# LOT 10 LAKEWOOD BUSINESS PARK

LOT 10 I-470 BUSINESS & TECHNOLOGY CENTER 2601 NE MCBAINE DRIVE LEE'S SUMMIT, MO 64064

ISSUED FOR: PERMIT - 09/24/2021



# **GENERAL NOTES**

- SOLELY AS A CONVENIENCE TO THE OWNER AND CONTRACTOR, THE ARCHITECT MAY INCLUDE DOCUMENTS PREPARED BY CERTAIN CONSULTANTS (OR INCORPORATE THE ARCHITECT) WITHIN THE SET OF DOCUMENTS ISSUED BY THE ARCHITECT. IT IS EXPRESSLY UNDERSTOOD, THAT BY SUCH ISSUANCE, THE ARCHITECT ASSUMES NO LIABILITY FOR THE SERVICES OF SAID CONSULTANTS.
- ALL WORK AND MATERIALS SHALL CONFORM TO THE APPLICABLE CODES LISTED IN THE PROJECT CODE SUMMARY.
- UNLESS OTHERWISE INDICATED ON THESE DRAWINGS AND SPECIFICATIONS AS BEING N.I.C. OR EXISTING, ALL ITEMS, MATERIALS, ETC. AND INSTALLATIONS OF THE SAME ARE A PART OF THE CONTRACT DEFINED BY THESE DRAWINGS AND SPECIFICATIONS AND THEIR
- CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS AND COMPLY WITH SAFETY REGULATIONS AND RESTRICTIONS AS REQUIRED FOR WORKERS AND PEDESTRIAN PROTECTION DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. PROVIDE PROTECTION AS REQUIRED TO PREVENT ANY DAMAGE TO EXISTING CONSTRUCTION WITHIN AND ADJACENT TO JOB SITE. WHERE DAMAGE OCCURS, THE CONTRACTOR SHALL REPAIR OR REPLACE DAMAGED AREA AND/OR MATERIAL AS REQUIRED TO THE OWNER'S APPROVAL AT NO ADDITIONAL COST. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND MAY NOT BE LIMITED TO NORMAL WORKING HOURS. PROVIDE SECURITY FENCE AND GATES AS NECESSARY AROUND THE AREA WITHIN THE SCOPE OF WORK.
- IF THERE ARE TRENCHES OR EXCAVATION 5'-0" OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND, CONTRACTOR SHALL OBTAIN NECESSARY PERMIT FROM THE APPROPRIATE LOCAL GOVERNING AGENCY.
- PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, UTILITIES, OTHER SERVICES AND RELATED TASKS NECESSARY FOR PROPER EXECUTION OF THE CONSTRUCTION REQUIRED BY CONTRACT DOCUMENTS.
- ANY REVISION OR ADDITIONAL WORK REQUIRED BY FIELD CONDITIONS OR LOCAL GOVERNING AUTHORITIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS, LICENSES, INSPECTIONS AND TESTING INDICATED ON THE PLANS AND BY SPECIFICATIONS OR REQUIRED BY THE SOILS REPORT AND/OR REQUIRED BY ANY
- CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL UTILITY LINES AND STUBS TO THE BUILDING(S) AS MAY BE INDICATED ON THE PLANS.
- NO ADDITIONAL ROOF OPENING OR ROOF MOUNTED EQUIPMENT IS ALLOWED BEYOND THAT WHICH IS SHOWN ON THESE PLANS WITHOUT WRITTEN CONSENT OF THE ARCHITECT AND STRUCTURAL ENGINEER.
- NO STRUCTURAL MEMBER SHALL BE CUT FOR PIPES, HVAC DUCTS, ETC., UNLESS SPECIFICALLY DETAILED AND/OR APPROVED BY THE ARCHITECT AND STRUCTURAL
- ALL SHOP WELDING TO BE DONE IN A CERTIFIED LICENSED SHOP. ALL FIELD WELDING SHALL BE DONE ONLY BY CERTIFIED WELDERS UNDER CONTINUOUS INSPECTION WITH CERTIFICATE ISSUED AS REQUIRED BY BUILDING OFFICIAL.
- WHERE LARGER STUDS OR FURRING IS REQUIRED TO COVER DUCTS, PIPING, CONDUIT, ETC., THE LARGER SIZE STUD OR FURRING SHALL EXTEND THE FULL LENGTH OF THE SURFACE WHERE THE FURRING OCCURS.
- NO HAZARDOUS MATERIALS WILL BE STORED AND/OR USED WITHIN THE BUILDING WHICH EXCEED THE QUANTITIES ALLOWED BY CODE.
- INSTALLATION OF ANY BUILDING INSULATION WHICH CONTAINS OR UTILIZES AN OZONE DEPLETING COMPOUND IS PROHIBITED.
- NO BUILDING OR PORTION OF A BUILDING SHALL BE OCCUPIED OR USED FOR STORAGE PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
- THE BUILDING AND FACILITIES MUST BE ACCESSIBLE TO AND FUNCTIONAL FOR THE PHYSICALLY DISABLED IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT (ADA) AND ALL OTHER STATE/FEDERAL GOVERNING AGENCIES.

# **CONSTRUCTION NOTES**

- IN THE FIELD PRIOR TO COMMENCING WORK, AND SHALL REPORT TO THE ARCHITECT ANY CONDITION OR DISCREPANCY BETWEEN DRAWINGS AND FIELD CONDITIONS REQUIRING MODIFICATIONS BEFORE PROCEEDING WITH THE
- PROPER CONSTRUCTION OF ANY PART OF THE WORK SHALL BE INCLUDED AS IF THEY WERE INDICATED IN THE DRAWINGS.
- REFERENCING OF DRAWINGS IS FOR CONVENIENCE ONLY AND DOES NOT LIMIT
- THE CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE SHORING AND BRACING FOR ALL STRUCTURAL OR REMOVAL TASKS. THE CONTRACTOR
- DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO THOSE THAT ARE. WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED, CONSULT THE ARCHITECT BEFORE PROCEEDING WITH THE
- THE CONTRACTOR SHALL LAY OUT HIS OWN WORK, AND SHALL PROVIDE ALL DIMENSIONS REQUIRED FOR OTHER TRADES.
- THE CONTRACTOR SHALL DO ALL CUTTING, PATCHING AND REPAIRING AS REQUIRED TO PERFORM ALL OF THE WORK INDICATED ON THE DRAWINGS. AND ALL OTHER WORK THAT MAY BE REQUIRED TO COMPLETE THE JOB.

- THE INTENT OF THE SET OF CONTRACT DOCUMENTS IS TO INCLUDE ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK BY THE CONTRACTOR AS BINDING PERFORMANCE. THE CONTRACTOR SHALL BE REQUIRED ONLY TO THE EXTENT CONSISTENT WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS REASONABLY INFERABLE FROM THEM AS
- ORGANIZATION OF THE SPECIFICATIONS INTO DIVISIONS, SECTIONS AND ARTICLES, ARRANGEMENT OF DRAWINGS SHALL NOT CONTROL THE CONTRACTOR, IN DIVIDING THE WORK AMONG SUBCONTRACTORS OR IN
- USED IN THE CONTRACT DOCUMENTS IN ACCORDANCE WITH SUCH
- GENERAL CONTRACTOR AND ELECTRICAL SUBCONTRACTOR TO FULLY COORDINATE ALL ELECTRICAL DEVICE BODIES AND COVER PLATES PER THE SPECIFICATIONS. DEVICE BODIES AND COVER PLATES ARE COLOR COORDINATED WITH SPECIALTY FINISHES. PROVIDE DEVICE BODY AND COVER PLATES TO THE ARCHITECT FOR OWNER REVIEW AND APPROVAL.
- UNITS ARE PLACED WITHIN WALLS AND CEILING ASSEMBLIES VS ADJACENT

# SHEET INDEX

# THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS

- MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL CONDITIONS AND MATERIALS WITHIN THE PROPOSED CONSTRUCTION AREAS. SHALL HAVE SOLE RESPONSIBILITY FOR ANY DAMAGE OR INJURIES CAUSED BY

MATERIAL FINISH COLOR.

APPLICATION OF ANY DRAWING.

- OR DURING THE EXECUTION OF THE WORK.
- NOTES APPEAR ON VARIOUS SHEETS FOR VARIOUS SYSTEMS AND MATERIALS. SHEETS ARE TO BE OWNER REVIEWED AND NOTES ON ANY ONE SHEET ARE TO BE APPLIED TO RELATED SYSTEMS AND MATERIALS DEPICTED ON OTHER

- GUTTER AND DOWNSPOUT SIZING PER OWNER'S CONTRACTOR.

# INSTRUCTION TO CONTRACTOR

- BEING NECESSARY TO PRODUCE THE INDICATED RESULTS.
- ESTABLISHING THE EXTENT OF WORK TO BE PERFORMED BY ANY TRADE.
- UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS, WORDS WHICH HAVE WELL-KNOWN TECHNICAL OR CONSTRUCTION INDUSTRY MEANINGS ARE RECOGNIZED MEANINGS.
- GENERAL CONTRACTOR TO FULLY COORDINATE WITH MECHANICAL/PLUMBING SUBCONTRACTORS. ALL FIXTURE/DEVICE COLORS WHERE FIXTURE/DEVICE

### SHEET NAME

G-100	COVER SHEET	X
CIVIL		
C-001	COVER SHEET	X
C-101	DEMOLITION PLAN	X
C-121	EROSION CONTROL PLAN PHASE 1	X
C-122	EROSION CONTROL PLAN PHASE 2	X
C-123	EROSION CONTROL PLAN PHASE 3	X
C-131	EROSION CONTROL DETAILS	X
C-132	EROSION CONTROL DETAILS	X
C-201	DIMENSION PLAN	X
C-301	GRADING PLAN	X
C-401	UTILITY PLAN	X
C-411	STORM PROFILES	X
C-421	DRAINAGE AREA MAP	X
C-501	DETAILS	X

LANDS	CAPE	
L-100	LANDSCAPE PLAN	х
		·
ARCHI	TECTURAL	
A-001	LIFE SAFETY AND CODE SHEET	X
A-002	ROOF DRAINAGE PLAN	X
A-100	OVERALL MAIN LEVEL FLOOR PLAN	X
A-110	MAIN LEVEL FLOOR PLAN - AREA A	X
A-111	MAIN LEVEL FLOOR PLAN - AREA B	Х
A-130	ENLARGED PLANS	X
A-200	ROOF PLAN	X
A-301	EXTERIOR ELEVATIONS	X
A-400	WALL SECTIONS & DETAILS	X

S001 STRUCTURAL GENERAL NOTES

S100 FOUNDATION PLAN

S101 FOUNDATION PLAN

MECHANICAL/PLUMBING								
MP001	MECHANICAL AND PLUMBING SPECIFICATIONS AND SYMBOLS							
MP002	MECHANICAL AND PLUMBING SCHEDULES AND DETAILS							

### M-101 MECHANICAL PLAN WEST M-102 MECHANICAL PLAN EAST P-101 PLUMBING PLAN WEST

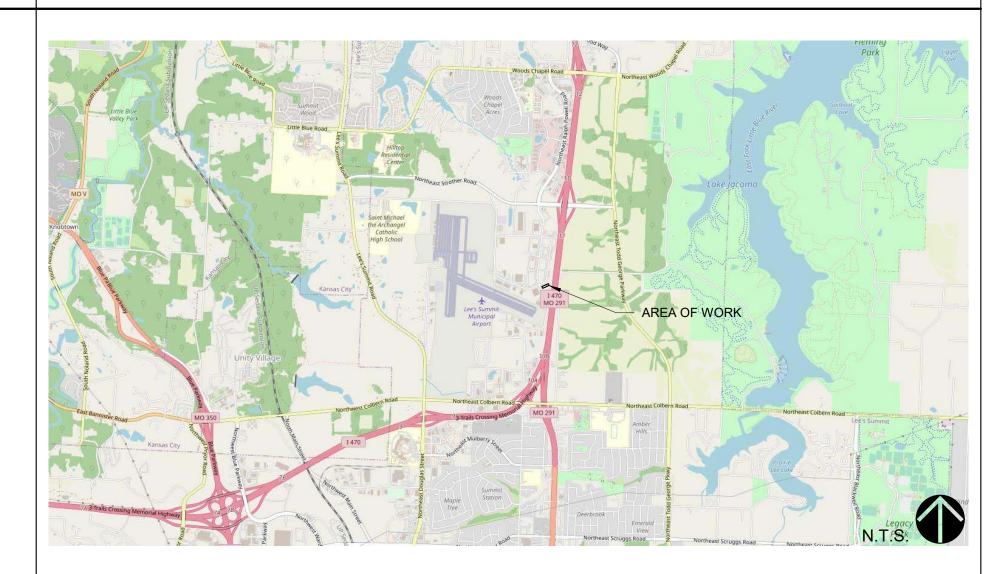
# E-001 ELECTRICAL SPECIFICATIONS AND SYMBOL

P-102 PLUMBING PLAN EAST

E-001	ELECTRICAL SPECIFICATIONS AND SYMBOLS
E-002	PHOTOMETRIC PLAN
E-003	PHOTOMETRIC PLAN
E-101	ELECTRICAL PLAN - WEST
E-102	ELECTRICAL PLAN - EAST

E-201 | ELECTRICAL EQUIPMENT POWER PLAN - WEST E-202 ELECTRICAL EQUIPMENT POWER PLAN - EAST E-301 ELECTRICAL SCHEDULES AND DIAGRAMS

# **VICINITY MAP**



### PROJECT DIRECTORY

DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 PHONE: 816-229-8115 EMAIL: DAVID@SAFETYMINISTORAGE.COM

### STRUCTURAL ENGINEER



STAND SEI 8234 ROBINSON ST. OVERLAND PARK, KS 66204 PAUL SPEARS, STRUCT. ENGINEER PHONE: (913) 214-2169 EMAIL:

### **MECHANICAL / ELECTRICAL / PLUMBING ENGINEER**



**JSC ENGINEERS** 1901 NW BLUE PKWY, 3RD FLOOR UNITY VILLAGE, MO 64065 JUSTIN SMOTHERS, MEP ENGINEER PHONE: (816) 272-5289 JSMOTHERS@JSCENGINEERS.COM

### ARCHITECT / CIVIL ENGINEER



NICK CURTIS, ARCHITECT 816.373.4800 NCURTIS@POWELLCWM.COM

TOBY WILLIAMS, CIVIL ENGINEER 816.373.4800

TWILLIAMS@POWELLCWM.COM

DRAWN BY: NC PROJECT #: 21-1902

ISSUE FOR PERMIT

ISSUE DATE: 2021.09.24

JAMES

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**COVER SHEET** 



DAVID WARD

WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029

# Lot 10 I-470 BUSINESS AND TECHNOLOGY CENTER

### **GENERAL NOTES**

- THE CONSTRUCTION COVERED BY THESE PLANS SHALL CONFORM TO ALL APPLICABLE STANDARDS AND SPECIFICATIONS OF THE PUBLIC WORKS DEPARTMENT OF THE CITY OF LEE'S SUMMIT, MISSOURI, IN CURRENT USAGE AND ALL SUPPLEMENTS THERE TO.
- 2. REFER TO THE CURRENT VERSION OF THE KC METRO CHAPTER AMERICAN PUBLIC WORKS ASSOCIATION, STANDARD SPECIFICATIONS & INSTALLATION FOR THE GUIDING REFERENCE AS WELL MDNR.
- 3. DO NOT SCALE THESE DRAWINGS.
- 4. NO GEOLOGICAL INVESTIGATION WAS PERFORMED ON THIS SITE.
- 5. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, BONDS, AND INSURANCE REQUIRED BY THE CITY.
- THE UTILITY LOCATIONS SHOWN ON THESE PLANS ARE TAKEN FROM UTILITY COMPANY RECORDS AND ARE APPROXIMATE ONLY. THEY DO NOT CONSTITUTE ACTUAL FIELD LOCATIONS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION.
- 7. CLEARING AND GRUBBING OPERATIONS AND DISPOSAL OF ALL DEBRIS THEREFROM SHALL BE PERFORMED BY THE CONTRACTOR IN STRICT ACCORDANCE WITH ALL STATE AND LOCAL CODES.
- 8. THE DEVELOPER / OWNER SHALL CONTROL EROSION AND SILTATION DURING ALL PHASES OF
- CONSTRUCTION, AND SHALL KEEP THE STREETS CLEAN OF MUD AND DEBRIS.

  9. ALL EXCESS MATERIAL SHALL BE REMOVED LEGALLY FROM SITE AND DISPOSED OF OFF SITE.
- 10. TRAFFIC CONTROL AND MAINTENANCE OF TRAFFIC DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE PUBLIC WORKS DEPARTMENT.
- 11. EROSION CONTROL MEASURES SHALL BE PROVIDED AT ALL LOCATIONS WHERE DRAINAGE IS LEAVING THE PROJECT SITE. THE EROSION CONTROL PLAN SHOWS MINIMUM EROSION CONTROL MEASURES TO BE PROVIDED. ADDITIONAL SITE SPECIFIC MEASURES MAY BE NECESSARY AND SHALL BE PROVIDED BY THE DEVELOPER / OWNER, AT THE CONTRACTOR'S EXPENSE.
- 12. ANY EXISTING OR NEW STORM SEWER INLETS IN USE DURING DEMOLITION, GRADING OR CONSTRUCTION SHALL HAVE INLET PROTECTION.
- 13. THE CONTRACTOR SHALL FIELD VERIFY ALL SITE CONDITIONS AND SHALL REPORT ANY DISCREPANCIES BETWEEN ACTUAL AND PLAN SHOWN CONDITIONS TO THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION
- 14. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND QUANTITIES SHOWN ON THESE PLANS AND SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING ANY RELATED WORK.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DETERMINING THE LOCATION OF ALL EXISTING
  UTILITIES AND UNDERGROUND INSTALLATIONS, INCLUDING SERVICE CONNECTIONS, IN ADVANCE OF
  EXCAVATION OR TRENCHING, AND PROTECT THE SAME AS REQUIRED TO MAINTAIN GOOD OPERATING
  CONDITION.
- 16. THE CONTRACTOR SHALL USE HIS OWN INFORMATION AND NOT RELY UPON ANY INFORMATION
- SHOWN ON THE DRAWINGS CONCERNING EXISTING UNDERGROUND INSTALLATIONS.

  17. ANY DELAY, ADDITIONAL WORK, OR EXTRA COST TO THE CONTRACTOR CAUSED BY OR RESULTING FROM DAMAGE TO EXISTING UNDERGROUND INSTALLATIONS SHALL NOT CONSTITUTE A CLAIM FOR EXTRA WORK, ADDITIONAL PAYMENT, OR DAMAGES. ALL DAMAGE TO EXISTING UTILITIES INCLUDING SERVICE CONNECTIONS SHALL RE REPAIRED BY AND AT THE EXPENSE OF THE CONTRACTOR
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO BEGINNING CONSTRUCTION
   ACTIVITIES AND OBTAIN ALL NECESSARY INSPECTIONS THROUGHOUT THE CONSTRUCTION ACTIVITIES
- 19. ALL EXCAVATION SHALL BE UNCLASSIFIED. NO SEPARATE PAYMENT WILL BE MADE FOR ROCK FXCAVATION.
- 20. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, INCLUDING BUT NOT LIMITED TO ALL UTILITIES, STORM DRAINAGE, AND SIGNS AS REQUIRED, ALL WORK SHALL BE IN ACCORDANCE WITH THE GOVERNING AUTHORITIES' SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN THE CONTRACTOR'S CONTRACT WITH THE OWNER. ADDITIONALLY, ALL EXISTING UTILITY TOPS SHALL BE ADJUSTED TO FINISHED GRADE.
- 21. REMOVAL OF EXISTING PAVING AND/OR BORING AT THE CONTRACTOR'S DISCRETION SHALL BE INCLUDED AS A PART OF ALL UTILITY INSTALLATIONS WHERE APPLICABLE AT THE CONTRACTOR'S EXPENSE AS WELL AS REPLACEMENT/REPAIR OF ALL DISTURBED MATERIALS IN ACCORDANCE WITH LOCAL SPECIFICATIONS AND CODES.
- 26. THE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION SCHEDULES AND ACTIVITIES WITH THE APPROPRIATE UTILITY OWNER AND ADJACENT PROPERTY OWNERS TO MINIMIZE DISRUPTION TO ADJACENT PROPERTY OWNERS INCLUDING VEHICULAR ACCESS.
- 27. THE CONTRACTOR SHALL COORDINATE ALL UTILITY WORK, INCLUDING DEMOLITION AND REMOVAL, WITH THE APPROPRIATE UTILITY COMPANIES AND SERVICE PROVIDERS PRIOR TO DISCONTINUATION OF SERVICE. UTILITIES NOT NOTED FOR DEMOLITION SHALL REMAIN IN SERVICE AT ALL TIMES.
- 28. THE CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICE TO ALL ADJOINING PROPERTIES UNTIL THE RELOCATED UTILITIES ARE INSPECTED AND APPROVED.
- 29. ALL EXISTING UTILITIES SHALL BE REMOVED BACK TO THE CLOSEST STRUCTURE AND CAPPED AT THAT LOCATION UNLESS OTHERWISE INDICATED IN THESE PLANS.
- 30. REMOVE ALL TREES, GRASS, WEEDS, ROOTS, AND OTHER DEBRIS FROM THE AREA TO BE EXCAVATED FILLED OR GRADED.
- 31. IF EXCAVATED MATERIAL IS UNSUITABLE FOR COMPACTION, AS DETERMINED BY THE GEOTECHNICAL ENGINEER, THE CONTRACTOR SHALL FURNISH SUITABLE BORROW.
  32. ALL SLOPES, CUT OR FILL, SHALL BE GRADED TO MAXIMUM FINISH SLOPE OF THREE (3) FEET
- HORIZONTAL TO ONE (1) FOOT VERTICAL. NO GRADED SLOPE SHALL EXCEED 3:1 WITHOUT SPECIFIC SLOPE PLANTING OR REINFORCEMENT.

  33. SITE SHALL BE GRADED TO ENSURE DRAINAGE OF WATER FROM ALL SURFACES.
- 34. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL SURFACE AND GROUNDWATER CONTROL
- 35. GRADES NOT OTHERWISE INDICATED ON THE PLANS SHALL BE UNIFORM LEVELS OR SLOPES BETWEEN POINTS WHERE ELEVATIONS ARE GIVEN. ABRUPT CHANGES IN SLOPES SHALL BE WELL ROUNDED.
- 36. STORM DRAINAGE SYSTEMS WITHIN THE PROJECT AREA ARE TO BE COMPLETELY CLEANED AT THE
- 37. EXISTING TREES WHERE INDICATED SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. ALL TREE
- 37. EXISTING TREES WHERE INDICATED SHALL BE PROTECTED FROM CONSTRUCTION ACTIVITIES. ALL TREE PROTECTION FENCING TO BE INSPECTED DAILY AND ALL GRADING ACTIVITIES TO REMAIN OUTSIDE THE
- 38. ALL TREE PROTECTION MEASURES SHALL BE INSTALLED PRIOR TO GRADING.
  39. ALL SOILS UNDERCUTTING, OVER EXCAVATION, UNDER DRAIN INSTALLATION, AND ROCK FILLS SHALL
- BE DETERMINED AND DIRECTED BY THE SOILS ENGINEER.
- 40. FILL AREAS TO BE COMPACTED TO 95% STANDARD PROCTOR MINIMUM UNLESS OTHERWISE INDICATED BY GEOTECHNICAL ENGINEER.
- 41. UNLESS OTHERWISE INDICATED, ALL DISTURBED SOIL AREAS TO RECEIVE 6 INCHES OF TOPSOIL AND TO BE SEEDED AND MULCHED.
- 42. THE CONTRACTOR SHALL PERFORM ALL CUTTING, PATCHING, AND REPAIRING AS REQUIRED TO PERFORM ALL OF THE WORK INDICATED ON THE DRAWINGS, AND ALL OTHER WORK THAT MAY BE REQUIRED TO COMPLETE THE JOB.

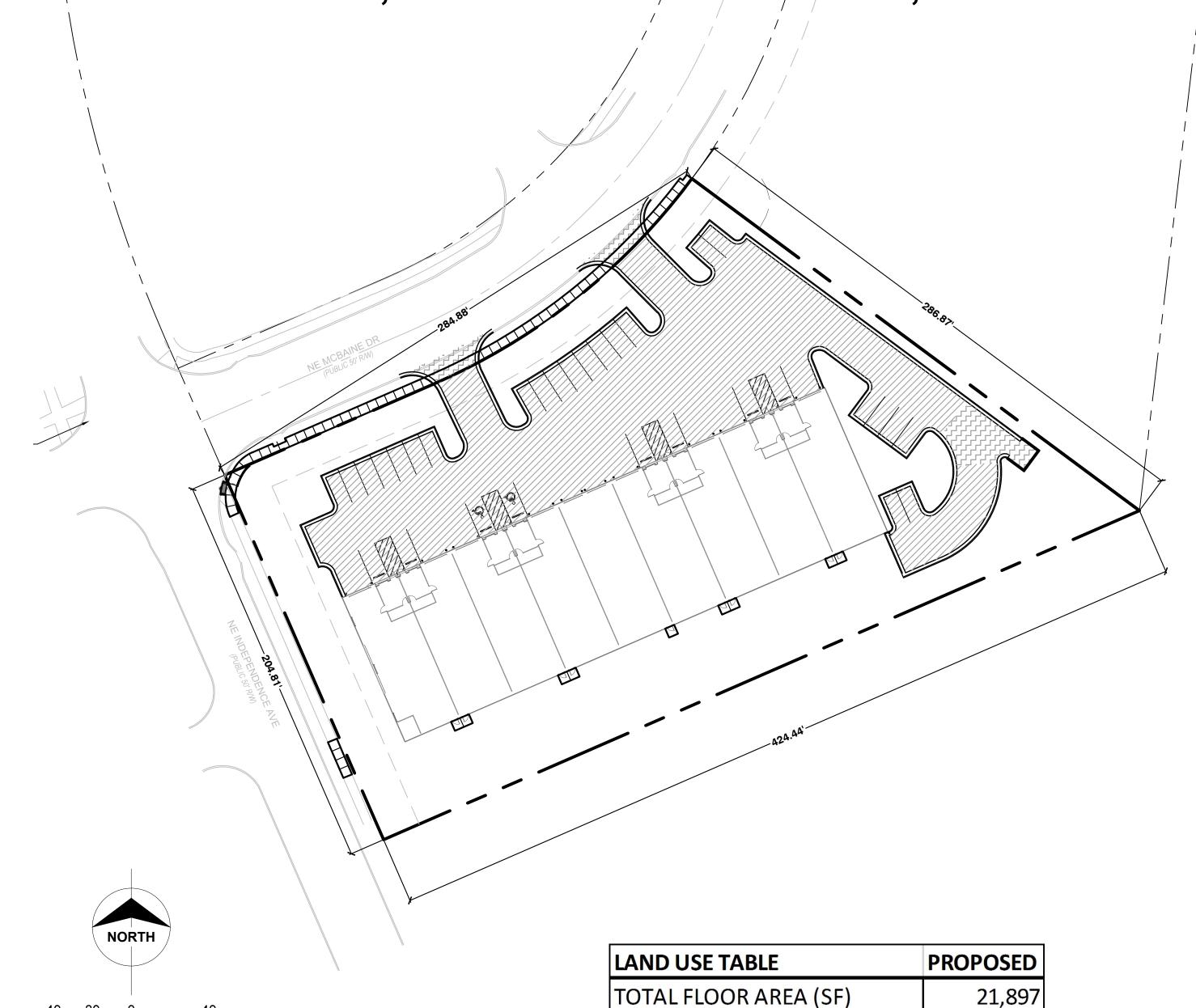
### **CONSTRUCTION NOTES**

- ALL WORK PERFORMED SHALL BE IN ACCORDANCE WITH THE BUILDING CODE OF THE AUTHORITY HAVING JURISDICTION AND THE RULES AND REGULATIONS OF ALL AGENCIES, DEPARTMENTS AND COMMISSIONS HAVING JURISDICTION. WHERE DISCREPANCIES OCCUR AND/OR WHERE THERE ARE CONFLICTS OR OMISSIONS IN THE DRAWINGS AND APPLICATIONS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY AND REFRAIN FROM STARTING AND COMPLETING SUCH WORK, OR DEPENDENT WORK, UNTIL TOLD BY THE ARCHITECT TO PROCEED.
- 2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO COMMENCING WORK, AND SHALL REPORT TO THE ARCHITECT ANY CONDITION OR DISCREPANCY BETWEEN DRAWINGS AND FIELD CONDITIONS REQUIRING MODIFICATIONS BEFORE PROCEEDING WITH THE WORK.
- MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER CONSTRUCTION OF ANY PART OF THE WORK SHALL BE INCLUDED AS IF THEY WERE INDICATED IN THE DRAWINGS.
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- 6. NOTES APPEAR ON VARIOUS SHEETS FOR VARIOUS SYSTEMS AND MATERIALS. SHEETS ARE TO BE OWNER REVIEWED AND NOTES ON ANY ONE SHEET ARE TO BE APPLIED TO RELATED SYSTEMS AND MATERIALS DEPICTED ON OTHER DRAWINGS.

  7. DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO THOSE THAT ARE WHERE SPECIFIC
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- 8. THE CONTRACTOR SHALL LAY OUT HIS OWN WORK, AND SHALL PROVIDE ALL DIMENSIONS REQUIRED FOR OTHER TRADES.
- 9. THE CONTRACTOR SHALL DO ALL CUTTING, PATCHING AND REPAIRING AS REQUIRED TO PERFORM ALL OF THE WORK INDICATED ON THE DRAWINGS, AND ALL OTHER WORK THAT MAY BE REQUIRED TO COMPLETE THE JOB.

# DEVELOPMENT PLAN

LEE'S SUMMIT, JACKSON COUNTY, MISSOURI



# LEGAL DESCRIPTION

LOT 10, WOODBURY ESTATES, A SUBDIVISION IN LEE'S SUMMIT, JACKSON COUNTY, MISSOURI

# **DEVELOPER:**

David Ward
Ward Development
1120 NW Eagle Ridge Blvd.
Grain Valley, MO
816-229-8115

# NOTES:

- Site is located within an area of minimal flood hazard (Flood Zone X) in FEMA FIRM Panel number 29095C0430G (effective 1/20/2017).
- No oil or gas wells are present on site per Missouri DNR record.

LAND AREA (AC)

NUMBER OF DWELLING UNITS

REQUIRED PARKING SPACES

PROVIDED PARKING SPACES

IMPERVIOUS COVERAGE (AC)

FLOOR AREA RATIO (FAR)

1.26

0.281

 Requirements of the City of Lee's Summit Design and Construction Manual shall govern.

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C-101	Demolition Plan
C-121	Erosion Control Plan Phase 1
C-122	Erosion Control Plan Phase 2
C-123	Erosion Control Plan Phase 3
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C-132	<b>Erosion Control Details</b>
C-201	Dimension Plan
C-301	Grading Plan
C-401	Utility Plan
C-411	Storm Profiles
C-421	Drainage Area Map
C-501	Details
L-100	Landscape Plan

# **UTILITIES**

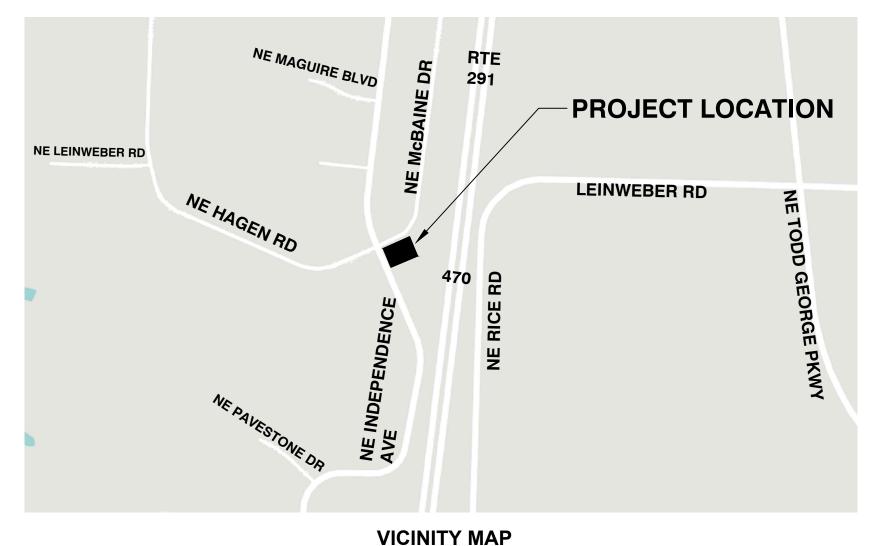
EVERGY 1200 Main St. PO Box 418679 Kansas City, MO 64141 888.471.5275

<u>SPIRE</u> 3025 SE Clover Dr. Lee's Summit, MO 64082 800.582.1234

CITY OF LEE'S SUMMIT 220 SE Green St. Lee's Summit, MO 64063 816.969.1800 AT&T 215 N Spring St. Independence, MO 64050 816.325.5610

SPECTRUM 6550 Winchester Ave. Kansas City, MO 64133 816.358.5360

MISSOURI ONE CALL 1.800.344.7483

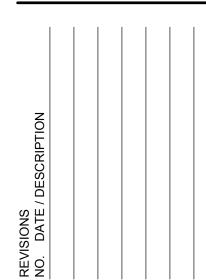


**NOT TO SCALE** 

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816.358.5360

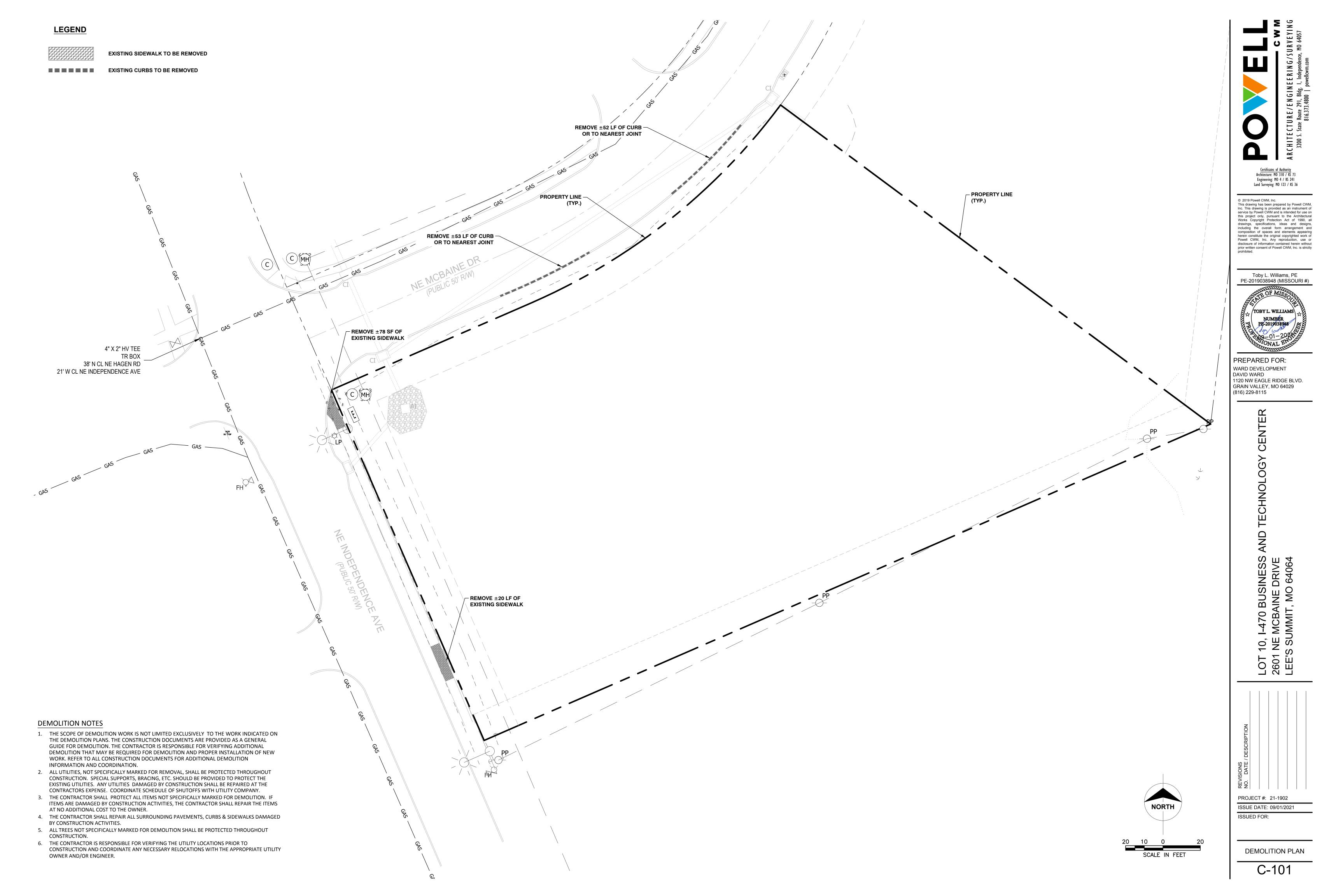
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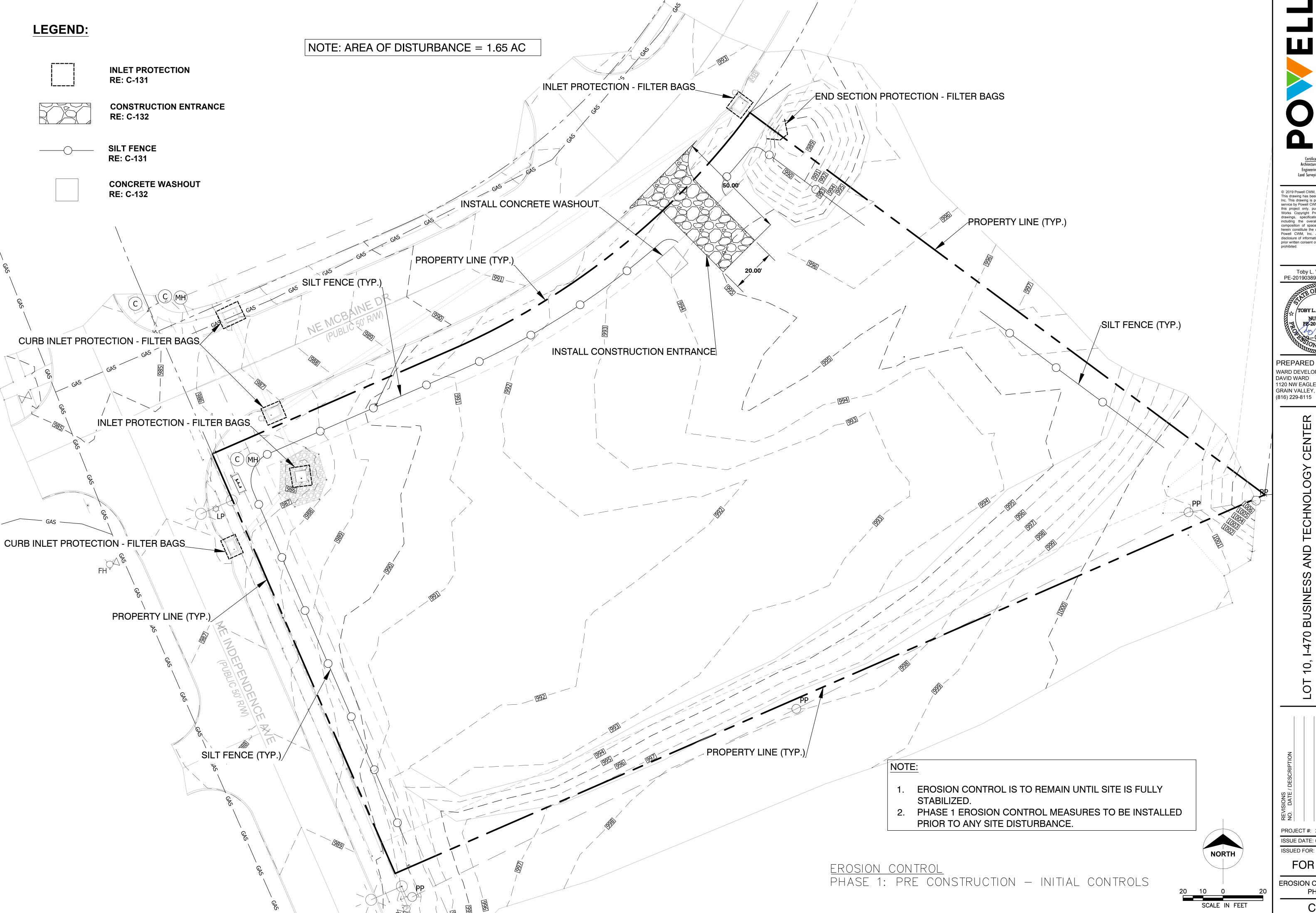


PROJECT #: 21-1902 ISSUE DATE: 09/01/2021

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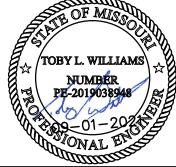
COVER SHEET



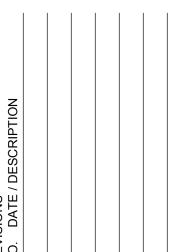


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Toby L. Williams, PE PE-2019038948 (MISSOURI#)



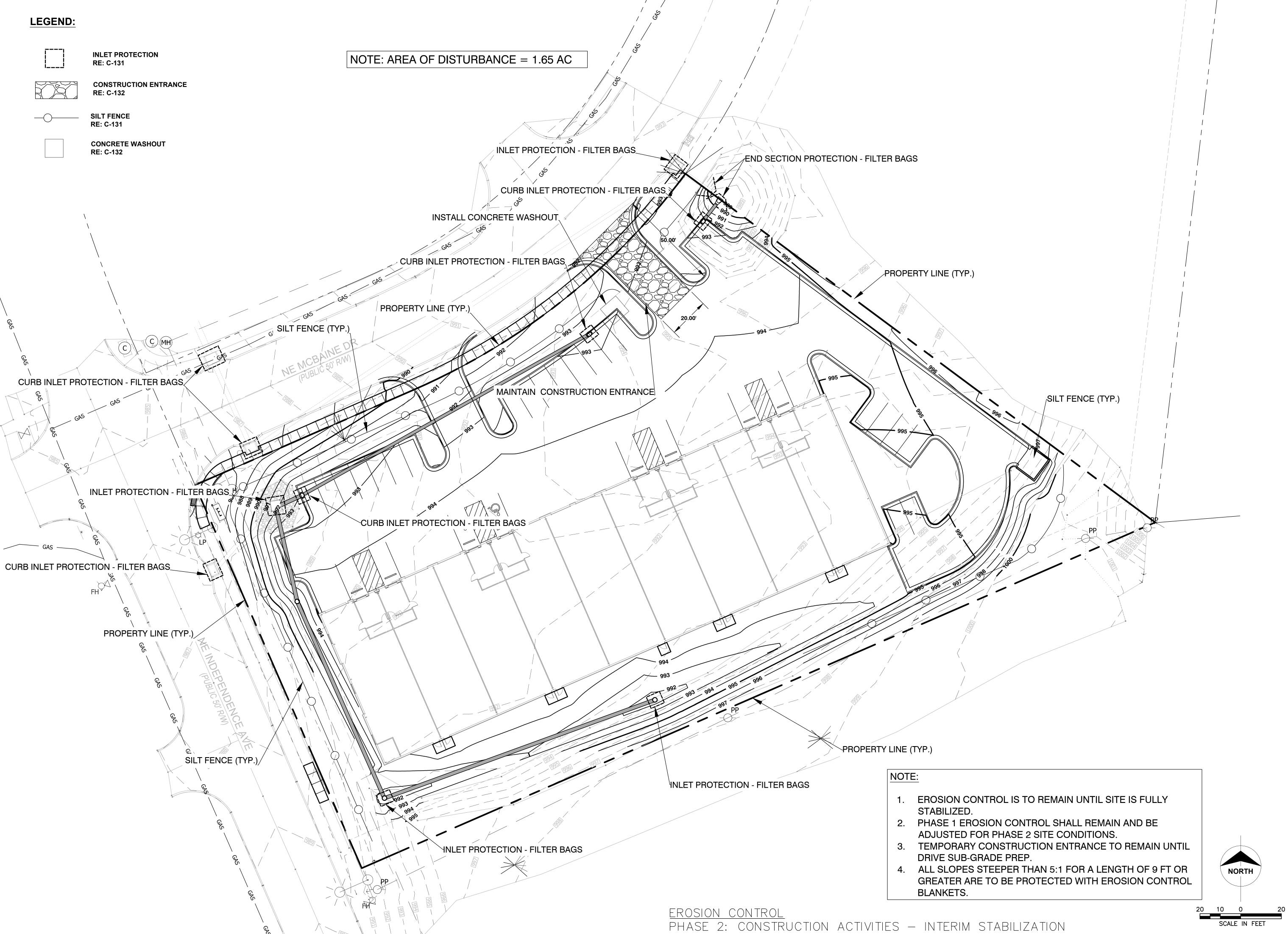
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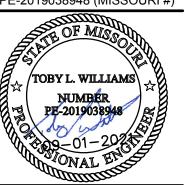
EROSION CONTROL PLAN PHASE 1





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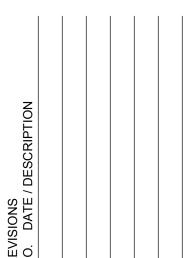
Toby L. Williams, PE PE-2019038948 (MISSOURI #)



PREPARED FOR:
WARD DEVELOPMENT
DAVID WARD
1120 NW EAGLE RIDGE BLVD.
GRAIN VALLEY, MO 64029
(816) 229-8115

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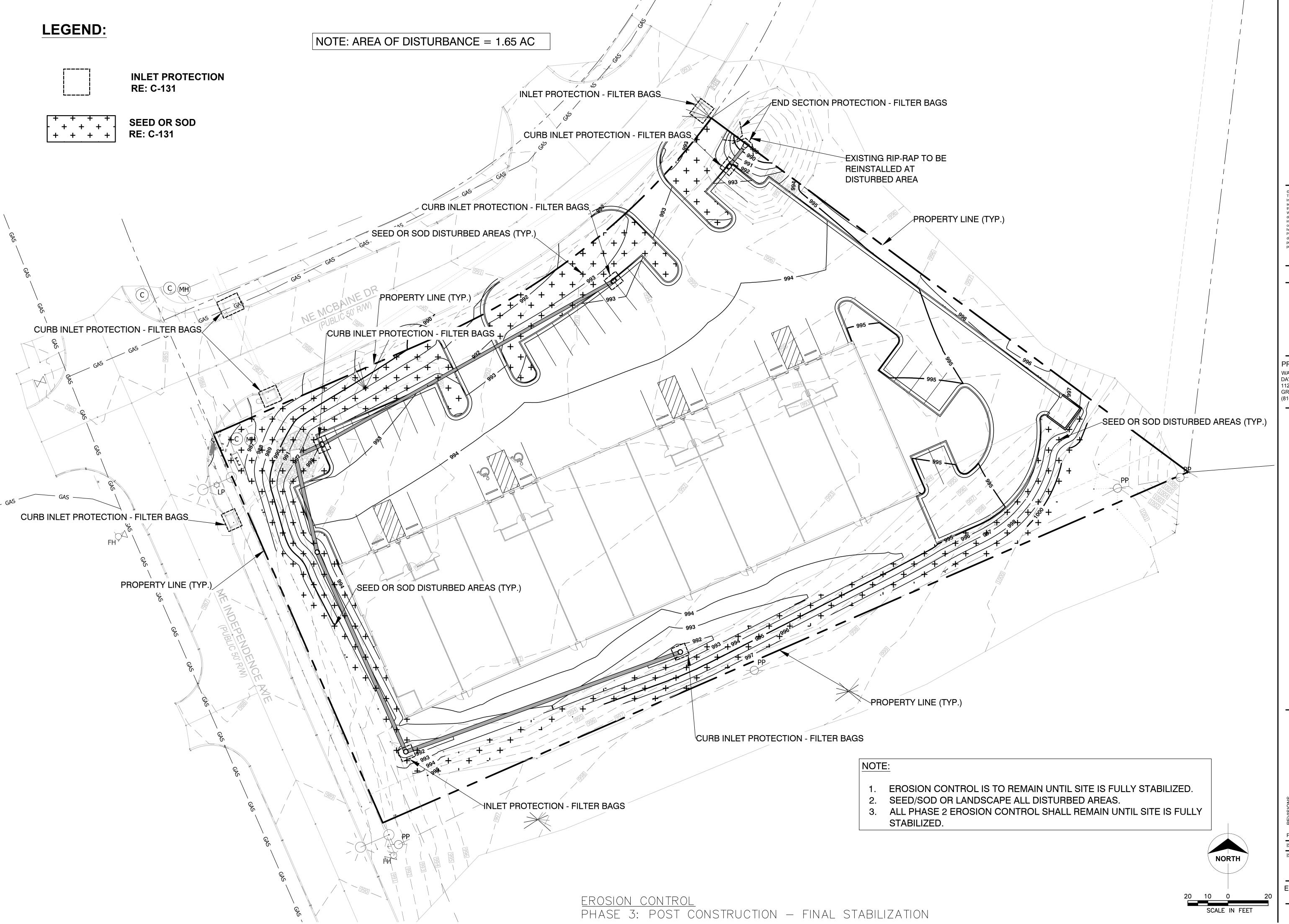
2601 NE MCBAINE DRIVE LEE'S SUMMIT, MO 64064



PROJECT #: 21-1902
ISSUE DATE: 09/01/2021
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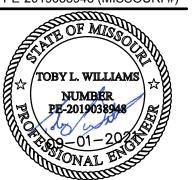
EROSION CONTROL PLAN PHASE 2





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VEVISIONS

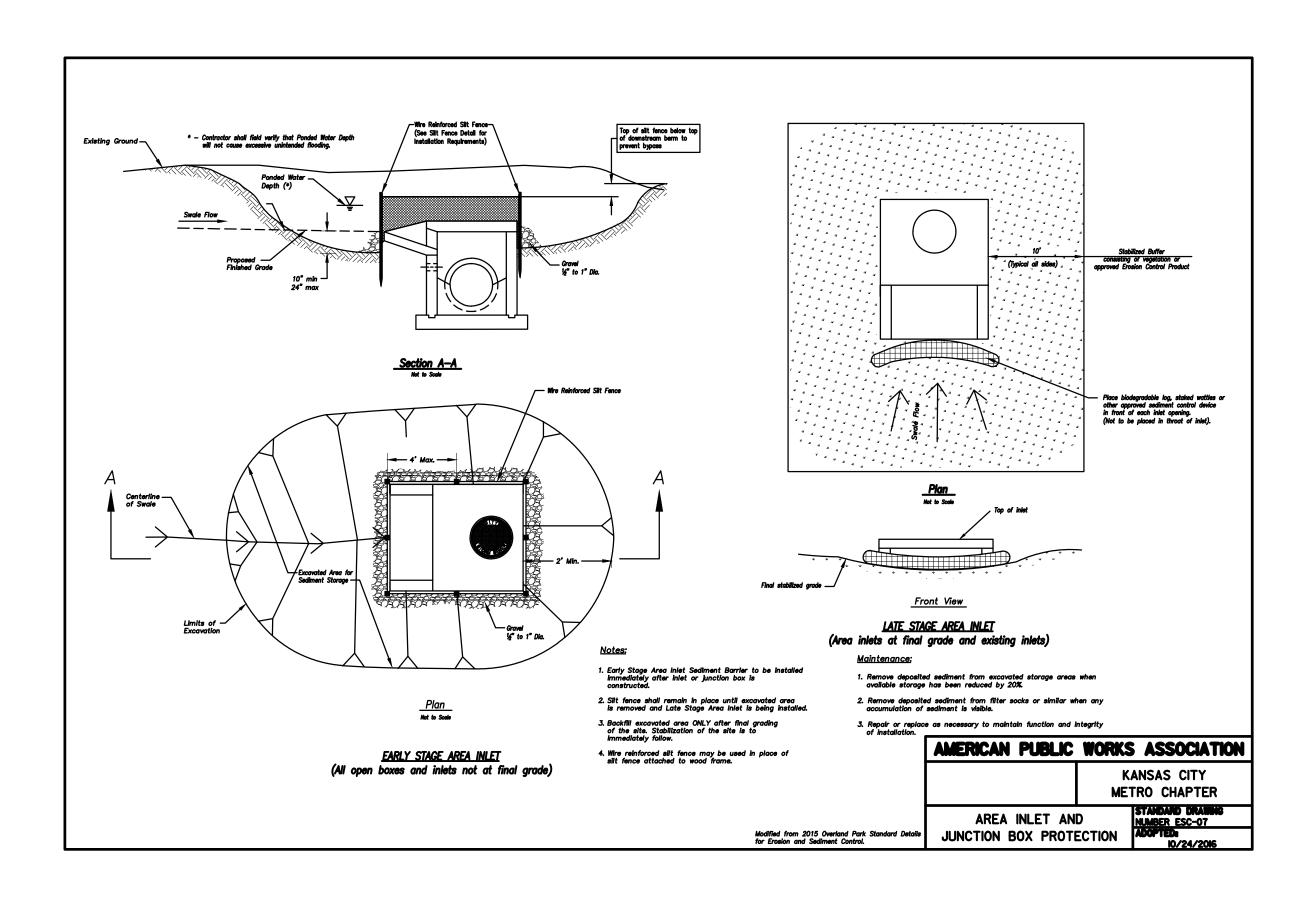
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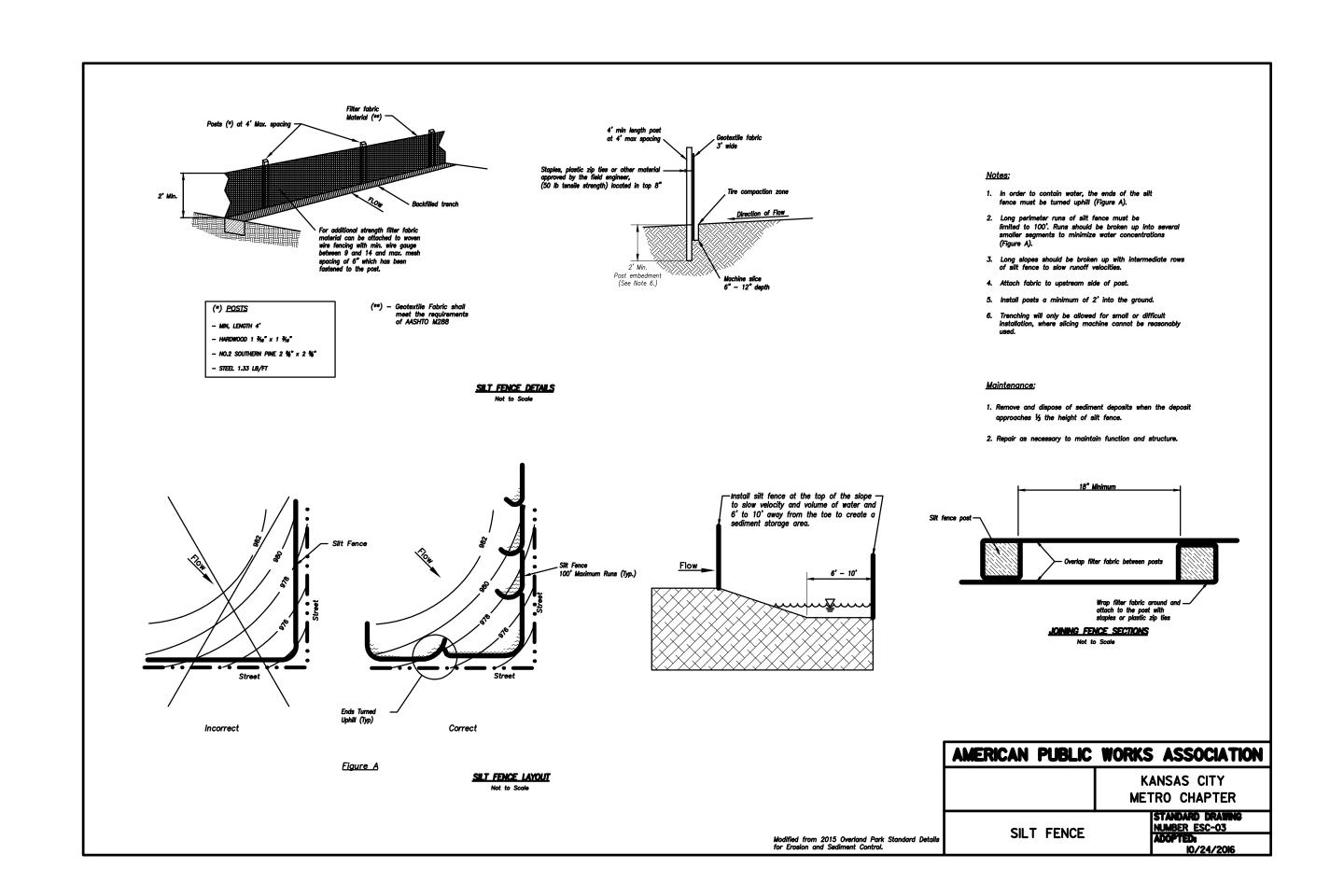
PROJECT #: 21-1902
ISSUE DATE: 09/01/2021

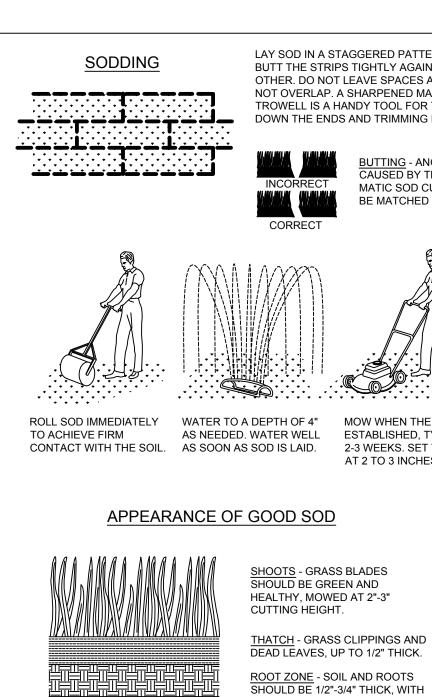
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EROSION CONTROL PLAN PHASE 3



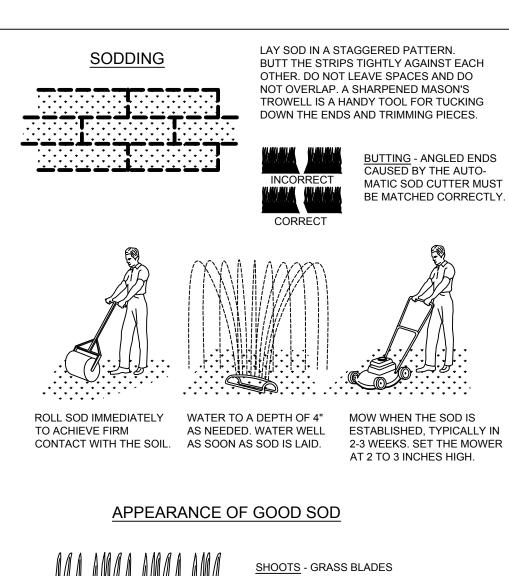




SODDING

PER APWA DRAWING ESC-02

DENSE ROOT MAT FOR STRENGTH.



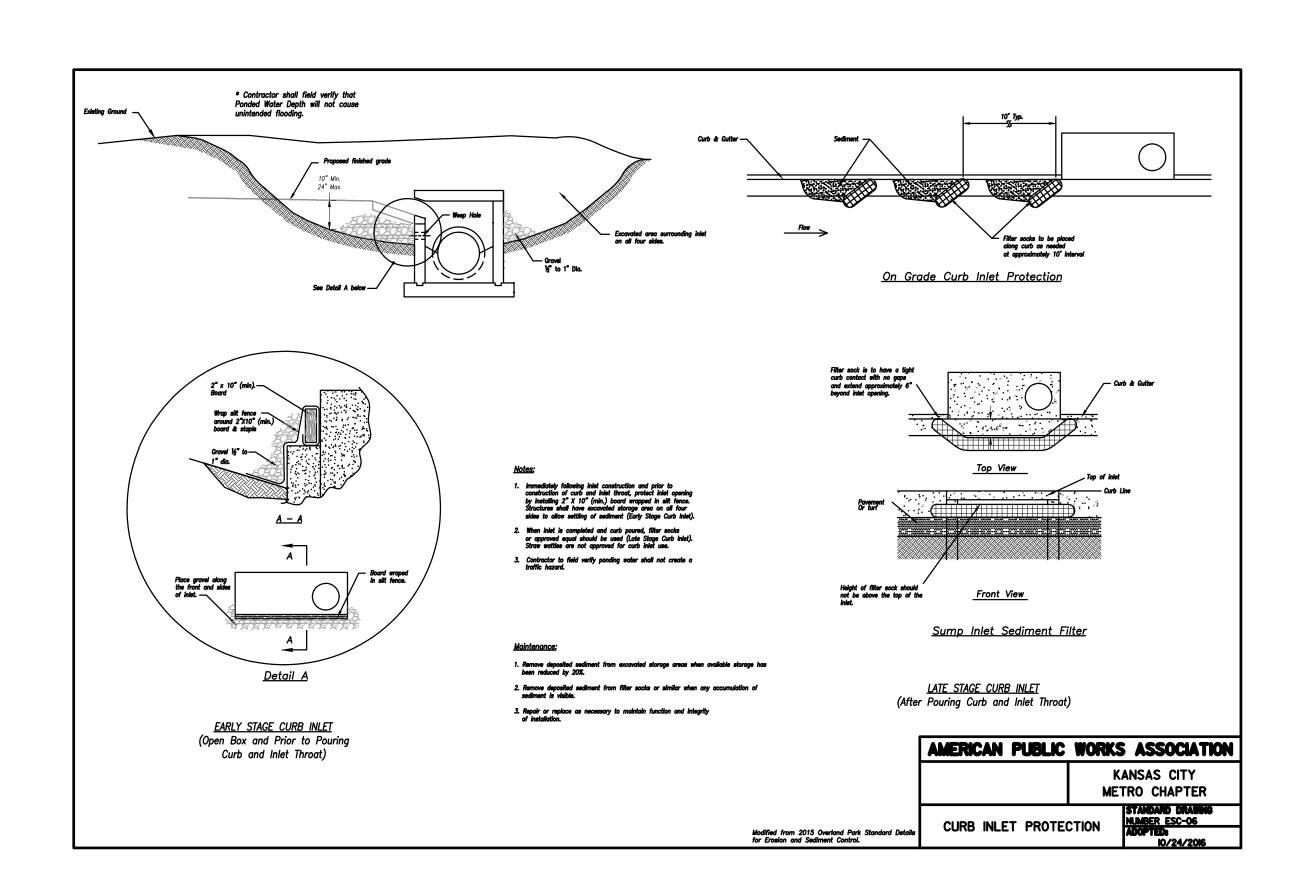
### **SODDING NOTES:**

- 1. THE SODDING SHALL BE DENSELY ROOTED, NURSERY GROWN, AND A PERENNIAL GRASS. THE SOD SHALL CONTAIN A GROWTH OF NOT MORE THAN 10 PERCENT OF OTHER GRASSES, SHALL BE FREE FROM ALL PROHIBITED NOXIOUS WEEDS, AND SHALL BE CUT IN STRIPS OF UNIFORM THICKNESS. THE RANGE OF ACCEPTABLE THICKNESS SHALL BE 1/2 TO 1-1/2 INCH, WITH EACH STRIP CONTAINING AT LEAST ONE (1) SQUARE YARD. SOD SHALL BE CUT IN STRIPS NOT LESS THAN 12 INCHES WIDE.
- 2. FERTILIZER SHALL BE INORGANIC 12-12-12 OR 13-13-13 GRADE, UNIFORM IN COMPOSITION, FREE FLOWING, SUITABLE FOR APPLICATION WITH APPROVED EQUIPMENT, AND DELIVERED TO THE SITE IN CONVENIENT CONTAINERS, EACH FULLY LABELED. LABELS SHALL CONFORM TO APPLICABLE STATE FERTILIZER LAWS AND BEARING THE NAME, TRADE NAME OR TRADEMARK, AND WARRANTY OF THE PRODUCER.
- 3. BEFORE TILLING OPERATIONS, FERTILIZER SHALL BE SPREAD UNIFORMLY AT THE RATE OF 300 POUNDS PER ACRE. FERTILIZING RATE IS EQUIVALENT TO 3.5 POUNDS PER 500 SQUARE FEET.
- 4. THE SOD BED SHALL HAVE A UNIFORM SURFACE FREE FROM WASHES AND DEPRESSIONS. IT SHALL CONFORM TO THE FINISHED GRADE PROFILE AND CROSS SECTION SHOWN ON THE PLANS. THE SOIL, EXCEPT WHERE FRESH TOP SOIL HAS BEEN APPLIED AND COMPACTED, SHALL BE THOROUGHLY TILLED TO A DEPTH OF 2 INCHES.
- 5. FRESHLY GRADED AREAS WHICH HAVE SET LONG ENOUGH TO BECOME DRY AND CRUSTED OVER SHALL BE TILLED, AS SPECIFIED ABOVE, BEFORE PLACING SOD. 6. SOD SHALL NOT BE PLACED DURING A DROUGHT NOR ON FROZEN GROUND UNLESS AUTHORIZED BY THE ENGINEER.
- 7. SOD SHALL BE MOIST WHEN IT IS PLACED. SOD STRIPS SHALL BE LAID ALONG CONTOUR LINES, COMMENCING AT THE LOWEST POINT OF THE AREA AND WORKING UPWARD. THE TRANSVERSE JOINTS OF SOD STRIPS SHALL BE STAGGERED AND THE SOD CAREFULLY PLACED TO PRODUCE TIGHT JOINTS. THE SOD SHALL BE FIRMED AND WATERED IMMEDIATELY AFTER IT IS PLACED. THE FIRMING SHALL BE ACCOMPLISHED BY APPLICATION OF A ROLLER WEIGHING BETWEEN 60 AND 90 POUNDS PER LINEAL FOOT OF ROLLER.
- 8. ON 2H:1V SLOPES OR STEEPER THE SOD SHALL BE ANCHORED WITH 1/2-INCH SQUARE AY 8-INCH LONG WOODED PEGS DRIVEN INTO THE GROUND, 3 PEGS TO THE SQUARE YARD OR OTHER APPROVED CONFIGURATION. PEGGING SHALL BE DONE IMMEDIATELY AFTER SOD IS FIRMED. THE AREA SHALL BE CLEARED OF LOOSE SOD, EXCESS OR BROKEN ANCHORS. EXCESSIVE SOIL, AND OTHER FOREIGN MATERIALS.

- 1. CONSULT WITH A QUALIFIED DESIGN PROFESSIONAL IF ANY OF THE FOLLOWING OCCUR: a. VARIATION IN TOPOGRAPHY ON SITE INDICATE THE SODDING MATERIALS WILL NOT FUNCTION AS INTENDED;
- CHANGES IN THE PLAN MAY BE NEEDED. b. DESIGN SPECIFICATIONS FOR SOD VARIETY CANNOT BE MET OR IRRIGATION NOT POSSIBLE; SUBSTITUTION OR SEEDING MAY BE REQUIRED.
- 2. COMMON PROBLEMS: a. SOD LAID ON POORLY PREPARED SOIL OR UNSUITABLE SURFACE DIES BECAUSE IT IS UNABLE TO ROOT - REMOVE
- DEAD SOD, PREPARE SURFACE, AND RESOD. b. SOD NOT ADEQUATELY IRRIGATED AFTER INSTALLATION CAUSES ROOT DIEBACK, GRASS TO NOT ROOT RAPIDLY, AND DRYING OUT - IRRIGATE SOD AND UNDERLYING SOIL TO A DEPTH OF 4 INCHES AND KEEP MOIST UNTIL ROOTS
- ARE ESTABLISHED. c. SOD NOT ANCHORED PROPERLY IS LOOSENED BY RUNOFF - REPLACE DAMAGED AREAS AND ANCHOR SOD. d. SLOW GROWTH DUE TO LACK OF NITROGEN CAUSES YELLOWING OF LEAF BLADES - REFERTILIZE SOD, BUT AVOID FERTILIZING COOL SEASON GRASSES FROM LATE MAY THROUGH JULY.

### C) INSPECTION AND MAINTENANCE:

1. SODDED AREA SHALL BE THOROUGHLY WATERED DAILY FOR A PERIOD OD FIFTEEN DAYS AFTER PLACING EXCEPT WHEN THOROUGHLY WETTED BY RAIN. ANY PORTION OF THE SOD THAT IS NOT IN GOOD GROWING CONDITION FOLLOWING THE FIRST FULL GROWING SEASON (SPRING TO FALL), SHALL BE REPLACED WITH FRESH LIVE SOD.

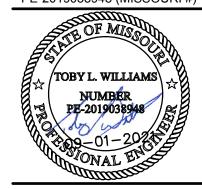




Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

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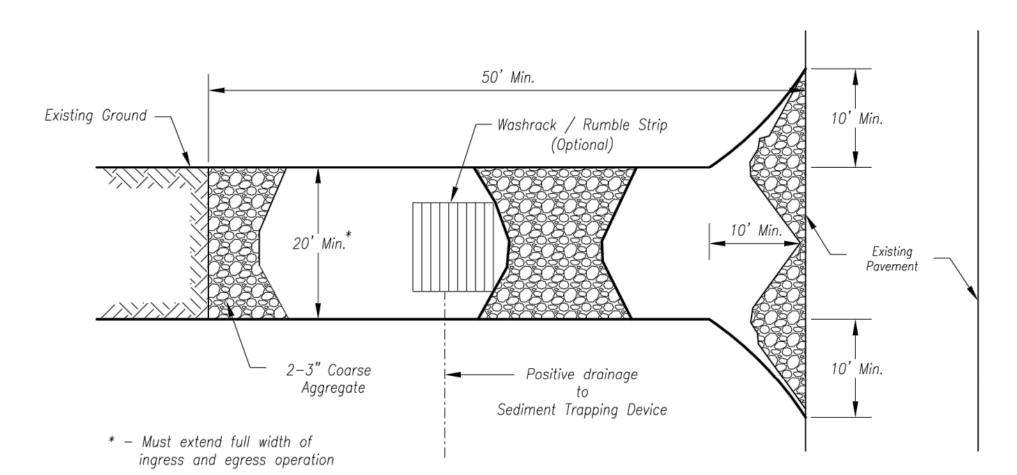
TECHNOL

PROJECT #: 21-1902

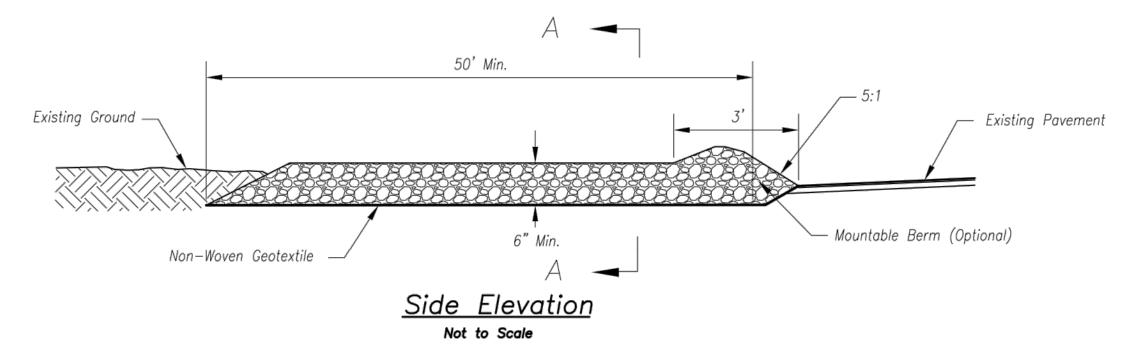
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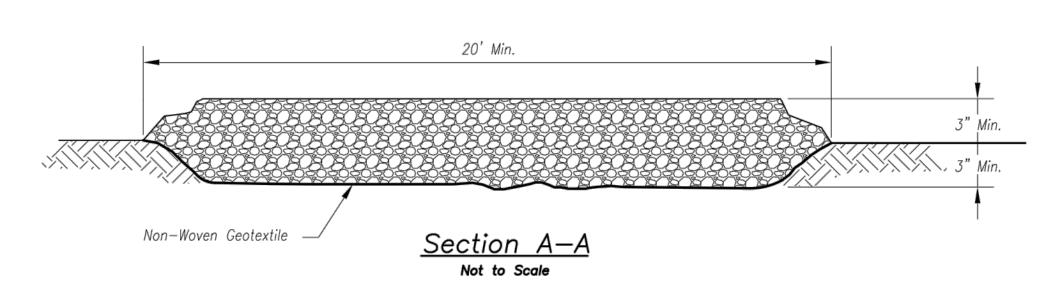
> FOR PERMIT **EROSION CONTROL**

> > **DETAILS**



# Not to Scale





### Notes for Construction Entrance:

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

### Maintenance for Construction Entrance:

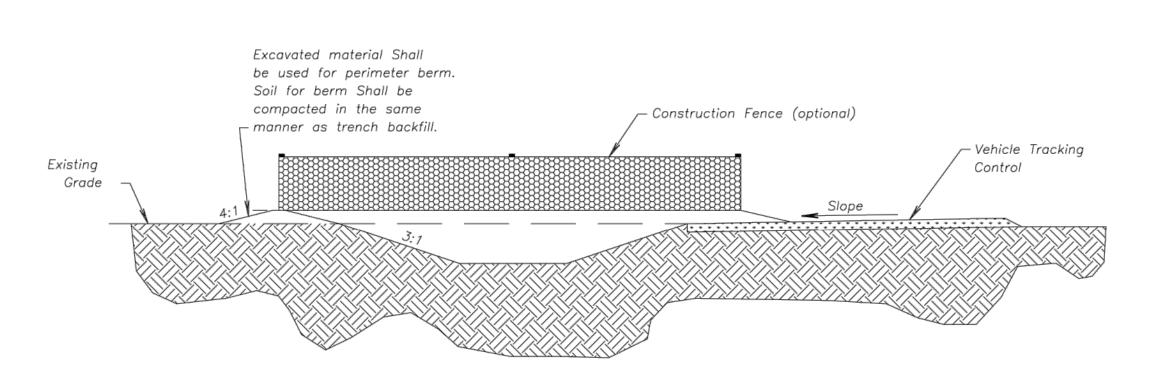
1. Reshape entrance as needed to maintain function and integrity of Installation. Top dress with clean aggregate as needed.

### Notes for Concrete Washout:

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

### Maintenance for Concrete Washout:

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



### CONCRETE WASHOUT

Construction Entrance modified from 2015 Overland Park Standard Details

for Erosion and Sediment Control; Concrete Washout modified from 2009

City of Great Bend Standard Drawings.

# AMERICAN PUBLIC WORKS ASSOCIATION



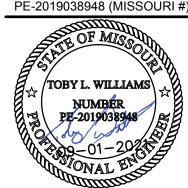
KANSAS CITY METRO CHAPTER

CONSTRUCTION ENTRANCE AND CONCRETE WASHOUT STANDARD DRAWING NUMBER ESC-OI ADOPTED: 10/24/2016

Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

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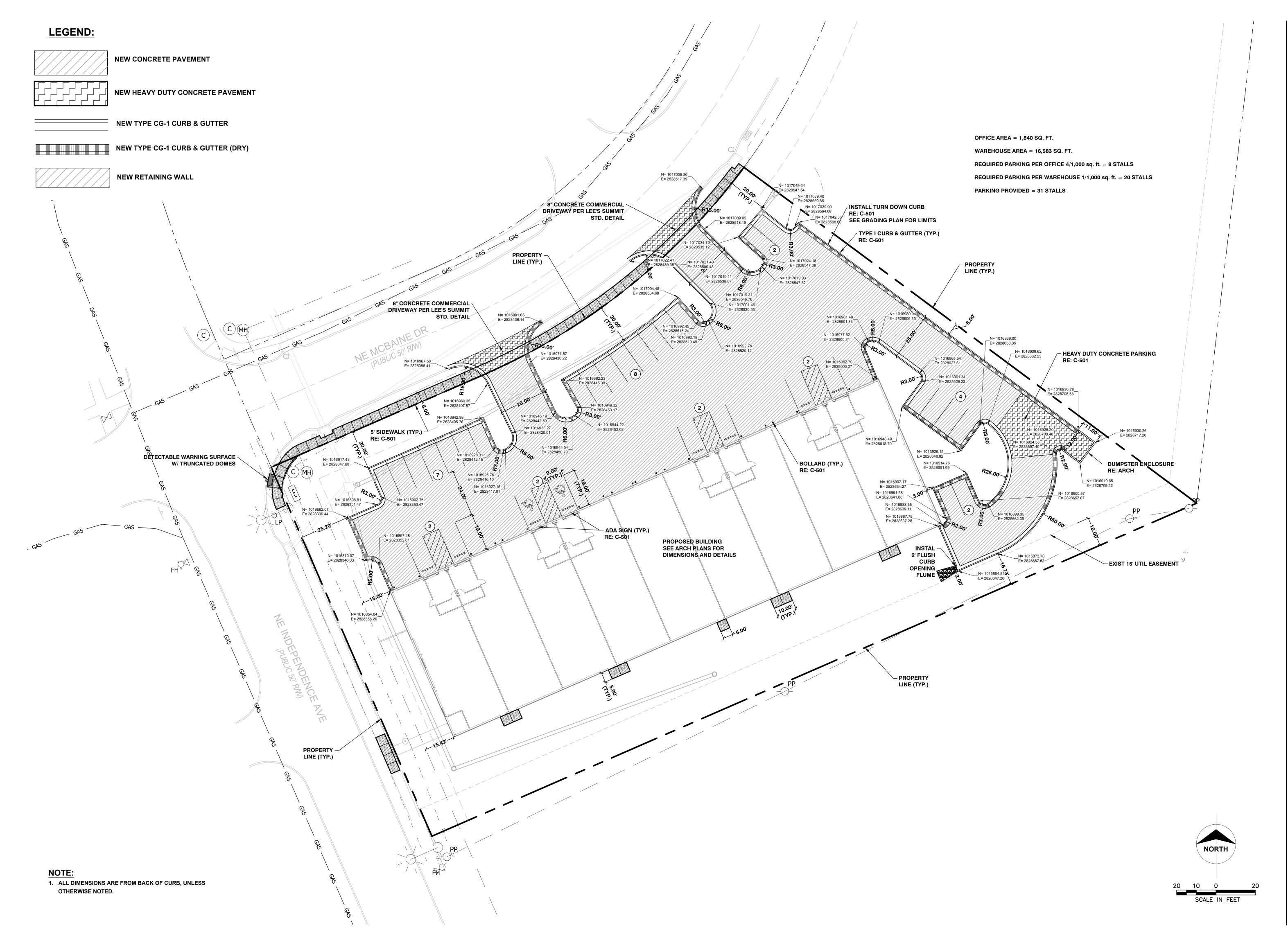
PROJECT #: 21-1902 ISSUE DATE: 09/01/2021 ISSUED FOR:

**FOR PERMIT** 

**EROSION CONTROL DETAILS** 

C-132

CONSTRUCTION ENTRANCE

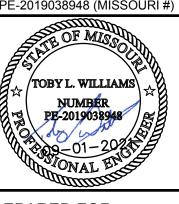




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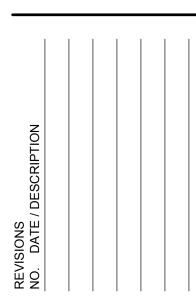
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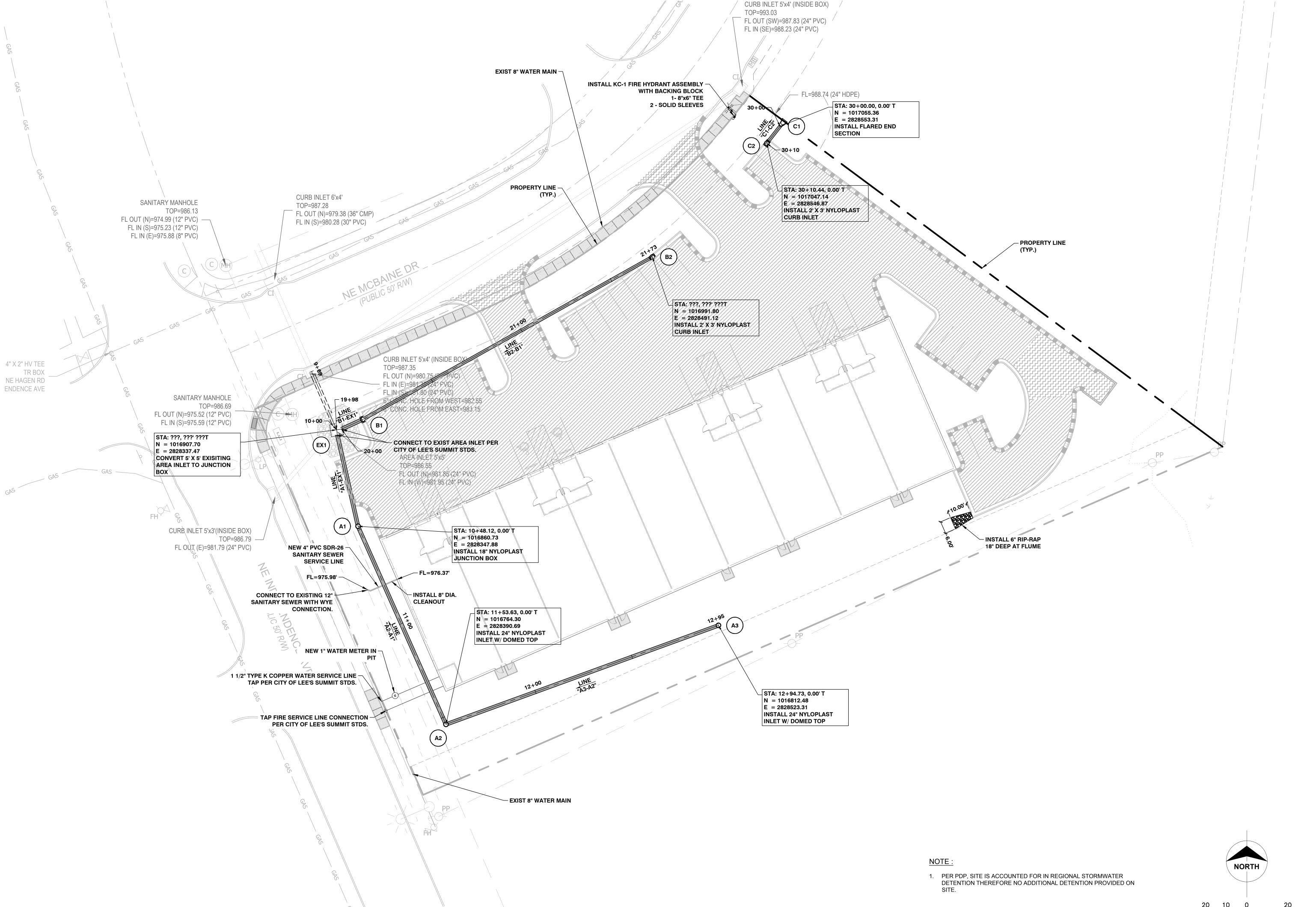
-470 BUSINESS AND TECHNOLOGY CEN



PROJECT #: 21-1902
ISSUE DATE: 09/01/2021
ISSUED FOR:

DIMENSION PLAN

NOTE:
TC = TOP OF CURB
GUT = GUTTER
M.E. = MATCH EXISTING **GRADING NOTES:** 1. ALL ELEVATIONS SHOWN ARE TO FINISHED GRADE SURFACE. 2. ALL EXISTING UTILITY PULL BOXES, HAND HOLES, MANHOLES, VALVE BOXES, METERS, AND OTHER APPURTENANCES TO REMAIN, SHALL BE ADJUSTED TO NEW GRADES. PROPERTY LINE (TYP.) Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36 Total Disturbed Area: 1.65 acres © 2019 Powell CWM, Inc.
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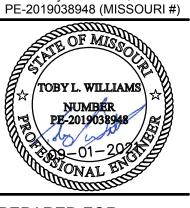
Cectivity of State Route 291, Bldg. 1, Independence, MO 64057

Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

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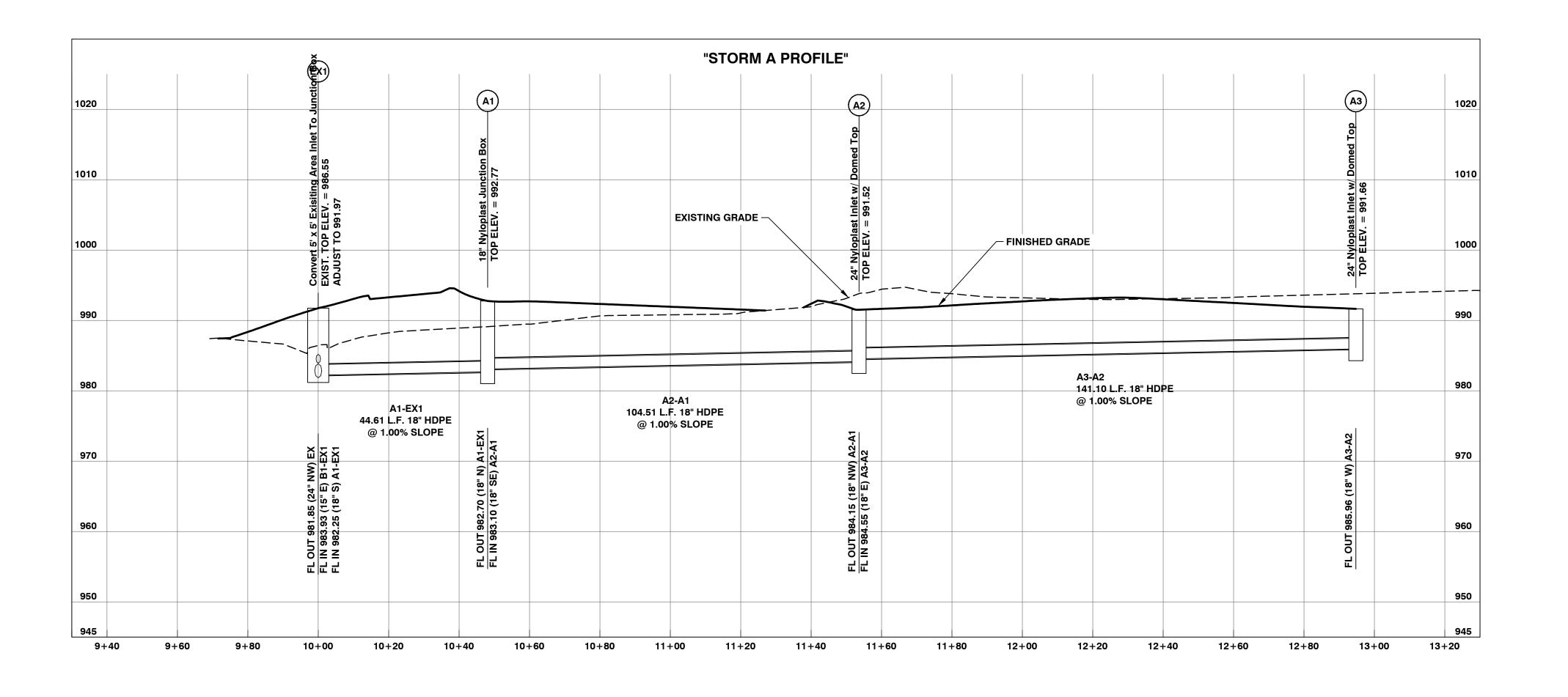
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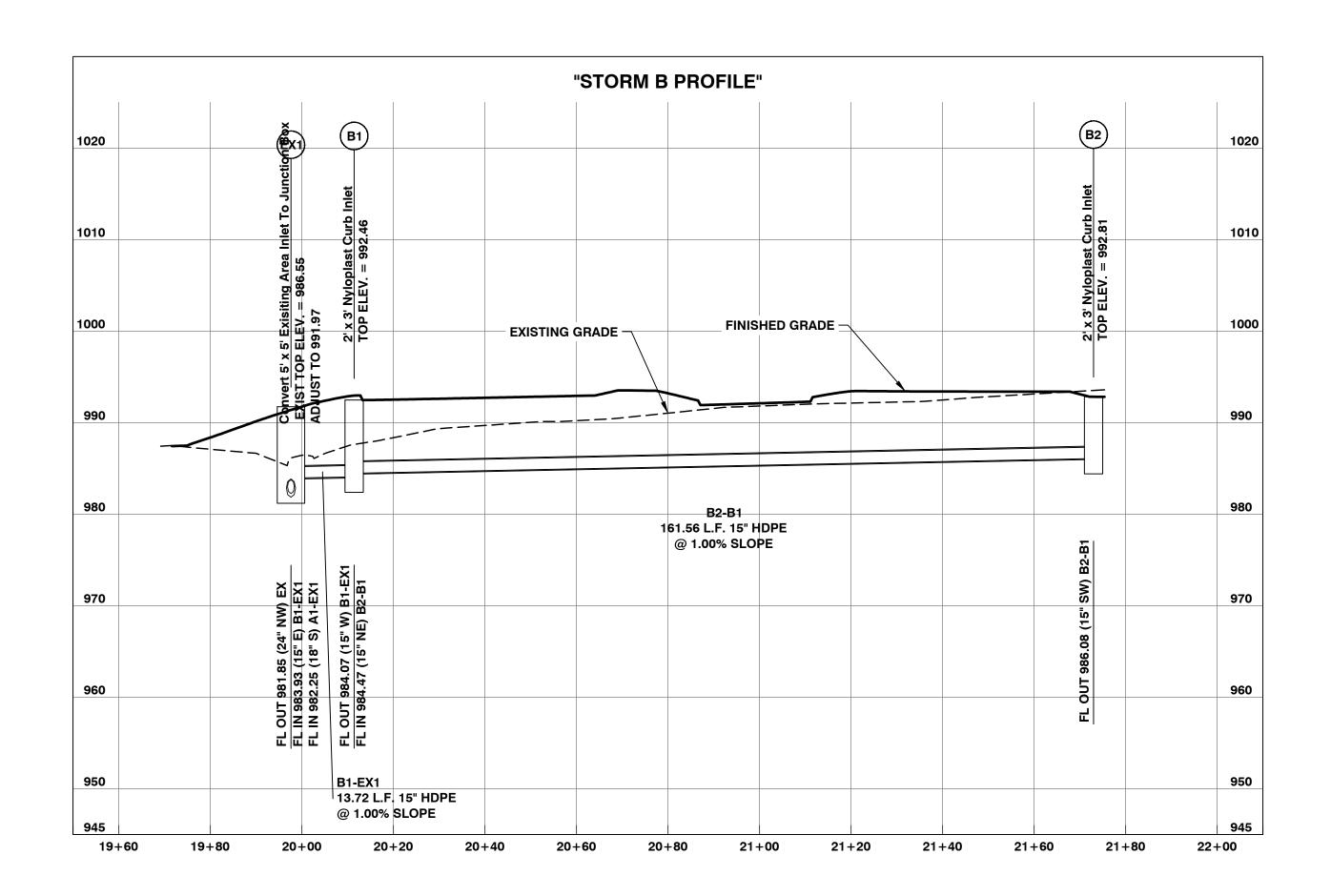
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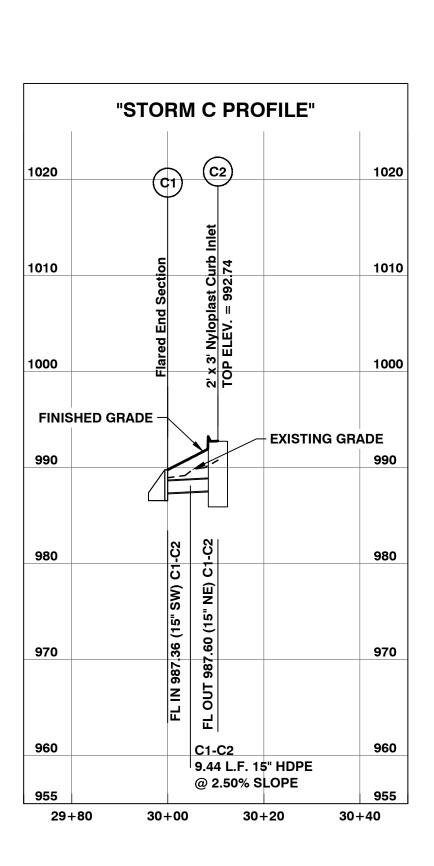
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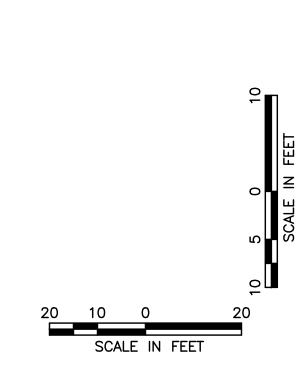
UTILITY PLAN







NOTE: **ALL TOPS FOR NYLOPLAST 2'x3' CURB INLET ARE AT GUTTER** 

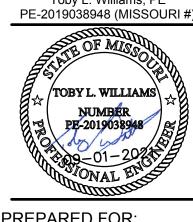




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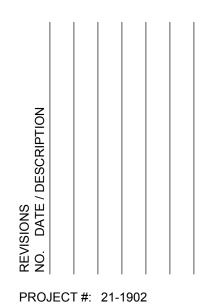
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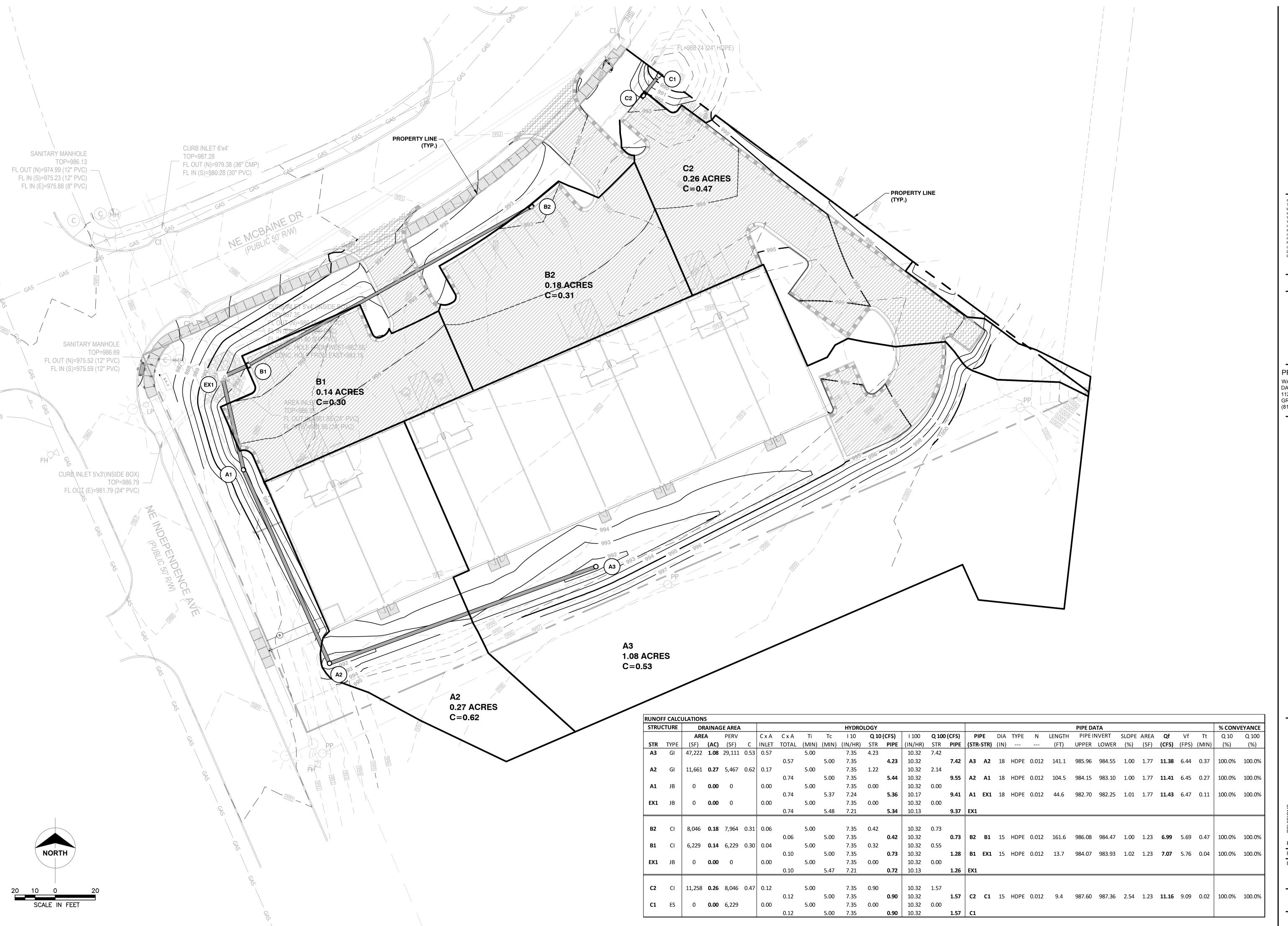
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LOT 10, I-470 BUSINESS AND TECHNOLOG 2601 NE MCBAINE DRIVE LEE'S SUMMIT, MO 64064



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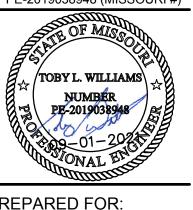
STORM PROFILES





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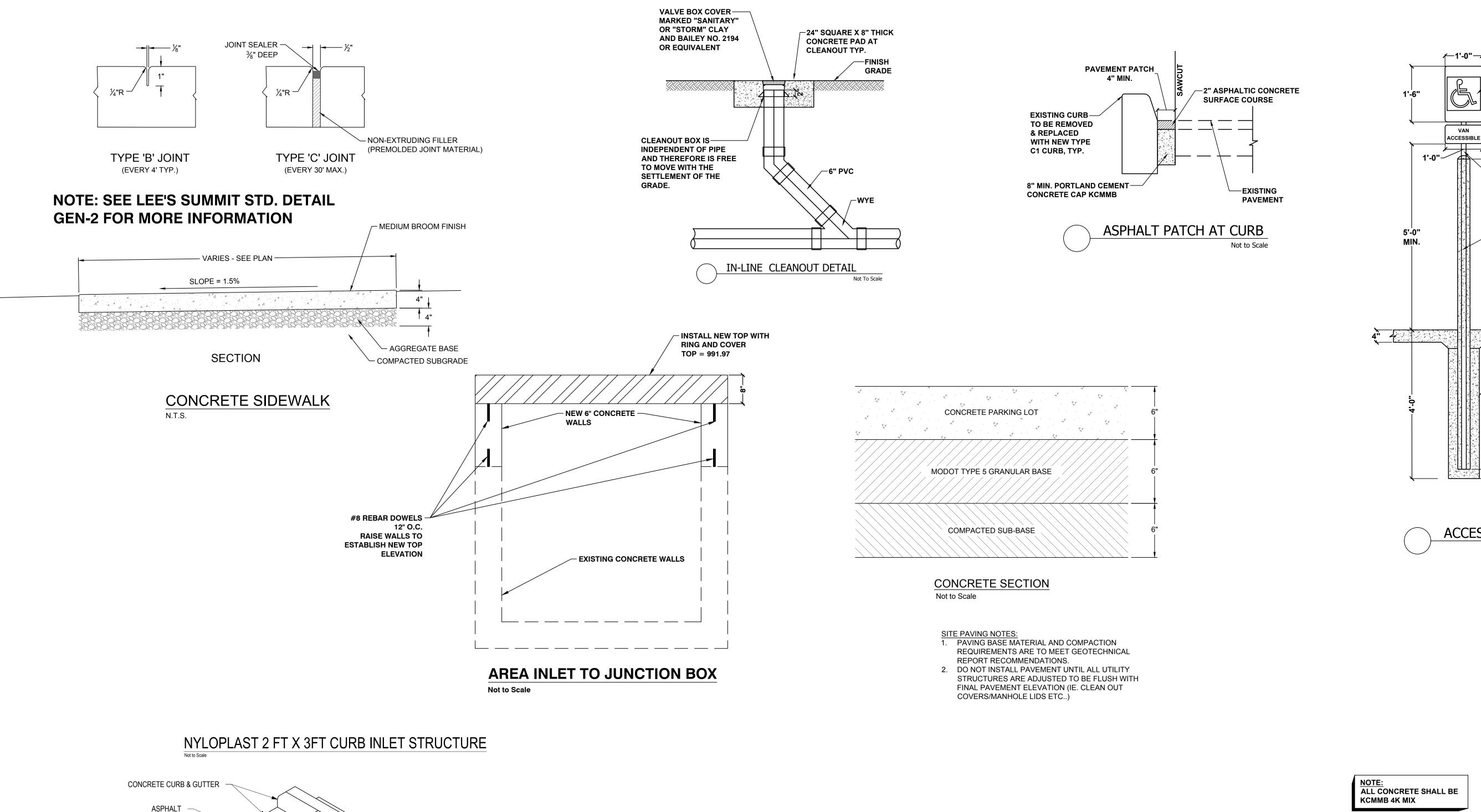
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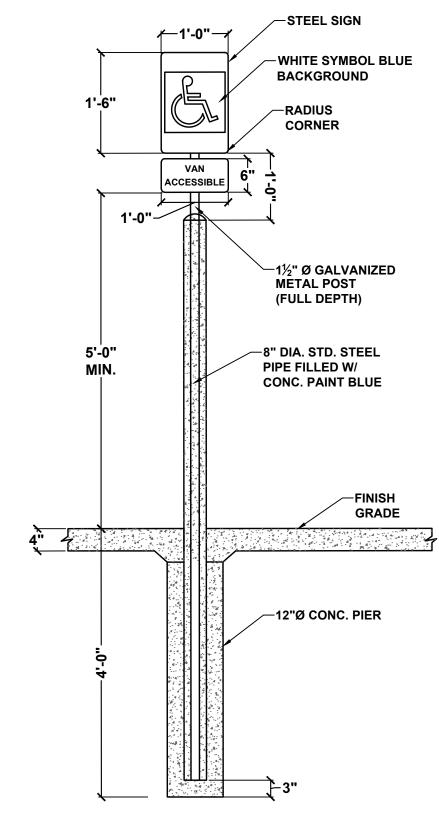


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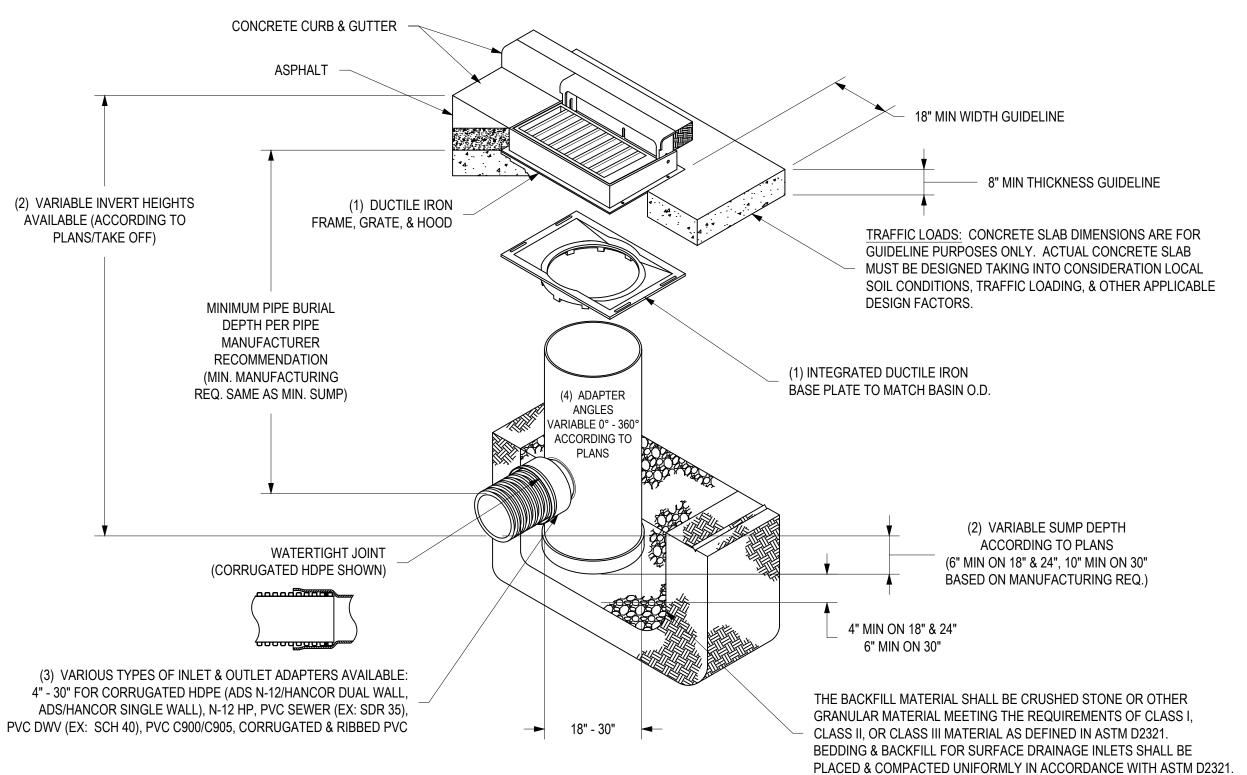
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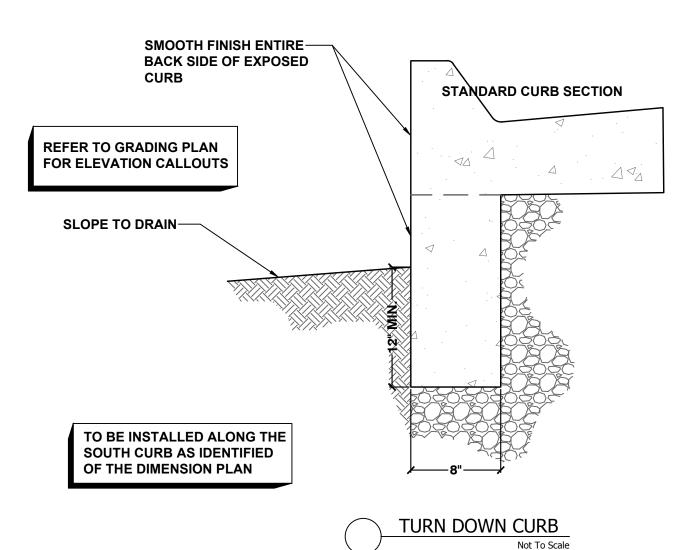
DRAINAGE AREA MAP

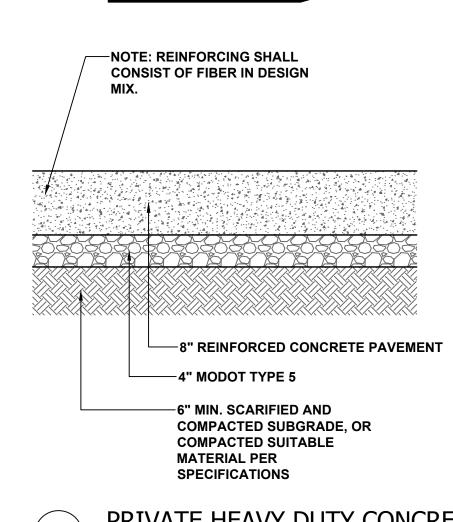


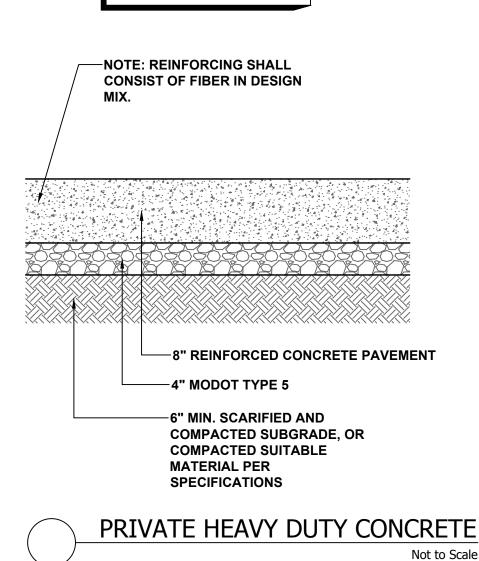


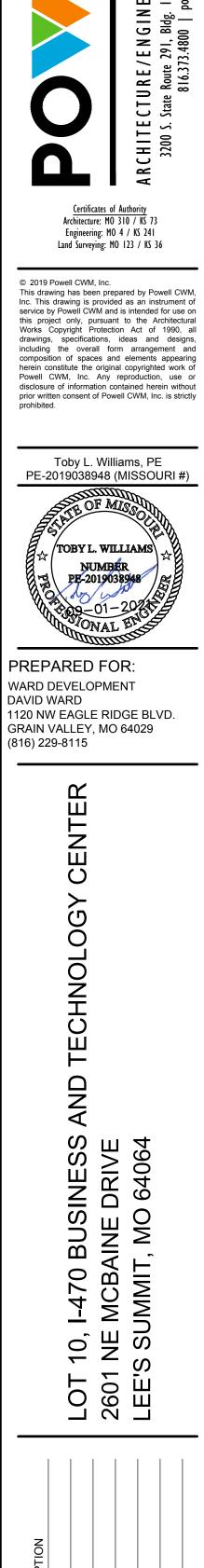
**ACCESSIBLE SIGN DETAIL** 

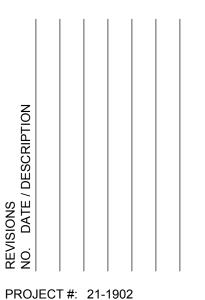






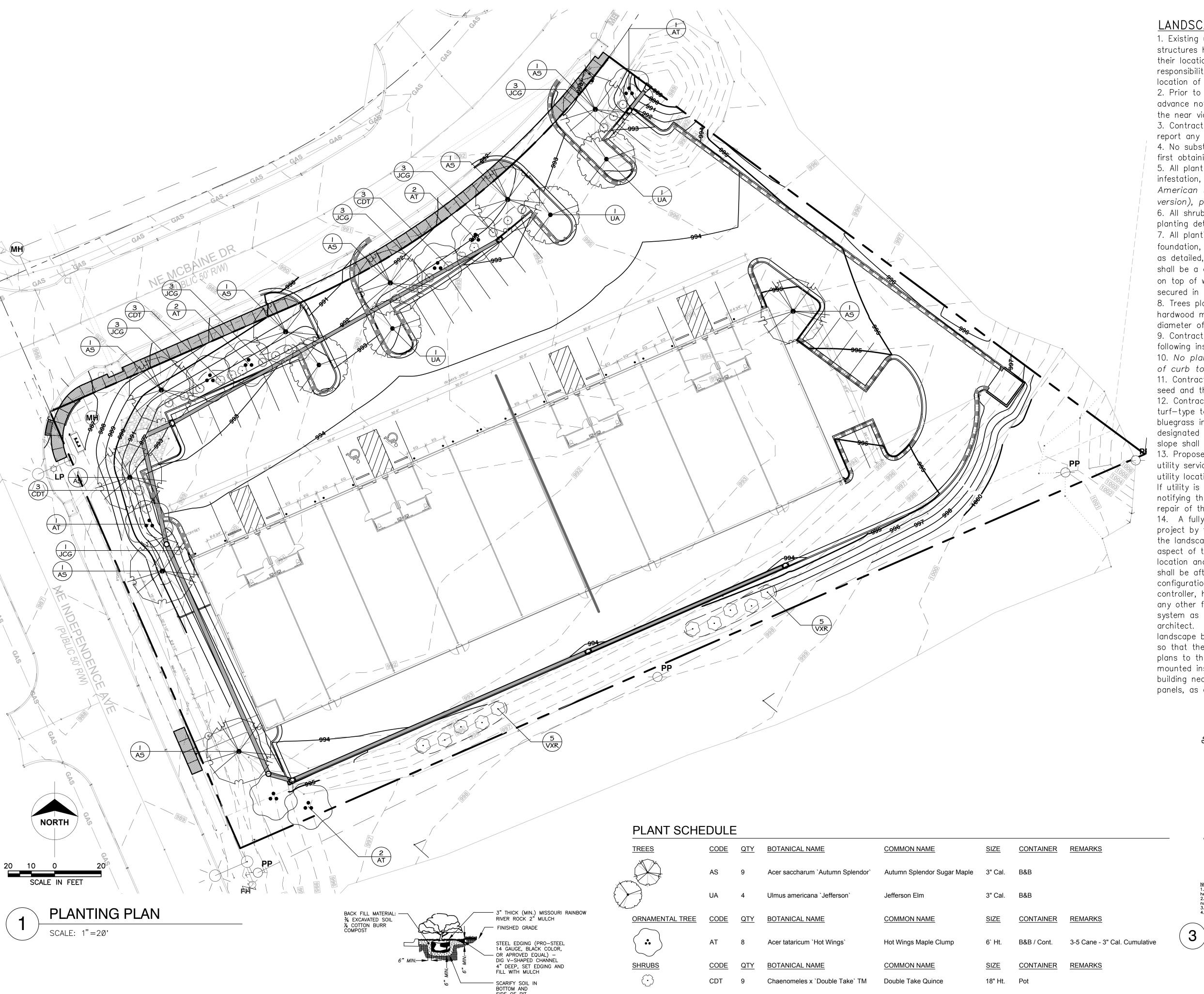






PROJECT #: 21-1902 ISSUE DATE: 09/01/2021 ISSUED FOR:

**DETAILS** 



SHRUB BED & EDGING DETAIL

Juniperus chinensis 'Gold Lace'

Viburnum x rhytidophylloides

18" Ht. Pot

24" Ht. Pot

Gold Lace Juniper

Alleghany Viburnum

### LANDSCAPE PLAN NOTES:

1. Existing underground (u/g), overhead (o.h.) utilities and drainage structures have been plotted from available information and therefore, their locations must be considered approximate only. It is the responsibility of the individual contractors to verify existence and location of all utilities before starting any work.

2. Prior to commencement of work, the contractor shall give 48 hours advance notice to all those companies/utilities which have facilities in the near vicinity of the construction to be performed.

3. Contractor shall verify all landscape material quantities and shall report any discrepancies immediately to the Landscape Architect. 4. No substitutions for variety or cultivar shall be accepted without first obtaining written approval from Landscape Architect.

5. All plant material shall be of excellent quality, free of disease and infestation, and true to type, variety, size specified, and form per the American Standard for Nursery Stock (ANSI Z60.1 current version), published by the American Nurserymen's Association. 6. All shrub beds in lawn areas shall be edged as shown in the planting details.

7. All planting areas, as well as a minimum width of 18" from building foundation, shall receive 3" minimum depth of 2" Kansas River Rock as detailed, unless otherwise noted. In landscape beds, rock mulch shall be a consistent 3" depth throughout. Rock mulch shall be placed on top of woven weed fabric (DeWitt Pro-5, or equal), which shall be secured in place with sod pins.

8. Trees planted in turf areas shall have a 3" ring of shredded hardwood mulch formed into a saucer in a minimum ring twice the diameter of the rootball from the trunk.

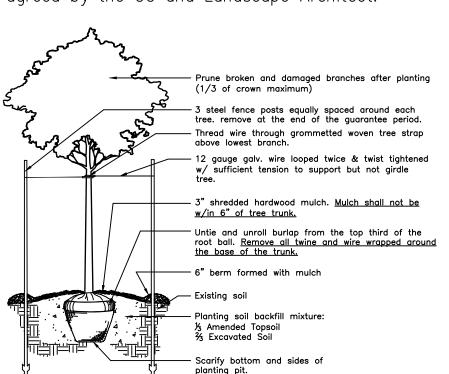
9. Contractor shall thoroughly water in each plant immediately following installation.

10. No plantings shall be placed closer than 4' from the back of curb to allow for vehicle bumper overhang.

11. Contractor shall be responsible for calculating all areas of sod and seed and the amounts of each needed for optimum coverage. 12. Contractor shall install sod in all turf areas. Sod shall be turf—type tall Fescue consisting of 90% fescue blend and 10% bluegrass in all areas disturbed during construction not otherwise designated as another material. Sod placed in areas greater than 4:1 slope shall fastened to the slope with sod staples.

13. Proposed trees shall not be placed over existing or proposed utility service lines. It is the contractor's responsibility to understand utility locations and have them marked during tree planting operations. If utility is damaged during planting, contractor is responsible for notifying the general contractor and owner of utility and paying for repair of the damaged utility.

14. A fully automated irrigation system will be supplied for this project by the Contractor. Design shall be provided and approved by the landscape architect prior to ordering materials or installing any aspect of the irrigation system. General contractor shall supply tap location and water pressure to irrigation designer. Tap for irrigation shall be after the main building tap and shall be thru a deduct meter configuration. Irrigation system shall consist of tap, blackflow, smart controller, heads, pipe, valves, wire, flow sensing, weather station, and any other feature to give the most efficient and comprehensive system as deemed necessary by the irrigation designer and landscape architect. System shall cover all areas designated as turf or landscape beds. Turf, trees and shrubs shall all be on separate zones so that they can be watered at different rates. Submit all irrigation plans to the landscape architect for approval. Controller shall be mounted inside a stainless steel, lockable cabinet on exterior of building nearest the mechanical room access door or other utility panels, as agreed by the GC and Landscape Architect.



NOTES:
1. On evergreen trees, attach guying collar at approx. 2/3 height of tree on trees that are 6 ft. height and over.

2. Top of rootball shall match original ground level as grown in the nursery. Overplow from nursery shall be removed to expose root collar.

3. Do not fertilize the first growing season.

4. Use tree stakes only in open areas, do not use in parking lot islands where space is limited.

**DECIDUOUS TREE PLANTING** 



Chad D. Weinand, PLA, ASLA **Landscape Architecture** 

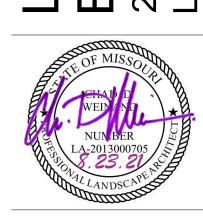
15173 W. 157th Terrace, Olathe, Kansas 66062 913.484.3738 - cweinand74@gmail.com

Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

CLIENT

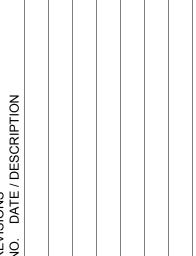
WARD DEVELOPMENT **DAVID WARD** 1120 NW EAGLE RIDGE BLVD. **GRAIN VALLEY, MO 64029** (816) 229-8115

ОШ **B** 8 **B C** 



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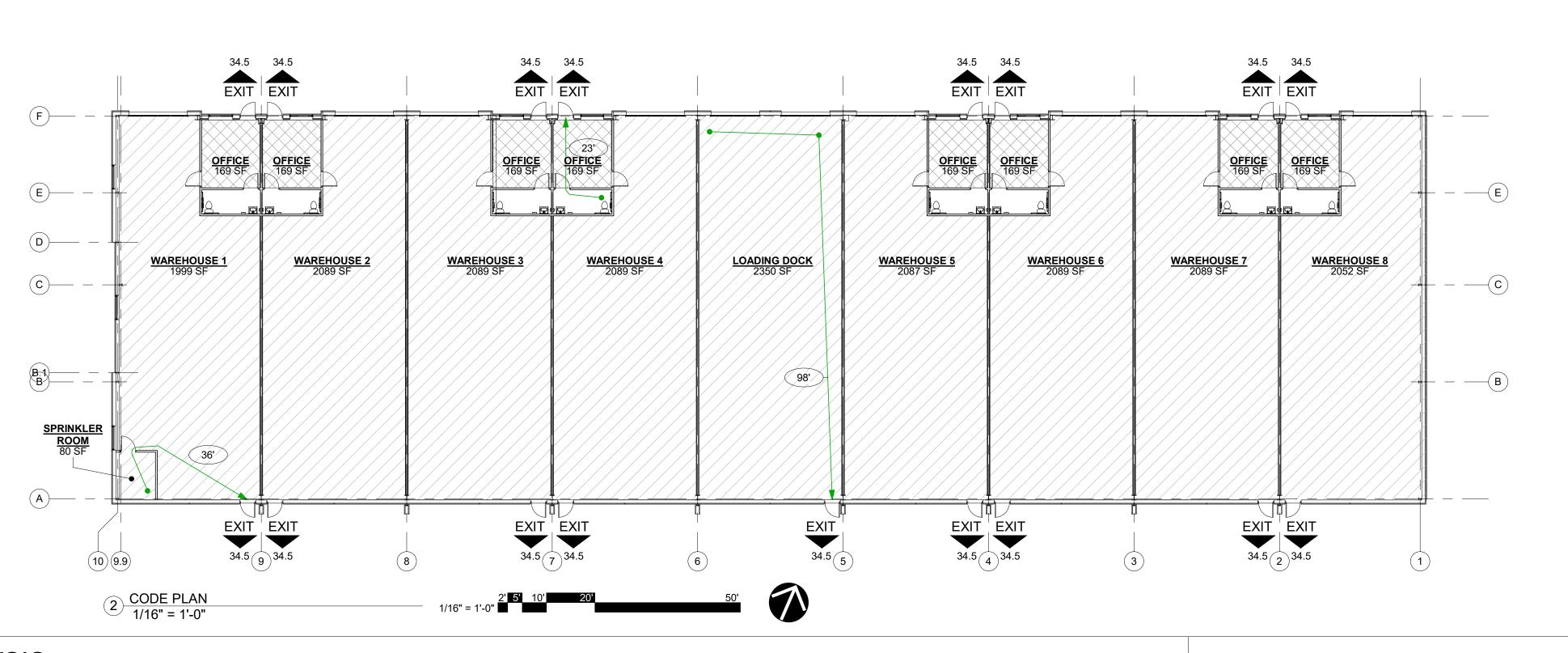
DRAWN BY: CDW CHECKED BY: CDW

PROJECT #: 21-1902 ISSUE DATE: 8/23/2021

ISSUED FOR: CONSTRUCTION

LANDSCAPE PLAN

L-100



### LIFE-SAFETY GENERAL NOTES

- ALL EXIT DOORS SHALL BE OPERABLE / OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
- BUILDING ADDRESS NUMBER (BUILDING IDENTIFIER) SHALL BE A MINIMUM 6 INCHES HIGH AND PLAINLY VISIBLE FROM ROADWAY FRONTING THE PROPERTY.
- FIRE EXTINGUISHERS SHALL BE DISTRIBUTED THROUGHOUT THE FACILITY (PER NFPA 101) SO THAT NO GREATER THAN 75 FEET TRAVEL DISTANCE IS REQUIRED TO REACH A UNIT (IFC TABLE 906.3), NO MORE THAN 50 FEET IN GARAGE AREA. MINIMUM SIZE (5 LB)# 5A40BC EXTINGUISHERS SHALL BE SECURELY MOUNTED WITH THE TOP OF THE CANISTER NO HIGHER THAN 42" ABOVE FINISHED FLOOR, WITH STATE FIRE MARSHAL INSPECTION TAG ATTACHED AND SIGNAGE TO INDICATE LOCATION.
- PROVIDE FIRE EXTINGUISHERS IN LOCATIONS AND QUANTITIES AS SHOWN AND AS DIRECTED BY THE FIRE MARSHAL OF THE JURISDICTION HAVING AUTHORITY. PROVIDE EXTINGUISHERS THAT ARE COMPATIBLE WITH THE CHEMICALS IN THE ROOMS.
- FIRE SPRINKLER AND FIRE ALARM SYSTEMS ARE TO BE DESIGN/BUILD BY THE SUBCONTRACTOR. THE SHOP DRAWINGS WILL BE MADE AVAILABLE TO THE CITY FOR REVIEW PRIOR TO INSTALL.
- PROVIDE HAZARDOUS MATERIALS SIGNAGE AS SPECIFIED BY NFPA STANDARD 704.
- SMOKING SHALL BE PROHIBITED AND "NO SMOKING" SIGNS PROVIDED AT: ROOMS WHERE HAZARDOUS MATERIALS ARE STORED OR DISPENSED OR USED IN OPEN SYSTEMS IN AMOUNTS REQUIRING A PERMIT IN ACCORDANCE WITH **SECTION 5001.5**
- WITHIN 25 FT OF OUTDOOR STORAGE, DISPENSING OR OPEN USE AREAS. FACILITIES OR AREAS WITHIN FACILITIES THAT HAVE BEEN DESIGNATED AS TOTALLY "NO SMOKING" SHALL HAVE "NO SMOKING" SIGNAGE PLACED AT ALL ENTRANCES TO THEE FACILITY OR AREA. DESIGNATED AREAS WITHIN SUCH FACILITIES WHERE SMOKING IS PERMITTED EITHER PERMANENTLY OR TEMPORARILY, SHALL BE INDENTED WITH SIGNS DESIGNATING THAT SMOKING IS PERMITTED IN THESE AREAS ONLY.
- IN ROOMS OR AREAS WHERE FLAMMABLE OR COMBUSTIBLE HAZARDOUS MATERIALS ARE STORED, DISPENSED OR USED.

# CODE ANALYSIS

**APPLICABLE CODES** 

# THE BUILDING SHALL BE IN COMPLIANCE WITH THE FOLLOWING:

2018 INTERNATIONAL BUILDING CODE 2018 INTERNATIONAL PLUMBING CODE 2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL FUEL GAS CODE 2018 INTERNATIONAL FIRE CODE 2017 NATIONAL ELECTRICAL CODE

ICC/ANSI A117.1-2009, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES LEE'S SUMMIT, MISSOURI

### **OCCUPANCY CLASSIFICATION**

MAIN OCCUPANCY (S-2): S-2: STORAGE SECTION 311.3 (LOW-HAZARD STORAGE) ACCESSORY OCCUPANCY (B): **SECTION 508.2.1** SECTION 304 B: BUSINESS

### TYPE OF CONSTRUCTION

TYPE OF CONSTRUCTION

**IBC SECTION 602.5** 

### **ALLOWABLE HEIGHTS**

MAIN OCCUPANCY (S-2): **BUILDING HEIGHT - TABLE 504.3** ALLOWABLE HEIGHT = 60 FT ACTUAL HEIGHT = 22 FT 2 IN

### **BUILDING # OF STORIES - TABLE 504.4** ALLOWABLE HEIGHT = 3 STORY

ACTUAL HEIGHT = 1 STORY

ACCESSORY OCCUPANCY (B): **SECTION 508.2.2** SHALL BE IN ACCORDANCE WITH THE MAIN OCCUPANCY OF THE BUILDING

### **ALLOWABLE AREAS**

ALLOWABLE FLOOR AREA - TABLE 506.2

MAIN OCCUPANCY (S-2): ALLOWABLE AREA = 54,000 SF PER STORY (WITHOUT INCREASES) ACTUAL AREA = 22,677 SF

ACCESSORY OCCUPANCY (B): **SECTION 508.2.3** ALLOWABLE AREA = 36,000 SF PER STORY (WITHOUT INCREASES) SHALL NOT OCCUPY MORE THAN 10% OF MAIN OCCUPANCY AREA ACTUAL AREA = 1,344 SF 22,677 x .10 = 2,677 THEREFORE, COMPLIES.

# FIRE RESISTANCE

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS - TABLE 601 FIRE PROTECTION SYSTEMS, SECTION 903.2.10

= 1 OCCUPANTS

= 7 OCCUPANTS = 7 OCCUPANTS

= 7 OCCUPANTS

= 7 OCCUPANTS

= 7 OCCUPANTS

= 7 OCCUPANTS

= 7 OCCUPANTS

= 64 OCCUPANTS

= 2 OCCUPANTS

= 16 OCCUPANTS

= 80 OCCUPANTS

= 1.4" REQUIRED

= 0.4" REQUIRED

= 69" PROVIDED

WATER CLOSETS

LAVATORIES

1/40

= 103.5" PROVIDED

= 34.5" PROVIDED

PRIMARY STRUCTURAL FRAME: 0 HOURS BEARING WALLS EXTERIOR: 0 HOURS 0 HOURS BEARING WALLS INTERIOR: NONBEARING WALLS EXTERIOR: 0 HOURS NONBEARING WALLS INTERIOR: FLOOR CONSTRUCTION: 0 HOURS ROOF CONSTRUCTION: 0 HOURS

80 SF / 300 GROSS

2089 SF / 300 GROSS

2052 SF / 300 GROSS

168 SF / 150 GROSS

MINIMUM REQUIRED EGRESS WIDTH - 1005.1

COMMON PATH OF EGRESS TRAVEL - TABLE 1006.2.1:

MINIMUM NUMBER OF REQUIRED PLUMBING FIXTURES

PROVIDED: 1 DOORS @ 34.5" CLEAR

PROVIDED: 2 DOORS @ 34.5" CLEAR

NUMBER OF EXITS, TABLE 1006.2.1:

7 OCCUPANTS PER SUITE (8)

### **MEANS OF EGRESS**

STORAGE

TOTAL

**BUSINESS** 

OFFICE 1

OFFICE 2

OFFICE 3

OFFICE 4

OFFICE 5

OFFICE 6

OFFICE 7

**OFFICE 8** 

TOTAL OCCUPANTS

MAIN OCCUPANCY (S-2):

REQUIRED: 7 OCC. X 0.2"

ACCESSORY OCCUPANCY (B):

REQUIRED: 2 OCC. X 0.2"

REQUIRED: 100 FT PROVIDED: 9 FT 0 IN

PER SUITE

REQUIRED: 1 PROVIDED: 3

PER SUITE

B: BUSINESS

**TOTAL** 

**TOTAL WIDTH PER SUITE (8)** 

**TOTAL** 

SPRINKLER

WAREHOUSE 2

WAREHOUSE 3

WAREHOUSE 4

WAREHOUSE 5

WAREHOUSE 6

WAREHOUSE 7

WAREHOUSE 8

SUITE TYPE A (WAREHOUSE) SUITE TYPE B (LOADING DOCK)

### MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT - TABLE 1004.1.2 MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT - TABLE 1004.1.2

WAREHOUSE 1 1999 SF / 300 GROSS = 7 OCCUPANTS LOADING DOCK 2350 SF / 300 GROSS = 8 OCCUPANTS

**TOTAL OCCUPANTS** = 8 OCCUPANTS

MINIMUM REQUIRED EGRESS WIDTH - 1005.1

**REQUIRED: YES** 

PROVIDED: YES

REQUIRED: 8 OCC. X 0.2" = 1.6" REQUIRED PROVIDED: 1 DOORS @ 34.5" CLEAR = 34.5" PROVIDED **TOTAL WIDTH PER SUITE (1) = 34.5" PROVIDED** 

DRINKING FOUNTAINS OTHER

1 SERVICE SINK

1/100

REQUIRED | PROVIDED | REQUIRED | PROVIDED | REQUIRED | PROVIDED | REQUIRED | PROVIDED

NUMBER OF EXITS, TABLE 1006.2.1: REQUIRED: 1 PROVIDED: 1

EXIT ACCESS TRAVEL DISTANCE - TABLE 1017.2 MAIN OCCUPANCY:

REQUIRED: 300 FT PROVIDED: SEE CODE PLAN ADA FLOOR CLEARANCES 4' - 0" R 2' - 6" WHEELCHAIR TOILET STALL WHEELCHAIR **TURNING RADIUS** CLEARANCE

PAPER TOWEL

LIFE SAFETY LEGEND

EXIT

кв КВ

FEC

EXIT SIGN / EGRESS ILLUMINATION REFER TO REFLECTED CEILING PLAN - COORDINATE WITH ELECTRICAL

(RECESSED) FIRE EXTINGUISHER CABINET TOP OF EXTINGUISHER 5'-0" AFF - 75 FT MAXIMUM TRAVEL DISTANCE (IFC TABLE 906.3(1))

PORTABLE FIRE EXTINGUISHER TOP OF EXTINGUISHER 5'-0" AFF - 75 FT MAXIMUM TRAVEL DISTANCE (IFC TABLE 906.3(1))

KNOX BOX, MOUNT 5'-0" to 6'-6" ABOVE GRADE TO TOP OF BOX. VERIFY FINAL LOCATION WITH JURISDICTION HAVING AUTHORITY

22' EXIT PATH / EXIT TRAVEL DISTANCE SYMBOL

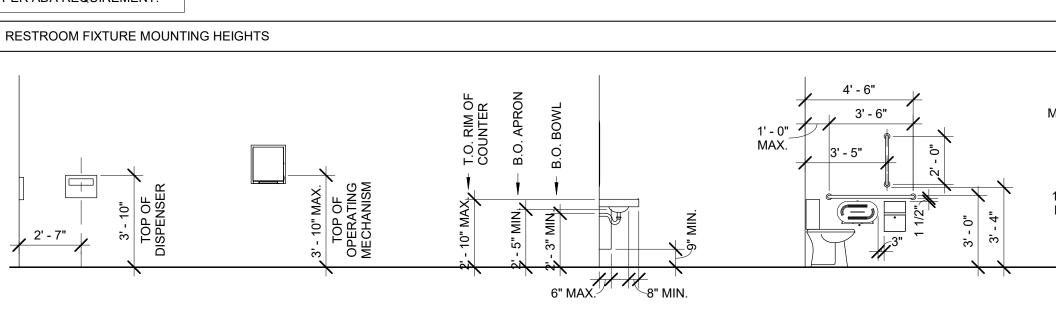
ACCESSIBLE FLOOR

MOUNTED WATERCLOSET

EXIT

13' COMMON PATH OF TRAVEL DIVERGENCE / COMMON PATH OF TRAVEL DISTANCE SYMBOL

FIRE DEPARTMENT CONNECTION

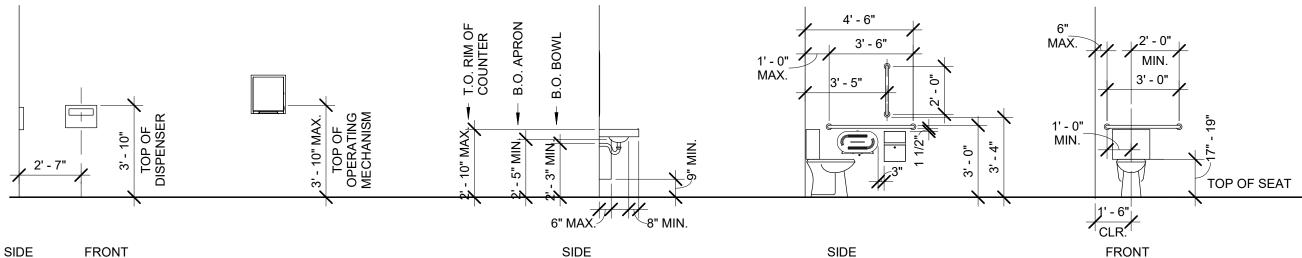


ADA COMPLIANT LAVATORIES

NOTE: ALL BATHROOM FIXTURES TO BE MOUNTED PER ADA REQUIREMENT.

ADA COMPLIANT SANITARY

SEAT COVER

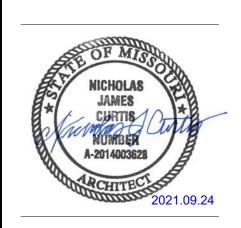


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Certificates of Authority Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

CLIENT

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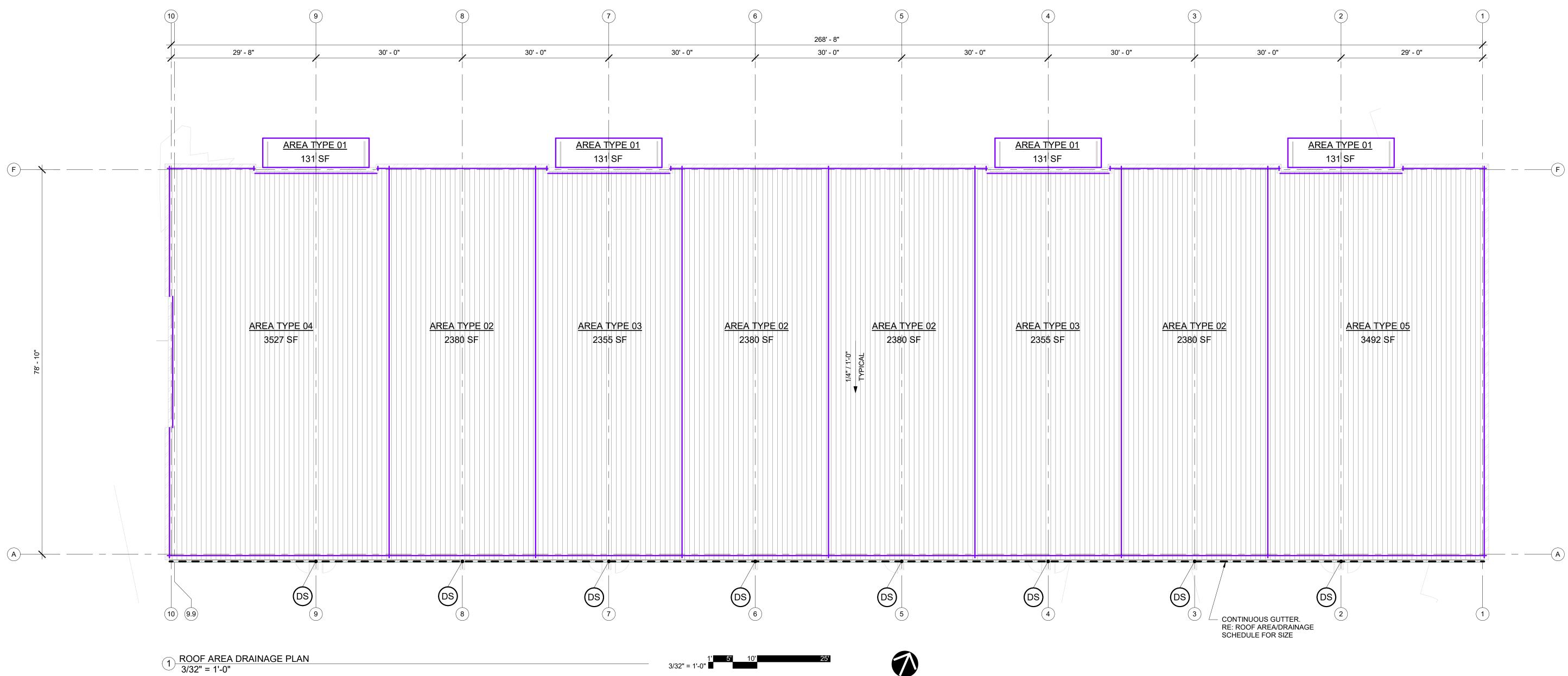


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> LIFE SAFETY AND CODE SHEET



	ROOF AREA SCHEDULE													
TYPE	Count	SMANCA Table 1-2 Rainfall Data and Drainage Factors	(A) AREA (SF)	SMACNA Table 1-1 Design Areas for Pitched Roofs		(C) 100 Years - Calculated roof area drained per downspout area sq ft/sq in	(D) Total area of downspout req'd (sq. in.) (D = A*B/C)	E) Number of Downspouts	(F) Area per Downspout Required (sq in)	Downspout Size	Gutter Size	Comments		
								I						
AREA TYPE 01	4	MISSOURI: Kansas City	131 SF	3 to level	1	110	1.2	1	1.19	Per Canopy Manufacturer	Per Canopy Manufacturer			
AREA TYPE 02	4	MISSOURI: Kansas City	2,380 SF	3 to level	1	110	21.6	2	10.82	Rectangular Corrugated, Nominal 5" Downspout (3.75x5" = 18.75") Net Area "A" = 16.63 sq in	5"W x 7.5"D			
AREA TYPE 03	2	MISSOURI: Kansas City	2,355 SF	3 to level	1	110	21.4	2	10.70	Rectangular Corrugated, Nominal 5" Downspout (3.75x5" = 18.75") Net Area "A" = 16.63 sq in	5"W x 7.5"D			
AREA TYPE 04	1	MISSOURI: Kansas City	3,527 SF	3 to level	1	110	32.1	2	16.03	Rectangular Corrugated, Nominal 5" Downspout (3.75x5" = 18.75") Net Area "A" = 16.63 sq in	5"W x 7.5"D			
AREA TYPE 05	1	MISSOURI: Kansas City	3,492 SF	3 to level	1	110	31.7	2	15.87	Rectangular Corrugated, Nominal 5" Downspout (3.75x5" = 18.75") Net Area "A" = 16.63 sq in	5"W x 7.5"D			

### GENERAL NOTES - ROOF DRAINAGE PLAN

- REFER TO PREENGINEERED METAL BUILDING DRAWINGS FOR ROOF SUPPORT STEEL AND DECKING ELEVATIONS AND INFORMATION.
- 2. ROOF DRAINAGE CALCULATIONS PER 2018 IPC.
- 3. REFER TO BUILDING ELEVATIONS FOR ADDITIONAL DOWNSPOUT INFORMATION.

### ROOF DRAINAGE LEGEND



DOWNSPOUT, RE: ROOF AREA/DRAINAGE SCHEDULE FOR STYLE AND SIZE.

**— — —** GUTTER

1/4" / 1'-0"

SURFACE SLOPE ARROW

----- AREA BOUNDARY

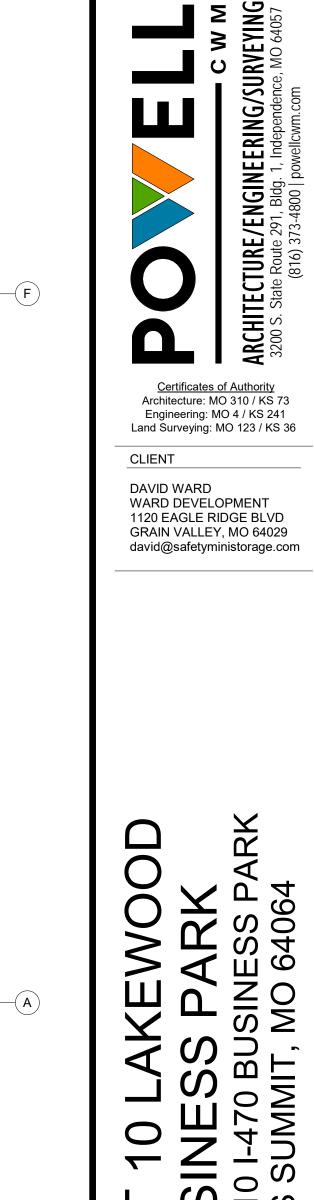
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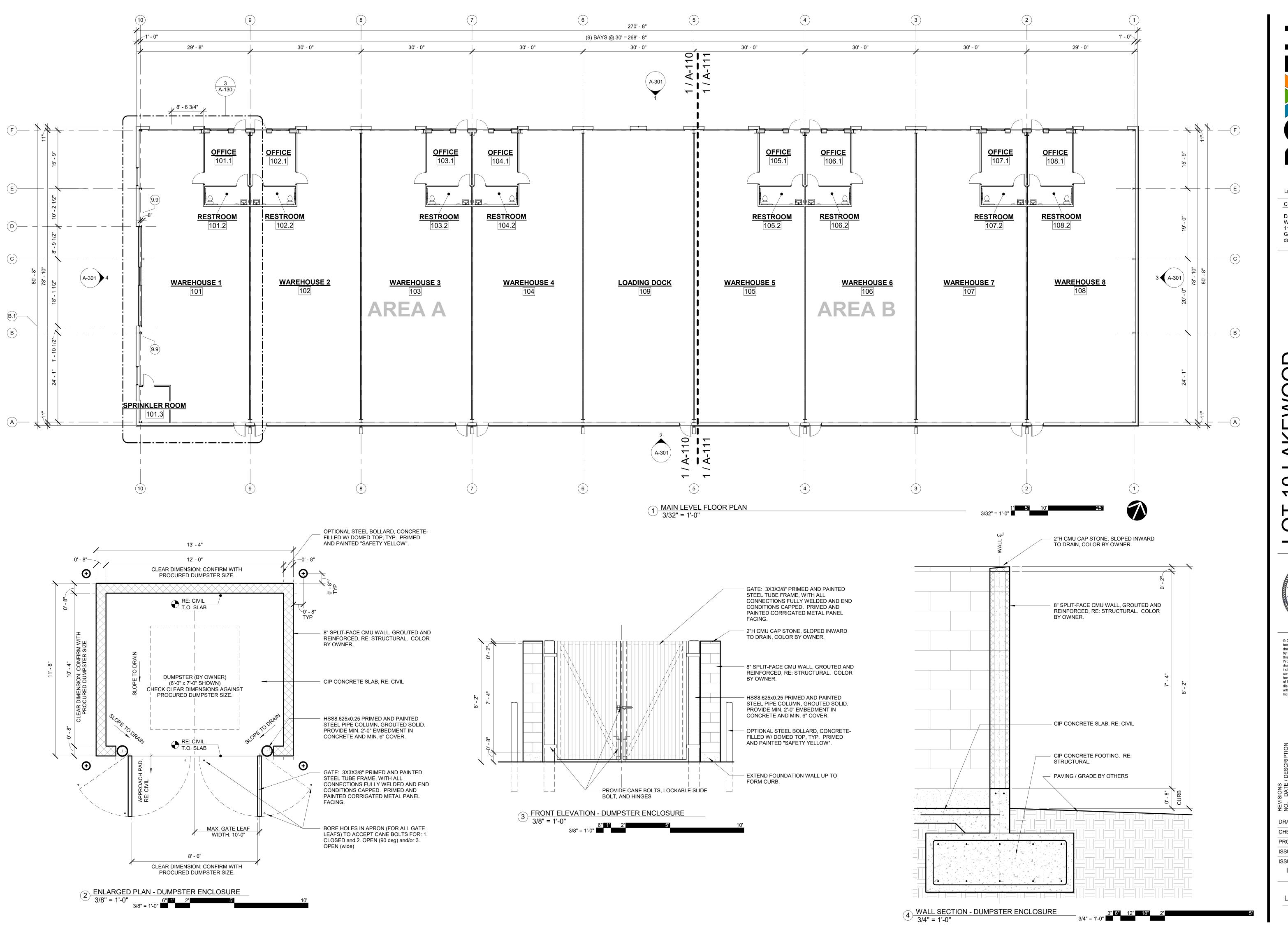
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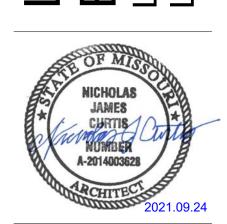
ROOF DRAINAGE PLAN





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Land Surveying: MO 123 / KS 36 CLIENT DAVID WARD

WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

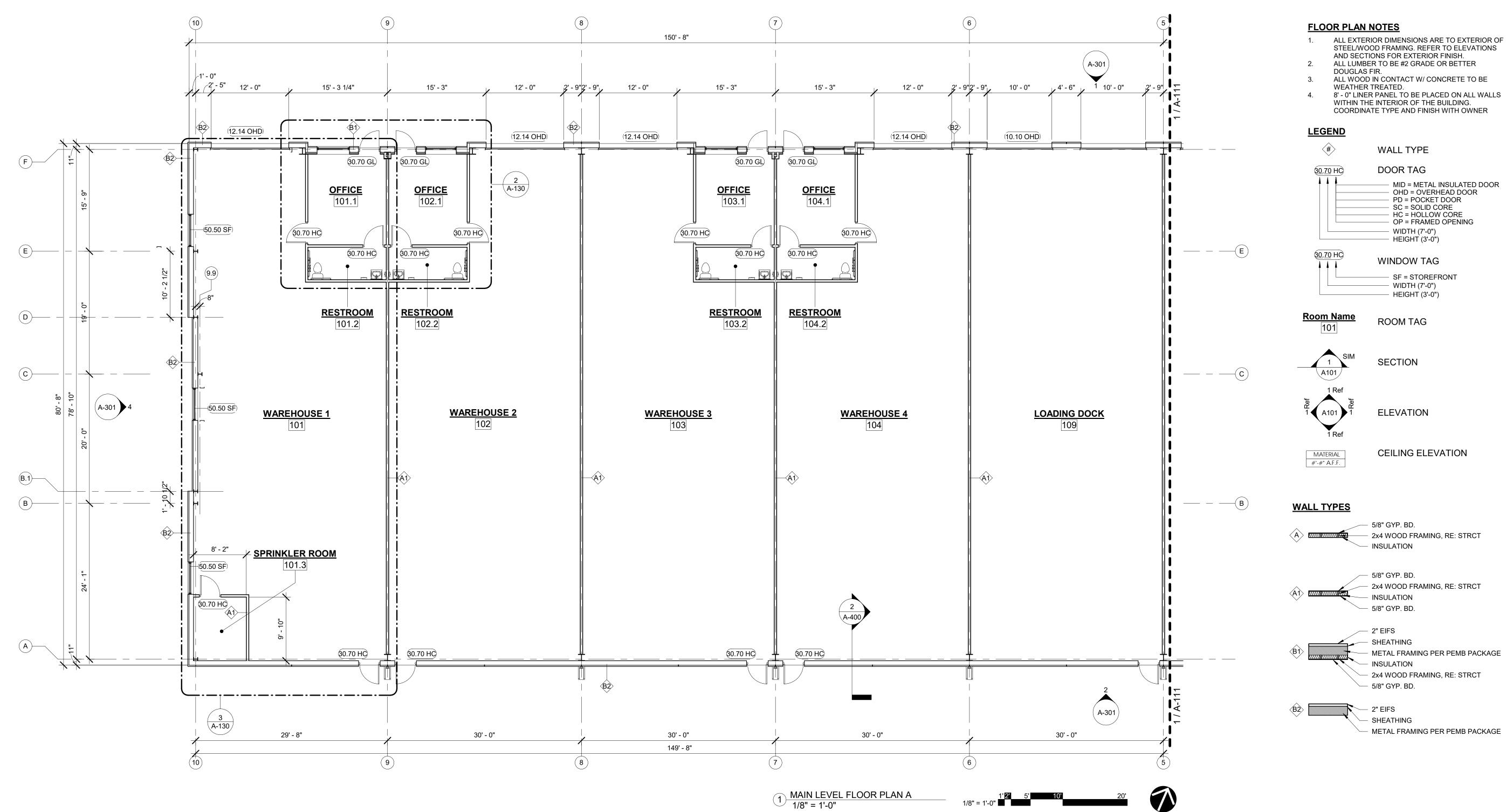


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OVERALL MAIN LEVEL FLOOR PLAN

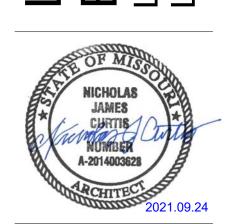




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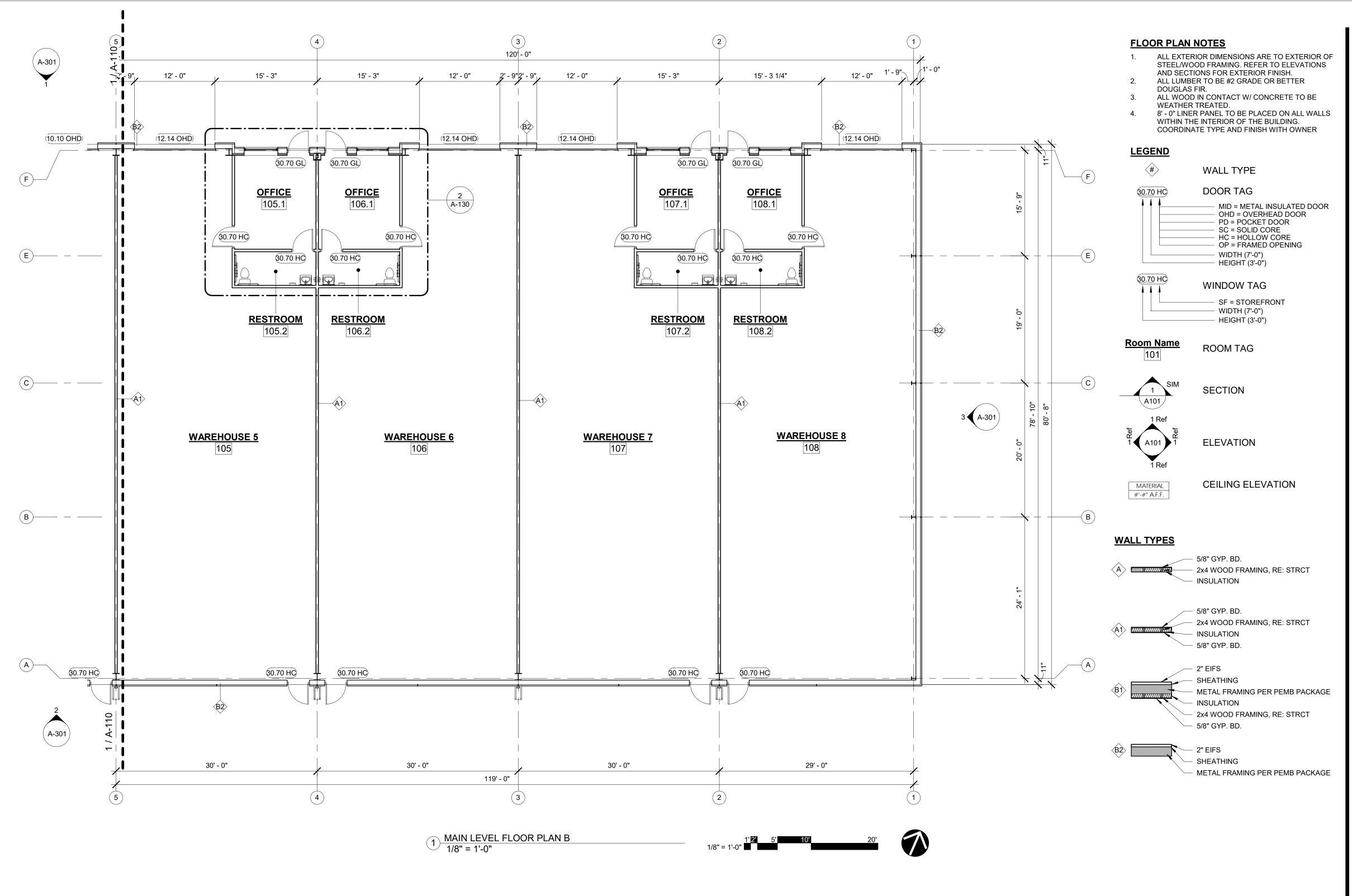
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PLAN - AREA A

MAIN LEVEL FLOOR



LOT 10 LAKEWO

BUSINESS PARK

LOT 10 I-470 BUSINESS P

LEE'S SUMMIT, MO 64064

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WARD DEVELOPMENT

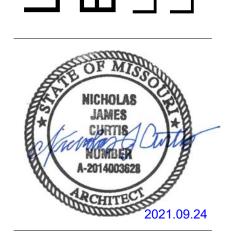
1120 EAGLE RIDGE BLVD

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DAVID WARD



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MAIN LEVEL FLOOR PLAN - AREA B

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# **GENERAL NOTES - CEILING PLAN**

- REFER TO MEP DRAWINGS FOR ALL ADDITIONAL CEILING MOUNTED DEVICES NOT SHOWN ON THIS DRAWING INCLUDING, BUT NOT LIMITED TO, LIGHTING, MECHANICAL REGISTERS, SMOKE DETECTORS, MOTION DETECTORS, EXIT SIGNAGE, HEAT DETECTORS, CAMERAS, COMMUNICATION EQUIPMENT, FIRE SPRINKLER HEADS, ETC. ALL EXPOSED STRUCTURAL STEEL SHALL BE
- PAINTED TO MATCH THE ADJACENT WALL COLOR. THIS INCLUDES, BUT IS NOT LIMITED TO STEEL BEAMS, LADDERS, GUARD RAILS, MISC. BRACING, ETC. SEE PEMB PACKAGE. CEILING R-VALUES SHALL MAINTAIN R-38. EXTERIOR WALL INSULATION SHALL MAINTAIN R-13 OR BETTER. WALL R-VALUES SHALL BE OF CONSTRUCTION TO EQUAL R-19 TOTAL.

### LEGEND - CEILING PLAN

(2) SMOKE DETECTOR

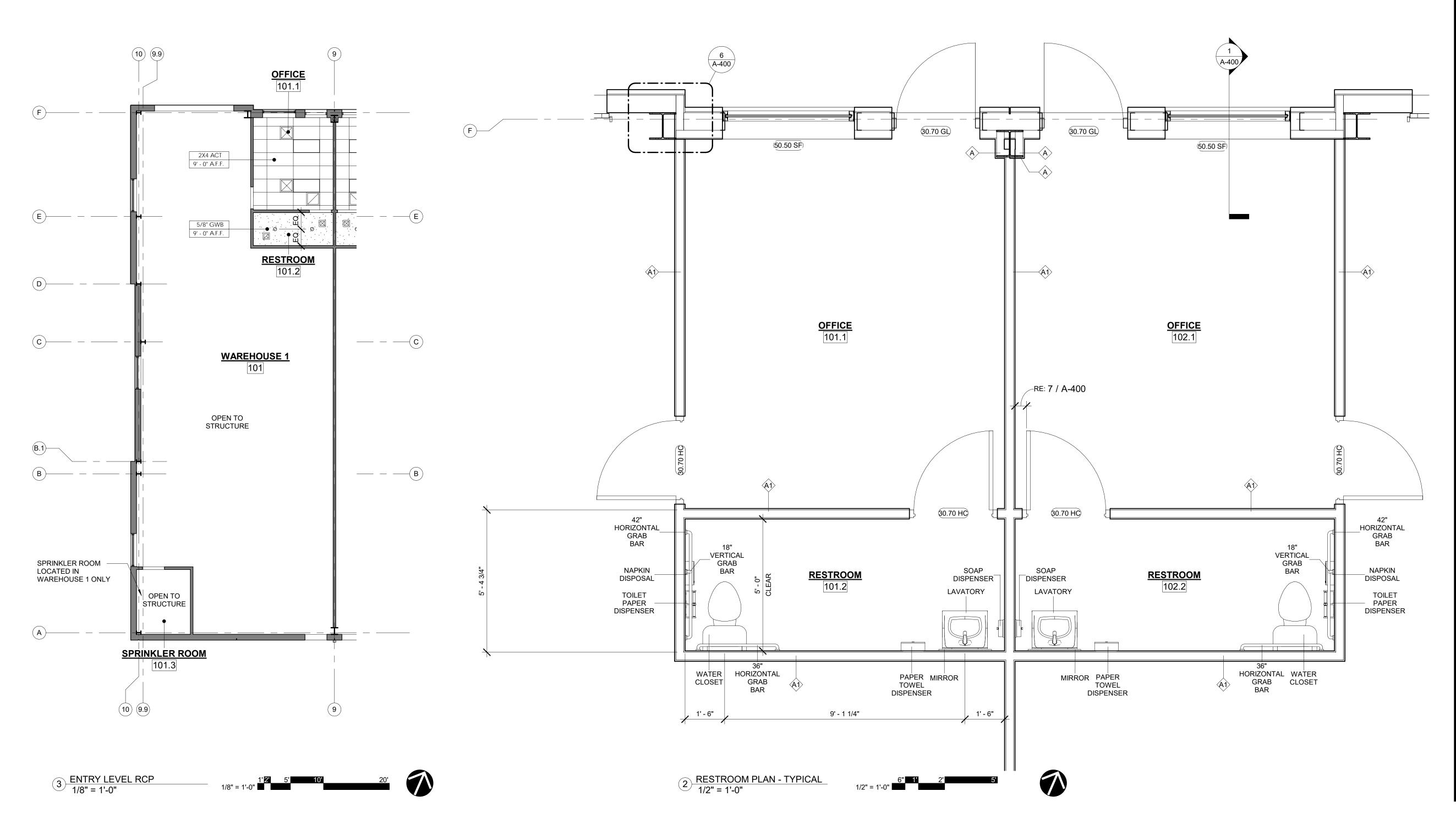
SMOKE DETECTOR AND CARBON MONOXIDE DETECTOR

MECHANICAL RETURN DIFFUSER

MECHANICAL SUPPLY DIFFUSER

MECHANICAL EXHAUST DIFFUSER

LIGHTING FIXTURE - BOX DOWNLIGHT



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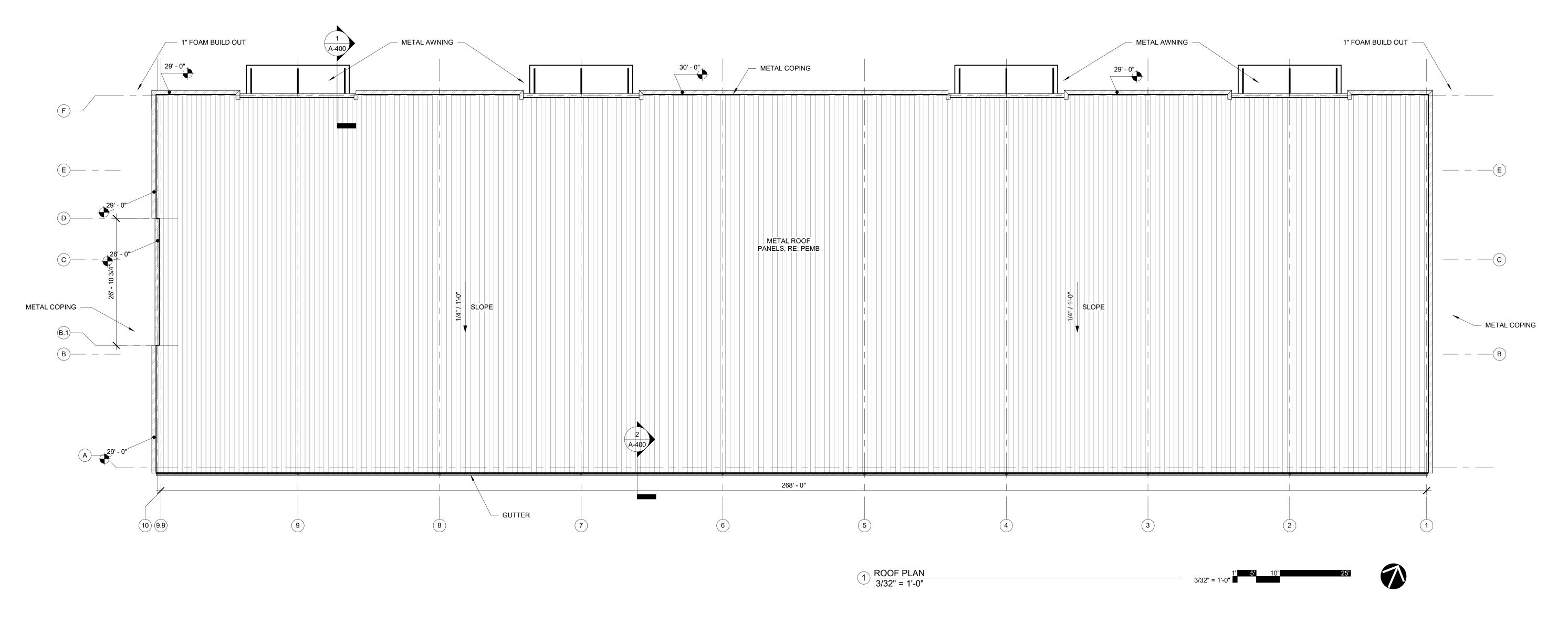
**JAMES** 

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**ENLARGED PLANS** 



# ROOF GENERAL NOTES

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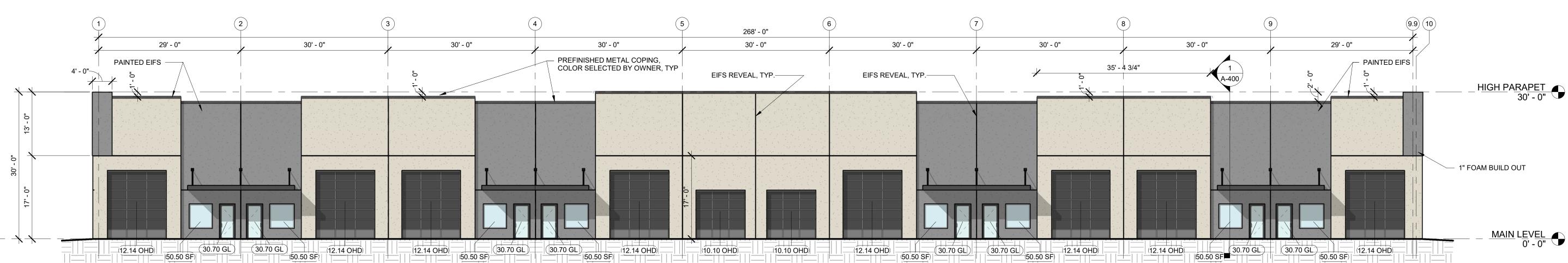
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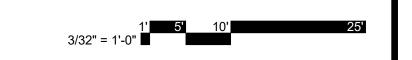
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ROOF PLAN



1 FRONT ELEVATION 3/32" = 1'-0"



**EXTERIOR ELEVATION GENERAL NOTES** 

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GRAIN VALLEY, MO 64029

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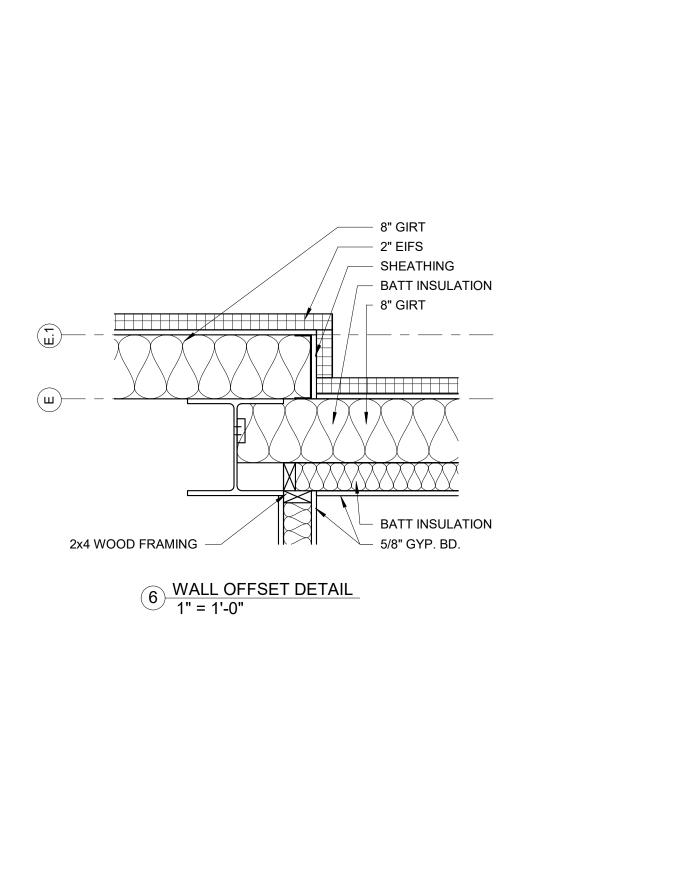
JAMES

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> **EXTERIOR** ELEVATIONS



5/8" GYP. BD.

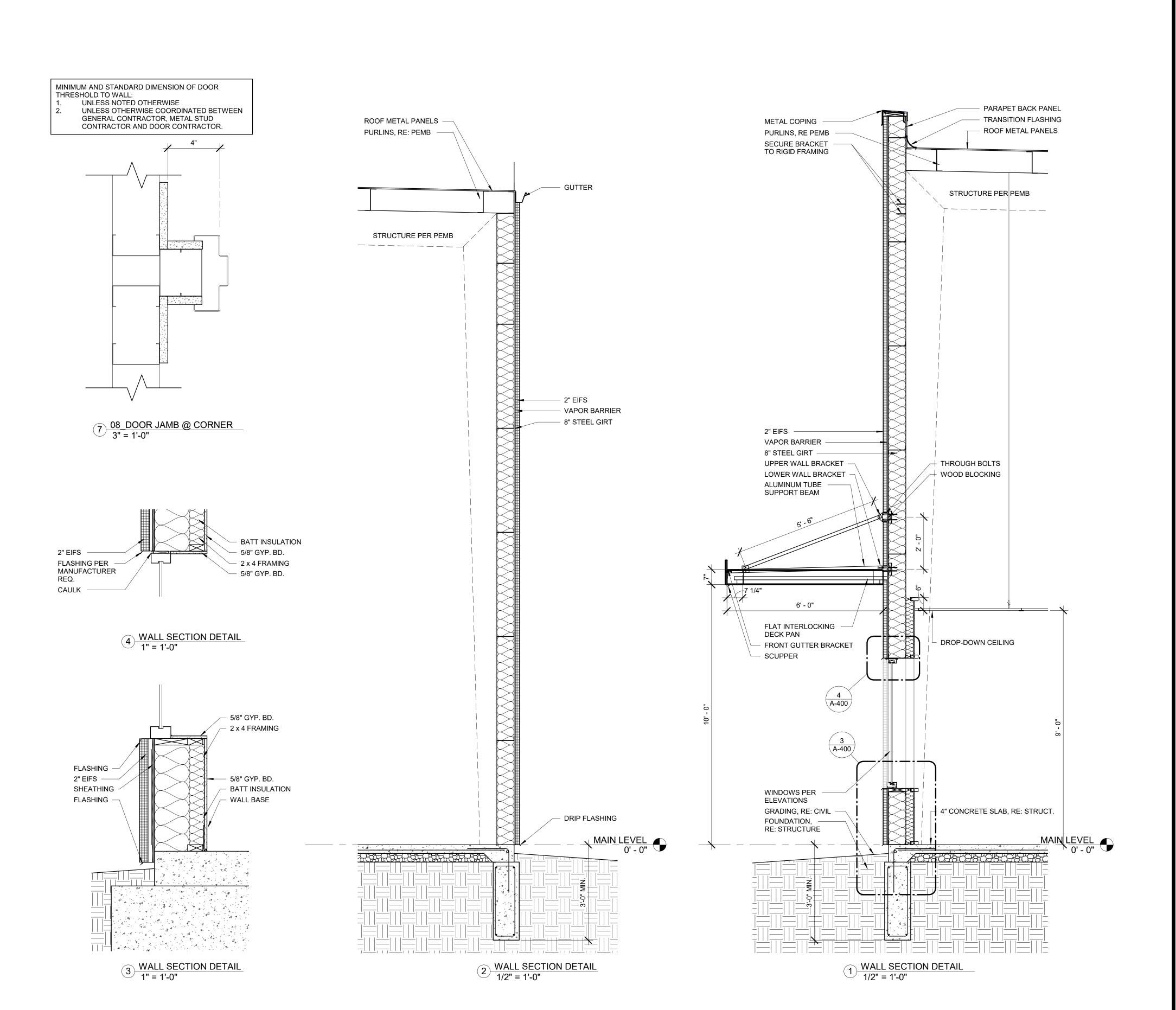
─ 2 x 4 FRAMING

5 BOTTOM OF WALL AT PAVEMENT 1" = 1'-0"

EXPANSION JOINT

FLASHING

PAVEMENT





CLIENT

DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

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WALL SECTIONS & DETAILS

Abbreviation	03_Abbreviation Schedule
	Abbreviation Name
+/- ADDNL	PLUS OR MINUS ADDITIONAL
ADJ	ADJACENT
AESS	ARCHITECTURALLY EXPOSED STRUCTURAL STEEL
AFF ALT	ABOVE FINISHED FLOOR
ALT AR	ALTERNATE ANCHOR ROD
ARCH B/	ARCHITECT OR ARCHITECTURAL
B/W	BOTTOM OF BETWEEN
BLDG	BUILDING
BLKG BM	BLOCKING BEAM
BOT	BOTTOM
BRG BWP	BEARING BRACED WALL PANEL
CFS	COLD FORMED STEEL
CHKD	CHECKED
CIP CJ	CAST IN PLACE CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL CLR	CENTERLINE CLEAR
COL	COLUMN
CONC	CONCRETE CONNECTION
CONT	CONTINUOUS
CTR db	CENTER DIA OF REINF BAR, DIA OF BOLT
DBA	DEFORMED BAR ANCHOR
DIA or Ø DIAG	DIAMETER
DIAG	DIAGONAL DIRECTION
DWL	DOWEL
EA EE	EACH EXTENDED END
EJ	EXPANSION JOINT
ELEV ENGR	ELEVATION ENGINEER
EOD	EDGE OF DECK
EOS EQ	EDGE OF SLAB EQUAL
EQ EW	EACH WAY
EXIST	EXISTING
EXT FDN	EXTERIOR FOUNDATION
FLG	FLANGE
FLR FS	FLOOR FAR SIDE
FTG	FOOTING
FV GA	FIELD VERIFY GAUGE
GALV	GALVANIZED
GB GC	GRADE BEAM GENERAL CONTRACTOR
HORIZ	HORIZONTAL
HSA HSS	HEADED STUD ANCHOR HOLLOW STRUCTURAL SECTION
IF	INSIDE FACE
INT JST	INTERIOR JOIST
K	KIPS (1000 LBS)
LCE LCS	COMPRESSION EMBEDMENT LENGTH COMPRESSION LAP SPLICE LENGTH
LUS	LONG LEG HORIZONTAL
LLV LTE	LONG LEG VERTICAL TENSION EMBEDMENT LENGTH
LTS	TENSION LAP SLICE LENGTH
LW	LIGHTWEIGHT
MFCR MTL	MANUFACTURER METAL
NIC	NOT IN CONTRACT
NS NTS	NEAR SIDE NOT TO SCALE
OC	ON CENTER
OF OPP	OUTSIDE FACE OPPOSITE
OVS	OVERSIZED
P/C	PRECAST
PAF PAR	POWDER ACTUATED FASTENER PARALLEL
PEMB	PRE-ENGINEERED METAL BUILDING
	PENETRATION PERPENDICULAR
PEN PERP	
PERP PL	PLATE
PERP PL PLF	PLATE POUNDS PER LINEAR FOOT
PERP PL	PLATE
PERP PL PLF PREFAB PRELIM PSF	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT
PERP PL PLF PREFAB PRELIM	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY
PERP PL PLF PREFAB PRELIM PSF PSI RC RE:	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL SW	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL SHEAR WALL
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL SHEAR WALL SYMMETRIC TOP AND BOTTOM
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL SW SYM T&B T/	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL SHEAR WALL SYMMETRIC TOP AND BOTTOM TOP OF
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL SW SYM T&B	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL SHEAR WALL SYMMETRIC TOP AND BOTTOM
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL SW SYM T&B T/ TRANS TYP UNO	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL SHEAR WALL SYMMETRIC TOP AND BOTTOM TOP OF TRANSVERSE TYPICAL UNLESS NOTED OTHERWISE
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL SW SYM T&B T/ TRANS TYP	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL SHEAR WALL SYMMETRIC TOP AND BOTTOM TOP OF TRANSVERSE TYPICAL
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL SW SYM T&B T/ TRANS TYP UNO VERT W/ W/O	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL SHEAR WALL SYMMETRIC TOP AND BOTTOM TOP OF TRANSVERSE TYPICAL UNLESS NOTED OTHERWISE VERTICAL WITH WITHOUT
PERP PL PLF PREFAB PRELIM PSF PSI RC RE: REINF REQD RF SC SDS SIM SLV SOG SQ SS STD STIR STL SW SYM T&B T/ TRANS TYP UNO VERT W/	PLATE POUNDS PER LINEAR FOOT PREFABRICATED PRELIMINARY POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH REINFORCED CONCRETE REFER TO REINFORCING REQUIRED RIGID FRAME SLIP CRITICAL SELF DRILLING SCREW SIMILAR SHORT LEG VERTICAL SLAB ON GRADE SQUARE STAINLESS STEEL STANDARD STIRRUPS STEEL SHEAR WALL SYMMETRIC TOP AND BOTTOM TOP OF TRANSVERSE TYPICAL UNLESS NOTED OTHERWISE VERTICAL WITH

### STRUCTURAL DESIGN CRITERIA (2018 IBC AND ASCE 7-16):

1. BUILDING OCCUPANCY RISK CATEGORY I

2. LIVE LOADS [UNIFORM (PSF) / POINT LOADS (KIPS)]:

ROOF SNOW LOAD: -- GROUND SNOW LOAD (Pg):. -- FLAT ROOF SNOW LOAD (Pf): ..16.9 PSF W/ DRIFT -- MIN UNIFORM ROOF SNOW LOAD (Pm):.........20 PSF (NO DRIFT OR RAIN) -- SNOW EXPOSURE FACTOR (Ce):......1.0, EXPOSURE C

-- SNOW LOAD IMPORTANCE FACTOR (Is):......1.0 -- THERMAL FACTOR (Ct):... 4. WIND DESIGN DATA: -- BASIC WIND SPEED (3 SEC GUST):. ..115 MPH -- WIND EXPOSURE:..

### STRUCTURAL GENERAL NOTES:

-- DIRECTIONALITY FACTOR (Kd) .

-- INTERNAL PRESSURE COEFF:.

1. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE "INTERNATIONAL BUILDING CODE, 2018 EDITION". REFER TO THE SPECIAL STRUCTURAL INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS.

...0.18

2. CONTRACTOR TO VERIFY ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT IMMEDIATELY.

3. IF DISCREPANCIES EXIST BETWEEN STRUCTURAL PLANS, ARCHITECTURAL PLANS, OTHER PLANS, OR SPECIFICATIONS, THE CONTRACTOR OR SUBCONTRACTOR SHALL PROVIDE A WRITTEN REQUEST FOR CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK

4. THE STRUCTURE AND FOUNDATIONS ARE NOT DESIGNED FOR FUTURE EXPANSION.

5. FOR DEFERRED SUBMITTALS (EXAMPLES: PRE-ENGINEERED CANOPIES, WOOD TRUSSES, PRECAST CONCRETE ELEMENTS, COLD FORMED FRAMING), SHOP DRAWINGS AND CALCULATIONS SEALED BY A STRUCTURAL ENGINEER LICENSED TO PRACTICE IN THE JURISDICTION OF THE PROJECT SHALL BE FURNISHED TO THE ENGINEER OF RECORD FOR REIVEW.

6. TYPICAL DETAILS ARE SHOWN ON SHEETS DESIGNATED "S0XX". THE INCLUDED TYPICAL DETAILS MAY OR MAY NOT BE CUT / REFERENCED ON PLANS OR SECTIONS, BUT ARE TO BE USED AS APPLICABLE

### **EARTHWORK AND FOUNDATIONS:**

1. ALLOWABLE BEARING PRESSURE = 2500 PSF (MUST BE CONFIRMED BY SPECIAL INSPECTION)

2. ALL FOOTINGS SHALL BEAR A MINIMUM DEPTH BELOW GRADE OF 3'-0" ON FIRM NATIVE MATERIALS, COMPACTED OR ENGINEERED FILL CAPABLE OF SUPPORTING AN ALLOWABLE BEARING PRESSURE OF 2,500 PSF. DEEPEN FOOTINGS, AND REMOVE AND REPLACE SOFT SOILS WITH A 3'-0" GRAVEL TRENCH TO PROVIDE THIS MINIMUM DEPTH AND SUITABLE BEARING.

3. UNDERCUT THE PAD TO A DEPTH OF 18-INCHES BELOW BOTTOM OF FLOOR SLAB ELEVATION AND REPLACE WITH LOW-VOLUME-CHANGE MATERIALS PER THE GEOTECHNICAL REPORT.

4. FILL PLACEMENT, COMPACTION, AND SOIL BEARING TESTS SHALL BE PERFORMED BY A GEOTECHNICAL ENGINEER PRIOR TO INSTALLING FOOTINGS TO ENSURE DESIGN ALLOWABLE BEARING VALUES AND SLAB SUBGRADE REQUIREMENTS ARE SATISFIED. IF ACTUAL SITE CONDITIONS DO NOT SATISFY THESE REQUIREMENTS, COORDINATE ADJUSTMENTS WITH ARCHITECT/ENGINEER/ GEOTECHNICAL ENGINEER

5. SURFACE WATER SHALL NOT BE ALLOWED TO STAND ADJACENT TO OR DRAIN TOWARDS THE FOUNDATION AND SLAB SUBGRADES UNDER ANY CIRCUMSTANCES. PAVEMENTS OR GRADED SOILS AT THE PERIMETER OF THE BUILDING, EXCEPT AS REQUIRED AT EXITS OR AS NOTED, SHALL BE SLOPED AWAY AT 5% OR 6" MIN FOR THE FIRST TEN FEET AND AS REQUIRED TO PROVIDE POSITIVE DRAINAGE.

6. FOOTINGS MAY BE POURED TO NEAT LINES OF EXCAVATIONS PROVIDING VERTICAL LINES OF EXCAVATIONS CAN BE MAINTAINED DURING CONCRETE PLACEMENT.

7. FOUNDATION WALL BACKFILL SHALL NOT BE UNBALANCED BY MORE THAN TWO FEET ON EITHER SIDE AT ANY TIME. BASEMENT WALL AND RESTRAINED RETAINING WALL BACKFILL SHALL NOT BE PLACED, UNLESS THE WALL IS ADEQUATELY BRACED. RETAINING WALL AND BASEMENT WALL BACKFILL SHALL BE FREE DRAINING GRANULAR BACKFILL ACCEPTABLE TO THE GEOTECHNICAL ENGINEER.

### **CONCRETE REINFORCING STEEL:**

1. SUBMIT SHOP DRAWINGS FOR REBAR. ALL REINFORCING BARS SHALL MEET ASTM A615 GRADE 60.

2. ALL MESH SHALL MEET ASTM A-185: LAP A MINIMUM OF 8" OR ONE FULL MESH, WHICHEVER IS GREATER.

3. CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE 3/4" CLEAR FOR SLABS, 2" CLEAR FOR FORMED SURFACES AND 3" CLEAR FOR FOOTINGS (TYPICAL UNLESS NOTED).

4. CONTRACTOR SHALL VERIFY THAT ALL REINFORCEMENT, SLAB DOWELS, INSERTS, SLEEVES AND EMBEDDED ITEMS ARE PROPERLY LOCATED AND RIGIDLY SECURED PRIOR TO CONCRETE PLACEMENT, "WET STICKING" DOWELS WILL NOT BE ALLOWED.

5. REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST A.C.I. DETAILING MANUAL BY A QUALIFIED AND EXPERIENCED FIRM AND PERSON. PLACE AND SUPPORT REINFORCEMENT WITH ACCESSORIES: MAXIMUM SPACING - 48" CENTERS (PLASTIC-TIPPED LEGS FOR EXPOSED SURFACES). USE 3" SBP SUPPORTS AT ALL FOOTINGS.

### **CAST IN PLACE CONCRETE:**

1. SUBMIT PROPOSED MIXED DEIGNS OF EACH TYPE FOR REVIEW. REQUIRED MINIMUM CONCRETE COMPRESSIVE STRENGTHS AT 28 DAYS:

a. FOOTING AND GRADEBEAM CONCRETE... b. SLAB ON GRADE . ..4000 PSI

2. ALL CONCRETE MIX DESIGNS SHALL HAVE WATER TO CEMENT RATIOS LESS THAN 0.52, WITH A MAXIMUM 60/40 FINE TO COARSE AGGREGATE RATIO. CONCRETE MIX DESIGNS THAT DO NOT CONFORM TO THE ABOVE STANDARD AND/OR CONTAIN WATER REDUCING ADMIXTURES SHALL BE SUBMITTED WITH APPROPRIATE TEST DATA PER A.C.I.. ALL CONCRETE SHALL BE IN CONFORMANCE WITH THE LATEST A.C.I. 301 STANDARDS PUBLICATION.

3. EXTERIOR CONCRETE (FLOOR SLABS, WALLS, ETC) SHALL HAVE 6% (PLUS/MINUS 1%) ENTRAINED AIR.

4. NO ALUMINUM SHALL BE EMBEDDED IN ANY CONCRETE.

5. NO CALCIUM CHLORIDE SHALL BE USED IN CONCRETE

6. THE DESIGN, CONSTRUCTION, AND SAFETY OF ALL FORMWORK IS THE RESPONSIBILITY OF THE CONTRACTOR

7. ALL CONCRETE IS REINFORCED UNLESS SPECIFICALLY NOTED AS UNREINFORCED. REINFORCE ALL CONCRETE NOT OTHERWISE SHOWN WITH THE SAME REINFORCING AS SIMILAR SECTIONS OR AREAS.

8. CONSTRUCTION JOINTS IN GRADE BEAMS, CONTINUOUS FOOTINGS, AND WALLS THAT DO NOT CHANGE DIRECTION SHALL BE SPACED NO GREATER THAN 100'-0".

9. WHERE FRESH CONCRETE IS DEPOSITED AGAINST HARDENED CONCRETE (GREATER THAN 8 HRS OLD), CLEAN EXISTING SURFACE OF LAITANCE AND FOREIGN MATERIAL AND DAMPEN THE EXISTING SURFACE. IF REQUIRED, ROUGHEN EXISTING CONCRETE TO 1/4" AMPLITUDE.

10. SLABS ON GRADE SHALL BE 4" THICK MINIMUM ON 4" OF GRANULAR FILL REINFORCED WITH 6x6-W2.1xW2.1. PLACE REINF IN UPPER 1/3 OF SLAB THICKNESS. AT INTERIOR SLABS, A 10 MIL VAPOR BARRIER SHALL BE PLACED BETWEEN THE CONCRETE AND GRANULAR BASE AND CARE SHOULD BE TAKEN DURING CURING TO PREVENT SLAB CURLING. THIS NOTE SHALL BE TYPICAL UNLESS NOTED OTHERWISE

11. SAW CUT JOINTS OR KEYED CONSTRUCTION JOINTS IN SLABS ON GRADE SHALL BE SPACED TO DIVIDE THE SLAB INTO PANELS NOT TO EXCEED 225 SQUARE FEET. THE LONGER DIMENSION OF EACH PANEL SHALL NOT EXCEED THE SHORTER DIMENSIONS BY MORE THAN 40%, JOINTS SHALL BE LOCATED AT COLUMN CENTERLINES WHERE POSSIBLE. SPACING BETWEEN JOINTS SHALL NOT EXCEED 15 FEET. CONTRACTOR SHALL SUBMIT JOINT LAYOUT TO ARCHITECT FOR APPROVAL. REFER TO TYP DETAIL RC-001A.

12. REINFORCEMENT SHALL BE CONTINUOUS AND LAPPED 53 BAR DIAMETERS (2' -6" MIN.) EXCEPT AS NOTED AND PROVIDE CORNER BARS OF SAME SIZE AND SPACING.

13. CONTRACTOR SHALL COORDINATE ALL CURING COMPOUNDS WITH FLOOR FINISH REQUIREMENTS TO ENSURE COMPATIBILITY.

14. FOUNDATION CONTRACTOR TO ENSURE PROPER ANCHOR ROD PROJECTION AND THAT ANCHOR RODS ARE HELD SECURELY IN POSITION PRIOR TO CONCRETE PLACEMENT. INSTALL ANCHOR RODS TO THE STRICT DIMENSIONAL TOLERANCES PER AISC REQUIREMENTS. STRUCTURAL STEEL COLUMN ANCHOR RODS SHALL BE SET WITH A RIGID TEMPLATE.

15. AGGREGATES AND/OR CONCRETE MIXES SHALL BE CERTIFIED TO BE FREE OF AND ELIMINATE DAMAGE OF CONCRETE DUE TO ALKALI-SILICA REACTION OR ALKALI-AGGREGATE REACTIONS WHEN EXPOSED TO SOILS AND/OR AN EXTERIOR

### **CONCRETE MASONRY UNITS:**

C. MORTAR TYPE S.

1. ALL MASONRY SHALL BE IN ACCORDNACE WITH ACI 530/TMS 402. INDIVIDUAL CMU'S SHALL BE PER ASTM C90 (4950 PSI). GROUT SHALL BE PER ASTM C476, MORTAR SHALL BE PER ASTM C270.

2. MASONRY MATERIALS SHALL BE AS FOLLOWS: A. fm = 2,000 PSI MINIMUM. ALL UNITS SHALL BE NORMAL-WEIGHT BLOCK. B. GROUT STRENGTH NOT LESS THAN 2,000 PSI.

3. PROVIDE NOT LESS THAN 9-GAUGE HORIZONTAL LADDER-TYPE REINFORCEENT AT NOT MORE THAN 16" OC VERTICALLY, LAPPED 8" MINIMUM. REBAR POSITIOERS SHALL BE USED FOR ALL VERTICAL BARS SUCH THAT A MINIMUM 3" OF SPACE IS MAINTAINED CLEAR FOR PLACMENT OF GROUT.

4. PLACEMENT OF REINFORCEMENT SHALL OCCUR PRIOR TO PLACEMENT OF GROUT.

**DETAIL NOTES:** 

(2) (1)#4 CONT TOP & BOT

(3)1#4 CONT

1' - 0"

(1) SLAB ON GRADE RE: PLAN

(4) #4 x 5'-9" @ 24" OC (FIELD BEND 2'-6" INTO

1. PROVIDE SPECIAL STRUCTURAL INSPECTIONS AND VERIFICATIONS BY A THIRD PARTY MEETING THE REQUIRMENTS OF CHAPTER 17 OF THE BUILDING CODE AND THE BUILDING

2. SPECIAL INSPECTORS SHALL BE QUALIFIED AND FURNISH THEIR REPORTS IN A TIMELY MANNER TO THE CONTRACTOR, BUILDING OFFICALS, ARCHITECT, AND/OR

3. SHOULD INSPECTOR IDENTIFY ANY DISCREPANCY, THEY SHAL NOTIFY CONTRACTOR FIRST, AND THEN ARCH/ ENGINEER IMMEDIATELY THEREAFTER IF CORRECTIVE ACTION

4. SPECIAL INSPECTIONS AS REQUIRED BY CODE: A. CONCRETE: SECTION 1705.3 AND TABLE 1705.3 CONCRETE MATERIAL SAMPLING AND TESTING, REBAR OBSERVATIONS. TAKE SET OF (3) CYLINDERS FOR EVERY 50 C.Y., BUT NOT LESS THAN ONE SET OF SAMPLES PER DAY'S WORK AND PER MIX. B. EARTHWORK: FOUNDATION BEARING, EXCAVATION, FILL PLACEMENT.

### PRE-ENGINEERED METAL BUILDING:

1. THE FRAMING OF THE PRE-ENGINEERED METAL BUILDINGS IS THE RESPONSIBILITY OF THE OTHER PARTIES AND THEIR ENGINEER OF RECORD, AND NOT PART OF THESE STRUCTURAL DOCUMENTS.

2. ALL BASE REACTIONS ARE ASSUMED TO BE PINNED.

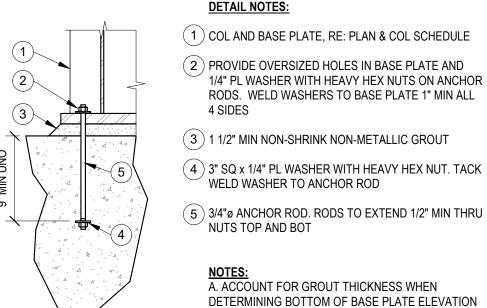
3. METAL BUILDING REACTIONS AND FOUNDATIONS HAVE BEEN ESTIMATED ONLY BASED ON STANDARD METAL BUILDING DETAILING PRACTICES. PRELIMINARY METAL BUILDING REACTIONS AND LAYOUT HAS NOT BEEN PROVIDED. FINAL METAL BUILDING DRAWINGS MUST BE PROVIDED FOR VERIFICATION OF ALL FOUNDATION SIZES AND LOCATIONS. OTHERWISE, ALL DRAWINGS ARE CONSIDERED NULL AND VOID.

	SPECIAL INSPECTION OF SOILS - TABLE 1704.7									
REQ'D	VERIFICATION & INSPECTION	CONTINUOUS	PERIODIC							
Х	1. VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY		Х							
Х	2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH & HAVE REACHED PROPER MATERIAL		Х							
Х	3. PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X							
Х	4. VERIFY USE OF PROPER MATERIALS, DESITIES & LIFT THICKNESSES DURING PLACEMENT & COMPACTION OF CONTROLLED FILL	Х								
Х	5. PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		Х							

			SPECIAL INSPECTION OF CONSTRUCTION - TABLE		
4		REQ'D	VERIFICATION & INSPECTION	CONTINUOUS	PERIODIC
		Х	1. INSPECTION OF REINFORCING STEEL & PLACEMENT		Х
			2. INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE W/ TABLE 1704.3 ITEM 5B	Х	
		X	3. INSPECT BOLTS TO BE INSTALLED IN CONCRETE PRIOR TO & DURING PLACEMENT OF CONCRETE	Х	
		Х	4. VERIFYING USE OF REQUIRED MIX DESIGN		X
		Х	5. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUP & AIR CONTENT TESTS, & DETERMINE THE TEMPERATURE OF THE CONCRETE	Х	
		Х	6. INSPECTION OF CONCRETE & SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES	Х	
		Χ	7. INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE & TECHNIQUES		X
			8. INSPECTION OF PRESTRESSED CONCRETE		Х
			9. ERECTION OF PRECAST CONCRETE MEMBERS		X
		Х	10. VERIFICATION OF IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES & FORMS FROM BEAMS & STRUCTURAL SLABS		X
		Х	11. INSPECT FORMWORK FOR SHAPE, LOCATION, & DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED		Х
	•				

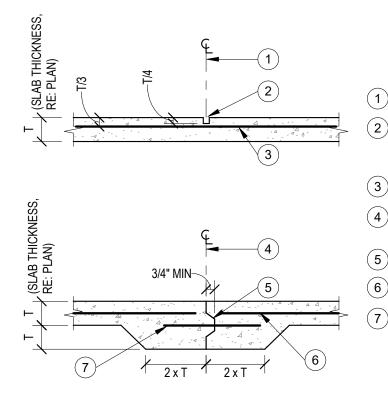
# **DETAIL NOTES:** BEND 20' PIECES OF REBAR AS SHOWN

# **ANCHOR ROD**



B. ANCHOR RODS SHALL BE F1554 GR. 36 UNO

**DETAIL NOTES:** (1) MB COLUMN. (2) SPREAD FTG PER PLAN (3) NOT USED. (1)(4) SOG. RE PLAN. (5) NOT USED. (6) #4 DWLS (2'-6" X 2'-6") @ 12" OC. (7) ANCHOR ROD DIA. PER MB DWGS. (8) HAIRPINS. RE: PLAN FOR SIZE AND LOCATIONS.



**DETAIL NOTES:** (1) SAW CUT JOINT SAW JOINT CUT JUST AS SOON AS EQUIPMENT CAN BE PLACED ON SLAB WITHOUT DAMAGE (3) MESH OR REBAR CONT (4) KEYED CONSTRUCTION JOINT USE BOND BREAKER (5) FORMED KEY (NO METAL KEY) (6) CUT MESH OR REBAR AT JOINT

7 ) 3/4" x 16" SMOOTH DWLS @ 12" OC

THIS DETAIL MAY BE USED IN

A. STAGGER ALL SPLICES 12 db MIN, BUT NOT LESS THAN 12"

C. BARS GREATER THAN #11 SHALL BE MECHANICALLY SPLICED

D. ALL SPLICES SHALL BE WIRED IN CONTACT STACKED VERTICAL

ALL EMBEDMENT AND LAP SPLICE LENGTHS SHALL BE INCREASED

B. ALL DIMENSIONS INDICATED IN TABLE ARE IN INCHES

AS REQ'D BY THE MULIPLIERS BELOW. APPLY MULTIPLE

MULTIPLIERS IF APPLICABLE

LIEU OF SAW CUT JOINT SLAB ON GRADE CONTROL JOINTS

					DEV	ELOPMEN	T AND LA	AP SPLICE SCHEE	ULE					
			F'c=30	00 psi						F'c=4	1000 psi			
	ЕМВЕ	DMENT		1	LAP SPLI	ICE		EMBE	DMENT		1	LAP SPLI	ICE	
	COMPRESSION	TENSI	ON (LTE)	COMPRESSION	TENSI	ON (LTS)	НООК	COMPRESSION	TENSIC	N (LTE)	COMPRESSION	TENSI	ON (LTS)	ноок
BAR	(LCE)	TOP	OTHER	(LCS)	TOP	OTHER	(LDH)	(LCE)	TOP	OTHER	(LCS)	TOP	OTHER	(LDH)
#3	8	13	12	12	28	21	6	8	12	12	12	16	16	7
#4	11	21	16	15	37	28	8	9	18	14	15	24	18	9
#5	14	31	24	19	46	36	10	12	27	21	19	35	27	12
#6	16	43	33	23	56	43	12	14	37	28	23	48	37	14
#7	19	69	53	26	81	62	13	17	60	46	26	78	60	17
#8	22	85	66	30	93	71	15	19	74	57	30	96	74	19
#9	25	103	80	34	105	80	17	21	90	69	34	116	90	21
#10	28	124	96	38	118	90	19	24	108	83	38	140	108	24
#11	31	146	112	42	131	100	22	27	126	97	42	164	126	27

### NOTES (PERTAINING TO TABLE):

A. TOP BARS ARE HORIZONTAL BARS THAT HAVE MORE THAN 12" OF FRESH CONCRETE CAST BELOW THEM.

- B. ALL BARS THAT ARE NOT "TOP BARS" ARE "OTHER" BARS
- C. ABBREVIATIONS: - LCE - COMPRESSION EMBEDMENT LENGTH
- LTE TENSION EMBEDMENT LENGTH - LCS - COMPRESSION LAP SPLICE LENGTH
- LTS TENSION LAP SPLICE LENGTH

- LDH - HOOKED BAR TENSION EMBEDMENT LENGTH

1.3 -- IF CONC CONTAINS LIGHT WEIGHT AGGREGATES 1.3 -- IF EPOXY COATED REBAR USED SPLICE & DEVELOPMENT SCHEDULE

DRAWN BY: TJS CHECKED BY: **JF** 

PROJECT #: 21094 ISSUE DATE: 08/09/2021 ISSUED FOR:

PERMIT

**STRUCTURAL GENERAL NOTES** 

S001

C - 1000 6-2

E. FUNK

NUMBER

E-2000173299

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8234 Robinson Street

913-214-2169

Overland Park, KS 66204

IGINEERING/SUR

Certificates of Authority

Engineering: MO 4 / KS 241

Land Surveying: MO 123 / KS 36

WARD DEVELOPMENT

1120 EAGLE RIDGE BLVD

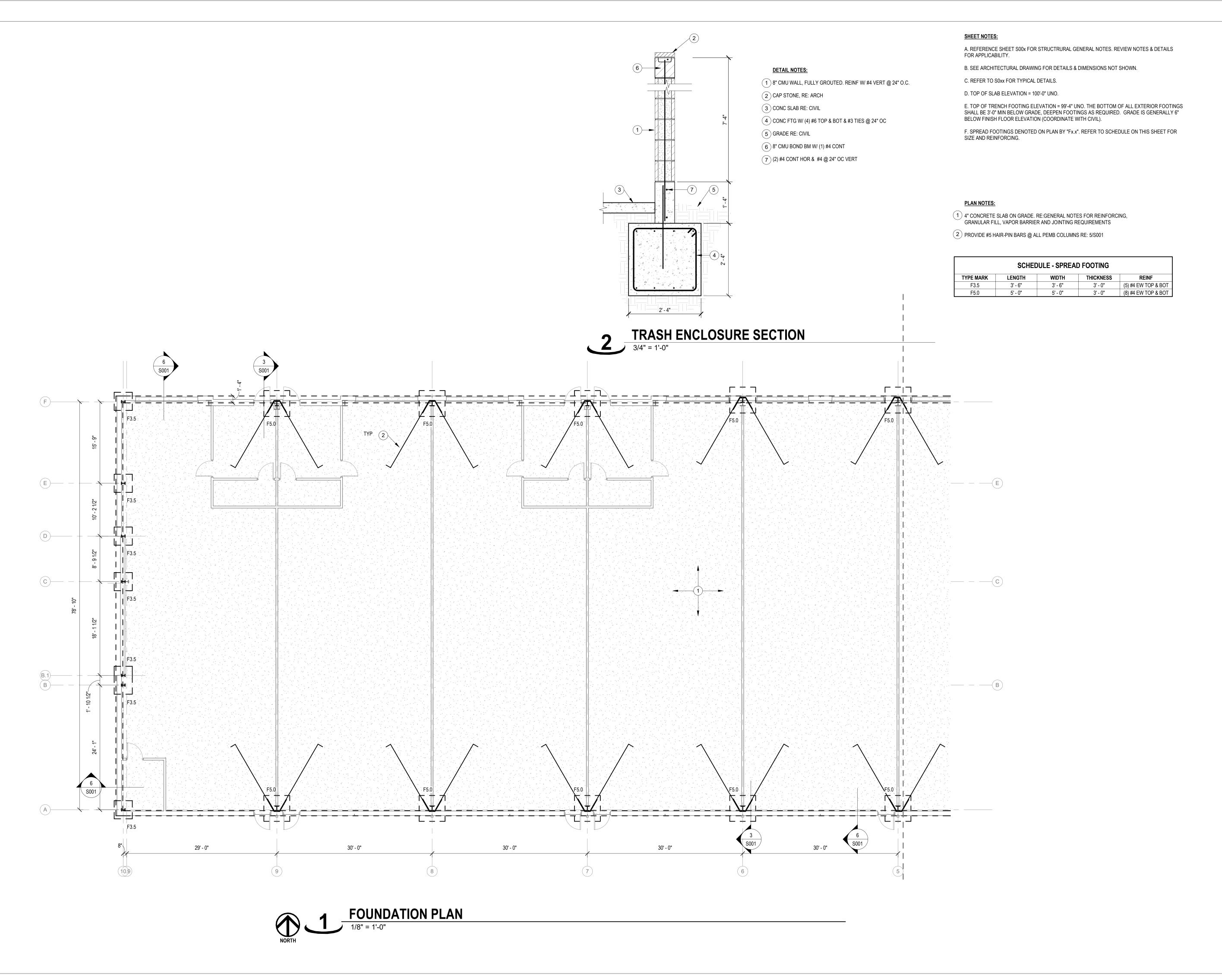
GRAIN VALLEY, MO 64029

david@safetyministorage.com

CLIENT

DAVID WARD

Architecture: MO 310 / KS 73



BUSINE BUSINE BUSINE LOT 10 1-47 LEE'S SUM

ARCHITECTURE/ENGINEERING/SURVEYING 3200 S. State Route 291, Bldg. 1, Independence, MO 64057

Certificates of Authority
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Land Surveying: MO 123 / KS 36

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REVISIONS
NO. DATE / DESCRIPTION

DRAWN BY: TJS

CHECKED BY: JF

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ISSUED FOR:
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FOUNDATION PLAN

S100

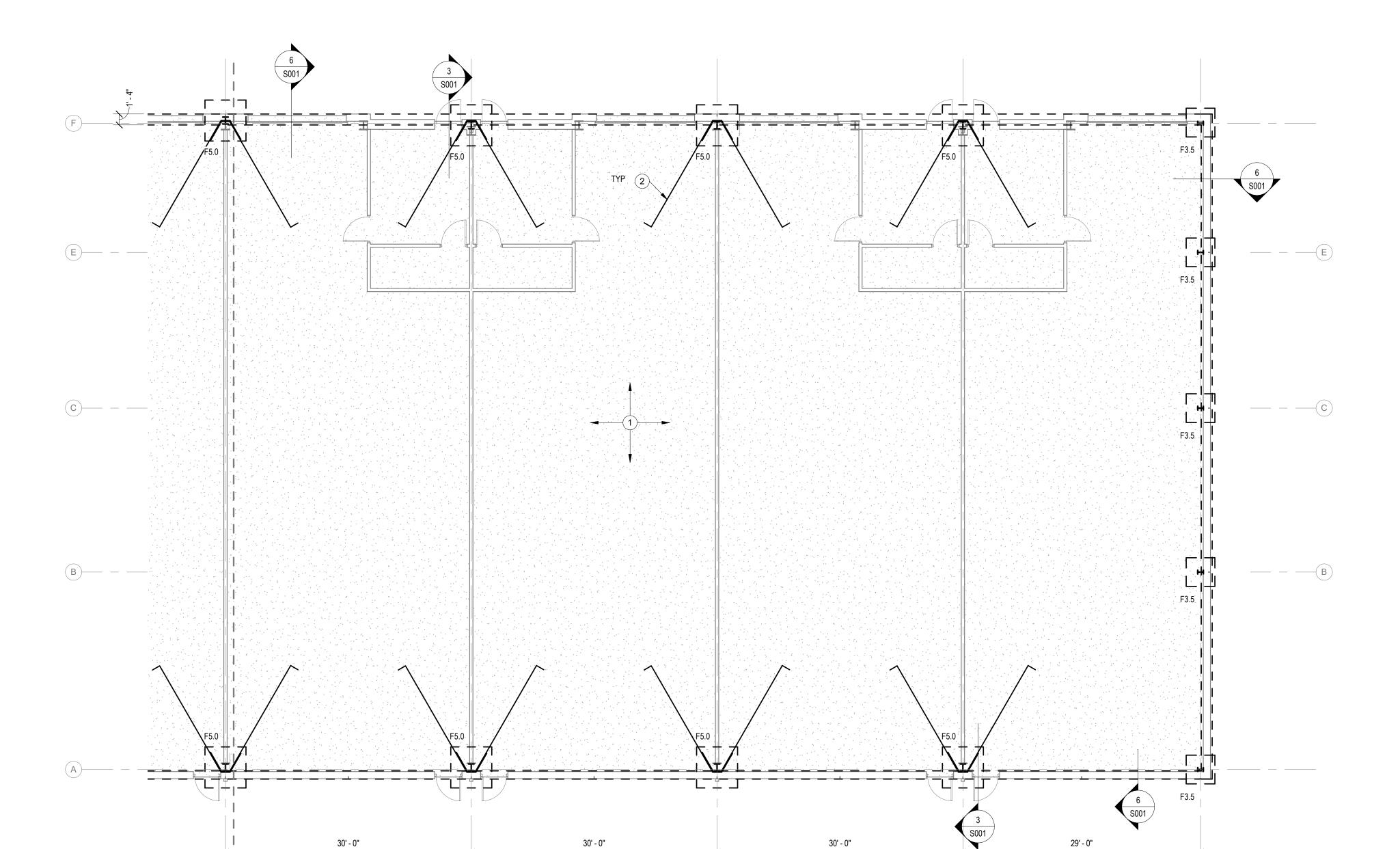
### **SHEET NOTES:**

- A. REFERENCE SHEET S00x FOR STRUCTRURAL GENERAL NOTES. REVIEW NOTES & DETAILS FOR APPLICABILITY.
- B. SEE ARCHITECTURAL DRAWING FOR DETAILS & DIMENSIONS NOT SHOWN.
- C. REFER TO S0xx FOR TYPICAL DETAILS.
- D. TOP OF SLAB ELEVATION = 100'-0" UNO.
- E. TOP OF TRENCH FOOTING ELEVATION = 99'-4" UNO. THE BOTTOM OF ALL EXTERIOR FOOTINGS SHALL BE 3'-0" MIN BELOW GRADE, DEEPEN FOOTINGS AS REQUIRED. GRADE IS GENERALLY 6" BELOW FINISH FLOOR ELEVATION (COORDINATE WITH CIVIL).
- F. SPREAD FOOTINGS DENOTED ON PLAN BY "Fx.x". REFER TO SCHEDULE ON THIS SHEET FOR SIZE AND REINFORCING.

### PLAN NOTES:

- 1 4" CONCRETE SLAB ON GRADE. RE:GENERAL NOTES FOR REINFORCING, GRANULAR FILL, VAPOR BARRIER AND JOINTING REQUIREMENTS
- 2 PROVIDE #5 HAIR-PIN BARS @ ALL PEMB COLUMNS RE: 5/S001

SCHEDULE - SPREAD FOOTING										
TYPE MARK	LENGTH	WIDTH	THICKNESS	REINF						
F3.5	3' - 6"	3' - 6"	3' - 0"	(5) #4 EW TOP & BOT						
F5.0	5' - 0"	5' - 0"	3' - 0"	(8) #4 EW TOP & BOT						



10 LAKEWOOD

NESS PARK
I-470 BUSINESS PARK

ARCHITECTURE/ENGINEERING/SURVEYING 3200 S. State Route 291, Bldg. 1, Independence, MO 64057

Certificates of Authority
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WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD

GRAIN VALLEY, MO 64029 david@safetyministorage.com

CLIENT

DAVID WARD

JOHN 08710/2

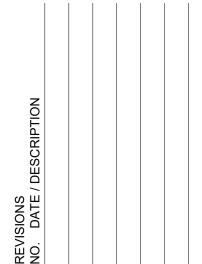
JOHN 08710/2

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NUMBER

E-2000173299





DRAWN BY: TJS

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FOUNDATION PLAN

# MECHANICAL AND PLUMBING SPECIFICATIONS

- I. GENERAL PROVISIONS:
- A. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING AND MECHANICAL SYSTEMS OUTLINED.
- B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATIONS OF COMPLIANCE OR APPROVAL AS REQUIRED BY AUTHORITIES.
- C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
- D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK. E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED
- BEFORE FINAL ACCEPTANCE. F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS. FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE
- G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECT FOR A PERIOD OF ONE
- YEAR FROM FINAL ACCEPTANCE. H. INSPECTION OF THE SITE: THIS CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE MEP DRAWINGS, SPECIFICATIONS, DETAIL, AND THE SITE. THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SPECIAL OR UNUSUAL PROBLEMS, CONFLICTS, OR OBSTRUCTIONS THAT AFFECT HIS BID.
- I. FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE MECHANICAL AND PLUMBING DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS AND FITTINGS REQUIRED FOR INSTALLATION. DO NOT SCALE DRAWINGS. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DATA AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE MECHANICAL WORK INTERFACES WITH OTHER TRADES.
- J. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS OR WITH CODE REQUIREMENTS, THE NOTE OR CODE WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR HIGHER STANDARD SHALL PREVAIL.
- K. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH APPLICABLE REGULATIONS AND CODE REQUIREMENTS. PROVIDE PROPER CLEARANCES FOR
- .. INCLUDE ALL BASIC MATERIALS AND CONSTRUCTION METHODS INCLUDING PIPES, PIPE FITTINGS, AND SPECIALTIES AND SUPPORTING DEVICES, VALVES, PIPE AND VALVE IDENTIFICATION, PUMPS, VIBRATION ISOLATION, ETC.
- M. FURNISH ADEQUATE ACCESS PANELS AND DOORS TO ALLOW FOR FUTURE PIPING ALTERATIONS. REPLACEMENT. AND MAINTENANCE OF PIPING. PROPERLY IDENTIFY ALL ACCESS PANELS AND DOORS.

### 2. OPERATION AND MAINTENANCE MANUALS:

- A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT
- B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.

### 3. MANUFACTURERS

- A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN.
- B. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.

- A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
- B. ALL EXPOSED PIPE IN FINISHED AREAS SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE. C. PROVIDE CLEANOUTS AT EACH CHANGE IN DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS. D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS. E. CLEANOUTS:
- 1. UNFINISHED FLOOR (FCO): JR SMITH #4240, OR EQUAL.
- WALL (WCO): JR SMITH #4472. OR EQUAL, 24" ABOVE THE FLOOR. GRADE (GCO): JR SMITH #4256. OR EQUAL. WITH HEAVY DUTY CAST IRON BODY AND COVER.
- F. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES. INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
  - INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL CONDENSATE DRAIN SHALL BE INSTALLED AT 1/8" PER FOOT FALL
- G. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTION TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION JOINTS.
- H. ALL SEWER PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING
- INSTALL 4" AND SMALLER PIPE AT A MINIMUM OF 2% SLOPE. INSTALL 6" AND LARGER PIPE AT A MINIMUM OF 1% SLOPE.

- A. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING (ABOVEGROUND). TYPE L HARD DRAWN COPPER TUBING, ASTM B-88 WITH WROUGHT BRONZE SOLDERED FITTINGS.
- GATE VALVE: CRANE #428 OR EQUAL.
- BALL VALVE: CRANE #932 OR EQUAL
- B. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING, 1"-3" (UNDERGROUND). 1. TYPE K HARD OR SOFT DRAWN COPPER TUBING, ASTM B-88 WITH WROUGHT BRONZE SOLDERING
- C. SANITARY SEWER AND VENTS (UNDERGROUND, INTERIOR TO BUILDING).
- POLYVINYL CHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT. SEWER LINES SHALL BE LOCATED IN GENERAL AS SHOWN ON THE DRAWINGS. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCES AND SUFFICIENT SLOPE TO ENSURE DRAINAGE.
- VENT STACKS SHALL BE EXTENDED FULL SIZE THROUGH THE ROOF AND FLASHED WITH 4 POUND LEAD SHEETS TURNED DOWN INTO THE STACK AT LEAST 2" AND EXTENDED 12" IN ALL DIRECTIONS FROM THE PIPE AT THE ROOF LINE. VENTS THROUGH ROOF SHALL NOT BE LESS THAN 3". PVC PIPING SHALL NOT BE USED FOR VENT PIPING THROUGH THE ROOF. WHERE APPLICABLE FOR ROOFING SYSTEM USED, PROVIDE FLASHING VIA PLEATED EPDM CONE IN LIEU OF LEAD. ALL VENT STACKS IN OR AT OUTSIDE WALLS SHALL BE OFFSET 1'-6" MINIMUM FROM OUTSIDE WALLS BEFORE GOING THROUGH THE ROOF, TO FACILITATE FLASHING.
- D. CONDENSATE DRAIN AND INDIRECT WASTE (ABOVEGROUND) 1. PVC DWV PIPE, SCHEDULE 40, SOLVENT JOINT.

### E. NATURAL GAS PIPING:

- 1. SCHEDULE 40 BLACK STEEL PIPING: 2" AND SMALLER WITH SCREWED JOINTS AND 150 LB. MALLEABLE IRON SCREWED FITTINGS. PIPE 2-1/2" AND LARGER SHALL USE STANDARD WEIGHT BLACK STEEL WELDING FITTINGS WITH WELDED JOINTS.
- GAS VALVES SHALL BE ROCKWELL 142/143, PLUG VALVE. SUPPORT PIPING AT INTERVALS NOT TO EXCEED THOSE LISTED IN TABLE 415.1 OF THE I.F.G.C.
- PROVIDE A.G.A. APPROVED SHUT OFF VALVES AND DIRT LEGS AT CONNECTIONS TO ALL 5. EPOXY PAINT ALL EXTERIOR GAS PIPING TO PREVENT CORROSION.
- F. RFFRIGFRANT
- ASTM B 280, TYPE ACR, HARD DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS, SEAMLESS COPPER TUBING.
- WROUGHT COPPER, ANSI B16.22, STREAMLINED PATTERN, FITTINGS. BRAZED JOINTS, AWS A 5.8 CLASSIFICATION BAG-1 (SILVER).
- TUBING TO BE FACTORY CLEANED, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING. SIZE AND INSTALLATION OF PIPING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S
- RECOMMENDATIONS G. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON. OR ANVIL. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
- H. SLEEVES PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
- INTERIOR PARTITIONS: 16 GAUGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.

- 3. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY
- PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN THE EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET. WHICHEVER IS GREATER.
- I. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.

- A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPMENT RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
- B. PIPE INSULATION (ABOVE GRADE): 1. THE PIPE INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 BTU PER
- IN/HR\*SQ-FT\*°F OR LESS. FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED
- PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOLDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP
- ARMAFLEX OR ARMAFLEX 2000. 4. FOR NON CIRCULATING SYSTEMS THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
- 5. INSULATION SCHEDULE: a. DOMESTIC COLD WATER:
- b. DOMESTIC HOT WATER: c. REFRIGERANT SUCTION:
- 1-1/2" FOR PIPING UP TO 1-1/2"ø, 2" FOR PIPING 1-1/2" AND LARGER.

### C. DUCTWORK INSULATION:

- DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING. THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. DUCT COVERING SHALL BE MINIMUM R-6.
- a. SUPPLY AIR DUCT:

# b. RETURN AIR DUCT:

- 8. TESTING, BALANCING AND CLEANING A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
- B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS. C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS
- THAN 2 HOURS, WITH NO LEAKS. D. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH THE HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER, THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO ASSURE TREATMENT OF THE ENTIRE SYSTEM. THE TREATED WATER SHALL BE LEFT IN THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED; IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION
- SAMPLES OF WATER FROM THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH. E. NATURAL GAS SYSTEMS SHALL BE TESTED WITH COMPRESSED AIR AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSIG FOR A PERIOD OF 2 HOURS WITH NO LEAKS.
- F. THE INSPECTION AUTHORITY HAVING JURISDICTION SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO PERFORMANCE OF ALL TESTS SO THAT THEY TESTS MAY BE WITNESSED IF DEEMED NECESSARY.
- G. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE FAMILIAR WITH TESTING AND BALANCING PROCEDURES OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
- BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
- 2. WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS: ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELLED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.

### 9. DUCTWORK:

- A. ALL DUCTWORK UNLESS OTHERWISE INDICATED SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G60 ZINC COATING IN ACCORDANCE WITH ASTM A 525, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
- B. DUCTWORK METAL GAUGES, REINFORCING, ETC SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2" WATER GAUGE STATIC PRESSURE. C. ALL FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS." LATEST EDITION.
- D. RECTANGULAR DUCT: ELBOWS, UNLESS INDICATED OTHERWISE, SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOWS WITH DOUBLE WALL STREAMLINE ELBOWS. TAKE-OFF FITTINGS: BRANCH DUCT TAKE-OFF FITTINGS FOR SUPPLY AND EXHAUST DIFFUSER/REGISTERS SHALL INCLUDE AN INTEGRAL MANUAL VOLUME DAMPER WITH LOCKING

QUADRANT, DAMPER NOT REQUIRED ON RETURN AIR, FOR RECTANGULAR TO ROUND TAKE-OFFS.

- UTILIZE A "BUCKLEY" MODEL 3300 & 3300D OR EQUAL. RETURN AIR ACOUSTIC ELBOWS AND SOUND BOOTS SHALL BE A SQUARE ELBOW WITH NO
- TURNING VANES. 4. SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE A MINIMUM 1 TO 3. E. ROUND AND OVAL SPIRAL SEAM DUCT:
- 1. PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION. UNLESS SPECIFICALLY DETAILED OTHERWISE, USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES ARE INDICATED PROVIDE CONICAL TYPE TEES.
- SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3. ROUND LONGITUDINAL SEAM DUCT: USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS.
- F. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASED CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BFLOW:
- (1) UNCONDITIONED SPACES: CLASS C CLASS B (2) CONDITIONED SPACES (PLENUM): CLASS C CLASS B CLASS C SUPPLY 2"WC OR LESS <u>EXHAUST</u> <u>RETURN</u>
- G. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEET METAL SIZES. INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
- H. WHETHER SHOWN ON PLANS OR NOT, PROVIDE MANUAL VOLUME DAMPERS IN EACH RUNOUT TO EACH SUPPLY DIFFUSER OR REGISTER. PROVIDE ACCESS PANELS TO DAMPERS LOCATED ABOVE HARD I. PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.
- BETWEEN DUCT AND WALL. K. WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAUGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND

J. WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING

### 10. FLEXIBLE DUCT: A. ATCO #086 (R-6), OR EQUAL.

- B. FACTORY APPLIED INSULATION AND VAPOR BARRIER, 1-1/2" THICK.
- C. MAXIMUM LENGTH OF 6'-0".

A. FLUE FOR GAS FIRED FURNACE SHALL BE AS RECOMMENDED BY THE GAS APPLIANCE MANUFACTURER. FLUES SHALL BE SCHEDULE 40 PVC OR CPVC PER THE MANUFACTURE'S INSTALLATION REQUIREMENTS. B. PROVIDE MANUFACTURERS STANDARD ACCESSORY ITEMS INCLUDING BIRD PROOF TOP, STORM COLLAR,

- ROOF THIMBLE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ROOF THIMBLES THROUGH THE BUILDING ROOF SHALL BE SUITABLE FOR USE WITH THE ROOF PROVIDED.
- C. FLUES FOR HEATERS SHALL BE DOUBLE WALL TYPE B EQUAL TO METALBESTOS. PROVIDE MANUFACTURER'S STANDARD FITTING AND ACCESSORIES (ROOF THIMBLE, STORM COLLAR, COUNTER FLASHING, ETC.) AS REQUIRED FOR A COMPLETE INSTALLATION.

# 12. EXHAUST FANS:

A. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED WITH THERMAL OVERLOAD PROTECTION, PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.

### 13. FURNACE AND CONDENSING UNIT:

FURNACE SHALL BE AGA APPROVED.

AUTOMATIC RESET MOTOR OVERLOAD PROTECTION.

- A. CONDENSING FURNACES: 1. GAS FIRED FURNACE SHALL BE FACTORY ASSEMBLED, PRE-WIRED UNIT CONSISTING OF SHEETMETAL CASING, SUPPLY FAN, GAS FIRED HEAT EXCHANGER, AND CONTROLS. CAPACITY
- SHALL BE AS SCHEDULED. 2. THE PRIMARY HEAT EXCHANGER SHALL BE ALUMINIZED STEEL CONSTRUCTION WITH A STAINLESS STEEL SECONDARY HEAT EXCHANGER.
- THE FURNACE SHALL BE OF THE CONDENSING TYPE, UTILIZING A SEALED COMBUSTION CHAMBER. UNIT SHALL INCLUDE FINNED CAST IRON HEAT EXCHANGER, ALUMINIZED STEEL EXHAUST DECOUPLER SECTION AND FINNED STAINLESS STEEL TUBE CONDENSER SECTION. 4. THE UNIT SHALL BE EQUIPPED WITH THE MANUFACTURER'S STANDARD CONTROLS INCLUDING 24V
- CONTROL TRANSFORMER, AUTOMATIC SPARK IGNITION, AUTOMATIC GAS VALVE TRAIN, HIGH TEMPERATURE LIMIT SWITCH, AND FAN TIMED DELAY RELAY. RETURN AIR INLET ON UNIT SHALL BE PROVIDED WITH 1" THROWAWAY TYPE FILTER AND SLIDE IN
- FRAME, MOUNTED ON THE UNIT. 6. FAN SHALL BE A DIRECT DRIVE MULTI-SPEED BLOWER, RESILIENTLY MOUNTED IN THE CASING. MOTOR SHALL BE PROVIDED WITH AUTOMATIC THERMAL OVERLOAD PROTECTION.
- B. CONDENSING UNIT SHALL BE FACTORY ASSEMBLED AND TESTED AIR-COOLED CONDENSING UNIT CONSISTING OF COMPRESSOR, CONDENSER COIL, FAN, MOTOR, REFRIGERANT RESERVOIR, OPERATING CONTROLS, ETC. CAPACITY AND ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED. COMPRESSOR: HERMETICALLY SEALED WITH BUILT-IN OVERLOADS AND VIBRATION ISOLATION. COMPRESSOR MOTOR SHALL HAVE THERMAL AND CURRENT SENSITIVE OVERLOAD DEVICES,
- ACTUATED SWITCH AND TIMER TO PREVENT COMPRESSOR RAPID CYCLE. 2. COIL SHALL BE COPPER TUBING WITH ALUMINUM FINS: COMPLETE WITH LIQUID ACCUMULATOR AND LIQUID SUBCOOLER. UNIT SHALL INCLUDE FILTER DRYER, SIGHT GLASS, COMPRESSOR SERVICE VALVE, LIQUID LINE SERVICE VALVE, AND REFRIGERANT PIPING EXTENDED TO EXTERIOR

CAPACITOR AND RELAY, 2-POLE CONTACTOR, CRANKCASE HEATER, AND TEMPERATURE

INTERNAL HIGH PRESSURE PROTECTION, HIGH AND LOW PRESSURE CUTOUT SWITCHES, START

### 14. ELECTRIC WALL HEATERS

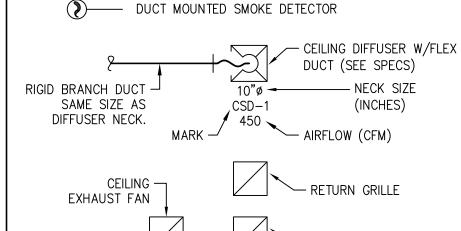
- A. UNIT SHALL INCLUDE ELECTRIC HEATING ELEMENTS WITH SAFETY AND DISCONNECT DEVICES AS REQUIRED BY NEC, INCLUDING RELAYS, CONTROLLERS AND REQUIRED EQUIPMENT TO FORM A COMPLETE AND FUNCTIONAL HEATER.
- B. ELEMENTS SHALL BE HEAVY DUTY ALUMINUM-FINNED, COPPER CLAD STEEL SHEATH. PROVIDE AUTOMATIC RESET THERMAL OVER-HEAT PROTECTION. THERMAL PROTECTOR SHALL BE LINEAR TYPE TO SENSE TEMPERATURES THE ENTIRE LENGTH OF HEATING ELEMENT.

C. FANS SHALL BE DIRECT DRIVE USING PERMANENT SPLIT CAPACITOR TYPE MOTORS WITH BUILT-IN

# M&P SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC, ARE NECESSARILY USED ON THE DRAWINGS. HVAC EQUIPMENT & DUCTWORK SPIN-IN FITTING WITH MANUAL VOLUME DAMPER BRANCH DUCT WITH 45° RECTANGLE-ROUND BRANCH FITTING AND MANUAL VOLUME DAMPER ELBOW WITH TURNING VANES RETURN, EXHAUST, OR OUTSIDE AIR DUCT UP RETURN, EXHAUST, OR OUTSIDE AIR DUCT DOWN SUPPLY AIR DUCT UP SUPPLY AIR DUCT DOWN EQUIPMENT WITH FLEXIBLE DUCT CONNECTION

MANUAL VOLUME DAMPER SQUARE TO ROUND TRANSITION DUCT TRANSITION **─ THERMOSTAT** 



— EXHAUST GRILLE

HVAC EQUIPMENT & DUCTWORK <u>SYMBOL</u> **DESCRIPTION** SANITARY SEWER (ABOVE GRADE) \_\_\_\_\_SS\_\_\_\_ SANITARY SEWER (BELOW GRADE) ———SS——— \_\_\_\_CD\_\_\_\_ CONDENSATE DRAIN VENT PIPING -----V-----G = GAS PIPING LESS THAN 2 PSI MPG = GAS PIPING 2 PSI\_\_\_\_\_CW\_\_\_ - \_\_\_ COLD WATER PIPING ———HW—— – – — HOT WATER PIPING RECIRCULATING HOT WATER ———HWR——--— COMPRESSED AIR PIPE ELBOW DOWN PIPE ELBOW UP

BACKFLOW PREVENTER BALL VALVE PLUG VALVE FLOOR CLEANOUT (FCO) ———(I)——— WALL CLEANOUT (WCO) FLOOR DRAIN

GATE VALVE

FLOOR SINK

HOSE BIB

MECHANICAL CONTRACTOR

**ABBREVIATIONS** AFF ABOVE FINISHED FLOOR

 $\longrightarrow$ 

BAS BUIDLING AUTOMATION SYSTEM MIN MINIMUM BACKDRAFT NOISE CRITERIA CFM CUBIC FEET PER MINUTE OUTSIDE AIR DDC DIRECT DIGITAL CONTROL RETURN AIR DIRECT EXPANSION SUPPLY AIR EXHAUST AIR SMOKE DUCT DETECTOR EXISTING TO FLOOR ABOVE FFB FROM FLOOR BELOW TFB TO FLOOR BELOW GPM GALLONS PER MINUTE TYPICAL IN WC INCHES OF WATER COLUMN UNDER GROUND U.G. I MAX MAXIMUM WALL CLEANOUT

> w/o without **ANNOTATION**

( # ) PLAN WORK NOTE

MBH 1000 BTU PER HOUR

MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)

PLUMBING FIXTURE DESIGNATION

CONNECTION POINT OF NEW WORK TO EXISTING A \ DETAIL REFERENCE UPPER NUMBER INDICATED DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER

PE-2012003568 06-11-2021

HIT

Architecture: MO 310 / KS 73

Engineering: MO 4 / KS 241

Land Surveying: MO 123 / KS 36

CLIENT

DAVID WARD

MEP ENGINEER

WARD DEVELOPMENT

1120 EAGLE RIDGE BLVD

GRAIN VALLEY, MO 64029

david@safetyministorage.com

**ENGINEERS** 

MO COA NO. 2012006786 / KS COA NO. E-2818

1901 NW BLUE PARKWAY, UNITY VILLAGE, MO 64065

3rd FLOOR UNITY VILLAGE TOWER

JUSTIN R.

SMOTHERS

NUMBER

phone: (816) 272-5289 | email: jsmothers@jscengine

 $\mathbf{m}$ 

PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

MECHANICAL AND PLUMBING SPECIFICATIONS

**PERMIT** 

AND SYMBOLS

	PLUMBING FIXTURE SCHEDULE
FD	FLOOR DRAIN: SOUIX CHIEF 842-4PNR, ROUND FLOOR DRAIN, PVC BODY AND CLAMPING COLLAR, ADJUSTABLE 6-1/2" ROUND NICKEL BRONZE STRAINER.
FD	PROVIDE WITH PROSET SYSTEMS "TRAP GUARD" INSERT FOR ACTUAL FLOOR DRAIN MODEL AND SIZE PROVIDED.
LAV	WALL-MOUNT LAVATORY: KOHLER K-1997-1-0, SINGLE-HOLE, 14.375"X12.3125" ELLIPTICAL BOWL, MOUNT AT ADA HEIGHT, VITREOUS CHINA, WITH SINGLE LEVER LAVATORY FAUCET (KOHLER K-10215-4). PROVIDE FLEXIBLE SS RISERS
	WITH CHROME PLATED STOP VALVES, P-TRAP WITH CLEANOUT AND ESCUTCHEONS. INSULATE WITH "HANDI-LAV-GLUARD" MODEL 102, OR EQUAL.
WC	FLOOR-MOUNTED ADA WATER CLOSET: KOHLER K-3519-TR, HANDICAP ACCESSIBLE, VIREOUS CHINA, 1.28 GPF, ELONGATED BOWL, FLOOR MOUNTED W/ 17.125" SEAT HEIGHT, WHITE, VITREOUS CHINA TANK AND COVER
	CONTAINING FLUSHOMETER/TANK WITH BUILT-IN PRESSURE REGULATOR AND BACKFLOW PREVENTER, WHITE OPEN-FRONT SEAT, CHROME STOPS, C.P. FLEXIBLE RISER TUBE, BOLT CAPS, AND ESCUTCHEON.
WH	10 GAL WATER HEATER: AO SMITH EJC-10, 8 GPH RECOVERY AT 90 DEG F RISE, SINGLE ELEMENT, 120V, 1650W
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER: WATTS LF009, 1-1/2", MEETING ASSE 1013, LEAD FREE CAST BRONZE BODY, QUARTER TURN TESTING COCKS, QUARTER TURN BALL VALVES, AND AIR GAP FITTING.

	GAS FURNACE SCHEDULE																		
		GENERAL D	ATA		HEATING					FAN DATA					ELECTRICAL				
TAG	BASIS OF DESIGN MFR/MODEL	FLOW DIRECTION	WEIGHT (LBS)	DIMENSIONS (WxDxH)	OUTSIDE AIR (CFM)		OUTPUT (BTUH)	AFUE	VENT	ТҮРЕ	НР	CFM	ESP (IN WG)	VOLT	PHASE	HZ	МОСР	MCA	NOTES
F-1	LENNOX / EL296UH070XV36B	HORIZONTAL	136	29.25x33x17.5	0	66,000	62,000	96	CONCENTRIC	VARIABLE	1/2	840	0.5	120	1	60	15	7.7	A,B,C,D,E
NOTES:						•					•	•	_						

A. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING FILTER AND COIL. B. PROVIDE UNIT WITH 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER MULTISTAGE THERMOSTAT W/HUMIDITY SENSOR.

C. PROVIDE MANUFACTURER'S CONCENTRIC VENT KIT. SIZE AND INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS WHILE ADHERING TO LENGTH AND FITTING LIMITATIONS. D. PROVIDE END RETURN FILTER KIT.

E. ADJUST FACTORY DEFAULT SETTINGS TO LIMIT BLOWER SPEED TO 840 CFM.

				FXHΔU	ST FAN	SCHED	JIF						
				2,111,10	<b>011741</b>	0025							
										LECTRICAL	•		
MARK	AREA SERVED	MANUFACTURER	MODEL	MOUNTING / TYPE	CFM	ESP (IN)	DRIVE	POWER	VOLTS	PHASE	FLA	WEIGHT	NOTES
EF-1	RESTROOM	PANASONIC	FV-0511VK2	CEILING / CABINET	110	0.375	DIRECT	9.9 W	120	1	0.1	12	А, В
NOTES:													
A.	PROVIDE INTERNAL C	ABINET BACKDRAF	T DAMPER, CEILING	GRILLE, ALL THREAD R	ODS AND	VIBRATION	ISOLATOR	S.					
B.	INTERLOCK WITH RES	TROOM LIGHTSWIT	CH.										

			СО	NDENSING UN	IIT SCHEDU	JLE							
		GENERAL D	) ATA				ELE	CTRI	CAL		COO	LING COIL & MISC.	
TAG	BASIS OF DESIGN MFR/MODEL	LOCATION	WEIGHT (LBS)	DIMENSIONS (WxDxH) (IN.)	NOMINAL CAP. (MBH)	VOLT	PHASE	HZ	МОСР	МСА	REFR.	EVAP COIL MODEL #	NOTES
CU-1	LENNOX / XC20-024-230	GROUND	243	35.5x39.5x39	24	208	1	60	30	19.1	R410A	CH35-30B-2F	A,B,C
NOTES:													_

A. PROVIDE TIME DELAY ON COMPRESSOR RE-START KIT, CRANKCASE HEATER, AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 35F. B. MECHANICAL CONTRACTOR SHALL COORDINATE ALL UNIT MOCP'S OF ACTUAL INSTALLED EQUIPMENT WITH ELECTRICAL CONTRACTOR.

C. PROVIDE MIN. 4" TALL PRE-MANUFACTURED POLYOLEFIN PAD.

			G	AS UN	IIT HEAT	TER SCI	HEDUL	E				
				INPUT	OUTPUT	EFF	EFF WEIGHT ELECTI		LECTRICA	.L		
MARK	LOCATION	MFR.	MODEL	(MBH)	(MBH)	(%)	CFM	(LBS)	VOLTS	PH	FLA	NOT
UH-1	WAREHOUSE	LENNOX	LF25-125A	125	103.75	83.5	1950	167.00	115	1	5	A-I
NOTES:												
A.	PROVIDE WALL I	MOUNTED T	HERMOSTAT.									
B.	PROVIDE 4" TYPI	E 'B' VENT.										
C.	DISCONNECT BY	ELECTRICAL	L.									
E.	PROVIDE NECES	SARY MOUT	ING BRACKET	ANDAC	CESSORIES	FOR VER	TICAL MO	UNTING.				

		DIFFU	SER, REGISTER	AND GRILLE SO	CHEDULE		
MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING TYPE	FACE SIZE (IN.)	MAX NC	NC
SUPPLY	·						
CSD-1	TITUS	OMNI	PLAQUE FACE	LAY-IN	24x24	25	A,
CSD-2	TITUS	TDC	LOUVERED	SURFACE	12.5x12.5	25	A,
RETURN							
CRG-1	TITUS	50F	EGGCRATE	LAY-IN	24x24	25	A,E

A. NECK SIZE SHOWN ON DRAWINGS.

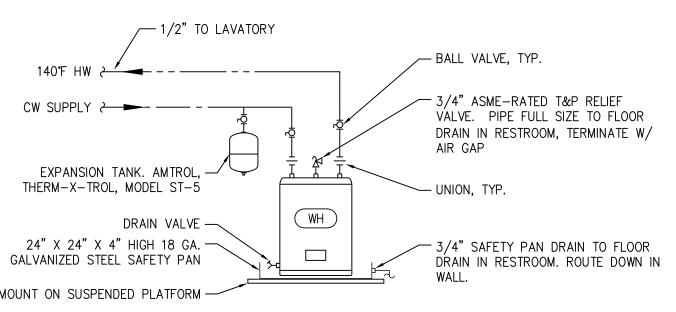
BAKED ENAMEL FINISH, WHITE

FRAME TYPE TO MATCH CEILING CONSTRUCTION, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.

PAINT THE INSIDE OF CANS FLAT BLACK.

FIXIUK	E BRANCH C	DININECTION	SCHEDULE	
FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
FLOOR DRAIN	-	-	3"	1 1/2"
LAVATORY / SINK	1/2"	1/2"	1 1/2"	1 1/2"
WATER CLOSET (FLUSH TANK)	1/2"	-	4"	2"
NOTE:	PIPE SIZES SHOW	N ARE MINIMUN	1. 2" MIN. UNDERG	ROUND.

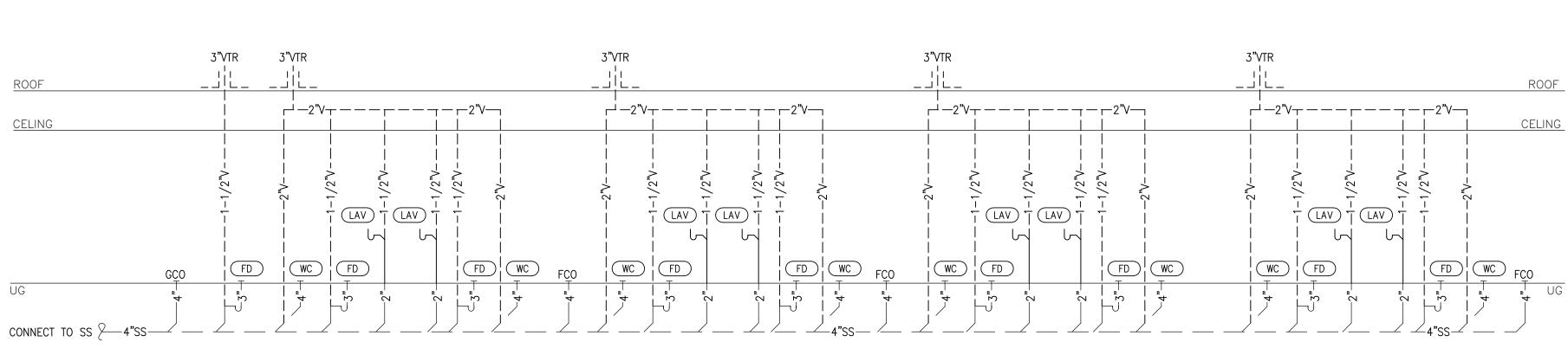
	1 1					
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	KW	VOLTAGE/PH	REMAR
IVIAIN	WANDIACIONEN	WIODEL	(103)	IXVV	VOLIAGE/III	INCIVIAN
EWH-1	QMARK	LFK204F	22	3	208/1	1,2



1/2" TO LAVATORY	
140°F HW 2	BALL VALVE, TYP.
CW SUPPLY	3/4" ASME-RATED T&P RELIEF VALVE. PIPE FULL SIZE TO FLOOR DRAIN IN RESTROOM, TERMINATE W/ AIR GAP
EXPANSION TANK. AMTROL, THERM-X-TROL, MODEL ST-5	UNION, TYP.
DRAIN VALVE  24" X 24" X 4" HIGH 18 GA. GALVANIZED STEEL SAFETY PAN  MOUNT ON SUSPENDED PLATFORM	3/4" SAFETY PAN DRAIN TO FLOOR DRAIN IN RESTROOM. ROUTE DOWN IN WALL.

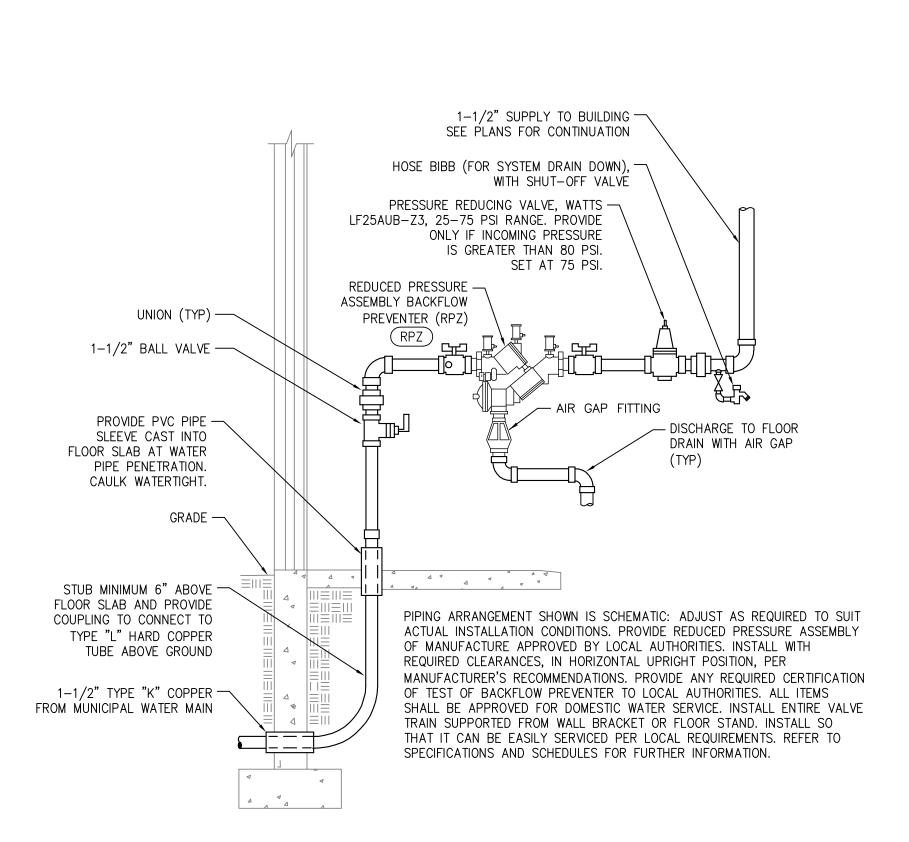
# **ELECTRIC WATER HEATER**

SCALE : NO SCALE



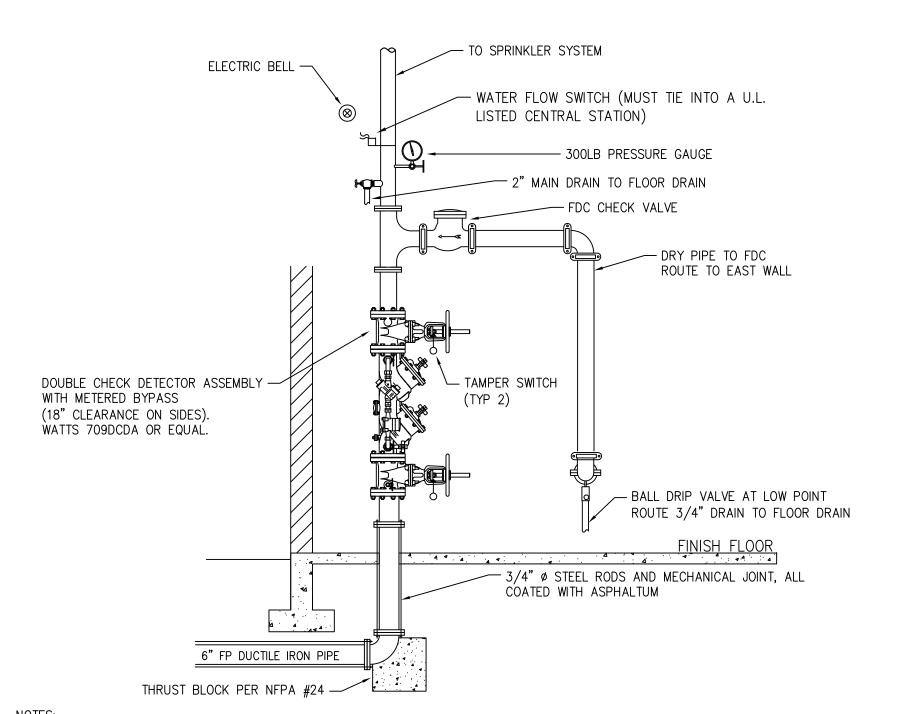
# WASTE & VENT RISER DIAGRAM

SCALE : NO SCALE





SCALE : NO SCALE



1) SEE NFPA 13 FOR CONNECTIONS PASSING THROUGH OR UNDER FOUNDATION WALLS.

2) ADEQUATE CLEARANCE SHALL BE PROVIDED AROUND FIRE RISER. DIMENSIONS FROM FACE-OF-PIPE SHALL MEASURE A MINIMUM OF 12"

OFF THE BACK WALL, 18" ON EACH SIDE, AND 36" CLEAR IN FRONT. ALL VALVES NO MORE THAN 7'-0" AFF. 3) TAMPER SWITCH OR CHAIN & LOCK REQUIRED FOR CONTROL VALVES.

4) MONITORING SYSTEM: PROVIDE A SYSTEM FOR DETECTION OF FLOW AND SUPERVISION OF VALVES, CAPABLE WITH COMMUNICATING WITH OWNER'S MONITORING COMPANY. PROVIDE ALL WIRING, ROUTE COMMUNICATION CABLE TO TELEPHONE EQUIPMENT FOR CONNECTIONS BY

5) DRAWING IS SCHEMATIC. ORIENT VALVE SO THAT 36" CLEAR IS IN FRONT OF HANDWHEEL.

6) HORIZONTAL INSTALLATION ALSO ALLOWED.

SCALE : NO SCALE

FIRE SPINKLER RISER - WET PIPE

MECHANICAL AND PLUMBING SCHEDULES AND DETAILS

PERMIT

PROJECT #: 21-049

ISSUED FOR:

ISSUE DATE: 06/11/2021

Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

CLIENT

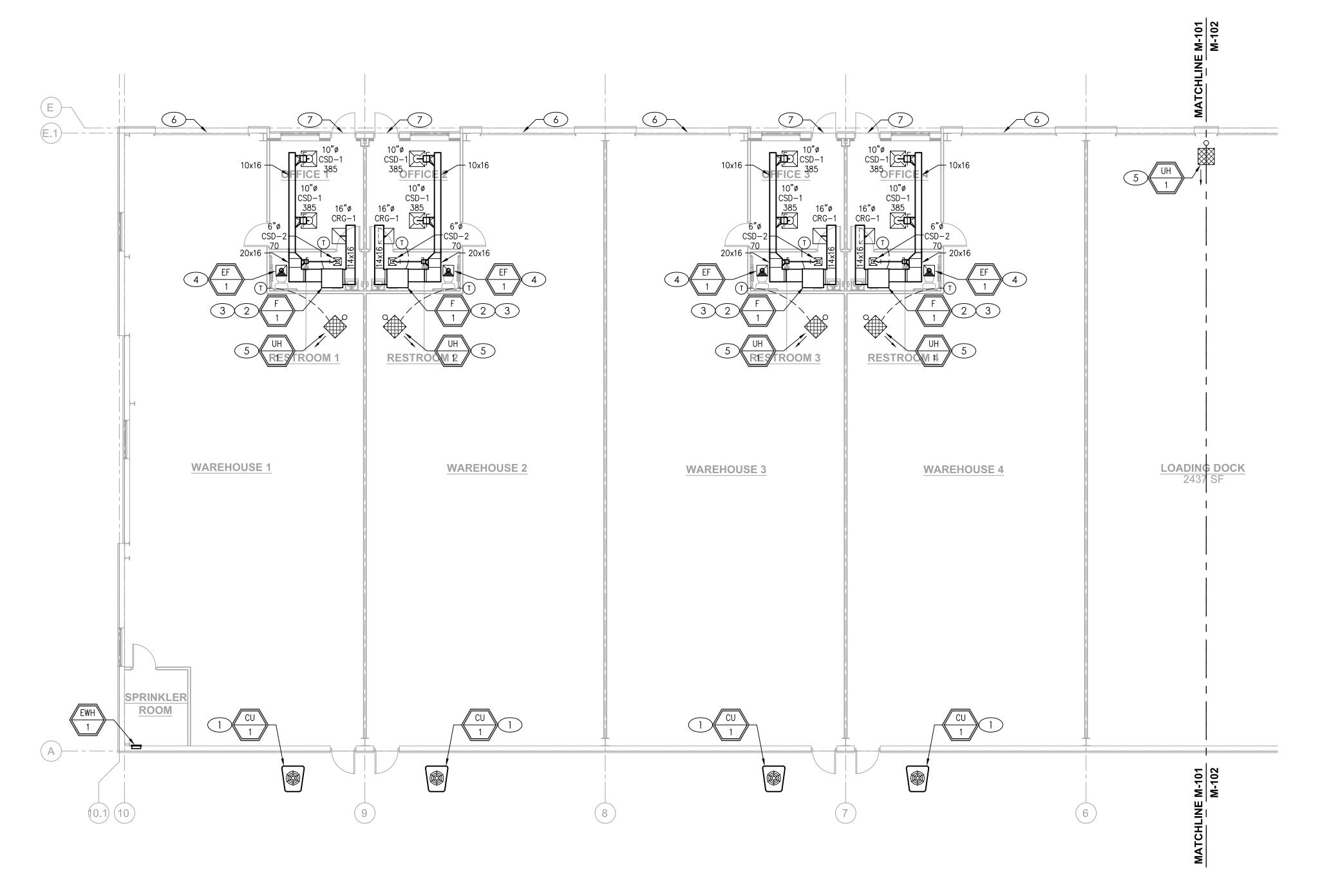
DAVID WARD

MEP ENGINEER

WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

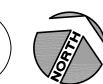
**ENGINEERS** 

1901 NW BLUE PARKWAY, UNITY VILLAGE, MO 64065 3rd FLOOR UNITY VILLAGE TOWER



MECHANICAL PLAN - WEST

SCALE : 1/8" = 1'-0"





- A. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
- B. COORDINATE INSTALLATION OF MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. VERIFY DUCT SPACE AVAILABLE ABOVE ALL CEILINGS PRIOR TO ANY FABRICATION OF
- C. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AROUND EQUIPMENT.
- D. INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
- E. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE ROOF.
- F. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.

### **# KEYED PLAN NOTES**

- 1. CONDENSING UNIT LEVEL AT GRADE ON PREMANUFACTURED PAD. INSTALL PER MANUFACTURER'S INSTRUCTIONS MAINTAINING RECOMMENDED SERVICE CLEARANCES. ROUTE REFRIGERANT LINES THOUGH WALL 18" AFG. WEATHER SEAL REFRIGERANT LINE PENETRATIONS OF BUILDING. PROVIDE ALL RECOMMENDED VALVES, FILTERS, FITTINGS, ETC. AND MAKE ALL NECESSARY CONNECTIONS TO COOLING COIL.
- 2. MOUNT HORIZONTAL FURNACE AND COIL ABOVE RESTROOM CEILING. TRANSITION DUCTWORK TO UNIT AS REQUIRED. AT RETURN PROVIDE MANUFACTURER'S END RETURN FILTER KIT AND FILTER. ROUTE CONDENSATE DRAINS FROM FURNACE AND COIL TO FLOOR DRAIN BELOW.
- 3. PROVIDE CONCENTRIC VENT FOR FURNACE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. ADHERE TO SIZE AND LENGTH LIMITATIONS. LOCATE VENT A MINIMUM OF 5'-0" FROM OUTSIDE AIR INTAKE. ROUTE TO ROOF OR WALL. COORDINATE LOCATION WITH GC PRIOR TO INSTALLATION.
- 4. CEILING MOUNT EXHAUST FAN. ROUTE 6"Ø EXHAUST DUCT UP THROUGH ROOF TO ROOF CAP. LOCATE A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE. SEAL ROOF PENETRATION WEATHER TIGHT.
- 5. HANG UNIT HEATER 14' AFF FROM OVERHEAD STRUCTURAL STEEL. PROVIDE TYPE 'B' VENT THROUGH ROOF. INSTALL PER MANUFACTURER'S WRITTEN
- 6. VENTILATION AIR FOR WAREHOUSE IS BY OPERABLE WAREHOUSE DOOR. 12'X14' DOOR PROVIDES 168 SQFT OF OPEN AREA. BY THE 4% RULE PER IMC SECTION 402, MIN REQUIRED VENTILATION AREA IS 0.04\*2431 SQFT =97.24 SQFT.
- 7. VENTILATION AIR FOR OFFICE IS BY OPERABLE DOOR. 3'X7' DOOR PROVIDES 21 SQFT OF OPEN AREA. BY THE 4% RULE PER IMC SECTION 402, MIN REQUIRED VENTILATION AREA IS 0.04\*171 SQFT=6.8 SQFT.

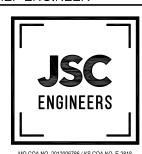


Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

CLIENT

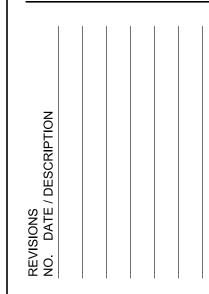
DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

MEP ENGINEER



3rd FLOOR UNITY VILLAGE TOWER



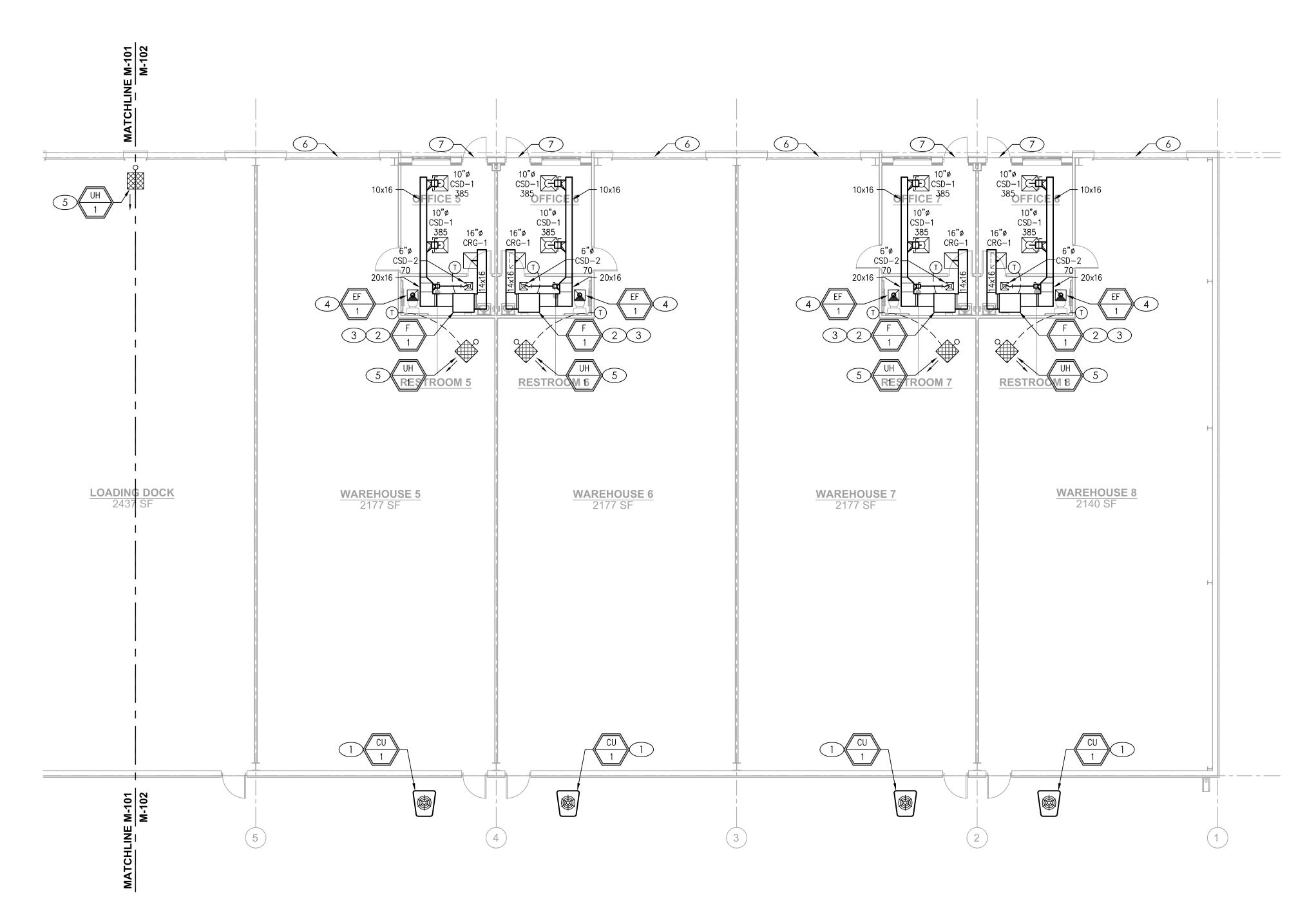


PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

MECHANICAL PLAN

PERMIT

M-101



MECHANICAL PLAN - EAST

SCALE : 1/8" = 1'-0"





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- B. COORDINATE INSTALLATION OF MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. VERIFY DUCT SPACE AVAILABLE ABOVE ALL CEILINGS PRIOR TO ANY FABRICATION OF INSTALLATION.
- C. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AROUND EQUIPMENT.
- D. INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
- E. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE ROOF.
- F. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.

### **# KEYED PLAN NOTES**

- 1. CONDENSING UNIT LEVEL AT GRADE ON PREMANUFACTURED PAD. INSTALL PER MANUFACTURER'S INSTRUCTIONS MAINTAINING RECOMMENDED SERVICE CLEARANCES. ROUTE REFRIGERANT LINES THOUGH WALL 18" AFG. WEATHER SEAL REFRIGERANT LINE PENETRATIONS OF BUILDING. PROVIDE ALL RECOMMENDED VALVES, FILTERS, FITTINGS, ETC. AND MAKE ALL NECESSARY CONNECTIONS TO COOLING COIL.
- 2. MOUNT HORIZONTAL FURNACE AND COIL ABOVE RESTROOM CEILING. TRANSITION DUCTWORK TO UNIT AS REQUIRED. AT RETURN PROVIDE MANUFACTURER'S END RETURN FILTER KIT AND FILTER. ROUTE CONDENSATE DRAINS FROM FURNACE AND COIL TO FLOOR DRAIN BELOW.
- 3. PROVIDE CONCENTRIC VENT FOR FURNACE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. ADHERE TO SIZE AND LENGTH LIMITATIONS. LOCATE VENT A MINIMUM OF 5'-0" FROM OUTSIDE AIR INTAKE. ROUTE TO ROOF OR WALL. COORDINATE LOCATION WITH GC PRIOR TO INSTALLATION.
- 4. CEILING MOUNT EXHAUST FAN. ROUTE 6"Ø EXHAUST DUCT UP THROUGH ROOF TO ROOF CAP. LOCATE A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE. SEAL ROOF PENETRATION WEATHER TIGHT.
- 5. HANG UNIT HEATER 14' AFF FROM OVERHEAD STRUCTURAL STEEL. PROVIDE TYPE 'B' VENT THROUGH ROOF. INSTALL PER MANUFACTURER'S WRITTEN
- 6. VENTILATION AIR FOR WAREHOUSE IS BY OPERABLE WAREHOUSE DOOR. 12'X14' DOOR PROVIDES 168 SQFT OF OPEN AREA. BY THE 4% RULE PER IMC SECTION 402, MIN REQUIRED VENTILATION AREA IS 0.04\*2431 SQFT =97.24 SQFT.
- 7. VENTILATION AIR FOR OFFICE IS BY OPERABLE DOOR. 3'X7' DOOR PROVIDES 21 SQFT OF OPEN AREA. BY THE 4% RULE PER IMC SECTION 402, MIN REQUIRED VENTILATION AREA IS 0.04\*171 SQFT=6.8 SQFT.

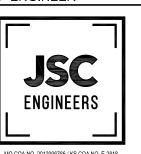


Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

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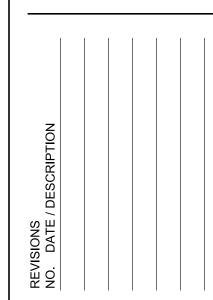
DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

MEP ENGINEER



3rd FLOOR UNITY VILLAGE TOWER



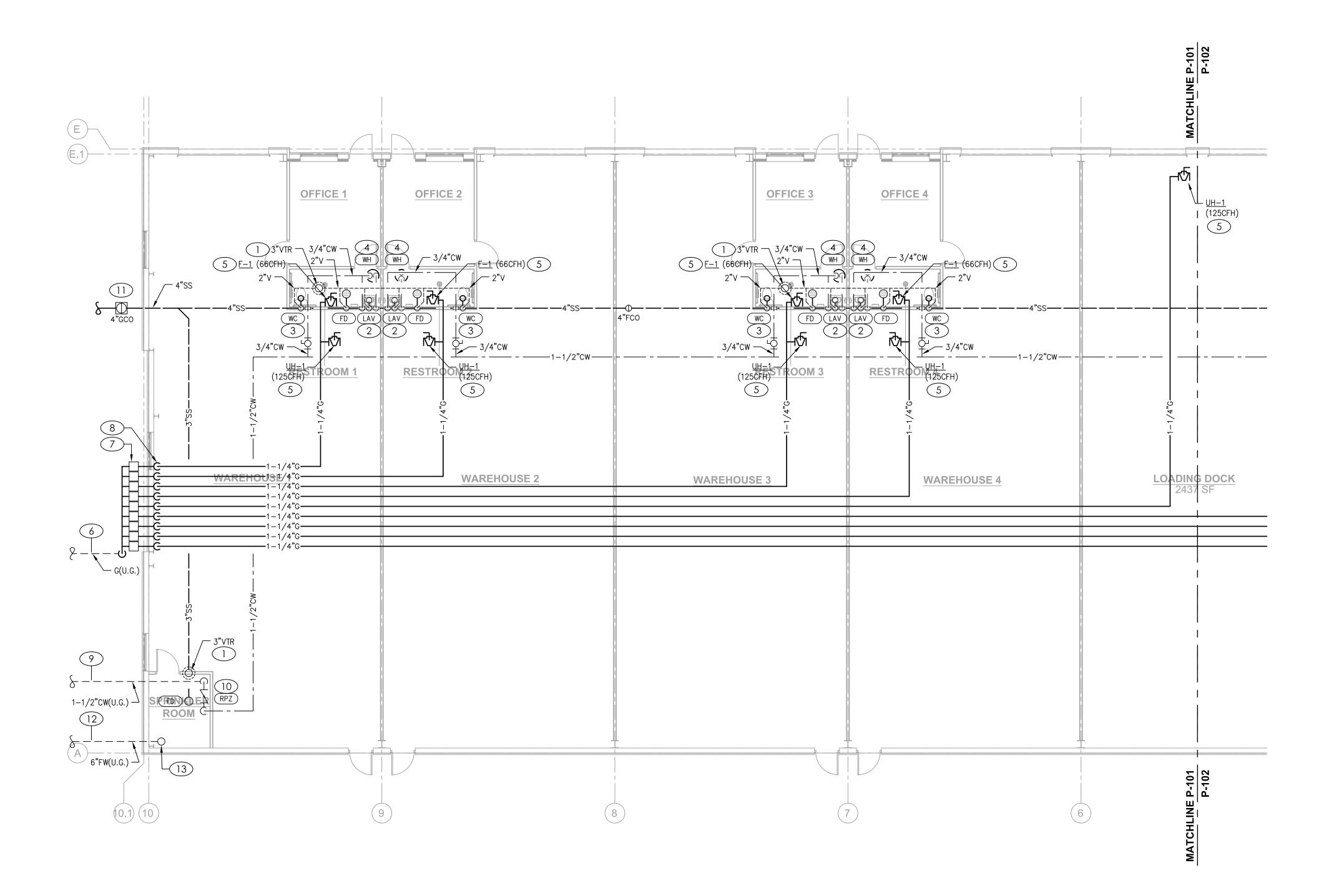


PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

PERMIT

MECHANICAL PLAN

M-102



PLUMBING PLAN - WEST

SCALE : 1/8" = 1'-0"

### **GENERAL NOTES**

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- B. PROVIDE THE ARCHITECT AND OWNER WITH A COPY OF THE INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE
- C. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.
- D. EXACT LOCATION AND ELEVATIONS OF ALL EXISTING UTILITIES SHALL BE VERIFIED PRIOR TO ANY INSTALLATION OR CONNECTIONS THEREOF.
- E. COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT INSTALL PIPING OVER ELECTRICAL PANELS.
- F. COORDINATE THE ROOF PENETRATIONS WITH OTHER TRADES. MAINTAIN 10' MINIMUM CLEARANCE FROM ALL AIR INTAKES. MAINTAIN 3' FROM ALL OTHER EQUIPMENT.
- G. PROVIDE SHIELDED ADAPTOR COUPLINGS FOR CONNECTIONS OF PVC DWV TO CAST IRON SANITARY, WASTE AND VENT PIPE.
- H. REFER TO PLUMBING FIXTURE SCHEDULE FOR MINIMUM BRANCH WASTE AND VENT PIPE SIZING.

### **# KEYED PLAN NOTES**

(NOT ALL NOTES NECESSARILY USED ON THIS SHEET)

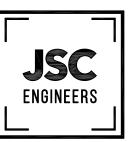
- 1. NEW VENT THROUGH ROOF (VTR). LOCATE VTR A MINIMUM OF 3'-0" FROM EDGE OF ROOF AND MINIMUM 10'-0" FROM ANY OUTSIDE AIR INTAKE. SEAL PENETRATION WEATHER TIGHT. COORDINATE WITH MECHANICAL CONTRACTOR.
- 2. PROVIDE 1-1/2"V, 2"SS, 1/2"CW AND 1/"HW IN WALL TO LAV. PROVIDE THERMOSTATIC MIXING VALVE FOR FIXTURE EQUAL TO LEONARD MODEL 170. SET HW SUPPLY WATER TEMPERATURE TO 110°F.
- 3. PROVIDE 2"V, 4"SS, AND 1/2"CW IN WALL TO WATER CLOSET.
- 4. INSTALL WATER HEATER ABOVE CEILING. ROUTE 1/2"CW TO WATER HEATER THEN 1/2"HW FROM WH TO LAVATORY. ROUTE 3/4" T&P RELIEF FROM WATER HEATER TO FLOOR DRAIN WITH AIR GAP. COORDINATE LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION.
- 5. PROVIDE SHUT-OFF VALVE AND DIRT LEG PRIOR TO EQUIPMENT CONNECTION. COORDINATE EXACT EQUIPMENT LOCATION WITH MECHANICAL CONTRACTOR.
- 6. GAS PIPING TO UTILITY MAIN. TOTAL ESTIMATED GAS LOAD FOR BUILDING IS 1,653 CFH. REFER TO CIVIL PLANS FOR CONTINUATION. CONTRACTOR TO COORDINATE WITH GAS UTILITY FOR INSTALLATION.
- 7. COORDINATE WITH GAS COMPANY FOR INSTALLATION OF METER BANK WITH 9 TENANT METERS. DEMAND FOR EACH METER IS 191 CFH @ 12"W.C.
- 8. ROUTE GAS PIPING THROUGH EXTERIOR WALL THEN UP ON INTERIOR OF WALL. ROUTE TIGHT TO WALL. CONTINUE ROUTING AS SHOWN AT BOTTOM OF JOIST ELEVATION. SEAL WALL PENETRATION WEATHERTIGHT.
- 9. 1-1/2" DOMESTIC COLD WATER TO UTILITY SERVICE. CONTRACTOR SHALL WORK WITH THE WATER COMPANY AND FOR THE INSTALLATION OF A NEW WATER MAIN ENTRANCE, INCLUDING TAP, METER, METER PIT, PIPING, ETC. FOR A COMPLETE INSTALLATION. SEE CIVIL PLANS FOR CONTINUATION. MAINTAIN MINIMUM 48" BURY FOR FREEZE PROTECTION.
- 10. 1-1/2" SHUT-OFF VALVE AND 1-1/2" RPZ BACKFLOW PREVENTER APPROVED FOR DOMESTIC WATER SERVICE. PROVIDE PRESSURE REDUCING VALVE IF SERVICE PRESSURE AT DOMESTIC WATER ENTRY EXCEEDS 75 P.S.I. DOWNSTREAM OF REDUCED PRESSURE BACKFLOW PREVENTER. SEE INSTALLATION DETAIL.
- 11. 4" SANITARY TO UTILITY SERVICE. REFER TO CIVIL PLANS FOR CONTINUATION. PROVIDE 4"GCO AT EXTERIOR OF BUILDING.
- 12. 6" FIRE SERVICE TO MAIN. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
- 13. FIRE RISER. SEE DETAIL ON MPOO1 FOR GENERAL REQUIREMENTS. COORDINATE WITH FIRE SPRINKLER CONTRACTOR FOR INSTALLATION, SIZING, AND ROUTING OF FIRE DEPARTMENT CONNECTION.

Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

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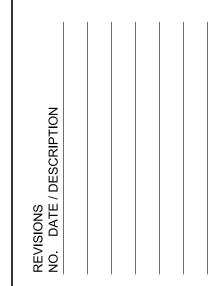
DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

MEP ENGINEER



MO COA NO. 2012006786 / KS COA NO. E-2818 3rd FLOOR UNITY VILLAGE TOWER



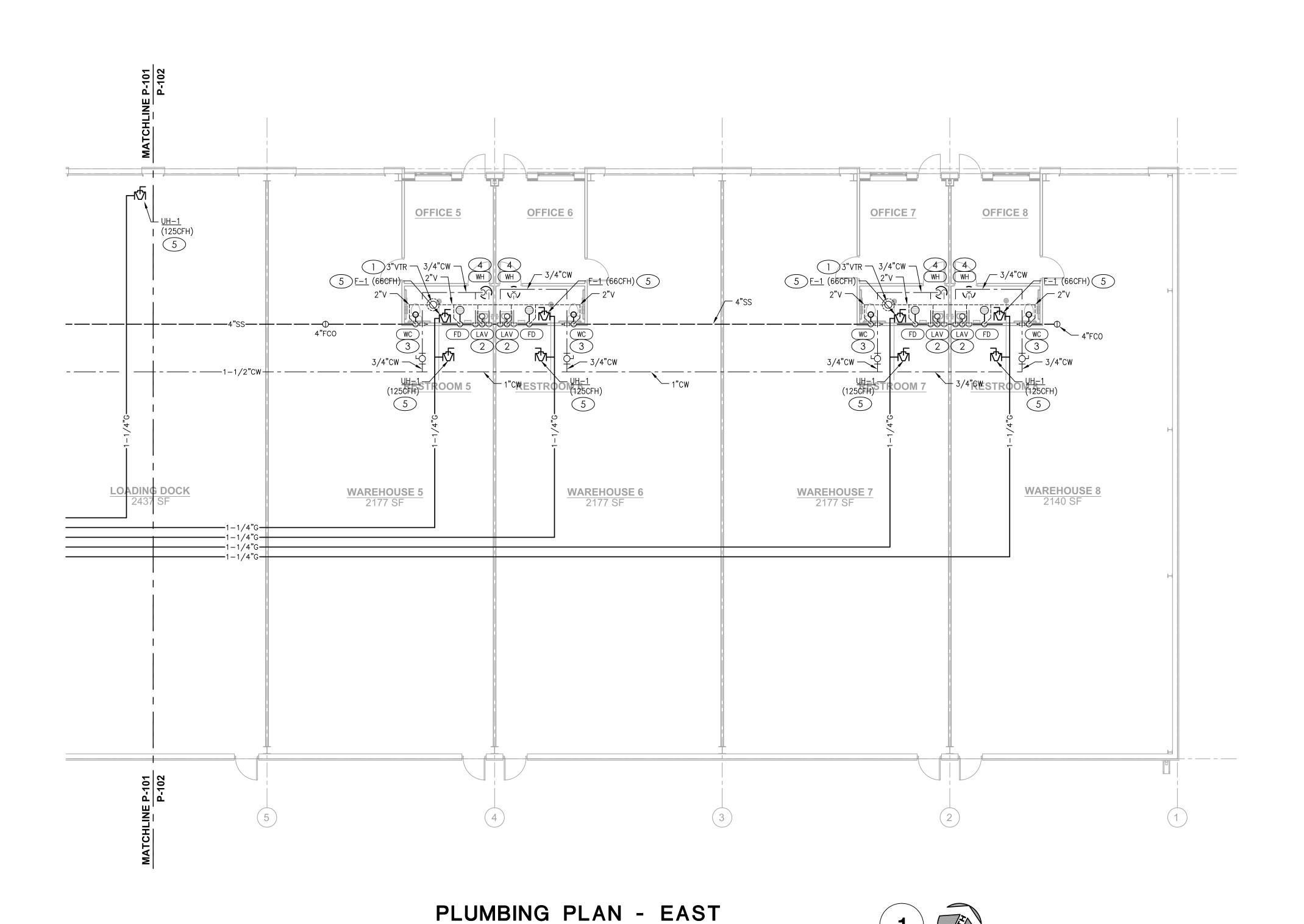


PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

> PLUMBING PLAN WEST

PERMIT

P-101



SCALE : 1/8" = 1'-0"

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- 2. PROVIDE 1-1/2"V, 2"SS, 1/2"CW AND 1/"HW IN WALL TO LAV. PROVIDE THERMOSTATIC MIXING VALVE FOR FIXTURE EQUAL TO LEONARD MODEL 170. SET HW SUPPLY WATER TEMPERATURE TO 110°F.
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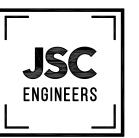


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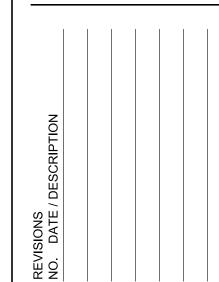
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MEP ENGINEER



MO COA NO. 2012006786 / KS COA NO. E-2818 3rd FLOOR UNITY VILLAGE TOWER





PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

PERMIT

PLUMBING PLAN EAST

P-102

# **ELECTRICAL SPECIFICATIONS**

### PART I - GENERAL

### A. CONDITIONS

- FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO, THESE MAJOR ITEMS. A. LIGHTING FIXTURES AS INDICATED AND SPECIFIED ON THE PLANS
- B. ELECTRICAL PANELS, SERVICE, CONDUIT, WIRING, ETC., FOR ALL OUTLETS AND EQUIPMENT. C. TELEPHONE, TELEVISION, AND FIRE ALARM. OUTLETS AND CONDUIT AS INDICATED.
- OBTAIN AND REVIEW ALL OTHER DRAWINGS INCLUDING REFLECTED CEILING PLAN. INTERIOR AND EXTERIOR ELEVATIONS, FURNITURE PLANS AND ALL MILL WORK DRAWINGS. COORDINATE INSTALLATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT PRIOR TO ROUGH-IN.
- OBTAIN SUBMITTAL AND SHOP DRAWINGS FROM OTHER TRADES AND EQUIPMENT TO COORDINATE INSTALLATION ACCORDINGLY.
- INSTALLATION SHALL COMPLY WITH ALL CURRENT APPLICABLE CODES AND GOVERNING AGENCIES HAVING JURISDICTION.
- FIRE ALARM SYSTEM, IF REQUIRED PER IBC. SHALL BE DESIGN-BUILD BY OWNER'S/GC'S FIRE ALARM CONTRACTOR. DESIGN SHALL BE IN ACCORDANCE WITH NFPA 72. FIRE ALARM CONTRACTOR SHALL SUBMIT STAMPED DRAWINGS TO AHJ FOR REVIEW AND APPROVAL. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR TESTING AND VERIFYING THAT THE AUDIBILITY OF THE FIRE ALARM SYSTEM MEETS A MINIMUM OF 15 DBA ABOVE AMBIENT NOISE LEVELS. ADD HORNS WHERE REQUIRED TO MAINTAIN MINIMUM LEVELS.
- PROVIDE FIRE STOP ON ALL PIPING THAT PENETRATES RATED WALLS. METHOD OF FIRE STOP SHALL MEET WALL RATING. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF FIRE RATED WALLS. THIS CONTRACTOR SHALL PROVIDE FIRE RATED ENCLOSURES AROUND ALL ROUGH-IN BOXES, PANELS, ETC. THAT ARE LOCATED IN FIRE RATED WALLS AND SHALL FIRE CAULK ALL OPENINGS IN RATED ASSEMBLIES.

### <u>B. RELATED WORK BY OTHERS</u>

- THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT, TRENCH, AND BACKFILL FOR ELECTRICAL SERVICE ENTRANCE FROM THE MAIN SERVICE TO UTILITY POINT OF ELECTRICAL SERVICE. ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE WITH SERVING UTILITY COMPANY.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT, TRENCH, AND BACKFILL FOR PRIMARY PHONE AND CATV SERVICE FROM THE TELEPHONE TERMINAL BOARD OR CABINET TO THE PHONE COMPANY AND CATV COMPANY POINT OF SERVICE COORDINATE WITH LOCAL UTILITY COMPANIES.

### <u>C. CODES, REGULATIONS, AND STANDARDS</u>

- THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ORDINANCES, WITH THE REGULATIONS OF THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE AND WITH THE REQUIREMENTS OF THE POWER, TELEPHONE, AND CATV COMPANIES FURNISHING SERVICES TO THIS
- INSTALLATION. THE LATEST EDITIONS OF THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS, AND CODES ARE MINIMUM REQUIREMENTS:
- A. THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION STANDARDS.
- B. THE NATIONAL ELECTRICAL CODE, INCLUDING LOCAL AMENDMENTS. C. UNDERWRITER LABORATORIES INCORPORATED STANDARDS.
- D. AMERICAN NATIONAL STANDARDS INSTITUTE. E. INTERNATIONAL BUILDING CODE.

### D. INSPECTION OF SITE

- PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACQUAINT HIMSELF WITH EXISTING UTILITIES, AND WORKING CONDITIONS TO BE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NONCOMPLIANCE WITH THIS CONDITION AFTER BIDDING.
- ELECTRICAL INSTALLATION SHALL MEET THE EXISTING CONDITIONS.

WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER.

### . STORAGE AND HANDLING OF MATERIAL

- DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING OR STORAGE. CONTRACTOR SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS UNTIL FINAL ACCEPTANCE BY THE OWNER, AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER, ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD.
- ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE IN ORDER TO MINIMIZE
- THE LENGTH OF TIME BETWEEN DELIVERY AND INSTALLATION. COVER AND PROTECT ANY MATERIAL WHICH MAY BE AFFECTED BY THE WEATHER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND DEFECTIVE OR NOT INSTALLED IN ACCORDANCE

KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK REMOVE ALL SURPLUS MATERIALS. TOOLS, ETC., AND LEAVE THE PREMISES BROOM-CLEAN.

### EXCAVATION, CUTTING, AND FITTING

- PERFORM ALL EXCAVATION AND BACK FILLING REQUIRED FOR WORK PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS. USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OFF SITE MATERIALS ARE
- PERFORM THE EXCAVATION, CUTTING, FITTING, REPAIRING, AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT OF THIS SECTION. HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBERS SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT.

### H. DRAWINGS

THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK DATA PRESENTED ON THESE DRAWINGS ARE AS ACCURATE AS PLANNING CAN DETERMINE. BUT FIELD VERIFICATION OF ALL DIMENSIONS, LOCATIONS, LEVELS, ETC., TO SUIT FIELD CONDITIONS IS REQUIRED. REVIEW ALL ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. DISCREPANCIES BETWEEN DIFFERENT PLANS, OR BETWEEN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING BEFORE THE DATE OF BID OPENING. IF DISCREPANCIES ARE NOT REPORTED, THE CONTRACTOR SHALL BID THE GREATER QUANTITY OR BETTER QUALITY, AND APPROPRIATE ADJUSTMENTS WILL BE MADE AFTER CONTRACT AWARD. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD MEASURE AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS, USE ACTUAL BUILDING DIMENSIONS.

### COOPERATION WITH OTHER CONTRACTORS

- COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, LIGHTING FIXTURES, AND OTHER EQUIPMENT LOCATIONS SHALL BE VERIFIED WITH OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, STEEL, BEAMS, OR OTHER OBSTRUCTIONS.
- CAREFULLY VERIFY THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT THEY HAVE NOT BEEN DISTURBED DURING THE INSTALLATION OF MATERIALS OF OTHER TRADES.
- COORDINATE THE LOCATION OF THE TRENCHES AND CONDUITS FOR ELECTRICAL AND TELEPHONE UTILITY
- SERVICES WITH THE GENERAL CONTRACTOR. COORDINATE HVAC AND PLUMBING EQUIPMENT CONNECTION REQUIREMENTS WITH HVAC AND PLUMBING

### CONTRACTORS. RECORD DRAWINGS

- THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE JOB SITE FOR THE EXCLUSIVE PURPOSE OF MAINTAINING A RECORD OF ALL WORK INSTALLED AND TO SHOW ANY DEVIATIONS FROM THE WORK INDICATED ON THE DRAWINGS.
- AT THE COMPLETION OF THE PROJECT, ONE SET OF REPRODUCIBLE DRAWINGS, SHOWING ALL RECORD CONDITIONS, SHALL BE DELIVERED TO THE OWNER FOR ACCEPTANCE PRIOR TO FINAL PAYMENT.

### PART II - PRODUCTS AND EXECUTION

### ALL MATERIALS SHALL BE NEW AND OF QUALITY AS SPECIFIED ON THE PLANS OR SPECIFICATIONS AND MUST CARRY THE UNDERWRITER'S LABORATORIES APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS.

### B. SHOP DRAWINGS AND APPROVALS

THE ITEMS SPECIFIED HEREIN AND ON DRAWINGS ARE USED AS A STANDARD OF QUALITY. ANY MATERIALS OF EQUAL QUALITY AND AESTHETIC VALUE WILL BE GIVEN CONSIDERATION AS A SUBSTITUTE FOR THE MATERIALS SPECIFIED. NO APPROVAL WILL BE GIVEN TO A SPECIFIC CATALOG NUMBER, MODEL OR TYPE OF EQUIPMENT, PRIOR TO BIDDING. AFTER BIDDING, THE DECISION OF THE ARCHITECT AND/OR ENGINEER DETERMINING EQUAL MATERIALS WILL BE FINAL.

- 2. THE CONTRACTOR SHALL SUBMIT SEVEN (7) IDENTICAL BOUND SETS OF SHOP DRAWINGS ON THE FOLLOWING ITEMS:
  - A. LIGHTING FIXTURE CUTS AND PERFORMANCE DATA. B. OUTLINE DRAWINGS AND DATA SHEETS OF EACH PANELBOARD, LOAD CENTERS, AND DISTRIBUTION
  - C. OUTLINE DRAWINGS OF ALL SWITCH GEAR COMPONENTS. ). WIRING DEVICES AND COVERPLATES.

AS SPECIFIED ABOVE FOR THE SERVICE ENTRANCE

E. ALL CIRCUIT BREAKERS INSTALLED IN PANELBOARDS, LOAD CENTERS, AND DISTRIBUTION PANELS. SUBMIT ITEMS AT ONE TIME IN A NEAT AND ORDERLY MANNER WITHIN 15 DAYS OF AWARD OF CONTRACT. PARTIAL SUBMITTALS WILL NOT BE ACCEPTABLE.

- 1. GROUNDING SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 250. ALL EXPOSED NONCURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, METALLIC CABLE ARMOR, GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, GROUNDING CONDUCTOR IN NONMETALLIC RACEWAYS, AND GROUNDED CONDUCTORS OF THE WIRING SYSTEM SHALL BE GROUNDED.
- GROUNDING CONDUCTOR (NEUTRAL) OF THE WIRING SYSTEM SHALL BE CONNECTED TO THE SYSTEM GROUNDING CONDUCTOR AT A SINGLE PLACE IN EACH SYSTEM BY REMOVABLE BONDING JUMPERS, SIZED ACCORDING TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE. THE GROUNDED CONDUCTOR (NEUTRAL) TO THE GROUNDING CONDUCTOR CONNECTION SHALL BE LOCATED IN THE ENCLOSURE FOR THE SYSTEM'S OVERCURRENT PROTECTION OR WHERE OTHERWISE INDICATED ON THE
- PLANS OR SPECIFICATIONS. 3. A GROUND BUS SEPARATE FROM THE NEUTRAL BUS SHALL BE PROVIDED IN ALL DISTRIBUTION PANELS AND PANELBOARDS. PROPER TORQUE ON GROUND BUS SHALL BE VERIFIED, PER MANUFACTURER'S RECOMMENDATIONS, PRIOR TO ENERGIZING EQUIPMENT.
- 4. GROUND BUSES AND NEUTRAL BUSES IN ALL DISTRIBUTION PANELS, LOAD CENTERS, PANELBOARDS, AND THOSE PROVIDED IN ANY EQUIPMENT SHALL BE ISOLATED EXCEPT WHERE REQUIRED TO BE CONNECTED
- WHEN INDICATED ON THE DRAWINGS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE EXTENDED FROM THE GROUND BUS IN THE DISTRIBUTION EQUIPMENT TO THE RECEPTACLE, FIXTURE OR DEVICE LUGS WHERE THEY ARE PROVIDED. WHERE LUGS ARE NOT PROVIDED, EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT ENCLOSURES. THE CONNECTIONS SHALL BE ARRANGED SUCH THAT REMOVAL OF THE RECEPTACLE, EQUIPMENT GROUND CONDUCTORS, OR GROUND JUMPERS FROM GROUND
- BUSING SHALL NOT AFFECT THE GROUND SYSTEM. 6. RACEWAYS MAY NOT BE USED AS A GROUNDING CONDUCTOR FOR POWER AND LIGHTING CIRCUITS. ALL CONDUIT SHALL HAVE SEPARATE CODE SIZED GREEN GROUND WIRE INSTALLED IN THE CONDUIT TO
- INSURE A CONTINUOUS GROUNDING PATH. IN INACCESSIBLE LOCATIONS, MAKE CONNECTIONS BY EXOTHERMIC WELD PROCESS.
- IN ACCESSIBLE LOCATIONS, CONNECTIONS SHALL BE MADE WITH BOLTED THROUGH, APPROVED SOLDERLESS BRONZE GROUNDING DEVICES.

- CONDUCTOR SIZES SHOWN ON THE DRAWINGS ARE BASED ON COPPER WIRE. UNLESS OTHERWISE SPECIFIED, ALL WIRE SHALL BE TYPE XHHW OR SE FOR FEEDERS OR BRANCH CIRCUITS LARGER THAN 4 AWG, TYPE THHN/THWN INSULATION FOR FEEDERS AND BRANCH CIRCUITS 4 AWG AND SMALLER. ALL BRANCH CIRCUIT WIRING SHALL BE COPPER.
- 2. ALUMINUM CONDUCTORS MAY BE UTILIZED FOR SERVICE ENTRANCE AND PANEL FEEDERS. CONDUCTORS SHALL BE ALUMINUM ALLOW AA-8000 SERIES. THE WIRES SHALL BE MARKED WITH COLOR TO SIMPLIFY CIRCUIT IDENTIFICATION. UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES GROUND WIRES SHALL BE GREEN, NEUTRAL WIRES SHALL BE
- 120V-WHITE, AND LIVE WIRES 208Y/120V AND 120/240 SHALL BE BLACK (PHASE A), RED (PHASE B), AND BLUE (PHASE C). CIRCUIT SHALL BE LABELED IN EACH J-BOX. ALL CONDUCTORS SHALL BE RATED 600 VOLT.
- SPLICES IN EXTERIOR PULL BOXES AND MANHOLES SHALL BE WEATHERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL.
- PROVIDE SOLID CONDUCTOR FOR 12 AWG AND SMALLER.
- NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE. USE MINERALAC NO. 100 OR EQUIVALENT AS A LUBRICANT TO FACILITATE THE INSTALLATION OF THE CONDUCTORS IN THE CONDUIT SYSTEM.
- 8. MC CABLE WITH COPPER CONDUCTORS AND GROUND WIRE MAY BE USED WHERE PERMITTED.

- ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC CONDUIT EXCEPT AS PERMITTED IN OTHER SECTIONS. RGS, WITH A 20 MIL PVC COATING WILL BE USED WHEN IN CONTACT WITH EARTH. IMC MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH THE EARTH. EMT MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH FARTH, NOT IN CONCRETE SLABS OR WALLS AND NOT SUBJECT TO DAMAGE. PVC MAY BE USED IN OR BELOW CONCRETE AND DIRECT BURIED IN EARTH. FLEXIBLE STEEL CONDUIT SHALL BE USED FOR INDOOR FINAL CONNECTIONS TO EQUIPMENT IN LENGTHS NOT TO EXCEED 72". LIQUID-TIGHT FLEXIBLE STEEL CONDUIT SHALL BE FOR OUTDOOR FINAL CONNECTIONS TO EQUIPMENT NOT TO EXCEED 48".
- WHERE CONDUIT ENTERS OUTLET BOXES, FIXTURES OR CABINETS, FIRMLY FASTEN WITH STEEL SET SCREW, COMPRESSION CONNECTORS, OR DOUBLE LOCKNUTS FOR GRC. ALL CONNECTIONS SHALL HAVE BUSHINGS OR INSULATED THROAT CONNECTORS. FIRMLY FASTEN CONDUIT TO THE BUILDING CONSTRUCTION. RUN EXPOSED CONDUIT PARALLEL TO THE BUILDING LINES, SUPPORTED BY APPROPRIATE HANGERS (UNISTRUT,
- T & B OR APPLETON, OR EQUAL). 3. COVER METALLIC CONDUIT IN CONTACT WITH EARTH WITH POLYETHYLENE TAPED SPIRAL WRAPPED, 1/2 LAPPED TO PROVIDE 20 MIL. THICKNESS. TAPE SHALL BE SCOTCH NO. 50 TAPE. CONDUIT AND DUCTS NOT UNDER BUILDINGS AND FEEDER DUCTS SHALL BE INSTALLED PER N.E.C. 300-5. MAKE JOINTS WITH COMPOUND TO BE WATERTIGHT.
- 4. SCHEDULE 40 PVC CONDUIT SHALL BE PERMITTED UNDERGROUND WITH PROPER FITTINGS, ALL UL APPROVED AND CEMENTED JOINTS. PENETRATIONS THROUGH FLOOR SLABS AND BENDS GREATER THAN 22° SHALL BE WRAPPED RIGID GALVANIZED STEEL ELBOWS.
- FITTINGS AND CONDUIT BODIES SHALL BE STEEL. DIECAST FITTINGS ARE NOT ACCEPTABLE. CONDUIT SIZES SHALL BE AS REQUIRED BY CODE AND AS INDICATED OR SPECIFIED.
- 7. ALL EMPTY CONDUIT SYSTEMS SHALL HAVE A 200 LB. TEST NYLON PULL STRING TO FACILITATE INSTALLATION OF FUTURE WIRE.
- 8. WIRING, CONDUITS, AND OUTLETS SHALL BE CONCEALED WITH THE BUILDING STRUCTURE, EXCEPT THAT CERTAIN MOTOR AND LIGHTING FEEDER CONDUITS MAY BE RUN EXPOSED IN CERTAIN AREAS AS INDICATED ON THE DRAWINGS.
- 9. CONDUIT PENETRATION THROUGH ROOF SHALL HAVE ROOF FLASHING WITH CAULK TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE WATERTIGHT.
- 10. CONDUITS SHALL BE ROUTED PARALLEL AND PERPENDICULAR TO THE STRUCTURE.

### F. OUTLET, PULL, AND JUNCTION BOXES

- ALL JUNCTION AND OUTLET BOXES CONCEALED IN WALLS SHALL BE STEEL BOXES INSTALLED IN POURED CEMENT FLOORS SHALL BE FLUSH TYPE CAST IRON OR STEEL WITH WATERTIGHT GASKETED COVERS. WHERE BOXES ARE INSTALLED IN FLOORS WITH TILE OR CARPET FLOOR COVERING, COVERS SHALL BE OF THE RECESSED TYPE TO ACCOMMODATE THE FLOOR COVERING.
- BOXES INSTALLED FOR THE ALARM, COMPUTER, AND SECURITY SYSTEM SHALL BE PROVIDED WITH APPROPRIATE COVER PLATES.
- 4. BOXES FOR TELEPHONE, COMPUTER, T.V., FIRE ALARM, SECURITY, AND SIMILAR SYSTEMS SHALL BE MINIMUM 2-1/8" DEEP.

### **G WIRING DEVICES (COMMERCIAL)**

GROUND DOWN.

- WALL SWITCHES SHALL BE SPECIFICATION GRADE AC SILENT TYPE SWITCHES, 20A 120/277 VOLT. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX TYPE. NEMA5-20R, 20 AMPERE, 120VOLT GROUNDED TYPE. SPECIAL APPLICATION RECEPTACLES SHALL BE INDICATED ON PLANS. MOUNT WITH THE
- 3. DEVICE PLATES SHALL BE EQUAL TO SIERRA SMOOTH-LINE PLASTIC WALL PLATES. COLOR SHALL BE WHITE, UNLESS OTHERWISE NOTED.
- 4. RECEPTACLES IN OUTDOOR AND WET LOCATIONS SHALL BE INSTALLED WITH A HINGED OUTLET COVER/ENCLOSURE CLEARLY MARKED AND U.L. LISTED SUITABLE FOR WET LOCATIONS WHILE IN USE, EQUAL TO TAYMAC SPECIFICATION GRADE.

### H. SERVICE ENTRANCE SECTION

- THE SERVICE ENTRANCE EQUIPMENT SHALL BE AS INDICATED ON THE DRAWINGS. EQUIPMENT SHALL CARRY THE U.L. LABEL AND SHALL CONFORM TO THE POWER COMPANY REGULATIONS.
- SERVICE ENTRANCE EQUIPMENT SHALL BE PROVIDED WITH A FULLY RATED COPPER OR ALUMINUM BUS. HORIZONTALLY TAPERED BUSSING SHALL NOT BE ALLOWED.

1. DISTRIBUTION PANELS SHALL BE PROVIDED WITH FULLY RATED COPPER OR ALUMINUM BUS. HORIZONTAL TAPERED BUSSING SHALL NOT BE ALLOWED

### ACCEPTABLE MANUFACTURERS - CUTLER HAMMER, SEIMENS, SQUARE D OR GENERAL ELECTRIC FACTORY ASSEMBLED DEAD FRONT. METAL ENCLOSED. AND SELF-SUPPORTING SWITCH BOARD ASSEMBLY CONFORMING T NEMA PB 2 AND UL 891. AND COMPLETE FROM INCOMING LINE TERMINALS TO LOAD SIDE

- TERMINATIONS. LINE AND LOAD TERMINATIONS: ACCESSIBLE FROM FRONT ONLY OF THE SWITCH BOARD. SUITABLE FOR
- CONDUCTOR MATERIALS AND NUMBER OF CONDUCTORS USED.
- BUS CONNECTIONS: BOLTED. ACCESSIBLE FROM FRONT FOR MAINTENANCE. PROVIDE BELLEVILLE WASHERS FOR PROPERLY TORQUE ALL CONNECTIONS PROVIDE FULLY-RATED NEUTRAL BUS AND FULLY RATED GROUND BUS MATCHING MATERIAL USED FOR
- MAIN BUS.
- FUTURE PROVISIONS: FULLY EQUIP SPACES FOR FUTURE DEVICES WITH BUSSING AND BUS CONNECTIONS
- SUITABLY INSULATED AND BRACED FOR SHORT CIRCUIT CURRENTS. CONTINUOUS CURRENT RATING AS INDICATED ON DRAWINGS. ALL CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.

- CIRCUIT BREAKER TYPE AS INDICATED ON DRAWINGS. UNLESS INDICATED OTHERWISE, ALL PANELS SHALL HAVE PANEL HAVE PANEL BOARD TYPE CONSTRUCTION WITH BOLT-ON CIRCUIT BREAKERS FOR 30
- MANUFACTURERS SHALL BE GENERAL ELECTRIC, SQUARE D, SEIMENS, CUTLER-HAMMER WITH VOLTAGE.

SIZES, AND RATINGS AS INDICATED ON DRAWINGS.

THE CIRCUIT BREAKERS SHALL BE OPERABLE IN ANY POSITION AND BE REMOVABLE FROM THE FRONT O THE PANEL BOARD WITHOUT DISTURBING THE ADJACENT UNITS. BRANCH BREAKERS SHALL BE OF SUCH DESIGN THAT COMBINATION OF SINGLE-POLE, DOUBLE-POLE, AND THREE-POLE BREAKERS CAN BE ASSEMBLED ON THE SAME PANEL. EACH BRANCH CIRCUIT SHALL BE CLEARLY NUMBERED. BRANCH AND MAN TERMINALS SHALL BE SOLDERLESS TYPE. HANDLE TIES TO FORM MULTI-POLE BREAKERS NOT ACCEPTABLE.

- CIRCUIT BREAKER TYPE AS INDICATED ON DRAWINGS. MANUFACTURERS SHALL BE GENERAL ELECTRIC, SQUARE D, SIEMENS, CUTLER-HAMMER/EATON WITH VOLTAGE, SIZES, AND RATINGS AS INDICATED ON
- THE CIRCUIT BREAKERS SHALL BE OPERABLE IN ANY POSITION AND BE REMOVABLE FROM THE FRONT OF THE PANEL BOARD WITHOUT DISTURBING THE ADJACENT UNITS. BRANCH BREAKERS SHALL BE OF SUCH DESIGN THAT COMBINATION OF SINGLE-POLE AND DOUBLE-POLE BREAKERS CAN BE ASSEMBLED ON THE SAME PANEL. EACH BRANCH CIRCUIT SHALL BE CLEARLY NUMBERED. BRANCH AND MAIN TERMINALS SHALL BE OF THE SOLDERLESS TYPE. HANDLE TIES TO FORM MULTI-POLE BREAKERS NOT ACCEPTABLE
- A. CIRCUIT BREAKERS SHALL BE PLUG-IN TYPE WIRE TERMINATION FOR PANEL BOARDS AND CIRCUIT BREAKERS SHALL BE LISTED AS SUITABLE FOR 75
- PROVIDE A TYPEWRITTEN CIRCUIT INDEX BEHIND CLEAR PLASTIC COVER ON INSIDE OF DOOR. INFORMATION SHALL INCLUDE ROOM AND TYPE LOAD SERVED. ALL CIRCUIT BREAKERS SHALL BE IDENTIFIED, INCLUDING SPARES. INDEX CARD FRAME SHALL BE METAL, SECURED TO DOOR. PANEL BOARDS/LOAD CENTERS TO BE PROVIDED WITH COPPER BUSSIING ONLY.

PROVIDE ALL LIGHTING FIXTURES, WIRED AND CONNECTED. THE DRAWINGS INDICATE THE FIXTURES FOR EACH LOCATION. PROVIDE LAMPS FOR ALL FIXTURES. THE LAMPS SHALL BE BY THE SAME MANUFACTURER. VERIFY CEILING CONSTRUCTION BEFORE ORDERING RECESSED UNITS. PROVIDE PLASTER FRAMES AND HANGERS AS REQUIRED. CEILING CONSTRUCTION, ARCHITECTURAL ACCESSORIES, VOLTAGE, AND BALLASTS TO MEET THE EXISTING CEILING CONDITION.

- FURNISH AND INSTALL TIME SWITCHES, PHOTOCELLS, CONTRACTORS AND FULL LIGHTING CONTROL SYSTEMS AS REQUIRED FOR LIGHTING CONTROLS INDICATED ON THE DRAWINGS.
- TIME SWITCHES SHALL BE EQUAL TO PARAGON, GENERAL ELECTRIC, TORK, OR INTERMATIC AND SHALL HAVE SIZE AND NUMBER OF POLES AS REQUIRED.
- PHOTOCELLS SHALL BE EQUAL TO TORK OR INTERMATIC WITH VOLTAGE AS INDICATED
- N. TELEPHONE AND CABLE TELEVISION SYSTEMS TELEPHONE WALL OUTLETS SHALL CONSIST OF STANDARD BOXES MOUNTED 18" ABOVE THE FLOOR UNLESS OTHERWISE INDICATED. PROVIDE A TERMINAL MOUNTING BOARD FOR THE INCOMING SERVICE
- CABLE TELEVISION OUTLETS SHALL CONSIST OF STANDARD BOXES MOUNTED 18" ABOVE THE FLOOR UNLESS OTHERWISE INDICATED. PROVIDE A TERMINAL MOUNTING BOARD FOR THE INCOMING SERVICE CABLE.
- GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF WORK. ANY DEFECTS DEVELOPING WITHIN THIS PERIOD, TRACEABLE TO MATERIAL FURNISHED AS A PART OF THIS SECTION OR WORKMANSHIP PERFORMED

HEREUNDER, SHALL BE MADE GOOD AT NO EXPENSE TO THE OWNER.

# SYMBOLS LEGEND

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC, ARE NECESSARILY USED ON THE DRAWINGS.

FLUORESCENT OR LED FIXTURE (SEE SCHEDULE)

FIXTURE WITH EMERGENCY BATTERY BALLAST UNIT

SITE POLE MOUNT LIGHT FIXTURE

WALL MOUNTED FIXTURE WITH EMERGENCY BATTERY BALLAST UNIT

0 DOWNLIGHT FIXTURE OH WALL MOUNTED FIXTURE

PENDANT MOUNTED FIXTURE

 $\vdash$ 

SINGLE FACE EXIT SIGN — UNIVERSAL MOUNTED

DOUBLE FACE EXIT SIGN W/ DIRECTIONAL ARROWS -

SINGLE FACE EXIT SIGN W/ DIRECTIONAL ARROWS -

DUAL HEADED EMERGENCY UNIT

COMBO DUAL HEADED EMERGENCY AND EXIT SIGN UNIT LETTER INDICATES LIGHT FIXTURE AS INDICATED ON FIXTURE SCHED

SINGLE POLE SWITCH @ +48" UNLESS NOTED SWITCH BANK @ +48" UNLESS NOTED. LOWER CASE LETTER INDICATES FIXTURE CONTROLLED.

2 POLE SWITCH @ +48" UNLESS NOTED 3-WAY SWITCH @ +48" UNLESS NOTED

4-WAY SWITCH @ +48" UNLESS NOTED

DIMMER SWITCH - SIZE AS REQUIRED @ +48" UNLESS NOTED 3-WAY DIMMER SWITCH - SIZE AS REQUIRED @ +48" UNLESS NOTED 3-WAY DIMMER SWITCH BANK @ +48" UNLESS NOTED. LOWER CASE LETTER INDICATES FIXTURE

CONTROLLED. SWITCH SENSOR @ +48" UNLESS NOTED

MANUAL MOTOR STARTER

OCCUPANCY SENSOR

SOS WALL SWITCH WITH OCCUPANCY SENSOR. TWO BUTTON DIGITAL LOW VOLTAGE WALL SWITCH. PROVIDES ON/OFF/0-10V DIMMING. SWITCH @ +48" UNLESS NOTED.

TWO BUTTON DIGITAL LOW VOLTAGE WALL SWITCH. PROVIDES ON/OFF/0-10V DIMMING. SWITCH @ +48" UNLESS NOTED.

DUCT DETECTOR REMOTE TEST STATION - MOUNT AT 60" AFF

LIGHTING CONTROLS PHOTOCELL

LIGHTING CONTROLS POWER PACK

FIRE SUPPRESSION FLOW SWITCH

SPRINKLER ALARM NOTIFICATION HORN

FIRE SUPPRESSION TAMPER SWITCH

CAMERA

SPEAKER

TELEPHONE OUTLET@ +18" UNLESS NOTED

DATA OUTLET @ +18" UNLESS NOTED COMBINATION TELEPHONE/DATA OUTLET @ +18" UNLESS NOTED

τvΗ TELEVISION OUTLET @ +18" UNLESS NOTED DUCT DETECTOR

(HD) HEAT DETECTOR 120 VOLT SMOKE DETECTOR WITH SOUNDER BASE AND

BATTERY BACKUP

AUXILIARY SYSTEM TERMINAL CABINET SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD

120/208V., 3 PHASE, 4 WIRE PANELBOARD, UNO

CARD READER. PROVIDE 2-GANG OUTLET BOX WITH SINGLE GANG RING AND 3/4" CONDUIT STUBBED UP IN WALL TO ABOVE ACCESSIBLE CEILING WITH BUSHING ON END OF CONDUIT @ 48" UNLESS NOTED OTHERWISE.

**/** 

(G)

Т TRANSFORMER MOTOR OUTLET

JUNCTION BOX

GENERATOR

DISCONNECT SWITCH - SIZE AND TYPE NOTED

COMBINATION FUSED STARTER DISCONNECT SWITCH FUSE SIZE AS INDICATED, STARTER SIZE '1' MECHANICAL EQUIP. CONNECTION, SEE SCHED. ON MECH. PLAN

———— CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING ———— CONDUIT RUN BELOW FLOOR OR GRADE

SPECIAL HEAVY DUTY RECEPTACLE - SIZE AS NOTED. @ +18" UNLESS NOTED

1/2 SWITCHED RECEPTACLE @ +18" UNLESS NOTED

• FIRE RATED POKE THRU WITH TYPE INDICATED

FLUSH FLOOR BOX WITH TYPE INDICATED → SINGLE RECEPTACLE @ +18" UNLESS NOTED

DUPLEX RECEPTACLE @ +18" UNLESS NOTED DOUBLE DUPLEX RECEPTACLE @ +18" UNLESS NOTED GFI DUPLEX RECEPTACLE

FULL SWITCHED RECEPTACLE

DUPLEX RECEPTACLE INSTALLED ABOVE COUNTERTOP DUPLEX RECEPTACLE WITH WEATHERPROOF COVERPLATE @ 18" UNLESS NOTED

FOR TERMINATION. REFER TO ASSOCIATED NOTE FOR BRANCH CIRCUIT CONDUCTOR SIZES. 5 INDICATES 1/2" CONDUIT CONCEALED IN CEILING OR WALL WITH (3) CONDUCTORS. (1) PHASE,

(1) NEUTRAL AND (1) GROUND WIRE. ALL ARE #12 AWG UNLESS NOTED OTHERWISE.

HOMERUN TO PANELBOARD, INFORMATION AT ARROWS ARE CIRCUIT NUMBERS AND PANELBOARD

——///— WHIP COUNT INDICATES NUMBER OF HOT CONDUCTORS

Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

CLIENT

DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

MEP ENGINEER



1901 NW BLUE PARKWAY, UNITY VILLAGE, MO 64065 3rd FLOOR UNITY VILLAGE TOWER phone: (816) 272-5289 | email: jsmothers@jscen

JUSTIN R.

SMOTHERS

NUMBER

PE-2012003568

MO COA NO. 2012006786 / KS COA NO. E-28

09-24-2021

PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

ELECTRICAL SPECIFICATIONS AND

**PERMIT** 

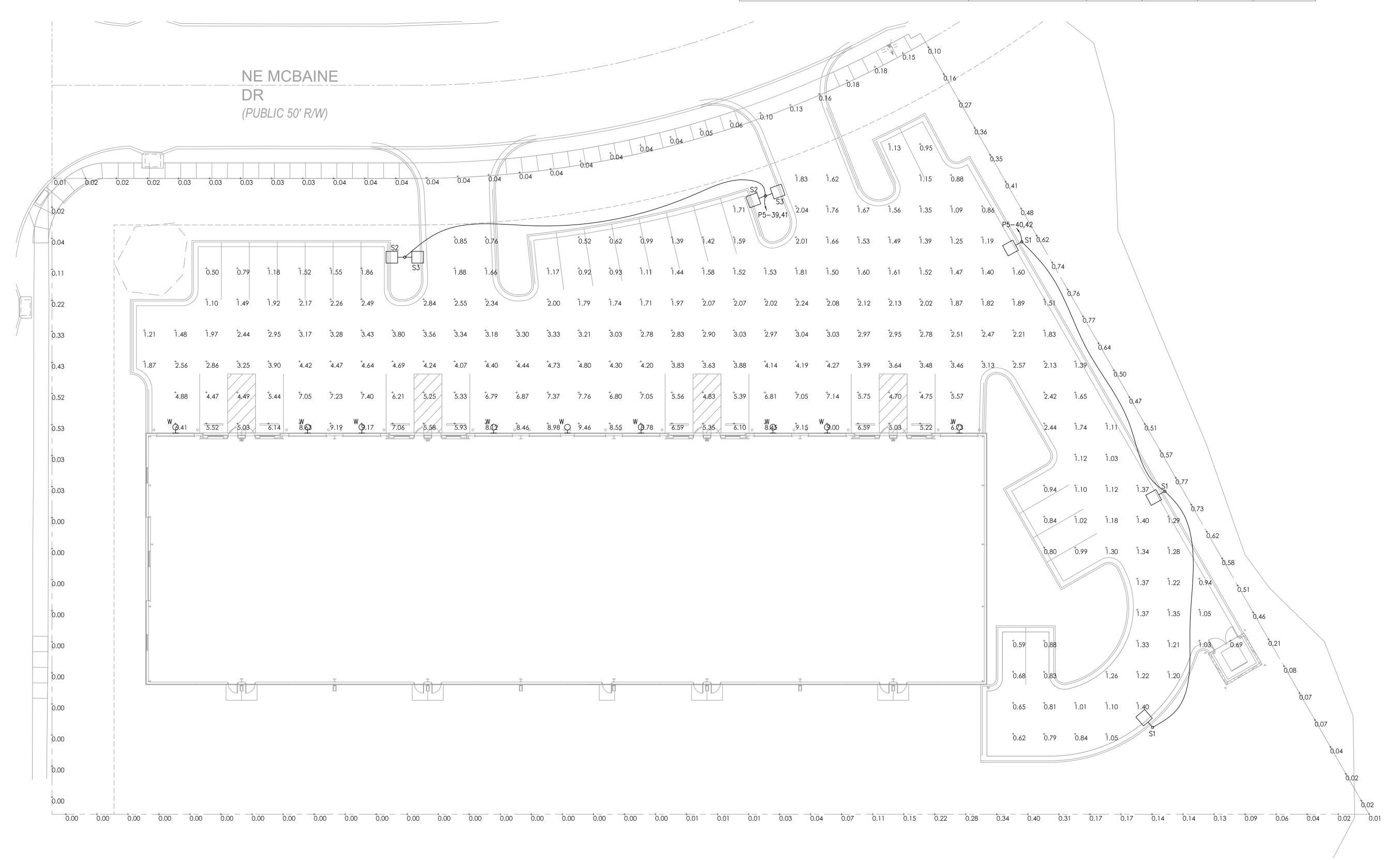
SYMBOLS

# **GENERAL NOTES**

- ALL WORK SHALL COMPLY WITH THE SECTION 2800 OF THE STREET LIGHTING OF KANSAS CITY METROPOLITAN CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION, CONSTRUCTION & MATERIAL SPECIFICATION, THE SECTION 5800 STREET LIGHTING OF THE CITY OF LEE'S SUMMIT, MO DESIGN CRITERIA, AND ALL APPLICABLE LEE'S SUMMIT, MO SUPPLEMENTS.
- 2. ALL ELECTRICAL/CONDUIT STREET CROSSINGS NEED TO BE BACKFILLED WITH AB-3 OR FLOWABLE FILL IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.

Luminaire Sch	edule			
Tag	Description	LLF	Luminaire	Luminaire
			Lumens	Watts
\$1	DSX1 LED P2 40K T3M MVOLT HS (MH: 30'-0") - PROVIDE WITH PHOTOCELL	0.800	7002	70
S2	DSX1 LED P2 40K RCCO MVOLT (MH: 30'-0") - PROVIDE WITH PHOTOCELL	0.800	5429	70
\$3	DSX1 LED P2 40K LCCO MVOLT (MH: 30'-0") - PROVIDE WITH PHOTOCELL	0.800	5429	70
W	WDGE3 LED P2 70CRI R4 40K (MH: 16'-0")	0.800	8779	59.2761

Calculation Summary					
Label	Units	Avg	Max	Min	Max/Min
Parking_Lot	Fc	3.04	9.46	0.50	18.92
Property_Line	Fc	0.16	0.77	0.00	N.A.



PHOTOMETRIC PLAN

SCALE : 1/16" = 1'-0"





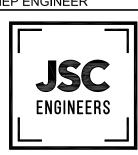


Certificates of Authority
Architecture: MO 310 / KS 73
Engineering: MO 4 / KS 241
Land Surveying: MO 123 / KS 36

CLIENT

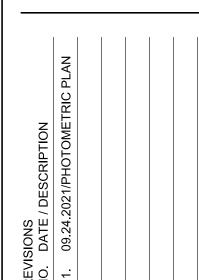
DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

MEP ENGINEER





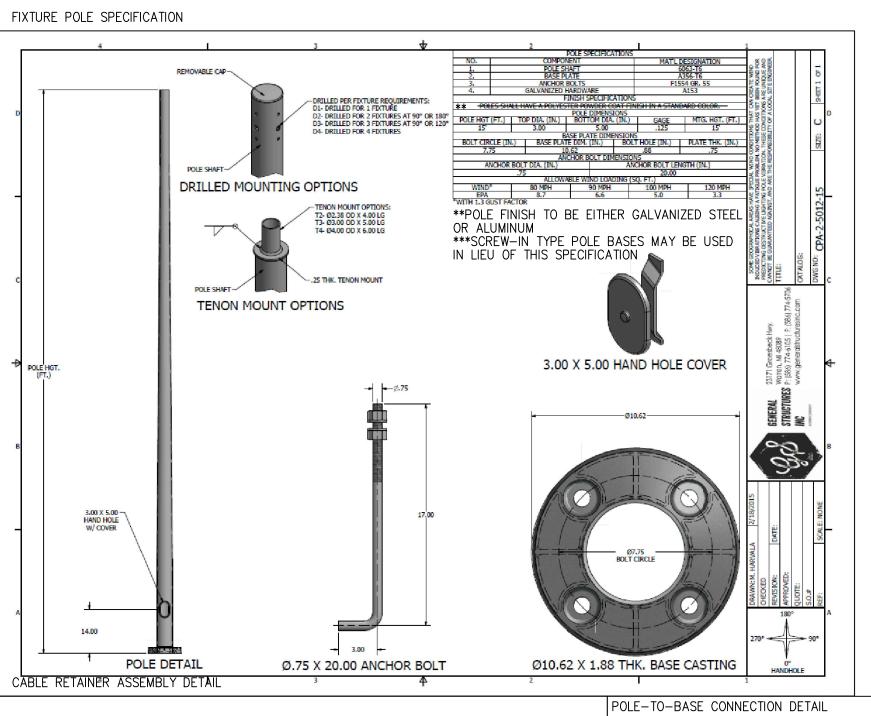
LOT 10 LAKEWOUU
BUSINESS PARK
LOT 10 I-470 BUSINESS PARK
LEE'S SUMMIT, MO 64064

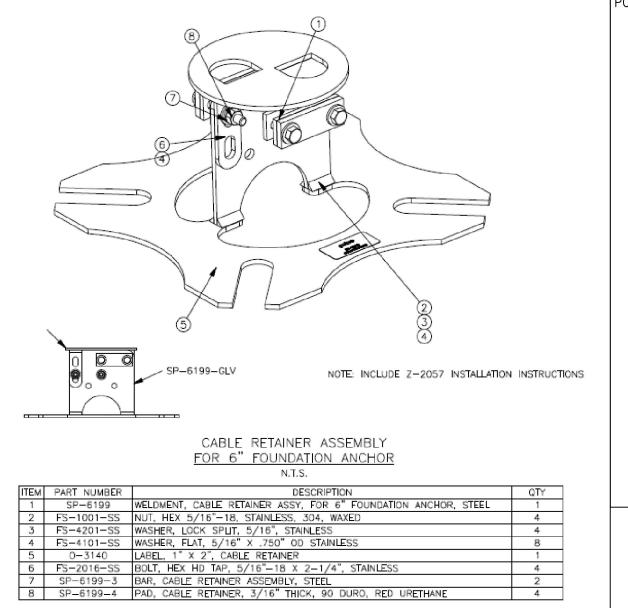


PROJECT #: 21-049
ISSUE DATE: 06/11/2021
ISSUED FOR:

PHOTOMETRIC PLAN

PERMIT





PEDESTAL WIRING DIAGRAM

UTILITY SECTION

CONSULATED LINE SIDE LUGS: 3504(MIL-6

PACIFIC UTILITY PRODUCTS 2430 RAILROAD ST. CORONA, CA. 92880

RAINPROOF TYPE 3R ENGLOSURE

Customer Section

A-A-A-A A-A-A-A #6 +2 - 1/

WIRING DIAGRAM N.T.S.

INDUSTRIAL CONTROL SUITABLE ONLY FOR USE AS SERVICE EQUIPMENT BONDED NEUTRAL REMOVE BONDING MEANS FOR TEST PURPOSES ONLY

"SHORT CIRCUIT RATING: 10,000 RMS SYM. AMPS © 240 VAC MAXIMUM. \*CIRCUIT BREAKERS 100-15 AMPS: CUTLER HAMMER BR, BQ, GFCB

"AL/TOMATIC TRIP IS INDICATED BY HANDLE POSITION MIDWAY BETWEEN (ON) AND (OFF). TO RESTORE POWER MOVE HANDLE TO (OFF), THEN ON.

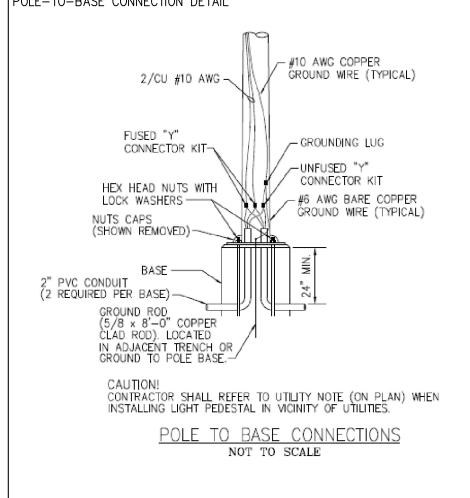
"METER SOCKET : MS24; 200 AMPS WATT—HOUR METER NOT INCLUDED IN SHORT CIRCUIT RATING.

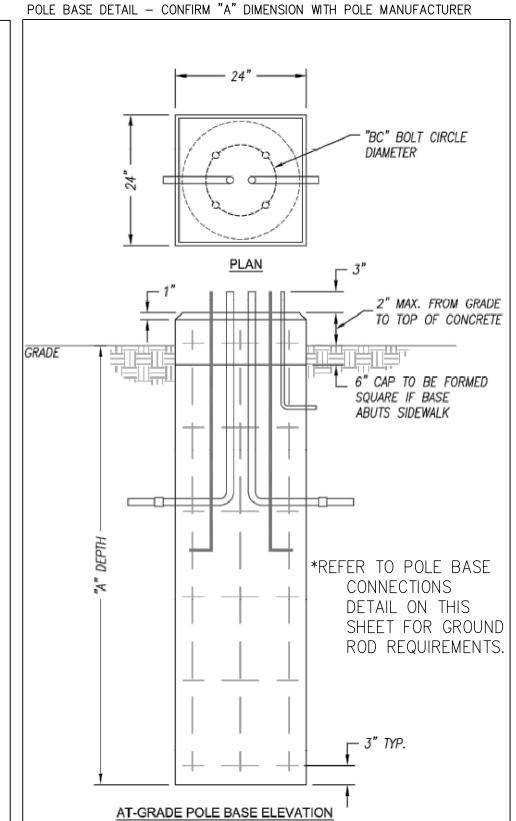
"THE MAXIMUM SIZE CIRCUIT BREAKER TO BE INSTALLED ON THE LOAD CENTER IS SO AMPS WHEN COPPER WIRE IS USED AND 40 AMPS WHEN ALUMINUM WIRE IS USED.

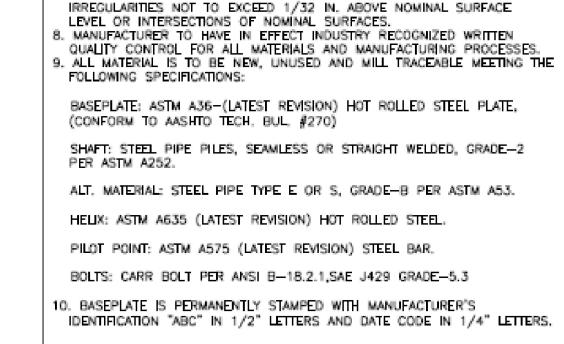
CAT, NO, MHPDR-KCMO-33 120/240VAC 1PH 3W 100 AMPS INSTALL NO MORE THAN 5 (ONE OR TWO POLE) DISCONNECTING MEANS

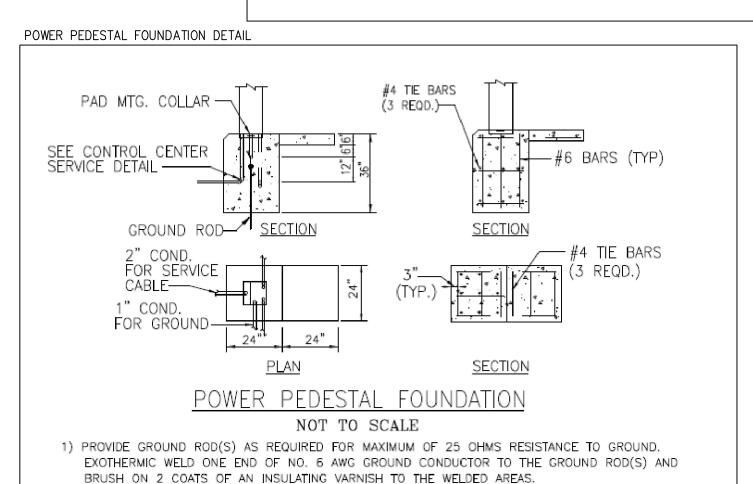
REPLACEMENT BREAKER MUST BE SAME TYPE AND RATING

\*MOISTURE KIT AVAILABLE—CONTACT FACTORY, CAT.NO. WSK-1 \*SHIPPING TENDS TO LOOSEN ELECTRICAL CONNECTIONS—TIGHTEN ALL CONNECTIONS BEFORE ENERGIZING UNIT.









CONCRETE SLAB TO PROVIDE SEMI-DRY WORKING AREA IN FRONT OF CONTROLLER CABINET.

SECONDARY POWER SERVICE (DIRECT BURY) THRU CONTRACTOR INSTALLED 2" CONDUIT AND ELBOW.

BREAK AWAY FUSE DETAILS

"Y" TERMINATION

"J" TERMINATION

BREAK AWAY FUSE KITS N.T.S.

- 1" X 4" CARRIAGE BOLTS W/NUTS

DIA. BOLT CIRCLE

6.63" DIA.

ALL RADIAL SECTIONS

NORMAL TO AXIS ±36

ALL RADIAL SECTIONS NORMAL TO AXIS ±36

HELIX MUST BE FORMED BY MATCHING METAL DIE

25' & 30' POLE

2. BASEPLATE TO BE PERPENDICULAR TO SHAFT AXIS (±1%%250) AND HOLE

4. PILOT POINT AND SHAFT AXES TO BE CONCENTRIC (±.125 FIM) AND IN

6. PREHEAT, TUMBLEBLAST, HANDGRIND, AND CLEAN BASEPLATE, HELIX, AND

7. FLAMECUT IRREGULARITIES PERMISSIBLE: (1) VALLEYS NOT TO EXCEED

3/32 IN. BELOW NOMINAL SURFACE LEVEL, (2) PEAKS OR POSITIVE

FINISH: HOT DIP GALVANIZE PER ASTM—A153 (LATEST REVISION).

STENCIL MIN. 1/2 IN. LETTERS MANUFACTURER'S NUMBER AFTER

CENTERLINE CONCENTRIC (±.188) TO SHAFT AXIS.

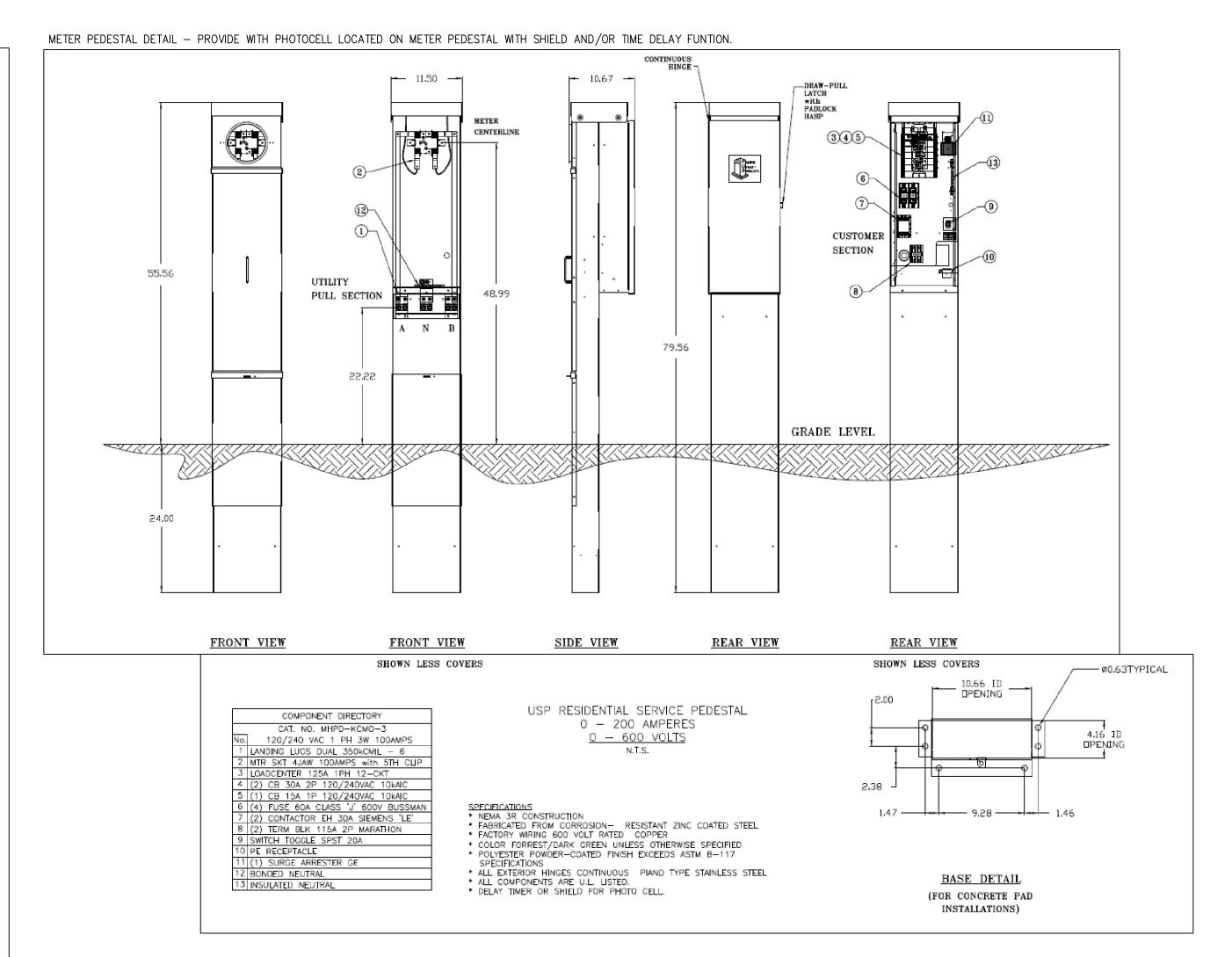
5. FLAME CUT SLOT PERPENDICULAR TO THE BASEPLATE.

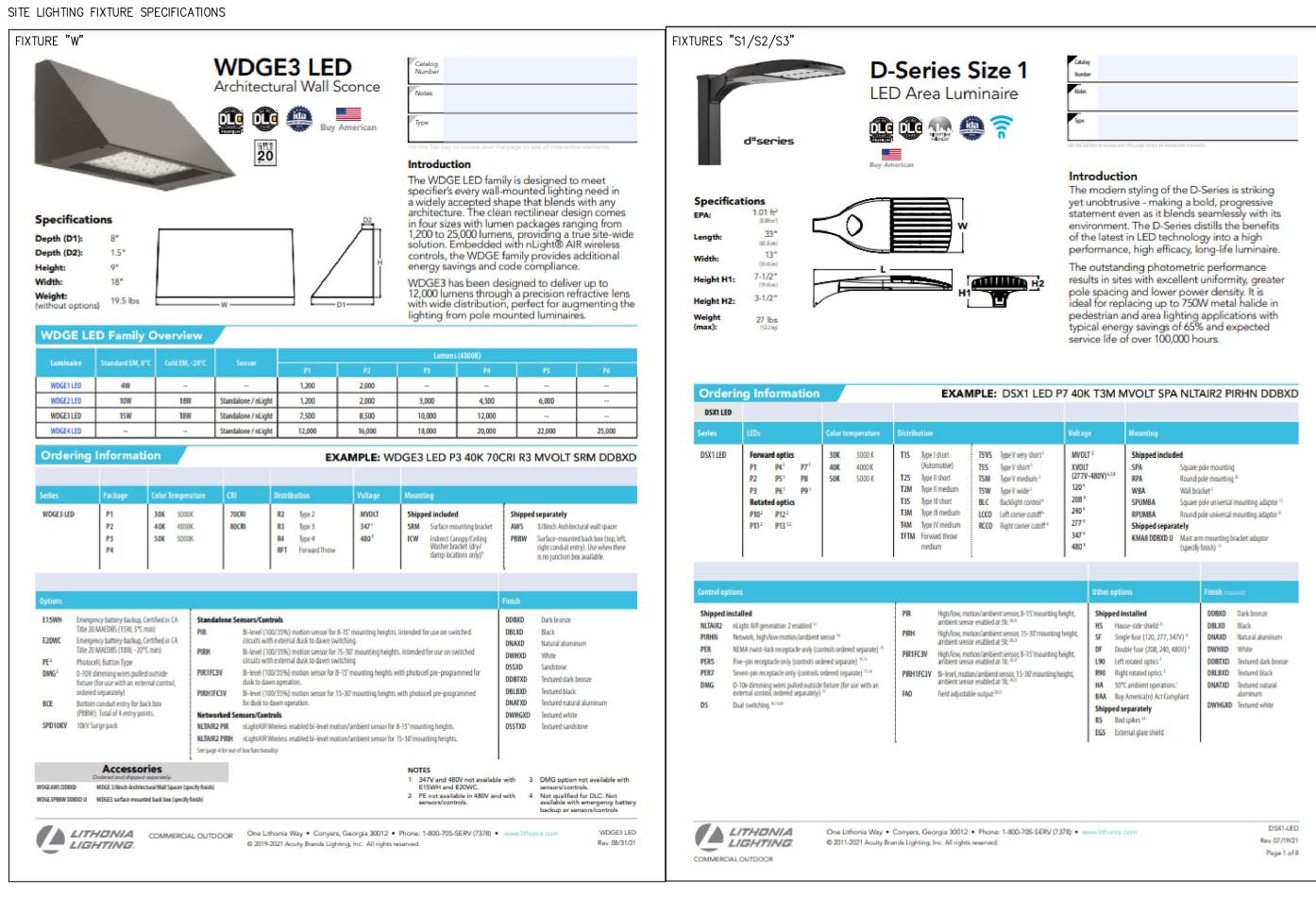
PILOT POINT ON ALL WELDED AREAS.

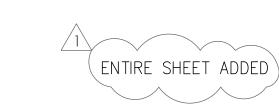
GALVANIZING.

LINE (±2%%250).

(SIDE VIEW OF TRUE HELICAL FORM)









Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36 CLIENT

DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com



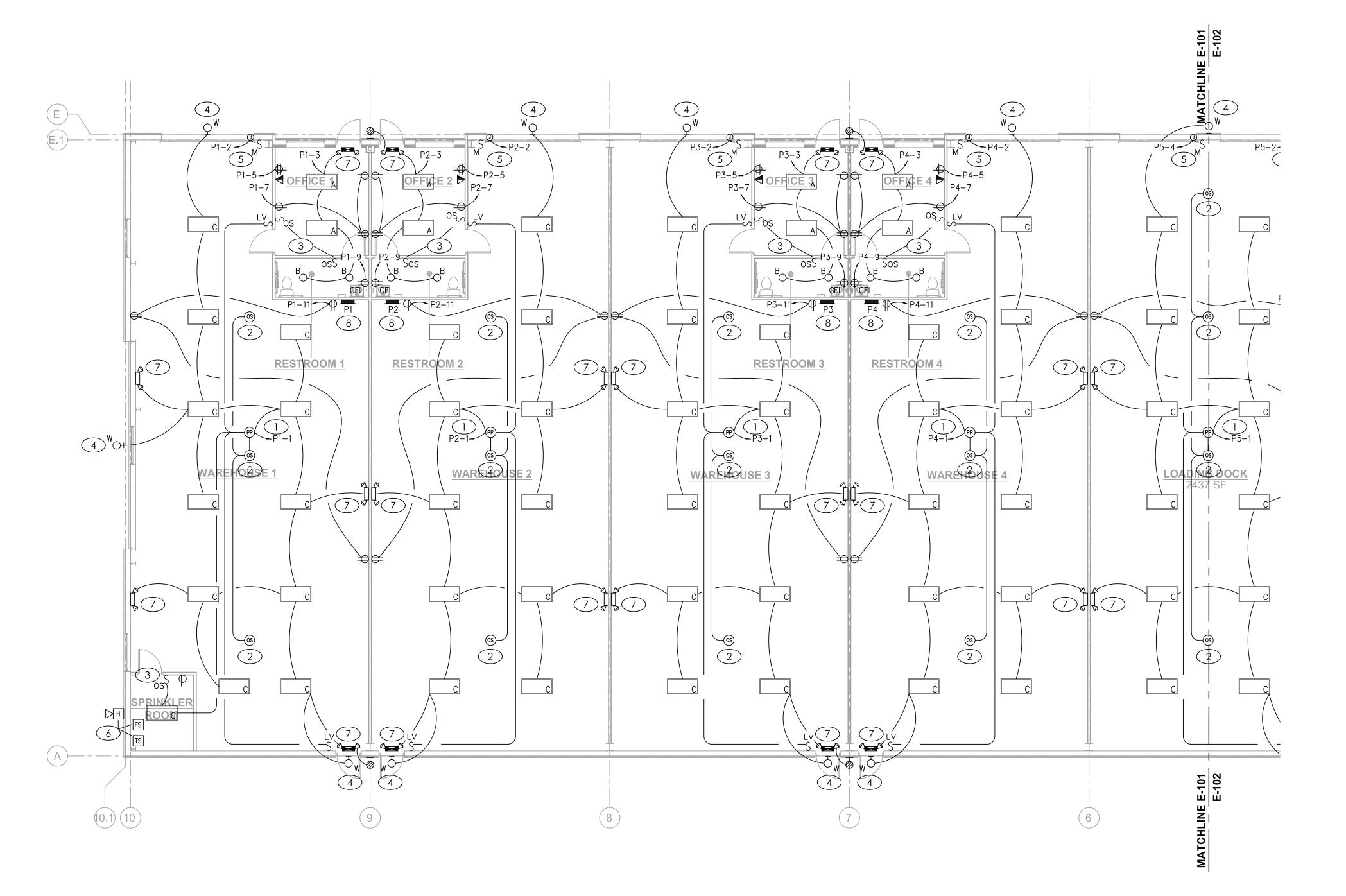
1901 NW BLUE PARKWAY, UNITY VILLAGE, MO 64065 SMOTHERS 09-24-2021

 $\Box$ 

PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

PHOTOMETRIC PLAN

PERMIT



LIGHTING AND POWER PLAN - WEST SCALE : 1/8" = 1'-0"





### GENERAL NOTES

- A. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL PLANS OR FIELD MEASUREMENTS FOR DIMENSIONS.
- B. ALL WORK SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL LOCAL BUILDING CODES AND AMENDMENTS.
- C. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.
- D. COORDINATE ALL WORK WITH OTHER TRADES AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACE AVAILABLE, AND WITHOUT INTERFERENCES.
- E. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE ELECTRICAL SYSTEMS.
- F. ALL WIRING SHALL BE IN APPROVED RACEWAY.
- G. WIRE SIZE SHALL BE MINIMUM #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET.
- H. MAXIMUM NUMBER OF UNGROUNDED WIRES IN ANY CONDUIT SHALL BE THREE. ADDITIONAL WIRES ARE ACCEPTABLE IF WIRE SIZE IS INCREASED TO ALLOW FOR DERATING PER CODE. PROVIDE ADDITIONAL WIRES FOR SWITCHING AS REQUIRED.
- I. REFER TO LIGHTING FIXTURE SCHEDULE ON E201 FOR LIGHT FIXTURE TYPES AND REQUIREMENTS.
- J. CONNECT ALL EXIT SIGNS AND EMERGENCY LIGHTING UNITS TO THE INDICATED CIRCUIT WITH A SEPARATE AND UN-SWITCHED CONDUCTOR BYPASSING ALL CONTROLS AND CONTACTORS. REFER TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PROPER INSTALLATION AND TESTING.
- K. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED HVAC EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL HVAC EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT SUBSTITUTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- L. FIRE ALARM, AUDIO/VIDEO AND SURVEILLANCE SYSTEMS BY OTHERS.
- M. PROVIDE ALL ADDITIONAL EXTRA CONDUCTORS NEEDED FOR UNSWITCHED AND SWITCH LEGS AND TRAVELERS BETWEEN SWITCHES.
- N. REFER TO NATIONAL ACCOUNT LIGHTING FIXTURE SCHEDULE ON SHEET E203 FOR LIGHTING FIXTURE INFORMATION.

### **# KEYED PLAN NOTES**

- 1. LIGHTING CONTROLS POWER PACK. SENSORWORX SWX-900 SERIES OR PRE-BID APPROVED EQUAL. PROVIDE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND NEC REQUIREMENTS.
- 2. LIGHTING CONTROLS CEILING MOUNTED OCCUPANCY SENSOR. SENSORWORX SWX-200 SERIES OR PRE-BID APPROVED EQUAL. PROVIDE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND NEC REQUIREMENTS.
- 3. OCCUPANCY SENSING WALL SWITCH. SENSORWORX SWX-100 SERIES OR PRE-BID APPROVED EQUAL. PROVIDE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND NEC REQUIREMENTS.
- 4. PHOTOCELL PROVIDED WITH FIXTURE TO CONTROL ONLY THE ASSOCIATED FIXTURE.
- 5. MAKE CONNECTION TO POWER AND CONTROLS FOR OVERHEAD COILING DOOR PER MANUFACTURER'S RECOMMENDATIONS AND NEC REQUIREMENTS.
- 6. COORDINATE CONNECTION TO SPRINKLER SYSTEM WATERFLOW AND TAMPER SWITCHES AND NOTIFICATION HORN WITH SPRINKLER SYSTEM INSTALLER PRIOR TO CONSTRUCTION. MAKE CONNECTION PER MANUFACTURER'S RECOMMENDATIONS AND NFPA REQUIREMENTS.
- 7. CONNECT EMERGENCY/EXIT LIGHT VIA UNSWITCHED HOT CONDUCTOR.
- 8. NEW 225A FRAME/200A MCB, 208Y/120V, 3¢, 4W, 42-POLE PANELBOARD. REFER TO SINGLE LINE DIAGRAM AND PANELBOARD SCHEDULES ON SHEET E-201 FOR MORE INFORMATION.



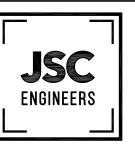


Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

CLIENT

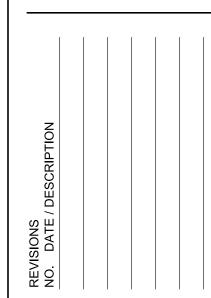
DAVID WARD WARD DEVELOPMENT 1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

MEP ENGINEER



MO COA NO. 2012006786 / KS COA NO. E-2818

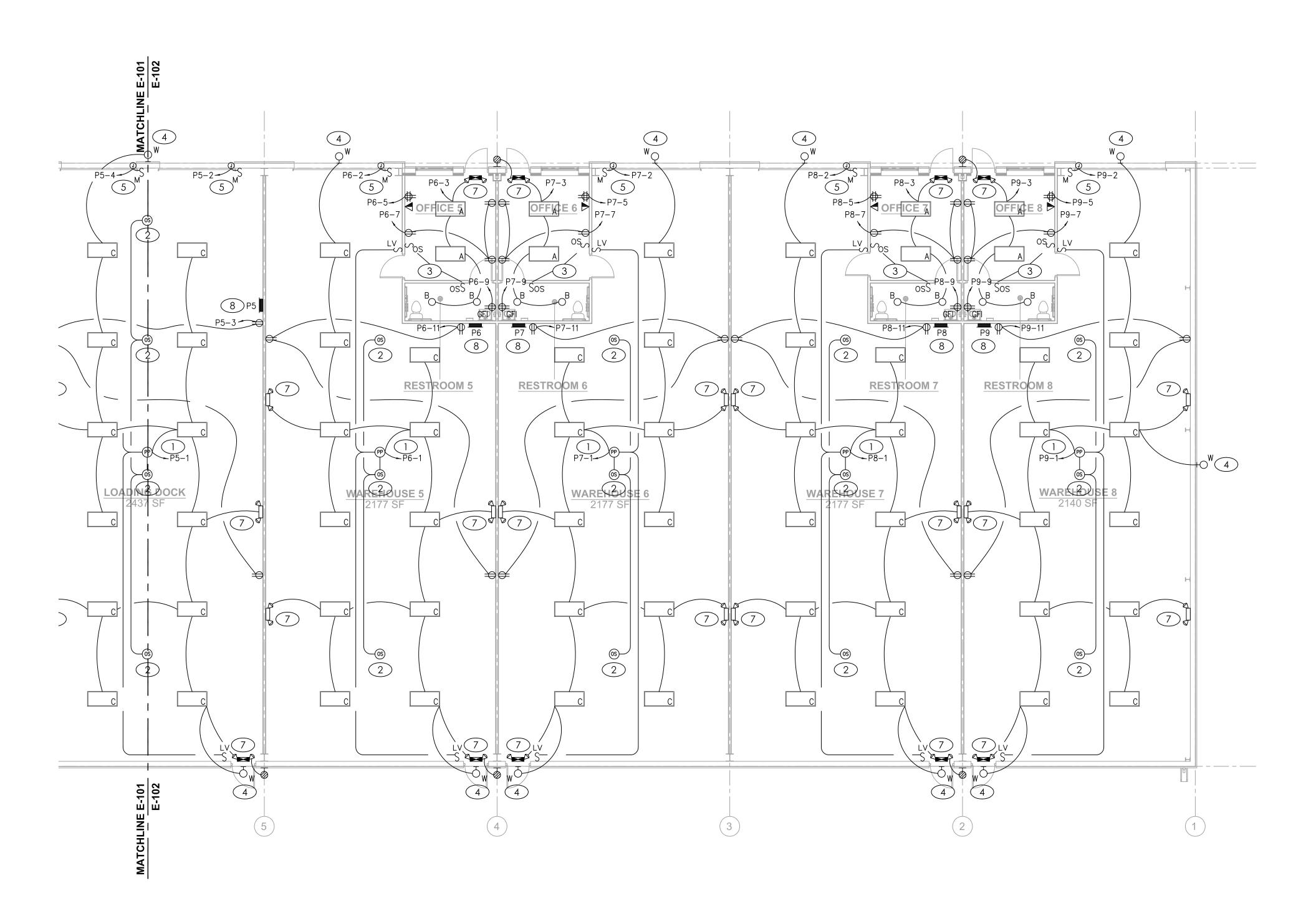




PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

> ELECTRICAL PLAN -WEST

PERMIT



LIGHTING AND POWER PLAN - EAST SCALE : 1/8" = 1'-0"



# GENERAL NOTES

- A. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL PLANS OR FIELD MEASUREMENTS FOR DIMENSIONS.
- B. ALL WORK SHALL COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70) AND ALL LOCAL BUILDING CODES AND AMENDMENTS.
- C. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.
- D. COORDINATE ALL WORK WITH OTHER TRADES AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACE AVAILABLE, AND WITHOUT INTERFERENCES.
- E. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE ELECTRICAL SYSTEMS.
- F. ALL WIRING SHALL BE IN APPROVED RACEWAY.
- G. WIRE SIZE SHALL BE MINIMUM #12 AWG, THWN SOLID COPPER UNLESS OTHERWISE NOTED. PROVIDE GROUND WIRE WHERE REQUIRED BY CODE. INCREASE WIRE SIZE TO COMPENSATE FOR VOLTAGE DROP WHERE TOTAL LENGTH OF ANY BRANCH EXCEEDS 100 FEET.
- H. MAXIMUM NUMBER OF UNGROUNDED WIRES IN ANY CONDUIT SHALL BE THREE. ADDITIONAL WIRES ARE ACCEPTABLE IF WIRE SIZE IS INCREASED TO ALLOW FOR DERATING PER CODE. PROVIDE ADDITIONAL WIRES FOR SWITCHING AS REQUIRED.
- I. REFER TO LIGHTING FIXTURE SCHEDULE ON E201 FOR LIGHT FIXTURE TYPES AND REQUIREMENTS.
- J. CONNECT ALL EXIT SIGNS AND EMERGENCY LIGHTING UNITS TO THE INDICATED CIRCUIT WITH A SEPARATE AND UN-SWITCHED CONDUCTOR BYPASSING ALL CONTROLS AND CONTACTORS. REFER TO MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PROPER INSTALLATION AND TESTING.
- K. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED HVAC EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE EXACT LOCATIONS AND ELECTRICAL REQUIREMENTS OF ALL HVAC EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT SUBSTITUTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- L. FIRE ALARM, AUDIO/VIDEO AND SURVEILLANCE SYSTEMS BY OTHERS.
- M. PROVIDE ALL ADDITIONAL EXTRA CONDUCTORS NEEDED FOR UNSWITCHED AND SWITCH LEGS AND TRAVELERS BETWEEN SWITCHES.
- N. REFER TO NATIONAL ACCOUNT LIGHTING FIXTURE SCHEDULE ON SHEET E203 FOR LIGHTING FIXTURE INFORMATION.

### **# KEYED PLAN NOTES**

- 1. LIGHTING CONTROLS POWER PACK. SENSORWORX SWX-900 SERIES OR PRE-BID APPROVED EQUAL. PROVIDE AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND NEC REQUIREMENTS.
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- 4. PHOTOCELL PROVIDED WITH FIXTURE TO CONTROL ONLY THE ASSOCIATED FIXTURE.
- 5. MAKE CONNECTION TO POWER AND CONTROLS FOR OVERHEAD COILING DOOR PER MANUFACTURER'S RECOMMENDATIONS AND NEC REQUIREMENTS.
- 6. NOT USED ON THIS SHEET.
- 7. CONNECT EMERGENCY/EXIT LIGHT VIA UNSWITCHED HOT
- 8. NEW 225A FRAME/200A MCB, 208Y/120V, 3ф, 4W, 42—POLE PANELBOARD. REFER TO SINGLE LINE DIAGRAM AND PANELBOARD SCHEDULES ON SHEET E-201 FOR MORE INFORMATION.



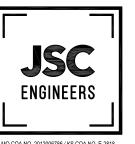


Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

CLIENT

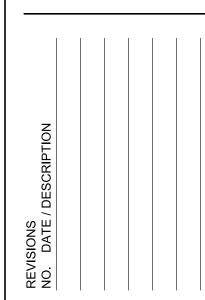
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MEP ENGINEER



MO COA NO. 2012006786 / KS COA NO. E-2818 1901 NW BLUE PARKWAY, UNITY VILLAGE, MO 64065

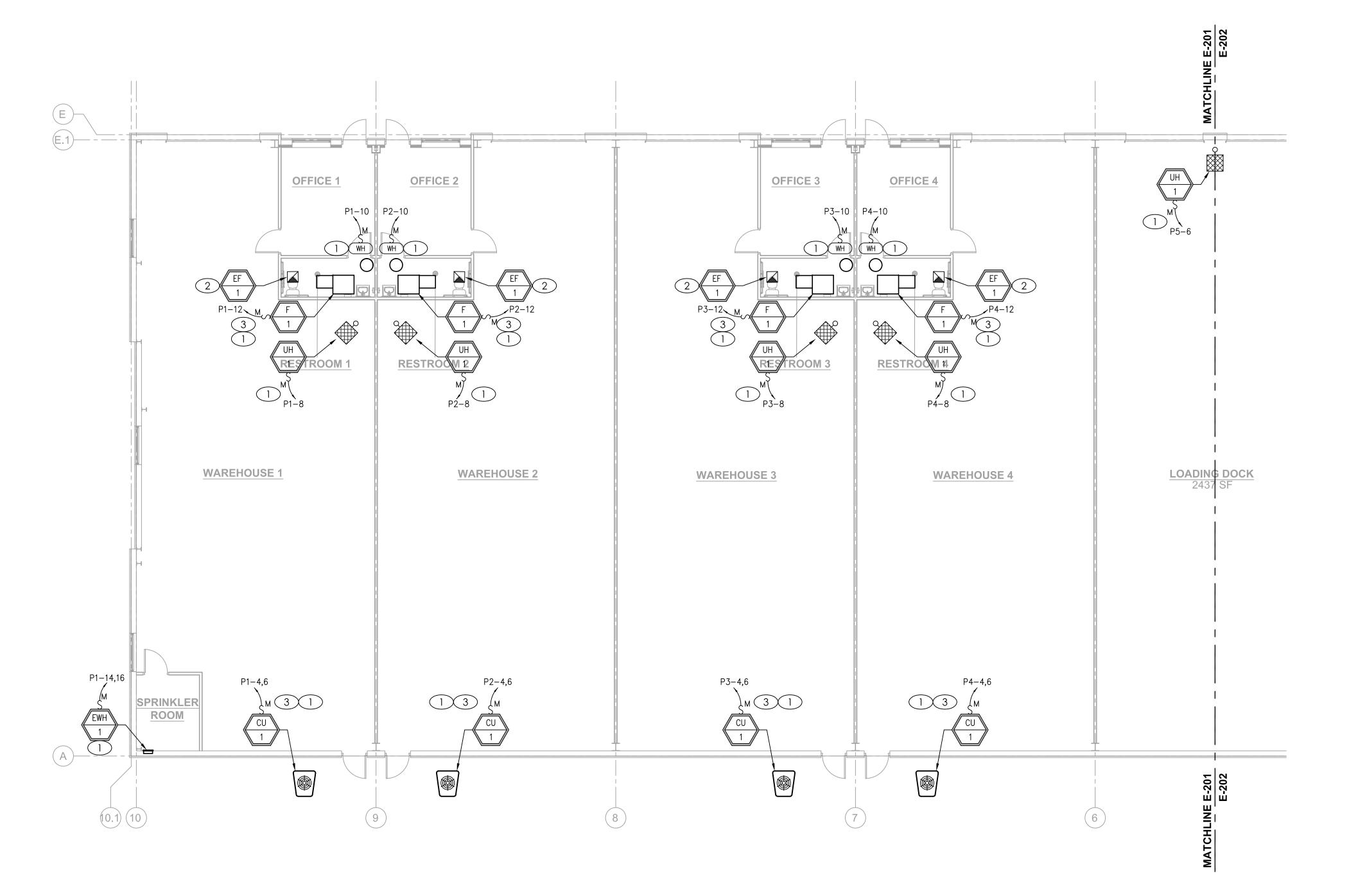




PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

ELECTRICAL PLAN -

PERMIT



**EQUIPMENT POWER PLAN - WEST** SCALE : 1/8" = 1'-0"





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- D. COORDINATE ALL WORK WITH OTHER TRADES AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACE AVAILABLE, AND WITHOUT INTERFERENCES.
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- N. REFER TO NATIONAL ACCOUNT LIGHTING FIXTURE SCHEDULE ON SHEET E203 FOR LIGHTING FIXTURE INFORMATION.

# **# KEYED PLAN NOTES**

- 1. MAKE CONNECTION TO DIV 22/23 EQUIPMENT PER MANUFACTURER'S RECOMMENDATION AND NEC REQUIREMENTS. COORDINATE WORK WITH DIVISION 22/23 CONTRACTOR PRIOR TO CONSTRUCTION.
- 2. WIRE SO THAT ON/OFF OPERATION OF EXHAUST FAN COORDINATES WITH LIGHTING IN ROOM.
- 3. MAKE CONNECTION FROM INDOOR TO OUTDOOR UNIT PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE WORK WITH DIVISION 23 CONTRACTOR.

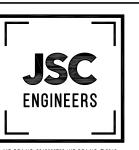


Certificates of Authority
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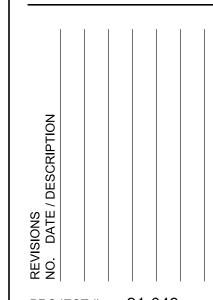
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MEP ENGINEER



MO COA NO. 2012006786 / KS COA NO. E-2818

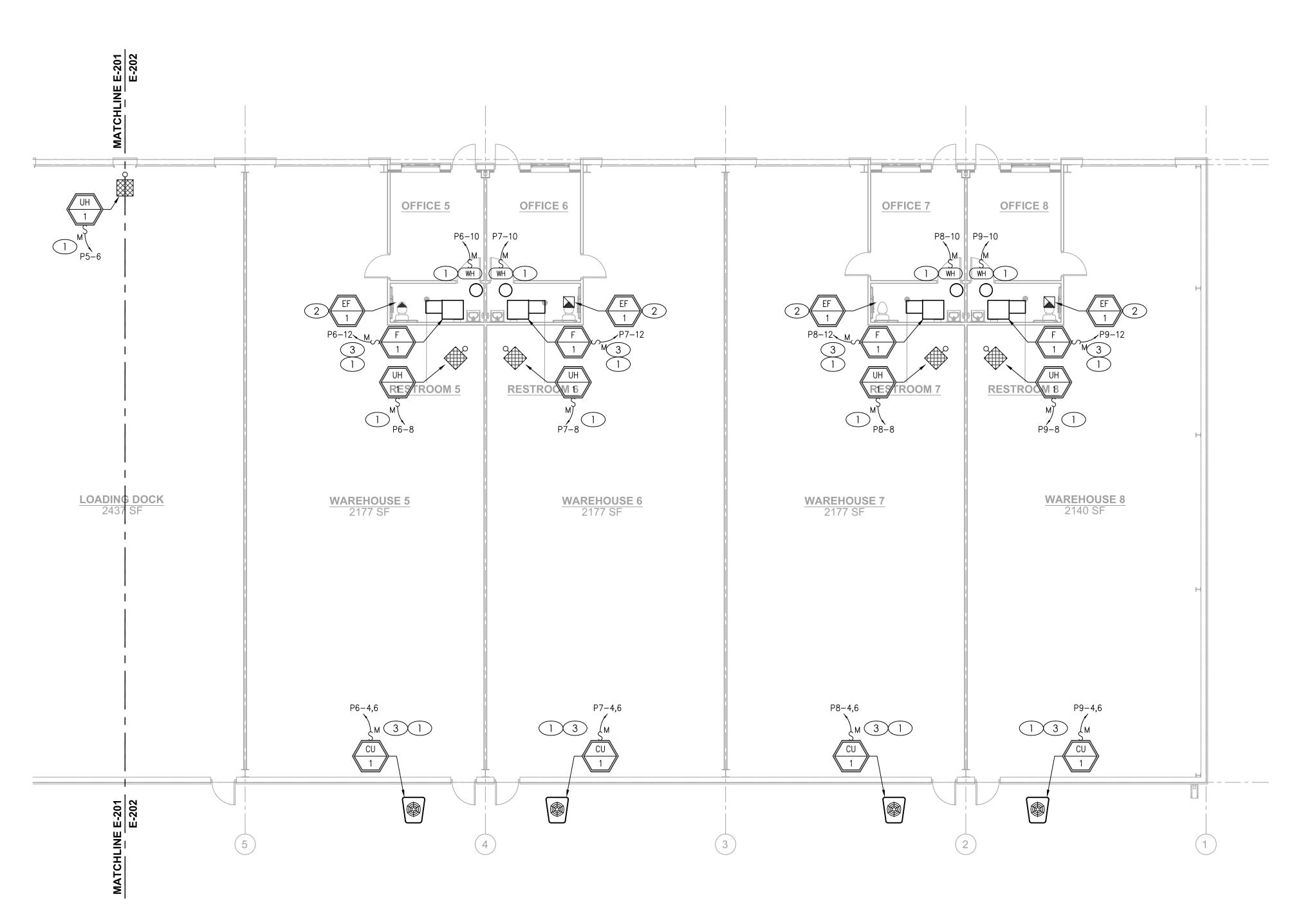




PROJECT #: 21-049 ISSUE DATE: 06/11/2021
ISSUED FOR:

PERMIT

**ELECTRICAL EQUIPMENT** POWER PLAN - WEST



POWER PLAN - EAST

 $\overline{\text{SCALE} : 1/8" = 1'-0"}$ 





### **GENERAL NOTES**

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# **# KEYED PLAN NOTES**

- 1. MAKE CONNECTION TO DIV 22/23 EQUIPMENT PER MANUFACTURER'S RECOMMENDATION AND NEC REQUIREMENTS. COORDINATE WORK WITH DIVISION 22/23 CONTRACTOR PRIOR TO CONSTRUCTION.
- 2. WIRE SO THAT ON/OFF OPERATION OF EXHAUST FAN COORDINATES WITH LIGHTING IN ROOM.
- 3. MAKE CONNECTION FROM INDOOR TO OUTDOOR UNIT PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE WORK WITH DIVISION 23 CONTRACTOR.



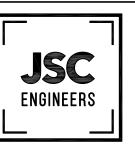


Certificates of Authority
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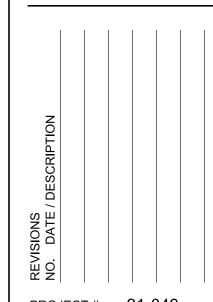
MEP ENGINEER



MO COA NO. 2012006786 / KS COA NO. E-2818



LOT 10 LAREVVOABUSINESS PARK
LOT 10 I-470 BUSINESS PA



PROJECT #: 21-049 ISSUE DATE: 06/11/2021
ISSUED FOR:

PERMIT

**ELECTRICAL EQUIPMENT** POWER PLAN - EAST

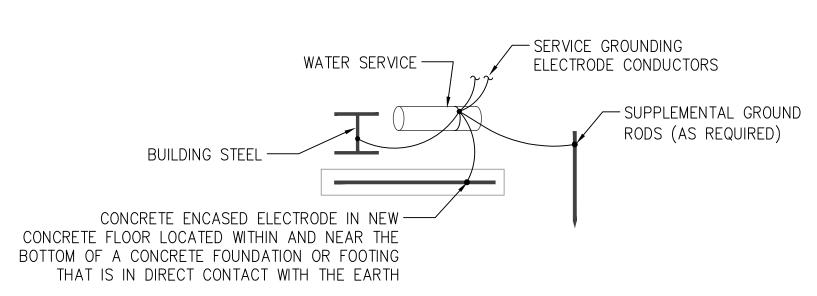
BUS MAIN VOLT	NELBOARD: P5 (NEV AMPS: 225A I SIZE/TYPE: 200A MCB TS/PHASE: 208Y/120V, 3PH, 4W TION: 1	V)			AIC R SERV	ÆS: TI NTING	B: EN/ B: SI	ANT URF	000 FUL ΓSPAC	LY RA	ICE ENTI	RANCE		LINE-SIDE LUGS: MECHA EQUIPMENT GROUNI	
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	RCPT - WAREHOUSE GEN	000	720		12	20	1	-	20	12	1,000	1,000		PWR - GARAGE DOOR 2	- 4
-	SPARE		120		12	20	1	-	20	12		1,000	600	PWR - UH-1	-
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23	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	2
25	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	20
27	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	28
29	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	30
31	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	32
33	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	34
35	PROVISIONAL SPACE						1	1						PROVISIONAL SPACE	36
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39	LTG - SITE 1	V	140	×	10	20	ĭ	1	20	10	Y	105		LTG - SITE 2	4(
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	TOTAL PHASE A - VA 1,880	LOAD		CONN. \	/A	DF		LC	DAD		C	ONN. VA	DF		
	AMPS 16	COOLIN	G			0		RE	EFRIG				1.00		
	TOTAL PHASE B - VA 1,965	HEATING	G	600		1.00		SIC	GN/DIS	SP			1.25		
	AMPS 16	LIGHTIN	IG	1,370		1.25			TCHEN				1.00		
	TOTAL PHASE C - VA 845	RECEPT		720		1.0/.5			<b>USTING</b>				1.00		
	AMPS 7	MOTOR		2,000		1.00			rg mot				1.25	TOTAL DEMAND	
	TOTAL PNLBD - VA 4,690	SUPP H				1.00			NWOH				1.25	5,033 V	
	AMPS 13	MISC EC	QUIP			1.00		LT	G TRA	CK			1.00	14	A

PANELBOARD: P1,2,3,4,6,7,8,9 (NEW)						FED FROM: SERVICE ENTRANCE AIC RATING: 42000 FULLY RATED						LINE-SIDE LUGS: MECHANICAL				
BUS AMPS: 225A MAIN SIZE/TYPE: 200A MCB							/ES: TI					IED			EQUIPMENT GROUND BUS	
	S/PHASE: 208Y/120V, ;						VES. 11 NTING		-		, <u>C</u>					
	ION: 1	3FH, 4VV					ATION:				E					
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•	RCPT - RR GFI			180		12	20	1	1	20	12		1,650		PWR - WH	
	RCPT - WAREHOUSE	GEN			720	12	20	1	1	15	12			924	PWR - F-1	
	SPARE						20	1	1	30	10	1,500			PWR - EWH-1 (PNLBD 1 ONLY)	-
	SPARE						20	1	1				1,500			
	SPARE						20	1	1	20					SPARE	
. •	SPARE						20	1	1	20					SPARE	
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35	PROVISIONAL SPACE							1	1						PROVISIONAL SPACE	
37	PROVISIONAL SPACE							1	1						PROVISIONAL SPACE	
39	PROVISIONAL SPACE							1	1						PROVISIONAL SPACE	
41	PROVISIONAL SPACE							1	1						PROVISIONAL SPACE	
	SUBTOTAL		1,391	256	1,080							3,100	5,137	2,911	SUBTOTAL	
	TOTAL PHASE A - VA	4,491	LOAD		CONN. \	/A	DF		LO	٩D		C	ONN. VA	DF		_
	AMPS	37	COOLING	G	2,772		0		RE	FRIG	***************************************			1.00	1	
	TOTAL PHASE B - VA	5,393	HEATING	3	5,250		1.00		SIG	N/DIS	SP			1.25	··[	
	AMPS	45	LIGHTIN	G	927		1.25	ľ	KIT	CHEN	J			1.00	·	
	TOTAL PHASE C - VA	3,991	RECEPT	ACLES	1,800		1.0/.5		EXI:	STINC	3			1.00	<u>"</u>	
	AMPS	33	MOTORS	3	1,924		1.00		LRO	G MOT	TOR			1.25	TOTAL DEMAND	1
	TOTAL PNLBD - VA	13,875	SUPP HE	EAT			1.00		SH	OWN	NDW			1.25	11,335 VA	l
,		MISC EQ	QUIP 1,202			1.00 LTG TRACK				1.00	31 A					

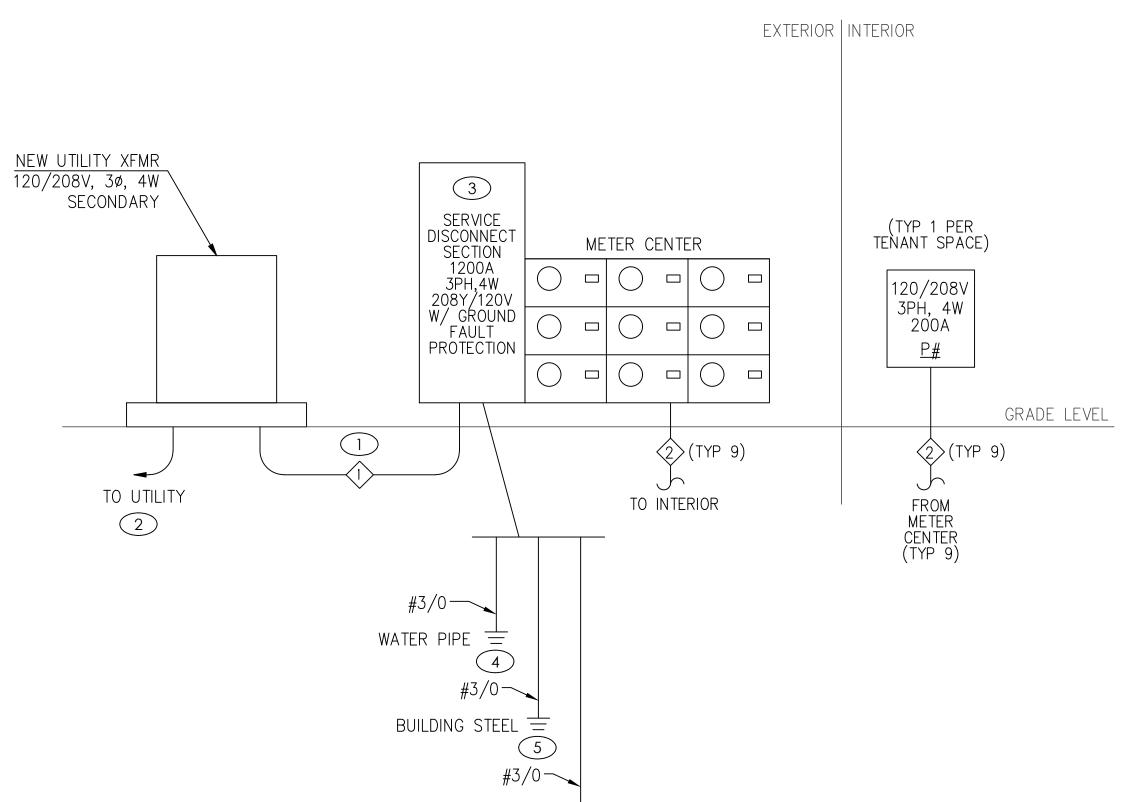
ELECTRICAL	PANEL	SCHEDULES
	. / \. \ — —	

SCALE : NO SCALE

	ELECTRICAL LIGHTING SCHEDULE (or equal, verify all selections and finishes with owner and architect prior to ordering).									
FIXTURE		MANUFACTURER	VOLT	MOUNTING		REMARKS				
TYPE	NAME	SERIES	AMPS		LAMP TYPE					
А	LITHONIA	EPANL	31	RECESSED/GRID	INCLUDED 4000K LED	LED 2'X4' FLAT PANEL - 4000LM OUTPUT HIGH EFFICIENCY	MVOLT			
В	LITHONIA	WF6	14	RECESSED	INCLUDED 2700K LED	WAFER-STYLE 6" LED DOWNLIGHT	MVOLT			
С	LITHONIA	CPHB 12LM MVOLT 40K	88	SUSPENDED	INCLUDED 4000K LED	COMPACT HIGH-BAY LED WAREHOUSE FIXTURE - 12000 LUMEN OUTPUT	MVOLT			
W	LITHONIA	WDGE3	59	WALL	INCLUDED 4000K LED	EXTERIOR WALL PACK - P2 PACKAGE - PROVIDE WITH 'PE' PHOTOCELL OPTION	MVOLT			
<b>QP</b>	LITHONIA	ELM2L-SDRT	5	SURFACE	INCLUDED LED	EMERGENCY EGRESS LIGHTING UNIT WITH 90 MIN. BATTERY PACK	120			
	LITHONIA	LHQM-LED-R-SD	5	SURFACE	INCLUDED LED	EMERGENCY EXIT EGRESS COMBO LIGHTING UNIT WITH RED FACE EXIT SIGN AND 90 MIN. BATTERY PACK	120			
<b>⊘</b> H	LITHONIA	ELA-B-T-QWP-L0309-SD	5	SURFACE	INCLUDED LED	OUTDOOR EMERGENCY REMOTE EGRESS LIGHTING UNIT	120			



# GROUNDING ELECTRODE SYSTEM DIAGRAM SCALE: NO SCALE



		\			[ GRAL	)Ł LŁVŁL
			<	2 (TYP 9)	2 (TYP 9)	
UTILITY	•		TO IN	ITERIOR	FROM METER	
					FROM METER CENTER (TYP 9)	
	Ŧ	#3/0				
	WATI	ER PIPE $\stackrel{\pm}{=}$				
	DI	#3/0— JILDING STEEL =				
	DC	5				
	CONCRETE EN	#3/0 — CASED ELECTRODE				
		(	6			

# ELECTRICAL SINGLE LINE DIAGRAM

SCALE : NO SCALE

	FEEDER SCHEDULE							
FEEDER NUMBER	CONDUIT AND CONDUCTOR SIZES							
1>	(4) 4" EA W/ 4 #500KCM AL							
2>	(1) 2" W/ 4 #3/0 CU & #6 CU GND							
THE DECION DECESSIONAL HAS DEDECTIVED AND THE DECINDED								

THE DESIGN PROFESSIONAL HAS PERFORMED ALL THE REQUIRED VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS AND FEEDERS PER THE NATIONAL ELECTRICAL CODE, ARTICLE 210.19(A)(1) FPN NO. 4.

THE DESIGN PROFESSIONAL HAS PERFORMED ALL THE REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATING INDICATED FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.

# **# KEYED SLD NOTES**

- 1. PROVIDE NEW CONDUCTORS TO UTILITY SOURCE. VERIFY EXACT LOCATION AND REQUIREMENTS WITH UTILITY PRIOR TO ROUGH-IN.
- 2. CONTRACTOR TO PROVIDE AND INSTALL TWO 4" PVC CONDUITS FOR SERVICE PRIMARY TO LOCATION DETERMINED BY UTILITY.
- 3. NEW DISCONNECT WITH GROUND FAULT PROTECTION PER UTILITY REQUIREMENTS.
- 4. PROVIDE NEW GROUND PER NEC 250.52(A)(1).
- 5. PROVIDE NEW GROUND PER NEC 250.52(A)(2).
- 6. PROVIDE NEW GROUND PER NEC 250.52(A)(3).

Certificates of Authority
Architecture: MO 310 / KS 73 Engineering: MO 4 / KS 241 Land Surveying: MO 123 / KS 36

CLIENT DAVID WARD WARD DEVELOPMENT

1120 EAGLE RIDGE BLVD GRAIN VALLEY, MO 64029 david@safetyministorage.com

MEP ENGINEER

ENGINEERS



BUSINESS LOT 10 I-470 BUS LEE'S SUMMIT, N

PROJECT #: 21-049 ISSUE DATE: 06/11/2021 ISSUED FOR:

PERMIT

ELECTRICAL SCHEDULES AND DIAGRAMS