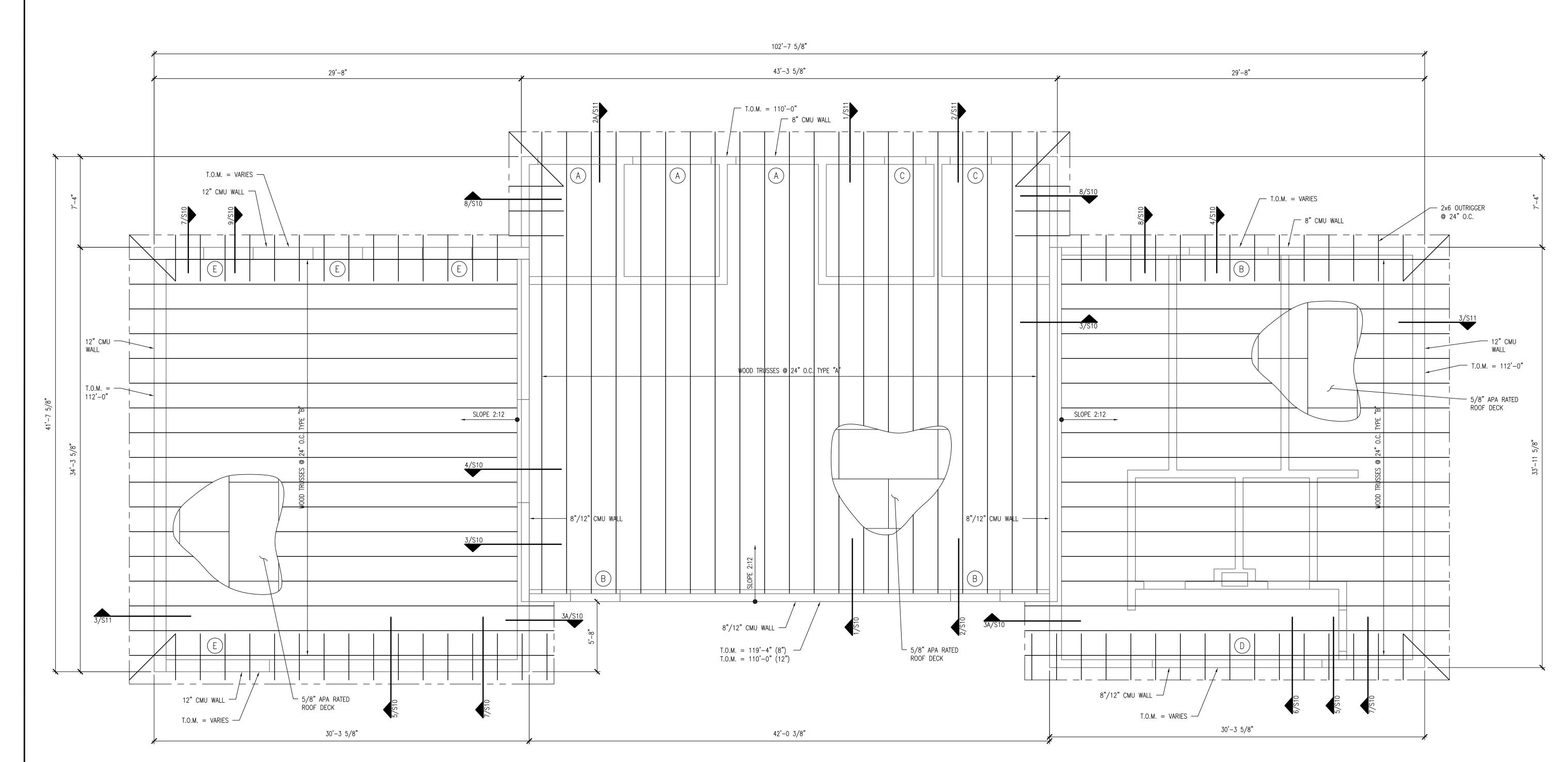
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**FOUNDATION PLAN** 

ROOF

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# ROOF FRAMING PLAN SCALE: 1/4" = 1'-0"

- 1. REFERENCE ELEVATION 100'-0" EQUALS ACTUAL FINISH SLAB ELEVATION DETERMINED BY CIVIL ENGINEER.
- 2. REFERENCE SHEETS S6 & S7 FOR FRAMING DETAILS.
- 3. USE 5/8" APA RATED EXTERIOR EXPOSURE SHEATHING FOR ALL ROOF DECK OVER WOOD TRUSSES.
- 4. COORDINATE ALL ROOF OPENINGS WITH ARCHITECT AND MECHANICAL ENGINEER.
- 5. REFERENCE ARCHITECTURAL FOR ALL CMU WALL THICKNESS.
- 6. A DENOTES BOND BEAM TYPE.

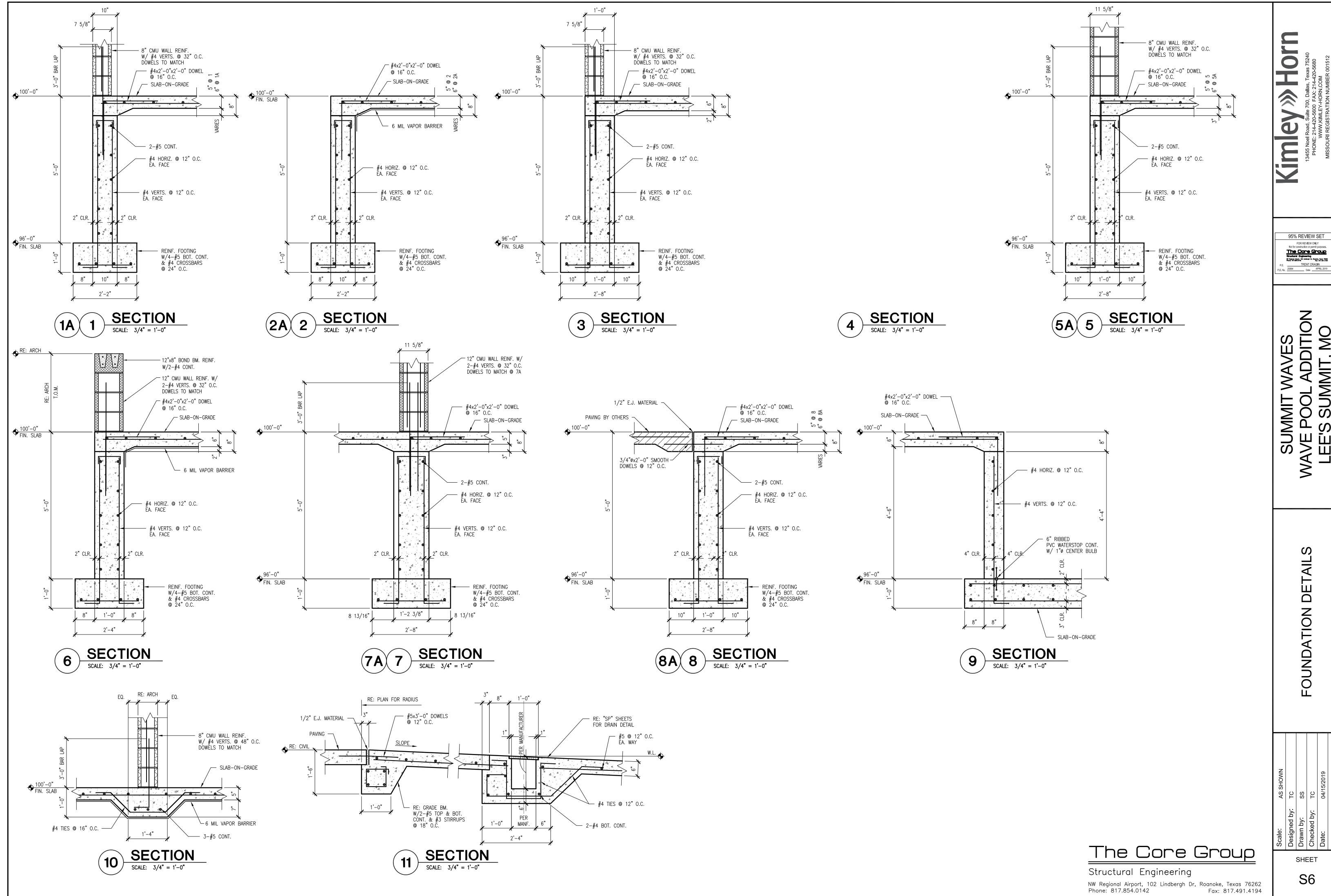
	BOND BEAM SCHEDULE	
MARK	# OF BOND BEAMS	REINFORCING
$\bigcirc$ A	1-8"x8" U-BLOCK BM, 2-8"x8" KNOCK-OUT BMS	2-#4 HORIZ.
В	1-8"x8" U-BLOCK BM, 3-8"x8" KNOCK-OUT BMS	2-#4 HORIZ.
$\odot$	1-8"x8" U-BLOCK BM, 1-8"x8" KNOCK-OUT BM	2-#4 HORIZ.
	1-12"x8" U-BLOCK BM, 5-12"x8" KNOCK-OUT BMS	4-#4 HORIZ.
Œ	1-12"x8" U-BLOCK BM, 1-12"x8" KNOCK-OUT BMS	4-#4 HORIZ.

- 1. EXTEND ALL BOND BEAM HEADER REINFORCING
- 1'-0" BEYOND OPENING.

  2. GROUT ALL KNOCKOUT BLOCKS SOLID & REINFORCE AS NOTED.

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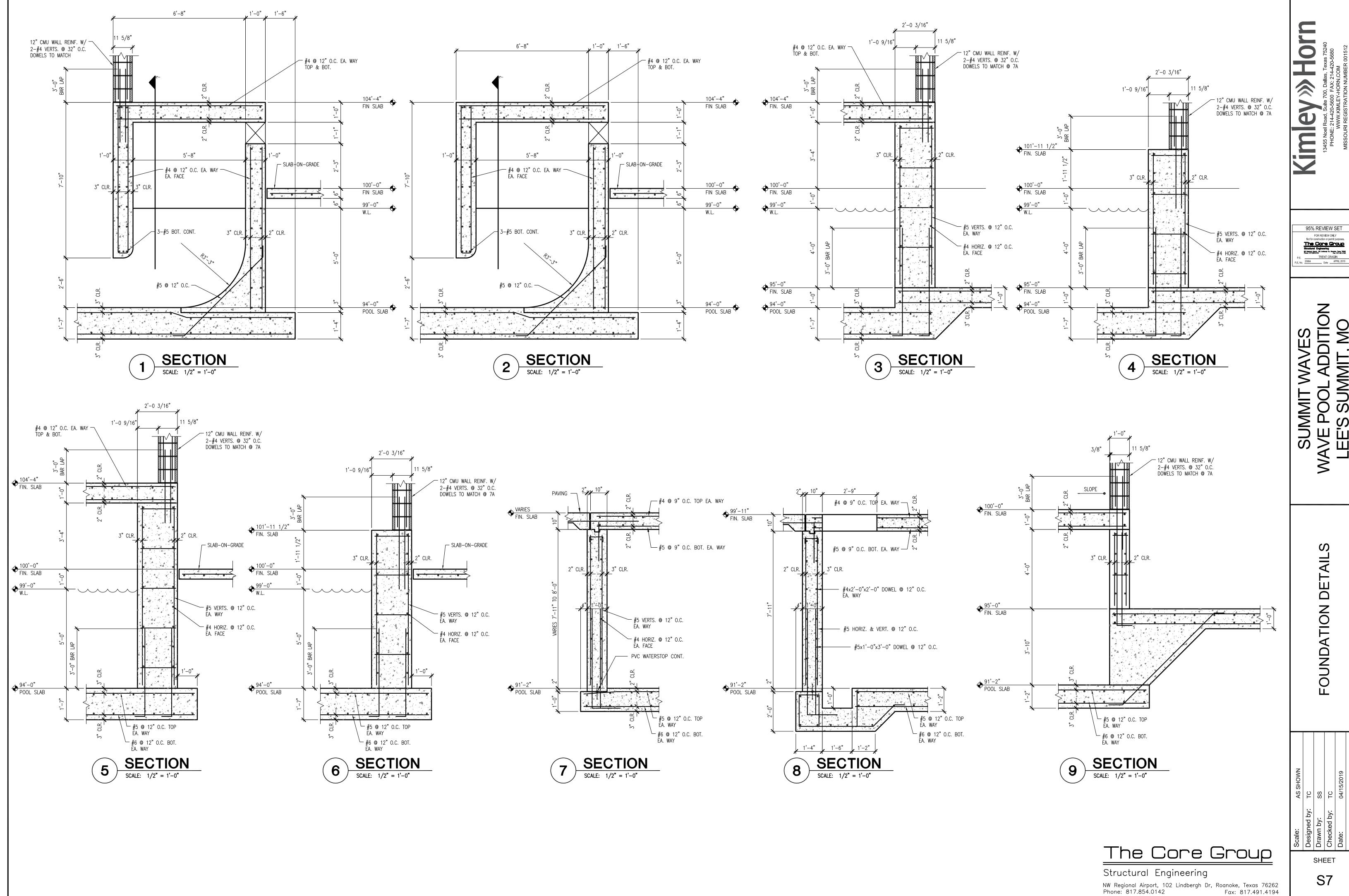


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P.E. No. 25864 Date APRIL 2019

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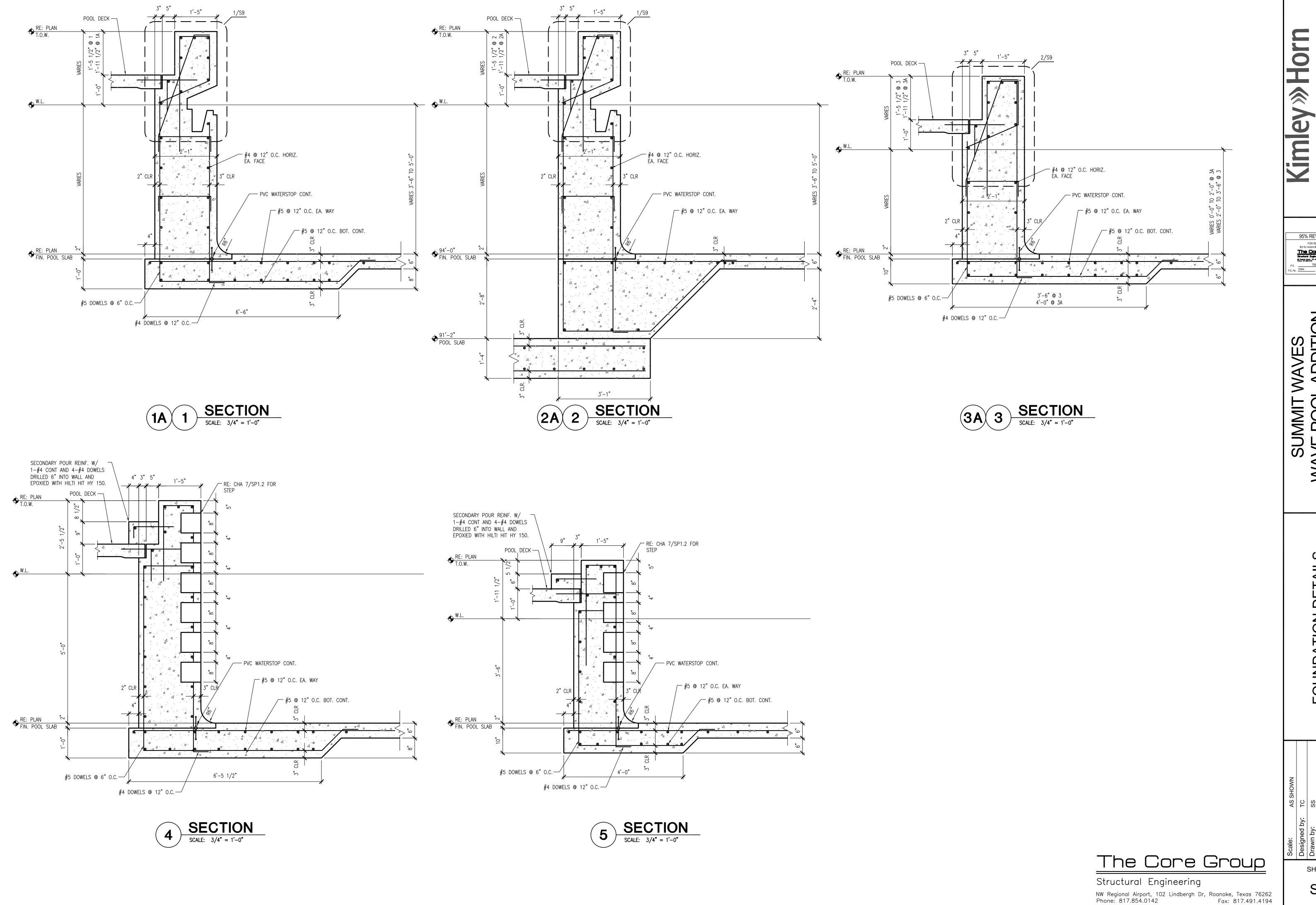
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Prince 97,841,044
P.E. TRENT CRAGIN
P.E. No. 25864 Date APRIL 2019

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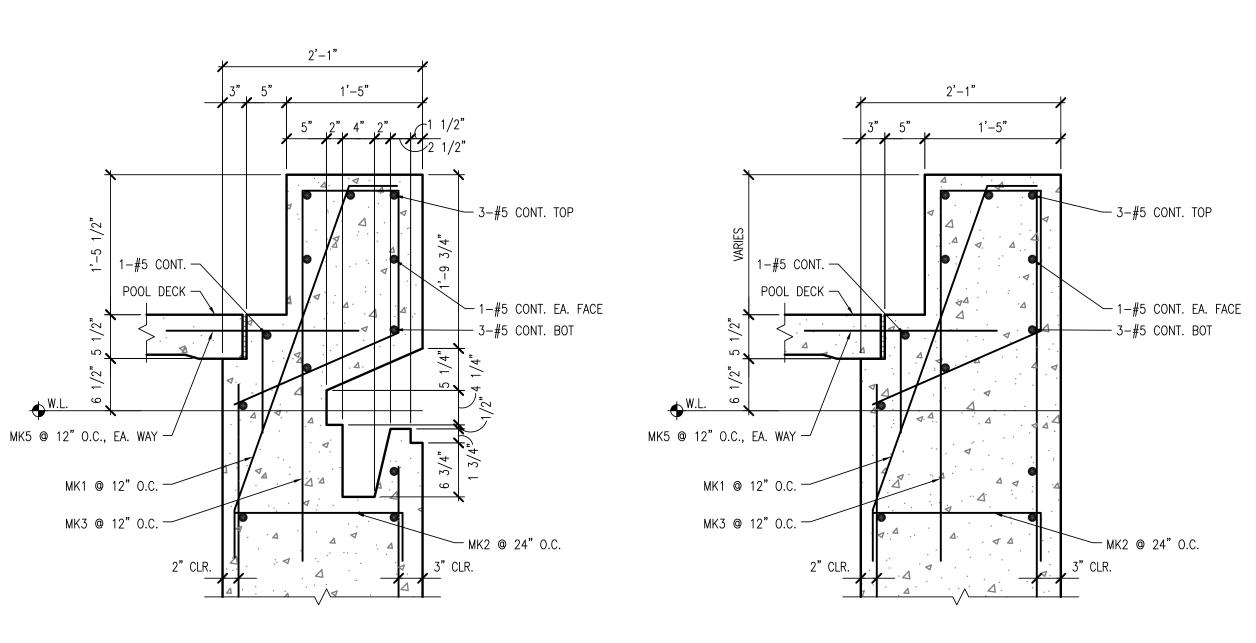
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LEE'S SUMMIT, MO

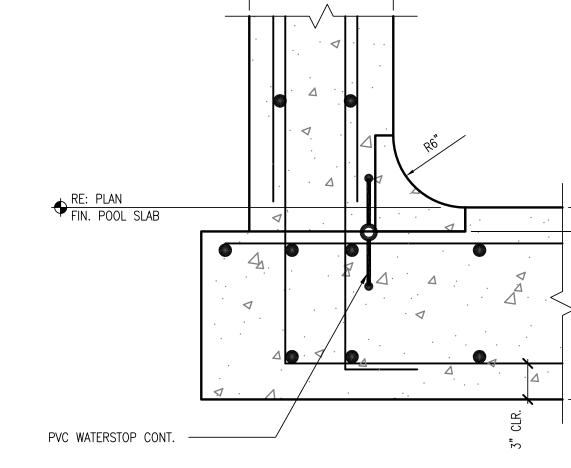
FOUNDATION DETAILS

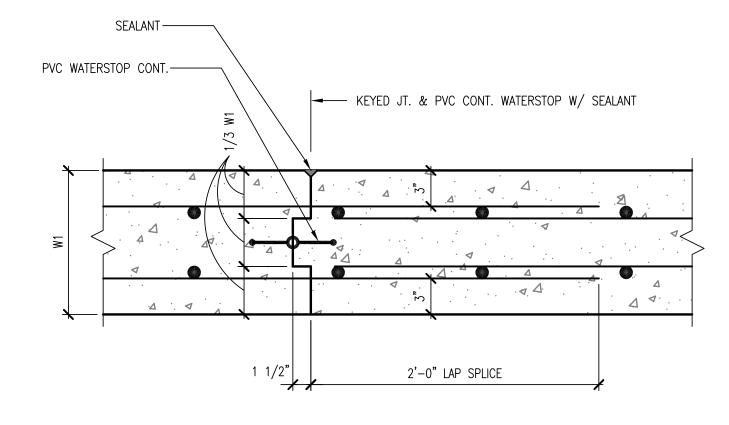
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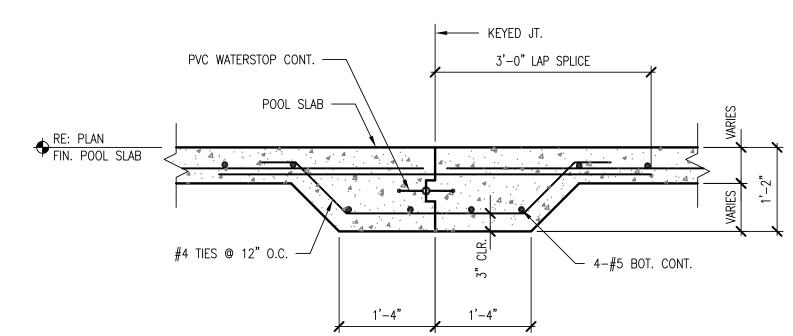


TYPICAL DETAIL

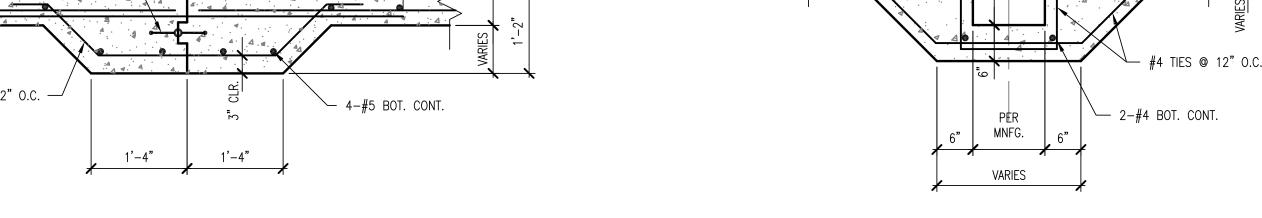
TYPICAL DETAIL

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





POOL SLAB CONSTRUCTION JOINT

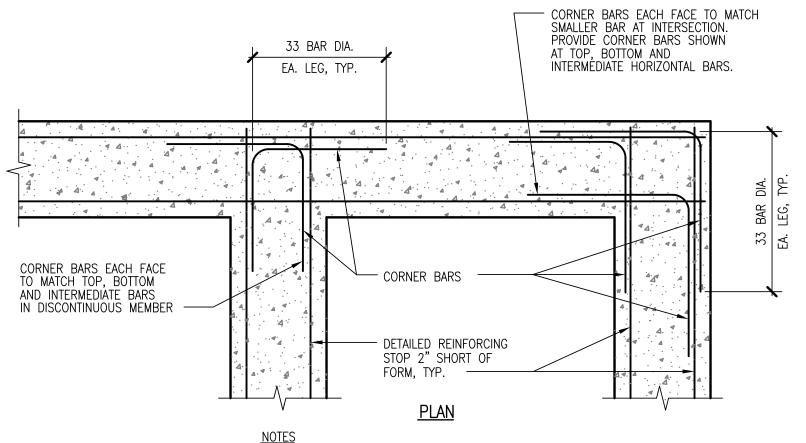


NOTE: PROVIDE HYDROSTATIC RELIEF VALVES IN ALL MAIN DRAINS.

SECTION AT MAIN DRAIN SCALE: 3/4" = 1'-0"

— RE: "SP" SHEETS FOR DRAIN DETAIL

/— #5 @ 12" O.C. EA. WAY



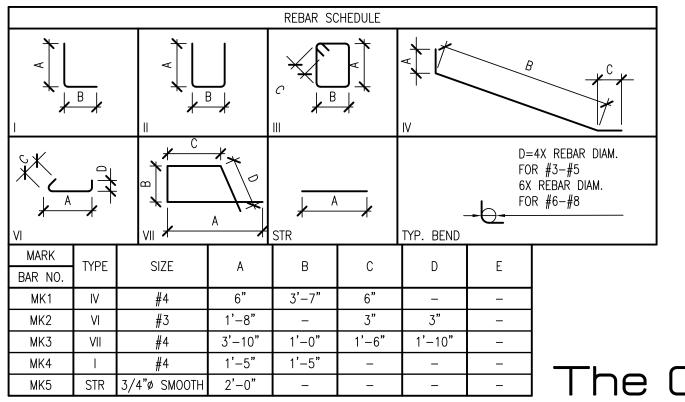
NOTES

1. WHERE 90 DEGREE HOOKS ARE SCHEDULED OR DETAILED FOR TOP BARS, CORNER BARS MAY BE OMITTED.

2. MATCH SIZE, LOCATION AND NUMBER OF HORIZONTAL BEAM AND WALL BARS, EXCEPT THAT WHERE THERE ARE MORE THAN 2 TOP OR BOTTOM BARS, ONLY THE INSIDE AND OUTSIDE BARS MUST BE MATCHED.

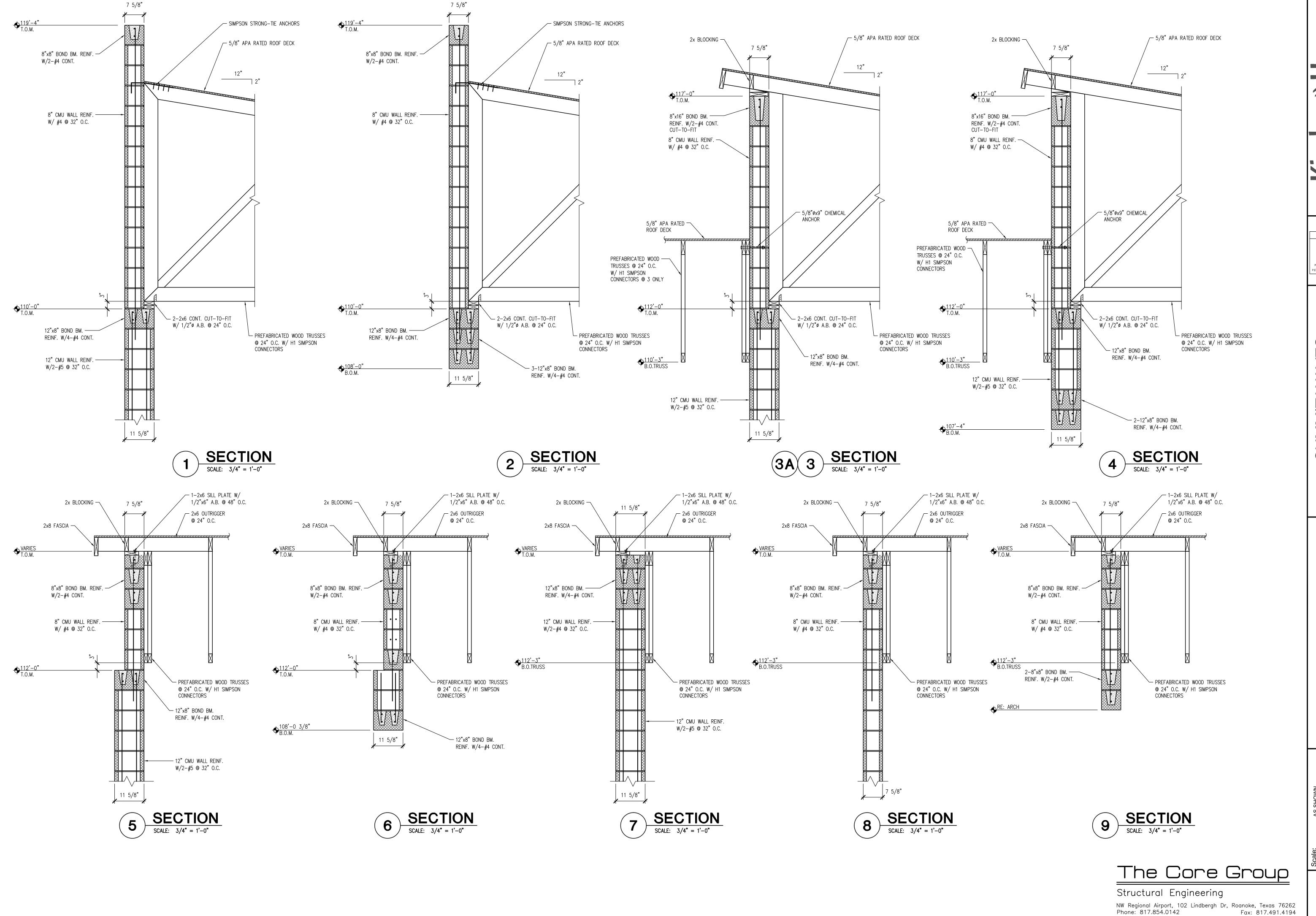
CORNER BARS AT WALL OR GRADE BEAM INTERSECTION





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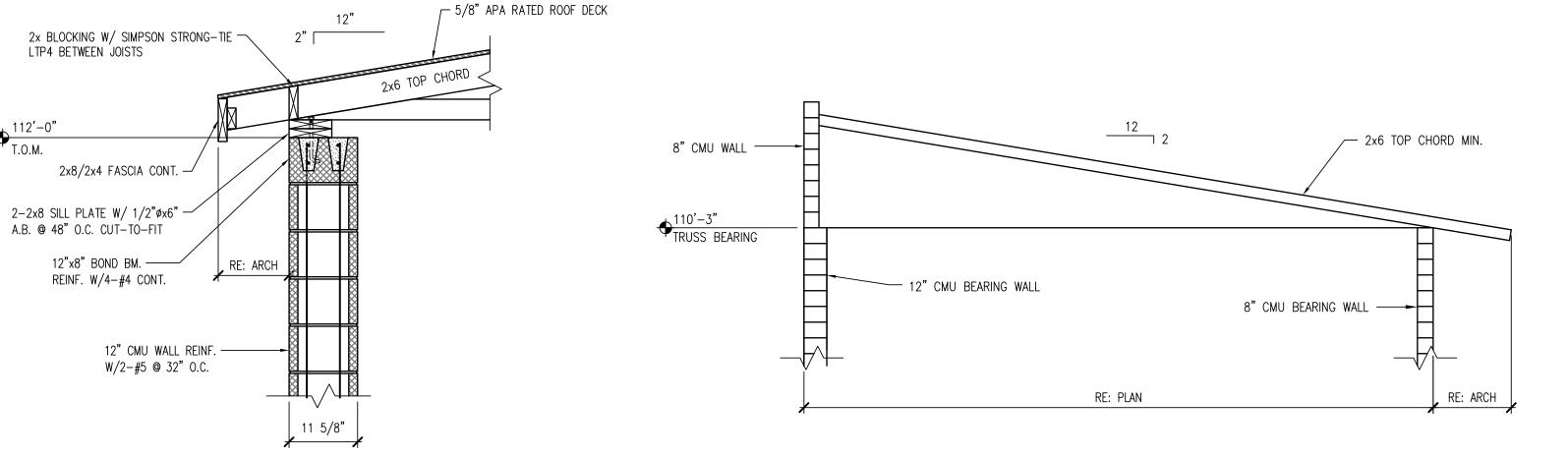
FRAMING DETAILS

ROOF

ocale:
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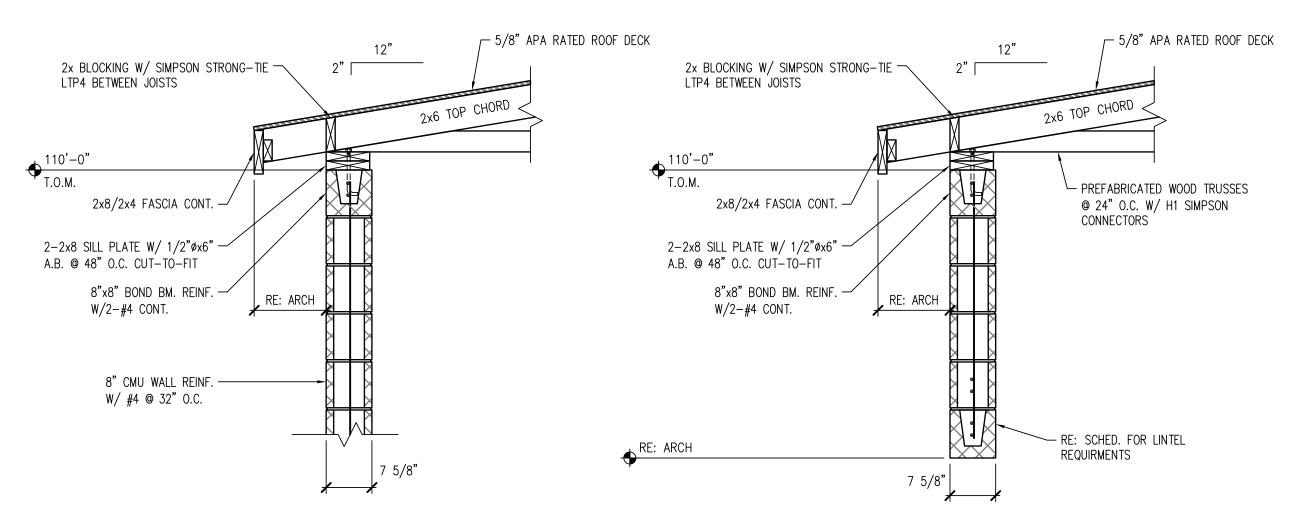
SHEET

SHEET S11



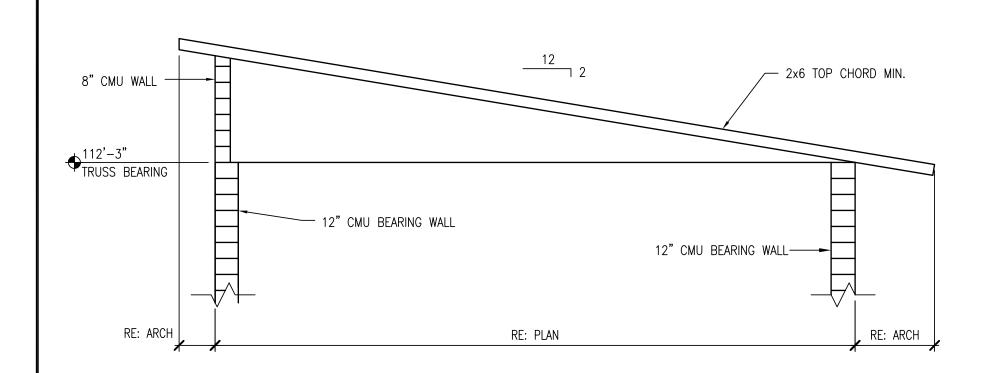
WOOD TRUSSES (TYPE "A")

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



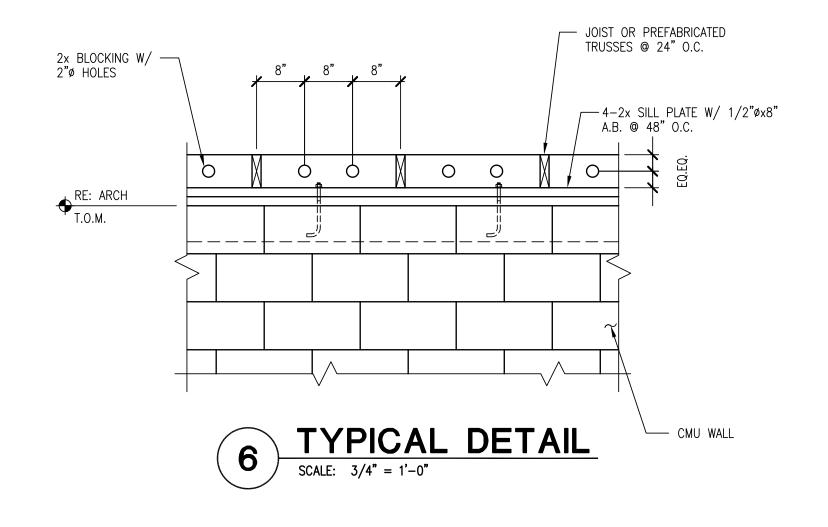
**SECTION**SCALE: 3/4" = 1'-0"

**SECTION**SCALE: 3/4" = 1'-0"



**SECTION**SCALE: 3/4" = 1'-0"





◆ 112'-0" T.O.M.

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2. ROOF MOUNTED EXHAUST FAN RE: M-2 FOR SCHEDULE. RE: ARCH FOR ELEVATION AND ROOF DETAILS.

3. 6"ø SCHEDULE 40 PVC DUCT STRAIGHT DOWN FROM FAN TO 18" ABOVE FLOOR. INSTALL SQUARE TO ROUND TRANSITION AT CURB. INSTALL 45° PVC ELBOW AT BOTTOM OF DUCT. INSTALL DUCT AS TIGHT TO CORNER AS POSSIBLE. INSTALL WALL MOUNTED DUCT SUPPORT AT 45° ELBOW AND AT EVERY 36" VERTICALLY. SUPPORTS TO BE STRUTECH FRP NON-METALLIC PIPE CLAMPS OR APPROVED

CEILING MOUNTED EXHAUST FAN DUCTED TO ROOF CAP. RE: M-2 FOR SCHEDULE.

5. ATTIC MOUNTED EXHAUST FAN. INSTALL AS HIGH IN ATTIC AS POSSIBLE. RE: M-2 FOR SCHEDULE.

6. DUCT ROUTED IN ATTIC. REFER TO ARCHITECTURAL PLANS FOR WALL LOUVER. PROVIDE FULL SIZE TRANSITION TO LOUVER FROM EXHAUST DUCT. LOUVER TO EXHAUST ABOVE ADJACENT ROOF.

7. CEILING MOUNTED UNIT HEATER RE: M-2 FOR SCHEDULE.

8. ELECTRICAL CONNECTION TO HEATER PER MANUFACTURER'S RECOMMENDATIONS.

9. DOOR WILL BE LOCKED OPEN DURING OPERATION.

10. THERMOSTAT WITH REMOTE SENSOR.

11. FURNISH AND INSTALL BALANCING DAMPER IN ALL BRANCH DUCTS AND/OR AIR DEVICE RUN-OUTS.

12. 48"x72" WALL LOUVER EQUIVALENT TO RUSKIN #ELC-6375DXD WITH MOTORIZED DAMPER. INSTALL LOUVER IN WALL AND ALIGN WITH CMU COURSES. RE: ARCH FOR EXACT MOUNTING LOCATION AND COLOR SELECTION. PROVIDE 120V ACTUATOR INTERLOCKED WITH EXHAUST FANS AS SHOWN. ACTUATOR EQUIVALENT TO RUSKIN #RH-120-S (BELIMO ACCEPTABLE). VERIFY ACTUATOR TORQUE RATINGS FOR PROPER DAMPER OPERATION.

- EXHAUST FAN - ROOF. RE: ARCH 6"ø SCHEDULE 40 PVC DUCT STRAIGHT DOWN FROM FAN TO 18" ABV. FLOOR. INSTALL SQ TO RD TRANSITION AT CURB. - WOOD CEILING. RE: ARCH INSTALL WALL MOUNTED DUCT SUPPORT AT 45° ELBOW & EVERY 36" VERTICALLY. - INSTALL 45° ELBOW AT SUPPORTS TO BE STRUTECH FRP BOTTOM OF DUCT/PIPE. NON-METALLIC PIPE CLAMPS OR APPROVED EQUIVALENT.

> CHEMICAL ROOM EXHAUST SCALE: NOT TO SCALE

## AIR DEVICE SYMBOL

SPECIAL NOTES

MAINTAIN MINIMUM 10'-0" BETWEEN OUTDOOR AIR INTAKES AND

2. ALL DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE

LATEST EDITION OF THE SMACNA DUCT CONSTRUCTION STANDARDS

FOR LOW PRESSURE CLASSIFICATION. DUCT SHALL BE HUNG FROM

NOTES. ALL SUPPLY DUCTWORK TO EXTERNALLY INSULATED WITH

FIBERGLASS DUCT WRAP INSULATION WITH AN R VALUE NO LESS

. NEW UNIT LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL BE

RESPONSIBLE FOR LOCATION TO CONFORM TO THE STRUCTURAL

THE STRUCTURE USING MINIMUM 1" WIDE 24 GA. GALV. STRAP OR AS

SPECIFICALLY DEFINED BY SMACNA. RE: SHEET M-2 FOR ADDITIONAL

SUPPORT OF THE WALL, ROOF OR SLAB. COORDINATE LOCATION WITH

. GENERALLY, IT IS INTENDED FOR WALL PENETRATIONS TO BE MODULAR

EXHAUST OUTLETS AND PLUMBING VENTS.

THAN R5. ALL DUCTWORK IS AIR SIZED.

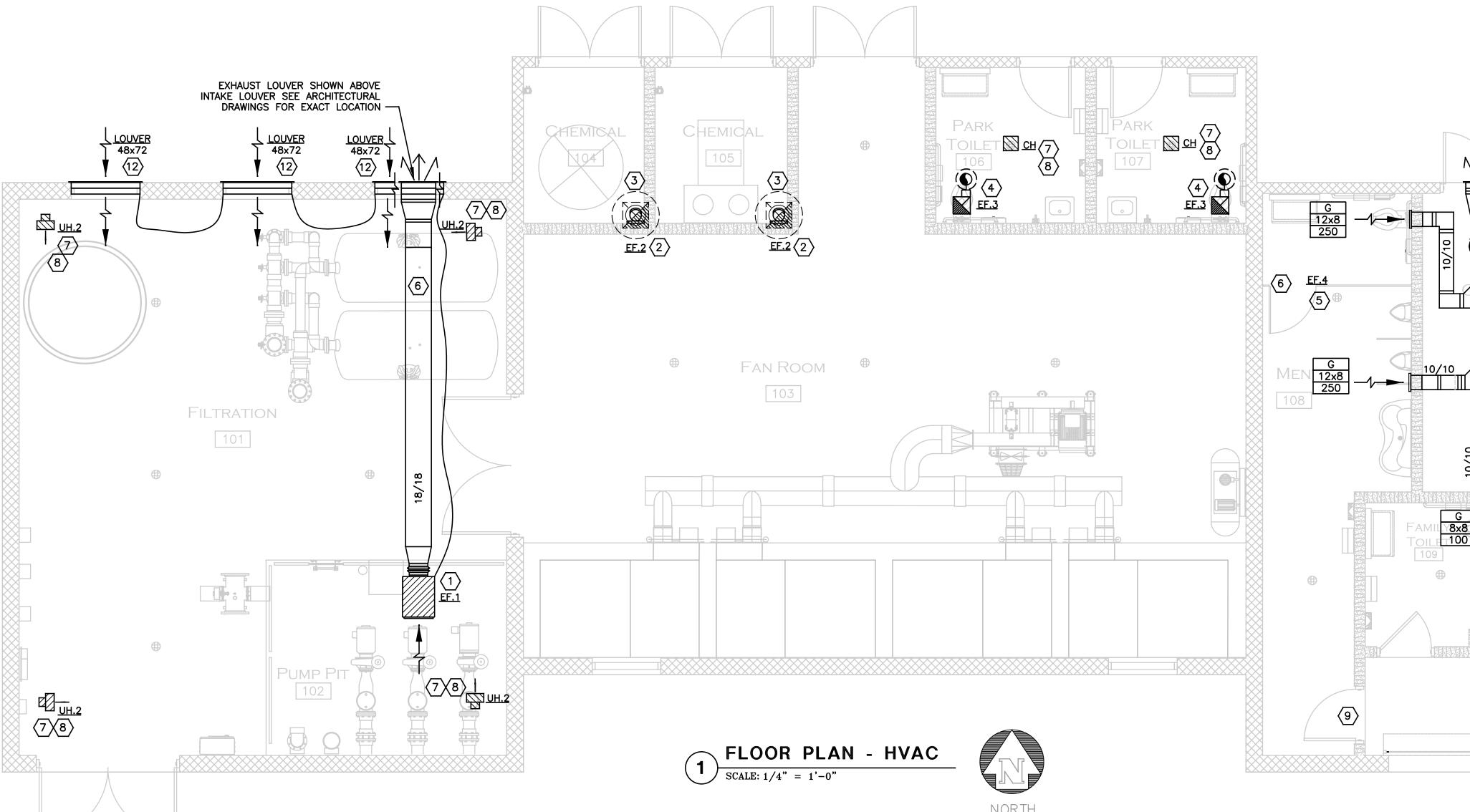
IN SIZE TO MATCH THE OPENING OF THE CMU.

XX AIR DEVICE TYPE XXXXX NECK SIZE XXX CFM

OTHER CONTRACTORS.

REFER TO AIR DEVICE SCHEDULE ON SHEET M-2 FOR DESCRIPTION.

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10/10 G 8x8 100 G 8x8 100 JANITOR Women 112

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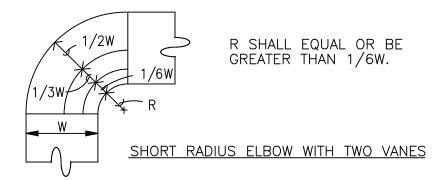
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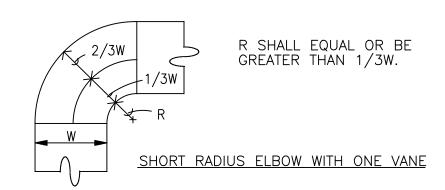
FLOOR PLAN - HVAC

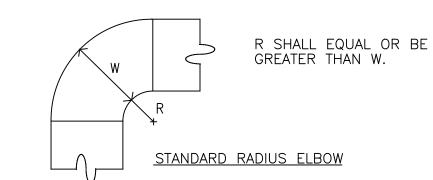
M-1

## **HVAC GENERAL NOTES**

- COMPLETED INSTALLATIONS SHALL CONFORM TO ALL APPLICABLE FEDERAL CODES, STATE AND LOCAL ORDINANCES AND THE SPECIFICATIONS. IF ANY CONFLICTS OCCUR, THE MOST STRINGENT SHALL APPLY.
- PIPING AND DUCT LAYOUT IS ONLY SCHEMATIC, EXACT LOCATION OF PIPES AND DUCTS SHALL BE COORDINATED WITH BLDG. STRUCTURE, AND WORK OF OTHER CONTRACTORS PRIOR TO START OF ANY CONSTRUCTION OR DEMOLITION.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WARRANTIES ON THE EQUIPMENT INSTALLED BY THAT CONTRACTOR OR THEIR SUB-CONTRACTORS.
- INSURE THE EXECUTION OF ALL WARRANTIES FOR EQUIPMENT AND INSTALLATION AS PRESCRIBED BY THE OWNER AND/OR ARCHITECT.
- ALL DUCTS AND PIPES ABOVE CEILING AND TIGHT TO BOTTOM OF STRUCTURE UNLESS OTHERWISE NOTED.
- ELEVATIONS, WHERE SHOWN, ARE CENTER OF PIPE AND BOTTOM OF DUCT UNLESS OTHERWISE NOTED.
- NOTIFY GENERAL CONTRACTOR OF SIZE AND LOCATION OF ALL RECESSES AND OPENINGS REQUIRED FOR HVAC WORK.
- LOCATE ALL TEMPERATURE, PRESSURE AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPE OR DUCT UP- OR DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR ACCURACY.
- LOCATE ALL MECHANICAL EQUIPMENT FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS AND VALVING.
- 10. LOCATE TEMPERATURE AND PRESSURE GAUGES FOR UNOBSTRUCTED ACCESS TO VIEWING.
- 11. LOCATE ROOM THERMOSTATS, HUMIDISTAT, AND TEMPERATURE AND HUMIDITY SENSORS 4'-0" (CENTERLINE) ABOVE FINISHED FLOOR. NOTIFY ARCHITECT WHERE DIMENSION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.
- 12. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF DIFFUSERS, GRILLES, ETC.
- 13. MAINTAIN MINIMUM 10'-0" BETWEEN OUTDOOR AIR INTAKES AND EXHAUST OUTLETS AND PLUMBING VENTS.
- 14. SUPPORT ALL STEEL PIPE AT INTERVALS OF NOT MORE THAN 10'-0", COPPER PIPE AT INTERVALS OF NOT MORE THAN 8'-0".
- PROVIDE ALL CONTROLS AND CONTROLLERS, INCLUDING STARTERS AND CONTRACTORS, NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM. INCLUDE ALL ELECTRICAL WORK NECESSARY TO COMPLY WITH THIS REQUIREMENT. COORDINATE WITH THE ELECTRICAL CONTRACTOR FOR POWER SOURCE CONNECTIONS.
- BEFORE ORDERING ANY EQUIPMENT. THE CONTRACTOR SHALL COORDINATE THE VOLTAGE AND PHASE OF EACH PIECE OF EQUIPMENT WITH THE ELECTRICAL CONTRACTOR







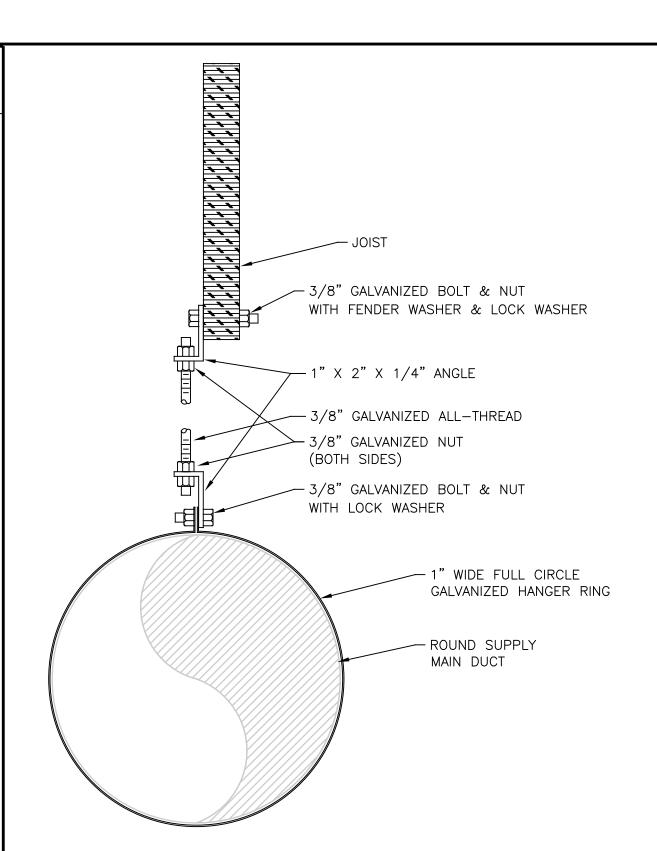
# 5 RADIUSED ELBOW DETAILS SCALE: NOT TO SCALE

1. THE INTERIOR SURFACES OF ALL RADIUS ELBOWS SHALL BE MADE ROUND

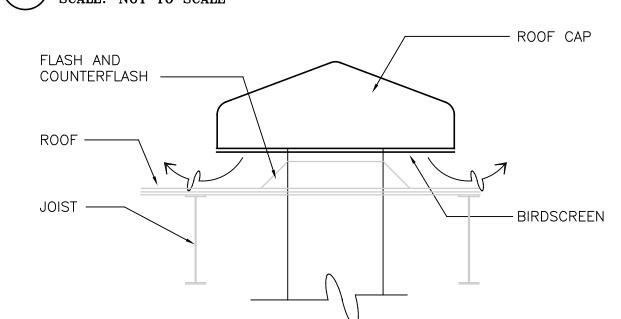
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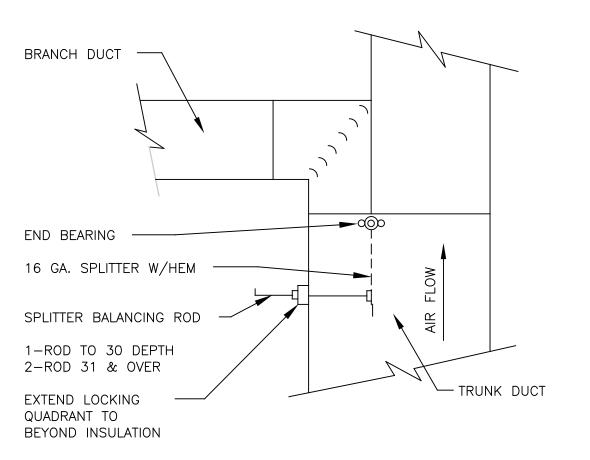
2. ALL STANDARD RADIUS ELBOWS SHOWN ON PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VASE SHALL BE CONSTRICTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.



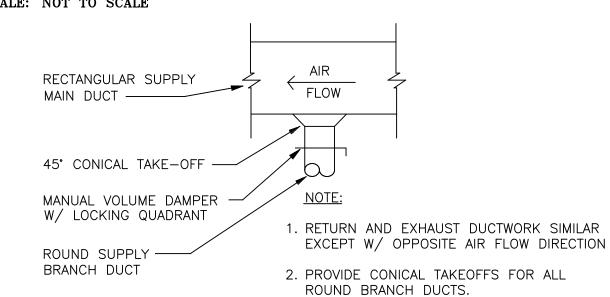
### ROUND DUCT HANGER DETAIL SCALE: NOT TO SCALE



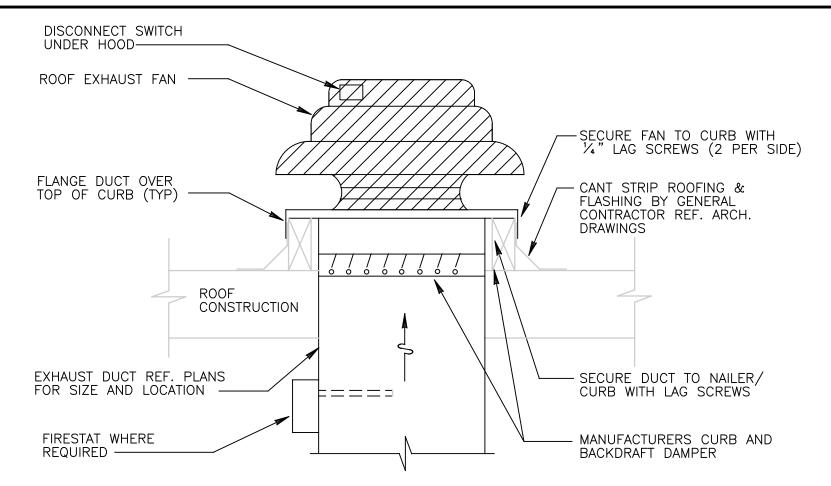
## **ROOF PENETRATION DETAIL** SCALE: NOT TO SCALE



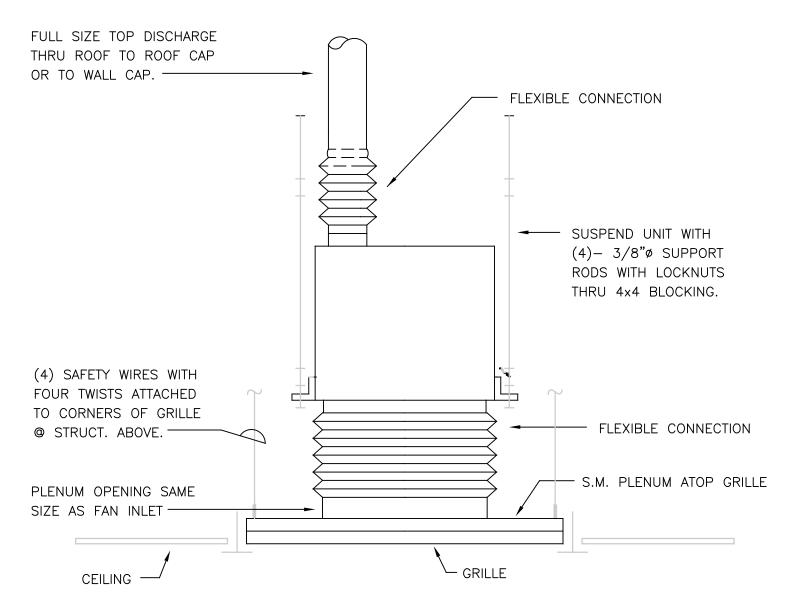
## MAIN DUCT SPLIT DETAIL SCALE: NOT TO SCALE



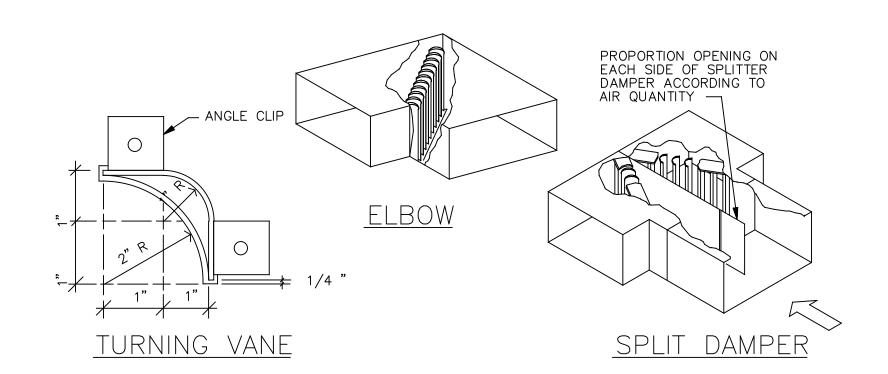
### ROUND DUCT TAKEOFF DETAIL SCALE: NOT TO SCALE



## ROOF MOUNTED EXHAUST FAN SCALE: NOT TO SCALE



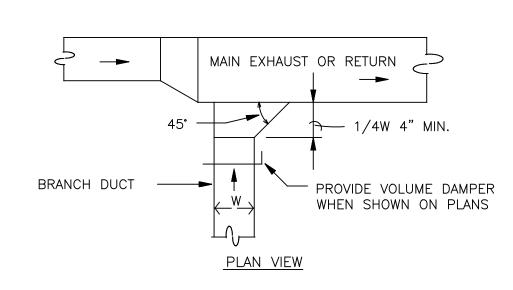
## CEILING EXHAUST FAN DETAIL (IN-LINE SIMILAR) SCALE: NOT TO SCALE



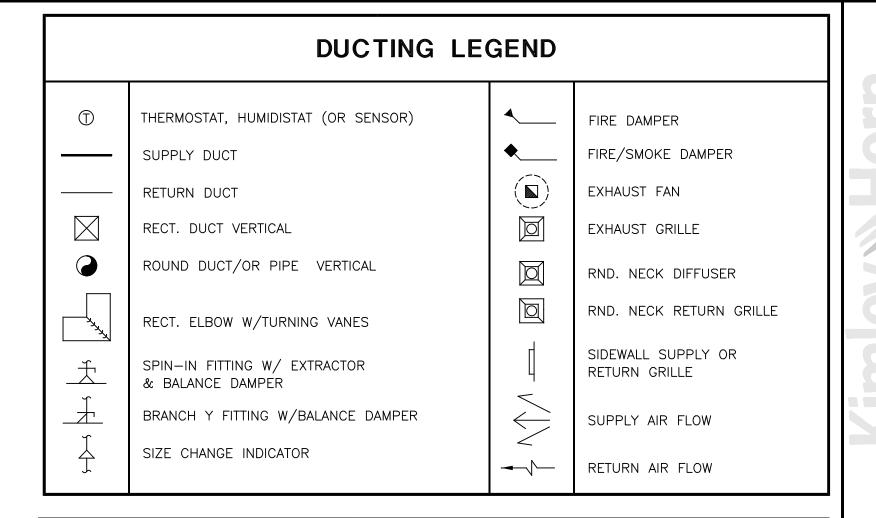
## DUCT CONSTRUCTION DETAILS SCALE: NOT TO SCALE

## NOTES:

1. ALL RECTANGULAR ELBOWS SHALL HAVE TURNING VANES. 2. ALL RECTANGULAR SPLITS SHALL HAVE TURNING VANES IN BOTH ELBOWS.



## EXHAUST/RETURN DUCT CONNECTION DETAIL SCALE: NOT TO SCALE



AIR	<b>DEVICE</b>	SCHEDULE

TYPE	DESCRIPTION	FINISH	MODEL	MANUFACTURER
Α	12X12 SUPPLY DIFFUSER, LOUVER FACE	WHITE	5SH	KRUEGER
В	6X6 SUPPLY DIFFUSER, LOUVER FACE	WHITE	5SH	KRUEGER
С	14X14 SUPPLY GRILLE, PERF FACE	WHITE	51190	KRUEGER
D	SUPPLY REGISTER, SURF. MOUNT, HORIZ. BARS W/ OBD	WHITE	5880H	KRUEGER
E	14X14 RET/EXH/SUPPLY GRILLE, PERF FACE	WHITE	51190	KRUEGER
F	8X8 RET/EXH GRILLE, PERF FACE	WHITE	51190	KRUEGER
G	RET/EXH GRILLE, HORIZ. BARS, SURFACE MTD.	WHITE	S580H	KRUEGER

NOTE: 1. NOT ALL TYPES ARE NECESSARILY USED

2. FRAME STYLE SHALL BE COMPATIBLE WITH CEILING TYPE ALUMINUM CONSTRUCTION.

4. PROVIDE NECESSARY CLIPS, SUPPORTS AND SQUARE TO ROUND CONNECTIONS 5. PROVIDE RADIATION DAMPER AND BLANKET FOR RATED CEILING ASSEMBLIES

6. FINISH SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ORDER

EXHAUST FAN SCHEDULE					
DESIGNATION	EF.1	EF.2	EF.3	EF.4	
SERVES	PUMP HOUSE	CHEM STORAGE	RR'S 106, 107	108-110, 112	
CFM	1600	200	75	1200	
S.P. (IN. W.G.)	0.25	0.125	0.10	0.125	
POWER AS LABELED	0.22 BHP	87 WATTS	0.3A	1/4	
ELECTRICAL CHARACTERISTIC	120/1/60	120/1/60	120/1/60	120/1/60	
MODEL NUMBER	10DB	RE(C)-6	XB80	12CV17D	
MANUFACTURER	СООК	FANTECH	BROAN	СООК	
SONES	8.6	7.7	0.3	LOW	
ACCESSORIES	2,3,4,7,13,14	1,2,3,4,7,8,9	1,2,3,4,5,7,8	1,2,3,4,7,8	
CONTROLS	TIME CLOCK	TIME CLOCK	SWITCH	TIME CLOCK	

## ACCESSORIES:

4. DUCT TRANSITIONS

DIRECT DRIVE

1. FACTORY DISCONNECT 6. INTEGRAL WALL 2. BACKDRAFT DAMPER 7. RUBBER VIBR 3. INSECT SCREEN 8. ALUMINUM CO

11 CURB MOUNT ROOF CAP

O. INTEGRAL WALL FLASHING	II. GURB MUUNI ROUF CAP
7. RUBBER VIBRATION ISOLATORS	#611CM
8. ALUMINUM CONSTRUCTION	12. PAINTED GALVANIZED
9. FACTORY ROOF CURB	13. FLEXIBLE DUCT CONNECTOR
10. IN-LINE THERMOSTAT	14. FACTORY UNIT MOUNTED DISCONNECT

## ELECTRIC HEATER SCHEDULE

MARK	CFM	KW	^T		ELECTRICAL DATA			MODEL #	MANUF.	KEY NOTES
			(F*)	AMPS	HP	RPM	VOLTS/PHASE/Hz	"		
UH.1	350	2.2	27	11.0	1/100	850	208/1/60	MUH-03-21	QMARK	1-4
UH.2	350	5.0	-	6.0	1/100	-	480/3/60	MUH-05-41	QMARK	1-4
СН	300	2.0	51	8.3	1/100	_	208/1/60	CDF-548	QMARK	1,3,5

## NOTES:

1. PROVIDE W/ UNIT MOUNTED THERMOSTAT. 2. PROVIDE W/ STRUCTURE MOUNTING BRACKET.

3. PROVIDE W/ FACTORY MOUNTED DISCONNECT.

4. MOUNT BOTTOM OF UNIT @ 9' AFF. 5. PROVIDE W/ CEILING MOUNTING ENCLOSURE

AS SHOWN	E.A.	KCW	aar	04/15/2019	
Scale:	Designed by:	Drawn by:	Checked by:	Date:	

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**DETAIL** SCHEDULES & HVA(

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P.E <u>JIM D. DALLAS</u> I.No. E-1999136332 <sub>Date</sub> APRIL 20

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M-2

	Luminaire schedule						
TYPE	DESCRIPTION	MANUFACTURER/MODEL #	VOLTAGE	WATTAGE	LAMPS	REMARKS	
Д	SURFACE MOUNTED VANDAL RESISTANT LED	NEW STAR *VIC4W-L2 40 IC-RWC-UN-WH	120/277	50	LEDS FURNISHED		
Δl	SAME AS TYPE 'A' EXCEPT WITH EMERGENCY BATTERY PACK	NEW STAR  *VIC4W-L2 40 IC-RWC-UN-WH-EL2	120/277	50	LEDS FURNISHED		
Ø	CHAIN HUNG WET LOCATION LISTED ENCLOSED LED	LITHONIA "FEM L48 4000LM IMAFL MD MVOLT GZIO 40K 80 CRI MHCH 36	120	42	LEDS FURNISHED		
ВІ	SAME AS TYPE 'J' EXCEPT WITH EMERGENCY BATTERY PACK	LITHONIA "FEM L48 4000LM IMAFL MD MVOLT GZIO 40K 80 CRI MHCH 36 BSL520	120	42	LEDS FURNISHED		
O	SURFACE MOUNTED LED STRIP	LITHONIA *ZLIN L48 3000LM FST MVOLT 40K 80CRI	120/277	25	LEDS FURNISHED		
Cī	SAME AS TYPE 'C' EXCEPT WITH EMERGENCY BATTERY PACK	LITHONIA *ZLIN L48 3000LM FST MVOLT 40K 80CRI ETW	120/277	25	LEDS FURNISHED		
Ω	WALL MOUNTED VANDAL RESISTANT LED	ECLIPSE LIGHTING *L22-A-LED3Ø-4K-EBU-BK	120	30	LEDS FURNISHED		
ū	SAME AS TYPE 'D' EXCEPT WITH EMERGENCY BATTERY PACK	ECLIPSE LIGHTING *L22-A-LED3Ø-4K-EBU-BK-EL67	120	30	LEDS FURNISHED		
Е	CEILING MOUNTED LED	ECLIPSE LIGHTING *L02-LED20-4K-EBU-BK-CM	120	20	LEDS FURNISHED		
ΕI	SAME AS TYPE 'E' EXCEPT WITH EMERGENCY BATTERY PACK	ECLIPSE LIGHTING *L02-LED20-4K-EBU-BK-CM-EL4W	120	20	LEDS FURNISHED		
	(1) POLE MOUNTED LED AREA LUMINAIRE ON 20'-0" ROUND TAPERED STEEL POLE	BEACON VIPER SERIES (1) *VPL-80L-180-4K1-4 UNV-BL POLE: VALMONT *DS210650A200DIPC-FP-BK-FBC-AB	277	181.3	LEDS FURNISHED	REFER 1/E-6 FOR POLE BASE DETAIL. FIXTURE MOUNTING HEIGHT 18 20'-0"	
5B	(2) POLE MOUNTED LED AREA LUMINAIRES @ 90° ON 20'-0" ROUND TAPERED STEEL POLE	BEACON VIPER SERIES (2) *VPL-80L-180-4K1-4 UNV-BL POLE: VALMONT *DS210650A200D2PC-FP-BK-FBC-AB	277	362.6	LEDS FURNISHED	REFER 1/E-6 FOR POLE BASE DETAIL. FIXTURE MOUNTING HEIGHT 18 20'-0"	
SC	(2) POLE MOUNTED LED AREA LUMINAIRES ® 180° ON 20'-0" ROUND TAPERED STEEL POLE	BEACON VIPER SERIES (2) *VPL-80L-180-4K1-4 UNV-BL POLE: VALMONT *DS210650A200D2PC-FP-BK-FBC-AB	277	362.6	LEDS FURNISHED	REFER 1/E-6 FOR POLE BASE DETAIL. FIXTURE MOUNTING HEIGHT 18 20'-0"	
	(4) POLE MOUNTED LED AREA LUMINAIRES ON 20'-0" ROUND TAPERED STEEL POLE	BEACON VIPER SERIES (4) *VPL-80L-180-4K1-4 UNV-BL POLE: VALMONT *DS210650A200D4PC-FP-BK-FBC-AB	277	725.2	LEDS FURNISHED	REFER 1/E-6 FOR POLE BASE DETAIL. FIXTURE MOUNTING HEIGHT 18 20'-0"	
SE	(4) POLE MOUNTED LED AREA LUMINAIRES ON 18'-0" ROUND TAPERED STEEL POLE	BEACON VIPER SERIES (4) *VPL-80L-180-4K1-4 UNV-BL POLE: VALMONT *DS210650A180D4PC-FP-BK-FBC-AB	277	725.2	LEDS FURNISHED	REFER 1/E-6 FOR POLE BASE DETAIL. FIXTURE MOUNTING HEIGHT 18 20'-0"	
×	UNIVERSAL MOUNT LED EMERGENCY EXIT SIGN	LITHONIA *LX W 3 R EL N	120/277	1.8	LEDS FURNISHED		

	ELECTRICAL S' NOTE: NOT ALL SYMBOLS		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION DESCRIPTION
0	2' x 4' Light Fixture	<del>-</del>	Flush in Wall Duplex Receptacle
	1' x 4' Light Fixture	∓⊖GFCI	Flush In Wall Duplex Receptacle - Ground Fault Circuit Interrupt
0	Ceiling Mounted Light Fixture	<b>⊕</b> ic	Flush in Wall Duplex Receptacle - isolated Ground
ю	Wall Mounted Light Fixture	<del></del>	Flush in Wall Duplex Receptacle Mounted Above Counter
⊢	Ceiling Mounted Strip Light	Φ	Flush in Floor Duplex Receptacle
<b>⊢</b> δ <b>⊣</b>	Wall Mounted Strip Light	<b>#</b>	Flush in Wall Quadraplex Receptacle
	Crosshatching Denotes Fixture On Emergency	*	Flush in Wall Quadraplex Receptacle Mounted Above Counter
ю 0 1 <del>///</del> 0 <del>///</del> I	Circuit Or With Emergency Battery Pack	<b>•</b>	Flush in Floor Quadraplex Receptacle
<b>9</b>	Wall Mounted Dual Head Emergency Egress Light	Ð	Single Receptacle
22	Wall Mounted Dual Head Emergency Egress Light Remote Head	<b>=</b> Ø	Special Purpose Flush In Wall Receptacle Configuration with Owner)
<b>29</b> 2	Surface Mounted Combination Exit Sign / Dual Head Emergency Egress Light	€	Flush in Wall Receptacle 220V. (Verify NEMA Configuration with Owner)
0.	Single Arm Pole Light		Plugmold Receptacle
0.0	Double Arm Pole Light	<u>О</u> Н	Wall Mounted Junction Box
•	Post Top Mounted Area Light	0	Ceiling Mounted Junction Box
\$₀	Single Pole Switch (Lower Case Letter Denotes Switching Pattern)	J	Flush In Grade Junction Box
\$3	Three Way Switch	PB	Flush In Grade, Concrete Pull Box W/ Bolt Down Lid
\$4	Four Way Switch		Flush Mounted Ceiling Speaker Assembly w/ Back Box, Transformer And Ceiling Baffle (White)
\$ <sub>D</sub>	Dimmer Switch	A	Weatherproof Outdoor Speaker
\$ <sub>M</sub>	Motor Rated Switch	——————————————————————————————————————	Plywood Telephone Backboard
\$ĸ	Keyed Switch	$\nabla$	(Provide W/ 3/4" Conduit W/ Pull String
\$ <sub>PL</sub>	Pilot Light Switch	lacksquare	Floor Mtd. Data Outlet  To Above Accessible Ceiling)  (Provide W/ 34" Conduit W/ Pull String  To Above Accessible Ceiling)
\$ <sub>FC</sub>	Variable Speed Fan Control Switch	<b>—</b>	To Above Accessible Ceiling)  Telephone Outlet  To Above Accessible Ceiling)  Telephone Outlet  To Above Accessible Ceiling)
\$wp	Weatherproof Switch		Floor Mtd. Telephone (Provide W/ 3/4" Conduit W/ Pull String
\$0R	Manual Over-Ride Switch For Ceiling Mounted		Outlet To Above Accessible Ceiling)  Telephone Outlet © (Provide W/ 3/4" Conduit W/ Pull String
M	Occupancy Sensor Wall Mounted Occupancy Sensor Light Switch	▼ W	54" AFF.  To Above Accessible Ceiling)  Public Telephone  (Provide W/ I" Conduit W/ Pull String
	Watt Stopper Model *WA-200  Ceiling Mounted Dual Technology Occupancy Sensor	V P ■ ▼	Outlet To Point As Indicated On Plans)  Combination Telephone/ (Provide W/ 3/4" Conduit W/ Pull String
	Light Switch Watt Stopper Model *DT-355 Series  Conduit In Ceiling Or Wall	<b>▼</b>	Data Outlet To Above Accessible Ceiling)  Floor Mtd. Combination (Provide W/ 3/4" Conduit W/ Pull String
	Conduit In Or Under Floor / Grade		Telephone/Data Outlet To Above Accessible Ceiling)  Asterisk Denotes Tele/Data Device Mounted Above Counter
	Homerun To Panelboard In Ceiling Or Wall	*	Exit - Single Direction Indication - Ceiling Mounted
	Homerun To Panelboard in Or Under Floor / Grade		
	Wire Run Indicating Ground Wire, Phase And	<b>⊕</b>	Exit - Bi-Directional Indication - Ceiling Mounted
—#— —c—	Neutral Conductors		Exit - Single Direction Indication - Wall Mounted
<u> </u>	CCTV Raceway, I" Conduit Minimum W/ Pull String	<b>₩</b>	Exit - Bi-Directional Indication - Wall Mounted
<u></u>	Telephone Raceway, I" Conduit Minimum W/ Pull String	4	Exit Directional Arrow - Single
-OHE-	Overhead Power Line	-	Exit Directional Arrow - Double
Ø <sub>PP</sub>	Power Pole	<u> </u>	Space Smoke Detector - Ceiling Mounted
<b>⊠</b> ,	Combination Motor Starter / Disconnect Switch	0	Space Smoke Detector - Duct Mounted
	Non-Fused Disconnect Switch (NFS)	(H)	Space Heat Detector - Ceiling Mounted
ď	Fused Disconnect Switch (FDS)	PC	Photocell
	Variable Frequency Drive (VFD)	C	Timeclock
T	Transformer	E	Fire Alarm Manual Pull Station
<i>\times</i>	Motor	Œ	Fire Alarm Horn Only  (Number Denotes Strobe Intensity)
	Main Panel Or Distribution Panel	▶F 15cd	Fire Alarm Horn / Strobe (Number Denotes Strobe Intensity Measured In Candelas)
	Surface Mounted Branch Circuit Panel	S 15cd	Fire Alarm Strobe Only (Number Denotes Strobe Intensity Measured In Candelas)
_	Flush Mounted Branch Circuit Panel	Œ	Horn
[FACP]	Fire Alarm Control Panel	모	Emergency Stop Push Button
FS	Fire Sprinkler System Flow Switch	WP	Denotes Weatherproof
TS	Fire Sprinkler System Tamper Switch	₩	Television Outlet

## SYMBOL NOTES:

- 1. ALL DEVICES, SWITCHES, OUTLETS, ETC. SHALL BE MOUNTED AT THE HEIGHTS ESTABLISHED IN THE AMERICANS WITH DISABILITIES ACT (ADA) AND ANY LOCAL CODES. IF ADA AND OTHER CODES HAVE CONFLICTING DATA, CONTRACTOR WILL DEFER TO THE MORE STRINGENT OF THE CODES.
- 2. ALL TELEPHONE, DATA, TELEVISION, SECURITY, POS AND JUNCTION BOXES SHALL BE INSTALLED WITH A 3/4" CONDUIT WITH PULL STRING TO ABOVE ACCESSIBLE CEILING, UNLESS INDICATED OR NOTED OTHERWISE.



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ANGINEERING
SSOCIATES
Engineer
JIM D. DALLAS, P.E.
P.E.# E-1999136332
Dote April 2019

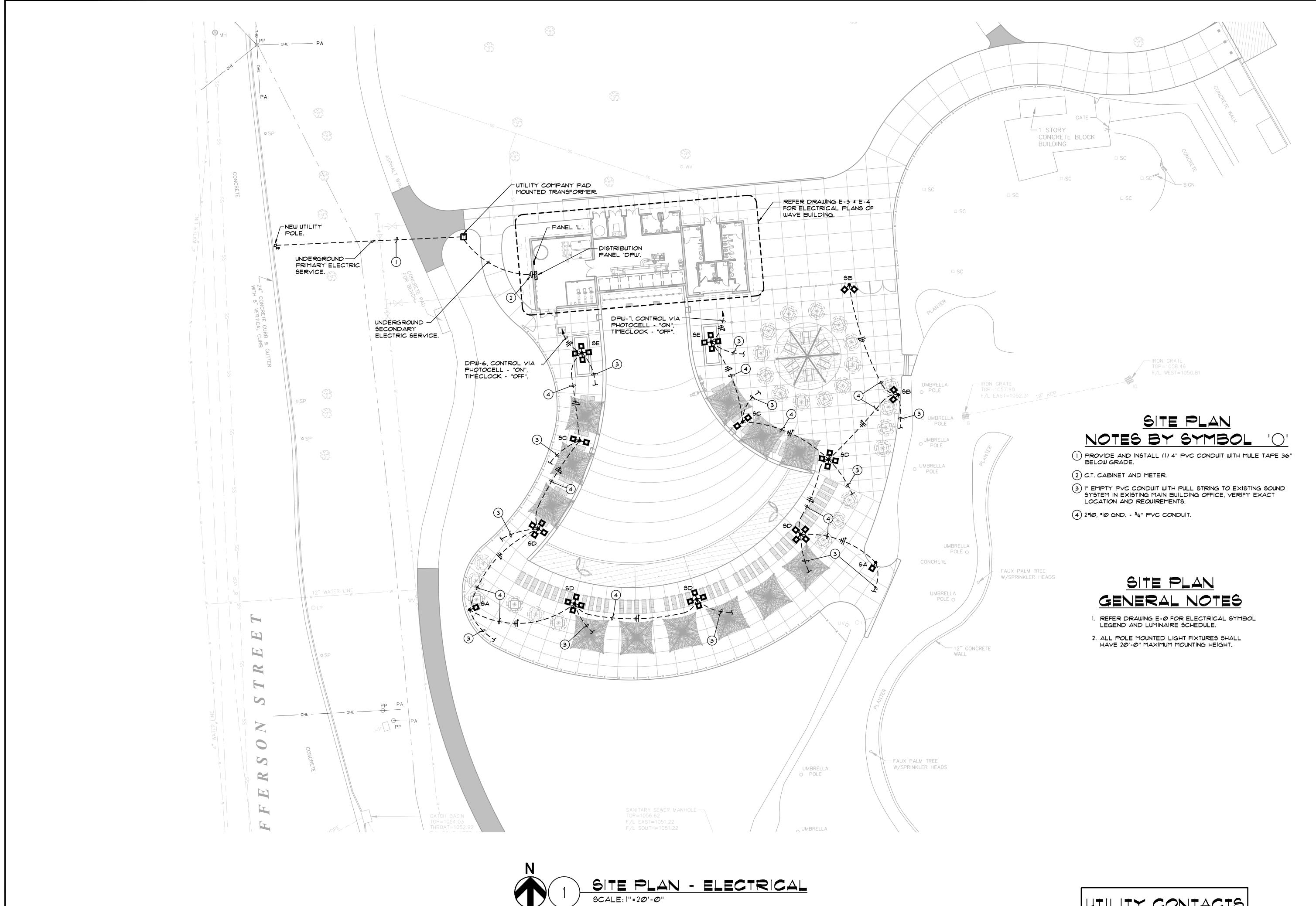
SUMMIT WAVES
WAVE POOL ADDITION
LEE'S SUMMIT, MO

ECTRICAL SYMBOL LEGEND & LUMINAIRE SCHEDULE

cale: AS SHOWN
lesigned by: JW
rawn by: CAD
thecked by: JW
ate: 04/15/2019

SHEET

E-0



UTILITY CONTACTS

KCP4L Mr. Phillip Ingram (816) 347-4339 ANGINEERING SSOCIATES

Ph: 940 . 427 . 8487 Fx: 940 . 427 . 8499 P.O. Box 167 Alvord, TX 76225

SHEET E-1

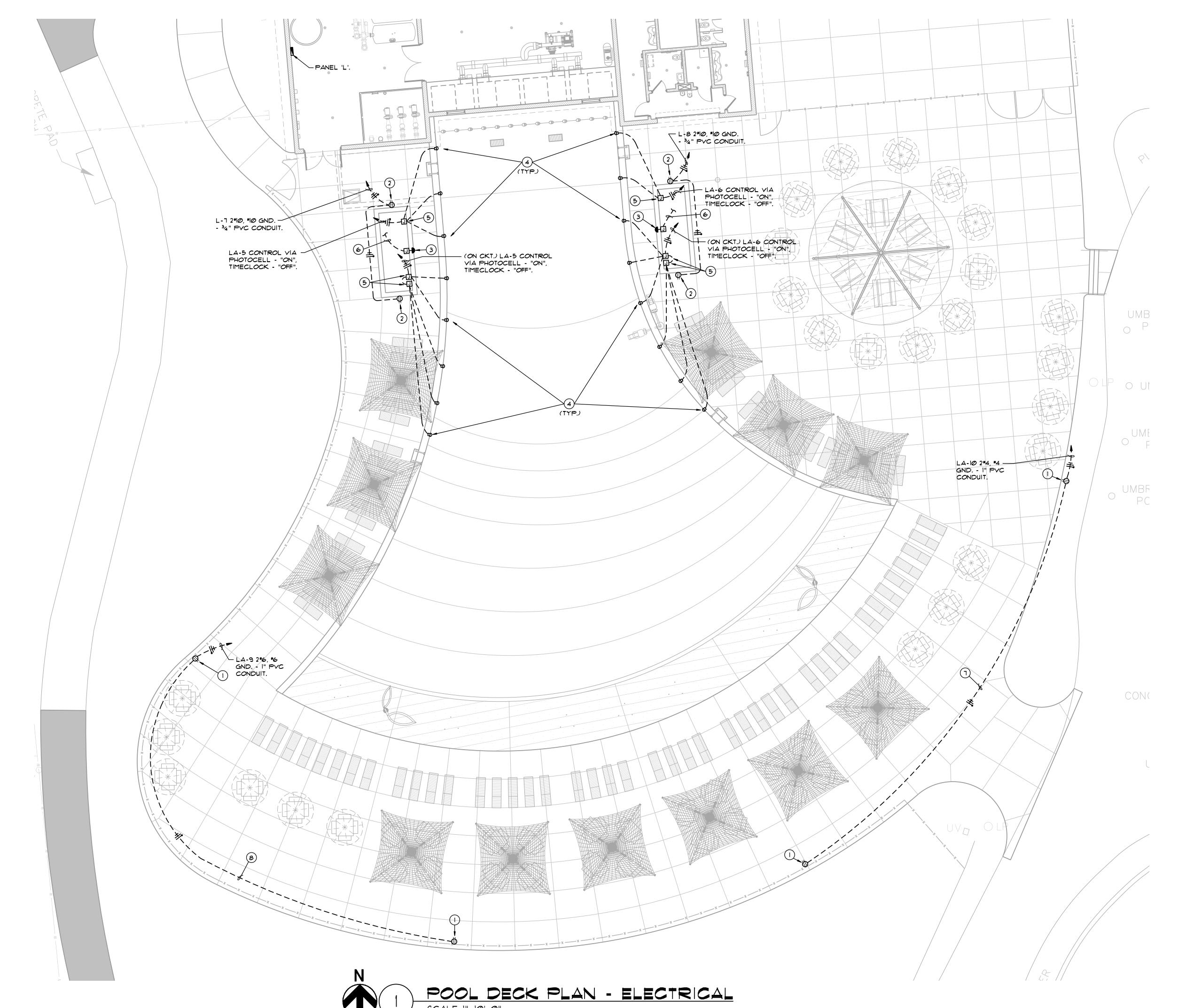
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ngineer\_\_\_\_JIM D. DALLAS, P.E. P.E.#\_E-1999136332\_ Date \_ April 2019



## POOL DECK PLAN NOTES BY SYMBOL '(

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gineer JIM D. DALLAS, P.E.

P.E.#\_E-1999136332\_ Date \_ April 2019

WAVES L ADDITION MMIT, MO

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100 00

- 1 PROVIDE AND INSTALL W.R. LISTED GFCI, 20A., 125V. DUPLEX RECEPTACLE MOUNTED IN GARD-N-POST PEDESTAL. REFER 2/E-6 FOR MOUNTING DETAIL.
- 2 PROVIDE AND INSTALL W.R. LISTED GFCI, 20A., 125V. DUPLEX RECEPTACLE WITH METAL 'IN USE' COVER EQUAL TO T4B \*CKMUV SERIES.
- 3 PROVIDE AND INSTALL WEATHERPROOF EMERGENCY E-STOP PUSHBUTTON FURNISHED BY EQUIPMENT SUPPLIER, MOUNT TO 4" SQUARE POST, 'E-STOP' TO BE MOUNTED @ 48"
- 4 UNDERWATER LED POOL LIGHT FURNISHED BY POOL CONTRACTOR. REFER 'SP' DRAWINGS FOR ADDITIONAL INFORMATION AND INSTALLATION DETAILS.
- (5) WEATHERPROOF POOL LIGHT JUNCTION BOX SHALL BE EQUAL TO INTERMATIC \*PJB SERIES, COORDINATE EXACT LOCATIONS WITH POOL CONTRACTOR. REFER 3/E-6 MOUNTING DETAIL.
- 6 2\*12, \*12 GND.  $\frac{3}{4}$ " PVC CONDUIT TO WAVE FAN CONTROLLER.
- 1 2\*4, \*4 GND. 1" PVC CONDUIT.
- 3 2 16, 16 GND. 1" PNC CONDUIT.

# POOL DECK PLAN GENERAL NOTES

1. UNDERWATER POOL LIGHT, CORDS AND ASSOCIATED POOL LIGHT NICHES ARE FURNISHED BY THE POOL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE LOCATIONS AND CORD LENGTHS WITH POOL CONTRACTOR, REFER TO "SP" SERIES DRAWINGS FOR EXACT QUANTITIES, LOCATIONS AND MOUNTING DETAIL.

2. REFER DRAWING E-Ø FOR ELECTRICAL SYMBOL LEGEND.

## POOL AREA BONDING NOTE

1. PER N.E.C. ART. 680-26 AND ART. 250, BOND ALL METALLIC PARTS OF THE POOL INCLUDING ALL LADDERS, HAND RAILS, POOL REINFORCING STEEL, DECK REINFORCING STEEL, UNDERWATER LIGHT NICHES, DRAINS, GRATES, SKIMMERS, PUMPS, MOTORS, METAL JUNCTION BOXES, PLATFORM AND SLIDE SUPPORT STRUCTURES, METAL PIPING, ETC. REFER DRAWING 4/E-6 FOR TYPICAL POOL BONDING DETAIL.

NGINEERING SSOCIATES 940, 427, 8487 Fx: 940, 427, 8499 SHEET

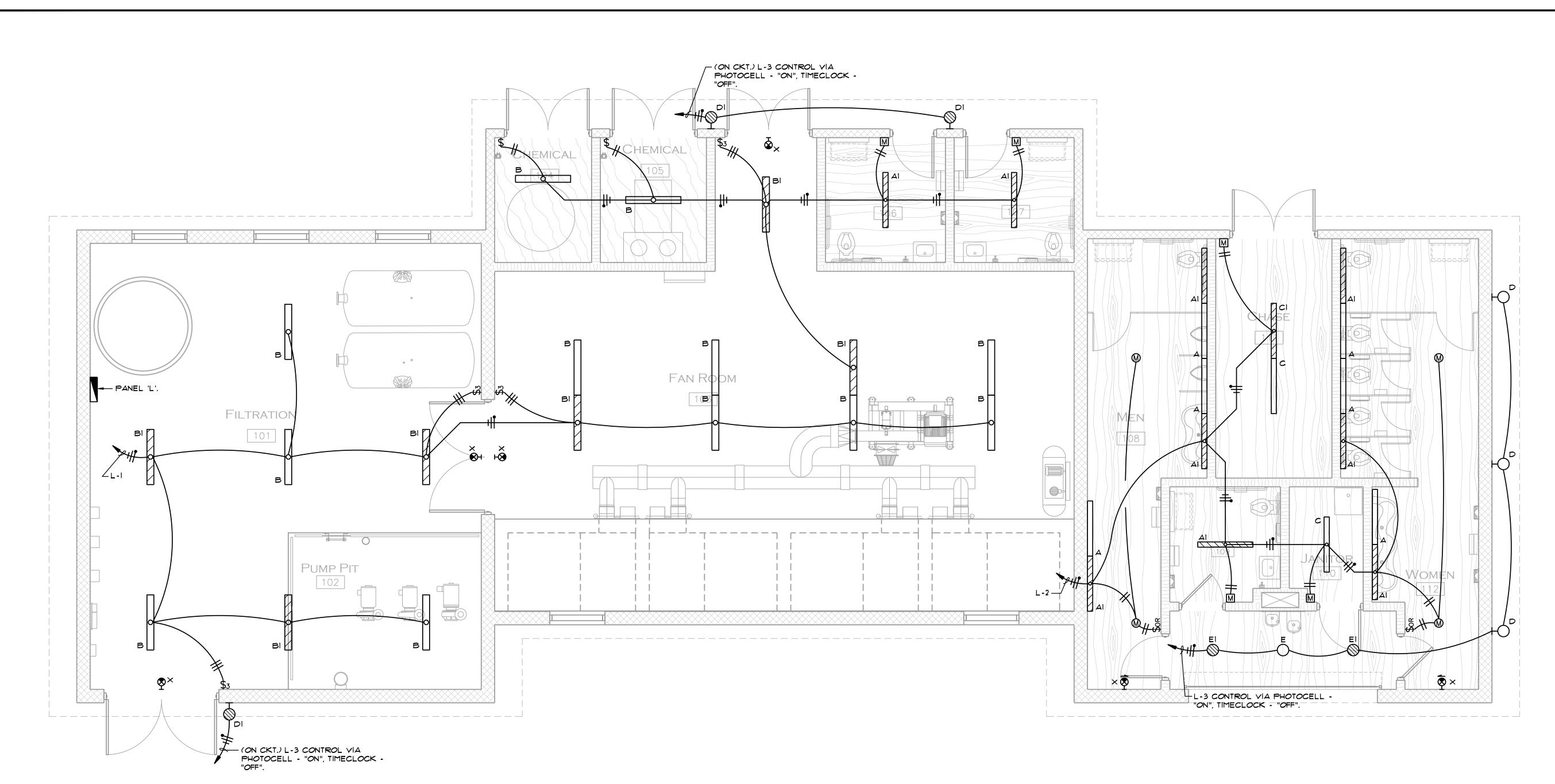
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WAVE

SHEET

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Ph: 940 . 427 . 8487 Fx: 940 . 427 . 8499 P.O. Box 167 Alvord, TX 76225



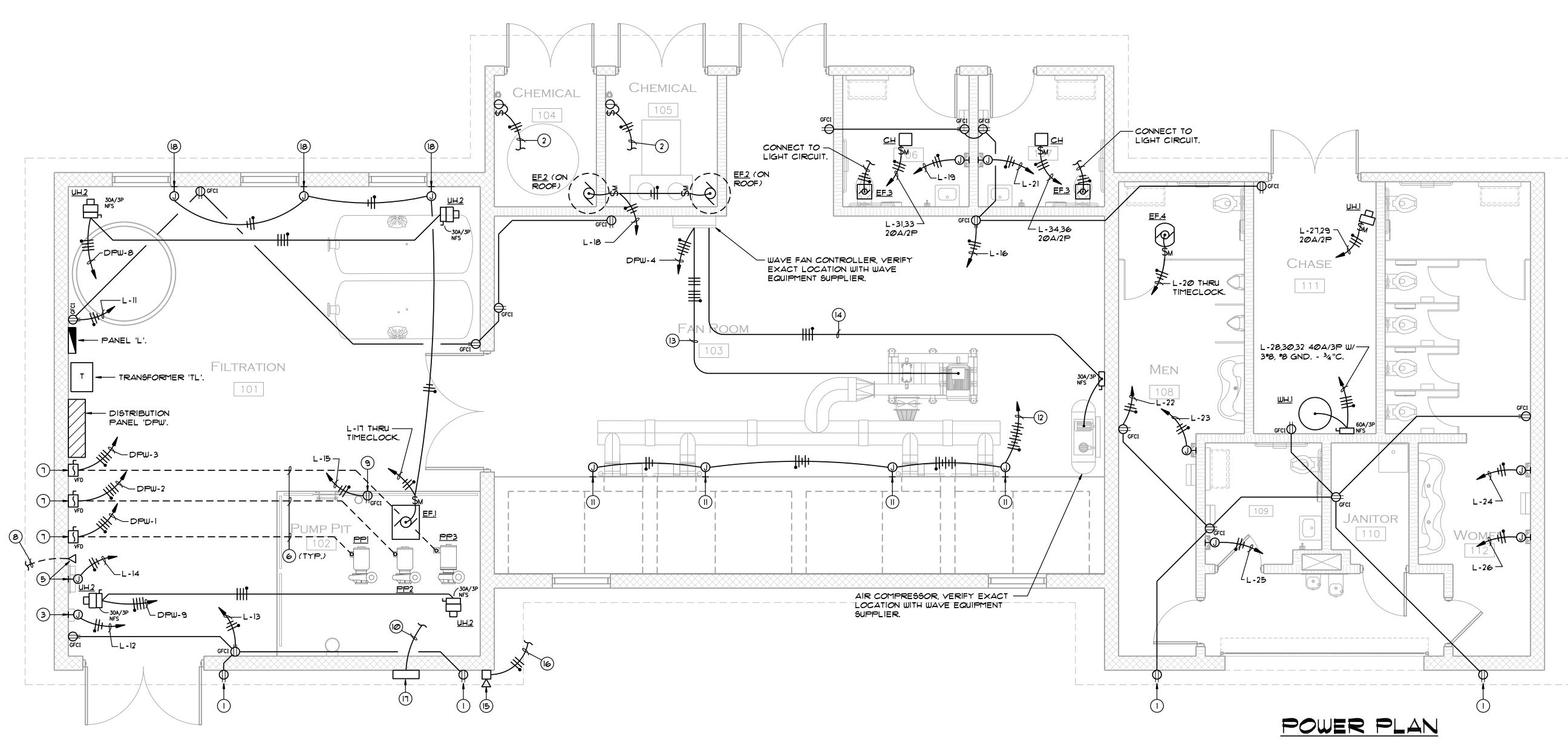


## LIGHTING PLAN GENERAL NOTES

- . CONNECT ALL TYPE 'X' EMERGENCY EXIT SIGNS TO CIRCUIT L-4, CONNECT WITH 2#12, #12 GND. 3/4"C.
- CONNECT ALL EMERGENCY BATTERY PACKS
  TO "LINE SIDE" OF FIXTURE CONTROL DEVICE
  FOR CONSTANT "HOT" TO BATTERY PACKS.
- REFER DRAWING E-Ø FOR ELECTRICAL SYMBOL LEGEND AND LUMINAIRE SCHEDULE.

 $\Box$ 





## POWER PLAN GENERAL NOTES

- I. REFER DISTRIBUTION PANEL 'DPW' SCHEDULE ON DRAWING E-5 FOR BREAKER, FEEDER AND CONDUIT SIZES NOT SHOWN.
- 2. PROVIDE NON-METALLIC DEVICE PLATES FOR CHEMICAL ROOMS \*301 4 \*302.
- 3. ALL RECEPTACLES IN PUMP PIT AND FILTRATION AREA ARE TO HAVE METAL 'IN USE' COVER EQUAL TO T&B CKMUV SERIES.
- 4. REFER DRAWING E-Ø FOR ELECTRICAL SYMBOL LEGEND.
- 5. REFER DRAWING E-5 FOR PANEL SCHEDULES.



# NOTES BY SYMBOL 'O'

- PROVIDE AND INSTALL W.R. LISTED GFCI, 20A., 125V. DUPLEX RECEPTACLE WITH METAL 'IN USE' COVER EQUAL TO T &B \*CKMUV SERIES.
- 2 2\*12, \*12 GND. 34"C. TO CHEMICAL CONTROLLER.
- 3 WATER LEVEL CONTROLLER.
- 4 MOUNT WEATHERPROOF J-BOXES AND WEATHERPROOF DATA OUTLETS AT 18" ABOVE CHEMICAL CONTROLLER. INTERLOCK CHEMICAL CONTROLLER WITH RECIRCULATION PUMP TO SUSPEND CHEMICAL FEEDING IN THE EVENT THE RECIRCULATION PUMP IS SHUT DOWN.
- 5 MOUNT J-BOXES AT 18" ABOVE CHEMICAL PUMPS, 2\*12, \*12 GND. 34"C. TO CHEMICAL CONTROLLER.
- 6 ROUTE CONDUIT UNDERFLOOR FROM VFD TO PUMP. SURFACE MOUNTED CONDUIT ON PUMP PIT FLOOR NOT ALLOWED. REFER 5/E-6 FOR PUMP CONNECTION ROUTING DETAIL.
- 1 VARIABLE FREQUENCY DRIVE (VFD). VFD'S PROVIDED BY POOL CONTRACTOR AND INSTALLED BY ELECTRICAL CONTRACTOR. REFER TO 'SP' SERIES DRAWINGS FOR VFD SPECIFICATIONS.
- 8 34" EMPTY PVC CONDUIT WITH PULL STRING TO EXISTING DATA/TELCOM IN EXISTING MAIN OFFICE, VERIFY EXACT LOCATION, ROUTING AND REQUIREMENTS.
- 9 PROVIDE AND INSTALL 20A., 125V., W.R. LISTED, DUPLEX RECEPTACLE WITH METAL 'IN USE' COVER EQUAL TO T&B \*CKMUV SERIES MOUNTED AT TOP OF PUMP PIT WALL FOR SUMP PUMP.
- 14 16GA. CONDUCTORS IN 34" CONDUIT TO WAVE FAN CONTROLLER.
- II) WAVE FAN SOLENOID VALVES.
- (12) 8 \*14, \*14 GND. 34 "C. TO WAVE FAN CONTROLLER.
- (13) 6\*1, \*1 GND. 2"C.
- (14) 3\*12, \*12 GND. 3/4 "C.
- (15) WAVE SYSTEM AUDIO / VISUAL ALARM, VERIFY MOUNTING HEIGHT.
- (6) 2\*16, \*16 GND. 34 "C. TO WAVE FAN CONTROLLER.
- 11 POOL SIDE REMOTE PANEL BY WAVE EQUIPMENT SUPPLIER, VERIFY EXACT
- (B) JUNCTION BOX FOR MOTORIZED DAMPER, INTERLOCK WITH EXHAUST FAN EF.I.

CIRCUIT	SERVES	BRANCH	TRIP	POLE	FEEDER	CONNECTED LOAD
DPW-I	Recirculation Pump 'PPI' (25HP)	7 <i>0A</i> .	70A.	3	3*8, *8 Gnd 34 "C.	28.3 KW
DPW-2	Recirculation Pump 'PP2' (25HP)	7 <i>0A</i> .	70A.	3	3*8, *8 Gnd 34 "C.	28.3 KW
DPW-3	Feature Pump 'PP3' (20HP)	5ØA.	50A.	3	3*8, *8 Gnd <sup>3</sup> 4"C.	22.4 KW
DPW-4	Wave Fan Controller	25 <b>0</b> A.	25 <i>0</i> A.	3	4*250 KCMIL, *4 Gnd 3"C.	74.8 KW
DPW-5	Transformer 'TL'	125 <i>A</i> .	125A.	3	3*1, *6 Gnd 11/2 "C.	75.0 KW
DPW-6	Wave Pool "West" Lights	20A.	20A.	1	2*10, *10 Gnd 34" PVC Conduit	3.5 KW
DPW-I	Wave Pool "East" Lights	20A.	20A.	1	2*10, *10 Gnd 34" PVC Conduit	3.5 KW
DPW-8	(2) Unit Heaters <u>UH.2</u>	20A.	20A.	3	3#12, #12 Gnd 3/4 "C.	10.0 KW
DPW-9	(2) Unit Heaters <u>UH.2</u>	20A.	20A.	3	3#12, #12 Gnd 3/4 "C.	10.0 KW
DPW-10	5pace			-		
DPW-11	5pace			-		
DPW-12	5pace			-		
PROJECT	: Summit Waves - Wave Pool Additi	on .			TOTAL CONNECTED LOAD (KW)	255.8 KW
	Lee's Summit, Missouri				TOTAL CONNECTED LOAD (AMPS)	308 Amps

						ZNEL	<u>`</u>					
					PAD			AD				
NOTES	DESCRIPTION	P	- <u>АМ</u>	LIGHTING	POWER	PH / CKT #	POWER	LIGHTING	ρ.	AMP	DESCRIPTION	NOTES
	Filtration / Fan Rm. Lights	1	- 20	856		1 A 2		725	1 -	20	Restroom Lights	
	Exterior Building Lights	1	- 20	240		3 B 4		20	1 -	20	Exit Signs	
1	West Pool Lights	1	- 20	560		5 C 6		560	1 -	20	East Pool Lights	1
	West Pool Deck Recepts.	1	- 20		1200	7 A 8	1200		1 -	20	East Pool Deck Recepts.	
	West Pool Deck Recepts.	1	- 20		1200	9 B 10	1200		1 -	20	East Pool Deck Recepts.	
	Filtration Receptacles	1	- 20		900	11 C 12	1200		1 -	20	Water Level Controller	
	Filtration Receptacles	1	- 20		900	13 A 14	1200		1 -	20	Chemical Controller	
	Sump Pump	1	- 20		720	15 B 16	900		1 -	20	Receptacles	
	Exhaust Fan <u>EF.I</u>	1	- 20	ı	1176	17 C 18	400		1 -	20	(2) Exhaust Fans <u>EF.2</u>	
	Hand Dryer	1	- 20		1600	19 A 20	696		1 -	20	Exhaust Fan <u>EF.4</u>	
	Hand Dryer	1	- 20		1600	21 B 22	1080		1 -	20	Receptacles	
	Hand Dryer	1	- 20		1600	23 C 24	1600		1 -	20	Hand Dryer	
	Hand Dryer	1	- 20		1600	25 A 26	1600		1 -	20	Hand Dryer	
	Unit Heater <u>UH.l</u>	2			1100	27 B 28	3000		3		Water Heater <u>WH</u>	
	•		20		1100	29 C 30	3000					
	Ceiling Heater <u>CH</u>	2		1	1000	31 A 32	3000			40		
	· •		20	1	1000	33 B 34	1000		2		Ceiling Heater <u>CH</u>	
	Space Only	1	-			35 C 36	1000			20	<b>1</b>	
	Space Only	1	•			37 A 38			1 -	-	Space Only	
	Space Only	1	•			39 B 40			1 -	-	Space Only	
	Space Only	1	•			41 C 42			1 -	-	Space Only	
					CONN.	N.E.C.	DIV.					
OAD S	UMMARY				KW	DIV.	KW					
IGHTING					3.0	× 1.25	3.7	POLES			42	
OWER					38.6	× 1.0	38.6				225 AMP	
THER					0.0	× 1.0	0.0			22	5 AMP M.C.B.	
					J	7 1.5	<u> </u>	VOLTS			/208V., 3+, 4W	
								A.I.C.			10K	
								MOUNTING			Surface	
								ENCLOSU			NEMA I	
	TOTALS				41.5		42.3				NET IO I	
PROJE		عااا ـ ــــــــــــــــــــــــــــــــ	Ve P	ol Addition	NOTES:	1 1	76.2	PANEL AM			רוו	
17000	Lee's Summit,					with 'GFCI' typ	e circuit				0.1	
PANFI	LOCATION: Wave Buildi				breaker.			LOADS PE	D DIIA	GE.		
~! NE L	Filtration Ro		<b>୬</b> ।					PHASE A (		32:	 15.4	
DATE:	April 2		<u> </u>		1							
<b>→</b>   □:	April 2	ション						PHASE B (	$\sim$ w/		13.5	

# RISER DIAGRAM GENERAL NOTES

 THE ROUTING OF CONDUCTORS AND LOCATION OF EQUIPMENT SHOWN ON THIS DRAWING IS FOR DIAGRAMMATIC PURPOSES ONLY.

 REFER DISTRIBUTION PANEL 'DPW' SCHEDULE ON THIS DRAWING FOR BREAKER, FEEDER AND CONDUIT SIZES NOT SHOWN.

FAULT CUR	RENT CALCULATIONS
PROJECT: Summit Waves	- Wave Pool Addition
FAULT NO. : XI - (Distribution	Panel 'DPW')
SYSTEM Icea:	
SYSTEM VOLTAGE: 277/480V	'., 3 Ph.
WIRE: #500 KCMIL CU	CONDUCTORS PER PHASE: 1
C-VALUE: 26,706	DISTANCE: 50 L.F.
CONDUIT: PVC	
MOTOR LOAD CONTRIBUTION	N: 740A. (400%)
	CALCULATION
f = FACTOR	L = LENGTH
C = WIRE VALUE	V = VOLTS
M = MULTIPLIER	isca = SHORT CIRCUIT AMPS AVAILABLE
f = <u>1.732 × 50 × 23.530</u> 26,706 × 480	
f = 0.1590	
M = <u> </u>	
M = 0.8628  sca = 23,530 × 0.8628 = 20,3  MOTOR CONTRIBUTION = 740  TOTAL  sca = XI = 21,0424.	

AS SHOWN	ned by: Jw	by: CAD	red by: JW	04/15/2019	t No. 064538700
Scale:	Designed by:	Drawn by:	Checked by:	Date:	Project No.

Ph: 940. 427. 8487 Fx: 940. 427. 8499
P.O. Box 167 Alvord, TX 76225

13455 Noel Road, Suite 700, Dall,
PHONE: 214-420-5600 FAX:
WWW.KIMLEY-HORN
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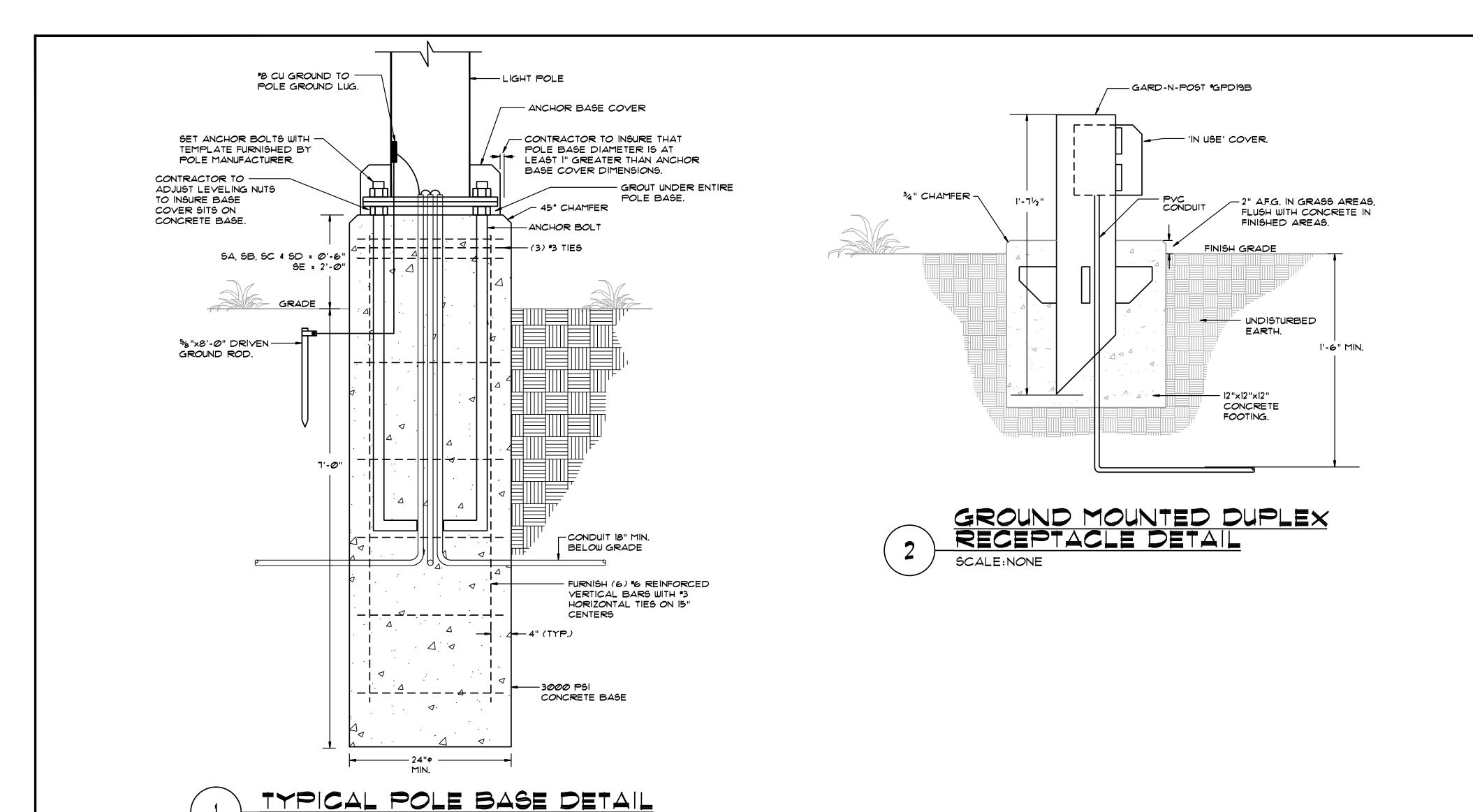
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ANGINEERING
SSOCIATES

Engineer
JIM D. DALLAS, P.E.
P.E.# E-1999136332 Date April 2019

SUMMIT WAVES
VAVE POOL ADDITION
LEE'S SUMMIT, MO

TRICAL RISER DIAGRAM PANEL SCHEDULES

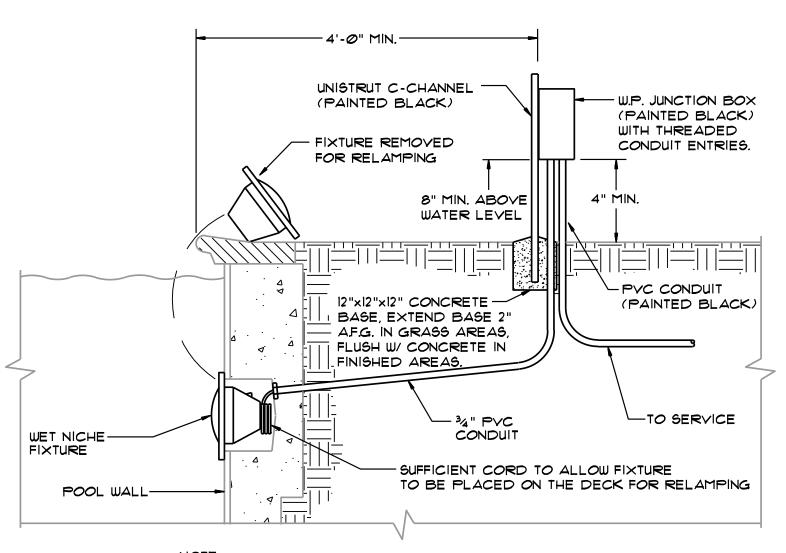


RIDE TOWER COLUMN. -DIVING STRUCTURE /-- LADDERS AND HANDRAILS START PLATFORMS UNDERWATER LIGHT -ANCHOR / FLANGE -CONNECT POOL REINFORCING STEEL TO DECK -FORMING SHELL BOLTS. REINFORCING STEEL W/ \*8 SOLID COPPER CONDUCTOR ON 4 SIDES OF POOL. \*8 SOLID COPPER BONDING -CONDUCTOR (TYPICAL) SAFETY ROPE ANCHOR. WATER OUTLET PIPES SKIMMERS CONTINUOUS \*8 SOLID -+ CONNECTION OF BONDING COPPER BONDING CONDUCTOR TO POOL CONDUCTOR AROUND PUMPING EQUIPMENT POOL. BONDING CONDUCTOR (TYPICAL). POOL DRAINS - WATER INLET PIPES POOL REINFORCING STEEL USED AS A TO ENCLOSURES AND COMMON BONDING DECK REINFORCING -JUNCTION BOXES WITHIN 5'-0" GRID. STEEL USED AS A OF INSIDE POOL WALL. COMMON BONDING GRID. (TYP.) - \*8 SOLID COPPER BONDING -CONDUCTOR (TYPICAL) TO SLIDE AND PLAY-> STRUCTURES. TRENCH DRAINS AND DECK -----DRAINS.

SCALE: NONE

NOTE:
CONTRACTOR SHALL SUBMIT LETTER
AS PART OF CLOSE OUT DOCUMENTS
TO OWNER CERTIFYING BONDING IS
INSTALLED PER NEC ART. 680-26
AND ART. 250.

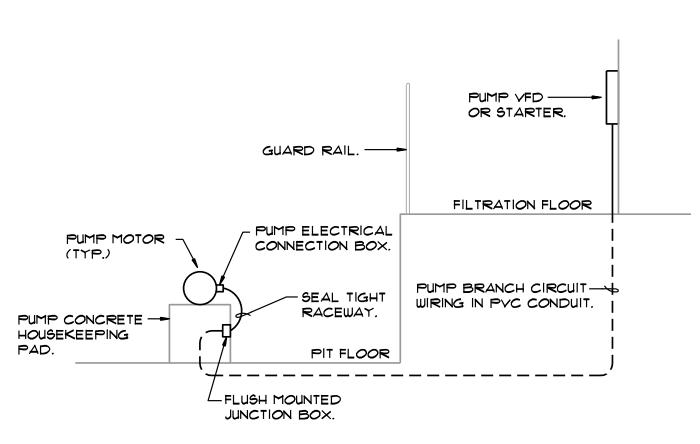
4 TYPICAL POOL BONDING DETAIL
SCALE: NONE



I. UNDERWATER POOL LIGHT ARE FURNISHED BY THE POOL CONTRACTOR AND INSTALLED BY THE ELECTRICAL CONTRACTOR. ASSOCIATED POOL LIGHT JUNCTION BOXES FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE CORD LENGTHS WITH POOL CONTRACTOR, REFER TO "SP" DRAWINGS FOR EXACT QUANTITIES AND LOCATIONS.

2. ALL DISTANCES SHOWN ARE BASED ON N.E.C. ART. 680.





5 TYPICAL PUMP CONNECTION ROUTING DETAIL
SCALE: NONE

Ph: 940. 427. 8487 Fx: 940. 427. 8499
P.O. Box 167 Alvord, TX 76225

SUMMIT WAVES
WAVE POOL ADDITION
LEE'S SUMMIT, MO

95% REVIEW SET

FOR REVIEW ONLY for construction or permit pur

0

ECTRICAL DETAILS

Designed by: JW
Drawn by: CAD
Checked by: JW
Date: 04/15/2019
Project No. 064538700

SHEET
E-6

E-6

SCALE: 1"=20'-0"

Luminaire S	Schedule								
Symbol	Label	Qty	Arrangement	Manufacturer & Part Number	LLF	Lum. Lumens	Lum. Watts	Total Watts	Filename
	SA	2	SINGLE	BEACON VP-L-80L-180-4K7-4 [SINGLE]	0.900	22167	181.3	362.6	VP-L-80L-180-4K7-4 (1).ies
8	SB	2	2 @ 90 DEGREES	BEACON VP-L-80L-180-4K7-4 [2@90]	0.900	22167	181.3	725.2	VP-L-80L-180-4K7-4 (1).ies
<u>+</u>	SC	2	BACK-BACK	BEACON VP-L-80L-180-4K7-4 [2@180]	0.900	22167	181.3	725.2	VP-L-80L-180-4K7-4 (1).ies
	SD	7	4 @ 90 DEGREES	BEACON VP-L-80L-180-4K7-4 [4@90]	0.900	22167	181.3	5076.4	VP-L-80L-180-4K7-4 (1).ies

Calculation Summary										
Label	CalcType	Units	PtSpcLr	PtSpcTb	Avg	Max	Min	Avg/Min	Max/Min	Description
CalcPts_1	Illuminance	Fc	10	10	18.67	32	9	2.07	3.56	Readings taken at 0'-0" AFF
Wave Pool	Illuminance	Fc			17.74	26	11	1.61	2.36	

SUMMIT WAVES
WAVE POOL ADDITION
LEE'S SUMMIT, MO

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ANGINEERING
SSOCIATES
Engineer JIM D. DALLAS, P.E.
P.E.# E-1999136332 Date April 2019

**PHOTOMETRICS** WAVE POOL

SHEET

E-7

A NGINEERING SSOCIATES Ph: 940 . 427 . 8487 Fx: 940 . 427 . 8499 P.O. Box 167 Alvord, TX 76225

ELEVATIONS RELATIVE TO FIXTURE MOUNTING REQUIREMENTS. 4. UNLESS OTHERWISE SHOWN ON DWGS., THIS CONTR. SHALL BE RESPONSIBLE FOR SIZING DOMESTIC WATER PIPING IN CHASES, ETC. TO INDIVIDUAL FIXTURES. WHEN PIPING SERVES FLUSH VALVES, COLD WATER PIPE SHALL EXTEND FULL SIZE TO END OF PIPE CHASE RUN AND A SHOCK ABSORBER INSTALLED. ALL PIPE SHALL BE SIZED ACCORDING TO THE FIXTURE UNIT CRITERIA ESTABLISHED IN THE UNIFORM PLUMBING CODE.

3. REFER TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR

AND 15440 FOR PLUMBING FIXTURES.

5. MAINTAIN MINIMUM 10'-0" BETWEEN OUTDOOR AIR INTAKES AND EXHAUST OUTLETS AND PLUMBING VENTS.

	WSFU CA	LCUL	ΑTI	ON	S	
FIXTURES	DESCRIPTION	QUANTITY	W	SFU l	_OADS	
PLAN MARK	BESORII HOIV	Q 07 (( <b>V</b> ) )	COLD	HOT	TOTAL	TOTALS
WC.1&2	FLUSH VALVE WC	9	10.0	_	10.0	90.0
UR.1&2	FLUSH VALVE UR	2	5.0	_	5.0	10.0
L.1,2,3	LAVATORY	8	0.5	0.5	0.7	5.6
MB	MOP BASIN	1	1.0	1.0	1.4	1.4
DF	DRINKING FOUNTAIN	2	0.25	_	0.25	0.5
TOTAL WSFU						107.5
	IONS PER 2012 IPC TABL VALVES ASSIGNED TO FIX					

2. THIS LINE WILL BE AT LEAST 12" BELOW FINISHED FLOOR. REFER TO

3. INSTALL HOSE BIBB AT 12" ABOVE PUMP FLOOR.

4. PROVIDE VALVE IN RISER 24" ABOVE FLOOR PENETRATION.

5. REFER TO DETAIL THIS SHEET FOR FILL PIPING.

7. T&P DRAIN ROUTED TO FLOOR DRAIN. TERMINATE IN ACCORDANCE

8. THIS LINE WILL BE AT LEAST 12" BELOW FINISHED FLOOR. REFER TO ARCH. DOCUMENTS FOR ELEVATION. REFER TO POOL DRAWINGS FOR

9. FLOOR MOUNTED WATER HEATER RE: P-2 FOR SCHEDULE AND WATER

1. THIS LINE WILL BE AT LEAST 12" BELOW FILTRATION FINISHED FLOOR. REFER TO ARCH. DOCUMENTS FOR ELEVATION. REFER TO POOL

12. SUMP PUMP EQUIVALENT TO LITTLE GIANT #ES-60, 115 V, 10.3

13. ALL UNDER FLOOR SUPPLY PIPING TO BE BURIED AT A DEPTH BELOV THE FROST LINE.

14. PIPING UP FROM BELOW TO FIXTURE.

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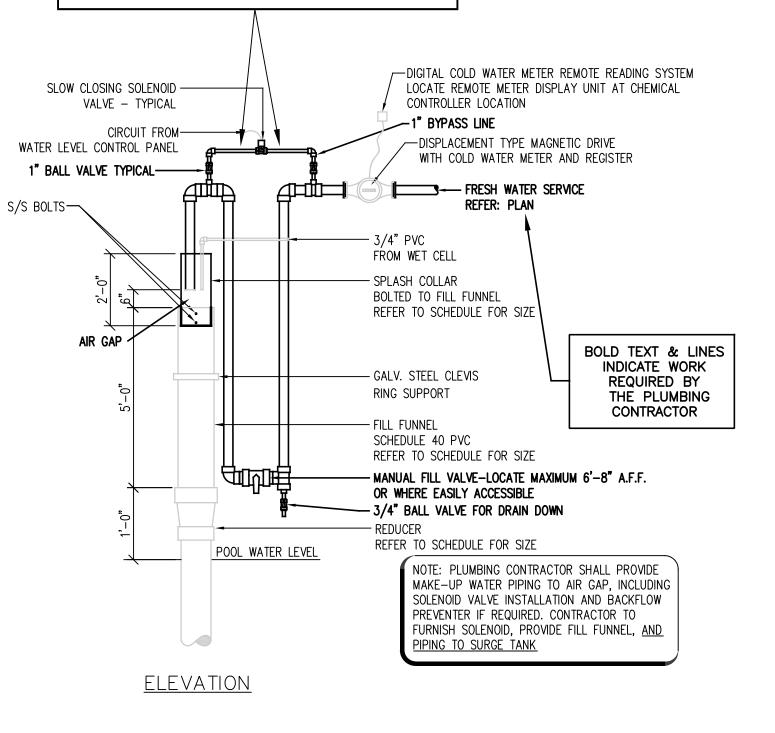
JIM D. DALLAS P.E <u>JIM D. DALLAS</u> I.No. E-1999136332 <sub>Date</sub> APRIL 2019

- vAVES - OOL ADDITION S SUMMIT, MO

**PLUMBING** A FLOOR PL

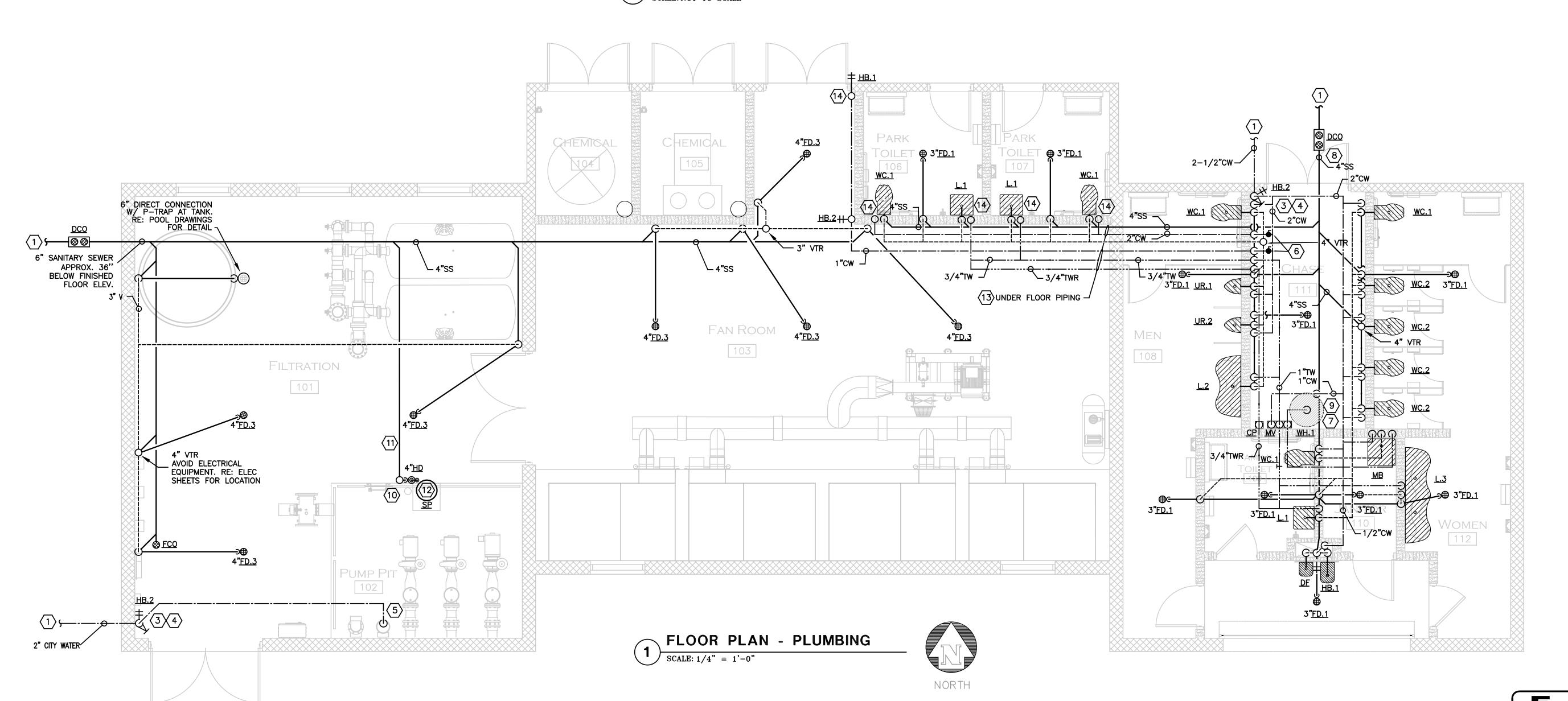
Ph: 325 . 365 . 3725 Fx: 325 . 365 . 5278 225 CR 288 Ballinger, TX 76821

SHEET P-1



FURNISHED BY OTHERS, INSTALLED BY PLUMBING CONTRACTOR





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6. BRANCH LINE ISOLATION VALVES.

WITH LOCAL CODE.

TANK DRAIN PIPING.

HEATER INSTALLATION DETAIL.

). INSTALL PIPING TIGHT TO PUMP PIT WALL, BELOW FILTRATION FINISHED FLOOR ELEVATION.

DRAWINGS FOR TANK DRAIN PIPING.

AMPS, 98 GPM, 15' HD. 2" DISCHARGE INTO 4" HUB DRAIN.

DISTRIBUTION UNIT

- UNION CONNECTION

- 1/2" TRAP PRIMER LÍNES TO DRAINS

TO WALL

(4-WAY MAX.) MOUNT

LENGTH TO SUIT -

SCALE: NOT TO SCALE

### BRADFORD WHITE COMMERCIAL 50A - 9 - 31,2,3

MODEL NO.

NOTES

NAME

MANUFACTURER

WATER HEATER SCHEDULE

MOUNTING

**FLOOR** 

RECOVERY

GPM @ 90°F RISE

GAL

48

- 1. ALL PIPING SHOWN IS ABOVE CEILING OR TIGHT TO BOTTOM OF SUPPORT STRUCTURE WHERE STRUCTURE IS EXPOSED, UNLESS OTHERWISE NOTED.
- 2. SECURE AND VERIFY ALL MEASUREMENTS AND CONDITIONS AT JOB BEFORE PROCEEDING WITH FABRICATION OF WORK.

PLUMBING GENERAL NOTES

- 3. PROVIDE ALL ADDITIONAL STEEL, HANGER MATERIALS, RODS & CLAMPS AS REQUIRED FOR COORDINATION W/ WORK OF OTHER TRADES.
- 4. THE CONTRACTOR IS RESPONSIBLE FOR FIRESTOPPING AT ALL PENETRATIONS OF FIRE AND SMOKE RATED STRUCTURES, FLOORS AND PARTITIONS. REFER TO ARCHITECTURAL FLOOR PLANS FOR LOCATIONS OF ALL RATED STRUCTURES
- 5. PIPING LAYOUT IS ONLY SCHEMATIC, EXACT LOCATION OF PIPES TO BE COORDINATED WITH BUILDING STRUCTURE AND WORK OF OTHER CONTRACTORS.
- 6. CONCEAL PIPING WHENEVER POSSIBLE UNLESS OTHERWISE NOTED.
- 7. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PLUMBING IN AREA OF RENOVATION PRIOR TO BIDDING AND CONSTRUCTION.
- 8. RUN ALL PIPING LEVEL EXCEPT FOR THE SLOPES REQUIRED FOR DRAINAGE AND VENTING..
- 9. COORDINATE EXACT LOCATION OF FLOOR AND HUB DRAINS FOR KITCHEN EQUIPMENT WITH KITCHEN CONTRACTOR AND HUB DRAIN FOR CONDENSATE WITH ARCHITECT.
- 10. SUPPORT CAST IRON SAN. AND STORM PIPING NOT IN EARTH, ON 5'-0" CENTERS, ALL STEEL PIPING ON 10'-0" CENTERS, COPPER PIPING ON 8'-0" CENTERS.
- 11. WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LOCAL PLUMBING CODE.
- 12. PROVIDE CLEANOUTS AT BASE OF ALL STORM DOWNSPOUTS AND SAN STACKS.
- 13. PROVIDE CLEANOUTS AT NOT MORE THAN 50 FT. APART IN HORIZONTAL STORM & SAN. DRAINAGE LINES 4" SIZE OR LESS, AND NOT MORE THAN 100 FT. APART FOR LARGER PIPES.
- 14. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION GREATER THAN 45° IN THE BUILDING DRAIN (SANITARY PIPING BELOW FLOOR SLAB).
- 15. INSTALL TEST CLEANOUTS AT CONNECTIONS TO EXISTING SANITARY SYSTEMS.
- 16. ALL FIXTURES TO BE EQUIPPED. WITH STOP VALVES IN ACCESSIBLE LOCATION.
- 17. UNLESS OTHERWISE SHOWN ON DWGS., THIS CONTR. SHALL BE RESPONSIBLE FOR SIZING DOMESTIC WATER PIPING IN CHASES, ETC. TO INDIVIDUAL FIXTURES. WHEN PIPING SERVES FLUSH VALVES, COLD WATER PIPE SHALL EXTEND FULL SIZE TO END OF PIPE CHASE RUN AND A SHOCK ABSORBER INSTALLED. WHEN COLD WATER PIPE IS 2" OR AB. AND SERVES FLUSH VALVES, PIPE MAIN IN CHASE CAN UNLY BE REDUCED TO 1 1/2" SIZE. 1/2" HOT WATER PIPE SHALL SERVE UP TO FOUR (4) LAVS. OTHER PIPE ŚIZING CRITERIA SHALL BE AS OUTLINED IN "ASHRAE 1989 FUNDAMENTALS HANDBOOK".
- 18. NO LIQUID TRANSMISSION PLBG. UTILITY PIPING IS TO RUN AB. ELEC. SWITCHGEAR OR PANELS. MAKE ADJUSTMENTS NECESSARY TO REROUTE PIPING FOR ACTUAL INSTALLATION OF ELEC. EQUIP.
- 19. NO LIQUID TRANSMISSION PLBG. UTILITY PIPING IS TO RUN THRU OR AB. ELEC. UTILITY, TELE. EQUIP. OR ELEVATOR MACHINE RM'S. OR CLOSETS (INCLUDING ELEVATOR SHAFTS), EXCEPT FOR PIPING SERVING EQUIP. OR DEVICES FOR THAT SPECIFIC AREA. PROVIDE DRIP PANS BELOW ANY LIQUID TRANSMISSION PIPING THAT IS REQ'D. IN THESE AREAS.

## SOIL AND/OR WASTE PIPE (SS) VENT PIPE (V) DOMESTIC COLD WATER SUPPLY (DCWS) DOMESTIC HOT WATER SUPPLY (DHWS) DRAIN LINE (D) GAS LINE (G) FLOOR DRAIN WITH P-TRAP & TRAP PRIMER HUB DRAIN WITH P-TRAP

PIPING LEGEND

\_\_\_\_\_ ——D— HD Oc-FCO **⊗** FLOOR CLEANOUT WCO I─ WALL CLEANOUT VENT THRU ROOF (VTR) BALL VALVE GATE VALVE

ELECTRIC WATER HEATER DETAIL SCALE: NOT TO SCALE

ACCESS COVER

- 1/8" BEND AND END

OF LINE CLEANOUT

WASTE LINE

WALL CLEANOUT DETAIL

A.S.M.E. TEMP. & PRESS. RELIEF VALVE

FULL SIZE TO DRAIN -

DRAIN PAN 6" HIGH -

AND 6" LARGER THAN

HEATER ALL AROUND

- TEMPERATURE GAUGE (TYPICAL)

-BALL VALVE (TYP.)

RE: SCHEDULE P1.

DRAIN VALVE W/HOSE

- HOUSEKEEPING PAD

(TYPICAL)

(TYPICAL)

~CHECK VALVE

CONNECTION

SEE PLAN

INSULATE WATER PIPING

RECIRCULATING

AQUASTAT (CP)

COLD WATER — SEE PLAN

PUMP WITH

GINEERING SSOCIATES Ph: 325 . 365 . 3725 Fx: 325 . 365 . 5278 **225 CR 288 Ballinger, TX 7682**1

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INTERIOR

EXTERIOR

-WALL INSULATION

-FINISH WALL

6 HOSE BIB CONNECTION DETAIL

TRAP PRIMER VALVE DETAIL

OULES & DETAILS PLUMBING CHED

S

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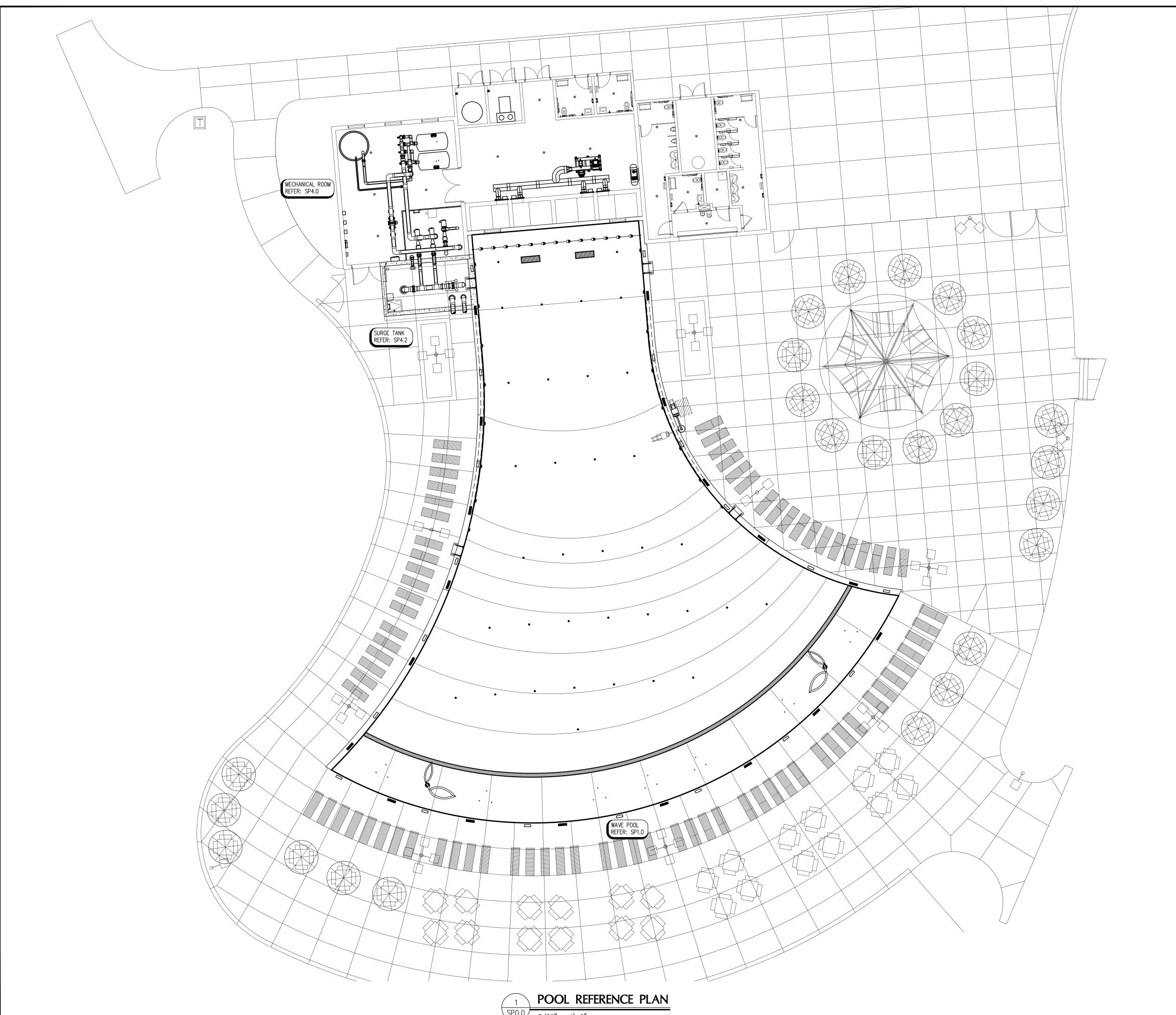
JIM D. DALLAS

No. E-1999136332 Date APRIL 201

SUMMIT, MO

SHEET

P-2



DESIC	ON DATA	
	UNITS	POOL
LENGTH	FT.	VARIES
WIDTH	FT.	VARIES
WATER SURFACE AREA	SQ. FT.	8,006
PERIMETER	FT.	407
VOLUME	GALLON	152,491
CIRCULATION SYSTEM & F	ILTERS	
POOL TURNOVER RATE	HOUR	1.59
RECIRCULATION RATE	GPM	1,600
FILTRATION RATE (MAX. DESIGN)	GPM/SQ. FT.	12.5
FILTER AREA REQUIRED	SQ. FT.	128
FILTRATION RATE (ACTUAL)	GPM/SQ. FT.	11.2
FILTRATION AREA (ACTUAL)	SQ. FT.	142.8
FILTER BACKWASH RATE	GPM/SQ. FT.	15
BACKWASH FLOW RATE (PER FILTER)	GPM	536
SURGE CAPACITY	GALLON	8,415
SEWER CAPACITY	GPM	350
DESIGN FILL RATE	GPM	106
DESIGN FILL TIME	HOUR	24
BATHER LOAD	PERSON	400

## GENERAL POOL NOTES

- ◆ DENOTES WATER DEPTH FROM WATER LEVEL.
- POOL INTERIOR FINISH SHALL BE HIGH-BUILD EPOXY POOL PAINT WITH CONTRASTING MARKINGS WHERE INDICATED. POOL BEAM ABOVE WATERLINE SHALL BE PROVIDED WITH A SCULPTED ROCKWORK FINISH. CERAMIC TILE SHALL BE INSTALLED FOR ALL DEPTH MARKINGS AND WARNING SIGNS.
- ALL POOL FLOOR AREAS 18" AND SHALLOWER SHALL HAVE A SLIP RESISTANT FINISH.
- TYPICAL POOL DIMENSIONS SHOWN ARE FROM INSIDE FINISHED POOL WALL.
- REFER TO POOL STRUCTURAL DRAWINGS FOR ALL DIMENSIONS RELATING TO THE THICKNESS OF THE POOL SHELL.
- THE JUNCTION BETWEEN THE SWIMMING POOL WALL AND THE FLOOR SHALL BE COVED WITH A MAXIMUM 6" RADIUS.
- DEPTH MARKERS AND WARNING SIGNS ARE SHOWN IN APPROXIMATE LOCATIONS. DEPTH MARKERS AND WARNING SIGNS SHALL NOT EXCEED 25'-0" APART FROM EACH OTHER, AND SHALL BE PLACED AT EVEN FOOT INTERVALS PER LOCAL CODE.
- 8. ALL PROPRIETARY NAMES MENTIONED ARE TO DESIGNATE PERFORMANCE STANDARDS. EQUIVALENT PRODUCTS SHALL BE SUBMITTED FOR APPROVAL.
- 9. SLIP RESISTANT DECK FINISH REQUIRED. REFER TO ARCHITECT.
- 10. REFER TO L & P SHEETS FOR DECK DRAINS AND HOSE BIBBS.
- 11. ALL SURFACE WATER SHALL DRAIN AWAY FROM THE POOL.
- REFER TO ELECTRICAL FOR GFI OUTLETS IN ON POOL DECK.
   ELECTRICAL INSPECTOR SHALL APPROVE INSTALLATION OF BONDING GRID FOR POOL REINFORCING AND ALL POOL EMBEDS PRIOR TO PLACEMENT OF CONCRETE.
- 14. NO GROUND WATER SHALL BE ALLOWED TO RISE ABOVE ANY PORTION OF THE POOL BOTTOM DURING CONSTRUCTION.
- 15. ALL POOL REINFORCING STEEL, METAL FITTINGS, EQUIPMENT WITHIN 5'-0" OF POOL EDGE AND ANY METAL PARTS OF POOL EQUIPMENT IN CONTACT WITH POOL RECIRCULATION SYSTEM SHALL BE BONDED PER NEC 680. REFER: 3/SP4.5

	DRAWING INDEX
SHEET	DESCRIPTION
SP0.0	POOL REFERENCE PLAN
SP1.0	WAVE POOL PLAN
SP1.1	WAVE POOL SECTIONS
SP1.2	WAVE POOL DETAILS
SP1.3	WAVE POOL DETAILS
SP2.0	WAVE POOL LOCATION POINT PLAN
SP3.0	WAVE POOL SUCTION PIPING PLAN
SP3.1	WAVE POOL RETURN PIPING PLAN
SP4.0	WAVE POOL MECHANICAL ROOM PLAN
SP4.1	WAVE POOL MECHANICAL ROOM SECTIONS
SP4.2	SURGE TANK PLAN & SECTIONS
SP4.3	MECHANICAL DETAILS
SP4.4	MECHANICAL DETAILS
SP4.5	MECHANICAL DETAILS
SP5.0	SYSTEMS SCHEMATIC

**EV HOI** Pad, Suite 700, Dallas, Texas 75240

13455 Noel Road, St PHONE: 214-420 WWW.KII MISSOURI REGIS

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COUNSILMAN-HUNSAKER
AQUATICS FOR LIFE
ph: 314.894.1245 \* www.chh2o.com
P.E. DARREN BEYARD

LINO:F-2008002132 DATE: APRIL 15 2019

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P.E. DARREN BEVARD
J.NO.:E-2008002132 DATE: APRIL 15,2019

SUMMIT WAVES
/AVE POOL ADDITIC
LEE'S SUMMIT, MC

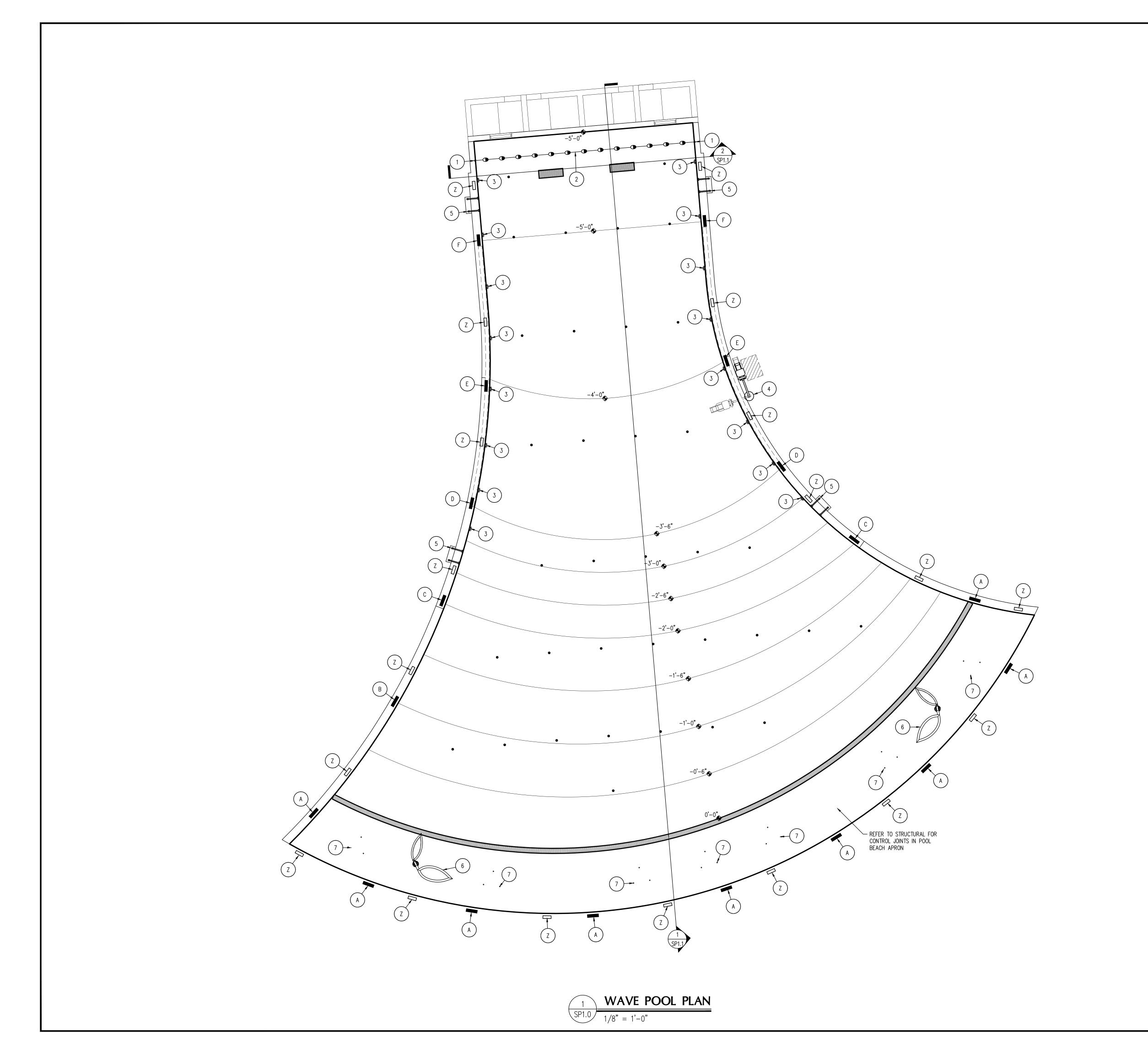
POOL REFERENCE PLAN

y: DRO d by: NRK 04/15/2019 No. 064538700

Checked by:
Date:

SHEET

SP0.0



WARNING SIGNAGE SCHEDULE
SIGNAGE
0 FT O IN
1 FT O IN
2 FT 0 IN
3 FT 6 IN
4 FT 0 IN
5 FT 0 IN
NO DIVING 🖭

PO	OL E	QUIPMENT LEGEND
LEGEND	ID	ITEM
•	1	SAFETY ROPE CUP ANCHOR REFER: 1/SP1.2
	2	SAFETY ROPE
3	3	UNDERWATER LIGHT REFER: 4/SP1.2
	4	POOL LIFT AND ANCHOR REFER: 2/SP1.3
	5	GRAB RAILS AND RECESSED STEPS REFER: 8/SP1.2
	6	LEAF NO. 3 FEATURE REFER: 3/SP1.3
	7	BUBBLER FEATURE REFER: 9/SP1.2

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P.E. DARREN BEVARD

LI.NO.: E-2008002132 DATE: APRIL 15,2019

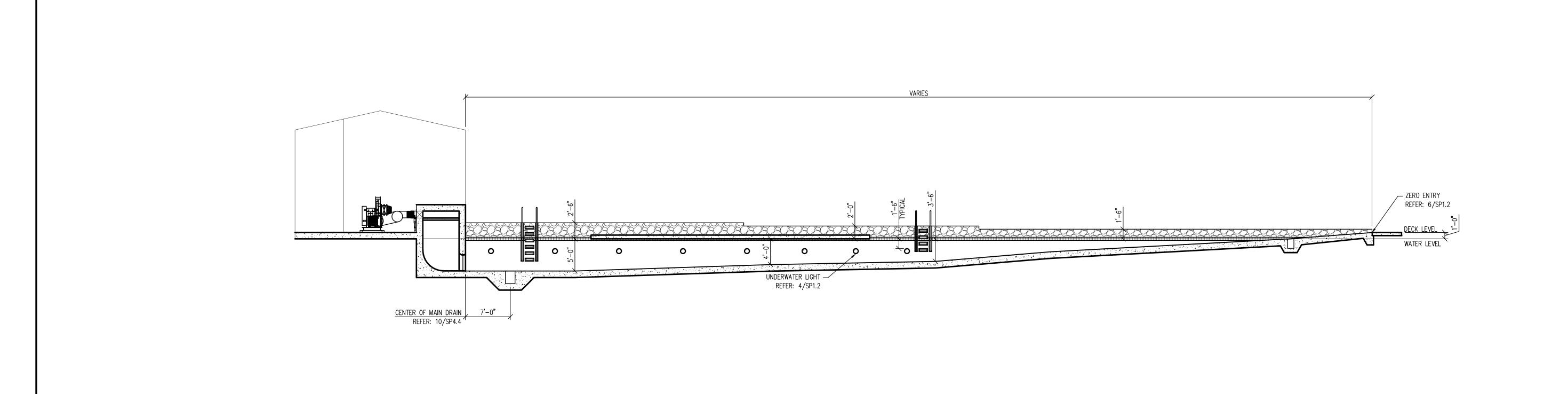
WAVE POOL ADDITIO LEE'S SUMMIT, MO

WAVE POOL PLAN

signed by:	DTB
awn by:	DRO
ecked by:	NRK
ıte:	04/15/2019
OIV Joic	001001100

Sca | Che | Date | Che |

SP1.0



WAVE POOL SECTION

40'-0" GRAB RAIL & RECESSED STEPS — REFER: 8/SP1.2 DECK LEVEL
WATER LEVEL POOL COVE 7 REFER: 3/SP1.2 CENTER OF MAIN DRAIN
REFER: 10/SP4.4 11'-3"

WAVE POOL SECTION

Hor

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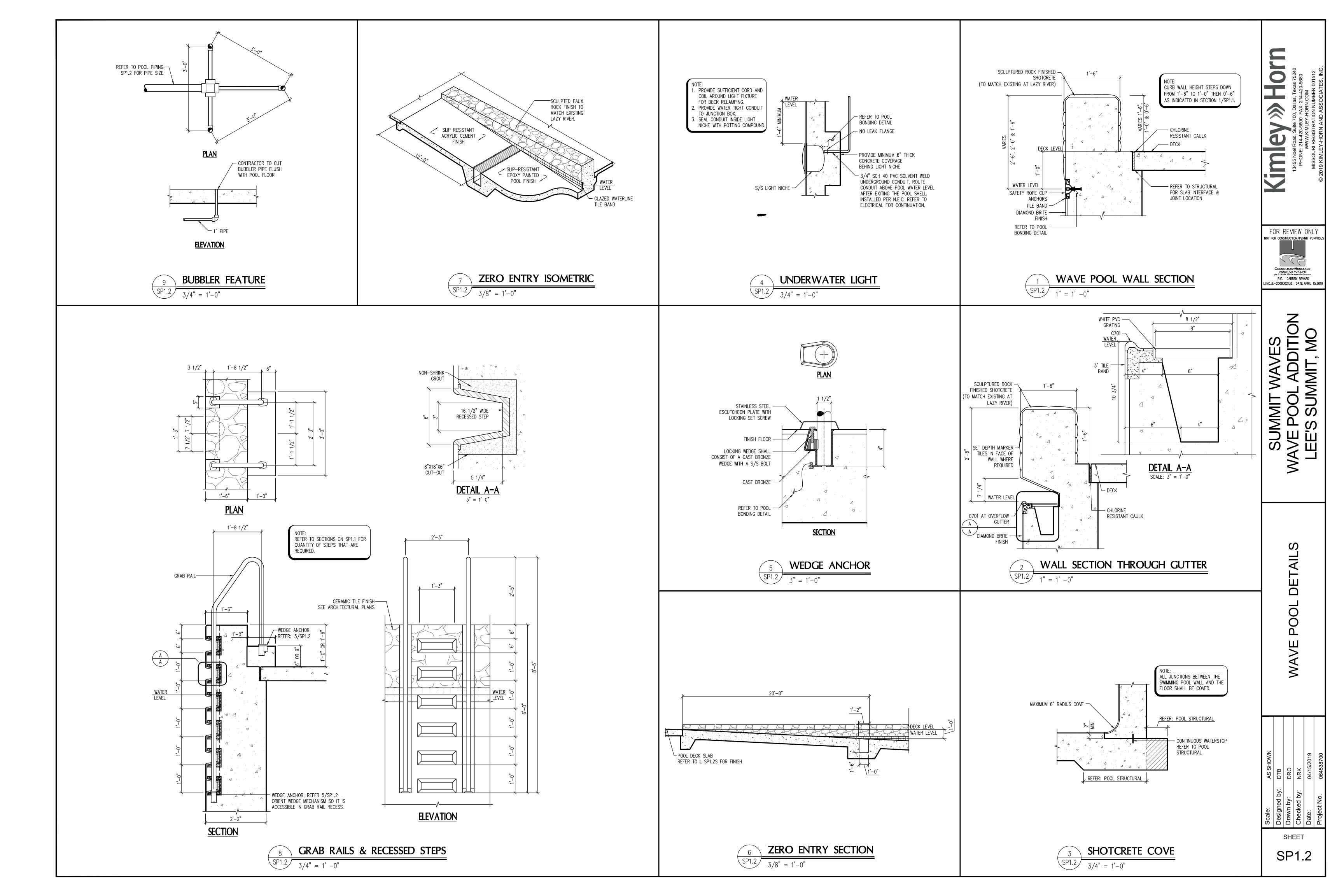
LI.NO.: E-2008002132 DATE: APRIL 15,2019

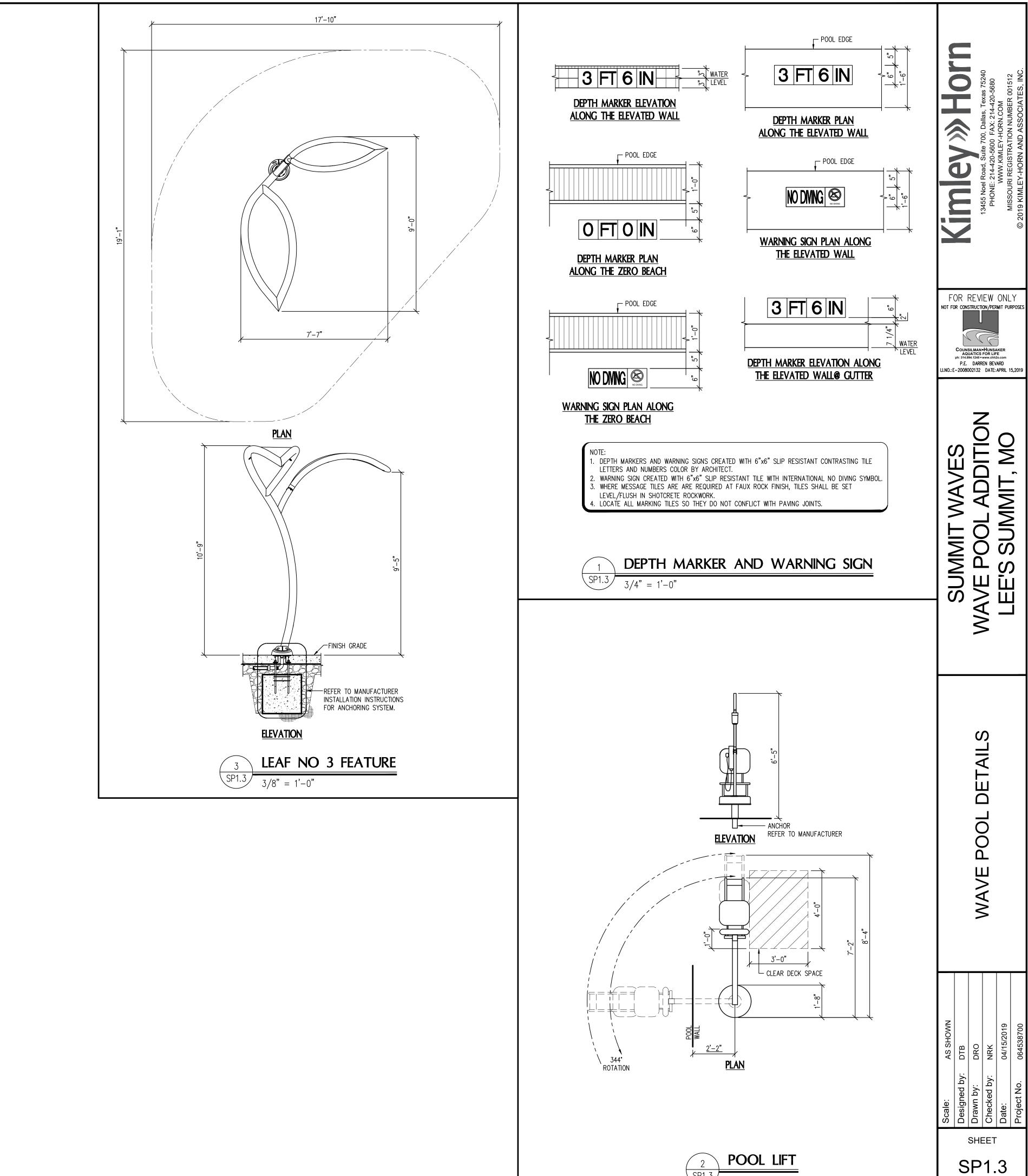
SUMMIT WAVES
WAVE POOL ADDITION
LEE'S SUMMIT, MO

SECTIONS WAVE POOL

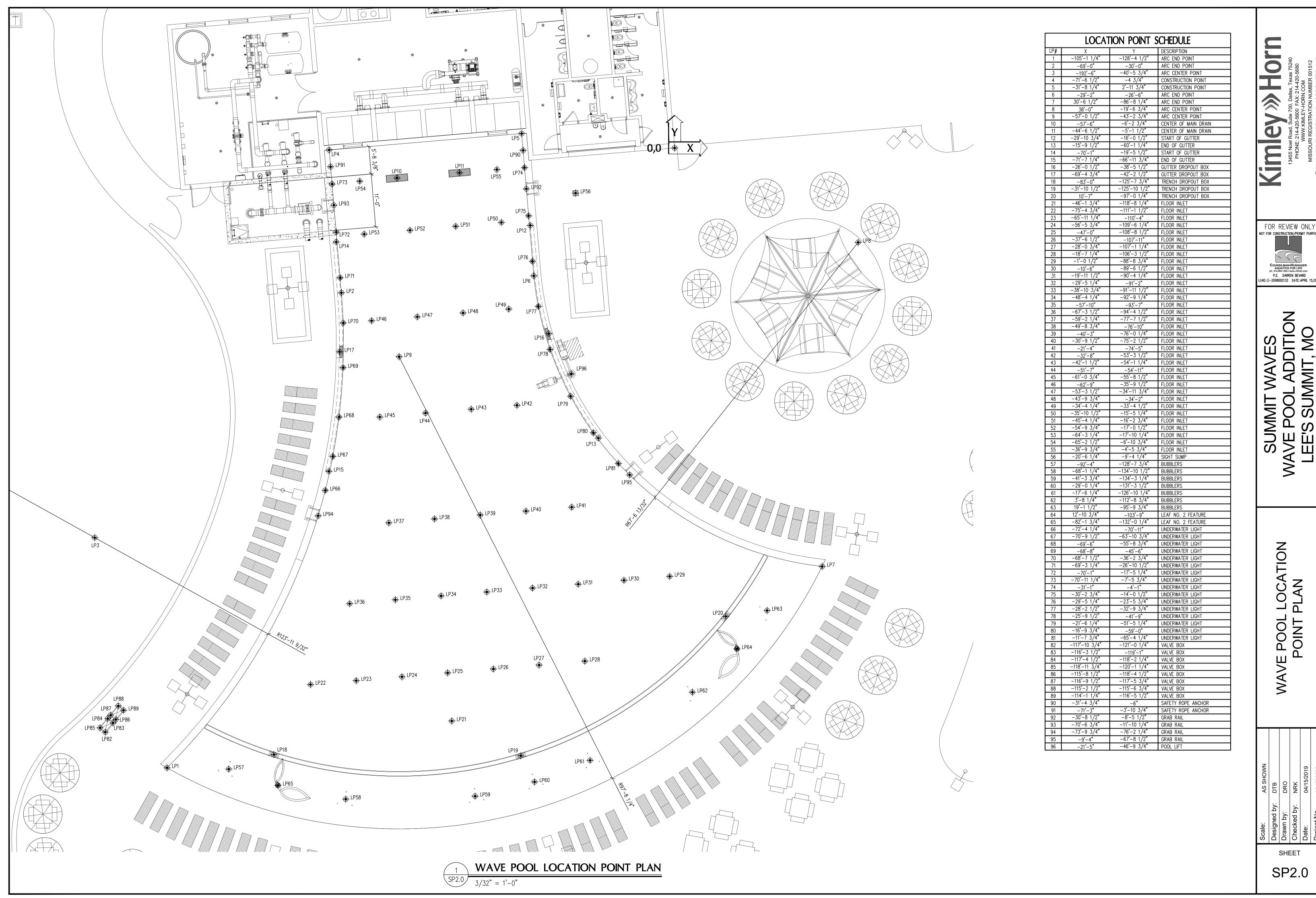
SHEET

SP1.1





POOL WAVE



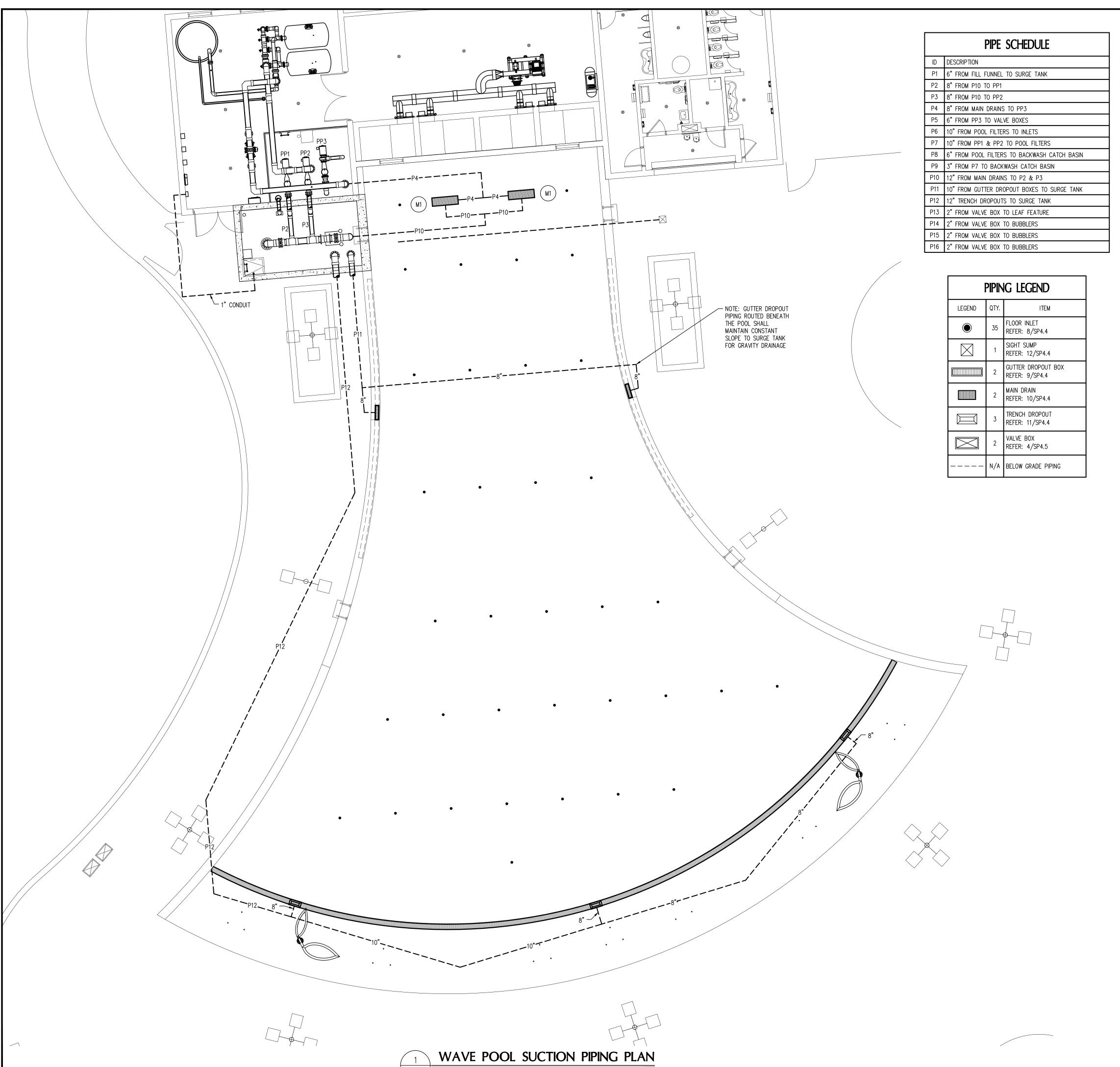
FOR REVIEW ONLY NOT FOR CONSTRUCTION/PERMIT PURPOSES COUNSILMAN HUNSAKER AQUATICS FOR LIFE ph: 314.894.1245 www.chh2o.co P.E. DARREN BEVARD .NO.: E-2008002132 DATE: APRIL 15,2

E POOL ADDITION S'S SUMMIT, MO

WAVE POOL LOCATION POINT PLAN

SHEET

SP2.0



## GENERAL PIPING NOTES

- PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERATIONAL PIPING

- ALL VALVES SHALL BE INSTALLED SO THAT THE VALVE REMAINS IN SERVICE WHEN THE EQUIPMENT OR PIPING ON THE
- PROVIDE CHAIN WHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 7'-0" ABOVE FINISHED FLOOR; CHAIN SHALL EXTEND TO 7'-0" ABOVE FINISHED FLOOR LEVEL.
- INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
- 9. ALL PIPING INDICATED SHALL BE CONSIDERED DIAGRAMMATIC.
- 10. ALL SWIMMING POOL PIPING ROUTED BELOW THE POOL SHELL SHALL BE SCHEDULE 80 PVC. REFER: 1/SP4.5
- SHALL REFER TO PLANS AND SPECIFICATIONS FOR ANY SPECIFIC REQUIREMENTS REGARDING PLACEMENT AND BACKFILLING OF
- 12. ALL DIMENSIONS INDICATED FROM THE FINISH WALL SURFACE AND DO NOT ACCOUNT FOR ANY VARIATIONS IN EITHER GRADE OR
- TO ITS RESPECTIVE FILL FUNNEL AND THE BACKWASH CATCH BASIN OR PUMP SUCTION.
- 14. ALL FLOOR INLETS SHALL BE ADJUSTED TO ACHIEVE AN EVEN FLOW DISTRIBUTION THROUGHOUT SYSTEMS.
- 15. ALL PIPE TEES SHALL BE SIZED FOR LARGEST PIPE CONNECTION.
- 17. 55 PSI MINIMUM WATER PRESSURE FOR POOL LIFT. REFER TO PLUMBING.
- POOL PIPING WINTERIZATION NOTES
- ALL POOL RETURN PIPING SHALL HAVE THE ABILITY TO COMPLETELY DRAIN TO THE 2" WINTERIZATION LINE AS SHOWN ON THE
- BLOW OUT ALL PIPES BY MEANS OF AN AIR BLOWER AND A WINTERIZATION TAP. CAP ALL PIPES. FOR ADDED PROTECTION AGAINST FREEZING PIPES, THE PIPES CAN BE FILLED WITH ANTI-FREEZE. REFER: 10/SP4.5

		PUMP SC	HEDULE						
ID	DESCRIPTION	MANUFACTURER	MODEL	SIZE	GPM	TDH	HP	NPSHR	NOTES
PP1	WAVE POOL RECIRCULATION PUMP 1 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP2	WAVE POOL RECIRCULATION PUMP 2 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP3	WAVE POOL FEATURE PUMP REFER: 1/SP4.3	AURORA	340	6X6X9	810	55	15	7.68	1,2,3,4,5

- CONSIDERED EQUAL PROVIDED THEY MEET SPECIFICATIONS AS INDICATED IN BID DOCUMENTS.
- PROVIDE WITH 460 VOLT, 3 PHASE, 60HZ, 1750 RPM MOTOR.

		М	AIN D	RAIN S	SCHEDU	ILE		
D	DESCRIPTION	SIZE	QTY	DESIGN FLOW (GPM)	DESIGN VELOCITY (FPS)	MODEL_	<u>MANUFACTURER</u>	<u>NOTES</u>

- 4. THE INSTALLED LIFE OF THE MAIN DRAIN COVER SHALL BE 10 YEARS.
- 6. FASTEN MAIN DRAIN COVER TO EMBEDDED PVC FRAME/POOL FLOOR WITH S/S TAMPER PROOF FASTENERS AT A SPACING NO GREATER THAN 24" O.C. REFER TO FRAME AND GRATE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

- SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
- . PIPE SIZES INDICATED ARE NOMINAL, I.P.S.
- UNLESS OTHERWISE NOTED, ALL OVERHEAD PIPING SHALL BE TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB.
- ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
- EQUIPMENT SIDE OF THE VALVE IS REMOVED.

- ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES AND SITE CONDITIONS. OFFSETS, EXPANSION LOOPS, OR TRANSITIONS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

- I. ALL UNDERGROUND OR EXPOSED SWIMMING POOL PIPING SHALL BE SCHEDULE 80 PVC, UNLESS OTHERWISE NOTED. CONTRACTOR BELOW GRADE POOL PIPE.
- 13. THE CHEMICAL SENSOR LINE SHALL BE A 3/4" TO 1" DIAMETER, SCHEDULE 80 PVC PIPE EXTENDED FROM THE WET CELL SENSOR
- 16. ALL GUTTER DROPOUT LINES SHALL SLOPE 1/8" PER FOOT MINIMUM

- . ALL POOL PIPING SHALL HAVE THE CAPABILITY TO BE DRAINED FOR WINTERIZATION. (OUTDOOR POOLS ONLY)
- ALL POOL SUCTION AND GRAVITY PIPING SHALL BE INSTALLED WITH A CONSTANT SLOPE TO THE MAIN DRAINS AND/OR SURGE

- 1. THE MANUFACTURER INDICATED IS BASIS OF DESIGN. PUMP MANUFACTURERS: ITT MARLOW, GRISWOLD, PACO OR AURORA SHALL BE
- 3. PROVIDE WITH CHECK VALVE.
  4. PROVIDE VARIABLE FREQUENCY DRIVE.
  5. PROVIDE REMOTE PUMP START.

		М	AIN D	RAIN S	SCHEDU	ILE		
D	DESCRIPTION	SIZE	QTY	DESIGN FLOW (GPM)	DESIGN VELOCITY (FPS)	<u>MODEL</u>	MANUFACTURER	<u>NOTE</u> :
<i>I</i> /1	WAVE POOL MAIN DRAINS	18X54	2	2,280	0.71	MLD-FG-1854	NEPTUNE BENSON	1,2,3,4,

- 1. MAIN DRAIN GRATING SHALL BE MANUFACTURED BY NEPTUNE BENSON/LAWSON.
  2. MAXIMUM FACE VELOCITY SHALL NOT EXCEED 1.5 FEET PER SECOND.
- 3. OPEN AREA IS BASED ON MANUFACTURER'S DATA.
- ALL MAIN DRAINS SHALL BE INSTALLED IN THE POOL FLOOR. WALL SUMPS WILL NOT BE PERMITTED.

L SUCTION PLAN WAVE POOL 9

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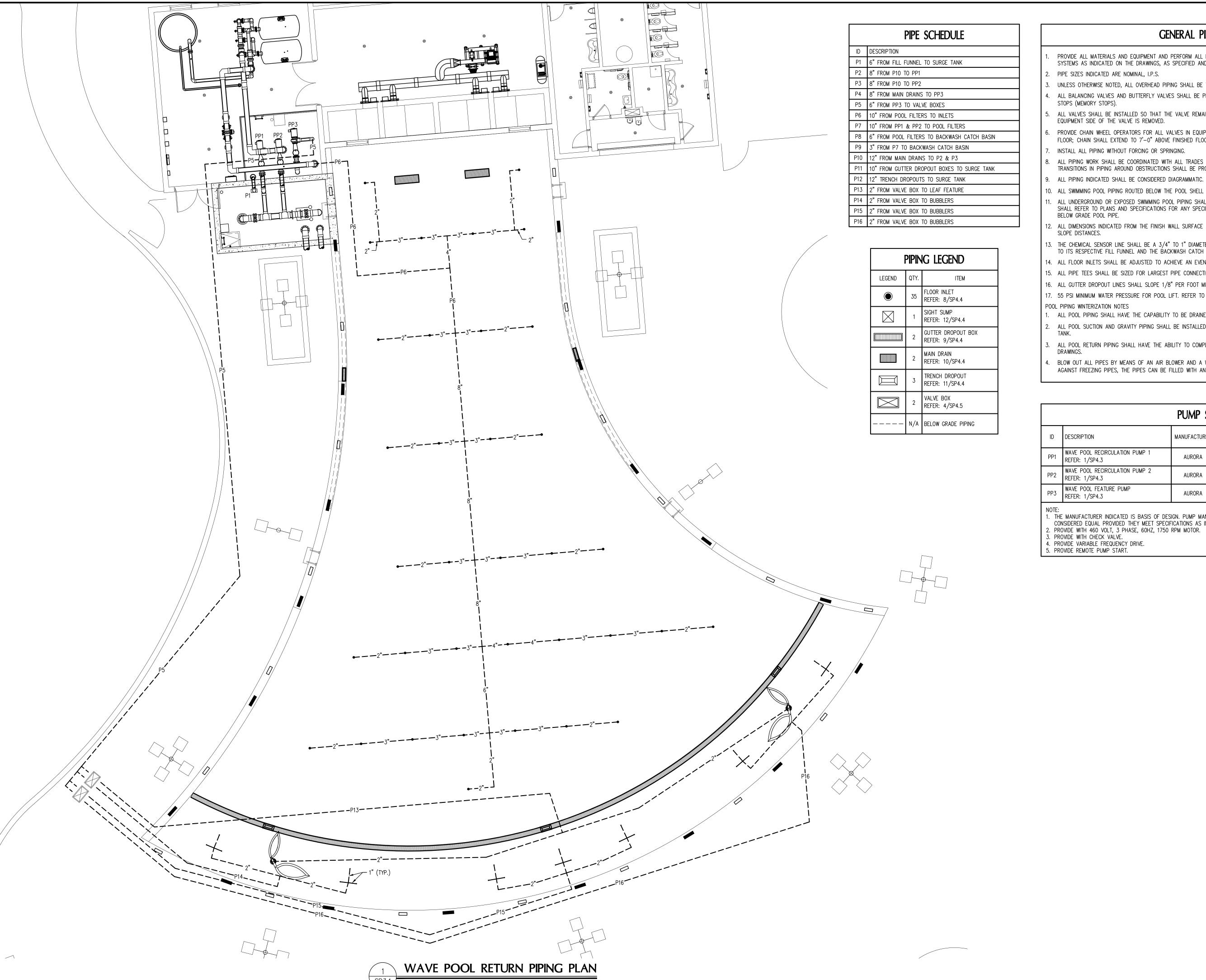
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P.E. DARREN BEVARD

.NO.: E-2008002132 DATE: APRIL 15,2

gned by:	DTB
vn by:	DRO
cked by:	NRK
	04/15/2019
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## GENERAL PIPING NOTES

- PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERATIONAL PIPING SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
- PIPE SIZES INDICATED ARE NOMINAL, I.P.S.
- UNLESS OTHERWISE NOTED, ALL OVERHEAD PIPING SHALL BE TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB.
- ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
- ALL VALVES SHALL BE INSTALLED SO THAT THE VALVE REMAINS IN SERVICE WHEN THE EQUIPMENT OR PIPING ON THE EQUIPMENT SIDE OF THE VALVE IS REMOVED.
- PROVIDE CHAIN WHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 7'-0" ABOVE FINISHED FLOOR; CHAIN SHALL EXTEND TO 7'-0" ABOVE FINISHED FLOOR LEVEL.
- INSTALL ALL PIPING WITHOUT FORCING OR SPRINGING.
- ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES AND SITE CONDITIONS. OFFSETS, EXPANSION LOOPS, OR TRANSITIONS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- 10. ALL SWIMMING POOL PIPING ROUTED BELOW THE POOL SHELL SHALL BE SCHEDULE 80 PVC. REFER: 1/SP4.5
- I. ALL UNDERGROUND OR EXPOSED SWIMMING POOL PIPING SHALL BE SCHEDULE 80 PVC, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL REFER TO PLANS AND SPECIFICATIONS FOR ANY SPECIFIC REQUIREMENTS REGARDING PLACEMENT AND BACKFILLING OF BELOW GRADE POOL PIPE.
- 2. ALL DIMENSIONS INDICATED FROM THE FINISH WALL SURFACE AND DO NOT ACCOUNT FOR ANY VARIATIONS IN EITHER GRADE OR
- 13. THE CHEMICAL SENSOR LINE SHALL BE A 3/4" TO 1" DIAMETER, SCHEDULE 80 PVC PIPE EXTENDED FROM THE WET CELL SENSOR TO ITS RESPECTIVE FILL FUNNEL AND THE BACKWASH CATCH BASIN OR PUMP SUCTION.
- 14. ALL FLOOR INLETS SHALL BE ADJUSTED TO ACHIEVE AN EVEN FLOW DISTRIBUTION THROUGHOUT SYSTEMS.
- 15. ALL PIPE TEES SHALL BE SIZED FOR LARGEST PIPE CONNECTION.
- 16. ALL GUTTER DROPOUT LINES SHALL SLOPE 1/8" PER FOOT MINIMUM
- 17. 55 PSI MINIMUM WATER PRESSURE FOR POOL LIFT. REFER TO PLUMBING.
- POOL PIPING WINTERIZATION NOTES
- . ALL POOL PIPING SHALL HAVE THE CAPABILITY TO BE DRAINED FOR WINTERIZATION. (OUTDOOR POOLS ONLY)
- ALL POOL SUCTION AND GRAVITY PIPING SHALL BE INSTALLED WITH A CONSTANT SLOPE TO THE MAIN DRAINS AND/OR SURGE
- ALL POOL RETURN PIPING SHALL HAVE THE ABILITY TO COMPLETELY DRAIN TO THE 2" WINTERIZATION LINE AS SHOWN ON THE
- BLOW OUT ALL PIPES BY MEANS OF AN AIR BLOWER AND A WINTERIZATION TAP. CAP ALL PIPES. FOR ADDED PROTECTION AGAINST FREEZING PIPES, THE PIPES CAN BE FILLED WITH ANTI-FREEZE. REFER: 10/SP4.5

		PUMP SC	HEDULE						
ID	DESCRIPTION	MANUFACTURER	MODEL	SIZE	GPM	TDH	HP	NPSHR	NOTES
PP1	WAVE POOL RECIRCULATION PUMP 1 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP2	WAVE POOL RECIRCULATION PUMP 2 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP3	WAVE POOL FEATURE PUMP REFER: 1/SP4.3	AURORA	340	6X6X9	810	55	15	7.68	1,2,3,4,5

- 1. THE MANUFACTURER INDICATED IS BASIS OF DESIGN. PUMP MANUFACTURERS: ITT MARLOW, GRISWOLD, PACO OR AURORA SHALL BE CONSIDERED EQUAL PROVIDED THEY MEET SPECIFICATIONS AS INDICATED IN BID DOCUMENTS.
- PROVIDE WITH 460 VOLT, 3 PHASE, 60HZ, 1750 RPM MOTOR.
- 3. PROVIDE WITH CHECK VALVE.
  4. PROVIDE VARIABLE FREQUENCY DRIVE.
  5. PROVIDE REMOTE PUMP START.

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RETURN PLAN /E POOL PIPING P

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SP3.1

2. EQUIPMENT ROOM FLOOR AND PUMP PIT FLOOR SHALL SLOPE 1/4" TO 1/2" PER FOOT TO FLOOR DRAINS OR SUMP PIT. REFER TO PLUMBING.

3. PROVIDE HOSE BIBBS FOR HOUSE CLEANING PURPOSES. REFER TO PLUMBING DRAWINGS.

4. THE INSIDE SURFACES OF THE BACKWASH CATCH BASIN SHALL BE WATERPROOFED. REFER TO SPECIFICATION.

5. VENTILATION OF POOL MECHANICAL ROOM AND CHEMICAL STORAGE AREAS PER LOCAL, STATE AND INTERNATIONAL MECHANICAL CODE MINIMUM. REFER TO MECHANICAL.

6. THE FOLLOWING INFORMATION SHALL BE LAMINATED AND POSTED IN THE POOL MECHANICAL ROOM: BACKWASH PROCEDURE, POOL FILLING & DRAINING, VALVE REFERENCE CHART, POOL MECHANICAL ROOM PLAN, POOL PIPING SCHEMATICS & POOL SYSTEMS SCHEMATICS.

8. REFER TO ARCHITECTURAL DRAWINGS FOR LADDER RUNGS, SAFETY CHAIN, & REMOVABLE RAILING AT PUMP PIT.

7. REFER TO MECHANICAL FOR HVAC SYSTEMS DESIGN.

1. MINIMUM 7'-0" CLEARANCE BENEATH ALL OVERHEAD PIPING.

2. PROVIDE AND SUPPORT OVERHEAD AND VERTICAL PIPING PER SPECIFICATION REQUIREMENTS.

3. LABEL AND IDENTIFY ALL PIPING IN COMPLIANCE WITH THE SPECIFICATIONS.

4. ALL FLOW METERS SHALL BE SIZED TO MATCH THE PIPE ON WHICH IT IS INSTALLED. PROVIDE PRESSURE GAUGES ON INFLUENT AND EFFLUENT SIDE OF EACH FILTRATION SYSTEM AND A FULL LINE SIZE FLOW METER ON FILTER RETURN.

5. THE BACKWASH PIPING SHALL TERMINATE NO CLOSER THAN 6" ABOVE THE FLOOD RIM OF THE BACKWASH CATCH BASIN OR TWICE THE PIPE DIAMETER, WHICHEVER IS GREATER.

6. HYDROSTATICALLY TEST ALL PIPING AT 50 PSI FOR TWO HOURS AND MAINTAIN A PRESSURE OF 20 PSI IN ALL PIPING THROUGHOUT CONSTRUCTION. SECURE ALL FIXTURES PER SPECIFICATION REQUIREMENTS BEFORE HYDROSTATIC TEST.

7. REFER TO DETAILS 2-7 ON DRAWING SP4.4 FOR INSTALLATION OF PIPE SUPPORTS.

### **FILTERS**

PIPE SCHEDULE

P1 6" FROM FILL FUNNEL TO SURGE TANK

ID DESCRIPTION

P2 8" FROM P10 TO PP1

P3 8" FROM P10 TO PP2

P4 8" FROM MAIN DRAINS TO PP3

P5 6" FROM PP3 TO VALVE BOXES

P6 10" FROM POOL FILTERS TO INLETS

P7 10" FROM PP1 & PP2 TO POOL FILTERS

P9 3" FROM P7 TO BACKWASH CATCH BASIN

P10 12" FROM MAIN DRAINS TO P2 & P3

P12 12" TRENCH DROPOUTS TO SURGE TANK

P13 2" FROM VALVE BOX TO LEAF FEATURE

P14 2" FROM VALVE BOX TO BUBBLERS

P15 2" FROM VALVE BOX TO BUBBLERS

P16 2" FROM VALVE BOX TO BUBBLERS

P8 6" FROM POOL FILTERS TO BACKWASH CATCH BASIN

P11 10" FROM GUTTER DROPOUT BOXES TO SURGE TANK

EQUIPMENT SCHEDULE

(1) | FILTER SYSTEM

2 | REFER: 2/SP4.3

 $\frac{3}{1}$  REFER: 6/SP4.3

ACID TANK
REFER: 3/SP4.3

5 REFER: 10/SP4.3

6 REFER: 2/SP4.5

 $\stackrel{8}{\searrow}$  REFER: 12/SP4.3

 $\stackrel{9}{\longrightarrow}$  REFER: 1/SP4.4

WATER LEVEL CONTROLLER

7 VARIABLE FREQUENCY DRIVE

FLOW METER SENSOR

UV TREATMENT SYSTEM & CONTROLLER REFER: 7/SP4.3 (FUTURE INSTALLATION)

WAVE GENERATION EQUIPMENT REFER:

BACKWASH POLY TANK REFER:

FILL FUNNEL

CHLORINATION TANK

1. ALL FILTER SUPPORTS SHALL BE SEISMICALLY RATED FOR THE SEISMIC ZONE IN WHICH IT IS INSTALLED IN ACCORDANCE WITH LOCAL AND/OR STATE REQUIREMENTS.

2. FILTER MANUFACTURER SHALL CERTIFY FILTER MEDIA.

3. VALVES SHALL BE PROVIDED TO BACKWASH EACH FILTER VESSEL INDEPENDENTLY.

4. FILTER TANK ASSEMBLIES SHALL BEAR THE NATIONAL SANITATION FOUNDATION SEAL OF APPROVAL FOR A MAXIMUM FLOW RATE OF 20 GPM PER SQUARE FOOT OF FILTER MEDIA.

5. THE BACKWASH THROTTLING VALVE(S) HANDLE SHALL BE REMOVED AND TURNED OVER TO THE OWNER ONCE THE BACKWASH FLOW RATE(S) HAVE

BEEN TESTED, ADJUSTED AND BALANCED. 6. PROVIDE 1" DIAMETER, SCHEDULE 80 PIPE FROM THE AUTOMATIC AIR VENT ON EACH FILTER VESSEL TO THE NEAREST FLOOR DRAIN OR BACKWASH

CATCH BASIN. THE VENT PIPE SHALL BE SLOPED TO THE DRAIN.

7. VESSEL SHALL BE BACKWASHED AT NO LESS THAN 15.0 GPM/SF.

8. PROVIDE MILLED ANGULAR SHAPED PARTICLES OF SILICA QUARTZ FOR FILTER MEDIA. PARTICLE SIZE SHALL BE BETWEEN 0.45MM AND 0.55MM AND HAVE A MAXIMUM UNIFORMITY COEFFICIENT OF 1.53. (CA)

### CHEMICAL TREATMENT

1. CHEMICAL FEED REQUIREMENTS - REFER TO THE POOL SYSTEMS SCHEMATIC(S) ON SP5.0.

2. INTERLOCK POOL CIRCULATION PUMP(S) WITH ITS CORRESPONDING WATER CHEMISTRY CONTROLLER, CHEMICAL FEED PUMP(S).

3. PROVIDE SIGNAGE ON CHEMICAL ROOM DOORS IN COMPLIANCE WITH THE STATE FIRE CODE. REFER 9/SP4.3.

H. SECURE CHEMICAL METERING PUMP FEED LINES TO WALL AND/OR OVERHEAD WITH CLIPS OR DEVICES THAT DO NOT CRIMP, DISTORT OR ALLOW HIGH AND LOW AREAS IN TUBING RUNS. PROVIDE CHECK VALVE AND SHUT-OFF VALVE BEFORE LINES ENTER POOL RETURN PIPING.

5. WATER CHEMISTRY CONTROLLERS SHALL CONTROL THE SANITIZING SYSTEM AND PH CONTROL SYSTEM AND SHUT THEM DOWN UPON LOSS OF SAMPLE STREAM FLOW.

6. THE CHEMICAL CONTROL SYSTEM BYPASS LINE SHALL SAMPLE WATER AFTER THE FILTERS.

7. VERIFY REMOTE ACCESS CAPABILITY TO ALL CHEMICAL CONTROLLERS. REFER TO ELECTRICAL.

8. LOCATE CHEMICAL INJECTION POINT AFTER THE FLOW METER SENSOR AND AT MAXIMUM HEIGHT OF 7'-0" ABOVE FINISHED FLOOR. REFER: 8/SP4.3

. PROVIDE INFLUENT AND EFFLUENT GAUGES FOR EACH PUMP. PRESSURE GAUGES HAVE A RANGE OF 0-60 PSI. COMPOUND GAUGES HAVE A RANGE OF 0-30 HG / 0-60 PSI.

## ELECTRICAL

1. GFCI'S PROVIDED AT OUTLETS. REFER TO ELECTRICAL.

2. POOL EQUIPMENT ROOM AND CHEMICAL STORAGE AREAS SHALL BE PROVIDED WITH ARTIFICIAL LIGHTING SUFFICIENT TO ILLUMINATE ALL EQUIPMENT

AND SUPPLIES. REFER TO ELECTRICAL.

3. CONDUIT SHALL BE ROUTED OVERHEAD OR BELOW GRADE.

		PUMP SC	HEDULE						
ID	DESCRIPTION	MANUFACTURER	MODEL	SIZE	GPM	TDH	HP	NPSHR	NOTES
PP1	WAVE POOL RECIRCULATION PUMP 1 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP2	WAVE POOL RECIRCULATION PUMP 2 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP3	WAVE POOL FEATURE PUMP REFER: 1/SP4.3	AURORA	340	6X6X9	810	55	15	7.68	1,2,3,4,5

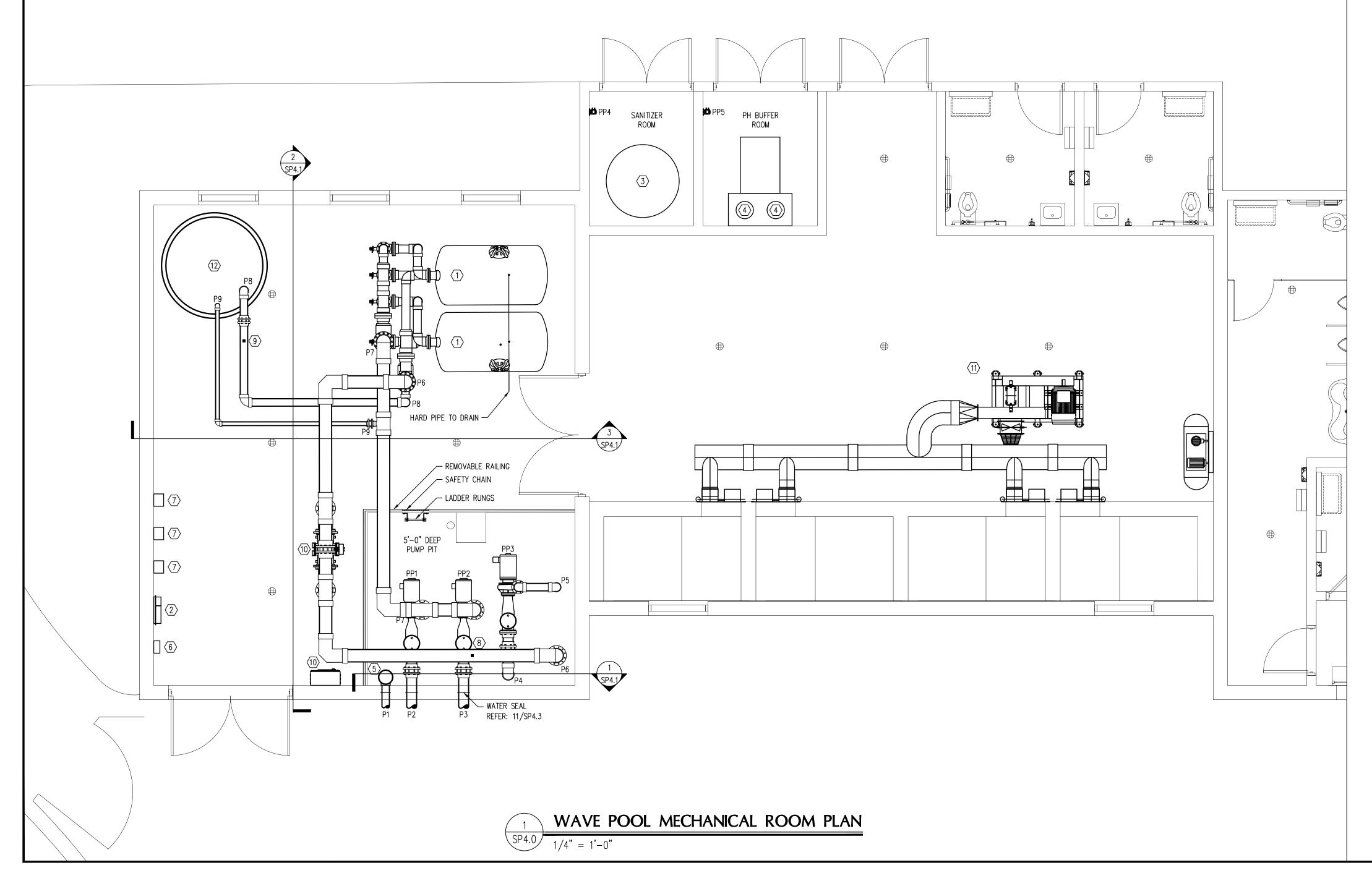
1. THE MANUFACTURER INDICATED IS BASIS OF DESIGN. PUMP MANUFACTURERS: ITT MARLOW, GRISWOLD, PACO OR AURORA SHALL BE CONSIDERED EQUAL PROVIDED THEY MEET SPECIFICATIONS AS INDICATED IN BID DOCUMENTS.

2. PROVIDE WITH 460 VOLT, 3 PHASE, 60HZ, 1750 RPM MOTOR.

3. PROVIDE WITH CHECK VALVE. 4. PROVIDE VARIABLE FREQUENCY DRIVE.5. PROVIDE REMOTE PUMP START.

	CHEMICAL FEED	PUMP SCI	HEDULE		
ID	DESCRIPTION	MANUFACTURER	MODEL	TUBE #	NOTES
PP4	CHLORINATION FEED PUMP REFER: 6/SP4.3	STENNER	85M5	5	1,2,3
PP5	ACID FEED PUMP REFER: 3/SP4.3	STENNER	45M5	3	1,2,3

PROVIDE WITH 120 VOLT, SINGLE PHASE, ADJUSTABLE FEED. 5. INTERLOCK WITH POOL RECIRCULATION PUMP.



1. THE MANUFACTURER INDICATED IS BASIS OF DESIGN. ALTERNATE MANUFACTURER: LMI OR APPROVED EQUAL.

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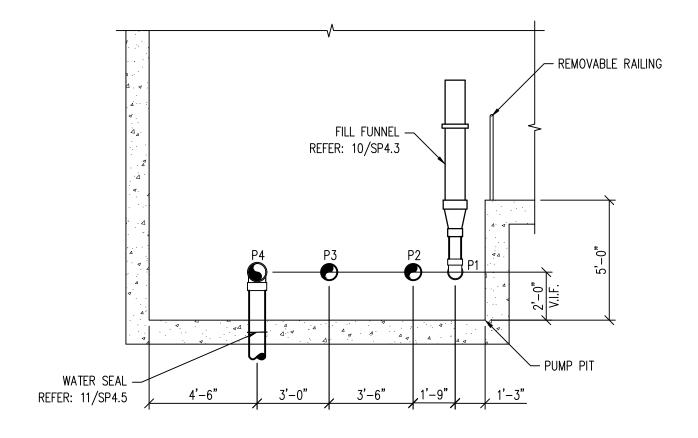
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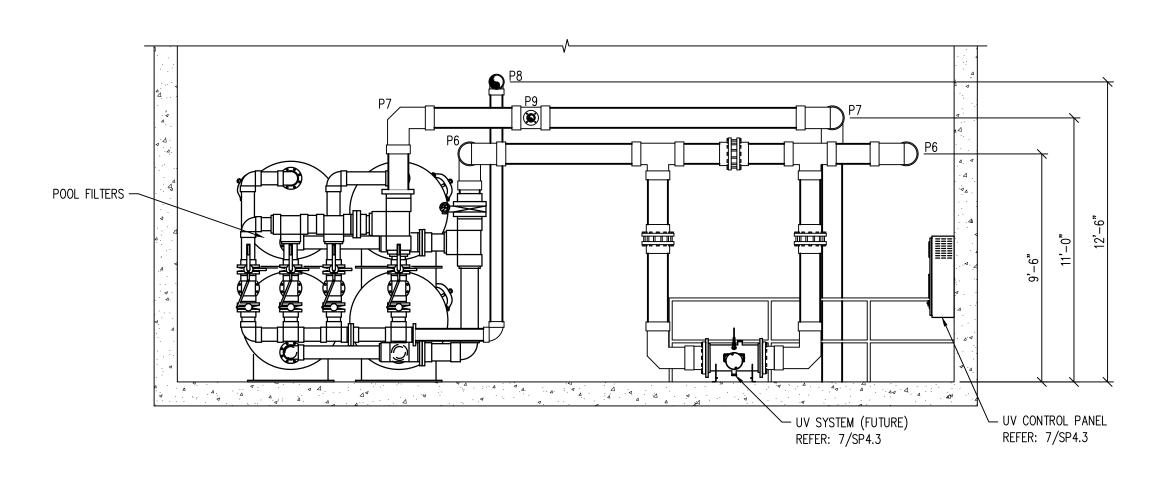
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SP4.0



## WAVE POOL MECHANICAL ROOM SECTION SP4.1 1/4" = 1'-0"



WAVE POOL MECHANICAL ROOM SECTION 2 SP4.1 1/4" = 1'-0"

		PUMP SC	HEDULE						
ID	DESCRIPTION	MANUFACTURER	MODEL	SIZE	GPM	TDH	HP	NPSHR	NOTES
PP1	WAVE POOL RECIRCULATION PUMP 1 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP2	WAVE POOL RECIRCULATION PUMP 2 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP3	WAVE POOL FEATURE PUMP REFER: 1/SP4.3	AURORA	340	6X6X9	810	55	15	7.68	1,2,3,4,5

NOTE:

1. THE MANUFACTURER INDICATED IS BASIS OF DESIGN. PUMP MANUFACTURERS: ITT MARLOW, GRISWOLD, PACO OR AURORA SHALL BE CONSIDERED EQUAL PROVIDED THEY MEET SPECIFICATIONS AS INDICATED IN BID DOCUMENTS.

2. PROVIDE WITH 460 VOLT, 3 PHASE, 60HZ, 1750 RPM MOTOR.

3. PROVIDE WITH CHECK VALVE.

4. PROVIDE VARIABLE FREQUENCY DRIVE.

5. PROVIDE REMOTE PUMP START.

	PIPE SCHEDULE					
ID	DESCRIPTION					
P1	6" FROM FILL FUNNEL TO SURGE TANK					
P2	8" FROM P10 TO PP1					
P3	8" FROM P10 TO PP2					
P4	8" FROM MAIN DRAINS TO PP3					
P5	6" FROM PP3 TO VALVE BOXES					
P6	10" FROM POOL FILTERS TO INLETS					
P7	10" FROM PP1 & PP2 TO POOL FILTERS					
P8	6" FROM POOL FILTERS TO BACKWASH CATCH BASIN					
P9	P9 3" FROM P7 TO BACKWASH CATCH BASIN					
P10 12" FROM MAIN DRAINS TO P2 & P3						
P11	10" FROM GUTTER DROPOUT BOXES TO SURGE TANK					
P12	12" TRENCH DROPOUTS TO SURGE TANK					
P13	2" FROM VALVE BOX TO LEAF FEATURE					
P14	2" FROM VALVE BOX TO BUBBLERS					
P15	2" FROM VALVE BOX TO BUBBLERS					
P16	2" FROM VALVE BOX TO BUBBLERS					

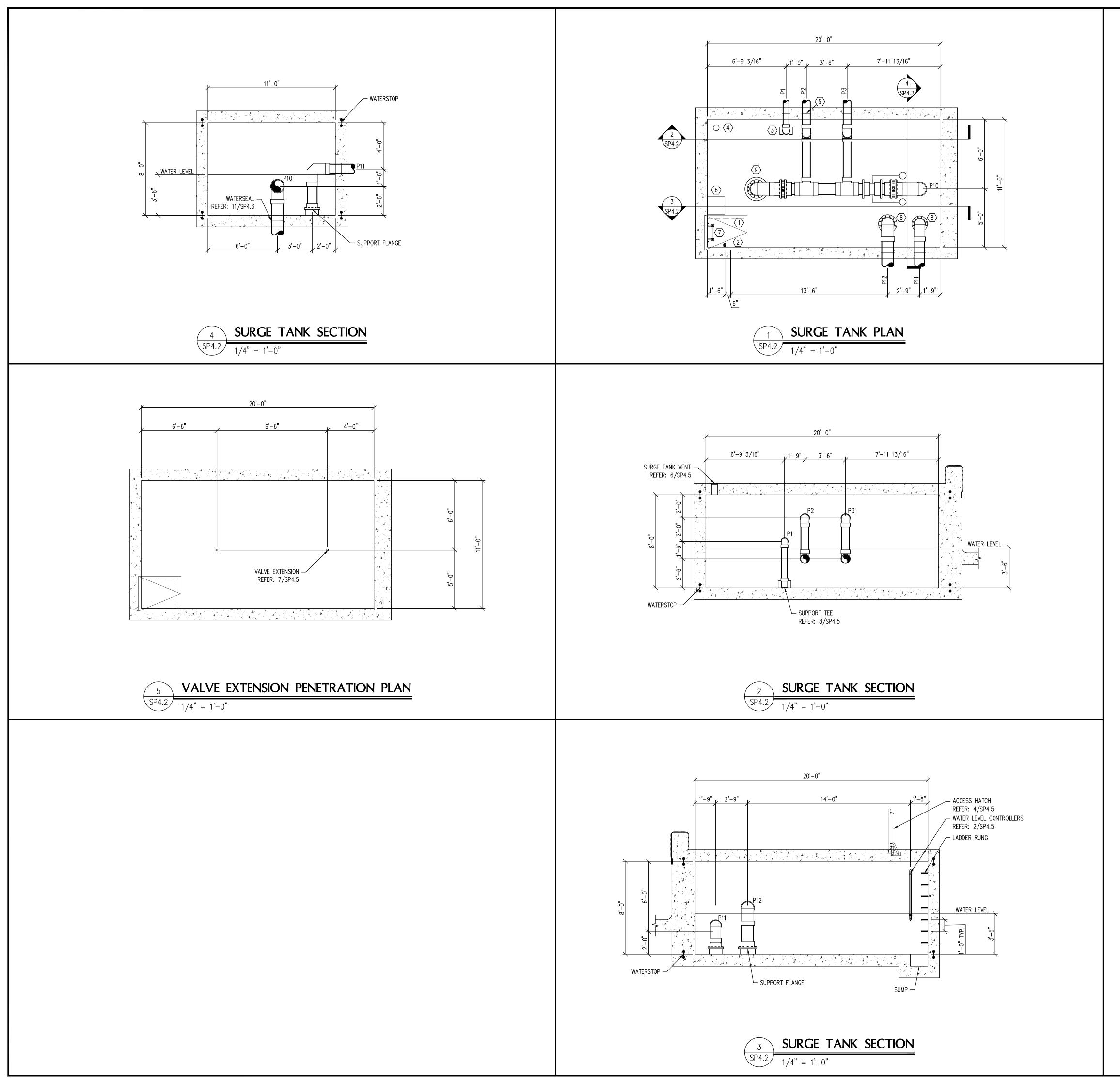
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WAVE POOL MECHAINCAL ROOM SECTIONS

Drawn by: Checked by:	DRO
	04/15/2019
Project No.	064538700

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SP4.1



## SURGE TANK NOTES

- 1. A WATERPROOFING COATING SHALL BE PROVIDED TO ALL INTERIOR SURFACES OF SURGE TANK INCLUDING LID.
- 2. PROVIDE WATER TIGHT PIPE PENETRATIONS AND INTERFACES WITHIN THE SURGE TANK.
- 3. REFER TO POOL OR BUILDING STRUCTURAL DRAWINGS FOR SURGE TANK STRUCTURAL SHELL DESIGN.
- 4. SLEEVES IN SLAB OVER SURGE TANK FOR VALVE EXTENSIONS POSITIONED DIRECTLY ABOVE SURGE TANK VALVES BELOW SHALL
- 5. DRILL 1" DIAMETER HOLE ON TOP OF ELBOW. TYPICAL ALL GUTTER DROPOUT LINES.
- 6. LADDER RUNGS SHALL BE PROVIDED.
- 7. REFER TO <u>POOL OR BUILDING</u> STRUCTURAL DRAWINGS FOR WATER STOPS.
- 8. PVC ANTI-VORTEX PLATE SHALL BE MINIMUM 2.5 TIMES CONNECTING PIPE DIAMETER UP TO 24" AND 4" A.F.F.
- 9. SUPPORT FLANGE WITH FOUR (4) LEGS EQUAL TO NOMINAL PIPE DIAMETER, BUT NOT LESS THAN 6" A.F.F.
- 10. PROVIDE 18"x18"x12" DEEP SUMP LOCATED NEAR ACCESS HATCH.

		PUMP SC	HEDULE						
ID	DESCRIPTION	MANUFACTURER	MODEL	SIZE	GPM	TDH	HP	NPSHR	NOTES
PP1	WAVE POOL RECIRCULATION PUMP 1 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP2	WAVE POOL RECIRCULATION PUMP 2 REFER: 1/SP4.3	AURORA	340	6X6X9	800	75	25	7.94	1,2,3,4
PP3	WAVE POOL FEATURE PUMP REFER: 1/SP4.3	AURORA	340	6X6X9	810	55	15	7.68	1,2,3,4,5

- 1. THE MANUFACTURER INDICATED IS BASIS OF DESIGN. PUMP MANUFACTURERS: ITT MARLOW, GRISWOLD, PACO OR AURORA SHALL BE CONSIDERED EQUAL PROVIDED THEY MEET SPECIFICATIONS AS INDICATED IN BID DOCUMENTS.
- . PROVIDE WITH 460 VOLT, 3 PHASE, 60HZ, 1750 RPM MOTOR.
- 3. PROVIDE WITH CHECK VALVE.
  4. PROVIDE VARIABLE FREQUENCY DRIVE.
  5. PROVIDE REMOTE PUMP START.

PIPE SCHEDULE		
ID	DESCRIPTION	
P1	6" FROM FILL FUNNEL TO SURGE TANK	
P2	8" FROM P10 TO PP1	
Р3	8" FROM P10 TO PP2	
P4	8" FROM MAIN DRAINS TO PP3	
P5	6" FROM PP3 TO VALVE BOXES	
P6	10" FROM POOL FILTERS TO INLETS	
P7	10" FROM PP1 & PP2 TO POOL FILTERS	
P8	6" FROM POOL FILTERS TO BACKWASH CATCH BASIN	
P9	3" FROM P7 TO BACKWASH CATCH BASIN	
P10	12" FROM MAIN DRAINS TO P2 & P3	
P11	10" FROM GUTTER DROPOUT BOXES TO SURGE TANK	
P12	12" TRENCH DROPOUTS TO SURGE TANK	
P13	2" FROM VALVE BOX TO LEAF FEATURE	
P14	2" FROM VALVE BOX TO BUBBLERS	
P15	2" FROM VALVE BOX TO BUBBLERS	
P16	2" FROM VALVE BOX TO BUBBLERS	

EQUIPMENT SCHEDULE		
ID	ITEM	
(1)	ACCESS HATCH REFER: 5/SP4.5	
2	WATER LEVEL CONTROLLER(S) REFER: 2/SP4.5	
3	SUPPORT TEE REFER: 8/SP4.5	
4	SURGE TANK VENT REFER: 6/SP4.5	
5	WATER SEAL REFER: 11/SP4.5	
6	SUMP	
7	LADDER RUNGS	
8	SUPPORT FLANGE	
9	ANTI-VORTEX PLATE	

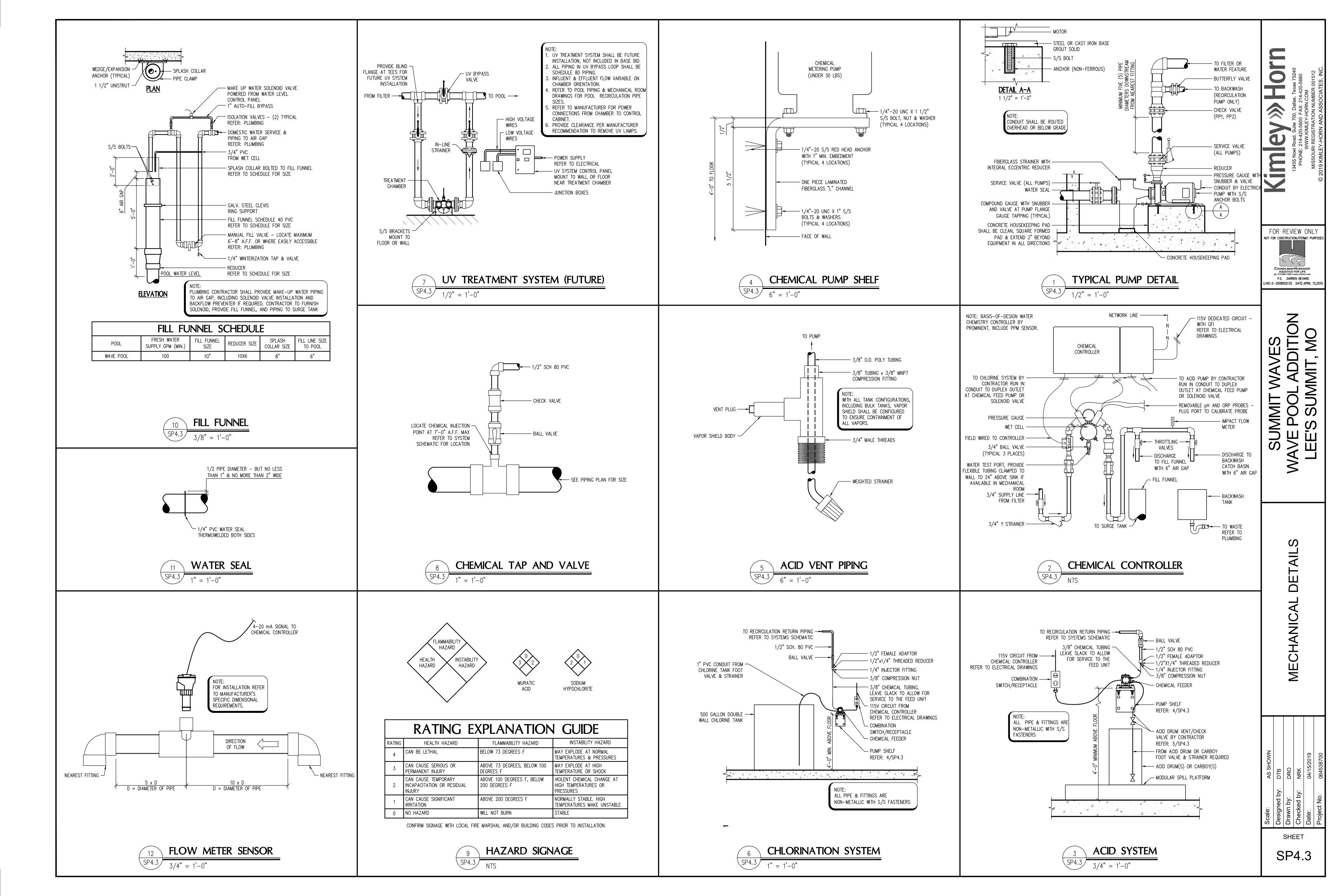
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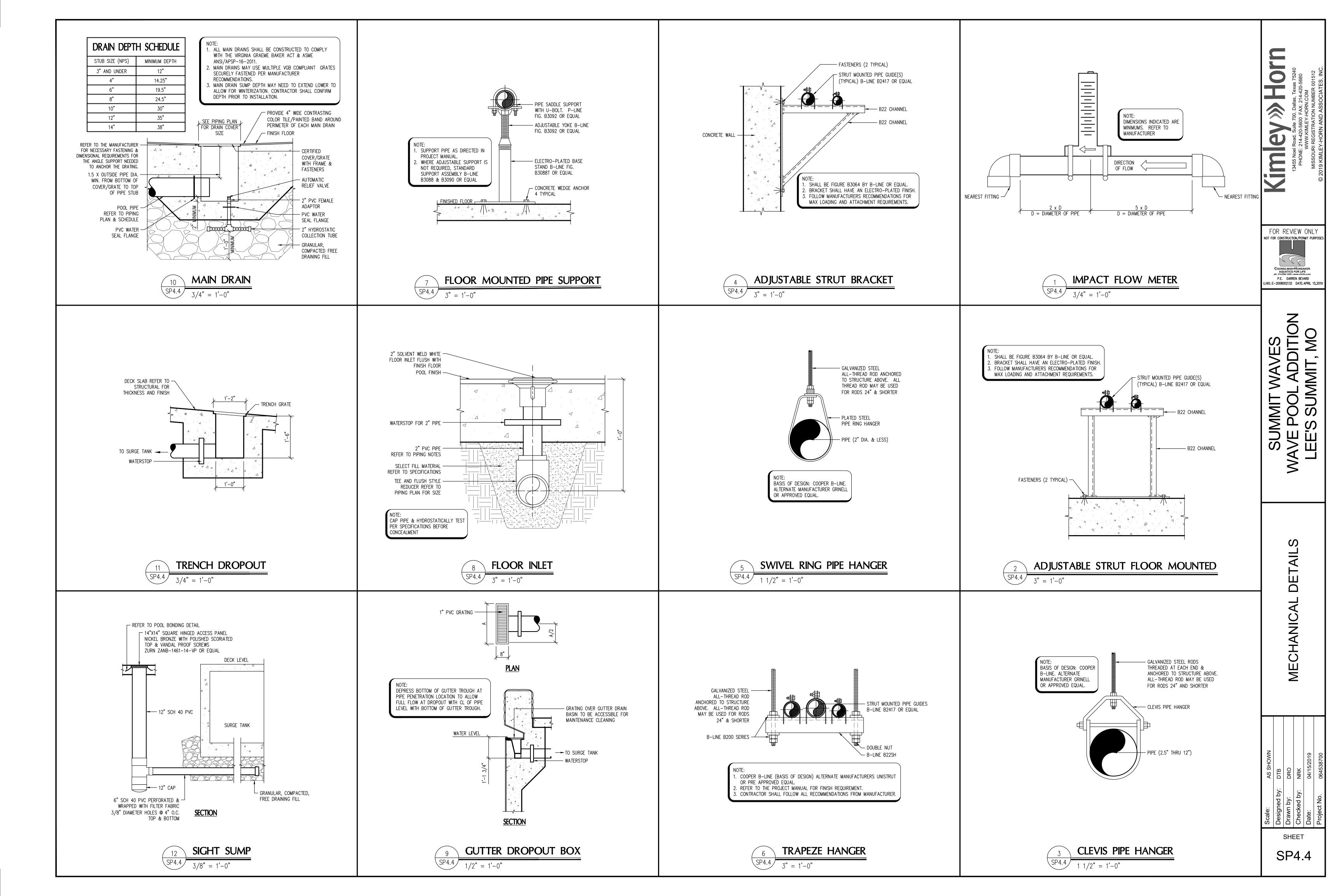
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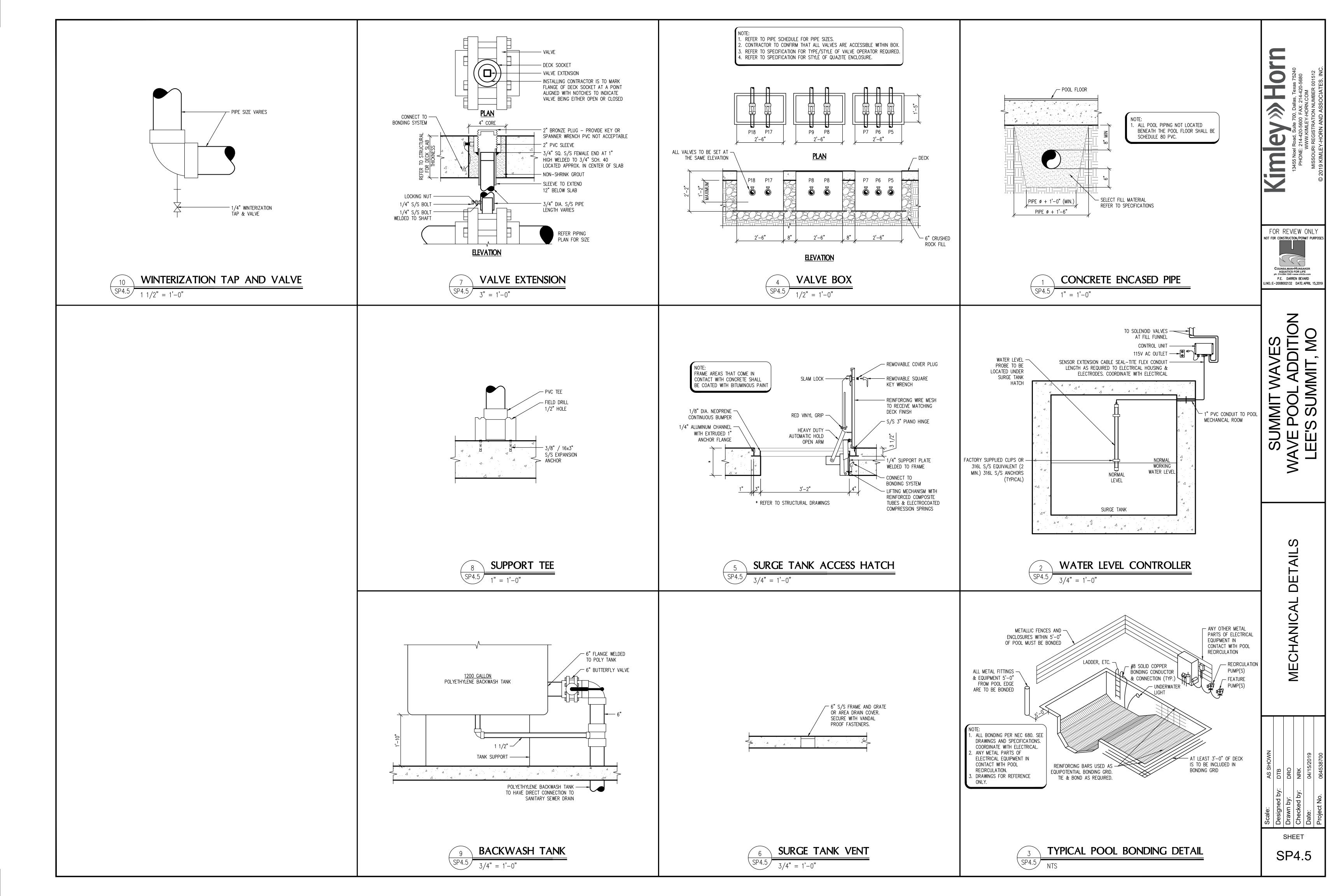
SURGE TANK PLAN SECTIONS

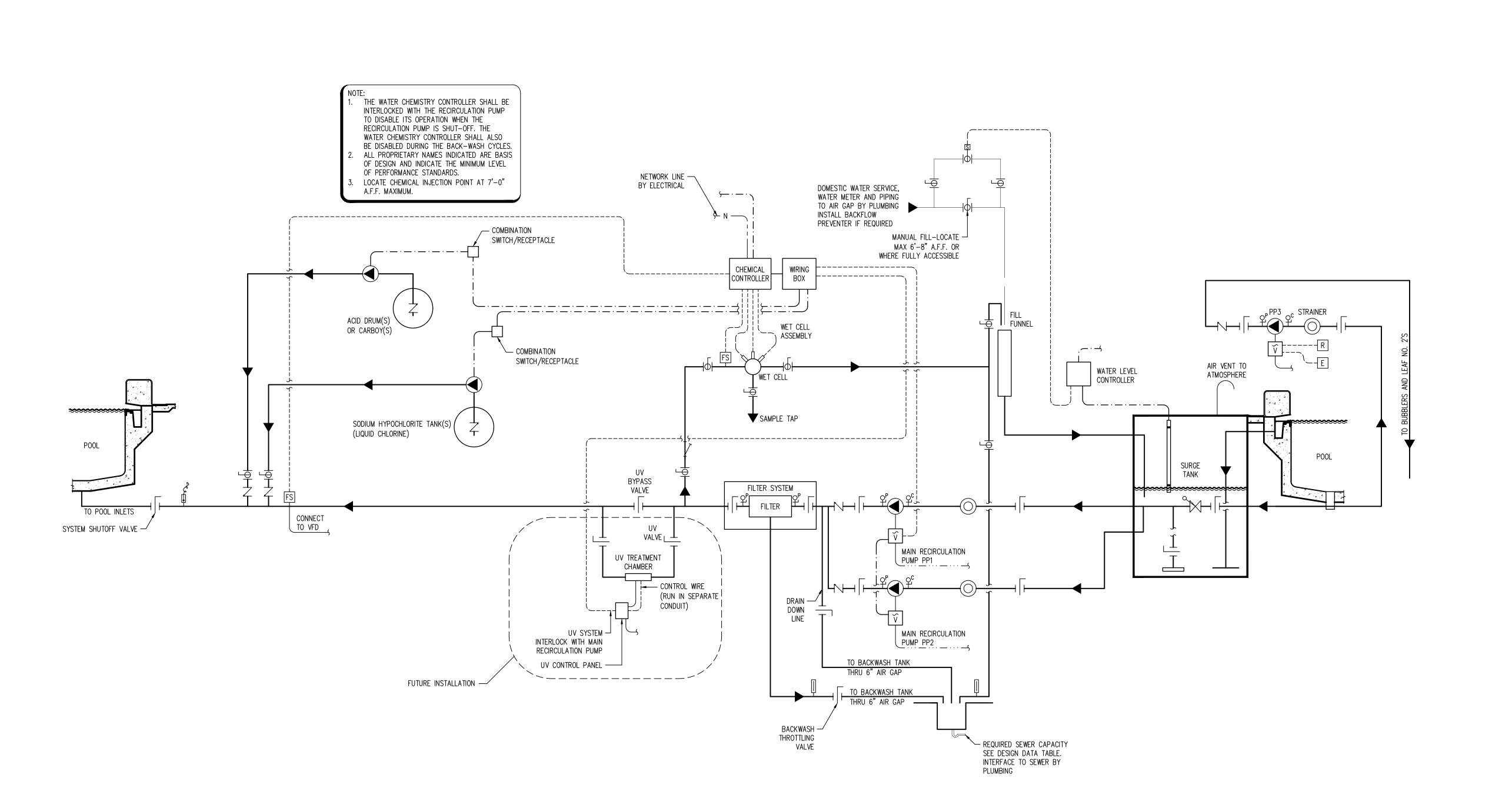
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SP4.2









## SCHEMATIC LEGEND

LEGEND ITEM FLOW DIRECTION — BUTTERFLY VALVE BALL VALVE MODULATING FLOAT VALVE PRESSURE REDUCING VALVE

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J.NO.: E-2008002132 DATE: APRIL 15,20

SUMMIT AVE POOI LEE'S SUI

SOLENOID VALVE

SWING GATE CHECK  $\rightarrow \searrow$ VALVE

THREE WAY VALVE —

DUCK BILLED VALVE

HAIR AND LINT STRAINER

"Y" STRAINER FLOW METER

FLOW INTERLOCK FS FLOW SENSOR

IMPACT FLOW METER

VENTURI FLOW METER WATER METER

AUTOMATIC AIR VENT MANUAL AIR VENT

\_\_\_<del>\_\_</del>P PRESSURE GAUGE AND COCK COMPOUND GAUGE AND COCK

DIGITAL TEMP SENSOR THERMOMETER

PNEUMATIC ACTUATOR SOLENOID

——CE POWER CORD

FLOW CONTROL VALVE VARIABLE FREQUENCY DRIVE

REMOTE START/STOP

EMERGENCY STOP

----- LOW VOLTAGE CONTROL

-·-·- 1 PHASE POWER

-···— 3 PHASE POWER —— — VENT LINE

····· CO<sub>2</sub> LINE ---- N ---- NETWORK LINE SCHEMATIC SYSTEMS

POOL

SHEET SP5.0

POOL SYSTEMS SCHEAMTIC