CONSTRUCTION OF

MORTON ANNEX ADDITION AND SITE REPAIRS

DELAWARE COUNTY INTERMEDIATE UNIT

SYMBOLS

SECTION TAG — 1 / A3.2 — DETAIL NUMBER / SHEET NUMBER

INTERIOR ELEVATION — 5 / A8.8 / 6 / 7 / 8 — ELEVATION NUMBER / SHEET NUMBER

EXTERIOR ELEVATION — A2.8 / 6 — ELEVATION NUMBER / SHEET NUMBER

DETAIL TAG — 1 / A8.8

PARTITION/BULKHEAD TAG — P3 (REFER TO A1.0 FOR TYPES)

ROOM TAG — OFFICE (ROOM NAME) / B130 (ROOM NUMBER)

CASEWORK TAG — 1235 / 3634 — BASIS OF DESIGN MODEL NUMBER (CUSTOM/MODIFIED CABINETS HAVE "M" SUFFIX) / CABINET NOMINAL HEIGHT / CABINET WIDTH

WINDOW TAG — W13

CURTAIN WALL TAG — CW13

STOREFRONT TAG — AL13

INTERIOR WINDOW TAG — IW13

DOOR TAG — D336A-1

ROOF TAG — A

NEW DOOR / **EXISTING DOOR**

EXISTING COL. LINE — 1 — OCTAGON / ITALIC TEXT

NEW COL. LINE — 1 — CIRCLE / STANDARD TEXT

HATCH PATTERNS

METAL STUD · BRICK · CONCRETE · CMU · EARTH · STEEL · RIGID INSULATION · BATT INSUL. · ROUGH WOOD · GRAVEL · FINISHED WOOD · PLYWOOD

ABBREVIATIONS

(NOT ALL ABBREVIATIONS APPEAR IN PROJECT)

AC	AIR CONDITIONING
ACM	ALUMINUM COMPOSITE MATERIAL
ACOUST	ACOUSTICAL
ACT	ACOUSTIC CEILING TILE
ADJ	ADJACENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGGR	AGGREGATE
ALT	ALTERNATE
ALUM	ALUMINUM
ANOD	ANODIZED
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATTN	ATTENTION
AV	AUDIOVISUAL
BD	BOARD
BIT	BITUMINOUS
BLDG	BUILDING
BLKG	BLOCKING
BM	BEAM
BO	BOTTOM OF
BOT	BOTTOM
BRG	BEARING
BSMNT	BASEMENT
CB	CEMENT BOARD
CBU	CEMENTITIOUS BACKER UNIT
CCTV	CLOSED CIRCUIT TELEVISION
CFS	COLD FORMED STEEL
CG	CORNER GUARD
CI	CAST IRON
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
COORD	COORDINATE
CORR	CORRIDOR
CPT	CARPET
CT	CERAMIC TILE
CTR	CENTER
CTSK	COUNTERSUNK
CW	COLD WATER
D	DEEP, DEPTH
DBL	DOUBLE
DEG	DEGREE
DEMO	DEMOLISH OR DEMOLITION
DEPT	DEPARTMENT
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DIMS	DIMENSIONS
DIV	DIVISION
DMPF	DAMP PROOFING
DN	DOWN
DO	DOOR OPENING
DR	DOOR
DRN	DRAIN
DS	DOWNSPOUT
DTL	DETAIL
DW	DISHWASHER
DWG	DRAWING
E	EAST
EA	EACH
EC	ELECTRICAL CONTRACT(OR)
EJ	EXPANSION JOINT
EJC	EXPANSION JOINT COVER
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENG	ENGINEER
EP	ELECTRICAL PANEL
EPDM	ETHYLENE PROPYLENE DIENE M-CLASS
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EACH SIDE
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FA	FIRE ALARM
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF&E	FURNITURE, FIXTURES AND EQUIPMENT
FFE	FINISH FLOOR ELEVATION
FIN	FINISH
FIXT	FIXTURE
FLR	FLOOR
FND	FOUNDATION
FO	FACE OF
FP	FIRE PROTECTION
FRC	FIBER REINFORCED CONCRETE
FRP	FIBER REINFORCED PLASTIC
FRT	FIRE RETARDANT TREATED
FRZ	FREEZER
FT	FEET/FOOT
FTG	FOOTING
FURN	FURNITURE
FURR	FURRING
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACT(OR)
GEN	GENERAL
GFRC	GLASS FIBER REINFORCED CONCRETE
GFRG	GLASS FIBER REINFORCED GYPSUM
GL	GLASS
GLAZ	GLAZING
GRD	GROUND
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HIGH/HEIGHT
HC	HANDICAPPED
HDWD	HARDWOOD
HDWR	HARDWARE
HGT	HEIGHT
HM	HOLLOW METAL
HNDRL	HANDRAIL
HO	HOLD OPEN
HORIZ	HORIZONTAL
HR	HOUR
HSS	HOLLOW STRUCTURAL SECTION
HTG	HEATING
HVAC	HEATING VENTILATION AND AIR CONDITIONING
HW	HOT WATER
ID	INSIDE DIAMETER
IN	INCH/INCHES
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INTERM	INTERMEDIATE
INV	INVERT
JAN	JANITOR
JST	JOIST
JT	JOINT
KIT	KITCHEN
LAM	LAMINATE
LAV	LAVATORY
LB	POUNDS
LGM	LIGHT GUAGE METAL
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAX	MAXIMUM
MECH	MECHANICAL
MED	MEDIUM
MEMBR	MEMBRANE
MFR	MANUFACTURER
MH	MAN HOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MR	MOISTURE RESISTANT
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MULL	MULLION
MW	MICROWAVE
N	NORTH
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED, OWNER INSTALLED
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
PBD	PARTICLE BOARD
PC	PRECAST OR PLUMBNG CONTRACT(OR)
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PL	PLATE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PLF	POUNDS PER LINEAR FOOT
PLYWD	PLYWOOD
PNL	PANEL
PNT	PAINT OR PAINTED
PREFAB	PREFABRICATED
PROJ	PROJECT
PSF	POUNDS PER SQUARE FOOT
PT	PRESSURE TREATED
PTD	PAINTED
PVC	POLYVINYL CHLORIDE
QT	QUARRY TILE
QTY	QUANTITY
RA	RETURN AIR
RB	RESILIENT BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RDL	ROOF DRAIN LEADER
REC	RECESSED
RECPT	RECEPTACLE
REF	REFERENCE
REF	REFRIFERATOR
REFR	REFRIGERATOR
REINF	REINFORCED REINFORCING
REQ	REQUIRE/REQUIRED
REV	REVISION/REVISED
RM	ROOM
RO	ROUGH OPENING
RTD	RATED
RTG	RATING
RWL	RAIN WATER LEADER
S	SOUTH
SA	SUPPLY AIR
SC	SOLID CORE
SD	STORM DRAIN
SECT	SECTION
SF	SQUARE FEET/FOOT
SHT	SHEET
SIM	SIMILAR
SM	SHEET METAL
SM	SURFACE MOUNTED
SPEC	SPECIFIED OR SPECIFICATION
SPK	SPRINKLER OR SPEAKER
SPKR	SPEAKER
SQ	SQUARE
SS	STAINLESS STEEL
STC	SOUND TRANSMISSION COEFFICIENT
STL	STEEL
STOR	STORAGE
STRG	STRINGER
STRUCT	STRUCTURE OR STRUCTURAL
SUSP	SUSPENDED
SYM	SYMMETRICAL
SYS	SYSTEM
T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TELE	TELEPHONE
TEMP	TEMPORARY
THK	THICKNESS
TKBD	TACK BOARD
TLT	TOILET
TMPD	TEMPERED
TO	TOP OF
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TS	TUBE STEEL
TV	TELEVISION
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
VAR	VARIES
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VR	VAPOR RETARDER
VT	VINYL TILE
VWC	VINYL WALL COVERING
W	WIDE/WEST
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WP	WATERPROOF/ WATERPROOFING
WPM	WATERPROOF MEMBRANE
WSCT	WAINSCOT
WT	WEIGHT
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH

LEGEND

- EGRESS PATH
- INDICATES (1) HR FIRE RATED ASSEMBLY
- INDICATES (3) HR FIRE RATED ASSEMBLY
- DOOR 446 (32" / 42") — EGRESS COMPONENT / MAXIMUM CAPACITY OF EGRESS COMPONENT PER IBC 2018 / CLEAR WIDTH OF EGRESS COMPONENT PER OCCUPANT / DESIGNED OCCUPANT LOAD OF EGRESS COMPONENT
- CLASSROOM 551 SF 27 OCC (35 OCC) — ROOM NAME / SPACE SQUARE FOOTAGE / DESIGNED OCCUPANT LOAD / MAX OCCUPANT LOAD, BASED ON USE & AREA PER 2018 IBC
- XXX' — ACTUAL TRAVEL DISTANCE (IN FEET)
- FIRE EXTINGUISHER CABINET

GENERAL NOTES

1. THIS PROJECT DOES NOT MODIFY EXISTING USE OR OCCUPANCY COUNTS WITHIN BUILDINGS A, B, C, AND D.
2. THE RATED ASSEMBLIES DEPICTED ON THIS DRAWING ARE BASED UPON THE SET OF CONSTRUCTION DRAWINGS PROVIDED BY THE OWNER. IF EXISTING CONDITIONS ARE FOUND TO VARY FROM THESE RATINGS BRING CONDITIONS TO THE OWNER/ARCHITECTS ATTENTION IMMEDIATLY.

CIVIL

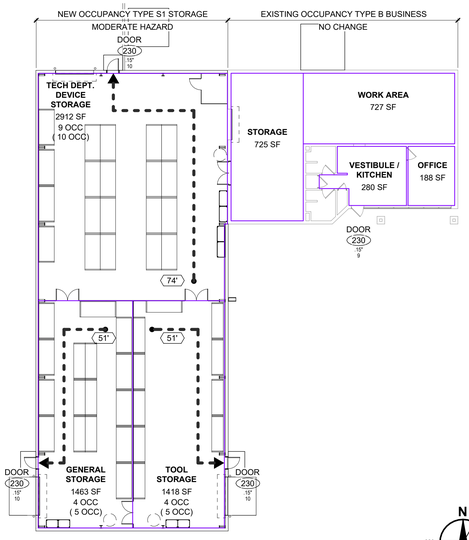
ARCHITECTURAL

STRUCTURAL

MECHANICAL

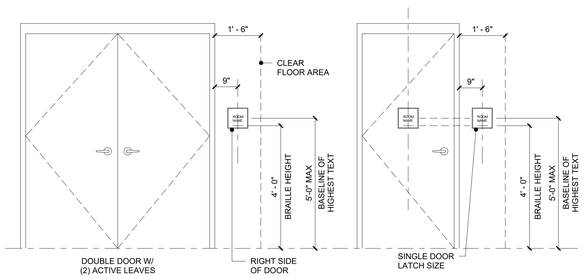
PLUMBING

ELECTRICAL



1 CS1 **FIRST FLOOR - CODE PLAN**
1/16" = 1'-0"

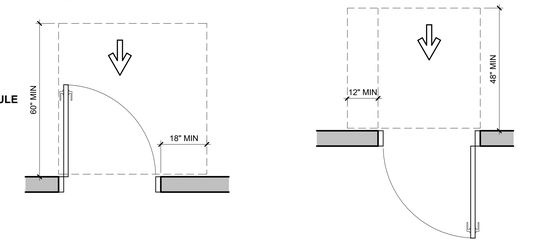
0 16' 32' 48' 64'



NOTE: REFER TO SPECIFICATIONS FOR SIGNAGE SIZE AND LOCATION REQUIREMENTS.

TACTILE SIGNAGE

1/2" = 1'-0"

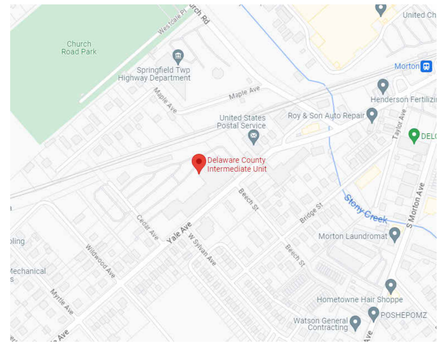


(A) FRONT APPROACH, PULL SIDE

*IF BOTH CLOSER AND LATCH ARE PROVIDED (B) FRONT APPROACH, PUSH SIDE

ADA DOOR SWING APPROACH

1/2" = 1'-0"



LOCATION MAP

PROJECT SUMMARY

THE PROPOSED PROJECT LOCATED ON THE SITE OF THE DCIU MORTON BUILDING IS TO ADD A PRE-ENGINEERED METAL STORAGE BUILDING TO AN ANNEX BUILDING AND MISCELLANEOUS SITE REPAIRS THRU OUT THE SITE .

BUILDING SUMMARY

PROJECT NAME:	IT STORAGE BUILDING
ADDRESS:	200 YALE AVENUE, MORTON, PA19070
LOCAL AUTHORITY:	MORTON, DELAWARE COUNTY, PA
PROPOSED USE:	STORAGE MODERATE HAZARD GROUP S1: STORAGE
OWNER/CONTACT:	DELAWARE COUNTY INTERMEDIATE UNIT
PHONE:	610-938-9000

APPLICABLE CODES

BUILDING CODE:	2018 INTERNATIONAL BUILDING CODE
MECHANICAL CODE:	2018 INTERNATIONAL MECHANICAL CODE
PLUMBING CODE:	2018 INTERNATIONAL PLUMBING CODE
ELECTRICAL CODE:	NATIONAL ELECTRICAL CODE/NFPA 70-2023 ED.
FIRE CODE:	2018 INTERNATIONAL FIRE CODE
ENERGY CODE:	2018 INTERNATIONAL ENERGY CONSERVATION CODE
FUEL GAS CODE:	2018 INTERNATIONAL FUEL GAS CODE ICC/ANSI 117.1, 2017
A.D.A.	2009 A117.1

BUILDING PLANNING

OCCUPANCY: NEW STORAGE MODERATE HAZARD GROUP S1: STORAGE
EXISTING BUSINESS B: OFFICE

BUILDING S.F.: NEW 6,000, EXISTING 2,290 TOTAL S.F. 8,290

AREA	OCCUPANT LOAD	OCCUPANTS
STORAGE	6,000SF / 300 OCC =	20 OCC
BUSINESS	2,290SF / 100 OCC =	23 OCC
	TOTAL	43 OCC

TYPE OF CONSTRUCTION

CONSTRUCTION TYPE: TYPE IIB - COMBUSTIBLE/ PROTECTED

ALLOWABLE HEIGHT: 1 STORIES

ALLOWABLE AREA: 70,000 SF

FIRE PROTECTIONS SYSTEMS

AUTOMATIC FIRE EXTINGUISHING - YES
SMOKE DETECTORS PROVIDED - YES
STANDPIPE SYSTEM REQUIRED - NO
SMOKE CONTROL PROVIDED - NO
SMOKE & HEAT VENTS REQUIRED - NO

PROJECT FIRE RATING AND EMERGENCY LIGHTING NOTES:

1. REPAIR ANY DAMAGE TO EXISTING OR NEW ONE AND TWO HOUR FIRE-RATED ENCLOSURES, CEILINGS AND WALLS.
2. SEAL AND FIRESTOP ALL PENETRATIONS AND OPENINGS IN ANY FIRE-RATED CONSTRUCTION USING PROPER FIRESTOPPING PRODUCTS INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
3. EMERGENCY LIGHTING SYSTEMS PROVIDE A MINIMUM OF ONE FOOT CANDLE OF ILLUMINATION FOR A MINIMUM DURATION OF NINETY MINUTES AS REQUIRED BY THE NATIONAL ELECTRICAL CODE AND IBC 2009.
4. MAKE CHANGES OR ADDITIONS TO THE EMERGENCY LIGHTING AND EXIT SIGN SYSTEMS AS REQUIRED BY THE CODE OFFICIAL. DURING JOB SITE INSPECTIONS THE CODE OFFICIAL MAY REQUIRE CHANGES OR ADDITIONS TO THE SYSTEM.
5. ALL EGRESS TO BE FREE AND CLEAR AT ALL TIMES.

FIRE DETECTION AND PROTECTION SYSTEM NOTES:

1. ALL FIRE DETECTION AND PROTECTION SYSTEM CONTRACTORS ARE REQUIRED TO HAVE A CERTIFICATE OF FITNESS ISSUED BY THE BUREAU OF FIRE BEFORE WORKING ON ANY FIRE DETECTION OR PROTECTION SYSTEM. APPROVED PLANS ARE REQUIRED TO BE ON SITE AT ALL TIMES.

FIRE EXTINGUISHER NOTES:

1. TOP OF EXTINGUISHER MOUNTING HEIGHT TO BE A MAXIUM OF 5'-0" A.F.F. (VERIFY MOUNTING HEIGHT WITH AUTHORITIES HAVING JURISDICTION.)

MAROTTA/MAIN ARCHITECTS
WWW.MAROTTAMAIN.COM

SEAL:

CONSULTANT:

CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES	DESCRIPTION:
DATE:	
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ # : 22-02-DCIU DRAWN BY : WEM

SHEET TITLE:

COVER SHEET

SHEET NUMBER:

CS1

BID DOCUMENTS

2/19/2024 3:03:19 PM

ZONING TABLE:

		REQUIRED (Morton Boro)	REQUIRED (Springfield Twp)	PROPOSED (Morton Boro)	PROPOSED (Springfield Twp)
Zoned		LI (Light Industrial)	B (Residence)		
Minimum Lot Size	–	5,000 Sq.Ft.	7,200 sf	5.687 Ac. (247,705 s.f.)	
Minimum Lot Width					
at street	–	50'	55'	631.75'	
at Building			55'	631.75'	
Minimum Front Yard	–	25'	30'	14.0'	N/A
Minimum Side Yard	–	15'	8'	68.0'	N/A
Aggregate Side Yard	–		20	192.5'	N/A
Minimum Rear Yard	–	25'	20'	8.8'	N/A
Maximum Building Coverage	–	60%	30%	20.4% (50,560 s.f.)	
Maximum Impervious Coverage	–	75%	40%	78.1% (193,385 s.f.)	
				78.0% (193,157 s.f – Existing) (*)	
Maximum Height	–	35' or 3 Stories	35 or 2 Stories	One Story, <35'	

(*) – Existing Non–Conformity
Per Section 27–1519.2.A. Nonconforming Structures May Be Altered, Reconstructed, Or Enlarged, Provided That Such Alteration, Reconstruction, or Enlargement Does Not Increase The Extent Of The Nonconformity More Than 10% Of The Structure. The Proposed 228 s.f. Increase In Impervious Coverage Represents Less Than A 10% Increase Of The Impervious Area At The Property.

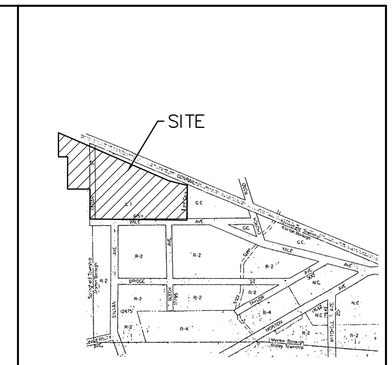
GENERAL NOTES:

Applicant is proposing the construction of a 6,000 s.f. warehouse addition to store electronic equipment and computers utilized by students who attend Delaware County Intermediate Unit Schools. The warehouse building will not generate the need for additional staffing at the property and as such an increase in population at the campus is not being proposed. The proposed warehouse building will not generate the need for additional parking at the property.

1. Tax Folio No. / Tax Map No. / Deed of Record / Existing Lot Area
   29–00–00728–01 / 29–03–177 / Bk 3112 Pg 398 / 5.194 Ac. Gross
   42–00–01120–00 / 42–27–229 / Bk 3112 Pg 398
   42–00–01119–00 / 42–27–230 / Bk 3112 Pg 398
   42–00–01118–00 / 42–27–231 / Bk 3112 Pg 398 / 1.244 Ac.
   Total / 6.434 Ac.
   5.687 Ac. Net (Excludes Lot Area Within the R.O.W. of Yale and Cedar Avenues)
2. Zoned

		(Morton Boro) (Light Industrial) LI	(Springfield Twp) B (Residence)
Minimum Lot Size	–	5,000 Sq.Ft.	7,200 sf
Minimum Lot Width			
at street	–	50'	55'
at Building			55'
Minimum Front Yard	–	25'	30'
Minimum Side Yard	–	15'	8'
Aggregate Side Yard	–		20
Minimum Rear Yard	–	25'	20'
Maximum Building Coverage	–	60%	30%
Maximum Impervious Coverage	–	75%	40%
Maximum Height	–	35' or 3 Stories	35 or 2 Stories

3. Lot is currently serviced by public water & sewage disposal.
4. Boundary, Topography and Locations From Field Survey By G.D. Houtman & Son, Inc. Elevations And Topography Established Utilizing Global Positioning System (GPS) Equipment. Elevation Per North American Vertical Datum of 1988
5. Owner/Applicant:
   Delaware County Intermediate Unit
   c/o Business Office
   200 Yale Avenue
   Morton, Pa 19070
6. Site Address:
   200 Yale Avenue
   Morton, Pa 19070
7. Prior to Construction, Contractor Shall Verify Location of Underground Utilities At Proposed Improvement Areas. Any Conflicts Shall Be Reported To The Design Engineer.



LOCATION MAP SCALE: 1" = 400'

PARKING TABLE

EXISTING PARKING SPACES – 334 (INCLUDES 4 VAN ACCESSIBLE AND 5 STANDARD HC SPACES)

PROPOSED PARKING SPACES –334 (INCLUDES 4 VAN ACCESSIBLE AND 5 STANDARD HC SPACES)

The owner of the Lot is aware of Their obligation in perpetuity to maintain the permanent storm water management facilities detailed on these plans. This acknowledgment and responsibility shall survive the sale of the property and become the continuing obligation of all future owners. The owners shall also be made aware of the rights of Morton Borough to enter the site for inspection of the storm water management facilities. The permanent storm water management facilities can be altered or removed only after approval from Morton Borough.

_____ _____ _____
Present Owner Date

CORPORATE ACKNOWLEDGMENT FOR PLAN

COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF DELAWARE :

On this ____ day of _____, 20____ before me the undersigned, personally appeared _____, who being duly sworn according to law, acknowledged himself/herself to be _____ of _____ and that he/she, as such officer duly authorized to do so, deposes and says that _____ is the owner of the property shown on this Plan, that this Plan was made at the direction of the Corporation and the Corporation acknowledges the same to be its act and Plan and desires the same to be recorded as such according to law.

Witness my hand and seal the day above written.

Corporate Name: _____
By: _____
Title: _____
Notary Public: _____
My Commission Expires: _____

I hereby certify to my usual and customary and professional care that this plan was prepared from an actual field survey performed under my immediate supervision and is in accordance with the "Minimum standards of practice for professional land surveyors in the Commonwealth of Pennsylvania" as adopted by the Pennsylvania Society of Land Surveyors and that all the existing monuments, pipes, stones, etc., are as shown.

_____
Signature and Seal
G.D. Houtman & Son, Inc.

LEGEND

- EXISTING FIRE HYDRANT
- EXISTING UTILITY POLE
- EXISTING WATER VALVE
- EXISTING GAS METER
- EXISTING LIGHT STANDARD
- EXISTING ELECTRIC BOX
- EXISTING SINGLE POLE SIGN
- EXISTING DECIDUOUS TREE
- EXISTING TREELINE
- EXISTING 2' CONTOUR
- 100 EXISTING 10' CONTOUR
- 132.2 EXISTING SPOT ELEVATION
- SOIL BOUNDARY LINE
- EXISTING TYPE "C" INLET
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY CLEAN–OUT
- EXISTING DRAINAGE MANHOLE
- EXISTING SANITARY SEWER
- EXISTING WATER LINE
- EXISTING FENCES

Owner Acknowledgement: The owner of the property understands and acknowledges that stormwater management facilities and BMPs shown on the plan are permanent fixtures that cannot be altered or removed unless approved by the Borough; and any revision to the approved stormwater management facilities, BMPs and Stormwater Management Plan must be approved by the Borough through the submission and approval of a revised Stormwater Management Plan:

_____ _____
(Name–Printed) Date

_____ _____
(Signature) Date

Recorder of Deeds

Delaware County Planning Commission

DESIGN ENGINEERS CERTFICATIONS:

1. This Stormwater Management Site Plan meets all design standards and criteria of the Morton Borough Stormwater Management Ordinance
2. The proposed grading activities shall not significantly increase stormwater runoff to, and/or otherwise adversely impact, downstream properties except as may be part of an approved Stormwater Management Plan
3. The accuracy of this plan and details are in accordance with Act 367, known as the Professional Engineers Registration Law (P.L. 913, No. 367.63 P.S. 151), as amended.

I, Gustave N. Houtmann, P.E., on this date hereby certify, to the best of my knowledge and belief, that the aforementioned statements and certifications are true and accurate.

_____ _____
(Signature & Seal) Date

Note: All locations of existing utilities shown on the plan have been developed from existing utility records and / or above ground examination of the site. Completeness or accuracy of locations and depth of underground utilities or structures cannot be guaranteed. Contractor must verify location and depth of all underground utilities and facilities before start of work, as per PA Act 181 as per the latest amendment of PA Act 287 of 1974, Effective Mar. 29, 2007

The information shown on this plan is the result of a professional service rendered by G.D. Houtman & Son, Inc.. Reproduction of this plan without approval of G.D. Houtman & Son, Inc. is not permitted. The reproduction of a copy of this plan for the purpose of creating additional copies or revising said plan shall, in no circumstance, be approved. Certification for the work contained herein is limited to the entity for whom the work was performed as of the date shown on the plans.

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

G. D. Houtman & Son, Inc reserves its common law copyright and all other proprietary rights in these plans. All drawings, specifications and copies thereof are to remain property of G. D. Houtman & Son, Inc. They are to be used only in respect to this project. They are not intended or represented to be suitable for reuse by the owner or others on extensions of this project or any other project. They are not to be assigned to any third party without first obtaining written permission by G.D. Houtman & Son, Inc. Any re–use without written permission for the specific purpose intended will be at the third party's sole risk and without liability or legal exposure to G. D. Houtman & Son, Inc. The third party shall further indemnify and hold harmless G. D. Houtman & Son, Inc from all claims , damages, losses and expenses arising thereto or resulting therefrom.

These plans were prepared to obtain Subdivision/Land Development approval from the governing municipality and to obtain certain permits from various regulatory agencies. The owner or any engineer other than G. D. Houtman & Son, Inc. is contracted to perform construction stake–out services, said surveyor or engineer shall assume the responsibility for verifying dimensions, elevations, presence of underground utilities, utility interference, building size, etc., for coordinating construction activities, for preparing shop drawings, working plans, profiles, and details; and for coordinating these plans with plans prepared by others such as utility companies, architectural building plans, landscape plans, lighting plans and etc.

APPROVED
MORTON BOROUGH
DELAWARE COUNTY, PA

Name of Development: _____
Date: _____
Borough Council: _____
President
_____
Secretary
Borough Engineer: _____

DATE	REVISION
02/13/24	Permit Set

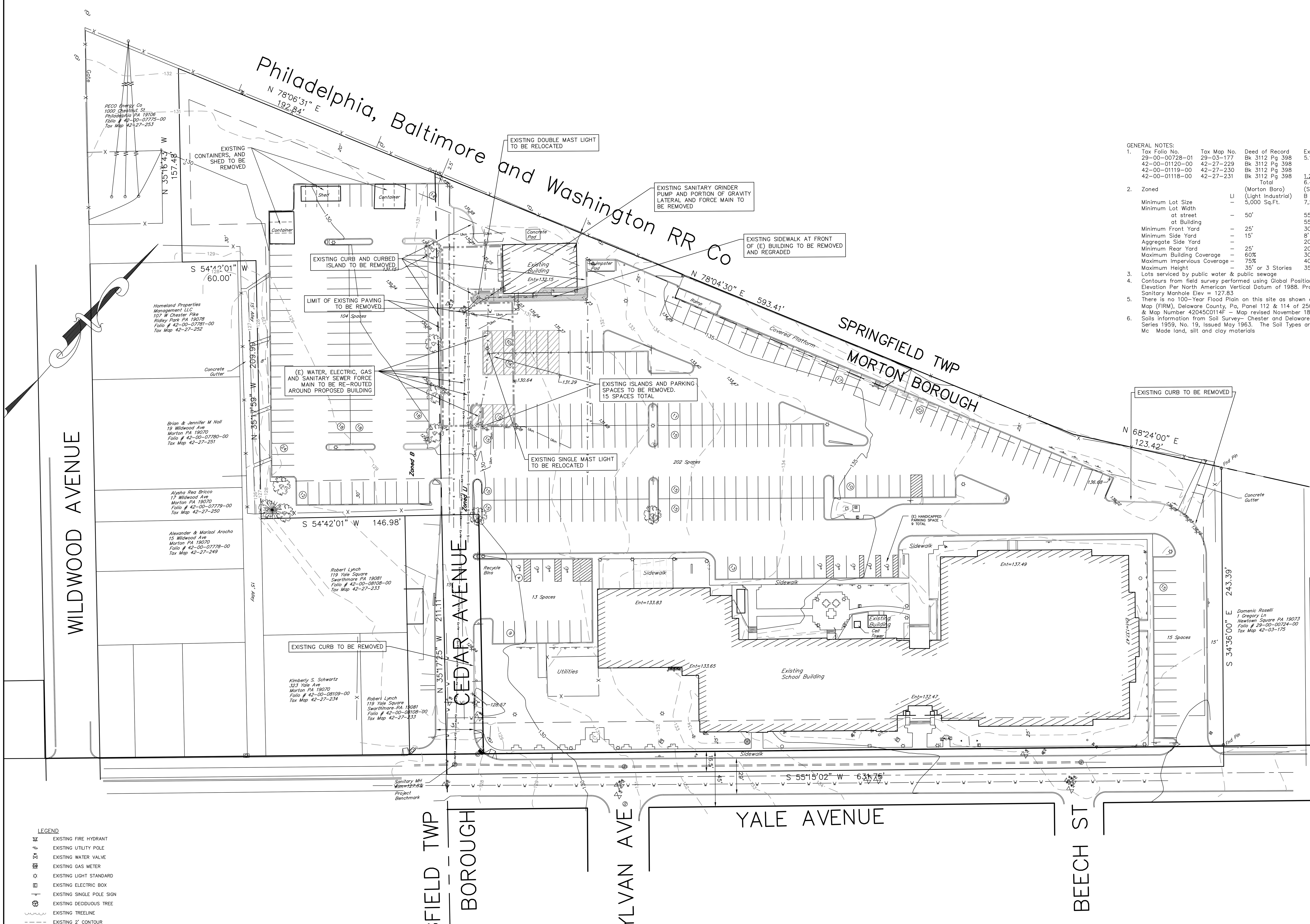
SCALE 1" = 30'
DATE February 13, 2024

LAND DEVELOPMENT PLAN
OF PROPERTY OF
DCIU
MORTON BOROUGH & SPRINGFIELD TWP
DELAWARE COUNTY, PA

G.D. HOUTMAN & SON, INC.
CIVIL ENGINEERS–LAND SURVEYORS
LAND PLANNERS
139 EAST BALTIMORE PIKE MEDIA, PA 19063
(610)565–6363

Sheet 1 of 7
PROJECT DCIU
WORK ORDER 39717
FILE 39717

K:\ACAD 2000\MORTON BORO\39717–DCIU\DWG\39717–2.DWG 2024–02–14



GENERAL NOTES:

1.

Tax Folio No.	Tax Map No.	Deed of Record	Existing Lot Area
29-00-00728-01	29-03-177	Bk 3112 Pg 398	5.194 Ac. Gross
42-00-01120-00	42-27-229	Bk 3112 Pg 398	
42-00-01119-00	42-27-230	Bk 3112 Pg 398	
42-00-01118-00	42-27-231	Bk 3112 Pg 398	1.244 Ac.
		Total	6.434 Ac.

2.

Zoned		(Morton Boro)	(Springfield Twp)
	LI	(Light Industrial)	B (Residence)
Minimum Lot Size	–	5,000 Sq.Ft.	7,200 sf
Minimum Lot Width			
at street	–	50'	55'
at Building			55'
Minimum Front Yard	–	25'	30'
Minimum Side Yard	–	15'	8'
Aggregate Side Yard	–		20
Minimum Rear Yard	–	25'	20'
Maximum Building Coverage	–	60%	30%
Maximum Impervious Coverage	–	75%	40%
Maximum Height	–	35' or 3 Stories	35 or 2 Stories

3. Lots serviced by public water & public sewage
4. Contours from field survey performed using Global Positioning System (GPS) Equipment. Elevation Per North American Vertical Datum of 1988. Project Benchmark. Rim of Sanitary Manhole Elev = 127.83
5. There is no 100-Year Flood Plain on this site as shown on the Flood Insurance rate Map (FIRM), Delaware County, Pa, Panel 112 & 114 of 250, Map Number 42045C0112F & Map Number 42045C0114F – Map revised November 18, 2009.
6. Soils information from Soil Survey– Chester and Delaware Counties, Pennsylvania, Series 1959, No. 19, Issued May 1963. The Soil Types are as follows:
   Mc Made land, silt and clay materials

LEGEND

- EXISTING FIRE HYDRANT
- EXISTING UTILITY POLE
- EXISTING WATER VALVE
- EXISTING GAS METER
- EXISTING LIGHT STANDARD
- EXISTING ELECTRIC BOX
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- EXISTING DECIDUOUS TREE
- EXISTING TREELINE
- EXISTING 2' CONTOUR
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- SOIL BOUNDARY LINE
- EXISTING TYPE "C" INLET
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY CLEAN-OUT
- EXISTING DRAINAGE MANHOLE
- EXISTING SANITARY SEWER
- EXISTING WATER LINE
- EXISTING FENCES

GRAPHIC SCALE

0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

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DATE	REVISION
02/13/24	Permit Set

SCALE: 1" = 30'

DATE: February 13, 2024

EXISTING CONDITIONS & DEMOLITION PLAN OF PROPERTY OF

DCIU

MORTON BOROUGH & SPRINGFIELD TWP
DELAWARE COUNTY, PA

G.D. HOUTMAN & SON, INC.
CIVIL ENGINEERS–LAND SURVEYORS
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Sheet 2 of 7

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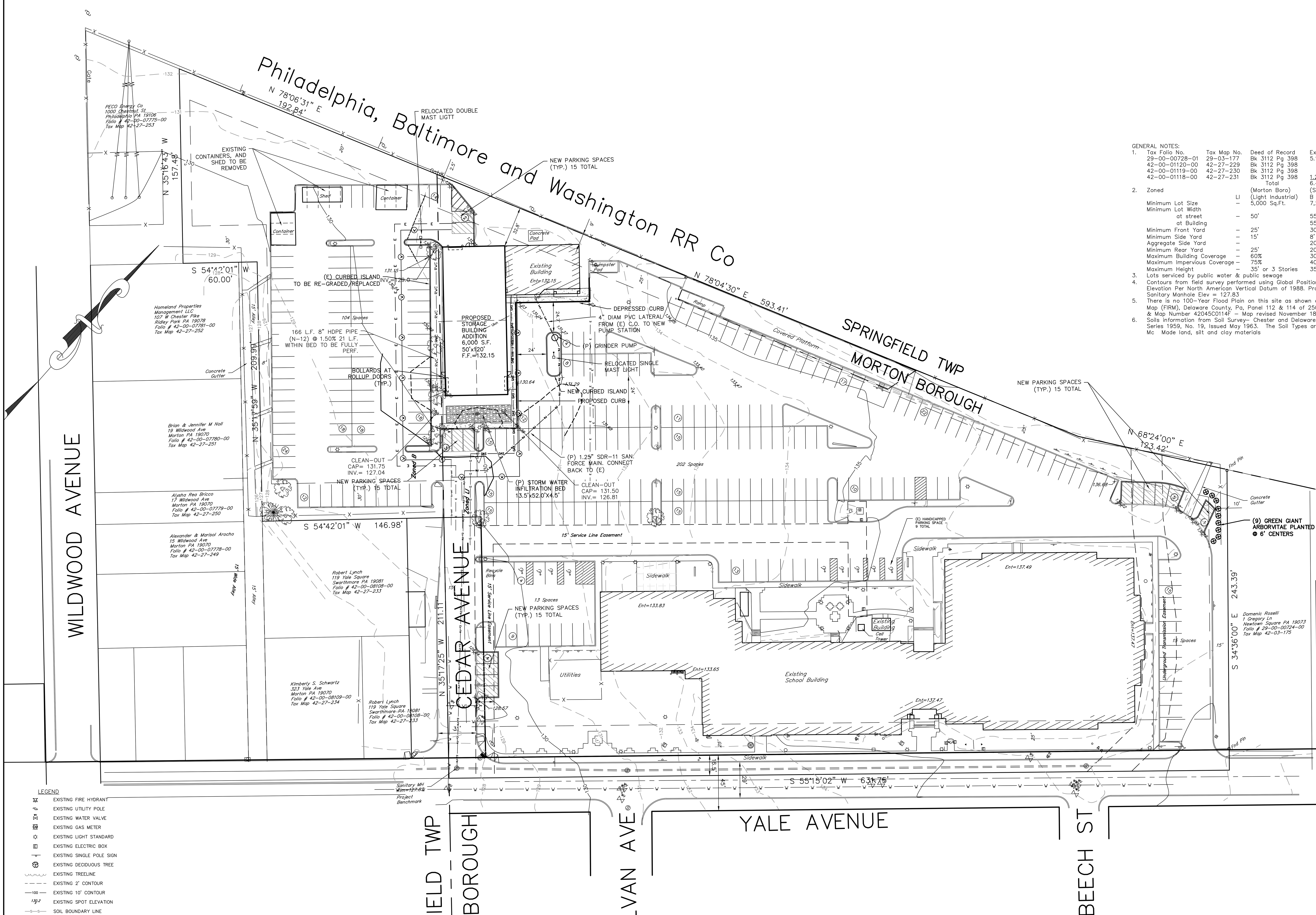

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- PROPOSED WATER LINE
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DATE February 13, 2024

GRADING PLAN OF PROPERTY OF DCIU

MORTON BOROUGH & SPRINGFIELD TWP
DELAWARE COUNTY, PA

G.D. HOUTMAN & SON, INC.
CIVIL ENGINEERS–LAND SURVEYORS
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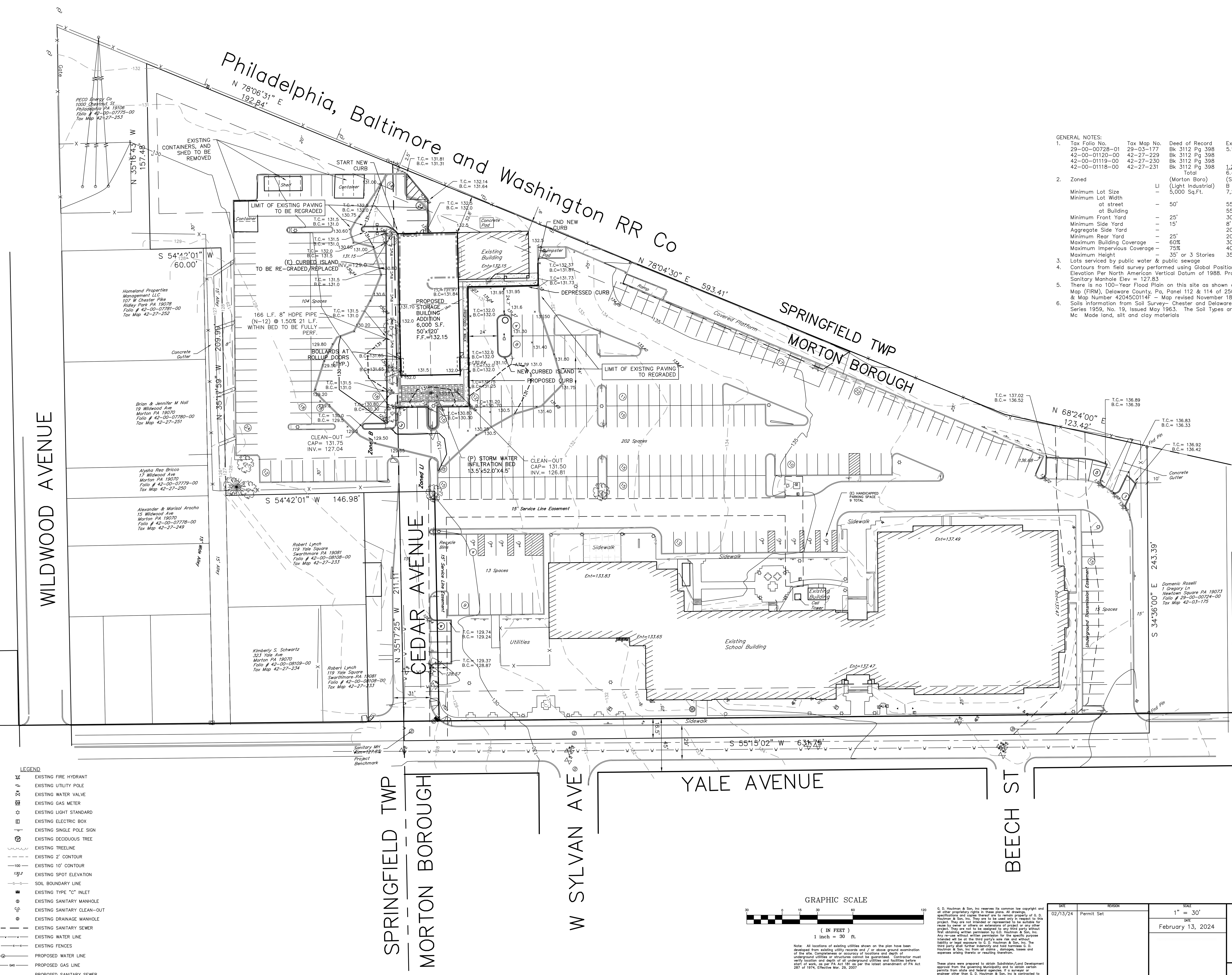

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GRADING – SPOT ELEVATIONS PLAN OF PROPERTY OF DCIU

MORTON BOROUGH & SPRINGFIELD TWP
DELAWARE COUNTY, PA

G.D. HOUTMAN & SON, INC.
CIVIL ENGINEERS–LAND SURVEYORS
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Sheet 4 of 7
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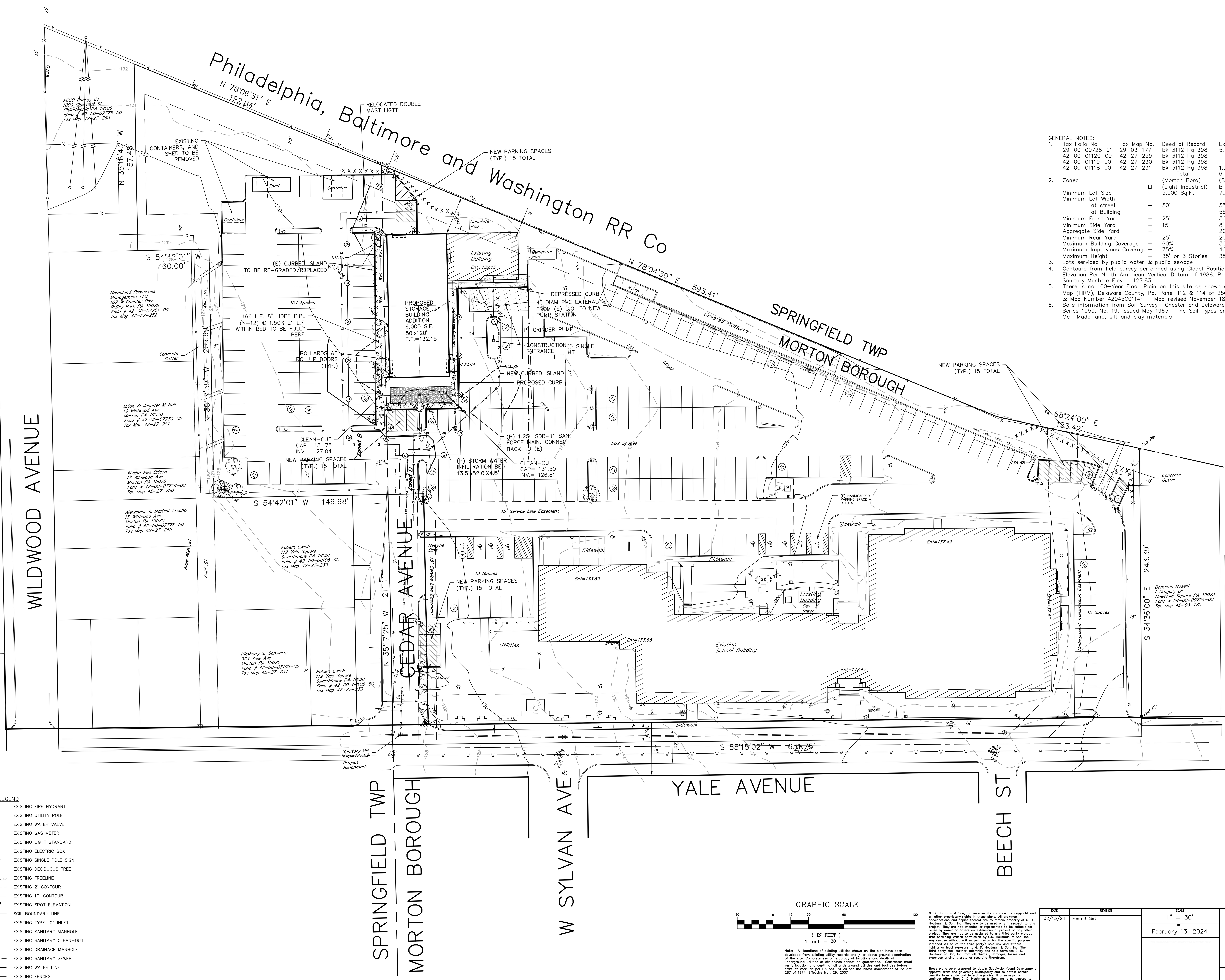

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- EXISTING DECIDUOUS TREE
- EXISTING TREELINE
- EXISTING 2' CONTOUR
- 100 EXISTING 10' CONTOUR
- 130.2 EXISTING SPOT ELEVATION
- EXISTING SOIL BOUNDARY LINE
- EXISTING TYPE "C" INLET
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY CLEAN-OUT
- EXISTING DRAINAGE MANHOLE
- EXISTING SANITARY SEWER
- EXISTING WATER LINE
- EXISTING FENCES
- 130.2 *PROPOSED SPOT ELEVATION*
- *PROPOSED 12" SILT SOCK*

GRAPHIC SCALE

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(IN FEET)
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EROSION AND SEDIMENT CONTROL PLAN OF PROPERTY OF

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Sheet 5 of 7

PROJECT DCIU

WORK ORDER 39717

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K:\ACAD 2000\MORTON BORO\39717-DCIU\DWG\39717-2.DWG 2024-02-14

SEEDING SPECIFICATIONS
Disturbed areas on which activities have ceased must be stabilized immediately.

I. Growing Season (March thru November 15)
  A. Temporary Cover – for disturbed areas which are not at finished grade and which will be redisturbed within 1 year.
    1. Site Preparation: Apply 2 ton/acre of Agricultural grade limestone, plus fertilizer 50–50–50 per acre (50 lbs of N. 50 lbs of P205 and 50 lbs of K20 per acre) and work in where possible.
    2. Seeding: 50% Annual Ryegrass 50% Winter Rye. Apply at rate of 3lb/1000 S.F.
    3. Mulch: 3 tons per acre of small grain straw.
  B. Permanent Cover – for disturbed areas at finish grade or will not be redisturbed within 1 year.
    1. Site Preparation: Re–apply toposil to area. Apply 3 tons/acre of Agricultural grade Limestone plus Fertilizer 100–200–200 (100 lbs of N. 200 lbs of P205 and 200 lbs of K20) and work in where possible.
    2. Seeding: 60% Kentucky Bluegrass
       10% Perennial Ryegrass
       30% Pennlawn Red Fescue
       Apply at rate of 4 lb/1000 S.F.
    3. Mulch: 3 tons per acre of small grain straw.

II. Non–germinating Period (Nov 15 through March 1)
  1. Apply mulch (3 tons per acre of small grain straw) to disturbed areas.
  2. Those areas that were stabilized by mulching only are to be limed, fertilized, seeded and mulched according to permanent or temporary seeding specifications at the end of the non–germinating period.

CONSTRUCTION NOTES:

1. Install silt fence where shown on the plan.
2. Install Construction Entrance at location shown. Existing adjacent paved areas and streets shall remain dirt/dust free at all times during construction.
3. Demo existing site improvements required for new construction.
4. Start foundation construct for proposed building addition. Construct Infiltration Bed for roof drainage. Place orange construction fencing around seepage bed area. Temporarily seal inlet grate with plywood and sealant while the site remains disturbed. Sediment laden runoff must be prevented from entering the stone storage area of the infiltration bed while the site remains disturbed.
5. Any topsoil stockpile generated by ITEMS 2 through 4 shall be placed in an area not subject to erosion and a silt fence barrier shall be installed and maintained around the downslope perimeter.
6. To all areas which earthmoving activities have ceased and will be subject to the action of earthmoving and other equipment, apply a mulch (wood chip – 2–3 tons per acre; hay or straw – 3 tons per acre). All other disturbed areas remaining open shall be temporarily seeded and mulched.
7. Install underground utilities following procedures set forth in UTILITIES following final grading.
8. Final grade project area and install new paving, curb and sidewalk.
9. Complete addition construction. Install rain water piping and discharge roof drains to seepage bed system. Re–spread topsoil and stabilize with seed and mulch.
10. Contractor is responsible for re–paving portions of the existing bituminous access drives and parking areas located at the property which have been damaged by construction vehicles.
11. Erosion and sediment control facilities are to be checked and properly maintained weekly and after each storm event. Sufficient quantities of silt fencing, crushed stone, straw bales, seeding and mulching should be readily available for remedial work if required.
12. Silt fencing may be removed when the site is stabilized. Accumulated sediment may be spread at the site in areas not subject to erosion.
13. Remove plywood at 2x2 inlet at Infiltration Bed once site has been permanently stabilized and uniform growth of grass has been established on all up–slope areas.
14. The Contractor is advised to become familiar with the " Erosion and Sediment Pollution Control Program Manual" by the Commonwealth of PA., Department of Environmental Resources, Latest edition.
15. Technical advice for the implementation of this program may be obtained by contacting Mr. Edward M. Magargee, Dist. Mgr., Delaware County Conservation District, at (610)892–9484.
16. Copies of these plans must be available on site throughout construction.

MAINTENANCE PROGRAM

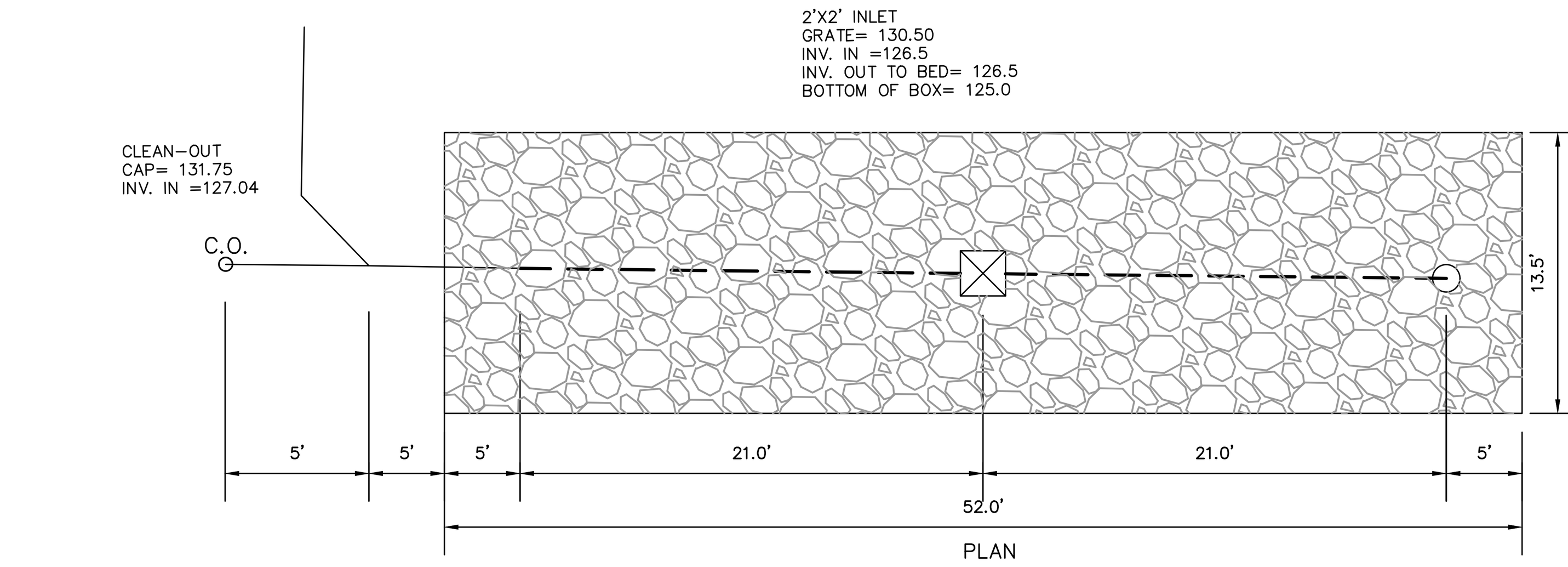
1. Provide a silt fence barrier downslope of any topsoil stockpiles and maintain as needed. All sediment which is removed from sediment filters and berms shall be stockpiled in an area not subject to erosion and ultimately used in the final grading of the site.
2. All areas on which activities have ceased shall be temporarily seeded and mulched. Permanent grass cover shall be established by seeding and mulching following final grading.
3. Seeded areas that have washed away shall be filled and graded as necessary, reseeded and mulched.

UTILITIES

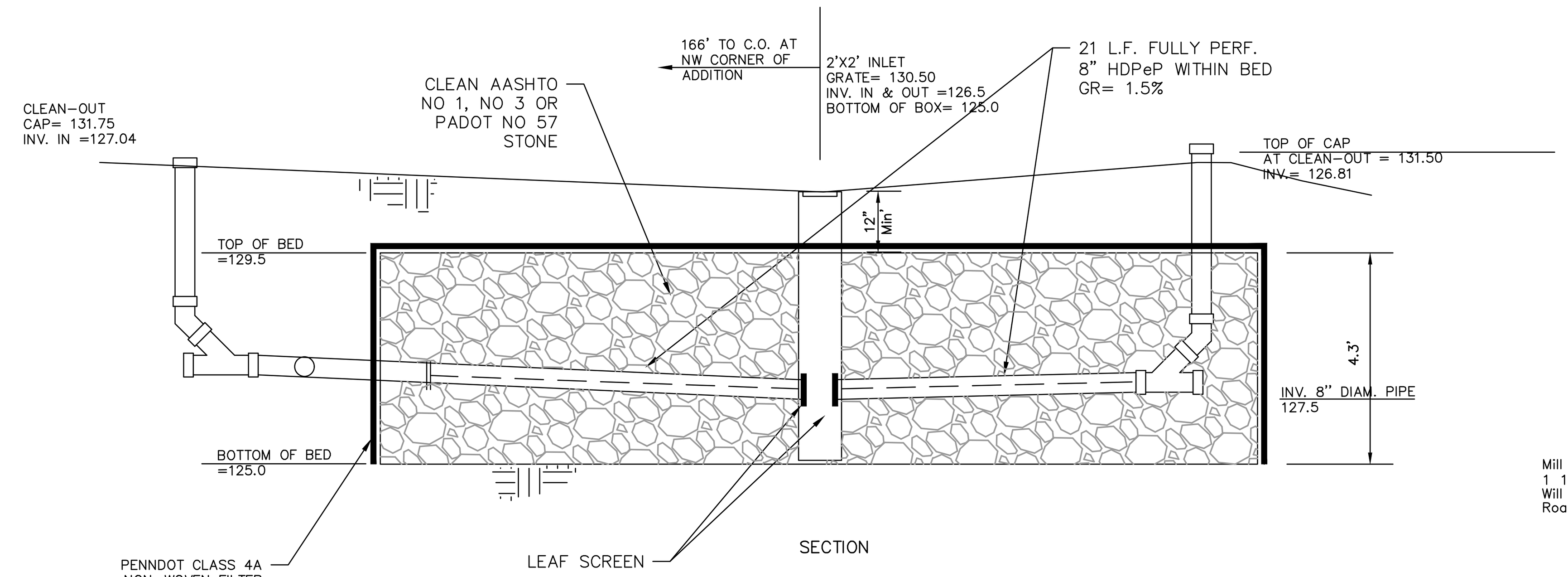
1. All new utilities to be placed underground.
2. Excavate that length of utility trench which can be installed and backfilled in one day's work.
3. Place excavated material on upslope side of trench.
4. Stabilize backfilled trench commensurate with final surface materials, I.E., seeding and mulch for lawns/wood areas, crushed stone for road areas.

TOPSOIL APPLICATION NOTES:

1. Graded areas should be scarified or otherwise loosened to a depth of 3 to 5 inches to permit bonding of the topsoil to the surface areas and to provide a roughened surface to prevent topsoil from sliding down slope.
2. Topsoil should be uniformly distributed across the disturbed area to a depth of 4 to 8 inches minimum –– 2 inches on fill outslopes. If adequate amounts of Topsoil are not available on–site then topsoil will have be obtained from an approved and permitted site. Spreading should be done in such a manner that sodding or seeding can proceed with a minimum of additional preparation or tillage. Irregularities in the surface resulting from topsoil placement should be corrected in order to prevent formation of depressions.
3. Topsoil should not be placed while the topsoil or subsoil is in a frozen or muddy condition, when the subsoil is excessively wet, or in a condition that may otherwise be detrimental to proper grading and seedbed preparation. Compacted soils should be scarified 6 to 12 inches along contour wherever possible prior to seeding.



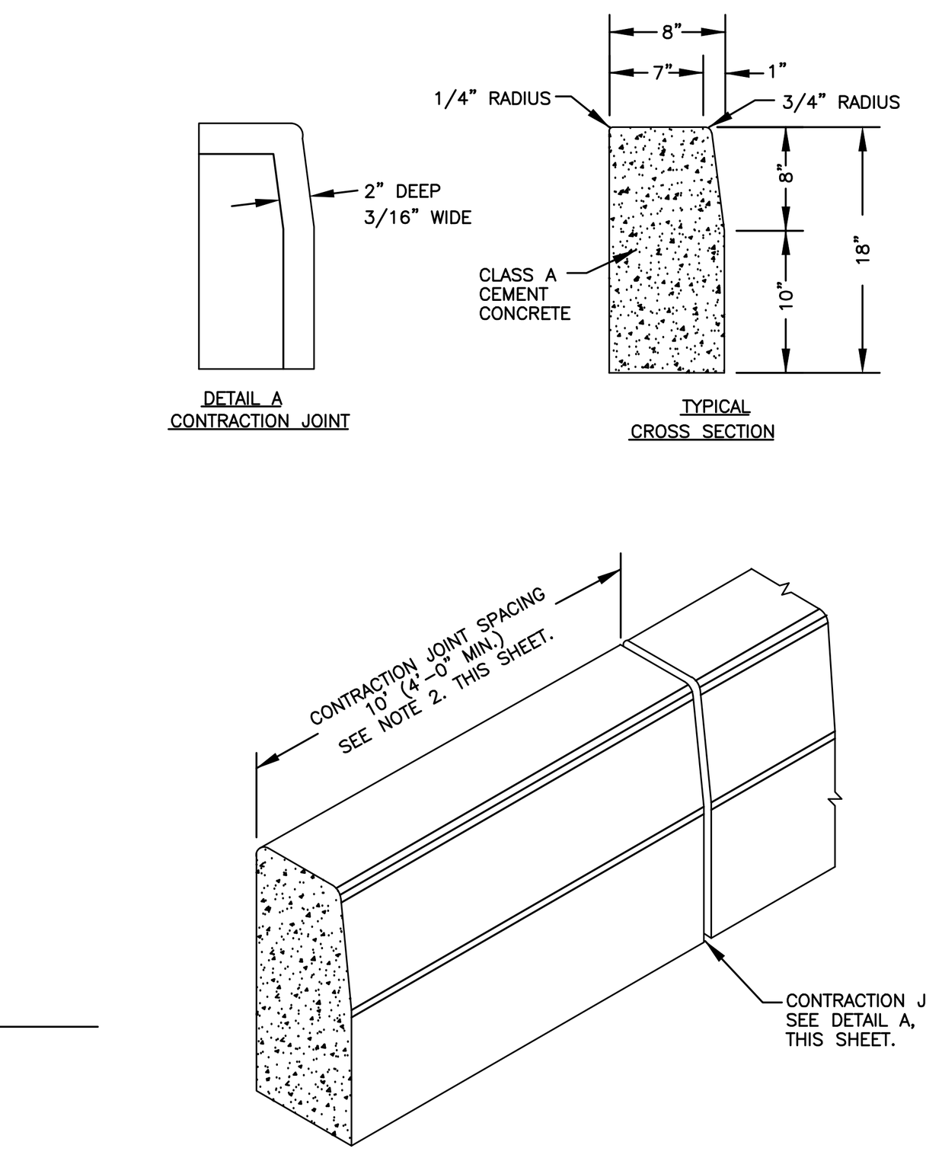
PLAN



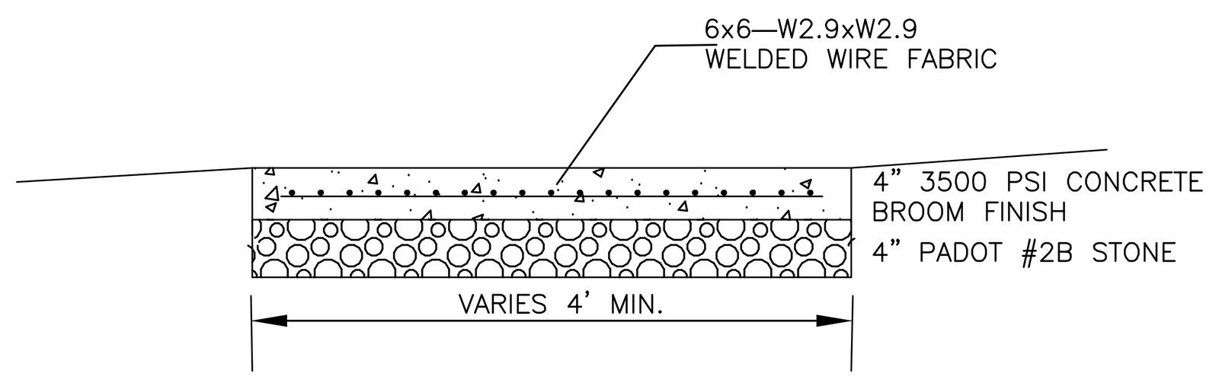
SECTION

INFILTRATION BED DETAIL

NOTE: INFILTRATION BED HAS BEEN SIZED TO HANDLE 3,000 S.F. OF RUN–OFF OR ¾ THE ROOF AREA OF THE PROPOSED ADDITION.

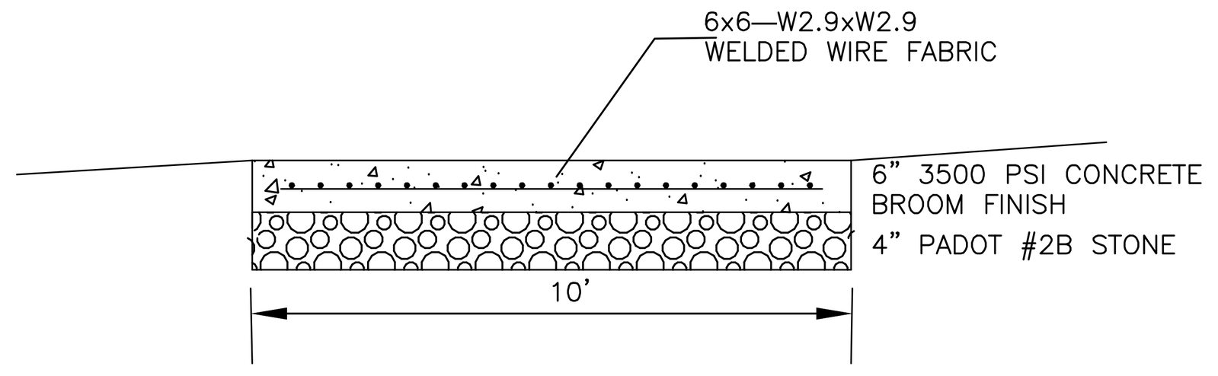


PLAIN CEMENT CONCRETE CURB – DETAIL



NOTE:
Provide construction Joints At 4 Ft. Spacing, And Expansion Joints Maximum 20 Ft. Spacing

SIDEWALK DETAIL



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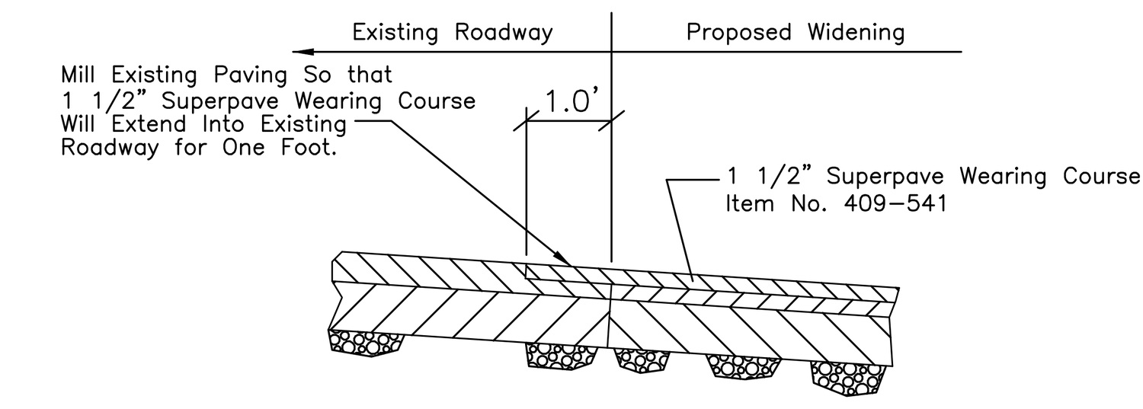
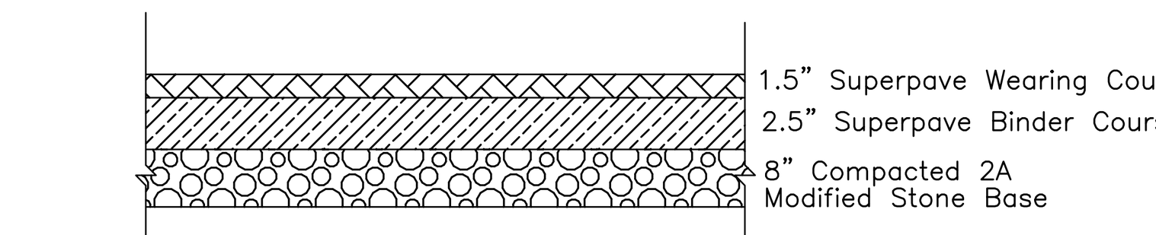
CONCRETE PAVING AT ROLL–UP DOORS



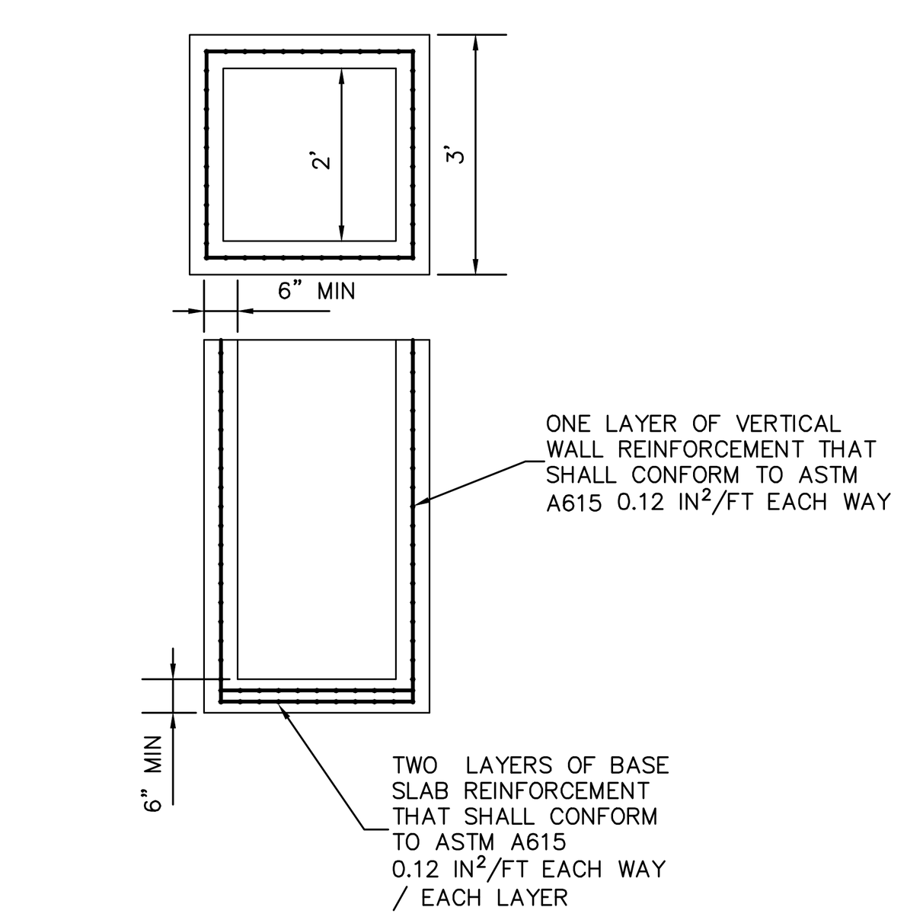
DETAIL–WEARING COURSE AT EXISTING PAVING

NOTE: THIS DETAIL IS TO BE USED AT ALL LOCATIONS WHERE PROPOSED WIDENING MEETS EXISTING PAVING.



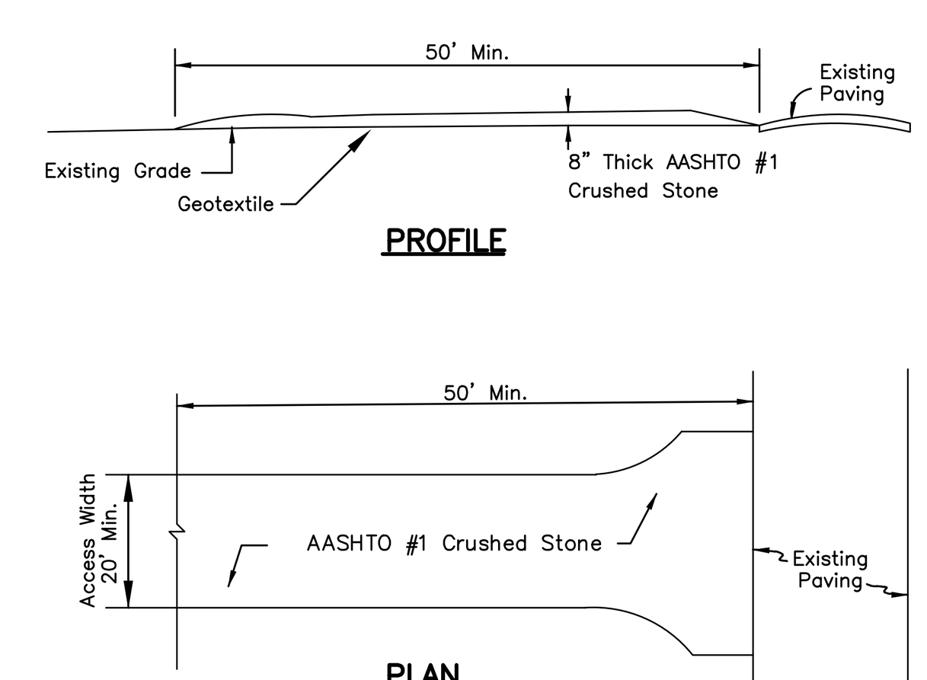
ON–SITE PAVING DETAIL

Wearing Course – 1.5" Superpave Volumetric Asphalt Mixture Design, 9.5mm, PG 64–22, HMA Wearing Course, 0.3–3 M Esals, SRL–H
Binder Course – 2.5" Superpave Volumetric Asphalt Mixture Design, 19mm, PG 64–22, HMA Binder Course, 0.3–3 M Esals.
Subbase – 8.0" SubBase (No. 2A) Match existing depth if greater than 6"



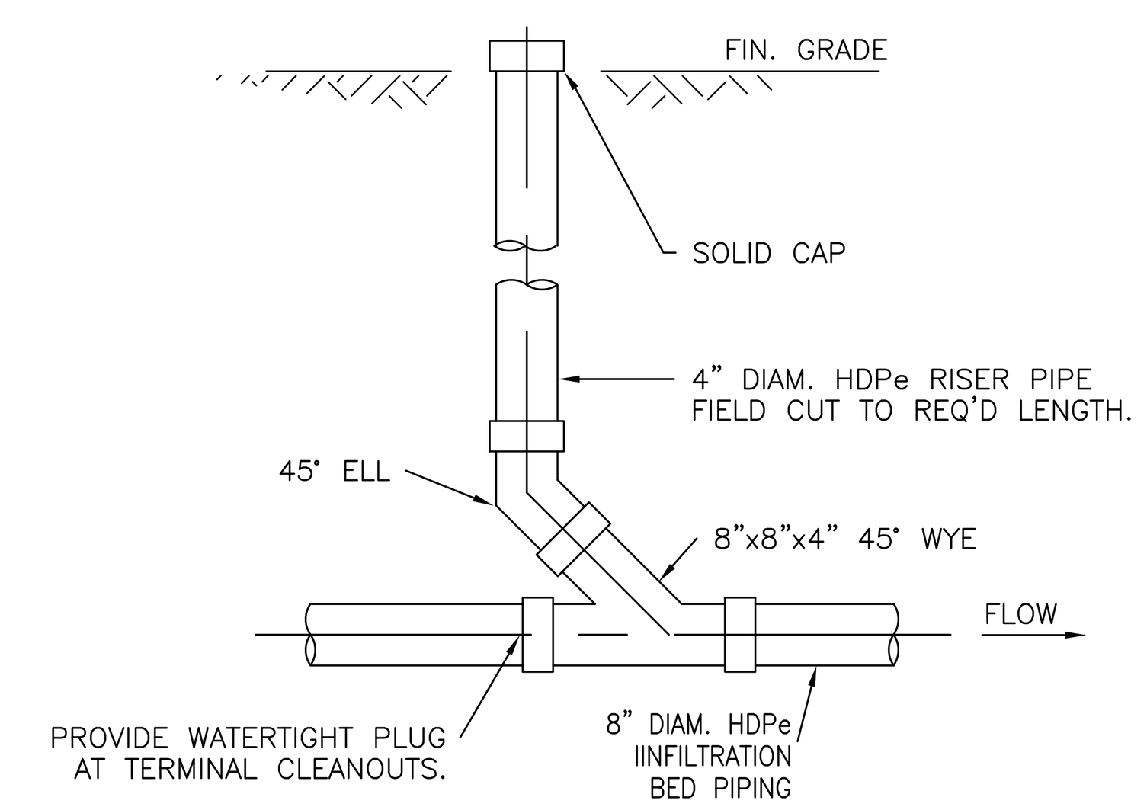
NOTES:
1. MATERIAL AND CONSTRUCTION SHALL COMPLY WITH PENN D.O.T. PUB. 408.
2. CLASS AA CONCRETE 4000 PSI @ 28 DAYS
3. REINFORCEMENT SHALL COMPLY WITH ASTM A615

2'x2' PRE–CAST INLET DETAIL

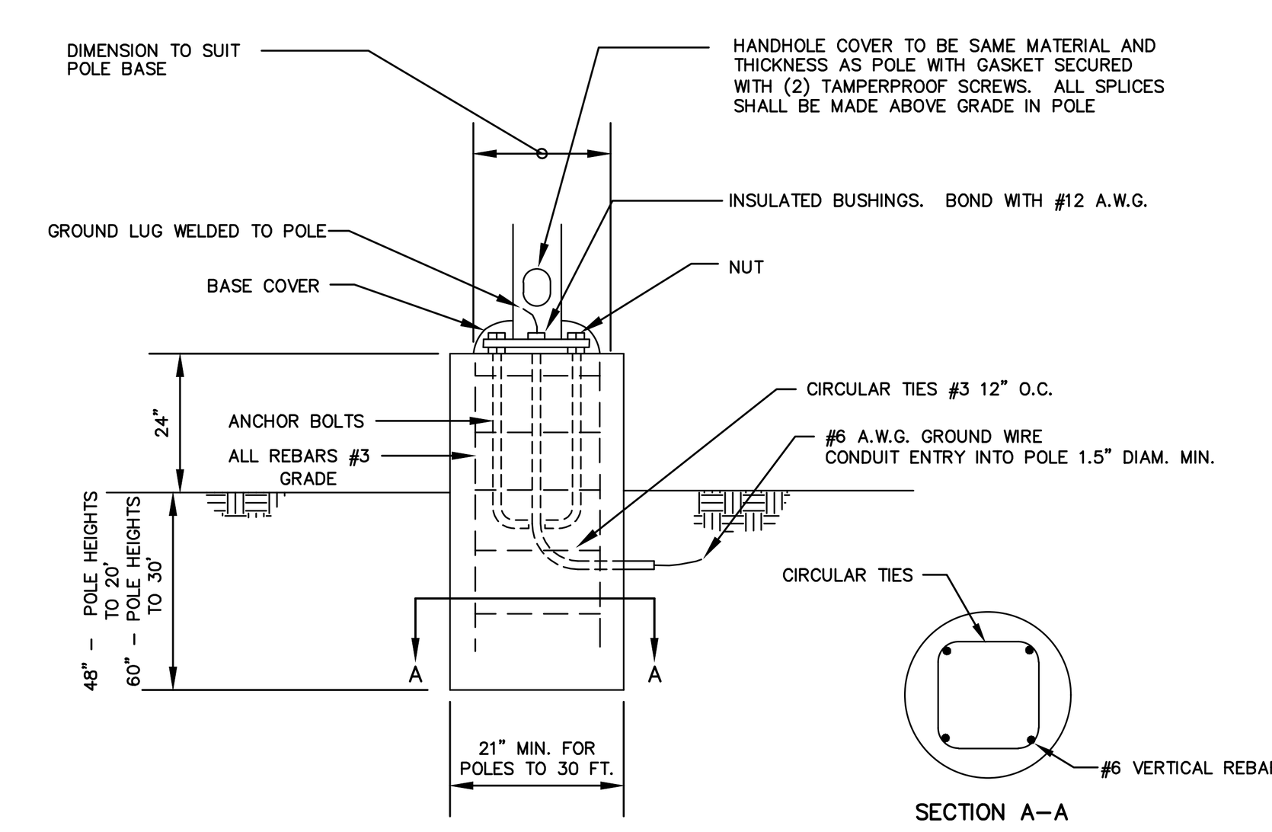


Maintenance Notes:
1. Rock Construction Entrance Thickness Shall Be Constantly Maintained To The Specified Dimensions By Adding Rock.
2. A Stockpile Shall Be Maintained On–Site For This Purpose.
3. At the End Of Each Construction Day, All Sediment Deposited On Paved Roadways Shall Be Removed and Returned To The Construction Site.
4. Geotextile shall be placed under stone
5. Rock Construction entrance to be adjusted for site conditions as necessary

CONSTRUCTION ENTRANCE – DETAIL



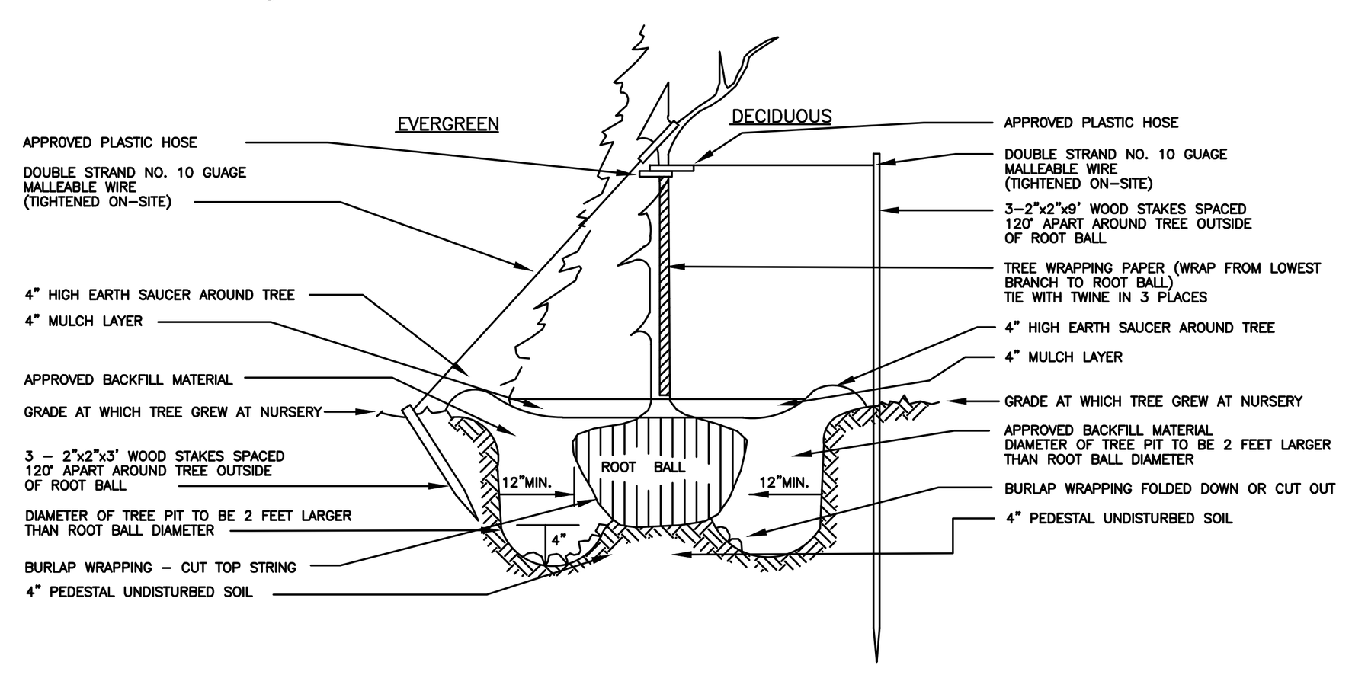
CLEANOUT DETAIL
NOT TO SCALE



NOTES:
1. ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED IN COMPLETE ACCORDANCE WITH NATIONAL ELECTRIC CODE
2. SONOTUBE MAY BE USED FOR POLE BASE FORMATION
3. ALL CONCRETE COVER ON REBAR 3 INCHES MINIMUM

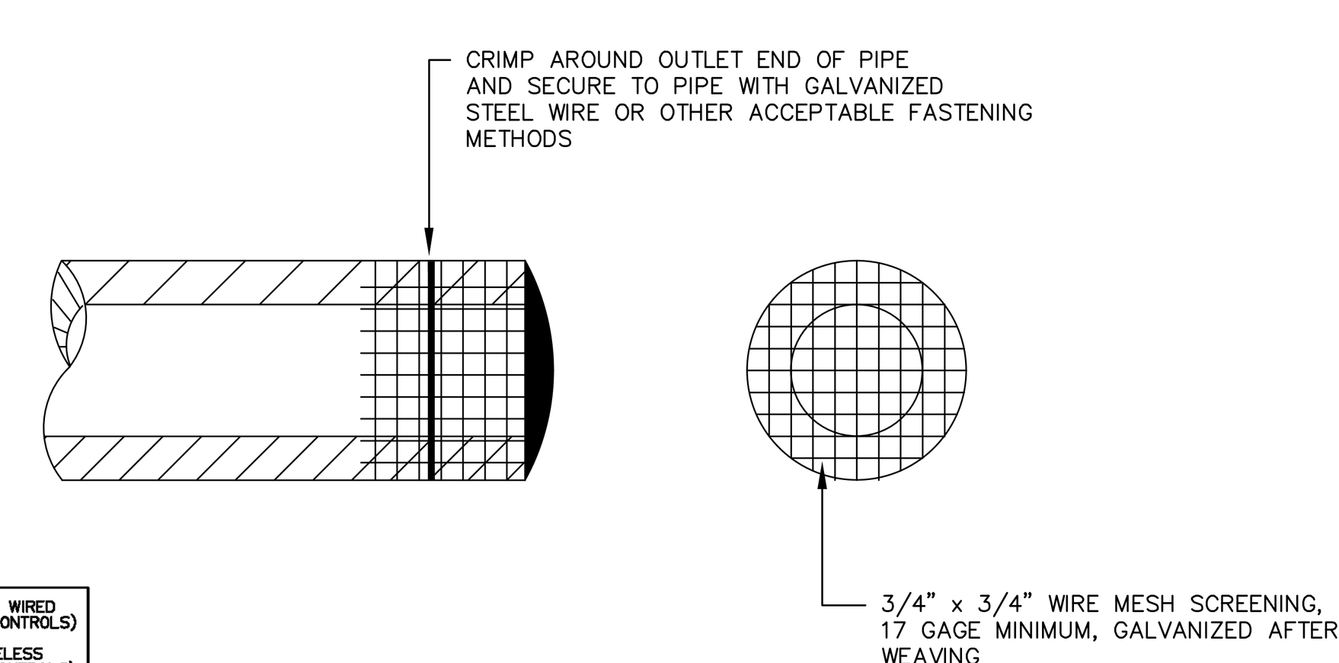
FOUNDATION TO EXTEND 2" ABOVE MACADAM PARKING AREAS.
PROVIDE 6" MAXIMUM EXPOSURE WITHIN LANDSCAPE AREAS.

LIGHT POLE FOUNDATION DETAIL

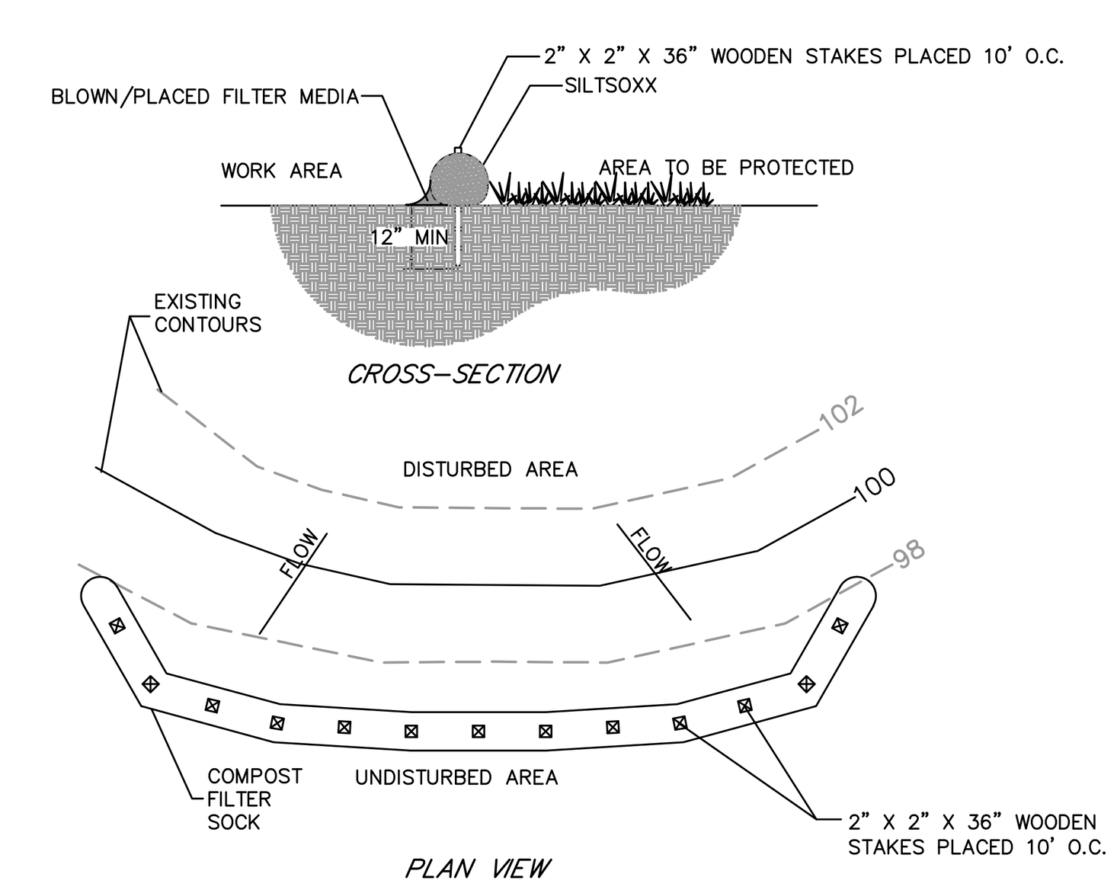


TREE PLANTING DETAIL
NO SCALE

NOTE: OMIT STAKING FOR EVERGREENS PLANTED IN CONTINOUS ROW AT 10 FEET SPACING OR LESS

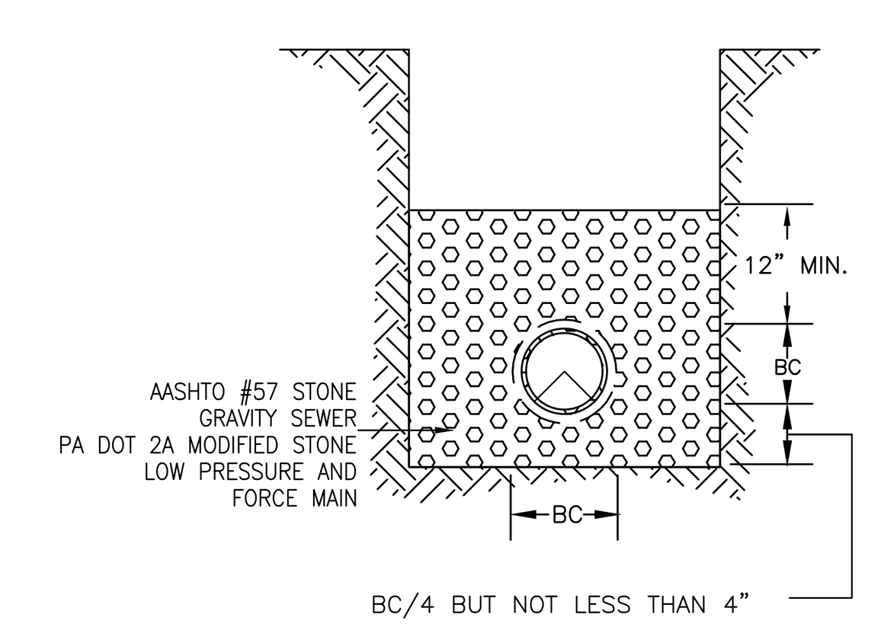


LEAF SCREEN



NOTES:
1. Sock fabric shall meet standards of Table 4.1. Compost shall meet the standards of Table 4.2 of the latest version of the Pennsylvania Erosion and Pollution Control Manual.
2. Compost filter sock shall be placed at existing level grade. Both ends of the sock shall be extended at least 8 feet up slope at 45 degrees to the main sock alignment (Figure 4.1)
3. Maximum slope length above any sock shall not exceed that shown on Figure 4.2. Stakes may be installed immediately downslope of the sock if so specified by the manufacturer.
4. Tall grass shall be cut prior to installation to minimize potential for undercutting. Berm shall be netted or otherwise anchored after installation.
7. Accumulated sediment shall be removed when it reaches 1/3 of the aboveground height of the sock and disposed in the manner described elsewhere in the plan.
8. Any section compost filter berm which has been undermined or topped shall be immediately replaced. Concentrated flows shall not be directed toward any compost filter berm.
9. Traffic shall not be permitted to cross filter socks.
10. Socks shall be inspected weekly and after each runoff event. Damaged socks shall be repaired according to manufacturer's specifications or replaced within 24 hours of inspection.
11. Biodegradable filter socks shall be replaced after 6 months; photodegradable socks after 1 year. Polypropylene socks shall be replaced according to manufacturer's recommendations.
12. Upon stabilization of the area tributary to the sock, stakes shall be removed. The sock may be left in place and vegetated or removed. In the latter case, the mesh shall be cut open and the mulch spread as a soil supplement.

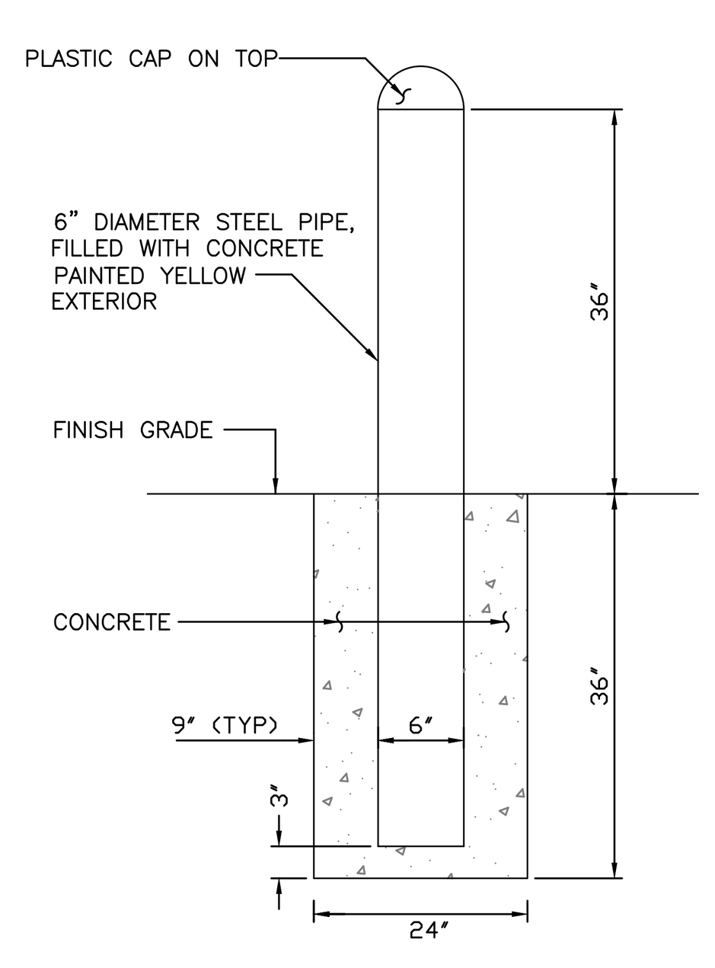
COMPOST FILTER SOCK – DETAIL



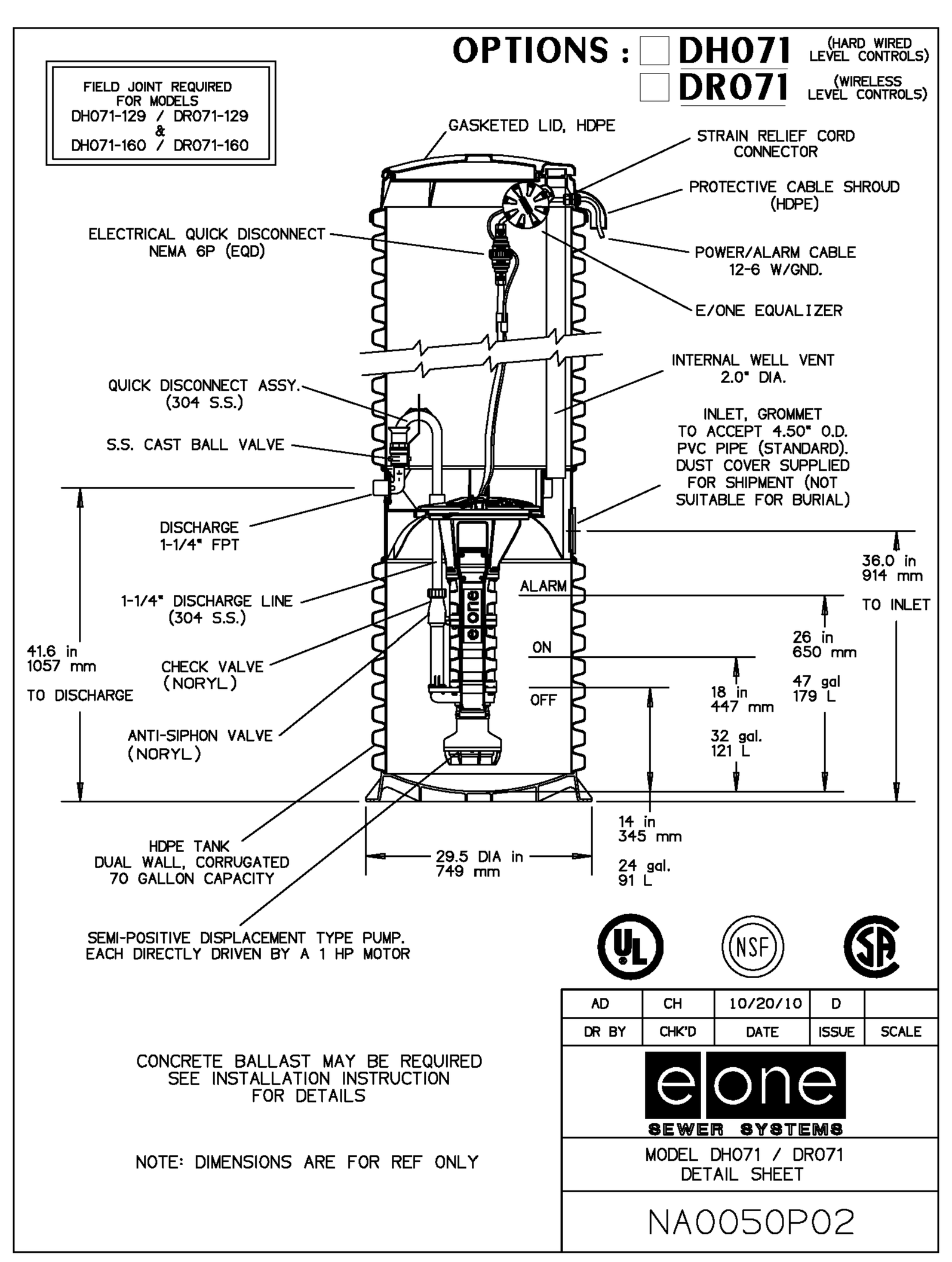
(BC = PIPE O.D.)

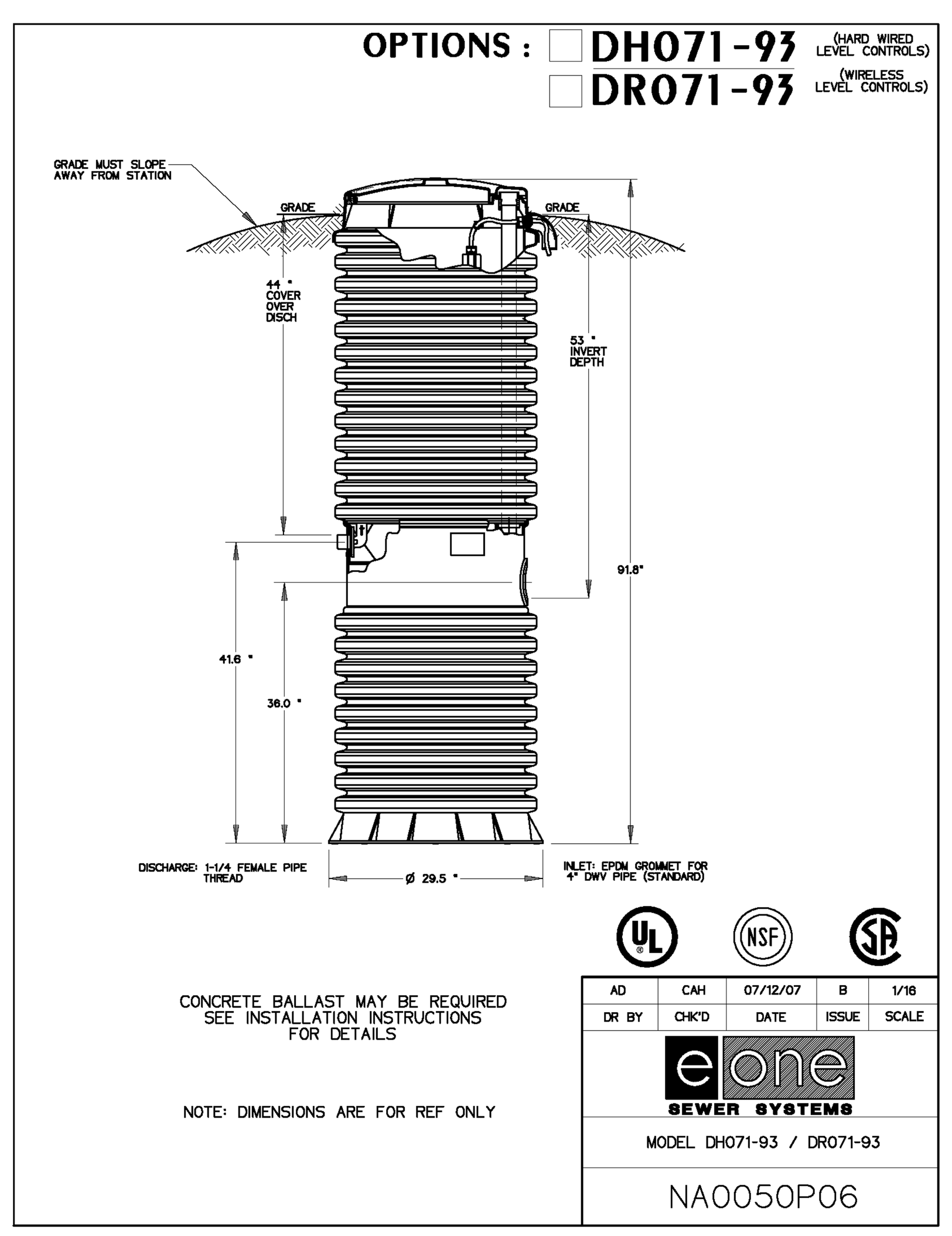
TYPICAL PIPE BEDDING DETAIL
NOT TO SCALE

For low pressure sewer system, a tracer wire shall be installed. Tracer wire shall be 6 gauge stranded copper with plastic insulation and suitable for direct bury. Tracer wire shall be attached to all sewer pipes at 5 foot intervals or as shown on details. Attachment to pipe shall be made with plastic cable ties or equivalent. Splices shall be soldered, copper to copper. Splice shall then be attached to pipe with ties and shrink–wrapped in place to re–establish insulation across spliced length. A minimum length of 6 feet of wire shall be left accessible at clean–outs and other structures. Contractor is responsible for testing continuity of wire from structure to structure.



BOLLARD DETAIL
N.T.S.





Note: All locations of existing utilities shown on the plan have been developed from existing utility records and / or above ground examination of the site. Completeness or accuracy of locations and depth of underground utilities or structures cannot be guaranteed. Contractor must verify location and depth of all underground utilities and facilities before start of work, as per PA Act 181 as per the latest amendment of PA Act 287 of 1974, Effective Mar. 29, 2007

The information shown on this plan is the result of a professional service rendered by G.D. Houtman & Son, Inc.. Reproduction of this plan without approval of G.D. Houtman & Son, Inc. is not permitted. The reproduction of a copy of this plan for the purpose of creating additional copies or revising said plan shall, in no circumstance, be approved. Certification for the work contained herein is limited to the entity for whom the work was performed as of the date shown on the plans.

These plans were prepared to obtain Subdivision/Land Development approval from the governing Municipality and to obtain certain permits from state and federal agencies. If a surveyor or engineer other than G. D. Houtman & Son, Inc is contracted to perform construction stake–out services, said surveyor or engineer shall assume the responsibility for verifying dimensions, elevations, presence of underground utilities, utility interference, building size, etc.; for coordinating information shown on lay–out plans, grading plans, utility plans, profiles, and details; and for coordinating these plans with plans prepared by others such as utility companies, architectural building plans, landscape plans, lighting plans and etc.

DATE	REVISION
02/13/24	Permit Set

SCALE

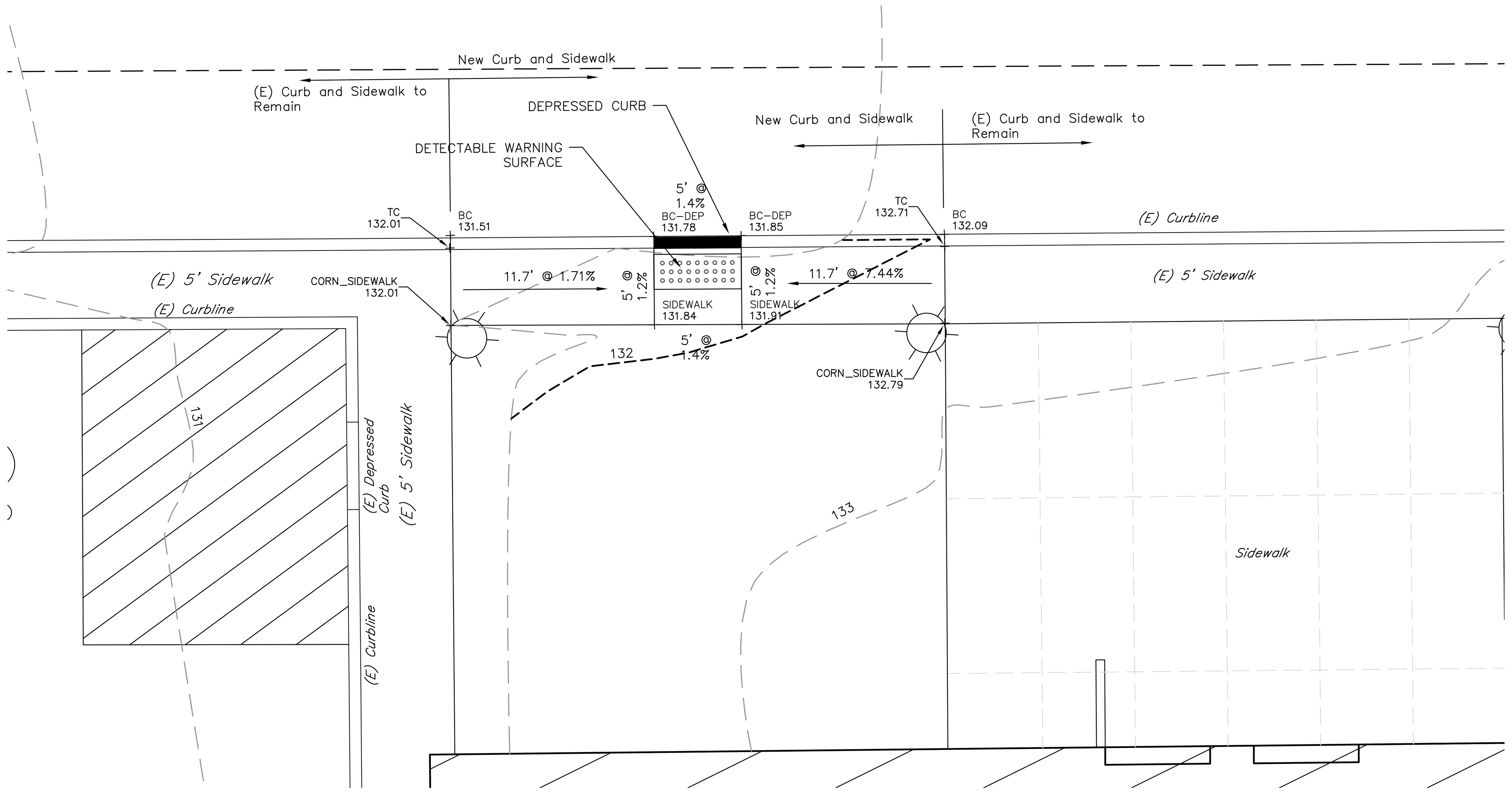
DATE
February 13, 2024

CONSTRUCTION DETAILS PLAN
OF PROPERTY OF
DCIU
MORTON BOROUGH & SPRINGFIELD TWP
DELAWARE COUNTY, PA

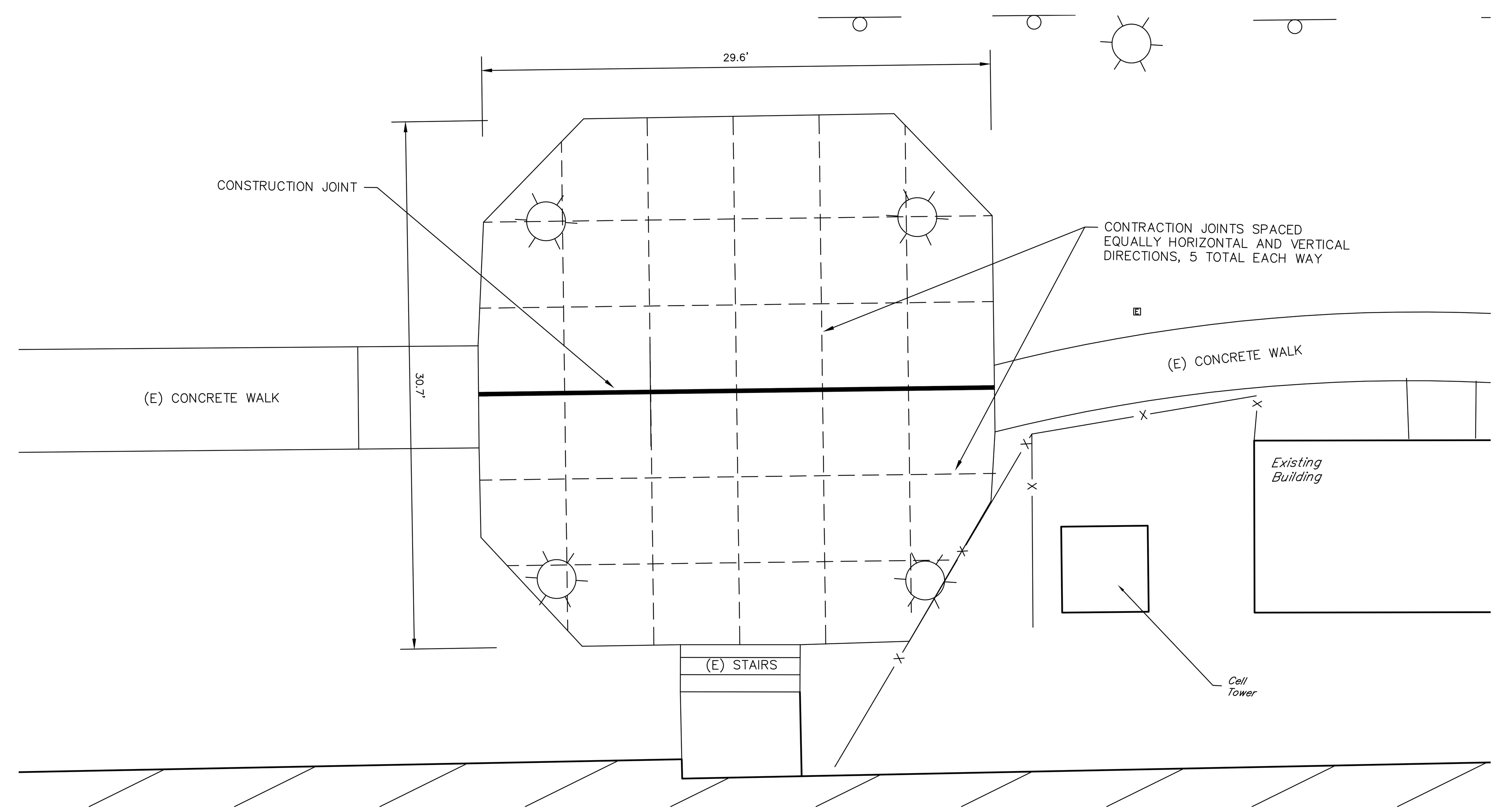
G.D. HOUTMAN & SON, INC.
CIVIL ENGINEERS–LAND SURVEYORS
LAND PLANNERS
139 EAST BALTIMORE PIKE MEDIA, PA 19063
(610)565–6363

Sheet 6 of 7
PROJECT DCIU
WORK ORDER 39717
FILE 39717

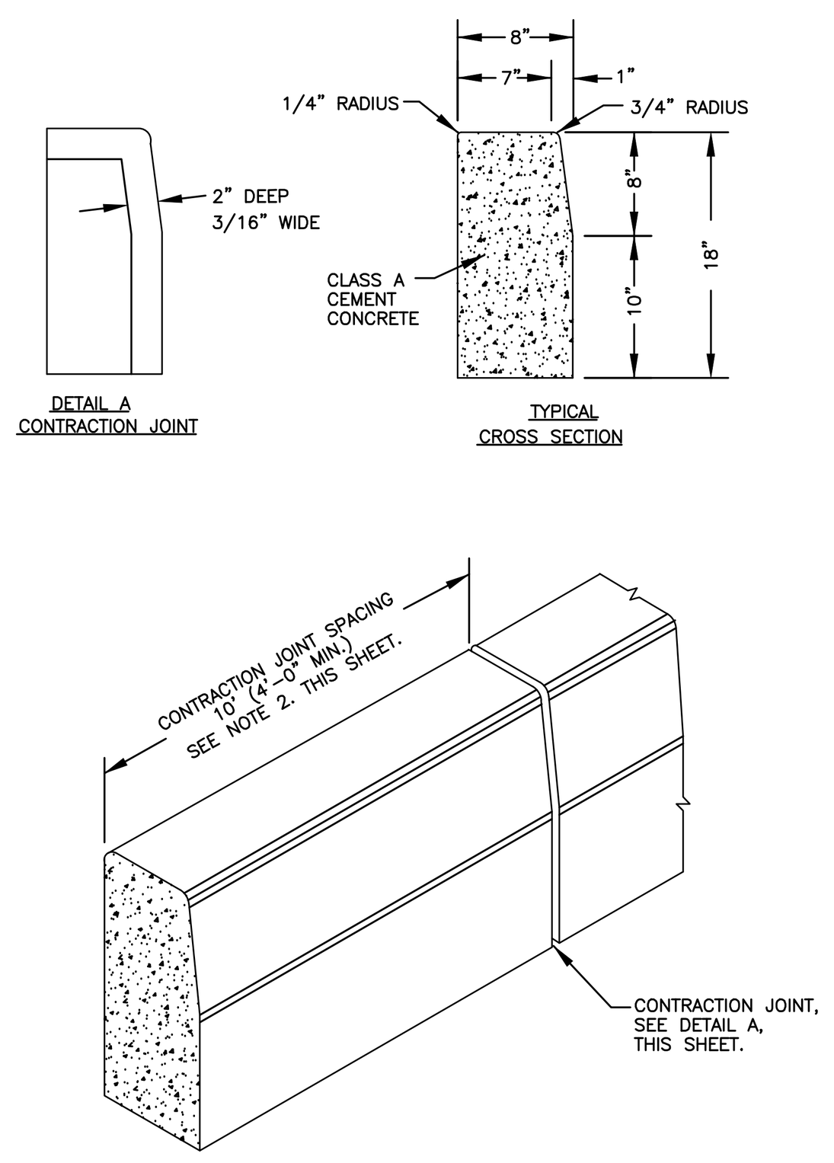
K:\ACAD 2000\MORTON BORO\39717–DCIU\DWG\39717–2.DWG 2024–02–14



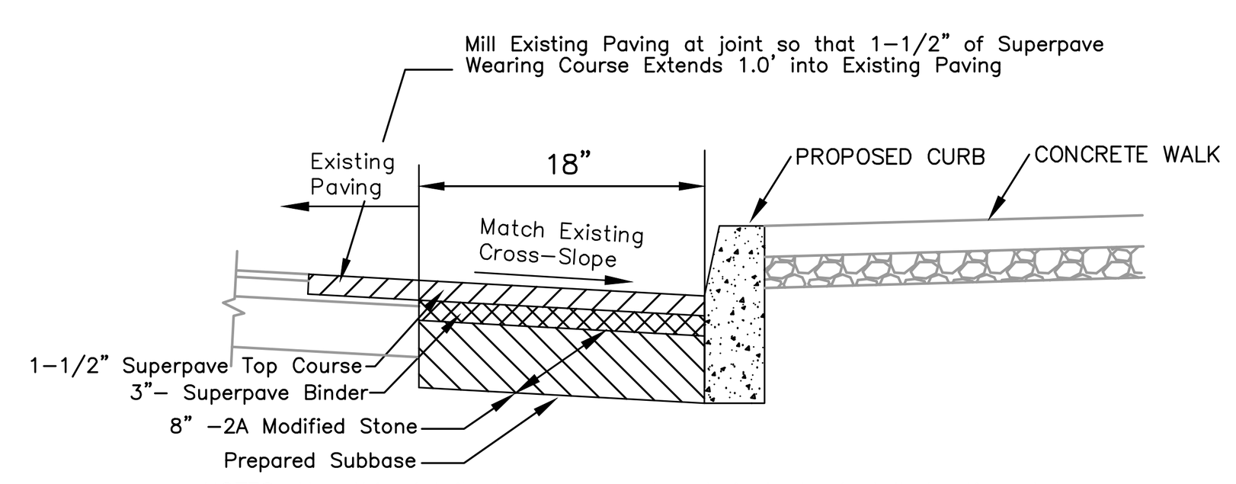
GRADING PART PLAN – NEW HC RAMP
1"=5'



CONCRETE PATIO CONSTRUCTION/CONTRACTION JOINT DETAIL
1"=5'



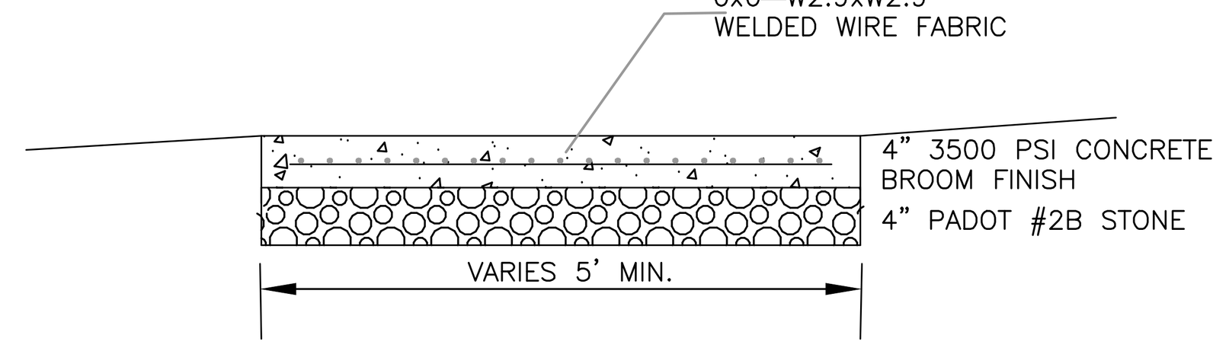
PLAIN CEMENT CONCRETE CURB – DETAIL



NOTES: Use this detail where proposed curb is to be installed adjacent to existing paving.

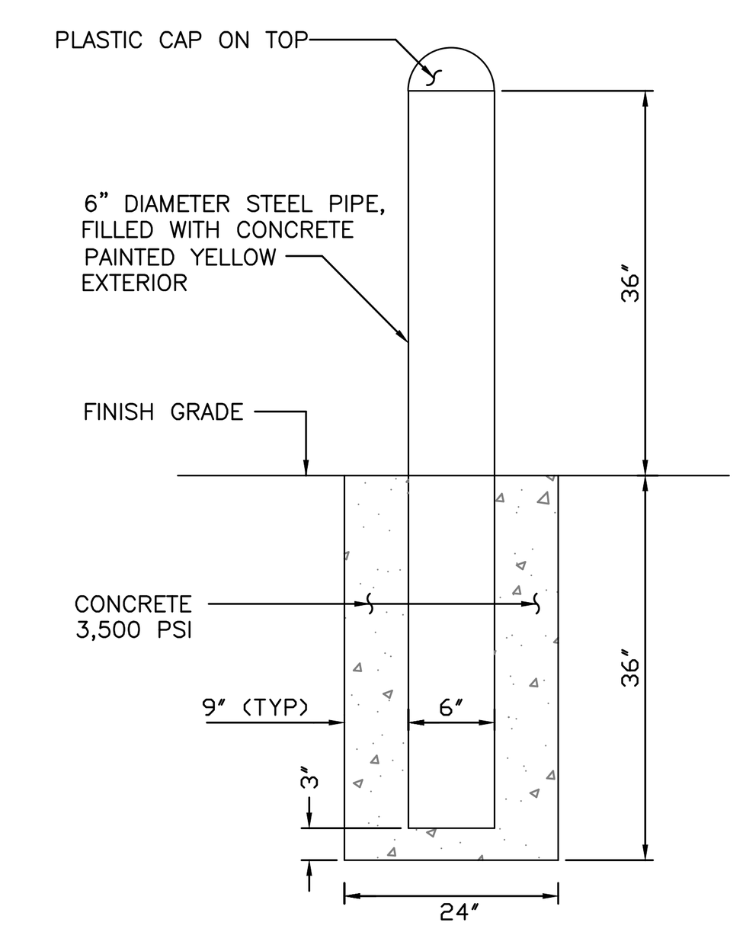
1. Saw cut existing paving 18 inches from face of proposed curb.
2. Mill existing paving as Indicated.
3. Remove existing paving cross-section for curb installation.
4. Place full depth forms at front curb.
5. Pour concrete curb
6. Reconstruct roadway within the 18 inch region removed for curb installation.
7. Seal all Joints with bituminous sealer
8. Restore & stabilize all yards & drive areas.
9. Match existing curb reveal.

CURB INSTALLATION ADJACENT TO EXISTING PAVING – DETAIL

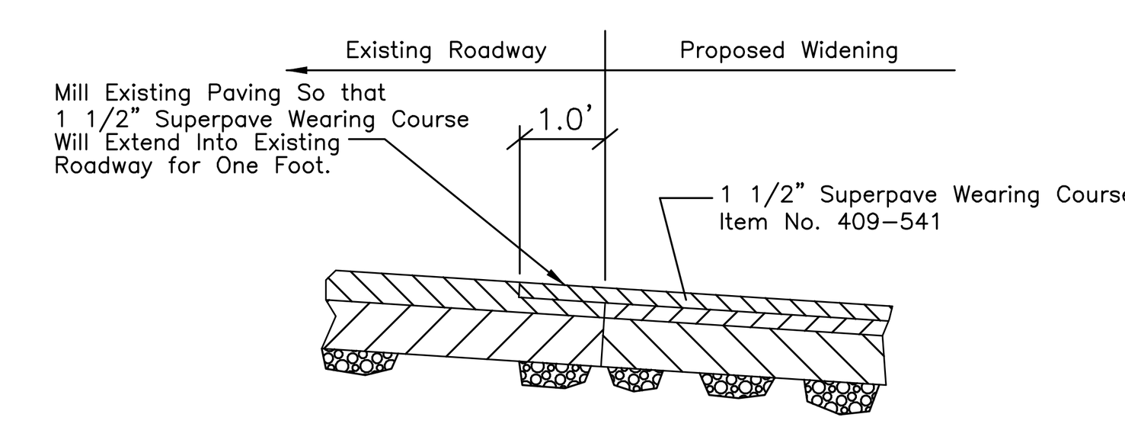


NOTE:
Provide construction Joints At Maximum 5 Ft. Spacing, And Expansion Joints Maximum 20 Ft. Spacing

SIDEWALK DETAIL

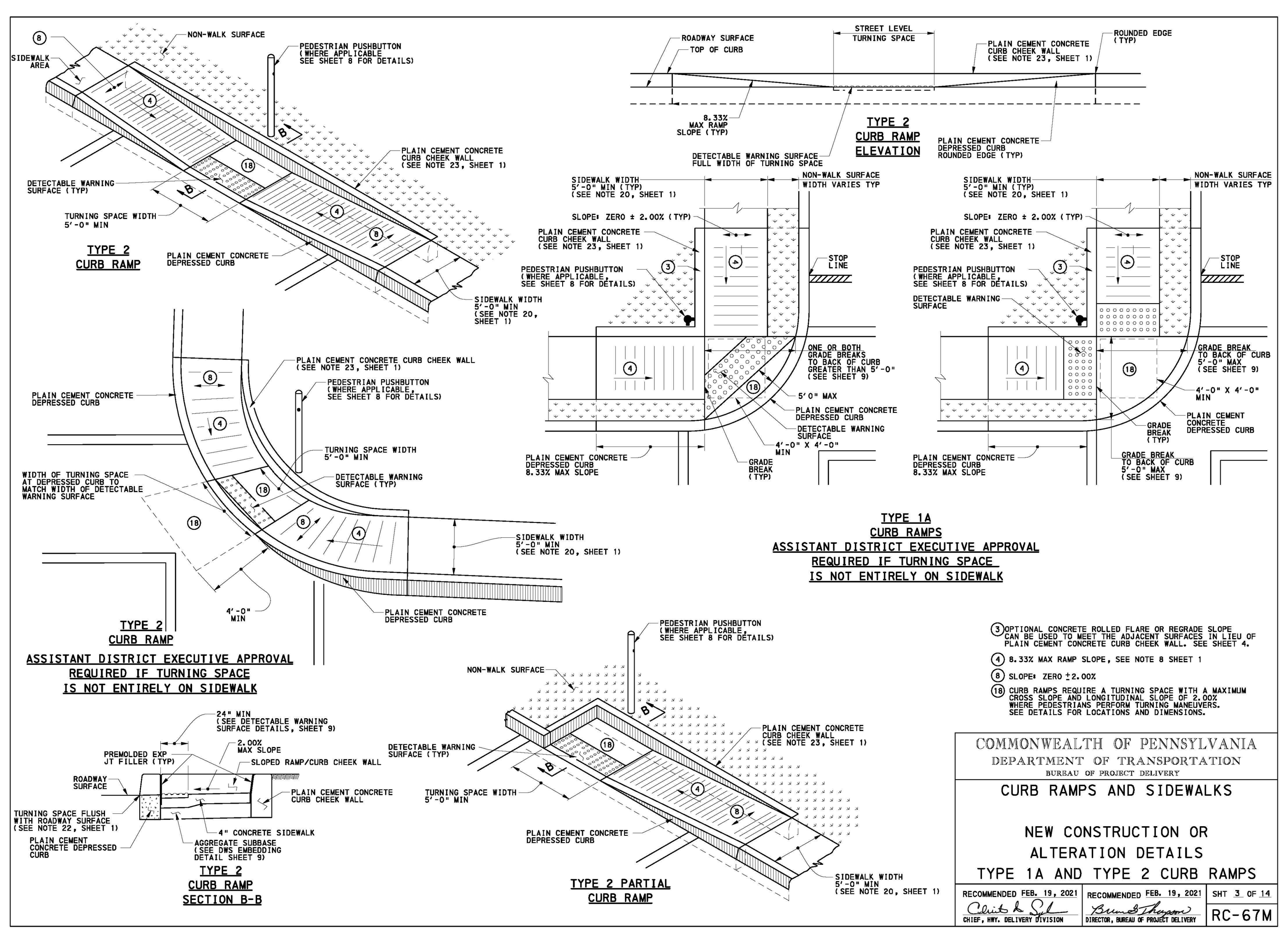


BOLLARD DETAIL
N.T.S.



DETAIL–WEARING COURSE AT EXISTING PAVING

NOTE: THIS DETAIL IS TO BE USED AT ALL LOCATIONS WHERE PROPOSED WIDENING MEETS EXISTING PAVING.



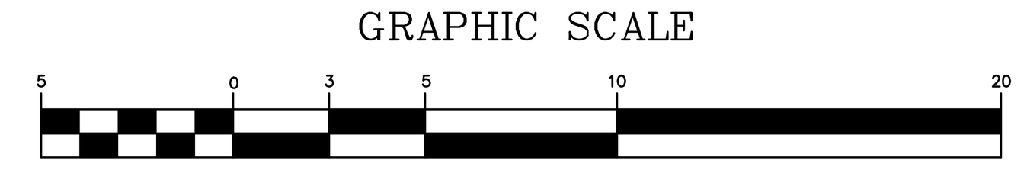
TYPE 2 CURB RAMP – DETAIL

NOTE:
1. TYPE 2 CURB RAMP SHALL BE USED AT LOCATION OF PROPOSED CURB RAMP
2. USE OF VERTICAL CURB ("CHEEK WALL") FOR GRADING AT BACK SIDE OF SIDEWALK TO BE OMITTED. AREA AT BACK SIDE OF PROPOSED SIDEWALK AT CURB RAMP LOCATION TO BE REGRADED AS NECESSARY.

LEGEND

- EXISTING FIRE HYDRANT
- EXISTING UTILITY POLE
- EXISTING WATER VALVE
- EXISTING GAS METER
- EXISTING LIGHT STANDARD
- EXISTING ELECTRIC BOX
- EXISTING SINGLE POLE SIGN
- EXISTING DECIDUOUS TREE
- EXISTING TREELINE
- EXISTING 2' CONTOUR
- EXISTING 10' CONTOUR
- EXISTING SPOT ELEVATION
- SOIL BOUNDARY LINE
- EXISTING TYPE "C" INLET
- EXISTING SANITARY MANHOLE
- EXISTING SANITARY CLEAN-OUT
- EXISTING DRAINAGE MANHOLE
- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING FENCES
- PROPOSED WATER LINE
- PROPOSED GAS LINE
- PROPOSED SANITARY SEWER FORCE MAIN
- PROPOSED ELECTRIC LINE

GRAPHIC SCALE



(IN FEET)
1 inch = 5 ft.

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FINAL

DATE	REVISION
02/13/2024	Permit Set

SCALE: 1" = 5'
DATE: February 13, 2024

GRADING AND LAYOUT PART PLAN & CONSTRUCTION DETAILS OF PROPERTY OF

DCIU

MORTON BOROUGH & SPRINGFIELD TWP
DELAWARE COUNTY, PA

G.D. HOUTMAN & SON, INC.
CIVIL ENGINEERS–LAND SURVEYORS
LAND PLANNERS
139 EAST BALTIMORE PIKE MEDIA, PA 19063
(610)565-6363

Sheet 7 of 7
PROJECT: DCIU
WORK ORDER: 39717
FILE: 39717

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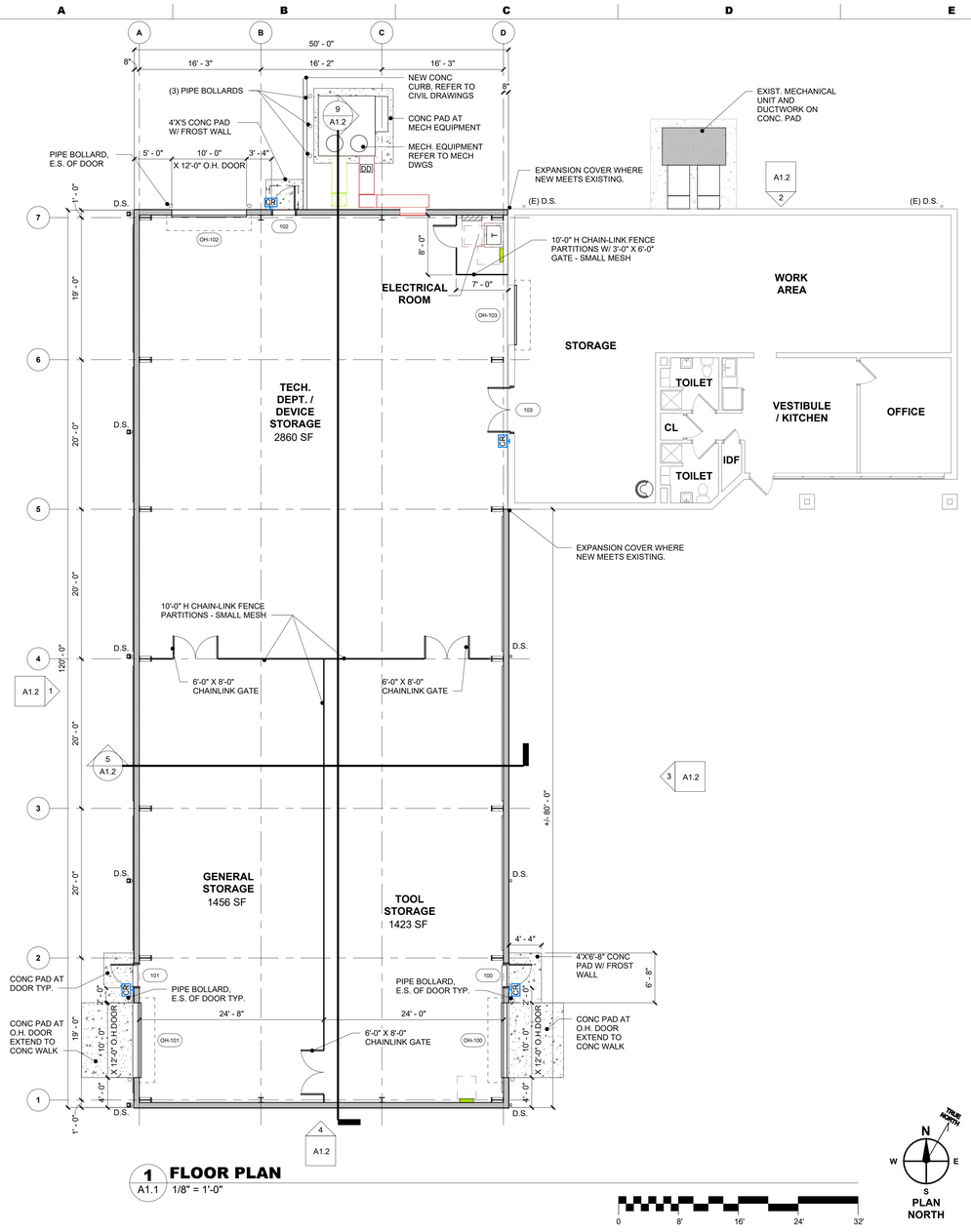
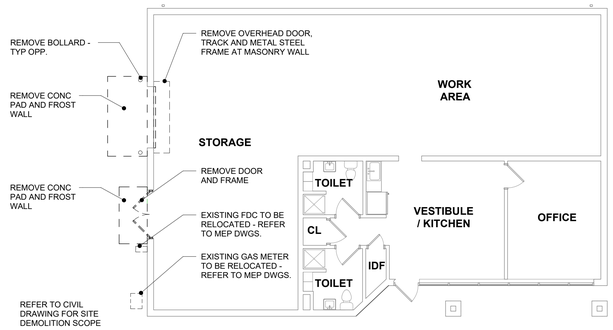


1 FLOOR PLAN
A1.1 1/8" = 1'-0"

2 ROOF PLAN
A1.1 1/8" = 1'-0"



3 FLOOR PLAN - DEMOLITION
A1.1 1/8" = 1'-0"

PLAN NORTH

MAROTTA/MAIN ARCHITECTS
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SEAL:

CONSULTANT:

CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES	DESCRIPTION:
DATE:	
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ # : 22-02-DCIU DRAWN BY : WEM

SHEET TITLE:

FLOOR PLAN

SHEET NUMBER:

A1.1

BID DOCUMENTS

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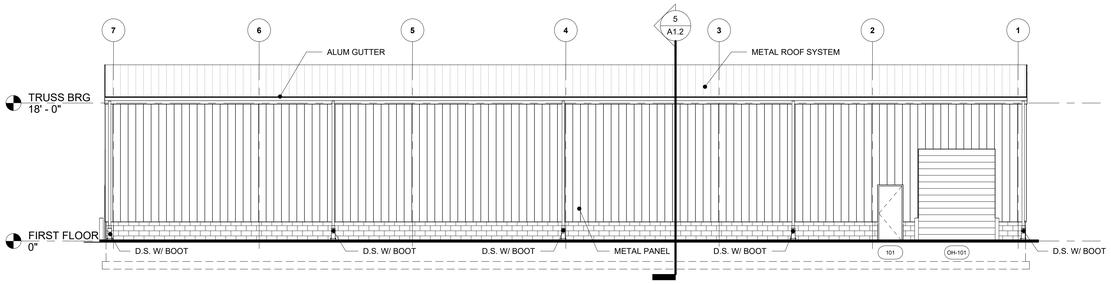
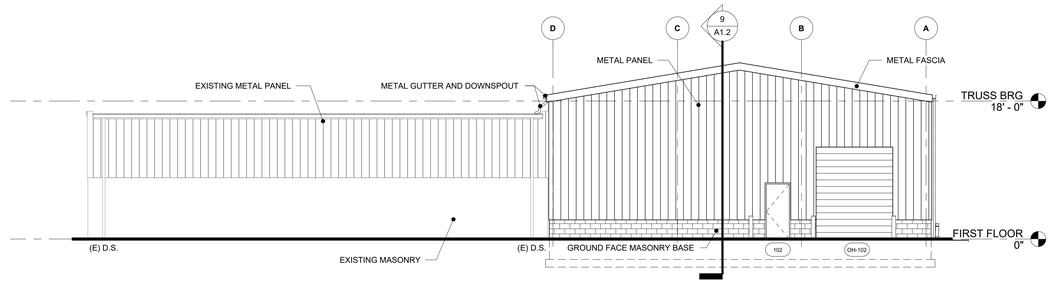


1 EXTERIOR ELEVATION
A1.2 1/8" = 1'-0"



2 EXTERIOR ELEVATION
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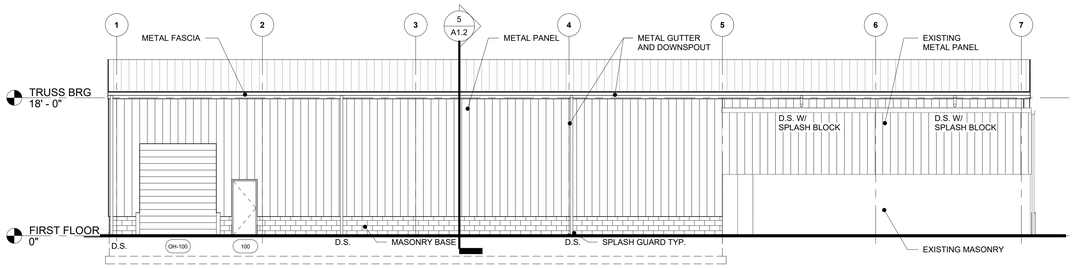

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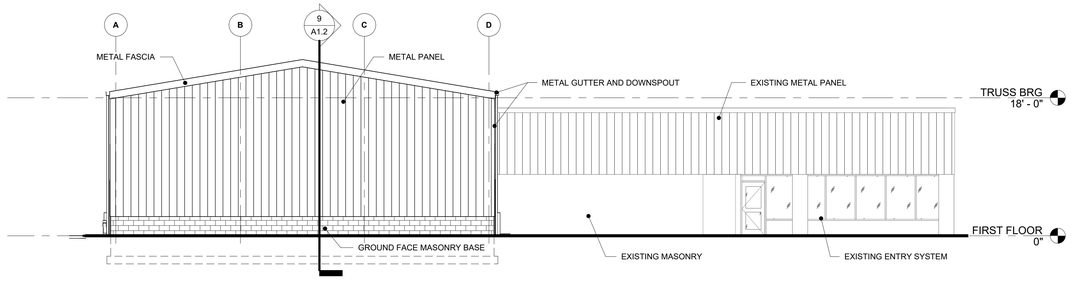
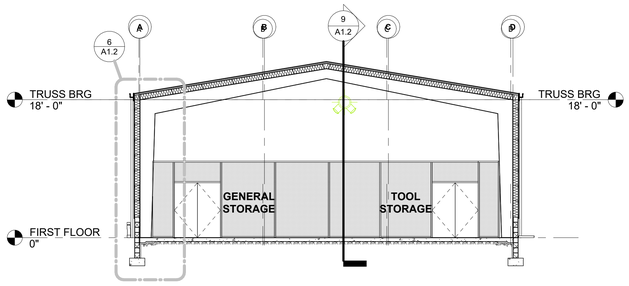
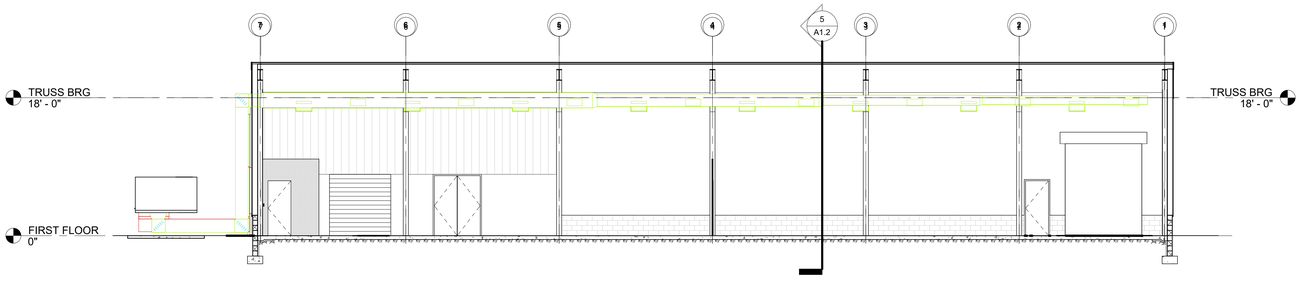


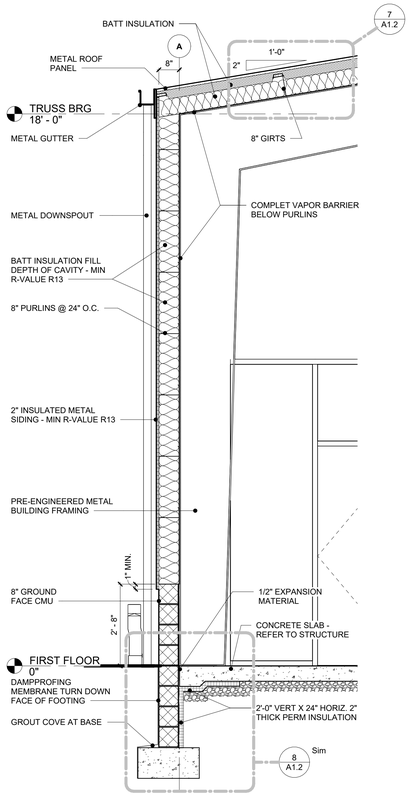
4 EXTERIOR ELEVATION
A1.2 1/8" = 1'-0"



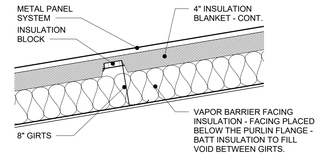
5 BUILDING SECTION
A1.2 1/8" = 1'-0"



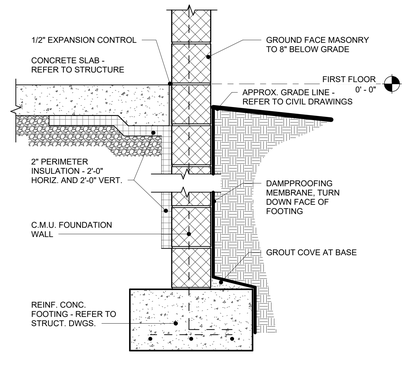
9 BUILDING SECTION
A1.2 1/8" = 1'-0"



6 WALL SECTION
A1.2 1/2" = 1'-0"



7 SECTION DETAIL
A1.2 1" = 1'-0"



8 TYPICAL FOOTING DETAIL
A1.2 1" = 1'-0"

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CONSULTANTS:

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DELAWARE COUNTY
INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES	DESCRIPTION:
DATE:	
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ # : 22-02-DCIU DRAWN BY : WEM

SHEET TITLE:

ELEVATION SECTIONS AND DETAILS

SHEET NUMBER:

A1.2

BID DOCUMENTS

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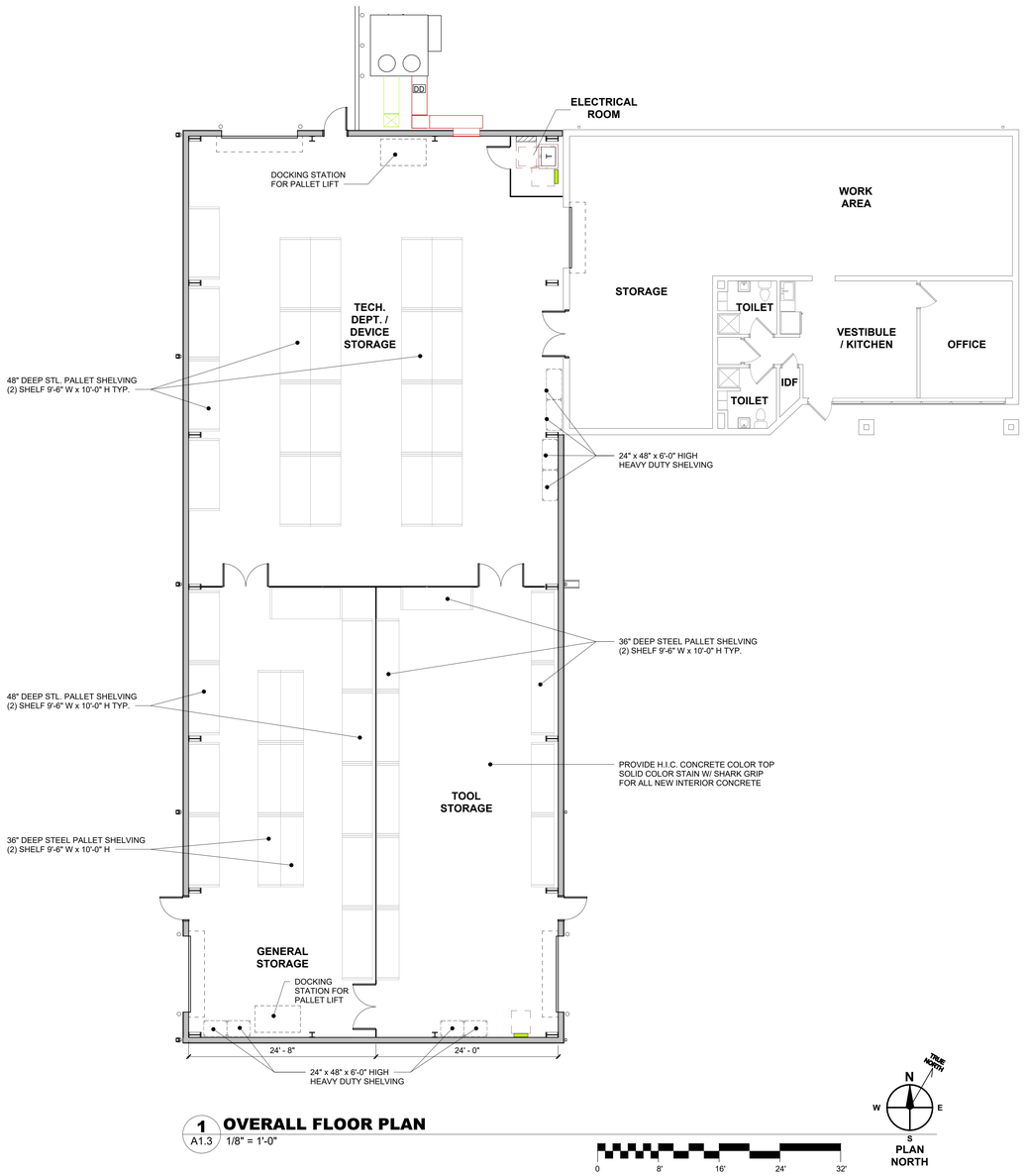


1 OVERALL FLOOR PLAN
A1.3 1/8" = 1'-0"

PLAN NORTH

0 8' 16' 24' 32'

DOOR SCHEDULE

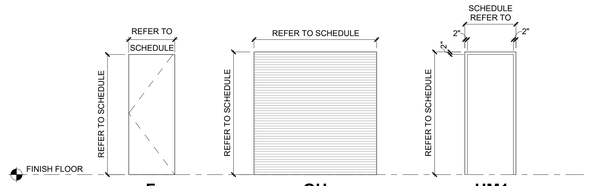
DOOR NUMBER	DOOR SIZE WIDTH LEAF 1	DOOR SIZE WIDTH LEAF 2	DOOR SIZE HEIGHT	DOOR TYPE	DOOR MATERIAL	FIRE RATING	FRAME TYPE	FRAME MATERIAL	FRAME HEAD	FRAME JAMB	FRAME SILL	COMMENTS
FIRST FLOOR												
100	3' - 0"		7' - 2"	F	HM		HM1	HM				CARD READER
101	3' - 0"		7' - 2"	F	HM		HM1	HM				CARD READER
102	3' - 0"		7' - 2"	F	HM		HM1	HM				CARD READER
103	3' - 0"	3' - 0"	7' - 10"	F	HM		HM1	HM				CARD READER

LEGEND

GL	GLASS PANEL
HM	HOLLOW METAL
M.O.	MASONRY OPENING

GENERAL DOOR AND FRAME NOTES

1. UNDERCUT DOORS AS REQUIRED TO OPERATE SMOOTHLY OVER FINISHED FLOOR. MAXIMUM UNDERCUT SHALL BE 1/4", UNLESS NOTED OTHERWISE FINISH BOTTOM OF DOORS AFTER UNDERCUTTING.



F DOOR TYPES

OH

HM1 FRAME TYPES

OVERHEAD DOOR SCHEDULE

DOOR NUMBER	DOOR SIZE WIDTH LEAF 1	DOOR SIZE WIDTH LEAF 2	DOOR SIZE HEIGHT	DOOR TYPE	DOOR MATERIAL	FIRE RATING	FRAME TYPE	FRAME MATERIAL	FRAME HEAD	FRAME JAMB	FRAME SILL	COMMENTS
FIRST FLOOR												
OH-100	10' - 0"		12' - 0"		METAL		-	METAL				
OH-101	10' - 0"		12' - 0"		METAL		-	METAL				
OH-102	10' - 0"		12' - 0"		METAL		-	METAL				
OH-103	8' - 0"		8' - 0"		METAL		-	METAL				

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CONSULTANT:

CONSTRUCTION OF
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DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES

DESCRIPTION:	DATE:
BID DOCUMENTS	02-19-2024
PERMIT SET	02-19-2024

PROJ # : 22-02-DCIU DRAWN BY : WEM

SHEET TITLE:
INTERIOR FLOOR PLAN, DOOR SCHEDULE AND DETAILS

SHEET NUMBER:
A1.3

BID DOCUMENTS

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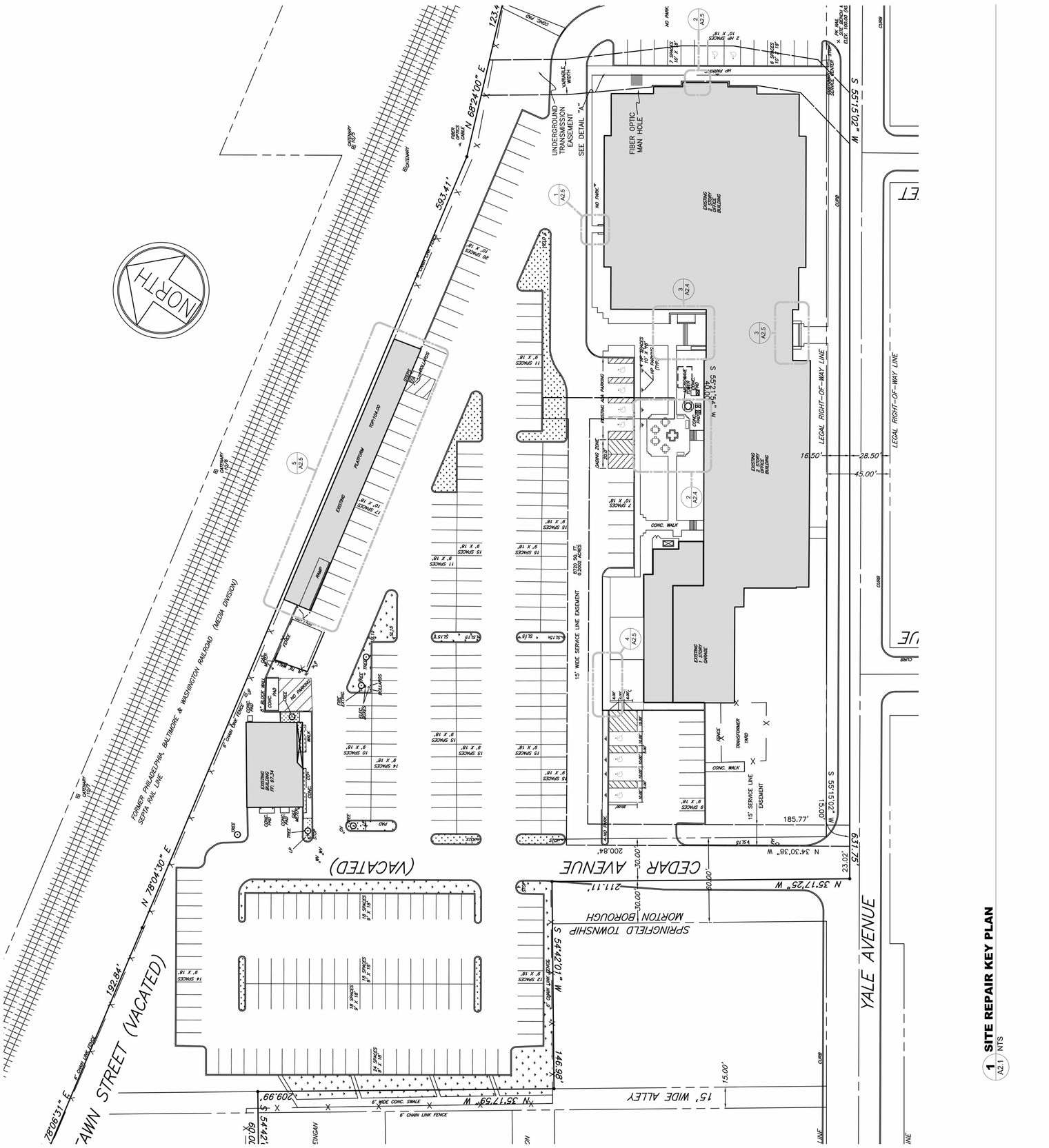

BID DOCUMENTS

SHEET NUMBER: **A2.1**

SHEET TITLE: **SITE REPAIR KEY PLAN**

PROJ #: 23-ROH-02 DRAWN BY: SAR

ISSUE DATES

DATE:	DESCRIPTION:
02-19-2024	PERMIT SET
02-19-2024	BID DOCUMENTS

CONSTRUCTION OF
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AND SITE REPAIRS
DELAWARE COUNTY
INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

CONSULTANT:

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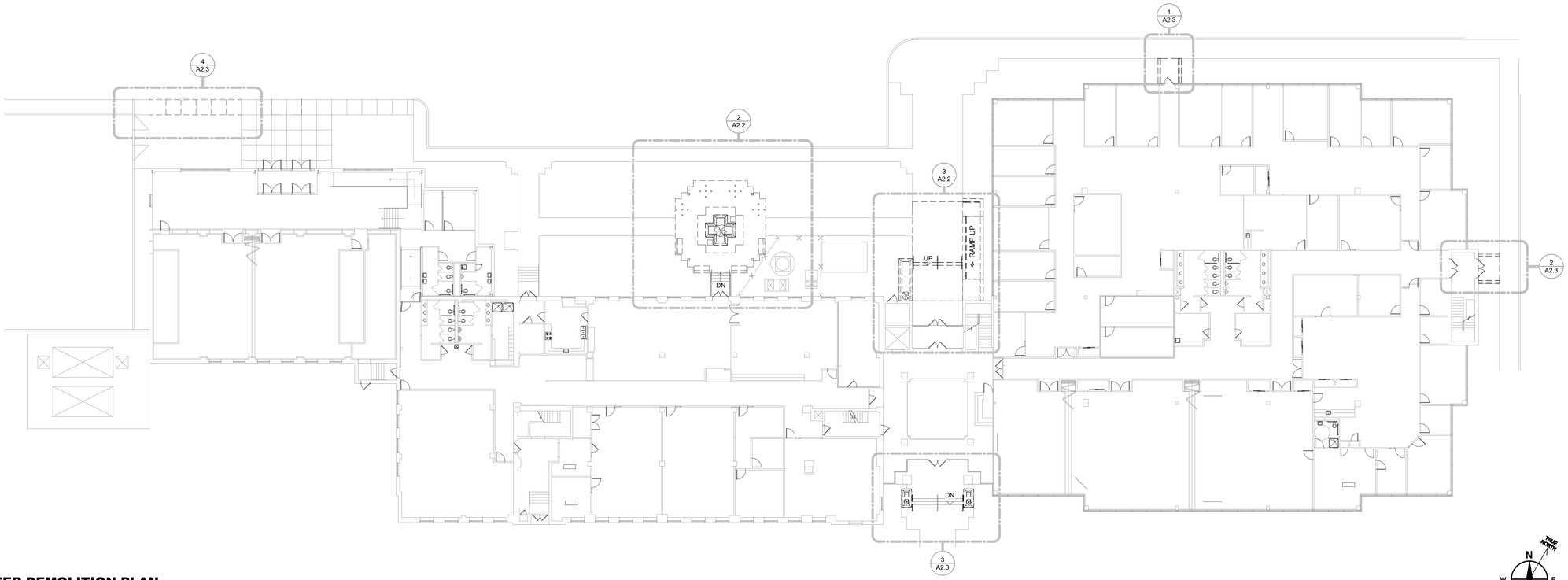
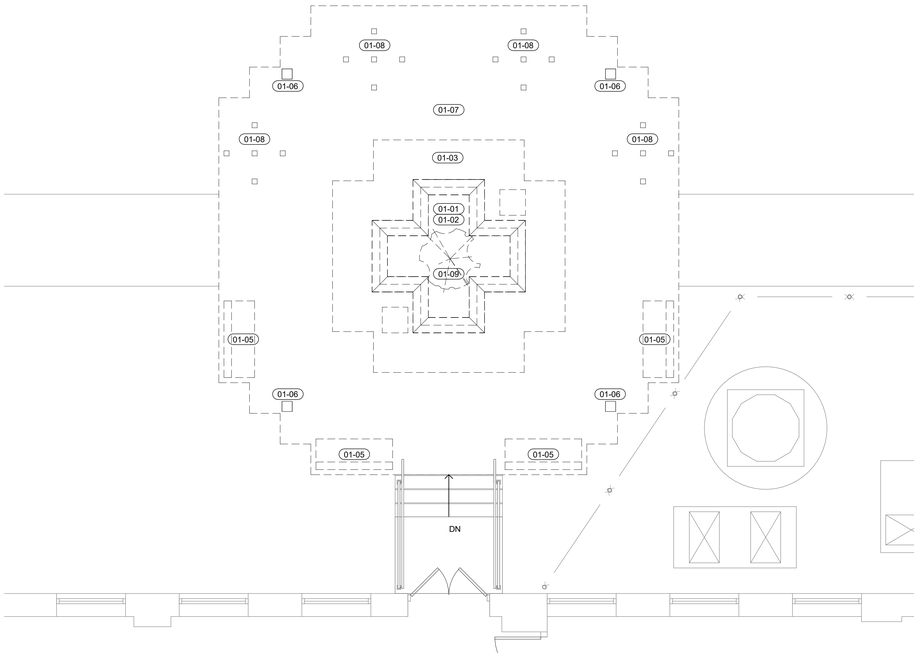


1 MASTER DEMOLITION PLAN
A2.2 1/16" = 1'-0"

0 16' 32' 48' 64'

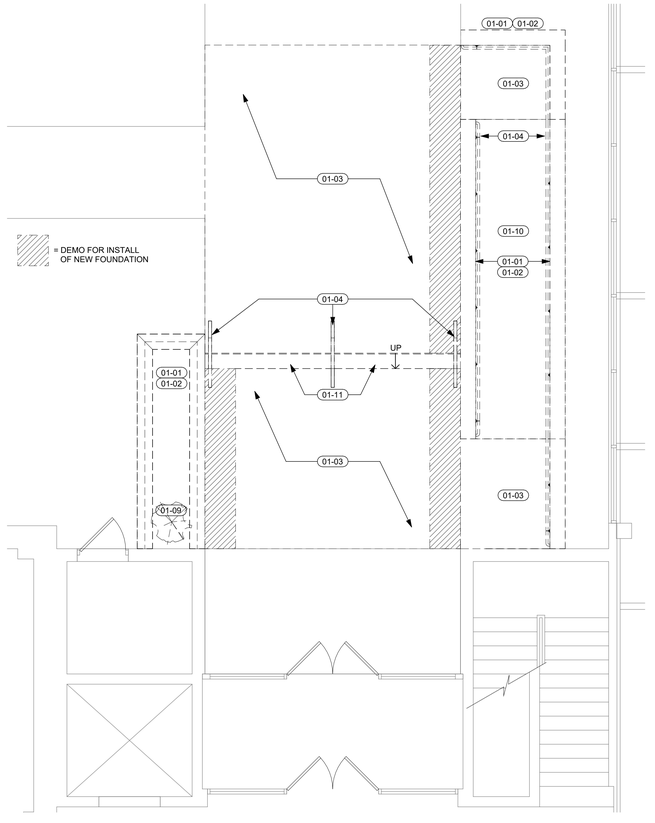
TRUE NORTH
N
W E
S
PLAN NORTH



2 AREA A DEMO SITE PLAN
A2.2 1/4" = 1'-0"

0 4' 8' 12' 16'

TRUE NORTH
N
W E
S
PLAN NORTH



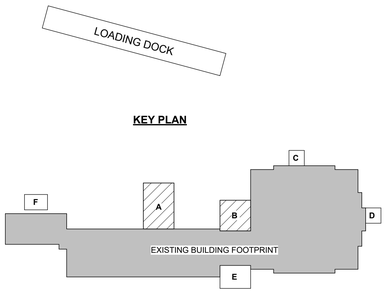
3 AREA B DEMO SITE PLAN
A2.2 1/4" = 1'-0"

0 4' 8' 12' 16'

TRUE NORTH
N
W E
S
PLAN NORTH

SPECIFIC DEMOLITION NOTES - SHEET AD1.1

01-01	REMOVE MASONRY WALL CONSTRUCTION. REFER TO ARCHITECTURAL AND STRUCTURAL DWGS. FOR EXTENT AND COORDINATION.
01-02	REMOVE PRECAST CONCRETE CAP
01-03	REMOVE CONCRETE PAD
01-04	REMOVE METAL HAND RAIL
01-05	REMOVE BENCH
01-06	REMOVE LIGHT POST
01-07	REMOVE PAVERS IN ENTIRETY
01-08	REMOVE EMBEDDED CONCRETE PIERS
01-09	REMOVE PLANTING
01-10	REMOVE CONCRETE RAMP CONSTRUCTION
01-11	REMOVE CONCRETE STAIRS



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CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES
DATE: DESCRIPTION:
02-19-2024 BID DOCUMENTS
02-19-2024 PERMIT SET

PROJ # : 22-DCIU-02 DRAWN BY : SAB

SHEET TITLE:

SITE REPAIRS DEMOLITION PLANS

SHEET NUMBER:

A2.2

BID DOCUMENTS

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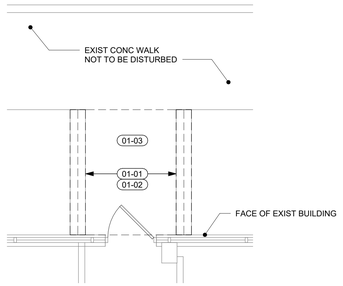
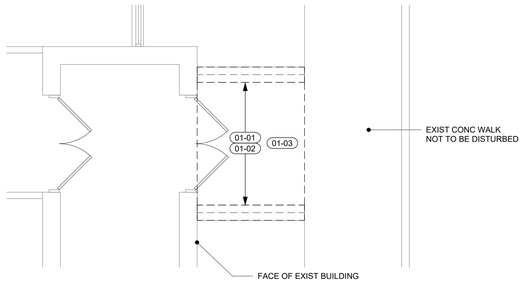
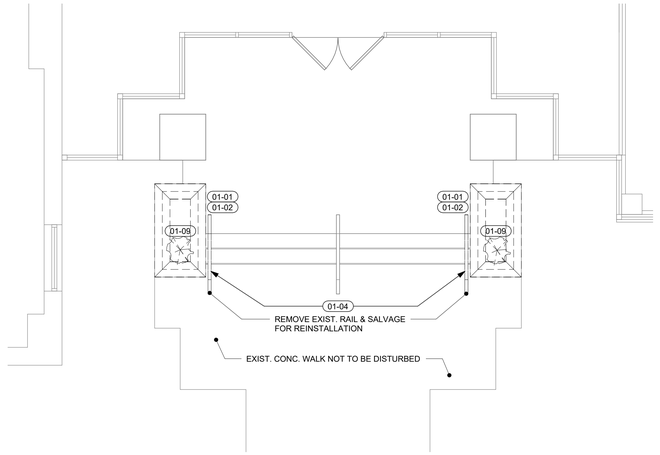
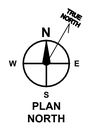


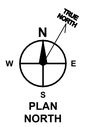




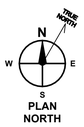
1 AREA C DEMO SITE PLAN
A2.3 1/4" = 1'-0"

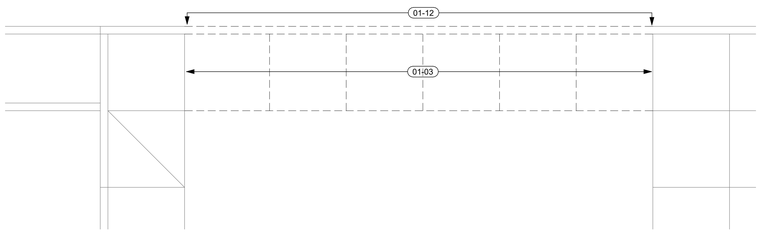


2 AREA D DEMO SITE PLAN
A2.3 1/4" = 1'-0"

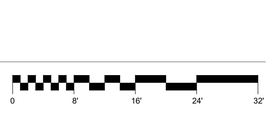


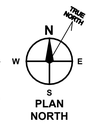
3 AREA E DEMO SITE PLAN
A2.3 1/4" = 1'-0"

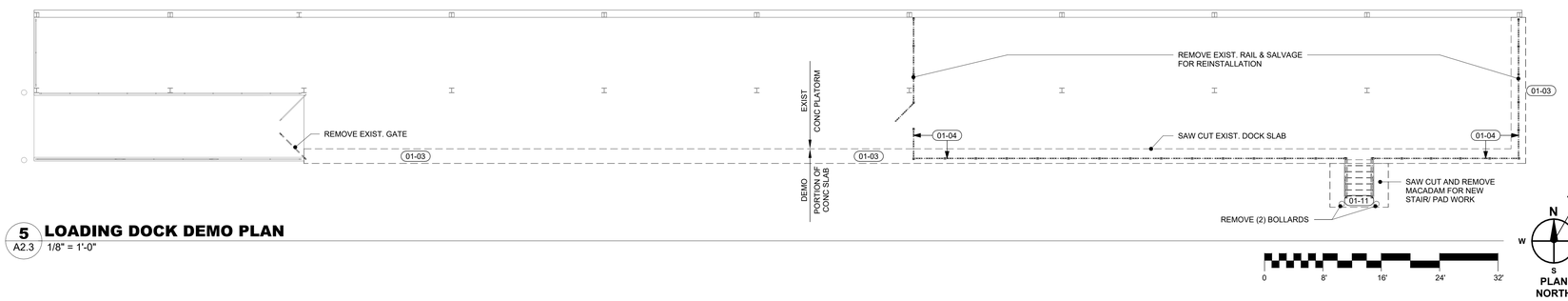




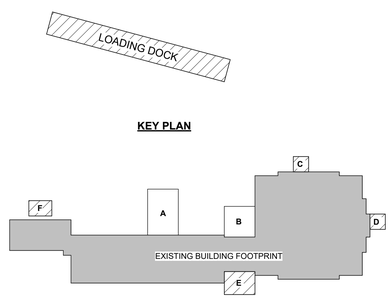
4 AREA F DEMO SITE PLAN
A2.3 1/4" = 1'-0"







5 LOADING DOCK DEMO PLAN
A2.3 1/8" = 1'-0"



SPECIFIC DEMOLITION NOTES - SHEET AD1.2

01-01	REMOVE MASONRY WALL CONSTRUCTION. REFER TO ARCHITECTURAL AND STRUCTURAL DWGS. FOR EXTENT AND COORDINATION.
01-02	REMOVE PRECAST CONCRETE CAP
01-03	REMOVE CONCRETE WALK
01-04	REMOVE METAL HAND RAIL
01-09	REMOVE PLANTING
01-12	REMOVE CONCRETE CURB

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200 YALE AVE., MORTON, PA 19070

ISSUE DATES

DATE:	DESCRIPTION:
02-15-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ # : 22-DCIU-02 DRAWN BY : SAB

SHEET TITLE:

SITE REPAIRS DEMOLITION PLANS

SHEET NUMBER:

A2.3

BID DOCUMENTS

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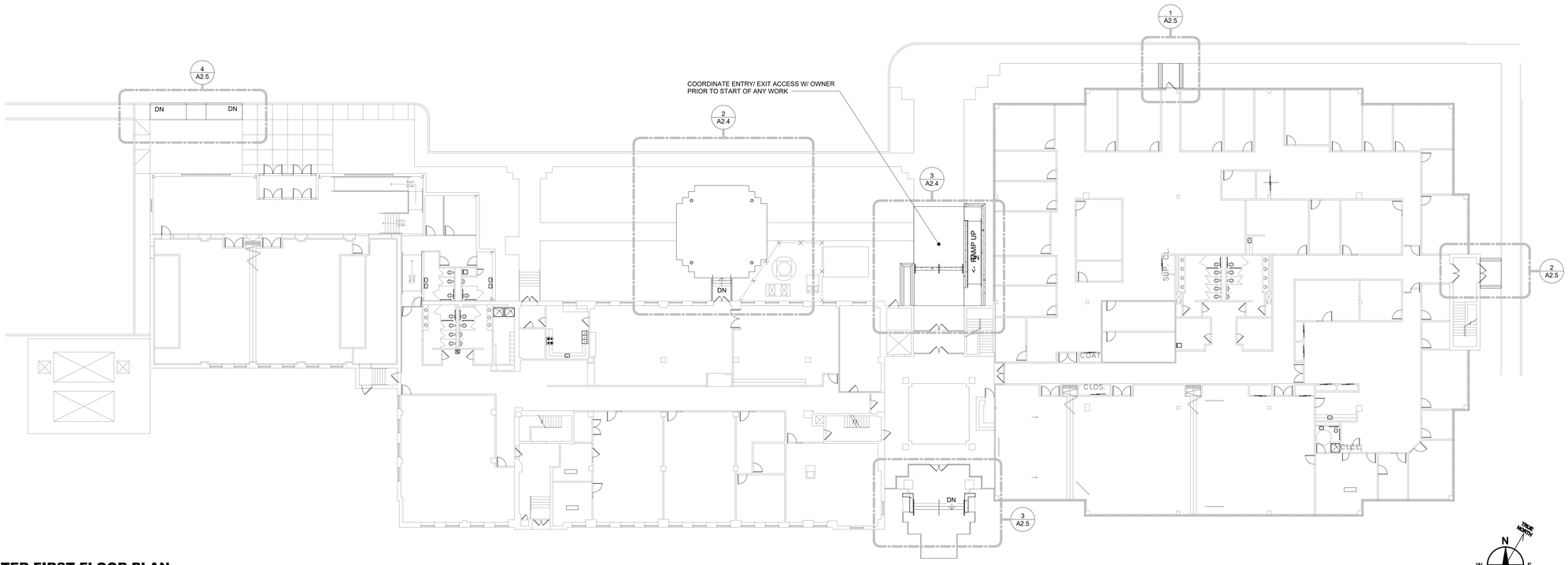
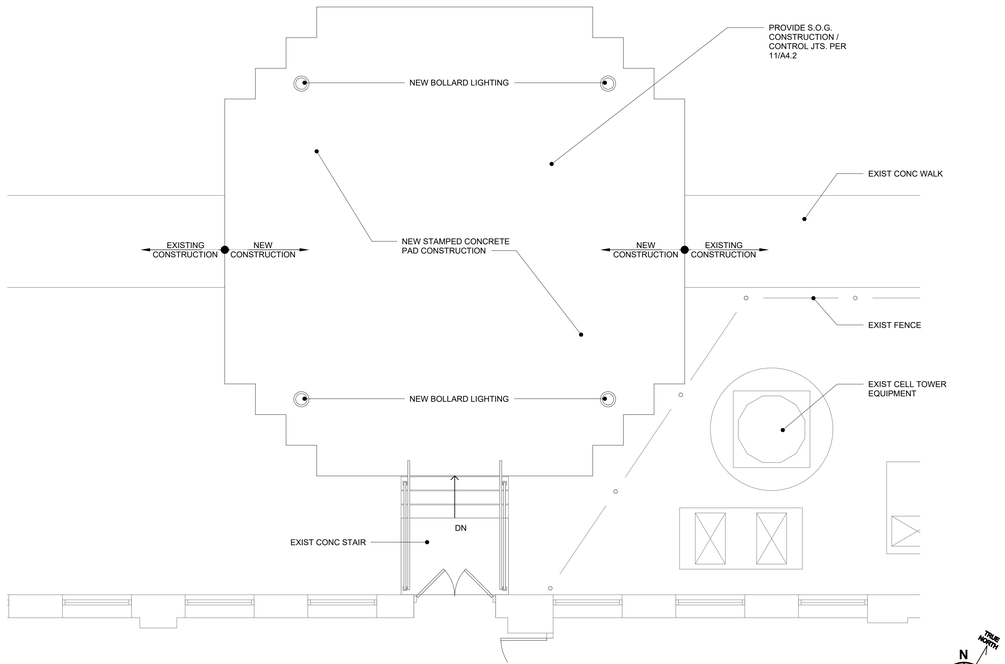
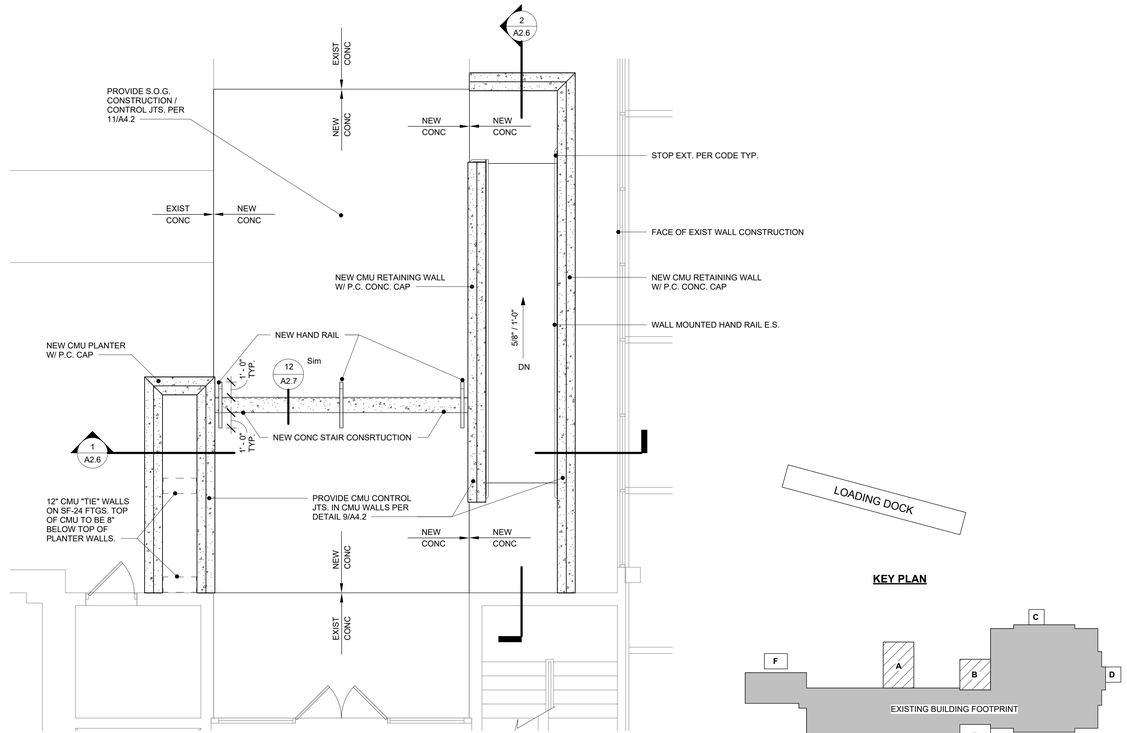


1 A2.4 MASTER FIRST FLOOR PLAN
1/16" = 1'-0"



2 A2.4 AREA A SITE PLAN
1/4" = 1'-0"

PLAN NORTH

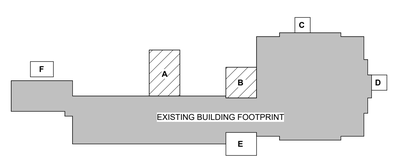


3 A2.4 AREA B SITE PLAN
1/4" = 1'-0"

PLAN NORTH

LOADING DOCK

KEY PLAN



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ISSUE DATES
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DATE: 02-19-2024
PERMIT SET 02-19-2024

PROJ # : 22-DCIU-02 DRAWN BY : SAB

SHEET TITLE:

SITE REPAIRS FLOOR PLANS

SHEET NUMBER:

A2.4

BID DOCUMENTS

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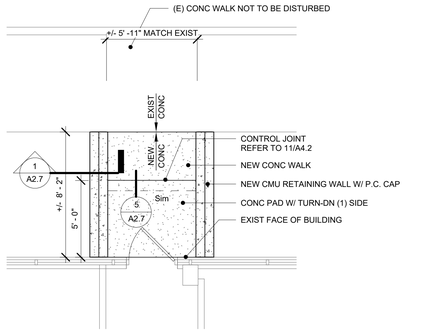
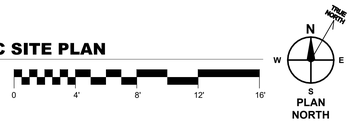
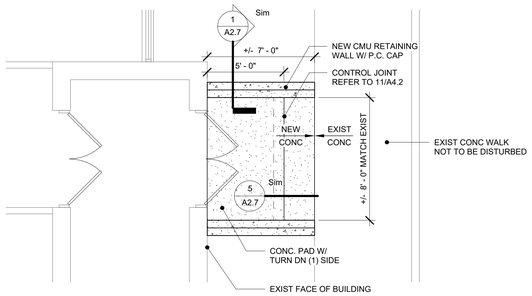
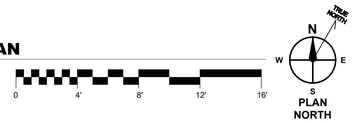


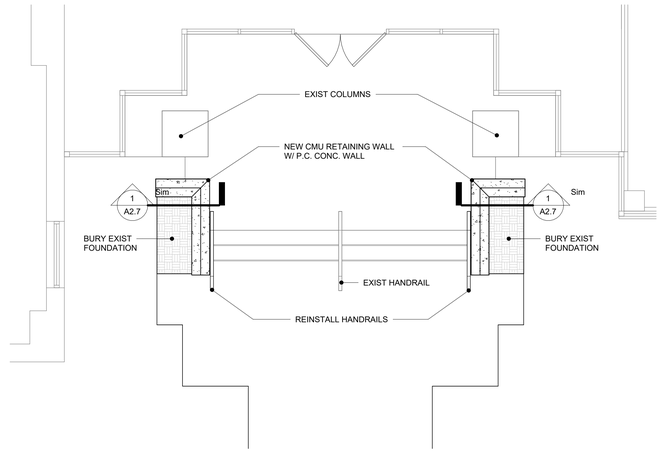
1 AREA C SITE PLAN
A2.5 1/4" = 1'-0"



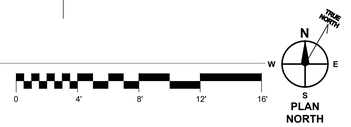


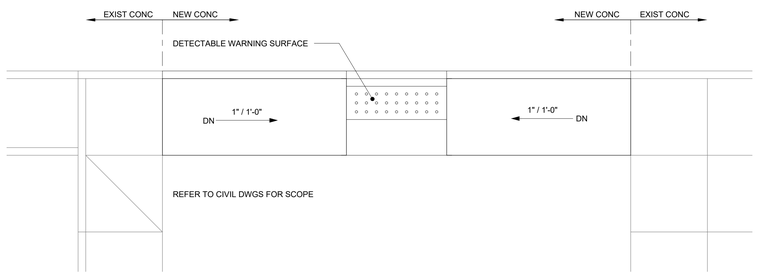
2 AREA D SITE PLAN
A2.5 1/4" = 1'-0"



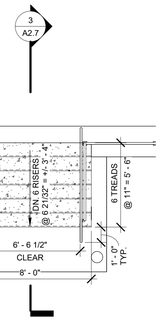


3 AREA E SITE PLAN
A2.5 1/4" = 1'-0"

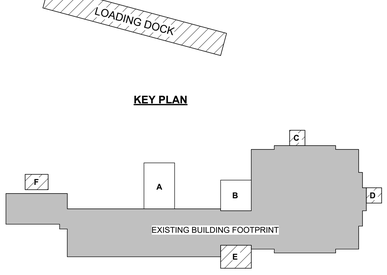


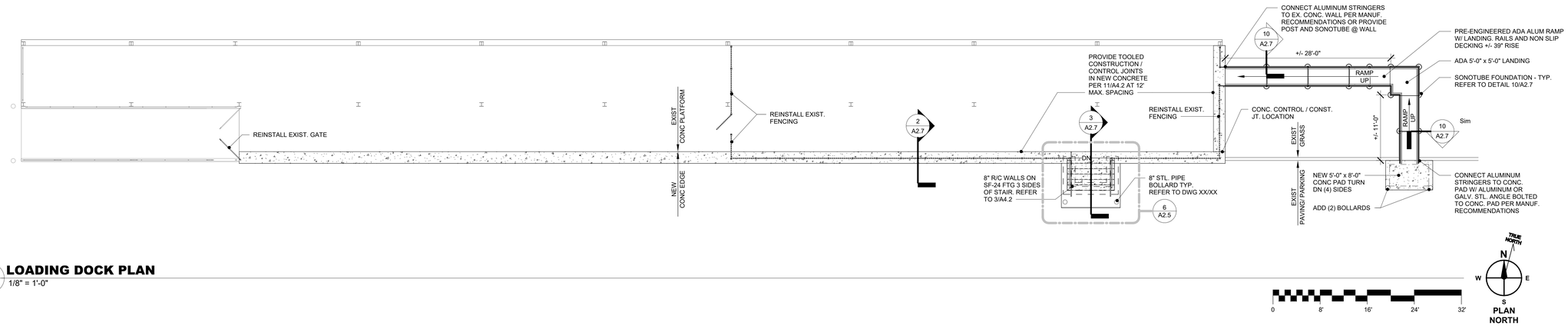


4 AREA F SITE PLAN
A2.5 1/4" = 1'-0"



6 ENLARGED STAIR PLAN
A2.5 1/4" = 1'-0"





5 LOADING DOCK PLAN
A2.5 1/8" = 1'-0"

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200 YALE AVE., MORTON, PA 19070

ISSUE DATES

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PROJ # : 22-DCIU-02 DRAWN BY : SAB

SHEET TITLE:

SITE REPAIRS FLOOR PLANS

SHEET NUMBER:

A2.5

BID DOCUMENTS

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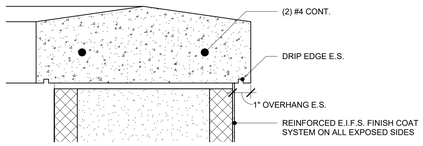
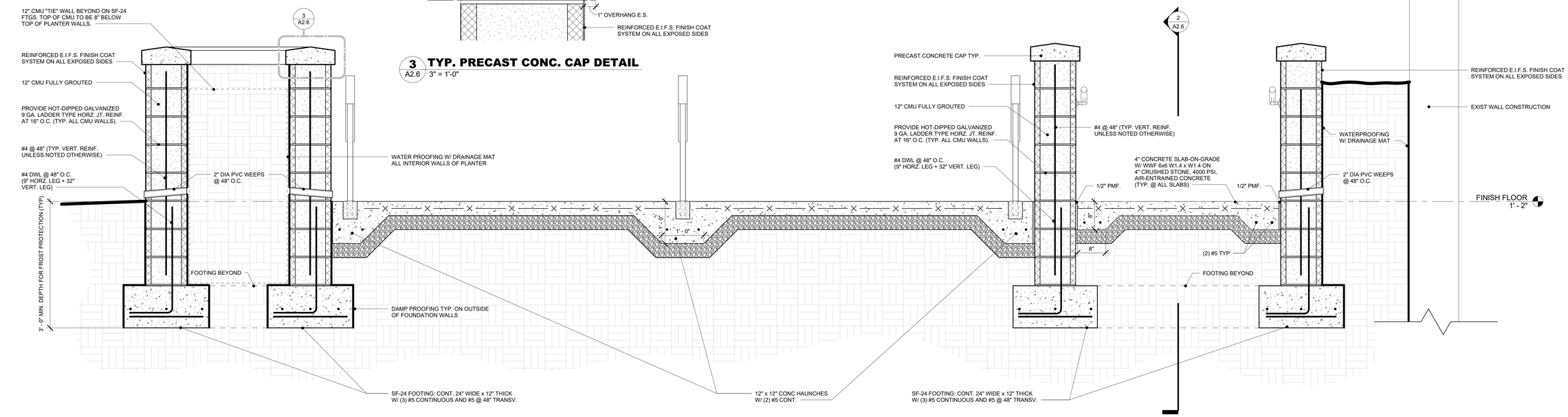
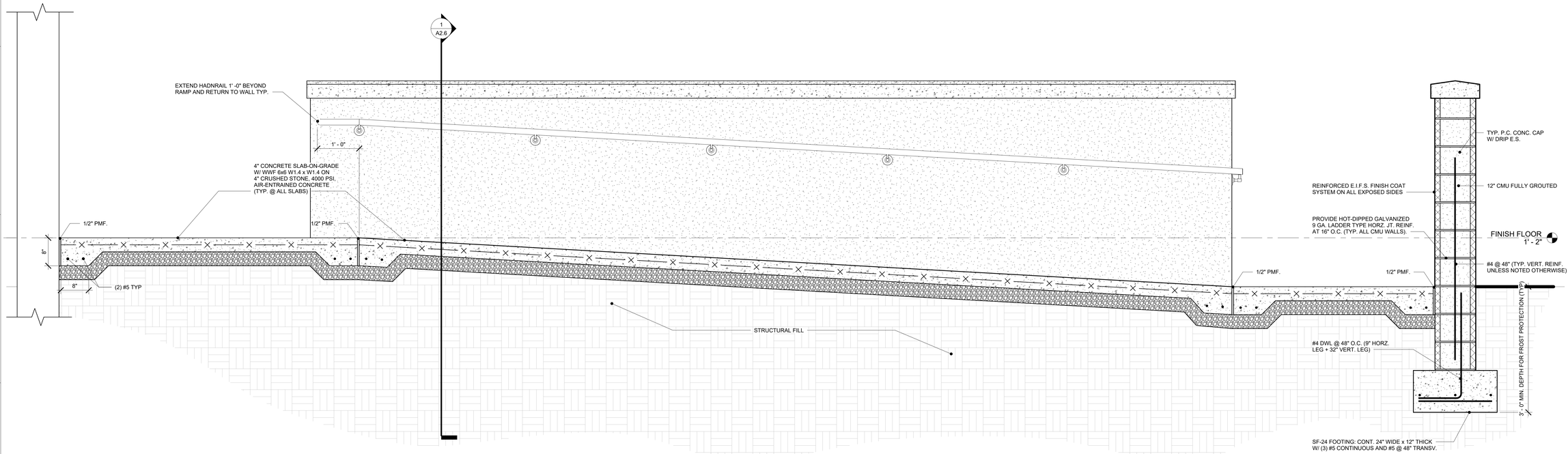


3 TYP. PRECAST CONC. CAP DETAIL
A2.6 3" = 1'-0"



1 RAMP AND PLANTER SECTION
A2.6 1" = 1'-0"



2 RAMP SECTION
A2.6 1" = 1'-0"

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ISSUE DATES
DATE: DESCRIPTION:
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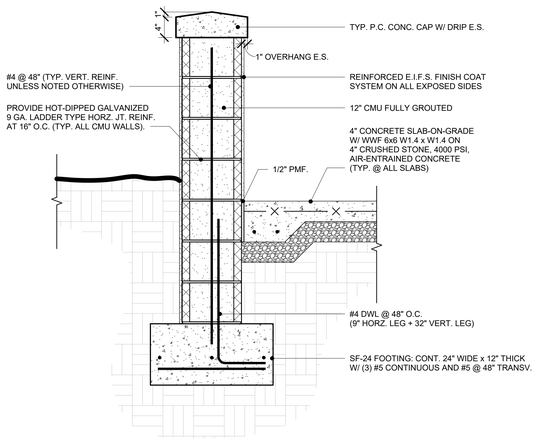
PROJ # : 22-DCIU-02 DRAWN BY : SAB

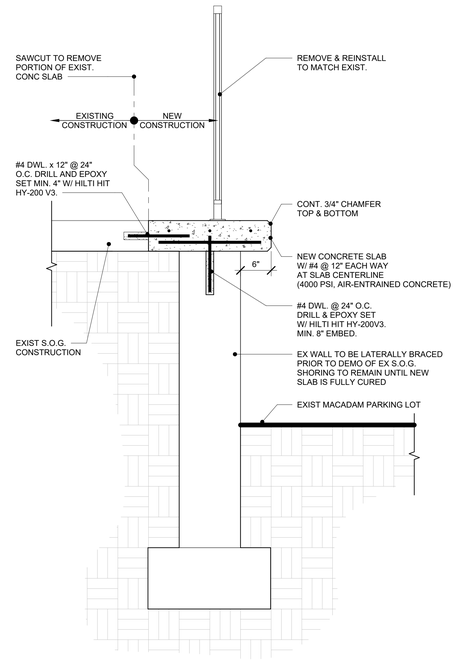
SHEET TITLE:
WALL SECTION DETAILS

SHEET NUMBER:
A2.6

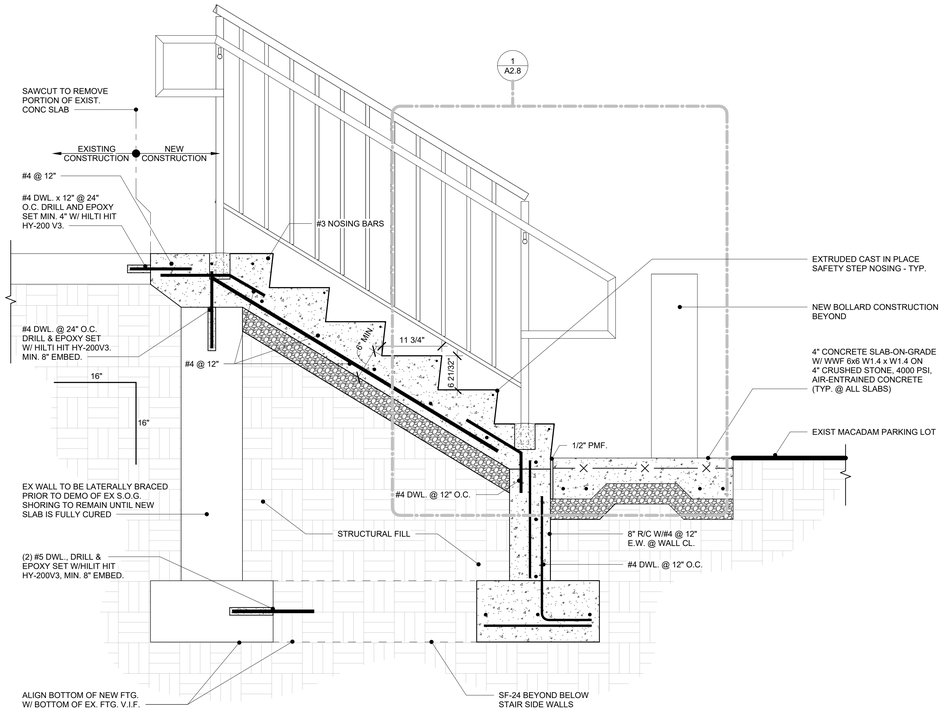
BID DOCUMENTS



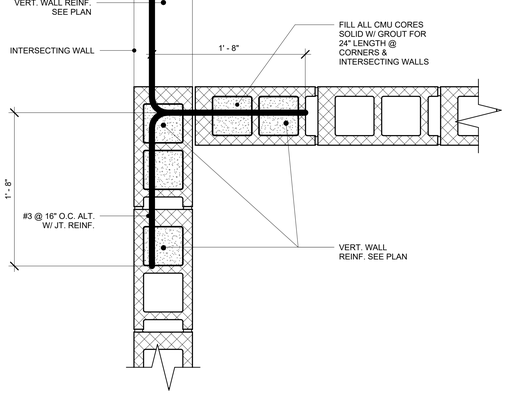
1 SITE WALL SECTION
A2.7 1" = 1'-0"



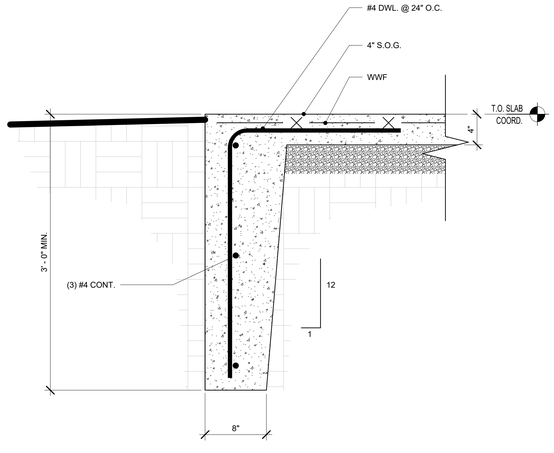
2 LOADING DOCK SECTION
A2.7 1" = 1'-0"



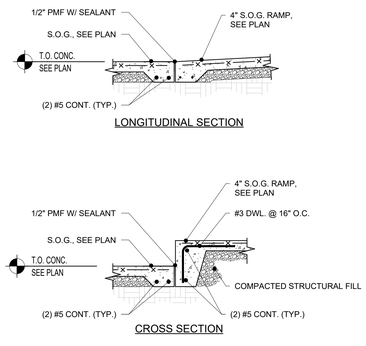
3 LOADING DOCK STAIR SECTION
A2.7 1" = 1'-0"



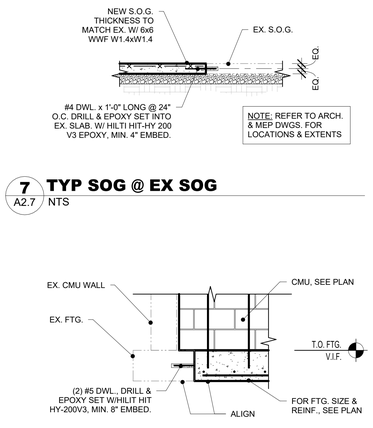
4 TYP CMU WALL CORNER & INTERSECTION REINFORCEMENT
A2.7 NTS



5 TYP SLAB TURN-DOWN
A2.7 NTS

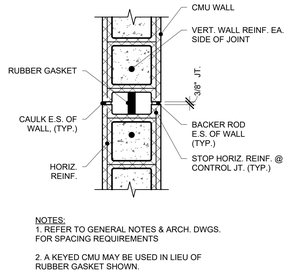


6 TYP RC RAMP
A2.7 NTS

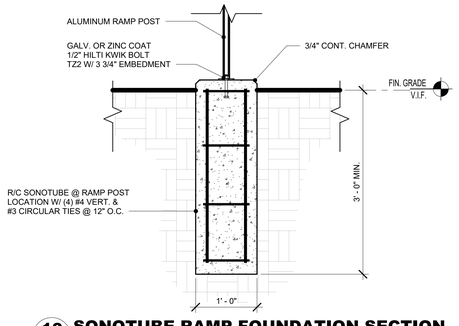


7 TYP SOG @ EX SOG
A2.7 NTS

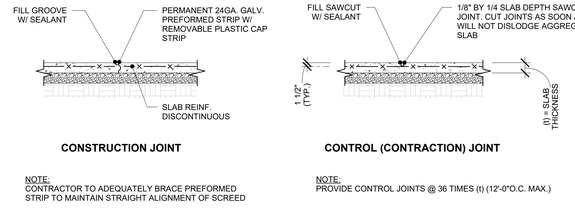
8 TYP FTG TO EX FTG
A2.7 NTS



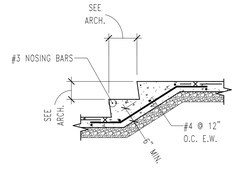
9 TYP CMU WALL CJ
A2.7 NTS



10 SONOTUBE RAMP FOUNDATION SECTION
A2.7 1" = 1'-0"



11 TYP SOG CONTROL & CONSTRUCTION & EXP JOINT
A2.7 NTS



12 TYP RC STAIR
A2.7 1/2" = 1'-0"

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SHEET TITLE:

TYPICAL DETAILS

SHEET NUMBER:

A2.7

BID DOCUMENTS

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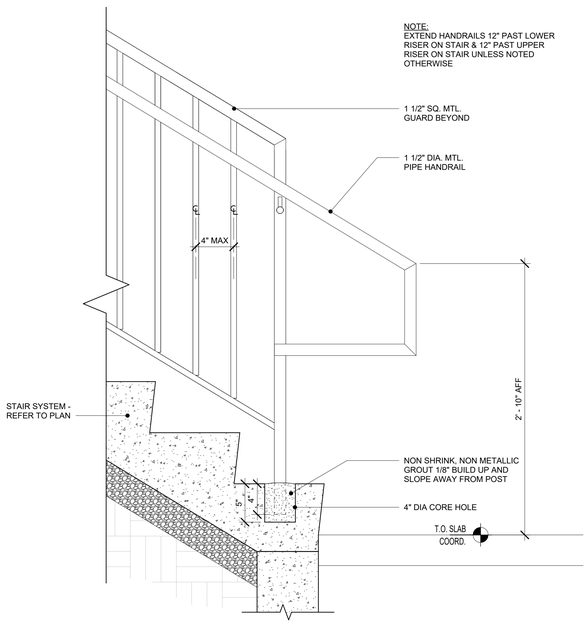

1 TYPICAL RAILING
A2.8 1 1/2" = 1'-0"

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02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ # : 22-DCIU-02 DRAWN BY : SAB

SHEET TITLE:

TYPICAL DETAILS

SHEET NUMBER:

A2.8

BID DOCUMENTS

GENERAL STRUCTURAL NOTES

GENERAL STRUCTURAL NOTES:

1. 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.

2. The contractor shall be responsible for complying with all safety precautions and regulations during the work. The engineer will not advise on nor issue direction as to safety precautions and programs.

3. The structural drawings herein represent the finished structure. The contractor shall provide all temporary shoring, 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.

4. The engineer shall not be responsible for the methods, techniques and sequences of procedures to perform the work. The supervision of the work is the sole responsibility of the contractor.

5. Drawings indicate general and typical details of construction. Where conditions are not specifically shown, similar details of construction shall be used, subject to approval by the engineer.

6. 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.

7. Contractor shall provide all temporary supports required for stability and for resistance to wind and seismic forces until the structure is capable of providing this support. Contractor to refer to A.I.S.C. steel design guide #10, "Erection bracing of low-rise structural steel frames".

8. Loading applied to the structure during the process of construction shall not exceed the safe load-carrying capacity of the structural members. The live loadings 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.

9. All ASTM and other references are per the latest editions of these standards, unless otherwise noted.

10. In accordance with Section 1704 of IBC 2018, special inspections will be required for this project. Special inspections shall be performed in accordance with the "Schedule of Special Inspections". All fabricators shall satisfy the "Exception" noted in section 1704.2.5.1, which requires the fabricator to maintain an agreement with an approved independent inspection or quality control agency. The contractor shall notify the special inspector at least 48 hours in advance for work that will require inspection or testing

11. Unless otherwise indicated, all items noted to be demolished shall become the contractor's property and be removed from the site.

12. Contractors shall visit the site prior to bid to ascertain conditions which may adversely affect the work or cost thereof.

13. Dimensions shown on the architectural drawings shall govern over dimensions shown on the structural drawings. The contractor shall generate an RFI regarding discrepancies prior to construction.

SHOP DRAWING NOTES:

1. Shop drawings and other items shall be submitted to the engineer for review prior to fabrication. The engineer's review is to be for conformance with the design concept and general compliance with the relevant contract documents. The engineer'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.

2. Submit shop drawings as per note #3 below. In no case shall reproduction of the contract drawings 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 system (see notes).

Other submittals may be required per the "Schedule of Special Inspections" or the separate notes contained herein.

3. Contractor shall submit electronic shop drawings. Any additional shop drawings submitted will not be reviewed or returned.

4. Contractor shall submit a schedule indicating when each set of shop drawings will be submitted to the architect/engineer prior to any shop drawing submission.

5. All notes or questions from the detailer to the engineer or architect shall be clouded, numbered and with the text "Arch/Engr. review." Any notes or questions from the detailer to the contractor shall be clouded, numbered and with the text "C.C. Review."

6. All shop drawings shall be reviewed by the contractor before submittal to the engineer or architect. Shop drawings will be rejected if the contractor has not reviewed the shop drawings prior to submittal to engineer or architect.

7. The contractor shall produce all shop drawings. Copying, scanning and/or reusing any portion of the structural drawings as part of the shop drawings submittal is not permitted. Submittals that include reproduced portions of the structural drawings will be rejected without review.

DESIGN CRITERIA NOTES:

1. The intended design standards and/or criteria are as follows:
General: Uniform statewide bldg. code (IBC 2018, Chapter 16 as amended)
Concrete: ACI 318-14
Masonry: TMS 402/602-16
Structural Steel: ANSI/AISC 360-16 A.S.D. (15th Edition)
Metal Deck: SDI-17
Cold-Formed Metal: AISI S100-16, A.S.D.
Foundations: Geotechnical Investigation Report completed by Earth Engineering Inc. dated December 21, 2023 (EEI Project No. 36677.00)

2. Design gravity dead loads used in the design of this structure are as follows (refer to IBC 2018 section 1606):

Roof	5 PSF Max.
Collateral	5 PSF
Floors - typical	100 PSF
All other	Actual weight

3. Design gravity live loads used in the design of this structure are as follows (refer to IBC 2018 section 1607):

Roof, typical	20 PSF

4. The structure has been designed as Risk Category II in accordance with IBC 2018 table 1604.5.

5. Design lateral live loads used in the design of this structure, in accordance with Chapters 11 through 31 of ASCE 7-16, are as follows:
Wind - Ultimate, main system: 114 mph, Exposure B, Iw = 1.0
Wind - Ultimate, components: 114 mph, Exposure B, Iw = 1.0

Seismic: SDS = 0.157g, SD1 = 0.047g, Design Cat. A, Ie = 1.0, Site Class C

6. Design snow loads used in the design of this structure, in accordance with Chapter 7 of ASCE 7-16, are as follows:
Pg (ground snow load) = 25 PSF, Ce = 1.0, Is = 1.0, Ct = 1.0
Pf (flat roof) = 25 PSF, Cs = 1.0
Pm (minimum snow load) = 20 PSF

7. The lateral load resisting system of this building consists of:
Perimeter - Braced bays with steel rods
Typ. frame - Rigid frame action (with "pin-based" columns)

8. This structure has been designed with "safety factors" in accordance with generally 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 so 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 predicted and SHALL NOT BE RELIED UPON.

EXISTING CONSTRUCTION NOTES:

1. Before proceeding with any work within the existing facility, the contractor shall familiarize himself with existing structural and other conditions. It shall be the contractor's responsibility to provide all necessary bracing, shoring and other safeguards to maintain all parts of the existing work in a safe condition during the process of demolition and construction and to protect from damage those portions of the existing work which are to remain.

2. The contractor shall field verify the dimensions, elevations, etc. necessary for the proper construction and alignment of the new portions of the work to the existing work. The contractor shall make all measurements necessary for fabrication and erection of structural members. Any discrepancy shall be immediately brought to the attention of the engineer.

3. Welding to and within an existing facility presents potential hazards, including:
   A. Fire hazard - due to the existing construction and building contents.
   B. Structural liquefaction - due to welding across the full section of structural steel members.

Recommendations to prevent these hazards include:
   A. Fire hazard - protect existing combustibles prior to welding. Keep a separate watchman and several fire extinguishers on hand.
   B. Structural liquefaction - weld in small increments. Allow welds to harden before continuing to the next increment.
   C. Do not leave the site until satisfied that no fire hazard exists.

4. The contractor shall be responsible for the design and erection of all shoring necessary to safeguard the existing structure. Any shoring shown is a partial and schematic representation of that required. The contractor shall submit a detailed plan for shoring, bracing and protection of the existing construction.

DEMOLITION NOTES:

1. The contractor is to obtain and pay for all necessary permits for the demolition and removal work required.

2. Demolition procedures, shoring requirements, sequences, techniques, etc. either given in or implied to by these drawings are suggestions only.

3. Prior to undertaking any demolition work, the contractor shall ascertain, by survey, the existing conditions of the property and the extent of the demolition work involved.

4. The contractor shall perform all demolition work in such a manner as to protect the existing structure and be responsible to properly repair any damage which may occur as a result of his demolition work. If the contractor damaged the existing structure to remain, he shall notify the owner and engineer immediately and for all repair costs, including design and inspection expenses.

5. The contractor shall cease demolition operations and notify the owner and engineer immediately if it appears that the integrity of the structure has been affected by the demolition work.

6. The contractor shall not cut or alter any structural members to remain without written authorization by the engineer or as indicated on the structural drawings.

7. All existing dimensions (distances, elevations, member sizes, etc.) shown on the drawings shall be verified in the field by the contractor.

8. The contractor shall provide a temporary platform to catch debris from slab removal. Do not allow resulting debris to accumulate in the work area. All debris shall be disposed of in a legal manner with as little disturbance to adjacent spaces and occupants as possible.

9. Cutting of existing concrete slabs shall be performed in a neat professional manner. Drill corners and saw cut straight lines around the perimeter of the new opening.

PRE-ENGINEERED METAL BUILDING NOTES:

1. The entire pre-engineered metal building system shall be designed by the metal building manufacturer in conformance to the provisions of the "Uniform Statewide Building Code" (IBC 2018, as amended by the state) 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.

2. It is the pre-engineered metal building manufacturer's responsibility to design the complete building system (steel framing, anchor bolts, purlins, girts, bracings, connections, roofing, wall panels, components, attachments, etc.). The manufacturer shall submit a certification letter bearing the seal of a professional engineer registered in Pennsylvania stating that the building system design meets the indicated code, performance and loading requirements.

3. The pre-engineered metal building manufacturer shall be certified by the American Institute of Steel Construction category MB. The manufacturer shall meet the "Exception" noted per IBC 2018, Section 1704.2.5.1, which specifies quality control requirements of the manufacturer pertaining to "Special Inspections".

4. The contractor shall submit shop drawings of the entire metal building system for review. The contractor shall also submit a complete structural design analysis of the building system (for record purposes only). The shop drawing submittal shall include all anchor bolt requirements and foundation reactions. All shop drawing and calculation submittals shall bear the seal of a professional engineer registered in PA. Refer to "Shop Drawing Notes" section for additional requirements.

5. Design loads to be used in connection with the metal building design are per the "Design Criteria Notes". In addition to the actual dead load, an additional collateral roof framing dead load of 5 PSF shall be included. Coordinate any equipment loads with the mechanical and architectural drawings. Pay particular attention to the code required wind loading requirements (wind exposure category, importance factor (I), etc.).

6. Calculations for frame deflections shall be done using only the bare frame method. Reductions based on engineering judgment using the assumed composite stiffness of the building envelope shall not be permitted. Drift shall follow AISC's "Serviceability Design Considerations for Low-Rise Buildings". Calculations shall be submitted verifying that the actual drift under code required loadings does not exceed the allowable.

7. The pre-engineered manufacturer shall provide all girts, purlins, and other components required for a complete system. All wall systems, such as metal studs, storefronts, etc. shall be properly supported by the metal building system. Allowable deflections of components shall be in accordance with IBC 2018.

8. The foundation design is based upon the "Butler" building system. The contractor shall be responsible for coordination of any revisions required as a result of a change in the building manufacturer, including redesign of the foundations.

9. The size, number and placement pattern of all anchor bolts shall be determined by the pre-engineered building manufacturer. Anchor bolt embedments are indicated on the drawings.

10. The pre-engineered metal building shall be designed by the manufacturer to resist lateral loads as follows:
Interior frame lines - Rigid frames (pinned-based columns)
Perimeter wall lines - Braced bays or portal frames

11. The metal building erector shall provide all temporary guying and bracing (see "General Structural Notes").

12. Unless otherwise noted or specified, all steel members shall be cleaned and painted in accordance with manufacturer's standard procedures.

13. The foundations have been designed for the reactions indicated. These are based on pinned column bases. No "fixed base" columns are permitted without the engineer's written approval.
Typ. Frame end column: 14.3k (down), 7.5k (uplift), 6.4k (horiz. DL + LL)
Typ. endwall column: 5.6k (down), 3.5k (uplift), 1.6k (horiz. DL + WL)

SUBGRADE PREPARATION NOTES:

1. All site preparation shall conform to the requirements of IBC 2018 Chapter 18 and geotechnical report prepared by Earth Engineering Inc dated December 21, 2023 (EEI Project No. 36677.00).

2. Within an area a minimum of 5 feet beyond the building limits, excavate a minimum of 4" of existing soil. Remove all organics, pavement, roots, debris and otherwise unsuitable material.

3. The surface of the exposed subgrade shall be inspected by probing or testing to check for pockets of soft or unsuitable material. Excavate unsuitable soil as directed by the geotechnical engineer/testing agency.

4. Proofroll the surface of the exposed subgrade with a steel drum roller with a minimum static weight of (10) tons. Remove all soils which pump or do not compact properly as directed by the geotechnical engineer/testing agency.

5. Fill all excavated areas with approved controlled fill. Place in 8 inch loose lifts compacted with a smooth drum vibratory roller with a minimum static weight of 10 tons, or 6 inch loose lifts where compaction by hand-operated equipment is necessary, and compact to a minimum of 98% of the maximum dry density in accordance with ASTM D-698 or 95% of the maximum dry density in accordance with ASTM D-1557.

6. All controlled fill material shall be a select granular material free from all organics or otherwise deleterious material with not more than 20% by weight passing a No. 200 sieve (classified as GW, GP, GM, SW, SP OR SM in accordance with the unified soil classification system) and with a plasticity index not exceeding 6%.

7. Provide field density tests for each 3,000 s.f. of building area for each lift of controlled fill.

FOUNDATION NOTES:

1. All foundation construction shall conform to the requirements of IBC 2018 Chapter 18 and geotechnical report prepared by Earth Engineering Inc dated December 21, 2023 (EEI Project No. 36677.00).

2. All footings have been designed based upon an assumed soil bearing pressure of 3,000 psf. All footings shall bear on undisturbed, firm natural soil or compacted fill. All foundation excavations shall be evaluated by the geotechnical engineer/testing agency prior to pouring foundation concrete.

3. Top of footing elevation shall be as shown on the foundation plan. These elevations are a maximum and shall be lowered as required to obtain the required design bearing pressure or lowered below new or existing utilities per typical details.

4. All foundation concrete shall obtain a 28 day compressive strength of 3,000 psi. All concrete to be permanently exposed to weather shall be air entrained to 5% (±1%) with an admixture that conforms to ASTM C-260.

5. All concrete work shall conform to the requirements of ACI 301, "Specification for Structural Concrete Buildings". Hot weather concreting shall be in accordance with ACI 305. Cold weather concreting shall be in accordance with ACI 306.

6. All reinforcing steel shall conform to ASTM A-615, Grade 60. Reinforcing shall be detailed and installed per ACI 315 and CRSI Manual of Standard Practice.

7. Unless otherwise noted, the following concrete cover shall be provided for reinforcement.
   A. Concrete cast against and permanently exposed to earth: 3"
   B. Concrete exposed to earth or weather:
      #6 through #18 bars: 2"
      #5 bar, W31 or D31 wire and smaller: 1-1/2"

8. All reinforcing marked continuous (cont.) on the plans and details shall be lapped 36xbar diameters at splices unless otherwise noted.

9. No unbalanced backfilling shall be placed against foundation walls unless walls are securely braced against overturning, either by temporary bracing or by permanent construction.

10. Prior to commencing any foundation work, coordinate work with any existing utilities. Foundations shall be lowered where required to avoid utilities.

11. Unless otherwise noted, the centerlines of column foundations shall be located on column centerlines.

12. All wall and column footings are to be side formed. Earth forms are not permitted.

SLAB ON GRADE NOTES:

1. Slab-on-grade construction shall conform to the requirements of ACI 301, "Specification for Structural Concrete Buildings" and IBC 2018 Section 1907 and geotechnical report prepared by Earth Engineering Inc dated December 21, 2023 (EEI Project No. 36677.00).

2. Provide concrete slabs as indicated on plans over a 15 mil polyethylene vapor barrier and 4" of porous fill as follows: 6" slab reinforced with 6x6- W2.9xW2.9 welded wire fabric and with 4000 psi mix concrete.
Maximum slump for all concrete slabs shall be 5 inches, using type I cement.

3. All welded wire fabric shall be in accordance with ASTM A-1064. Lap adjoining pieces at least one full mesh.

4. All porous fill material shall be a clean granular material with 100% passing a 1-1/2" sieve and no more than 5% passing a no. 4 sieve. Porous fill shall be compacted to 95% max. dry density per ASTM D-698.

5. Slab joints shall be filled with approved material. This should take place as late as possible, preferably 4 to 6 weeks after the slab has been cast. Prior to filling, remove all debris from the slab joints, then fill in accordance with the manufacturer's recommendations as follows:
6" slabs - fill with epoxy resin

6. Unless otherwise approved, all welded wire fabric shall be blocked into the position indicated with precast concrete blocks having a compressive strength equal to that of the slab.

7. Walkways and other exterior slabs are not indicated on the structural drawings. See the site plan and architectural drawings for locations, dimensions, elevations, jointing details and finish details. Provide 4" walks reinforced with 6x6 - W1.4xW1.4 WWF unless otherwise noted.

8. Slabs to be permanently exposed to weather shall be air entrained to 5% (±1%) with an admixture that conforms to ASTM C-260.

9. All concrete work shall conform to the requirements of ACI 301, "Specification for Structural Concrete Buildings". Hot weather concreting shall be in accordance with ACI 305. Cold weather concreting shall be in accordance with ACI 306.

10. In order to avoid concrete shrinkage cracking the maximum length of slab cast in any one continuous pour is recommended to be less than 100 feet. The maximum spacing of joints shall be 12'.

11. The alternate wires of the welded wire fabric must be precut at the slab contraction joint locations to create a "weakened plane". Without cutting the alternate wires, the strength of the wire will prevent the slab from cracking (separating) at the joint and the slab may begin to crack elsewhere.

12. The use of polypropylene fibers (in lieu of welded wire fabric) is prohibited without the written authorization of the engineer.

13. See the architectural drawings for exact locations of depressed slab areas and drains. Slope slab to drains where shown.

14. Slabs have been designed based on the following criteria:
Subgrade modulus, K=125 pci
Uniform live loading = 100 psf

15. The finish tolerance of all slabs shall be in accordance with ACI 302, Section 8.4.

16. Slabs shall be constructed in accordance with the following flatness/levelness requirements:

Slab Category	Specified	Local Minimum
Straight edged	F_F = 25 , F_L = 20	F_F = 17 , F_L = 15

Floor flatness and levelness tests shall be conducted by the owner in accordance with ASTM E 1155. Results, including acceptance or rejection of the work will be provided to the contractor within 48 hours after data collection. Remedies for out of tolerance work shall be in accordance with the specifications.

CAST-IN-PLACE CONCRETE NOTES:

1. Concrete mixes shall be designed per ACI 301, using Portland cement conforming to ASTM C-150 or C-595, aggregate conforming to ASTM C-33, and admixtures conforming to ASTM C-494, C-1017, C-618, C-989 and C-260. Concrete shall be ready-mixed in accordance with ASTM C-94.

2. Concrete shall conform to the following compressive strength, slump and water/cement ratio requirements:

Concrete	Min. f'c (28 days)	Slump*	W/C ratio
Concrete not noted	4000 psi	2" to 4"	.50
Foundation	See Fdn. Notes	2" to 4"	.50
Slabs-on-grade	See "Slab-on-Grade Notes"		.50

*At contractor's option, an approved admixture may be used to produce flowable concrete. Maximum slump shall not exceed 10 inches. The contractor shall submit test results of the proposed concrete mixes along with the manufacturer's technical data for approval prior to pouring concrete.

3. All concrete work shall conform to the requirements of ACI 301, "Specification for Structural Concrete Buildings" and IBC 2018 Chapter 19. Hot weather concreting shall be in accordance with ACI 305. Cold weather concreting shall be in accordance with ACI 306.

4. All reinforcing steel shall conform to ASTM A-615, grade 60. Reinforcing shall be detailed and installed per ACI 315 and CRSI Manual of Standard Practice.

5. All welded wire fabric (W.W.F.) shall conform to ASTM A-1064.

6. All reinforcing steel shall be set and tied in place prior to pouring of concrete, except that vertical dowels for masonry wall reinforcing may be "floated" in place. Do not field bend bars partially embedded in hardened concrete unless specifically indicated or approved by the engineer.

7. Reinforcing steel, including hooks and bends, shall be detailed in accordance with ACI 315. All reinforcing steel indicated as being continuous (cont) shall be lapped with a type 2 lap splice unless otherwise noted.

8. Unless otherwise noted, the following concrete cover shall be provided for reinforcement:
   A. Concrete exposed to earth or weather:
      #6 through #18 bars : 2"
      #5 bar, W31 or D31 wire and smaller : 1-1/2"
   B. Foundation concrete (see "Foundation Notes")

9. Bar supports and holding bars shall be provided for all reinforcing steel to insure minimum concrete cover. Bar supports shall be plastic tipped or stainless steel.

10. All edges of permanently exposed concrete surfaces shall be chamfered 3/4" unless otherwise noted.

11. In accordance with IBC 2018, special inspections are required for the concrete work. The owner will hire the special inspector to perform all required special inspections.

MASONRY NOTES:

1. Masonry construction shall conform to the requirements of the "Building Code Requirements and Specification for Masonry Structures (TMS 402/602-16)", published by The Masonry Society, Longmont, Colorado, and IBC 2018 Chapter 21.

2. Hollow load-bearing masonry units shall conform to ASTM C-90, and be made with normal weight aggregate. The minimum prism compressive strength (f'_m) shall be 2,500 psi at an age of 28 days, as determined by the unit strength method of ACI 530.1.

3. Fill all below grade and reinforced cells solidly with grout. Grout shall conform to ASTM C-476 and shall obtain a min. 28 day compressive strength of 2,500 psi.

4. Reinforcing steel shall be in accordance with ASTM A-615, grade 60. Shop fabricate reinforcing bars which are shown to be hooked or bent. Provide a minimum lap of 48 x bar diameters at all splices, unless indicated otherwise.

5. The use of masonry-cement mortar is strictly prohibited. Mortar shall conform to ASTM C-270, type S. All mortar shall meet the "Proportion Specification" of ASTM C-270 and be made with Portland cement/lime (non air-entrained).

6. Unless otherwise indicated, all walls shall be laid in running bond. Bond corners and intersections of load-bearing walls.

7. Provide vertical reinforcing bars of the given size and spacing as indicated. Provide bars at all wall corners, intersections and opening edges. Masonry walls shall be constructed in accordance with the "low-lift" or "high-lift" methods. "High-lift" masonry construction is limited to specially qualified contractors meeting the following minimum requirements:
   A. Successful completion of at least 3 previous projects that utilized "high-lift" wall construction.
   B. Contractor shall submit a detailed "high-lift" wall construction procedure for approval, including the documentation of all personnel who have successfully been trained in "high-lift" masonry construction.

8. Provide rebar dowels from foundations to match vertical reinforcing size and spacing. Dowels shall have standard 90 degree hooks and lap with the first lift of reinforcing.

9. Provide standard, galvanized 9 gauge horizontal joint reinforcing at 16" on center in all walls. Provide ladder type joints reinforcing for all concrete masonry. Unless otherwise noted, stop all horizontal joint reinforcing at control joints.

10. Provide CMU control joints as indicated on the architectural drawings, with additional joints such that the spacing between joints does not exceed a spacing of 3 x wall height (30 feet maximum). Where beams or lintels bear at CMU control joints, offset and lap the vertical reinforcing as indicated.

11. The masonry contractor shall provide all required temporary wall bracing during construction (see "General Structural Notes").

12. Hot weather masonry work shall be in accordance with ACI 530.1. Cold weather masonry work shall be in accordance with ACI 530.1.

ABBREVIATIONS

@	AT
ø	DIAMETER
2X	TWO BY
(4)	QUANTITY OF 4
A.B.	ANCHOR BOLT
A.P.	ANCHOR POINT
ADD'L.	ADDITIONAL
ADJ.	ADJACENT
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL.	ALUMINUM
ARCH.	ARCHITECT/ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING & MATERIALS
AWS	AMERICAN WELDING SOCIETY
BCX	BOTTOM CHORD EXTENSION
BEL.	BELOW
BLKG.	BLOCKING
BM.	BEAM
BOT.	BOTTOM
B.O.	BOTTOM OF
BTWN.	BETWEEN
C	CHANNEL
CFSF	COLD-FORMED STEEL FRAMING
CL	CENTER/COLUMN LINE
CLR.	CLEAR
C.J.	CONTROL/CONSTRUCTION JOINT
CMU	CONCRETE MASONRY UNIT
COL.	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONT.	CONTINUOUS
CONTR.	CONTRACTOR
COORD.	COORDINATE
DBL.	DOUBLE
DET.	DETAIL
DN.	DOWN
DWL.	DOWEL
DWG.	DRAWING
EA.	EACH
E.F.	EACH FACE
ELEV.	ELEVATION
EQ.	EQUAL
E.S.	EACH SIDE
E.W.	EACH WAY
EX.	EXISTING
EXP.	EXPANSION
FLG.	FLANGE
FLR.	FLOOR
FDN.	FOUNDATION
F.O.	FACE OF
F.S.	FAR SIDE
FTG.	FOOTING
GALV.	GALVANIZED
G.C.	GENERAL CONTRACTOR
HK.	HOOK
HGR.	HANGER
HSS	HOLLOW STRUCTURAL SECTION
HORIZ.	HORIZONTAL
HT.	HEIGHT
INT.	INTERIOR
JST.	JOIST
JT.	JOINT
K	KIPS
L	ANGLE
(LLH)	LONG LEG HORIZONTAL
(LLV)	LONG LEG VERTICAL
LOC.	LOCATION
LG.	LONG
L.R.F.D.	LOAD & RESISTANCE FACTOR DESIGN
LSL	LAMINATED STRAND LUMBER
LVL	LAMINATED VENEER LUMBER
M.A.	MASONRY ANCHOR
MAX.	MAXIMUM
MIN.	MINIMUM/MINIMIZE
MANF.	MANUFACTURER
MECH.	MECHANICAL
M.O.	MASONRY OPENING
MTL.	METAL
(N)	NEW
N.S.	NEAR SIDE
N.S.G.	NON-SHRINK GROUT
O.C.	ON CENTER
OPN'G.	OPENING
OPP.	OPPOSITE
P.C.	PRE-CAST
PL.	PLATE
PLYWD.	PLYWOOD
PMF	PRE-MOLDED FILLER
PSL	PARALLEL STRAND LUMBER
P.T.	PRESSURE TREATED
R/C	REINFORCED CONCRETE
REINF.	REINFORCING
REQ'D.	REQUIRED
RTU	ROOF TOP UNIT
SCH.	SCHEDULE
SECT.	SECTION
SF	STRIP FOOTING
SHT'G.	SHEATHING
SIM.	SIMILAR
SL	SLOPE
S.O.G.	SLAB-ON-GRADE
S.S.	STAINLESS STEEL
STL.	STEEL
SQ.	SQUARE
T&B	TOP AND BOTTOM
TCX	TOP CHORD EXTENSION
THK.	THICK
TJI	TRUSS JOIST I-SHAPED JOISTS
T.O.	TOP OF
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
V.L.D.	VERTICAL LEG DOWN
V.I.F.	VERIFY IN FIELD
WD.	WOOD
W/	WITH
W/O	WITHOUT
W.P.	WORK POINT
W.R.T.	WITH RESPECT TO
W.W.F.	WELDED WIRE FABRIC
WF	WIDE FLANGE BEAM
W	WIDE FLANGE BEAM
X	CROSS

STRUCTURAL DRAWING LIST

SYMBOL KEY

CMU, BRICK, CONCRETE, WOOD ELEVATION, WOOD SECTION, STEEL, GRATING, EARTH, CRUSHED STONE/ BUILDING STONE, ENGINEERED WOOD PRODUCT

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SEAL:

CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES
DATE: DESCRIPTION:
02-19-2024 BID DOCUMENTS
02-19-2024 PERMIT SET

PROJ # : MM2324 DRAWN BY : RK

SHEET TITLE:
GENERAL STRUCTURAL NOTES

SHEET NUMBER:
S-0.0

BID DOCUMENTS

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GENERAL STRUCTURAL NOTES

METAL GUARDRAIL NOTES:

1. Engineer, fabricate, and install handrails and railing systems to comply with requirements of ASTM A-985 for structural performance based on the following:
   A. Testing performed according to ASTM A-894 and E 935.
   B. Structural computations.

2. Railing System and Handrail Design Live Loads: Engineer, fabricate, and install handrails and railing system to withstand the following structural loads without exceeding the allowable design working stress of the materials involved, including anchors and connections. Apply each load to produce the maximum stress in each oft the respective components of each metal fabrication.
   A. Top Rail of Guardrail System: Capable of withstanding the following loads applied as indicated:
      1. Concentrated load of 200 lbs applied at any point and in any direction.
      2. Uniform load of 50 lbs per linear foot applied in any direction.
      3. Concentrated and uniform loads above need not be assumed to act concurrently.
   B. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated.
      1. Concentrated load of 200 lbs applied at any point and in any direction.
      2. Uniform load of 50 lbs per linear foot applied in any direction.
      3. Concentrated and uniform loads above need not to be assumed to act concurrently.
   C. Infill Area of Guardrail Systems: Capable of withstanding a horizontal concentrated load of 50 lbs applied to one sq. ft. at any point on the system including panels, intermediate rails, balusters, or other elements composing the infill area.
      1. Above load need not be assumed to act concurrently with loads on top rails of railing system in determining stress on guard.

3. Submit Shop drawings detailing fabrication and installation of metal guardrails. Include plans, elevations, sections, and details of steel stair and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other sections. Refer to "Shop Drawing Notes" section for additional requirements.
   A. For installed metal guardrail indicated to comply with certain design loadings, include structural analysis data sealed and signed by the qualified professional engineer who was responsible for their preparation.

4. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code-Steel" and AWS D1.3 "Structural Welding Code-Sheet Steel."
   A. Certify that each welder has satisfactorily passed AWS qualification tests for welding processed involved and, if pertinent, has undergone recertification.

POST-INSTALLED ANCHOR NOTES:

1. Except where indicated on the drawings, post-installed anchors shall consist of the following anchor types as provided by HILTI, Inc. Contact HILTI at (800) 879-8000 for product related questions.
   A. Anchorage to concrete
      1. Adhesive anchors for cracked and uncracked concrete use:
         A. Adhesives for use:
            1. HILTI HIT-HY 200v3 safe set system with HILTI HIT-Z rod per ICC ESR-3187
            2. HILTI HIT-HY 200v3 safe set system with HILTI hollow drill bit and vacuum with has threaded rod per ICC ESR-3187
         B. Steel elements for use with adhesive:
            1. HILTI HAS-V-36 grade 36 carbon steel rod
      2. Basis of design includes the following design parameters:
         A. Cracked concrete
         B. Water-saturated concrete
         C. Base material temperature of 23-104 degrees Fahrenheit
         D. Allowable with hammer-drill, hollow drill bit system, and core drilling methods
   B. Rebar doweling into concrete
      1. Adhesive anchors for cracked and uncracked concrete use:
         A. HILTI HIT-HY 200v3 safe set system with HILTI hollow drill bit and vacuum with continuously deformed rebar per ICC ESR-318
      2. Basis of design includes the following design parameters:
         A. Cracked concrete
         B. Water-saturated concrete
         C. Base material temperature of 23-104 degrees Fahrenheit
         D. Allowable with hammer-drill, hollow drill bit system, and core drilling methods
         E. Current ICC-ES report with approval for development of bar using ACI provisions for embedment depths greater than 20 bar diameters
   C. Anchorage to solid grouted masonry
      1. Adhesive anchors use:
         A. HILTI HIT-HY 270 safe set system with HILTI hollow drill bit and vacuum per ICC ESR-4143
         B. Steel anchor element shall be HILTI has continuously threaded rod or continuously deformed steel rebar
      2. Mechanical anchors use:
         A. HILTI KWIK BOLT-1 expansion anchor per ICC ER-677
         B. HILTI KWIK BOLT-TZ2 expansion anchor per ICC ESR-4561
         C. HILTI KH-EZ, KH-EZ CRC, KH-EZ SS316, KH-EZ C, AND KH-EZ P screw anchors per ICC ESR-3056

2. Anchor capacity used in design shall be based on the technical data published by HILTI or other such method as approved by the structural engineer of record. Substitution requests for alternate products must be approved in writing by the structural engineer of record prior to use. Contractor shall provide calculations that have been sealed by another licensed engineer demonstrating that the substituted product is capable of meeting the performance of the specified product. Substitutions will be evaluated by their having an ICC ESR showing compliance with the relevant building code for seismic uses, load resistance, installation category, and availability of comprehensive installation instructions. Adhesive anchor evaluation will also consider creep, in-service temperature, installation temperature, moisture condition of concrete, and drilling methods.

3. Use of diamond core bit with roughening tool for anchor holes requires approval from engineer of record prior to drilling. Unless otherwise shown in the drawings, all holes shall be drilled perpendicular to the concrete surface.

4. Install anchors per the manufacturer's printed installation instructions, as included in the anchor packaging.

5. The contractor shall arrange an anchor manufacturer's representative to provide onsite installation training for all anchor products specified. The structural engineer of record must receive documented confirmation that all personnel who install anchors are trained prior to the commencement of anchor installation.

6. Anchor capacity is dependent upon spacing between adjacent anchors and proximity of anchors to edge of concrete. Install anchors in accordance with spacing and edge clearances indicated on the drawings.

REQUIRED SPECIAL INSPECTIONS FOR MASONRY CONSTRUCTION:
IBC 2018 1705.4 & TMS 402/ACI 520/ASCE5 & TMS 602/ACI 530.1/ASCE 6

TABLE 3.1.2 – LEVEL B QUALITY ASSURANCE

MINIMUM TESTS

VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.5 B.1.b.3 FOR SELF CONSOLIDATING GROUT

VERIFICATION OF f'_m AND f'_{AAC} IN ACCORDANCE WITH SPECIFICATION ARTICLE 1.4 B PRIOR TO CONSTRUCTION, EXCEPT WHERE SPECIFICALLY EXEMPTED BY THIS CODE

INSPECTION TASKS	MINIMUM SPECIAL INSPECTION FREQUENCY (a)		REFERENCE FOR CRITERIA	
	CONTINUOUS	PERIODIC	TMS 402/ACI 530/ ASCE 5	TMS 602/ACI 530.1/ ASCE 6
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS		X		Art. 1.5
2. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. PROPORTIOINS OF SITE-PREPARED MORTAR		X		Art. 2.1, 2.6 A
B. CONSTRUCTION OF MORTAR JOINTS		X		Art. 3.3 B
C. LOCATION OF REINFORCEMENT, CONNECTORS, AND ANCHORAGES		X		Art. 3.4 B, 3.6 A
3. PRIOR TO GROUTING, VERIFY THE FOLLOWING ARE IN COMPLIANCE:				
A. GROUT SPACE		X		Art. 3.2 D, 3.2 F
B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS		X	SEC. 6.1	Art. 2.4, 3.4
C. PLACEMENT OF REINFORCEMENT, CONNECTORS, AND ANCHORS		X	SEC. 6.1, 6.2.1, 6.2.6, 6.2.7	Art. 3.2 E, 3.4, 3.6 A
D. PROPORTIONS OF SITE-PREPARED GROUT		X		Art. 2.6 B, 2.4 G.1.b
E. CONSTRUCTION OF MORTAR JOINTS		X		Art. 3.3 B
4. VERIFY DURING CONSTRUCTION				
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS		X		Art. 3.3 F
B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION		X	SEC. 1.2.1 (e), 6.1.4.3, 6.2.1	
C. WELDING OF REINFORCEMENT	X		SEC. 8.1.6.7.2, 9.3.3.4 (c), 11.3.3.4 (b)	
D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F (4.4°C)) OR HOT WEATHER (TEMPERATURE ABOVE 90°F (32.2°C))		X		Art. 1.8 C, 1.8 D
E. PLACEMENT OF GROUT IS IN COMPLIANCE	X			Art. 3.5, 3.6 C
5. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		X		Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

(a) FREQUENCY REFERS TO THE FREQUENCY OF SPECIAL INSPECTION, WHICH MAY BE CONTINUOUS DURING THE TASK LISTED OR PERIODIC DURING THE LISTED TASK, AS DEFINED IN THE TABLE.

FOOTING SCHEDULE

MARK	SIZE	REINFORCEMENT	COMMENTS
F5.0	5'-0" x 5'-0" x 1'-0"	(6) #6 E.W. T&B	COL. FTG.
F6.25	6'-3" x 6'-3" x 1'-0"	(7) #6 E.W T&B	COL. FTG.
F6.75	6'-9" x 6'-9" x 1'-0"	(7) #6 E.W T&B	COL. FTG.
SF-24	CONT. 2'-0" x 1'-0"	(3) #5 LONG. & #5 @ 48" O.C. TRANSV.	CONT. FTG.

NOTE: RUN CONTINUOUS WALL FTG. REINF. THROUGH COLUMN FTGS

PIER SCHEDULE

MARK	SIZE	REINFORCEMENT	COMMENTS
P1	2'-6" x 2'-0"	(8) #8 VERT. W/ #4 TIES @ 12" O.C.	SEE DETAIL G/S-2.0
P2	2'-0" x 2'-0"	(8) #8 VERT. W/ #4 TIES @ 12" O.C.	SEE DETAIL G/S-2.0

NOTE: PROVIDE (2) ADD'L TIES @ T.O. PIER

REQUIRED SPECIAL INSPECTIONS FOR STRUCTURAL STEEL:
IBC 2018 1705.2.1 & AISC 360-16

TABLE N5.4-2
INSPECTION TASKS DURING WELDING

INSPECTION TASKS DURING WELDING	QC	QA
USE QUALIFIED WELDERS	O	O
CONTROL AND HANDLING OF WELDING CONSUMABLES - PACKAGING - EXPOSURE CONTROL	O	O
NO WELDING OVER CRACKED TACK WELDS	O	O
ENVIRONMENTAL CONDITIONS - WIND SPEED WITHIN LIMITS - PRECIPITATION AND TEMPERATURE	O	O
WPS FOLLOWED - SETTINGS ON WELDING EQUIPMENT - TRAVEL SPEED - SELECTING WELDING MATERIALS - SHIELDING GAD TYPE/FLOW RATE - PREHEAD APPLIED - INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.) - PROPER POSITION (F, V, H, OH)	O	O
WELDING TECHNIQUES - INTERPASS AND FINAL CLEANING - EACH PASS WITHIN PROFILE LIMITATIONS - EACH PASS MEETS QUALITY REQUIREMENTS	O	O

FOR STRUCTURAL STEEL, ALL PROVISIONS OF AWS D1.1/D1.1M *STRUCTURAL WELDING CODE-STEEL* FOR *STATICALLY LOADED STRUCTURES* SHALL APPLY.

REQUIRED SPECIAL INSPECTIONS FOR STRUCTURAL STEEL:
IBC 2018 1705.2.1 & AISC 360-16

TABLE N5.4-3
INSPECTION TASKS AFTER WELDING

INSPECTION TASKS AFTER WELDING	QC	QA
WELDS CLEANED	O	O
SIZE, LENGTH AND LOCATION OF WELDS	P	P
WELDS MEET VISUAL ACCEPTANCE CRITERIA - CRACK PROHIBITION - WELD/BASE-METAL FUSION - CRATER CROSS SECTION - WEKD PROFILES - WELD SIZE - UNDERCUT - POROSITY	P	P
ARC STRIKES	P	P
k-AREA[1]	P	P
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P
REPAIR ACTIVITIES	P	P
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P

[1] WHEN WELDING OF DOUBLE PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN (77 MM) OF THE WELD.

FOR STRUCTURAL STEEL, ALL PROVISIONS OF AWS D1.1/D1.1M *STRUCTURAL WELDING CODE-STEEL* FOR *STATICALLY LOADED STRUCTURES* SHALL APPLY.

REQUIRED SPECIAL INSPECTIONS FOR STRUCTURAL STEEL:
IBC 2018 1705.2.1 & AISC 360-16

TABLE N5.6-1
INSPECTION TASKS PRIOR TO BOLTING

INSPECTION TASKS PRIOR TO BOLTING	QC	QA
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O

REQUIRED SPECIAL INSPECTIONS FOR STRUCTURAL STEEL:
IBC 2018 1705.2.1 & AISC 360-16

TABLE N5.6-2
INSPECTION TASKS DURING BOLTING

INSPECTION TASKS PRIOR TO BOLTING	QC	QA
FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	O	O
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES.	O	O

REQUIRED SPECIAL INSPECTIONS FOR STRUCTURAL STEEL:
IBC 2018 1705.2.1 & AISC 360-16

TABLE N5.6-3
INSPECTION TASKS AFTER BOLTING

INSPECTION TASKS PRIOR TO BOLTING	QC	QA
DOCUMENT APPECTANCE OR REJECTION OF BOLT CONNECTIONS	P	P

STRUCTURAL STEEL NOTES:
1. *QUALITY CONTROL* (QC) – SHALL BE PROVIDED BY THE FABRICATOR OR ERECTOR
2. *QUALITY ASSURANCE* (QA) – SHALL BE PROVIDED BY OTHERS WHEN REQUIRED BY THE *AUTHORITY HAVING JURISDICTION* (AHJ), *APPLICABLE BULDING CODE* (ABC), PURCHASER, OWNER, OR *ENGINEER OF RECORD* (EOR).
3. O – OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS
4. P – PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER, EACH BOLTED CONNECTION, AND/OR EACH STEEL ELEMENT.

SCHEDULE OF SPECIAL INSPECTIONS:

SPECIAL INSPECTIONS SHALL BE PROVIDED IN ACCORDANCE WITH THE TABLE(S) BELOW.

REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS:
IBC 2018 TABLE 1705.6 & GEOTECHNICAL REPORT

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	—	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	—	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	—	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	—
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	—	X

REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION:
IBC 2018 TABLE 1705.3

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1. INSPECT REINFORCEMENT AND VERIFY PLACEMENT.	—	X	ACI 318 CH. 20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING: A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; B. INSPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND C. INSPECT ALL OTHER WELDS.	— — X	X X —	AWS D1.4 ACI 318: 26.6.4	—
3. INSPECT ANCHORS CAST IN CONCRETE.	—	X	ACI 318: 17.8.2	—
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS. A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS. B. MECHANICAL ANCHORS AND ADHESIVE ANCHORS NOT DEFINED IN 4.A.	X —	— X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	—
5. VERIFY USE OF REQUIRED DESIGN MIX.	—	X	ACI 318: CH. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	—	ASTM C172 ASTM C31 ACI 318: 26.5, 26.12	1908.10
7. INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	—	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	—	X	ACI 318: 26.5.3-26.5.5	1908.9
9. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	—	X	ACI 318: 26.11.1.2(b)	—

REQUIRED SPECIAL INSPECTIONS FOR STRUCTURAL STEEL:
IBC 2018 1705.2.1 & AISC 360-16

TABLE N5.4-1
INSPECTION TASKS PRIOR TO WELDING

INSPECTION TASKS PRIOR TO WELDING	QC	QA
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	O
WPS AVAILABLE	P	P
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O
WELDER IDENTIFICATION SYSTEM [1]	O	O
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) - JOINT PENETRATIONS - DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) - CLEANLINESS (CONDITION OF STEEL SURFACES) - TACKING (TACK WELD QUALITY AND LOCATION) - BACKING TYPE AND FIT (IF APPLICABLE)	O	O
FIT-UP OF CJP GROOVE WELDS OF HSS T-, Y- AND K-JOINTS WITHOUT BACKING (INCLUDING JOINT GEOMETRY) - JOINT PENETRATIONS - DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) - CLEANLINESS (CONDITION OF STEEL SURFACES) - TACKING (TACK WELD QUALITY AND LOCATION)	P	O
CONFIGURATION AND FINISH OF ACCESS HOLES	O	O
FIT-UP OF FILLET WELDS - DIMENSIONS (ALIGNMENT, GAPS AT ROOT) - CLEANLINESS (CONDITION OF STEEL SURFACES) - TACKING (TACK WELD QUALITY AND LOCATION	O	O
CHECK WELDING EQUIPMENT	O	—

[1] THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE

FOR STRUCTURAL STEEL, ALL PROVISIONS OF AWS D1.1/D1.1M *STRUCTURAL WELDING CODE-STEEL* FOR *STATICALLY LOADED STRUCTURES* SHALL APPLY.

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CONSTRUCTION OF
MORTON ANNEX ADDITION
AND SITE REPAIRS
DELAWARE COUNTY
INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES
DATE: DESCRIPTION:
02-19-2024 BID DOCUMENTS
02-19-2024 PERMIT SET

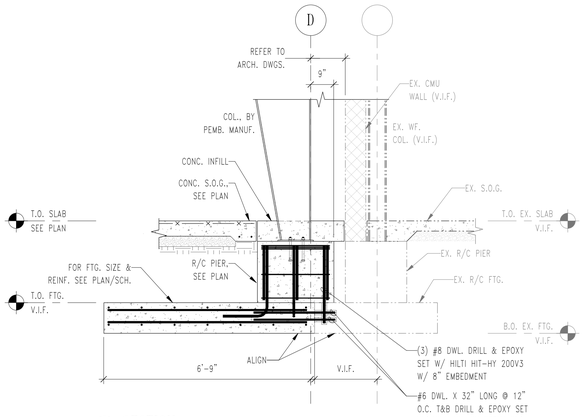
PROJ # : MM2324 DRAWN BY : RK

SHEET TITLE:
GENERAL STRUCTURAL NOTES AND SCHEDULES

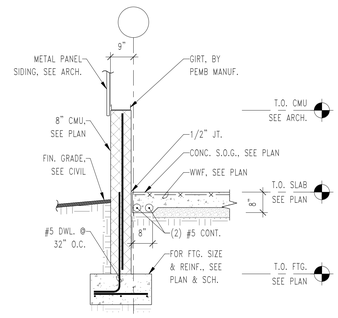
SHEET NUMBER:
S-0.1

BID DOCUMENTS

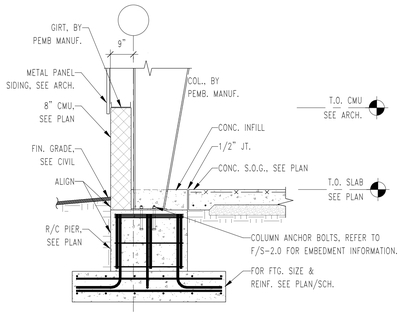
2/16/2024 3:49:12 PM



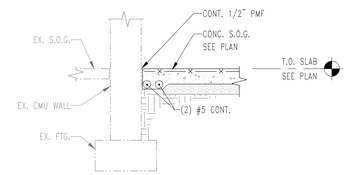
6 / S-1.0 SECTION
SCALE: 1/2" = 1'-0"



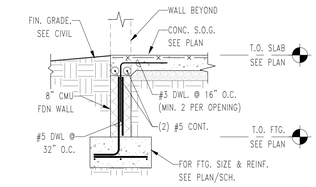
2 / S-1.0 SECTION
SCALE: 1/2" = 1'-0"



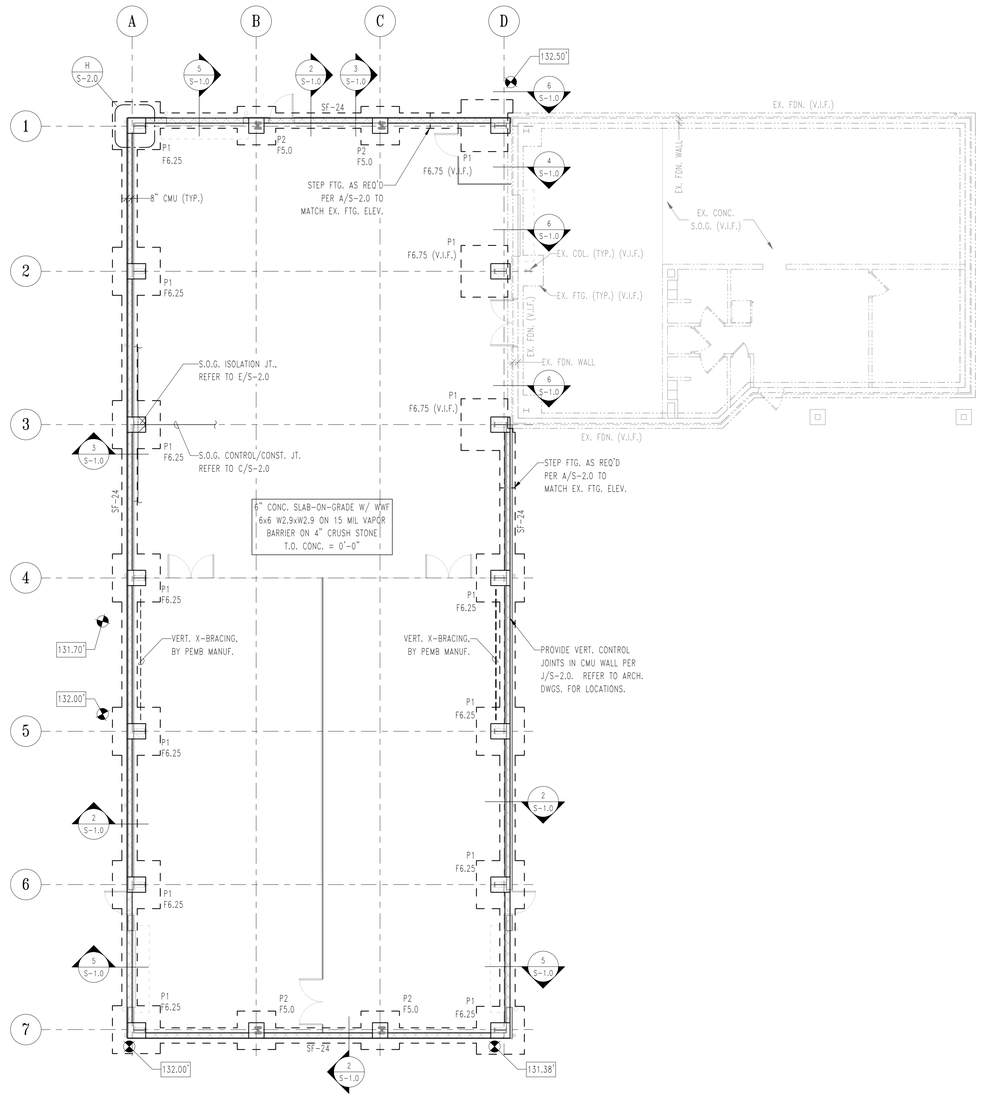
3 / S-1.0 SECTION
SCALE: 1/2" = 1'-0"



4 / S-1.0 TYPICAL S.O.G ADJACENT TO EX. WALL
SCALE: 1/2" = 1'-0"



5 / S-1.0 SECTION (TYPICAL @ DOORS)
SCALE: 1/2" = 1'-0"



1 / S-1.0 FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

FOUNDATION PLAN NOTES

1. REFERENCE FINISH SLAB ELEVATION = 0'-0" TO MATCH EXISTING (DATUM ELEV. 132.15') U.N.O. ON PLAN.
2. (#'-#") INDICATES TOP OF FOOTING ELEVATION. TOP OF FOOTING ELEVATION = -2'-8" W.R.T. REF. ELEVATION 0'-0" U.N.O. ON PLAN.
3. FOUNDATION MEMBERS ARE DESIGNATED AS FOLLOWS:
   F#.# FOOTING MARK (SEE FOOTING SCHEDULE ON S-0.1)
   P# PIER MARK (SEE PIER SCHEDULE ON S-0.1)
4. TOP OF PIER ELEVATION -8" W.R.T. REF. ELEVATION 0'-0" U.N.O. ON PLAN.
5. COORDINATE WITH ARCH, MECH, ELEC, AND PLUMBING DRAWINGS FOR FLOOR SLOPES, DRAINS, OPENINGS, DEPRESSIONS, ETC., NOT SHOWN ON THIS PLAN.
6. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT INDICATED.
7. FOR GENERAL STRUCTURAL NOTES, REFER TO S-0.0
8. REFER TO TYPICAL FOUNDATION DETAILS ON DRAWING S-2.0
9. ALL WALL FOOTINGS SHALL BE INSTALLED CENTERED ON FOUNDATION WALL U.N.O.
10. TYPICAL MASONRY WALL REINFORCING = #5 @ 32" O.C., GROUT REINFORCED CORES AND ALL CMU BELOW GRADE SOLID. PROVIDE FOOTING DOWELS TO MATCH SIZE & SPACING OF WALL REINFORCING.
11. G.C. TO SUBMIT C.J. LAYOUT FOR APPROVAL FOR SLAB ON GRADE WORK. REFER TO TYPICAL DETAILS ON S-2.0 AND NOTES FOR PREPARATION OF LAYOUT.
12. REFER TO SITE/CIVIL DRAWINGS FOR EXTERIOR SITE GRADES. THIS FOUNDATION PLAN PREPARED ACCORDING TO GRADING PLAN PREPARED BY G.D. HOUTMAN & SON, INC., DATED OCT. 26, 2023. FOUNDATION DESIGN MAY CHANGE BASED ON FINAL SITE/CIVIL DRAWINGS.
13. EXISTING CONSTRUCTION SHOWN THUS, ——— - - - ———, TO BE FIELD VERIFIED BY GENERAL CONTRACTOR PRIOR TO DETAILING, FABRICATION, AND CONSTRUCTION. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO THE START OF WORK.

MAROTTA/MAIN ARCHITECTS
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CONSTRUCTION OF
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ISSUE DATES	DESCRIPTION:
DATE:	
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ # : MM2324 DRAWN BY : RK

SHEET TITLE:

FOUNDATION PLAN

SHEET NUMBER:

S-1.0

BID DOCUMENTS

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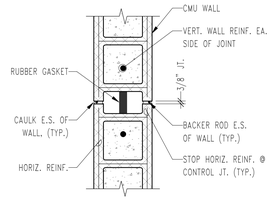
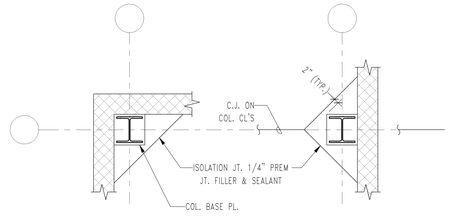


NOTES:
1. REFER TO GENERAL NOTES & ARCH. DWGS. FOR SPACING REQUIREMENTS
2. A KEYED CMU MAY BE USED IN LIEU OF RUBBER GASKET SHOWN.

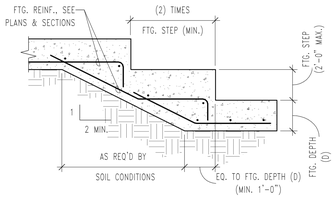
J / S-2.0 TYPICAL CMU WALL CONTROL JOINT
SCALE: N.T.S.



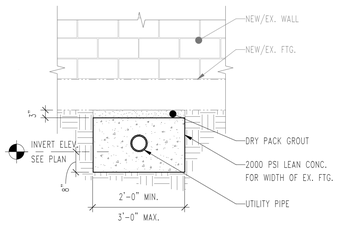
CORNER COLUMN EXTERIOR COLUMN

NOTES:
1. PROTECT ISOLATION DIAMOND AREA FROM WATER INTRUSION PRIOR TO PLACEMENT OF CONCRETE DIAMOND.
2. POUR CONCRETE WITHIN ISOLATION JOINT DOWN TO TOP OF PIER OR FOOTING AFTER COLUMN AND SLAB ARE INSTALLED.
3. ISOLATION JOINT SIMILAR AT PERIMETER COLUMNS.

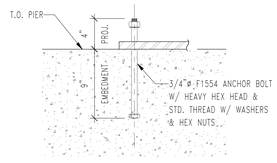
E / S-2.0 TYPICAL S.O.G. ISOLATION JOINT
SCALE: N.T.S.



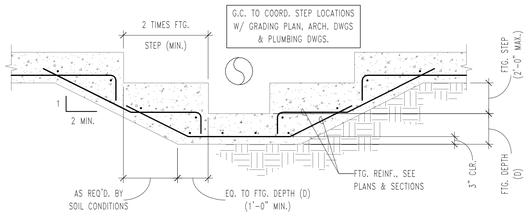
A / S-2.0 TYPICAL STEP FOOTING
SCALE: N.T.S.



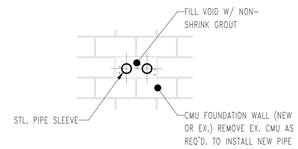
K / S-2.0 TYPICAL UTILITY UNDER EX. WALL
SCALE: N.T.S.



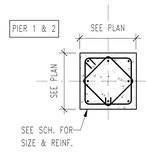
F / S-2.0 TYPICAL COLUMN ANCHOR BOLT
SCALE: N.T.S.



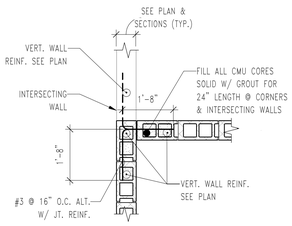
B / S-2.0 TYPICAL STEP FOOTING AT UTILITY
SCALE: N.T.S.



L / S-2.0 TYPICAL UTILITY THROUGH EX. WALL
SCALE: N.T.S.

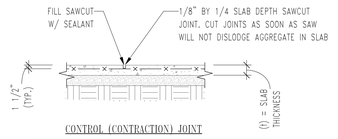


G / S-2.0 TYPICAL PIER REINFORCEMENT
SCALE: N.T.S.



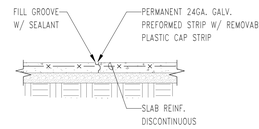
WALL SECTION @ CORNER/INTERSECTION

H / S-2.0 TYPICAL CMU WALL CORNER & INTERSECTION REINF.
SCALE: N.T.S.



CONTROL (CONTRACTION) JOINT

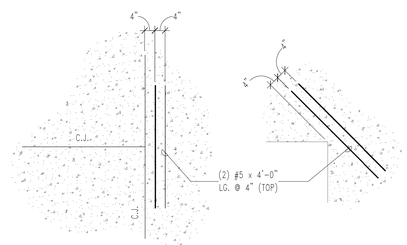
NOTE:
PROVIDE CONTROL JOINTS @ 36 TIMES (t) (12'-0"O.C. MAX.)



CONSTRUCTION JOINT

NOTE:
CONTRACTOR TO ADEQUATELY BRACE PREFORMED STRIP TO MAINTAIN STRAIGHT ALIGNMENT OF SCREED

C / S-2.0 TYPICAL S.O.G. CONTROL & CONST.
SCALE: N.T.S.



DISCONTINUOUS JOINT RE-ENTRANT CORNER

D / S-2.0 TYPICAL S.O.G. CRACK CONTROL
SCALE: N.T.S.

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SEAL:

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CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY
INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES

DESCRIPTION:	DATE:
BID DOCUMENTS	02-19-2024
PERMIT SET	02-19-2024

PROJ # : MM2324 DRAWN BY : RK

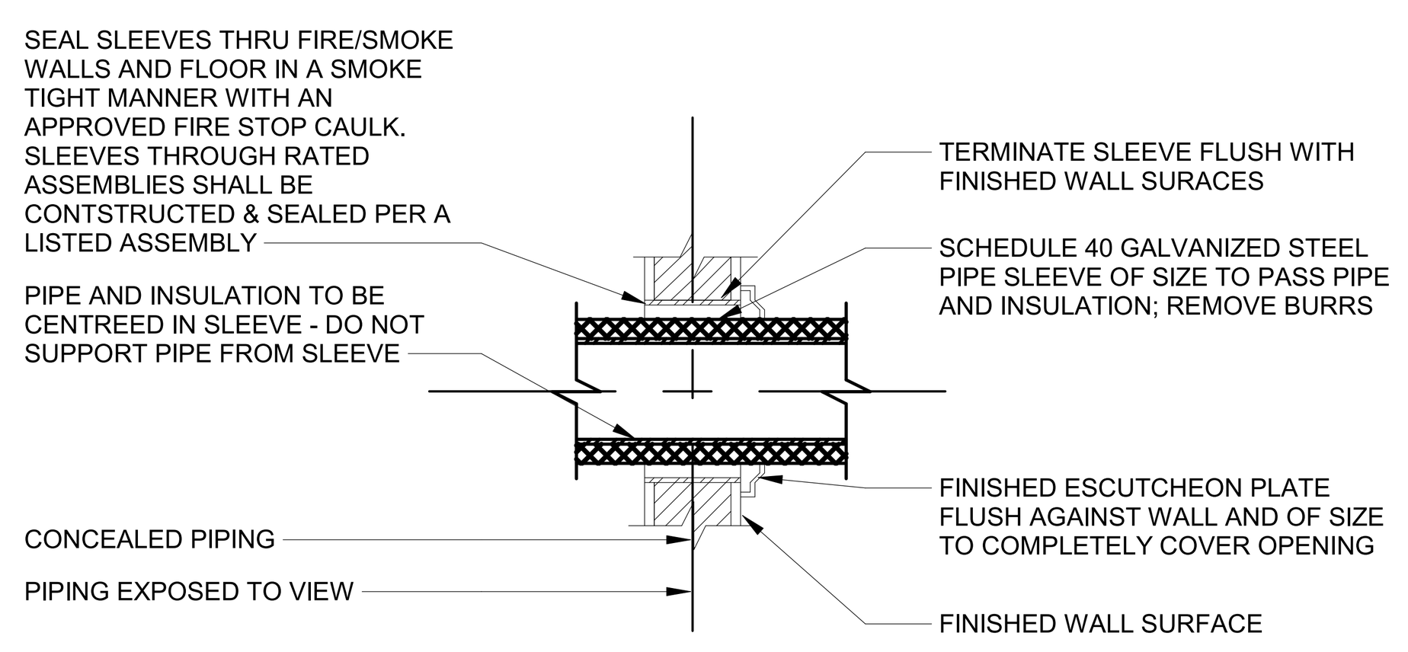
SHEET TITLE:

TYPICAL DETAILS

SHEET NUMBER:

S-2.0

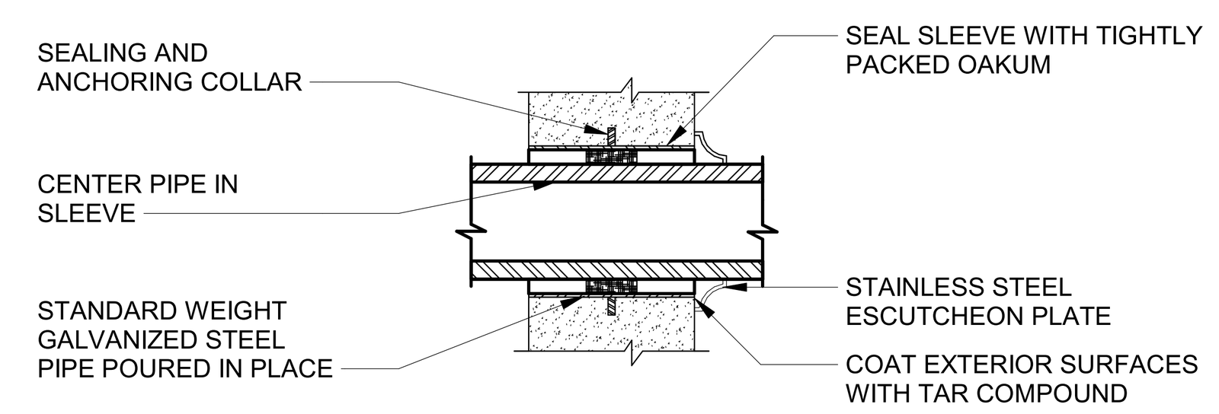
BID DOCUMENTS



NOTE:
FOR INTERIOR FRAME PARTITIONS-PIPE SLEEVES MAY BE FABRICATED FROM GALVANIZED SHEET METAL; ROUND TUBE CLOSED WITH SNAPLOCK JOINT, WELDED SPIRAL SEAMS, OR WELDED LONGITUDINAL JOINT. FABRICATE FROM THE FOLLOWING GAUGES: 3" AND SMALLER, 20 GAUGE; 4" TO 6", 16 GAUGE; OVER 6", 14 GAUGE.

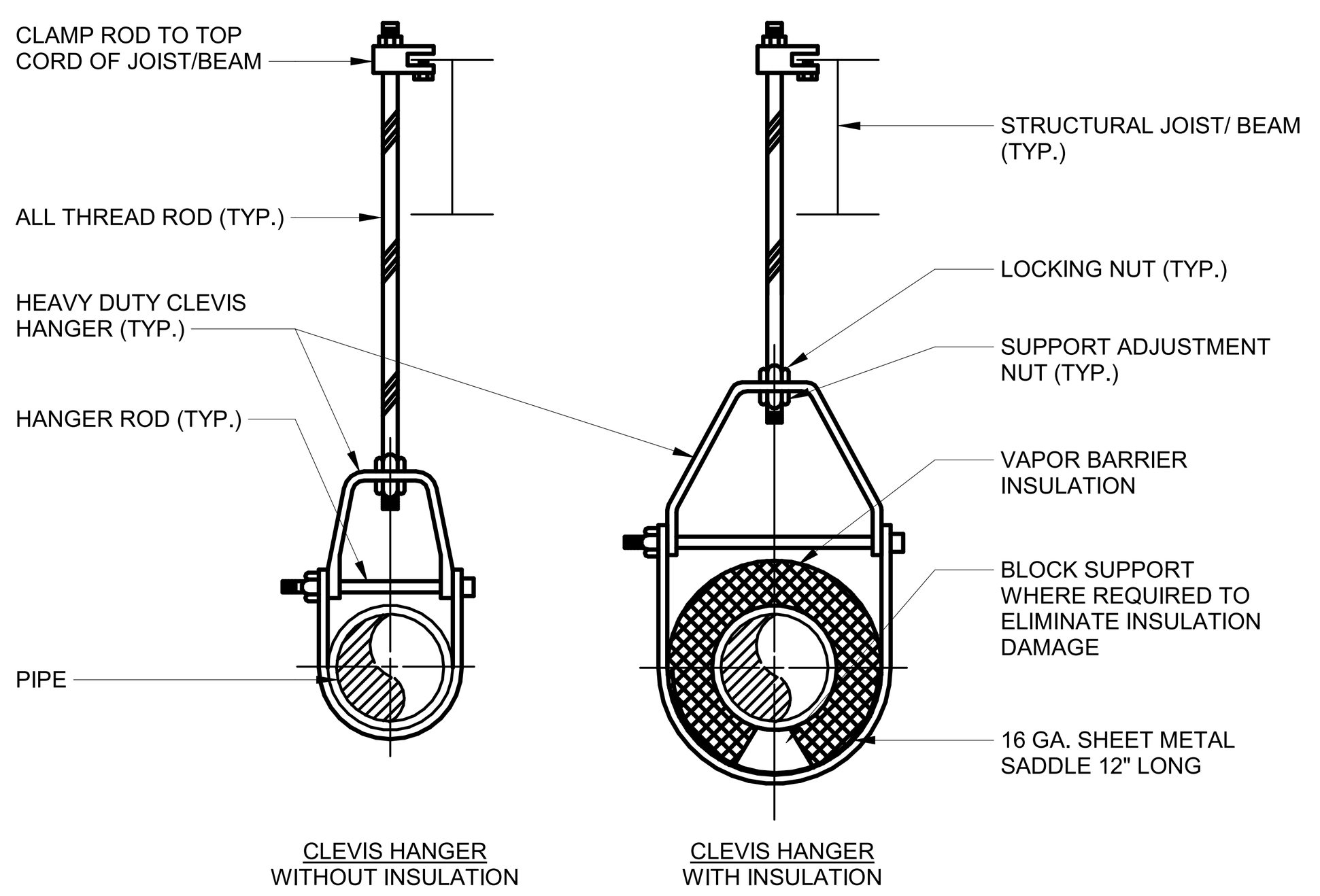
TYPICAL PIPE SLEEVE THRU INTERNAL WALL DETAIL

SCALE: NONE



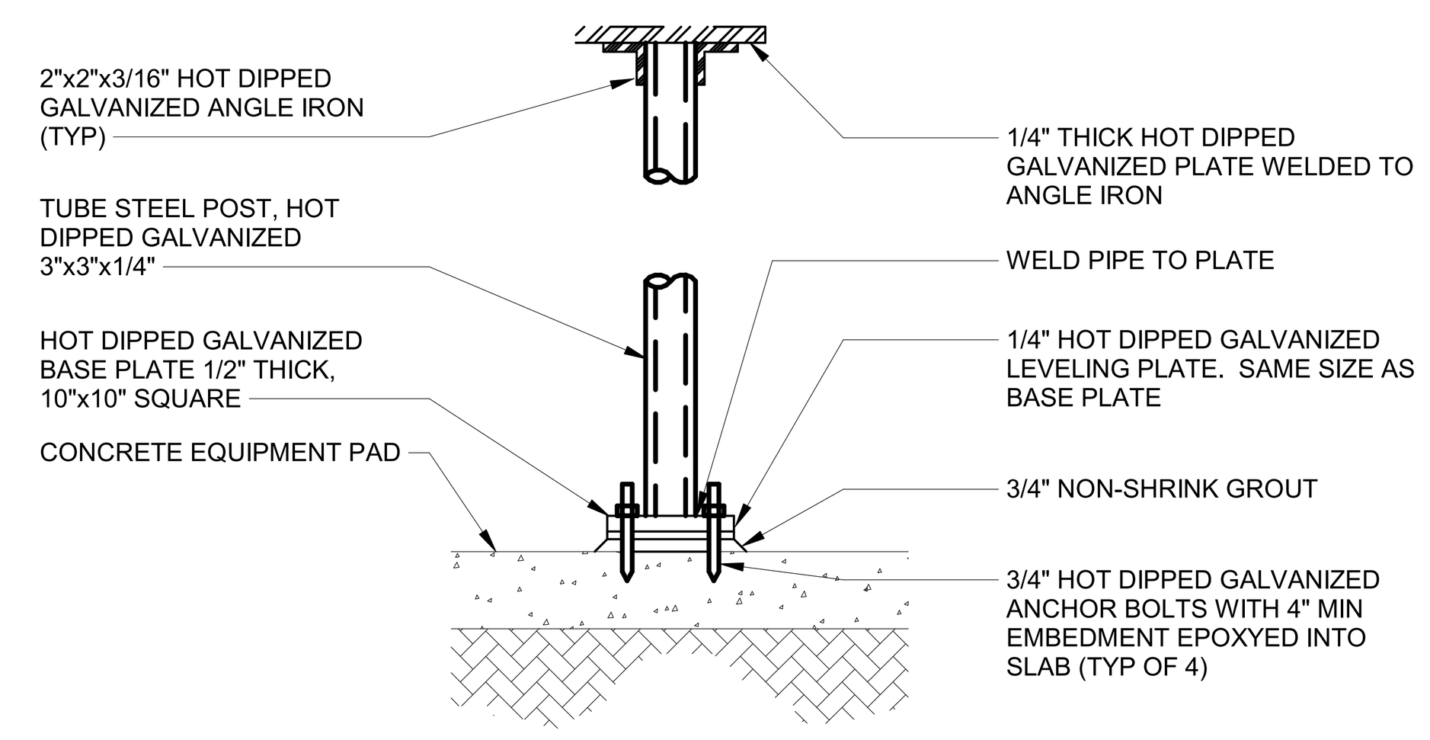
TYPICAL PIPE SLEEVE THRU EXTERIOR WALL ABOVE GRADE DETAIL

SCALE: NONE



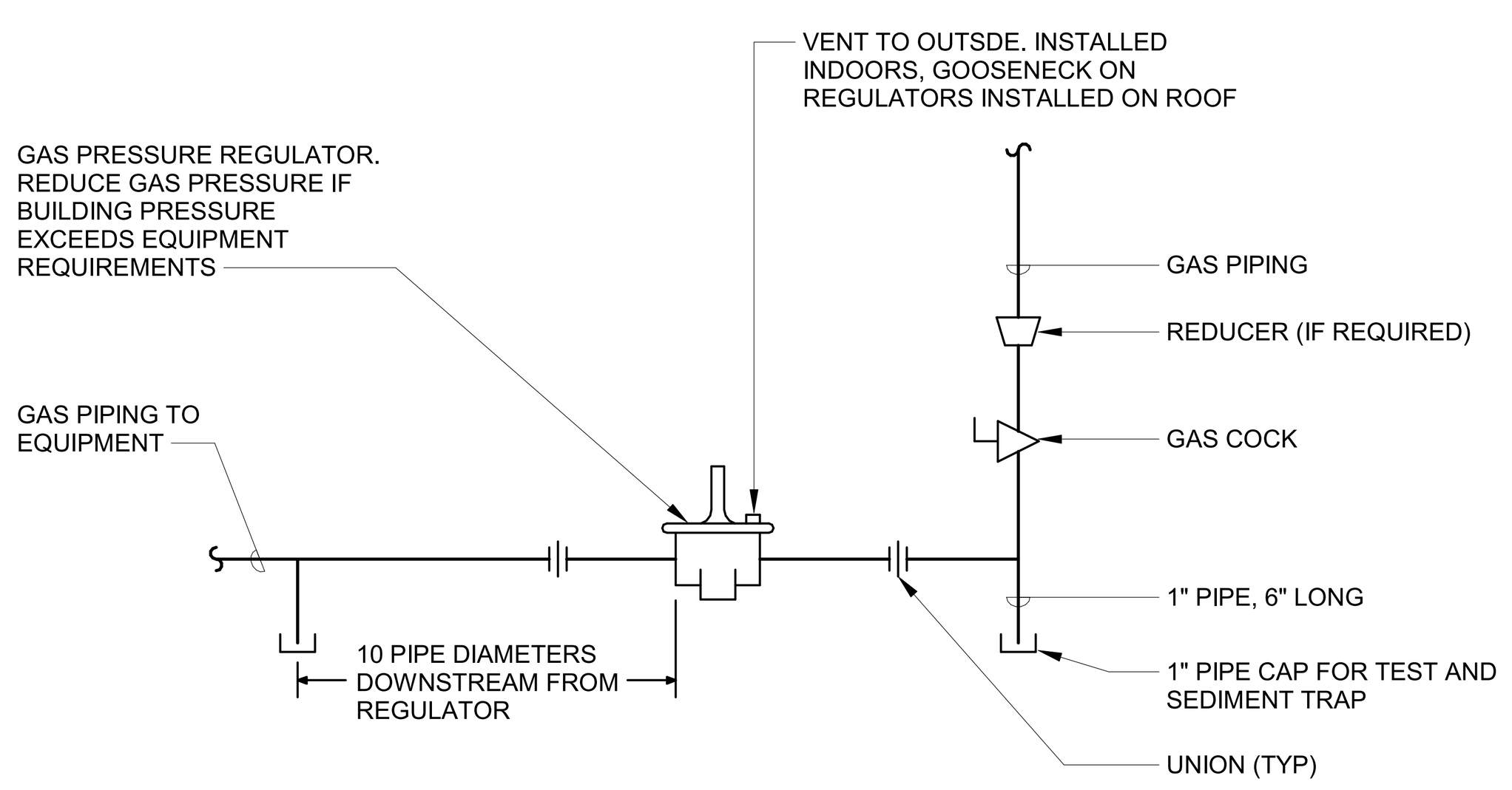
TYPICAL PIPE SUPPORT DETAIL

SCALE: NONE



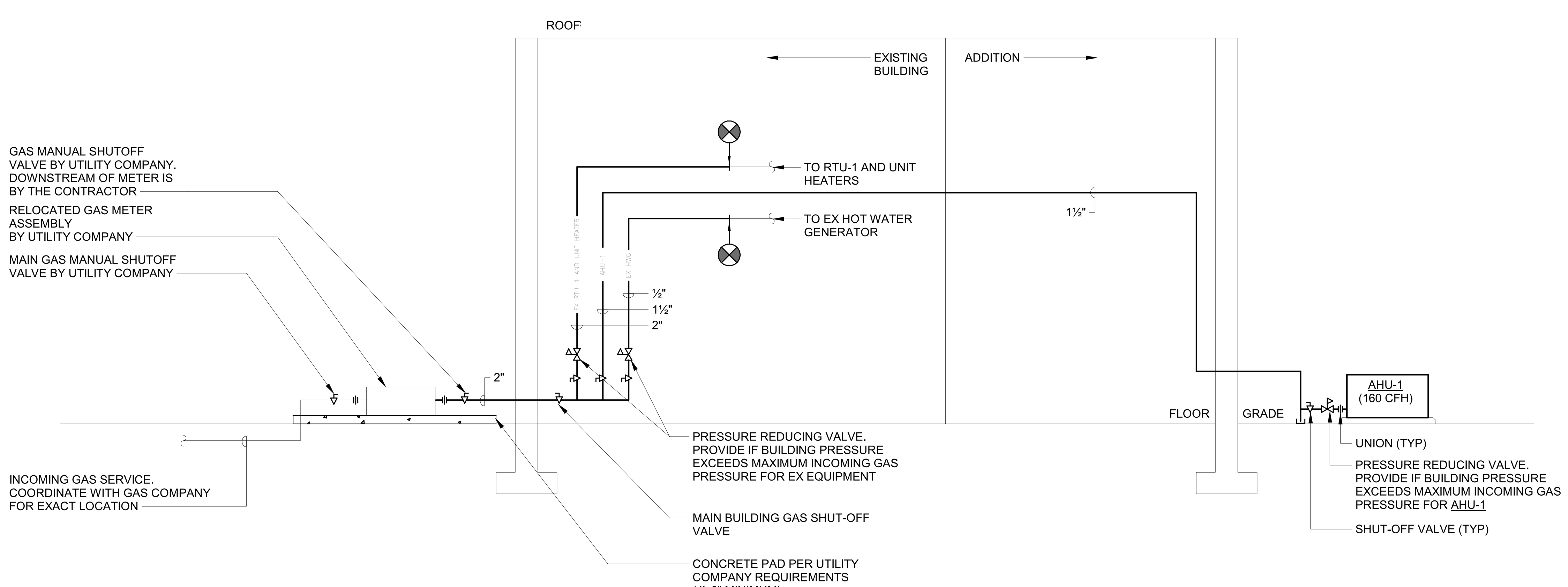
TYPICAL PIPE SUPPORT DETAIL

SCALE: NONE



TYPICAL GAS PERSSURE REGULATOR DETAIL

SCALE: NONE



NATURAL GAS RISER DIAGRAM

SCALE: NONE

NOTE:
1. PIPE EQUIPMENT PER MANUFACTURERS RECOMMENDATIONS
2. CONTRACTOR SHALL COORDINATE RELOCATION OF EXISTING GAS METER WITH GAS COMPANY

PLUMBING NOTES

1. COORDINATE WORK BETWEEN DISCIPLINES
2. CONDENSATE FROM MECHANICAL EQUIPMENT COILS SHALL BE PIPED TO THE STORM DRAIN PIPING UNLESS OTHERWISE INDICATED ON DRAWINGS.
3. REFER TO SECTIONS OF ARCHITECTURAL AND MECHANICAL DRAWINGS FOR PIPE ROUTING THROUGH THE FACILITY.
4. COORDINATE PLUMBING PIPING ENCLOSURES WITH ARCHITECTURAL DRAWINGS PRIOR TO SETTING PIPING BELOW SLABS.
5. COORDINATE ALL FLOOR, SINK AND TRENCH DRAIN LOCATIONS WITH MECHANICAL EQUIPMENT PLACEMENT PRIOR TO SETTING SUCH DRAINS. DRAINS SHALL BE LOCATED AS CLOSE TO EQUIPMENT DRAIN POINTS AS POSSIBLE.
6. PROVIDE SHUTOFF VALVES IN DOMESTIC WATER SYSTEM BRANCH LINES SERVING TWO OR MORE FIXTURES.
7. INSTALL PIPING SO VALVES ARE ACCESSIBLE. ALL SHUT-OFF VALVES SHALL BE BALL TYPE ONLY.
8. WHERE HOT AND COLD WATER PIPING DROPS INTO PIPE CHASE THE SIZE SHOWN FOR THE PIPE DROPS SHALL BE USED TO THE LAST FIXTURE.
9. ITEMS SUCH AS ACCESS DOORS, RISE AND DROPS IN PIPING, ETC., ARE INDICATED ON THE DRAWINGS FOR CLARITY OR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS. THE CONTRACTOR IS RESPONSIBLE FOR THESE ITEMS AS REQUIRED ELSEWHERE IN THE CONTRACT DOCUMENTS.
10. ALL PLUMBING FIXTURES SHALL HAVE A MINIMUM AIR GAP FROM THE LOWEST END OF A POTABLE WATER OUTLET TO THE FLOOD RIM OR LINE OF THE FIXTURE INTO WHICH IT DISCHARGES. THE AIR GAP SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF A POTABLE WATER OUTLET UNLESS THE OUTLET IS A DISTANCE LESS THAN 3 TIMES THE EFFECTIVE OPENING OF AWAY FROM A WALL OR SIMILAR VERTICAL SURFACE IN WHICH CASE THE MINIMUM REQUIRED AIR GAP SHALL BE 3 TIMES THE EFFECTIVE OPENING OF THE OUTLET.
11. FIXTURES SUBJECT TO INTERMITTENT OR CONTINUOUS PRESSURE BACK-SIPHONAGE SHALL BE PROVIDED WITH A BACKFLOW PREVENTION DEVICE, (ASSE PER AHJ).
12. FIXTURES WHICH DISCHARGE INDIRECTLY INTO A FLOOR DRAIN OR FLOOR SINK SHALL DISCHARGE WITH AN AIR GAP EQUAL TO TWICE THE DIAMETER OF THE FIXTURE DISCHARGE PIPE.
13. INSULATE ALL HORIZONTAL SECTIONS OF STORM WATER AND STORM WATER OVERFLOW PIPING.
14. COORDINATE SETTING AND ELEVATION OF KITCHEN FLOOR SINKS AND DRAINS WITH LOCAL PLUMBING INSPECTOR.
15. ALL PIPING NOT INDICATED IN CHASES SHALL BE LOCATED ABOVE CEILING AS HIGH AS POSSIBLE. COORDINATE ROUTING OF PIPING WITH OTHER DISCIPLINES.
16. PROVIDE SINK TAILPIECE WITH DISHWASHER DRAIN CONNECTION AND PROVIDE HOT WATER SUPPLY CONNECTION TO DISHWASHER AT REQUIRED LOCATIONS AS INDICATED PER ARCHITECTURAL DRAWINGS. INSTALL PLUMBING UTILITIES AS REQUIRED PER MANUFACTURERS RECOMMENDATIONS.
17. PROVIDE WATER HAMMER ARRESTORS WHERE QUICK CLOSING VALVES ARE INSTALLED. INSTALLATION AND QUANTITY SHALL BE PER CONTRACT DRAWINGS AND MANUFACTURERS RECOMMENDATIONS. WATER HAMMER ARRESTORS SHALL BE ACCESSIBLE FOR MAINTENANCE.
18. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR PROTECTING ALL DRAINS DURING THE CONSTRUCTION AND RETURNING THEM TO FREE FLOWING AND IN WORKING CONDITIONS. THE CONTRACTOR SHALL GUARANTEE ALL DRAINS FOR AT LEAST 90 DAYS AFTER FINAL COMPLETION OF THE BUILDING.
19. IF SITE WORK PIPING IS INSTALLED AT THE SAME TIME THE PLUMBING CONTRACTOR IS INSTALLING PIPING, THE PLUMBING CONTRACTOR SHALL MAKE THE CONNECTIONS TO THE SITE PLUMBING.
20. AFTER PRESSURE TESTS ARE COMPLETE ALL SANITARY AND STORM WATER PIPING 3" AND LARGER LOCATED UNDER SLAB SHALL BE VIDEOTAPED BY A THIRD PART TO THE FIRST MANHOLE OR CLEAN-OUT LOCATED OUTSIDE THE BUILDING.
21. ALL DOMESTIC WATER PIPING, VALVES, TANKS ETC IN ITS ENTIRETY SHALL BE NSF 61 CERTIFIED AND COMPLY WITH HB 372 LEAD FREE REQUIREMENTS.
22. ALL ADA ACCESSIBLE SINKS AND LAVS SHALL UTILIZE OFFSET DRAIN PIPING AND ALL EXPOSED PIPING SHALL BE PROVIDED WITH PRE MANUFACTURED INSULATION KITS.
23. PROVIDE TRAP TRAP SEALS FOR ALL FLOOR DRAINS.
24. PIPE ALL GAS VENTS (ie REGULATORS) TO THE EXTERIOR. VENT LIMITERS ARE PROHIBITED.

PLUMBING LEGEND

SYMBOLS

SYMBOL	DEFINITION
	COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RETURN
F	FIRE LINE
SP	SPRINKLER LINE
SAN	SANITARY
V	VENT
SW	STORM WATER
OF	OVERFLOW (STORM WATER)
PD	PUMPED DISCHARGE
CD	CONDENSATE DRAIN
///	FOUNDATION DRAIN
AW	ACID RESISTANT WASTE
AV	ACID RESISTANT VENT
G	NATURAL GAS
	BALL VALVE
	PIPING BELOW GRADE OR SLAB
	BUTTERFLY VALVE
	UNION
	GATE VALVE
	GLOVE VALVE
	BALANCING VALVE
	PLUG VALVE
	REDUCED PRESS. BACKFLOW PREVENTER
	PRESSURE REDUCING VALVE
	CHECK VALVE
	DOUBLE DETECTOR CHECK VALVE
	BACKWATER VALVE
	FLOOR CLEANOUT
	WALL CLEANOUT
	PIPE UP
	PIPE UP & DN
	PIPE DOWN
	SIGHT GLASS
	FLOAT VALVE
	FLOOR DRAIN
	FLOOR DRAIN WITH TRAP PRIMER
	FLOOR SINK
(#)	ROOF DRAIN (W/ SQ.FT INDICATED)
	TRAP (ELEVATION)
	VENT THROUGH ROOF (ELEVATION)
	VENT THROUGH ROOF (PLAN)
	MIXING VALVE
	METER (FLUID OR GAS)
"	INCHES
'	FEET
	HOSE BIBB (PLAN)
	NON-FREEZE WALL HYDRANT
	HOSE BIBB (ELEVATION)
	HOSE END DRAIN
TS	OUTSIDE STEM & YOKE VALVE
TS	NON-RISING STEM & YOKE
FS	FLOW SWITCH
TS	TAMPER SWITCH
PS	PRESSURE SWITCH
	FIRE DEPT HOSE CONNECTION
FS	FLOOR CONTROL VALVE ASSEMBLY
	'Y' STRAINER
	WATER HAMMER ARRESTOR
	ACCESS PANEL
	POINT OF CONN. TO SITE UTILITIES
	SQUARE FOOTAGE
	DUPLEX GAS OUTLET
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	FLEXIBLE CONNECTION
	CAPPED PIPE
	BLIND FLANGE
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	BLOW DOWN VALVE (W/ HOSE END)
	PRESSURE/TEMP. RELIEF VALVE
△P	PRESSURE DIFFERENCE
△T	TEMPERATURE DIFFERENCE
	CENTERLINE
	THERMOMETER
	PRESSURE GAUGE W/ NEEDLE VALVE
ø	DIAMETER (OR ELECTRICAL PHASE)
	BACKWATER VALVE W/ ACCESS COVER
	SOLENOID VALVE
	SLOPE OF PIPE (WITH % SLOPE SHOWN)
	DIRECTION OF FLOW
	FUNNEL CONNECTION @ FLOOR DRAIN
S-A-1	SANITARY/WATER RISER DESIGNATION
	CONNECT TO EXISTING
	DEMOLITION ENDS HERE
#	DRAWING NOTE DESIGNATION

NOTE:
NOT ALL SYMBOLS MAY BE USED.

ABBREVIATIONS

SYMBOL	DEFINITION
140°	140° DOMESTIC HOT WATER
140°R	140° DOMESTIC HOT WATER RETURN
AAV	AUTOMATIC AIR VENT
ABV	ABOVE
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
ANC	ANCHOR
AP	ACCESS PANEL
APPROX	APPROXIMATE
AQ	AQUASTAT
AV	ACID VENT
AW	ACID WASTE
BDV	BLOW DOWN VALVE
BF	BLIND FLANGE
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOP	BOTTOM OF PIPE
BOTT	BOTTOM
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWV	BACKWATER VALVE W/ ACCESS COVER
CAP	CAPACITY
CD, COND	CONDENSATE DRAIN
CI	CAST IRON
CLG	CEILING
CO	CLEANOUT
CONN°	CONNECT
CONC	CONCRETE
CU FT	CUBIC FEET
CW	COLD WATER
CX	CONNECT TO EXISTING
DDC	DOUBLE DETECTOR CHECK VALVE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DISH	DISCHARGE
DN	PIPE DOWN
DS	DOWN SPOUT W/ BOOT
DST	DEEP SEAL TRAP
DWG	DRAWING
ELEC	ELECTRIC
ELEV	ELEVATION
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
F	FIRE LINE
FC	FUNNEL CONNECTION @ FD
FCO	FLOOR CLEANOUT
FCVA	FLOOR CONTROL VALVE ASSEMBLY
FD	FLOOR DRAIN
FDV	FIRE DEPT. HOSE CONNECTION
FS	FLOW SWITCH
FT	FEET
FT. HD	FEET OF HEAD
G	GAS
GA	GAUGE
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HED	HOSE END DRAIN
HOR	HORIZONTAL
HP	HORSEPOWER
HT	HEAT TRAP
HW	HOT WATER (120°)
HWR	HOT WATER RETURN (120°)
HYD	HYDRAULIC
IN	INCHES
I.E.	INVERT ELEVATION
IW	INDIRECT WASTE
LOC	LIMIT OF CONTRACT
MAV	MANUAL AIR VENT
NFGH	NON-FREEZE GROUND HYDRANT
NFWH	NON-FREEZE WALL HYDRANT
NRS	NON-RISING STEM & YOKE VALVE
OF	OVERFLOW
OHD	OPEN HUB DRAIN
O,S,&Y	OUTSIDE STEM & YOKE VALVE
P	PRESSURE
PCOND	PUMPED CONDENSATE
PD	PUMPED DISCHARGE
PH	PIPE HANGER
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
PSAN	PUMPED SANITARY
PSC	PUMPED STEAM CONDENSATE
RD	ROOF DRAIN
RL	RAIN LEADER
SAN, S	SANITARY
SC	STEAM CONDENSATE
SCH	SCHEDULE
SP	SPRINKLER LINE
STD	STANDARD
SW	STORM WATER
T	TEMPERATURE
TD	TRENCH DRAIN
TS	TAMPER SWITCH
TW	TEMPERED WATER
TWR	TEMPERED WATER RETURN
UP	PIPE UP
UP & DN	PIPE UP & DN
V	VENT
VB	VACUUM BREAKER
VTR	VENT THROUGH ROUGH
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTOR
WSFU	WATER SUPPLY FIXTURE UNITS
TD	TRENCH DRAIN

NOTE:
NOT ALL ABBREVIATIONS MAY BE USED.

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CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE MORTON, PA 19070

ISSUE DATES	
DATE:	DESCRIPTION:
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

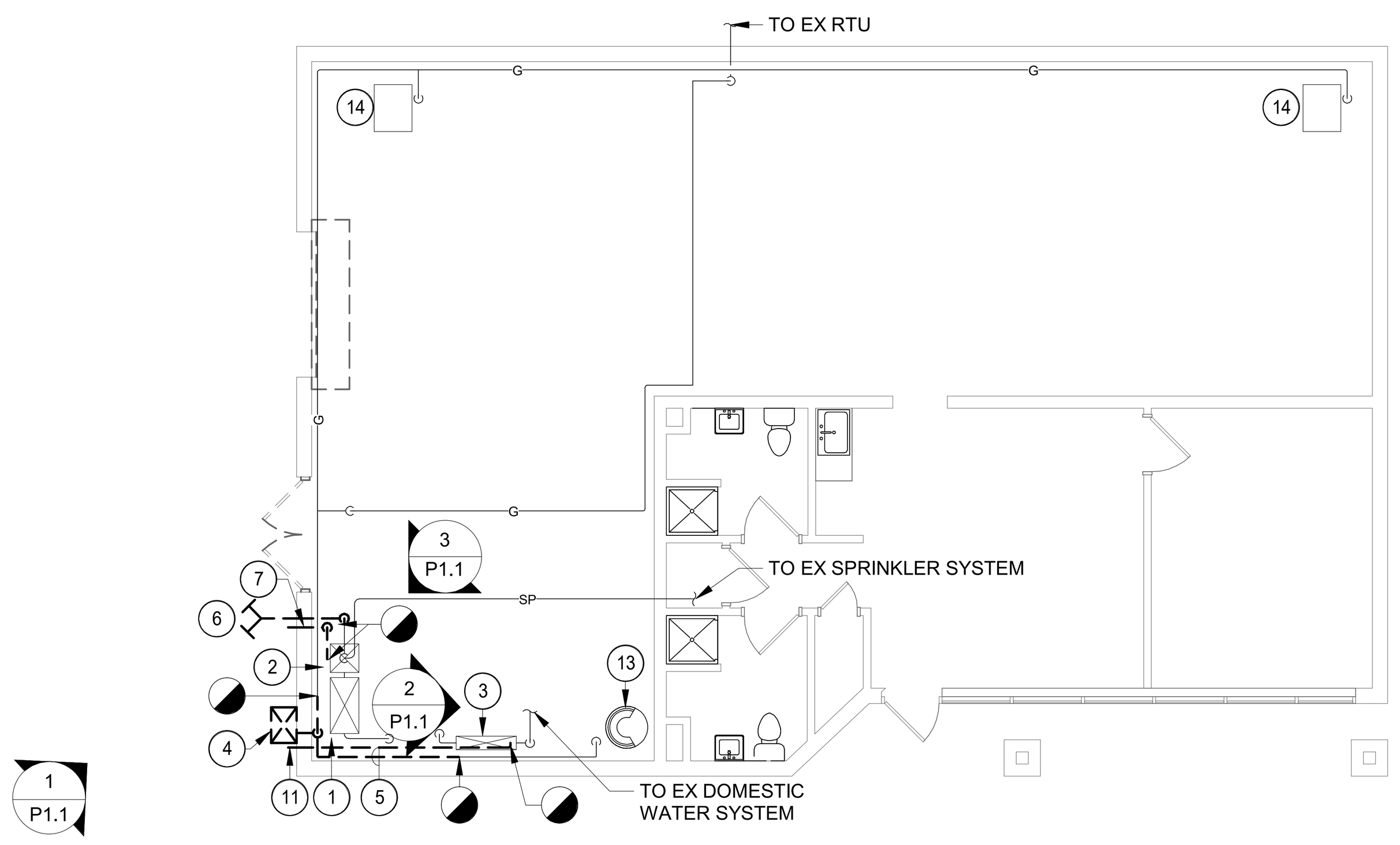
PROJ # : 22-02-DCIU DRAWN BY : Author

SHEET TITLE:
PLUMBING LEGEND, GENERAL NOTES AND DETAILS

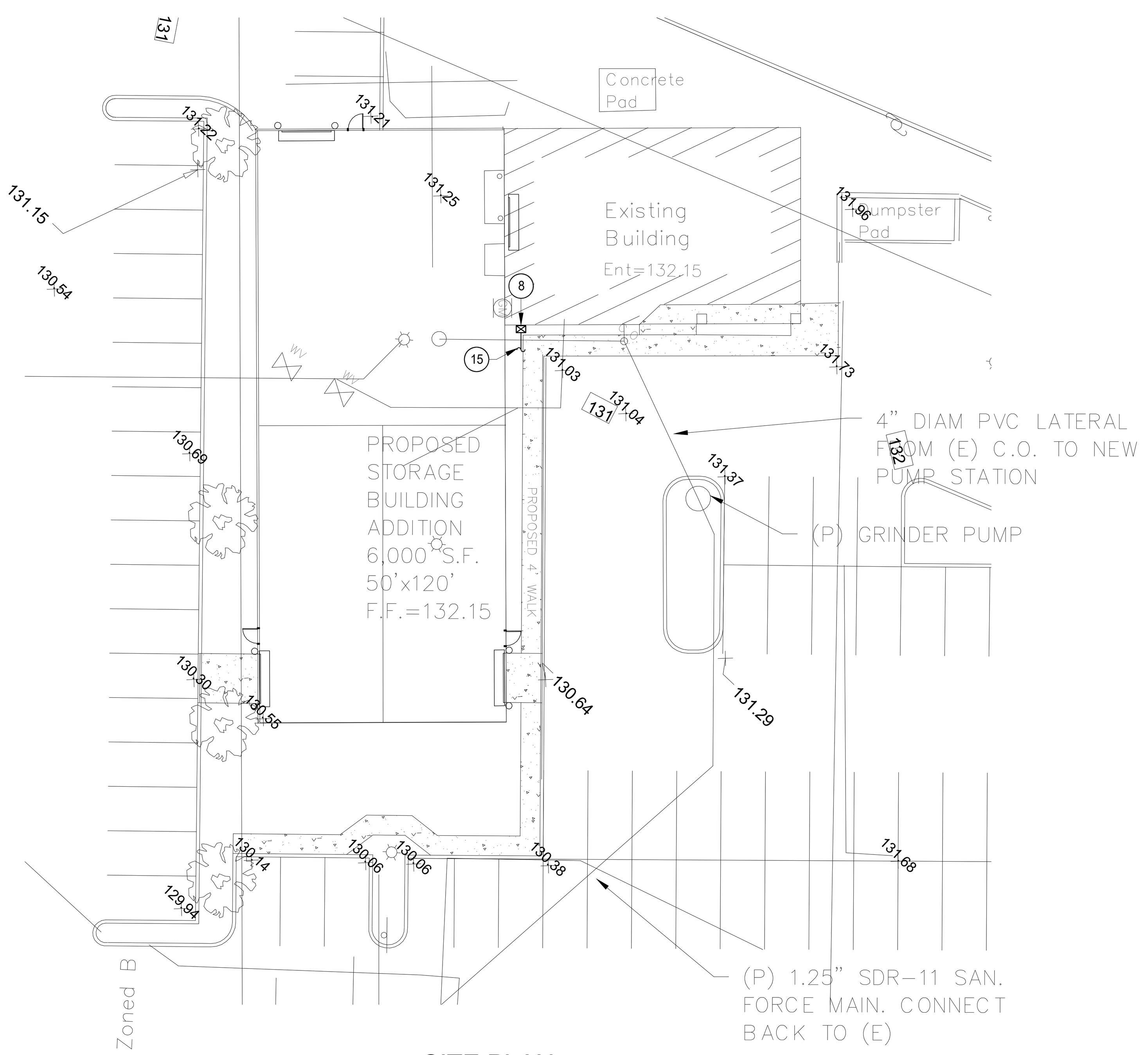
SHEET NUMBER:
P0.1

BID DOCUMENTS

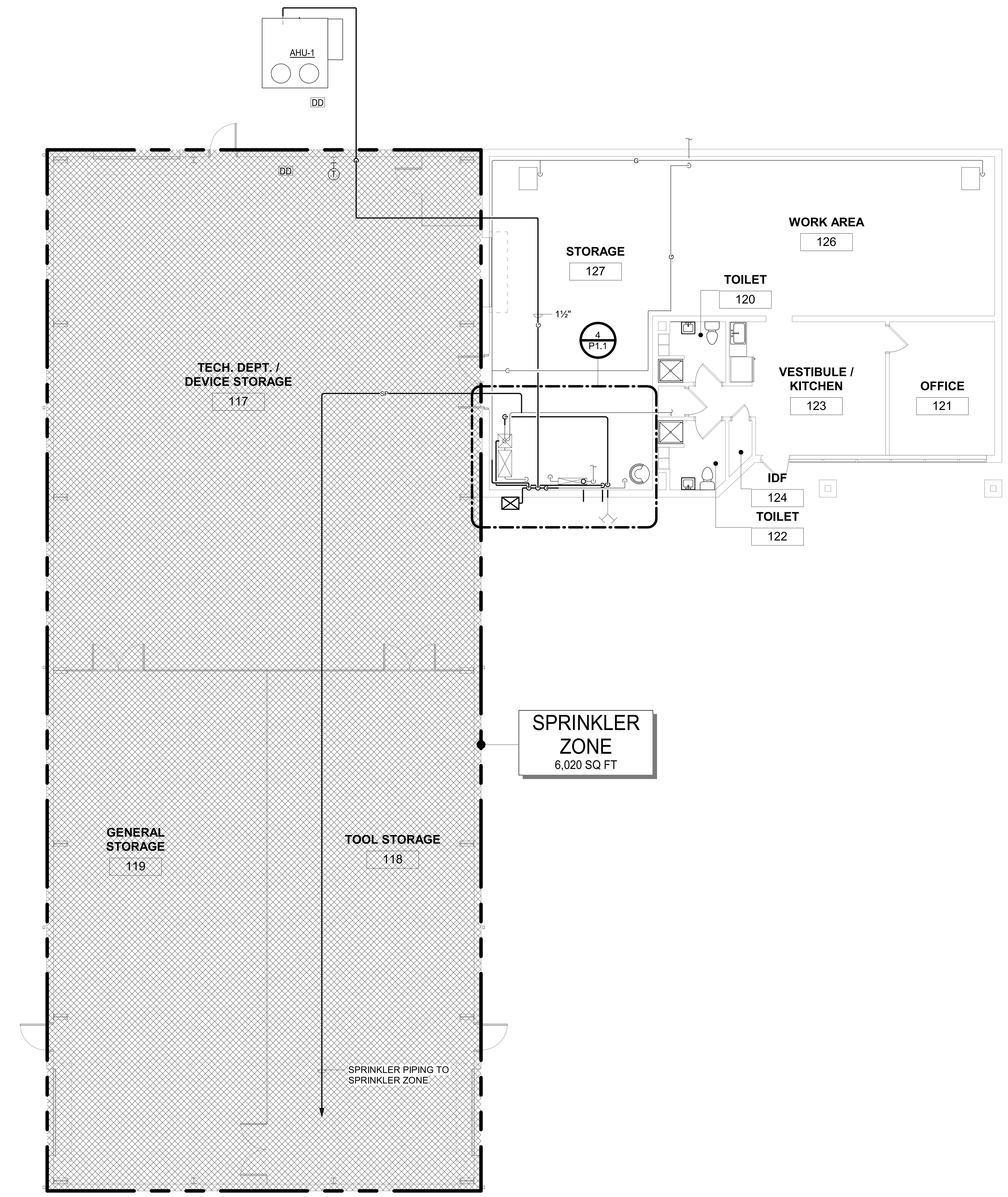
2/16/2024 8:57:04 AM



FLOOR PLAN - DEMOLITION
1/8" = 1'-0"



SITE PLAN
1" = 20'-0"



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

GENERAL NOTES:

1. PATCH ALL HOLES, PENETRATIONS, ETC. (IN WALLS, FLOORS, ROOF, ETC.) TO MATCH EXISTING MATERIALS, FINISHES, ETC AND PAINT TO MATCH EXISTING.
2. WHERE PIPING IS INDICATED TO BE REMOVED, REMOVE PIPING IN ITS ENTIRETY. THE CONTRACTOR SHALL USE CAUTION WHEN REMOVING BELOW SLAB PIPING TO ENSURE THERE ARE NOT CONFLICTS WITH EXISTING STRUCUTRAL FOOTERS, ELECTRICAL AND PLUMBING TO REMAIN.
3. WHERE PIPING IS INDICATED TO BE REMOVED AND NOT REUSED DURING NEW WORK CONSTRUCTION, PIPING SHALL BE CAPPED/PLUGGED AND SLAB PATCHED/REPAIRED TO MATCH EXISTING.
4. ALL CUTTING AND PATCHING SHALL BE PERFORMED BY THE MECHANICAL/PLUMBING CONTRACTOR.
5. THE ENTIRE BUILDING SHALL BE PROTECTED BY A FIRE SPRINKLER SYSTEM. THE FIRE PROTECTION SYSTEM SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NFPA 13 REQUIREMENTS. THE SPRINKLER SYSTEM SHALL ALSO COMPLY WITH NFPA 25, NFPA 101, IFC AND THE LOCAL AUTHORITY HAVING JURISDICTION.
6. THE CONTRACTOR SHALL PROVIDE ACCESS PANELS AND DOORS FOR ALL CONCEALED EQUIPMENT, VALVES, STRAINERS, CONTROLS, CONTROL DEVICES, CLEANOUTS, TRAPS AND OTHER DEVICES REQUIRING MAINTENANCE, SERVICE ADJUSTMENT, BALANCING OR MANUAL OPERATION. FOR AREAS WITH HARD CEILINGS, THE CONTRACTOR SHALL INSTALL ACCESS DOORS TO ACCOMMODATE INSTALLATION OF THE SPRINKLER SYSTEM ABOVE THE EXISTING HARD CEILING. CONFIRM ALL LOCATIONS OF ACCESS PANELS IN OCCUPIED SPACES WITH ARCHITECT DURING SHOP DRAWING REVIEW.
7. PROVIDE LABELING, IDENTIFICATIONS AND PIPE MARKERS ON EQUIPMENT, PIPING AND SYSTEM COMPONENTS IN ACCORDANCE WITH NFPA REQUIREMENTS.
8 ALL EXPOSED PIPING SHALL BE PAINTED.
9. PIPE HANGERS SHALL BE 10'-0" MAXIMUM ON CENTER DISTANCE. BAR JOIST HANGERS SHALL BE ATTACHED TO THE TOP CHORD AT THE PANEL JOINT.
10. SUPERVISION AND COORDINATION: PROVIDE COMPLETE SUPERVISION, DIRECTION, SCHEDULING, AND COORDINATION OF ALL WORK UNDER THE CONTRACT, INCLUDING THAT OF SUBCONTRACTORS. COORDINATE ROUGH-IN OF ALL WORK AND INSTALLATION OF SLEEVES, ANCHORS AND SUPPORTS FOR PIPING AND OTHER WORK PERFORMED WITH WORK UNDER ALL OTHER TRADES. COORDINATE ELECTRICAL WORK REQUIRED WITH THE ELECTRICAL AND FIRE ALARM SUBCONTRACTORS.
11. CUTTING AND PATCHING: ACCOMPLISH ALL CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF ALL WORK UNDER DIVISION 21. DAMAGE RESULTING FROM THIS WORK TO OTHER WORK ALREADY IN PLACE SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. WHERE CUTTING IS REQUIRED, SAW-CUT OR CORE DRILL ONLY AND PERFORM WORK IN A NEAT AND WORKMANLIKE MANNER. USE MECHANICS SKILLED IN THE PARTICULAR TRADES REQUIRED. DO NOT CUT STRUCTURAL MEMBERS WITHOUT APPROVAL.
12. ACCESSIBILITY: ALL EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY THAT ALL COMPONENTS REQUIRING ACCESS (SUCH AS VALVES, FLOW SWITCHES, TAMPER SWITCHES, SITE GLASSES, DISCONNECT SWITCHES, CIRCUIT BREAKERS, STARTERS AND ACCESSORIES) ARE LOCATED AND INSTALLED THAT THEY MAY BE SERVICED, RESET, REPLACED, RECALIBRATED, ETC. BY SERVICE TECHNICIANS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IF ANY EQUIPMENT OR COMPONENTS ARE LOCATED IN SUCH A POSITION THAT THIS CONTRACTOR CANNOT COMPLY WITH THE ABOVE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING BEFORE EQUIPMENT IS INSTALLED.
13. PROVIDE ESCUTCHEONS FOR PENETRATIONS OF WALLS, CEILINGS AND FLOOR FOR EXPOSED PIPING.
14. INSTALL SLEEVES FOR PIPES PASSING THROUGH CONCRETE AND MASONRY WALLS, GYPSUM--BOARD PARTITIONS, AND CONCRETE FLOOR AND ROOF SLABS.
15. MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS.
16. COORDINATE LAYOUT AND INSTALLATION OF FIRE PROTECTION SYSTEM WITH ALL OTHER BUILDINGS' STRUCTURAL, MECHANICAL AND ELECTRICAL WORK. LOCATE SPRINKLER HEADS IN THE CENTER OF CEILING TILES, LIGHTING FIXTURES, REGISTERS, GRILLES, DIFFUSERS, ETC. PROVIDE PIPING OFFSETS AS REQUIRED TO MAINTAIN SYMMETRY. SPRINKLER PIPE VELOCITY SHALL NOT EXCEED EIGHTEEN (18) FEET PER SECOND (FPS). THE SYSTEM DESIGN SHALL LIMIT MAXIMUM DEMAND FLOW RATES AT 25% GREATER THAN THE DESIGN REQUIREMENT ESTABLISHED BY THE NFPA. LOCATE ALL PIPING ABOVE CEILINGS REMOVE AND REINSTALL CEILING SYSTEMS TO ACCOMMODATE THE INSTALLATION. PROVIDE CEILING ACCESS PANELS AS NECESSARY FOR PIPING INSTALLATION ABOVE HARD CEILINGS WHICH ARE EXISTING TO REMAIN. THE ENTIRE BUILDING SHALL BE PROTECTED BY A WET PIPE SPRINKLER SYSTEM INCLUDING MECHANICAL AND ELECTRICAL EQUIPMENT SPACES. THE CONTRACTOR IS CAUTIONED THAT SPRINKLER MAINS MUST BE LOCATED TO PREVENT CONFLICTS WITH OTHER WORK AND IN ANY CASE, SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF HIS WORK WITH THE WORK OF OTHER TRADES AND EXISTING SYSTEMS. AIR TERMINAL DEVICES, UNITS AND EQUIPMENT SHALL BE INDICATED ON THE COORDINATED LAYOUT/SHOP DRAWINGS. FOR EXPOSED AREAS, CONCEAL PIPING AND UTILIZE SIDEWALL HEADS WHEREVER POSSIBLE, INCLUDING IN CONJUNCTION WITH PENDANT HEADS WHERE REQUIRED. FOR EXPOSED PIPING GET APPROVAL FROM THE ARCHITECT AND ENGINEER OF THE PROPOSED LOCATION AND ROUTING PRIOR TO FABRICATION AND INSTALLATION OF THE SYSTEMS.
17. TESTS: THE SPRINKLER SYSTEMS INSTALLATION SHALL BE HYDROSTATICALLY TESTED, INSPECTED AND APPROVED, IN ACCORDANCE WITH NFPA STANDARD No.13. TEST CERTIFICATES SHALL BE FORWARDED TO THE OFFICE OF THE STATE FIRE MARSHAL, AND THE LOCAL FIRE DEPARTMENT, AS PROOF OF COMPLIANCE. TESTS SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE OFFICE OF THE STATE FIRE MARSHAL AND LOCAL FIRE DEPARTMENT, AS REQUIRED AND SHALL PROVE THE SYSTEMS TO BE ADEQUATE AND SATISFACTORY IN EVERY ASPECT. ALL TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE STATE OR LOCAL FIRE MARSHAL OR HIS REPRESENTATIVE. ANY DEFICIENCIES REVEALED BY THESE TESTS SHALL BE CORRECTED AND THE SYSTEMS SHALL BE RETESTED UNTIL ACCEPTABLE RESULTS ARE OBTAINED.
18. AS BUILT DRAWINGS: PROVIDE SEPARATE AS-BUILT DRAWINGS OF ALL FIRE PROTECTION SYSTEMS MEETING REQUIREMENTS OF GENERAL MECHANICAL REQUIREMENTS HERE IN BEFORE SPECIFIED. PROVIDE HARD COPIES AND ELECTRONIC COPIES TO THE OWNER.
19. THE ENTIRE SPRINKLER SYSTEM IS A PERFORMANCE BASED DELEGATED DESIGN WHICH SHALL BE SIGNED BY A CERTIFIED SPRINKLER DESIGNER OR REGISTERED FIRE PROTECTION ENGINEER.
20. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

DRAWING NOTES:

(1) EX FIRE PROTECTION BACKFLOW PREVENTER.
(2) EX SPRINKLER ZONE ASSEMBLY
(3) EX DOMESTIC WATER METER
(4) CONTRACTOR TO COORDINATE WITH THE UTILITY COMPANY TO REMOVE AND RELOCATE EXISTING GAS METER.
(5) RX. GAS PIPING, VALVES, HANGERS, ETC. IN ITS ENTIRETY.
(6) REMOVE AND RELOCATE FIRE DEPARTMENT CONNECTION. COORDINATE FINAL LOCATION THE FIRE DEPARTMENT.
(7) RX. SPRINKLER DRAIN, PIPING, SUPPORTS ETC. IN ITS ENTIRETY.
(8) PROPOSED RELOCATED GAS METER. CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY.
(9) SPRINKLER DRAIN. DISCHARGE AT GRADE.
(10) EXTEND EXISTING FIRE SERVICE LINE TO ADDITION.
(11) RX. DOMESTIC WATER DRAIN PIPING, SUPPORTS, ETC. IN ITS ENTIRETY.
(12) DOMESTIC WATER DRAIN. DISCHARGE AT GRADE.
(13) EX DOMESTIC HOT WATER GENERATOR
(14) EX UNIT HEATER
(15) INCOMING GAS BY GAS COMPANY. CONTRACTOR SHALL COORDINATE WITH THE GAS COMPANY.

SCALE: 1" = 20'-0" (20 0 20 40)

SCALE: 1/4" = 1'-0" (4 0 4 8)

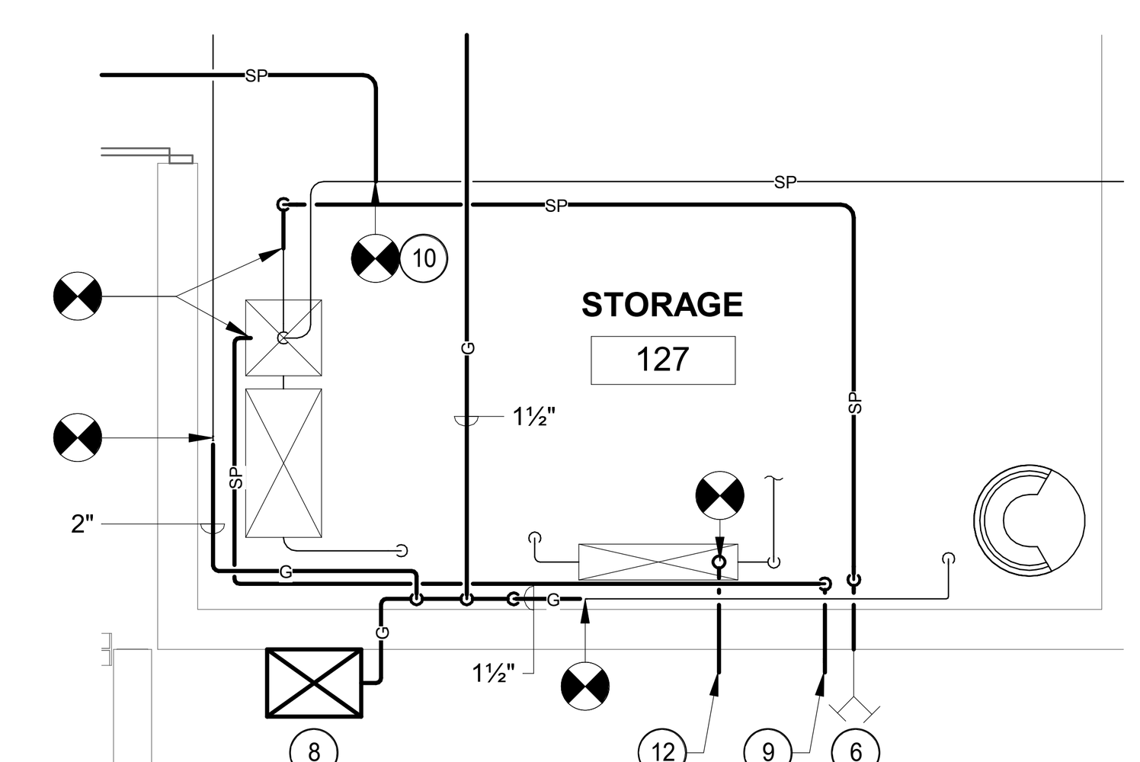
SCALE: 1/8" = 1'-0" (8 0 8 16)

PLAN NORTH

1 P1.1 DIGITAL IMAGE
SCALE: NONE

2 P1.1 DIGITAL IMAGE
SCALE: NONE

3 P1.1 DIGITAL IMAGE
SCALE: NONE



4 P1.1 PARTIAL FLOOR PLAN
1/4" = 1'-0"

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CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE MORTON, PA 19070

ISSUE DATES DATE:	DESCRIPTION:
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ #: 22-02-DCIU DRAWN BY: Author

SHEET TITLE:
FLOOR PLAN - PLUMBING

SHEET NUMBER:
P1.1

BID DOCUMENTS

2/16/2024 8:57:08 AM

GENERAL NOTES: (MECHANICAL)

GENERAL NOTES AND CONDITIONS:

1. COORDINATE NEW WORK BETWEEN ALL DISCIPLINES.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE CODES, ORDINANCES, REGULATIONS, AND REQUIREMENTS OF ALL AGENCIES HAVING JURISDICTION OVER THE PROJECT.
3. THE INTENT OF THESE DRAWINGS IS FOR THE CONTRACTOR TO PROVIDE ALL LABOR, MATERIAL, FINISHES, EQUIPMENT, INSTALLATION, AND SERVICES NECESSARY FOR AND INCIDENTAL WITH THE WORK, TO PROVIDE THE OWNER WITH A COMPLETE PROJECT INCLUSIVE OF ALL SYSTEMS.
4. PRIOR TO INITIATING ANY PORTION OF THE WORK, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATE ALL PORTIONS OF THE CONTRACT DOCUMENTS RELATING TO THAT PORTION OF THE WORK AND AFFECTING ADJOINING PORTIONS. IF DISCREPANCIES EXIST, THEY SHALL BE REPORTED TO THE CONSTRUCTION MANAGER FOR CLARIFICATION AND/OR RESOLUTION BEFORE COMMENCING SUCH WORK.
5. BY SUBMITTING A BID PROPOSAL THE CONTRACTOR CERTIFIES THAT THEY HAVE VISITED THE SITE AND UNDERSTAND THE COMPLETE SCOPE OF WORK, WHICH IS INCLUDED IN THE PROPOSAL.
6. DEFINITIONS: "PROVIDE" MEANS "FURNISH AND INSTALL". "VERIFY" MEANS "VERIFY IN THE FIELD AND COORDINATE DIMENSIONS AND DISCREPANCIES".
7. THESE NOTES AND OTHER NOTES ON THE DRAWINGS ARE DIRECTIONS FOR THE CONTRACTOR'S PERFORMANCE, UNLESS NOTED OTHERWISE (U.N.O.). FOR EXAMPLE, THE VERB "INSTALL" MEANS "CONTRACTOR SHALL INSTALL", "RELOCATE" MEANS "CONTRACTOR SHALL RELOCATE", ETC.
8. UNLESS NOTED OTHERWISE, NUMBERED DIMENSIONS SHOWN ON DRAWINGS TAKE PRECEDENCE OVER SCALED DRAWINGS. DETAIL DRAWINGS TAKE PRECEDENCE OVER GENERAL DRAWINGS. IF CONFLICTS EXIST ON THE DRAWINGS, THEN THE MORE STRINGENT REQUIREMENT SHALL APPLY. FINAL INTERPRETATION SHALL BE MADE BY THE ENGINEER.
9. SAMPLES AND SHOP DRAWINGS MUST BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER FOR REVIEW AND PROCESSING BEFORE THE PURCHASE OR FABRICATION OF ANY MATERIALS.
10. DURING THE WORK, ANY CONDITION DISCOVERED THAT CAUSES CONFLICT WITH THE INTENDED DESIGN MUST BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER.
11. CONTRACTOR SHALL STAGE WORK IN SUCH A WAY AT TO ENSURE SAFE EMERGENCY EGRESS AT ALL TIMES.
12. EXCEPT FOR PREFINISHED SURFACES, ALL ITEMS DISTURBED OR DAMAGED BY WORK SHALL BE REFINISHED TO MATCH SURROUNDING AREA OR FINISHED AS INDICATED.
13. ALL HOLES AND PENETRATIONS IN WALLS AND CEILING SURFACES SHALL BE PATCHED AND FIRE STOPPED.
14. ANY ALTERATION TO THE STRUCTURE (I.E. CORE DRILLING CONCRETE, ETC.) SHALL BE COORDINATED WITH THE GENERAL TRADES CONTRACTOR.
15. UNLESS OTHERWISE INDICATED, ALL PIPING, CONDUIT, DUCTWORK, AND SIMILAR SERVICES SHALL BE CONCEALED.
16. GENERAL NOTES, THOSE FOUND ON THIS SHEET, APPLY TO ALL DRAWINGS RELATED TO THIS PROJECT.
17. DRAWING NOTES SPECIFICALLY REFER TO ITEMS NOTED WITH NUMBER OR LETTER DESIGNATIONS ON THE RESPECTIVE DRAWING WHERE THE DESIGNATIONS ARE SHOWN.
18. ALL INSULATED EXTERIOR PIPING SYSTEM SHALL BE PROVIDED WITH ALUMINUM JACKETING.
19. PROVIDE MANUAL VOLUME DAMPERS FOR EACH AIR DEVICE (SUPPLY, RETURN, RELIEF, EXHAUST) WHICH IS INDICATED TO HAVE A SPECIFIC AIRFLOW (CFM).
20. PROVIDE INSULATED STAND–OFFS FOR ALL MANUAL VOLUME DAMPERS INSTALLED IN INSULATED DUCT SYSTEMS.
21. PROVIDE LIQUID LEVEL OVERFLOW SENSORS IN ALL UNIT CONDENSATE DRAIN PANS. INTERLOCK TO DEENERGIZE UNIT AND ALARM THROUGH THE EMS.
22. ALL TRANSFER AIR DUCTS SHALL BE SINGLE WALL SOUND LINED (NO INNER GALVANIZED LINER). ALL OTHER SOUND LINED DUCTS EXCEPT FOR DIFFUSER PLENUM BOXES SHALL BE DOUBLE WALL TYPE WITH PERFORATED GALVANIZED INNER LINER.
23. ALL EXPOSED DUCTWORK SHALL BE PAINT GRADE TYPE WITH SELF SEALING JOINTS UNLESS NOTED OTHERWISE.
24. USE RADIUS ELBOWS WHEREVER POSSIBLE. USE 90° MITERED ELBOWS WHERE RADIUS ELBOWS CAN'T BE USED.
25. ALL ROOF MOUNTED EXHAUST FANS AND INTAKE VENTS SHALL BE PROVIDED WITH MOTOR OPERATED DAMPERS (MOD'S–ATC) EXCEPT FOR KITCHEN HOOD / RANGE HOOD EXHAUST FANS.
26. PROVIDE DOUBLE WALL INSULATED BLANK OFF PANELS BEHIND UNUSED PORTION OF LOUVERS.
27. ALL EXPOSED CABINETS (CABINET UNIT HEATERS, CONVECTORS ETC), BRICK VENTS, LOUVERS ETC SHALL BE PROVIDED WITH A CUSTOM COLOR AS SELECTED BY THE ARCHITECT.
28. PROVIDE FRAME/ESCUTCHEON AROUND EXPOSED DUCTS PENETRATING WALLS.
29. WHERE DUCT RUNNOUTS ARE EXPOSED TO VIEW, UTILIZE RIGID DUCTWORK IN LEU OF FLEXIBLE TYPE.
30. ALL ROOF CURBS FOR FANS, VENTS AND UNITS SHALL BE A MINIMUM OF 18" ABOVE FINISHED ROOF AND TOP OF CURB SHALL BE LEVEL.
31. LOCATE ALL ROOF MOUNTED EQUIPMENT WHICH REQUIRES SERVICING A MINIMUM OF 10 FEET FROM THE EDGE OF THE ROOF UNLESS THERE IS MIN 42" HIGH PARAPET. PROVIDE OSHA APPROVED HANDRAILS WHERE EQUIPMENT IS LOCATED WITHIN 10'–0" OF ROOF EDGE.
32. COORDINATE LOCATION OF ALL ROOF MOUNTED INTAKE VENTS TO BE A MINIMUM OF 15 FEET FROM PLUMBING VENTS, EXHAUST VENTS, EXHAUST FANS ETC.
33. ALL WALL MOUNTED SENSORS SHALL BE PROVIDED WITH PROTECTIVE METAL GUARDS OR CAGES.
34. DUCT DETECTORS SHALL BE FURNISHED BY THE FIRE ALARM CONTRACTOR AND INSTALLED BY THE MECHANICAL CONTRACTOR. THE ATC CONTRACTOR SHALL HARD WIRE INTERLOCK TO THE AHU AND THE FIRE ALARM CONTRACTOR SHALL INTERLOCK WITH THE FIRE ALARM. DUCT SMOKE DETECTORS SHALL BE PROVIDED IN ALL AIR HANDLING UNITS 2000 CFM AND GREATER (SUPPLY AND RETURN).
35. ALL OPEN END DUCTS SHALL BE PROVIDED WITH ½" X ½" MESH BIRD SCREEN.
36. THE CONTRACTOR IS RESPONSIBLE FOR ALL REFRIGERANT ROUTING, SIZING, ACCESSORIES AND INSTALLATION IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS.
37. THE CONTRACTOR IS RESPONSIBLE FOR PATCHING AND REPAIRING ALL PENETRATIONS TO MATCH EXISTING MATERIALS AND FINISHES.
38. LEAVE SPACE CLEAN ON COMPLETION, INCLUDING THE CLEANING OF GLASS, DOORS, FRAMES, FLOORS, GRILLES, LIGHT LENSES, ETC.
39. REFER TO STRUCTURAL DRAWINGS FOR TYPICAL PENETRATION/OPENING/INFILL DETAILS.
40. IT IS THE INTENT OF THESE DRAWINGS FOR ALL DISCIPLINES AND SPECIFICATIONS TO PRODUCE A COMPLETE PROJECT. IN ALL CASES THE DRAWINGS AND SPECIFICATIONS MUST BE REVIEWED, PRICED, ESTIMATED, AND CONSTRUCTED IN THEIR ENTIRETY. THE DRAWINGS ARE COMPLEMENTARY TO ONE ANOTHER AND THE SPECIFICATIONS. ANYTHING SHOWN OR IMPLIED ON ANY ONE DRAWING MUST BE PROVIDED, INSTALLED AND CONNECTED AS THOUGH IT WAS SHOWN ON ALL DRAWINGS AND INCLUDED IN THE ORIGINAL PRICING. NO REQUEST FOR ADDITIONAL COST OR CHANGE ORDER WILL BE ACCEPTED BY THE OWNER FROM ANY CONTRACTOR, SUPPLIER, OR INSTALLER THAT RESULTS FROM A FAILURE TO THOROUGHLY REVIEW ALL DRAWINGS AND SPECIFICATIONS, COORDINATE WITH OTHER TRADES, OR THOROUGHLY INSPECT THE SITE TO DETERMINE ALL EXISTING CONDITIONS.
41. IF AN ASSUMED OR ACTUAL CONFLICT IS DISCOVERED IN THE CONTRACT DOCUMENTS, THE MORE EXPENSIVE OR HIGHER QUALITY OPTION (AS DETERMINED BY THE ARCHITECT/ENGINEER) SHALL BE ASSUMED TO APPLY UNLESS DIRECTED OTHERWISE BY THE ARCHITECT/ENGINEER.
42. THE CONTRACTOR IS REQUIRED TO VISIT THE SITE, FAMILIARIZE THEMSELVES WITH THE LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND AS ARE NECESSARY FOR CONSTRUCTION, AND CORRELATE THEIR OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. IT IS ASSUMED THAT THE CONTRACTOR HAS OBTAINED, BEFORE AWARD OF THE CONTRACT, CLARIFICATION OF ALL QUESTIONS AS TO THE INTENT OF THE CONTRACT DOCUMENTS AND OF ASSUMED OR ACTUAL CONFLICT BETWEEN TWO OR MORE ITEMS IN CONTRACT DOCUMENTS. SHOULD THE CONTRACTOR FAIL TO OBTAIN SUCH CLARIFICATION, THE ARCHITECT/ENGINEER SHALL DIRECT WORK TO PROCEED BY THE METHOD INDICATED, SPECIFIED OR REQUIRED BY CONTRACT DOCUMENTS WHICH WILL PRODUCE THE BEST RESULTS, AS JUDGED BY THE ARCHITECT/ENGINEER. SUCH DIRECTION BY THE ARCHITECT/ENGINEER SHALL NOT ENTITLE THE CONTRACTOR TO ANY CLAIM FOR EXTRA COST.
43. IF ACTUAL FIELD CONDITIONS VARY FROM WHAT IS SHOWN OR ASSUMED IN THE CONTRACT DOCUMENTS, THE CONTRACTOR IS REQUIRED TO PROMPTLY NOTIFY THE ARCHITECT/ENGINEER AND RECEIVE DIRECTION PRIOR TO PROCEEDING WITH THE WORK AFFECTED BY THE ACTUAL FIELD CONDITION.

MECHANICAL LEGEND

SYMBOL	ABBREV	DEFINITION
	SA	SUPPLY AIR DUCT UP, DOWN
	RA	RETURN AIR DUCT UP, DOWN
	EA	EXHAUST AIR DUCT UP, DOWN
	OA	OUTSIDE AIR DUCT UP, DOWN
		RECT. TO ROUND TRANSITION
		FLEXIBLE CONNECTION (DUCTWORK)
		FLEXIBLE DUCT
	VD	MANUAL VOLUME DAMPER
	FD	FIRE DAMPER
	MOD	MOTOR OPERATED DAMPER
	SMD	SMOKE ISOLATION DAMPER
	CD	COMBINATION FIRE/SMOKE DAMPER
	SL	ACOUSTICAL DUCT LINING
		DUCT TRANSITION
		CHANGE IN ELEVATION RISE (R); DROP (D)
	AMS	AIR MONITORING STATION
DD	DD	DUCT SMOKE DETECTOR
		ELBOW W/TURNING VANES
		RADIUS ELBOW
		PHOENIX VALVE AND HW HEAT COIL
		POWER ROOF VENTILATOR
T	T'STAT	THERMOSTAT
S		FAN SWITCH
H		HUMIDISTAT
		GATE VALVE
		GLOBE VALVE
		BALL VALVE
		BALANCING VALVE
		MULTI–PURPOSE VALVE
		CHECK VALVE
		BUTTERFLY VALVE
		3–WAY MODULATING VALVE (ATC)
		2–WAY MODULATING VALVE (ATC)
	PRV	PRESSURE REDUCING VALVE
		NEEDLE VALVE
		PRESSURE RELIEF OR SAFETY VALVE
	HED	HOSE END DRAIN VALVE
		STRAINER W/HOSE END DRAIN VALVE & CAP
		COMBINATION BALANCING/SHUT–OFF VALVE
		AUTOMATIC AIR VENT
		MANUAL AIR VENT
		FLOW METER FITTING
		UNION
		FLANGE
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		FLEXIBLE CONNECTION (PIPING)
		THERMOMETER
		PRESSURE GAUGE W/NEEDLE VALVE
T		TEMPERATURE SENSOR
G		STATIC PRESSURE GAUGE
DP	DP	DIFFERENTIAL PRESSURE CONTROLLER
DPT	DPT	DIFFERENTIAL PRESSURE TRANSMITTER
	AFC	AUTOMATIC FLOW CONTROL VALVE
FS	FS	FLOW SWITCH
SP	SPC	STATIC PRESSURE CONTROLLER
		EXPANSION LOOP
		SOLENOID VALVE
	UH	UNIT HEATER
		PIPE ALIGNMENT GUIDE
		PIPE ANCHOR
	F&T	FLOAT AND THERMOSTATIC TRAP
		PIPE–TURN DOWN
		PIPE–TURN UP
		PIPE–TURN DOWN (DOUBLE LINE PIPE)
		PIPE–TURN UP (DOUBLE LINE PIPE)
		PIPE TEE UP
		PIPE TEE DOWN
		END CAP
		DIRECTION OF FLOW
		BLIND FLANGE
T	P/T	PRESSURE/TEMPERATURE PORT
		CONNECT TO EXISTING
		DEMOLITION ENDS HERE
#		DRAWING NOTE DESIGNATION
#		AIR DEVICE DESIGNATION

SYMBOL	ABBREV	DEFINITION
HPS	HPS	HIGH PRESSURE STEAM
MPS	MPS	MEDIUM PRESSURE STEAM
LPS	LPS	LOW PRESSURE STEAM
HPR	HPR	HIGH PRESSURE RETURN
PC	PC	PUMPED CONDENSATE
LPR	LPS	LOW PRESSURE STEAM
	AD	ACCESS DOOR
	AFF	ABOVE FINISHED FLOOR
	AFPF	AIRFOIL PLENUM FAN
	AHU	AIR HANDLING UNIT
	AMS	AIR MONITORING STATION
	AP	ACCESS PANEL
	APD	AIR PRESSURE DROP
	ATC	AUTOMATIC TEMPERATURE CONTROL
	BBR	BASEBOARD RADIATION
	BHP	BRAKE HORSEPOWER
	BTU	BRITISH THERMAL UNIT
	C	CLOSED
	CAP	CAPACITY
	CAV	CONSTANT AIR VOLUME
	CFM	CUBIC FEET PER MINUTE
	CONV	CONVECTOR
	CW	DOMESTIC COLD WATER
CHR	CHR	CHILLED WATER RETURN
CHS	CHS	CHILLED WATER SUPPLY
CHR(P)	CHR	CHILLED WATER RETURN (PRIMARY)
CHS(P)	CHS	CHILLED WATER SUPPLY (PRIMARY)
	DB	DRY BULB
	DB	DECIBEL
ø	DIA	DIAMETER
	DIFF	DIFFUSER
	DWG	DRAWING
	EAT	ENTERING AIR TEMPERATURE
	EF	EXHAUST FAN
	EFF	EFFICIENCY
	ELECT. CHAR.	ELECTRICAL CHARACTERISTICS
	EMS	ENERGY MANAGEMENT SYSTEM
	ESP	EXTERNAL STATIC PRESSURE
	EX	EXISTING
	ETR	EXISTING TO REMAIN
	EXH	EXHAUST
	EWT	ENTERING WATER TEMPERATURE
	F	FAN
	°F	DEGREES FAHRENHEIT
	FOB	FLAT ON BOTTOM
	FOT	FLAT ON TOP
	FPM	FEET PER MINUTE
	FT H_2O	FEET WATER GAUGE
	FTR	FINNED TUBE RADIATION
	FZ	FREEZESTAT
G	G	NATURAL GAS
	GPM	GALLONS PER MINUTE
	HP	HORSEPOWER
	HPU	HEAT PUMP UNIT
	HRU	HEAT RECOVERY UNIT
HR	HR	HEATING WATER RETURN
HS	HS	HEATING WATER SUPPLY
HR(P)	HR(P)	HEATING WATER RETURN (PRIMARY)
HS(P)	HS(P)	HEATING WATER SUPPLY (PRIMARY)
RL	RL	REFRIGERANT LIQUID
RS	RS	REFRIGERANT SUCTION
	HT	HEIGHT
	HWG	HOT WATER GENERATOR
	HZ	HERTZ
	IN H_2O	INCHES WATER GAUGE
	KW	KILOWATT
	LAT	LEAVING AIR TEMPERATURE
	LBS	POUNDS
	LF	LINEAR FOOT
	LWT	LEAVING WATER TEMPERATURE
	MAX	MAXIMUM
	MBH	BTU PER HOUR (THOUSAND)
	MIN	MINIMUM
	NC	NOISE CRITERIA
	N.C.	NORMALLY CLOSED
	No.	NUMBER
	N.O.	NORMALLY OPEN
	OAF	OUTSIDE AIR FAN
	OAT	OUTSIDE AIR TEMPERATURE
	O/C	ON CENTER
	OED	OPEN END DUCT
	P	PUMP
	PA	PRIMARY AIR
	PD	PRESSURE DROP
	PSI	POUNDS PER SQUARE INCH
	RAF	RETURN AIR FAN
	REG	REGISTER
	REQ'D	REQUIRED
	RPM	REVOLUTIONS PER MINUTE
	RX	REMOVE EXISTING
	SAF	SUPPLY AIR FAN
	SB	STAND–BY
	SENS	SENSIBLE
	SP	STATIC PRESSURE
	SPLY	SUPPLY
	SQ	SQUARE
	SS	STAINLESS STEEL
	STD	STANDARD
	SWT	SUPPLY WATER TEMPERATURE
	TCU	TERMINAL CONTROL UNIT
	TEMP	TEMPERATURE
	TONS	TONS OF REFRIGERATION
	V	VOLTS
	VAV	VARIABLE AIR VOLUME
	VEL	VELOCITY
	VSD	VARIABLE SPEED DRIVE
	W/	WITH
	WB	WET BULB
	WG	WATER GAUGE
	WPD	WATER PRESSURE DROP
	WSHP	WATER SOURCE HEAT PUMP
	ΔT	TEMPERATURE DIFFERENCE
	%	PERCENT
	ϕ	ELECTRICAL PHASE

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CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY
INTERMEDIATE UNIT
200 YALE AVE MORTON, PA 19070

ISSUE DATES	DESCRIPTION:
DATE:	
02-15-2024	BID DOCUMENTS
02-15-2024	PERMIT SET

PROJECT NO: 2023-02-DCIU DRAWN BY :

SHEET TITLE:
MECHANICAL LEGEND & ABBREVIATION

SHEET NUMBER:
M0.1

BID DOCUMENTS

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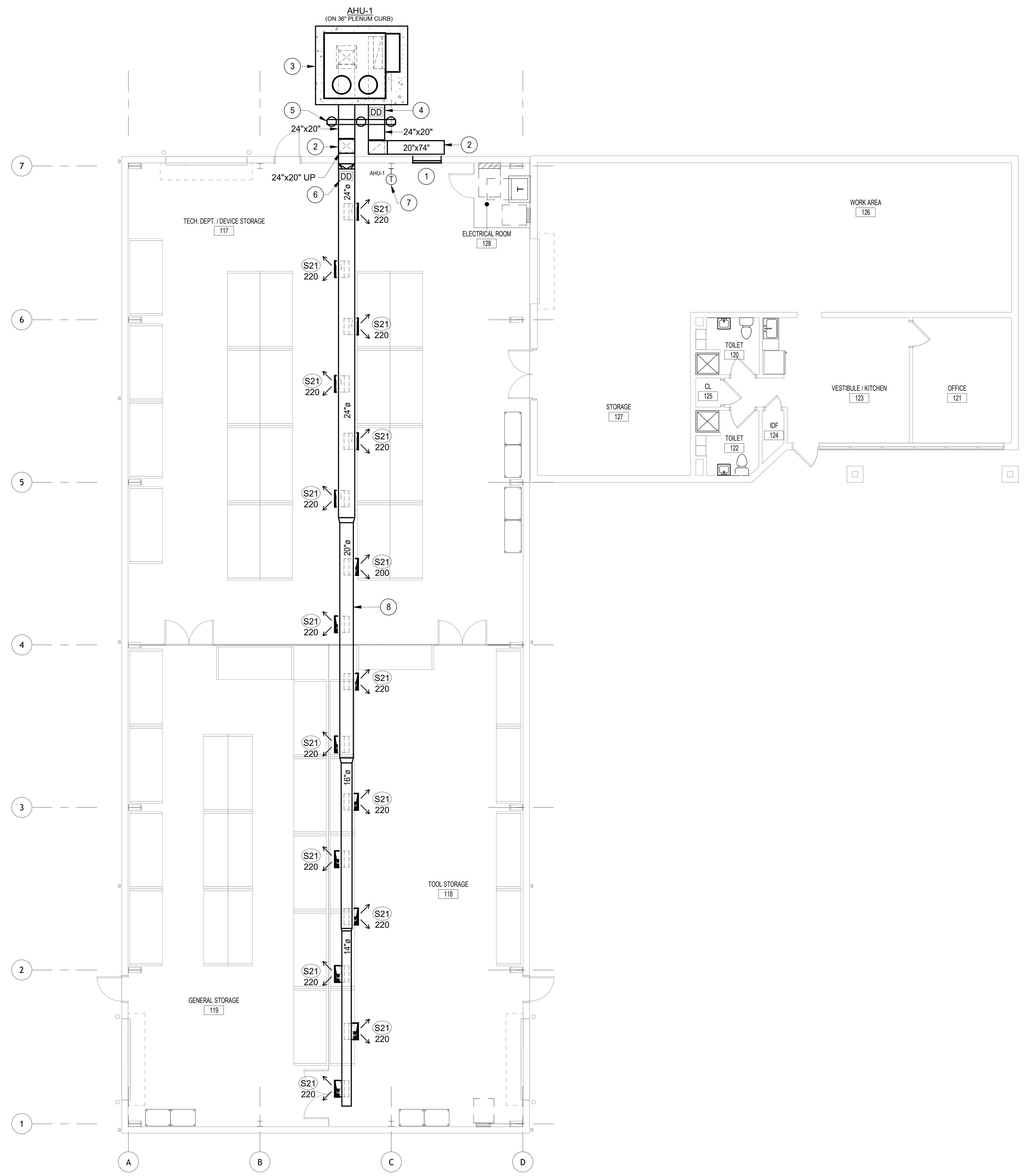
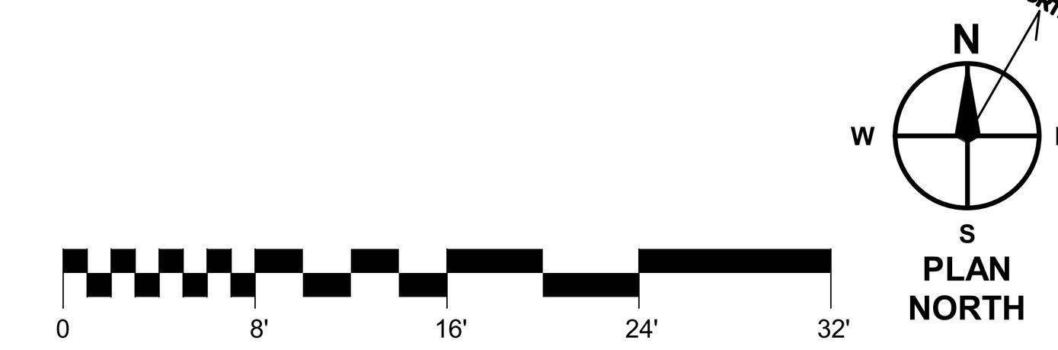


FLOOR PLAN
1/8" = 1'-0"

DRAWING NOTES:

1. RETURN AIR GRILLE 42"(W)x72"(H) @3500 CFM, 12" A.F.F. BASED ON KEES MODEL GHD40, 14 GAUGE STEEL FACE PLATE W/CUSTOM COLOR SELECTED BY ARCHITECT. BOTTOM OF GRILLE 12" ABOVE FINISH FLOOR.
2. SUPPORT DUCTWORK FROM WALL.
3. CONCRETE EQUIPMENT PAD.
4. RETURN AIR DUCT DETECTOR IN WEATHERPROOF ENCLOSURE (SPACE AGE ELECTRONICS OR EQUAL)
5. DUCT SUPPORT- SEE DETAILS ON DRAWINGS M7.1.
6. SUPPLY AIR DUCT DETECTOR.
7. TEMPERATURE SENSOR ON INSULATED SUB BASE.
8. EXPOSED SUPPLY AIR DUCTWORK. MOUNT AS HIGH AS POSSIBLE.



MAROTTA/MAIN ARCHITECTS
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CONSULTANT:
ALBAN ENGINEERING, INC
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P.N. 23064

CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE MORTON, PA 19070

ISSUE DATES

DATE:	DESCRIPTION:
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

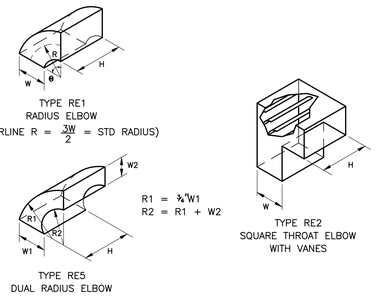
PROJ # : 22-02-DCIU DRAWN BY : Author

SHEET TITLE:
FLOOR PLAN

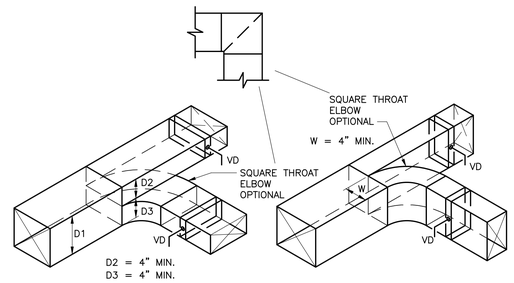
SHEET NUMBER:
M1.1

BID DOCUMENTS

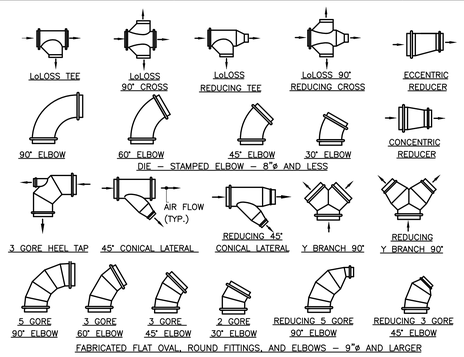
2/6/2024 9:03:01 AM



1 TYPICAL RECTANGULAR DUCT CONSTRUCTION DETAIL — SCALE: NONE

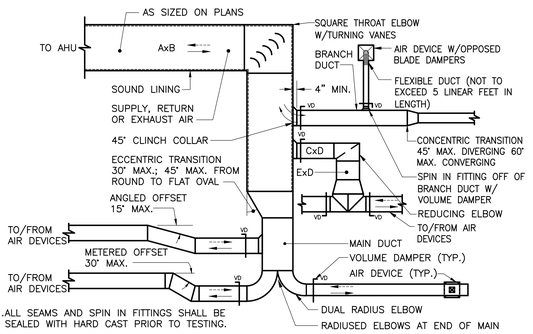


2 PARALLEL FLOW BRANCHES DETAIL — SCALE: NONE



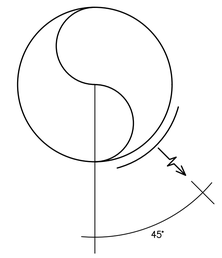
NOTE: ONLY FITTINGS SHOWN SHALL BE UTILIZED.

3 TYPICAL DUCT FITTINGS DETAIL — SCALE: NONE

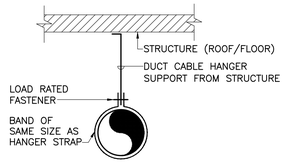


1. ALL SEAMS AND SPIN IN FITTINGS SHALL BE SEALED WITH HARD CAST PRIOR TO TESTING.
2. DUCTWORK CONSTRUCTION SHALL CONFORM TO THE MOST RECENT SMACNA STANDARD HVAC DUCT CONSTRUCTION STANDARDS
3. PROVIDE MANUAL VOLUME DAMPERS FOR EACH BRANCH AND RUNOUT IN LOW PRESSURE SYSTEMS
4. PROVIDE INSULATION STAND–OFFS FOR MANUAL VOLUME DAMPERS INSTALLED IN INSULATED DUCTS.

4 TYPICAL SUPPLY,EXHUAST, OR RETURN DUCT OFFSET AND TRANSITION DETAIL — SCALE: NONE

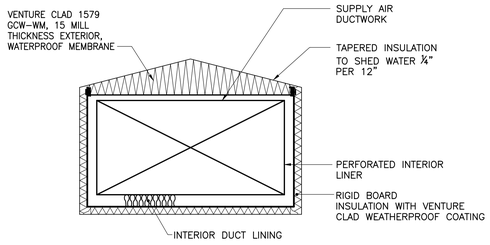


5 TYPICAL ROUND FACE DIFFUSER SECTION — SCALE: NONE



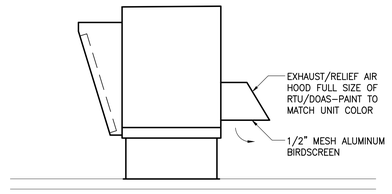
1. ALL EXPOSED DUCTWORK SHALL BE PAINT GRADE AND BE PAINTED (ARCHITECT SHALL SELECT COLOR).
2. ALL HEATING, VENTILATING AND AIR CONDITIONING EXPOSED DUCTWORK SHALL BE DOUBLE WALL TYPE.

6 TYPICAL EXPOSED DUCT HANGER DETAIL — SCALE: NONE



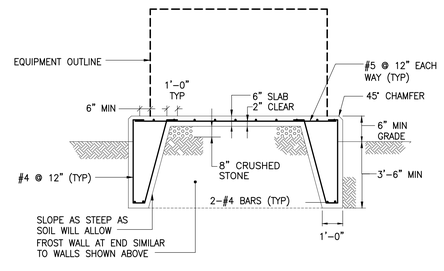
NOTE:
1) REFER TO DUCTWORK SUPPORT DETAIL THIS SHEET FOR ADDITIONAL INFORMATION.
2) ALL EXTERIOR DUCTWORK SHALL BE CONSTRUCTED OF 18 GA MINIMUM GALVANIZED SHEETMETAL

7 TYPICAL EXTERIOR DUCTWORK INSULATION DETAIL — SCALE: NONE



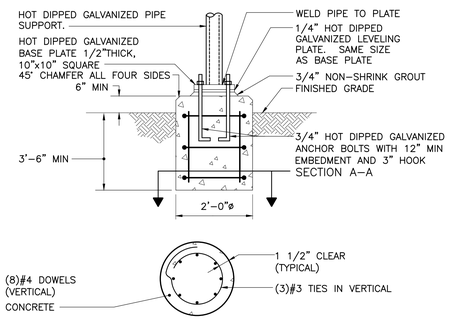
END VIEW

8 TYPICAL E/A HOOD DETAIL — SCALE: NONE



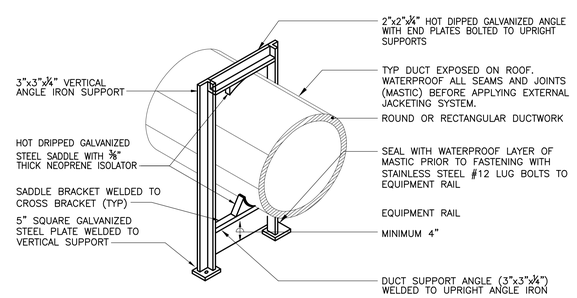
NOTE: PAD SHALL BE SLIGHTLY PITCHED TO ALLOW FOR WATER DRAINAGE.

9 CONCRETE EQUIPMENT PAD DETAIL — SCALE: NONE

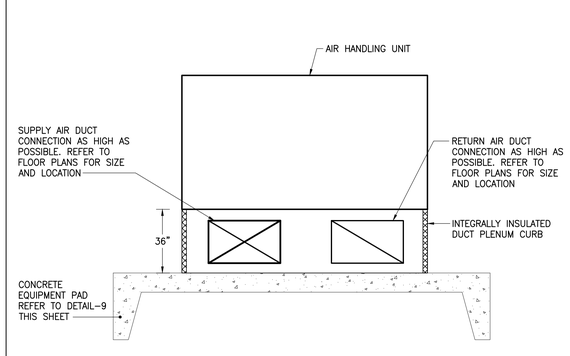


SECTION A–A

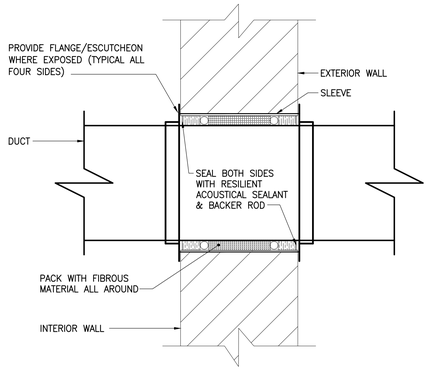
10 TYPICAL EXTERIOR DUCT SUPPORT & FOUNDATION DETAIL — SCALE: NONE



11 PLENUM CURB DETAIL — SCALE: NONE



12 TYPICAL DUCT PENETRATION AT EXTERIOR WALL DETAIL — SCALE: NONE



13 NOT USED — SCALE: NONE

14 NOT USED — SCALE: NONE

15 NOT USED — SCALE: NONE

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SEAL:

CONSULTANT:
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PA 23064

CONSTRUCTION OF
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ISSUE DATES

DESCRIPTION:	DATE:
BID DOCUMENTS	02-19-2024
PERMIT SET	02-19-2024

PROJ # : 22-02-DCIU DRAWN BY :

SHEET TITLE:

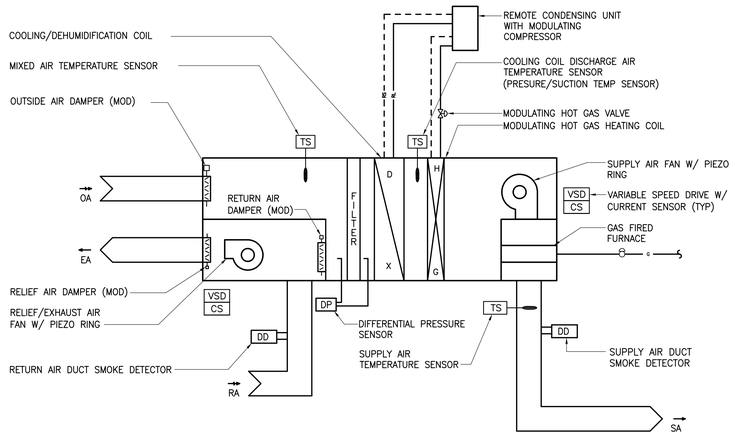
MISCELLANEOUS DETAILS

SHEET NUMBER:

M7.1

BID DOCUMENTS

12/28/2023 8:16:34 AM



DDC — STAND ALONE DDC CONTROLLER ATC – INTERLOCK WITH THE DCIU EMS (RADIUS SYSTEMS – SOLE SOURCE)
TS — SPACE TEMPERATURE SENSOR (IN CAGE)
RH — SPACE RELATIVE HUMIDITY SENSOR (LOCATE ADJACENT TO SPACE TEMPERATURE SENSOR IN CAGE)
OAT — OUTDOOR AIR TEMPERATURE SENSOR (GLOBAL)
RH — OUTDOOR AIR RELATIVE HUMIDITY SENSOR (GLOBAL)
CO — SPACE CARBON MONOXIDE SENSOR (LOCATE BY FIRST DIFFUSER OR IN SUPPLY DUCT)
EKS — EMERGENCY KILL SWITCH

TYPICAL SZVF AIR HANDLING UNIT CONTROL DIAGRAM

SCALE: NONE

INPUT/OUTPUT SUMMARY FOR TYPICAL PACKAGED ROOFTOP UNIT

BUILDING SYSTEM: AIR HANDLING UNITS (AHU)	INPUTS															OUTPUTS																		ALARMS						FEATURES														
	ANALOG									BINARY						ANALOG						BINARY						3-POINT FLOATING																										
DESCRIPTION	ROOM TEMPERATURE	DUCT TEMPERATURE	DIFFERENTIAL PRESSURE	O.A. TEMPERATURE (GLOBAL)	CURRENT SENSOR/STATUS	STATIC PRESSURE	CO_2	RELATIVE HUMIDITY	AIRFLOW	STATUS	SWITCH CLOSURE	STATIC PRESSURE	LOW TEMPERATURE CUTOUT	END SWITCH	DIFFERENTIAL PRESSURE SWITCH	MODULATING ACTUATOR	E/P TRANSDUCER	VARIABLE SPEED				CONTROL RELAY	SOLENOID	START/STOP	2-POSITION DAMPER MOD.			ACTUATOR	MERCURY RELAY	FEED/BLEED SAV				HIGH LIMIT	LOW LIMIT	RUN TIME	MAINTENANCE MESSAGE	SMOKE/FIRE/CO	LIQUID DETECTION	SCHEDULED START/STOP	TEMPERATURE SETBACK/SETUP	OPTIMIZED START (ADAPT.)	DEMAND LIMITING	DUTY CYCLE	VENTILATION DELAY	ECONOMIZER CYCLE	H.W. RESET W/ O.A. TEMP.	VAV CONTROL	REMOTE READ/RESET	TENANT OVERRIDE	COLOR GRAPHICS	POINT LOCKOUT	TREND LOG	WARM UP/PULL DOWN
AHU																								●													●			●		●	●		●	●		●	●		●			●
DUCT DETECTORS (TYP)																																						●																
SPACE	●							●								●																																					●	
SUPPLY AIR		●									●																								●														●				●	
SUPPLY AND RELIEF FANS					●				●	●								●																		●	●			●		●												
OUTSIDE AIR (GLOBAL)				●			●	●																																														
OUTDOOR AIR									●																																													
OUTSIDE AIR DAMPER																●																																						
RELIEF AIR DAMPER																●																																						
RETURN AIR DAMPER																●																																						
CARBON MONOXIDE																																		●				●															●	
CONDENSATE DRAIN PAN																																		●					●															
FILTER			●																																			●																

ATC SYSTEM I/O POINTS LIST

1. GENERAL:

A. THE AIR HANDLING SYSTEM SHALL BE PROVIDED WITH FACTORY MOUNTED REFRIGERATION SYSTEM ONLY CONTROLLER. THE UNIT MANUFACTURE SHALL PROVIDE A TERMINAL STRIP FOR ATC INTERFACE. COORDINATE REQUIREMENTS WITH THE UNIT MANUFACTURER. THE UNIT SHALL UTILIZE A FIELD INSTALLED DIRECT DIGITAL CONTROLLER BY THE ATC CONTRACTOR. THE ATC CONTRACTOR SHALL PROVIDE A DIRECT DIGITAL CONTROLLER AND ALL SENSORS, DEVICES AND CONTROLS NEEDED TO INTERFACE WITH THE AHU CONTROLLER AND PERFORM THE SEQUENCE OF OPERATION. THE AIR HANDLING SYSTEM SHALL BE STARTED AND STOPPED THROUGH A MANUAL SYSTEM ON–OFF–AUTOMATIC (H–O–A) SWITCH. WHEN INDEXED TO "ON", THE SYSTEM SHALL BE ENERGIZED AND OPERATE UNDER ITS CONTROL SEQUENCE. WHEN INDEXED TO "OFF" THE SYSTEM SHALL DE–ENERGIZE. WHEN INDEXED TO THE "AUTOMATIC" POSITION THE SYSTEM SHALL BE STARTED AND STOPPED BY A SIGNAL FROM THE EMS THROUGH ITS BUILT IN CONTROLLER.

B. SUPPLY FAN SHALL BE LOCALLY OR REMOTELY STARTED AND STOPPED THROUGH THE MANUAL SYSTEM SWITCH OR BY A SIGNAL FROM THE EMS.

C. RELIEF FAN SHALL BE INTERLOCKED TO OPERATE WHEN THE SUPPLY FAN OPERATES AND TO BE OFF WHEN THE SUPPLY FAN IS OFF.

D. WHEN THE UNIT SUPPLY FAN IS OFF, THE OUTSIDE AIR DAMPER SHALL CLOSE AND RETURN AIR DAMPER SHALL OPEN; GAS FIRED FURNACE AND CONDENSING UNIT SHALL BE DE–ENERGIZED; AND THE RELIEF AIR FAN AND ASSOCIATED REMOTE EXHAUST FANS SHALL BE DE–ENERGIZED.

E. SUPPLY FAN, RELIEF FAN, CONDENSING UNIT AND RELIEF FAN SHALL DE–ENERGIZE WHENEVER THE SUPPLY AIR TEMPERATURE DROPS BELOW THE LIMIT OF THE DISCHARGE AIR TEMPERATURE SET POINT OF 36°F (ADJUSTABLE THROUGH SOFTWARE) OR WHEN THE DUCT SMOKE DETECTORS SENSES PRODUCTS OF COMBUSTION OR WHEN THE HIGH DUCT STATIC PRESSURE SENSOR REACHES ITS SETPOINT (5" W.C. ADJUSTABLE) OR WHENEVER CARBON MONOXIDE IS SENSED OR WHENEVER THE CONDENSATE DRAIN PAN LEVEL IS REACHED.

F. WHENEVER THE AIR HANDLING SYSTEM IS ON AND IN THE OCCUPIED MODE, THE ASSOCIATED RELIEF AIR FAN SHALL BE ENERGIZED AND OPERATE THROUGH ITS CONTROL SEQUENCE.

G. ALL SAFETIES AND ASSOCIATED CONTROLS SHALL REMAIN ACTIVE WHETHER THE SYSTEM IS LOCALLY OR REMOTELY CONTROLLED AND/OR MANUALLY OVERRIDDEN.

H. PROVIDE A REMOTE EMERGENCY SHUTDOWN SWITCH FOR SYSTEM SHUTDOWN. REMOTE SWITCH SHALL BE INSTALLED AT A LOCATION APPROVED BY THE FIRE INSPECTOR. SHUT–DOWN SHALL OCCUR FROM A SIGNAL THROUGH THE EMS.

I. THE UNIT SHALL OPERATE WITH ITS BUILT–IN CONTROL SEQUENCE WHEN COMMUNICATION IS LOST TO THE EMS. COORDINATE ALL CONTROLLER SETPOINTS WITH THE UNIT MANUFACTURER.

J. COORDINATE ALL CONTROLS WITH THE UNIT MANUFACTURER AND INTEGRATE ALL AVAILABLE POINTS FROM THE REFRIGERATION SYSTEM CONTROLLER INTO THE EMS.

K. COORDINATE OUTSIDE AIR AND RELIEF AIR DAMPERS AND ASSOCIATED ACTUATORS WITH THE EQUIPMENT MANUFACTURER.

L. GAS FURNACE SHALL ONLY BE ENERGIZED WHEN THERE IS PROOF OF AIRFLOW. COORDINATE FURNACE CONTROL REQUIREMENT WITH THE EQUIPMENT MANUFACTURER.

M. ALL CONTROLS SHALL BE BY RADIUS SYSTEMS–SOLE SOURCE.

2. OCCUPIED CYCLE

A. GENERAL:

1. WHEN THE UNIT SUPPLY FAN IS ENERGIZED TO RUN, IT SHALL GO THROUGH A WARM–UP/PULL DOWN CYCLE. WHEN THE SYSTEM COMPLETES ITS WARM–UP/PULL–DOWN MODE OF OPERATION AND THE SYSTEM SWITCHES TO THE OCCUPIED MODE OF OPERATION, THE OUTSIDE AIR DAMPER SHALL OPEN TO ITS MINIMUM POSITION AND THE RETURN AIR DAMPER SHALL MODULATE TO ITS CORRESPONDING POSITION. THE RELIEF AIR FAN SHALL ENERGIZE.

2. THE SPACE TEMPERATURE IS CONTROLLED BY A SINGLE, SPACE MOUNTED TEMPERATURE SENSOR WITH SET POINT ADJUSTMENT. PROVIDE AN INSULATED SUB BASE WHEN LOCATING ON AN EXTERIOR WALL.

3. WHEN THE SYSTEM IS PLACED IN OCCUPIED MODE, THE RELIEF FAN AND ASSOCIATED EXHAUST FANS SHALL BE COMMANDED ON WHEN SUPPLY FAN RUN STATUS IS CONFIRMED AND THE OUTSIDE AIR DAMPER IS OPEN TO ITS MINIMUM SETPOINT.

B. WARM–UP/PULL DOWN:

THE UNIT CONTROL SHALL BE ARRANGED FOR A WINTER MORNING WARM–UP HEATING CYCLE AND SUMMER PULL DOWN COOLING CYCLE BASED ON AN OPTIMAL STARTING CONTROL STRATEGY. DURING WARM–UP CYCLE THE OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL REMAIN CLOSED, THE RETURN AIR DAMPER OPEN, AND THE AIR HANDLING UNIT GAS FIRED FURNACE SHALL BE ENERGIZED UNTIL THE SPACE TEMPERATURE RISES TO 70°F (ADJUSTABLE). SIMILARLY FOR PULL DOWN CYCLE, THE CONDENSING UNIT SHALL BE STAGED UNTIL THE SPACE TEMPERATURE DROPS TO 75°F (ADJUSTABLE). AT THAT POINT, THE OUTSIDE AIR DAMPER SHALL MODULATE TO ITS MINIMUM POSITION, THE RETURN DAMPER SHALL MODULATE TO ITS CORRESPONDING POSITION AND RELIEF AIR DAMPER SHALL OPEN, THE RELIEF AIR FAN SHALL ENERGIZE AS PREVIOUSLY DESCRIBED, AND THE HEATING AND COOLING CONTROL SHALL BE PLACED UNDER THE CONTROL OF THE SPACE AIR TEMPERATURE SENSOR.

C. COOLING

1. COOLING IS ENABLED WHEN THE SPACE AIR TEMPERATURE IS ABOVE THE COOLING SET POINT OF 75°F (ADJUSTABLE AND RESETTABLE THROUGH SOFTWARE) AND OUTSIDE AIR TEMPERATURE IS ABOVE THE COOLING LOCKOUT SET POINT OF 55°F (ADJ). THE UNIT SHALL SEQUENCE THE COOLING STAGES AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE SET POINT, MODULATING THE COMPRESSOR FROM 15% TO 100%. A STAGING DELAY ON AND DELAY OFF SHALL PREVENT EACH STAGE OF MECHANICAL COOLING FROM ENABLING AND DISABLING AT THE SAME TIME. IF THERE ARE MULTIPLE STAGES OF MECHANICAL COOLING AVAILABLE (I.E. MULTIPLE COMPRESSORS) EACH STAGE SHALL SEQUENTIALLY ENABLE BASED ON A TIME DELAY OF 180 SECONDS (ADJ) AND DISABLE BASED ON A MINIMUM DELAY OFF OF 180 SECONDS (ADJ). PROVIDE A 15 MINUTE (ADJ) ANTI–SHORT CYCLE TIME DELAY BETWEEN COMPRESSOR CYCLES.

D. REFRIGERATION LOW LIMIT CONTROL:

1. IF THE EVAPORATIVE LEAVING COIL FACE TEMPERATURE FALLS BELOW THE A LOW LIMIT SETPOINT OF 40°F (ADJUSTABLE), THE MECHANICAL COOLING WILL REVERT FROM TEMPERATURE CONTROL TO SEQUENTIALLY DISABLE STAGES OF MECHANICAL COOLING TO MAINTAIN THE LOW LIMIT TEMPERATURE SET POINT.

2. IF THE EVAPORATIVE LEAVING COIL FACE TEMPERATURE FALLS BELOW 34°F (ADJUSTABLE), MECHANICAL COOLING WILL BE DISABLED. MECHANICAL COOLING WILL BE COMMANDED TO RUN UNTIL THE EVAPORATIVE LEAVING COIL FACE TEMPERATURE RISES ABOVE 55°F (ADJUSTABLE) AND THE COMPRESSOR MINIMUM OFF TIME HAS BEEN ACHIEVED.

E. DEHUMIDIFICATION CONTROL:

1. DEHUMIDIFICATION IS ENABLED WHEN THE SUPPLY FAN IS OPERATING, SPACE TEMPERATURE IS SATISFIED (MECHANICAL COOLING IS OFF) OR ABOVE COOLING SET POINT (MECHANICAL COOLING IS ON), THE OUTSIDE AIR TEMPERATURE IS ABOVE THE COMPRESSOR LOCKOUT POINT (55°F) AND SPACE RELATIVE HUMIDITY REACHES ITS SETPOINT 60% RH (ADJUSTABLE THROUGH SOFTWARE). DEHUMIDIFICATION MODE SHALL BE DISABLED IF EITHER THE SPACE RELATIVE HUMIDITY FALLS 5% (ADJUSTABLE) BELOW THE SPACE DEHUMIDIFICATION SETPOINT OR THE SPACE TEMPERATURE FALLS 5°F (ADJUSTABLE) BELOW THE OCCUPIED SPACE COOLING SETPOINT TEMPERATURE.

2. WHEN THE UNIT IS IN DEHUMIDIFICATION MODE, THE COOLING SHALL REVERT FROM MAINTAINING SPACE TEMPERATURE COOLING SET POINT TO MAINTAINING A CONSTANT LEAVING COIL FACE TEMPERATURE AS DETERMINED BY A REFRIGERATION SUCTION PRESSURE SENSOR LOCATED ON THE FIRST STAGE OF COOLING.

3. MODULATING HOT GAS REHEAT CONTROL–IF THE SPACE TEMPERATURE FALLS BELOW ITS SETPOINT TEMPERATURE OF 75°F (ADJUSTABLE THROUGH SOFTWARE) DURING DEHUMIDIFICATION MODE AND THE FIRST STAGE OF MECHANICAL COOLING IS COMMANDED TO RUN, THE REFRIGERATION MODULATING GAS HEAT WILL BEGIN TO MODULATE OPEN TO MAINTAIN THE COOLING MODE SPACE TEMPERATURE SETPOINT.

F. ECONOMIZER CONTROL:

1. THE UNIT SHALL BE PROVIDED WITH AN ENTHALPY ECONOMIZER CYCLE. THE ECONOMIZER CONTROL SHALL MODULATE THE OUTSIDE AIR AND RETURN AIR DAMPER TO MAINTAIN SPACE TEMPERATURE WHENEVER OUTSIDE AIR ENTHALPY IS LESS THAN 28 BTU/LB (ADJUSTABLE THROUGH SOFTWARE) AND OUTSIDE AIR IS LESS THAN 75°F. THE ECONOMIZER CYCLE SHALL BE LOCKED OUT WHEN THE UNIT IS OPERATING IN THE DEHUMIDIFICATION SEQUENCE OF OPERATION.

2. AN ECONOMIZER LOW LIMIT WILL PREVENT THE MIXED AIR TEMPERATURE FROM FALLING BELOW THE ECONOMIZER LOW LIMIT SET POINT OF 45°F (ADJUSTABLE THROUGH SOFTWARE). IF THE MIXED AIR TEMPERATURE FALLS BELOW THE ECONOMIZER LOW LIMIT SET POINT AND MECHANICAL COOLING IS DISABLED, THE ECONOMIZER WILL MODULATE THE OUTSIDE AIR DAMPERS TO MAINTAIN THE ECONOMIZER LOW LIMIT SET POINT. DURING THIS MODE OF OPERATION, THE ECONOMIZER HAS THE ABILITY TO MODULATE THE OUTSIDE AIR DAMPER BELOW THE ECONOMIZER MINIMUM POSITION TO MAINTAIN THE ECONOMIZER LOW LIMIT TEMPERATURE SET POINT.

3. HEATING:

SPACE TEMPERATURE SENSOR SHALL MODULATE GAS FURNACE CONTROL VALVE TO MAINTAIN 70°F (ADJUSTABLE AND RESETTABLE THROUGH SOFTWARE), SPACE TEMPERATURE SETPOINT.

G. FAN SPEED CONTROL:

7. SUPPLY AIR FAN SHALL BE CONTROLLED TO MAINTAIN SPACE TEMPERATURE THROUGH ITS BUILT CONTROLS. THE SUPPLY FAN SHALL MODULATE BETWEEN 50% (ADJUSTABLE THROUGH SOFTWARE) TO 100% OF THE SCHEDULED AIR FLOW RATE. SUPPLY AIR TEMPERATURE SHALL BE LIMITED TO 55°F – 90°F (ADJUSTABLE THROUGH SOFTWARE) AS RESET BY THE SPACE TEMPERATURE SENSOR. WHEN THE SUPPLY AIR LOW OR HIGH TEMPERATURE SETPOINT IS REACHED AND THE SPACE TEMPERATURE RISES ABOVE (COOLING) OR FALLS BELOW (HEATING) ITS SPACE TEMPERATURE, THE SUPPLY AIR FLOW TO THE SPACE SHALL INCREASE TO MAINTAIN THE SPACE TEMPERATURE SETPOINT.

8. THE RELIEF AIR FAN SHALL VARY ITS FAN SPEED TO MAINTAIN A SLIGHTLY POSITIVE BUILDING PRESSURE THROUGH DIFFERENTIAL PRESSURE CONTROLLER.

3. UNOCCUPIED CYCLE

A. GENERAL:

1. THE CONDENSING UNIT SHALL DE–ENERGIZE AND AFTER A FIVE MINUTE TIME DELAY THE SUPPLY FAN, AND ASSOCIATED RELIEF FAN SHALL BE DE–ENERGIZED, OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL BE CLOSED, THE GAS FURNACE SHALL BE DEENERGIZED AND RETURN AIR DAMPER SHALL BE OPEN. SPACE TEMPERATURE SENSOR SHALL BE RESET TO 55°F (ADJUSTABLE) IN THE HEATING MODE.

B. HEATING:

1. HEATING SETBACK TEMPERATURE SHALL BE MAINTAINED BY CYCLING THE SUPPLY FAN AS RECIRCULATING UNIT HEATER. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED SETPOINT OF 55°F (ADJUSTABLE), THE SUPPLY FAN SHALL START AND FULL HEATING SHALL BE ENABLED. HEATING IS DISABLED WHEN SPACE TEMPERATURE REACHES 2°F ABOVE SPACE TEMPERATURE SETPOINT. THE SUPPLY FAN SHALL DE–ENERGIZE AFTER THE TIME DELAY TIMES OUT. WHEN OUTSIDE AIR TEMPERATURE FALLS BELOW 20°F (ADJUSTABLE THROUGH SOFTWARE) THE UNOCCUPIED SPACE TEMPERATURE SHALL BE RESET TO ITS OCCUPIED TEMPERATURE SETPOINT. THIS CONTROL SEQUENCE SHALL BE ENABLED/DISABLED THROUGH THE EMS.

C. MECHANICAL COOLING:

1. MECHANICAL COOLING IS DISABLED. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED COOLING TEMPERATURE SETPOINT OF 85°F (ADJUSTABLE THROUGH SOFTWARE), THE UNIT COOLING NIGHT CYCLE MODE IS ENABLED. ONCE THE SUPPLY FAN RUN STATUS IS CONFIRMED, THE UNIT OPERATES WITH THE ECONOMIZER DISABLED AND SEQUENTIALLY ENABLES 100% MECHANICAL COOLING CAPACITY. ONCE THE SPACE TEMPERATURE FALLS 2°F (ADJUSTABLE THROUGH SOFTWARE) BELOW THE SPACE UNOCCUPIED COOLING TEMPERATURE SETPOINT, THE COOLING NIGHT CYCLE MODE IS DISABLE. THE SUPPLY FAN IS DISABLED AFTER 120 SECONDS TIME DELAY TO ALLOW FOR MECHANICAL UNLOADING. THE UNOCCUPIED COOLING SEQUENCE OF OPERATION SHALL BE ENABLED/DISABLED BY A MANUAL SOFTWARE SELECTOR SWITCH THROUGH THE EMS.

TYPICAL SZVF AIR HANDLING UNIT SEQUENCE OF OPERATION – DDC (ELECTRIC/ELECTRONIC ACTUATION)

AIR DEVICE SCHEDULE

No. (Sx)	CFM MAX	NECK SIZE	COLLAR ø SIZE	MAX NC	TYPE (SEE SPEC.)
SUPPLY AIR DEVICE					
S1	125	6x6	6"ø	18	TITUS TDC
S2	230	9x9	8"ø	18	TITUS TDC
S3	400	12x12	10"ø	18	TITUS TDC
S4	600	15x15	12"ø	18	TITUS TDC
S5	800	18x18	14"ø	18	TITUS TDC
S6	1000	21x21	16"ø	18	TITUS TDC
S7	125	6x6	–	18	TITUS TDC
S8	230	9x9	–	18	TITUS TDC
S9	400	12x12	–	18	TITUS TDC
S10	600	15x15	–	18	TITUS TDC
S11	800	18x18	–	18	TITUS TDC
S12	1000	21x21	–	18	TITUS TDC
S13	200	12x12/8"ø	–	18	TITUS TDC
S14	270	12x12/10"ø		18	TITUS TDC
S15	500	15x15/12"ø	–	18	TITUS TDC
S16	150	12x4	–	18	TITUS S300FS
S17	200	12x6	–	18	TITUS S300FS
S18	475	36x6	–	18	TITUS S300FS
S19	450	18x8	–	18	TITUS S300FS
S20	670	18x12	–	18	TITUS S300FS
S21	650	24x10	–	18	TITUS S300FS
S22	950	30x12	–	18	TITUS S300FS
S23	1000	36x12	–	18	TITUS S300FS
S24	1500	36x16	–	18	TITUS S300FS

NOTES:
1. ALL SUPPLY AIR DIFFUSERS SHALL BE 4–WAY BLOW UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
2. ALL SUPPLY AIR REGISTERS SHALL BE DOUBLE DEFLECTION WITH FRONT BLADES PARALLEL TO THE SHORT DIMENSION (VERTICAL).
3. FOR SUPPLY AIR DEVICES CONNECTED TO THE BOTTOM OF BRANCH DUCTS (ie SERVING MORE THAN ONE AIR DEVICE) PROVIDE DAMPER WITH GRID, TITUS AG–65 OR EQUAL.
4. NOT ALL AIR DEVICES SCHEDULED MAY BE USED.
5. COLLAR SIZE REFERS TO RUNNOUT CONNECTION TO SOUND LINED PLENUM BOX FABRICATED BY THE SHEET METAL CONTRACTOR CONNECTING TO THE DIFFUSER NECK. REFER TO DETAILS FOR ADDITIONAL INFORMATION.
6. PROVIDE AIR EXTRACTOR FOR ALL SIDEWALL SUPPLY REGISTERS.
7. ALL TDCA TYPE DIFFUSERS SHALL BE PROVIDED WITH ADJUSTABLE VANES, ACCESSIBLE FROM THE DIFFUSER FACE, WITH THE DISCHARGE PATTERN SET TO THE VERTICAL POSITION.

AIR HANDLING UNIT SCHEDULE

AHU NO.	SERVICE	LOCATION	SUPPLY FAN							RETURN/RELIEF FAN							COOLING COIL SYSTEM CONDITION								HG REHEAT COIL			NG FURNACE SYSTEM CONDITIONS						OUTSIDE AIR			ELECTRICAL CHARACTERISTICS			EER/IEER	WEIGHT (lbs)	SYSTEM TYPE	BASED ON (DAIKIN)
			FAN	FAN RPM	STD. AIR CFM		FAN TYPE	FAN QTY	MAX ESP (IN H_2O)	FAN	FAN RPM	STD. AIR CFM		FAN TYPE	FAN QTY	MAX ESP (IN H_2O)	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	MAX. FACE VEL. (FPM)	MAX. A.P.D. (IN H_2O)	SENS. CAP. (MBH)	TOTAL CAP. (MBH)	EAT DB (°F)	LAT DB (°F)	TOTAL CAP. (MBH)	EAT DB (°F)	LAT DB (°F)	ELECTRICAL CHARACTERISTICS	MAX. A.P.D (IN H20)	TOTAL CAP		MIN. CFM	MAX. CFM	%	V/ø/Hz	MCA	MOP				
			TOTAL HP	MAX.	MIN.	MAX.				TOTAL HP	MAX.	MIN.	MAX.																			INPUT (MBH)	OUTPUT (MBH)										
AHU–1	STORAGE ROOMS	GRADE	8	1702	1,750	3,500	AFPF	1	1.0	3	798	1,600	3,350	AFPF	2	0.5	80	67	53	53	230	0.22	102	146	53	70	63	60	102	120V/1ø/60HZ	0.03	200	160	500	3,500	14	208/3/60	67.9	80	11.2/17.6	3,000	SZVF	DPS012A

NOTES:
1. VAV=VARIABLE AIR VOLUME / CV = CONSTANT VOLUME.
2. ESP = EXTERNAL STATIC PRESSURE BASED ON THE PRESSURE REQUIRED AT THE AHU DUCT CONNECTION.
3. FC = FORWARD CURVED, BIAF = BACKWARD INCLINED AIR FOIL (DOUBLE WIDTH, DOUBLE INLET, AFPF = AIRFOIL PLENUM FAN (SINGLE WIDTH, SINGLE INLET).
4. ALL FANS SHALL BE DIRECT DRIVE ECM TYPE.
5. EXHAUST FAN CFM VALUE DOES NOT INCLUDE WHEEL PURGE CFM.
6. PROVIDE INDEPENDENT 120V ELECTRICAL CONNECTION FOR LIGHTS AND GFI RECEPTICALS.
7. GAS FURNACE SHALL A MINIMUM OF 12 TO 1 TURNDOWN
8. LEAD COMPRESSOR(S) SHALL BE INVERTER SCROLL TYPE WITH MODULATING CAPACITY
9. PROVIDE NON–FUSED DISCONNECT SWITCH AND PHASE FAILURE MONITOR
10. PROVIDE BACNET COMMUNICATION CARD FOR REFRIGERATION SYSTEM CONTROLS
11. PROVIDE TERMINAL STRIP FOR ATC SYSTEM DIRECT DIGITAL CONTROLLER
12. PROVIDE 5 YEAR PARTS, LABOR AND LOSS OF REFRIGERANT WARRANTY
13. PROVIDE 2" MERV 8 PREFILTER (1.0" W.C. LOADED) AND 4" MERV 13 FINAL FILTER (1.0" W.C. LOADED)
14. COOLING BASED ON 95°F AMBIENT AIR TEMPERATURE

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CONSTRUCTION OF
MORTON ANNEX ADDITION
AND SITE REPAIRS
DELAWARE COUNTY
INTERMEDIATE UNIT
200 YALE AVE MORTON, PA 19070

ISSUE DATES

DATE:	DESCRIPTION:
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ #: 22-02-DCIU DRAWN BY :

SHEET TITLE:
SZVF AIR HANDLING UNIT CONTROL DIAGRAM & SCHEDULE

SHEET NUMBER:
M8.1

BID DOCUMENTS

GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE DRAWINGS OF ALL OTHER TRADES ON THE PROJECT. ELECTRICAL OR SYSTEMS CONNECTIONS INDICATED ON ARCHITECTURAL, MECHANICAL, CIVIL, STRUCTURAL, KITCHEN AND ALL OTHER DRAWINGS WHICH ARE PART OF THIS PROJECT, SHALL BE CONSIDERED A PART OF THIS CONTRACT AND SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AT NO EXTRA COST TO THE OWNER.

2. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE AND AS SUCH SHALL NOT BE SCALED. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF DEVICES AND EQUIPMENT AND DIMENSIONAL INFORMATION PRIOR TO ROUGH-IN. COORDINATE LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN OF SERVICE EQUIPMENT AND WIRING.

3. COORDINATE MOUNTING HEIGHTS OF ALL DEVICES WITH ARCHITECTURAL PLANS, SECTIONS, ELEVATIONS AND CASEWORK DRAWINGS.

4. COORDINATE WALLS THAT ARE TO REMAIN AND NEW WALLS WITH ARCHITECTURAL PLANS.

5. WIRING AND CONDUIT SIZES INDICATED IN PANEL SCHEDULES ARE MINIMUM ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING EXACT WIRING AND CONDUIT SIZES. CONTRACTOR SHALL PROVIDE SPLICE BLOCKS AND REDUCING PINS AS REQUIRED TO TERMINATE WIRING AND MAKE FINAL CONNECTIONS.

6. ELECTRICAL BOXES IN FIRE RATED PARTITIONS SHALL NOT EXCEED 16 SQUARE INCHES IN AREA (IF 4"x4"), SHALL BE MADE OF STEEL, AND SHALL BE SUCH THAT THE CUMULATIVE AREA OF BOX "CUTOUTS" IN THE FIREWALL DOES NOT EXCEED 100 SQUARE INCHES PER 100 SQUARE FEET OF WALL AREA. ELECTRICAL BOXES ON OPPOSITE SIDES OF THE SAME FIREWALL SHALL BE SEPARATED BY A HORIZONTAL AND VERTICAL DISTANCE OF NOT LESS THAN 24 INCHES. THE ELECTRICAL CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS, AS NECESSARY, TO ELECTRICAL BOX LOCATIONS TO ENSURE COMPLIANCE WITH THIS REQUIREMENT SINCE BOX LOCATIONS ARE TYPICALLY NOT DIMENSIONED ON THE DRAWINGS. CONSULT ARCHITECT IF CLARIFICATION IS REQUIRED.

7. ALL CONDUIT SHALL BE CONCEALED IN WALLS, FLOORS, ABOVE CEILING OR THROUGH MILLWORK. AT TIMES CONDUIT ROUTING IS SHOWN FOR CLARITY AND IN NO WAY PROVIDES THE CONTRACTOR ABILITY TO NOT PROVIDE CONCEALED CONDUIT AT ANY POINT OTHER POINT NOT SHOWN IN THE BUILDING. REFER TO SPECIFICATIONS FOR CONDUIT AND WIRING REQUIREMENTS BASED ON APPLICATION.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT ROUTING OF WIRING AND CONDUITS AND SHALL BE RESPONSIBLE FOR SIZING ALL BRANCH CIRCUIT WIRING TO LIMIT VOLTAGE DROP TO 3%. CONTRACTOR SHALL SIZE CONDUIT TO ACCOMMODATE WIRING PER NEC. 20 AMPERE CIRCUITS SHALL BE SIZED AS FOLLOWS:

20 AMPERE CIRCUITS				
120 VOLT		277 VOLT		MINIMUM CONDUIT SIZE
WIRING LENGTH	WIRING SIZE	WIRING LENGTH	WIRING SIZE	
0' - 60'	#12	0 '- 130'	#12	3/4"
60' - 100'	#10	130' - 210'	#10	3/4"
100' - 150'	#8	210' - 340'	#8	3/4"
150' - 240'	#6	340' - 540'	#6	3/4"
OVER 240'	#4	OVER 540'	#4	1"

NOTE:
BRANCH CIRCUITS IN PANELBOARDS WITH 200% RATED NEUTRAL BUS AND ALL DIMMED LIGHTING CIRCUITS & ECM MOTORS SHALL HAVE DEDICATED NEUTRAL CONDUCTORS.

ELECTRICAL LEGEND:

(MOUNTING HEIGHTS ARE TO TOP OF DEVICE U.O.N.)

LIGHTING

G — LIGHT FIXTURE. TYPE AS SPECIFIED. REFER TO LIGHT FIXTURE SCHEDULE.

EXIT SIGNAGE - CEILING MOUNTED, WALL MOUNTED 6" ABOVE DOOR. SHADING INDICATES ILLUMINATED FACE. DIRECTIONAL ARROWS AS INDICATED. CONNECT TO BRANCH LIGHTING CIRCUIT SERVING AREA LOCATED IN AHEAD OF ALL CONTROLS WITH 2#12 + 1#12GW IN 3/4"C MINIMUM FOR POWER MONITORING AND BATTERY CHARGING.

EMERGENCY BATTERY PACK. TYPE AS SPECIFIED. REFER TO LIGHT FIXTURE SCHEDULE. MOUNT AT 7'-6" A.F.F. U.O.N. CONNECT TO BRANCH LIGHTING CIRCUIT SERVING AREA LOCATED IN AHEAD OF ALL CONTROLS WITH 2#12 + 1#12GW IN 3/4"C MINIMUM FOR POWER MONITORING AND BATTERY CHARGING.

SWITCHES

(MOUNTING HEIGHTS TO TOP OF DEVICE)

S4,V — 4 BUTTON LOW VOLTAGE SWITCH. MOUNT AT 48" A.F.F. U.O.N. PROVIDE BACK BOX WITH 3/4" EMPTY CONDUIT WITH PULL STRING TO ACCESSIBLE CEILING TERMINATED IN BUSHED END. PROVIDE ASSOCIATED ROOM CONTROLLER, WATTSTOPPER LMRC-210 SERIES OR APPROVED EQUALS. ENGRAVE BUTTONS AS 'ON, RAISE, LOWER, OFF'.

OS — OCCUPANCY SENSOR. LOW VOLTAGE WITH POWER PACK, DUAL TECHNOLOGY, WALL MOUNTED AT 10'-0" A.F.F. U.O.N.. WATTSTOPPER DT-200 SERIES OR APPROVED EQUALS. FAIL TO ON TYPE. TIME DELAY PER OWNERSHIP.

OSC — OCCUPANCY SENSOR, LOW VOLTAGE WITH POWER PACK, DUAL TECHNOLOGY, CORNER MOUNTED AT 10'-0" A.F.F. U.O.N.. WATTSTOPPER LMDX-100 SERIES OR APPROVED EQUALS. FAIL TO ON TYPE.

CONDUIT

HOMERUN TO PANELBOARD; REFER TO PANEL SCHEDULES FOR MINIMUM WIRE AND CONDUIT SIZES.

BRANCH CIRCUIT CONDUIT AND WIRING CONCEALED IN CEILING OR WALL SPACE, OR SURFACE MOUNTED WHERE NO CEILING OR WALL SPACE EXISTS. REFER TO PANEL SCHEDULES FOR MINIMUM WIRE AND CONDUIT SIZES.

BRANCH CIRCUIT CONDUIT AND WIRING IN SLAB, UNDER FLOOR OR UNDERGROUND. REFER TO PANEL SCHEDULES FOR MINIMUM WIRE AND CONDUIT SIZES.

POWER

PANELBOARD; RECESSED, SURFACE MOUNTED. MOUNT AT 5'-6" A.F.F. TO TOP OF PANEL.

SM — SINGLE POLE MANUAL MOTOR STARTING SWITCH WITH HOA SWITCH; MOUNT AT 48" A.F.F. IN NEMA 1 ENCLOSURE U.O.N.

MOTOR; TYPE AS NOTED.

SAFETY DISCONNECT SWITCH - FUSED, NON-FUSED. MOUNT AT 48" A.F.F. U.O.N. FUSED AS NOTED. REFER TO SPECIFICATION FOR NEMA RATING.

ENCLOSED CIRCUIT BREAKER. MOUNT AT 5'-6" A.F.F. TO TOP U.O.N. FUSE SIZE AS NOTED. REFER TO SPECIFICATIONS FOR NEMA RATING.

J — JUNCTION BOX - CEILING MOUNTED, WALL MOUNTED. TYPE AS NOTED.

T — TRANSFORMER.

SPD — SURGE PROTECTION DEVICE.

COMBINATION TYPE MOTOR STARTER - FVNR WITH CONTROL TRANSFORMER, RED AND GREEN INDICATING LIGHTS, H.O.A. SELECTOR SWITCH AND CIRCUIT BREAKER DISCONNECT SWITCH. MOUNT AT 5'-6" A.F.F. TO TOP U.O.N. FUSED AS NOTED, REFER TO SPECIFICATION FOR NEMA RATING.

ELECTRICAL METER.

UNIT HEATER.

OUTLETS

Y1,1 — DUPLEX RECEPTACLE; 2P, 3W, 20A, 125V, NEMA 5-20R; MOUNT AT 18"A.F.F. U.O.N. SUBSCRIPT DENOTES INDICATES BRANCH CIRCUIT CONNECTION. REFER TO SPECIFICATIONS AND THIS DRAWING FOR WIRE AND CONDUIT REQUIREMENTS.

DOUBLE DUPLEX RECEPTACLE; 2P, 3W, 20A, 125V, NEMA 5-20R; MOUNT AT 18" A.F.F. U.O.N. SUBSCRIPTS: USB - PROVIDE USB IN FACEPLATE

DUPLEX RECEPTACLE; 2P, 3W, 20A, 125V, NEMA 5-20R; MOUNT IN LINE WITH THE TOP OF MASONRY UNIT 16" A.F.F. U.O.N.

DUPLEX RECEPTACLE; 2P, 3W, 20A, 125V, NEMA 5-20R; GROUND FAULT INTERRUPTER MOUNT AT 18" A.F.F. U.O.N.

SPECIAL RECEPTACLE; TYPE AS NOTED; MOUNT AT 18" A.F.F. U.O.N.

SLASH INDICATES DEVICE TO BE MOUNTED AT 42" A.F.F. OR 6" ABOVE COUNTER U.O.N.

DUPLEX RECEPTACLE; 2P, 3W, 20A, 125V, NEMA 5-20R; WEATHER RESISTANT, GROUND FAULT INTERRUPTER WITH WHILE IN-USE WEATHERPROOF COVER; MOUNT AT 18" A.F.F. U.O.N.

DOUBLE DUPLEX RECEPTACLE; 2P, 3W, 20A, 125V, NEMA 5-20R; RECESSED IN FLOOR.

TELECOMMUNICATIONS

W — CEILING MOUNTED WIRELESS ACCESS POINT OUTLET.

SECURITY

C — CEILING MOUNT VIDEO SURVEILLANCE CAMERA BY OWNER, COORDINATE LOCATION WITH OWNER/IT PRIOR TO ROUGH-IN.

C — WALL MOUNT VIDEO SURVEILLANCE CAMERA BY OWNER, EXTERIOR CAMERAS SHALL BE MOUNTED AT 12'-0" A.F.G. U.O.N. INTERIOR CAMERAS SHALL BE MOUNTED AT 10'-0" A.F.F. U.O.N. COORDINATE LOCATION WITH OWNER/IT PRIOR TO ROUGH-IN.

CR — CARD READER MOUNT AT 48" A.F.F. TO TOP OF DEVICE. EC SHALL PROVIDE ROUGH-INS, RACEWAYS AND CABLE BACK TO ACCESS CONTROL PANEL (ACP), CABLE SHALL BE SMARTWIRE ACCESS CONTROL CABLE #4461030

FIRE ALARM

P — FIRE ALARM PULL STATION. MOUNT AT 48" A.F.F.

SD — SMOKE DETECTOR.

DD — DUCT TYPE SMOKE DETECTOR. PROVIDE EACH DUCT DETECTOR WITH REMOTE TEST SWITCH. REFER TO DETAIL FOR ADDITIONAL INFORMATION.

RT — REMOTE TEST SWITCH

15cd F — FIRE ALARM STROBE LIGHT. CANDELA RATING AS INDICATED. WALL MOUNT AT 6'-8" A.F.F. TO BOTTOM OR 6" BELOW CEILING, WHICHEVER IS LOWER U.O.N.

15cd F — FIRE ALARM STROBE LIGHT. CEILING MOUNTED. CANDELA RATING AS INDICATED.

15cd F — FIRE ALARM HORN/STROBE LIGHT. CEILING MOUNTED. CANDELA RATING AS INDICATED.

H — FIRE ALARM MAGNETIC DOOR HOLDER.

MM — MONITOR MODULE.

CO — CARBON MONOXIDE DETECTOR.

SMD — COMBINATION SMOKE/FIRE DAMPER. PROVIDE MONITOR MODULE FOR SMOKE DETECTOR FURNISHED WITH UNIT AND 120/24V TRANSFORMER WITH PRIMARY AND SECONDARY FUSING FOR POWER CONNECTION TO DAMPER AS REQUIRED.

MISCELLANEOUS

REFERENCE TO DRAWING NOTE.

#E## — DETAIL REFERENCE: DETAIL NUMBER/DRAWING NUMBER

ITEMS SHOWN DASHED/HEAVY ARE TO BE REMOVED.

ITEMS SHOWN SOLID/LIGHT ARE EXISTING TO REMAIN.

E1.1 — ELEVATION VIEW REFERENCE.

ABBREVIATIONS:

A	AMPERE, AMPERES
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AWG	AMERICAN WIRE GAUGE
B.O.D.	BASIS OF DESIGN
C	CONDUIT
CB	CIRCUIT BREAKER
DWG	DRAWING
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
FLA	FULL LOAD AMPERES
FSS	FUSED SAFETY SWITCH
G	GROUND
GFEP	GROUND FAULT EQUIPMENT PROTECTION
GFI	GROUND FAULT INTERRUPTING
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
IMC	INTERMEDIATE METAL CONDUIT
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LMS	LUMENS
MCA	MINIMUM CIRCUIT AMPERES
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MH	MOUNTING HEIGHT/MANHOLE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER's ASSOCIATION
NFSS	NON-FUSED SAFETY SWITCH
NO	NUMBER
OS	OCCUPANCY SENSOR
P	POLE, POLES
Ø	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE
RGS	RIGID GALVANIZED STEEL
TYP	TYPICAL
UH	UNIT HEATER
V	VOLT, VOLTS
VR	VANDAL RESISTANT
WP	WEATHERPROOF
W	WATTS, WIRE, WIRES
XFMR	TRANSFORMER
TTB	TELEPHONE TERMINAL BOARD
UTP	UNSHIELDED TWISTED PAIR
U.O.N.	UNLESS OTHERWISE NOTED

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	MODEL	LAMPS	MAX. ALLOCATED WATTAGE	VOLTS	MOUNTING	REMARKS
E	THERMOPLASTIC STYLE EMERGENCY BATTERY UNIT WITH INTEGRAL BATTERY (ADDITIONAL CAPACITY TO POWER TWO REMOTE HEAD), LVCO, TEST SWITCH, TWO FULLY ADJUSTABLE LED HEADS (300lms EACH), UL924 LISTED AND WHITE FINISH.	EVENLITE	TEBL5W SERIES	LED, 300lms EACH	6.0 W	120 V	WALL, SURFACE AT 8'-0" A.F.F.	
ER	WEATHERPROOF REMOTE EMERGENCY DUAL HEAD WITH DIE CAST ALUM. HOUSING, SEALED/GASKETED AND BLACK FINISH. POWERED VIA TYPE 'E' LIGHT FIXTURE.	EVENLITE	PRW.LED.2.MV.B SERIES	LED	0.0 W		WALL, SURFACE. OVER DOOR AT ~8'-0" A.F.G.	
G	NOMINAL 22"dia x 22"h HIGHBAY STYLE LED LUMINAIRE WITH 80+ CRI MIN., INTEGRAL 0-10v. DIMMING DRIVER, DIE-CAST ALUM. HOUSING, CLEAR ACRYLIC REFRACTOR, CONICAL BOTTOM LENS, INTEGRAL 10kv SURGE PROTECTOR AND FINISH PER ARCHITECT (BLACK B.O.D.).	DAY-BRITE	RBX.20L.840.UNV.BK.SP1.ARR22.22DL SERIES	LED, 4000k, ~20,000lms	152.0 W	120 V	RIGID PENDANT WITH BALL JOINT SWIVEL. BOTTOM OF LUMINAIRE FLUSH WITH BOTTOM OF STRUCTURE.	FIELD COORDINATION REQUIRED WITH ALL OTHER TRADES PRIOR TO ROUGH-IN.
SW2	NOMINAL 12"w x 9"d x 6"h WALL PACK STYLE LED LUMINAIRE WITH TYPE 2 DISTRIBUTION, 80+ CRI MIN., INTEGRAL 0-10v. DIMMING DRIVER, DIE-CAST ALUM. CONSTRUCTION, IP65 MIN. RATED, VANDAL RESISTANT FULL CUTOFF SILICONE MICRO OPTICS, B1-U0-G1 MAXIMUM BUG RATING, 20ka. SURGE PROTECTION, DARK SKY RATED, IK10 IMPACT RATING AND FINISH PER ARCHITECT.	NLS LIGHTING	NV-W.T2.16L.53.40K8.UNV.WM.[finish].x.20Ka SERIES	LED, 4000k, ~3700lms	29.0 W	120 V	WALL, SURFACE AT ~15'-0" A.F.G.	
XP	THERMOPLASTIC LED EXIT SIGNAGE WITH INTEGRAL BATTERY, FIELD SELECTABLE VOLTAGE, DAMP LOCATION LISTED, UL924 LISTED, BLACK FINISH AND COLOR OF LETTERS PER AHJ.	LIFE SAFETY SYSTEMS	LSX.2.X.B SERIES		5.0 W	120 V		

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CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY
INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES
DATE: DESCRIPTION:
02-19-2024 BID DOCUMENTS
02-19-2024 PERMIT SET

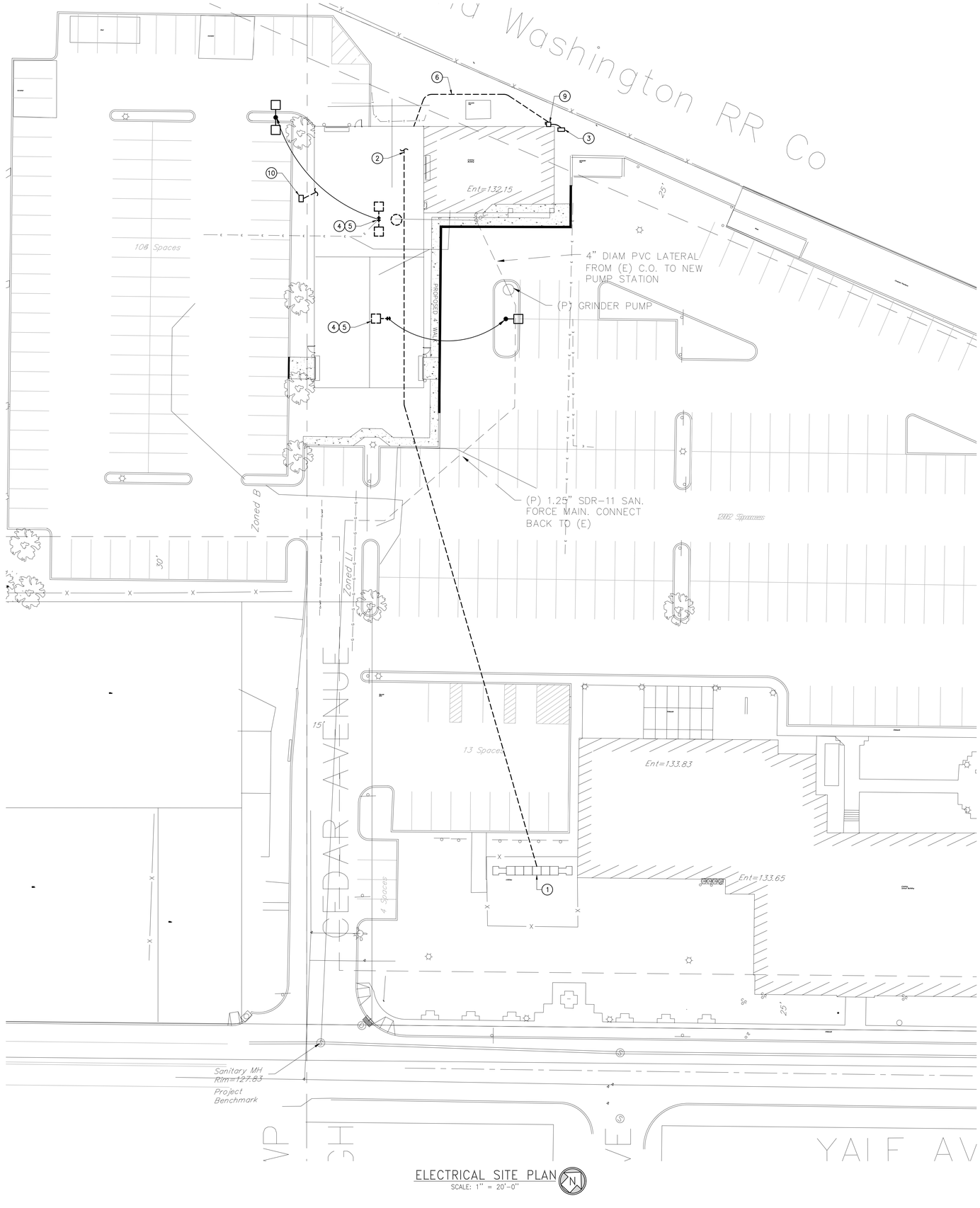
PROJ # : 22-02-DCIU DRAWN BY : Author

SHEET TITLE:
ELECTRICAL LEGEND, SCHEDULES AND DIAGRAMS

SHEET NUMBER:
E0.1

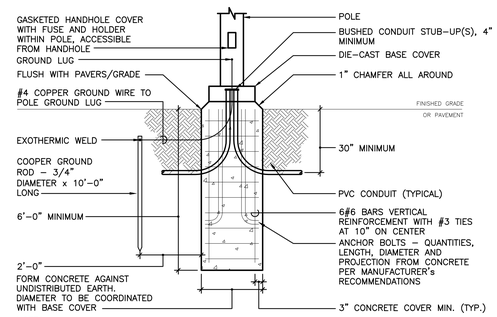
BID DOCUMENTS

2/16/2024 9:05:27 AM



ELECTRICAL SITE PLAN

SCALE: 1" = 20'-0"



NOTES:
1. ALL REINFORCING STEEL TO BE ASTM A615, GRADE 60 EXCEPT TIES, TIES SHALL BE GRADE 40.
2. PROVIDE 1" CONDUIT MINIMUM TO EACH POLE FOR NORMAL POWER WIRING.

POLE BASE DETAIL

NOT TO SCALE

DRAWING NOTES:

1. EXISTING OUTDOOR SIEMENS SERIES 6 TYPE SWITCHBOARD. PROVIDE 3P-400A CIRCUIT BREAKER IN THIS SECTION.
2. NEW FEEDER FROM EXISTING EXTERIOR SWITCHBOARD. REFER TO FLOOR PLANS FOR CONTINUATION OF BUILDING FEEDER.
3. EXISTING 75KVA TRANSFORMER IN NEMA 3R ENCLOSURE. RE-FEED FROM NEW PANEL AND REMOVE EXISTING FEEDER.
4. RELOCATE EXISTING LIGHT POLE AND LIGHT FIXTURES, PROVIDE NEW POLE BASE.
5. ELECTRICAL CONTRACTOR SHALL TRACE OUT EXISTING CIRCUITING FOR PARKING LOT LIGHTING AND RE-ROUTE/EXTEND CONDUIT AND WIRE AS REQUIRED TO ACCOMMODATE NEW LIGHT POLE LOCATIONS. PROVIDE IN-GRADE JUNCTION BOXES AS REQUIRED, MATCH EXISTING CONDUIT AND WIRE SIZE AND MAKE ALL CONNECTIONS FOR AN OPERABLE PARKING LOT LIGHTING SYSTEM.
6. NEW FEEDER FOR EXISTING TRANSFORMER.
7. REMOVE EXISTING GRINDER PUMP.
8. NEW GRINDER PUMP, EXTEND CIRCUIT FROM CONTROL PANEL TO NEW DUPLEX PUMP LOCATION. REFER TO BUILDING PLAN FOR CONTROL PANEL LOCATION.
9. 3P-200A NON-FUSED SAFETY SWITCH.
10. PROVIDE 24"X36" HANDHOLE WITH 4-2" CONDUITS BACK TO PANEL R1. STUB UP CONDUITS 6" ABOVE FINISHED FLOOR BELOW PANEL R1 AND CAP FOR FUTURE CAR CHARGING STATIONS.

GENERAL NOTES:

1. COORDINATE ALL NEW WORK WITH SITE UTILITIES.
2. CUT AND PATCH EXISTING PAVED AREAS INCLUDING PARKING, CURBS, SIDEWALKS AND LOTS REQUIRED FOR INSTALLATION OF ELECTRICAL WORK.
3. ALL EXTERIOR CONDUITS/RACEWAYS SHALL HAVE DETECTABLE MARKING TAPE.
4. COORDINATE INSTALLATION OF ELECTRICAL WORK WITH EXISTING AND FINAL GRADING. REFER TO CIVIL PLANS.
5. CONCRETE ENCASE ALL CONDUIT BELOW PAVED AREAS.

SCALE: 1" = 20'-0"

20 0 20 40

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02-19-2024	PERMIT SET

PROJ # : 22-02-DCIU DRAWN BY :

SHEET TITLE:

ELECTRICAL SITE PLAN

SHEET NUMBER:

E0.2

BID DOCUMENTS

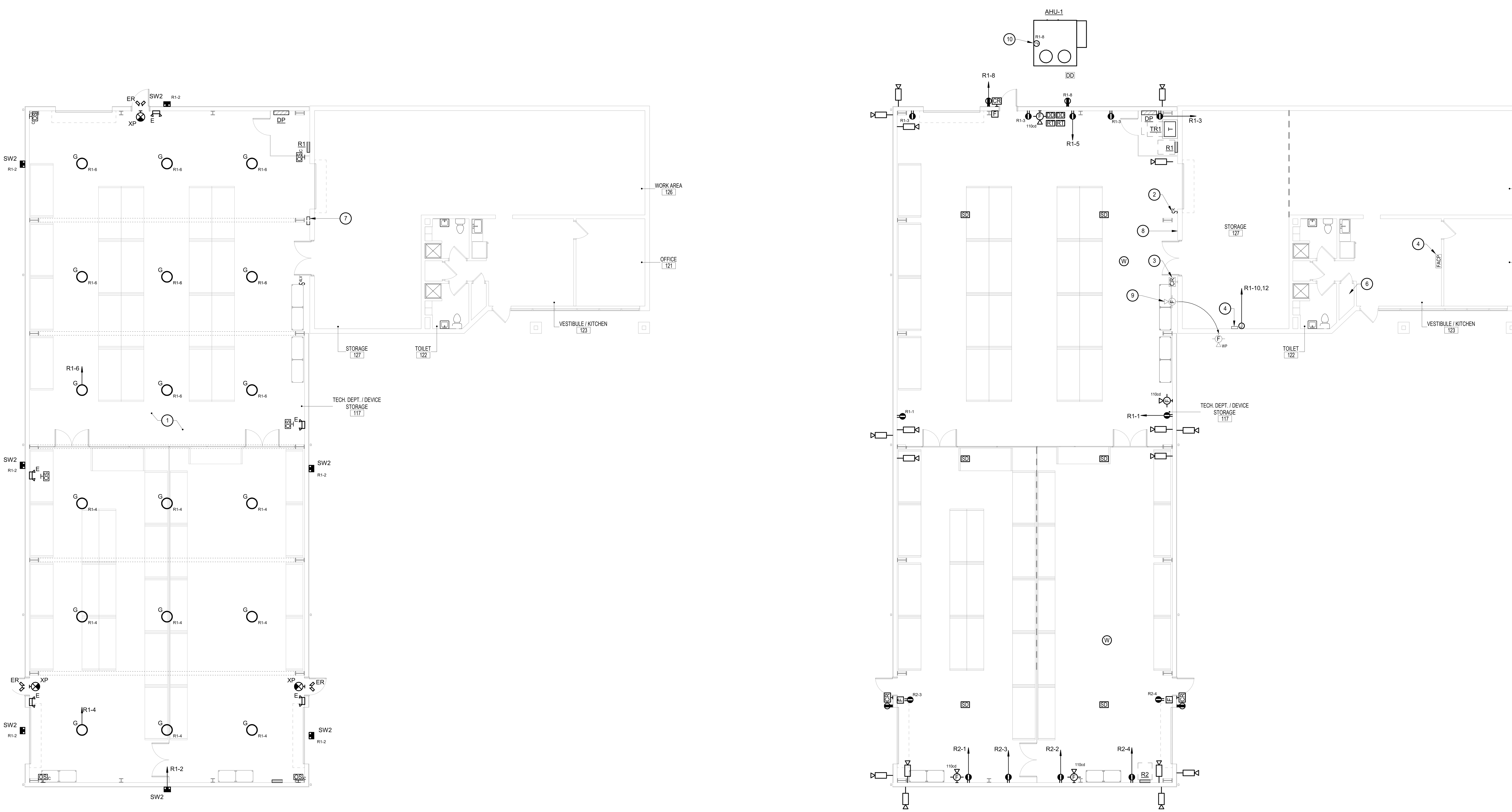
12/28/2023 8:16:34 AM

GENERAL NOTES:

1. REFER TO MECHANICAL EQUIPMENT CONNECTION SCHEDULE ON DRAWING E7.1 FOR ADDITIONAL INFORMATION.

DRAWING NOTES:

1. ENTIRE SPACE SHALL FUNCTION AS ONE ZONE. TWO ROOM CONTROLLERS REQUIRED TO BLEND ALL BRANCH LIGHTING CIRCUITS INTO ONE ZONE.
2. RELOCATE EXISTING ROLL UP DOOR KEY SWITCH FROM THE EXTERIOR OF THE EXISTING BUILDING TO THE INSIDE OF THE NEW STRUCTURE. EXTEND CONDUIT AND WIRE TO ACCOMMODATE NEW LOCATION.
3. REMOVE EXISTING HID CARD READER.
4. REMOVE EXISTING SEWAGE EJECTOR PUMP CONTROL PANEL AND INSTALL NEW CONTROL PANEL IN SAME LOCATION WITH NEW CIRCUIT AS SHOWN. PROVIDE 2-PUMP FEEDERS, 2#12+#12GW IN 1"C EACH. REFER TO ELECTRICAL SITE PLAN FOR PUMP LOCATION.
5. EXISTING FCI FIRE ALARM CONTROL PANEL. PROVIDE ALL MODIFICATIONS REQUIRED TO ACCOMMODATE NEW FIRE ALARM DEVICES IN NEW ADDITION.
6. EXISTING DATA CLOSET WITH DATA RACK, SECURITY, DOOR ACCESS, ETC.
7. REMOVE EXISTING WALL PACK LIGHT FIXTURE.
8. REMOVE 4 SECURITY CAMERAS AT WEST END OF EXISTING BUILDING AND TURN OVER TO OWNER.
9. REMOVE EXISTING WATER BELL AND RELOCATE, EXTEND EXISTING CONDUIT AND WIRE TO ACCOMMODATE NEW LOCATION.
10. MAKE CONNECTION TO RECEPTACLE PROVIDED WITH UNIT.



FLOOR PLAN - ELECTRICAL
1/8" = 1'-0"

PLAN NORTH

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SEAL:

CONSTRUCTION OF
MORTON ANNEX ADDITION AND SITE REPAIRS
DELAWARE COUNTY INTERMEDIATE UNIT
200 YALE AVE., MORTON, PA 19070

ISSUE DATES DATE:	DESCRIPTION:
02-19-2024	BID DOCUMENTS
02-19-2024	PERMIT SET

PROJ # : 22-02-DCIU DRAWN BY : Author

SHEET TITLE:
FLOOR PLANS - ELECTRICAL

SHEET NUMBER:
E1.1

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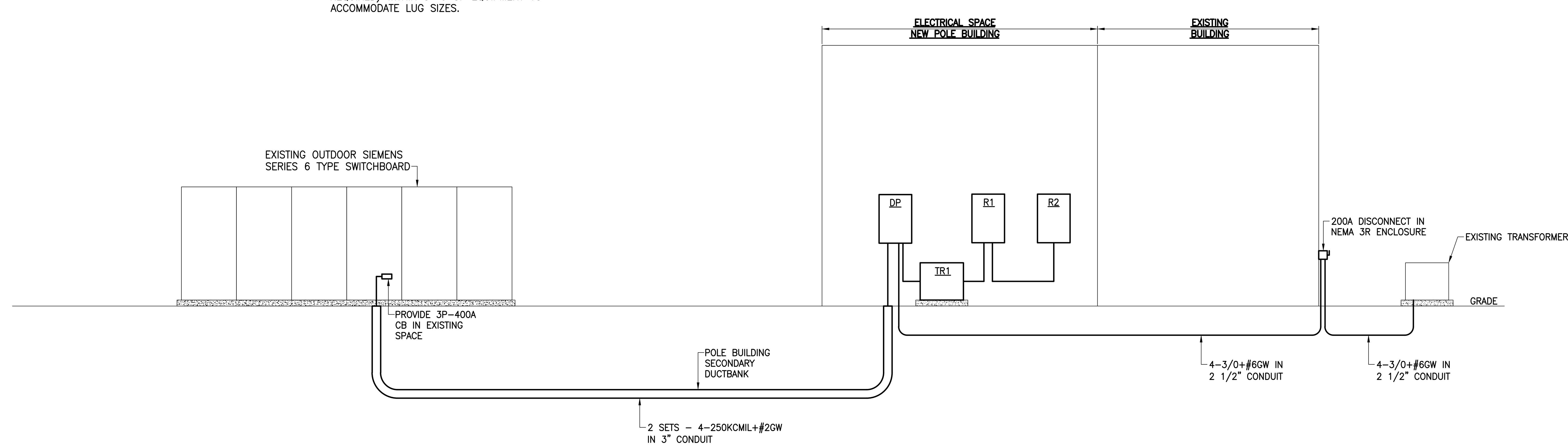
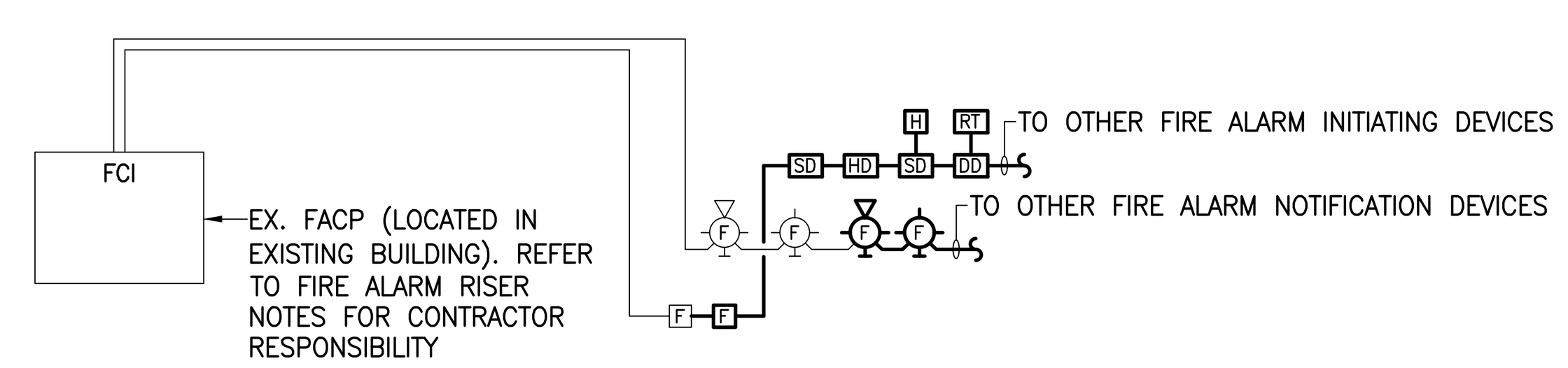
POWER RISER GENERAL NOTES:

1. REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
2. CONTRACTOR SHALL REDUCE FEEDER SIZE (IF REQUIRED) WITHIN 5'-0 OF EQUIPMENT TO ACCOMMODATE LUG SIZES.



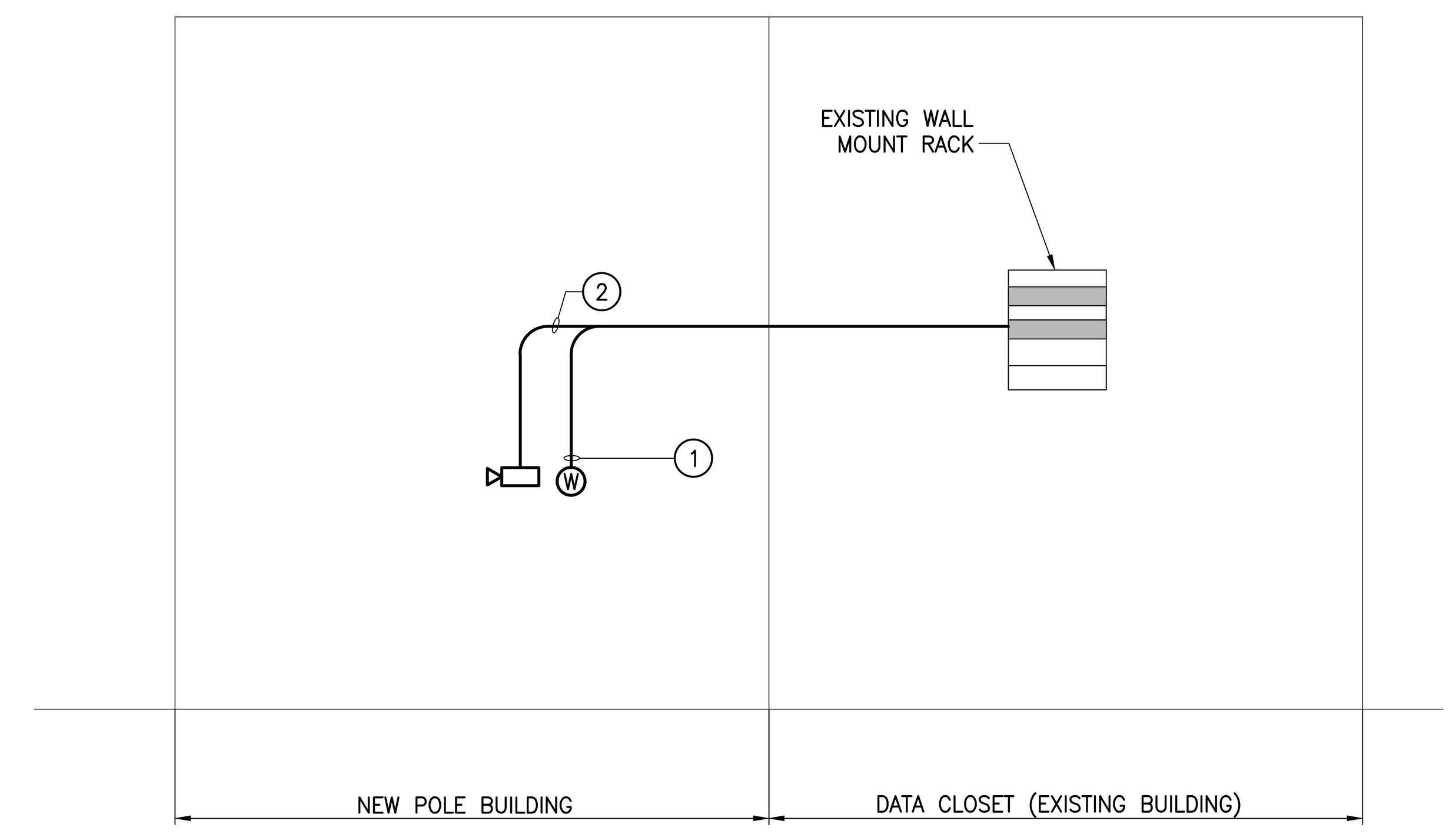
PARTIAL SCHEMATIC POWER RISER DIAGRAM

NOT TO SCALE



PARTIAL FIRE ALARM RISER DIAGRAM

SCALE: NONE



SCHEMATIC TELECOMMUNICATIONS RISER DIAGRAM

NOT TO SCALE

FIRE ALARM RISER NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR CONTACTING AN AUTHORIZED FCI FIRE ALARM CONTRACTOR FOR ANY MODIFICATIONS TO THE EXISTING FIRE ALARM SYSTEM TO ACCOMMODATE NEW DEVICES SHOWN ON PLANS.
2. CONTRACTOR IS RESPONSIBLE FOR ALL COST INCLUDING PARTS AND WORK PERFORMED BY AUTHORIZED FCI FIRE ALARM CONTRACTOR AND SHALL BE INCLUDED IN BID.

TELECOM GENERAL NOTES:

1. WIRELESS ACCESS POINTS SHALL BE TERMINATED ON DEDICATED PATCH PANEL.
2. CCTV CAMERAS SHALL BE TERMINATED ON DEDICATED PATCH PANEL.
3. PROVIDE SURGE PROTECTION FOR CABLING TO ALL EXTERIOR DEVICES AT PENETRATION THROUGH EXTERIOR WALL.

DATA CABLE COLOR CODING:

BLUE - DATA CABLE

YELLOW - WIRELESS CABLE

GREEN - IP SECURITY CAMERAS

TELECOM DRAWING NOTES:

(1) (2) 4PR CAT6 CABLE FOR WIFI DATA TO IDF/MDF, TERMINATE IN 2 PORT BISCUIT ABOVE CEILING. PROVIDE 20' OF SLACK AT LOCATION SHOWN ON PLANS IN ACCESSIBLE CEILING SPACE. PROVIDE PATCH CABLES TO WIRELESS ACCESS POINT (PROVIDED BY OWNER).

(2) (1) 4PR CAT6 CABLE FOR SECURITY CAMERA (PROVIDED BY OWNER) TERMINATED WITH MALE CONNECTOR TO IDF/MDF. PROVIDE 20' OF SLACK AT LOCATION SHOWN ON PLANS IN ACCESSIBLE CEILING SPACE.

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SHEET TITLE:

SCHEMATIC RISER DIAGRAMS

SHEET NUMBER:

E5.1

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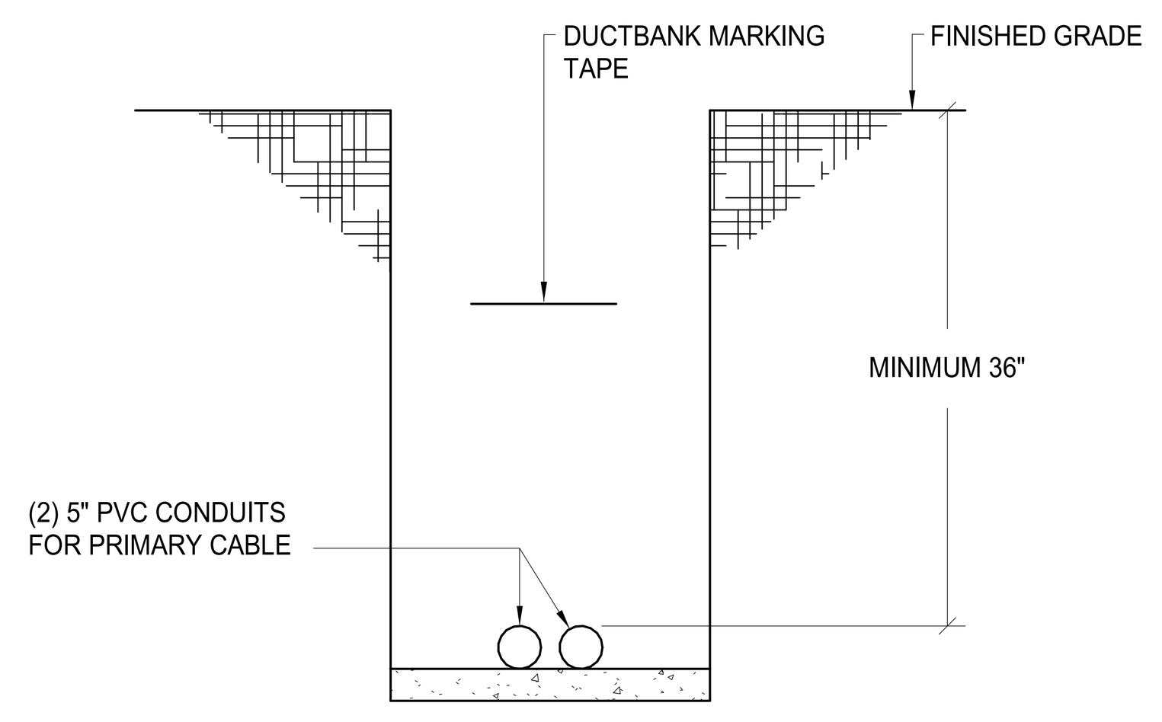
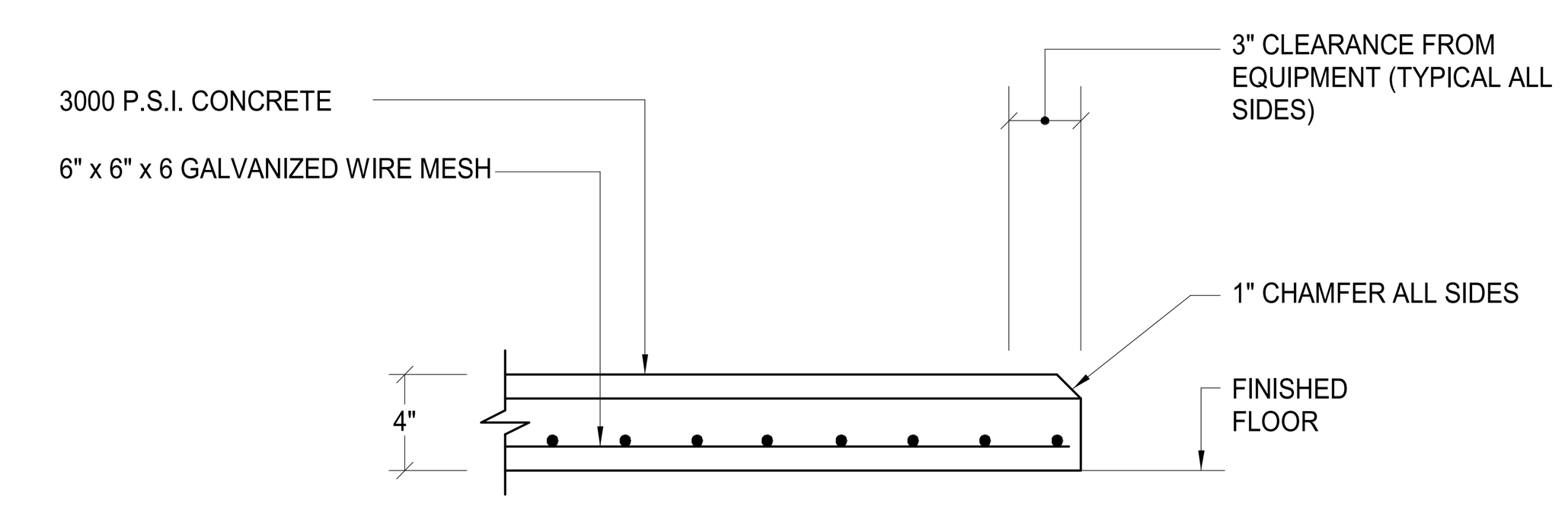
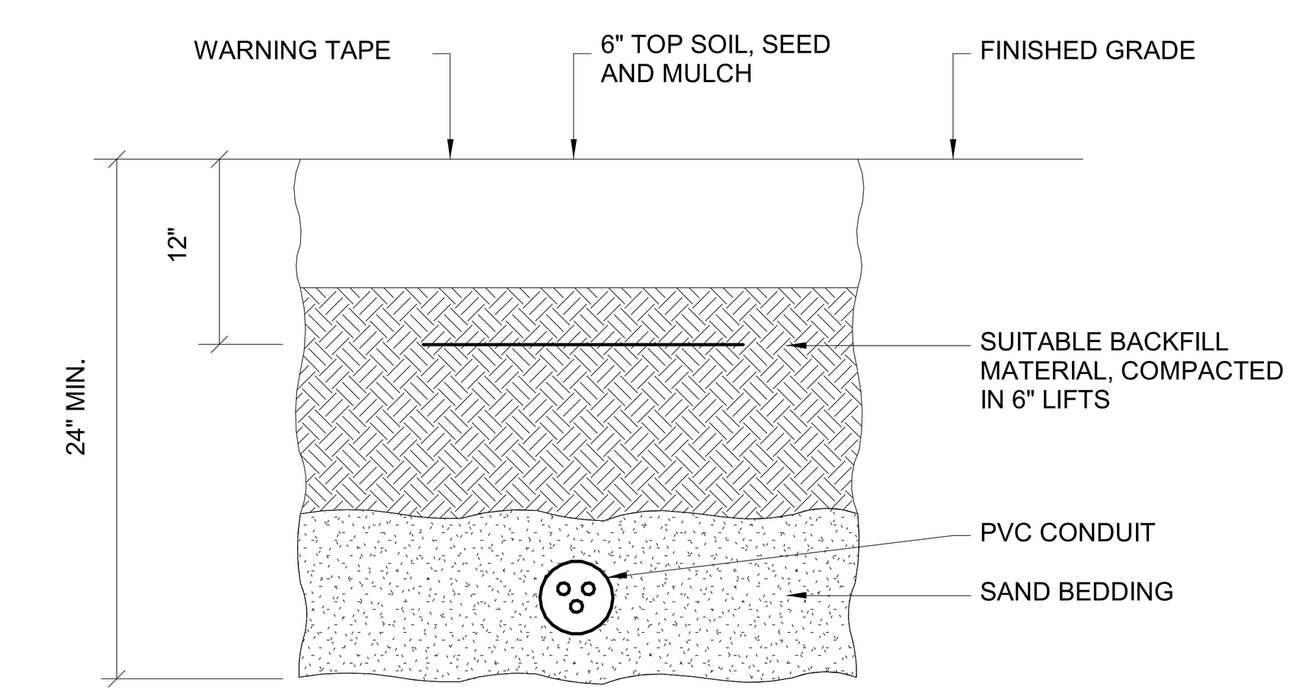


NOTE: COORDINATE EXCAVATION OF TRENCH AND INSTALLATION OF CONDUITS WITH UTILITY COMPANIES IN ADVANCE. MAINTAIN 5'-0" FROM GAS/WATER UTILITIES

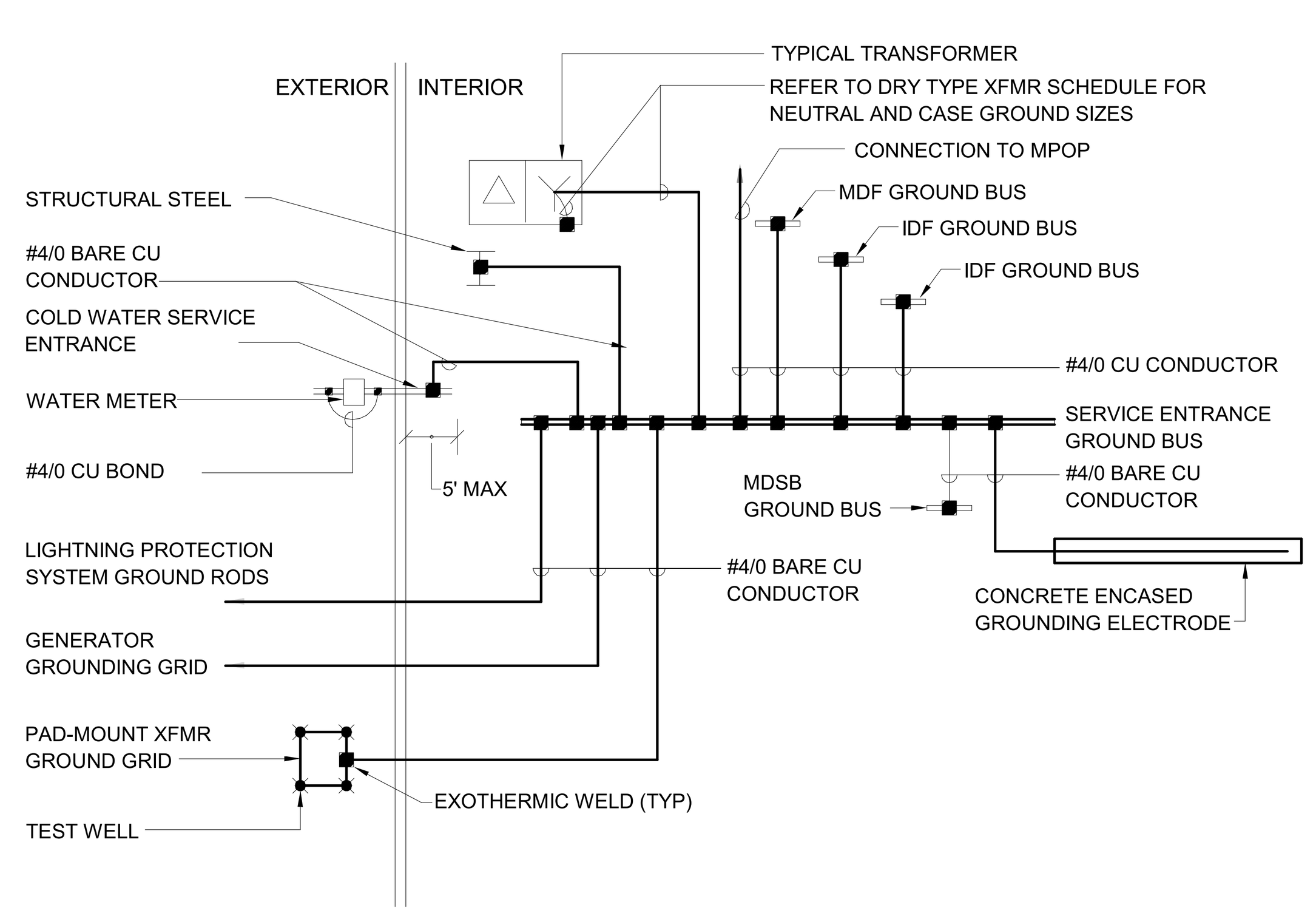
1 E6.1 INCOMING SERVICES TRENCH
Scale = None



2 E6.1 CONCRETE HOUSEKEEPING PAD
Scale = None

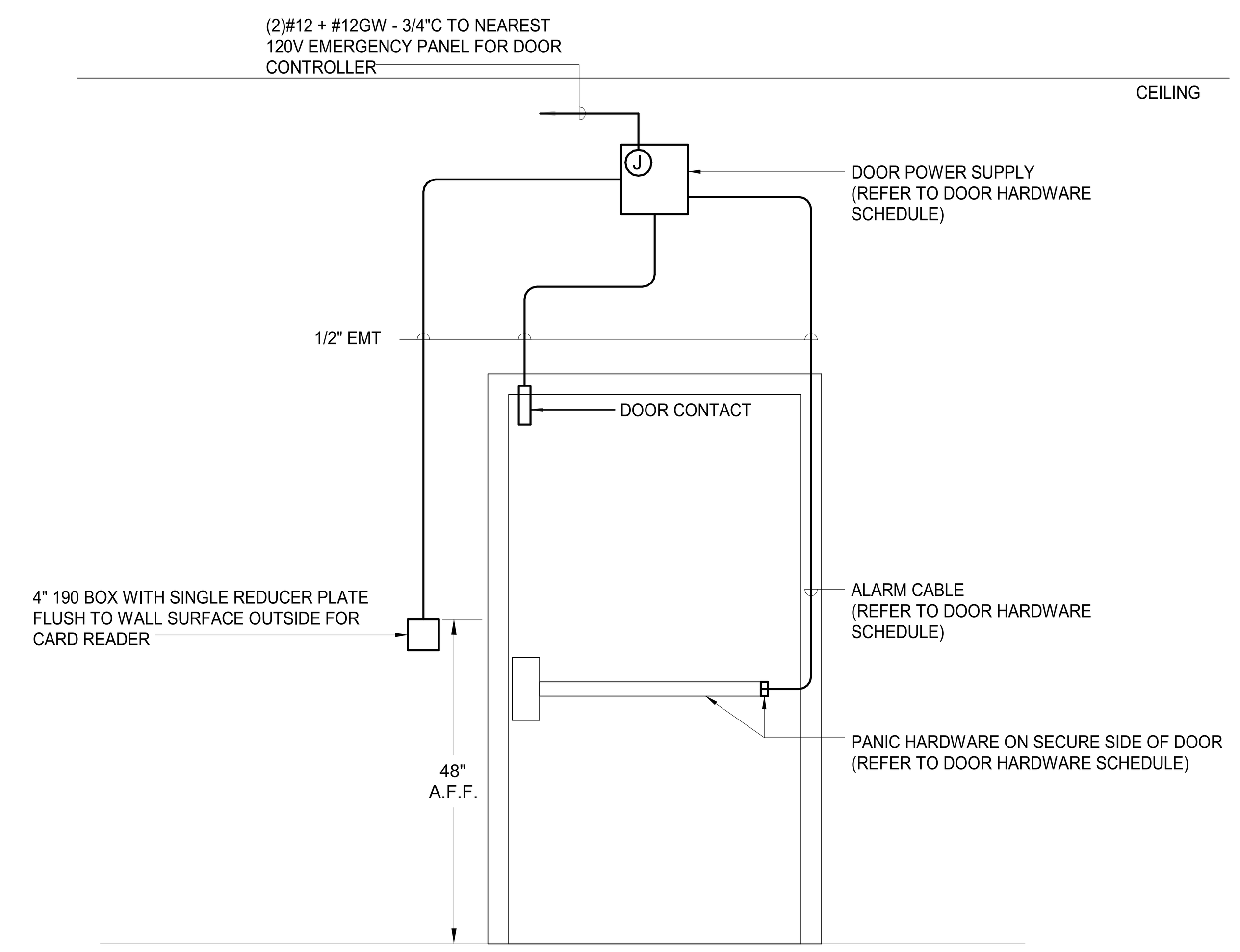


3 E6.1 DIRECT BURIED PVC CONDUIT
Scale = None



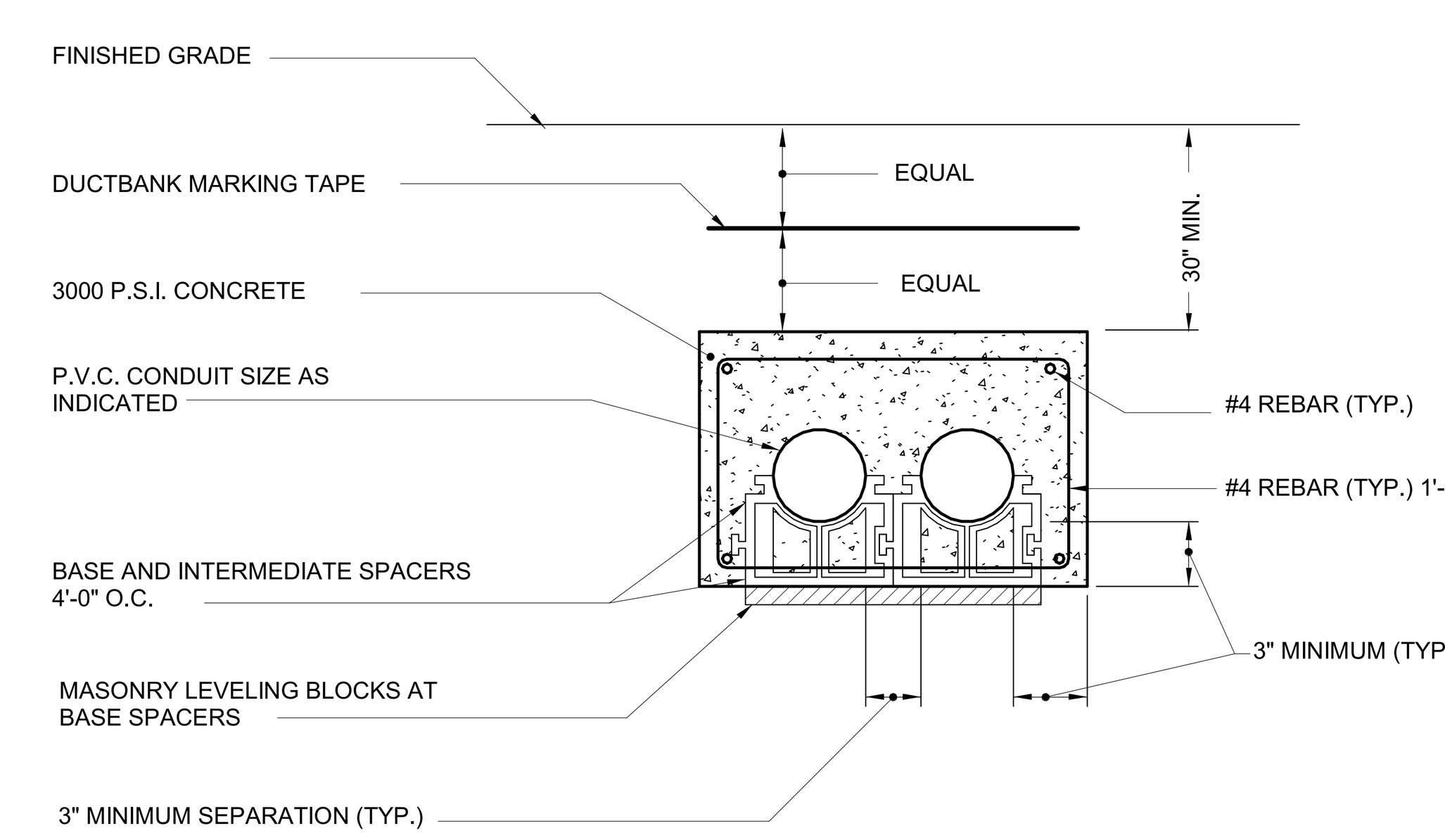
ALL GROUNDING SHALL COMPLY WITH NEC.

4 E6.1 PARTIAL GROUNDING SINGLE LINE SCHEMATIC DIAGRAM
Scale = None



NOTE:
1. EC TO PROVIDE JUNCTION BOX, CONDUIT W/ PULLSTRINGS AND POWER TO DOOR POWER SUPPLY (IF REQUIRED). COORDINATE ALL REQUIREMENTS WITH OWNERS DOOR ACCESS CONTRACTOR

5 E6.1 TYPICAL ELECTRIC DOOR LOCK & ROUGH-IN
Scale = None



6 E6.1 TWO-WAY CONCRETE ENCASED DUCTBANK
Scale = None

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SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER:
E6.1

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MECS NOTES:

1. MAKE CONNECTION TO INTEGRAL DISCONNECT AT UNIT.

MECHANICAL EQUIPMENT CONNECTION SCHEDULE (AHUs)

EQUIPMENT DESIG.	ELECTRICAL CHARACTERISTICS				CIRCUIT DESIG.	MECS NOTES
	VOLTAGE	ϕ	AMPS	kVA		
AHU-1	208 V	3	67.9 A	24.5 kVA	R1-7,9,11	1

Switchboard: DP

Location: ELECTRICAL ROOM 128
Supply From:
Mounting: Surface
Enclosure: Type 1
Volts: 480/277 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 24,000
Mains Type: MCB
Mains Rating: 400 A
MCB Rating: 400 A

Notes:

CKT	Circuit Description	P	FRAME	CB		Load	Remarks
1	TRANSFORMER TR1	3	225 A	225 A	REFER TO TRANSFORMER SCHEDULE	34.2...	
2	EX. TRANSFORMER	3	225 A	200 A	(4) #3/0+#6GW - 2 1/2"C	0.0...	
3	SPACE	1	--	--		--	
4	SPACE	1	--	--		--	
5	SPACE	1	--	--		--	
6	SPACE	1	--	--		--	
7	SPACE	1	--	--		--	
8	SPACE	1	--	--		--	
9	SPACE	1	--	--		--	
10	SPACE	1	--	--		--	
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
				Total Conn. Load:		34.2...	

Legend:

Notes:

Branch Panel: R1

LOCATION: ELECTRICAL ROOM 128
SUPPLY FROM: TR1
MOUNTING: Surface
VOLTAGE: 120/208 Wye
PHASE: 3
WIRES: 4
A.I.C. RATING: 22,000
MAINS RATING: 400 A
MCB RATING: 400A
NEUTRAL RATING: 100%

Notes:
* PROVIDE TIME CLOCK AND PHOTOCELL CONTROLS.

CKT	CIRCUIT	WIRE SIZE	P	CB	A		B		C		CB	P	WIRE SIZE	CIRCUIT	CKT
R1-1	REC - TECH. DEPT. / DEVICE...	(2) #12 + #12GW -3/4"C	1	20 A	0.4 kVA	0.2 kVA					20 A	1	(2) #12 + #12GW -3/4"C	LTG. - EXTERIOR*	R1-2
R1-3	REC - TECH. DEPT. / DEVICE...	(2) #12 + #12GW -3/4"C	1	20 A			0.8 kVA	1.4 kVA			20 A	1	(2) #12 + #12GW -3/4"C	LTG. - TECH. DEPT.	R1-4
R1-5	REC - LIFT CHARGING STATION	(2) #12 + #12GW -3/4"C	1	20 A					0.2 kVA	1.4 kVA	20 A	1	(2) #12 + #12GW -3/4"C	LTG. - TECH. DEPT.	R1-6
R1-7					8.2 kVA	0.6 kVA					20 A	1	(2) #12 + #12GW -3/4"C	REC - EXTERIOR	R1-8
R1-9	AHU-1	(3) #3 + #8GW -1"C	3	80 A			8.2 kVA	1.8 kVA			40 A	2	(2) #8 + #10GW -1"C	GRINDE PUMP CONTROLLER	R1-10
R1-11									8.2 kVA	1.8 kVA					R1-12
R1-13	SPARE	--	1	20 A	0.0 kVA	0.0 kVA					20 A	1	--	SPARE	R1-14
R1-15	SPARE	--	1	20 A			0.0 kVA	0.0 kVA			20 A	1	--	SPARE	R1-16
R1-17	SPARE	--	1	20 A					0.0 kVA	0.0 kVA	20 A	1	--	SPARE	R1-18
R1-19	SPARE	--	1	20 A	0.0 kVA	0.0 kVA					20 A	1	--	SPARE	R1-20
R1-21	SPARE	--	1	20 A			0.0 kVA	0.0 kVA			20 A	1	--	SPARE	R1-22
R1-23	SPARE	--	1	20 A					0.0 kVA	0.0 kVA	20 A	1	--	SPARE	R1-24
R1-25	SPARE	--	1	20 A	0.0 kVA	0.0 kVA					20 A	1	--	SPARE	R1-26
R1-27	SPARE	--	1	20 A			0.0 kVA	0.0 kVA			20 A	1	--	SPARE	R1-28
R1-29	SPARE	--	1	20 A					0.0 kVA	0.0 kVA	20 A	1	--	SPARE	R1-30
R1-31	SPARE	--	1	20 A	0.0 kVA	0.0 kVA					20 A	1	--	SPARE	R1-32
R1-33	SPARE	--	1	20 A			0.0 kVA	0.0 kVA			20 A	1	--	SPARE	R1-34
R1-35	SPARE	--	1	20 A					0.0 kVA	0.0 kVA	20 A	1	--	SPARE	R1-36
R1-37	SPACE	--	1	--	--	0.4 kVA									R1-38
R1-39	SPACE	--	1	--			--	0.8 kVA			100 A	3	(4) #1 + #8GW -2"C	PANEL R2	R1-40
R1-41	SPACE	--	1	--					--	0.0 kVA					R1-42
			Total Connected Load:	34.2...	9.8 kVA		12.9 kVA		11.5 kVA						

Legend:

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANELBOARD TOTALS	
MOTOR -	3.6 kVA	100.00%	3.6 kVA	Total Conn. Load:	34.2 kVA
REC -	3.0 kVA	100.00%	3.0 kVA	Total Est. Demand:	34.2 kVA
MECHANICAL -	24.5 kVA	100.00%	24.5 kVA	Total Conn.:	95 A
LTG. -	2.7 kVA	100.00%	2.7 kVA	Total Est. Demand.:	95 A

Branch Panel: R2

LOCATION: TOOL STORAGE 118
SUPPLY FROM: R1
MOUNTING: Surface
VOLTAGE: 120/208 Wye
PHASE: 3
WIRES: 4
A.I.C. RATING: 14,000
MAINS RATING: 100 A
MCB RATING: 100 A
NEUTRAL RATING: 100%

Notes:

CKT	CIRCUIT	WIRE SIZE	P	CB	A		B		C		CB	P	WIRE SIZE	CIRCUIT	CKT
R2-1	REC - LIFT CHARGING STATION	(2) #12 + #12GW -3/4"C	1	20 A	0.2 kVA	0.2 kVA					20 A	1	(2) #12 + #12GW -3/4"C	REC - TOOL STORAGE 118	R2-2
R2-3	REC - GENERAL STORAGE 119	(2) #12 + #12GW -3/4"C	1	20 A			0.4 kVA	0.4 kVA			20 A	1	(2) #12 + #12GW -3/4"C	REC - TOOL STORAGE 118	R2-4
R2-5	SPARE	--	1	20 A					0.0 kVA	0.0 kVA	20 A	1	--	SPARE	R2-6
R2-7	SPARE	--	1	20 A	0.0 kVA	0.0 kVA					20 A	1	--	SPARE	R2-8
R2-9	SPARE	--	1	20 A			0.0 kVA	0.0 kVA			20 A	1	--	SPARE	R2-10
R2-11	SPARE	--	1	20 A					0.0 kVA	0.0 kVA	20 A	1	--	SPARE	R2-12
R2-13	SPARE	--	1	20 A	0.0 kVA	0.0 kVA					20 A	1	--	SPARE	R2-14
R2-15	SPARE	--	1	20 A			0.0 kVA	0.0 kVA			20 A	1	--	SPARE	R2-16
R2-17	SPARE	--	1	20 A					0.0 kVA	0.0 kVA	20 A	1	--	SPARE	R2-18
R2-19	SPACE	--	1	--	--	--					--	1	--	SPACE	R2-20
R2-21	SPACE	--	1	--			--	--			--	1	--	SPACE	R2-22
R2-23	SPACE	--	1	--					--	--	--	1	--	SPACE	R2-24
			Total Connected Load:	1.2 kVA	0.4 kVA		0.8 kVA		0.0 kVA						

Legend:

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANELBOARD TOTALS	
MOTOR -	0.0 kVA	0.00%	0.0 kVA	Total Conn. Load:	1.2 kVA
REC -	1.2 kVA	100.00%	1.2 kVA	Total Est. Demand:	1.2 kVA
MECHANICAL -	0.0 kVA	0.00%	0.0 kVA	Total Conn.:	3 A
LTG. -	0.0 kVA	0.00%	0.0 kVA	Total Est. Demand.:	3 A

DRY TYPE TRANSFORMER SCHEDULE

XFMR	kVA	PRIMARY			PRIMARY WIRING	SECONDARY WIRING	SECONDARY			NEUTRAL/ CASE GND	REMARKS	MOUNTING DESCRIPTION
		VOLTAGE	ϕ	CB			VOLTAGE	ϕ	CB			
TR1	112.5	480 V	3	225 A	(3) #4/0 + #4GW - 2"C	2 SETS (4-#3/0 + #1/0 SSBJ - 2"C)	208/120 V	3	400 A	#1/0		FLOOR

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PANELBOARD SCHEDULES

SHEET NUMBER:

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