FACILITIES MASTER PLAN - ENABLING PROJECTS

ELECTRIC BOAT CORPORATION, SOUTH YARD · GROTON · CONNECTICUT

BUILDING 80 ADDITION

OCTOBER 12, 2018

PREPARED FOR

ELECTRIC BOAT CORPORATION
75 EASTERN POINT ROAD
GROTON, CT

PREPARED BY

FUSS & O'NEILL
146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
860.646.2469
www.fando.com

PDS Engineering & Construction
107 OLD WINDSOR ROAD
BLOOMFIELD, CT 06002
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BL Companies — Architecture, Engineering, Environmental, Land Surveying
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MERIDEN, CT 06450
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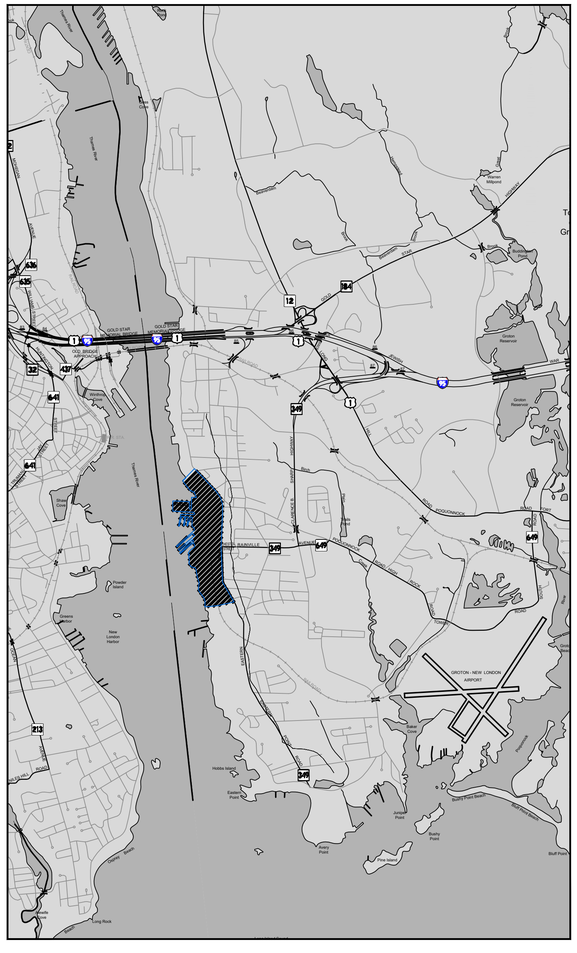
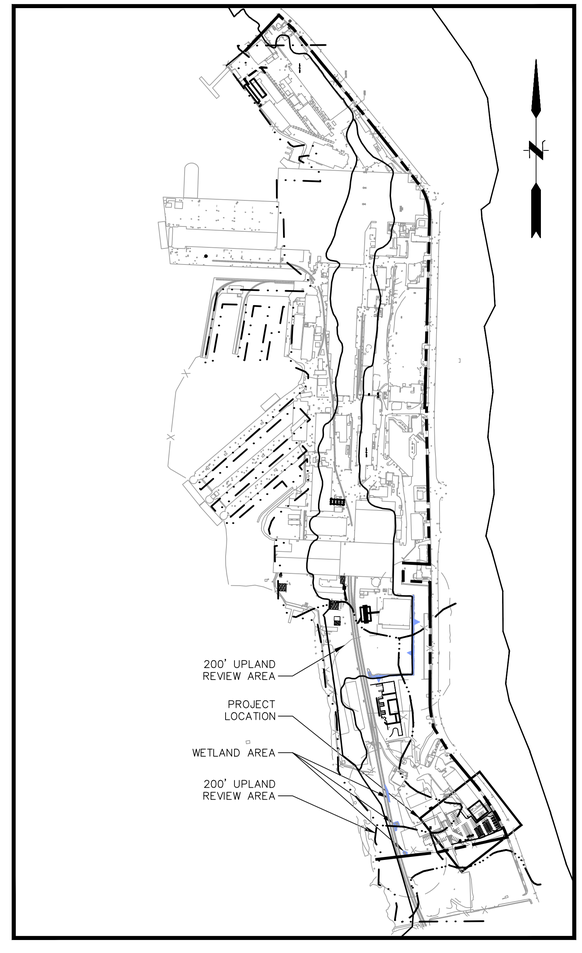
SHEET INDEX



PROPERTY LOCATION MAP
SCALE: 1" = 2500'



PROJECT LOCATION MAP
SCALE: 1" = 150'

PROJ. No.: 1997570.A11
DATE: OCTOBER 2018

NOT FOR CONSTRUCTION

GI-001

DEMOLITION

1. THE DEMOLITION PLAN IS PROVIDED FOR INFORMATION ONLY AND MAY NOT INDICATE ALL ITEMS REQUIRED TO BE DEMOLISHED. ALL ITEMS ARE TO REMAIN UNLESS OTHERWISE INDICATED.
2. SITE UNDERGROUND UTILITIES AND STRUCTURES HAVE BEEN LOCATED PRIMARILY FROM INFORMATION FURNISHED BY OTHERS AND THE LOCATIONS AS DEPICTED ON THE DRAWINGS ARE CONSIDERED APPROXIMATE AS TO SIZE AND LOCATION. THERE MAY BE ADDITIONAL UNDERGROUND UTILITY AND STRUCTURES THAT ARE NOT SHOWN ON THE DRAWINGS, AND IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO EMPLOY THE SERVICES OF A PROFESSIONAL UNDERGROUND UTILITY LOCATION SERVICE TO IDENTIFY AND LOCATE ALL EXISTING UTILITY AND STRUCTURES, AND TO PROTECT THEM FROM DAMAGE.
3. PERFORM A PRE-BID SITE INSPECTION. COORDINATE DEMOLITION OF UNIDENTIFIED UTILITIES OR STRUCTURES WITH OWNER. DEMOLISH STRUCTURES, SITE IMPROVEMENTS, UTILITIES, ETC. AS REQUIRED TO CONSTRUCT PROPOSED FACILITY AND UTILITY SERVICES. THE CONTRACTOR IS TO COORDINATE WITH THE OWNER THE REMOVAL AND RELOCATION OF ITEMS THAT ARE THE OWNER'S RESPONSIBILITY (I.E. PHONE LINE EQUIPMENT, SECURITY LINES, COMPUTER LINES, FILES, FURNITURE, ETC.).
4. ALL WORK SHALL COMPLY WITH LOCAL BUILDING CODE REQUIREMENTS AND REGULATIONS.
5. ALL DEMOLITION AND REMOVAL WORK SHALL BE COMPLETED AS INDICATED, NOTED AND AS SPECIFIED HEREIN.
6. THE AREA SHALL AT ALL TIMES BE LEFT FUNCTIONAL AND OPERATIONAL.
7. THE CONTRACTOR SHALL COORDINATE DEMOLITION WORK SO AS TO MINIMIZE THE DISTURBANCE OF THE OWNER AND THE OWNER'S IMMEDIATE NEIGHBORS.
8. PRIOR TO THE DEMOLITION OF THESE ITEMS WHICH HAVE UTILITY CONNECTIONS (WATER, GAS, ELECTRICITY, STEAM, ETC.), THE CONTRACTOR SHALL ARRANGE WITH THE OWNER TO LOCATE SHUTOFF VALVES, PANEL BOXES, AND OTHER CONTROL ELEMENTS, SO THAT WATER DAMAGE AND OTHER POTENTIALLY DANGEROUS SITUATIONS ARE AVOIDED.
9. BEFORE STARTING WORK, MAKE A THOROUGH EXAMINATION OF THOSE PORTIONS OF THE STRUCTURE IN WHICH THE WORK IS TO BE PERFORMED. CHECK ALL THE WORK ADJOINING OR AT UNDERLYING LOCATION. REPORT TO THE ENGINEER ANY AND ALL CONDITIONS WHICH MAY INTERFERE WITH OR OTHERWISE AFFECT OR PREVENT THE PROPER EXECUTION AND COMPLETION OF THE WORK. DO NOT START THE WORK UNTIL SUCH CONDITIONS HAVE BEEN EXAMINED AND A COURSE OF ACTION IS MUTUALLY AGREED UPON.
10. PRIOR TO THE START OF THE DEMOLITION, THE CONTRACTOR SHALL CALL TO THE ATTENTION OF THE ENGINEER: ANY DAMAGE, CRACKS OR OTHER IMPERFECTIONS IN THE WORK ADJACENT TO THE DEMOLITION AREAS.
11. BEFORE STARTING DEMOLITION OPERATIONS, PROVIDE THE NECESSARY PROTECTIVE DEVICES, WHERE REQUIRED, AND IN STRICT ACCORDANCE WITH GOVERNING RULES AND REGULATIONS.
12. EXECUTE THE DEMOLITION IN A CAREFUL AND ORDERLY MANNER WITH THE LEAST POSSIBLE DISTURBANCE TO THE PUBLIC.
13. TAKE NECESSARY PRECAUTIONS TO PREVENT DUST AND DIRT FROM RISING BY WETTING DEMOLISHED DEBRIS. EXCESSIVE USE OF WATER WILL NOT BE PERMITTED.
14. KEEP ALL ADJOINING PUBLIC AREAS CLEAN DURING WORKING HOURS, AND MAKE AN EFFORT TO PROVIDE SAFE CONDITIONS FOR THE GENERAL PUBLIC AND WORKMEN.
15. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS, UNLESS OTHERWISE NOTED.
16. DEMOLISHED MATERIALS, UNLESS OTHERWISE NOTED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFF THE SITE, ON A REGULAR BASIS, IN A LEGAL MANNER.
17. ERECT, MAINTAIN, AND WHEN NO LONGER NECESSARY, REMOVE PROTECTIVE BARRIERS, LIGHTING AND/OR SIGNAGE TO PROTECT THE PUBLIC AND WORKMEN.
18. REPAIR AND/OR REPLACE EXISTING ITEMS NOT SCHEDULED OR NOTED TO BE DEMOLISHED, AND NOT SPECIFIED TO BE REMOVED, BUT WHICH BECOME DAMAGED DURING THE PROGRESS OF THE WORK. MAKE ANY AND ALL SUCH REPAIRS, REPLACEMENTS AND MODIFICATIONS TO RESTORE THE DAMAGED ITEMS TO THEIR ORIGINAL CONDITIONS AT THE TIME OF THE DAMAGE, TO THE SATISFACTION OF AND AT NO ADDITIONAL COST TO THE OWNER.
19. PATCH, FILL AND REPAIR ALL SURFACES DISTURBED, CUT, DAMAGED, IN NEED OF OR MADE IMPERFECT BY ALTERATIONS OR REMOVAL WORK AND AS REQUIRED TO PREPARE FOR NEW MATERIALS AND ARRANGEMENTS.
20. EXISTING SITE UTILITIES SHALL BE ABANDONED IN PLACE WITH FLOWABLE FILL, OR REMOVED.

MAP REFERENCES:

1. EXISTING CONDITION: "DIGITAL PHOTOGRAMMETRIC AND UTILITY MAPPING" PROPERTY OF ELECTRIC BOAT CORPORATION EASTERN POINT ROAD AND THAMES STREET, GROTON, CONNECTICUT, PREPARED BY LOUREIRO ENGINEERING ASSOCIATES, INC., DATED: 09/29/2018.
2. PROPOSED: ELECTRIC BOAT CORPORATION, FACILITIES AND PLANT ENGINEERING SITE PLANS, DATED MARCH, 2018

CONSTRUCTION LAYOUT

1. PROVIDE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED SITE IMPROVEMENTS. FIELD VERIFY EXISTING PAVEMENT AND GROUND ELEVATIONS AT THE INTERFACE WITH PROPOSED PAVEMENTS AND DRAINAGE STRUCTURES BEFORE START OF CONSTRUCTION.
2. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, FIELD VERIFY PROPOSED UTILITY ROUTES AND IDENTIFY ANY INTERFERENCES OR OBSTRUCTIONS WITH EXISTING UTILITIES OR PUBLIC RIGHTS-OF-WAY.
3. IMMEDIATELY INFORM THE ENGINEER IN WRITING IF EXISTING UTILITY CONDITIONS CONFLICT OR DIFFER FROM THAT INDICATED AND IF THE WORK CANNOT BE COMPLETED AS INDICATED.
4. DIMENSIONS ARE FROM FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS NOTED OTHERWISE.
5. BOUNDS OR MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LICENSED SURVEYOR.

EARTHWORK

1. NOTIFY UTILITY LOCATOR SERVICE AT LEAST 72 HOURS BEFORE STARTING EXCAVATION. "CALL BEFORE YOU DIG" AT 1-800-922-4455.
2. STOP WORK IN THE VICINITY OF SUSPECTED CONTAMINATED SOIL, GROUNDWATER OR OTHER MEDIA. IMMEDIATELY NOTIFY THE OWNER SO THAT APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN. RESUME WORK IN THE IMMEDIATE VICINITY ONLY UPON DIRECTION BY THE OWNER.
3. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, PERFORM EARTHWORK OPERATIONS TO SUBGRADE ELEVATIONS. SEE DRAWINGS BY OTHERS FOR WORK ABOVE SUBGRADE.

UTILITIES

1. TERMINATE EXISTING UTILITIES IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND GENERAL NOTES. COORDINATE UTILITY SERVICE DISCONNECTS WITH UTILITY REPRESENTATIVES.
2. THE TYPE, SIZE AND LOCATION OF DEPICTED UNDERGROUND UTILITIES ARE APPROXIMATE REPRESENTATIONS OF INFORMATION OBTAINED FROM FIELD LOCATIONS OF VISIBLE FEATURES, EXISTING MAPS AND PLANS OF RECORD, UTILITY MAPPING, AND OTHER SOURCES OF INFORMATION OBTAINED BY THE ENGINEER. ASSUME NO GUARANTEE AS TO THE COMPLETENESS, SERVICEABILITY, EXISTENCE, OR ACCURACY OF UNDERGROUND FACILITIES. FIELD VERIFY THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES.
3. PAY ALL FEES AND COSTS ASSOCIATED WITH UTILITY MODIFICATIONS AND CONNECTIONS, REGARDLESS OF THE ENTITY THAT PERFORMS THE WORK.
4. COORDINATE THE WORK AND WORK SCHEDULE WITH UTILITY COMPANIES. PROVIDE ADEQUATE NOTICE TO UTILITIES TO PREVENT DELAYS IN CONSTRUCTION.
5. INTERIOR DIAMETERS OF STORM DRAIN AND SANITARY SEWER STRUCTURES SHALL BE DETERMINED BY THE PRECAST MANUFACTURER, BASED ON THE INDICATED PIPE SYSTEM LAYOUT AND LOCAL MUNICIPAL STANDARDS.

   MINIMUM INTERIOR DIAMETERS:
   0 TO 20 FEET DEEP; 4 FEET.
   20 FEET OR GREATER; 5 FEET.

5. RIM ELEVATIONS FOR MANHOLES, VALVE COVERS, GATE AND PULL BOXES, AND OTHER STRUCTURES ARE APPROXIMATE. SET OR RESET RIM ELEVATIONS AS FOLLOWS:

   IN PAVEMENTS AND CONCRETE SURFACES: FLUSH
   IN SURFACES ALONG ACCESSIBLE ROUTES: FLUSH
   IN LANDSCAPE, SEEDED, AND OTHER EARTH SURFACE AREAS:
   1 INCH ABOVE SURROUNDING AREA; TAPER EARTH TO RIM ELEVATION.

6. INSTALL PROPOSED PRIVATE UTILITY SERVICES ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY THE AUTHORITY HAVING JURISDICTION (WATER, SEWER, GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). COORDINATE FINAL DESIGN LOADS AND LOCATIONS WITH OWNER'S REPRESENTATIVE.

PAVEMENT

1. AT A MINIMUM, CONSTRUCT ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).

SITE RESTORATION

1. PROVIDE 6 INCHES OF TOPSOIL AND SEED TO AREAS DISTURBED DURING CONSTRUCTION AND NOT DESIGNATED TO BE RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) UNLESS OTHERWISE NOTED.
2. REPAIR DAMAGES RESULTING FROM CONSTRUCTION LOADS, AT NO ADDITIONAL COST TO OWNER.
3. RESTORE AREAS DISTURBED BY CONSTRUCTION OPERATIONS TO THEIR ORIGINAL CONDITION OR BETTER, AT NO ADDITIONAL COST TO OWNER.

CIVIL GENERAL NOTES

GENERAL

1. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SHOWN ON THE DRAWINGS TO SCALE OR TO THEIR ACTUAL DIMENSION OR LOCATION. COORDINATE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.
2. DO NOT RELY SOLELY ON ELECTRONIC VERSIONS OF DRAWINGS, SPECIFICATIONS, AND DATA FILES THAT ARE PROVIDED BY THE ENGINEER. FIELD VERIFY LOCATION OF PROJECT FEATURES.
3. PERFORM NECESSARY CONSTRUCTION NOTIFICATIONS, APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK AS REQUIRED BY THE CONTRACT DOCUMENTS.
4. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS OF BUILDINGS AND ADJACENT SITE ELEMENTS INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
5. TOPOGRAPHIC ELEVATIONS ARE BASED ON SURVEY PROVIDED, TO FUSS & O'NEILL AS INDICATED IN MAP REFERENCES.
6. WETLANDS WERE DELINEATED BY STANTEC ON AUGUST 28, 2017.

WORK RESTRICTIONS

1. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, FIRE HYDRANTS, AND UTILITIES WITHOUT APPROPRIATE PERMITS.

REGULATORY REQUIREMENTS

1. WITHIN LOCAL RIGHTS-OF-WAY, PERFORM THE WORK IN ACCORDANCE WITH LOCAL MUNICIPAL STANDARDS.
2. WITHIN STATE RIGHTS-OF-WAY, PERFORM THE WORK IN ACCORDANCE WITH THE LATEST EDITION OF THE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS AND ISSUED REVISIONS/SUPPLEMENTS.
3. PROVIDE TRAFFIC SIGNAGE AND PAVEMENT MARKINGS IN CONFORMANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
4. BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. PERFORM CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
5. DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
6. THIS PROJECT DISTURBS MORE THAN ONE ACRE, AND LESS THAN 5 ACRES OF LAND, AND IS LOCALLY APPROVABLE, THEREFORE FALLS WITHIN THE SMALL CONSTRUCTION CATEGORY OF THE CT DEEP STORMWATER AND DEWATERING WASTEWATER FROM CONSTRUCTION ACTIVITIES GENERAL PERMIT PROCESS. AS A RESULT, APPLICATION AND/OR REGISTRATION FOR THIS PERMIT FOR THIS PROJECT IS NOT REQUIRED. THIS INFORMATION IS BASED ON THE CURRENT PERMIT ISSUED IN 2013.

EROSION AND SEDIMENT CONTROL

1. INSTALL EROSION CONTROL MEASURES PRIOR TO STARTING ANY WORK ON THE SITE. REFER TO THE EROSION AND SEDIMENT CONTROL DRAWINGS.
2. IMPLEMENT ALL NECESSARY MEASURES REQUIRED TO CONTROL STORMWATER RUNOFF, DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE. PERFORM CORRECTIVE ACTION AS NEEDED FOR EROSION CLEANUP AND REPAIRS TO OFF SITE AREAS, IF ANY, AT NO COST TO OWNER.
3. INSPECT AND MAINTAIN EROSION CONTROL MEASURES PER THE SCHEDULE IN THE EROSION AND SEDIMENT CONTROL DRAWINGS. DISPOSE OF SEDIMENT IN AN UPLAND AREA. DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
4. PERFORM CONSTRUCTION SEQUENCING IN SUCH A MANNER TO CONTROL EROSION AND TO MINIMIZE THE TIME THAT EARTH MATERIALS ARE EXPOSED BEFORE THEY ARE COVERED, SEEDED, OR OTHERWISE STABILIZED.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, REMOVE AND DISPOSE OF TEMPORARY EROSION CONTROL MEASURES. CLEAN SEDIMENT AND DEBRIS FROM TEMPORARY MEASURES AND FROM PERMANENT STORM DRAIN AND SANITARY SEWER SYSTEMS.

DEMOLITION

1. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS, UNLESS OTHERWISE NOTED.
2. THE DEMOLITION PLAN IS PROVIDED FOR INFORMATION ONLY AND MAY NOT INDICATE ALL ITEMS REQUIRED TO BE DEMOLISHED. PERFORM A PRE-BID SITE INSPECTION. COORDINATE DEMOLITION OF UNIDENTIFIED UTILITIES OR STRUCTURES WITH OWNER. DEMOLISH STRUCTURES, SITE IMPROVEMENTS, UTILITIES, ETC. AS REQUIRED TO CONSTRUCT PROPOSED TO CONSTRUCT PROPOSED FACILITY AND UTILITY SERVICES.

Division of Construction Services
Office of the State Building Inspector

August 18, 2017

Mr. Paul Williams
Electric Boat
75 Eastern Point Road
Groton, CT 06340

RE: M-916-17 [75 Eastern Point Road, Groton]

Dear Mr. Williams:

I have reviewed the referenced request for modification to utilize the 2016 State Building Code for the submitted "Facilities Master Plan".

It is my decision to ***approve*** this modification, as requested, to utilize the approved language of the referenced section of the 2016 State Building Code for the listed construction projects that make up the "master plan" – with the stipulation that all the building permit applications shall be applied for within 5 years of the date of this letter.

If you have any questions, please contact me at (860) 713-5900.

Sincerely,

Daniel Tierney
Deputy State Building Inspector

DT:bags
c: Carlton Smith, City of Groton Building Official
Terry Brouwer, Fire & Life Safety Supervisor

450 Columbus Blvd, Room 1303
Hartford, CT 06103
Phone: (860) 713-5900 Fax: (860) 713-7900 www.ct.gov/dcs
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APPROVED BY THE CITY OF GROTON PLANNING AND ZONING COMMISSION

CHAIRMAN/SECRETARY _____ DATE: _____

NOT FOR CONSTRUCTION

No.	DATE	DESCRIPTION	DESIGNER XX/XX	REVIEWER XX
1.				

SCALE:
HORZ.: 1" = 20'
VERT.:
DATUM:
HORZ.:
VERT.:

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146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
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FACILITIES MASTER PLAN - ENABLING PROJECTS
GENERAL NOTES
BUILDING 80 ADDITION
ENABLING PROJECTS
GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

GI-101

PROTECT EXISTING FENCE TO REMAIN

LIMIT OF WATER SERVICE TO BE REMOVED

LIMIT OF EXISTING FENCE TO BE REMOVED

LIMIT OF SANITARY SEWER SERVICE TO BE REMOVED

REMOVE EXISTING GUIDERAIL

REMOVE EXISTING FENCE. COORDINATE PHASING WITH OWNER.

PROPERTY LINE

PROTECT EXISTING SIDEWALK TO REMAIN

REMOVE EXISTING LIGHT POLE

RELOCATE EXISTING BIKE RACK

PROTECT EXISTING TREES (TYP). VERIFY TREE LOCATIONS AND COORDINATE WITH ENGINEER PRIOR TO CONSTRUCTION.

REMOVE EXISTING PAVEMENT

REMOVE EXISTING WATER SERVICE

REMOVE EXISTING SITE FEATURE. FIELD VERIFY FEATURE USE PRIOR TO CONSTRUCTION.

REMOVE EXISTING FENCE

REMOVE EXISTING SANITARY SEWER

RELOCATE EXISTING AC UNIT

REMOVE EXISTING SIDEWALK

LIMIT OF EXISTING FENCE TO BE REMOVED

REMOVE AND REINSTALL FENCE AS REQUIRED

EXISTING BUILDING 80

80

81

83

84

SAWCUT BITUMINOUS PAVEMENT

PROTECT EXISTING FENCE TO REMAIN

PROTECT EXISTING LIGHT POLE TO REMAIN

REMOVE EXISTING PAVEMENT STRIPING (TYP)

LIMIT OF WORK

LIMIT OF WATER SERVICE TO BE REMOVED

LIMIT OF SANITARY SEWER SERVICE TO BE REMOVED

PROPERTY LINE

PROTECT EXISTING FENCE, GATE, AND TURNSTILE TO REMAIN

200' UPLAND REVIEW AREA

APPROVED BY THE CITY OF GROTON PLANNING AND ZONING COMMISSION

CHAIRMAN/SECRETARY DATE:

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FACILITIES MASTER PLAN - ENABLING PROJECTS

SITE DEMOLITION PLAN

BUILDING 80 ADDITION
ENABLING PROJECTS

GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

CP-101

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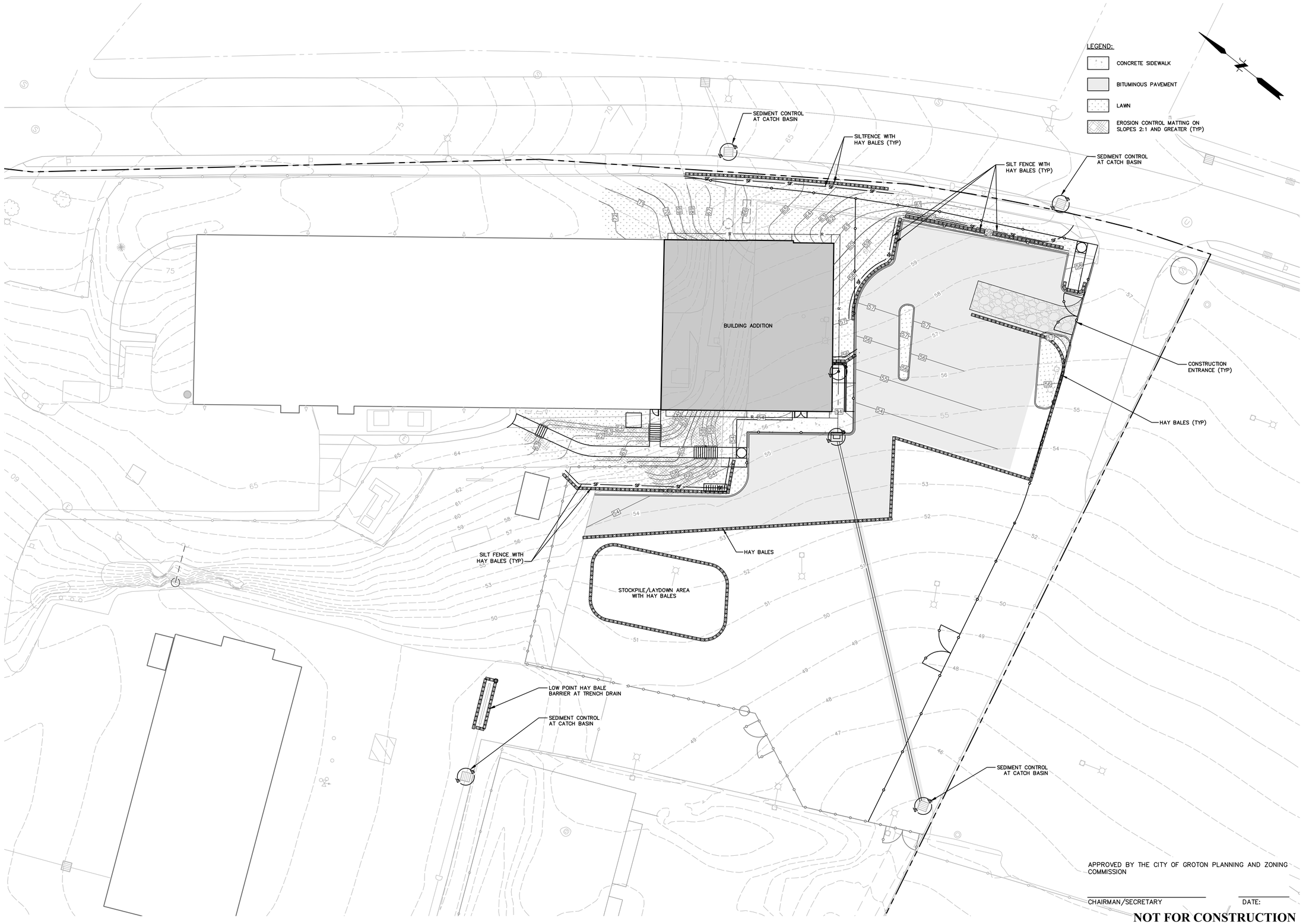

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FACILITIES MASTER PLAN - ENABLING PROJECTS

EROSION & SEDIMENT CONTROL PLAN

BUILDING 80 ADDITION
ENABLING PROJECTS

GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

CE-101

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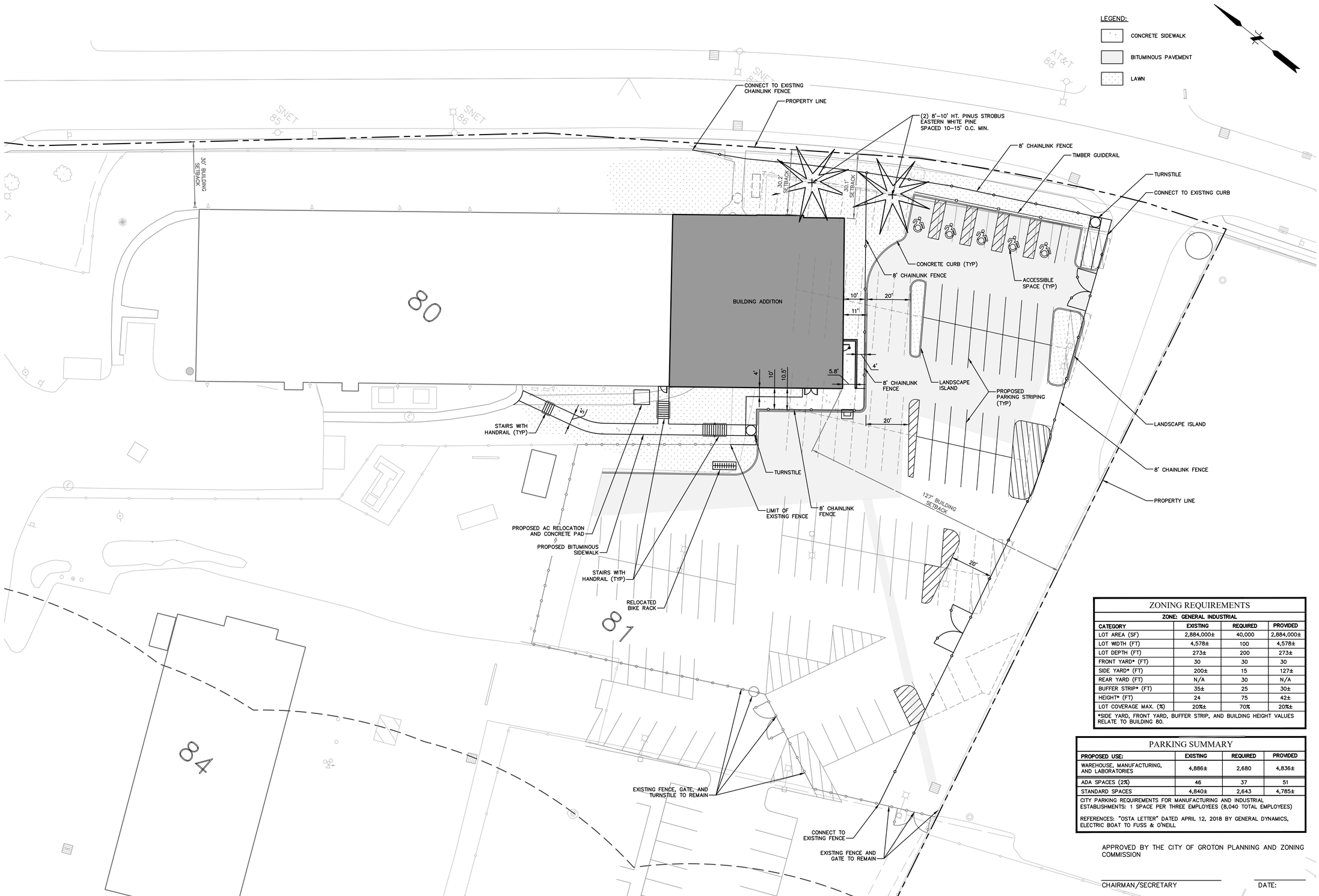

ZONING REQUIREMENTS			
ZONE: GENERAL INDUSTRIAL			
CATEGORY	**EXISTING**	**REQUIRED**	**PROVIDED**
LOT AREA (SF)	2,884,000±	40,000	2,884,000±
LOT WIDTH (FT)	4,578±	100	4,578±
LOT DEPTH (FT)	273±	200	273±
FRONT YARD* (FT)	30	30	30
SIDE YARD* (FT)	200±	15	127±
REAR YARD (FT)	N/A	30	N/A
BUFFER STRIP* (FT)	35±	25	30±
HEIGHT* (FT)	24	75	42±
LOT COVERAGE MAX. (%)	20%±	70%	20%±

*SIDE YARD, FRONT YARD, BUFFER STRIP, AND BUILDING HEIGHT VALUES RELATE TO BUILDING 80.

PARKING SUMMARY			
PROPOSED USE:	**EXISTING**	**REQUIRED**	**PROVIDED**
WAREHOUSE, MANUFACTURING, AND LABORATORIES	4,886±	2,680	4,836±
ADA SPACES (2%)	46	37	51
STANDARD SPACES	4,840±	2,643	4,785±

CITY PARKING REQUIREMENTS FOR MANUFACTURING AND INDUSTRIAL ESTABLISHMENTS: 1 SPACE PER THREE EMPLOYEES (8,040 TOTAL EMPLOYEES)

REFERENCES: "OSTA LETTER" DATED APRIL 12, 2018 BY GENERAL DYNAMICS, ELECTRIC BOAT TO FUSS & O'NEILL

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FACILITIES MASTER PLAN - ENABLING PROJECTS

SITE LAYOUT PLAN

BUILDING 80 ADDITION
ENABLING PROJECTS

GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

CS-101

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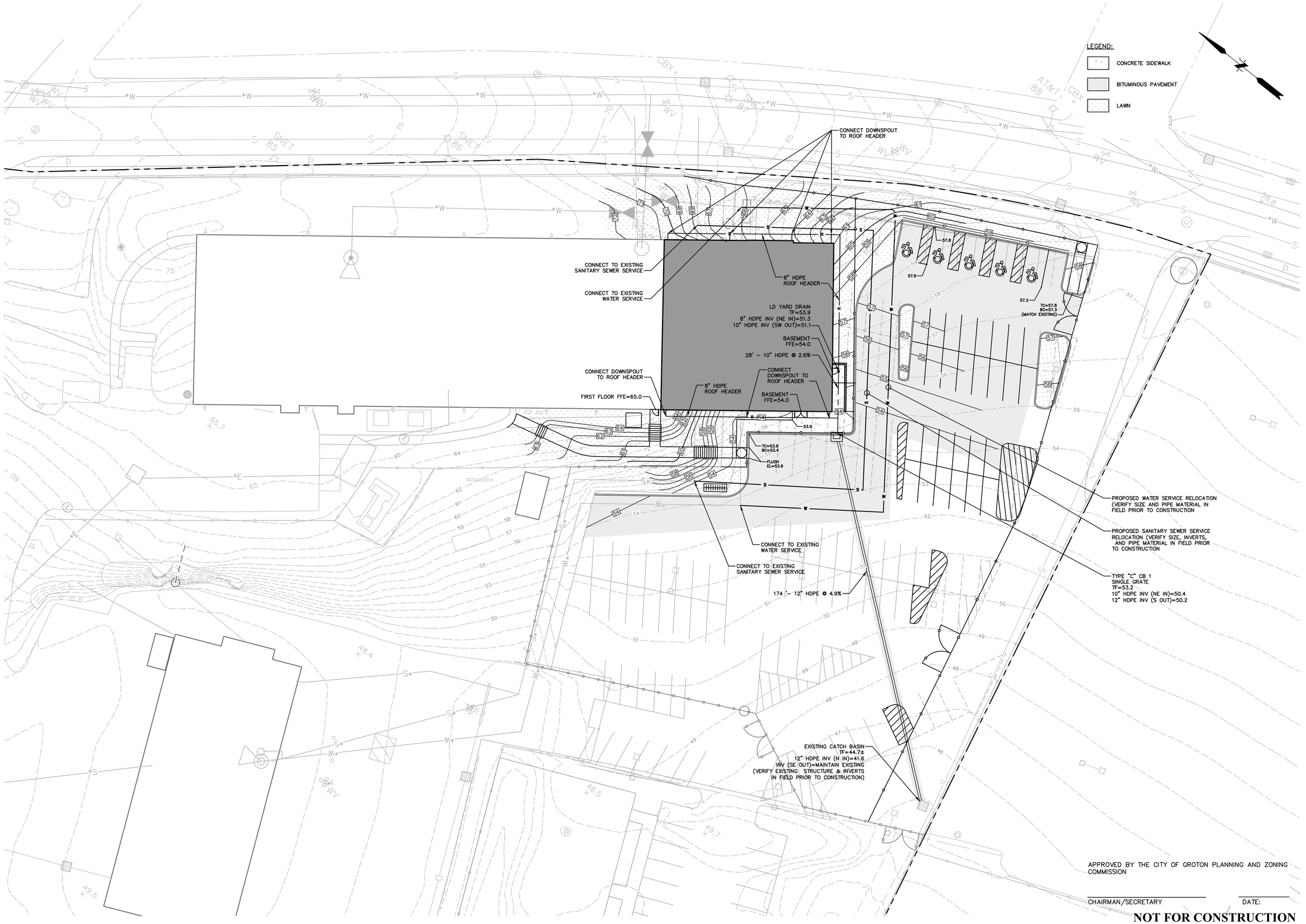

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FACILITIES MASTER PLAN - ENABLING PROJECTS

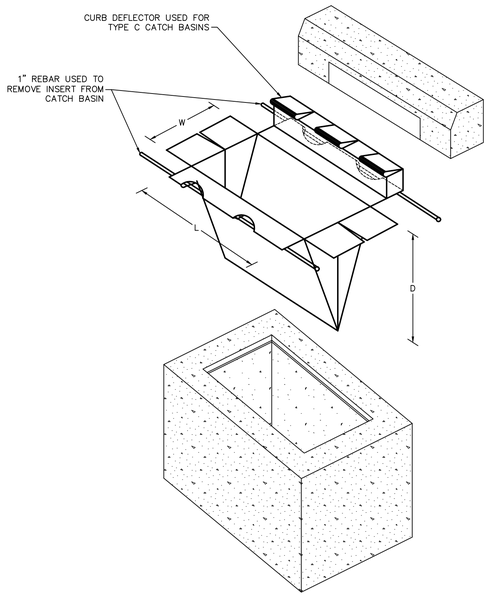
SITE GRADING AND UTILITY PLAN

BUILDING 80 ADDITION
ENABLING PROJECTS

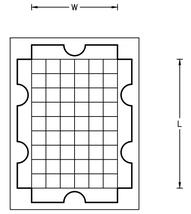
GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

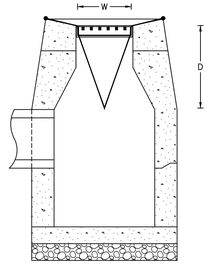
CG-101



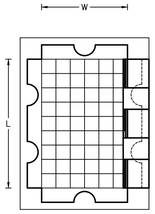
SEDIMENT CONTROL AT CATCH BASIN
NOT TO SCALE



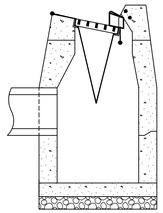
TYPE CL PLAN



TYPE CL SIDE ELEVATION



TYPE C PLAN



TYPE C SIDE ELEVATION

EROSION & SEDIMENT CONTROL NOTES

1. **CONSTRUCTION STANDARDS** – CONSTRUCT ALL EROSION AND SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE MOST RECENT EDITION OF THE "CONNECTICUT GUIDELINES FOR SOIL EROSION AND SEDIMENT CONTROL" (CT DEP BULLETIN 34). ALL MEASURES SHALL BE MAINTAINED AND UPGRADED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION.

2. **PLAN IMPLEMENTATION** – IMPLEMENT THIS EROSION AND SEDIMENT CONTROL PLAN. THIS IMPLEMENTATION INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES UNTIL PERMANENT STABILIZATION IS ACHIEVED, INFORMING ALL SUBCONTRACTORS OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER MUNICIPAL AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY. THE OWNER SHALL BE RESPONSIBLE FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN TO THE NEW OWNER IF THE TITLE OF THE LAND IS TRANSFERRED PRIOR TO ACHIEVING PERMANENT STABILIZATION.

3. **INSTALLATION SCHEDULE** – INSTALL THE CONSTRUCTION ENTRANCE BEFORE CONSTRUCTION TRAFFIC INTO AND OUT OF THE PROJECT AREA BEGINS. INSTALL EROSION AND SEDIMENT CONTROL MEASURES PRIOR TO STUMP REMOVAL AND CONSTRUCTION. INSTALL ADDITIONAL CONTROL MEASURES DURING THE CONSTRUCTION PERIOD, IF DEEMED NECESSARY BY THE OWNER, HIS AGENTS OR AGENTS OF THE MUNICIPALITY.

4. **FUGITIVE DUST** – CONTROL FUGITIVE DUST USING WATER SPRAYS OR CALCIUM CHLORIDE ON SOIL SURFACES, SWEEPING PAVED AREAS, TEMPORARY WINDBREAKS OR NON–ASPHALTIC SOIL TACKIFIERS.

5. **STRAW BALE LIFE SPAN** – INSTALL STRAW BALES WHERE PROTECTION AND EFFECTIVENESS IS REQUIRED FOR LESS THAN 90 DAYS. OTHERWISE, INSTALL SILT FENCE.

6. **CATCH BASINS** – PROTECT CATCH BASINS WITH PROPER CONTROLS THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED.

7. **STOCKPILES** – ENCIRCLE STOCKPILES OF ERODIBLE SOIL WITH A STRAW BALE OR SILT FENCE BARRIER. THE SIDE SLOPES OF ERODIBLE STOCKPILED MATERIAL SHALL BE NO STEEPER THAN 2:1. STOCKPILES THAT ARE NOT TO BE USED WITHIN 30 DAYS SHALL BE SEEDED AND MULCHED IMMEDIATELY AFTER THEY ARE FORMED.

8. **TOE OF SLOPE** – ESTABLISH AN EROSION CONTROL BARRIER (SILT FENCE OR STRAW BALE BARRIER) APPROXIMATELY 5 TO 10 FEET FROM THE PROPOSED TOE OF THE CUT OR FILL AREA PRIOR TO BEGINNING EARTHWORK.

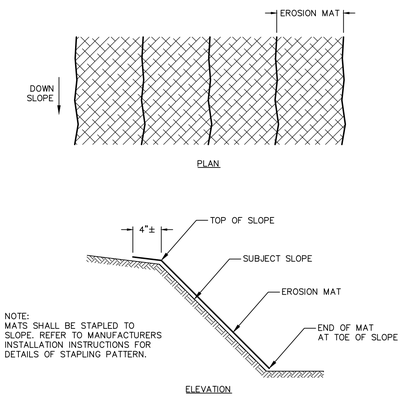
9. **SEDIMENT REMOVAL** – SEDIMENT REACHING ½ THE HEIGHT OF THE EROSION CONTROL BARRIER SHALL BE REMOVED. REMOVE AND DISPOSE OF SEDIMENT IN A MANNER CONSISTENT WITH THE INTENT OF THE PLAN.

10. **SOIL STABILIZATION SCHEDULE** – APPLY PERMANENT SOIL STABILIZATION MEASURES TO ALL GRADED AREAS WITHIN 7 DAYS OF ESTABLISHING FINAL GRADE. APPLY TEMPORARY SOIL STABILIZATION MEASURES IF FINAL GRADING IS TO BE DELAYED MORE THAN 30 DAYS.

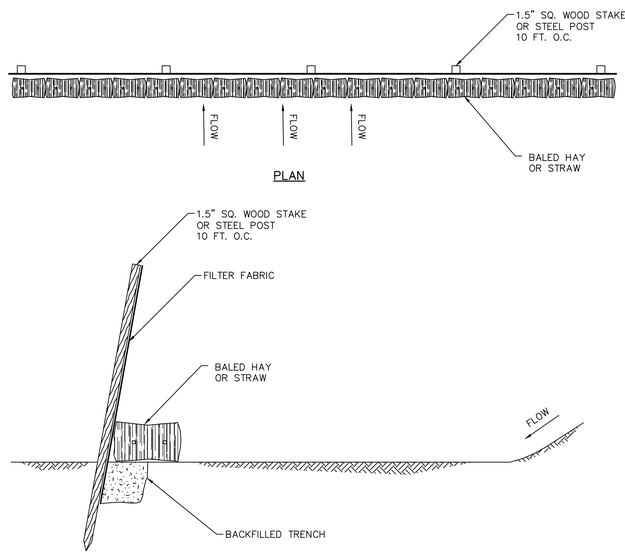
11. **TEMPORARY SEEDING** – TEMPORARILY SEED ERODIBLE SOILS THAT WILL BE EXPOSED GREATER THAN 1 BUT LESS THAN 12 MONTHS WITHIN THE FIRST 7 DAYS OF SUSPENDING GRADING OPERATIONS. APPLY LIME AT A RATE OF 90 LBS/1000 SQ. FT. APPLY 10–10–10 FERTILIZER AT A RATE OF 7 ½ LBS/1000 SQ. FT. APPLY PERENNIAL RYE GRASS AT A RATE OF 2 LBS/1000 SQ. FT. TO A DEPTH OF ½ INCH. OPTIMUM SEEDING DATES ARE MARCH 15 TO JULY 1 AND AUGUST 1 TO OCTOBER 15. MULCH FOR SEED APPLIED WITHIN THE OPTIMUM SEEDING DATES SHALL BE APPLIED EVENLY SUCH THAT IT PROVIDES 80%–95% SOIL COVERAGE. MULCH FOR SEED APPLIED OUTSIDE OF THE OPTIMUM SEEDING DATES SHALL BE APPLIED EVENLY SUCH THAT IT PROVIDES 95%–100% COVERAGE.

12. **PERMANENT SEEDING** – SEED PERMANENT LAWN AREAS IN ACCORDANCE WITH THE SPECIFICATIONS.

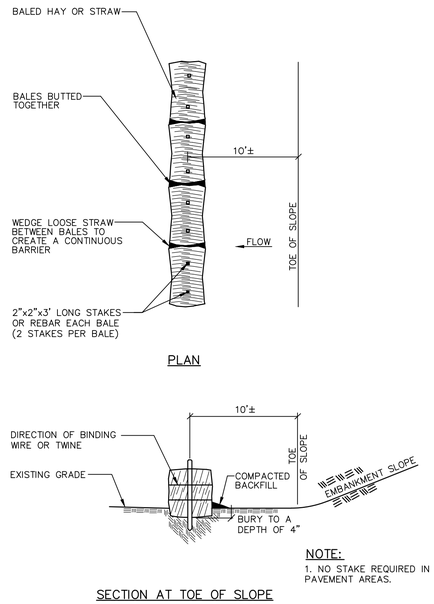
13. **INSPECTION** – THE OWNER SHALL SECURE THE SERVICES OF A SOIL SCIENTIST OR PROFESSIONAL ENGINEER TO VERIFY IN THE FIELD THAT THE CONTROLS REQUIRED BY THIS PLAN ARE PROPERLY INSTALLED AND MAINTAINED. THESE INSPECTIONS SHALL NOT BE LESS FREQUENTLY THAN WEEKLY AND WITHIN 24 HOURS OF THE END OF A STORM HAVING A RAINFALL AMOUNT OF ½ INCH OR GREATER. MARIE MARTIN PROJECT MANAGER – ELECTRIC BOAT CORPORATION. 860–433–2710 SHALL BE CONTACTED FOR EROSION CONTROL INQUIRIES.



EROSION CONTROL MAT
N.T.S.

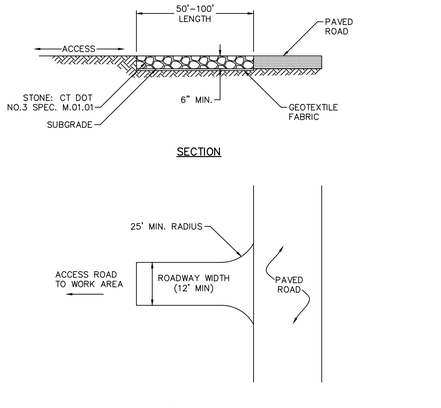


SILT FENCE WITH HAY BALE
NOT TO SCALE



NOTE:
1. NO STAKE REQUIRED IN PAVEMENT AREAS.

HAY BALES
NOT TO SCALE



CONSTRUCTION ENTRANCE
NOT TO SCALE

APPROVED BY THE CITY OF GROTON PLANNING AND ZONING COMMISSION

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FACILITIES MASTER PLAN - ENABLING PROJECTS
DETAILS
BUILDING 80 ADDITION
ENABLING PROJECTS
GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

CD-501

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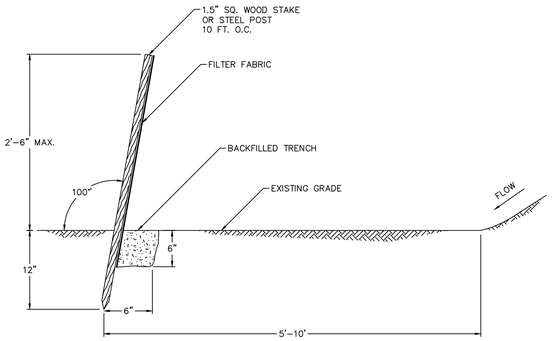

SILT FENCE
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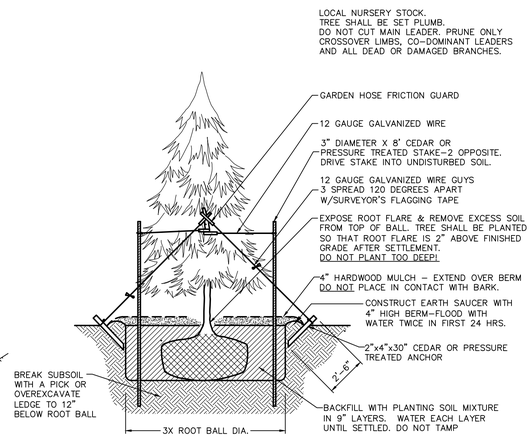
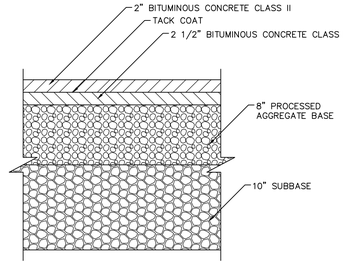
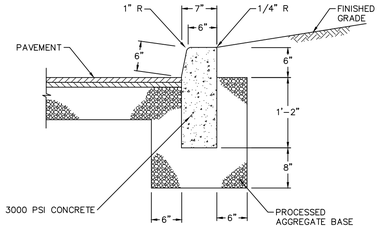


NOTES:
1. SPRAY WITH ANTIDESICCANT IN ACCORDANCE WITH MFG.'S RECOMMENDATIONS.
2. TREES LESS THAN 8' HEIGHT SHALL BE STAKED.
3. TREES GREATER THAN 8' HEIGHT SHALL BE GUYED AND ANCHORED.
4. STAKES SHALL BE REMOVED AT THE END OF THE FIRST GROWING SEASON AFTER PLANTING.

EVERGREEN TREE PLANTING
NOT TO SCALE



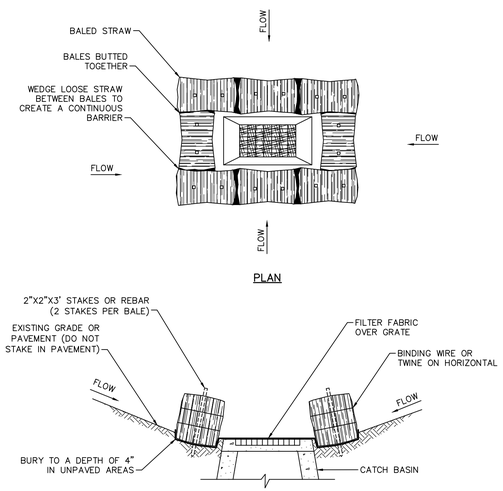
BITUMINOUS CONCRETE PAVEMENT (HEAVY DUTY)
NOT TO SCALE



NOTES

1. 1 INCH DEEP BEVELED JOINT AT TOP AND FACE OF CURB EVERY 10 FEET.
2. 1/2 INCH EXPANSION JOINT AND FILLER EVERY 30 FEET.
3. 1/2 INCH EXPANSION JOINT AND FILLER WHEN CURB IS ADJACENT TO CONCRETE SIDEWALK.

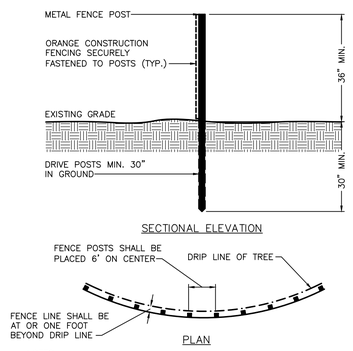
CONCRETE CURB
NOT TO SCALE



PLAN

SECTION

LOW POINT HAY BALE BARRIER
NOT TO SCALE

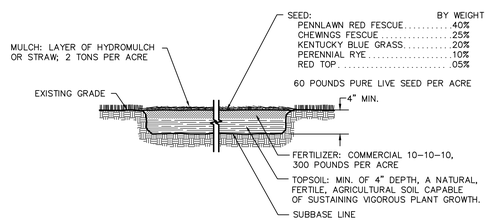


SECTIONAL ELEVATION

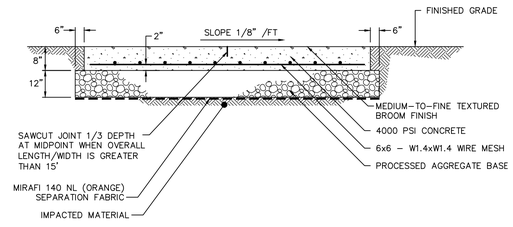
PLAN

NOTES:
SEE LANDSCAPING PLAN FOR ADDITIONAL TREE PROTECTION NOTES.

TREE PROTECTION FENCING
NOT TO SCALE



TOPSOIL, FERTILIZER, SEED & MULCH
NOT TO SCALE



UTILITY CONCRETE PAD
NOT TO SCALE

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FACILITIES MASTER PLAN - ENABLING PROJECTS
DETAILS
BUILDING 80 ADDITION
ENABLING PROJECTS
GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

CD-502

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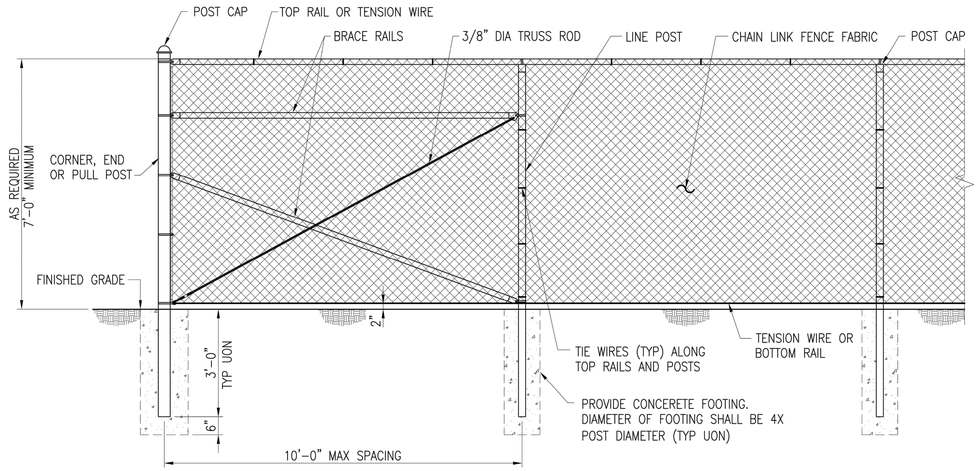
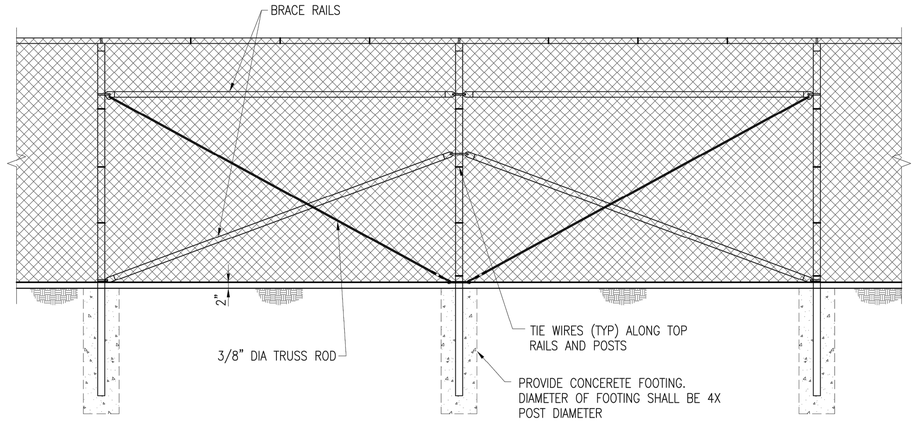


TYPICAL FENCE AND CORNER PANEL ELEVATION

SCALE: 1" = 1'-0"

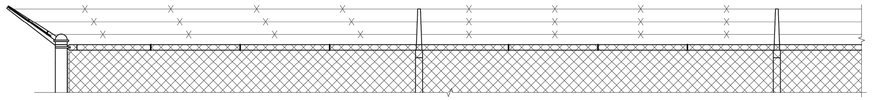


TYPICAL FENCE AND BRACED PANEL ELEVATION

SCALE: 1" = 1'-0"

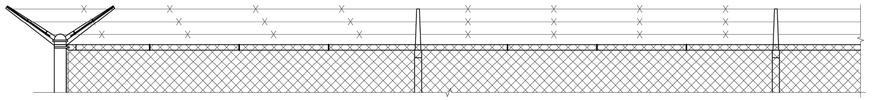
NOTE (1): A BOTTOM RAIL CAN BE ADDED FOR SECURITY, IT SHALL BE INSTALLED APPROX 3" ABOVE GRADE (A MINIMUM OF 2" AND A MAXIMUM OF 4"). HARDWARE SHALL BE WELDED OR SHOT NAILED TO POSTS AND RAILS IN ORDER TO SECURE IN PLACE. ATTACH FABRIC TO NEW BOTTOM RAIL TO ELIMINATE POSSIBILITY OF PEELING UP FABRIC.

NOTE (2): SOME LOCATIONS MAY REQUIRE 8' OF FABRIC.



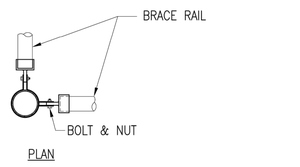
TYPICAL 3 STRAND BARBED WIRE AND SINGLE EXTENSION ARM CONFIGURATION

SCALE: 1" = 1'-0"

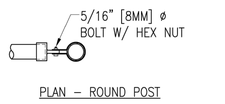


TYPICAL 6 STRAND BARBED WIRE AND DOUBLE EXTENSION ARM CONFIGURATION

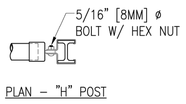
SCALE: 1" = 1'-0"



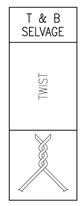
PLAN

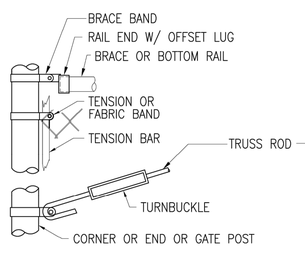


PLAN – ROUND POST

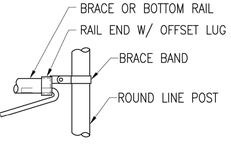


PLAN – "H" POST

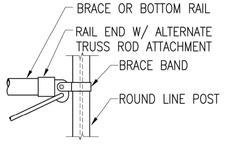




ELEVATION



ELEVATION – ROUND POST



ELEVATION – "H" POST

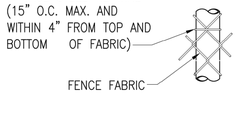
LINE POST DETAILS

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

PLAN – ROUND POST

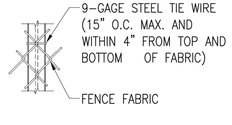
ELEVATION
TOP OR BRACE RAIL ATTACHMENT

PLAN – "H" POST

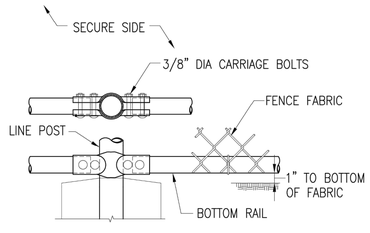


ELEVATION – ROUND POST

FITTINGS NOTES
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS. 2. ALL FITTINGS MATERIAL SHALL BE AS SPECIFIED.



ELEVATION – "H" POST



BOTTOM RAIL OPTION

CORNER OR END POSTS

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

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FACILITIES MASTER PLAN - ENABLING PROJECTS

DETAILS

BUILDING 80 ADDITION
ENABLING PROJECTS

GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

CD-503

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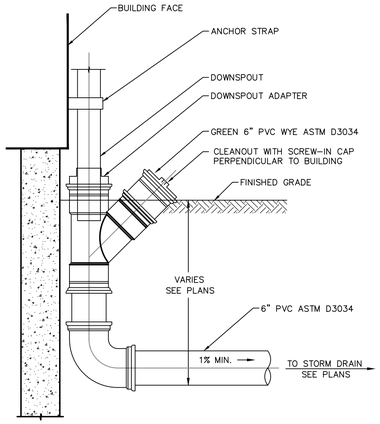
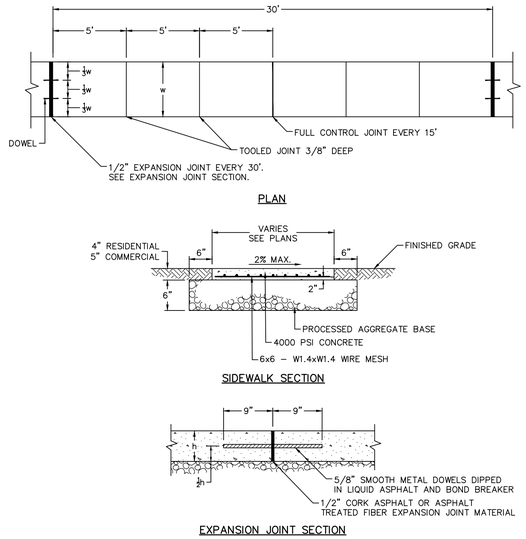
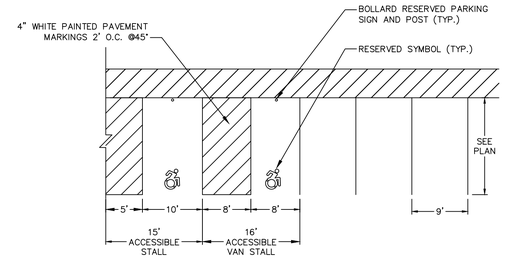


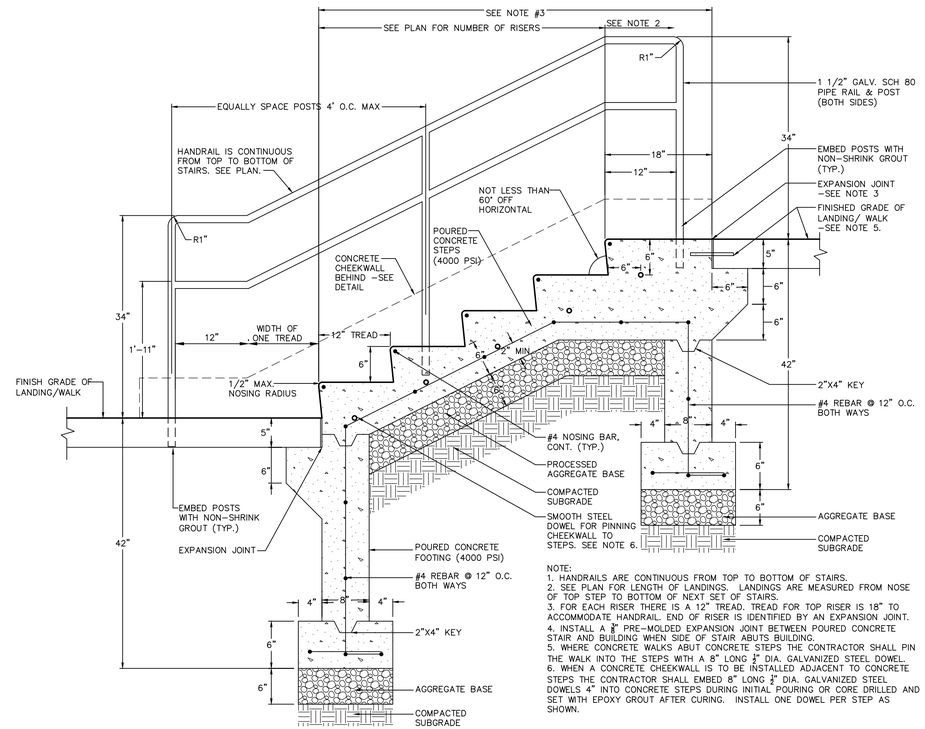
ROOF LEADER DRAIN CONNECTION
NOT TO SCALE



CONCRETE SIDEWALK
NOT TO SCALE

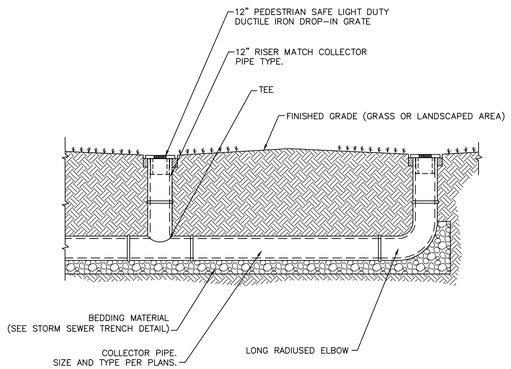


ACCESSIBLE SPACES
NOT TO SCALE



NOTE:
1. HANDRAILS ARE CONTINUOUS FROM TOP TO BOTTOM OF STAIRS.
2. SEE PLAN FOR LENGTH OF LANDINGS. LANDINGS ARE MEASURED FROM NOSE OF TOP STEP TO BOTTOM OF NEXT SET OF STAIRS.
3. FOR EACH RISER THERE IS A 12" TREAD. TREAD FOR TOP RISER IS 18" TO ACCOMMODATE HANDRAIL. END OF RISER IS IDENTIFIED BY AN EXPANSION JOINT.
4. INSTALL A ½" PRE-MOLDED EXPANSION JOINT BETWEEN POURED CONCRETE STAIR AND BUILDING WHEN SIDE OF STAIR ABUTS BUILDING.
5. WHERE CONCRETE WALKS ABUT CONCRETE STEPS THE CONTRACTOR SHALL PIN THE WALK INTO THE STEPS WITH A 8" LONG ½" DIA. GALVANIZED STEEL DOWEL.
6. WHEN A CONCRETE CHEEKWALL IS TO BE INSTALLED ADJACENT TO CONCRETE STEPS THE CONTRACTOR SHALL EMBED 8" LONG ½" DIA. GALVANIZED STEEL DOWELS 4" INTO CONCRETE STEPS DURING INITIAL POURING OR CORE DRILLED AND SET WITH EPOXY GROUT AFTER CURING. INSTALL ONE DOWEL PER STEP AS SHOWN.

CONCRETE STEPS (12" TREAD) WITH HANDRAIL
N.T.S.



YARD DRAIN (LIGHT DUTY)
NOT TO SCALE

APPROVED BY THE CITY OF GROTON PLANNING AND ZONING COMMISSION

CHAIRMAN/SECRETARY _____ DATE: _____

NOT FOR CONSTRUCTION

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
1.			XX/XX	XX

SCALE: HORZ.: N.T.S. VERT.:
DATUM: HORZ.: VERT.:

FUSS&O'NEILL
146 HARTFORD ROAD
MANCHESTER, CONNECTICUT 06040
860.646.2469
www.fando.com

FACILITIES MASTER PLAN - ENABLING PROJECTS
DETAILS
BUILDING 80 ADDITION
ENABLING PROJECTS
GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

CD-504

File Path: J:\DWG\P\1997570\A11\Civil\Plan\Bldg 80 Projects\1997570A11_DET01_B80.dwg Layout: CD-504 B 80 Plotted: Fri, October 12, 2018 - 9:43 AM User: lmello
Plotter: DWG TO PDF.PC3 CTB File: F.O.STB
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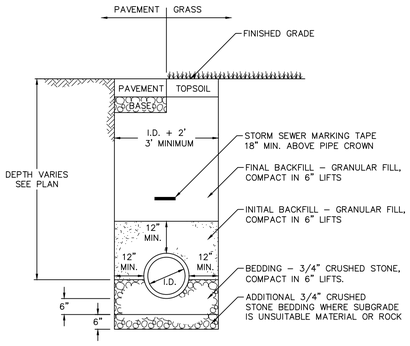
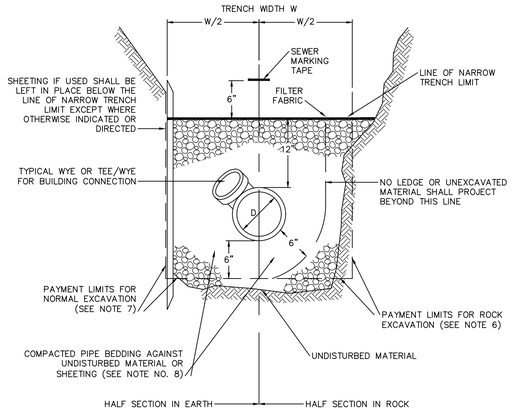
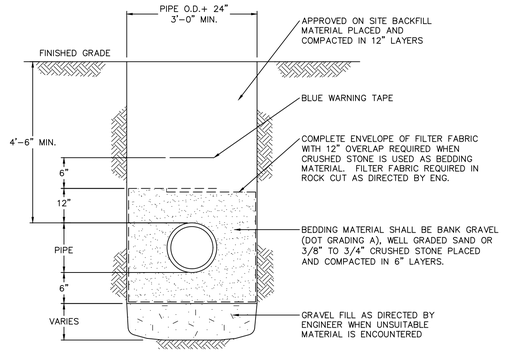
MS VIEW:



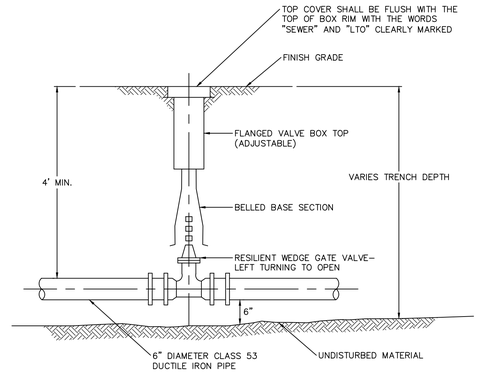
STORM SEWER TRENCH
NOT TO SCALE



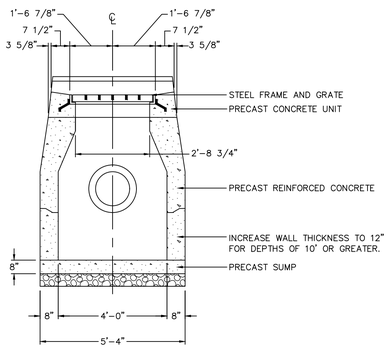
TYPICAL SEWER TRENCH
NOT TO SCALE



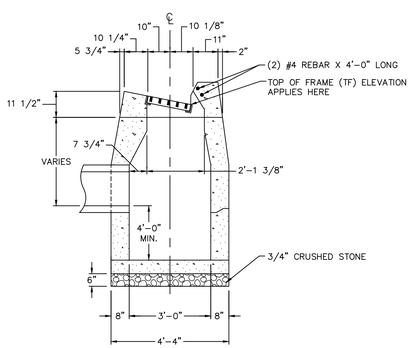
WATER TRENCH SECTION
NOT TO SCALE



ISOLATION GATE VALVE
NOT TO SCALE



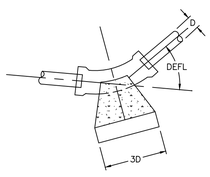
FRONT ELEVATION



SIDE ELEVATION

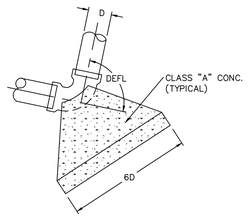
TYPE "C" CATCH BASIN
NOT TO SCALE

PPE DIA. (INCHES)	MINIMUM THRUST BLOCK VOLUME (CUBIC YARDS)
4	0.2
6	0.25
8	0.3
10	0.35
12	0.4
16	0.7

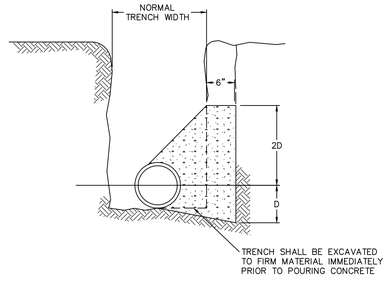


PLAN ELBOW – DEFL. LESS THAN 50

PPE DIA. (INCHES)	MINIMUM THRUST BLOCK VOLUME (CUBIC YARDS)
4	0.25
6	0.3
8	0.5
10	0.7
12	1.0
16	1.6



PLAN ELBOW – DEFL. MORE THAN 50



SECTION

CONCRETE THRUST BLOCKS
NOT TO SCALE

APPROVED BY THE CITY OF GROTON PLANNING AND ZONING COMMISSION

CHAIRMAN/SECRETARY _____ DATE: _____

NOT FOR CONSTRUCTION

No.	DATE	DESCRIPTION	DESIGNER	REVIEWER
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DETAILS
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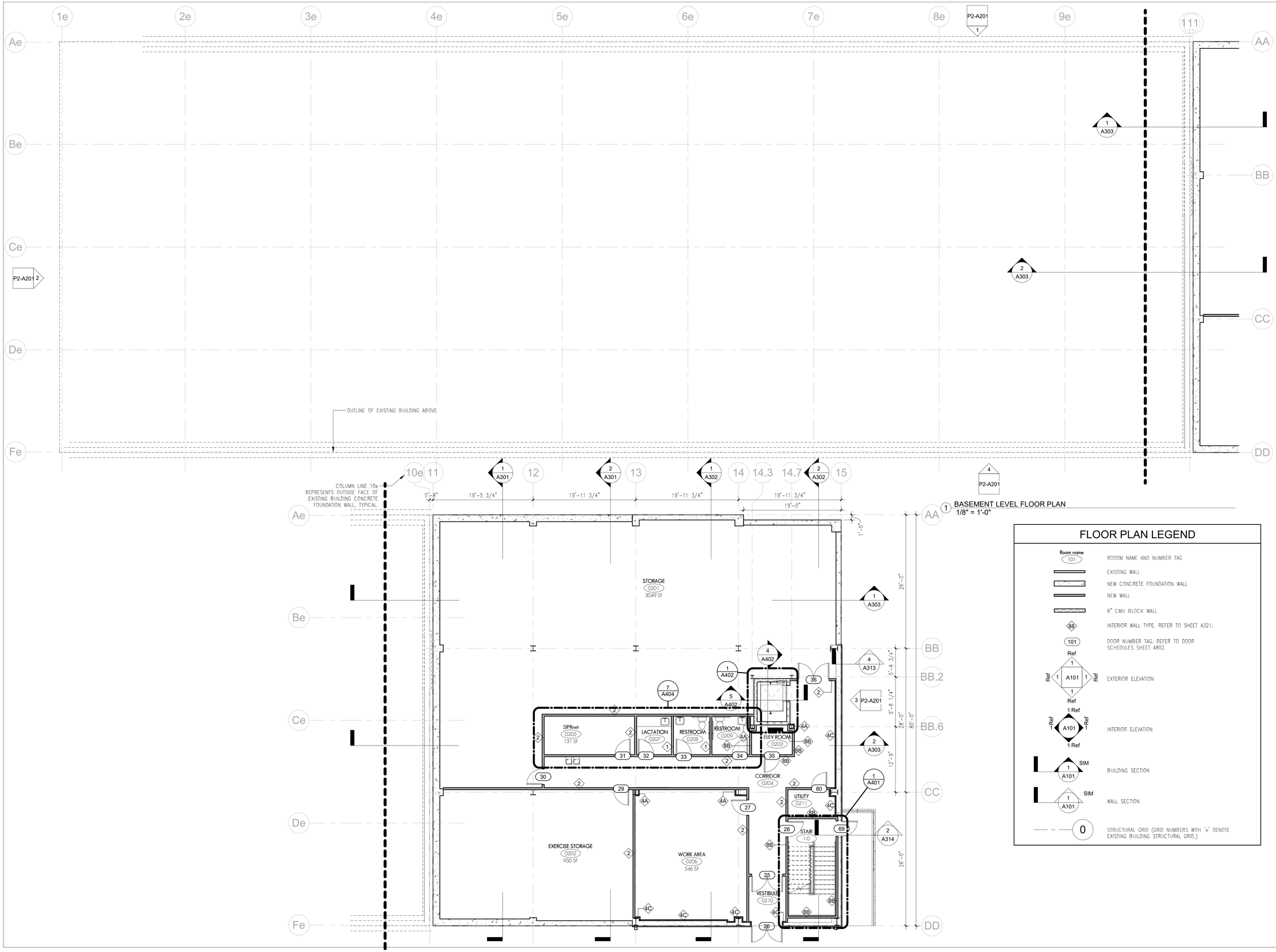
ENABLING PROJECTS
GROTON CONNECTICUT

PROJ. No.: 1997570.A11
DATE: 10/12/2018

CD-505



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

FLOOR PLAN LEGEND

Room name 101	ROOM NAME AND NUMBER TAG
	EXISTING WALL
	NEW CONCRETE FOUNDATION WALL
	NEW WALL
	8" CMU BLOCK WALL
8B	INTERIOR WALL TYPE. REFER TO SHEET A321.
101	DOOR NUMBER TAG. REFER TO DOOR SCHEDULES SHEET A802.
Ref 1 Ref / 1 A101 1 / 1 Ref	EXTERIOR ELEVATION
1 Ref / Ref 1 A101 1 Ref / 1 Ref	INTERIOR ELEVATION
SIM 1 A101	BUILDING SECTION
SIM 1 A101	WALL SECTION
0	STRUCTURAL GRID (GRID NUMBERS WITH 'e' DENOTE EXISTING BUILDING STRUCTURAL GRID.)

DATE: | ISSUE:

PDS ENGINEERING & CONSTRUCTION, INC.
107 Old Windsor Road
Bloomfield, Connecticut.06002
Telephone: (860) 242-8586
FAX (860) 242-8587

CONSULTANTS:

KEY PLAN:

EXISTING BUILDING | ADDT'N

TRUE NORTH

PROJECT NORTH

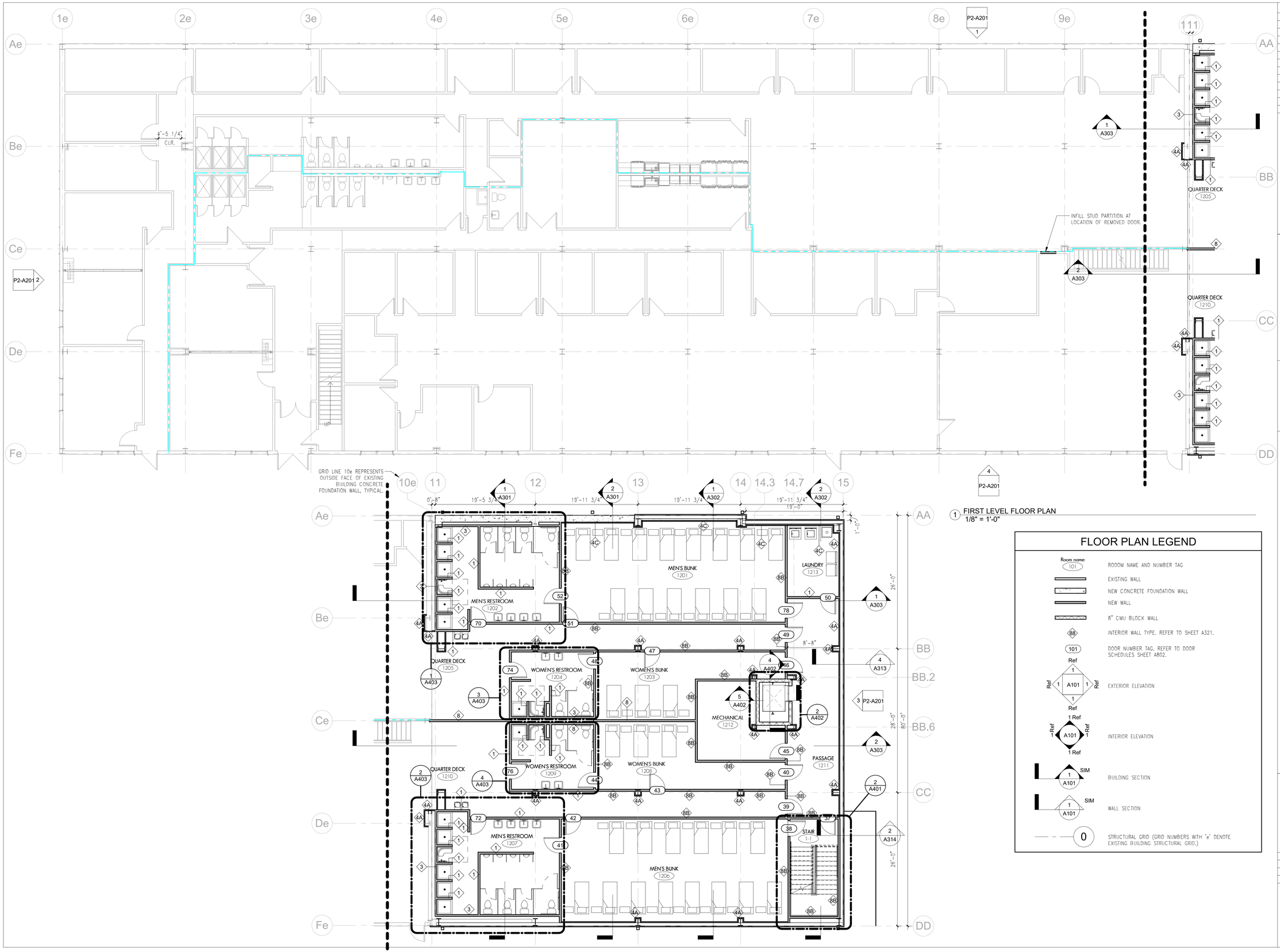
PROJECT NAME:
EB BUILDING 80 RENOVATION AND ADDITION
EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:
PHASE 2 - BASEMENT LEVEL FLOOR PLAN

SEAL:

ENGINEER: Approver
ARCHITECT:
PROJECT MGR:
DRAFTED BY: Author

P2-A100



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

FLOOR PLAN LEGEND

Room name 101	ROOOM NAME AND NUMBER TAG
	EXISTING WALL
	NEW CONCRETE FOUNDATION WALL
	NEW WALL
	8" CMU BLOCK WALL
8B	INTERIOR WALL TYPE. REFER TO SHEET A321.
101	DOOR NUMBER TAG. REFER TO DOOR SCHEDULES SHEET A802.
Ref 1 / Ref 1 A101 1 Ref / 1 Ref	EXTERIOR ELEVATION
1 Ref / Ref 1 A101 Ref 1 / 1 Ref	INTERIOR ELEVATION
SIM 1 A101	BUILDING SECTION
SIM 1 A101	WALL SECTION
0	STRUCTURAL GRID (GRID NUMBERS WITH 'e' DENOTE EXISTING BUILDING STRUCTURAL GRID.)

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KEY PLAN:

EXISTING BUILDING | ADDT'N

TRUE NORTH

PROJECT NORTH

PROJECT NAME:

EB BUILDING 80 RENOVATION AND ADDITION

EASTERN POINT ROAD
GROTON, CT

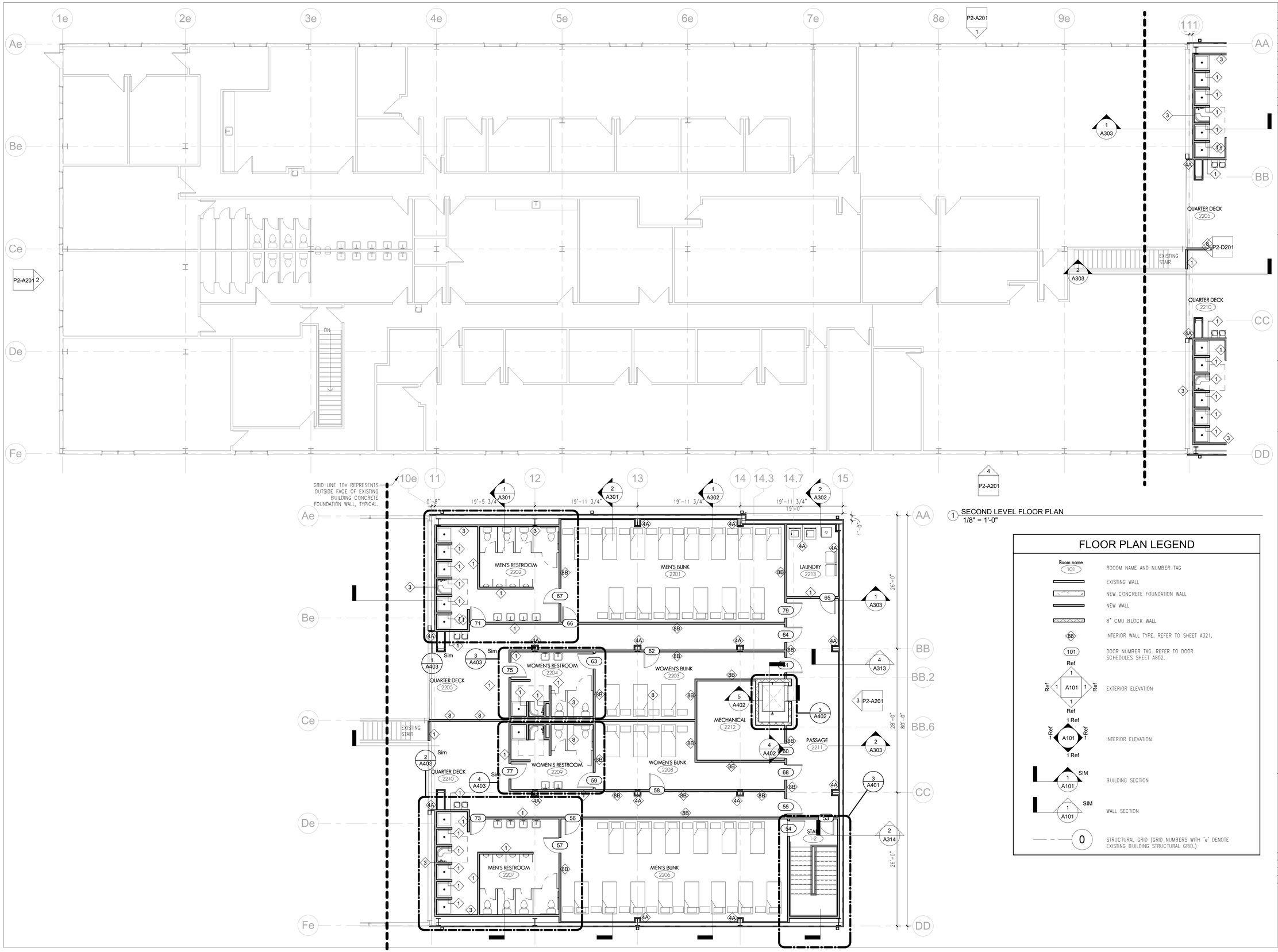
DRAWING TITLE:

PHASE 2 - FIRST LEVEL FLOOR PLAN

SEAL:

ENGINEER: Approver
ARCHITECT:
PROJECT MGR:
DRAFTED BY: Author

P2-A101



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

FLOOR PLAN LEGEND

Room name 101	ROOM NAME AND NUMBER TAG
	EXISTING WALL
	NEW CONCRETE FOUNDATION WALL
	NEW WALL
	8" CMU BLOCK WALL
8B	INTERIOR WALL TYPE, REFER TO SHEET A321.
101	DOOR NUMBER TAG, REFER TO DOOR SCHEDULES SHEET A802.
Ref / 1 / A101	EXTERIOR ELEVATION
1 Ref / Ref / A101	INTERIOR ELEVATION
SIM / 1 / A101	BUILDING SECTION
SIM / 1 / A101	WALL SECTION
0	STRUCTURAL GRID (GRID NUMBERS WITH 'e' DENOTE EXISTING BUILDING STRUCTURAL GRID.)

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KEY PLAN:
EXISTING BUILDING | ADDT'N
TRUE NORTH
PROJECT NORTH

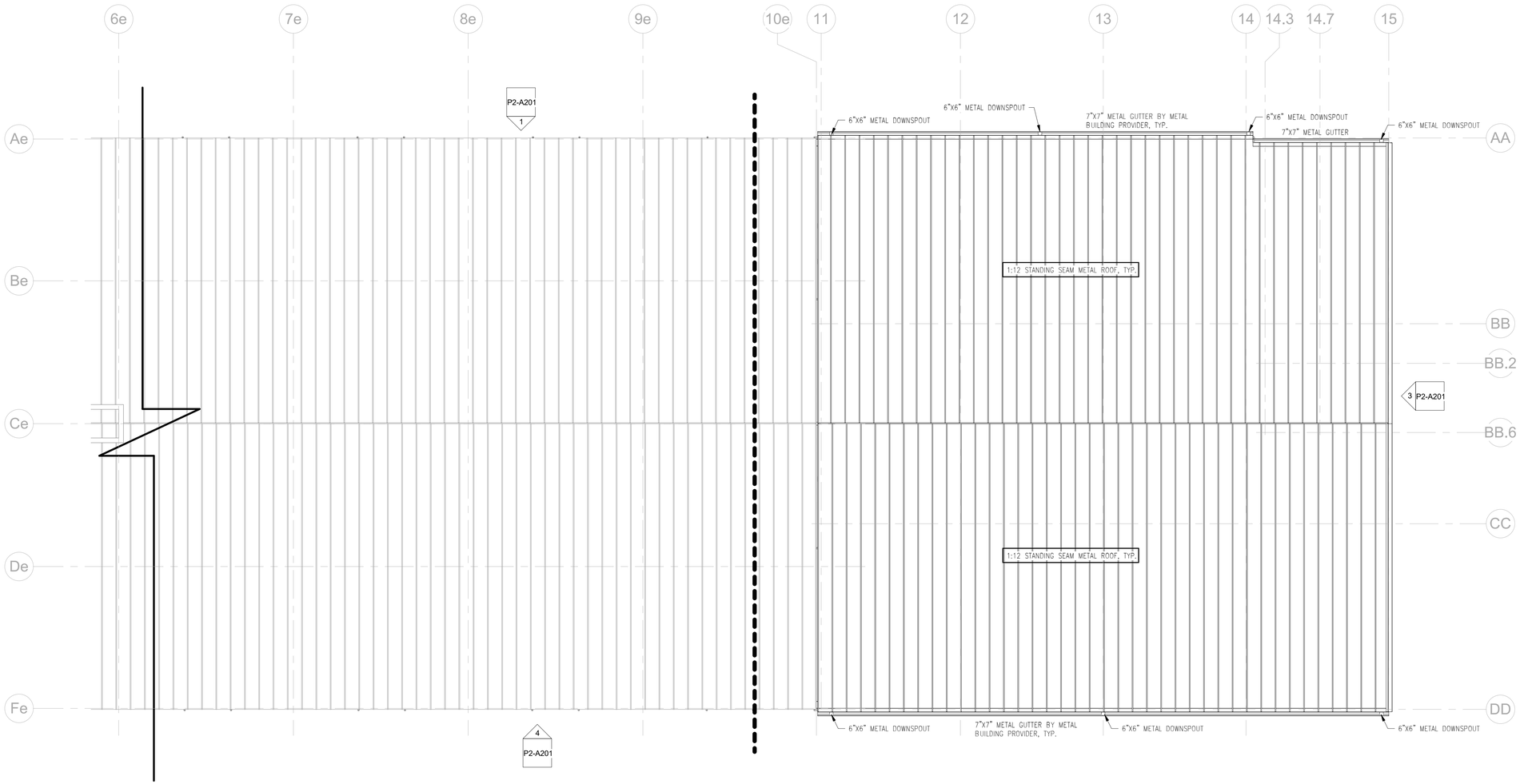
PROJECT NAME:
EB BUILDING 80 RENOVATION AND ADDITION
EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:
PHASE 2 - SECOND LEVEL FLOOR PLAN

SEAL:

ENGINEER: Approver
ARCHITECT:
PROJECT MGR:
DRAFTED BY: Author

P2-A102



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

DATE: | ISSUE:

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KEY PLAN:

EXISTING BUILDING | ADDT'N

TRUE NORTH

PROJECT NORTH

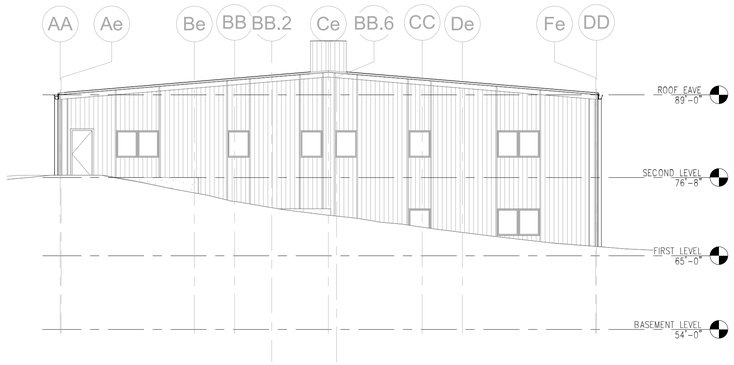
PROJECT NAME:
EB BUILDING 80 RENOVATION AND ADDITION
EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:
PHASE 2 - ROOF PLAN

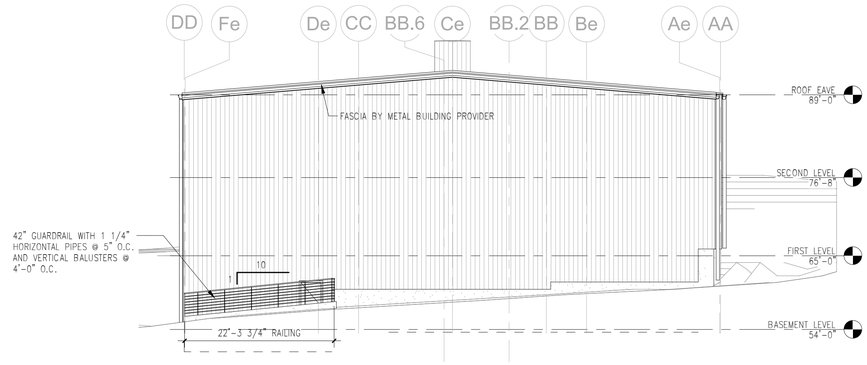
SEAL:

ENGINEER: Approver
ARCHITECT:
PROJECT MGR:
DRAFTED BY: Author

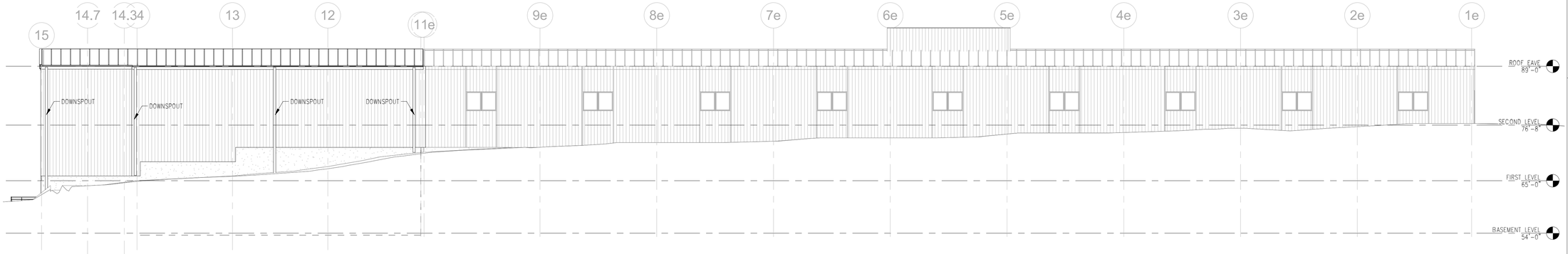
P2-A103



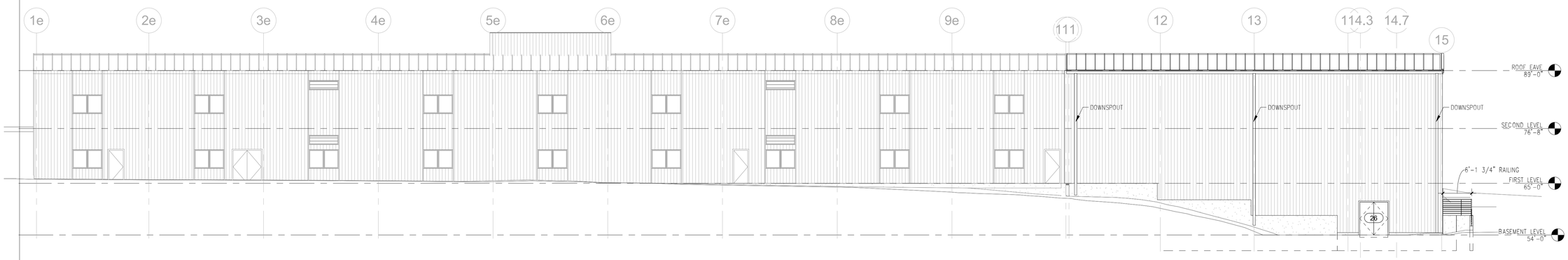
2 NORTH ELEVATION
3/32" = 1'-0"



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



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



4 WEST ELEVATION
3/32" = 1'-0"

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CONSULTANTS:

KEY PLAN:

EXISTING BUILDING | ADDT'N

TRUE NORTH

PROJECT NORTH

PROJECT NAME:
EB BUILDING 80 RENOVATION AND ADDITION
EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:
PHASE 2 - EXTERIOR ELEVATIONS

SEAL:

ENGINEER: Approver
ARCHITECT:
PROJECT MGR:
DRAFTED BY: Author

P2-A201

MECHANICAL NOTES

1. COORDINATE EXACT LOCATION OF ALL NEW EQUIPMENT WITH ARCHITECT'S FINISHED CEILING PLAN, SPRINKLER PIPING AND ELECTRICAL CONDUITS. ALSO, CONTRACTOR SHALL COORDINATE WITH OWNER SUPPLIED AND INSTALLED EQUIPMENT.
2. DRAWINGS ARE DIAGRAMMATIC, THEREFORE DETERMINE EXACT LOCATIONS OF SYSTEMS/COMPONENTS IN FIELD USING FIELD CONDITIONS.
3. DUCTS AND PIPING PENETRATING FIRE RATED WALLS TO BE FIRE SEALED.
4. CONTRACTOR SHALL ROUTE DUCTWORK WITHIN THE CEILING SPACE AS HIGH AS POSSIBLE TO MAINTAIN MAXIMUM CLEARANCE ALLOWABLE.

ABBREVIATIONS

(NOTE: ALL ABBREVIATIONS MAY NOT APPEAR ON DRAWINGS)

A	Amps, Ampere
ABS	ABS
ABC	Above Counter
ABV	Above
A/C	Air Conditioner
AC	Alternating Current
ADJ	Adjacent
AF	Amp Frame
AFF	Above Finish Floor
AFG	Above Finish Grade
AHU	Air Handling Unit
AIC	Amperes Interrupting Capacity
AMB	Ambient
AT	Amp Trip
AUX	Auxiliary, Auxiliaries
AV	Audio Visual
BLDG	Building
BTU	British Thermal Unit
BTUH	British Thermal Unit Per Hour
C	Conduit
CAT	Catalogue
CB	Circuit Breaker
CD	Condensate Drain
CFH	Cubic Feet Per Hour
CFM	Cubic Feet Per Minute
CHR	Chilled Water Return
CHS	Chilled Water Supply
CI	Cast Iron
CKT	Circuit
CLG	Ceiling
CO	Clean Out
COL	Column
COMM	Communication
CONC	Concrete
CONN	Connect
CONST	Construction
CONT	Continuous
CONTR	Contractor
COP	Coefficient Of Performance
CR	Card Reader
CT	Cooling Tower
CT	Current Transformer
CU	Condensing Unit
CVO	Cold Water Valved Opening
CW	Cold Water
CWR	Condenser Water Return
CWS	Condenser Water Supply
D	Depth
DB	Dry Bulb
DC	Direct Current
DFU	Drainage Fixture Units
DIA	Diameter
DIFF	Diffuser
DN	Down
DS	Downspout
DTL	Detail
DWG	Drawing
EA	Each
EAT	Entering Air Temperature
EC	Electrical Contractor
EDH	Electric Duct Heater
EER	Energy Efficiency Ratio
EL	Elevation
ELEC	Electrical
ELEV	Elevator
EMER	Emergency
EQ	Equal
EQUIP	Equipment
ESP	External Static Pressure
EWT	Entering Water Temperature
EXH	Exhaust
EXIST	Existing
EXP	Expansion
°F	Degrees Fahrenheit
FA	Fire Alarm
FA	Free Area
FCU	Fan Coil Unit
FD	Fire Damper
FD	Floor Drain
FDR	Feeder
FF	Finish Floor
FIXT	Fixture
FL	Flow Line
FLUOR	Fluorescent
FN	Full Neutral
FPM	Feet Per Minute
FPB	Fan Powered VAV Terminal Unit
FS	Fused Switch
FT	Feet
F/A	From Above
F/B	From Below
G	Ground
GA	Gauge
GAL	Gallons
GALV	Galvanized
GCr	General Contractor
GEN	Generator
GFI	Ground Fault Interrupter
GFCI	Ground Fault Circuit Interrupter
GPH	Gallons Per Hour
GPM	Gallons Per Minute
H	Height
HD	Head
HORIZ	Horizontal
HP	Horsepower
HTG	Heating
HVAC	Heating, Ventilation, & Air Conditioning
HWC	Hot Water Recirculation (Domestic)
HWR	Hot Water Return
HWS	Hot Water Supply
IG	Isolated Ground
IN	Inches
IN WC	Inches Water Column
INCAND	Incandescent
KA	Kiloamperes
KVA	Kilovolt Amperes
KW	Kilowatt
KWH	Kilowatt – Hour
L	Length
LAT	Leaving Air Temperature
LAT	Latent (BTU)
LB	Pounds (Weight)
LIN FT	Linear Foot
LTG	Lighting
LWT	Leaving Water Temperature
mA	Mili Amps
MAX	Maximum
MBTUH	Thousand British Thermal Unit Per Hour
MCB	Main Circuit Breaker
MCC	Motor Control Center
MCF	Thousand Cubic Feet
MCM	Thousand Circular Mils
MECH	Mechanical
MIC	Microphone
MIN	Minimum
MISC	Miscellaneous
MTD	Mounted
MTG	Mounting
MTL	Metal
MTR	Motor
MTRZD	Motorized
MVD	Manual Volume Damper
N	Neutral
NA	Not Applicable
NC	Normally Closed
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NIC	Not In Contract
NO	Normally Open
NO	Number
OA	Outside Air
OBD	Opposed Blade Damper
OC	On Center
OD	Outside Diameter
ODS	Overflow Downspout
OZ	Ounce
P	Poles
PE	Photo–Electric
PD	Pressure Drop
PERF	Perforated
PF	Power Factor
PH	Phase
PLBG	Plumbing
PNL	Panel
PSI	Pounds Per Square Inch
PSIA	Pounds Per Square Inch–Absolute
PSIG	Pounds Per Square Inch–Gauge
PVC	Polyvinyl Chloride
PWR	Power
QTY	Quantity
R/A	Return Air
RCP	Reflected Ceiling Plan
RCP	Reforced Concrete Pipe
REC	Receptacle
REF	Reference
REFR	Refrigerator
REQ'D	Required
RLA	Running Load Amps
RM	Room
RMS	Root Mean Squared
RPM	RPM
RQMT	Requirement
RT	Raintight
RTU	Roof Top Unit
SA	Supply Air
SD	Storm Drain
SEER	Seasonal Energy Efficiency Ratio
SENS	Sensible (BTU)
SFU	Supply Fixture Units
SHT	Sheet
SHT MTL	Sheet Metal
SP	Static Pressure
SPECS	Specifications
SPKR	Speaker
SQ	Square
SQFT	Square Feet
SS, SAN	Sanitary Sewer
SSC	Short Circuit Current
STD	Standard
SURF	Surface
SW	Switch
SWBD	Switchboard
SWGR	Switchgear
SYM	Symmetrical
T-STAT	Thermostat
TC	Timeclock
TELE	Telephone
TOT	Total (BTU)
TTB	Telephone Terminal Board
TYP	Typical
UF	Underfloor
UON	Unless Otherwise Noted
V	Vacuum
V	Volt
VA	Volt–Amps
VA	Valve
VAV	Variable Air Volume
VENTIL	Ventilation
VERT	Vertical
VPO	Vent Plugged Opening
VT	Vent
VTR	Vent Thru The Roof
VV	Variable Volume Terminal Unit
W	Watts
W	Width
WB	Wet Bulb
WH	Water Heater
WP	Weatherproof
WPO	Waste Plugged Opening
WT	Weight
XFMR	Transformer
Y	WYE

HVAC LEGEND

(NOTE: ALL SYMBOLS MAY NOT APPEAR ON DRAWINGS)

SINGLE LINE	DESCRIPTION
	GAS PIPING
	DRAIN LINE
	FLEXIBLE PIPE CONNECTION
	PITCH DOWN IN DIRECTION OF ARROW
	GAS COCK
	NEW PIPE
	90° ELBOW DOWN
	90° ELBOW UP
	ROUND RADIUS ELBOW
	45° ELBOW
	90° ELBOW DOWN
	90° ELBOW UP
	RECTANGULAR RADIUS ELBOW
	RECTANGULAR ELBOW WITH TURNING VANES
	BRANCH TAKE-OFF WITH RADIUS HEEL & EXTRACTOR
	REDUCER, ECCENTRIC
	REDUCER, CONCENTRIC
	NEW SUPPLY AIR DIFFUSER
	NEW RETURN GRILLE
	NEW EXHAUST GRILLE
	LINED DUCTWORK
	SUPPLY DUCT
	RETURN DUCT
	EXHAUST DUCT
Ø	ROUND DUCT SIZE
	FLEXIBLE DUCT CONNECTION
	NEW DUCT
	MANUAL VOLUME DAMPER
	MOTORIZED DAMPER
	BAROMETRIC DAMPER
	DIRECTION OF RETURN AIR
	SUPPLY AIR DIRECTION
	THERMOSTAT, REMOTE SENSOR
VFD	VARIABLE FREQUENCY DRIVE

DATE:	ISSUE:
10/10/2018	100% CD – ISSUED FOR REVIEW

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355 Research Parkway
Meriden, CT 06450
(203) 630-1406
(203) 630-2615 Fax

KEY PLAN:

EXISTING BUILDING | ADDT'N

TRUE NORTH

PROJECT NORTH

PROJECT NAME:

EB BUILDING 80 RENOVATION AND ADDITION

EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:

MECHANICAL GENERAL NOTES, ABBREVIATIONS & LEGEND

SEAL:

ENGINEER:
ARCHITECT:
PROJECT MGR:
DRAFTED BY:

M0.01

PART 1 GENERAL

1.01 GENERAL REQUIRMENTS:

a. INSTALL ALL NEW WORK IN A NEAT WORKMANLIKE MANNER READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR.

b. CODES, PERMITS, AND INSPECTIONS:

1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF STATE AND LOCAL BUILDING CODE, BUILDING MANAGEMENT, AND ALL AUTHORITIES HAVING JURISDICTION AND APPLICABLE NATIONAL, STATE AND LOCAL CODES, LAWS, AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK SHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS. CONTRACTOR IS TO INFORM ENGINEER OF ANY EXISTING WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED AT CONTRACTOR'S EXPENSE BY THIS CONTRACTOR AND AT NO EXPENSE TO THE OWNER.

2. THIS CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IF REQUIRED AND OBTAIN ALL EQUIPMENT USE PERMITS AS REQUIRED BY STATE AND LOCAL AUTHORITIES. PERMITS SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.

c. DEFINITIONS:

1. MECHANICAL CONTRACTOR, "THIS CONTRACTOR" – THE PARTY OR PARTIES HAVE BEEN DULY AWARDED THE CONTRACT FOR AND ARE THEREBY MADE RESPONSIBLE FOR THE MECHANICAL WORK AS DESCRIBED HERIN.

2. "THIS CONTRACT", "THE CONTRACT" – THE AGREEMENT COVERING THE WORK TO BE PREFORMED BY "THIS CONTRACTOR".

3. "APPROVED", "EQUAL", "SATISFACTORY", "ACCEPTABLE", "EQUIVALENT" – SUITABLE FOR USE ON THE PROJECT, AS DETERMINED BY THE ENGINEER BASED ON DOCUMENTS PRESENTED FOR SUCH DETERMINATION.

4. "THESE SPECIFICATIONS", "THIS SECTION, PART, DIVISION" (OF THE SPECIFICATION) – THE DOCUMENT SPECIFYING THE WORK TO BE PREFORMED BY "THIS CONTRACTOR".

5. "THE MECHANICAL WORK", "THIS WORK", – ALL LABOR MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES, AND OTHER ITEMS REQUIRED FOR A PROPER AND COMPLETE INSTALLATION BY THE MECHANICAL CONTRACTOR.

6. "ARCHITECT", "ENGINEER", "OWNER'S REPRESENTATIVE" – THE PARTY OR PARTIES RESPONSIBLE FOR INTERPRETING, ACCEPTING, AND OTHER WISE RULING ON THE PERFORMANCE UNDER THIS CONTRACT.

7. "FURNISH" – PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPARATUS AND SUPPORT, ALL AS PART OF THE MECHANICAL WORK.

8. "INSTALL" – UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING INSTALLATION AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT, ALL AS PART OF THE MECHANICAL WORK.

9. "PROVIDE" – "FURNISH" AND "INSTALL".

10. "NEW" – MANUFACTURED WITHIN THE PAST TWO YEARS AND NEVER BEFORE USED.

11. "RELOCATE – MOVE EXISTING EQUIPMENT AND ALL ACCESSORIES AS REQUIRED.

12. "REMOVE" – DISMANTLE AND CART AWAY FROM SITE INCLUDING ALL RELATED ACCESSORIES. ALL ITEMS SHALL BE LEGALLY DISPOSED OF. ALL OTHER EQUIPMENT AND OPERATIONS IN ANY WAY EFFECTED BY THE REMOVAL IS TO REMAIN IN FULL OPERATION. PROVIDE ALL NECESSARY COMPONENTS TO MAINTAIN SUCH OPERATION.

1.02 AS-BUILT DRAWINGS

a. CONTRACTOR SHALL MAINTAIN RECORD DRAWING PRINTS ON JOB SITE AND RECORD, AT TIME OF OCCURRENCE, DEVIATIONS FROM CONTRACT DOCUMENTS DUE TO FIELD COORDINATION, BULLETINS, OR ADDENDA.

b. CONTRACTOR SHALL REVISE SHOP DRAWINGS TO CONFORM TO RECORD DRAWINGS AND SUBMIT AN AS-BUILT CONDITION (PIPING AND DUCTWORK) DRAWINGS UPON COMPLETION OF THE PROJECT. FINAL SUBMISSION OF REPRODUCIBLE AS-BUILT DRAWINGS ARE TO BE SIGNED AND CERTIFIED BY INSTALLING CONTRACTOR THAT THIS IS THE AS-BUILT CONDITION OF THE WORK

PART 2 PRODUCTS/APPLICATIONS

2.01 DUCTWORK AND ACCESSORIES

a. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA HAVC DUCT CONSTRUCTION STANDARDS – METAL AND FLEXIBLE, 1995 OR LATEST EDITION, SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL, 1991 OR LATEST EDITION, NFPA 90A LATEST EDITION. THE MORE STRINGENT REQUIREMENT OF ANY CODES SHALL APPLY.

b. PROVIDE ALL SUPPORTING AND HANGING DEVICES IN ACCORDANCE WITH SMACNA.

c. DUCTWORK LAYOUT AND ROUTING IS SCHEMATIC AND THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL DUCT SIZE CHANGES AND RELOCATIONS TO ACCOMMODATE SPACE AND STRUCTURAL CONDITIONS. OFFSETS AND TRANS-DUCTWORK SHALL PRESERVE THE FULL INSIDE CROSS-SECTIONAL AREA OF DUCTWORK SHOWN ON THE DRAWINGS.

d. DUCTWORK SHALL HAVE PRESSURE CLASSIFICATION, SEALING REQUIREMENTS AND LEAKAGE TESTING IN ACCORDANCE WITH SMACNA AND AS LISTED BELOW UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS:

1. 2" CLASS: ALL OTHER LOW PRESSURE DUCTWORK. SEAL CLASS "C", LEAKAGE CLASS 24 (RECTANGULAR OR CLASS 12 (ROUND).

e. MATERIALS:

1. SHEET METAL: DUCTS SHALL BE CONSTRUCTED OF HOT-DIPPED GALVANIZED SHEETMETAL WITH G60 COMMERCIAL COASTING ACCORDING TO ASTM 653 AND A924

2. FLEXIBLE CONNECTIONS AT FANS SHALL BE NEOPRENE COATED, FLAME RETARDANT GLASS FABRIC (COMPLYING WITH NFPA 90 AND 96), 30 OZ./SQ. YD. WITH SEWED AND CEMENTED SEAMS.

f. FABRICATION:

1. CONFORM TO SMACNA REQUIREMENTS FOR METAL THICKNESS, REINFORCING, JOINTS, AND SEALING FOR MAXIMUM STATIC PRESSURES INVOLVED. ALL SEAMS AND JOINTS SHALL BE SEALED AND TAPED.

2. ELBOWS SHALL CONFORM TO SMACNA REQUIREMENTS AND THE FOLLOWING:

3. ALL DUCTWORK SHALL HAVE A MINIMUM WALL THICKNESS OF 26 GAUGE.

2.1. PROVIDE LONG RADIUS TYPE WITH CENTERLINE RADIUS MINIMUM 1.5 TIMES DUCT WIDTH. PROVIDE SHORT RADIUS OR SQUARE ELBOWS WHERE INDICATED OR WHERE REQUIRED TO FIT RESTRICTED SPACES. PROVIDE DOUBLE THICKNESS TURNING VANES ON ALL SHORT RADIUS AND MITERED ELBOWS. CONFORM TO SMACNA FOR THE NUMBER OF VANES FOR FITTINGS

3. BRANCH CONNECTIONS: PROVIDE 45° ENTRY OR CONICAL TAPS. PROVIDE RADIUS TYPE FITTINGS FOR DIVIDED FLOW BRANCHES.

g. ACOUSTICALLY LINED DUCTWORK:

1. PROVIDE MAT-FACED GLASS DUCT LINER, 1-INCH THICK -2LB/CF DENSITY. DUCT DIMENSIONS INDICATED ARE CLEAR (NET) INSIDE DIMENSIONS. FOR DUCT VELOCITIES GRATER THEN 2,000 FPM, FACE DUCTLINER WITH 24 GAUGE PERFORATED ALUMINUM OR GALVANIZED STEEL, FULLY COVERING DUCTLINER, AND SUPPORTED 12" ON CENTER. DO NOT EXTERNALLY INSULATE ACOUSTICALLY LINED DUCKWORK. CONFORM TO SMACNA REQUIREMENTS FOR INSTILLATION. PROVIDE ACOUSTICALLY LINED DUCT WHERE LISTED BELOW AND/OR SHOWN ON THE DRAWINGS:

1.1. WITHIN MINIMUM 10 FEET OF ALL AC UNIT DISCHARGES
1.2. WITHIN MINIMUM 10 FEET OF FAN INLET AND DISCHARGES

h. VOLUME DAMPERS:

1. GALVANIZED STEEL OR SAME AS DUCT CONSTRUCTION. CONFORM TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS, 1995 OR LEATES EDITION, OPPOSED BLADE TYPE. PROVIDE BEARING AT BOTH ENDS OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW, AT ONE END. INSTALL WITH LEVERS ACCESSIBLE THROUGH INSULATION. SPLITTER DAMPER OR AIR EXTRACTORS SHALL NOT BE USED ON THIS PROJECT.

2. PROVIDE MANUAL BALANCING VOLUME DAMPERS AS REQUIRED TO PROPERLY BALANCE THE AIR DISTRIBUTION SYSTEM. IF THE LOCATION OF BALANCING DAMPERS ARE NOT DEFINED ON THE DRAWINGS, THE FOLLOWING MINIMUM STANDARDS SHALL GOVERN:

2.1. LOW PRESSURE: ALL SUPPLY AIR MAIN BRANCHES FROM TRUCK, EACH SPLIT, AND ALL SUB-BRANCHES FROM MAINS SHALL BE PROVIDED WITH BALANCING DAMPERS.

i. DUCT ACCESS DOORS:

1. CONFORM TO SMACNA WITH PIANO HINGES, TWO SASH LOCKS AND DOOR GASKETS. SCREWED ACCESS PANELS ARE NOT PERMITTED. PROVIDE REMOVABLE ACCESS DOORS WHERE DOOR SWING CAN NOT BE ACCOMMODATED.

2. SIZE: MINIMUM 20"x14" EXCEPT DUCTS LESS THAN 16", ONE DIMENSION 20" AND THE OTHER DIMENSION, 2" LESS THAN THE DUCT WIDTH.

3. PROVIDE ACCESS DOORS: AT ENTERING AND LEAVING SIDES OF COILS IN DUCTS: AUTOMATIC DAMPERS ON LINKAGE SIDE, MANUAL VOLUME DAMPERS 2 SQ. FT. AND LARGER, FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, SMOKE DETECTION HEADS, FAN BEARINGS ENCLOSED IN DUCTS, SUCTION AND DISCHARGE SIDES OF CEILING MOUNTED FANS, FILTERS, REHEAT COILS, AT ALL EQUIPMENT REQUIRING ACCESS AND AS INDICATED ON DRAWINGS.

j. SEAL OPENINGS AROUND DUCT THROUGH WALLS WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL. SEAL ALL DUCT PENETRATIONS THROUGH WALLS AIRTIGHT.

k. ALL DUCTS EXPOSED TO MOISTURE SHALL BE ALUMINUM, SLOPED, AND DRAINED AND SHALL NOT BE INTERNALLY LINED.

l. AUTOMATIC CONTROL DAMPERS:

1. PROVIDE DAMPERS WITH PARALLEL BLADES FOR 2-POSITION CONTROL, OR OPPOSED BLADES FOR MODULATING CONTROL OF CONSTANT OR VARIABLE VOLUME SYSTEM.

2. AUTOMATIC DAMPERS ARE TO BE VERY LOW LEAKING TYPE WITH JAMB AND BLADE SEALS RATED FOR SMOKE DAMPER APPLICATION. CONSTRUCT BLADES OF 16 GAUGE GALVANIZED STEEL, PROVIDE HEAVY-DUSTY MOLDED SELF-LUBRICATING NYLON BEARINGS, 1/2" DIAMETER STEEL AXLES SPACED ON 9" CENTERS, BLADES TO BE MAXIMUM 10" HIGH. FRAME SHALL BE CONSTRUCTED OF 16 GAUGE X 4-3/8" GALVANIZED HAT SHAPED STEEL PROPERLY BRACED WITH GALVANIZED STEEL FINISH AND ALUMINUM TOUCH-UP.

2.02 INSULATION

a. ALL INSULATION SHALL MEET THE REQUIREMENTS OF ASTM, NFPA, ENERGY CODE, AND ALL AUTHORITIES HAVING JURISDICTION. ALL MECHANICAL INSULATION, (JACKETING, COVERINGS, ADHESIVES, MASTICS, FACINGS, TAPES, ETC.), SHALL HAVE RATINGS NOT EXCEEDING A "FLAME SPREAD" OF 25 OR LESS AND "SMOKE DEVELOPED" INDEX OF 50 OR LESS.

b. BEFORE APPLYING INSULATION, ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED. FURNISH AND INSTALL AS PER MANUFACTURERS REQUIREMENTS.

c. INSULATION FOR FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.

d. DUCT INSULATION:

1. GENERAL

1.1. INSULATION SHALL BE APPLIED WITH MASTICS, ADHESIVES, COATINGS, WITH COVERS, WEATHER-PROTECTION, AND OTHER WORK AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS. DO NOT INSULATE SOUND LINED DUCTWORK. MATERIALS SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND SMACNA.

2. CONDENSER AIR AND FRESH AIR DUCTWORK

2.1. INSULATED EXPOSED SUPPLY, RETURN AND FRESH AIR DUCTS AND EXPOSED PLENUM WITH 1" THICK, SEMI-RIGID FIBROUS GLASS BOARDS WITH FACTORY APPLIED FIRE RETARDANT FOIL REINFORCED KRAFT VAPOR BARRIER FACING. PROVIDE WELD PINS AND VAPOR SEAL ALL JOINTS WITH TAPE.

3. SUPPLY AND RETURN AIR AND FRESH AIR DUCTWORK

3.1. INSULATED SUPPLY, RETURN AND FRESH AIR DUCTS AND PLENUM WITH R-5 (MINIMUM), THICK, RIGID FIBERGLASS WRAP WITH FACTORY APPLIED FIRE RETARDANT FOIL REIN FORCED KRAFT VAPOR BARRIER FACING. PROVIDE WELD PINS AND VAPOR SEAL ALL JOINTS WITH TAPE.

2.03 ELECTRICAL WORK

a. GENERAL:

1. ELECTRICAL POWER WIRING SHALL BE PROVIDED BY THE ELECTRICAL CONTRACT; CONTROL WIRING SHALL BE BY THE HVAC CONTRACT. CONTROL WIRING SHALL BE DEFINED AS ANY 12V, 24V, OR 120V WIRING INSTALLED FOR PURPOSES OTHER THAN PROVIDING PRIMARY ELECTRICAL POWER TO EQUIPMENT.

2. DUCT MOUNTED SMOKE DETECTORS, WHERE REQUIRED, SHALL BE PROVIDED BY AND WIRED BY THE ELECTRICAL CONTRACTOR, AND MOUNTED BY THE HVAC CONTRACTOR.

3. ALL ELECTRICAL CONTROL WIRING SHALL COMPLY WITH LOCAL ELECTRICAL CODE, ALL AUTHORITIES HAVING JURISDICTION AND THE PROJECT ELECTRICAL SPECIFICATIONS.

b. MOTORS:

1. MOTORS SHALL HAVE THE ELECTRICAL CHARACTERISTICS AS LISTED ON THE DRAWINGS. COORDINATE ALL REQUIREMENTS WITH ELECTRICAL CONTRACTOR. ALL MOTORS SHALL COMPLY WITH NEMA MG-1 STANDARD AND SHALL BE OF THE HIGH EFFICIENCY TYPE AND MEET THE 1992 EPA ENERGY EFFICIENCY ACT AND UTILITY COMPANY REBATE REQUIREMENTS.

2. MOTORS FOR VARIABLE FREQUENCY DRIVES (VDF) SHALL BE SUITABLE FOR USE WITH VARIABLE FREQUENCY DRIVES AND COMPLY WITH NEMA MG-1 PART 31.40.4.2. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS OF THE MOTOR AND VFD MANUFACTURER.

c. ENCLOSURES:

1. PROVIDE ENCLOSURES FOR STARTERS AND VFD'S SUITABLE FOR OPERATING ENVIRONMENT. ENCLOSURES'S SHALL BE NEMA 1 VENTILATED SHEETMETAL FOR INDOOR APPLICATION, NEMA 3R WITH ADDITIONAL GASKETING WEATHERPROOF RAINTIGHT ENCLOSER FOR EXPOSED OUTDOOR SERVICE, OR INDOOR SERVICE EXPOSED TO MOISTURE. PROVIDE DISCONNECT SWITCH ON ENCLOSURE AS REQUIRED FOR SERVICE.

2.04 VIBRATION ISOLATION PRODUCTS

a. FURNISH AND INSTALL ALL NECESSARY VIBRATION ISOLATORS, VIBRATION HANGERS, MOUNTING PADS, RAILS, ECT., TO ISOLATE VIBRATION AND SOUND FROM BEING TRANSMITTED TO THE BUILDING CONSTRUCTION. ALL VIBRATION ISOLATION PRODUCTS SHALL BE SPECIFICALLY DESIGNED FOR THEIR INTENDED USE.

b. MANUFACTURER OF VIBRATION ISOLATION EQUIPMENT SHALL HAVE THE FOLLOWING RESPONSIBILITIES:

1. DETERMINE VIBRATION ISOLATOR SIZES AND LOCATIONS.

2. PROVIDE SUITABLE PIPING AND EQUIPMENT VIBRATION ISOLATION

3. GUARANTEE SPECIFIED ISOLATION SYSTEM ATTENUATION AND DEFLECTION.

4. PROVIDE INSTALLATION INSTRUCTIONS, DRAWINGS AND FIELD SUPERVISION TO ASSURE PROPER INSTALLATION AND PERFORMANCE. STARTERS SHALL BE SELECTED TO SUIT MOTOR RUNNING AND STARTING CHARACTERISTICS.

c. ISOLATION SYSTEMS SHALL BE MANUFACTURED BY MASON INDUSTRIES OR APPROVED EQUAL BY THE ENGINEER.

d. MOUNTING TYPES:

1. STATIC DEFLECTION OF ISOLATORS SHALL BE A MINIMUM OF 90% EFFICIENT. PROVIDE CORROSION PROTECTION FOR EQUIPMENT MOUNTED OUTDOORS.

2. MOUNTING OF CEILING-SUPPORTED FANS, AND AIR CONDITIONING UNITS – SPRING ISOLATORS – (TYPE DNHS).

3. PROVIDE FLEXIBLE CONNECTIONS BETWEEN ALL FANS AND DUCTWORK (REFER TO DUCTWORK SECTION FOR SPECIFICATIONS.)

2.05 TESTING AND BALANCING

a. GENERAL

1. TESTING AND BALANCING WORK SHALL BE PREFORMED BY AN AABC CERTIFIED OR AS APPROVED BY THE ENGINEER BEFORE COMMENCEMENT OF WORK. APPROVED COMPANIES INCLUDE MERENDINO ASSOCIATES, R.H. MCDERMOTT, INTERNATIONAL TESTING AND BALANCING OR AS APPROVED BY THE ENGINEER AND BUILDING MANAGEMENT.

2. AFTER ALL PROJECT HVAC WORK IS COMPLETE, TESTED AND IN FULL WORKING ORDER, THE AGENCY SHALL PERFORM THE BALANCING AND TESTING OF THE PROJECT HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS.

3. UPON THE COMPLETION OF THE AIR CONDITIONING SYSTEM, THE BALANCING AGENCY SHALL PERFORM TESTING AND BALANCING AND COMPILE ALL TEST DATA IN A CERTIFIED REPORT AND SUBMIT FOUR (4) COPIES FOR REVIEW AND APPROVAL TO THE ENGINEER.

4. THE REPORT SHALL INCLUDE DESIGN AND ACTUAL READINGS FOR ALL EQUIPMENT AND LOCATION PLAN INDICATING WHERE ALL WORK HAS BEEN PERFORMED, AND METHODS OF BALANCING AND DETAILS OF INSTRUMENTS USED.

5. IF DISCREPANCIES EXIST IN THE REPORT THAT REQUIRE FIELD VERIFICATION, THE TESTING AND BALANCING COMPANY IN THE PRESENCE OF THE ENGINEER SHALL VISIT THE JOB SITE FOR FIELD VERIFICATION OF THE REPORT.

6. AFTER SUBMISSION OF THE FIELD VERIFIED BALANCING REPORT, THE AIR BALANCING COMPANY SHALL RETURN TO THE JOB SITE TO PERFORM TWO (2) OCCUPANT COMFORT BALANCES AS DIRECTED BY THE OWNER OR ENGINEER.

7. THE FINAL REPORT AFTER THE COMFORT BALANCE IS TO BE INCLUDED IN PROJECT OPERATING AND MAINTENANCE MANUAL.

8. THE TESTING AND BALANCING AGENCY SHALL INCLUDE AS PART OF THEIR WORK AN EXTENDED WARRANTY OF 90 DAYS AFTER COMPLETION OF TEST AND BALANCE WORK. THE ENGINEER AT HIS DISCRETION DURING THE WARRANTY PERIOD MAY REQUEST A RECHECK, OR RESETTING OF ANY EQUIPMENT. THE MECHANICAL CONTRACTOR AND THE BALANCING CONTRACTOR SHALL PROVIDE THE NECESSARY TECHNICIANS TO FACILITATE THIS WORK.

9. BALANCING AGENCY SHALL PERMANENTLY MARK ALL ADJUSTMENT DEVICES (VALVES, DAMPERS, ETC.,) TO ENABLE THE SETTING TO BE RESTORED

b. AIR BALANCING

1. HVAC CONTRACTOR SHALL ENSURE THAT A FIRST SET OF AIR FILTERS ARE IN PLACE, WHENEVER FANS ARE RUNNING AND REPLACED WITH A NEW CLEAN SET OF FILERS BEFORE TESTING IS COMMENCED.

2. TEST, ADJUST, REPLACE SHEAVES, AND BALANCE ALL EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE AIR QUANTITIES INDICATED ON PLANS WITHIN PLUS OR MINUS 5%.

3. TEST REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

3.1. PROVIDE FOR ALL FANS, FAN MOTOR HP, AMPS, VOLTS, FAN RPM, CFM, INLET, AND DISCHARGE STATIC PRESSURE, SHEAVE POSITION.

3.2. PROVIDE FOR ALL AIR CONDITIONING UNITS, SUPPLY CFM, OUTSIDE AIR CFM, RETURN AIR CFM, MIXED AIR CFM. PROVIDE OUTSIDE AIR, MIXED AIR AND SUPPLY AIR TEMPERATURES (DRY BULB – COOLING AND HEATING, WET-BULB-COOLING.) INDICATE UNIT OPERATING MODE DURING TEST.

3.3. CALIBRATE ALL NEW AND EXISTING TO BE REUSED TERMINAL BOXES (VAV, FAN POWERED OR DUAL DUCT) AS REQUIRED TO MEET SPECIFIED MINIMUM/MAXIMUM CFM.

3.4. LISTING OF DESIGN AND ACTUAL READINGS AS WELL AS ALL MANUFACTURE'S DATA FOR EQUIPMENT.

2.05 EQUIPMENT

a. PROVIDE ALL EQUIPMENT AND ACCESSORIES OF THE SIZES AND CAPACITIES AS SCHEDULED AND AS INDICATED ON THE DRAWINGS.

b. INSTALL EQUIPMENT IN ACCORDANCE WITH APPROVED SHOP DRAWINGS, MANUFACTURERS RECOMMENDATIONS, INSTRUCTIONS, AND ALL AUTHORITIES HAVING JURISDICTION.

c. PROVIDE EQUIPMENT SUPPORTS AND/OR MOUNTINGS AS INDICATED ON THE DRAWING, IN VIBRATION SPECIFICATION AND AS FOLLOWS:

1. CEILING MOUNTED EQUIPMENT – PROVIDE SUPPORTS WITH APPROVED SUITABLE ANCHORS SUSPENDED DIRECTLY FROM BUILDING STEEL STRUCTURE.

2. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED TO ADEQUATELY SUPPORT THE EQUIPMENT LOAD.

d. EQUIPMENT SHALL BE INSTALLED WITH VIBRATION ISOLATION, REFER TO VIBRATION ISOLATION SECTION.

e. PROVIDE A GAS SHUT OFF VALVE EXTERIOR TO THE BUILDING.

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KEY PLAN:
EXISTING BUILDING
ADDT'N
TRUE NORTH
PROJECT NORTH

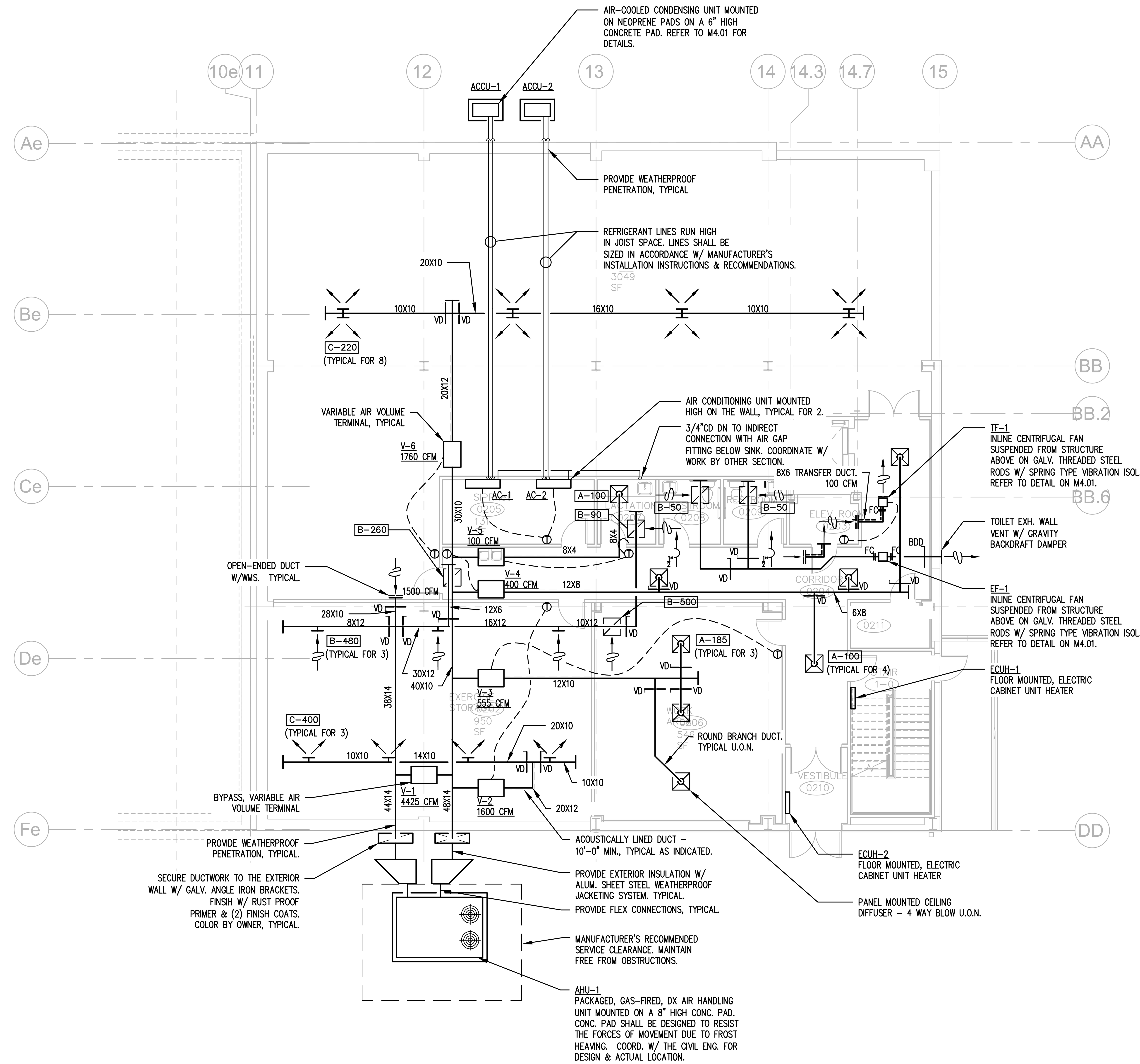
PROJECT NAME:
EB BUILDING 80 RENOVATION AND ADDITION
EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:
MECHANICAL SPECIFICATIONS

SEAL:

ENGINEER:
ARCHITECT:
PROJECT MGR:
DRAFTED BY:

M0.02



1 **BASEMENT FLOOR MECHANICAL PLAN**
SCALE: 1/8"=1'-0"

DATE: 10/10/2018 ISSUE: 100% CD - ISSUED FOR REVIEW

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KEY PLAN: EXISTING BUILDING | ADDT'N
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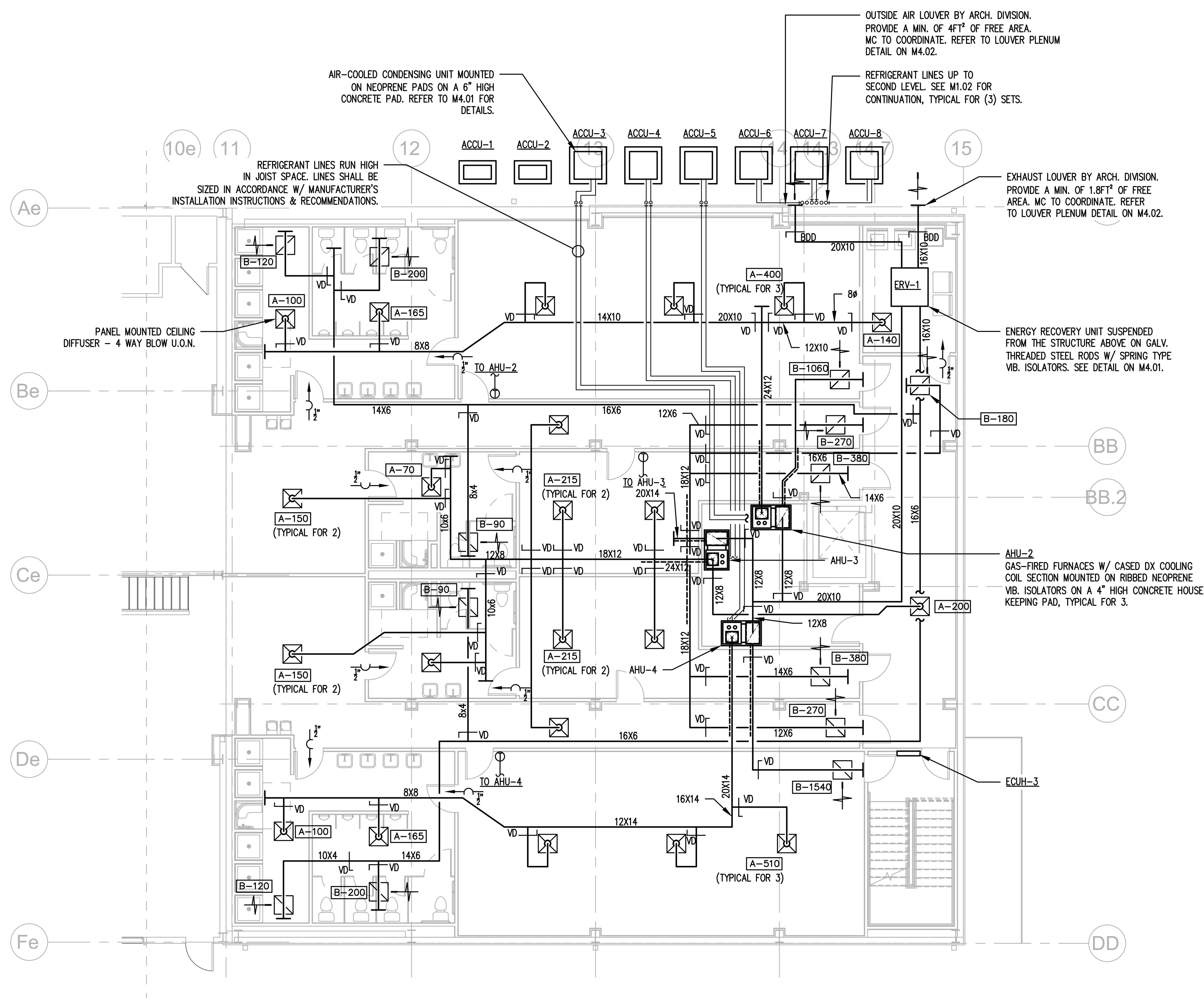
PROJECT NAME:
EB BUILDING 80 RENOVATION AND ADDITION
EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:
BASEMENT LEVEL MECHANICAL FLOOR PLAN

SEAL:

ENGINEER: P.S.
ARCHITECT:
PROJECT MGR:
DRAFTED BY: P.S.

M1.00



1 **FIRST LEVEL MECHANICAL FLOOR PLAN**
SCALE: 1/8"=1'-0"

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KEY PLAN:
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PROJECT NAME:
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EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:
FIRST LEVEL MECHANICAL FLOOR PLAN

SEAL:

ENGINEER:
ARCHITECT:
PROJECT MGR:
DRAFTED BY:

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DATE:	ISSUE:
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KEY PLAN:

EXISTING BUILDING | ADD'N

TRUE NORTH

PROJECT NORTH

PROJECT NAME:

EB BUILDING 80 RENOVATION AND ADDITION

EASTERN POINT ROAD
GROTON, CT

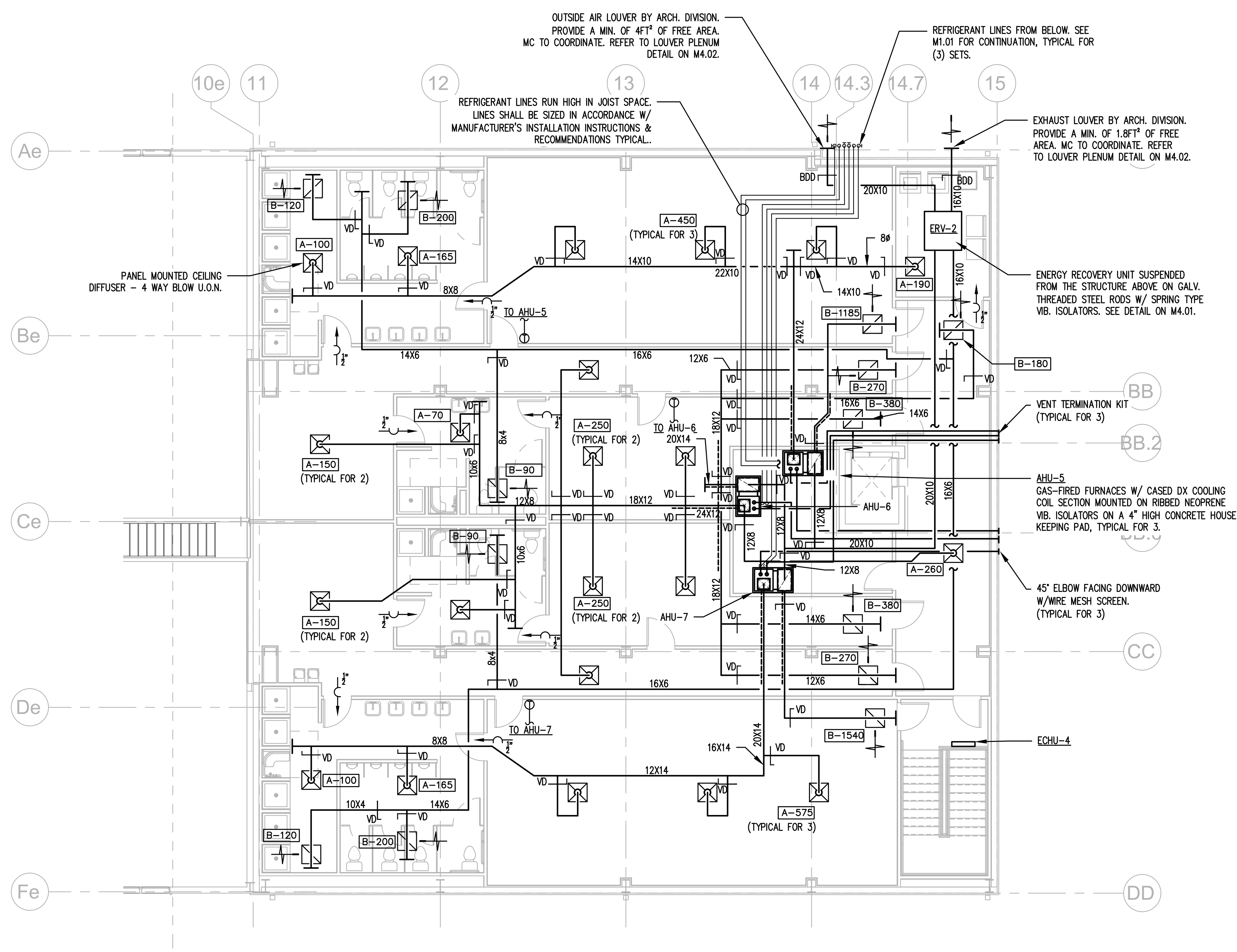
DRAWING TITLE:

SECOND LEVEL MECHANICAL FLOOR PLAN

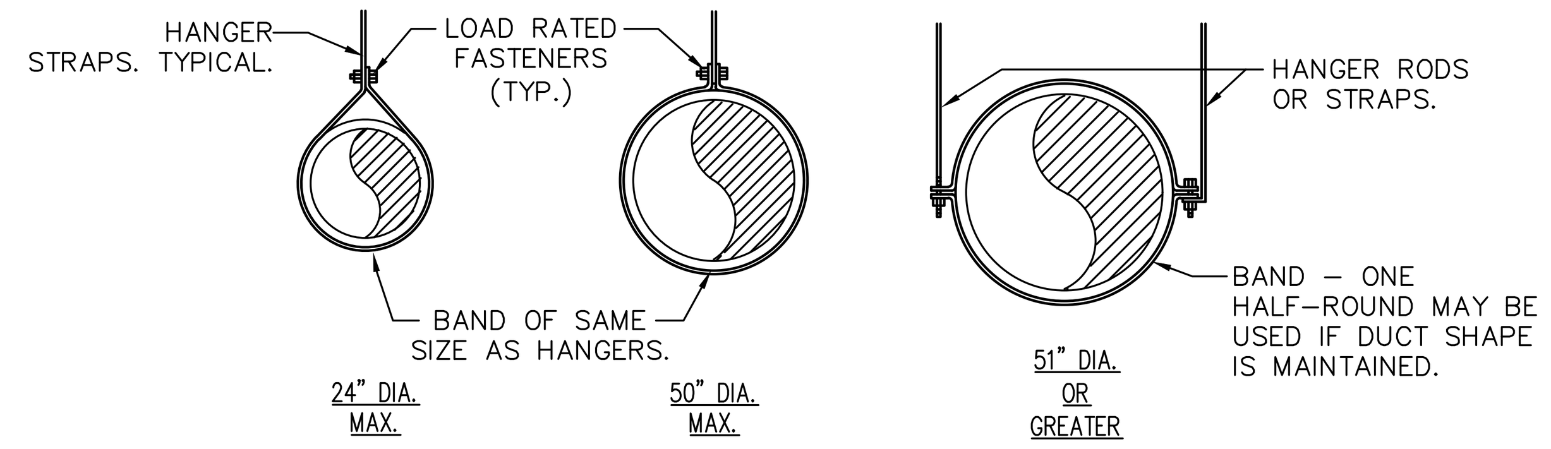
SEAL:

ENGINEER:
ARCHITECT:
PROJECT MGR:
DRAFTED BY:

M1.02



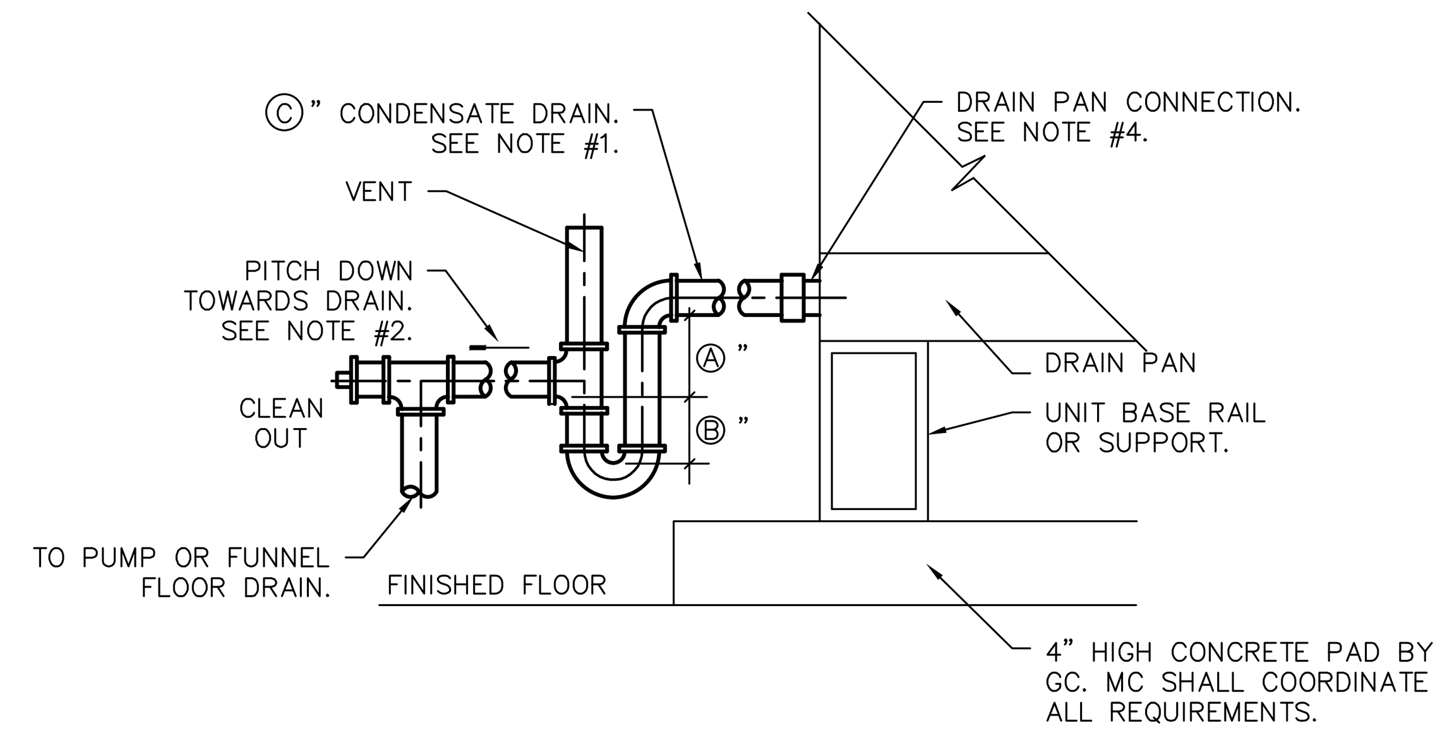
1 SECOND LEVEL MECHANICAL FLOOR PLAN
SCALE: 1/8"=1'-0"



DUCT DIA.	ROD DIA.	STRAP	MAXIMUM SPACING
UP TO 10"	¼"	1" x 22 GA.	12'-0" O.C.
11" – 18"	¼"	1" x 22 GA.	12'-0" O.C.
19" – 24"	¼"	1" x 22 GA.	12'-0" O.C.
25" – 36"	⅜"	1" x 20 GA.	12'-0" O.C.
37" – 50"	(2) ⅜"	(2) 1" x 20 GA.	12'-0" O.C.
51" – 60"	(2) ⅜"	(2) 1" x 18 GA.	12'-0" O.C.
61" – 84"	(2) ⅜"	(2) 1" x 16 GA.	12'-0" O.C.

NOTES:
1. HANGERS MUST NOT DEFORM DUCT SHAPE.
2. STRAPS AND RODS SHALL BE GALV. STEEL. REFER TO "RECTANGULAR DUCT SUPPORT DETAIL" FOR ATTACHING DUCTWORK TO THE BUILDING STRUCTURE.
3. WHERE HANGERS ARE INSTALL UNDER THE INSULATION AND PENETRATE THROUGH THE INSULATION, SEAL ALL PENETRATIONS WITH APPROVED SEALING MASTIC. BUILD-UP MASTIC AT BASE (PENETRATION) AND EXTEND AND TAPER BEYOND PENETRATION TO A MIN. OF 6".

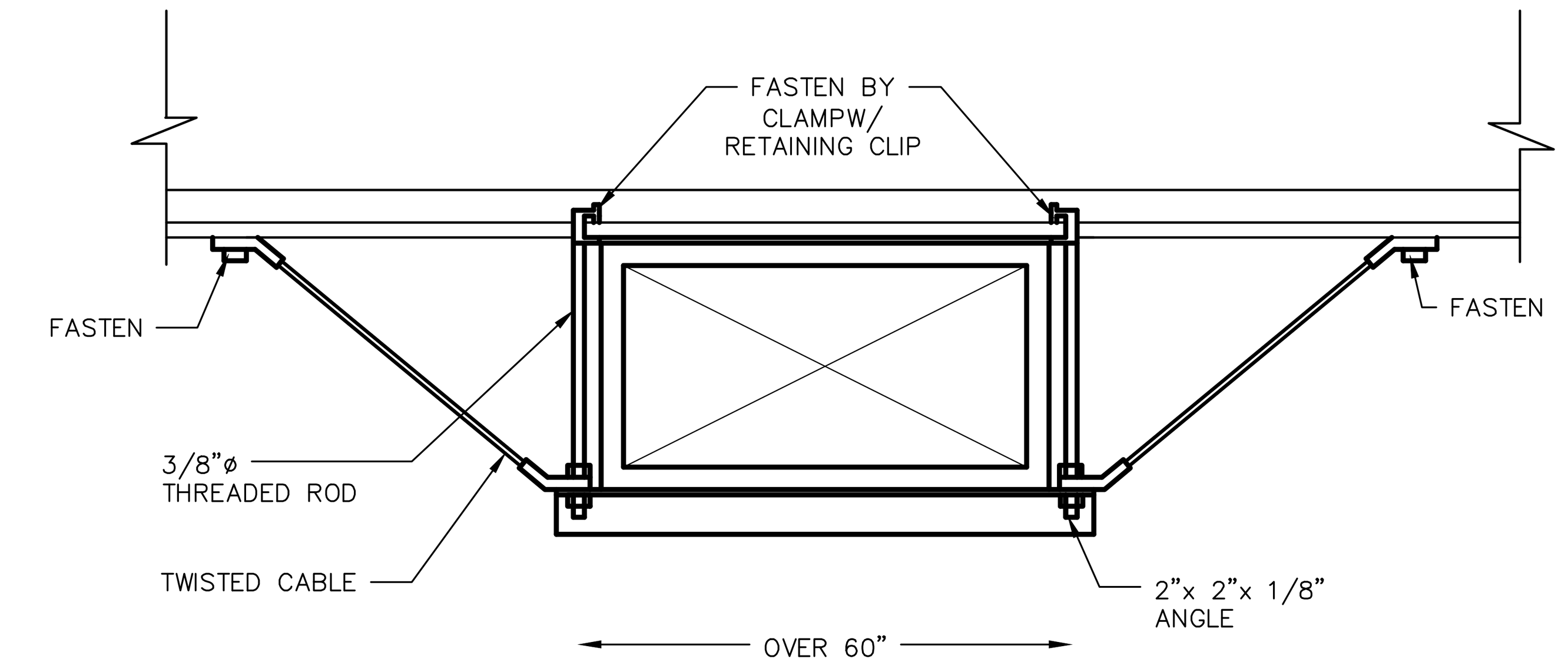
6 ROUND DUCT SUPPORT
N.T.S.



NOTES:
DRAW THRU UNITS: (A) EQUALS 2 PLUS DRAIN PAN STATIC PRESSURE. (B) EQUALS DRAIN PAN STATIC PRESSURE.
BLOW THRU UNITS: (A) EQUALS 1 MINIMUM. (B) EQUALS 2 TIMES DRAIN PAN STATIC PRESSURE.

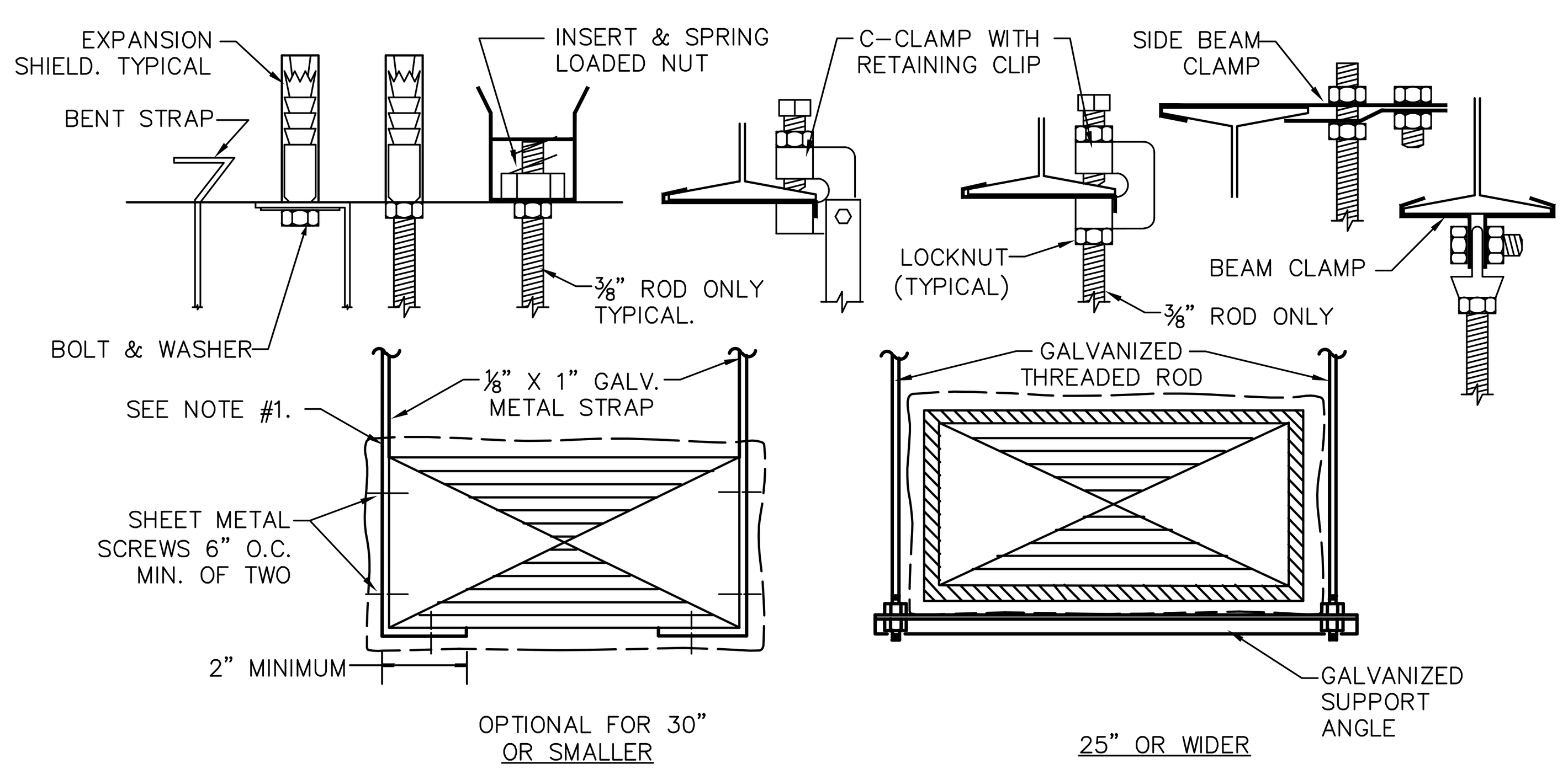
1. THE CONDENSATE DRAIN PIPE SIZE (C) SHALL BE BASED ON THE FOLLOWING UNIT REFRIGERATION TONNAGE:
   1.1. 3/4" UP TO 2 TONS, 1" UP TO 5 TONS, 1-1/4" UP TO 30 TONS, 1-1/2" UP TO 50 TONS, 2" UP TO 170 TONS, 3" UP TO 300 TONS, 4" UP TO 430 TONS. WHERE TRAP ASSEMBLY CONFLICTS WITH THE CONCRETE HOUSEKEEPING PAD, EXTEND TRAP ASSEMBLY BELOW THE PAD EDGE AS REQUIRED. PITCH PIPING IN THE DIRECTION OF FLOW. SEE NOTE #2.
2. PITCH THE CONDENSATE DRAIN PIPING 1" IN 10 FT. WHERE PIPING CANNOT BE PITCHED, INCREASE THE ABOVE PIPE SIZE VALUES BY ONE PIPE SIZE. PROVIDE ADJUSTABLE FLOOR PIPE SUPPORTS ALONG THE ENTIRE RUN.
3. INSULATE THE FULL RUN OF THE CONDENSATE PIPING IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. THE INSULATION SHALL PROVIDE A CONTINUOUS VAPOR BARRIER.
4. PROVIDE ECCENTRIC REDUCER, AS REQUIRED. KEEP THE BOTTOM OF THE CONDENSATE PIPE EVEN WITH THE UNIT DRAIN CONNECTION.

4 AIR HANDLING UNIT COOLING COIL CONDENSATE TRAP
N.T.S.



NOTES:
1. IF DUCT EXCEEDS 6 SQUARE FEET, AND/OR 12" BELOW STRUCTURE CONTRACTOR TO SEISMICALLY BRACE AS REQUIRED BY ALL GOVERNING CODES.
2. DETAIL WILL VARY WITH DIRECTION OF DUCT AND STRUCTURAL STEEL.

1 DUCTWORK SIESMIC HANGING
N.T.S.

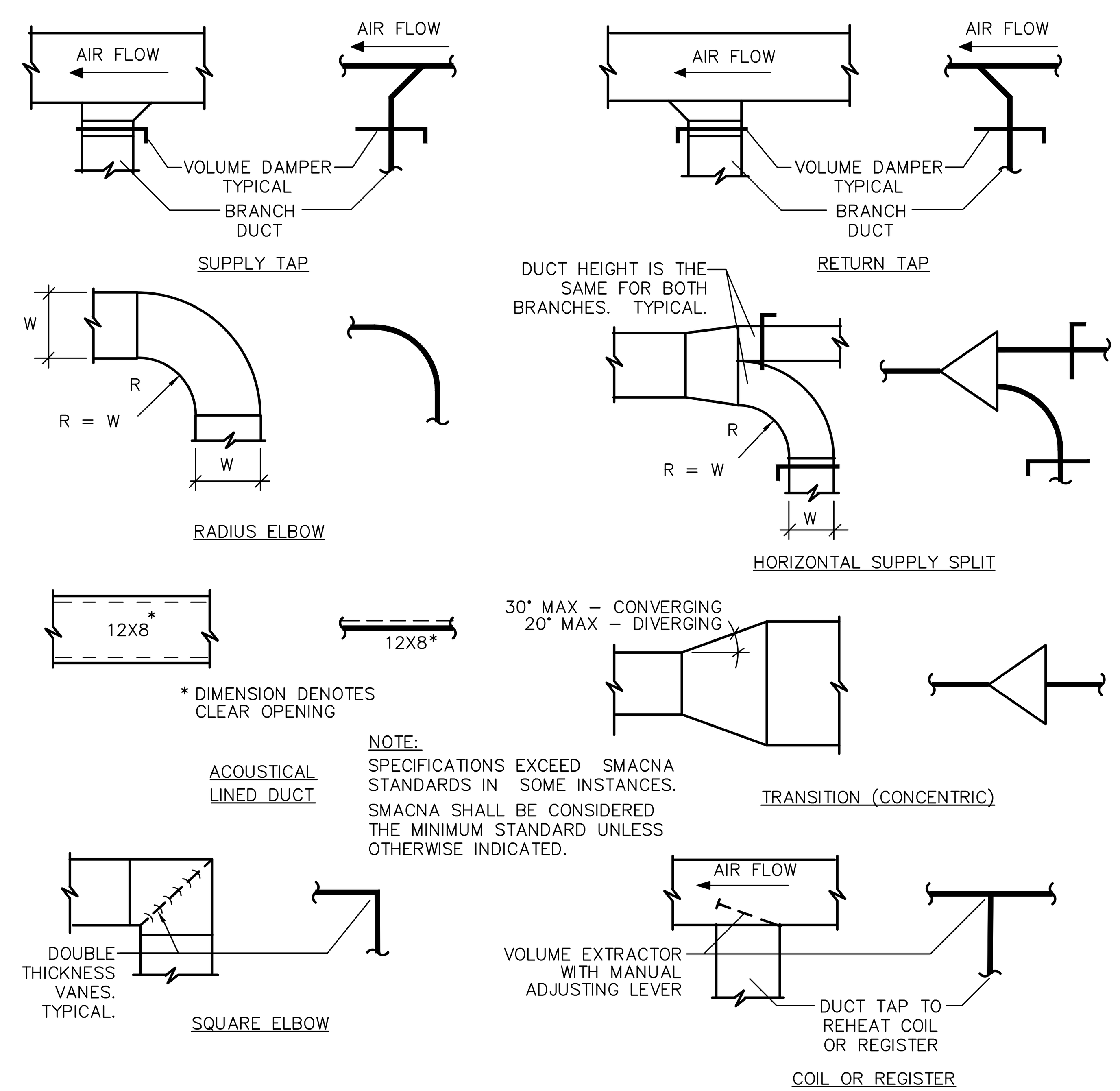


DUCT WIDTH	ROD DIA.	SUPPORT ANGLE OR EQUIV. CHANNEL	MAXIMUM SPACING	MAXIMUM AREA *
UP TO 30"	⅜"	1 1/2" X 1 1/2" X 1/8"	8'-0" O.C.	4 SQ. FT.
31" TO 42"	⅜"	1 1/2" X 1 1/2" X 1/8"	6'-0" O.C.	10 SQ. FT.
43" TO 60"	½"	1 1/2" X 1 1/2" X 1/8"	6'-0" O.C.	10 SQ. FT.
61" TO 84"	½"	2" X 2" X 1/4"	4'-0" O.C.	-------
85" AND UP	½"	2" X 2" X 1/4"	4'-0" O.C.	-------

* REDUCE SPACING TO NEXT SMALLER INTERVAL IF DUCT AREA EXCEEDS MAXIMUM

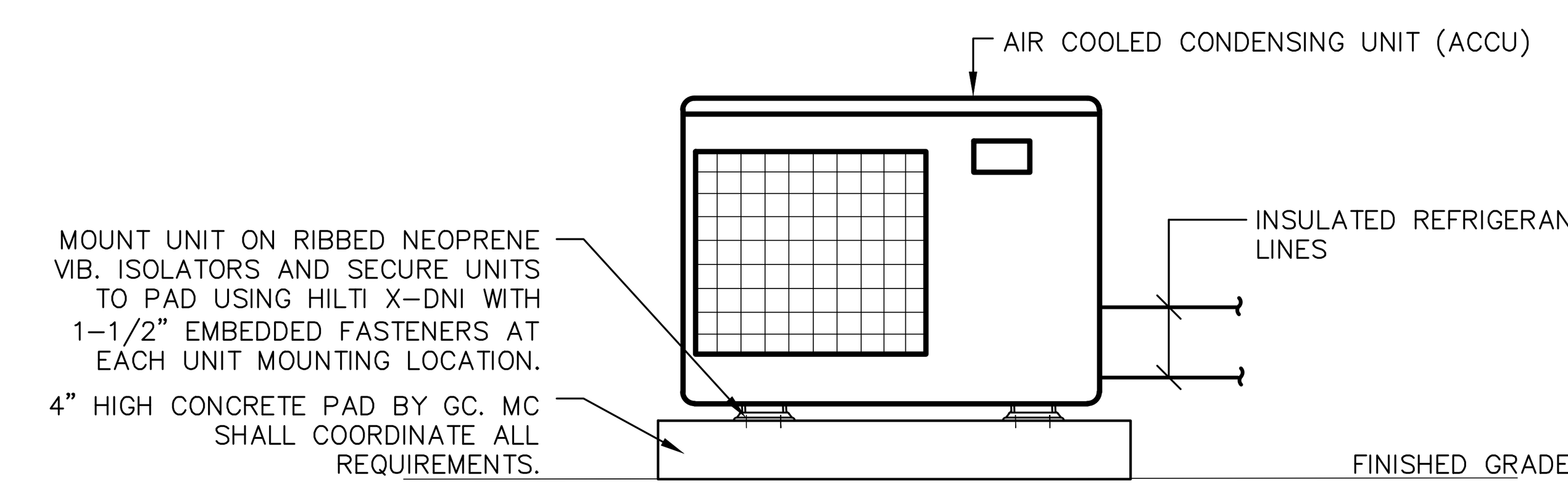
NOTES:
1. HANGERS MUST NOT DEFORM DUCT SHAPE.
2. STRAPS AND RODS SHALL BE GALV. STEEL.
3. WHERE HANGERS ARE INSTALL UNDER THE INSULATION AND PENETRATE THROUGH THE INSULATION, SEAL ALL PENETRATIONS WITH APPROVED SEALING MASTIC. BUILD-UP MASTIC AT BASE (PENETRATION) AND EXTEND AND TAPER BEYOND PENETRATION TO A MIN. OF 6".

RECTANGULAR DUCT SUPPORT
N.T.S.



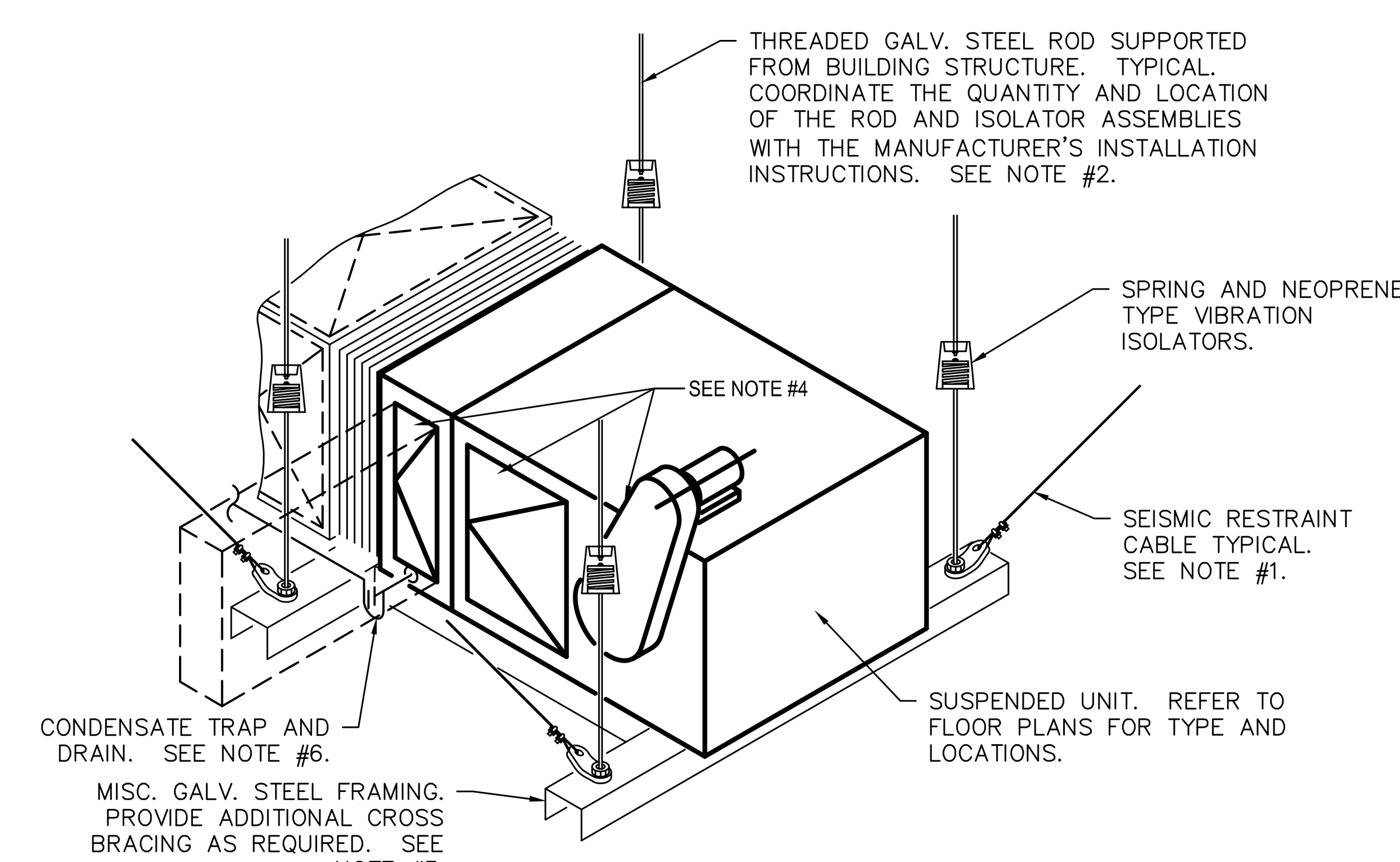
NOTE:
SPECIFICATIONS EXCEED SMACNA STANDARDS IN SOME INSTANCES. SMACNA SHALL BE CONSIDERED THE MINIMUM STANDARD UNLESS OTHERWISE INDICATED.

5 RECTANGULAR DUCT CONSTRUCTION - SINGLE AND DOUBLE LINE
N.T.S.



NOTES:
1. MC SHALL MAINTAIN PROPER CLEARANCE FOR MAINTENANCE AND AIRFLOW AROUND THE UNIT IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2 CONDENSING UNIT
N.T.S.



NOTES:
1. INSTALL SEISMIC RESTRAINT CABLE IN ACCORDANCE WITH LOCAL CODES PER SMACNA SEISMIC RESTRAINT MANUAL-GUIDELINES FOR MECHANICAL SYSTEMS
2. REFER TO "TYPICAL METHOD OF SECURING HANGER RODS DETAIL" FOR ATTACHING EQUIPMENT TO BUILDING STRUCTURE.
3. MECHANICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY MISC. GALV. STRUCTURAL STEEL FRAMING, SIZED TO SECURELY SUPPORT THE EQUIPMENT AND CONFIGURED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. PROVIDE ADEQUATE CLEARANCES FROM SUPPORT ASSEMBLY TO ALLOW FOR THE INSTALLATION OF ALL UTILITIES SERVING THE AHU, TO MAINTAIN COIL AND FILTER PULL SPACE AND FOR FUTURE MAINTENANCE AND REPAIR OF ALL AHU COMPONENTS. PIPE COILS IN ACCORDANCE WITH THE COIL PIPING ARRANGEMENT DETAILS. REFER TO FLOOR PLANS, SCHEDULES AND SPECIFICATIONS FOR UNIT COMPONENTS, ETC...
5. FILTER AND COIL PULL SPACE TO BE COORDINATED TO ENSURE PROPER REMOVAL.
6. REFER TO AHU/FANCOIL CONDENSATE DRAIN PIPING DETAIL.

3 SUSPENDED UNIT INSTALLATION
N.T.S.

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10/10/2018	100% CD – ISSUED FOR REVIEW

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KEY PLAN:
EXISTING BUILDING | ADDT'N
TRUE NORTH
PROJECT NORTH

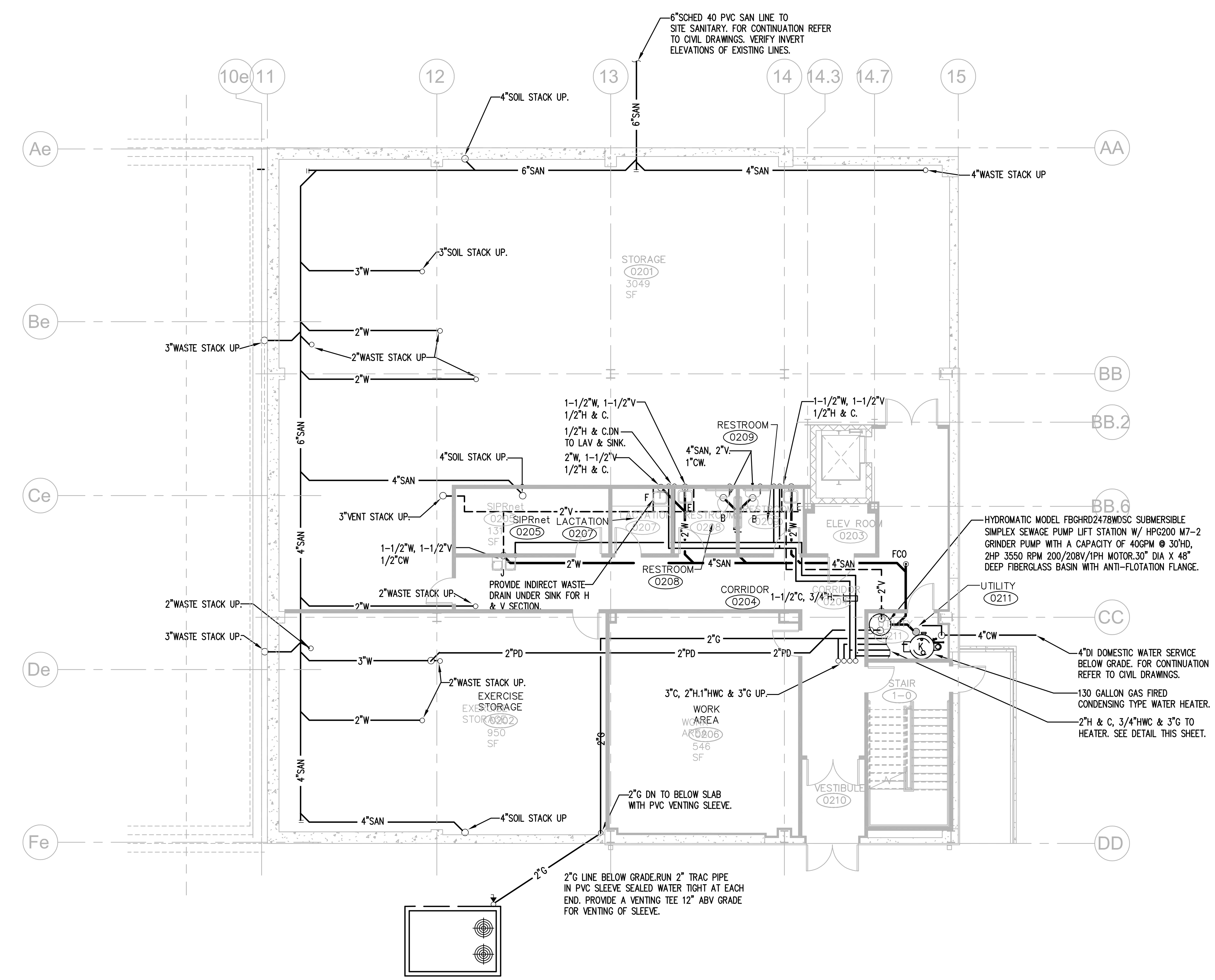
PROJECT NAME:
EB BUILDING 80 RENOVATION AND ADDITION
EASTERN POINT ROAD
GROTON, CT

DRAWING TITLE:
MECHANICAL DETAILS

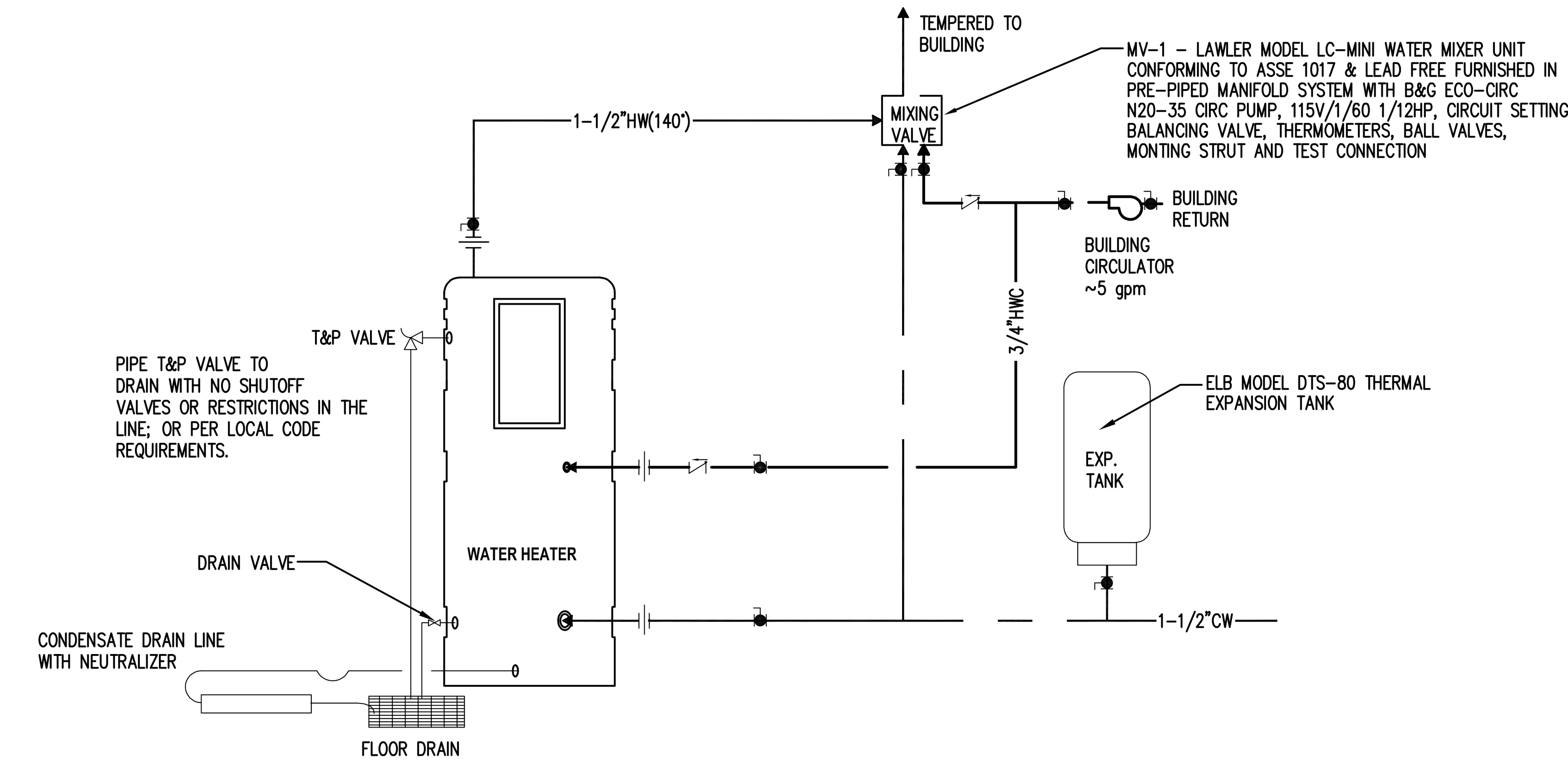
SEAL:

ENGINEER: PWS
ARCHITECT:
PROJECT MGR: GL
DRAFTED BY: PWS

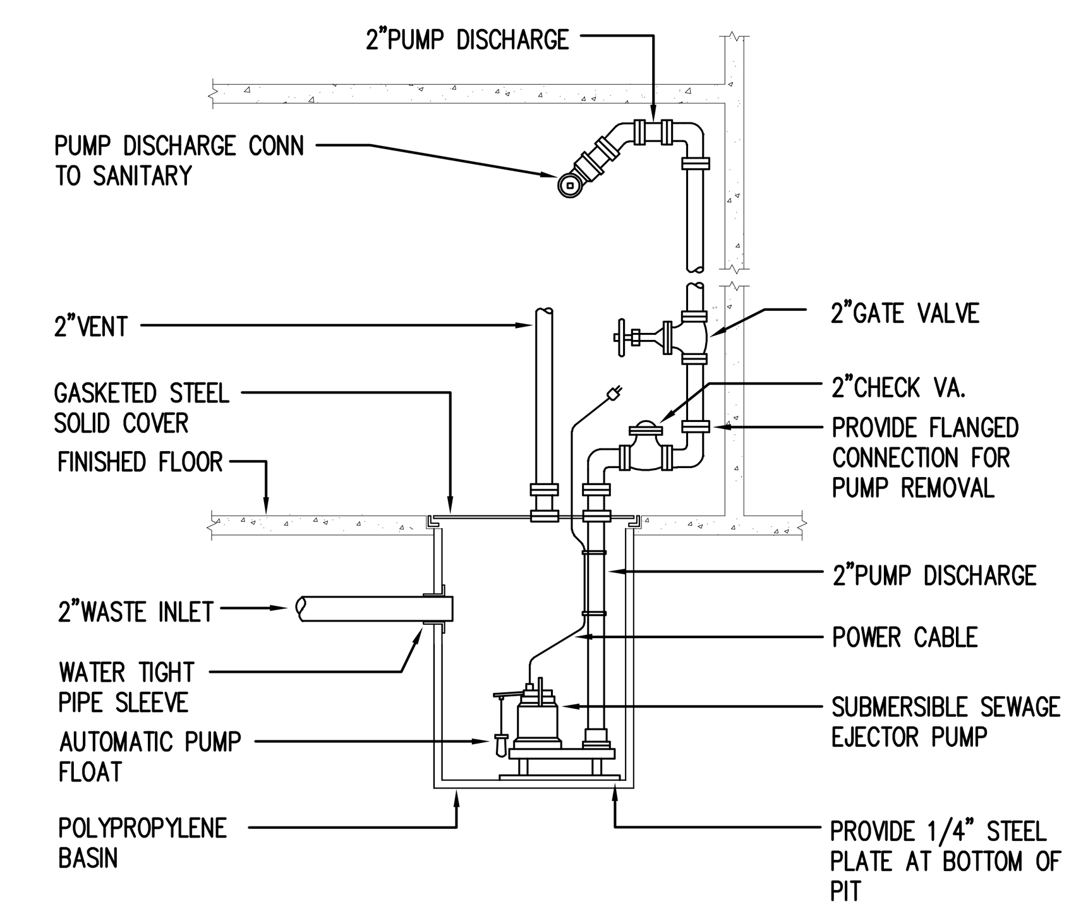
M4.01



1 **BASEMENT FLOOR PLUMBING PLAN**
SCALE: 1/8"=1'-0"



2 **WATER HEATER PIPING DIAGRAM**
SCALE: NONE



3 SEWAGE EJECTOR DETAIL
N.T.S.

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