VICINITY MAP

G101 - LIFE SAFETY PLAN

C101 - DEMOLITION PLAN

C300 - GRADING PLAN

C400 - DRAINAGE PLAN

C500 - SITE UTILITY PLAN

C700 - LANDSCAPE PLAN

C800 - SITE DETAILS

C801 - SITE DETAILS

C802 - SITE DETAILS

C803 - SITE DETAILS C804 - SITE DETAILS

C805 - SITE DETAILS

S001 - STRUCTURAL NOTES

S401 - STRUCTURAL SECTIONS

A001 - ARCHITECTURAL GENERAL NOTES

S100 - FOUNDATION PLAN

A010 - INTERIOR TYPES

C000 - TITLE SHEET

21102 - LiUNA LOCAL 120 - COVER

TOPO - TOPOGRAPHIC SURVEY

ALTA - ALTA_NSPS LAND TITLE SURVEY

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C201 - SITE LAYOUT PLAN - WEST

C202 - SITE LAYOUT PLAN - EAST

C401 - STORM SEWER PROFILES C402 - STORM SEWER PROFILES

C806 - STORM SEWER SPECIFICATIONS

C807 - STORM SEWER SPECIFICATIONS

C808 - SANITARY SEWER SPECIFICATIONS

C902 - STORMWATER POLLUTION PREVENTION PLAN NOTES

C904 - STORMWATER POLLUTION PREVENTION DETAILS

S400 - TYPICAL FOUNDATION SECTIONS AND DETAILS

C903 - STORMWATER POLLUTION PREVENTION PLAN DETAILS

C301 - GRADING PLAN - WEST

C302 - GRADING PLAN - EAST

A111 - DIMENSION PLAN A121 - FLOOR PLAN A131 - EQUIPMENT PLAN

A141 - REFLECTED CEILING PLAN A142 - CLERESTORY BRACING PLAN

A151 - INTERIOR FINISH PLAN A152 - ROOM FINISH SCHEDULE AND INTERIOR FINISH LEGEND P700 - SANITARY RISER DIAGRAM

E101 - ELECTRICAL SITE PLAN

P701 - DOMESTIC WATER RISER DIAGRAM

P800 - PLUMBING SCHEDULES AND DETAILS

E001 - ELECTRICAL SYMBOLS & ABBREVIATIONS

E201 - FIRST FLOOR ELECTRICAL LIGHTING PLAN

E302 - ROOF ELECTRICAL POWER & SYSTEMS PLAN

E301A - FIRST FLOOR MECHANICAL EQUIPMENT POWER AND SYSTEMS PLAN

E301 - FIRST FLOOR POWER & SYSTEMS PLAN

E701 - ELECTRICAL ONELINE RISER DIAGRAM

P702 - NATURAL GAS RISER DIAGRAM

E601 - ENLARGED ELECTRICAL PLANS

E702 - ELECTRICAL SCHEMATICS

E801 - ELECTRICAL SCHEDULES

E802 - ELECTRICAL SCHEDULES

E901 - ELECTRICAL DETAILS

E902 - ELECTRICAL DETAILS

A161 - ROOF PLAN A201 - EXTERIOR ELEVATIONS

A201A - ENTRANCE GLAZING DIAGRAM A301 - BUILDING SECTIONS A310 - WALL SECTIONS

A401 - INTERIOR ELEVATIONS A402 - INTERIOR ELEVATIONS A403 - INTERIOR ELEVATIONS A403a - INTERIOR ELEVATIONS

A350 - SECTION DETAILS

A404 - INTERIOR SIGNAGE DETAILS A405 - CASEWORK MILLWORK INTERIOR DETAILS

A451 - CASEWORK DETAILS A501 - ENLARGED PLANS A510 - PLAN DETAILS

A601 - OPENING TYPES AND SCHEDULES

A602 - OPENING DETAILS A603 - DOOR DETAILS

A910 - SHADED EXTERIOR ELEVATIONS C900 - TEMPORARY STORMWATER POLLUTION PREVENTION PLAN

C901 - PERMANENT STORMWATER POLLUTION PREVENTION PLAN H001 - HVAC SYMBOLS AND ABBREVIATIONS H201 - FIRST FLOOR HVAC PLAN

> H202 - ROOF HVAC PLAN H301 - FIRST FLOOR HVAC PIPING PLAN

H302 - ROOF HVAC PIPING PLAN

H801 - HVAC SCHEDULES

H901 - HVAC DETAILS P001 - PLUMBING SYMBOLS & ABBREVIATIONS

P200 - FOUNDATION PLUMBING PLAN

P201 - FIRST FLOOR PLUMBING PLAN P202 - ROOF PLUMBING PLAN

P600 - ENLARGED PLUMBING PLANS

201 N. Delaware Street, Suite B

317.951.9192 T | 317.951.9194 F www.arcdesign.us

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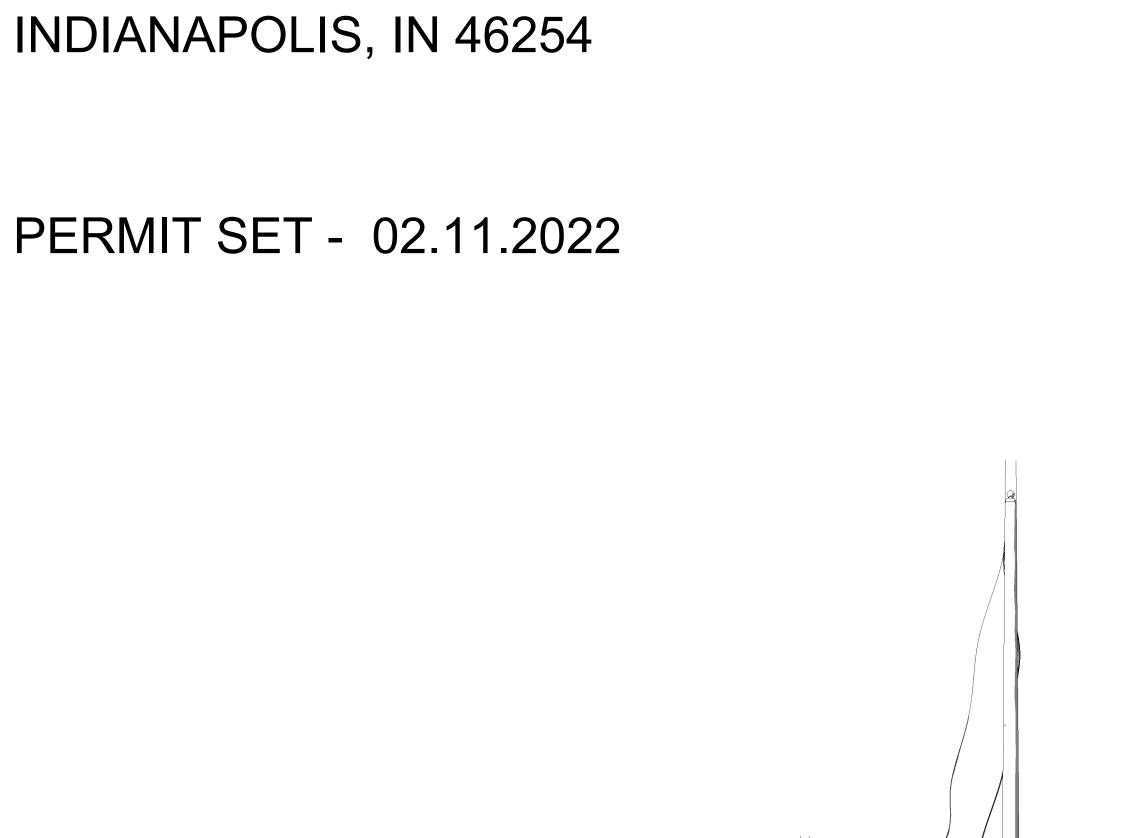
Indianapolis, IN 46204

PERMIT SET

arcDESIGN PROJECT NUMBER:

LOCAL UNION #120

5430 LAFAYETTE RD. INDIANAPOLIS, IN 46254



Civil & Environmental Consultants, Inc.

Civil & Environmental Consultants, Inc. 530 E. Ohio St. Suite G Indianapolis, IN 46204 Telephone: 317.655.7777 Fax: 317.655.7778

STRUCTURAL

Lynch, Harrison, and Brumleve, Inc. 550 Virginia Ave. Indianapolis, IN 46203 Telephone: 317.423.1150 Fax: 317.423.1551

ARCHITECT



201 N. Delaware St. Indianapolis, IN 46204 Telephone: 317.951.9192 Fax: 317.951.9194

www.arcdesign.us

GENESIS **Genesis Engineering Group** 91 S. Main Street, Suite 200

MECHANICAL,

ELECTRICAL

PLUMBING,

TECHNOLOGY

Zionsville, IN 46077 Telephone: 317.927.8307 www.genesis-engineering.com LANDSCAPE



www.arcdesign.us

www.lhb-eng.com

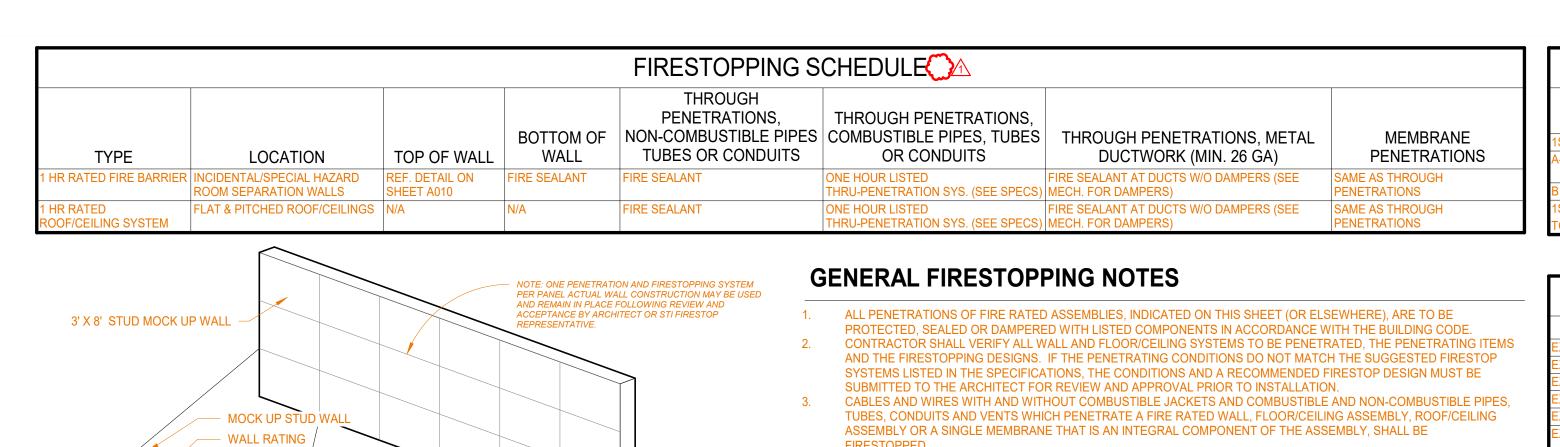


GENERAL

CONTRACTOR

HANNIG CONSTRUCTION, INC. 815 Swan Street Terre Haute, IN 47807 Telephone: 812.235.6218 Fax: 812.235.1218

02.11.2022 www.hannigconstruction.com 21102



0

OPENINGS FOR STEEL ELECTRICAL OUTLET BOXES THAT DO NOT EXCEED 16 SQ. IN. ARE PERMITTED. LARGER OUTLET BOXES THAT HAVE BEEN TESTED AND LABELED FOR USE IN THE FIRE RATED ASSEMBLE ARE ALSO

OUTLET BOXES ON OPPOSITE SIDES OF A RATED WALL ASSEMBLY SHALL BE SEPARATED BY A HORIZONTAL

6. CABLES, WIRES, CONDUITS, TUBES AND PIPES THAT PENETRATE A FLOOR/CEILING OR ROOF/CEILING ASSEMBLY

IN DIRECT CONTACT WITH COMBUSTIBLE MATERIALS.

SIDES UNLESS OTHERWISE INDICATED.

DISTANCE OF 24 INCHES UNLESS THE OUTLET BOXES ARE TESTED AND LABELED FOR USE IN THE FIRE RATED

SHALL HAVE AN "F" AND "T" RATING NOT LESS THAN THE ASSEMBLY PENETRATED. "T" RATINGS ARE NOT REQUIRED

WHERE PENETRATIONS ARE CONTAINED WITHIN A CHASE WALL OR WHERE PIPES, TUBES AND CONDUITS ARE NOT

WHERE INDICATED IN THE FIRESTOPPING SCHEDULE TOP OF WALL AND BOTTOM OF WALL JOINTS TO BE ON BOTH

- 5/8" TYPE X GYPSUM BOARD

LISTED FIRE STOPPING SYSTEM

ITEM TYPE, MATERIAL, & SIZE

OR RANGE OF SIZES

PENETRATING ITEM

FIRESTOPPING PENETRATION MOCKUP PANEL

MECHANICAL

y y o o o o o o d ba d ba ola ala ala ala ala ala bidio bidio bidio d ba d ba d ba d ba ola ala ala ala o o o d

II o o o d d u o d a o la a

LISTED SYSTEM NO. FROM

MFG.& REQUIRED ID TAG

| | | | REQ'D EXIT WIDTH | | | | | |
|-----------------|-----------|------------------------------|------------------|-----|------------|-------------|-------------|------------|
| NAME | AREA | FUNCTION | TYPE | OLF | CALC. LOAD | ANTIC. LOAD | STAIRS * .3 | OTHER * .2 |
| 1ST FLOOR | • | | | | | | | |
| A-3 | 8,009 SF | ASSEMBLY - UNCONCENTRATED | NET | 15 | 534 | 400 | 160 1/4" | 106 3/4" |
| В | 11,078 SF | BUSINESS AREAS | GROSS | 100 | 111 | 111 | 33 1/4" | 22 1/4" |
| 1ST FLOOR | 19,087 SF | 1 | | | | 511 | 193 1/2" | 129" |
| TOTAL BUILDING: | 19,087 SF | | | | | 511 | 193 1/2" | 129" |

| TYPE | DOOR NO. | EXIT WIDTH | EXIT FACTOR | CAPACITY |
|--------------------------|----------|------------|-------------|----------|
| EXTERIOR DOORS (PAIR) | 133a | 69" | 0.2 | 345 |
| EXTERIOR DOORS (PAIR) | 101a | 69" | 0.2 | 345 |
| EXTERIOR DOORS (PAIR) | 135a | 69" | 0.2 | 345 |
| EXTERIOR DOORS (PAIR) | 135b | 69" | 0.2 | 345 |
| EXTERIOR DOORS (PAIR) | 006 | 34" | 0.2 | 170 |
| EXTERIOR DOORS (PAIR): 5 | | 310" | | 1550 |
| | | | | |
| NTERIOR DOOR | 004 | 34" | 0.2 | 170 |
| NTERIOR DOOR | 002 | 34" | 0.2 | 170 |
| NTERIOR DOOR: 2 | | 68" | | 340 |
| | | | | |
| NTERIOR DOORS (PAIR) | 133b | 69" | 0.2 | 345 |
| NTERIOR DOORS (PAIR) | 001a | 69" | 0.2 | 345 |
| NTERIOR DOORS (PAIR) | 101b | 69" | 0.2 | 345 |
| NTERIOR DOORS (PAIR): 3 | | 207" | | 1035 |
| | | 585" | | 2925 |

| | * .3 OTHER * .2 EXIST. NEW 106 3/4" 1 HR FIRE BARRIER 22 1/4" 1 129" 2 HR FIRE BARRIER 2 HR FIRE BARRIER | di C DESIGN | |
|-----------------------|---|-----------------------------|--|
| REQ'D EXIT WIDTH | SYMBOL / LINETYPE | DECODIDATION | architecture + interiors |
| TAIRS * .3 OTHER * .2 | EXIST. NEW | DESCRIPTION | 201 N. Delaware Street, Suite B |
| 160 1/4" 106 3/4" | | 1 HR FIRE BARRIER | Indianapolis, IN 46204 |
| | | 1 HR FIRE / SMOKE BARRIER | 317.951.9192 T 317.951.9194 F |
| | | 2 HR FIRE BARRIER | www.arcdesign.us |
| | | 2 HR FIRE / SMOKE BARRIER | |
| | | SMOKE PARTITION (NON RATED) | This drawing and its contents are the property of arcDESIGN P.C., and shall not be |
| | | NON RATED WALL | reproduced in whole or in part by any means, |
| | | SMOKE COMPARTMENT WALL | mechanical or electronic, without express written permission of arcDESIGN. |
| CAPACITY | *************************************** | SUITE BOUNDARY WALL | ©2022 arcDESIGN, PC |
| 345 | · · | PLAN HATCHES | |
| 345 345 | EXIT CORF | RIDOR + + + + + SUITE | 112 HANNIG |
| | | | |

COMMON PATH OF TRAVEL DISTANCE

FIRE EXTINGUISHER - WALL MOUNTED

FIRE EXTINGUISHER CABINET

FIRE ALARM PANEL EMERGENCY KEY BOX

SMOKE COMPARTMENT TRAVEL DISTANCE

FIRE EXTINGUISHER CABINET W/ HOSE CONNECTION

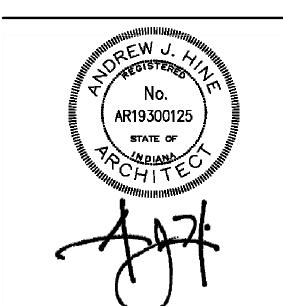
EXIT DOOR

EXIT ACCESS TRAVEL DISTANCE

FEC

FAP

| PLAN HATCHES | | |
|----------------|--------|-----------------|
| EXIT CORRIDOR | TE | HANNIC |
| EXIT ENCLOSURE | SEMBLY | CONSTRUCTION IN |
| SYMBOLS | | |



NOTE: SUFFICE READING 'EX' AFTER ANY SYMBOL INDICATED IS AN EXISTING DEVICE TO REMAIN NOTE: DOORS MARKED WITH THE "EXIT" INDICATOR SHALL HAVE AN ADA COMPLIANT EXIT SIGN ADJACENT TO THE EXIT DOOR. SEE ACCESSIBLE SIGN DETAIL. SEE ELECTRICAL DOCUMENTS FOR LOCATIONS OF ILLUMINATED EXIT SIGNS.

NOTE: ALL NEW FIRE/SMOKE RATED WALLS TO BE PERMANENTLY IDENTIFIED WITH SIGNS OR STENCILING IDENTIFYING THE SPECIFIC WALL RATING. IDENTIFICATION SHALL BE LOCATED ABOVE SUSPENDED CEILING SYSTEMS, WITHING 15 FEET OF THE END OF EACH WALL AND AT INTERVALS NOT EXCEEDING 30 FEET ALONG THE WALL, AND INCLUDE LETTERING NOT LESS THAN 3" IN HEIGHT WITH A MINIMUM 3/8 INCH STROKE IN A CONTRASTING COLOR.



| | Project Description: |
|--|--|
| | New corporate office building and site. The office building will include spaces for meetings, training, an |
| | administrative functions for Union Members. |

Project Location: 5440 Lafayette Rd. Indianapolis, Indiana **Future Tenant:**

Laborers International Union of North America Local Union 120.

Construction of a new corporate office building and site.

LiUNA Local 120, Mr. James "Ward" Daniels, Business Manager 1520 East Riverside Drive Indianapolis, Indiana, 46202 Phone: (317) 634-8551, Email: HYPERLINK "mailto:laborers120@laborers120.com" laborers120

State of Indiana, Department of Homeland Security, Office of Fire and Building Services

City of Indianapolis, Department of Business and Neighborhood Services

2014 Indiana Building Code (IBC, 2012 Edition, as amended)

2014 Indiana Fire Code (International Fire Code, 2012 Edition, as amended). NFPA 72 - National Fire Alarm Code

NFPA 101 - Life Safety Code 2014 Indiana Mechanical Code (International Mechanical Code, 2012 Edition, as amended)/

2010 Indiana Energy Čode (Energy Standard for Buildings Except Low-Rise Residential Buildings ANSI/ASHRAE 90.1, 2007 Edition, as amended). 2009 Indiana Electrical Code (NFPA 70 – National Electrical Code, 2008 Edition, as amended).

B – Office, A3 - Assembly

Applicable No. of Stories: 1 Story

Type IIB (Steel-Framed, Non-Combustible, Non-Protected)

Approximately 19,000 SF

Table 503 – Type IIB, B Occupancy: 3 Stories, 23,000 SF per story. Table 503 – Type IIB, A3 Occupancy: 2 Stories, 9,500 SF per story.

Allowable Area: 506.1 - Frontage + Sprinkler = 45,125 SF

506.2 – Frontage Increase: 75% or 16,625 SF 506.3 - Sprinkler Increase: 300% or 28,500 SF

To Be Determined per Chapter 10 Occupancy Load Factors by Room Use.

Egress Travel Distance:

Table 1014.3 – Common Path of Egress Travel: 100 LF. Table 1016.2 – Increase with sprinkler: 300 LF. Table 1018.2 – Minimum Corridor Width: 44 inches 1018.4 – Dead Ends Limited to 50 feet. 1018.5.1 - Return Air Plenum Permitted

Table 1015.1 – One Exit for Occupant Load of 49 or less. 2 Exits required for Assembly use for Occupant 1008.1.2 – Doors shall swing in the direction of egress where serving a Room or Area containing an Occupant Load of 50 or more persons.

1008.1.10 – Panic and Fire Exit Hardware. Doors serving Rooms or Spaces with an Occupant Load of 50 or more in a Group A or E Occupancy shall not be provided with a latch or lock unless it is Panic Hardware or Fire Exit Hardware.

Allowable area is achieved by an Automatic Fire Suppression System (Sprinklers) designed in compliance with NFPA 13.

1018.1 – No corridor fire resistance required with sprinkler. No fire resistance rating required between Assembly and Office Room or Area uses due to no-separated use classification of the building as Assembly A3.

Not required in walls with no fire-resistance rating requirement.

General: The building will utilize a pre-engineered metal building system (Metal Building) and is planned to comply with the minimum requirements for thermal performance prescribed by the Code.

Energy Code: 2010 Indiana Energy Code / ASHRAE 90.1 (2007) Standard Location: Indianapolis, Indiana Zone 5a (Table B1)

Building Classifications: Nonresidential, Metal Building

arcDESIGN PROJECT NUMBER

21102

DRAWN BY:

DRAWING TITLE:

PERMIT SET

1 01.07.2022 Addendum 1: Bid Set

REVISIONS:

LIFE SAFETY Minimum Requirements for Opaque Elements, Table 5.5.5: Roofs: U-0.065, R-19.0 (No requirement for c.i.) Walls, Above-Grade: U-0.113, R-13.0 (No requirement for c.i.) **PLAN** Walls, Below-Grade: Not Applicable. Slab-On-Grade Floors: Unheated, Insulation Minimum R-Value-NR (No Requirement) Opaque Doors: Swinging: U-0.700 Non-Swinging: U-0.500 Vertical Glazing: Metal Framed Curtain/Storefront Walls: U-0.45, SHGC-0.40 Metal Framed Entrance Doors: U-0.80, SHGC-0.40 Climactic Design Criteria **▲** LIFE SAFETY PLAN - FIRST FLOOR US and US Territory Climatic Date (Table D-1) for Indianapolis, Indiana DRAWING NUMBER: 1/8" = 1'-0" REF: 1C / A101 NORTH Heating Design Temperature: -3 degrees F Cooling Design Temperature: Dry-Bulb: 88 degrees F Wet Bulb: 74 degrees F

PATH OF TRAVEL: 137' —

LIUNA LOCAL 120 OFFICE BUILDING

5430 LAFAYETTE ROAD, INDIANAPOLIS, IN 46254

PERMIT SET DECEMBER 21, 2021



VICINITY MAP



LOCATION MAP MARION COUNTY, INDIANA

UNLESS OTHERWISE NOTED, ELEVATIONS SHOWN HEREON ARE BASED UPON AN OPUS SOLUTION AND ARE ON THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88). IT IS MY OPINION THAT THE UNCERTAINTY IN THE ELEVATION OF THE PROJECT BENCHMARK DOES NOT EXCEED 0.10 FOOT.

TBM#1: CUT "X" ON THE NORTHWEST BOLT OF TRAFFIC POLE BASE, LOCATED ON THE WEST SIDE OF LAFAYETTE RD. APPROXIMATELY 115 NORTH OF THE SOUTHWEST CORNER OF THE SITE.

TBM#2: CUT SQUARE ON THE BACK OF A CURB LOCATED ON THE WEST SIDE OF LAFAYETTE RD APPROXIMATELY 125 NORTH OF THE NORTHEAST CORNER OF THE

TBM#3: CUT SQUARE ON THE SOUTHEAST CORNER OF A FLAGPOLE BASE, LOCATED ON THE NORTH END OF THE SITE ELEV. = 805.93

UTILITY NOTE:

BENCHMARKS:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. INDIANA 811 ONE—CALL PUBLIC UTILITY LOCATE SERVICE TICKET NUMBERS 2103244667 AND 2103244762 WERE ISSUED FOR THIS SITE.

PRIOR TO ANY EXCAVATION FOR UNDERGROUND UTILITIES, THE CONTRACTOR SHALL EXPOSE AND VERIFY LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO GAS, WATER, AND SANITARY SEWER. ANY CONFLICTS SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER AND THE APPROPRIATE AUTHORITIES.

CITY OF INDIANAPOLIS CODE COMPLIANCE **DEPARTMENT OF BUSINESS AND NEIGHBORHOOD SERVICES** 1200 MADISON AVE., SUITE 100 **INDIANAPOLIS, IN 46225**

PH: (317) 327-8700

PROJECT LOCATION

REFERENCE

TOPOGRAPHIC SURVEY COMPLETED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.; PROJECT NUMBER: 310-295, DATED: SEPTEMBER 28, 2021.

CONSULTANT TEAM:

OWNER/DEVELOPER

LIUNA LOCAL 120 1520 E. RIVERSIDE DR. **INDIANAPOLIS, IN 46202** PH: (317) 634-8551 CONTACT: WARD DANIELS. **BUSINESS MANAGER** EMAIL: wdaniels@laborers120.com

ARCHITECT

ARC DESIGN 201 N. DELAWARE ST, STE. B INDIANAPOLIS, IN 46204 PH: (317) 951-9192 **CONTACT: GREG MILLER** EMAIL: GMILLER@ARCDESIGN.US CONTACT: AARON HURT

CIVIL ENGINEER

CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 530 E. OHIO STREET, SUITE G INDIANAPOLIS, IN 46204 PH: (317) 655-7777

ZAYO BANDWIDTH JEFF KENNELLY

ATT DISTRIBUTION SCOTT EICKMAN

se7939@att.com

PROPERTY SOLUTION EXECUTIVE

Jeff.kennelly@mybrighthouse.com

MANAGER PLANNING & ENGINEERING

3030 ROOSEVELT AVENUE INDIANAPOLIS, IN 46218

PHONE: 317-713-3899

PHONE: 317-252-4223

317-525-1660 (CELL)

SURVEYOR

CIVIL & ENVIRONMENTAL CONSULTANTS, INC. 530 E. OHIO STREET, SUITE G INDIANAPOLIS, IN 46204 PH: (317) 655-7777 **CONTACT: ANTHONY SYERS**

UTILITY CONTACTS:

AES INDIANA MARSHALL FRANKLIN 1230 WEST MORRIS STREET INDIANAPOLIS, IN 46221 PHONE: 317-261-5698 317-437-0280 (CELL) marshall.franklin@AES.com

CITIZENS GAS RICH MILLER 2020 NORTH MERIDIAN STREET INDIANAPOLIS, IN 46204 PHONE: 317-927-4684

CITIZENS ENERGY GROUP RICH NEWELL 2020 NORTH MERIDIAN STREET INDIANAPOLIS, IN 46204 PHONE: 317-927-4377

CITIZENS ENERGY GROUP CWA AUTHORITY, INC. 2150 DR. MARTIN LUTHER KING JR. ST. INDIANAPOLIS, IN 46202 PHONE: 317-927-4351

INFRASTRUCTURE: CITY OF INDIANAPOLIS PROJECT COMPLIANCE ANALYST 1200 MADISON AVENUE, SUITE 100 INDIANAPOLIS, INDIANA 46225 317-327-4952 jmeid@indygov.org

TELEPHONE / FIBER / CABLE: INTELLIGENT FIBER NETWORK 400 INTERNATION PKWY. RICHARDSON, TX 75081

22

23

25

29

Sheet

Number

Sheet List Table

Sheet Title

TITLE SHEET

ALTA SURVEY

TOPOGRAPHIC SURVEY

DEMOLITION PLAN

SITE LAYOUT PLAN

SITE LAYOUT PLAN - WEST

SITE LAYOUT PLAN - EAST

GRADING PLAN

GRADING PLAN - WEST

GRADING PLAN - EAST

DRAINAGE PLAN

STORM SEWER PROFILES

STORM SEWER PROFILES

SITE UTILITY PLAN

LANDSCAPE PLAN

SITE DETAILS

SITE DETAILS

SITE DETAILS

SITE DETAILS

SITE DETAILS

SITE DETAILS

STORM SEWER SPECIFICATIONS

STORM SEWER SPECIFICATIONS

SANITARY SEWER SPECIFICATIONS

STORMWATER POLLUTION PREVENTION PLAN

STORMWATER POLLUTION PREVENTION PLAN

STORMWATER POLLUTION PREVENTION PLAN NOTES

STORMWATER POLLUTION PREVENTION PLAN DETAILS

STORMWATER POLLUTION PREVENTION DETAILS

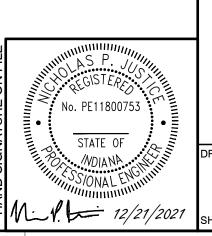
TOTAL SITE AREA = 5.37 ACRES

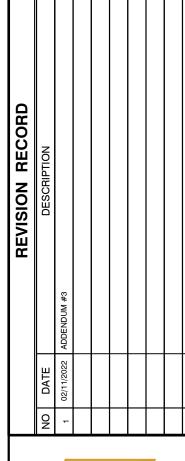
WATER QUALITY STATE PLANE COORDINATES TABLE: AQUA-SWIRL XC-9 X = 161362.4206Y=1676352.9645

STORMWATER STRUCTURE SUMMARY TABLE: PROPOSED STRUCTURES = 19 PROPOSED WATER QUALITY STR. = 1

| PRIVATE: | | |
|----------|-------|----|
| 12" HDPE | 167 L | _F |
| 15" HDPE | 397 Լ | _F |
| 18" HDPE | 495 L | _F |
| 24" HDPE | 205 Լ | _F |
| 30" HDPE | 28 L | _F |
| 12" RCP | 233 L | _F |
| 15" RCP | 137 Լ | _F |
| 18" RCP | 25 L | _F |
| 30" RCP | 433 L | _F |







Drawing

Number

ALTA

TOPO

C101

C200

C201

C202

C300

C301

C302

C400

C500

C700

C800

C802

C803

C804

C805

C806

C807

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C900

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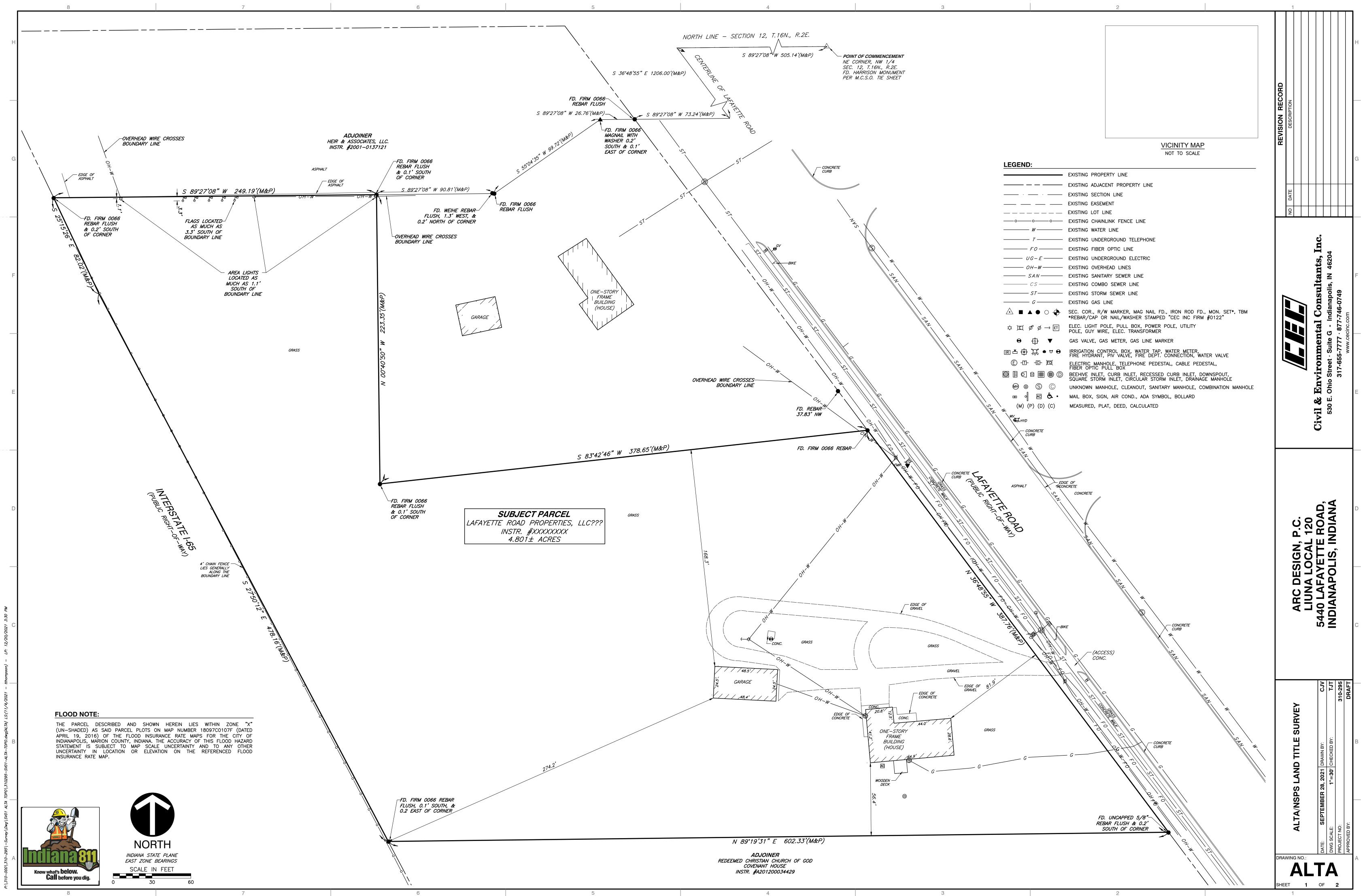


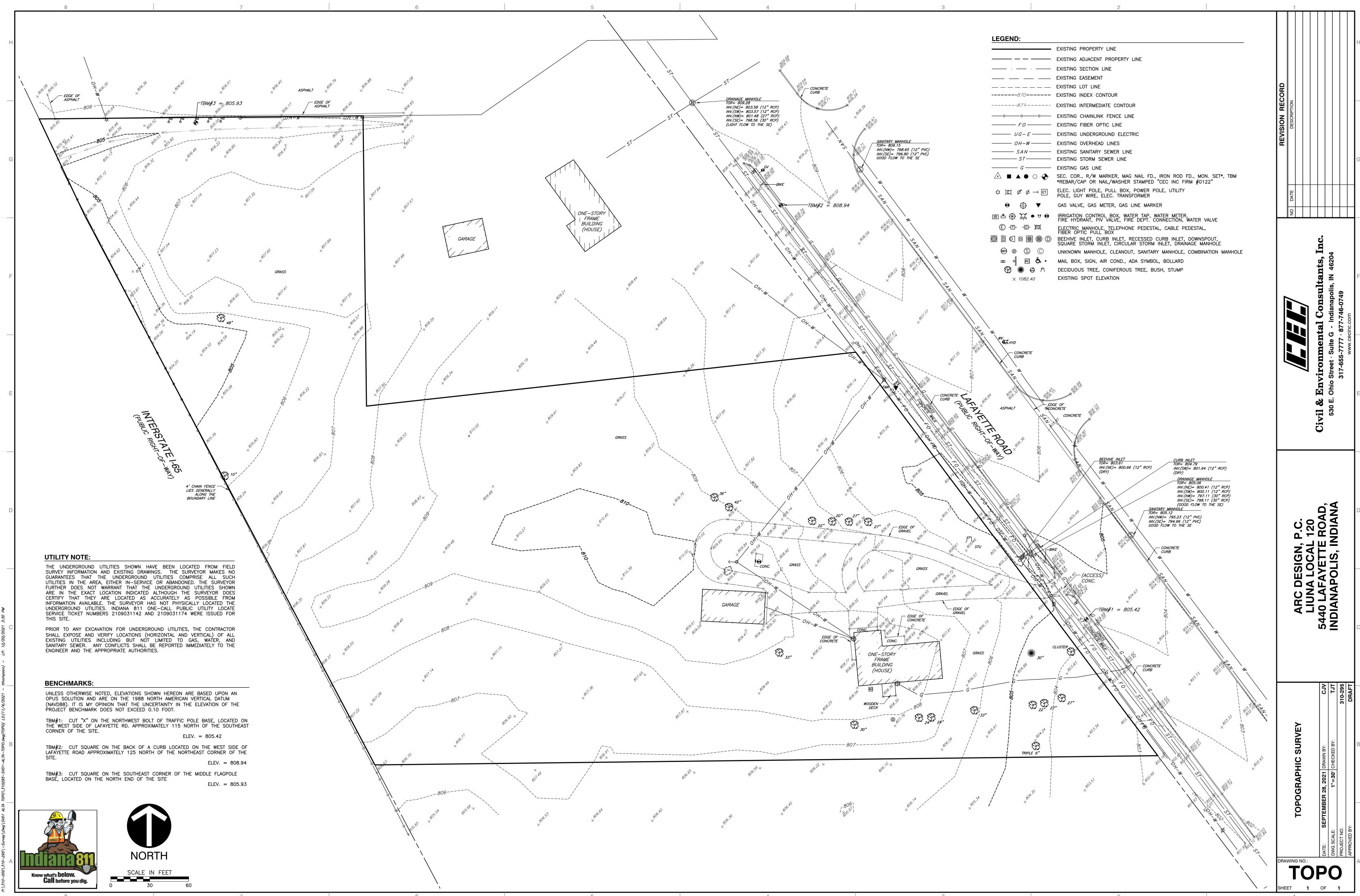




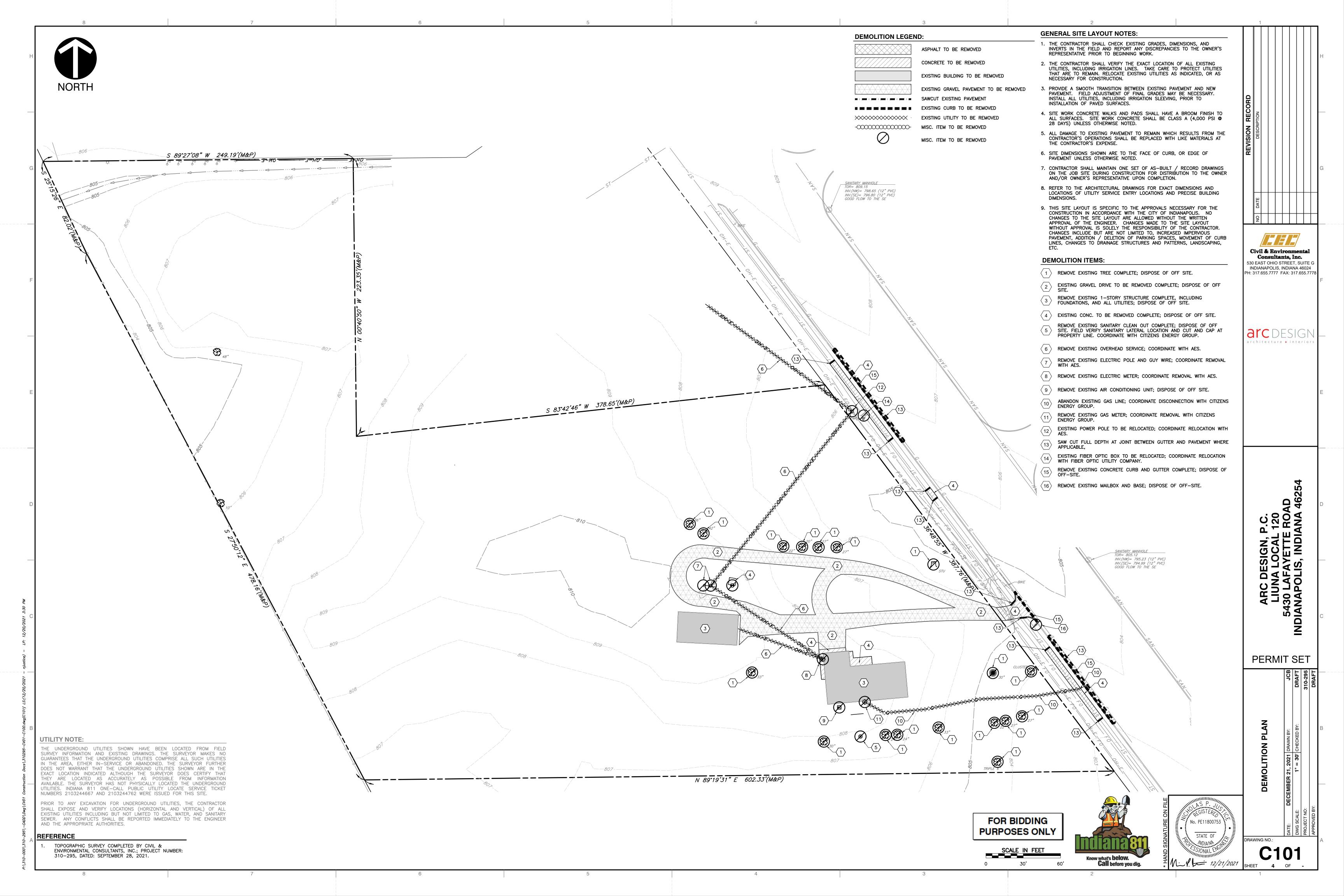
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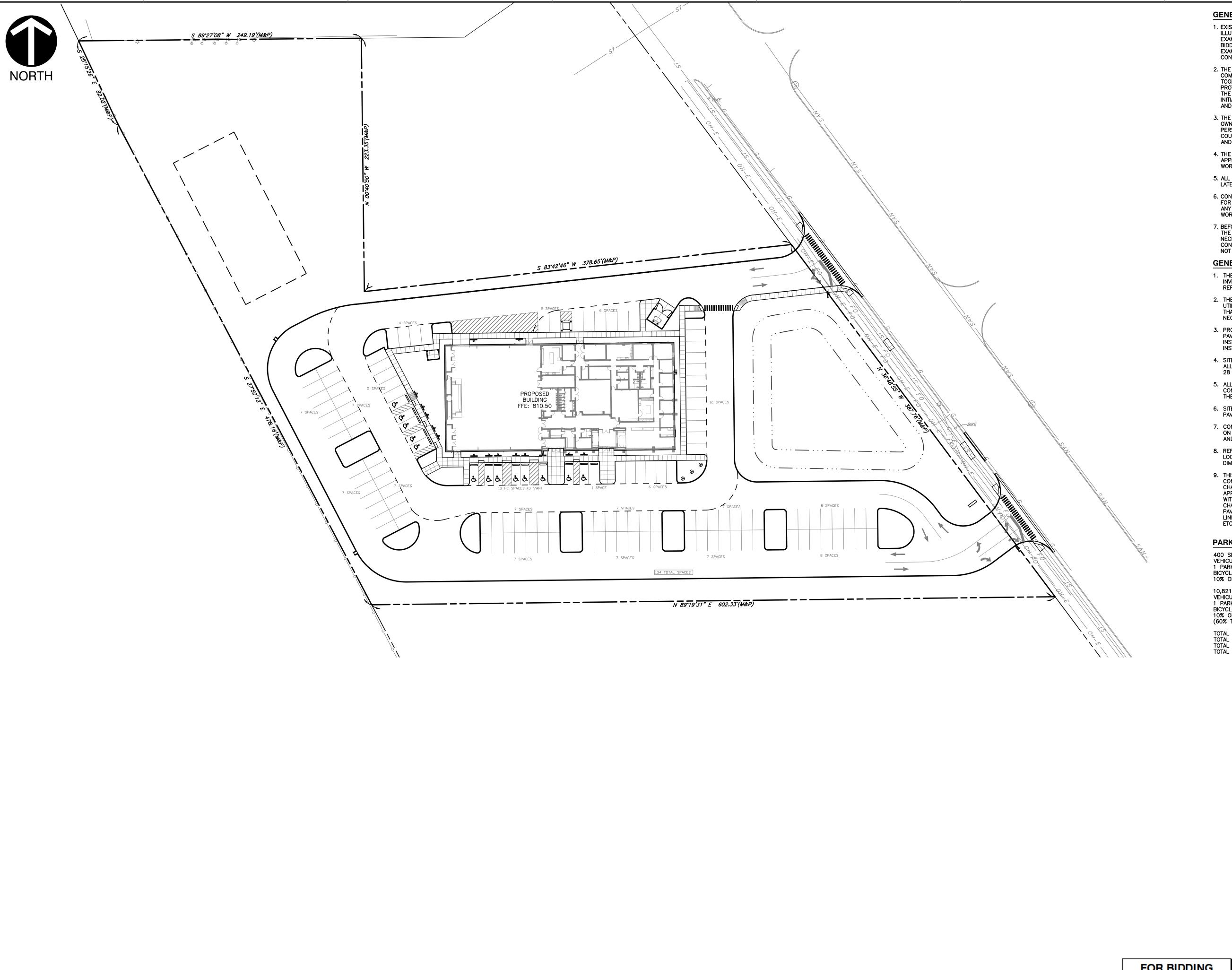
AWING NO.: **C000**





-000\310-295\-Survey\Dwg\SVO1 ALTA TOPO\310295-SV01-ALTA-TOPO.dwgf





GENERAL SITE NOTES:

- 1. EXISTING CONDITIONS AS DEPICTED ON THESE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BE FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING ON THIS PROJECT. IF CONDITIONS ENCOUNTERED DURING EXAMINATION ARE SIGNIFICANTLY DIFFERENT THAN THOSE SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.
- 2. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTORS TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.
- 3. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND OWNER'S REPRESENTATIVE FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS AND SPECIFICATIONS.
- 4. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL APPLICABLE PERMITS, AND PAY ALL REQUIRED FEES PRIOR TO BEGINNING
- 5. ALL WORK PERFORMED BY THE CONTRACTOR SHALL CONFORM TO THE LATEST REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT.
- 6. CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
- 7. BEFORE INSTALLATION OF STORM OR SANITARY SEWER, OR OTHER UTILITY, THE CONTRACTOR SHALL VERIFY ALL CROSSINGS, BY EXCAVATION WHERE NECESSARY, AND INFORM THE OWNER AND THE ENGINEER OF ANY CONFLICTS. THE ENGINEER WILL BE HELD HARMLESS IN THE EVENT HE IS NOT NOTIFIED OF DESIGN CONFLICTS PRIOR TO CONSTRUCTION.

GENERAL SITE LAYOUT NOTES:

- 1. THE CONTRACTOR SHALL CHECK EXISTING GRADES, DIMENSIONS, AND INVERTS IN THE FIELD AND REPORT ANY DISCREPANCIES TO THE OWNER'S REPRESENTATIVE PRIOR TO BEGINNING WORK.
- 2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL EXISTING UTILITIES, INCLUDING IRRIGATION LINES. TAKE CARE TO PROTECT UTILITIES THAT ARE TO REMAIN. RELOCATE EXISTING UTILITIES AS INDICATED, OR AS NECESSARY FOR CONSTRUCTION.
- 3. PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING PAVEMENT AND NEW PAVEMENT. FIELD ADJUSTMENT OF FINAL GRADES MAY BE NECESSARY. INSTALL ALL UTILITIES, INCLUDING IRRIGATION SLEEVING, PRIOR TO INSTALLATION OF PAVED SURFACES.
- 4. SITE WORK CONCRETE WALKS AND PADS SHALL HAVE A BROOM FINISH TO ALL SURFACES. SITE WORK CONCRETE SHALL BE CLASS A (4,000 PSI @ 28 DAYS) UNLESS OTHERWISE NOTED.
- 5. ALL DAMAGE TO EXISTING PAVEMENT TO REMAIN WHICH RESULTS FROM THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED WITH LIKE MATERIALS AT THE CONTRACTOR'S EXPENSE.
- 6. SITE DIMENSIONS SHOWN ARE TO THE FACE OF CURB, OR EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
- 7. CONTRACTOR SHALL MAINTAIN ONE SET OF AS-BUILT / RECORD DRAWINGS ON THE JOB SITE DURING CONSTRUCTION FOR DISTRIBUTION TO THE OWNER AND/OR OWNER'S REPRESENTATIVE UPON COMPLETION.
- 8. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS AND LOCATIONS OF UTILITY SERVICE ENTRY LOCATIONS AND PRECISE BUILDING DIMENSIONS.
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PARKING CALCULATIONS:

400 SEAT ASSEMBLY HALL

VEHICULAR SPACES

1 PARKING SPACE PER 4 SEATS = 100 PARKING SPACES BICYCLE SPACES 10% OF PARKING SPACES = 10 BICYCLE SPACES

10,821 SQUARE FEET OFFICE SPACE

VEHICULAR SPACES

1 PARKING SPACE PER 350 SQUARE FEET = 31 PARKING SPACES BICYCLE SPACES

10% OF PARKING SPACES = 3 BICYCLE SPACES (60% TO BE COVERED)

TOTAL PARKING SPACES REQUIRED = 131 SPACES TOTAL PROVIDED = 134 SPACES WHICH INCLUDES 13 ADA ACCESSIBLE SPACES TOTAL BICYCLE PARKING SPACES REQUIRED = 13 BICYCLE SPACES TOTAL PROVIDED = 16 BICYCLE SPACES, ALL COVERED

Civil & Environmental Consultants, Inc. 530 EAST OHIO STREET, SUITE G INDIANAPOLIS. INDIANA 46024 PH: 317.655.7777 FAX: 317.655.7778

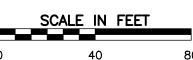
ARC DESIGN, P.C. LIUNA LOCAL 120 5430 LAFAYETTE ROAD INDIANAPOLIS, INDIANA 462

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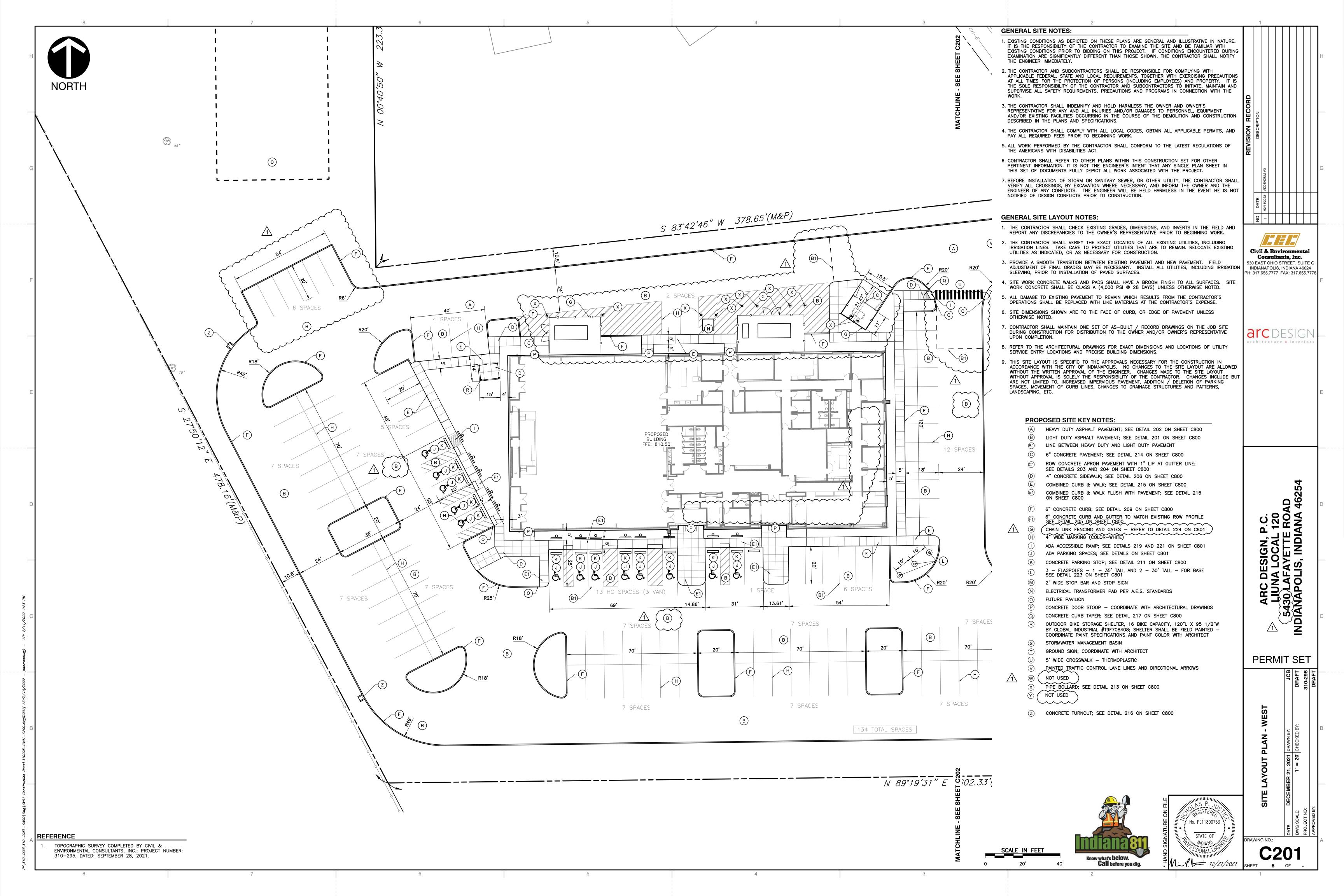
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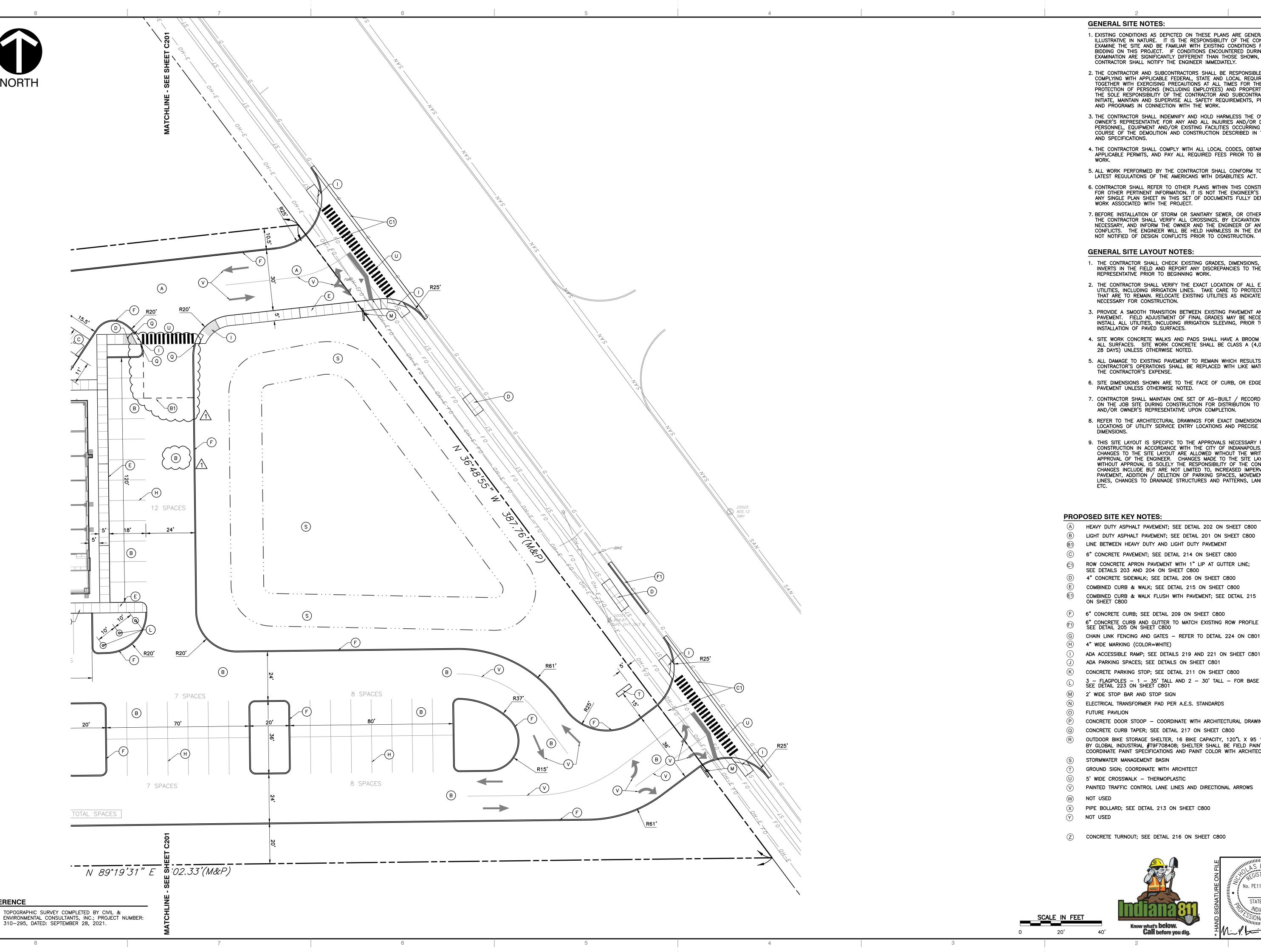
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REFERENCE

GENERAL SITE NOTES:

1. EXISTING CONDITIONS AS DEPICTED ON THESE PLANS ARE GENERAL AND ILLUSTRATIVE IN NATURE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO EXAMINE THE SITE AND BE FAMILIAR WITH EXISTING CONDITIONS PRIOR TO BIDDING ON THIS PROJECT. IF CONDITIONS ENCOUNTERED DURING EXAMINATION ARE SIGNIFICANTLY DIFFERENT THAN THOSE SHOWN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

2. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR COMPLYING WITH APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS, TOGETHER WITH EXERCISING PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF PERSONS (INCLUDING EMPLOYEES) AND PROPERTY. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND SUBCONTRACTORS TO INITIATE, MAINTAIN AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK.

3. THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER AND OWNER'S REPRESENTATIVE FOR ANY AND ALL INJURIES AND/OR DAMAGES TO PERSONNEL, EQUIPMENT AND/OR EXISTING FACILITIES OCCURRING IN THE COURSE OF THE DEMOLITION AND CONSTRUCTION DESCRIBED IN THE PLANS

- 4. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL CODES, OBTAIN ALL APPLICABLE PERMITS, AND PAY ALL REQUIRED FEES PRIOR TO BEGINNING
- 5. ALL WORK PERFORMED BY THE CONTRACTOR SHALL CONFORM TO THE
- 6. CONTRACTOR SHALL REFER TO OTHER PLANS WITHIN THIS CONSTRUCTION SET FOR OTHER PERTINENT INFORMATION. IT IS NOT THE ENGINEER'S INTENT THAT ANY SINGLE PLAN SHEET IN THIS SET OF DOCUMENTS FULLY DEPICT ALL WORK ASSOCIATED WITH THE PROJECT.
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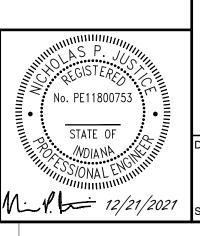
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PROPOSED SITE KEY NOTES:

- HEAVY DUTY ASPHALT PAVEMENT; SEE DETAIL 202 ON SHEET C800 LIGHT DUTY ASPHALT PAVEMENT; SEE DETAIL 201 ON SHEET C800
- 6" CONCRETE PAVEMENT; SEE DETAIL 214 ON SHEET C800
- ROW CONCRETE APRON PAVEMENT WITH 1" LIP AT GUTTER LINE;
- SEE DETAILS 203 AND 204 ON SHEET C800
- 4" CONCRETE SIDEWALK; SEE DETAIL 206 ON SHEET C800
- COMBINED CURB & WALK; SEE DETAIL 215 ON SHEET C800 COMBINED CURB & WALK FLUSH WITH PAVEMENT; SEE DETAIL 215 ON SHEET C800
- 6" CONCRETE CURB; SEE DETAIL 209 ON SHEET C800
- 6" CONCRETE CURB AND GUTTER TO MATCH EXISTING ROW PROFILE SEE DETAIL 205 ON SHEET C800
- CHAIN LINK FENCING AND GATES REFER TO DETAIL 224 ON C801 4" WIDE MARKING (COLOR=WHITE) ADA ACCESSIBLE RAMP; SEE DETAILS 219 AND 221 ON SHEET C801
- ADA PARKING SPACES; SEE DETAILS ON SHEET C801
- CONCRETE PARKING STOP; SEE DETAIL 211 ON SHEET C800
- 3 FLAGPOLES 1 35' TALL AND 2 30' TALL FOR BASE SEE DETAIL 223 ON SHEET C801
- ELECTRICAL TRANSFORMER PAD PER A.E.S. STANDARDS
- FUTURE PAVILION
- CONCRETE DOOR STOOP COORDINATE WITH ARCHITECTURAL DRAWINGS
- CONCRETE CURB TAPER; SEE DETAIL 217 ON SHEET C800 OUTDOOR BIKE STORAGE SHELTER, 16 BIKE CAPACITY, 120"L X 95 1/2"W
- BY GLOBAL INDUSTRIAL #T9F708408; SHELTER SHALL BE FIELD PAINTED -COORDINATE PAINT SPECIFICATIONS AND PAINT COLOR WITH ARCHITECT
- STORMWATER MANAGEMENT BASIN
- GROUND SIGN; COORDINATE WITH ARCHITECT
- 5' WIDE CROSSWALK THERMOPLASTIC
- PAINTED TRAFFIC CONTROL LANE LINES AND DIRECTIONAL ARROWS
- PIPE BOLLARD; SEE DETAIL 213 ON SHEET C800
- CONCRETE TURNOUT; SEE DETAIL 216 ON SHEET C800





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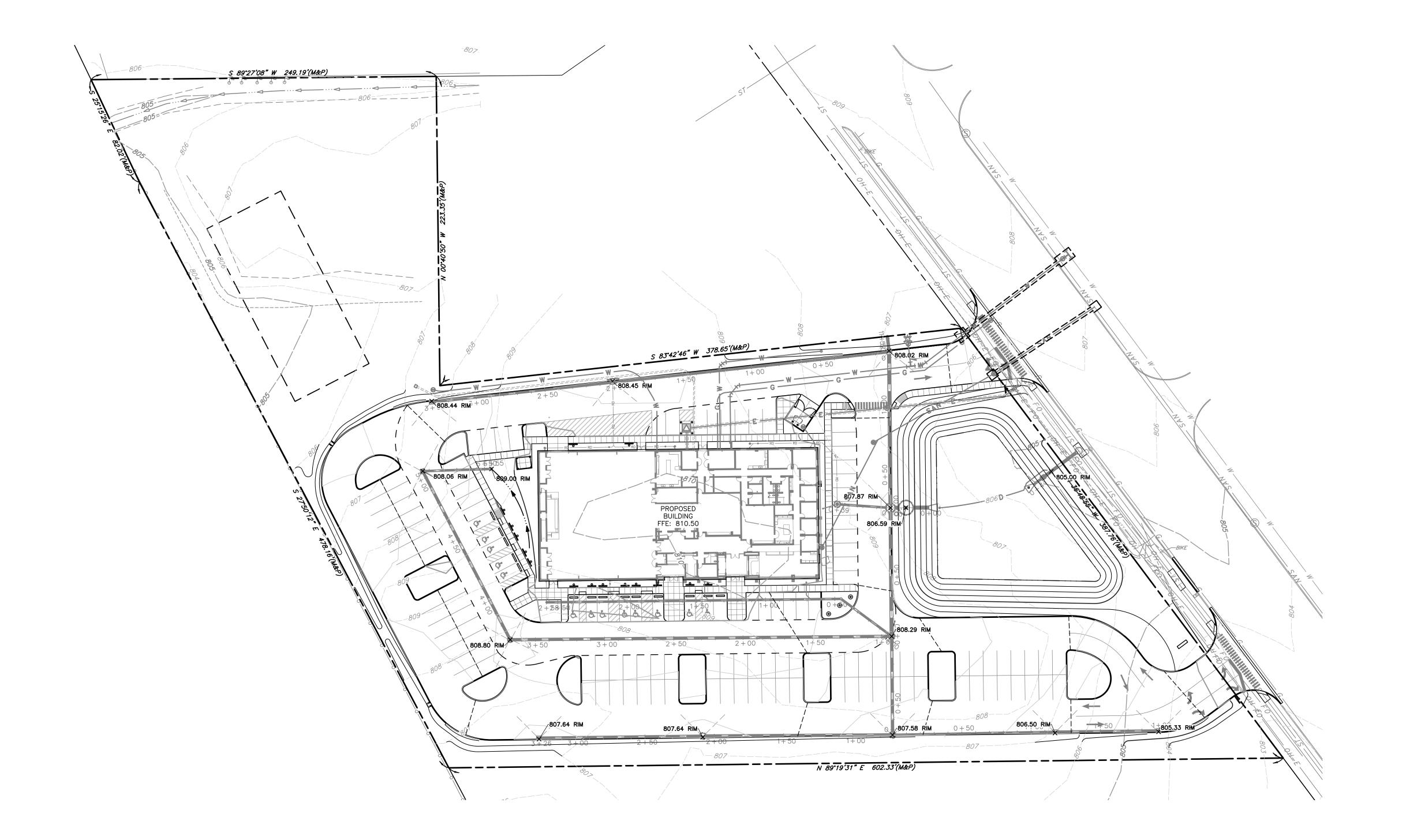
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chitecture + interio





GRADING GENERAL NOTES:

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- 4. PLACE TOPSOIL OVER THE SUBGRADE OF UNPAVED, DISTURBED AREAS TOA DEPTH INDICATED ON THE LANDSCAPE PLANS (6" MINIMUM). PAVEMENT SLOPES ACROSS ACCESSIBLE PARKING STALLS AND ADJOINING ACCESS AISLES SHALL BE MAXIMUM 2%.
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- 8. DRAINAGE SYSTEMS SHALL BE INSPECTED DURING CONSTRUCTION BY A REGISTERED PROFESSIONAL ENGINEER OR LAND SURVEYOR. WITHIN 30 DAYS AFTER COMPLETION OF ON AND OFF-SITE DRAINAGE FACILITIES, THE REGISTERED PROFESSIONAL SHALL CERTIFY IN WRITING THE COMPLIANCE OF THE DRAINAGE FACILITIES PER LOCAL REQUIREMENTS.
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GRADING LEGEND:

PROPOSED INDEX CONTOUR PROPOSED INTERMEDIATE CONTOUR PROPOSED DRAINAGE SWALE ---- PROPOSED GRADE BREAK PROPOSED STORM SEWER LINE ---- PROPOSED UNDERDRAIN

×--766.90

PROPOSED SPOT ELEVATION PROPOSED CURB SPOT ELEVATION; TOP OF CURB ON TOP, GUTTER ELEVATION ON BOTTOM

ABBREVIATIONS: TC = TOP OF CURB BC = BOTTOM OF CURBTS = TOP OF STEPS BS = BOTTOM OF STEPS ME = MATCH EXISTING

BENCHMARKS:

UNLESS OTHERWISE NOTED, ELEVATIONS SHOWN HEREON ARE BASED UPON AN OPUS SOLUTION AND ARE ON THE 1988 NORTH AMERICAN VERTICAL DATUM (NAVD88). IT IS MY OPINION THAT THE UNCERTAINTY IN THE ELEVATION OF THE PROJECT BENCHMARK DOES NOT EXCEED 0.10 FOOT.

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TBM#3: CUT SQUARE ON THE SOUTHEAST CORNER OF A FLAGPOLE BASE, LOCÄTED ON THE NORTH END OF THE SITE ELEV. = 805.93

UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. INDIANA 811 ONE-CALL PUBLIC UTILITY LOCATE SERVICE TICKET NUMBERS 2103244667 AND 2103244762 WERE ISSUED FOR THIS SITE.

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PERMIT SET

ARC DESIGN, P.C. LIUNA LOCAL 120 5430 LAFAYETTE ROA INDIANAPOLIS, INDIANA 4

Civil & Environmental Consultants, Inc. 530 EAST OHIO STREET, SUITE G

INDIANAPOLIS. INDIANA 46024 PH: 317.655.7777 FAX: 317.655.7778

No. PE11800753

STATE OF

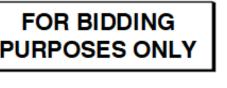
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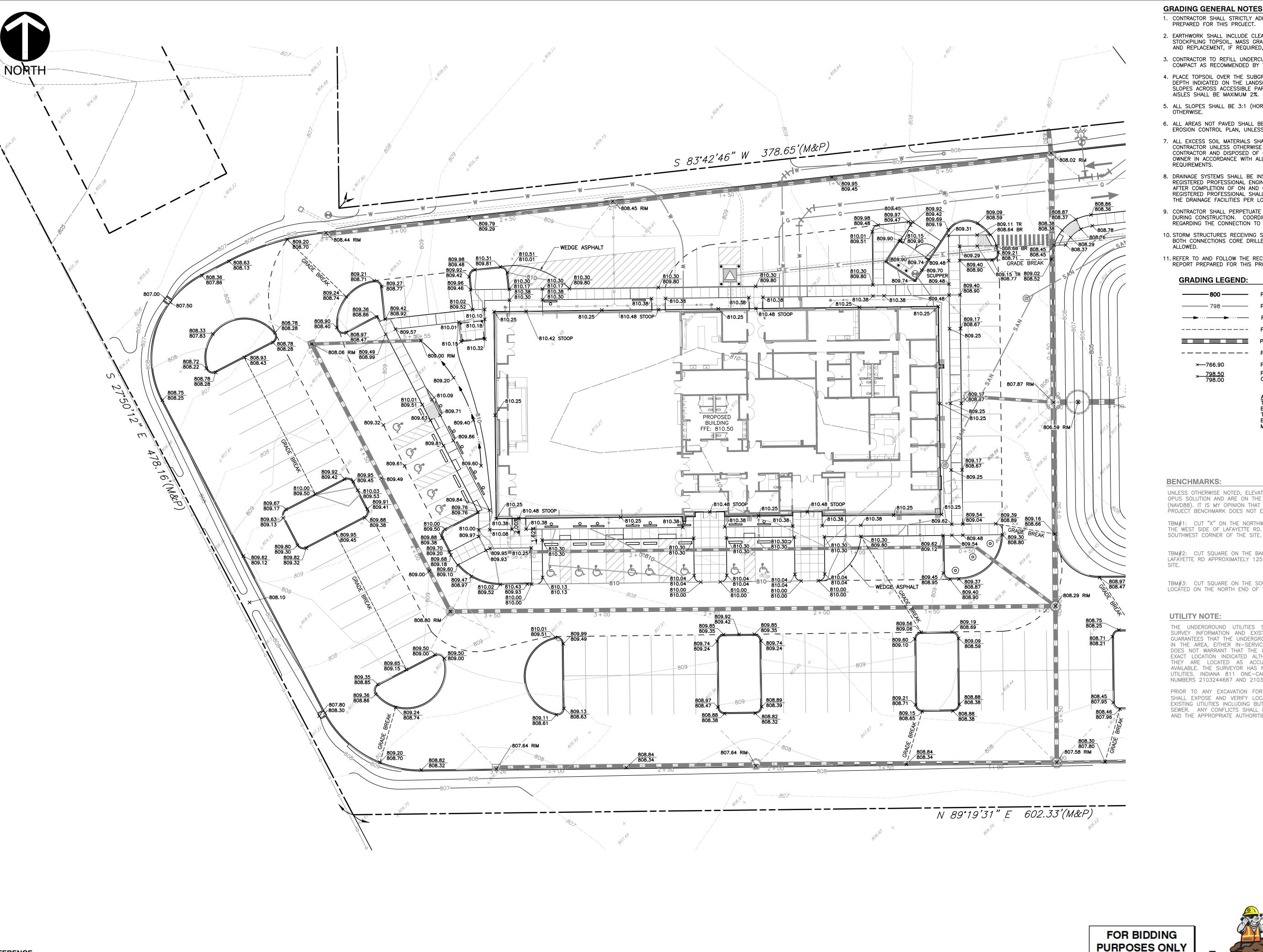




REFERENCE TOPOGRAPHIC SURVEY COMPLETED BY CIVIL &

ENVIRONMENTAL CONSULTANTS, INC.; PROJECT NUMBER:

310-295, DATED: SEPTEMBER 28, 2021.



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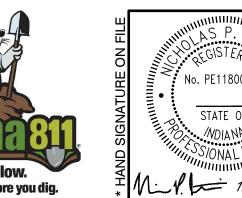
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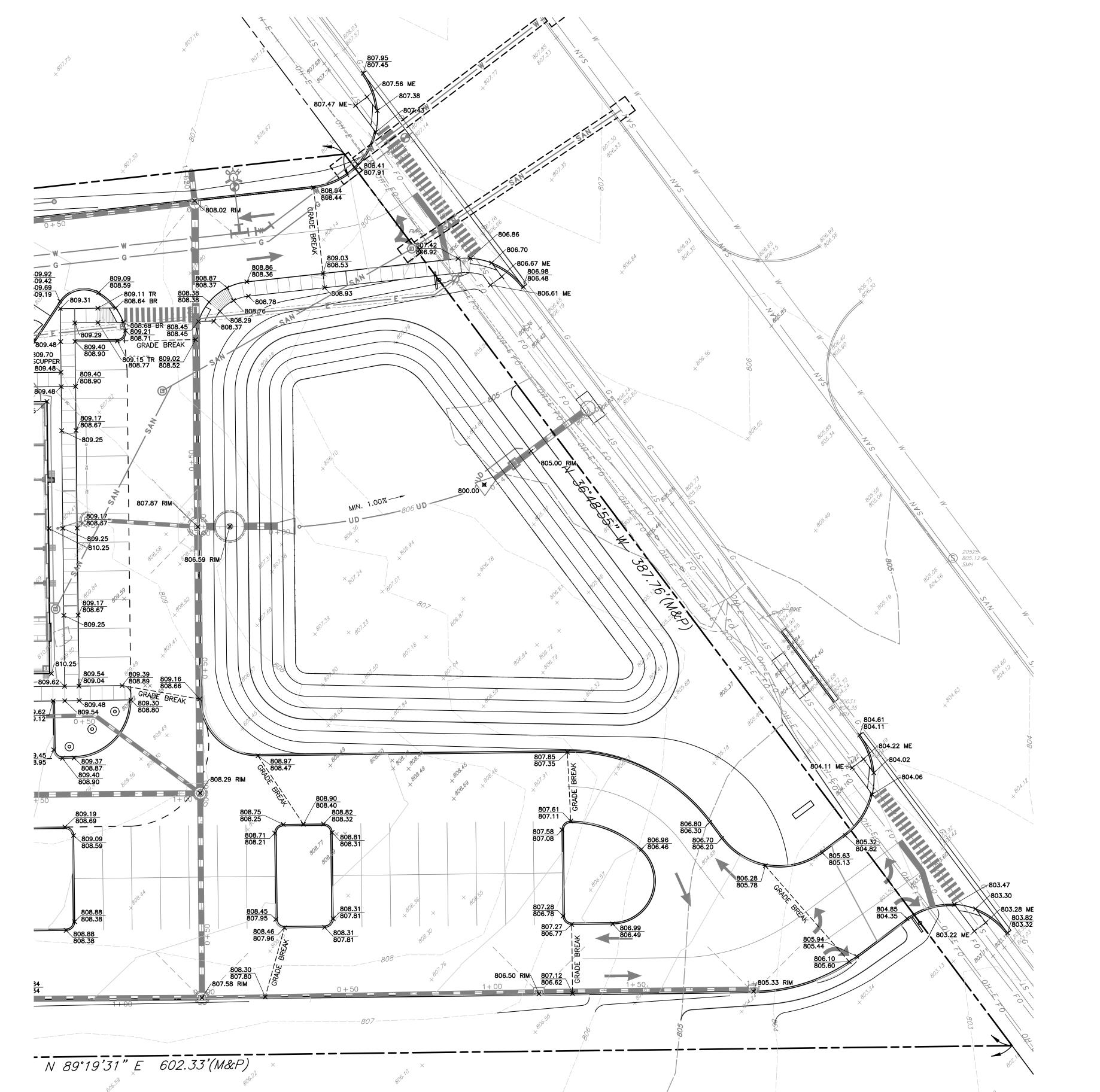
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GRADING LEGEND: PROPOSED INDEX CONTOUR

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ELEV. = 805.93

UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN-SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH THE SURVEYOR DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. INDIANA 811 ONE-CALL PUBLIC UTILITY LOCATE SERVICE TICKET NUMBERS 2103244667 AND 2103244762 WERE ISSUED FOR THIS SITE.

PRIOR TO ANY EXCAVATION FOR UNDERGROUND UTILITIES, THE CONTRACTOR SHALL EXPOSE AND VERIFY LOCATIONS (HORIZONTAL AND VERTICAL) OF ALL EXISTING UTILITIES INCLUDING BUT NOT LIMITED TO GAS, WATER, AND SANITARY SEWER. ANY CONFLICTS SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER AND THE APPROPRIATE AUTHORITIES.

PERMIT SET

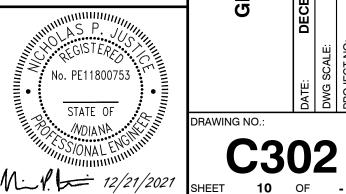
ARC DESIGN, P.C. LIUNA LOCAL 120 5430 LAFAYETTE ROA INDIANAPOLIS, INDIANA 4

No. PE11800753 STATE OF Mil. 12/21/2021

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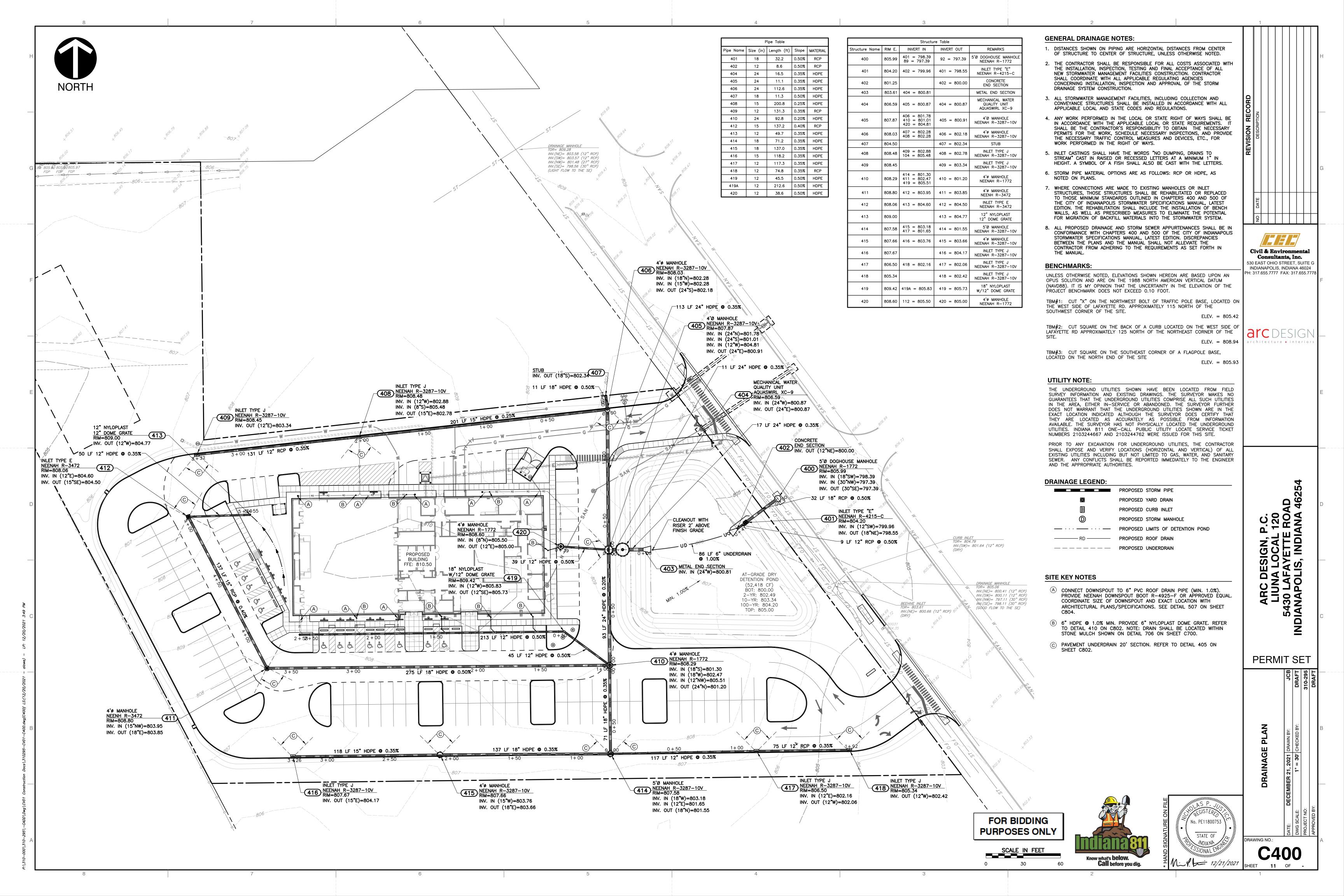


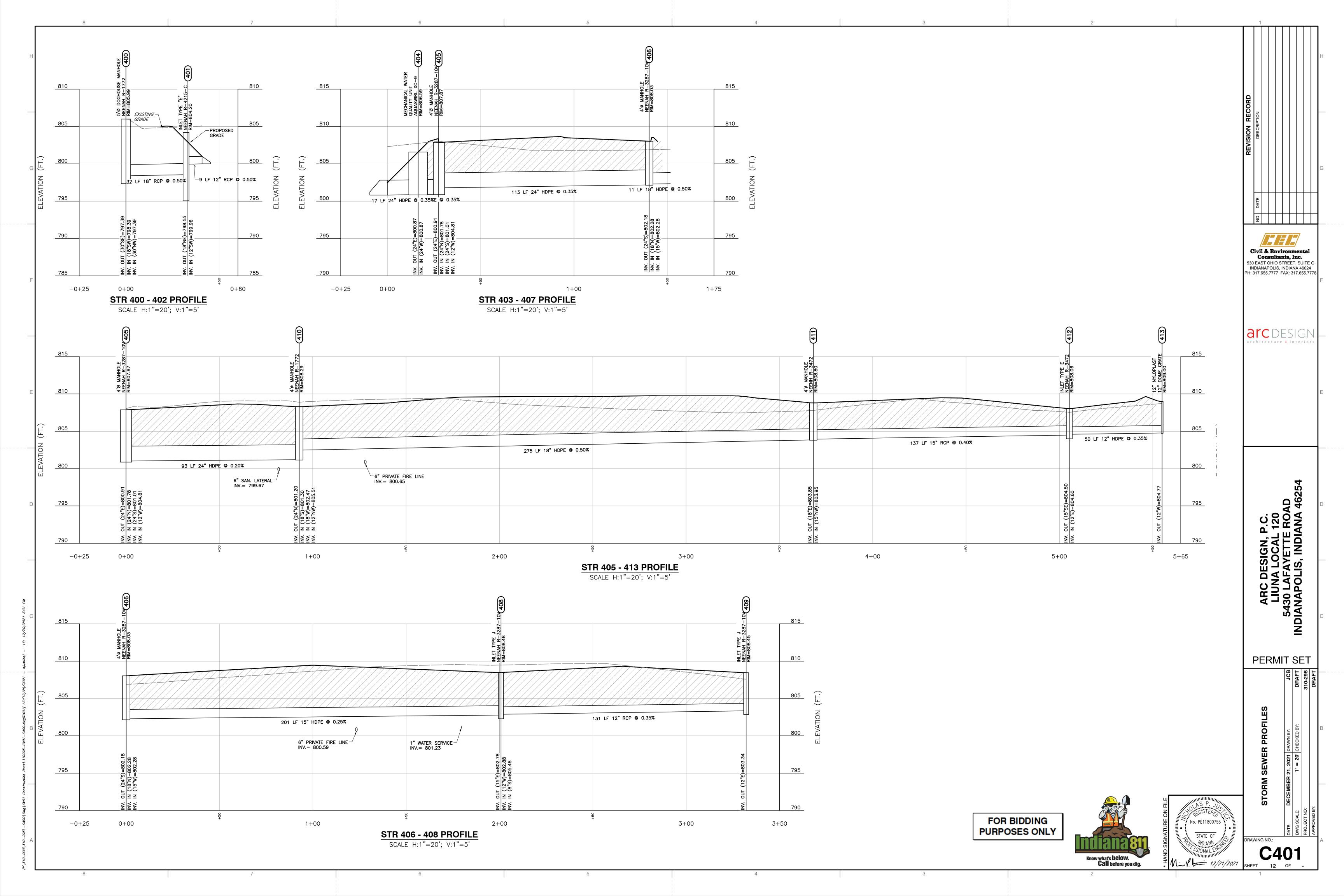


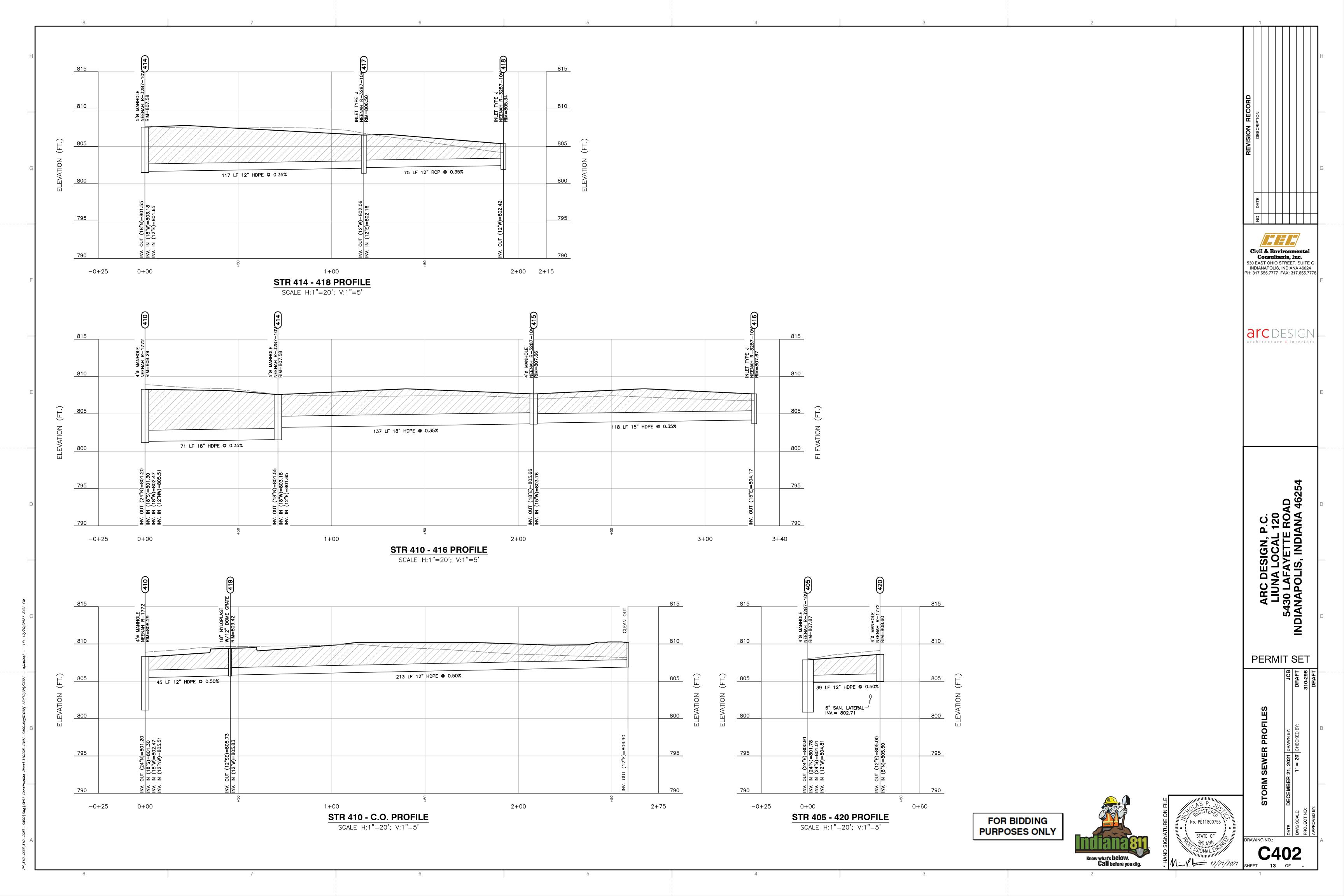
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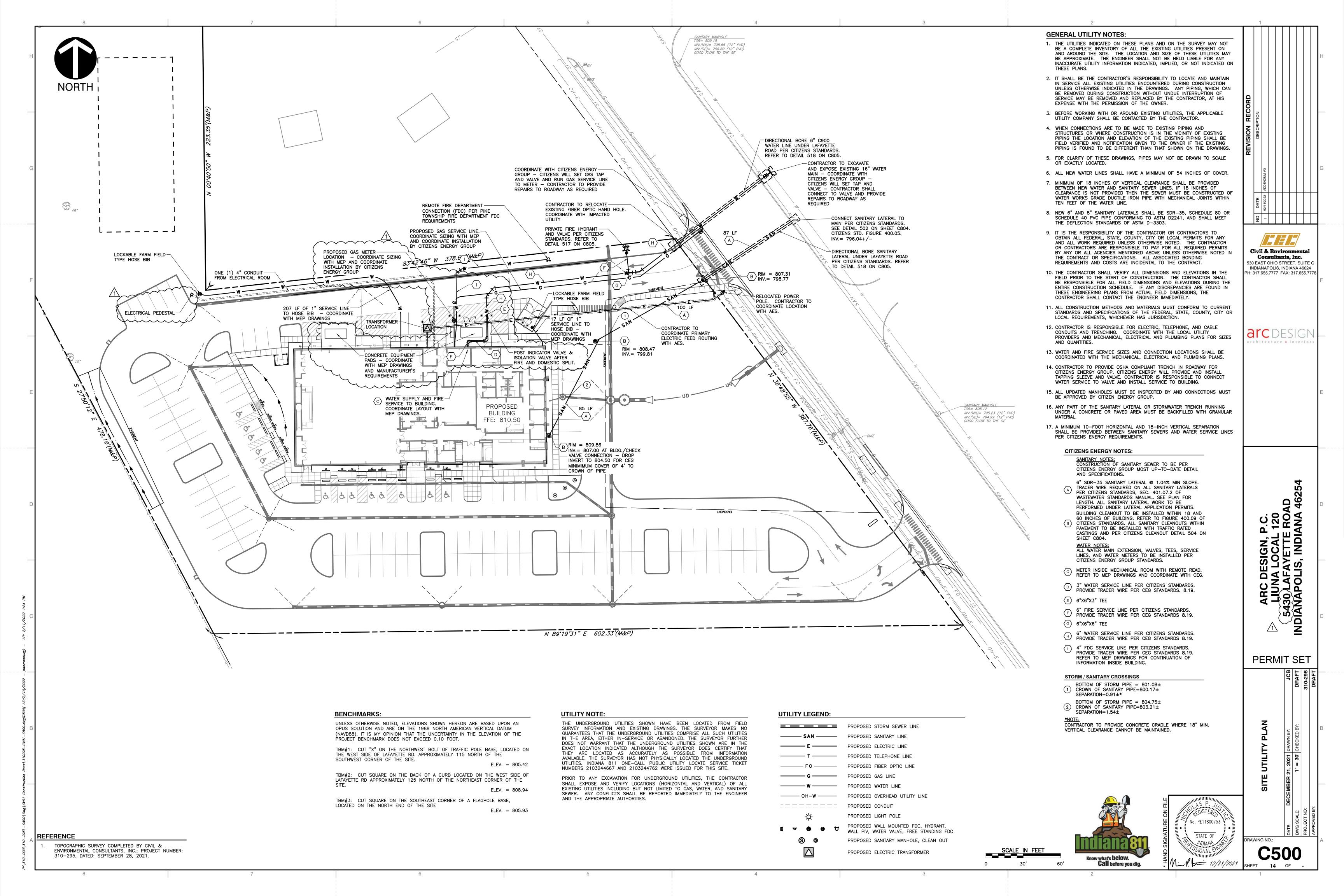
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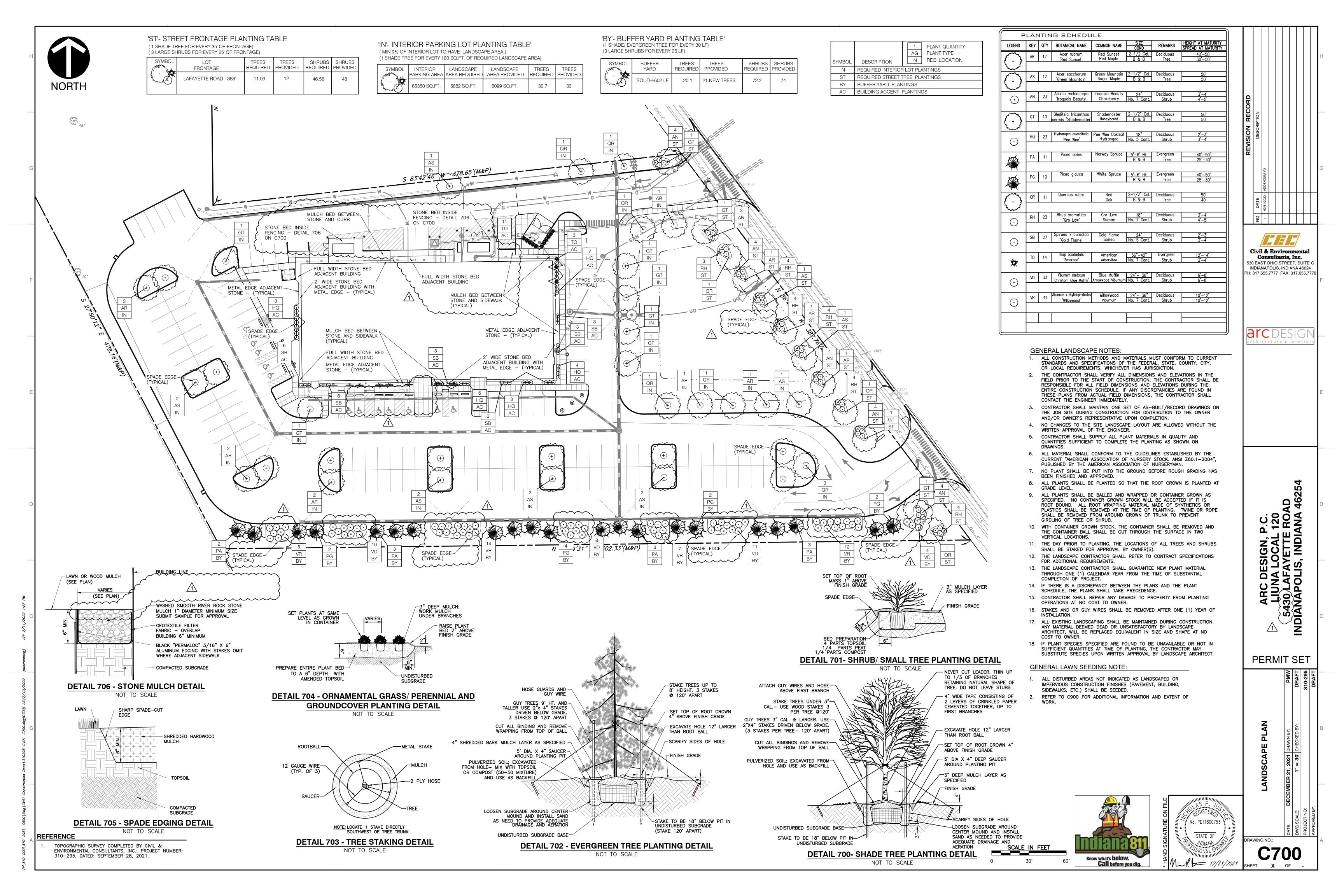
TOPOGRAPHIC SURVEY COMPLETED BY CIVIL &

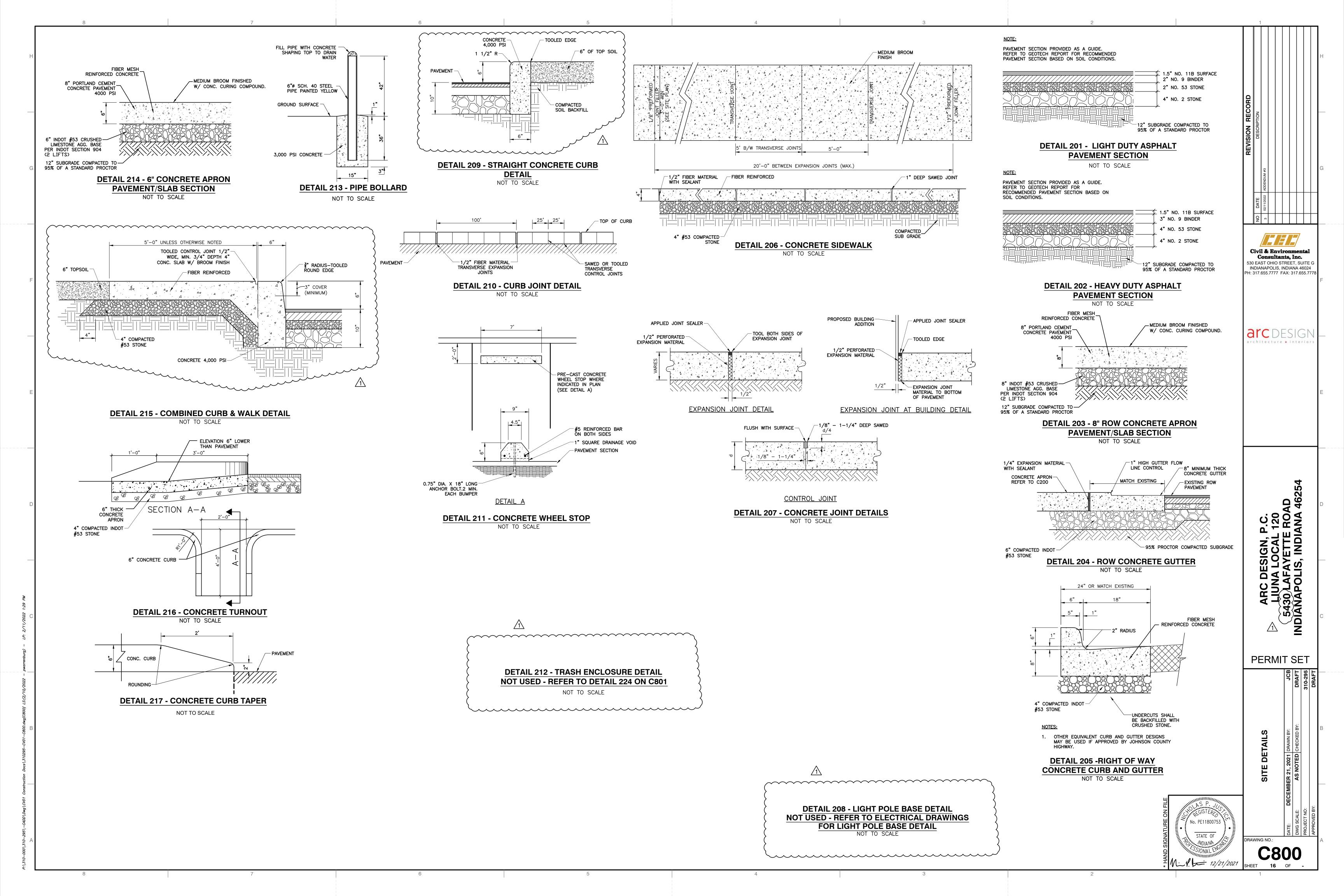


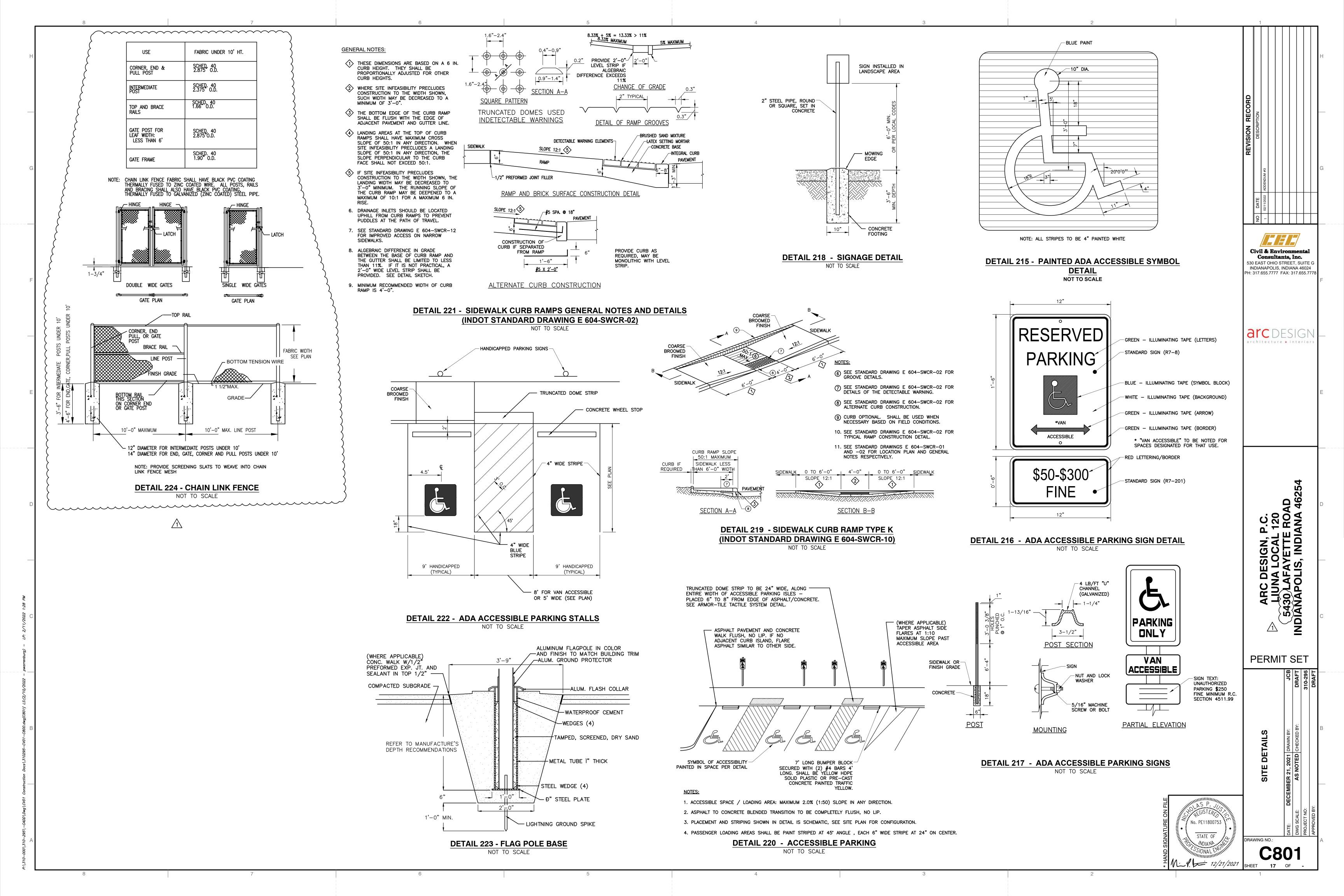


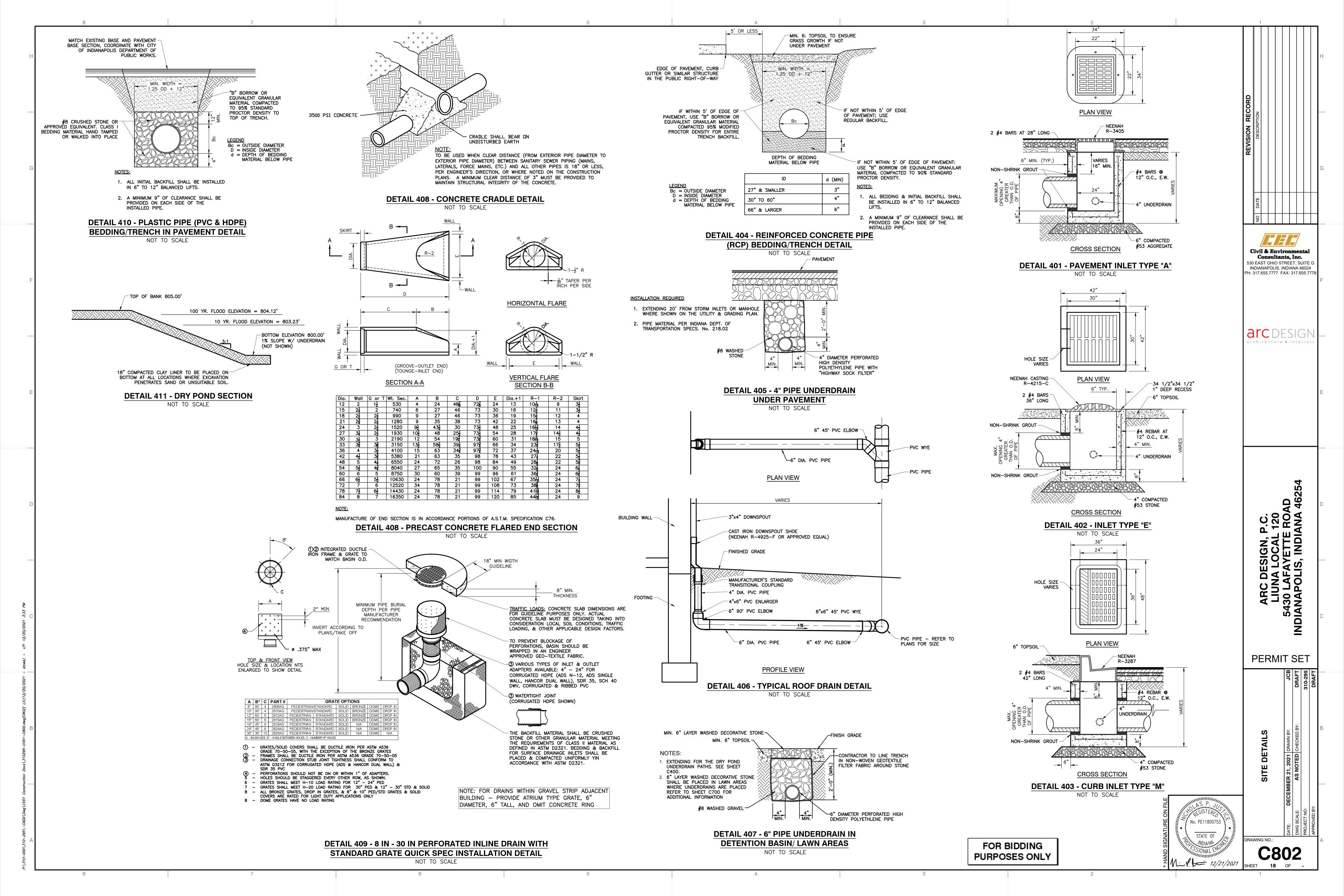








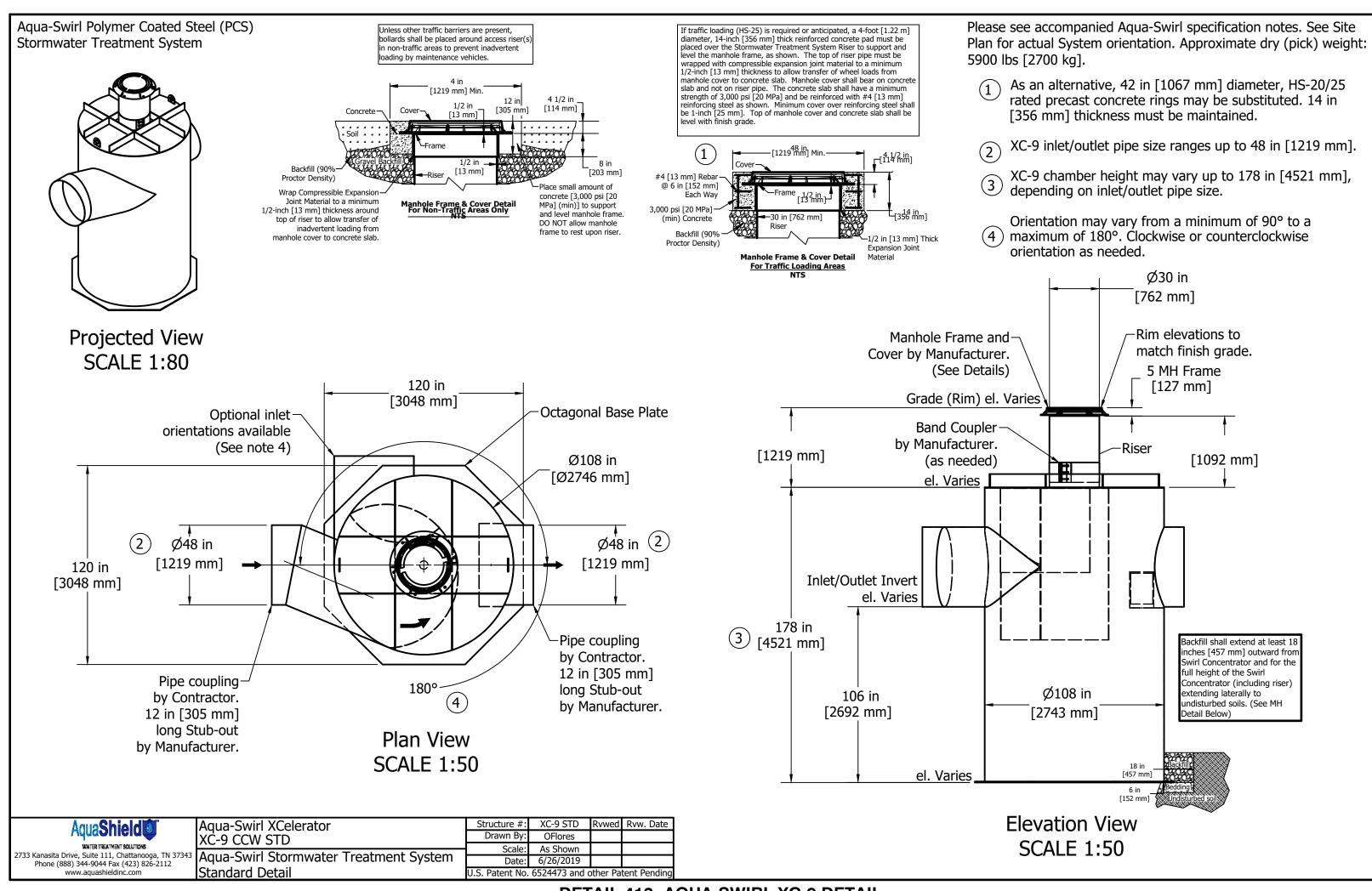




DETAIL 413 - OUTLET CONTROL

STRUCTURE

NOT TO SCALE



DETAIL 412- AQUA-SWIRL XC-9 DETAIL NOT TO SCALE

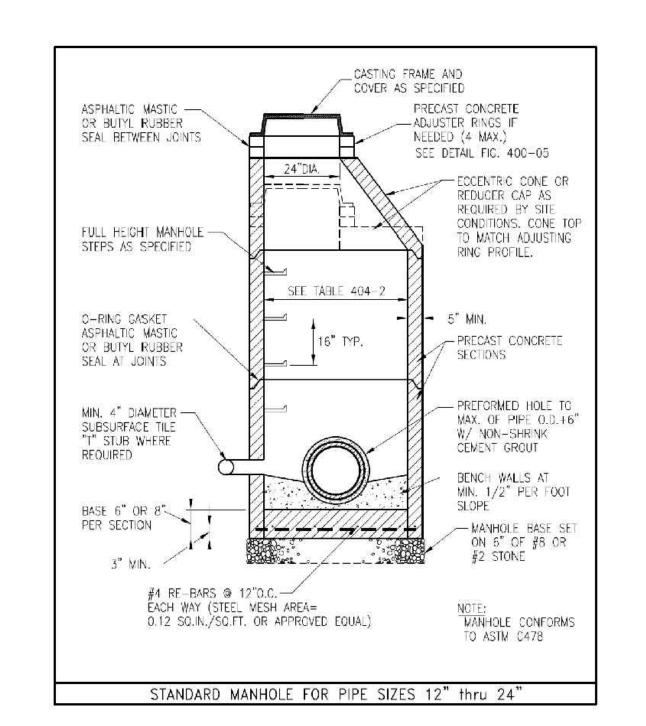


FIGURE 400-01: Standard Manhole for Pipe Sized 12" thru 24" NOTE: BENCH WALLS SHALL CONFORM TO SECTION 404.06 OF THE CITY OF INDIANAPOLIS STORMWATER SPECIFICATIONS MANUAL. THE BENCH WALL SHALL FORM A DEFINED CHANNEL, TO A MINIMUM HEIGHT OF 80-PERCENT OF THE INSIDE DIAMETER OF THE INLET AND OUTLET PIPES TO FORM A "U" SHAPED CHANNEL, CONSTRUCTED AT A MINIMUM 1/2 INCH PER FOOT SLOPE TO THE MANHOLE WALL.

City of Indianapolis Storm Water Specifications Manual

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DETAIL 415- STORM MANHOLE PIPE SIZES 12"-24" NOT TO SCALE

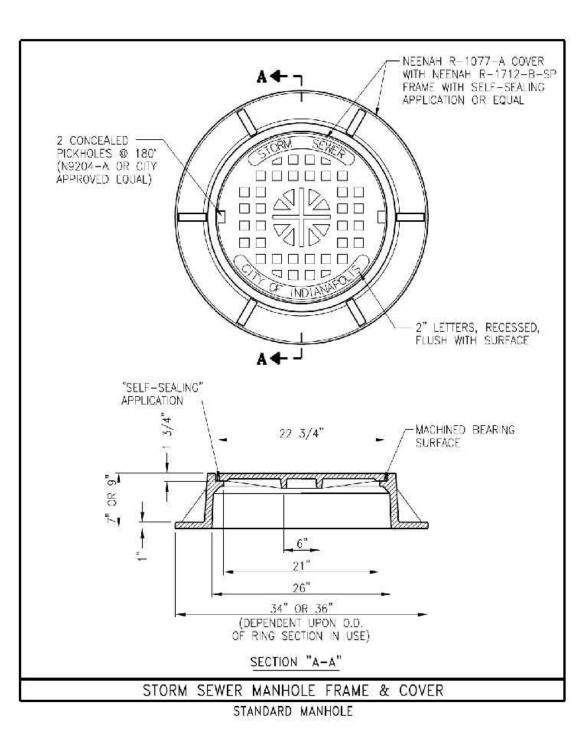


FIGURE 400-11: Storm Sewer Manhole Frame & Cover

*NOTE: INLET CASTINGS SHALL HAVE THE WORDS "NO DUMPING, DRAINS TO STREAM" CAST IN RAISED OR RECESSED LETTERS AT A MINIMUM 1" IN HEIGHT. A SYMBOL OF A FISH SHALL ALSO BE CAST WITH THE LETTERS.

City of Indianapolis Storm Water Specifications Manual

No. PE11800753 Appendix page A4-11 January 2011 - FINAL STATE OF . MDIANA. **DETAIL 414- STORM SEWER MANHOLE** FRAME & COVER Mil. 12/21/2021 NOT TO SCALE

ARC DESIGN, P.C. LIUNA LOCAL 120 5430 LAFAYETTE ROAD NDIANAPOLIS, INDIANA 462

Civil & Environmental

Consultants, Inc.

530 EAST OHIO STREET, SUITE G

PH: 317.655.7777 FAX: 317.655.777

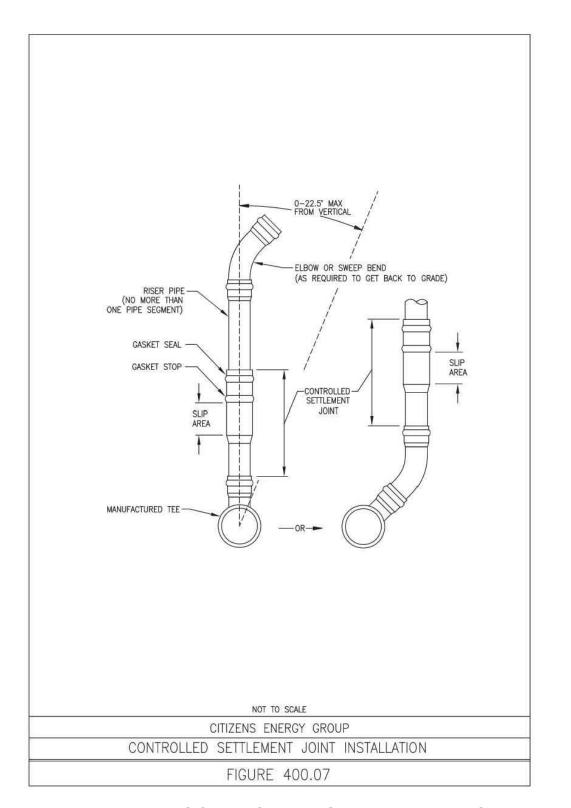
INDIANAPOLIS. INDIANA 46024

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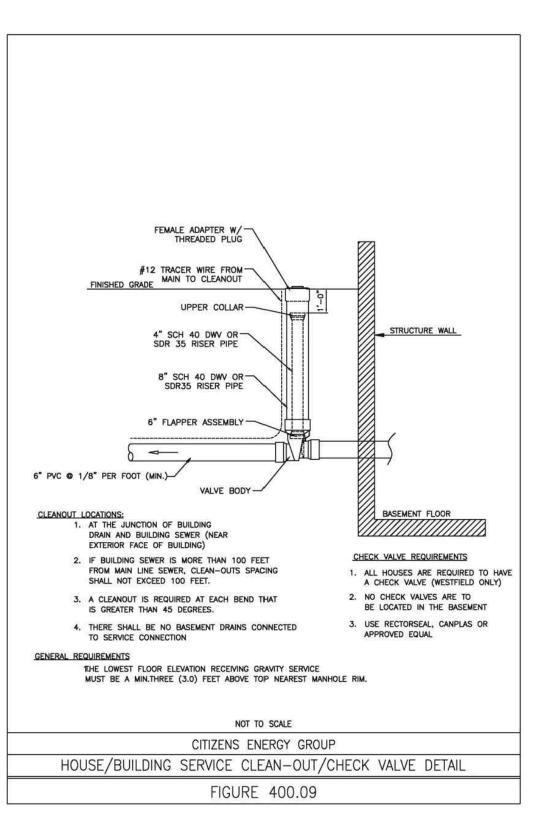
DETAIL PURPOSES ONLY RAWING NO.:

FOR BIDDING

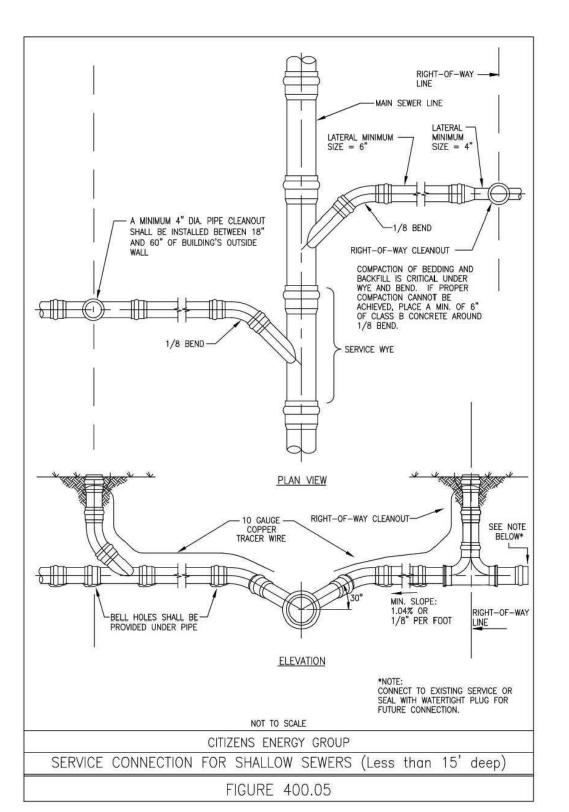
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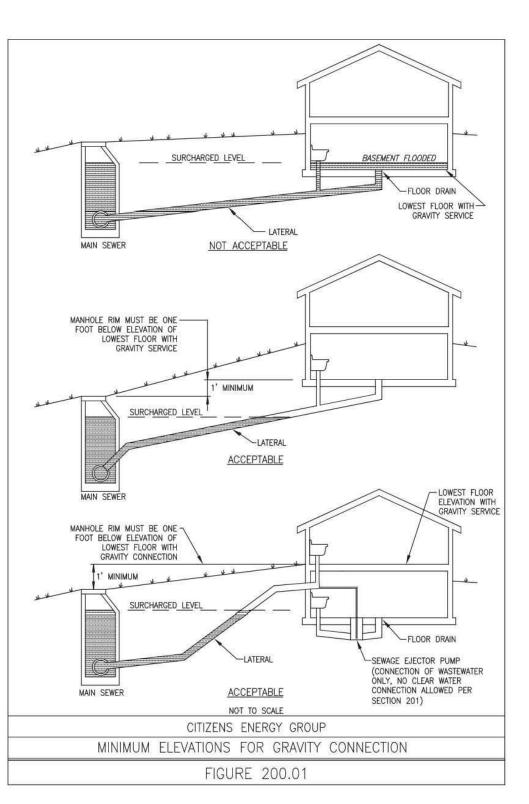
DETAIL 503 - CONTROLLED SETTLEMENT JOINT INSTALLATION DETAIL NOT TO SCALE



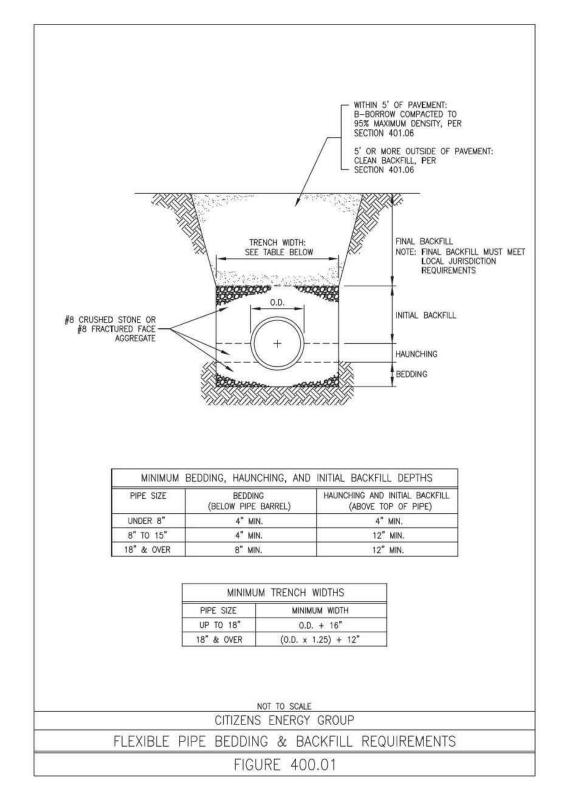
DETAIL 507 - HOUSE/BUILDING SERVICE CLEAN-OUT/CHECK VALVE DETAIL NOT TO SCALE



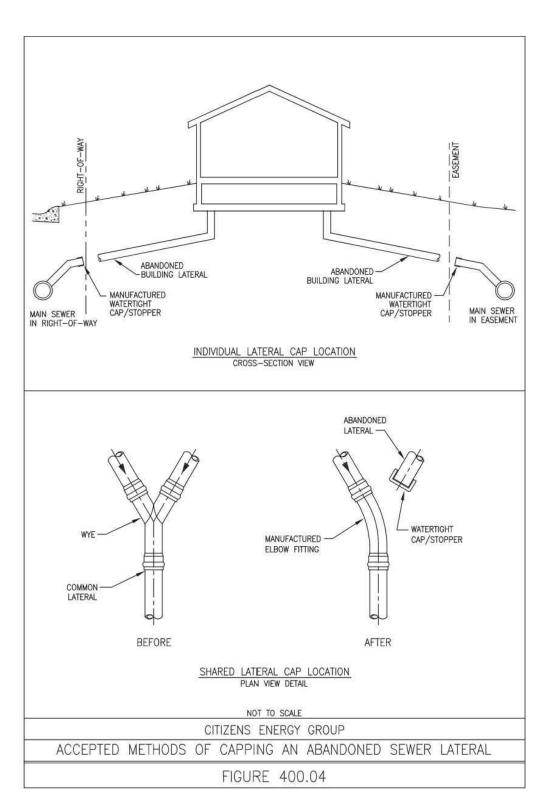
DETAIL 502 - SERVICE CONNECTION FOR SHALLOW SEWERS (LESS THAN 15' DEEP) **DETAIL** NOT TO SCALE



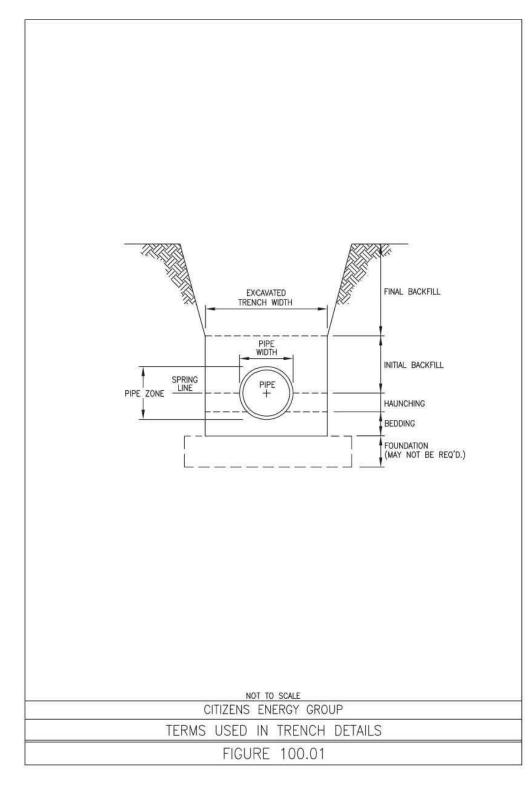
DETAIL 506 - MINIMUM ELEVATIONS FOR GRAVITY CONNECTION NOT TO SCALE



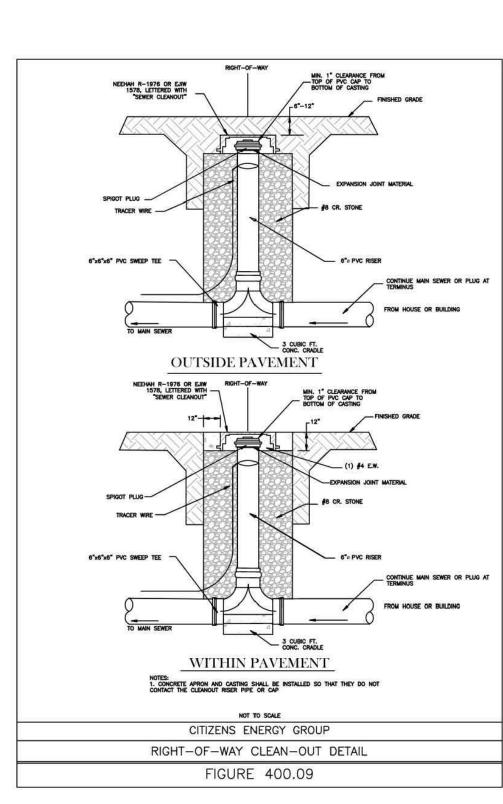
DETAIL 501 - FLEXIBLE PIPE BEDDING & BACKFILL REQUIREMENTS DETAIL NOT TO SCALE



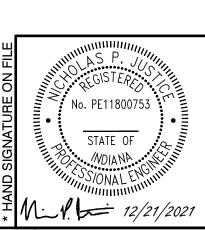
DETAIL 505 - ACCEPTED METHODS OF CAPPING AN ABANDONED SEWER LATERAL NOT TO SCALE



DETAIL 500 - TERMS USED IN TRENCH DETAILS NOT TO SCALE



DETAIL 504 - RIGHT-OF-WAY CLEAN-OUT DETAIL NOT TO SCALE

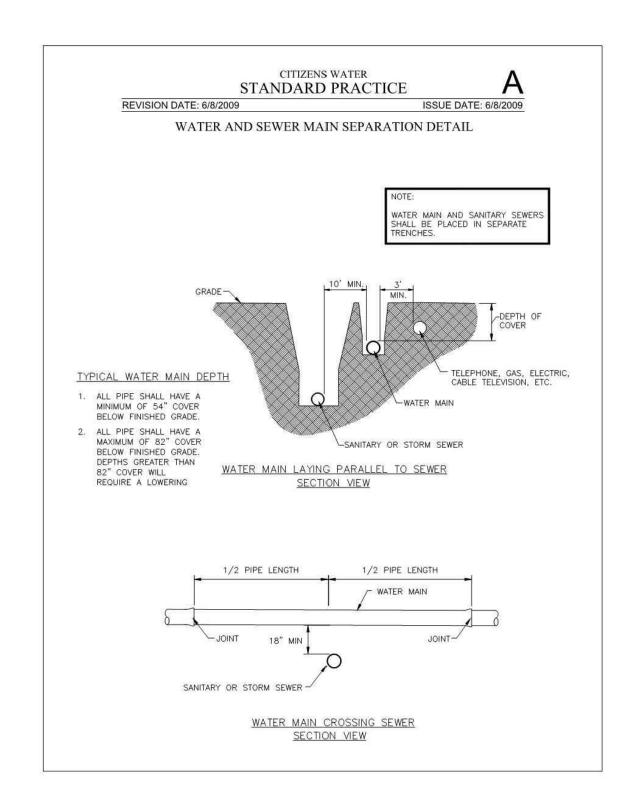


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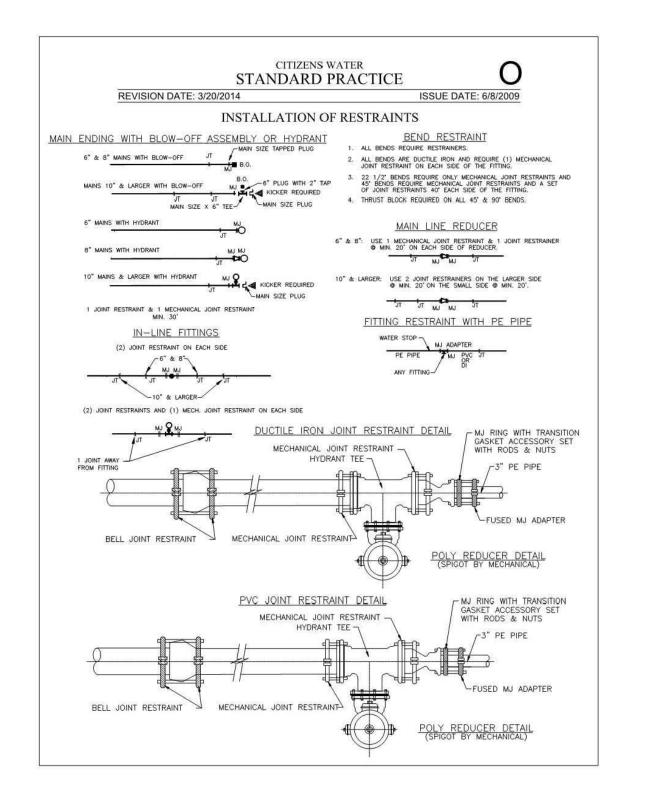
Civil & Environmenta Consultants, Inc. 530 EAST OHIO STREET, SUITE G INDIANAPOLIS, INDIANA 46024 PH: 317.655.7777 FAX: 317.655.7778

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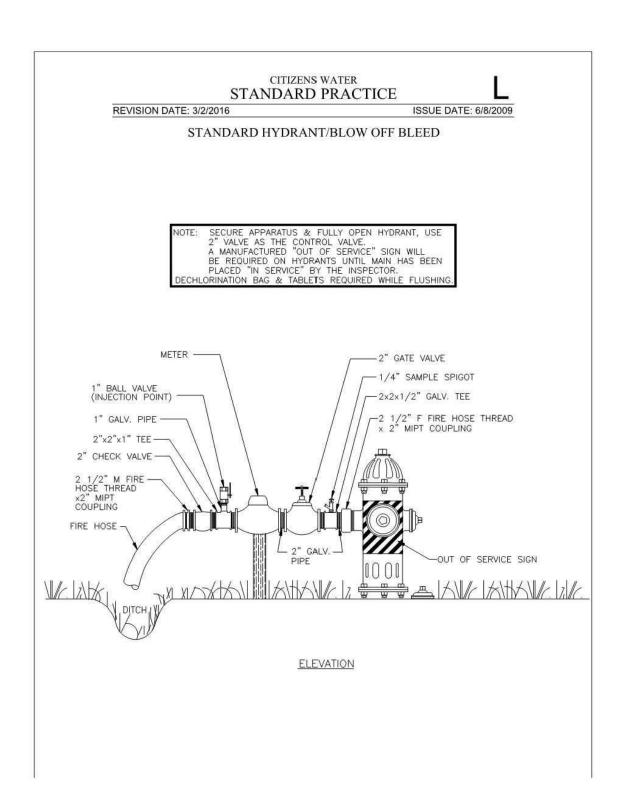
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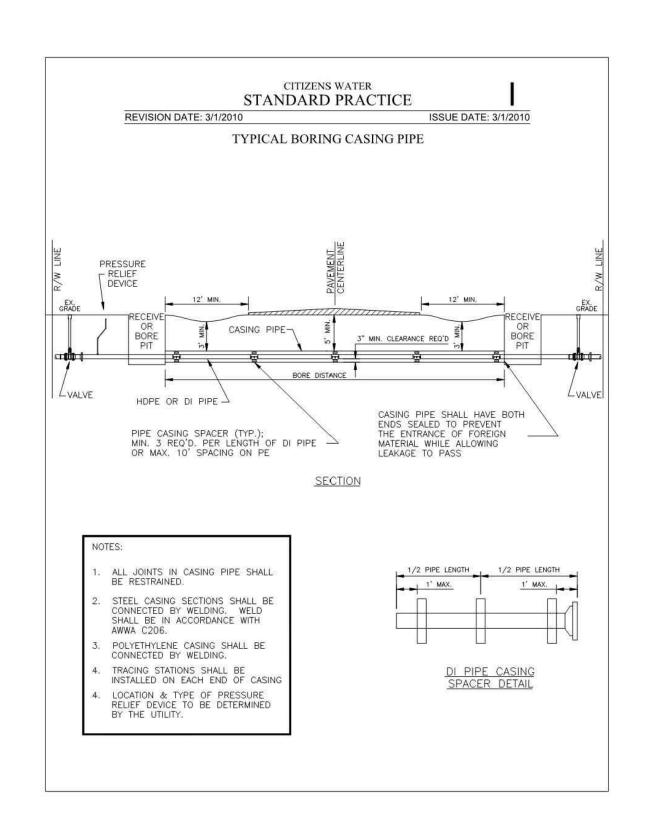
DETAIL 516 - WATER AND SEWER SEPARATION DETAIL NOT TO SCALE



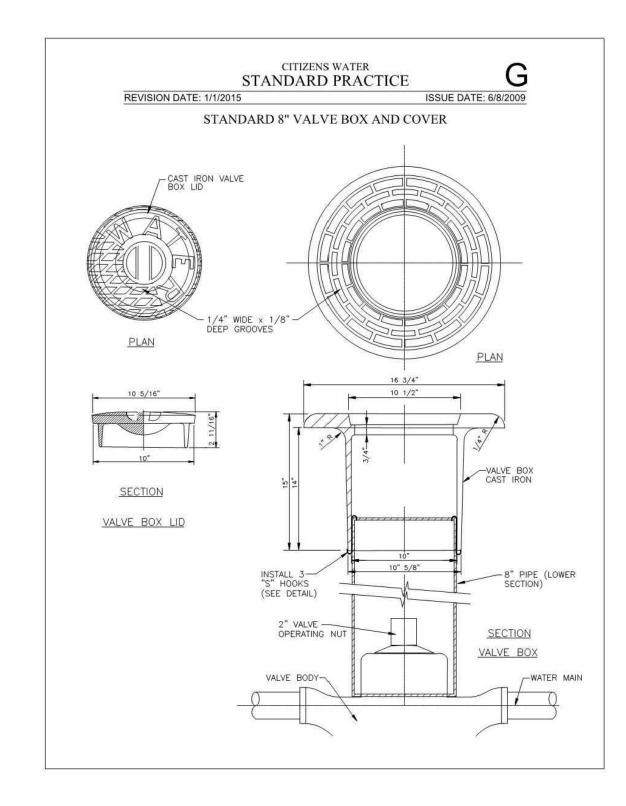
DETAIL 515 - INSTALLATION OF RESTRAINTS DETAIL NOT TO SCALE



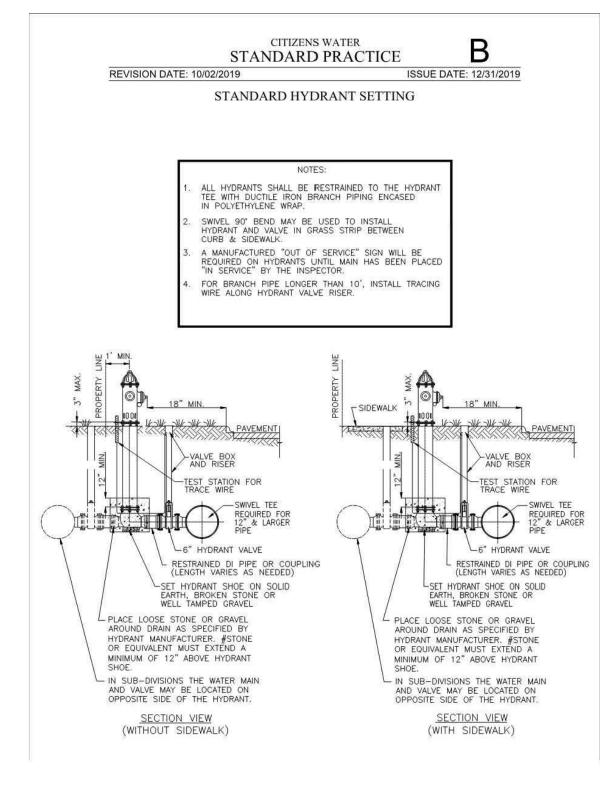
DETAIL 514 - STANDARD HYDRANT/BLOW OFF BLEED DETAIL NOT TO SCALE



DETAIL 518 - TYPICAL BORING CASING PIPE DETAILNOT TO SCALE



DETAIL 513 - STANDARD 8" VALVE BOX AND COVER DETAIL NOT TO SCALE



DETAIL 517 - STANDARD HYDRANT SETTING FOR 6" & 8" WATER MAIN SIZES DETAIL NOT TO SCALE

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Civil & Environmental Consultants, Inc. 530 EAST OHIO STREET, SUITE G INDIANAPOLIS. INDIANA 46024 PH: 317.655.7777 FAX: 317.655.7778 arcdesign rchitecture + interio ARC DESIGN, P.C. LIUNA LOCAL 120 5430 LAFAYETTE ROAD INDIANAPOLIS, INDIANA 46254

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SITE DETAILS

DRAWING NO.: **C805** SHEET 21 OF - SECTION 401 GENERAL

401.01 Approved Materials The materials used in the construction shall be in full conformance with those guidelines set forth below and according to the applicable ASTM, AWWA, and ANSI specifications. The final approval

These material requirements are minimum requirements and are in part restatements of requirements set forth within the referenced standards, with noted exceptions. The Engineer shall be ultimately responsible for designing and selecting the appropriate material for each specific application. Information from the referenced specifications has been the engineer, contractor, and manufacturer must also assume the responsibility of familiarizing themselves with these requirements. The City will not assume responsibility for noncompliance with the referenced specifications as a result of information not

Each length of pipe or culvert, subsurface drainage tile, and each manholes and box inlet structure shall be marked per the requirements of each respective ASTM Standard referenced within this

401.03 Certification of Materials The Department shall reserve the right to require material certification from the manufacturer prior to or during construction of the storm water drainage facilities as deemed necessary to ensure the material supplied conforms to the prescribed requirements. Provisions for obtaining this certification

shall be the responsibility of the permit applicant. The City of Indianapolis does not assume the

401.04 Material Testing and Inspection

The Department shall reserve the right to require the manufacturer, at and Inspection the expense of the manufacturer, to perform those minimum inspections and tests set forth in each ASTM specification referenced herein. These inspections and tests will be required to ensure that the pipe or culvert material supplied conforms to prescribed requirements. This testing may be conducted by ne quality control section of each individual manufacturer, or may be overseen or conducted by a qualified independent private testing laboratory. The manufacturer shall be defined as the producer of those materials required by this standard having direct responsibility and authority for the satisfaction of those minimum material specifications set forth herein. In those instances where independent inspection and testing are deemed necessary by the Department, the responsibility for the expense of these services will be arranged on a case basis

401.05 Jacking and Boring Operations

Jacking and boring operations shall be in full conformance with the City of Indianapolis Sanitary District Standards for Design and Construction of Sanitary Sewer (latest revision)

The pipe materials accepted for jacking and boring shall be as follows:

responsibility for the expense of obtaining material certification.

Class 50, 51, 52, or 54 ductile iron pipe in conformance with AWWA C 151, and cast iron pipe in conformance with AWWA C151.

Steel Pipe

Electric—fusion, arc—welded steel pipe in accordance with ASTM A 139, grade B, or

3. Reinforced Concrete Pipe

Reinforced concrete pipe of 30-inch inside diameter and over may be jacked, and shall be Class III or higher with gasketed, tongue and groove joints. All pipes shall have stee reinforcement concentric with the pipe wall, and additional reinforcement at the end of the pipe. The pipe shall be in accordance with ASTM C 76, and shall have a minimum 8-day compressive strength of 5000 psi. Joint steel shall extend as deep as possible into the bell and spigot without destroying continuity of the pipe joint. Bentonite fittings of sufficient size and frequency shall based upon an evaluation of site conditions by the contractor, with consideration criteria for final acceptance of the installed system by the Department. A steel be used in lieu of tongue and groove.

4. Other Materials

Other materials such as HOBAS fiberglass pipe will be approved for jacking and boring operations on a case basis by the Department, provided sufficient specifications and documentation of the accepted use of the alternative material has been reviewed and approved by the Department.

SECTION 402 PIPE MATERIALS 402.01 Introduction

The materials used in the construction of storm sewers and open culverts shall be in full conformance with those guidelines set forth below.

For the purpose of this Manual, a storm sewer shall be defined as:

A network of pipe conduits and precast concrete manhole and/or box inlet structures, which collect and convey surface and subsurface (soil) water through gravity flow from a specified geographical area. A arayity flow system utilizes elevation aradients to cause water flow. Subsurface drainage tiles, building floor drains, downspout outlets, roof conductors and sump pump lines are not considered as part of the requirements for storm sewers. Section 406 of this Chapter should be referenced for requirements relating to the connection of subsurface drainage tile systems to the enclosed storm sewer system. Storm water conveyance systems which route an xisting natural or man—made stream channel, open ditch, or storm sewer around or through a developing site shall be considered a storm sewer by this Department, and shall comply with the An open culvert shall be defined as a conduit open on both ends, intended to provide for free Open culverts do not generally contain "in—line" manholes, surface inlets or catchbasins. The term in—line" refers to a precast concrete manhole or box inlet as required by Section 404 of this Manual, which encompasses the entire diameter of the pipe conduit.

The definition of various classes of pipe materials shall be as follows:

1. Pipe Material Class No. 1 - Public Drainage Facilities (minimum 75 year design service life): All public facilities shall be constructed of Class No. 1 materials. Public Facilities shall mean any storm water facility located within the public right-of- way or a drainage easement, either existing or proposed, as required by any ordinance, rule, regulation, or policy of the City of Indianapolis, its departments, Boards, or

By way of example, but not limitation, the ability to require the granting of drainage easements is provided by Chapter 561

Section 10 $\frac{1}{2}$ -42, and within platted subdivision by the Subdivision Control Ordinance. The Department will require the granting of drainage easements for those storm water facilities located outside of the public right-of-way, which drain greater than five (5) acres of off-site storm water runoff. Off-site shall mean that property not under the same ownership as the parcel containing the storm water facilities. The granting of a drainage easement to the City of Indianapolis does not create a responsibility for the City to maintain the drainage facilities located within the easement

2. Pipe Material Class No. 2 - Open Culvert Facilities (minimum 50 year service life): Open culverts, except those driveway culverts located within the public right—of—way shall be constructed of Class No. 2 materials. Open culverts shall be defined as those drainage conduits which are open on both ends, and intended to provide for free passage of surface water runoff under highways, streets, roads, drives, shoulders, railroads, or other embankments.

3. Pipe Material Class No. 3 — Private Drainage Facilities (minimum 35 year design service life): All privately owned and maintained storm water facilities may be constructed of Class No. 3 pipe materials. Private drainage facilities shall mean any storm water system located outside any public right—of—way or drainage easement, either existing or proposed, as required by any ordinance, rule, regulation, or policy of the City of inapolis, or Marion County, or outside of any property owned by the City of Indianapolis, its departments, Boards, or agents. Pipe materials accepted by the Department depending upon varying class and service life

402.02 Class 1 Pipe Materials REQUIRED SERVICE LIFE - 75 YRS

> Reinforced concrete pipe Reinforced concrete horizontal elliptical pipe

Precast reinforced concrete box sections

Fully bituminous coated fully paved corrugated steel pipe: 14 gauge aluminum coated Type II or precoated galvanized, 12"—36" 12 gauge aluminum coated Type II or precoated galvanized, 42" and larger Fully bituminous coated, half paved steel helical ribbed pipe (Type IR):

14 gauge aluminum coated Type II, 12"-36" 12 gauge aluminum coated Type II, 42" and larger 16 gauge aluminum alloy helical ribbed pipe (Type IR) High density polyethylene pipe (HDPE), 12"-36" Polyvinyl chloride pipe (PVC), 12"-36"

402.03 Class 2 Pipe Materials REQUIRED SERVICE LIFE - 50 YRS

Reinforced concrete pipe Reinforced concrete elliptical pipe Precast reinforced concrete box

Half bituminous coated with payed invert, corrugated steel pipe: 14 gauge precoated galvanized steel pipe 14 gauge aluminum Coated Type II corrugated steel pipe

14 gauge aluminum alloy helical ribbed pipe (Type IR) 14 gauge corrugated aluminum alloy pipe Steel structural plate pipe, pipe arches and long-spans Corrugated aluminum alloy box culvert

Corrugated galvanized steel box culvert Residential driveways and commercial and industrial entrance/exit drives in public R/W: Concrete, 12"-30"

All Class 2 materials, 36" and larger

402.04 Class 3 Pipe Materials REQUIRED SERVICE LIFE - 35 yrs

Reinforced concrete pipe Reinforced concrete elliptical pipe Precast reinforced concrete box sections 16 gauge metal pipe:

Corrugated steel pipe and pipe arch Precoated galvanized steel pipe and pipe arch Aluminum Coated Type II corrugated steel pipe and pipe arch

Aluminum Coated Type II steel helical ribbed pipe (Type IR) Corrugated aluminum alloy pipe and pipe arch Aluminum alloy helical ribbed pipe (Type IR) Steel structural plate pipe, pipe—arches, and long spans Corrugated aluminum allov box culvert

Corrugated galvanized steel box culvert High density polyethylene pipe (HDPE), 12"-60" Polyvinyl chloride pipe (PVC), 12"-36"

The above materials are the minimum allowed. If a longer service life is desired, some materials will need

NOTE: The minimum pipe diameter for all pipe material (Class 1, 2 and shall be 12", except for Class II

Existing drive culverts which have reached the end of their effective service life and are proposed to be extended shall be replaced with those alternate open culvert materials specified by this Chapte Precast storm sewer manholes or box inlets will be required between steel pipes of equal size and shape but differing metal types. Section 404 of this Chapter should be referenced for additional requirements relating to placement of precast storm

To satisfy minimum structural requirements, aluminum—alloy pipe, aluminum coated steel pipe, precoated steel pipe, and galvanized steel pipe materials shall confirm to the gauge requirements of Tables 501—6, 501-7, 501-8, and 501-9 within Chapter 500 of this Manual. The minimum gauge of aluminum—alloy pipe, aluminum coated steel pipe, precoated steel pipe, and galvanized steel pipe shall be the greater of those minimum gauges outlined above, or those minimum 403.07 Reinforced Concrete Pipe (RCP) gauges required to satisfy structural limitations of the manual. The structural design of all pipe materials shall be in accordance with the most restrictive of either

The selected pipe material (from the above list) should be identified on the submitted plans.

manufacturer's recommendations, or AASHTO structural design requirements.

402.05 Bituminous Coating's and Paving's

When used with coated pipe of 36 inch and larger diameter, corrugated metal connecting or coupling bands he bituminous material for coating and paving of corrugated metal pipe shall be in full conformance with the Indiana Department of Transportation Standard Specifications. When applied to the pipe, the bituminous material shall be free from impurities and the metal shall be free from grease, dust, moisture, or other deleterious material. The following two processes have been adopted from the Indiana Department of Transportation Standard Specifications and may be used for application of the bituminous material for corrugated metal pipes referenced herein.

1. When the pipe is not preheated, the temperature of the asphalt at the time of immersion shall be 400-degrees F +/-5 degrees F. The duration of the immersion in the asphalt shall be in accordance with the following: Thickness - 0.052 0.064 0.079 0.109 0.138 0.168 (inches)

Immersion - 2.0 2.5 3.0 5.0 6.5 8.0 Time for First Dip

2. When the pipe is preheated it shall be brought to a temperature of 300-degrees F and the asphalt shall be heated to a temperature of 380-degrees F \pm before the pipe is dipped In either of the above processes, the pipe shall be dipped a second time or more if necessary, to give a minimum thickness of 0.05 of an inch. If payed invert is specified for circular pipe or pipe-arch, the pipe shall be fully or half coated smooth pavement. Except where the upper edges intersect the corrugations, the pavement shall have a minimum thickness of 1/8 of an inch above the crests of the corrugations. For circular pipe the pavement shall be applied to the lower 1/4 of the circumference. For pipe-arches the pavement shall be applied to the lower 40 percent of the inside periphery. Polymer precoated corrugated steel pipe shall be in full conformance with AASHTO M245 (or ASTM Designation A762) and AASHTO M246 (or ASTM Designation A742) Grade 10/10. Bituminous coated and smooth lined galvanized corrugated steel pipe shall be coated as required herein and shall be lined on the inside of the pipe so that a smooth surface will be formed completely filling the corrugations to a minimum thickness of 1/8" above the crests and a maximum of ½" above the crest. The interior lining shall be applied by a centrifugal or other approved od and shall be free from sags and runs. The lining material shall meet the requirements of Fiber-bonded corrugated metal pipe shall be in full conformance with Section 908.08 of the Indiana Department of Transportation Standard Specifications, latest revision.

SECTION 403 MATERIAL SPECIFICATIONS

This section outlines requirements for the manufacture of storm sewer and open culvert materials according o applicable American Association of State Highway and Transportation Officials (AASHTO) and American Society for Testing and Materials (ASTM) specifications. These material requirements are in part restatements of requirements set forth within the referenced standard, with noted exceptions. A summarization o information from the referenced ASTM and AASHTO specifications has been included within this section for the convenience of the reader, however, the designer, contractor, and manufacturer must also assume the responsibility of familiarizing themselves with these specifications as they apply to those guidelines set forth herein. The Department will not assume responsibility for noncompliance with the referenced specifications as a result of information not provided by this Manual. Each storm sewer pipe or open culvert material has been separated into sections which will generally contain the following information: production and material standards; pipe joint replacements; criteria for rejection of damaged materials; and material markings.

403.03 Galvanized Structural Plate Pipe, Pipe Arches, Arches, Long-Spans, and Box Culverts

 Production and Material Standards Galvanized structural plate culverts must be formed from galvanized structural plate in conformance with ASTM A 761, and ASTM A 796.

Steel sheet used for flat plate shall be galvanized by the hot—dip process according to ASTM A 444.

Repair of damaged hot-dip galvanized coatings shall be in conformance with ASTM A 780 2. Rejection of Damaged Galvanized Structural Plates

Galvanized structural plates possessing the following defects may be rejected for installation: dents or bends in the metal; lack of integrity; illegible markings as specified herein on the galvanized sheet; ragged or diagonal sheared edges

3. Galvanized Structural Plate Markings For galvanized structural plate products, each plate shall be identified on the inside with the following information as a minimum: name of manufacturer; specified zinc-coated thickness; specified coating weight (mass); identification showing heat number and coating lot number (may be omitted if fabricator's records tie the coating lot number to a specific heat number and manufacturer); and ASTM designation.

Exterior field applied coatings of asphaltic mastic or tar base material shall be required for all galvanized structural plates with less than five (5) feet of cover in conformance with AASHTO M 243.

403.05 High Density Polyethylene Pipe (HDPE)

For corrugated metal pipe products, each corrugated sheet used in the fabrication of annular pipe, and each 2 to 5 feet of coiled sheet used in fabrication of helical pipe must be identified with the following information: name of sheet manufacturer; alloy and temper; specified thickness; ASTM designation; and heat number.

 Production and Material Standards for HDPE Corrugated High Density Polyethylene Type S (HDPE) pipe shall be manufactured in accordance with AASHTO M 294. and ASTM F2306. The flexibility factor of HDPE pipe shall not exceed 0.095.

Ribbed Polyethylene pipe shall be in accordance with ASTM F

894 for the specified sizes, meeting the requirements for RSC 100 or RSC 160. Pipe manufactured under this specification shall have a minimum Cell Class of 334433C in accordance with ASTM D 3350. Smooth wall Polyethylene pipe shall be in accordance with ASTM F 714 for the specified sizes. Pipe manufactured under this specification shall have a minimum Cell Class of 35434C in accordance with ASTM D 3350. All polyethylene pipe and fittings shall be made from high molecular weight high density polyethylene material meeting the applicable Cell Class requirements. All polyethylene material used in storm sewer pipe manufacture shall be virgin resin.

High Density Polyethylene pipe shall possess male and female pipe ends which allow the construction of overlapping, gasketed pipe joints, in conformance with the requirements of ASTM D 3212. The gasket material shall conform to all requirements of ASTM F 477. As an alternative, pipe joints utilizing external coupling bands will be accepted, provided the minimum AASHTO requirements for satisfying soil tightness are also achieved.

MANUFACTURED WYES, TEES, ELBOWS, OR ADAPTERS WILL NOT BE ACCEPTED FOR USE IN PLACE OF PRECAST STORM SEWER MANHOLES AND BOX INLETS UNLESS PREVIOUSLY APPROVED BY THE 404.01 Introduction For the purpose of this Manual, a storm sewer manhole shall mean: PRECAST MANHOLES AND BOX INLETS WILL BE REQUIRED WITHIN HDPE STORM SEWER SYSTEMS AT CHANGES IN GRADE, ALIGNMENT, SIZE, AND PIPE MATERIAL TYPE, AS OUTLINED WITHIN CHAPTER 500 OF THIS MANUAL UNLESS PREVIOUSLY APPROVED BY THE DEPARTMENT.

3. Rejection of Damaged HDPE High Density Polyethylene pipe possessing the following defects may be rejected for installation ations from straight centerline; elliptical shape in pipe intended to be round; illegible markings as required herein; deep or excessive gouges or scratches on the pipe wall; fractures, punctures, or cracks passing through the pipe wall; damaged or cracked ends where such damage would prevent making a satisfactory joint.

4. HDPE Pipe Markings

For high density polyethylene pipe products, each length of pipe shall be clearly marked with the following information as a minimum: manufacturer's name or identification symbol; nominal pipe size;

403.06 Polyvinyl Chloride Pipe (PVC)

. <u>Production and Material Standards</u> Polyvinyl Chloride (PVC) profile wall gravity flow storm sewer pipe shall be the integral wall bell and spigot type with elastomeric seal joints and smooth inner walls in accordance with AASHTO M 304. A minimum Cell Class of 12454C or 12364C as set forth by ASTM D 1784 shall be required. Smooth wall PVC pipe shall be in accordance with ASTM F 679 or AASHTO M 278 for the specified sizes, and shall have a minimum Cell Class of 12364C for pipes meeting specification ASTM f 679, or 12454C for pipes meeting specification AASHTO M 278. Cell class properties shall be as set forth by ASTM D 1784.

2. PVC Joints Flexible, gasketed joints shall be compression type so that when assembled, the gasket inside the bell is compressed radially on the pipe spigot to form a soiltight seal. The assembly of joints shall be in accordance with the pipe manufacturer's recommendations. and ASTM D 3212. The gasket shall onform to the requirements of ASTM F 477. All field—cutting of pipe shall be completed in a nec trim manner using a hand or power saw. PRECAST MANHOLES AND/OR BOX INLETS WILL BE REQUIRED WITHIN PVC STORM SEWER SYSTEMS AT ALL CHANGES IN GRADE, ALIGNMENT, SIZE, AND PIPE MATERIAL TYPE, AS OUTLINED WITHIN CHAPTER 500 OF THIS MANUAL MANUFACTURED WYES, TEES, ELBOWS, OR ADAPTERS WILL NOT BE ACCEPTED FOR USE IN PLACE OF MANHOLE OR BOX INLET STRUCTURES UNLESS PREVIOULSLY APPROVED BY THE DEPARTMENT

. <u>Rejection of Damaged PVC</u> Polyvinyl Chloride Pipe possessing the following defects may be rejected for installation: variation from straight centerline; elliptical shape in pipe intended to be round; illegible markings as required herein; deep or excessive gouges or scratches of the pipe wall; fractures, punctures, or cracks passing through the pipe wall; damaged or cracked ends where such damage would prevent making a satisfactory joint.

. PVC Pipe Markings For polyvinyl chloride pipe products, each length of pipe must be marked with the following ation as a minimum: name of manufacturer; tradename or trademark; nominal pipe size; production/extrusion code; material and cell class designation; and ASTM designation.

Production and Material Standards Reinforced concrete pipe shall be Class III, IV, or V in accordance with ASTM C 76, latest edition. A minimum "B" wall thickness will be required. Elliptical reinforced concrete pipe shall be a minimum Class HE-II in full conformance with the reauirements of ASTM C 507 orced concrete pipe shall meet all requirements of AASHTO M86 for the specified diameter and strength classes. Fliptical reinforcement shall be permitted only by written approval of the Department ongitudinal reinforcement shall be continuous and all reinforcement shall have a minimum concrete cover of 3/4-inch. Upon request by the Department the manufacturer shall furnish certification on the type of cement aggregate, and steel used in the pipe furnished.

Lift holes will not be allowed for reinforced concrete pipe less than 36-inches in diameter. A maximum of two (2) lift holes may be provided for each section of reinforced concrete pipe 36inches in diameter and larger. Lift holes must be repaired in a clean, workmanlike manner using a conical shaped precast concrete plug, properly sealed into place using mastic or non— shrink cement grout. Compliance with the Indiana Department of Transportation Standards and Specifications for completion of lift hole repair shall be required. Concrete pipe shall be furnished with a bell or grove on one end of a unit of pipe, and a spigot or tongue on the adjacent end of the adjoining pipe. All joints shall have a groove on the spigot for

placement of a rubber gasket in conformance with ASTM C 443. The gasket shall be a continuous ri which fits snugly into the annular space between the overlapping surfaces of the assembled pipe joint to form a flexible soiltight seal. As an alternative, mastic joints installed in conformance with Manufacturer's recommendations will be accepted by the Department outside of the public right-of-way, however, mastic concrete pipe couplings shall be wrapped with a '1' wide strip of non-woven geotextile fabric around the entire pipe diameter. Joint mastic material can be lost over time due to the external hydrostatic pressures of groundwater, allowing the migration of backfill materials into the storm sewer system through the open joint.

3. Rejection of Damaged RCP Individual sections of reinforced concrete pipe may be rejected because of any of the following: fractures or cracks passing through the wall, except for a single end crack that does not exceed the depth of the joint; defects that indicate proportioning, mixing, and molding not in compliance with Section 10.1 of ASTM C 76; surface defects indicating honey—combed or oper exture; damaged or cracked ends where such damage would prevent making a satisfactory joint; any continuous crack having a surface width of greater than 0.01 in., and extending for a length of 12 in. or more, regardless of position in the wall of the pipe; visible spacers or longitudinal reinforcement used to position the reinforcing cage shall not be cause for rejection or reinforced

Each length of reinforced concrete pipe must be marked with the following information as a minimum: date of manufacture; ASTM class of pipe and specification designation; size of pipe; tradename or the manufacturer; and plant identification.

Production and Material Standards

Precast reinforced concrete box sections for open storm drainage culverts must be manufactured from a homogenous concrete mixture conforming to the test and design requirements of ASTM C1433. Box sections must be cured in such a manner that the specified compressive strenath of the concrete is achieved in 28-days or less. Compressive strength tests must be conducted in accordance with Section 10 of ASTM C 1433 prior to shipment. Reinforced concrete box sections are divided into three design types, dependent upon varying earth dead load and HS20 and Interstate live loading conditions. Each type of box section must be designated by type, span, rise and design earth cover. Precast reinforced concrete sections manufactured in accordance with ASTM C1433will also be accepted by the Department, under those minimum cover conditions for which this standard is intended to apply.

Reinforced Concrete Box Joints Precast reinforced concrete box sections shall be produced with male and female ends, designed to allow box sections to be laid together in a continuous line. Reinforced concrete box joints shall be sealed using either trowelable grade butyl rubber or asphaltic mastic to form a soiltight seal. Reinforced concrete box joints shall be wrapped around their entire diameter with a 1' wide non-woven geotextile fabric wrap.

3. Steel Reinforcement of Concrete Box Sections The minimum cover of concrete over the steel reinforcement shall be 1-inch. The inside steel reinforcement shall extend into the male portion of the joint. The outside steel reinforcement shall extend into the female portion of the joint. The clear distance of the end reinforcement steel wires must not be less than $\frac{1}{2}$ -inch or more than 2-inches from the end of the box section.

4. Rejection of Damaged Concrete Box Sections Individual box sections may be rejected because of any of the following: fractures or cracks passing through the wall, except for a single end crack that does not exceed the depth of the joint; honeycombed or open texture that would adversely affect the function of the box sections; the ends of the box sections are not

5. Reinforced Concrete Box Section Markings For reinforced concrete box sections, each length of a reinforced concrete box must be marked with the following information as a minimum: box section span and rise; ASTM table number; maximum and minimum design earth cover; specification designation; date of manufacture; name of trademark of manufacturer, and; orientation of the top of the structure.

normal to the walls and center line of the box section, within the specified acceptable tolerances.

403.09 High Impact Polypropylene or High— Density Polyethylene Plastic Facilities

The plastic shall be resistant to environmental stress cracking and maintain adequate stiffness through higher temperatures experienced during installation and service. The chambers shall be designed to exceed the American Association of State Highway and Transportation Officials (AASHTO) recommended Load and Resistance Factor Design (LRFD) for earth loads and HS-20 live loads, with consideration for impact and multiple presence when installed per the manufacturer' minimum requirements. The plastic chambers shall have a design life of 75 years. All underground detention facilities shall be designed with a positive gravity outfall or a certification from a licensed geotechnical engineer;

that the permeability of the surrounding soils will dissipate water at a rate required for the detention that no adverse impact to any subsurface systems (including septic systems) will be experienced, and that the underground detention facility will not be subject to ground water surcharge during any

Any facility that allows exfiltration within a "Well—Head Protection Areas" needs prior approval from the Department of Public Works Office of Environmental Services. If the system is designed to use the storage volume of the stone surrounding the structure, a 40 percent porosity factor shall be utilized for the surrounding washed #8 stone. All storm water shall be routed through a Storm Water Best Management Practice (BMP) meeting City No storm water shall be routed through the detention facility until the Storm Water Best Management Practice (BMP) is installed and fully functional and all construction érosion control for disturbed areas are installed to ensure no sediment build—up in the underground detention storage facility. The erosion control methods and BMP"s must be inspected after each rain event and repaired or cleaned where necessary. The O&M Manual for all BMP"s located prior to the underground detention storage facility require the BMP"s to be inspected (4) times per year and cleaned as necessary to ensure maximum performance relative to

A reinforced concrete cylinder or reinforced concrete vault as detailed herein, placed below ground at varying points along a storm sewer pipe system, to provide access for maintenance and/or as a point of entry for surface or subsurface water flows. Manholes and precast concrete box inlets may be constructed as catchbasins, in which the outlet pipe is installed 24-inches above the manhole base so that sediment and other debris may be "caught" before entering the storm sewer pipe system. A storm sewer manhole, or precast concrete box inlet must be installed at the end of each line segment; at all changes in grade, size, materials, and/or alignment of the storm sewer pipe line; at all pipe intersections; and at intervals not greater than those specified herein Precast reinforced concrete or prefabricated corrugated metal wyes, tees, and elbows of the same diameter as the storm sewer or culvert pipes will be accepted at horizontal alignment changes within storm drainage systems of 48-inch inside diameter or larger, provided precast or poured-in-place manholes or box inlets are also provided at the required maximum interval of 800 48-inch vertical precast reinforced concrete or prefabricated corrugated metal tees may be used in place of precast or poured-in-place manholes or box inlets within 48-inch to 144-inch inside diameter reinforced concrete or corrugated metal storm drainage systems. Corrugated metal tees and risers shall be of the same material type and gauge as the connecting pipe, prefabricated by the pipe manufacturer, possessing continuous welded seams properly recoated with zinc galvanizing compound. Precast or prefabricated wyes or tees may be utilized for attachment of lateral storm sewer or subsurface tile lines to 48—inch inside diameter or larger drainage systems, however, at least one manhole structure as specified herein must be provided a minimum distance of 250 feet from the

Catchbasins to be maintained by the City of Indianapolis shall be located within easily accessible ledicated easement or right—of—way areas of sufficient size to facilitate the required maintenance of Chapter 100 of this Manual should be referenced for minimum required easement locations and

In order to provide for adequate access to the enclosed storm sewer drainage system manholes or precast concrete box inlets shall be provided at the following maximum intervals:,

Size of Pipe (inches) Maximum Distance (feet) 12 thru 18 21 and larger

Figures 400-01 through 400-04 of the Standard Details should be referenced for an illustration of accepted manhole and precast box inlet construction. The Department will accept the following types of storm sewer structures according to those standards and specifications

404.02 Monolithic (Cast-in- Place) Storm Sewer Structures

Monolithic pour storm sewer manhole and box inlet structures may be approved on a case basis by the Department provided plan specifications showing at a minimum the concrete mix, steel einforcement details, pipe connections and manhole or box inlet dimensions are submitted and approved prior to construction. Substantial field changes of the approved construction drawings shall be certified by design consultant, and receive approval of the Department prior to completion of the proposed Failure to comply with this specification may necessitate the removal and reconstruction of that portion of the storm water facility.

404.03 Precast Storm Sewer Manhole Structures

Precast reinforced concrete storm sewer manholes including bases, risers/barrels, cones and flat slabs shall constructed of either wet or dry cast Class A concrete meeting or exceeding the requirements of ASTM C 478, latest revision. Precast reinforced concrete storm sewer manholes shall be manufactured, tested and marked in accordance with ASTM C 478, and may be constructed with the base and the first riser section as one complete precast unit, or as a separate base and riser section for diameters 60" and larger. Alternative construction methods for connections to existing storm sewer lines will be approved on a case basis by the Department Precast reinforced concrete manhole cones shall be the eccentric cone type. Precast reinforced concrete flattop slabs may be used in place of eccentric ones, provided a minimum of 6-inches of soil depth over the concrete slab is provided for establishment of permanent vegetation, in those areas where permanent vegetation is deemed necessary. Lift holes must be repaired in a clean, workmanlike manner using a conical shaped precast concrete plua.

properly sealed into place using mastic or non-shrink cement grout. As an alternative, lift holes may be repaired with 100 percent non-shrink epoxy grout; then smoothed and covered, both inside and out, with a trowelable grade butyl rubber backplaster material to ensure a watertight seal. Joints between precast storm sewer manhole elements shall be sealed utilizing one of the following alternatives: 1) An approved rubber gasket manufactured and installed in accordance with ASTM C 443, latest edition, 2) Trowelable grade butyl rubber, or 3) A ½-inch diameter non— asphaltic mastic (Kent Seal or approved equal) conforming to AASHTO M 198 and Federal Specifications SS-521-A. All precast reinforced concrete storm sewer manholes shall be steam or heat and water mist cured and shall not be installed until at least five (5) days after casting. Exceptions to this "5-day" rule shall be considered by the Department on a case basis after written notification and submittal of subject structure test data verifying conformance to the 28-day specified compressive strength. 404.04 Precast Concrete Box Inlets and Catchbasins

Precast concrete box inlets and catchbasins constructed in accordance with Indiana Department of Transportation (INDOT) Standard Specifications will be accepted for use. Inlet and catchbasin Type "A" *, Type "B", Type "C", Type "E", Type "J", Type "K", and Type "M" may be used. Alternative precast or poured-in-place box inlet types will be accepted provided all standard specifications of the Indiana Department of Transportation, City of Indianapolis, Department of Transportation (IDOT), and this Department are fully met or exceeded. The structural design of precast concrete box inlets and catchbasins shall be in full conformance with the requirements of ASTM C 890. *A MAXIMUM DEPTH OF 4 FEET FROM THE BOTTOM OF CASTING TO THE OUTLET PIPE INVERT SHALL BE ALLOWED FOR TYPE "A" PRECAST BOX INLET STRUCTURES MORTARED BRICK OR BLOCK WILL NOT BE AN ACCEPTED METHOD OF BOX INLET OR MANHOLE CONSTRUCTION

The concrete base of reinforced concrete monolithic pour or precast manholes shall be of 6 inch minimum thickness for 4 foot diameter structures, and of 8 inch minimum thickness for larger diameter structures, and shall be constructed of Class A concrete having companying strength of 4000 psi The wall and base thickness of precast concrete box inlet structures shall be as specified by the Indiana Department of Transportation Standard Specifications, and must also be constructed of Class A concrete having a minimum compressive strength of 4000 psi. having compressive strength of 4000 psi.

The concrete base of reinforced concrete monolithic pour or precast manholes shall be of 6 inch minimum thickness for 4 foot diameter structures, and of 8 inch minimum thickness for larger diameter structures, and shall be constructed of Class A concrete having compressive strength of 4000 psi. The wall and base thickness of precast concrete box inlet structures shall be as specified by the Indiana Department of Transportation Standard Specifications, and must also be constructed of Class A concrete having a minimum compressive strength of 4000 psi. Bench walls shall be shaped and formed for a clean transition with proper hydraulics to allow the smooth conveyance of flows through the manhole or box inlet. The bench wall shall form a defined channel, to a minimum height of 80-percent of the inside diameter of the inlet and outlet pipes to form a "U" shaped channel, constructed at a minimum ½— inch per foot slope to the manhole wall. Where a flow channel is constructed as an integral part of the pre-cast base, it shall be shaped and formed as described above, with the exception that the bottom of the flow channel may be formed from the bottom of inlet and outlet pipes if the pipe wall thickness is not greater than one (1) inch. For cast—in—place flow channels, the bottom invert of all pipes entering a manhole shall be at least three (3) inches above the top of the base slab to the outlet invert so the finished sewer channel may be installed and shaped. For connections to existing storm sewer structures, flow channels shall be shaped, as specified herein. it were a new manhole or box inlet structure

Precast Adjusting RingsWhere one (1) solid riser or barrel section cannot be used, final adjustments in elevation of the casting frame and grate for precast manholes shall be accomplished by the use precast concrete adjusting rings of a minimum nominal thickness of two (2) inches, as shown in Figure the Standard Details, and conforming to ASTM C 478. The maximum number of adjusting rings shall be four (4), with the total height not exceeding 12". A water tight seal shall be provided between the precast manhole and riser ring, each adjoining riser ring and between the riser ring and casting by the use of either two (2) rows of ½ inch extrudable preform gasket material, non-asphaltic mastic, or trowelable grade butyl rubber, as shown in Figure 400-05 of the Standard Details. Concrete adjusting rings shall conform to ASTM C 478 and be free from voids, cracks, and other defects, adjusting ring shall be from the same manufacturer as the manhole cone section to assure compatibility and a watertight seal per Figure 400-05.

For precast concrete box inlets, the adjustment of casting frame and Concrete Box Inlets and grate shall be accomplished using precast concrete spacers of a minimal Precast Spacers nominal thickness of six (6) inches. The maximum number of spacers allowed shall be four (4). A water tight seal shall be provided between each component of the precast box inlet and precast concrete spacers by use of non-asphaltic mastic, or trowelable grade butyl rubber. The adjustment of casting elevation for precast concrete box inlets may be accomplished using solid concrete block and mortar to a maximum height of six (6) inches. This type of casting adjustment shall be completed in conformance with the following:

1. No joint shall exceed 3/8 of an inch in width, and as nearly as practicable, adjoining courses shall break joints at ½ unit intervals. 2. Minimum constructed wall thickness shall be six (6) inches.

3. Mortar for laying brick shall be composed of one (1) part masonry cement and two (2)

4. Both the inside and outside of the adjustment area shall be plastered to at least $\frac{1}{2}$ of an inch thick using the above mortar mix, or a mixture composed of one (1) part of a combination of Portland cement and hydrated lime and two (2) parts mortar sand. The lime portion of this mix shall not exceed ten (10) percent of the sand. Plaster coats shall be smooth, clean, and

The maximum inside diameter of pipe allowed to connect to precast box inlet walls shall conform to Table 404-1 below. Table 404-2 outlines those minimum manhole diameters for storm sewer pipes entering or exiting a storm sewer manhole at the given range of angles.

TABLE 404-01: Maximum Pipe Inside Diameters for Precast Box

Straight Skew/Corner Structure Connection(1) Connection(2) Long Wall/Short Wall Long Wall/Short Wall

24" / 15"

Long Wall/Short Wall Long Wall/Short Wall

18" / 12"

FOOTNOTE TO TABLE 404-1:

404.09 Box Inlet and Manhole Dimensions

1. Straight—out connections should not be made to either precast box inlet wall touched by a skew/corner connection unless sufficient box inlet wall area remains on each side of the connecting pipe to ensure structural integrity of the precast box.

2. A maximum of two (2) skew/corner connections will be allowed for each precast box inlet.

TABLE 404-02: Minimum Manhole Diameter's Pipes Entering/ Pipes Entering/ Leaving at Leaving at

FOOTNOTE TO TABLE 404-2:

404.10 Pipe Connections

1. Pipe sizes from 12-inches to 24-inches shall be installed as per Figure 400-1.

3. Precast reinforced concrete pipes equal to and greater than 48 inches in diameter may be installed The number and entrance angle of pipe connections, with consideration given to outside pipe diameter(s), shall be limited to those guidelines established by Tables 404-1 and 404-2 to ensure maintenance of the structural integrity of the manhole or box structure. If at any time the structural integrity of the manhole or box inlet cannot be maintained, a cast-in-place structure will

2. Pipes equal to and greater than 36-inches, up to 48-inches in diameter, shall be installed as per

and section dimensions shall be submitted to the Department for review and approval prior to MANHOLE STEPS SHALL BE PROVIDED IN ALL STORM SEWER STRUCTURES 48-INCHES IN DIAMETER OR LARGER AS REQUIRED TO ALLOW ADEQUATE ACCESS FOR COMPLETION OF INSPECTIONS, CLEANING AND THE MAXIMUM DISTANCE FROM GRADE TO THE FIRST MANHOLE STEP SHALL BE 24"; THE MAXIMUM DISTANCE BETWEEN STEPS SHALL BE 16", AND THE MAXIMUM DISTANCE FROM THE LAST STEP TO THE STRUCTURE BENCHWALL SHALL BE 24" Manhole steps shall be made from a steel reinforcing rod encapsulated in a copolymer polypropylene resin. The manhole steps shall equal or exceed OSHA requirements. Manhole steps, manufactured by M.A. Industries, Inc., PS-1-PF, Clay & Bailey Mfg. Co., or equal or previously approved are

Steps shall conform to the requirements of ASTM C 478 and be manufactured using steel rods

encased in polypropylene plastic. Steps shall be factory installed when the manhole is manufactured.

Inlet and outlet pipes shall extend through the box inlet or manhole walls a sufficient distance to allow for placement of grouting material around the pipe diameter both inside and outside of the structure wall, preventing leakage around the pipes outer surface. Inlet and outlet pipes shall not extend through the nlet or manhole wall to such a degree that flow is obstructed. Holes for connection of storm sewer pipes shall be preformed by the manufacturer, or field cut or drilled. Preformed holes shall be the method preferred by the Department. At no time shall the pipe hole exceed the outer pipe diameter plus six (6)-inches (0.D. + 6"), to ensure a proper connection is achieved. Should e contractor elect to use manhole or box inlet structures with preformed thin wall "knock—outs", the balance of the "knock—out" area not occupied by the pipe connection and all remaining unused "knock—outs" shall be filled with 4000 psi Class A concrete to a finished wall thickness not less than that required by these standards. The use of preformed "knock-outs" shall not relieve the manufacturer from compliance with the reinforcement, dimension, and strength requirements specified herein. The annular space between the pipe and the precast manhole or box inlet wall shall be filled inside and outside with a grout mixture composed of 2 parts of No. 23 fine aggregate and one part of Portland

As an alternative, pipe connections to manholes utilizing an approved rubber gasket manufactured and

installed in accordance with ASTM C 923 will be accepted by the Department.

Unless otherwise approved, perforated subsurface drainage tiles, footer drains, or sump pump lines shall attach at a storm sewer manhole or box inlet structure. At these connections, precast or drilled holes shall be provided to a maximum of 2—inches larger than O.D. of the connecting line. These connections shall be made in a clean workmanlike manner, and properly sealed using either an approved mortar mix,

Where connections cannot be made to a manhole or box inlet structure, blind "T" connections to storm sewer pipe structures will be allowed on a case basis by the Department, provided a cut or core—drilled connection hole, with a minimum 6—inch inside diameter cleanout connection, is also provided. To relieve hydraulic groundwater pressure from around the enclosed storm sewer system, the Department may equire provision of perforated subsurface drainage tile "T" stubs, with filter fabric wrap, to be installed with manhole and precast box inlet structures greater than four (4) feet in depth. These subsurface drainage nes shall be an approved subsurface drainage tile material, with end caps, and shall extend a minimum of 10-feet in each direction from the manhole structure, placed just above the bench wall, as illustrated within Figures 400-01, and 400-02 of the Standard Details.

404.12 Rejection of Damaged Box Inlet and Manholes

Precast reinforced concrete manholes, risers and tops, and precast box inlets which possess any of the following defects shall be subject to rejection: fractures or cracks passing through the shell, except for a single end crack that does not exceed the depth of the joint; defects that indicate imperfect proportioning, mixing and molding; surface defects indicating honeycombed or open texture; damaged ends, where such damage would prevent making a satisfactory joint; the internal diameter of the manhole section shall not vary more than one (1) percent from the nominal diameter; not clearly marked date of manufacture, tradename, size designation part number, and ASTM number; having a deviation more than 1/4 inch from the straight edge at any point across the top of the manhole cone section or riser ring; having any visible steel bars along the inside or outside surface of the manhole except for reinforcement stirrups or spacers used to position the cage during manufacture, and reinforcement bars visible at the manhole structure end, provided these reinforcement bar ends are properly grouted in conformance with applicable ASTM specifications.

SECTION 405 CASTINGS, FRAMES AND COVERS

405.01 Introduction The design engineer will be required to determine the feasibility of use and placement of each casting type, based upon required square footage of open area needed for proper conveyance of estimated storm

Storm sewer manhole covers shall be a solid lid casting as detailed within Figure 400-06 of the Standard Details. The words "Storm Sewer" and "City of Indianapolis" must be imprinted onto solid lid covers for those manholes placed within the public right-of-way or permanent drainage easements.

All castings shall also conform to the following requirements:

Casting shall be of uniform quality, free from blow holes porosity, hard spots, shrinkage, distortion or other defects. They shall be smooth and well—cleaned by shot blasting or other

approved method. All castings shall be manufactured true to pattern; component parts shall fit together in a satisfactory manner. Round frames and covers shall be of non-rocking design or shall have machined

horizontal bearing surfaces to prevent rocking and rattling under traffic.

All Castings shall be fully interchangeable. All weights shall not deviate from the tolerances permitted by ASTM standards, as specified within ASTM A 48, "Standard Specifications for Gray Iron Castings.

All castings shall be manufactured in accordance with ASTM A 48 Class $35\ B$, and shall have a minimum tensile strength of 35,000 psi.

Storm sewer manhole covers shall have the words "storm sewer" cast in recessed letters two (2) inches in All storm water inlets and catch basins shall have the words "No Dumpina, Drains to Stream", or similarly

approved message, cast in raised or recessed letters at a minimum of 1" in height. In addition, a symbol of a fish shall also be cast with the letters. CURB INLET CASTINGS WHICH POSSESS OPEN BACKS OR HAVE GRATE BARS PARALLEL TO TRAFFIC FLOW (ARE NOT "BICYCLE SAFE") WILL NOT BE ACCEPTED BY THE DEPARTMENT

SECTION 406 SUBSURFACE TILES

406.01 Introduction Subsurface tile as specified herein may be used to convey subsurface water collected in sump pits and footer drains to an acceptable drainage outlet, provided these drainage tiles are properly sized to accept these flows, and connections to the existing storm water facility are made as specified herein Subsurface tiles will not be considered adequate to accept other types of surface water flows, intended to be collected by an enclosed storm sewer system. Under those instances where surface inlets are to be provided within a subsurface tile line, the minimum requirements for storm sewer size and pipe material outlined within Section 401 of this Chapter shall apply.

406.02 General Requirements

The following requirements shall be adhered to as a part of all subsurface tile installations:

The water inlet area of perforated subsurface drainage tiles shall be at least one (1) square inch per foot of conduit length. Round perforations shall not exceed 3/16—inch in diameter, except where fabric filters or other filtration protection is provided. Slotted perforations shall not exceed 1/8-inch in width.

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cement joints per both the referenced ASTM Standards and the manufacturer's recommendations. Pre-formed wyes, tees, elbows and other special pipe fittings will be accepted for use provided they are manufactured and installed per ASTM and manufacturer requirements Solvent cement joints of polyvinyl chloride sewer pipe and fittings shall be installed using those methods and materials outlined within ASTM D 2564, ASTM F 493, and ASTM F 656. The recommended procedure for installation of solvent cement joints within Appendix X1 of ASTM F SUBSURFACE TILE SYSTEMS ARE REQUIRED TO BE PROVIDED WITH A "Y" CLEANOUT CONNECTOR AT A MINIMUM INTERVAL OF 400 FEET

2. <u>Tile Markings</u> All polyvinyl chloride and polyethylene subsurface drainage tile specified herein shall be marked per the respective ASTM Standards.

The Department shall reserve the right to require the Contractor to provide written certification from the manufacturer that each subsurface tile material proposed to be used as required herein has been sampled, tested, and inspected in accordance with the provisions of each ASTM

4. Minimum size The minimum size for all subsurface drains will be 6"

All subsurface tile that drains to an open ditch or swale must provide animal guards as per

406.03 Accepted Materials

The Department will accept those materials listed within Table 406-1 below, which meet or exceed the minimum requirements and ASTM specifications set forth herein, for installation of subsurface drainage

TABLE 406-01: Subsurface Drain Tile Materials MATERIAL TYPE ASTM DESIGNATION CORRUGATED POLYETHYLENE ASTM F405 TUBING AND FITTINGS

> CORRUGATED POLYETHYLENE ASTM F667 TUBING AND FITTINGS 8-24INCH

CORRUGATED POLYETHYLENE ASTM F667 TUBING AND COMPATIBLE FITTINGS

POLYVINYL CHOLRIDE(PVC) ASTM F949 CORRUGATED SEWER PIPE WITH SMOOTH INTERIOR

WALLS AND FITTINGS, 4-18INCH POLYVINYL CHLORIDE(PVC) ASTM D2729

SEWER PIPE AND FITTINGS POLYVINYL CHLORIDE(PVC) ASTM D3034

1. The ASTM Specifications referenced shall mean the latest revision. Copies of th pecifications can be obtained from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

2. Polyethylene pipe under this specification may be provided as a corrugated single wall, or double walled with a corrugated outer wall and smooth inner wall. All public infrastructure using HDPE must use double wall pipe. All public infrastructure using PVC should meet ASTM 3034 specifications, at a minimum. DOUBLE WALLED CORRUGATED POLYETHYLENE TILE MANUFACTURED UNDER SPECIFICATION ASTM F 667 AND PVC TILE MANUFACTURED UNDER SPECIFICATION ASTM E 949, ASTM D 3033, AND ASTM D 3034 WILL BE REQUIRED FOR INSTALLATION OF SUBSURFACE DRAINAGE TILE WITH LESS THAN 18" OF EARTH OR EQUIVALENT COVER

406.04 Limited Cover Installations

Installation of subsurface tiles shall be in accordance with the requirements of this Manual, and those quidelines set forth within ASTM F 449, "Subsurface Installation of Corrugated Thermoplastic Tubing for Agricultural Drainage or Water Table Control." Subsurface tiles shall be properly bedded with a #8 gravel envelope. Except as specified herein, a minimum depth of 12-inches (1 foot) of earth or equivalent cover above the top of the tile will be required. Chapter 500 of this Manual should be referenced for further information relating to the installation of subsurface tiles.

SECTION 407 PIPE END TREATMENTS

Protection of storm sewer pipe and open culvert ends is required to ensure maintenance of free-flowing inlets and outflows, to prevent flotation of the structure, and to protect against a migration of backfill materials. End treatments will include, but may not be limited to, stabilization of surrounding embankments, and provisions for end sections, footing supports, and end anchors.

407.02 Embankment Protection

Embankment slopes surrounding storm sewer pipe and open culvert ends shall be graded and stabilized with permanent vegetation cover at no greater than a 3 (horizontal) to 1 (vertical) slope. Seeding specifications and additional erosion control measures necessary to facilitate the establishment of permanent vegetation as specified within Chapter 600 of this Manual will be required. Embankment slopes steeper than 3 (horizontal) and 1 (vertical) may be stabilized with hand placed rock rip-rap of sufficient size to withstand the anticipated stream flow velocities, with provision of granular edding or approved geotextile as subgrade support. Alternative embankment stabilization methods such as reinforced concrete wingwalls and slope walls will be approved on a case basis by the Department.

407.03 End Protection The following end protection will be required by the Department for each pipe material type specified:

End sections for concrete pipe shall be precast concrete, with end footing support. The formulation of the concrete mix. Portland cement, agaregates, and reinforcing steel used in the onstruction of reinforced concrete end sections, headwalls, and slope walls shall be in ful conformance with the requirements of ASTM C 76. The pipe hole of precast concrete end sections shall be formed with a groove or tongue, for receipt of the reinforced concrete pipe end. Figure 400-07 of the Standard Details should be referenced for an illustration of standard dimensions of precast concrete end sections.

Plastic (PVC and HDPE) The open ends of high density polyethylene and polyvinyl chloride storm sewer pipes shall be protected using flared, prefabricated steel end sections. The connecting bands of steel end sections shall be formed to fit the standard outside diameter of the plastic pipe, so that a tight connection is achieved. Poured-in-place, reinforced concrete slope-walls may be utilized as an equal alternative to flared, prefabricated steel end sections. The formulation of the concrete mix. Portland cement, aggregates, and reinforcing steel used in the construction of reinforced concrete slope walls shall be in full conformance with the requirements of ASTM C 76. This method of hermoplastic pipe end protection will be preferred by the Department.

3. Corrugated Metal (CMP) The open ends of corrugated metal pipes shall be protected using flared, prefabricated steel end sections. The connecting bands of steel end sections must be formed to fit the standard outside diameter of the corrugated metal pipe to achieve a tight connection. Tables 407–1, 407-2, and 407-3 should be referenced for an illustration of the standard dimensions of steel EIGHTEEN (18) INCH TOE PLATE EXTENSIONS WILL BE REQUIRED FOR ALL METAL END SECTIONS

4. Box Sections and Structural Plate Arches Reinforced concrete box sections and structural plate arch culverts shall be provided with sufficient reinforced concrete end anchors, footing supports, headwalls, and/or embankmen protection as required to ensure stability of the surrounding embankments, and maintenance of the structural integrity and hydraulic performance of the culvert structure. JSE OF POURED-IN-PLACE REINFORCED CONCRETE HEADWALLS AS END TREATMENT IN THE

407.04 Culvert End Anchors and Footing Supports

For pipes larger than 60", the applicable INDOT standard details and specifications shall be used for pipe end anchors. The formulation of the concrete mix, Portland cement, aggregates, and reinforcing steel used in the construction of reinforced concrete end sections, headwalls, and slope walls shall be in full ormance with the requirements of ASTM C Eighteen inch (18") toe-plate extensions will be required for all galvanized steel end sections.

RIGHT-OF-WAY WILL BE ALLOWED ONLY AS APPROVED ON A CASE BASIS

CHAPTER 500 INSTALLATION OF STORMWATER FACILITIES SECTION 501 STORM SEWER PIPE AND OPEN CULVERT INSTALLATION

Storm sewer pipes and open culverts shall be laid to the lines and grade shown on the approved construction drawings, unless otherwise approved by the Department The design plans and specifications submitted to the department for issuance of a stormwater permit shall nclude a detailed trench drawing showing placement of the storm sewer pipe or open culvert within the trench, trench walls, type and depth of bedding and backfill materials, and compaction levels in conformance with those guidelines set forth herein. The standard proctor density referenced herein is intended to mean the maximum dry density of a backfill material as determined by those methods set forth within ASTM D 698. The percent standard proctor density efers to a ratio of the in—place dry density of a backfill material, determined by those methods set forth within ASTM D 1556, to the maximum dry density (determined by Test Method 698). The resulting quotient must be multiplied by 100, and the value obtained must meet or exceed those minimum values specified

501.02 Point of Commencement and Direction of Laying

The point of commencement for laying of storm sewer pipe, open culverts, and subsurface drainage tiles should be the lowest point in the proposed line. Provisions for beginning construction at other than the lowest point in the proposed line shall be approved by the design consultant. All bell and spigot pipe shall

Each pipe shall be laid on an even firm bed throughout its length, so that no uneven strain will come to any single portion of the conduit. Particular care shall be taken to prevent the total load from bearing on the pipe sockets. To accomplish this, all bells of bell and spigot pipes shall be carefully placed into a receiving hole excavated into the pipe bedding material. All pipes shall be properly joined, utilizing the manufacturer's assembly marks, if provided. Adequate pressure shall be applied to the center of each tongue and groove pipe to ensure the proper joint seal is achieved.

501.03 Establishment of Line and Grade

professional engineer or land surveyor registered in the state of Indiana will be required to set or oversee the setting of, all bench mark stakes necessary for storm sewer pipe, open culvert, manhole, and subsurface drainage tile installation. Bench marks shall be set in strategic locations within the project in order to facilitate the installation of grade stakes. Horizontal and vertical control of storm sewer pipe structures, open culverts, manholes, and precast box inlets will be required to be provided with record drawings to be submitted to the Department upon completion of the project. The accepted method of establishing and following line and grade in conformance with the approved construction plans may be determined by the Contractor.

501.04 Jetting or Flooding of Backfill

Jetting or flooding of the backfill shall <u>not</u> be used without the approval of the Indianapolis Department of Public Works (DPW), or the Indiana Department of Transportation (INDOT), as jurisdiction allows, and this

501.05 Multiple Pipe Installations and Skewed Culverts

When two or more conduits are to be installed in parallel lines, the following minimum spacings for pipe, pipe-arch, and arches must be provided between the outer most portion of the pipe walls:

| Р | IPE | PIPE-AR | ARCHES | | |
|------------|-------------|--------------|----------|---------|--|
| Diam eter | Spacing | Span | Spacing | Spacing | |
| Up to 24" | 12" | Up to 36" | 12" | 2" | |
| 24" to 72" | ½ Pipe O.D. | 36" to 108" | 1/3 Span | | |
| Over 72" | 36" | 108" to 189" | 36" | | |

Open culverts of 72" diameter and larger placed at a skew of greater than 15-degrees must have the surrounding embankment contoured to provide side support along the total length of the pipe structure.

501.06 Steep Slope Applications

Use of flange bolted ductile iron pipe, reinforced concrete pipe with poured-in-place concrete anchors (1 per pipe section), or banded corrugated metal pipe with poured—in—place concrete anchors (1 per pipe section) shall be required on those slopes greater than 15-percent (15%) to prevent joint separations and consequent system failures. Due to the potential abrasive forces of flow within systems possessing fifteen (15) percent or greater slopes, corrugated metal pipes and pipe—arches used in these applications shall possess a minimum metal thickness of 0.109 inches (12 gage), in addition to the required bituminous coating and invert paving specified within Chapter 400 of this Manual.

501.07 Material Handling

stormwater facilities. All pipe shall be unloaded with care. Corrugated metal pipe shall not be rolled or dragged over gravel or rock, and shall be prevented from striking or resting upon rock or other hard objects during installation. Great care must be taken to prevent pipe coatings or wrappings from being damaged. Each section of pipe shall be carefully examined for cracks and other defects prior to nstallation. Pipe or fittings found to be cracked, broken, or otherwise defective either before, during, or after installation, shall be removed and replaced with sound material. All pipes gaskets and other fittings shall be thoroughly cleaned prior to installation. Failure to properly ction materials and appurtenances during all phases of installation and acceptance may result in a faulty completed system which will require replacement. No portion of a storm sewer pipe, open culvert, manhole, inlet, orsubsurface tile system may be nstalled indirectly onto frozen ground or with frozen backfill material.

501.08 Minimum Construction Cover

Until such time as a minimum of four (4) feet of compacted fill material has been placed over installed storm sewer pipe or open culvert sections, the contractor shall not use heavy equipment in such a way

501.09 Trench Box Pulling and Sheeting

When required by the Occupational Safety and Health Act (OSHA) to protect life, property, or the work, sufficient protective measures shall be utilized in accordance with CFR 1926. Upon completion of the work, all temporary forms, shores, and bracing, other than as specified herein, shall be removed. The minimum equired density of structural backfill shall not be reduced during trench box pulling. All voids left by the removal of sheeting shall be carefully filled with properly compacted bedding material. Any damage to pavement or other structures due to sheeting, shoring, or bracing shall be repaired by the Contractor at his own expense. The City of Indianapolis, Department of Capital Asset Management, will not assume any liability for the actions of the developer, or his agent(s), in the performance of the required sheeting, shoring and bracing operations. Sheeting and bracing which is to remain in place shall be cut off at the elevation of 1.5 feet above the top of the storm sewer pipe or open culvert.

501.10 Trench Dewatering

Where groundwater is encountered, the Contractor shall make every effort necessary to secure a dry trench bottom prior to installation of the stormwater facility in conformance with Section 715 of the Indiana Department of Transportation Standard Specifications. The Contractor shall provide, install, and operate sufficient trenches, sumps, pumps, hoses, piping, wellpoints or other means necessary to depress and maintain he groundwater level below the base of the excavation. The Contractor shall be responsible for diverting or removing surface runoff and other accumulations of surface water from excavations. The City will not assume any liability for the actions of the developer, or iis agent(s), in the performance of the required dewatering operations. If pipe structures cannot be installed under trench conditions as outlined herein, all installation activities shall be terminated until acceptable conditions can be achieved. The Department shall reserve the right to terminate installation activities unde those trench conditions which are not in conformance with this Manual. Under no circumstances shall surface water and/or groundwater be discharged to, disposed of, or allowed to flow into the City of Indianapolis sanitary sewer system without approval from the Department

Sanitary sewers, combination sewers, and stormwater conduits which are to be abandoned shall be bulkheaded with mortar and an eight (8) inch thick solid concrete brick wall. Sanitary sewers, combination with sand or Cellular Concrete and plugged, unless otherwise indicated on the approved construction plans. Service shall be maintained within sanitary and combination sewers until the Department shall order bulkheads placed. Bulkheads shall be placed within stormwater conduits at the discretion of the design consultant. No timber bulkheads shall be allowed. Unless otherwise specified, all abandoned manholes, catch basins and inlets shall be removed to a depth of three (3) feet below the proposed or established ground elevation, or existing street grade, whichever is lower.

501.12 Trench Installations

For trench installations, the supporting soil beneath the pipe structure shall be defined as the foundation The pipe bedding is that portion of the backfill material which is shaped to contact the sides and bottom of the conduit, to prevent lateral displacement, and for establishment of design grades. Initial backfill shall be defined as that material placed from the pipe springline (1/2 the outside vertical pipe height) to 2) inches over the crown of the pipe. Regular backfill shall be that material placed from the initial backfill to the around or road surface. Bedding and backfill material classes referenced within this chapter shall be defined as follows:

Class I Angular, six (6) to forty (40) millimeters (1/4 to 1 $\frac{1}{2}$ inch) graded stone such as crushed stone. Indiana Department of Transportation (INDOT) Classification No. 5, No. 8, and No. 9, and No. 53. A No. 8 gravel possessing a minimum 50% mechanical crush count, and meeting the following nomin sizes and percents passing will be considered an equivalent Class I material: 100% passing 1" sieve; 75-95% passing 3/4" sieve; 40-70% passing $\frac{1}{2}$ " sieve; and 0-15% passing No. 4 sieve.

Class II Coarse sands and aravel-sand mixtures with a maximum particle size of forty (40) millimeters (1-1/2 inches), including variously graded sands and gravels containing small percentages of fines, generally granular and non-cohesive, either wet or dry. Soil types GW, GP, SW and SP are included in this class. Indiana Department of Transportation (INDOT) Classification for "B" borrow

Class III Fine sand and clay gravels, including fine sands, sand—clay mixtures and gravel—clay mixtures Soil types GM, GC, SM and SC (ASTM D 2487) are included in this class. These materials will not be

Class IV Silt, silty clays and clays, including organic— clays and silts of medium to high plasticity and liquid limits. Soil types MH, ML, CH and CL (ASTM D 2487) are included in this class. These materials will not be accepted as pipe bedding.

manner specified by this chapter. Whenever pipe trenches are inadvertently excavated below the designed bedding bottom, the SECTION 502 INSTALLATION OF PRECAST MANHOLES AND BOX INLETS compacted and shaped to form a firm, uniform trench base. entire length of the pipe. rests directly upon the bedding material. removed. Boulders or rocks are not to be used for any portion of the trench backfill. must use #8 stone as bedding and backfill material. All approved storm systems can use class bedding and backfill materials with the following compaction requirements. INDOT Classification No.5

Except as provided herein, the minimum trench width for storm sewers of 42-inch or equivalent diameter and smaller shall be 1.25 times the outside diameter (Bc) of the pipe plus 12-inches, and in no case shall provide less than nine (9) inches between the edge of the pipes and the trench wall. The minimum trench width for storm sewers larger than 42-inch or equivalent diameter shall be 1.25Bc + 24 502.04 Placement of Adjusting Rings and Spacers inches, and in no case shall provide less than twelve (12) inches between the edge of the pipe and trench For flexible conduits, the lateral resistance of in-situ soils shall be of sufficient stiffness to provide the required pipe support. Where unstable trench sidewall conditions exist, or where trench depth dictates the use of a moveable trench box, the design consultant must determine the width of compacted bedding and backfill material necessary to provide adequate pipe or culvert side support. The trench widths derived by these equations provide a minimum only. Exceptions to these minimums apply 502.05 Connections To Manholes only to concrete pipes located at least 5' outside of the edge of pavement. Under these conditions, th

design consultant must assume responsibility for determining the appropriate minimum trench width based

Figures 501-1 through 501-10 should be referenced for an illustration of storm sewer pipe and open culvert bedding and backfill materials required by the Department for each pipe material class. For the purpose of these specifications, the DOT pavement zone shall be defined as that area

1. Corrugated Metal Pipe (CMP) (Figure 501-1, 501-02)

Corrugated Metal Pipe (CMP) conduits shall be provided with Class I or Class II granular bedding 503.01 Introduction material from three (3) to six (6) inches (based upon pipe diameter) below the pipe barrel, to twelve (12) inches above the crown of the pipe. Class I material shall be shovel sliced or otherwise carefully placed and mechanically comp ensure proper compaction and complete filling of all voids. Class II material shall be compacted to 40-percent Standard Proctor Density as a minimum, except where the edge of the pipe trench is ocated within the DOT pavement zone as specified herein, where Class II material shall be compacted to 95-percent Standard Proctor Density. Bedding shall be placed in 6" to 12" balanced lifts.

From the pipe springline, corrugated metal pipe conduits shall be backfilled with Class I or Class II

Corrugated metal pipes located outside the applicable DOT pavement zone may be backfilled from twelve (12) inches above the crown with clean material, as shown in the Standard

2. Reinforced Concrete Pipe (RCP) (Figure 501-5, 501-6, 501-9 and 501-10)

Proctor Density, as a minimum, except where the edge of the pipe trench is located within the DOT pavement zone as specified herein, where Class II material shall be compacted to 95-percent Standard Proctor Density.

Initial and Regular Backfill

Reinforced concrete pipe conduits located within the applicable DOT pavement zone shall be backfilled from the haunch area with "B" Borrow backfill compacted to 95-percent Standard Proctor Reinforced concrete pipes located outside of the DOT pavement zone shall be backfilled from the haunch area with clean material as shown on the approved construction drawings

3. Plastic (PVC, HDPE) Pipe (Figure 501-4)

Bedding and Initial Backfill

Plastic Pipe conduits (PVC and HDPE) shall be provided with No. 8 crushed stone or approved Class I granular bedding material shovel sliced or otherwise carefully placed and mechanically compacted from four (4) to six (6) inches (based upon pipe diameter) below the pipe barrel, to a minimum of Bedding and initial backfill material shall be hand placed around the haunch and sides of the plastic pipe, to ensure proper compaction and complete filling of all voids. All bedding and initial backfill shall be placed in 6" to 12" balanced lifts.

backfilled from twelve inches above the crown of the pipe with clean material as shown on the

4. Reinforced Concrete Box Sections (Figure 501-7)

zone shall be with "B" Borrow backfill compacted to 95-percent Standard Proctor Density. clean material as shown on the approved construction drawings. The trench width for box sections shall be only as wide as is necessary to facilitate proper compaction of backfill material, provided the adjacent embankment material is structurally adequate to provide the necessary side support Verification of sufficient bearing strength of underlying soil foundation material, based upor manufacturer's recommendations, shall be required by the Department for all reinforced concrete box section installations. Soil boring report and bearing strength analysis shall be submitted with the drainage permit application.

packfill compacted to 95—percent Standard Proctor Density. as shown on the Standard Details. anticipated scour depth. Additional requirements may be made by the Department based upon a Verification of sufficient bearing strength of underlying soil foundation material, based upon manufacturer's recommendations, shall be required by the Department for all multi-plate drainage structures possessing a span of greater than 15-feet. Soil boring report and bearing strength analysis shall be submitted with the drainage permit application.

501.15 Height of Cover Tables

Tables 501-1 through 501-9, which have been developed from the American Association of State Highway and

501.16 Embankment Installations

Enclosed storm sewer piping systems are typically installed in a trench condition where the pipe is installed in a relatively narrow trench excavated in undisturbed soil, and then covered with backfill extending to the ground surface. Storm sewers and open culverts may also be installed in an embankment fill situation, where the conduit is overlaid by a constructed embankment. For embankment installations, a minimum width of properly compacted bedding and backfill material is required to ensure that adequate stiffness of the pipe

The design consultant will be responsible for establishing the minimum embedment width for embankment installations, utilizing those bedding and backfill materials specified herein, in full conformance with those minimum standards set forth by the American Association for State Highway and Transportation Officials (AASHTO) Standard Specifications for Highway Bridges, latest revision. Such factors as pipe stiffness, embedment stiffness, nature of in-situ soil, and anticipated construction and service loading shall be

502.02 Preparation of Base and Backfilling

The following information provides a summary of construction and installation procedures required by the Department for installation of storm sewer manholes and concrete box inlets.

The bottom of the excavation/trench for the manhole or box inlet shall be filled with a minimum of six (6) inches stone bedding to form a stable base. Where poor or unstable soil conditions exist, or over excavation has occurred, additional No. 2 stone or Class B concrete shall be used to form a stable base. Manhole and box inlet backfilling and compaction levels shall comply with the minimum requirements and specifications as outlined herein for the adjacent storm sewer pipe structure.

Precast manhole sections shall be placed and aligned to provide vertical sides. The completed manhole shall be rigid, true to dimensions and soiltight. The joints between manhole sections shall be properly sealed utilizing an approved rubber gasket in accordance with ASTM C 443, non-asphaltic mastic, or butyl rubber plaster material as specified within Chapter 400 of this Manual.

Precast concrete manhole and box inlet adjusting rings and spacers shall be installed as specified within Chapter 400 of this Manual. All adjusting ring and spacer joints shall be sealed utilizing one—half (½) inch diameter cords of extrudable preformed aasket material, non-asphaltic mastic, or butyl rubber plaster. This material shall be placed in joints and keyways and be of sufficient quantity to completely fill the joint cavity.

All storm sewer pipe connections to new or existing manholes and precast concrete box inlets shall be as outlined within Chapter 400 of this Manual. Connections of subsurface drainage tiles, or other

subsurface drainage lines, to manholes and box inlets shall be accomplished using either precast, or drilled holes, properly sealed with non—shrink cement grout or trowelable grade butyl rubber plaster. Where connections are made to existing manholes or box inlets, that structure shall be rehabilitated or replaced to those minimum standards outlined herein. This rehabilitation shall include the installation of bench walls, as well as prescribed measures to eliminate the potential for migration of backfill materials into

Where connections of subsurface tiles to the storm sewer system cannot be made at a manhole or box inlet structure, blind "T" connections to storm sewer pipe structures will be allowed on a case basis by the Department, provided the connection holes are properly cut or core—drilled, and a minimum 6-inch inside diameter cleanout connection is also provided.

SECTION 503 INSTALLATION OF SUBSURFACE TILES

The information outlined below is intended to summarize backfill materials and construction procedures accepted by the Department for the installation of subsurface drainage tiles. All subsurface tiles must be laid to the lines and grade shown on the approved construction drawings, unless otherwise approved

503.02 Trench Construction

he following trench construction requirements shall be adhered to as a part of the installation of all subsurface drainage tiles.

The trench bottom shall be smooth and free of large (greater than three (3) inches in diameter)

exposed rock. Where an unstable trench bottom is encountered, such as with silty or fine sandy soils, a firm trench bottom must be provided. Care must be taken to prevent silt or fine sand material from entering the tile system. This may be accomplished through the use of a envelope of No. 8 gravel or comparable sized washed stone. Filter cloth barriers may also be required nstable soil material shall be removed and replaced with a foundation and bédding of processec stone or gravel.

2. <u>Trench Width</u> The trench width below the top of the tile must be sufficient to provide adequate clearance for joining of tile ends with standard fittings, and for placement of required bedding materials. For placement of a gravel or washed stone envelope or filter as required, a minimum trench width of four (4) inches on both sides of the tile will be required.

Subsurface drainage tiles shall be designed and installed at a minimum grade of 0.1 percent, unless otherwise approved by the Department.

503.03 Gravel Envelopes and Backfilling

In order to improve the flow of ground water into the subsurface drainage tile, washed stone or gravel envelopes will be required for all subsurface drainage tile installations. Subsurface tile gravel envelopes shall be of #8 gravel (INDOT Standard Specifications), or an approved washed stone equivalent. Gravel envelope material shall be clean, hard, and durable, with less than 5-percent passing the No. 200 sieve, not more than 30-percent passing the No. 60 sieve, and having a maximum size of 1 ½ inches. Figures 503—1 and 503—2 should be referenced for the required methods of installation and backfilling of subsurface drainage tile.

503.04 Minimum Cover Requirements

A minimum cover depth of eighteen (18) inches of earth or equivalent cover over the top of the tile will be required, except as allowed by Chapter 400 of this Manual. A temporary earth fill may be required over the subsurface drainage tile in order to provide adequate protection of this system during construction.

503.05 Minimum Levels of Workmanship

The following minimum levels of workmanship shall be adhered to as a part of the installation of all

1. <u>Handling of Subsurface Tiles</u>

Suitable tools and equipment must be used for the safe and convenient handling and placement of subsurface drainage tiles. Plastic tile and fittings must be protected from deformation or structural deterioration due to extreme temperatures or Ultraviolet radiation. Each section of tile must be carefully examined for cracks or other defects prior to installation. Tile or fittings known to be defective must not be installed. Each section of subsurface drainage tile must be laid on an even firm bed throughout its length, as specified herein, so that no uneven strain will come to any single portion of the tile. Suitable bedding material must be provided so that side walls are continuously and uniformly supported, and sufficient lateral restraint is provided to protect the tile against deflection and collapse during

2. <u>Effect of Low Temperatures</u> Extreme care must be taken during cold weather installations to prevent cracking of the tubing during placement in the trench, and backfilling.

Joints and Fittings All drainage tile fittings shall be installed in accordance with those instructions furnished by the manufacturer. Coupling bands shall be used at all joints and fittings, at all changes in direction, changes in diameter, junctions with other tile lines, and at the ends of tile lines Hand-cutting of holes for tile connections shall be considered permissible, provided are is taken when making the connection not to create a means of obstructing flow, catching debris, or allowing soil to enter the tile line.

A minimum length of twenty (20) feet of polyvinyl chloride (PVC) or double walled high density polyethylene (HDPE) pipe meeting the material specifications of this Manual shall be used at the surface outlet end of all subsurface drainage tiles, with at least two—thirds of the pipe length embedded in the bank to provide adequate support. Animal guards shall also be provided as per section 503.07.

ne outlet end of the subsurface drain tile must be equipped with an animal guard to protect the system from entry and damage by rodents or other animals. Where tiles are connected to old existing tile lines that may serve as animal runs, an animal guard must be installed within the newly constructed line to restrict

503.08 Location of Existing Tiles

All plans and specifications submitted to the Department for review and approval shall delineate, when possible, the approximate location of existing agricultural or other subsurface drainage tiles. All existing subsurface drainage tiles shall be perpetuated across the construction site. Extreme care must be taken to prevent damage to these existing lines. Any existing tile lines that are inadvertently damaged or cut during construction shall be repaired or replaced.

SECTION 504 OPEN CHANNEL CONSTRUCTION

The cross—sectional configuration of stormwater conveyance channels may be vee—shaped, parabolic or trapezoidal. Typical open channel cross-sections and linings are illustrated within Figure 504-1. Open channels shall be constructed to the line, grade, and cross-section shown on the approved construction lans. Earthen fills beneath rock rip—rap lined channels shall be compacted to 95—percent Standard

504.02 Open Channel Stabilization

The types of treatments used to stabilize open channels may vary with flow velocities and individual site conditions within the following guidelines:

Grass-lined Channels

The grass mixture chosen for stabilization of open conveyance channels shall be based upon specific site conditions; i.e., drainage tolerance, shade tolerance, and mainte requirements. Grass-lined stormwater conveyance channels shall be permanent seeded within seven (7) days after finish grading. To facilitate vegetative establishment, the flowline of grass lined stormwater conveyance channels shall be protected utilizing an approved erosion control blanket designed and installed according to the applicable manufacturer's specifications. The maximum allowable side—slope of grass lined channels shall be 3 (horizontal) to 1 (vertical). The bottom width of trapezoidal grass-lined channels shall not exceed fifteen (15) feet. unless rock rip-rap low flow channels are provided to prevent meandering. arass-lined channels, intended to convey continuous trickle flows such as for retention pond outlets, an enclosed storm sewer, subsurface tile with gravel envelope, or rock rip—rap low flow channel will be required.

2. Rock Riprap-lined Channels

stone as a granular envelope, as follows:

504.03 Controlling Surface and Subsurface Wetness in Open Channels

The maximum allowable side-slope of rock riprap lined open conveyance channels shall be 1 ½ (horizontal) to 1 (vertical), unless otherwise approved.

To prevent chronic wetness in the invert of open channels, subsurface tiles shall be installed a minimum of 1 ½ feet in depth (from the tile invert), with a #8 gravel or equivalent size washed

1. <u>Single and Double Family Residential Developments</u> Minor drainage collector swales in rear yards and between homes shall possess a maximum channel length of 400 lineal feet, unless subsurface tile is also provided. The maximum vegetated open channel side slope shall be 3 (horizontal) to 1 (vertical). The required channel slope and invert treatment for minor drainage collector swales shall be as follows: grass lined swale if slope is 1% or greater and length is less than 400 feet; subsurface drainage tile if channel slope is between 0.5% and 1.0%, and or length is greater than 400 feet. The minimum channel slope shall be 0.3%. For relatively large open channels and perennial streams, minimum channel slopes and

Commercial and Industrial Developments and Other Open Land Uses (Golf Courses, <u>Parks, Recreation Areas)</u>

the provision of subsurface drainage shall be approved on a case basis by the

The maximum length of minor drainage collector swales shall be 800 lineal feet, unless subsurface drainage is also provided. The maximum vegetated open channel side slope shall be 3 (horizontal) to 1 (vertical). The required channel slope and invert treatment for minor drainage collector swales shall be as follows: subsurface drainage tile for channel slopes between 0.3% and 0.5%. The minimum channel slope shall be 0.3%. For relatively large open channels and perennial streams, minimum channel slopes and other channel bank and invert treatments shall be approved on a case basis by the Department.

SECTION 505 DETENTION/RETENTION POND CONSTRUCTION 505.01 Introduction

Detention/retention facilities may be constructed as either a dry basin, or with a permanent water surface elevation. Dry basins may be utilized for flood control purposes only under those site conditions where stormwater quality issues are not required to be addressed. Dry detention basins may serve a variety of alternative uses, and may include grassed basins, which are also utilized for recreational purposes. Paved parking areas, permeable pavement, roof tops, and underground storage vaults for stormwater detention may also be approved on a case basis.

505.02 Dry Detention Basins

ne maximum vegetated bank side—slope shall be 3 (horizontal) to 1 (vertical). Grassed bottom slopes and minor surface water collector swales within dry detention basins which possess a flow gradient of less than 1.0 percent (1%) shall be provided with subsurface tile installed with gravel backfill material (reference Section 503 of this chapter). Dry detention basins shall be provided with a subsurface tile or storm sewer system designed to convey continuous trickle flows through these facilities. This type of accommodation of low flows through dry detention basins is needed in order to facilitate maintenance of the basin.

For grassed dry detention basins, the minimum accepted bottom slope shall be 1.0 percent (1%).

505.03 Wet Detention/Retention Basins

Vegetated areas of wet detention/retention basins shall have earthen embankments constructed to a naximum slope of 3 (horizontal) to 1 (vertical). Earthen embankments armored with rock rip—rap shall not exceed 1 ½ (horizontal) to 1 (vertical). All earthen slopes shall be revegetated according to those guidelines set forth within Chapter 600 of this Manual, "Erosion and Sedimentation Control", Standard Practice No. 604.8. For wet retention basins, the bank cross—section shall be constructed as detailed within Figure 505—1 below, unless otherwise specified and approved by the Department. This method of construction will improve both the safety and water quality attributes of the proposed

Rock rip-rap may be used at the permanent pool elevation of wet detention/retention

The constructed levee elevation shall provide for a minimum of one (1) foot of freeboard above the

basins for prevention of bank erosion due to wave action, or extended detention time

maximum anticipated flow depth through the emergency spillway. Any embankment constructed as a evee shall be constructed and maintained by the owner in accordance with FEMA regulations.

505.04 Minimum Freeboard Freeboard is a required horizontal and vertical distance between the computed 100YR water surface 100YR water surface elevation for all D/R facilities shall be a minimum ten (10) feet horizontally and two (2) feet vertically from the lowest ground elevation next to any permanent structure, such as a residential home or commercial building, for example. In addition, where construction of a ergency spillway is required, the constructed levee elevation shall provide for a minimum of one 1) foot of freeboard above the maximum anticipated flow depth through the emergency spillway during the design flow rate. Section 302.08 should be referenced for minimum emergency spillway design flow rates. All emergency spillways shall outlet to an easement containing a channel with

acceptable capacity. 505.05 Anti-Seep Devices

For leveed detention/retention facilities which generate 3-feet or more of head pressure, the principal spillway outlet pipe structure shall be provided with anti-seep devices. The construction material to be utilized for these devices shall be of like material as the pipe structure, i.e. poured in place concrete, bolted aluminized steel, or polyethylene sheet with sewn rubber boot. As a general guide, anti—seep collars shall possess a minimum dimension of 5'x 5', and be spaced a maximum of 25' apart. For further design and construction information, reference should be made to standard United States Department of Agriculture, Soil Conservation Service (SCS) design The spacing of anti-seep collars shall be determined by the design consultant and, where required. be clearly shown on the plan/profile drawing's of the construction plans. The material used for edding and backfill of pipe structures through an earthen dam or levee shall be the same soil material used in construction of the surrounding embankment.

505.06 Emergency Spillways

Embankments and levees that in some way create a water impoundment shall be provided with an emergency flood overflow outlet. This overflow may occur, as an example, as the overtopping of roadway culverts, or flow around the ends of pond dikes or levees. The constructed levee elevation shall provide for a minimum of one (1) foot of freeboard above the maximum anticipated flow depth through the emergency spillway. All emergency spillways shall outlet to an easement containing a channel with acceptable capacity. Earthen, vegetated emergency spillways shall be excavated into original ground, and be evaluated for erodibility based upon soil characteristics, entrance and exit slopes, and the potential depth and velocity of flow. Additional erosion control measures within these spillways in the form of rock rip-rap or armored channels may be required on a case basis by the Department. Any embankment constructed as a levee shall be constructed and maintained by the owner in

accordance with FEMA regulations. 505.07 Earthen Embankment Construction

Compaction levels of earthen levees shall reach 95—percent Standard Proctor Density, utilizing suitable soil materials, at appropriate moisture levels. Levees shall be provided with a core trench (cut-off trench) of compacted soil, to prevent the piping of water either beneath the levee, or

TABLE 501-04: Height of Cover for Ribbed Polyvinyl Chloride Pipe

| SIZE (IN.) | ID (IN.) | OD (IN.) | MIN. WALL AREA (SQ. IN./FT.) | MIN (FT.) | MAX (FT.) |
|---------------|-------------|-------------|---------------------------------|--------------|--------------|
| 18 | 17.65 | 18.90 | 2.343 | 1.0 | 34.0 |
| 21 | 20.75 | 22.15 | 2.635 | 1.0 | 33.0 |
| 24 | 23.50 | 25.00 | 2.830 | 1.0 | 31.0 |
| 27 | 26.50 | 28.15 | 3.084 | 1.0 | 30.0 |
| 30 | 29.50 | 31.25 | 3.295 | 1.0 | 29.0 |
| 36 | 35.50 | 37.50 | 3.719 | 1.0 | 27.0 |

FOOTNOTE TO TABLE 501-4 and 501-5:

*Minimum cover shall be measured from the valley of the corrugation of the pipe to either the ground surface, the bottom of flexible pavement, or to the top of rigid pavement

*Minimum height of cover shall be twelve (12) inches for unimproved (unpaved) areas.

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accepted as pipe bedding.

These materials shall be utilized for installation of stormwater facilities in accordance with and in the

Contractor shall fill the over—excavated area with Class I or Class II granular bedding material, In those cases where a firm foundation is not encountered at the required grade, the unstable material shall be removed to such depth that when replaced with suitable Class I or Class II material, compacted, and properly shaped, to produce a uniform and stable foundation along the Bell holes shall be properly excavated for bell and spigot pipe, so that the entire barrel of the pipe All rocks, boulders and stones 6—inches in diameter and larger encountered in trenches shall be All PVC and HDPE pipes to be installed with perforations that are meant to infiltrate or exfiltrate No.8, and No 9 must be at least hand tamped or walked into place. INDOT Classification No.53 must be mechanically compacted to 95% Proctor.

upon a structural evaluation of the pipe material.

within five (5) feet of any edge of pavement, curb, gutter, sidewalk, or similar structure in the public right—of—way. Bedding and backfill requirements for each type of pipe material are summarized as follows:

Initial backfill shall be placed in 6" to 12" balanced lifts.

Reinforced Concrete Pipe (RCP) conduits shall be provided with Class I or granular bedding material. Class II material shall be shovel sliced or otherwise carefully placed and mechanically compacted from three (3) to six (6) inches (based upon pipe diameter) below the pipe barrel, to 1/6th the outside pipe diameter (Bc). Class II material shall be compacted to 90- percent Standard

Plastic pipe conduits located within the DOT pavement zone shall be backfilled from twelve (12) inches above the crown of the pipe with "B" Borrow backfill compacted to 95-percent Standard Plastic pipes located outside of the applicable Department of Transportation pavement zone shall be

Reinforced concrete box sections shall be placed on a minimum of six (6) inches of No. 8 crushed stone, or other approved equivalent Class I granular bedding material, "walked" or hand tamped into The regular backfill of reinforced concrete box sections located within the applicable DOT payement Reinforced concrete box sections located outside of the DOT pavement zone shall be backfilled with

5. Structural Plates (Figure 501-8) The installation of structural plate pipe, pipe—arches and arches shall be in full conformance with ASTM A 807. Structural plates located within the applicable DOT pavement zone shall be backfilled with "B" Borrow Structural plates located outside of the DOT pavement zone shall be backfilled with clean material 503.07 Rodent Protection A concrete footing that is either slotted to receive the corrugated shell, or mounted with aluminum receiving angles will be the only accepted method for placement of aluminum arches and box The size of footing pads and steel reinforcement shall be established by a professional engineer registered in the state of Indiana, based upon anticipated loading and soil—bearing capacity. The depth of the bottom of the footing shall be established a minimum of 18—inches below the

ansportation Officials (AASHTO) Standard Specifications for Highway Bridges. The structural design of rigid pipe materials shall also be in accordance with the most restrictive of either manufacturers recommendations or AASHTO structural design methods. Structural design computations used to determine cover depths other than those specified herein shall be submitted to the Department for review and approval and shall be certified by professional engineer registered in the State of Indiana prior to submittal.

Minimum and maximum height of cover tables for flexible pipe conduits (CMP, HDPE, PVC) are provided within

301.05 Handling, Storage, and Color The handling, storage and color requirements for pipe material are as follows: Handling and Storage

The manufacturer shall package the pipe in a manner designed to deliver the pipe to the project site neatly, intact, and without physical damage. The transportation carrier shall use an appropriate method to ensure the pipe is properly supported, stacked, and restrained during transport. On-site, the pipe shall be stored on clean, level ground to prevent undue scratching or gouging.

The interior of the pipe shall be light colored to facilitate CCTV inspection. The pipe exterior may be colored per the manufacturer's standard color scheme with the exception of blue. Blue pipe shall not be used to avoid confusion with water pipes.

SECTION 302 – Sanitary Sewer Pipe Material

302.01 Introduction

This Section applies to materials to be used for the construction of gravity sewers. 302.02 Allowable Pipe Materials

Vitrified Clay Pipe (VCP) for gravity sewer construction is not allowed.

302.03 Polyvinyl Chloride Pipe (PVC)

The minimum requirements for PVC are as follows:

Maximum size - Forty-eight (48) inches 2. Material

a. Pipe installations up to twenty-five (25) feet deep

Polyvinyl Chloride (PVC) sanitary sewer pipe and fittings eight (8) inches through fifteen (15) inches in diameter shall be the integral wall bell and spigot-type with elastomeric seal joints and smooth walls conforming to ASTM D 3034 and a minimum of SDR 35. PVC sanitary sewer pipe and fittings eighteen (18) inches in diameter and larger shall be smooth wall conforming to ASTM F 679. All fittings shall be heavy walled fittings. Pipe shall have a minimum pipe stiffness of 46 psi when measured at 5% vertical ring deflection and tested in accordance with ASTM D 2412 and a minimum tensile strength of 34.50

a. Pipe installations over twenty-five (25) feet deep

PVC pipe materials shall be ASTM D 2241 (SDR 26 minimum) with minimum cell classification of 12454, AWWA C900 (DR 25 min), or AWWA C905 (DR 25 min). When pipe conforming to AWWA Standards is used, all fittings shall also be made of PVC.

3. Joints and Gaskets

a. Joints

Flexible gasketed joints shall be compression type so that when assembled, the gasket inside the bell will be compressed radially on the pipe spigot to form a watertight seal Joints shall be as follows:

• For pipe conforming to ASTM D 3034 and F 679, the joint shall meet the requirements of

• For pipe conforming to ASTM D 2241, AWWA C900, and AWWA C905, the joint shall meet the requirements of ASTM D 3139.

The assembly of joints shall be in accordance with the pipe manufacturer's

b. Gaskets

All gaskets shall meet the requirements of ASTM F 477. 4. Field Cutting of Pipe

All field-cutting of pipe shall be done in a neat-trim manner using a hand or power saw, and the cut end shall be beveled using a file or wheel to produce a smooth bevel of approximately 15° and be a minimum depth of one-third (1/3) the pipe wall thickness or beveled as specifically recommended by the pipe manufacturer. Field cut pipe will only be allowed to be installed at manholes, at prefabricated tees and wyes

5. Rejection of Damaged Pipe PVC pipe possessing the following defects may be rejected for installation: variation from straight centerline; elliptical shape; illegible markings as required; deep or excessive gouges or scratches of the pipe wall;

fractures, punctures, or cracks passing through the pipe wall; and damaged ends where such damage would

prevent making a satisfactory joint. Pipe Markings For PVC pipe, each length of pipe must be marked per ASTM and AWWA requirements and at a minimum

with the following: name of manufacturer, trade name or trademark, nominal pipe size, production/ex code, material and cell class designation, ASTM designation, and SDR number. In addition, the plain end of each pipe length shall have rings painted around the pipe at the proper location to allow field checking of the

correct setting depth of the pipe in the bell. 7. Manufacture and Construction

> a. Pipes Pipes shall be manufactured and tested in accordance with appropriate ASTM and AWWA standards to result in a solid wall pipe

Tees, wyes, and other fittings shall be heavy-walled and capable of withstanding the same stresses as the pipe to which they are connected. All fittings shall be fabricated from pipe meeting the requirements of

302.04 Closed Profile Large Diameter PVC

The minimum requirements for Closed Profile PVC pipe are as follows:

1. Maximum Size - Fifty-four (54) inches

Pipe and fittings shall be made from polyvinyl chloride compounds which comply with the requirements as specified by ASTM F 1803 with a minimum cell classification of 12364. Minimum pipe stiffness shall be 46 psi when tested in accordance with ASTM D 2412. The actual inside and outside diameter of the pipes shall be in accordance with current manufacturer's literature, unless otherwise agreed to by the Department. Pipe shall be supplied in nominal lengths of fourteen (14) feet unless special sections are needed for construction in which case shorter or longer lengths may be used. Actual laying length shall be nominal plus or minus two

3. Joints and Gaskets

Materials

All pipe joints shall be of the bell and spigot type with elastomeric seals and conform to the requirements of ASTM D 3212. Gaskets shall be factory installed and chemically bonded to the bell end of the pipe. Gasket material shall conform to the requirements of ASTM F 477.

4. Rejection of Damaged Pipe Pipe possessing the following defects may be rejected for installation: variation from straight centerline; elliptical shape; illegible markings as required herein; deep or excessive gouges or scratches of the pipe wall; fractures, punctures, or cracks passing through the pipe wall or wall profile; damaged ends where such damage would prevent making a satisfactory joint, voids in the pipe walls, or other noticeable defects in pipe

Each PVC closed profile wall pipe length and fitting shall be clearly marked per ASTM F 1803 and at a minimum with the following: manufacturer's name, nominal pipe size, cell classification, pipe stiffness -

46 PSI, and certification. Manufacture and Construction

Manufacture pipe by the I-beam profile construction process to result in a non-porous, corrosion-resistant

consistent structure. b. Fittings

Flanges, elbows, reducers, tees, wyes, laterals and other fittings shall be capable of withstanding the same stresses as the pipe to which they are connected. All fittings shall be fabricated from pipe meeting the requirements of these standards. Fabricated miter joints shall be reinforced by fusion heat welding. Closed Profile Large Diameter PVC Gravity Sewer shall be Lamson Vylon Pipe or an approved equal.

SECTION 303 - Sanitary Laterals

303.01 - Introduction

This Section applies to the materials to be used for the construction of laterals.

303.02 - Lateral Materials

2. Joints

The minimum requirements for laterals shall conform to the following

1. Allowable Pipe Materials:

Vitrified Clay Pipe (VCP) for lateral construction is not allowed.

a. For four (4) inch and six (6) inch laterals

Joints shall be solvent cement type for PVC or butt fused type for HDPE.

b. For eight (8) inch and larger laterals

Joints shall be either flexible gasket push-on type or solvent cement type for PVC or butt fused type for HDPE. Joints shall be installed in accordance with the manufacturer's recommendations

303.03 Controlled Settlement (Slip) Joints

The controlled settlement joint shall be a double gasketed joint made specifically for the purpose of allowing axial movement of the riser pipe for forces from 500 lb/ft to 1,970 lb/ft. The allowable movement within the joint shall be five and one-half (5½) inches. The controlled settlement joint shall be as manufactured by Plastic Trends Inc., or

SECTION 305 - Manhole Materials and Appurtenances

305.01 Introduction

This Section applies to the materials and specifications for manholes, wet wells, valve vaults, meter vaults and appurtenant structures.

305.02 Precast Sanitary Manholes

Precast manholes, including drop manholes, shall be per Figures 300.01 through 300.06 and the following:

Precast reinforced concrete manholes shall be manufactured, tested, and marked in accordance to ASTM C 478. Manhole sections shall not be installed until at least five (5) days after having been cast unless permitted in writing by the Department.

All joints between precast manhole elements (excluding adjusting rings) shall have a rubber gasket per ASTM C 443, and one-half (1/2) inch diameter butyl rubber rope sealant per ASTM C 990.

No "see through" lift holes shall be allowed on precast concrete manholes.

4. Rejection of Damaged Manholes

Manholes possessing any of the following defects shall be subject to rejection:

a. Fractures or cracks passing through the shell, except for a single end crack that does not exceed the depth of the joint;

 Defects that indicate imperfect proportioning, mixing and molding c. Surface defects indicating honeycombed or open profile; damaged ends, when such damage

would prevent making a satisfactory joint; d. The internal diameter of the manhole section shall not vary more than 1% from the nominal

e. Deviations more than one-quarter (1/4) inch from the straight edge at any point across the top of the manhole cone section or riser ring;

f. Visible steel bars along the inside or outside surface of the manhole except for reinforcement stirrups or spacers used to position the cage during manufacture, and reinforcement bars visible at the manhole structure end, provided these reinforcement bar ends are properly grouted in

g. Illegible or unmarked manhole sections not clearly marked with date of manufacture, Trade name, size designation part number, or ASTM number.

Precast manhole cones shall be as follows:

conformance with applicable ASTM specifications; and/or

a. Eccentric offset type;

b. The top internal portion of the cone shall have a minimum four (4) inch uniform circumference to accept an internal chimney seal as shown in

c. The top of the cone shall be cast to accept the one of the precast adjusting rings as shown in Figure 300.08.

305.03 Drop Manholes

Inside or outside drop manholes shall be constructed consistent with the requirements of Section 305.02.

305.04 Monolithic (Cast-In-Place) Sanitary Sewer Structures Monolithic pour structures will be approved on a case-by-case basis provided plans and specifications identifying the concrete mix, steel reinforcement details, pipe connections, and manhole dimensions are submitted and approved prior to construction. Substantial field changes of the approved construction drawings shall be certified by the Engineer, and receive approval of the Division prior to completion of the

305.05 Concrete Bases

Base sections for forty-eight (48) and sixty (60) inch diameter precast manholes shall be constructed with the base and first riser section as one complete integral (monolithic) precast unit

The concrete base shall be as follows: a minimum of six (6) inch thickness for forty eight (48) inch diameter. structures and a minimum of eight (8) inch thickness for larger diameter structures. Monolithic pour or precast manholes shall be constructed of Class A concrete having a compressive strength of 4000 psi. Precast manholes seventy-two (72) inches in diameter and larger with separate base sections shall utilize a gasketed joint between the base section and first riser section.

305.06 Flow Channels and Bench Walls

The channels shall be shaped and formed for a clean transition with proper hydraulics to allow the smooth conveyance of flow through the manholes. The bench wall shall be formed from the invert to a minimum height of 80% of the inside diameter of the inlet and outlet pipes to form a "U" shaped channel. The bench top shall be constructed at a one-half (1/2) inch per foot slope from the manhole wall. Refer to Figure 300.07 for typical details of flow channels in manholes.

Where a flow channel is constructed as an integral part of the precast base, it shall be shaped and formed as described above, with the exception that the bottom of the flow channel may be formed from the bottom

of inlet and outlet pipes if the pipe wall thickness is not greater than one (1) inch. For cast-in-place flow channels, the bottom invert of all pipes entering a manhole shallbe at least three (3) inches above the top of the base slab to the outlet invert so the finished sewer channel may be installed and shaped. For connections to existing sanitary sewer structures, flow channels shall be shaped as if it were a new

305.07 Manhole Adjusting Rings

Only concrete adjusting rings are allowed.

Concrete adjusting rings shall conform to ASTM C 478 and be free from voids, cracks, and other defects. The adjusting ring shall be from the same manufacturer as the manhole cone section to assure compatibility and a watertight seal per Figure 300.08. The minimum thickness of the concrete adjusting ring shall be four (4) inches

Steps shall conform to the requirements of ASTM C 478 and be manufactured using steel rods encased in polypropylene plastic. Steps shall be factory installed when the manhole is manufactured.

305.09 Sewer to Manhole Connectors

Sewer pipe connections to manholes shall be made with resilient rubber connectors manufactured in accordance with ASTM C 923. Connectors shall be secured to the manhole by either being cast-in or connected with an expandable stainless steel band. Connector shall be secured to the pipe with a stainless steel band. The stainless steel elements of the connector shall be totally nonmagnetic. Series 305 stainless steel. The connector shall be the sole element relied upon to assure a flexible, watertight seal from the sewer to the manhole. The connectors shall be as manufactured by Kor-N-Seal, Press Seal, A-Lok, or

305.10 Manhole Chimney Seal

Internal Manhole Chimney Seals shall consist of a flexible internal rubber sleeve, interlocking extensions, and stainless steel compression bands conforming to ASTM C 923. The seal shall remain flexible throughout a 25-year design life, allowing repeated vertical movement of the frame of not less than two (2) inches and repeated horizontal movement of the frame of not less than one-half (1/2) inch. The sleeve portion of the seal shall be a minimum double pleated with a minimum unexpanded vertical height of 8, 10, or 13 inches, respectively. The sleeve and extension shall have a minimum thickness of three-sixteenths (3/16) inches and shall be made from a high quality rubber compound conforming to the applicable requirements of ASTM C 923, with a minimum 1500 psi tensile strength, a maximum 18% compression set, and a hardness (durometer) of 48 ± 5. The area of the seal that compresses against the manhole frame/casting and the chimney/cone shall provide a watertight seal. The bands shall be fabricated from 16 gauge stainless steel with no welded attachments and shall have a minimum adjustment range of two (2) diameter inches. Any screws, bolts, or nuts used to lock the band in place shall be stainless steel. The internal seals shall be as manufactured by Cretex Specialty Products, NPC Specialty Products, or an approved equal.

305.11 Casting, Frames and Covers Castings shall be as follows:

Catalog Number

The frame and cover shall be as follows:

a. Neenah R-1713-B-SP. or

b. East Jordan Iron Works Model 1022-1AGSMD. All castings shall have a machined bearing surface with Type F concealed pick holes.

Sanitary sewer manhole covers shall be a solid lid casting as detailed in Figure 300.09. The words "Sanitary Sewer" and "City of Indianapolis" must be cast in recess letters two (2) inches in height onto solid lid covers. SECTION 601 - General Sanitary Sewer Testing

601.01 Introduction

This Section provides the testing requirements common to all sanitary sewer facilities.

601.02 General Testing Requirements

All testing shall be performed under the observation of the RPR. It is the Contractor's responsibility to schedule the testing. Test results obtained in the absence of the Division's RPR or Department will not be accepted. The Contractor shall be responsible for providing all testing equipment at no cost to the City. All pressure gages used shall be calibrated within one (1) year of use for any test. Calibration papers and test date information shall be made available at the request of the RPR, Division, or Department. The City of Indianapolis will not assume any liability for the actions of the Owner, Contractor, or their agent(s), in the performance of the required tests.

SECTION 602 - Gravity Sanitary Sewer Testing Requirements

602.01 Introduction This Section provides the testing requirements specific to gravity sanitary sewers.

All sanitary sewers twenty-four (24) inches and less shall be air tested by means of a low pressure air test per Section 602 03. All sewers larger than twenty-four (24) inches shall be joint tested per Section 602 04. All sanitary sewers constructed of flexible pipe (PVC and Centrifugally Cast Fiberglass Reinforced Polymer Mortar) shall be tested for deflection by means of a mandrel test per Section 602.06.

602.03 Low Pressure Air Test

602.02 General Requirements

All sewers twenty-four (24) inches and less shall be tested by means of a low-pressure air test to detect damaged piping and/or improper jointing. Testing shall be done per ASTM F 1417 for flexible and semi-rigid pipe and ASTM C 924 for RCP. The use of the low pressure air test for flexible and semi-rigid pipe larger that twenty-four (24) inches manner and all applicable safety procedures are followed. Do not enter, or allow anyone to enter, the manhole during

The low pressure air test shall be as follows:

1. Waiting Period: The air test may be done immediately after final backfill is placed in the trench. 2. Equipment: At a minimum, the following shall be provided:

a. Mechanical or pneumatic plugs;

b. Air control panel

c. Shut-off valve, pressure regulative valve, pressure relief valve, and input pressure gauge. The pressure regulator or relief valve shall be set no higher than 9 psig (6 psig for RCP) to avoid over pressurization d. Continuous monitoring pressure gauge having a range of 0 to at least 10 psi. The gauge shall be no less

e. To reduce the potential for sewer line over-pressurization, two (2) separate hoses shall be used to: i. Connect the control panel to the sealed line for introducing low pressure air; and

ii. Constantly monitor air pressure buildup in the line. If pneumatic plugs are utilized, a separate hose shall be required to inflate the pneumatic plugs.

than four (4) inches in diameter with minimum divisions of 0.10 psi and an accuracy of ± 0.04 psi;

Testing Procedures The Test Data Sheet per Appendix C shall be used when conducting the air test. The procedures for the low pressure

a. Plug Installation

After a segment of pipe has been backfilled to final grade, securely place and brace suitable test plugs in the ends of the sewer segment and in all lateral stubs included in the test. All plugs shall be securely restrained and braced prior to and during the test

b. Line Pressurization

Add air slowly to the test section until the pressure inside the pipe reaches 4.0 psig PLUS the necessary adjustment for groundwater (Maximum 2.0 psig adjustment for a 6.0 psig maximum total). The air pressure adjustment for groundwater shall be determined by the following:

Adjustment = Depth of Groundwater x 0.43

where: Adjustment = Adjustment added to the starting pressure of the low-pressure air test, psig. The maximum adjustment shall be 2.0 psig.

Depth of Groundwater = As measured above the top of pipe, feet. 0.43 = Conversion factor

Do not exceed 6.0 psig at any time during the low-pressure air test. The groundwater monitoring wells installed per Section 403.09 shall be used to determine the depth of groundwater. If more than one well was installed, take the average depth of the nearest downstream and nearest upstream monitoring locations. If the monitoring wells were not installed, the adjustment shall be 2.0

 c. Pressure Stabilization After a constant pressure of 4.0 psig (PLUS the necessary adjustment for groundwater) is reached, the air

supply shall be throttled to maintain that internal pressure for at least two (2) minutes. This time permits the temperature of the entering air to equalize with the temperature of the pipe wall. d. Timing Pressure Loss

When temperatures have been equalized and the pressure stabilized at 4.0 psig (PLUS the necessary disconnected The continuous monitoring pressure gauge shall then be observed while the pressure is decreased to no less than 3.5 psig (PLUS the necessary adjustment for groundwater). At this reading, or any convenient observed pressure reading between 3.5 psig and 4.0 psig (PLUS the necessary adjustment for undwater), timing shall begin. A timed pressure drop of either 1.0 psig or 0.5 psig shall be used. The PR shall determine the appropriate pressure drop. The allowable time shall be predetermined using either

Table 600.01 or 600.02, depending on which pressure drop is used. When testing RCP sewers, a 1.0 psig

pressure drop shall be used. e. Time adjustment for laterals

No time adjustment for lateral lengths will be allowed.

f. Determination of Line Acceptance If the time shown for the designated pipe size and length elapses before the pressure drops (1.0 or 0.5 psig), the section of pipe being tested shall have passed the test. The test may be discontinued once the prescribed time has elapsed even though the pressure drop has not occurred.

g. Determination of Line Failure If the pressure drops before the appropriate time has elapsed, the air loss rate shall be considered excessive and the section of pipe being tested shall have failed the test. The Contractor shall be required to uncover, replace, or repair any section of sewer not passing the test. The method of repair shall be per

approval of the Division and/or Department. Grouting is not an acceptable method of repair.

602.04 Joint Test All sewers greater than twenty-four (24) inches shall be joint tested using air or water under low pressure. All joints shall be tested. Testing procedures shall be per ASTM C 1103 and as follows

1. Waiting Period The joint test may be done immediately after final backfill is placed.

2. Equipment

Equipment used shall be made specifically for joint testing of pipelines.

Testing Procedures a. Joint Test Apparatus Installation

i. Clean the joint and interior joint surfaces. ii. Move the joint test apparatus into the sewer line to the joint to be tested and position it over the

joint. Make sure the end element sealing tubes straddle both sides of the joint and the hoses are attached. For the water test, the bleed-off petcock must be located at top dead center. iii. Inflate end element sealing tubes with air in accordance with equipment and manufacturer's instructions.

b. Joint Air Test . Pressurize the void volume with air to 3.5 psi PLUS the necessary adjustment for groundwater above the top of pipe (maximum 2.0 psi adjustment for a 5.5 psi maximum total). Allow the air pressure and temperature to stabilize before shutting off the air supply. Start the timing of the test.

The air pressure adjustment shall be per Section 602.03.3.b. ii. Measure the pressure drop for five (5) seconds. iii. After the joint test is completed, exhaust void volume, then exhaust end element tubes prior to removal of the testing apparatus

Introduce water into the void volume until water flows evenly from open petcock. Close the

petcock and pressurize with water to 3.5 psi PLUS the necessary adjustment for groundwater above the top of pipe (maximum 2.0 psi adjustment for a 5.5 psi maximum total). Shut off the water supply and start test timing.

ii. Measure the pressure drop for five (5) seconds

iii. After the joint test is completed, exhaust end element tubes which will automatically release the water from the void volume, prior to removal of the testing apparatus.

d. Determination of Line Acceptance

If the pressure holds or drops less than one (1) psi for the five (5) second test time, the joint shall have

e. Determination of Line Failure

If the pressure drops one (1) psi or more during the five (5) second test time, the joint shall have failed the test. If the joint fails, the Contractor shall repair and retest as necessary. The method of repair shall be per approval of the Division and/or Department. Grouting is not an acceptable method of repair.

602.05 Water Infiltration Test

All gravity sanitary sewers shall be watertight and free from leakage. The rate of infiltration into the sanitary sewer system between any two adjacent manholes or the entire system shall not be in excess of 100 gallons per inch of pipe diameter per mile per day (100 gpd/in-dia/mi). The Contractor may be required to conduct a weir test to determine if the 100 gal/in/mi/day maximum allowable infiltration rate is being exceeded.

The weir test will be required if water is observed in the sewer at any time during the acceptance process. The weir test will be at the sole discretion of the RPR, Division, or Department. The Contractor shall be required to repair all visible leaks, even if the allowable infiltration requirements are met. The method of repair shall be per the approval of the Division and/or Department.

Grouting of the joint or crack to repair the leakage shall not be permitted. If the defective portion of the sanitary sewer cannot be located, the Contractor shall remove and reconstruct as much of the work as necessary to obtain a system that passes infiltration requirements.

602.06 Mandrel Deflection Test for Flexible Pipe

All sanitary sewers using flexible pipe shall be tested for deflection by means of a go/no-go mandrel gage or other methods as approved by the Department. The mandrel deflection test shall be as follows: 1. Waiting Period

The mandrel deflection test shall be done no sooner than thirty (30) days after final backfill has been placed.

Mandrels shall be constructed with nine (9) or ten (10) arms. Mandrels with fewer than nine (9) arms are not allowed. The Length (L) shall be measured between points of contact on the mandrel arm. The Diameter (D) mandrel dimension shall carry a tolerance of + 0.01 inches.

3. Allowable Deflection

b. Closed Profile PVC

The allowable deflection shall be based on the pipe type as follows:

a. PVC Pipe

The allowable deflection for PVC pipe shall be 5% of the base inside diameter as determined by ASTM D 3034 and F 679.

The allowable deflection for Closed Profile PVC shall be 5% based on the inside diameter as determined on a case-by-case evaluation of the pipe design

c. Centrifugally Cast Fiberglass Reinforced Polymer Mortar Pipe

The allowable deflection for Centrifugally Cast Fiberglass Reinforced Polymer Mortar pipe made with polyester resin shall be 4% based on the inside diameter as determined on a case-by-case evaluation of the pipe design

ii. Vinyl Ester Resin

The allowable deflection for Centrifugally Cast Fiberglass Reinforced Polymer Mortar pipe made with vinyl ester resin shall be 3% based on the inside diameter as determined on a case-by-case evaluation of the pipe design. The Contractor shall provide proving rings to check the mandrel. The proving rings shall be clearly labeled with the dimensions and

ASTM Standard. 4. Testing Procedure

a. The mandrel shall be hand pulled through all sections of the sewer lines.

b. Determination of Line Acceptance

have passed the test. c. Determination of Line Failure If the mandrel cannot be hand pulled through the entire length of the section tested, the section

If the mandrel can be hand pulled through the entire length of the section tested, the section shall

section of sewer not passing the mandrel test. 602.07 Air Test or Mandrel Test Failures

602.08 CCTV Inspection

To determine the location of any failure, a visual inspection by means of closed circuit televising (CCTV) is recommended when the air or mandrel tests fail. The pipe shall be thoroughly cleaned before televising. I a CCTV inspection was conducted, then a digital copy of the inspection shall be submitted to the Division for

The Contractor shall clean and televise all sanitary sewers prior to acceptance by the utility. A digital copy

shall have failed the test. The Contractor shall be required to uncover, replace, or repair any

of the inspection shall be submitted to the Utility for review. Deformed or damaged mainline pipe, laterals and joints, damaged controlled settlement lateral joints, infiltration, or any other conditions observed by the utility and deemed unacceptable shall be repaired by the contractor prior to acceptance.

SECTION 604 - Manhole Testing Requirements 604.01 Introduction

This Section provides the testing requirements for manholes. 604.02 General Requirements

All manholes shall be tested for infiltration by means of a negative air (vacuum) pressure test per Section

All internal chimney seals shall be tested per Section 604.05.

Pressure Test. Testing shall be done per ASTM C 1244

604.03 Leakage

All manholes shall be watertight and free from leakage. Each manhole shall be visually inspected for leakage by the Division's RPR after assembly and backfilling. If the manhole shows signs of leakage, the manhole shall be repaired to the satisfaction of the Division and reinspected. 604.04 Negative Air (Vacuum) Test

If possible, each manhole shall be tested immediately after assembly and prior to backfilling. If the

test is done after backfilling, the Contractor shall be responsible for re-excavation to locate and

1. Waiting Period

All manholes shall be tested for infiltration by means of a Negative Air (Vacuum)

correct any leaks that have been identified. The vacuum test shall be done BEFORE the chimney seal is installed and tested

Equipment used shall be made specifically for vacuum testing of manholes. Testing Procedures

Equipment

a. Plug Installation

The test head shall be placed at the top of the manhole casting in accordance with the

and plugs to prevent them from being drawn into the manhole.

manufacturer's recommendation c. Air Evacuation

All pipes entering the manhole shall be temporarily plugged, taking care to securely brace the pipes

A vacuum of ten (10) inches of mercury shall be drawn on the manhole, the valve on the vacuum line of the test head closed, and the vacuum pump shut off. d. Timing Pressure Rise

e. Determination of Manhole Acceptance

The time for the vacuum reading to drop from ten (10) inches to nine (9) inches of mercury shall be

If the time shown for the designated manhole depth and diameter elapses before the vacuum reading drops one (1) inch, the manhole shall have passed the test.

f. Determination of Manhole Failure

604.05 Chimney Seal Leakage Test

Waiting Period

If the vacuum reading drops more than one (1) inch before the appropriate time has elapsed, the manhole shall have failed the test. The Contractor shall be required to uncover, replace, or repair any or all sections of the manhole and retest.

All internal chimney seals shall be tested using a leakage test. The leakage test shall be as follows:

The leakage test shall be done AFTER the manhole has passed the vacuum test.

2. Testing Procedures

a. Install the chimney seal and only the bottom expansion band per manufacturer's

recommendation. Fully tighten the bottom band. Do not install the top expansion band. b. Pulling the top of the seal away from the manhole frame, pour one (1) gallon of water behind the

c. Observe the bottom seal for a minimum of one (1) minute for leakage.

d. Drain the water by folding the top of the chimney seal down.

e. If the chimney seal passes the test, install the top expansion band per manufacturer's

Determination of Chimney Seal Acceptance

expansion band and retest.

4. Determination of Chimney Seal Failure If the bottom expansion band has any leakage during the test time, the chimney seal will have failed the test. The Contractor shall be required to remove, replace, or reposition the bottom

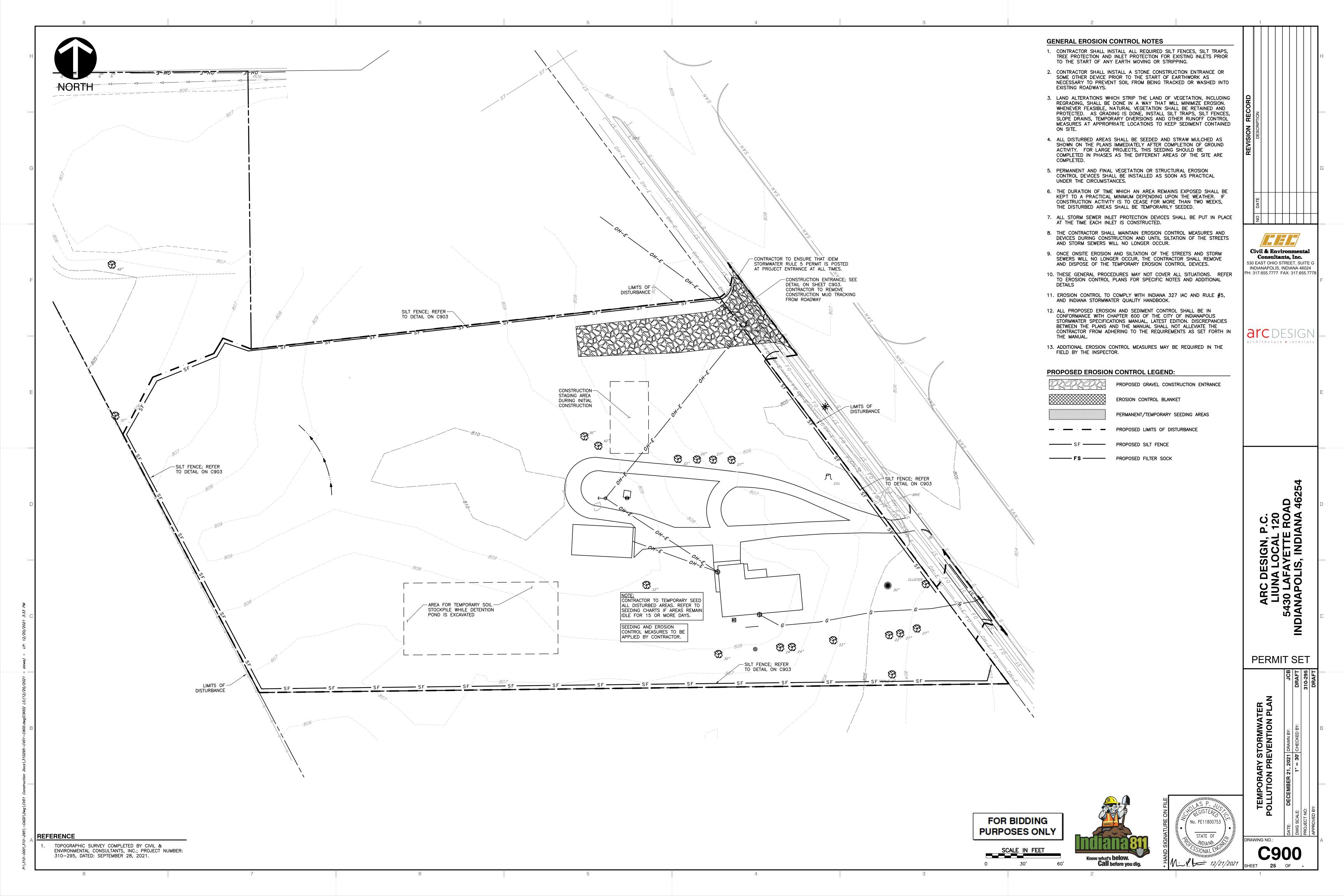
If the bottom expansion band holds water without leaking, the chimney seal will have passed the

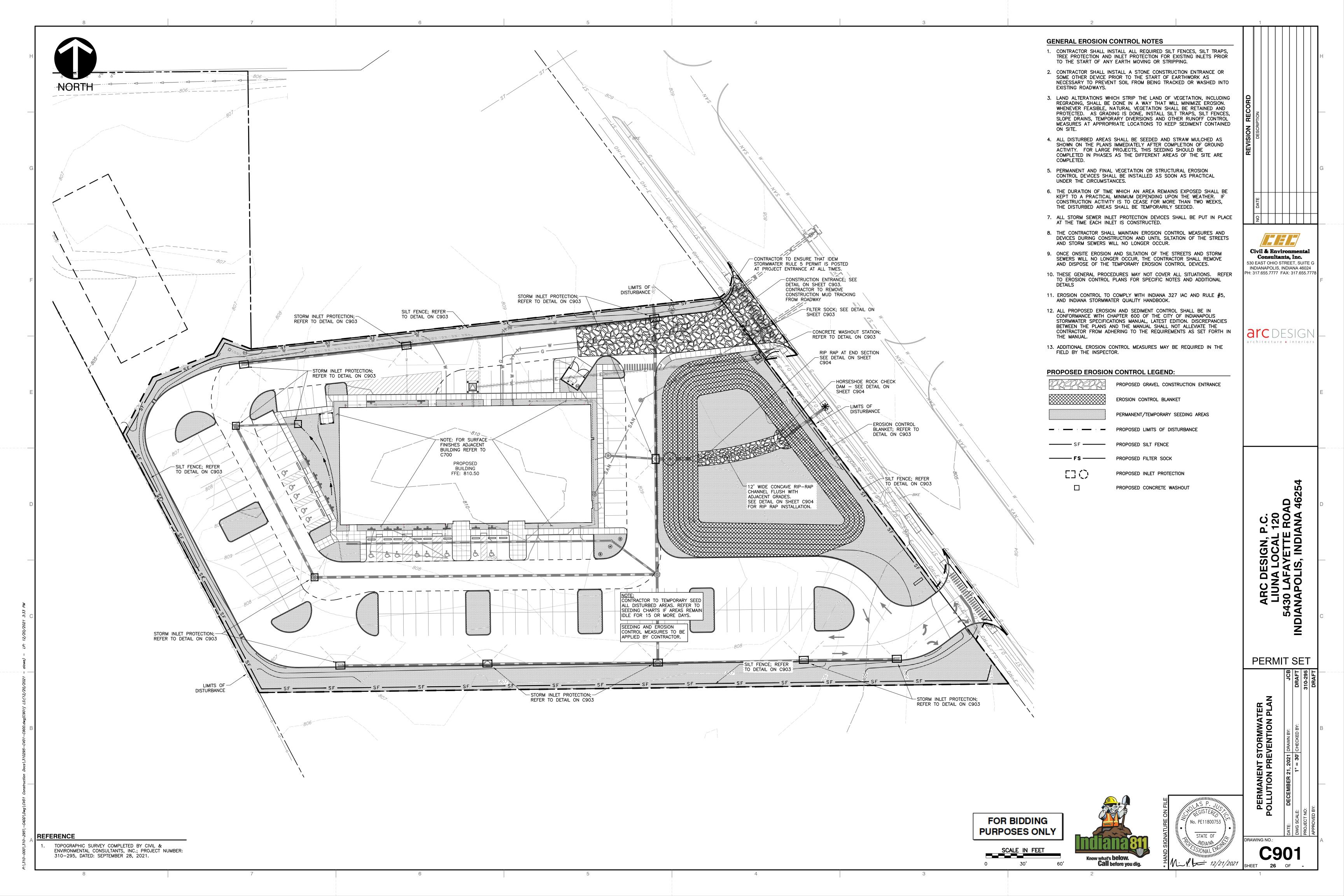
Civil & Environment Consultants, Inc. 530 EAST OHIO STREET, SUITE O INDIANAPOLIS, INDIANA 46024 PH: 317.655.7777 FAX: 317.655.777

PERMIT SET

FOR BIDDING PURPOSES ONLY

STATE OF





(A1) PLAN INDEX

THE PROPOSED EROSION CONTROL MEASURES CAN BE FOUND ON SHEET C900. THE CORRESPONDING EROSION CONTROL DETAILS ARE SHOWN ON SHEET C902. THE REQUIRED EROSION CONTROL CHECKLIST ITEMS ARE LISTED ON THIS SHEET.

(A2) PLAN/PLAT SHOWING BOUNDARIES AND LOT NAMES

PLEASE REFER TO THE TOPOGRAPHIC SURVEY INCLUDED WITH THE SUBMITTAL.

(A3) PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A NEW OFFICE BUILDING AND ASSOCIATED PARKING AND INFRASTRUCTURE. THE SITE IS LOCATED BETWEEN LAFAYETTE RD AND I-65, PIKE TOWNHSHIP, MARION COUNTY, INDIANA, (A4) VICINITY MAP

THE VICINITY MAP SHOWING THE PROJECT LOCATION CAN BE SEEN ON COVER SHEET.

(A5) LEGAL DESCRIPTION

A LEGAL DESCRIPTION IS SHOWN ON THE ALTA SURVEY INCLUDED WITH THIS SET. TOWNSHIP: 16N RANGE: 2E SECTION 12

LONGITUDE: 86°W 15' 39" LATITUDE: 39° N 51' 00"

(A6) LOT LOCATION AND SITE IMPROVEMENTS

THE PROJECT BOUNDARIES CAN BE SEEN ON SHEETS C200, AND C900.

(A7) HYDROLOGIC UNIT CODE

05120201120130

(A8) REQUIRED STATE OR FEDERAL WATER QUALITY PERMITS

NOT APPLICABLE.

(A9) STORMWATER DISCHARGE POINTS

STORM SEWER IN LAFAYETTE ROAD, FLOWING SOUTHEAST.

(A10) SITE WETLANDS, LAKES AND WATER COURSES

THERE ARE NO WETLANDS OR LAKES ON OR ADJACENT TO THE IMMEDIATE PROJECT BOUNDARY.

(A11) RECEIVING WATERS

THE SITE DRAINS TO THE PROPOSED STORM SEWER SYSTEM THEN TO EXISTING STORM SEWER INFRASTRUCTURE IN LAFAYETTE RD. FROM THE MUNICIPAL SYSTEM, THE RUNOFF

(A12) POTENTIAL DISCHARGES TO GROUNDWATER

THERE ARE NO SINKHOLES OR UNCAPPED ABANDONED WELLS LOCATED ON THE PROJECT SITE OR DOWNSTREAM OF THE PROJECT SITE. THE DRY DETENTION POND HAS POTENTIAL TO DISCHARGE TO GROUNDWATER.

TRAVELS TO FALCON CREEK, THEN DRY RUN, AND ULTIMATELY TO THE WHITE RIVER.

(A13) 100 YEAR FLOODPLAIN, FLOODWAYS AND FRINGES

THE PROJECT SITE DOES NOT LIE WITHIN A 100 YEAR FLOODPLAIN.

(A14) ESTIMATED PEAK DISCHARGE

THE APPLICABLE STORM WATER RUNOFF RATES ARE LISTED BELOW.

POST-DEVELOPED 0.46 CFS 0.80 CFS 100-YEAR 3.91 CFS 1.62 CFS

(A15) ADJACENT LANDUSE

THE EXISTING LAND USES ADJACENT TO THE SITE ARE AS FOLLOWS: NORTH: C1 (COMMERCIAL) WEST: DP

SOUTH: C1 (COMMERCIAL) EAST: D2 (DWELLING)

(A16) CONSTRUCTION LIMITS

THE OVERALL DISTURBED AREA IS APPROXIMATELY ±3.80 ACRES FOR THE LIUNA PROJECT HE OUTPARCEL TO BE USED FOR FUTURE DEVELOPMENT ACCOUNTS FOR 1.59 ACRES OF DISTURBANCE. REFER TO SHEET C900 FOR BOUNDARY.

(A17) EXISTING VEGETATIVE COVER THE EXISTING SITE CONSISTS OF 2 SMALL BUILDINGS WITH A PAVED LOOP DRIVEWAY.

(A18) SOIL MAF

UbaA

(B2) STORMWATER QUALITY SEQUENCE

PRE-CONSTRUCTION ACTIVITIES:

- 1. SCHEDULE A PRE-CONSTRUCTION MEETING WITH CITY OF INDIANAPOLIS DEPARTMENT OF BUSINESS AND NEIGHBORHOOD SERVICES.
- 2. DESIGNATE A PERSON TO BE RESPONSIBLE FOR THE SITE INSPECTIONS AFTER EACH 1/2" RAIN AND
- A MINIMUM OF ONCE EACH WEEK. 3. CALL THE INDIANA UNDERGROUND PLANT PROTECTION SYSTEMS, INC. (HOLEY MOLEY) AT 1-800-382-5544 TO CHECK LOCATIONS OF ANY EXISTING UTILITIES- MIN, 2 DAYS PRIOR BEFORE
- 4. ESTABLISH ONSITE LOCATION FOR OWNER/OPERATOR/CONTRACTOR PLACEMENT OF APPROVED PLANS AND RULE 5 NOI AND RULE 5 INSPECTIÓN DOCUMENTATION.
- 5. INSTALL SILT FENCE AND OTHER EROSION CONTROL MEASURES AS INDICATED ON DRAWINGS.
- 6. INSTALL GRAVEL CONSTRUCTION ENTRANCE AS INDICATED ON DRAWINGS- ADD ADDITIONAL STONE AS NEEDED.
- 7. ESTABLISH CONSTRUCTION STAGING AREA FOR EQUIPMENT AND VEHICLES.

CONSTRUCTION ACTIVITY PHASING:

- 1. AFTER EROSION AND SEDIMENT CONTROL MEASURES ARE IN PLACE, BEGIN EARTHWORK OPERATIONS-ROUGH GRADING. DO NOT LEAVE LARGE AREAS UNPROTECTED FOR MORE THAN 15 DAYS.
- 2. CONSTRUCT CONCRETE WASH STATION BEFORE CONCRETE WORK IS TO COMMENCE ON SITE. REFER TO PLAN FOR LOCATION.
- 3. STRIP TOPSOIL AND STOCKPILE, START MASS GRADING OF PROPOSED DETENTION POND, AFTER COMPLETION OF MASS GRADING AND FINAL GRADING: SEED ALL DISTURBED AREAS, COMMON AREAS AND SWALES IMMEDIATELY AFTER GRADING IS COMPLETED.
- 4. INSTALL THE PROPOSED DETENTION POND SPILLWAY AND OTHER SAFETY MEASURES AND PLANTINGS AS INDICATED ON PLANS.
- 5. START BUILDING FOUNDATIONS
- 6. INSTALL SEWERS, ALL UTILITIES AND UNDERDRAINS. ADD INLET PROTECTION MEASURES AS INDICATED
- 7. INSTALL CONCRETE CURBS, PAVEMENT AREAS AND WALKS AS INDICATED ON PLANS.
- 8. PLACE TOPSOIL IN ALL TURF, AND LANDSCAPE AREAS.
- 9. INSTALL FINAL PAVEMENT AND FINAL GRADE AREA.
- 10. INSTALL LANDSCAPING AND FINAL SEEDING.
- 11. REMOVE ALL SEDIMENT CONTROL PRACTICES ONCE THE SITE IS STABILIZED.
- 12. NOTE: INSTALL TEMPORARY SEEDING AFTER A SPECIFIC STAGE OF CONSTRUCTION HAS BEEN COMPLETED (TEMPORARY OR FINAL) WHERE AREAS WILL BE IDLE OF CONSTRUCTION ACTIVITIES FOR A PERIOD OF 15 DAYS OR MORE.

(B3) CONSTRUCTION ENTRANCE INFORMATION

THE LOCATION OF THE CONSTRUCTION ENTRANCE IS ON SHEET C900.

(B4) SHEET FLOW SEDIMENT CONTROL

FILTER SOCK, TEMPORARY SEEDING AND EROSION CONTROL INLET PROTECTION WILL BE USED AS EROSION CONTROL MEASURES FOR SHEET FLOWS. THE LOCATION, DETAILS, AND SPECIFICATIONS FOR EACH STATED SEDIMENT CONTROL MEASURE IS ON SHEETS C900-C904.

(B5) CONCENTRATED FLOW SEDIMENT CONTROL

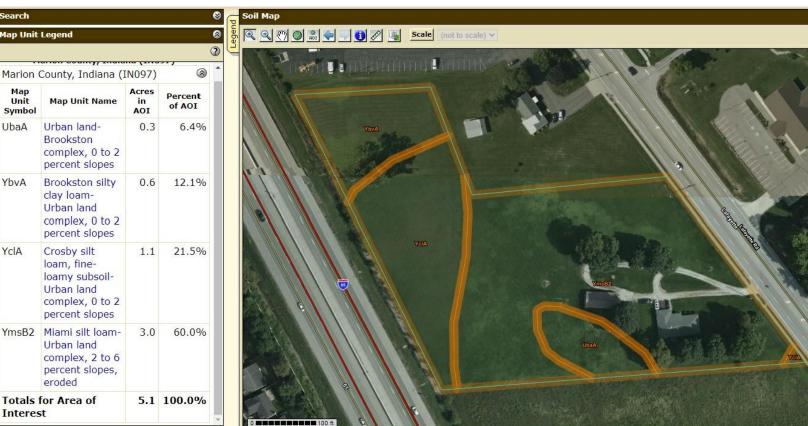
EROSION CONTROL BLANKET. AND RIP RAP APRONS WILL BE USED AS EROSION CONTROL MEASURES FOR CONCENTRATED FLOWS. THE LOCATION, DETAILS, AND SPECIFICATIONS FOR EACH STATED CONCENTRATED FLOW MEASURE IS ON SHEETS C900-C904.

(B6) INLET PROTECTION LOCATIONS AND SPECS

INLET PROTECTION WILL BE PLACED AT ALL INLETS. THE LOCATION, DETAILS, AND SPECIFICATIONS FOR INLET PROTECTION MEASURES ARE ON SHEETS C900-C904.

(B7) RUNOFF CONTROL MEASURES

FILTER SOCK, TEMPORARY SEEDING AND EROSION CONTROL INLET PROTECTION WILL BE USED TO CONTROL RUN OFF. THE LOCATION, DETAILS, AND SPECIFICATIONS FOR EACH STATED SEDIMENT CONTROL MEASURE IS ON SHEETS C900-C904.



(A19) LOCATION OF PROPOSED STORMWATER SYSTEMS

REFER TO SITE DRAINAGE PLAN SHEET C400.

(A20) OFF-SITE CONSTRUCTION PLAN RIGHT-OF-WAY RESURFACING AND DETENTION POND OUTLET PIPE.

(A21) SOIL STOCKPILE, BORROW AND/OR DISPOSAL

NO PERMANENT SOIL STOCKPILES ARE PLANNED FOR THIS DEVELOPMENT.

(A22 & A23) EXISITNG & FINAL SITE TOPOGRAPHY

REFER TO EXISTING TOPOGRAPHIC SURVEY, AND SITE GRADING PLAN SHEET

ASSESSMENT OF STORMWATER POLLUTION PREVENTION PLAN CONSTRUCTION DETAILS FOR EACH STORMWATER QUALITY MEASURE. COMPONENT (SECTION B)

(B1) POTENTIAL CONSTRUCTION POLLUTANTS

POTENTIAL POLLUTANTS SOURCES RELATIVE TO A CONSTRUCTION SITE MAY INCLUDE, BUT ARE NOT LIMITED TO MATERIAL AND FUEL STORAGE AREAS. FUELING LOCATIONS, EXPOSED SOILS AND LEAKING VEHICLE/EQUIPMENT. POTENTIAL POLLUTANTS THAT MAY APPEAR AT THE SITE DUE TO CONSTRUCTION ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO DIESEL FUEL, GASOLINE, CONCRETE AND CONCRETE WASHOUT, SOLID WASTE, SEDIMENT, PAINT AND SOLVENTS, EQUIPMENT REPAIR PRODUCTS, ANTI-FREEZE AND FERTILIZER.

TOPOGRAPHIC SURVEY COMPLETED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.; PROJECT NUMBER: 310-295, DATED: SEPTEMBER 28, 2021.

(B8) OUTLET PROTECTION SPECIFICATIONS

REFER TO PLANS FOR THE LOCATION, DETAILS, AND SPECIFICATIONS FOR OUTLET PROTECTION-SHEETS C900-C904.

(B9) GRADE STABILIZATION MEASURES

EROSION CONTROL BLANKETS WILL BE USED IN THIS PHASE ON GRADES GREATER THAN 3:1 AND/ OR EXPOSED TO CONCENTRATED FLOW. REFER TO CONSTRUCTION PLANS FOR LOCATIONS

(B10) STORMWATER QUALITY DETAILS

REFER TO CONSTRUCTION PLANS FOR LOCATION, DIMENSIONS, SPECIFICATIONS AND CONSTRUCTION

(B11) TEMPORARY SURFACE STABILIZATION

TEMPORARY SEEDING AND EROSION CONTROL MATTING WILL BE USED AS TEMPORARY SURFACE STABILIZATION MEASURES. REFER TO SHEETS C900 FOR SEEDING AREAS. CONTRACTOR TO SEED ALL DISTURBED AREAS. REFER TO SEEDING TABLES ON SHEET C904.

- 1. SELECT APPROPRIATE SEED MIXTURE AND APPLICATION RATE FROM TABLE ON SHEET C904. APPLY SEED UNIFORMLY
- 2. INSPECT 24 HOURS AFTER EACH RAIN EVENT AND OR AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- 3. USE PHOSPHOROUS FREE FERTILIZER (12-0-12) UNLESS SOIL TESTING SHOWS A NEED.

(B12) PERMANENT SURFACE STABILIZATION

PERMANENT SEEDING WILL BE USED AS PERMANENT SURFACE STABILIZATION MEASURES. REFER TO SHEET C901 FOR SEEDING AREAS. CONTRACTOR TO SEED ALL DISTURBED AREAS. REFER TO SEEDING

- TABLES ON SHEET C904. 1. SELECT APPROPRIATE SEED MIXTURE AND APPLICATION RATE FROM TABLE ON SHEET C904.
- APPLY SEED UNIFORMLY 2. INSPECT 24 HOURS AFTER EACH RAIN EVENT AND OR AT LEAST ONCE EVERY SEVEN CALENDAR
- 3. USE PHOSPHOROUS FREE FERTILIZER (12-0-12) UNLESS SOIL TESTING SHOWS A NEED.

(B13) MATERIAL HANDLING AND SPILL PREVENTION

Expected materials that may appear at the site due to construction activities include, but are not limited to petroleum products, fertilizers, paint and solvents, and concrete. Materials shall be stored in the designated material storage area.

Spill prevention for vehicle and equipment fueling shall conform to the following practices: vehicle equipment fueling procedures and practices are designed to prevent fuel spills and leaks, and reduce or eliminate contamination of stormwater. This can be accomplished by using offsite facilities, fueling in designated areas only, enclosing or covering stored fuel, implementing spill controls, and training employees and subcontractors in proper fueling procedures. Limitations: Onsite vehicle and equipment fueling should only be used where it is impractical to send vehicles and equipment offsite for fueling. Sending vehicles and equipment offsite should be done in conjunction with a Stabilized Construction Entrance/Exit. Implementation: Use offsite fueling stations as much as possible. Discourage "topping—off" of fuel tanks. Absorbent spill cleanup materials and spill kits should be available in fueling areas and on fueling trucks, and should be disposed of properly after use. Drip pans or absorbent pads should be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area. Use absorbent materials on small spills. Do not hose down or bury the spill. Remove the absorbent materials promptly and dispose of properly. Avoid mobile fueling of mobile construction equipment around the site; rather, transport the equipment to designated fueling areas. Train employees and subcontractors in proper fueling and cleanup procedures. Dedicated fueling areas should be protected from stormwater runon and runoff, and should be located at least 50 ft away from downstream drainage facilities and watercourses. Fueling must be performed on level—grade area. Protect fueling areas with berms and dikes to prevent runon, runoff, and to contain spills. Nozzles used in vehicle and equipment fueling should be equipped with an automatic shutoff to control drips. Fueling operations should not be left unattended. Federal, state, and local requirements should be observed for any stationary above ground storage

Vehicles and equipment should be inspected each day of use for leaks. Leaks should be repaired immediately or problem vehicles or equipment should be removed from the project site. Keep ample supplies of spill cleanup materials onsite. Immediately clean up spills and properly dispose of contaminated soils.

Spill prevention for solid waste shall conform to the following practices: Solid waste management procedures and practices are designed to prevent or reduce the discharge of pollutants to stormwater from solid or construction waste by providing designated waste collection areas and containers, arranging for regular disposal, and training employees and subcontractors. Solid waste generated from trees and shrubs removed during land clearing, demolition of existing structures, and building construction. Packaging materials including wood, paper, and plastic. Scrap or surplus building materials including scrap metals, rubber, plastic, glass pieces and masonry products. Domestic wastes including food containers such as beverage cans, coffee cups, paper bags, plastic wrappers, and cigarettes. Construction wastes including brick, mortar, timber, steel and metal scraps, pipe and electrical cuttings, non-hazardous equipment parts, Styrofoam and other package construction materials. Select designated waste collection areas onsite. Inform trash—hauling contractors that you will accept only watertight dumpsters for onsite use. Inspect dumpsters for leaks and repair any dumpster that is not watertight. Provide an adequate number of containers with lids or covers that can be placed over the container to keep rain out or to prevent loss of wastes when it is windy. Plan for additional containers and more frequent pickup during the demolition phase of construction. Collect site trash daily, especially during rainy and windy conditions. Remove this solid waste promptly since erosion and sediment control devices tend to collect litter. Make sure that toxic liquid wastes (sued oils, solvents and paints) and chemicals (acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designed for construction debris. Do not hose out dumpsters on the construction site. Leave dumpster cleaning to the trash hauling contractor. Arrange for regular waste collection before containers overflow. Clean up immediately if a container does spill. Make sure that construction waste is collected, removed, and disposed of only at authorized disposal areas. Solid waste storage areas should be located at least 50 ft from drainage facilities and watercourses and should not be located in areas prone to flooding or ponding. Inspect construction waste area regularly. Arrange for regular

Spill prevention for concrete washout shall conform to the following practices: Store dry and wet materials under cover, away from drainage areas. Avoid mixing excess amounts of fresh concrete. Perform washout of concrete trucks offsite or in designated areas only. Do not wash out concrete trucks into storm drains, open ditches, streets, or streams. Do not allow excess concrete to be dumped onsite, except in designated areas. Locate washout areas at least 50 ft from storm drains, open ditches, or water bodies. Do not allow runoff from this area by constructing a temporary pit or bermed area large enough for liquid and solid waste. Wash out wastes into the temporary pit where the concrete can set, be broken up, and then disposed properly. Avoid creating runoff by draining water to a bermed or level area when washing concrete to remove fine particles and expose the aggregate. Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile or dispose in the trash.

The cleanup parameters shall conform to the following practices: The developer shall be continually kept informed, maintain lists of qualified contractors and available Vac—trucks, tank pumpers and other equipment readily accessible for cleanup operations. In addition, a continually updated list of available absorbent materials and cleanup supplies should be kept on site. All maintenance personnel will be made aware of techniques for prevention of spills. They will be informed of the requirements and procedures outlined in this plan. They will be kept abreast of current developments or new information on the prevention of spills and / or necessary alteration to this plan. When spills occur which could endanger human life and this become primary concern, the discharge of the life saving protection function will be carried out by the local police and fire departments. Absorbent materials, which are used in cleaning up spilled materials, will be disposed of in a manner subject to the approval of the Indiana Department of Environmental Management. Flushing of spilled material with water will not be permitted unless so authorized by the Indiana Department of Environmental Management.

Spill prevention for vehicle and equipment maintenance shall conform to the following practices: Prevent or reduce the contamination of stormwater resulting from vehicle and equipment maintenance by running a "dry and clean site". The best option would be to perform maintenance activities at an offsite facility. If this option is not available then work should be performed in designated areas only, while providing cover for materials stored outside, checking for leaks and spills, and containing and cleaning up spills immediately. These procedures are suitable on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles. Onsite vehicle and equipment maintenance should only be used where it is impractical to send vehicles and equipment offsite for maintenance and repair. Sending vehicles / equipment offsite should by done in conjunction with a stabilized construction entrance / exit. Out door vehicle or equipment maintenance is a potentially significant source of stormwater pollution. Activities that can contaminate stormwater include engine repair and service, changing or replacement of fluids, and outdoor equipment storage and parking (engine fluid leaks). If maintenance must occur onsite, use designated areas, located away from drainage courses. Dedicated maintenance areas should be protected from stormwater runon and runoff, and should be located at least 50 ft from downstream drainage facilities and water courses. Drip pans or absorbent pads should be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over and impermeable surface in a dedicated maintenance area. Place a stockpile of spill cleanup materials where it will be readily accessible. All fueling trucks and fueling areas are required to have spill kits and/or use other spill protection devices. Use absorbent materials on small Remove the absorbent materials promptly and dispose of properly. Inspect onsite vehicles and equipment daily at startup for leaks, and repair immediately. Keep vehicles and equipment clean: do not allow excessive buildup of oil and arease. Segregate and recycle wastes, such as greases, used oil or oil filters, antifreeze, cleaning solutions, automotive batteries, hydraulic and transmission fluids. Provide secondary containment and covers for these materials if stored onsite. Train employees and subcontractors in proper maintenance and spill cleanup procedures. Drip pans or plastic sheeting should by placed under all vehicles and equipment placed on docks, barges, other structures over water bodies when the vehicle or equipment is planned to be idle for more than 1 hour. Properly dispose of used oils, fluids, lubricants, and spill cleanup materials. Properly dispose of or recycle used batteries. Do not place used oil in a dumpster or pour into a storm drain or water course. Properly dispose of used oils, fluids, lubricants, and spill cleanup materials. Don not bury tires. Repair leaks of fluids and oil

Spill prevention for fertilizers shall conform to the following practices: Fertilizer's used will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked into the soil to limit exposure to storm water. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

Spill prevention for paint and solvents shall conform to the following practices: All containers will be tightly sealed and stored when not required for use. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM but will be properly disposed of according to manufacturers' instructions or State or local regulations.

Spill prevention for portable toilets shall conform to the following practice: All portable toilets must be anchored to prevent spills. Spill prevention and cleanup shall conform to IDEM form 327 IAC 2-6 and the City of Indianapolis Fire Department shall be contacted in the

case of a material spill occurring.

(317) 233-7745 or (888) 233-7745

City of Indianapolis Fire Department: (317) 327-3811 City of Indianapolis Police Department: (317) 327-6041 Marion County Soil & Water District (317) 786-1776

IDEM Emergency Spill Reporting:

(B14) MONITORING AND MAITENANCE GUIDELINES

| EROSION CONTROL MEASURE | * MAINTENANCE | INSTALLATION SEQUENCE |
|------------------------------|--|---|
| STONE ENTRANCE | AS NEEDED | PRIOR TO CLEARING AND GRADING |
| SILT FENCE | WEEKLY, AFTER STORM EVENTS AND AS NEEDED | PRIOR TO CLEARING AND GRADING |
| FILTER SOCK | WEEKLY, AFTER STORM EVENTS AND AS NEEDED | PRIOR TO STREET UPGRADES |
| PERMANENT SEEDING | WATER AS NEEDED | AFTER FINISH GRADING |
| EROSION CONTROL BLANKET | WEEKLY, AFTER STORM EVENTS AND AS NEEDED | AFTER FINISH GRADING |
| SEED, SOD & LANDSCAPE AROUND | WATER AS NEEDED | AFTER FINISHED GRADING |
| DUST CONTROL | AS NEEDED | ALONG WITH ALL EARTHWORK ACTIVITIES |
| CONCRETE WASHOUT | WEEKLY, AFTER STORM EVENTS AND AS NEEDED | PRIOR TO START OF ANY CONCRETE WORK |
| | | |
| | | |
| | | |
| REMOVAL OF INLET PROTECTION | N/A | AFTER ALL AREAS DRAINING TO THESE AREAS ARE STABILIZED |
| REMOVAL OF SILT FENCE | N/A | AFTER ALL AREAS DRAINING TO THESE AREAS ARE STABILIZED |
| REMOVAL OF FILTER SOCK | N/A | <u> AFTER ALL AREAS DRAINING TO THESE AREAS ARE STABILIZEI</u> |

* - SEE CHART FOR MAINTENANCE REQUIREMENTS

AREA TO GRADE, AND STABILIZE.

EROSION CONTROL MEASURES MAINTENANCE REQUIREMENTS

SILT FENCE MAINTENANCE REQUIREMENTS:

- INSPECT THE SILT FENCE PERIODICALLY AND AFTER EACH STORM EVENT. 2. IF FENCE FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY
- BECSOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY. 3. REMOVE DEPOSITED SEDIMENT WHEN IT REACHES HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT OR IS CAUSING THE FABRIC TO BULGE.
- 4. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEAN OUT. 5. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED REMOVE THE FENCE AND SEDIMENT DEPOSITS, BRING THE DISTURBED
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE MAINTENANCE REQUIREMENTS: 1. INSPECT ENTRANCE PAD AND SEDIMENT DISPOSAL AREA WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
- 2. RESHAPE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
- TOPDRESS WITH CLEAN STONE AS NEEDED.
- IMMEDIATELY REMOVE MUD AND SEDIMENT TRACKED OR WASHED ONTO PUBLIC ROADS BY BRUSHING OR SWEEPING. FLUSHING SHOULD ONLY BE USED IF THE WATER IS CONVEYED INTO A SEDIMENT TRAP OR BASIN. REPAIR ANY BROKEN ROAD PAVEMENT IMMEDIATELY.

EROSION CONTROL BLANKET MAINTENANCE REQUIREMENTS:

- 1. INSPECT EACH EROSION CONTROL BLANKET AREAS WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
- 2. CHECK FOR DISPLACEMENT OF BLANKET.
- 3. AREAS DISPLACED, PULL BACK PORTION OF BLANKET COVERING THE ERODED AREA, ADD SOIL AND TAMP, RESEED THE AREA. REPLACE AND STAPLE BLANKET.

EROSION CONTROL MEASURES MAINTENANCE REQUIREMENTS (cont.)

CONCRETE WASHOUT MAINTENANCE REQUIREMENTS:

- 1. INSPECT EACH CONCRETE WASHOUT AREAS DAILY AND
- AFTER STORM EVENTS OR HEAVY USE.
- INSPECT THE INTEGRITY OF THE OVERALL STRUCTURE. CHECK FOR LEAKS, SPILLS OR TRACKING OF SOIL BY EQUIPMENT.
- REMOVE EXCESS CONCRETE WHEN WASHOUT SYSTEMS REACHES 50% OF THE DESIGN CAPACITY. UPON REMOVAL, INSPECT STRUCTURE. REPAIR AS NEEDED.
- DISPOSE OF ALL CONCRETE IN A LEGAL MANNER.
- REPLACE PLASTIC LINER AFTER EVERY CLEANING. ENLARGE AS NECESSARY TO MAINTAIN CAPACITY.

INLET PROTECTION MAINTENANCE REQUIREMENTS:

- INSPECT EACH INLET PROTECTION MEASURE WEEKLY AND AFTER STORM EVENTS OR HEAVY USE.
- INSPECT STORM INLET BASKET OR GEOTEXTILE FABRIC AND MAKE REPAIRS. REMOVE ANY SEDIMENT. AVOID DAMAGING OR UNDERCUTTING FABRIC.

(B15) EROSION CONTROL SPECIFICATIONS FOR INDIVIDUAL LOTS

NO ADDITIONAL EROSION CONTROL SPECIFICATIONS ARE NEEDED FOR THIS PHASE.

ASSESSMENT OF STORMWATER POLLUTION PREVENTION PLAN COMPONENT (SECTION C)

(C1) POTENTIAL LANDUSE POLLUTANTS

POTENTIAL POLLUTANT SOURCES THAT MAY APPEAR AT THE SITE DUE TO PROPOSED LAND USE ACTIVITIES. BUT ARE NOT LIMITED TO VEHICLES. EXPOSED SOIL AND TRASH, POTENTIAL POLLUTANTS INCLUDE, BUT ARE NOT LIMITED TO OIL, GREASE, DIESEL FUEL, GASOLINE, ANTI-FREEZE, AUTO SOAP AND FERTILIZER.

(C2) STORMWATER QUALITY IMPLEMENTATION

THE STORMWATER QUALITY MEASURE IMPLEMENTATION SHALL BE BEGIN AFTER SUBSTANTIAL COMPLETION OF THE CONSTRUCTION ACTIVITIES FOR THE PROPOSED PROJECT. FOLLOWING CONSTRUCTION, ALL EROSION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED UNTIL ALL PERMANENT MEASURES, AND VEGETATION HAS BEEN ESTABLISHED AND CONSTRUCTION, INCLUDING LANDSCAPING, IS COMPLETE.

INDIVIDUAL EROSION CONTROL MEASURES MAY BE REMOVED FROM INLET PROTECTION STATUS FOLLOWING SEEDING AND AFTER SUFFICIENT VEGETATION HAS BEEN ESTABLISHED IN AN AREA TO PREVENT SILT AND SOIL EROSION INTO THE STORM SEWER SYSTEM.

INSPECTION AND MAINTENANCE OF LANDSCAPE AREAS AND INFRASTRUCTURE IMPROVEMENTS ARE THE RESPONSIBILITY OF THE DEVELOPER/OWNER AND OR LOCAL AGENCIES TAKING JURISDICTION OVER THE INFRASTRUCTURE IMPROVEMENTS.

(C3) POST CONSTRUCTION STORMWATER QUALITY

DESCRIPTION MEASURES:

POST CONSTRUCTION STORMWATER QUALITY MEASURES TO AID IN REDUCING THE AMOUNT OF POLLUTANTS:

- 1. POST CONSTRUCTION STORMWATER QUALITY MEASURES WILL CONSIST OF VEGETATIVE COVER ON THE PERMANENT GRASS AREAS AND EROSION CONTROL BLANKETS IN SPECIFIED AREAS. BOTH THE VEGETATIVE COVER AND EROSION CONTROL BLANKETS ARE INTENDED TO STABILIZE THE DISTURBED AREAS AND TO SERVE AS A SEDIMENT TRAP FOR FINER PARTICLES WITHIN THE STORM SEWER SYSTEM. THE DRY DETENTION POND WILL ALLOW SEDIMENT PARTICLES TO SETTLE, WHILE THE SCREENS ON THE OUTLET CONTROL STRUCTURE WILL CATCH ANY LEAVES OR LARGE FLOATABLE DEBRIS.
- 2. THE USE OF INLETS WITHIN THE STORM SEWER SYSTEM HAS BEEN UTILIZED. MAINTENANCE OF THE INLETS WILL BE THE RESPONSIBILITY OF THE OWNER AND/OR AGENCY TAKING
- 3. ALTHOUGH NOT CURRENTLY A PART OF THE PROPOSED SYSTEM, THE OWNER SHOULD BE AWARE THAT IF AN EXCESS OF POLLUTANTS IS DETERMINED TO BE FOUND LEAVING THE SITE, ADDITIONAL MEASURES MAY BE REQUIRED IN THE FUTURE TO FURTHER REDUCE THE AMOUNT OF FINES AND PETROLEUM PRODUCTS.
- 4. A MECHANICAL BMP STRUCTURE AQUA-SWIRL XC-9 IS PROPOSED FOR THIS PROJECT. THE OWNER SHALL FOLLOW THE OPERATION AND MAINTENANCE SCHEDULE AS DEFINED IN THE PROJECT O&M MANUAL. INSPECTIONS SHALL OCCUR AS DEFINED IN THE PROJECT O&M

(C4) LOCATION, DIMENSIONS, SPECIFICATIONS,

AND CONSTRUCTION DETAILS OF EACH

STORMWATER QUALITY MEASURE THE STORMWATER QUALITY MEASURES FOR POST CONSTRUCTION ACTIVITIES ARE INDICATED WITHIN THESE CONSTRUCTION DOCUMENTS. WATER QUALITY FEATURES INCLUDE THE MECHANICAL STORMWATER QUALITY UNIT, DRY DETENTION POND, AND ANY GRASSED SWALES. REFER TO SHEETS C900-C904 FOR REQUIRED INFORMATION ABOUT EROSION CONTROL MEASURES TO BE IMPLEMENTED WITHIN THE PROJECT SITE, REFER TO SHEET C400 FOR

MEASURES ARE INCLUDED WITHIN THE AFOREMENTIONED SERIES OF CONSTRUCTION DOCUMENTS. (C5) POST CONSTRUCTION MAINTENANCE GUIDELINES

DIMENSIONS, SPECIFICATIONS AND CONSTRUCTION DETAILS FOR THESE STORMWATER QUALITY

OWNER WILL PROVIDE MAINTENANCE ACTIVITIES FOR THE POST CONSTRUCTION WATER QUALITY MEASURES. MAINTENANCE ACTIVITIES WILL BE COMPLETED AS DESCRIBED BELOW. 1. ALL INLET CASTINGS WILL BE INSPECTED MONTHLY. DEBRIS AND TRASH AROUND OR

OBSTRUCTING INLETS WILL BE REMOVED AND DISPOSED PROPERLY.

STORM SEWER IMPROVEMENTS INTENDED TO SERVE THE POST CONSTRUCTED AREA.

- 2. GRASS AREAS SURROUNDING INLETS WILL BE MAINTAINED ON A REGULAR MOWING CYCLE. TRASH AND DEBRIS WILL BE REMOVED FROM SEEDED AND PAVED AREAS.
- 3. EXCESS SEDIMENT WILL BE REMOVED FROM THE DRY DETENTION POND WHEN REGULAR MAINTENANCE ACTIVITIES OCCUR. THE OUTLET CONTROL STRUCTURE GRATES MUST BE CLEARED OF SEDIMENT AND DEBRIS, ESPECIALLY AFTER STATISTICALLY LARGE RAIN EVENTS.

4. DAMAGE TO INLET CASTINGS, INLET STRUCTURES, STORM STRUCTURES, OR CATCH BASINS

SHOULD BE REPAIRED AS SOON AS POSSIBLE. 5. A MECHANICAL BMP STRUCTURE AQUA-SWIRL XC-9 IS PROPOSED FOR THIS PROJECT. THE OWNER SHALL INSPECT THE SYSTEM ON AT LEAST A MONTHLY BASIS. MORE FREQUENT INSPECTIONS MAY NEED TO TAKE PLACE DURING PERIODS OF HEAVY RAINFALL. THE BMP SHOULD BE INSPECTED FOR FLOATABLE DEBRIS AND FROM ACCUMULATED SEDIMENT. ANY EXCESS SEDIMENT SHOULD BE COLLECTED TO BE REMOVED OF IN A PROPER LOCATION SO THAT THE DEBRIS DOES NOT ENTER INTO THE DOWNSTREAM STORMWATER SYSTEM. ALL MAINTENANCE REQUIREMENTS ARE THE RESPONSIBILITY OF THE OWNER. THE OWNER SHALL FOLLOW THE OPERATION AND MAINTENANCE SCHEDULE AS DEFINED IN THE PROJECT O&M

MANUAL. INSPECTIONS SHALL OCCUR AS DEFINED IN THE PROJECT O&M MANUAL.

EROSION CONTROL RESPONSIBLE PERSON

THE PERSON RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF THE EROSION CONTROL IS LISTED BELOW.

HANNIG CONSTRUCTION, INC. CONTACT: JASON JONES 815 SWAN STREET TERRE HAUTE, IN 47807 PHONE: 812-235-6218 FAX: 812-235-1218 EMAIL: JJONES@HANNIGCONSTRUCTION.COM



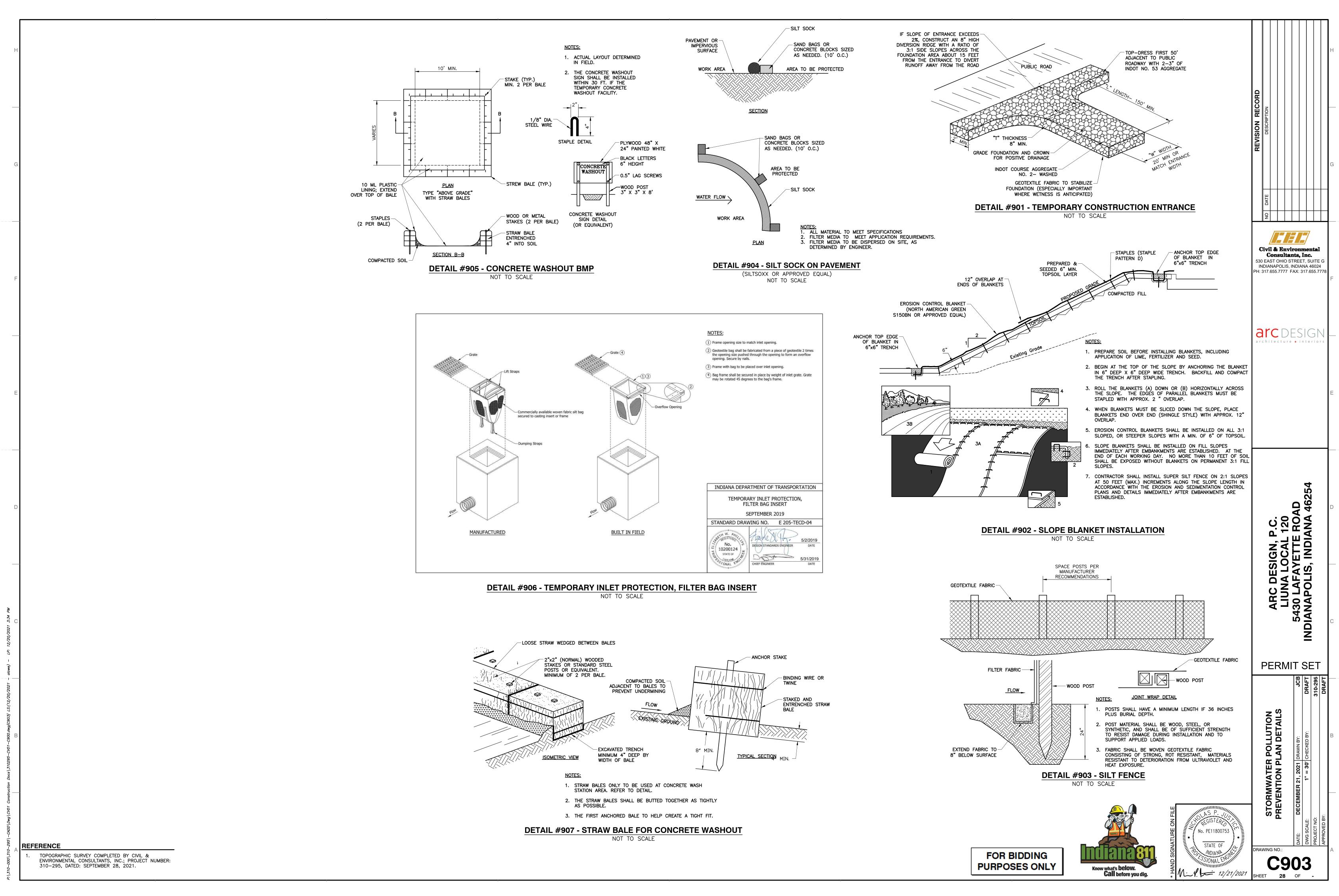


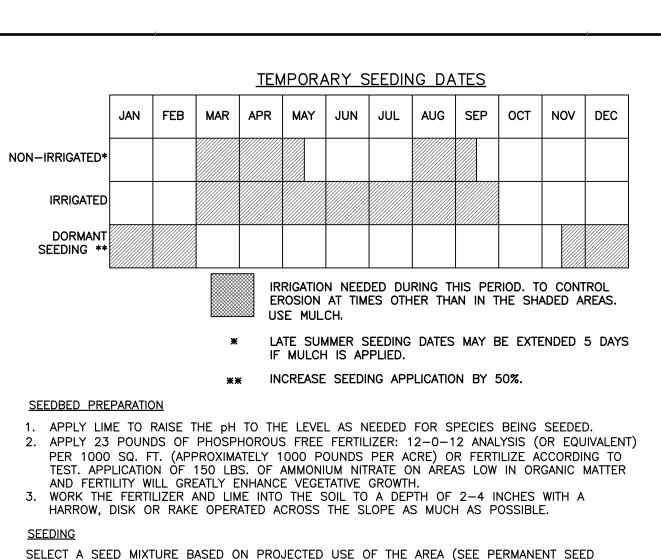


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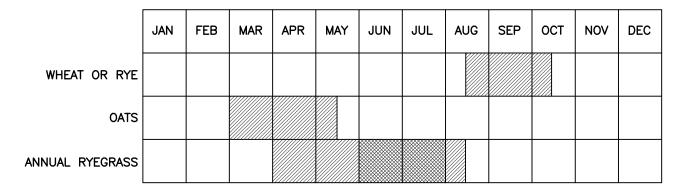


SELECT A SEED MIXTURE BASED ON PROJECTED USE OF THE AREA (SEE PERMANENT SEED MIXTURE CHART). WHILE CONSIDERING BEST SEEDING DATES. IF PERMANENT SEEDING IS NOT PERMITTED USE TEMPORARY SEEDING UNTIL PERMANENT SEEDING CAN BE APPLIED. IF TOLERANCES ARE A PROBLEM, SUCH AS SALT TOLERANCE OF SEEDINGS ADJACENT TO STREETS AND HIGHWAYS, SEE SEED TOLERANCE CHART.

| TEMPORARY SEEDING | | | | | | | | | | |
|--|----------------|------------|------------------------------|--|--|--|--|--|--|--|
| TYPE OF SEED 1000 SQ. FT. ACRE REMARKS | | | | | | | | | | |
| | | | | | | | | | | |
| WHEAT OR RYE | 3.5 LBS. | 2 BU. | COVER SEED 1" TO 1 1/2" DEEP | | | | | | | |
| | | | | | | | | | | |
| SPRING OATS | 2.3 LBS. | 3 BU. | COVER SEED 1" DEEP | | | | | | | |
| | | | | | | | | | | |
| ANNUAL RYEGRASS | 1 LB. | 40 LB. | COVER SEED 1/4" DEEP | | | | | | | |
| * NOT NECESSARY | WHERE MULCH IS | S APPLIED. | | | | | | | | |

| PERMANENT SEEDING | | | | | | | | | | | | |
|----------------------------------|-----------|---------------------|-------------|--------------------|-----------------|-----|--|--|--|--|--|--|
| SPECIES | SEEDIN | G RATE | SUITABLE pH | SITE SUITABILITY * | | | | | | | | |
| | LBS/ACRE | LBS/1000 SQ. FT. | | DROUGHTY | WELL DRAINED | WET | | | | | | |
| LEVEL AND SLOPING, OPEN AREAS | | | | | | | | | | | | |
| 1. TALL FESCUE | 35 | .8 | 5.5-8.3 | 2 | 1 | 2 | | | | | | |
| 2. TALL FESCUE | 25 | .6 | 5.5-8.3 | _ | 1 | | | | | | | |
| RED CLOVER | 5 | .12 | | | | | | | | | | |
| 3. KENTUCKY BLUEGRASS | 15 | .4 | 5.8-7.5 | 2 | 1 | | | | | | | |
| CREEPING RED FESCUE | 15 | .4 | | | | | | | | | | |
| STEEP BANKS AND CUTS | | | | | | | | | | | | |
| 4. TALL FESCUE | 15 | .4 | 5.8-7.5 | 2 | 1 | 2 | | | | | | |
| KENTUCKY BLUEGRASS | 25 | .6 | | _ | | | | | | | | |
| 5. TALL FESCUE | 35 | .8 | 5.5-8.3 | 2 | 1 | | | | | | | |
| | | | | | | | | | | | | |
| LAWNS AND HIGH MAINTENAN | NCE AREAS | | | | | | | | | | | |
| 6. KENTUCKY BLUEGRASS | 40 | .9 | 5.8-7.5 | 2 | 1 | | | | | | | |
| CREEPING RED FESCUE | 40 | .9 .9 | _ | _ | | | | | | | | |
| 7. PERENNIAL RYEGRASS | 170 | 4.0 | 5.0-7.5 | | 1 | | | | | | | |
| (TURF TYPE) | | | | | | | | | | | | |
| 8. TALL FESCUÉ | 170 | 4.0 | 5.5-8.3 | 2 | 1 | 2 | | | | | | |
| * 1 _ DEFFEDEN 2 _ WILL TOLEPATE | | | | | | | | | | | | |

PERMANENT SEEDING DATES



| | | SOIL CONDIT NORM | | SHADE TOLERANCE | CLOSE MOWING TO 2-3 1/2 INCHES | TRAMPING TOLERANCE | FERTILITY NEEDS | WINTER HARDINESS | FLOODING TOLERANCE (DAYS) | MATURE HEIGHT (INCHES) | EMERGENCE TIME (DAYS) | TO GEN. | SOIL DLERAN SOIL | CE SPRAY |
|---------------------------------------|---|------------------------|---|--------------------|--------------------------------------|-----------------------|--------------------|---------------------|---------------------------------|------------------------------|--------------------------|------------|------------------------|-------------|
| CREEPING RED FESCUE FESTUCA RUBRA | 2 | 1 | 2 | 1 | 1 | 1 | MED. | 1 | 20-25 | 12-18 | 7-21 | | | S |
| KENTUCKY BLUEGRASS POA PROTINSIS | 2 | 1 | 2 | 1 | 1 | 1 | MED. | 1 | 20-35 | 12-18 | 10-20 | | | мт |
| TALL FESCUE FESTUCA L. ARUNDINACEA | 2 | 1 | 1 | 1 | 1 | 1 | LOW | 1 | 24-35 | 24-36 | 5-14 | | Т | |
| PERENNIAL RYEGRASS LOLLUM PERENNE | 2 | 1 | 2 | _ | 1 | 2 | MED. HIGH | 2 | 15-20 | 12-18 | 5-10 | | МТ | |
| RED CLOVER TRIFOLIUM PROTENSE | - | 1 | ı | 2 | - | ı | MED. | 1 | 7–10 | 18 | 5-10 | S | S | |
| | | | | | | | | | | | | | | |

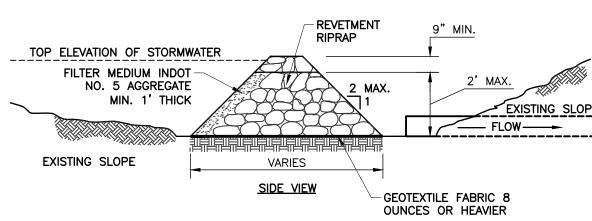
MT MEDIUM TOLERANCE

RANKING: 1 GOOD

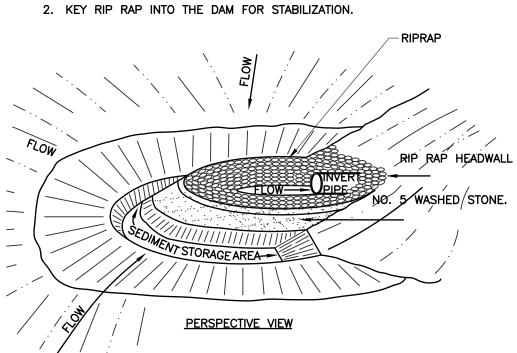
2 MEDIUM

SALT TOLERANCE (TO BOTH SOIL SALTS & SPRAY) T TOLERANCE

- NOT TOLERANT S SLIGHT TOLERANCE



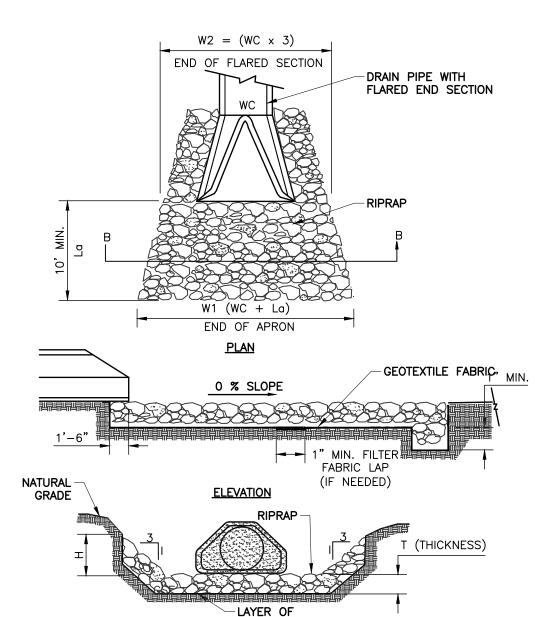
1. HEIGHT & WIDTH DETERMINED BY EXISTING TOPOGRAPHY AND SEDIMENT STORAGE REQUIRED.



DETAIL 908 - ROCK HORSESHOE DAM DETAIL NOT TO SCALE

- 1. CLASS OR MEDIAN SIZE OF RIPRAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE DESIGNED BY THE ENGINEER AND ARE SUMMARIZED BELOW.
- 2. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO THIRDS THE PIPE DIAMETER OR CULVERT HEIGHT.
- 3. THERE SHALL BE NO OVERFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (FLUSH) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM
- 4. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAX. TAPER TO RECEIVING CHANNEL 5:1.
- 5. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR
- 6. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
- 7. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED. 8. FILTER FABRIC SHALL BE INSTALLED ON COMPACTED
- SUBGRADE PRIOR TO PLACEMENT OF RIPRAP. 9. ANY DISTURBED AREA FROM END

OF APRON TO RECEIVING CHANNEL MUST BE STABILIZED.



| SECTION | B-B |
|---------|-----|
| | |

| OUTLET | La | W1 | W2 | WC | Т | H | d ₅₀ | d _{MAX} |
|----------|-------|-----------|-------|-----|--------|--------|-----------------|------------------|
| Str. 400 | 10 If | 11.25 ft. | 6 ft. | 24" | 12 in. | 24 in. | 10 in. | 12 in. |
| Str. 416 | 10 If | 11 ft. | 3 ft. | 12" | 12 in. | 18 in. | 6 in. | 9 in. |

GEOTEXTILE FABRIC

DETAIL 909 - RIP RAP APRON DETAIL NOT TO SCALE

FOR BIDDING

PURPOSES ONLY

FOR BIDDING

PURPOSES ONLY

PERMIT SET

ARC DESIGN, P.C. LIUNA LOCAL 120 5430 LAFAYETTE ROAD INDIANAPOLIS, INDIANA 46254

Civil & Environmental Consultants, Inc. 530 EAST OHIO STREET, SUITE G INDIANAPOLIS. INDIANA 46024 PH: 317.655.7777 FAX: 317.655.7778

rchitecture + interio

ORMWATER POLLUTIO PREVENTION DETAILS

RAWING NO.:

C904

SHEET 29 OF -

No. PE11800753 STATE OF MDIANA ...

Mil. 12/21/2021

REFERENCE

TOPOGRAPHIC SURVEY COMPLETED BY CIVIL & ENVIRONMENTAL CONSULTANTS, INC.; PROJECT NUMBER: 310-295, DATED: SEPTEMBER 28, 2021.

FOUNDATIONS

- 1. Proofroll slab on grade areas with a medium-weight roller or other suitable equipment to check for pockets of soft material hidden beneath a thin crust of better soil. Any unsuitable materials thus exposed should be removed and replaced with compacted, engineered fill as outlined in the
- specifications. Proofrolling operations shall be monitored by the Geotechnical Testing Agency. 2. All engineered fill beneath slabs and over footings should be compacted to a dry density of at least 93% of the Modified Proctor maximum dry density (ASTM D-1557). All fill which shall be stressed by foundation loads shall be approved granular materials compacted to a dry density of at least 95% (ASTM D-1557). Coordinate all fill and compaction operations with the Specifications and the Subsurface Investigation. 3. Compaction shall be accomplished by placing fill in approximate 8" lifts and mechanically compacting
- each lift to at least the specified minimum dry density. For large areas of fill, field density tests shall be performed for each 3,000 square feet of building area for each lift as necessary to insure adequate compaction is being achieved.
- 4. Column footings and wall footings to bear on firm natural soils or well-compacted engineered fill with allowable bearing pressures of 2,000 PSF for column and wall footings, as outlined in the Subsurface Investigation Report. It is essential that the foundations be inspected to insure that all loose, soft, or otherwise undesirable
- material (such as organics, existing uncontrolled fill, etc.) is removed and that the foundations will bear on satisfactory material. The Geotechnical Testing Agency shall inspect the subgrade and perform any necessary tests to insure that the actual bearing capacities meet or exceed the design capacities. The Geotechnical Testing Agency shall verify the bearing capacity at each spread column footing and every 10 feet on center for strip footings prior to placement of concrete.
- 5. Place footings the same day the excavation is performed. If this is not possible, the footings shall be adequately protected against any detrimental change in condition, such as from disturbance, rain, or
- 6. It is the responsibility of the Contractor and each Sub-Contractor to verify the location of all utilities and
- services shown, or not shown; and establish safe working conditions before commencing work. The Contractor shall layout the entire building and field verify all dimensions prior to excavation.
- 8. For information regarding subsurface conditions, refer to the *Subsurface Investigation & Foundation* Recommendations report prepared by Alt & Witzig Engineering, Inc., A & W Project No. 21IN0829, dated December 21, 2021.

PRE-ENGINEERED METAL BUILDING

- 1. The entire PEMB system shall be designed by the PEMB Manufacturer in conformance with the provisions of the 2014 Indiana Building Code and the "Low Rise Building Systems Manual" as published by the Metal Building Manufacturer's Association. Where these criteria conflict, the more stringent criteria shall apply. It is the responsibility of the PEMB Manufacturer to design the complete building system, including main frame members, anchor rods, purlins, girts, lateral force resisting system(s), connections, roofing, wall panel, flashing, components, attachments, etc. The Manufacturer shall submit certification in the form of a letter bearing the seal of a Professional Engineer registered in the state of Indiana stating that the building system design meets the indicated code, performance and loading requirements.
- The PEMB Manufacturer shall be certified by the American Institute of Steel Construction (AISC), Category MB. 4. The foundation design is based upon information as provided by Ceco Buildings. The Contractor shall be responsible for coordination of any revisions required as a result of a change in the PEMB Manufacturer, including the redesign of foundations.
- 5. The size, number and pattern of all anchors bolts shall be determined by the PEMB Manufacturer. Anchor rod embedments are indicated on the foundation drawings.
- 6. The PEMB Manufacturer shall submit the anchor bolt requirement and foundation reactions prior to submittal of the balance of the building shop drawings so as not to delay the work. Should the PEMB Manufacturer make any changes in the anchor rod configuration, base plate sizing, foundation reactions, etc. after submittal and review of anchor rod submittal, they must be communicated to all parties and explicitly noted on future submittals. The PEMB Manufacturer shall bear the cost for any changes necessary to the foundations based on changes made to the anchor rods sizes or patterns, base plate sizing, foundation reactions, etc. during preparation of the balance of the building design. The Contractor shall submit shop drawings of the entire PEMB system for review. The Contractor shall also
- submit a complete structural design analysis of the building (for recording purposes only). All shop drawing and calculation submittals shall bear the seal of a Professional Engineer registered in state of Indiana.
- 8. The PEMB Manufacturer must use the same grid identification as those used on the Contract Documents. Design criteria and loading to be used in the design of the PEMB shall match those listed in the "Design Load Criteria" section of the structural notes. Coordinate the location and magnitude of loads for
- mechanical equipment and electrical fixtures with the Mechanical Contractor. Coordinate the loads of suspended equipment, fixtures, bulkheads, operable partitions, etc. with the Architectural Drawings. 10. Calculations for frame deflections (drift) shall be performed using only the Bare Frame Method.
- Reductions based on engineering judgement using the assumed composite stiffness of the building envelope are not permitted. A. Maximum lateral deflection/drift due to 10-year wind load shall not exceed H/120 for buildings with
- flexible cladding, such as metal wall panel, EIFS, wood siding, etc. B. Maximum lateral deflection/drift due to 10-year wind load shall not exceed H/240 for buildings with brittle cladding (pinned base) such as brick veneer with steel stud backup, full height masonry walls, etc., where 'H' denotes the eave height of the building.
- 11. The PEMB Manufacturer shall provide all girts, purlins, eave struts, and other components required for a complete system. All wall systems, such as steel studs, curtain walls, storefronts, etc. shall be properly supported by the PEMB system. Allowable deflections of components shall not exceed the
- A) Primary Framing no ceilings* L/150 for Roof Snow Load + Collateral Load
- B) Primary Framing with suspended L/240 for Roof Snow Load + Collateral Load
- Acoustical Ceilings C) Secondary Framing - no ceilings* L/150 for Dead Load + Roof Snow Load + Collateral Load L/240 for Roof Snow Load + Collateral Load
- D) Secondary Framing with suspended Acoustical Ceilings
- E) Wall Girts w/ Flexible Cladding
- F) Wall Girts w/ Brittle Cladding
- G) Wind Beams Flexible Cladding L/240
- H) Wind Beams Brittle Cladding
- I) Wind Columns Flexible Cladding L/240 J) Wind Columns - Brittle Cladding L/400
- L denotes the span of the element between supports For 10-year wind values, use 75% of the 50-year wind pressure
- * The PEMB Manufacturer must check ponding for low-slope applications. 12. The PEMB shall be designed to resist lateral loads as follows:
- A. Interior Frame Lines Rigid Frames with Pinned Bases B. Endwall Frame Lines Bearing Endwalls with Diagonal Rod or
- Cable Bracing C. Expandable Endwall Frame Lines Full-Load Rigid Frame w/ Pinned Bases & Removable Wind Columns
- D. Sidewalls Parallel to Eaves Diagonal Rod or Cable Bracing Where endwall bracing is not feasible, provide horizontal bracing in plane of roof to distribute lateral load to first interior rigid frame line. Fixed base columns and portal frames are not permitted, unless shown
- otherwise on the Contract Documents. 13. The PEMB Erector shall provide all temporary guying and bracing as required.
- 14. Unless otherwise specified or noted, all steel members shall be cleaned and painted in accordance with Manufacturer's standard procedures. Paint color for both primary and secondary steel shall match.
- 15. When modifications are proposed to PEMB members or elements under the design and certification of the PEMB Manufacturer, written authorization by the PEMB's Speciality Structural Engineer must be obtained and submitted to the Structural Engineer of Record for review prior to performing the proposed modification.

SPECIALTY STRUCTURAL ENGINEERING (SSE)

- 1. A Specialty Structural Engineer is defined as a Professional Engineer licensed in the State of Indiana, not the Structural Engineer of Record, who performs Structural Engineering functions necessary for the structure to be completed and who has shown experience and/or training in the specific speciality. 2. It is the Specialty Structural Engineer's responsibility to review the Construction Drawings and
- Specifications to determine the appropriate scope of engineering. 3. It is the intent of the Drawings and Specifications to provide sufficient information for the Specialty Structural Engineer (SSE) to perform his design and analysis. If the SSE determines there are details,
- features, or unanticipated project limits which conflict with the engineering requirements as described in the project documents, the SSE shall in a timely manner, contact the Structural Engineer of Record for resolution of conflicts. 4. The Specialty Structural Engineer (SSE) shall forward documents to the Structural Engineer of Record
- for review. Such documents shall bear the stamp of the SSE and include: A) Drawings introducing engineering input, such as defining the configuration or structural capacity of
- structural components and/or their assembly into structural systems. B) Calculations. C) Computer printouts which are an acceptable substitute for manual calculations provided they are

accompanied by sufficient design assumptions and identified input and output information to

- permit their proper evaluation. Such information shall bear the stamp of the Specialty Engineer as an indication that said engineer has accepted responsibility for the results. Contractors are referred to the specific technical specification sections and the structural drawings for those elements requiring Specialty Structural Engineering. Examples of components requiring
- Specialty Structural Engineering include, but are not limited to the following: A) Pre-Engineering Metal Building Systems.
- B) Cold-Formed Steel Framing.
- 6. When modifications are proposed to elements under the design and certification of the Specialty Structural Engineer (SSE), written authorization by the SSE must be obtained and submitted to the Engineer of Record for review, prior to performing the proposed modification.

POST-INSTALLED DOWELS & ANCHOR BOLTS/RODS

- 1. All reinforcing steel and threaded rod anchors to be installed in a 2-part chemical anchoring system shall be treated as follows:
- A. Drill holes larger than bar or rod to be embedded. Coordinate hole diameter with Manufacturer's recommendations.
- B. Holes must be cleaned and prepared in accordance with Manufacturer's recommendations.
- C. When reinforcing steel is encountered during drilling for installation of anchors; stop drilling, use a sensor to locate the reinforcing in the surrounding area and install anchor(s) as close as possible to the original location. Contact the Structural Engineer of Record (SER) for direction when the revised location is more than 2" from the original location, or when the original function of the

anchorage is significantly altered. When in doubt, contact the SER for direction.

- D. Drill the hole a minimum of 15 bar diameters or as shown on the plans. E. Use a 2-part adhesive anchoring system, Hilti HY-200, or approved equal.
- F. For anchorage into hollow substrate, use Hilti HY-270, or approved equal.
- G. Reinforcing steel dowels shall be ASTM A615, Grade 60, unless noted. H. Anchor rods shall be Hilti HAS-V-36, unless noted. Provide finish as noted on the Drawings. If not noted, provide hot-dip galvanized finish for interior applications. Provide stainless steel finish for all exterior applications, unless noted.
- 2. When column anchor bolts have been omitted, or damaged by construction operations, the Contractor must obtain the written approval of the Structural Engineer of Record prior to repair or replacement. A. As a precaution, the affected column must be guyed and braced after repair for the balance of the
- erection period. B. As an alternate to guying and bracing, the Contractor may at his option, employ a testing agency to perform a tensile pull test to confirm the strength for the repaired or replaced anchor bolt. The tensile proof load must exceed 1.33 x the design load of the original anchor without causing distress of the anchor bolt or the surrounding concrete. Reference the following table for the minimum proof loads: 3/4" diameter: 12.8 kips
- 7/8" diameter: 17.4 kips
- 1" diameter: 22.7 kips 1 1/8" diameter: 28.8 kips
- 1 1/4" diameter: 35.6 kips Note: Values listed above are for ASTM F-1554, Grade 36 material. When higher grade or strength materials are specified, refer to the AISC Steel Design Guide 1, Table 3.1 for minimum
- allowable loads to be multiplied by 1.33. C. When affected anchor bolts are part of a fixed moment resisting column base, such as those in
- moment-resisting space frames, canopies, or fixed-base installations, the repaired anchor bolts
- must be proof-loaded, or the affected column footing and/or pier replaced in its entirety. D. When affected anchor bolts are part of a braced frame the affected column footing and/or pier
- must be replaced in its entirety. E. Prior to erection, the controlling Contractor must provide written notification to the Steel Erector if there has been a repair, replacement or modification of the anchor bolts for that column.

CAST IN PLACE CONCRETE

- 1. Details of fabrication of reinforcement, handling and placing of the concrete, construction of forms and placement of reinforcement not otherwise covered by the Plans and Specifications, shall comply with the ACI Code requirements of the latest revised date
- 2. Cold weather concreting shall be in accordance with ACI 306. Cold weather is defined as a period when for more than 3 successive days the average daily air temperature drops below 40F and stays below 50F. The Contractor shall maintain a copy of this publication on site. 3. Hot weather concreting shall be in accordance with ACI 305. Hot weather is defined as any combination of the following conditions that tends to impair the quality of the freshly mixed or hardened
- concrete: high ambient temperature, high concrete temperature, low relative humidity, wind speed, or solar radiation The Contractor shall maintain a copy of this publication on site. 4. A certified Testing Agency shall be retained to perform industry standard testing including measurement of slump, air temperature, concrete cylinder testing, etc. to ensure conformance with the
- Contract Documents. Submit reports to Architect/Engineer. 5. Finishing of Slabs: After screeding, bull floating and floating operations have been completed, apply final finish as indicated below, and as described in the Division 3 Cast In Place Concrete Specification
 - of the Project Manual. A. Floor Slabs Hard Trowel Finish B. Ramps, Stairs, & Sidewalks Broom Finish
- Rough Swirl Finish C. Driving Surfaces
- Sample Finishes: See Specifications for sample and mockup requirements, if any. Floor Tolerances: See the Specifications for specified Ff and FI tolerances. Ff and FI testing shall be performed by the Testing Agency in accordance with ASTM E-1155. Results, including acceptance or rejection of the work will be provided to the Contractor and the Architect/Engineer within 48 hours after data collection. Remedies for out-of-tolerance work shall be in accordance with the Specifications.
- 6. Finishing of Formed Surfaces: Finish formed surfaces as indicated below, and as described in the Division 3 Cast In Place Concrete Specification of the Project Manual. A. Sides of Footings where required Rough Form Finish
- Rough Form Finish B. Sides of Grade Beams where required
- C. Surfaces not exposed to public view Rough Form Finish Smooth Form Finish D. Surfaces exposed to public view
- 7. The Contractor shall consult with the Structural Engineer of Record before starting concrete work to establish a satisfactory placing schedule and to determine the location of construction joints so as to minimize the effects of shrinkage in the floor system.
- 8. Sawn or tooled control/contraction joints shall be provided in all slabs on grade. For a framed structure, joints shall be located on all column lines. If the column spacing exceeds 20'-0", provide intermediate ioints. Exterior slabs, and interior slabs without column shall have joints spaced a maximum of 15-0" apart. Layout joints so that maximum aspect ratio (ratio of long side to short side) does not exceed 1.5 9. Where vinyl composition tile, vinyl sheets goods, thin-set epoxy terrazzo, or other similar material is the specified finish floor material, the Contractor shall coordinate the locations of control/contraction and
- construction joints with the Finish Flooring Contractor. Submit a dimensioned plan showing joint locations and proposed sequence of floor pours. 11. Joints in slabs to receive a finished floor may remain unfilled, unless required by the finish flooring contractor. All exposed slabs shall be filled with sealant specified in Division 7. Defer filling of joints as
- long as possible, preferably a minimum of 4 to 6 weeks after the slab has been cured. Prior to filling, remove all debris from the slab joints, the fill in accordance with the manufacturer's recommendations. 13. Refer to the Architectural Drawings for chamfer requirements for corners of concrete. Where not
- indicated, provide 3/4" chamfers on exposed corners of concrete, except those abutting masonry. 14. Refer to the Architectural Drawings for exact locations and dimensions of recessed slabs, ramps, stairs, thickened slabs, etc. Slope slabs to drains where shown on the Architectural and Plumbing Drawings.
- 15. Sidewalks, drives, exterior retaining walls, and other site concrete are not indicated on the Structural Drawings. Refer to the Site/Civil and Architectural Drawings for locations, dimensions, elevations, jointing, and finish details.

CONCRETE REINFORCING

- 1. Reinforcement, other than cold drawn wire for spirals and welded wire fabric, shall have deformed surfaces in accordance with ASTM A305.
- 2. Reinforcing steel shall conform to ASTM A615, Grade 60, unless noted. 3. Welded wire fabric shall conform to ASTM A1064, unless noted.
- 4. Where hooks are indicated, provide standard hooks per ACI and CRSI for all bars unless other hook dimensions are shown on the plans or details.
- 5. Reinforcement in footings, walls and beams shall be continuous. Lap bars a minimum of 40 diameters, unless noted otherwise.
- 6. Reinforcement shall be supported and secured against displacement in accordance with the CRSI 'Manual of Standard Practice'. 7. Details of reinforcing steel fabrication and placement shall conform to ACI 315 'Details and
- Detailing of Concrete Reinforcement' and ACI 315R 'Manual of Engineering and Placing Drawings
- for Reinforced Concrete Structures', unless otherwise indicated 8. Spread reinforcing steel around small openings and sleeves in slabs and walls, where possible, and where bar spacing will not exceed 1.5 times the normal spacing. Discontinue bars at all large openings where necessary, and provide an area of reinforcement, equal to the interrupted
- reinforcement, in full length bars, distributing one-half each side of the opening. Where shrinkage and temperature reinforcement is interrupted, add (2) #5 x opening dimension + 4'-0" on each side of the opening. Provide #5 x 4'-0" long diagonal bars in both faces, at each corner of openings larger than 12" in any direction. 9. Provide standees for the support of top reinforcement for footings, pile caps, and mats.
- 10. Provide individual high chairs with support bars, as required for the support of top reinforcement for supported slabs. Do NOT provide standees. 11. Provide snap-on plastic space wheels to maintain required concrete cover for vertical wall
- 12. Where walls sit on column footings, provide dowels for the wall. Dowels shall be the same size and spacing as the vertical wall reinforcement, unless noted otherwise, with lab splices as shown on the application sections. Install dowels in the footing forms before concrete is placed. Do NOT stick dowels into footings after concrete is placed.
- 13. Field bending of reinforcing steel is prohibited, unless noted on drawings. 14. Minimum concrete cover over reinforcing steel shall be as follows, unless noted otherwise on plan, section or note:

TOP OF FOOTINGS

| MINIMUM COVER FOR REINFORCEMENT | | |
|---|---------------|--|
| | MINIMUM COVER | |
| FOOTINGS & BASE SLABS | | |
| AT FORMED SURFACES & BOTTOMS BEARING ON CONCRETE WORK MAT | 2" | |
| AT UNFORMED SURFACES & BOTTOMS IN CONTACT WITH EARTH | 3" | |

SAME AS SLABS

| CONCRETE MIX CLAS | SES |
|---|---------------|
| FOOTINGS &FOUNDATION WALLS | |
| COMPRESSIVE STRENGTH | 4000 PSI |
| MAXIMUM WATER/CEMENT RATIO | 0.45 |
| AIR CONTENT | 0 - 3 PERCENT |
| WATER-REDUCING ADMIXTURE | REQUIRED |
| SLUMP | 5" TO 6 1/2" |
| INTERIOR CONCRETE SLABS | |
| COMPRESSIVE STRENGTH | 4000 PSI |
| MINIMUM CEMENTITIOUS MATERIAL CONTENT | 517 LB/CU YD |
| AIR CONTENT | 0 - 3 PERCENT |
| WATER-REDUCING ADMIXTURE | REQUIRED |
| SLUMP | 5" TO 6 1/2" |
| INCLUDE FIBER REINFORCING AND 'E5 INTERAL CURE' ADMIXTURE AS INDICATED ON PLAN | |
| EXTERIOR CONCRETE SUBJECT TO FREEZE-THAW | |
| COMPRESSIVE STRENGTH | 4500 PSI |
| MINIMUM CEMENTITIOUS MATERIAL CONTENT | 564 LB/CU YD |
| AIR CONTENT | 6 ± 1 PERCENT |
| WATER-REDUCING ADMIXTURE | REQUIRED |
| SLUMP | 5" TO 6 1/2" |
| COARSE AGGREGATE | CRUSHED STONE |
| LEAN CONCRETE FILL | |
| COMPRESSIVE STRENGTH | 2000 PSI |
| MAXIMUM WATER/CEMENT RATIO | 0.65 |
| AIR CONTENT | OPTIONAL |
| WATER-REDUCING ADMIXTURE | NOT REQUIRED |
| SLUMP | 4" TO 7" |

 SLUMP: MIXES CONTAINING TYPE A WRDA MIXES CONTAINING MID-RANGE WRDA

5 - 6 1/2" MIXES CONTAINING HIGH-RANGE WRDA 2. SPECIFIED MINIMUM CEMENTITIOUS MATERIAL CONTENTS ARE BASED ON THE USE OF WATER REDUCING ADMIXTURES. 3. INCLUDE AN AIR-ENTRAINING ADMIXTURE FOR ALL CONCRETE EXPOSED TO FREEZING

5" MAXIMUM

CONSTRUCTION, BEFORE ATTAINING ITS SPECIFIED DESIGN COMPRESSIVE STRENGTH. REF. ACI 306 FOR DEFINITION OF COLD WEATHER. 4. CLASS C FLY ASH MAY BE USED AS A CEMENT SUBSTITUTE WITH A MAXIMUM 20% SUBSTITUTION RATE ON A POUND-PER-POUND BASIS.

AND THAWING IN SERVICE AND FOR ALL CONCRETE EXPOSED TO COLD WEATHER DURING

5. PROPORTION CONCRETE MIXES TO PROVIDE WORKABILITY AND CONSISTENCY TO PERMIT CONCRETE TO BE WORKED READILY INTO THE CORNERS AND ANGLES OF THE FORMS AND AROUND REINFORCEMENT BY THE METHODS OF PLACEMENT AND CONSOLIDATION TO BE EMPLOYED, WITHOUT SEGREGATION AND EXCESSIVE BLEEDING. 6. ADJUSTMENTS TO THE APPROVED MIX DESIGNS MAY BE REQUESTED BY THE

CONTRACTOR WHEN JOB CONDITIONS, WEATHER, TEST RESULTS, OR OTHER

ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO USE.

CIRCUMSTANCES WARRANT. THESE REVISED MIX DESIGNS SHALL BE SUBMITTED TO THE

DESIGN CRITERIA

1. DESIGN STANDARDS: The intended design standards and/or criteria are as follows: The 2014 Indiana Building Code (2012 International Building Code (IBC) with Indiana Amendments) Concrete

AISC Manual, Allowable Stress Design (ASD) Steel Deck Steel Deck Institute Cold-Formed Metal AISI-ASD

All referenced standards and codes, as well as ASTM numbers, are for the editions of these publications referenced in the Building Code listed above, unless otherwise noted. 2. DEAD LOADS: Gravity Dead Loads used in the design of the structure are as computed for the materials of construction incorporated into the building, including but not limited to walls, floors, ceilings, stairways, fixed partitions, finishes, cladding and other similar architectural and structural items, as well as mechanical, electrical and plumbing equipment and fixtures, and material handling and fixed service

equipment, including the weight of cranes. 3. LIVE LOADS: Gravity live loads used in the design of the structure meet, or exceed the following table (IBC 2012 1607 1):

| (IBC 2012, 1007.1). | | |
|---|---------------|--------------------------------|
| OCCUPANCY OR USE | UNIFORM (PSF) | CONCENTRATED (LB) [Note #1] |
| A. Assembly Area | | |
| Movable Seats | 100 | |
| Platforms (Assembly) | 100 | |
| B. Office Buildings | | |
| Lobbies & First Floor Corridors | 100 | 2000 |
| 2. Offices | 50 | 2000 |
| 3. | | |
| | | |

Note #1: Unless otherwise noted, the indicated concentrated load has been assumed to be uniformly distributed over an area of 30" x 30".

4. LIVE LOAD REDUCTION: Live load reductions in accordance with IBC 1607.9 have been used with the following exceptions: A. Heavy live loads in excess of 100 PSF have not been reduced except for members supporting 2 or more floors have been reduced by a maximum of 20%. B. Live loads of 100 PSF or less for public assembly occupancies have not been reduced.

C. Live loads for roof members have not been reduced. 5. PARTITION ALLOWANCE: a uniform partition allowance of 15 PSF has been used to account for the load of all floors where partition locations are subject to change, unless the specified live load exceeds 80 PSF. 6. COLLATERAL LOAD: Unless otherwise noted, a minimum uniform collateral load of 3 PSF has been used to account for ductwork, ceilings, sprinklers, lighting, etc. The collateral load is in addition to the

weight of mechanical units, larger piping (greater than 4" diameter) and suspended fixtures or equipment

that have been specifically accounted for in the design. 7. CONCENTRATED LOADS: All single panel points of the lower chord of exposed roof trusses or any point along the primary structural members supporting roofs over all other occupancies shall be capable of carrying safely a suspended concentrated load of not less than 200 LBS in addition to dead load, unless noted.

8. HANDRAILS AND GUARDS A. Handrail Assemblies and Guards 50 PLF applied in any direction 200 LB concentrated load applied in any direction (non-concurrent with 50 PLF load) B. Components, Intermediate Rails, 50 LBS horizontally applied normal load Balusters, Fillers, Etc. on an area not to exceed 1 square foot not superimposed with those of handrail assemblies.

9. ROOF LIVE/SNOW LOADS: Gravity Live Loads used in the design of the roof structure meet or exceed the following table: A. Snow Load Ground Snow Load, Pg 14 PSF Flat Roof Snow Load, Pf Low Slope Minimum Snow Load, Pm 20 PSF Exposure Factor, Ce Risk Category (IBC Table 1604.5) Snow Importance Factor, Is Thermal Factor, Ct

C. Overhang Eaves & Projections 1. Sloped roof snow loads calculated in accordance with Section 7.4, ASCE 7. 2. Unbalanced roof snow loads calculated in accordance with Section 7.6, ASCE 7. Specialty Structural Engineers must consider unbalanced snow loads in the design of pre-engineered trusses, frames, skylights, curtain walls, cold-formed metal framing, canopies, etc. 3. Drift loads calculated in accordance with Section 7.7, ASCE 7.

10. LATERAL LOADS: Lateral loads were computed using the following criteria: 115 MPH Ultimate Design Wind Speed, Vult Nominal Design Wind Speed, Vasd 89 MPH Risk Category (IBC Table 1604.5) Internal Pressure Coefficient, GCpi

B. Minimum Roof Live Load

Analysis Procedure

Base Seismic Force-Resisting System

predicted and SHALL NOT BE RELIED UPON.

 B. Seismic Load Site Classification Risk Category (IBC Table 1604.5) Seismic Importance Factor, le Mapped Spectral Response Acceleration, Ss Mapped Spectral Response Acceleration, S1 Design Spectral Response Acceleration, Sds Design Spectral Response Acceleration, Sd1 Seismic Design Category, SDC Response Modification Coefficient, R Seismic Response Coefficient, Cs

(ASCE 7-10, Table 12.2-1) Detailed For Seismic Resistance 11. SAFETY FACTORS: This structure has been designed with 'Safety Factors' in accordance with accepted principles of structural engineering. The fundamental nature of the 'Safety Factor' is to compensate for uncertainties in the design, fabrication, and erection of structural building components. It is intended that ' Safety Factors' be used such that the load-carrying capacity of the structure does not fall below the design load and that the building will perform under design load without distress. While the use of 'Safety Factors' implies some excess capacity beyond design load, such excess capacity cannot be adequately

Equivalent Lateral Force

Structural Steel Systems Not

GENERAL NOTES

- 1. The Contractor shall be responsible for complying with all safety precautions and regulations during the work. The Structural Engineer of Record will not advise on, nor issue direction as to safety precautions and programs. 2. The Structural Drawings herein represent the finished structure. The Contractor shall provide all temporary guying and bracing required to erect and hold the structure in proper alignment until all Structural Work and
- connections have been completed. The investigation, design, safety, adequacy and inspection of erection bracing, shoring, temporary supports, etc. is the sole responsibility of the Contractor. 3. The Structural Engineer of Record (SER) shall not be responsible for the methods, techniques and sequences are not specifically shown, similar details of construction shall be used, subject to approval of the SER.
- 4. Drawings indicate general and typical details of construction. Where conditions are not specifically shown, similar details of construction shall be used, subject to approval of the Structural Engineer of Record. 5. All structural systems which are to be composed of components to be field erected shall be supervised by the Supplier during manufacturing, delivery, handling, storage, and erection in accordance with the Supplier's instructions and requirements
- 6. Loading applied to the structure during the process of construction shall not exceed the safe loadcarrying capacity of the structural members. The live loading used in the design of this structure are indicated in the "Design Criteria Notes." Do not apply any construction loads until structural framing is properly connected together and until all temporary bracing is in place. '. All ASTM and other referenced standards and codes are for the latest editions of these publications, unless otherwise noted. 8. Shop drawings and other items shall be submitted to the Structural Engineer of Record (SER) for
- The SER's review is to be fore conformance with the design concept and general compliance with the relevant Contract Documents. The SER's review does not relieve the Contractor of the sole responsibility to review, check, and coordinate the Shop Drawings prior to submission. The Contractor remains solely responsible for errors and omissions associated with the preparation of Shop Drawings as they pertain to member sizes, details, dimensions, etc. 9. Submit Shop Drawings in the form of blueline/blackline prints (min. 2 sets/ max. 5 sets) and one

review prior to fabrication. All Shop Drawings shall be reviewed by the Contractor before submittal.

- reproducible blackline or sepia copy. In no case shall reproductions of the Contract Documents be used as shop drawings. As a minimum, submit the following items for review. A. Concrete Mix Design(s).
- B. Reinforcing Steel Shop Drawings. C. Pre-Engineered Metal Building Systems.
- D. Cold-Formed Steel Framing Systems. 10. Resubmitted Shop Drawings: Resubmitted shop drawings are reviewed only for responses to comments made in the previous submittal.
- 11. When calculations are included in the submittals for components of work designed and certified by a Specialty Structural Engineer (SSE), the review by the Structural Engineer of Record (SER) shall be for conformance with the relevant Contract Documents. The SER's review does not relieve the SSE from responsibility for the design of the system(s) and the coordination with the elements of the structure under the certification of the SER, or other SSE's. The SER's review does not constitute a warranty of
- the accuracy or completeness of the SSE's design. 12. Contractors shall visit the site prior to bid to ascertain conditions which may adversely affect the work
- 13. No structural member may be cut, notched, or otherwise reduced in strength without written direction from the Structural Engineer of Record.

14. When modifications are proposed to structural elements under the design and certification of a Specialty Structural Engineer (SSE), written authorization by the SSE must be obtained and submitted to the Structural Engineer of Record for review, prior to performing the proposed modification.

COORDINATION WITH OTHER TRADES

- 1. The Contractor shall coordinate and check all dimensions relating to Architectural finishes, mechanical equipment and openings, elevator shafts and overrides, etc. and notify the Architect/Engineer of any discrepancies before proceeding with any work in the area under question.
- 2. The Structural Drawings shall be used in conjunction with the Drawings of all other disciplines and the Specifications. The Contractor shall verify the requirements of other trades as to sleeves, chases, hangers, inserts, anchors, holes, and other items to be placed or set in the Structural Work. 3. There shall be no vertical or horizontal sleeves set, or holes cut or drilled in any beam or column unless
- it is shown on the Structural Drawings or approved in writing by the Structural Engineer of Record. 4. Mechanical and electrical openings through supported slabs and walls, 8" diameter or larger, not shown on the Structural Drawings must be approved by the Structural Engineer of Record (SER). Openings less than 8" in diameter shall have at least 1'-0" clear between openings, unless approved in writing by the SER.
- 5. Verify locations and dimensions of mechanical and electrical openings through supported slabs and walls shown on the Structural Drawings with the Mechanical and Electrical Contractors. 6. Do not install conduit in supported slabs, slabs on grade, or concrete walls unless explicitly shown or
- 7. Do not suspend any items, such as ductwork, mechanical or electrical fixtures, ceilings, etc. from steel roof deck or wood roof sheathing. 8. The Mechanical Contractor shall verify that mechanical units supported by the steel framing are capable of spanning the distance between the supporting members indicated on the Structural

Drawings. The Mechanical Contractor shall supply additional support framing as required.

9. If drawings and specifications are in conflict, the most stringent restrictions and requirements shall govern.

noted on the Structural Drawings.

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02.11.2022 arcDESIGN PROJECT NUMBER:

> DRAWN BY: SAC

DRAWING TITLE:

STRUCTURAL

DRAWING NUMBER:

(8) #6 #4 @ 12" O.C. B ≤ 2' - 8" P24 2' - 0" 2' - 0" (4) #8 #4 @ 12" O.C. A > 2' - 8" 1. PROVIDE MIN. 1 ½" CLEAR TO PIER TIES.

2. 'CRITICAL HEIGHT' DENOTES THE HEIGHT ABOVE WHICH LARGER DIAMETER VERTICALS WITH FEWER TIES MAY BE USED AT CONTRACTOR'S OPTION. REF. FOUNDATION PLAN(S)

FOR TOP OF PIER & FOOTING ELEV'S. B. REF. 'TYPICAL CONCRETE PIER REINFORCING' ON FOUNDATION DETAIL SHEET FOR FURTHER INFORMATION ON TIE SPACING.

4. VERTICAL DOWELS ARE TO FUNCTION AS PIER VERTICALS FOR PIERS LESS THAN OR EQUAL TO 5' - 0" HIGH. PROVIDE SEPARATE DOWELS & VERTICALS FOR PIERS GREATER THAN OR EQUAL TO 5' - 0" HIGH, UNLESS APPROVED. 5. CONTACT THE STRUCTURAL ENGINEER FOR DIRECTION IF COLUMN ANCHOR RODS FOUL WITH PIER TIES OR VERTICALS.

6. MIN. HEIGHT OF PIERS: #6 VERTICALS = 2' - 0", #7 VERTICALS = 2' - 8". DETAIL "A" DETAIL "B" ALT. DETAIL "B" (2) SETS (1) SET

| | COLUMN | FOOTING | SCHED | ULE | |
|--|---------|---------|--------------|-------------------------------------|--|
| NOTES: 1. CENTER FOOTINGS BENEATH COLUMNS, U.N.O. 2. FOOTINGS MAY BE EARTH FORMED WHERE SOIL CONDITIONS ALLOW. FOR EARTH-FORMING INCREASE PLAN DIMENSIONS BY A MINIMUM OF 2" ON ALL SIDES TO ACCOUNT FOR POTENTIAL INACCURACY ASSOCIATED WITH EARTH CUTS. 3. INCREASE FOOTING DEPTH WHERE REQ'D TO ENCASE COLUMN ANCHOR RODS. 4. FOOTINGS FOR INTERIOR COLUMNS SHALL BE CENTERED ON THE GRID LINE INTERSECTIONS. FOOTINGS FOR EXTERIOR COLUMNS TO BE LOCATED AS INDICATED ON PLAN / SECTIONS. | | | | | |
| | | | | | |
| SEE NOTE #3 | F.F | | ENGTH PER SC | MED. WIDTH PER SCHED. SEE NOTE #2 | |
| FOOTING MARK | LENGTH | WIDTH | DEPTH | REINFORCING EACH WAY | |
| F4.0 | 4' - 0" | 4' - 0" | 2' - 4" | (5) #5 x 3'-6" | |
| F5.0 | 5' - 0" | 5' - 0" | 2' - 4" | (6) #5 x 4'-6" | |
| F5.0-INT | 5' - 0" | 5' - 0" | 1' - 2" | (6) #5 x 4'-6" | |
| F6.0 | 6' - 0" | 6' - 0" | 2' - 4" | (7) #5 x 5'-6" | |

| TRENCH | FOOTING | SCHEDULE |
|--------|---------|----------|
| | | |

| FTG. | FOOTING SIZE | | FOOTING REINFORCING | | |
|------|--------------|-------|---------------------|----------------------|--|
| MARK | WIDTH | DEPTH | LONGITUDINAL | TRANSVERSE | |
| TF16 | 1'-4" | 2'-4" | (2) #5 x CONTINUOUS | #4 x 0'-10" @ 48" o. | |
| TF26 | 2'-2" | 2'-4" | (3) #5 x CONTINUOUS | #4 x 1'-10" @ 48" o. | |
| | | | | | |

NOTES:

1. CENTER FOOTINGS BENEATH WALLS, U.N.O. 2. TRENCH FOOTINGS MAY BE CAST DIRECTLY AGAINST SOIL WITHOUT FORMING WHERE EXISTING SOIL CONDITIONS PERMIT. FORM TOP OF TRENCH FOOTINGS WHERE SOIL HAS SLOUGHED SIGNIFICANTLY, WHERE GRADE IS LOWER THAN THE INDICATED TOP OF FOOTING ELEVATION, OR WHEREVER TRENCH FOOTING WOULD INTERFERE WITH THE INSTALLATION OF DOWNSPOUTS, CONDUIT, BOLLARDS, ETC. COORDINATE WITH MECHANICAL, ELECTRICAL, PLUMBING & SITE/CIVIL

B. IF REQUIRED, INTERIOR OF TRENCH FOOTING SHALL BE FORMED WITH RIGID INSULATION. TAKE CARE IN TRIMMING INTERIOR FACE OF EXCAVATION TO MINIMIZE GAPS BEHIND THE INSULATION. FILL WITH #8 CRUSHED STONE, TAMPING AND COMPACTING WHERE SPACE PERMITS.

FOUNDATION PLAN NOTES

GENERAL NOTES:

1. ALL DIMENSIONS, COLUMN LOCATIONS, AND COLUMN FOOTING SIZES SHOWN ARE PRELIMINARY AND ARE SUBJECT TO CHANGE BASED ON FINAL COORDINATION WITH PRE-ENGINEERED BUILDING SUPPLIER. 2. ALL CONTRACTORS ARE REQUIRED TO COORDINATE THEIR WORK WITH ALL

DISCIPLINES TO AVOID CONFLICTS. THE MECHANICAL, ELECTRICAL, AND PLUMBING ASPECTS ARE NOT IN THE SCOPE OF THESE DRAWINGS. THEREFORE, ALL REQUIRED MATERIALS AND WORK MAY NOT BE INDICATED. 3. ALL ELEVATIONS ARE REFERENCED FROM THE NEW CONSTRUCTION GROUND

LEVEL FLOOR ELEVATION 0'-0". SEE THE CIVIL DRAWINGS FOR EXACT U.S.G.S. ELEVATION. 4. REF. ARCH. DRAWINGS FOR ALL DIMENSIONS NOT SHOWN. CONTRACTOR

SHALL VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION AND IMMEDIATELY NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES. 5. NOTE: PERIMETER WALL AND COLUMN FOOTINGS SHALL BE LOWERED AND/OR SLEEVED TO PASS BELOW PLUMBING LINES (I.E. SANITARY & STORM SEWERS,

WATER LINES, ETC.) SHOWN ON THE PLUMBING DRAWINGS. PROVIDE FOOTING STEPS AS REQUIRED PER THE TYPICAL DETAILS. 6. ALL SLAB RECESSES SHALL BE LOCATED PER THE ARCHITECTURAL DRAWINGS. COORDINATE DEPTHS OF ALL SLAB RECESSES WITH THE ARCHITECTURAL DRAWINGS AND/OR THE FLOORING SUPPLIER.

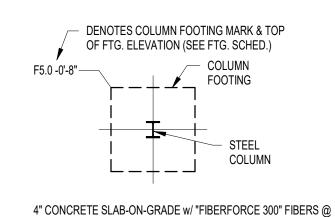
BASED ON FINAL REACTIONS PROVIDED BY THE PRE-ENGINEERED METAL BUILDING SUPPLIER. 8. COLUMN FOOTINGS AND WALL FOOTINGS SHALL BEAR ON SOILS WITH AN ALLOWABLE BEARING PRESSURE NOT LESS THAN 2,000 PSF.

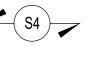
7. COLUMN FOOTINGS SHOWN ARE PRELIMINARY AND SUBJECT TO CHANGE

KEYED NOTES:

A. PROVIDE (2) #8 CONTINUOUS TIE RODS ENCASED IN 16" W. x 8" H. CONCRETE TRENCH. TOP OF TRENCH = -0'-8". RODS MAY BE SPLICED WITH MECHANICAL COUPLERS CAPABLE OF ACHIEVEING FULL TENSION, STAGGERED AT LEAST 10 FEET APART.

PLAN LEGEND:





1.5 LB/C.Y. (OR EQUAL) & "E5 INTERNAL CURE" ADMIXTURE AT 4
OZ/CWT & "E5 CATALYST" SPRAYED-ON BETWEEN 800-1,000
SF/GAL OVER 15-MIL CLASS A VAPOR BARRIER OVER 6" COMPACTED GRANULAR FILL (INDOT No. 53 CRUSHED STONE).

DENOTES APPROX. LOCATION OF PIPE PENTRATION THROUGH TRENCH FOOTING. PROVIDE SLEEVE PER DETAIL 4/S400. COORD. EXACT LOCATION, SIZE, AND INVERT w/ M.E.P. DRAWINGS AND/OR CONTRACTOR.



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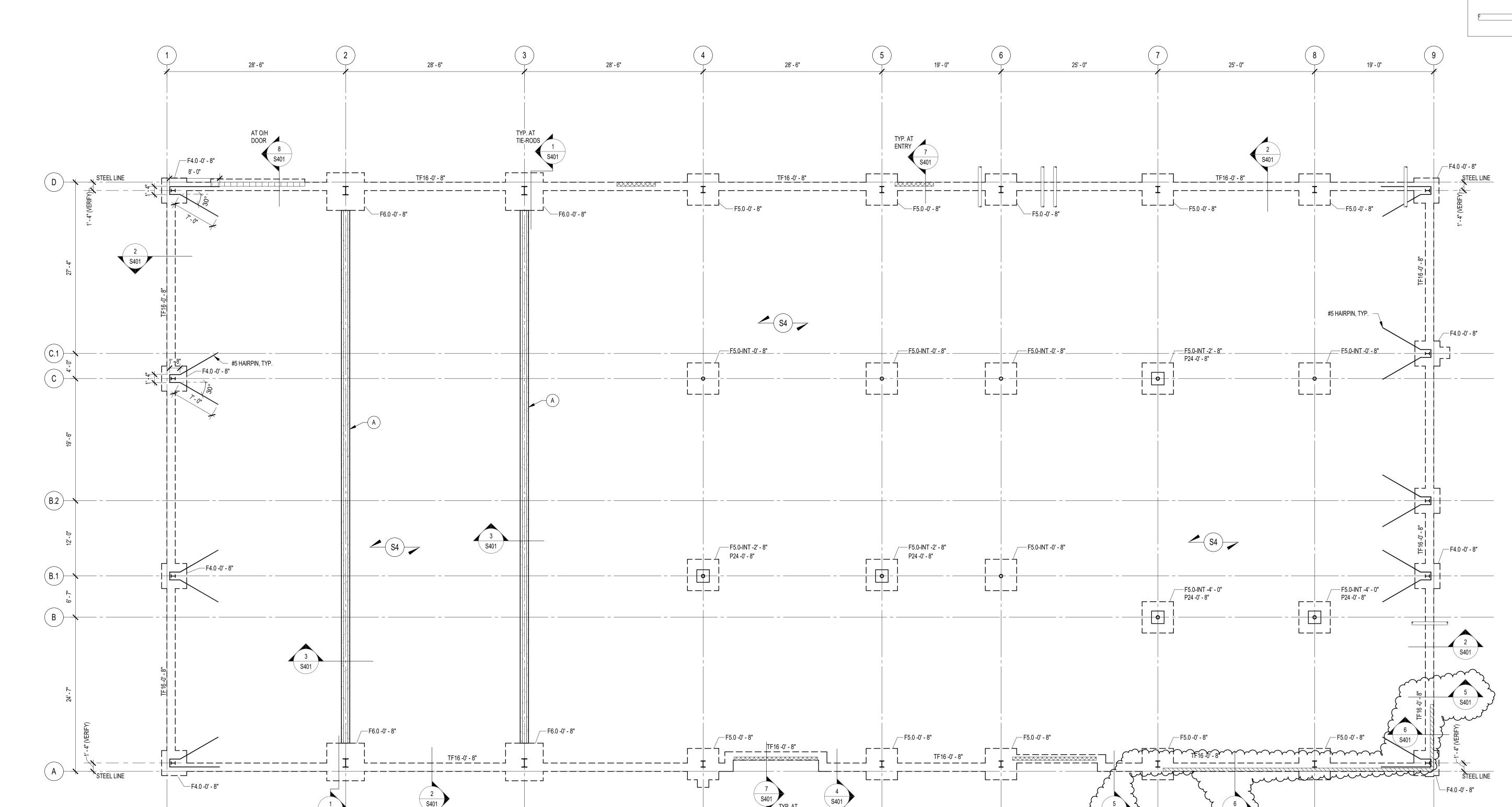
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1 FOUNDATION PLAN
1/8" = 1'-0"

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3 02.11.2022 Addendum 3 - Post Bid VE

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02.11.2022

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arcDESIGN PROJECT NUMBER

FOUNDATION

DRAWING TITLE:

PLAN

7. AT BRACED-BAY COLUMNS, ENLARGE ISOLATION SECTION AS REQUIRED SUCH THAT PORTION OF BRACING THAT PENETRATES

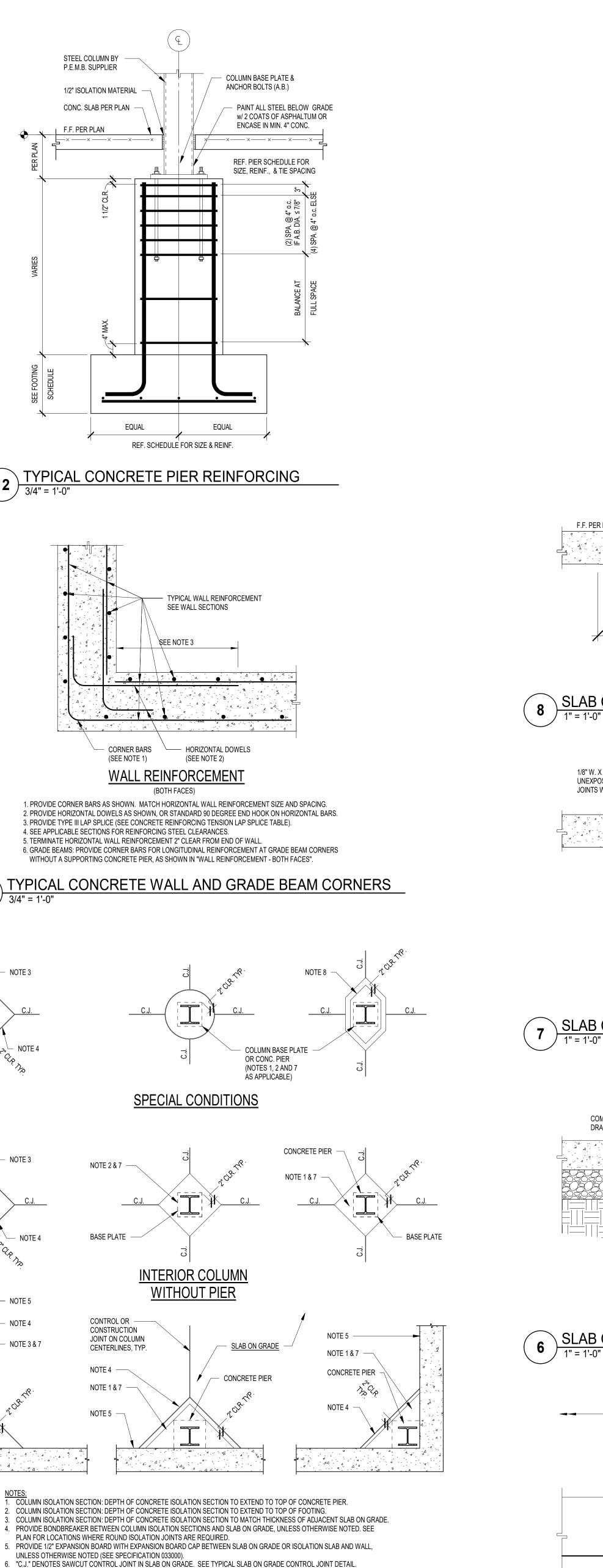
8. PROVIDE (1) #4 REINFORCED IN ISOLATION SLAB AS INDICATED. LOCATE REINFORCING WITH 2" CLEAR TO TOP OF SLAB. DETAIL

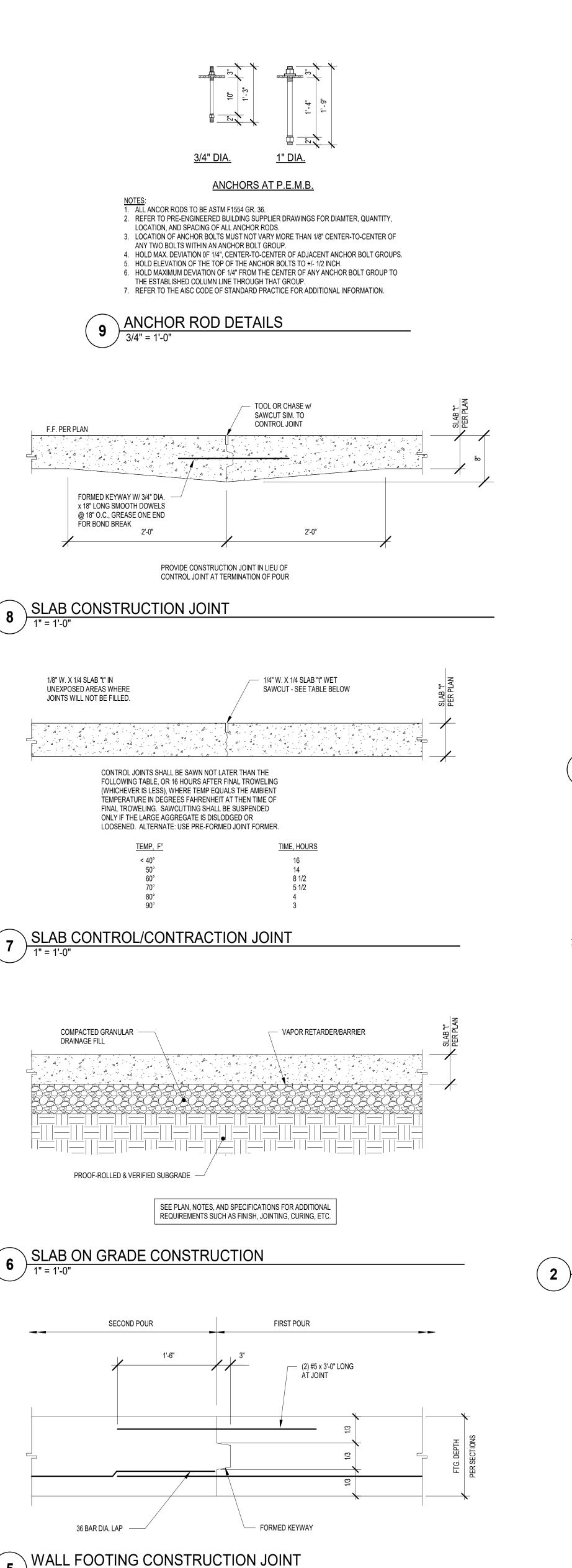
REINFORCING TO MATCH ISOLATION SLAB GEOMETRY, WITH STANDARD LAP LENGTHS REQUIRED AT BAR SPLICES (REDUCE

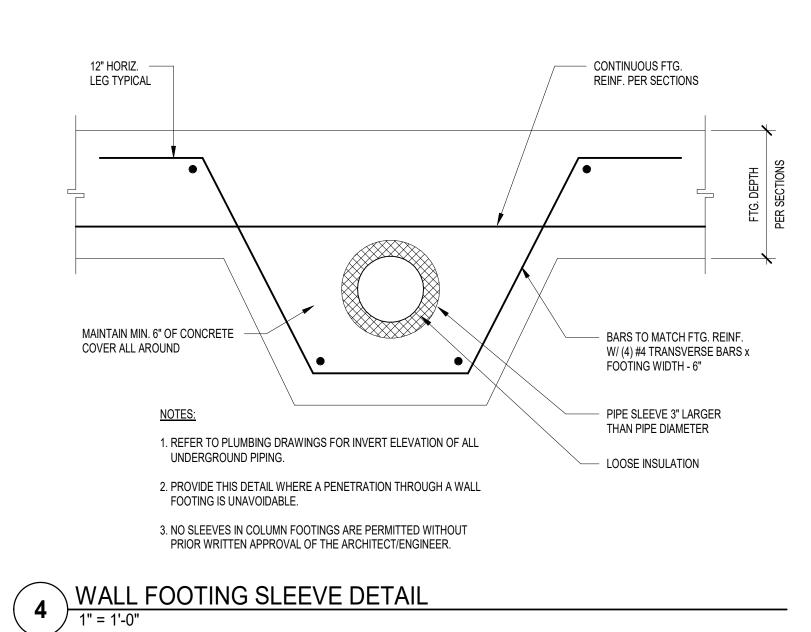
SLAB IS COMPLETELY WITHIN ISOLATION SECTION.

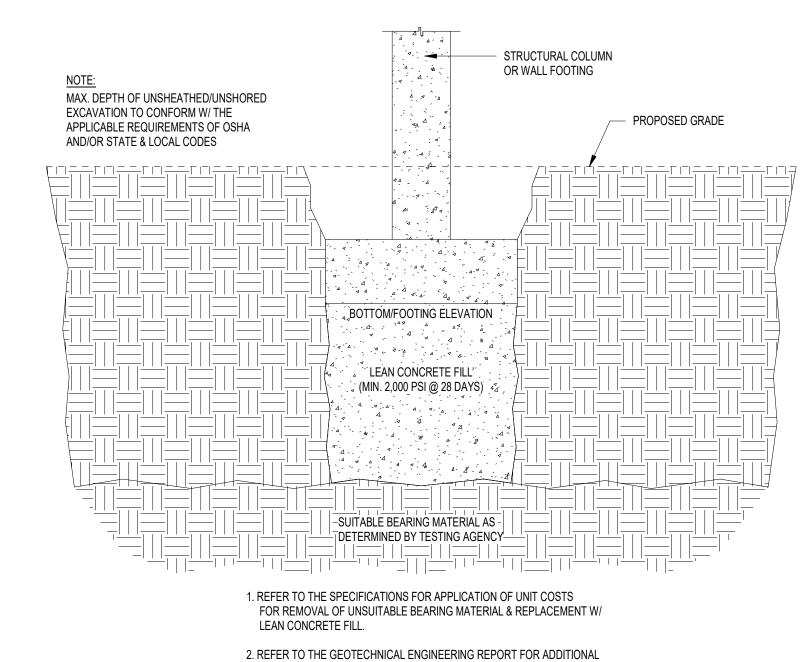
10 COLUMN ISOLATION JOINT DETAILS

LENGTHS AS REQUIRED BY ISOLATION JOINT GEOMETRY).





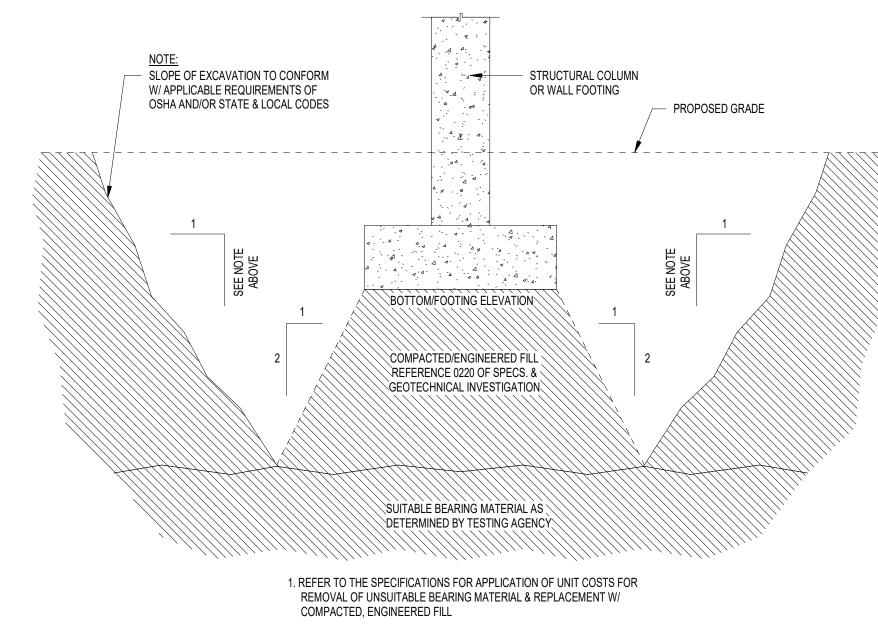




INFORMATION RE: EXPECTED SOIL CONDITIONS, SUITABILITY OF EX. SOILS

FOR USE AS ENGINEERED FILL, GROUNDWATER CONDITIONS, ETC.

3 OVEREXCAVATION DETAIL - LEAN CONCRETE FILL
3/4" = 1'-0"

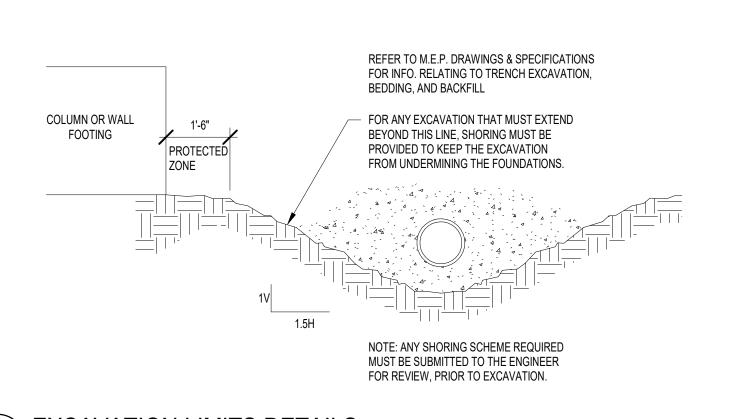


2. REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR ADDITIONAL

INFORMATION RE: EXPECTED SOIL CONDITIONS, SUITABILITY OF EX. SOILS FOR USE AS ENGINEERED FILL, GROUNDWATER CONDITIONS, ETC.

OVEREXCAVATION DETAIL - COMPACTED FILL

3/4" = 1'-0"

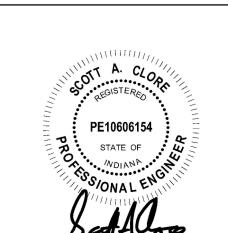


EXCAVATION LIMITS DETAILS

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5430 LAF, INDIANAPC

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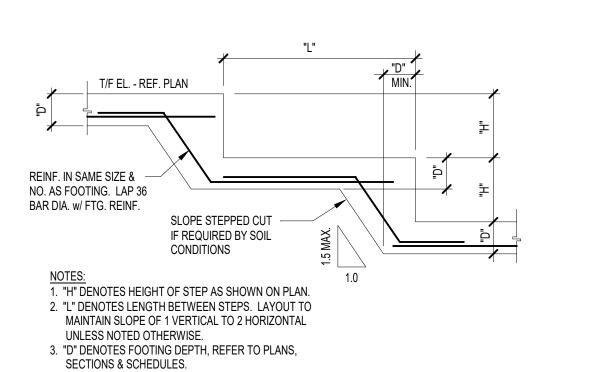
02.11.2022 arcDESIGN PROJECT NUMBER: 21102

DRAWN BY: SAC DRAWING TITLE:

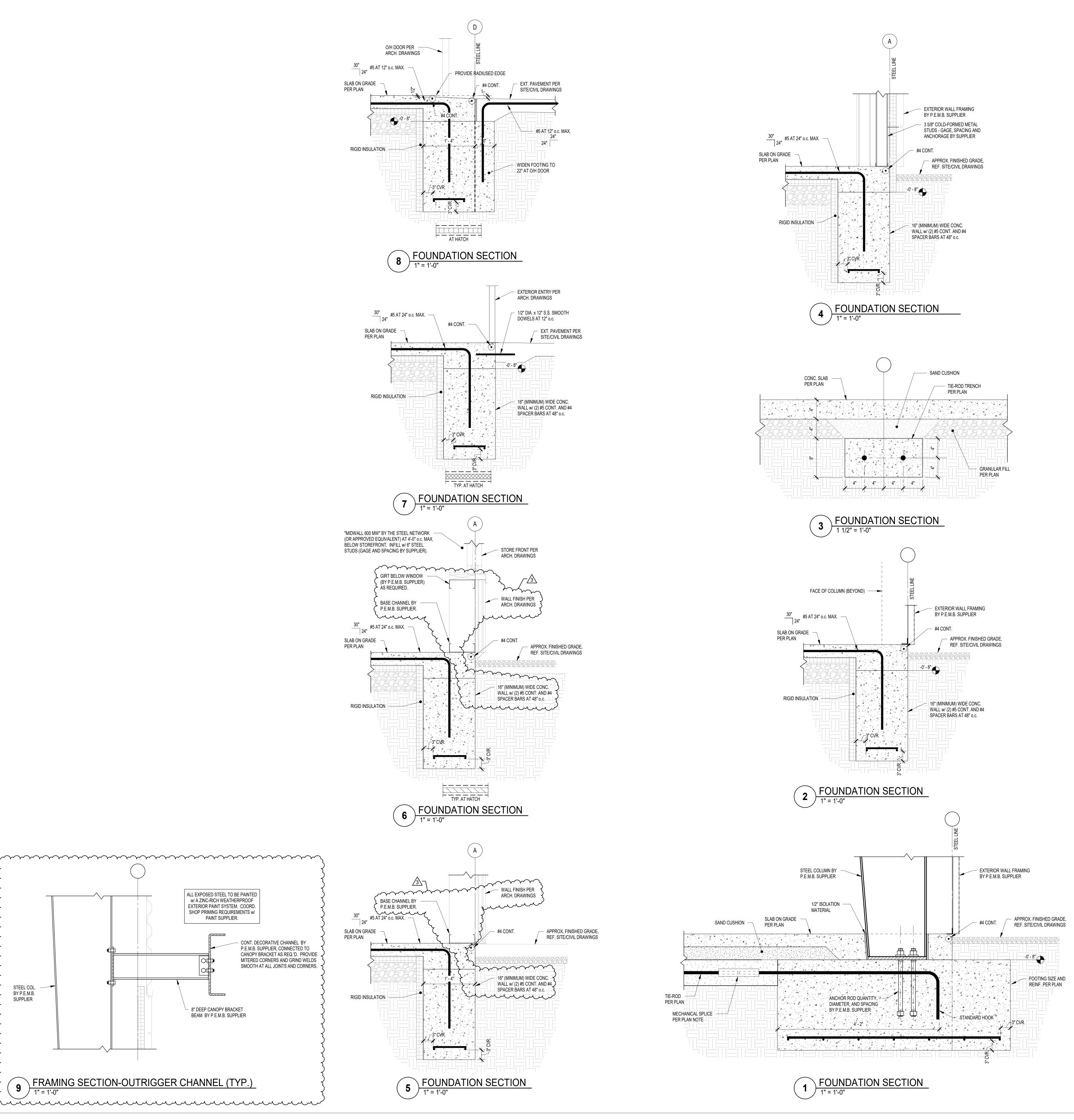
TYPICAL FOUNDATION **SECTIONS AND DETAILS**

DRAWING NUMBER:

S400



\ STEPPED FOOTING DETAIL

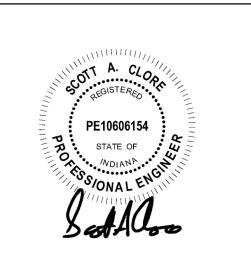


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3 02.11.2022 Addendum 3 - Post Bid VE

DATE: 02.11.2022 arcDESIGN PROJECT NUMBER:

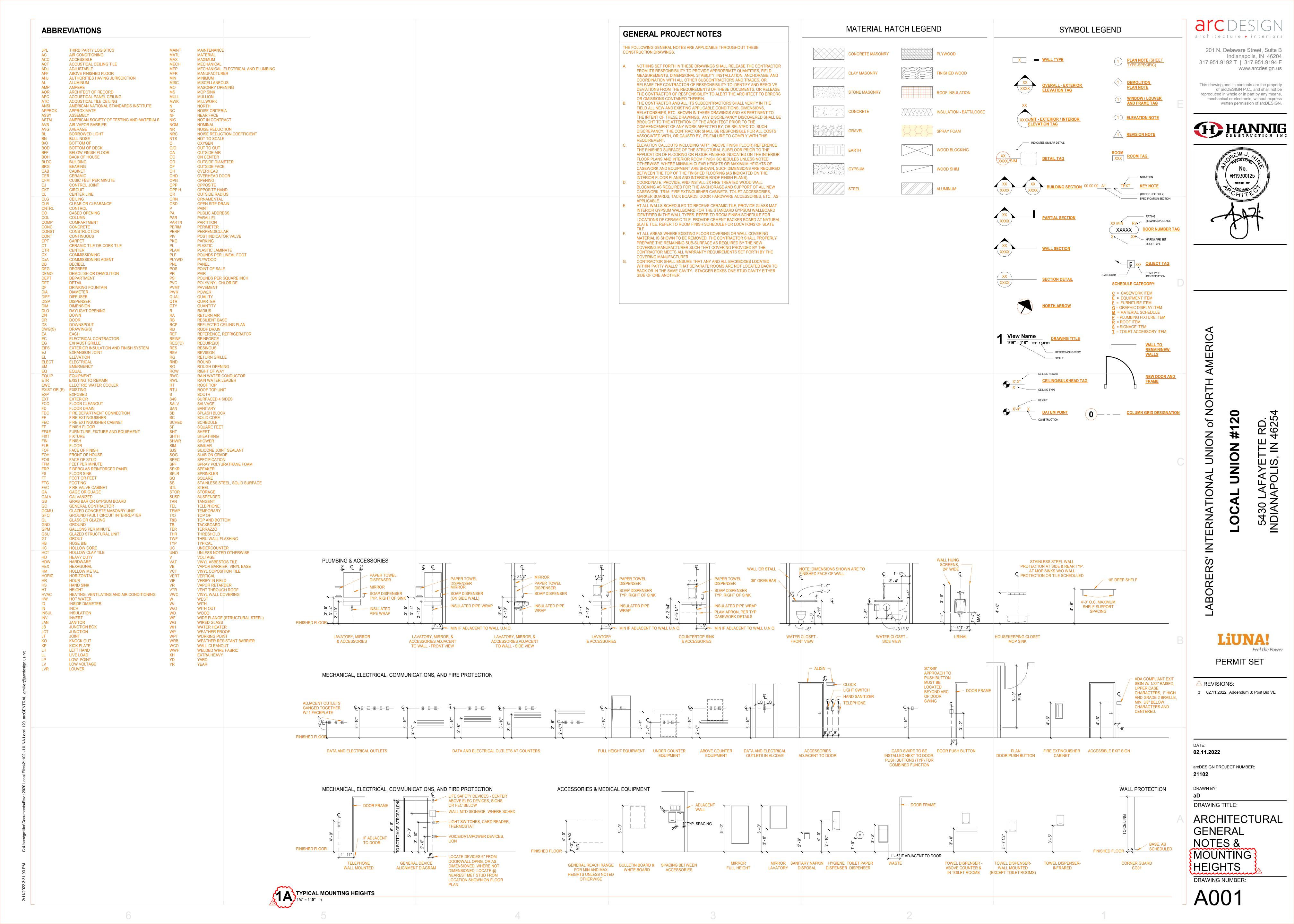
21102 DRAWN BY: SAC

DRAWING TITLE:

STRUCTURAL SECTIONS

DRAWING NUMBER:

S401



— 3/4" MgO SUBFLOOR /

OR SIMILAR.

DECKING - HUBER EXACOR

FIRE CAULKING ALL JOINTS

- 8" COLD-FORMED JOISTS -

GAUGE AND SPACING BY

 CEILING ELEVATION CALLOUTS ARE TO THE BOTTOM OF GB

- ACOUSTICAL PANEL CEILING

SUSPENSION WIRE. DO NOT

ATTACH TO ROOF DECK.

15/16" ACOUSTICAL PANEL

CEILING SUSPENSION GRID

ACOUSTICAL CEILING PANEL

BOD: "Vinylrock" by Certaintee

- ACOUSTICAL PANEL CEILING SUSPENSION WIRE. DO NOT

15/16" ACOUSTICAL PANEL CEILING

ATTACH TO ROOF DECK.

SUSPENSION GRID (WHITE).

ACOUSTICAL CEILING PANELS.

- BEVELED TEGULAR

SUPPLIER - L/360

TYPICAL

— 5/8" GB

(WHITE).

CORNER BEAD FINISH,

CEILING TYPES NOTES

REFER TO THE GENERAL NOTES ON SHEET A001 FOR ADDITIONAL REQUIREMENTS.

- REFER TO REFLECTED CEILING PLAN FOR CEILING LOCATIONS. REFERENCE DIVISION 9 SECTION "ACOUSTIC PANEL CEILINGS FOR REQUIREMENTS OF ACOUSTIC PANEL CEILING SYSTEMS, DECORATIVE PANEL CEILING SYSTEMS, AND
- REFERENCE DIVISION 9 SECTIONS "NON-STRUCTURAL METAL FRAMING", AND "GYPSUM BOARD" FOR REQUIREMENTS AT GYPSUM BOARD CEILING ASSEMBLIES REFERENCE DETAILS AT BULKHEADS FOR BRACING AND STIFFENING REQUIREMENTS.

CEILING NAMING

CONVENTION



DECORATIVE CEILING GRID SYSTEMS.

A P C - 1 CEILING TYPE

GB = GYPSUM BOARD

APC = ACOUSTICAL PANEL CEILING DPC = DECORATIVE PANEL CEILING

DCG= DECORATIVE CEILING GRID

WALL NAMING CONVENTION

SUBSTRATE / FRAME /

BACKUP S = STEEL STUD W = WOOD STUD M = MASONRY (CMU) F = FURRING (STEEL U.N.O.) I = METAL-FACED RIGID INSULATION H = SHAFT WALL (STEEL U.N.O.)

c = 3 HR FIREd = 4 HR FIREs = SMOKE RESISTIVE i = INSULATIVE WALL EXTENTS MODIFIER (OPTIONAL)

CEILING TYPE MODIFIER

SEE DRAWINGS

(REFER TO WALL TYPES FOR ADDITIONAL

| S | 4. | 1 | A | A WALL CHARACTERISTIC MODIFIER (OPTIONAL) a = 1 HR FIRE b = 2 HR FIRENOMINAL SUBSTRATE (REFER TO WALL TYPE

FOR SUBSTRATE WIDTH) WALL SCHEDULE Type | Width Description Fire Rating | Assembly Description Type Comments S2.1 2 1/4" 1 5/8" METAL STUD FRAMING WITH 5/8" GB ROOM SIDE ONLY NON-RATED Partitions - Drywall w/ Metal Stud 2.2 2 7/8" 1 5/8" METAL STUD FRAMING WITH 5/8" GB EACH SIDE S4 4 7/8" 3 5/8" METAL STUD FRAMING WITH 5/8" TYPE X GB BOTH SIDES, EXTENDS TO DECK OR STRUCTURE NON-RATED Partitions - Drywall w/ Metal Stud S4.1 4 1/4" 3 5/8" METAL STUD FRAMING WITH 5/8" TYPE X GB ROOM SIDE ONLY NON-RATED Partitions - Drywall w/ Metal Stud S4.1i 4 1/4" 3 5/8" METAL STUD FRAMING WITH 5/8" TYPE X GB ROOM SIDE ONLYW/ BATT INSULATION S4.2 4 7/8" 3 5/8" METAL STUD FRAMING WITH 5/8" TYPE X GB BOTH SIDES, DOES NOT EXTEND TO DEC OR NON-RATED Partitions - Drywall w/ Metal Stud STRUCTURE ABOVE. S4.2i 4 7/8" S4.2 WALL TYPE WITH 3" MEDIUM DENSITY ACOUSTICAL BLANKET INSULATION NON-RATED Partitions - Drywall w/ Metal Stud S4.4i 6 1/8" 2 LAYERS 5/8" GB EACH SIDE OF 3 5/8" METAL STUD WITH BATT INSULATION. STAGGER GB JOINTS NON-RATE S4.5 4 7/8" 3 5/8" METAL STUD FRAMING WITH 5/8" TYPE X GB BOTH SIDES, PARTIAL HEIGHT WALL - REFERENCE NON-RATED Partition Components - Metal DETAILS. S4a 4 7/8" 3 5/8" METAL STUD FRAMING WITH 5/8" TYPE X GB BOTH SIDES, EXTENDS TO DECK OR STRUCTURE ONE HOUR Partitions - Drywall w/ Metal Stud S6 7 1/4" 6" METAL STUD FRAMING WITH ONE LAYER 5/8" TYPE X GB EACH SIDE, EXTENDED TO DECK OR Partitions - Drywall w/ Metal Stud STRUCTURE ABOVE S6.1 6 5/8" 6" METAL STUD FRAMING WITH ONE LAYER 5/8" TYPE X GB ROOM SIDE ONLY Partition Components - Metal S6.2 7 1/4" 6" METAL STUD FRAMING WITH ONE LAYER 5/8" TYPE X GB EACH SIDE, EXTENDED TO DECK OR NON-RATED STRUCTURE ABOVE. S6.2i 7 1/4" 6" INSULATED METAL STUD FRAMING WITH ONE LAYER 5/8" TYPE X GB EACH SIDE, EXTENDED TO DECK NON-RATED OR STRUCTURE ABOVE S6i 7 1/4" 6" METAL INSULATED STUD FRAMING WITH ONE LAYER 5/8" TYPE X GB EACH SIDE, EXTENDED TO DECK NON-RATED Partitions - Drywall w/ Metal Stud OR STRUCTURE ABOVE S8.9 8 7/8" 2- TYPE S4.1i WALL TYPES SPEARATED BY 3/8" Partitions - Drywall w/ Metal Stud 2 - TYPE S4.1i WALL TYPES S12.9 1' - 1 1/4" 2- TYPE S6.1i WALL TYPES SPEARATED BY 3/8" Partitions - Drywall w/ Metal Stud 2 - TYPE S6.1i WALL TYPES

INTERIOR WALL TYPES NOTES

ROOM LIDS ARE NOT RATED AND PENETRATIONS

THERE ARE SEALED WITH ACOUSTICAL SEALANT. —

GB-3

2x2 Grid System

APC-2

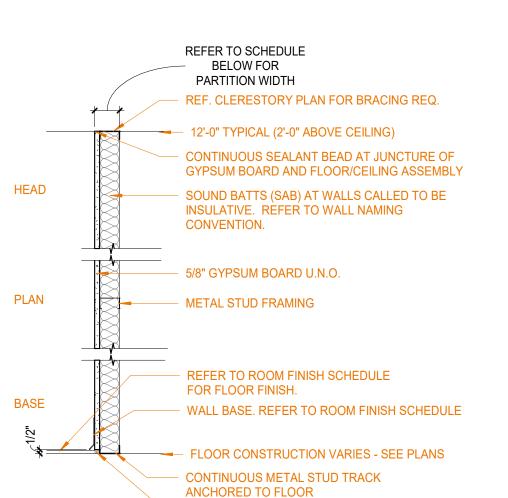
2x2 Grid System

APC-1

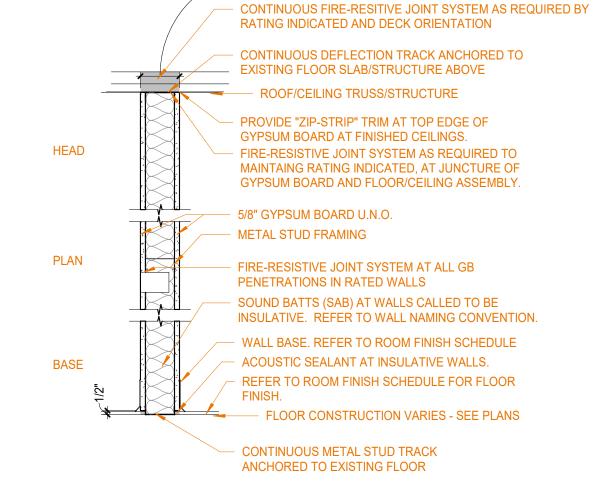
REFER TO THE GENERAL NOTES ON SHEET A001 FOR ADDITIONAL REQUIREMENTS.

- A. WHERE INSULATION IS PRESENT WITHIN STUD CAVITY, AT INTERIOR WALLS, AND GYPSUM BOARD IS NOT PRESENT, PROVIDE "CHICKEN WIRE" OR HARDWARE CLOTH TO SECURE INSULATION WITHIN THE STUD CAVITY.
- ALL WALL TYPES ARE TYPE 'S4' UNLESS NOTED OTHERWISE ALL GYPSUM BOARD (GB) IS 5/8-INCH TYPE X UNLESS NOTED OTHERWISE. HOLD BOTTOM EDGE OF GYPSUM BOARD A MINIMUM OF 1/2-INCH ABOVE THE SLAB / SUBFLOOR. REPLACE ALL GYPSUM BOARD EXPOSED TO WATER.
- IN A ROOM THAT DOES NOT HAVE A CEILING SYSTEM, THE GYPSUM BOARD SHALL EXTEND TO THE DECK ABOVE ON THE SIDE OF THE WALL WHERE THE CEILING IS NOT PRESENT AND PROVIDE ELASTOMERIC SEALANT AT JOINT. AT ALL WALLS SCHEDULED TO RECEIVE CERAMIC TILE, CONTRACTOR SHALL SUBSTITUTE GLASS MAT INTERIOR GYPSUM WALLBOARD FOR THE STANDARD GYPSUM WALLBOARD IDENTIFIED IN
- THE WALL TYPES. REFER TO ROOM FINISH SCHEDULE FOR LOCATIONS OF CERAMIC TILE. SEE WALL SECTIONS ON A300 SERIES SHEETS FOR EXTERIOR WALL CONSTRUCTION.
- REFERENCE DETAILS FOR STRENGTHENED WALL BASE REQUIREMENTS AT GYPSUM BOARD WALL CONSTRUCTION AT PUBLIC AREAS. PROVIDE AND INSTALL 4'-0" WIDE MOLD AND MOISTURE RESISTANT GYPSUM BOARD CENTERED BEHIND ALL PLUMBING FIXTURES AT WALLS NOT SCHEDULED TO RECEIVE CERAMIC TILE. PROVIDE MOLD AND MOISTURE RESISTANT GYPSUM BOARD ON WALLS OF MECHANICAL ROOMS, ELECTRICAL CLOSETS, TOILET ROOMS, AND HOUSEKEEPING ROOMS.
- PROVIDE MOLD AND MOISTURE RESISTANT GYPSUM BOARD BOARD ON ALL WALLS INTERSECTING EXTERIOR WALLS FOR THE FIRST 4'-0" OF THE WALL ADJACENT TO THE EXTERIOR WALL.

ANY PATCHING AND REPAIRING TO EXTERIOR WALL GYPSUM BOARD TO BE DONE WITH MOLD AND MOISTURE RESISTANT GYPSUM BOARD. M. ALL PENETRATIONS OCCURRING ON INSULATIVE WALL TYPES TO BE SEALED ON BOTH SIDES OF WALLS. REFER TO SCHEDULE



| SX. | .1' | | ACOUSTIC SEALAN | | ATIVE WAL | LS. |
|------|--------|--------|-----------------|---------|-----------|--------------|
| Ļ | WII | OTH | | UL | | |
| WALL | PART | CORE | FIRE RATING | LISTING | STC | STC TEST |
| 2.1 | 2 1/4" | 1 5/8" | NON-RATED | N/A | 27 | NRC #66 1968 |
| 4.1 | 4 1/4" | 3 5/8" | NON-RATED | N/A | 27 | NRC #66 1968 |
| 4.1i | 4 1/4" | 3 5/8" | NON-RATED | N/A | 34 | NGC 2013012 |
| 6.1 | 6 5/8" | 6" | NON-RATED | N/A | 27 | NRC #66 1968 |



BELOW FOR

PARTITION WIDTH

UL | PART | CORE | FIRE RATING | LISTING | STC | STC TEST
 64a
 4 7/8"
 3 5/8"
 ONE HOUR
 UL U465
 36

 S6
 7 1/4"
 6"
 NON-RATED
 N/A
 36

S6i 7 1/4" 6" NON-RATED N/A 40 NGC 201302

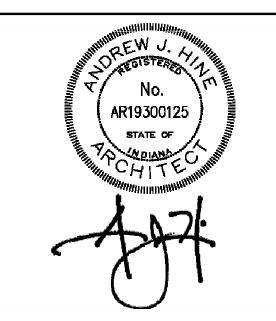
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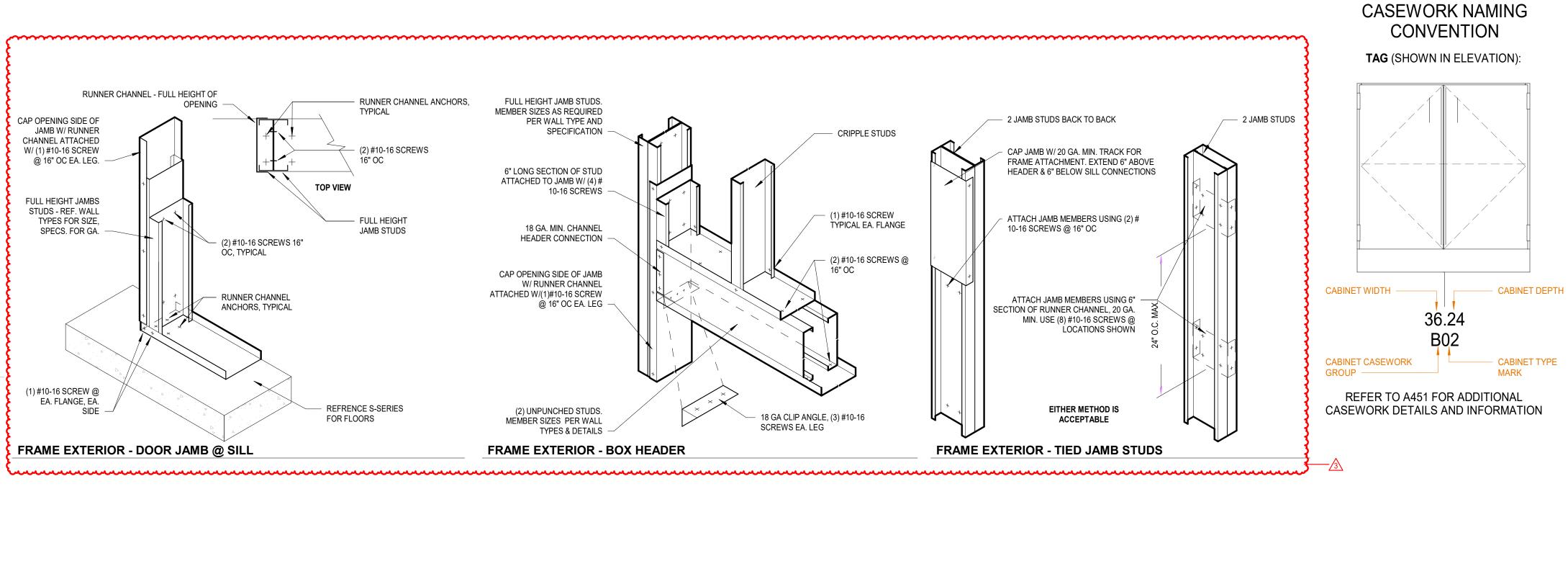
DRAWN BY:

aD

DRAWING TITLE:

INTERIOR TYPES

DRAWING NUMBER:



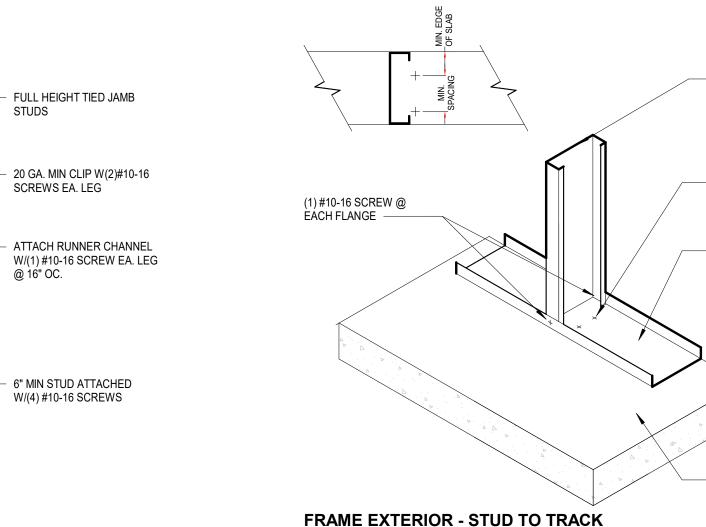
METAL STUD - REF.

ANCHOR CHANNEL TO

RUNNER CHANNEL

FLOOR SYSTEM VARIES -

REFER TO S-SERIES



20 GA. MIN. RUNNER

CRIPPLE STUD -

FULL HEIGHT JAMB STUDS

6" LONG SECTION OF STUD

ATTACHED TO JAMB W/(4) #

TOGETHER - SEE DETAIL THIS

REF. TO WALL TYPE AND

SPECIFICATIONS -

10-16 SCREWS

TIE DOULBE STUD

FRAME INTERIOR - LAY-IN HEADER

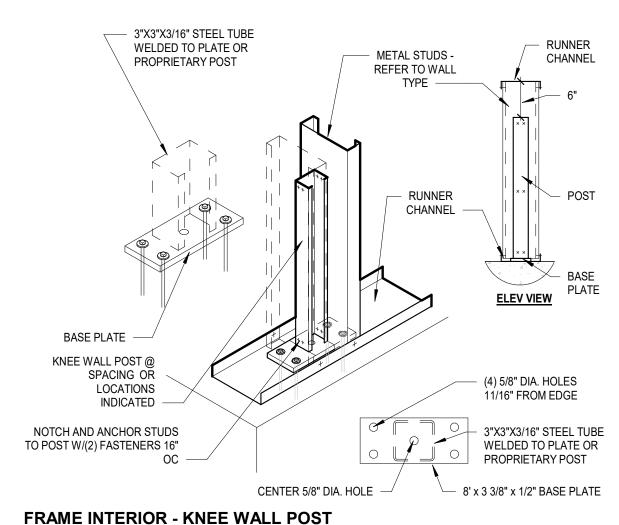
FRAME INTERIOR - OPENING SILL

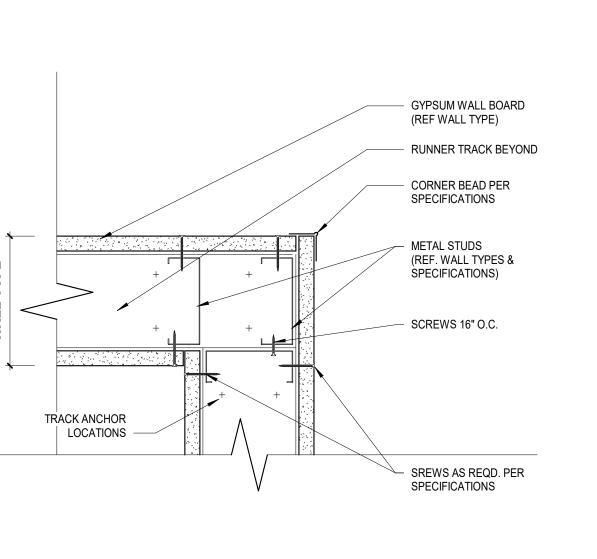
CRIPPLE STUDS

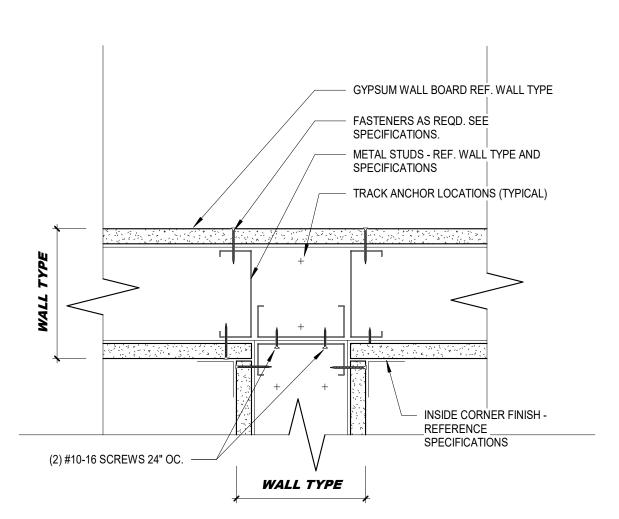
(1) #10-16 SCREW TYP.

ÉÁ. FLANGE

RUNNER CHANNEL (MIN

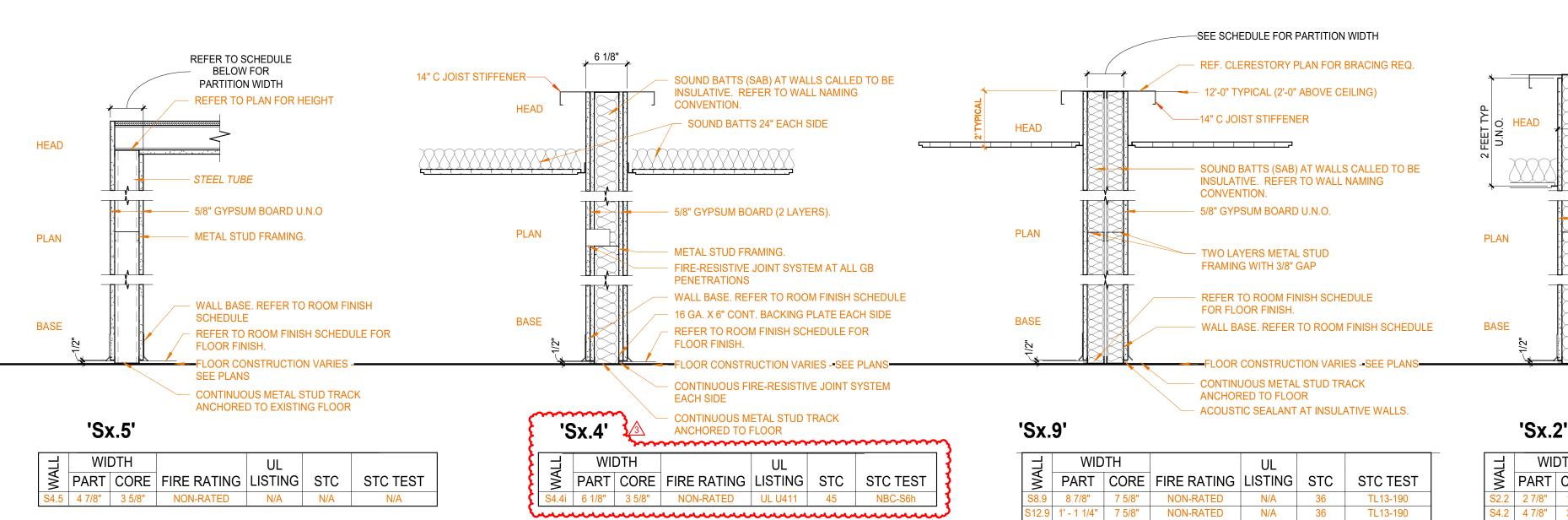






FRAME INTERIOR - CORNER

FRAME INTERIOR - INTERSECTION



2'-0" ABOVE CEILING (12'-0" TYP.) REFER TO SCHEDULE BELOW FOR PARTITION WIDTH — 5/8" GYPSUM BOARD U.N.O METAL STUD FRAMING. SOUND BATTS (SAB) AT WALLS CALLED TO BE INSULATIVE. REFER TO WALL NAMING CONVENTION. WALL BASE. REFER TO ROOM FINISH SCHEDULE - ACOUSTIC SEALANT AT INSULATIVE WALLS. REFER TO ROOM FINISH SCHEDULE FOR FLOOR FINISH. FLOOR CONSTRUCTION VARIES - SEE PLANS - CONTINUOUS METAL STUD TRACK ANCHORED TO EXISTING FLOOR 'Sx.2'

— 14" COLD-FORMED METAL JOIST SIFFENER

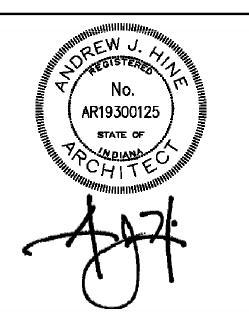
SEE CLERE STORY PLAN FOR STIFFENER&

WIDTH UL | PART CORE FIRE RATING LISTING STC STC TEST 19.2.2 2 7/6 1 9/6 NON-RATED N/A 37 RG-23 1963 14.2 4 7/8" 3 5/8" NON-RATED N/A 36 TL13-190 14.2 4 7/8" 3 5/8" NON-RATED N/A 40 NGC 2013004 16.2 7 1/4" 6" NON-RATED N/A 36 TL13-190 S6.2i 7 1/4" 6" NON-RATED N/A 40 NGC 2013004

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DRAWING TITLE

ARCHITECTURAL METAL BUIDLING PLAN

GENERAL NOTES: DIMENSION PLANS

- A. ALL FLOOR PLAN DIMENSIONS SHOWN ON THE NEW FLOOR PLANS ARE FROM FACE OF STUD OR FACE OF MASONRY. WHERE NOTED OTHERWISE BY THE DESIGNATIONS "CLR", "CLEAR", OR "MIN.", DIMENSIONS ARE FROM FINISHED OR EXPOSED FACE OF WALL.
- B. WALLS NOT TAGGED ARE TYPE \$4.2. WALLS MAY EXTEND TO STRUCTURE WITH GYPSUM BOARD EXTENDING 12" ABOVE ADJACENT CEILINGS OR TERMINATE 12" ABOVE ADJACENT CEILINGS WITH KICKER OR OTHER BRACING TO STRUCTURE.

 C. ALL NEW HOLLOW METAL (HM). DOOR FRAMES ARE LOCATED 4" FROM THE ADJACENT WALL FACE (TO OUTER EDGE OF FRAME) UNLESS DIMENSIONED OR DETAILED
- D. WHERE CALLOUTS ARE SHOWN, REFERENCE VIEWS INDICATED FOR DIMENSIONS AND
- E. REFERENCE WALL TYPES ON SHEET A010 FOR MATERIALS AND DIMENSIONS OF INTERIOR
- F. REFERENCE FRAME ELEVATIONS FOR DIMENSIONS OF FRAME ASSEMBLIES FOR
- STOREFRONTS AND CURTAINWALLS. G. REFERENCE DOOR SCHEDULE FOR DOOR SIZES.
- H. WHERE WALLS ARE ADJACENT TO OR TERMINATE AT THE INSIDE OF STEEL GIRTS OF THE EXTERIOR WALLS, ATTACH FRAMING TO GIRTS. I. AT S2.1 WALLS, ATTACH INTERIOR METAL STUD FRAMING TO GIRTS.



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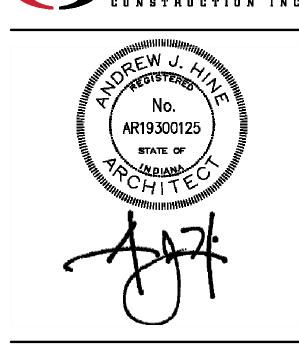
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1 CENTER FRAME / DOOR IN WALL / ROOM

2 CENTER FRAME/DOOR ON PASSAGE 005 3 FIRE EXTINGUISHER CABINET

ALL WALLS THIS ROOM.

- 4 FILE NICHE. SEE A 121 FOR ENLARGED PLAN AND DETAILS.
- 5 PLACE WALL FRAMING 1" FROM ENGINEERED METAL BUILDING CROSS BRACING

PLAN NOTES - DIMENSION PLAN

- 6 POSITION EACH WALL SUCH THAT ENGINEERED METAL BUILDING COLUMN IS ENCLOSED WITHIN GYPSUM BOARD. 7 ENGINEERED METAL BUILDING CROSS BRACING THIS LOCATION
- 8 CONTROL JOINT 9 CAULK CHANNEL TEAR AWAY BEAD AT METAL BUIDLING FRAME. SEALANT TO MATCH FRAME
- 10 PROVIDE 20 GA. SHEET METALB ACKING PLATE TO 12" AFF FOR STORAGE CART PROTECTION AT
- 1 ₹TERMINATE WALL AT FIRST PEMB GIRT ABOVE 10'-0".
- MAINTAIN 1-HR FIRE RESISTIVE CONSTRUCTION TO PEMB SHEET METAL SURFACE. PROVIDE FIRE-CAULKING AT JOINT BETWEEN WALL END AND SHEET METAL.
- 3 WALL CONSTRUCTION TERMINATES AT HARD LID ABOVE. REFERENCE REFLECTED CEILING PLAN AND CLERESTORY BRACING PLAN.
- 14 PERMANENTLY LABEL ALL RATED WALLS CONCATINING PENETRATION FIRESTOPPING SYSTEMS AS FOLLOWS: "FIRE AND/OR SMOKE BARRIER PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inchx strokes. 15 PROVIDE ACOUSTIC SEALANT AT ALL PENETRATIONS OF WALLS OR CEILING BY PIPING, CONDUITS,
- DUCTS, OR OTHER ITEMS. 16 PROVIDE BLOCKING THIS WALL FROM 8'-0" TO 10'-0" FOR OWNER PROVIDED FURNISHINGS AND 17 2" EXPANSION JOINT
- 18 CONFORM R.O. SIZE AND LOCATION WITH MECHANICAL CONTRACTOR.

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3 02.11.2022 Addendum 3: Post Bid VE

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02.11.2022

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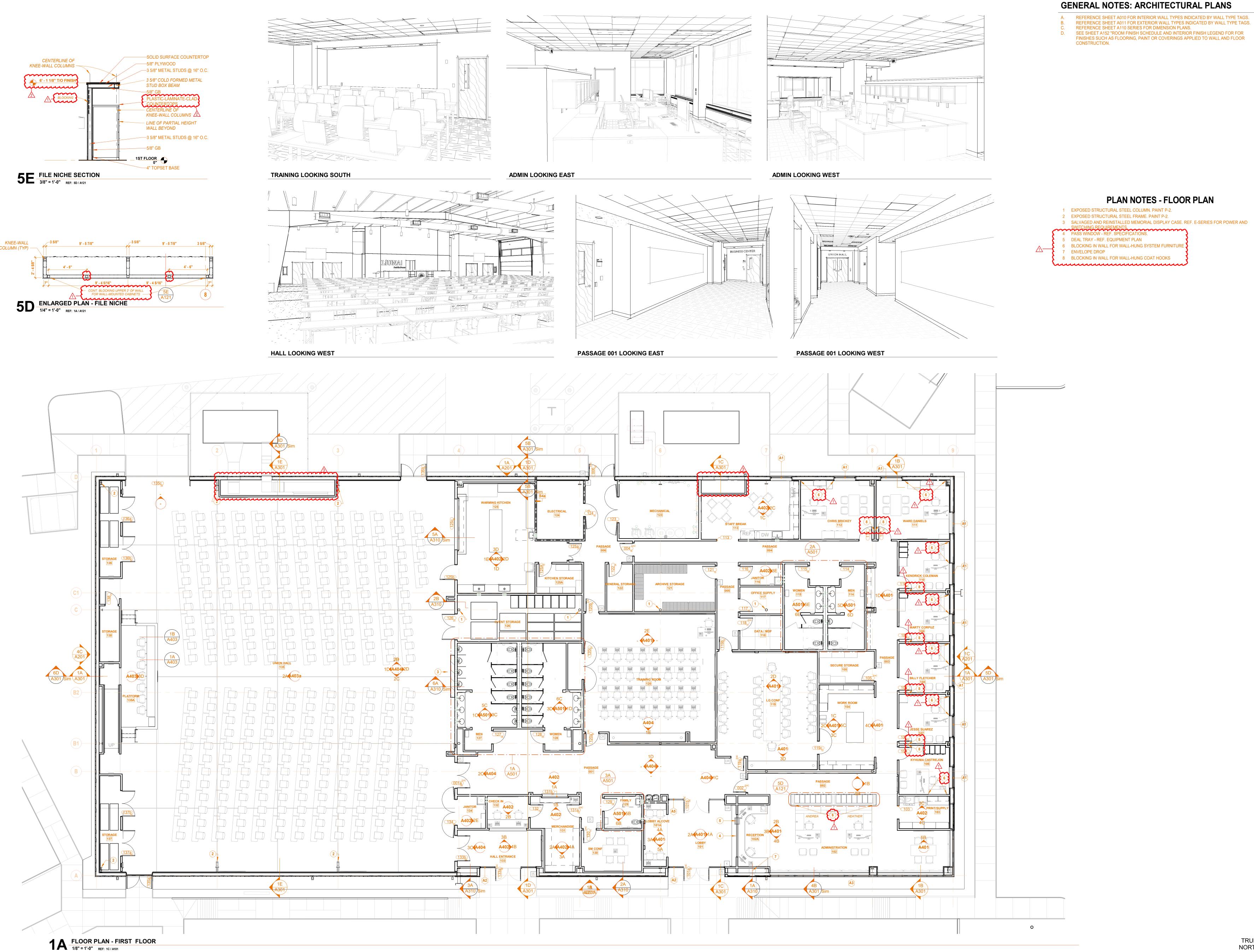
DIMENSION PLAN

DRAWING NUMBER:

DIMENSION PLAN

1/8" = 1'-0" REF: 1C / A101

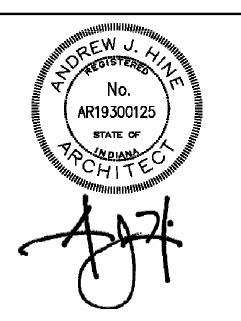
WORK ROOM



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02.11.2022

arcDESIGN PROJECT NUMBER 21102

DRAWING TITLE:

FLOOR PLAN

| MARK | SIGN TYPE | SIGN TEXT: ROOM # | SIGN TEXT: ROOM NAME |
|------|-----------|-------------------|----------------------|
| | | | |
| 16 | Α | 135 | HALL |
| S1 | С | 002 | BUSINESS CENTER |
| S2 | D | 119 | CONFERENCE ROOM |
| S4 | С | 120 | TRAINING CENTER |
| S6 | Е | 128 | WOMEN |
| S7 | F | 127 | MEN |
| S8 | С | 131 | MERCH |
| S9 | С | 130 | CONSULTATION |
| S10 | G | 129 | FAMILY |
| S11 | F | 114 | MEN |
| S12 | Е | 115 | WOMEN |
| S13 | С | 118 | DATA |
| S14 | С | 123 | MECHANICAL |
| S15 | С | 124 | ELECTRICAL |
| S16 | Α | 135 | HALL |

SCHEDULE NOTES: (S) SIGNAGE SCHEDULE

REFERENCE INTERIOR AND EXTERIOR FLOOR PLANS AND ELEVATIONS FOR SIGNAGE INCLUDED IN THIS SCHEDULE.

A. SIGNAGE APPEARING IN THIS SCHEDULE IS INCLUDED IN THE PROJECT UNLESS NOTED

| | | (E) EQUIPMENT SC | HEDULE | |
|--|--|---|---|--|
| # | DESCRIPTION | RESPONSIBILITY | MANUFACTURER | NOTE |
| | _ | | | |
| | | | | |
| 0 - EQ | UIPMENT (CFCI) | | | |
| 0 | FIRE EXTINGUISHER CABINET & EXTINGUISHER | 100 - EQUIPMENT (CFCI) | Activar Construction Products Group | Clear-Vue Series Model 2517, White, 10 lb ABC Extinguish |
| 0 | KnoxBox Model 3200 (Recess-Mounted) 18" DEAL TRAY CRL #T18SS | 100 - EQUIPMENT (CFCI) | Knox | Confirm location w/Local Fire Department Wide x 14-1/8" Deep x 2-3/8" High Brushed Stainless Drop |
| 5 | 18" DEAL TRAY CRL #T18SS | 100 - EQUIPMENT (CFCI) | C.R. LAURENCE CO. INC. | |
| سب | | and the second second | mmmmmm | Deal Tray |
| | MATERIAL NIGHT DROP MODEL MDU PART ID#0112 DOUBLE COAT HOOK, MOUNTED AT 60" A.F.F. | 100 - EQUIPMENT (CFCI) | Covenant Security Equipment | Model MDU B.O.D., Model 801.90B040, Color 92; Provide Blocking in |
| 0 | DOUBLE COAT HOOK, MOUNTED AT 60" A.F.F. | 100 - EQUIPMENT (CFCI) | HEWI | B.O.D., Model 801.90B040, Color 92; Provide Blocking in |
| •••• 0 | 60" SMART TV / VIDEO MONITOR & MOUNTING BRACKET | 100 - EQUIPMENT (CFCI) | TBD | REF. E-SERIES |
| | 65" SMART TV / VIDEO MONITOR & MOUNTING BRACKET | 100 - EQUIPMENT (CFCI) | TBD | REF. E-SERIES |
| 1 | | , | | REF. E-SERIES |
| 3 | 80" SMART TV / VIDEO MONITOR & MOUNTING BRACKET 85" SMART TV / VIDEO MONITOR & MOUNTING BRACKET | 100 - EQUIPMENT (CFCI) 100 - EQUIPMENT (CFCI) | TBD TBD | REF. E-SERIES REF. E-SERIES |
| i4 | 80" INTERACTIVE VIDEO DISPLAY "SMART BOARD" | 100 - EQUIPMENT (CFCI) | TBD | REF. E-SERIES REF. E-SERIES |
| 60 60 | Motorized Shade | 100 - EQUIPMENT (CFCI) | | MOTORIZED - REF. E-SERIES |
| i0 i1 | Motorized Shade Motorized Shade | 100 - EQUIPMENT (CFCI) | Draper Inc. Draper Inc. | MOTORIZED - REF. E-SERIES MOTORIZED - REF. E-SERIES |
| | Motorized Shade Motorized Shade | ` ' | • | |
| 2 | Bead Chain Clutch Window Shade | 100 - EQUIPMENT (CFCI) | Draper Inc. | MOTORIZED - REF. E-SERIES |
| 3 | UIPMENT (OFCI) | 100 - EQUIPMENT (CFCI) | Draper Inc. | MANUAL |
| | | 200 FOLIDMENT (OFCI) | TDD | |
| 11 | TRUE T-72-HC REFRIGERATOR 3 DOOR 65 CU FT - COMMERCIAL | 200 - EQUIPMENT (OFCI) | TBD | |
| 2 | STAINLESS STEEL COMMERCIAL KITCHEN WORK TABLE | 200 - EQUIPMENT (OFCI) | TBD | Observat Filter |
| 7 | RANGE HOOD | 200 - EQUIPMENT (OFCI) | Frigidaire | Charcoal Filter |
| !1 | REFRIGERATOR FRENCH DOOR - DOMESTIC | 200 - EQUIPMENT (OFCI) | Frigidaire | R.O. WATER CONNECTION |
| 2 | UNDER COUNTER DISHWASHER - DOMESTIC | 200 - EQUIPMENT (OFCI) | Frigidaire | |
| 23 | COUNTERTOP MICROWAVE OVEN - DOMESTIC | 200 - EQUIPMENT (OFCI) | Frigidaire | D.O. WATER CONNECTION |
| 4 | COUNTERTOP COFFEE MAKER | 200 - EQUIPMENT (OFCI) | Bunn | R.O. WATER CONNECTION |
| .5 | SLIDE-IN ELECTRIC RANGE | 200 - EQUIPMENT (OFCI) | Frigidaire | B.O.D. WHIRLPOOL SLIDE-IN ELECTRIC RANGE, STAINLESS STEEL, # WEE510SAGS, ADA COMPLIANT |
| 6 | UNDERCOUNTER 24" Wide All-Refrigerator, ADA Compliant | 200 - EQUIPMENT (OFCI) | Accucold | B.O.D. Summit SKU FF7BKSSHVADA |
| 0 | UNDERCOUNTER 24" Wide All-Refrigerator, ADA Compliant LIUNA MEMORIAL DISPLAY CASE EQUIPMENT (OFOI) | 200 - EQUIPMENT (OFCI) | | B.O.D. Summit SKU FF7BKSSHVADA EXISTING, BY OWNER |
| 0 - 11 E | EQUIPMENT (OFOI) | | | |
| 1 | COMPUTER DESKTOP WORK STATION | 300 - IT EQUIPMENT (OFOI) | TBD | AIS |
| 2 | EXTRA COMPUTER MONITOR | 300 - IT EQUIPMENT (OFOI) | TBD | AIS |
| 4 | LAPTOP COMPUTER | 300 - IT EQUIPMENT (OFOI) | TBD | AIS |
| 5 | DESKTOP PRINTER | 300 - IT EQUIPMENT (OFOI) | TBD | AIS |
| 7 | TELEPHONE, DESK | 300 - IT EQUIPMENT (OFOI) | TBD | AIS |
| 1 | POINT OF SALE CARD PAYMENT SYSTEM | 300 - IT EQUIPMENT (OFOI) | TBD | AIS |
| !1 | DESK TOP RECEIPT PRINTER | 300 - IT EQUIPMENT (OFOI) | TBD | AIS |
| | FICE EQUIPMENT (OFOI) | 1 / | 1 | |
| 11 | FOLDING MACHINE | 400 - OFFICE EQUIPMENT (OFOI) | LOCAL 120 | EXISTING, PROVIDED BY OWNER |
| 2 | POSTAGE METER | 400 - OFFICE EQUIPMENT (OFOI) | | EXISTING, PROVIDED BY OWNER |
| 3 | MULTIFUNCTION COPIER PRINTER FAX | 400 - OFFICE EQUIPMENT (OFOI) | | TBD |
| 4 | SHRED-IT BIN (31 GAL.) | 400 - OFFICE EQUIPMENT (OFOI) | | TBD |
| 5 | UNDERCOUNTER REFRIGERATOR-EXISTING | 400 - OFFICE EQUIPMENT (OFOI) | | TBD |
| 6 | TACK BOARD | 400 - OFFICE EQUIPMENT (OFOI) | | TBD |
| | RNITURE (OFOI) | (0101) | · · | |
| 0 - FUF | | 500 - FURNITURE (OFOI) | Haworth | |
| | IARMLESS TASK STOOL | 1200 . 0 | Haworth | |
| 1 | ARMLESS TASK STOOL ARMLESS TASK CHAIR | 500 - FURNITURE (OFOI) | | T. Control of the Con |
| 12 | ARMLESS TASK CHAIR | 500 - FURNITURE (OFOI) | | |
| 1 2 3 | ARMLESS TASK CHAIR OFFICE SIDE CHAIR | 500 - FURNITURE (OFOI) | | |
| 1 2 3 4 | ARMLESS TASK CHAIR OFFICE SIDE CHAIR ARMLESS SIDE CHAIR | 500 - FURNITURE (OFOI) 500 - FURNITURE (OFOI) | Steelcase | |
| 1 2 3 4 5 | ARMLESS TASK CHAIR OFFICE SIDE CHAIR ARMLESS SIDE CHAIR TASK CHAIR | 500 - FURNITURE (OFOI) 500 - FURNITURE (OFOI) 500 - FURNITURE (OFOI) | Steelcase Haworth | |
| 1 2 3 4 5 | ARMLESS TASK CHAIR OFFICE SIDE CHAIR ARMLESS SIDE CHAIR TASK CHAIR CONFERENCE CHAIR | 500 - FURNITURE (OFOI) 500 - FURNITURE (OFOI) 500 - FURNITURE (OFOI) 500 - FURNITURE (OFOI) | Steelcase Haworth The HON Company | |
| 10 - FUH 11 12 13 14 15 16 17 17 17 17 17 17 17 17 17 17 17 17 17 | ARMLESS TASK CHAIR OFFICE SIDE CHAIR ARMLESS SIDE CHAIR TASK CHAIR | 500 - FURNITURE (OFOI) 500 - FURNITURE (OFOI) 500 - FURNITURE (OFOI) | Steelcase Haworth | |

| | (E |) EQUIPMENT S | CHEDULE | |
|-----------------|---|--|------------------------------------|--|
| # | DESCRIPTION | RESPONSIBILITY | MANUFACTURER | NOTE |
| 520 | DINING TABLE 36" X 36" | 500 - FURNITURE (OFOI) | Herman Miller, Inc. | |
| 521 | STACKING CHAIR | 500 - FURNITURE (OFOI) | The HON Company | |
| 522 | FOLDING STACKABLE SEMINAR TABLE - 18" X 60" | 500 - FURNITURE (OFOI) | KI, Inc. | |
| 530 | CONFERENCE TABLE 72" X 36" | 500 - FURNITURE (OFOI) | Herman Miller, Inc. | |
| 532 | TRAINING TABLE - 18" X 60" | 500 - FURNITURE (OFOI) | | |
| 550 | Concinnity Double Pedestal Desk Rectangle Top 72" W x 36" D x 29 1/2" H, Breakfront Frosted Modesty Panel | 500 - FURNITURE (OFOI) | The HON Company | |
| 551 | Concinnity Wardrobe/Bookcase Laminate Doors 36" W x 24" D x 78 1/8"H | 500 - FURNITURE (OFOI) | The HON Company | |
| 552 | Concinnity Wardrobe/Storage Cabinet Laminate Doors Hinged Right 18" W x 24" D x 78 1/8"H | 500 - FURNITURE (OFOI) | The HON Company | |
| 553 | Concinnity Bookcase Hutch No Doors 36" W x 14 1/4" D x 48 5/8" H | 500 - FURNITURE (OFOI) | The HON Company | |
| 554 | Concinnity Wall Mount Storage Frosted Doors with Silver Frame 36"W x 15"D x 28 1/2"H - 2 doors, 1 compartments | 500 - FURNITURE (OFOI) | The HON Company | |
| 555 | Concinnity Credenza with Lateral File 72" W x 24" D x 29 1/2" H, Right | 500 - FURNITURE (OFOI) | The HON Company | |
| 556 | Concinnity Bookcase with Adjustable Shelves 30" W x 14 1/4" D x 52 3/4" H 4-Shelf | 500 - FURNITURE (OFOI) | The HON Company | |
| 557 | HON - 10500 Series - Single Pedestal Desk - 72"W x 36"D x 29 1/2"H, Rectangle Top, Right | 500 - FURNITURE (OFOI) | The HON Company | |
| 558 | HON - 10500 Series - Return - File/File - Left - 48"W x 24"D x 29 1/2"H | 500 - FURNITURE (OFOI) | The HON Company | |
| 559 | HON - 10500 Series - Wall Mounted Storage Cabinet - 48"W x 14 5/8"D x 18 1/2"H, 2 doors | 500 - FURNITURE (OFOI) | The HON Company | |
| 560 | HON - 10500 Series - Single Pedestal Desk - 72"W x 36"D x 29 1/2"H, Rectangle Top, Left | 500 - FURNITURE (OFOI) | The HON Company | |
| 561 | HON - 10500 Series - Bridge (Single Ped. Desk, Desk Shell, or Peninsula, to Corner Unit, Single Ped. Credenza or Credenza Shell) - 47"W x 24"D x 29 1/2"H (Clear inside depth = 21 7/8"D) | 500 - FURNITURE (OFOI) | The HON Company | |
| 562 | HON - 10500 Series - Credenza with 36" Lateral (with core removable lock) - 72"W x 24"D x 29 1/2"H, Left | 500 - FURNITURE (OFOI) | The HON Company | |
| 563 | HON - 10500 Series - Credenza with two Lateral Files (4 locking drawers. Each core removable lock secures 2 drawers) - 72"W x 24"D x 29 1/2"H | 500 - FURNITURE (OFOI) | The HON Company | |
| 564 | | 500 - FURNITURE (OFOI) | The HON Company | |
| 565 | HON - 10500 Series - Wall Mounted Storage Cabinet, Frosted Doors with Silver Frame - 36"W x 14 5/8"D x 17 1/2"H, 2 doors | 500 - FURNITURE (OFOI) | The HON Company | |
| 566 | Concinnity Lateral File 2-Drawer 36" W x 24" D x 29 1/2"H | 500 - FURNITURE (OFOI) | The HON Company | |
| 570A | FIRE SAFE LATERAL FILE - 4 DRAWER | 500 - FURNITURE (OFOI) | Steelcase | EXISTING |
| 570B | FIRE SAFE LATERAL FILE - 4 DRAWER | 500 - FURNITURE (OFOI) | Steelcase | EXISTING |
| 571 | VERTICAL FILE - 4 DRAWER; LETTER | 500 - FURNITURE (OFOI) | The HON Company | |
| 573 | VERTICAL FILE - 4 DRAWER; LETTER - EXISTING | 500 - FURNITURE (OFOI) | The HON Company | |
| 574 | VERTICAL FILE - 4 DRAWER; LEGAL - EXISTING | 500 - FURNITURE (OFOI) | The HON Company | |
| 575 | TALL METAL STORAGE CABINET - EXISTING | 500 - FURNITURE (OFOI) | The HON Company | |
| 576 | LATERAL FILE - 2 DRAWER | 500 - FURNITURE (OFOI) | Steelcase | |
| 577 | FIRE SAFE VERTICAL FILE - 4 DRAWER - LETTER | 500 - FURNITURE (OFOI) | The HON Company | FIREKING 4-1825-C |
| 580 | WIRE SHELVING UNIT - FOOD SERVICE | 500 - FURNITURE (OFOI) | | |
| 581 | METAL SHELVING UNIT - HEAVY DUTY | 500 - FURNITURE (OFOI) | | |
| 590 | WASTE BASKET - LARGE | 500 - FURNITURE (OFOI) | | |
| 00 - AR | TWORK (VFVI) | | | |
| 01 | ARTWORK - 36X36 | 600 - ARTWORK (VFVI) | | VFVI |
| 602 | ARTWORK -24x24 | 600 - ARTWORK (VFVI) | | OFOI |
| 603 610 | ARTWORK - 44X60 FLAG CASE | 600 - ARTWORK (VFVI) 600 - ARTWORK (VFVI) | | VFVI EXISTING FLAG TO BE RE-CASED AND INSTALLED BY |
| | CURITY (CRVI) | , , | | VENDOR |
| 900 - 3L 900 | CREDENTIAL READER - ACCESS CONTROL | 900 - SECURITY (CRVI) | | CONTRACTOR ROUGH IN, REF. E-SERIES |
| 988 | Roughneck Pro V2000D Series Dome Cameras - 2 MP | 900 - SECURITY (CRVI) | Vicon Industries | CONTRACTOR ROUGH IN, REF. E-SERIES |
| 989 | Roughneck Pro V2000D Series Dome Cameras - 8 MP | 900 - SECURITY (CRVI) | Vicon Industries Vicon Industries | CONTRACTOR ROUGH IN, REF. E-SERIES |
| 990 | Roughneck Pro V2000D Series Dome Cameras - 2 MP | 900 - SECURITY (CRVI) | Vicon Industries Vicon Industries | CONTRACTOR ROUGH IN, REF. E-SERIES |
| 990 | Security Alarm Panel | 900 - SECURITY (CRVI) | VICOIT ITIQUOLITES | FINAL LOCATION BY VENDOR |
| JU | Occurry Alarm Farier | SOU - SECURITY (CKVI) | | I INAL LOCATION DT VENDUR |

SCHEDULE NOTES: (E) EQUIPMENT

- A. EQUIPMENT OCCURING IN THIS SCHEDULE IS INCLUDED IN THE PROJECT. THE RESPONSIBILITY TO ROUGH IN, FURNISH, AND OR INSTALL, IS IDENTIFIED TO THE GREATEST EXTENT POSSIBLE BY THE ARCHITECT TOGETHER WITH THE OWNER AND THE GENERAL CONTRACTOR FOR THE PURPOSES OF ACCOMPLISHING THE WORK.
- FURNISH: PURCHASE, STORE, DELEIVER TO THE SITE READY FOR INSTALLATION. INSTALL:
- c. PROVIDE: FURNISH AND INSTALL (CFCI) CONTRACTOR FURNISHED, CONTRACTOR INSTALLED MEANS ALL SCOPE TO PROVIDE THE SUCESSFUL OPERATION OF THE ITEM INDICATED IS INCLUDED IN THE CONTRACT FOR CONSTRUCTION.
- D. (OFCI) OWNER FURNISHED, CONTRACTOR INSTALLED MEANS THE OWNER OR OWNER'S SUPPLIER WILL DELIVER THE ITEM INDICATED TO THE PROJECT AT THE APPROPRIATE TIME, READY FOR INSTALLATION BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL ROUGH IN, BLOCKING, AND OTHER REQUIREMENTS OF THE ITEM FOR IT'S SUCCESSFUL INTENDED OPERATION. THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE EARLIEST POSSIBLE TIME WHEN THE ITEMS TO BE FURNISHED ARE SCHEDULED TO BE INSTALLED.
- E. (OFOI) OWNER FURNISHED, OWNER INSTALLED MEANS THE OWNER WILL PROVIDE THE ITEM INDICATED. THE CONTRACTOR PROVIDES ALL BLOCKING, ROUGH-IN, CABLING, POWER, ETC. AS INDICATED ELSWHERE IN THE DOCUMENTS. CONTRACTOR SHALL NOTIFY THE OWNER WHEN ITEMS ARE ABLE TO BE PROVIDED. (VFVI) VENDOR FURNISHED VENDOR INSTALLED MEANS THE OWNER'S VENDOR WILL PROVIDE THE ITEM INDICATED. CONTRACTOR PROVIDES ALL BLOCKING, ROUGH-IN, CABLING, POWER, ETC. AS INDICATED ELSWHERE IN THE DOCUMENTS. THE CONTRACTOR SHALL NOTIFY THE OWNER AT THE EARLIEST POSSIBLE TIME WHEN THE ITEMS TO BE PROVIDE ARE SCHEDULED TO BE INSTALLED.

PLAN NOTES - EQUIPMENT PLAN

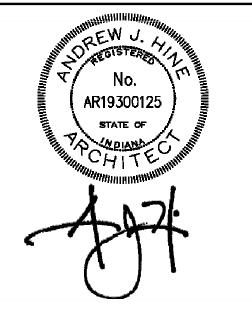
REFER TO ENLARGED PLANS ON A501 FOR TOILET ACCESSORIES IN RESTROOMS. REFER TO SHEET A501 FOR TOILET ACCESSORIES SCHEDULE. MAXIMIUM OCCUPANCE OF HALL = 980 (7 SF/PERSON)

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REVISIONS: 1 01.07.2022 Addendum 1: Bid Set 2 01.14.2022 Addendum 2: Bid Set

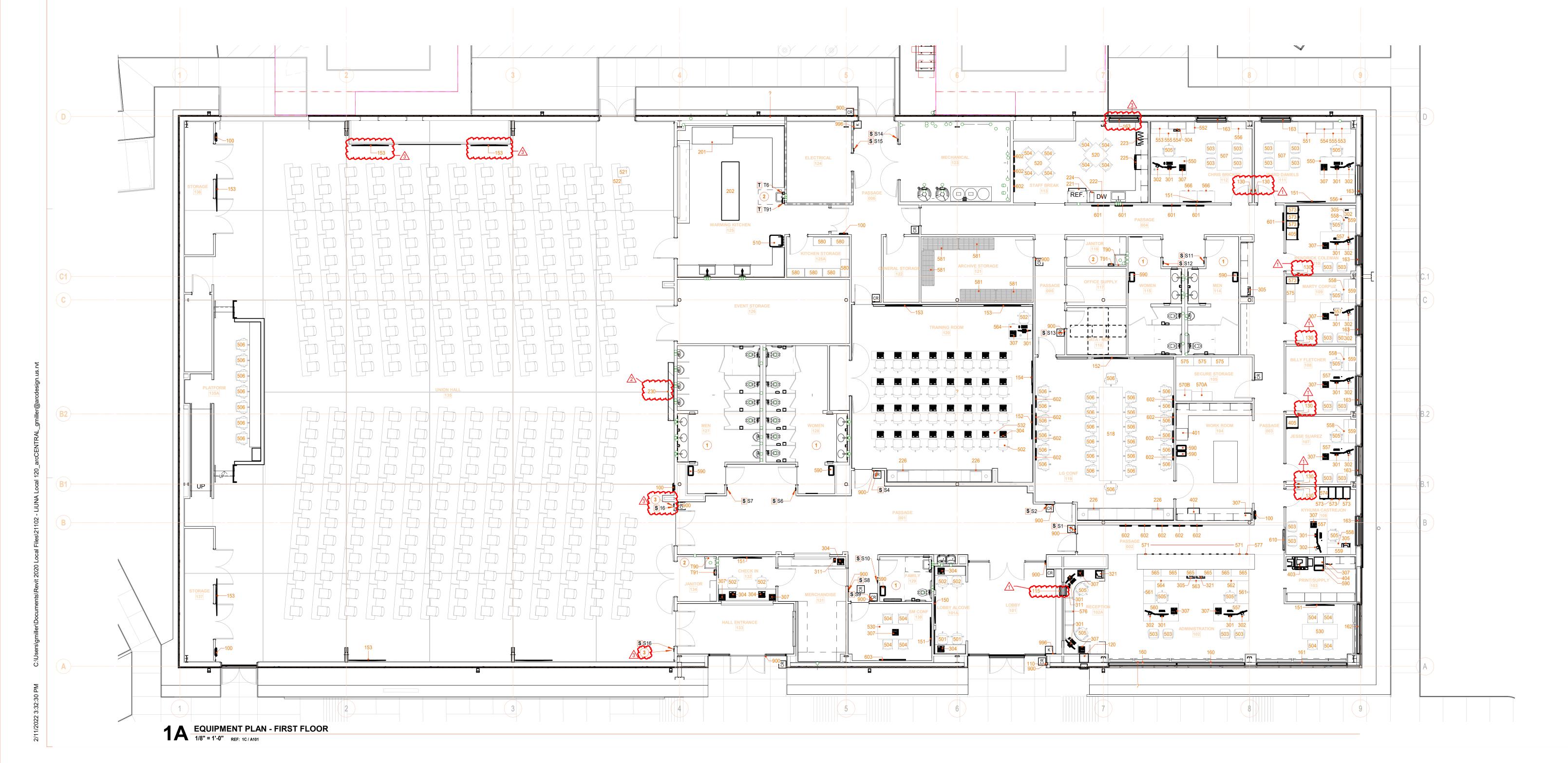
3 02.11.2022 Addendum 3: Post Bid VE

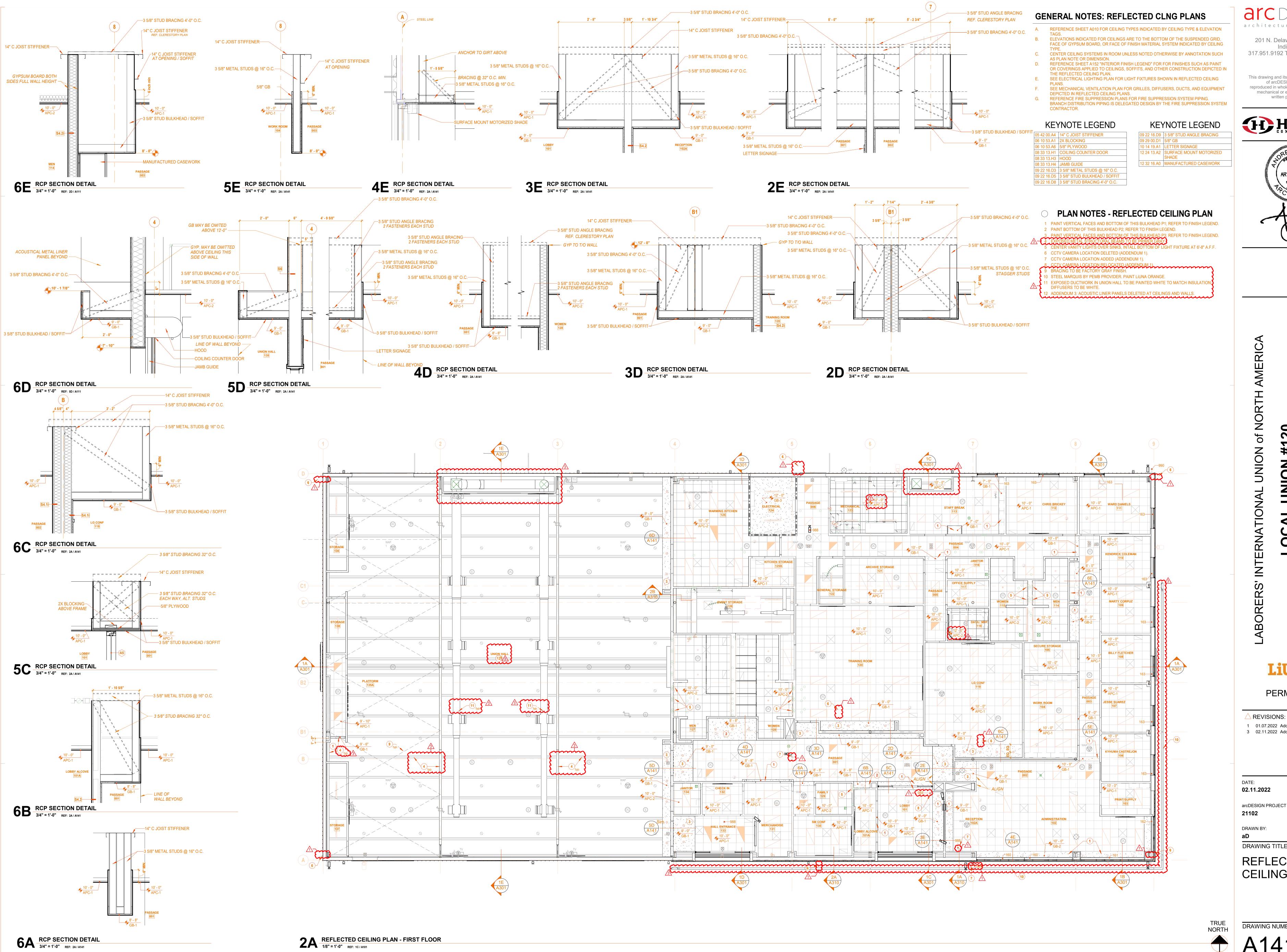
02.11.2022

arcDESIGN PROJECT NUMBER: 21102

DRAWING TITLE:

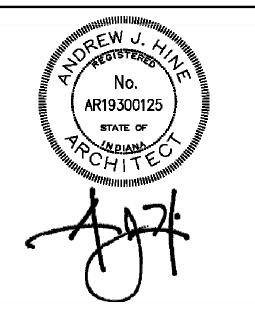
EQUIPMENT PLAN





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02.11.2022 arcDESIGN PROJECT NUMBER

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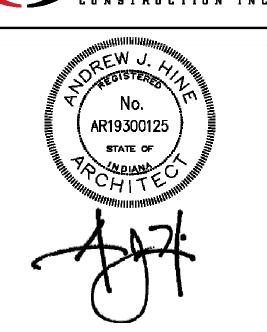
REFLECTED **CEILING PLAN**

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3 02.11.2022 Addendum 3: Post Bid VE

arcDESIGN PROJECT NUMBER:

DRAWING TITLE:

CLERESTORY **BRACING PLAN**

FINISH PLAN - FIRST FLOOR

1/8" = 1'-0" REF: 1C / A101

GENERAL NOTES: INTERIOR FINISH PLANS

- A. REFERENCE SHEET A152 "INTERIOR FINISH LEGEND AND ROOM FINISH SCHEDULE" FOR FOR FINISHES SUCH AS FLOORING, PAINT OR COVERINGS APPLIED TO WALL AND FLOOR
- CONSTRUCTION.
- ALL WALLS TO BE PAINTED **P1** UNLESS NOTED OTHERWISE. REFERENCE SHEET A141 "REFLECTED CEILING PLAN" FOR CEILING FINISHES.
- ALL DOOR FRAMES TO BE PAINTED **P2** UNLESS NOTED OTHERWISE. WOOD DOORS B.O.D. MASONITE, MAPLE, PLAIN SLICED, CLEAR FINISH. PROCEEDING WITH THE INSTALLATION OF FINISHES WILL BE CONSTRUED THAT THE INSTALLER AND/OR FINISHER HAS INSPECTED AND ACCEPTED THE SUBSTRATE
- CONCEALED, UNKNOWN CONDITIONS OR UNSATISFACTORY SUBSTRATE ONCE THE FINISH WORK HAS PROCEEDED. WHERE WALLS ARE INDICATED TO RECEIVE NEW PAINT FINISH, PAINT ALL PREVIOSULY PAINTED OR PRIMED GRILLES, FIRE EXTINGUISHER CABINETS, AND OTHER ITEMS EMBEDDED IN WALL CONSTRUCTION TO MATCH SURFACE ON WHICH THEY OCCUR

RECEIVING THE NEW WORK. NO CHANGE ORDER WILL BE ISSUED TO RECTIFY

- UNLESS NOTED OTHERWISE. H. PROVIDE TRANSITIONS AT ALL FLOORING MATERIAL CHANGES. REFER TO SHEET A151 FOR TYPICAL DETAILS
- REFERENCE ENLARGED PLANS AND SECTIONS FOR MILLWORK FINISHES.
- ROLLER WINDOW SHADE FABRIC TO BE E SCREEN BY MERMET, WHITE/PEARL, 1% OPEN. K. ALL WINDOW STOOLS TO BE SS1.

PLAN NOTES - INTERIOR FINISH PLAN

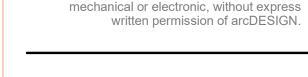
1 PAINT WALL P2, FLOOR TO CEILING. 2 METAL STRUCTURAL BEAMS TO BE FACTORY FINISHED PRIMER GRAY. 3 REFER TO ENLARGED PLANS AND DETAILS FOR PODIUM WALL FINISHES

- 4 PAINT WALL P2, BETWEEN COUNTERTOP AND UPPER CABINETS. BULKHEAD ABOVE 5 VANITY WALL TO RECIEVE CT2 FULL HEIGHT, REFER TO DETAIL 3A/A151 FOR TILE PATTERN.
- 6 WALL TO RECIEVE WC1 FULL HEIGHT. 7 PAINT WALL P3, FLOOR TO CEILING, IN THIS LOCATION.
- 8 WALLS OF DRINKING FOUNTAIN ALCOVE TO RECEIVE CT3 UP TO 5'-0" A.F.F. PAINT WALLS P2 ABOVE TILE. REFER TO DETAIL 2A/A151 FOR TILE PATTERN. PROVIDE SCHLUTER-SCHIENE TRIM AT TOP AND OUTSIDE EDGES OF TILE.
- 9 REFER TO INTERIOR ELEVATIONS FOR FINISHES LOCATIONS ON THIS WALL. 10 WALL TO RECEIVE WC2, CUSTOM WALLCOVERING WITH LIUNA LOGOS AS PHOTO BACKDROP; FULL HEIGHT.
- 11 PAINT WALL EP4, FLOOR TO CEILING. ALL OTHER WALLS TO HAVE CT1 WAINSCOT, UNLESS NOTED OTHERWISE. REFER TO DETAIL 4A/A151 12 PAINT ALL WALLS IN RAMP ENCLOSURE P4.
- 13 PROVIDE PRESENTATION RAIL ON THIS WALL, REFER TO INTERIOR ELEVATIONS AND DETAIL
- 14 PROVIDE CHAIR RAIL ON THIS WALL, REFER TO DETAIL 2A/A451. ALIGN CHAIR RAIL WITH HEIGHT OF PRESENTATION RAIL.
- 15 PAINT DRYWALL PORTION OF WALL P4. 16 PAINT WALL P1, FULL HEIGHT.
- 17 PROVIDE DRYWALL REVEAL (FRY REGLET DRM-625-375 CLEAR ANODIZED) ON THIS WALL AT 10'-6" A.F.F. (FIRST FLOOR). CONTINUE REVEAL AROUND ENDS OF WALL AND TERMINATE AT
- INSIDE CORNERS. PAINT WALL BELOW REVEAL P4 AND PAINT ABOVE REVEAL P1. 18 PROVIDE CORNER GUARD CG1 AT THIS LOCATION. CUT WING IN FIELD TO FIT AT RETURN TO DOOR.
- 19 PROVIDE CORNER GUARD CG2 AT THIS LOCATION. CUT WING IN FIELD TO FIT AT RETURN TO
- STONE SIGN TO BE LOCATED ON THIS WALL. WALL TO RECEIVE BRICK BELOW THE SIGN REFER TO DETAIL 1/A310. PAINT WALL ABOVE BRICK P2.

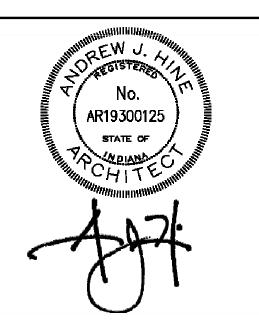
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PERMIT SET

02.11.2022

arcDESIGN PROJECT NUMBER: 21102

DRAWING TITLE

INTERIOR FINISH PLAN

| | | | FINISH LEGEND 2021 | | |
|--------------------|--|----------------------|--|---|---|
| MARK | SPECIFICATION | MANUFACTURER | PRODUCT | ADDITIONAL INFORMATION | REP CONTACT |
| USTIC PANEL | CEILING | | | | |
| 1 09 51 | 13 ACOUSTIC PANEL CEILINGS | ARMSTRONG COMMERCIAL | 1732 FINE FISSURED,15/16" ANGLED TEGULAR, 24" X 24" X 5/8", WHITE | PRELUDE XL 15/16" EXPOSED TEE GRID; WHITE; FIRE CLASS A, ASTM E84 | PHILIP CAITO; 317-519-2829; PJCAITO@ARMSTRONGCEILINGS.COM |
| 2 09 51 | 13 ACOUSTIC PANEL CEILINGS | ARMSTRONG COMMERCIAL | 868 CLEAN ROOM VL, 15/16" SQUARE LAY-IN, 24" X 24" X 5/8", WHITE | PRELUDE XL 15/16" EXPOSED TEE GRID; WHITE; FIRE CLASS A, ASTM E84 | PHILIP CAITO; 317-519-2829; PJCAITO@ARMSTRONGCEILINGS.COM |
| ••••• | | | | ···· | ······································ |
| PET TILE 09 68 | 13 TILE CARPETING | PATCRAFT | INFRASTRUCTURE COLLECTION, I0520 TRANSVERSE, CUSTOM 00530; STYLE NUMBER: | 24" X 24", QUARTER-TURN | BROOKE SHEEHE; 317-430-5334; |
| 2 09 68 | 13 TILE CARPETING | SHAW CONTRACT | F993768 ALL ACCESS COLLECTION, JIVE TILE 5T412, STEP 12549 | 24" X 24", ASHLAR | BROOKE.SHEEHE@PATCRAFT.COM JASON HAYES; 317-965-2929; |
| *** | | | | | JASON.HAYES@SHAWCONTRACT.COM |
| | AIN/GLASS TILE | | | | |
| 09 30 | 13 CERAMIC TILING | ANATOLIA | SOHO, 8" X 24" VINTAGE GREY (GLOSSY) | RESTROOM FIELD TILE, GROUT: TEC POWER GROUT-949 SILVERADO | JOSH FESMIRE; 317-373-8242; JFESMIRE@LOUISVILLE-TILE.COM |
| 09 30 | 13 CERAMIC TILING | FLORIDA TILE | STREAMLINE 4" X 16", GUNMETAL (GLOSSY) | RESTROOM ACCENT TILE; GROUT: TEC POWER GROUT-934 DELOREAN GRAY | JOSH FESMIRE; 317-373-8242; JFESMIRE@LOUISVILLE-TILE.COM |
| 09 30 | 13 CERAMIC TILING | ANATOLIA | SOHO, 2" X 12" VINTAGE GREY (GLOSSY) | WALL TILE AT DRINKING FOUNTAIN; GROUT: TEC POWER GROUT-929 CHARCOAL GRAY | JOSH FESMIRE; 317-373-8242; JFESMIRE@LOUISVILLE-TILE.COM |
| | | | | | O LONIN LOCATO O O O O O O O O O |
| CRETE 03354 | 43 POLISHED CONCRETE FINISHING | | POLISHED AND STAINED CONCRETE (LEVEL 3) | STAIN COLOR TO BE SELECTED FROM MANUFACTURER'S FULL RANGE OF | |
| 2 03354 | 43 POLISHED CONCRETE FINISHING | | POLISHED AND STAINED CONCRETE (LEVEL 2) | COLORS STAIN COLOR TO BE SELECTED FROM MANUFACTURER'S FULL RANGE OF | |
| | 00 PAINTING | SHERWIN WILLIAMS | H&C COLORTOP WATER BASED SOLID COLOR CONCRETE STAIN | COLORS TINT COLOR TO BE SELECTED | |
| l . | OU LAINTING | OTTERVISIA ASTERIAMO | THE SOLUTION WATER BASED SOLID GOLOR GONGRETE STAIN | THAT COLOR TO BE OLLEGIED | 1 |
| NER GUARD 10 26 | 00 DOOR AND WALL PROTECTION | CS ACROVYN | VA-250N 2-1/2" WING, #136 PEARL GRAY, FULL HEIGHT | CUT WING TO FIT (IN FIELD) AT RETURN TO DOOR | AMY BAKER-FEHRIBACH; 317-253-5248; |
| 10 26 | 00 DOOR AND WALL PROTECTION | CS ACROVYN | VA-250N 2-1/2" WING, #262 DRIFTWOOD, FULL HEIGHT | CUT WING TO FIT (IN FIELD) AT RETURN TO DOOR | AMY@WMBAKERCO.COM AMY BAKER-FEHRIBACH; 317-253-5248; |
| 10 20 | WALLT NOTESTION | OU AUROVIIV | VA-2501V 2-1/2 WINO, #252 BINI TWOOD, TOLE HEIGHT | OUT WING TOTTI (INTIEED) AT NETONIV TO BOOK | AMY@WMBAKERCO.COM |
| RIC | | | | | |
| 1 | | DESIGNTEX | WOOLISH 3973-802, TIN | 54" WIDE, ASTM E 84 UNADHERED CLASS A | CARYL SUGDEN; 317-987-1832; CSUGDEN@DESIGNTEX.COM |
| DOLACS DEIA | IFORCED PANELS | | | | |
| | 00 PLASTIC PANELING | CRANE COMPOSITES | GLASBORD, PEBBLED EMOBSSED FINISH, COLOR WHITE (85) | | |
| NT / EPOXY PA | INT | | | | |
| | 00 PAINTING | SHERWIN WILLIAMS | SW 7626 ZURICH WHITE | GENERAL WALL COLOR | ANGELA JULIAN; 317-714-5610; ANGIE.JULIAN@SHERWIN.COM |
| 09 91 | 00 PAINTING | SHERWIN WILLIAMS | SW 7674 PEPPERCORN3 | DOOR FRAMES/DARK GRAY ACCENT | ANGELA JULIAN; 317-714-5610; |
| 09 91 | 00 PAINTING | SHERWIN WILLIAMS | SW 6664 MARIGOLD | "LIUNA ORANGE" ACCENT | ANGIE.JULIAN@SHERWIN.COM ANGELA JULIAN; 317-714-5610; |
| 09 91 | 00 PAINTING | SHERWIN WILLIAMS | SW 7673 PEWTER CAST | MID-GRAY ACCENT | ANGIE.JULIAN@SHERWIN.COM ANGELA JULIAN; 317-714-5610; |
| | 35 DRY ERASE COATINGS | MDC | FUZE, CLEAR | DRY-ERASE PAINT | ANGIE.JULIAN@SHERWIN.COM JOY CLAMPITT; 317-832-8537; |
| | | | | | JCLAMPITT@MDCWALL.COM |
| 09 91 | 00 PAINTING | SHERWIN WILLIAMS | CUSTOM COLOR TO MATCH PANTONE PMS 541 | "LIUNA BLUE" - ONLY USED ON EXTERIOR | ANGELA JULIAN; 317-714-5610; ANGIE.JULIAN@SHERWIN.COM |
| STIC LAMINAT | E | | | | |
| | 16 MANUFACTURERED PLASTIC-LAMINATE-FACED WORK | WILSONART | KENSINGTON MAPLE, 10776-60, MATTE FINISH | PVC EDGES TO MATCH | ALAN ALBERT; 317-512-5849; ALANA@LUMBERMENS-INC.COM |
| | 23 PLASTIC-LAMINATE-CLAD COUNTERTOPS | FORMICA | NATURAL GRAY FELT, 4971-PA, PAPER FINISH | 3MM PVC EDGE TO MATCH | KYLIE LEYBA; 317-869-8717; |
| 12 36 | 23 PLASTIC-LAMINATE-CLAD COUNTERTOPS | FORMICA | STORM, 912-58, MATTE FINISH | 3MM PVC EDGE TO MATCH | KYLIE.LEYBA@FORMICA.COM KYLIE LEYBA; 317-869-8717; |
| | | | | | KYLIE.LEYBA@FORMICA.COM |
| SILIENT BASE | 13 RESILIENT BASE & ACCESSORIES | TARKETT | TRADITIONAL DURACOVE (TD) BURDED COLOR 40 CDEV | 4" HEIGHT, COILS, ASTM E 648/ NFPA 253 CLASS 1, ASTM E 84 / NFPA 255 | JENNIFER MAYNARD; 765-480-3266; |
| 09 65 | 13 NESILIENT BASE & ACCESSONIES | TANKLII | TRADITIONAL DURACOVE (TP) RUBBER COLOR 48 GREY | CLASS C | JENNIFER.MAYNARD@TARKETT.COM |
| ILIENT STAIR | ACCESSORIES | | | | |
| 1 09 65 | 13 RESILIENT BASE & ACCESSORIES | TARKETT | VICFLNT FAST LANE RUBBER STAIR TREAD FIR VISUALLY IMPAIRED COLOR 48 GREY | SOLID COLOR RUBBER INSERT COLOR 55 SILVER GREY, ASTM E 648 / NFPA 253 CLASS 1, ASTM E 622 / NFPA258 <450 | JENNIFER MAYNARD; 765-480-3266; JENNIFER.MAYNARD@TARKETT.COM |
| 2 09 65 | 13 RESILIENT BASE & ACCESSORIES | TARKETT | RR-XX, RUBBER RISER COLOR 48 GREY | ASTM E 648 / NFPA 253 CLASS 1, ASTM E 622 / NFPA258 <450 | JENNIFER MAYNARD; 765-480-3266; JENNIFER.MAYNARD@TARKETT.COM |
| .3 09 65 | 13 RESILIENT BASE & ACCESSORIES | TARKETT | VIRCN-XX-A, 1/4" MATERIAL ON STEP NOSING, VISUALY IMPAIRED COLOR 48 GREY | | JENNIFER MAYNARD; 765-480-3266; |
| | | | | 253 CLASS 1, ASTM E 622 / NFPA258 <450 | JENNIFER.MAYNARD@TARKETT.COM |
| SILIENT TRANS | ITION STRIPS 13 RESILIENT BASE & ACCESSORIES | TARKETT | CRS-XX-A, 1/4" MATERIAL TO FLOOR, 48 GREY | ASTM E 648 / NFPA 253 CLASS 1 | JENNIFER MAYNARD; 765-480-3266; |
| . 03 00 | TO LEGIELLY DIVER A MODEROUNIED | | S. 10 70 CA, III I III CELAINE TO TEOON, TO ONE I | 7.5. M 2 010 / 11 1 / 200 0E/100 1 | JENNIFER.MAYNARD@TARKETT.COM |
| ID SURFACE | | | | | |
| 12 36 | 61 SOLID SURFACING COUNTERTOPS | MEGANITE | CARAMEL TERRAZZO TT006 | PROVIDE SINGLE ADA VANITY INTEGRAL SINKS AT VANITY LOCATIONS, BS-110; 001 BRIGHT WHITE | LAUREN RILEY; 317-502-371; LRILEY@RICHELIEU.COM |
| 12 36 | 61 SOLID SURFACING COUNTERTOPS | MEGANITE | TANGERINE 077A | | LAUREN RILEY; 317-502-371; LRILEY@RICHELIEU.COM |
| LL COVERING | | | | | |
| | 00 WALL COVERING | DL COUCH (MOMENTUM) | VERSA SHIELD, FABRICATIONS, ADT03-572 / ALCHEMIST | WALL PROTECTION; WIDTH: 52"/54", 30 YD ROLLS; CLASS A, ASTM E 84 / NFPA 101 | KELLY MEINKEN, 317-617-1260; KMEINKEN@MOMTEX.COM |
| 2 09 72 | 00 WALL COVERING | MDC | CUSTOM DIGITAL WALLCOVERING - TYPE II SUEDE BASE | Liuna logo pattern backdrop for photo opportunity; width: 52"/54", 30 yd rolls; class a, astm e 84 / NFPA 101 | JOY CLAMPITT; 317-832-8537; JCLAMPITT@MDCWALL.COM |
| 3 09 72 | 00 WALL COVERING | MDC | CUSTOM DIGITAL WALLCOVERING - TYPE II SUEDE BASE | LIUNA ARTWORK MURAL; WIDTH: 52"/54", 30 YD ROLLS; CLASS A, ASTM E 84 | JOY CLAMPITT; 317-832-8537; |
| | | | | / NFPA 101 | JCLAMPITT@MDCWALL.COM |

| | | ROOM | | OOR | | \\/\ | FINISH | | CASE | WORK | |
|------------------------|------------|---------------------------------------|--------------------|----------------|-------------|----------------|-------------|--------------|-------------------|--------------------|----------|
| LEVEL | NUM BER | NAME | FLOOR FINISH | BASE FINISH | NORTH | SOUTH | EAST | WEST | CABINET FINISH | COUNTER | COMMENTS |
| ST FLOOR | 001 | PASSAGE | CPT2 | RB1 | P1/P2/P3 | P1/P2/P3/WC1/C | | P1/P2/P3 | TINIOTT | SS1 | COMMENTS |
| OT 51 00D | 000 | DA00A0E | (WALK-OFF) | DD4 | D4 | T3 | D4 | D4 | | | |
| ST FLOOR | 002 | PASSAGE | CPT1 | RB1 | P1 | P1 | P1 | P1 | DL4 | DI O | |
| ST FLOOR | 003 | PASSAGE | CPT1 | RB1 | P1 | P1 | P1 | P1/P2 | PL1 | PL2 | |
| ST FLOOR | 004 | PASSAGE | CPT1 | RB1 | P1 | P1/P2 | P1 | P1 | | | |
| IST FLOOR | 005 | PASSAGE PASSAGE | CPT1 CON3 | RB1 | P1 | P1 P1 | P1 | P1 | | | |
| IST FLOOR | 101 | LOBBY | CPT2 | RB1 | P1 | P1 | WC1/P1 | P1 | | SS1 | |
| | | | (WALK-OFF) | | | | | | | | |
| IST FLOOR | 101A | LOBBY ALCOVE | CPT2 (WALK-OFF) | RB1 | WC1 | WC1 | P1 | P3/P4/FAB1 | | SS1 /2 | 6 |
| ST FLOOR | 102 | ADMINISTRATION | CPT1 | RB1 | P1/P3 | P1 | P1 | P1/P3 | D. 4 | PL2/SS1 PL2/SS1 | 11 |
| IST FLOOR | 102A | RECEPTION | CPT1 | RB1 | P1/P3 | P1 | - | P1 | PL1 | | 2 |
| IST FLOOR | 103 | PRINT/SUPPLY | CPT1 | RB1 | P2 | P1 | P1 | P1 | PL1 | PL2 | |
| IST FLOOR IST FLOOR | 104 | WORK ROOM | CPT1 | RB1 | P2 | P2 | P1 | P1 | PL1 | PL2 | |
| IST FLOOR | 105 106 | SECURE STORAGE KYHUMA CASTREJON | CPT1 | RB1 RB1 | P1 P3 | P1 P1 | P1 | P1 P1 | | | |
| IST FLOOR | 107 | JESSE SUAREZ | CPT1 | RB1 | P1 | D2 | P1 | P1 | | | |
| IST FLOOR | | BILLY FLETCHER | CPT1 | RB1 | P1 | P3 | P1 | P1 | | | |
| IST FLOOR | 109 | MARTY CORPUZ | CPT1 | RB1 | P1 | P3 | P1 | P1 | | | |
| ST FLOOR | 110 | KENDRICK COLEMAN | CPT1 | RB1 | P1 | P3 | P1 | P1 | | | |
| ST FLOOR | 111 | WARD DANIELS | CPT1 | RB1 | P1 | P1 | P1 | P3 | | | |
| ST FLOOR | 112 | CHRIS BRICKEY | CPT1 | RB1 | D1 | P1 | P3 | D1 | | | |
| ST FLOOR | 113 | STAFF BREAK | CON2 | RB1 /3 | P1/P3 | 11 1 | Pyle3 | P2/P3 | PL1 | SS1 | |
| IST FLOOR | 114 | MEN | CON2 | CT1/CT2 | CT1/EP4 | CT1/EP4 | FP4 | CT1/CT2/EP4 | PL3 | SS1 | 1,4 |
| IST FLOOR | 115 | WOMEN | CON2 | CT1/CT2 | CT1/EP4 | CT1/EP4 | CT1/CT2/EP4 | EP4 | PL3 | SS1 | 1,4 |
| IST FLOOR | | JANITOR | CON3 | RB1 | EP1 | EP1 | EP1 | EP1 | | | 12 |
| IST FLOOR | 117 | OFFICE SUPPLY | CON3 | RB1 | P1 | P1 | P1 | P1 | | | |
| IST FLOOR | 118 | DATA / MDF | CON3 | RB1 | P1 | P1 | P1 | P1 | | | |
| IST FLOOR | 119 | LG CONF | CPT1 | RB1 | P1/P2/P4/P5 | P1/P2/P3/WC3 | P1 | P1 | PL1 | SS1 | 8 |
| IST FLOOR | 120 | TRAINING ROOM | CPT1 | RB1 | P1/P4/P5 | P1/P3/WC2 | P1/P4 | P1/P4 | PL1 | SS1 | 5 |
| IST FLOOR | 121 | ARCHIVE STORAGE | CPT1 | RB1 | P1 | P1 | P1 | P1 | | | |
| IST FLOOR | 122 | GENERAL STORAGE | CON3 | RB1 | P1 | P1 | P1 | P1 | | | |
| IST FLOOR | 123 | MECHANICAL | CON3 | RB1 | P1 | P1 | P1 | P1 | | | |
| IST FLOOR | 124 | ELECTRICAL | CON3 | RB1 | P1 | P1 | P1 | P1 | | | |
| IST FLOOR | 125 | WARMING KITCHEN | | RB1 | P1 | FRP1/P1 | P1 | P1 | PL1 | SS1 | |
| IST FLOOR | 125A | KITCHEN STORAGE | | RB1 | P1 | P1 | P1 | P1 | | | |
| IST FLOOR | | EVENT STORAGE | CON3 | RB1 | P1 | P1 | P1 | P1 | | | |
| IST FLOOR | 127 | MEN | CON2 | CT1/CT2 | CT1/EP1 | EP1 | CT1/EP1 | CT1/EP1 | PL3 | SS1 | 1,4 |
| ST FLOOR | 128 | WOMEN | CON2 | CT1/CT2 | CT1/EP1 | EP1 | CT1/EP1 | CT1/EP1 | PL3 | SS1 | 1,4 |
| ST FLOOR | 129 | FAMILY | CON2 | CT2 | EP4 | EP4 | CT2 | EP4 | | | <i>l</i> |
| ST FLOOR | 130 | SM CONF | CPT1 | RB1 | P1 | P1 | P3 | P1 | DI 4 | DI 0/004 | 2.2 |
| ST FLOOR | 131 | MERCHANDISE CHECK IN | CPT1 | RB1 | P1 | P1 | P1 | P1 | PL1 | PL2/SS1 | 2,3 |
| ST FLOOR ST FLOOR | 132 133 | HALL ENTRANCE | CPT2 (WALK-OFF) | RB1 | WC1 | P2 P2 | BRICK/P2 | P2 P2 | PL1 | PL2/SS1 SS1 | 2 |
| ST FLOOR | 134 | JANITOR | CON3 | RB1 | EP1 | EP1 | EP1 | EP1 | | | 12 |
| ST FLOOR | 135 | UNION HALL | CON1 | RB1 | P4/PANELS | P4/PANELS | P1/P3 | P1/P4/PANELS | | | 12 |
| ST FLOOR | 135A | PLATFORM | CPT1 | RB1 | P2 | P2 | P2 | P1/P4 | | PL2/SS2 | 9 |
| ST FLOOR | 136 | STORAGE | CON3 | RB1 | P1 | P1 | P1 | P1 | | 1 11001 | |
| ST FLOOR | 137 | STORAGE | CON3 | RB1 | P1 | P1 | P1 | P1 | | | |
| | 1 | · · · · · · · · · · · · · · · · · · · | 1 | 1 · · · · · | 17. 7 | 1 - | 1 * | 1.5 | 1 | 1 | i i |

COMMENTS: ROOM FINISH SCHEDULE

- TOILET PARTITION AND URINAL SCREEN FINISHES WILL BE SELECTED FROM MANUFACTURER'S FULL RANGE OF COLORS.
- WORKSURFACE COUNTERTOP TO BE PL2 AND TRANSACTION TOP TO BE SS1.
 MERCHANDISE DISPLAY SHELVES TO BE PL1. METAL BRACKETS AND STANDARDS TO BE

- WHITE.
 BASE MATERIAL ON ALL WALLS TO BE CT-1, EXCEPT AT WALL WITH CT2 TILE INSTALLED FROM FLOOR TO CEILING. PAINTED WALLS TO HAVE (1) ROW OF CT1 WITH SCHULTER DILEX COVE TRIM AT FLOOR AND SCHLUTER SCHIENE TRIM AT TOP.
 PAINT WALLS BELOW PRESENTATION RAIL AND CHAIR RAIL P4 AND P1 ABOVE. AFTER WALL RECEIVES PAINT COLOR, PAINT WALL ABOVE PRESENTATION RAIL P5 (CLEAR DRY-ERASE PAINT.) PAINT CHAIR RAIL AND PRESENTATION RAIL P2.
 TACKBOARDS ON WEST WALL TO BE WRAPPED IN FAB1.
 BASE MATERIAL ON ALL WALLS IN THIS ROOM TO BE CT2. PAINTED WALLS TO HAVE (1) ROW OF CT2 INSTALLED IN HORIZONTAL ORIENTATION WITH SCHULTER DILEX COVE TRIM AT FLOOR AND SCHLUTER SCHIENE TRIM AT TOP.
 PAINT PRESENTATION RAIL P2
- 8. PAINT PRESENTATION RAIL P2.
- 9. WALL CAP AT PODIUM TO BE SS2.
 10. PAINT DRYWALL PORTION OF EXTERIOR WALLS P4. METAL PANELS ABOVE TO BE PRE-FINISHED

 11. WALL CAP AT TOP OF FILE NICHE TO BE SS1; REFER TO DETAIL ON A121.

 12. SHELVES IN JANITOR'S CLOSET TO BE PL1, METAL BRACKETS AND STANDARD TO BE WHITE.

ROOM FINISH SCHEDULE NOTES:



A. REFERENCE ROOM FINISH LEGEND FOR FINISHES INDICATED ON THIS SCHEDULE.
 B. REFERENCE REFLECTED CEILING PLANS FOR CEILING TYPES AND FINISHES APPLIED TO

C. REFERENCE INTERIOR FLOOR PLANS FOR FLOOR FINISH TRANSITIONS AND MATERIALS.

D. WHERE MULTIPLE FINISHES ARE SCHEDULED, REFERENCE ENLARGED PLANS, ELEVATIONS, AND DETAIL VIEWS FOR FINISH PLACEMENT.

E. EP = EPOXY P# TO BE USED ON WALLS AS INDICATED IN ROOM FINISH SCHEDULE AND/OR ON FINISH PLANS.

5430 LAF/ INDIANAPC

architecture + interiors

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A REVISIONS:

1 01.07.2022 Addendum 1: Bid Set 2 01.14.2022 Addendum 2: Bid Set

3 02.11.2022 Addendum 3: Post Bid VE

02.11.2022

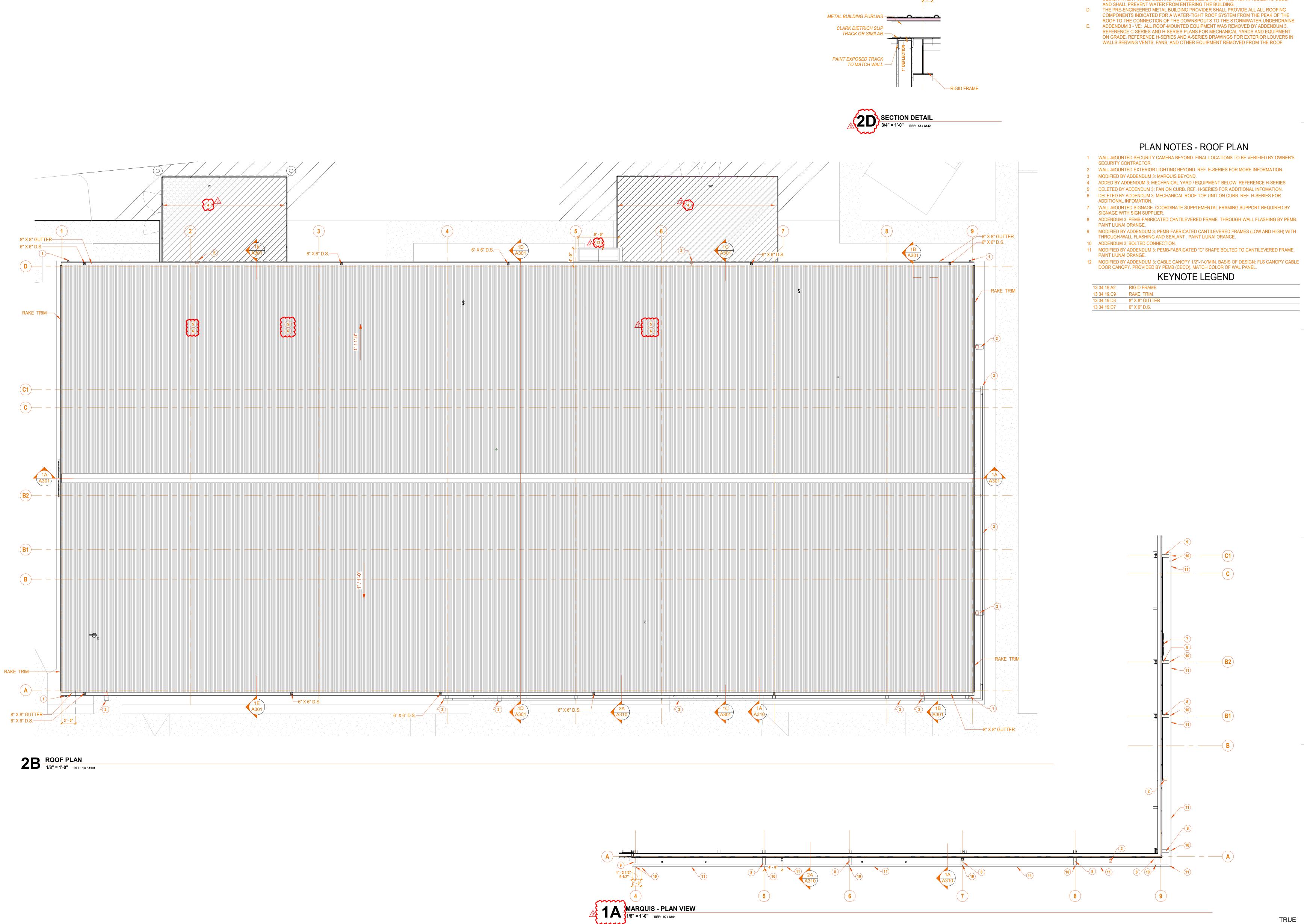
arcDESIGN PROJECT NUMBER: 21102

DRAWING TITLE:

ROOM FINISH SCHEDULE AND INTERIOR FINISH LEGEND



+ A152



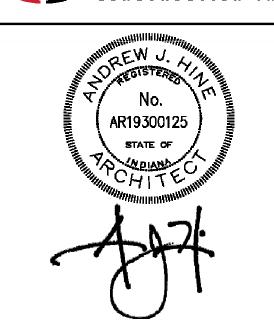
architecture + interiors A. ROOFING CONSISTS OF DOUBLE LOCK GALVANIZED METAL ROOF PANELS OVER INSULATION WITH AIR BARRIER (R-19) AND STEEL SECONDARY FRAMING PROVIDED BY 201 N. Delaware Street, Suite B

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TE HANNIG



4 ADDED BY ADDENDUM 3: MECHANICAL YARD / EQUIPMENT BELOW. REFERENCE H-SERIES 5 DELETED BY ADDENDUM 3: FAN ON CURB. REF. H-SERIES FOR ADDITIONAL INFOMATION. 6 DELETED BY ADDENDUM 3: MECHANICAL ROOF TOP UNIT ON CURB. REF. H-SERIES FOR

GENERAL NOTES: ROOF PLAN

FRAMING, AND ACCESSORIES REQUIRED.

CECO BUILDINGS, THE PRE-ENGINEERED METAL BUILDING PROVIDER.

B. THE PRE-ENGINEERED METAL BUILDING PROVIDER SHALL PROVIDE ALL MATERIALS REQUIRED TO SUPPORT MEP AND ARCHITECTURAL EQUIPMENT ASSOICATED WITH THE

ROOF INCLUDING BUT NOT LIMITED TO ROOF TRIMS AND FLASHINGS, CURBS, SECONDARY

PRIMARY AND SECONDARY FRAMING INDICATED ARE A REPRESENTATION OF ELEMENTS DESIGNED AND PROVIDED BY CECO BUILDINGS AND ARE INTENDED TO AID IN CANVEYING DESIGN INTENT. ALL METAL BUILDING SYSTEM COMPONENTS PROVIDED TO ACHEIVE

DESIGN INTENT SHALL MEETING THE REQUIREMENTS OF THE INDIANA BUILDING CODE

9 MODIFIED BY ADDENDUM 3: PEMB-FABRICATED CANTILEVERED FRAMES (LOW AND HIGH) WITH THROUGH-WALL FLASHING AND SEALANT . PAINT LIUNA! ORANGE.

11 MODIFIED BY ADDENDUM 3: PEMB-FABRICATED "C" SHAPE BOLTED TO CANTILEVERED FRAME.

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arcDESIGN PROJECT NUMBER 21102

DRAWING TITLE:

ROOF PLAN



3 3 4

GENERAL NOTES: EXTERIOR ELEVATIONS (🛆

- REFERENCE FIRST FLOOR PLAN FOR EXTERIOR BUILDING ELEVATION CALLOUTS. B. SEE SHEETS A601 FOR ALUMINUM FRAMED PUNCHED OPENINGS, ENTRANCES, AND
- STOREFRONTS.
- C. SEE SHEET A601 FOR HOLLOW METAL DOORS AND FRAMES, SHEET A601 FOR DOOR
- SIGNAGE PROVIDER TO CONFIRM ALL SIGNAGE COMPLIES WITH CITY OF INDIANAPOLIS REQUIREMENTS FOR C-4 ZONING AS PART OF SUBMITTAL APPROVAL PROCESS GC COORDINATED SCOPE REDUCTIONS: NOTE THE FOLLOWING ELEVATION NOTES HAVE
- CHANGED TO REDUCE SCOPE AFTER JANUARY 18, 2022: a. CHANGED NOTES: 12, 13, 14, 15, 16, 17, 18, 22, 25 b. ADDED NOTES: 26, 27, 28, 29, 30, 31, 32.

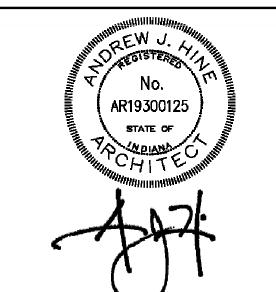


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EXTERIOR ELEVATION NOTES

- 4 13149 VERTICAL PBR METAL PANELS (BLACK)
- 6 13149 6"x6" RECTANGULAR DOWNSPOUT CONNECTED TO STORM DRAIN. CHARCOAL GRAY.
- 9 13149 RAKE TRIM (CHARCOAL GRAY)
- 11 13149 HOLLOW METAL DOOR AND FRAME (CUSTOM COLOR "BLACK")
- 12 ADDENDUM 3: COMPOSITE PANEL OVER VERTICAL METAL PANELS. B.O.D.: NICHIHA AWP 1818 CORBOSA "SHADOW".
- ORANGE). 14 ADDENDUM 3: FABRICATED STEEL MARQUIS (CUSTOM COLOR LIUNA! ORANGE).
- 15 ADDENDUM 3: COMPOSITE WALL PANEL OVER METAL BUILDING PANELS. B.O.D.: NICHIHA MODERN BRICK "MIDNIGHT" AWP.
- 16 ADDENDUM 3: COMPOSITE PANEL EXPANSION JOINT.
- 18 CUSTOM INTERNALLY-LIT SIGN / DIMENSIONAL LETTER SIGNAGE. COORD. POWER SUPPLY
- 19 WALL MOUNTED LIGHT FIXTURE LENS AT 17'-0" AFF. REF. E-SERIES FOR MORE INFOMATION. 20 WALL - MOUNTED SECURITY CAMERA. CONFIRM MOUNTING HEIGTH SHOWN (16'-0" AFF) WITH OWNER'S SECURITY CONTRACTOR PRIOR TO PLACING CONDUITS AND JUNCTION BOXÉS.
- 22 ADDENDUM 3: GABLE DOOR CANOPY BY PEMB PROVIDER. BASIS OF DESIGN: FLS GABLE DOOR
- 24 METER BASE REF. E-SERIES FOR MORE INFROMATION.
- FOR MORE INFORMATION.
- WHITE.
- 29 KNOX BOX
- YARDS & DUMPSTER ENCLOSURE. REF. C-SERIES. METAL BUILDING PROVIDER REVIEW H-SERIES DRAWINGS FOR OPENING REQUIREMENTS OF DUCTS, PIPING, REFRIGERANT LINES, AND
- 31 ADDENDUM 3: WINDOW RELOCATED BY ADDENDUM 3.
- 33 ADDENDUM 3: DUCT PENETRATION REF. H-SERIES

- 1 13149 HORIZONTAL 7.2 METAL PANELS (BLACK) 2 13149 - HORIZONTAL 7.2 METAL PANELS (CHARCOAL GRAY) 3 13149 - VERTICAL PBR METAL PANEL SYSTEM (CHARCOAL GRAY)
- 5 13149 8"x8" GUTTER CHARCOAL GRAY
- 7 13149 6"x6" RECTANGULAR DOWNSPOUT WITH OPEN DISCHARGE TO CANOPY ROOF. TWO-COLORS: CHARCOAL GRAY & BLACK MATCHING SIDING. 8 13149 - DOUBLE LOCK GALVANIZED METAL ROOF SYSTEM
- 10 13149 OVERHEAD SECTIONAL DOOR (CUSTOM COLOR "BLACK")
- 13 ADDENDUM 3: CUSTOM STEEL MARQUIS BY METAL BUILDING PROVIDER (CUSTOM COLOR LIUNA!

- 17 ADDENDUM 3: CUSTOM EXTERNALLY-LIT SIGN
- INDICATED ON E-SERIES DRAWINGS.
- OWNER'S SECURITY CONTRACTOR PRIOR TO PLACING CONDUITS AND JUNCTION BOXES. CANOPY. FINISH TO MATCH SIDING.

21 WALL - MOUNTED SECURITY CAMERA. CONFIRM MOUNTING HEIGTH SHOWN (9'-0" AFF) WITH

- 23 LOW-PRESSURE NATURAL GAS SERVICE REF. P-SERIES FOR MORE INFORMATION.
- 25 ADDENDUM 3: KAWNEER VERSOLEIL SUNSHADES (QTY 6 TOTAL DELETED ADDENDUM 3). 26 ADDENDUM 3: METAL LOUVER, CUSTOM FINISH TO MATCH METAL WALL PANEL. REF. H-SERIES
- 27 ADDENDUM 3: REVERSE CUT VINYL LETTERING ON INSIDE SURFACE, 3 1/2" HEIGHT, LATO FONT,
- 28 DEPOSITORY SEE EQUIPMENT PLAN
- 30 ADDENDUM 3: BLACK VINYL CHAINLINK FENCE WITH BLACK VINYL INSERTS AT MECHANICAL
- 32 ADDENDUM 3: CLERESTORY WINDOW DELETED BY ADDENDUM 3

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arcDESIGN PROJECT NUMBER 21102

DRAWING TITLE:

EXTERIOR ELEVATIONS



- a. Windows/doors/transparency816
- 1. On the side of each primary building that has a public pedestrian entrance, at least 40% of the wall surface area between 3 feet and 8 feet above grade level and within 50 feet of each side of the entrance shall be of glass or other transparent materials. On any facade or side of a primary building that is located within 50 feet of a local, collector or arterial street, at least 40% of the wall surface area between 3 feet and 8 feet above grade level shall be of glass or other transparent materials.
- Required ground floor glass or other transparent materials shall allow twoway visibility between 3 feet and 8 feet above grade level.

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02.11.2022

arcDESIGN PROJECT NUMBER: **21102**

DRAWN BY:

GLAZING AREA = 297SF

TOTAL AREA = 722SF

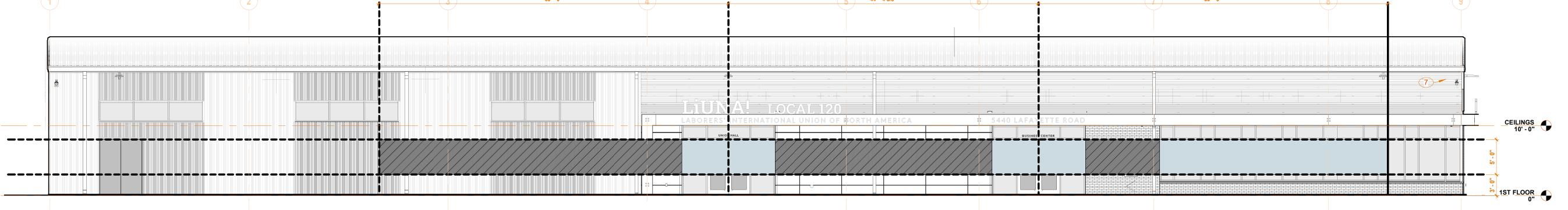
PERCENTAGE OF GLAZING TO TOAL AREA = 41%

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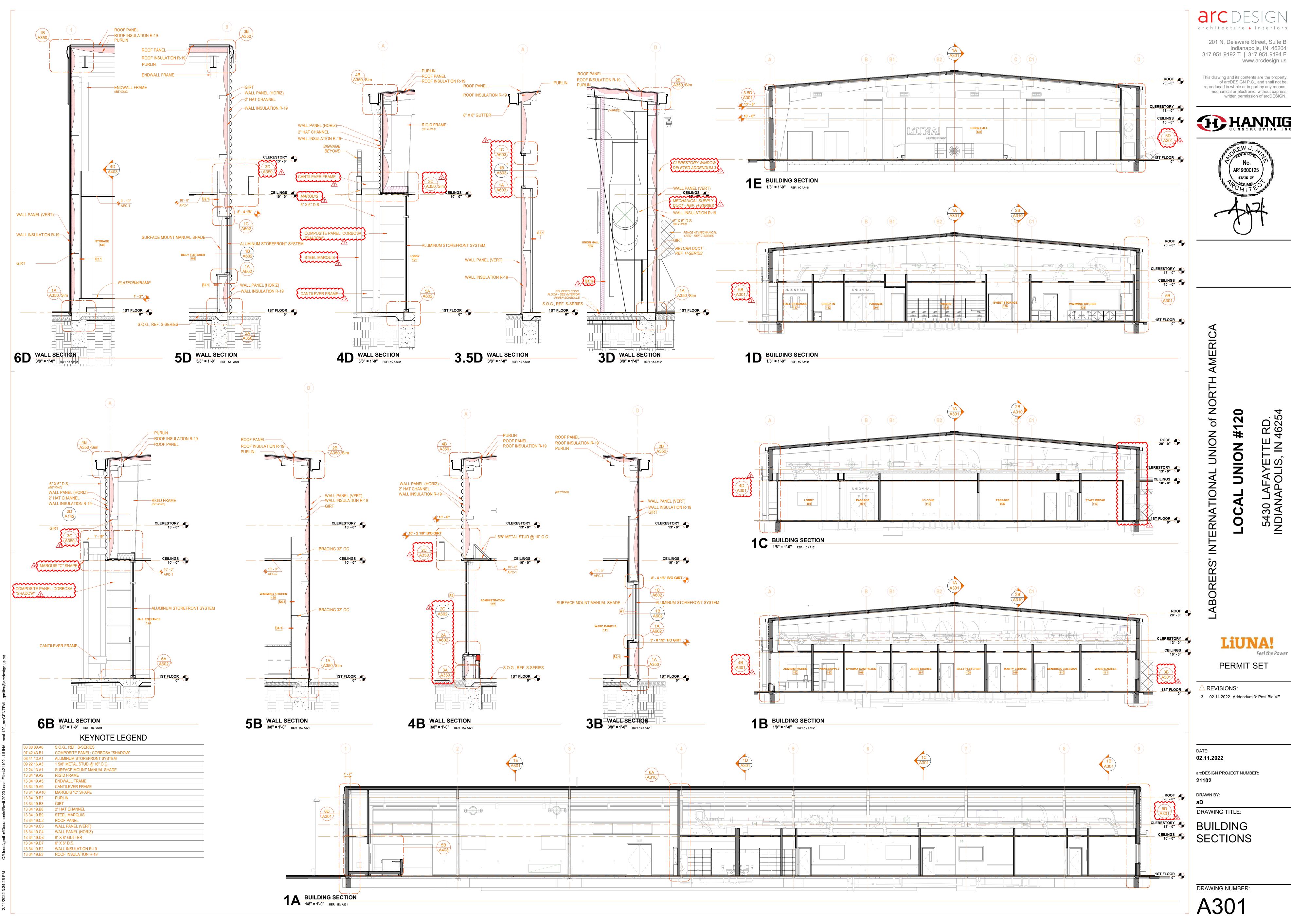
ENTRANCE GLAZING DIAGRAM

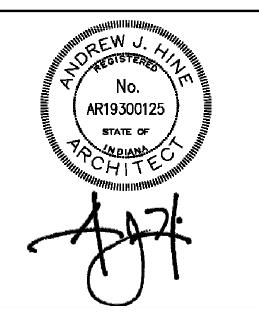
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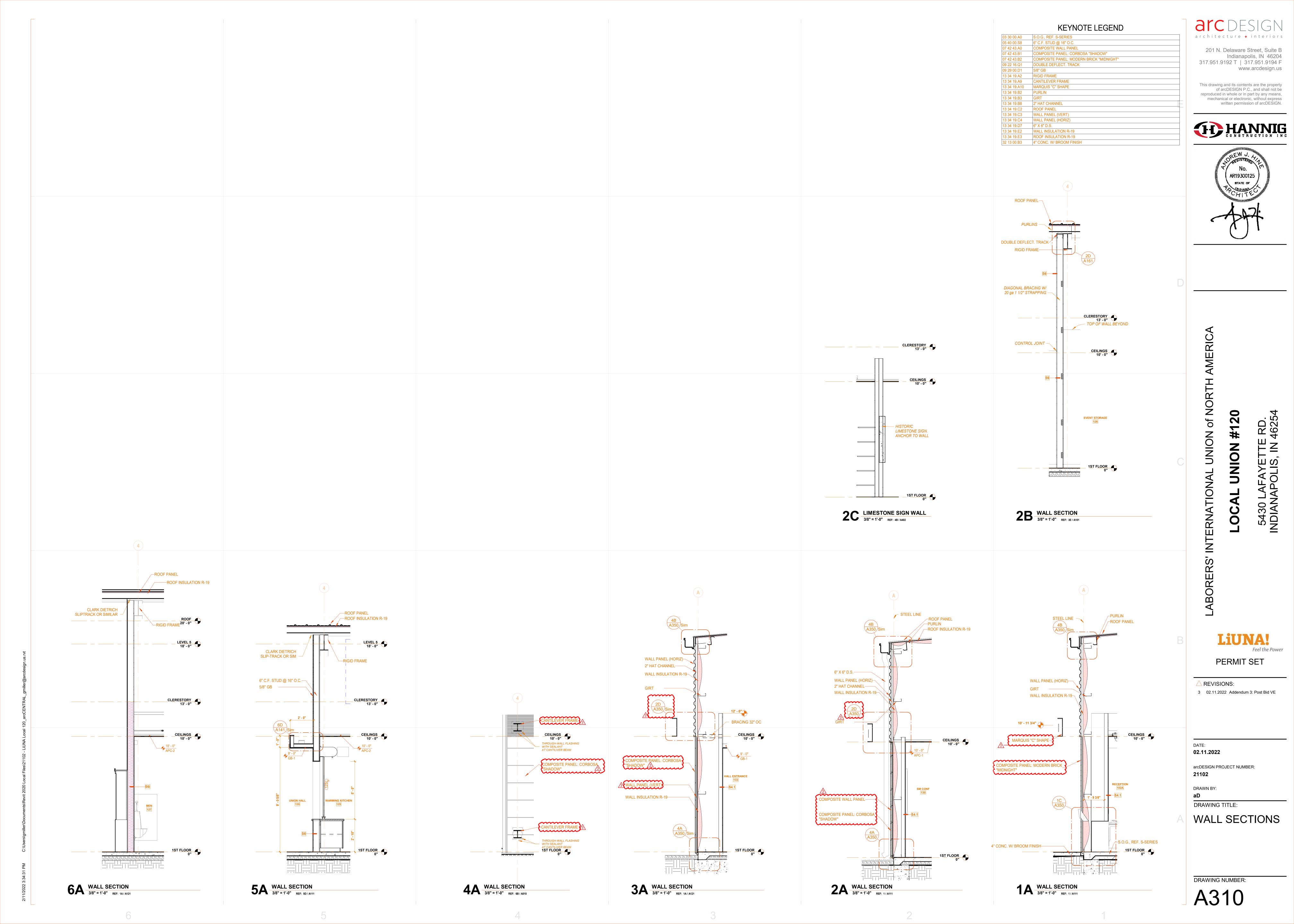
A201A

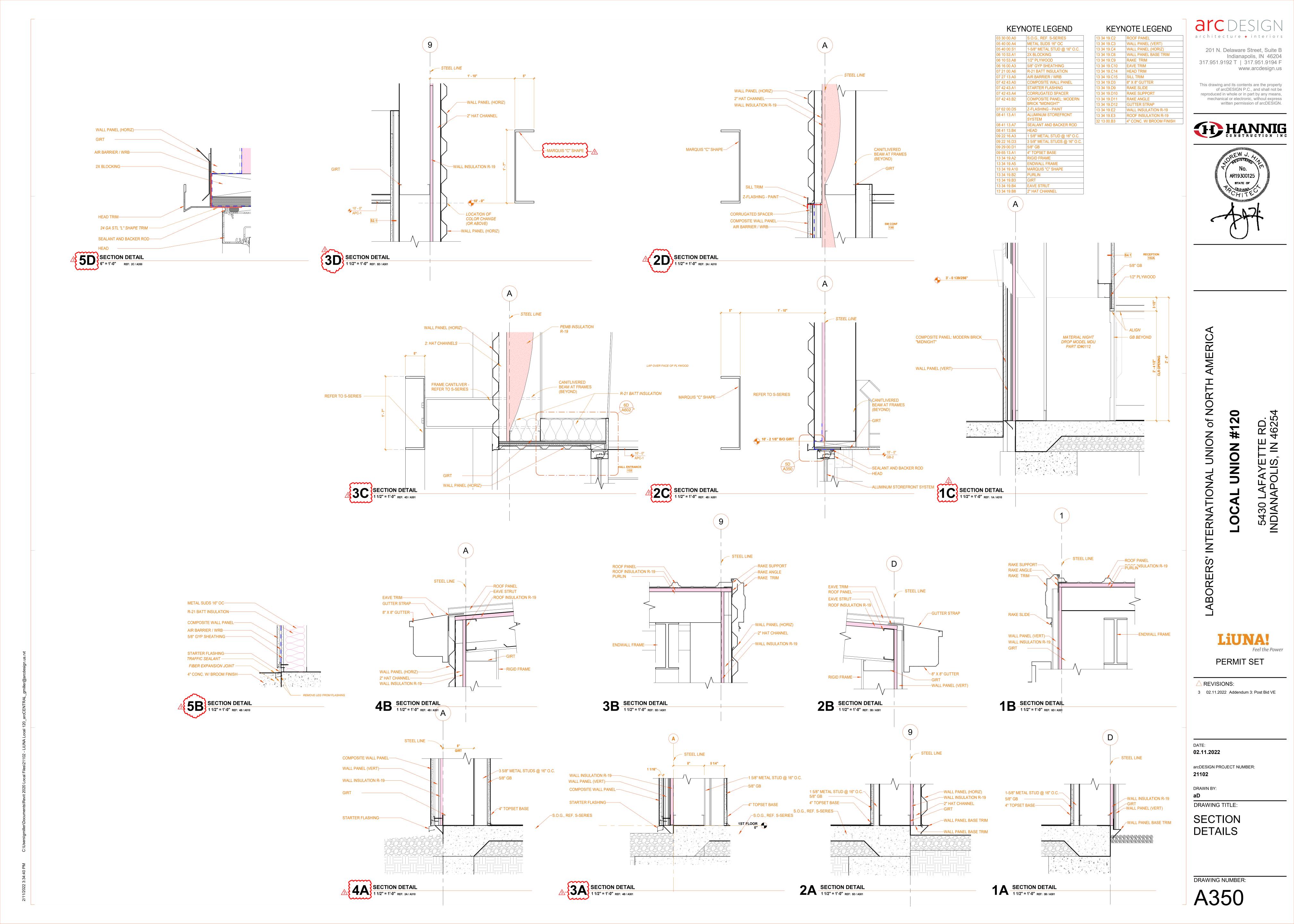


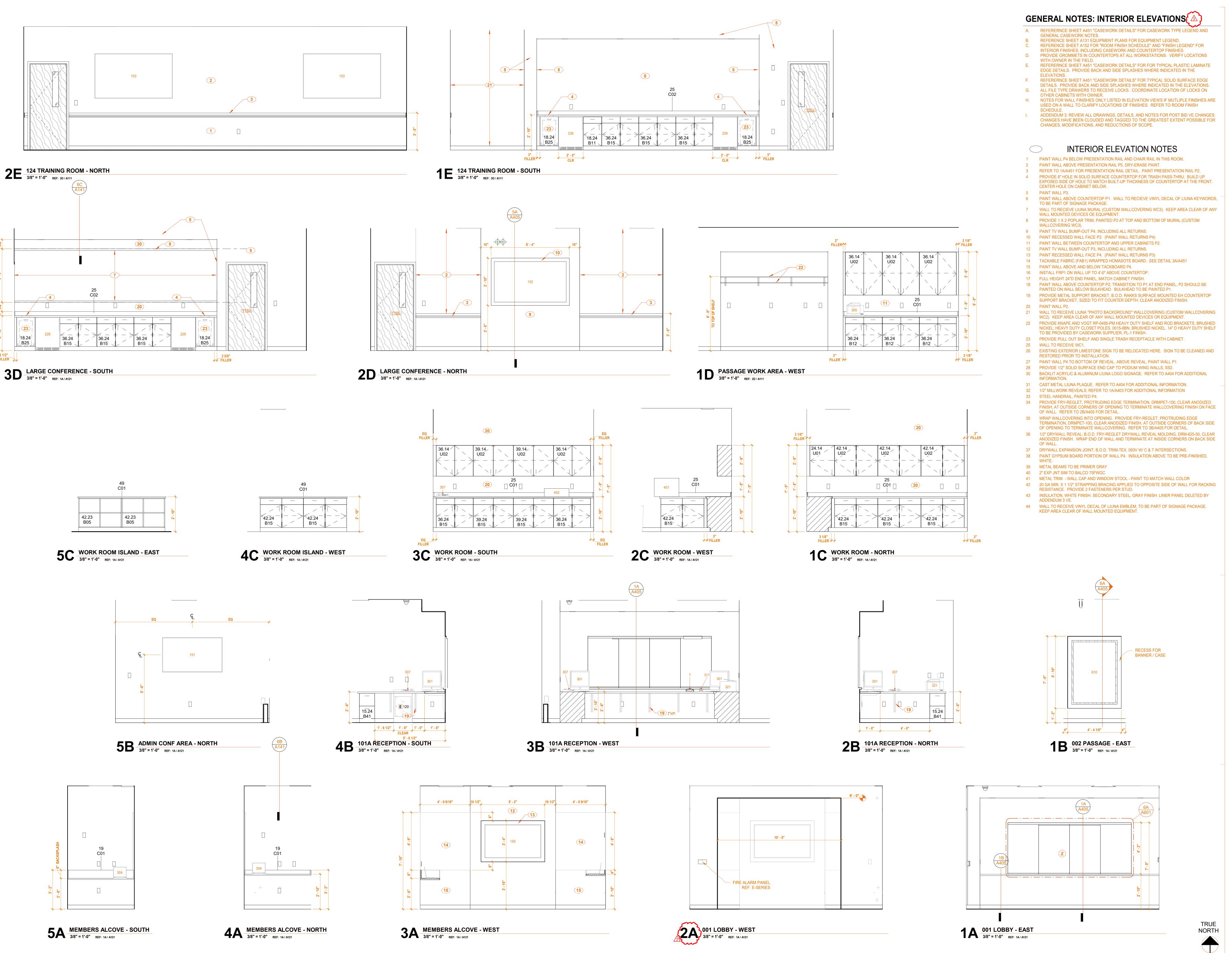












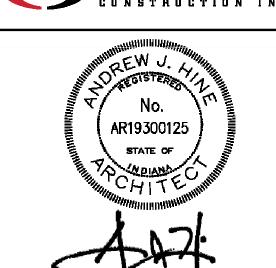
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RD 462

-AYE-OLIS, 5430 LA INDIANAF

Feel the Power

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PERMIT SET

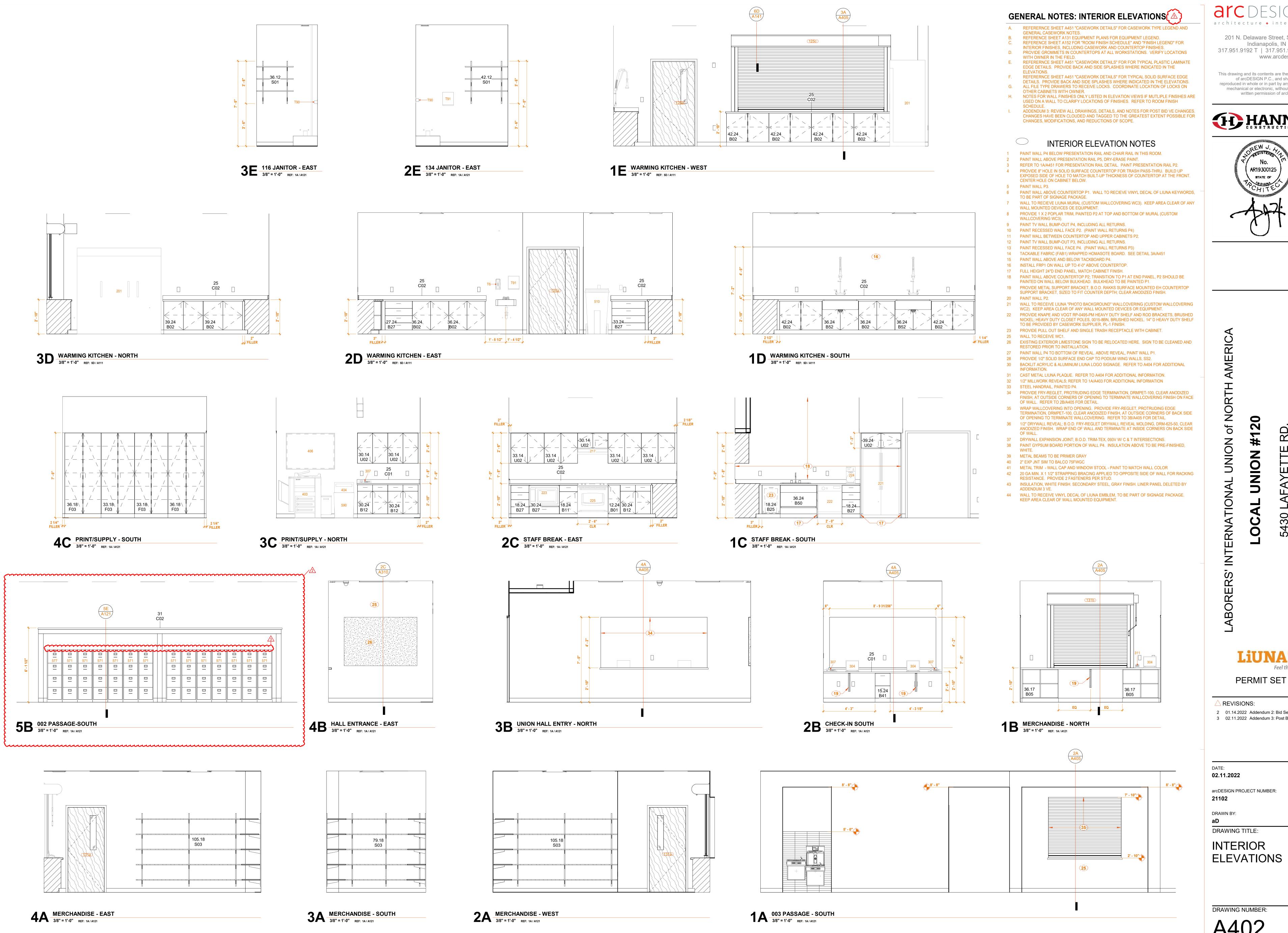
02.11.2022

arcDESIGN PROJECT NUMBER: 21102

DRAWN BY:

DRAWING TITLE:

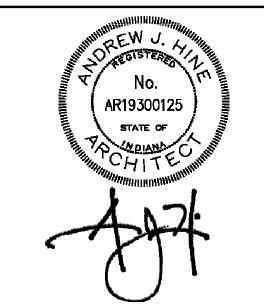
INTERIOR **ELEVATIONS**



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HANNIG CONSTRUCTION INC



2 01.14.2022 Addendum 2: Bid Set

3 02.11.2022 Addendum 3: Post Bid VE

02.11.2022 arcDESIGN PROJECT NUMBER:

INTERIOR

ELEVATIONS

DRAWING NUMBER:

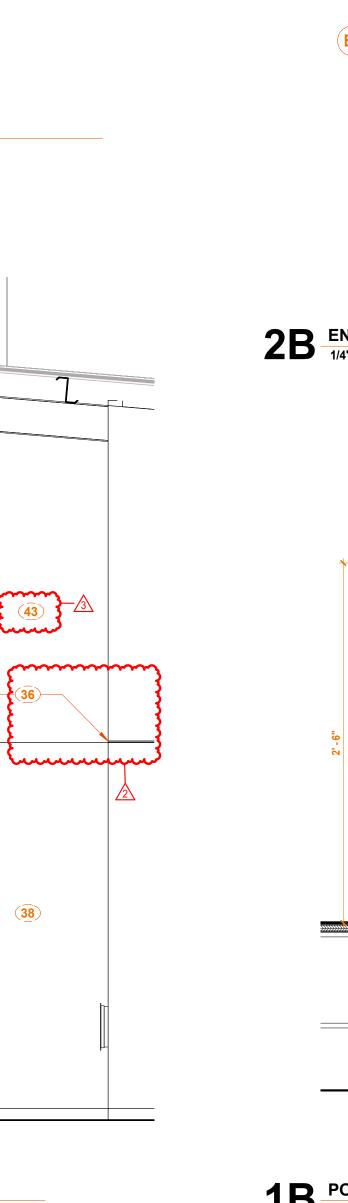
A402

8" 1'-8" 8" 3'-11 1/2" 8" 1'-8" 8"

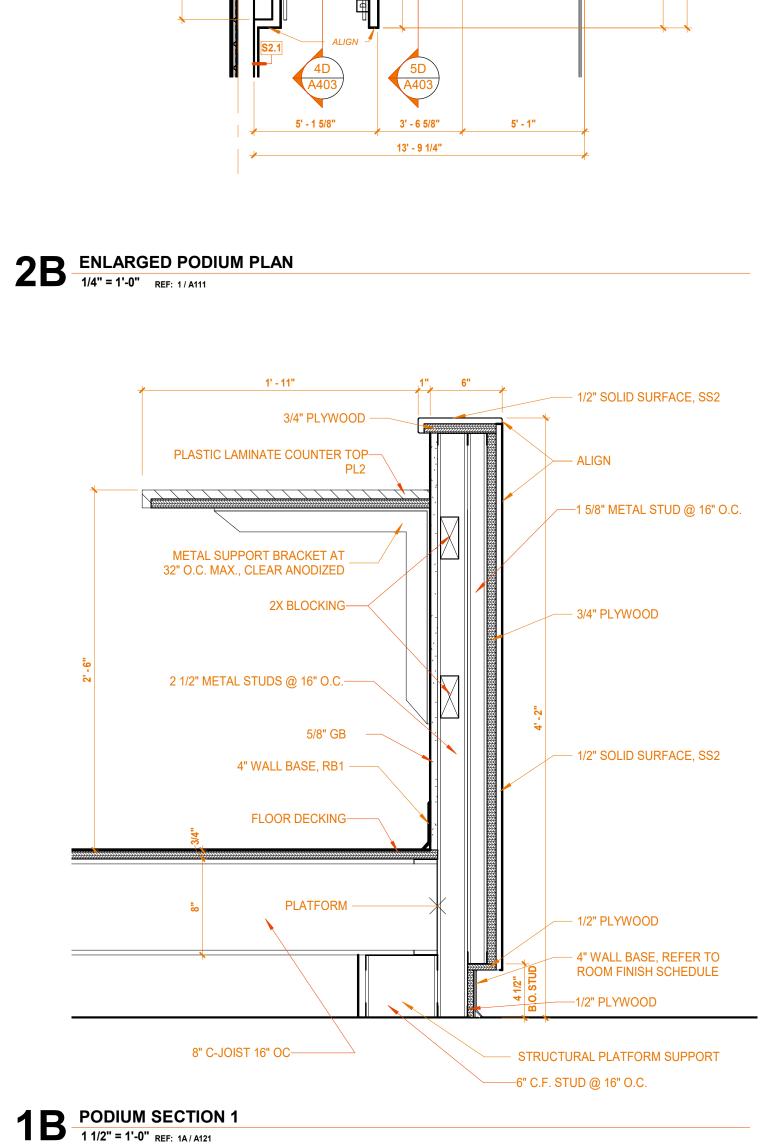
(38)

1D UNION HALL - WEST
3/8" = 1'-0" REF: 1A / A121

STEEL RAILING



_STEEL RAILING



PODIUM SECTION 2

1 1/2" = 1'-0" REF: 1A / A121

INTERIOR ELEVATION NOTES

1 PAINT WALL P4 BELOW PRESENTATION RAIL AND CHAIR RAIL IN THIS ROOM. PAINT WALL ABOVE PRESENTATION RAIL P5, DRY-ERASE PAINT. 3 REFER TO 1A/A451 FOR PRESENTATION RAIL DETAIL. PAINT PRESENTATION RAIL P2.

4 PROVIDE 8" HOLE IN SOLID SURFACE COUNTERTOP FOR TRASH PASS-THRU. BUILD UP EXPOSED SIDE OF HOLE TO MATCH BUILT-UP THICKNESS OF COUNTERTOP AT THE FRONT. CENTER HOLE ON CABINET BELOW. 5 PAINT WALL P3.

6 PAINT WALL ABOVE COUNTERTOP P1. WALL TO RECIEVE VINYL DECAL OF LIUNA KEYWORDS, TO BE PART OF SIGNAGE PACKAGE. WALL TO RECIEVE LIUNA MURAL (CUSTOM WALLCOVERING WC3). KEEP AREA CLEAR OF ANY WALL MOUNTED DEVICES OF EQUIPMENT.

PROVIDE 1 X 2 POPLAR TRIM. PAINTED P2 AT TOP AND BOTTOM OF MURAL (CUSTOM WALLCOVERING WC3).

9 PAINT TV WALL BUMP-OUT P4, INCLUDING ALL RETURNS. 10 PAINT RECESSED WALL FACE P2. (PAINT WALL RETURNS P4) 11 PAINT WALL BETWEEN COUNTERTOP AND UPPER CABINETS P2.

12 PAINT TV WALL BUMP-OUT P3, INCLUDING ALL RETURNS. 13 PAINT RECESSED WALL FACE P4. (PAINT WALL RETURNS P3) 14 TACKABLE FABRIC (FAB1) WRAPPED HOMASOTE BOARD. SEE DETAIL 3A/A451

15 PAINT WALL ABOVE AND BELOW TACKBOARD P4. 16 INSTALL FRP1 ON WALL UP TO 4'-0" ABOVE COUNTERTOP. 17 FULL HEIGHT 24"D END PANEL, MATCH CABINET FINISH. 18 PAINT WALL ABOVE COUNTERTOP P2; TRANSITION TO P1 AT END PANEL, P2 SHOULD BE

PAINTED ON WALL BELOW BULKHEAD. BULKHEAD TO BE PAINTED P1. 19 PROVIDE METAL SUPPORT BRACKET, B.O.D. RAKKS SURFACE MOUNTED EH COUNTERTOP SUPPORT BRACKET, SIZED TO FIT COUNTER DEPTH; CLEAR ANODIZED FINISH. 20 PAINT WALL P2.

WALL TO RECEIVE LIUNA "PHOTO BACKGROUND" WALLCOVERING (CUSTOM WALLCOVERING WC2). KEEP AREA CLEAR OF ANY WALL MOUNTED DEVICES OR EQUIPMENT. PROVIDE KNAPE AND VOGT RP-0495-PM HEAVY DUTY SHELF AND ROD BRACKETS, BRUSHED NICKEL; HEAVY DUTY CLOSET POLES, 0015-8BN, BRUSHED NICKEL. 14" D HEAVY DUTY SHELF

TO BE PROVIDED BY CASEWORK SUPPLIER, PL-1 FINISH. 23 PROVIDE PULL OUT SHELF AND SINGLE TRASH RECEPTACLE WITH CABINET. 25 WALL TO RECEIVE WC1.

26 EXISTING EXTERIOR LIMESTONE SIGN TO BE RELOCATED HERE. SIGN TO BE CLEANED AND RESTORED PRIOR TO INSTALLATION. 27 PAINT WALL P4 TO BOTTOM OF REVEAL. ABOVE REVEAL, PAINT WALL P1.

28 PROVIDE 1/2" SOLID SURFACE END CAP TO PODIUM WING WALLS, SS2. 30 BACKLIT ACRYLIC & ALUMINUM LIUNA LOGO SIGNAGE. REFER TO A404 FOR ADDITIONAL INFORMATION. 31 CAST METAL LIUNA PLAQUE. REFER TO A404 FOR ADDITIONAL INFORMATION.

32 1/2" MILLWORK REVEALS; REFER TO 1A/A403 FOR ADDITIONAL INFORMATION 33 STEEL HANDRAIL, PAINTED P4.

34 PROVIDE FRY-REGLET, PROTRUDING EDGE TERMINATION, DRMPET-100, CLEAR ANODIZED FINISH, AT OUTSIDE CORNERS OF OPENING TO TERMINATE WALLCOVERING FINISH ON FACE OF WALL. REFER TO 2B/A405 FOR DETAIL. 35 WRAP WALLCOVERING INTO OPENING. PROVIDE FRY-REGLET, PROTRUDING EDGE TERMINATION, DRMPET-100, CLEAR ANODIZED FINISH, AT OUTSIDE CORNERS OF BACK SIDE

OF OPENING TO TERMINATE WALLCOVERING. REFER TO 3B/A405 FOR DETAIL. 36 1/2" DRYWALL REVEAL; B.O.D. FRY-REGLET DRYWALL REVEAL MOLDING, DRM-625-50, CLEAR ANODIZED FINISH. WRAP END OF WALL AND TERMINATE AT INSIDE CORNERS ON BACK SIDE OF WALL.

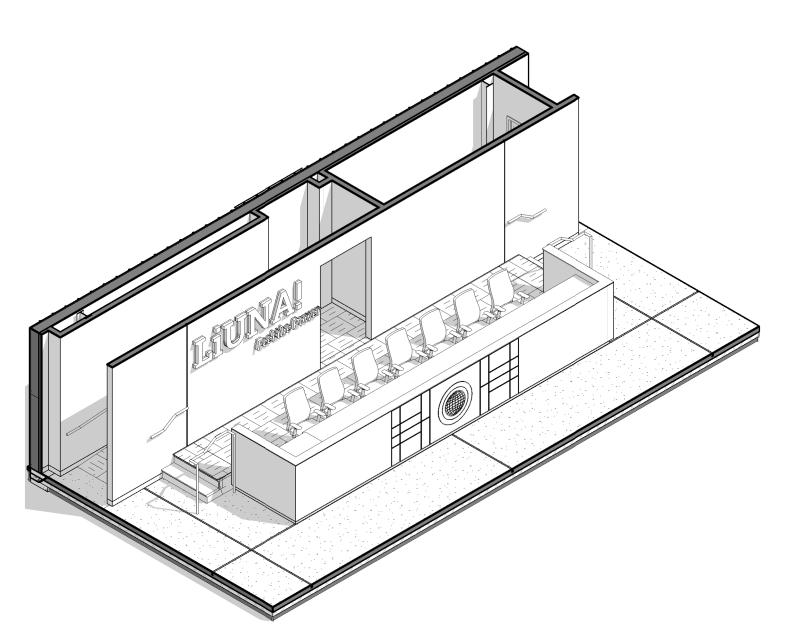
37 DRYWALL EXPANSION JOINT; B.O.D. TRIM-TEX, 093V W/ C & T INTERSECTIONS. 38 PAINT GYPSUM BOARD PORTION OF WALL P4. INSULATION ABOVE TO BE PRE-FINISHED,

39 METAL BEAMS TO BE PRIMER GRAY 40 2" EXP JNT SIM TO BALCO 75FWGC

41 METAL TRIM - WALL CAP AND WINDOW STOOL - PAINT TO MATCH WALL COLOR 42 20 GA MIN. X 1 1/2" STRAPPING BRACING APPLIED TO OPPOSITE SIDE OF WALL FOR RACKING RESISTANCE. PROVIDE 2 FASTENERS PER STUD.

43 INSULATION, WHITE FINISH. SECONDARY STEEL, GRAY FINISH. LINER PANEL DELETED BY ADDENDUM 3 VE.

44 WALL TO RECEIVE VINYL DECAL OF LIUNA EMBLEM, TO BE PART OF SIGNAGE PACKAGE. KEEP AREA CLEAR OF WALL MOUNTED EQUIPMENT.



2A PODIUM PERSPECTIVE VIEW

KEYNOTE LEGEND

3/4" PLYWOOD

09 22 16.A3 1 5/8" METAL STUD @ 16" O.C.

09 22 16.B3 2 1/2" METAL STUDS @ 16"

/2" PLYWOOD

LOOR DECKING

PLASTIC LAMINATE COUNTER

05 52 13.A0 STEEL RAILING

06 10 53.A1 2X BLOCKING

09 29 00.D1 5/8" GB

06 10 53.A7

06 40 23.A6

CEILINGS 10' - 0"

-3/4" PLYWOOD

-----6" C.F. STUD @ 16" O.C. KNEE WALL

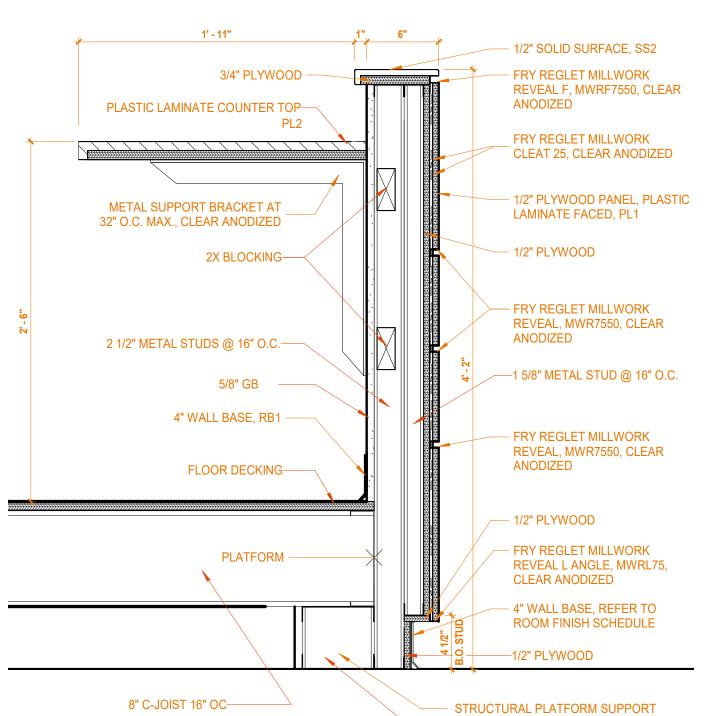
GAGE AND SPACING BY SUPPLIER

STEEL RAILING

6" C.F. STUD @ 16" O.C.

5' - 1 5/8" 3' - 6 5/8"

8" C-JOIST 16" OC



6" C.F. STUD @ 16" O.C.

NORTH

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REVISIONS: 2 01.14.2022 Addendum 2: Bid Set 3 02.11.2022 Addendum 3: Post Bid VE

02.11.2022

arcDESIGN PROJECT NUMBER 21102

DRAWN BY:

DRAWING TITLE:

INTERIOR **ELEVATIONS**



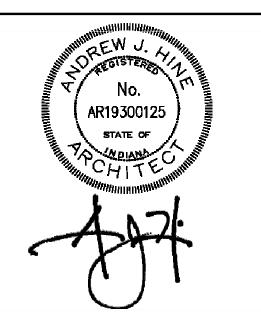
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15 HANNIG



PAINT WALL P4 BELOW PRESENTATION RAIL AND CHAIR RAIL IN THIS ROOM. PAINT WALL ABOVE PRESENTATION RAIL P5, DRY-ERASE PAINT. REFER TO 1A/A451 FOR PRESENTATION RAIL DETAIL. PAINT PRESENTATION RAIL P2. PROVIDE 8" HOLE IN SOLID SURFACE COUNTERTOP FOR TRASH PASS-THRU. BUILD UP EXPOSED SIDE OF HOLE TO MATCH BUILT-UP THICKNESS OF COUNTERTOP AT THE FRONT. CENTER HOLE ON CABINET BELOW.

PAINT WALL ABOVE COUNTERTOP P1. WALL TO RECIEVE VINYL DECAL OF LIUNA KEYWORDS, TO BE PART OF SIGNAGE PACKAGE. 7 WALL TO RECIEVE LIUNA MURAL (CUSTOM WALLCOVERING WC3). KEEP AREA CLEAR OF ANY WALL MOUNTED DEVICES OF EQUIPMENT.

8 PROVIDE 1 X 2 POPLAR TRIM, PAINTED P2 AT TOP AND BOTTOM OF MURAL (CUSTOM WALLCOVERING WC3). 9 PAINT TV WALL BUMP-OUT P4, INCLUDING ALL RETURNS. 10 PAINT RECESSED WALL FACE P2. (PAINT WALL RETURNS P4)

11 PAINT WALL BETWEEN COUNTERTOP AND UPPER CABINETS P2. 12 PAINT TV WALL BUMP-OUT P3, INCLUDING ALL RETURNS. 13 PAINT RECESSED WALL FACE P4. (PAINT WALL RETURNS P3) 14 TACKABLE FABRIC (FAB1) WRAPPED HOMASOTE BOARD. SEE DETAIL 3A/A451 15 PAINT WALL ABOVE AND BELOW TACKBOARD P4.

17 FULL HEIGHT 24"D END PANEL, MATCH CABINET FINISH. 18 PAINT WALL ABOVE COUNTERTOP P2; TRANSITION TO P1 AT END PANEL, P2 SHOULD BE PAINTED ON WALL BELOW BULKHEAD. BULKHEAD TO BE PAINTED P1. 19 PROVIDE METAL SUPPORT BRACKET, B.O.D. RAKKS SURFACE MOUNTED EH COUNTERTOP SUPPORT BRACKET, SIZED TO FIT COUNTER DEPTH; CLEAR ANODIZED FINISH.

20 PAINT WALL P2. 21 WALL TO RECEIVE LIUNA "PHOTO BACKGROUND" WALLCOVERING (CUSTOM WALLCOVERING WC2). KEEP AREA CLEAR OF ANY WALL MOUNTED DEVICES OR EQUIPMENT.

22 PROVIDE KNAPE AND VOGT RP-0495-PM HEAVY DUTY SHELF AND ROD BRACKETS, BRUSHED NICKEL; HEAVY DUTY CLOSET POLES, 0015-8BN, BRUSHED NICKEL. 14" D HEAVY DUTY SHELF TO BE PROVIDED BY CASEWORK SUPPLIER, PL-1 FINISH. 23 PROVIDE PULL OUT SHELF AND SINGLE TRASH RECEPTACLE WITH CABINET.

26 EXISTING EXTERIOR LIMESTONE SIGN TO BE RELOCATED HERE. SIGN TO BE CLEANED AND 27 PAINT WALL P4 TO BOTTOM OF REVEAL. ABOVE REVEAL, PAINT WALL P1. 28 PROVIDE 1/2" SOLID SURFACE END CAP TO PODIUM WING WALLS, SS2.

30 BACKLIT ACRYLIC & ALUMINUM LIUNA LOGO SIGNAGE. REFER TO A404 FOR ADDITIONAL 31 CAST METAL LIUNA PLAQUE. REFER TO A404 FOR ADDITIONAL INFORMATION.

1/2" MILLWORK REVEALS; REFER TO 1A/A403 FOR ADDITIONAL INFORMATION
STEEL HANDRAIL, PAINTED P4
PROVIDE FRY-REGLET, PROTRUDING EDGE TERMINATION, DRMPET-100, CLEAR ANODIZED FINISH, AT OUTSIDE CORNERS OF OPENING TO TERMINATE WALLCOVERING FINISH ON FACE OF WALL. REFER TO 2B/A405 FOR DETAIL.

35 WRAP WALLCOVERING INTO OPENING. PROVIDE FRY-REGLET, PROTRUDING EDGE TERMINATION, DRMPET-100, CLEAR ANODIZED FINISH, AT OUTSIDE CORNERS OF BACK SIDE OF OPENING TO TERMINATE WALLCOVERING. REFER TO 3B/A405 FOR DETAIL.

36 1/2" DRYWALL REVEAL; B.O.D. FRY-REGLET DRYWALL REVEAL MOLDING, DRM-625-50, CLEAR ANODIZED FINISH. WRAP END OF WALL AND TERMINATE AT INSIDE CORNERS ON BACK SIDE

41 METAL TRIM - WALL CAP AND WINDOW STOOL - PAINT TO MATCH WALL COLOR 42 20 GA MIN. X 1 1/2" STRAPPING BRACING APPLIED TO OPPOSITE SIDE OF WALL FOR RACKING

AREVISIONS: 3 02.11.2022 Addendum 3: Post Bid VE

PERMIT SET

02.11.2022 arcDESIGN PROJECT NUMBER: 21102

DRAWING TITLE:

DRAWN BY:

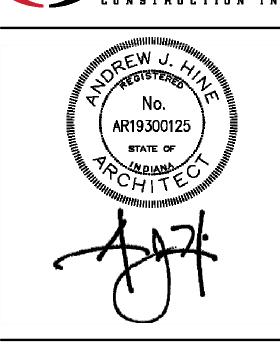
INTERIOR **ELEVATIONS**



(S) SIGNAGE SCHEDULE MARK SIGN TYPE SIGN TEXT: ROOM # SIGN TEXT: ROOM NAME BUSINESS CENTER CONFERENCE ROOM TRAINING CENTER WOMEN MERCH CONSULTATION FAMILY WOMEN DATA MECHANICAL ELECTRICAL

TE HANNIG

A. SIGNAGE APPEARING IN THIS SCHEDULE IS INCLUDED IN THE PROJECT UNLESS NOTED



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Profile

1/8" Matte face acrylic

Raised symbols

Raised ____ text

Grade 2 ——

Braille

Wall Surface ➤

ERD. 4625 HZ,

-AYET OLIS, 5430 LAF/ INDIANAPC

Feel the Power

REVISIONS:

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3 02.11.2022 Addendum 3: Post Bid VE

DATE: 02.11.2022

arcDESIGN PROJECT NUMBER: 21102

DRAWN BY: **DRAWING TITLE:**

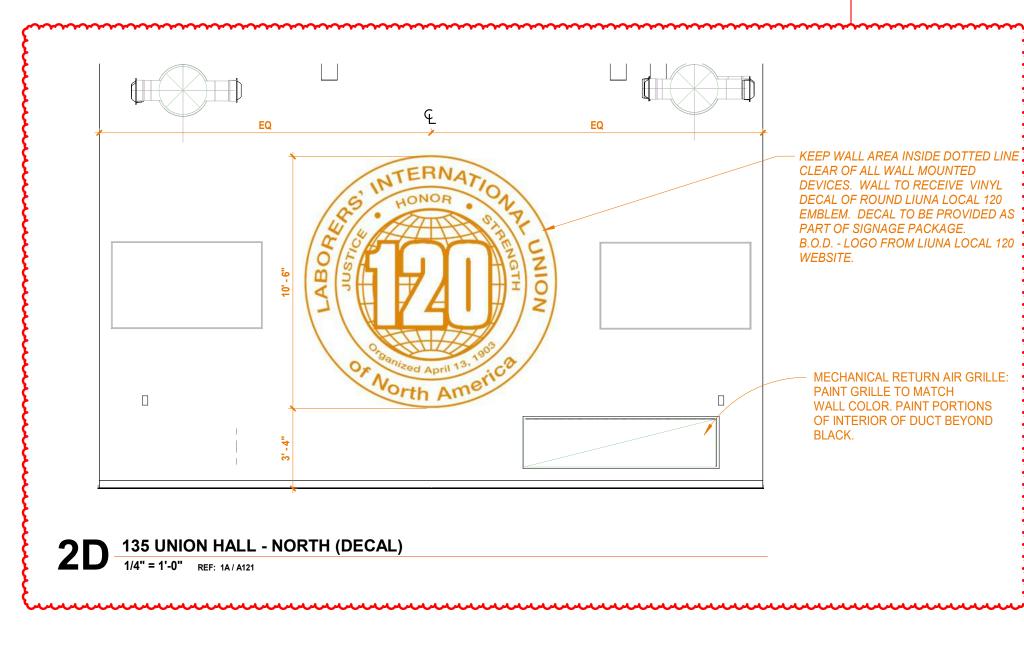
INTERIOR SIGNAGE **DETAILS**

DRAWING NUMBER:

A404

SCHEDULE NOTES: (S) SIGNAGE SCHEDULE

B. REFERENCE INTERIOR AND EXTERIOR FLOOR PLANS AND ELEVATIONS FOR SIGNAGE INCLUDED IN THIS SCHEDULE.



DIMENSIONAL CUT

METAL LETTERS,

ALUMINUM, CLEAR

1/2" THICK IN TYPE

FONT LATO BLACK, FLUSH MOUNT WITH

VHB TAPE AND

SILICONE.

UNIONHALL

3C 133 HALL ENTRANCE - WEST 3/8" = 1'-0" REF: 1A / A121

ANODIZED FINISH, 6" H,

UNIONHALL

2C 003 PASSAGE - WEST 3/8" = 1'-0" REF: 3D / A111

OVERALL DIAMETER: 32"

RAISED FROM BACKGROUND,

POLISHED SURFACE

HAMMERED TEXTURE

(NOT SHOWN)

1D 003 PASSAGE - NORTH (DECAL)
3/8" = 1'-0" REF: 1A/A121

DIMENSIONAL CUT

METAL LETTERS,

ALUMINUM, CLEAR

1/2" THICK IN TYPE

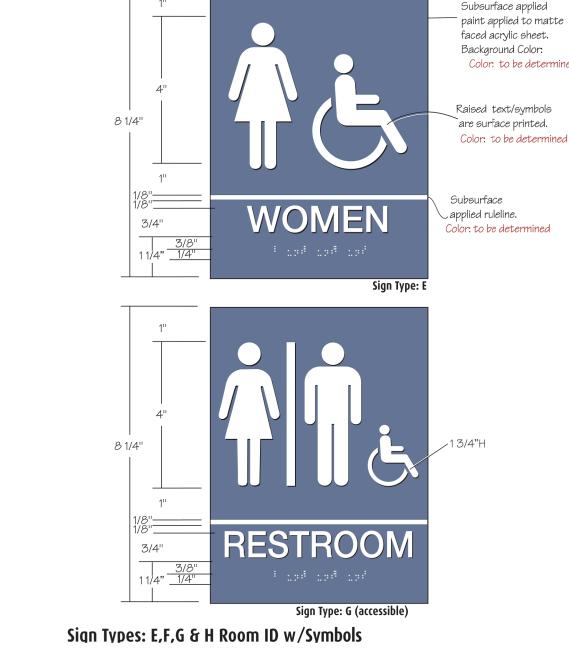
FONT LATO BLACK; FLUSH MOUNT WITH

VHB TAPE AND

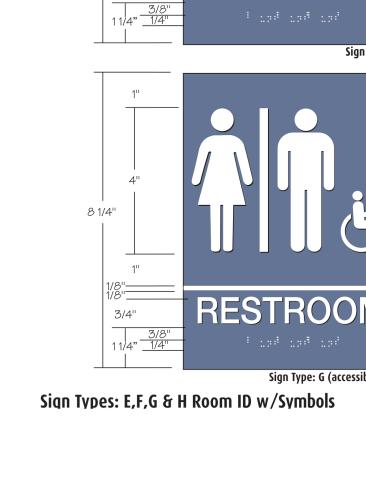
SILICONE.

ANODIZED FINISH, 6" H,

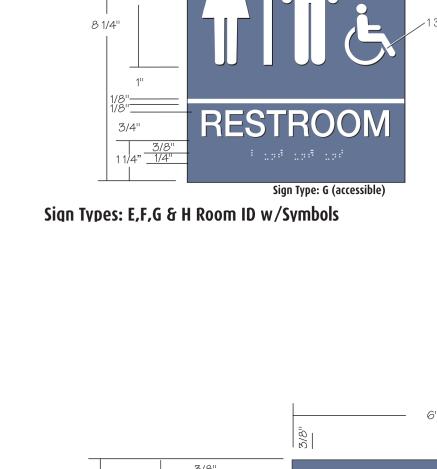
1 E 124 TRAINING ROOM - SOUTH (DECAL)
3/8" = 1'-0" REF: 3D / A111



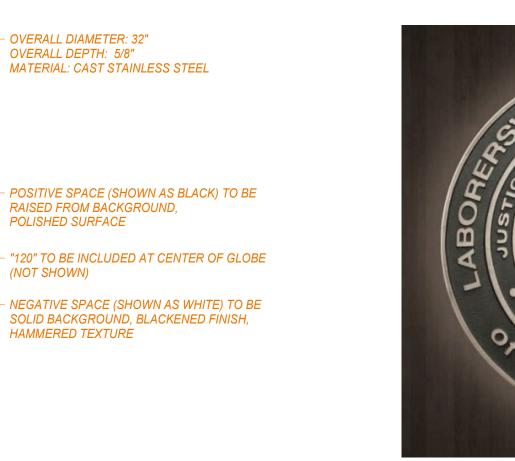
______6" ____

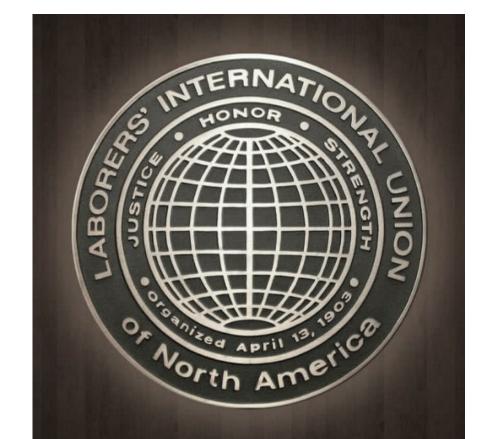






Sign Type: "C" Standard Room ID





1 C 003 PASSAGE - EAST 3/8" = 1'-0" REF: 1A / A121

BUSINESS CENTER

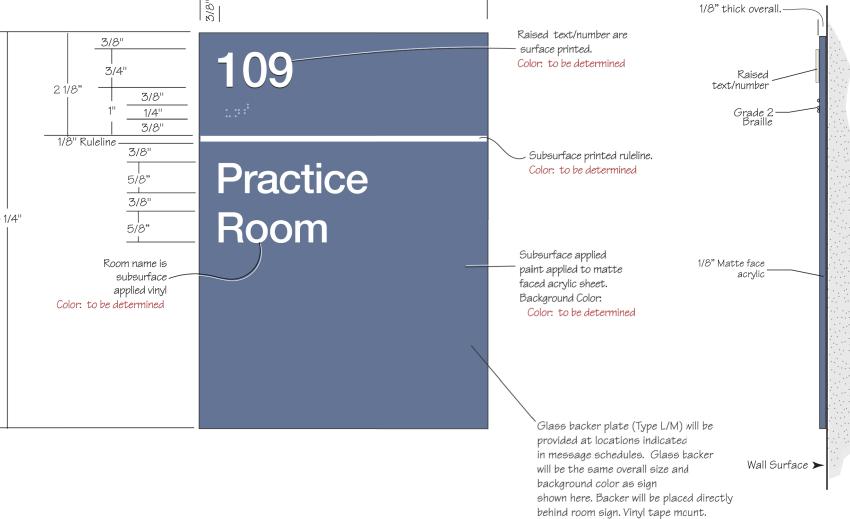


- KEEP WALL AREA INSIDE DOTTED LINE CLEAR OF ALL

WALL MOUNTED DEVICES. WALL TO RECEIVE VINYL

DECAL OF LIUNA LOCAL 120 LOGO. DECAL TO BE

PROVIDED AS PART OF SIGNAGE PACKAGE. B.O.D. - LOGO FROM LIUNA LOCAL 120 WEBSITE.





SIGNAGE TO BE — DIMENSIONAL CUT

METAL LETTERS,

ALUMINUM, CLEAR

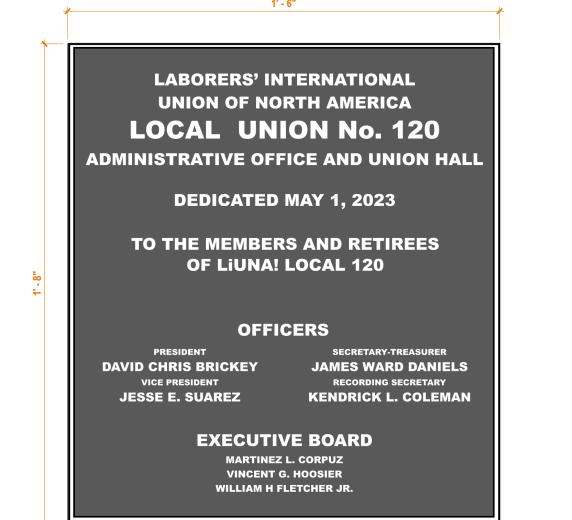
1/2" THICK IN TYPE

VHB TAPE AND SILICONE.

FONT LATO BLACK; FLUSH MOUNT WITH

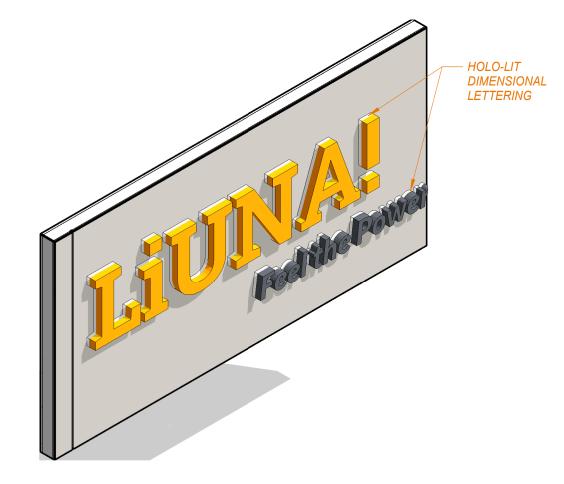
ANODIZED FINISH, 6" H,





DEDICATION PLAQUE





2A PODIUM SIGNAGE DETAILS

1/2" = 1'-0" REF: 5D / A403

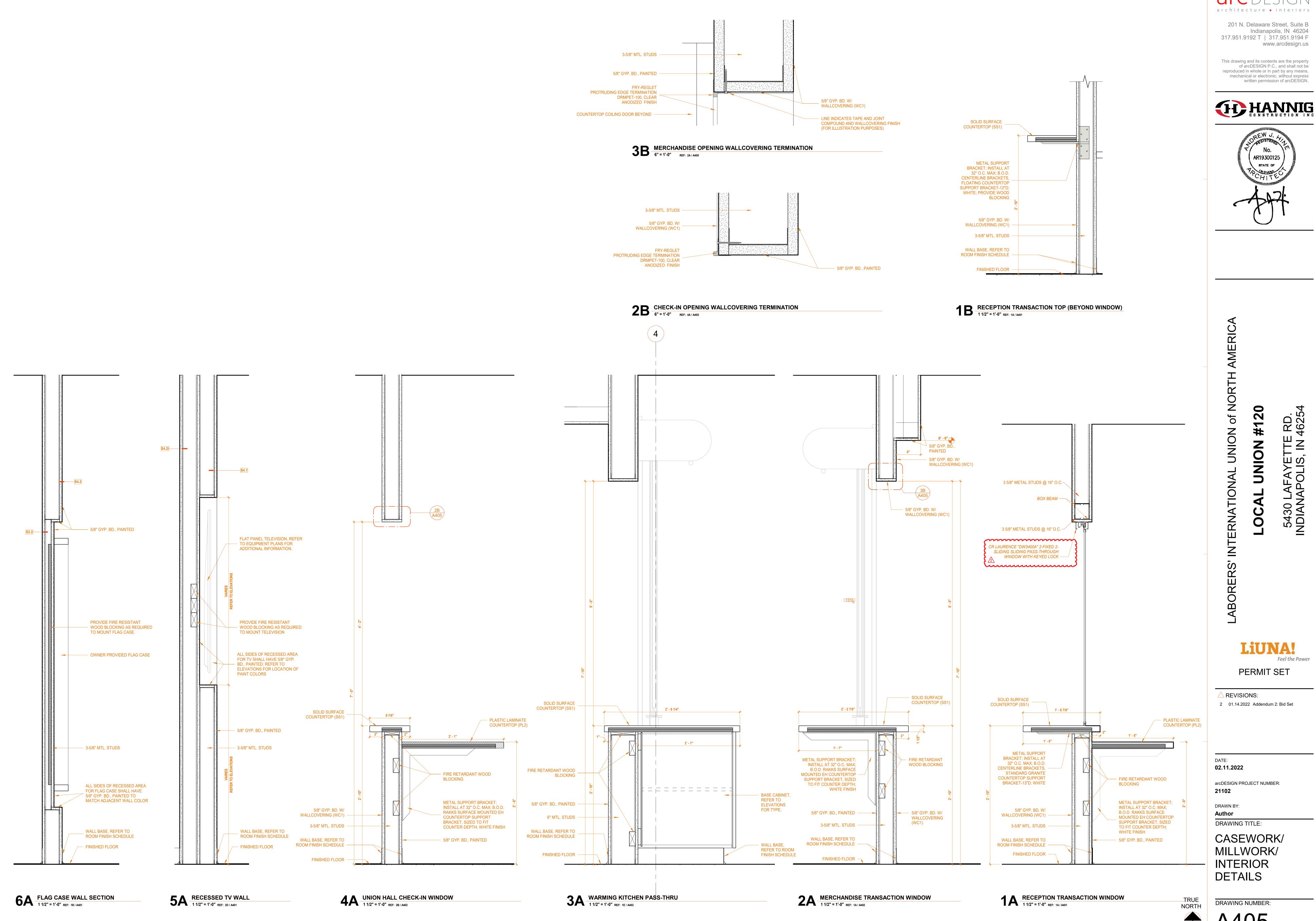
2B PODIUM PLAQUE DETAILS
1 1/2" = 1'-0" REF: 1D / A403

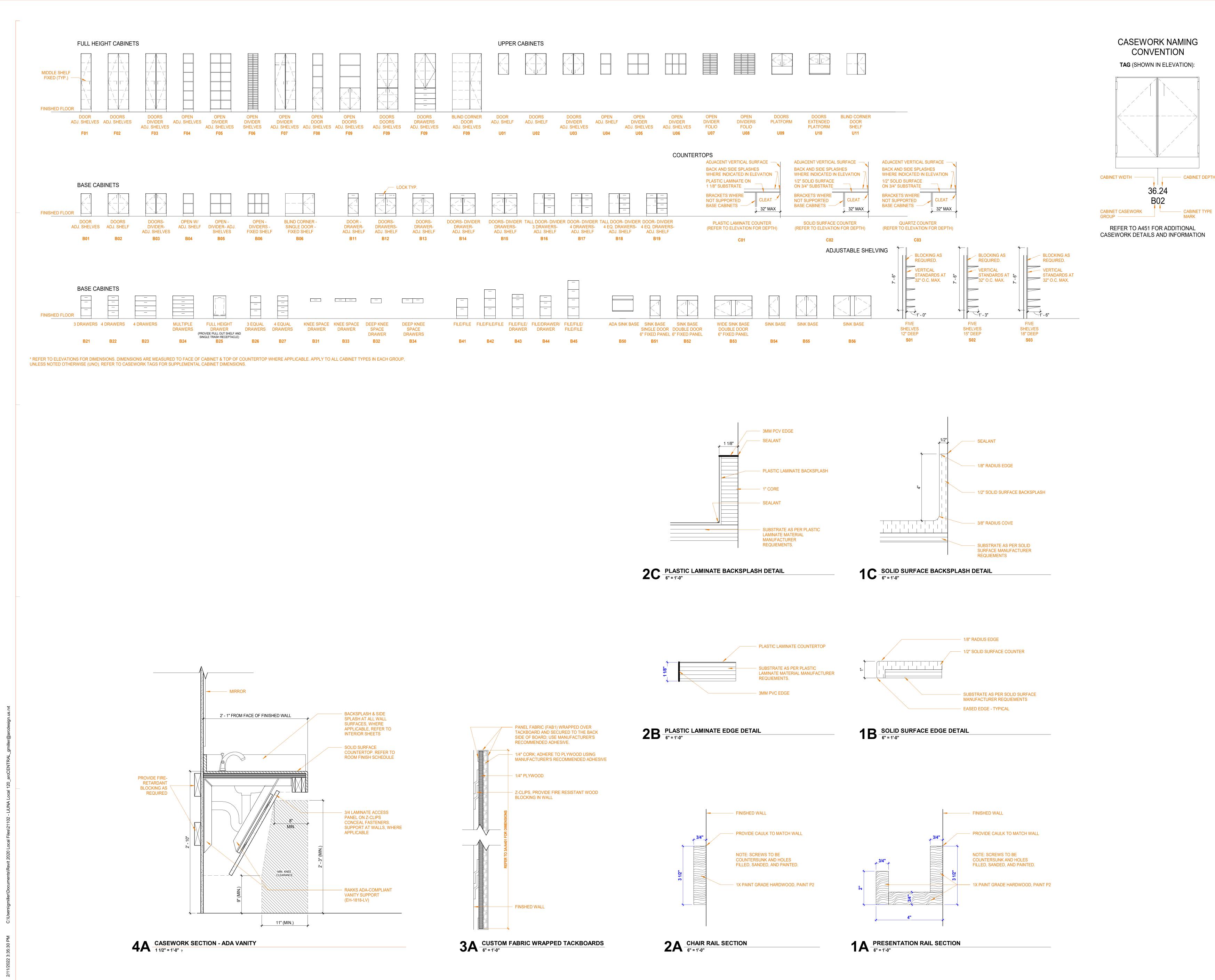
SIGN TYPE A

Material will be subsurface painted

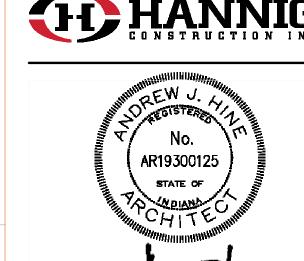
.060" thick matte faced acrylic.

1A PODIUM SIGNAGE PERSPECTIVE









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02.11.2022

arcDESIGN PROJECT NUMBER: 21102

DRAWN BY: DRAWING TITLE:

CASEWORK

DETAILS

DRAWING NUMBER:

A451



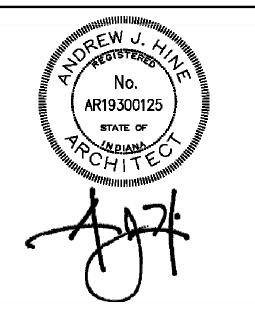
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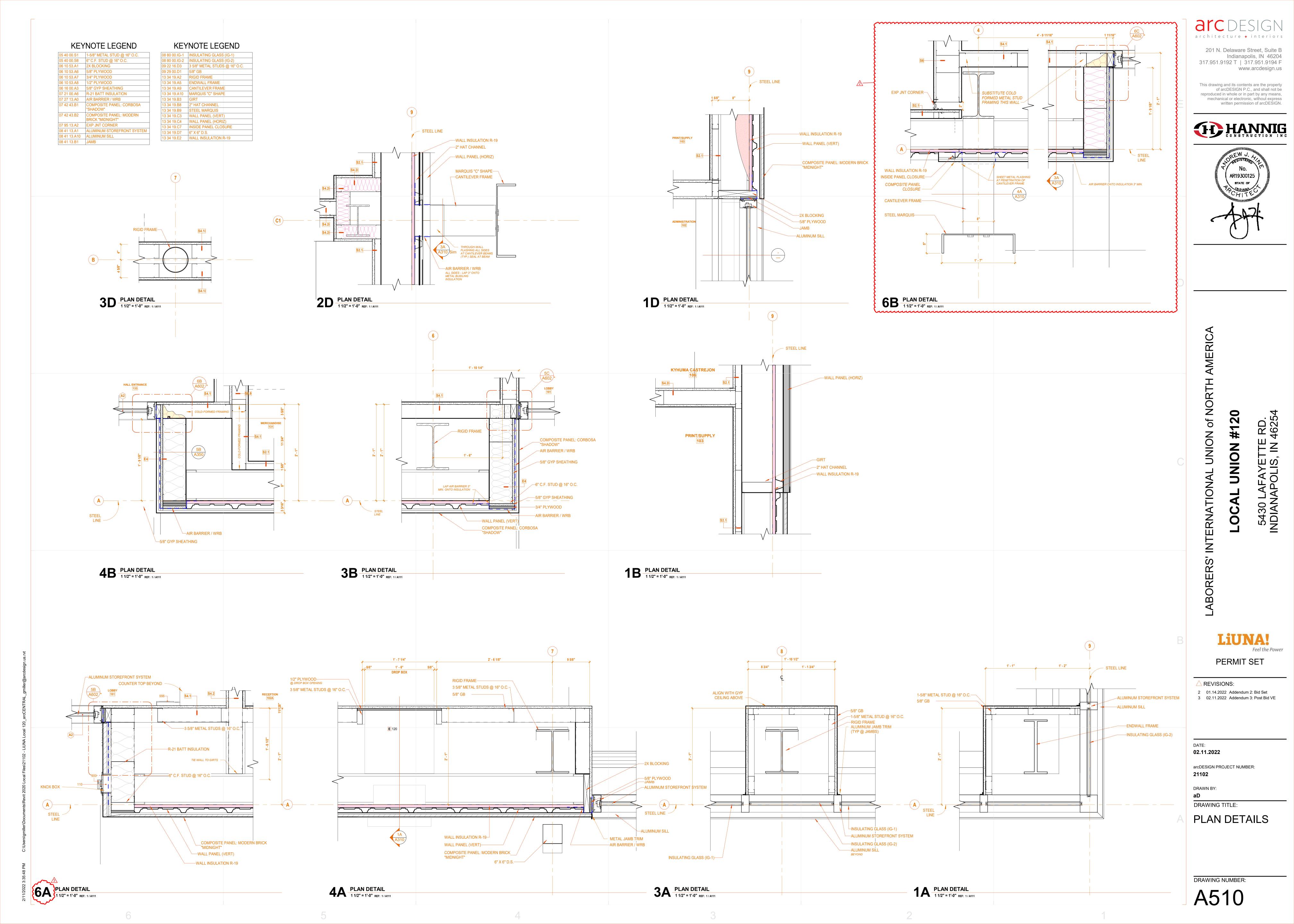
Feel the Power

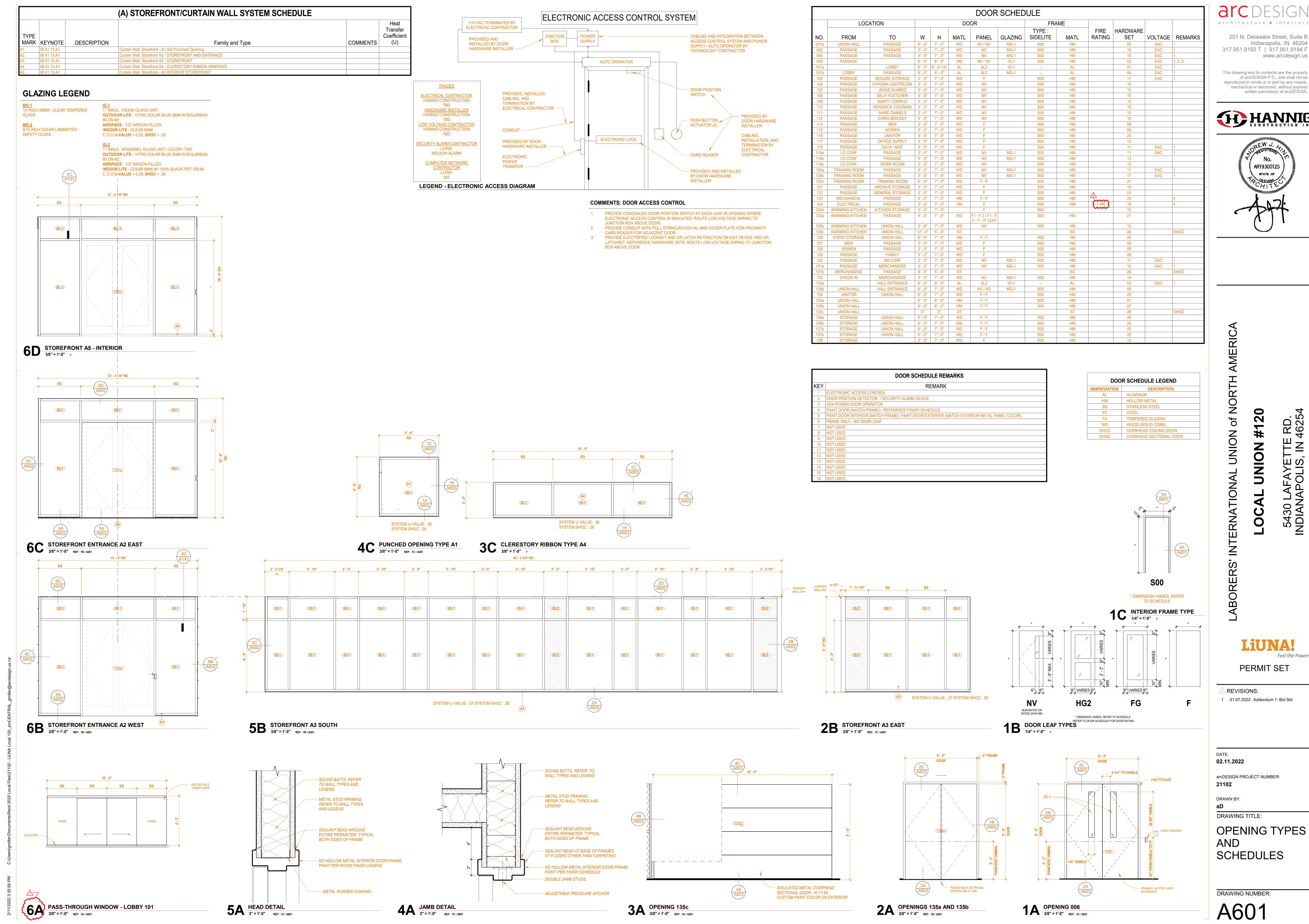
PERMIT SET

AREVISIONS:

arcDESIGN PROJECT NUMBER:

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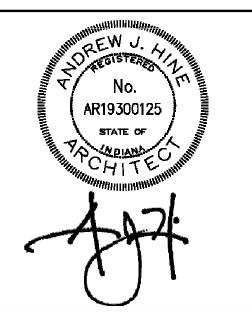


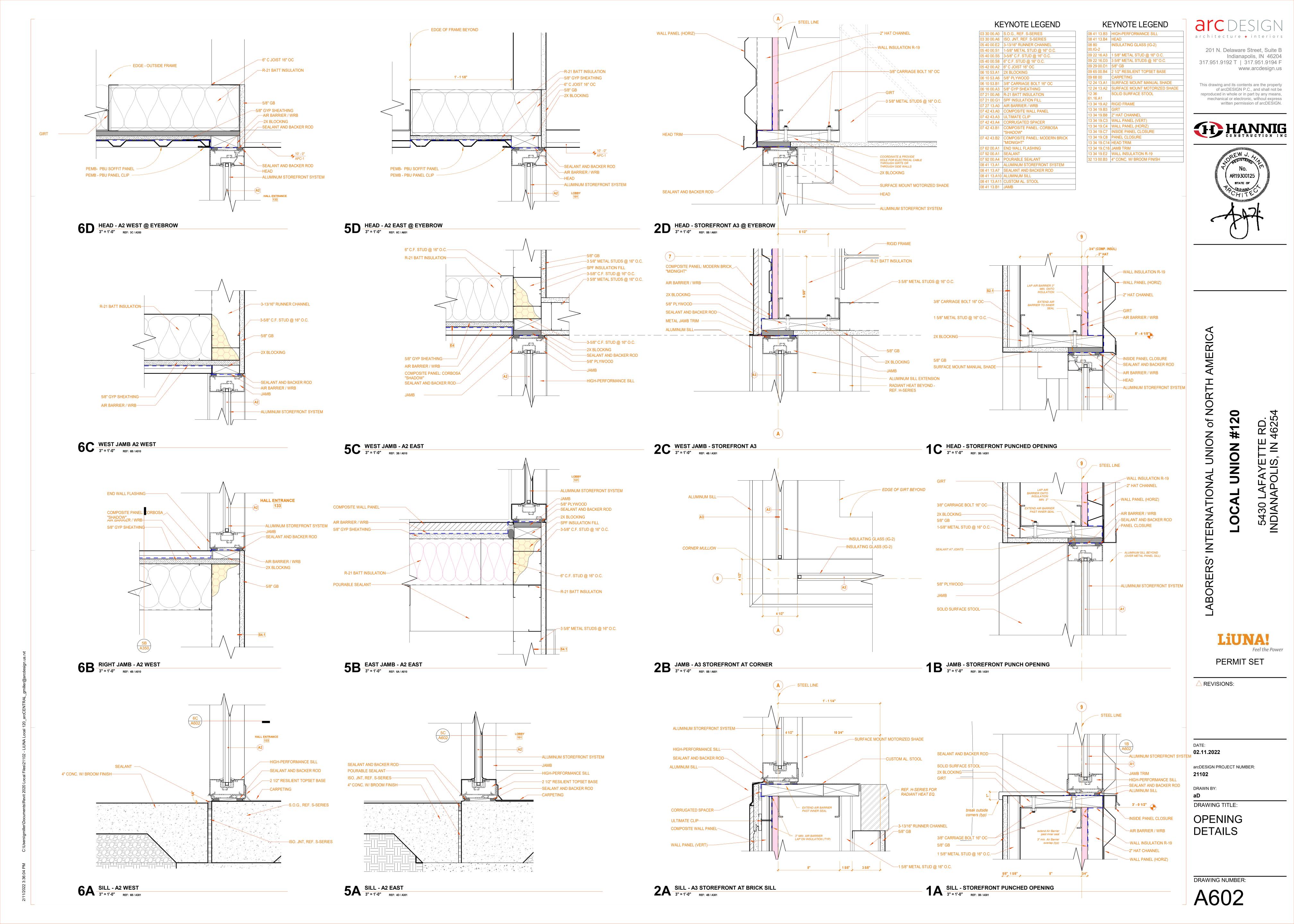


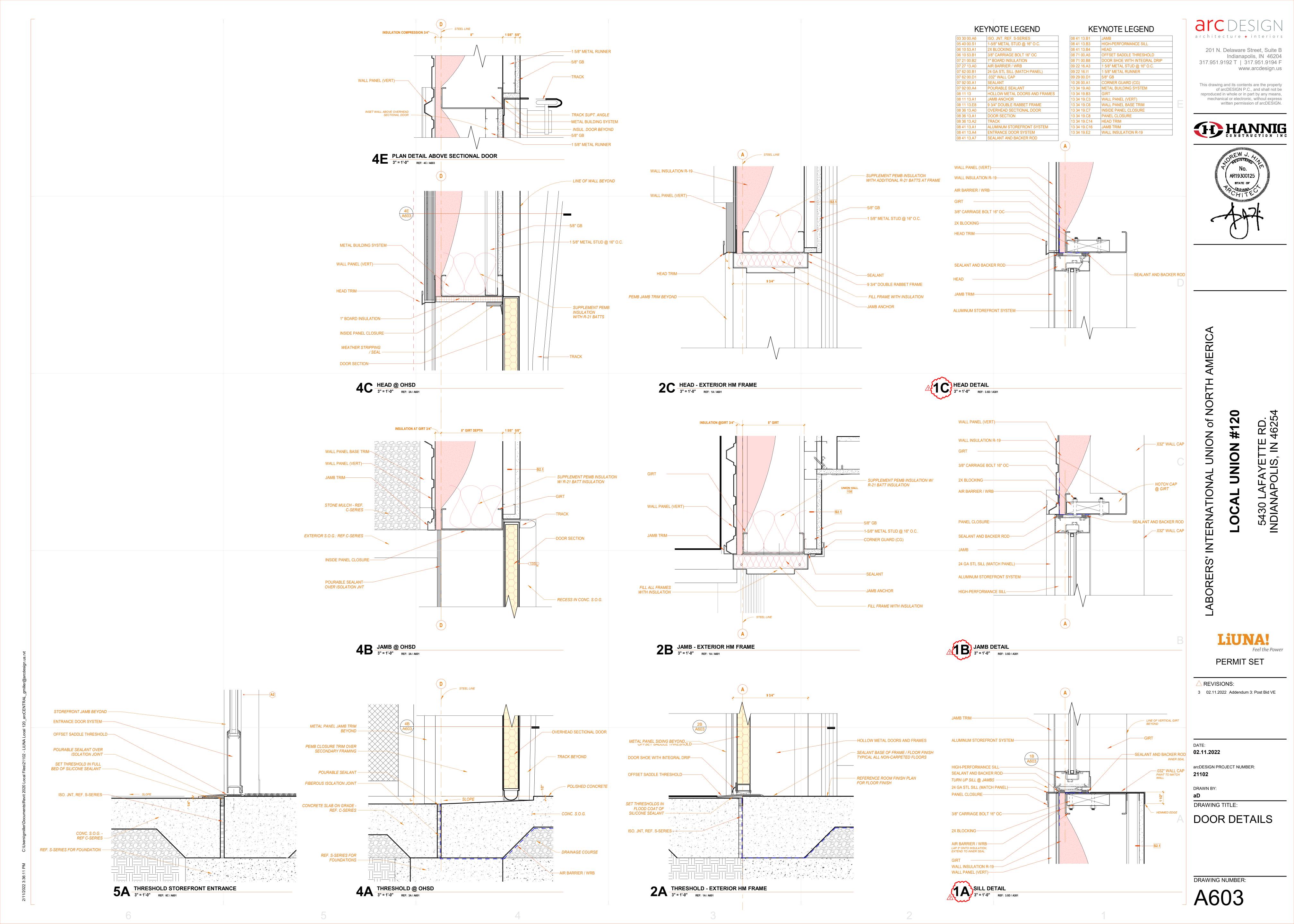
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DRAWING TITLE:

SHADED EXTERIOR ELEVATIONS

DRAWING NUMBER:



3D Exterior West



3D Exterior Entrance



3D Exterior South

SOUTH PRESENTATION



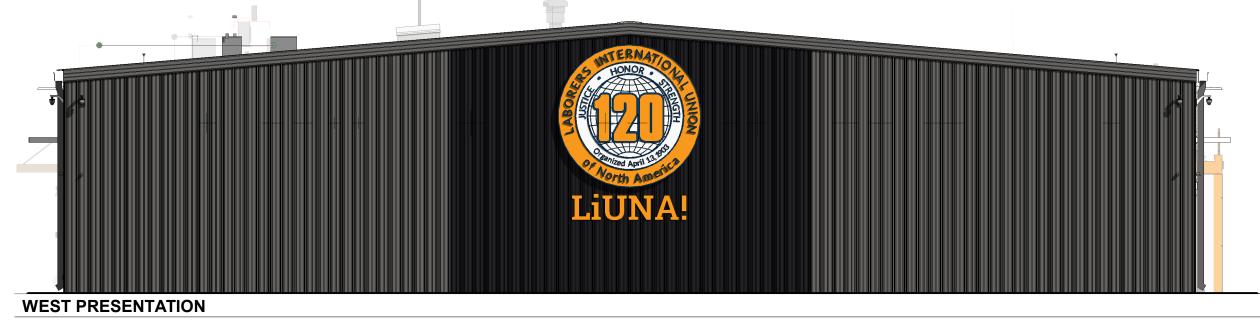
LIUNA! LOCAL 120

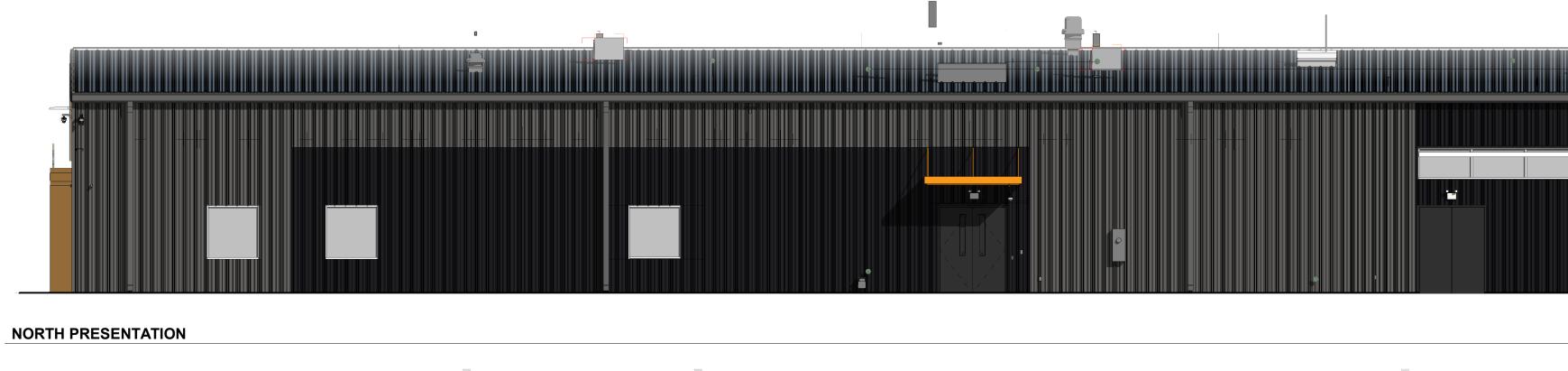
LABORERS' INTERNATIONAL UNION OF NORTH AMERICA

3D Exterior South East

EAST PRESENTATION



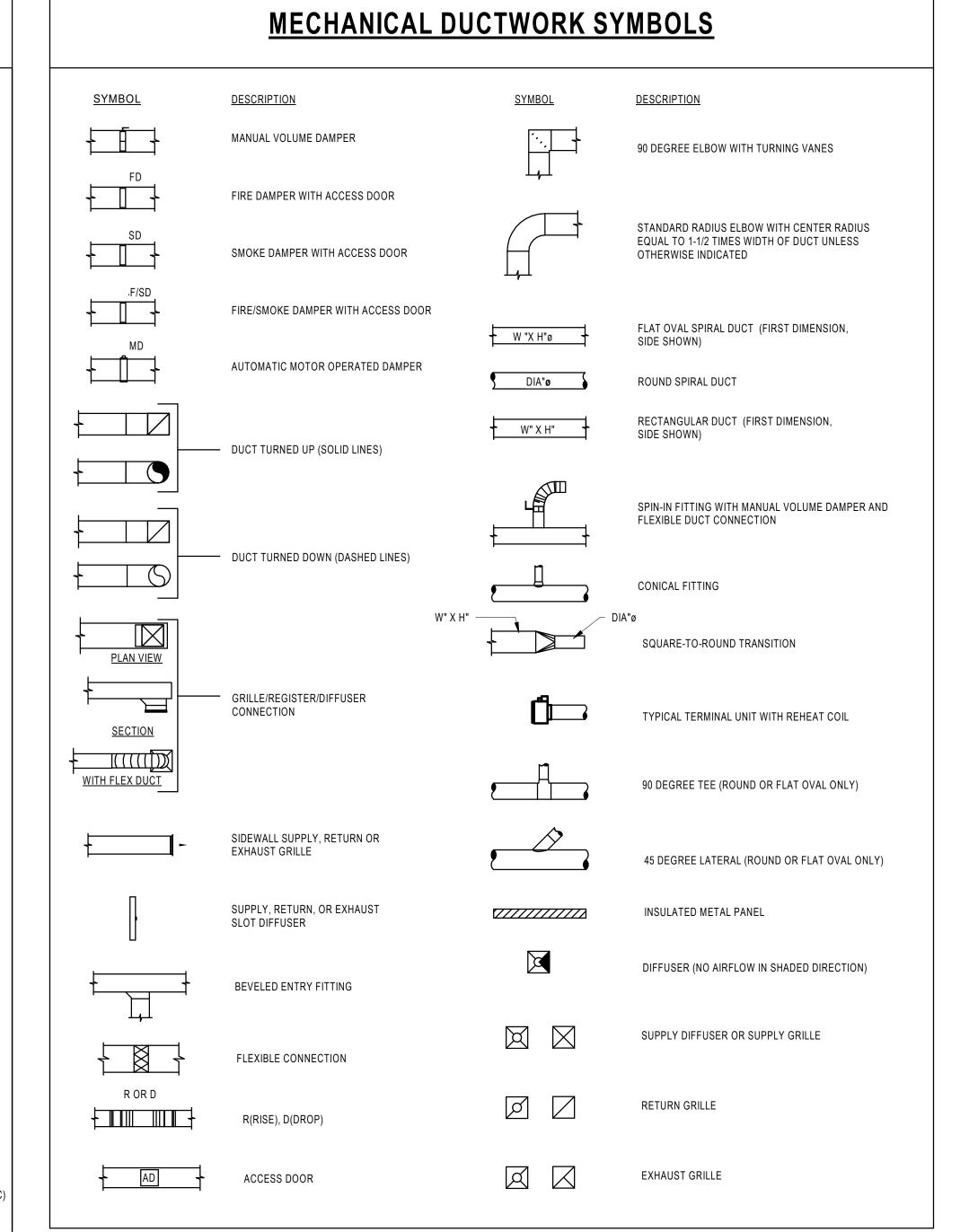






ABBREVIATIONS AND TERMS

| | ADDITEVIATION | NO AIN | ID ILIXIIIO |
|--------------|---|-------------|--|
| Ø | PHASE | FS | FLOOR SINK |
| °F | DEGREES FAHRENHEIT | FSD | FIRE/SMOKE DAMPER |
| A/E | ARCHITECT/ENGINEER | FTR | FINNED TUBE RADIATION |
| ACC ACCU | AIR COOLED CONDENSER AIR COOLED CONDENSING UNIT | GA GAL | GAGE OR GUAGE GALLON |
| AD | AREA DRAIN, ACCESS DOOR | GC | GENERAL CONTRACTOR |
| ADJ | ADJUSTABLE, ADJACENT | GPD | GALLONS PER DAY |
| AFCV | ARFLOW CONTROL VALVE | GPH | GALLONS PER HOUR |
| AFF AFMS | ABOVE FINISHED FLOOR AIRFLOW MEASURING STATION | GPM HD | GALLONS PER MINUTE HEAD (FT.) |
| AGA | AMERICAN GAS ASSOCIATION | HP | HORSEPOWER |
| AHU | AIR HANDLING UNIT | HPR | HIGH PRESSURE STEAM RETURN |
| AL | ALUMINUM | HPS | HIGH PRESSURE STEAM SUPPLY |
| ANSI AO | AMERICAN NATIONAL STANDARDS INSTITUTE ANALOG OUTPUT | HWP HWR | HOT WATER PUMP HEATING WATER RETURN |
| AP | ACID PROOF, ACCESS PANEL | HWS | HEATING WATER SUPPLY |
| APD | AIR PRESSURE DROP (IN. WC) | HX | HEAT EXCHANGER |
| ARI | AIR CONDITIONING REFRIGERATION INSTITUTE | IFB | INTEGRAL FACE/BYPASS |
| AS ASHRAE | AIR SEPARATOR AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND | LAT LPR | LEAVING AIR TEMPERATURE (°F) LOW PRESSURE STEAM RETURN |
| ASHKAE | AIR CONDITIONING ENGINEERS | LPS | LOW PRESSURE STEAM RETURN LOW PRESSURE STEAM SUPPLY |
| ASME | AMERICAN SOCIETY OF MECHANICAL ENGINEERS | LWT | LEAVING WATER TEMPERATURE (°F) |
| ASPE | AMERICAN SOCIETY OF PLUMBING ENGINEERS | MA | MIXED AIR |
| ASTM | AMERICAN SOCIETY FOR TESTING AND MATERIALS | MAT | MIXED AIR TEMPERATURE (°F) |
| ATM AUTO | ATMOSPHERE AUTOMATIC | MBH MC | THOUSAND BTU PER HOUR MECHANICAL CONTRACTOR |
| AWWA | AMERICAN WATER WORKS ASSOCIATION | MCA | MINIMUM CIRCUIT AMPACITY |
| В | BOILER | MCC | MOTOR CONTROL CENTER |
| BCU | BLOWER COIL UNIT | MD | MOTORIZED DAMPER |
| BD | BALANCE DAMPER | MPR | MEDIUM PRESSURE STEAM RETURN |
| BDD BHP | BACK-DRAFT DAMPER BRAKE HORSEPOWER OR BOILER HORSEPOWER | MPS NC | MEDIUM PRESSURE STEAM SUPPLY NOISE CRITERIA, NORMALLY CLOSED |
| BI | BINARY INPUT, BACKWARD INCLINED | NEC | NATIONAL ELECTRIC CODE |
| BOD | BOTTOM OF DUCT | NFC | NATIONAL FIRE CODE |
| BOP | BOTTOM OF PIPE | NFPA | NATIONAL FIRE PROTECTION ASSOCIATION |
| BTUH | BRITISH THERMAL UNITS PER HOUR | NIC | NOT IN CONTRACT |
| CAR | COMPRESSED AIR | NO | NORMALLY OPEN |
| CAP CAV | CAPACITY CONSTANT AIR VOLUME | NTS OA | NOT TO SCALE OUTSIDE AIR |
| CB | CATCH BASIN OR CHILLED BEAM | OAT | OUTSIDE AIR OUTSIDE AIR TEMPERATURE (°F) |
| CD | CONDENSATE DRAIN | OBD | OPPOSED BLADE DAMPER |
| CO2 | CARBON DIOXIDE | OD | OUTSIDE DIAMETER |
| CFM CH | CUBIC FEET PER MINUTE | OF/CI | OWNER FURNISHED/CONTRACTOR INSTALLED |
| CHWP | CHILLER CHILLED WATER PUMP | P PC | PUMP PLUMBING CONTRACTOR |
| CHWR | CHILLED WATER RETURN | PD | PRESSURE DROP |
| CHWS | CHILLED WATER SUPPLY | PF | PRE-FILTER |
| CO | CLEANOUT | PGW | PROPYLENE GLYCOL WATER |
| COMP COND | COMPRESSOR | PHC | PREHEAT COIL |
| COND | CONDENSER CONVECTOR | PPM PRV | PARTS PER MILLION PRESSURE REDUCING VALVE |
| CP | CONDENSATE PUMP | PSI | POUNDS PER SQUARE INCH |
| CPD | CONDENSATE PUMP DISCHARGE | PSIA | POUNDS PER SQUARE INCH (ABSOLUTE) |
| CR | CONDENSER WATER RETURN | PSIG | POUNDS PER SQUARE INCH (GAUGE) |
| CS CT | CONDENSER WATER SUPPLY COOLING TOWER | PTAC RA | PACKAGED TERMINAL AIR CONDITIONER RETURN AIR |
| CUH | CABINET UNIT HEATER | RAT | RETURN AIR TEMPERATURE (°F) |
| CWP | CONDENSER WATER PUMP | RF | RETURN FAN |
| dB | DECIBEL | RG | RETURN GRILLE |
| DD | DUAL DUCT | RH | RELATIVE HUMIDITY |
| DDC DEG | DIRECT DIGITAL CONTROL DEGREE (°F) | RHC RP | REHEAT COIL RADIANT PANEL |
| DIA | DIAMETER | RTU | ROOFTOP UNIT |
| DISC | DISCONNECT SWITCH | SA | SUPPLY AIR |
| DWH | DOMESTIC WATER HEATER | SAT | SUPPLY AIR TEMPERATURE (°F) |
| DWV DX | DRAIN, WASTE, AND VENT DIRECT EXPANSION | SD SEER | SUPPLY DIFFUSER SEASONAL ENERGY EFFICIENCY RATIO |
| EA | EXHAUST AIR | SG | SUPPLY GRILLE |
| EAT | ENTERING AIR TEMPERATURE (°F) | SMACNA | SHEETMETAL AND AIR CONDITIONING CONTRACTORS |
| EC | ELECTRICAL CONTRACTOR | | ASSOCIATION |
| ECG | EGG-CRATE GRILLE | SP | STATIC PRESSURE |
| EDR | EQUIVALENT DIRECT RADIATION | SR | SUPPLY REGISTER |
| EER EF | ENERGY EFFICIENCY RATIO EXHAUST FAN | SRV SV | SAFETY RELIEF VALVE STEAM VENT |
| EFF | EFFICIENCY | T | THERMOSTAT |
| EFT | ENTERING FLUID TEMPERATURE (°F) | TCC | TEMPERATURE CONTROL CONTRACTOR |
| EG | EXHAUST GRILLE | TD | TEMPERATURE DIFFERENCE |
| EMG | EXTRUDED METAL GRILLE (WELDED WIRE MESH) END OF MAIN DRIP | TSP | TOTAL STATIC PRESSURE |
| EOM ESP | EXTERNAL STATIC PRESSURE (IN. WC.) | TXV TYP | THERMAL EXPANSION VALVE TYPICAL |
| ET | EXPANSION TANK | UH | UNIT HEATER |
| EWT | ENTERING WATER TEMPERATURE (°F) | UL | UNDERWRITER'S LABORATORIES |
| EXH | EXHAUST | VAV | VARIABLE AIR VOLUME |
| F | FURNACE | VD | VOLUME DAMPER |
| F&T FCO | FLOAT AND THERMOSTATIC STEAM TRAP FLOOR CLEANOUT | VFC VFD | VARIABLE FREQUENCY CONTROLLER (SAME AS VFD, VSC) VARIABLE FREQUENCY DRIVE (SAME AS VFC, VSC) |
| FCU | FAN COIL UNIT | VSC | VARIABLE PREQUENCY DRIVE (SAME AS VPC, VSC) VARIABLE SPEED CONTROLLER (SAME AS VFC, VFD) |
| FD | FLOOR DRAIN | W/ | WITH |
| FM | FACTORY MUTUAL | W/O | WITHOUT |
| FPB EDM | FAN POWERED TERMINAL UNIT | WBD | WET BULB TEMPERATURE (°F) |
| FPM FPS | FEET PER MINUTE FEET PER SECOND | WPD WSHP | WATER PRESSURE DROP (FT. HD) WATER SOURCE HEAT PUMP |
| ıro | I LLI I LIV OLOGIND | TION | WATER SOUNCE HEAT FUMP |



MECHANICAL VALVE AND FITTING SYMBOLS

| AND | 1 11 111 | 10 01 MIDOLO |
|-----------|----------------------|---|
| SYMBOL | | DESCRIPTION |
| PLAN VIEW | DETAIL VIEW | |
| | -⋈ | CALIBRATED BALANCING VALVE |
| | - | PIPING FLEXIBLE CONNECTION |
| | <u> </u> | PIPE TURNED UP (UNLESS NOTED OTHERWISE) |
| | | PIPE TURNED DOWN |
| | | PIPE OUT TOP |
| | | PIPE OUT BOTTOM |
| | | THREADED/FLANGED CAP |
| | $ \triangleright$ - | CONCENTRIC REDUCER |
| | _ | ECCENTRIC REDUCER |
| | | CHECK VALVE |
| | $\dashv \mid \vdash$ | UNION |
| | - ⋈ | GATE VALVE |
| | —røı— | BALL VALVE |
| | | BUTTERFLY VALVE |
| | ⊸ T— | GLOBE VALVE |
| | | TEMPERATURE CONTROL 2-WAY MODULATING VALVE |
| | ——— | TEMPERATURE CONTROL 2-WAY 2-POSITION VALVE |
| | - | TEMPERATURE CONTROL 3-WAY MODULATING VALVE |
| | - | TEMPERATURE CONTROL 3-WAY 2-POSITION VALVE |
| | Ā | SAFETY RELIEF VALVE |
| | — [2] | STRAINER |
| | - ≒ | FLOW METER |
| | \(\theta\) | FLOOR DRAIN |
| | <u> </u> | MANUAL AIR VENT |
| | | AUTOMATIC AIR VENT |
| | - Ø- | WATER PRESSURE REDUCING/REGULATING VALVE |
| | <u> </u> | PRESSURE AND TEMPERATURE PLUG |
| | | THERMOMETER |
| <u> </u> | <u> </u> | (P=PRES V=VAC T=TEMP) GAUGE |
| | 卫 | SENSOR (T=TEMP H=HUMIDITY) |
| | | CLEANOUT |
| | - T- | STEAM TRAP |

VACUUM BREAKER

HVAC PIPING SYMBOLS

| ——— HWS ——— | HEATING WATER SUPPLY |
|--|--------------------------------|
| —————————————————————————————————————— | HEATING WATER RETURN |
| CHWS | CHILLED WATER SUPPLY |
| CHWR | CHILLED WATER RETURN |
| cs | CONDENSER WATER SUPPLY |
| ———— CR ——— | CONDENSER WATER RETURN |
| —————————————————————————————————————— | CONDENSATE PUMP DISCHARGE |
| ——— CD ——— | CONDENSATE & EQUIPMENT DRAIN |
| | DIRECTION OF PIPE SLOPE (DOWN) |

LINE SYMBOLS

| LINE STWIDULS |
|--|
| SCREENED LINES INDICATE EXISTING TO REMAIN |
| HEAVY DASHED LINES INDICATE EXISTING TO BE REMOVED |
| HEAVY CONTINUOUS LINES INDICATE NEW WORK |

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S

 $\mathbf{\Omega}$

 $\mathbf{\Sigma}$

S

VIATION

S

YMBOL



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2.11.2022 arcDESIGN PROJECT NUMBER: CLIENT PROJECT NUMBER:

DRAWN BY: DRAWING TITLE:

HVAC SYMBOLS AND **ABBREVIATIONS**

DRAWING NUMBER:

H001

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- SUPPLY DUCT SHALL HAVE 1" ELASTOMERIC INTERNAL LINING AND HAVE 2" RIGID SOUND BOARD OR 2" EXTERNAL MASS LOADED VINYL WRAP RIGID (1LB/SQ.FT.) FOR 15' OF DUCTWORK AT
- RETURN AIR DUCT SHALL HAVE 1" ELASTOMERIC INTERNAL LINING AND HAVE 2" RIGID SOUND
- BUILDING. MOUNT WALL MOUNT SPLIT UNT ABOVE DOOR.
- AIRFLOW TO OCCUPIED SPACE.
- MOUNT AHU-1 ON 14" CURB ON EQUIPMENT PAD. COORDINATE LOCATION WITH OTHER TRADES.
- MOUNT AHU-2 ON 14" CURB ON EQUIPMENT PAD. COORDINATE LOCATION WITH OTHER TRADES.
- MOUNT UNIT HEATER 9' ABOVE THE FINISHED FLOOR. ANGLE HEATER TO BLOW ACROSS THE
- ROOMS TOWARDS THE ENTRY DOOR.
- RADIATION IN SILL AT STOREFRONT WINDOWS.
- BOTTOM OF GRILLE IS 6" ABOVE FINISHED FLOOR. PAINT VISIBLE METAL DUCT INSIDE OF RETURN
- BOTTOM OF DUCT 15'-6" A.F.F.

- A. CEILING RETURN GRILLES SHALL HAVE SOUND TRAP REFER TO DETAIL 7 ON H901.
- C. ALL THERMOSTATS AND SENSORS SHALL BE MOUNTED 48" ABOVE FINISHED FLOOR TO TOP OF

- CLEARANCE; COORDINATE WITH ALL OTHER TRADES PRIOR TO DUCT FABRICATION AND DURING INSTALL.
- STRUCTURAL COMPONENTS. ALL PENETRATIONS SHALL BE SEALED WEATHER AND WATER TIGHT. THE CONTRACTOR SHALL ENSURE THAT THE INSTALLATION DOES NOT ALLOW WATER, SNOW, INSECTS, OR ANY OTHER ITEM TO PENETRATE THE BUILDING.
- MECHANICAL CONTRACTOR. COORDINATE AND INSTALL DUCT SMOKE DETECTORS IN ACCESSIBLE LOCATION IN FULL AIRFLOW.
- BUILDING ENTRY..
- BOARD OR 2" EXTERNAL MASS LOADED VINYL WRAP (1 LB./SQ. FT.) FOR 15' RETURN DUCT WITHIN
- TEMPERATURE CONTROL PANEL LOCATION.
- RETURN AIR OPENING 66"X42" ON TOP OF DUCT. COVER OPENING WITH HARDWARE CLOTH
- MAINTAIN REQUIRED MANUFACTURERS CLEARANCES.
- MAINTAIN REQUIRED MANUFACTURERS CLEARANCES.
- - REFER TO ARCHITECTURAL DRAWINGS FOR INSTALLATION LOCATION OF FINNED TUBE
 - AIR DUCT BLACK.

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△ REVISIONS: 1 01.07.2022 ADDENDUM 1

2 01.14.2022 ADDENDUM 2 3 02.11.2022 ADDENDUM 3

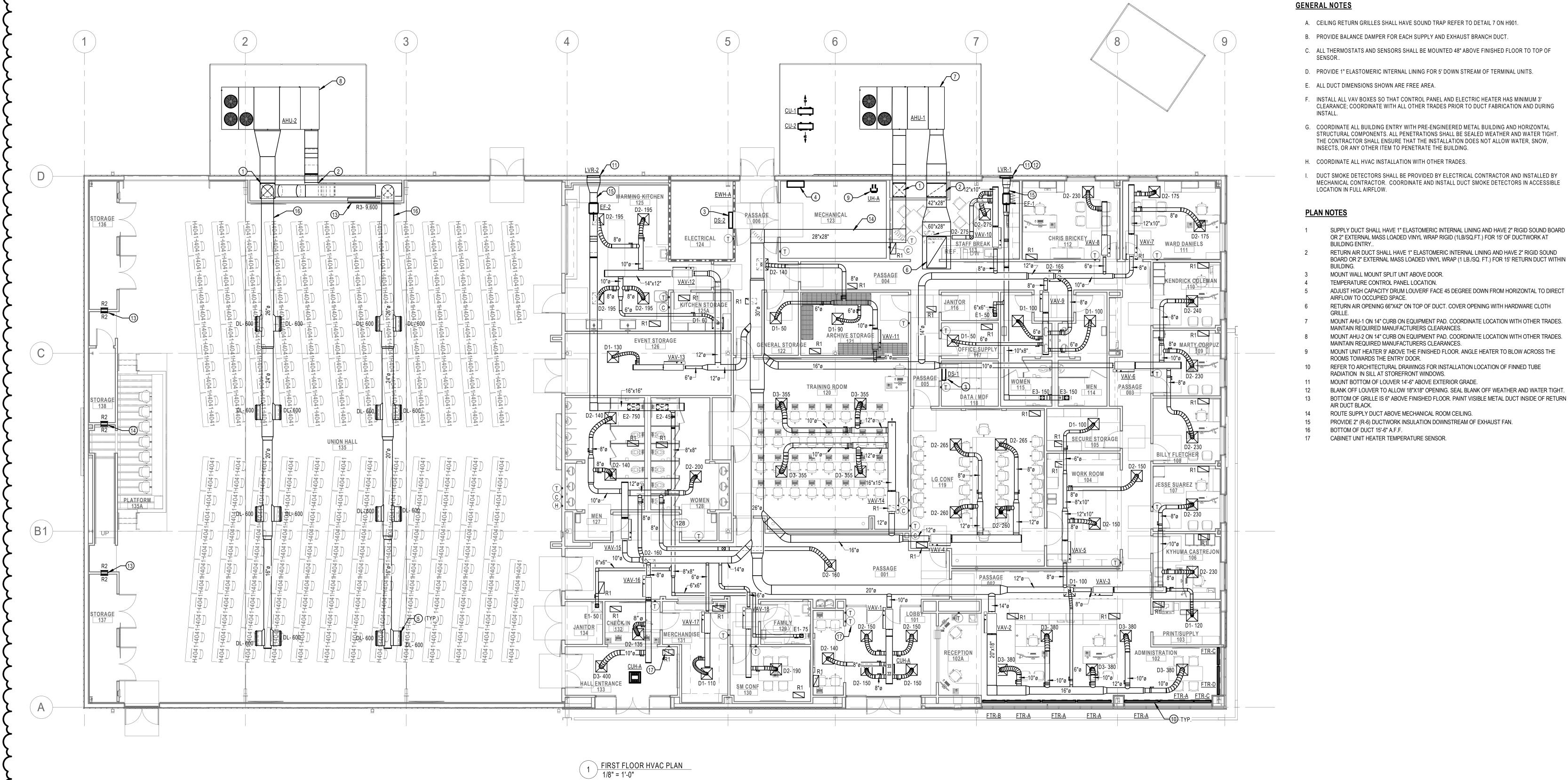
2.11.2022

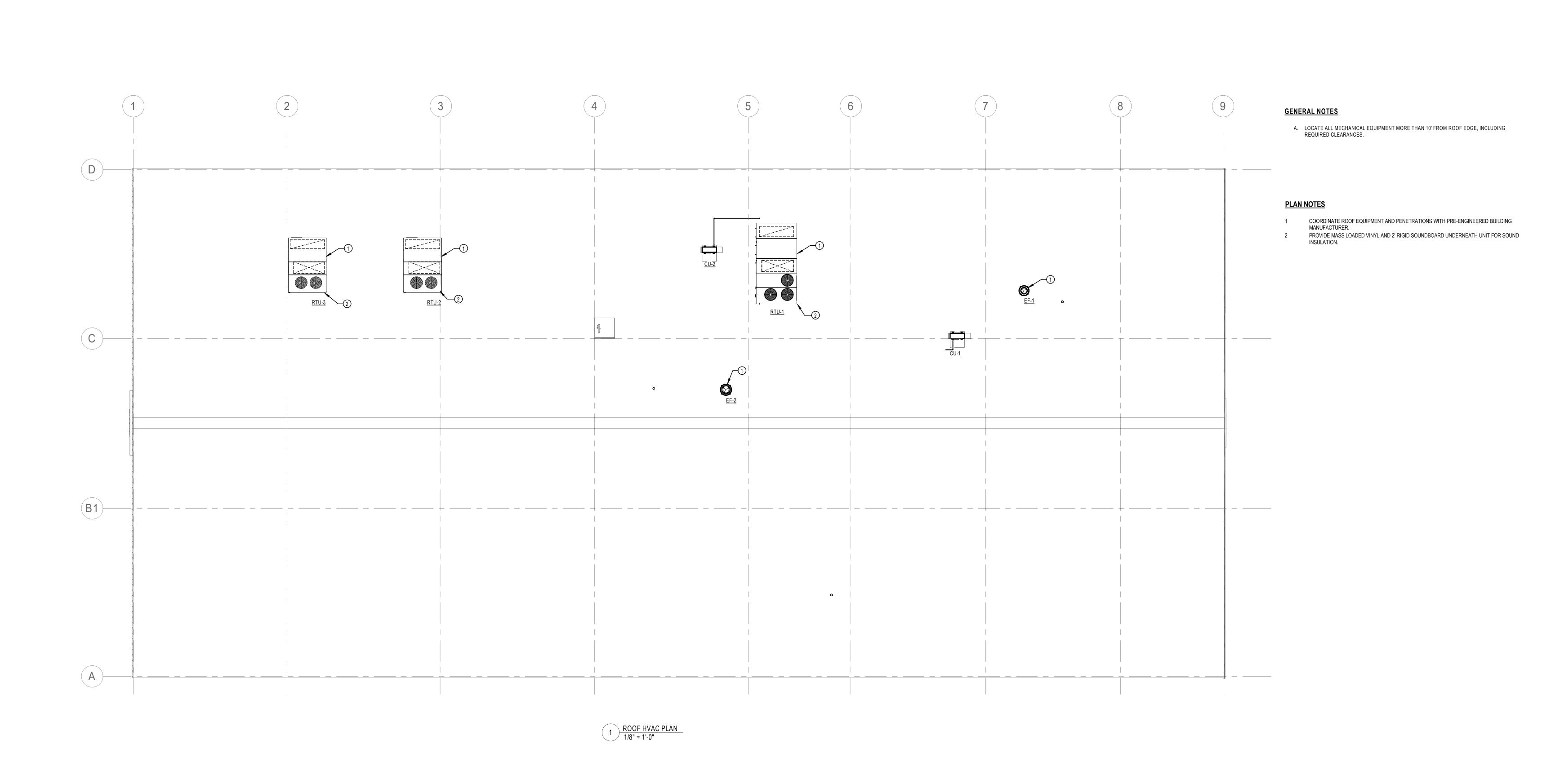
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FIRST FLOOR HVAC PLAN







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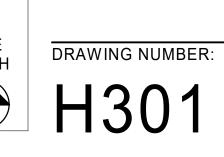
2 02.11.2022 ADDENDUM 3

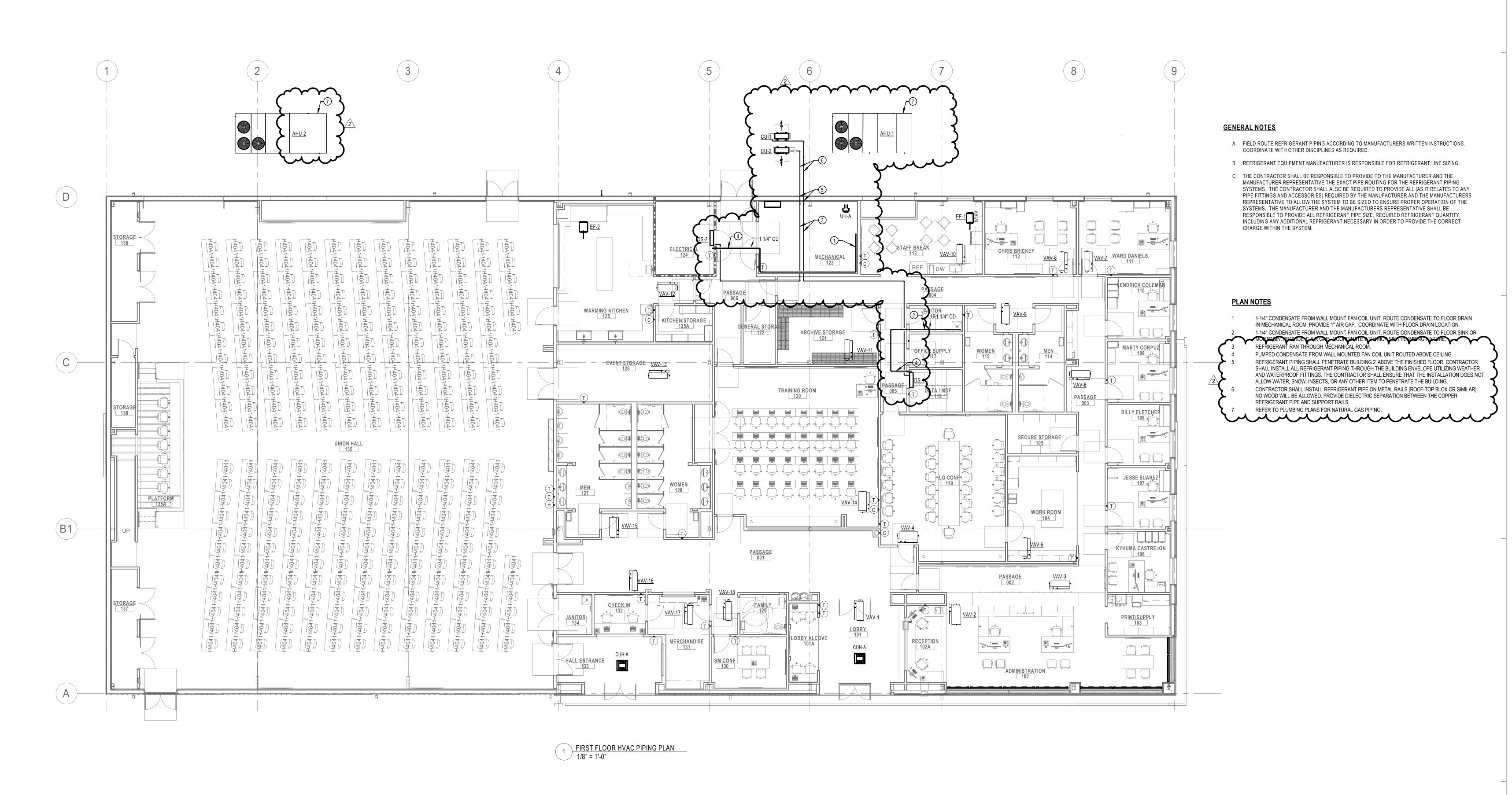
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FIRST FLOOR **HVAC PIPING** PLAN





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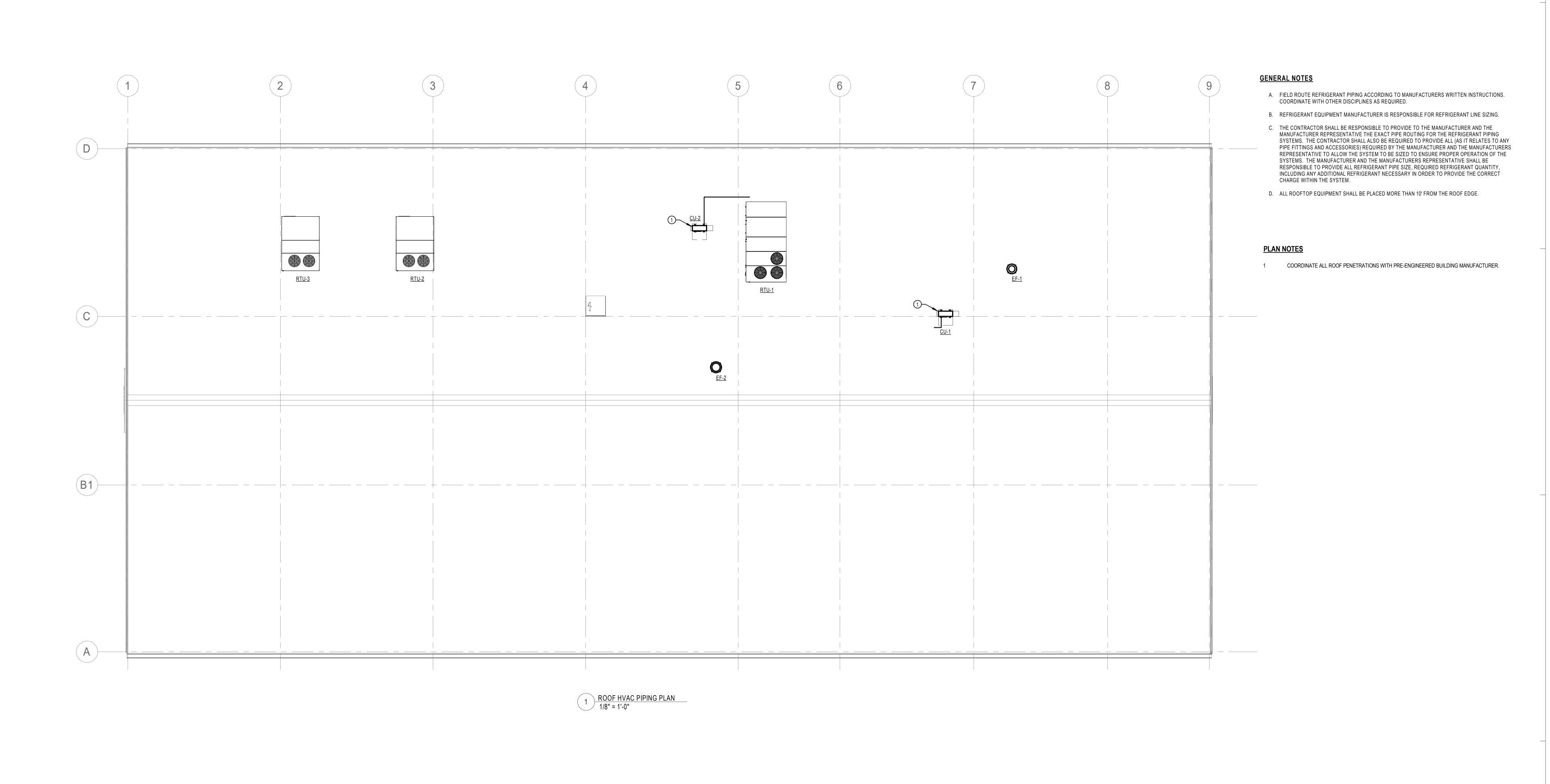
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ROOF HVAC PIPING PLAN

TRUE DRAWING NUMBER:

H302



HVAC VENTILATION SCHEDULE AIRFLOW REQUIREMENTS BREATHING DEMAND ROOM NO. **ROOM NAME** OCCUPANTS SUBTOTAL **EXHAUST** NOTES (SQ. FT) CONTROL **ZONE TOTAL** CFM/SQ. FT. CFM/PERSON VENTILATION 101 324 0.06 102 & 102A | RECEPTION / ADMINISTRATION 0.06 PRINT SUPPLY 0.06 **WORK ROOM** 257 0.06 25 98 0.06 SECURE STORAGE 0 106 OFFICE B 135 0.06 13 135 0.06 13 OFFICE B 136 0.06 13 135 109 OFFICE B 0.06 13 110 135 0.06 13 0.06 OFFICE A 234 112 OFFICE A 0.06 19 313 0.12 YES STAFF BREAK 78 STAFF MEN'S RESTROOM 152 150 EXHAUST: 2 WATER CLOSETS 161 STAFF WOMEN'S RESTROOM 150 EXHAUST: 2 WATER CLOSETS 116 JANITOR 50 50 EXHAUST: 1 CFM/FT^2 63 0.06 OFFICE SUPPLY 0 118 80 0.06 634 26 168 210 YES LARGE CONFERENCE TRAINING ROOM 920 33 0.06 220 275 YES 211 0.06 13 ARCHIVE STORAGE 0 GENERAL STORAGE 0.06 251 **MECHANICAL** ELECTRICAL 155 NO COOKING OR FOOD PREP 508 0.06 YES WARMING KITCHEN FOR CATERING AND WARMING KITCHEN STORAGE 71 EVENT STORAGE MENS RESTROOM EXHAUST: 10 WATER CLOSETS WOMENS RESTROOM 450 EXHAUST: 6 WATER CLOSETS FAMILY RESTROOM 65 75 EXHAUST: 1 WATER CLOSET SMALL CONFERENCE 0.06 28 MERCHANDISE 0.06 CHECK-IN 0.06 7.5 0.06 10 HALL ENTRANCE 134 EXHAUST: 1 CFM/FT^2 0.06 PASSAGE 252 0 0.06 15 PASSAGE 297 0.06 18 22 0.06 21 26 PASSAGE 102

0.06

AIR HANDLING UNIT SCHEDULE

| | TAG | RTU-1 | RTU-2 |
|---------------|--------------------------------|-------------------------------|--------------------------------|
| ⊢ | MANUFACTURER | TRANE | TRANE |
| UNIT | MODEL | YCD360B4**6D3GD4ABC****HJB0M0 | YCH360B4**6D3GD6*BC****HJB0MK0 |
| | WEIGHT (LBS) | 4,780 | 5,581 |
| | MCA | 83.85 | 88.05 |
| ELEC | VOLTS-PH-HZ | 460/60/3 | 460/60/3 |
| Ш | DISCONNECT | BY EC | BY EC |
| | HP | 15 | 15 |
| SUPPLY | TOTAL CFM | 10,000 | 9,600 |
| SUP | MAX/MIN OA CFM | 2000/1305 | 2500/500 |
| 0) | EXTERNAL STATIC | 2" | 2" |
| | HP | 1 | 1 |
| ЕХН | TOTAL CFM | 8,110 | 9,600 |
| В | EXTERNAL STATIC | 0.5 | 0.5 |
| | EADB (°F) | 77.6 | 80.2 |
| _ | EAWB (°F) | 64.9 | 66.8 |
| CO | LADB (°F) | 54.1 | 55.5 |
| COOLING COIL | LAWB (°F) | 53.3 | 54.7 |
|)OL | TOTAL CAPACITY (MBH) | 344 | 352.8 |
| \mathcal{S} | SENSIBLE CAPACITY (MBH) | 257 | 259.2 |
| | EVAPORATOR FACE VELOCITY (FPM) | 315 | 303 |
| | HEATING STAGES | 2 | 5:1 |
| Ğ | HEATING INPUT (MBH) | 350 | 600 |
| HEATING | HEATING OUTPUT (MBH) | 283.5 | 486 |
| HE | EADB (°F) | 57 | 47.7 |
| | LADB (°F) | 84 | 94.2 |
| NOTES | | 1,2,3,4,6,7,8,9,10,11 | 1,2,3,4,5,6,7,8,9,10,11 |

1 0-100% ECONOMIZER AND POWER EXHAUST.

- 2 STAINLESS STEEL DRAIN PAN.
- 3 DOUBLE WALL CONSTRUCTION AND HAIL GUARDS FOR CONDENSER COILS.
- 4 4" MERV 14 FILTERS.
- 5 MODULATING HOT GAS REHEAT FOR DEHUMIDIFICATION.
- 6 EXHAUST AND SUPPLY AIR SMOKE DETECTORS INSTALLED AND WIRED BY FIRE ALARM CONTRACTOR.
- 7 PROVIDE 14" CURB FOR MOUNTING ON EXTERIOR EQUIPMENT PAD.
- 8 NATURAL GAS PRE-HEAT COIL. HIGH MODULATING.
- 9 DESIGN CONDITIONS: SUMMER: 95DEGF/76DEG F WINTER:-10DEGF
- 10 VFD PROVIDED BY MANUFACTURER.
- 11 HORIZONTAL SUPPLY AND RETURN CONNECTIONS.

DUCTLESS SPLIT SYSTEM SCHEDULE

| | 00111 | |
|-------|---------------------|-----------------|
| | TAG - INDOOR UNIT | DS-1 , DS-2 |
| | TAG - OUTDOOR UNIT | CU-1 , CU-2 |
| | QUANTITY | 2 |
| | MANUFACTURER | TRANE |
| LIND | INDOOR MODEL | TPKA0A0181HA70A |
| ے | OUTDOOR MODEL | TRUZA018KA70NA |
| | NOMINAL TON | 1.5 |
| | INDOOR UNIT WEIGHT | 29 |
| | OUTDOOR UNIT WEIGHT | 100 |
| | V-PH-HZ | 208-1-60 |
| | INDOOR MCA | 1 |
| Ξ | OUTDOOR MCA | 11 |
| ELEC | OUTDOOR MOCP | 28 |
| | DISC | EC |
| | SEER | 18.5 |
| NOTES | | 1,2,3,4 |

1 LOW AMBIENT KIT. INCLUDING AIR GUIDE FOR LOW AMBIENT COOLING

2 SCHEDULED UNITS HAVE SINGLE POWER SUPPLY TO OUTDOOR UNIT WITH

2 AROVIDE CONDENSATE FUMP FOR NDOOR UNITSUMPAR TO BLUE DIMMONI

| | FAN S | SCHEDULE | = |
|------|--------------------------|-----------|-----------|
| | TAG | EF-1 | EF-2 |
| TINO | MANUFACTURER | GREENHECK | GREENHECK |
| 5 | MODEL | SQ-98-VG | SQ-120-VG |
| | WEIGHT | 47 | 55 |
| | V-PH-HZ | 115-1-60 | 115-1-60 |
| ELEC | HP | 1/4 | 1/2 |
| " | DISCONNECT | MFR | MFR |
| FAN | CFM | 350 | 1,330 |
| ΕĀ | EXTERNAL STATIC PRESSURE | .75" | .75" |
| | NOTES | 1 | 1 |

NOTES: 1. INTEGRAL BACKDRAFT DAMPER

LOUVER SCHEDULE LVR-2

| | MANUFACTURER | GREENHECK | GREENHECK |
|-------|-----------------------|-----------|-----------|
| TINU | MODEL NUMBER | ESD-435 | ESD-435 |
| | SERVICE | EXHAUST | EXHAUST |
| | WIDTH | 28" | 28" |
| | HEIGHT | 28" | 28" |
| | MIN FREE AREA (sq ft) | 0.6 | 2.6 |
| | AIRFLOW (CFM) | 350 | 1,330 |
| | MAX APD (in wg) | 0.05 | 0.04 |
| NOTES | | 1,2,3,4 | 1,2,3 |

- 1 DRAINABLE BLADE LOUVER, 4" DEPTH
- 2 ALUMINUM BIRDSCREEN
- 3 FINISH: CUSTOM COLOR TO MATCH PANEL. FINAL COLOR SELECTION BY ARCHITECT

menument

4 BLANK OFF BEHIND LOUVER TO 18" X 18" OPENING. MIN FREE AREA AND MAX APD ARE BASED ON 18" x 18" OPENING.

| | VAV | BO | (SC | HEI | DUL | E | | |
|--------|--------------------|---------|---------|-------|---------|------|----------|-------|
| TAG | MANUFACTURER/MODEL | MAX CFM | MIN CFM | INLET | OUTLET | KW | V-PH-HZ | NOTES |
| 'AV-01 | PRICE SDV-10 | 740 | 255 | 10□ | 14/12.5 | 3.5 | 480-3-60 | 1,2 |
| 'AV-02 | PRICE SDV-14 | 2000 | 550 | 14□ | 20/17.5 | 6.5 | 480-3-60 | 1,2 |
| 'AV-03 | PRICE SDV-08 | 580 | 250 | 8□ | 12/10 | 3.5 | 480-3-60 | 1,2 |
| 'AV-04 | PRICE SDV-12 | 1050 | 555 | 12□ | 16/15 | 7.5 | 480-3-60 | 1,2 |
| 'AV-05 | PRICE SDV-08 | 400 | 400 | 8□ | 12/10 | 5 | 480-3-60 | 1,2 |
| 'AV-06 | PRICE SDV-10 | 700 | 240 | 10□ | 14/12.5 | 3 | 480-3-60 | 1,2 |
| 'AV-07 | PRICE SDV-08 | 350 | 125 | 8□ | 12/10 | 1.5 | 480-3-60 | 1,2 |
| /AV-08 | PRICE SDV-06 | 230 | 125 | 6□ | 12/8 | 1.5 | 480-3-60 | 1,2 |
| 'AV-09 | PRICE SDV-08 | 415 | 415 | 8□ | 12/10 | 5 | 480-3-60 | 1,2 |
| 'AV-10 | PRICE SDV-08 | 550 | 360 | 8□ | 12/10 | 5 | 480-3-60 | 1,2 |
| 'AV-11 | PRICE SDV-06 | 280 | 280 | 6□ | 12/8 | 3.5 | 480-3-60 | 1,2 |
| 'AV-12 | PRICE SDV-10 | 840 | 410 | 10□ | 14/12.5 | 5.5 | 480-3-60 | 1,2 |
| 'AV-13 | PRICE SDV-06 | 130 | 130 | 6□ | 12/8 | 1.5 | 480-3-60 | 1,2 |
| 'AV-14 | PRICE SDV-12 | 1425 | 1380 | 12□ | 16/15 | 17.5 | 480-3-60 | 1,2 |
| 'AV-15 | PRICE SDV-10 | 800 | 800 | 10□ | 14/12.5 | 9.5 | 480-3-60 | 1,2 |
| | | | | | | | | |

200 8 | 12/10 | 2.5 | 480-3-60 | 1,2

110 6 12/8 1.5 480-3-60 1,2

190 | 150 | 6 | 12/8 | 2 | 480-3-61 | 1,2

SCR CONTROL

VAV-16

2. CONTROL TRANSFORMER BY MANUFACTURER.

PRICE SDV-08

PRICE SDV-06

PRICE SDV-06

DIFFUSER AND GRILLE SCHEDULE

| TAG | NOM SIZE | NECK | MAX NC | TYPE | MFR | MODEL | FINISH | NOTES |
|------|----------|------|-------------------------|---|-------|-------|---|----------|
| D1 | 24 x 24 | 6"□ | 20 | SQUARE PLAQUE DIFFUSER | PRICE | SPD | WHITE | 1,2 |
| D2 | 24 x 24 | 8"□ | 20 | SQUARE PLAQUE DIFFUSER | PRICE | SPD | 2 WHITE | 1,2 |
| D3 | 24 x 24 | 10"□ | 20 | SQUARE PLAQUE DIFFUSER | PRICE | SPD | WHALE AND A SHARE | 1,2 |
| DL-1 | 30 x 10 | - | 20 | HIGH CAPACITY DRUM LOUVER | PRICE | HCD | PREPARED ALUMINIUM | 1 , 2, 4 |
| E1 | 6 x 6 | - | 20 | SINGLE DEFLECTION | PRICE | 530 | WHITE | 1 , 2, 3 |
| E2 | 24 x 12 | - | 20 | SINGLE DEFLECTION | PRICE | 530 | WHITE | 1 , 2, 3 |
| E3 | 8 x 8 | - | 20 | SINGLE DEFLECTION | PRICE | 530 | WHITE | 1 , 2, 3 |
| P4 | 24×42 | | $\bigcirc^{20}\bigcirc$ | EGECRATE GRILLE | PRICE | 80 | WHITE O | 2 2 |
| R2 | 14 x 14 | - | 20 | SINGLE DEFLECTION | PRICE | 530 | PRIME COAT | 1 , 2, 3 |
| R3 | 96 x 24 | - | 28 | HEAVY DUTY RETURN GYM GRILLE: 1/2" SPACING 0 DEG DEFLECTION | PRICE | 97 | PRIME COAT | 1,2 |

OTES CONFIRM FINAL FINISHES WITH ARCHITECT 2. PROVIDE FRAME STYLE APPROPRIATE FOR CEILING TYPE (I.E. LAY-IN, SURFACE MOUNT, SIDEWALL, ETC.) REFER TO DRAWINGS AND ARCHITECTURAL CEILING PLANS FOR LOCATIONS. COLOR

3. 45 DEGREE DEFLECTION PATTERN.

AND FINISH TO BE APPROVED BY ARCHITECT.

STORAGE

138 STORAGE

4. HEAVY DUTY OPPOSED BLADE DAMPER.

UNIT HEATER SCHEDULE

| | _ | | | |
|-------|--------------|----------|-------------|----------------|
| | TAG | EWH-A | UH-A | CUH-A |
| | MANUFACTURER | QMARK | QMARK | QMARK |
| LINU | MODEL | AWH4408 | MUH0581-PRO | CDF558 |
| | COLOR | WHITE | - | NORTHERN WHITE |
| | V-PH-HZ | 208-1-60 | 208-1-60 | 208-1-60 |
| | KW | 2 | 5 | 5 |
| Ш | DISCONNECT | BY MFR | BY MFR | BY MER |
| NOTES | | 1, 2, 3 | 6 | 3, 4, 5, 7, 8 |
| NOT | ES: | | | |

1 INTEGRAL THERMOSTAT

2 SURFACE MOUNTING FRAME

3 CONFIRM FINAL COLOR AND FINISH WITH ARCHITECT

4 CEILING MOUNTED

5 PROVIDE TAMPERPROOF LOCKS

6 PROVIDE MANUFACTURER MOUNTING BRACKET. SIMILAR TO QMARK B10



FINNED TUBE RADIATION SCHEDULE

| | TAG | FTR-A | FTR-B | FTR-C | FTR-D |
|-------|-------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| I⊨ | MANUFACTURER | QMARK | QMARK | QMARK | QMARK |
| LINU | MODEL | DBA | DBA | DBA | DBA |
| | COLOR | CLEAR ANODIZED ALUMINUM | CLEAR ANODIZED ALUMINUM | CLEAR ANODIZED ALUMINUM | CLEAR ANODIZED ALUMINUM |
| Ď | ENTERING AIR TEMPERATURE (°F) | 70 | 70 | 70 | 70 |
| ATING | LENGTH | 6 | 4 | 3 | 5 |
| 単 | OUTPUT LINEAR FOOT (BTUH/FT) | 512 | 512 | 512 | 512 |
| | TOTAL LOAD (W) | 900 | 600 | 450 | 750 |
| EC | VOLTAGE | 120 | 120 | 120 | 120 |
| | PHASE | 1 | 1 | 1 | 1 |
| | DISCONNECT | BY MFR | BY MFR | BY MFR | BY MFR |
| NOTES | | 1,2,3,4,5 | 1,2,3,4,5 | 1,2,3,4,5 | 1,2,3,4,5 |

NOTES: 1 PROVIDE SINGLE-POINT POWER CONNECTION WITH DISCONNECT

2 CONTROLS CONTRACTOR SHALL PROVIDE SINGAL TO ENABLE/DISABLE. FINNED TUBE MANUFACTURER SHALL PROVIDE ALL SAFETIES REQUIRED FOR OPERATION.

3 CONFRIRM FINAL COLOR AND FINISH WITH ARCHITECT

4 UNIT HEIGHT SHALL BE 7". CABINET SHALL HAVE A LINEAR GRILLE ON THE FRONT OF ENCLOSURE FOR INLET AND

A LINEAR GRILLE ON THE TOP DISCHARGE.

5 PROVIDE CONTINUOUS GRILLE ALONG WALL TO FIT BETWEEN STRUCTURAL COMPONENTS ALONG GLASS STOREFRONT WINDOWS. FINNED TUBE SHALL BE INSTALLED SILL HEIGHT REFER TO ARCHITECTURAL DRAWINGS FOR INSTALLATION LOCATION.

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1 01.07.2022 ADDENDUM 1 2 02.11.2022 ADDENDUM 3

2.11.2022

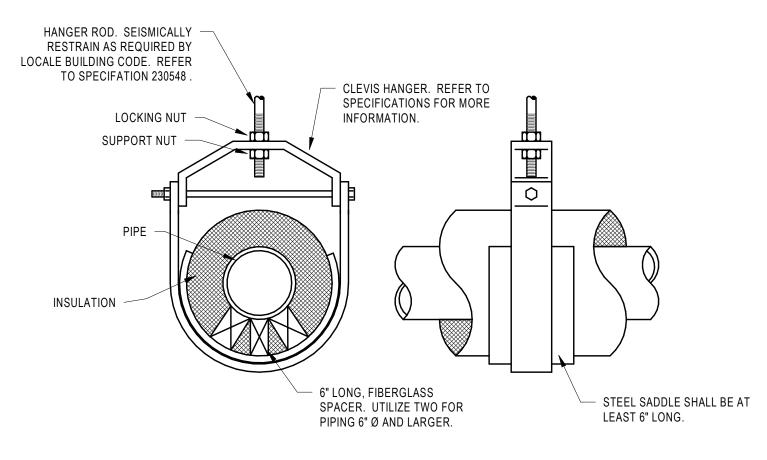
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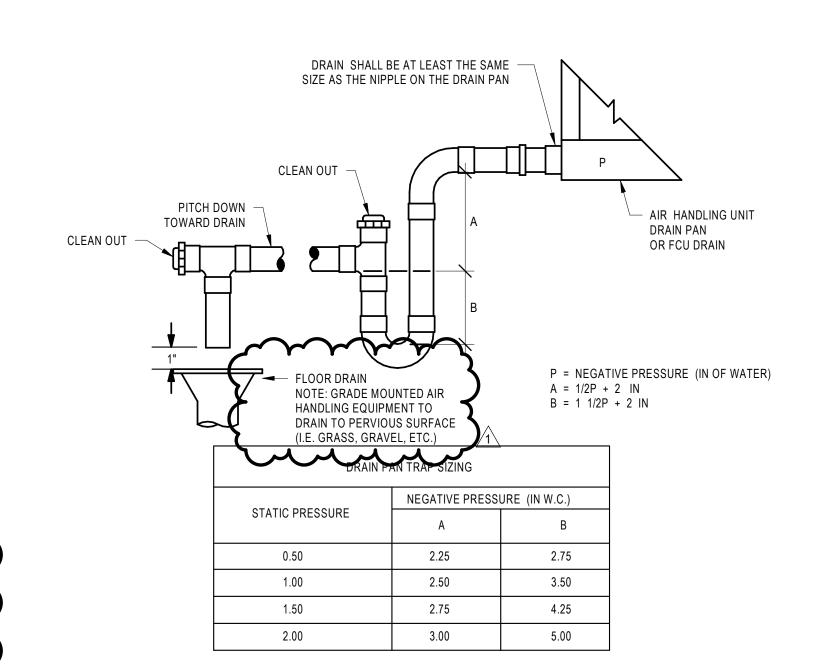
DRAWING TITLE:

HVAC SCHEDULES

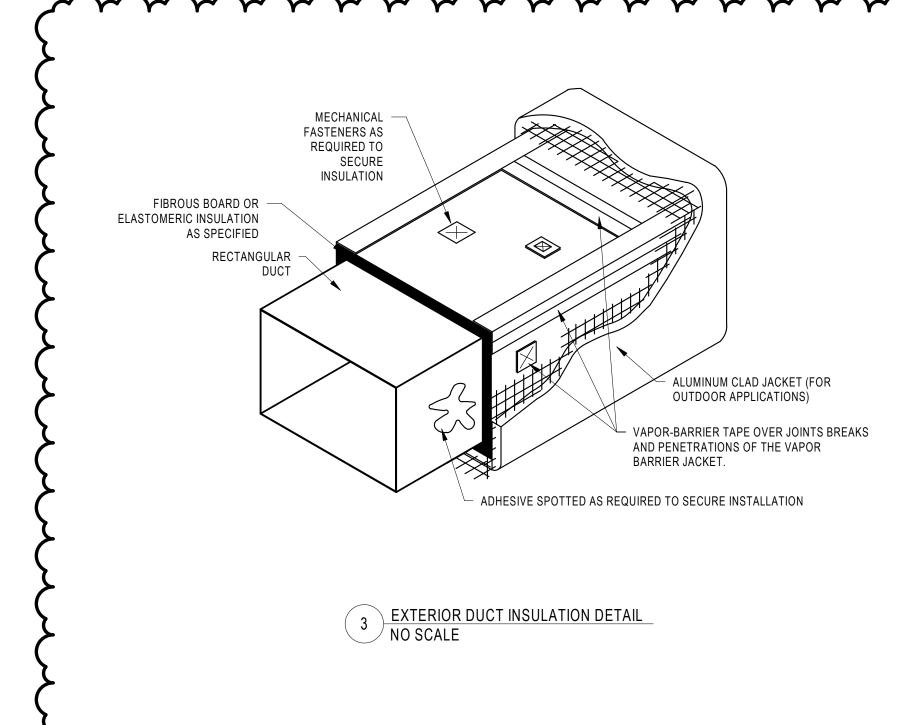


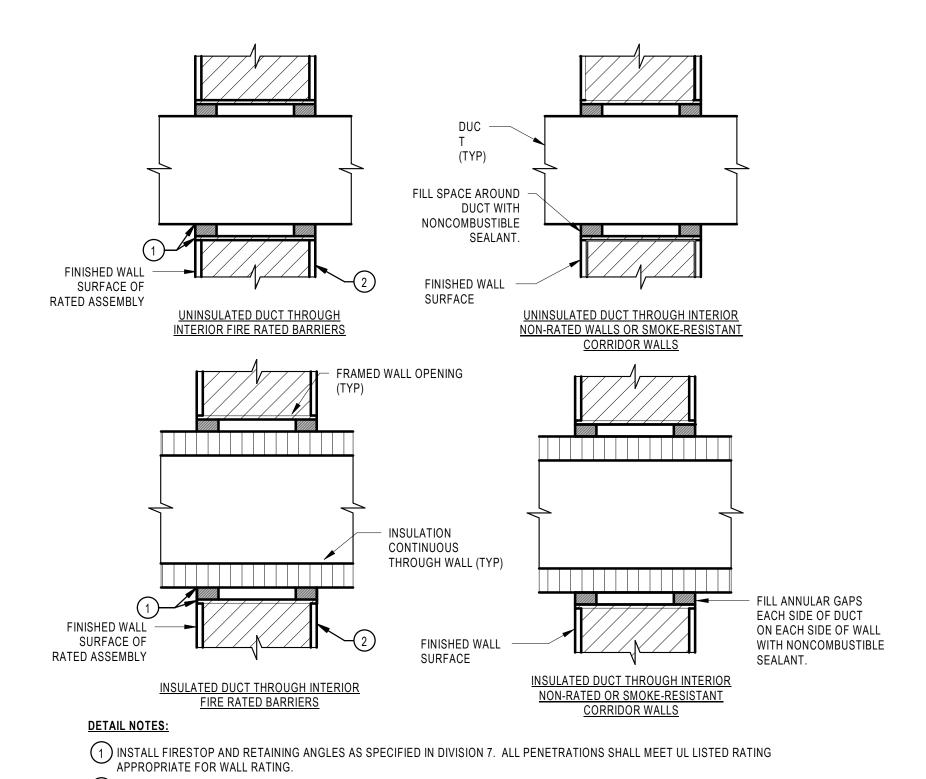






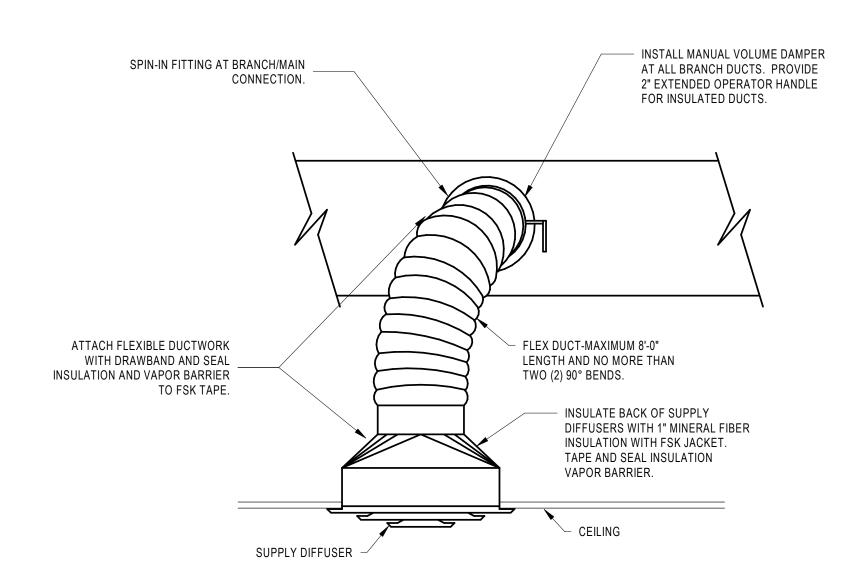
5 NEGATIVE PRESSURE CONDENSATE DRAIN TRAP DETAIL NO SCALE





2 DUCT PENETRATION DETAIL NO SCALE

(2) INSTALL FIRESTOP LABEL ABOVE CEILING ON BOTH SIDES OF PENETRATION



GENERAL DETAIL NOTES:

- A. FLEXIBLE DUCTWORK BENDS SHALL NOT BE LESS THAN 1.5 TIMES THE DUCT DIAMETER.
 B. INSULATION AND VAPOR BARRIERS PRESENT ON FACTORY-FABRICATED DUCTS SHALL BE FITTED OVER THE CORE CONNECTION AND SHALL BE SECURED WITH A DRAW BAND. TAPE AND SEAL ALL JOINTS AND SEAMS WITH FSK TAPE TO MAINTAIN VAPOR BARRIER.
- C. SUPPORT FLEXIBLE DUCTWORK FROM STRUCTURE. DO NOT SUPPORT FLEXIBLE DUCTWORK FROM ADJACENT ABOVE CEILING UTILITIES (DUCTWORK, PIPING, CONDUITS, ETC.)

1 CEILING DIFFUSER/GRILLE DETAIL NO SCALE

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1 02.11.2022 ADDENDUM 3

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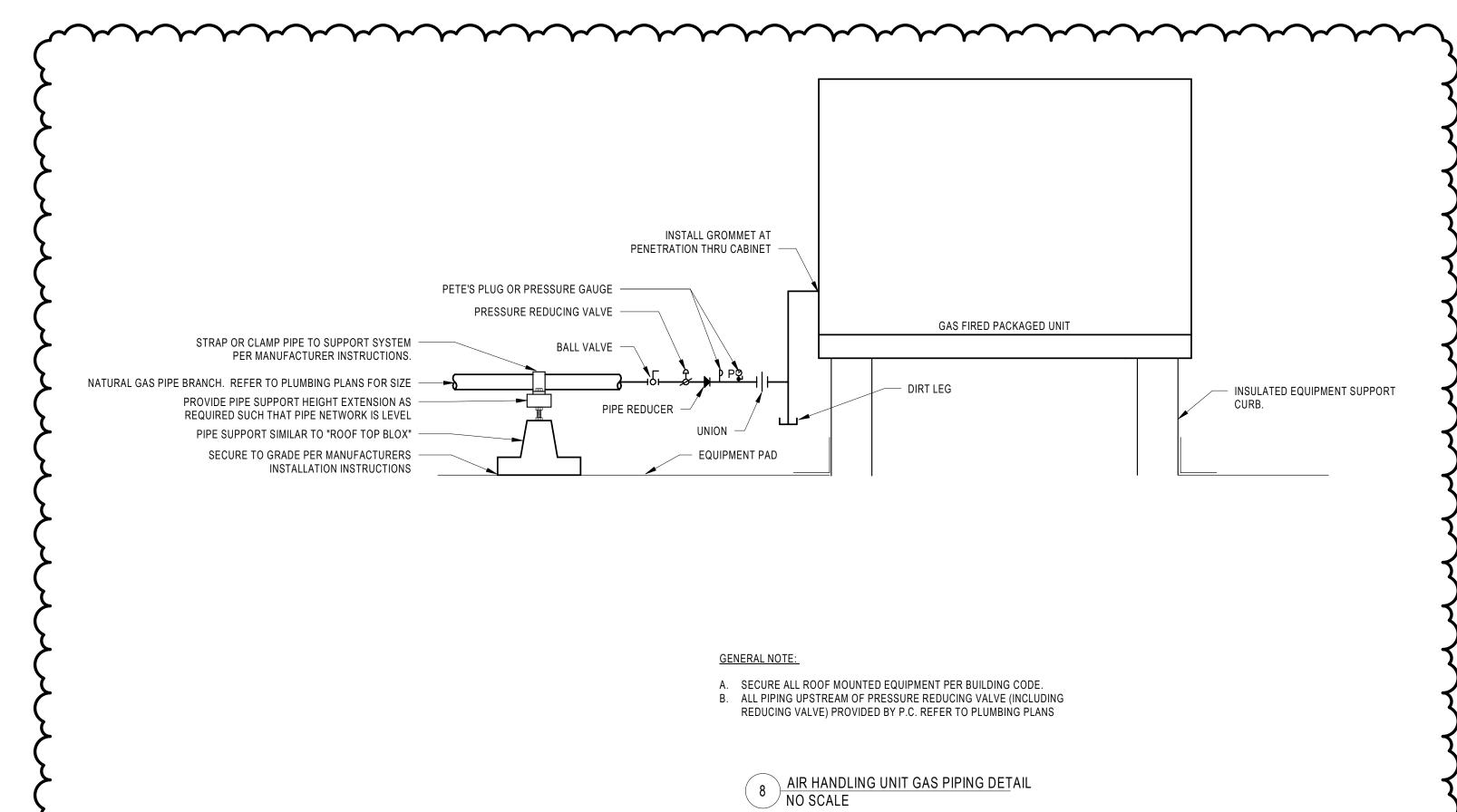
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DRAWING TITLE:

HVAC DETAILS

DRAWING NUMBER:

H901



PIPE SLEEVE TO BE SIZED TO PASS
 PIPE THRU SLEEVE AND ALLOW SPACE

SLEEVE WATER STOP -

MECHANICAL SLEEVE

AROUND PIPES ON EACH

SIDE OF WALL WITH

NONCOMBUSTIBLE

INSULATED OR UNINSULATED PIPE THROUGH INTERIOR NON-RATED WALLS OR SMOKE=RESISTANT

CORRIDOR WALLS

SEAL, SIMILAR TO

LINK-SEAL.

FOR SEALANT TO MEET UL-LISTING

PIPE SLEEVE TO BE SIZED TO PASS

MEET UL-LISTING

PIPE AND INSULATION THRU SLEEVE

AND ALLOW SPACE FOR SEALANT TO

NONCOMBUSTIBLE

(1) PROVIDE ESCUTCHEON PLATE FLUSH AGAINST WALL AND OF SIZE TO COMPLETELY COVER OPENING IN EXPOSED

3 LOCATE FIRESTOP LABEL ON EACH SIDE OF PENETRATION SO THAT IT IS VISIBLE FROM AN ACCESSIBLE LOCATION

(5) INSTALL FIRESTOP AND RETAINING ANGLES AS SPECIFIED IN DIVISION 7. ALL PENETRATIONS SHALL MEET UL LISTED

9 PIPE PENETRATION DETAILS

2 SEE SPECIFICATION SECTIONS FOR FURTHER REQUIREMENTS INCLUDING FLOOR SLEEVES.

(4) INCLUDES FIRE WALLS, FIRE BARRIERS, SMOKE BARRIERS, AND FIRE PARTITIONS.

SEALANT

INSULATION CONTINUOUS THROUGH WALL (TYP)

TERMINATE SLEEVE FLUSH

PIPE -(TYP)

FIRESTOP EACH SIDE OF SLEEVE AS SPECIFED IN DIV 7

FINISHED WALL SURFACE

OF RATED ASSEMBLY

TERMINATE SLEEVE

FLUSH WITH FINISHED WALL

FINISHED WALL SURFACE -

OF RATED ASSEMBLY

INTERIOR FIRE RATED WALLS

INSULATED PIPE THROUGH INTERIOR

RATING APPROPRIATE FOR WALL RATING.

WITH FINISHED WALL

MECHANICAL AND PLUMBING ABBREVIATIONS ABBREV. DESCRIPTION **DESCRIPTION** ABBREV. DESCRIPTION ABBREV. ARCHITECT AND ENGINEER FIRE HOSE OR FUME HOOD OUTSIDE AIR TEMPERATURE AC OR ACU AIR CONDITIONING UNIT OR AIR COMPRESSOR FIRE HOSE CABINET ON CENTER AIR COOLED CONDENSING UNIT ACCU OUTSIDE DIAMETER AIR CONDITIONING CONDENSATE DRAIN ACD OWNER FURNISHED/CONTRACTOR INSTALLED FLA FULL LOAD AMPS ACCESS DOOR FLR OFOI OWNER FURNISHED/OWNER INSTALLED ADJUSTABLE OR ADJACENT FUEL OIL DAY TANK OXYGEN MANIFOLD **AFCV** AIRFLOW CONTROL VALVE OPER FOP FUEL OIL PUMP OPERATOR AFF ABOVE FINISHED FLOOR FUEL OIL RETURN OPNG OPENING AFMS AIR FLOW MEASURING STATION FUEL OIL SUPPLY OSD OPEN SITE DRAIN AHU AIR HANDLING UNIT FUEL OIL STORAGE TANK APD AIR PRESSURE DROP FOV FUEL OIL VENT PUMP, PNEUMATIC OR PRESSURE APPROX APPROXIMATE FIRE PROTECTION PLUMBING CONTRACTOR AR AIR RECEIVER FPB FAN POWERED BOX PRESSURE DROP OR PERFORATED DIFFUSER ARCH ARCHITECT FIRE PROTECTION CONTRACTOR PNEUMATIC ELECTRIC AIR SEPARATOR FEET PER MINUTE PREFILTERS ATM ATMOSPHERE FEET PER SECOND PROPYLENE GLYCOL ACID VENT FIRE PROTECTION STORAGE TANK PREHEAT COIL **AVMS** AIR VOLUME MEASURING STATION FLOW SWITCH POST INDICATOR VALVE ACID WASTE FEET OR FLASH TANK PLASTER TRAP FTG FOOTING OR FITTING POC POINT OF CONNECTION BOILER FIN TUBE RADIATION POUNDS PER HOUR FTR PPH **BLOWER COIL UNIT** BCU PPM PARTS PER MILLION BDD BACKDRAFT DAMPER GAS, NATURAL PRD PRESSURE RELIEF DOOR BHP BRAKE HORSEPOWER GA GAUGE PREFABRICATED BACKWARD INCLINED GALLON PRES PRESSURE BLDG BOT BUILDING GALV GALVANIZED PRESSURE REDUCING VALVE BOTTOM GENERAL CONTRACTOR POUNDS PER SQUARE INCH BRINE PUMP **GROUND CLEAN OUT** PSIG POUNDS PER SQUARE INCH GAUGE **BULK SALT STORAGE** GRAVITY HOOD PVC POLYVINYL CHLORIDE BTU BRITISH THERMAL UNIT GALLONS PER HOUR BTUH BTU PER HOUR GALLONS PER MINUTE RETURN AIR OR RELIEF AIR GAS NATURAL VENT RAD RAT RADIATED COMPRESSED AIR RETURN AIR TEMPERATURE CAP CAPACITY HUMIDIFIER, HUMIDITY OR HEIGHT REHEAT CONSTANT AIR VOLUME **HEATING COIL ROOF DRAIN** COOLING COIL HEATING COIL PUMP (HOT WATER) HCP REC RECEIVER CCP COOLING COIL PUMP HD RECIR RECIRCULATING HEAT EXCHANGER CDS CONDENSATE PUMP DISCHARGE REF REFRIGERATOR HGT HEIGHT CENTRIF RETURN AIR FAN CENTRIFUGAL НО HUB OUTLET CUBIC FEET PER MINUTE RETURN GRILLE CFM HOA HAND-OFF-AUTOMATIC CONTRACTOR FURNISHED/OWNER INSTALLED RELIEF HOOD OR RELATIVE HUMIDITY HORZ HORIZONTAL CHILLER REHEAT COIL HOSP HOSPITAL CAST IRON RLA RUNNING LOAD AMPS HORSEPOWER OR HEATPUMP HP CLEAN OUT ROOM HIGH PRESSURE CONDENSATE RETURN CARBON DIOXIDE REVERSE OSMOSIS VENT HIGH PRESSURE STEAM COL ROP COLUMN REVERSE OSMOSIS PUMP HOUR COM CARBON DIOXIDE MANIFOLD REVERSE OSMOSIS STORAGE TANK HRC HEAT RECOVERY COIL COMP RADIANT PANELS COMPRESSOR HTR CONC HFATFR CONCRETE RETURN PERFORATED GRILLE HEATING, VENTILATION AND AIR CONDITIONING CONN REVOLUTIONS PER MINUTE CONNECTION CONST DOMESTIC HOT WATER RPZ CONSTRUCTION REDUCED PRESSURE BACKFLOW DOMESTIC HOT WATER RECIRC CONT CONTINUOUS REQ'D REQUIRED HOT WATER CIRCULATING PUMP CONDENSATE PUMP ROOF VENTILATOR HEATING HOT WATER PUMP CPD CONDENSATE PUMP DISCHARGE HEATING HOT WATER RETURN CABINET UNIT HEATER SANITARY OR SEWER HWS HEATING HOT WATER SUPPLY CENTRAL VACUUM SUPPLY AIR OR SOUND ATTENUATOR HX HEAT EXCHANGER COLD WATER STEAM BOILER CWM COLD WATER MAKE-UP STEAM COIL CWP SCC CHILLED WATER PUMP STEAM CONDENSATE COOLER INSTRUMENT AIR CWR CHILLED WATER RETURN SCCH SUBCOOLED CHILLER INSTRUMENT AIR COMPRESSOR CWS SCFM CHILLED WATER SUPPLY STANDARD CUBIC FEET PER MINUTE INSTRUMENT AIR DRYER, EQAD SCH SCHEDULE INSIDE DIAMETER OR DIMENSION SCW SOFT COLD WATER (DOMESTIC) DIFFUSER OR DAMPER INTEGRAL FACE AND BYPASS DECIBELS OR DRY BULB SUPPLY DIFFUSER OR SMOKE DAMPER IN-HOUSE OXYGEN MANIFOLD SEC DUCT COIL SECTION DOUBLE CHECK VALVE SENS DCV SENSIBLE INCL INCLUDE SEP DCWBP DOMESTIC COLD WATER BOOSTER PUMP SEWAGE EJECTOR PUMP INSULATED DUAL DUCT SUPPLY AIR FAN DDC INTERIOR DIRECT DIGITAL CONTROL SUPPLY GRILLE INV INVFRT DEAFRATOR I.P.S. INTERNATIONAL PIPE SIZING DEFL DEFLECTION SHW SOFT HOT WATER ISOLATION DEGREE DEPT SMBH SENSIBLE MBH DEPARTMEN' DHWBP DOMESTIC HOT WATER BOOSTER PUMP SHEET METAL CONTRACTOR DEIONIZED WATER STATIC PRESSURE OR STORM PUMP KAIC SHORT CIRCUIT RATING SPEC DIAMETER SPECIFICATIONS KEC KITCHEN EQUIPMENT CONTRACTOR DISC DISCONNECT SQUARE SQFT DISCH SQUARE FEET DISCHARGE DOWNSPOUT SAFETY RELIEF VALVE LENGTH DOMESTIC SOFT WATER BOOSTER PUMP DSWBP STEAM TRAP LAB AIR COMPRESSOR DUC STD DOOR UNDER CUT STANDARD LAB AIR DRYER DWG STM STORM LOCAL AREA NETWORK DW DISTILLED WATER STR STARTER LEAVING AIR TEMPERATURE DWBP DOMESTIC WATER BOOSTER PUMP STRUCT STRUCTURAL LAVATORY DWH DOMESTIC WATER HEATER STEAM VENT SV LINEAR BAR DIFFUSER SWITCH POUNDS SYS EXHAUST AIR SYSTEM LINEAR DIFFUSER ENTERING AIR TEMPERATURE SPRINKLER ZONE LINEAR FOOT ELECTRIC BASEBOARD HEATER LFD LAMINAR FLOW DIFFUSER ELECTRICAL CONTRACTOR THERMOSTAT LEAVING FLUID TEMPERATURE ENVIRONMENTAL CONTROL CONTRACTOR ECC TERMINAL BOX LOC ECG TCC TEMPERATURE CONTROL CONTRACTOR EGG CRATE GRILLE LPR LOW PRESSURE CONDENSATE RETURN EXHAUST DIFFUSER TDH TOTAL DISCHARGE HEAD LPS LOW PRESSURE STEAM ELECTRIC DUCT COIL TRIPLE DUTY VALVE LEAVING TEMP ENERGY EFFICIENCY RATIO TEMPERATURE LAB VACUUM PUMP THW TEMPERED HOT WATER EXHAUST AIR FAN LEAVING WATER TEMPERATURE ENTERING FLUID TEMPERATURE TEMPERATURE LOW LIMIT EXHAUST GRILLE OR ETHYLENE GLYCOL THERMOSTAT MIXING VALVE MEDICAL AIR ELEC TMBH ELECTRIC TOTAL MBH MEDICAL AIR COMPRESSOR ELEV ELEVATION TSP TOTAL STATIC PRESSURE MEDICAL AIR DRYER **EMER EMERGENCY** TEMPERED WATER MEDICAL AIR INTAKE EXTRUDED METAL GRILLE TYP TYPICAL MIXED AIR TEMPERATURE **ENCL** ENCLOSURE MAXIMUM **ENTR ENTERING** UNIT HEATER MOP BASIN EOM END OF MAIN DRIP UNLESS NOTED OTHERWISE BTU/HR X 1000 EQA **EQUIPMENT AIR** MECHANICAL CONTRACTOR **EQAC** ULTRA VIOLET LIGHT EQUIPMENT AIR COMPRESSOR MINIMUM CIRCUIT AMPACITY EQAI EQUIPMENT AIR INTAKE MOTOR CONTROL CENTER **EQUIP** EQUIPMENT MOTORIZED DAMPER EQUIPMENT VACUUM VACUUM MECH MECHANICAL EQUIPMENT VACUUM PUMP VARIABLE AIR VOLUME MFR MANUFACTURER EQV V **EQUIPMENT VACUUM VENT** VACUUM BREAKER MANHOLE ELECTRIC RADIANT PANEL VOLUME DAMPER (MANUAL) MINIMUM EMERGENCY SHOWER VELOCITY MISCELLANEOUS EXTERNAL STATIC PRESSURE OR ELEVATOR SUMP PUMP VSC VARIABLE SPEED CONTROLLER MAXIMUM OVERCURRENT PROTECTION MOCP EXPANSION TANK VTR VENT THROUGH ROOF MEDIUM PRESSURE CONDENSATE RETURN MPSR ELECTRIC UNIT HEATER VACUUM VENT MEDIUM PRESSURE STEAM EMERGENCY EYEWASH MTD MOUNTED ELECTRIC WATER COOLER **EWC** WASTE, WATTS OR WIDTH MEDICAL VACUUM **EWT** ENTERING WATER TEMPERATURE WASTE ANESTHESIA GAS DISPOSAL PUMP MEDICAL VACUUM PUMP EXH **EXHAUST** WB WET BULB **EXIST EXISTING** WITH NORTH OR NITROGEN EXT EXTERIOR WITHOUT NOT APPLICABLE WATER CLOSET OR WATER COLUMN NORMALLY CLOSED OR NOISE CRITERIA NOT IN CONTRACT FACE & BYPASS WFMD WATER FLOW MEASURING DEVICE NITROGEN MANIFOLD FLOAT AND THERMOSTATIC TRAP WATER GAUGE NORMALLY OPEN, NITROUS OXIDE, OR NUMBER FIRE ALARM WGT WEIGHT NOMINAL OR NITROUS OXIDE MANIFOLD F/SD FIRE AND SMOKE DAMPER WALL HYDRANT NTS NOT TO SCALE FCO FLOOR CLEAN OUT WATER METER

OXYGEN

OUTSIDE AIR

FLEXIBLE CONNECTION

FLOOR DRAIN OR FIRE DAMPER

FAN COIL UNIT

FCU

| ۸.۵. | | | ND FITTING SYMBOLS | PLUMBING PIF | IIIG STIVID |
|------------|--------------|------------------|---|--|------------------------------|
| AGS V1 | PLAN VIEWS | DETAIL VIEW | CALIBRATED BALANCE VALVE | 6 "DHW | — - — DOMESTIC CC |
| v : V2 | | | PIPING FLEXIBLE CONNECTION | | — DOMESTIC HC |
| V3 | | | PIPE TURNED UP (UNLESS NOTED OTHERWISE) | 6"SCW | DOMESTIC HC |
| /4 | | | PIPE TURNED DOWN | | — - — SOFT COLD W |
| /5 | | | PIPE OUT TOP | 6"ST — | TEMPERED W |
| /6 | | | PIPE OUT BOTTOM | 6"S — | STORM |
| 7 | | | THREADED NIPPLE W/CAP | 6"V — | SANITARY |
| 8 | | | PIPE WITH BLIND FLANGE | 6"PF — | VENT |
| 9 | | | CONCENTRIC REDUCER | 6"NG — | FIRE PROTEC |
| ′10 | | | ECCENTRIC REDUCER | | ———— NATURAL GAS |
| /11 | | - | CHECK VALVE | CENEDAL NOTES | |
| /12 | | | UNION | GENERAL NOTES (REQUIRED TO COMPLETE THE SCOPE OF WORK) | |
| ′13 | | | GATE VALVE | ALL CONTRACT DOCUMENTS (SPECIFICATIONS AND DRAW! MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CO | |
| /14 | ■ □ □ | | BALL VALVE | ALL CONFLICTS SHALL BE BROUGHT TO THE ARCHITECTS ORDER TO ALLOW A CLARIFICATION TO BE ISSUED. ANY W | |
| /15 | | _ _ _ | GLOBE VALVE | CLARIFYING INFORMATION IS AT THE CONTRACTORS FINAL THE CONTRACTOR SHALL PROVIDE AND FURNISH ALL MATERIAL TO SHALL PROVIDE AND FURNISH AND FURNISH ALL MATERIAL TO SHALL PROVIDE AND FURNISH FURNISH AND FURNISH FU | ERIALS AND ACCESSORIES TO |
| /16 | | — | BUTTERFLY VALVE | CREATE A FULLY OPERATIONAL, CODE COMPLIANT AND TE AND ACCESSORIES REQUIRED TO CREATE THE FULLY OPE | |
| /17 | | | TEMPERATURE CONTROL - 2 WAY MODULATING VALVE | INCLUDED IN THE COST OF THIS PROJECT. 4. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CO | |
| /18 | | | TEMPERATURE CONTROL - 2 WAY 2 POSITION MODULATING VALVE | MODIFY THE PIPE ROUTING IN ORDER TO CREATE A SYSTE SET OF CONSTRUCTION DOCUMENTS. | |
| V19 | | NC NO | TEMPERATURE CONTROL - 3 WAY MODULATING VALVE | 5. THE CONTRACTOR SHALL INCLUDE ALL ITEMS THAT ARE RI ENTIRE SYSTEM IS FUNCTIONING IN COMPLIANCE WITH TH | E APPLICABLE CODES, AND |
| /20 | | NO NO | TEMPERATURE CONTROL - 3 WAY 2 POSITION MODULATING VALVE | MANUFACTURES INSTALLATION RECOMMENDATIONS AND 6. ALL CUTTING, DRILLING AND PATCHING OF WALLS, FLOORS FOR THE INSTALLATION OF THE PLUMBING AND FIRE PROT | S AND/OR STRUCTURAL MEMBER |
| /21 | a | NO_ | SAFETY RELIEF VALVE | PROVIDED AS PART OF THE PLUMBING AND FIRE PROT PROVIDED AS PART OF THE SCOPE OF THIS PROJECT. 7. STRUCTURAL COMPONENTS SHALL NOT BE CUT, DRILLED (| |
| ′22 | | 7 | STRAINER | THE STRUCTURAL ENGINEERS REVIEW AND PRIOR WRITTE 8. PROVIDE FIRE STOPPING WHERE PIPES PENETRATE FIRE F | N APPROVAL. |
| 23 | • | | FLOW METER | STOPPING MATERIALS AND METHODS SHALL BE PER LOCA REQUIREMENTS. | L AND STATE CODES AND |
| /24 | ₩ ₩ | • | FLOOR DRAIN | ALL PLUMBING SYSTEMS SHALL BE INSTALLED PER THE CL LOCATION OF THE WORK BEING INSTALLED. | IRRENT PLUMBING CODE FOR TI |
| ′25 | | | ZONE CONTROL VALVE (OS&Y) | ALL PLUMBING EQUIPMENT, PIPING, FIXTURES, AND PIPE A ANNEX G COMPLIANT. | · |
| ′26 | | -[A]- | AUTOMATIC FLOW CONTROL VALVE | ALL PIPING LOCATED WITHIN A RETURN AIR PLENUM SHALL SMOKE RATING. ANY EXISTING PIPING DISCOVERED WITHI | N A RETURN AIR PLENUM THAT |
| 27 | | | FLOW MEASURING DEVICE | DOES NOT COMPLY WITH THIS REQUIREMENT SHALL BE BF ARCHITECT FOR FURTHER CLARIFICATION. | |
| ′28 | | <u> </u> | MANUAL AIR RELIEF VENT | 12. ALL EXTERIOR WALL PENETRATIONS SHALL BE SEALED WA APPROPRIATE TRADE COMPETENT IN COMPLETING THIS W | |
| ′29 | | | AUTOMATIC AIR RELIEF VENT | SHALL BE INCLUDED IN THE SCOPE OF THIS PROJECT. 13. ALL VENT THROUGH ROOF (VTR.) LOCATIONS SHALL BE FIE | |
| V30 | | | LUBRICATED PLUG VALVE | OUTDOOR INTAKE. LOCATION OF VTR SHALL BE NO LESS TO OR STATE CODES. 14. DO NOT ATTACH ANY CONSTRUCTION TO THE ROOF DECK | |
| V31 | | -\$- | STEAM PRESSURE REDUCING VALVE | BRACING, PIPING, CONDUIT, DUCTWORK OR ANY OTHER NO. 15. DO NOT WELD OR DRILL INTO STRUCTURAL STEEL OR JOIS | ON-STRUCTURAL ITEM. |
| V32 | | No. | ANGLE VALVE | THRU-BOLTS WITH WASHERS 16. DO NOT USE ANY PVC, PLASTIC, ETC. IN PLENUM OR DEMIS | |
| V33 | | | GAS PRESSURE RELIEF VALVE | ALL WOOD BLOCKING AND NAILERS, CONCEALED OR NOT S 17. DO NOT PENETRATE BUILDING WALLS FOR ANY DUCTING O | SHALL BE FIRE RETARDANT TREA |
| V34 | | -1521- | REFRIGERANT HOT GAS BY-PASS VALVE | USING OWNERS ROOFING CONTRACTOR. 18. VENT THROUGH ROOF INSTALLATION; ALL ROOFING WORK | SHALL BE COMPLETED BY THE |
| V35 | | -5- | SHUT-OFF COCK (HYDRONICS) | CONTRACTOR'S ROOFING CONTRACTOR. THE COST SHALI PROJECT. | |
| V36 | | _₽ | SOLENOID VALVE | 19. PIPING BELOW GROUND SHALL BE SERVICE-WEIGHT CAST PIPING OR FERNCO CONNECTIONS ARE NOT PERMITTED B | ELOW GRADE. |
| /37 | | - ⊗− | REFRIGERANT EXPANSION VALVE | ALL PIPING SHALL BE PROPERLY SUSPENDED BY THE STRU NO SANITARY WASTE OR VENT, HOT OR COLD WATER SHALL | |
| V38 | | <u> </u> | WATER PRESSURE REDUCING/REGULATING VALVE | THE DEMISING WALLS. 22. ALL INSULATED PIPING SHALL BE WITH PLENUM RATED MA 23. FLOOR DRAINS SHALL BE PROVIDED WITH TRAP PRIMERS (| |
| V39 | | <u> </u> | COMBINATION WATER PRESSURE RELIEF AND REDUCING VALVE | 24. GAS PIPING SUPPORTED ON THE ROOF SHALL BE PROVIDE SUPPORTS OR EQUIPMENT SUPPORTS WITH ROLLER ASSE | D FREE FLOATING PREFABRICA |
| /40 | ○ - | | STEAM TRAP | NOT BE PERMITTED. 25. ALL GAS PIPING SHALL BE PROVIDED PIPE LABELS IDENTIF | |
| /41 | D-0 0-00 | - | DIELECTRIC UNION BETWEEN STEEL AND COPPER | ALL GAS PIPING SHALL BE INSTALLED PER THE LOCAL COD INSTALLATIONS REQUIREMENTS. | |
| /42 | | P | STRAINER (STEAM) | 27. ALL SHUT-DOWN OF UTILITIES AND FIRE PROTECTION SYS NO LESS THAN SEVEN (7) DAYS NOTICE TO THE OWNER. W | |
| 43 | | | PRESSURE AND TEMPERATURE PLUG | WRITTEN APPROVAL IS PROVIDED BY THE OWNER. 28. ALL DOMESTIC WATER BRANCH PIPES SERVING FIXTURES | OR EQUIPMENT WITH FAST ACT |
| ′44 ′45 | | | REFRIGERANT SIGHT GLASS THERMOMETER | OR ELECTRONIC VALVES SHALL BE PROVIDED WATER HAM 29. ALL BRANCH PIPES FROM DOMESTIC WATER MAINS SHALL | BE PROVIDED QUARTER TURN F |
| 45 | <u> </u> | | THERMOMETER (P=PRESS V=VAC T=TEMP) GAUGE | PORT BALL VALVES ON THE BRANCH PIPE JUST ADJACENT | IO THE MAIN. |
| 40 47 | | _ ' | SENSOR (T-TEMP H-HUMIDITY) | | |
| /48 | 8 | <u> </u> | FLOW SWITCH | | |
| /49 | u v | | CLEAN OUT | | |
| ′50 | o | | WATER HAMMER ARRESTOR OR ALARM PRESSURE/VACUUM SWITCH | | |
| 51 | | | INDICATED EXPANSION LOOP (COLD SPRUNG) | | |
| ′52 | | | ANCHOR | | |
| ′53 | | | GUIDE | | |
| 54 | | -1111 | REDUCED PRESSURE BACKFLOW PREVENTER | | |
| ′55 | | <u>A</u> = | ATMOSPHERIC VACUUM BREAKER | | |
| 56 | | <u>P</u> | PRESSURE VACUUM BREAKER | | |
| ′57 | | - >< - | REFRIGERANT SHUT-OFF VALVE | | |
| ′58 | | -12-1 | DOMESTIC WATER TEMPERATURE REGULATING VALVE | | |
| 59 | | | EXPANSION JOINT | | |
| ′60 | | ΔΤ | DIFFERENTIAL SWITCH | | |

TYP SECTION WITH TOP NUMBER INDICATING

GENERAL NOTE

WEATHERPROOF

WATER SOFTENER

WATER PRESSURE DROP

WPD

SECTION DESIGNATION AND BOTTOM NUMBER

OR DRAWING THAT SECTION IS DRAWN ON

INDICATING DRAWING THAT SECTION IS CUT ON

A101

PLAN NOTE LIST

| 6 | 'DCW — | |
|---------------|----------|-----------------------------|
| 6 | <u> </u> | - DOMESTIC COLD WATER |
| <u> </u> | 'DHWR ¬ | - DOMESTIC HOT WATER |
| ₆ | | - DOMESTIC HOT WATER RETURN |
| <u> </u> | <u>-</u> | - SOFT COLD WATER |
| 6 | <u> </u> | - TEMPERED WATER |
| 6 | 'S ——— | - STORM |
| 6 | 'V ——— | - SANITARY |
| 6 | 'PF | - VENT |
| | 'NG —— | - FIRE PROTECTION |
| | | - NATURAL GAS |

GENERAL NOTES

- (REQUIRED TO COMPLETE THE SCOPE OF WORK)
- 1. ALL CONTRACT DOCUMENTS (SPECIFICATIONS AND DRAWINGS) ARE COMPLIMENTARY AND MUST BE USED IN COMBINATION TO OBTAIN COMPLETE CONSTRUCTION INFORMATION.
- 2. ALL CONFLICTS SHALL BE BROUGHT TO THE ARCHITECTS OR ENGINEERS ATTENTION IN ORDER TO ALLOW A CLARIFICATION TO BE ISSUED. ANY WORK COMPLETED WITHOUT THE CLARIFYING INFORMATION IS AT THE CONTRACTORS FINANCIAL RISK.
- 3. THE CONTRACTOR SHALL PROVIDE AND FURNISH ALL MATERIALS AND ACCESSORIES TO CREATE A FULLY OPERATIONAL, CODE COMPLIANT AND TESTED SYSTEM. ALL MATERIALS AND ACCESSORIES REQUIRED TO CREATE THE FULLY OPERATIONAL SYSTEM SHALL BE INCLUDED IN THE COST OF THIS PROJECT.
- 4. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE. THE CONTRACTOR MAY AT THEIR OPTION MODIFY THE PIPE ROUTING IN ORDER TO CREATE A SYSTEM THAT MEETS THE INTENT OF THIS SET OF CONSTRUCTION DOCUMENTS.
- 5. THE CONTRACTOR SHALL INCLUDE ALL ITEMS THAT ARE REQUIRED TO ENSURE THAT THE ENTIRE SYSTEM IS FUNCTIONING IN COMPLIANCE WITH THE APPLICABLE CODES, AND MANUFACTURES INSTALLATION RECOMMENDATIONS AND OR REQUIREMENTS.
- 6. ALL CUTTING, DRILLING AND PATCHING OF WALLS, FLOORS AND/OR STRUCTURAL MEMBERS FOR THE INSTALLATION OF THE PLUMBING AND FIRE PROTECTION SYSTEMS SHALL BE
- PROVIDED AS PART OF THE SCOPE OF THIS PROJECT. 7. STRUCTURAL COMPONENTS SHALL NOT BE CUT. DRILLED OR MODIFIED IN ANY WAY WITHOUT THE STRUCTURAL ENGINEERS REVIEW AND PRIOR WRITTEN APPROVAL.
- 8. PROVIDE FIRE STOPPING WHERE PIPES PENETRATE FIRE RATED FLOORS AND WALLS. FIRE
- STOPPING MATERIALS AND METHODS SHALL BE PER LOCAL AND STATE CODES AND
- 9. ALL PLUMBING SYSTEMS SHALL BE INSTALLED PER THE CURRENT PLUMBING CODE FOR THE LOCATION OF THE WORK BEING INSTALLED. 10. ALL PLUMBING EQUIPMENT, PIPING, FIXTURES, AND PIPE ACCESSORIES SHALL BE NSF 61,
- ANNEX G COMPLIANT. 11. ALL PIPING LOCATED WITHIN A RETURN AIR PLENUM SHALL COMPLY WITH A 25/50 FLAME
- SMOKE RATING. ANY EXISTING PIPING DISCOVERED WITHIN A RETURN AIR PLENUM THAT DOES NOT COMPLY WITH THIS REQUIREMENT SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT FOR FURTHER CLARIFICATION.
- 12. ALL EXTERIOR WALL PENETRATIONS SHALL BE SEALED WATER AND WEATHER TIGHT BY THE APPROPRIATE TRADE COMPETENT IN COMPLETING THIS WORK. THE COST OF THIS WORK
- SHALL BE INCLUDED IN THE SCOPE OF THIS PROJECT. 13. ALL VENT THROUGH ROOF (VTR) LOCATIONS SHALL BE FIELD VERIFIED IN REGARDS TO ANY
- OUTDOOR INTAKE. LOCATION OF VTR SHALL BE NO LESS THAN AS REQUIRED BY THE LOCAL OR STATE CODES.
- 14. DO NOT ATTACH ANY CONSTRUCTION TO THE ROOF DECK JOIST BRIDGING, JOIST CROSS BRACING, PIPING, CONDUIT, DUCTWORK OR ANY OTHER NON-STRUCTURAL ITEM.
- 15. DO NOT WELD OR DRILL INTO STRUCTURAL STEEL OR JOIST; INSTEAD USE CLAMPS, TIE WIRE, THRU-BOLTS WITH WASHERS 16. DO NOT USE ANY PVC, PLASTIC, ETC. IN PLENUM OR DEMISING WALLS UNLESS FIRE WRAPPED.
- ALL WOOD BLOCKING AND NAILERS, CONCEALED OR NOT SHALL BE FIRE RETARDANT TREATED. 17. DO NOT PENETRATE BUILDING WALLS FOR ANY DUCTING OR VENTING; ROUTE THROUGH ROOF
- USING OWNERS ROOFING CONTRACTOR. 18. VENT THROUGH ROOF INSTALLATION; ALL ROOFING WORK SHALL BE COMPLETED BY THE GENERAL
- CONTRACTOR'S ROOFING CONTRACTOR. THE COST SHALL BE INCLUDED IN THE SCOPE OF THIS 19. PIPING BELOW GROUND SHALL BE SERVICE-WEIGHT CAST IRON OR SCHEDULE 40 PVC. NO-HUB
- PIPING OR FERNCO CONNECTIONS ARE NOT PERMITTED BELOW GRADE. 20. ALL PIPING SHALL BE PROPERLY SUSPENDED BY THE STRUCTURE PER THE LOCAL CODES.
- 21. NO SANITARY WASTE OR VENT, HOT OR COLD WATER SHALL BE ALLOWED TO BE INSTALLED IN THE DEMISING WALLS.
- 22. ALL INSULATED PIPING SHALL BE WITH PLENUM RATED MATERIALS. 23. FLOOR DRAINS SHALL BE PROVIDED WITH TRAP PRIMERS OR TRAP GUARDS.
- 24. GAS PIPING SUPPORTED ON THE ROOF SHALL BE PROVIDED FREE FLOATING PREFABRICATED

FLOOR PLAN SYMBOLS

DETAIL WITH TOP LETTER INDICATING DETAIL DESIGNATION

IS REFERENCED ON OR DRAWING THAT DETAIL IS DRAWN ON

AND BOTTOM NUMBER INDICATING DRAWING THAT DETAIL

- SUPPORTS OR EQUIPMENT SUPPORTS WITH ROLLER ASSEMBLIES. WOOD SUPPORTS WILL NOT BE PERMITTED. 25. ALL GAS PIPING SHALL BE PROVIDED PIPE LABELS IDENTIFYING THE GAS PRESSURE.
- 26. ALL GAS PIPING SHALL BE INSTALLED PER THE LOCAL CODES FOR MATERIALS AND
- INSTALLATIONS REQUIREMENTS. 27. ALL SHUT-DOWN OF UTILITIES AND FIRE PROTECTION SYSTEMS SHALL BE ARRANGED WITH
- NO LESS THAN SEVEN (7) DAYS NOTICE TO THE OWNER. WORK MAY NOT COMMENCE UNLESS WRITTEN APPROVAL IS PROVIDED BY THE OWNER.

PLAN NOTE

HUMIDISTAT

CONNECTION OF NEW WORK TO EXISTING

THERMOSTAT - "N" INDICATING NIGHT SETBACK THERMOSTAT

PERMIT SET

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REVISIONS:

2.11.2022

PLUMBING SYMBOLS &

DRAWING NUMBER:

arcDESIGN PROJECT NUMBER: CLIENT PROJECT NUMBER:

DRAWN BY:

DRAWING TITLE:

ABBREVIATIONS

P001

1 FOUNDATION PLUMBING PLAN
1/8" = 1'-0"

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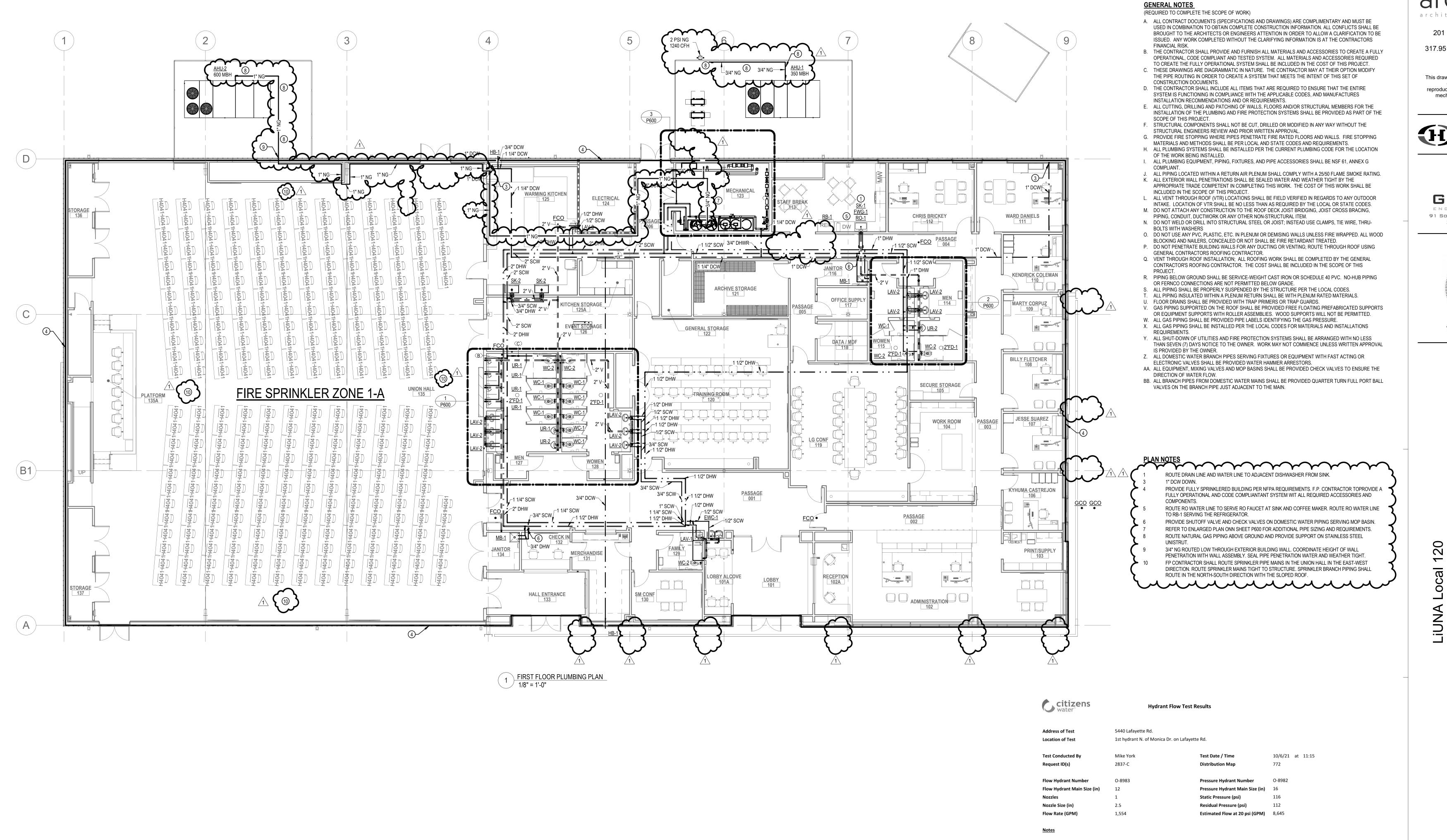
1 02.11.2022 ADDENDUM 3

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DRAWING TITLE:

FOUNDATION PLUMBING PLAN



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Any flow test data collected and or provided by Citizens Water shall be for informational purposes only. Designs shall not be completed assuming

the collected flow data is average flow or peak flow conditions. A request must be submitted to Citizens Water for hydraulic analysis to determine project requirements. The developer/engineer shall schedule a meeting with Citizens Water as soon as possible to coordinate project

WATER FLOW TEST CHART

2.11.2022 arcDESIGN PROJECT NUMBER: CLIENT PROJECT NUMBER:

DRAWING TITLE:

FIRST FLOOR PLUMBING PLAN

1 ROOF PLUMBING PLAN
1/8" = 1'-0"

GENERAL NOTES (REQUIRED TO COMPLETE THE SCOPE OF WORK)

A. ALL CONTRACT DOCUMENTS (SPECIFICATIONS AND DRAWINGS) ARE COMPLIMENTARY AND MUST BE

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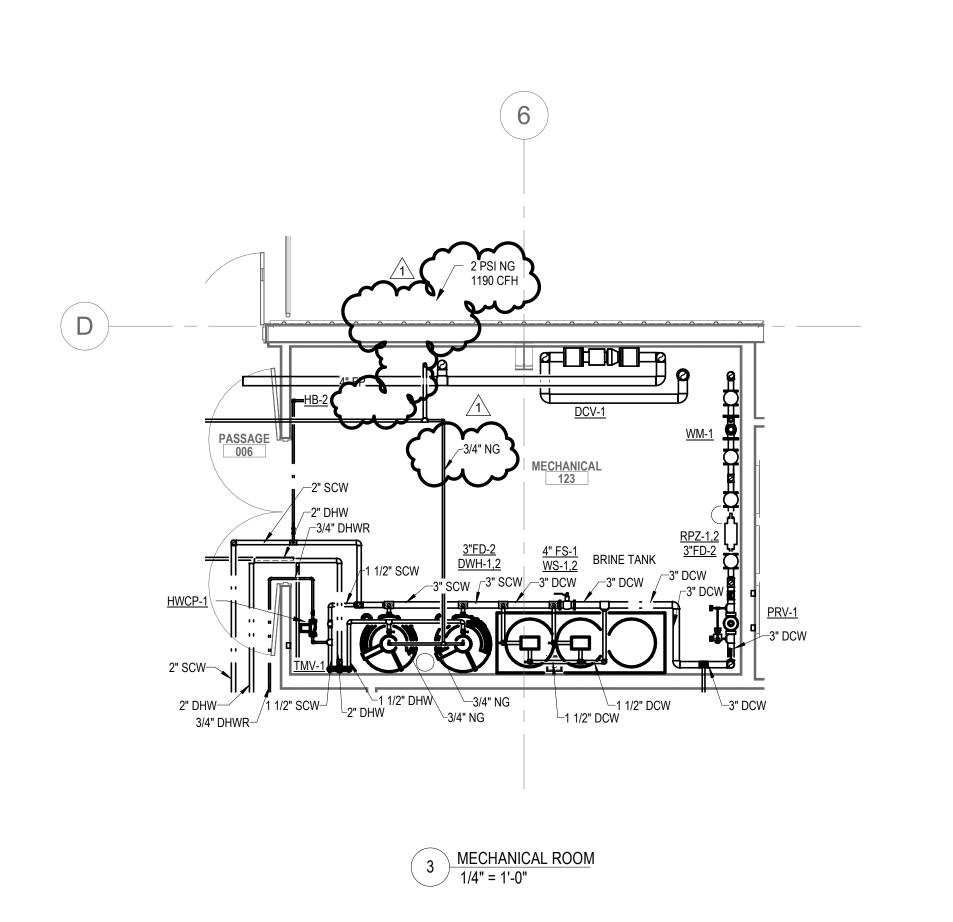
 \triangle REVISIONS: 1 02.11.2022 ADDENDUM 3

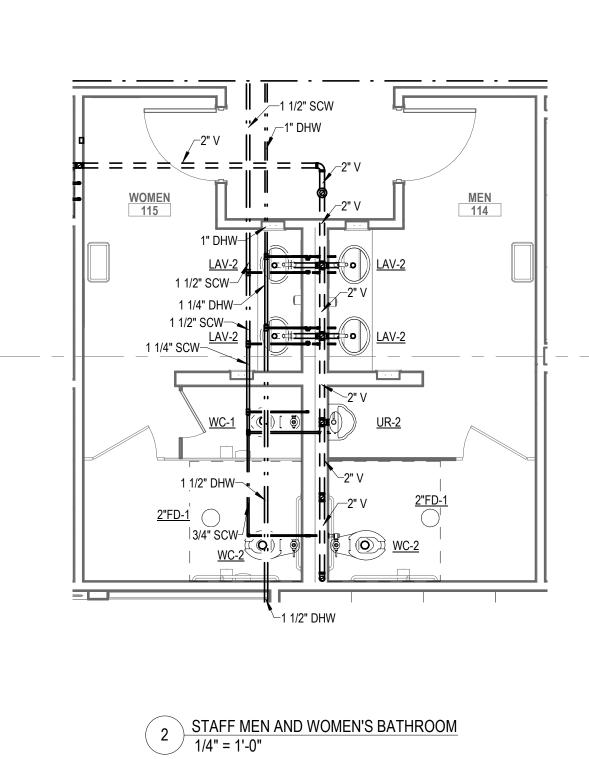
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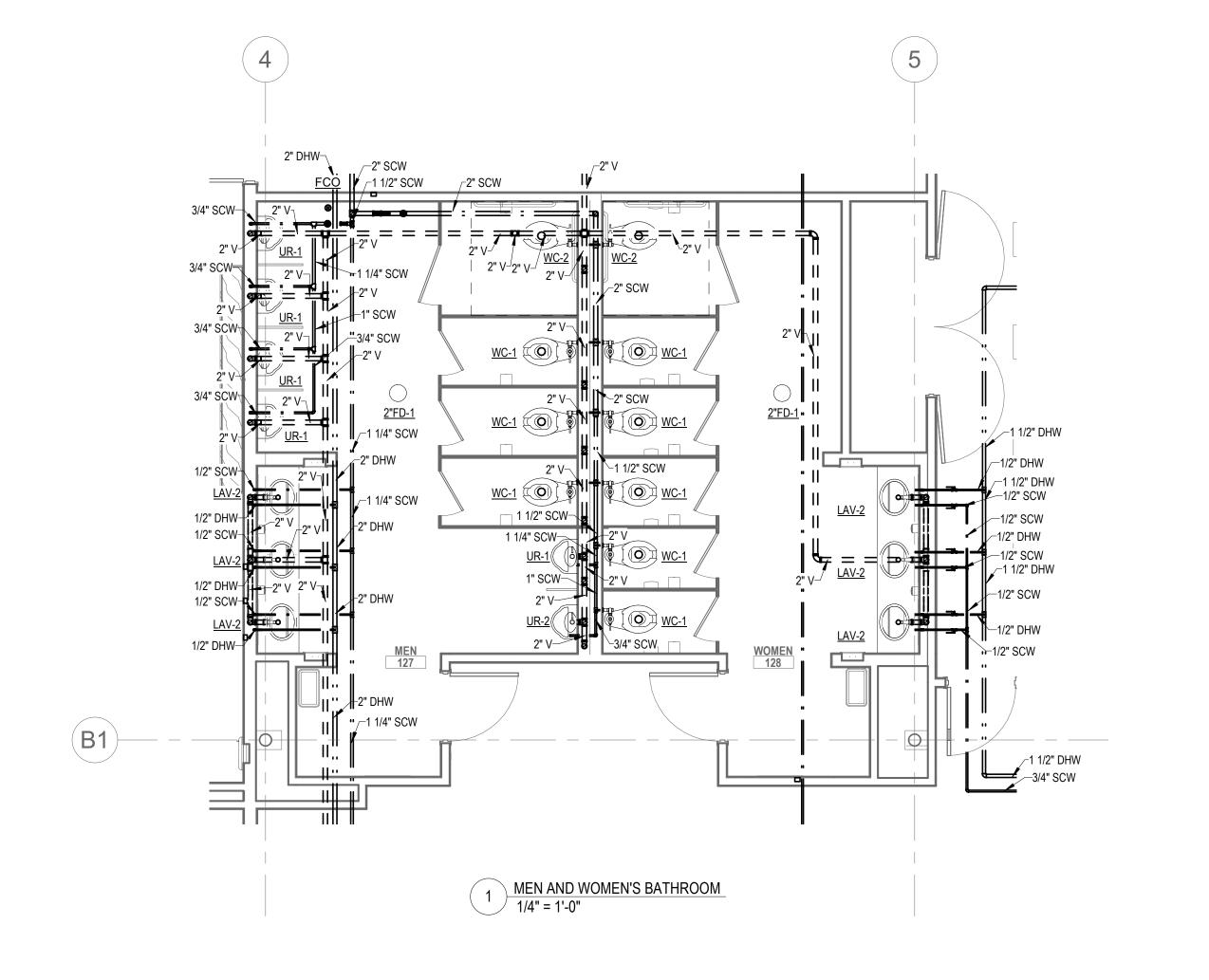
arcDESIGN PROJECT NUMBER: 21102 CLIENT PROJECT NUMBER:

DRAWING TITLE:

ROOF PLUMBING PLAN



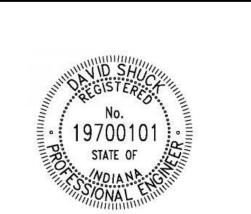




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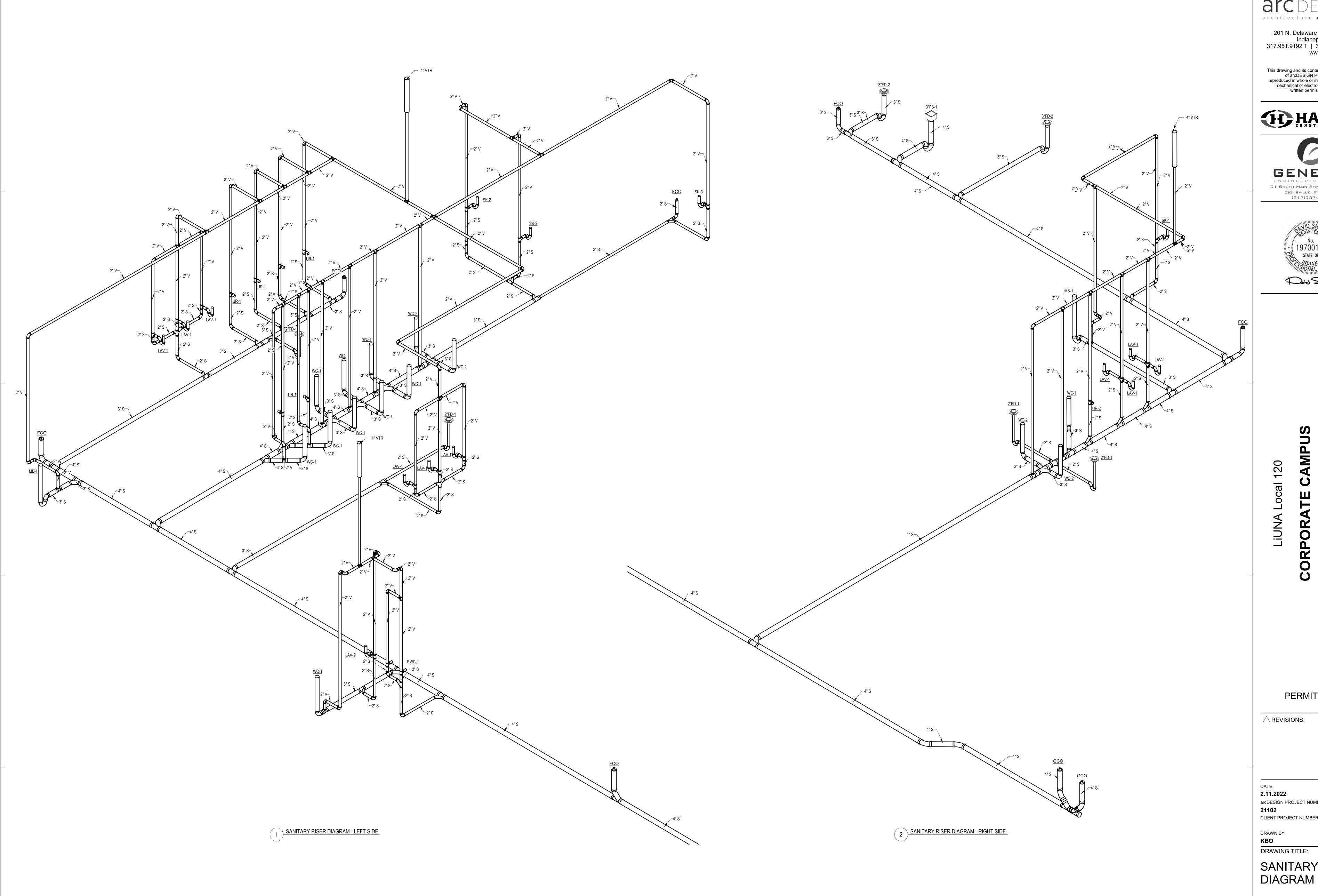
DATE: **2.11.2022**

arcDESIGN PROJECT NUMBER: CLIENT PROJECT NUMBER:

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ENLARGED PLUMBING PLANS

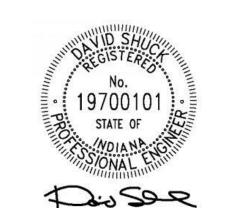




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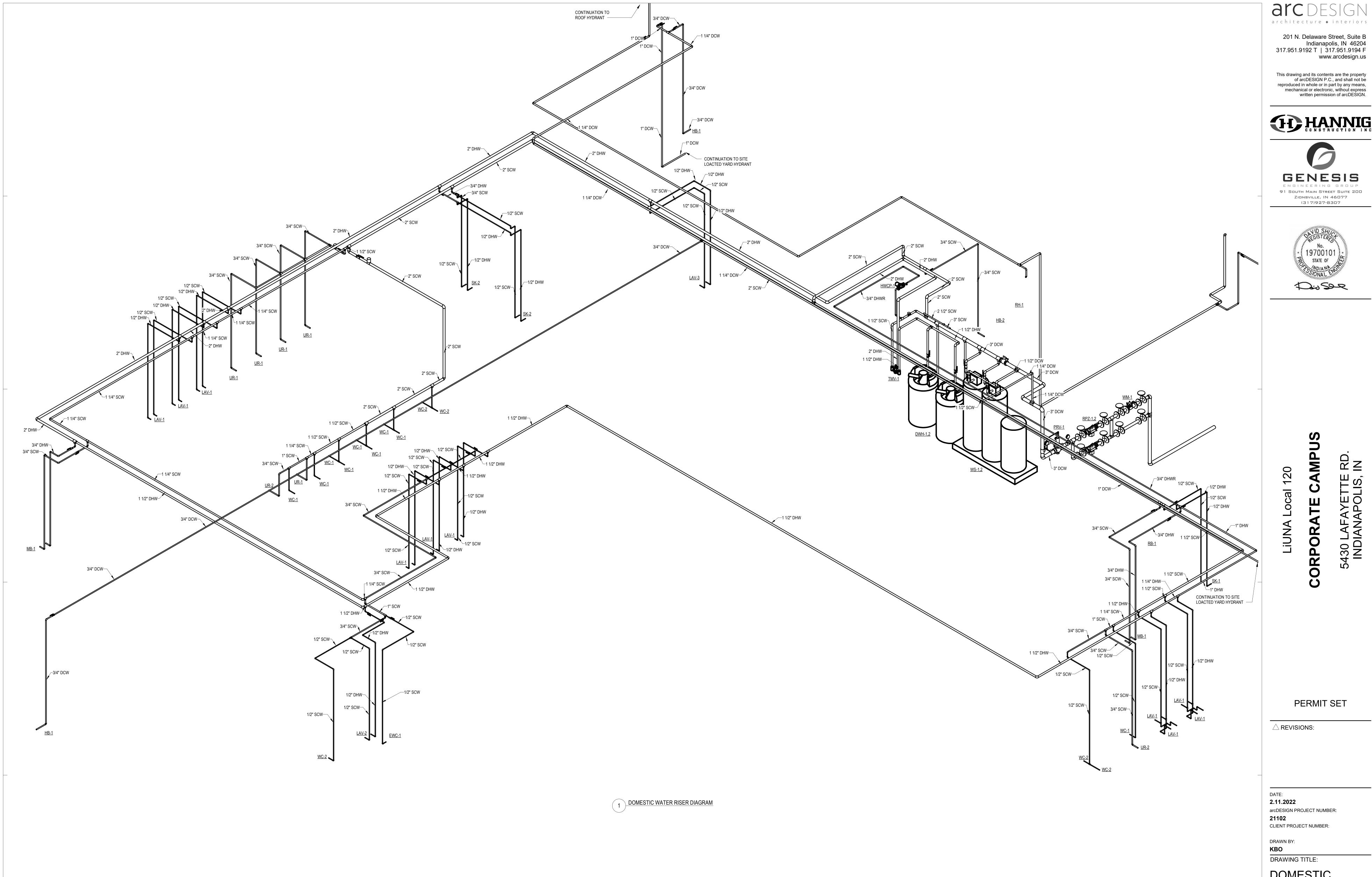
arcDESIGN PROJECT NUMBER:

CLIENT PROJECT NUMBER:

SANITARY RISER

DRAWING NUMBER:

P700





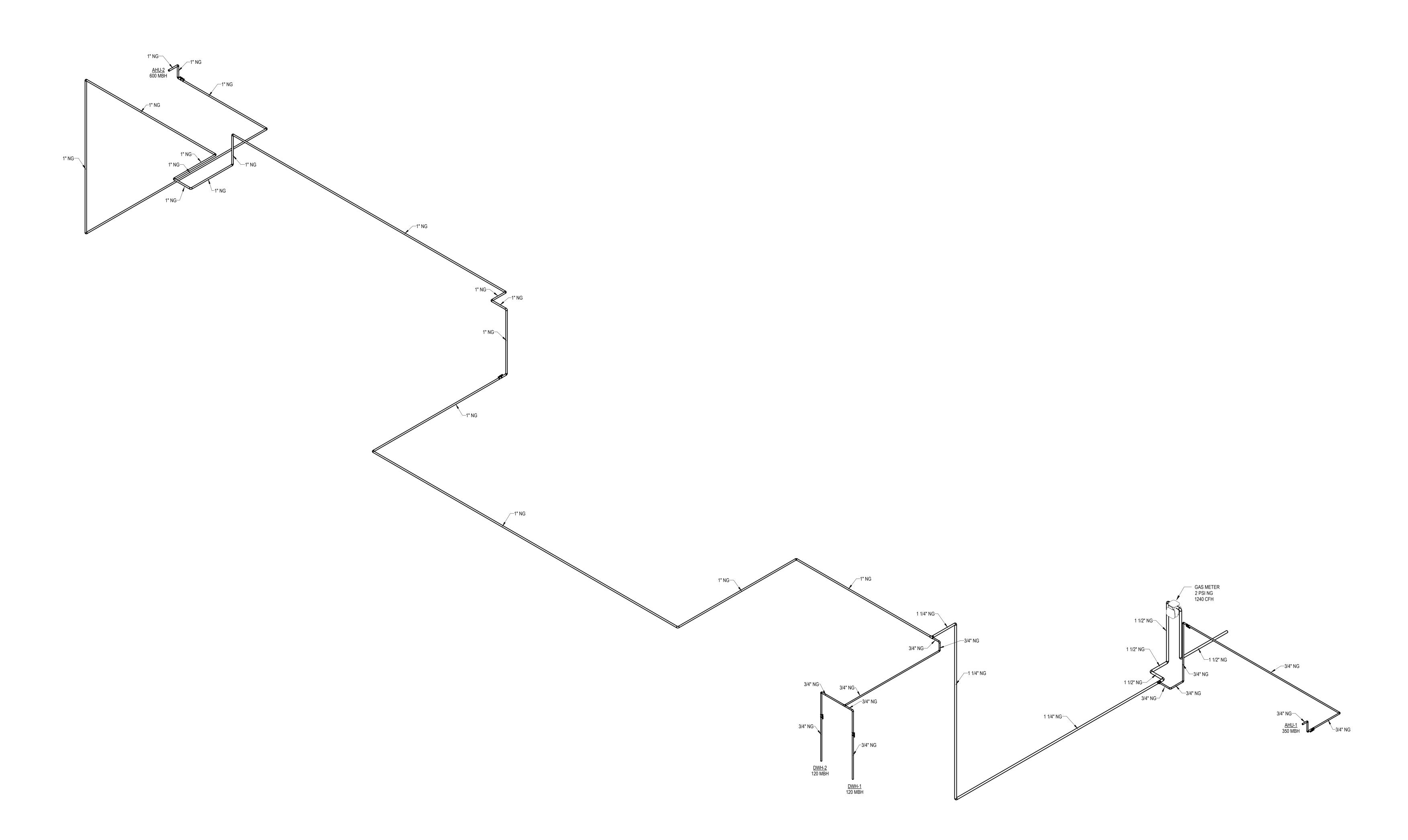
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DOMESTIC WATER RISER DIAGRAM

DRAWING NUMBER:

P701



1 NATURAL GAS ISOMETRIC

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1 02.11.2022 ADDENDUM 3

DATE:

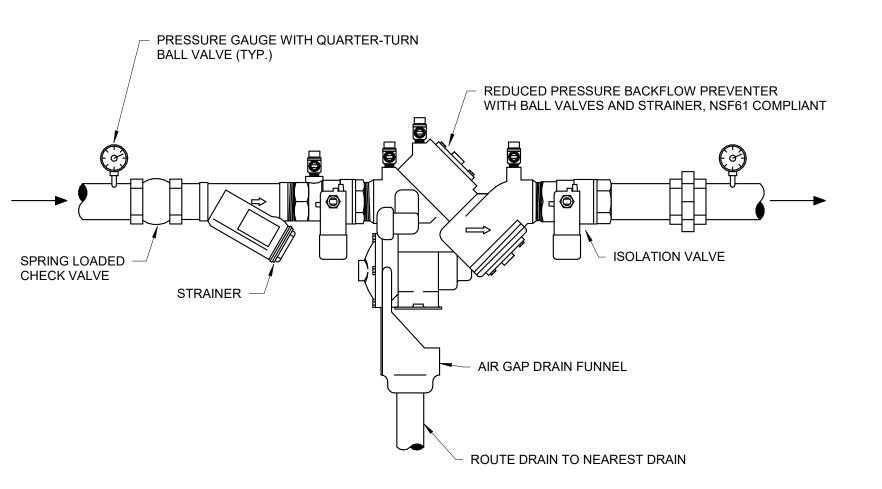
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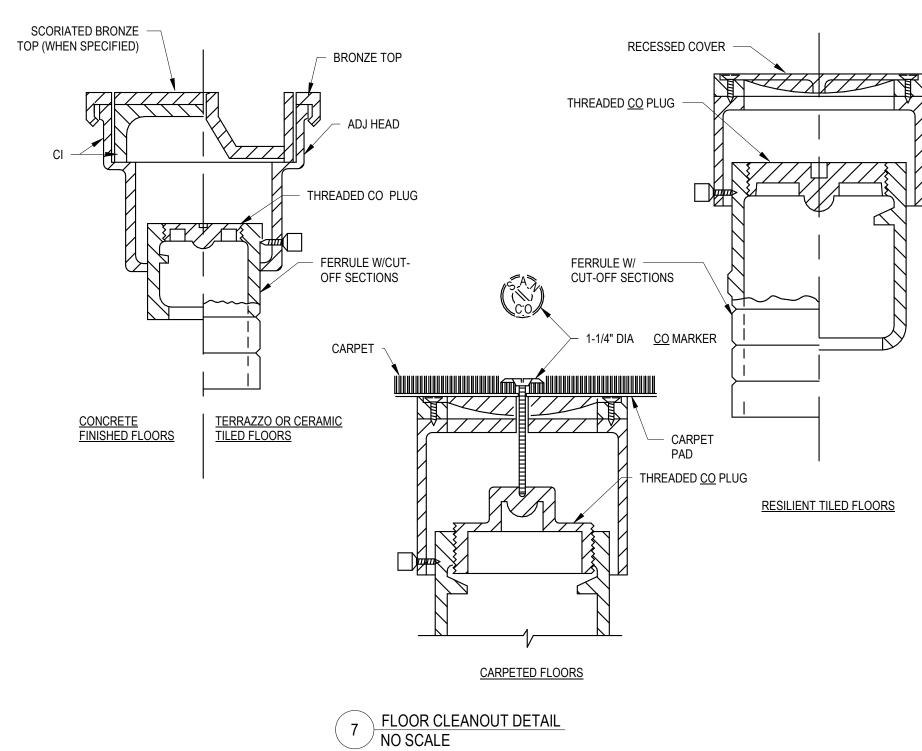
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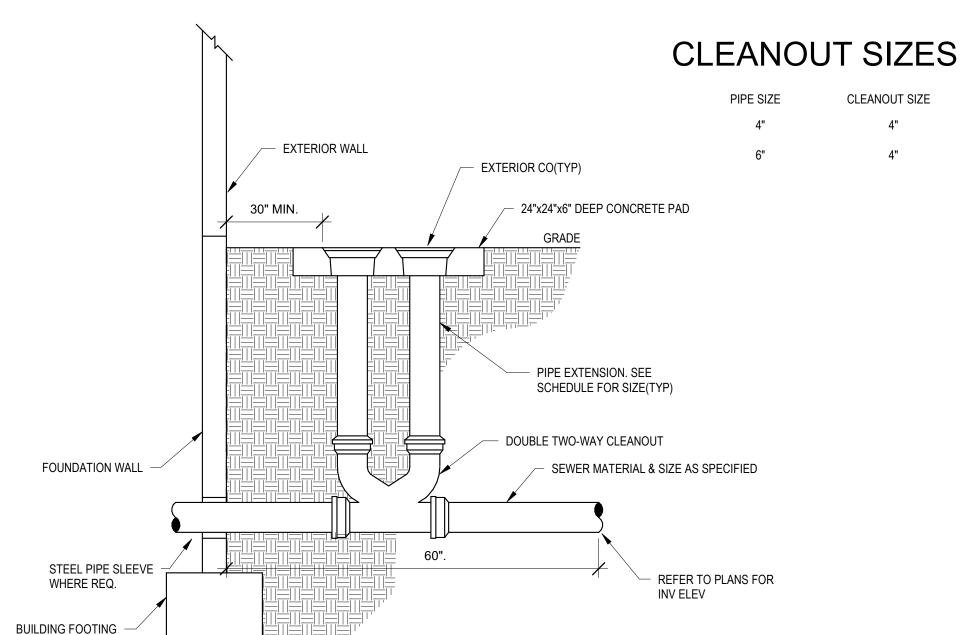
DRAWING TITLE:

NATURAL GAS RISER DIAGRAM

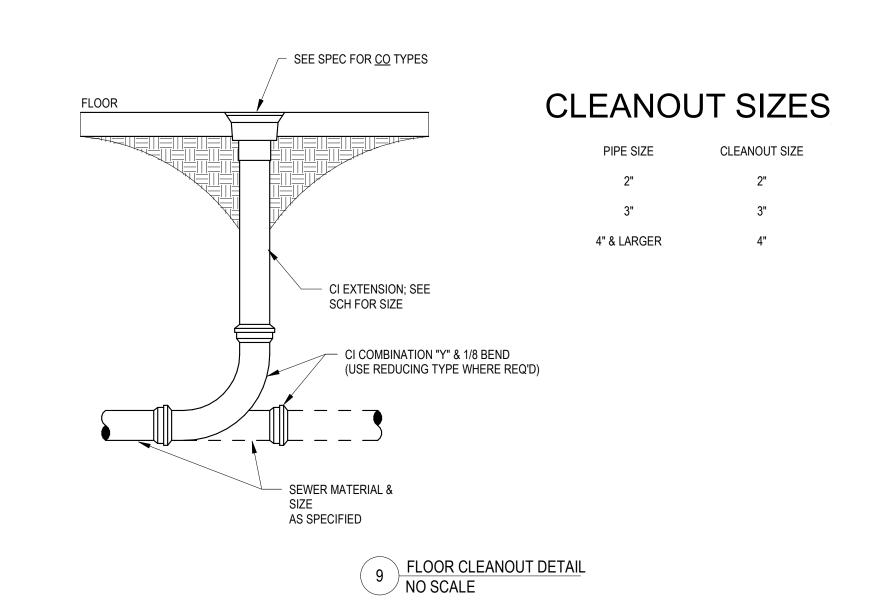


BACKFLOW PREVENTION DETAIL 2" AND SMALLER NO SCALE

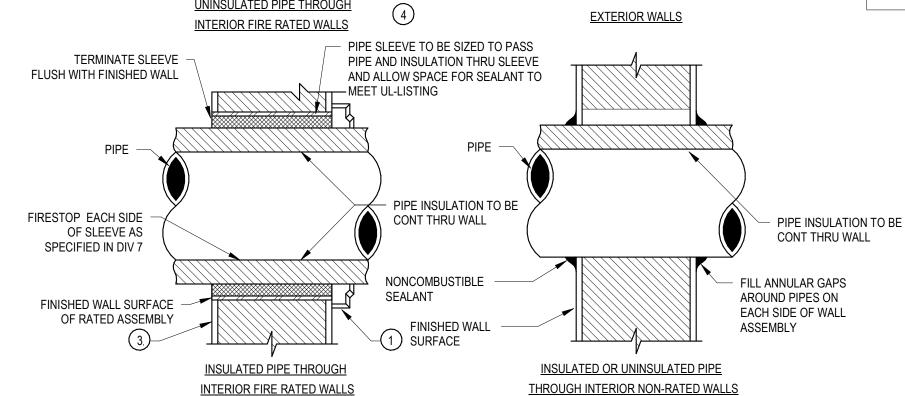




8 EXTERIOR TWO-WAY SANITARY CLEANOUT DETAIL NO SCALE



PIPE SLEEVE TO BE SIZED TO PASS PIPE THRU SLEEVE AND ALLOW SPACE FOR SEALANT TO MEET UL-LISTING TERMINATE SLEEVE FLUSH WITH FINISHED WALL SLEEVE WATER STOP -WALL SLEEVE PIPE -FIRESTOP EACH SIDE OF SLEEVE AS SPECIFIED IN DIV 7 FINISHED WALL SURFACE OF RATED ASSEMBLY HYDRO-STATIC PIPE CLOSURE; "LINK-SEAL" EXTERIOR WALLS **INTERIOR FIRE RATED WALLS**



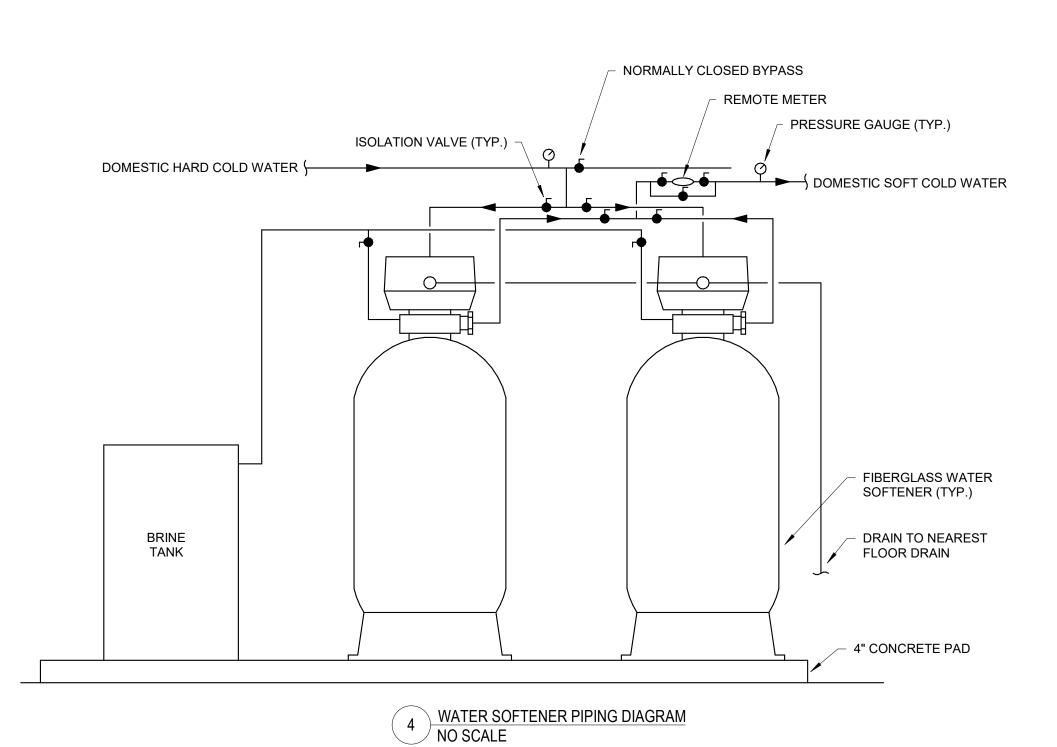
1) PROVIDE ESCUTCHEON PLATE FLUSH AGAINST WALL AND OF SIZE TO COMPLETELY COVER OPENING IN EXPOSED AREAS ONLY. 2) SEE SPECIFICATION SECTIONS FOR FURTHER REQUIREMENTS INCLUDING FLOOR SLEEVES. 3 LOCATE FIRESTOP LABEL ON EACH SIDE OF PENETRATION SO THAT IT IS VISIBLE FROM AN ACCESSIBLE

OR SMOKE-RESISTANT CORRIDOR WALLS

3 PIPE PENETRATION DETAILS

NO SCALE

(4) INCLUDES FIRE WALLS, FIRE BARRIERS, SMOKE BARRIERS, AND FIRE PARTITIONS.



| | 1 | | | | V | MOUNTING HEIGHT | MANUFAC |
|---|--|---|---|--|---|--|---|
| WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE | - | 1" | INTERGAL | 3" | 2" | 16" TO SEAT | ZURN Z56: ZURN Z6 |
| WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE, ADA | - | 1" | INTERGAL | 3" | 2" | 17" TO SEAT | ZURN Z560 ZURN Z6 |
| LAVATORY, WALL MOUNT, ADA | 1/2" | 1/2" | 1 1/4" | 2" | 2" | REFER TO ARCHITECTURAL DRAWINGS | ZURN Z SYMMONS |
| LAVATORY, UNDERMOUNT | 1/2" | 1/2" | 1 1/4" | 2" | 2" | REFER TO ARCHITECTURAL DRAWINGS | SYMMONS |
| LAVATORY, WALL MOUNT, ADA | 1/2" | 1/2" | 1 1/4" | 2" | 2" | REFER TO ARCHITECTURAL DRAWINGS | ZURN 2 ZURN Z831 |
| URINAL, WALL-HUNG, FLUSH VALVE | - | 3/4" | INTERGAL | 2" | 2" | 24" TO RIM | ZURN Z ZURN : |
| URINAL, WALL-HUNG, FLUSH VALVE, ADA | - | 3/4" | INTERGAL | 2" | 2" | 17" TO RIM | ZURN Z ZURN |
| SINK, SINGLE COMPARTMENT, UNDERMOUNT | 1/2" | 1/2" | 1-1/2" | 2" | 2" | MOUNT SINK UNDER COUNTER TOP | JUST MANUI USN-18 SYMMONS |
| SINK, SINGLE COMPARTMENT, DROP-IN | 1/2" | 1/2" | 1-1/2" | 2" | 2" | MOUNT IN CASEWORK | KOHLER T&S BRASS B- |
| ELECTRIC WATER COOLER, BOTTLE FILLER, BI-LEVEL, FILTERED, ADA | - | 1/2" | INTERGAL | 2" | 2" | REFER TO ARCHITECTURAL DRAWINGS | ELKAY LMAE |
| MOP SINK | 3/4" | 3/4" | 3" | 3" | 2" | MOUNT FAUCET 36" ABOVE FINISHED FLOOR | FIAT MSBI WITH M |
| REFRIGERATOR BOX | - | 1/2" | - | - | - | 36" | ОАТ |
| HOSE BIB | - | 3/4" | - | - | - | 18" | WOODF |
| | WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE, ADA LAVATORY, WALL MOUNT, ADA LAVATORY, UNDERMOUNT LAVATORY, WALL MOUNT, ADA URINAL, WALL-HUNG, FLUSH VALVE URINAL, WALL-HUNG, FLUSH VALVE, ADA SINK, SINGLE COMPARTMENT, UNDERMOUNT SINK, SINGLE COMPARTMENT, DROP-IN ELECTRIC WATER COOLER, BOTTLE FILLER, BI-LEVEL, FILTERED, ADA MOP SINK REFRIGERATOR BOX | WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE, ADA LAVATORY, WALL MOUNT, ADA 1/2" LAVATORY, UNDERMOUNT 1/2" LAVATORY, WALL MOUNT, ADA 1/2" URINAL, WALL-HUNG, FLUSH VALVE URINAL, WALL-HUNG, FLUSH VALVE, ADA SINK, SINGLE COMPARTMENT, UNDERMOUNT 1/2" SINK, SINGLE COMPARTMENT, DROP-IN 1/2" ELECTRIC WATER COOLER, BOTTLE FILLER, BI-LEVEL, FILTERED, ADA MOP SINK 3/4" REFRIGERATOR BOX - | WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE, ADA LAVATORY, WALL MOUNT, ADA LAVATORY, UNDERMOUNT LAVATORY, UNDERMOUNT LAVATORY, WALL MOUNT, ADA 1/2" LAVATORY, WALL MOUNT, ADA 1/2" URINAL, WALL-HUNG, FLUSH VALVE URINAL, WALL-HUNG, FLUSH VALVE, ADA SINK, SINGLE COMPARTMENT, UNDERMOUNT SINK, SINGLE COMPARTMENT, DROP-IN LEECTRIC WATER COOLER, BOTTLE FILLER, BI-LEVEL, FILTERED, ADA MOP SINK 3/4" REFRIGERATOR BOX - 1/2" | WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE, ADA LAVATORY, WALL MOUNT, ADA 1/2" 1/2" 1 1/4" LAVATORY, UNDERMOUNT 1/2" 1/2" 1 1/4" LAVATORY, WALL MOUNT, ADA 1/2" 1/2" 1 1/4" 1 1/4" URINAL, WALL-HUNG, FLUSH VALVE - 3/4" INTERGAL URINAL, WALL-HUNG, FLUSH VALVE, ADA - 3/4" INTERGAL SINK, SINGLE COMPARTMENT, UNDERMOUNT 1/2" SINK, SINGLE COMPARTMENT, DROP-IN 1/2" ELECTRIC WATER COOLER, BOTTLE FILLER, BI-LEVEL, FILTERED, ADA MOP SINK 3/4" 3/4" 3" REFRIGERATOR BOX - 1/2" - 1/2" | WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE, ADA - 1" INTERGAL 3" LAVATORY, WALL MOUNT, ADA 1/2" 1/2" 1 1/4" 2" LAVATORY, UNDERMOUNT 1/2" 1/2" 1 1/4" 2" LAVATORY, WALL MOUNT, ADA 1/2" 1/2" 1 1/4" 2" URINAL, WALL-HUNG, FLUSH VALVE - 3/4" INTERGAL 2" URINAL, WALL-HUNG, FLUSH VALVE, ADA - 3/4" INTERGAL 2" SINK, SINGLE COMPARTMENT, UNDERMOUNT 1/2" 1/2" 1-1/2" 2" ELECTRIC WATER COOLER, BOTTLE FILLER, BI-LEVEL, FILTERED, ADA - 1/2" INTERGAL 2" MOP SINK 3/4" 3/4" 3" 3" REFRIGERATOR BOX - 1/2" - - | WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE, ADA 1/2" 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/4" 2" 2" 2" 1 1/2" 1 1/2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 1 1/2" 2" 2" 2" 2" 1 1/2" 2" 2" 2" 2" 1 1/2" 2" 2" 2" 2" 2" 1/2" 2" 2" 2" 2" 2" 2" 2" 2" 2" 2" 2" 2" 2 | WATER CLOSET, FLOOR MOUNTED, FLUSH VALVE, ADA - 1" INTERGAL 3" 2" 17" TO SEAT LAVATORY, WALL MOUNT, ADA 1/2" 1/2" 1 1/4" 2" 2" ARCHITECTURAL DRAWINGS LAVATORY, UNDERMOUNT 1/2" 11/2" 1 1/4" 2" 2" ARCHITECTURAL DRAWINGS LAVATORY, UNDERMOUNT, ADA 1/2" 1/2" 1 1/4" 2" 2" ARCHITECTURAL DRAWINGS LAVATORY, WALL MOUNT, ADA 1/2" 1/2" 1 1/4" 2" 2" ARCHITECTURAL DRAWINGS URINAL, WALL-HUNG, FLUSH VALVE - 3/4" INTERGAL 2" 2" 24" TO RIM URINAL, WALL-HUNG, FLUSH VALVE, ADA - 3/4" INTERGAL 2" 2" 17" TO RIM SINK, SINGLE COMPARTMENT, UNDERMOUNT 1/2" 1/2" 1-1/2" 2" 2" MOUNT SINK UNDER COUNTER TOP SINK, SINGLE COMPARTMENT, DROP-IN 1/2" 1-1/2" 2" 2" MOUNT IN CASEWORK ELECTRIC WATER COOLER, BOTTLE FILLER, BI-LEVEL, FILTERED, ADA - 1/2" INTERGAL <t< td=""></t<> |

PLUMBING EQUIPMENT SCHEDULE

BACKFLOW PREVENTER SCHEDULE

LOCATION

120000

CAPACITY

154 GPM @ 90°F ΔT

5 GPM @ 21°F ΔT

.9 GALLON ACCEPTANCE

74GPM @ 15 PSIPD 97GPM @ 25 PSIPD

SET PRV @ 75 PSI MAX

85 GPM @ 15 PSI PD

SERVICE

MECHANICAL ROOM DOMESTIC WATER REDUCED PRESSURE

MECHANICAL ROOM FIRE PROTECTION DOUBLE CHECK

NOTES

COORDINATE WITH UTILITY ALL REQUIREMENTS AND

INSTALL PER UTILITY REQUIREMENTS.

ROUTE DRAIN TO FLOOR DRAIN.

NSF-61, ANNEX G COMPLIANT

INSTALL PER MANUFACTURES REQUIREMENTS.

PROVIDE PRV WITH LOW FLOW BY-PASS

ROUTE TO NEAREST FLOOR DRAIN

ROUTE TO NEAREST FLOOR DRAIN

VOLTAGE PHASE HP/WATT EFFICIENCY GALLONS STORAGE BTU INPUT

1/12 HP

RATED CAPACITY

350 GPM

85 GPM

PRESSURE

5.00 psi

DROP

REFERENCE

MANUFACTURE

A.O. SMITH

B&G

XYLEM

MARLO

HAUGE

ZURN WILKINS

LAWLER

BTH-120

PL-30

PTA-5

MGT-240 2"

PAB6800KIT

200109

ZW209BP

375XL2

120

120

FIXTURE

DWH-1,2

HWCP-1

ET-1

WS-1,2

PRV-1

TMV-1

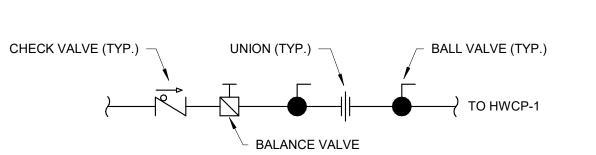
EQUIPMENT

DCV-1

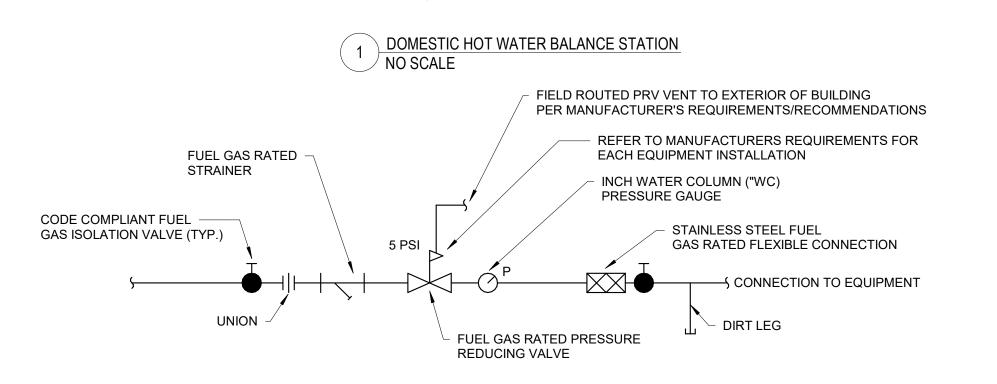
DESIGNATION

| PIPING SYSTEM | THICKNESS, TYPE | NOTES |
|---|---|-------|
| MOISTURE CONDENSATE DRAINS - ABOVE GRADE | 3/4" PRE-FORMED FIBERGLASS OR ELASTOMERIC | 1,3 |
| INTERIOR HORIZONTAL WASTE LINES FROM AIR CONDITIONING EQUIPMENT | 3/4" PRE-FORMED FIBERGLASS OR ELASTOMERIC | 1,3 |
| DOMESTIC HOT WATER LINE 1-1/4" AND LESS | 1" PRE-FORMED FIBERGLASS OR ELASTOMERIC | 1,2,3 |
| DOMESTIC HOT WATER LINES 1-1/2" AND LARGER | 1-1/2" PRE-FORMED FIBERGLASS OR ELASTOMERIC | 1,3 |
| DOMESTIC COLD WATER LINES 1" AND LESS | 3/4" PRE-FORMED FIBERGLASS OR ELASTOMERIC | 1,2,3 |
| DOMESTIC COLD WATER LINES 1-1/4" TO 8" | 3/4" PRE-FORMED FIBERGLASS OR ELASTOMERIC | 1,2,3 |
| BURIED PIPING | 1" ELASTOMERIC | 1 |
| STORM WATER DRAINS ABOVE GRADE, HORIZONTAL | 1" PRE-FORMED FIBERGLASS OR ELASTOMERIC | 1,2,3 |
| - | NOTES: | |
| 1. MINIMUM 1" WITH CONDU | JCTIVITY LESS THAN 0.28 BTU * INCH / (HR * FT * F |) |

| | FLOOR AND ROOF DRAIN SCHEDULE | | | | | | | | | |
|---|-------------------------------|--------------------------|--------------------|--|-----------|--|--|--|--|--|
| | FIXTURE | REFERENCE MANUFACTURE | REFERENCE MODEL | DIAMETER | NOTES | | | | | |
| | FD-1 | JR. SMITH | 2005-A06PB | 5" | 2" OUTLET | | | | | |
| | FD-2 | JR. SMITH | 2005-F37PB | 7" | 3" OUTLET | | | | | |
| 2 | γ**γ~` 4 | | ~~~~~ ~ ~ ~ ~ ~ | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | | | | | | |
| 2 | | | | | | | | | | |
| 2 | | | ATER HAMMER ARRES | STOR SCHEDULE | | | | | | |
| 2 | | | ATER HAMMER ARRES | STOR SCHEDULE REMARKS | | | | | | |
| 2 | | | | | | | | | | |



SET DOMESTIC BALANCE STATION TO ACHIEVE 110°F HOT WATER RETURN TEMPERATURE WHEN THE CIRCULATION PUMP IS OPERATING. PUMP POWER ON AT 105°F. PUMP POWER OFF AT 115°F. CONTROLLED BY AQUASTAT



2 GAS FIRED EQUIPMENT PIPING CONNECTION DETAIL NO SCALE

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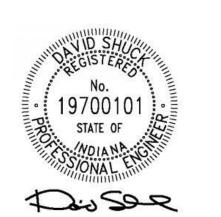
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PERMIT SET

 \triangle REVISIONS: 1 01.07.2022 ADDENDUM 1

2 02.11.2022 ADDENDUM 3

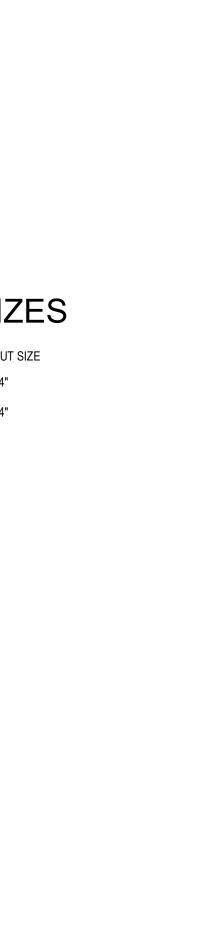
2.11.2022 arcDESIGN PROJECT NUMBER: 21102

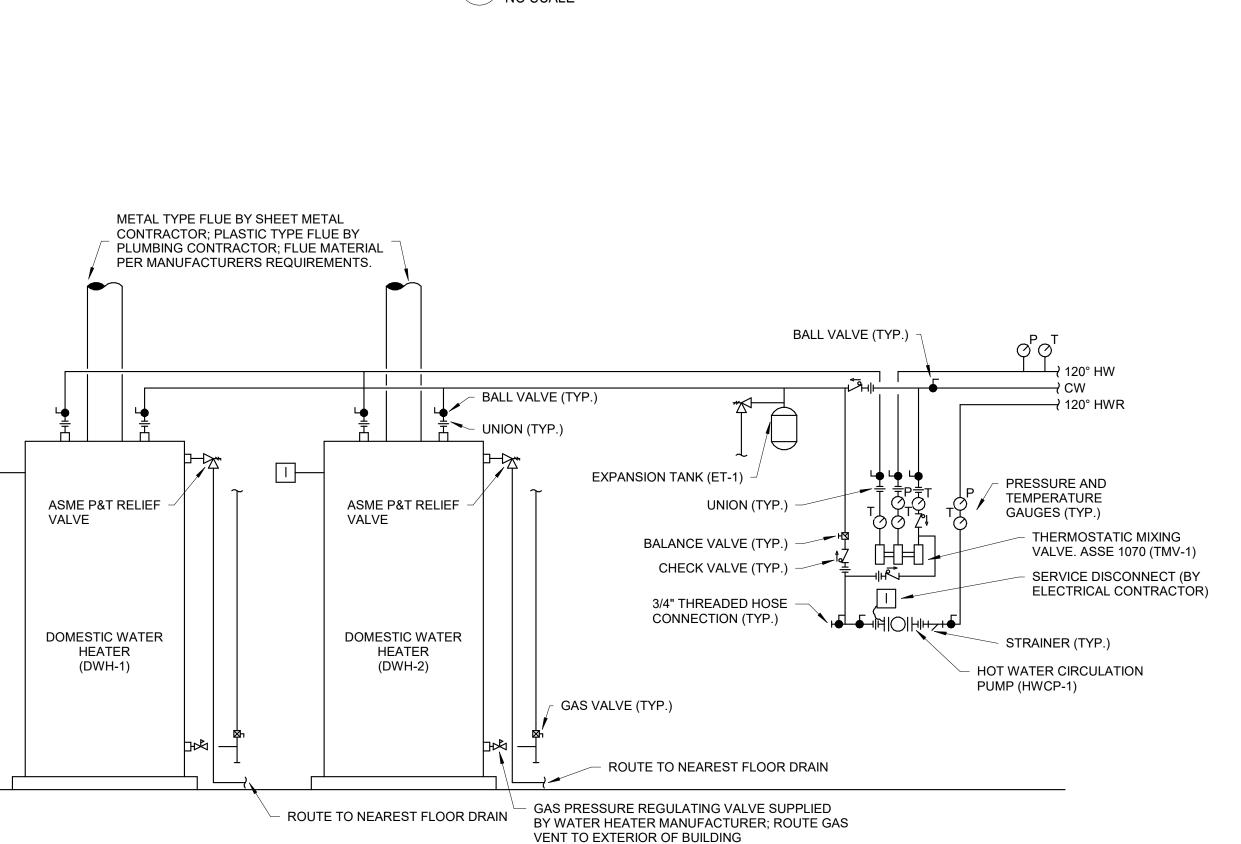
CLIENT PROJECT NUMBER: DRAWN BY: KBO

DRAWING TITLE: PLUMBING

SCHEDULES AND DETAILS

DRAWING NUMBER:





DOMESTIC WATER HEATER DETAIL-3

NO SCALE

- PROVIDE SUPPORT WIRES FOR ALL LIGHT FIXTURES.
- COORDINATE INSTALLATION OF LIGHT FIXTURES WITH ARCHITECTURAL REFLECTED CEILING PLAN, HVAC EQUIPMENT, DUCTWORK, PIPING AND SUPPORTS.
- ELECTRICAL CONTRACTOR SHALL VERIFY THE CONDITIONS AT THE PROJECT SITE BEFORE SUBMITTING COST PROPOSAL. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS TO FAMILIARIZE HIMSELF WITH EXTENT OF THE WORK

AND FIRE WALLS. REFER TO THE ARCHITECTURAL SPECIFICATIONS FOR REQUIREMENTS.

- ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE CURRENT ANSI / NFPA 70 WITH STATE AMENDMENTS, ENERGY CODE, ANSI / IEEE C2 AND ALL FEDERAL, STATE, LOCAL AND MUNICIPAL CODES AND ORDINANCES. THE ELECTRICAL SUBCONTRACTOR SHALL COMPLY WITH THE DIRECTIONS OF ALL AUTHORITIES HAVING JURISDICTION. INSTALL WORK USING PROCEDURES DEFINES IN NECA STANDARDS OF INSTALLATION. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
- REFER TO THE ARCHITECTURAL DRAWINGS FOR CEILING WORK BY THE GENERAL CONTRACTOR. COORDINATE ALL ELECTRICAL WORK. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL FLOOR, WALL, AND CEILING PENETRATIONS TO COMPLETE HIS WORK. PROVIDE PROPER FIRESTOPPING/ FIRE SAFEING FOR ALL PENETRATIONS MADE. PROVIDE APPROPRIATE SEALANT (I.E. FIRESAFEING) TO MAINTAIN CONSTRUCTION INTEGRITY FOR ANY PENETRATIONS THROUGH FLOORS, STRUCTURAL CEILING.
- COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES TO ENSURE EFFECTIVE AND EFFICIENT OVERALL INSTALLATION. 0. THE LOCATION OF RECEPTACLES, PHONE / DATA JACKS, AND ROOM EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED WITH THE
- ARCHITECT DURING THE CONSTRUCTION PHASE. 11. ALL EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING. 12. PHYSICAL SIZES AND LOCATIONS OF ALL MECHANICAL EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. COORDINATE ELECTRICAL WORK FOR THIS EQUIPMENT WITH THE
- 13. ALL BRANCH CIRCUITS SHALL UTILIZE SEPARATE INDEPENDENT NEUTRAL CONDUCTORS. DO NOT COMBINE NEUTRAL CONDUCTORS.
- 14. ALL FEEDER NEUTRAL / GROUNDED CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. DERATE MULTIPLE CONDUCTORS IN A RACEWAY ACCORDINGLY WITH NEC TABLES. 15. INSTALL ALL CONDUITS, RACEWAYS, AND CABLE TRAY FOR MAXIMUM HEAD CLEARANCE IN MECHANICAL AREAS. 16. WIRING SHALL BE INSTALLED ABOVE ACCESSIBLE CEILINGS AND WITHIN WALL CAVITIES WHERE POSSIBLE.
- '. WIRING THAT IS TO BE INSTALLED IN AREAS WHERE THERE ARE NO CEILINGS SHALL BE INSTALLED EXPOSED. THIS WIRING SHALL BE INSTALLED NEATLY AND AT RIGHT ANGLES TO STRUCTURE. WIRING SHALL BE INDEPENDENTLY SUPPORTED AS REQUIRED. WIRING SHALL NOT LAY OVER OTHER TRADES. 18. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN STORING OF ELECTRICAL EQUIPMENT AND MATERIAL.
- 19. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR ELECTRICAL WORK. ALL CUTTING, PATCHING, REPAIRING, REPLACEMENT AND REFINISHING, SHALL MATCH THE GENERAL CONSTRUCTION AS NEARLY AS POSSIBLE. REFER TO THE ARCHITECTURAL SPECIFICATIONS FOR REQUIREMENTS. 20. BLOCKING: ELECTRICAL CONTRACTOR SHALL PROVIDE ALL IN-WALL BLOCKING REQUIRED TO SUPPORT ELECTRICAL EQUIPMENT.
- 21. WIRING METHOD IN RETURN AIR PLENUM ABOVE CEILING SHALL BE NONCOMBUSTIBLE OR LISTED / LABELED FOR RATING OF FLAME SPREAD AND SMOKE DEVELOPED INDEX PER INEC ARTICLE 300(C)(1)

GENERAL LIGHTING NOTES

- WHERE OCCUPANCY SENSORS ARE INDICATED ON PLANS, THE ENTIRE ROOM SHALL BE COVERED. MANUFACTURER IS RESPONSIBLE FOR SENSOR LAYOUT. ADDITIONAL SENSORS REQUIRED DUE TO LACK OF COVERAGE SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. PROVIDE QUANTITY AS REQUIRED. CEILING AND WALL MOUNTED SENSORS SHALL BE DUAL-TECHNOLOGY TYPE. SENSORS SHALL INCLUDE ALL POWER SUPPLIES AND RELAYS NECESSARY TO CONTROL LIGHT FIXTURES IN ROOM/AREA. SENSORS SHALL OPERATE IN "VACANCY" MODE - MANUAL ON/AUTO OFF. ACCEPTABLE MANUFACTURERS ARE: HUBBELL, SENSOR SWITCH, LEVITON,
- LIGHTOLIER, WATTSTOPPER. ALL LIGHT FIXTURES SHOWN WITH EMERGENCY BATTERY BALLASTS OR BACKUP SHALL HAVE UNSWITCHED "HOT" WIRE INSTALLED TO FIXTURE FROM INDICATED LIGHTING

GENERAL WIRING DEVICE NOTES

I. AT LOCATIONS WITH TWO OR MORE WALLSWITCHES, ALL SWITCHES SHALL BE INSTALLED GAGNED IN A COMMON SWITCH BOX.

2. ALL RECEPTACLES SHALL BE COMMERCIAL GRADE TYPE GENERAL ADA REQUIREMENT NOTES

- 1. FOR ACCESSIBLE AREAS: A. ELECTRICAL CONTRACTOR SHALL VERIFY ALL ACCESSIBLE REQUIREMENTS PRIOR TO ANY WORK.
- B. ALL DEVICES WITHIN THESE AREAS SHALL BE INSTALLED IN ACCORDANCE WITH ADA REQUIREMENTS C. ALL FIRE ALARM SIGNAL DEVICES IN THES AREAS SHALL COMPLY WITH ADA REQUIREMENTS.

TELEPHONE AND DATA SYSTEMS NOTES

- . THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CONDUITS AND OTHER RACEWAYS REQUIRED FOR TELEPHONE AND DATA SYSTEMS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER CONNECTIONS FOR THE TELEPHONE AND DATA SYSTEMS EQUIPMENT.
- REFER TO THE LOW VOLTAGE SYSTEMS RESPONSIBILITY MATRIX.

VOLTAGE DROP NOTES

- VOLTAGE DROP IS NOT SHOWN ON THE DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL FEEDER AND BRANCH CIRCUIT
- CONDUCTOR SIZES TO COMPLY THE NATIONAL ELECTRICAL CODE AND ALL STATE AND LOCAL CODES VOLTAGE DROP REQUIREMENTS. THE ELECTRICAL CONTRACTOR SHALL UPSIZE FEEDER AND BRANCH CIRCUIT CONDUCTORS AS REQUIRED BASED ON ACTUAL INSTALLED CONDUCTOR LENGHTS. VOLTAGE DROP ON FEEDERS SHALL NOT EXCEED 2 PERCENT.
- 4. VOLTAGE DROP ON BRANCH CIRCUITS SHALL NOT EXCEED 3 PERCENT.

MECHANICAL EQUIPMENT DISCONNECT NOTES

- 1. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE MAXIMUM OVERCURRENT PROTECTION (MCOP) VALUE FOR MECHANICAL EQUIPMENT WHERE THE EQUIPMENT
- DISCONNECT IS PROVIDED BY THE EQUIPMENT MANUFACTURER. THE ELECTRICAL CONTRACTOR SHALL ADJUST THE EQUIPMENT CIRCUIT CONDUCTOR AND CIRCUIT BREAKER SIZES AS REQUIRED TO NOT EXCEED THE EQUIPMENT MOCP. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL REQUIREMENTS PRIOR TO ORDERING AND INSTALLING PANELBOARDS, CONDUCTORS, AND CONDUITS.

ARC FLASH STUDY

THE CONTRACTOR SHALL INCLUDE IN THE BID A COMPLETE ARC FLASH AND SHORT CIRCUIT STUDY FOR THE PROJECT PERFORMED BY A LICENSED ENGINEER. ALL EQUIPMENT SHORT CIRCUIT RATINGS SHALL BE ADJUSTED IN ACCORDANCE WITH THE SHORT CIRCUIT STUDY PRIOR TO ORDERING EQUIPMENT PROVIDE ARC FLASH LABELS ON ALL EQUIPMENT / PANELBOARDS.

FIRE ALARM SYSTEM

- THE CONTRACTOR SHALL PROVIDE A FIRE ALARM SYSTEM THAT IS COMPLIANT WITH ALL STATE AND LOCAL CODE REQUIREMENTS. PROVIDE ADDITIONAL SIGNAL DEVICES AS REQUIRED TO COMPLY WITH LOCAL CODES.
- PROVIDE LOW FREQUENCY SOUNDERS IF REQUIRED BY LOCAL CODES.

LIGHTING <u>SYMBOL</u> <u>DESCRIPTION</u> NO SHADING INDICATES NORMAL POWER HALF SHADED INDICATES LIFE SAFETY POWER FULL SHADED INDICATES EMERGENCY POWER 24" x 48" LIGHTING FIXTURE 24" x 24" LIGHTING FIXTURE 12" x 48" LIGHTING FIXTURE 12" x 36" LIGHTING FIXTURE 12" x 24" LIGHTING FIXTURE 12" x 12" LIGHTING FIXTURE 12" x 96" LIGHTING FIXTURE 6" x 96" LIGHTING FIXTURE 6" x 48" LIGHTING FIXTURE 6" x 36" LIGHTING FIXTURE 6" x 24" LIGHTING FIXTURE 8" DOWNLIGHT 6" DOWNLIGHT 4" DOWNLIGHT WALL MOUNTED LIGHT CEILING EXIT LIGHT (DUAL FACED) CEILING EXIT LIGHT (SINGLE FACE) WALL EXIT LIGHT WALL EXIT WITH EMERGENCY LIGHTS WALL EXIT WITH INTERIOR AND EXTERIOR EMERGENCY LIGHTS EXIT LIGHT DIRECTIONAL ARROWS WALL EMERGENCY BATTERY LIGHT CEILING EMERGENCY BATTERY LIGHT EXTERIOR POLE LIGHT (ONE HEAD) EXTERIOR POLE LIGHT (TWO HEADS) EXTERIOR POLE LIGHT (THREE HEADS) EXTERIOR POLE LIGHT (FOUR HEADS) EXTERIOR POLE LIGHT (TOP MOUNT)

ELECTRICAL SWITCHES

EXTERIOR BOLLARD

| <u> </u> | LOTRIOAL OWITOTILO |
|--------------------------|--|
| SYMBOL | <u>DESCRIPTION</u> |
| \$ | TOGGLE SWITCH - 20 AMP, 120/277VAC |
| \$ ³ | TOGGLE SWITCH - 3 WAY |
| \$4 | TOGGLE SWITCH - 4 WAY |
| \$ ^K | TOGGLE SWITCH - KEY OPERATED |
| \$ ^T | TOGGLE SWITCH - HORSE POWER RATED MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION |
| \$P | TOGGLE SWITCH - PILOT LIGHT |
| D | DIMMER SWITCH - 20 AMP, 120/277VAC |
| D 3 | DIMMER SWITCH - 3 WAY |
| D 4 | DIMMER SWITCH - 4 WAY |
| OC1 | WALL OCCUPANCY SENSOR - 1 BUTTON CONTROL |
| 0C2 0C3 O O | WALL OCCUPANCY SENSOR - 2 BUTTON CONTROL WALL OCCUPANCY SENSOR - DUAL RELAY FOR EXHAUST FAN CONTROL CEILING OCCUPANCY SENSOR |
| VS1 | WALL VACANCY SENSOR - 1 BUTTON CONTROL |
| VS2 | WALL VACANCY SENSOR - 2 BUTTON CONTROL |
| LC | LOW VOLTAGE LIGHTING CONTROLLER |
| Т | 0 - 3 HOUR TIMER SWITCH - 20 AMP, 120/277VAC |
| PC | PHOTO CELL |
| | |

ELECTRICAL EQUIPMENT

| <u>SYMBOL</u> | <u>DESCRIPTION</u> |
|--|---|
| | PAD MOUNTED TRANSFORMER |
| | SUSPENDED TRANSFORMER |
| | DISTRIBUTION PANELBOARD |
| | BRANCH PANELBOARD - RECESSED MOUNT |
| | BRANCH PANELBOARD - SURFACE MOUNT |
| ㅁ | DISCONNECT SWITCH - NON-FUSED |
| ď | DISCONNECT SWITCH - FUSED |
| \boxtimes | MOTOR CONTROLLER |
| ⊠r | COMBINATION MOTOR CONTROLLER / DISCONNECT |
| | TELECOM TERMINAL BOARD |
| 3 | GROUND BAR |
| (| JUNCTION OR PULL BOX |
| ■→ | PUSHBUTTON OR PUSH PLATE |
| $\widehat{\mathbb{D}}$ | ELECTRIC THERMOSTAT |
| \otimes | MOTOR ("X" DENOTES HORSEPOWER) |
| | MOLDED CASE CIRCUIT BREAKER |
| == | GROUND CONNECTION |
| • | GROUND POINT |
| ₩ | GROUND ROD |
| | GENERATOR |

AUTOMATIC TRANSFER SWITCH

| DOOF | R SECURITY SYSTEM |
|---------------|---|
| <u>SYMBOL</u> | DESCRIPTION |
| CCTV | CCTV COAXIAL CABLE OUTLET AND POWER OUT |
| MTV | CCTV MONITOR OUTLET |
| 6 | DOOR BUZZER |
| DR | ELECTRIC DOOR OPENER |
| ES | ELECTRIC DOOR STRIKE |
| IC | INTERCOM UNIT FLUSH MTD. |
| MI | MASTER INTERCOM AND DIRECTORY UNIT |
| DS | SECURITY DUTY STATION |
| SS | SECURITY STAFF STATION |
| ML | SECURITY DOOR ALARM MAGNETIC LOCK |
| CR | SECURITY CARD READER |
| MD | MOTION DETECTOR |
| DC | SECURITY DOOR CONTACTS |
| РВ | SECURITY EXIT PUSH BUTTON |
| SM | SECURITY MONITOR |
| DE | SECURITY DOOR EGRESS |
| K | SECURITY KEYPAD |
| BS | BIOSCAN ACCESS PAD |
| X | CAMERA |

FLECTRICAL RECEPTACLES

| <u>LE(</u> | STRICAL RECEPTACLES | <u>F</u> | <u>IRE ALARM SYSTEM</u> |
|------------|---|--|--|
| <u>OL</u> | DESCRIPTION | SYMBOL | DESCRIPTION |
| | DUPLEX RECEPTACLE - NORMAL POWER CIRCUIT | ⟨M⟩ | MANUAL SENDING STATION |
| | DUPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT | ŚD | WALL SMOKE DETECTOR |
| | DUPLEX GFCI RECEPTACLE - NORMAL POWER CIRCUIT | \$D | WALL SMOKE DETECTOR WITH SOUNDER BA |
| | DUPLEX GFCI RECEPTACLE - EMERGENCY POWER CIRCUIT | SD SD | CEILING SMOKE DETECTOR |
| | QUADRAPLEX RECEPTACLE - NORMAL POWER CIRCUIT | l | CEILING SMOKE DETECTOR WITH SOUNDER |
| | QUADRAPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT | (SD) | |
| | QUADRAPLEX GFCI RECEPTACLE - NORMAL POWER CIRCUIT | ©D _X | AUTOMATIC DUCT DETECTOR ("X" DENOTES NONE - PHOTOELECTRIC TYPE |
| | QUADRAPLEX GFCI RECEPTACLE - EMERGENCY POWER CIRCUIT | | S - SUPPLY R - RETURN |
| | SIMPLEX RECEPTACLE - NORMAL POWER CIRCUIT | (RT) | REMOTE DETECTOR TEST STATION |
| | SIMPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT | RI | REMOTE DETECTOR INDICATOR STATION |
| | SPECIAL RECEPTACLE - NORMAL POWER CIRCUIT | | |
| | SPECIAL RECEPTACLE - EMERGENCY POWER CIRCUIT | (HD) | HEAT DETECTOR |
| | DUPLEX RECEPTACLE - TOP SWITCHED | (FD) | FLAME DETECTOR |
| CEPTAC | LE LEGEND | (BD) | BEAM DETECTOR |
| | RECEPTACLE ABOVE COUNTERTOP AT +2" ABOVE BACKSPLASH TO BOTTOM OF DEVICE. COORDINATE WITH | H | WALL HORN ONLY |
| | CASEWORK TO BE INSTALLED. | H | WALL HORN STROBE |
| | RECEPTACLE INSTALLED BELOW COUNTERTOP AT +18" A.F.F. COORDINATE WITH CASEWORK TO BE INSTALLED. | H | CEILING HORN ONLY |
| | "X" DENOTES AS FOLLOWS: | (H) (S) | CEILING HORN STROBE |
| | NONE - 20 AMP, 125VAC | S | WALL SPEAKER ONLY |
| | HM - 20 AMP, 125VAC, HORIZONTAL MOUNT TYPE IG - 20 AMP, 125VAC, ISOLATED GROUND TYPE | Ś | WALL SPEAKER STROBE |
| | S - 20 AMP, 125VAC, SURGE GUARD PROTECTION TYPE | Š | CEILING SPEAKER STROBE |
| | ST - 20 AMP, 125VAC, SAFETY TYPE | \mathbf{I} | WALL VISUAL ONLY |
| | WP - 20 AMP, 125VAC, WEATHERPROOF TYPE | \ \times \ \ | |
| CEI | LING DUPLEX RECEPTACLE - NORMAL POWER CIRCUIT | Į V | CEILING VISUAL ONLY |
| CEI | LING DUPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT | (AR) | FIRE ALARM ADDRESSABLE RELAY |
| CEI | LING QUADRAPLEX RECEPTACLE - NORMAL POWER CIRCUIT | (J) | FIREMANS JACK |
| CEI | LING QUADRAPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT | Ď | DOOR UNLOCK |
| FLC | OOR BOX DUPLEX RECEPTACLE - NORMAL POWER CIRCUIT | | DOOR RELEASE |
| FLC | OOR BOX DUPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT | | ODDING ED OVOTEN EL OULOUETOU |
| | | | |

INFORMATION SYSTEMS

FLOOR BOX BLANK

FLOOR BOX POWER AND TELECOM

FLOOR BOX QUADRAPLEX RECEPTACLE - NORMAL POWER CIRCUIT

FLOOR BOX QUADRAPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT

| | <u>SYMBOL</u> | DESCRIPTION |
|---|-----------------------|--|
| | ▼ X | VOICE AND DATA ONLY OUTLET |
| | | "X" DENOTES AS FOLLOWS: # - QUANTITY OF JACK(S) AND CABLE(S) R - ROUGH-IN ONLY |
| | ® ^X | CEILING - VOICE AND DATA |
| | ₩ AP | WAP - WIRELESS ACCESS POINT |
| | X | FLOOR BOX - VOICE AND DATA |
| | A | DATA AND COAX OUTLET |
| | | TELECOMMUNICATIONS EQUIPMENT RACK |
| | TV | TV SYSTEM OUTLET |
| | AV | AUDIO/VISUAL CONTROLLER |
| | ⊬ © | CLOCK SYSTEM OUTLET |
| | M | MICROPHONE INPUT RECEPTACLE - WALL MOUNTED |
| | M | MICROPHONE INPUT RECEPTACLE - CEILING MOUNTED |
| | S | SPEAKER - CEILING MOUNTED |
| ٦ | ⊦S | SPEAKER - WALL MOUNTED |

VOLUME CONTROL

| <u> </u> | BLCORIII SISILIVI |
|----------|--|
| SYMBOL | DESCRIPTION |
| CCTV | CCTV COAXIAL CABLE OUTLET AND POWER OUTLET |
| MTV | CCTV MONITOR OUTLET |
| 6 | DOOR BUZZER |
| DR | ELECTRIC DOOR OPENER |
| ES | ELECTRIC DOOR STRIKE |
| IC | INTERCOM UNIT FLUSH MTD. |
| MI | MASTER INTERCOM AND DIRECTORY UNIT |
| DS | SECURITY DUTY STATION |
| SS | SECURITY STAFF STATION |
| ML | SECURITY DOOR ALARM MAGNETIC LOCK |
| CR | SECURITY CARD READER |
| MD | MOTION DETECTOR |
| DC | SECURITY DOOR CONTACTS |
| РВ | SECURITY EXIT PUSH BUTTON |
| SM | SECURITY MONITOR |
| DE | SECURITY DOOR EGRESS |
| K | SECURITY KEYPAD |
| BS | BIOSCAN ACCESS PAD |
| | CAMERA |
| SCP | SECURITY CONTROL PANEL |

FIDE ALADM OVOTEM

ABBREVIATION

APPROX.

ARCH

ATS

AUTO

CB or C/B

CCTV

COL

COMM

COMP

CONC

CONST

CONT

CONTR

EMER

ENCL

EQUIP

EWC

FACP

FLUOR

FVR

FVNR

GALV

GFCI

HORZ

HTR

G or GND

FLEX-CONN

ACCESS PANEL

AMPERE FRAME

ADDITION ADJUSTABLE

ALUMINUM

AMMETER

ARCHITECT

AUTOMATIC

BARE COPPER

BUILDING LINE

AVERGE

BRFAKFR

BUILDING

BRANCH

BOTTOM

CONDUIT

CABINET

CIRCUIT

CEILING

COLUMN

CENTER LINE

COMMUNICATION

CONSTRUCTION

CONTINUOUS

CONTRACTOR

DIRECT BURIAL

DEPARTMENT

DISTRIBUTION

DEMAND METER

DRAWOUT

DOCTORS

EXHAUST FAN

ELECTRIC

ELEVATOR

ELEVATION

EMERGENCY

ENCLOSURE

EQUIPMENT

EXHAUST

EXTERIOR

EXPANSION

FIRE ALARM

FLAT CABLE

FIXTURE

FLOOR FLUORESCENT

FOOTING

GROUND

FILMVIEWER

FULL VOLTAGE

GALVANIZED

GENERATOR

HANDHOLE

HAND OPERATED

HORIZONTAL

HEATER HIGH VOLTAGE

HORSEPOWER

HAND-OFF-AUTOMATIC

HIGH PRESSURE SODIUM

FAN COIL UNIT

ELECTRIC WATER COOLER

EXPLOSIONPROOF

DEGREES FAHRENHEIT

FIRE ALARM ANNUNCIATOR PANEL

STN

STR

SUSP

TELE

TEMP

VSD/VFC

WTR

XFMR

FIRE ALARM CONTROL PANEL

FOOD FACILITY CONTRACTOR

FOOD FACILITY SUPPLIER

FLEXIBLE CONNECTION

FUSED SAFETY SWITCH

GENERAL CONTRACTOR

FIRE PROTECTION CONTRACTOR

FULL VOLTAGE NON REVERSING

GROUND FAULT CKT. INTERRUPTER

GROUND FAULT INTERRUPTER

GROUND FAULT PROTECTION

HIGH INTENSITY DISCHARGE

FIRE HOSE CABINET

DRAWING

CRITICAL

COPPER

COMPRESSOR

CONCRETE

APPROXIMATELY

AMBIENT

| <u>FI</u> | RE ALARM SYSTEM |
|--|---|
| <u>SYMBOL</u> | <u>DESCRIPTION</u> |
| M | MANUAL SENDING STATION |
| ⟨SD⟩ | WALL SMOKE DETECTOR |
| Š D∕ | WALL SMOKE DETECTOR WITH SOUNDER BASE |
| SD | CEILING SMOKE DETECTOR |
| SD | CEILING SMOKE DETECTOR WITH SOUNDER BASE |
| ØĎ _X | AUTOMATIC DUCT DETECTOR ("X" DENOTES AS FOLL NONE - PHOTOELECTRIC TYPE S - SUPPLY R - RETURN |
| RT | REMOTE DETECTOR TEST STATION |
| RI | REMOTE DETECTOR INDICATOR STATION |
| (HD) | HEAT DETECTOR |
| FD | FLAME DETECTOR |
| (BD) | BEAM DETECTOR |
| H | WALL HORN ONLY |
| \ | WALL HORN STROBE |
| H | CEILING HORN ONLY |
| H | CEILING HORN STROBE |
| Ś | WALL SPEAKER ONLY |
| > | |

SPRINKLER SYSTEM FLOW SWITCH

SPRINKLER SYSTEM TAMPER SWITCH POST INDICATOR VALVE FIRE ALARM CONTROL PANEL

FIRE ALARM ANNUNCIATOR PANEL FIRE ALARM NOTIFICATION APPLIANCE CONTROL PANEL

ELECTRICAL ABBREVIATIONS DESCRIPTION ABBREVIATION DESCRIPTION ALTERNATING CURRENT INTERCOMMUNICATION AIR CONDITIONING INSIDE DIAMETER INCAN **INCANDESCENT** AIR CONDITIONING UNIT INCL INCLUDE ISOLATED GROUND SURGE GUARD JUNCTION BOX ABOVE FINISHED CEILING KITCHEN EQUIPMENT CONTRACTOR ABOVE FINISHED FLOOR KITCHENETTE ABOVE FINISHED GRADE KVA KILOVOLT AMPERE AIR HANDLING UNIT KILOVOLT AMPERE REACTIVE AMPERE INTERRUPTING CAPACITY KILOWATT S LABORATORY POUND LINEAR FEET LOCATION LIFE SAFETY AUTOMATIC TRANSFER SWITCH LIGHT LIGHTING LOW VOLTAGE MATV MASTER ANTENNA TELEVISION MAX MAXIMUM BRAKE HORSEPOWER MECHANICAL CONTRACTOR MAIN CIRCUIT BREAKER MOTOR CONTROL CENTER MDP MAIN DISTRIBUTION PANEL MECH MECHANICAL MANHOLE DEGREES CELSIUS MINIMUM MISC MISCELLANEOUS CIRCUIT BREAKER MLO MAIN LUGS ONLY CENTER TO CENTER MOUNTED CLOSED CIRCUIT TELEVISION MTG HT MOUNTING HEIGHT MEDICINE UNIT OUTSIDE DIAMETER OFCI OWNER FURNISHED-CONTRACTOR INSTALL OFOI OWNER FURNISHED-OWNER INSTALLED OPNG OPFNING OPPOSITE OPERATING ROOM \mathbf{m} PUSHBUTTON PBOX PULL BOX PNEUMATIC ELECTRIC CONVERTER CURRENT TRANSFORMER POWER FACTOR PH or Ø POST INDICATOR VALVE DIRECT CURRENT PANELBOARD PILOT LIGHT DRINKING FOUNTAIN PREFAB PREFABRICATED PRES PRESSURE PNEUMATIC TUBE PNEUMATIC TUBE STATION PART WINDING ELECTRICAL CONTRACTOR RACU ROOM AIR CONDITIONING UNIT RADIATION RECEPT RECEPTACLE REF or REF REFRIGERATOR REINF REINFORCED RGIP REMOTE GROUND INDICATING PANEL **ELECTRIC PNEUMATIC** REVOLUTIONS PER MINUTE

SUPPLY AIR

SHEET

SIGNAL

SQUARE

STANDARD

STRUCTURAL

SUSPENDED

SWITCHBOARD

TEMPERATURE

TELEVISION

UNDER CARPET

UNIT HEATER

VOLT

VACUUM

VELOCITY

VOLUME

WITH

WITHOUT

VOLTMETER

VAPORPROOF

WEATHERPROOF

TRANSFORMER IMPEDANCE

UNIT VENTILATOR

VACUUM BREAKER

VACUUM CLEANING

VARIABLE FREQUENCY DRIVE

VARIABLE SPEED DRIVE/CONTROLLER

TYPICAL

TOP OF MANHOLE

TELECOMMUNICATION

SWITCHGEAR

STATION

SWITCH

SHORT CIRCUIT

SOLID NEUTRAL

SPECIFICATIONS

SAFETY SWITCH

SOLID STATE SOFT START

TEMPERATURE CONTROL CONTRACTOR

UNDER CABINET or UNDER COUNTER

SURGE GUARD PROTECTION

0

O

M

RACEWAY SYSTEM <u>SYMBOL</u> **DESCRIPTION**

- FEEDER SIZE. (REFER TO FEEDER SCHEDULE FOR ADDITIONAL INFORMATION - PHASE CONDUCTORS NEUTRAL

LINE SYMBOLS

LIGHT/SCREENED SOLID OR DASHED LINES INDICATE EXISTING TO REMAIN — — HEAVY DASHED LINES INDICATE EXISTING TO BE REMOVED HEAVY CONTINUOUS LINES INDICATE NEW WORK

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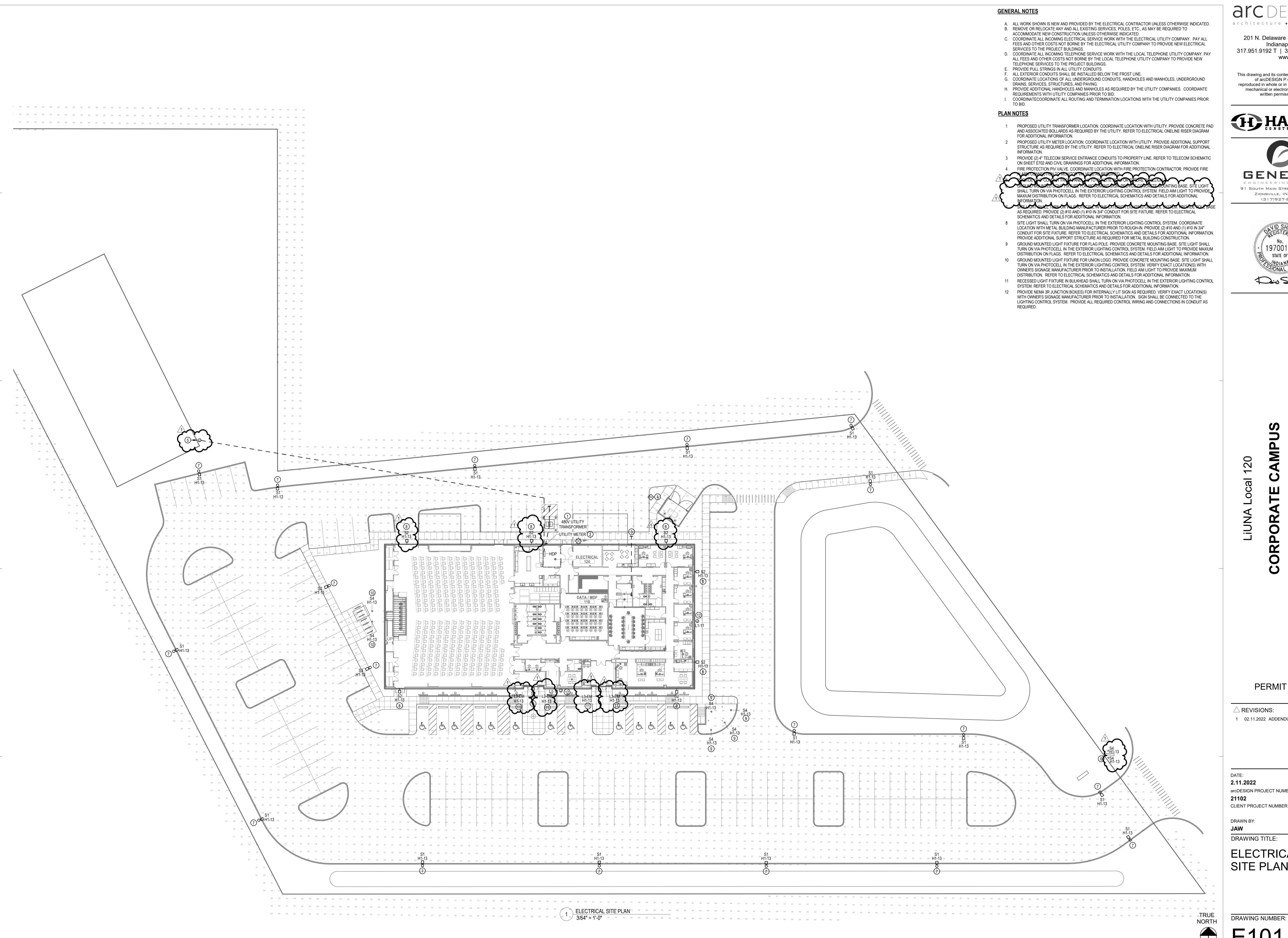
REVISIONS: 1 02.11.2022 ADDENDUM 3

2.11.2022 arcDESIGN PROJECT NUMBER: 21102

CLIENT PROJECT NUMBER:

DRAWING TITLE: ELECTRICAL

SYMBOLS & **ABBREVIATIONS**



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riangle REVISIONS:

1 02.11.2022 ADDENDUM 3

arcDESIGN PROJECT NUMBER:

DRAWN BY:

DRAWING TITLE:

ELECTRICAL SITE PLAN

GENERAL NOTES

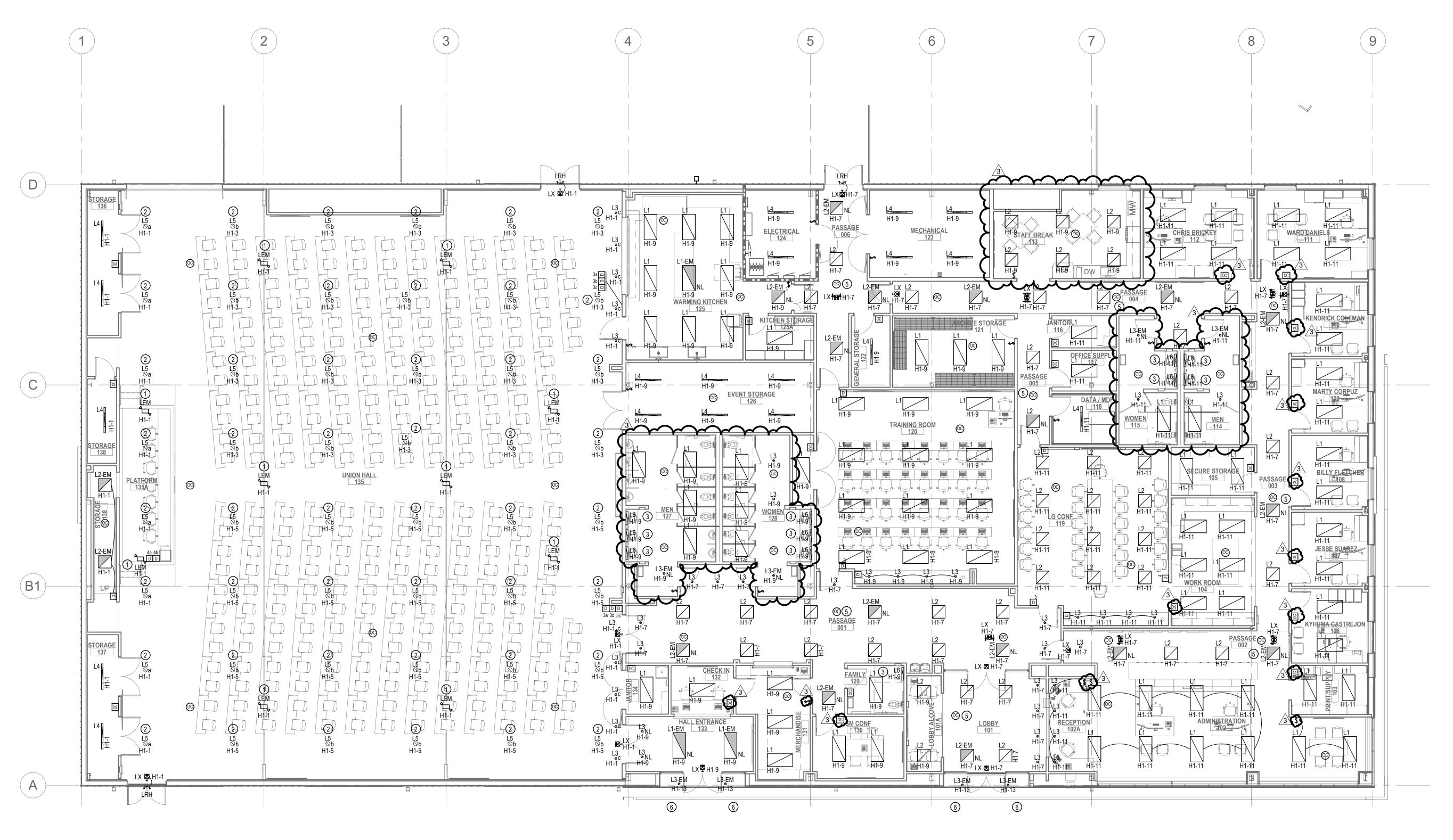
- A. REFER TO DRAWING E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES. B. COORDINATE ALL WORK WITH THE OWNER AND THE OTHER TRADES ON THE PROJECT.
- C. REFER TO M AND P SERIES DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS. D. PROTECT ALL FINISHES, EQUIPMENT, AND DEVICES DURING THE WORK.
- E. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.
- F. COORDINATE ALL WORK WITH THE OWNER'S SYSTEMS VENDORS FOR DEVICES AND WIRING FOR DATA, I.T. SERVICES, AND SECURITY SYSTEMS.
- G. ELECTRICAL SERVICES SHALL NOT ROUTE THROUGH ANY IDF OR MDF ROOM UNLESS DIRECTLY SERVING THAT

H. CONTRACTOR SHALL VERIFY CORD AND PLUG CONNECTED EQUIPMENT CORD CONFIGURATION AND PROVIDE

- MATCHING RECEPTACLE AS REQUIRED. I. ALL RECEPTACLES WITHIN SIX FEET OF A SINK SHALL BE GFCI TYPE. DEVICES MAY NOT BE IDENTIFIED AS GFCI ON PLANS, BUT SHALL BE PROVIDED ACCORDING TO THE REQUIREMENT. J. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2) #10 + (1) #10 NEUTRAL + (1) #10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED
- EQUIPMENT PRIOR TO INSTALLATION. K. COORDINATE INSTALLATION OF LIGHT FIXTURES WITH ARCHITECTURAL REFLECTED CEILING PLAN, ARCHITECTURAL ELEVATIONS, HVAC EQUIPMENT, DIFFUSERS, DUCTWORK, PIPING, SUPPORTS, AND
- STRUCTURE PRIOR TO ROUGH-IN. L. ALL EXIT SIGNS, EMERGENCY BATTERY LIGHTING UNITS, AND LIGHT FIXTURES SHOWN WITH EMERGENCY BATTERY BACKUP OR INDICATED AS A NIGHT LIGHT ("NL") SHALL BE PROVIDED WITH AN UNSWITCHED "HOT"
- CIRCUIT CONDUCTOR. M. AT LOCATIONS WITH TWO OR MORE WALL SWITCHES, ALL SWITCHES SHALL BE INSTALLED GANGED IN A
- COMMON SWITCH BOX.
- N. AT LOCATIONS WHERE LIGHT SWITCHES AND ABOVE-COUNTER RECEPTACLES ARE TO BE MOUNTED ADJACENT TO EACH OTHER, THE DEVICES SHALL BE INSTALLED AT THE SAME HEIGHT.
- O. WHERE OCCUPANCY SENSORS ARE INDICATED ON PLANS, THE ENTIRE ROOM SHALL BE COVERED. SENSOR MANUFACTURER IS RESPONSIBLE FOR SENSOR LAYOUT. ADDITIONAL SENSORS REQUIRED DUE TO LACK OF COVERAGE SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. PROVIDE QUANTITIES AS REQUIRED. CEILING AND WALL MOUNTED SENSORS SHALL BE DUAL-TECHNOLOGY TYPE. SENSORS SHALL INCLUDED ALL POWER SUPPLIES AND RELAYS NECESSARY TO CONTROL LIGHT FIXTURES IN ROOM/AREA. SENSORS SHALL OPERATE IN "VACANCY" MODE - MANUAL ON/AUTO OFF. P. PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
- Q. CONTRACTOR TO PROVIDE ROUGH-INS ONLY FOR DATA, I.T. SERVICES, AND SECURITY SYSTEMS. DATA, I.T. SERVICES, AND SECURITY SYSTEMS DEVICES AND WIRING TO BE PROVIDED BY THE OWNERS SYSTEMS

PLAN NOTES

- 1 SURFACE MOUNT EMERGENCY LIGHT TO BOTTOM OF JOIST.
- 2 SURFACE MOUNT / SUSPEND LIGHT FIXTURE TO +17'-0" A.F.F. TO BOTTOM OF FIXTURE. COORDINATE LOCATION OF FIXTURE WITH STRUCTURAL BEAMS. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED.
- 3 INSTALL LIGHT FIXTURE ABOVE VANITY MIRROR AT HEIGHT DETERMINED BY THE ARCHITECT
- 4 NOT USED.
- 5 LIGHTING IN CORRDIOR SHALL FUNCTION AS AUTOMATIC ON / AUTOMATIC OFF VIA LOCAL OCCUPANCY SENSOR(S). PROVIDE ALL EQUIPMENT AND CONTROL WIRING AS REQUIRED. SENSOR(S). PROVIDE ALL EQUIPMENT AND CONTROL WIRING AS REQUIRED.
- 6 REFER TO ELECTRICAL SITE PLAN FOR ADDITIONAL INFORMATION.



1 FIRST FLOOR ELECTRICAL LIGHTING PLAN 1/8" = 1'-0"

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FIRST FLOOR ELECTRICAL LIGHTING PLAN



- INCINCTED
- A. REFER TO DRAWING E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.
 B. COORDINATE ALL WORK WITH THE OWNER AND THE OTHER TRADES ON THE PROJECT.
- C. REFER TO M AND P SERIES DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS.
 D. PROTECT ALL FINISHES, EQUIPMENT, AND DEVICES DURING THE WORK.
 E. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON
- DEVICE LOCATIONS PRIOR TO ROUGH-IN.

 F. COORDINATE ALL WORK WITH THE OWNER'S SYSTEMS VENDORS FOR DEVICES AND WIRING FOR DATA, I.T.
- SERVICES, AND SECURITY SYSTEMS.
 G. ELECTRICAL SERVICES SHALL NOT ROUTE THROUGH ANY IDF OR MDF ROOM UNLESS DIRECTLY SERVING THAT
- H. CONTRACTOR SHALL VERIFY CORD AND PLUG CONNECTED EQUIPMENT CORD CONFIGURATION AND PROVIDE MATCHING RECEPTACLE AS REQUIRED.

 I. ALL RECEPTACLES WITHIN SIX FEET OF A SINK SHALL BE GFCI TYPE. DEVICES MAY NOT BE IDENTIFIED AS GFCI ON PLANS BUT SHALL BE PROVIDED ACCORDING TO THE REQUIREMENT.
- ON PLANS, BUT SHALL BE PROVIDED ACCORDING TO THE REQUIREMENT.

 J. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2) #10 + (1) #10 NEUTRAL + (1) #10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.

 K. COORDINATE INSTALLATION OF LIGHT FIXTURES WITH ARCHITECTURAL REFLECTED CEILING PLAN,
- ARCHITECTURAL ELEVATIONS, HVAC EQUIPMENT, DIFFUSERS, DUCTWORK, PIPING, SUPPORTS, AND STRUCTURE PRIOR TO ROUGH-IN.

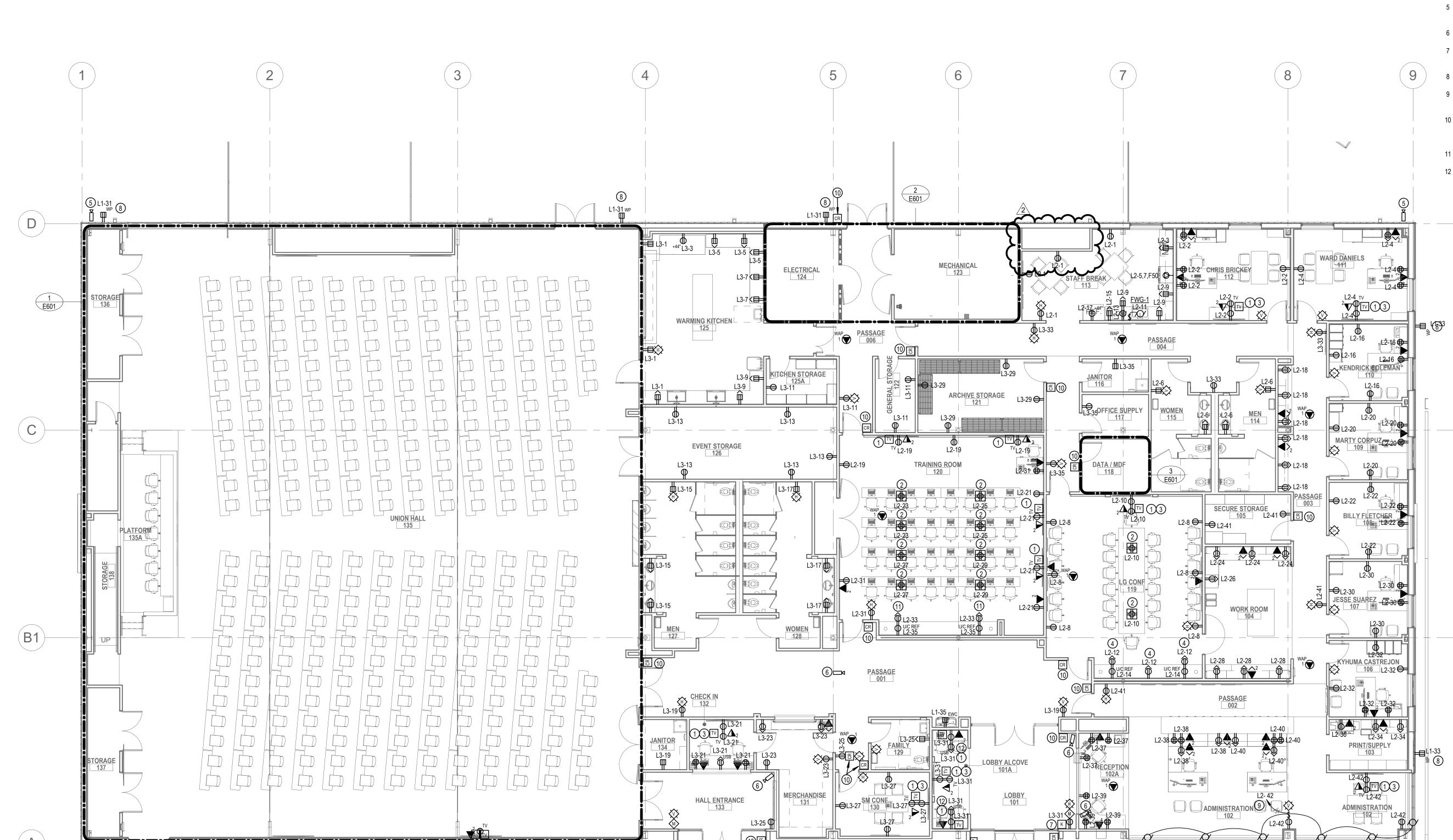
 L. ALL EXIT SIGNS, EMERGENCY BATTERY LIGHTING UNITS, AND LIGHT FIXTURES SHOWN WITH EMERGENCY BATTERY BACKUP OR INDICATED AS A NIGHT LIGHT ("NI ") SHALL BE PROVIDED WITH AN UNSWITCHED "HOT
- BATTERY BACKUP OR INDICATED AS A NIGHT LIGHT ("NL") SHALL BE PROVIDED WITH AN UNSWITCHED "HOT" CIRCUIT CONDUCTOR.

 M. ATLOCATIONS WITH TWO OR MORE WALL SWITCHES, ALL SWITCHES SHALL BE INSTALLED GANGED IN A
- M. AT LOCATIONS WITH TWO OR MORE WALL SWITCHES, ALL SWITCHES SHALL BE INSTALLED GANGED IN A COMMON SWITCH BOX.
- N. AT LOCATIONS WHERE LIGHT SWITCHES AND ABOVE-COUNTER RECEPTACLES ARE TO BE MOUNTED ADJACENT TO EACH OTHER, THE DEVICES SHALL BE INSTALLED AT THE SAME HEIGHT.
 O. WHERE OCCUPANCY SENSORS ARE INDICATED ON PLANS, THE ENTIRE ROOM SHALL BE COVERED. SENSOR
- MANUFACTURER IS RESPONSIBLE FOR SENSOR LAYOUT. ADDITIONAL SENSORS REQUIRED DUE TO LACK OF COVERAGE SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. PROVIDE QUANTITIES AS REQUIRED. CEILING AND WALL MOUNTED SENSORS SHALL BE DUAL-TECHNOLOGY TYPE. SENSORS SHALL INCLUDED ALL POWER SUPPLIES AND RELAYS NECESSARY TO CONTROL LIGHT FIXTURES IN ROOM/AREA. SENSORS SHALL OPERATE IN "VACANCY" MODE MANUAL ON/AUTO OFF.
- P. PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
 Q. CONTRACTOR TO PROVIDE ROUGH-INS ONLY FOR DATA, I.T. SERVICES, AND SECURITY SYSTEMS. DATA, I.T. SERVICES, AND SECURITY SYSTEMS DEVICES AND WIRING TO BE PROVIDED BY THE OWNERS SYSTEMS VENDORS.

<u>PLAN NOTES</u>

- 1 REFER TO ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION FOR TV AND AV ROUGH-IN DEVICES. CONNECT COMPLETE VIA CIRCUIT INDICATED. HEIGHT DETERMINED BY ARCHITECT.
- 2 FLOOR BOX TO HAVE (2) DUPLEX RECEPTACLES. FLOOR BOX TO BE SIMILAR TO WALKER EVOLUTION SERIES FLOOR BOX. COORDINATE LID WITH FLOOR TO BE INSTALLED. VERIFY LOCATION AND LID FINISH COLOR WITH ARCHITECT PRIOR TO ROUGH-IN.
- TV AT THIS LOCATION SHALL HAVE THIN CLIENT MOUNTED INSIDE TV DISPLAY BOX. REFER TO ELECTRICAL SCHEMATICS FOR ADDITIONAL INFORMATION.
- 4 RECEPTACLE ABOVE COUNTER SHALL BE LOCATED BELOW WOOD TRIM PIECE FOR WALL MURAL. VERIFY EXACT LOCATION WITH OWNERS SIGNAGE VENDOR PRIOR TO ROUGH-IN. PROVIDE BLACK RECEPTACLE AND COVER
- 5 CAMERA PROVIDED AND MOUNTED ON WALL BY OTHERS. PROVIDE WEATHERPROOF BOX WITH 3/4" CONDUT TO INTERIOR CEILING SPACE. VERIFY CAMERA LOCATION WITH SECURITY SYSTEM VENDOR. PROVIDE ADDITIONAL
- SUPPORT STRUCTURE AS REQUIRED FOR METAL BUILDING CONSTRUCTION.

 6 CEILING MOUNTED SECURITY CAMERA PROVIDED AND INSTALLED BY OTHERS. VERIFY CAMERA LOCATION WITH SECURITY SYSTEM VENDOR.
- 7 SECURITY SYSTEM KEYPAD PROVIDED AND INSTALLED BY OTHERS. PROVIDE ROUGH-INS AND CONTROL WIRING IN CONDUIT AS REQUIRED. VERIFY EXACT REQUIREMENTS WITH SECURITY SYSTEM VENDER PRIOR TO ROUGH-IN.
- 8 RECEPTACLE MOUNTED TO EXTERIOR OF METAL BUILDING. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED FOR METAL BUILDING CONSTRUCTION.
- 9 CIRCUIT CONNECTION TO MOTORIZES SHADES. PROVIDE WALL CONTROL STATION, ASSOCIATED BACKBOXES AND CONTROL WIRING IN CONDUIT AS REQUIRED. ALL MOTORIZED SHADES SHALL OPERATE TOGETHER VIA A SINGLE WALL CONTROL STATION.
- 10 CARD READER AND DOOR ACCESS CONTROL EQUIPMENT AT THE DOOR. VERIFY ELECTRICAL ROUGH-IN AND WIRING WITH THE ACCESS CONTROL SYSTEM VENDOR. REFER TO ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION. FOR EXTERIOR MOUNTED CARD READERS, PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED FOR METAL BUILDING CONSTRUCTION.
- 11 RECEPTACLE ABOVE COUNTER SHALL BE LOCATED BELOW WALL GRAPHIC. VERIFY EXACT LOCATION WITH OWNERS SIGNAGE VENDOR PRIOR TO ROUGH-IN.
- 12 DESK MONITOR AT THIS LOCATION SHALL HAVE THIN CLIENT MOUNTED INSIDE TV DISPLAY BOX. MOUNT TV DISPLAY BOX BELOW COUNTERTOP AND ROUTE CABLES THROUGH GROMMET TO DESKTOP MONITOR. REFER TO ELECTRICAL SCHEMATICS FOR ADDITIONAL INFORMATION.



1 FIRST FLOOR ELECTRIC POWER & SYSTEMS PLAN
1/8" = 1'-0"

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1 01.07.2022 ADDENDUM 1 2 02.11.2022 ADDENDUM 3

DATE:

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arcDESIGN PROJECT NUMBER:
21102
CLIENT PROJECT NUMBER:

DRAWN BY:

DRAWING TITLE:

FIRST FLOOR POWER & SYSTEMS PLAN



1 FIRST FLOOR MECHANICAL EQUIPMENT POWER AND SYSTEMS PLAN
1/8" = 1'-0"

GENERAL NOTES

- A. REFER TO DRAWING E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.
 B. COORDINATE ALL WORK WITH THE OWNER AND THE OTHER TRADES ON THE PROJECT.
 C. REFER TO M AND P SERIES DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS.
- D. PROTECT ALL FINISHES, EQUIPMENT, AND DEVICES DURING THE WORK.
 E. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON
- E. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.
 F. COORDINATE ALL WORK WITH THE OWNER'S SYSTEMS VENDORS FOR DEVICES AND WIRING FOR DATA, I.T.
- SERVICES, AND SECURITY SYSTEMS.
 G. ELECTRICAL SERVICES SHALL NOT ROUTE THROUGH ANY IDF OR MDF ROOM UNLESS DIRECTLY SERVING THAT
- ROOM.
 H. CONTRACTOR SHALL VERIFY CORD AND PLUG CONNECTED EQUIPMENT CORD CONFIGURATION AND PROVIDE MATCHING RECEPTACLE AS REQUIRED.
- I. ALL RECEPTACLES WITHIN SIX FEET OF A SINK SHALL BE GFCI TYPE. DEVICES MAY NOT BE IDENTIFIED AS GFCI ON PLANS, BUT SHALL BE PROVIDED ACCORDING TO THE REQUIREMENT.
- J. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2) #10 + (1) #10 NEUTRAL + (1) #10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.
- K. COORDINATE INSTALLATION OF LIGHT FIXTURES WITH ARCHITECTURAL REFLECTED CEILING PLAN, ARCHITECTURAL ELEVATIONS, HVAC EQUIPMENT, DIFFUSERS, DUCTWORK, PIPING, SUPPORTS, AND STRUCTURE PRIOR TO ROUGH-IN.
- L. ALL EXIT SIGNS, EMERGENCY BATTERY LIGHTING UNITS, AND LIGHT FIXTURES SHOWN WITH EMERGENCY BATTERY BACKUP OR INDICATED AS A NIGHT LIGHT ("NL") SHALL BE PROVIDED WITH AN UNSWITCHED "HOT"
- CIRCUIT CONDUCTOR.

 M. AT LOCATIONS WITH TWO OR MORE WALL SWITCHES, ALL SWITCHES SHALL BE INSTALLED GANGED IN A COMMON SWITCH BOX.
- N. AT LOCATIONS WHERE LIGHT SWITCHES AND ABOVE-COUNTER RECEPTACLES ARE TO BE MOUNTED ADJACENT TO EACH OTHER, THE DEVICES SHALL BE INSTALLED AT THE SAME HEIGHT.
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SENSORS SHALL OPERATE IN "VACANCY" MODE - MANUAL ON/AUTO OFF.

PROVIDE PULL STRING IN ALL EMPTY CONDUITS.
 CONTRACTOR TO PROVIDE ROUGH-INS ONLY FOR DATA, I.T. SERVICES, AND SECURITY SYSTEMS. DATA, I.T. SERVICES, AND SECURITY SYSTEMS DEVICES AND WIRING TO BE PROVIDED BY THE OWNERS SYSTEMS VENDORS.

INCLUDED ALL POWER SUPPLIES AND RELAYS NECESSARY TO CONTROL LIGHT FIXTURES IN ROOM/AREA.

PLAN NOTES

- PROVIDE 480V-3P, 60A FUSIBLE DISCONNECT AT THE VAV TERMINAL BOX. CONNECT INDICATED CIRCUIT TO VAV TERMINAL BOX THROUGH FUSIBLE DISCONNECT SWITCH. FUSE THE SWITCH PER VAV TERMINNAL BOX MANUFACTURER'S RECOMMENDATIONS.
 DISCONNECT PROVIDED BY MANUFACTURER.
- INDOOR DUCTLESS SPLIT POWERED BY OUTDOOR UNIT. REFER TO ROOF POWER AND SYSTEMS PLAN FOR ADDITIONAL INFORMATION.
- PROVIDE CABLE TRAY AS REQUIRED.
 FIRE ALARM DUCT MOUNTED SMOKE DETECTOR INSTALLED IN SUPPLY DUCTWORK INSIDE THE BUILDING IN
- LOCATION AS REQUIRED BY MANUFACTURER. PROVIDE FIRE ALARM ADDRESSABLE RELAY INTERLOCKED WITH UNIT TO SHUT DOWN UNIT WHEN IN ALARM. PROVIDE ALL CONTROL WIRING IN CONDUIT AS REQUIRED.
- 6 3P-100A, 480V, NEMA 3R, FUSIBLE DISCONNECT SWITCH FUSED PER UNIT MANUFACTURERS RECOMMENDATIONS. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED.
- 7 2P-30A, 208V, NEMA 3R, FUSIBLE DISCONNECT SWITCH FUSED PER UNIT MANUFACTURERS RECOMMENDATIONS. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED.
- 8 PROVIDE SINGLE POLE TOGGLE SWITCH DISCONNECT.



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arcDESIGN PROJECT NUMBER:
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CLIENT PROJECT NUMBER:

DRAWN BY:

JAW

DRAWING TITLE:
FIRST FLOOR

MECHANICAL EQUIPMENT POWER AND SYSTEMS PLAN

DRAWING NUMBER:

E301A

GENERAL NOTES

- A. REFER TO DRAWING E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES. B. COORDINATE ALL WORK WITH THE OWNER AND THE OTHER TRADES ON THE PROJECT.
- C. REFER TO M AND P SERIES DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS. D. PROTECT ALL FINISHES, EQUIPMENT, AND DEVICES DURING THE WORK.
- E. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.
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- K. COORDINATE INSTALLATION OF LIGHT FIXTURES WITH ARCHITECTURAL REFLECTED CEILING PLAN, ARCHITECTURAL ELEVATIONS, HVAC EQUIPMENT, DIFFUSERS, DUCTWORK, PIPING, SUPPORTS, AND STRUCTURE PRIOR TO ROUGH-IN.
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INCLUDED ALL POWER SUPPLIES AND RELAYS NECESSARY TO CONTROL LIGHT FIXTURES IN ROOM/AREA.

PLAN NOTES

- 1 FIRE ALARM DUCT MOUNTED SMOKE DETECTOR INSTALLED IN SUPPLY DUCTWORK INSIDE THE BUILDING IN LOCATION AS REQUIRED BY MANUFACTURER. PROVIDE FIRE ALARM ADDRESSABLE RELAY INTERLOCKED WITH UNIT TO SHUT DOWN UNIT WHEN IN ALARM. PROVIDE ALL CONTROL WIRING IN CONDUIT AS REQUIRED.
- 2 2P-30A, 208V, NEMA 3R, FUSIBLE DISCONNECT SWITCH FUSED PER UNIT MANUFACTURERS RECOMMENDATIONS. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED.
- 4 3P-200A, 480V, NEMA 3R, FUSIBLE DISCONNECT SWITCH FUSED PER UNIT MANUFACTURERS RECOMMENDATIONS.
- PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED. 5 PROVIDE SINGLE POLE TOGGLE SWITCH DISCONNECT.



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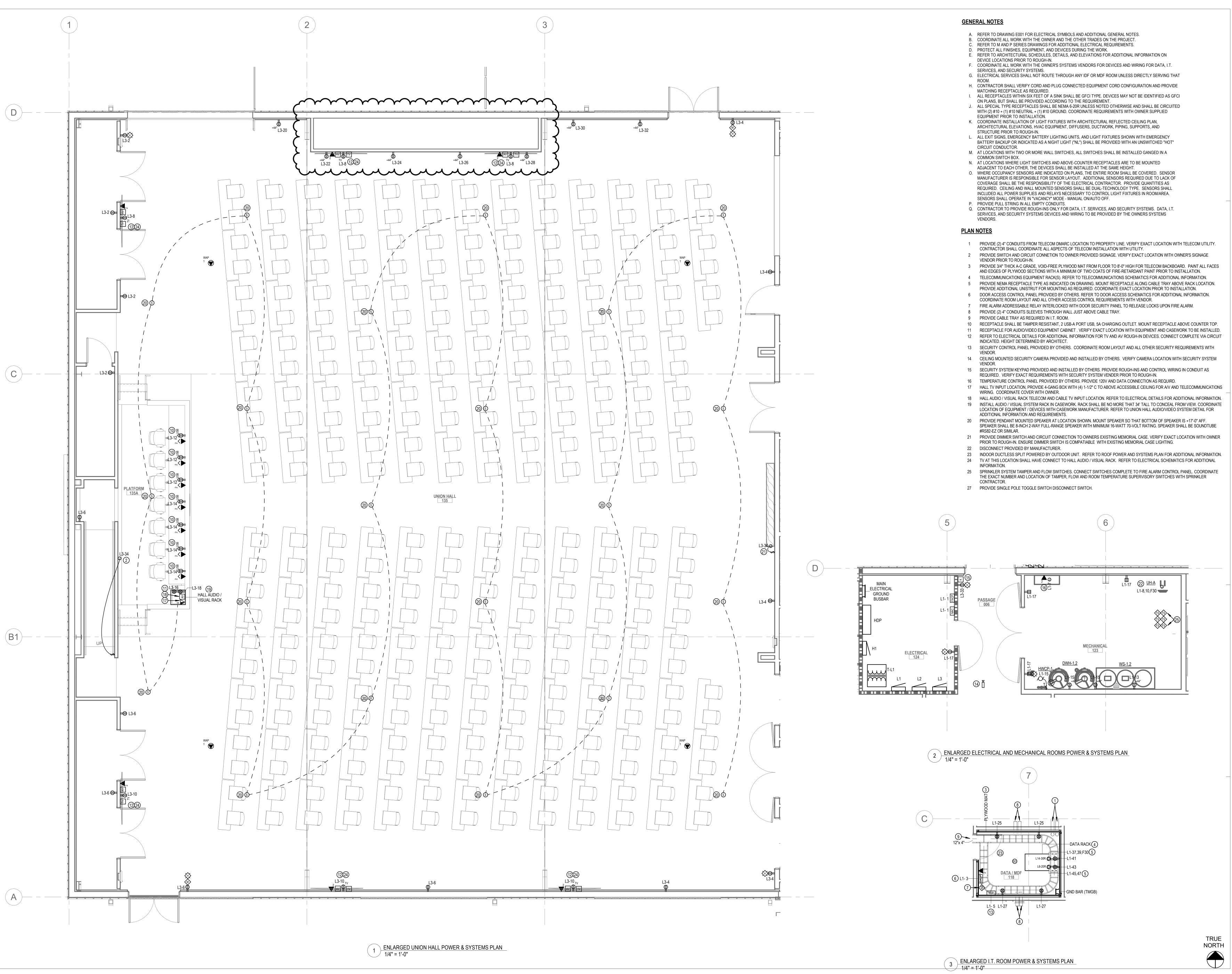
DRAWING TITLE:

ROOF ELECTRICAL POWER & SYSTEMS PLAN

DRAWING NUMBER: + E302

1 ROOF ELECTRICAL POWER & SYSTEMS PLAN
1/8" = 1'-0"

D



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 \triangle REVISIONS:

1 01.14.2022 ADDENDUM 2 2 02.11.2022 ADDENDUM 3

2.11.2022 arcDESIGN PROJECT NUMBER:

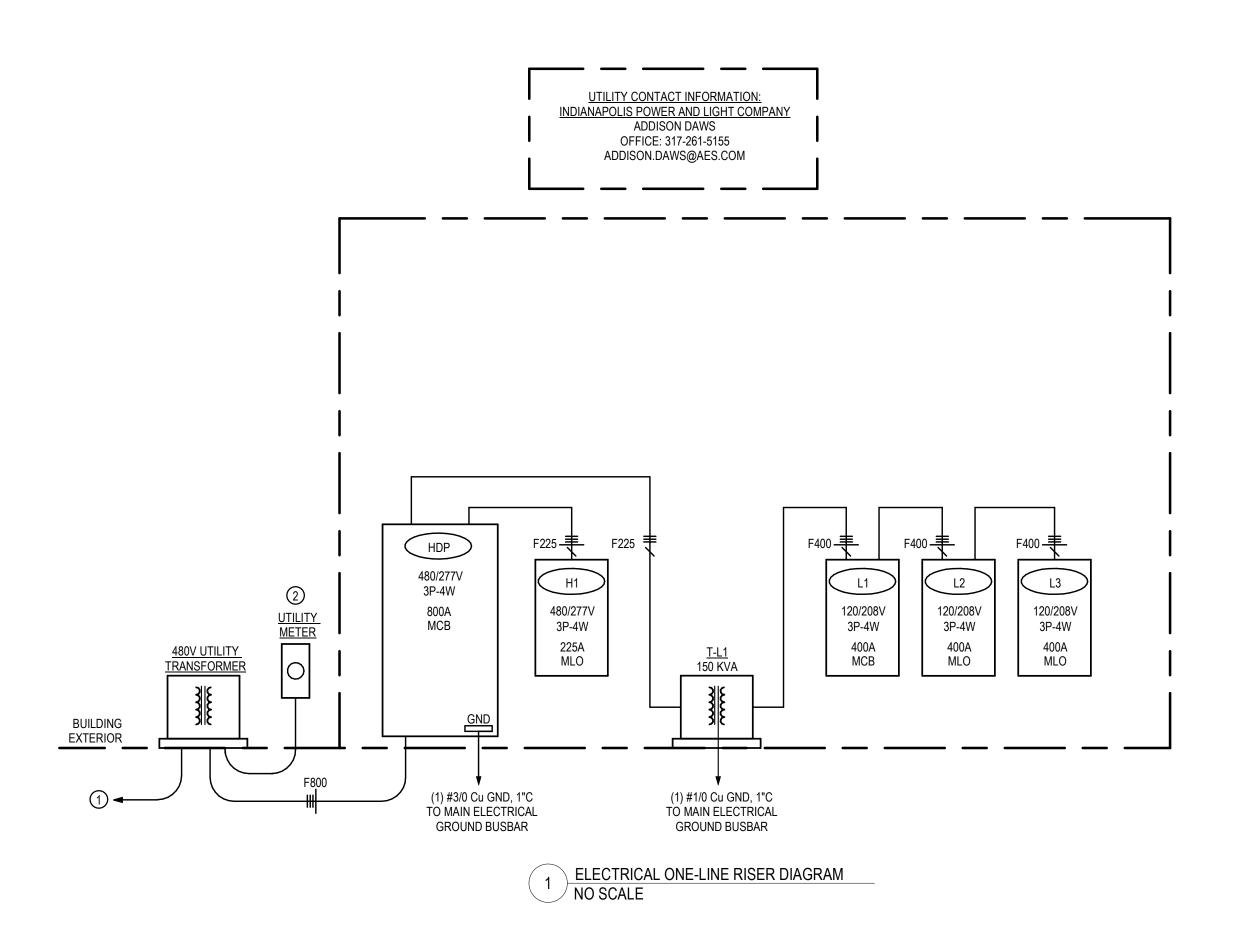
CLIENT PROJECT NUMBER:

DRAWN BY:

DRAWING TITLE:

ENLARGED ELECTRICAL **PLANS**

DRAWING NUMBER:



(1) #3/0 Cu GND, 1"C TO INCOMING WATER SERVICE PIPE

←

(1) #3/0 Cu GND, 1"C TO BUILDING STEEL GROUND 5-

WALL MOUNTED

1/4"x6"Hx24"W GROUND BUSBAR

(1) #3/0 Cu GND, 1"C TO INCOMING NATRUAL GAS SERVICE PIPE WHERE REQUIRED AND PERMITTED BY CODE

#3/0 AWG CU, 1"C -

(TYPICAL OF ALL)

#3/0 AWG, BARE COPPER

(TYPICAL)

| CONDUCTOR SIZE TYPE CABLE | | | | | | | | | |
|--------------------------------------|-----------------|---------------------|----------|--------|-----------|--|--|--|--|
| FEEDER/BRANCH CIRCUIT DESIGNATION | PHASE & NEUTRAL | EQUIPMENT GROUND | ALUMINUM | COPPER | | | | | |
| F20 | 12 | 12 | | Х | MC | | | | |
| F30 | 10 | 10 | | Х | MC | | | | |
| F40-50 | 8 | 10 | | Х | MC | | | | |
| F60 | 6 | 10 | | Х | MC | | | | |
| F70-80 | 4 | 8 | | Х | MC | | | | |
| F90 | 3 | 8 | | Х | MC | | | | |
| F100 | 3 | 8 | | Х | МС | | | | |
| F125 | 1/0 | 4 | Х | | МС | | | | |
| F150 | 3/0 | 4 | Х | | 2-1/2" | | | | |
| F175 | 4/0 | 4 | X | | 2-1/2" | | | | |
| F200 | 250 | 4 | X | | 3" | | | | |
| F225 | 300 | 2 | X | | 3" | | | | |
| F250 | 350 | 2 | X | | 3" | | | | |
| F300 | 500 | 2 | Х | | 3-1/2" | | | | |
| F350 | 2 RUNS OF 4/0 | 1 | Х | | 2-1/2" | | | | |
| F400 | 2 RUNS OF 250 | 1 | Х | | 3" EAC | | | | |
| F600 | 2 RUNS OF 500 | 2/0 | Х | | 3-1/2" EA | | | | |
| F800 | 3 RUNS OF 400 | 3/0 | Х | | 3-1/2" EA | | | | |
| F1000 | 3 RUNS OF 600 | 4/0 | Х | | 4" EAC | | | | |
| F1200 | 4 RUNS OF 500 | 250 | Х | | 3-1/2" EA | | | | |
| F1600 | 5 RUNS OF 600 | 350 | Х | | 4" EAC | | | | |
| F2000 | 6 RUNS OF 600 | 400 | Х | | 4" EAC | | | | |
| F2500 | 7 RUNS OF 750 | 600 | Х | | 5" EAC | | | | |
| F3000 | 8 RUNS OF 750 | 600 | Х | | 5" EAC | | | | |

- 1. 20 A BRANCH CIRCUITS SHALL BE SIZED FOR VOLTAGE DROP. WIRE SIZES ARE NOT INDICATED ON THE DRAWINGS TO COMPENSATE FOR VOLTAGE DROP. FOR THESE CIRCUITS, CONTRACTOR SHALL UTILIZE WIRE SIZE SHOWNABOVE FOR
- DISTANCES LISTED ABOVE.

 2. VOLTAGE DROP WIRE SIZES WILL BE STRICTLY INFORCED. CONTRACTOR SHALL SUBMIT A LIST OF CIRCUITS THAT WILL EXCEED THE DISTANCES ALLOWED AND INDICATE WIRE SIZE TO BE USED PRIOR TO ANY WIRE BEING INSTALLED.

 3. DO NOT SHARE NEUTRAL CONDUCTORS FOR ANY BRANCH CIRCUITS. ALL BRANCH CIRCUIT SHALL HAVE SEPARATE,

— (1) #4 Cu GND, 3/4"C TO TV/VIDEO SYSTEM EQUIPMENT CABINETS

TELECOMMUNICATIONS MAIN

GROUNDING BUSBAR (TMGB)

(1) #6 Cu GND, 1"C TO MDF DATA CABINET GROUND BUS

- 4. ALL BRANCH CIRCUIT WIRING SHALL BE MC CABLE WITH THE FOLLOWING EXCEPTIONS:
 a. ALL WIRING THAT IS INSTALLED IN AREAS THAT DO NOT HAVE CEILINGS OR WHERE WIRING WOULD BE EXPOSED
- SHALL BE INSTALLED IN CONDUIT COMPLETE.

 5. ALL CONDUIT PENETRATIONS THRU THE FLOOR SLAB SHALL BE MADE WITH CAUTION. CONTRACTOR SHALL COORDINATE ALL HOLE LOCATIONS WITH STRUCTURAL ENGINEER PRIOR TO CUTTING ANY NEW HOLES. NEW HOLES SHALL BE ADJUSTED AS REQUIRED TO MISS REBAR AS DETERMINED BY THE STRUCTURAL ENGINEER.

INDEPENDENT NEUTRAL CONDUCTORS.

—— (1) #3/0 Cu GND, 1"C TO HDP'

——— (1) #3/0 Cu GND, 1"C TO 'T-L1'

(1) #3/0 Cu GND, 1"C TO

GROUND BUS

<u>PLAN NOTES</u>

- 1 CONDUITS BY OTHERS FOR ELECTRIC PRIMARY CONDUCTORS TO SERVE THE UTILITY TRANSFORMER. TRANSFORMER PRIMARY CONDUCTORS INSTALLED BY UTILITY.
- 2 METER FURNISHED BY THE UTILITY AND INSTALLED BY CONTRACTOR. PROVIDE 2-1/2" CONDUIT FROM TRANSFORMER TO METER AS REQUIRED.
- 3 BOND ALL METAL PIPING DESCRIBED IN NFPA 70-250.104, INCLUDING GAS PIPING.
- GROUNDING CONDUCTORS SHALL BE INSTALLED IN CONDUIT WHERE INSTALLED ABOVE GRADE.
 CONNECT WATER SERVICE GROUNDING CONDUCTOR TO STREET SIDE OF WATER METER. PROVIDE BONDING JUMPER ACROSS WATER METER AND INSTALL WITH TAG.





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NOTES

FEEDER SIZE TO USE

F20

F30

F40-50

F60

 CONDUCTORS FOR 20 AMP BRANCH CIRCUITS SHALL BE SIZED FOR VOLTAGE DROP. WIRE SIZES ARE NOT INDICATED ON THE DRAWINGS TO COMPENSATE FOR VOLTAGE DROP FOR THESE CIRCUITS. CONTRACTOR SHALL UTILIZE WIRE SIZE SHOWN ABOVE FOR THE DISTANCES LISTED ABOVE.

VOLTAGE DROP FOR 20A

BRANCH CIRCUITS

120V

100 FEET

240 FEET

385 FEET

MAXIMUM DISTANCE ALLOWED

277V

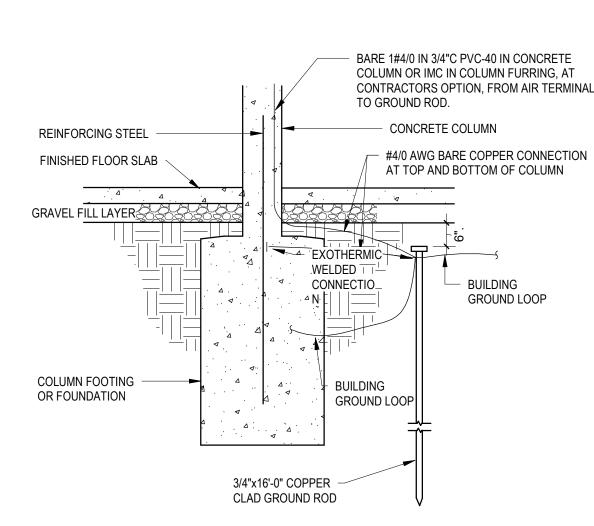
200 FEET

360 FEET

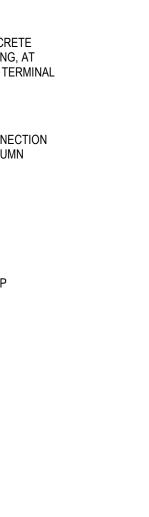
550 FEET

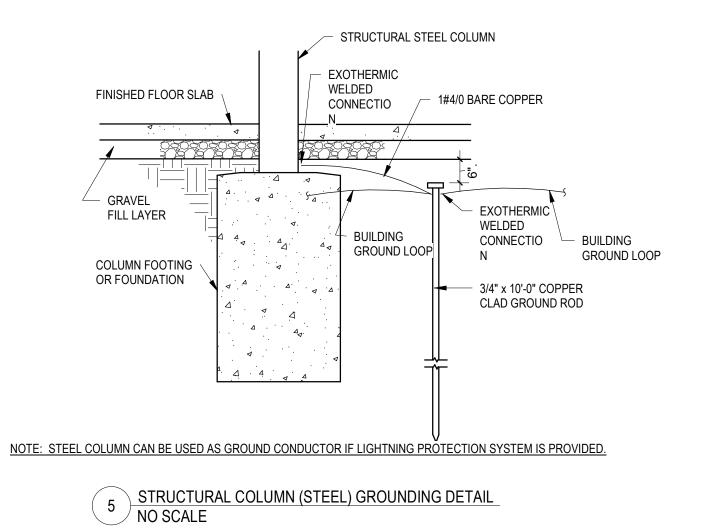
885 FEET

- 2. VOLTAGE DROP WIRE SIZES WILL BE STRICTLY ENFORCED. CONTRACTOR SHALL SUBMIT A LIST OF CIRCUITS THA WILL EXCEED THE DISTANCES ALLOWED AND INDICATE WIRE SIZE TO BE USED PRIOR TO ANY WIRE BEING
- PROVIDE SEPARATE, INDEPENDENT NEUTRAL CONDUCTORS FOR ALL BRANCH CIRCUITS. DO NO SHARE NEUTRALS BETWEEN CIRCUITS.



4 STRUCTURAL COLUMN (CONCRETE) GROUNDING DETAIL NO SCALE





TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) DETAIL
NO SCALE

ELEC ROOM

345

10 FOOT COPPER GROUND ROD INSTALLED IN TRIANGLE PATTERN, RODS SPACED 10 FEET APART. ALL CONNECTIONS SHALL BE EXOTHERMIC WELD TYPE. INSTALL GROUND RODS

WITHIN THE BUILDING FOOTPRINT UNDER THE CONCRETE

MAIN ELECTRICAL GROUND BUSBAR DETAIL

(1) #3/0 Cu GND, 1"C

TO UFER GROUND

483

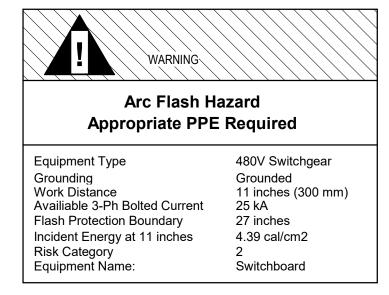


PANEL 1LN1 - LAMACOID PLATE EQUIPMENT SERVED

120/208V 3P 4W. - VOLTAGE
FED FROM MDP - SOURCE OF POWER

NOTE: PROVIDE I.D. PLATE LABEL FOR ELECTRICAL EQUIPMENT SUCH AS MAIN SWITCHGEAR, SWITCHBOARD PANELBOARDS, ANDTRANSFORMERS

8 ELECTRICAL EQUIPMENT I.D. LABELING DETAIL NO SCALE



NOTE: PROVIDE WARNING LABEL FOR ALL ELECTRICAL EQUIPMENT SUCH AS MAIN SWITCHGEAR, SWITCHBOARDS, PANELBOARDS, AND TRANSFORMERS.

9 ELECTRICAL EQUIPMENT WARNING LABEL DETAIL NO SCALE

REPORATE CA

PERMIT SET

△ REVISIONS:

DATE:

2.11.2022

arcDESIGN PROJECT I

arcDESIGN PROJECT NUMBER:

21102

CLIENT PROJECT NUMBER:

DRAWN BY:

JAW

DRAWING TITLE:

ELECTRICAL ONELINE RISER

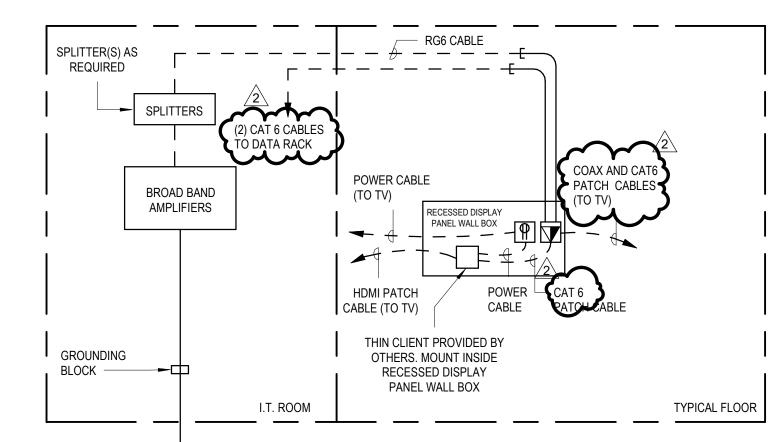
DRAWING NUMBER:

DIAGRAM

SUPPORTS FOR CABLE SHALL BE INDEPENDENTLY SUPPORTED. CABLE SHALL NOT LAY OVER CONDUIT, DUCTWORK, PIPING, STRUCTURAL SUPPORT MEMBERS, ETC. CABLE SHALL BE NEATLY INSTALLED PARALLEL AND AT RIGHT ANGLES TO THE BUILDING LINES. ENGINEER WILL REQUIRE CABLE TO BE REMOVED AND REINSTALLED IF IT IS NOT INSTALLED IN AN ACCEPTABLE MANNER. REFER TO FLOOR PLANS FOR DEVICE LOCATIONS AND QUANTITY.

PROVIDE PLENUM RATED WIRE / CABLE AS REQUIRED. PROVIDE ALL REQUIRED EQUIPMENT AND MODIFICATIONS REQUIRED FOR A COMPLETE SYSTEM PER NEW DEVICE QUANTITIES AND LOCATIONS.

TELECOM SYSTEM DETAIL

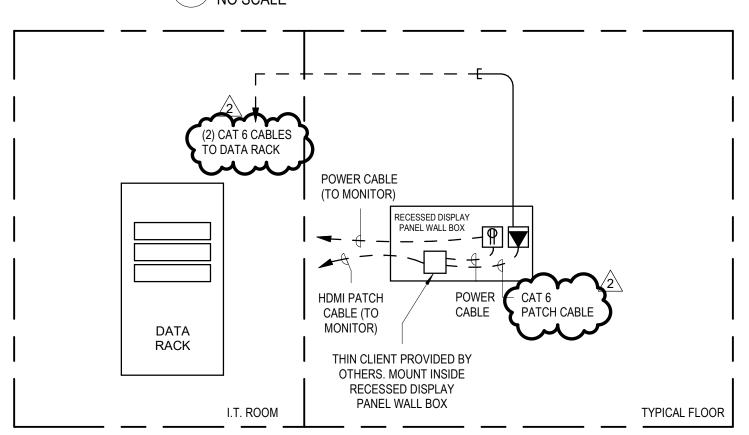


INCOMING CABLE TELEVISION SERVICE

> SUPPORTS FOR CABLE SHALL BE INDEPENDENTLY SUPPORTED. CABLE SHALL NOT LAY OVER CONDUIT, DUCTWORK, PIPING, STRUCTURAL SUPPORT MEMBERS, ETC. CABLE SHALL BE NEATLY INSTALLED PARALLEL AND AT RIGHT ANGLES TO THE BUILDING LINES. ENGINEER WILL REQUIRE CABLE TO BE REMOVED AND REINSTALLED IF IT IS NOT INSTALLED IN AN ACCEPTABLE MANNER. REFER TO FLOOR PLANS FOR DEVICE LOCATIONS AND QUANTITY.

PROVIDE PLENUM RATED WIRE / CABLE AS REQUIRED. PROVIDE ALL REQUIRED EQUIPMENT AND MODIFICATIONS REQUIRED FOR A COMPLETE SYSTEM PER NEW DEVICE QUANTITIES AND LOCATIONS.

> TYPICAL TV / MONITOR TELECOM SYSTEM DETAIL NO SCALE

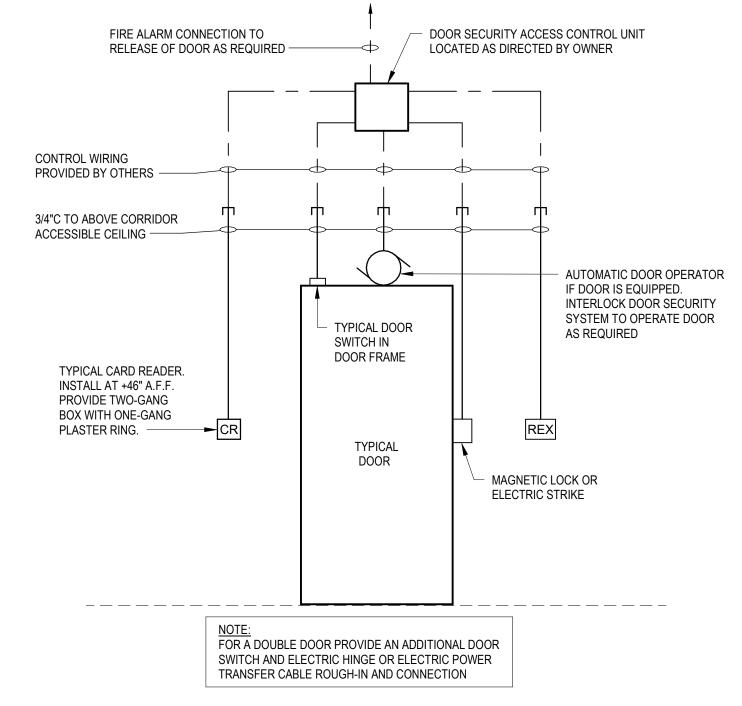


SUPPORTS FOR CABLE SHALL BE INDEPENDENTLY SUPPORTED. CABLE SHALL NOT LAY OVER CONDUIT, DUCTWORK, PIPING, STRUCTURAL SUPPORT MEMBERS, ETC. CABLE SHALL BE NEATLY INSTALLED PARALLEL AND AT RIGHT ANGLES TO THE BUILDING LINES. ENGINEER WILL REQUIRE CABLE TO BE REMOVED AND REINSTALLED IF IT IS NOT INSTALLED IN AN ACCEPTABLE MANNER. REFER TO FLOOR PLANS FOR DEVICE LOCATIONS AND QUANTITY.

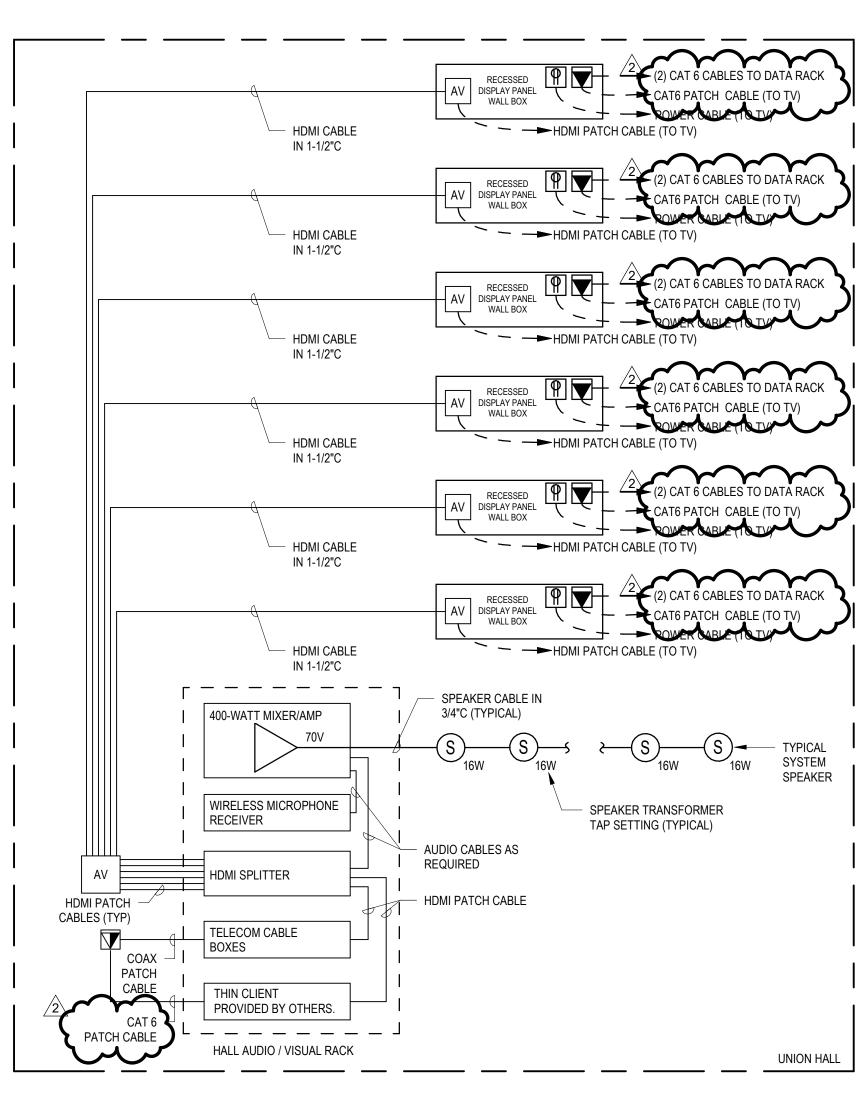
PROVIDE PLENUM RATED WIRE / CABLE AS REQUIRED. PROVIDE ALL REQUIRED EQUIPMENT AND MODIFICATIONS REQUIRED FOR A COMPLETE SYSTEM PER

NEW DEVICE QUANTITIES AND LOCATIONS.

8 LOBBY REGISTRATION DESK MONITOR TELECOM SYSTEM DETAIL NO SCALE



DOOR SECURITY ACCESS CONTROL INSTALLATION DETAIL NO SCALE



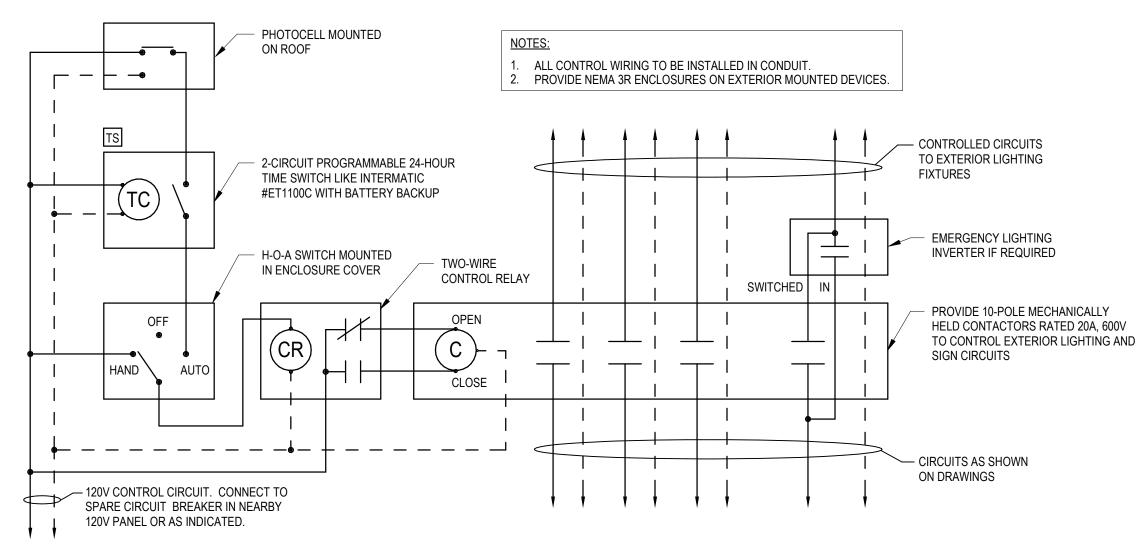
WIRELESS MICROPHONE RECEIVER SHALL BE PROVIDED WITH (7) WIRELESS MICROPHONES. VERIFY EXACT TYPE WITH OWNER. WIRING INSTALLATION: A. WIRING INSTALLED ABOVE ACCESSIBLE CEILINGS MAY BE EXPOSED CABLE. B. WIRING INSTALLED IN WALLS, ABOVE INACCESSIBLE CEILINGS, OR AREAS WITH EXPOSED CEILINGS SHALL BE INSTALLED

IN CONDUIT COMPLETE. 3. SUPPORTS FOR CABLE SHALL BE INDEPENDENTLY SUPPORTED. CABLE SHALL NOT LAY OVER CONDUIT, DUCTWORK, PIPING,

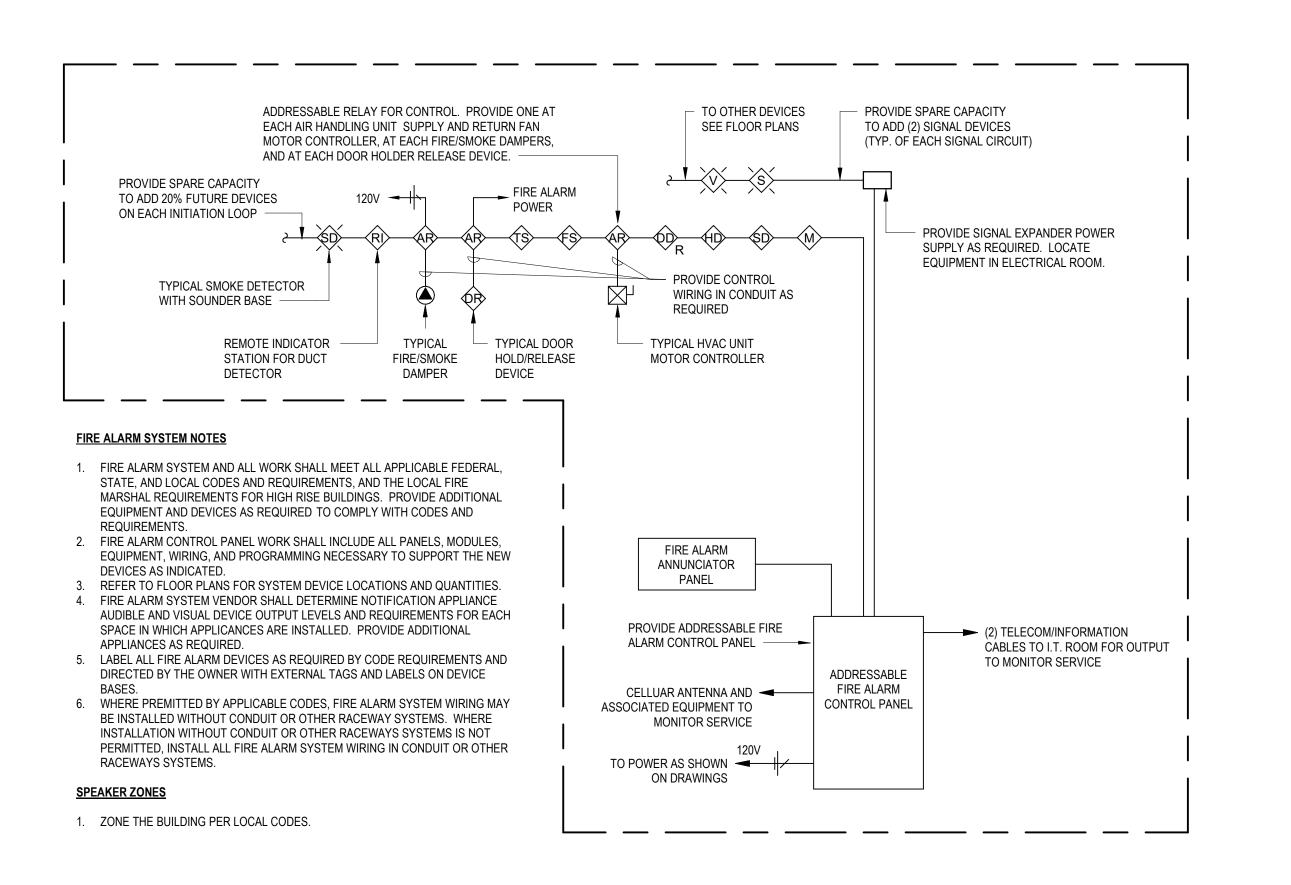
STRUCTURAL SUPPORT MEMBERS, ETC. CABLE SHALL BE NEATLY INSTALLED AT RIGHT ANGLES TO THE BUILDING LINES. ENGINEER WILL REQUIRE CABLE TO BE REMOVED AND REINSTALLED IF IT IS NOT INSTALLED IN AN ACCEPTABLE MANNER.

4. REFER TO FLOOR PLANS FOR DEVICE LOCATIONS AND QUANTITY. 5. PROVIDE ALL EQUIPMENT, WIRING, AND MODIFICATIONS REQUIRED FOR A COMPLETE SYSTEM. 6. ROUTE HDMI CABLE INSIDE RECESSED DISPLAY PANEL WALL BOX TO TV.

5 UNION HALL AUDIO/VIDEO SYSTEM SCHEMATIC



EXTERIOR LIGHTING CONTROL SYSTEM SCHEMATIC \nearrow NO SCALE



FIRE ALARM SYSTEM SCHEMATIC √ NO SCALE

| | | | LOW VOLTAGE SYSTEM | | | | | | | |
|------|--|------------|---------------------|-----------------------|---------------------------------|---------|-----------------------------|----------|------|----------------|
| #NO. | LOW VOLTAGE SYSTEM RESPONSIBILITY | FIRE ALARM | LIGHTING CONTROL | IT PHONE / DATA | SECURITY / ACCESS CONTROL | CAMERAS | AUDIO / VISUAL SYSTEM | CABLE TV | ABBF | REVIATIONS |
| 1. | WHO WILL FURNISH THE SYSTEM EQUIPMENT? | EC | EC | O/V | O/V | O/V | EC | EC | N/A | NOT APPLICABLE |
| 2. | WHO WILL INSTALL THE SYSTEM EQUIPMENT? | EC | EC | O/V | O/V | O/V | EC | EC | EC | ELECTRICAL |
| 3. | WHO WILL FURNISH THE SYSTEM WIRING? | EC | EC | EC | EC | EC | EC | EC | LO | CONTRACTOR |
| 4. | WHO WILL INSTALL THE SYSTEM WIRING? | EC | EC | EC | EC | EC | EC | EC | 0 | OWNER |
| 5. | WHO WILL PROVIDE ROUGH-INS (CONDUIT AND BOXES) TO THE SYSTEM? | EC | EC | EC | EC | EC | EC | EC | V | VENDOR |
| 6. | WHO WILL PROVIDE POWER CONNECTION TO THE SYSTEM PANEL? | EC | EC | EC | EC | EC | EC | EC | - | - |
| 7. | WHO WILL PROVIDE TELECOM CONNECTION TO THE SYSTEM PANEL? | EC | EC | O/V | O/V | O/V | EC | EC | - | - |
| 8. | WHO WILL PROVIDE FINAL TERMINATION TO THE SYSTEM DEVICES? | EC | EC | O/V | O/V | O/V | EC | EC | - | - |
| 9. | WHO WILL PROVIDE TESTING AND ACCEPTANCE OF THE INSTALLED SYSTEM? | EC | EC | O/V | O/V | O/V | EC | EC | - | - |



IT / PHONE/ DATA CONTACT <u>INFORMATION:</u> CHRISTIAN FRANCESCON OFFICE: 317.829.1437 CFRANCESCON@AISLLP.COM SECURITY / ACCESS CONTROL / CAMERAS CONTACT INFORMATION: NELSON ALARM **BOB LEWIS** OFFICE: 317.777.0437 RLEWIS@NELSONALARM.COM

7 LOW VOLTAGE SYSTEMS RESPONSIBILITY MATRIX

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 \triangle REVISIONS:

1 01.14.2022 ADDENDUM 2 2 02.11.2022 ADDENDUM 3

2.11.2022 arcDESIGN PROJECT NUMBER: 21102 CLIENT PROJECT NUMBER:

DRAWN BY: JAW

DRAWING TITLE:

ELECTRICAL SCHEMATICS

DRAWING NUMBER:

| Number Circuit Description Fixed Inst. L S I G Rated Poles 1 H1 3 4 2 T-L1 3 4 | : TBD : MCB : 800A | | |
|--|--------------------------|---------|---------------|
| Breaker Information Thermal Mag Electronic Trip | Frame | | |
| Thermal Mag Electronic Trip Circuit Number Circuit Description Fixed Inst. L S I G Rated Poles | | | |
| Circuit Number Circuit Description Fixed Inst. L S I G Rated Poles 1 H1 3 4 2 T-L1 3 4 | | | |
| Number Circuit Description Fixed Inst. L S I G Rated Poles 1 H1 3 4 2 T-L1 3 4 | | | |
| 2 T-L1 3 4 | | Rating | (kVA) Remarks |
| | 400 A 2 | | |
| 3 KIU-I | 400 A 2 | | |
| 4 RTU-2 3 1 | 100 A 1 | 100 A | 63.6 |
| 5 SPARE 3 | | 400 A | 0.0 |
| 6 SPARE 3 | | 200 A | 0.0 |
| 7 SPARE 3 | | 200 A | 0.0 |
| 8 PROVISION | - | | 0.0 |
| 9 PROVISION | | | 0.0 |
| 10 PROVISION | | | 0.0 |
| 11 PROVISION | | | 0.0 |
| 12 PROVISION | | | 0.0 |
| Total Connected Total Connected L | | | |
| oad Classification Connected Load Demand Factor Estimated Demand | | Danal | Totals |
| HVAC 237800 VA 100.00% 237800 VA | | Panei | Totals |
| | I Conn. | Load: | 340252 VA |
| | | | 302589 VA |
| Total Co | | | |
| Total Est. Dem | nand Cu | urrent: | 364 A |
| | | | |
| Remarks: | | | |

| | Location: ELECTRICAL 124 Supplied From: HDP Mounting: Surface Enclosure Type: Type 1 | | | | Voltage Phase Wire Ground | <u>:</u> 3 <u>:</u> 4 | 77 Wye | | | Branch: A.I.C. Rating: TBD Main Type: MLO Main Rating: 225A | | | | |
|-------------------|---|------|----------|------|---------------------------|--------------------------|--------|-----|---------|---|------|-----------------------------|--------------------|---------------|
| General I | Panel Comments: | | | | | | | | | | | | | |
| Circuit Number | | | Poles | | | E | 3 | (| | Poles | Trip | Circuit Desc | cription | Circu Numb |
| 1 | UNION HALL LIGHTING | 20 A | 1 | 1.2 | 6 | | | | | | | | | 2 |
| 3 | UNION HALL LIGHTING | 20 A | 1 | | | 1.8 | 6 | | | 3 | 50 A | VAV-7, VAV-8, VAV-9, VAV-10 | , VAV-12 | 4 |
| 5 | UNION HALL LIGHTING | 20 A | 1 | | | | | 1.8 | 6 | | | | | 6 |
| 7 | OFFICE CORRIDOR LIGHTING | 20 A | 1 | 1.8 | 8 | | | | | | | | | 8 |
| 9 | OFFICE LIGHTING | 20 A | 1 | | | 3.5 | 8 | | | 3 | 50 A | VAV-6, VAV-11, VAV-14 | | 10 |
| 11 | OFFICE LIGHTING | 20 A | 1 | | | | | 3.1 | 8 |] | | | | 12 |
| 13 | POLE MOUNTED SITE LIGHTING | 20 A | 1 | 4.4 | 7.2 | | | | | | | | | 14 |
| 15 | SPARE | 20 A | 1 | | | 0 | 7.2 | | | 3 | 50 A | VAV-2, VAV-3, VAV-4, VAV-5 | | 16 |
| 17 | SPARE | 20 A | 1 | | | | | 0 | 7.2 |] | | | | 18 |
| 19 | SPARE | 20 A | 1 | 0 | 6.8 | | | | | | | | | 20 |
| 21 | SPARE | 20 A | 1 | | | 0 | 6.8 | | | 3 | 50 A | VAV-1, VAV-13, VAV-15, VAV- | 16, VAV-17, VAV-18 | 22 |
| 23 | SPARE | 20 A | 1 | | | | | 0 | 6.8 | 1 | | | | 24 |
| 25 | SPARE | 20 A | 1 | 0 | 0 | | | | | | | | | 26 |
| 27 | SPARE | 20 A | 1 | | | 0 | 0 | | | 3 | 50 A | SPARE | | 28 |
| 29 | SPARE | 20 A | 1 | | | | | 0 | 0 | 1 | | | | 30 |
| 31 | PROVISION | | | 0 | 0 | | | | | | | PROVISION | | 32 |
| 33 | PROVISION | | | | | 0 | 0 | | | - 1 | | PROVISION | | 34 |
| 35 | PROVISION | | | | | | | 0 | 0 | | | PROVISION | | 36 |
| 37 | PROVISION | | | 0 | 0 | | | | | - | | PROVISION | | 38 |
| 39 | PROVISION | | | | | 0 | 0 | | | - 1 | | PROVISION | | 40 |
| | PROVISION | | | | | | | 0 | 0 | | | PROVISION | | 42 |
| | 1 | Tota | al Load: | 35.3 | kVA | 33.2 | kVA | | kVA | | | I | | |
| | | | | | | Load S | Sumamr | y: | | | | | | |
| Load Cla | ssification | Conn | ected Lo | oad | De | mand Fa | actor | Es | timated | Demand | | Panel | Totals | |
| HVAC | | 84 | 4000 VA | | | 100.00% | 6 | | 84000 |) VA | | | | |
| Lighting | | 1 | 7350 VA | | | 100.00% | 6 | | 17350 | VA | | Total Conn. Load: | 101151 VA | |
| | | | | | | | | | | | | Total Est. Demand: | 101151 VA | |
| | | | | | | | | | | | | Total Conn. Current: | 122 A | |
| | | | | | | | | | | | | Total Est. Demand Current: | 122 A | |
| | | | | | | | | | | | | | | |
| Remarks | : | | | | | | | | | | | | 1 | |
| | | | | | | | | | | | | | | |

| | | LIGHT FIXTURE SCHEDULE - SITE LI | GHTING | | | | |
|-----------------|-------------------------|--|---------|---------|--------------|--------|------------------------------------|
| FIXTURE TYPE | FIXTURE NAME | DESCRIPTION | VOLTAGE | WATTAGE | LAMP | LUMENS | ACCEPTABLE MANUFACTURERS |
| S1 | | SITE AREA FIXTURE, SINGLE HEAD WITH TYPE IV WIDE DISTRIBUTION. 24' POLE. ARICHITECT TO DETERMINE FINISH AND ALL ACCESSORIES. | 277 V | 151 W | LED 4000K | 20000 | LUMARK - PRV-PA2B-740-U-T4W-HSS |
| S2 | WALL MOUNTED SITE LIGHT | SITE AREA FIXTURE, SINGLE HEAD WITH TYPE IV WIDE DISTRIBUTION | 277 V | 151 W | LED 4000K | 20000 | LUMARK - PRV-PA2B-740-U-T4W-HSS |
| S3 | | SITE AREA FIXTURE, SINGLE HEAD WITH TYPE IV WIDE DISTRIBUTION. 17' POLE. ARICHITECT TO DETERMINE FINISH AND ALL ACCESSORIES. | 277 V | 112 W | LED 4000K | 17000 | LUMARK - PRV-PA2A-740-U-T4W |
| S4 | | WET LOCATION, ADJUSTABLE AIM, FLOOD LIGHT, ARICHITECT TO DETERMINE FINISH AND ALL ACCESSORIES. | 277 V | 58 W | LED 4000K | 5900 | LUMARK - NFFLD-S-C15-D-UNV-33-S-XX |

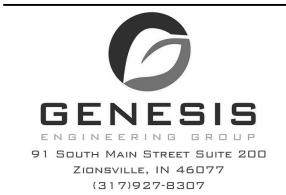
| | | LIGHT FIXTURE SCHEDULE | | | | | |
|-------|-------------------------|--|---------|---------|--------------|----------|--------------------------------|
| TURE | YPIXTURE NAME | | VOLVAGE | WATVAGE | YAMPY | WHIER S- | ACCEPTABLE MANUFACYUKERS |
| L1 | ARCHITECTURAL TROFFER | RECESSED 2 x 4 FLAT PANEL, 0-10 V DIMMABLE, FIVE YEAR WARRANTY, IC RATED | 277 V | 55 W | LED 3500K | 6100 | METALUX - 24FP |
| .1-EM | ARCHITECTURAL TROFFER | RECESSED 2 x 4 FLAT PANEL, 0-10 V DIMMABLE, FIVE YEAR WARRANTY, IC RATED. PROVIDE WITH INTEGRAL 90 MINUTE EMERGENCY BATTERY. | 277 V | 55 W | LED 3500K | 6100 | METALUX - 24FP |
| L2 | ARCHITECTURAL TROFFER | RECESSED 2 x 2 FLAT PANEL, 0-10 V DIMMABLE, FIVE YEAR WARRANTY, IC RATED | 277 V | 38 W | LED 3500K | 4200 | METALUX - 22FP |
| .2-EM | ARCHITECTURAL TROFFER | RECESSED 2 x 2 FLAT PANEL, 0-10 V DIMMABLE, FIVE YEAR WARRANTY, IC RATED. PROVIDE WITH INTEGRAL 90 MINUTE EMERGENCY BATTERY. | 277 V | 38 W | LED 3500K | 4200 | METALUX - 22FP |
| | C STANLIGHT | 4" APPENTURE X 1" HICHOREN DOWNLIGHT, LOW IN SCENT SEMI SPECULAR ENFAR ALS MINUM- RELFECTOR, SELF TRIM WITH WHITE FLANGE. 0-10V DIMMING DRIVER (1%-100%). | | | 3500K | 2000 | HAND-HOALL |
| .3-EM | DOWNLIGHT | 4" APPERTURE X 8" HIGH OPEN DOWNLIGHT, LOW IRIDESCENT SEMI SPECULAR CLEAR ALUMINUM RELFECTOR, SELF TRIM WITH WHITE FLANGE. 0-10V DIMMING DRIVER (1%-100%). PROVIDE WITH INTEGRAL 90 MINUTE EMERGENCY BATTERY. | 277 V | 21 W | LED 3500K | 2000 | HALO - HC4 |
| L4 | LENSED STRIP | 2-3/8"W X 3-3/16"H X 48"L BAKED ENAMEL WHITE HOUSING FORMED FROM CODE GAUGE STEEL, 100% ACRYLIC FORMED DIFUSSER, DAMP LOCATION LISTED. MADE IN USA. | 277 V | 40 W | LED 3500K | 5000 | METALUX - SNLED |
| L5 | HALL CYLINDER PENDANT | 10"D X 20"H ALUMINUM CYLINDER PENDANT, POWDER COAT FINISH, CLEAR ANTI-GLARE LENS, 60 DEGREE OPTIC, 0-10V DIMMING DRIVER (1%-100%), ARCHITECT TO DETERMINE FINISH. | 277 V | 89 W | LED 3500K | 10500 | SOLID STATE LUMINAIRES - SSC10 |
| 4 | BATHROOM VANITY FIXTURE | 2-1/2"W(X 3-1/2"H X 24"L ANODIZED EXTRUDED ALUMINUM GRAY HOUSING, ACRYLIC FORMED 1/2" OROP LEVIS, DAMY LOCATION LISTELY. ARCHITECT TO DETERMINE ALL FINISH OPTIONS. | ~~~~~ | 17W | 3500K | 2000 | FOCAL POINT - FSM2LW |
| L7 | NOT USED | NOT USED. | 277 V | 0 W | LED 3500K | 0 | NOT USED |
| | EMERGINCY HAVE | THERMORIASTIC MEDGENCY UNIT WITH INTEGRAL SOMINUTE EMEDGENCY DATARY PROVIDE WITH SELF DIAGNOSTICS. ARCHITECT TO DETERMINE FINISH | | | | M | SURPLITED SELSON |
| LRH | REMOTE HEAD | WEATHER-PROOF REMOTE HEAD. ARCHITECT TO DETERMINE FINISH | | 3 W | LED | | SURE-LITES - SRP |
| LX | EXIT SIGN | LED ELECTRONIC EXIT LIGHT, SINGLE OR DOUBLE FACE AS INDICATED ON DRAWING DOCUMENTS, ARCHITECTURAL ACRYLIC EDGE-LIT WITH UNIVERSAL SURFACE MOUNTING CANOPY, END, BACK OR TOP. DIRECTIONAL ARROW, RED LETTERS "EXIT", NICKEL CADMIUM BATTERY. PROVIDE WITH SELF DIAGNOSTICS. | 277 V | 3 W | LED | | SURE-LITES - ES |

| | | | | | TRANSFORM | MER SCHEDULE | | | | |
|-------------|----------------|---------|--------|--------------------|----------------------|--------------------|-------------------------|----------|------|-------------------------|
| DESIGNATION | LOCATION | SIZE | PHASE | PRIMARY VOLTAGE | SECONDARY VOLTAGE | PRIMARY CONNECTION | SECONDARY CONNECTION | MOUNTING | TYPE | COMMENTS |
| | | | FIIAGE | | | | | | - | |
| T-L1 | ELECTRICAL 124 | 150 kVA | 3 | 480 V | 208/120 V | DELTA | WYE | PAD | DRY | COMPLY WITH ENERGY CODE |



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 \triangle REVISIONS:

1 02.11.2022 ADDENDUM 3

DATE:

2.11.2022

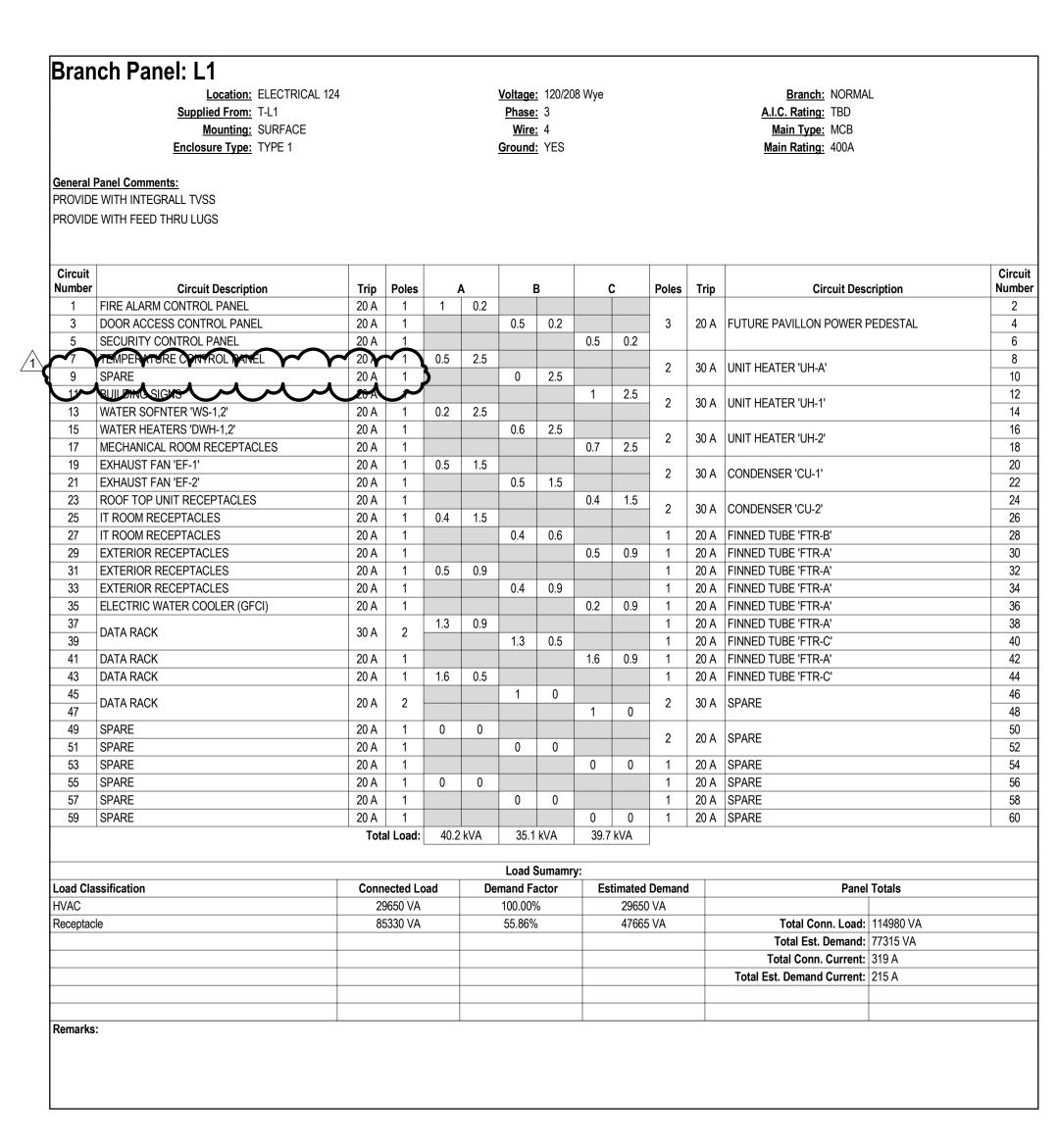
arcDESIGN PROJECT NUMBER: CLIENT PROJECT NUMBER:

DRAWN BY:

JAW
DRAWING TITLE:

ELECTRICAL SCHEDULES

DRAWING NUMBER:



| | Location: ELECTRICAL 12 Supplied From: L1 Mounting: SURFACE Enclosure Type: TYPE 1 | 4 | | | | Voltage Phase Wire Ground | <u>:</u> 3 <u>:</u> 4 | 8 Wye | | | | Branch: NORMA A.I.C. Rating: TBD Main Type: MLO Main Rating: 400A | L | |
|-------------------|---|------|----------|------|----------|---------------------------|--------------------------|-------|-------|----------|------|---|---|--------|
| | Panel Comments: E WITH FEED THRU LUGS | | | | | | | | | | | | | |
| Circuit Number | Circuit Description | Trip | Poles | | A | | В | | | Poles | Trip | Circuit Des | cription | Circui |
| 1 | STAFF BREAK RECEPTACLES | 20 A | 1 | 0.7 | 1.1 | | | | | 1 | 20 A | OFFICE RECEPTACLES | • | 2 |
| 3 | STAFF BREAK MICROWAVE | 20 A | 1 | | | 1.2 | 1.1 | | | 1 | 20 A | OFFICE RECEPTACLES | | 4 |
| 5 | | F0.4 | _ | | | | | 5 | 0.7 | 1 | 20 A | OFFICE RESTROOM RECEPT | ACLES | 6 |
| 7 | STAFF BREAK OVEN | 50 A | 2 | 5 | 1.1 | | | | | 1 | 20 A | LARGE CONFERENCE RECE | | 8 |
| | STAFF BREAK COUNTER RECEPTACLES | 20 A | 1 | | | 0.5 | 1.2 | | | 1 | 20 A | LARGE CONFERENCE FLOOI | | 10 |
| | STAFF BREAK GARBAGE DISPOSAL (GFCI) | 20 A | 1 | | | | | 0.8 | 0.5 | 1 | 20 A | LARGE CONFERENCE COUN | | 12 |
| | STAFF BREAK DISHWASHER | 20 A | 1 | 0.8 | 0.8 | | | | | 1 | | LARGE CONFERENCE U/C RI | | 14 |
| | STAFF BREAK COFFEE MAKER | 20 A | 1 | | | 1.4 | 0.9 | | | 1 | 20 A | OFFICE RECEPTALCES | | 16 |
| 17 | STAFF BREAK REFRIGERATOR | 20 A | 1 | | | | | 0.8 | 1.1 | 1 | 20 A | CORRIDOR ALCOVE COUNTI | ER RECEPTACLES | 18 |
| 19 | TRAINING ROOM RECEPTACLES AND TVS | 20 A | 1 | 0.7 | 0.9 | | | | | 1 | 20 A | OFFICE RECEPTALCES | | 20 |
| 21 | TRAINING ROOM RECEPTACLES AND TVS | 20 A | 1 | | | 0.7 | 0.9 | | | 1 | 20 A | OFFICE RECEPTALCES | | 22 |
| 23 | TRAINING ROOM FLOOR BOXES | 20 A | 1 | | | | | 0.8 | 0.5 | 1 | 20 A | WORK ROOM COUNTER REC | CEPTACLES | 24 |
| 25 | TRAINING ROOM FLOOR BOXES | 20 A | 1 | 0.8 | 0.2 | | | | | 1 | 20 A | WORK ROOM FOLDING MAC | | 26 |
| 27 | TRAINING ROOM FLOOR BOXES | 20 A | 1 | | - | 0.8 | 0.5 | | | 1 | 20 A | WORK ROOM COUNTER REC | | 28 |
| 29 | TRAINING ROOM FLOOR BOXES | 20 A | 1 | | | | | 0.8 | 0.9 | 1 | 20 A | OFFICE RECEPTALCES | | 30 |
| 31 | TRAINING ROOM RECEPTACLES | 20 A | 1 | 0.5 | 0.9 | | | | | 1 | 20 A | OFFICE RECEPTALCES | | 32 |
| 33 | TRAINING ROOM COUNTER RECEPTACLES | 20 A | 1 | | | 0.4 | 0.4 | | | 1 | 20 A | PRINT SUPPLY COUNTER RE | ECEPTACLES | 34 |
| 35 | TRAINING ROOM U/C REFRIGERATORS | 20 A | 1 | | | | | 0.8 | 1.2 | 1 | 20 A | PRINT / SUPPLY COPIER | | 36 |
| | RECEPTION RECEPTACLES | 20 A | 1 | 0.5 | 0.7 | | | | | 1 | | ADMINISTRATION RECEPTAGE | CLES | 38 |
| | RECEPTION RECEPTACLES | 20 A | 1 | | | 0.5 | 0.7 | | | 1 | | ADMINISTRATION RECEPTAGE | | 40 |
| | SECURE STORAGE AND CORRIDOR | 20 A | 1 | | | 0.0 | 0.7 | 0.7 | 0.9 | 1 | | ADMINISTRATION RECEPTAGE | | 42 |
| - 11 | 22312312313132711233111231111 | | l Load: | 23.9 | kVA | 21.9 | kVA | | kVA | ' | | | | |
| | 191. (1 | | , | , | | | Sumamr | | | <u> </u> | | | - | |
| | ssification | | ected Lo | oad | De | mand Fa | | Es | | Demand | | Panel | Totals | |
| Receptacl | le . | 1 70 |)170 VA | | | 57.13% | 0 | | 40085 | VA | | T.(! 0 | 70470 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ | |
| | | | | | | | | | | | | Total Conn. Load: | | |
| | | | | | | | | | | | | Total Est. Demand: | | |
| | | | | | | | | | | | | Total Conn. Current: | | |
| | | | | | | | | | | | | Total Est. Demand Current: | 111 A | |
| Remarks: | : | | | | | | | | | | | | | |

| | Location: ELECTRICAL 124 Supplied From: L2 Mounting: SURFACE Enclosure Type: TYPE 1 | | | Voltage: 120/208 Wye Phase: 3 Wire: 4 Ground: YES | | | | | | | Branch: NORMAL A.I.C. Rating: TBD Main Type: MLO Main Rating: 400A | | | | |
|-------------------|---|------|----------|---|-----|---------|--------|-----|----------|--------|---|----------------------------|-------------------|---------------|--|
| General | Panel Comments: | | | | | | | | | | | | | | |
| Circuit Number | Circuit Description | Trip | Poles | , | A | E | 3 | (| , | Poles | Trip | Circuit Des | cription | Circu Numb | |
| 1 | WARMING KITCHEN RECEPTACLES | 20 A | 1 | 0.5 | 0.7 | | | | | 1 | 20 A | UNION HALL RECEPTACLES | | 2 | |
| 3 | WARMING KITCHEN REFRIGERATOR | 20 A | 1 | | | 1.2 | 0.9 | | | 1 | 20 A | UNION HALL RECEPTACLES | | 4 | |
| 5 | WARMING KITCHEN RECEPTACLES | 20 A | 1 | | | | | 0.5 | 0.9 | 1 | 20 A | UNION HALL RECEPTACLES | | 6 | |
| 7 | WARMING KITCHEN RECEPTACLES | 20 A | 1 | 0.4 | 0.5 | | | | | 1 | 20 A | UNION HALL TVS | | 8 | |
| 9 | WARMING KITCHEN RECEPTACLES | 20 A | 1 | | | 0.4 | 0.5 | | | 1 | 20 A | UNION HALL TVS | | 10 | |
| 11 | KTICHEN AND GEN STORAGE RECEPTACLES | 20 A | 1 | | | | | 0.7 | 0.5 | 1 | 20 A | UNION HALL PLATFORM REC | CEPTACLES | 12 | |
| 13 | EVENT STORAGE RECEPTACLES | 20 A | 1 | 0.9 | 0.7 | | | | | 1 | 20 A | UNION HALL PLATFORM REC | CEPTACLES | 14 | |
| 15 | MENS RESTROOM RECEPTACLES | 20 A | 1 | | | 0.5 | 1.6 | | | 1 | 20 A | UNION HALL PLATFORM AUD | DIO / VISUAL RACK | 16 | |
| 17 | WOMENS RESTROOM RECEPTACLES | 20 A | 1 | | | | | 0.5 | 1.6 | 1 | 20 A | UNION HALL PLATFORM AUD | DIO / VISUAL RACK | 18 | |
| 19 | JANITOR AND CORRIDOR RECEPTACLES | 20 A | 1 | 0.5 | 1 | | | | | 1 | 20 A | UNION HALL BUFFET RECEP | TACLE | 20 | |
| 21 | CHECK IN RECPETACLES AND TV | 20 A | 1 | | | 0.9 | 1 | | | 1 | 20 A | UNION HALL BUFFET RECEP | TACLE | 22 | |
| 23 | MERCHANDISE RECEPTACLES | 20 A | 1 | | | | | 0.7 | 1 | 1 | 20 A | UNION HALL BUFFET RECEP | TACLE | 24 | |
| 25 | CORRIDOR, HALL ENTRY, AND FAMILY RR RECS | 20 A | 1 | 0.5 | 1 | | | | | 1 | 20 A | UNION HALL BUFFET RECEP | TACLE | 26 | |
| 27 | SMALL CONF ROOM RECEPTACLES AND TV | 20 A | 1 | | | 0.9 | 1 | | | 1 | 20 A | UNION HALL BUFFET RECEP | TACLE | 28 | |
| 29 | ARCHIVE STORAGE RECEPTACLES | 20 A | 1 | | | | | 0.7 | 1 | 1 | 20 A | UNION HALL BUFFET RECEP | TACLE | 30 | |
| 31 | LOBBY RECEPTACLES, PCS, AND TVS | 20 A | 1 | 1.3 | 1 | | | | | 1 | 20 A | UNION HALL BUFFET RECEP | TACLE | 32 | |
| 33 | CORRIDOR RECEPTACLES | 20 A | 1 | | | 0.7 | 1 | | | 1 | 20 A | UNION HALL SIGN AND MEM | ORIAL CASE | 34 | |
| 35 | JANITOR, OFFICE SUPPLY, CORRIDOR RECS | 20 A | 1 | | | | | 0.5 | 0 | 1 | 20 A | SPARE | | 36 | |
| 37 | SPARE | 20 A | 1 | 0 | 0 | | | | | 1 | 20 A | SPARE | | 38 | |
| 39 | SPARE | 20 A | 1 | | | 0 | 0 | | | 1 | 20 A | SPARE | | 40 | |
| 41 | SPARE | 20 A | 1 | | | | | 0 | 0 | 1 | 20 A | SPARE | | 42 | |
| | | Tota | al Load: | 9.1 | kVA | 10.7 | kVA | 8.8 | kVA | | | | | | |
| | | | 4 11 | | | | Sumamr | | | | . | | | | |
| | ssification | | ected Lo | oad | De | mand Fa | | Est | | Demano | 1 | Pane | l Totals ⊺ | | |
| Receptac | IIE | 28 | 8600 VA | | | 67.48% |) | | 19300 |) VA | | Tatal Caum Land | 29600 \/^ | | |
| | | | | | | | | | | | | Total Conn. Load: | | | |
| | | | | | | | | | | | | Total Conn. Currents | | | |
| | | | | | | | | | | | | Total Conn. Current: | | | |
| | | | | | | | | + | | | | Total Est. Demand Current: | 04 A | | |
| | | | | | | | | | | | | | | | |
| Remarks | | _ | | | - | | | | | | | | | _ | |



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(317)927-8307



SRATE CAMPUS

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△ REVISIONS:

1 02.11.2022 ADDENDUM 3

DATE: **2.11.2022**

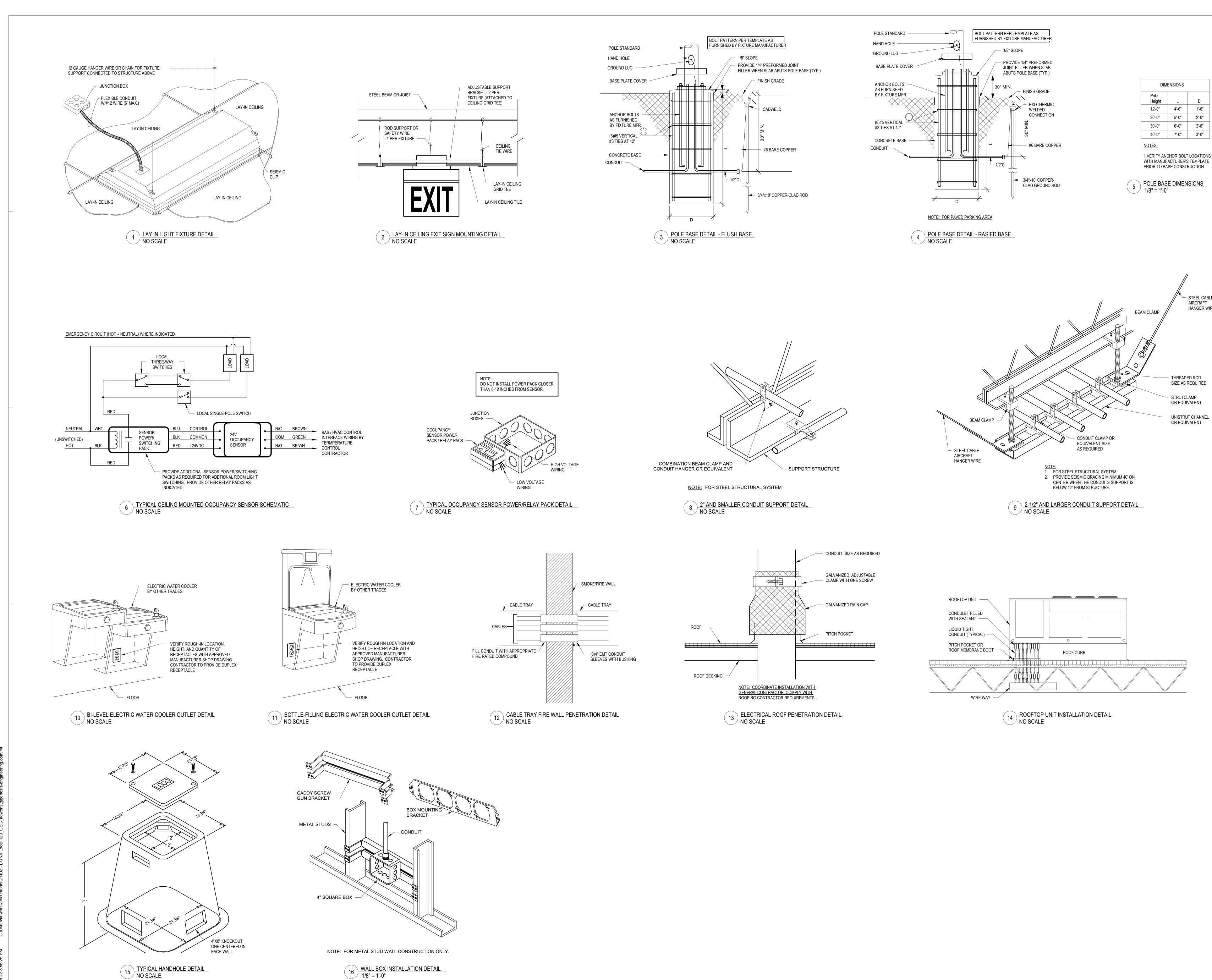
2.11.2022arcDESIGN PROJECT NUMBER:21102CLIENT PROJECT NUMBER:

DRAWN BY:

DRAWING TITLE:

ELECTRICAL SCHEDULES

DRAWING NUMBER:



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ZIONSVILLE, IN 46077



- STEEL CABLE AIRCRAFT HANGER WIRE

THREADED ROD

STRUTCLAMP OR EQUIVALENT

SIZE AS REQUIRED

UNISTRUT CHANNEL

OR EQUIVALENT

PERMIT SET

 \triangle REVISIONS:

2.11.2022 arcDESIGN PROJECT NUMBER:

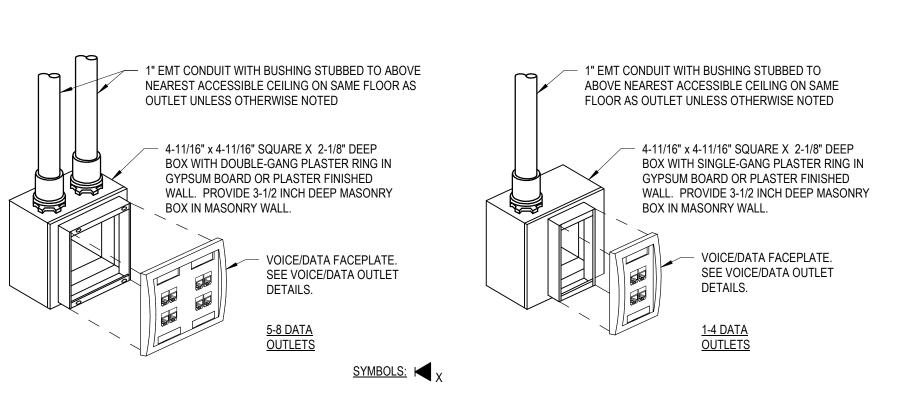
CLIENT PROJECT NUMBER: DRAWN BY:

21102

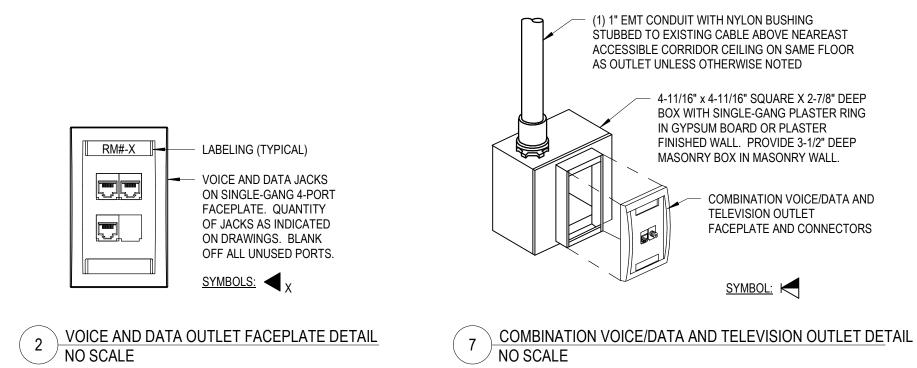
DRAWING TITLE:

ELECTRICAL **DETAILS**

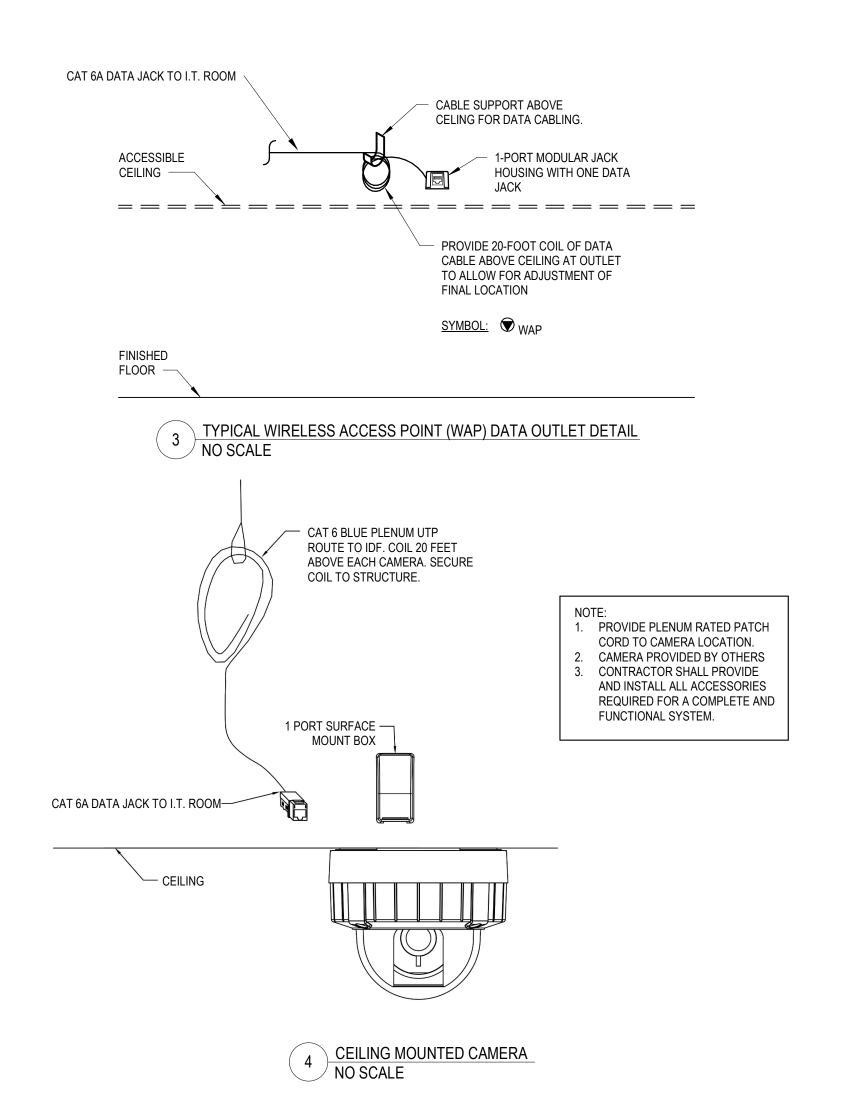
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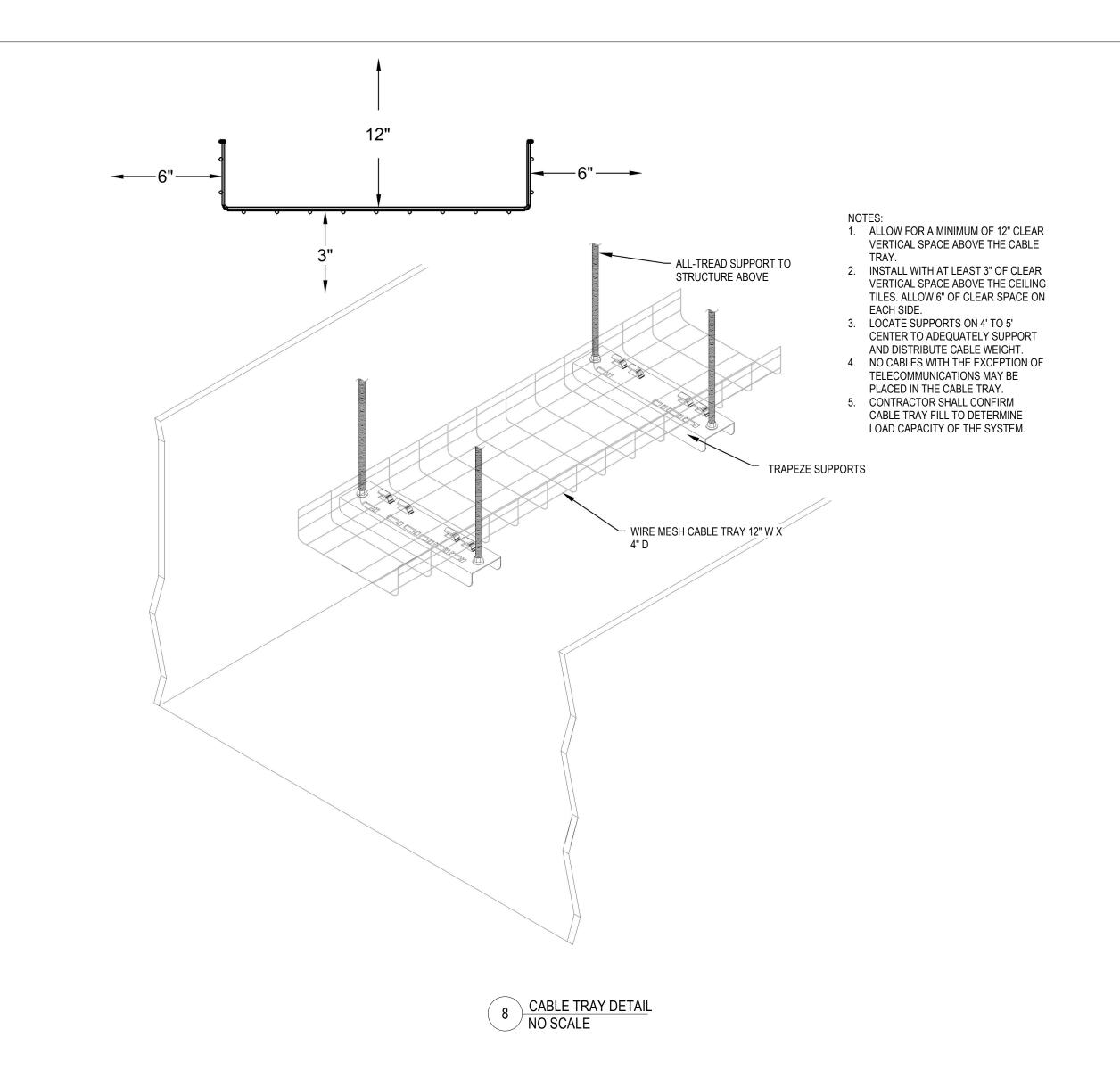


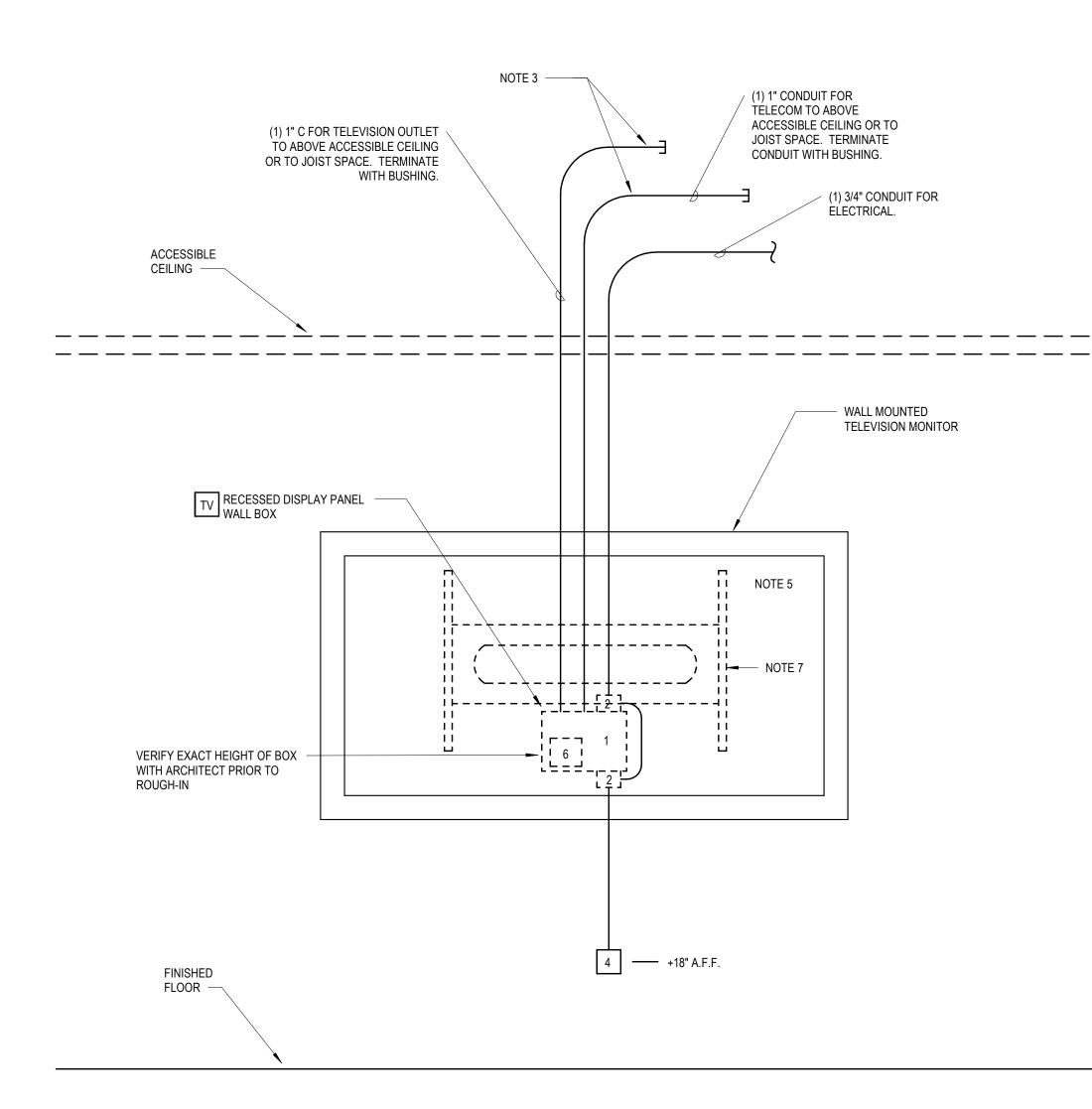
1 VOICE AND DATA OUTLET DETAIL - FLUSH IN NEW WALLS NO SCALE

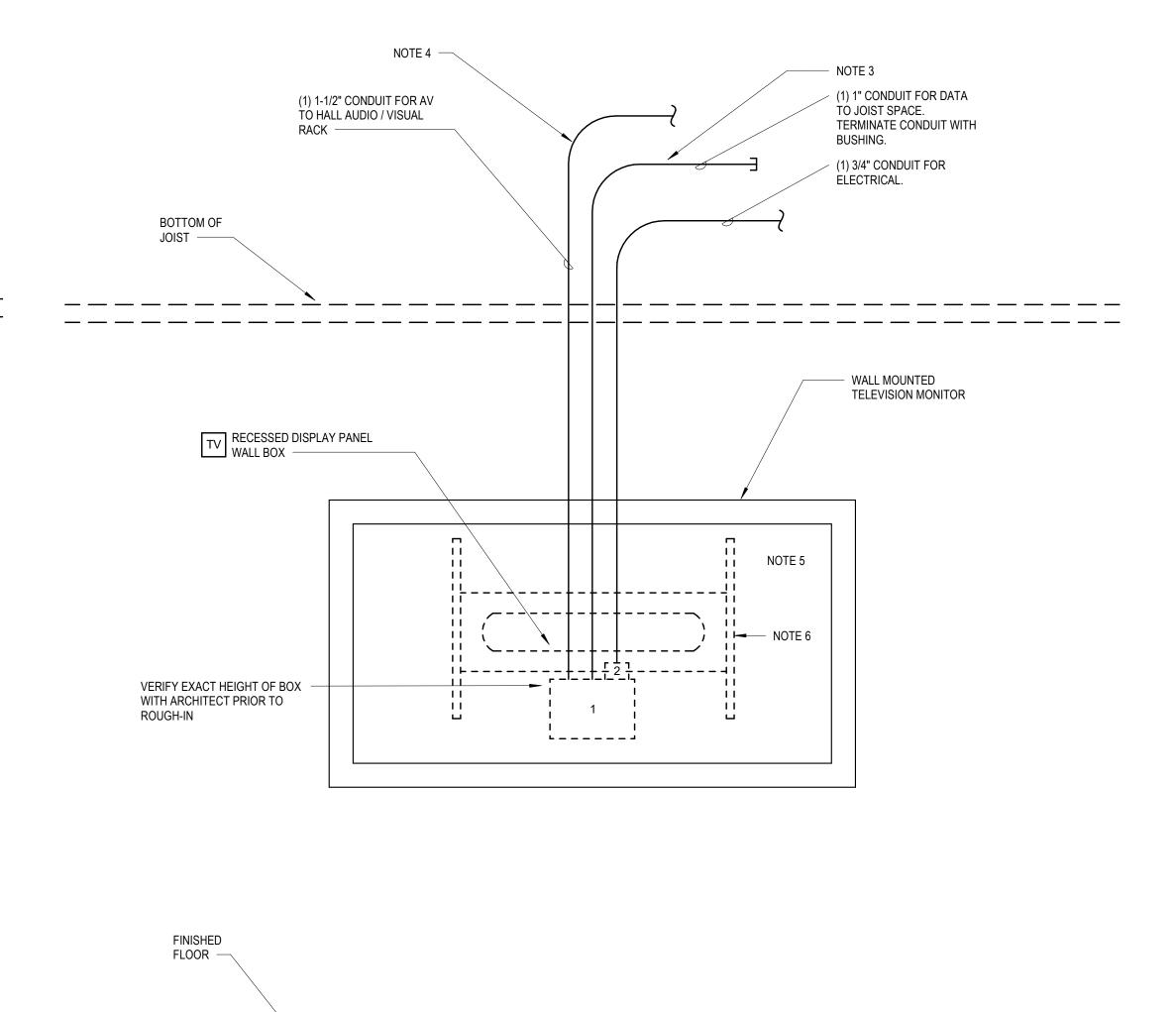


NO SCALE









- 1. FSR PWB-273 FOUR INCH DEEP FLAT PANEL BACKBOX, COORIDINATE HEIGHT WITH OWNER PRIOR TO INSTALLATION. PROVIDE COMPLETE WITH MANUFACTURER'S BLANK COVERPLATE. COORDINATE INSTALLATION WITH REQUIRED
- BLOCKING. 2. INSTALL DUPLEX RECEPTACLE FLUSH IN TOP AND BOTTOM OF FSR BACKBOX AT THIS LOCATION.
- 3. STUB CONDUIT ABOVE CEILING AND EXTEND TO NEAREST ACCESSIBLE CEILING. UTILIZE SWEEPING 90 DEGREE ELBOW
- 4. EXTEND (1) 3/4" CONDUIT TO SINGLE GANG BACKBOX. INSTALL RECEPTACLE AS PER FLOOR PLANS.
- PROVIDE WOOD BLOCKING AT TV LOCATIONS.
- 6. OWNER PROVIDED THIN CLIENT MOUNTED INSIDE FSR BOX. PROVIDE UNIVERSAL MOUNTING BRACKET AS REQUIRED.
- 7. PROVIDE AND INSTALL FLAT TILT TV MOUNT.
 - 5 TYPICAL TV MONITOR INSTALLATION DETAIL NO SCALE

NOTES:

- FSR PWB-273 FOUR INCH DEEP FLAT PANEL BACKBOX, COORIDINATE HEIGHT WITH OWNER PRIOR TO INSTALLATION. PROVIDE COMPLETE WITH MANUFACTURER'S BLANK COVERPLATE. COORDINATE INSTALLATION WITH REQUIRED
- INSTALL DUPLEX RECEPTACLE FLUSH IN TOP OF FSR BACKBOX AT THIS LOCATION.
- STUB CONDUIT ABOVE CEILING AND EXTEND TO NEAREST ACCESSIBLE CEILING. UTILIZE SWEEPING 90 DEGREE ELBOW
- AND INSTALL BUSHING. PROVIDE PULL STRING. 4. ROUTE 1-1/2" CONDUIT FROM FSR PWB-273 BACK BOX TO UNION HALL AUDIO / VISUAL RACK FOR HDMI CONNECTION TO TV.
- PROVIDE WOOD BLOCKING AT TV LOCATIONS. 6. PROVIDE AND INSTALL FULL MOTION ARTICULATING AND LONG EXTENSION TV MOUNT.

6 TYPICAL UNION HALL TV MONITOR INSTALLATION DETAIL NO SCALE

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2.11.2022 arcDESIGN PROJECT NUMBER: 21102 CLIENT PROJECT NUMBER:

DRAWN BY:

DRAWING TITLE:

ELECTRICAL

DETAILS