THE STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION

U.S. CUSTOMARY UNITS

CONSTRUCTION PLANS FOR:

MID COUNTY FACILITY

CONTRACT NUMBER: T201953104.03
FEDERAL FTA PROJECT NUMBER: 5339-2020(08)

COUNTY: NEW CASTLE M.R. #: N/A
FROM MILEPOST N/A TO MILEPOST N/A

DESIGN DESIGNATION

FUNCTIONAL CLASS: X		D.H.V. PROJECTED: 1,900	YEAR: 2050
TYPE OF CONSTRUCTION: X		DESIGN SPEED: XX MPH	
A.A.D.T. CURRENT: 16,223	YEAR: 2018	TRUCKS: 11.81%	
A.A.D.T. PROJECTED: 30,000	YEAR: 2050	DIRECTION OF DISTRIBUTION: 56.25%	

APPROVED DESIGN EXCEPTIONS

DESIGN PARAMETER	REQUIRED	PROVIDED	DATE
.	.	.	.

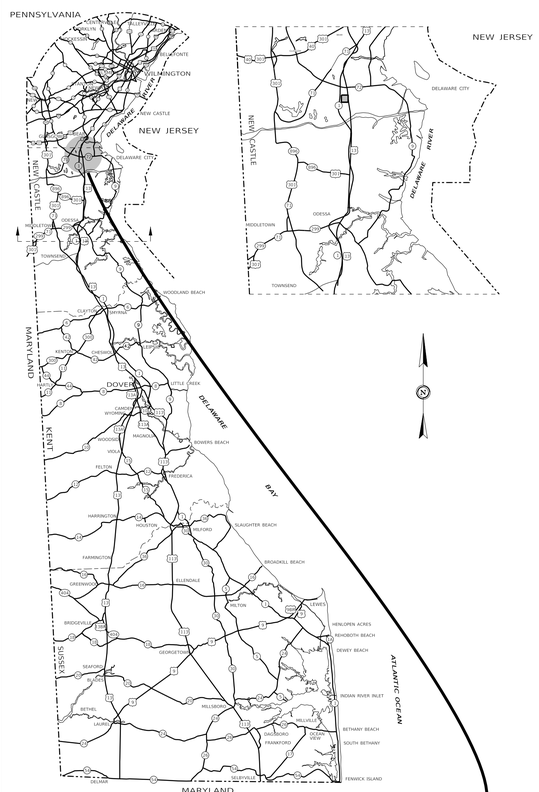
ASSOCIATED CONTRACTS

CONTRACT NO.	CONTRACT NAME

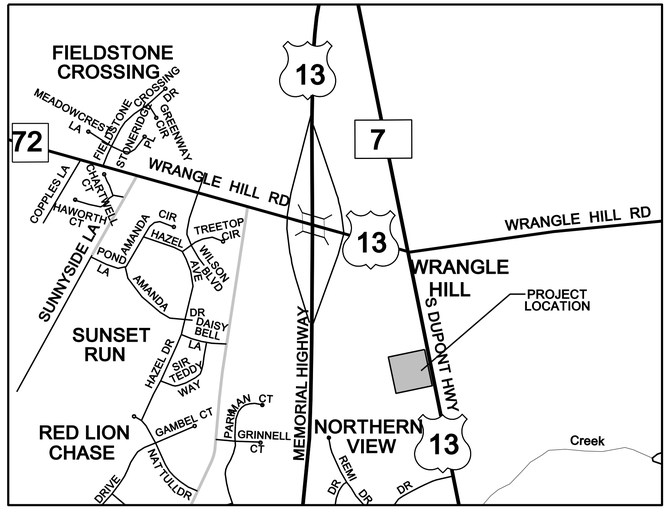
APPROVED FOR ADVERTISEMENT

CHIEF EXECUTIVE OFFICER,
DELAWARE TRANSIT CORPORATION

11/22/2023
DATE



GENERAL LOCATION OF CONTRACT



LOCATION MAP
SCALE: N. T. S.

PREPARED BY
THE CONSULTING FIRM OF
JOHNSON, MIRMIRAN & THOMPSON
121 CONTINENTAL DR, SUITE 300
NEWARK, DE, 19713
(302) 266 - 9600

NANCY RUTH BERGERON
LICENSE
No. 16787
DELAWARE
PROFESSIONAL ENGINEER

SEAL

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

RECOMMEI

11/22/2023
DATE

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ADDENDA / REVISIONS							
		NOT TO SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT T201953104.03	BRIDGE NO. N/A	INDEX OF SHEETS	SECTION JMT
				COUNTY NEW CASTLE	DESIGNED BY: PER		SHEET NO. 2
					CHECKED BY: NB		

ADDENDUM PREPARED BY

JMT

SEAL

DATE

THIS SEAL APPLIES TO THE FOLLOWING SHEETS
CHANGED UNDER ADDENDUM #X: XX, XX-XX, XX

REVISION PREPARED BY

JMT

SEAL

DATE

THIS SEAL APPLIES TO THE FOLLOWING SHEETS
CHANGED UNDER ADDENDUM #X: XX, XX-XX, XX

AD-01

ADDENDA / REVISIONS		NOT TO SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	BRIDGE NO.	N/A	ADDENDA AND REVISIONS	SECTION
				T201953104.03	DESIGNED BY:	PER		JMT
				COUNTY	CHECKED BY:	NB		SHEET NO.
				NEW CASTLE				3

GENERAL NOTES

1. THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, THE DELAWARE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS", DATED JUNE 2021 AND THE "STANDARD CONSTRUCTION DETAILS" DATED 2020, INCLUDING ALL REVISIONS UP TO THE DATE OF ADVERTISING.

2. ELECTRONIC PROJECT FILES THAT WILL BE MADE AVAILABLE TO THE AWARDED CONTRACTOR, INCLUDE:

( )	NONE
(X)	ASCII DATA FILES WITH COORDINATES AND ELEVATIONS FOR PROPOSED POINTS AS SELECTED BY THE ENGINEER.
(X)	ALL PLAN SHEETS, IN PDF FORMAT.
(X)	EXISTING DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
( )	PROPOSED DIGITAL TERRAIN MODEL, IN .DTM FILE FORMAT, COMPATIBLE WITH SOFTWARE CURRENTLY USED BY DELDOT.
( )	DESIGN FILE, IN .DGN FILE FORMAT, CONTAINING ONLY THE PROPOSED 3D TRIANGLES OF THE PROPOSED DIGITAL TERRAIN MODEL (DTM).

NOTE: THE DOCUMENT ENTITLED "RELEASE FOR DELIVERY OF DOCUMENTS IN ELECTRONIC FORM TO A CONTRACTOR" MUST BE SIGNED BY ALL PARTIES PRIOR TO THE DELIVERY OF ANY ELECTRONIC PROJECT FILES.

PROJECT NOTES

SECTION 100

3. ANY DAMAGE TO ITEMS NOTED TO BE RELOCATED OR RESET OR DO NOT DISTURB BY THE CONTRACTOR , AT THE DISCRETION OF THE ENGINEER, SHALL BE REPAIRED AND/OR REPLACED IN KIND AT THE CONTRACTOR'S EXPENSE.

4. THE CONTRACTOR WILL CONTACT THE DELAWARE TMC AT 302-659-4600 PRIOR TO ANY UNMANNED AIRCRAFT VEHICLE (UAV) FLIGHTS. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE THE FOLLOWING INFORMATION: THE REGISTRATION NUMBER OF THE UAV, THE FLIGHT TIME, LOCATION OF THE FLIGHT, THE PILOT'S NAME AND THE PILOT'S CONTACT NUMBER DURING THE FLIGHT.

SECTION 200

5. ITEMS TO BE REMOVED UNDER ITEM 211000 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
   - -ABANDONED UTILITIES
   - -JUNCTION BOXES
   - -JUNCTION WELLS
   - -BOLLARDS

6. ONLY EXISTING FEATURES WITHIN THE LOC IDENTIFIED WITH REMOVE BY CONTRACTOR OR BY OTHER METHODS ARE TO BE REMOVED OR DISTURBED.

SECTION 600

7. STATION AND ELEVATION DATA GIVEN FOR DRAINAGE STRUCTURES ARE TO BE APPLIED TO THE CENTER OF THE GRATE FOR INLETS AND TO THE CENTER OF THE STRUCTURE FOR JUNCTION BOXES AND MANHOLES.

SECTION 700

8. THE NEW CASTLE COUNTY DEPARTMENT OF PUBLIC WORKS SHALL SUPPLY AND THE STATE'S CONTRACTOR SHALL INSTALL NEW SELF SEALING MANHOLE FRAMES AND COVERS ON ALL COUNTY SEWER MANHOLES THAT ARE NOT BEING RELOCATED, WITHIN THE PROJECT LIMITS IN ACCORDANCE WITH THE COUNTY'S STANDARD SPECIFICATIONS. THE EXISTING MANHOLE FRAMES AND COVERS THAT ARE REMOVED SHALL BECOME THE PROPERTY OF THE STATE'S CONTRACTOR. PAYMENT SHALL BE INCIDENTAL TO ITEM 711500 - ADJUST AND REPAIR EXISTING SANITARY SEWER MANHOLE.

9. ALL PAVED AREAS TO BE RECONSTRUCTED OR WIDENED SHALL BE SAWCUT AT THE POINT WHERE THE NEW PAVEMENT IS TO TIE INTO THE EXISTING PAVEMENT.

SECTION 900

10. THIS PROJECT IS COVERED UNDER AN NPDES GENERAL PERMIT FOR CONSTRUCTION. UNDER THE GENERAL PERMIT, COMPLIANCE WITH DELDOT'S APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS WILL CONSTITUTE COMPLIANCE WITH THE NPDES INDUSTRIAL PERMITTING REQUIREMENTS FOR THIS CONSTRUCTION PROJECT. A COPY OF THE NPDES GENERAL PERMIT AND NOI IS KEPT ON FILE IN EACH OF THE CONSTRUCTION OFFICES AND THE DEPARTMENT'S STORMWATER SECTION. A COPY OF THE GENERAL PERMIT OR THE NOI CAN BE OBTAINED UPON REQUEST FROM EITHER THE DEPARTMENT'S STORMWATER ENGINEER OR THE APPROPRIATE CONSTRUCTION ENGINEER.

MISCELLANEOUS

11. ALL DART SIGNS HAVE BEEN UPDATED TO A NEW DESIGN. THE DELDOT SIGN SHOP DOES NOT FABRICATE THE UPDATED SIGN OR ANY SUPPLEMENTAL PLAQUES TO ALLOW FOR ADDITIONAL ROUTE NUMBERS. ALL REQUESTS FOR FABRICATION OF THESE SIGNS MUST BE MADE THROUGH DART TRANSIT AT (302) 576-6132.

12. ALL FIRE LANES AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE STATE FIRE PREVENTION REGULATIONS.

13. ITEM 301004 GRADED AGGREGATE BASE COURSE, TYPE B, PATCHING SHALL ONLY BE QUANTIFIED FOR NEW PAVEMENT WORK, STONE UNDER THE NEW BUILDING SLAB IS INCIDENTAL DIVISION 03 PER SPECS.

14. SITE IMPROVEMENTS:

    REMOVE EXISTING ABOVE AND BELOW GRADE FEATURES AND IMPROVEMENTS AS INDICATED AND NECESSARY TO FACILITATE NEW CONSTRUCTION.

15. SITE CLEARING:
    - -PROTECT AND MAINTAIN BENCHMARKS AND SURVEY CONTROL POINTS FROM DISTURBANCE DURING CONSTRUCTION.
    - -VERIFY THAT ALL EXISTING FEATURES, TREES, SHRUBS, AND OTHER VEGETATION TO REMAIN OR TO BE RELOCATED HAVE BEEN IDENTIFIED AND FLAGGED.
    - -PROTECT EXISTING SITE IMPROVEMENTS TO REMAIN FROM DAMAGE DURING CONSTRUCTION.
    - -RESTORE DAMAGED IMPROVEMENTS TO THEIR ORIGINAL CONDITION, AS ACCEPTABLE TO OWNER.

16. EXISTING UTILITIES:

    - -ALL UTILITIES SHOWN ON PLANS ARE PRIVATE.
    - -ALL PRIVATE UTILITIES SHALL BE MARKED OUT BY THE OWNER.
    - -LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE REMOVED OR ABANDONED IN PLACE.
      - A) COORDINATE WITH UTILITY COMPANIES TO SHUT OFF INDICATED UTILITIES
    - -LOCATE, IDENTIFY, DISCONNECT, AND SEAL OR CAP UTILITIES INDICATED TO BE ABANDONED IN PLACE.
    - -DO NOT INTERRUPT UTILITIES SERVING FACILITIES OCCUPIED BY OWNER OR OTHERS, UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY UTILITY SERVICES ACCORDING TO REQUIREMENTS INDICATED:
      - A) NOTIFY THE ENGINEER OR OWNER NOT LESS THAN 10 WORKING DAYS IN ADVANCE OF PROPOSED UTILITY INTERRUPTIONS.
      - B) DO NOT PROCEED WITH UTILITY INTERRUPTIONS WITHOUT WRITTEN PERMISSION FROM THE ENGINEER OR OWNER.
    - -EXCAVATE FOR AND REMOVE UNDERGROUND UTILITIES INDICATED TO BE REMOVED.

FIRE MARSHALL DATA

BUILDING NAME	MIDCOUNTY MAINTENANCE BUILDING
FACILITY ADDRESS	MID COUNTY OPERATIONS FACILITY 1443 DUPONT HIGHWAY BEAR, DE 19701
NEW CASTLE CO. REFERENCE NO.	20020507
OWNER	DELAWARE DEPARTMENT OF TRANSPORTATION 119 LOWER BEECH STREET WILMINGTON, DE 19805
ENGINEER/ APPLICANT	JOHNSON, MIRMIRAN, AND THOMPSON 121 CONTINENTAL DRIVE NEWARK, DE 19713
BUILDING USE	VEHICLE MAINTENANCE
WATER SUPPLIER	SUEZ WATER
BUILDING HEIGHT	SEE ARCHITECTURAL PLANS
BUILDING CONSTRUCTION	SEE ARCHITECTURAL PLANS

NOTE: ALL FIRE LANES, FIRE HYDRANTS, AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE STATE FIRE PREVENTION REGULATIONS.

FIRE MARSHALL BUILDING DATA

MAINTENANCE BUILDING (EXISTING BUILDING)	SEE ARCHITECTURAL PLANS
MAINTENANCE BUILDING (THIS PHASE)	SEE ARCHITECTURAL PLANS
TOTAL GROSS AREA	SEE ARCHITECTURAL PLANS

ADDENDA / REVISIONS		NOT TO SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	BRIDGE NO.	N/A	NOTES	SECTION
				T201953104.03	DESIGNED BY:	PER		JMT
				COUNTY	CHECKED BY:	NB		SHEET NO.
				NEW CASTLE				4

EXISTING SYMBOLS

DRAINAGE

	DITCH OR STREAM CENTERLINE
	DIRECTIONAL STREAM FLOW ARROW
C.B. / D.I.	DRAINAGE INLET
J.B.	DRAINAGE JUNCTION BOX
Ⓓ	DRAINAGE MANHOLE
SIZE/TYPE LABEL	DRAINAGE PIPE AND FLOW ARROW
	DRAINAGE PIPE HEADWALL
	RIPRAP - AREA FEATURE
	RIPRAP - LINEAR FEATURE

MANMADE ROADSIDE FEATURES

	BOLLARD - STEEL POLE
	BOLLARD - WOOD POST
(TYPE LABEL)	CURB
(TYPE LABEL)	CURB AND GUTTER
	FENCE - CHAINLINK OR STRANDED
	FENCE - STOCKADE OR SPLIT RAIL
F.P.	FLAG POLE
	GUARDRAIL - STEEL BEAM
	GUARDRAIL - WIRE ROPE
LAMP	LAMP AND POST - RESIDENTIAL
MB	MAILBOX
P.M.	PARKING METER AND POST
	PAVEMENT - FLEXIBLE
	PAVEMENT - RIGID
	PILE - BRIDGE
	PILLAR OR MISCELLANEOUS POST
	TRAFFIC SIGN AND POST
	WALL - BRICK OR BLOCK
	WALL - STONE

NATURAL ROADSIDE FEATURES

	HEDGEROW OR THICKET
	MARSH BOUNDARY LINE
	TREE - CONIFEROUS
	TREE - DECIDUOUS
	TREE STUMP
	SHRUBBERY
WL	DELINEATED WETLAND BOUNDARY LINE
	WOODS LINE BOUNDARY

RIGHT-OF-WAY SYMBOLS

C.M.	PROPERTY MARKER - CONCRETE MON.
I.P.	PROPERTY MARKER - IRON PIPE
100+00	HISTORIC RIGHT-OF-WAY BASELINE
	EXISTING RIGHT-OF-WAY
	EXISTING PROPERTY LINE
EASEMENT TYPE	EXISTING EASEMENT
DA	EXISTING DENIAL OF ACCESS
R/W-DA	EXISTING R/W & DENIAL OF ACCESS

SURVEY CONTROL & MONUMENTATION

B.M.	SURVEY BENCHMARK LOCATION
	SURVEY NGS POINT LOCATION
T.P.	SURVEY TIE POINT LOCATION
	SURVEY TRAVERSE POINT
	POINT OF CURVATURE OR TANGENCY
	POINT OF INTERSECTING TANGENTS

UTILITY

	SOIL BORING LOCATION
	UTILITY TEST HOLE LOCATION
TV	CABLE TV DISTRIBUTION BOX
Ⓔ	ELECTRIC MANHOLE
EM	ELECTRIC METER
E	ELECTRIC TRANSFORMER
	POLE MOUNTED LUMINAIRE
Ⓖ	GAS MANHOLE
G.M.	GAS METER
G.V.	GAS VALVE
G.P.	GAS PUMP - SERVICE STATION
	RAILROAD TRACKS
Ⓢ	SANITARY SEWER MANHOLE
S.V.	SANITARY SEWER VALVE
S.C.O.	SANITARY SEWER CLEANOUT OR VENT
S.D.F.	SEPTIC DRAIN FIELD
B	TELEPHONE BOOTH
Ⓣ	TELEPHONE MANHOLE
T	TELEPHONE TEST POINT
J.W.	TRAFFIC - CONDUIT JUNCTION WELL
	TRAFFIC - LIGHT POLE AND BASE
	TRAFFIC - PEDESTRIAN POLE & BASE
	TRAFFIC - SIGNAL CABINET & BASE
	TRAFFIC - SIGNAL POLE AND BASE
U	UTILITY BOX
	UTILITY POLE GUY WIRE ANCHOR
	UTILITY POLE
F.H.	WATER - FIRE HYDRANT
W.M.	WATER METER
WV	WATER VALVE
WELL	WELL HEAD
?	MANHOLE - UNDETERMINED OWNER

UTILITY COMPANY FACILITIES

PRIVATE-COM-FO	EXISTING PRIVATE - FIBER OPTIC
PRIVATE-SS	EXISTING PRIVATE - SANITARY SEWER
PRIVATE-W	EXISTING PRIVATE - WATER
PRIVATE-G	EXISTING PRIVATE - GAS
PRIVATE-E	EXISTING PRIVATE - ELECTRIC

(X) REPRESENTS ASCE DEFINED SUE QUALITY LEVEL

PROPOSED SYMBOLS

CONSTRUCTION

	BARRIER, DOUBLE-FACED, PERMANENT
	BARRIER, SINGLE-FACED, PERMANENT, TL-4 / TL-5
BFS	*BIOFILTRATION SWALE*
	BRICK PATTERNED SURFACE
	BUTT JOINT
CZ	*CLEAR ZONE*
100+00	*CONSTRUCTION BASELINE*
	CURB, TYPE 1 & TYPE 3
	CURB, TYPE 2
	CURB & GUTTER, TYPE 1
	CURB & GUTTER, TYPE 2
	CURB & GUTTER, TYPE 3
	CURB OPENING - SUMP / ON GRADE
	CURB OPENING WITH SIDEWALK
	DRAINAGE INLET
	DITCH
	FENCE - METAL / FENCE - WOOD
	FLARED END / SAFETY END SECTION
	GUARDRAIL, TYPE 1
	GUARDRAIL, TYPE 2
	GUARDRAIL, TYPE 3
	GUARDRAIL END ANCHORAGE
	GUARDRAIL END TREATMENT, TYPE 1
	GUARDRAIL END TREATMENT, TYPE 2
	GUARDRAIL END TREATMENT, TYPE 3
	IMPACT ATTENUATOR
	JUNCTION BOX - DRAINAGE
LO	*LATERAL OFFSET*
LOC	*LIMIT OF CONSTRUCTION*
MB	*MAILBOX*
	MANHOLE
	PAVEMENT PATCH
	PAVEMENT REMOVAL - TOPSOIL, SEED AND MULCH
	PIPE & DIRECTIONAL FLOW ARROW
	RIPRAP
	P.C.C. SIDEWALK - 4"
	P.C.C. SIDEWALK - 6" (USE 8" DEPTH FOR CHANNELIZATION ISLANDS.)
	UNDERDRAIN
	UNDERDRAIN OUTLET
	BOLLARD

RIGHT-OF-WAY SYMBOLS

	PROPOSED RIGHT-OF-WAY MONUMENT
DA	*PROPOSED DENIAL OF ACCESS*
PE	*PROPOSED PERMANENT EASEMENT*
R/W	*PROPOSED RIGHT-OF-WAY*
R/W-DA	*PROPOSED R/W & DENIAL OF ACCESS*
RTE	*RIGHT-TO-ENTER*
TCE	*TEMPORARY CONSTRUCTION EASEMENT*
100+00	*PROPOSED RIGHT-OF-WAY BASELINE*

IDENTIFIERS

AB C	*ABANDON BY CONTRACTOR*
AB O	*ABANDON BY OTHERS*
A C	*ADJUST BY CONTRACTOR*
A O	*ADJUST BY OTHERS*
BMP XXX	*BEST MANAGEMENT PRACTICE*
BSP X	*BUS STOP PAD / TYPE*
BSSP X	*BUS STOP WITH SHELTER PAD / TYPE*
B XXX	*CONCRETE SAFETY BARRIER*
C XXX	*CURB OR CURB & GUTTER*
CJB XXX	*CONVERT TO JUNCTION BOX*
CMH XXX	*CONVERT TO DRAINAGE MANHOLE*
C O	*CURB OPENING - SUMP / ON GRADE*
CO SW	*CURB OPENING WITH SIDEWALK*
DI XXX	*DRAINAGE INLET*
DND	*DO NOT DISTURB*
ED XXX	*ENERGY DISSIPATOR*
F XXX	*FENCE*
FES XXX	*FLARED END SECTION*
FF C	*FILL WITH FLOWABLE FILL*
GR XXX	*GUARDRAIL*
JB XXX	*JUNCTION BOX*
MH XXX	*MANHOLE*
M XXX	*MONUMENT - RIGHT-OF-WAY*
PC XX	*PEDESTRIAN CONNECTION / TYPE*
PC-N XXX	*PEDESTRIAN CONNECTION / TYPE WITHOUT SIDEWALK SURFACE DETECTABLE WARNING SYSTEM*
P XXX	*PIPE*
RL C	*RELOCATE BY CONTRACTOR*
RL O	*RELOCATE BY OTHERS*
RL PO	*RELOCATE BY PROPERTY OWNER*
RM C	*REMOVE BY CONTRACTOR*
RM TC	*REMOVE BY TRAFFIC CONTRACTOR*
RM O	*REMOVE BY OTHERS*
SES XXX	*SAFETY END SECTION*
UD XXX	*UNDERDRAIN / LENGTH*
UDO XXX	*UNDERDRAIN OUTLET PIPE*

LANDSCAPING

LS XXX	*LANDSCAPE PLANTINGS*
	SHRUBBERY
	CONIFEROUS TREE
	DECIDUOUS TREE

TRAFFIC

ITMS-CON	*ITMS CONDUIT*
SIG-CON	*SIGNAL CONDUIT*
	CONDUIT JUNCTION WELL
	LUMINAIRE
	PAVEMENT MARKINGS
	PAVEMENT STRIPING
	TRAFFIC SIGN

PAVEMENT SECTION(S)

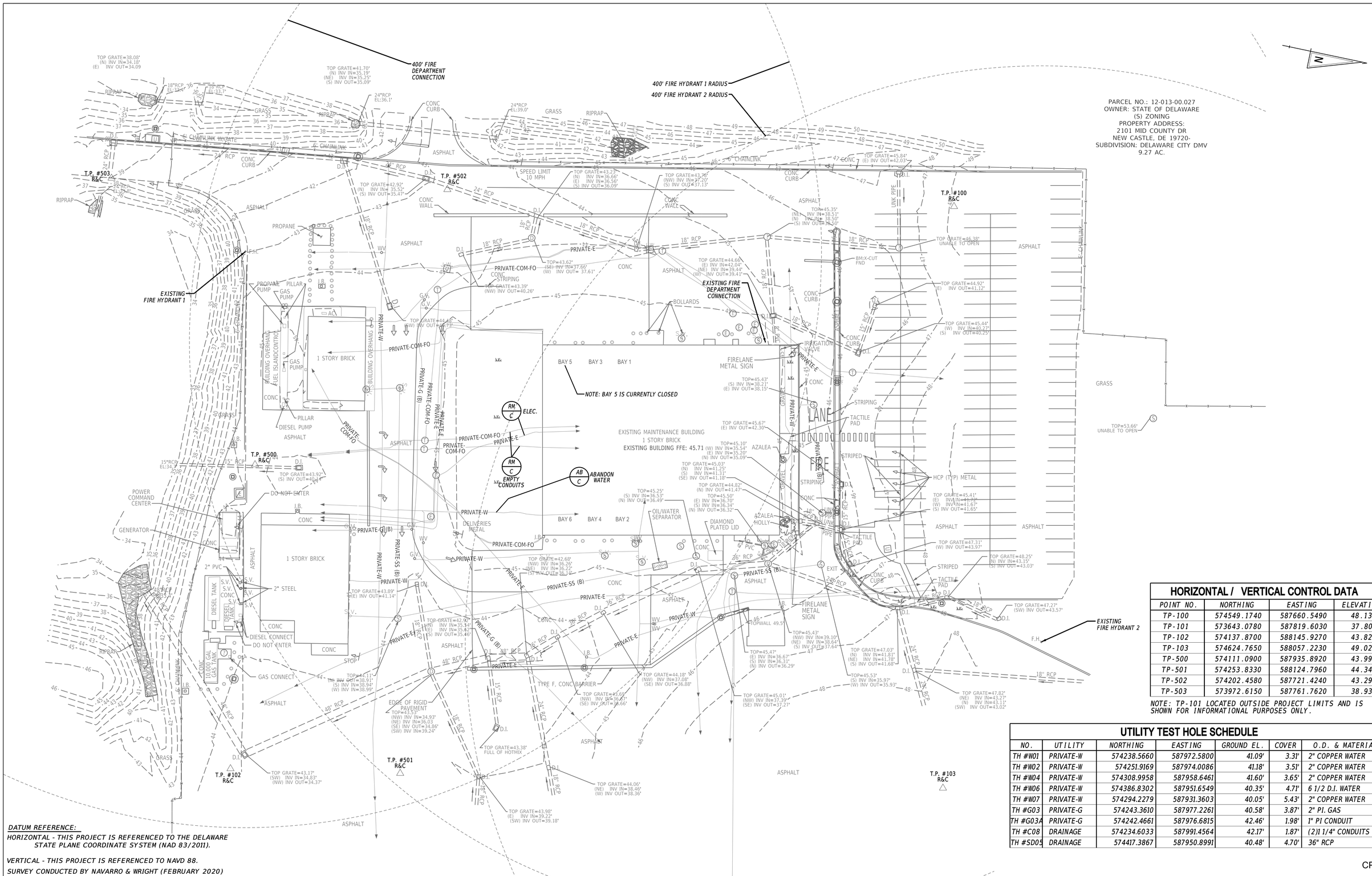
	CONCRETE PAVEMENT - SEE PAVEMENT SECTIONS (CP-01) FOR MATERIALS AND DEPTHS
	RECONSTRUCTED BITUMINOUS PAVEMENT - SEE PAVEMENT SECTIONS (CP-01) FOR MATERIALS AND DEPTHS
	RECONSTRUCTED CONCRETE PAVEMENT - SEE PAVEMENT SECTIONS (CP-01) FOR MATERIALS AND DEPTHS

UTILITIES

PRIVATE-E	*PROPOSED PRIVATE - ELECTRIC*
PRIVATE-SS	*PROPOSED PRIVATE - SANITARY SEWER*

LG-01

ADDENDA / REVISIONS		NOT TO SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	T201953104.03	COUNTY	NEW CASTLE	BRIDGE NO.	N/A	DESIGNED BY: PER	CHECKED BY: NB	LEGEND	SECTION	JMT	SHEET NO.	5



HORIZONTAL / VERTICAL CONTROL DATA

POINT NO.	NORTHING	EASTING	ELEVATION
TP-100	574549.1740	587660.5490	48.13
TP-101	573643.0780	587819.6030	37.80
TP-102	574137.8700	588145.9270	43.82
TP-103	574624.7650	588057.2230	49.02
TP-500	574111.0900	587935.8920	43.99
TP-501	574253.8330	588124.7960	44.34
TP-502	574202.4580	587721.4240	43.29
TP-503	573972.6150	587761.7620	38.93

NOTE: TP-101 LOCATED OUTSIDE PROJECT LIMITS AND IS SHOWN FOR INFORMATIONAL PURPOSES ONLY.

UTILITY TEST HOLE SCHEDULE

NO.	UTILITY	NORTHING	EASTING	GROUND EL.	COVER	O.D. & MATERIAL
TH #W01	PRIVATE-W	574238.5660	587972.5800	41.09'	3.31'	2" COPPER WATER
TH #W02	PRIVATE-W	574251.9169	587974.0086	41.18'	3.51'	2" COPPER WATER
TH #W04	PRIVATE-W	574308.9958	587958.6461	41.60'	3.65'	2" COPPER WATER
TH #W06	PRIVATE-W	574386.8302	587951.6549	40.35'	4.71'	6 1/2 D.I. WATER
TH #W07	PRIVATE-W	574294.2279	587931.3603	40.05'	5.43'	2" COPPER WATER
TH #G03	PRIVATE-G	574243.3610	587977.2261	40.58'	3.87'	2" PI. GAS
TH #G03A	PRIVATE-G	574242.4661	587976.6815	42.46'	1.98'	1" PI CONDUIT
TH #C08	DRAINAGE	574234.6033	587991.4564	42.17'	1.87'	(2)1 1/4" CONDUITS
TH #SD05	DRAINAGE	574417.3867	587950.8991	40.48'	4.70'	36" RCP

DATUM REFERENCE:

HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83/2011).

VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88.

SURVEY CONDUCTED BY NAVARRO & WRIGHT (FEBRUARY 2020)

CP-00

ADDENDA / REVISIONS	

SCALE
0 30 60 90
FEET

MID-COUNTY MAINTENANCE YARD

CONTRACT	T201953104.03	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	PER
		CHECKED BY:	NB

EXISTING CONDITIONS & DEMOLITION PLAN

SECTION	
	JMT
SHEET NO.	6

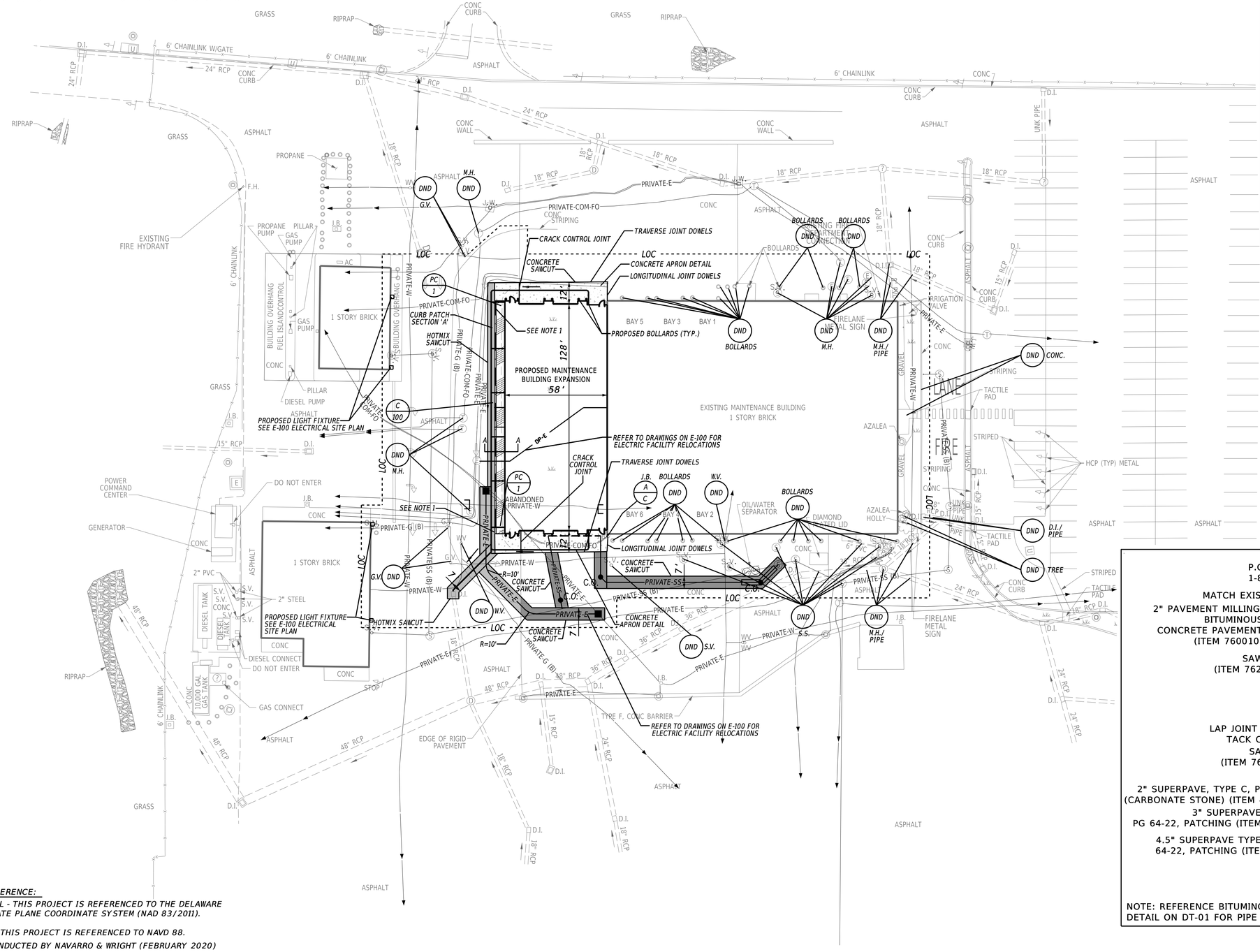
CURB SCHEDULE

NO.	ITEM DESCRIPTION / TYPE	LENGTH
100	P.C.C. CURB, TYPE 1-8	132 LF

NOTES:

1. P.C.C. CURB SHALL TAPER FROM FULL HEIGHT TO MATCH EXISTING PAVEMENT USING A 12:1 MAX. SLOPE OVER 10'.

2. SEE DT-01 FOR PAVEMENT TRENCH AND PATCHING DETAILS.

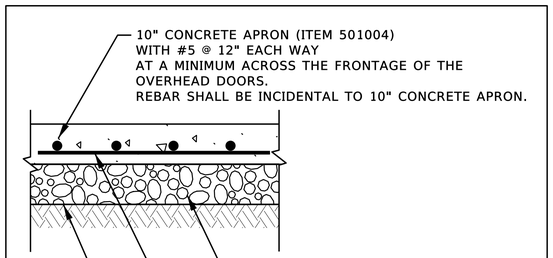


DATUM REFERENCE:

HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83/2011).

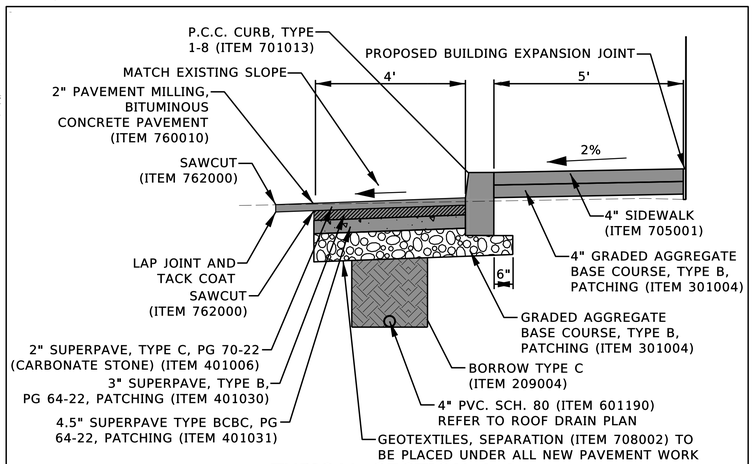
VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88.

SURVEY CONDUCTED BY NAVARRO & WRIGHT (FEBRUARY 2020)



PROPOSED APRON SHALL BE DOWELLED TO EXISTING CONCRETE IN ACCORDANCE WITH DELDOT STANDARD DETAILS P-1 P.C.C. PAVEMENT

CONCRETE APRON DETAIL
N.T.S.



TYPICAL SECTION A-A
N.T.S.

NOTE: REFERENCE BITUMINOUS PAVEMENT PIPE / CONDUIT TRENCH PAVING SECTION DETAIL ON DT-01 FOR PIPE TRENCH DETAILS

CP-01

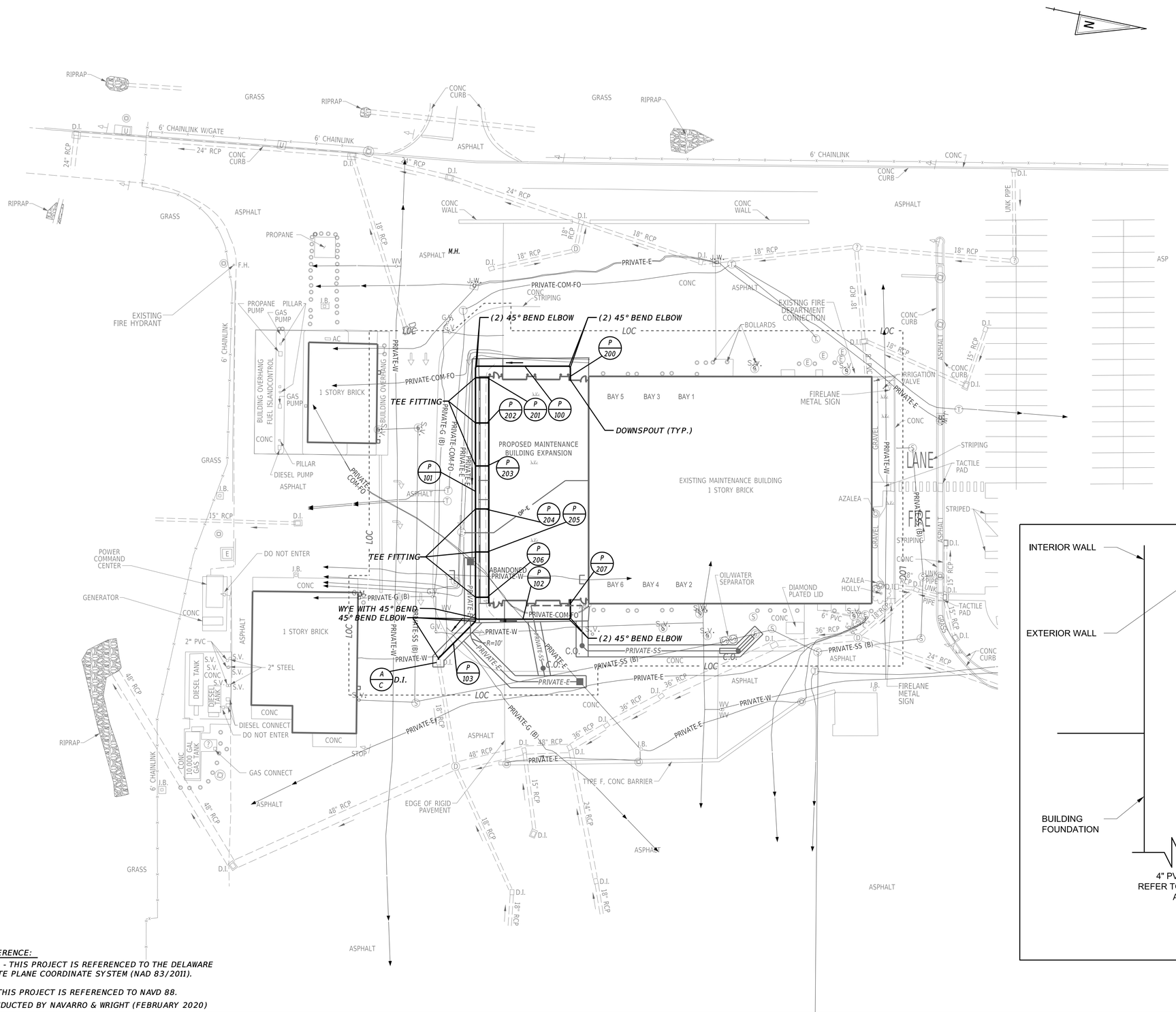
ADDENDA / REVISIONS		SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	BRIDGE NO. N/A	CONSTRUCTION PLAN	SECTION
		0 30 60 90		T201953104.03	DESIGNED BY: PER		JMT
		FEET		COUNTY NEW CASTLE	CHECKED BY: NB		SHEET NO. 7

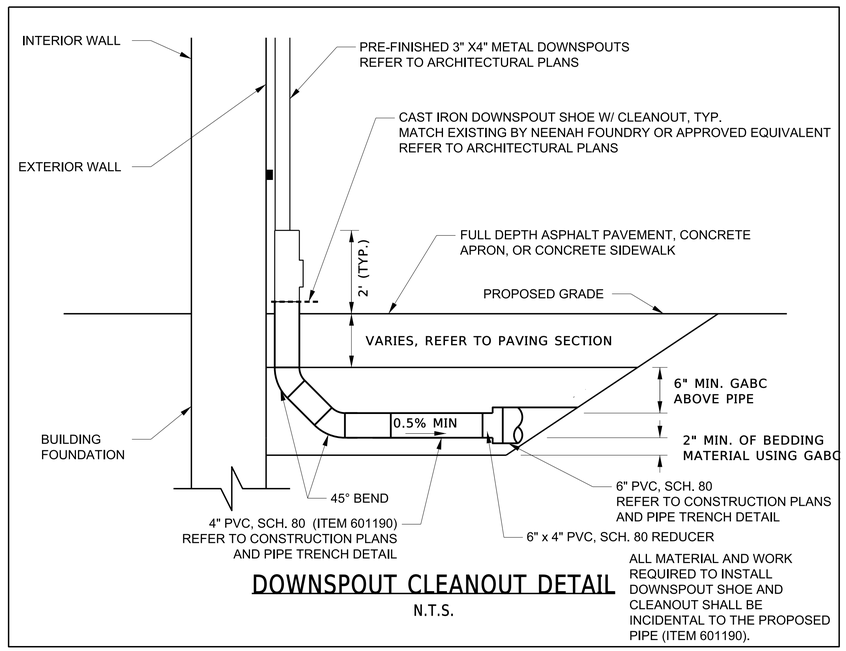
DRAINAGE PIPE SCHEDULE

NO.	SIZE / TYPE	CLASS	LENGTH	SLOPE	INVERT EL.	DIS. EL.
100	6" SCH. 80 PVC	-	56	0.0104	43.58	43.00
101	6" SCH. 80 PVC	-	148	0.0104	43.00	41.46
102	6" SCH. 80 PVC	-	56	0.0104	42.07	41.48
*103	6" SCH. 80 PVC	-	32	0.0104	41.46	41.13
+200	4" SCH. 80 PVC	-	8	0.0208	43.75	43.58
+201	4" SCH. 80 PVC	-	8	0.0208	43.11	42.94
+202	4" SCH. 80 PVC	-	8	0.0208	42.83	42.66
+203	4" SCH. 80 PVC	-	8	0.0208	42.57	42.40
+204	4" SCH. 80 PVC	-	8	0.0208	42.31	42.14
+205	4" SCH. 80 PVC	-	8	0.0208	42.05	41.88
+206	4" SCH. 80 PVC	-	8	0.0208	41.78	41.61
+207	4" SCH. 80 PVC	-	11	0.0208	42.29	42.07

* COST TO INSTALL PIPE TO EXISTING D.I. IS INCIDENTAL TO PIPE BEING INSTALLED. CONTRACTOR SHALL ENSURE PIPE IS FLUSH WITH THE INSIDE OF THE DRAINAGE INLET WALL AND FILL ANY SPACE BETWEEN THE PIPE AND THE WALLS OF THE DRAINAGE INLET WITH NON-SHRINK GROUT. ENSURE THAT THE PIPE OPENING IN THE DRAINAGE INLET IS NO MORE THAN 4 INCHES LARGER THAN THE PIPE DIAMETER MEASURED FROM THE OUTSIDE WALL OF THE PIPE. BACKFILL THE AREA AROUND THE DRAINAGE INLET WITH BORROW TYPE C.

+ CONTRACTOR SHALL INSTALL ROOF DRAIN DOWNSPOUTS AND CAST IRON DOWNSPOUT SHOES TO CONNECT TO 4" 45° ELBOW, 6" x 4" REDUCER, 6" TEE FITTING, AND 6" 45° ELBOW TO LEADER LINE. CONTRACTOR SHALL INSTALL 6" 45° ELBOW FOR LEADER LINE CONNECTIONS, ALL FITTINGS SHALL BE SCH. 80 PVC. PIPE LENGTHS INCLUDE CONNECTIONS. COST TO INSTALL ALL CONNECTIONS IS INCIDENTAL TO THE PIPE BEING INSTALLED (ITEM 601190 AND ITEM 601191)





DOWNSPOUT CLEANOUT DETAIL

N.T.S.

DATUM REFERENCE:

HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83/2011).

VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88.

SURVEY CONDUCTED BY NAVARRO & WRIGHT (FEBRUARY 2020)

RD-01

ADDENDA / REVISIONS	

SCALE
0 30 60 90
FEET

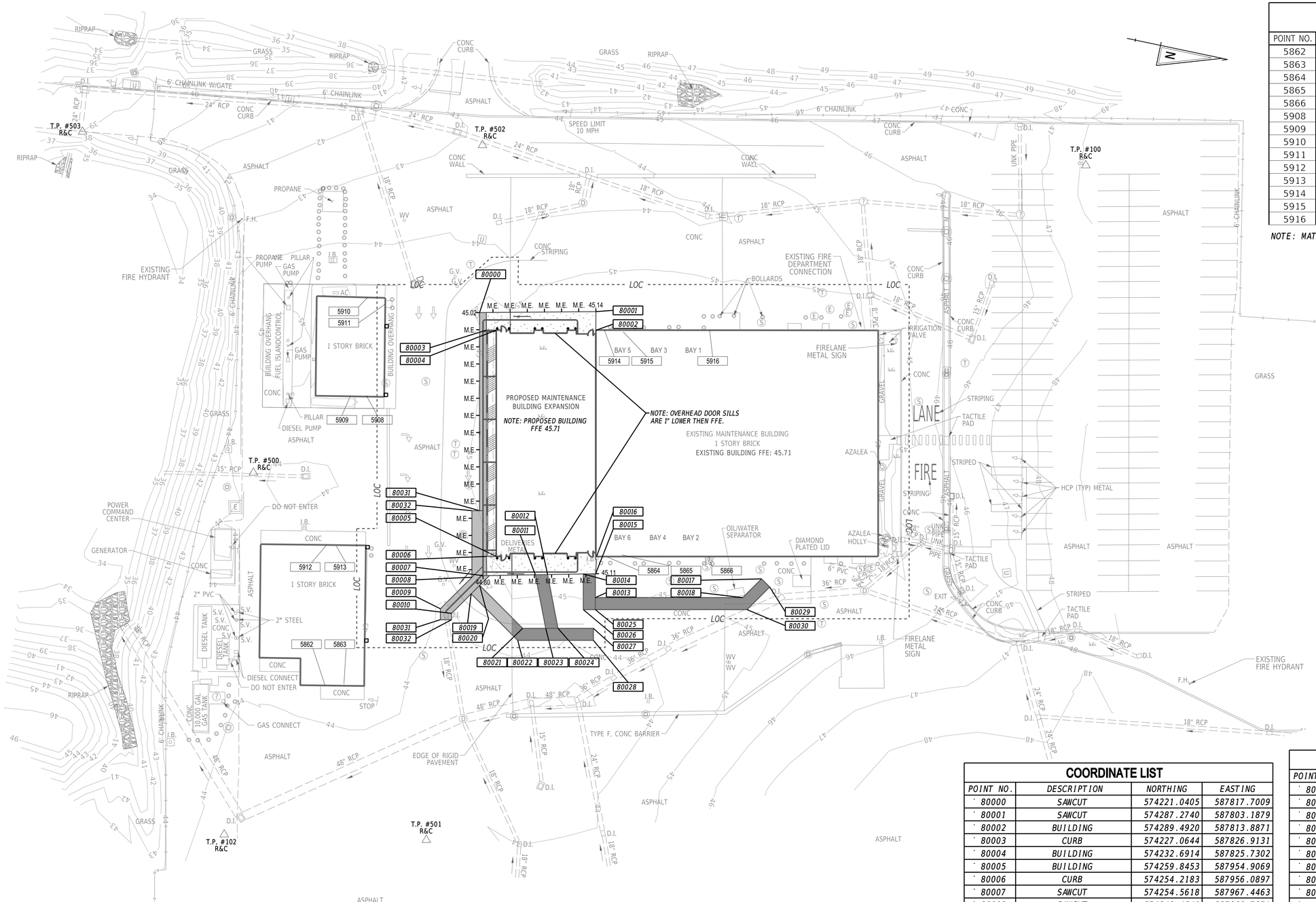
MID-COUNTY MAINTENANCE YARD

CONTRACT	T201953104.03
COUNTY	NEW CASTLE

BRIDGE NO.	N/A
DESIGNED BY:	PER
CHECKED BY:	NB

ROOF DRAIN PLAN

SECTION	JMT
SHEET NO.	8



EXISTING FINISHED FLOOR ELEVATION COORDINATE LIST

POINT NO.	DESCRIPTION	NORTHING	EASTING	ELEV.
5862	DOOR	574177.5829	588049.0649	44.37
5863	GARAGE DOOR	574188.2316	588046.0258	44.36
5864	DOOR	574323.1323	587941.8637	45.71
5865	GARAGE DOOR	574331.3507	587938.9297	45.64
5866	DOOR	574380.9286	587929.3907	45.67
5908	GARAGE DOOR	574166.2990	587878.5945	44.68
5909	DOOR	574157.2842	587880.9486	45.64
5910	GARAGE DOOR	574155.2780	587822.5667	44.71
5911	DOOR	574166.1049	587824.2595	44.79
5912	DOOR	574161.5902	587968.7849	44.34
5913	GARAGE DOOR	574167.2899	587968.1636	44.33
5914	DOOR	574294.2783	587812.5966	45.72
5915	GARAGE DOOR	574305.3093	587811.4532	45.63
5916	DOOR	574354.4413	587800.2672	45.72

NOTE: MATCH EXISTING ELEVATION IS NOTED AS M.E.

COORDINATE LIST

POINT NO.	DESCRIPTION	NORTHING	EASTING
80000	SAWCUT	574221.0405	587817.7009
80001	SAWCUT	574287.2740	587803.1879
80002	BUILDING	574289.4920	587813.8871
80003	CURB	574227.0644	587826.9131
80004	BUILDING	574232.6914	587825.7302
80005	BUILDING	574259.8453	587954.9069
80006	CURB	574254.2183	587956.0897
80007	SAWCUT	574254.5618	587967.4463
80008	SAWCUT	574248.4540	587969.7271
80009	SAWCUT	574234.2489	587991.5020
80010	SAWCUT	574241.1640	587992.7985
80011	SAWCUT	574284.3561	587960.6641
80012	SAWCUT	574291.2869	587959.0863
80013	SAWCUT	574321.3098	587966.5075
80014	SAWCUT	574311.6206	587954.4577
80015	SAWCUT	574318.6186	587952.8647

COORDINATE LIST

POINT NO.	DESCRIPTION	NORTHING	EASTING
80016	BUILDING	574317.0769	587942.9196
80017	SAWCUT	574413.9161	587935.8728
80018	SAWCUT	574405.4843	587948.7979
80019	SAWCUT	574250.0022	587979.2504
80020	SAWCUT	574253.8269	587973.3876
80021	SAWCUT	574283.5429	587992.7731
80022	SAWCUT	574282.1467	588000.2201
80023	SAWCUT	574296.7076	587990.0033
80024	SAWCUT	574303.6847	587988.5354
80025	SAWCUT	574322.7514	587973.3575
80026	SAWCUT	574315.9014	587974.7987
80027	SAWCUT	574323.8846	587984.2855
80028	SAWCUT	574325.3258	587991.1355
80029	SAWCUT	574420.1828	587940.2991
80030	SAWCUT	574409.3200	587955.1442
80031	SAWCUT	574235.5610	587997.7386
80032	SAWCUT	574241.9218	587996.4004

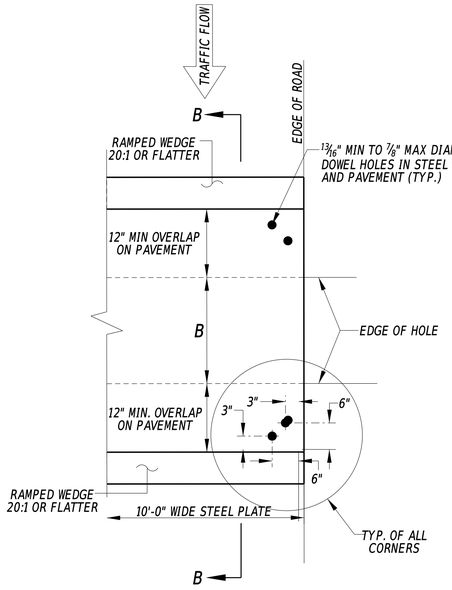
DATUM REFERENCE:

HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83/2011).

VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88.

GG-01

ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	MID-COUNTY MAINTENANCE YARD	CONTRACT T201953104.03	BRIDGE NO. N/A	GRADES AND GEOMETRICS	SECTION JMT
				COUNTY NEW CASTLE	DESIGNED BY: PER		SHEET NO. 9
					CHECKED BY: NB		



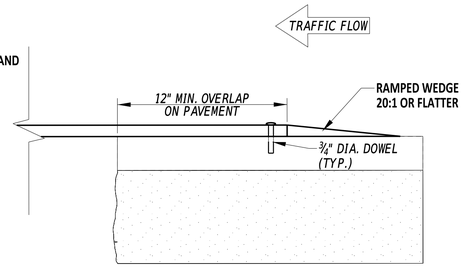
PLAN VIEW

NOTES:

1. USE OF STEEL PLATES MUST BE APPROVED BY THE ENGINEER AND IS NOT PERMITTED BETWEEN NOVEMBER 1ST AND MARCH 31ST.
2. STEEL PLATES AND DOWELS WILL CONFORM TO ASTM A36 STANDARDS.
3. ADEQUATELY SHORE THE TRENCH IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS TO SUPPORT THE BRIDGING AND TRAFFIC LOADS.
4. SECURE BRIDGING AGAINST DISPLACEMENT BY USING ADJUSTABLE CLEATS, SHIMS, OR OTHER DEVICES.
5. USE OF STEEL PLATE BRIDGING IS NOT TO EXCEED FOUR (4) CONSECUTIVE WORKING DAYS IN ANY GIVEN WEEK AND NOT LEFT IN PLACE OVER THE WEEKEND, UNLESS DIRECTED BY THE ENGINEER IN THE FIELD.
6. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF STEEL PLATES, SHORING, ASPHALT CONCRETE RAMPS, AND ENSURING THEY MEET ALL MINIMUM SPECIFICATIONS. DEFORMATIONS OF ANY KIND ARE NOT ACCEPTABLE ON STEEL PLATES. EXAMPLES OF DEFORMATIONS COULD BE, BUT NOT LIMITED TO, ANY OF THE FOLLOWING: FREE FROM ANY CLIPS, CHAINS, ATTACHMENTS, WELDMENTS, SURFACE IRREGULARITIES, ETC.
7. A STRUCTURE DESIGN IS REQUIRED FOR TRENCH WIDTHS GREATER THAN 6'-0". DESIGN WILL BE APPROVED BY DEPARTMENT PRIOR TO USE.
8. INSTALL STEEL PLATE BRIDGING AND SHORING USING THE METHOD BELOW:
   METHOD: FOR SPEEDS 45 MPH OR LESS, ATTACH THE PLATE TO THE ROADWAY BY A MINIMUM OF TWO DOWELS PRE-DRILLED INTO EACH CORNER OF THE PLATE AND DRILLED 2"INTO THE PAVEMENT AS SHOWN IN ON THIS DETAIL. BUTT SUBSEQUENT PLATES TO EACH OTHER. USE COMPACTED BITUMINOUS TEMPORARY ROADWAY MATERIAL (TRM) TO FORM A RAMPED WEDGE WITH A MAXIMUM SLOPE OF 5% AND A MINIMUM TAPER LENGTH OF 20" TO COVER ALL EDGES OF STEEL PLATES.
9. WHEN THE STEEL PLATES ARE REMOVED, BACKFILL THE DOWEL HOLES IN THE PAVEMENT WITH EITHER GRADED FINES OF ASPHALT CONCRETE MIX, CONCRETE SLURRY,OR EQUIVALENT SLURRY TO THE SATISFACTION OF THE ENGINEER.
10. STEEL PLATES MUST HAVE A SURFACE THAT IS MANUFACTURED WITH A MINIMUM NOMINAL COEFFICIENT OF FRICTION OF 0.35 AT THE TIME OF PLACEMENT.
11. STEEL PLATE(S) AND PLATING SHALL NOT BE PAID FOR DIRECTLY AND BOTH ARE INCIDENTAL TO HOTMIX AND CONCRETE PATCHING ITEMS.

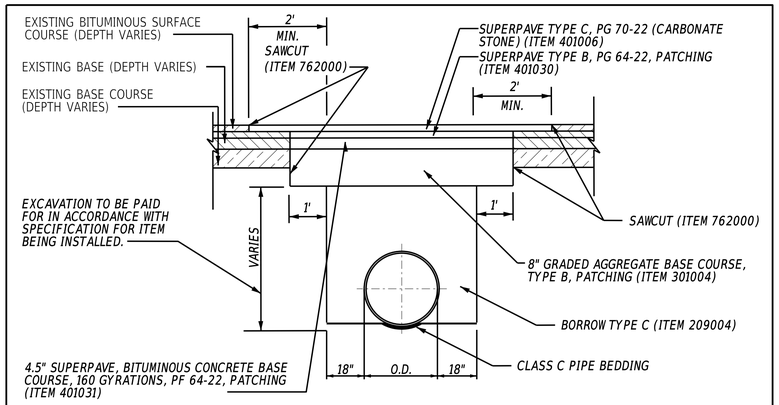
B	C
TRENCH WIDTH	MIN. PLATE THICKNESS
1'-0"	1/2"
2'-0"	3/4"
3'-0"	7/8"
4'-0"	1"
5'-0"	1 1/8"
6'-0"	1 1/4"

BASED ON HL-93 TRUCK LOAD



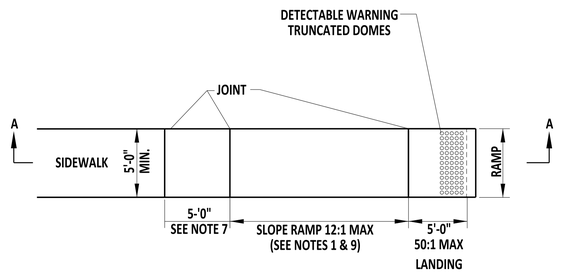
SECTION B-B

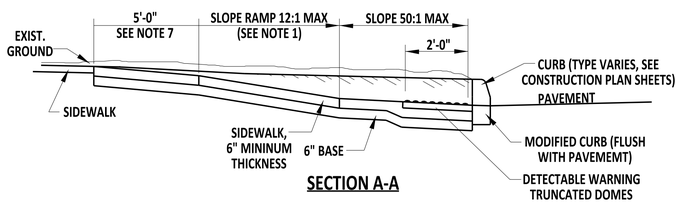
TRENCHING - STEEL PLATE DETAIL



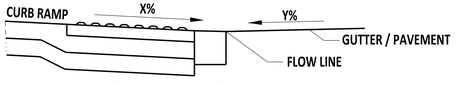
BITUMINOUS PAVEMENT PIPE / CONDUIT TRENCH PAVING SECTION

NOTE: TO MAINTAIN DTC'S ACCESS TO THE GARAGES PLATING SHALL BE AVAILABLE FOR OPEN TRENCHES.



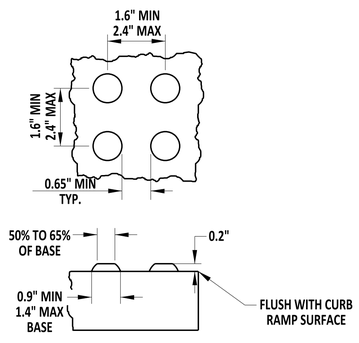


SECTION A-A



MAXIMUM DIFFERENCE IN GRADE FOR ALL CURB RAMP TYPES

FOR EXAMPLE, IF THE CURB RAMP AND DEPRESSED CURB SLOPE AT THE FLOW LINE (X) IS 8.1% AND THE PAVEMENT SLOPE (Y) IS 4.0%, THEN TO DETERMINE THE DIFFERENCE IN GRADE, ADD X + Y TO GET 12.1%, WHICH IS GREATER THAN THE 11% PREFERRED BUT LESS THAN THE 13% MAXIMUM.

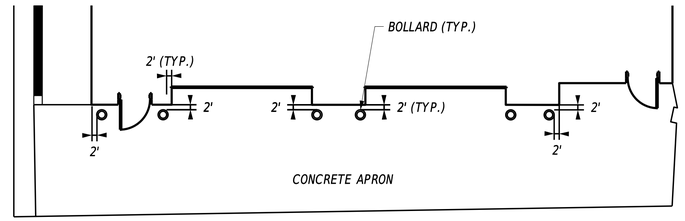


DETECTABLE WARNING TRUNCATED DOME DETAILS

NOTES:

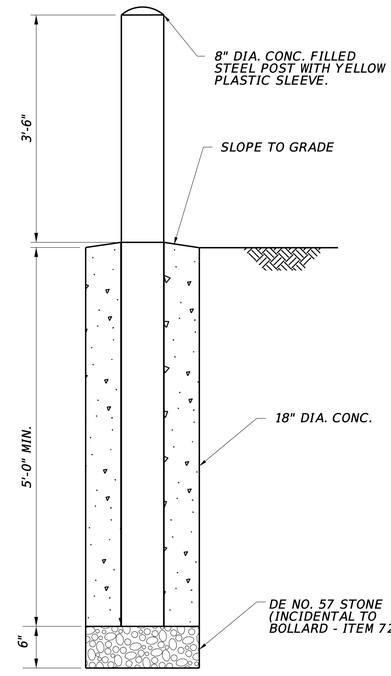
A). THE AREA OF DETECTABLE WARNING TRUNCATED DOMES SHALL BE 2'-0" LONG AND THE FULL WIDTH OF THE RAMP OR DEPRESSED CURB.
B). SEE SPECIFICATION FOR ADDITIONAL INFORMATION.

PEDESTRIAN CONNECTION, TYPE 1

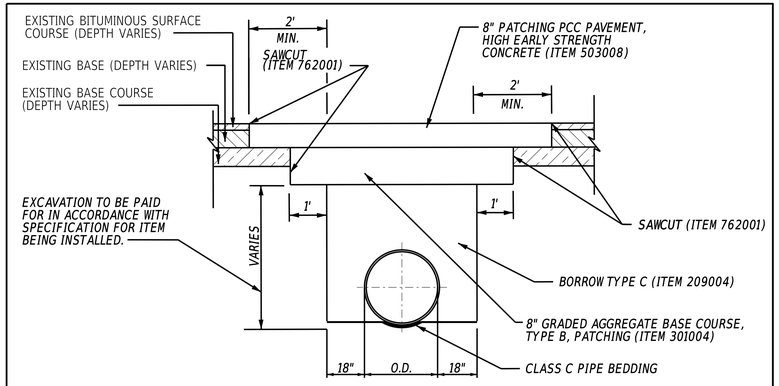


BOLLARD DETAIL

NOT TO SCALE



NOTE:
1. CONCRETE SHALL BE CLASS B.
2. PROPOSED BOLLARD TO MATCH EXISTING BOLLARD.



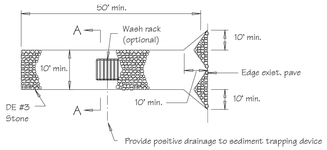
CONCRETE PAVEMENT, PIPE / CONDUIT TRENCH PAVING SECTION

NOTE: TO MAINTAIN DTC'S ACCESS TO THE GARAGES PLATING SHALL BE AVAILABLE FOR OPEN TRENCHES.

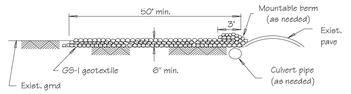
DT-01

ADDENDA / REVISIONS		NOT TO SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	BRIDGE NO.	N/A	CONSTRUCTION DETAILS	SECTION
				T201953104.03	DESIGNED BY:	PER		JMT
				COUNTY	CHECKED BY:	NB		SHEET NO.
				NEW CASTLE				10

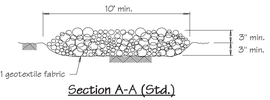
Standard Detail & Specifications
Stabilized Construct. Entrance



Plan



Profile

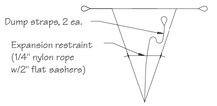


Section A-A (Std.)

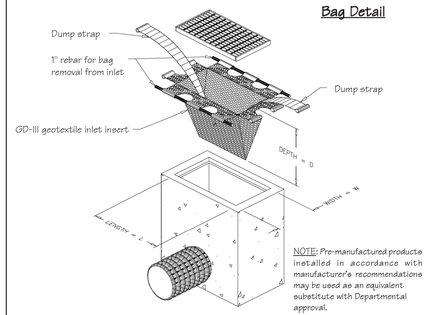
Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SCE	**DE-ESC-3.4.7** Sheet 1 of 2

Effective February 2019

Standard Detail & Specifications
Inlet Protection - Type 2



Bag Detail



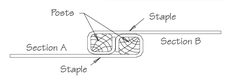
NOTE: Pre-manufactured products installed in accordance with manufacturer's recommendations may be used as an equivalent substitute with Departmental approval.

Perspective

Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.	IP-2	**DE-ESC-3.1.5.2** Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Silt Fence

Construction Detail



Method for joining continuous sections

Top

Construction Notes:

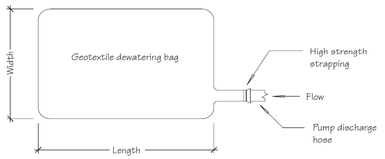
1. Geosynthetic fabric to be fastened securely to fence posts with wire ties or staples.
2. When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded.
3. Maintenance shall be performed as needed and material removed when "bulges" develop in the silt fence.

Materials:

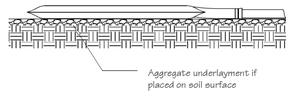
1. Stakes: Steel (either T or U) or 2" x 2" hardwood
2. Geosynthetic Fabric: Type GD-I
3. Reinforcing strip: Wooden lath or plastic strip

Source:	Symbol:	Detail No.
Adapted from MD Stds. & Specs. for ESC	SF	**DE-ESC-3.1.2.1** Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Geotextile Dewatering Bag



Plan

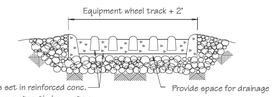


Profile

NOTE: Pre-manufactured products installed in accordance with manufacturer's recommendations may be used as an equivalent substitute with Departmental approval.

Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.	GB	**DE-ESC-3.2.1.2** Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Stabilized Construct. Entrance



Section A-A (Opt.)

Construction Notes:

1. Stone size - Use DE #3 stone.
2. Length - As required, but not less than 50 feet (except on a single residence lot where a 30 foot minimum length would apply).
3. Thickness - Not less than size (6) inches.
4. Width - Ten (10) foot minimum, but not less than the full width at points where ingress or egress occurs.
5. Geotextile - Type GS-I; placed over the entire area prior to placing of stone.
6. Surface Water - All surface water flowing or diverted toward construction entrances shall be piped across the entrance. If piping is impractical, a mountable berm with 5:1 slopes will be permitted.
7. Maintenance - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.
8. Washing - Vehicle wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.
9. Inspection - Periodic inspection and needed maintenance shall be provided after each rain.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook	SCE	**DE-ESC-3.4.7** Sheet 2 of 2

Effective February 2019

Standard Detail & Specifications
Inlet Protection - Type 2

Notes:

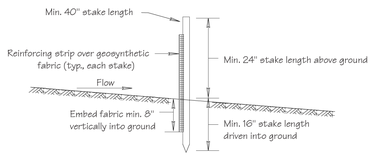
1. This practice shall only be used in situations in which Inlet Protection - Type 1 cannot be used due to site constraints. These include, but are not limited to partially completed parking areas, streets, roads, etc.
2. It may be necessary to transition from Type 1 to Type 2 Inlet Protection as construction proceeds.
3. For areas where there is a concern for oil run-off or spills, insert shall meet one of the above specifications with an oil-absorbant pillow or shall be made completely from an oil-absorbant material with a woven pillow.

Materials:

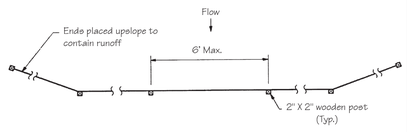
The geotextile inlet insert shall meet or exceed the specifications of Type GD-III geotextile in accordance with Appendix A-3 of the Delaware Erosion & Sediment Control Handbook.

Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.	IP-2	**DE-ESC-3.1.5.2** Sheet 2 of 2 Effective FEB 2019

Standard Detail & Specifications
Silt Fence



Section



Plan

DATA
Max. controlled slope

Source:	Symbol:	Detail No.
Adapted form MD Stds. & Specs. for ESC	SF	**DE-ESC-3.1.2.1** Sheet 1 of 2 Effective FEB 2019

Standard Detail & Specifications
Geotextile Dewatering Bag

Construction Notes:

1. The dewatering bag should be placed so the incoming water flows into and through the bag, and then flow off the site without creating more erosion. The neck should be tied off tightly to stop the water from flowing out of the bag without going through the walls. The dewatering bag should be placed on a gravel bed to allow water to flow in all directions.
2. The dewatering bag is considered full and should be disposed when it is impractical for the bag to filter the sediment out at a reasonable flow rate. At this point, it should be replaced with a new bag.
3. Disposal may be accomplished as directed by the construction reviewer. If the site allows, the bag may be buried on site and seeded, visible fabric removed and seeded or removed from site to a proper disposal area.

Materials:

1. The geotextile fabric shall be a Type GD-IV.
2. The dewatering bag shall be sewn with a double needle machine using high strength thread. All structural seams will be sewn with high strength, double stitched "J" type. Seam strength test will have the following minimum average roll values:

Type	TEST METHOD	TEST RESULT
Heavy duty	ASTM D-4884	100 lb / in

3. The dewatering bag shall have an opening large enough to accommodate a four (4) inch discharge hose with attached strap to tie off the hose to prevent the pumped water from escaping from the bag without being filtered.

Source:	Symbol:	Detail No.
Adapted from ACF Products, Inc.	GB	**DE-ESC-3.2.1.2** Sheet 2 of 2 Effective FEB 2019

DT-02

ADDENDA / REVISIONS		NOT TO SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	BRIDGE NO.	N/A	CONSTRUCTION DETAILS	SECTION
				T201953104.03	DESIGNED BY:	PER		JMT
				COUNTY	CHECKED BY:	NB		SHEET NO.
				NEW CASTLE				11

EROSION AND SEDIMENT CONTROL NOTES

1.

EROSION POTENTIAL FOR THIS PROJECT	CONTRACTOR ESC SUPERVISOR REQUIREMENT
( ) INSIGNIFICANT	NONE
(X) MINOR	CONTRACTOR TRAINING PROGRAM, AS DEFINED IN SECTION 6.2 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.
( ) MAJOR	CERTIFIED CONSTRUCTION REVIEWER (CCR), AS DEFINED IN SECTION 6.3 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS.

2. THE DISTURBED AREA FOR THE PROJECT IS 0.49 ACRES.

3. ONCE THE SEDIMENT AND STORMWATER MANAGEMENT PLANS HAVE BEEN APPROVED BY DELDOT'S STORMWATER ENGINEER UNDER DELDOT'S DELEGATED AUTHORITY, THE SEDIMENT AND STORMWATER MANAGEMENT PLANS ARE VALID FOR A FIVE YEAR PERIOD, BEGINNING ON THE DATE THE STORMWATER ENGINEER SIGNED THE CONSTRUCTION TITLE SHEET. IF THE FINAL ACCEPTANCE OF THE PROJECT IS ANTICIPATED TO EXTEND BEYOND THE FIVE YEARS, THE CONTRACTOR WILL INFORM THE ENGINEER THREE MONTHS PRIOR TO THE EXPIRATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLANS. THE STORMWATER ENGINEER WILL REVIEW THE CURRENT SEDIMENT AND STORMWATER MANAGEMENT PLAN AND ISSUE AN EXTENSION WITH ANY APPROPRIATE MODIFICATIONS.

4. IN ACCORDANCE WITH SECTION 6.2 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, THE CONTRACTOR IS REQUIRED TO PROVIDE A RESPONSIBLE PERSON AS DEFINED IN THE REGULATIONS ONSITE DURING ALL LAND DISTURBING ACTIVITIES. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPORTS REQUIRED BY DNREC IN ACCORDANCE WITH SECTION 6.2 OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS. REPORTS AND COSTS ASSOCIATED WITH THESE ACTIVITIES SHALL BE INCIDENTAL TO EROSION AND SEDIMENT CONTROL ITEMS.

CONSTRUCTION SEQUENCE

1. INSTALL EROSION AND SEDIMENT CONTROLS AS SHOWN.

2. MAINTAIN ACCESS TO THE SITE, EXISTING BUILDINGS MAINTAINENCE BAYS, BUS FUELING STATION AND BUS WASH AT ALL TIMES. ANY DISRUPTION TO ACCESS TO THE SITE MUST BE APPROVED BY THE ENGINEER.

3. INSTALL PROPOSED LIGHTING AND RELOCATE EXISTING ELECTRIC PRIOR TO BEGINNING ANY OTHER CONSTRUCTION ACTIVITIES.

4. INSTALL UTILITIES (SANITARY, ELECTRIC, WATER AND GAS) AND PROPOSED DRAINAGE FACILITIES AND BACKFILL TO PROPOSED STONE SUBGRADE.

5. CONSTRUCT PROPOSED MAINTENANCE BUILDING EXPANSION AS SHOWN ON CONSTRUCTION PLAN. MAKE ALL UTILITY CONNECTIONS (INCLUDING UNDERGROUND CONDUITS).

6. EXTEND UTILITIES FROM EXISTING BUILDING SERVICE ENTRANCES, THROUGH EXISTING MAINTENANCE BUILDING TO THE PROPOSED MAINTENANCE BUILDING EXPANSION. EXISTING MAINTENANCE BUILDING SPACES MUST REMAIN IN USE BY THE OWNER. COORDINATE CONSTRUCTION ACTIVITIES IN EXISTING SPACES WITH THE OWNER AS REQUIRED ON THE EXISTING FACILITY COORDINATION PLANS (G-001 THROUGH G-101).

7. AFTER COORDINATION WITH THE ENGINEER TO CONFIRM RELOCATION OF NECESSARY EQUIPMENT AND MATERIAL, MILL AND/OR EXCAVATE EXISTING PAVING AREAS AS SHOWN ON CONSTRUCTION PLAN. CONSTRUCT FULL DEPTH PAVING. PERFORM FINAL "TYPE C" OVERLAY.

8. INSTALL PAVEMENT STRIPING AND BOLLARDS.

9. REMOVE EROSION AND SEDIMENTATION CONTROL DEVICES AFTER FINAL VEGETATIVE STABILIZATION AND WITH CONCURRENCE FORM DELDOT'S STORMWATER ENGINEER.

DEWATERING NOTES

1. IF REQUIRED DUE TO A STORM EVENT DEWATER THE EXCAVATION AREA IN ACCORDANCE WITH SECTION 900 OF THE STANDARD SPECIFICATIONS. THE CONTRACTOR MAY DEWATER UP TO 50,000 GALLONS PER DAY IN ACCORDANCE WITH THE STATEWIDE GENERAL PERMIT FOR MINOR DEWATER ACTIVITIES AND SHALL BE INCIDENTAL ITEM 906002 - DEWATERING BAG.

2. EACH DEWATERING PUMP SHALL HAVE A FUNCTIONING INSTANTENOUS/TOTALIZING VOLUME METER INSTALLED PRIOR TO THE WITHDRAW OF GROUNDWATER. THE DEWATERING OPERATION WILL BE CONTINUOUS UNTIL COMPLETION.

3. THE CONTRACTOR SHALL NOTIFY THE DNREC WATER SUPPLY SECTION AT 302-739-9945 48 HOURS PRIOR TO STARTING ANY DEWATERING OPERATION.

4. IF THE DISCHARGE WATER FROM THE DEWATER OPERATION WILL BE DIRECTED TO WETLANDS, THE CONTRACTOR SHALL NOTIFY THE DNREC WETLANDS AND SUBAQUEOUS LANDS SECTION AT 302-739-9943 48 HOURS PRIOR TO STARTING ANY DEWATERING OPERATION.

CONSTRUCTION PHASING & M.O.T	
	BARRICADE, TYPE 3
	CONCRETE SAFETY BARRIER - PORTABLE
CSF XXX	CONSTRUCTION SAFETY FENCE / LENGTH
CSF	CONSTRUCTION SAFETY FENCE
	CONSTRUCTION WARNING SIGN LOCATION
END ROAD WORK	CONSTRUCTION WARNING SIGN
	CRASH CUSHION ARRAY
	DRUM - TRAFFIC CONTROL
	FLAGGER LOCATION
	PHASING TRAFFIC FLOW ARROW
	TEMPORARY CONSTRUCTION
	TEMPORARY CHAIN LINK FENCE
	TEMPORARY PAVEMENT MARKING ARROW
	TRUCK WITH MOUNTED ATTENUATOR
	WORK AREA - ACTIVE PHASE

EROSION & SEDIMENT CONTROL	
CFL	COMPOST FILTER LOG
CFL	COMPOST FILTER LOG / LENGTH
CIP	CULVERT INLET PROTECTION
DWBAG	DEWATERING BAG
DWB	DEWATERING BASIN
ED	EARTH DIKE
	INLET SEDIMENT CONTROL
	PERIMETER DIKE/SWALE
PST	PORTABLE SEDIMENT TANK
SBD	SANDBAG DIKE
SB	SANDBAG DIVERSION
	STONE CHECK DAM
SCE	STABILIZED CONSTRUCTION ENTRANCE
SF	SILT FENCE / LENGTH
SF	SILT FENCE
RSF	SILT FENCE - REINFORCED / LENGTH
RSF	SILT FENCE - REINFORCED
SP	SUMP PIT
ST	SEDIMENT TRAP / NUMBER
ST	SEDIMENT TRAP
ST	SEDIMENT TRAP WITH INLET AS OUTLET
ST	SEDIMENT TRAP PIPE OUTLET
SW	STILLING WELL
	TEMPORARY SWALE
TSD	TEMPORARY SLOPE DRAIN
T XXX	TURBIDITY CURTAIN / LENGTH
T	TURBIDITY CURTAIN

PREPARED BY
JMT

JAMES J. KELLEY REGISTERED No. 12162 DELAWARE PROFESSIONAL ENGINEER

03/17/2022
DATE

THIS SEAL APPLIES TO ALL SHEETS BEARING THE "JMT" SECTION DESIGNATION.

SEAL

"I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN OF THESE PLANS MEETS THE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS."

In accordance with Standard Plan.

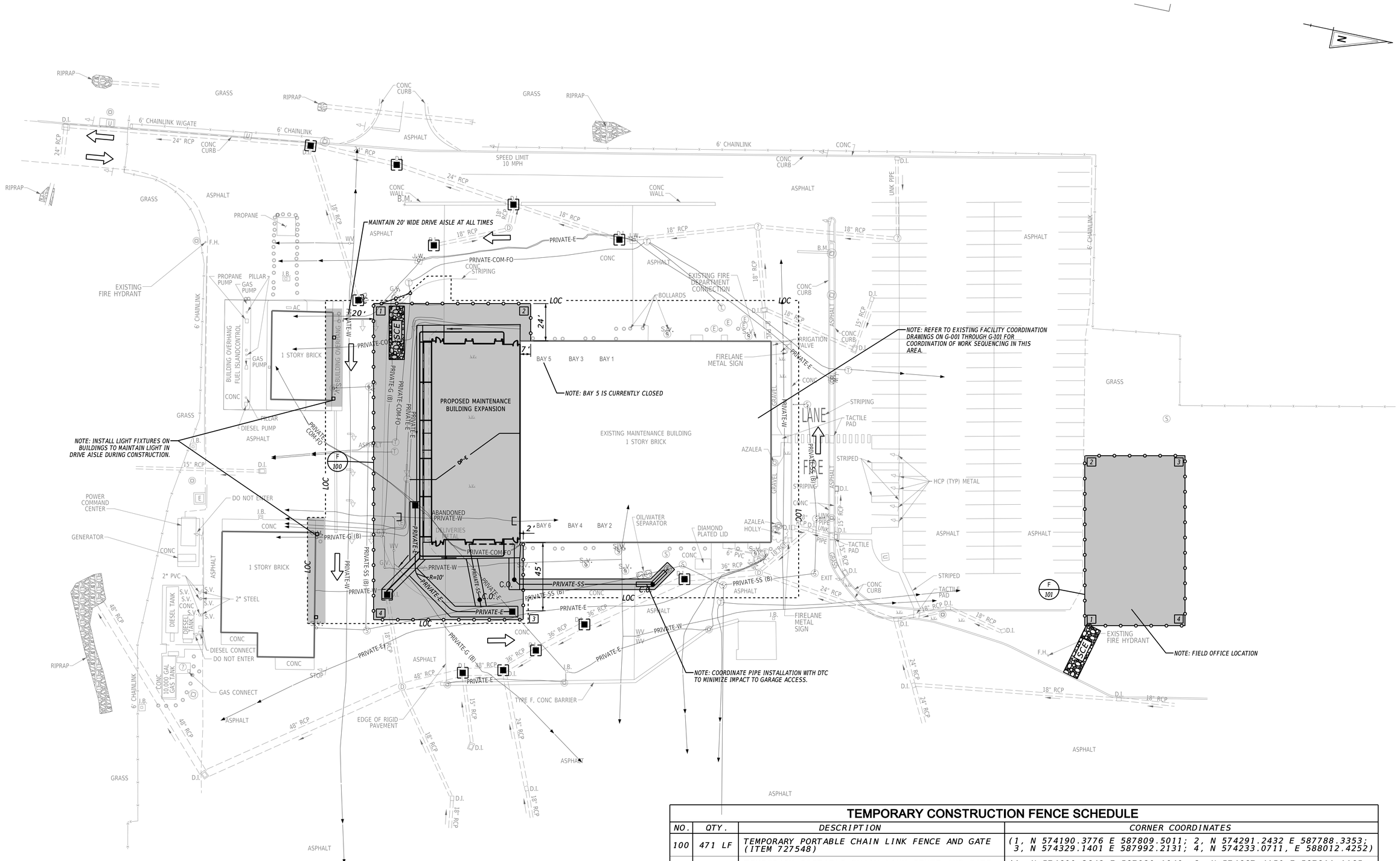
3/15/2022
DATE

DELDOT STORMWATER ENGINEER

"I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THESE PLANS MEET THE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS AND THAT ALL CLEARING, GRADING, AND CONSTRUCTION WILL BE ACCOMPLISHED PURSUANT TO THE PLAN."

CS-01

ADDENDA / REVISIONS		NOT TO SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	BRIDGE NO.	N/A	CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLAN	SECTION
				T201953104.03	DESIGNED BY:	PER		JMT
				COUNTY				SHEET NO.
				NEW CASTLE	CHECKED BY:	NB		12



TEMPORARY CONSTRUCTION FENCE SCHEDULE

NO.	QTY.	DESCRIPTION	CORNER COORDINATES
100	471 LF	TEMPORARY PORTABLE CHAIN LINK FENCE AND GATE (ITEM 727548)	(1, N 574190.3776 E 587809.5011; 2, N 574291.2432 E 587788.3353; 3, N 574329.1401 E 587992.2131; 4, N 574233.0711, E 588012.4252)
101	355 LF	TEMPORARY PORTABLE CHAIN LINK FENCE AND GATE (ITEM 727548)	(1, N 574690.3642 E 587920.1949; 2, N 574667.4150 E 587811.1165; 3, N 574731.7524 E 587797.5804; 4, N 574754.7016 E 587906.6588)

NOTE: TEMPORARY CONSTRUCTION GATES SHALL BE INCIDENTAL TO TEMPORARY PORTABLE CHAIN LINK FENCE (ITEM 727548).

CS-02

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

MID-COUNTY MAINTENANCE YARD

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY:	PER
COUNTY	CHECKED BY:	NB
NEW CASTLE		

CONSTRUCTION PHASING, M.O.T., AND EROSION CONTROL PLAN - PHASE 1

SECTION	JMT
SHEET NO.	13

SANITARY STRUCTURE SCHEDULE

NO.	SIZE / TYPE	RIM EL.	T.G. EL.	INV. EL.	NORTHING	EASTING
SM-1	6" CLEANOUT	45.00	45.00	41.04	574317.99	587967.72
SM-2	6" CLEANOUT	45.00	45.00	39.20	574407.40	587951.97
SM-3	6" CLEANOUT	44.50	44.50	38.41	574298.49	587985.23
SM-4	60" DOGHOUSE MANHOLE	45.00	45.00	36.77	574415.07	587940.21

SANITARY SEWER PIPE SCHEDULE

NO.	SIZE / TYPE	LENGTH	SLOPE	INV. EL.	DIS. EL.
SP-1	6" SDR-26 PVC	42'	0.0514	40.31	38.15
SP-2	6" SDR-26 PVC	23'	0.0200	41.50	41.04
SP-3*	6" SDR-26 PVC	92'	0.0200	41.04	39.20
SP-4*	6" SDR-26 PVC	14'	0.0200	39.20	38.92

*18"x22' CONCRETE ENCASEMENT, REFER TO PROFILE FOR LOCATION. COST FOR CONCRETE ENCASEMENT SHALL BE INCIDENTAL TO COST OF SANITARY SEWER INSTALLATION.

SANITARY ACCESSORIES SCHEDULE

NO.	DESCRIPTION	QUANTITY
SA-1	LATERAL TAP	1
SA-2	6" PVC 45° BEND	1

WATER ACCESSORIES SCHEDULE

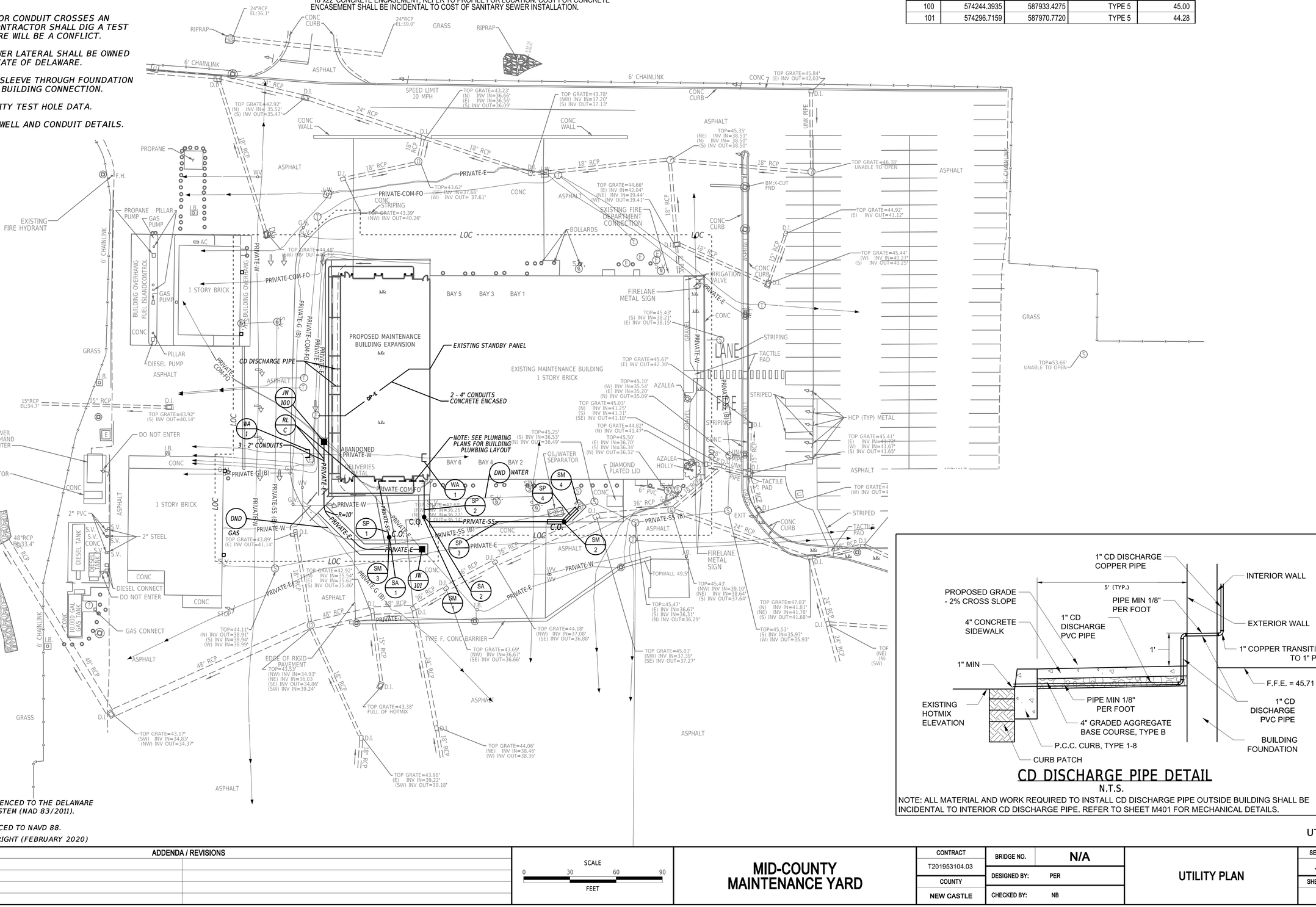
NO.	DESCRIPTION	QUANTITY
WA-1	6" M.J. PIPE CAP	2

JUNCTION WELL SCHEDULE

NO.	NORTHING	EASTING	BOX SIZE	GROUND EL.
100	574244.3935	587933.4275	TYPE 5	45.00
101	574296.7159	587970.7720	TYPE 5	44.28

NOTES:

1. *WHERE A PROPOSED PIPE OR CONDUIT CROSSES AN EXISTING UTILITY, THE CONTRACTOR SHALL DIG A TEST PIT TO DETERMINE IF THERE WILL BE A CONFLICT.*
2. *PROPOSED SANITARY SEWER LATERAL SHALL BE OWNED AND OPERATED BY THE STATE OF DELAWARE.*
3. *CONTRACTOR TO PROVIDE SLEEVE THROUGH FOUNDATION WALL AT SANITARY SEWER BUILDING CONNECTION.*
4. *REFER TO CP-00 FOR UTILITY TEST HOLE DATA.*
5. *SEE E-502 FOR JUNCTION WELL AND CONDUIT DETAILS.*



CD DISCHARGE PIPE DETAIL

N.T.S.

NOTE: ALL MATERIAL AND WORK REQUIRED TO INSTALL CD DISCHARGE PIPE OUTSIDE BUILDING SHALL BE INCIDENTAL TO INTERIOR CD DISCHARGE PIPE. REFER TO SHEET M401 FOR MECHANICAL DETAILS.

DATUM REFERENCE:

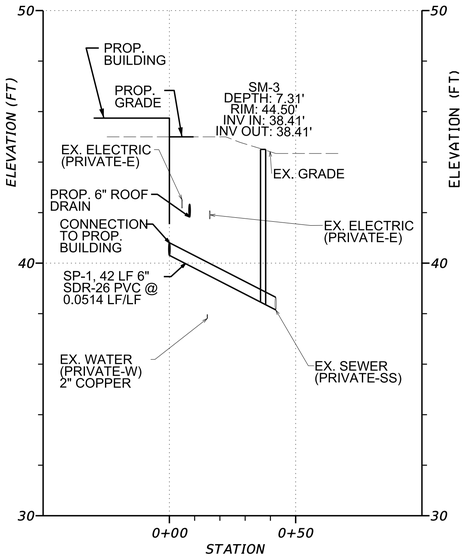
HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83/2011).

VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88.

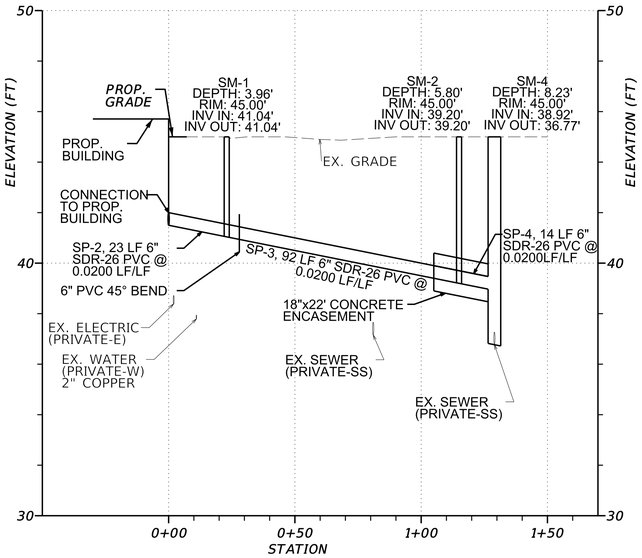
SURVEY CONDUCTED BY NAVARRO & WRIGHT (FEBRUARY 2020)

UT-01

ADDENDA / REVISIONS		SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	BRIDGE NO. N/A	UTILITY PLAN	SECTION
		0 30 60 90 FEET		T201953104.03			JMT
				COUNTY	DESIGNED BY: PER		SHEET NO.
				NEW CASTLE	CHECKED BY: NB		14



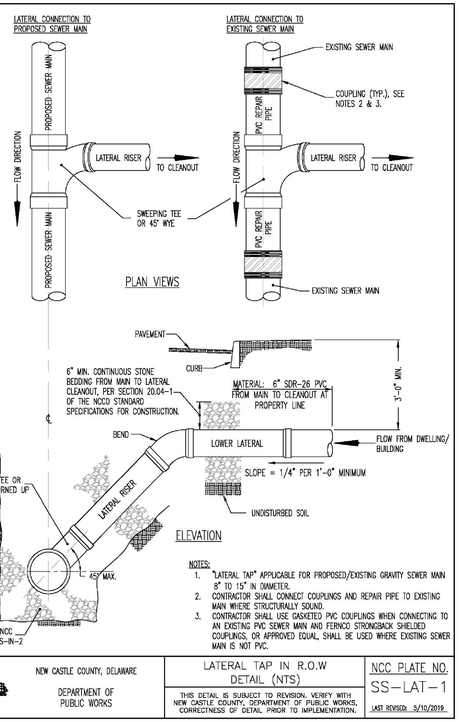
MID COUNTY MAINTENANCE YARD
ALIGNMENT 1 - 6" SDR-26 PVC



MID COUNTY MAINTENANCE YARD
ALIGNMENT 2 - 6" SDR-26 PVC

UT-02

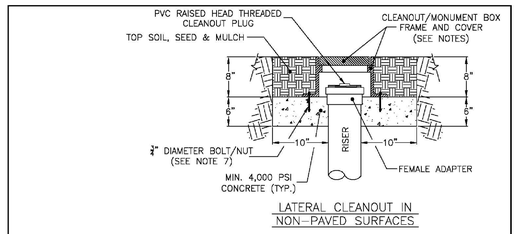
ADDENDA / REVISIONS		SCALE 0 30 60 90 FEET	MID-COUNTY MAINTENANCE YARD	CONTRACT T201953104.03	BRIDGE NO. N/A	UTILITY PROFILES	SECTION JMT
				COUNTY NEW CASTLE	DESIGNED BY: PER		SHEET NO. 15
					CHECKED BY: NB		



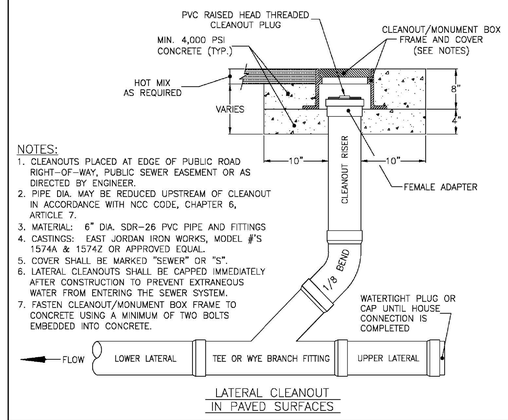
NOTES:
1. "LATERAL TAP" APPLICABLE FOR PROPOSED/EXISTING GRAVITY SEWER MAIN 8" TO 15" IN DIAMETER.
2. CONTRACTOR SHALL CONNECT COUPLINGS AND REPAIR PIPE TO EXISTING MAIN WHERE STRUCTURALLY SOUND.
3. CONTRACTOR SHALL USE GASKETED PVC COUPLINGS WHEN CONNECTING TO AN EXISTING PVC SEWER MAIN AND FERNCO STRONGBACK SHIELDED COUPLINGS, OR APPROVED EQUAL, SHALL BE USED WHERE EXISTING SEWER MAIN IS NOT PVC.

SS-LAT-1 | NEW CASTLE COUNTY, DELAWARE — DEPARTMENT OF PUBLIC WORKS | LATERAL TAP IN R.O.W DETAIL (NTS) | NCC PLATE NO. SS-LAT-1 | LAST REVISED: 5/10/2019

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.



LATERAL CLEANOUT IN NON-PAVED SURFACES



NOTES:
1. CLEANOUTS PLACED AT EDGE OF PUBLIC ROAD RIGHT-OF-WAY, PUBLIC SEWER EASEMENT OR AS DIRECTED BY ENGINEER.
2. PIPE DIA. MAY BE REDUCED UPSTREAM OF CLEANOUT IN ACCORDANCE WITH NCC CODE, CHAPTER 6, ARTICLE 7.
3. MATERIAL: 6" DIA. SDR-26 PVC PIPE AND FITTINGS
4. CASTINGS: EAST JORDAN IRON WORKS, MODEL #'S 1574A & 1574Z OR APPROVED EQUAL.
5. COVER SHALL BE MARKED "SEWER" OR "S".
6. LATERAL CLEANOUTS SHALL BE CAPPED IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EXTRANEOUS WATER FROM ENTERING THE SEWER SYSTEM.
7. FASTEN CLEANOUT/MONUMENT BOX FRAME TO CONCRETE USING A MINIMUM OF TWO BOLTS EMBEDDED INTO CONCRETE.

SS-LAT-2 | NEW CASTLE COUNTY, DELAWARE — DEPARTMENT OF PUBLIC WORKS | LATERAL CLEANOUT DETAIL (NTS) | NCC PLATE NO. SS-LAT-2 | LAST REVISED: 5/10/2019

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.

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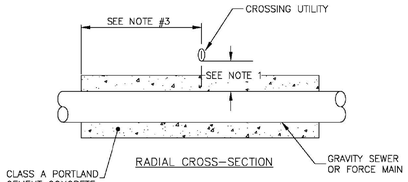
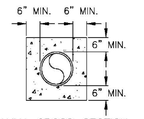


RADIAL CROSS-SECTION



AXIAL CROSS-SECTION

NOTES:

1. WHEN CROSSING UTILITY IS STORM SEWER
IF STORM SEWER IS LESS THAN 18"ø AND WHERE THE VERTICAL SEPARATION FROM EITHER A GRAVITY SEWER OR FORCE MAIN IS LESS THAN 2', CONCRETE SHALL FILL THE VOID BETWEEN THEM WHILE CRADLING THE STORM SEWER.

IF STORM SEWER IS EQUAL TO OR GREATER THAN 18"ø AND WHERE THE VERTICAL SEPARATION FROM EITHER A GRAVITY SEWER OR FORCE MAIN IS LESS THAN 3', CONCRETE SHALL FILL VOID BETWEEN THEM WHILE CRADLING THE STORM SEWER.

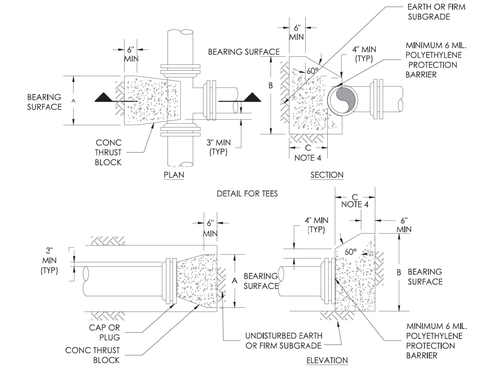
CROSSING UTILITY OTHER THAN STORM SEWER OR WATER MAIN:
WHERE THE VERTICAL SEPARATION FROM EITHER A GRAVITY SEWER OR FORCE MAIN IS LESS THAN 12", CONCRETE SHALL FILL THE VOID BETWEEN THEM WHILE CRADLING THE CROSSING UTILITY.

WHERE THE VERTICAL SEPARATION FROM EITHER A GRAVITY SEWER OR FORCE MAIN IS 12" OR GREATER, THE CROSSING UTILITY SHALL BE SUPPORTED WITH AASHTO #57 STONE OR EQUIVALENT.

2. WHEN CROSSING UTILITY IS A WATER MAIN, SEE NCC PLATE NO. SS-MISC-4.
3. CONCRETE ENCASEMENT SHALL SPAN A MINIMUM DISTANCE OF 10' TO EITHER SIDE OF CROSSING UTILITY.
4. ALL CONCRETE SHALL BE 4,000 P.S.I. MINIMUM.
5. THE VERTICAL SEPARATION SHALL NOT BE LESS THAN 6".

SS-UC-1 | NEW CASTLE COUNTY, DELAWARE — DEPARTMENT OF PUBLIC WORKS | CONCRETE ENCASEMENT DETAIL FOR UTILITY CROSSING (NTS) | NCC PLATE NO. SS-UC-1 | LAST REVISED: 5/10/2019

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.



PLAN DETAIL FOR CAPS OR PLUGS

NOMINAL PIPE SIZE (IN)	MAXIMUM PIPE OD (IN)	REQUIRED BEARING AREA (SQ FT)
2/3	4.80	2
6	6.90	4
8	9.05	7
10	11.10	11
12	13.20	15
14	15.30	21
16	17.40	27
18	19.50	34

NOTES:
1. MAXIMUM TEST PRESURE = 1.50 x 150 PSI
2. MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 2000 PSF
3. BEARING AREA = A x B
4. C SHALL BE GREATER THAN A/2 AND B/2.
5. WHEN POSSIBLE JOINTS TO BE TIED WITH THREE (3) - 3/4" RODS TO RESTRAINER ON STRAIGHT PIPE IN LIEU OF THRUST BLOCKING.

THRUST BLOCK FOR TEES, CAPS, AND PLUGS

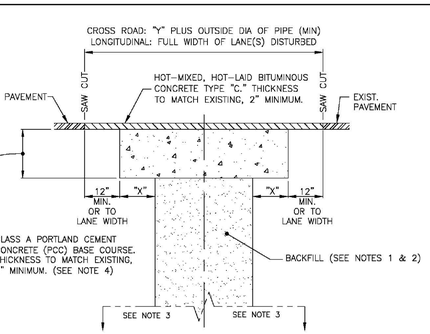
DETAIL TB1 — N.T.S.

SUEZ

THRUST BLOCK FOR TEES, CAPS, AND PLUGS

SCD-0019

Rev. N:\Engineering\Data Input\2017 NCCO Land Design Templates\2017 CIVIL DETAILS\SCD-0019 THRUST BLOCK FOR TEES CAPS AND PLUGS.dwg
Date: Jul 17, 2017 - 9:27pm
User: JAcquet



TYPICAL SECTION

NOTES:

1. FILL TRENCH WITH BORROW TYPE C "BACKFILL" IN COMPLIANCE WITH SECTION 20.03-2 OF THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION
2. "BACKFILL" TO BE COMPACTED IN 8" LIFTS TO 95% STANDARD PROCTOR DENSITY BY ASTM D698.
3. SEE DETAIL: NCC PLATE NO. SS-IN-2 FOR TRENCH WIDTH AND PIPE BEDDING REQUIREMENTS.
4. FOR EXISTING BITUMINOUS CONCRETE PAVEMENT, HOT-MIXED, HOT-LAID BITUMINOUS CONCRETE BASE COURSE (12" MINIMUM THICKNESS) MAY BE SUBSTITUTED FOR CLASS A PORTLAND CEMENT CONCRETE (PCC).

ROADWAY TABLE	DIMS	HOT-MIX	PCC
BASE COURSE WIDTH	X	12"	24"
WEAR COURSE WIDTH	Y	6'-0"	8'-0"

SS-IN-1 | NEW CASTLE COUNTY, DELAWARE — DEPARTMENT OF PUBLIC WORKS | PAVING RESTORATION DETAIL (NTS) | NCC PLATE NO. SS-IN-1 | LAST REVISED: 5/10/2019

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.

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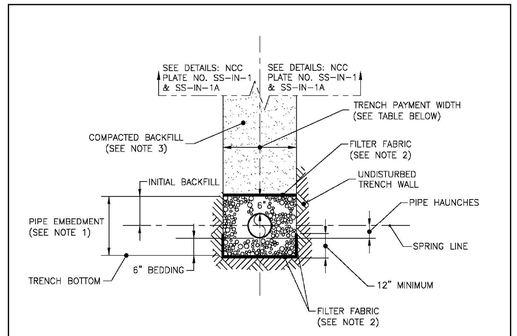

TYPICAL SECTION

NOTES:

1) PIPE EMBEDMENT: BEDDING, HAUNCHING AND INITIAL BACKFILL MATERIAL SHALL CONFORM TO SECTION 20.04-1, "STONE BEDDING," OF THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION.

1A) BEDDING: PRIOR TO PIPE INSTALLATION, CAREFULLY BRING STONE BEDDING UP TO PROPOSED BOTTOM OF PIPE TO BE INSTALLED AND ALONG ITS ENTIRE LENGTH. IF TRENCH BOTTOM IS IN UNSUITABLE MATERIAL, SUITABLE FILL MATERIAL WILL BE REQUIRED PRIOR TO PLACEMENT OF BEDDING.

1B) PIPE HAUNCHES: CAREFULLY WORK, BY HAND, STONE BEDDING FROM THE EDGE OF THE TRENCH UP AND UNDER THE PIPE TO SUPPORT THE HAUNCHES. CONTINUE FILLING, BY HAND, TO THE SPRING LINE OF THE PIPE.

2) MIRAFI 140N OR APPROVED EQUAL FILTER FABRIC.

3) FILL TRENCH WITH BORROW TYPE C "BACKFILL" IN COMPLIANCE WITH SECTION 20.03-2 OF THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION.

4) FOR NEW CASTLE COUNTY CAPITAL IMPROVEMENT PROJECTS, SEE TABLE FOR TRENCH PAYMENT WIDTH.

PIPE DIAMETER	TRENCH PAYMENT WIDTH
6"	36"
8"	36"
10"	36"
12"	36"
15" AND 16"	36"
18"	42"
20" AND 21"	42"
24"	48"
27"	60"
30"	60"

SS-IN-2 | NEW CASTLE COUNTY, DELAWARE — DEPARTMENT OF PUBLIC WORKS | TRENCH WIDTH AND PIPE BEDDING DETAIL (NTS) | NCC PLATE NO. SS-IN-2 | LAST REVISED: 9/24/2019

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.

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The installation of any sanitary service laterals proposed to connect buildings to the sanitary sewer collection system cannot be commenced apart from issuance of a plumbing permit from the New Castle County Department of Land Use. This work must be performed by a licensed plumber. The following link will take you to the permit application form: https://www.nccde.org/DocumentCenter/View/480/Plumbing-Permit-Application-PDF

ADDENDA / REVISIONS

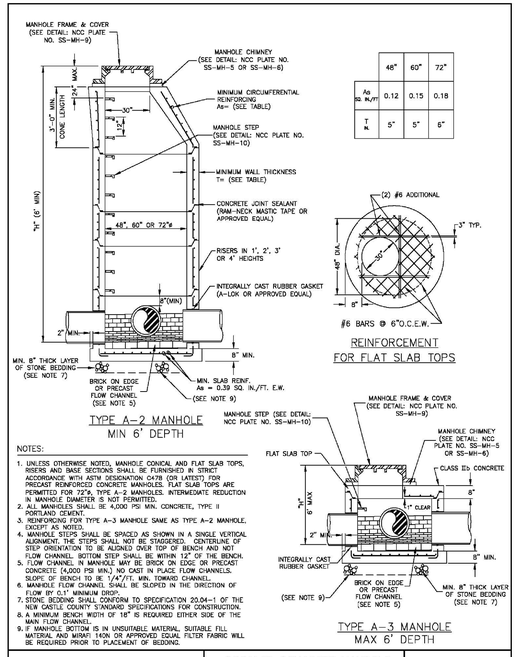
SCALE 0 30 60 90 FEET

MID-COUNTY MAINTENANCE YARD

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY:	PER
COUNTY	CHECKED BY:	NB
NEW CASTLE		

UTILITY DETAILS

SECTION
JMT
SHEET NO.
16



NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF PUBLIC WORKS

PRECAST CONCRETE MANHOLE DETAIL (NTS)

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.

NCC PLATE NO. SS-MH-1

LAST REVISED: 5/10/2019

SS-MH-1

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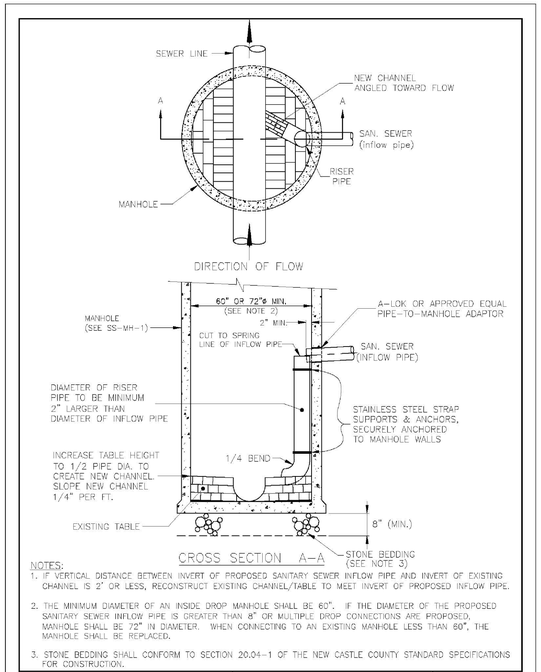

NOTES:
1. IF VERTICAL DISTANCE BETWEEN INVERT OF PROPOSED SANITARY SEWER INFLOW PIPE AND INVERT OF EXISTING CHANNEL IS 2' OR LESS, RECONSTRUCT EXISTING CHANNEL/TABLE TO MEET INVERT OF PROPOSED INFLOW PIPE.
2. THE MINIMUM DIAMETER OF AN INSIDE DROP MANHOLE SHALL BE 60". IF THE DIAMETER OF THE PROPOSED SANITARY SEWER INFLOW PIPE IS GREATER THAN 8" OR MULTIPLE DROP CONNECTIONS ARE PROPOSED, MANHOLE SHALL BE 72" IN DIAMETER. WHEN CONNECTING TO AN EXISTING MANHOLE LESS THAN 60", THE MANHOLE SHALL BE REPLACED.
3. STONE BEDDING SHALL CONFORM TO SECTION 20.04-1 OF THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION.

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF PUBLIC WORKS

SANITARY SEWER DETAILS GRAVITY INSIDE DROP MANHOLE

ISSUED 5/27/10
REVISED 12/05/11
REVISED
DETAIL SS-MH-3

SS-MH-3

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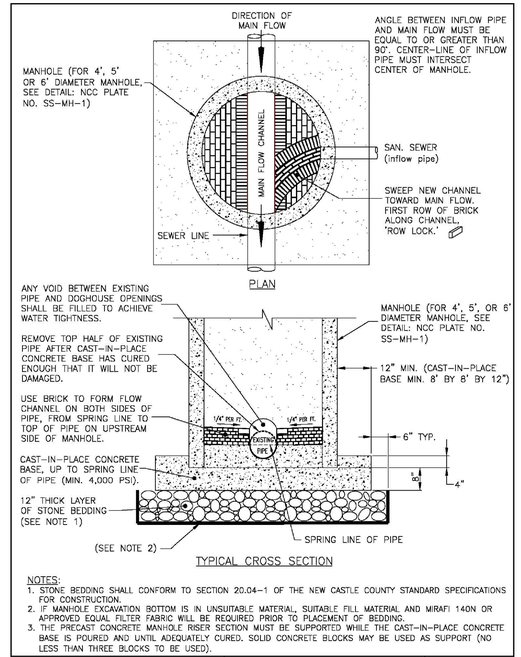

NOTES:
1. STONE BEDDING SHALL CONFORM TO SECTION 20.04-1 OF THE NEW CASTLE COUNTY STANDARD SPECIFICATIONS FOR CONSTRUCTION.
2. IF MANHOLE EXCAVATION BOTTOM IS IN UNSUITABLE MATERIAL, SUITABLE FILL MATERIAL AND MIRAFI 140N OR APPROVED EQUAL FILTER FABRIC WILL BE REQUIRED PRIOR TO PLACEMENT OF BEDDING.
3. THE PRECAST CONCRETE MANHOLE RISER SECTION MUST BE SUPPORTED WHILE THE CAST-IN-PLACE CONCRETE BASE IS POURED AND UNTIL ADEQUATELY CURED. SOLID CONCRETE BLOCKS MAY BE USED AS SUPPORT (NO LESS THAN THREE BLOCKS TO BE USED).

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF PUBLIC WORKS

DOGHOUSE MANHOLE DETAIL (NTS)

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.

NCC PLATE NO. SS-MH-4

LAST REVISED: 8/07/19

SS-MH-4

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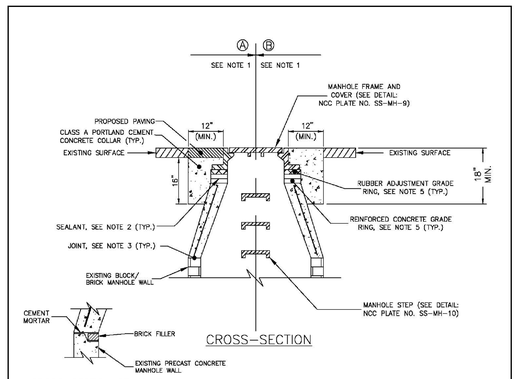

NOTES:

1. AT THE DISCRETION OF THE CONTRACTOR, EITHER OPTION 'A' OR 'B' MAY BE INSTALLED ACCORDING TO DelDOT SPECIFICATIONS.
   - (A) CONTRACTOR SHALL PAVE TO TOP OF MANHOLE FRAME TO MATCH EXISTING CONDITIONS PER DelDOT STANDARD.
   - (B) CONTRACTOR WILL INSTALL SQUARE CONCRETE COLLAR, 12" FROM MANHOLE FRAME, TO TOP OF MANHOLE FRAME PER DelDOT STANDARD.
2. SEAL EVERY JOINT IN MANHOLE 'CHIMNEY' BETWEEN THE FRAME AND RUBBER GRADE RING, BETWEEN EACH EACH GRADE RING AND BETWEEN GRADE RING AND TAPERED CONE SECTION USING ADHESIVE SEALANT CONFORMING TO ASTM D3498 AND SUITABLE FOR USE WITH MASONRY, RUBBER AND METAL MATERIALS. APPLY IN CONTINUOUS 1/2 INCH BEADS (MIN. TWO BEADS EVERY JOINT).
3. SEAL PRECAST CONE SECTION TO COMPETENT LAYER OF BLOCK OR BRICK USING CEMENT MORTAR. IF EXISTING MANHOLE IS PRE-CAST CONCRETE, SECURE BRICK IN GROOVED JOINT, WITH CEMENT MORTAR PRIOR TO PLACING CONE SECTION.
4. ADJUSTMENT RISERS OF ANY TYPE (I.E. BRICK) MAY NOT BE USED AS A SUBSTITUTE FOR GRADE RINGS.
5. HEIGHT OF RUBBER GRADE RING(S) NOT TO EXCEED 3". COMBINED HEIGHT OF GRADES RINGS NOT TO EXCEED 12" (SEE DETAIL: NCC PLATE NO. SS-MH-7).

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF PUBLIC WORKS

PAVED AREA MANHOLE CONE SECTION DETAIL (NTS)

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.

NCC PLATE NO. SS-MH-6

LAST REVISED: 8/07/19

SS-MH-6

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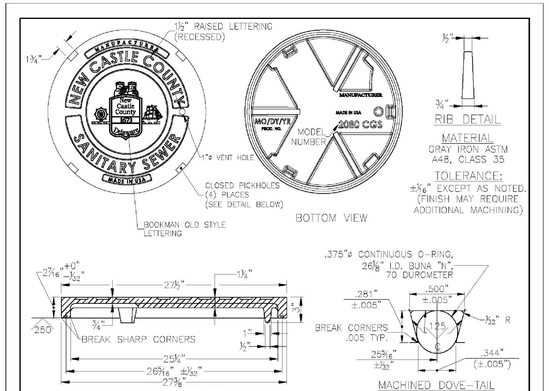

NOTE: MANHOLE FRAME AND COVER SHALL BE BY EAST JORDAN IRON WORKS, NEENAH FOUNDRY OR APPROVED EQUAL.

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF PUBLIC WORKS

SANITARY SEWER DETAILS SELF SEALING MANHOLE FRAME & COVER

ISSUED 5/27/10
REVISED 12/02/10
REVISED 12/6/12
PLATE SS-MH-9

SS-MH-9

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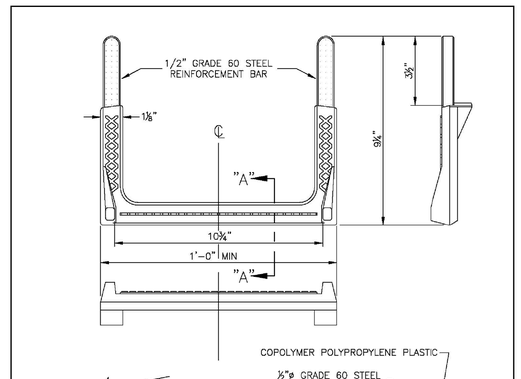

NEW CASTLE COUNTY, DELAWARE
DEPARTMENT OF PUBLIC WORKS

MANHOLE STEP DETAIL (NTS)

THIS DETAIL IS SUBJECT TO REVISION. VERIFY WITH NEW CASTLE COUNTY, DEPARTMENT OF PUBLIC WORKS, CORRECTNESS OF DETAIL PRIOR TO IMPLEMENTATION.

NCC PLATE NO. SS-MH-10

LAST REVISED: 5/10/2019

SS-MH-10

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UT-04

ADDENDA / REVISIONS

SCALE
0 30 60 90
FEET

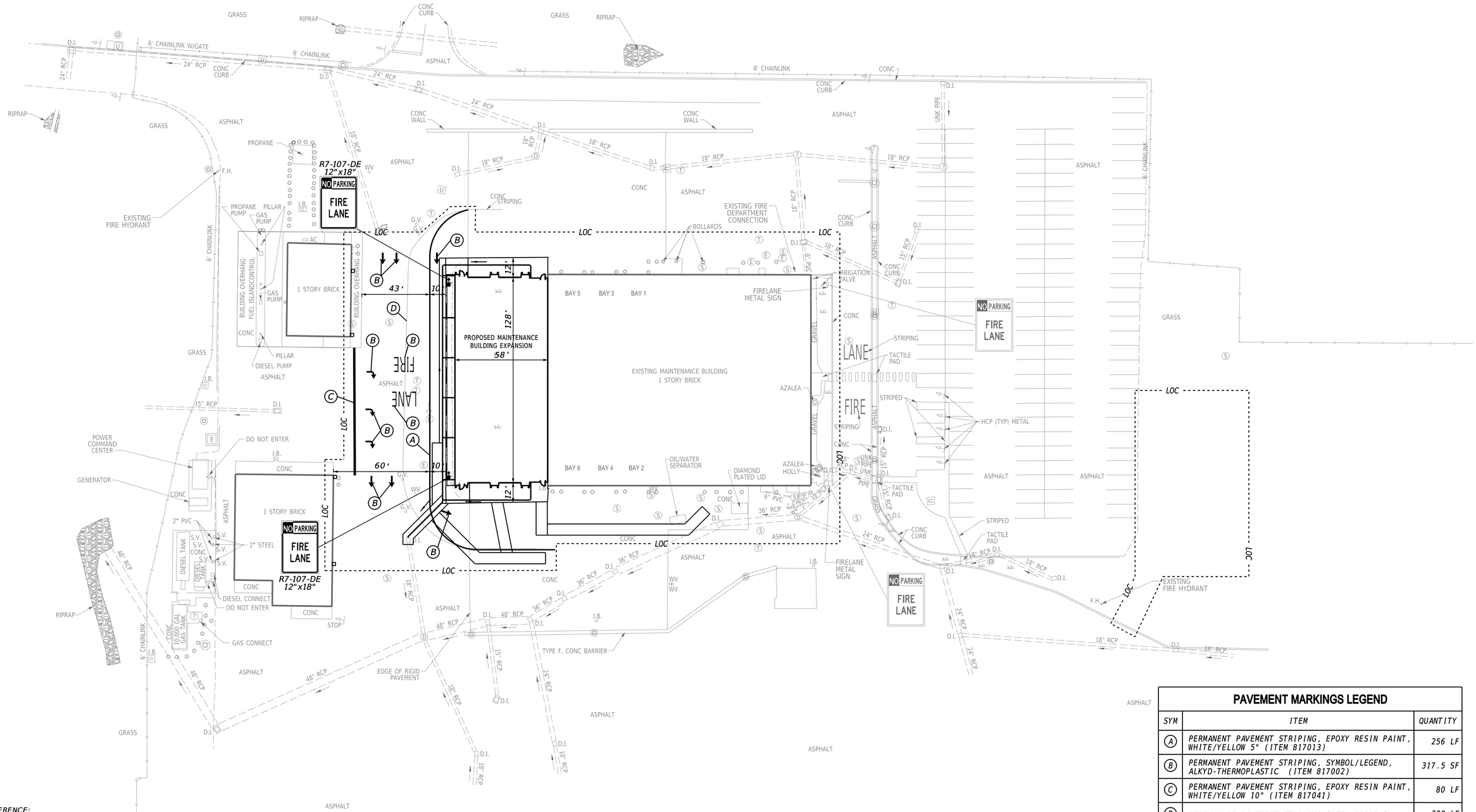
MID-COUNTY MAINTENANCE YARD

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY:	PER
COUNTY	CHECKED BY:	NB
NEW CASTLE		

UTILITY DETAILS

SECTION
JMT
SHEET NO.
17

SIGN NO.	SIGN DETAILS	QUANTITY	REMARKS
1	NO PARKING FIRE LANE 12"x18"	2	R7-107-DE TO BE MOUNTED ON I-TELESCOPING POST. 1.5 S.F. SIGNS SHALL BE LOCATED NO LESS THAN 6'-8" ABOVE SIDEWALK. SIGN POSTS SHALL BE PLACED IN SIDEWALK AND LOCATED 1' BEHIND THE BACK OF PROPOSED CURB AND 5' FROM THE PEDESTRIAN CONNECTION.



PAVEMENT MARKINGS LEGEND

SYM	ITEM	QUANTITY
A	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW 5" (ITEM 817013)	256 LF
B	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC (ITEM 817002)	317.5 SF
C	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW 10" (ITEM 817041)	80 LF
D	REMOVAL OF PAVEMENT STRIPING (ITEM 817031)	300 LF

DATUM REFERENCE:

HORIZONTAL - THIS PROJECT IS REFERENCED TO THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83/2011).

VERTICAL - THIS PROJECT IS REFERENCED TO NAVD 88.

SURVEY CONDUCTED BY NAVARRO & WRIGHT (FEBRUARY 2020)

SS-01

ADDENDA / REVISIONS		SCALE	MID-COUNTY MAINTENANCE YARD	CONTRACT	BRIDGE NO. N/A	SIGNING AND STRIPING PLAN	SECTION
		0 30 60 90 FEET		T201953104.03	DESIGNED BY: PER		JMT
				COUNTY NEW CASTLE	CHECKED BY: NB		SHEET NO. 18

SHEET KEYNOTES:

1. REMOVE AND SALVAGE MASONRY OPENING FOR NEW STEEL BEAM PENETRATION AND CONNECTION TO EXISTING COLUMNS AS SHOWN ON ARCHITECTURAL AND STRUCTURALDRAWINGS. OPENING TO BE PATCHED AND FIRE-SAFED PER ARCHITECTURAL AND STRUCTURAL DRAWINGS. BUILDING SHALL REMAIN WEATHERTIGHT AT END OF EACH WORKDAY. ONLY ONE BAY MAY BE SHUT DOWN AT A TIME, WITH COORDINATION WITH OWNER.
2. DEMOLISH EXISTING WINDOW PER ARCHITECTURAL DRAWINGS. INSTALL NEW OVERHEAD COILING DOOR PER ARCHITECTURAL DRAWINGS. EXISTING WINDOW SHALL NOT BE REMOVED PRIOR TO ADDITION BEING WEATHERTIGHT.
3. REMOVE AND SALVAGE MASONRY OPENING FOR NEW DOOR PER ARCHITECTURAL AND STRUCTURAL DRAWINGS. INSTALL LINTEL AND DOOR PER ARCHITECTURAL AND STRUCTURAL DRAWINGS. EXISTING DOOR SHALL NOT BE REMOVED PRIOR TO ADDITION BEING WEATHERTIGHT. ONLY ONE BAY MAY BE SHUT DOWN AT A TIME, WITH COORDINATION WITH OWNER.
4. INSTALL NEW FIRE CURTAIN AT EXISTING WINDOW PER ARCHITECTURAL DRAWINGS. ONLY ONE BAY MAY BE SHUT DOWN AT A TIME, WITH COORDINATION WITH OWNER
5. INSTALL NEW COMPRESSED AIR PIPING FROM POINT OF CONNECTION IN EXISTING MAINTENANCE BAYS TO THE NEW MAINTENANCE BAYS . DO NOT DISCONNECT COMPRESSED AIR SERVICE TO THE EXISTING MAINTENANCE BAYS.
6. INSTALL NEW FIRE PROTECTION BRANCH CONNECTION TO FIRE PROTECTION MAIN. COORDINATE SHUTDOWN AND SHOP WORK WITH OWNER.
7. INSTALL NEW NATURAL GAS BRANCH PIPING CONNECTION TO BUILDING GAS MAIN. COORDINATE SHUTDOWN AND SHOP WORK WITH OWNER.
8. INSTALL DOMESTIC COLD WATER BRANCH PIPING CONNECTION TO DOMESTIC COLD WATER MAIN.
9. EXTEND DOMESTIC COLD WATER PIPING AND COMPRESSED AIR PIPING THROUGH EXISTING BAYS TO NEW MAINTENANCE BUILDING EXTENSION. ONLY ONE BAY MAY BE SHUT DOWN AT A TIME, WITH COORDINATION WITH THE OWNER.
10. EXTEND FIRE PROTECTION BRANCH PIPING AND NATURAL GAS BRANCH PIPING THROUGH EXISTING BAYS TO NEW MAINTENANCE BUILDING EXTENSION. ONLY ONE BAY MAY BE SHUT DOWN AT A TIME,WITH COORDINATION WITH THE OWNER.
11. PRIOR TO CONSTRUCTION OF EXPANSION, REPLACE DUCTBANK FROM EXISTING MANHOLE TO EXISTING PANEL SP.
12. PRIOR TO CONSTRUCTION OF EXPANSION, REPLACE FEEDER FROM PANEL SDPS TO PANEL SP.
13. INSTALL PANEL PP3 FEEDER. COORDINATE ANY OUTAGES WITH THE OWNER.
14. REPLACE EXISTING PANEL SP. COORDINATE ANY OUTAGES WITH THE OWNER.

GENERAL PHASING NOTES

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. DO NOT LOCATE DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR EQUIPMENT.
3. SHADED AREAS INDICATE MECHANICAL DEMOLITION OR NEW WORK TO BE PERFORMED DURING EACH PHASE OF CONSTRUCTION.
4. COORDINATE ALL SHUTDOWNS WITH OWNER. PROCEED THROUGH PHASING SUCH THAT ONLY ONE SERVICE BAY IS SHUT DOWN AT A TIME.
5. SHOP IS AVAILABLE FOR SHUTDOWNS FROM COB FRIDAY UNTIL MIDNIGHT SUNDAY. ALL OTHER REQUESTS FOR SHUTDOWNS REQUIRE A MINIMUM 2-WEEK NOTICE.

PHASING LEGEND

DEMOLITION REQUIRED

NEW WORK REQUIRED

G001

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

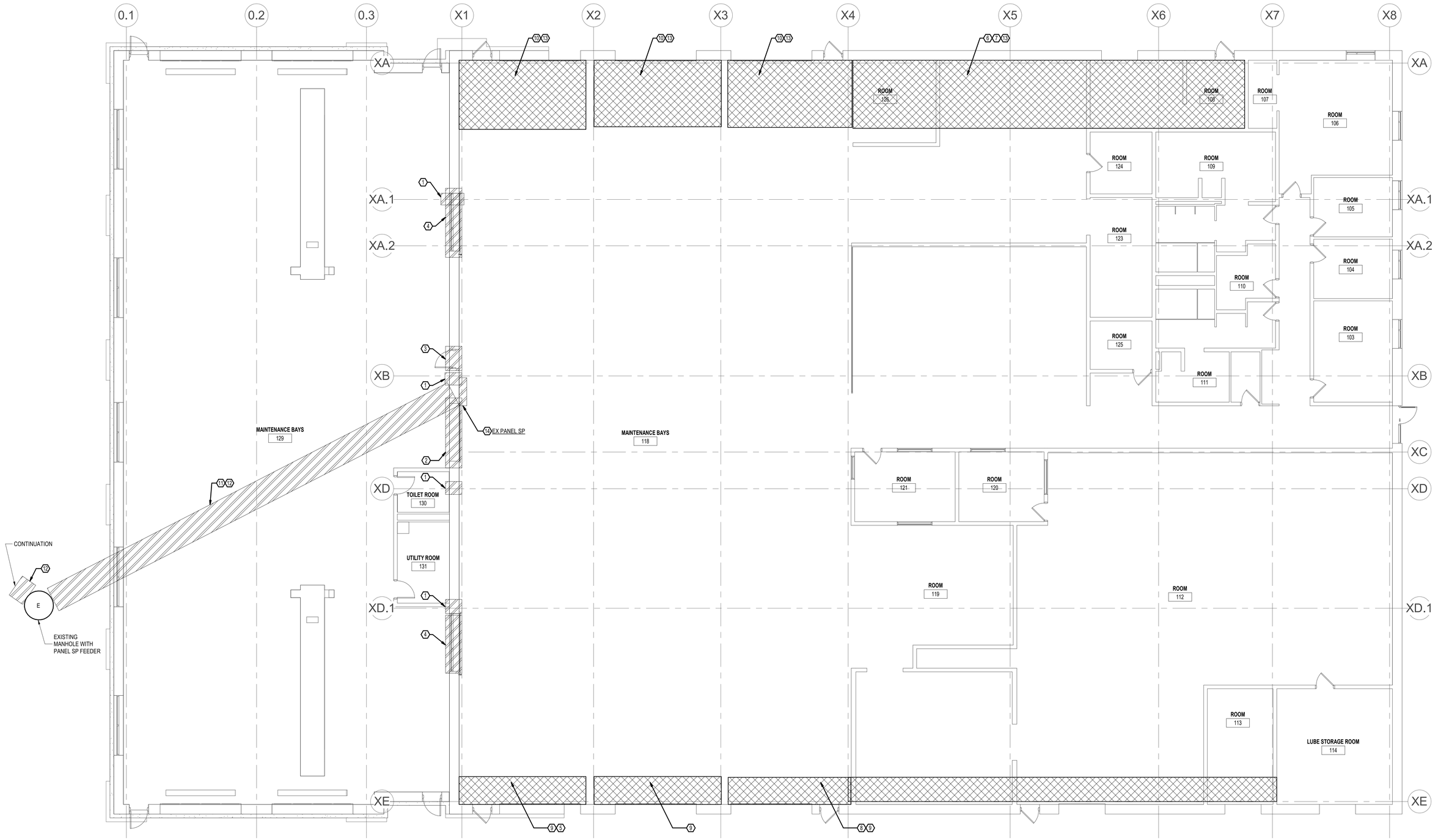
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

EXISTING FACILITY COORDINATION PLAN - GENERAL NOTES

SECTION
JMT
SHEET NO.
19

$DATE_USER$
RIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 G101 FACILITY - FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"

G101

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

FACILITY COORDINATION PLAN

SECTION
JMT
SHEET NO.
20

$DATE_USER$
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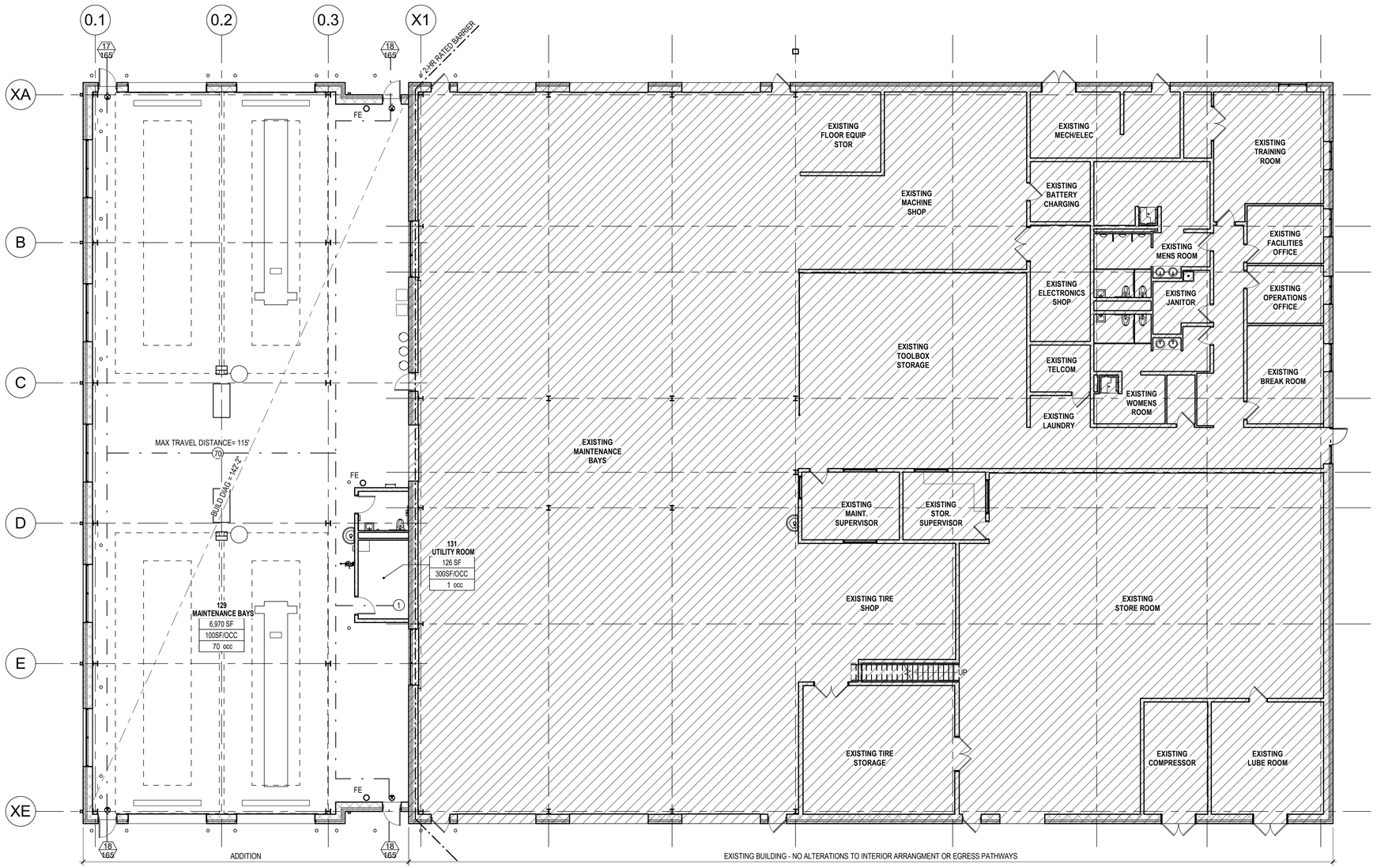

1 A001 LIFE SAFETY AND EGRESS PLAN
3/32" = 1'-0"

N

CODE SYNOPSIS

SITE LOCATION: DART MID COUNTY FACILITY
2101 MID COUNTY DR
NEW CASTLE, DE 19720

BUILDING OWNER: DELAWARE DEPARTMENT OF TRANSPORTATION (DELDOT)

APPLICANT: JOHNSON, MIRMIRAN AND THOMPSON
121 CONTINENTAL DRIVE, SUITE 300
NEWARK, DELAWARE 19713

DESIGN PROFESSIONAL: SAME AS APPLICANT

BUILDING OCCUPANCY AND OPERATIONAL NARRATIVE:
THE FACILITY IS TO BE OPERATIONAL MONDAY THRU FRIDAY DURING THE HOURS OF 12:00 AM TO 11:59 PM.

APPLICABLE CODES: INTERNATIONAL BUILDING CODE 2018
INTERNATIONAL EXISTING BUIDLING CODE 2018
INTERNATIONAL ENERGY CONSERVATION CODE 2018
NFPA 101 LIFE SAFETY CODE, 2021
NFPA 30A CODE FOR MOTOR FUEL DISPENSING FACILITIES AND REPAIR GARAGES, 2021
NFPA 2 HYDROGEN TECHNOLOGIES CODE, 2020

PER IEBC 2018, WORK IN EXISTING BUILDING IS CLASSIFIED AS A LEVEL 2 ALTERATION.

ACCESSIBILITY: STATE OF DELAWARE ARCHITECTURAL ACCESSIBILITY STANDARDS

BUILDING'S TOTAL AREA: EXISTING - 21,735 S.F. + ADDITION - 7,607 S.F.
TOTAL = 29,342 S.F.

OCCUPANCY : EXISTING - S-1 STORAGE (MOTOR VEHICLE REPAIR) AND B (BUSINESS)
ADDITION - S-1 STORAGE (MOTOR VEHICLE REPAIR)

CONSTRUCTION TYPE : IIB, UNPROTECTED
FULLY SPRINKLERED, PER NFPA 13 / IBC CH 9

ALLOWABLE STORIES PER TABLE 503: 2 STORIES, 55'
ACTUAL STORIES: EXISTING - 1 STORY W/ MEZZANINE
ADDITION - 1 STORY

ALLOWABLE SQUARE FOOTAGE PER TABLE 506.2:
ONE-STORY, SPRINKLER = 70,000 S.F.
ACTUAL SQUARE FOOTAGE: ADDITION: 7,608 S.F.

SEPARATION: 2-HR FIRE BARRIER PROVIDED SEPARATING ADDITION AND EXISTING BUILDING.
1-HR SEPARATION REQUIRED PER NFPA 2

OCCUPANTS: SEE LIFE SAFETY PLANS, THIS SHEET

EXITS REQD./ PROVIDED: ENTIRE BUILDING: 2 / >4

ALL EGRESS DOORS ARE A MINIMUM OF 36" WIDE. EGRESS CAPACITY IS CALCULATED ON 33" CLEAR OPENING WIDTH FOR A 36" DOOR.

MAXIMUM TRAVEL DISTANCE 250FT WITH SPRINKLER.

EGRESS AISLES & PASSAGEWAYS WILL BE KEPT FREE AND CLEAR OF EQUIPMENT AND BARRIERS THAT WOULD LIMIT READY ACCESS TO AND THE USE OF FIRE FIGHTING EQUIPMENT.

NO DEAD END CORRIDORS OVER 50 FEET IN LENGTH WHEN BUILDING IS EQUIPPED WITH AUTOMATIC SPRINKLER SYSTEM.

EGRESS DOORS WILL BE SELF-CLOSING.

PORTABLE FIRE EXTINGUISHERS ARE PROVIDED PER NFPA 10.

LEGEND

EGRESS PATHWAY

FE — TYPE ABC FIRE EXTINGUISHER AND WALL BRACKET

EXIT SIGN - WALL MOUNTED (REFER TO ELECTRICAL DRAWINGS)

WOMEN'S T.R. 114 — ROOM NAME TAG

X — # OCCUPANTS EGRESS THOUGH OPENING
XX — # OCCUPANTS PERMITTED TO EGRESS THOUGH OPENING PER CODE

GRAPHIC SCALE
8 0 4 8 16
(IN FEET)
1/8 " = 1'-0"

A001

$DATE_USERS
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ADDENDUMS / REVISIONS			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT	BRIDGE NO.	N/A	CODE COMPLIANCE AND EGRESS PLAN	SECTION
				T201953104.03	DESIGNED BY: MAG/DCH			JMT
				COUNTY				SHEET NO.
				NEW CASTLE	CHECKED BY: KNM			21

GENERAL CONSTRUCTION NOTES

1. ALL PLAN DIMENSIONS ARE TO FACE OF SUBSTRATE, VERIFY IN FIELD.

2. PROVIDE SURFACE MOUNTED FIRE EXTINGUISHERS MOUNTED ON MASONRY WALLS AS REQUIRED BY NFPA 10. REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS. SIZE TO BE DETERMINED BY FIRE MARSHAL.

3. CONTRACTOR TO VERIFY ALL +/- DIMENSIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION, AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.

4. TOILET SIZE IS BASED UPON ADA REQUIREMENTS. REFER TO TOILET ROOM PLAN FOR TOILET, GRAB BARS, ACCESSORY HEIGHTS AND WALL HUNG SINK.

5. DO NOT SCALE DRAWINGS. USE WRITTEN DIMENSIONS ONLY.

6. ALL DIMENSIONS, NOTES, FINISHES AND FIXTURES SHOWN ON TYPICAL FLOOR PLANS, SECTIONS, OR DETAILS SHALL APPLY TO ALL SIMILAR, SYMMETRICAL, OR OPPOSITE HAND PLANS, SECTIONS, OR DETAILS.

7. ALL DOOR JAMBS SHALL BE LOCATED 4" FROM INTERSECTING WALL, UNLESS NOTED OTHERWISE (U.N.O.)

8. CONTRACTOR TO PROVIDE AND INSTALL EXIT SIGNS AND EMERGENCY LIGHTING AS INDICATED ON ELECTRICAL DRAWINGS.

9. GENERAL CONTRACTOR TO VERIFY ALL EXISTING UTILITIES:
   A. DOMESTIC WATER
   B. SANITARY SEWER
   C. ELECTRIC POWER

10. COORDINATE ALL PROPOSED FLOOR, WALL, AND ROOF PENETRATIONS.

11. CONTRACTOR SHALL COORDINATE FLOOR PLAN PARTITION DIMENSIONS IN CASEWORK AREAS WITH ACTUAL DIMENSIONS BEFORE INSTALLATION OF NEW CASEWORK TO ENSURE PROPER FIT.

12. CONTRACTOR TO PROVIDE BLOCKING AS NECESSARY IN WALLS TO SUPPORT ALL CASEWORK, WALL MOUNTED DEVICES, AND EQUIPMENT. WOOD BLOCKING REQUIRED TO BE FIRE RETARDANT TREATED.

13. CONTRACTOR SHALL COORDINATE LOCATIONS, CLEARANCES, AND ELEVATIONS OF BUILDING STRUCTURE, HVAC WORK, ELECTRICAL WORK, LIGHT FIXTURES, MECHANICAL WORK, CEILINGS AND THE LIKE WITH THEIR RESPECTIVE WORK PRIOR TO FABRICATION AND INSTALLATION. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR POTENTIAL CONFLICTS BEFORE PROCEEDING WITH THE WORK.

14. WHERE DISCREPANCIES EXIST BETWEEN VARIOUS DRAWINGS, THE CONTRACTOR WILL OBTAIN THE ENGINEER'S INTERPRETATION BEFORE PROCEEDING. REFER TO SPECIFICATIONS.

DRAWING LEGEND

- DEMOLISHED DOOR
- EXISTING DOOR
- NEW DOOR WITH DOOR TAG (101A)
- DEMOLISHED WALL
- EXISTING WALL
- NEW WALL
- TWO HOUR RATED WALL
- THREE HOUR RATED WALL
- ALIGN — FACE OF WALLS
- A — WALL TAG
- 1ft — WINDOW TAG
- sample comment / Room name / 101 — ROOM NAME AND TAG
- SF — ROOM OR AREA SQUARE FOOTAGE
- 4 / A201 — EXTERIOR ELEVATION SYMBOL
- 1 Ref / 1 Ref / A101 / 1 Ref / 1 Ref — INTERIOR ELEVATION SYMBOL
- 4 / A401 — ENLARGED VIEW SYMBOL
- XXX — SPOT ELEVATION REFERENCE
- Name / Elevation — ELEVATION LEVEL REFERENCE
- CENTERLINE

DRAWING LEGEND

- CONCRETE
- GYPSUM BOARD
- CMU
- BATT INSULATION
- RIGID INSULATION
- BRICK
- STEEL
- ALUMINUM
- SHIM
- WOOD FRAMING CONTINUOUS
- FINISH LUMBER
- EXTERIOR INSULATION FINISH SYSTEM

A002

ADDENDUMS / REVISIONS	

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: MAG/DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

SYMBOLS, NOTES, LEGENDS

SECTION
JMT
SHEET NO.
22

$DATE_USERS
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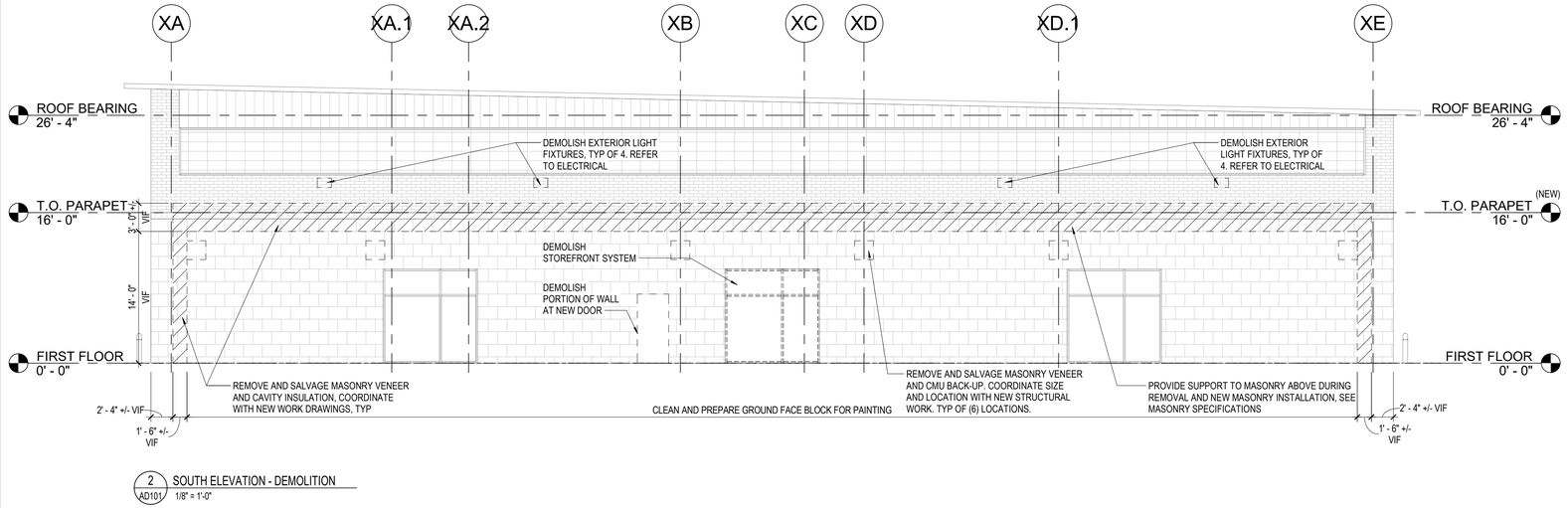
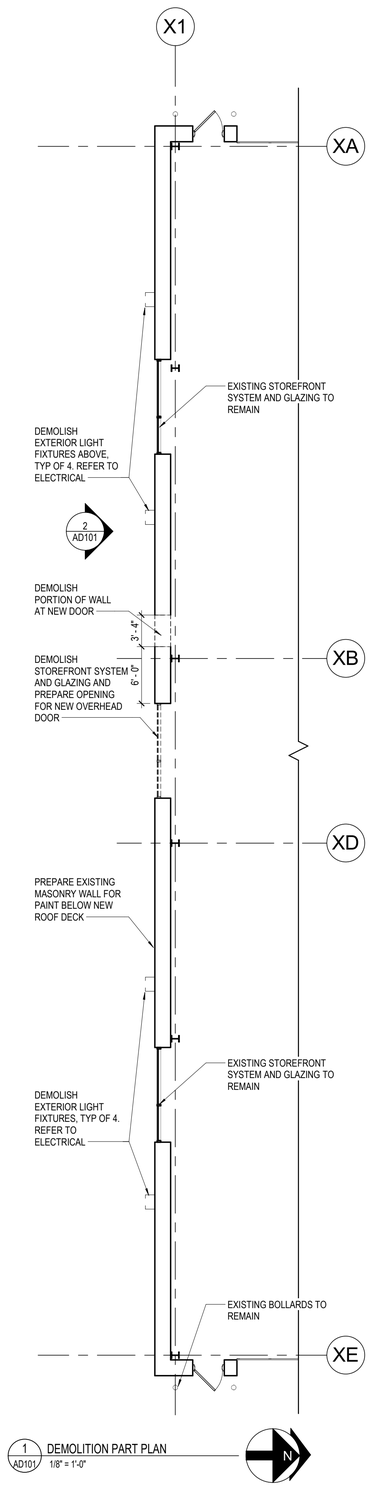


2 AD101 SOUTH ELEVATION - DEMOLITION
1/8" = 1'-0"



1 AD101 DEMOLITION PART PLAN
1/8" = 1'-0"

GENERAL DEMOLITION NOTES

1. FIELD VERIFY ALL EXISTING CONSTRUCTION RELATED CONDITIONS PRIOR TO STARTING DEMOLITION OR NEW CONSTRUCTION. BRING ALL DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

2. COORDINATE EXTENT OF DEMOLITION WORK WITH REQUIREMENTS SET FORTH ON FLOOR PLANS FOR NEW WORK.

3. ITEMS MARKED TO BE SALVAGED FOR RE-USE SHALL BE REMOVED AND STORED IN AN ENCLOSED AND PROTECTED AREA. CONTRACTOR TO COORDINATE WITH OWNER.

4. FOR CONSTRUCTION THAT REMAINS AFTER DEMOLITION, REMOVE ALL EXISTING MORTAR, ANCHORS, FINISH MATERIAL, ETC. AND PATCH, FILL HOLES, CLEAN, PREPARE, PRIME, AND APPLY NEW FINISH SO THAT COMPLETED WORK IS INDISTINGUISHABLE FROM ADJACENT WORK.

5. REMOVE ANY EXISTING CONDUIT, WIRING, OR OTHER SURFACE MOUNTED ITEMS THAT DO NOT SERVE ANY PURPOSE/FUNCTION. REPAIR/REINSTALL ANY SURFACE MOUNTED WIRING.

6. EXIT ACCESS IN NON CONSTRUCTION AREAS SHALL BE MAINTAINED DURING CONSTRUCTION. MAINTAIN EMERGENCY EGRESS PATHS AS EXISTING OR TEMPORARILY MODIFIED AND POSTED.

7. NOT USED.

8. WHERE TILE AND CARPETING ARE REMOVED, PREPARE REMAINING SUBSTRATE TO RECEIVE NEW FINISH FLOORING.

9. MAINTAIN THE BUILDING IN A WATERTIGHT CONDITION AT END OF EACH WORKDAY. MAKE TEMPORARILY WEATHERTIGHT ALL DISTURBED AREAS IF NOT REPLACED IN SAME DAY.

10. WHERE A FIRE RATING HAS BEEN GIVEN TO AN EXISTING WALL, SEAL AND FIREPROOF ALL PENETRATIONS (EXISTING OR NEW) PER THAT RATING.

11. CONTRACTOR TO BE RESPONSIBLE FOR PROTECTION OF ALL ITEMS TO REMAIN DURING CONSTRUCTION AND TO BE RESPONSIBLE FOR ANY DAMAGE.

12. COORDINATE DEMOLITION PATCHING AND FINISHING WITH MECHANICAL, PLUMBING AND ELECTRICAL REQUIREMENTS.

13. PERFORM ALL CUTTING AND PATCHING OF SLABS AS NECESSARY FOR STRUCTURAL AND PLUMBING WORK.

GRAPHIC SCALE
8 0 4 8 16
(IN FEET)
1/8 " = 1'-0"

AD101

$DATE_USER$
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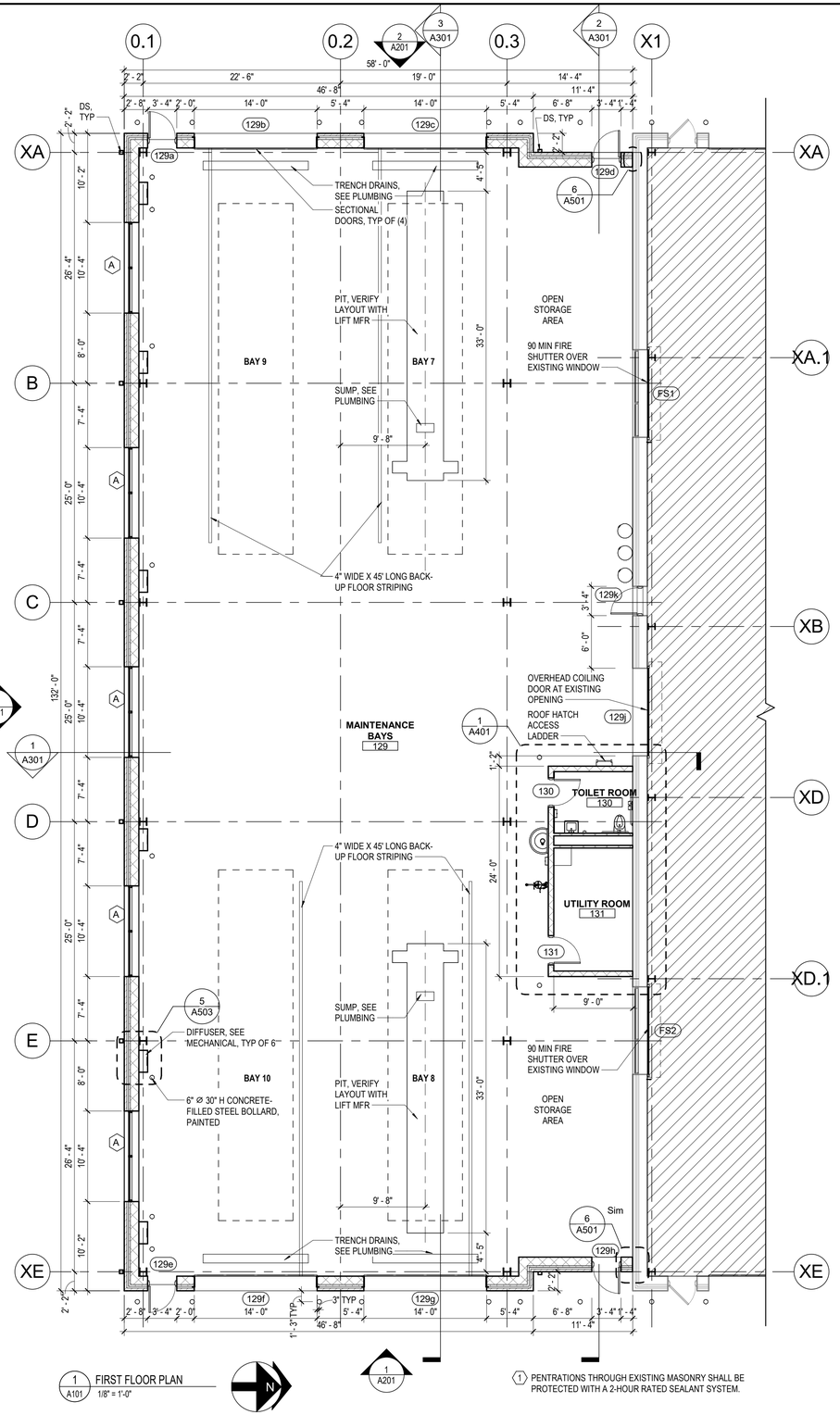
ADDENDUMS / REVISIONS	

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: MAG/DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

DEMOLITION PLAN & ELEVATION

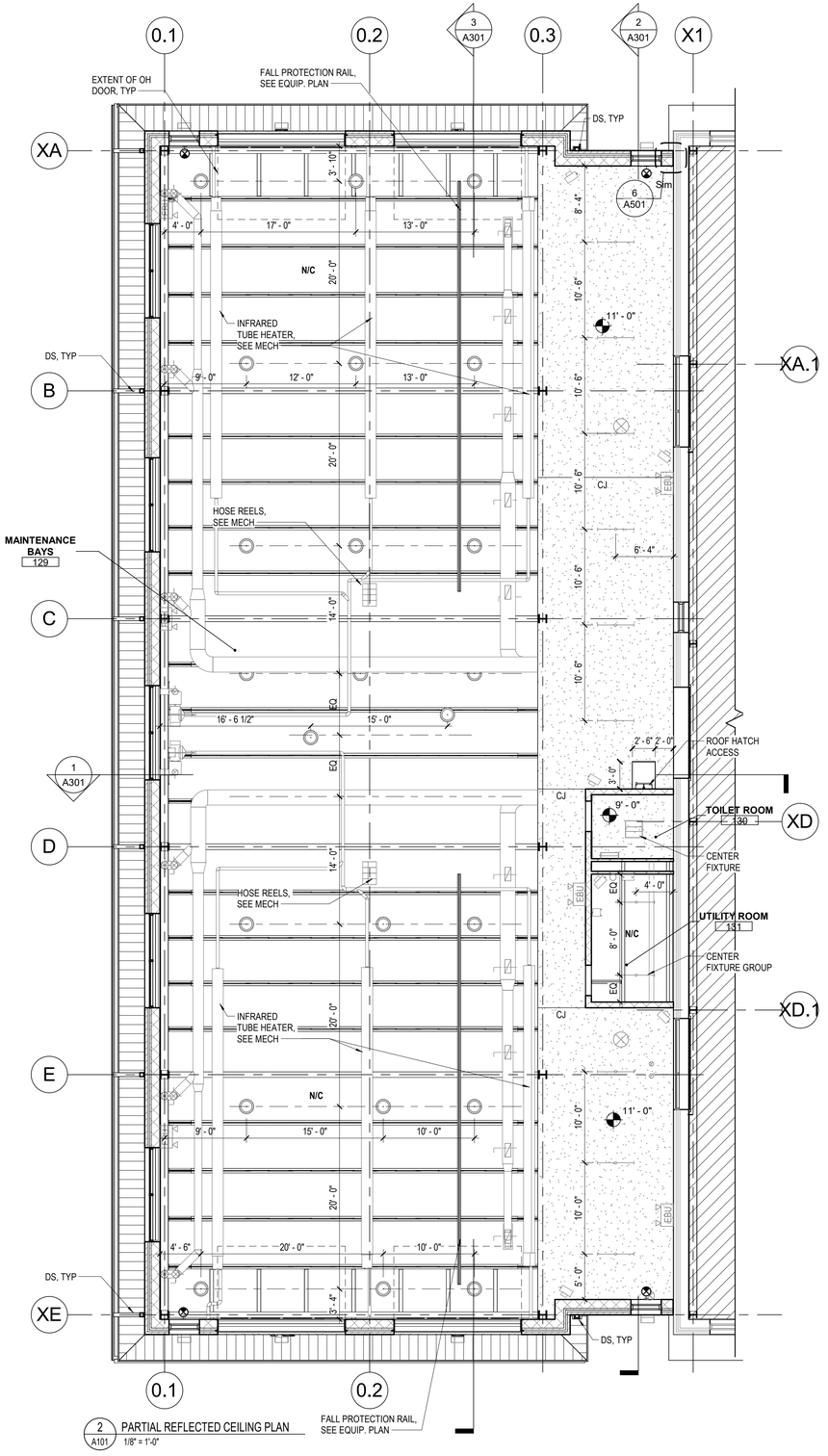
SECTION
JMT
SHEET NO.
23



1 A101 FIRST FLOOR PLAN
1/8" = 1'-0"

1 A201

1 PENTRATIONS THROUGH EXISTING MASONRY SHALL BE PROTECTED WITH A 2-HOUR RATED SEALANT SYSTEM.



2 A101 PARTIAL REFLECTED CEILING PLAN
1/8" = 1'-0"

FALL PROTECTION RAIL, SEE EQUIP. PLAN

CEILING LEGEND

- GWB CEILING
- 12" WIDE FLUSH SOFFIT PANELS
- N/C — NO CEILING
- 2'x2' DIRECT/INDIRECT FIXTURE (SEE ELECTRICAL)
- SUSPENDED LIGHT FIXTURE (SEE ELECTRICAL)
- HIGH BAY LIGHT FIXTURE (SEE ELECTRICAL)
- EXTERIOR WALLPACK LIGHT FIXTURE (SEE ELECTRICAL)
- EMERGENCY EXIT FIXTURE (SEE ELECTRICAL)
- EMERGENCY BACKUP LIGHT FIXTURE (SEE ELECTRICAL)
- 2'X2' RETURN AIR GRILLE (SEE MECHANICAL)
- 2'X2' RETURN AIR DIFFUSER (SEE MECHANICAL)
- EXHAUST FAN (SEE MECHANICAL)
- UNIT HEATER (SEE MECHANICAL)

GRAPHIC SCALE
8 0 4 8 16
(IN FEET)
1/8" = 1'-0"

A101

ADDENDUMS / REVISIONS	

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: MAG/DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

FLOOR PLANS

SECTION
JMT
SHEET NO.
24

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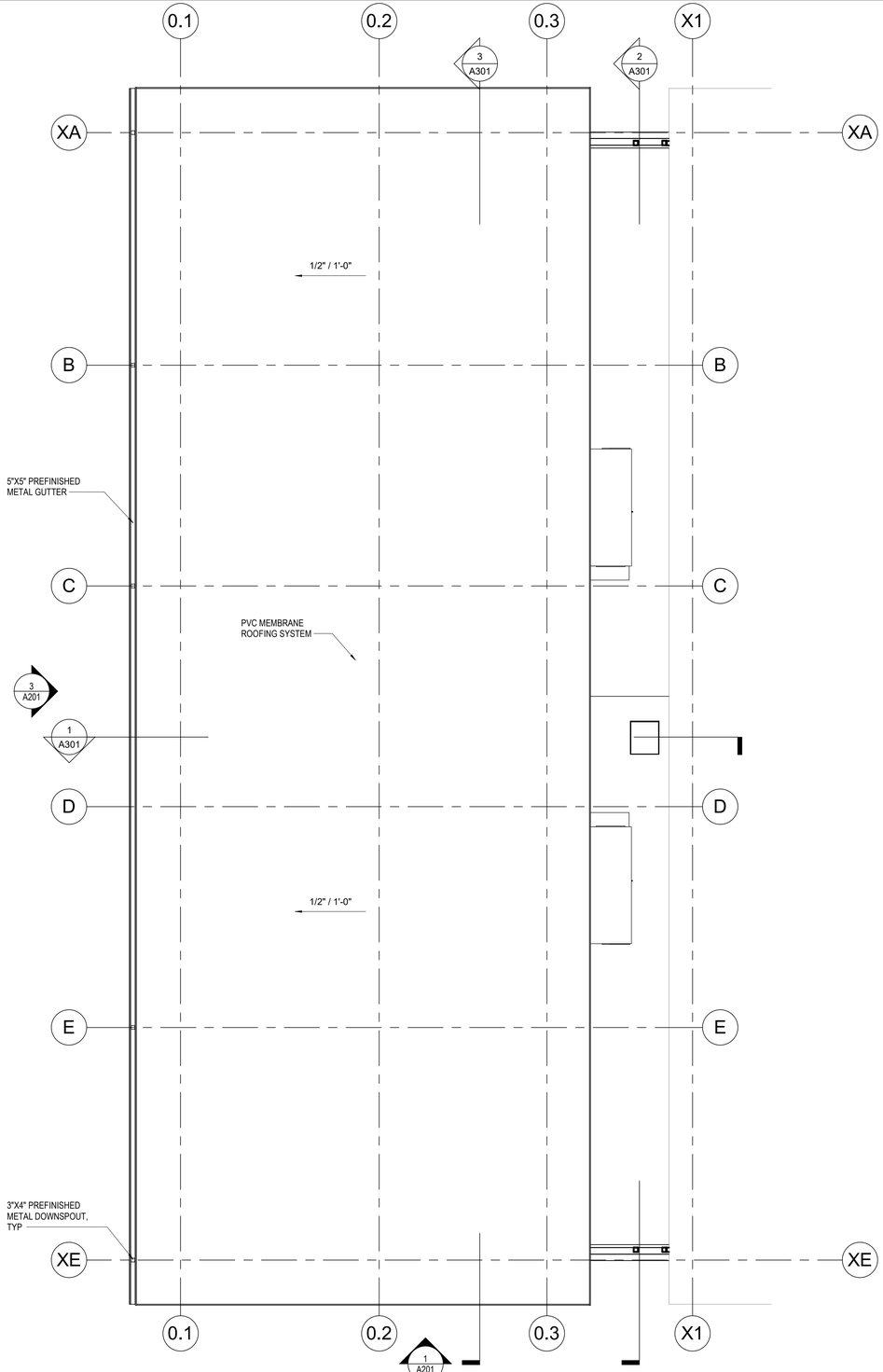
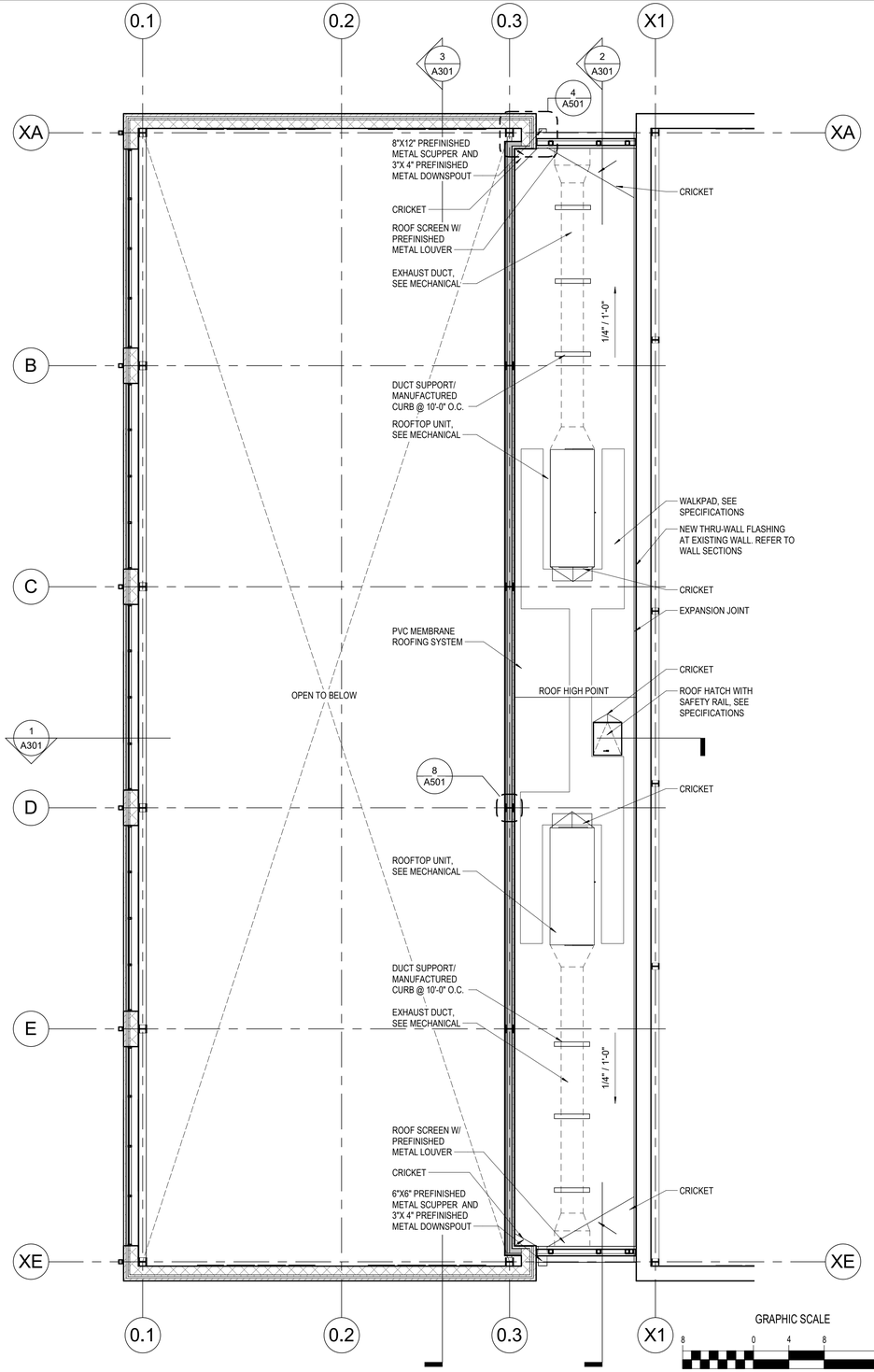


1 A102 ROOF PLAN 1/8" = 1'-0"



2 A102 LOWER ROOF PLAN 1/8" = 1'-0"

GRAPHIC SCALE
8 0 4 8 16
(IN FEET)
1/8 " = 1'-0"

A102

ADDENDUMS / REVISIONS	

MID-COUNTY MAINTENANCE
FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: MAG/DCH	
COUNTY		
NEW CASTLE	CHECKED BY: KNM	

ROOF PLANS

SECTION
JMT
SHEET NO.
25

$DATE_USER$
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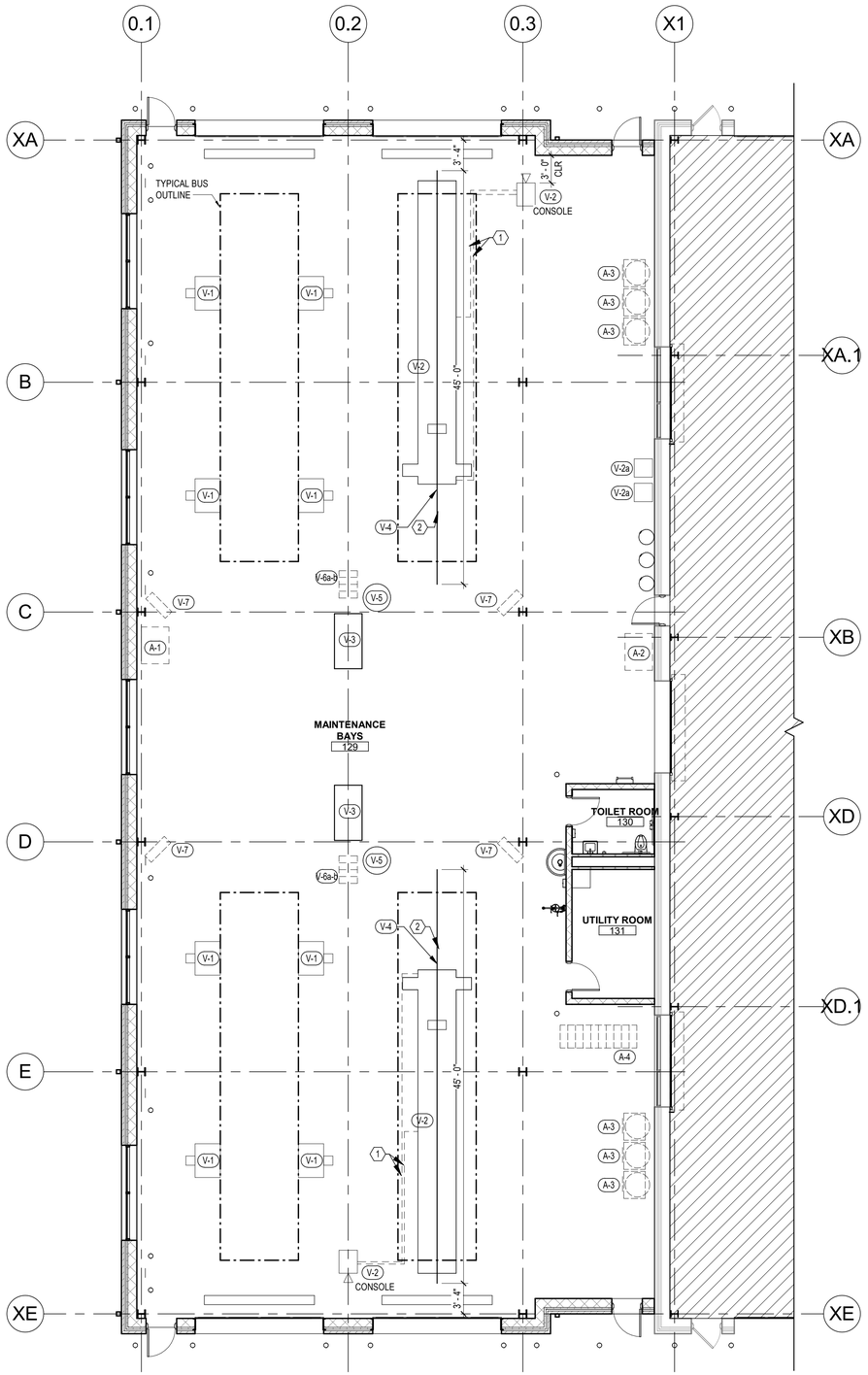

1 / A103 FIRST FLOOR EQUIPMENT PLAN
1/8" = 1'-0"

SHEET KEYNOTES

1. INSTALL (2) 4" PVC CONDUIT FOR HYDAULIC/AIR LINES IN THE SLAB PER LIFT. COORDINATE WITH APPROVED SHOP DRAWINGS.
2. REFER TO STRUCTURAL DRAWINGS FOR ATTACHMENT TO BUILDING STRUCTURE.

(V-xx) EQUIPMENT SCHEDULE

MARK	EQUIPMENT DESCRIPTION	QTY	FURNISHED BY	
V-1	MOBILE COLUMN LIFTS- SET OF 4	2	BY GENERAL CONTRACTOR	
V-2	SCISSOR-STYLE, IN-GROUND, ADJUSTABLE WHEELBASE LIFT	2	BY GENERAL CONTRACTOR	
V-2a	JACK STAND SET	2	BY GENERAL CONTRACTOR	
V-3	SEVERE DUTY WORKBENCH WITH VISE	2	BY GENERAL CONTRACTOR	
V-4	FALL PROTECTION SYSTEM	2	BY GENERAL CONTRACTOR	
V-5	ROLLING DRAIN PAN	2	BY GENERAL CONTRACTOR	
V-6a	REEL - COMPRESSED AIR	4	BY GENERAL CONTRACTOR	
V-6b	REEL- ELECTRIC	4	BY GENERAL CONTRACTOR	
V-7	WALL/COLUMN MOUNTED FAN	4	BY GENERAL CONTRACTOR	
A-1	PARTS CLEANING BENCH	1	BY OWNER	
A-2	TECH WORKSTATION	1	BY OWNER	
A-3	MOBILE DRUM CART W/ DISPENSER	6	BY OWNER	
A-4	ROLLING LADDER	1	BY OWNER	

GRAPHIC SCALE
8 0 4 8 16
(IN FEET)
1/8" = 1'-0"

A103

$DATE_USERS
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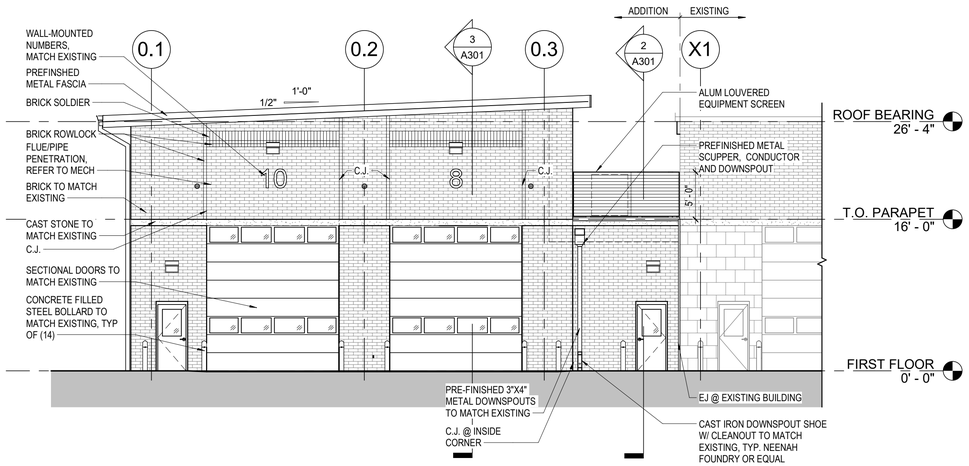
ADDENDUMS / REVISIONS	

MID-COUNTY MAINTENANCE FACILITY EXPANSION

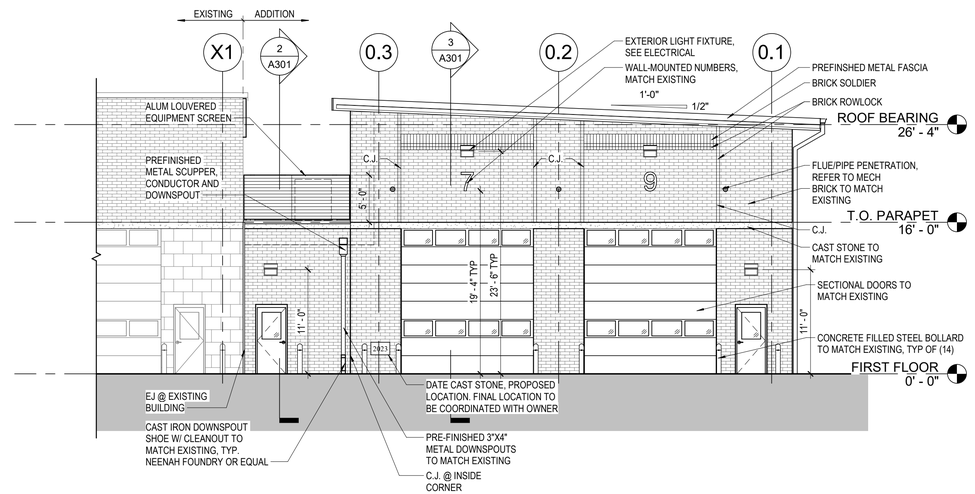
CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: MAG/DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

EQUIPMENT PLAN

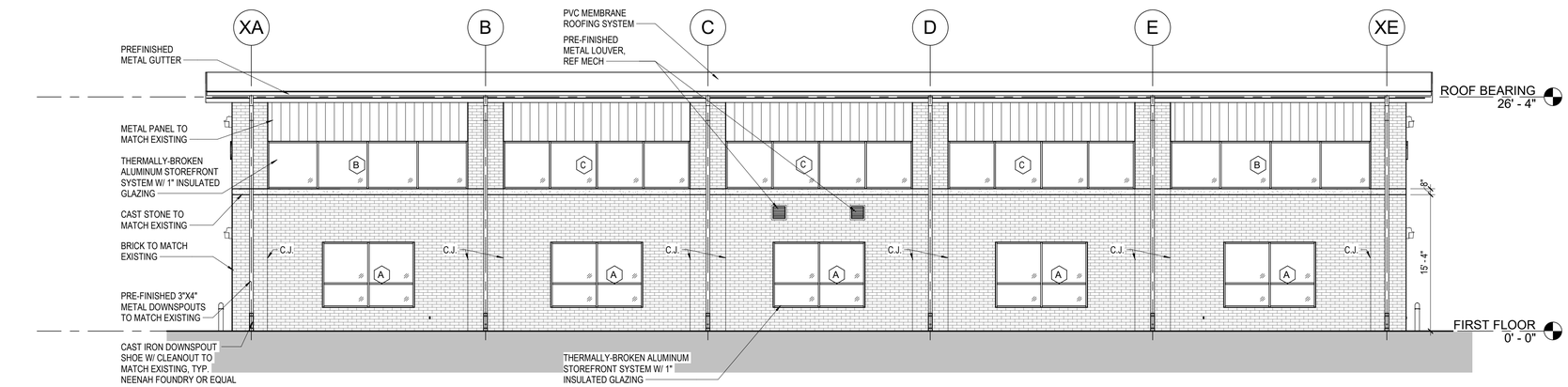
SECTION
JMT
SHEET NO.
26



1 A201 ELEVATION - EAST
1/8" = 1'-0"



2 A201 ELEVATION - WEST
1/8" = 1'-0"



3 A201 ELEVATION - SOUTH
1/8" = 1'-0"

A201

ADDENDUMS / REVISIONS						
			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT T201953104.03	BRIDGE NO. N/A	ELEVATIONS
				COUNTY NEW CASTLE	DESIGNED BY: MAG/DCH	SECTION JMT
					CHECKED BY: KNM	SHEET NO. 27

$DATE_USER$
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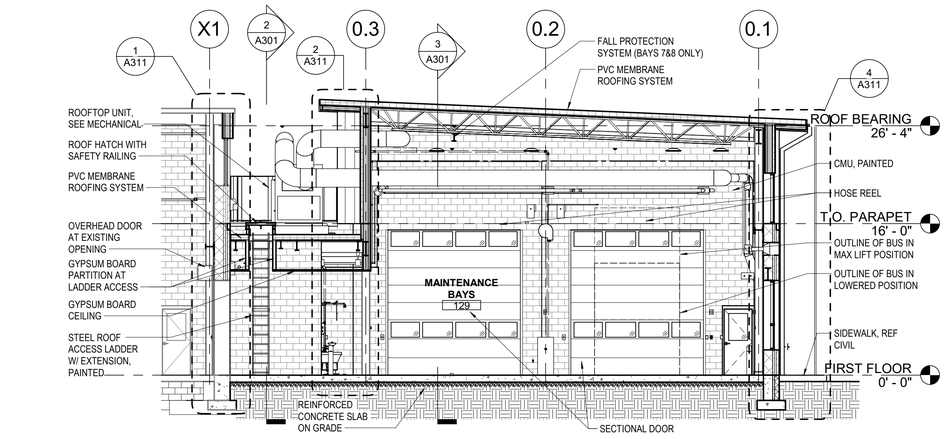
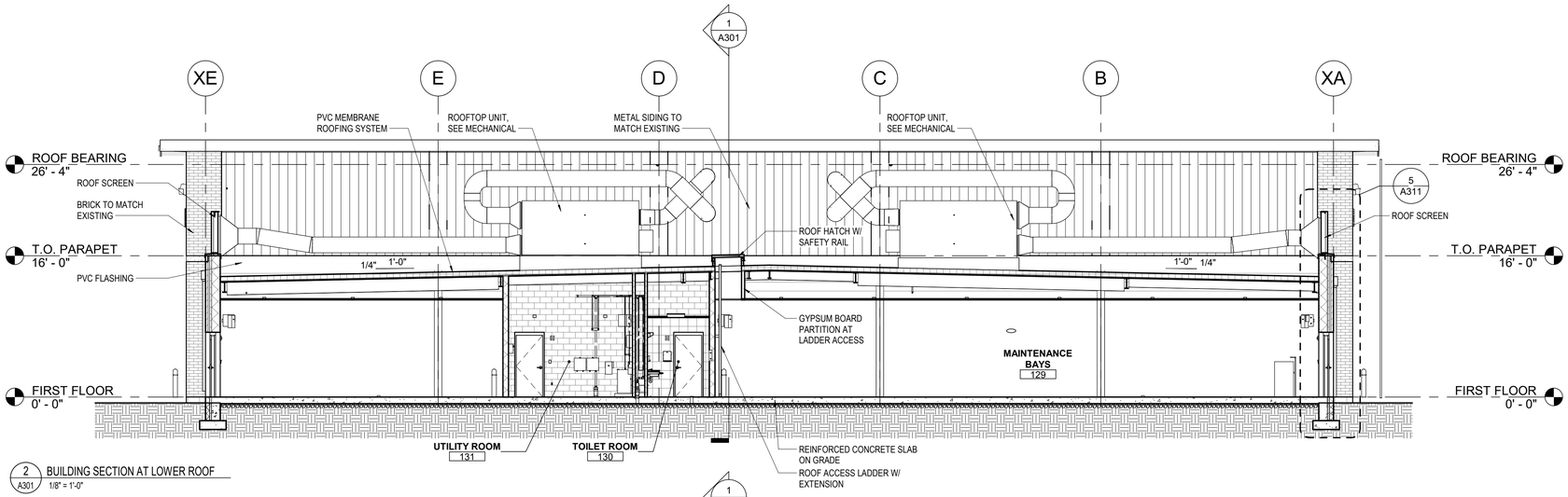
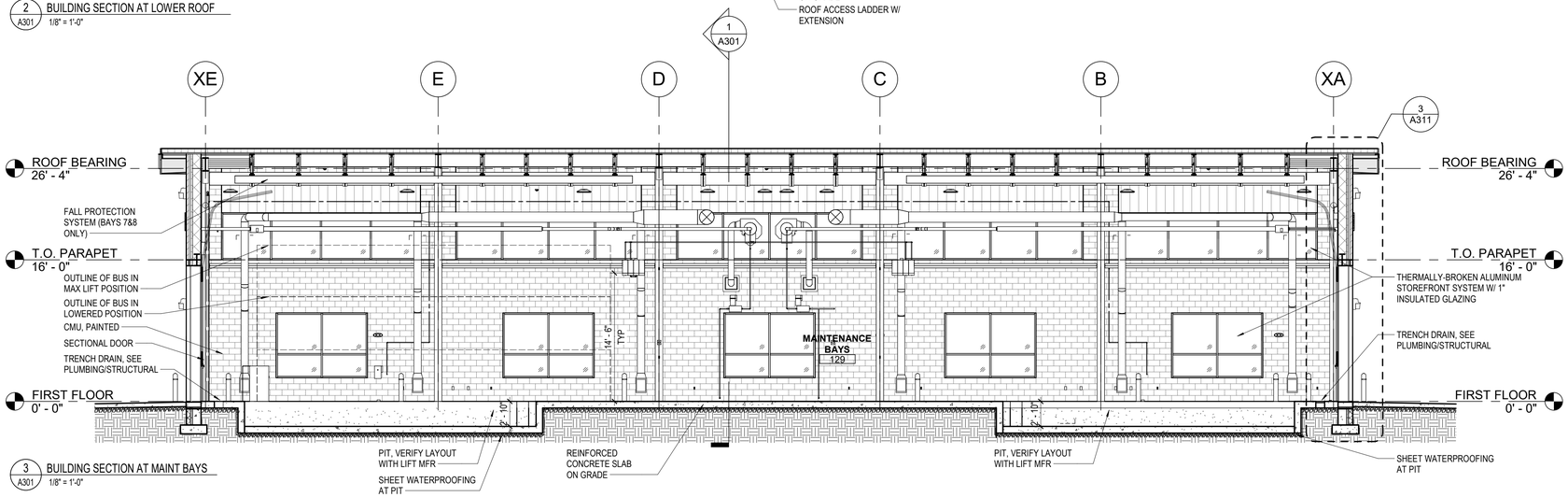


1 A301 TRANSVERSE BUILDING SECTION
1/8" = 1'-0"



2 A301 BUILDING SECTION AT LOWER ROOF
1/8" = 1'-0"



3 A301 BUILDING SECTION AT MAINT BAYS
1/8" = 1'-0"

A301

ADDENDUMS / REVISIONS					
			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT T201953104.03	BRIDGE NO. N/A
				COUNTY NEW CASTLE	DESIGNED BY: MAG/DCH
					CHECKED BY: KNM

SECTIONS

SECTION JMT

SHEET NO. 28

$DATE $USERS
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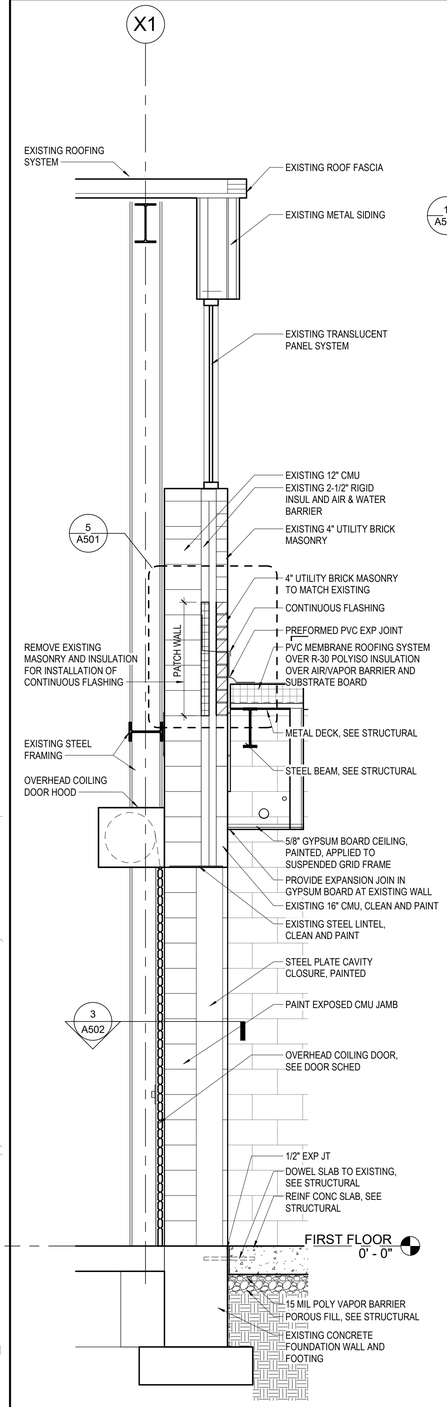
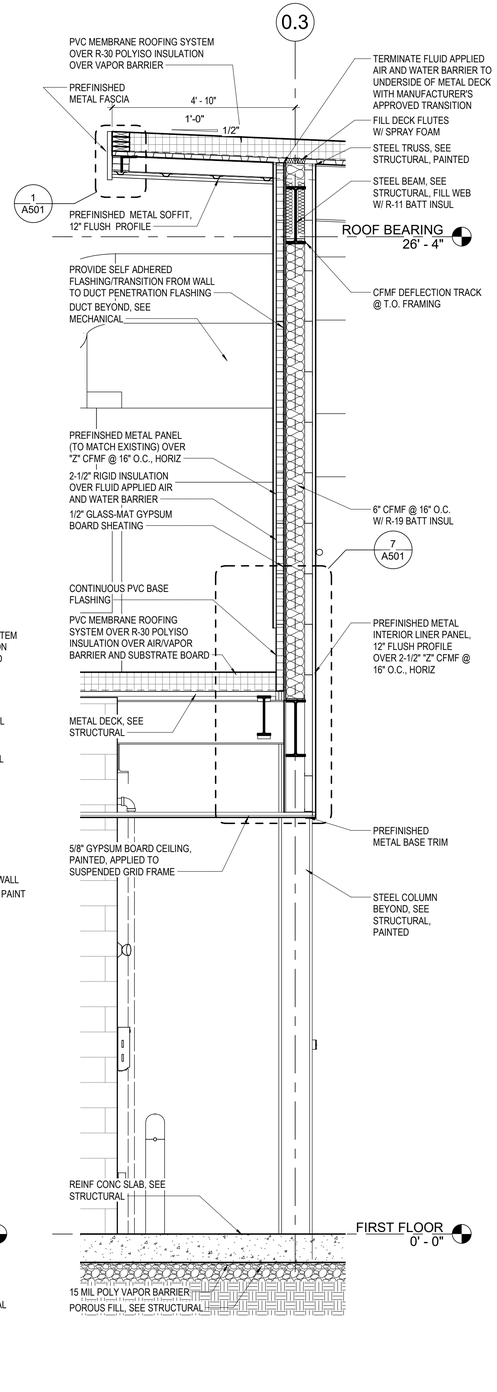
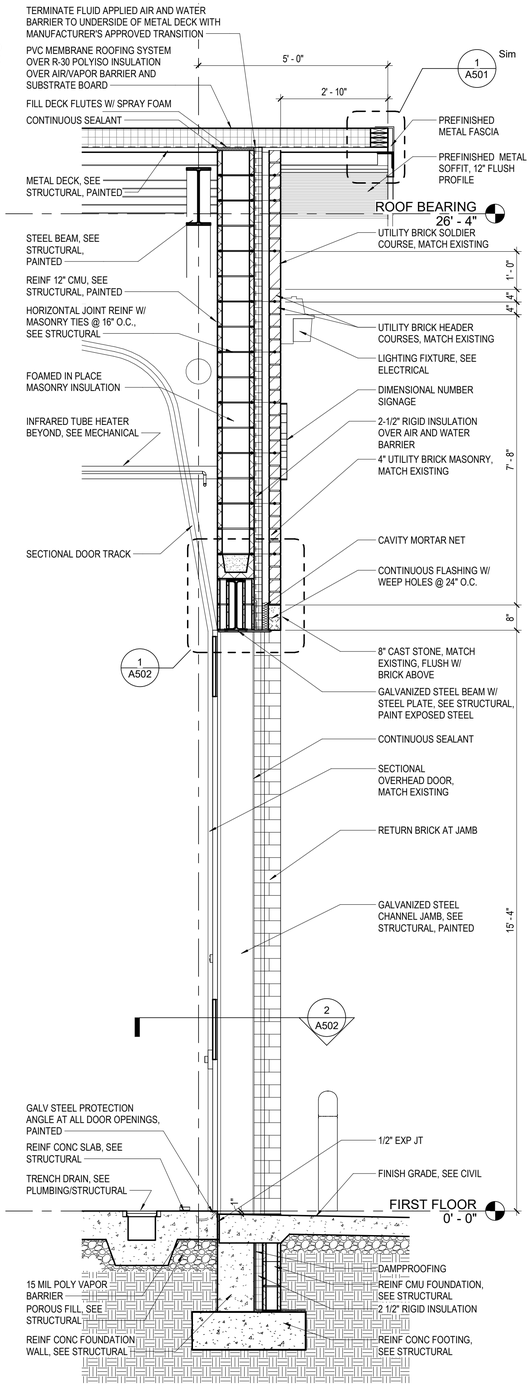


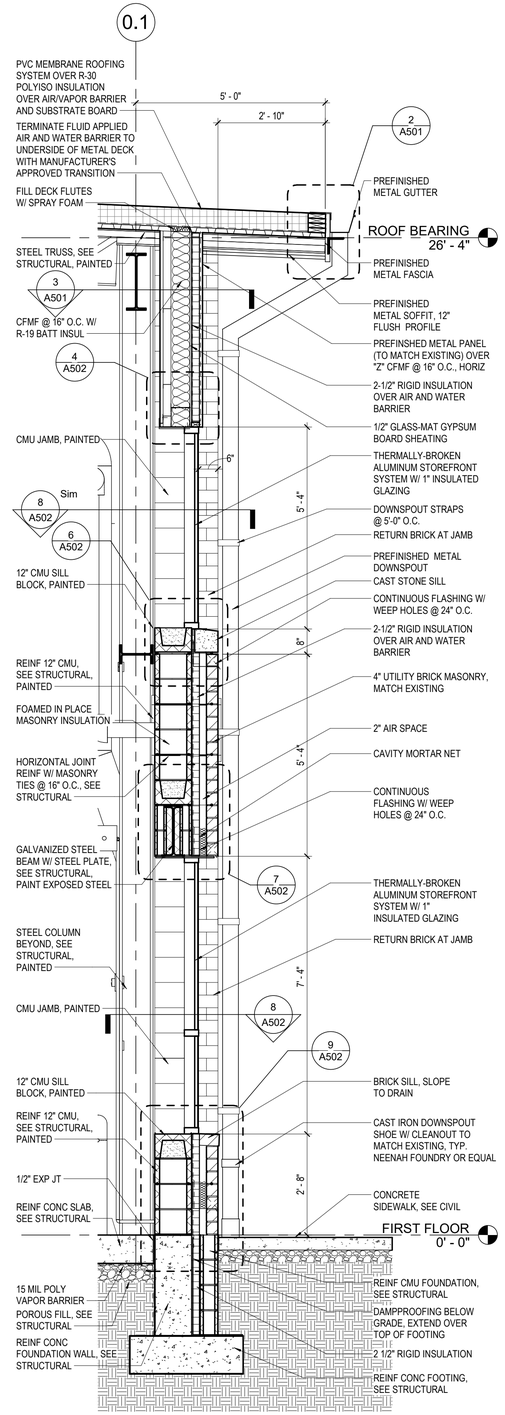
1 A311 WALL SECTION AT EXISTING
1/2" = 1'-0"



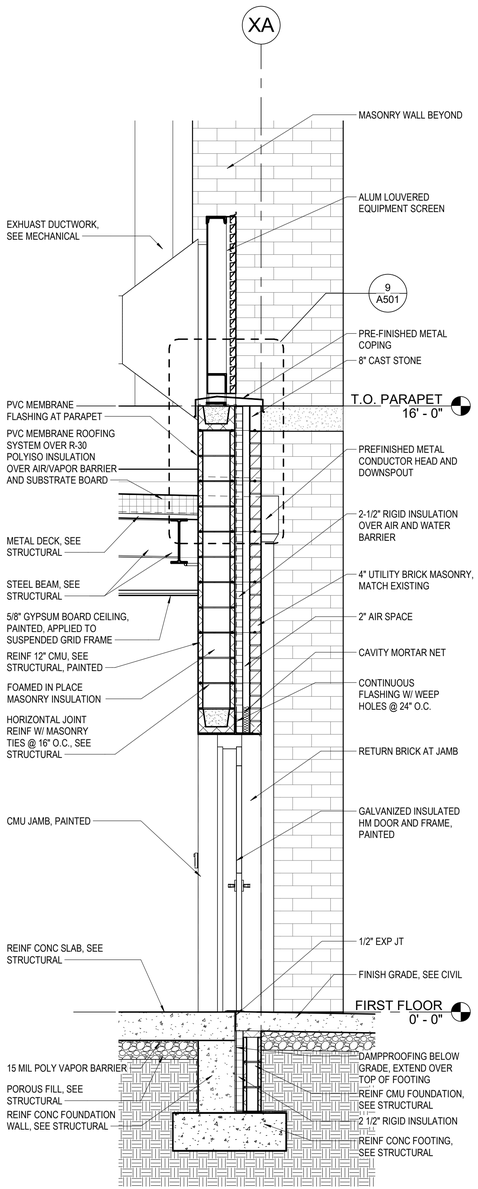
2 A311 WALL SECTION AT HIGH ROOF
1/2" = 1'-0"



3 A311 WALL SECTION AT GARAGE DOOR
1/2" = 1'-0"



4 A311 WALL SECTION AT SOUTH
1/2" = 1'-0"



5 A311 WALL SECTION AT LOW ROOF
1/2" = 1'-0"

A311

ADDENDUMS / REVISIONS					

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: MAG/DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

WALL SECTIONS

SECTION
JMT
SHEET NO.
29

$DATE_USERS
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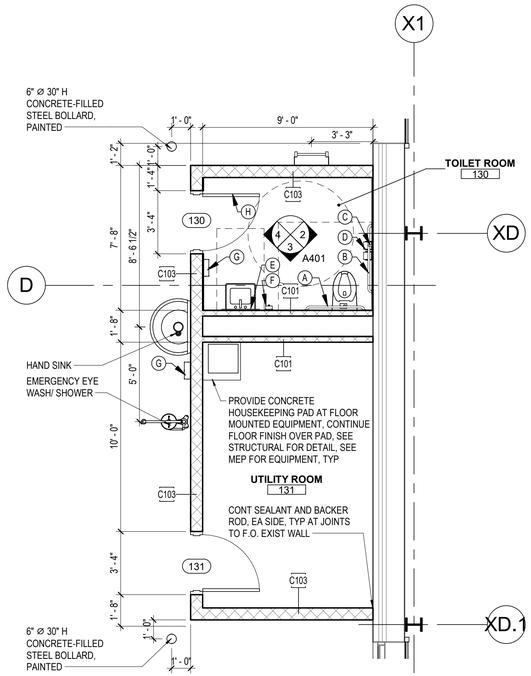
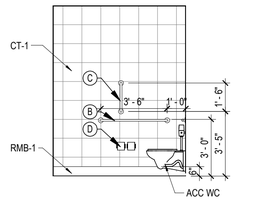
TOILET ACCESSORIES SCHEDULE

MARK	ITEM	MNT. HGT.	BOBRICK CATALOG NO.
A	1-1/2" GRAB BAR	36" AFF TO TOP OF BAR	B-6806 X 36
B	1-1/2" GRAB BAR	36" AFF TO TOP OF BAR	B-6806 X 42
C	1-1/2" GRAB BAR, VERTICAL	41" AFF	B-6806 X 18
D	TOILET PAPER DISPENSER	19" TO CENTERLINE	B-265
E	MIRROR W/STAINLESS STL. ANGLE FRAME, TEMPERED GLASS 24"	40" AFF TO BOT. OF REFLECTIVE SURFACE	B-165 2436
F	AUTOMATIC SOAP DISPENSER, SURFACE MOUNTED	38" AFF TO BOT.	B-2012
G	AUTOMATIC PAPER TOWEL DISPENSER, SURFACE MOUNTED	48" AFF TO DISPENSER	B-2974
H	COAT HOOK, SURFACE MOUNTED, BACK OF DOOR	48" AFF	

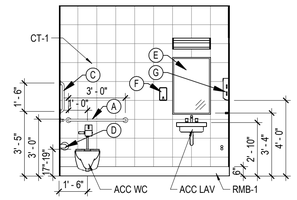
NOTES:
1. WRAP EXPOSED LAVATORY DRAIN PIPING PER ADA REQUIREMENTS.
2. REFER TO SPECIFICATIONS.



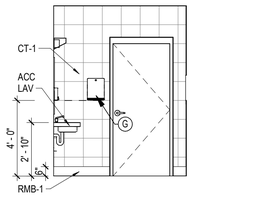
1 A401 FIRST FLOOR PLAN ENLARGEMENT
1/4" = 1'-0"



2 A401 TOILET ROOM 130- NORTH ELEVATION
1/4" = 1'-0"



3 A401 TOILET ROOM 130- EAST ELEVATION
1/4" = 1'-0"

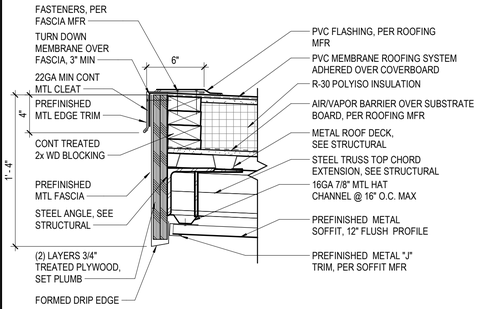


4 A401 TOILET ROOM 130- SOUTH ELEVATION
1/4" = 1'-0"

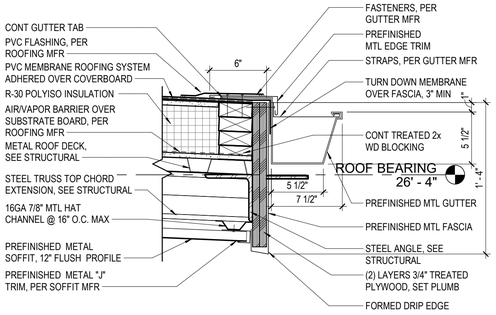
A401

ADDENDUMS / REVISIONS						
			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT T201953104.03	BRIDGE NO. N/A	ENLARGED PLANS
				COUNTY NEW CASTLE	DESIGNED BY: MAG/DCH	SECTION JMT
					CHECKED BY: KNM	SHEET NO. 30

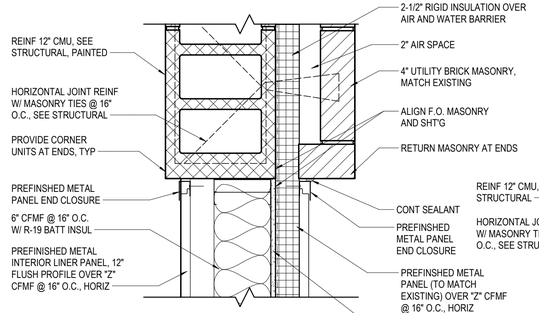
$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - Arch.rvt



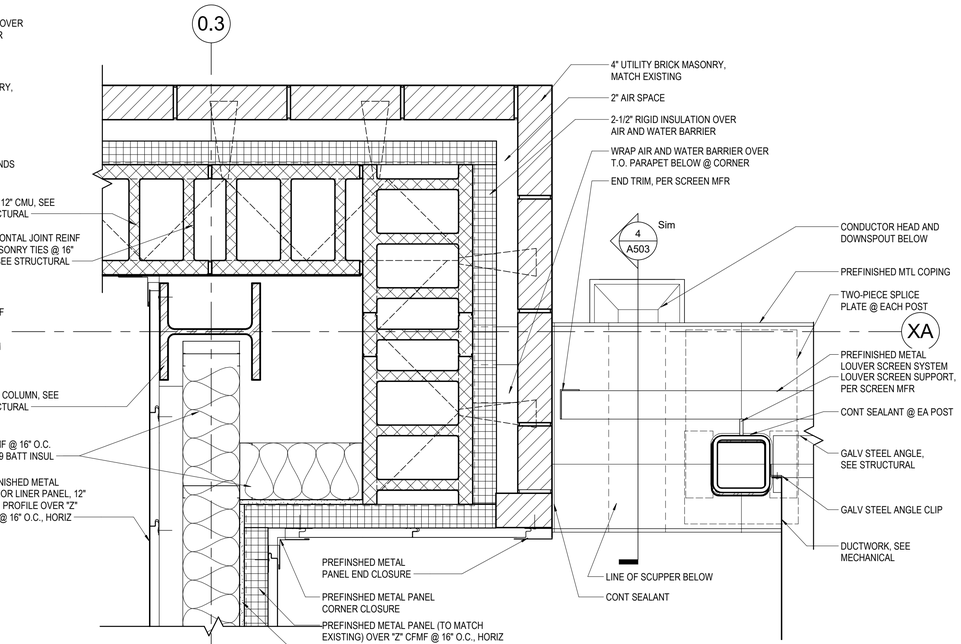
1 A501 TYP FASCIA DTL
1 1/2" = 1'-0"



2 A501 GUTTER DETAIL
1 1/2" = 1'-0"



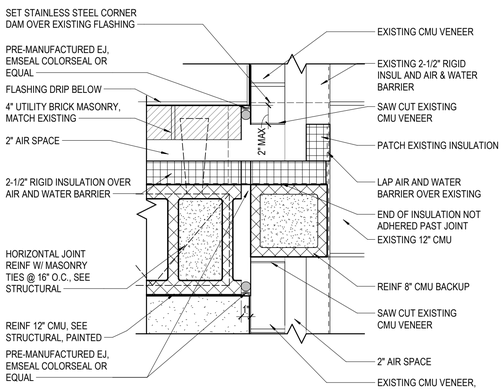
3 A501 PANEL TO CMU PLAN DTL
1 1/2" = 1'-0"



4 A501 MASONRY CORNER DTL
1 1/2" = 1'-0"

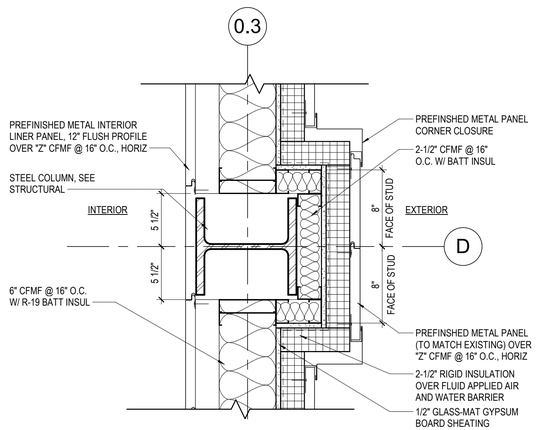
NOTE: REFER TO ROOF PLAN FOR LOW SLOPE DRAINAGE SIZES

5 A501 ROOF TO EXIST WALL DTL
1 1/2" = 1'-0"

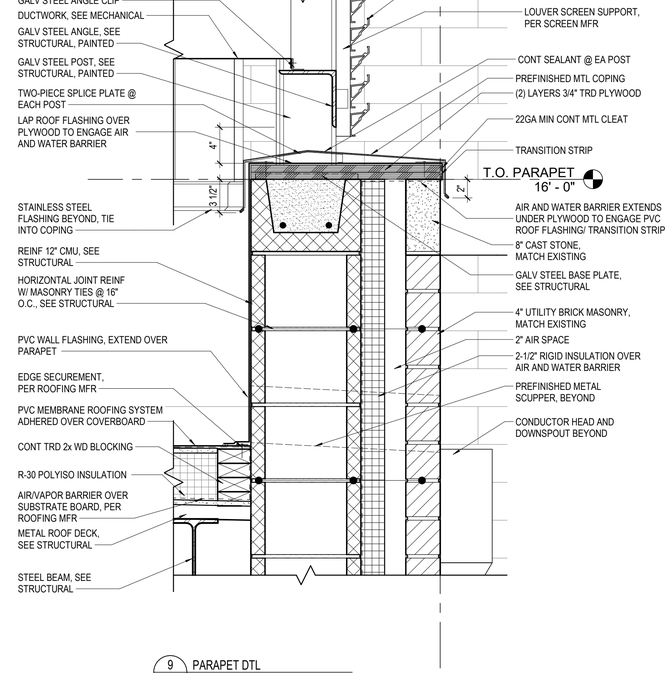


6 A501 E.J. PLAN DTL
1 1/2" = 1'-0"

7 A501 ROOF TO WALL DTL
1 1/2" = 1'-0"



8 A501 COLUMN AND WALL PLAN DTL
1 1/2" = 1'-0"



9 A501 PARAPET DTL
1 1/2" = 1'-0"

NOTE: REFER TO ROOF PLAN FOR LOW SLOPE DRAINAGE SIZES

A501

ADDENDUMS / REVISIONS

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: MAG/DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

DETAILS

SECTION JMT
SHEET NO. 31

$DATE_USER$
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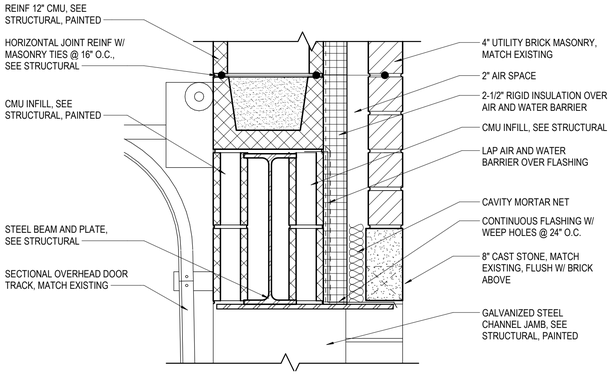
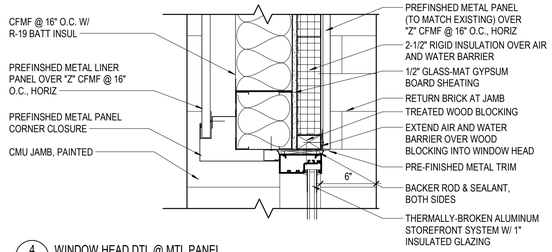
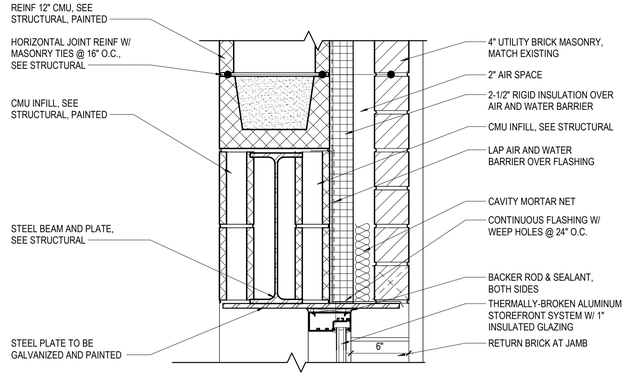


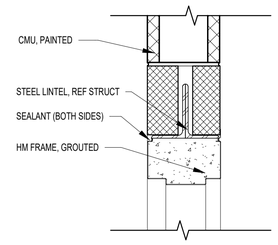
1 A502 SECTIONAL DOOR HEAD
1 1/2" = 1'-0"



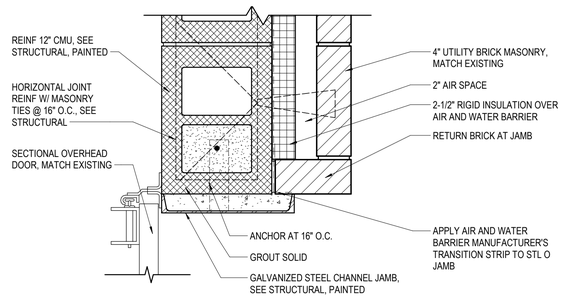
4 A502 WINDOW HEAD DTL @ MTL PANEL
1 1/2" = 1'-0"



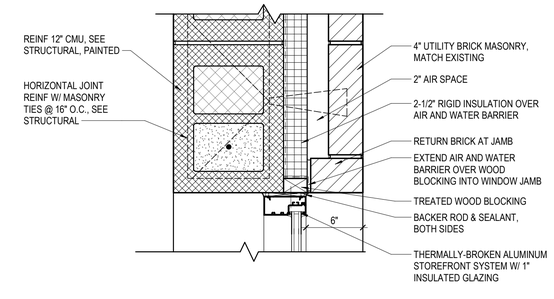
7 A502 WINDOW HEAD DTL @ MASONRY
1 1/2" = 1'-0"



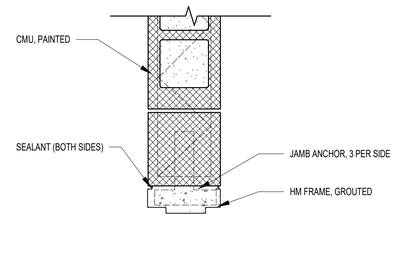
10 A502 HM FRAME HEAD DTL
1 1/2" = 1'-0"



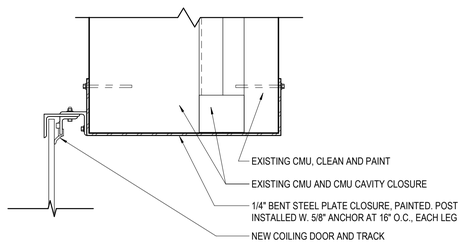
2 A502 SECTIONAL DOOR JAMB
1 1/2" = 1'-0"



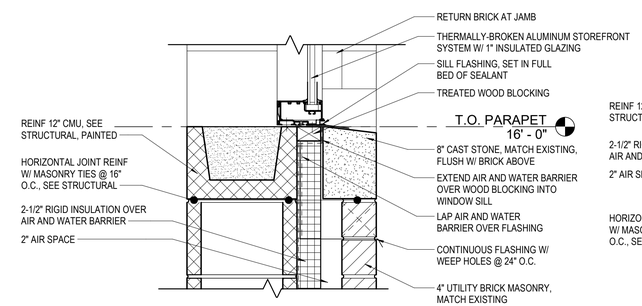
8 A502 WINDOW JAMB DTL @ MASONRY
1 1/2" = 1'-0"



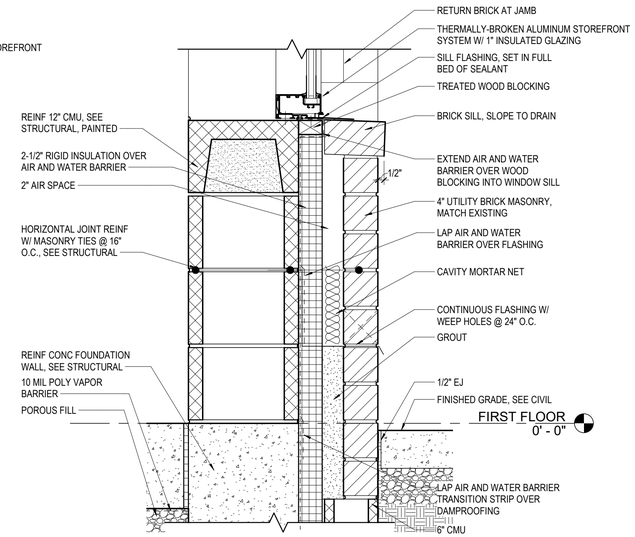
11 A502 HM FRAME JAMB DTL
1 1/2" = 1'-0"



3 A502 OH DOOR JAMB DTL AT EXIST WALL
1 1/2" = 1'-0"



6 A502 WINDOW SILL DTL AT UPPER WINDOWS
1 1/2" = 1'-0"



9 A502 WINDOW SILL DTL @ MASONRY
1 1/2" = 1'-0"

A502

$DATE_USER$
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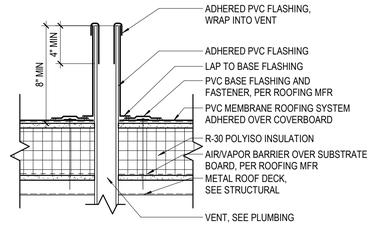
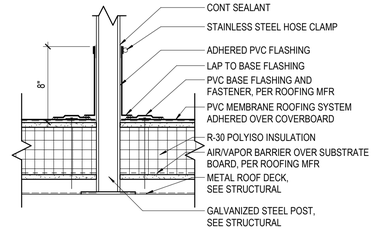
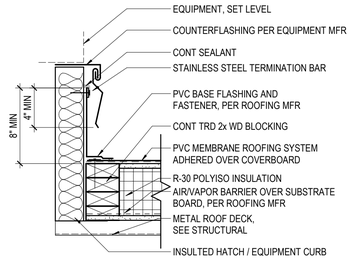
ADDENDUMS / REVISIONS			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT	BRIDGE NO. N/A	DETAILS	SECTION
				T201953104.03			JMT
				COUNTY	DESIGNED BY: MAG/DCH		SHEET NO.
				NEW CASTLE	CHECKED BY: KNM		32



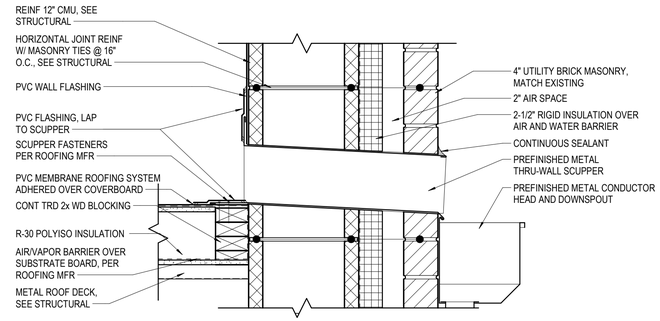
1 A503 VENT FLASHING DETAIL
1 1/2" = 1'-0"



2 A503 POST FLASHING DETAIL
1 1/2" = 1'-0"

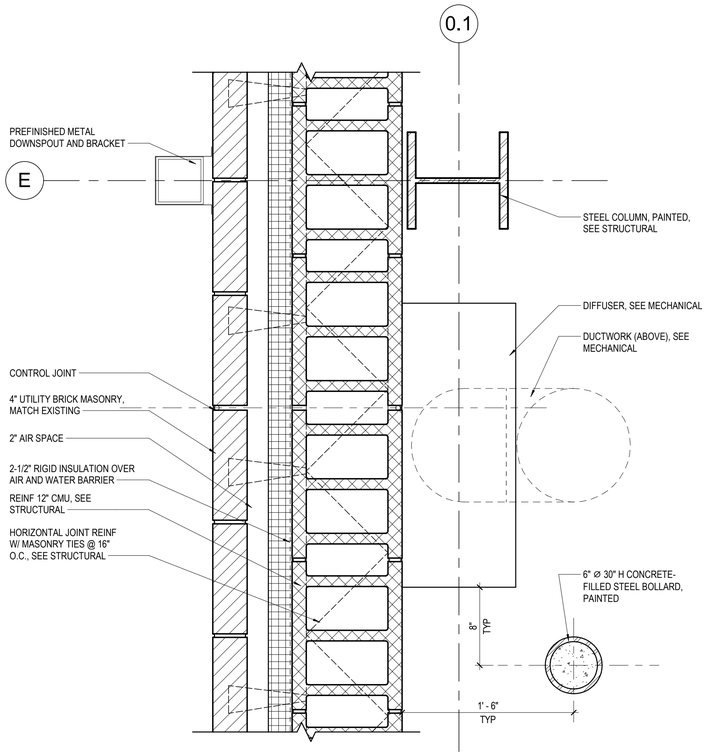


3 A503 HATCH / EQUIPMENT CURB DETAIL
1 1/2" = 1'-0"

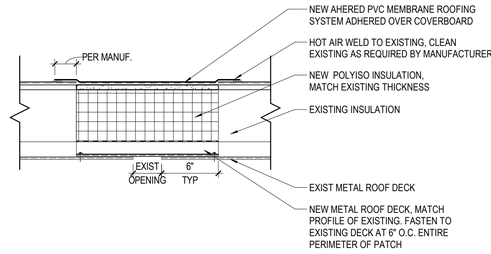


4 A503 SCUPPER DETAIL
1 1/2" = 1'-0"

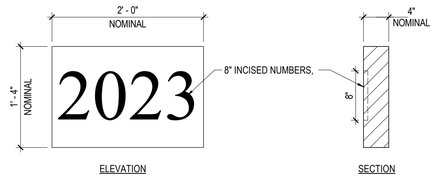
NOTE: REFER TO ROOF PLAN FOR LOW SLOPE DRAINAGE SIZES



5 A503 DIFFUSER PROTECTION DETAIL
1 1/2" = 1'-0"



6 A503 ROOF PATCH DETAIL
1 1/2" = 1'-0"



7 A503 DATE CAST STONE DETAIL
1" = 1'-0"

NOTES:
1. FONT TO BE SELECTED BY OWNER
2. FINAL WALL LOCATION AND DATE TO BE COORDINATED WITH OWNER

A503

ADDENDUMS / REVISIONS						
			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT T201953104.03	BRIDGE NO. N/A	DETAILS	SECTION JMT
				COUNTY NEW CASTLE	DESIGNED BY: MAG/DCH		SHEET NO. 33
					CHECKED BY: KNM		

$DATE_USERS
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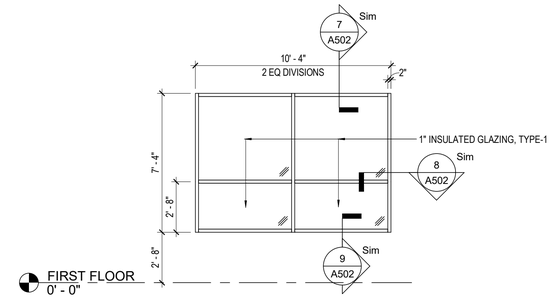
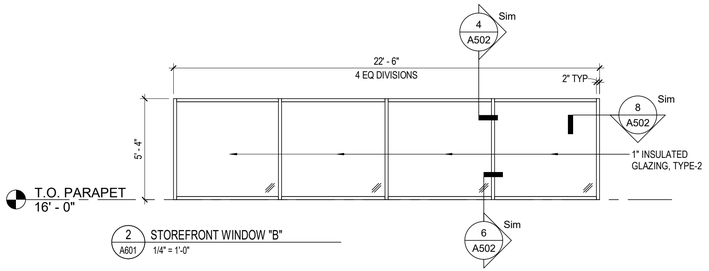


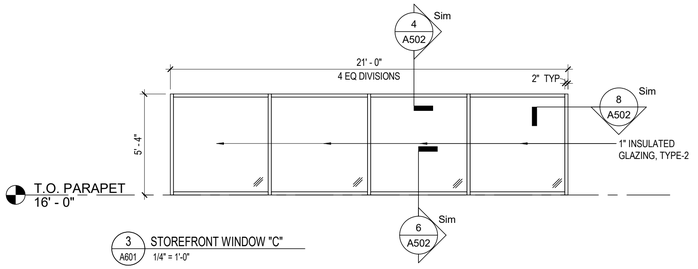
FIRST FLOOR
0' - 0"

1 / A601 STOREFRONT WINDOW "A"
1/4" = 1'-0"



T.O. PARAPET
16' - 0"

2 / A601 STOREFRONT WINDOW "B"
1/4" = 1'-0"



T.O. PARAPET
16' - 0"

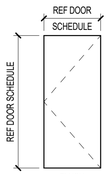
3 / A601 STOREFRONT WINDOW "C"
1/4" = 1'-0"

DOOR SCHEDULE

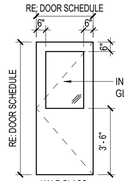
	DOOR						FRAME							
	SIZE								DETAIL					
NUM.	WIDTH	HEIGHT	THK	TYPE	MATL	FINISH	ELEV	MATL	FINISH	HEAD	JAMB	SILL	UL DES.	NOTES
129a	3' - 0"	7' - 0"	1 3/4"	HG	HM	PTD	1	HM	PTD				--	
129b	14' - 0"	15' - 4"	1 1/2"	OH1	STL	FAC	2	STL	FAC				--	
129c	14' - 0"	15' - 4"	1 1/2"	OH1	STL	FAC	2	STL	FAC				--	
129d	3' - 0"	7' - 0"	1 3/4"	HG	HM	PTD	1	HM	PTD				--	
129e	3' - 0"	7' - 0"	1 3/4"	HG	HM	PTD	1	HM	PTD				--	
129f	14' - 0"	15' - 4"	1 1/2"	OH1	STL	FAC	2	STL	FAC				--	
129g	14' - 0"	15' - 4"	1 1/2"	OH1	STL	FAC	2	STL	FAC				--	
129h	3' - 0"	7' - 0"	1 3/4"	HG	HM	PTD	1	HM	PTD				--	
129j	10' - 0"	10' - 0"	1/2"	OH2	STL	FAC	2	STL	FAC				90 MIN	
129k	3' - 0"	7' - 0"	1 3/4"	F	HM	PTD	1	HM	PTD				90 MIN	
130	3' - 0"	7' - 0"	1 3/4"	F	HM	PTD	1	HM	PTD				--	
131	3' - 0"	7' - 0"	1 3/4"	F	HM	PTD	1	HM	PTD				--	
FS1	10' - 0"	10' - 0"	1/2"	OH2	STL	FAC	2	STL	FAC				90 MIN	FIRE SHUTTER
FS2	10' - 0"	10' - 0"	1/2"	OH2	STL	FAC	2	STL	FAC				90 MIN	FIRE SHUTTER

*REFER TO SPECIFICATIONS FOR HARDWARE SETS

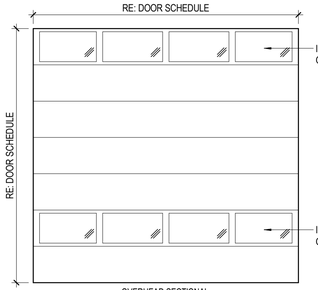
DOOR TYPES:



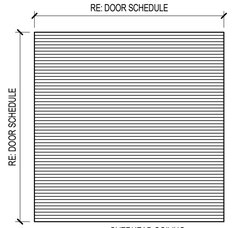
FLUSH
F



HALF GLASS
HG

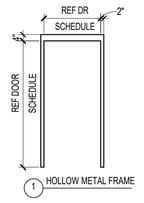


OVERHEAD SECTIONAL
OH1

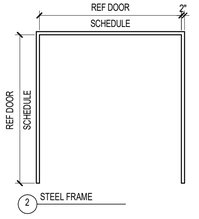


OVERHEAD COILING
OH2

DOOR FRAME TYPES:

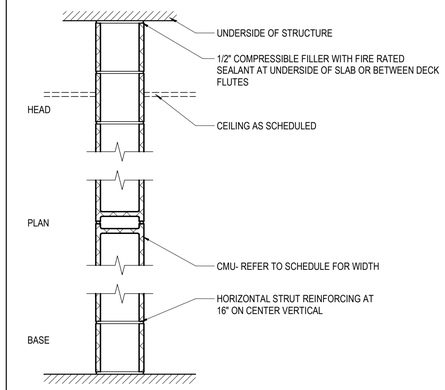


1 HOLLOW METAL FRAME



2 STEEL FRAME

TYPE C1 - FULL HEIGHT MASONRY PARTITION



TYPE	WIDTH	CORE	INSUL	RATING			COMMENTS
				STC	UL	FIRE	
C101	3 5/8"	0' - 3 5/8"					3 5/8" CMU
C103	7 5/8"	0' - 7 5/8"					7 5/8" CMU

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOORS		WALLS				CEILING	CASEWORK		REMARKS
		FINISH	BASE	NORTH	SOUTH	EAST	WEST		CAB	TOP	
129	MAINTENANCE BAYS	RMF-1	RMB-1	PT-1	PT-1	PT-1	PT-1	EXP-PT-1/GWB-PT-1	--	--	GWB-PT-1 CEILING WHERE INDICATED, SEE RCP
130	TOILET ROOM	RMF-1	RMB-1	CT-1	CT-1	CT-1	CT-1	GWB-PT-2	--	--	
131	UTILITY ROOM	RMF-1	RMB-1	PT-1	PT-1	PT-1	PT-1	EXP-PT-1	--	--	

NOTES:
1. INSTALL SCHLUTER QUADEC AT ALL BASE TO WALL TILE TRANSITIONS. FINISH TO BE SATIN ANODIZED ALUMINUM (AE).
2. INSTALL SCHLUTER QUADEC AT ALL OUTSIDE TILED WALL CORNERS.
3. HOLLOW METAL DOOR FRAMES SHALL BE PAINTED PT-2.

ABBREVIATIONS

FLOORS / BASE		WALLS		CEILINGS	
RMF-1	RESINOUS MATRIX FLOORING	PT-1	PAINT - FLAT	EXP-PT-1	EXPOSED STRUCTURE- PAINTED- FLAT
RMB-1	RESINOUS MATRIX BASE	PT-2	PAINT - SEMI GLOSS	ACT	ACOUSTICAL TILE
		CT-1	CERAMIC TILE	GWB-PT	GYPSUM BOARD- PAINTED

A601

ADDENDUMS / REVISIONS	

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: MAG/DCH	
COUNTY	CHECKED BY: KNM	
NEW CASTLE		

SCHEDULES & FRAME ELEVATIONS

SECTION
JMT
SHEET NO.
34

$DATE_USERS
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - Arch.rvt

STRUCTURAL NOTES

GENERAL NOTES

1. THE NOTES ON THESE DRAWINGS ARE NOT INTENDED TO REPLACE SPECIFICATIONS. SEE SPECIFICATIONS FOR REQUIREMENTS IN ADDITION TO GENERAL NOTES. FOR INCONSISTENCIES BETWEEN THESE DRAWINGS AND THE SPECIFICATIONS, THE STRICTER REQUIREMENT SHALL APPLY, AND THE ENGINEER SHALL BE NOTIFIED PRIOR TO PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.

2. STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH JOB SPECIFICATIONS AND ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND SITE DRAWINGS. CONSULT THESE DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, CHASES, INSERTS, REGLETS, SLEEVES, DEPRESSIONS, AND OTHER DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS. ALL DIMENSIONS AND CONDITIONS MUST BE VERIFIED IN THE FIELD. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE AFFECTED PART OF THE WORK.

3. THE STRUCTURE IS DESIGNED TO BE SELF SUPPORTING AND STABLE AFTER THE BUILDING IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCE TO INSURE THE SAFETY OF THE BUILDING AND ITS COMPONENTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF NECESSARY SHORING, SHEETING, TEMPORARY BRACING, GUYS OR TIEDOWNS. PROVIDE ALL SHORING AND BRACING REQUIRED TO STABILIZE AND PROTECT EXISITING AND ADJACENT STRUCTURES AND SYSTEMS DURING COURSE OF DEMOLITION AND CONTRACTOR AFTER COMPLETION OF THE PROJECT.

4. SECTIONS AND DETAILS SHOWN ON ANY STRUCTURAL DRAWINGS SHALL BE CONSIDERED TYPICAL FOR SIMILAR CONDITIONS.

5. ALL APPLICABLE FEDERAL, STATE AND MUNICIPAL REGULATING SHALL BE FOLLOWED, INCLUDING THE FEDERAL DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ACT.

6. ANY AND ALL MODIFICATIONS TO THE STRUCTURAL ELEMENTS INDICATED ON THESE DRAWINGS MUST BE APPROVED BY BAKER, INGRAM & ASSOCIATES.

DESIGN LOADS

1. BUILDING CODE: INTERNATIONAL BUILDING CODE (2018 EDITION).

2. DESIGN LIVE LOADS:

ROOF	30 PSF MIN. + DRIFT
FLOOR	250 PSF

3. SNOW LOADING IS BASED ON THE FOLLOWING. DRIFTING OR SLIDING SNOW LOADS HAVE BEEN CONSIDERED WHERE APPROPRIATE.

GROUND SNOW LEVEL	25 PSF
SNOW EXPOSURE FACTOR (Ce)	1.0
SNOW LOAD IMPORTANCE FACTOR	1.0
SNOW THERMAL FACTOR (Ct)	1.0

4. DESIGN EARTHQUAKE LOADS ARE BASED ON THE FOLLOWING:

SEISMIC RISK CATEGORY	II
SEISMIC IMPORTANCE FACTOR	1.0
SPECTRAL RESPONSE ACCEL. (SS)	0.162g
SPECTRAL RESPONSE ACCEL. (S1)	0.045g
SITE CLASS	D
SPECTRAL RESPONSE COEFF. (SDS)	0.172g
SPECTRAL RESPONSE DOEFF. (SD1)	0.071g
SEISMIC DESIGN CATEGORY	B
SEISMIC RESISTING SYSTEM	STRUCTURAL STEEL SYSTEM NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE
DESIGN BASE SHEAR	0.027W KIPS
SEISMIC RESPONSE COEFFICIENT (CS)	0.027
RESPONSE MODIFICATION FACTOR (R)	6.5
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL-FORCE

5. WIND LOADING IS BASED ON THE FOLLOWING:

ULTIMATE DESIGN WIND SPEED (Vult)	115 MPH
NOMINAL DESIGN WIND SPEED (Vasd)	85 MPH
RISK CATEGORY	II
EXPOSURE CATEGORY	B
INTERNAL PRESSURE COEFF.	+/- 0.18
BUILDING CATEGORY	SIMPLE DIAPHRAM, LOW-RISE, ENCLOSED RIGID STRUCTURE

EXISTING CONDITIONS

1. EXISTING CONDITIONS INDICATED ARE OBTAINED FROM AVAILABLE SOURCES (EXISTING DRAWINGS, FIELD SURVEYS, ETC.) AND ARE NOT GUARANTEED TO BE TRUE AND EXACT. CONTRACTOR(S) SHALL FIELD VERIFY EXISTING CONDITIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.

2. SEE ARCH DRAWINGS FOR LIMITS OF DEMOLITION OF EXISTING CONSTRUCTION WHERE REQUIRED.

FOUNDATION

1. PRESUMPTIVE BEARING CAPACITY: 2000 PSF

2. CONTRACTOR, AT HIS EXPENSE, SHALL RETAIN THE SERVICES OF A GEOTECHNICAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED, TO VERIFY THE SUITABILITY OF THE SUBGRADE FOR THE PROPOSED FOUNDATION SYSTEM & BUILDING.

3. FOUNDATION DESIGN IS BASED ON SHALLOW SPREAD FOOTINGS BEARING ON SUITABLE NATURAL SOILS AND/OR NEW COMPACTED STRUCTURAL FILL.

4. ALL ORGANIC MATERIALS, EXCESSIVELY SOFT OR LOOSE SOILS, TREES, ASPHALT, CONCRETE, DEBRIS AND OTHER DELETERIOUS MATERIALS SHOULD BE REMOVED WITHIN AND AT LEAST 5 FEET BEYOND THE BUILDING LIMIT. THE EXISTING ORGANIC SOIL SHOULD BE STRIPPED AND CAN BE STOCKPILED FOR REUSE IN LANDSCAPE AREAS. PROOF ROLL ALL SUBGRADES, UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER. UNSUITABLE AREAS SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE GEOTECHNICAL ENGINEER. NO FILL FOR BUILDING SUPPORT SHALL BE PLACED UNTIL SUBGRADES AND FILL MATERIAL HAVE BEEN OBSERVED AND APPROVED BY THE GEOTECHNICAL ENGINEER.

5. AREAS REQUIRING UNDERCUT AND FILL MATERIAL DUE TO THE PRESENCE OF UNSUITABLE MATERIAL SHALL BE BACKFILLED TO THE DESIGN FOOTING SUBGRADE WITH NEW COMPACTED STRUCTURAL FILL.

6. COMPACTED STRUCTURAL FILL FOR BUILDING AND SLAB SUPPORT APPROVED FOR USE INCLUDE:

   GRANULAR SOILS INCLUDING GW, GP, GM, SW, SP AND SM CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). FURTHERMORE, THE MATERIAL TO BE UTILIZED AS STRUCTURAL FILL SHOULD HAVE A PLASTICITY INDEX (PI) LESS THAN 20.

   A MATERIAL UTILIZED FOR STRUCTURAL FILL MUST BE APPROVED BY THE GEOTECHNICAL ENGINEER. IF THERE IS NOT SUFFICIENT FILL MATERIAL ON SITE, CONTRACTOR SHALL TRANSPORT APPROVED BORROW MATERIAL FROM AN OFF SITE SOURCE.

7. SLABS ON GRADE MAY BE SUPPORTED ON FIRM SUITABLE NATURAL SOILS, OR ON COMPACTED STRUCTURAL FILL FOLLOWING STRIPPING OF TOPSOIL, VEGETATION, ASPHALT AND ANY SOFT OR DISTURBED SOILS WITHIN THE BUILDING AREA. A MINIMUM 8 INCH WASHED GRAVEL OR CRUSHED STONE LAYER CORRESPONDING TO AASHTO SIZE NO. 57 AGGREGATE SHOULD BE USED BENEATH ALL FLOOR SLABS ON GRADE. (REF. DWGS. FOR AREAS OF THICKER STONE BASE). ALL INTERIOR SLABS SHALL HAVE A 15 mil VAPOR BARRIER LOCATED BELOW THE SLAB AND ABOVE THE CRUSHED STONE, UNLESS NOTED OTHERWISE.

8. COMPACTED STRUCTURAL FILL BENEATH ALL FOUNDATIONS, SLABS ON GRADE AND ADJACENT TO FOUNDATION WALLS SHALL BE PLACED IN LIFTS NOT EXCEEDING 8 INCHES (4 INCHES FOR HAND COMPACTORS) IN LOOSE THICKNESS AND BE COMPACTED TO 95 PERCENT OF MAXIMUM DRY DENSITY PER ASTM D-1557, MODIFIED PROCTOR TEST.

9. BACKFILL IMMEDIATELY BEHIND FOUNDATION WALLS SHOULD BE CLEAN, GRANULAR MATERIAL CONTAINING LESS THAN TEN (10) PERCENT PASSING THE NO. 200 SIEVE (0.07MM). IN ADDITION, THE COMPACTION BEHIND THESE WALLS SHOULD BE NINETY-FIVE (95) PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY IN ACCORDANCE WITH ASTM D-1557. EXCESSIVE COMPACTION MAY CAUSE DAMAGE TO THE WALLS. HAND OPERATED EQUIPMENT SHOULD BE USED FOR COMPACTION NEAR EXISTING AND NEW FOUNDATION WALLS. BACKFILL AGAINST NEW FOUNDATION WALLS ONLY AFTER FIRST FLOOR IS IN PLACE OR ADEQUATE BRACING HAS BEEN PROVIDED. CONCRETE FLOOR SLABS SHALL HAVE CURED 7 DAYS MINIMUM PRIOR TO BACKFILLING.

10. THE EXCAVATION FOR PLACEMENT OF COMPACTED STRUCTURAL FILL SHOULD EXTEND BEYOND THE EDGE OF FOOTINGS A MINIMUM DISTANCE EQUAL TO THE DEPTH OF FILL.

11. EXTEND BOTTOM OF EXTERIOR FOOTINGS AT LEAST 2'-8" BELOW THE EXTERIOR FINISH GRADE FOR PROTECTION AGAINST FROST.

12. ALL SUBGRADES AND UNDERCUTS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER. SOILS EXPOSED AT THE BASES OF ALL APPROVED FOUNDATION EXCAVATIONS SHOULD BE PROTECTED AGAINST ANY DETRIMENTAL CHANGE IN CONDITION, SUCH AS DISTURBANCE FROM RAIN OR FROST. SURFACE RUNOFF SHOULD BE DRAINED AWAY FROM THE EXCAVATIONS AND NOT BE ALLOWED TO POND. FOUNDATION EXCAVATIONS SHOULD BE PROTECTED FROM RAINFALL OR FREEZING CONDITIONS. SLOPE FOOTING EXCAVATIONS AS REQUIRED FOR STABILITY AND SAFETY OR PROVIDE SHEETING OR SHORING IN ACCORDANCE WITH OSHA REQUIREMENTS. IN THE EVENT THAT THE CONTRACTOR DETERMINES THAT SHEETING AND SHORING IS REQUIRED FOR EXCAVATION, THE CONTRACTOR SHALL RETAIN THE SERVICES OF A REGISTERED PROFESSIONAL STRUCTURAL ENGINEER FOR DESIGN AND DOCUMENTATION OF ALL SHEETING AND SHORING REQUIRED FOR THE WORK.

MASONRY

1. ALL MASONRY CONSTRUCTION SHALL CONFORM TO ACI 530.1 (LATEST EDITION).

2. ALL CONCRETE MASONRY UNITS SHALL BE ASTM C90, GRADE N, TYPE 1 STANDARD WEIGHT BLOCKS INCLUDING STRETCHERS AND CORNER BLOCKS. MINIMUM PRISM STRENGTH OF BLOCK SHALL BE Fm = 1500 PSI IN 28 DAYS. MORTAR SHALL CONFORM TO ASTM SPECIFICATION C270, TYPE M OR S.

3. CONCRETE MASONRY UNITS SHALL BE LAID IN RUNNING BOND UNLESS NOTED OTHERWISE ON THE ARCHITECTURAL DRAWINGS.

4. LOCATION OF LINTELS AT MASONRY OPENINGS SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS.

5. MASONRY WALLS WHICH SUPPORT STRUCTURAL MEMBERS SHALL HAVE CELLS GROUTED SOLID 3 COURSES MINIMUM UNDER BEARING.

6. HORIZONTAL WALL REINFORCING SHALL BE DUR-O-WAL TRUSS DESIGN WITH 3/16" SIDE RODS AND 8 GAUGE CROSS TIES. REINFORCING SHALL BE PLACED IN MASONRY WALLS AT 16" MAXIMUM. SPACE HORIZONTAL JOINT REINFORCEMENT AT 8" ON CENTER IN ALL PARAPETS. USE SHOP FABRICATED SPECIAL PIECES AT ALL CORNERS AND TEES. FOR BRICK VENEER USE DUR-O-EYE TRUSS TYPE.

7. SEE ARCHITECTURAL DRAWINGS FOR CONTROL JOINTS.

8. STANDARD LAP LENGTH OF GRADE 60 MASONRY REINFORCING BARS SHALL BE 48 BAR DIAMETERS.

9. ALL LOAD BEARING CMU WALLS SHALL CONTAIN JOINTS WHICH ARE FULLY BEDDED.

10. UNLESS OTHERWISE NOTED, PROVIDE THE FOLLOWING LINTELS FOR EACH 4 INCH THICKNESS OF MASONRY WALL WITH 8 INCHES OF BEARING AT EACH END. FOR UNEQUAL LEG ANGLES, ORIENT THE LONG LEGS VERTICAL: GALVANIZE ALL LINTELS EXPOSED TO THE WEATHER.

OPENINGS UP TO 4'-0"	L3 1/2" x 3 1/2" x 5/16"
OPENINGS 4'-6'	L4" x 3 1/2" x 5/16"
OPENINGS 6'-8'	L5" x 3 1/2" x 5/16"
OPENINGS 8'-10'	L6" x 3 1/2" x 3/8"

11. FILL ALL BOND BEAMS WITH 2500 PSI CONCRETE USING 3/8" MAXIMUM AGGREGATE SIZE.

12. WHERE INDICATED, GROUT CORES SOLID WITH A HIGH SLUMP MIX IN ACCORDANCE WITH ASTM SPECIFICATION C476 HAVING A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 (LATEST EDITION).

2. CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE:

FOOTINGS:	4000 PSI
INTERIOR SLABS:	4000 PSI
WALLS:	4000 PSI
PIERS:	4000 PSI
EXTERIOR SLABS:	5000 PSI

ALL CONC. TO BE NORMAL WEIGHT UNLESS NOTED OTHERWISE.

ALL EXTERIOR CONCRETE SHALL BE AIR-ENTRAINED (6 +/-1)% PER ASTM C260.

MAXIMUM WATER/CEMENT RATIO =
0.50 FOR 3000 PSI CONC.
0.45 FOR 4000 PSI CONC.
0.40 FOR 5000 PSI CONC.

3. CONCRETE REINFORCING SHALL CONFORM TO THE FOLLOWING DESIGNATIONS:

DEFORMED BARS	ASTM A615, GRADE 60
DEFORMED BARS (WELDABLE)	ASTM A706
DEFORMED BARS (GALVANIZED)	ASTM A767 & A615, GRADE 60
DEFORMED BARS (EPOXY-COATED)	ASTM A775 OR A934, & A615, GR. 60
WELDED WIRE FABRIC	ASTM A185

4. LAP DEFORMED BARS 40 DIA., UNO. HOOKS SHALL BE STANDARD HOOKS, UNO. LAP WELDED WIRE FABRIC SUCH THAT THE OVERLAP OF THE OUTERMOST CROSS WIRES FOR EACH ADJOINING SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRES PLUS TWO IN., UNO.

5. CONCRETE PROTECTION FOR REINFORCEMENT (UNLESS NOTED OTHERWISE):

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:	3 IN.
CONCRETE EXPOSED TO EARTH OR WEATHER:	
NO. 6 THROUGH NO. 18 BARS:	2 IN.
NO. 5 BAR AND SMALLER:	1 1/2 IN.
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:	
SLABS, WALLS, JOISTS:	
NO. 14 AND NO. 18 BARS	1 1/2 IN.
NO. 11 BAR AND SMALLER:	3/4 IN.
BEAMS, COLUMNS:	1 1/2 IN.

6. REINFORCING FOR SLABS ON GRADE, WHERE NOT OTHERWISE SPECIFIED, SHALL BE AS FOLLOWS:

   REINFORCING BARS: SEE FOUNDATION AND TYPICAL DETAILS.
   WIRE MESH: 6x6-W2.1 x W2.1 WWF. REINFORCING SHALL BE SUPPORTED AT MID-DEPTH OF SLAB.

7. WELDING OF REINFORCEMENT IS NOT PERMITTED UNLESS SPECIFICALLY INDICATED ON DRAWINGS. WELDING, WELDING ELECTRODES AND FLUXES SHALL CONFORM TO AWS D1.4-92, "STRUCTURAL WELDING CODE – REINFORCED STEEL". ELECTRODES SHALL HAVE A MINIMUM TENSILE STRENGTH OF 70 KSI. ASTM A706 BARS SHALL BE USED IN ALL WELDED APPLICATIONS.

8. COMPLETE SHOP DRAWINGS AND SCHEDULES OF ALL REINFORCING STEEL SHALL BE PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER FOR REVIEW. REFER TO SPECIFICATIONS.

9. REINFORCEMENT SHALL BE CONTINUOUS AROUND CORNERS AND AT INTER-SECTIONS.

10. FOR ALL OPENINGS IN CONCRETE WALLS AND SLABS, PROVIDE SUPPLEMENTAL REINFORCING AROUND OPENING AS SHOWN ON THE CONTRACT DOCUMENTS.

11. CONCRETE SHALL NOT BE PLACED IN WATER OR ON FROZEN GROUND.

12. PROVIDE SLEEVES WHERE PIPES PASS THROUGH WALLS, BEAMS OR SLABS. REF. MEP DRAWINGS.

13. JOINTS IN SLABS ON GRADE:

   a) CONTROL JOINTS SHALL BE LOCATED AS SHOWN ON FOUNDATION PLAN. IF NOT SHOWN, PROVIDE JOINTS IN A RECTANGULAR CONFIGURATION, WITH THE LONGER SIDE NO MORE THAN ONE-AND ONE-HALF TIMES THE LENGTH OF THE SHORTER SIDE. SPACE CONTROL JOINTS NO MORE THAN 20 FEET APART. DISCONTINUE WELDED WIRE FABRIC AT CONTROL JOINTS.
   b) CONTROL JOINTS SHALL BE SAW CUT OR FORMED 1/4" WIDE x (1/3 SLAB THICKNESS) DEEP AND FILLED WITH JOINT SEALER. CUT JOINTS AS SOON AS POSSIBLE WITHOUT FRAYING THE CONCRETE SURFACE.
   c) CONSTRUCTION JOINTS SHALL INCLUDE A 1"x2" SHEAR KEY AT MID-HEIGHT OF SLAB.
   d) ISOL. JT.: PRE-MOLDED JOINT FILLER. USE AROUND ALL PILING, PIERS AND AT FOUNDATION WALLS.

14. CONTROL JOINTS IN WALLS SHALL NOT EXCEED 40'-0" O.C. NOR 15'-0" FROM ANY CORNER.

15. ANCHOR BOLTS SHALL CONFORM TO ASTM F1554 GRADE 36 UNLESS NOTED OTHERWISE.

16. CURING REQUIREMENTS:

   a) SLABS TO BE COVERED WITH A FINISH MATERIAL MAY BE SPRAYED WITH A CURING COMPOUND OR WET CURED AT CONTRACTOR'S OPTION. CONTRACTOR TO VERIFY COMPATIBILITY OF CURING COMPOUND WITH FINISH MATERIAL.
   b) ALL SLABS AND WALLS EXPOSED TO VIEW SHALL BE WET CURED FOR A MINIMUM OF 7 DAYS.

17. VAPOR RETARDER (VAPOR BARRIER): UNLESS NOTED OTHERWISE PROVIDE 15 MIL VAPOR BARRIER COMPLYING DIRECTLY UNDER SLAB COMPLYING WITH ASTM E-1745 CLASS A PLACED OVER MINIMUM 4" THICK CONSOLIDATED LAYER OF GRANULAR FILL (#57 STONE UNLESS NOTED OTHERWISE). PLACE PROTECT AND REPAIR SHEET VAPOR RETARDER ACCORDING TO ASTM E-1643 AND MANUFACTURER'S WRITTEN INSTRUCTIONS. LAP JOINTS 6" AND SEAL WITH MANUFACTURER'S RECOMMENDED TAPE.

STRUCTURAL STEEL

1. STRUCTURAL STEEL FABRICATION, ERECTION, AND CONNECTION DESIGN SHALL CONFORM TO AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" LATEST EDITION.

2. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING DESIGNATIONS:

STRUCTURAL STEEL WF SHAPES:	ASTM A992
OTHER STRUCTURAL STEEL SHAPES:	ASTM A36, U.N.O.
STEEL BARS, ANGLES & PLATES:	ASTM A36, U.N.O.
ROUND PIPE:	ASTM A53, TYPE E OR S
SQUARE OR RECTANGULAR TUBING:	ASTM A500, GRADE B

3. FIELD CONNECTIONS SHALL BE BOLTED USING 3/4" DIAMETER ASTM A325N HIGH STRENGTH BOLTS (UNO) EXCEPT WHERE SLIP CRITICAL CONNECTIONS ARE REQUIRED AND NOTED BY A325(SC) ON THE DRAWINGS.

4. FULL DEPTH CONNECTIONS ARE TO BE USED ON ALL GIRDER AND BEAM CONNECTIONS TO COLUMNS. BOLTS TO BE AT 3" O.C. VERTICAL.

5. PROVIDE A MINIMUM 3/8" THICK FULL DEPTH THRU-PLATE FOR ALL PIPE AND TUBE COLUMN CONNECTIONS.

6. DESIGN CONNECTIONS FOR THE MINIMUM SHEAR CAPACITIES NOTED IN THE AISC BEAM TABLES, OR FOR THE REACTIONS SHOWN ON THE DRAWINGS, WHICHEVER IS GREATER.

7. ALL WELDING SHALL CONFORM TO AWS D1.1-LATEST EDITION. ELECTRODES SHALL BE E70XX.

8. ALL ALUMINUM AND STEEL MEMBERS TO BE TREATED OR PROPERLY SEPARATED TO PREVENT GALVANIC AND CORROSIVE EFFECTS.

9. SUBMIT ALL STEEL SHOP DRAWINGS FOR APPROVAL PRIOR TO ANY FABRICATION.

10. STEEL FABRICATOR IS SOLELY RESPONSIBLE FOR SURVEYING AND VERIFICATION OF EXISTING CONDITIONS INCLUDING, BUT NOT LIMITED TO THE LOCATION, ELEVATION, AND DIMENSIONS OF EXISTING WALLS AND FRAMING.

11. SPANDREL ANGLE TO BE ADJUSTABLE. SHIP ANGLE LOOSE AND SET WITH STRING LINE IN FIELD FOR VERTICAL AND HORIZONTAL ALIGNMENT AFTER STEEL IS FULLY ERECTED TO A MAXIMUM TOLERANCE OF 1/4" (HORIZONTAL) PER BAY/PER FLOOR AND MUST BE SET PLUMB PRIOR TO STUD ERECTION BY STEEL ERECTOR. ANGLE MUST BE INSTALLED IN ONE LENGTH PER BAY (SEE TYPICAL SPANDREL ANGLE DETAIL).

12. THERE SHALL BE NO FIELD CUTTING OF STRUCTURAL STEEL MEMBERS FOR THE WORK OF OTHER TRADES WITHOUT THE PRIOR APPROVAL OF THE DESIGN PROFESSIONAL.

13. FABRICATE BEAMS WITH THE NATURAL CAMBER UP. (PROVIDE CAMBER AS INDICATED).

14. ALL STEEL NOT RECEIVING FIREPROOFING SHALL BE PAINTED WITH THE FABRICATOR'S RUST INHIBITIVE PRIMER. ALL STEEL EXPOSED TO WEATHER SHALL BE PAINTED WITH RUST INHIBITIVE PRIMER AND TOP COATED OR HOT DIPPED GALVANIZED AS INDICATED ON THE DRAWINGS.

STEEL JOISTS

1. STEEL JOISTS SHALL BE DESIGNED, FABRICATED AND ERECTED TO THE REQUIREMENTS OF THE SPECIFICATIONS OF THE STEEL JOISTS INSTITUTE FOR SERIES K JOISTS, SERIES LH JOISTS AND SERIES DLH JOISTS AND SERIES G JOIST GIRDERS.

2. MANUFACTUER SHALL BE A MEMBER OF THE STEEL JOIST INSTITUTE. ALL BRIDGING TO BE IN ACCORDANCE WITH SJI STANDARDS AND OSHA REQUIREMENTS UNLESS NOTED OTHERWISE OR THE DRAWINGS.

3. ALL BRIDGING AND BRIDGING ANCHORS SHALL BE COMPLETELY INSTALLED BEFORE CONSTRUCTION LOADS ARE PLACED ON THE JOISTS. ALL ROOF JOISTS BRIDGING SHALL BE FIELD WELDED. BRIDGING SHALL SUPPORT THE TOP CHORDS AGAINST LATERAL MOVEMENT DURING THE CONSTRUCTION PERIOD AND SHALL HOLD THE STEEL JOIST IN APPROXIMATE POSITIONS AS SHOWN ON THE PLANS. BRIDGING SHALL BE MINIMUM L1"x1"x1/8".

4. JOISTS ARE TO BE CONNECTED TO STEEL BEAMS AND BEARING PLATES BY FIELD WELDING PERIOD. EXTEND, CONNECT AND WELD BOTTOM CHORDS OF JOISTS AT ALL COLUMNS AND WHERE NOTED ON DRAWINGS. DESIGN BOTTOM CHORD OF EACH JOIST GIRDER FOR A COMPRESSIVE LOAD OF ___ KIPS.

5. ALL JOISTS SHALL HAVE A SHOP COAT OF RUST INHIBITIVE NON-BITUMINOUS PAINT.

6. PROVIDE RIGID CONNECTION WITH BOTTOM CHORDS TO COLUMNS ON ALL JOISTS GIRERS, LH JOISTS AND DLH JOISTS. ONLY AFTER ALL DEAD LOADS ARE APPLIED.

COLD FORMED STEEL FRAMING

1. THE EXTENT OF THE WORK FOR THE EXTERIOR METAL STUD WALL SYSTEM IS DETAILED ON THE ARCHITECTURAL DRAWINGS. THESE NOTES SHALL BE WORKED IN CONJUNCTION WITH THOSE DRAWINGS AND THE SPECIFICATIONS. INCONSISTENCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO PROCEEDING WITH THE AFFECTED PORTION OF THE WORK.

2. ALL STUDS, JOISTS AND ACCESSORIES SHALL BE OF THE TYPE, SIZE, STEEL THICKNESS AND SPACING SHOWN ON THE PLANS, AS MANUFACTURED BY MARINO INDUSTRIES. EQUIVALENT PRODUCTS BY OTHER MANUFACTURERS MAY BE SUBMITTED WITH ENGINEER'S PRIOR APPROVAL. SUBSTITUTIONS MUST MEET OR EXCEED MARINO PROPERTIES. PRODUCTS FAILING TO MEET THESE MINIMUM PROPERTIES WILL BE REJECTED. ALL STUDS TO BE MARINO TYPE SW (1 5/8" FLANGE WIDTH) OR GREATER U.N.O.

3. STUDS, TRACK AND BRACING SHALL BE MANUFACTURED PER ASTM SPECIFICATION C-955.

4. ALL GALVANIZED STUDS, JOISTS AND ACCESSORIES 12, 14 AND 16 GAUGE SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM A446, GRADE D, WITH A MINIMUM SPECIFIED YIELD STRENGTH OF 50,000 PSI.

5. ALL GALVANIZED STUDS, JOISTS AND ACCESSORIES, 18 GAUGE OR LIGHTER, SHALL BE FORMED FROM STEEL THAT CONFORMS TO THE REQUIREMENTS OF ASTM A446, GRADE A, WITH A MINIMUM SPECIFIED YIELD STRENGTH OF 33,000 PSI.

6. ALL MEMBERS AND ACCESSORIES SHALL BE HOT DIPPED GALVANIZED PER ASTM A525 AND SHALL HAVE A MINIMUM G-60 COATING.

7. ALL LIGHT GAUGE MEMBERS ARE DESIGNED IN ACCORDANCE WITH AISI, "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS", LATEST EDITION.

8. PROVIDE CHANNEL SHAPED STUDS, RUNNERS, TRACKS, BLOCKING, CLIP ANGLES, SHOES, REINFORCEMENTS, FASTENERS AND OTHER ACCESSORIES RECOMMENDED BY THE MANUFACTURER FOR A COMPLETE FRAMING SYSTEM.

9. FRAME ALL OPENINGS LARGER THAN 2' WITH A MINIMUM OF DOUBLE STUDS EACH SIDE OR AS SHOWN ON THE DESIGN DRAWINGS.

10. TRACK SHALL BE ATTACHED TO FOUNDATIONS, WOOD PLATES AND OTHER STRUCTURAL COMPONENTS AS SHOWN ON DRAWINGS. SECURELY ANCHOR STUDS IN TRACK TO FLOOR CONSTRUCTION AND OVERHEAD STRUCTURE. PROVIDE SLIP JOINTS WHERE NON-BEARING VERTICAL STUDS MEET FLOOR OR ROOF STRUCTURAL MEMBER. ALLOW 3/4" OF VERTICAL DEFLECTION AT SLIP JOINTS.

11. ALL COLD FORM TO COLD FORM STEEL CONNECTIONS SHALL BE MADE WITH NO. 10 TEKS/3 SCREWS OF APPROPRIATE LENGTH UNLESS OTHERWISE SHOWN ON THE PLANS. PENETRATION OF JOINED MATERIAL SHALL NOT BE LESS THAN 3 EXPOSED THREADS.

12. ATTACH SHEATHING AND GYPSUM WALLBOARD TO STUDS AND JOISTS PER MANUFACTURER'S RECOMMENDATIONS UNLESS OTHERWISE SHOWN ON THE PLAN.

13. AXIALLY LOADED STUDS SHALL BE SEATED SQUARELY AGAINST THE WEB OF THE TOP AND BOTTOM TRACK. STUDS SHALL BE PLUMB AND SECURELY ATTACHED TO FLANGES OF THE TOP AND BOTTOM TRACK. TRACK SHALL NOT BE USED TO SUPPORT ANY LOADS UNLESS SPECIFICALLY DESIGNED FOR THE PURPOSE.

14. SPLICES IN AXIALLY LOADED STUDS SHALL NOT BE PERMITTED.

15. ALL AXIALLY LOADED MEMBERS SHALL BE ALIGNED VERTICALLY TO ALLOW FOR FULL TRANSFER OF LOAD TO THE FOUNDATION.

16. INSTALL BUILT-UP HEADERS IN ALL OPENINGS LARGER THAN STUD SPACING.

17. ALL BUILT-UP HEADERS SHALL HAVE WEB STIFFENERS AT BEARING POINTS AND INTERMEDIATE WEB STIFFENERS AT POINTS OF CONCENTRATED LOADS.

18. JOISTS SHALL BE LOCATED DIRECTLY OVER BEARING STUDS AND HAVE THEIR WEB AREA PERPENDICULAR TO THE BEARING SURFACE.

19. HORIZONTAL STUD BRACING SHALL BE 18 GAUGE x 2" WIDE STEEL STRAPS OR MANUFACTURERS STANDARD BRIDGING CHANNELS. BRACING SHALL BE CONTINUOUS AND LOCATED AT 4'-0" O.C. MAX. FOR THE FULL HEIGHT OF ALL LOAD BEARING WALLS. SIMILARLY, PROVIDE BRACING FOR NON-LOAD BEARING WALLS UNTIL PERMANENT FACING MATERIAL (GYPSUM SHEATHING OR PLYWOOD) IS INSTALLED. ALL STRAPS SHALL BE SECURELY ANCHORED TO A STRUCTURAL MEMBER AT EACH END CAPABLE OF RESISTING ALL TEMPORARY BRACING FORCES. BRACES ARE TO BE INSTALLED ON BOTH SIDES OF THE WALL UNLESS NOTED OTHERWISE AND ATTACHED TO ALL LOAD BEARING STUDS.

20. AT TRACK BUTT JOINTS, TRACK MUST BE ANCHORED TO A COMMON STRUCTURAL ELEMENT.

21. ALL PERMANENT AND TEMPORARY BRACING, BLOCKING, STRAPPING AND WEB REINFORCEMENT SHALL BE INSTALLED PRIOR TO LOADING OF ANY STRUCTURAL MEMBER.

22. STUD FRAMING SUBCONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CALCULATIONS MEETING THE PROJECT SPECIFICATIONS AND THE REQUIREMENTS OF THE DESIGN DOCUMENTS. SHOP DRAWINGS SHALL ILLUSTRATE THE DESIGN OF THE STEEL STUD EXTERIOR WALL FRAMING AND SHOW ALL STEEL STUD WALL FRAMING CONNECTIONS, SHEATHING ATTACHMENTS, STIFFENERS, ALL WALL OPENINGS, BUILT-UP HEADER AND POST LOCATIONS, AS WELL AS ALL PERMANENT AND TEMPORARY WALL BRACING AND THEIR LOCATIONS.

23. THE EXTERIOR WALL SYSTEM SHALL BE DESIGNED FOR A MAXIMUM ALLOWABLE HORIZONTAL DEFLECTION OF L/600 OF THE SPAN MEASURED FROM POINT OF ATTACHMENT TO STRUCTURAL STEEL OR CONCRETE, INCLUDING EFFECTIVE STUDS ONLY. THE DESIGN WIND PRESSURE SHALL BE A MINIMUM 36 POUNDS PER SQUARE FOOT.

24. PERFORM WELDING OF ALL LIGHT GAUGE STEEL FRAMING IN ACCORDANCE WITH AWS D1.3 (SPECIFICATION FOR WELDING SHEET STEEL IN STRUCTURES).

25. CUT ALL LIGHT GAUGE STEEL FRAMING MEMBERS WITH SAWS OR SHEARS. FLAME CUTTING IS NOT PERMITTED.

26. THE LIGHT GAUGE STEEL FRAMING SUPPLIER AND ERECTOR SHALL HAVE A MINIMUM 5 YEARS EXPERIENCE IN THE FABRICATION AND ERECTION OF LIGHT GAUGE STEEL FRAMING SYSTEMS.

METAL DECKING

1. METAL DECKING SHALL CONFORM TO THE FOLLOWING DESIGNATIONS:

COMPOSITE FLOOR DECK	ASTM A653, GRADE 40
ROOF DECK	ASTM A653, GRADE 33
ROOF DECK, ACOUSTIC	ASTM A653, GRADE 40
FORM DECK	ASTM A653, GRADE 80

2. METAL DECK SHALL CONFORM TO AISI'S "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS", TO SDI'S "DESIGN MANUAL FOR THE FLOOR AND ROOF DECKS", AND TO SDI'S. "MANUAL OF CONSTRUCTION WITH STEEL DECK".

3. WELDING SHALL CONFORM TO AWS D1.3 "STRUCTURAL WELDING CODE – SHEE STEEL".

4. PROVIDE WELDING WASHERS FOR DECK LIGHTER THAN 22 GAGE.

5. SPECIFIED ROOF DECK HAS BEEN DESIGNED TO BE CONTINUOUS OVER 3 SPANS MINIMUM. FOR ONE OR TWO SPAN CONDITIONS, PROVIDE HEAVIER GAGE DECK AS REQUIRED TO SUPPORT APPLICABLE LOADS.

6. SPECIFIED COMPOSITE FLOOR DECK HAS BEEN DESIGNED FOR 3 SPAN UNSHORED CONSTRUCTION. FOR ONE OR TWO SPAN CONDITIONS, PROVIDE HEAVIER GAGE DECK OR SHORING AS REQUIRED TO SUPPORT APPLICABLE LOADS.

7. METAL DECK SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES PER FOOT OF WIDTH:

   1 ½" COMP FLOOR DECK, WIDE RIB, 20 GAGE:
   I = 0.237 IN4, S = 0.267 IN3
   2" COMP FLOOR DECK, 20 GAGE:
   I = 0.420 IN4, S = 0.367 IN3
   3" COMP FLOOR DECK, WIDE RIB, 20 GAGE:
   I = 0.993 IN4, S = 0.583 IN3
   1 ½" ROOF DECK, WIDE RIB, 20 GAGE:
   I = 0.22 IN4, S = 0.25 IN3
   3" ROOF DECK, TYPE NS, 20 GAGE:
   I = 0.82 IN4, S = 0.49 IN3
   2" ACOUSTIC ROOF DECK, 20 GAGE (EPIC ER2RA):
   I = 0.454 IN4, S = 0.326 IN3
   3 ½" ACOUSTIC ROOF DECK, 20 GAGE (EPIC ER3.5A):
   I = 1.660 IN4, S = 0.64 IN3
   9/16" FORM DECK, 26 GAGE:
   I = 0.015 IN4, S = 0.043 IN3
   1" FORM DECK, 26 GAGE:
   I = 0.039 IN4, S = 0.066 IN3
   1 5/16" FORM DECK, 26 GAGE:
   I = 0.070 IN4, S = 0.087 IN3

8. FASTEN COMPOSITE FLOOR AND ROOF DECK PANELS TO SUPPORTING STEEL MEMBERS WITH 5/8" DIA PUDDLE WELDS AT 12" O.C. (36/4 PATTERN). FASTEN TO PERIMETER STEEL MEMBERS AT 12" O.C.

9. MECHANICALLY FASTEN COMPOSITE FLOOR AND ROOF DECK SIDE LAPS WITH SELF DRILLING NO. 10 SCREWS AT MIDSPAN OR 36" (MAX) O.C.

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S001

ADDENDUMS / REVISIONS		

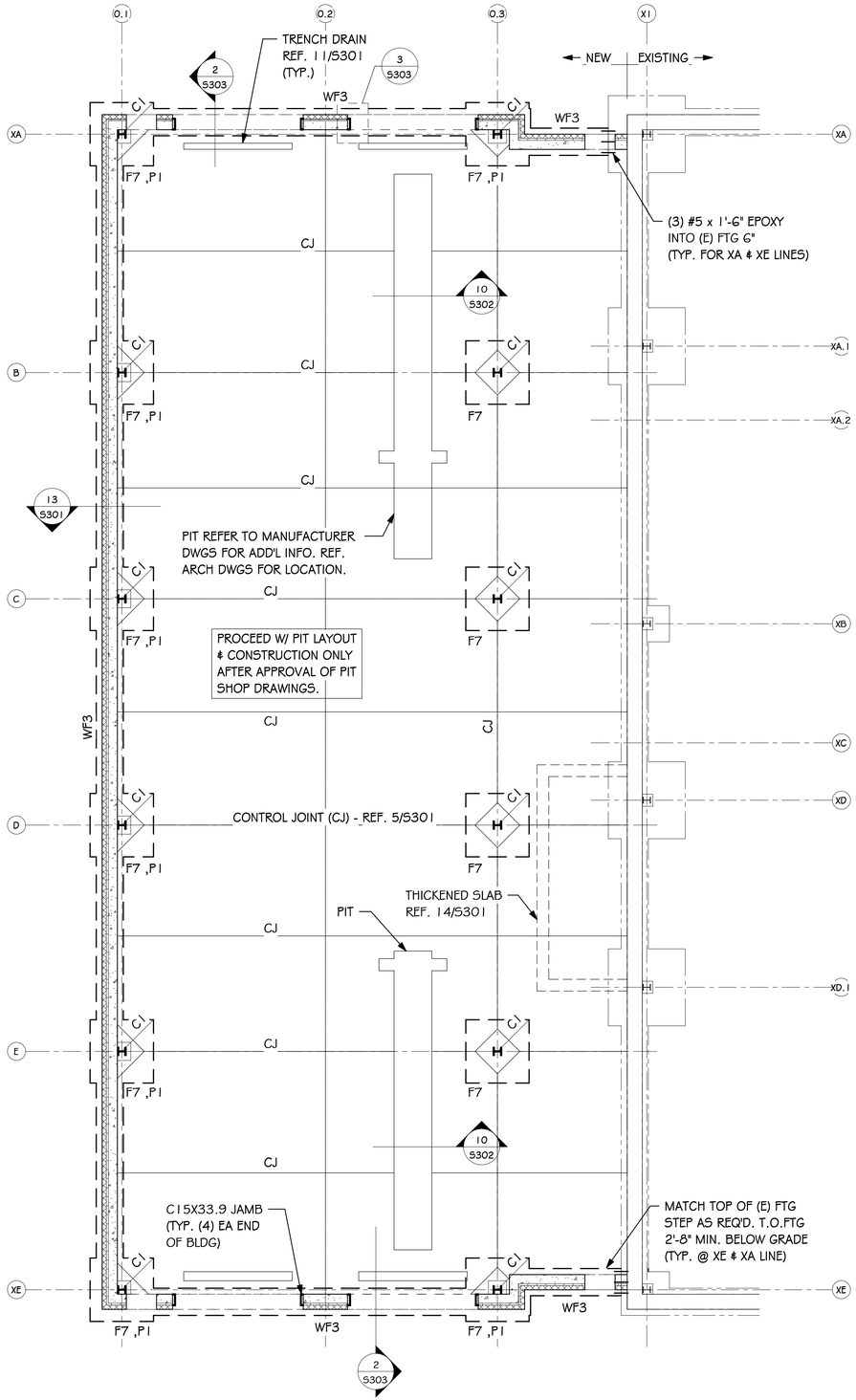
MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT: T201953104.03	BRIDGE NO. N/A	STRUCTURAL NOTES
	COUNTY: NEW CASTLE	DESIGNED BY: CJM	SECTION: BIA
		CHECKED BY: CJM	SHEET NO. 35

FOUNDATION & FIRST FLOOR PLAN NOTES:

1. FIRST FLOOR REFERENCE ELEVATION = 0'-0". (REF. SITE PLAN)
2. ELEVATIONS ARE NOTED FROM REF. EL. 0'-0" AS FOLLOWS:
   (-#'-#") INDICATES TOP OF PIER
   [-#'-#"] INDICATES TOP OF FOOTING
3. FOUNDATION MEMBERS SHALL BE AT THE FOLLOWING ELEVATIONS, U.N.O.:
   PIERS T/PIER (-0'-8") U.N.O.
   FLOOR SLAB T/SLAB (0'-0") - U.N.O.
   EXTERIOR FTGS T/FTG [-2'-8"] U.N.O.
   - STEP FTGS AS REQ'D TO PROVIDE MIN. 2'-8" FROM FIN. GRADE TO BOTT. OF FTG. COORD. W/ CIVIL.
   - STEP FOOTING @ PIPES CROSSING WALLS. SEE 'STEP FOOTING AT PIPE CROSSING' AND 'PIPE CROSSING BELOW WALL FTG' TYP. DETAILS. CONTR. TO COORD. W/ ALL M/E/P DRAWINGS.
   INTERIOR FTGS T/FTG [-1'-4"] U.N.O.
4. FOUNDATION MEMBERS ARE DESIGNATED AS FOLLOWS:
   F#.# FOOTING MARK - SEE SCHEDULE
   P# PIER MARK - SEE FOUNDATION SECTIONS. ALL PIERS ARE P1 U.N.O.
5. PROVIDE THICKENED SLAB UNDER INTERIOR NON-STRUCTURAL CMU WALLS AS REQUIRED, SEE TYPICAL DETAILS AND ARCH DRAWINGS.
6. COORDINATE WITH ARCH., MECH., ELEC. AND PLMB DRAWINGS FOR FLOOR SLOPES, DRAINS, OPENINGS, DEPRESSIONS, ETC.
7. REF. TO ARCH. DRAWINGS FOR DIMENSIONS NOT SHOWN.
8. REF. TO STRUCTURAL NOTES DRAWINGS S-001.
9. REF. TO TYPICAL DETAILS ON DRAWING S-301.
10. REF. ARCH. DRAWINGS AND SITE PLANS FOR ELEVATION OF BRICK SHELF. TOP OF BRICK SHELF TO BE A MIN. OF 8" BELOW FINISHED GRADE. CONTRACTOR TO COORDINATE.
11. TYPICAL SLAB ON GRADE CONST.: 9" SLAB W/ 8" STONE LAYER. REINF. W/ #5 @ 12" o.c. EACH WAY U.N.O. REF. TYPICAL DETAILS. SEE SPECS FOR VAPOR BARRIER.

FOOTING SCHEDULE			
MARK	SIZE	THICK.	REINFORCING
F7	7'-0" x 7'-0"	1'-2"	7 #5 E.W. BOTT.
WF3	3'-0" x CONT.	1'-0"	4 #4 LONGIT #4 @ 48" TRANSV.

COLUMN & BASE PLATE SCHEDULE			
MARK	SIZE	BASE PLATE	ANCHOR BOLTS
C1	W10X77	16" x 16" x 1"	(4) 1" DIA



P1 / S101 FOUNDATION PLAN
1/8" = 1'-0"

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S101

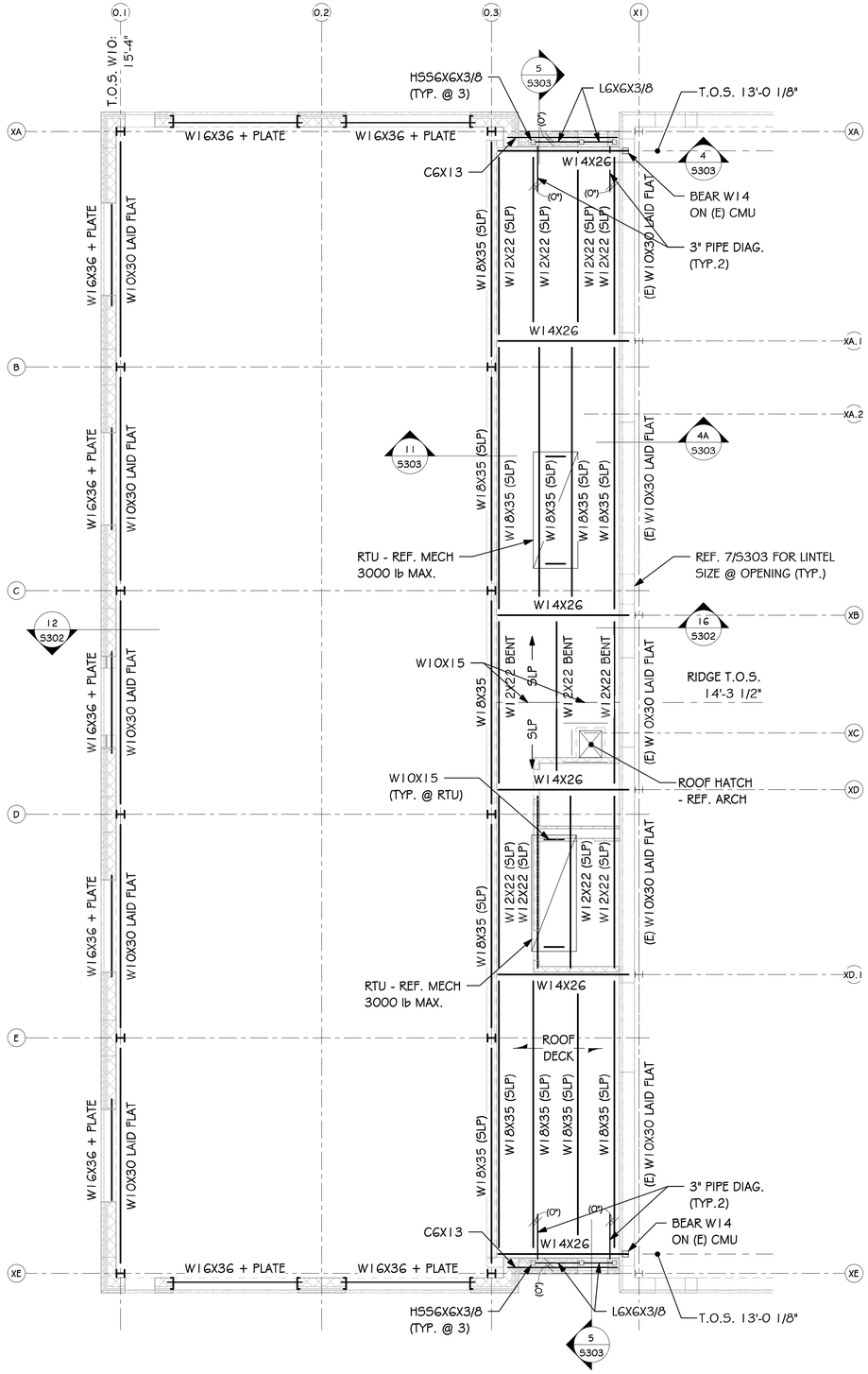
ADDENDUMS / REVISIONS			
	1	7-6-22	ADDENDUM #1

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: CJM	
COUNTY	CHECKED BY: CJM	
NEW CASTLE		

FOUNDATION PLAN

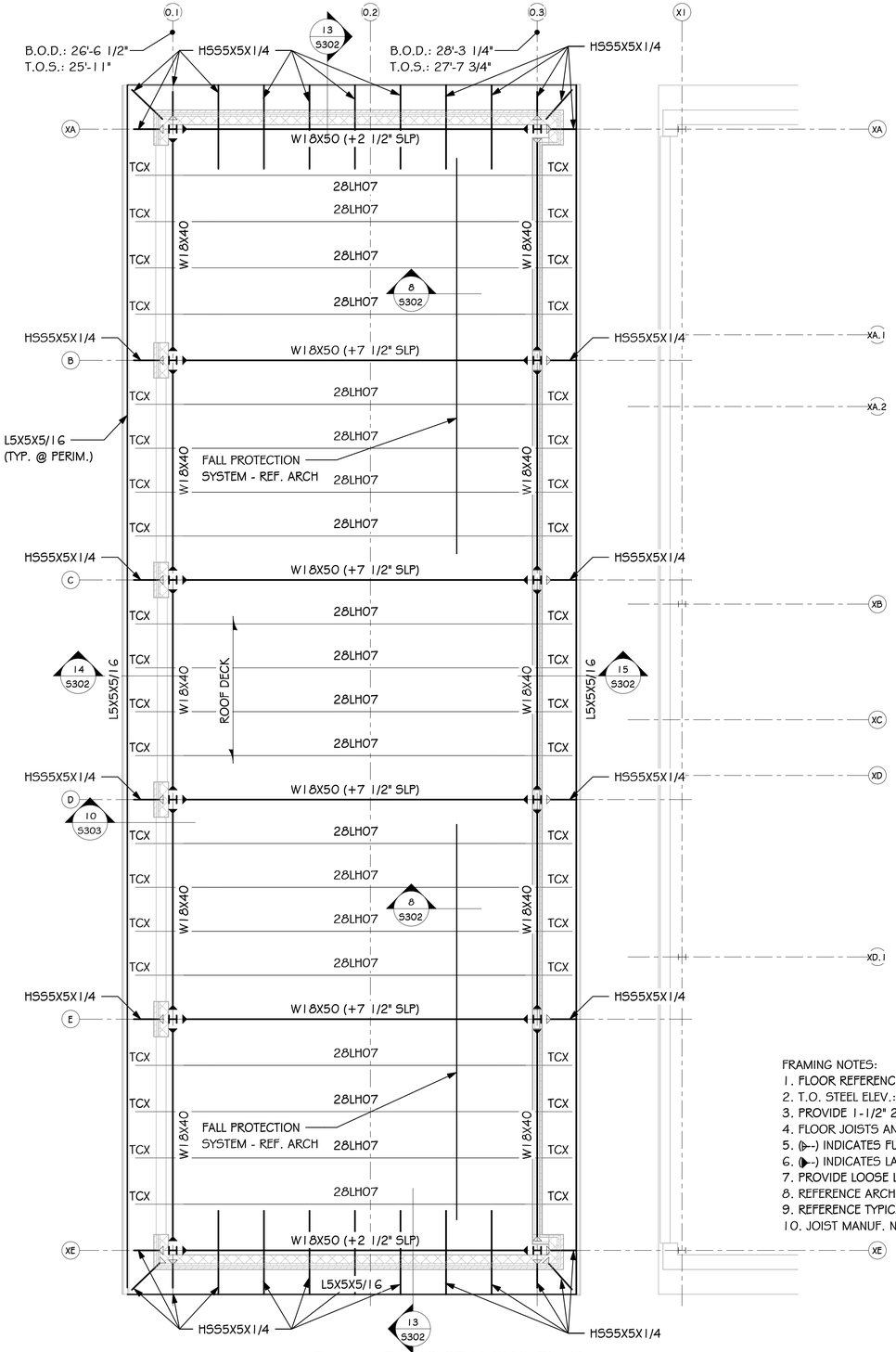
SECTION
BIA
SHEET NO.
36



P1 5102 LOW ROOF FRAMING PLAN

1/8" = 1'-0"

LOW ROOF T.O.S. @ LOW POINT: 13'-0 1/8"



P2 5102 ROOF FRAMING PLAN

1/8" = 1'-0"

FRAMING NOTES:
1. FLOOR REFERENCE DATUM: 0'-0"
2. T.O. STEEL ELEV.: VARIES (SEE PLAN)
3. PROVIDE 1-1/2" 20 GA. GALV. ROOF DECK (IN MIN 3 SPAN LENGTHS)
4. FLOOR JOISTS AND BEAMS SHALL BE EQUALLY SPACED IN BAY U.N.O.
5. (▶—) INDICATES FULL MOMENT CONNECTION.
6. (◗—) INDICATES LATERAL MOMENT CONNECTION REFERENCE 9/5302.
7. PROVIDE LOOSE LINTELS PER LINTEL SCHEDULE ON NOTE SHEET.
8. REFERENCE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN.
9. REFERENCE TYPICAL FOR TYPICAL DETAILS.
10. JOIST MANUF. NOTE: PROVIDE 7 1/2" SEAT EA END.

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S102

ADDENDUMS / REVISIONS	

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: CJM	
COUNTY	CHECKED BY: CJM	
NEW CASTLE		

LOW ROOF & ROOF FRAMING PLAN

SECTION
BIA
SHEET NO.
37

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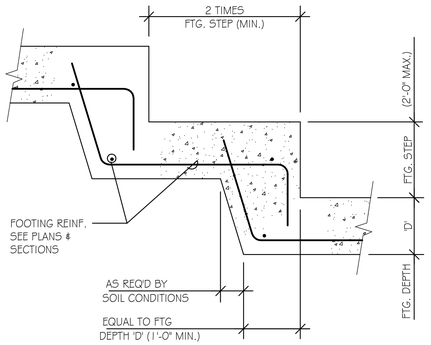
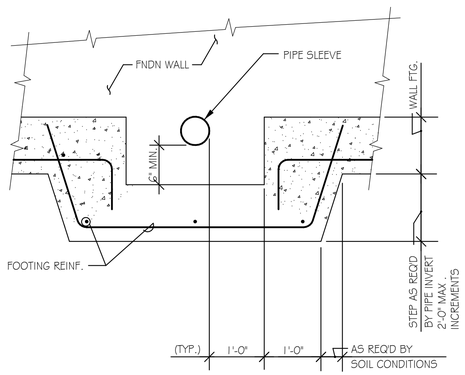
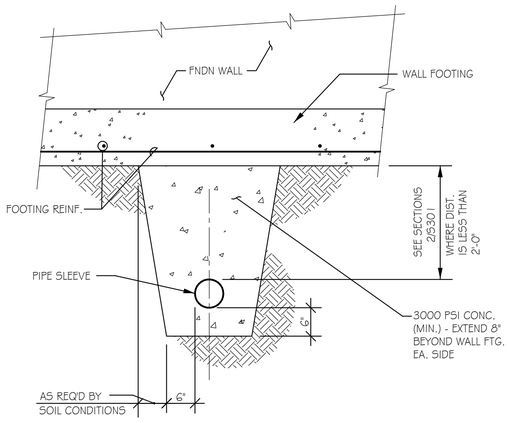


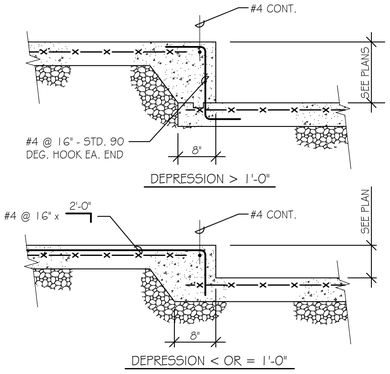
1 5301 FOOTING STEP DETAIL
NOT TO SCALE



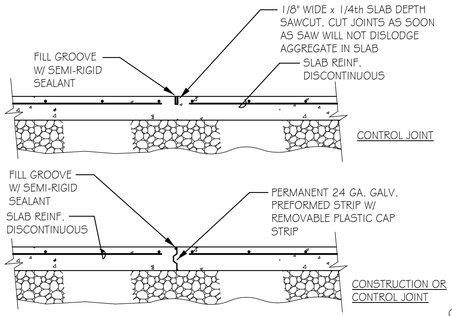
2 5301 STEP FTG. @ PIPE CROSSING
NOT TO SCALE



3 5301 PIPE CROSSING BELOW WALL FTG.
NOT TO SCALE

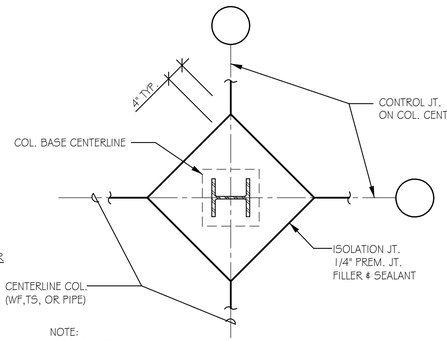


4 5301 SLAB DEPRESSION DETAILS
NOT TO SCALE



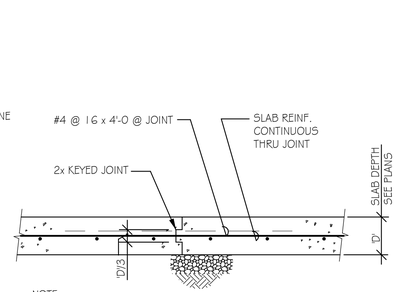
NOTE:
1. PROVIDE CONTROL JOINTS AS SHOWN - U.N.O.
2. CONTROL JOINTS MAY BE SAWCUT OR FORMED AS INDICATED ABOVE.
3. CONTRACTOR TO ADEQUATELY BRACE AND MAINTAIN GALV. STRIP TO MAINTAIN STRAIGHT ALIGNMENT OF SCREED.

5 5301 SLAB CONST/CONTROL JOINT
NOT TO SCALE



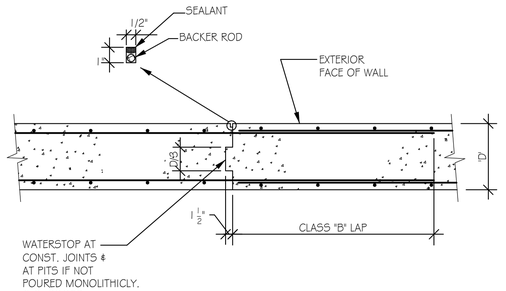
NOTE:
1. POUR CONC. WITHIN ISOLATION JT. DOWN TO TOP OF PIER.
2. ISOLATION JOINT SIMILAR @ PERIMETER COLS.

6 5301 SLAB ISOLATION JT @ COLS
NOT TO SCALE



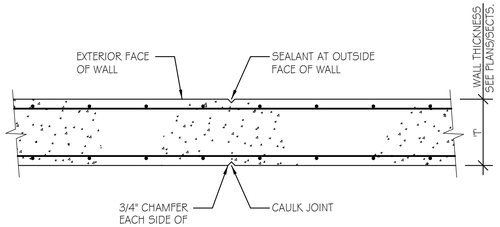
NOTE:
SUBMIT PLANS SHOWING CONSTRUCTION JOINT LOCATION IN ALL SLABS. JOINTS SHALL BE LOCATED INT. THE MIDDLE THIRD OF THE SLAB.

7 5301 SLAB ON GRADE CONSTRUCTION JOINT
NOT TO SCALE



NOTE:
'D' DENOTES WALL THICKNESS. SEE PLAN

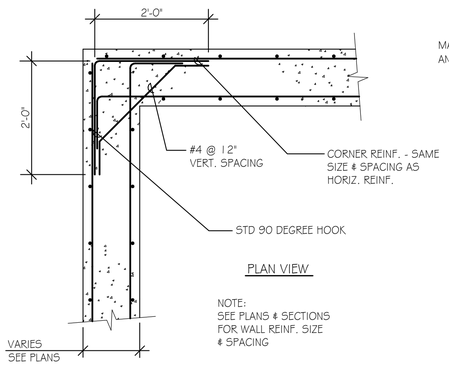
8 5301 WALL CONSTRUCTION JOINT
NOT TO SCALE



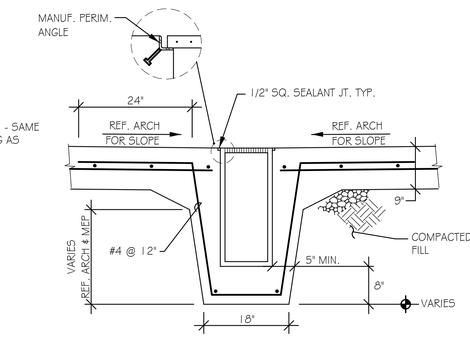
PLAN VIEW

NOTES:
1. SEE CONCRETE NOTES FOR CONTROL JOINT SPACING.
2. SEE PLAN FOR WALL REINFORCEMENT.

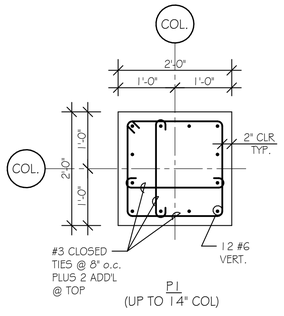
9 5301 WALL CONTROL JOINT
NOT TO SCALE



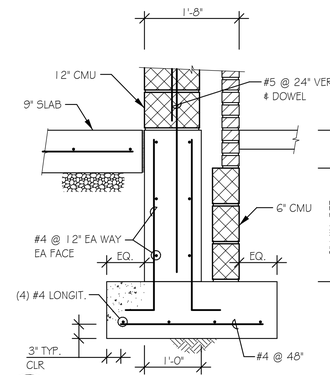
10 5301 WALL REINF. @ CORNERS
NOT TO SCALE



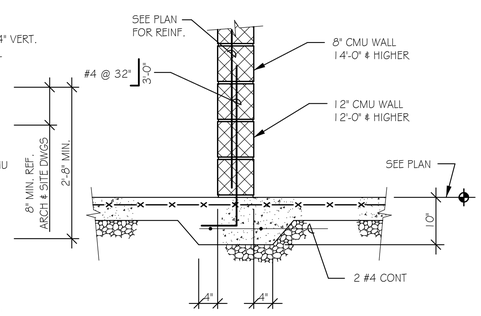
11 5301 DETAIL @ TRENCH DRAIN
3/4" = 1'-0"



12 5301 PIER DETAILS
3/4" = 1'-0"



13 5301 TYPICAL FOUNDATION
3/4" = 1'-0"



14 5301 THICKENED SLAB DETAIL
3/4" = 1'-0"

S301

ADDENDUMS / REVISIONS					
			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT T201953104.03	BRIDGE NO. N/A
				COUNTY NEW CASTLE	DESIGNED BY: CJM
					CHECKED BY: CJM
			TYPICAL SECTIONS & DETIALS	SECTION BIA	SHEET NO. 38

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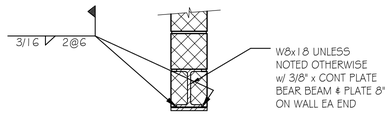
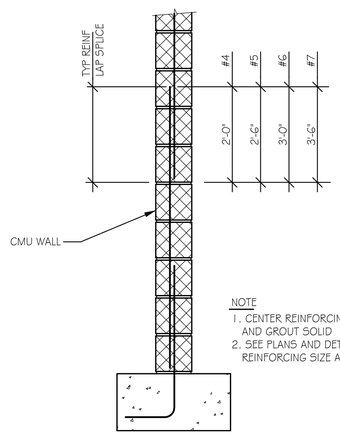


1 / S302 SECTION @ WF LINTEL
3/4" = 1'-0

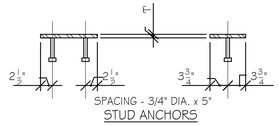
NOTE: PROVIDE MASONRY TIES IN BEAM WEB @ 16"o.c. TO TIE HEAD JOINTS OF INFILL CMU



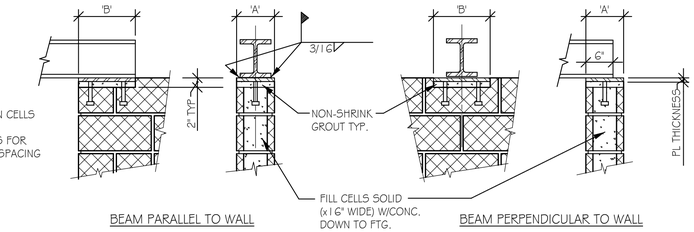
NOTE
1. CENTER REINFORCING IN CELLS AND GROUT SOLID
2. SEE PLANS AND DETAILS FOR REINFORCING SIZE AND SPACING

2 / S302 REINF. LAP SPLICE DETAIL
NOT TO SCALE

BEARING PL SCHEDULE			
MARK	'A'	'B'	'T'
PL 1	7 1/2"	8"	1/2"
PL 2	7 1/2"	10"	1/2"
PL 3	7 1/2"	12"	3/8"
PL 4	7 1/2"	14"	3/4"

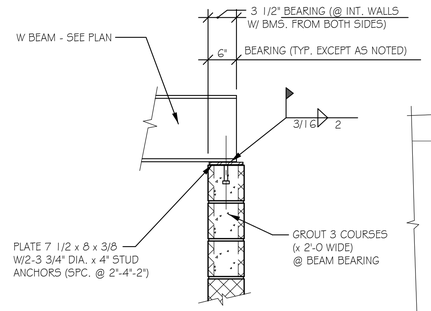


STUD ANCHORS

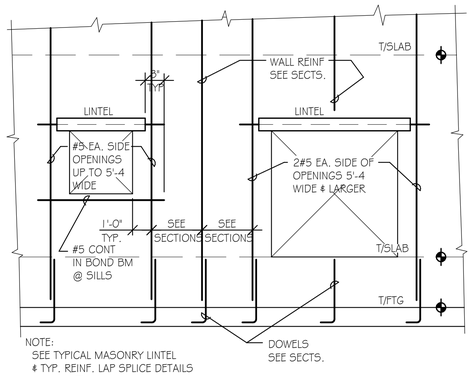


BEAM PARALLEL TO WALL BEAM PERPENDICULAR TO WALL

3 / S302 STEEL BM CMU WALL BEARING DETAILS
3/4" = 1'-0



4 / S302 BEAM CMU WALL BEARING DETAIL
3/4" = 1'-0



NOTE:
SEE TYPICAL MASONRY LINTEL & TYP. REINF. LAP SPLICE DETAILS

5 / S302 REINF @ MASONRY WALL OPENINGS
NOT TO SCALE

DETAIL 'A'

NOTE:
COORD SIZE & LOCATION OF CURBS & OPENINGS W/ DIVISION 15 CONTR.

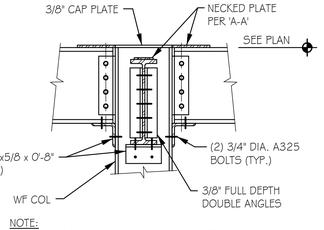
6 / S302 FRMG @ ROOF EQUIP CURBS & OPNGS
3/4" = 1'-0

NOTE:
NO JOIST ANGLE REINF. REQ'D. FOR LOADS UP TO 50#.

7 / S302 POINT LOAD JOIST REINFORCING
3/4" = 1'-0

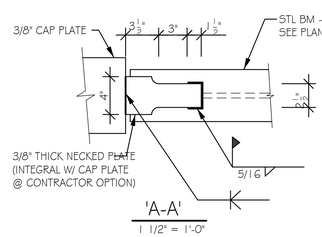
* REDUCE AS REQ'D BASED ON 3" CLEAR TO BOT OF FOOTING

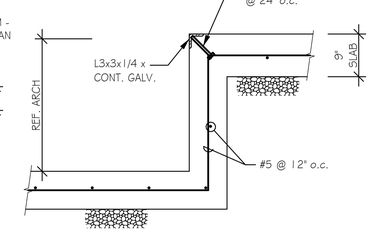
8 / S302 BASE PL DETAILS
3/4" = 1'-0



NOTE:
1. ALL BM/COL CONNS SHALL BE DESIGNED SLIP CRITICAL.

9 / S302 WIND MOMENT CONN. @ ROOF (WF)
3/4" = 1'-0





10 / S302 SECTION
3/4" = 1'-0

11 / S302 ADD'L REINF. @ PIT WALL OPNG
3/4" = 1'-0

12 / S302 WIND BEAM
3/4" = 1'-0

13 / S302 HSS OUTRIGGER
3/4" = 1'-0

14 / S302 JOIST OUTRIGGER
3/4" = 1'-0

15 / S302 JOIST OUTRIGGER
3/4" = 1'-0

16 / S302 NEW BEAM TO EXIST. COL CONNX.
3/4" = 1'-0

S302

ADDENDUMS / REVISIONS			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT	BRIDGE NO. N/A	TYPICAL SECTIONS & DETAILS	SECTION
				T201953104.03	DESIGNED BY: CJM		BIA
				COUNTY	CHECKED BY: CJM		SHEET NO.
				NEW CASTLE			39

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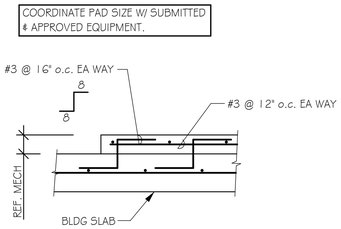
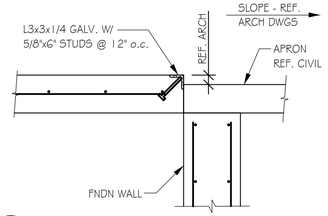
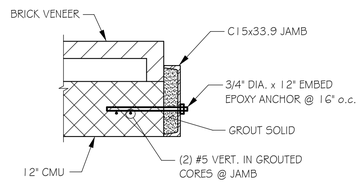


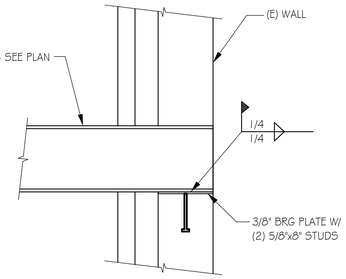
1 S303 EQUIPMENT PAD
NOT TO SCALE



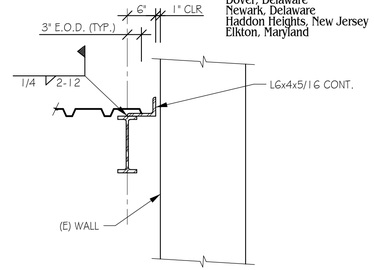
2 S303 SECTION @ GARAGE SLAB
3/4" = 1'-0"



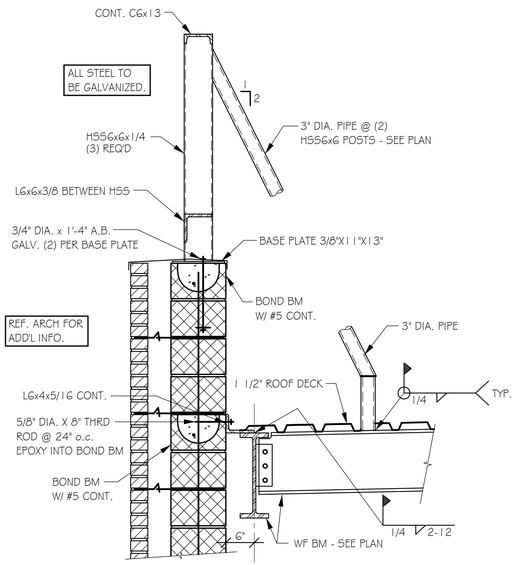
3 S303 JAMB REINF. @ SECTIONAL DOORS
3/4" = 1'-0"



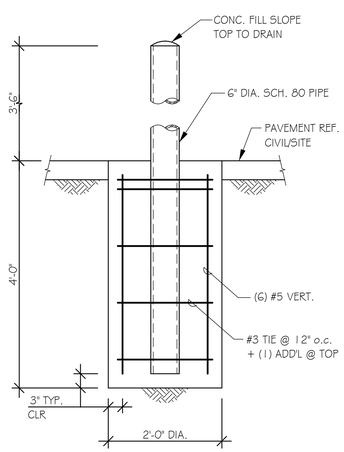
4 S303 NEW BM BEARING ON (E) WALL
3/4" = 1'-0"



4A S303 NEW BEAM @ EXIST. WALL
3/4" = 1'-0

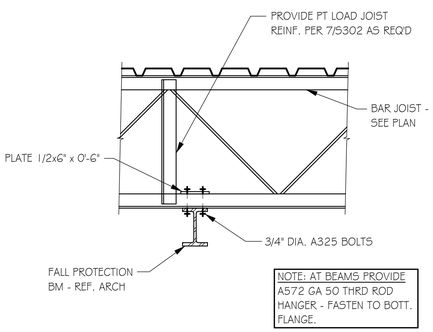


5 S303 EQUIPMENT SCREEN FRAME
3/4" = 1'-0"

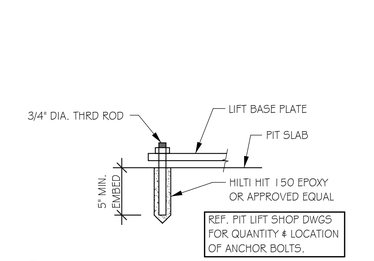


6 S303 SECTION
3/4" = 1'-0"

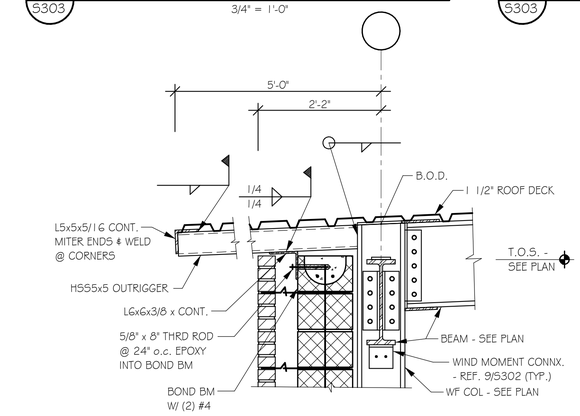
7 S303 MASONRY LINTEL DETAILS
3/4" = 1'-0



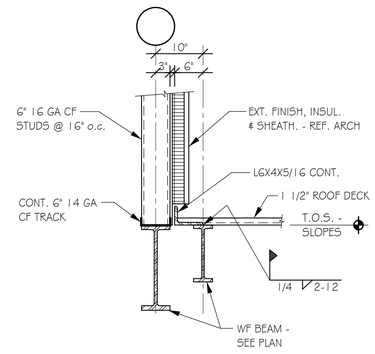
8 S303 FALL PROTECTION SUPPORT
3/4" = 1'-0"



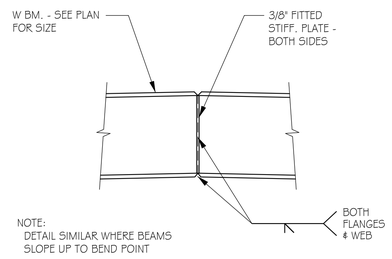
9 S303 LIFT ANCHOR DETAIL
1 1/2" = 1'-0"



10 S303 HSS OUTRIGGER @ COL
1 1/2" = 1'-0"



11 S303 SECTION
3/4" = 1'-0"



12 S303 BENT BEAM DETAIL
3/4" = 1'-0

S303

ADDENDUMS / REVISIONS			MID-COUNTY MAINTENANCE FACILITY EXPANSION	CONTRACT	BRIDGE NO. N/A	TYPICAL SECTIONS & DETAILS	SECTION
				T201953104.03	DESIGNED BY: CJM		BIA
				COUNTY			SHEET NO.
				NEW CASTLE	CHECKED BY: CJM		40

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MECHANICAL LEGEND

SYMBOL	DESCRIPTION
	FLANGED PIPE CONNECTION
	FLEXIBLE CONNECTION (PIPING)
	EXPANSION JOINT
	FLOW DIRECTION ARROW
30 PSI	PRESSURE RELIEF VALVE (NUMERALS INDICATE SETTING)
	AIR FLOW
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	PRESSURE GAUGE w/GAUGE COCK
	THERMOMETER
18"x12"	DUCT (FIRST FIGURE SIDE SHOWN)
D	DROP IN DIRECTION OF ARROW
R	RISE IN DIRECTION OF ARROW
SD	SMOKE DETECTOR
	AIR MEASURING DEVICE
	SUPPLY AIR DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
	MANUAL VOLUME DAMPER
	SQUARE TO ROUND DUCT TRANSITION
	FLEXIBLE CONNECTION
AD	ACCESS DOOR
	MOTOR OPERATED DAMPER
	DUCT TRANSITION
	RECTANGULAR BRANCH TAKE-OFF
	BELL MOUTH BRANCH TAKE-OFF
	ROUND BRANCH TAKE-OFF
	CIRCULAR AIR DIFFUSER
	CIRCULAR DUCT DROP OFF BOTTOM
	SUPPLY AIR DEVICE WITH 2'x2' LAY-IN PANEL
	RETURN AIR DEVICE WITH 2'x2' LAY-IN PANEL
	FLEX DUCT
	SUPPLY AIR DEVICE WITH PLENUM AND 2'x2' LAY-IN PANEL
	RETURN AIR DEVICE WITH PLENUM AND 2'x2' LAY-IN PANEL
	SUPPLY/OUTSIDE AIR DUCT RISER
	RETURN AIR DUCT RISER
	EXHAUST/RELIEF AIR DUCT RISER
	ELBOW WITH DOUBLE THICKNESS TURNING VANES
	ROUND DUCT RISER
ø	DIAMETER
	POINT OF CONNECTION, NEW TO EXISTING
	POINT OF DISCONNECTION FROM EXISTING
1	SYMBOL FOR SPECIFIC NOTE. NOTE APPLIES TO DRAWING ON WHICH IT OCCURS.
OS	OVERRIDE SWITCH
T	THERMOSTAT OR TEMPERATURE SENSOR
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER

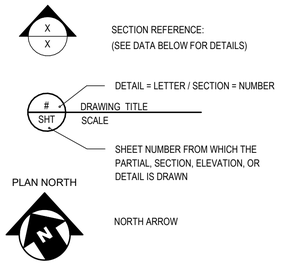
ABBREVIATIONS

AD	ACCESS DOOR
APPROX	APPROXIMATELY
BDD	BACKDRAFT DAMPER
BTU/HR	BRITISH THERMAL UNITS PER HOUR
CA	COMPRESSED AIR
CD	CONDENSATE
CFM	CUBIC FEET PER MINUTE
CLG	CEILING
COA	COMBUSTION OUTSIDE AIR
D	SUPPLY AIR DIFFUSER OR DEEP, DEPTH
DESG	DESIGNATION
DN	DOWN
DPR	DAMPER
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
EWB	ENTERING WET BULB
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
EXH	EXHAUST
°F	DEGREES FAHRENHEIT
FDR	FLOOR DRAIN
FL	FLOOR
FLA	FULL LOAD AMPERES
FT, '	FOOT, FEET OR FLASH TANK
G	NATURAL GAS PIPE OR RETURN/EXHAUST GRILLE
H	HIGH, HEIGHT
HP	HORSEPOWER
HZ	HERTZ
IN, "	INCH, INCHES
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LDB	LEAVING DRY BULB
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMAPCITY
MECH	MECHANICAL
MOD	MOTOR OPERATED DAMPER
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OAI	OUTDOOR AIR INTAKE
OAT	OUTDOOR AIR TEMPERATURE
%	PERCENT
PH	PHASE
R	RETURN/EXHAUST/SUPPLY AIR REGISTER
RA	RETURN AIR
REQ'D	REQUIRED
RF	RETURN FAN
RM	ROOM
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SF	SUPPLY FAN
TEMP, T	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UH	UNIT HEATER
V	VOLTS
VD	VOLUME DAMPER
VENT	VENTILATION
VF	VENTILATION FAN
VFD	VARIABLE FREQUENCY DRIVE
W	WIDTH, WATTS

DESIGNATIONS

EQUIPMENT DESIGNATIONS

CUH-	CABINET UNIT HEATER
EF-	EXHAUST FAN
IRH-	INFRARED HEATERS
HRV-	HEATING & VENTILATION UNIT
UH-	UNIT HEATER



GENERAL NOTES

1. WORK SHALL CONFORM TO THE CONTRACT DRAWINGS, SPECIFICATIONS AND CURRENTLY ADOPTED VERSION OF THE INTERNATIONAL PLUMBING CODE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA AND NATIONAL SAFETY CODE REQUIREMENTS.
2. THE SCOPE OF WORK INDICATED IN THESE DOCUMENTS SHALL INCLUDE PLUMBING SYSTEMS, FULLY ADJUSTED, TESTED AND READY TO USE. PROVIDE ITEMS NECESSARY TO COMPLETE THE SYSTEMS. EXAMINE WORK INDICATED FOR TRADES IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED.
3. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK,TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE, TESTED AND READY FOR USE."
4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL PROVIDE ITEMS NECESSARY FOR A PROPERLY WORKING SYSTEM IN COMPLIANCE WITH ACCEPTED INDUSTRY STANDARDS, FULL CONTRACT DOCUMENTS AND MANUFACTURER'S RECOMMENDATIONS.
5. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND IDENTIFY ITEMS THAT MAY AFFECT THEIR BID. PRIOR TO THE INSTALLATION, FABRICATION, REMOVAL, OR RELOCATION OF ANY WORK, THE CONTRACTORS SHALL REVIEW THE ACTUAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL COORDINATE WORK WITH THE PLANS, EXISTING EQUIPMENT AND SYSTEMS, BUILDING STRUCTURE AND WORK OF OTHER TRADES. WHERE CONFLICTS OCCUR, OR IF CONNECTIONS THERETO CAN NOT BE MADE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO MATERIAL FABRICATION OR INSTALLATION. ANY WORK REQUIRED TO ADDRESS SUCH DISCREPANCIES SHOULD BE INDICATED IN THE CONTRACTOR'S SHOP DRAWINGS FOR THE AFFECTED SYSTEM.
6. WHERE THE WORK OF VARIOUS TRADES WILL BE INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER OR WHERE THERE IS EVIDENCE THAT THE WORK OF ONE TRADE WILL INTERFERE WITH WORK OF ANOTHER, THE CONTRACTOR SHALL WORK OUT SPACE CONDITIONS TO MAKE A SATISFACTORY ADJUSTMENT. IF THE CONTRACTOR ALLOWS ONE TRADE TO INSTALL HIS WORK BEFORE COORDINATING WITH WORK OF OTHER TRADES THE CONTRACTOR SHALL MAKE NECESSARY CHANGES TO CORRECT THE CONDITIONS IN A MANNER ACCEPTABLE TO THE OWNER AND THE CONTRACTOR SHALL BEAR THE COST OF SUCH CORRECTIONS.
7. THE CONTRACTOR SHALL LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITION. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, VALVES, MOTORS, CONTROLLERS, DRAIN PANS, ETC. IF REQUIRED FOR ACCESSIBILITY, FURNISH ACCESS DOORS FOR THE PURPOSE. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY.
8. THE CONTRACTOR SHALL LEAVE THE ENTIRE PLUMBING SYSTEM INSTALLED UNDER THIS CONTRACT IN PROPER WORKING ORDER AND SHALL, WITHOUT CHARGE, REPLACE ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, EXCEPT FROM ORDINARY WEAR AND TEAR, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. THE CONTRACTOR SHALL, DURING THE WARRANTEE PERIOD, BE RESPONSIBLE FOR PROPER REPAIR AND ADJUSTMENTS OF PLUMBING SYSTEMS AND EQUIPMENT, APPARATUS, DEVICES ETC. INSTALLED BY HIM, AND DO WORK NECESSARY TO ENSURE EFFICIENT AND PROPER FUNCTIONING.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL INCUR FINANCIAL RESPONSIBILITIES FOR, ANY DAMAGES CAUSED BY OR RESULTING FROM DEFECTS IN THEIR WORK.
11. WHEREVER PIPES, CONDUITS, OR OTHER ITEMS PASS THROUGH FIRE RATED WALLS AND FLOORS, THE SPACE BETWEEN THE ITEM AND THE MASONRY OR THE SPACE BETWEEN THE ITEM AND THE SLEEVE SHALL BE ADEQUATELY FIRE STOPPED WITH A NON COMBUSTIBLE, NON MELTING MATERIAL IN ACCORDANCE WITH NFPA STANDARDS.
12. WALL OPENINGS RESULTING FROM DEMOLITION SHALL BE CLOSED AND FINISHED TO MATCH EXISTING.
13. FINISHES DAMAGED DURING THIS PROJECT SHALL BE REPAIRED TO MATCH EXISTING

M001

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JCB		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: TGK		41

MECHANICAL LEGEND, ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES

$DATE_USER$
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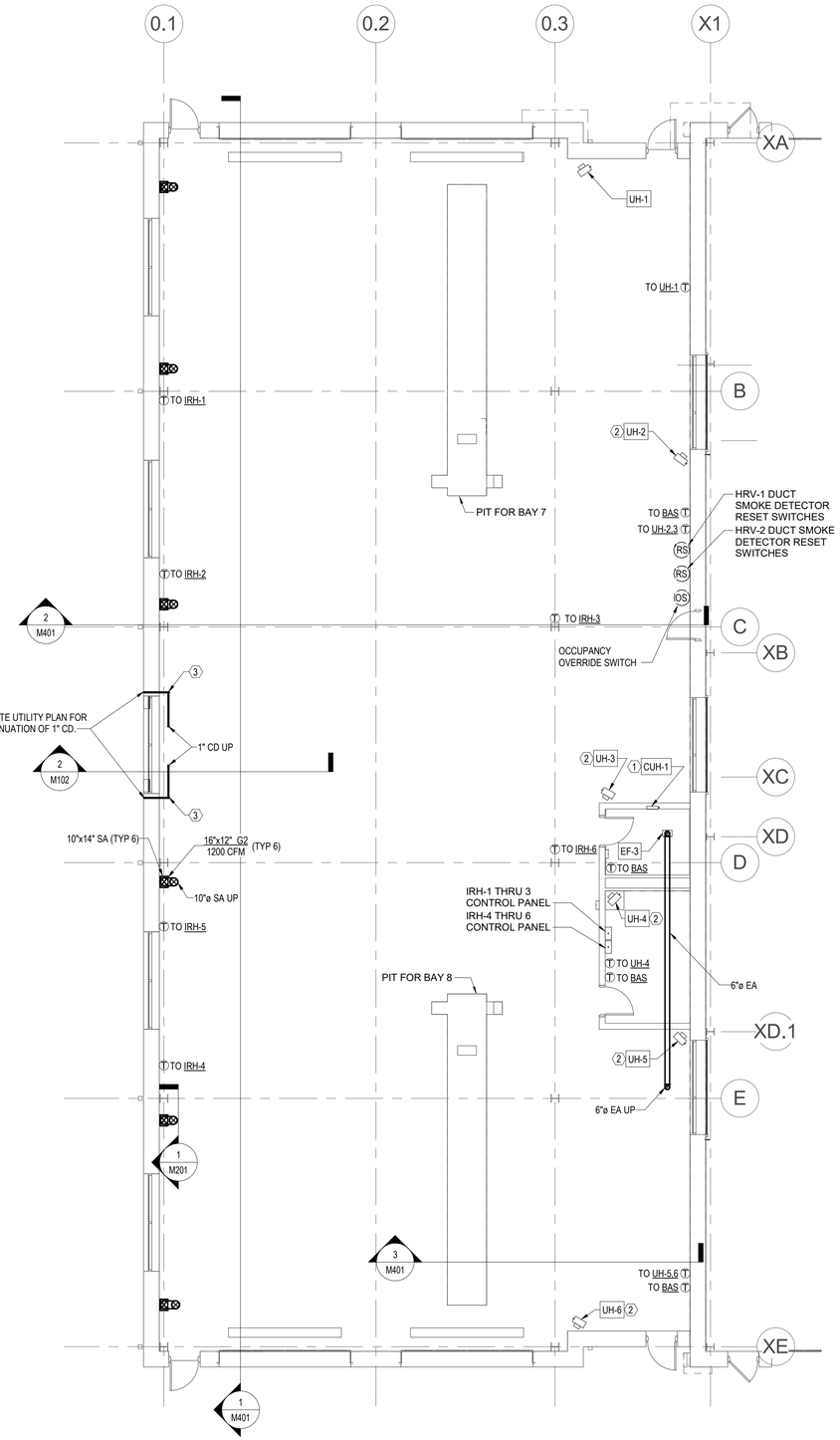


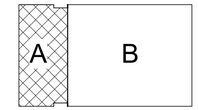
1 M101 MECHANICAL NEW WORK - FIRST FLOOR A
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET M-001 FOR MECHANICAL LEGEND AND GENERAL NOTES.

SHEET KEYNOTES:

1 PROVIDE RECESSED ELECTRIC CABINET HEATER IN RESTROOM WALL. INCLUDE NECESSARY MOUNTING HARDWARE AND CONTROLS. UNIT TO BE LOCALLY CONTROLLED BY INTEGRAL THERMOSTAT.
2 PROVIDE ELECTRIC UNIT HEATER SUSPENDED FROM MEZZANINE STRUCTURE. INCLUDE NECESSARY SUPPORTS AND CONTROLS. UNIT TO BE CONTROLLED BY BAS WALL MOUNTED THERMOSTAT.
3 CONDENSATE DRAIN PIPING SHALL TRANSITION FROM COPPER TO PVC INSIDE OF THE BUILDING, PRIOR TO WALL PENETRATION. TRANSITION SHALL OCCUR IN THE PIPE RISE, 6" ABOVE THE ELBOW.



KEYPLAN

PLAN NORTH

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

M101

$DATE_USER$
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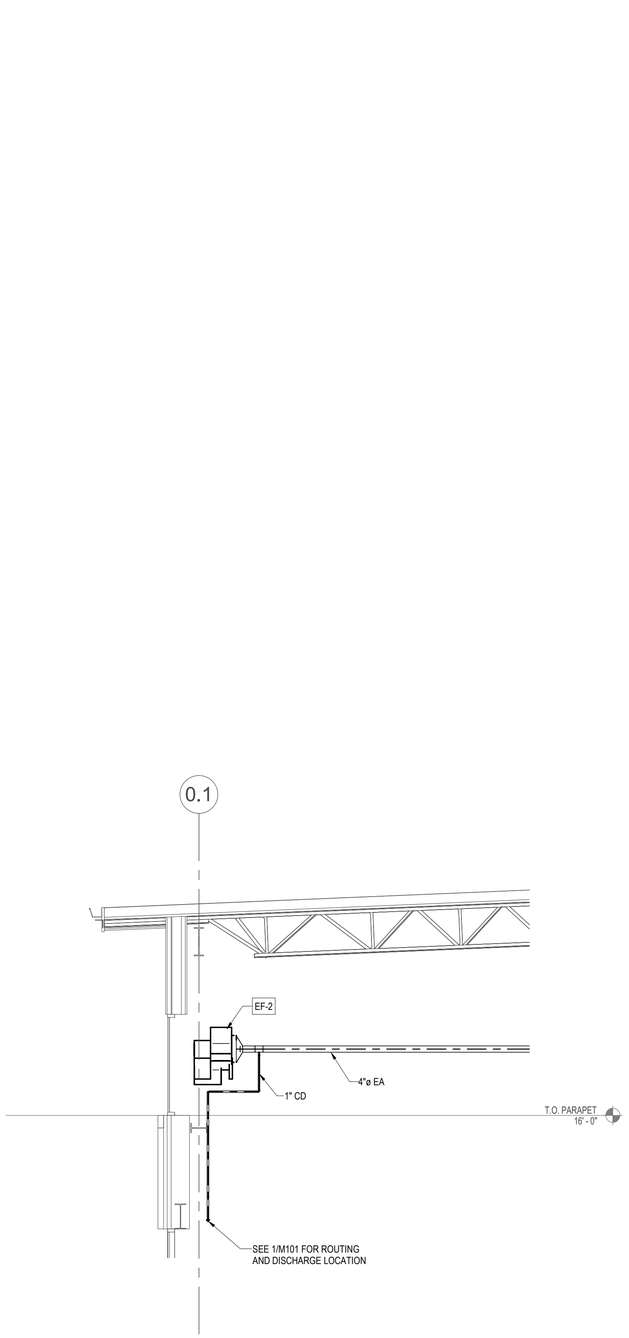
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

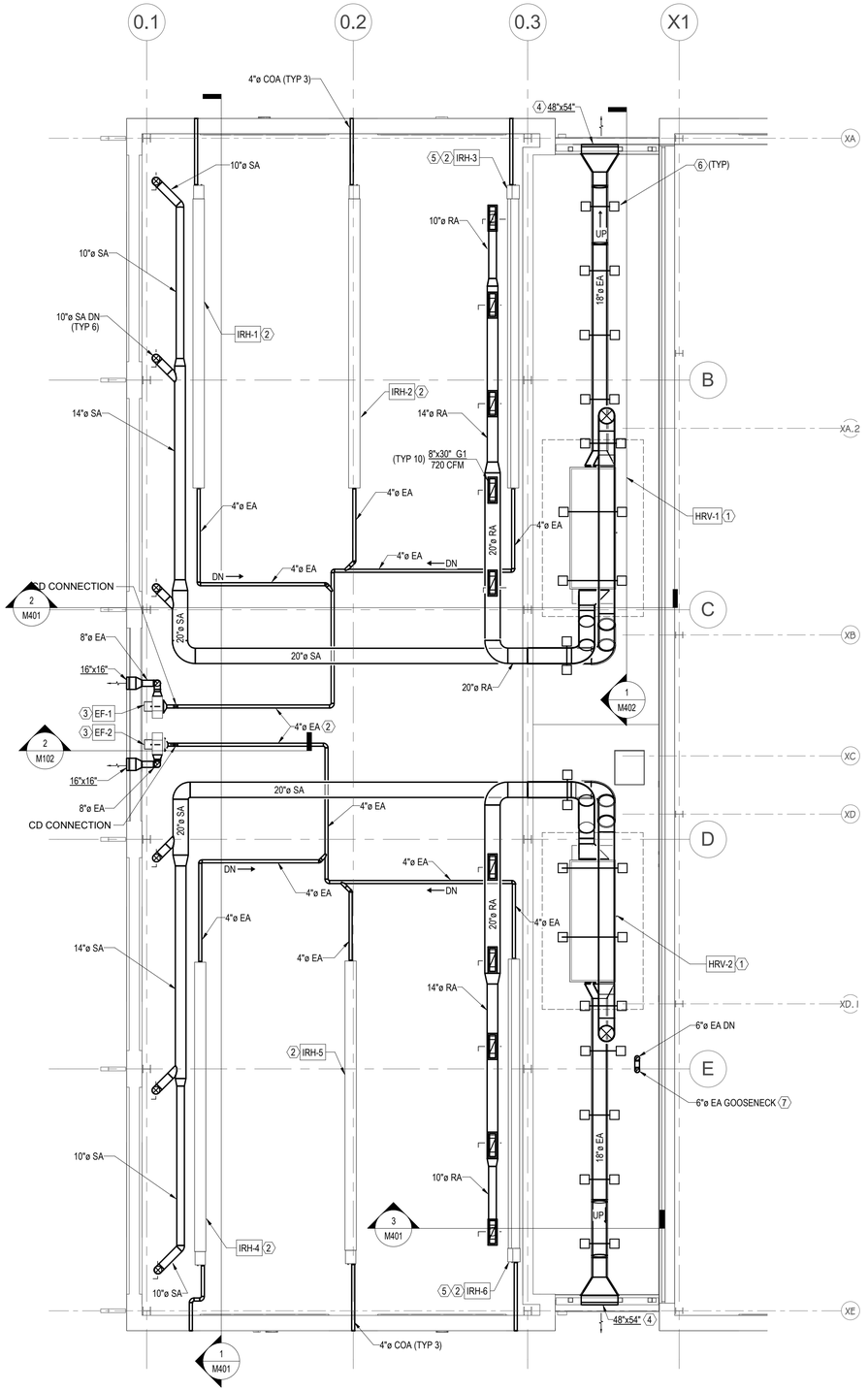
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JCB		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: TGK		42

MECHANICAL NEW WORK - FIRST FLOOR



2 M102 CONDENSATE NEUTRALIZATION TUBE SECTION
SCALE: 1/4" = 1'-0"



1 M102 MECHANICAL NEW WORK - LOWER ROOF
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET M-001 FOR MECHANICAL LEGEND AND GENERAL NOTES.

⬡ SHEET KEYNOTES:

1 PROVIDE HEAT RECOVERY VENTILATION UNIT (HRV-1 & HRV-2) WITH PLATE AND FRAME HEAT EXCHANGER AND INDIRECT FIRED NATURAL GAS FURNACE. HRV UNIT SHALL PROVIDE CODE REQUIRED VENTILATION AND EXHAUST TO THE NEW BUS FACILITY.

2 PROVIDE LOW-INTENSITY GAS-FIRED INFRARED HEATER LOCATED BETWEEN BAYS. HEATERS SHALL BE INSTALLED GREATER THAN 18" BELOW THE CEILING. RADIANT TUBE WILL BE CONSTRUCTED OF SCHEDULE 40 STEEL PIPE WITH THREADED CONNECTIONS TO REDUCE SURFACE TEMPERATURE TO BELOW 750 DEGREES F. INFRARED HEATER TAIL PIPING SHALL BE SLOPED TOWARD THE VACUUM PUMP PER MANUFACTURER REQUIREMENTS FOR CONDENSATE REMOVAL.

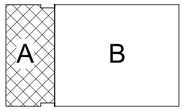
3 PROVIDE VACUUM PUMP FURNISHED WITH THE ASSOCIATED IRH. MOUNT VACUUM PUMP USING MANUFACTURER PROVIDED WALL BRACKET ASSEMBLY AND DISCHARGE VIA 16"X16" LOUVER IN SIDE WALL.

4 EA LOUVER TO BE LOCATED IN SCREEN WALL ABOVE PARAPET ON LOWER ROOF (SEE ARCHITECTURE DRAWINGS). EXHAUST AIR DISCHARGE POINT SHALL BE A MINIMUM OF 50 FEET FROM HRV OUTDOOR AIR INTAKE.

5 IRH SHALL BE ANGLED TOWARD SHOP SPACE AT A 45 DEGREE ANGLE.

6 PROVIDE NON-ROOF PENETRATING DUCT SUPPORT. COORDINATE WITH SUPPLIER FOR SIZE AND LOCATION. SEE DETAIL 1/M502.

7 PROVIDE GOOSENECK FOR EXHAUST DISCHARGE. SEE DETAIL 6/M501.



KEYPLAN

PLAN NORTH

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

M102

$DATE_USER$
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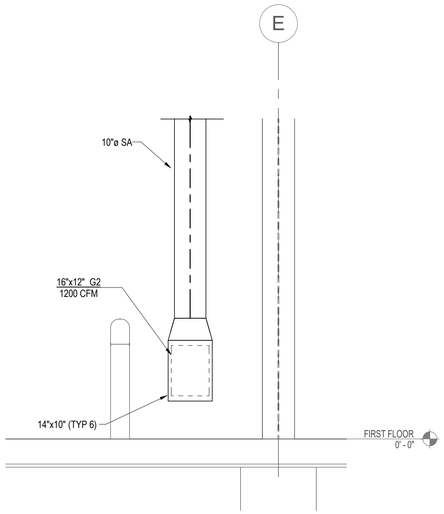
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

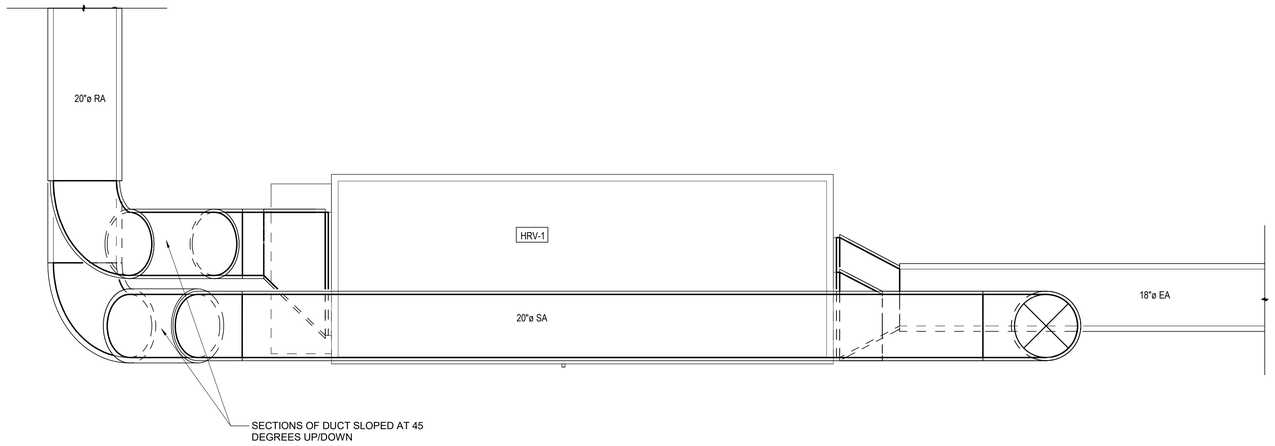
CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JCB	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

MECHANICAL NEW WORK - LOWER ROOF

SECTION
JMT
SHEET NO.
43



1 M201 SUPPLY GRILLE DETAIL
SCALE: 1/2" = 1'-0"



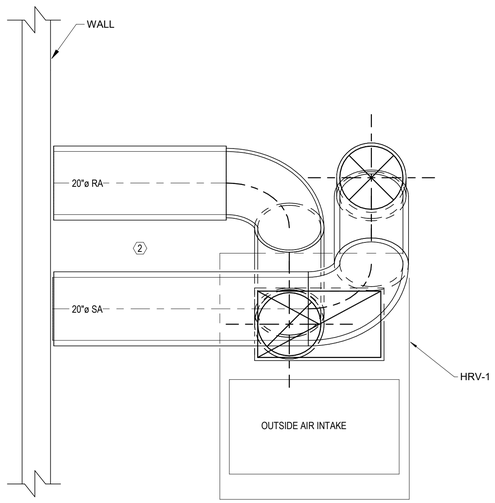
2 M201 DUCT LAYOUT PLAN VIEW
SCALE: 1/2" = 1'-0"

GENERAL SHEET NOTES

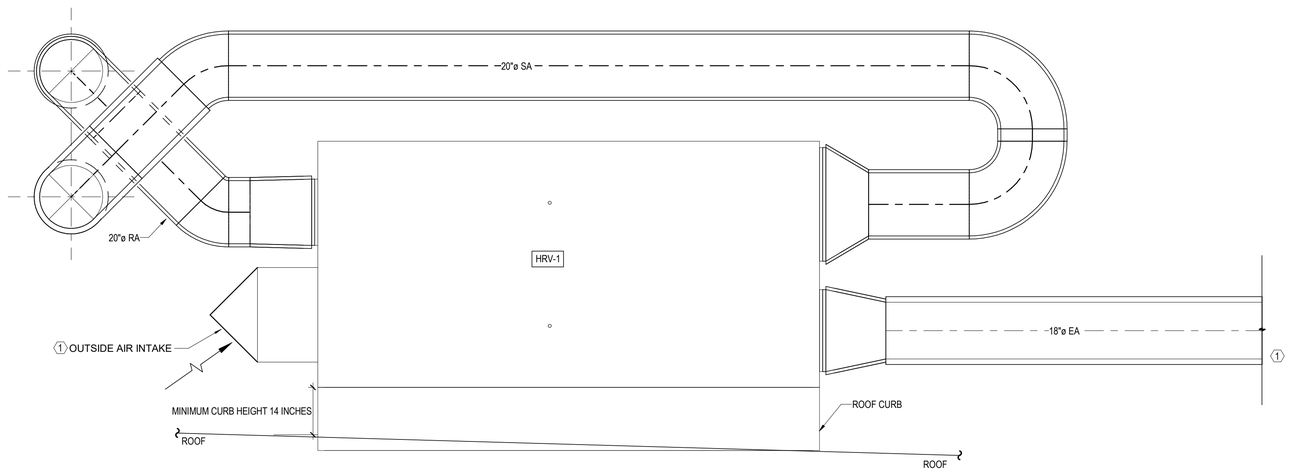
1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET M-001 FOR MECHANICAL LEGEND AND GENERAL NOTES.

⬡ SHEET KEYNOTES:

1 EXHAUST AIR OUTLET SHALL BE A MINIMUM OF 50 FEET FROM OUTSIDE AIR INTAKE.
2 ALL OUTDOOR DUCTWORK SHALL BE FACTORY INSULATED DOUBLE WALL DUCTWORK. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER'S REQUIRED INSTALLATION INSTRUCTIONS FOR HYDROGEN DETECTION SYSTEM AND OTHER CONTROLS DEVICES REQUIRED.



3 M201 DUCT LAYOUT SECTION A
SCALE: 1/2" = 1'-0"



4 M201 DUCT LAYOUT SECTION B
SCALE: 1/2" = 1'-0"

PLAN NORTH
2' 0 2' 4'
SCALE: 1/4"= 1'-0"

M201

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JCB	
COUNTY	CHECKED BY: DLG	
NEW CASTLE		

HRV DUCT LAYOUT

SECTION
JMT
SHEET NO.
44

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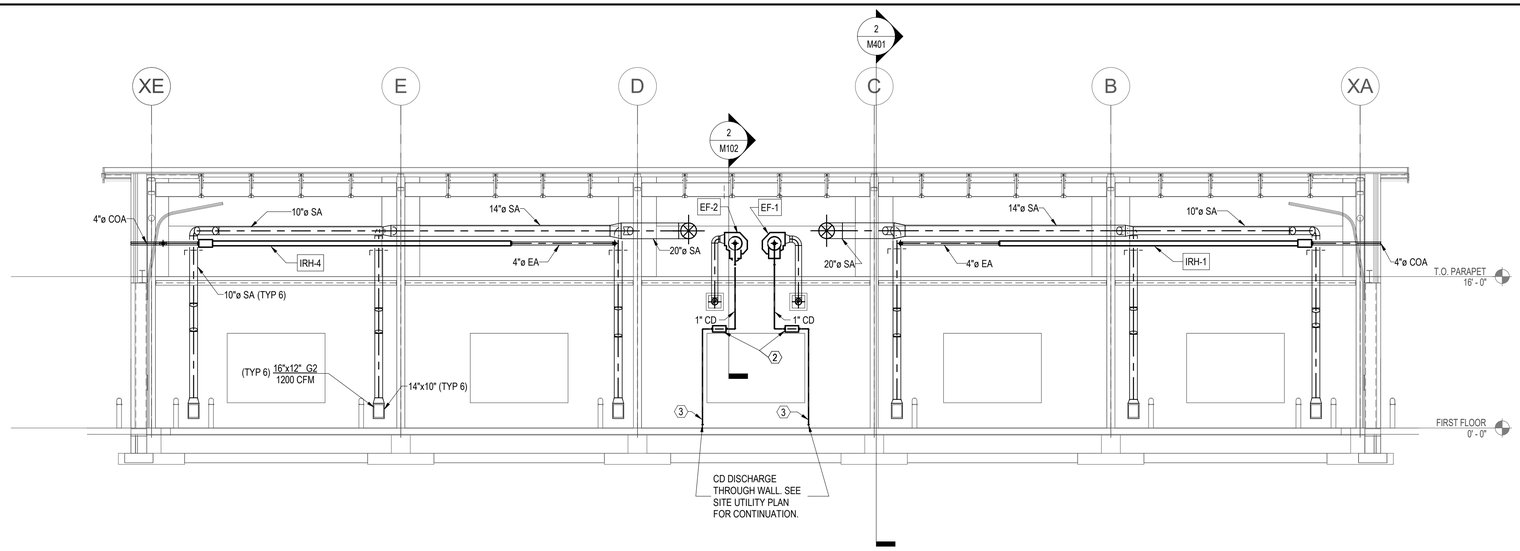
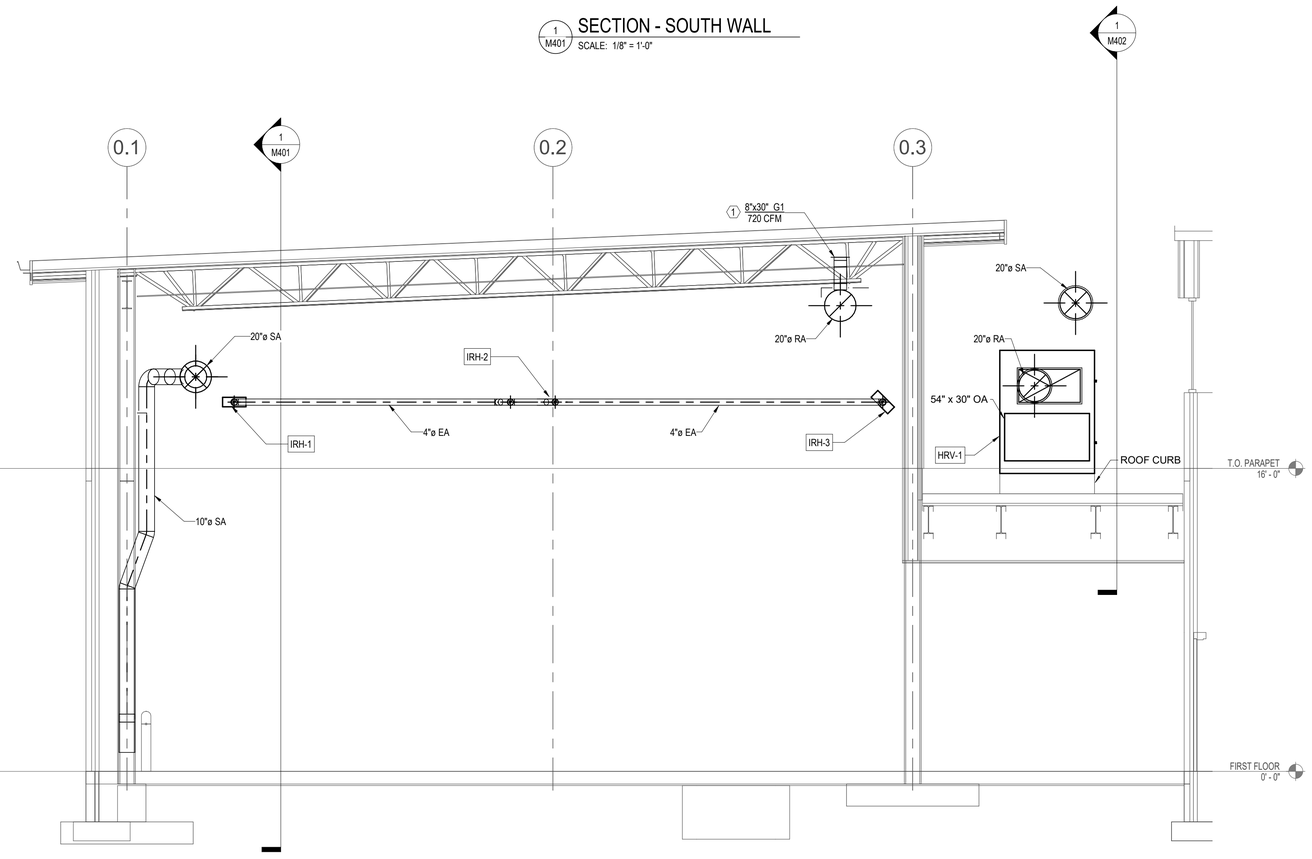
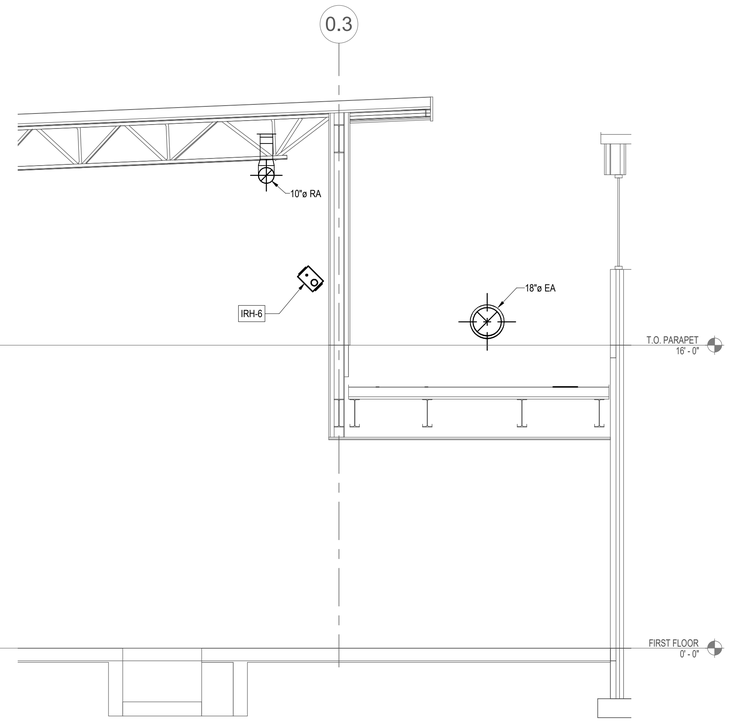


1 M401 SECTION - SOUTH WALL
SCALE: 1/8" = 1'-0"



2 M401 SECTION - WEST WALL
SCALE: 1/4" = 1'-0"



3 M401 MECHANICAL SECTION NORTHWEST CORNER
SCALE: 1/4" = 1'-0"

GENERAL SHEET NOTES

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET M-001 FOR MECHANICAL LEGEND AND GENERAL NOTES.

SHEET KEYNOTES:

1 EXHAUST AIR WILL BE TAKEN FROM WITHIN 12" OF THE CEILING VIA EXHAUST GRILLES AND VENTILATION AIR WILL BE SUPPLIED AT THE FLOOR VIA SUPPLY GRILLES. SEE SECTION 1/M401 AND DETAIL 2/M201.
2 CONDENSATE NEUTRALIZATION TUBE SHALL BE INSTALLED IN THE HORIZONTAL PER MANUFACTURES INSTRUCTIONS. SECURE PIPE TO STRUCTURE ON BOTH SIDE OF CONDENSATE NEUTRALIZATION TUBE.
3 CONDENSATE DRAIN PIPING SHALL TRANSITION FROM COPPER TO PVC INSIDE OF THE BUILDING, PRIOR TO WALL PENETRATION. TRANSITION SHALL OCCUR IN THE PIPE RISE, 6" ABOVE THE ELBOW.

2' 0 2' 4'
SCALE: 1/4"= 1'-0"

M401

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ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	T201953104.03	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY: JCB	
		CHECKED BY: DLG	

MECHANICAL SECTIONS

SECTION	JMT
SHEET NO.	45

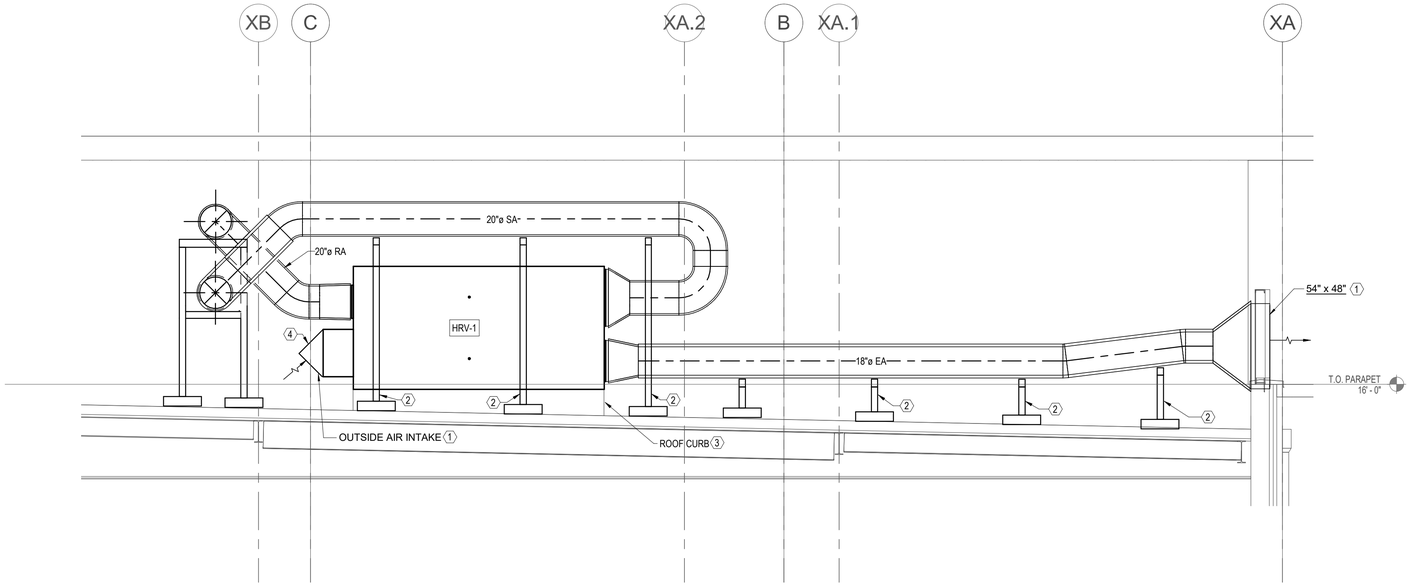
GENERAL SHEET NOTES

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.

2. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET M-001 FOR MECHANICAL LEGEND AND GENERAL NOTES.

SHEET KEYNOTES:

1 A CLEARANCE OF 50 FEET MUST BE MAINTAINED BETWEEN THE HRV INTAKE AND EXHAUST.
2 PROVIDE NON-ROOF PENETRATING DUCT SUPPORT. COORDINATE WITH SUPPLIER FOR SIZE AND LOCATION. SEE DETAIL 1/M502.
3 ROOF CURB BASE TO SLOPE WITH ROOFLINE MAINTAINING UNIT LEVEL AND PLUMB.
4 PROVIDE PREFILTER RACK INTEGRAL TO WEATHER HOOD.



1 / M402 MECHANICAL SECTION - LOWER ROOF
SCALE: 1/4" = 1'-0"

2' 0 2' 4'
SCALE: 1/4"= 1'-0"

M402

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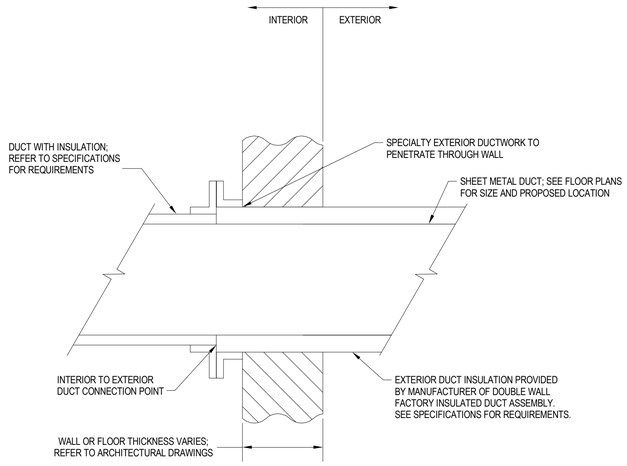
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

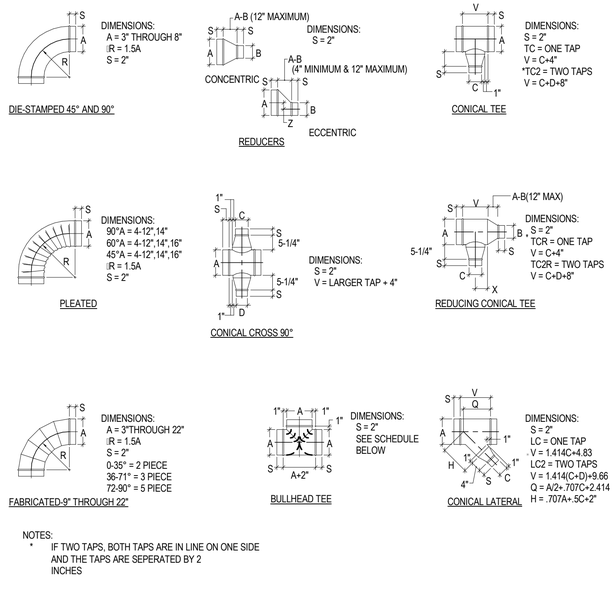
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JCB		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: TGK		46

MECHAINAL SECTION - LOWER ROOF

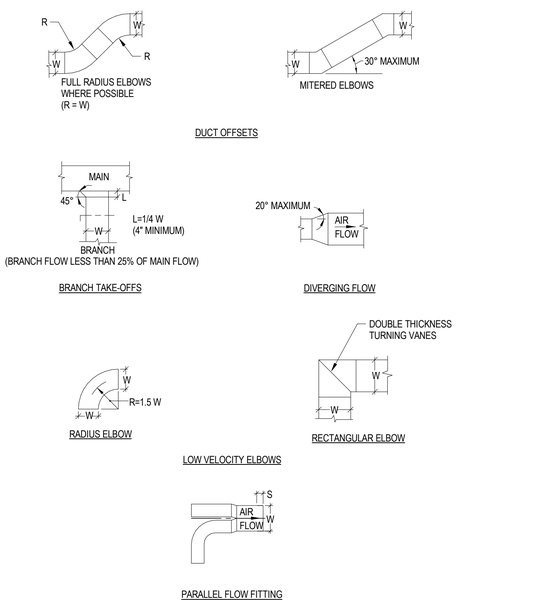


1 M501 DUCT THROUGH EXTERIOR WALL
SCALE: NTS

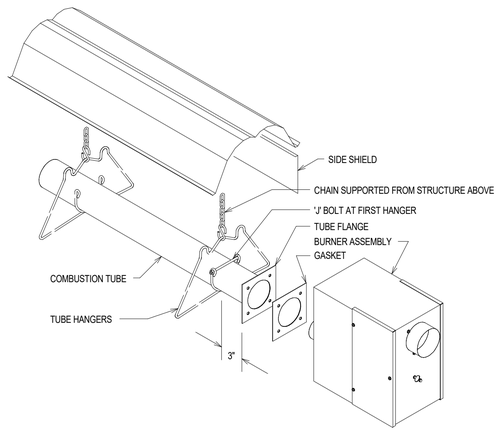


NOTES:
* IF TWO TAPS, BOTH TAPS ARE IN LINE ON ONE SIDE AND THE TAPS ARE SEPERATED BY 2 INCHES

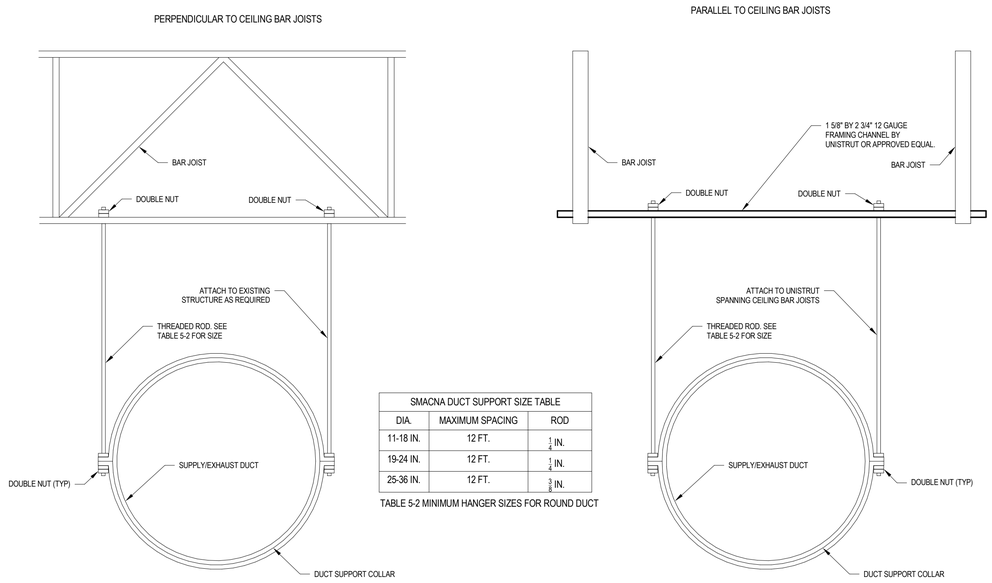
2 M501 ROUND DUCT FITTINGS
SCALE: NTS



3 M501 RECTANGULAR DUCT FITTINGS
SCALE: NTS



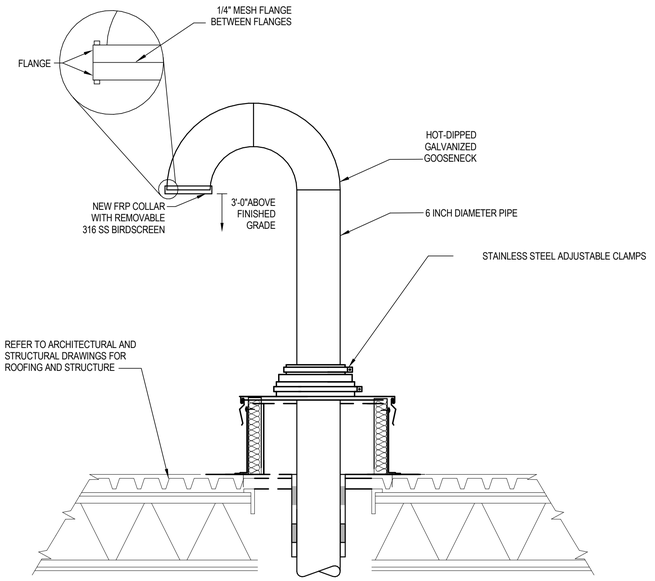
4 M501 INFRARED HEATER MOUNTING
SCALE: NTS



SMACNA DUCT SUPPORT SIZE TABLE		
DIA	MAXIMUM SPACING	ROD
11-18 IN.	12 FT.	1/4 IN.
19-24 IN.	12 FT.	1/4 IN.
25-36 IN.	12 FT.	3/8 IN.

TABLE 5-2 MINIMUM HANGER SIZES FOR ROUND DUCT

5 M501 ROUND DUCT SUPPORT
SCALE: NTS



6 M501 EXHAUST GOOSENECK
SCALE: NTS

M501

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JCB		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: DLG		47

MECHANICAL DETAILS

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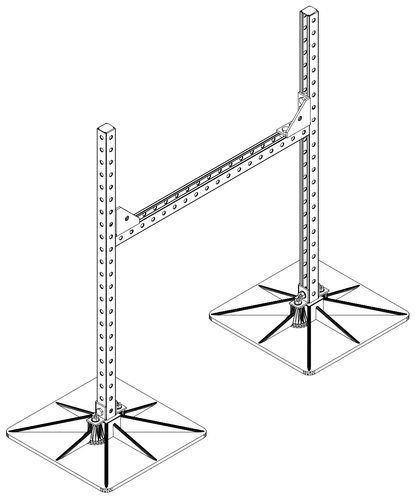
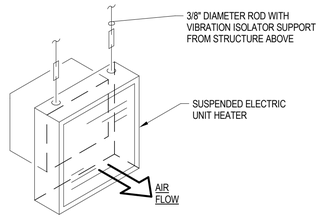


NOTES:
1. DUCT SUPPORTS SHALL BE ENGINEERED TO BE SELF SUPPORTING AND SUPPORT DUCT LOAD AND ANY OTHER ASSOCIATED LOADS.
2. DUCT SUPPORTS SHALL NOT PENETRATE THE ROOF MEMBRANE OF THE LOWER ROOF.

1 / M502 EXTERIOR DUCT SUPPORT DETAIL
SCALE: NTS



2 / M502 ELECTRIC UNIT HEATER HANGING
SCALE: NTS

M502

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ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY:	JCB
COUNTY	CHECKED BY:	TGK
NEW CASTLE		

MECHANICAL DETAILS

SECTION
JMT
SHEET NO.
48

HEAT RECOVERY VENTILATOR SCHEDULE

DESIGNATION	SUPPLY FAN AIRFLOW (CFM)	RETURN FAN AIRFLOW (CFM)	SERVES	FUEL TYPE	SUPPLY FAN					RETURN/EXHAUST FAN					FIXED PLATE HEAT EXCHANGER					HEATING CHARACTERISTICS								ELECTRICAL CHARACTERISTICS				FILTER	DIMENSIONS			WEIGHT (LBS)	BASIS	NOTES
					QTY.	TYPE	ESP IN. H20	MOTOR HP (EA)	BHP	QTY.	TYPE	ESP IN. H20	MOTOR HP (EA)	BHP	LAT DB (°F)	OA DB (°F)	EA DB (°F)	RA DB (°F)	FROST CONTROL	AIR FLOW (CFM)	EAT DB (°F)	LAT DB (°F)	MIN. GAS INLET (IN. W.C.)	MAX. GAS INLET (IN. W.C.)	MIN INPUT (MBH)	OUTPUT (MBH)	MODEL	TOTAL TURNDOWN	VOLTS	PHASE	MCA	MOP	TYPE	L (IN)	W (IN)	H (IN)			
HRV-1	3595	3595	MAINTENANCE BAYS	NATURAL GAS	1	PLUG	1.50	2.85	2.59	1	PLUG	0.75	2.3	2.09	44	14	31	64	FACE & BYPASS	3595	44	90	7	14	472	377	HMA 500	5:1	460	3	11	15	2" MERV 10	159	60	78	2500	ANNEXAIR ERP-E-04-FP-HG-TB	1,2,3,4
HRV-2	3595	3595	MAINTENANCE BAYS	NATURAL GAS	1	PLUG	1.50	2.85	2.59	1	PLUG	0.75	2.3	2.09	44	14	31	64	FACE & BYPASS	3595	44	90	7	14	472	377	HMA 500	5:1	460	3	11	15	2" MERV 10	159	60	78	2500	ANNEXAIR ERP-E-04-FP-HG-TB	1,2,3,4

NOTES:
1. PROVIDE WITH INDIRECT, NATURAL GAS FIRED HEATER.
2. PROVIDE WITH DISCONNECT PER DIVISION 26.
3. PROVIDE A SPEED CONTROLLER FOR EACH FAN.
4. PROVIDE ROOF CURB TO SUPPORT UNIT.

FAN SCHEDULE

DESIGNATION	LOCATION	SERVICE	TYPE	AIRFLOW (CFM)	ESP	DRIVE	VOLTAGE	PHASE	MOTOR HP	RPM	WEIGHT (LB)	BASIS	NOTES
EF-1	MAINTENANCE SHOP	IRH EXHAUST SYSTEM BAYS 7 & 9	VACUUM PUMP	240	0.75	DIRECT	208 V	3	3/4	3450	112	ROBERTS GORDON EP-203	2,3
EF-2	MAINTENANCE SHOP	IRH EXHAUST SYSTEM BAY 8 & 10	VACUUM PUMP	240	0.75	DIRECT	208 V	3	3/4	3450	112	ROBERTS GORDON EP-203	2,3
EF-3	RESTROOM	RESTROOM	CEILING EXHAUST	70	0.25	DIRECT	115 V	1	1/15	1145	12	GREENHECK SP-A50-90-VG	1,4

NOTES:
1. PROVIDE FAN WITH EC MOTOR SPEED CONTROLLER FOR BALANCING.
2. DISCONNECT TO BE PROVIDED BY DIVISION 26.
3. PROVIDE CONDENSATE NEUTRALIZATION KIT FOR EACH VACCUM PUMP.
4. FAN SHALL BE INTERLOCKED WITH AND ENABLED WHEN RESTROOM LIGHTS ARE ENABLED.

INFRARED HEATER SCHEDULE

DESIGNATION	SERVICE	FUEL	BURNER OUTPUT (MBH)	MIN. GAS INLET (IN. W.C.)	MAX. GAS INLET (IN. W.C)	MIN. MOUNTING HEIGHT (FT)	VOLTAGE (V)	LENGTH (FT)	HEIGHT (IN)	WEIGHT (LB)	BASIS	NOTES
IRH-1	MAINTENANCE BAYS	NATURAL GAS	40	4.5	14	19.5	120	31	12	40	CORAYVAC CRVSF-4	1,2,3
IRH-2	MAINTENANCE BAYS	NATURAL GAS	40	4.5	14	19.5	120	31	12	40	CORAYVAC CRVSF-4	1,2,3
IRH-3	MAINTENANCE BAYS	NATURAL GAS	40	4.5	14	19.5	120	31	12	40	CORAYVAC CRVSF-4	1,2,3
IRH-4	MAINTENANCE BAYS	NATURAL GAS	40	4.5	14	19.5	120	31	12	40	CORAYVAC CRVSF-4	1,2,3
IRH-5	MAINTENANCE BAYS	NATURAL GAS	40	4.5	14	19.5	120	31	12	40	CORAYVAC CRVSF-4	1,2,3
IRH-6	MAINTENANCE BAYS	NATURAL GAS	40	4.5	14	19.5	120	31	12	40	CORAYVAC CRVSF-4	1,2,3

NOTES:
1. HEATER SHALL BE DESIGNED FOR USE WITH SPECIAL FUELS, INCLUDING HYDROGEN APPLICATION, TO MAINTAIN A SURFACE TEMPERATURE OF 750 F OR LESS.
2. PROVIDE THREE PRONG PLUG CONNECTION.
3. PROVIDE HEATERS WITH CAST IRON COMBUSTION CHAMBERS AND SCHEDULE 40 STEEL RADIANT TUBES.

UNIT HEATER SCHEDULE

DESIGNATION	LOCATION	SERVICE	MOUNTING	AIRFLOW (CFM)	CAPACITY (W)	VOLTS	PHASE	LENGTH (IN)	HEIGHT (IN)	WIDTH (IN)	WEIGHT (LB)	BASIS	NOTES
CUH-1	RESTROOM	RESTROOM	IN WALL	160	1500	208	1	16.0	22.8	1.5	24	REZNOR EHA-1	3
UH-1	EAST STORAGE AREA	EAST STORAGE AREA	SUSPENDED	700	5000	480	3	16.5	12.0	17.0	45	REZNOR EGHB-5	1,2
UH-2	EAST STORAGE AREA	EAST STORAGE AREA	SUSPENDED	700	5000	480	3	16.5	12.0	17.0	45	REZNOR EGHB-5	1,2
UH-3	EAST STORAGE AREA	EAST STORAGE AREA	SUSPENDED	700	5000	480	3	16.5	12.0	17.0	45	REZNOR EGHB-5	1,2
UH-4	STORAGE ROOM	STORAGE ROOM	SUSPENDED	510	2000	480	3	16.5	12.0	17.0	45	REZNOR EGHB-2	1,2
UH-5	WEST STORAGE AREA	WEST SOTRAGE AREA	SUSPENDED	700	5000	480	3	16.5	12.0	17.0	45	REZNOR EGHB-5	1,2
UH-6	WEST STORAGE AREA	WEST SOTRAGE AREA	SUSPENDED	700	5000	480	3	16.5	12.0	17.0	45	REZNOR EGHB-5	1,2

NOTES:
1. PROVIDE SUSPENDED ELECTRIC UNIT HEATER WITH FACTORY INSTALLED DISCONNECT.
2. PROVIDE FIELD INSTALLED WALL MOUNTED BAS THERMOSTAT.
3. PROVIDE CABINET UNIT HEATER WITH FACTORY INSTALLED INTEGRAL TAMPER PROOF THERMOSTAT.

GRILLE AND DIFFUSER SCHEDULE

DESIG.	DUTY	LENGTH (IN.)	WIDTH (IN.)	AIRFLOW (CFM)	BASIS
G1	RETURN	30	8	720	PRICE 70
G2	SUPPLY	16"	12"	1200	PRICE 30

M601

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ADDENDUMS / REVISIONS			
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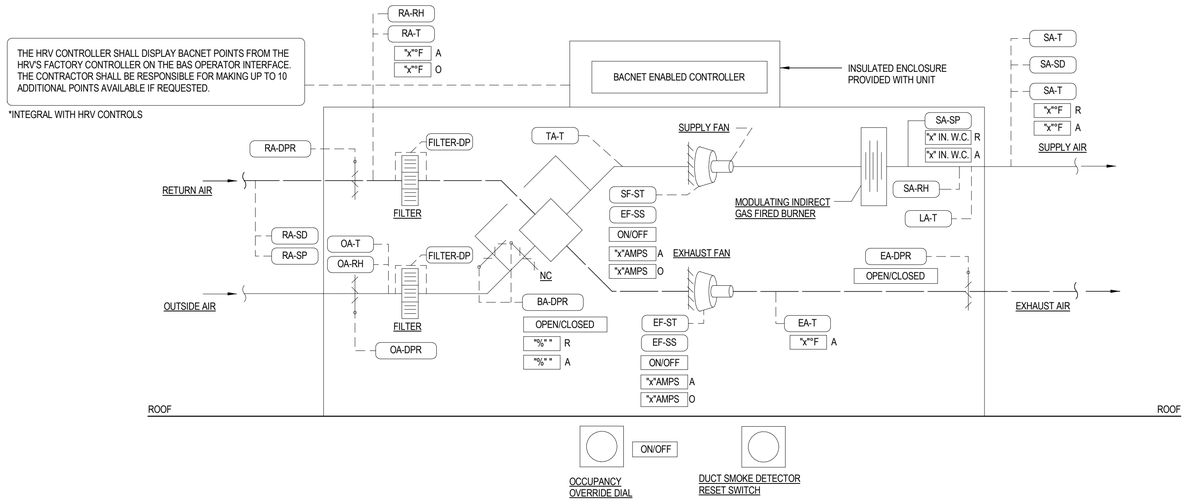
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JCB		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: TGK		49

MECHANICAL SCHEDULES



SAMPLE GRAPHIC

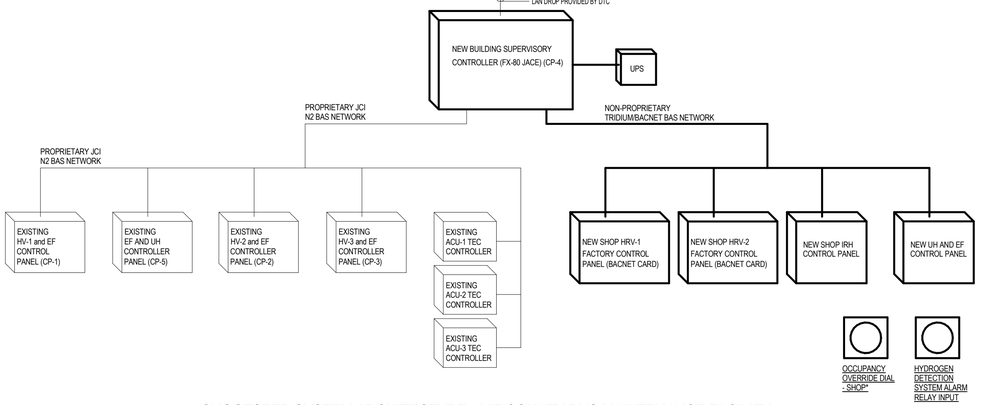
NOTES

1. SAMPLE GRAPHIC IS A REPRESENTATION OF REQUIRED ANALOG AND BINARY POINTS DATA TO BE DISPLAYED ON OPERATOR WORKSTATION. A GRAPHIC SHALL BE PROVIDED FOR EACH PIECE OF EQUIPMENT, INCORPORATING CONTROL SCHEMATIC AND CONTROL POINTS. SEE SCHEMATICS FOR ADDITIONAL ITEMS TO BE DISPLAYED.
2. A GRAPHIC FOR EACH BUILDING FLOOR SHALL BE PROVIDED DISPLAYING SENSOR VALUES, CONTROL DEVICES ON THAT FLOOR, ZONING BY EQUIPMENT AND WITH A LINK TO EACH EQUIPMENT GRAPHIC.
3. FOR EACH CONTROL SEQUENCE/POINT, A GRAPHIC SHALL BE GENERATED WHICH INDICATES THE REQUESTED, ACTUAL AND ORIGINAL VALUES FOR POINTS.
4. THROUGH THE OPERATOR INTERFACE, ALL POINTS SHALL BE TRENDED. TRENDS AND TREND STUDIES SHALL BE ACCESSIBLE FROM ALL OPERATOR WORKSTATION INTERFACES.

ALARM RESET
NORMAL/OVERRIDE
OCC./UNOCC.

OA-T "x""F ACTUAL
OA-RH "x"% ACTUAL

TIME SCHEDULES
"x" "x" OCCUPIED
"x" "x" UNOCCUPIED



SUGGESTED SYSTEM ARCHITECTURE - MIDCOUNTY BUS MAINTENANCE FACILITY

1. EXISTING CP-4 NAE, LOCATED IN EXISTING BOILER ROOM, SHALL BE REPLACED BY NEW TRIDIUM SUPERVISORY CONTROLLER WITH DUAL COMMUNICATION PORTS SUPPORTING JCI N2 BACNET.
2. EXISTING JCI N2 CONTROLS SYSTEM SERVING THE EXISTING SHOP AND ADMINISTRATION AREAS WILL BE CONNECTED AND INTEGRATED INTO THE NEW BUILDING SUPERVISORY CONTROLLER TO CONSOLIDATE CONTROL THROUGH THE NEW TRIDIUM SYSTEM.
3. END DEVICES AND ANALOG AND BINARY INPUTS AND OUTPUTS SHALL BE CONNECTED TO CONTROLLERS WITH CONTROL POWER. IN ADDITION, BACNET OR OTHER BAS CONNECTIONS WILL BE MADE TO DEVICES SUCH AS PUMPS.
4. FOLLOWING INTEGRATION OF THE EXISTING FACILITY SYSTEMS WITH THE NEW BAS, THE BAS CONTRACTOR SHALL PROVIDE A SUMMARY REPORT OF ISSUES WITHIN THE EXISTING CONTROL PANELS NOT UPGRADED AS PART OF THIS CONTRACT, INCLUDING, BUT NO LIMITED TO, COMMUNICATION ISSUES, CONTROLLER HARDWARE ISSUES, NETWORK ISSUES, SENSORS DISPLAYING NO DATA, AND SENSORS OUT OF RANGE.
5. EXISTING SYSTEM GRAPHICS, ALARMING, AND TRENDING SHALL BE FULLY AND SEAMLESSLY INTEGRATED INTO THE NEW TRIDIUM BAS SOFTWARE TO PROVIDE A SINGLE USER INTERFACE FOR ALL BUILDING SYSTEMS. NEW AND EXISTING.
6. NEW BUILDING SUPERVISORY CONTROLLER SHALL BE PROVIDED WITH DUAL PORTS. ONE WITH A NATIVE JOHNSON CONTROLS N2 DRIVER AND THE OTHER WITH A BACNET DRIVER. THE JOHNSON CONTROLS N2 PORT SHALL BE USED TO INTEGRATE THE EXISTING BUILDING SYSTEMS TO THE BAS. THE BACNET PORT SHALL BE USED TO INTEGRATE THE NEW SYSTEMS INSTALLED AS PART OF THIS CONTRACT.
7. THE HYDROGEN DETECTION SYSTEM SHALL PROVIDE AN ALARM OUTPUT RELAY TO THE BAS FOR THE PURPOSE OF DEACTIVATING ALL HEATING SYSTEMS WITHIN THE GARAGE.

* DIAL SHALL BE ADJUSTABLE FROM 0-12 HOURS. WHEN DIAL IS ACTIVATED, ENTIRE SYSTEM SHALL BE OPERATE IN THE OCCUPIED MODE FOR THE TIME PERIOD SELECTED.

1 / M701 GENERAL NOTES AND ARCHITECTURE
SCALE: NTS

CONTROLS ABBREVIATIONS

"X"-"Y"

"X"		"Y"	
A	ACTUAL	CSD	CURRENT SENSING DEVICE
BA	BYPASS AIR	DP	DIFFERENTIAL PRESSURE
C	COMPRESSOR	DPR	DAMPER
CA	COMBUSTION AIR	DPS	DIFFERENTIAL PRESSURE SENSOR
DPR	DAMPER	EWT	ENTRY WATER TEMPERATURE
EA	ENTRY AIR	F	FLOW
EF	EXHAUST FAN	HL	HIGH LEVEL
F	FILTER	HT	HEAT TRACE
FCU	FAN COIL UNIT	HTR	HEATER
FZ	FREEZE STAT	I	CURRENT (AMPS)
HRV	HEAT RECOVERY VENTILATOR	LL	LOW LEVEL
MA	MIXED AIR	P	PRESSURE
O	ORIGINAL	RH	RELATIVE HUMIDITY (%)
OA	OUTDOOR AIR	SD	SMOKE DETECTOR
R	REQUIRED	SP	STATIC PRESSURE
RA	RETURN AIR	SS	START/STOP
RLF	RELIEF FAN	SSS	SOLID STATE STARTER
SA	SUPPLY AIR	ST	STATUS
SF	SUPPLY FAN	SW	SWITCH ON/OFF
UH	UNIT HEATER	T	TEMPERATURE
UV	UNIT VENTILATOR	V	VALVE
ZN	ZONE	VFD	VARIABLE FREQUENCY DRIVE

CONTROLS DESIGNATIONS

"Y" VISUAL DISPLAY DEVICE MOUNTED ON SIDE OF DUCT OR UNIT

"X"-"Y" POINT(S) INTEGRATED OR HARD WIRED TO BAS

"x" R INDICATED GRAPHICAL DISPLAY POINT (MUST APPEAR ON SYSTEM GRAPHIC)

R (REQUESTED) = SETPOINT FOR A THERMOSTAT, DAMPER, VALVE, ETC.

A (ACTUAL) = POSITIVE POSITION FEEDBACK, TEMPERATURE SENSOR INPUT, ETC.

O (ORIGINAL) = VALUE ESTABLISHED DURING INITIAL SYSTEM COMMISSIONING.

GENERAL CONTROL NOTES AND REQUIREMENTS:

1. THESE CONTROL DRAWINGS INDICATE SYSTEMS TO BE CONTROLLED BY BAS AND/OR STANDALONE MEANS AS WELL AS INTENDED SEQUENCES OF OPERATION.
2. THE CONTROL SYSTEM SHALL BE FULLY INSTALLED, CALIBRATED AND ADJUSTED TO PROVIDE ACCURATE AND STABLE SYSTEM OPERATION. CONTROLLED PARAMETERS SHALL BE MAINTAINED WITHIN ACCEPTABLE RANGES AND PID TUNING SHALL BE PERFORMED TO PROVIDE STABLE OPERATION WITHIN 5 MINUTES OF A PARAMETER CHANGE. THE ENGINEER AND/OR OWNER WILL EVALUATE THE SYSTEM TO VERIFY THAT PROPER INSTALLATION AND SYSTEM SETUP/TUNING HAS BEEN PERFORMED ONLY AFTER WRITTEN DOCUMENTATION FROM THE CONTROLS CONTRACTOR, INCLUDING GRAPHICAL TRENDING DATA, HAS BEEN SUBMITTED INDICATING THAT THE CONTROL INSTALLATION AND SETUP IS COMPLETE.
3. CONTROL SUBMITTALS SHALL INCLUDE SYSTEM SCHEMATICS, WIRING DIAGRAMS AND CONTROL LOGIC TO BE USED TO ACHIEVE INTENDED SEQUENCES OF OPERATION - SIMPLY REPRODUCING SEQUENCES AS PROVIDED IN THESE DRAWINGS WILL NOT BE ACCEPTABLE.
4. CONTROLLERS INTEGRATED TO THE BAS SHALL BE NATIVE BACNET.
5. UNLESS OTHERWISE NOTED, MECHANICAL EQUIPMENT SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
6. CONTROL DEVICES SHALL BE INSTALLED IN NEW DUCTWORK. COORDINATE WITH MECHANICAL CONTRACTOR TO PROVIDE NECESSARY FITTINGS AND ACCESSORIES.
7. SENSORS AND MEASURING INSTRUMENTS SHOWN ON SEQUENCES THAT ARE NOT UTILIZED FOR THE SEQUENCE OF OPERATION ARE INTENDED TO PROVIDE OPERATOR INFORMATION AND ARE REQUIRED.
8. POINTS LISTS SHALL BE DEVELOPED BY THE BAS SUPPLIER AND SHALL BE BASED ON THE SCHEMATICS AND SEQUENCES PROVIDED HERE. POINTS LIST SHALL BE SUBMITTED TO THE OWNER, ENGINEER, AND COMMISSIONING AUTHORITY FOR REVIEW.
9. POWER FOR CONTROL SYSTEMS AND EQUIPMENT SHALL BE PROVIDED BY BAS CONTRACTOR IN ACCORDANCE WITH DIVISION 26 REQUIREMENTS.
10. IN ADDITION TO THE BACNET INTERFACE, ELECTRICALLY COMMUTATED MOTORS (ECM) SHALL BE HARD WIRED FOR START/STOP, SPEED, AND STATUS.
11. ACTUATORS, ECM (MOTOR CURRENT), TEMPERATURE SENSORS, HUMIDITY SENSORS AND CURRENT SENSORS SHALL PROVIDE ANALOG INPUTS TO THE BAS.
12. DAMPER ACTUATORS ARE NOTED WITH "NO" AND "NC" FOR NORMALLY OPEN AND NORMALLY CLOSED, INDICATING SPRING RETURN ORIENTATION.
13. ALL SETPOINTS, RESET SCHEDULES AND DEADBANDS IDENTIFIED HEREIN SHALL BE ADJUSTABLE BY THE BUILDING OPERATOR THROUGH THE BAS INTERFACE GRAPHIC SCREEN ASSOCIATED WITH EACH SYSTEM.
14. SETPOINT SHALL BE DEFINED AS A PERFORMANCE STANDARD FOR A COMPONENT OR SYSTEM UNDER CONTROL, WHICH IS ESTABLISHED BY THE CONTROL SYSTEM USER. TYPICALLY, A SETPOINT IS DEFINED WITH AN ACCEPTABLE DEADBAND, TO ALLOW THE MECHANICAL OR ELECTRICAL SYSTEM THE OPPORTUNITY TO DAMPEN OR ELIMINATE EXCESSIVE START/STOP OR OSCILLATION OF THE EQUIPMENT.
15. DEADBAND IS THE ACCEPTABLE RANGE ASSOCIATED WITH THE SETPOINT, IN WHICH THE CONTROL SYSTEM IS SATISFIED WITH NO MECHANICAL OR ELECTRICAL SYSTEM MODULATION NECESSARY FROM THE CONTROL SYSTEM. TYPICALLY, A DEADBAND IS EXPRESSED AS A + AND - RANGE AROUND THE NUMERICAL VALUE OF THE SETPOINT.
16. CONTROL SYSTEM PERFORMANCE SHALL BE MEASURED BY THE ENGINEER AND/OR OWNER, AND SHALL BE DEFINED AS THE ABILITY OF THE CONTROL SYSTEM TO MEET THE ESTABLISHED SETPOINT WITHIN THE ALLOWABLE DEADBAND WITH STABLE PARAMETER (I.E. TEMPERATURE, POSITION, ETC.) PERFORMANCE. THE CONTROL SYSTEM VENDOR SHALL PERFORM PROPER LOOP TUNING, IN WHICH THE PROPORTIONAL AND INTEGRAL SETTINGS OF THE CONTROL LOGIC ARE ESTABLISHED WITH THE ACTUAL SYSTEM IN OPERATIONS, TO ACHIEVE THE STABLE PERFORMANCE. THE CONTROL SYSTEM VENDOR SHALL ALSO ACCEPT THAT EACH CONTROL LOOP SHALL BE TUNED WITH RESPECT TO BOTH UPSTREAM AND DOWNSTREAM CONTROL LOOPS, WHICH MAY AFFECT TUNING REQUIRED TO ACHIEVE THE REQUIRED PERFORMANCE AND STABILITY.
17. AN ALARM SHALL BE SENT TO THE BAS FOR ANY ACTUATED DEVICES (VALVES, DAMPERS, ETC.) WHICH DO NOT ACHIEVE THEIR COMMANDED POSITION WITHIN 5 MINUTES (ADJ.).
18. CONTROL DAMPERS SHALL BE PROVEN CLOSED WHEN THE ANALOG ACTUATOR FEEDBACK OF LESS THAN 5% (ADJ.) OPEN IS ACHIEVED.
19. CONTROL DAMPERS SHALL BE PROVEN OPEN WHEN THE ANALOG ACTUATOR FEEDBACK OF MORE THAN 95% (ADJ) OPEN IS ACHIEVED.
20. CONTRACTOR SHALL COORDINATE FINAL THERMOSTAT LOCATIONS WITH THE OWNER AND COMMISSIONING AUTHORITY. A FLOOR PLAN SHOWING THESE LOCATIONS SHALL BE INCLUDED IN THE BAS SUBMITTAL FOR APPROVAL BY THE ENGINEER.
21. CONTRACTOR SHALL COORDINATE ALL OCCUPIED/UNOCCUPIED SCHEDULES WITH THE OWNER.
22. CONTRACTOR SHALL COORDINATE COMMUNICATION CONNECTION WITH DIVISION 26 HYDROGEN DETECTION SYSTEM INSTALLER.

M701

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

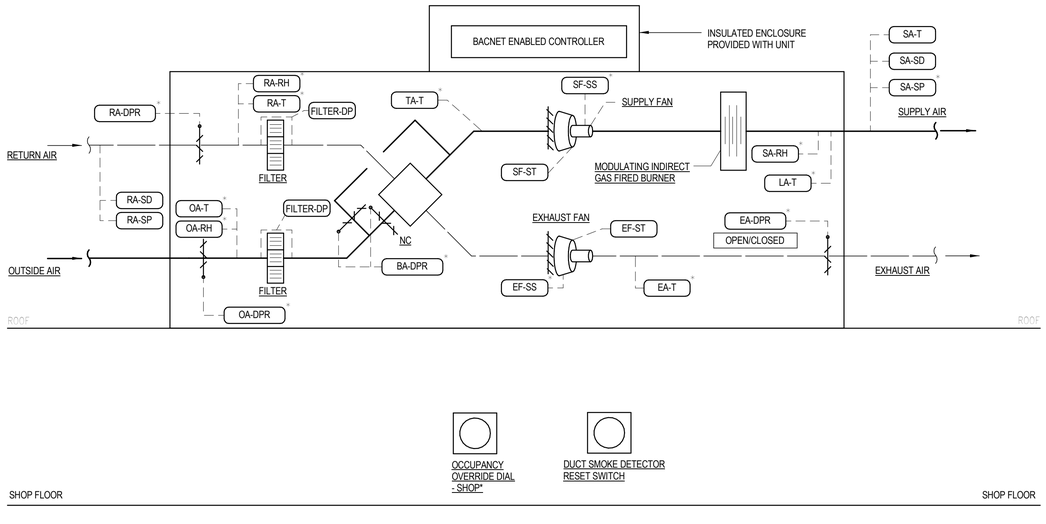
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	T201953104.03	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY: JCB	
		CHECKED BY: DLG	

MECHANICAL CONTROLS

SECTION	
	JMT
SHEET NO.	
	50

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



*INTEGRAL WITH HRV CONTROLS WHICH ARE PROVIDED BY HRV MANUFACTURE

SYSTEM POINT DESCRIPTION	INPUTS										OUTPUTS						SYSTEM FEATURES												
	DIGITAL		ANALOG								DIGITAL		ANALOG				ALARMS												
HEAT RECOVERY VENTILATOR	FLOW SWITCH	STATUS ON/OFF/HOA	TEMPERATURE	RELATIVE HUMIDITY	STATIC PRESSURE	STATUS (MODULATING)	AIRFLOW (CFM)	CURRENT (A)	RUN TIME		ENABLE-DISABLE	OPEN/CLOSED	MODE CONTROL	COMMAND (%)	TEMPERATURE SETPOINT ADJUSTMENT	AIRFLOW SETPOINT ADJUSTMENT	COMM. FAIL	FLOW FAIL	POWER FAIL	SMOKE DETECTOR ACTIVATION	HIGH TEMPERATURE LIMIT	LOW TEMPERATURE LIMIT	LOW AIRFLOW LIMIT	HIGH STATIC PRESSURE	LOW STATIC PRESSURE	HYDROGEN DETECTION	FILTERS	TREND	BACNET FROM FACTORY CONTROLLER
HEAT RECOVERY VENTILATOR		X									X						X		X										
SUPPLY FAN		X						X	X		X								X								X	
EXHAUST FAN		X						X	X		X								X								X	
SUPPLY FAN ECM						X							X						X								X	
EXHAUST FAN ECM						X							X						X								X	
GAS FURNACE		X				X			X	X							X			X						X	X	
SUPPLY AIR			X	X	X		X							X	X		X			X	X		X	X			X	X
RETURN AIR			X	X	X												X						X	X		X	X	
OUTSIDE AIR			X	X			X										X				X	X				X	X	X
EXHAUST AIR			X				X										X					X					X	
EXCHANGER SUPPLY AIR			X																									X
EXCHANGER RETURN AIR			X																									X
OUTSIDE AIR DAMPER						X							X			X											X	X
RETURN AIR DAMPER						X							X			X											X	
EXHAUST AIR DAMPER						X							X			X											X	
FACE & BYPASS DAMPER						X							X			X											X	
OUTSIDE FILTER SWITCH STATUS											X																	X
RETURN FILTER SWITCH STATUS											X																	X
GAS BURNER STAGE 1 RELAY COMMAND																	X									X		X
FREEZE STAT											X																	X
SUPPLY AIR SMOKE DETECTOR																				X								
RETURN AIR SMOKE DETECTOR																				X								
OCCUPANCY OVERRIDE SWITCH STATUS		X								X																		X

NOTES:
1. THE SYSTEM POINT DESCRIPTION SHALL BE USED IN CONJUNCTION WITH THE WRITTEN LOGIC DESCRIPTION TO PROVIDE A COMPLETE BAS LEVEL OF PERFORMANCE. THE SYSTEM POINT DESCRIPTION IS NOT INTENDED TO PROVIDE A COMPREHENSIVE LIST OF REQUIREMENTS.

2. ALL POINTS SHOWN MUST BE AVAILABLE AT THE BAS HEAD END GRAPHIC. POINTS MAY BE SOURCED FROM THE HRV INTERNAL MICROPROCESSOR CONTROLLER OR PROVIDED BY THE CONTRACTOR.

A. GENERAL

THE HEAT RECOVERY VENTILATOR IS AN OUTDOOR ROOF MOUNTED UNIT AND SHALL BE EQUIPPED WITH A FILTER SECTION, A FIXED, AIR-TO-AIR HEAT EXCHANGER, A HEAT EXCHANGER BYPASS DAMPER, DIRECT DRIVE EXHAUST FAN W/ AN ECM MOTOR, AN INDIRECT GAS-FIRED HEAT EXCHANGER, AND A DIRECT DRIVE SUPPLY FAN W/ ECM MOTOR. AN INTEGRAL HEAT RECOVERY VENTILATOR UTILIZES HEAT TRANSFER BETWEEN THE TWO AIR STREAMS TO PRE-CONDITION THE OUTSIDE AIR. A TEMPERED AIR TEMPERATURE SENSOR (TA-T) AND A LEAVING AIR (FROM GAS-FIRED HEAT EXCHANGER) TEMPERATURE SENSOR (LA-T) SHALL BE USED FOR MONITORING PURPOSES. SYSTEM CONTROL SHALL BE ACCOMPLISHED USING THE FACTORY PROVIDED CONTROLLER, WHICH WILL INTERFACE WITH THE NEW BAS THRU BACNET.

POSITION AND OPERATION FEEDBACK FOR DAMPERS, MOTORS, ETC. SHALL BE INTEGRATED INTO THE NEW BAS AND DISPLAY ON THE SYSTEM GRAPHICS. ECM SETTING REQUIRED TO PROVIDE SCHEDULED AIRFLOW WILL BE DETERMINED DURING BALANCING.

1. AN ANALOG FEEDBACK INPUT TO THE BAS REPRESENTING THE ACTUAL POSITION OF ALL DAMPER ACTUATORS SHALL BE PROVIDED.

2. AN ANALOG FEEDBACK INPUT TO THE BAS REPRESENTING THE ACTUAL HRV FAN MOTOR CURRENT (AMP DRAW) SHALL BE PROVIDED. THE CURRENT MEASUREMENT SHALL BE USED TO TROUBLESHOOT FAN OPERATION. LOW OR HIGH CURRENT READINGS (AS DETERMINED DURING INITIAL SYSTEM COMMISSIONING) WILL TRIGGER AN ALARM AT THE BAS.

3. DUCT MOUNTED TEMPERATURE AND STATIC PRESSURE SENSORS, LOCATED IN THE SUPPLY AIR DUCT, SHALL BE USED FOR CONTROL FEEDBACK AND/OR MONITORING PURPOSES.

4. THE BAS SHALL HAVE A RUN TIMER THAT INDICATES THE NEED FOR FILTER REPLACEMENT AT 1500 HOURS (ADJ.) OF RUN TIME. IN ADDITION, THE FILTER DIFFERENTIAL PRESSURE SENSOR (F-DPS) WILL TRIGGER AN ALARM WHEN MEASURED DIFFERENTIAL EXCEEDS HIGH LIMIT SETPOINT (ADJ.) INDICATING THAT FILTERS SHOULD BE REPLACED.

5. A MANUAL OVERRIDE TIMER SWITCH SHALL SWITCH THE OPERATION OF THE UNIT FROM UNOCCUPIED TO OCCUPIED MODE. THE UNIT SHALL REMAIN IN THE OCCUPIED MODE UNTIL THE TIMER SWITCH FINISHES TIME DURATION. THE BAS SHALL INDICATE THAT THE UNIT IS OPERATING IN THE OVERRIDE TIMER MODE.

6. REFER TO SAMPLE GRAPHIC AND ADDITIONAL CONTROL SYSTEM REQUIREMENTS ON M-701 FOR ADDITIONAL REQUIREMENTS.

7. UNIT GAS-FIRED HEAT EXCHANGER SHALL HAVE THE ABILITY TO BE DISABLED BY THE BAS BASED ON INPUT FROM THE HYDROGEN DETECTION SYSTEM.

8. HYDROGEN DETECTION SYSTEM SHALL BE PROVIDED BY DIVISION 26 AND BE PROVIDED WITH A PROGRAMMABLE RELAY. CONTROLS CONTRACTOR SHALL PROVIDE CONNECTION TO THE AVAILABLE HYDROGEN DETECTION SYSTEM RELAY AND CONFIGURE SEQUENCING BASED ON HYDROGEN DETECTION SIGNAL OUTPUT. CONTRACTOR TO COORDINATE WITH DIVISION 26 INSTALLER.

B. HEAT RECOVERY VENTILATOR OPERATION (BY FACTORY CONTROLLER W/ BACNET INTERFACE)

1. SYSTEM OPERATION SCHEDULE:
THE CONSTANT VOLUME AIR HANDLING SYSTEM SHALL RECEIVE AN OCCUPIED/UNOCCUPIED STATUS FROM THE BUILDING AUTOMATION SYSTEM (BAS) AS SCHEDULED (OCCUPIED 6:00 AM TO 6:00 PM, MONDAY THROUGH FRIDAY WITH THE EXCEPTION OF APPLICABLE HOLIDAYS, ADJUSTABLE, 365 DAY).

2. OCCUPIED MODE:
WHEN THE UNIT IS INDEXED TO THE OCCUPIED MODE, THE FACE DAMPER AND EXHAUST DAMPER SHALL BE COMMANDED OPEN. AFTER THE DAMPER IS PROVED OPEN FOR 20 SECONDS (ADJ.), THE SUPPLY FAN AND EXHAUST FAN ARE ENERGIZED. THE FANS WILL OPERATE AT THE SPEED ASSOCIATED WITH DESIGN AIR FLOW, AS VERIFIED DURING COMMISSIONING. WHEN THE SUPPLY AND EXHAUST FANS ARE ENERGIZED, ALL CONTROL PROCESSES ARE ENABLED (GAS HEATER, ETC.).

3. DISCHARGE TEMPERATURE CONTROL:
WHEN THE SUPPLY FAN IS ENERGIZED, THE GAS FURNACE AND HEAT RECOVERY DAMPERS SHALL MODULATE AS REQUIRED TO MAINTAIN AN HRV SUPPLY AIR TEMPERATURE OF 75°F (ADJ.). THESE SYSTEMS WILL BE COMMANDED AND MODULATED SEQUENTIALLY TO AVOID UNDESIRED OPERATIONAL CONFLICT BETWEEN THE EQUIPMENT. THE SEQUENCE SHALL BE AS FOLLOWS:

STAGE 1:
THE FACE AND BYPASS DAMPER MODULATES TO MAINTAIN SUPPLY AIR TEMPERATURE (SAT) SETPOINT 75°F (ADJ.). WHEN THE SAT HEATING DEMAND DECREASES TO 0%, HEATING STAGE 1 IS STOPPED. IF THE FACE DAMPER FOR THE HEAT EXCHANGER IS FULL OPEN (100%) AND THE SAT IS REQUESTING MORE HEAT, STAGE 2 IS ACTIVATED, WHILE THE FACE DAMPER STAYS 100% OPEN TO THE HEAT EXCHANGER.

STAGE 2:
THE GAS BURNER IS ACTIVATED, AND IS ENERGIZED TO ITS MAXIMUM CAPACITY.

AS THE HEATING DEMAND DECREASES, THE FACE DAMPER WILL MODULATE TO COMPENSATE FOR THE MINIMUM CAPACITY OF THE GAS BURNER AND MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT. WHEN THE FACE DAMPER POSITION DECREASES TO 0% FOR 2 MINUTES (ADJ.), THE GAS BURNER SHALL BE DE-ENERGIZED.

THE CONTROLLER SHALL LOCK OUT OPERATION OF THE GAS HEATER WHEN THE OUTSIDE AIR TEMPERATURE IS ABOVE 60°F (ADJ.).

4. PLATE HEAT EXCHANGER DEFROST CONTROL:
DEFROST CONTROL IS ACTIVATED ON THE FACE AND BYPASS DAMPERS AND REDUCES RECOVERY TO MAINTAIN EXHAUST AIR TEMPERATURE TO A MINIMUM OF 38°F (ADJ.). IF TEMPERATURE FALLS BELOW 38°F THE UNIT WILL RUN IN FULL BYPASS MODE.

5. UNOCCUPIED MODE:
WHEN THE UNIT IS INDEXED TO UNOCCUPIED MODE, THE HRV SUPPLY AND EXHAUST FANS SHALL BE DISABLED AFTER AN INTERNAL FACTORY DETERMINED TIME DELAY. THE OUTSIDE AIR DAMPER (OA-DPR) SHALL BE CLOSED AND THE EXHAUST AIR DAMPER (EA-DPR) SHALL BE CLOSED. DAMPER POSITION SHALL BE PROVEN CLOSED WHEN THE ANALOG ACTUATOR FEEDBACK OF LESS THAN 5% OPEN IS ACHIEVED. THE GAS BURNER WILL BE DE-ENERGIZED.

6. HYDROGEN DETECTION PURGE MODE
1. WHEN AN ALARM FROM THE HYDROGEN DETECTION SYSTEM IS RECEIVED, THE BAS SHALL DE-ENERGIZE THE GAS-FIRED HEAT EXCHANGER AND THE SUPPLY FAN. THE EXHAUST FAN SHALL REMAIN ENERGIZED. AN ALARM SHALL BE SENT TO THE BAS.
2. HRV SHALL RETURN TO NORMAL OPERATION WHEN HYDROGEN DETECTION SYSTEM ALARM HAS CLEARED AND UNIT HAS BEEN MANUALLY RESET.

7. SAFTIES/ALARMS
1. SMOKE SENSING (BY BAS & FIRE ALARM): PROVIDE THE HRV WITH A SMOKE DETECTOR ON THE OUTLET SUPPLY AND RETURN CONNECTIONS. UPON SENSING SMOKE AT THE SMOKE DETECTOR, THE SUPPLY AND RETURN FANS SHALL STOP AND THE UNIT SHALL TRIGGER AN ALARM AT THE FIRE ALARM CONTROL PANEL. THE SUPPLY AND RETURN AIR SMOKE DETECTORS (SA-SD, RA-SD) SHALL BE DIRECTLY CONNECTED TO THE FIRE ALARM SYSTEM AS SPECIFIED IN DIVISION 26 SPECIFICATION.
2. IF THE SUPPLY AIR TEMPERATURE (SA-T) IS LOWER THAN 45°F (ADJ.) FOR 5 CONSECUTIVE MINUTES, AN ALARM SHALL BE SENT TO THE BAS.
3. IF THE SUPPLY AIR TEMPERATURE (SA-T) IS GREATER THAN 110°F (ADJ.) FOR 5 CONSECUTIVE MINUTES, AN ALARM SHALL BE SENT TO THE BAS.
4. RESTART OF THE UNITS AFTER AN ALARM EVENT SHALL BE PERFORMED AT THE BAS ONCE THE ALARM HAS CLEARED. THE UNIT SHALL START IN OCCUPIED MODE.
5. DAMPER FAILURE: PROVIDE THE EA AND FACE AND BYPASS DAMPERS WITH AN END SWITCH TO PROVE DAMPER POSITION. ON A FAILURE OF EITHER DAMPER TO PROVE OPEN WHEN THE SYSTEM IS ENERGIZED, AN ALARM SHALL BE TRIGGERED AT THE BAS AND THE SYSTEM WILL BE DE-ENERGIZED AND LOCKED OUT FROM OPERATION.
6. WHEN SCHEDULED TO BE ON, IF THE SUPPLY FAN IS NOT OPERATING, AN ALARM SHALL BE SENT TO THE BAS.
7. WHEN SCHEDULED TO BE ON, IF THE EXHAUST FAN IS NOT OPERATING, AN ALARM SHALL BE SENT TO THE BAS AND UNIT SHALL DE-ENERGIZE.
8. IF THE GAS BURNER FAILS TO OPERATE ON A CALL FOR HEATING, AN ALARM SHALL BE SENT TO THE BAS.
9. IF THE SUPPLY AIR STATIC PRESSURE REACHES THE HIGH LIMIT SETPOINT, THE SYSTEM IS DE-ENERGIZED AND AN ALARM IS SENT TO THE BAS.
10. ON DETECTION OF HYDROGEN IN THE SPACE, THE BAS SHALL GENERATE AN ALARM AT THE BAS HEAD END. ALARM SHALL REQUIRE MANUAL RESET TO CLEAR.

C. TRENDING ANALYSIS
IN ACCORDANCE WITH SPECIFICATION SECTION 230923, TRENDING SHALL BE PERFORMED BY THE BAS VENDOR IN ADVANCE OF A REQUEST FOR WITNESS AND ACCEPTANCE OF THE FUNCTIONAL PERFORMANCE TESTS BY THE OWNER AND ENGINEER. THE TRENDING IS INTENDED TO DEMONSTRATE THAT THE PERFORMANCE OF THE SYSTEM PROVIDES STABLE CONTROL AS DEFINED IN DRAWING M-701. POINTS AND ASSOCIATED SETPOINTS AND FEEDBACKS SHOWN IN THE ABOVE GRAPHIC ARE REQUIRED TO BE TRENDED AND STORED FOR THE SYSTEM.

D. PROVIDED CONTROLS
ALL CONTROLS AND CONTROL DEVICES SHALL BE PROVIDED AND INSTALLED BY CONTROLS CONTRACTOR.
FUSED DISCONNECT SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.

1 / M702 CONTROLS - HEAT RECOVERY VENTILATOR (HRV-1,2)
SCALE: NTS

M702

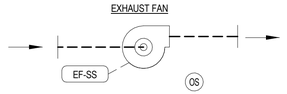
$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Facility Expansion - MEP.rvt

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JCB		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: DLG		51

MECHANICAL CONTROLS - HRV UNITS



A. GENERAL INFORMATION

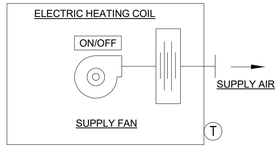
THE CONSTANT VOLUME CEILING EXHAUST FAN SERVES THE SHOP TOILET ROOM. THE CEILING EXHAUST FAN WILL BE STAND ALONE AND WILL NOT BE CONNECTED TO THE BAS.

B. EXHAUST FAN OPERATION

THE EF SHALL BE ENABLED BY A DUEL RELAY CEILING MOUNTED MOTION SENSOR INTERLOCKED WITH THE ASSOCIATED LIGHTING CIRCUIT.

2 M703 TOILET ROOM EXHAUST FAN (EF-3)

SCALE: NTS



A. GENERAL

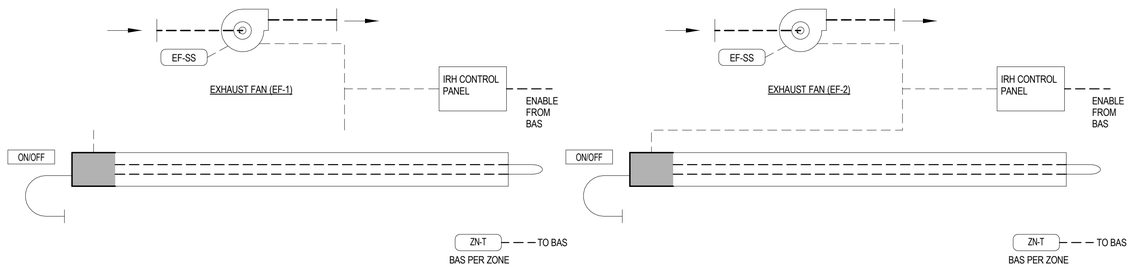
THE ELECTRIC CABINET UNIT HEATER (CUH-1) IS A CONSTANT VOLUME UNIT EQUIPPED WITH A CONSTANT VOLUME FAN AND AN ELECTRIC HEATING COIL. THE CUH IS PROVIDED WITH AN AUTO-OFF SELECTOR SWITCH. A FACTORY MOUNTED, INTEGRAL THERMOSTAT SHALL INITIATE UNIT OPERATION WHEN THE SELECTOR SWITCH IS IN THE AUTO POSITION.

B. UNIT HEATER OPERATION

DURING NORMAL OPERATION, THE CUH SHALL BE ENABLED THROUGH A FACTORY MOUNTED ON/OFF SWITCH. THE CUH SHALL OPERATE THROUGH AN INTEGRAL THERMOSTAT. THE CUH SHALL CYCLE THROUGH INTERNAL CONTROLS TO MAINTAIN A ZONE TEMPERATURE SETPOINT OF 70 °F (ADJ.). INTERNAL CONTROL SHALL PROVIDE FOR A FAN DELAY TO PURGE THE HEATER OF RESIDUAL HEAT.

3 M703 HEATER (CUH-1)

SCALE: NTS



A. GENERAL

THE INFRARED HEATER (IRH) SHALL BE EQUIPPED WITH A GAS FIRED BURNER AND CAST IRON RADIANT HEAT TUBING. IRH-1 THOUGH IRH-6 SHALL BE PROVIDED WITH SINGLE STAGE SPECIALTY APPLICATION BURNERS SUITABLE FOR HYDROGEN FACILITY INSTALLATION. A BAS PROVIDED WALL MOUNTED ZONE TEMPERATURE SENSOR SHALL INITIATE UNIT OPERATION FOR EACH IRH INDEPENDENTLY. TWO VACUUM PUMPS (EF-4 AND EF-5) SHALL BE PROVIDED AND CONTROLLED BY TWO DEDICATED IRH MANUFACTURER CONTROL PANELS. EACH CONTROL PANEL CAN CONTROL UP TO FOUR (4) IRH ZONES.

THE BAS SHALL MONITOR SPACE TEMPERATURE AND ACTIVATE ZONE RELAYS AT THE IRH CONTROL PANEL TO INITIATE INDIVIDUAL ZONE COMMAND FOR HEAT VIA A 24V SIGNAL. BAS TEMPERATURE SENSORS SHALL ALSO REPORT ZONE TEMPERATURE TO THE BAS HEAD END FOR MONITORING. ALL FIRING SEQUENCES FOR BURNER AND VACUUM PUMP OPERATION SHALL BE INITIATED AND CONTROLLED BY THE IRH CONTROL PANEL. THE BAS SHALL INDEPENDENTLY MONITOR VACUUM PUMP STATUS FOR EACH VACUUM PUMP.

B. HYDROGEN DETECTION SHUTDOWN

THE BAS SHALL DISABLE INFRARED HEATER ON RELAY SIGNAL FROM HYDROGEN DETECTION SYSTEM INDICATING PRESENCE OF HYDROGEN. BAS SHALL ENABLE IRH WHEN HYDROGEN DETECTION SYSTEM ALARM HAS CLEARED AND UNIT HAS BEEN MANUALLY RESET.

C. IRH OPERATION

DURING OCCUPIED MODE (6:00 AM TO 6:00 PM), THE IRH SHALL STAGE ON AS REQUIRED THROUGH INTERNAL CONTROLS TO MAINTAIN TEMPERATURE SETPOINT (ZN-T) OF 65°F (ADJ.). INTERNAL CONTROLS SHALL BE ENABLED AND DISABLE EXHAUST BLOWER (EF-4,5) AS REQUIRED TO FACILITATE INDIVIDUAL IRH FIRING AND FACTORY REQUIRED PRE-PURGE DELAY BEFORE ALLOWING BURNERS TO FIRE.

DURING UNOCCUPIED MODE, THE IRH SHALL STAGE ON AS REQUIRED THROUGH INTERNAL CONTROLS TO MAINTAIN TEMPERATURE SETPOINT (ZN-T) OF 60 DEGREES F (ADJ.).

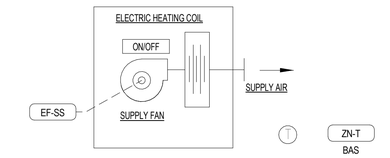
D. ALARMS

IRH CONTROLLER SHALL REQUIRE PROOF OF VACUUM PUMP OPERATION TO ENABLE IRH OPERATION. BAS SHALL MONITOR VACUUM PUMP STATUS AND INITIATE AN ALARM IF THERE HAS BEEN A CALL FOR HEAT FOR 3 MIN. (ADJ.) AND THE VACUUM PUMP HAS NOT ENERGIZED. SIMILARLY, THE BAS SHALL INITIATE AN ALARM IF THE VACUUM PUMP REMAINS ENERGIZED FOR MORE THAT 10 MIN (ADJ.) FOLLOWING DE-ENERGIZATION OF ALL IRH ASSOCIATED WITH THAT VACUUM PUMP.

BAS SHALL MONITOR SPACE TEMPERATURE AND INITIATE AN ALARM WHEN SPACE TEMEPRATURE HAS DROPPED 5 DEGREES BELOW SETPOINT FOR 20 MINUTES (ADJ.).

4 M703 GAS-FIRED INFRARED HEATER (IRH-1 THRU 6, EF-1 THRU 2)

SCALE: NTS



A. GENERAL

ELECTRIC UNIT HEATERS (UH) ARE SUSPENDED UNITS, EQUIPPED WITH A CONSTANT VOLUME FAN AND AN ELECTRIC HEATING COIL. THE UNIT SHALL BE ENABLED BY A FACTORY PROVIDED, WALL MOUNTED THERMOSTAT. A SEPARATE THERMOSTAT WILL BE PROVIDED TO REPORT SPACE TEMPERATURE TO BAS.

B. UNIT HEATER OPERATION

DURING OCCUPIED MODE (6:00 AM TO 6:00 PM) WHEN THE ZONE TEMPERATURE FALLS BELOW THE SETPOINT, UH FAN AND ELECTRIC RESISTANCE HEATING COIL SHALL ENABLE TO MAINTAIN THE ZONE TEMPERATURE SETPOINT OF 65 DEGREES F (ADJ.) WITH A 2 DEGREE F DEADBAND.

ZONE TEMPERATURE AND UNIT HEATER STATUS SHALL BE MONITORED BY THE BAS FOR MAINTENANCE AND TROUBLESHOOTING. A LOW ZONE TEMEPRATURE ALARM WILL BE GENERATED AT THE BAS WHEN A TEMPERATURE OF 55 DEGREES F OR BELOW IS SENSED.

C. HYDROGEN DETECTION SHUTDOWN

BAS SHALL DISABLE THE UH WHEN THE HYDROGEN DETECTION SYSTEM OUTPUT RELAY IS ACTIVATED. RELAY SHALL RESET AND ENABLE UH WHEN WHEN HYDROGEN DETECTION SYSTEM ALARM HAS CLEARED AND UNIT HAS BEEN MANUALLY RESET .

5 M703 ELECTRIC UNIT HEATER (UH-1 THRU 6)

SCALE: NTS

M703

$DATE_USERS$
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ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JCB	
COUNTY	CHECKED BY: DLG	
NEW CASTLE		

MECHANICAL CONTROLS

SECTION
JMT
SHEET NO.
52

FIRE PROTECTION LEGEND

SYMBOL	DESCRIPTION
	PIPE CAP
	BRANCH TAKE OFF
	PIPE DROP TEE
	PIPE RISE TEE
	SHUT-OFF VALVE
	SOLENOID VALVE
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	PRESSURE RELIEF VALVE
	BALANCING VALVE (W/MEMORY STOP)
	BACKWATER VALVE
	BUTTERFLY VALVE
	HOSE END DRAIN VALVE
	BACKFLOW PREVENTER
	CHECK VALVE; (ARROW INDICATES DIRECTION OF FLOW)
	VALVE IN VERTICAL PIPE
	FIRE DEPARTMENT CONNECTION (SIAMESE)
	SPRINKLER HEAD
⌀	DIAMETER
	POINT OF CONNECTION, NEW TO EXISTING
	POINT OF DISCONNECTION FROM EXISTING
1	SYMBOL FOR SPECIFIC NOTE. NOTE APPLIES TO DRAWING ON WHICH IT OCCURS.

DESIGNATIONS

PLAN NORTH

NORTH ARROW

ABBREVIATIONS

BDD	BACKDRAFT DAMPER
BFP	BACKFLOW PREVENTOR
BHP	BRAKE HORSEPOWER
BLDG	BUILDING
BLW	BELOW
BP	BYPASS
BV	BALANCING VALVE
BWV	BACKWATER VALVE
CLG	CEILING
CO	CLEANOUT
CONN	CONNECT, CONNECTION
CONT'N	CONTINUATION
CV	CHECK VALVE
CX	CONNECT TO EXISTING
DN	DOWN
DWG	DRAWING
ESP	EXTERNAL STATIC PRESSURE
EX	EXISTING
FDC	FIRE DEPARTMENT CONNECTION
FDV	FIRE DEPARTMENT VALVE
FHC	FIRE HOSE CABINET
FL	FLOOR
FSP	FIRE STANDPIPE
FT, '	FOOT, FEET OR FLASH TANK
FT HD	FEET OF HEAD
FZ	FREEZE STAT
FU	FIXTURE UNITS
GPM	GALLONS PER MINUTE
IN, "	INCH, INCHES
ISOL VLV	ISOLATION VALVE
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MTD	MOUNTED
%	PERCENT
PD	PRESSURE DROP OR PUMP DISCHARGE
POD	POINT OF DISCONNECTION
PR	PRESSURE RELIEF
PRESS, P	PRESSURE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SENSOR
PSI	POUNDS PER SQUARE INCH POUNDS
PSIG	PER SQUARE INCH GAUGE
REQ'D	REQUIRED
RM	ROOM
S	SPRINKLER SUPPLY PIPE
SPEC	SPECIFICATION
SQ	SQUARE
SQ FT	DROP SQUARE FOOT
SPR	SPRINKLER LINE
SS	START/STOP
S/S	STAINLESS STEEL
STL	STEEL
TEMP, T	TEMPERATURE
TS	TAMPER SWITCH
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
W	WIDTH
W/	WITH
ZN	ZONE

GENERAL SHEET NOTES:

1. THE GENERAL SCOPE OF THIS PORTION OF THE PROJECT SHALL CONSIST OF PROVIDING AN AUTOMATIC SPRINKLER SYSTEM TO MEET THE CODE REQUIREMENTS FOR THE PROPOSED OCCUPANCY AND ARCHITECTURAL FLOOR PLAN. THE AUTOMATIC SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED AND INSTALLED IN FULL ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13 NEW CASTLE COUNTY FIRE MARSHAL REQUIREMENTS, DELAWARE STATE FIRE MARSHAL REQUIREMENTS, AND THE SPECIFICATIONS.
2. THE PROPOSED ZONING AND PIPE ROUTING SHOWN ON THE DRAWINGS IS FOR REFERENCE ONLY. THE CONTRACTOR IS TO PROVIDE A COMPLETE DESIGN INCLUDING PIPE SIZES AND FINAL ROUTING.
3. ALL AREAS SHALL BE CLASSIFIED AS ORDINARY HAZARD, GROUP 1 OR GROUP 2, AS DEFINED IN SPECIFICATION 211313, UNLESS OTHERWISE DESIGNATED BY AUTHORITIES HAVING JURISDICTION OR AS INDICATED ON PLANS.
   REFER TO SPECIFICATIONS FOR MINIMUM DENSITY REQUIREMENTS FOR SPRINKLER HYDRAULIC DESIGN.
4. WHEN INSTALLING SPRINKLER HEADS CONTRACTOR SHALL PENETRATE FIRE WALLS ONLY ONCE WITH PIPING.
5. SPRINKLER CONTRACTOR SHALL COORDINATE TYPE AND SIZE OF ALL FIRE DEPARTMENT CONNECTIONS AND TEST FITTINGS WITH LOCAL FIRE DEPARTMENT.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING THE DESIGN OF THE AUTOMATIC SPRINKLER SYSTEMS. SHOP DRAWINGS, MANUFACTURE'S DATA SHEETS AND HYDRAULIC CALCULATIONS SHALL BE SUBMITTED TO NEW CASTLE COUNTY FIRE MARSHAL FOR REVIEW AND APPROVAL. SHOP DRAWINGS, MANUFACTURER'S DATA SHEETS, AND HYDRAULIC CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL BEFORE SUBMISSION TO THE NEW CASTLE COUNTY FIRE MARSHAL AND, PURCHASE AND INSTALLATION. FINAL DESIGN OF THE SYSTEMS SHALL BE COORDINATED WITH FIELD CONDITIONS AND AVAILABLE WATER SUPPLY.
7. SHOP DRAWINGS SHALL BE PROVIDED IN ACCORDANCE WITH SPECIFICATIONS, INCLUDING PLANS, SECTIONS, DETAILS AND ELEVATIONS AS REQUIRED.
8. THE SPRINKLER CONTRACTOR SHALL PROVIDE ALL NECESSARY PARTS AND ACCESSORIES EVEN THOUGH THE PARTS AND ACCESSORIES ARE NOT SPECIFICALLY MENTIONED OR SHOWN HEREIN IN ACCORDANCE WITH NFPA 13.
9. THE SPRINKLER SYSTEM PIPING SHALL BE SUBJECTED TO A HYDROSTATIC PRESSURE TEST IN ACCORDANCE WITH NFPA 13.
10. PIPE HANGERS SHALL BE PROVIDED IN ACCORDANCE WITH NFPA.
11. ALL HANGER MATERIALS SHALL BE UL LISTED AND/OR FM APPROVED.
12. FLUSHING CONNECTIONS SHALL BE PROVIDED ON THE SPRINKLER SYSTEM PIPING PER NFPA 13.
13. ALL FIRE PROTECTION PIPING AND EQUIPMENT SHOWN ARE FOR SUGGESTIVE PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL CONDITIONS. ALL ITEMS OF EQUIPMENT SHALL BE INSTALLED BY ON-THE-JOB MEASUREMENTS AND COORDINATED WITH ALL OTHER TRADES. UNDER NO CIRCUMSTANCES SHALL THE DRAWINGS BE SCALED.
14. ALL FITTINGS SHALL BE 175 PSIG MINIMUM WORKING PRESSURE.
15. APPROVED IDENTIFICATION SIGNS FOR ALL SYSTEM COMPONENTS SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 13 AND THE SPECIFICATIONS AND NEW CASTLE COUNTY FIRE MARSHAL.
16. ALL PENETRATIONS THROUGH WALLS SHALL BE PATCHED WITH APPROVED FIRE STOPPING MATERIAL.
17. ALL SPRINKLER PIPING IN FINISHED CEILING AREAS SHALL BE INSTALLED ABOVE THE CEILINGS. REFER TO THE ARCHITECTURAL DRAWINGS CEILING TYPES.
18. CONTRACTOR TO COORDINATE SPRINKLER HEAD LAYOUT WITH LIGHT, DIFFUSER, AND COMMUNICATION DEVICE LOCATIONS.
19. ALL SPRINKLER HEADS IN FINISHED ARCHITECTURAL SPACE SHALL BE PROVIDED WITH ESCUTCHEON COVERS. ALL SPRINKLER HEADS IN SUSPENDED CEILING SHALL BE LOCATED IN THE CENTER OF CEILING TILES.
20. PIPING IN OCCUPIED AREAS WITHOUT SUSPENDED CEILINGS SHALL BE INSTALLED IN AN AESTHETICALLY PLEASING MANNER AS TIGHT TO THE CEILING AS POSSIBLE.
21. PROVIDE METAL GUARDS AT ALL SPRINKLER HEADS SUBJECT TO DAMAGE.

FP001

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

FIRE PROTECTION ABBREVIATIONS AND GENERAL NOTES

SECTION
JMT
SHEET NO.
53

$DATE_USER$
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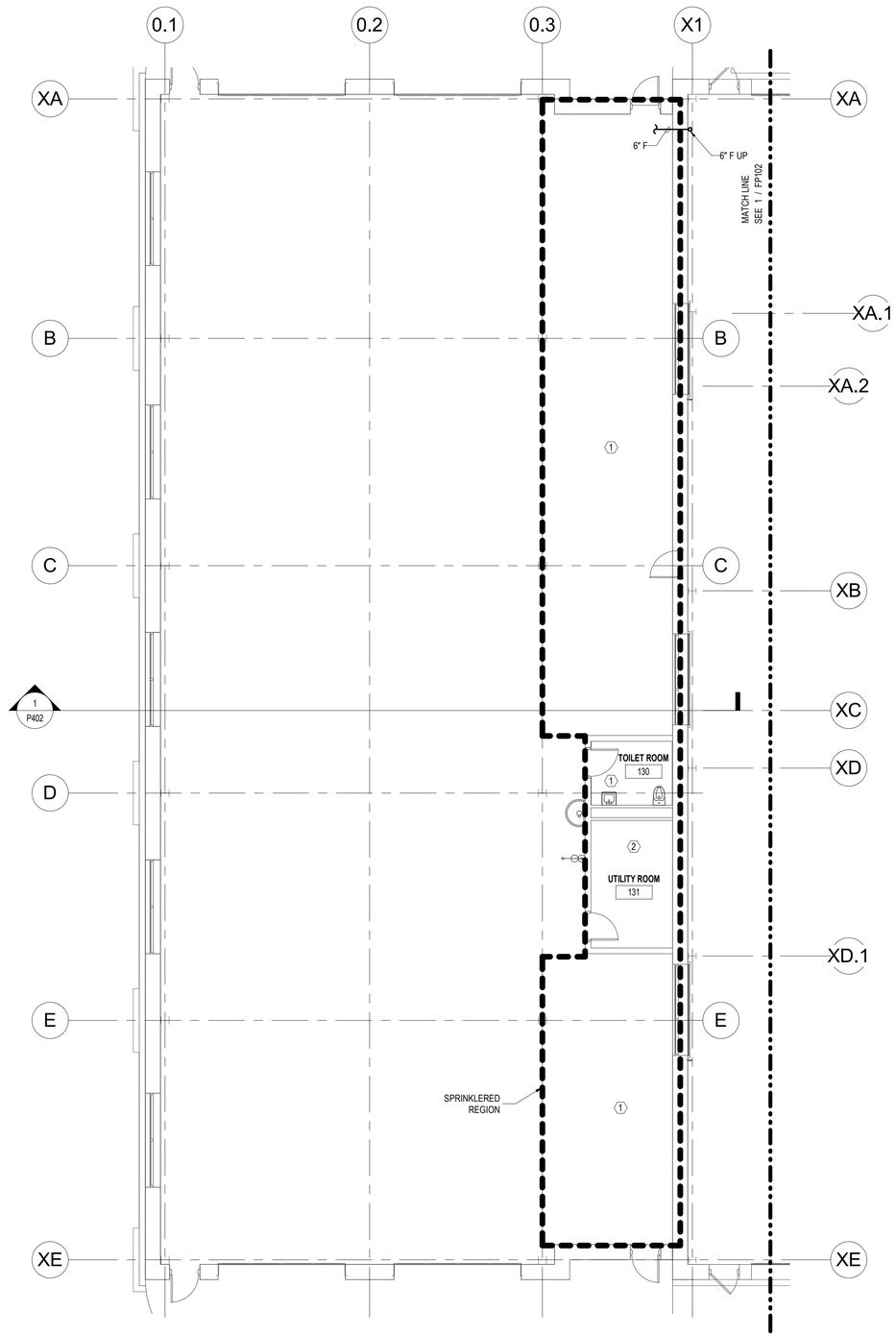


1 FP101 FIRE PROTECTION PLAN - FIRST FLOOR A
SCALE: 1/8" = 1'-0"

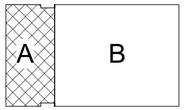
GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, FIRE PROTECTION ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET FP-001 FOR FIRE PROTECTION LEGEND AND GENERAL NOTES.
4. ALL AREAS SHALL BE CLASSIFIED AS ORDINARY HAZARD, UNLESS OTHERWISE DESIGNED BY AUTHORITIES HAVING JURISDICTION OR AS INDICATED ON PLANS.

⬡ SHEET KEYNOTES:

1 PROVIDE SEMI-RECESSED SPRINKLER HEADS IN GYPSUM BOARD CEILING WITHIN AREA . SIZE, LOCATE, AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.

2 PROVIDE UPRIGHT SPRINKLER HEADS WITHIN AREA. SPRINKLER PIPING MAY RUN WITHIN THE SPACE. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.



KEYPLAN

PLAN NORTH

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

FP101

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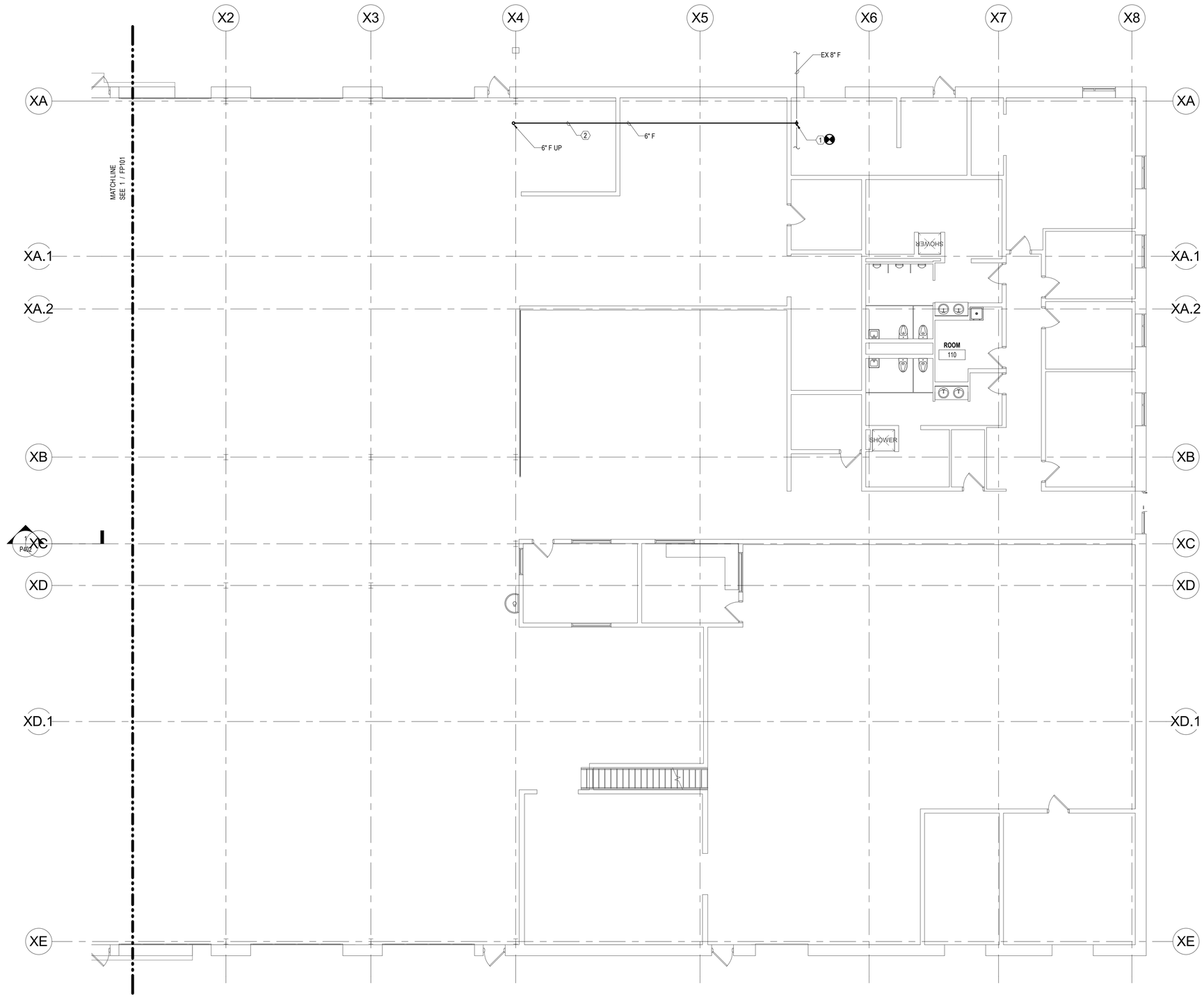
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: GMO		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: TGK		54

FIRE PROTECTION PLAN- FIRST FLOOR A



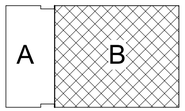
1 FP102 FIRE PROTECTION PLAN - FIRST FLOOR B
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, FIRE PROTECTION ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET FP-001 FOR FIRE PROTECTION LEGEND AND GENERAL NOTES.
4. ALL AREAS SHALL BE CLASSIFIED AS ORDINARY HAZARD, UNLESS OTHERWISE DESIGNED BY AUTHORITIES HAVING JURISDICTION OR AS INDICATED ON PLANS.

SHEET KEYNOTES:

1 CONNECT NEW FIRE PROTECTION PIPING TO THE EXISTING 8" FIRE SUPPRESSION MAIN DOWNSTREAM OF THE BACKFLOW PREVENTER.
2 EXTEND NEW FIRE PROTECTION BRANCH TO THE NEW MAINTENANCE BAYS. BRANCH PIPING SHALL BE ROUTED HIGH IN THE CEILING TO PREVENT INTERFERENCE WITH OTHER UTILITIES AND SHOP OPERATIONS.



KEYPLAN

PLAN NORTH

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

FP102

ADDENDUMS / REVISIONS		
NUMBER	DESCRIPTION	DATE

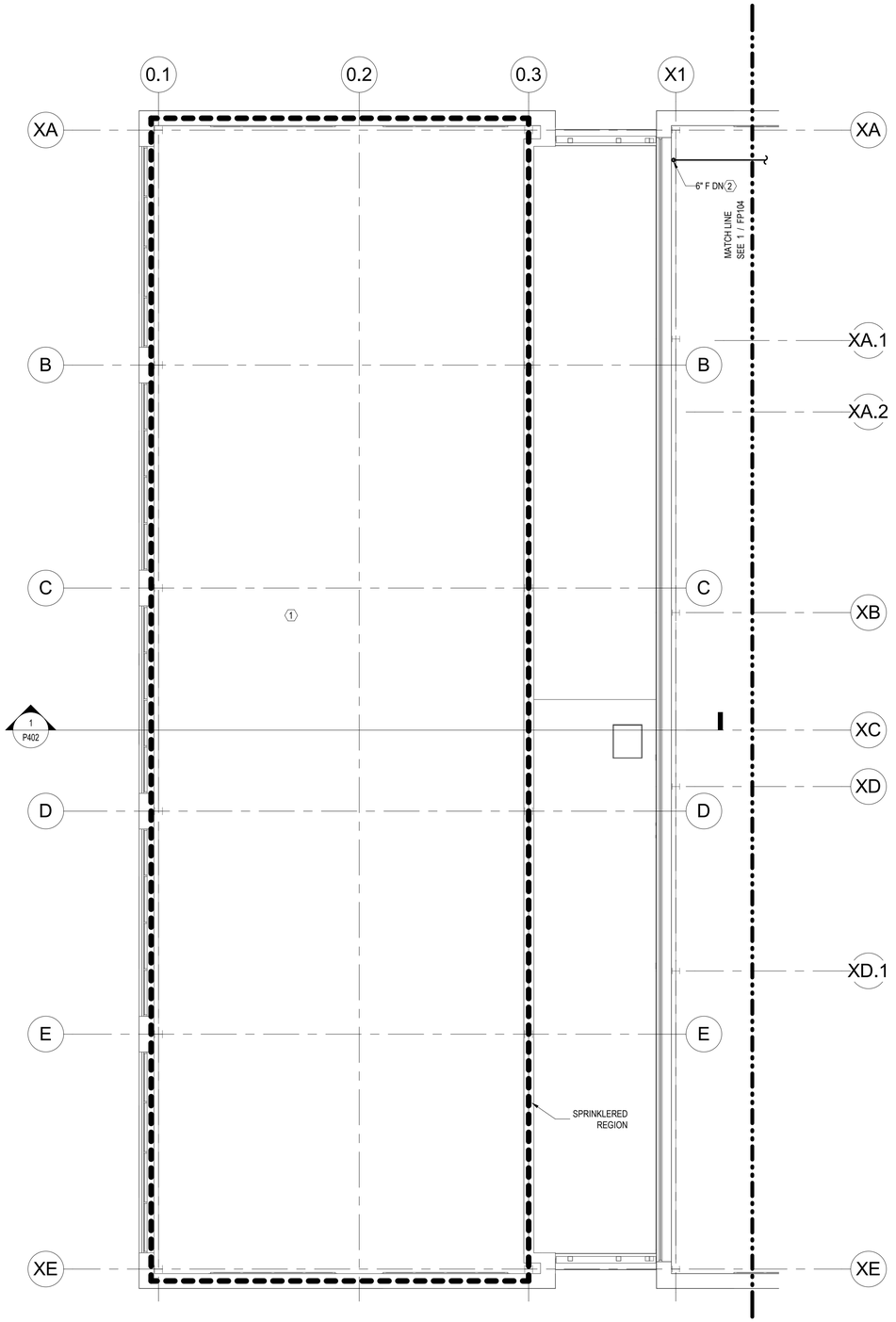
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

FIRE PROTECTION PLAN- FIRST FLOOR B

SECTION
JMT
SHEET NO.
55

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 FP103 FIRE PROTECTION PLAN NEW WORK- LOWER ROOF A
SCALE: 1/8" = 1'-0"

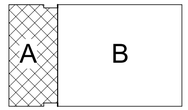
GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, FIRE PROTECTION ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET FP-001 FOR FIRE PROTECTION LEGEND AND GENERAL NOTES.
4. ALL AREAS SHALL BE CLASSIFIED AS ORDINARY HAZARD, UNLESS OTHERWISE DESIGNED BY AUTHORITIES HAVING JURISDICTION OR AS INDICATED ON PLANS.

SHEET KEYNOTES:

1 PROVIDE UPRIGHT SPRINKLER HEADS WITHIN AREA. SPRINKLER PIPING MAY RUN WITHIN THE SPACE. SIZE, LOCATE AND INSTALL SYSTEM PER SITE AND NFPA 13 REQUIREMENTS.

2 NEW FIRE PROTECTION BRANCH SHALL CONNECT TO THE EXISTING FIRE PROTECTION MAIN IN ROOM 108 OF THE EXISTING BUILDING. BRANCH PIPING SHALL BE ROUTED HIGH IN THE CEILING TO PREVENT INTERFERENCE WITH OTHER UTILITIES AND SHOP OPERATIONS.



KEYPLAN

PLAN NORTH

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

FP103

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt

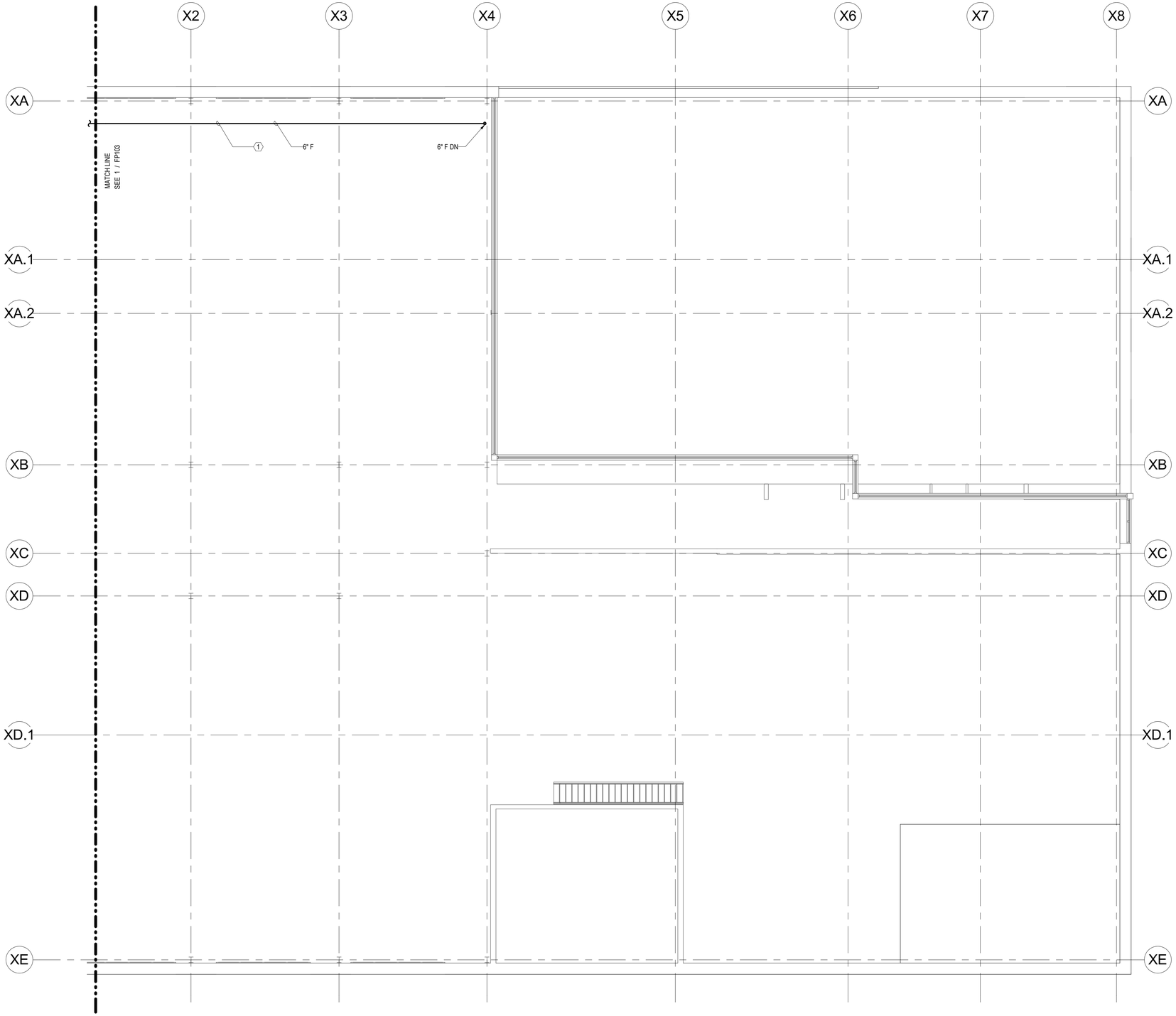
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

FIRE PROTECTION PLAN - LOWER ROOF A

SECTION
JMT
SHEET NO.
56



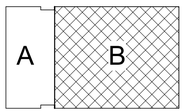
1 FP104 FIRE PROTECTION PLAN NEW WORK- LOWER ROOF B
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, FIRE PROTECTION ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET FP-001 FOR FIRE PROTECTION LEGEND AND GENERAL NOTES.
4. ALL AREAS SHALL BE CLASSIFIED AS ORDINARY HAZARD, UNLESS OTHERWISE DESIGNED BY AUTHORITIES HAVING JURISDICTION OR AS INDICATED ON PLANS.

⬡ SHEET KEYNOTES:

1 FIRE PROTECTION BRANCH PIPING SHALL BE ROUTED HIGH IN THE CEILING TO PREVENT INTERFERENCE WITH OTHER UTILITIES AND SHOP OPERATIONS.



KEYPLAN

PLAN NORTH

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

FP104

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY	CHECKED BY: TGK	
NEW CASTLE		

FIRE PROTECTION PLAN - LOWER ROOF B

SECTION
JMT
SHEET NO.
57

PLUMBING LEGEND

SYMBOL	DESCRIPTION
	SOIL, WASTE, OR SANITARY PIPE
	VENT PIPE
	COMPRESSED AIR PIPE
	DOMESTIC COLD WATER PIPE
	DOMESTIC HOT WATER PIPE
	FIRE PROTECTION PIPE
G	NATURAL GAS PIPE
CO CO	CLEANOUT (WALL/FLOOR)
	PIPE CAP
	BRANCH TAKE OFF
	PIPE DROP TEE
	PIPE RISE TEE
	SHUT-OFF VALVE
	UNION
	STRAINER W/BLOWDOWN VALVE
	PIPE GUIDE
	PIPE ANCHORS
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	BALANCING VALVE (W/MEMORY STOP)
	HOSE END DRAIN VALVE
	BACKFLOW PREVENTER
	CHECK VALVE; (ARROW INDICATES DIRECTION OF FLOW)
	FLOOR DRAIN
	HOSE BIBB

SYMBOL	DESCRIPTION
	GAUGE COCK
	VACUUM BREAKER
	FLANGED PIPE CONNECTION
	FLEXIBLE CONNECTION (PIPING)
	EXPANSION JOINT
	FLOW DIRECTION ARROW
	VALVE IN VERTICAL PIPE
30 PSI	PRESSURE RELIEF VALVE (NUMERALS INDICATE SETTING)
	WATER HAMMER ARRESTER
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	PRESSURE GAUGE w/GAUGE COCK
	THERMOMETER
ø	DIAMETER
	POINT OF CONNECTION, NEW TO EXISTING
	POINT OF DISCONNECTION FROM EXISTING
1	SYMBOL FOR SPECIFIC NOTE. NOTE APPLIES TO DRAWING ON WHICH IT OCCURS.

DESIGNATIONS

EQUIPMENT DESIGNATIONS

P-_	PLUMBING FIXTURE
DWH-_	DOMESTIC WATER HEATER
TMV-_	THERMOSTATIC MIXING VALVE
TPS-_	TRAP PRIMING STATION

X / X — SECTION REFERENCE: (SEE DATA BELOW FOR DETAILS)

/ SHT — DRAWING TITLE / SCALE

DETAIL = LETTER / SECTION = NUMBER

SHEET NUMBER FROM WHICH THE PARTIAL, SECTION, ELEVATION, OR DETAIL IS DRAWN

PLAN NORTH

NORTH ARROW

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
ATF	AUTOMATIC TRANSMISSION FLUID
BLDG	BUILDING
CA	COMPRESSED AIR
CLG	CEILING
CMP	AIR COMPRESSOR
CO	CLEANOUT
CONN	CONNECT, CONNECTION
CONT'N	CONTINUATION
CV	CHECK VALVE
CW	DOMESTIC COLD WATER
DESG	DESIGNATION
DIA, ø	DIAMETER
DN	DOWN
DWG	DRAWING
DWH	DOMESTIC WATER HEATER
EFF	EFFICIENCY
EX	EXISTING
°F	DEGREES FAHRENHEIT
FDR	FLOOR DRAIN
FL	FLOOR
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FT, '	FOOT, FEET OR FLASH TANK
FT HD	FEET OF HEAD
FU	FIXTURE UNITS
G	NATURAL GAS PIPE OR RETURN/EXHAUST GRILLE
GAL	GALLON, GALLONS
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HED	HOSE END DRAIN VALVE
HP	HORSEPOWER
HW	DOMESTIC HOT WATER
IN, "	INCH, INCHES
ISOL VLV	ISOLATION VALVE
KW	KILOWATTS
L	LONG, LENGTH
LBS	POUNDS
LF	LINEAR FEET
LHR	LUBE HOSE REEL
MAX	MAXIMUM
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MTD	MOUNTED
OWS	OIL WATER SEPARATOR
%	PERCENT
PD	PRESSURE DROP OR PUMP DISCHARGE
PET	PORTABLE EXPANSION TANK
PH	PHASE
PRESS, P	PRESSURE
PSI	POUNDS PER SQUARE INCH POUNDS
PSIG	PER SQUARE INCH GAUGE
REQ'D	REQUIRED
RFD	REFRIGERATED AIR DRYER
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RX	REMOVE EXISTING
SAN	SANITARY, SOIL, WASTE
SQ FT	SQUARE FOOT
TEMP, T	TEMPERATURE
TDR	TRENCH DRAINS
TMV	THERMOSTATIC MIXING VALVE
TYP	TYPICAL
V	VOLTS, SANITARY VENT PIPE
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
W	WIDTH
W/	WITH
WH	WALL HYDRANT
W/O	WITHOUT

GENERAL NOTES

1. WORK SHALL CONFORM TO THE CONTRACT DRAWINGS, SPECIFICATIONS AND CURRENTLY ADOPTED VERSION OF THE INTERNATIONAL PLUMBING CODE. WORK SHALL BE PERFORMED IN ACCORDANCE WITH OSHA AND NATIONAL SAFETY CODE REQUIREMENTS.
2. THE SCOPE OF WORK INDICATED IN THESE DOCUMENTS SHALL INCLUDE PLUMBING SYSTEMS, FULLY ADJUSTED, TESTED AND READY TO USE. PROVIDE ITEMS NECESSARY TO COMPLETE THE SYSTEMS, EXAMINE WORK INDICATED FOR TRADES IN ORDER TO DETERMINE THE EXTENT OF THE WORK REQUIRED TO BE COMPLETED.
3. IT IS THE INTENTION OF THESE DRAWINGS TO CALL FOR FINISHED WORK,TESTED AND READY FOR OPERATION. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE, TESTED AND READY FOR USE."
4. THE DRAWINGS ARE DIAGRAMMATIC AND DO NOT SHOW EVERY COMPONENT AND/OR ACCESSORY REQUIRED FOR A COMPLETE INSTALLATION. THE CONTRACTOR SHALL PROVIDE ITEMS NECESSARY FOR A PROPERLY WORKING SYSTEM IN COMPLIANCE WITH ACCEPTED INDUSTRY STANDARDS, FULL CONTRACT DOCUMENTS AND MANUFACTURER'S RECOMMENDATIONS.
5. PRIOR TO BID, THE CONTRACTOR SHALL VISIT THE SITE AND IDENTIFY ITEMS THAT MAY AFFECT THEIR BID. PRIOR TO THE INSTALLATION, FABRICATION, REMOVAL, OR RELOCATION OF ANY WORK, THE CONTRACTORS SHALL REVIEW THE ACTUAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND SHALL COORDINATE WORK WITH THE PLANS; EXISTING EQUIPMENT AND SYSTEMS, BUILDING STRUCTURE AND WORK OF OTHER TRADES. WHERE CONFLICTS OCCUR, OR IF CONNECTIONS THERETO CAN NOT BE MADE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER PRIOR TO MATERIAL FABRICATION OR INSTALLATION. ANY WORK REQUIRED TO ADDRESS SUCH DISCREPANCIES SHOULD BE INDICATED IN THE CONTRACTOR'S SHOP DRAWINGS FOR THE AFFECTED SYSTEM.
6. WHERE THE WORK OF VARIOUS TRADES WILL BE INSTALLED IN CLOSE PROXIMITY TO ONE ANOTHER OR WHERE THERE IS EVIDENCE THAT THE WORK OF ONE TRADE WILL INTERFERE WITH WORK OF ANOTHER, THE CONTRACTOR SHALL WORK OUT SPACE CONDITIONS TO MAKE A SATISFACTORY ADJUSTMENT. IF THE CONTRACTOR ALLOWS ONE TRADE TO INSTALL HIS WORK BEFORE COORDINATING WITH WORK OF OTHER TRADES THE CONTRACTOR SHALL MAKE NECESSARY CHANGES TO CORRECT THE CONDITIONS IN A MANNER ACCEPTABLE TO THE OWNER AND THE CONTRACTOR SHALL BEAR THE COST OF SUCH CORRECTIONS.
7. THE CONTRACTOR SHALL LOCATE EQUIPMENT WHICH MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITION. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, VALVES, MOTORS, CONTROLLERS, DRAIN PANS, ETC. IF REQUIRED FOR ACCESSIBILITY, FURNISH ACCESS DOORS FOR THE PURPOSE. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ALLOW FOR BETTER ACCESSIBILITY.
8. THE CONTRACTOR SHALL LEAVE THE ENTIRE PLUMBING SYSTEM INSTALLED UNDER THIS CONTRACT IN PROPER WORKING ORDER AND SHALL, WITHOUT CHARGE, REPLACE ANY WORK OR MATERIALS WHICH DEVELOP DEFECTS, EXCEPT FROM ORDINARY WEAR AND TEAR, WITHIN ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. THE CONTRACTOR SHALL, DURING THE WARRANTEE PERIOD, BE RESPONSIBLE FOR PROPER REPAIR AND ADJUSTMENTS OF PLUMBING SYSTEMS AND EQUIPMENT, APPARATUS, DEVICES ETC. INSTALLED BY HIM, AND DO WORK NECESSARY TO ENSURE EFFICIENT AND PROPER FUNCTIONING.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR, AND SHALL INCUR FINANCIAL RESPONSIBILITIES FOR, ANY DAMAGES CAUSED BY OR RESULTING FROM DEFECTS IN THEIR WORK.
11. WHEREVER PIPES, CONDUITS, OR OTHER ITEMS PASS THROUGH FIRE RATED WALLS AND FLOORS, THE SPACE BETWEEN THE ITEM AND THE MASONRY OR THE SPACE BETWEEN THE ITEM AND THE SLEEVE SHALL BE ADEQUATELY FIRE STOPPED WITH A NON COMBUSTIBLE, NON MELTING MATERIAL IN ACCORDANCE WITH NFPA STANDARDS.
12. WALL OPENINGS RESULTING FROM DEMOLITION SHALL BE CLOSED AND FINISHED TO MATCH EXISTING.
13. FINISHES DAMAGED DURING THIS PROJECT SHALL BE REPAIRED TO MATCH EXISTING

P001

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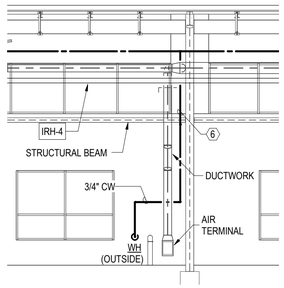
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

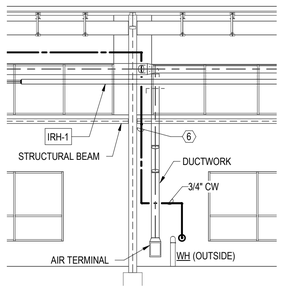
CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: GMO		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: TGK		58

PLUMBING ABBREVIATIONS, GENERAL NOTES, AND SYMBOLS



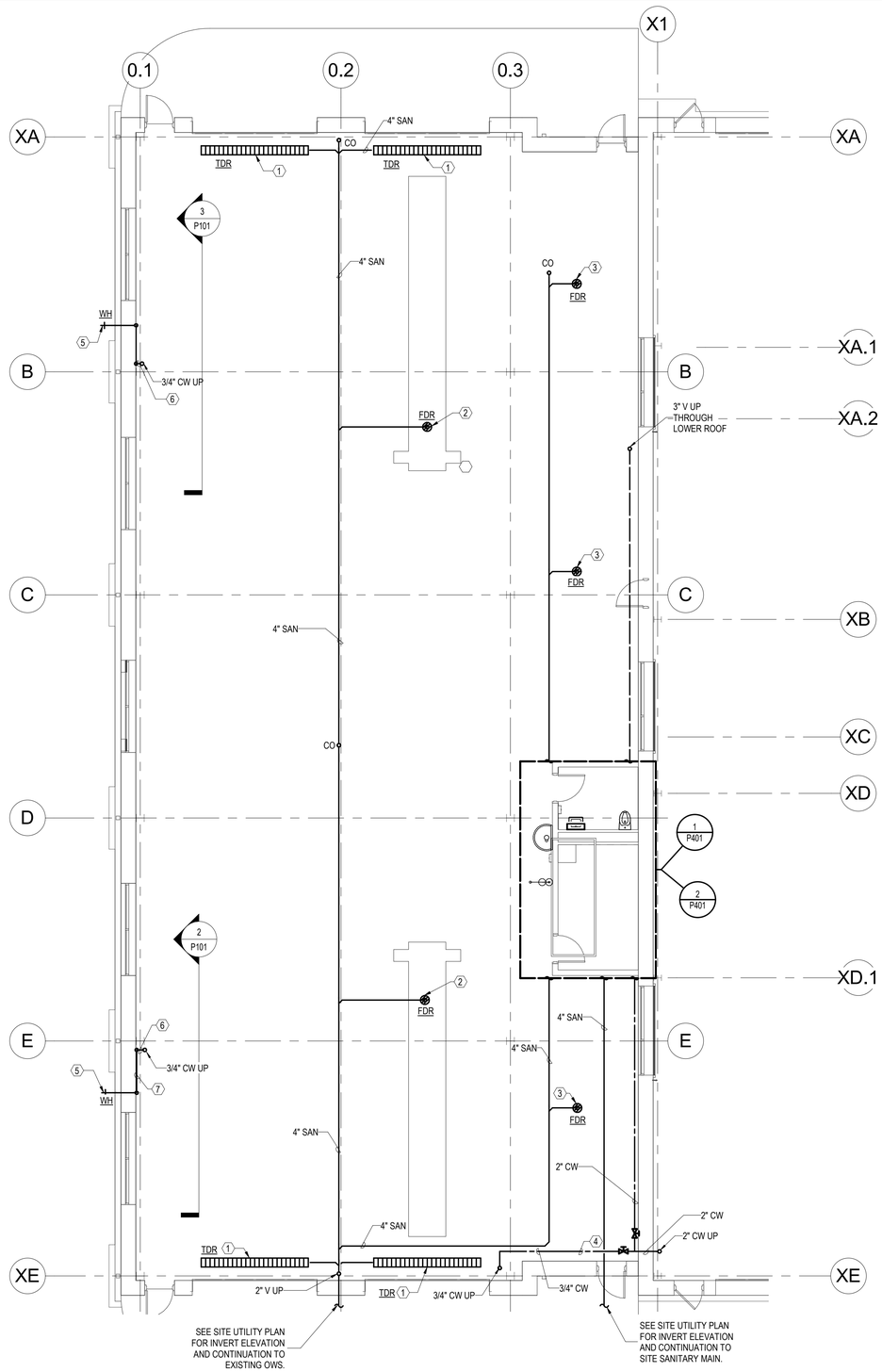
2 P101 DOMESTIC WATER ELEVATION I

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



3 P101 DOMESTIC WATER ELEVATION II

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



1 P101 PLUMBING DOMESTIC AND SANITARY NEW WORK - FIRST FLOOR A

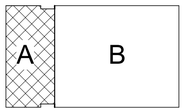
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT.
4. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.
5. SANITARY PIPING SHOWN IS LOCATED BENEATH FLOOR SLAB, AND SHALL HAVE A MINIMUM CONCRETE COVERAGE OF 1 FT.

⬡ SHEET KEYNOTES:

1 PROVIDE CUSTOM CUT TRENCH DRAINS WITH BOTTOM OUTLETS AT EACH OVERHEAD DOOR. TRENCH DRAINS SHALL BE PIPED TO THE INDUSTRIAL WASTE LINE CONNECTING TO THE EXISTING OIL WATER SEPARATOR (OWS). SEE 11/S301 FOR STRUCTURAL DETAIL AND 9/P501 FOR PLUMBING DETAIL OF TRENCH DRAIN.
2 PROVIDE FLOOR DRAINS WITHIN VEHICLE LIFT PITS WHICH SHALL BE PIPED TO THE INDUSTRIAL WASTE LINE AND CONNECT TO THE EXISTING OIL WATER SEPARATOR (OWS). FLOOR DRAIN TO BE LOCATED IN LOWEST AREA OF PIT.
3 PROVIDE SANITARY CONNECTION FOR FLOOR DRAINS IN THE STORAGE AREA FOR EMERGENCY DRAINAGE.
4 ROUTE DOMESTIC COLD WATER BELOW LOWER ROOF ABOVE GYPSUM BOARD CEILING AND BELOW STEEL STRUCTURE.
5 PROVIDE NEW EXTERIOR WALL HYDRANT.
6 CONTRACTOR TO COORDINATE DOMESTIC COLD WATER ROUTING WITH STRUCTURAL BEAMS AND DUCTWORK.
7 ROUTE DOMESTIC COLD WATER BELOW WINDOWS.



KEYPLAN

PLAN NORTH

4' 0 4' 8'

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

P101

$DATE_USER$
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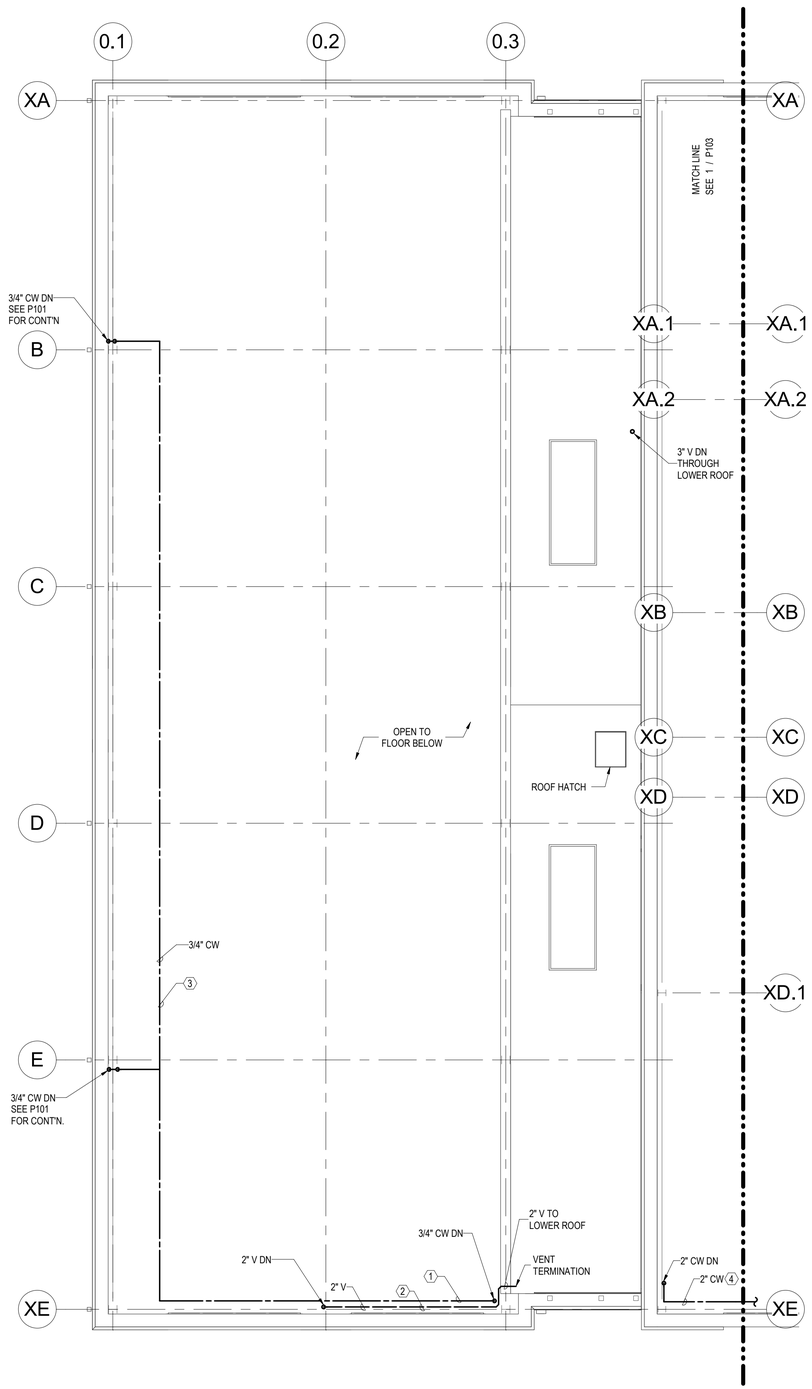
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: GMO		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: TGK		59

DOMESTIC WATER AND SANITARY NEW WORK PLUMBING - FIRST FLOOR A



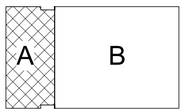
1 P102 PLUMBING DOMESTIC AND SANITARY NEW WORK - LOWER ROOF A
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT.
4. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.

⎔ SHEET KEYNOTES:

1 ROUTE DOMESTIC COLD WATER HIGH IN MAINTENANCE BAYS ABOVE OVERHEAD DOOR TRACKS.
2 ROUTE VENT PIPING TIGHT ALONG WALL ABOVE OVERHEAD DOOR TRACKS TO BUILDING EXTERIOR ON LOWER ROOF.
3 ROUTE DOMESTIC COLD WATER HIGH IN MAINTENANCE BAYS, AVOIDING CONFLICT WITH OTHER UTILITIES.
4 ROUTE DOMESTIC COLD WATER HIGH IN EXISTING SHOP TO AVOID CONFLICT WITH EXISTING UTILITIES.



KEYPLAN

PLAN NORTH

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

P102

$DATE_USER$
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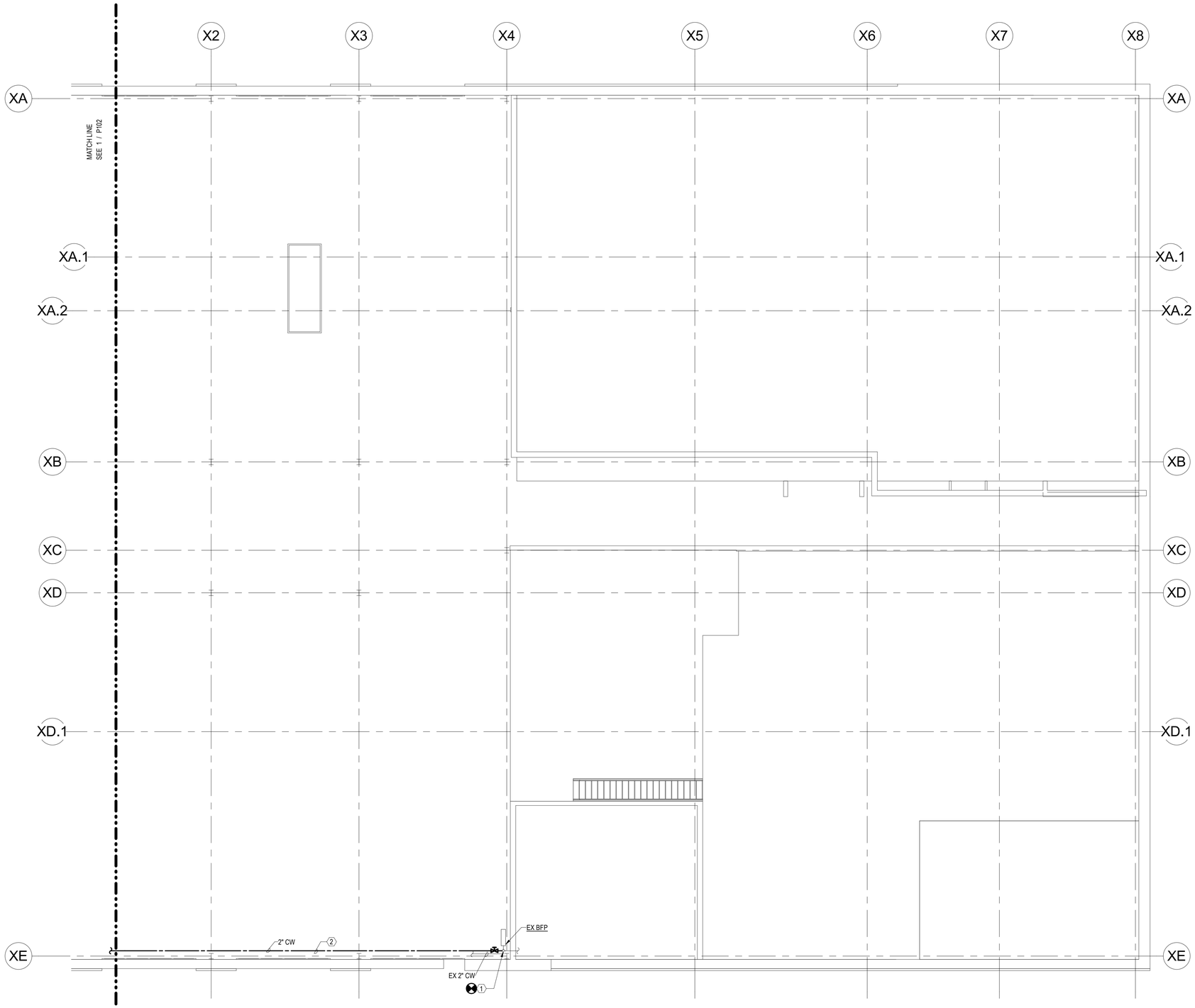
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

DOMESTIC WATER AND SANITARY PLUMBING NEW WORK - LOWER ROOF A

SECTION
JMT
SHEET NO.
60



1 P103 PLUMBING DOMESTIC AND SANITARY - AREA B
SCALE: 1/8" = 1'-0"

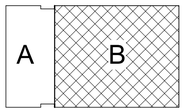
GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT.
4. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.

⬡ SHEET KEYNOTES:

1 CONNECT NEW DOMESTIC WATER SERVICE TO THE EXISTING DOMESTIC WATER SERVICE AFTER THE BACKFLOW PREVENTER. ROUTE NEW DOMESTIC WATER BRANCH BELOW EXISTING DOMESTIC WATER BRANCH AND EXTEND TO THE NEW MAINTENANCE BAYS. SEE RISER DIAGRAM 1/P201 FOR SCHEMATIC DETAIL OF CONNECTION.

2 ROUTE DOMESTIC COLD WATER HIGH IN EXISTING SHOP TO AVOID CONFLICT WITH EXISTING UTILITIES.



KEYPLAN

PLAN NORTH

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

P103

$DATE_USERS
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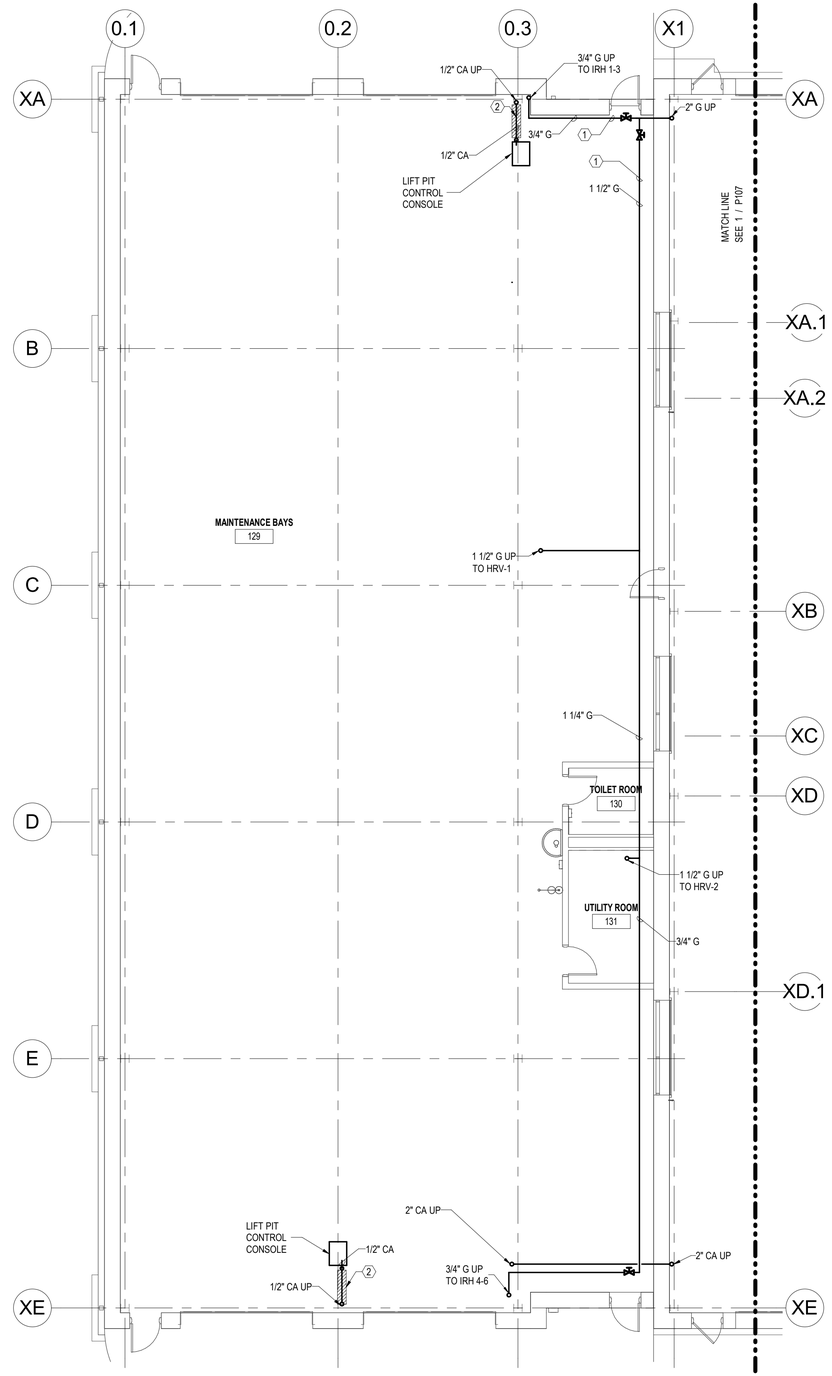
ADDENDUMS / REVISIONS		
NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY	CHECKED BY: TGK	
NEW CASTLE		

DOMESTIC WATER - AREA B

SECTION
JMT
SHEET NO.
61



1 P104 PLUMBING INDUSTRIAL NEW WORK- FIRST FLOOR A
SCALE: 1/8" = 1'-0"

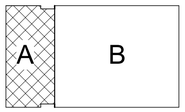
GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT.
4. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.

SHEET KEYNOTES:

1 ROUTE GAS PIPING BELOW LOWER ROOF ABOVE GYPSUM BOARD CEILING AND BELOW STEEL STRUCTURE.

2 ROUTE CA BELOW SLAB FOR HATCHED REGION OF PIPING TO LIFT PIT CONTROL CONSOLE. REFER TO MANUFACTURER INSTALLATION REQUIREMENTS FOR FINAL CONNECTION.



KEYPLAN

PLAN NORTH

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

P104

$DATE_USER$
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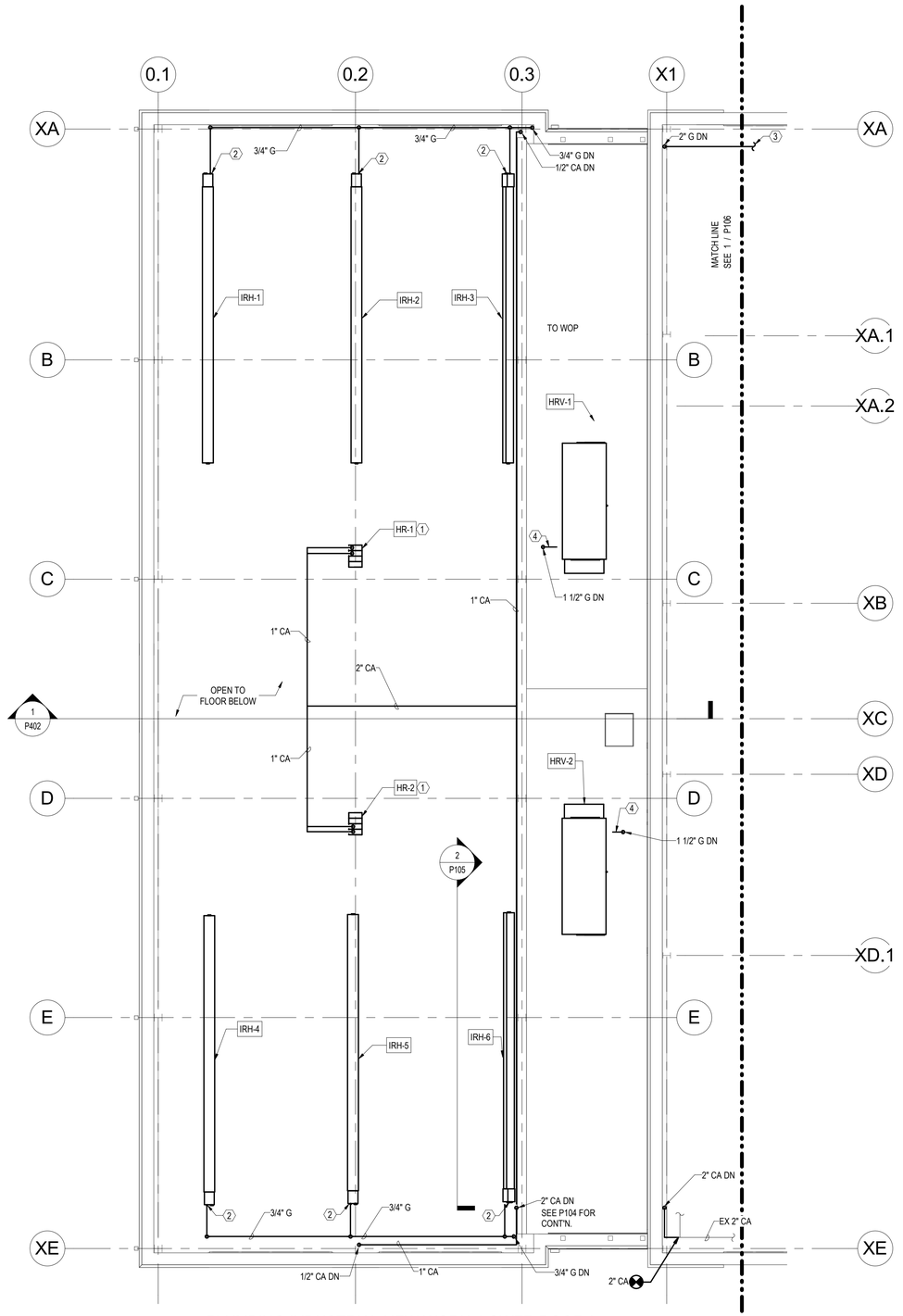
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	
T201953104.03	DESIGNED BY: GMO		
COUNTY			
NEW CASTLE	CHECKED BY: TGK		

PLUMBING INDUSTRIAL NEW WORK - FIRST FLOOR A

SECTION
JMT
SHEET NO.
62



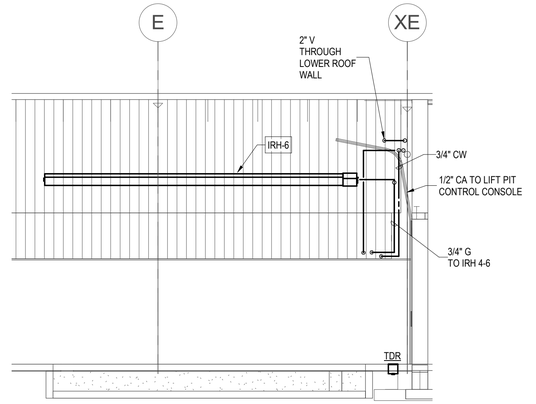
1 P105 PLUMBING INDUSTRIAL NEW WORK- LOWER ROOF A
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

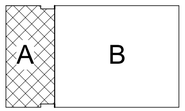
1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT.
4. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.

⎔ SHEET KEYNOTES:

1 PROVIDE TWO NEW COMPRESSED AIR HOSE REELS AT THE END OF EACH PAIR OF MAINTENANCE BAYS.
2 PROVIDE EQUIPMENT REGULATOR AND GAS CONNECTION TO THE INFRARED HEATERS PER DETAIL 7/P501.
3 ROUTE NATURAL GAS PIPING HIGH IN MAINTENANCE BAYS, AVOIDING CONFLICT WITH OTHER UTILITIES.
4 PROVIDE EQUIPMENT REGULATOR AND GAS CONNECTION TO THE HEATING AND VENTILATING UNIT INDIRECT GAS-FIRED FURNACES PER DETAIL 7/P501.



2 P105 COMPRESSED AIR PIPING
SCALE: 1/8" = 1'-0"



KEYPLAN

PLAN NORTH

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

P105

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

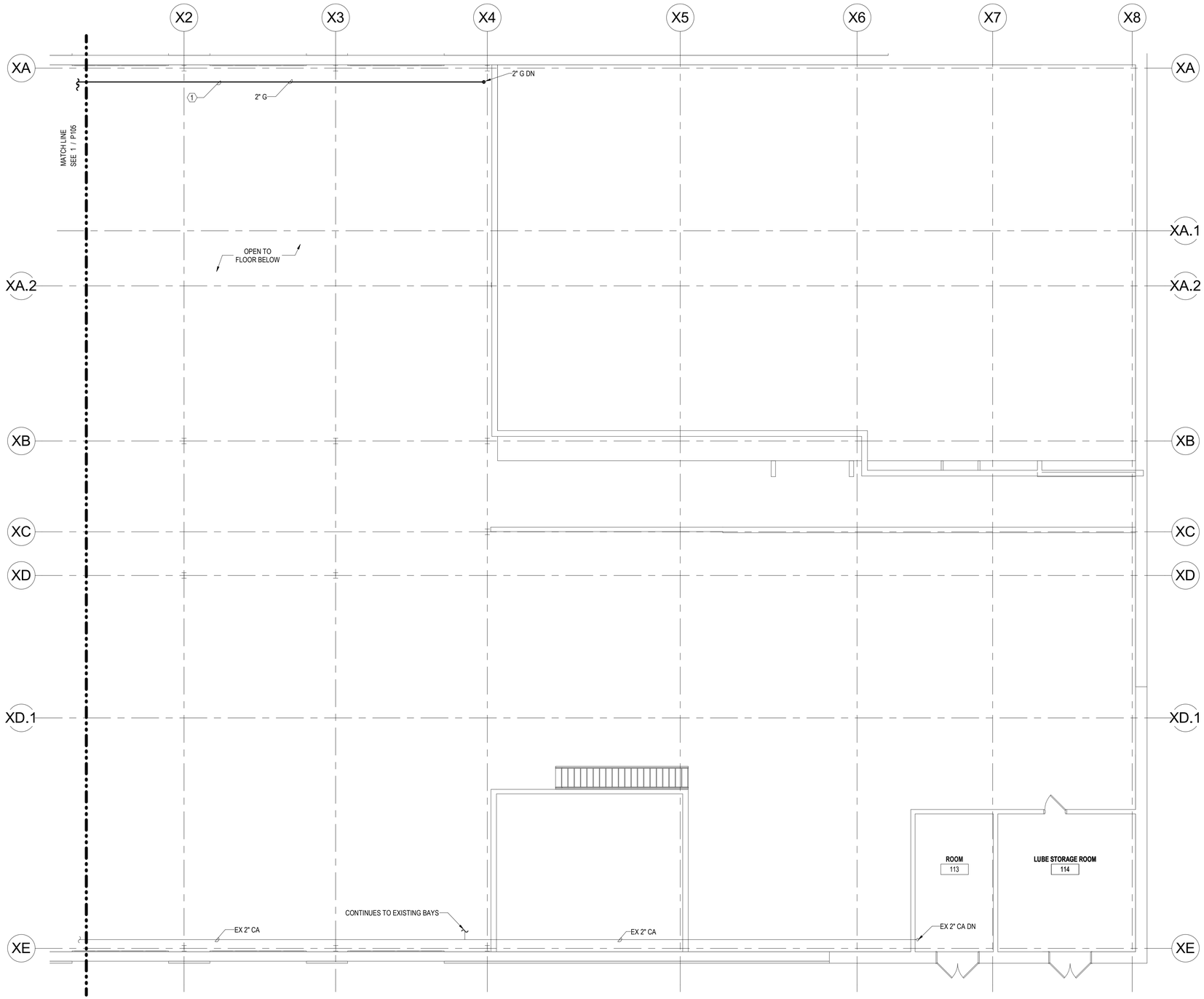
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

PLUMBING INDUSTRIAL NEW WORK - LOWER ROOF A

SECTION
JMT
SHEET NO.
63

$DATE USERS
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



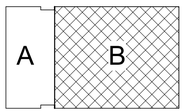
1 P106 PLUMBING INDUSTRIAL NEW WORK- LOWER ROOF B
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND PLUMBING ITEMS SHOWN IN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.

SHEET KEYNOTES:

1 ROUTE GAS PIPING HIGH IN EXISTING SHOP SPACE TO AVOID CONFLICT WITH EXISTING UTILITIES.



KEYPLAN

PLAN NORTH

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

P106

ADDENDUMS / REVISIONS		
NUMBER	DESCRIPTION	DATE

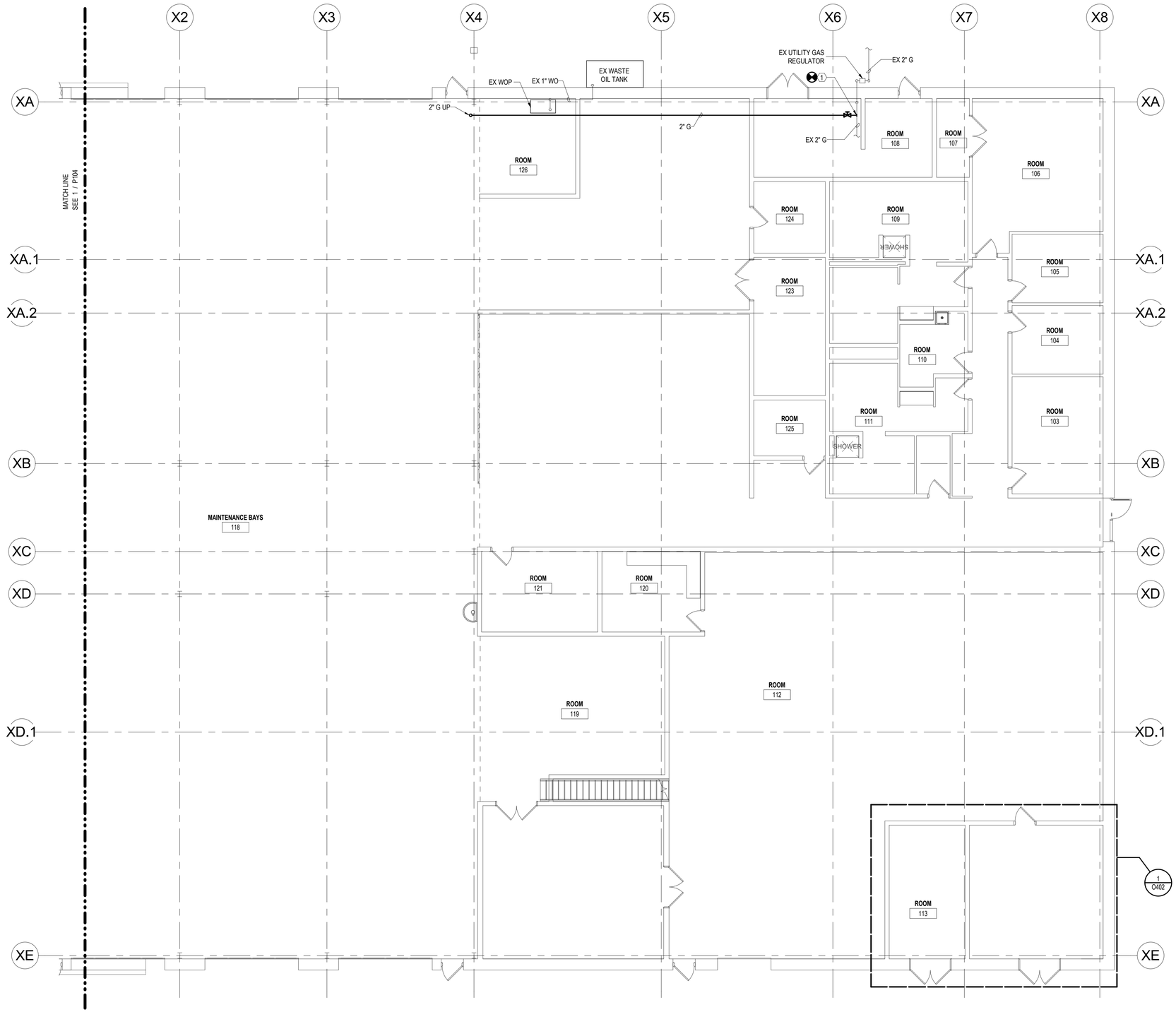
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY	CHECKED BY: TGK	
NEW CASTLE		

PLUMBING INDUSTRIAL NEW WORK - LOWER ROOF B

SECTION
JMT
SHEET NO.
64

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 P107 PLUMBING INDUSTRIAL NEW WORK- FIRST FLOOR B

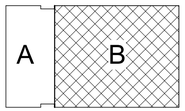
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK AND PLUMBING ITEMS SHOWN IN LIGHT SOLID (———) SHALL BE EXISTING.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.

SHEET KEYNOTES:

1 NEW NATURAL GAS CONNECTION SHALL BE EXTENDED FROM THE EXISTING BUILDING SERVICE WITHIN THE MECHANICAL ROOM. NATURAL GAS PIPING SHALL BE EXTENDED TO THE NEW MAINTENANCE BAYS TO SERVE THE HEAT RECOVERY VENTILATORS AND INFRARED HEATERS. ALL NATURAL GAS PIPING WITHIN THE NEW MAINTENANCE BAYS SHALL BE LOCATED GREATER THAN 18" BELOW THE CEILING.



KEYPLAN

PLAN NORTH

4' 0 4' 8'

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

P107

$DATE_USERS
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt

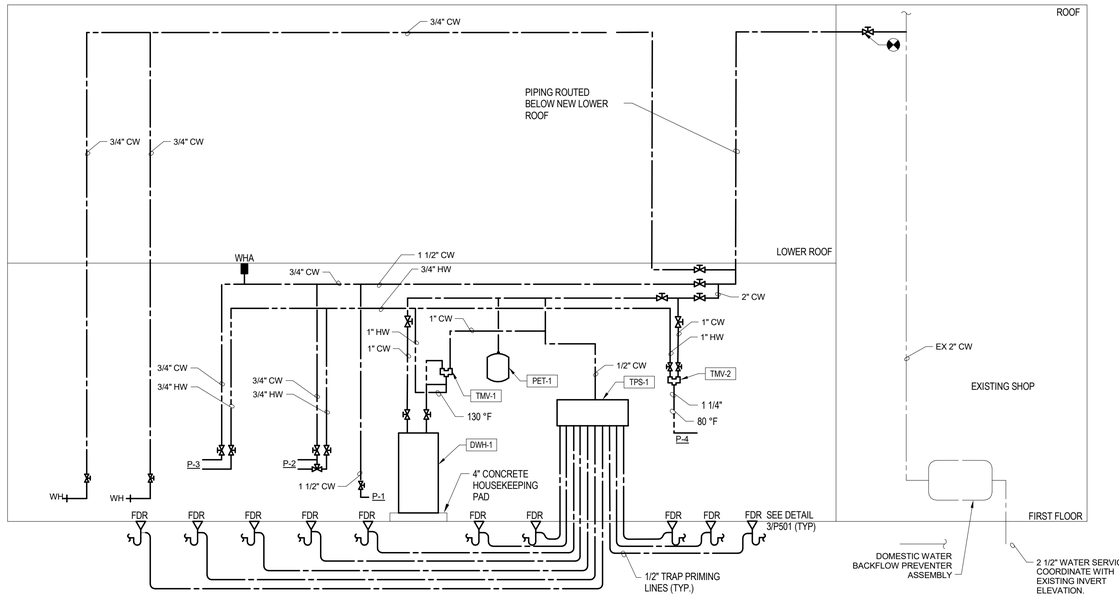
ADDENDUMS / REVISIONS		
NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

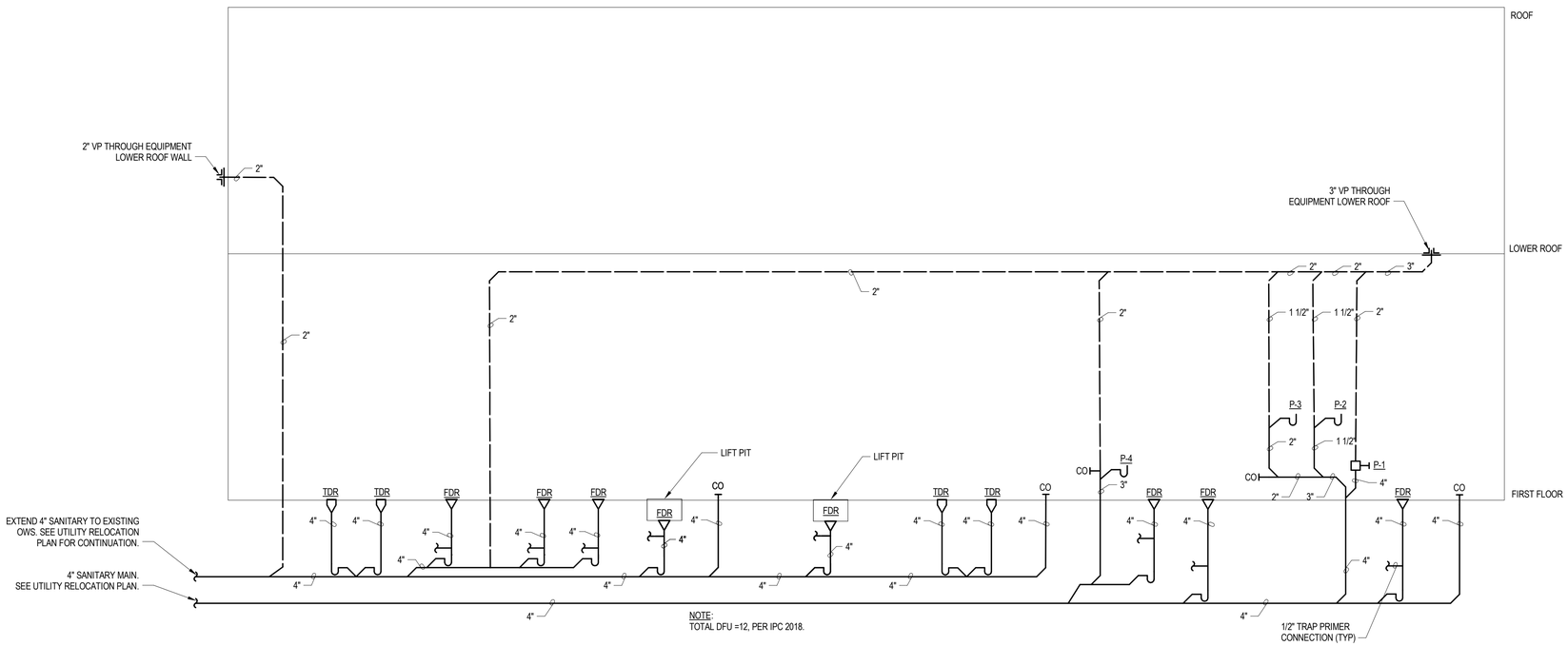
PLUMBING INDUSTRIAL NEW WORK - FIRST FLOOR B

SECTION
JMT
SHEET NO.
65



1 P201 **DOMESTIC WATER RISER DIAGRAM**

SCALE: NTS



2 P201 **SANITARY RISER DIAGRAM**

SCALE: NTS

P201

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

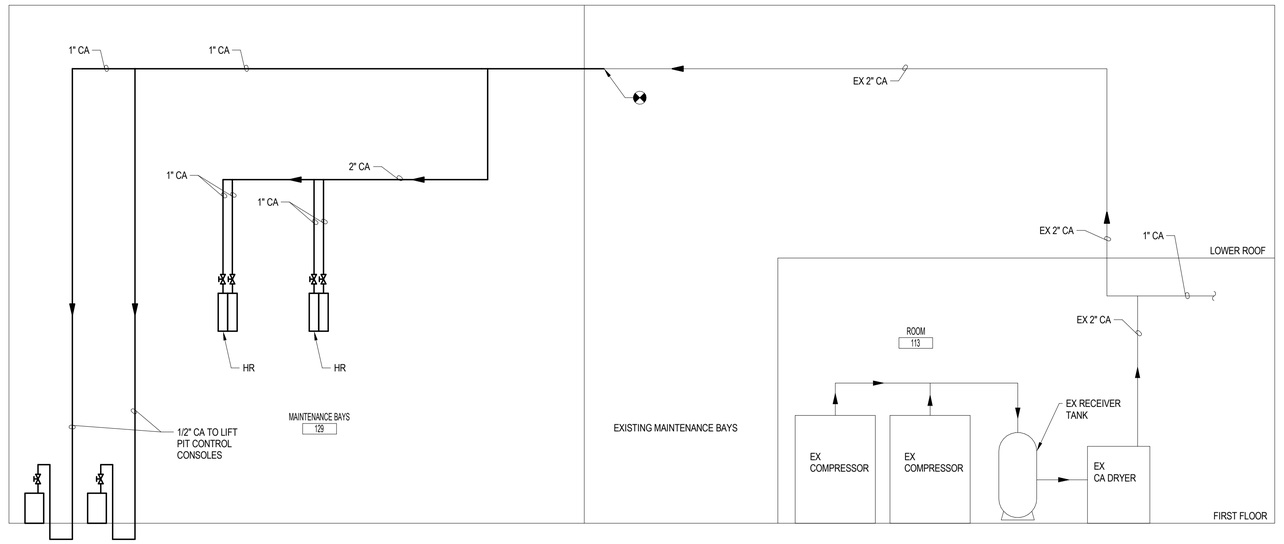
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

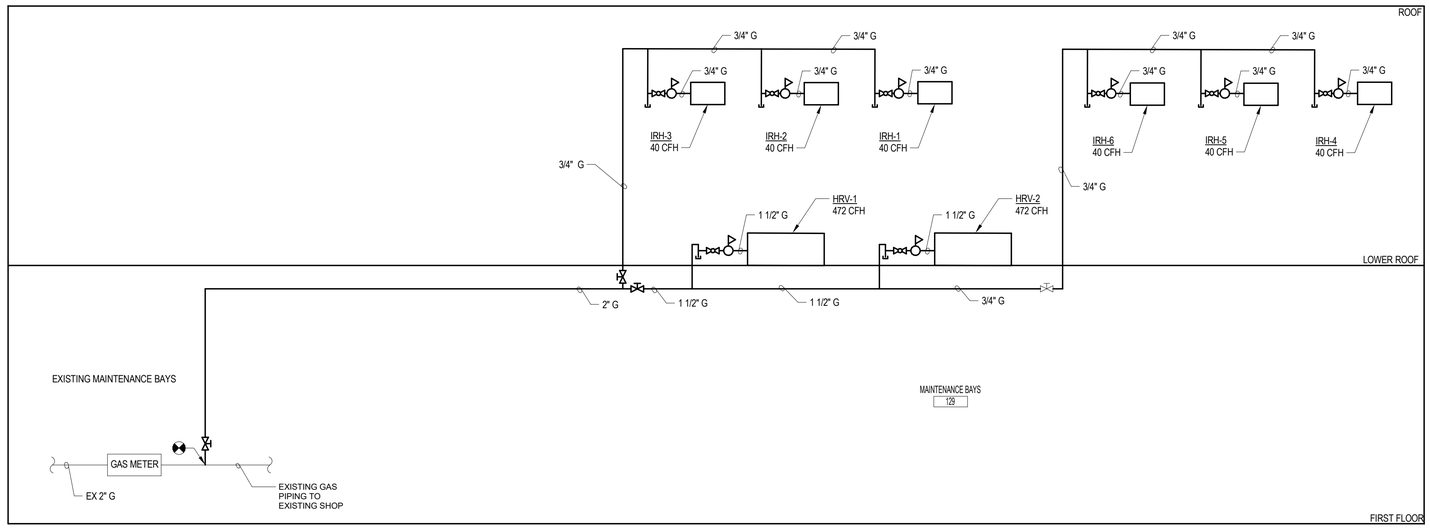
PLUMBING RISER DIAGRAMS I

SECTION
JMT
SHEET NO.
66

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 / P202 COMPRESSED AIRE RISER DIAGRAM
SCALE: NTS



NOTES:
TOTAL EQUIVALENT LENGTH FROM SOURCE (INCLUDES VERTICALS) = 325 FEET.
TOTAL NEW VOLUME = 1,184 CFH.
INCOMING GAS PRESSURE = 5 PSI

2 / P202 GAS RISER DIAGRAM
SCALE: NTS

P202

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

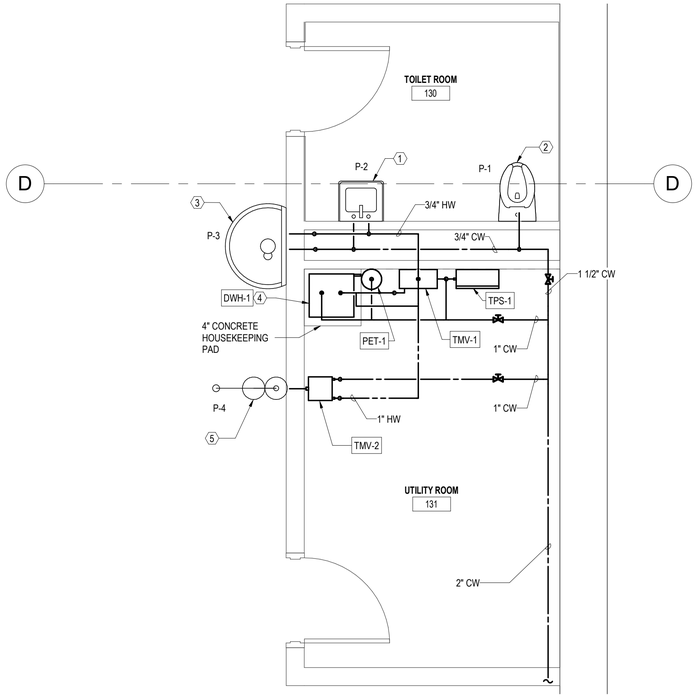
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

PLUMBING RISER DIAGRAMS II

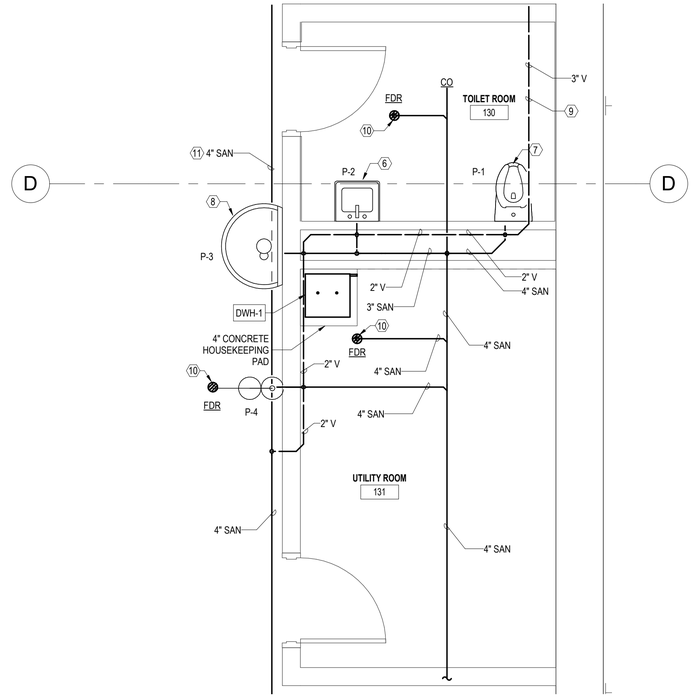
SECTION
JMT
SHEET NO.
67

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 P401 PLUMBING PART PLAN- DOMESTIC WATER

SCALE: 3/8" = 1'-0"



2 P401 PLUMBING PART PLAN- SANITARY/VENT

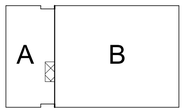
SCALE: 3/8" = 1'-0"

GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, PLUMBING ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW WORK.
3. DO NOT LOCATE PIPING WITHIN DEDICATED ELECTRICAL SPACE ABOVE ELECTRICAL PANELS OR EQUIPMENT.
4. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.

⬡ SHEET KEYNOTES:

1 PROVIDE WALL MOUNTED LAVATORY WITH AUTOMATIC, LOW FLOW FAUCET AND HARDWIRED AUTOMATIC CONTROLS.
2 PROVIDE WALL MOUNTED, FLUSH VALVE WATER CLOSET, ASSOCIATED PIPING CONNECTIONS, AND HARDWIRED AUTOMATIC CONTROLS.
3 PROVIDE FLOOR MOUNTED UTILITY SINK WITH FOOT PEDAL.
4 PROVIDE ELECTRIC TANK TYPE DOMESTIC WATER HEATER TO SERVE THE LAVATORY, SERVICE SINK, AND EMERGENCY SHOWER.
5 PROVIDE COMBINATION EMERGENCY SHOWER AND EYEWASH. LOCAL THERMOSTATIC MIXING VALVE WILL BE INCLUDED TO PROVIDE CODE REQUIRED TEPID WATER.
6 PROVIDE SANITARY CONNECTION FOR WALL MOUNTED LAVATORY. SANITARY SHALL TIE INTO SANITARY MAIN WHICH SHALL EXTEND TO EXISTING SITE SANITARY MAIN.
7 PROVIDE SANITARY CONNECTION FOR WALL MOUNTED WATER CLOSET. SANITARY SHALL TIE INTO SANITARY MAIN WHICH SHALL EXTEND TO EXISTING SITE SANITARY MAIN.
8 PROVIDE SANITARY CONNECTION FOR UTILITY SINK. SANITARY SHALL TIE INTO SANITARY MAIN WHICH SHALL EXTEND TO EXISTING SITE SANITARY MAIN.
9 ROUTE VENT PIPING BELOW LOWER ROOF ABOVE DRYWALL CEILING AND BELOW STEEL STRUCTURE.
10 PROVIDE TRAP PRIMING PIPING TO FLOOR DRAIN.
11 ROUTE SANITARY PIPE AND BELOW P-4 SANITARY BRANCH. SANITARY PIPE SHALL EXTEND TO OWS.



KEYPLAN

PLAN NORTH

2' 0 2' 4'

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

P401

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: GMO		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: TGK		68

PLUMBING PART PLANS

$DATE_USER$ BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt

GENERAL SHEET NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
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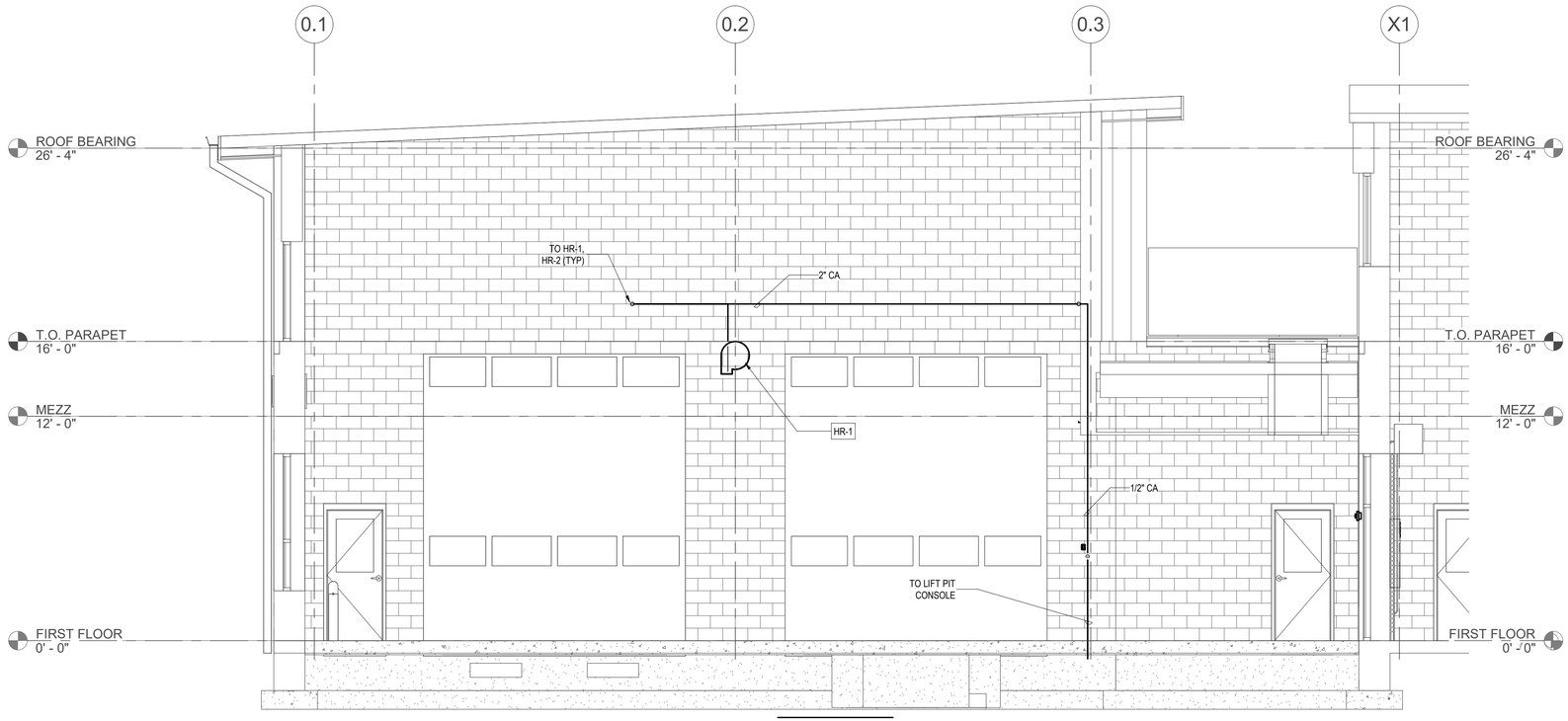
4. REFER TO SHEET P-001 FOR PLUMBING LEGEND AND GENERAL NOTES.

SHEET KEYNOTES:



1 P402 PLUMBING SECTION - WEST WALL
SCALE: 1/4" = 1'-0"

P402

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

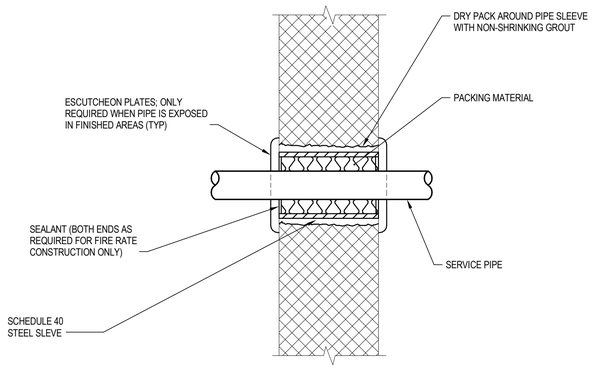
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY:	GMO
COUNTY	CHECKED BY:	TGK
NEW CASTLE		

PLUMBING SECTIONS

SECTION
JMT
SHEET NO.
69

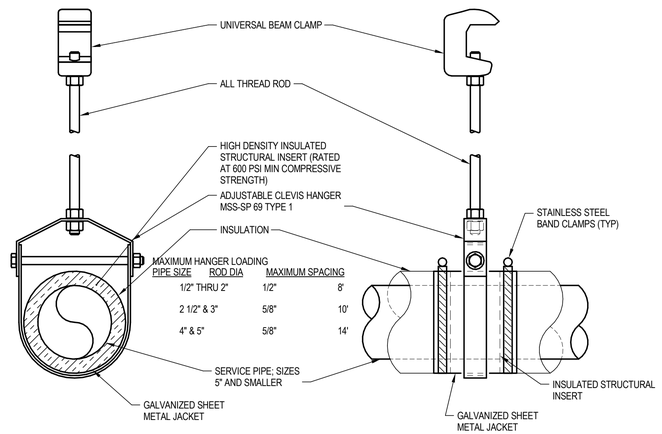
$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



NOTES:

1. THIS DETAIL APPLIES TO BOTH INSULATED AND NON-INSULATED PIPE.
2. FOR FIRE RATED CONSTRUCTION PROVIDE APPROPRIATE APPROVED. THROUGH WALL PENETRATION FIRESTOP ASSEMBLY TO MAINTAIN THE FIRE RATING OF THE WALL ASSEMBLY.
3. FOR ADDITIONAL REQUIREMENTS REFER TO UL SYSTEM NUMBER C-AJ-1149.

1 / P501 PIPE THROUGH INTERIOR WALL
SCALE: NTS

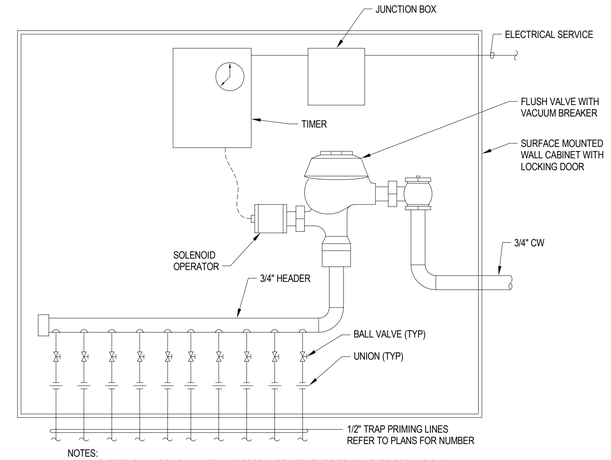


MAXIMUM HANGER LOADING

PIPE SIZE	ROD DIA	MAXIMUM SPACING
1/2" THRU 2"	1/2"	8'
2 1/2" & 3"	5/8"	10'
4" & 5"	5/8"	14'

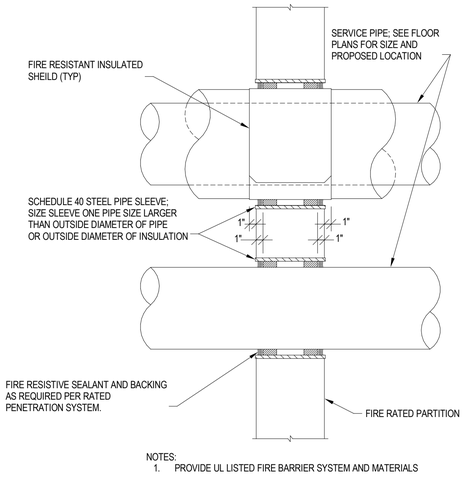
NOTE:
1. THIS DETAIL SHALL BE USED AS A GUIDE. ALL HANGERS SHALL MEET THE REQUIREMENTS OF SPECIFICATION.

2 / P501 5 INCH AND SMALLER PIPE HANGER
SCALE: NTS



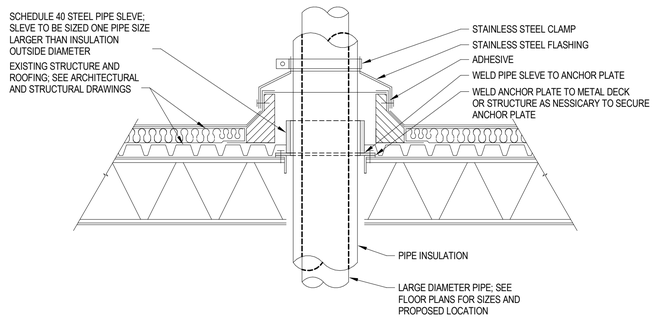
NOTES:
1.ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE REQUIRMENTS OF DIVISION 26

3 / P501 TRAP PRIMING STATION
SCALE: NTS

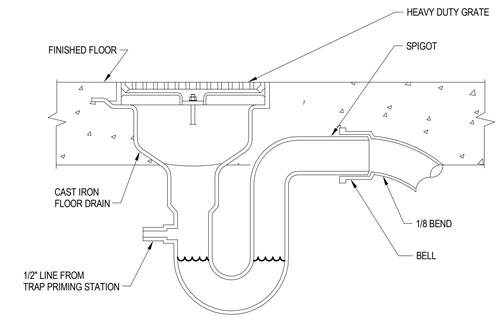


NOTES:
1. PROVIDE UL LISTED FIRE BARRIER SYSTEM AND MATERIALS

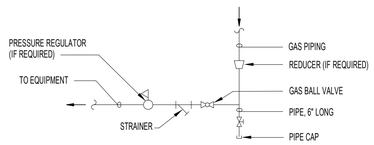
4 / P501 PIPE THROUGH FIRE RATED WALL
SCALE: NTS



5 / P501 PIPE THROUGH ROOF
SCALE: NTS

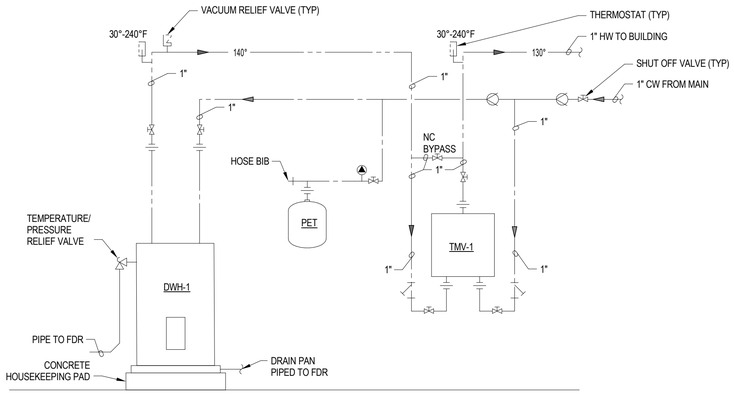


6 / P501 FLOOR DRAIN
SCALE: NTS



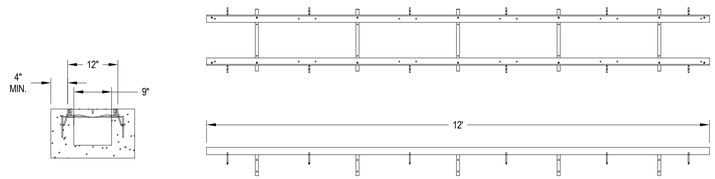
NOTE: PRESSURE REGULATORS SHALL BE VENTED TO EXTERIOR.

7 / P501 GAS CONNECTION
SCALE: NTS



NOTE: CONCRETE HOUSEKEEPING PAD SHALL EXTEND 3" BEYOND THE EXTERNAL DIMENSIONS OF THE DOMESTIC WATER HEATER AND SHALL BE A MINIMUM OF 3" THICK. REFER TO STRUCTURAL DRAWINGS FOR REINFORCEMENT.

8 / P501 ELECTRIC WATER HEATER
SCALE: NTS



NOTES:

1. TOP OF TRENCH DRAIN IS TO BE FLUSH WITH FLOOR ONCE ALL COMPONENTS, INCLUDING STAINLESS STEEL VENEER, ARE INSTALLED.
2. GRATE SHALL HAVE MINIMUM OF CLASS C LOAD RATING PER DIN EN4133
3. CHANNELS SHALL HAVE A 1.04% (1/8" PER FOOT) BOTTOM SLOPE.
4. TRENCH DRAIN SHALL HAVE A 4" BOTTOM OUTLET.

9 / P501 TRENCH DRAIN
SCALE: NTS

P501

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

PLUMBING DETAILS

SECTION
JMT
SHEET NO.
70

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt

DOMESTIC WATER HEATER SCHEDULE

DESIG.	LOCATION	WATER			ELECTRICAL			SHIPPING WEIGHT (LBS)	BASIS	NOTES
		TEMP RISE (°F)	RECOVERY RATE (GPH)	CAPACITY (GAL)	W	V	PH			
DWH-1	STORAGE ROOM	100	16	119.0	4000	208	3	147.9	AO SMITH DEN-120	1,2

NOTES
1.) DISCONNECT SHALL BE PROVIDED UNDER DIVISION 26.
2.) WATER HEATER SET TO 140°F.

PLUMBING FIXTURE ROUGH-IN SCHEDULE

DESIG.	FIXTURE	CONNECTIONS				DESCRIPTION	NOTES
		CW	HW	TW	SAN		
P-1	WATER CLOSET - ADA	1 1/4"			4"	WALL MOUNTED	1
P-2	LAVATORY - ADA	1/2"	1/2"		1 1/4"	WALL MOUNTED WITH BELOW DECK MIXING VALVE.	1
P-3	WASH FOUNTAIN	3/4"	3/4"		2"	SEMI-CIRCULAR, FLOOR MOUNTED WITH INTEGRAL MIXING VALVE.	
P-4	E-SHOWER AND EYEWASH			1 1/4"	1 1/2"	FLOOR MOUNTED COMINATION FIXTURE	2

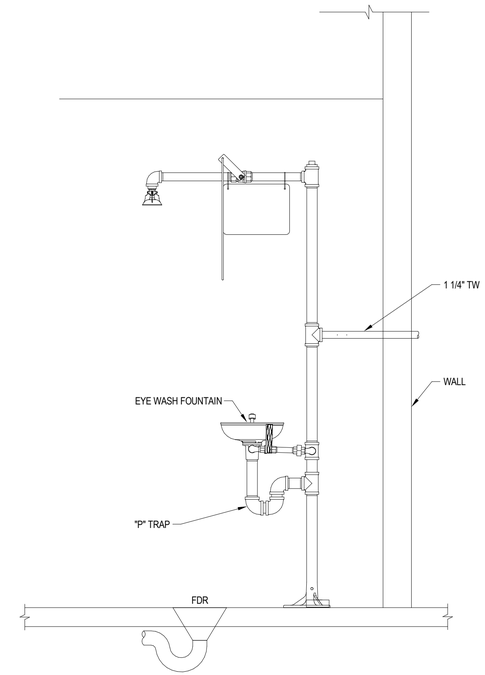
NOTES:
1.) PROVIDE WITH HARDWIRE, AUTOMATIC SENSOR OPERATED VALVE.
2.) PROVIDE WITH EMERGENCY THERMOSTATIC MIXING VALVE (NAVIGATOR S19-2200 EFX60).

MISCELLANEOUS EQUIPMENT SCHEDULE

DESIG.	DESCRIPTION	BASIS
PET-1	VERTICAL BLADDER (MOUNT VERTCALLY) EXPANSION TANK, DOMESTIC WATER SYSTEM, 150 PSI MAXIMUM DESIGN PRESSURE, 4.4 GALLON CAPACITY; 3.2 GALLON ACCEPTANCE VOLUME.	BELL & GOSSET SERIES PT-12
TMV-1	THERMOSTATIC MIXING VALVE ASSEMBLY COMPLETE WITH TEMPERATURE AND PRESSURE GAUGES, DISCHARGE TEMPERATURE 130 F, ADJUSTMENT RANGE: 100 F - 150 F, 13 GPM CAPACITY, 3/4" INLET, 3/4" OUTLET. ASSE 1017 COMPLIANT. PROVIDE AT DOMESTIC WATER HEATER.	LAWLER 61
TMV-2	THERMOSTATIC MIXING VALVE, DUAL VALVE ASSEMBLY COMPLETE WITH TEMPERATURE AND PRESSURE GAUGES AND BALL VALVES. DISCHARGE TEMPERATURE ADJUSTMENT 65-95 F, 30.03 GPM CAPACITY AT 30 PSI, 3/4" INLETS, 1" OUTLET, ASSE 1071 COMPLIANT. DESIRED DISCHARGE TEMPERATURE: 80 F.	BRADLEY NAVIGATOR EFX60
TPS-1	SURFACE MOUNTED ELECTRONIC TRAP PRIMER, SERVING 10 DRAINS. 125 F MAX. OPERATING TEMPERATURE, 150 PSI MAXIMUM WORKING PRESSURE,	PPP INC. PTS-10

FLOOR DRAIN SCHEDULE

DESIG.	CONNECTION SIZE (IN.)	BASIS	DESCRIPTION	COMMENTS
FDR	4"	ZURN 415C	FLOOR DRAIN	PROVIDE WITH TRAP PRIMER CONNECTION, ROUND STRAINER.
TDR	4"	ZURN Z882	TRENCH DRAIN	CONTRACTOR TO CUT TO SIZE PER MANUFACTURER'S INSTRUCTIONS.



1 / P601 E-SHOWER/EYEWASH
SCALE: NTS

P601

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion — MEP.rvt

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: GMO	
COUNTY		
NEW CASTLE	CHECKED BY: TGK	

PLUMBING SCHEDULES AND DETAILS

SECTION
JMT
SHEET NO.
71

SYMBOLS LIST

- DRAWING NOTE
- PANEL BOARD
- DUPLEX RECEPTACLE - 2P,3W, 20A, 125A, GROUNDED NEMA 5-20R
- GFCI — DUPLEX RECEPTACLE - 2P,3W, 20A, 125A, GROUNDED NEMA 5-20R WITH GROUND FAULT CURRENT INTERRUPT PROTECTION @ 18" AFF
- DUPLEX RECEPTACLE - 2P,3W, 20A, 125A, GROUNDED NEMA 5-20R WITH GROUND FAULT CURRENT INTERRUPT PROTECTION @ 42"
- QUADRAPLEX RECEPTACLE - 2P,3W, 20A, 125A, GROUNDED NEMA 5-20R
- DUPLEX RECEPTACLE / USB - 2P,3W, 20A, 125A, GROUNDED NEMA 5-20R WITH CHARGING CAPABILITY. (LEGRAND TR5362USB OR EQUAL).
- PUSH BUTTON SWITCH
- CEILING MOUNTED DUPLEX RECEPTACLE - 2P,3W, 20A, 125A, GROUNDED NEMA 5-20R
- WALL MOUNTED JUNCTION BOX
- CEILING MOUNTED JUNCTION BOX
- MOTOR CONNECTION - HP AS INDICATED
- ENCLOSED CIRCUIT BREAKER
- 30/30 — DISCONNECT SWITCH. NUMBER DENOTES SWITCH AND FUSE SIZE.
- COMBINATION MOTOR STARTER/FUSED DISCONNECT
- $_M — MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
- VFC — VARIABLE FREQUENCY CONTROLLER
- PNL-CKT# — TYPICAL CIRCUIT IDENTIFICATION. PNL-CKT# = PANEL NAME AND CIRCUIT NUMBER
- TYPE X / PNL-CKT# — LIGHTING IDENTIFICATION. TYPE X = FIXTURE TYPE. PNL-CKT# = PANEL NAME AND CIRCUIT NUMBER
- LIGHTING PLANS LEGEND:
  - LIGHTING CONTROL AREA
  - LIGHTING CONTROL WIRING
  - $ — LIGHTING CONTROL DEVICE
- ## / F / CM — CEILING MOUNTED COMBINATION FIRE ALARM AUDIO / VISUAL APPLIANCE - SUPERSCRIPT '##' DENOTES CANDELA RATING (15cd UNLESS OTHERWISE NOTED
- ## / F / WP — WALL MOUNTED COMBINATION FIRE ALARM AUDIO / VISUAL APPLIANCE - SUPERSCRIPT '##' DENOTES CANDELA RATING (15cd UNLESS OTHERWISE NOTED - SUBSCRIPT 'WP' DENOTES WEATHER-PROOF TYPE DEVICE
- ## / V — WALL MOUNTED FIRE ALARM VISUAL (STROBE) APPLIANCE - SUPERSCRIPT '##' DENOTES CANDELA RATING (15cd UNLESS OTHERWISE NOTED
- ## / V / CM — CEILING MOUNTED FIRE ALARM VISUAL (STROBE) APPLIANCE - SUPERSCRIPT '##' DENOTES CANDELA RATING (15cd UNLESS OTHERWISE NOTED
- S — CEILING MOUNTED FIRE ALARM AUDIO (SPEAKER) APPLIANCE
- WALL MOUNTED FIRE ALARM AUDIO (SPEAKER) APPLIANCE
- F — FIRE ALARM MANUAL PULL STATION
- H — ADDRESSABLE HEAT DETECTOR
- S — ADDRESSABLE SMOKE DETECTOR - PHOTOELECTRIC TYPE
- S — ADDRESSABLE SMOKE DETECTOR - PHOTOELECTRIC TYPE -WALL MOUNTED
- CCTV CAMERA
- CR — CARD READER OUTLET BOX.
- COMMUNICATIONS - VOICE/DATA - OUTLET BOX. PROVIDE BACK BOX, 1" CONDUIT WITH PULL STRING TO IT ROOM. MOUNT 18" AFF UNLESS OTHERWISE NOTED.
- RTS — REMOTE TEST SWITCH FOR DUCT DETECTOR
- H — HYDROGEN SENSOR
- HS — HYDROGEN REMOTE ALARM HORN/STROBE

- EXIT SIGN
- 2'X2' LIGHT FIXTURE
- LED HIGH BAY FIXTURE
- LINEAR LED LIGHTING FIXTURE
- WALL MOUNTED LIGHTING FIXTURE
- LIGHTING FIXTURE TYPE A ON EMERGENCY CIRCUIT
- $ — SINGLE POLE LIGHT SWITCH, 20A, 120V.
- $_3 — THREE WAY SWITCH. 20A, 120V.
- $_4 — FOUR WAY SWITCH. 20A, 120V.
- $_K — KEY OPERATED SWITCH. 20A,120V.
- $_3K — KEY OPERATED SWITCH, THREE WAY. 20A, 120V.
- $_D — SINGLE POLE DIMMER SWITCH. 8A, 120V.
- $_T — "TIMER SWITCH" WITH THE ABILITY TO WARN OCCUPANTS BY FLASHING THE LIGHTS AS "OFF-TIME" GETS CLOSE.
- $ — DUAL TECHNOLOGY OCCUPANCY/VACANCY SENSOR SWITCH.
- $_2 — DUAL TECHNOLOGY OCCUPANCY/VACANCY SENSOR DUAL-CIRCUIT SWITCH.
- OS — CEILING MOUNTED OCCUPANCY SENSOR.
- PP — 20A, 277V, OCCUPANCY SENSOR POWER PACK.
- EXOTHERMIC BOND

NOTE:
SOME OF THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE STANDARD AND MAY NOT ALL APPEAR ON THE CONTRACT DRAWINGS.

ABBREVIATIONS

3R	NEMA 3R RATED DEVICE	JB	JUNCTION BOX
A	AMPERES	KCMIL	THOUSAND OF CIRCULAR MILS
AC	ALTERNATING CURRENT	KVA	KILOVOLT AMPERES
ADA	AMERICANS WITH DISABILITIES ACT	KW	KILOWATTS
AFF	ABOVE FINISHED FLOOR	LAN	LOCAL AREA NETWORK
AFG	ABOVE FINISH GRADE	LTG	LIGHTING
AHJ	AUTHORITY HAVING JURISDICTION	LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
AHU	AIR HANDLING UNIT	LV	LOW VOLTAGE
AIC	AMPERE INTERRUPTING CAPACITY	MAU	MAKE-UP AIR UNIT
AL	ALUMINUM	MC	METAL CLAD CABLE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MCB	MAIN CIRCUIT BREAKER
ARCH	ARCHITECT	MCC	MOTOR CONTROL CENTER
ATC	AUTOMATIC TEMPERATURE CONTROL	MCP	MOTOR CIRCUIT PROTECTOR
ATS	AUTOMATIC TRANSFER SWITCH	MECH	MECHANICAL
AWG	AMERICAN WIRE GAUGE	MISC	MISCELLANEOUS
BLDG	BUILDING	MLO	MAIN LUGS ONLY
C	CONDUIT	MTD	MOUNTED
CAB	CABINET	MV	MEDIUM VOLTAGE
CAT	CATEGORY	N	NEUTRAL
CB	CIRCUIT BREAKER	NC	NORMALLY CLOSED
CBM	CERTIFIED BALLAST MANUFACTURERS	NEC	NATIONAL ELECTRIC CODE
CKT	CIRCUIT	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CL	CENTERLINE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CLF	CURRENT LIMITING FUSE	NIC	NOT IN CONTRACT
CLG	CEILING	NO	NORMALLY OPEN OR NUMBER
COL	COLUMN	NTS	NOT TO SCALE
CT	CURRENT TRANSFORMER	P	POLE
CU	COPPER	PB	PUSH BUTTON
DC	DIRECT CURRENT	PF	POWER FACTOR
DISC	DISCONNECT	PNL	PANEL
DIST	DISTRIBUTION	PH	PHASE
DWG	DRAWING	PVC	POLYVINYL CHLORIDE
EC	ELECTRICAL CONTRACTOR	QTY	QUANTITY
ECB	ENCLOSED CIRCUIT BREAKER	R, RE	RELOCATED, SHOWN IN NEW LOCATION
EG	EQUIPMENT GROUND	REC	RECEPTACLE
ELEC	ELECTRICAL	REQ'D	REQUIRED
EF	EXHAUST FAN	REX,	REMOVE EXISTING
EM	EMERGENCY	RM	ROOM
EMT	ELECTRICAL METALLIC TUBING	RMC	RIGID METAL CONDUIT
EPO	EMERGENCY POWER OFF	RTU	ROOF TOP UNIT
ER	EXISTING TO BE RELOCATED	STP	SHIELDED TWISTED PAIR
ETR	EXISTING TO REMAIN	SW	SWITCH
EX	EXISTING	SWBD	SWITCHBOARD
F	FUSE	SWGR	SWITCHGEAR
FA	FIRE ALARM	SYM	SYMMETRICAL
FAAP	FIRE ALARM ANNUNCIATOR PANEL	TDB	TO BE DETERMINED
FACP	FIRE ALARM CONTROL PANEL	TEL	TELEPHONE
FAEP	FIRE ALARM EXPANDER PANEL	TYP	TYPICAL
FLA	FULL LOAD AMPERES	UG	UNDERGROUND OR UNDERGRADE
FMC	FLEXIBLE METAL CONDUIT	UL	UNDERWRITERS LABORATORIES
FSS	FUSED SAFETY SWITCH	UON	UNLESS OTHERWISE NOTED
FT	FEET	UTP	UNSHIELDED TWISTED PAIR
GND, G	GROUND OR GROUNDING	V	VOLT
GFI	GROUND FAULT INTERRUPTER	VA	VOLT-AMPERE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	VFC	VARIABLE FREQUENCY CONTROLLER
GRC	GALVANIZED RIGID METAL CONDUIT	VT	VOLTAGE TRANSFORMER
HOA	HAND, OFF, AUTOMATIC SWITCH	W	WATT
HP	HORSE POWER	WH	WATER HEATER
HV	HIGH VOLTAGE	WP	WEATHER PROOF
HZ	HERTZ	XFMR	TRANSFORMER
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS	△	DELTA
IG	ISOLATED GROUND	Y	WYE
IMC	INTERMEDIATE METAL CONDUIT	Ø	PHASE

WIRING LEGEND

- LP2A-1,3,5 — HOMERUN TO PANEL "LP2A", CIRCUITS #1,3,5 (VIA 20A-1P C/B'S). PROVIDE INSULATED GROUND CONDUCTOR IN ACCORDANCE WITH SPECIFICATIONS. NUMBER OF CIRCUITS INDICATED BY QUANTITY OF ARROW HEADS.
- HASH MARKS INDICATE QUANTITY OF #12 AWG COPPER CONDUCTORS IN CONDUIT. WHEN NO HASH MARKS ARE INDICATED, CONDUIT SHALL CONTAIN (2)#12 WIRES AND (1)#12 GROUND WIRE. ASSUME 3/4" DIAMETER CONDUIT UNLESS NOTED OTHERWISE. EXAMPLE SHOWN AT LEFT INDICATES 2 HOT, 2 NEUTRAL (LONG LINES), AND 1 GROUND WIRES.
- CONCEALED CONDUIT AND/OR WIRING
- BELOW GRADE CONDUIT AND/OR WIRING
- CIRCUITRY TURNING UP
- CIRCUITRY TURNING DOWN

ELECTRICAL MOUNTING HEIGHTS

- CENTER ABOVE DOOR MAX 8'-6" — EXIT LIGHT. [PROVIDE PENDANT WHERE HUNG CEILING OR STRUCTURE EXCEEDS 8'-6" AFF.]
- 6'-6" — TOP OF FLUSH AND SURFACE MOUNTED ELECTRICAL LIGHTING OR POWER PANELBOARDS,
- 6'-0" — TOP OF HIGHEST ELECTRICAL SAFETY DISCONNECT SWITCHES, MAGNETIC STARTERS, CONTACTORS, VFCs.
- 4'-0" — WALL-MOUNTED ELECTRICAL DEVICE LIGHTING SWITCHES, DIMMERS, MANUAL MOTOR STARTERS. G.F.C.I. OUTLET IN TOILET ROOMS, 48" TO TOP
- 1'-6" — ELECTRICAL RECEPTACLES. 18" TO CENTER.
- 0'-0" — FINISHED FLOOR

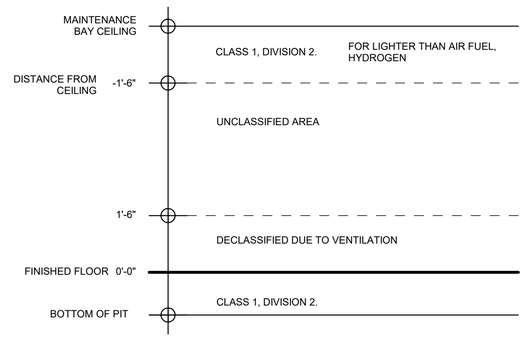
MOUNTING NOTES:

1. THE ABOVE MOUNTING HEIGHTS SHALL BE ADHERED TO UNLESS SPECIFICALLY NOTED OR DETAILED OTHERWISE ON THE DRAWINGS OR SPECIFICATIONS.
2. LOCATION AND INSTALLATION HEIGHT OF ALL WALL DEVICES TO BE COORDINATE WITH MILLWORKS IN ALL LOCATIONS.
3. RECESSED OUTLETS IN MASONRY CONSTRUCTION THE ABOVE MOUNTING HEIGHTS SHALL BE USED FOR REFERENCE TO NEAREST BLOCK OR BRICK COURSING.

GENERAL NOTES

1. THE SCOPE OF WORK CONSISTS OF FURNISHING AND INSTALLING OF A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN. THE CONTRACTOR SHALL PROVIDE SUPERVISION, LABOR, MATERIALS, EQUIPMENT, MACHINERY, ADDITIONAL DESIGN AND ALL INCIDENTALS NECESSARY TO COMPLETE THE ELECTRICAL SYSTEM. THE CONTRACTOR SHALL PROVIDE AND INSTALL THE NUMBER OF ITEMS OF EQUIPMENT AS INDICATED ON THE DRAWINGS AND/OR AS REQUIRED FOR A COMPLETE SYSTEM. COORDINATE WORK TO BE PERFORMED OR INSTALLED BY OTHERS AFFECTING ELECTRICAL WORK AND PROVIDE AND INSTALL ALL NECESSARY ANCHORS, SLEEVES, HANGERS, ACCESSORIES, ETC. FOR ATTACHING OR CONNECTING ELECTRICAL WORK TO RELATED WORK OF OTHER TRADES. ALL WORK SHALL BE PERFORMED BY A QUALIFIED ELECTRICAL CONTRACTOR LICENSED IN THE STATE OF DELAWARE THAT HAS PREVIOUSLY PERFORMED WORK OF THIS SIZE AND TYPE.
2. REFER TO THE SPECIFICATIONS THAT ARE PART OF THIS CONTRACT AND ARE COMPLEMENTARY TO THESE GENERAL NOTES. IN CASE OF A CONFLICT BETWEEN THE SPECIFICATIONS AND DRAWINGS, THE MOST STRINGENT REQUIREMENTS SHALL APPLY AS DETERMINED BY THE ARCHITECT/ENGINEER/OWNER.
3. PERFORM WORK AS REQUIRED BY CODES, REGULATIONS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENTS AND OTHER AUTHORITIES WITH LAWFUL JURISDICTION. INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
   - A. THE 2020 VERSION OF N.E.C., AND LOCAL N.E.C. AMENDMENTS.
   - B. ALL LOCAL CODES.
   - C. NFPA 72 AND THE LATEST VERSION OF THE LOCALLY RECOGNIZED BUILDING CODE.
   - D. THE AMERICANS WITH DISABILITIES ACT (ADA).
   - E. THE 2018 IECC CODE.
4. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "FURNISH AND INSTALL COMPLETE AND READY FOR USE." CONTRACTOR SHALL PROVIDE ALL TESTING AND INSTRUCTION REQUIRED FOR OPERATION AND MAINTENANCE OF EQUIPMENT AND SYSTEM BY OWNER UNLESS OTHERWISE NOTED.
5. MATERIAL AND EQUIPMENT SHALL BE UL, NEMA, ANSI, IEEE, ADA & CBM APPROVED FOR INTENDED SERVICE. MATERIAL AND INSTALLATION SHALL MEET REQUIREMENTS OF NATIONAL AND STATE ELECTRICAL CODE.
6. ELECTRICAL DRAWINGS WHICH CONSTITUTE A PART OF THIS CONTRACT ARE DIAGRAMMATIC ONLY AND INDICATE THE GENERAL ARRANGEMENT OF CIRCUITS AND OUTLETS, LOCATIONS OF SWITCHES, PANELBOARDS CONDUIT AND OTHER WORK. ALL ITEMS NOT SPECIFICALLY MENTIONED HEREIN, WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AT NO EXTRA COST.
7. CONTRACTOR SHALL EXAMINE THE ARCHITECTURAL, STRUCTURAL, MECHANICAL AND PLUMBING DRAWINGS TO FAMILIARIZE HIMSELF WITH ALL ASPECTS OF THOSE DESIGNS AFFECTING HIS WORK. ELECTRICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ALL OTHER TRADES.
8. PRIOR TO SUBMITTING BID, THE CONTRACTOR SHALL VISIT THE SITE AND BE THOROUGHLY FAMILIAR WITH THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION. CONTRACTOR SHALL INCLUDE IN THEIR BID ALL MATERIAL, LABOR AND ALL INCIDENTALS FOR A COMPLETE INSTALLATION WHETHER SPECIFICALLY CALLED FOR OR NOT. ALL ERROR, DISCREPANCIES AND MISSED ITEMS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER DURING THE BIDDING PROCESS BY THE CONTRACTOR. THESE ITEMS SHALL BE INCLUDED IN THE BID PRICE. NO EXTRA COST WILL BE ALLOWED FOR ANY DISCREPANCY WHICH COULD HAVE BEEN NOTICED AT THE SITE VISIT BY THE CONTRACTOR.
9. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACK CHARGES, AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES THAT HAVE JURISDICTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE REQUIRED NOTICES, PERMITS, LICENSES, FEES, BACK CHARGES AND APPROVALS REQUIRED FOR THIS PROJECT.
10. THE CONTRACTOR SHALL MAINTAIN AT THE SITE FOR THE OWNER ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, APPROVED SHOP OR SETTING DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES AS THEY OCCUR DURING CONSTRUCTION. THESE SHALL BE AVAILABLE TO THE ARCHITECT/ENGINEER, THE OWNER, THE PROJECT INSPECTOR, THE OWNER'S OTHER INSPECTORS AND TO THE OWNER'S TESTING PERSONNEL. THE DRAWINGS SHALL BE NEATLY AND CLEARLY MARKED IN COLOR DURING CONSTRUCTION TO RECORD ALL VARIATIONS MADE DURING CONSTRUCTION. THE REPRESENTATION OF SUCH VARIATIONS SHALL INCLUDE SUCH SUPPLEMENTARY NOTES, SYMBOLS, LEGENDS, AND DETAILS AS MAY BE NECESSARY TO CLEARLY SHOW THE AS-BUILT CONSTRUCTION. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL DELIVER TO THE ARCHITECT/ENGINEER, ONE COMPLETE SET OF "AS-BUILT DRAWINGS"
11. ALL WORKMANSHIP, MATERIALS AND EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF TWO YEARS AFTER ACCEPTANCE OF AREA BY OWNER. REPAIR OR REPLACE DEFECTIVE MATERIALS OR INSTALLATION AT NO COST TO OWNER DURING THE GUARANTEE PERIOD. CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE AT NO COST TO OWNER.
12. SUBMIT GUARANTEE TO CONTRACT OFFICER BEFORE FINAL PAYMENT. STATEMENT OF GUARANTEE REQUIREMENTS SHALL NOT BE INTERPRETED TO LIMIT OWNER'S RIGHTS UNDER LAW AND THIS CONTRACT.
13. ADDRESS QUESTIONS REGARDING DRAWINGS TO ENGINEER IN WRITING BEFORE AWARD OF CONTRACT. OTHERWISE, ENGINEER INTERPRETATION OF MEANING AND INTENT OF DRAWINGS SHALL BE FINAL.
14. THE CONSTRUCTION ADMINISTRATION PHASE SERVICES ARE INTENDED TO BENEFIT THE CLIENT ONLY. SERVICES RENDERED BY ENGINEER DO NOT RELIEVE CONTRACTOR FROM OBLIGATIONS UNDER THE CONSTRUCTION DOCUMENTS. ENGINEER DOES NOT HAVE AUTHORITY TO SUPERVISE, DIRECT OR CONTROL CONTRACTOR, AND IS NOT RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, OR PROCEDURES OF CONSTRUCTION OR FOR SAFETY PROGRAMS OR PRECAUTIONS DURING CONSTRUCTION. NOR IS ENGINEER RESPONSIBLE FOR CONTRACTORS FAILURE TO PERFORM THE WORK IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS OR APPLICABLE LAWS OR CODES.
15. SUBMIT SHOP DRAWINGS AND PRODUCT DATA WITHIN 30 DAYS AFTER AWARD OF CONTRACT. CHECK, STAMP AND MARK WITH PROJECT NAMES SUBMITTALS BEFORE TRANSMITTING TO ARCHITECT. INDICATE DEVIATIONS FROM CONTRACT DOCUMENTS. SHOP DRAWINGS SHALL BE PROVIDED FOR ALL EQUIPMENT SHOWN ON THE DRAWINGS. SUBMITTALS SHALL BE APPROVED BY THE ENGINEER BEFORE PURCHASE OF MATERIALS.
16. DEVIATION FROM CONTRACT DOCUMENTS, OR PROPOSED SUBSTITUTION OF MATERIALS OR EQUIPMENT FOR THOSE SPECIFIED, SHALL BE REQUESTED IN SEPARATE LETTER, WHETHER DEVIATIONS ARE DUE TO FIELD CONDITIONS, STANDARD SHOP PRACTICE, OR OTHER CAUSE.
17. SCHEDULE AT LEAST TEN WORKING DAYS, EXCLUSIVE OF TRANSMITTAL TIME FOR SUBMITTAL REVIEW.
18. ALL WORK SHALL BE EXECUTED IN WORKMANLIKE MANNER AND SHALL PRESENT NEAT, RECTILINEAR AND MECHANICAL APPEARANCE WHEN COMPLETED. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH THE BEST ENGINEERING PRACTICE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL EQUIPMENT IN STRICT ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS. THIS SHALL INCLUDE PROVIDING CLEARANCES AS DEFINED IN THE INSTALLATION INSTRUCTIONS AND IN ACCORDANCE WITH NEC REQUIREMENTS. PROVIDE ALL AUXILIARY ITEMS REQUIRED TO PERFORM FUNCTION INTENDED.
19. ALL WORK SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER OR HIS AUTHORIZED REPRESENTATIVE AND SHALL BE PERFORMED IN ACCORDANCE WITH ALL BUILDING RULES AND REGULATIONS AS PROVIDED BY THE BUILDING OWNER.
20. LOCATION OF MECHANICAL EQUIPMENT THAT REQUIRE ELECTRICAL CONNECTIONS ARE SHOWN ON THE MECHANICAL DRAWINGS. COORDINATE ALL WORK AND MAKE ALL FINAL CONNECTIONS REQUIRED FOR A COMPLETE INSTALLATION OF MECHANICAL EQUIPMENT AND CONTROLS. MECHANICAL EQUIPMENT RATINGS ARE APPROXIMATE AND MAY VARY BY MANUFACTURERS. VERIFY EXACT ELECTRICAL REQUIREMENTS WITH APPROVED SHOP DRAWINGS ADJUST SIZE OF CIRCUIT BREAKERS, SWITCHES, WIRES, MULTIPLE POWER SOURCES AND MOTOR CONTROLS INCLUDING HEATER ELEMENTS BASED UPON THE ACTUAL EQUIPMENT INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
21. CONTRACTOR SHALL REVIEW ALL TRADES' CONTRACT DOCUMENTS TO DETERMINE SPECIFIC MOUNTING LOCATIONS FOR ELECTRICAL EQUIPMENT.
22. CONDUIT HOMERUNS SHOWN ON THE DRAWING WITH MORE THAN 3 CURRENT CARRYING CONDUCTORS ARE SHOWN DIAGRAMMATIC. THE CONTRACTOR SHALL NOT INSTALL MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY UNLESS DONE SO STRICTLY TO COMPLY WITH THE NATIONAL ELECTRIC CODE REQUIREMENTS FOR APPLYING ADJUSTMENT FACTORS FOR MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A RACEWAY.
23. COLOR CODING AND LABELING OF UTILITIES SHALL BE ACCOMPLISHED PER THE REQUIREMENTS OF UTILITY POWER COMPANY.
24. ALL CIRCUITS MUST HAVE SEPARATE INSULATED GROUND WIRE. THE CONDUIT CANNOT BE USED IN PLACE OF THE GROUND WIRE.
25. A DEDICATED NEUTRAL SHALL BE INSTALLED WITH EACH LIGHTING, COMPUTER AND APPLIANCE PANELBOARD BRANCH CIRCUIT. A SHARED NEUTRAL IS NOT PERMITTED.
26. CONDUCTORS SHALL BE CONTINUOUS FROM TERMINATION TO TERMINATION. PROVIDE JUNCTION BOXES WHERE SPLICES ARE ABSOLUTELY NECESSARY, SPLICE IN READILY ACCESSIBLE JUNCTION BOX OR OUTLET BOX.
27. CONTROL/POWER WIRING REQUIRED BUT NOT SHOWN FOR, AND NOT LIMITED TO, THERMOSTATS, CONTROLLERS, VARIABLE FREQUENCY DRIVE CONTROLS, EQUIPMENT MANUFACTURER CONTROL PANELS, DAMPER MOTORS, CONTROL MOTORS, VALVES, SENSING DEVICES (TEMPERATURE, PRESSURE, HUMIDITY, LEVEL, FLOW, ON-OFF, FIRE ALARM DEVICES) SHALL BE SUPPLIED AND INSTALLED TO PROVIDE A COMPLETE AND USABLE FACILITY AS SPECIFIED. CONTRACTOR TO COORDINATE WITH MECHANICAL DIVISION TO PROVIDE CONTROL/POWER WIRING FOR THESE DEVICES AS REQUIRED.
28. ALL WIRING SHALL BE INSTALLED IN CONDUIT. MINIMUM CONDUIT SIZE SHALL BE 3/4-INCH.
29. CONDUITS SHALL BE INDEPENDENTLY SUPPORTED; DO NOT SUPPORT CONDUITS FROM DUCTWORK.
30. EXPANSION FITTINGS SHALL BE INSTALLED IN CONDUITS CROSSING EXPANSION JOINTS.
31. CONDUITS IN FINISHED AREAS SHALL BE CONCEALED AND THOSE IN UNFINISHED AREAS SHALL BE SURFACE MOUNTED.
32. PROVIDE POLYETHYLENE CORDS FOR PULLING WIRE.
33. PROVIDE PULLING WIRES FOR COMMUNICATION AND OTHER EMPTY CONDUIT SYSTEMS REQUIRED, WITHOUT SPLICES AND WITH AMPLE EXPOSED LENGTHS AT EACH END.
34. TOP ENTRIES OF CONDUITS INTO ELECTRICAL ENCLOSURES LOCATED IN AREAS SUBJECT TO WATER OR CONDENSATION SHALL NOT BE PERMITTED.
35. ALL CIRCUITRY RUNS INDICATED ARE DIAGRAMMATIC. THE CONTRACTOR SHALL DETERMINE IN THE FIELD THE MOST SUITABLE ROUTES. THE CONTRACTOR SHALL PROVIDE "AS-BUILT" DOCUMENTATION OF ALL CIRCUITRY RUNS.
36. PROVIDE ACCESS PANELS WHERE REQUIRED FOR PROPER ACCESS TO JUNCTION BOXES, PULL BOXES ETC.
37. ALL JUNCTION BOXES ABOVE CEILINGS SHALL BE MARKED WITH PANEL AND CIRCUIT DESIGNATION FOR CIRCUITS CONTAINED WITHIN.
38. CONTRACTOR SHALL PROVIDE ALL FIREPROOFING FOR ELECTRICAL PENETRATIONS.
39. FURNISH AND INSTALL NAMEPLATES ON ALL ELECTRICAL EQUIPMENT (SCREW ON TYPE).
40. ALL GROUNDING SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL AND STATE ELECTRICAL CODES.
41. COORDINATE ALL ELECTRICAL ITEMS WITH EXISTING FIELD CONDITIONS. LOCATIONS SHOWN ARE APPROXIMATE AND MAY REQUIRE MINOR ADJUSTMENT IN THE FIELD TO SATISFY THE DESIGN INTENT.
42. DAMAGE TO EXISTING FACILITIES AND EQUIPMENT SHALL BE REPAIRED OR REPLACED IMMEDIATELY BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
43. THE LOCATIONS SHOWN ON THESE PLANS ARE APPROXIMATE AND REQUIRE COORDINATION WITH ALL OTHER TRADES AND VERIFICATION OF EXISTING CONDITIONS. ROUTING OF CONDUIT IS DIAGRAMMATIC IN NATURE AND NOT INTENDED TO SHOW ALL REQUIRED OFFSETS AND DETAILS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING ASSOCIATED EQUIPMENT AND CONDITIONS. COORDINATE THE LOCATION OF ALL EQUIPMENT WITH THE ENGINEER AND THE OWNER. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER TRADES' DRAWINGS AND SPECIFICATIONS AND COORDINATING WITH OTHER TRADE DURING BIDDING AND CONSTRUCTION.
44. REPAIR AND PATCH ANY DISTURBED AREA TO MATCH EXISTING CONDITIONS.
45. ALL ELECTRICAL CURRENT CARRYING PARTS SHALL BE COPPER FOR ALL EQUIPMENT.
46. SWITCHBOARDS AND PANELBOARDS SHALL BE FULLY RATED. SERIES RATING IS NOT ACCEPTABLE. CIRCUIT BREAKERS SHALL BE THE BOLT-ON TYPE WITH FULL COPPER BUSSING, 100% NEUTRAL AND ISOLATED GROUND BUSS REMOVABLE COVER AND NAMEPLATE. U.O.N
47. PROVIDE TEMPORARY POWER AND LIGHTING FOR ALL TRADES AND REQUIRED TO COMPLETE THE PROJECT. ALL TEMPORARY AND INTERIM EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING, BUT NOT LIMITED TO, NFPA 70. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THIS REQUIREMENT WITH ALL OTHER TRADES AND INCLUDING ALL ASSOCIATED COST IN BID PRICE.
48. ENGAGE A QUALIFIED ELECTRICAL TESTING COMPANY TO LOCATE ALL UNDERGROUND UTILITIES IN PROPOSED CONSTRUCTION AREAS FOR ALL TRADES BEFORE DIGGING. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THIS ORGANIZATION AND INCLUDING ALL ASSOCIATED COSTS IN THE BID PRICE.
49. PROVIDE FIRE SEALANT FOR PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS TO MAINTAIN THE APPLICABLE FIRE RATING. ALL WALL PENETRATIONS SHALL BE A MINIMUM OF ONE HOUR FIRE RATED. ALL FIREPROOFING FOR ELECTRICAL PENETRATIONS SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR.
50. PROVIDE CONCRETE FOUNDATION HOUSEKEEPING PAD FOR ALL FLOOR MOUNTED EQUIPMENT.

CLASSIFIED AREA INFORMATION



CLASSIFIED AREA NOTES:

1. THIS GARAGE WILL SERVICE HYDROGEN FUELVEHICLES. DO NOT LOCATE ANY EQUIPMENT IN CLASS 1, DIVISION 2 AREA 18" BELOW CEILING. ANY EQUIPMENT REQUIRED IN THIS AREA SHALL BE RATED FOR CLASS 1, DIVISION 2.
2. ANY EQUIPMENT ROUTED TROUGH THE MAINTENANCE PITS SHALL BE RATED FOR CLASS 1, DIVISION 2.
3. AREA UP TO 18" ABOVE FINISHED FLOOR HAS BEEN DECLASSIFIED DUE TO VENTILATION OF GARAGE.

E001

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

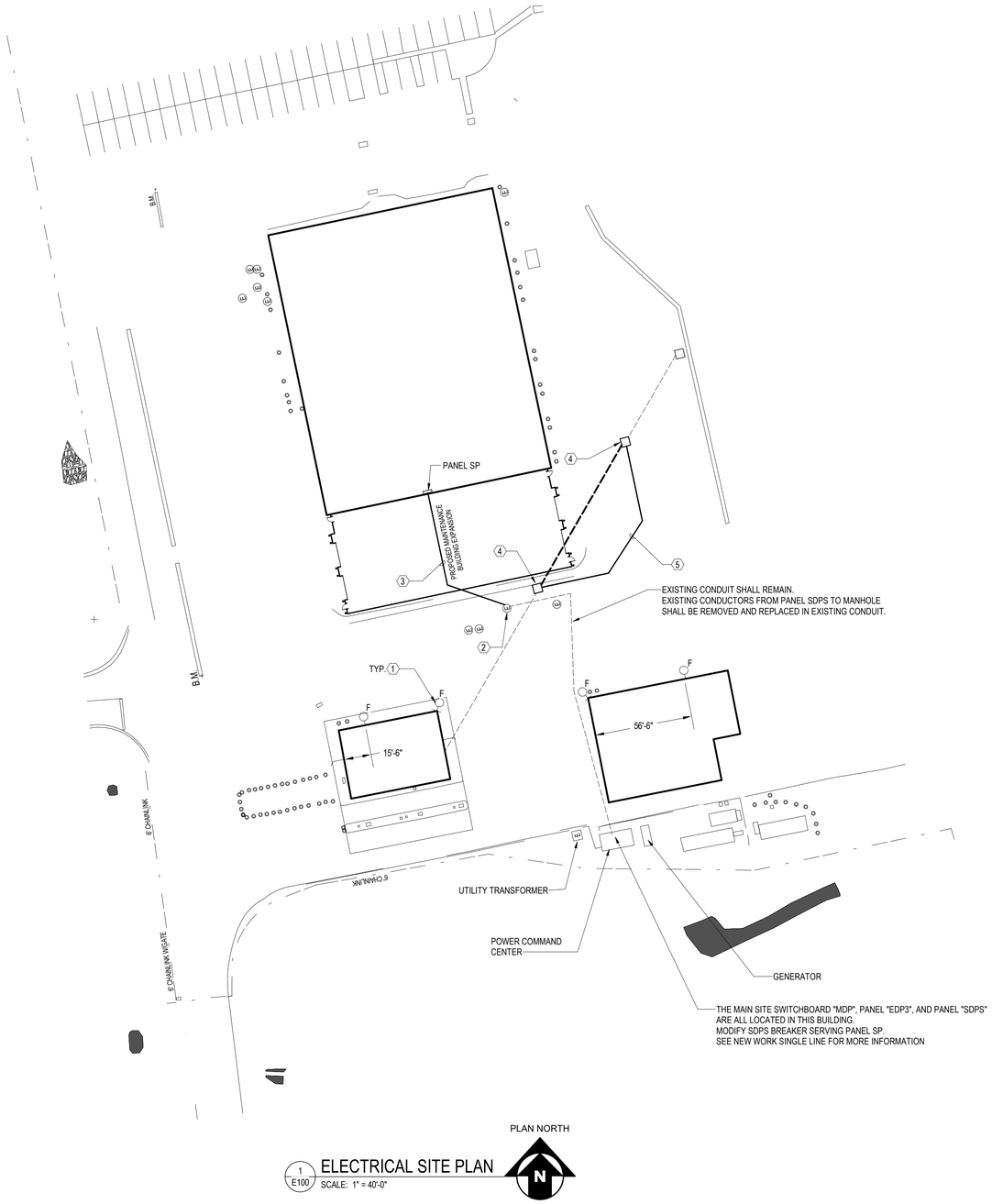
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	T201953104.03	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	JRM
		CHECKED BY:	JL

ELECTRICAL LEGEND, ABBREVIATIONS, AND NOTES

SECTION	
	JMT
SHEET NO.	
	72

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 E100 ELECTRICAL SITE PLAN
SCALE: 1" = 40'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (——) SHALL BE EXISTING TO REMAIN.
3. REFER TO SHEET E-001 FOR LEGEND, ABBREVIATIONS, GENERAL PROJECT NOTES.
4. REFER TO SHEET E-602 FOR LIGHT FIXTURE SCHEDULE.

SHEET KEYNOTES:

1 NEW BUILDING MOUNTED FLOODLIGHT FIXTURES SHALL BE CONNECTED TO EXISTING WALL MOUNTED LIGHTING CIRCUIT ON BUILDING. EXTEND EXISTING CONDUIT AND WIRE FROM EXISTING WALL MOUNTED FIXTURE TO NEW FIXTURES. MATCH EXISTING WIRE AND CONDUIT TYPE AND SIZE. MATCH FIXTURE MOUNTING HEIGHT WITH EXISTING FIXTURES.

2 EXISTING MANHOLE.

3 PROVIDE NEW CONCRETE ENCASED CONDUIT AND WIRE FROM EXISTING MANHOLE TO PANEL SP. SEE SINGLE LINE DIAGRAM FOR SIZES. COORDINATE ROUTING WITH BUILDING EXPANSION FOOTINGS, COLUMNS, BUS LIFT PITS, AND ALL OTHER UNDERGROUND EQUIPMENT. SEE FIGURE 6 ON E-502 FOR TYPICAL CONDUIT DUCTBANK DETAIL.

4 PROVIDE CONDUIT JUNCTION WELL TYPE 5 FOR UNDERGROUND CONDUITS. SEE DETAIL 4 ON SHEET E502.

5 PROVIDE NEW CONDUIT AND WIRE FOR RELOCATING CONDUIT PATH AROUND THE EXPANSION SITE. COORDINATE ROUTING WITH CIVIL PLANS. MATCH EXISTING WIRE AND CONDUIT TYPE AND SIZE. SEE FIGURE 6 ON E-502 FOR TYPICAL CONDUIT DUCTBANK DETAIL.

E100

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

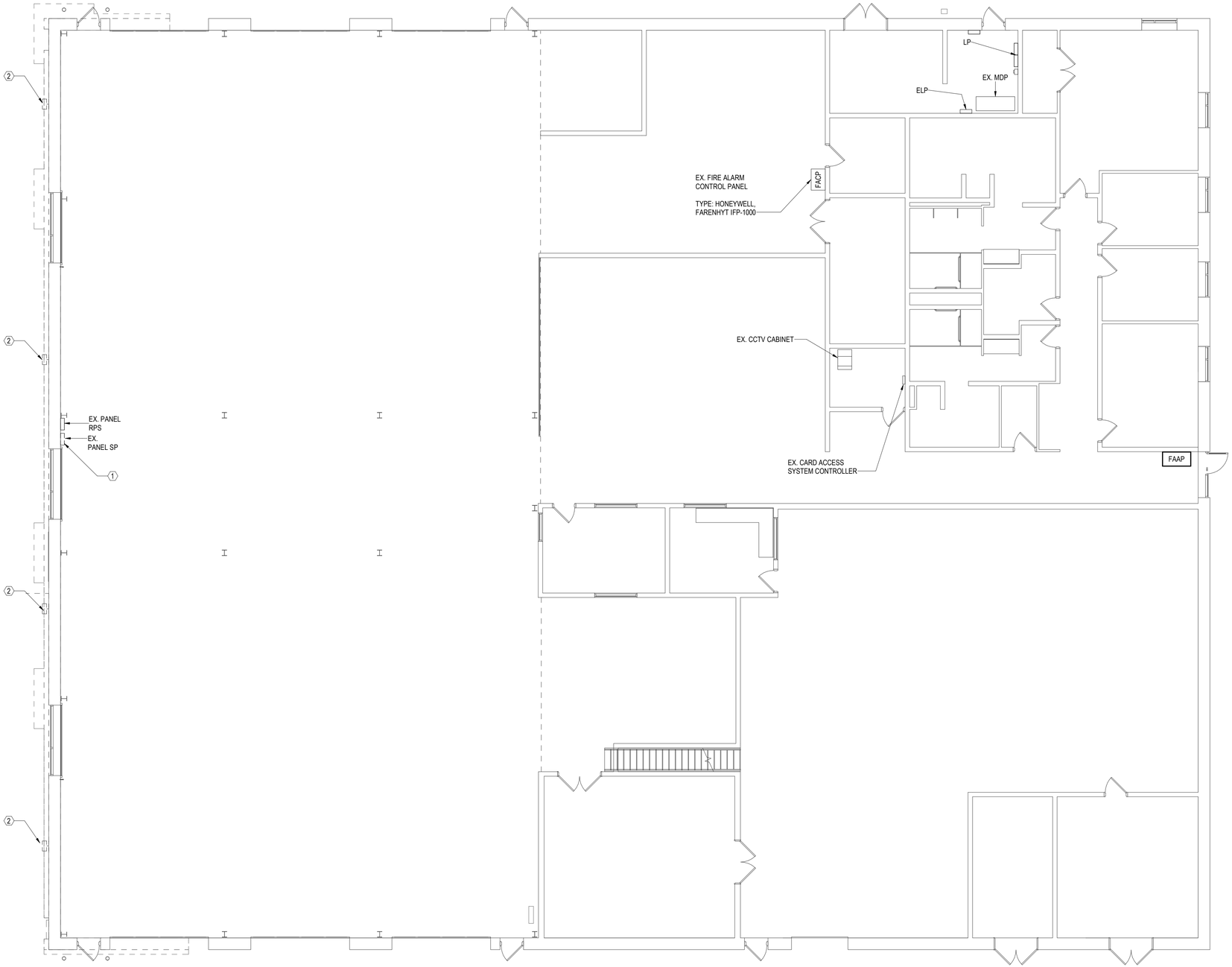
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	T201953104.03	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	JRM
		CHECKED BY:	JL

ELECTRICAL SITE PLAN

SECTION	
	JMT
SHEET NO.	
	73

$DATE $USERS
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 ED101 ELECTRICAL POWER - DEMOLITION - FIRST FLOOR
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. DEMOLITION SHALL INCLUDE REMOVAL AND OFF-SITE DISPOSAL OF MATERIALS. DO NOT ABANDON IN PLACE ANY ELECTRICAL COMPONENTS UNLESS OTHERWISE NOTED ON DRAWINGS.
3. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY DASHED (— — —) SHALL BE REMOVED AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (———) SHALL REMAIN.

SHEET KEYNOTES:

1 REMOVE EXISTING PANELBOARD. ALL BRANCH CIRCUITS WILL BE FED FROM NEW PANELBOARD INSTALLED IN SAME LOCATION.
2 REMOVE EXISTING FLOODLIGHTS AND ALL ASSOCIATED CONDUIT AND WIRE.

2 ED101 FACP PANEL IMAGE
SCALE: 1" = 50'-0"

ED101

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

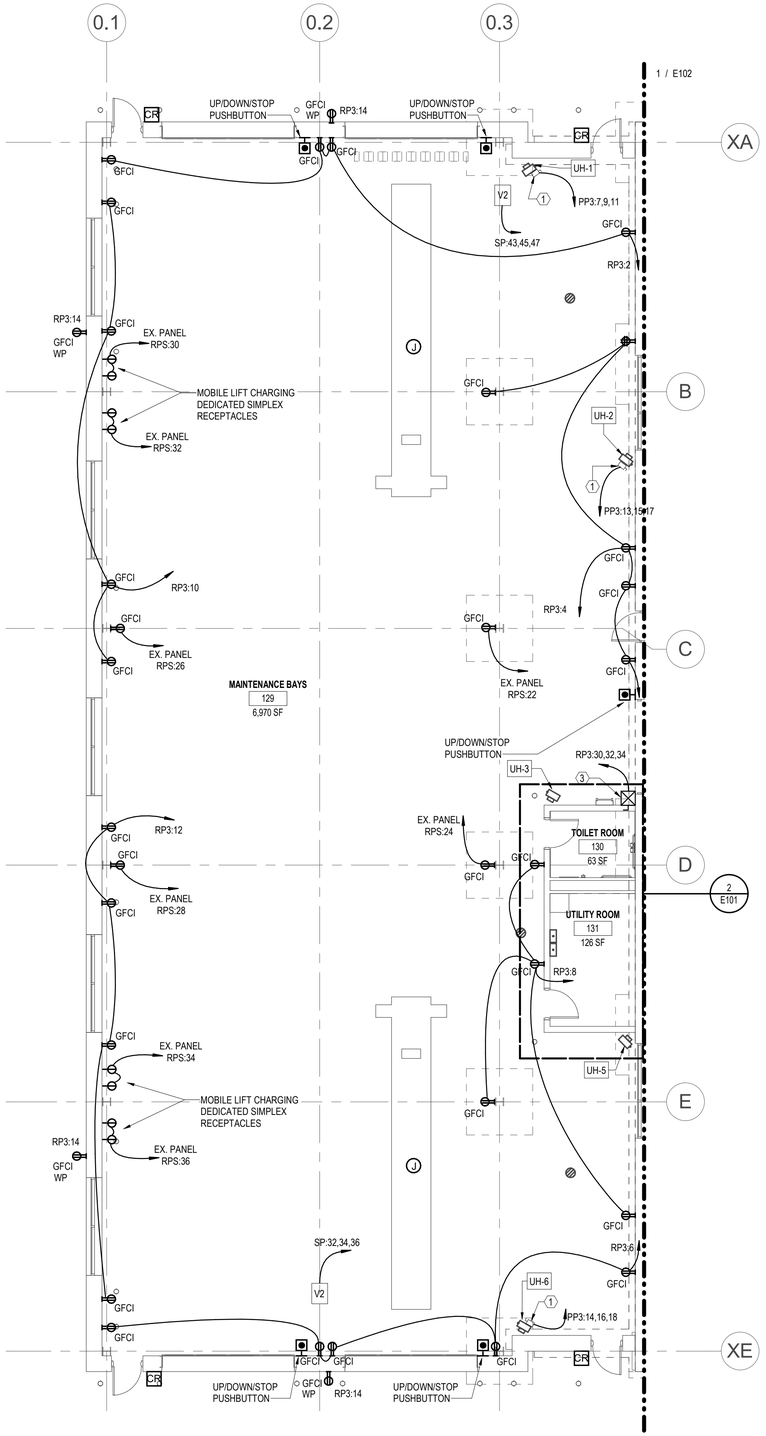
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JRM	
COUNTY	CHECKED BY: JL	
NEW CASTLE		

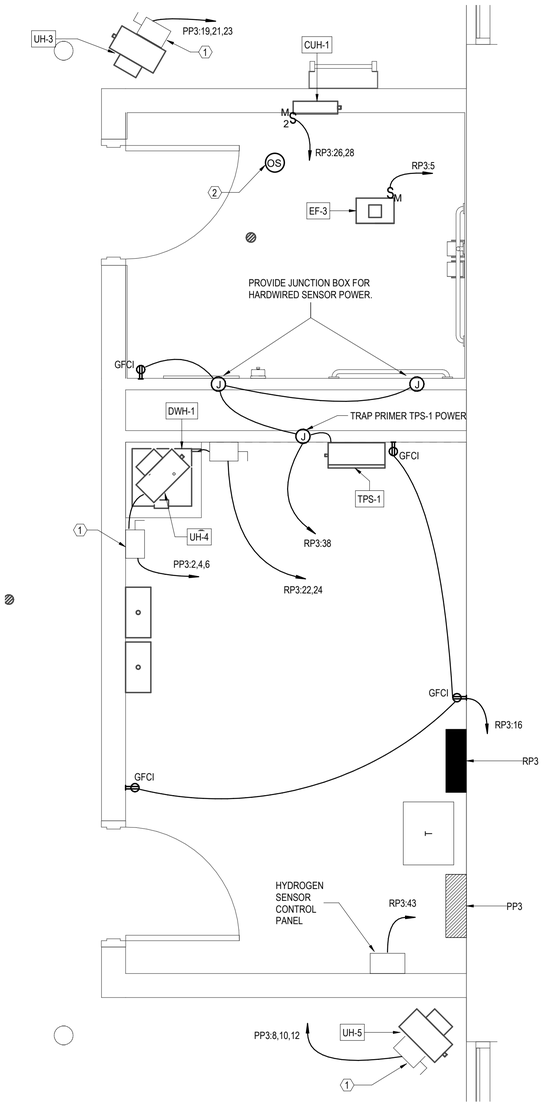
ELECTRICAL - DEMOLITION - FLOOR PLAN

SECTION
JMT
SHEET NO.
74

$DATE_USERS
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 E101 ELECTRICAL POWER - NEW WORK - FIRST FLOOR
SCALE: 1/8" = 1'-0"



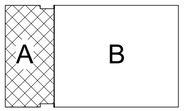
2 E101 ELECTRICAL POWER - NEW WORK - FIRST FLOOR -PART PLAN
SCALE: 1/2" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (——) SHALL BE EXISTING TO REMAIN.
3. REFER TO SHEET E-001 FOR LEGEND, ABBREVIATIONS, GENERAL PROJECT NOTES.

SHEET KEYNOTES:

1 FACTORY INSTALLED DISCONNECT IS PROVIDED WITH SUSPENDED UNIT HEATER.
2 PROVIDE DUAL RELAY CEILING MOUNTED MOTION SENSOR SIMILAR TO SENSORSWITCH CMR. CEILING MOUNTED MOTION SENSOR SHALL BE USED TO CONTROL RESTROOM LIGHTING WITH ONE RELAY, AND CONTROL EF-6 IN TOILET ROOM WITH SECOND RELAY.
3 30A, 208V, 3 PHASE, COMBINATION MOTOR STARTER/DISCONNECT SWITCH FOR DRIVE DOOR OPERATOR. COORDINATE EXACT LOCATION AND INSTALLATION HEIGHT WITH DOOR MANUFACTURER. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.



KEYPLAN

E101

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

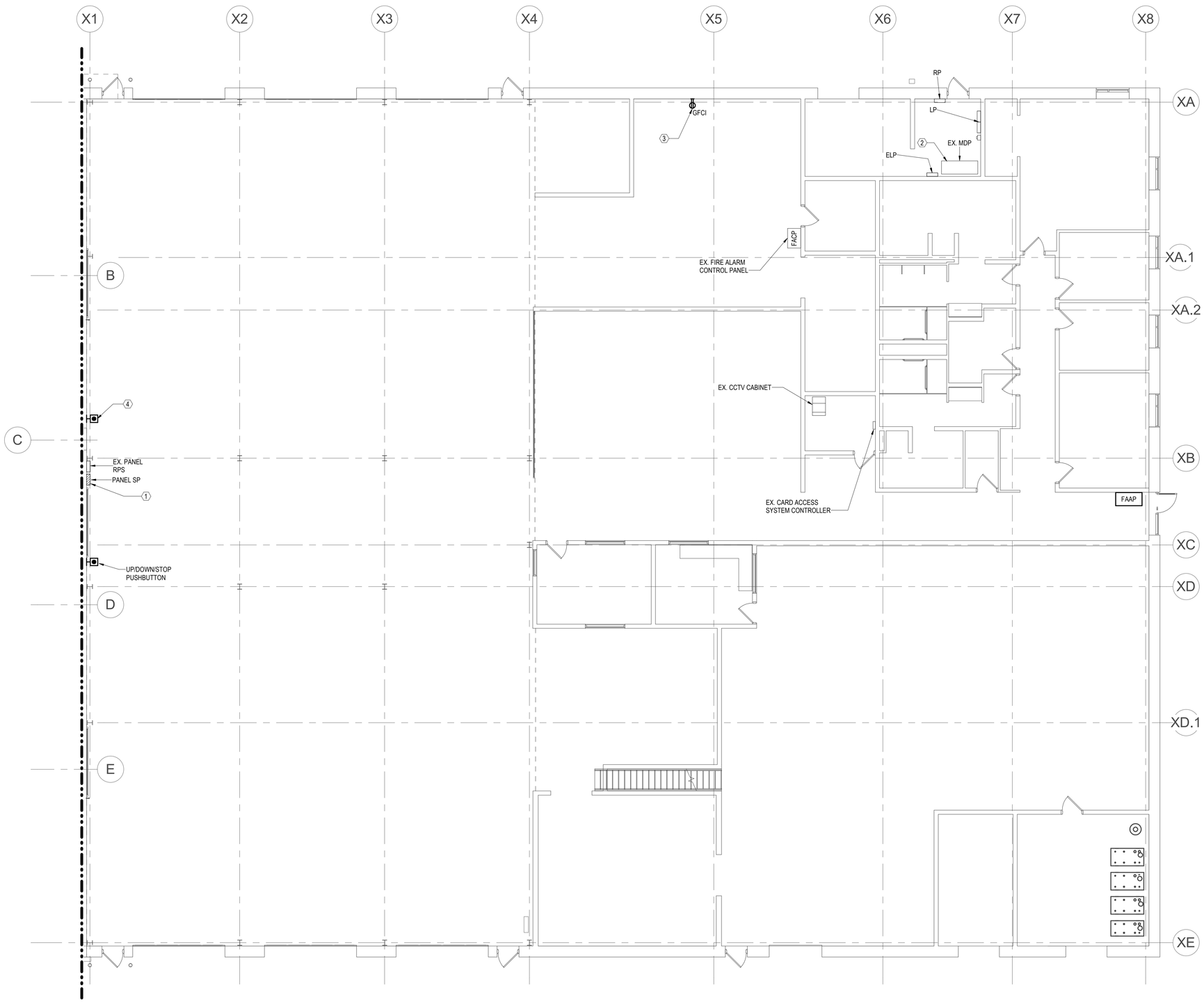
MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JRM	
COUNTY		
NEW CASTLE	CHECKED BY: JL	

ELECTRICAL - NEW WORK - FLOOR PLAN A

SECTION
JMT
SHEET NO.
75

$DATE_USERS
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



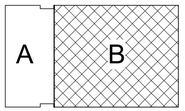
1 E102 ELECTRICAL POWER - EXISTING - FIRST FLOOR
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (——) SHALL BE EXISTING TO REMAIN.
3. REFER TO SHEET E-001 FOR LEGEND, ABBREVIATIONS, GENERAL PROJECT NOTES.

⬡ SHEET KEYNOTES:

1 REPLACE EXISTING PANEL SP WITH NEW 300A MCB PANELBOARD. RECONNECT ALL EXISTING LOADS TO NEW PANELBOARD. SEE SINGLE LINE DIAGRAM FOR ADDITIONAL INFORMATION. COORDINATE OUTAGES FOR REPLACEMENT OF PANEL WITH DTC.
2 PROVIDE NEW 400A BREAKER IN EXISTING MAIN SWITCHBOARD MDP FOR NEW PANELBOARD PP3.
3 ADD NEW RECEPTACLE FOR NEW CONTROL EQUIPMENT. CONNECT TO EXISTING RECEPTACLE CIRCUIT IN ROOM.
4 PROVIDE NEW EMERGENCY POWER OFF(EPO) LATCHING BUTTON FOR VENTILATION CONTROLS. BUTTON SHALL SEND SIGNAL TO BAS FOR CONTROL OF EQUIPMENT. SWITCH SHALL BE BREAKGLASS TYPE AND LABELED PER NFPA 2 REQUIREMENTS.



KEYPLAN

E102

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JRM	
COUNTY	CHECKED BY: JL	
NEW CASTLE		

ELECTRICAL - NEW WORK - FLOOR PLAN B

SECTION
JMT
SHEET NO.
76

$DATE_USERS
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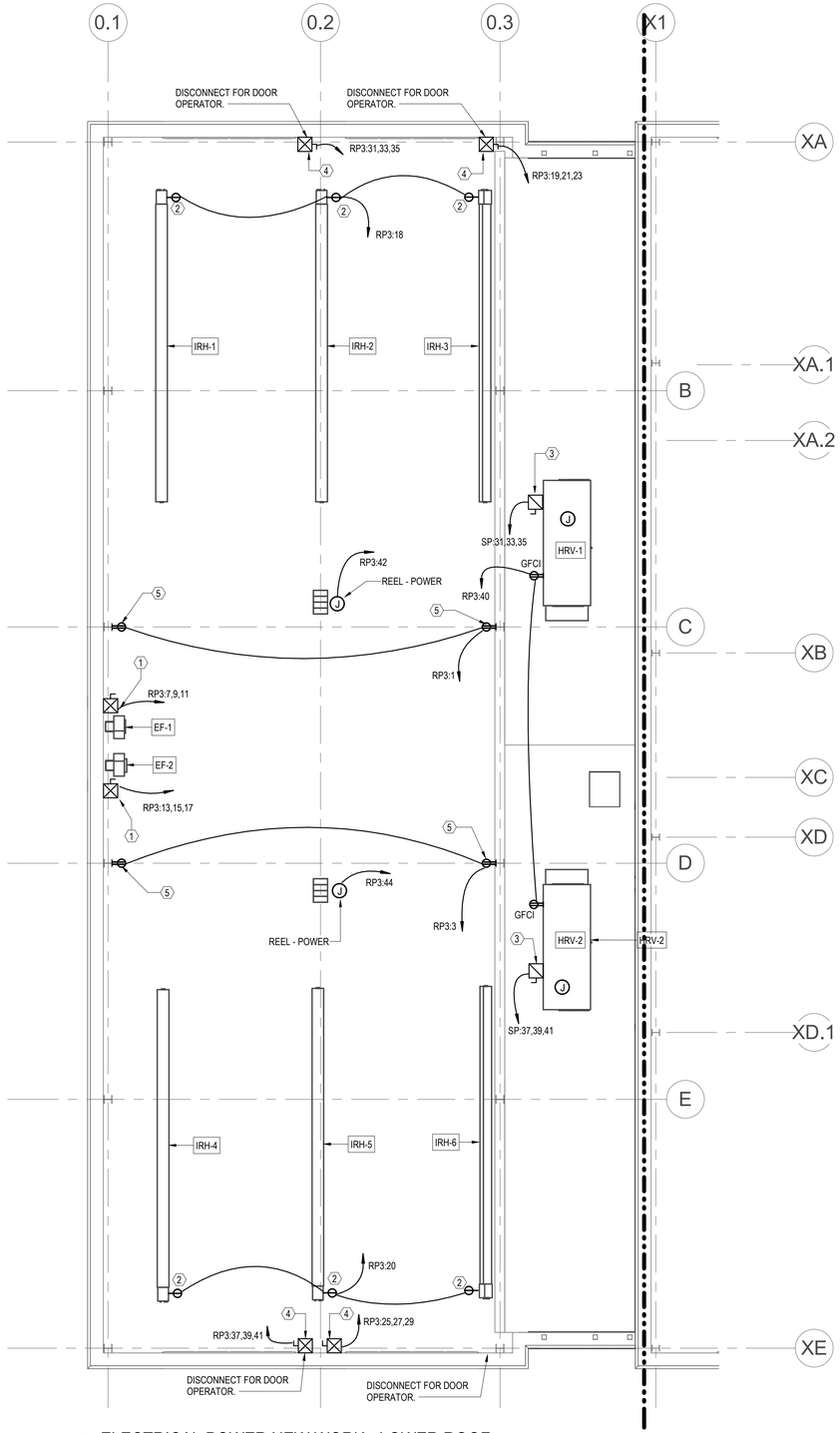


1 E103 ELECTRICAL POWER NEW WORK - LOWER ROOF
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (——) SHALL BE EXISTING TO REMAIN.
3. REFER TO SHEET E-001 FOR LEGEND, ABBREVIATIONS, GENERAL PROJECT NOTES.

⬡ SHEET KEYNOTES:

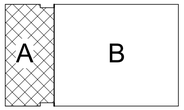
1 PROVIDE 3P-30A F/SS (FUSED PER MANUFACTURER RECOMMENDATIONS) AND NEMA SIZE 1 COMBINATION STARTER WITH HOA SWITCH IN NEMA 3R ENCLOSURE. PROVIDE ALL CONNECTIONS AND ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.

2 PROVIDE TWIST LOCK RECEPTACLE NEMA L520R(125V, 20A) MOUNTED IN THE CEILING SPACE FOR CONNECTION TO PLUG-ON INFRARED RADIANT HEATER. COORDINATE EQUIPMENT PLUG AND EXACT LOCATION OF OUTLETS WITH MECHANICAL EQUIPMENT. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.

3 PROVIDE 3P-30A F/SS (FUSED PER MANUFACTURER RECOMMENDATIONS) IN NEMA 3R ENCLOSURE. PROVIDE ALL CONNECTIONS AND ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.

4 30A, 208V, 3 PHASE, COMBINATION MOTOR STARTER/DISCONNECT SWITCH FOR DRIVE DOOR OPERATOR. COORDINATE EXACT LOCATION AND INSTALLATION HEIGHT WITH DOOR MANUFACTURER. PROVIDE ALL NECESSARY ACCESSORIES FOR A COMPLETE AND FUNCTIONAL SYSTEM.

5 PROVIDE RECEPTACLE FOR NEW WALL/COLUMN MOUNTED FAN. COORDINATE FINAL HEIGHT OF FAN AND RECEPTACLE WITH OWNER.



KEYPLAN

E103

ADDENDUMS / REVISIONS		
NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JRM	
COUNTY		
NEW CASTLE	CHECKED BY: JL	

ELECTRICAL - NEW WORK - LOWER ROOF

SECTION
JMT
SHEET NO.
77

$DATE_USERS
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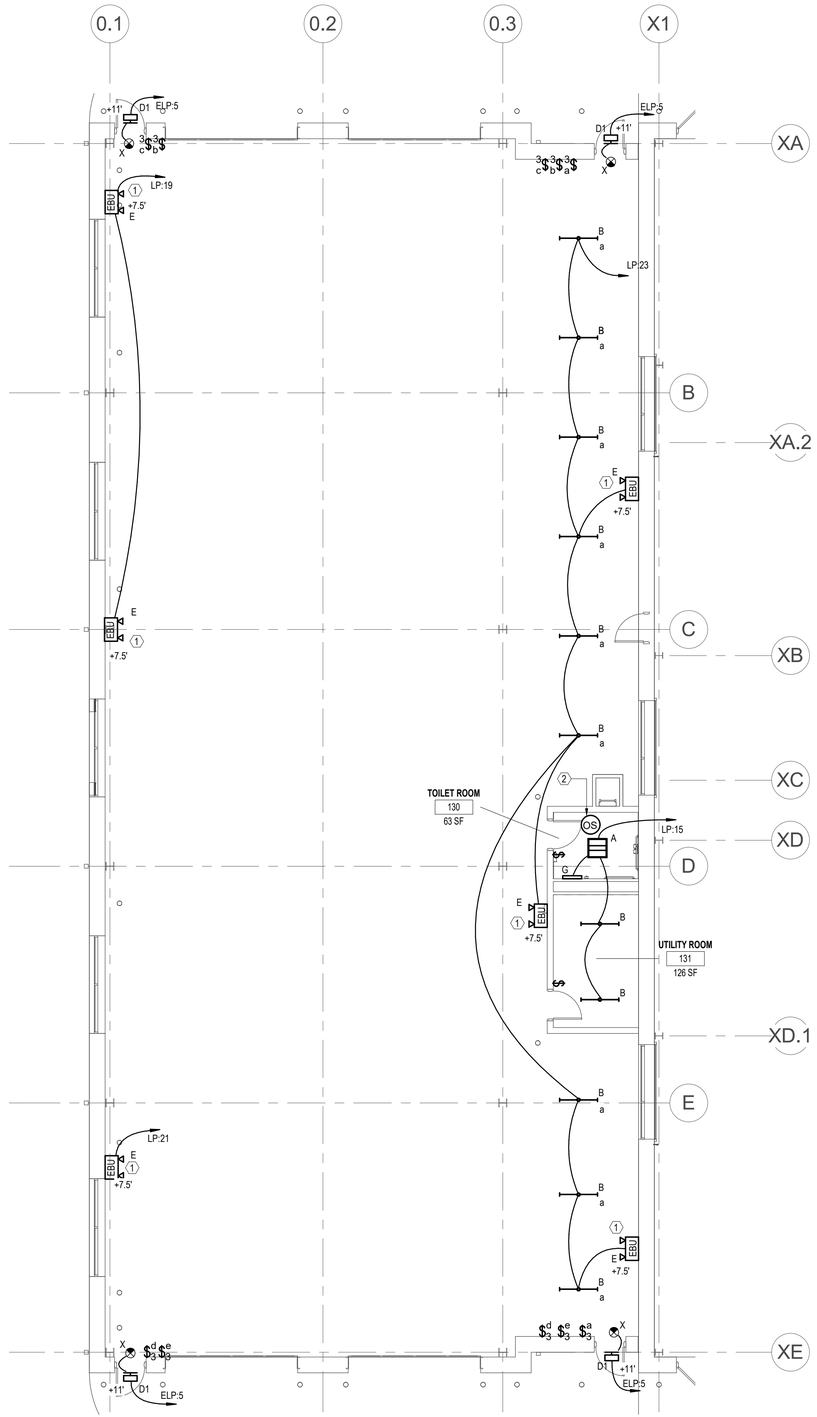
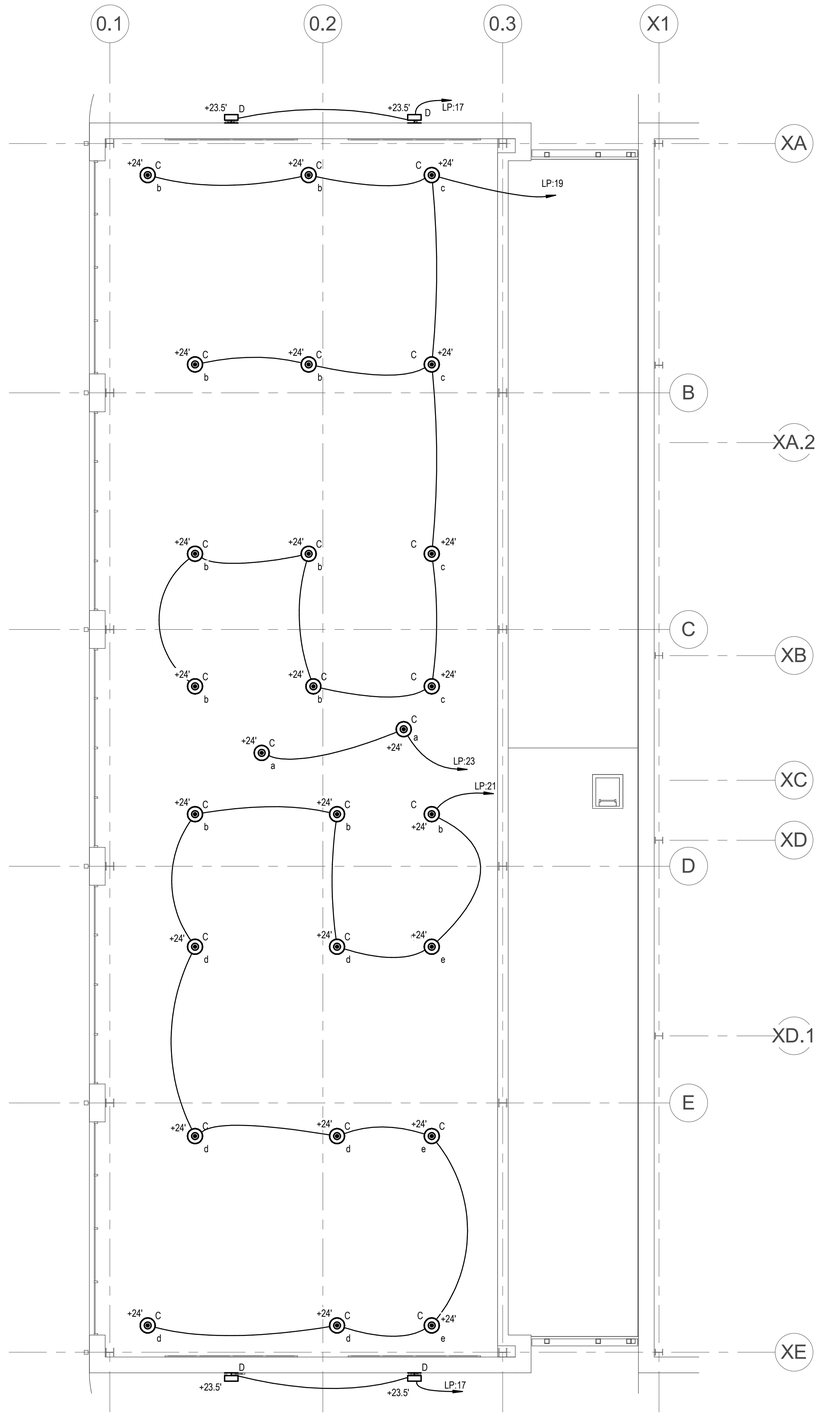


1 E201 ELECTRICAL LIGHTING NEW WORK - FIRST FLOOR

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



2 E201 ELECTRICAL LIGHTING NEW WORK - LOWER ROOF

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

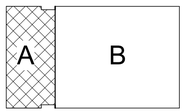
GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (——) SHALL BE EXISTING TO REMAIN.
3. REFER TO SHEET E-001 FOR LEGEND, ABBREVIATIONS, GENERAL PROJECT NOTES.
4. REFER TO SHEET E-602 FOR LIGHT FIXTURE SCHEDULE.
5. PROGRAM RELAY IN LIGHTING CONTROL PANEL FOR NEW CIRCUITS IN PANEL LP TO BEHAVE LIKE EXISTING CIRCUITS IN THE SIMILAR EXISTING AREAS.

SHEET KEYNOTES:

1 EMERGENCY FIXTURE SHALL BE WIRED AHEAD OF THE SWITCH CONTROLLING THE AREA. SEE DETAIL ON SHEET E-501.

2 PROVIDE DUAL RELAY CEILING MOUNTED MOTION SENSOR SIMILAR TO SENSORSWITCH CMR. CEILING MOUNTED MOTION SENSOR SHALL BE USED TO CONTROL RESTROOM LIGHTING WITH ONE RELAY, AND CONTROL EF-6 IN TOILET ROOM WITH SECOND RELAY.



KEYPLAN

E201

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JRM		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: JL		78

ELECTRICAL LIGHTING - NEW WORK - FLOOR PLANS

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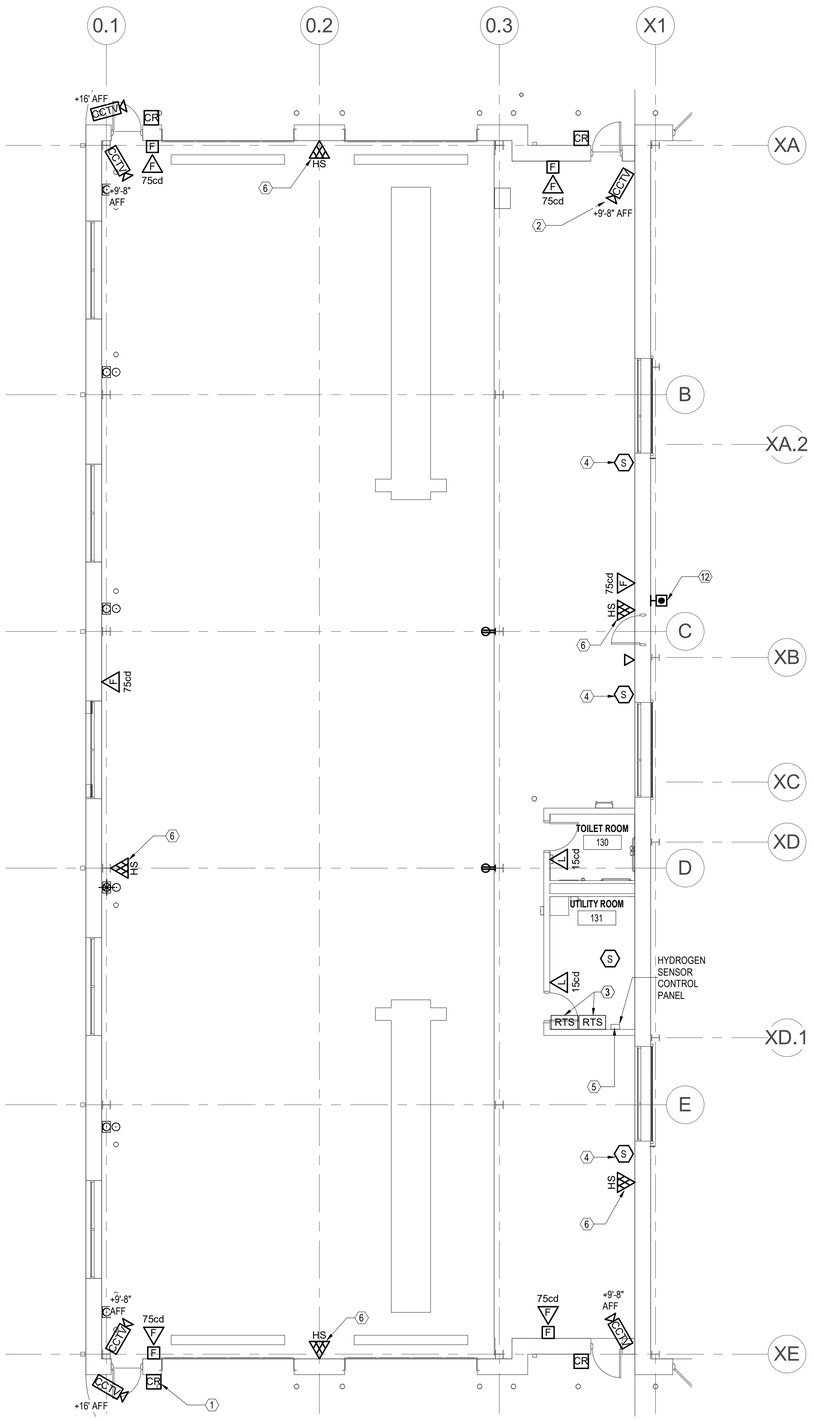
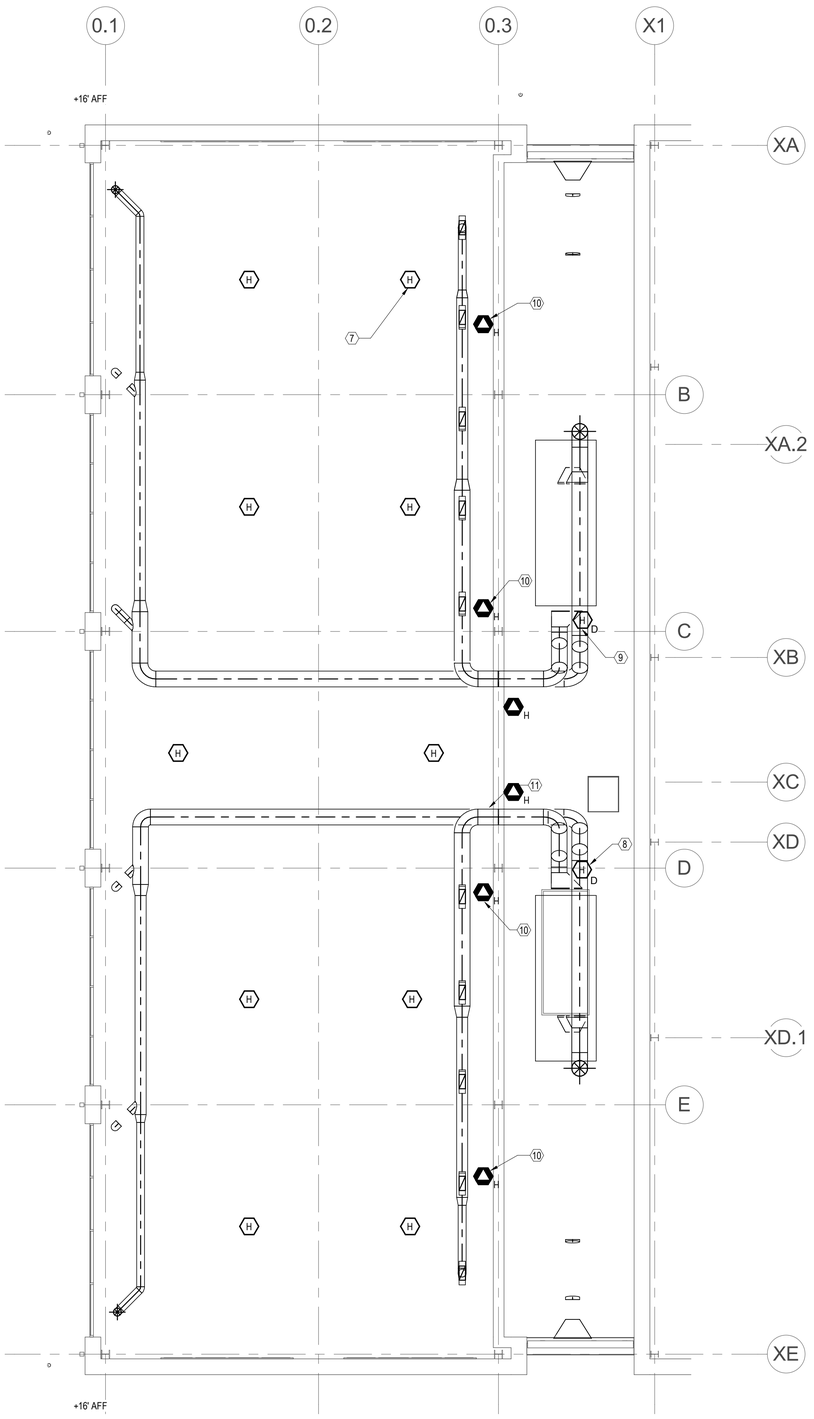


1 E301 ELECTRICAL SPECIAL SYSTEMS NEW WORK - FIRST FLOOR
SCALE: 1/8" = 1'-0"



2 E301 ELECTRICAL SPECIAL SYSTEMS NEW WORK - MEZZANINE
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (———) SHALL BE NEW.
2. REFER TO SHEET E001 FOR LEGEND, ABBREVIATIONS, & GENERAL PROJECT NOTES.
3. INSTALL ALL FIRE ALARM DEVICES PER REQUIREMENTS OF NFPA 72.
4. LOCATIONS AND INSTALLATION HEIGHT OF ALL WALL DEVICES TO BE COORDINATED WITH MILLWORK IN ALL LOCATIONS.
5. ALL WIRING SHALL BE INSTALLED IN CONDUIT, INCLUSIVE OF LOW VOLTAGE/CONTROL WIRING (I.E. THERMOSTATS, AUDIO, VISUAL, COMM ETC.)
6. ALL COMMUNICATIONS DEVICES SHALL RETURN THE COMMUNICATIONS DEMARCATION IN MINIMUM 1" CONDUIT.
7. CONTRACTOR SHALL FURNISH AND INSTALL ALL DOOR HARDWARE IN ACCORDANCE TO DTC SPECIFICATIONS. AS WELL AS ALL CONDUITS, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL ACCESS CONTROLLED DOORS. THE CONTRACTOR SHALL COORDINATE WITH THE DTC INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. (TYPICAL ALL LOCATIONS.)
8. CONTRACTOR SHALL FURNISH AND INSTALL ALL CAMERA HARDWARE IN ACCORDANCE TO DTC SPECIFICATIONS. AS WELL AS ALL CONDUITS, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL FIXXED VIDEO SURVELLANCE CAMERAS. THE CONTRACTOR SHALL COORDINATE WITH THE DTC INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. COORDINATE FINAL LOCATIONS AND HEIGHTS WITH DTC. (TYPICAL ALL LOCATIONS.)
9. COORDINATE FINAL LOCATIONS OF ACCESS CARD READERS WITH OWNER.
10. ALL STROBES MUST BE SYNCHRONIZED.
11. CONTRACTOR SHALL ONLY BE RESPONSIBLE FOR INSTALLING CONDUITS AND PULL STRING AS REQUIRED FOR FUTURE SYSTEM INTEGRATION TO EXISTING SYSTEMS. WIRING AND FINAL CONNECTIONS SHALL BE DONE BY OTHERS.

SHEET KEYNOTES:

1 CONNECT NEW DOOR ACCESS CARD READERS TO EXISTING CARD ACCESS SYSTEM CONTROLLER (TYPICAL). SEE SHEET E-102 FOR LOCATION OF EXISTING CARD ACCESS SYSTEM CONTROLLER LOCATION.

2 CONNECT NEW CAMERAS TO EXISTING CCTV SYSTEM (TYPICAL). SEE SHEET E-102 FOR LOCATION OF CCTV CABINET LOCATION.

3 REMOTE ALARM INDICATING TEST SWITCH FOR DUCT SMOKE DETECTORS.

4 NEW SMOKE DETECTOR FOR CONTROL OF FIRE SHUTTERS.

5 PROVIDE CONTROL PANEL FOR HYDROGEN SENSORS AND ALARM. CONNECT TO BAS. SYSTEM SHALL SEND A SYSTEM SHUTDOWN SIGNAL TO THE BAS WHEN THE HYDROGEN CONCENTRATION EXCEEDS 25% OF THE LEL. PROVIDE ALL EQUIPMENT NECCESARY FOR A COMPLETE AND FUNCTIONAL SYSTEM.

6 PROVIDE NEW HYDROGEN SENSOR SYSTEM ALARM STROBE/HORN. LABEL TO IDENTIFY WARNING SIGNAL IS FOR HYDROGEN DETECTION SYSTEM.

7 CONNECT NEW FIRE ALARM EQUIPMENT TO EXISTING FIRE ALARM PROTECTION SYSTEM (TYPICAL). SEE SHEET E-102 FOR LOCATION OF EXISTING FIRE ALARM CONTROL PANEL.

8 PROVIDE DUCT SMOKE DETECTOR ON SUPPLY SIDE OF HRV-2 PER NFPA-90A REQUIREMENTS. COORDINATE EXACT LOCATION IN FIELD.

9 PROVIDE DUCT SMOKE DETECTOR ON SUPPLY SIDE OF HRV-1 PER NFPA-90A REQUIREMENTS. COORDINATE EXACT LOCATION IN FIELD.

10 PROVIDE HYDROGEN SENSORS ON HIGH POINT OF CEILING IN SERVICE BAYS. EXPLOSION PROOF RATED SENSORS SHALL BE USED WHEN WITHIN HAZARDOUS ZONE. PROVIDE REMOTE MOUNT FOR CALIBRATION IN UTILITY ROOM ADJACENT TO CONTROL PANEL.

11 PROVIDE HYDROGEN SENSORS IN INLETS TO MECHANICAL VENTILATION. COORDINATE FINAL LOCATION WITH MECHANICAL EQUIPMENT AND PROVIDE SUN SHIELD AS REQUIRED. PROVIDE REMOTE MOUNT FOR CALIBRATION IN UTILITY ROOM ADJACENT TO CONTROL PANEL.

12 PROVIDE NEW EMERGENCY POWER OFF(EPO) LATCHING BUTTON FOR VENTILATION CONTROLS. BUTTON SHALL SEND SIGNAL TO BAS FOR CONTROL OF EQUIPMENT. SWITCH SHALL BE BREAKGLASS TYPE AND LABELED PER NFPA 2 REQUIREMENTS.

E301

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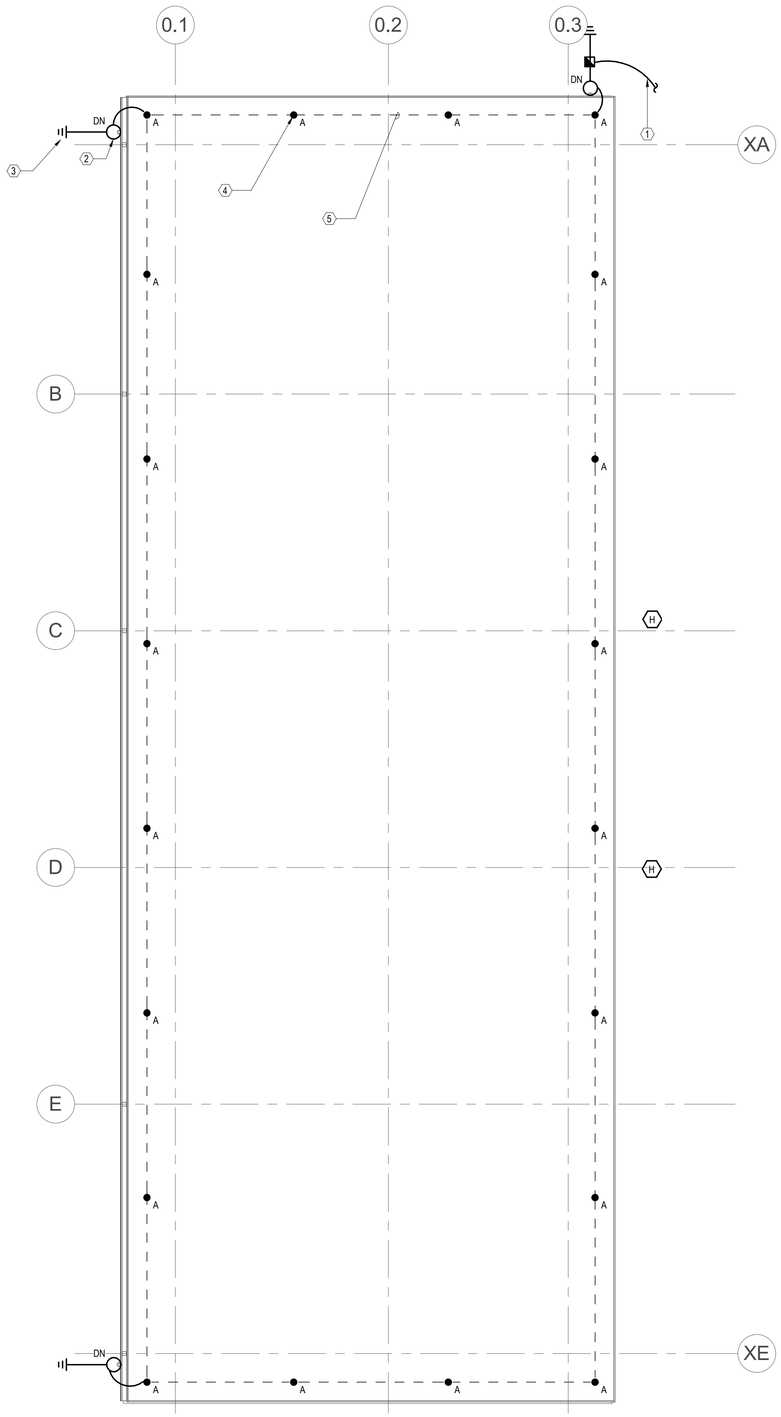
ADDENDUMS / REVISIONS		
NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JRM		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: JL		79

ELECTRICAL SPECIAL SYSTEMS - NEW WORK - FLOOR PLAN



1 E302 ELECTRICAL LIGHTNING PROTECTION - NEW WORK - ROOF
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES:

1. HEARY BROS. LIGHTNING PROTECTION CO. INC. USED AS THE BASIS OF DESIGN.
2. CONDUCTORS SHALL MAINTAIN A HORIZONTAL OR DOWNWARD COURSE, FREE FROM "U" OR "V" (DOWN AND UP) POCKETS.
3. NO BEND OF CONDUTOR SHALL FORM AN ANGLE OF LESS THAN 90 DEGREES NOR SHALL HAVE A RADIUS OF BEND LESS THAN 8".
4. AIR TERMINALS SHALL BE SPACED EVERY 20'-0" MAXIMUM AROUND THE ROOF PERIMETER AND/OR ALONG ROOF RIDGES. AIR TERMINAL SHALL BE LOCATED WITHING 2'-0" OF OUTSIDE CORNERS.
5. AIR TERMINALS SHALL BE SPACED EVERY 50'-0" MAXIMUM IN CENTER ROOF AREAS.
6. ACTUAL JOBSITE CONDITIONS MAY REQUIRE SLIGHT ALTERATIONS IN AIR TERMINAL, DOWN CONDUCTOR AND GROUND ROD LOCATIONS.
7. BARE COPPER MATERIALS SHALL NOT BE INSTALLED ON ALUMINUM OR GALVALUM SURFACES, AND ALUMINUM MATERIALS SHALL NOT BE INSTALLED ON COPPER SURFACES.
8. ALL LIGHTNING PROTECTION CONDUCTORS SHALL BE FASTENED EVERY 3'-0" MAX.
9. METALLIC BODIES OF INDUCTANCE SITUATED WITHIN 6'-0" OF A LIGHTNING CONDUCTOR OR ANOTHER BONDED METAL BODY SHALL BE INTERCONNECTED TO THE LIGHTNING CONDUCTOR SYSTEM, UNLESS INHERENTLY GROUNDED.
10. BOND ALL METAL BODIES OF CONDUCTANCE WITHIN 6'-0" OF THE MAIN LIGHTNING CONDUCTOR SUCH AS EXHAUST FANS, ROOF VENTS, METAL COOLING TOWER, H.V.A.C. UNITS, LADDERS, RAILINGS, ANTENNAS, SKYLIGHTS, METALS STACKS AND ANY OTHERS LARGE METAL BODY WHOSE HEIGHT EXCEEDS THAT OF THE AIR TERMINAL IN USE, UNLESS PROTECTED BY HIGHER ROOF ELEVATIONS.
11. CONNECTIONS TO GROUND RODS SHALL BE MADE AT A POINT NOT LESS THAN 1'-0" BELOW FINISHED GRADE AND 2'-0" AWAY FROM FOUNDATION WALL.
12. BOND TO WATERLINES (DOMESTIC & FIRE)
13. A LIGHTNING ARRESTOR. PROTECTOR OR ANTENNA DISCHARGE UNIT SHALL BE INSTALLED ON EACH ELECTRIC AND TELEPHONE SERVICE AND RADIO AND TELEVISION ANTENNA LEAD-IN BY THE ELECTRICAL CONTRACTOR, IN ACCORDANCE WITH NFPA-70.
14. UPON COMPLETION OF INSTALLATION UL MASTER LABELED SHALL BE ISSUED.
15. SEE DETAILS ON SHEET E-502 FOR TYPICAL CONNECTION DETAILS.

⬡ SHEET KEYNOTES:

1 BOND TO EXISTING LIGHTNING PROTECTION EQUIPMENT. ACTUAL LOCATION MAY VARY AND SHALL BE DETERMINED IN FIELD BY INSTALLING CONTACTOR.
2 DOWN CONDUCTOR TO GROUND ROD. DOWN CONDUCTORS SHALL NOT EXCEED 100' (TYP.).
3 LIGHTNING PROTECTION GROUND ROD (TYP.).
4 12" AIR TERMINAL AND ADHESIVE BASE (TYP.).
5 LIGHTNING PROTECTION CABLE FASTENED TO ROOF EVERY 36" MAX (TYP.).

E302

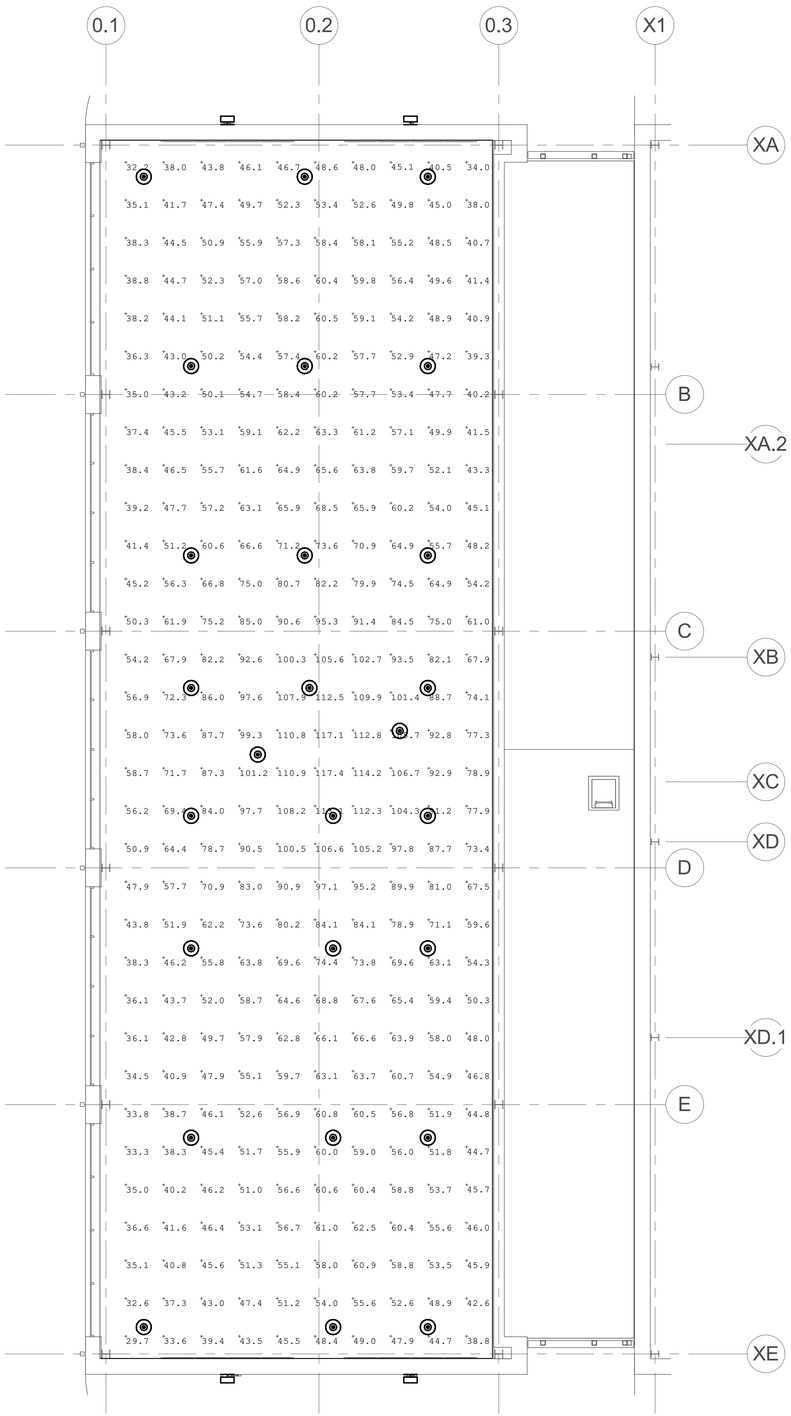
ADDENDUMS / REVISIONS		
NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JRM		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: JL		80

ELECTRICAL LIGHTNING PROTECTION - NEW WORK - ROOF

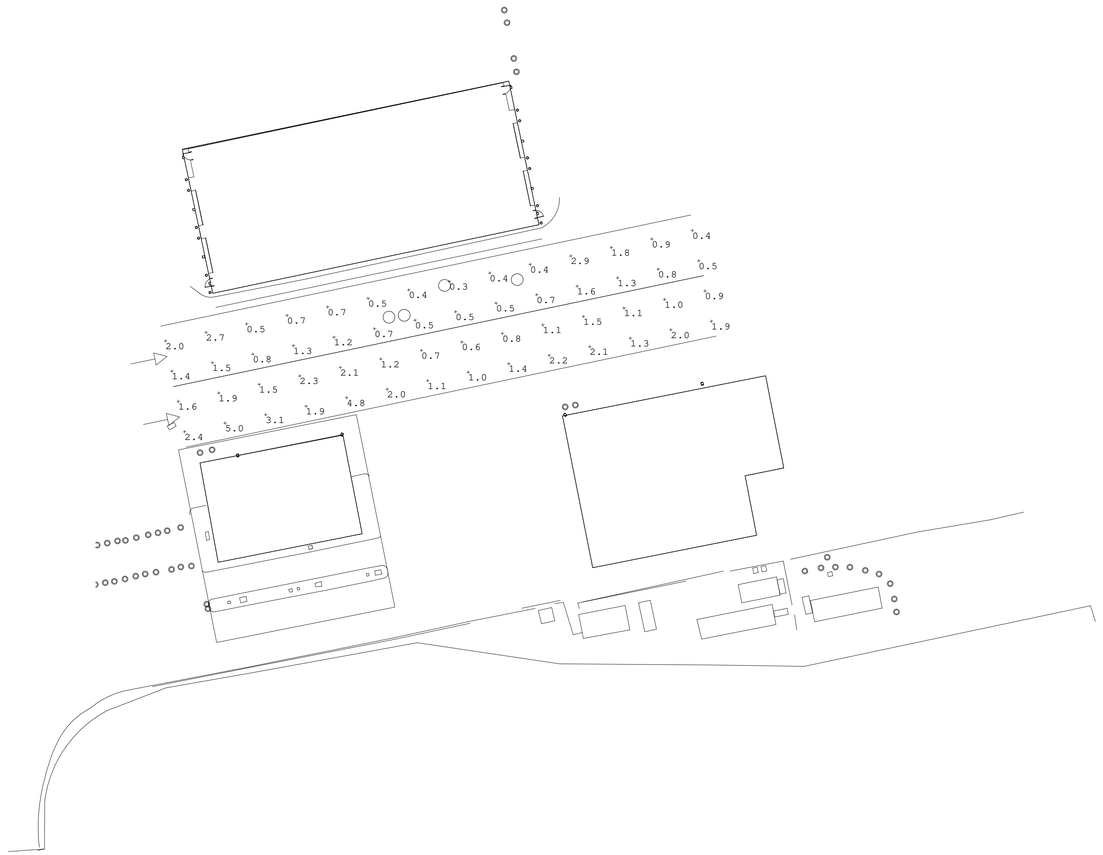
$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 E303 ELECTRICAL LIGHTING - MAINTENANCE BAY PHOTOMETRICS
SCALE: 1/8" = 1'-0"

CRITERIA TABLE		
DESCRIPTION	AVG. ILLUMINANCE	MAX/MIN
SERVICE GARAGES	50.0 FC	3:1
DRIVE ISLES/PARKING AREAS	1.0 FC (MINIMUM)	15:1

CALCULATION SUMMARY		
DESCRIPTION	AVG. ILLUMINANCE	MAX/MIN
EXPANSION PARKING	61.47 FC	3.65:1
BUS DRIVE ISLE	1.41 FC	13:1



2 E303 ELECTRICAL SITE - BUS DRIVE ISLE PHOTOMETRICS
SCALE: NTS

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (——) SHALL BE EXISTING TO REMAIN.
3. REFER TO SHEET E-001 FOR LEGEND, ABBREVIATIONS, GENERAL PROJECT NOTES.
4. REFER TO SHEET E-001, AND E-201 FOR LIGHT FIXTURE CIRCUITING AND LOCATIONS.
5. SEE SHEET E-601 FOR FIXTURE INFORMATION.
6. LIGHTING CRITERIA IS BASED ON ANSI/IES RECOMMENDED PRACTICES FOR THE ILLUMINATED AREAS.
7. CALCULATION SUMMARY SHOWS THE RESULTS OF THE BASIS OF DESIGN FIXTURES SPECIFIED ON SHEET E-601. ANY SUBMITTED FIXTURE MUSE ADHERE TO THE LIGHTING CRITERIA TABLE.

E303

$DATE: USER$
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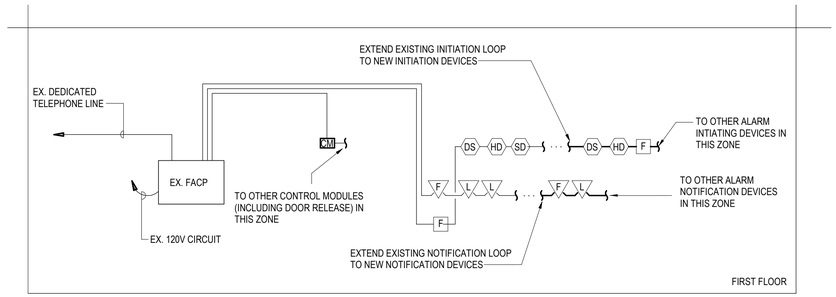
ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	T201953104.03	BRIDGE NO.	N/A
COUNTY	NEW CASTLE	DESIGNED BY:	JRM
		CHECKED BY:	JL

PHOTOMETRIC PLANS

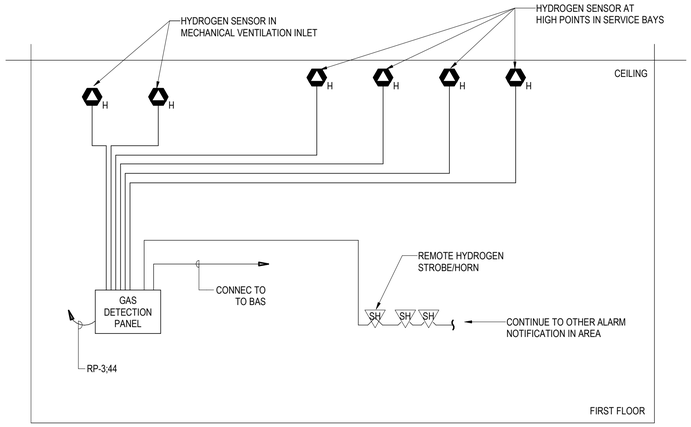
SECTION	
JMT	
SHEET NO.	
81	



NOTES:

1. REFER TO FLOOR PLANS FOR EXACT DEVICE COUNT AND LOCATIONS. PROVIDE CONDUIT AND WIRING AS REQUIRED BY SYSTEM MANUFACTURER.
2. CONTRACTOR SHALL COORDINATE WITH EXISTING SYSTEM VENDOR TO ENSURE THAT EXISTING LOOPS CAN SUPPORT NEW DEVICES. CONTRACTOR SHALL MAKE ALL MODIFICATIONS TO EXISTING SYSTEM REQUIRE TO SUPPORT NEW DEVICES.
3. CONTRACTOR SHALL PERFORM ALL WORK REQUIRED TO PROVIDE A COMPLETE AND OPERABLE SYSTEM.

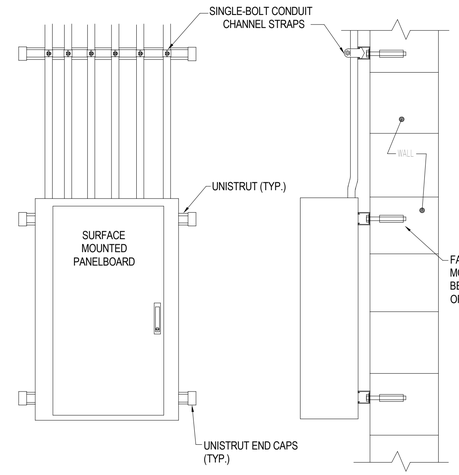
1 / E501 FIRE ALARM RISER
SCALE: NTS



NOTES:

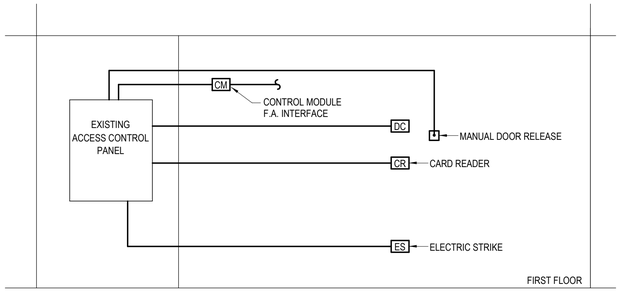
1. REFER TO FLOOR PLANS FOR EXACT DEVICE COUNT AND LOCATIONS. PROVIDE CONDUIT AND WIRING AS REQUIRED BY SYSTEM MANUFACTURER.
2. ALL SENSORS LOCATED IN HAZARDOUS LOCATIONS MUST BE EXPLOSION PROOF.
3. PROVIDE REMOTE MOUNT FOR EACH HYDROGEN SENSOR ADJACENT TO CONTROL PANEL FOR REMOTE CALIBRATION OF THE SENSORS.
4. COORDINATE GAS DETECTION PANEL RELAY CONNECTION TO BAS WITH CONTROL CONTACTOR.

2 / E501 HYDROGEN SENSOR RISER
SCALE: NTS



1. TYPICAL INSTALLATION - DETAILS MAY VERY FOR DIFFERENT PANELBOARD INSTALLATIONS.

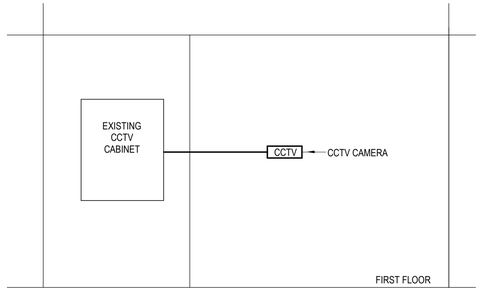
3 / E501 PANELBOARD MOUNTING DETAIL
SCALE: NTS



NOTES:

1. REFER TO FLOOR PLANS FOR EXACT DEVICE COUNT AND LOCATIONS. PROVIDE BOXES AND EMPTY CONDUIT WITH PULL STRING AS REQUIRED BY SYSTEM MANUFACTURER.
2. SECURITY PANEL IS EXISTING. CONDUITS FROM ALL ACCESS CONTROLLED DOORS (CARD READERS) SHALL RUN TO THE FINAL LOCATION OF THE SECURITY PANEL.
3. CONTRACTOR SHALL FURNISH AND INSTALL ALL DOOR HARDWARE IN ACCORDANCE TO DTC SPECIFICATIONS. AS WELL AS ALL CONDUITS WITH PULL STRING, BACKBOXES AND REQUIRED ACCESSORIES AS NECESSARY TO SUPPORT THE COMPLETE INSTALLATION OF ALL ACCESS CONTROLLED DOORS. THE CONTRACTOR SHALL COORDINATE WITH THE DTC INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. (TYPICAL ALL LOCATIONS).

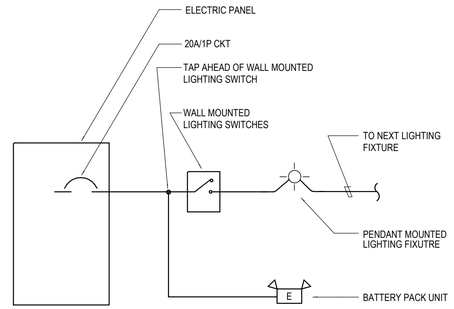
4 / E501 ACCESS CONTROL SYSTEM RISER
SCALE: NTS



NOTES:

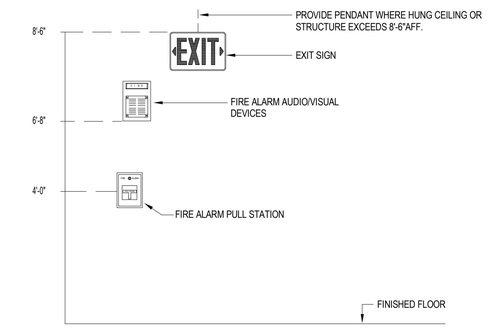
1. REFER TO FLOOR PLANS FOR EXACT DEVICE COUNT AND LOCATIONS. PROVIDE BOXES AND EMPTY CONDUIT WITH PULL STRING AS REQUIRED BY SYSTEM MANUFACTURER.
2. CCTV CABINET IS EXISTING. CONDUITS FROM ALL CCTV CAMERAS SHALL RUN TO FINAL LOCATION OF THE CCTV CABINET.
3. THE CONTRACTOR SHALL COORDINATE WITH DTC INTEGRATOR TO DETERMINE ALL CONDUIT REQUIREMENTS PRIOR TO COMMENCEMENT OF ANY WORK.

5 / E501 CCTV SYSTEM RISER
SCALE: NTS



6 / E501 BATTERY PACK UNIT CONNECTION DETAIL
SCALE: NTS

TYPICAL DEVICE MOUNTING HEIGHTS



NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE, EXCEPT EXIT SIGNS.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED ON THIS DETAIL UNLESS OTHERWISE NOTED.
4. SMOKE AND DETECTORS SHALL NOT BE MOUNTED WITHIN 3'0" ON AN AIR SUPPLY DIFFUSER OR OR AIR RETURN OPENING
5. SMOKE/HEAT DETECTORS SHALL NOT BE MOUNTED WITHIN 4" FROM SIDE WALL OR 4" FROM CEILING.
6. AUDIBLE/VISUAL AND VISUAL ONLY DEVICES SHALL BE MOUNTED 80" AFF FROM THE BOTTOM OF THE DEVICE. UNLESS OTHERWISE NOTED
7. MANUAL PULL STATIONS SHALL BE MOUNTED 4'0" AFF FROM TOP OF HANDLE.
8. MANUAL PULL STATIONS SHALL BE MOUNTED WITHIN 5' OF PUBLIC EXIT.
9. COORDINATE MOUNTING HEIGHTS OF ALL DEVICES WITH LOCAL FIRE MARSHAL BEFORE ROUGH IN.

7 / E501 FIRE ALARM DEVICE MOUNTING HEIGHT
SCALE: 12" = 1'-0"

E501

ADDENDUMS / REVISIONS		
NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JRM		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: JL		82

ELECTRICAL DETAILS I

$DATE_USERS
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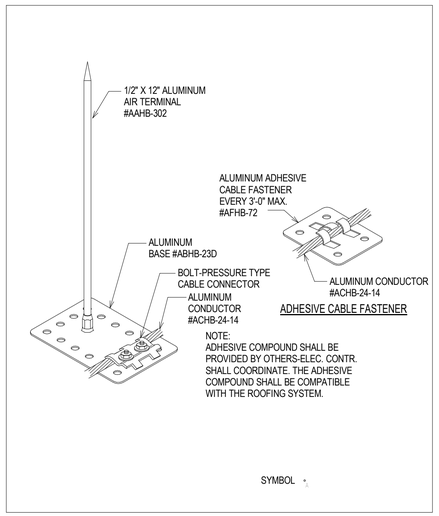
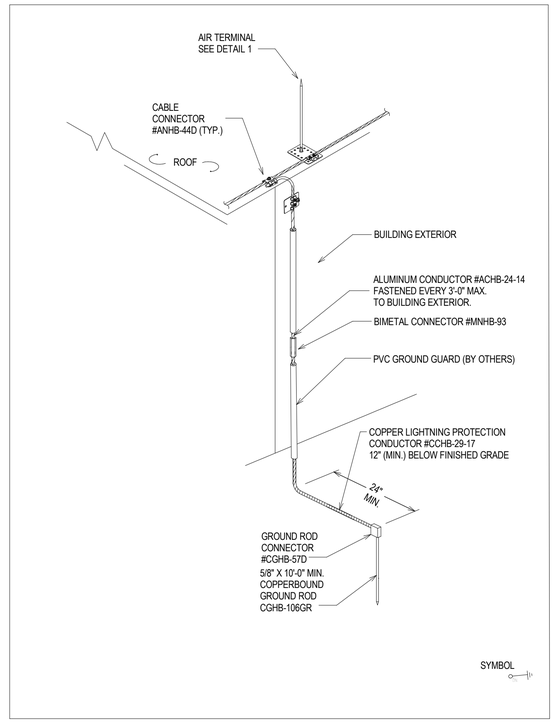
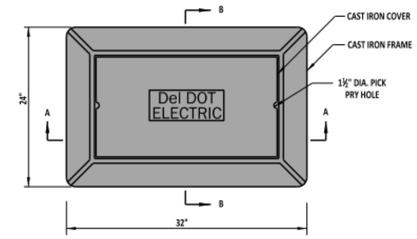


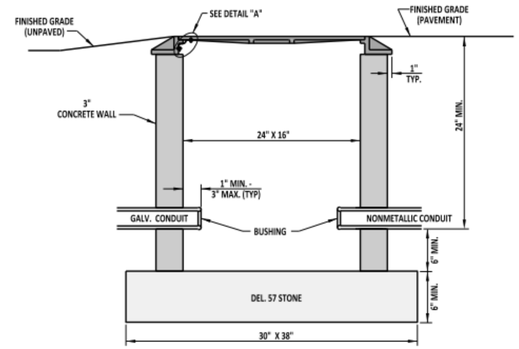
1 E502 AIR TERMINAL BASE
SCALE: 1/16" = 1'-0"



2 E502 DOWN CONDUCTOR AND GROUNDING EXPOSED LIGHTNING PROTECTION
SCALE: 1/16" = 1'-0"



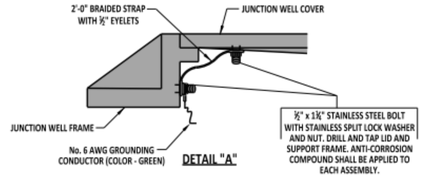
PLAN VIEW

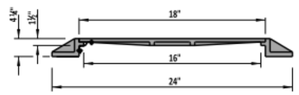


SECTION A-A

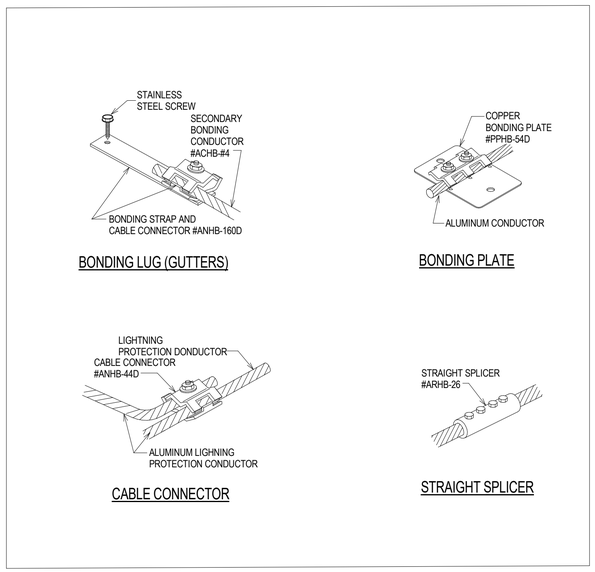
4 E502 CONDUIT JUNCTION WELL, TYPE 5
SCALE: 1/4" = 1'-0"

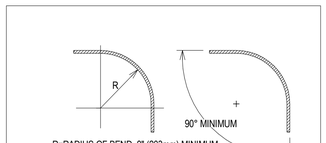
NOTES:
1). TYPE 5 CONDUIT JUNCTION WELL SHALL BE PRECAST CONCRETE. AT LEAST ONE HOLE IN PRECAST WELLS WILL BE OF A 5" DIAMETER COMPLETELY THROUGH THE WALL. UNUSED HOLES SHALL BE PLUGGED.
2). ALL CONDUIT JUNCTION WELLS PLACED IN PAVED AREAS SHALL BE CONSTRUCTED FLUSH WITH THE FINISHED GRADE. ALL CONDUIT JUNCTION WELLS PLACED IN UNPAVED AREAS SHALL BE CONSTRUCTED ABOVE GRADE AND GRADED TO DRAIN AWAY FROM THE WELL, AS DETAILED.
3). ALL CRACKS, GAPS, OR OPENINGS IN JUNCTION WELL WALL SHALL BE SEALED WITH CONCRETE.



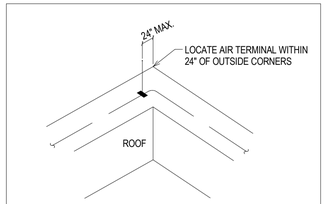


SECTION B-B





8" MIN. RADIUS BEND IN CABLE



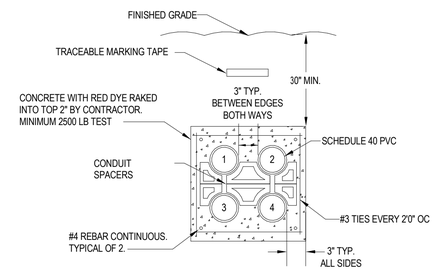
AIR TERMINALS SHALL BE LOCATED WITHIN 24" OF OUTSIDE CORNERS
NTS

LIGHTNING PROTECTION MATERIALS LIST		
	ALUMINUM LIGHTNING PROTECTION MAIN CONDUCTOR	ACHB-24-14
	ALUMINUM LIGHTNING PROTECTION SECONDARY BONDING CABLE	ACHB-#4
	ALUMINUM LIGHTNING PROTECTION MAIN CONDUCTOR	ACHB-29-17
	ALUMINUM LIGHTNING PROTECTION MAIN CONDUCTOR	MNHB-93
	ALUMINUM LIGHTNING PROTECTION MAIN CONDUCTOR	AFHB-72, 66, 64 CFHB-64
○ A	1/2" X 12" ALUMINUM AIR TERMINAL AND ADHESIVE BASE	AAHB-302, ABHB-23D
	SECONDARY BONDING: *METAL ROOF DRAIN / GUTTER CONNECTOR	ANHB-160D
	CORROSION RESISTANT COPPER BONDING PLATE (TO BASE OF STEEL AT EACH DOWNLEAD)	PPHB-54D
	"C" CLAMP (LADDERS)	PPHB-54D
	CABLE CONNECTOR	ANHB-44D, CNHB-44D
	STRAIGHT SPLICER	ARHB-26
	GROUND GUARD (TO PROTECT EXPOSED DOWN CONDUCTORS)	CGHB-108PVC
	5/8" X 10'-0" COPPERWELD GROUND ROD AND CONNECTOR	CGHB-106GR, CGHB-57D
○ DN	DOWN CONDUCTOR	ACHB-24-14

3 E502 LIGHTNING PROTECTION DETAILS
SCALE: 1/16" = 1'-0"

GENERAL DETAIL NOTES:

1. CAUTION, DEPTHS MAY REQUIRE DERATING. SEE N.E.C.
2. DETAIL IS DIAGRAMMATIC AND REPRESENTS TYPICAL CONCRETE ENCASED REQUIREMENTS. REFER TO SITE PLANS AND DETAILS FOR CONDUIT COUNTS AND SIZES.
3. ALL PVC CONDUITS SHALL TRANSITION TO RGS CONDUITS FOR STUB UPS.



5 E502 TYPICAL CONCRETE ENCASED DUCTBANK DETAIL
SCALE: 12" = 1'-0"

E502

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JRM	
COUNTY		
NEW CASTLE	CHECKED BY: JL	

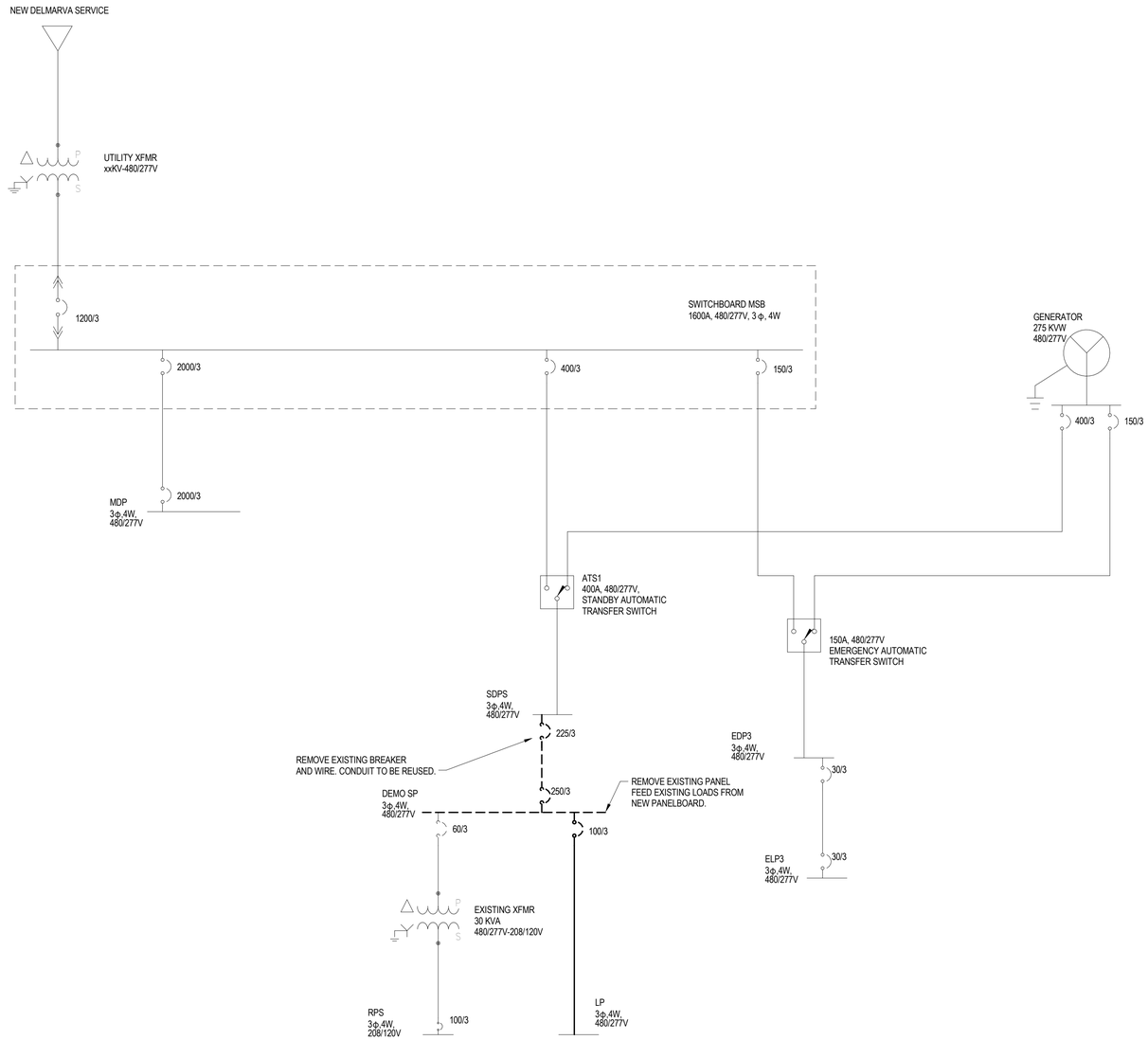
ELECTRICAL DETAILS II

SECTION
JMT
SHEET NO.
83

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion — MEP.rvt

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. DEMOLITION SHALL INCLUDE REMOVAL AND OFF-SITE DISPOSAL OF MATERIALS. DO NOT ABANDON IN PLACE ANY ELECTRICAL COMPONENTS UNLESS OTHERWISE NOTED ON DRAWINGS.
3. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY DASHED (▬ ▬) SHALL BE REMOVED AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (———) SHALL REMAIN.



1 / E601 ELECTRICAL DEMOLITION SINGLE LINE DIAGRAM
SCALE: 12" = 1'-0"

E601

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	SECTION
T201953104.03	DESIGNED BY: JRM		JMT
COUNTY			SHEET NO.
NEW CASTLE	CHECKED BY: JL		84

ELECTRICAL - DEMOLITION - SINGLE LINE

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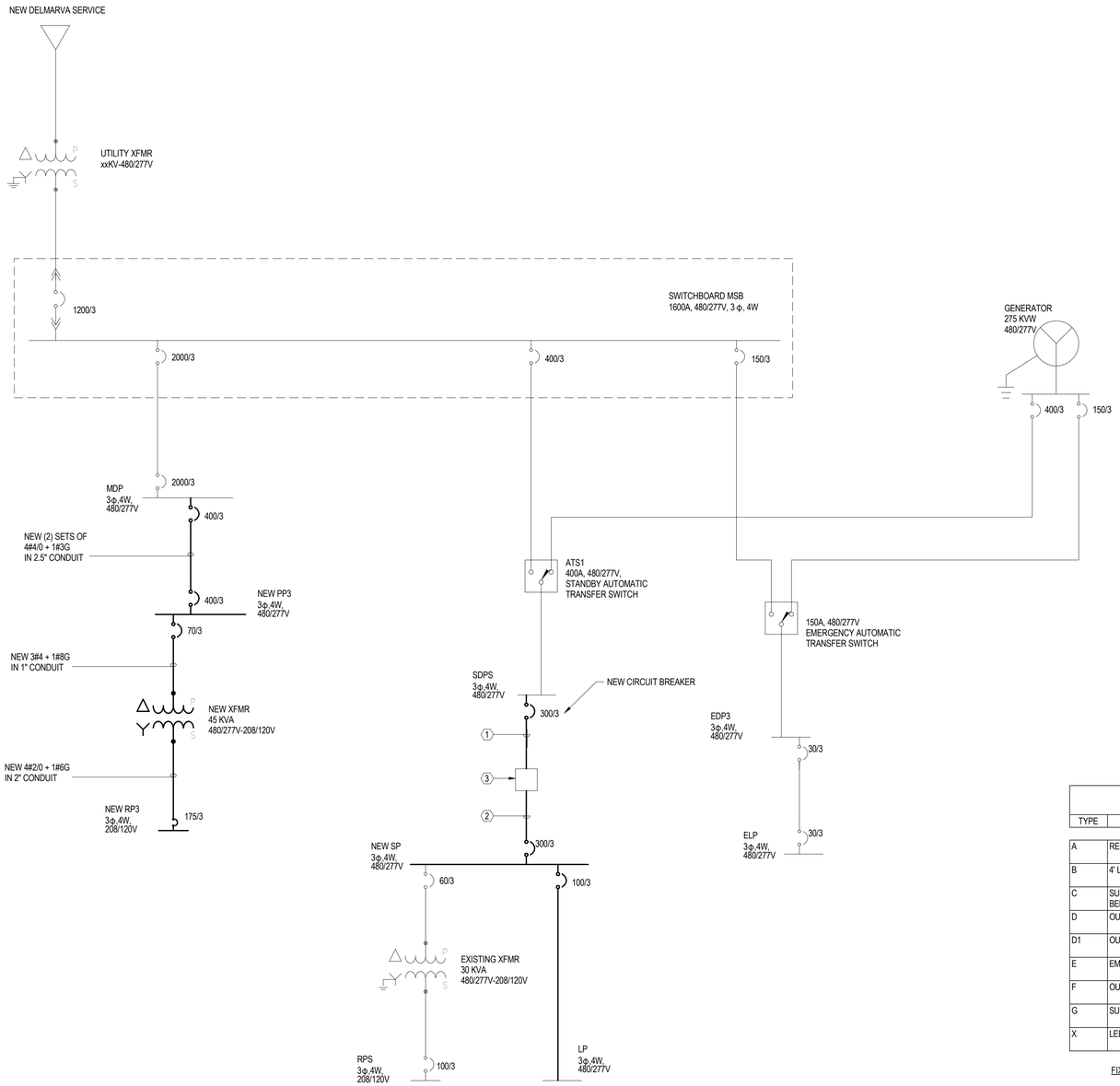
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt



1 E602 ELECTRICAL NEW WORK SINGLE LINE DIAGRAM

SCALE: 12" = 1'-0"

GENERAL SHEET NOTES:

1. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAVE BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING AND AWAIT DIRECTION BEFORE PROCEEDING WITH THE WORK.
2. UNLESS OTHERWISE NOTED, ELECTRICAL ITEMS SHOWN HEAVY SOLID (——) SHALL BE NEW, AND ELECTRICAL ITEMS SHOWN LIGHT SOLID (——) SHALL BE EXISTING TO REMAIN.
3. EMERGENCY SYSTEM OVERCURRENT DEVICES SHALL BE SELECTIVELY COORDINATED WITH ALL SUPPLY SIDE OVERCURRENT PROTECTIVE DEVICES. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING COORDINATION STUDY TO ENSURE THE SYSTEM IS PROPERLY COORDINATED AND IS IN COMPLIANCE WITH THE NEC. ANY MODIFICATIONS TO THE EMERGENCY DISTRIBUTION SYSTEM FOUND TO BE NECESSARY FOR A COMPLETE AND COORDINATED SYSTEM ARE CONTRACTOR'S RESPONSIBILITY.
4. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING SHORT CIRCUIT CALCULATIONS TO DETERMINE THE AVAILABLE FAULT CURRENT AT THE SERVICE EQUIPMENT. THE ELECTRICAL SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. THE FILED MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.

SHEET KEYNOTES:

1 PROVIDE 4-350KCMIL + 1#3G IN EXISTING CONDUIT FROM NEW 300A CIRCUIT BREAKER IN PANEL SDPS TO EXISTING MANHOLE.
2 PROVIDE 2-4" CONCRETE ENCASED DUCTBANK FROM EXISTING MANHOLE TO NEW PANEL SP. PROVIDE 4-350KCMIL + 1#3G IN 1-4" CONDUIT. 1-4" CONDUIT SHALL BE SPARE.
3 EXISTING MANHOLE.

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	BASIS OF DESIGN MODEL	Count	Lamp	COLOR	LIFE(MIN)	VOLTAGE	WATTAGE	FINISH	Mounting	Comments
A	RECESSED 2'X2' LED LUMINAIRE WITH FROSTED ACRYLIC TILE	LITHONIA LIGHTING	2ACL2 33L EZ1 LP838 DGA22	1	LED	3500K	50,000 HRS	277V	29 W	WHITE PAINT	RECESSED	SEE NOTE 1, 2, 3, 4, & 5
B	4' LINEAR INDUSTRIAL LED	LITHONIA LIGHTING	FEM L96 9000LM MD 277 40 90 CRI	11	LED	4000K	60,000 HRS	277V	53.4 W	WHITE	SURFACE	SEE NOTE 1, 2, 3, 4, & 5
C	SUSPENDED HIGH BAY LED LUMINAIRE, SUSPEND FIXTURE 24" BELOW CEILING	LITHONIA LIGHTING	JCBL 24000LM MVOLT 40K 90CRI	26	LED	4000K	60,000 HRS	277V	160 W	NATURAL ALUMINUM	SUSPENDED @ 24'	SEE NOTE 1, 2, 3, 4, & 5
D	OUTDOOR LED WALL LUMINAIRE	LITHONIA LIGHTING	ASW1 LED 42C 700 40K SR4 MVOLT DDBXD SF	4	LED	4000K	100,000 HRS	277V	98 W	DARK BRONZE	WALL	SEE NOTE 1, 2, 3, 4, & 5
D1	OUTDOOR LED ARCHITECTURAL WALL SCONCE	LITHONIA LIGHTING	WST LED P1 40K VF 277 PE DDBXD	4	LED	4000K	100,000 HRS	277V	12 W	DARK BRONZE	WALL 11' AFF	SEE NOTE 1, 2, 3, 4, 5, & 7
E	EMERGENCY LIGHT WITH BATTERY PACK	LITHONIA LIGHTING	ELM4L	6	LED	-	-	277V	6.6 W	THERMOPLASTIC WHITE	WALL 7.5' AFF	SEE NOTE 1, 2, 3, 4, & 5
F	OUTDOOR LED WALL MOUNTED FLOOD LIGHT, TILTED 70 DEGREES	LITHONIA LIGHTING	RSXF1 LED P4 40K WFL MVOLT	4	LED	4000K	100,000 HRS	277V	133W	BLACK	WALL, MATCH EXISTING. 15FT MIN.	SEE NOTE 1, 2, 3, 4, & 5
G	SURFACE 2' VANITY LED	LITHONIA LIGHTING	FMVTSL 24IN MVOLT 40K 90CRI BN	1	LED	4000K	50,000 HRS	277V	9.5 W	BRUSHED NICKEL(BN)	SURFACE @ 7' AFF	SEE NOTE 1, 2, 3, 4, & 5
X	LED EMERGENCY EXIT SIGN	BARRON EXITRONIX	420E WB BL G2	4	LED	-	-	277V	<2.5 W	BLACKW/ALUMINUM FACE	WALL	SEE NOTE 1, 2, 3, 4, 5, & 6

FIXTURE SCHEDULE NOTES

1. COORDINATE ALL FIXTURE QUANTITIES AND PLACEMENT REQUIREMENTS.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR ORDERING AND COORDINATING ALL FIXTURE OPTIONS AND ACCESORIES TO ENSURE A COMPLETE QUALITY INSTALLATION.
3. FOR ALL LIGHT FIXTURES, FINISH SHOULD BE COORDINATED WITH ARCHITECT.
4. FOR ALL LIGHT FIXTURES, REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND MOUNTING HEIGHT.
5. LIGHTING SUBSTUTIONS SHALL BE APPROVED BY THE OWNER/ARCHITECT PRIOR TO ORDERING AND INSTALLING.
6. FOR EXIT LIGHTS PROVIDE SINGLE OR DOUBLED FACE AS INDICATED ON FLOOR PLANS. ALSO PROVIDE INTEGRAL BATTERY BACKUP.
7. PROVIDE PHOTOELECTRIC CELL, BUTTON TYPE.

E602

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A
T201953104.03	DESIGNED BY: JRM	
COUNTY	CHECKED BY: JL	
NEW CASTLE		

ELECTRICAL - NEW WORK - SINGLE LINE AND FIXTURE SCHEDULE

SECTION
JMT
SHEET NO.
85

PANEL: SP

MOUNTING: SURFACE — MAIN: 300 MCB — AMP: 400 — PHASE: 3 — VOLT: 277/480 — 4 WIRE + GND — AIC: 65K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	B	C	Trip Poles	Circuit Wiring NO	Size	GND	C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Size	GND	C	Trip Poles	KVA Load A	B	C	Branch Circuit Load Description
EXISTING LOAD	0.00			20/3	-	-	-	-	1	A	2	-	-	-	-	30/3	4.25			BUS LIFT BAY #4
-		0.00		-	-	-	-	-	3	B	4	-	-	-	-	-		4.25		-
-			0.00	-	-	-	-	-	5	C	6	-	-	-	-	-			4.25	-
PORTABLE LIFTS BAY #5	4.45			20/3	-	-	-	-	7	A	8	-	-	-	-	30/3	4.25			BUS LIFT BAY #2
-		4.45		-	-	-	-	-	9	B	10	-	-	-	-	-		4.25		-
-			4.45	-	-	-	-	-	11	C	12	-	-	-	-	-			4.25	-
EXISTING LOAD	0.00			20/3	-	-	-	-	13	A	14	-	-	-	-	30/3	4.25			BUS LIFT BAY #1
-		0.00		-	-	-	-	-	15	B	16	-	-	-	-	-		4.25		-
-			0.00	-	-	-	-	-	17	C	18	-	-	-	-	-			4.25	-
PORTABLE LIFTS BAY #6	4.45			20/3	-	-	-	-	19	A	20	-	-	-	-	50/3	5.30			BUS LIFT BAY #3
-		4.45		-	-	-	-	-	21	B	22	-	-	-	-	-		5.30		-
-			4.45	-	-	-	-	-	23	C	24	-	-	-	-	-			5.30	-
EXISTING LOAD	0.00			30/3	-	-	-	-	25	A	26	-	-	-	-	60/3	10.34			EX. RPS PANEL VIA XFMR
-		0.00		-	-	-	-	-	27	B	28	-	-	-	-	-		9.72		-
-			0.00	-	-	-	-	-	29	C	30	-	-	-	-	-			9.56	-
NEW HVU-1	2.34			15/3	3	#12	#12	1"	31	A	32	3	#10	#10	1"	30/3	4.25			NEW BUS LIFT BAY #8
-		2.34		-	-	-	-	-	33	B	34	-	-	-	-	-		4.25		-
-			2.34	-	-	-	-	-	35	C	36	-	-	-	-	-			4.25	-
NEW HVU-2	2.34			15/3	3	#12	#12	1"	37	A	38	-	-	-	-	30/3	3.88			HVU-1
-		2.34		-	-	-	-	-	39	B	40	-	-	-	-	-		3.88		-
-			2.34	-	-	-	-	-	41	C	42	-	-	-	-	-			3.88	-
NEW BUS LIFT BAY #7	4.25			30/3	3	#10	#10	1"	43	A	44	-	-	-	-	30/3	3.88			HVU-2
-		4.25		-	-	-	-	-	45	B	46	-	-	-	-	-		3.88		-
-			4.25	-	-	-	-	-	47	C	48	-	-	-	-	-			3.88	-
EX. LP PANEL	15.48			100/3	-	-	-	-	49	A	50	-	-	-	-	20/3	2.60			HVU-3
-		17.29		-	-	-	-	-	51	B	52	-	-	-	-	-		2.60		-
-			12.87	-	-	-	-	-	53	C	54	-	-	-	-	-			2.60	-
	33.30	35.11	30.69	<< PHASE SUB-TOTALS >>													43.00	42.38	42.22	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A 76.30 kVA
PHASE B 77.49 kVA
PHASE C 72.91 kVA

226.71 kVA TOTAL CONNECTED LOAD
163.73 kVA TOTAL DEMAND LOAD

PANEL NOTES

1. RECONNECT EXISTING LOAD SUPPLIED BY EXISTING PANEL SP TO NEW PANEL SP.

EXISTING PANEL

PANEL: RPS

MOUNTING: SURFACE — MAIN: 100 MCB — AMP: 225 — PHASE: 3 — VOLT: 120/208 — 4 WIRE + GND — AIC: 10K AMPS RMS SYM

LIGHT TEXT - EXISTING TO REMAIN; BOLD TEXT - PROVIDE or NEW LOAD INDICATED

Branch Circuit Load Description	KVA Load A	B	C	Trip Poles	Circuit Wiring NO	Size	GND	C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Size	GND	C	Trip Poles	KVA Load A	B	C	Branch Circuit Load Description
RECEPT. TRAINING	1.40			20/1	-	-	-	-	1	A	2	-	-	-	-	20/1	1.00			RECEPTS. BAY 1
RECEPT. FACILITIES		1.30		20/1	-	-	-	-	3	B	4	-	-	-	-	20/1		1.00		RECEPTS. BAY 3
RECEPTS. OPERATIONS			0.72	20/1	-	-	-	-	5	C	6	-	-	-	-	20/1			1.00	RECEPTS. BAY 4
RECEPTS. MAINT. SUPER.	0.40			20/1	-	-	-	-	7	A	8	-	-	-	-	20/1	1.00			RECEPTS. BAY 6
RECEPTS. STORE SUPER.		0.40		20/1	-	-	-	-	9	B	10	-	-	-	-	20/1		1.00		RECEPTS. BAY 5
RECEPTS. LUBE ROOM			0.40	20/1	-	-	-	-	11	C	12	-	-	-	-	20/1			0.72	RECEPTS. STORE ROOM
FIRE ALARM PANEL	0.90			20/1	-	-	-	-	13	A	14	-	-	-	-	20/1	0.72			RECEPTS. STORE ROOM
CARD ACCESS		0.90		20/1	-	-	-	-	15	B	16	-	-	-	-	20/1		0.72		RECEPTS. STORE ROOM
-			0.00	20/1	-	-	-	-	17	C	18	-	-	-	-	20/1			0.72	RECEPTS. TELECOM
ROOFTOP RECEPTS.	0.90			20/1	-	-	-	-	19	A	20	-	-	-	-	20/1	0.72			RECEPT. TIME CLOCK
ROOFTOP RECEPTS.		0.90		20/1	-	-	-	-	21	B	22	**2**	**#12**	**#12**	**3/4"**	**20/1**		**0.20**		**RECEPTS. NEW BAY 7**
CCTV SYSTEM			0.40	20/1	-	-	-	-	23	C	24	**2**	**#12**	**#12**	**3/4"**	**20/1**			**0.20**	**RECEPTS. NEW BAY 8**
CCTV SYSTEM	0.40			20/1	-	-	-	-	25	A	26	**2**	**#12**	**#12**	**3/4"**	**20/1**	**0.20**			**RECEPTS. NEW BAY 9**
RECEPT. TELECOM		0.40		20/1	-	-	-	-	27	B	28	**2**	**#12**	**#12**	**3/4"**	**20/1**		**0.20**		**RECEPTS. NEW BAY 10**
RECEPT. TELECOM			0.40	20/1	-	-	-	-	29	C	30	**2**	**#8**	**#8**	**3/4"**	**30/1**			**2.30**	**VEHICLE LIFT - DEDICATE REC.**
RECEPT. TELECOM	0.40			20/1	-	-	-	-	31	A	32	**2**	**#8**	**#8**	**3/4"**	**30/1**	**2.30**			**VEHICLE LIFT - DEDICATE REC.**
RECEPT. TELECOM		0.40		20/1	-	-	-	-	33	B	34	**2**	**#8**	**#8**	**3/4"**	**30/1**		**2.30**		**VEHICLE LIFT - DEDICATE REC.**
RECEPT. TELECOM			0.40	20/1	-	-	-	-	35	C	36	**2**	**#8**	**#8**	**3/4"**	**30/1**			**2.30**	**VEHICLE LIFT - DEDICATE REC.**
CAMERA SYSTEM POWER & POLES	0.00			20/1	-	-	-	-	37	A	38	-	-	-	-	-	0.00			-
-		0.00		-	-	-	-	-	39	B	40	-	-	-	-	-		0.00		-
-			0.00	-	-	-	-	-	41	C	42	-	-	-	-	-			0.00	-
-	0.00			-	-	-	-	-	43	A	44	-	-	-	-	-	0.00			-
-		0.00		-	-	-	-	-	45	B	46	-	-	-	-	-		0.00		-
-			0.00	-	-	-	-	-	47	C	48	-	-	-	-	-			0.00	-
-	0.00			-	-	-	-	-	49	A	50	-	-	-	-	-	0.00			-
-		0.00		-	-	-	-	-	51	B	52	-	-	-	-	-		0.00		-
-			0.00	-	-	-	-	-	53	C	54	-	-	-	-	-			0.00	-
	4.40	4.30	2.32	<< PHASE SUB-TOTALS >>													5.94	5.42	7.24	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A 10.34 kVA
PHASE B 9.72 kVA
PHASE C 9.56 kVA

29.62 kVA TOTAL CONNECTED LOAD
19.81 kVA TOTAL DEMAND LOAD

PANEL: PP3

MOUNTING: SURFACE — MAIN: 400 MCB — AMP: 400 — PHASE: 3 — VOLT: 277/480 — 4 WIRE + GND — AIC: 65K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	B	C	Trip Poles	Circuit Wiring NO	Size	GND	C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Size	GND	C	Trip Poles	KVA Load A	B	C	Branch Circuit Load Description
PANEL RP3 VIA 45KVA XFMR	9.50			70/3	3	#4	#6	1"	1	A	2	2	#12	#12	3/4"	20/3	0.67			UH-4
-		9.99		-	-	-	-	-	3	B	4	-	-	-	-	-		0.67		-
-			9.12	-	-	-	-	-	5	C	6	-	-	-	-	-			0.67	-
UH-1	1.67			20/3	2	#12	#12	3/4"	7	A	8	2	#12	#12	3/4"	20/3	1.67			UH-5
-		1.67		-	-	-	-	-	9	B	10	-	-	-	-	-		1.67		-
-			1.67	-	-	-	-	-	11	C	12	-	-	-	-	-			1.67	-
UH-2	1.67			20/3	2	#12	#12	3/4"	13	A	14	2	#12	#12	3/4"	20/3	1.67			UH-6
-		1.67		-	-	-	-	-	15	B	16	-	-	-	-	-		1.67		-
-			1.67	-	-	-	-	-	17	C	18	-	-	-	-	-			1.67	-
UH-3	1.67			20/3	2	#12	#12	3/4"	19	A	20	-	-	-	-	20/2	0.00			SPARE
-		1.67		-	-	-	-	-	21	B	22	-	-	-	-	-		0.00		-
-			1.67	-	-	-	-	-	23	C	24	-	-	-	-	20/3			0.00	SPARE
SPARE	0.00			20/3	-	-	-	-	25	A	26	-	-	-	-	-	0.00			-
-		0.00		-	-	-	-	-	27	B	28	-	-	-	-	-		0.00		-
-			0.00	-	-	-	-	-	29	C	30	-	-	-	-	20/3			0.00	SPARE
SPARE	0.00			20/3	-	-	-	-	31	A	32	-	-	-	-	-	0.00			-
-		0.00		-	-	-	-	-	33	B	34	-	-	-	-	-		0.00		-
-			0.00	-	-	-	-	-	35	C	36	-	-	-	-	20/1			0.00	SPARE
SPACE	0.00			-	-	-	-	-	37	A	38	-	-	-	-	20/1	0.00			SPARE
-		0.00		-	-	-	-	-	39	B	40	-	-	-	-	20/1		0.00		SPARE
-			0.00	-	-	-	-	-	41	C	42	-	-	-	-	20/1			0.00	SPARE
SPACE	0.00			-	-	-	-	-	43	A	44	-	-	-	-	-	0.00			SPACE
-		0.00		-	-	-	-	-	45	B	46	-	-	-	-	-		0.00		-
-			0.00	-	-	-	-	-	47	C	48	-	-	-	-	-			0.00	-
SPACE	0.00			-	-	-	-	-	49	A	50	-	-	-	-	-	0.00			SPACE
-		0.00		-	-	-	-	-	51	B	52	-	-	-	-	-		0.00		-
-			0.00	-	-	-	-	-	53	C	54	-	-	-	-	-			0.00	-
	14.50	14.99	14.12	<< PHASE SUB-TOTALS >>													4.00	4.00	4.00	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A 18.50 kVA
PHASE B 18.99 kVA
PHASE C 18.12 kVA

55.61 kVA TOTAL CONNECTED LOAD
50.98 kVA TOTAL DEMAND LOAD

PANEL: RP3

MOUNTING: SURFACE — MAIN: 175 MCB — AMP: 225 — PHASE: 3 — VOLT: 120/208 — 4 WIRE + GND — AIC: 22K AMPS RMS SYM

Branch Circuit Load Description	KVA Load A	B	C	Trip Poles	Circuit Wiring NO	Size	GND	C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Size	GND	C	Trip Poles	KVA Load A	B	C	Branch Circuit Load Description
RECEPTACLE - FAN	1.20			20/1	2	#12	#12	3/4"	1	A	2	2	#12	#12	3/4"	20/1	0.75			RECEPTACLES - NEW BAY 7, 9
RECEPTACLE - FAN		1.20		20/1	2	#12	#12	3/4"	3	B	4	2	#12	#12	3/4"	20/1		1.08		RECEPTACLES - NEW BAY 7
EF-3			0.03	20/1	2	#12	#12	3/4"	5	C	6	2	#12	#12	3/4"	20/1			0.90	RECEPTACLES - NEW BAY 8, 10
EF-1	0.42			20/3	2	#12	#12	3/4"	7	A	8	2	#12	#12	3/4"	20/1	0.72			RECEPTACLES - NEW BAY 8
-		0.42		-	-	-	-	-	9	B	10	2	#12	#12	3/4"	20/1		0.72		RECEPTACLES - NEW BAY 9
-			0.42	-	-	-	-	-	11	C	12	2	#12	#12	3/4"	20/1			0.72	RECEPTACLES - NEW BAY 10
EF-2	0.42			20/3	2	#12	#12	3/4"	13	A	14	2	#12	#12	3/4"	20/1	0.72			RECEPTACLES - OUTSIDE
-		0.42		-	-	-	-	-	15	B	16	2	#12	#12	3/4"	20/1		0.54		RECEPTACLES RM 130,131
-			0.42	-	-	-	-	-	17	C	18	2	#12	#12	3/4"	20/1			0.50	IRH-1, IRH-2, IRH-3
NEW DOOR OPERATOR BAY 7	0.50			20/3	3	#12	#12	3/4"	19	A	20	2	#12	#12	3/4"	20/1	0.50			IRH-4, IRH-5, IRH-6
-		0.50		-	-	-	-	-	21	B	22	2	#10	#10	3/4"	30/2		2.00		DWH-1
-			0.50	-	-	-	-	-	23	C	24	-	-	-	-	-			2.00	-
NEW DOOR OPERATOR BAY 8	0.50			20/3	3	#12	#12	3/4"	25	A	26	2	#12	#12	3/4"	20/2	0.75			CUH-1
-		0.50		-	-	-	-	-	27	B	28	-	-	-	-	-		0.75		-
-			0.50	-	-	-	-	-	29	C	30	3	#12	#12	3/4"	20/3			0.50	NEW DOOR OPERATOR - CONNECTOR
NEW DOOR OPERATOR BAY 9	0.50			20/3	3	#12	#12	3/4"	31	A	32	-	-	-	-	-	0.50			-
-		0.50		-	-	-	-	-	33	B	34	-	-	-	-	-		0.50		-
-			0.50	-	-	-	-	-	35	C	36	-	-	-	-	20/1			1.00	PROVISIONS FOR MECH. CONTROLS
NEW DOOR OPERATOR BAY 10	0.50			20/3	3	#12	#12	3/4"	37	A	38	2	#12	#12	3/4"	20/1	0.56			TRAP PRIMER, RR SENSORS
-		0.50		-	-	-	-	-	39	B	40	2	#12	#12	3/4"	20/1		0.40		HRV CONVENIENCE CIRCUIT
-			0.50	-	-	-	-	-	41	C	42	2	#12	#12	3/4"	20/1			0.50	ELECTRIC POWER - REEL
HYDROGEN CONTROL PANEL	0.50			20/1	2	#12	#12	3/4"	43	A	44	2	#12	#12	3/4"	20/1	0.50			ELECTRIC POWER - REEL
SPARE		0.00		20/1	-	-	-	-	45	B	46	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	47	C	48	-	-	-	-	20/1			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	49	A	50	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	51	B	52	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	53	C	54	-	-	-	-	20/1			0.00	SPARE
	4.54	4.04	2.87	<< PHASE SUB-TOTALS >>													5.00	5.99	6.12	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A 9.54 kVA
PHASE B 10.03 kVA
PHASE C 8.99 kVA

28.56 kVA TOTAL CONNECTED LOAD
23.93 kVA TOTAL DEMAND LOAD

E701

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT T201953104.03 — BRIDGE NO. N/A — COUNTY NEW CASTLE — DESIGNED BY: JRM — CHECKED BY: JL

ELECTRICAL PANEL SCHEDULES I

SECTION JMT — SHEET NO. 86

$DATE_USERS
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt

EXISTING PANEL

PANEL: ELP

MOUNTING: SURFACE

MAIN: 100 **MCB**

AMP: 225 **VOLT:** 277/480

PHASE: 3 **4 WIRE + GND**

AIC: 65K AMPS RMS SYM

LIGHT TEXT - EXISTING TO REMAIN; **BOLD TEXT - PROVIDE or NEW LOAD INDICATED**

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
EXIT LTS, OUTSIDE DOORWAY LTS	0.60			20/1	-	-	-	-	1	A	2	-	-	-	-	30/3	0.00			SPARE
EXIT LTS, OUTSIDE DOORWAY LTS		0.60		20/1	-	-	-	-	3	B	4	-	-	-	-	-		0.00		-
EXPANSION EXT LTS, OUT DOORWAY LTS			**0.60**	**20/1**	**2**	**#12**	**#12**	**3/4"**	5	C	6	-	-	-	-	-			0.00	-
SPARE	0.00			20/1	-	-	-	-	7	A	8	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	9	B	10	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	11	C	12	-	-	-	-	20/1			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	13	A	14	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	15	B	16	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	17	C	18	-	-	-	-	20/1			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	19	A	20	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	21	B	22	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	23	C	24	-	-	-	-	20/1			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	25	A	26	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	27	B	28	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	29	C	30	-	-	-	-	20/1			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	31	A	32	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	33	B	34	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	35	C	36	-	-	-	-	20/1			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	37	A	38	-	-	-	-	20/1	0.00			SPARE
SPARE		0.00		20/1	-	-	-	-	39	B	40	-	-	-	-	20/1		0.00		SPARE
SPARE			0.00	20/1	-	-	-	-	41	C	42	-	-	-	-	20/1			0.00	SPARE
	0.60	0.60	0.60	<< PHASE SUB-TOTALS >>													0.00	0.00	0.00	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A 0.60 kVA
PHASE B 0.60 kVA
PHASE C 0.60 kVA

1.80 kVA TOTAL CONNECTED LOAD
1.80 kVA TOTAL DEMAND LOAD

EXISTING PANEL

PANEL: LP

MOUNTING: SURFACE

MAIN: MLO

AMP: 225 **VOLT:** 277/480

PHASE: 3 **4 WIRE + GND**

AIC: 65K AMPS RMS SYM

LIGHT TEXT - EXISTING TO REMAIN; **BOLD TEXT - PROVIDE or NEW LOAD INDICATED**

Branch Circuit Load Description	KVA Load A	KVA Load B	KVA Load C	Trip Poles	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Ckt. No.	Phase	Ckt. No.	Circuit Wiring NO	Circuit Wiring Size	Circuit Wiring GND	Circuit Wiring C	Trip Poles	KVA Load A	KVA Load B	KVA Load C	Branch Circuit Load Description
LIGHTING MAIN. BAY (CENTER)	1.00			20/1	-	-	-	-	1	A	2	-	-	-	-	20/1	2.88			LIGHTING STORE RM.
LIGHTING MAINT. BAYS 4-6		2.88		20/1	-	-	-	-	3	B	4	-	-	-	-	20/1		2.67		LIGHTING TIRE SHOP, MEZZ.
LIGHTING MAINT. BAYS 2-4			2.88	20/1	-	-	-	-	5	C	6	-	-	-	-	20/1			0.60	CORRIDOR LIGHTS
LIGHTING MAINT. BAYS 3-5	2.88			20/1	-	-	-	-	7	A	8	-	-	-	-	20/1	2.42			BATH RMS. LOCKER RMS. BREAK RM.
LIGHTING MAINT. BAYS 1-3		2.88		20/1	-	-	-	-	9	B	10	-	-	-	-	20/1		0.00		SPARE
LIGHTING MACHINE SHOP			2.18	20/1	-	-	-	-	11	C	12	-	-	-	-	20/1			0.00	SPARE
LIGHTING MECH., ELECT., RM.	0.00			20/1	-	-	-	-	13	A	14	-	-	-	-	20/1	0.00			LIGHTING, LUBE RM.
LTG - EXPANSION RM. 130, 131		**0.14**		**20/1**	**2**	**#12**	**#12**	**3/4"**	15	B	16	-	-	-	-	20/1		0.00		TOOL BOX STORAGE
LTG - EXPANSION EXT. BAY DOOR			**0.40**	**20/1**	**2**	**#12**	**#12**	**3/4"**	17	C	18	-	-	-	-	20/1			0.00	LIGHTING STORE RM.
LTG - EXPANSION MAINT. BAY 7, 9	**1.93**			**20/1**	**2**	**#12**	**#12**	**3/4"**	19	A	20	-	-	-	-	20/1	0.00			SPARE
LTG - EXPANSION MAINT. BAY 8, 10		**1.93**		**20/1**	**2**	**#12**	**#12**	**3/4"**	21	B	22	-	-	-	-	20/1		0.00		SPARE
LTG - EXPANSION MIDDLE BAY/LOW			**0.80**	**20/1**	**2**	**#12**	**#12**	**3/4"**	23	C	24	-	-	-	-	20/1			0.00	SPARE
SPARE	0.00			20/1	-	-	-	-	25	A	26	-	-	-	-	20/1	0.00			POLE LIGHT CONTROL CIRCUIT
SPARE		0.00		20/1	-	-	-	-	27	B	28	-	-	-	-	20/1		1.96		EXTERIOR WALL LIGHTS, BAY DOORS
SPARE			0.00	20/1	-	-	-	-	29	C	30	-	-	-	-	20/1			1.18	EXTERIOR WALL LIGHTS, SOUTH
SPARE	0.00			20/1	-	-	-	-	31	A	32	-	-	-	-	20/3	1.61			POLE LIGHTS, EAST
SPARE		0.00		20/1	-	-	-	-	33	B	34	-	-	-	-	-		1.84		-
LIGHTING CONTROLLER			0.00	20/1	-	-	-	-	35	C	36	-	-	-	-	-			1.84	-
TVSS	0.00			30/3	-	-	-	-	37	A	38	-	-	-	-	20/3	2.76			POLE LIGHTS, WEST
-		0.00		-	-	-	-	-	39	B	40	-	-	-	-	-		2.99		-
-			0.00	-	-	-	-	-	41	C	42	-	-	-	-	-			2.99	-
	5.81	7.83	6.26	<< PHASE SUB-TOTALS >>													9.67	9.46	6.61	MECH EQUIP. CIRCUIT BREAKERS SHALL BE HACR RATED.

PROVIDE THE FOLLOWING:

PHASE A 15.48 kVA
PHASE B 17.29 kVA
PHASE C 12.87 kVA

45.64 kVA TOTAL CONNECTED LOAD
45.64 kVA TOTAL DEMAND LOAD

E702

ADDENDUMS / REVISIONS			
	NUMBER	DESCRIPTION	DATE

MID-COUNTY MAINTENANCE FACILITY EXPANSION

CONTRACT	BRIDGE NO.	N/A	ELECTRICAL PANEL SCHEDULES II	SECTION
T201953104.03	DESIGNED BY: JRM			JMT
COUNTY				SHEET NO.
NEW CASTLE	CHECKED BY: JL			87

$DATE_USER$
BIM 360://18-02769-006_DTC Mid Co Maint Fac Exp/18-02769-006 Mid-County Maintenance Expansion - MEP.rvt