NEW HOUSING DEVELOPMENT AT:

RIVER BEND

111 WELLS RUN RD, LITCHFIELD, CT

FOR THE LITCHFIELD HOUSING AUTHORITY



BID DOCUMENTS
APRIL 28, 2026

PROJECT TEAM:

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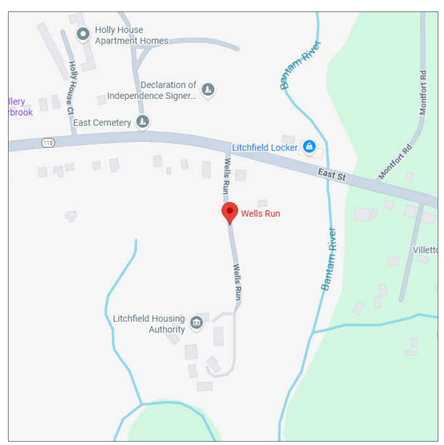
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QA+M architecture
QuisenberryArcariMalik
195 Scott Swamp Road
Farmington, CT 06032
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TRUE NORTH: N

PROJECT NORTH: N

LOCATION MAP:



RIVER BEND
2386

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ABBREVIATIONS

AB	Anchor Bolt	FURR	Furred, Furring
AC	Air Conditioning	GA	Gauge
AC	Acoustic, Acoustical	GALV	Galvanized
ACT	Acoustical Tile	GB	Gypsum Board
ADJ	Adjacent	GC	General Contractor
AFF	Above Finish Floor	HB	Hose Bibb
AFG	Above Finish Grade	HC	Handicapped
AHU	Air Handling Unit	HGT	Height
ALF	Aluminum Frame	HM	Hollow Metal
ALT	Alternate	HORIZ	Horizontal
ALUM	Aluminum	ID	Inside Diamter
ANCH	Anchor, Anchorage	IN	Inch
ANOD	Anodized	INCL	Included
APBO	As Provided By Owner	INFO	Information
APPR	Approved	INSUL	Insulation
ARCH	Architect, Architectural	INT	Interior
ASB	Asbestos	JT	Joint
ASBO	As Selected By Owner	KP	Kick Plate
ASPH	Asphalt	L	Angle
ASST	Assistant	LAB	Laboratory
ASSY	Assembly	LAV	Lavatory
ATC	Acoustic Tile Ceiling	LH	Left Hand
AUTO	Automatic	LTG	Lighting
BD	Board	MACH	Machine
BEJ	Brick Expansion Joint	MAINT	Maintenance
BEV	Bevel, Beveled	MAS	Masonry
BIT	Bituminous	MAT	Material
BLDG	Building	MAX	Maximum
BLK	Block	MB	Marker Board
BLKG	Blocking	MECH	Mechanical
BM	Beam	MEZZ	Mezzanine
BO	Bottom Of	MFRG	Manufacturer
BOT	Bottom	MIN	Minimum
BRG	Bearing / Bridging	MISC	Miscellaneous
BUR	Built Up Roofing	MO	Masonry Opening
CAB	Cabinet	N	North
CAP	Capacity	NIC	Not In Contract
CASE	Casement	NTS	Not To Scale
CB	Chalk Board	OC	On Center
CEM	Cement	OD	Outside Diameter
CJ	Control Joint	OFF	Office
CL	Centerline	OH	Overhead
CLG	Ceiling	PASS	Passage
CLGHT	Ceiling Height	PCEJ	Precast Expansion Joint
CLO	Closet	PERP	Perpendicular
COL	Column	PL	Plate
CONC	Concrete	PLAM	Plastic Laminate
CONF	Conference	PLAS	Plaster
CONT	Continuous	PLUMB	Plumbing
CONTR	Contractor	PLYWD	Plywood
CORR	Corridor	PR	Pair
CRS	Course, Courses	PREFAB	Prefabricated
CT	Ceramic Tile	PTD	Painted
CTR	Center	PTD	Paper Towel Dispenser
CUH	Cabinet Unit Heater	PVC	Polyvinylchloride
DBL	Double	QT	Quarry Tile
DEG	Degree	QTY	Quantity
DEMO	Demolition	QUAL	Quality
DEPT	Department	R	Riser
DET	Detail	RAD	Radius
DF	Drinking Fountain	RD	Roof Drain
DH	Double Hung	RECV	Receiving / Receiver
DIA	Diameter	REF	Reference
DIM	Dimension	REFR	Refrigerator
DIST	Distance	REINF	Reinforce
DN	Down	REM	Remove
DR	Door	REQD	Required
DS	Downspout	REV	Revised, Revision
DWG	Drawing	RH	Robe Hook / Right Hand
EA	Each	RM	Room
EIFS	Exterior Insulation Finish System	RWC	Rain Water Conductor
EJ	Expansion Joint	SC	Scupper
EL	Elevation	SCHED	Schedule
ELEC	Electric, Electrical	SD	Soap Dispenser
ELEV	Elevator	SECT	Section
EMERG	Emergency	SF	Square Foot
EQ	Equal	SHT	Sheet
EQUIP	Equipment	SIM	Similar
ETR	Existing To Remain	SJ	Seismic Joint
EUH	Electric Unit Heater	SND	Sanitary Napkin Dispenser / Disposal
EWC	Electric Water Cooler	SNR	Sanitary Napkin Receptacle
EXIST	Existing	SPEC	Specifacations
EXP	Expansion	SQ	Square
EXT	Exterior	SS	Stainless Steel
FD	Floor Drain	SSTL	Structural Steel
FDN	Foundation	ST	Sound Transmission
FE	Fire Extinguisher	STC	Sound Transmission Coefficient
FF	Finished Floor	STD	Standard
FFE	Finished Floor Elevation	STL	Steel
FIN	Finish, Finished	STOR	Storage
FIXT	Fixture	STRUCT	Structure, Structural
FLASH	Flashing	SUSP	Suspend, Suspension
FLR	Floor	T	Tread
FLRFIN	Floor Finish	TBD	Tack Board
FPRFG	Fireproofing	TG	Tongue and Groove
FR	Fire Retardant	THRU	Through
FRGP	Fiber Reinforced Gypsum Panel	TME	To Match Existing
FT	Feet, Foot	TO	Top Of
FTG	Footing	TPD	Toilet Paper Dispenser
FURN	Furnish, Furnishings, Furniture	TYP	Typical
		UH	Unit Heater
		UL	Underwriter's Laboratory
		UON	Unless Otherwise Noted
		UV	Unit Ventilator
		VCT	Vinyl Composition Tile
		VEST	Vestibule
		W/	With
		WBD	White Board
		WD	Wood
		WP	Waterproofing
		WWF	Welded Wire Fabric

GENERAL NOTES

1. GENERAL CONTRACTOR TO NOTIFY ARCHITECT OF ANY INCONSISTENCIES IN THE DRAWINGS, EXISTING CONDITIONS OR THE PROPOSED CONSTRUCTION IMMEDIATELY.
2. GENERAL CONTRACTOR TO TAKE AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB AND SHALL BE HELD RESPONSIBLE FOR THE SAME.
3. ALL NOTES AND DIMENSIONS DESIGNATED AS "TYP." OR "TYPICAL" APPLY TO ALL SIMILAR CONDITIONS THROUGHOUT THE PROJECT.
4. THESE PLANS ARE NOT TO BE SCALED FOR CONSTRUCTION PURPOSES. DIMENSION LINES AND NOTES SUPERSEDE ALL SCALED REFERENCES.
5. ALL DIMENSIONS ARE TO FACE OF MASONRY, FACE OF STUD AND CENTERLINE OF STRUCTURAL STEEL COLUMNS UNLESS OTHERWISE NOTED.
6. ROOFING CONTRACTOR TO VERIFY AND COORDINATE QUANTITY AND LOCATION OF ROOF PENETRATIONS, AND TO FLASH ACCORDING TO MANUFACTURER'S AND COORDINATE SPECIFICATIONS.
7. THE REQUIREMENTS FOR SEISMIC LOADS HAVE BEEN INCORPORATED INTO THE DESIGN OF THE STRUCTURAL, MECHANICAL, AND SUSPENDED CEILING SYSTEMS AS REQUIRED FOR THE NEW CONSTRUCTION.
8. SIGNAGE SHALL BE PLACED ON THE WALL ADJACENT TO THE LEVEL SIDE OF A ROOM DOOR AT A HEIGHT OF 5' A.F.F.
9. PROVIDE AN ALUMINUM DIVIDER STRIP AT ALL DOOR THRESHOLDS WHERE TWO DIFFERENT FINISHES MEET UNLESS OTHERWISE NOTED.

CONCRETE NOTES

1. ALL CONCRETE WORK SHALL BE IN COMPLIANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (ACI 318) AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDING" (ACI 301).
2. CONCRETE SHALL HAVE THE FOLLOWING MINIMUM COMPRESSIVE STRENGTH AT THE AGE OF 28 DAYS: 3000PSI, EXCEPT 4000PSI FOR EXTERIOR WORK.
3. CONCRETE SHALL HAVE A SLUMP NOT EXCEEDING 5", EXCEPT FOR 4" SLABS.
4. CONCRETE STRUCTURES AND SLABS EXPOSED TO FREEZING AND THAWING, DEICER CHEMICALS, OR SUBJECT TO HYDRAULIC PRESSURE SHALL BE AIR-ENTRAINED TO HAVE A TOTAL AIR CONTENT AT THE POINT OF PLACEMENT WITHIN A TOLERANCE OF PLUS OR MINUS 1% AS FOLLOWS:
   6% FOR MAXIMUM 3/4" AGGREGATE
   5% FOR MAXIMUM 1" AGGREGATE
   4% FOR MAXIMUM 11/2" AGGREGATE
   ALL OTHER CONCRETE SHALL BE AIR-ENTRAINED TO A TOTAL AIR CONTENT OF 2% TO 4%
5. CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION FOR THE CURING OF CONCRETE AS DIRECTED BY ACI 301. USE OF CALCIUM CHLORIDE SHALL NOT BE PERMITTED.
6. REINFORCING BARS SHALL BE DEFORMED BILLET STEEL BARS AND CONFORM TO ASTM A-615-GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM-A-185.
7. REINFORCING BARS MARKED "CONT." SHALL BE LAPPED 32 BAR DIAMETERS AT SPLICES AND CORNERS, HOOKED AT DISCONTINUOUS ENDS. WELDED WIRE FABRIC SHALL BE LAPPED 6" AT END SPLICES.
8. CONCRETE COVER FOR REINFORCING SHALL BE AS FOLLOWS:
   A. CONCRETE PLACED ON EARTH 3"
   B. FORMED CONCRETE EXP. TO GROUND OR WEATHER: #5 BARS & SMALLER 11/2" #6 BARS & LARGER 2"
   C. FORMED CONCRETE NOT EXPOSED TO WEATHER: 3/4"
9. CONTRACTOR SHALL INSTALL ALL ANCHORS, ANCHOR BOLTS, LEVELING PLATES, AND ALL INSERTS TO BE SET IN CONCRETE AS REQUIRED FOR THE WORK OF ALL TRADES.
10. ALUMINUM OBJECTS SHALL NOT BE EMBEDDED OR IN CONTACT WITH CONCRETE.
11. REINFORCED CONCRETE FLOOR SLABS SHALL BE PLACED ON A MINIMUM OF 6" OF CRUSHED 3/8" STONE ON STRUCTURAL FILL PLACED IN 8" LAYERS AND COMPACTED TO 95% OF MODIFIED OPTIMUM DENSITY ON FIRM, INORGANIC, VIRGIN SOIL. NOT LESS THAN ONE LAYER OF STRUCTURAL FILL SHALL BE USED.

DEMOLITION NOTES

1. REMOVE ALL MATERIALS, ASSEMBLIES AND CONSTRUCTED ELEMENTS AS REQUIRED TO ACCOMMODATE THE NEW CONSTRUCTION.
2. CLEAN ALL AREAS OF THE PROJECT PERIODICALLY TO MAINTAIN A SAFE AND CLEAR WORKING ENVIRONMENT. PROVIDE FINAL CLEANING OF THE ENTIRE PROJECT SITE AT THE COMPLETION OF THE PROJECT WORK.
3. PROVIDE TEMPORARY SHORING OR BRACING AS REQUIRED TO PROPERLY COMPLETE THE WORK. COORDINATE SHORING WITH ALL SUB-CONTRACTORS, AND NOTIFY THE ARCHITECT OF ANY PROBLEMS OR CONCERNS IMMEDIATELY.

FOUNDATION NOTES

1. STRUCTURAL FILL SHALL BE PLACED IN 8" LIFTS COMPACTED TO 95% OF MODIFIED OPTIMUM DENSITY.
2. NO BACKFILLING OF FOUNDATION WALLS SHALL BE UNDERTAKEN UNTIL SUITABLE WALL BRACING (TEMPORARY OR PERMANENT) HAS BEEN INSTALLED.
3. DO NOT POUR FOOTINGS ON FROZEN SOIL. REMOVE ALL FROST PRIOR TO POURING CONCRETE.
4. ALL SOIL SURROUNDING AND UNDER FOOTINGS SHALL BE PROTECTED FROM FREEZING AND FROST ACTION DURING THE COURSE OF CONSTRUCTION. SOIL WHICH HAS BEEN ALLOWED TO FREEZE SHALL BE REMOVED.
5. FOUNDATIONS HAVE BEEN DESIGNED TO REST ON INORGANIC, UNDISTURBED SOIL, WHICH MAY BE ORIGINAL SOIL OR CONTROLLED, COMPACTED STRUCTURAL FILL. THE FOLLOWING BEARING VALUES ARE ASSUMED: 4000PSF.
6. MATERIAL USED FOR STRUCTURAL FILL SHALL CONFORM TO THE FOLLOWING GRADATION:

SIEVE SIZE:	PERCENT PASSING	SIEVE SIZE:	PERCENT PASSING:
31/2"	100	#40	5-45
3/4"	50-100	#100	0-15
1/4"	30-75	#200	0-5

7. BOTTOMS OF EXTERIOR FOOTINGS SHALL BE AT LEAST 4'-0" BELOW FINISHED GRADE.
8. PROVIDE EXTERIOR AND/OR INTERIOR FOOTING DRAINS AS REQUIRED BY SITE CONDITIONS.
9. INSTALL FOUNDATION WATERPROOFING TO BELOW GRADE SURFACES
10. INSTALL FOUNDATION INSULATION AS REQUIRED BY LOCAL CODES.

STRUCTURAL WOOD NOTES

1. ALL STRUCTURAL WOOD SHALL BE IN ACCORDANCE WITH THE "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION" AND THE "MANUAL OF HOUSE FRAMING" AS PUBLISHED BY THE NATIONAL FOREST PRODUCTS ASSOCIATION (NFPA), INCLUDING PROVISIONS FOR NAILING, FIRE STOPPING, ANCHORAGE, FRAMING AND BRACING.
2. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, STRUCTURAL LUMBER SHALL BE AS FOLLOWS:
   a. INTERIOR EXPOSURE: ALL STRUCTURAL WOOD PROTECTED FROM MOISTURE AND WEATHER SHALL BE HEM FIR #2 OR BETTER, UNLESS OTHERWISE NOTED ON THE DRAWINGS.
   b. EXTERIOR EXPOSURE: ALL STRUCTURAL WOOD EXPOSED TO MOISTURE, THE WEATHER, WITHIN 8 INCHES OF SOIL, OR LESS THAN 18 INCHES FROM THE FLOOR OF A CRAWLSPACE SHALL BE PRESSURE-TREATED SOUTHERN YELLOW PINE #2 OR BETTER, WITH MINIMUM RETENTION MEETING OR EXCEEDING THE REQUIREMENTS OF THE BUILDING CODE.
   c. PLYWOOD: PLYWOOD SHALL BE IN ACCORDANCE WITH THE AMERICAN PLYWOOD ASSOCIATION (APA) SPECIFICATIONS (Y510). PLYWOOD FLOOR DECKING SHALL BE CONTINUOUS OVER TWO OR MORE SPANS WITH GRAIN OF FACE PLIES ACROSS SUPPORTS.
   I. PLYWOOD ROOF SHEATHING: C-D/EXT-APA, 3/4" THICK
   II. PLYWOOD WALL SHEATHING: C-D/EXT-APA, 1/2" THICK
   III. PLYWOOD SUBFLOOR: C-D/EXT-APA, 3/4" THICK
3. PLATES AND SILLS SHALL BE BOLTED TO FOUNDATION WALLS USING 1/2 INCH BY 12 INCHES HOOKED ANCHOR BOLTS SPACED AT 48 INCHES ON CENTER MAXIMUM, UNLESS OTHERWISE SHOWN ON THE DRAWINGS. PLATES AND SILLS SHALL BE SET LEVEL. PLATES AND SILLS SHALL BE PRESSURE TREATED.
4. NAILING SCHEDULE SHALL BE IN ACCORDANCE WITH THE LOCAL BUILDING CODE'S "RECOMMENDED FASTENING SCHEDULE". NAIL PLYWOOD SHEATHING AND SUBFLOORING 6"O.C AT EDGES AND 12"O.C. ALONG INTERMEDIATE SUPPORTS, LEAVING SPACES BETWEEN PANELS AS RECOMMENDED BY THE APA. UTILIZE RING-SHANK OR SCREW TYPE NAILS FOR PLYWOOD SUBFLOORING AND APPLY APPROPRIATE CONSTRUCTION ADHESIVE TO ADEQUATELY SECURE PLYWOOD TO FLOOR JOISTS.
5. JOIST HANGERS, COLUMN CAPS OR BASES, AND OTHER METAL FABRICATIONS, WHERE REQUIRED OR INDICATED, SHALL BE OF APPROPRIATE SIZE AND TYPE FOR MEMBERS AND SUPPORT CONDITIONS, AS MANUFACTURED BY SIMPSON STRONG-TIE OR EQUAL. WHERE FLANGE-SUPPORT JOIST HANGERS ARE USED IN CONJUNCTION WITH STEEL BEAMS, CARE SHALL BE TAKEN TO INSTALL THE HANGERS CLEAR OF CONTACT WITH THE STEEL BEAM BY INSTALLING 2X TOP PLATE IN ACCORDANCE WITH ABOVE CONDITIONS. IN NO CASE SHALL 2X TOP PLATE BE NARROWER THAN THE WIDTH OF THE FLANGE TO WHICH IT IS ATTACHED NOR MORE THAN 1/2" LARGER. CONTRACTOR SHOULD BE AWARE THAT JOIST HANGERS AND OTHER METAL FABRICATIONS MAY REQUIRE SPECIAL ORDERING WELL PRIOR TO THE ACTUAL TIME AT WHICH THE HANGERS WILL BE NEEDED. THOUGH INDICATED IN CATALOGS AS "STOCK", SOME "STOCK" HANGERS ARE ACTUALLY SPECIAL ORDER ITEMS.
6. NOTCHING SHALL NOT EXCEED 1/6TH OF THE DEPTH OF JOIST OR RAFTER AND SHALL OCCUR ONLY IN THE OUTER QUARTER OF THE SPAN. NOTCHES SHALL NOT BE PERMITTED IN THE MIDDLE HALF OF THE SPAN NOR SHALL THEY EXCEED 1/6TH THE DEPTH. NOTCH LENGTH SHALL NOT EXCEED 1/3RD OF THE JOIST DEPTH.
7. HOLES IN JOISTS OR RAFTERS SHALL OCCUR IN THE MIDDLE 1/3RD OF THE SPAN AND 1/3RD OF DEPTH. THE HOLE DIAMETER SHALL NOT EXCEED 1/3RD OF THE JOIST DEPTH. HOLES IN ENGINEERED LUMBER PRODUCTS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
8. PROVIDE SOLID BLOCKING AS REQUIRED TO SUPPORT FIXTURES, RAILINGS, SHELVES. CLEATS, TRIM, ETC., AND AS REQUIRED TO SUPPORT EDGES OF PLYWOOD AND WALLBOARD, IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS AND/OR GOOD CONSTRUCTION PRACTICE.
9. ENGINEERED LUMBER INDICATED ON THE DRAWINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. JOISTS LABELED TJI ARE COMPOSITE I-JOISTS AS MANUFACTURED BY TRUS-JOIST. MEMBERS LABELED LVL ARE LAMINATED VENEER LUMBER (1.9E MICROLLAM BY TRUS-JOIST). THE SUBSTITUTION OF OTHER PRODUCTS ARE ONLY PERMITTED WITH BACKUP ENGINEERING PLANS AND CALCULATIONS.
10. EXISTING CONDITIONS: DETAILS OF CONNECTIONS OF NEW TO EXISTING ARE FOR GENERAL INTENT ONLY. CONTRACTOR SHALL EXPOSE EXISTING CONDITIONS TO VIEW FOR ARCHITECT'S REVIEW PRIOR TO ORDERING ANY MATERIALS FOR WORK WITH THE NEW CONNECTIONS. DETAILS SHOWN ARE BASED ON ASSUMPTIONS AND WILL BE SUBJECT TO CHANGE FOR THE CONDITIONS AS THEY ACTUALLY EXIST IN THE FIELD. ARCHITECT SHALL NOT BE RESPONSIBLE FOR MATERIALS ORDERED PRIOR TO ARCHITECT'S REVIEW OF THE EXISTING CONDITIONS AFTER EXPOSURE BY THE CONTRACTOR.

PROJECT AREA BREAKDOWN

	TOTAL
UNIT TYPE 1: (1)	1,359 SF
UNIT TYPE 2: (2)	1,126 SF
UNIT TYPE 3: (1)	733 SF
TOTAL BUILDING AREA:	4,433 SF
TOTAL PROJECT AREA (2 BUILDINGS):	8,866 SF

ARCHITECTURAL SYMBOLS

ROOM NAME — ROOM NAME/ ROOM NUMBER

1 A101 SIM — BUILDING SECTION

1 A101 SIM — WALL SECTION

1 A101 SIM — CASEWORK SECTION

1 Ref / Ref 1 A101 1 Ref — ELEVATION MARKER

0000 — DOOR IDENTIFICATION

1t — WINDOW IDENTIFICATION

1i — WALL IDENTIFICATION

EXX — COLUMN IDENTIFICATION

ELEVATION MARKER

EXISTING DOOR

DEMOLISHED DOOR

NEW DOOR

EXISTING WALL TO REMAIN

EXISTING WALL / ITEM TO BE REMOVED

NEW STUD FRAMED WALL

CONCRETE MASONRY UNIT

FOUNDATION WALL

CONCRETE

BRICK

STONE

METALS

COMPACTED GRAVEL

EARTH/COMPACTED FILL

FINISH WOOD

CONTINUOUS WOOD BLOCKING

SHIM

PLYWOOD

BATT INSULATION

RIGID INSULATION

ACOUSTIC TILE

RESILIENT FLOORING/PLASTIC LAMINATE

AIR AND VAPOR BARRIER/DAMPPROOFING

SHEET LIST

01 - General	
CS	COVER SHEET
G1.0	GENERAL INFORMATION
G1.1	GENERAL INFORMATION
R1.0	CODE INFORMATION
03 - Civil	
C01	COVER SHEET
C02	EXISTING CONDITIONS SURVEY
C03	ZONING COMPLIANCE PLAN
C04	SITE PLAN
C05	DRAINAGE PLAN
C06	LAYOUT PLAN
C07	SITE DETAILS
C08	SANITARY SEWER DETAILS
C08A	PUMP STATION PLAN AND DETAILS
C09	EROSION CONTROL PLAN NARRATIVE AND DETAILS
C10	DRAINAGE DETAILS
C11	DRAINAGE DETAILS
C12	ELECTRICAL SPECIFICATION
C13	ELECTRICAL GENERATOR SITE PLAN
L1.0	PLANTING PLAN & NOTES
L1.1	PLANTING DETAILS & SCHEDULE
SL-1	SITE LIGHTING PLAN
05 - Structural	
S0.1	GENERAL NOTES AND MATERIAL SPECIFICATIONS
S0.2	ABBREVIATIONS AND LEGENDS
S1.1	L01 FOUNDATION AND SLAB ON GRADE PLAN
S1.2	L02 FRAMING PLAN
S1.3	ROOF FRAMING PLAN
S2.0	BUILDING SECTIONS
S2.1	BUILDING SECTIONS
S3.0	FOUNDATION TYPICAL DETAILS
S4.0	WOOD TYPICAL DETAILS
S4.1	WOOD TYPICAL DETAILS
S5.0	WOOD SHEAR WALL DETAILS
06 - Architectural	
A1.1	FIRST FLOOR PLAN
A1.2	SECOND FLOOR PLAN
A1.3	ROOF PLAN
A1.4	ROOF DETAILS
A1.5	ROOF DETAILS
A2.0	FIRST FLOOR REFLECTED CEILING PLAN
A2.1	SECOND FLOOR REFLECTED CEILING PLAN
A3.0	EXTERIOR ELEVATIONS
A3.1	EXTERIOR ELEVATIONS
A4.0	BUILDING SECTIONS
A4.1	BUILDING SECTIONS
A5.0	WALL TYPES
A5.1	WALL SECTIONS & DETAILS
A5.2	WALL SECTIONS & DETAILS
A5.3	WALL SECTIONS & DETAILS
A5.4	WALL SECTIONS & DETAILS
A6.0	PLAN DETAILS
A6.1	ENLARGED UNIT PLANS - UNIT TYPE 1
A6.2	ENLARGED UNIT PLANS - UNIT TYPE 1
A6.3	ENLARGED UNIT PLANS - UNIT TYPE 2
A6.4	ENLARGED UNIT PLANS - UNIT TYPE 3
A7.1	ENLARGED PLANS & ELEVATIONS - UNIT TYPE 1
A7.2	ENLARGED PLANS & ELEVATIONS - UNIT TYPE 1
A7.3	ENLARGED PLANS & ELEVATIONS - UNIT TYPE 2
A7.4	ENLARGED PLANS & ELEVATIONS - UNIT TYPE 2
A7.5	ENLARGED PLANS & ELEVATIONS - UNIT TYPE 3
A8.0	STAIR PLANS & DETAILS
A8.1	STAIR PLANS & SECTIONS - UNIT TYPE 1
A8.2	STAIR PLANS & SECTIONS - UNIT TYPE 2
A9.0	DOOR SCHEDULE & ELEVATIONS
A9.1	DOOR DETAILS
A9.2	WINDOW SCHEDULE, ELEVATIONS AND DETAILS
A10.0	FINISH FLOOR PLANS
A10.1	FINISH FLOOR PLANS - UNIT TYPE 1
A10.2	FINISH FLOOR PLANS - UNIT TYPE 1
A10.3	FINISH FLOOR PLANS - UNIT TYPE 2
A10.4	FINISH FLOOR PLANS - UNIT TYPE 3
A11.0	CASEWORK
A11.1	CASEWORK
10 - Plumbing	
P1.1	FLOOR PLAN PLUMBING
P2.0	TYPICAL UNIT PLAN- PLUMBING
P2.1	TYPICAL UNIT PLAN- PLUMBING
P3.0	DETAILS - PLUMBING
P4.0	PLUMBING SPECIFICATIONS & NOTES
11 - Mechanical	
M1.1	MECHANICAL FLOOR PLANS
M2.1	MECHANICAL DETAILS
M2.2	HEAT PUMP SCHEDULES & DETAILS
M3.1	MECHANICAL SPECIFICATIONS
13 - Electrical	
E1.1	ELECTRICAL FLOOR PLANS
E2.0	ELECTRICAL POWER RISER DIAGRAM AND DETAIL
E2.1	ELECTRICAL DETAILS
E3.0	ELECTRICAL SPECIFICATIONS
SE1.0	SITE LIGHTING PLAN
SE2.0	SITE ELECTRICAL PLAN

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revisions

Issue Dates:

N

BID DOCUMENTS
APRIL 28, 2026

GENERAL INFORMATION

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DOOR & WINDOW NOTES

1. REFERENCE STANDARDS FOR METAL DOORS, WOOD DOORS, AND WINDOWS SHALL BE AS FOLLOWS:
   A. UNDERWRITER'S LABORATORIES, INC.: BUILDING MATERIALS DIRECTORY.
   B. NATIONAL FIRE PROTECTION ASSOCIATION: PAMPHLET NO. 80 STANDARD FOR FIRE DOORS AND WINDOWS.
   C. NATIONAL WOODWORK MANUFACTURER'S ASSOCIATION: I.S., 1078: WOOD FLUSH DOORS.
   D. AIR LEAKAGE: ASTM E283
   E. WATER RESISTANCE: ASTM E331
2. GLAZING IN ALL LOCATIONS WHICH MAY BE SUBJECT TO HUMAN IMPACT, AS LISTED IN THE I.B.C. SECTION 2406.3, SUCH AS FRAMELESS GLASS DOORS, GLASS ENTRANCES AND EXIT DOORS, FIXED GLASS PANELS, SLIDING GLASS DOORS, SHOWER DOORS, TUB ENCLOSURES, AND STORM DOORS SHALL MEET THE DOOR REQUIREMENTS SET FORTH IN THE BUILDING CODE AND THE SAFETY STANDARD FOR GLAZING MATERIALS (16 CFR 1202). ALL GLAZING WHICH IS LOCATED 18" ABOVE THE FINISH FLOOR AND 24" ADJACENT TO A DOOR JAMB SHALL BE TEMPERED.
3. ALL MANUFACTURED WINDOWS AND SLIDING GLASS DOORS SHALL MEET THE AIR INFILTRATION STANDARDS OF THE 1972 AMERICAN NATIONAL STANDARDS INSTITUTE ASTM E283-73 WITH A PRESSURE DIFFERENTIAL OF 1.57 POUNDS PER SQUARE FOOT AND SHALL BE CERTIFIED AND LABELED.
4. EXTERIOR ENTRANCE DOORS SHALL BE 13/4" THICK INSULATED METAL DOORS OR APPROVED EQUAL AND SHALL MEET THE FOLLOWING REQUIREMENTS:
   AIR INFILTRATION: ASTM E283
   WATER RESISTANCE: ASTM E331
   ACOUSTICAL PERFORMANCE: ASTM E413-70T-STC 28
   THERMAL RESISTANCE: R-15.49 (CALCULATED)
   DOORS SHALL BE PROVIDED WITH FACTORY BACKED-ON PRIME PAINT FINISH.
   SIDELIGHTS SHALL BE TEMPERED GLAZING AND SIZED AS INDICATED ON DRAWING.
   MANUFACTURER AS SELECTED BY OWNER.
5. NATURAL LIGHT AND VENTILATION MINIMUM REQUIREMENTS:
   BASEMENT LIGHT/VENT AREA = 2% / 1% FLOOR AREA
   LIGHT AREA PER ROOM = 8% FLOOR AREA
   VENTILATION AREA PER ROOM = 4% FLOOR AREA
6. WINDOWS AS 2ND EGRESS (SLEEPING AREAS) SHALL BE MINIMUM 5.7 SQ. FT. OPENABLE AREA WITH 24" LEAST DIMENSION. MAXIMUM SILL HEIGHT SHALL BE 44" A.F.F.
7. HANDICAPPED ACCESSIBLE DOOR HARDWARE SHALL COMPLY WITH ANSI A117.1 EDITION PER 2022 CT STATE BUILDING CODE AND UFAS / SECTION 504 REGULATIONS.
8. ALL DOOR LEVERS ON DOORS LEADING TO HAZARDOUS SPACES SHALL BE KNURLED
9. ALL DOORS EXITING 100 OR MORE PERSONS SHALL HAVE PANIC EXIT DEVICES
10. ALL RATED DOORS AND DOORS FRONTING CORRIDORS SHALL HAVE POSITIVE LATCHING LOCKSETS OR LATCHSETS AND CLOSERS.

MECHANICAL NOTES

1. MECHANICAL CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK. NOTIFY THE ARCHITECT OF ANY CONDITIONS WHICH MAY ADVERSELY AFFECT THE PROPER INSTALLATION OF THE NEW SYSTEMS.
2. MECHANICAL CONTRACTOR SHALL DESIGN, PURCHASE AND INSTALL ALL NEW COMPONENTS AS REQUIRED TO PROPERLY CONDITION THE SPACE(S) AFFECTED BY THIS CONSTRUCTION PROJECT. IF THE MODIFICATION OF EXISTING SYSTEMS IS NECESSARY, SUCH MODIFICATIONS SHALL NOT ADVERSELY AFFECT THE OPERATION OF THESE SYSTEMS OR COMPONENTS.
3. COORDINATE MECHANICAL WORK WITH THE WORK OF OTHER TRADES. DO NOT ALTER THE WORK OF PREVIOUS TRADES WITHOUT PRIOR APPROVAL.
4. PERFORM ALL NEW MECHANICAL WORK IN ACCORDANCE WITH LOCAL CODES AND ACCEPTED STANDARDS OF PRACTICE.

ELECTRICAL MOUNTING HEIGHTS

1. ALL DIMENSIONS ARE TO THE CENTER OF THE DEVICE UNLESS OTHERWISE NOTED. SEE ELECTRICAL DRAWINGS FOR TYPES AND LOCATIONS.
2. RECEPTACLES: 18" A.F.F. (AT LOCATIONS ABOVE CASEWORK, MOUNT BOTTOM OF RECEPTACLE AT 2" ABOVE BACKSPLASH, AT LOCATIONS BELOW CASEWORK, MOUNT AT 24" A.F.F.
3. WIREMOLD: 24" A.F.F. (AT LOCATIONS ABOVE CASEWORK, MOUNT BOTTOM OF WIREMOLD AT 2" ABOVE BACKSPLASH)
4. EXTERIOR RECEPTACLES:A 24" A.F.G. (20" A.F.F.)
5. SWITCHES: 48" A.F.F.
6. BOILER EMERGENCY SWITCHES: 60" A.F.F.
7. DATA / PHONE OUTLETS: 18" A.F.F.
8. TV OUTLETS: 18" A.F.F. OR 18" BELOW FINISHED CEILING
9. WALL PHONE: 48" A.F.F. TO CENTER OF EARPIECE
10. SECURITY KEYPAD: 48" A.F.F.
11. MICROPHONE WALL JACK: 18" A.F.F.
12. FIRE ALARM PULL STATION: 48" A.F.F.
13. FIRE ALARM VISUAL / AUDIO INDICATING UNITS: 6'-8" TO BOTTOM OF UNIT
14. AREA OF REFUGE CALL STATION: 48" A.F.F.
15. EMERGENCY SHUT-OFF SWITCH / PUSH BUTTON: 48" A.F.F.
16. EMERGENCY CALL SWITCH: 36" A.F.F.
17. EMERGENCY CALL BELL / LIGHT: +/- 7'-6" A.F.F. - CENTER ABOVE DOOR
18. WALL MOUNTED EXIT SIGNS: 7'-6" A.F.F.
19. WALL MOUNTED CLOCKS AND SPEAKERS: +/- 7'-6" A.F.F. COORD. WITH BLOCK COURSING AS OCCURS. CONSULT ARCHITECT IF CEILING HEIGHT CONFLICTS.

ELECTRICAL NOTES

1. ELECTRICAL CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
2. ELECTRICAL CONTRACTOR SHALL DESIGN, PURCHASE AND INSTALL ALL NEW COMPONENTS AS REQUIRED TO PROPERLY SERVICE THE SPACE(S) AFFECTED BY THIS CONSTRUCTION PROJECT. IF THE MODIFICATION OF EXISTING ELECTRICAL SYSTEMS IS NECESSARY, SUCH MODIFICATIONS SHALL NOT ADVERSELY AFFECT THE OPERATION OF THESE SYSTEMS.
3. COORDINATE ELECTRICAL WORK WITH THE WORK OF OTHER TRADES. DO NOT ALTER THE WORK OF PREVIOUS TRADES WITHOUT PRIOR APPROVAL.
4. PERFORM ALL NEW ELECTRICAL WORK IN ACCORDANCE WITH LOCAL CODES AND ACCEPTED STANDARDS OF PRACTICE.
5. COORDINATE THE FINAL LOCATION OF ALL ELECTRICAL DEVICES AND THEIR INTENDED OPERATION WITH THE OWNER.

WALL NOTES

1. FIRECODE GYPSUM BOARD IN A ONE OR TWO HOUR RATED PARTITION MUST BEAR THE U.L. CLASSIFICATION.
2. ALL FIRE AND SMOKE RESISTANT SEPARATIONS ARE TO EXTEND OR BE EXTENDED TO THE UNDERSIDE OF FLOOR OR ROOF DECK ABOVE, TYPICAL.
3. FOR SMOKE RESISTANT SEPARATIONS, PROVIDE FIRE SAFING AND SEALANT AT FLOOR, ROOF DECK AND ALL PENETRATIONS TO PREVENT THE PASSAGE OF SMOKE.
4. FOR ALL FIRE RATED PARTITIONS, PROVIDE FIRE SAFING AND SEALANT AT FLOOR, ROOF DECK AND ALL PENETRATIONS TO PREVENT THE PASSAGE OF SMOKE. THE FIRE SAFING AND SEALANT SYSTEM MUST MAINTAIN THE RATING OF THE SEPARATION.
5. AT ALL NON-RATED PARTITIONS, FILL ALL VOIDS INCLUDING METAL DECK FLUTES WHERE PARTITIONS MEET THE STRUCTURE ABOVE WITH BATT INSULATION.
6. AT ALL NON-RATED PARTITIONS, FILL ALL VOIDS BETWEEN PIPES, ELECTRICAL CONDUITS, DUCTWORK, ETC. WHERE THEY PENETRATE WALLS, WITH BATT INSULATION.
7. PROVIDE SMOKE DAMPERS AT ALL MECHANICAL PENETRATIONS THROUGH ONE HOUR RATED SMOKE BARRIERS.
8. PROVIDE FIRE DAMPERS AT ALL MECHANICAL PENETRATIONS THROUGH TWO HOUR FIRE RATED PARTITIONS.
9. EXTEND ALL METAL STUD PARTITIONS TO THE UNDERSIDE OF DECK/STRUCTURE, UNLESS OTHERWISE NOTED.
10. AT ALL NON-RATED PARTITIONS AND PARTITIONS WITH NO S.T.C. REQUIREMENTS, EXTEND SHEATHING TO THE FINISHED CEILING CONSTRUCTION, TYPICAL.
11. SEE WALL SECTIONS FOR EXTERIOR WALL CONSTRUCTION.
12. METAL STUD CONTRACTOR TO PROVIDE AND COORDINATE PLACEMENT OF METAL STUD SLIP TRAC KS AT ALL STUD WALLS BUILT ON TOP OR UNDER STRUCTURAL STEEL BRACING FRAMES, TYPICAL. SIMILAR CONDITION APPLIES WHERE METAL STUDS ATTACH TO THE UNDERSIDE OF ROOF DECK AT THE MIDDLE 13RD OF A SPAN GREATER THAN 15'.

FIRE PROTECTION SYSTEM NOTES

1. ONE SMOKE ALARM SHALL BE PROVIDED IN EACH SEPARATE SLEEPING AREAS.
2. ONE SMOKE ALARM SHALL BE PROVIDED OUTSIDE OF EACH SEPARATE SLEEPING AREA INT THE IMMEDIATE VICINITY OF THE BEDROOMS.
3. A SMOKE ALARM SHALL BE LOCATED ON EACH ADDITIONAL STORY OF THE DWELLING, INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACES AND UNINHABITABLE ATTICS. IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS, A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SUFFICE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.
4. ALL SMOKE ALARMS SHALL BE INTER CONNECTED SUCH THAT ACTUATION OF ONE WILL ACTUATE ALL SMOKE ALARMS SIMULTANEOUSLY.
5. ALL SPRINKLER PIPING IS TO BE LOCATED ABOVE FINISH CEILING UNLESS OTHERWISE NOTED. (UPPER LEVEL SPRINKLER PIPING TO EXTEND INTO THE ATTIC SPACE WHEN INSULATED).
6. SPRINKLER HEADS SHALL BE LOCATED AS SHOWN ON THE PLUMBING DRAWINGS.
7. EXPOSED SPRINKLER INSTALLATION SHALL BE CAREFULLY COORDINATED IN THE FIELD TO AVOID CONFLICTING WITH LIGHTING AND OTHER CEILING MOUNTED EQUIPMENT.

FINISH NOTES

1. GYPSUM BOARD
   PROVIDE AND INSTALL GYPSUM WALL BOARD IN ACCORDANCE WITH AMERICAN STANDARD SPECIFICATIONS FOR THE APPLICATION AND FINISHING OF GYPSUM WALLBOARD, AS APPROVED BY THE AMERICAN STANDARDS ASSOCIATION, LATEST EDITION; APPLICABLE PARTS THEREOF ARE HEREBY MADE A PART OF THIS SPECIFICATION EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE CALLED FOR IN THE SPECIFICATION, IN LOCAL CODES, OR BY THE MANUFACTURER OF THE GYPSUM WALLBOARD, WHOSE REQUIREMENTS SHALL BE FOLLOWED.
2. PROVIDE AND INSTALL MOISTURE-RESISTANT GYPSUM WALLBOARD WHERE REQUIRED. PROVIDE TYPE X GYPSUM BOARD AS CALLED FOR ON THE DRAWINGS.
3. PAINT
   APPLICATION OF PAINT OR OTHER COATING SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. READY-MIXED PAINT SHALL NOT BE THINNED, EXCEPT AS PERMITTED IN THE APPLICATION INSTRUCTIONS AND WITH PRIOR APPROVAL.
4. FLOORING MATERIAL
   INSTALL CERAMIC TILE OR NATURAL STONE TILE IN COMPLIANCE WITH PERTINENT RECOMMENDATIONS CONTAINED IN THE TILE COUNCIL OF AMERICA "HANDBOOK FOR CERAMIC TILE INSTALLATION" AND MANUFACTURER'S INSTRUCTIONS.
5. PROVIDE MANUFACTURER APPROVED UNDERLAYMENT FOR ALL FLOORING TYPES CALLED OUT IN CONTRACT DOCUMENTS.

THERMAL & MOISTURE NOTES

1. THE FOLLOWING SPECIFICATION SHALL GOVERN WITH MODIFICATIONS AS SPECIFIED HERIN: AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS (ASHRAE) HANDBOOK OF FUNDAMENTALS.
2. INSTALL FLASHING AND SHEET METAL IN COMPLIANCE WITH "ARCHITECTURAL SHEET METAL MANUAL" BY SMACNA.
3. PROVIDE AND INSTALL FLASHING AT ALL ROOF AND WALL CONDITIONS, PROJECTIONS OF WOOD BEAMS THROUGH EXTERIOR WALLS, EXTERIOR OPENINGS AND ELSEWHERE AS REQUIRED TO PROVIDE WATERTIGHT/WEATHERPROOF PERFORMANCE.
4. SLOPES OF 4" IN 12" OR GREATER: ASPHALT SHINGLE ROOFS SHALL HAVE AN UNDERLAYMENT OF NOT LESS THAN ONE PLY OF #15 FELT, APPLIED AS REQUIRED SECTION R-802 AND TABLE NUM. R-803.4.
5. THE NET FREE VENTILATION AREA SHALL NOT BE LESS THAN 1 TO 150 OF THE AREA OF THE SPACE VENTILATED EXCEPT THAT THE AREA MAY BE 1 TO 300, PROVIDED AT LEAST 50 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE TO BE VENTILATED AT LEAST 3 FEET ABOVE EAVE OR CORNICE VENTS WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. THE NET FREE CROSS-VENTILATION AREA MAY NOT BE LESS THAN 1 TO 300 OF THE AREA OF THE SPACE VENTILATED WHEN THE VAPOR BARRIER HAVING A TRANSMISSION RATE NOT EXCEEDING 1 PERM IS INSTALLED ON THE WARM SIDE OF THE CEILING.
6. PROVIDE AND INSTALL BUILDING THERMAL INSULATION IN ACCORDANCE WITH THE FOLLOWING:
   A. ATTIC: R-49
   B. EXTERIOR WALLS: R-20 + R3.8ci
   C. FLOORS OVER UNCONDITIONED SPACE: R-30
   D. SLAB ON GRADE: R-20 FOR 24" BELOW
7. PROVIDE AND INSTALL BATT INSULATION AT WINDOW SHIM SPACES.
8. FIT INSULATION TIGHT WITHIN SPACES AND TIGHT TO AND BEHIND MECHANICAL AND ELECTRICAL SERVICES WITHIN THE PLANE OF INSULATION. LEAVE NO GAPS OF SPACES BEING SURE NOT TO COMPRESS GLASS INSULATION.
9. FIT INSULATION TIGHT WITHIN SPACES AND TIGHT TO AND BEHIND MECHANICAL AND ELECTRICAL SERVICES WITHIN THE PLANE OF INSULATION. LEAVE NO GAPS OF SPACES BEING SURE NOT TO COMPRESS GLASS INSULATION.
10. INSTALL VENTING IN SLOPED CEILING AREAS TO PERMIT AIRFLOW ALONG THE COOL SIDE OF THE INSULATION FROM THE EAVE TO RIDGE.
11. INSTALL EITHER INTERIOR AND/OR EXTERIOR FOUNDATION INSULATION AS REQUIRED BY LOCAL BUILDING CODES
12. PROVIDE AND INSTALL JOINT SEALERS TO COMPLY WITH MANUFACTURER'S PRINTED INSTRUCTIONS APPLICABLE TO PRODUCTS AND APPLICATIONS INDICATED AND TO THE FOLLOWING SPECIFICATIONS:
    ELASTOMERIC SEALANT: ASTM C-926
    SOLVENT-RELEASE-CURING SEALANT: ASTM C-804
    LATEX SEALANT: ASTM C-790
    ACOUSTICAL SEALANT: ASTM C-919
13. PROVIDE AND INSTALL GUTTERS AND DOWNSPOUTS AS PER SMACNA ARCHITECTURAL SHEET METAL MANUAL.

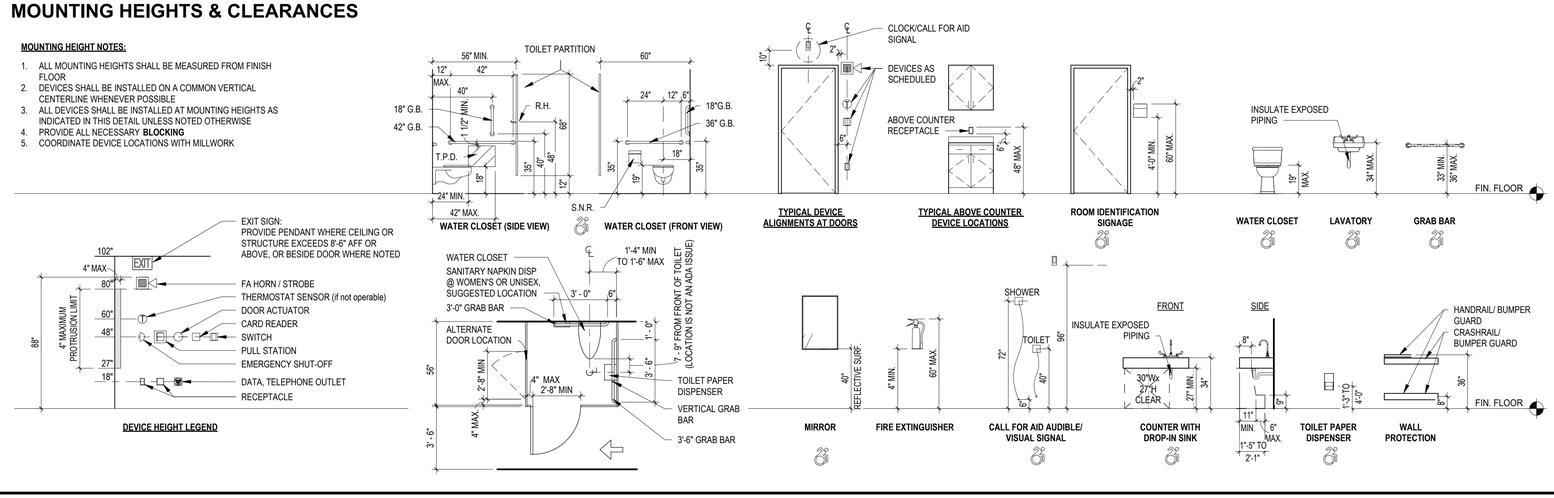
SITE NOTES

1. PERFORM ALL WORK IN THIS SECTION IN CONFORMANCE WITH THE FINAL SOILS COMPACTION, GEOLOGICAL REPORTS AND APPROVED SITE GRADING PLANS AS ACCEPTED BY OWNER AND BUILDING DEPARTMENT. IN THE ABSENCE OF THE NECESSARY SUBSURFACE SURVEY, THE CONTRACTOR SHALL HIRE A LICENSED SOILS ENGINEER TO INVESTIGATE THE SITE, AND SUBMIT A REPORT OF THIS WORK TO THE ARCHITECT. IF A DISCREPANCY FROM THE PRESUMED SOIL BEARING CAPACITY EXISTS, CONTRACTOR SHALL NOT PLACE FOUNDATIONS WITHIN WRITTEN INSTRUCTIONS FROM ARCHITECT/ENGINEER..
2. PRESUMPTIVE SOIL BEARING CAPACITY IS 4,000PSF ON UNDISTURBED SOIL. ALL CONCRETE FOOTINGS SHALL BEAR ON UNDISTURBED SOIL OR ENGINEERED FILL. BOTTOM OF FOOTINGS SHALL BE 4'-0" MIN. BELOW FINISH GRADE.
3. NO EXCAVATIONS SHALL BE MADE WHOSE DEPTH BELOW THE FOOTING IS GREATER THAN 1/2 THE HORIZONTAL DISTANCE FROM THE NEAREST EDGE OF A FOOTING.
4. ALL BACKFILL AT STRUCTURES, SLABS, STEPS AND PAVEMENTS SHALL BE CLEAR GRANULAR FILL, COMPACTED TO 95% MAXIMUM DRY DENSITY DETERMINED IN ACCORDANCE WITH ASTM D-1557.
5. BACKFILL AT LAWNS AND UNPAVED AREAS SHALL BE FREE OF CLAY, ROCK OR GRAVEL LARGER THAN 2" IN ANY DIRECTION, DEBRIS, VEGETABLE MATTER, WASTE AND FROZEN MATERIALS. COMPACT TO 90% MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557.
6. ALL SLABS ON GRADE SHALL BEAR ON MECHANICALLY COMPACTED CRUSHED STONE CAPABLE OF SUPPORTING 2,000PSF.
7. GUTTERS AND DOWNSPOUTS SHALL DISCHARGE AT PERIMETER DRAIN IF PROVIDED OR AT GUTTER SPLASH BLOCKS UNLESS LOCAL CODES REQUIRE STORM WATER MANAGEMENT SYSTEMS. REFER TO APPROVED SITE PLAN FOR STORM WATER MANAGEMENT SYSTEM PIPING DETAILS.

MOUNTING HEIGHTS & CLEARANCES

MOUNTING HEIGHT NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISH FLOOR
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHENEVER POSSIBLE
3. ALL DEVICES SHALL BE INSTALLED AT MOUNTING HEIGHTS AS INDICATED IN THIS DETAIL UNLESS NOTED OTHERWISE
4. PROVIDE ALL NECESSARY **BLOCKING**
5. COORDINATE DEVICE LOCATIONS WITH MILLWORK



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QuisenberryArcariMalik
195 Scott Swamp Road
Farmington, CT 06032
qamarch.com

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revisions

Issue Dates:

N

BID DOCUMENTS
APRIL 28, 2026

GENERAL INFORMATION

G1.1

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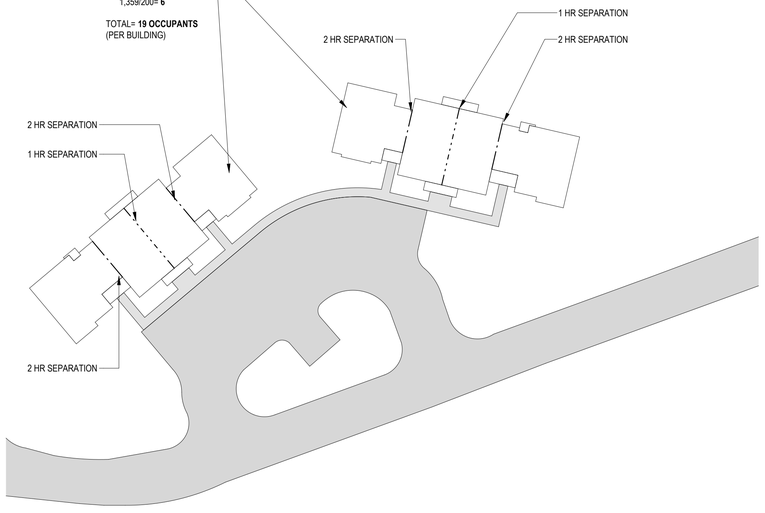
1 BEDROOM= 733 SF
733/200= **3**

2 BEDROOM= 1,126 SF
1,126/ 200 = **5**

2 BEDROOM= 1,126 SF
1,126/ 200 = **5**

3 BEDROOM 3= 1,359 SF
1,359/200= **6**

TOTAL= **19 OCCUPANTS**
(PER BUILDING)



2 R1.0 **CODE SITE PLAN**
1/32" = 1'-0"

CODES THIS PROJECT WAS DESIGNED TO

INTERNATIONAL BUILDING CODE	2021
IBC CONNECTICUT SUPPLEMENT	2022
INTERNATIONAL MECHANICAL CODE	2021
INTERNATIONAL PLUMBING CODE	2021
NFPA 70 NATIONAL ELECTRIC CODE	2020
INTERNATIONAL ENERGY CONSERVATION CODE	2021
CONNECTICUT FIRE SAFETY CODE	2020

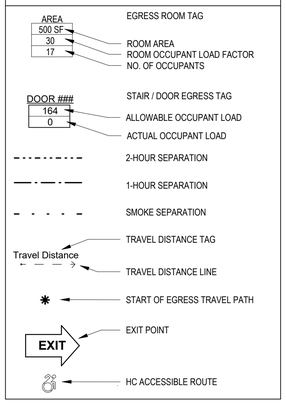
REHABILITATION ACT 1973, SECTION 504
INCLUDING UNIFORM FEDERAL ACCESSIBILITY
STANDARDS (UFAS) AND SECTION 504
REGULATIONS

ICC/ANSI A117.1 - 2017

THE AMERICANS WITH DISABILITIES ACT, TITLE II,
INCLUDING THE AMERICANS WITH DISABILITIES ACT
ACCESSIBILITY GUIDELINES (ADAAG) AND ADA
REGULATIONS

(H) CURRENT CONNECTICUT PUBLIC HEALTH CODES
(O) CURRENT O.S.H.A. - TITLE 29/LABOR
(GS) CONNECTICUT GENERAL STATUTES

LIFE SAFETY LEGEND:



BUILDING INFORMATION

A NEW HOUSING DEVELOPMENT FOR
LITCHFIELD HOUSING ATHORITY AT *RIVERBEND*
111 WELLS RUN ROAD, LITCHFIELD CT

PROPOSED CONSTRUCTION START 2026

1. USE GROUP CLASSIFICATION (301)
PRIMARY RESIDENTIAL (R-2)

2. CONSTRUCTION TYPE (602)
EXISTING/NEW CONSTRUCTION TYPE 5B

3. BUILDING HEIGHT (503) STORIES / FEET
ALLOWABLE HEIGHT [MOST RESTRICTIVE] 2 / 65
ACTUAL HEIGHT 2 / 30
* INCLUDES ALLOWABLE HEIGHT INCREASE AS ESTABLISHED WITH AUTOMATIC SPRINKLER SYSTEM (S)

4. BUILDING AREA (506)
[Interior face of exterior walls & Open Space Area]
USE GROUP *ACTUAL / ALLOWABLE
(R-2) 8,866 SF / 41,000 SF

ACTUAL FLOOR AREA = 8,866 SF
(4,352 SF PER BUILDING)

7. FIRE RESISTANCE RATINGS (601)
GENERAL BUILDING CONSTRUCTION 0 HOUR(S)
STAIR SHAFTS NA
ELEVATOR SHAFT NA
EXIT ACCESS CORRIDORS NA
VERTICAL SHAFT NA
SMOKE PARTITIONS NA
TENANT SEPARATION (SEE PLAN) 1-2 HOUR(S)

8. OCCUPANT LOAD
DESIGN LOAD PER ROOM SEE CODE PLAN
TOTAL BUILDING OCCUPANCY (19 PER BLDG) 38 PEOPLE
TOTAL EXIT CAPACITY (1,432 PER BLDG) 2,864 PEOPLE

9. HANDICAPPED ACCESSIBLE BUILDING [X] DESIGNATED
[ ] NON-DESIGNATED

10. MINIMUM PLUMBING FIXTURE COUNT (2902.1)
TOTAL FACILITY O.L.: 19 (R-2)

FIXTURES		REQUIREMENTS	REQUIRED/PROVIDED
WATER CLOSETS			
1 BED	(R-2):	1 PER UNIT	1 / 1
2 BED	(R-2):	1 PER UNIT	1 / 2
3 BED	(R-2):	1 PER UNIT	1 / 2
LAVATORIES			
1 BED	(R-2):	1 PER UNIT	1 / 1
2 BED	(R-2):	1 PER UNIT	1 / 2
3 BED	(R-2):	1 PER UNIT	1 / 2
DRINKING FOUNTAINS			N / A
SERVICE SINK			N / A

11. FIRE PROTECTION SYSTEMS
FIRE SUPPRESSION [ ] FULL [ ] LIMITED [X] NONE
FIRE DETECTION [X] FULL [ ] LIMITED [ ] NONE

12. NUMBER OF EXITS
EXITS REQUIRED (PER UNIT) 2
EXITS PROVIDED (PER UNIT) 2

13. TRAVEL DISTANCE N/A
MAXIMUM TRAVEL DISTANCE ALLOWED N/A

ACTUAL TRAVEL DISTANCE SEE CODE PLAN

14. THRESHOLD BUILDING CONDITIONS [ ] YES [X] NO

UNIT TYPES & QUANTITIES

(2) UNIT TYPE 1 - 3 BEDROOM

(4) UNIT TYPE 2 - 2 BEDROOM

(2) UNIT TYPE 3 - 1 BEDROOM, TYPE A ACCESSIBLE

(8) UNITS TOTAL

TYPE A UNITS REQUIRED (10%) - 2

TYPE A UNITS PROVIDED - 2

QA+M architecture
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NEW HOUSING DEVELOPMENT AT:

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LITCHFIELD, CT

Project #: 2386

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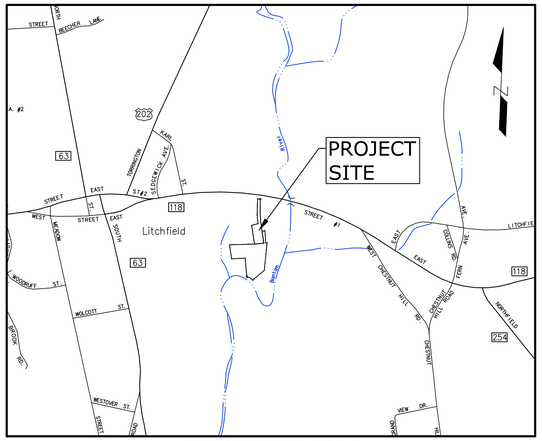
Issue Dates:

N

BID DOCUMENTS
APRIL 28, 2026

CODE INFORMATION

R1.0



VICINITY MAP

0 1000 2000

GRAPHIC SCALE (FEET)

RIVER BEND

176 EAST STREET & 64 WELLS RUN

LITCHFIELD, CONNECTICUT

FEBRUARY 5, 2025

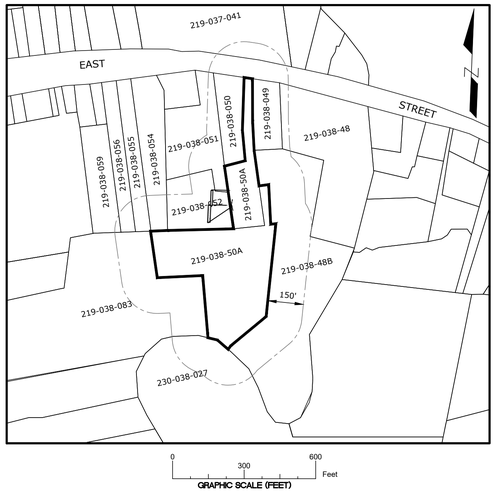
REVISED: February 6, 2025
April 7, 2025
September 9, 2025
April 22, 2026

NOTES:

1. Contractor shall contact call-before-you dig a 1.800.922.4455 prior to any excavation for delineation of utilities.
2. Boundary and topographic information from map entitled "Existing Conditions Survey, Prepared for, Litchfield Housing Authority, 176 East Street, Litchfield, Connecticut", revised 03/21/2024, prepared by Hrica Associates LLC.
3. Lidar contouring from Capitol Region Council of Governments. (2016). *2016 Lidar DEM*. Retrieved from http://cteco.uconn.edu/data/flight2016/index.htm (http://cteco.uconn.edu/daa/flight2016/index.htm).

List of parcel owners within 150' of site as of December 12 , 2024

Map	Block	Lot	Owner Name	Address
North				
219	038	059	PARKER DENISE PORTER	PO BOX 774, LITCHFIELD CT 06759-0774
219	038	56	BRIGLIA PAIGE	124 EAST ST, LITCHFIELD CT 06759-3936
219	038	55	MORGAN JOSEPH FRANCIS	128 EAST ST, LITCHFIELD CT 06759-3636
219	038	54	BOGEN KATHRYN A & PETER L/U BOGEN JULIE ANNA & EMILY & KATHERINE	51 CANTON RD, WEST SIMSBURY CT 06092-2806
219	037	41	LITCHFIELD CEMETERY ASSOCIATION C/O OREN BOYNTON	PO BOX 923, LITCHFIELD CT 06759-0923
East				
219	038	049	SIMONCELLI WENDY P & JAMES F	190 EAST ST, LITCHFIELD CT 06759-3605
219	038	48	SIMONCELLI JAMES F SR & WENDY P	190 EAST ST, LITCHFIELD CT 06759-3605
219	038	48B	WHITE MEMORIAL FOUNDATION	PO BOX 368, LITCHFIELD CT 06759-0368
South				
230	038	027	WHITE MEMORIAL CONSERVATION CENTER INC	PO BOX 368, LITCHFIELD CT 06759-0368
West				
219	038	083	SCHNITZER BRUCE W	PO BOX 1107, LITCHFIELD CT 06759-1107
219	038	52	SWEENEY DAVID G & MARY D	158 EAST ST, LITCHFIELD CT 06759-3605
219	038	51	BUCKLEY WILLIAM J JR	PO BOX 768, LITCHFIELD CT 06759-0768
219	038	50	DAIKUS SAMANTHA	170 EAST ST, LITCHFIELD CT 06759-3605



LIST OF DRAWINGS	
SHEET #	SHEET NAME
01	COVER SHEET
02	EXISTING CONDITIONS SURVEY (BY HRICA ASSOCIATES, LLC)
03	ZONING COMPLIANCE PLAN
04	GRADING & EROSION CONTROL PLAN
05	DRAINAGE PLAN
06	LAYOUT PLAN
07	SITE DETAILS
08	SANITARY SEWER DETAILS
8A	PUMP STATION PLAN AND DETAILS
09	EROSION CONTROL PLAN NARRATIVE AND DETAILS
10	DRAINAGE DETAILS
11	DRAINAGE DETAILS
12	ELECTRICAL SPECIFICATIONS
13	ELECTRICAL GENERATOR SITE PLAN
L1.0	PLANTING PLAN & NOTES
L1.1	PLANTING DETAILS & SCHEDULE
SL-1	SITE LIGHTING PLAN

SURVEYOR
Kenneth S. Hrica PE,LS
Hrica Associates LLC
P.O. Box 1861
Litchfield, CT 06759
Phone: (860) 567-2112
e-mail: khrica@hricaassociates.com

ENGINEER
Todd Parsons, P.E.
Haley Ward, Inc.
140 Willow Street, Suite 8
Winsted, CT 06098
Tel. (860) 379-6669
e-mail: tparsons@haleyward.com

ARCHITECT
Rocco Petitto, AIA
Quisenberry Arcari Malik Architects, LLC
195 Scott Swamp Road
Farmington CT 06032
Tel. (860) 677-4594
e-mail: rpetitto@qamarch.com

OWNER
The Litchfield Housing Authority
130 Doyle Road, STE 37
Litchfield, CT 06750-1629

APPLICANT
The Litchfield Housing Authority
130 Doyle Road, STE 37
Litchfield, CT 06750-1629

REV.	DATE	DESCRIPTION	BY	CHK.
4	2026.04.22	Add Pump Station Details, Sheets 08 A, 12 and 13	MD	TAP
3	2025.09.09	Respond to Town Comments Sheet 05, L1.0, L1.1	JS	TAP
2	2025.04.07	Focalpoint and R-Tank Details	JS	TAP
1	2025.02.06	Drainage Modification	JS	TAP

DRAWING ISSUE STATUS

FOR BIDDING

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
140 Willow Street
Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

TITLE

COVER

STATE OF CONNECTICUT No. 18473 LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
February 5, 2025	AS NOTED
DRAWN BY: JS	DESIGNED BY: TAP
CHECKED BY: TAP	
PROJECT No.: 4010271.002	
DRAWING No.: 01	REV.: 4

FILE LOCATION: P:\CT\4010271 - QAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\CIVIL\PROJECT.DWG, 2026.04.23, 11:54 AM



LEGEND

- PROPERTY LINE
- EXISTING MONUMENT
- EXISTING IRON PIN OR PIPE
- UTILITY POLE W/ANCHOR
- EASEMENT LINE
- CHAIN FENCE
- WOOD FENCE
- STONE WALL
- WIRE FENCE
- CATCH BASIN
- LIGHT POLE
- BLDG. SETBACK LINE
- EXISTING CONTOUR (310)
- EXISTING SPOT ELEVATION (311.5)
- TREE LINE

NOTES:

- BOUNDARY DETERMINATION CATEGORY:
  ORIGINAL PARCEL: DEPENDENT RESURVEY
- OWNER:
  LITCHFIELD HOUSING AUTHORITY
  130 DOYLE ROAD, #37
  BANTAM, CONNECTICUT 06750
  REF. VOL. 407 / PG. 610
  ASSESSORS MAP 219 / BLOCK 38 / LOT 50A
- TOTAL AREA = 55,013 ±S.F.; 1.26 ±Ac.
- ZONE: HR-20
- REFER TO THE FOLLOWING MAPS: TC#36-113 ON FILE IN LITCHFIELD LAND RECORDS.
- PROPERTY IS SUBJECT TO EASEMENTS, COVENANTS AND RESTRICTIONS AS OF RECORD THEY MAY APPEAR.
- INLAND WETLAND DELINEATION BY REMA ECOLOGICAL SERVICES, LLC, FIELD SURVEYED BY SMITH AND COMPANY SURVEYORS 04/08/04, DEPICTED ON TOWN CLERK MAP MAP36-113. THE SURVEY DOES NOT REFLECT ANY INLAND WETLAND SOILS ON THE SUBJECT PROPERTY.
- LOCATION OF EXISTING POND IS APPROXIMATE
- CONTOUR ELEVATIONS BASED ON TOWN OF LITCHFIELD SEWER MAP (U.S.C.G. DATUM)
- STONE WALLS AND FENCES MAY VARY FROM PRINCIPAL COURSES SHOWN.

"I HEREBY DECLARE THAT TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON." THIS SURVEY CONFORMS TO THE STANDARDS OF CLASS A-2 & T-2 SURVEYS AND WAS PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THROUGH 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES AND THE MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

KENNETH S. HRICA P.E.,L.S. CT LIC. #18866
NOT VALID WITHOUT ORIGINAL SEAL

DATE	REVISION
3/21/2024	ADDITIONAL SURVEY

EXISTING CONDITIONS MAP

PREPARED FOR

LITCHFIELD HOUSING AUTHORITY

176 EAST STREET
LITCHFIELD, CONNECTICUT

1 0 1 2
INCHES

Hrica Associates LLC
Engineers Surveyors
Kenneth S. Hrica, PE,RLS
44 Maple View Trail
P.O. Box 1861
Litchfield, Connecticut 06759
860-567-2112 (business)
860-567-0491 (facsimile)
e-mail: hricaassociates@optonline.net

DATE:	02/27/2024	MAP #:	0300
SCALE:	1"=30 ft.	SHEET #:	1 OF 1
DRAWING:	240915	DRAWN BY:	JLP
PROJECT #:	24-0915	CHECKED BY:	KSH

FILE LOCATION: P:\CT\4010271 - OAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\CIVIL\PROJECT.DWG, 2026.04.23, 11:16 AM



0 40 80 Feet

ZONING INFORMATION TABLE

Zone HR-20	Regulation	Proposed	
Minimum Lot Area (SF)	20,000	64 Well Run 176 East Street Total Combined:	193,464 55,011 248,475
Minimum Lot Width (FT)	100		40.2
Minimum Front Setback (FT)	50		21
Minimum Side Setback (FT)	20		51
Minimum Rear Setback (FT)	60		415.6
Green Space (%)	10		74.6
Building Coverage (%)	12		9.6
Building Height (FT)	35		1
Parking Requirements	2 Per Unit		16

LOT DENSITY

	PROPOSED
TOTAL PROPERTY AREA (SF)	248,475
AREA WITHIN FEMA FLOOD PLAIN (SF)	13,950
WETLANDS OUTSIDE OF FEMA (SF)	5,440
50% OF SLOPES > 25% (SF)	8,273
EASEMENTS (SF)	0
USABLE SITE AREA (SF)	220,813
ALLOWABLE UNITS USABLE AREA/40,000 PER 8 UNITS)	44.2
PROPOSED UNITS (INCLUDING 30 EXISTING)	38

COVERAGE (COMBINED PROPERTY)

	EXISTING	PROPOSED	CHANGE
COMBINED PROPERTY AREA (SF)	248,475	248,475	0
PARKING/DRIVEWAY/WALKS (SF)	30,733	39,289	8,556
BUILDINGS (SF)	17,199	23871	6,672
BUILDING COVERAGE (%)	6.9	9.6	2.7
GREEN SPACE (%)	80.7	74.6	-6.1

BUILDING HEIGHT CALCULATION

Midpoint of roof is 22'-9½" (22.79') above first floor

BUILDING 1 (RB-1)
Elevation of midpoint of roof 962.65+22.79 = 985.44'
Elevation of outside grade at two story section = 960.00'
BUILDING HEIGHT = 25.44'

BUILDING 2 (RB-2)
Elevation of midpoint of roof 958.72+22.79 = 981.51'
Elevation of outside grade at two story section = 958.00'
BUILDING HEIGHT = 23.51'

REV.	DATE	DESCRIPTION	BY	CHK.
4	2026.04.22	Add Pump Station Details, Sheets 08 A, 12 and 13	MD	TAP
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2	2025.04.07	Focalpoint and R-Tank Details	JS	TAP
1	2025.02.06	Drainage Modification	JS	TAP

DRAWING ISSUE STATUS

FOR BIDDING

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Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

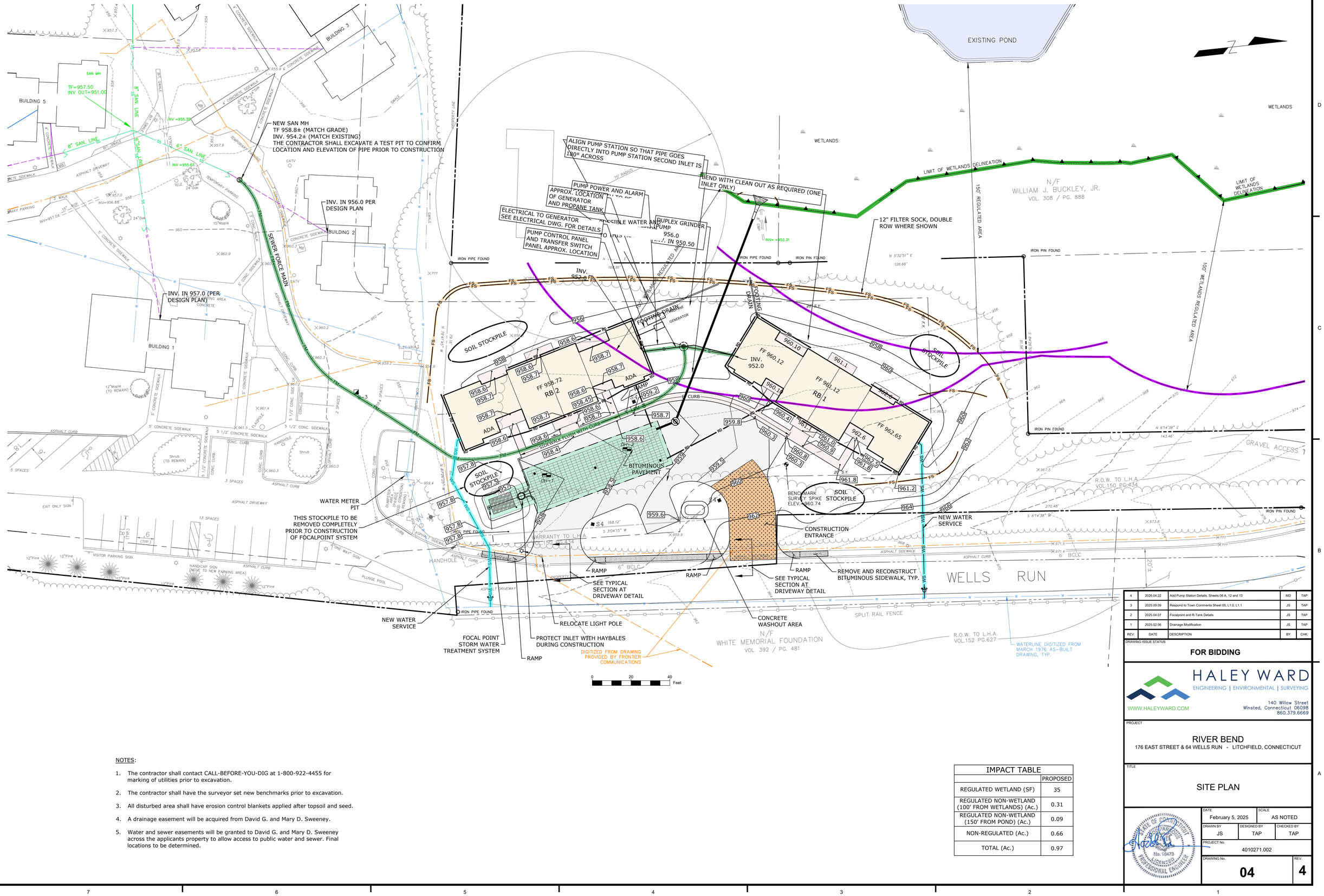
TITLE

ZONING COMPLIANCE PLAN

STATE OF CONNECTICUT
No. 16473
LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
February 5, 2025	AS NOTED
DRAWN BY: JS	DESIGNED BY: TAP	CHECKED BY: TAP
PROJECT No. 4010271.002	
DRAWING No. 03	REV. 4

FILE LOCATION: P:\CT\4010271 - QAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\CIVIL\PROJECT.DWG, 2026.04.23, 11:16 AM



NOTES:

1. The contractor shall contact CALL-BEFORE-YOU-DIG at 1-800-922-4455 for marking of utilities prior to excavation.
2. The contractor shall have the surveyor set new benchmarks prior to excavation.
3. All disturbed area shall have erosion control blankets applied after topsoil and seed.
4. A drainage easement will be acquired from David G. and Mary D. Sweeney.
5. Water and sewer easements will be granted to David G. and Mary D. Sweeney across the applicants property to allow access to public water and sewer. Final locations to be determined.

IMPACT TABLE	
	PROPOSED
REGULATED WETLAND (SF)	35
REGULATED NON-WETLAND (100' FROM WETLANDS) (Ac.)	0.31
REGULATED NON-WETLAND (150' FROM POND) (Ac.)	0.09
NON-REGULATED (Ac.)	0.66
TOTAL (Ac.)	0.97

REV.	DATE	DESCRIPTION	BY	CHK.
4	2026.04.22	Add Pump Station Details, Sheets 08 A, 12 and 13	MD	TAP
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DRAWING ISSUE STATUS

FOR BIDDING

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860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

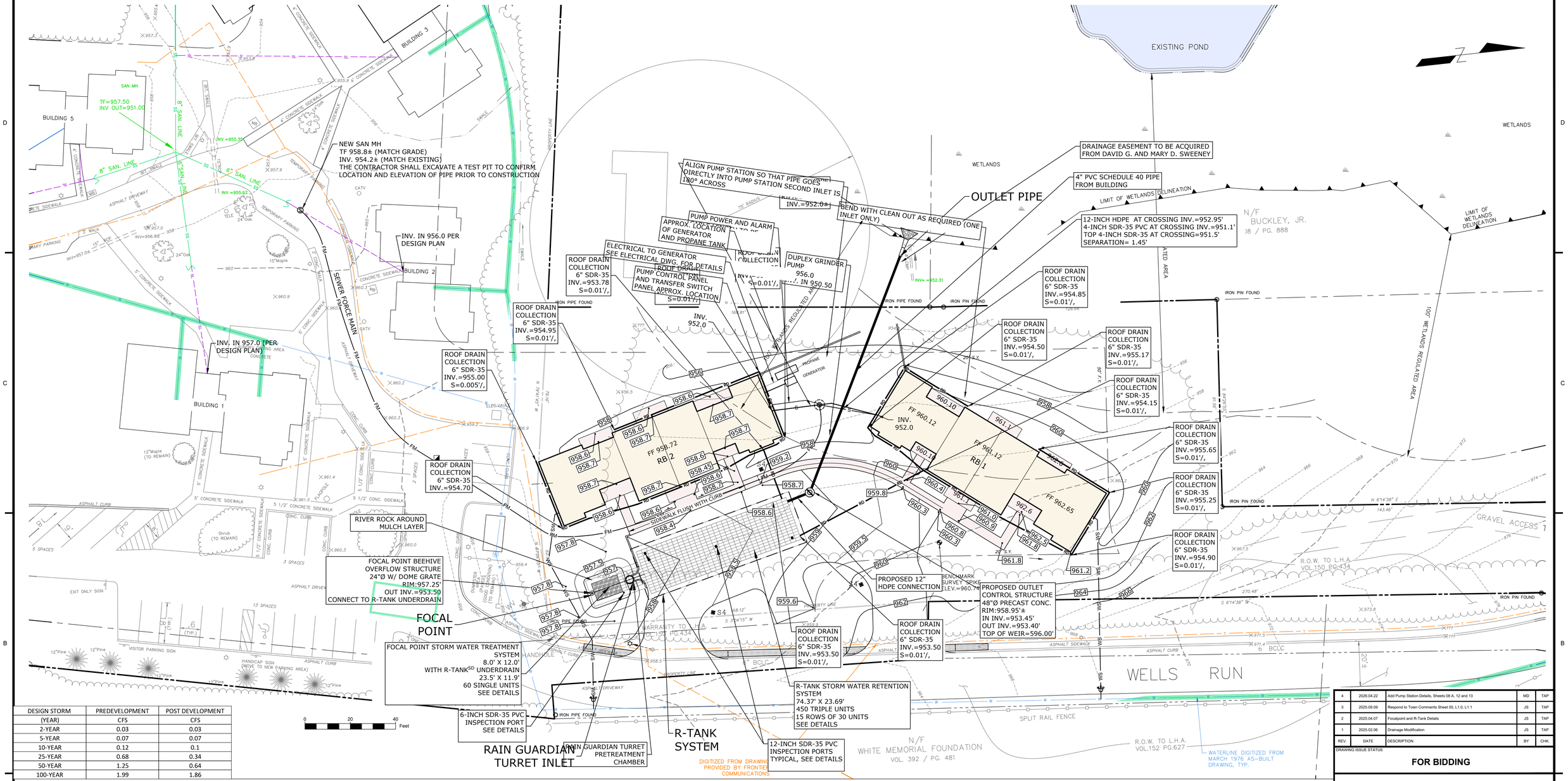
TITLE

SITE PLAN

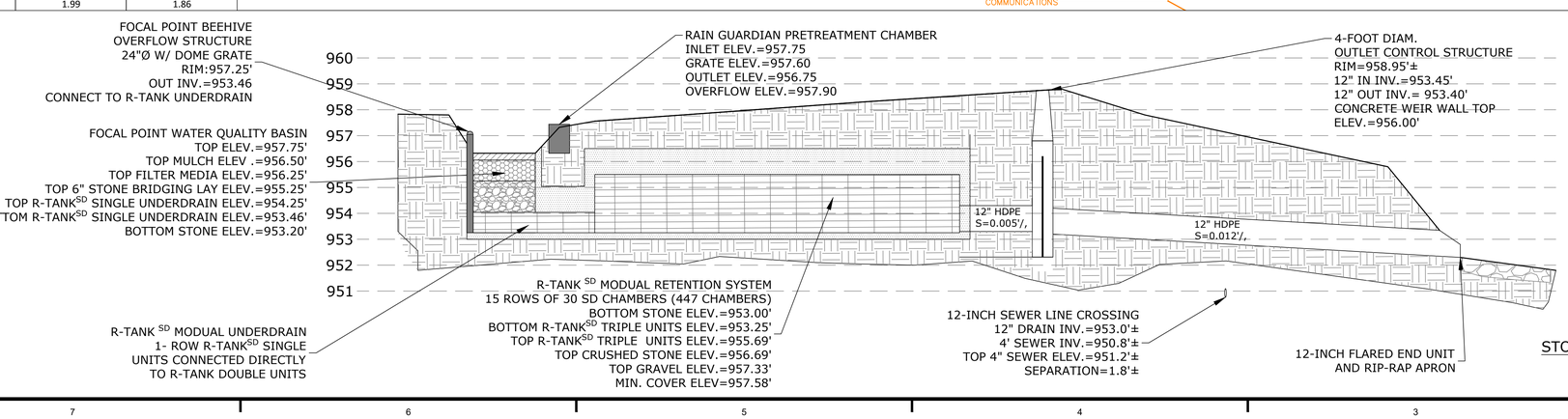
STATE OF CONNECTICUT — TIMOTHY A. PRESTON — No. 16473 — LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
February 5, 2025	AS NOTED
DRAWN BY: JS	DESIGNED BY: TAP	CHECKED BY: TAP
PROJECT No. 4010271.002	
DRAWING No. 04	REV. 4

FILE LOCATION: P:\CT\4010271 - QAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\CIVIL\PROJECT.DWG, 2026.04.23, 11:16 AM



DESIGN STORM	PREDEVELOPMENT	POST DEVELOPMENT
(YEAR)	CFS	CFS
2-YEAR	0.03	0.03
5-YEAR	0.07	0.07
10-YEAR	0.12	0.1
25-YEAR	0.68	0.34
50-YEAR	1.25	0.64
100-YEAR	1.99	1.86



FOCAL POINT WATER ELEVATIONS
WQV STORM=956.56'
2-YEAR STORM=956.74'
10-YEAR STORM=956.94'
25-YEAR STORM=957.09'
100-YEAR STORM=957.38'

R-TANK WATER ELEVATIONS
WQV STORM=953.34'
2-YEAR STORM=953.66'
10-YEAR STORM=954.75'
25-YEAR STORM=956.00'
100-YEAR STORM=956.26'

STORM DRAINAGE NOTES

1. The total volume of the R-Tank Storage System, including surrounding stone, is 3,940 cubic feet. The volume stored during the 100-year storm is 3,810 cubic feet.
2. The proposed drainage system will adequately address the impacts of new impervious surfaces and will not have an adverse impact on adjacent properties.

STORMWATER COLLECTION AND TREATMENT PROFILE

NOT TO SCALE

REV.	DATE	DESCRIPTION	BY	CHK.
4	2026.04.22	Add Pump Station Details, Sheets 08 A, 12 and 13	MD	TAP
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140 Willow Street
Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

TITLE

DRAINAGE PLAN

STATE OF CONNECTICUT TIMOTHY A. PARKS No. 16473 LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
February 5, 2025	AS NOTED

DRAWN BY	DESIGNED BY	CHECKED BY
JS	TAP	TAP

PROJECT No.
4010271.002

DRAWING No.
05

REV.
4

FILE LOCATION: P:\CT\4010271 - OAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\CIVIL\PROJECT.DWG, 2026.04.23, 11:16 AM

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EXISTING POND

WETLANDS

LIMIT OF WETLANDS DELINEATION

N/F
WILLIAM J. BUCKLEY, JR.
VOL. 308 / PG. 888

150' REGULATED AREA

100' WETLANDS REGULATED AREA

IRON PIN FOUND

IRON PIPE FOUND

N 5°32'51" E
126.66'

N 6°14'38" E
143.46'

GRAVEL ACCESS

R.O.W. TO L.H.A.
VOL.150 PG.434

S 6°14'38" W
270.48'

IRON PIN FOUND

ALIGN PUMP STATION SO THAT PIPE GOES DIRECTLY INTO PUMP STATION SECOND INLET IS 180° ACROSS

BEND WITH CLEAN OUT AS REQUIRED (ONE INLET ONLY)

75' RADIUS

N 7°04'05" E
168.81'

30.0'

28.0'

100' WETLANDS REGULATED AREA

201 S.Y.

39' P.V.

PROPANE GENERATOR

ACCESSIBLE PARKING SIGN

4.0' CONCRETE WALK

RB 2

RB 1

S4

9.0' TYP.

18.0' TYP.

9.0' TYP.

51.0'

R61.0'

R19.0'

R5.0'

R10.0'

R15.0'

R32.0'

R12.0'

R12.7'

24.0'

21.0'

20' S.Y.

BENCHMARK
SURVEY SPIKE
ELEV.=960.74

69.7'

S 3°04'15" W
168.12'

PROPERTY LINE

WARRANT
VOL.150 PG.434

IRON PIPE FOUND

HANDHOLE

6" BCLC

ASPHALT SIDEWALK

ASPHALT CURB

ASPHALT DRIVEWAY

WELLS RUN

SPLIT RAIL FENCE

N/F
WHITE MEMORIAL FOUNDATION
VOL. 392 / PG. 481

R.O.W. TO L.H.A.
VOL.152 PG.627

BUILDING 1

BUILDING 2

BUILDING 3

BUILDING 5

LAUNDRY DRYING AREA
CONCRETE

ASPHALT DRIVEWAY

TEMPORARY PARKING

5' CONCRETE SIDEWALK

4' CONCRETE SIDEWALK

3' CONC. WALK

6" CONC. SIDEWALK

3' CONCRETE SIDEWALK

CONC. CURB

ELEC. VAULT

CATV

TELE

SWALE

INV=956.88

INV=957.05

24"Oak

15"Maple

12"Maple
(TO REMAIN)

B-3

2 SPACES

4 SPACES

5 1/2' CONC. SIDEWALK

FLAGPOLE

HANDHOLE

Shrub
(TO REMAIN)

Shrub

3 SPACES

5 SPACES

9'

8'

ASPHALT CURB

CONC. CURB

DUMPSTER (PAVED) (GOOD CONDITION) (TO REMAIN)

W.V.

W. 06°36'48" N
24.79'

EXIT ONLY SIGN

VISITOR PARKING SIGN

HANDICAP SIGN
(MOVE TO NEW PARKING AREA)

ONE WAY SIGN

13 SPACES

6
(TYP.)

10'
(TYP.)

12"Pine

PLUNGE POOL

0 20 40 Feet

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1	2025.02.06	Drainage Modification	JS	TAP

DRAWING ISSUE STATUS

FOR BIDDING

HALEY WARD
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140 Willow Street
Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

TITLE

LAYOUT PLAN

STATE OF CONNECTICUT
TIMOTHY A. PARKER
No. 16473
LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
February 5, 2025	AS NOTED

DRAWN BY	DESIGNED BY	CHECKED BY
JS	TAP	TAP

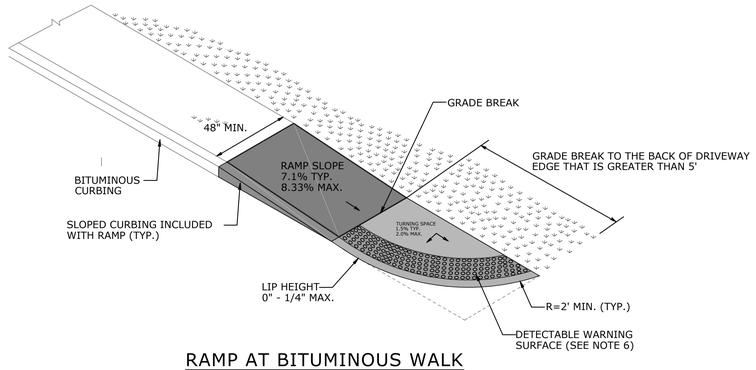
PROJECT No.
4010271.002

DRAWING No.
06

REV.
4

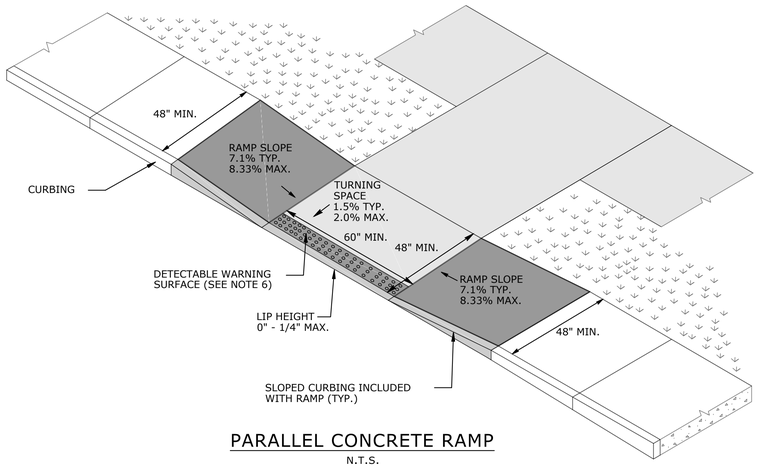
SIDEWALK RAMP GENERAL NOTES:

1. CONCRETE SIDEWALK RAMPS SHALL HAVE A COARSE BROOM FINISH TRANSVERSE TO THE SLOPE OF THE RAMP.
2. VERTICAL SURFACE DISCONTINUITIES AT JOINTS SHALL NOT EXCEED ¼ INCH.
3. REMOVAL OF EXISTING SIDEWALK FOR NEW RAMP INSTALLATIONS SHALL BE TO THE NEAREST EXPANSION OR CONTRACTION JOINT.
4. THE RUNNING SLOPE OF THE CURB RAMP SHALL BE 8.33 PERCENT MAXIMUM BUT SHALL NOT REQUIRE THE RAMP LENGTH TO EXCEED 15 FEET.
5. DETECTABLE WARNING SURFACES SHALL BE INSTALLED ON SIDEWALK RAMPS AT PEDESTRIAN STREET CROSSINGS, PEDESTRIAN REFUGE ISLANDS AND RAILROAD CROSSINGS ALONG STREETS OR HIGHWAYS.
6. DETECTABLE WARNING SURFACES SHALL EXTEND 2 FEET MIN. IN THE DIRECTION OF PEDESTRIAN TRAVEL AND SPAN THE ENTIRE RAMP OPENING.
7. CURB RAMPS SHALL BE CONSTRUCTED SO THAT WATER WILL NOT ACCUMLATE WITHIN THE PEDESTRIAN ACCESS ROUTE.



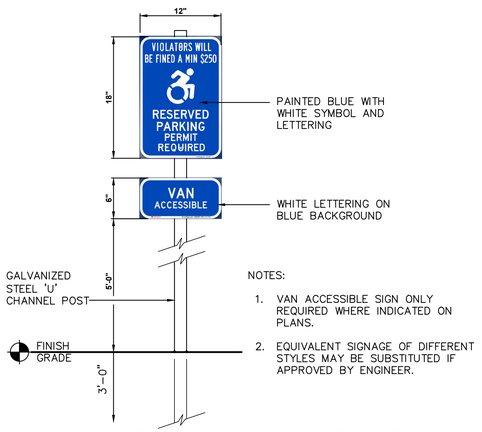
RAMP AT BITUMINOUS WALK

N.T.S.



PARALLEL CONCRETE RAMP

N.T.S.

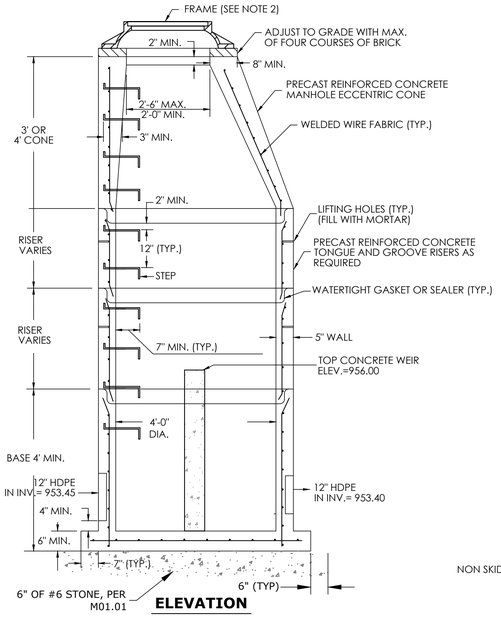


NOTES:

1. VAN ACCESSIBLE SIGN ONLY REQUIRED WHERE INDICATED ON PLANS.
2. EQUIVALENT SIGNAGE OF DIFFERENT STYLES MAY BE SUBSTITUTED IF APPROVED BY EGINEER.

ACCESSIBLE PARKING SIGN DETAIL

NTS

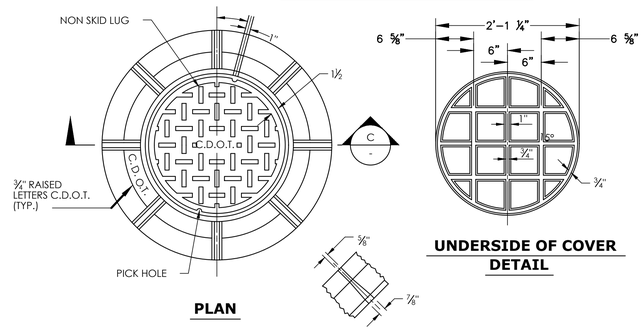


ELEVATION

OUTLET CONTROL STRUCTURE

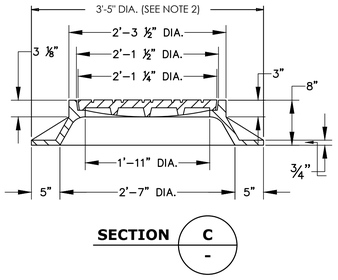
REINFORCED PRECAST CONCRETE UNIT

NON SKID LUG DETAIL



PLAN

UNDERSIDE OF COVER DETAIL



SECTION C

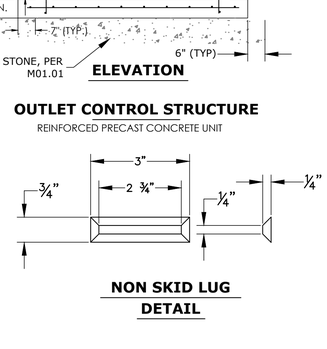
FRAME AND COVER DETAILS

OUTLET CONTROL STRUCTURE NOTES:

1. NO CHANNEL REQUIRED FOR THIS USE. 6" THICK CONCRETE WEIR WALL SHALL BE PINNED TO BOTTOM INSIDE OF MANHOLE BASE AND EXTEND TO ELEVATION SHOWN ON THE DRAWINGS.
2. A FRAME DIAMETER OF 3'-3" WITH 4" FLANGE MUST BE USED WHEN THE TOP DIAMETER OF THE PRECAST CONE IS LESS THAN 3'-6". ALL OTHER FRAME DIMENSIONS SHALL REMAIN THE SAME.
3. COVER:

	CAST IRON	STEEL
MIN. COVER WEIGHT	134LB.	134LB.

4. ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCES.
5. KNOCKOUTS FOR PIPES 4" FROM TOP & BOTTOM OF BASE.



TYPICAL TRENCH CROSS-SECTION

NOT TO SCALE

NOTES:

1. FOUNDATION: WHERE THE TRENCH BOTTOM IS UNSTABLE, THE CONTRACTOR SHALL EXCAVATE TO A DEPTH REQUIRED BY THE ENGINEER AND REPLACE WITH A FOUNDATION OF CLASS I OR II MATERIAL AS DEFINED IN ASTM D2321, "STANDARD PRACTICE FOR INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY–FLOW APPLICATIONS," LATEST EDITION; AS AN ALTERNATIVE AND AT THE DISCRETION OF THE ENGINEER, THE TRENCH BOTTOM MAY BE STABILIZED USING A WOVEN GEOTEXTILE FABRIC.
2. BEDDING: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.

   UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM BEDDING THICKNESS SHALL BE 4" (100mm) FOR 4"–24" (100–600mm) AND 42"–48"(1050–1200mm) CORRUGATED POLYETHYLENE PIPE (CPEP); 6" (150mm) FOR 30"–36" (750–900mm) CPEP.
3. HAUNCHING AND INITIAL BACKFILL: SUITABLE MATERIAL SHALL BE CLASS I, II OR III AND INSTALLED AS REQUIRED IN ASTM D2321, LATEST EDITION.
4. UNLESS OTHERWISE SPECIFIED BY THE ENGINEER, MINIMUM TRENCH WIDTHS SHALL BE AS FOLLOWS:

NOMINAL ø in (mm)	MIN. RECOMMENDED TRENCH WIDTH, in (mm)
4 (100)	21 (530)
6 (150)	23 (580)
8 (200)	25 (630)
10 (250)	28 (710)
12 (300)	31 (790)
15 (375)	34 (860)
18 (450)	39 (990)
24 (600)	48 (1220)
30 (750)	66 (1680)
36 (900)	78 (1980)
42 (1050)	83 (2110)
48 (1200)	89 (2260)
60 (1500)	102 (2590)

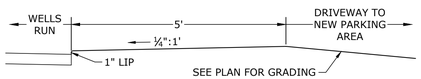
5. MINIMUM COVER: MINIMUM RECOMMENDED DEPTHS OF COVER FOR VARIOUS LIVE LOADING CONDITIONS ARE SUMMARIZED IN THE FOLLOWING TABLE. UNLESS OTHERWISE NOTED, ALL DIMENSIONS ARE TAKEN FROM THE TOP OF PIPE TO THE GROUND SURFACE.

SURFACE LIVE LOADING CONDITION	MINIMUM RECOMMENDED COVER, in (mm)
H25 (FLEXIBLE PAVEMENT)	12 (300)*
H25 (RIGID PAVEMENT)	12 (300)
E80 RAILWAY	24 (610)
HEAVY CONSTRUCTION	48 (1220)

*TOP OF PIPE TO BOTTOM OF BITUMINOUS PAVEMENT SECTION

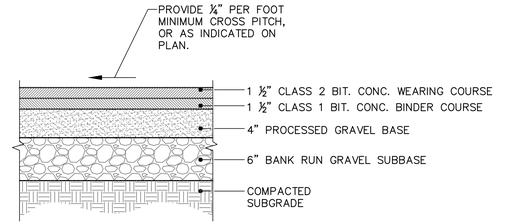
STORM SEWER TRENCH (ADS)

NOT TO SCALE



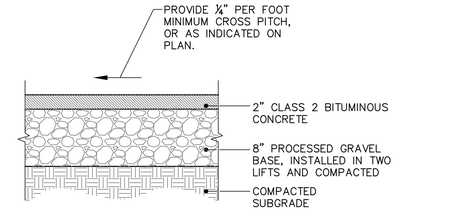
TYPICAL SECTION AT DRIVEWAY

NOT TO SCALE



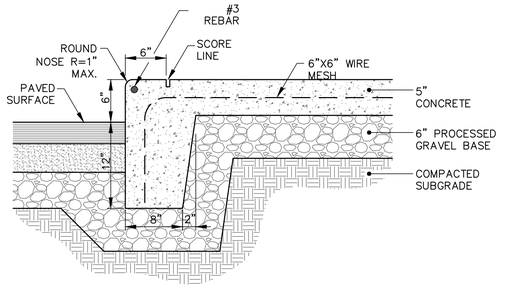
BITUMINOUS CONCRETE PAVEMENT DETAIL

NOT TO SCALE



BITUMINOUS CONCRETE SIDEWALK

NOT TO SCALE



INTEGRAL CONCRETE CURB AND SIDEWALK DETAIL

NOT TO SCALE

REV.	DATE	DESCRIPTION	BY	CHK.
4	2026.04.22	Add Pump Station Details, Sheets 08 A, 12 and 13	MD	TAP
3	2025.09.09	Respond to Town Comments Sheet 05, L1.0, L1.1	JS	TAP
2	2025.04.07	Focalpoint and R-Tank Details	JS	TAP
1	2025.02.06	Drainage Modification	JS	TAP

DRAWING ISSUE STATUS

FOR BIDDING

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
140 Willow Street
Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

TITLE

SITE DETAILS

STATE OF CONNECTICUT — No. 18473 — LICENSED PROFESSIONAL ENGINEER

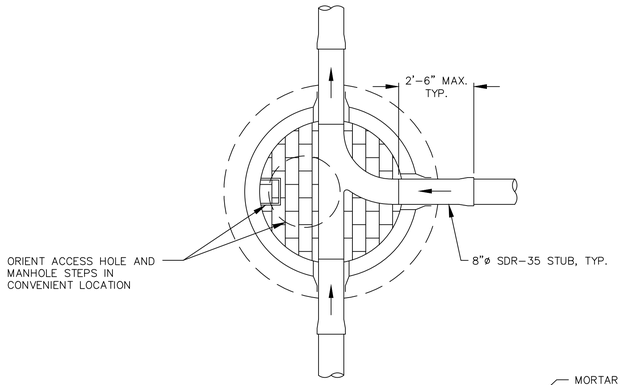
DATE	SCALE
February 5, 2025	AS NOTED

DRAWN BY	DESIGNED BY	CHECKED BY
JS	TAP	TAP

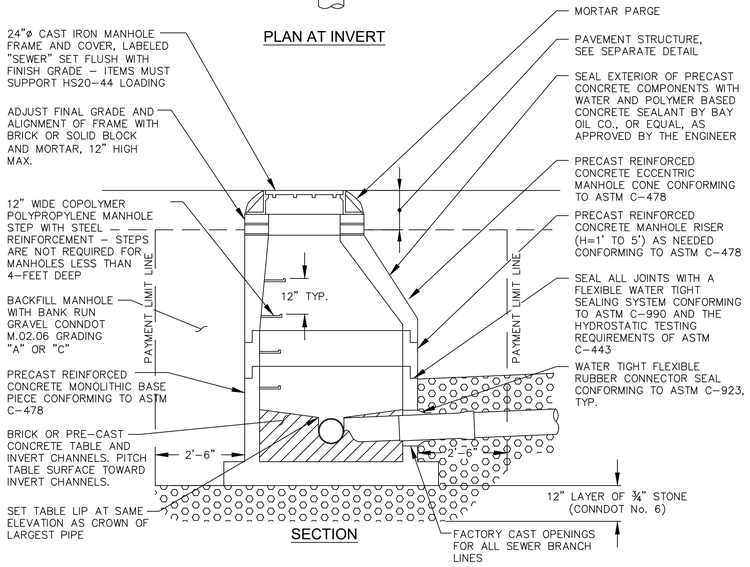
PROJECT No. 4010271.002

DRAWING No. 07 REV. 4

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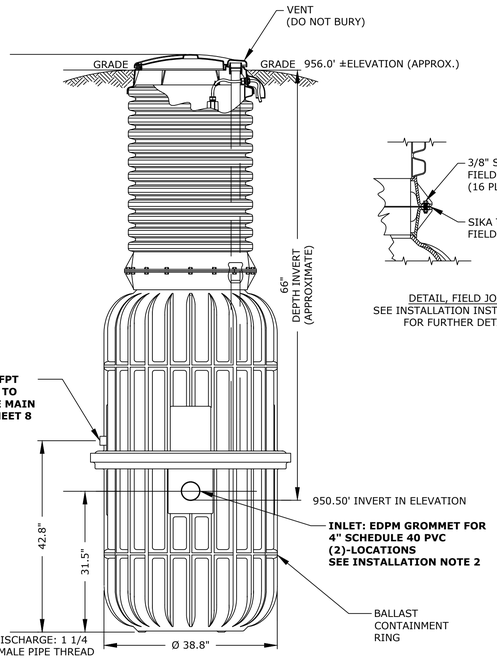
PLAN AT INVERT

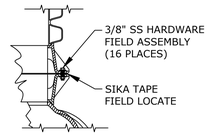


SECTION

SANITARY SEWER MANHOLE

NOT TO SCALE





DETAIL, FIELD JOINT
SEE INSTALLATION INSTRUCTIONS FOR FURTHER DETAILS

PUMP STATION INSTALLATION DEPTHS

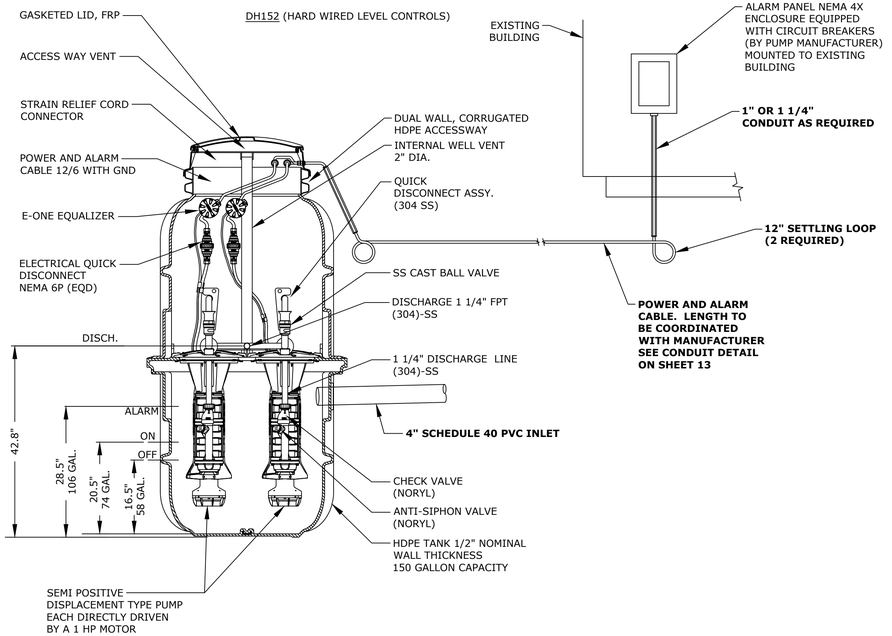
NOT TO SCALE

PUMP STATION NOTES:

1. DUPLEX GRINDER PUMP STATION TO BE COMPLETE UNIT RATED FOR 3,000 GPD MINIMUM FLOWRATE. E-ONE MODEL DH 152 GRINDER PUMP STATION FOR UNDERGROUND INSTALLATION AS MANUFACTURED BY ENVIRONMENT ONE CORPORATION, NISKAYUNA, NY.
2. PUMP STATION TO INCLUDE TWO (2) 1 HP, 1725 RPM, HIGH TORQUE, CAPACITOR START, THERMALLY PROTECTED 120/240 V-60Hz 1 PHASE MOTORS, CHECK VALVES, HDPE TANK, CONTROLS AND ALARM.
3. DISCHARGE CONNECTION TO BE 1-1/4" NPT TO CONNECT TO 1 1/2" FORCEMAIN.
4. PUMP STATION TO INCLUDE STAND ALONE CONTROL PANEL AND ALARM PANEL.
5. INLET CONNECTIONS TO BE 4" PVC PIPE. SEE SITE UTILITY PLAN FOR LOCATION DETAILS.
8. CONTRACTOR SHALL SUBMIT PUMP STATION DETAILS AND MANUFACTURERS INFORMATION FOR APPROVAL

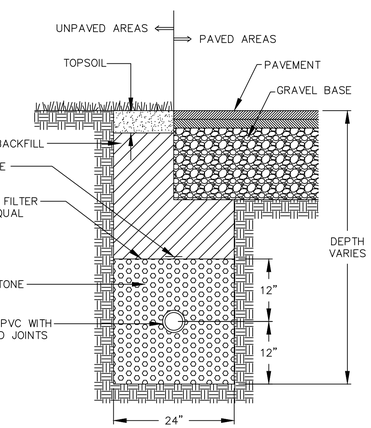
INSTALLATION NOTES:

1. REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADJUSTING HEIGHT OF STATION TO MAINTAIN INVERT ELEVATIONS.
2. INLETS TO STATION ARE 180° APART - SITE PIPING TO BE ADJUSTED ACCORDINGLY, ADDING CLEAN OUT AS NEEDED AT BENDS.
3. REFER TO PUMP STATION INSTALLATION AND BALLAST DETAIL (SHEET 8A) FOR CONCRETE AND BACK FILL REQUIREMENTS.



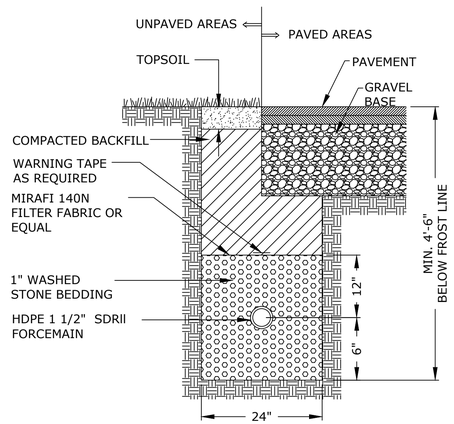
PUMP STATION SECTION AND DETAILS

NOT TO SCALE



SANITARY SEWER TRENCH

NOT TO SCALE



FORCEMAIN SEWER TRENCH

NOT TO SCALE

REV.	DATE	DESCRIPTION	BY	CHK.
4	2026.04.22	Add Pump Station Details, Sheets 08 A, 12 and 13	MD	TAP
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1	2025.02.06	Drainage Modification	JS	TAP

DRAWING ISSUE STATUS

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140 Willow Street
Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

TITLE

SANITARY SEWER DETAILS

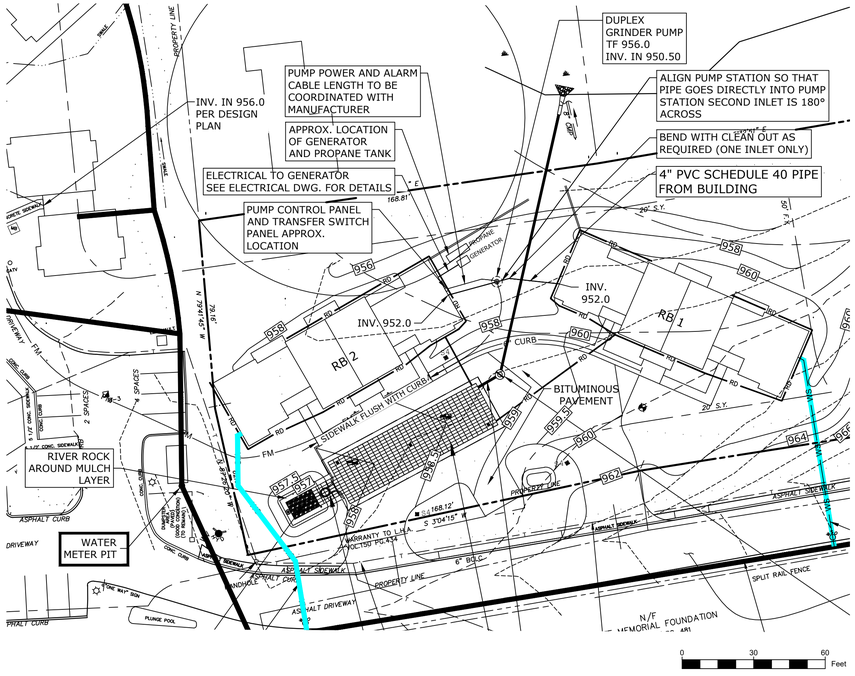
STATE OF CONNECTICUT — TIMOTHY ARCARI — No. 16473 — LICENSED PROFESSIONAL ENGINEER

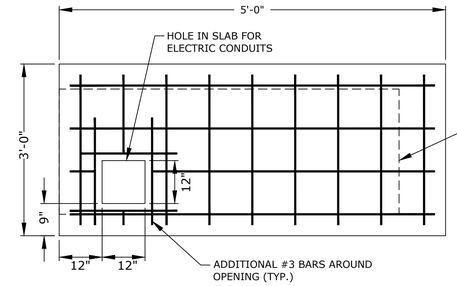
DATE: February 5, 2025 | SCALE: AS NOTED
DRAWN BY: JS | DESIGNED BY: TAP | CHECKED BY: TAP
PROJECT No.: 4010271.002
DRAWING No.: 08 | REV.: 4

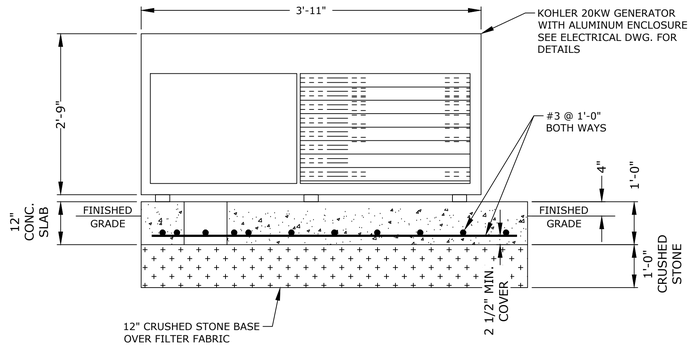
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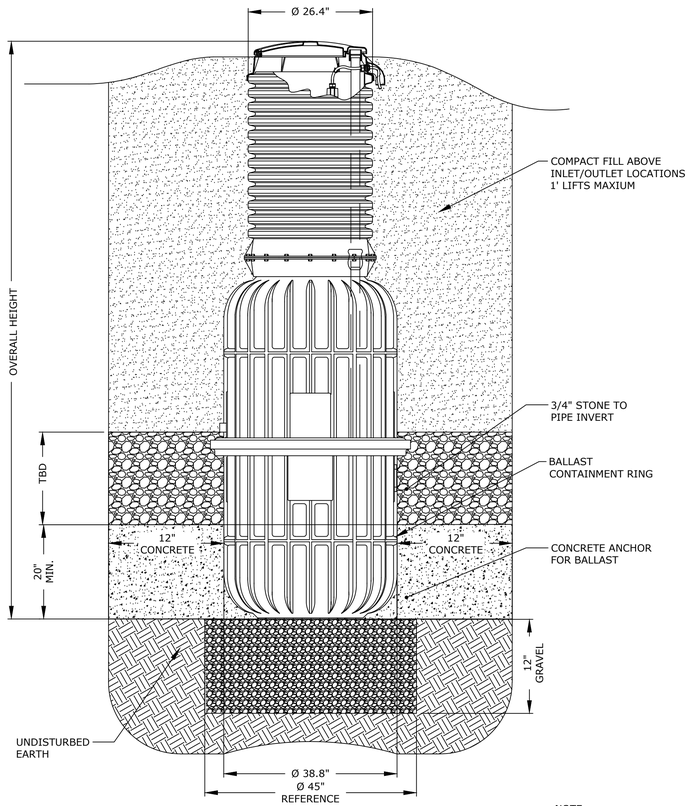
NOTES:

1. POWER CONDUIT ALARM PANEL AND DEVICE TO BE LOCATED PER ELECTRICAL DRAWINGS.
2. REFER TO ELECTRICAL DRAWINGS FOR GENERATOR DETAILS







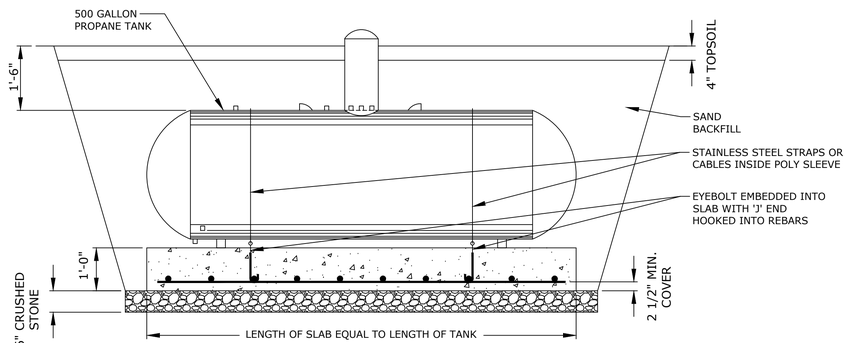


PUMP STATION TRENCH AND BALLAST DETAIL

NOT TO SCALE

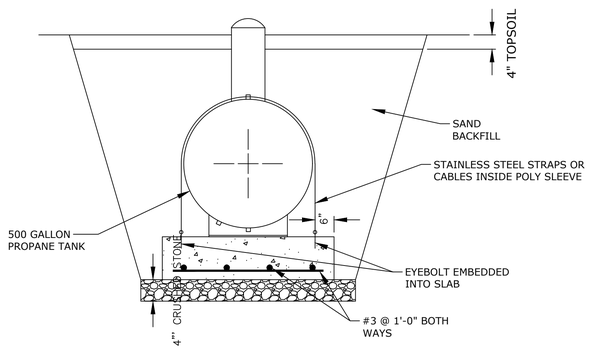
NOTE:

REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ADDITIONAL DETAILS.



SIDE VIEW

NOT TO SCALE



END VIEW

NOT TO SCALE

REV.	DATE	DESCRIPTION	BY	CHK.

DRAWING ISSUE STATUS

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140 Willow Street
Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

TITLE

PUMP STATION
PLAN AND DETAILS

STATE OF CONNECTICUT — MICHAEL W. DEMPSEY — No. 16473 — LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
APRIL 7, 2026	AS NOTED
DRAWN BY: LJC	DESIGNED BY: MWD	CHECKED BY: TAP
PROJECT No.	4010271.002
DRAWING No.	8A	REV. 4

FILE LOCATION: P:\CT\4010271 - QAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\CIVIL\PROJECT.DWG, 2026.04.22, 4:22 PM

SOIL EROSION AND SEDIMENT CONTROL PLAN NARRATIVE

1. INTRODUCTION AND PERMIT COMPLIANCE

Pursuant to Connecticut P.A. 83-388, this project requires a Soil Erosion and Sediment Control Plan and Narrative.

This narrative describes the **minimum** measures required to control soil erosion during and after construction of the sitework shown on this plan. The soil erosion and sediment control measures shown on this plan are designed in accordance with a document entitled "Connecticut Guidelines for Soil Erosion and Sediment Control" published by the Connecticut Council on Soil and Water Conservation in Collaboration with Connecticut Department of Energy and Environmental Protection effective March 30, 2024. The Contractor may be required to implement additional measures to prevent site erosion and sedimentation of downstream waterways.

The Contractor is required to obtain copies of, and comply with the conditions of all permits for this project, including but not limited to:

- Municipal Inland Wetlands Permit
- Municipal Planning & Zoning Permit

The Contractor's activities and operations include all site work and work incidental to the project including, but not limited to haul roads, waste and disposal areas, staging areas, and field offices. If any of his activities require approvals above and beyond those already accounted for by the Owner's permits, the Contractor shall apply for and obtain such permits prior to conducting those operations. If incidental work such as haul roads, waste and disposal areas, staging areas, and field offices are not shown on the plans, and require additional erosion control, the Contractor shall provide such controls.

2. PROJECT DESCRIPTION AND SITE CHARACTERISTICS

The site is made up of two parcels of land that total 5.7 acres of residential land on the south side of Route 118. The topography varies across the site but is generally in the 5% to 10% in the area of development. The property is a small meadow surrounded by a wooded area. Runoff from the site drains to a small pond on the property to the west. There is floodplain on the land associated with the Bantam River, but it is well outside of the development area.

The project consists of two multi-family residential buildings with four units each. Specific construction activities include:

- Clearing and grubbing
- Earth excavation
- Building construction
- Utility construction
- Parking lot construction
- Underground detention basin construction

3. CONSTRUCTION SEQUENCING

1. Confirm all permits are in place.
2. Hold preconstruction conference if required by the Town.
3. Have surveyor stake limits of disturbance.
4. Install perimeter erosion control measures.
5. Perform clearing and grubbing.
6. Strip and stockpile topsoil in work area.
7. Have surveyor stake the buildings.
8. Excavate for foundations and begin building construction.
9. Install additional erosion control measures where shown on the plans.
10. Install utilities and underground detention system.
11. Install sediment control measures at detention basin inlet.
12. Construct parking areas.
13. Prepare lawn areas and install landscape plantings.
14. Cover all seeded areas with erosion control blanket.
15. Complete building construction.
16. Maintain erosion protections until the site is completely stabilized.

Work is expected to begin after all permits have been granted and funding is in place. Work is expected to take 18 months to complete.

4. RESPONSIBILITY

4.1 RESPONSIBILITIES OF OWNER/PERMITEE

The Owner/Permitee is the Litchfield Housing Authority, 30 Doyle Road, Suite 37, Bantam, CT 06750. Phone 860-459-4417. The Owner/Permitee shall:

A. Provide the Contractor with copies of land-use permits that Owner has acquired.

B. Inform all parties involved with the proposed site work of this plan's objectives and requirements.

4.2 RESPONSIBILITIES OF CONTRACTOR

The Contractor is responsible for preventing erosion of the site and for protecting adjacent waterways from sedimentation. The Contractor shall:

A. Install, monitor, and maintain the soil erosion and sediment control measures as shown on this plan.

B. Comply with all permit requirements.

C. Provide the Owner, Engineer, and the municipality with 24 hour phone numbers in the event of an emergency at the site.

5. PRECONSTRUCTION CONFERENCE

If required by the Town, the Contractor shall initiate a preconstruction conference with the Owner, Contractor, Engineer, and a municipal representative to review the proposed soil erosion and sediment control measures.

6. DESCRIPTION AND MAINTENANCE OF EROSION CONTROL MEASURES

6.1 TEMPORARY STABILIZATION MEASURES

Temporary Grass Cover:

Provide temporary grass cover where indicated on the plans or where temporary land grading will be unaltered for more than one month but less than 12 months. The Contractor shall loosen the soil to a depth of two inches before seeding. If existing soil is not capable of growing grass, the Contractor shall spread at least two inches of topsoil over the loosened surface. If seeding commences during the summer or early autumn, the annual or perennial ryegrass seed shall be used. If seeding commences in spring or late autumn, the winter ryegrass seed shall be used. Seeding rates shall be 5 lbs./1000 sq. ft. Hay mulch shall be spread at the rate of 100 lbs./1000 sq. ft. The Contractor shall irrigate the grass until an acceptable stand of grass is established.

Filter Sock:

Install filter sock as shown on the plans and details. Socks shall consist of a filter media inside of a mesh tube. Stake the filter sock at four-foot intervals or as called for by the manufacturer. Filter socks less than 12 inches in diameter shall be installed in a shallow depression. Where the filter sock is not continuous, it shall be overlapped a minimum of three feet. Remove sediment once levels have reached 1/4 of the effective sock. Repair and/or replace filter sock immediately if damaged or deteriorated. See table below for more information.

Project Duration	Mesh Material
Up to 5 years	Multi-Filament Polypropylene
Up to 12 months	Biodegradable Cotton Fiber
Up to 18 Months	Biodegradable Wood Fiber

Stockpiling or Storage of Excavated Materials:

Completely surround all temporary (2-4 weeks) material stockpiles with haybales or silt fence to prevent transportation of sediment. Seed stockpiles that will remain for a longer duration with a quick-growing rye grass.

Fabric Slope Protection:

Install fabric slope protection on the sloping areas shown on the plan. The Contractor shall select a fabric from the Connecticut Department of Transportation's Approved Product List. The fabric shall meet the requirements of *Class 1 Type A Slope Protection*. The fabric shall be installed in accordance with the manufacturers instructions and guidelines. The Contractor shall maintain the fabric until a stand of grass, acceptable to the Owner, is established.

Dust Control:

Take precautions to prevent dust from becoming a nuisance to abutting property owners. Broom off pavements adjoining the excavation on a daily basis. Cover and/or keep all earth stockpiles moist at all times. Use calcium chloride to control dust over certain areas of the site, as directed by the Engineer or shown on the plans. Calcium chloride shall conform to ASTM D-98, Type I. The Contractor shall maintain and inspect, on a daily basis, the adequacy of dust control measures and correct any deficiencies immediately.

Tree Protection:

The Owner will select trees or groups of trees to remain prior to construction. The Contractor shall provide snow fencing, board fencing, or cord fencing around trees or groups of trees to protect them against damage. The Contractor shall be responsible for selecting and installing the protection measures most appropriate for the conditions present. The Contractor shall repair and/or replace tree protection measures immediately if damaged during construction.

6.2 TEMPORARY STRUCTURAL MEASURES

Catch Basin Protection, Haybales:

Use haybales for protection of catch basins in a low point. Place haybales around all four sides of the catch basins to minimize sediment entering the drainage system. Firmly stake haybales into the pavement base material. Remove sediment from around the bales once levels reach 1/4 the effective height of the bales. Replace the haybales immediately if they are damaged or deteriorated.

6.3 PERMANENT STABILIZATION MEASURES

Loam, Seed, and Mulch:

Follow the Landscape Architect's specifications and requirements for topsoil, seed, fertilizer, and mulch. See the Planting Plan and Planting Details Sheet.

Landscape Plantings:

Provide plantings to control erosion, as indicated on the plans. This work includes furnishing and planting trees, shrubs, and groundcover plants of the types and sizes indicated on the drawings. The Contractor may also be required to: 1) furnish and place topsoil, 2) guy or stake trees or shrubs, 3) fertilize, 4) water, 5) prune, 6) spray, 7) install mulch, and 8) establish all groundcover prior to the end of the period of acceptance. The Contractor is responsible for the above activities until final acceptance by the Owner.

6.4 PERMANENT STRUCTURAL MEASURES (POST CONSTRUCTION STORMWATER MANAGEMENT)

Grass-Lined Drainage Swale:

Construct grass-lined drainage swales as shown on the drawings. Do not discharge runoff onto the swale until grass is established. Establishment measures may require temporary diversions, jute mesh, fertilizer, irrigation, and other management practices.

Protect the swales from erosion by vegetative means as soon after construction as possible and before diversions, run-offs, or other channels are discharged into them.

The Contractor's maintenance responsibilities include irrigation, mowing, cleaning of debris, cleaning of sediment, and replacement and/or repair of bare or eroded areas.

Land Grading:

Proposed grades are shown in detail on the plan.

In general, the Contractor shall properly stockpile earth, move it to fill areas, or export it from the site. Place and compact fill in shallow lifts, proceeding uphill from the toe area. Create large but shallow runoff collection areas at the end of each working day to help collect and prevent runoff from running down the fill face.

Bring all excavated, filled, or disturbed areas to final grade as soon as possible and stabilize areas with loam, seed and mulch immediately. Keep erosion control measures in place until the site is stabilized with pavement and/or vegetation.

Riprap Apron/Outlet Protection:

Construct outlet protection, in the form of a riprap apron, at storm sewer outfalls as shown on the plans and details. The aprons dissipate energy and reduce runoff velocity. Remove accumulated sediment from the apron after the site is stabilized with grass and/or pavement.

Detention Basin:

An underground detention basin is required, as shown on the plans and details, to reduce the peak rate of runoff leaving the site. Construct the detention basin according to the plans and details and stabilize the slopes as quickly as possible. Protect the basin inlet from sediment during construction.

Permanent Trench Paving:

This pavement replaces the temporary paving and provides a permanent sealing of the trench excavation. Remove and properly dispose of all temporary pavement. Maintain the adjacent areas clean and free of materials resulting from the removal operations. Replace the paving as shown in the details. If the construction schedule allows, defer pavement replacement for a period of one freeze/thaw cycle after construction of the temporary bituminous pavement.

6.5 OTHER CONTROLS

Waste Disposal:

Provide an adequate number of covered waste containers to ensure that no litter, debris, building materials, or similar materials are discharged to wetlands or watercourses. Instruct subcontractors to use the containers for waste material. Empty the containers promptly when full.

Construction Entrance:

Place clean washed stone (CONNDOT No.3 stone) at the site entrance(s) to the length, width and depth indicated on the plans and details to help remove mud and/or clods of soil from construction vehicles exiting from the site. Add stone as necessary to maintain adequate serviceability.

Pavement Maintenance:

The Contractor shall sweep paved roadways adjacent to the site on a routine basis to prevent tracking of mud onto public roadways and washing of mud into waterways. If the Contractor's schedule for cleaning the pavement is found to be inadequate by the Owner, Owner's Representative, or the municipality, the Contractor shall increase the frequency at no additional cost to the Owner.

Cleaning of Stormwater Structures:

Clean all stormwater structures, including, but not limited to pipes, swales, detention basins, sediment traps, and riprap aprons of sediment upon completion of the project.

Concrete Washout Area:

Washout of equipment for concrete shall be conducted in the designated area. Such washout shall be conducted: (1) outside of any buffers and at least 50 feet from any stream, wetland or other sensitive resource; or (2) in an entirely self-contained washout system.. The Contractor shall direct all washwater into a container or pit designed such that no overflows can occur during rainfall or after snowmelt.

At least once per week, the Contractor shall inspect all of the containers or pits used for washout to ensure structural integrity, adequate holding capacity, and to check for leaks or overflows. If there are signs of leaks, holes or overflows in the containers or pits that could lead to a discharge, the Contractor shall repair them prior to further use.

The Contractor shall remove hardened concrete waste whenever the hardened concrete has accumulated to a height of ½ of the container or pit or as necessary to avoid overflows.

7. DEWATERING

Construction Dewatering:

This item includes methods and equipment necessary to maintain, in a dry condition, any areas in which construction is to be conducted. These methods include pumping, draining, installing well-points and/or cofferdams. Whatever the methods or equipment used, dispose of the discharge water in such a manner to avoid pollution of existing watercourses, injury to persons or public or private property.

The Contractor shall develop a dewatering program designed to ensure that disposal of all dewatering wastewaters will not cause scouring or erosion or contain suspended solids in amounts which could reasonably be expected to cause pollution of wetlands or waterways. Discharge wastewaters in a manner which minimizes the discoloration of receiving waters.

The Contractor shall construct a silt fence/haybale barrier at the outlet of the dewatering system. The wastewater must pass through this barrier prior to discharge to any storm sewer or watercourse. The Contractor shall continually monitor the discharge to ensure the barrier is functioning properly. The barrier shall be maintained in working condition until dewatering operations are complete.

8. GENERAL CONDITIONS

8.1 If erosion control measures are damaged by construction vehicles, acts of vandalism, or severe weather conditions, the Contractor shall immediately remove sediment in the vicinity of the erosion control measures and repair these measures to a functional condition.

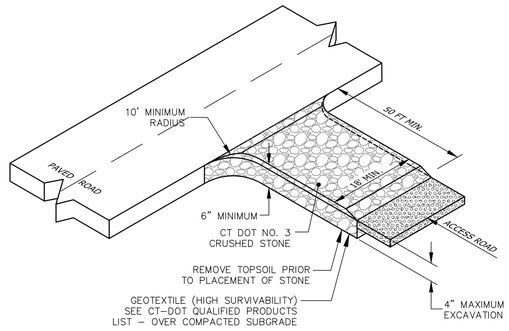
8.2 If, during or after construction, it becomes apparent that existing erosion control measures are incapable of controlling erosion, the Owner, the Engineer, or the municipality may require additional control measures including, but not limited to; additional haybales, silt fence, sediment basins, or mechanically anchored mulch.

8.3 Refueling of equipment or machinery within 75 feet of any wetland or watercourse is prohibited.

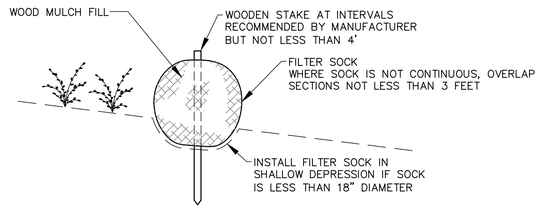
8.4 No materials resulting from construction activities shall be placed in or allowed to contribute to the degradation of an adjacent wetland or watercourse. Disposal of any material shall be in accordance with Connecticut General Statutes, including, but not limited to, Sections 22a-207 through 22a-209.

8.5 Dumping of oil, chemicals or other deleterious materials on the ground is forbidden. The Contractor shall provide a means of catching, retaining, and properly disposing of drained oil, removed oil filters, or other deleterious material. All spills of such materials shall be reported immediately by the Contractor to the DEEP.

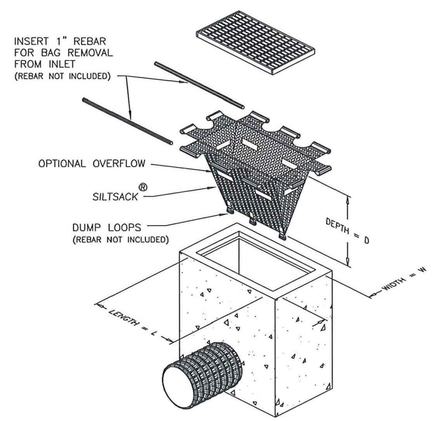
8.6 No application of herbicides or pesticides within 75 feet of any wetland or watercourse will be allowed. All such applications must be done by a Connecticut licensed applicator. The Contractor shall submit to the Owner the proposed applicator's name and license number, and must receive the Owner's approval of the proposed applicator, before such application is carried out.



CONSTRUCTION ENTRANCE
NTS



FILTER SOCK
NOT TO SCALE



SILTSACK
NOT TO SCALE

REV.	DATE	DESCRIPTION	BY	CHK.
4	2026.04.22	Add Pump Station Details, Sheets 08 A, 12 and 13	MD	TAP
3	2025.09.09	Respond to Town Comments Sheet 05, L1.0, L1.1	JS	TAP
2	2025.04.07	Focalpoint and R-Tank Details	JS	TAP
1	2025.02.06	Drainage Modification	JS	TAP

DRAWING ISSUE STATUS

FOR BIDDING

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
140 Willow Street
Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

TITLE

EROSION CONTROL PLAN NARRATIVE AND DETAILS

STATE OF CONNECTICUT — TIMOTHY A. PARKS — No. 16473 — LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
February 5, 2025	AS NOTED

DRAWN BY	DESIGNED BY	CHECKED BY
JS	TAP	TAP

PROJECT No. 4010271.002

DRAWING No. 09 REV. 4

FILE LOCATION: P:\CT\4010271 - QAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\CIVIL\PROJECT.DWG, 2026.04.23, 11:16 AM

FOCALPOINT QUANTITIES

# OF R-TANK SD SINGLE UNITS	66
# OF R-TANK SD TRIPLE UNITS	447
TOTAL SYSTEM STORAGE	4,198 CF
R-TANK STORAGE VOLUME	3,069 CF
STONE STORAGE VOLUME (33% VOID RATIO)	1,129 CF
EXCAVATION FOOTPRINT	2,059 SF
BRIDGING STONE QUANTITY	2 CY
DRAINAGE STONE QUANTITY	131 CY
FOCALPOINT MEDIA QUANTITY	5 CY
SR-18 MICROGRID (BETWEEN FOCALPOINT & R-TANK)	12 SY
N080 NON-WOVEN GEOTEXTILE TANK WRAP	427 SY
N080 NON-WOVEN GEOTEXTILE EXCAVATION WRAP	620 SY
ACF BX-12 GEOGRID	362 SY
6" FOCALPOINT INSPECTION PORT	1
R-TANK INSPECTION PORTS	5
PIPE BOOTS (8" | 12")	(2 | 1)

ELEVATIONS - FOCALPOINT & R-TANK UNDERDRAIN

DESCRIPTION	SD (SINGLE | TRIPLE)
TOP OF MULCH ELEVATION	956.50
TOP OF MEDIA ELEVATION	956.25
DEPTH OF MEDIA	18"
TOP OF BRIDGING STONE ELEVATION	954.75
TOP OF STONE ELEV. (EXPANDED R-TANKS)	(955.25 | 956.69)
TOP OF R-TANK UNDERDRAIN ELEVATION	(954.25 | 955.69)
R-TANK UNDERDRAIN INVERT	953.46
INVERT OF STONE BASE (3")	953.21

LEGEND

R-TANK SD SINGLE UNITS

R-TANK SD TRIPLE UNITS

R-TANK INSPECTION PORT

6" FOCALPOINT INSPECTION INLET

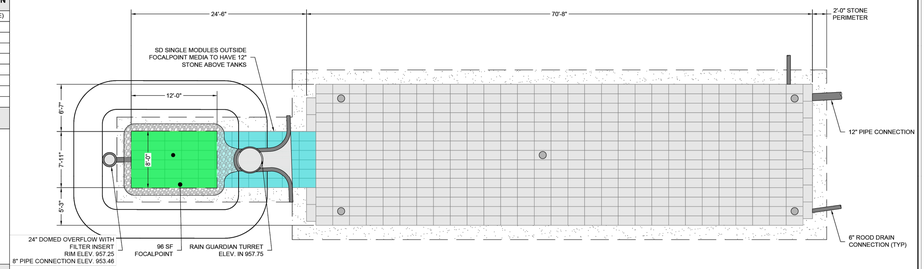
PIPE CONNECTION

EXCAVATION PERIMETER

PERIMETER BACKFILL

NOTES & DISCLAIMERS

1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. BACKFILL, GEOTEXTILE, AND/OR LINER QUANTITIES ARE APPROXIMATIONS BASED ON DIMENSIONS SHOWN.
3. CONSULTANT DRAWINGS ARE BEING RELIED UPON AS BEING ACCURATE IN DEPICTING SITE CONDITIONS, THAT THEY SATISFY ANY LOCAL BUILDING CODE REQUIREMENTS, AND THAT THEY ACCURATELY DEPICT SUBSURFACE CONDITIONS.
4. FERGUSON SUPPLIES THE PRODUCTS ONLY AND TAKES NO RESPONSIBILITY FOR INSTALLATION AND HAS NO ROLE IN THE INSTALLATION OF THE PRODUCTS.
5. R-TANK SYSTEMS ARE NOT DESIGNED TO SUPPORT LOADS FROM BUILDINGS, RETAINING WALLS, ETC. THEREFORE, THE ENGINEER OF RECORD MUST COORDINATED WITH THE PROPER DISCIPLINES TO ENSURE NO STRUCTURAL LOADS ARE IMPARTED UPON THE SYSTEM AND ANY INFILTRATION FROM THE SYSTEM HAS BEEN ACCOUNTED FOR IN FOUNDATION DESIGN.
6. STOCKPILES NOT PERMITTED ABOVE, OR ADJACENT TO SYSTEM. NEARBY STOCKPILES SHOULD BE RELOCATED SO AS TO NOT IMPART ANY ADDITIONAL LOADS ONTO THE R-TANK MODULES.



DATE	INITIALS	DESCRIPTIONS

FocalPoint BIOFILTRATION SYSTEMS

DISTRIBUTED BY: FERGUSON WATERWORKS

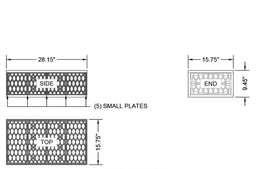
FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA

0 10' 20'

SYSTEM LAYOUT
RIVER BEND
LITCHFIELD, CT

DRAWN BY	BMK
DATE	04/04/2025
SHEET NO.	2 of 7

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

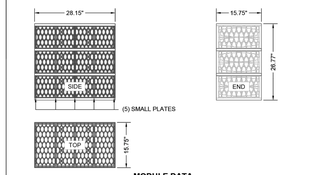


MODULE DATA

GEOMERY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 9.45 IN. (240 MM)
TANK VOLUME = 2.42 CF
STORAGE VOLUME = 2.30 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING:
42.9 PSI, (MODULE ONLY)
HS20/HS25 - SEE SPEC FOR COVER REQUIREMENTS
MATERIAL:
100% RECYCLED POLYPROPYLENE
SMALL PLATES REQUIRED:
5/SEGMENT, 5/MODULE

SINGLE R-TANK^{SD} - MODULE DETAIL



MODULE DATA

GEOMETRY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 26.77 IN. (680 MM)
TANK VOLUME = 6.87 CF
STORAGE VOLUME = 6.52 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

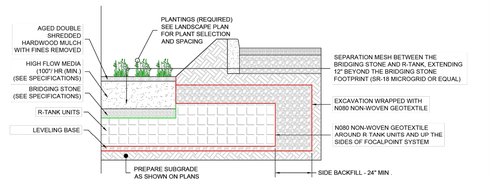
LOAD RATING:
42.9 PSI, (MODULE ONLY)
HS20/HS25 - SEE SPEC FOR COVER REQUIREMENTS
MATERIAL:
100% RECYCLED POLYPROPYLENE
SMALL PLATES REQUIRED:
5/SEGMENT, 15/MODULE

TRIPLE R-TANK^{SD} - MODULE DETAIL

R-TANK UNIT LOAD RATING

UNIT TYPE	COMPRESSION STRENGTH	NON-VEHICULAR MIN. COVER*	HS-20 MIN. COVER*	HS-25 MIN. COVER*	MAX. COVER*
SD	42.9 PSI	12"	18"	19"	9.99'

* MINIMUM AND MAXIMUM COVER ARE MEASURED FROM THE TOP OF THE R-TANK UNIT TO THE TOP OF THE FINISHED SURFACE.



TYPICAL FOCALPOINT SECTION

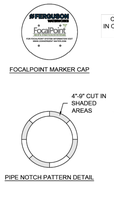
R-TANK INSPECTION PORT DIMENSIONS

UNIT TYPE	PORT DIAMETER ("A")	TALL SLOT HEIGHT ("B")	SHORT SLOT HEIGHT ("C")
HD	12"	9"	4"
SD	12"	7"	4"
UD	10"	9"	4"
XD	12"	VARIES*	VARIES*

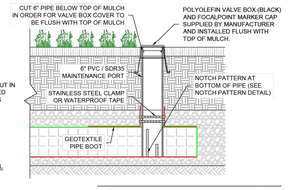
* VERTICAL HEIGHTS VARY BASED ON THE STACKING HEIGHT OF THE XD SYSTEM. THE TOP OF ANY OPENING SHOULD NOT EXCEED THE TOP OF THE STACK HEIGHT.



FRONT VIEW OF INSPECTION PORT



PIPE NOTCH PATTERN DETAIL



FOCALPOINT 6" INSPECTION PORT DETAIL

DATE	INITIALS	DESCRIPTIONS

FocalPoint BIOFILTRATION SYSTEMS

DISTRIBUTED BY: FERGUSON WATERWORKS

FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA

SYSTEM DETAILS
RIVER BEND
LITCHFIELD, CT

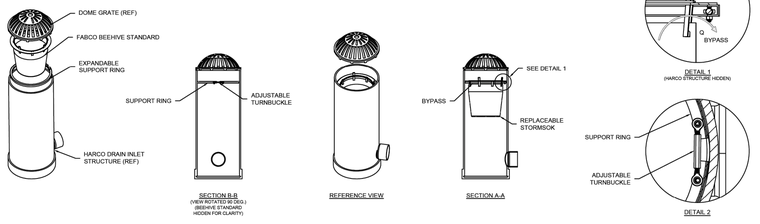
DRAWN BY	BMK
DATE	04/04/2025
SHEET NO.	3 of 7

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

GENERAL INSTALLATION:
ADJUST THE TURNBUCKLE DOWN TO GIVE THE SMALLEST RING DIAMETER AND LOCATE THE EXPANSION RING INTO THE HARCO STRUCTURE MINIMUM OF 6-IN DOWN FROM THE TOP OPENING AS SHOWN. BEGIN OPENING THE TURNBUCKLE UNTIL THE EXPANSION RING IS SELF SUPPORTING, THEN VERIFY THE RING IS LEVEL AND PLUMB TO THE HARCO STRUCTURE. USING A CALIBRATED TORQUE WRENCH, CONTINUE TO OPEN THE TURNBUCKLE TO GIVEN TORQUE (MODEL-SPECIFIC). DO NOT OVER TIGHTEN. INSTALL THE STORMSACK ASSEMBLY DIRECTLY ON THE SUPPORT RING.

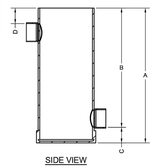
NOTES:
1. MATERIAL:
   A) SUPPORT FLANGE: ALUMINUM ALLOY PLATE, 5000 SERIES
   B) STORMSOK: WOVEN POLYPROPYLENE GEOTEXTILE
   C) EXPANSION RING: ALUMINUM ALLOY CHANNEL, 6000 SERIES
   D) HARDWARE: STAINLESS STEEL
2. RECOMMENDED MINIMUM VAULT DEPTH: 2-IN BELOW STORMSOK
3. USE ONLY WITH FABCO REPLACEABLE STORMSOK

STRUCTURE DIA (IN.)	DEBRIS CAPACITY (CU. FT.)	FILTERED FLOWRATE (CFS)	BYPASS FLOWRATE (CFS)
12	0.60	1.21	1.00
15	0.80	0.50	1.50
18	1.00	1.70	1.60
24	2.30	2.80	2.60
30	2.30	2.80	2.6



FABCO BEEHIVE STANDARD OVERFLOW FILTER STRUCTURE

BASIN LOCATION	DRAIN BASIN DIA (")	GRATE TYPE	"A" BASIN HEIGHT
FOCALPOINT 1	24	DOMED	4.46 FT



SIDE VIEW



TOP VIEW

MIN. SUMP "C" AND MIN. TOP OF BASIN TO TOP OF STUB "D"	
8" BASIN	4"
10"-18" BASIN	6"
24" BASIN	8"
30" BASIN	10"
36" BASIN	14"

NOTES:
A - OVERALL DRAIN BASIN HEIGHT
B - TOP OF BASIN TO INVERT OF STUB (FLOW LINE)
C - SUMP - REFER TO CHART FOR MINIMUMS
D - TOP OF BASIN TO TOP OF STUB - REFER TO CHART FOR MINIMUMS

	STUB DIA (IN.)	LOCATION (DEGREES)	"B" INVERT HEIGHT	TYPE OF PIPE	PIPE MANUFACTURER
STUB #1	8	0	3.79 FT	SDR-35	PLEASE VERIFY
STUB #2					

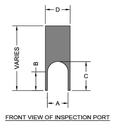
DRAIN BASIN STUB DETAIL

NOTES
1. THE INSPECTION PORT IS USED IN THE ACCESS MODULE TO INSPECT THE LEVEL OF SEDIMENT ACCUMULATION AND PERFORM ROUTINE MAINTENANCE.
2. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION DURING THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER. FLUSH AS NEEDED.
3. R-TANK^{HD}, R-TANK^{SD}, R-TANK^{UD}, R-TANK^{XD} MAY BE USED IN TRAFFIC APPLICATIONS. SEE TRAFFIC LOADING DETAIL FOR MINIMUM & MAXIMUM COVER REQUIREMENTS.
4. IF INSPECTION PORT IS LOCATED IN A NON-TRAFFIC AREA, A PLASTIC CAP CAN BE USED IN LIEU OF A FRAME AND COVER WITH CONCRETE COLLAR.

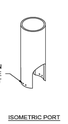
R-TANK INSPECTION PORT DIMENSIONS

UNIT TYPE	DOGHOUSE BOTTOM WIDTH ("A")	DOGHOUSE VERTICAL LENGTH ("B")	DOGHOUSE OPENING HEIGHT ("C")	PORT DIAMETER ("D")
HD	10"	9"	14"	12"
SD	10"	3"	8"	12"
UD	8"	7"	12"	10"
XD	10"	VARIES**	VARIES**	12"

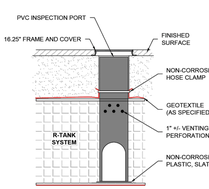
* PORTS ARE SUPPLIED WITH A STANDARD DOGHOUSE LENGTH OF 9". THE OPENING LENGTH SHALL BE REDUCED IN THE FIELD TO CORRESPOND WITH THE SPECIFIED PRODUCT TYPE.
** VERTICAL HEIGHTS VARY BASED ON THE STACKING HEIGHT OF THE XD SYSTEM. THE TOP OF ANY OPENING SHOULD NOT EXCEED THE TOP OF THE STACK HEIGHT.



FRONT VIEW OF INSPECTION PORT



ISOMETRIC PORT



R-TANK TYPICAL NON-VEHICULAR LOAD RATED INSPECTION PORT

DATE	INITIALS	DESCRIPTIONS

FocalPoint BIOFILTRATION SYSTEMS

DISTRIBUTED BY: FERGUSON WATERWORKS

FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA

SYSTEM DETAILS
RIVER BEND
LITCHFIELD, CT

DRAWN BY	BMK
DATE	04/04/2025
SHEET NO.	4 of 7

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

FOCALPOINT HPMBS PERFORMANCE SPECIFICATION:

HIGH PERFORMANCE MEDIA
- HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100" PER HOUR INFILTRATION RATE.

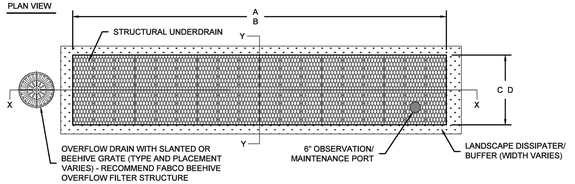
HIGH PERFORMANCE STRUCTURAL UNDERDRAIN
- MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
- MUST MEET HS-20 LOADING REQUIREMENTS.
- MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
- MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.

PLANT COMPONENT
- SUPPLIER SHALL PROVIDE LIST OF ACCEPTABLE PLANTS
- IF PLANTS ARE NOT INCLUDED IN THE LANDSCAPE CONTRACT/PLANS, SITE CONTRACTOR SHALL PROVIDE PLANTS.
- PLANTS SHALL BE INSTALLED AT THE TIME THE SYSTEM IS COMMISSIONED FOR USE. PLANTING OUTSIDE THIS TIME REQUIRES APPROVAL BY THE ENGINEER/LANDSCAPE ARCHITECT OF RECORD.
- SEE FOCALPOINT INSTALLATION GUIDE FOR PLANT SPACING, PLANTING PROCEDURES ETC.

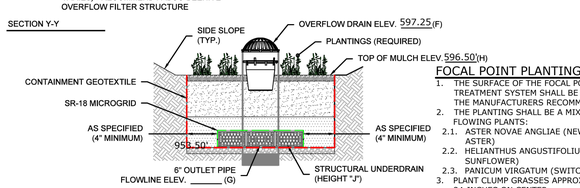
FOCALPOINT HPMBS CONSTRUCTION GUIDE

A	FOCALPOINT LENGTH	12.0'
B	# UNDERDRAIN LONG	23.5'
C	FOCALPOINT WIDTH	8.0'
D	# UNDERDRAIN WIDE	8.0'
E	WATER QUALITY VOLUME	888 C.F.'
F	OVERFLOW ELEVATION	957.25
G	OVERFLOW FLOWLINE	953.5'
H	TOP OF MULCH	956.50'
I	TOP OF GABION (OPTIONAL)	N/A
J	UNDERDRAIN HEIGHT	9.45"

PLAN VIEW



SECTION Y-Y



FOCAL POINT PLANTING NOTES:
1. THE SURFACE OF THE FOCAL POINT WATER TREATMENT SYSTEM SHALL BE PLANTED PER THE MANUFACTURERS RECOMMENDATIONS.
2. THE PLANTING SHALL BE A MIX OF THE FLOWING PLANTS:
   2.1. ASTER NOVAE ANGLIAE (NEW ENGLAND ASTER)
   2.2. HELIANTHUS ANGUSTIFOLIUS (SWAMP SUNFLOWER)
   2.3. PANICUM VIRGATUM (SWITCHGRASS)
3. PLANT CLUMP GRASSES APPROXIMATELY 24-INCHES ON CENTER

DATE 01/28/2022

FocalPoint BIOFILTRATION SYSTEMS
DESIGNED & DETAILED IN ACCORDANCE WITH FOCALPOINT STANDARDS AND MEETS FINAL SITE SPECIFIC DESIGN.

FERGUSON WATERWORKS
FOR ADDITIONAL INFORMATION PLEASE CONTACT YOUR LOCAL FERGUSON BRANCH
1-800-440-5456 www.ferguson.com

FOCALPOINT HPMBS CONSTRUCTION GUIDE

4	2026.04.22	Add Pump Station Details, Sheets 08 A, 12 and 13	MD	TAP
3	2025.09.09	Respond to Town Comments Sheet 05, L1.0, L1.1	JS	TAP
2	2025.04.07	Focalpoint and R-Tank Details	JS	TAP
1	2025.02.06	Drainage Modification	JS	TAP
REV.	DATE	DESCRIPTION	BY	CHK.

DRAWING ISSUE STATUS

FOR BIDDING

HALEY WARD
ENGINEERING | ENVIRONMENTAL | SURVEYING
WWW.HALEYWARD.COM
140 Willow Street
Winsted, Connecticut 06098
860.379.6669

PROJECT

RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

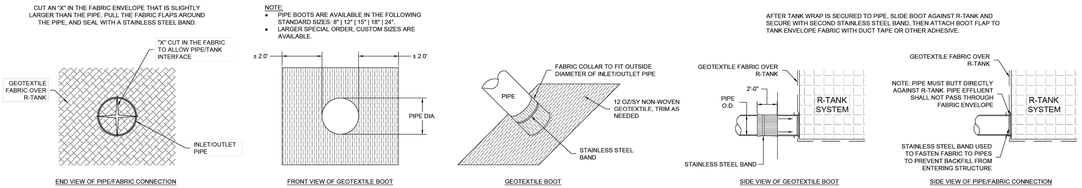
TITLE

DRAINAGE DETAILS

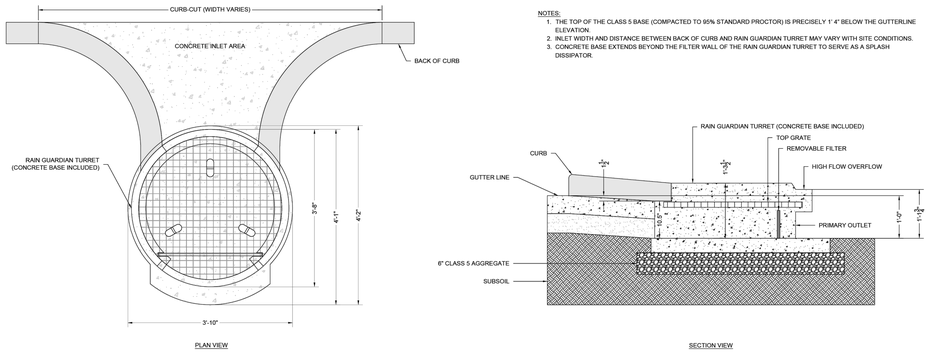
STATE OF CONNECTICUT — No. 18473 — LICENSED PROFESSIONAL ENGINEER

DATE: February 5, 2025	SCALE: AS NOTED	
DRAWN BY: JS	DESIGNED BY: TAP	CHECKED BY: TAP
PROJECT No.: 4010271.002		
DRAWING No.: 10		REV.: 4

FILE LOCATION: P:\CT\4010271 - QAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\CIVIL\PROJECT DWG, 2026.04.23, 11:16 AM



R-TANK TYPICAL TANK INLET/OUTLET W/ GEOTEXTILE PIPE BOOT DETAIL



RAIN GUARDIAN TURRET - REAR DISCHARGE DETAIL

DATE	INITIALS	DESCRIPTIONS

FocalPoint BIOFILTRATION SYSTEMS

DISTRIBUTED BY: FERGUSON WATERWORKS

FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA

SYSTEM DETAILS
RIVER BEND
LITCHFIELD, CT

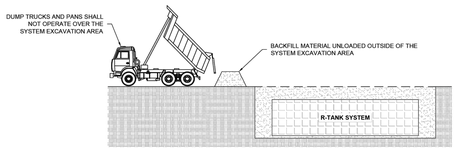
DRAWN BY	BMK
DATE	04/04/2025
SHEET NO.	5 of 7

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

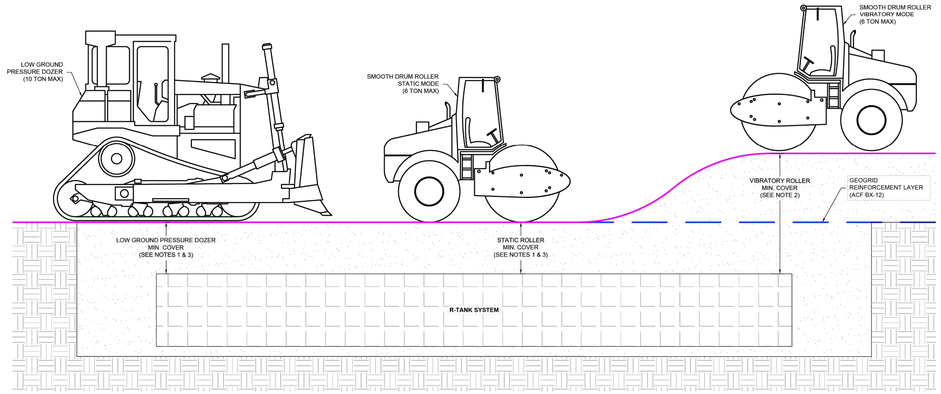
R-TANK CONSTRUCTION EQUIPMENT RECOMMENDATIONS

UNIT TYPE	COMPRESSION STRENGTH	10 TON LOW GROUND PRESSURE DOZER MIN. COVER	6 TON SMOOTH DRUM STATIC ROLLER MIN. COVER	6 TON SMOOTH DRUM VIBRATORY ROLLER MIN. COVER
HD	33.4 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 2)
SD	42.9 PSI	12" (SEE NOTE 1, 2 & 3)	12" (SEE NOTE 1, 2 & 3)	24" (SEE NOTE 2)

NOTES:
1. FOLLOWING PLACEMENT OF SIDE BACKFILL, A UNIFORM 12" LIFT OF THE FREELY DRAINING MATERIAL (SPEC SECTION 2.03.B1) SHALL BE PLACED OVER THE R-TANK AND LIGHTLY COMPACTED USING A WALK-BEHIND TRENCH ROLLER. ALTERNATELY, A ROLLER (MAXIMUM GROSS VEHICLE WEIGHT OF 6 TONS) MAY BE USED. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. **SPEC SECTION 3.05 A5**
2. AFTER THE GEOGRID IS INSTALLED OVER THE INITIAL LAYER, THE GRADED AGGREGATE BASE MATERIALS CAN BE PUSHED OUT (MAX MACHINE SIZE IS 10 TON LGP DOZER OR SMALLER) IN A SINGLE LIFT AND STATIC ROLLED BY A MACHINE WITH A MAX GROSS VEHICLE WEIGHT OF 6 TONS. ROLLER MUST REMAIN IN STATIC MODE UNTIL A MINIMUM OF 24" OF COVER HAS BEEN PLACED OVER THE MODULES. SHEEP FOOT ROLLERS SHOULD NOT BE USED. SPEC SECTION 3.05 A5
2. ONLY LOW PRESSURE TIRE OR TRACK VEHICLES (LESS THAN 7 PSI AND OPERATING WEIGHT OF LESS THAN 20,000 LBS) SHALL BE OPERATED OVER THE R-TANK SYSTEM DURING CONSTRUCTION. **SPEC SECTION 3.05 A5**
3. DUMP TRUCKS AND PANS SHALL NOT BE OPERATED WITHIN THE R-TANK SYSTEM AT ANY TIME. WHERE NECESSARY, THE HEAVY EQUIPMENT SHOULD UNLOAD IN AN AREA ADJACENT TO THE R-TANK SYSTEM AND THE MATERIAL SHOULD BE MOVED OVER THE SYSTEM WITH TRACKED EQUIPMENT. **SPEC SECTION 3.05 A5**
4. ENSURE THAT ALL UNRELATED CONSTRUCTION TRAFFIC IS KEPT AWAY FROM THE LIMITS OF EXCAVATION UNTIL THE PROJECT IS COMPLETE AND FINAL SURFACE MATERIALS ARE IN PLACE. NO NON-INSTALLATION RELATED LOADING SHOULD BE ALLOWED OVER THE R-TANK SYSTEM UNTIL THE FINAL DESIGN SECTION HAS BEEN CONSTRUCTED (INCLUDING PAVEMENT). **SPEC SECTION 3.05 B**
5. SEE R-TANK INSTALLATION GUIDE OR CONTACT YOUR LOCAL FERGUSON REPRESENTATIVE FOR ADDITIONAL INFORMATION.



DUMP TRUCK DETAIL



R-TANK HD OR SD CONSTRUCTION EQUIPMENT COVER DETAIL - VEHICULAR TRAFFIC

DATE	INITIALS	DESCRIPTIONS

FocalPoint BIOFILTRATION SYSTEMS

DISTRIBUTED BY: FERGUSON WATERWORKS

FOCALPOINT
HIGH PERFORMANCE BIOFILTRATION MEDIA

CONSTRUCTION EQUIPMENT COVER DETAIL
RIVER BEND
LITCHFIELD, CT

DRAWN BY	BMK
DATE	04/04/2025
SHEET NO.	6 of 7

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO FERGUSON WATERWORKS BY THE DESIGN ENGINEER, CONTRACTOR, OR OTHER PROJECT REPRESENTATIVE. THE ENGINEER OF RECORD SHALL REVIEW AND APPROVED THAT THE DEPICTED LAYOUT AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE REGULATIONS AND PROJECT SPECIFIC REQUIREMENTS.

FOCALPOINT SPECIFICATION

SUMMARY

THE FOLLOWING GENERAL SPECIFICATIONS DESCRIBE THE COMPONENTS AND INSTALLATION REQUIREMENTS FOR A VOLUME BASED HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS) THAT UTILIZES PHYSICAL, CHEMICAL AND BIOLOGICAL MECHANISMS OF A SOIL, PLANT AND MICROBE COMPLEX TO REMOVE POLLUTANTS TYPICALLY FOUND IN URBAN STORM WATER RUNOFF. THE MODULAR TREATMENT SYSTEM IN WHICH THE BIOLOGICALLY ACTIVE BIOFILTRATION MEDIA IS USED SHALL BE A COMPLETE, INTEGRATED SYSTEM DESIGNED TO BE PLACED IN SQUARE FOOT OR LINEAR FOOT INCREMENTS PER THE APPROVED DRAWINGS TO TREAT CONTAMINATED RUNOFF FROM IMPERVIOUS SURFACES.

THE HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM (HPMBS) IS COMPRISED OF THE FOLLOWING COMPONENTS:

A. PLANT COMPONENT
   1. MANUFACTURER SHALL PROVIDE A REGIONALIZED LIST OF ACCEPTABLE PLANTS.
   2. PLANTS, AS SPECIFIED IN THE APPROVED DRAWINGS/MANUFACTURER'S PLANT LIST, SHALL BE INSTALLED AT THE TIME THE HPMBS IS COMMISSIONED FOR USE.
   3. PLANTS AND PLANTING ARE TYPICALLY INCLUDED IN LANDSCAPE CONTRACT.
B. BIOFILTER COMPONENT
   1. THIS COMPONENT EMPLOYS A HIGH PERFORMANCE CROSS-SECTION IN WHICH EACH ELEMENT IS HIGHLY DEPENDENT ON THE OTHERS TO MEET THE PERFORMANCE SPECIFICATION FOR THE COMPLETE SYSTEM. IT IS IMPERATIVE THAT THE ENTIRE CROSS-SECTION BE PROVIDED AS A COMPLETE SYSTEM AND INSTALLED AS SUCH.
   2. AS INDICATED IN THE APPROVED DRAWINGS, THE ELEMENTS OF THE BIOFILTER INCLUDE:
      a. A MULCH PROTECTIVE LAYER (IF SPECIFIED).
      b. AN ADVANCED HIGH INFILTRATION RATE BIOFILTRATION PLANTING MEDIA BED WHICH UTILIZES PHYSICAL, CHEMICAL AND BIOLOGICAL MECHANISMS OF THE SOIL, PLANT, AND MICROBE COMPLEX, TO REMOVE POLLUTANTS FOUND IN STORM WATER RUNOFF.
      c. A SEPARATION LAYER WHICH UTILIZES THE CONCEPT OF 'BRIDGING' TO SEPARATE THE BIOFILTRATION MEDIA FROM THE UNDERDRAIN WITHOUT THE USE OF GEOTEXTILE FABRICS.
      d. A WIDE APERTURE MESH LAYER UTILIZED TO PREVENT BRIDGING STONE FROM ENTERING THE UNDERDRAIN/STORAGE ELEMENT.
      e. A MODULAR, HIGH INFILTRATION RATE 'FLAT PIPE' STYLE UNDERDRAIN/STORAGE SYSTEM WHICH IS DESIGNED TO DIRECTLY INFILTRATE OR EXFILTRATE WATER THROUGH ITS SURFACE. THE MODULAR UNDERDRAIN MUST PROVIDE A MINIMUM OF 95% VOID SPACE.
C. ENERGY DISSIPATION COMPONENT
   1. AN ENERGY DISSIPATION COMPONENT IS TYPICALLY SPECIFIED TO SLOW AND SPREAD OUT WATER AS IT ENTERS THE SYSTEM. THIS COMPONENT IS DEPENDENT UPON THE DESIGN IN THE APPROVED DRAWINGS, BUT TYPICALLY CONSISTS OF A ROCK GABION, ROCK FILTER DAM OR DENSE VEGETATION ELEMENT, SUCH AS NATIVE GRASSES, EITHER SURROUNDING THE BIOFILTRATION COMPONENT OR LOCATED IMMEDIATELY UPSTREAM OF IT.
D. PRETREATMENT COMPONENT
   1. WHERE SPECIFIED, IS TYPICALLY ACCOMPLISHED BY LOCATING THE BIOFILTRATION COMPONENT DOWNSTREAM OF A SWALE, CURB CUT/ROCK APRON, SEDIMENT FOREBAY, DEEP OR SHALLOW SUMP WATER QUALITY MANHOLE, ETC. THESE BMPS SHOULD TARGET TRASH AND DEBRIS AND MEDIUM TO COARSE SEDIMENT.
E. OBSERVATION AND MAINTENANCE COMPONENT
   1. AN OBSERVATION AND MAINTENANCE PORT SHALL BE INSTALLED PER THE APPROVED DRAWINGS TO PROVIDE FOR EASY INSPECTION OF THE UNDERDRAIN/STORAGE ELEMENT, AND CLEANOUT ACCESS IF NEEDED.
F. EXTREME EVENT OVERFLOW (BY OTHERS)
   1. AN EXTREME EVENT OVERFLOW SHALL BE LOCATED EXTERNAL TO, BUT NEAR THE BIOFILTRATION ELEMENT TO PROVIDE BYPASS WHEN NEEDED. THIS MAY BE AN OVERLAND FLOW BYPASS STRUCTURE, BEEHIVE OVERFLOW GRATE STRUCTURE, OR EQUIVALENT THAT SERVES THE PURPOSE. IF A BEEHIVE OVERFLOW STRUCTURE IS UTILIZED IT SHOULD INCLUDE A REMOVABLE FILTER INSERT TO PROVIDE A MINIMUM OF 50% TSS REMOVAL AND CONTROL OF GROSS POLLUTANTS, TRASH AND FLOATABLES.

QUALITY ASSURANCE AND PERFORMANCE SPECIFICATIONS

THE QUALITY AND COMPOSITION OF ALL SYSTEM COMPONENTS AND ALL OTHER APPURTENANCES AND THEIR ASSEMBLY PROCESS SHALL BE SUBJECT TO INSPECTION AND DELIVERY OF THE SITE TO THE WORK SITE.
INSTALLATION IS TO BE PERFORMED ONLY BY SKILLED WORK PEOPLE WITH SATISFACTORY RECORD OF PERFORMANCE ON EARTHWORKING, PIPE, CHAMBER, OR MODULAR CONSTRUCTION PROJECTS OF COMPARABLE SIZE AND QUALITY.

A. PLANTS
   1. PLANTS MUST BE COMPATIBLE WITH THE HPMBS MEDIA AND THE ASSOCIATED HIGHLY VARIABLE HYDROLOGIC REGIME. PLANTS ARE TYPICALLY FACULTATIVE WITH FIBROUS ROOTS SYSTEMS SUCH AS NATIVE GRASSES AND SHRUBS.
   2. MANUFACTURER SHALL PROVIDE A REGIONALIZED LIST OF ACCEPTABLE PLANTS.
   3. ALL PLANT MATERIAL SHALL COMPLY WITH ANY AND SIZE REQUIRED BY THE APPROVED DRAWINGS AND SHALL BE ALIVE AND FREE OF OBVIOUS SIGNS OF DISEASE.
B. MULCH
   1. MULCH, TYPICALLY DOUBLE SHREDDED HARDWOOD (NON-FLOATABLE), SHALL COMPLY WITH THE TYPE AND SIZE REQUIRED BY THE APPROVED DRAWINGS, AND SHALL BE DESIGNED TO MINIMIZE FINES. ROCK MULCH IS AN ALTERNATIVE TO WOOD-BASED MULCH AND TYPICALLY CONSISTS OF CLEAN, ROUNDED RIVER ROCK (3-4" DIAM IN SIZE).
C. BIOFILTRATION MEDIA
   1. BIOLOGICALLY ACTIVE BIOFILTRATION MEDIA SHALL BE VISUALLY INSPECTED TO ENSURE APPROPRIATE VOLUME, TEXTURE AND CONSISTENCY WITH THE APPROVED DRAWINGS, AND MUST BEAR A BATCH NUMBER MARKING FROM THE MANUFACTURER WHICH CERTIFIES PERFORMANCE TESTING OF THE BATCH TO MEET OR EXCEED THE REQUIRED INFILTRATION RATE (100 IN/HR). A THIRD-PARTY LABORATORY TEST MUST BE PROVIDED TO CERTIFY THE 100 IN/HR RATE.
   2. POLLUTANT REMOVAL PERFORMANCE, COMPOSITION AND CHARACTERISTICS OF THE BIOFILTRATION MEDIA MUST MEET OR EXCEED THE FOLLOWING MINIMUM STANDARDS AS DEMONSTRATED BY TESTING ACCEPTABLE TO THE PROJECT ENGINEER.

Pollutant	Removal Efficiency
TSS	91%
Phosphorus	66%
Nitrogen	48%
Composition and Characteristics	
Sand - Fine	< 5%
Sand – Medium	10% - 15%
Sand – Coarse	15% - 25%
Sand – Very Coarse	40% - 45%
Gravel	10% - 20%
Infiltration Rate	>100 inches per hour
Peat Moss*	5% - 15%

* Peat Moss Specification:
Listed by Organic Materials Review Institute
100% natural peat (no composted, sludge, yard or leaf waste)
Total Carbon >85%
Carbon to Nitrogen Ratio 15:1 to 23:1
Lignin Content 49% to 52%
Humic Acid >18%
pH 6.0 to 7.0
Moisture Content 30% to 50%
95% to 100% passing 2.0mm sieve
> 80% passing 1.0mm sieve

D. UNDERDRAIN/STORAGE SYSTEM
   1. UNDERDRAIN/STORAGE COMPONENTS SHALL BE MANUFACTURED IN AN ISO CERTIFIED FACILITY AND BE MANUFACTURED FROM AT LEAST 90% RECYCLED MATERIALS
   2. UNDERDRAIN/STORAGE COMPONENTS SHALL MEET OR EXCEED THE FOLLOWING CHARACTERISTICS:

Property	Value
Surface Void Area	≥ 85%
Unit Weight	3.25 lbs/cf
Service Temperature	-14° to 167°
Unconfined Crush Strength	32.48 psi

180 Day Creep Test	
Load Applied – Initial and Sustained	11.16 psi
* Creep Sustained – After 180 Days	0.20 inches
* Creep Sustained – After 180 Days	1.13%
* Projected Creep – 40 years	1.72%

E. SEPARATION MESH
   1. SEPARATION MESH SHALL BE COMPOSED OF HIGH-TENACITY MONOFILAMENT POLYPROPYLENE YARNS THAT ARE WOVEN TOGETHER TO PRODUCE AN OPEN MESH GEOTEXTILE WHICH SHALL BE INERT TO BIOLOGICAL DEGRADATION AND RESISTANT TO NATURALLY ENCOUNTERED CHEMICALS, ALKALIS AND ACIDS. THE MESH SHALL MEET OR EXCEED THE FOLLOWING CHARACTERISTICS:

Properties	Test Method	Unit	Min Avg Roll Value	
			MD	CD
Tensile Strength	ASTM D4595	kN/m (lbs/ft)	21 (1440)	25.3 (1733)
Creep Reduced Strength	ASTM D5262	kN/m (lbs/ft)	6.9 (471)	8.3 (566)
Long Term Allowable Design Load	GRI GG-4	kN/m (lbs/ft)	5.9 (407)	7.2 (490)
UV Resistance (at 500 hours)	-	% strength retained	90.00	
Aperture Size (machine direction)	-	mm (in)	2 (0.08)	
Aperture Size (cross machine direction)	-	mm (in)	2 (0.08)	
Mass/Unit Area	ASTM D5261	g/m2 (oz/yd2)	197 (5.8)	

F. BRIDGING STONE
   1. BRIDGING STONE SHALL BE 3/8" PEA GRAVEL, OR OTHER DIAMETER SIZED TO PREVENT MIGRATION OF FILTER MEDIA, AS SPECIFIED BY MANUFACTURER. STONE MUST BE WASHED AND FREE FROM SEDIMENT, SOIL AND CONTAMINANTS.

G. DELIVERY, STORAGE AND HANDLING
   1. PROTECT ALL MATERIALS FROM DAMAGE DURING DELIVERY AND STORE UV SENSITIVE MATERIALS UNDER TARP TO PROTECT FROM SUNLIGHT INCLUDING ALL PLASTICS, WHEN TIME FROM DELIVERY TO INSTALLATION EXCEEDS ONE WEEK. STORAGE SHOULD OCCUR ON SMOOTH SURFACES, FREE FROM DIRT, MUD AND DEBRIS.
   2. BIOFILTRATION MEDIA SHALL BE SEGREGATED FROM ANY OTHER AGGREGATE MATERIALS AND SHALL BE PROTECTED AGAINST CONTAMINATION, INCLUDING CONTAMINATION FROM ANY STORMWATER RUNOFF FROM AREAS OF THE SITE WHICH ARE NOT STABILIZED.

SUBMITTALS

A. PRODUCT DATA
   1. SUBMIT MANUFACTURER'S PRODUCT DATA AND APPROVED INSTALLATION MANUAL AS WELL AS MANUFACTURER'S OPERATIONS AND MAINTENANCE MANUAL FOR THE SYSTEM. IT WILL BE THE RESPONSIBILITY OF THE SYSTEM OWNER/OPERATOR OR THEIR CONTRACTOR TO ENSURE THE SYSTEM IS OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUAL.
   2. CERTIFICATION
   3. MANUFACTURER SHALL SUBMIT A LETTER OF CERTIFICATION THAT THE COMPLETE SYSTEM MEETS OR EXCEEDS ALL TECHNICAL AND PACKAGING REQUIREMENTS. BIOFILTRATION MEDIA PACKAGING MUST BEAR A BATCH NUMBER MARKING FROM THE MANUFACTURER WHICH MATCHES A LETTER FROM THE MANUFACTURER CERTIFYING PERFORMANCE TESTING OF THE BATCH TO MEET OR EXCEED THE REQUIRED INFILTRATION RATE.

B. DRAWINGS
   1. MANUFACTURER SHALL PROVIDE DIMENSIONAL DRAWINGS INCLUDING DETAILS FOR CONSTRUCTION, MATERIALS, SPECIFICATIONS, AND PIPE CONNECTIONS. THESE DIMENSIONAL DRAWINGS SHALL INDICATE THE HPMBS FILTER BED AREA (SQ. FT) AND CORRESPOND WITH AN APPROVED SET PLANS OR DRAINAGE/STORMWATER MANAGEMENT REPORT STAMPED BY THE ENGINEER OF RECORD.
   2. MANUFACTURER'S WARRANTY
   3. MANUFACTURER SHALL PROVIDE A WARRANTY FOR ALL COMPONENTS OF THE HPMBS FOR A PERIOD OF ONE YEAR PROVIDED THE UNIT IS INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUAL. IMPROPER OPERATION, MAINTENANCE OR ACCIDENTAL OR ILLEGAL ACTIVITIES (I.E. DUMPING OF POLLUTANTS, VANDALISM, ETC.) WILL VOID THE WARRANTY.

C. DESIGN COMPUTATIONS
   1. THE COMPLETE SYSTEM SIZED USING A VOLUME-BASED SIZING CRITERIA AND DEMONSTRATE, USING AN SCS STORMWATER MODELING SOFTWARE/SPREADSHEET CALCULATOR THAT THE REQUIRED WATER QUALITY VOLUME (DEFINED BY THE ENGINEER OF RECORD) PASSES THROUGH THE HPMBS PRIOR TO ACTIVATION OF THE OVERFLOW DEVICE (SET NO HIGHER THAN TWELVE (12) INCHES ABOVE THE TOP ELEVATION OF THE HPMBS (TYPICALLY DEFINED AS TOP OF MULCH). DESIGN COMPUTATIONS MUST BE PROVIDED AS PART OF THE SUBMITTAL PROCESS. IF LOCAL REGULATIONS HAVE THE SYSTEM APPROVED BASED ON AN ALTERNATIVE SIZING CRITERION THE LARGER OF THE TWO COMPUTED SIZES WILL GOVERN.

D. SUBSTITUTIONS
   1. ANY PROPOSED EQUAL ALTERNATIVE PRODUCT SUBSTITUTION TO THIS SPECIFICATION MUST BE SUBMITTED FOR REVIEW AND APPROVED PRIOR TO BID OPENING. REVIEW PACKAGE SHOULD INCLUDE THIRD PARTY REVIEWED PERFORMANCE DATA FOR BOTH FLOW RATE AND POLLUTANT REMOVAL OF BIOFILTRATION MEDIA. POLLUTANT REMOVAL DATA MUST FOLLOW SPECIFIED PROTOCOLS. ALL COMPONENTS MUST MEET OR EXCEED QUALITY ASSURANCE AND PERFORMANCE CRITERIA INDICATED HEREIN.

PROJECT CONDITIONS

REVIEW MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES AND COORDINATE INSTALLATION WITH OTHER WORK AFFECTED, SUCH AS GRADING, EXCAVATION, UTILITIES, CONSTRUCTION ACCESS AND EROSION CONTROL TO PREVENT ALL NON-INSTALLATION RELATED CONSTRUCTION TRAFFIC OVER THE COMPLETED HPMBS.
   A. COLD WEATHER
      1. DO NOT USE FROZEN MATERIALS OR MATERIALS MIXED OR COATED WITH ICE OR FROST.
      2. DO NOT BUILD ON FROZEN GROUND OR WET, SATURATED OR MUDDY SUBGRADE.
      3. CARE MUST BE TAKEN WHEN HANDLING PLASTICS WHEN AIR TEMPERATURE IS AT 40 DEGREES FAHRENHEIT OR BELOW AS PLASTIC BECOMES BRITTLE.

B. PROTECT PARTIALLY COMPLETED INSTALLATION AGAINST DAMAGE FROM OTHER CONSTRUCTION TRAFFIC WHEN WORK IS IN PROGRESS AND FOLLOWING COMPLETION OF BACKFILL BY ESTABLISHING A PERIMETER WITH HIGHLY VISIBLE CONSTRUCTION TAPE, FENCING, OR OTHER MEANS UNTIL CONSTRUCTION IS COMPLETE.
C. SOIL STABILIZATION OF THE SURROUNDING SITE MUST BE COMPLETE BEFORE THE BIOFILTRATION SYSTEM CAN BE BROUGHT ONLINE. SOIL STABILIZATION OCCURS WHEN 90% OF THE SITE HAS BEEN PAVED OR VEGETATED. TEMPORARY EROSION CONTROL AND/OR SEDIMENTATION PREVENTION MEASURES SHALL BE IMPLEMENTED TO REDUCE THE POSSIBILITY OF SEDIMENTS BEING TRANSPORTED INTO THE BIOFILTRATION SYSTEM PRIOR TO FULL STABILIZATION OF THE SITE. SIGNIFICANT SEDIMENT LOADS CAN DAMAGE THE HPBMS AND LEAD TO FAILURE IF NOT PREVENTED OR REMEDIATED PROMPTLY.

PRODUCTS

A. ACCEPTABLE HPBMS
   1. FOCALPOINT HIGH PERFORMANCE BIOFILTRATION SYSTEM
B. ACCEPTABLE BEEHIVE OVERFLOW GRATE STRUCTURE (OPTIONAL)
   1. BEEHIVE OVERFLOW GRATE STRUCTURE WITH REMOVABLE STORMSACK
C. ACCEPTABLE MANUFACTURER
   CONVERGENT WATER TECHNOLOGIES, INC.
   800-711-5402
   WWW.CONVERGENTWATER.COM
D. ALTERNATE ACCEPTABLE RESELLER
   FERGUSON WATERWORKS
   800-448-3636
   WWW.FERGUSON.COM

PACKAGING

A. HPMBS IS ASSEMBLED ON SITE.
B. MODULAR UNDERDRAIN/STORAGE UNIT IS SHIPPED FLAT AND MODULES ARE ASSEMBLED PRIOR TO INSTALLATION.
C. BIOFILTRATION MEDIA IS DELIVERED IN ONE TON SUPER SACKS EACH LABELED WITH MANUFACTURER'S BATCH NUMBER AND/OR IN BULK WITH ACCOMPANYING MANUFACTURER'S CERTIFICATION.
D. OTHER COMPONENTS ARE DELIVERED IN BULK OR SUPER SACKS

EXECUTION

A. EXCAVATION AND BACKFILL
   1. BASE OF EXCAVATION SHALL BE SMOOTH, LEVEL AND FREE OF LUMPS OR DEBRIS, AND COMPACTED UNLESS INFILTRATION OF STORM WATER INTO SUBGRADE IS DESIRED; A THIN LAYER (2"-3") OF COMPACTED BASE MATERIAL IS RECOMMENDED TO ESTABLISH A LEVEL WORKING PLATFORM (MAY NOT BE NEEDED IN SANDY SOILS). IF THE BASE OF THE EXCAVATION IS PUMPING OR APPEARS EXCESSIVELY SOFT, A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED FOR ADVICE. IN MANY CASES, A STABILIZING GEOTEXTILE AT END F OF COMPACTABLE MATERIAL THAT IS PUSHED OUT OVER THE SOFT SOILS MAY BE ADEQUATE FOR SUPPORT.
   2. MOST APPLICATIONS REQUIRE A CC NON-WOVEN GEOTEXTILE OR EQUIVALENT NONWOVEN GEOTEXTILE WITH A NOMINAL WEIGHT OF 8 OZ PER SQUARE YARD TO LINE THE EXCAVATION TO SEPARATE IN SITU SOILS AND THE HPMBS. (APPLICATIONS REQUIRING WATER TO INFILTRATE THE IN SITU SUB-SOILS SHOULD USE A BRIDGING STONE RATHER THAN GEOTEXTILE TO PROVIDE A SEPARATION LAYER BETWEEN THE HPMBS AND THE IN SITU SOILS). GEOTEXTILE, WHEN UTILIZED, SHOULD BE PLACED ON THE BOTTOM AND UP THE SIDES OF THE EXCAVATION. ABSOLUTELY NO GEOTEXTILES SHOULD BE USED IN THE WATER COLUMN. IF AN IMPERMEABLE LINER IS SPECIFIED, IT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
   3. SPECIFIED BACKFILL MATERIAL MUST BE FREE FROM LUMPS, DEBRIS AND ANY SHARP OBJECTS THAT COULD PENETRATE THE GEOTEXTILE. MATERIAL IS USED FOR BACKFILL ALONG THE SIDES OF THE SYSTEM AS INDICATED IN ENGINEERING DETAIL DRAWINGS.

B. INSPECTION
   1. EXAMINE PREPARED EXCAVATION FOR SMOOTHNESS, COMPACTION AND LEVEL. CHECK FOR PRESENCE OF HIGH WATER TABLE, WHICH MUST BE KEPT AT LEVELS BELOW THE BOTTOM OF THE UNDERDRAIN STRUCTURE AT ALL TIMES. IF THE BASE IS PUMPING OR APPEARS EXCESSIVELY SOFT, A GEOTECHNICAL ENGINEER SHOULD BE CONSULTED FOR ADVICE.
   2. INSTALLATION COMMENCEMENT CONSTITUTES ACCEPTANCE OF EXISTING CONDITIONS AND RESPONSIBILITY FOR SATISFACTORY PERFORMANCE IF EXISTING CONDITIONS ARE FOUND TO BE UNSATISFACTORY, CONTACT PROJECT ENGINEER FOR CORRECTIVE ACTION PRIOR TO INSTALLATION.

C. CLEANUP AND PROTECTION DURING ONGOING CONSTRUCTION ACTIVITY
   1. PERFORM CLEANING DURING THE INSTALLATION AND UPON COMPLETION OF THE WORK.
   2. REMOVE FROM SITE ALL EXCESS MATERIALS, DEBRIS, AND EQUIPMENT. REPAIR ANY DAMAGE TO ADJACENT MATERIALS AND SURFACES RESULTING FROM INSTALLATION.
   3. IF SURROUNDING DRAINAGE AREA IS NOT FULLY STABILIZED, A PROTECTIVE COVERING OF GEOTEXTILE FABRIC SHOULD BE SECURELY PLACED TO PROTECT THE BIOFILTRATION MEDIA.
   4. CONSTRUCTION PHASE EROSION AND SEDIMENTATION CONTROLS SHALL BE PLACED TO PROTECT THE INLET(S) TO THE BIOFILTRATION SYSTEM. EXCESSIVE SEDIMENTATION, PARTICULARLY PRIOR TO ESTABLISHMENT OF PLANTS MAY DAMAGE THE HPMBS.
   5. STRICTLY FOLLOW MANUFACTURER'S GUIDELINES WITH RESPECT TO PROTECTION OF THE HPMBS BETWEEN INSTALLATION AND COMMISSIONING PHASES.

D. COMMISSIONING
   1. COMMISSIONING SHOULD ONLY BE CARRIED OUT ONCE THE CONTRIBUTING DRAINAGE AREA IS FULLY STABILIZED. IF COMMISSIONING MUST BE CARRIED OUT SOONER, IT IS IMPERATIVE THAT APPROPRIATE EROSION AND SEDIMENT CONTROLS BE PLACED TO PREVENT THE ENTRY OF EXCESSIVE SEDIMENT/POLLUTANT LOADS INTO THE SYSTEM.
   2. COMMISSIONING ENTAILS REMOVING THE PROTECTIVE COVERING FROM THE BIOFILTRATION MEDIA, PLANTING THE PLANT MATERIAL IN ACCORDANCE WITH THE APPROVED DRAWINGS, AND PLACING MULCH IF SPECIFIED.
   3. DIG PLANTING HOLES THE DEPTH OF THE ROOT BALL AND TWO TO THREE TIMES AS WIDE AS THE ROOT BALL. WIDE HOLES ENCOURAGE HORIZONTAL ROOT GROWTH THAT PLANTS NATURALLY PRODUCE.
   4. PLANT TREES SO THAT THE TOP OF THE ROOT BALL IS NOT PLANTING TOO DEEP. DON'T DIG HOLES DEEPER THAN ROOT BALLS. THE MEDIA SHOULD BE PLACED AT THE ROOT COLLAR, NOT ABOVE THE ROOT COLLAR. OTHERWISE THE STEM WILL BE VULNERABLE TO DISEASE.
   5. STRICTLY FOLLOW MANUFACTURER'S PLANTING GUIDANCE.
   6. COVER THE EXPOSED ROOT BALL TOP WITH MULCH. MULCH SHOULD NOT TOUCH THE PLANT BASE BECAUSE IT CAN HOLD TOO MUCH MOISTURE AND INVITE DISEASE AND INSECTS. EVENLY PLACE 3 INCHES OF DOUBLE-SHREDDED HARDWOOD MULCH (IF SPECIFIED) ON THE SURFACE OF THE MEDIA.
   7. PLANTINGS SHALL BE WATERED-IN AT INSTALLATION AND TEMPORARY IRRIGATIONS SHALL BE PROVI

ELECTRICAL POWER, LIGHTING AND SYSTEMS DRAWING NOTES:

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NFPA 70, NATIONAL ELECTRICAL CODE (NEC), OSHA REGULATIONS, AS WELL AS APPLICABLE REGULATIONS OF THE PERTINENT FEDERAL, STATE, COUNTY, AND CITY AGENCIES. PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY WITH ANSI, IEEE, IES AND NEMA STANDARDS. WHERE APPLICABLE, PROVIDE ONLY MATERIALS THAT ARE U.L. LISTED AND LABELED.
2. ALL MOTOR SAFETY SWITCHES, DISCONNECTS AND MOTOR STARTERS ARE PROVIDED BY DIVISION 26, UNLESS NOTED AS FURNISHED WITH EQUIPMENT.
3. PROVIDE ALL NECESSARY ACCESSORIES REQUIRED TO MEET THE INTENT OF THE CONTRACT DRAWINGS.
4. ALL GENERAL NOTES, SYMBOL LISTS, ABBREVIATIONS AND DETAILS ARE TO BE CONSIDERED APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT.
5. WHERE A DISCREPANCY OCCURS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE SPECIFICATIONS SHALL PREVAIL. CONTACT THE ENGINEER FOR CLARIFICATION WHEN SUCH A SITUATION OCCURS.
6. WHERE MATERIAL IS CALLED OUT IN THE LEGEND BY MANUFACTURER TYPE OR CATALOG NUMBER, SUCH DESIGNATIONS ARE TO ESTABLISH STANDARDS OR DESIRED QUALITY. ACCEPTANCE OR REJECTION OF PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO THE APPROVAL OF THE OWNER.
7. ELECTRICAL DRAWINGS ARE DIAGRAMMATICAL IN NATURE AND SHALL NOT BE SCALED. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF EQUIPMENT AND DEVICES, AND FURNITURE REQUIREMENTS, PRIOR TO ROUGHING IN FOR SAME.
8. GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS; PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE PROJECT SCOPE OF WORK. FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTIONS FOR PROJECT SCOPE OF WORK AND DELIVER A COPY TO THE ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE PROJECT SCOPE OF WORK.
9. COOPERATE FULLY WITH SEPARATE CONTRACTORS SO WORK ON THOSE CONTRACTS MAY BE CARRIED OUT SMOOTHLY, WITHOUT INTERFERING WITH OR DELAYING WORK UNDER THIS CONTRACT. COORDINATE THE WORK OF THIS CONTRACT WITH WORK PERFORMED UNDER SEPARATE CONTRACTS.
10. EACH CONTRACTOR SHALL COORDINATE ITS CONSTRUCTION OPERATIONS WITH THOSE OF OTHER CONTRACTORS AND ENTITIES TO ENSURE EFFICIENT AND ORDERLY INSTALLATION OF EACH PART OF THE WORK. EACH CONTRACTOR SHALL COORDINATE ITS OPERATIONS WITH OPERATIONS, INCLUDED IN DIFFERENT SECTIONS, THAT DEPEND ON EACH OTHER FOR PROPER INSTALLATION, CONNECTION, AND OPERATION. SCHEDULE CONSTRUCTION OPERATIONS IN SEQUENCE REQUIRED TO OBTAIN THE BEST RESULTS WHERE INSTALLATION OF ONE PART OF THE WORK DEPENDS ON INSTALLATION OF OTHER COMPONENTS, BEFORE OR AFTER ITS OWN INSTALLATION. COORDINATE INSTALLATION OF DIFFERENT COMPONENTS WITH OTHER CONTRACTORS TO ENSURE MAXIMUM PERFORMANCE AND ACCESSIBILITY FOR REQUIRED MAINTENANCE, SERVICE, AND REPAIR. MAKE ADEQUATE PROVISIONS TO ACCOMMODATE ITEMS SCHEDULED FOR LATER INSTALLATION.
11. IF COMPLIANCE WITH TWO OR MORE STANDARDS OR DIRECTIVES IS SPECIFIED AND THE STANDARDS ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, COMPLY WITH THE MOST STRINGENT REQUIREMENT. REFER UNCERTAINTIES AND REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, TO ARCHITECT/ENGINEER FOR A DECISION BEFORE PROCEEDING.
12. THE QUANTITY OR QUALITY LEVEL SHOWN OR SPECIFIED SHALL BE THE MINIMUM PROVIDED OR PERFORMED. THE ACTUAL INSTALLATION MAY COMPLY EXACTLY WITH THE MINIMUM QUANTITY OR QUALITY SPECIFIED, OR IT MAY EXCEED THE MINIMUM WITHIN REASONABLE LIMITS. TO COMPLY WITH THESE REQUIREMENTS, INDICATED NUMERIC VALUES ARE MINIMUM OR MAXIMUM, AS APPROPRIATE, FOR THE CONTEXT OF REQUIREMENTS. REFER UNCERTAINTIES TO ENGINEER FOR A DECISION BEFORE PROCEEDING.
13. DELIVER, STORE, AND HANDLE PRODUCTS USING MEANS AND METHODS THAT WILL PREVENT DAMAGE, DETERIORATION, AND LOSS, INCLUDING THEFT. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND GENERALLY ACCEPTED CONSTRUCTION PRACTICE.
14. WARRANTY EQUIPMENT AND INSTALLATIONS FOR A PERIOD OF ONE YEAR AFTER SUBSTANTIAL COMPLETION OF PROJECT
15. EACH CONTRACTOR SHALL ASSIGN REPRESENTATIVES WITH EXPERTISE AND AUTHORITY TO ACT ON ITS BEHALF AND SHALL SCHEDULE THEM TO PARTICIPATE IN AND PERFORM COMMISSIONING PROCESS ACTIVITIES FOR ALL NEW EQUIPMENT AND SYSTEMS.
16. PREPARE PROJECT SPECIFIC INFORMATION TO BE SUBMITTED AS SHOP DRAWINGS FOR PROJECT. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL EQUIPMENT AND MATERIALS TO BE USED ON PROJECT. SUBMITTALS SHALL BE DRAWN ACCURATELY AND TO SCALE. DO NOT BASE SHOP DRAWINGS ON REPRODUCTIONS OF THE CONTRACT DOCUMENTS OR STANDARD PRINTED DATA. SUBMIT SHOP DRAWINGS IN QUANTITIES AS REQUIRED BY ARCHITECT.
17. THE EXISTENCE AND LOCATION OF UNDERGROUND AND OTHER UTILITIES AND CONSTRUCTION INDICATED AS EXISTING ARE NOT GUARANTEED. BEFORE BEGINNING WORK, INVESTIGATE AND VERIFY THE EXISTENCE AND LOCATION OF UTILITIES, MECHANICAL AND ELECTRICAL SYSTEMS, AND OTHER CONSTRUCTION AFFECTING THE WORK. ADVISE ARCHITECT OF CONFLICTS OR DEFICIENCIES PRIOR TO STARTING WORK.
18. TAKE FIELD MEASUREMENTS AS REQUIRED TO FIT THE WORK PROPERLY. RECHECK MEASUREMENTS BEFORE INSTALLING EACH PRODUCT. WHERE PORTIONS OF THE WORK ARE INDICATED TO FIT TO OTHER CONSTRUCTION, VERIFY DIMENSIONS OF OTHER CONSTRUCTION BY FIELD MEASUREMENTS BEFORE FABRICATION. COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS TO AVOID DELAYING THE WORK.VERIFY SPACE REQUIREMENTS AND DIMENSIONS OF ITEMS SHOWN DIAGRAMMATICALLY ON DRAWINGS. IMMEDIATELY ON DISCOVERY OF THE NEED FOR CLARIFICATION OF THE CONTRACT DOCUMENTS, SUBMIT A REQUEST FOR INFORMATION TO ENGINEER. INCLUDE A DETAILED DESCRIPTION OF PROBLEM ENCOUNTERED, TOGETHER WITH RECOMMENDATIONS FOR CHANGING THE CONTRACT DOCUMENTS.
19. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS FOR INSTALLING PRODUCTS IN APPLICATIONS INDICATED.
20. CONDUCT CONSTRUCTION OPERATIONS SO NO PART OF THE WORK IS SUBJECTED TO DAMAGING OPERATIONS OR LOADING IN EXCESS OF THAT EXPECTED DURING NORMAL CONDITIONS OF OCCUPANCY.
21. KEEP INSTALLED WORK CLEAN. CLEAN INSTALLED SURFACES ACCORDING TO WRITTEN INSTRUCTIONS OF MANUFACTURER OR FABRICATOR OF PRODUCT INSTALLED, USING ONLY CLEANING MATERIALS SPECIFICALLY RECOMMENDED. IF SPECIFIC CLEANING MATERIALS ARE NOT RECOMMENDED, USE CLEANING MATERIALS THAT ARE NOT HAZARDOUS TO HEALTH OR PROPERTY AND THAT WILL NOT DAMAGE EXPOSED SURFACES.
22. DURING HANDLING AND INSTALLATION, CLEAN AND PROTECT CONSTRUCTION IN PROGRESS AND ADJOINING MATERIALS ALREADY IN PLACE. APPLY PROTECTIVE COVERING WHERE REQUIRED TO ENSURE PROTECTION FROM DAMAGE OR DETERIORATION AT SUBSTANTIAL COMPLETION.
23. CLEAN AND PROVIDE MAINTENANCE ON COMPLETED CONSTRUCTION AS FREQUENTLY AS NECESSARY THROUGH THE REMAINDER OF THE CONSTRUCTION PERIOD. ADJUST AND LUBRICATE OPERABLE COMPONENTS TO ENSURE OPERABILITY WITHOUT DAMAGING EFFECTS.
24. START EQUIPMENT AND OPERATING COMPONENTS TO CONFIRM PROPER OPERATION. REMOVE MALFUNCTIONING UNITS, REPLACE WITH NEW UNITS, AND RETEST. ADJUST OPERATING COMPONENTS FOR PROPER OPERATION WITHOUT BINDING. ADJUST EQUIPMENT FOR PROPER OPERATION. TEST EACH PIECE OF EQUIPMENT TO VERIFY PROPER OPERATION. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
25. PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS THAT ENSURE INSTALLED WORK IS WITHOUT DAMAGE OR DETERIORATION AT TIME OF SUBSTANTIAL COMPLETION.
26. THE COST OF CORRECTIVE WORK SHALL BE INCLUDED UNDER THE CONTRACT.
27. SEAL CONDUIT AND CABLE PENETRATIONS WITH APPROVED FIRESTOP MATERIALS. REFER TO DIVISION 7 SECTION "THROUGH-PENETRATION FIRESTOP SYSTEMS" FOR MATERIALS.
28. INSTALL EQUIPMENT TO ALLOW MAXIMUM POSSIBLE HEADROOM UNLESS SPECIFIC MOUNTING HEIGHTS ARE INDICATED. INSTALL EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS IN EXPOSED INTERIOR SPACES, UNLESS OTHERWISE INDICATED. INSTALL ELECTRICAL EQUIPMENT TO FACILITATE SERVICE, MAINTENANCE, AND REPAIR OR REPLACEMENT OF COMPONENTS. CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM INTERFERENCE TO OTHER INSTALLATIONS.
29. ELECTRICAL AND SYSTEMS CONTRACTOR SHALL COORDINATE HIS WORK WITH GENERAL, HVAC, FIRE PROTECTION AND PLUMBING CONTRACTORS AND SHALL MAKE NECESSARY ADJUSTMENTS OR CHANGES TO FACILITATE INSTALLATION OF EQUIPMENT IN SPACES AVAILABLE.
30. ELECTRICAL CONTRACTOR SHALL KEEP AN UP TO DATE SET OF "AS-BUILT" RECORD DRAWINGS ON SITE AT ALL TIMES. AT PROJECT COMPLETION PROVIDE THE OWNER, ARCHITECT AND THE ENGINEER WITH A COMPLETE SET OF CONTRACT DRAWINGS WITH ALL FIELD CHANGES IN CAD FORMAT ALONG WITH A PDF SET AND A FULL SIZE PRINT.
31. ALL ELECTRICAL EQUIPMENT, DEVICES, CONDUCTORS, CABLES AND ETC. SHALL BE U.L. LABELED AND LISTED FOR THE APPLICATION IN WHICH IT IS BEING USED.
32. GENERAL CONTRACTOR/CONSTRUCTION MANAGER IS RESPONSIBLE FOR THE OVERALL COORDINATION OF THE INSTALLATION OF ALL EQUIPMENT AND SYSTEMS FOR ALL BUILDING TRADES ASSOCIATED WITH THE CONSTRUCTION OF THIS PROJECT. THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER SHALL COMPLETE THE COORDINATION PROCESS PRIOR TO ORDERING ANY COMPONENTS FOR PROJECT AND PRIOR TO STARTING THE INSTALLATION OF EQUIPMENT OR SYSTEMS FOR ANY AREAS OF THE PROJECT. COORDINATION DRAWINGS WILL NOT BE REQUIRED FOR THIS PROJECT UNLESS SITE CONDITIONS NECESSITATE A HIGHER LEVEL OF COORDINATION BETWEEN THE GENERAL CONTRACTOR/CONSTRUCTION MANAGER AND SUB-CONTRACTORS. GENERAL CONTRACTOR/CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR GUIDING THE COORDINATION PROCESS. GENERAL CONTRACTOR/CONSTRUCTION MANAGER SHALL BE RESPONSIBLE FOR COORDINATING ARCHITECTURAL COMPONENTS WITH THE HVAC, PLUMBING, FIRE PROTECTION, ELECTRICAL AND ALL OTHER AFFECTED SUB-CONTRACTORS. EACH SUB-CONTRACTOR SHALL PROVIDE INFORMATION NECESSARY TO DEVELOP A 3-DIMENSIONAL COORDINATION DRAWING OF AFFECTED AREAS. ARCHITECT/ENGINEERS WILL WORK WITH GENERAL CONTRACTOR/CONSTRUCTION MANAGER IN THE RESOLUTION OF COORDINATION ISSUES AFTER ALL COORDINATION ISSUES HAVE BEEN IDENTIFIED.
33. CONTRACTOR SHALL PREPARE AS-BUILT DRAWINGS FOR PROJECT. AS BUILT DRAWINGS SHALL SHOW ALL MODIFICATIONS TO DESIGN DRAWINGS THAT WERE MADE DURING CONSTRUCTION. AS BUILT DRAWINGS SHALL BE PREPARED USING AUTOCAD FILES PROVIDED BY ARCHITECT. AUTOCAD FILES SHALL BE MODIFIED BY CONTRACTOR TO SHOW ANY MODIFIED LOCATIONS OF EQUIPMENT OR MODIFIED ROUTING OF PIPING, ETC. CONTRACTOR SHALL INCLUDE 1 COPY OF MODIFIED CAD FILES ON CD IN EACH OPERATION AND MAINTENANCE MANUAL. 1 PAPER SET OF DRAWINGS SHALL BE FOLDED AND INCLUDED IN EACH OPERATION AND MAINTENANCE MANUAL. OWNER SHALL BE PROVIDED WITH 3 COPIES OF THE OPERATION AND MAINTENANCE MANUAL.
34. CONTRACTOR SHALL PREPARE OPERATION AND MAINTENANCE MANUALS FOR BUILDING OWNER. OPERATION AND MAINTENANCE MANUALS SHALL INCLUDE SHOP DRAWING SUBMITTALS AND OPERATION AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT AND SYSTEM INSTALLED FOR PROJECT. OWNER SHALL BE PROVIDED WITH 3 COPIES OF OPERATION AND MAINTENANCE MANUALS.

EXTRA WORK ORDERS - CREDITS

1. NO EXTRA WORK WILL BE PAID UNLESS AUTHORIZED BY ENGINEER/OWNER IN WRITING. WHERE EXTRA WORK IS REQUIRED, THE CONTRACTOR SHALL PROVIDE AN ITEMIZED ACCOUNT FOR THE WORK OR MATERIALS INVOLVED AND SHALL TAKE INTO CONSIDERATION ANY CREDITS DUE OR WORK OMITTED FOR ANY REASONS. ESTIMATES SHALL CLEARLY LIST SUCH OMITTED WORK PROPER CREDIT GIVEN FOR SAME.
2. AMOUNTS OF CREDITS FOR WORK OMITTED AND/OR SUBSTITUTIONS SHALL BE APPROVED BY THE ENGINEER AND/OR OWNERS. ALL CREDIT SUBMITTALS AND APPROVALS SHALL BE IN WRITING.

STANDARDS

1. ALL MATERIALS, EQUIPMENT AND INSTALLATION SHALL COMPLY WITH THE FOLLOWING:
   A. NATIONAL ELECTRICAL CODE, LATEST APPROVED EDITION.
   B. ANY AND ALL FEDERAL, STATE AND/OR LOCAL CODES, APPLICABLE ORDINANCES AND REGULATIONS.
   C. LATEST APPROVED STANDARDS OF IEEE, ANSI, NEMA AND NFPA.
   D. LOCAL UTILITY COMPANY REGULATIONS.
   E. ALL EQUIPMENT SHALL BE NEW AND U.L. LISTED WHERE LISTING IS AVAILABLE.

SUBSTITUTIONS

1. WHERE EQUIPMENT AND MATERIALS ARE INDICATED "OR EQUIVALENT" SUBSTITUTION OF ITEMS EQUAL IF QUALITY. PERFORMANCE, RATING AND APPEARANCE WILL BE PERMITTED UPON SPECIFIC REVIEW IN WRITING BY THE ENGINEERS BEFORE INSTALLATION. SPECIFIC CRITERIA FOR SUBSTITUTION OF CERTAIN EQUIPMENT ARE DEFINED ELSEWHERE.
2. IN ALL CASES, THE RIGHT IS RESERVED TO REQUIRE ADEQUATE PROOF OF THE EQUALITY AND ACCEPTABILITY OF THE SUBSTITUTE BEFORE PERMITTING ITS USE. THE CONTRACTOR SHALL ASSUME THE COST AND THE ENTIRE RESPONSIBILITY FOR ANY CHANGES IN ANY PHASE OF BUILDING CONSTRUCTION, AS SHOWN ON THE CONTRACT DRAWINGS OR REQUIRED BY THE SPECIFICATIONS, WHICH MAY BE OCCASIONED BY REVIEW OF MATERIALS AND EQUIPMENT OTHER THAN THAT SPECIFIED.

SUBMITTALS

1. PROVIDE THE FOLLOWING SUBMITTALS AS A MINIMUM REQUIREMENT, ALL OTHER MATERIAL USED WITHOUT APPROVED SUBMITTALS SHALL BE CONSIDERED AT RISK AND SUBJECT TO REPLACEMENT AT NO COST TO THE OWNER.
   A. GENERATOR
   B. AUTOMATIC TRANSFER SWITCH
   C. TIMECLOCK & PHOTOCELL
   D. PANEL BOARDS
   E. BREAKERS
   F. FUSES
   G. DISCONNECTS
   H. GROUNDING AND BONDING
   I. CONDUITS
   J. CABLES
   K. BOXES
   L. FITTINGS
2. SUBMITTALS SHALL CONSIST OF THE FOLLOWING, AS A MINIMUM REQUIREMENT.
   A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT
   B. ENCLOSURE TYPE
   C. CURRENT AND VOLTAGE RATINGS
   D. SHORT CIRCUIT RATINGS
   E. SHOP DRAWINGS
   F. INCLUDE DIMENSIONED PLANS, ELEVATIONS, SECTIONS AND DETAILS
   G. DETAIL ENCLOSURE TYPES
   H. DETAIL BUS CONFIGURATION, CURRENT AND VOLTAGE RATINGS
   I. SHORT CIRCUIT RATING
   J. TIME CURRENT CURVES
   K. PANEL BOARD SCHEDULES
3. CLOSEOUT SUBMITTALS SHALL INCLUDE OPERATION AND MAINTENANCE DATA FOR EACH SYSTEM, MANUFACTURES WRITTEN INSTRUCTIONS FOR TESTING AND ADJUSTING.

GROUNDING & BONDING

1. EQUIPMENT GROUNDING CONDUCTOR(S) SHALL BE COPPER WITH GREEN COLORED INSULATION OR FOR LARGER WIRES GREEN MARKING TAPE VISIBLE AT ALL PIECES OF EQUIPMENT AND JUNCTION BOXES. 6" MINIMUM OF COLORED IS REQUIRED.
2. BARE COPPER GROUNDING CONDUCTORS SHALL COMPLY WITH ASTM STANDARDS.
3. CONNECTORS SHALL BE BOLTED TYPE OR EXOTHERMICALLY WELDED. BOLTED CONNECTIONS SHALL BE BOLTED PRESSURE TYPE CONNECTORS OR COMPRESSION TYPE.
4. PROVIDE A SEPARATE INSULATED GROUNDING CONDUCTOR SIZED PER THE NEC IN ALL FEEDERS AND CIRCUITS.
5. INSTALL BONDING STRAPS SO VIBRATION BY EQUIPMENT MOUNTED ON VIBRATION ISOLATION HANGERS AND SUPPORTS IS NOT TRANSMITTED TO RIGIDLY MOUNTED EQUIPMENT.
6. BOND INTERIOR METAL PIPING SYSTEMS AND METAL AIR DUCTS TO EQUIPMENT GROUNDING CONDUCTORS OF THE ASSOCIATED PUMPS, FANS, BLOWERS, ELECTRIC HEATERS, AND AIR CLEANERS, USING BRAIDED TYPE BONDING STRAPS.
7. PROVIDE A COPPER GROUND BUS A MINIMUM OF 1/4" THICK, 4" WIDE AND 12" IN LENGTH, INCREASE THE LENGTH AS REQUIRED FOR ALL GROUNDING TERMINATIONS, IN EACH ELECTRICAL AND TELECOMMUNICATIONS ROOM TO SERVE AS A COMMON GROUNDING POINT.

ELECTRICAL IDENTIFICATION

1. INSTALL LABELING AND CONDUIT/BOX MARKERS ON CONDUIT/BOXES ACCORDING TO DETAILS ON DRAWINGS AND 2017 NEC.
2. INSTALL CIRCUITING, AND EQUIPMENT LABELING ACCORDING TO DETAILS ON DRAWINGS AND 2017 NEC.
3. PROVIDE BRANCH CIRCUITING INFORMATION "PANEL NAME - CIRCUIT NUMBER" ON DEVICE COVER PLATES USING SELF ADHESIVE VINYL LABELS IN HIGHLY CONTRASTING COLORS, (BLACK INK ON CLEAR VINYL OR SIMILAR).
4. PROVIDE BRANCH CIRCUITING INFORMATION "PANEL NAME - CIRCUIT NUMBER" ON ALL JUNCTION BOXES.
5. FIELD APPLIED, COLOR CODING TAPE SHALL BE APPLIED IN HALF-LAPPED TURNS FOR A MINIMUM OF 6" FROM TERMINAL POINTS AND IN BOXES WHERE SPLICING OR TAPS ARE MADE.
6. PROVIDE EQUIPMENT IDENTIFICATION LABELS USING SELF ADHESIVE, INDOOR APPLICATIONS AND SCREW MOUNTED IN ALL EXTERIOR APPLICATIONS, ENGRAVED, LAMINATED ACRYLIC OR MELAMINE LABEL, MINIMUM LETTER HEIGHT SHALL BE ½" OF AN INCH. LABEL SHALL INCLUDE THE EQUIPMENT NAME DESIGNATION, POWER SOURCE AND ANY OTHER REQUIRED INFORMATION AS LISTED ON THE DRAWINGS.
7. COLOR CODING FOR PHASE AND VOLTAGE LEVEL IDENTIFICATION FOR ALL UNGROUNDED FEEDER, AND BRANCH CIRCUIT SERVICE, FEEDER AND CONDUCTORS:

120/208V:	PHASE A: BLACK PHASE B: RED PHASE C: BLUE NEUTRAL: WHITE
277/480V:	PHASE A: BROWN PHASE B: ORANGE PHASE C: YELLOW NEUTRAL: GRAY

HANGERS AND SUPPORTS

1. ALL THREADED ROD SHALL BE GALVANIZED.
2. STEEL SLOTTED SUPPORT SYSTEMS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING: ALLIED TUBE AND CONDUIT, COOPER B-LINE, ERICO, THOMAS AND BETTS OR UNISTRUT CORP.
3. CONDUIT AND CABLE SUPPORT; STEEL AND MALLEABLE-IRON HANGERS, CLAMPS AND ASSOCIATED FITTINGS, DESIGNED FOR TYPES AND SIZES OF RACEWAYS OR CABLES TO BE SUPPORTED.

CONDUITS AND CABLES

4. PROVIDE PRESSURE TYPE GROUNDING LUGS FOR #8 AND LARGER FOR #10 AND SMALLER WINGED PRESSURE TYPE MAY BE USED.
5. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY. INSTALL CONDUIT WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING THE BUILDING'S CONSTRUCTION AND OBSTRUCTIONS, EXCEPT WHERE OTHERWISE NOTED.
6. UNLESS OTHERWISE NOTED, WIRING SHALL BE 2 #12 AWG CONDUCTORS & #12 GND. HOME RUNS FED FROM 20A, SINGLE POLE CIRCUITS IN EXCESS OF 100 FEET SHALL BE #10 AWG, UNLESS INDICATED OTHERWISE. INSULATION TYPE SHALL BE THHN/THWN, 75 DEG C, AND 600V CLASS UNLESS SPECIFIED OTHERWISE.
7. UNLESS OTHERWISE NOTED, ALL WIRING SHALL BE 600V, COPPER WITH THHN-THWN INSULATION.
8. CONDUCTORS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING; ALCAN CABLE, ALPHA WIRE, BELDEN, ENCORE, GENERAL CABLE OR SOUTHWIRE.
9. CONNECTORS AND SPLICES SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING; AFC CABLE SYSTEMS, HUBBELL POWER SYSTEMS, IDEAL INDUSTRIES, ILSCO, NSI INDUSTRIES, O-Z/GEDNEY, 3M OR TYCO ELECTRONICS.
10. PROVIDE SOLID CONDUCTORS FOR #8 AND SMALLER CABLES AND STRANDED FOR #6 AND LARGER, UNLESS OTHERWISE INDICATED THE DRAWINGS.
11. INCREASE THE SIZE OF THE EQUIPMENT GROUNDING CONDUCTOR SHOWN ON POWER RISER DIAGRAMS AND FEEDER SIZING CHARTS ON DRAWINGS PER NEC TO ACCOMMODATE SIZE OF PHASE CONDUCTORS INCREASED IN SIZE DUE TO VOLTAGE DROP.
12. MAKE CONNECTIONS SO GALVANIC ACTION OR ELECTROLYSIS POSSIBILITY IS MINIMIZED. SELECT CONNECTORS, CONNECTION HARDWARE, CONDUCTORS AND CONNECTION METHODS SO METALS IN DIRECT CONTACT WILL BE GALVANICALLY COMPATIBLE.
13. USE HYDRAULIC COMPRESSION TOOLS TO PROVIDE CORRECT CIRCUMFERENTIAL PRESSURE FOR COMPRESSION CONNECTORS. USE TOOLS OR DIES AS RECOMMEND BY CONNECTOR MANUFACTURER.
14. ALL CONDUCTORS SHALL BE INSTALLED AS SINGLE CONDUCTORS IN RACEWAYS UNLESS OTHERWISE NOTED OR APPROVED BY THE AHJ.

RACEWAY AND BOXES

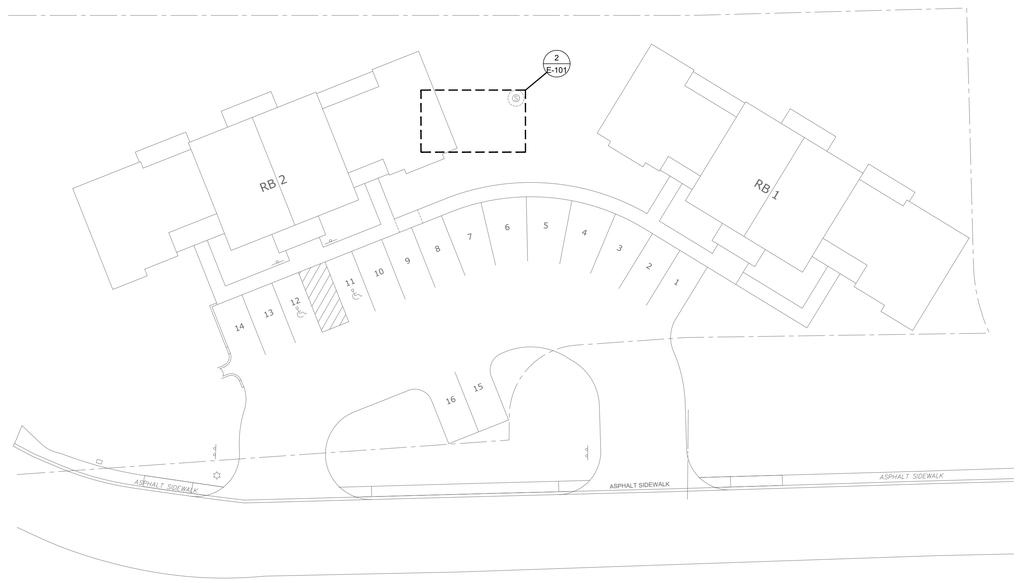
1. FLEXIBLE CONNECTIONS TO MOTORS SHALL BE FLEXIBLE LIQUID TIGHT CONDUIT.
2. THE FOLLOWING WIRING METHODS ARE NOT ALLOWED.
   A. ENT - ELECTRICAL NON-METALIC.
   B. PVC - POLYVINYL CHLORIDE CONDUIT.
   C. RTRC - REINFORCED THERMOSETTING RESIN CONDUIT.
3. METAL CONDUITS, TUBING AND FITTINGS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING; AFC CABLE, ALLIED TUBE AND CONDUIT, O-Z/GEDNEY, REPUBLIC CONDUIT, ROBROY INDUSTRIES, SOUTHWIRE COMPANY, THOMAS AND BETTS, WESTERN TUBE AND CONDUIT AND WHEATLAND TUBE COMPANY.
4. NONMETALLIC CONDUITS, TUBING AND FITTINGS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING: AFC CABLE, CANTEX, RACE OR THOMAS AND BETTS.
5. METAL WIREWAYS AND CABINETS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING: COOPER B-LINE, HOFFMAN OR SQUARE D
6. BOXES, ENCLOSURES, AND CABINETS SHALL BE MANUFACTURED BY ONE OF THE FOLLOWING: COOPER CROUSE HINDS, ERICKSON, HOFFMAN, HUBBELL, MILBANK, O-Z/GEDNEY, RACO-HUBBELL, SPRING CITY, THOMAS AND BETTS OR WIREMOLD/LEGRAND.
7. IMC SHALL BE USED IN ALL LOCATIONS SUBJECT TO SEVERE PHYSICAL DAMAGE AS DETERMINED BY THE ENGINEER OF RECORD.
8. E.M.T. FITTINGS SHALL BE ZINC COATED STEEL, COMPRESSION TYPE. MANUFACTURED BY ONE OF THE FOLLOWING COMPANIES: BRIDGEPORT, CROUSE HINDS, ARLINGTON, HUBBALL OR APPROVED EQUALS.
9. METALLIC WIREWAYS SHALL BE MANUFACTURED BY HOFFMAN, SQUARE D, OR APPROVED EQUAL.
10. MINIMUM RACEWAY SHALL BE 1/2" FOR ALL POWER, LIGHTING AND SYSTEMS, 1" FOR ALL TELECOMMUNICATIONS.
11. NO MORE THAN 360 DEGREES OF BEND IN A SINGLE RUN BETWEEN PULL POINTS AND 270 DEGREES FOR TELECOMMUNICATIONS. PROVIDE A 200 LB PULL STRING IN ALL EMPTY CONDUITS.
12. NO MORE THAN 72" OF FLEXIBLE METAL CONDUIT SHALL BE USED FOR CONNECTIONS TO LIGHTING FIXTURES AND EQUIPMENT.

PANEL BOARDS, BREAKERS, AND FUSES

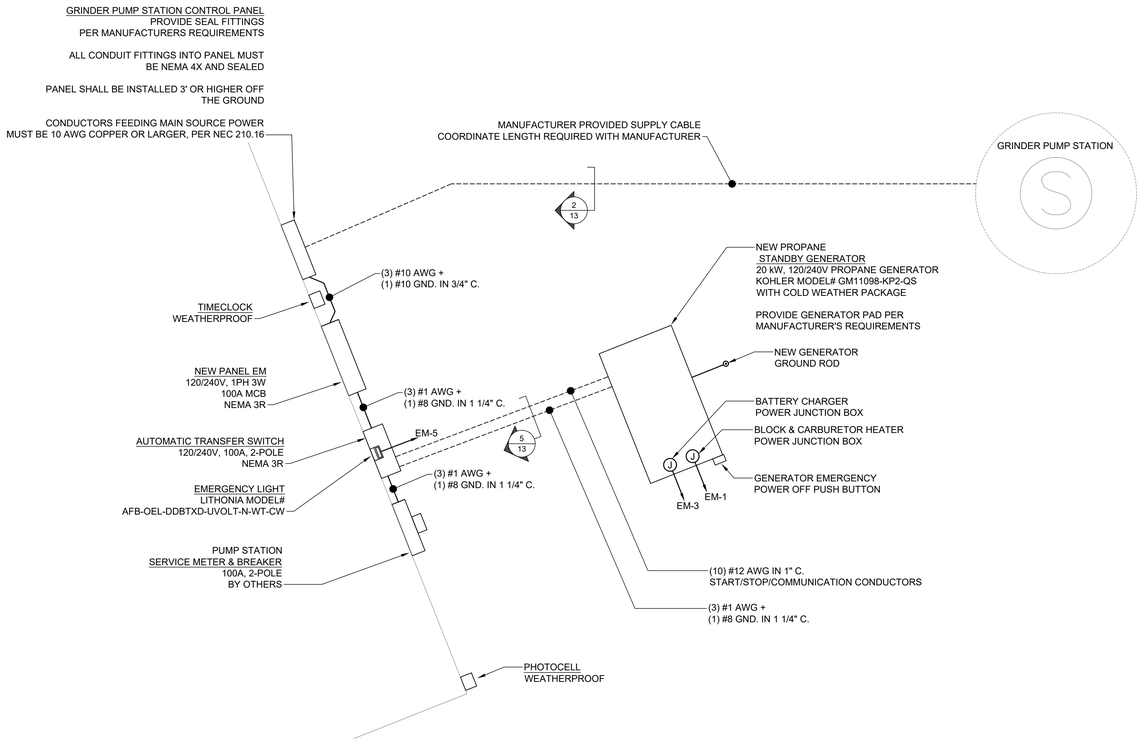
1. PANELBOARDS SHALL BE MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, OR EATON CORP.
2. CONTRACTOR SHALL VERIFY ALL CIRCUITS AND SPACES PRIOR TO STARTING WORK AND INFORM ENGINEER OF ALL DISCREPANCIES WITH SPACES, SPACE AND DEMO CIRCUITS.
3. PHASE AND GROUND BUS SHALL BE HARD DRAWN COPPER, 98 PERCENT CONDUCTIVITY.
4. PANELBOARDS SHALL BE NEMA 1
5. PANELBOARDS COVER SHALL BE HINGED FRONT WITH A STANDARD DOOR WITHIN HINGED TRIM COVER AND LOCKABLE.
6. BRANCH OVERCURRENT CIRCUIT BREAKERS SHALL BE BOLT ON TYPE REPLACEABLE WITHOUT DISTURBING ADJACENT UNITS.
7. ALL PANELBOARDS SHALL BE MARKED WITH PANEL NAME AND FEEDER INFORMATION. A PRINTED DIRECTORY SHALL BE PROVIDED IN A CLEAR PLASTIC COVER LOCATED ONT HE BACK SIDE OF THE DOOR.
8. ALL PANELS SHALL BE FULLY RATED, SERIES RATING IS NOT ALLOWED.
9. PROVIDE ARC FLASH INCIDENT STUDY AND WARNING LABELS ON ALL ELECTRICAL EQUIPMENT.
10. ALL DISCONNECTS SHALL BE OF HEAVY DUTY TYPE AND MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, OR EATON CORP.

PACKAGED ENGINE GENERATOR

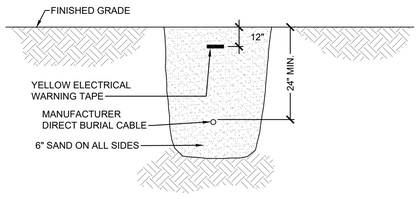
1. GENERAL
   THE PROJECT REQUIRES ONE PROPANE FUELED, EXTERIOR, STAND-BY GENERATOR LOCATED ON GRADE. THE GENERATOR SHALL BE RATED 20kW, 240/120V, 1-PHASE, 3-WIRE, 60-Hz, EPA CERTIFIED. THE GENERATOR SHALL BE LOCATED IN WEATHERPROOF, FACTORY ENCLOSURE.
2. MANUFACTURERS
   A. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
      a. CATERPILLAR, INC.; ENGINE DIVISION
      b. CUMMINS POWER GENERATION
      c. GENERAC CORPORATION
      d. KOHLER COMPANY; GENERATOR DIVISION
3. ENGINE GENERATOR
   A. FURNISH A COORDINATED ASSEMBLY OF COMPATIBLE COMPONENTS.
   B. RATINGS: VOLTAGE, FREQUENCY, AND POWER OUTPUT RATINGS OF SYSTEM ARE AS INDICATED.
   C. OUTPUT CONNECTIONS: 1 PHASE, 3 WIRE
   D. SAFETY STANDARD: COMPLY WITH ASME B15.1.
4. ENGINE
   A. COMPLY WITH NFPA 37.
   B. FUEL: PROPANE
   C. ENGINE FUEL SYSTEM: COMPLY WITH NFPA 30. SYSTEMS INCLUDE THE FOLLOWING:
      a. JACKET COOLANT HEATER: ELECTRIC-IMMERSION TYPE, FACTORY INSTALLED IN JACKET COOLANT SYSTEM AND CARBURETOR.
5. GOVERNOR
   A. TYPE: ADJUSTABLE ISOCHRONOUS TYPE, WITH SPEED SENSING.
   B. TYPE: MECHANICAL TYPE
6. ENGINE COOLING SYSTEM
   A. DESCRIPTION: CLOSED LOOP, LIQUID COOLED, WITH RADIATOR FACTORY MOUNTED ON ENGINE GENERATOR-SET SKID AND INTEGRAL ENGINE-DRIVEN COOLANT PUMPING.
   B. DESCRIPTION: CLOSED LOOP, LIQUID COOLED, WITH REMOTE RADIATOR AND INTEGRAL ENGINE-DRIVEN COOLANT PUMP.
   C. RADIATOR: RATED FOR SPECIFIED COOLANT.
   D. COOLANT: SOLUTION OF 50 PERCENT ETHYLENE GLYCOL AND 50 PERCENT WATER.
   E. TEMPERATURE CONTROL: SELF-CONTAINED, THERMOSTATIC-CONTROL VALVE MODULATES COOLANT FLOW AUTOMATICALLY TO MAINTAIN OPTIMUM CONSTANT COOLANT TEMPERATURE AS RECOMMENDED BY ENGINE MANUFACTURER.
7. FUEL SUPPLY SYSTEM
   A. PROPANE
8. ENGINE EXHAUST SYSTEM
   A. MUFFLER: INDUSTRIAL TYPE, SIZED AS RECOMMENDED BY ENGINE MANUFACTURER. MEASURED SOUND LEVEL IN THE 20-75HZ FREQUENCY BAND, ACCORDING TO THE DIESEL ENGINE MANUFACTURERS ASSOCIATION'S "DEMA TEST CODE FOR THE MEASUREMENT OF SOUND FROM HEAVY-DUTY RECIPROCATING ENGINES" AT A DISTANCE OF 25 FEET FROM THE EXHAUST DISCHARGE, IS 87 dBA OR LESS.
9. STARTING SYSTEM
   A. DESCRIPTION: 12V ELECTRIC, WITH NEGATIVE GROUND AND INCLUDING THE FOLLOWING ITEMS:
      a. CRANKING MOTOR: HEAVY-DUTY UNIT THAT AUTOMATICALLY ENGA



1 / 13 OVERALL SITE PLAN
SCALE: 1" = 20'



2 / 13 ENLARGED ELECTRICAL POWER PLAN
SCALE: 6" = 1'

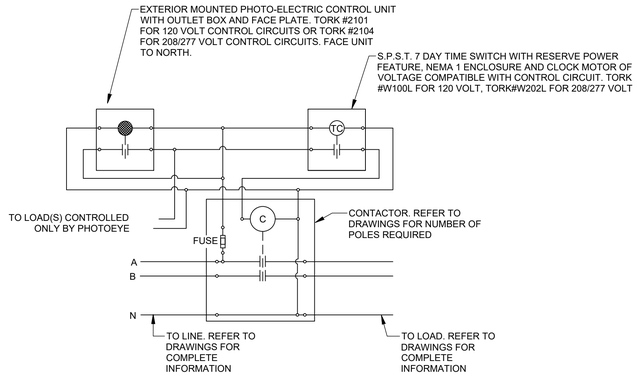


3 / 13 PUMP STATION MANUFACTURER CABLE TRENCH DETAIL
SCALE: NTS

BRANCH: GENERATOR — TYPE: SURFACE
PANEL: EM — MAIN: 100A MCB RATING: 100A
VOLTAGE: 240 Y/120, 1 PHASE, 3 WIRE

DEVICE		BRANCH CIRCUIT							BRANCH CIRCUIT		DEVICE	
AMP S TRIP	POLES	DESCRIPTION	KILO VOLT AMPS	C K T	PHASE A	PHASE B	C K T	KILO VOLT AMPS	DESCRIPTION		POLES	AMP S TRIP
20	1	BLOCK / CARB. HEATER	0.7	1	1.3		2	0.6	PUMP STATION		2	*30*
20	1	BATTERY CHARGER	0.7	3		1.3	4	0.6				
20	1	EMERGENCY LIGHT	0.1	5	0.5		6	0.4	SITE LIGHTING		2	20
20	1	SPARE		7		0.4	8	0.4				
20	1	SPARE		9			10		SPARE		2	20
20	1	SPARE		11			12					
20	1	SPARE		13			14		SPARE		2	20
20	1	SPARE		15			16					
20	1	SPARE		17			18		SPARE		1	20
20	1	SPARE		19			20		SPARE		1	20
20	1	SPARE		21			22		SPARE		1	20
20	1	SPARE		23			24		SPARE		1	20

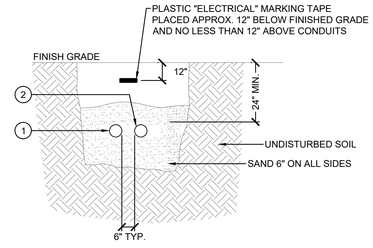
NOTES: *** INDICATES GFCI TYPE BREAKER — 1.8 1.7
PANEL SHALL BE PROVIDED WITH INTEGRAL SPD, BE NEMA 3R RATED, AND LOCKABLE — TOTAL KVA: 3.40
PANEL AIC RATING SHALL BE DETERMINED BY RESULTS OF THE SHORT CIRCUIT, COORDINATION,ARC FAULT STUDY REQUIRED BY ACORN CONSULTING ENGINEERS INC. DRAWING E-2.0. — TOTAL AMPS: 14.17



4 / 13 TIME CLOCK AND PHOTOCELL CONTROL DETAIL
SCALE: NTS

SHEET 13 GENERAL NOTES:

1. PROVIDE ATS, AND PANEL EM EQUIPMENT WITH SHORT CIRCUIT AMPERE INTERUPTING (AIC) RATING GREATER THAN THE AVAILABLE FAULT CURRENT AT THE SERVICE TERMINALS CALCULATED BY THE SHORT CIRCUIT, COORDINATION, ARC FLASH STUDY REQUIRED BY THE ACORN CONSULTING ENGINEERS INC. DRAWING E-2.0.



5 / 13 GENERATOR CONDUIT TRENCH DETAIL
SCALE: NTS

REV.	DATE	DESCRIPTION	BY	CHK.

DRAWING ISSUE STATUS
FOR BIDDING

HALEY WARD
WWW.HALEYWARD.COM
One Merchants Plaza, Suite 701
Bangor, Maine 04401
207.989.4824

PROJECT
RIVER BEND
176 EAST STREET & 64 WELLS RUN - LITCHFIELD, CONNECTICUT

TITLE
ELECTRICAL GENERATOR SITE PLAN

STATE OF CONNECTICUT — ANATOLY PROKOPENKO — No. 24835 — LICENSED PROFESSIONAL ENGINEER

DATE	SCALE
APRIL 10, 2026	AS NOTED
DRAWN BY: TJA	DESIGNED BY: APG	CHECKED BY: APG
PROJECT No. 4010271.002	
DRAWING No. 13	REV. 4

FILE LOCATION: P:\Civil\10271 - IQAM - QUISENBERRY ARCARI MALIK ARCHITECTS, LLC\002 - LITCHFIELD HOUSING WELLS RUN - TAP\02-CAD_FILES\MEP\EP101 ELECTRICAL POWER FIRST FLOOR PLAN.DWG, 2026.04.22, 2:04 PM

TOPSOIL, SEEDING & PLANTING NOTES

1. THE LANDSCAPE PLAN AND LANDSCAPE DETAIL SHEET ARE FOR LANDSCAPING INFORMATION ONLY. REFER TO OTHER DRAWINGS FOR ALL OTHER INFORMATION.

2. COORDINATE PLANT MATERIAL LOCATIONS WITH SITE UTILITIES. UTILITY LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. EXERCISE CARE WHEN DIGGING IN AREAS OF POTENTIAL CONFLICT WITH UNDERGROUND OR OVERHEAD UTILITIES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO CONTRACTOR'S NEGLIGENCE AND SHALL REPLACE OR REPAIR ANY DAMAGE AT CONTRACTOR'S EXPENSE. PRIOR TO DIGGING AND INSTALLATION OF PLANT MATERIAL, THE CONTRACTOR SHALL CONTACT "DIG SAFE" 72 HOURS BEFORE COMMENCEMENT OF WORK AT "(888)344-7233" AND VERIFY ALL UTILITY SYSTEM LOCATIONS.

3. THE LOCATIONS FOR PLANT MATERIAL ARE APPROXIMATE AND ARE SUBJECT TO FIELD ADJUSTMENT DUE TO UTILITY LOCATIONS AND SITE CONDITIONS. THE CONTRACTOR SHALL ACCURATELY STAKE OUT THE LOCATIONS FOR ALL PLANTS FOR THE REVIEW, ADJUSTMENT, AND APPROVAL BY OWNER OR LANDSCAPE ARCHITECT PRIOR TO PLANTING.

4. THE CONTRACTOR SHALL GUARANTEE THAT ALL PLANTS SHALL BE HEALTHY AND FREE OF DISEASE FOR A PERIOD OF ONE YEAR OR JUNE 1ST OF THE YEAR FOLLOWING INSTALLATION, WHICHEVER IS LONGER, AFTER SUBSTANTIAL COMPLETION AND ACCEPTANCE BY OWNER OR LANDSCAPE ARCHITECT. CONTRACTOR SHALL REPLACE ANY DEAD OR UNHEALTHY PLANTS AT CONTRACTOR'S EXPENSE. PLANT MATERIAL REPLACEMENTS SHALL BE GUARANTEED FOR ONE FULL YEAR FROM DATE OF REPLACEMENT. REPLACEMENT PLANTS SHALL BE THE SAME AS SPECIFIED FOR THE ORIGINAL PLANTING. REPLACEMENTS SHALL BE MADE AS MANY TIMES AS NECESSARY TO ENSURE HEALTHY PLANTS. FINAL ACCEPTANCE SHALL BE MADE IF ALL PLANTS MEET THE GUARANTEE REQUIREMENTS INCLUDING MAINTENANCE. MAINTENANCE RESPONSIBILITIES INCLUDE CULTIVATING, SPRAYING, WEEDING, WATERING, TIGHTENING GUYS, PRUNING, FERTILIZING, MULCHING, AND ANY OTHER OPERATIONS NECESSARY TO MAINTAIN PLANT VIABILITY. MAINTENANCE SHALL BEGIN IMMEDIATELY AFTER PLANTING AND CONTINUE UNTIL THE END OF THE GUARANTEE PERIOD.

5. THE CONTRACTOR SHALL SUPPLY ALL LABOR, PLANTS, AND MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND LISTED IN THE PLANT SCHEDULE. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED BY THE DRAWINGS, THE LARGER SHALL APPLY. ALL PLANTS SHALL BE ACCLIMATED BY THE SUPPLY NURSERY TO THE LOCAL HARDINESS ZONE AND BE CERTIFIED THAT THE PLANTING MATERIAL HAS BEEN GROWN FOR A MINIMUM OF TWO YEARS AT THE SOURCE AND OBTAINED WITHIN 200 MILES OF PROJECT SITE UNLESS OTHERWISE APPROVED BY OWNER OR LANDSCAPE ARCHITECT.

6. PLANTS SHALL HAVE TAGS THAT IDENTIFY PLANT GENUS, SPECIES, CULTIVAR (IF APPLICABLE), PLANT COMMON NAME, NAME OF SOURCE NURSERY, AND SIZE OF PLANT FOR REVIEW OF OWNER OR LANDSCAPE ARCHITECT.

7. NO PLANT SHALL BE PLACED IN THE GROUND BEFORE ROUGH GRADING HAS BEEN COMPLETED AND APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT. STAKING THE LOCATION OF ALL TREES AND SHRUBS SHALL BE COMPLETED PRIOR TO PLANTING FOR APPROVAL BY THE OWNER OR LANDSCAPE ARCHITECT.

8. FINAL GRADES SHALL BLEND SMOOTHLY WITH EXISTING GRADES, AND TOP AND BOTTOM OF SLOPES SHALL BE ROUNDED.

9. ALL TREE AND SHRUB MASSINGS SHALL BE MULCHED TO A DEPTH OF 3". ANNUAL AND PERENNIAL BEDS SHALL BE MULCHED TO A DEPTH OF 2". MULCH SHALL BE UNCOLORED TRIPLE-SHREDDED HARDWOOD BARK MULCH, AGED AT LEAST 6 MONTHS.

10. TREE STAKING MUST BE COMPLETED THE SAME DAY AS THE TREE IS INSTALLED. ALL TREES SHALL BE STAKED OR GUYED PER DETAIL.

11. LANDSCAPE PLANTING AREAS MUST BE FREE FROM PAVEMENT, COMPACTED SUBGRADE, DEAD OR DYING PLANT MATERIAL, BLASTED ROCK, STONES GREATER THAN 1" IN DIAMETER, AND ANY OTHER MATERIAL HARMFUL TO PLANT GROWTH AND DEVELOPMENT SHALL BE REMOVED FROM AREAS TO BE LANDSCAPED AS REQUIRED BY PLANTING DETAILS OR SPECIFICATIONS.

12. PLANTING SOIL:

DEPTH: PLANTING SOIL SHALL BE INSTALLED AT A MINIMUM DEPTH OF 6" OR AS NOTED IN THE LANDSCAPE DETAILS.

SOURCE: PLANTING SOIL MAY CONSIST OF EXISTING ON-SITE SOILS, AMENDED ON-SITE SOILS, IMPORTED SOILS, OR A COMBINATION THEREOF.

TESTING: CONTRACTOR SHALL SUBMIT (2) SOIL SAMPLES PER SOIL STOCKPILE TO A CERTIFIED TESTING LABORATORY TO DETERMINE ACIDITY, ORGANIC CONTENT, MECHANICAL ANALYSIS, AVAILABLE NUTRIENTS (N,P,K,Ca,Mg,S,Fe,Mn,Zn,Cu,B,Al,Pb) AND NECESSARY AMENDMENTS TO SOIL. THE CONTRACTOR SHALL SUBMIT THE TEST RESULTS TO THE OWNER OR LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL. TEST RESULTS SHALL RECOMMEND AMENDMENTS THAT WILL ALTER THE SOIL CHARACTERISTICS SUCH THAT THE CHARACTERISTICS DESCRIBED BELOW ARE ACHIEVED AND THE SPECIFIED PLANTS (CONTRACTOR TO PROVIDE LIST TO TESTING LABORATORY) WILL ACHIEVE PROPER GROWTH THAT IS NEITHER DEFICIENT NOR EXCESSIVE. THE CONTRACTOR SHALL INCORPORATE THESE AMENDMENTS AT NO INCREASE IN CONTRACT PRICE.

CHARACTERISTICS: PLANTING SOIL SHALL MEET THE FOLLOWING CRITERIA:

A. NOT TO CONTAIN MATERIALS HARMFUL TO PLANT LIFE, TO BE CLEAN, FERTILE, FRIABLE, AND WELL DRAINING. ALL PLANTING SOIL SHALL BE FREE OF ANY SUBSOIL EARTH CLODS, SODS, STONES OVER 1" IN ANY DIMENSION, STICKS, ROOTS, WEEDS, LITTER AND OTHER DELETERIOUS MATERIAL. PLANTING SOIL SHALL BE UNIFORM IN QUALITY AND TEXTURE.

B. PLANTING SOIL SHALL HAVE THE FOLLOWING OPTIMUM RANGES UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT.
   ORGANIC CONTENT 4% - 8% (BY LOSS OF IGNITION AT 375 C METHOD OF TESTING)
   PH 5.7 - 6.5

C. NUTRIENT LEVELS SHALL BE ACHIEVED BY THE CONTRACTOR'S ADDITION OF AMENDMENTS TO THE PLANTING SOIL TO MEET THE OPTIMUM NUTRIENT LEVELS SPECIFIED IN THE TESTING LABORATORY REPORT FOR EACH OF PLANTS TO BE INSTALLED.

D. PLANTING SOIL SHALL BE COMPACTED TO A SURFACE PENETRATION RESISTANCE OF 75-125 LBS/SQ.IN.

E. PLANTING SOIL MAY BE TREATED FOR WEEDS WITH PRE-EMERGENT OR POST-EMERGENT HERBICIDE, AS NEEDED AND AS APPROPRIATE FOR THE APPLICATION SEASON OR LOCATION, OR ELIMINATE GROWTH OF UNWANTED PLANT MATERIAL. APPLY HERBICIDES IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. HERBICIDE APPLICATOR MUST BE LICENSED IN THE STATE OF RHODE ISLAND, AND PERFORM APPLICATIONS IN ACCORDANCE WITH LOCAL REQUIREMENTS, PERMITTING STIPULATIONS, AND ANY OTHER RESTRICTIONS INCLUDING AND IN EXCESS OF STATE AND FEDERAL REGULATIONS.

F. PLANTING SOIL SHALL MEET THE USDA SOILS TEXTURAL PERCENTAGES OF SAND, SILT, AND CLAY FOR FOLLOWING CLASSIFICATIONS:
   - LOAM
   - SANDY LOAM WHERE SAND DOES NOT EXCEED 70% AND CLAY IS NOT LESS THAN 5%.
   - SANDY CLAY LOAM WHERE SAND DOES NOT EXCEED 70% AND CLAY IS LESS THAN 28%.

G. BIORETENTION SOILS: SOIL TO BE INSTALLED IN RETENTION BASINS, PONDS, OR OTHER STORMWATER MANAGEMENT ENVIRONS SHALL MEET THE ABOVE DESCRIBED CHARACTERISTICS AND AS FOLLOWS:
   - SOIL SHALL NOT CONTAIN MORE THAN 20% CLAY AND LESS THAN 40% SILT.
   - SOIL SHALL HAVE AN INFILTRATION RATE BETWEEN 1/2" AND 3" PER HOUR.

H. MODIFICATION TO THE PLANTING SOIL CHARACTERISTICS DESCRIBED ABOVE MAY BE SUBMITTED FOR APPROVAL BY THE LANDSCAPE ARCHITECT. CONTRACTOR MUST DEMONSTRATE PROPOSED CHARACTERISTICS ARE EQUAL TO OR SUPERIOR TO THE SPECIFIED CHARACTERISTICS WITH RESPECT TO SUPPORTING PLANT GROWTH, AND STORMWATER MANAGEMENT.

12. PLANTING AMENDMENTS:
APPLY FERTILIZER AND OTHER AMENDMENTS AS RECOMMENDED FOR EACH PLANTING AREA BY SOIL ANALYSIS. APPLY AMENDMENTS IN A MANNER CONSISTENT WITH MANUFACTURER'S RECOMMENDATIONS. ANY ORGANIC AMENDMENTS SHALL HAVE A pH BETWEEN 4.5 AND 5.5 UNLESS OTHERWISE RECOMMENDED.

13. PLANT REQUIREMENTS: ALL PLANTS SHALL CONFORM IN SIZE AND GRADE TO THE AMERICAN STANDARD FOR NURSERY STOCK, ANSI Z60.1 (LATEST EDITION). ALL PLANTS SHALL MEET THE ADDITIONAL REQUIREMENTS SET FORTH BELOW AND IN WRITTEN SPECIFICATIONS AS APPLICABLE. ALL TREES AND SHRUBS SHALL HAVE BEEN GROWN AT A COMMERCIAL NURSERY WITHIN 200 MILES OF THE PROJECT SITE UNLESS OTHERWISE APPROVED BY OWNER OR LANDSCAPE ARCHITECT. THEY SHALL BE TYPICAL OF THEIR SPECIES OR VARIETY. THEY SHALL BE HEALTHY, SYMMETRICAL, EVENLY AND DENSELY BRANCHED, AND DENSELY FOLIATED WHEN IN LEAF. THEY SHALL BE FREE OF BARK INJURY, DISEASE, AND INSECT PESTS. ALL TREES SHALL HAVE A STRAIGHT TRUNK WITH A SINGLE MAIN LEADER UNLESS OTHERWISE CHARACTERISTIC OF THE SPECIES OR VARIETY. THE OWNER OR LANDSCAPE ARCHITECT WILL ALLOW SUBSTITUTIONS ONLY UPON WRITTEN APPROVAL. SIZES SHALL CONFORM TO THE MEASUREMENT SPECIFIED ON THE DRAWINGS. PLANTS LARGER THAN SPECIFIED MAY BE USED IF APPROVED, BUT THE USE OF SUCH PLANTS SHALL NOT INCREASE THE CONTRACT PRICE. ALL OVERSTORY TREES PLANTED ALONG PARKING AREAS, SIDEWALKS AND PEDESTRIAN ACCESSES SHALL NOT BRANCH BELOW 7' FEET IF THE TREE CALIPER IS 3" INCHES OR GREATER. ALL PLANT MATERIALS ARE SUBJECT TO INSPECTION AND ACCEPTANCE BY THE OWNER OR LANDSCAPE ARCHITECT AT THE NURSERY SOURCE. THE CONTRACTOR SHALL COORDINATE SOURCE VISITS WITH THE LANDSCAPE ARCHITECT AND SHALL ACCOMPANY THE OWNER AND/OR LANDSCAPE ARCHITECT FOR ALL INSPECTIONS. CERTIFICATES OF COMPLIANCE WITH SPECIFICATIONS ARE REQUIRED FOR ALL PLANTS.

14. INSPECTION AND REVIEW:
ALL PLANT MATERIAL SHALL BE SUBJECT TO INSPECTION AND ACCEPTANCE BY THE OWNER OR LANDSCAPE ARCHITECT AT THE NURSERY SOURCE OR PLACE OF GROWTH. THE CONTRACTOR SHALL COORDINATE WITH THE LANDSCAPE ARCHITECT ON A SCHEDULE FOR SOURCE VISITS AND ACCOMPANY THE OWNER OR LANDSCAPE ARCHITECT FOR ALL SOURCE INSPECTIONS. CERTIFICATES OF COMPLIANCE ARE REQUIRED FOR ALL PLANT MATERIALS.
PHOTOGRAPHIC REVIEW OF PLANT MATERIAL IS ACCEPTABLE IF APPROVED BY LANDSCAPE ARCHITECT. PHOTOGRAPHS MUST BE PROVIDED IN QUANTITY AND VARIETY TO ALLOW LANDSCAPE ARCHITECT SUFFICIENT INFORMATION TO MAKE A REASONABLE DETERMINATION AS TO THE PLANTS' QUALITY. OWNER AND LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT PLANT MATERIAL DELIVERED TO THE SITE BUT PREVIOUSLY ACCEPTED IF DAMAGED OR NOT PROPERLY MAINTAINED DURING THE DELIVERY PROCESS.

15. PLANTING SEASONS (UNLESS OTHERWISE APPROVED BY THE OWNER OR LANDSCAPE ARCHITECT)

	SPRING	FALL
EVERGREEN TREES AND SHRUBS	APRIL 1 TO JUNE 1	SEPTEMBER 1 TO NOVEMBER 1
DECIDUOUS TREES AND SHRUBS	APRIL 1 TO JUNE 1	SEPTEMBER 15 TO NOVEMBER 15
GROUNDCOVERS	APRIL 1 TO JUNE 1	SEPTEMBER 1 TO NOVEMBER 1
PERENNIALS	MAY 15 TO JUNE 1	SEPTEMBER 1 TO NOVEMBER 1
BULBS	N/A	SEPTEMBER 15 TO NOVEMBER 15
SEED MIXES	PER MANUFACTURERS RECOMMENDATIONS OR AS LISTED IN SEED MIX NOTES	

16. SEEDING MIXTURES: REFER TO SEED MIX NOTES. SEEDED AREA SHALL BE ACCEPTED WHEN SEED AREA ACHIEVES 85% COVERAGE.

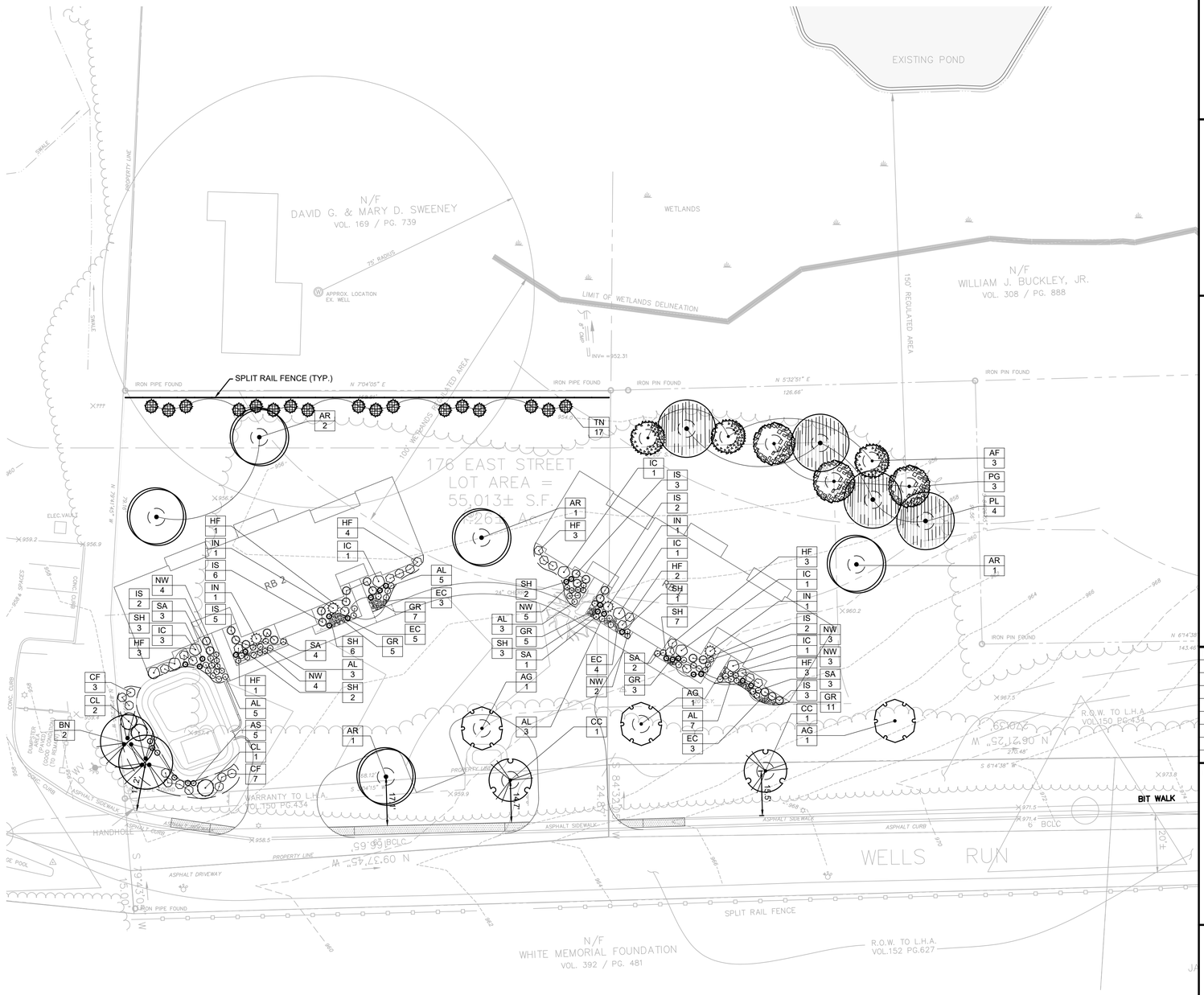
17. ALL SLOPES STEEPER THAN 3:1 RECEIVING A SEED MIX SHALL BE COVERED WITH AN EROSION CONTROL BLANKET OF STRAW FIBER AND BIODEGRADABLE OR PHOTODEGRADABLE NETTING.

18. UNLESS OTHERWISE NOTED IN DRAWING SET, THE PROPERTY LINE SHALL BE THE LIMIT OF DISTURBANCE.

19. ALL DISTURBED AREAS NOT OTHERWISE DEVELOPED SHALL BE SEEDED WITH THE LOW MAINTENANCE MIX.

PLANTING LEGEND

- SHADE TREE
- ORNAMENTAL TREE
- EVERGREEN TREE
- SHRUB PLANTINGS
- SEED MIX
- QUANTITY
- PLANT TYPE KEY



Prepared by:
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Prepared for:

LITCHFIELD HOUSING AUTHORITY

176 EAST ST & 64 WELLS RUN — **LITCHFIELD, CT**

DATE:	REVISION:

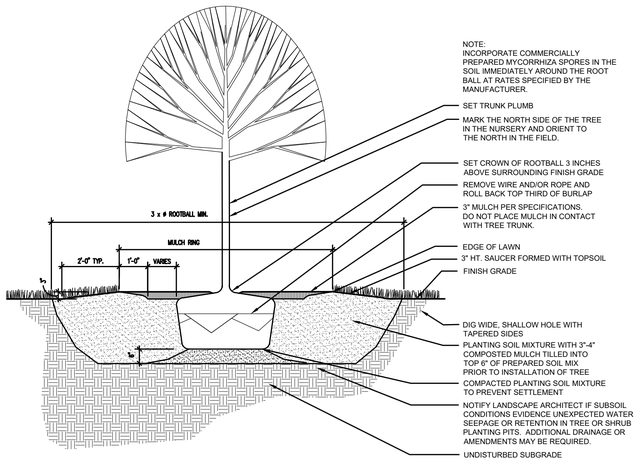
KEY PLAN

0 20' 40'
SCALE: 1" = 20'

PROJECT NO.: 0725-500078.00
SCALE: 1"=20'
DATE: 01/10/2025
DRAWN BY: AMW
CHECKED BY: RCD

PLANTING PLAN & NOTES

DRAWING NO.:
L1.0

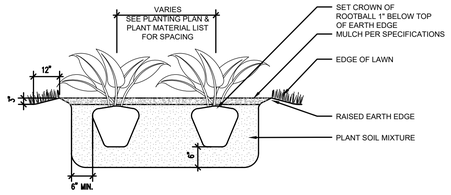


1 DECIDUOUS TREE PLANTING

1/2" = 1'-0"

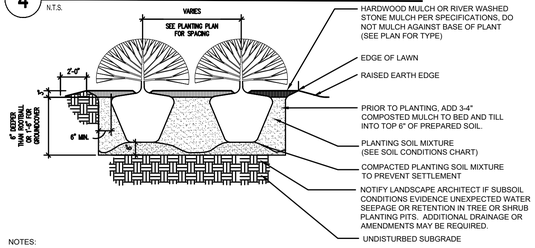
2 EVERGREEN TREE PLANTING

NOT TO SCALE



4 PERENNIAL PLANTING (CONTINUOUS PLANTING BED)

N.T.S.

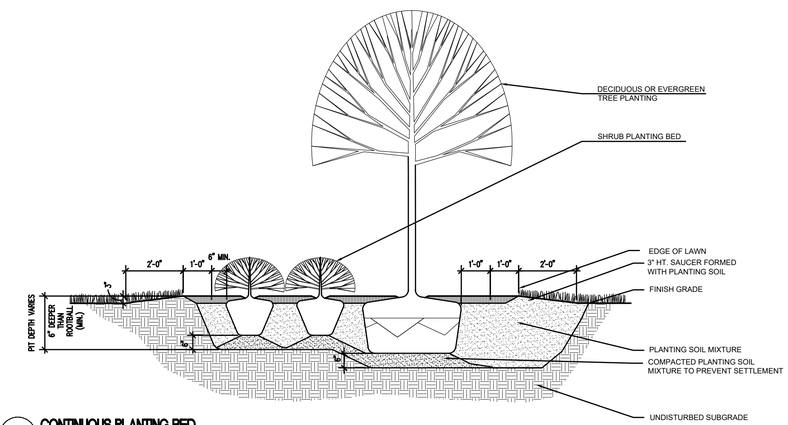


NOTES:

1. FOR CONTAINER GROWN SHRUBS, GENTLY PULL THE ROOTS OUT OF THE OUTER LAYER OF POTTING SOIL; THEN CUT OR PULL APART ANY ROOTS CIRCLING THE PERIMETER OF CONTAINER.
2. FOR B&B SHRUBS, FOLD BURLAP FROM TOP OF ROOT BALL DOWN TO GROUND.
3. INCORPORATE COMMERCIALLY PREPARED MYCORRHIZA SPORES IN THE SOIL IMMEDIATELY AROUND THE ROOT BALL AT RATES SPECIFIED BY THE MANUFACTURER.
4. CONFIRM THAT WATER DRAINS OUT OF THE SOIL DURING THE DESIGN PHASE, DESIGN ALTERNATIVE DRAINAGE SYSTEMS, AS REQUIRED.

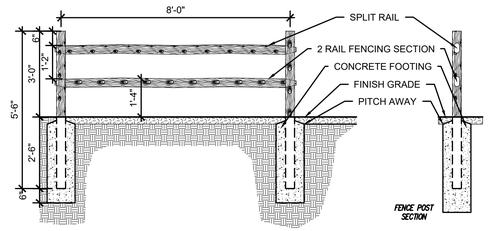
3 SHRUB PLANTING BED

N.T.S.



5 CONTINUOUS PLANTING BED

NOT TO SCALE



6 SPLIT RAIL WOOD FENCING

1/2" = 1'-0"

PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL / COMMON NAME	CONT	CAL	SIZE	QTY
DECIDUOUS TREES						
	AR	ACER RUBRUM / RED MAPLE	B & B	3.5"-4" CAL.	16'-18'	5
	BN	BETULA NIGRA / RIVER BIRCH MULTI-TRUNK	B & B	MULTI-STEM	7-8' HT. MIN.	2
EVERGREEN TREES						
	AF	ABIES FRASERI / FRASER FIR	B & B	6'-8' HT.	UNIFORM	3
	PG	PICEA GLAUCA / WHITE SPRUCE	B & B	6'-8' HT.	UNIFORM	3
	PL	PINUS FLEXILIS / LIMBER PINE	B & B	6'-8' HT.	UNIFORM	4
	TN	THUJA OCCIDENTALIS 'AMERICAN PILLAR' / AMERICAN PILLAR ARBORVITAE	B & B	6'-8' HT.	UNIFORM	17
FLOWERING TREES						
	CC	CERCIS CANADENSIS / EASTERN REDBUD	B & B	1.75"CAL	6 - 8` HT.	2
ORNAMENTAL TREES						
	AG	ACER GRISEUM / PAPERBARK MAPLE	B & B	1.75"CAL	7-8' HT.	3
SYMBOL	*CODE*	*BOTANICAL / COMMON NAME*	*SIZE*	*HEIGHT*	*SPREAD*	*QTY*
SHRUBS						
	AL	ARONIA MELANOCARPA 'UCONNAM165' / LOW SCAPE MOUND® BLACK CHOKEBERRY	3 GAL	12"-24" HT.	EQUAL	26
	CL	CEPHALANTHUS OCCIDENTALIS 'SMCBC' / CRIMSON COMET™ BUTTONBUSH	5 GAL	36"-48" HT.	EQUAL	3
	CF	CORNUS SERICEA 'FARROW' / ARCTIC FIRE® RED TWIG DOGWOOD	3 GAL	24"-36" HT.	EQUAL	10
	HF	HYDRANGEA PANICULATA 'SMHPFL' / FIRE LIGHT® PANICLE HYDRANGEA	3 GAL	24"-36" HT.	EQUAL	20
	IS	ILEX GLABRA 'ILEXFARROWTRACEY' / STRONGBOX® INKBERRY HOLLY	3 GAL	24"-36" HT.	EQUAL	23
	IN	ILEX GLABRA 'SMNIGLA' / SQUEEZE BOX™ INKBERRY HOLLY	3 GAL	24"-36" HT.	EQUAL	4
	IC	ITEA VIRGINICA 'LITTLE HENRY' / LITTLE HENRY SWEETSPIRE	5 GAL	18"-24" HT.		8
ANNUALS/PERENNIALS						
	EC	ECHINACEA X 'CHEYENNE SPIRIT' / CHEYENNE SPIRIT CONEFLOWER	2 GAL	1'-2' HT.	EQUAL	15
	GR	GERANIUM X 'ROZANNE' / ROZANNE CRANESBILL	1 GAL	6-12" HT.	EQUAL	31
	NW	NEPETA X 'WALKER'S LOW' / WALKER'S LOW CATMINT	2 GAL	1'-2' HT.		21
	SA	SEDUM X 'AUTUMN JOY' / AUTUMN JOY SEDUM	2 GAL	1'-2' HT.	EQUAL	15
GRASSES						
	AS	ANDROPOGON SCOPARIUS / LITTLE BLUESTEM	2 GAL	12"-24" HT.	EQUAL	6
	SH	SPOROBOLUS HETEROLEPIS / PRAIRIE DROPSEED	2 GAL	24" HT.	12" SPR.	24

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LITCHFIELD, CT

176 EAST ST & 64 WELLS RUN

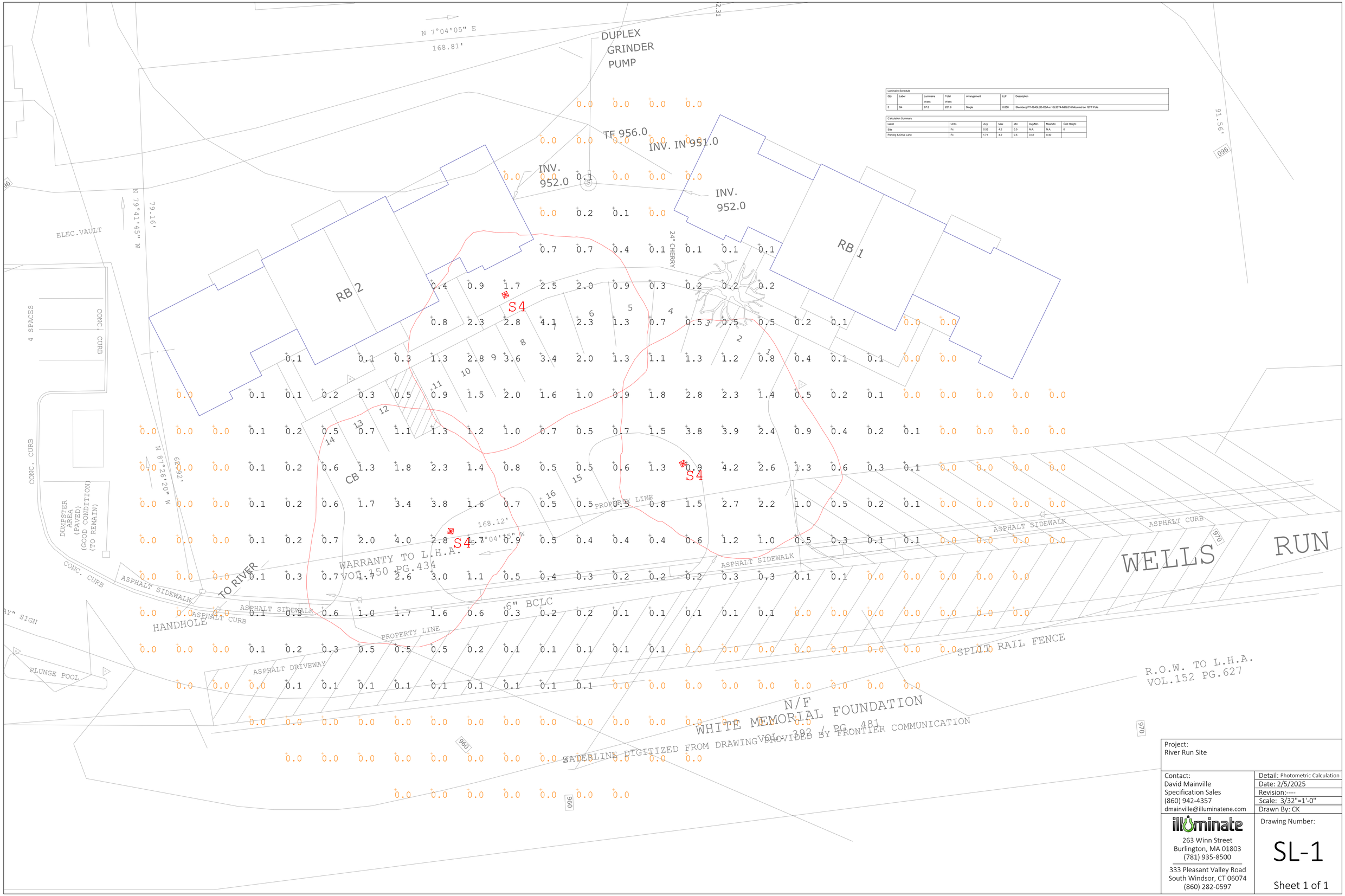
DATE:	REVISION:

KEY PLAN

PROJECT NO.: 0725-500078.00
SCALE: 1"=20'
DATE: 01/10/2025
DRAWN BY: AMW
CHECKED BY: RCD

PLANTING DETAILS & SCHEDULE

DRAWING NO.:
L1.1



Project:
River Run Site

Contact:
David Mainville
Specification Sales
(860) 942-4357
dmainville@illuminatene.com

Detail: Photometric Calculation
Date: 2/5/2025
Revision:----
Scale: 3/32"=1'-0"
Drawn By: CK

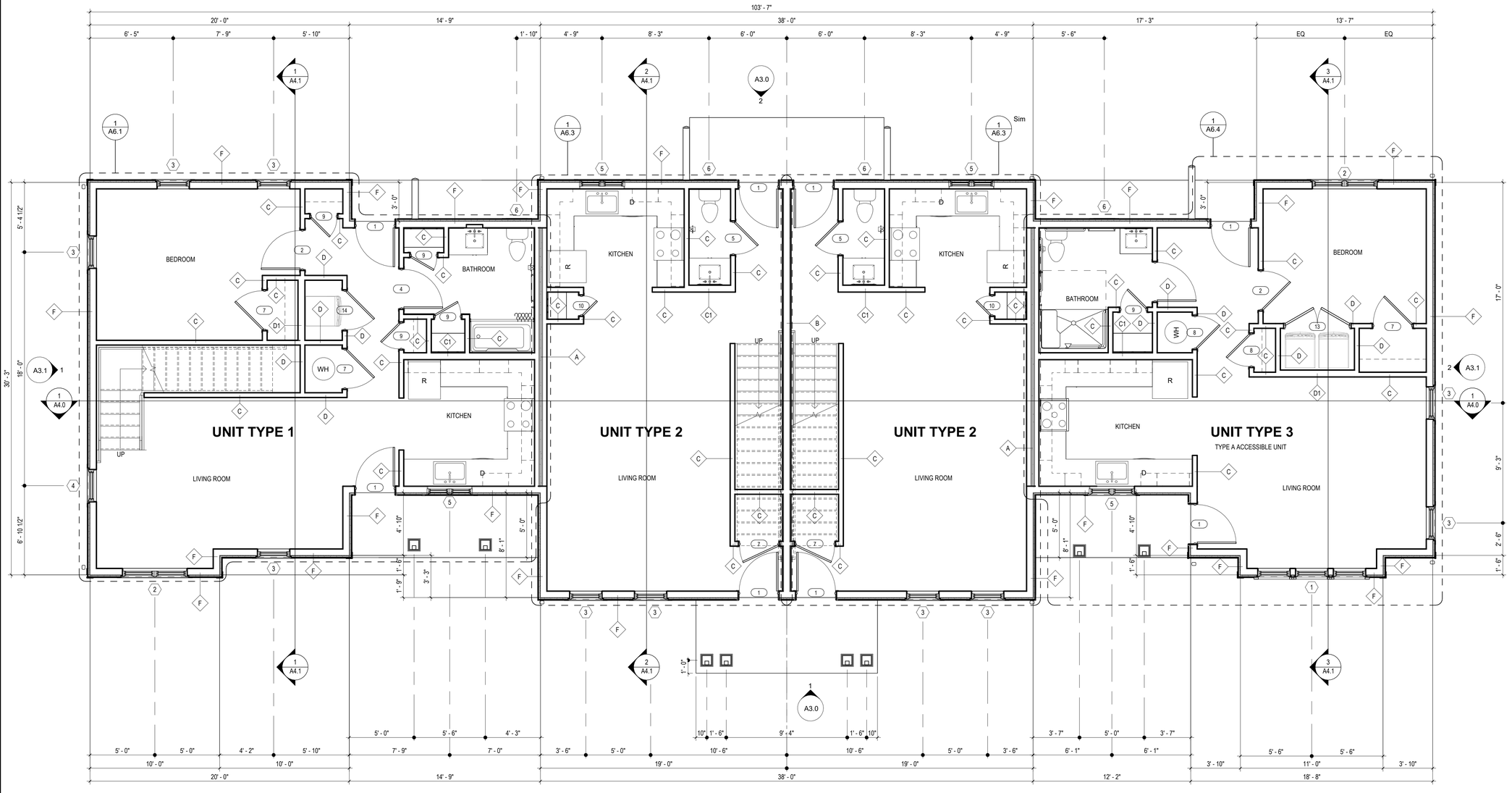
illuminate
263 Winn Street
Burlington, MA 01803
(781) 935-8500

333 Pleasant Valley Road
South Windsor, CT 06074
(860) 282-0597

Drawing Number:

SL-1

Sheet 1 of 1



1 A1.1 **FIRST FLOOR PLAN**
1/4" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: **2386**

Revision 1	Date 1

Revisions

Issue Dates:

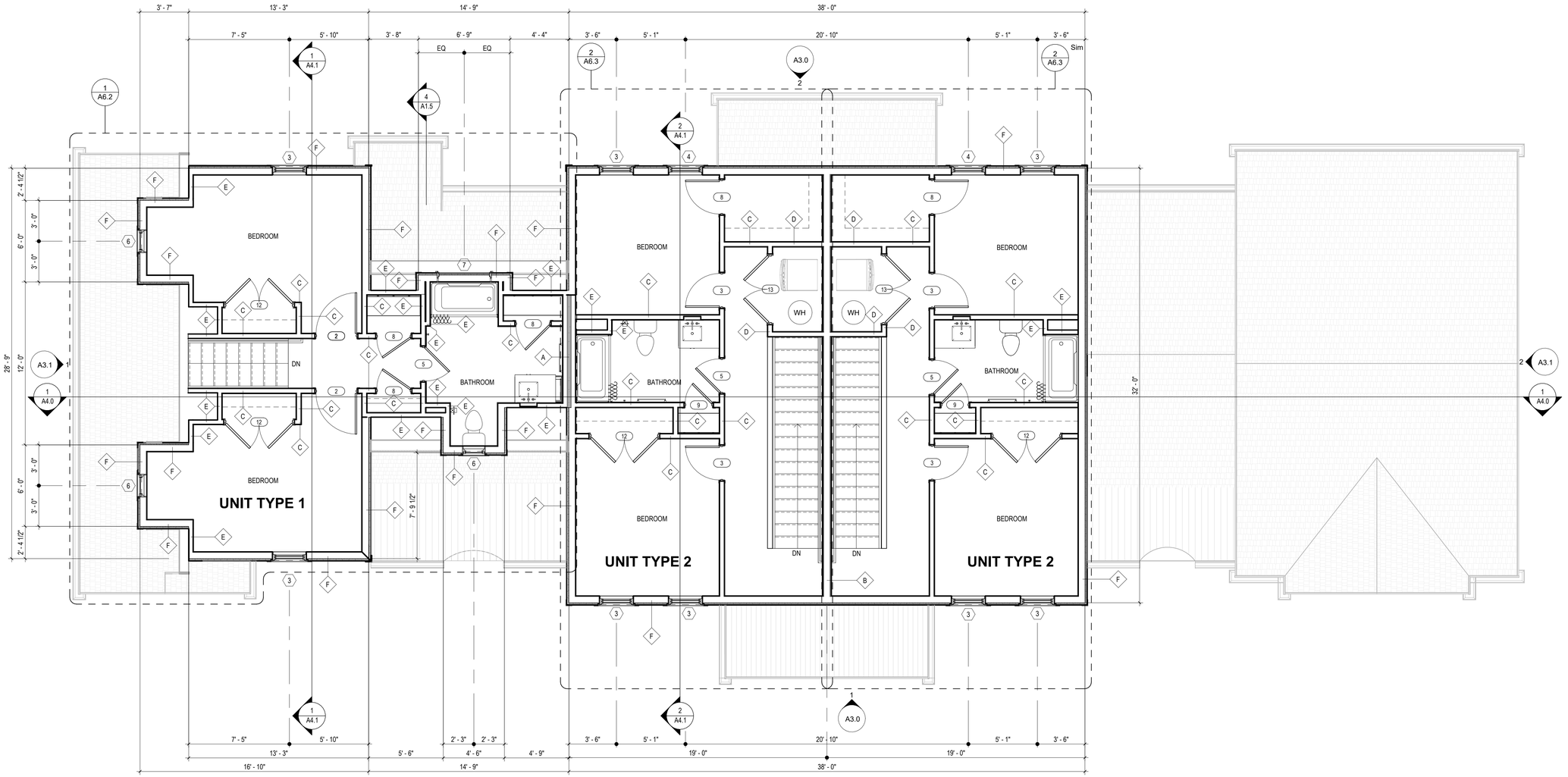
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APRIL 28, 2026

FIRST FLOOR PLAN

A1.1

4/28/2026 12:35:24 PM C:\Users\ebenken\Documents\Litchfield Housing_2024_CENTRAL_ebenkenG6FLZ.rvt



1 SECOND FLOOR PLAN

A1.2 1/4" = 1'-0"

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Project #: 2386

Revision 1	Date 1

Revisions

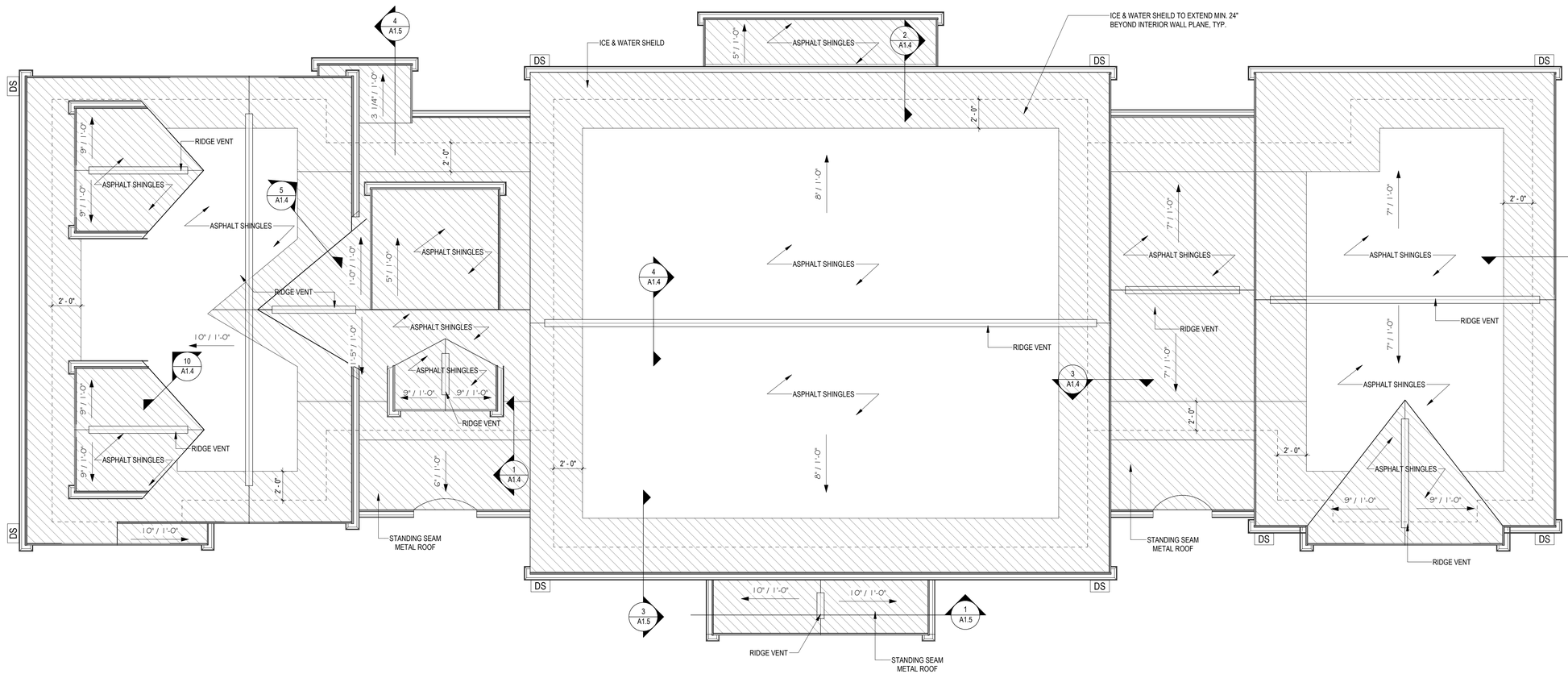
Issue Dates:

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APRIL 28, 2026

SECOND FLOOR PLAN

A1.2

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1 A1.3 **ROOF PLAN**
1/4" = 1'-0"

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Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

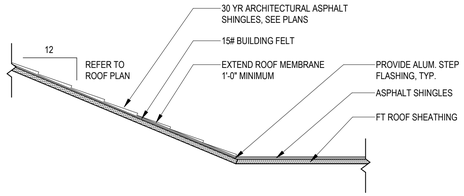
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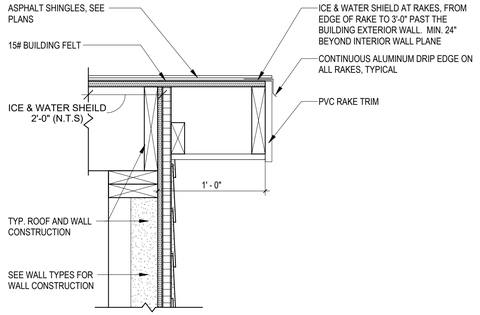
ROOF PLAN

A1.3

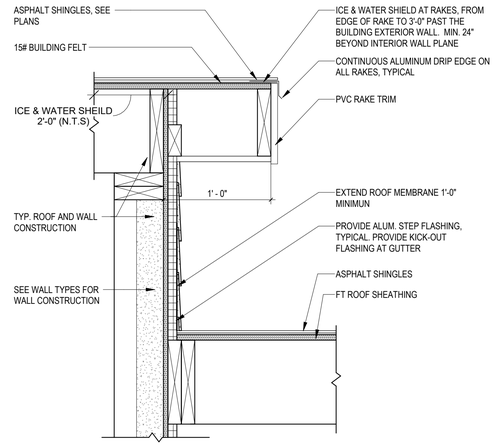
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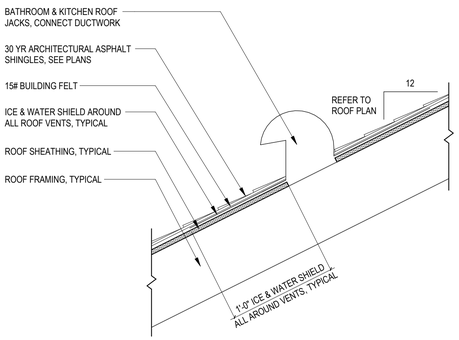
10 A1.4 **TYPICAL GABLE END TO ROOF DETAIL**
1 1/2" = 1'-0"



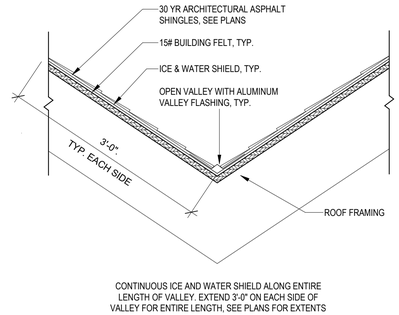
6 A1.4 **TYPICAL GABLE END DETAIL**
1 1/2" = 1'-0"



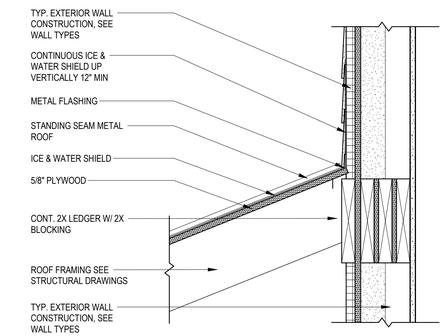
3 A1.4 **TYPICAL GABLE END TO ROOF SLOPE DETAIL**
1 1/2" = 1'-0"



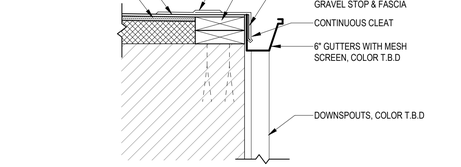
9 A1.4 **KITCHEN AND BATHROOM ROOF VENT DETAIL**
1 1/2" = 1'-0"



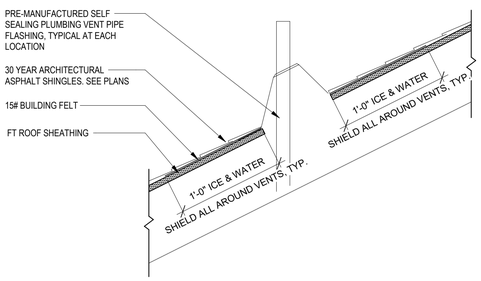
5 A1.4 **TYPICAL VALLEY DETAIL**
1 1/2" = 1'-0"



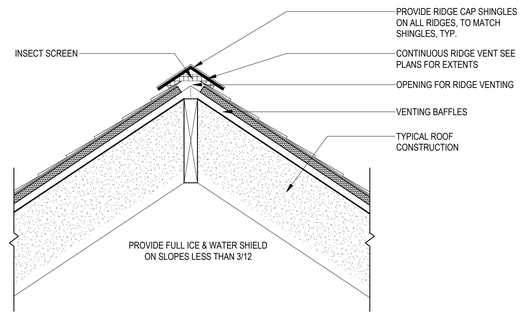
2 A1.4 **ROOF PORCH CONNECTION**
1 1/2" = 1'-0"



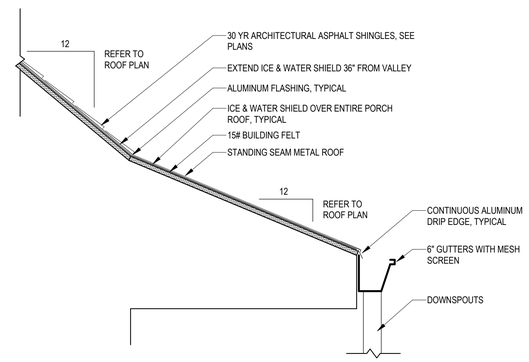
8 A1.4 **TYPICAL DRAINAGE DETAIL**
1 1/2" = 1'-0"



7 A1.4 **TYPICAL PLUMBING DETAIL**
1 1/2" = 1'-0"



4 A1.4 **TYPICAL RIDGE VENT DETAIL**
1 1/2" = 1'-0"



1 A1.4 **TYPICAL SHED PORCH ROOF**
1 1/2" = 1'-0"

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RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

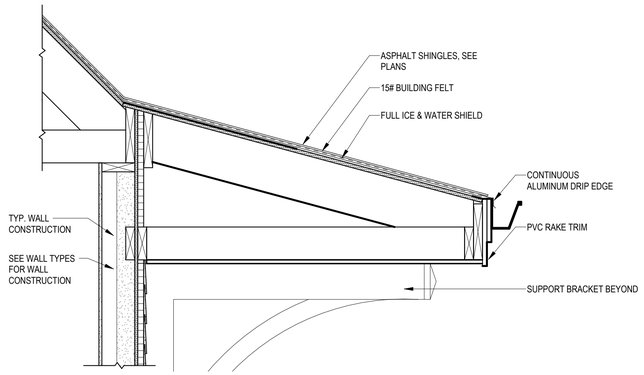
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APRIL 28, 2026

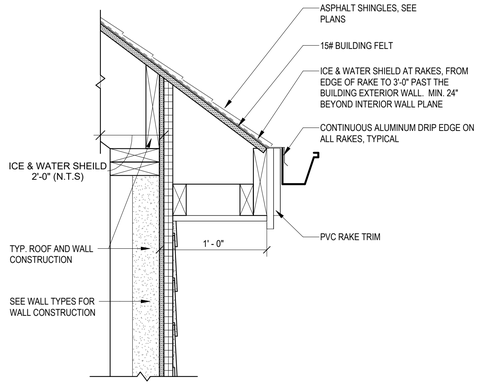
ROOF DETAILS

A1.4

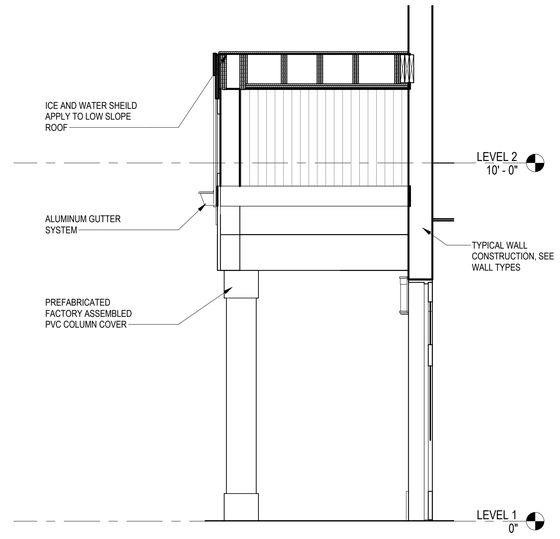
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4 A1.5 **CANOPY ROOF OVERHANG**
1" = 1'-0"



3 A1.5 **TYPICAL EAVE DETAIL**
1 1/2" = 1'-0"



1 A1.5 **PORCH ROOF SECTION 1**
1/2" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

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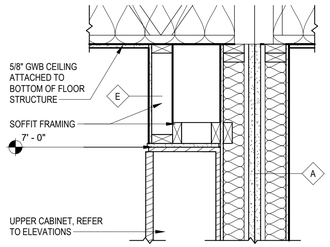
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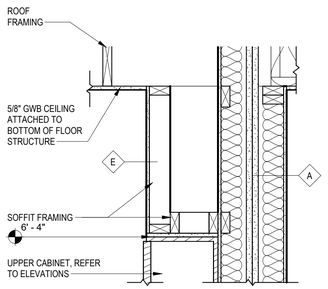
ROOF DETAILS

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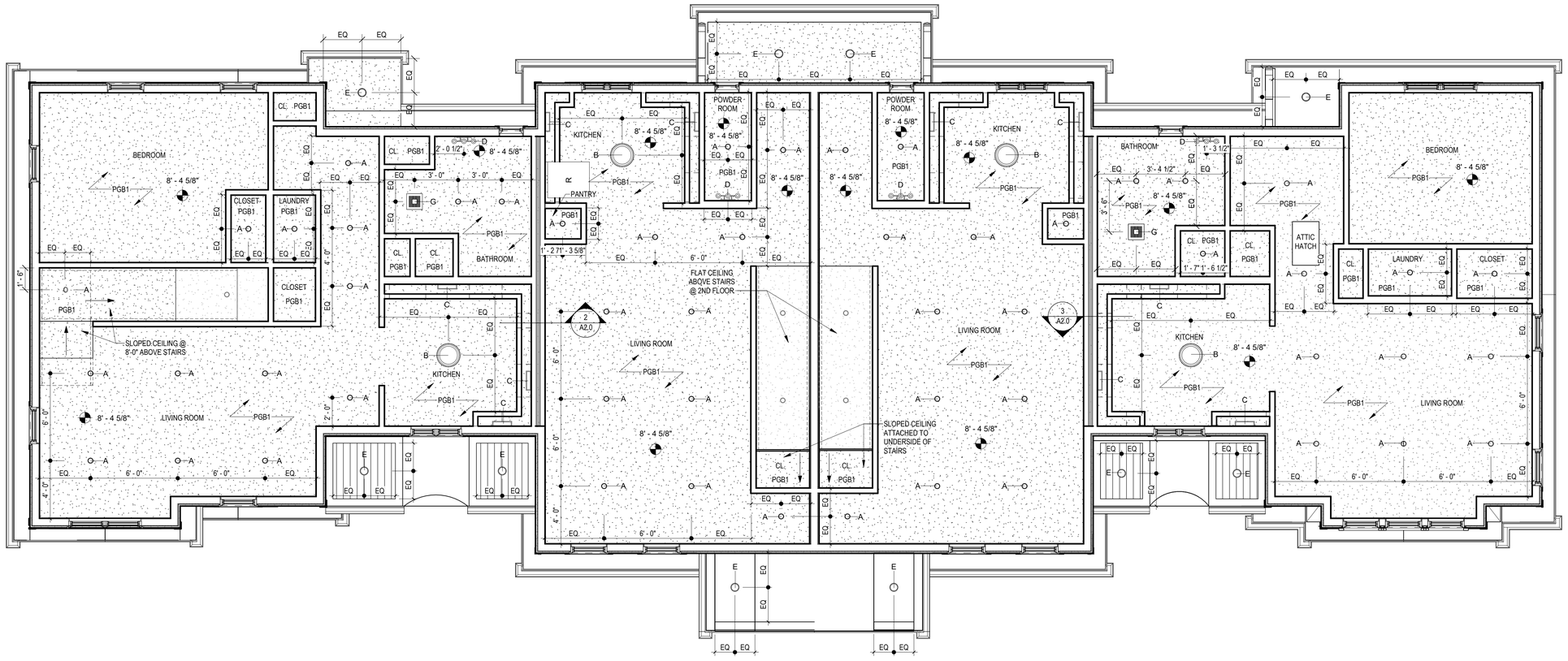


2 A2.0 **SOFFIT DETAIL TYP.**
1" = 1'-0"



3 A2.0 **SOFFIT DETAIL TYP. ADA**
1" = 1'-0"

GENERAL NOTES:	LIGHTING FIXTURES
1. REFER TO FINISH SCHEDULE FOR CEILING PRODUCT DATA. 2. REFER TO MEP DWGS FOR POWER LOCATIONS. 3. CEILING ATTACHED TO BOTTOM OF FLOOR AND/OR ROOF STRUCTURE UNLESS OTHERWISE NOTED. 4. SLOPED CEILINGS ATTACHED TO UNDERSIDE OF ROOF UNLESS OTHERWISE NOTED. REFER TO ROOF PLAN. ABBREVIATIONS: PGB- PAINTED GYPSUM BOARD SLOPED CEILING	**TYPE A** - AFX TUCK LOW PROFILE RECESSED DOWN LIGHT TUCF SERIES, TUCF04LAJD1WH **TYPE B** - AFX DUNCAN LED CEILING DUNF SERIES, DUNF20LAJUDBKWH **TYPE C** - AFX NOBLE PRO LED LINE VOLTAGE TASK LIGHTING NLLP2 SERIES, NLLP2-14WH **TYPE D** - AFX SYDNEY LED VANITY SYDV SERIES, SYDV2107LAJUDSN **TYPE E** - AFX TUCK LOW PROFILE RECESSED DOWN LIGHT TUCF SERIES, TUCF06LAJD1WH **TYPE F** - EFFICIENT LIGHTING INTERIOR PENDANT, EL-5012 **TYPE G** - FAN / LIGHT **TYPE J** - AFX VASARI LED OUTDOOR SCONCE VSRW SERIES, VSRW0412L30D1BK



1 A2.0 **FIRST FLOOR RCP**
1/4" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

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APRIL 28, 2026

FIRST FLOOR REFLECTED CEILING PLAN

A2.0

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GENERAL NOTES:	LIGHTING FIXTURES:
1. REFER TO FINISH SCHEDULE FOR CEILING PRODUCT DATA. 2. REFER TO MEP DWGS FOR POWER LOCATIONS. 3. CEILING ATTACHED TO BOTTOM OF FLOOR AND/OR ROOF STRUCTURE UNLESS OTHERWISE NOTED. 4. SLOPED CEILINGS ATTACHED TO UNDERSIDE OF ROOF UNLESS OTHERWISE NOTED. REFER TO ROOF PLAN. ABBREVIATIONS: PGB- PAINTED GYPSUM BOARD SLOPED CEILING	**TYPE A** - AFX TUCK LOW PROFILE RECESSED DOWN LIGHT TUCF SERIES, TUCF04LAJD1WH **TYPE B** - AFX DUNCAN LED CEILING DUNF SERIES, DUNF20LAJUDBKWH **TYPE C** - AFX NOBLE PRO LED LINE VOLTAGE TASK LIGHTING NLLP2 SERIES, NLLP2-14WH **TYPE D** - AFX SYDNEY LED VANITY SYDV SERIES, SYDV2107LAJUDSN **TYPE E** - AFX TUCK LOW PROFILE RECESSED DOWN LIGHT TUCF SERIES, TUCF06LAJD1WH **TYPE F** - EFFICIENT LIGHTING INTERIOR PENDANT, EL-5012 **TYPE G** - FAN / LIGHT **TYPE J** - AFX VASARI LED OUTDOOR SCONCE VSRW SERIES, VSRW0412L30D1BK



1 A2.1 **SECOND FLOOR RCP**
1/4" = 1'-0"

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Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

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SECOND FLOOR REFLECTED CEILING PLAN

A2.1

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NOTE: TYPE J SCONCE FIXTURE AT EVERY EXTERIOR DOOR



1 A3.0 **FRONT ELEVATION**
3/16" = 1'-0"



2 A3.0 **BACK ELEVATION**
3/16" = 1'-0"

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Project #: 2386

Revision 1	Date 1

Revisions

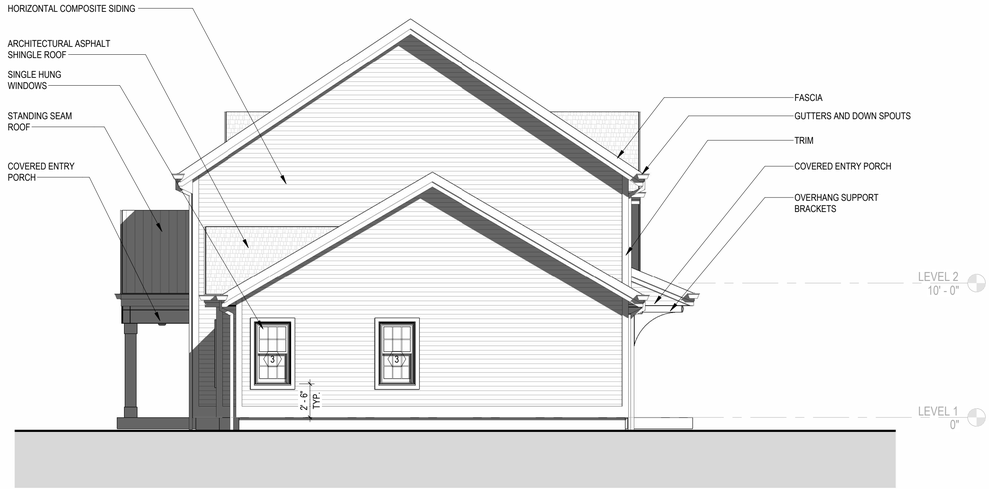
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APRIL 28, 2026

EXTERIOR ELEVATIONS

A3.0

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2 A3.1 **RIGHT ELEVATION**

3/16" = 1'-0"



1 A3.1 **LEFT ELEVATION**

3/16" = 1'-0"

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RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

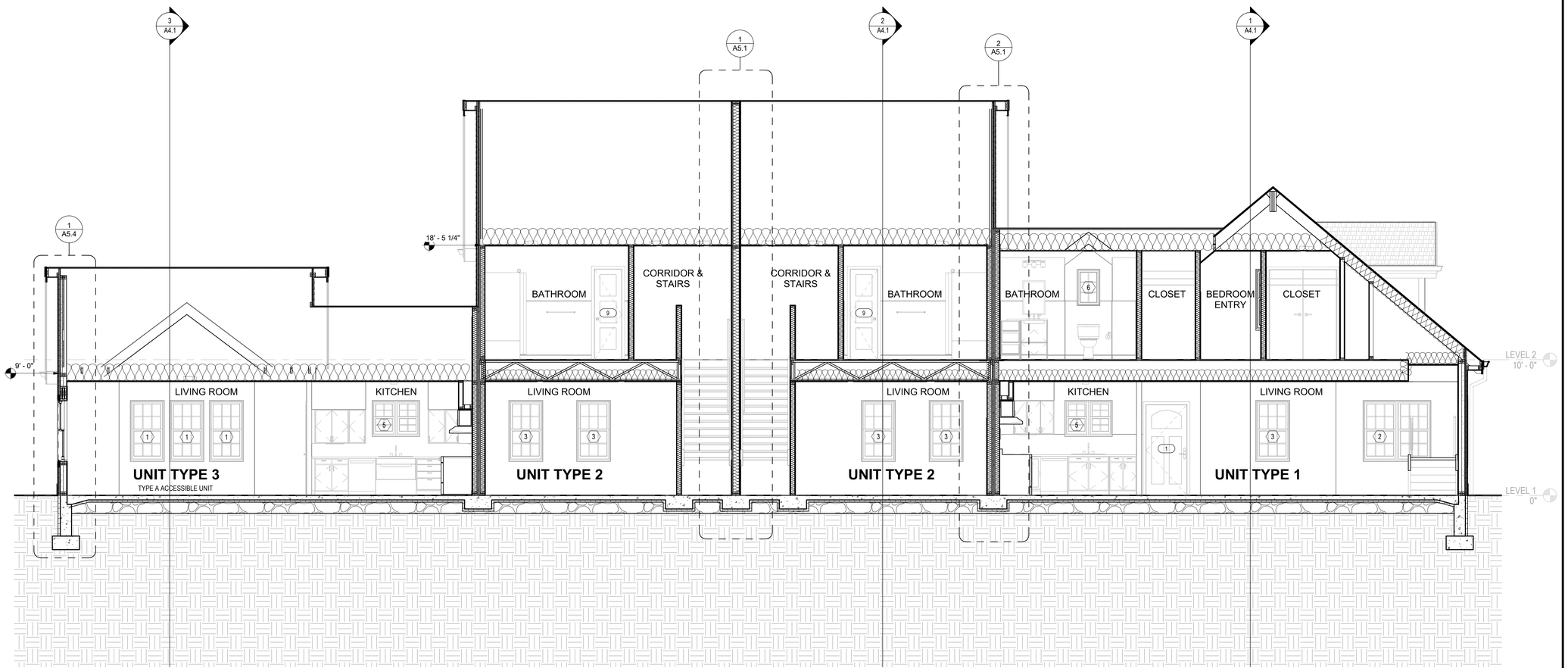
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EXTERIOR ELEVATIONS

A3.1

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1 A4.0 **OVERALL BUILDING SECTION**
1/4" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

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Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

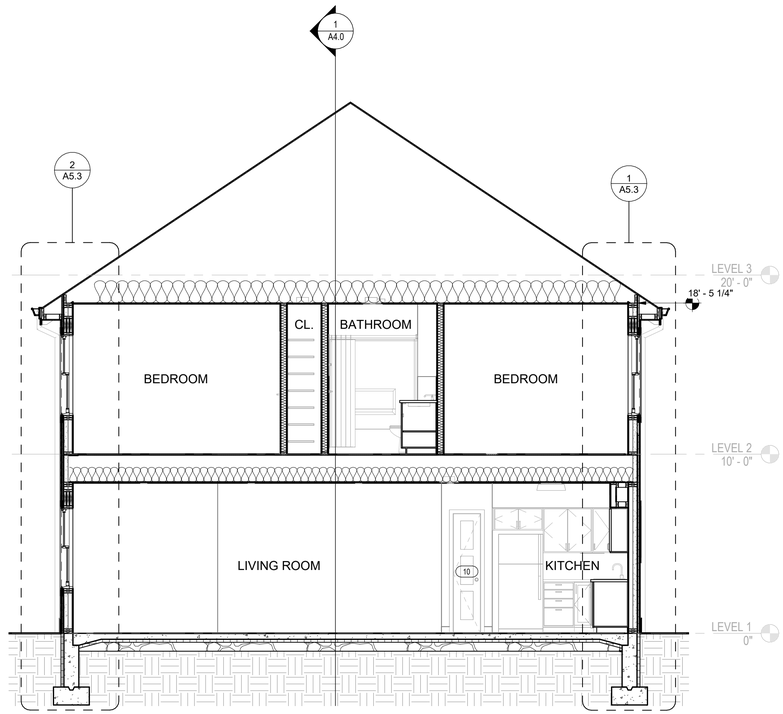
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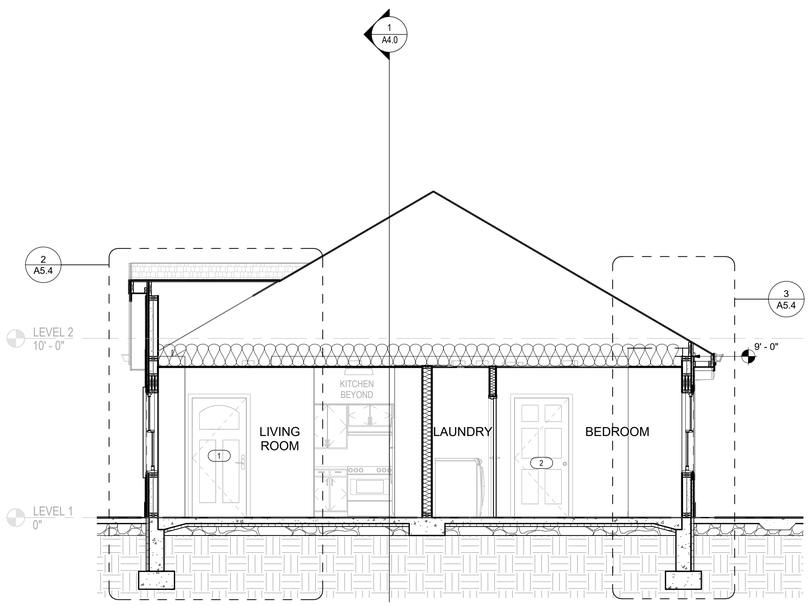
BUILDING SECTIONS

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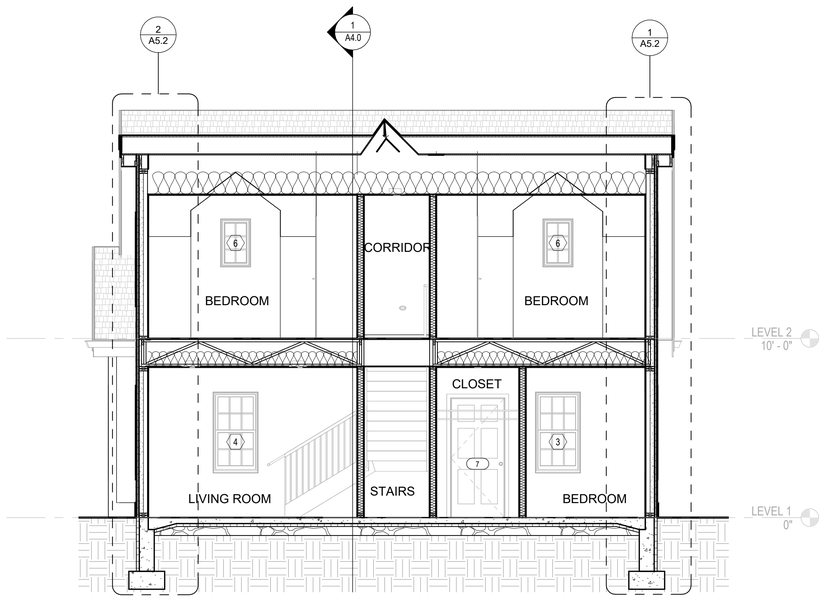
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2 A4.1 **SECTION THROUGH UNIT TYPE 2**
1/4" = 1'-0"



3 A4.1 **SECTION THROUGH UNIT TYPE 3**
1/4" = 1'-0"



1 A4.1 **SECTION THROUGH UNIT TYPE 1**
1/4" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: **2386**

Revision 1	Date 1

Revisions

Issue Dates:

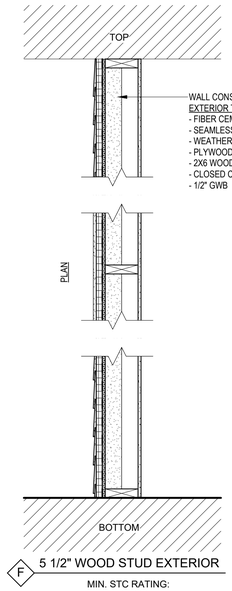
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APRIL 28, 2026

BUILDING SECTIONS

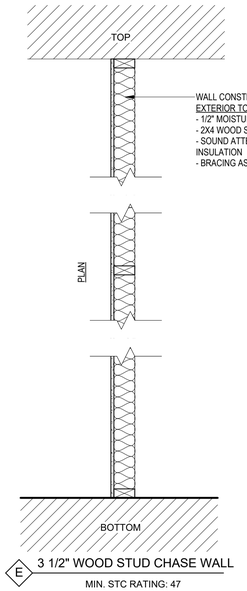
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F 5 1/2" WOOD STUD EXTERIOR

MIN. STC RATING:
FIRE RATING:



E 3 1/2" WOOD STUD CHASE WALL

MIN. STC RATING: 47
FIRE RATING: NONE

WALL NOTES

1. FIRECODE GYPSUM BOARD IN A ONE OR TWO HOUR RATED PARTITION MUST BEAR THE U.L CLASSIFICATION.

2. ALL FIRE AND SMOKE RESISTANT SEPARATIONS ARE TO EXTEND OR BE EXTENDED TO THE UNDERSIDE OF FLOOR OR ROOF DECK ABOVE, TYPICAL.

3. FOR SMOKE RESISTANT SEPARATIONS, PROVIDE FIRE SAFING AND SEALANT AT FLOOR ROOF DECK AND ALL PENETRATIONS TO PREVENT THE PASSAGE OF SMOKE.

4. FOR ALL FIRE RATED PARTITIONS, PROVIDE FIRE SAFING AND SEALANT AT FLOOR, ROOF DECK AND ALL PENETRATIONS TO PREVENT PASSAGE OF SMOKE. THE FIRE SAFING AND SEALANT SYTEM MUST MANTAIN THE RATING OF THE SEPARATION.

5. AT ALL NON-RATED PARTITIONS FILL ALL THE VOIDS WHERE PARTITIONS MEET THE STRUCTURE ABOVE WITH BATT INSULATION.

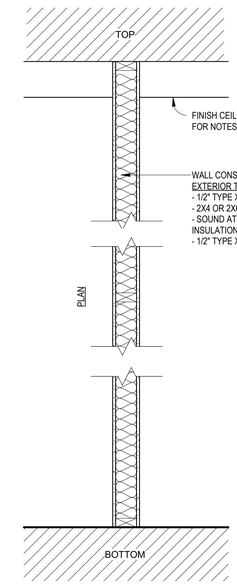
6. AT ALL NON-RATED PARTITIONS FILL ALL THE VOIDS BETWEEN PIPES, ELECTRICAL CONDUITS, DUCTWORK, ETC. WHERE THEY PENETRATE WALLS, WITH BATT INSULATION.

7. PROVIDE SMOKE DAMPERS AT ALL MECHANICAL PENETRATIONS THROUGH ONE HOUR RATED SMOKE BARRIERS.

8. PROVIDE FIRE DAMPERS AT ALL MECHANICAL PENETRATION THROUGH TWO HOUR FIRE RATED PARTITIONS.

9. AT ALL NON-RATED PARTITIONS AND PARTITIONS WITH NO S.T.C. REQUIREMENTS, EXTEND SHEATHING TO THE FINISHED CEILING CONSTRUCTION, TYPICAL.

10. SEE STRUCTURAL DRAWINGS FOR SHEATHING REQUIREMENTS

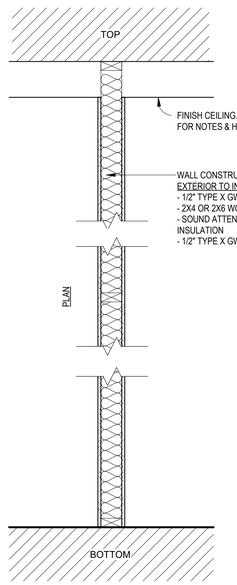


D 3 1/2" WOOD STUD PARTITION

MIN. STC RATING: 20
FIRE RATING: NONE

D1 5 1/2" WOOD STUD PARTITION

MIN. STC RATING: 20
FIRE RATING: NONE

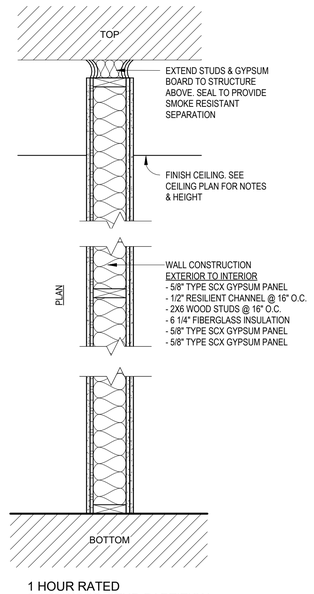


C 3 1/2" WOOD STUD PARTITION

MIN. STC RATING: 51
FIRE RATING: NONE

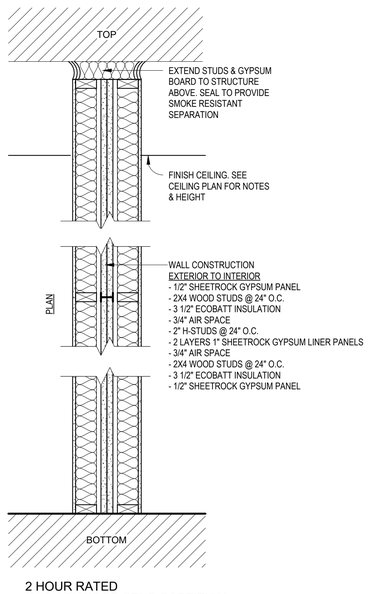
C1 5 1/2" WOOD STUD PARTITION

MIN. STC RATING: 51
FIRE RATING: NONE



B 1 HOUR RATED
5 1/2" WOOD STUD PARTITION

MIN. STC RATING: 53
FIRE RATING: 1 HR
UL DESIGN No: UL U305



A 2 HOUR RATED
(2) 3 1/2" WOOD STUD PARTITION

MIN. STC RATING: 66
FIRE RATING: 2 HR
UL DESIGN No: UL U336

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RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

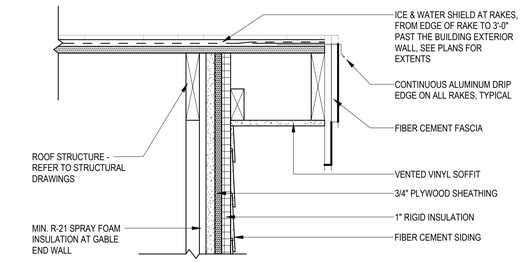
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WALL TYPES

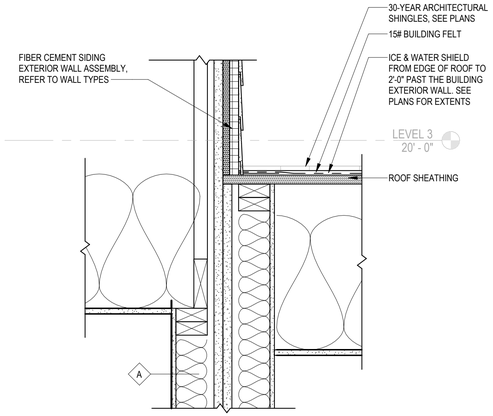
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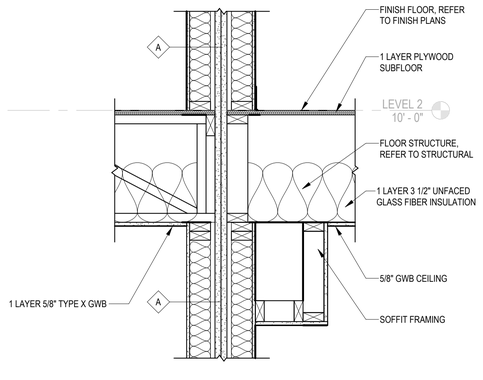
7 A5.1 WALL SECTION 2 - RAKE DETAIL

1 1/2" = 1'-0"



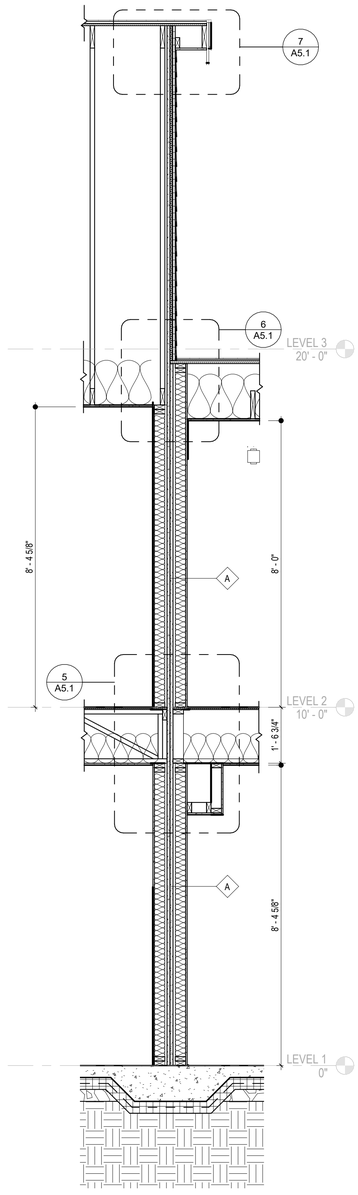
6 A5.1 WALL SECTION 2 - ROOF & CEILING DETAIL

1 1/2" = 1'-0"



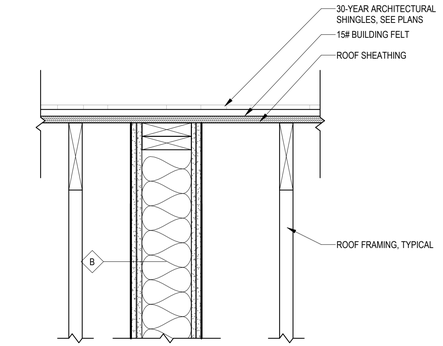
5 A5.1 WALL SECTION 2 - FLOOR & CEILING DETAIL

1" = 1'-0"



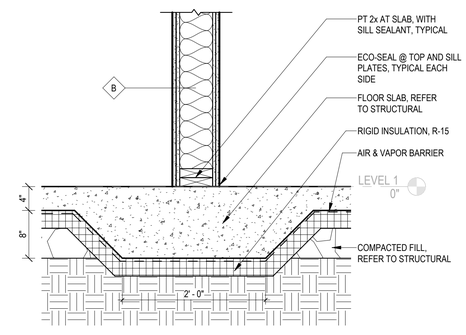
2 A5.1 WALL SECTION 2

1/2" = 1'-0"



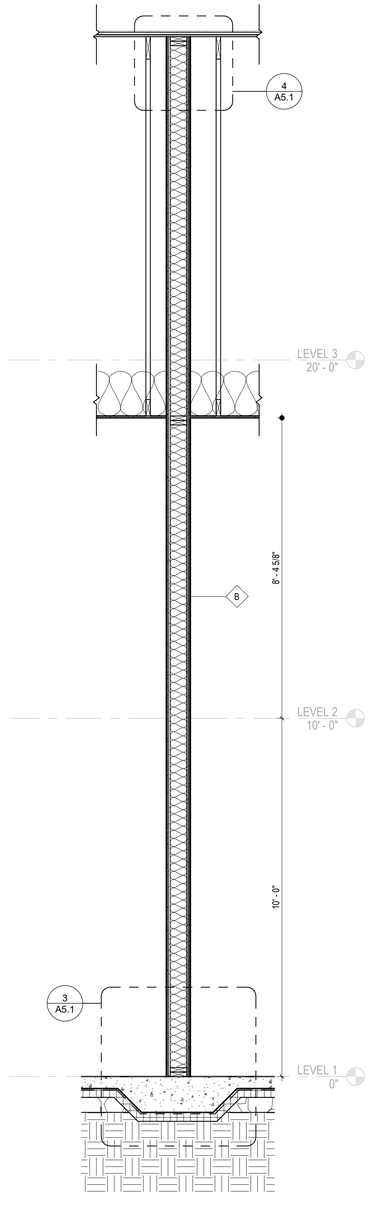
4 A5.1 WALL SECTION 1 - ROOF DETAIL

1 1/2" = 1'-0"



3 A5.1 WALL SECTION 1 - FOUNDATION DETAIL

1" = 1'-0"



1 A5.1 WALL SECTION 1

1/2" = 1'-0"

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LITCHFIELD, CT

Project #: 2386

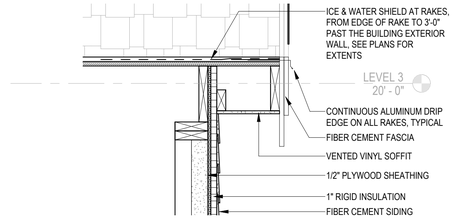
Revision 1	Date 1
Revisions	
Issue Dates:	

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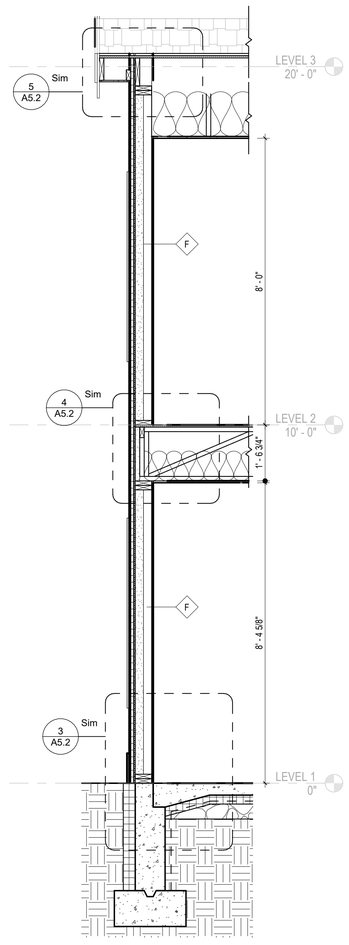
WALL SECTIONS & DETAILS

A5.1

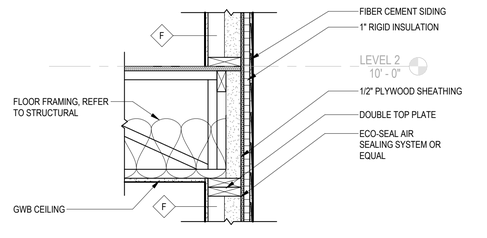
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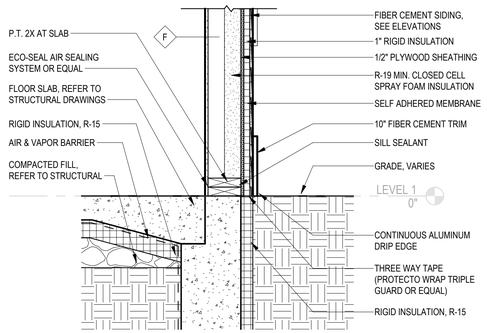
5 A5.2 **WALL SECTION 3 - RAKE DETAIL**
1" = 1'-0"



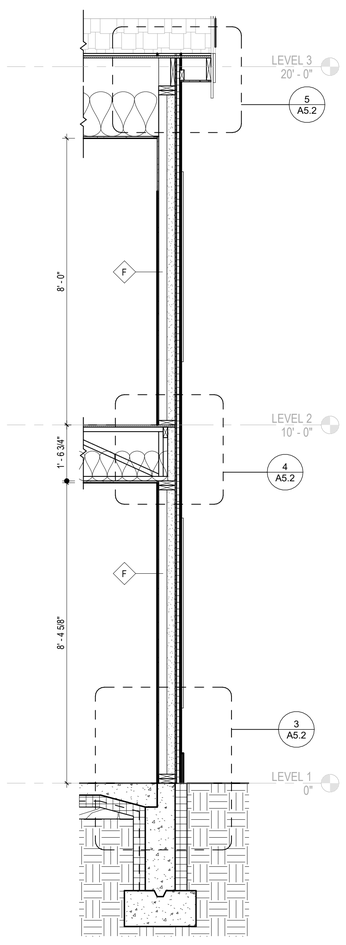
2 A5.2 **WALL SECTION 4**
1/2" = 1'-0"



4 A5.2 **WALL SECTION 3 - FLOOR DETAIL**
1" = 1'-0"



3 A5.2 **WALL SECTION 3 - FOUNDATION DETAIL**
1" = 1'-0"



1 A5.2 **WALL SECTION 3**
1/2" = 1'-0"

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Project #: **2386**

Revision 1	Date 1

Revisions

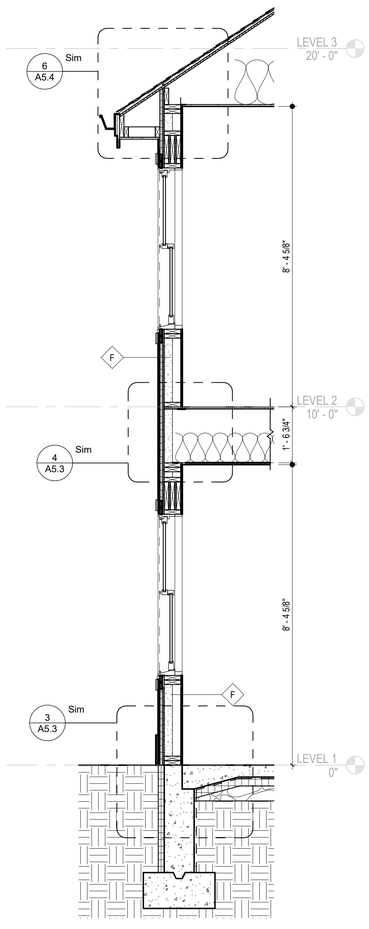
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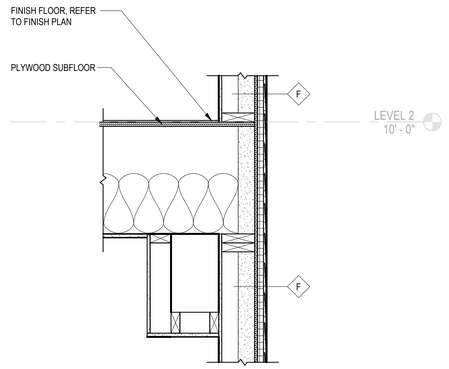
WALL SECTIONS & DETAILS

A5.2

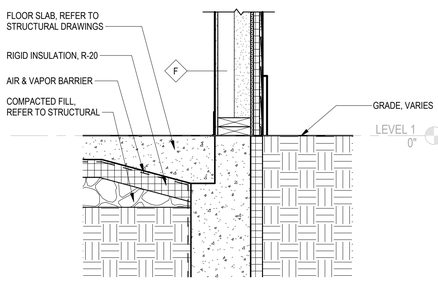
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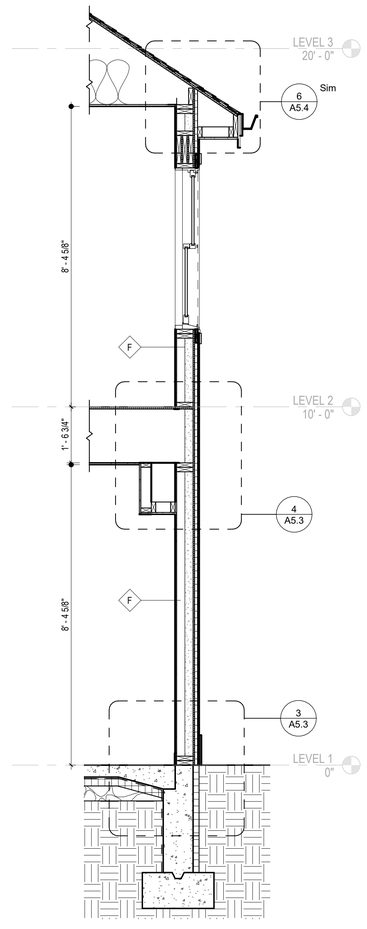
2 A5.3 **WALL SECTION 6**
1/2" = 1'-0"



4 A5.3 **WALL SECTION 5 - FLOOR & CEILING DETAIL**
1" = 1'-0"



3 A5.3 **WALL SECTION 5 - FOUNDATION DETAIL**
1" = 1'-0"



1 A5.3 **WALL SECTION 5**
1/2" = 1'-0"

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LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

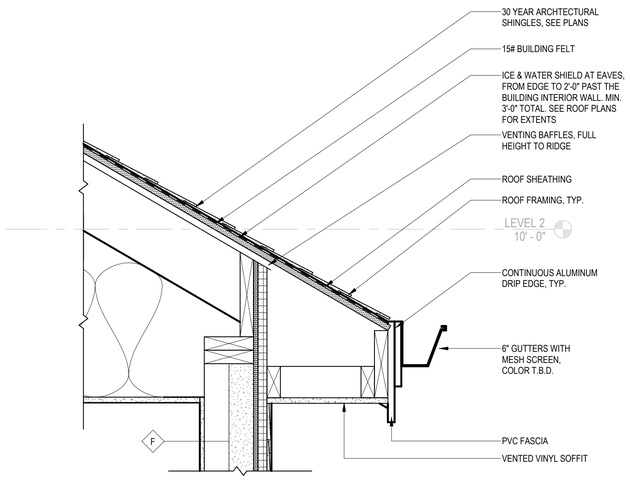
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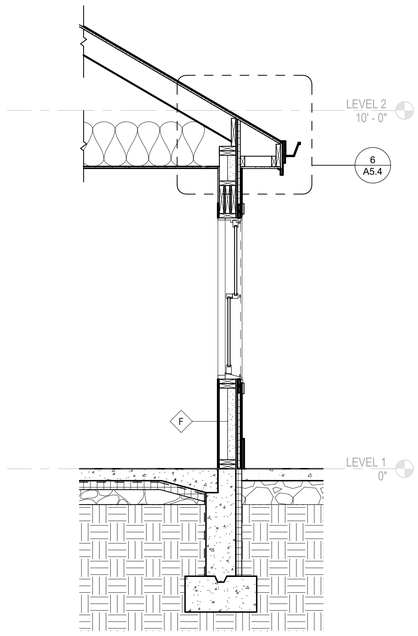
WALL SECTIONS & DETAILS

A5.3

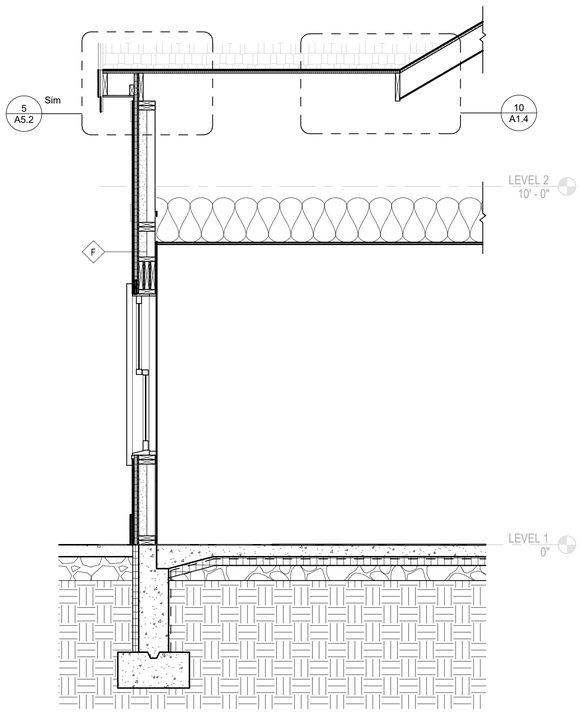
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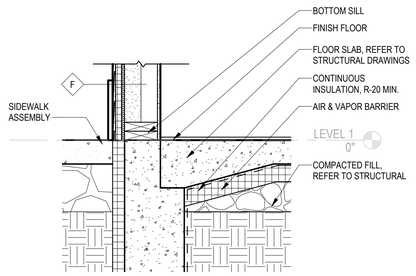
6 A5.4 **WALL SECTION 9 - ROOF DETAIL**
1 1/2" = 1'-0"



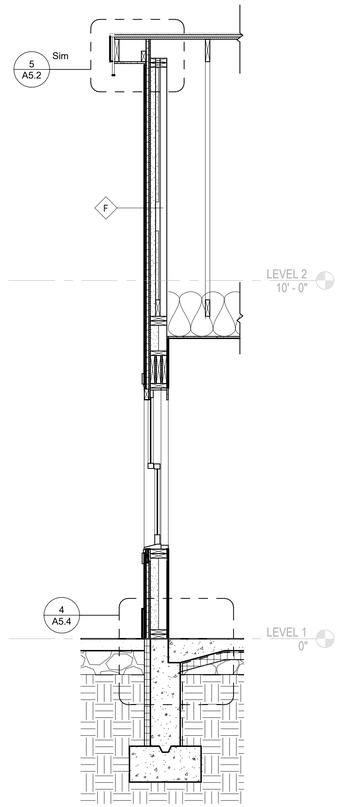
3 A5.4 **WALL SECTION 9**
1/2" = 1'-0"



2 A5.4 **WALL SECTION 8**
1/2" = 1'-0"



4 A5.4 **WALL SECTION 7 - FOUNDATION DETAIL**
1" = 1'-0"



1 A5.4 **WALL SECTION 7**
1/2" = 1'-0"

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Project #: 2386

Revision 1	Date 1
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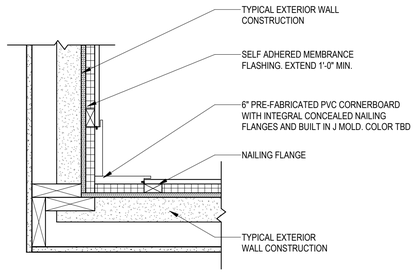
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WALL SECTIONS & DETAILS

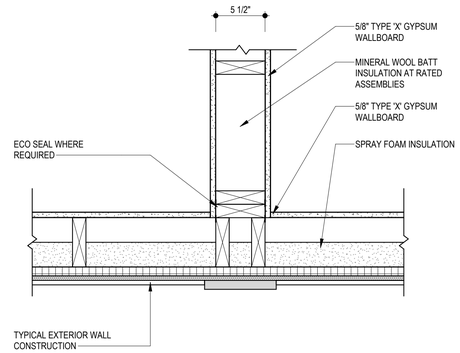
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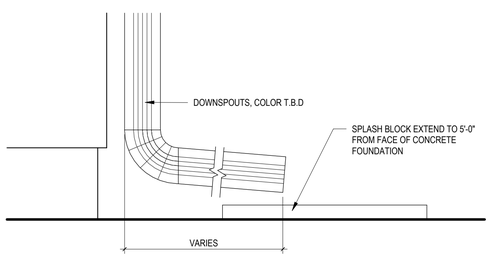


4 A6.0 **TYP. INSIDE CORNER DETAIL @ VINYL SIDING**
1 1/2" = 1'-0"

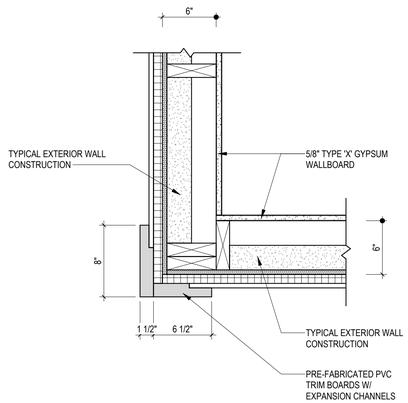


2 A6.0 **TYP. PILASTER TRIM DETAIL**
1 1/2" = 1'-0"

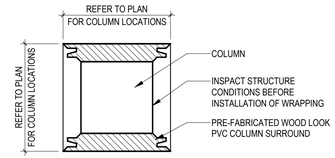
GENERAL NOTE:
TYPICAL AT ALL DOWNSPOUT CONDITIONS



5 A6.0 **TYPICAL DOWNSPOUT**
1 1/2" = 1'-0"



3 A6.0 **TYP. CORNER DETAIL**
1 1/2" = 1'-0"



1 A6.0 **TYP. COLUMN COVER DETAIL**
3" = 1'-0"

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LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

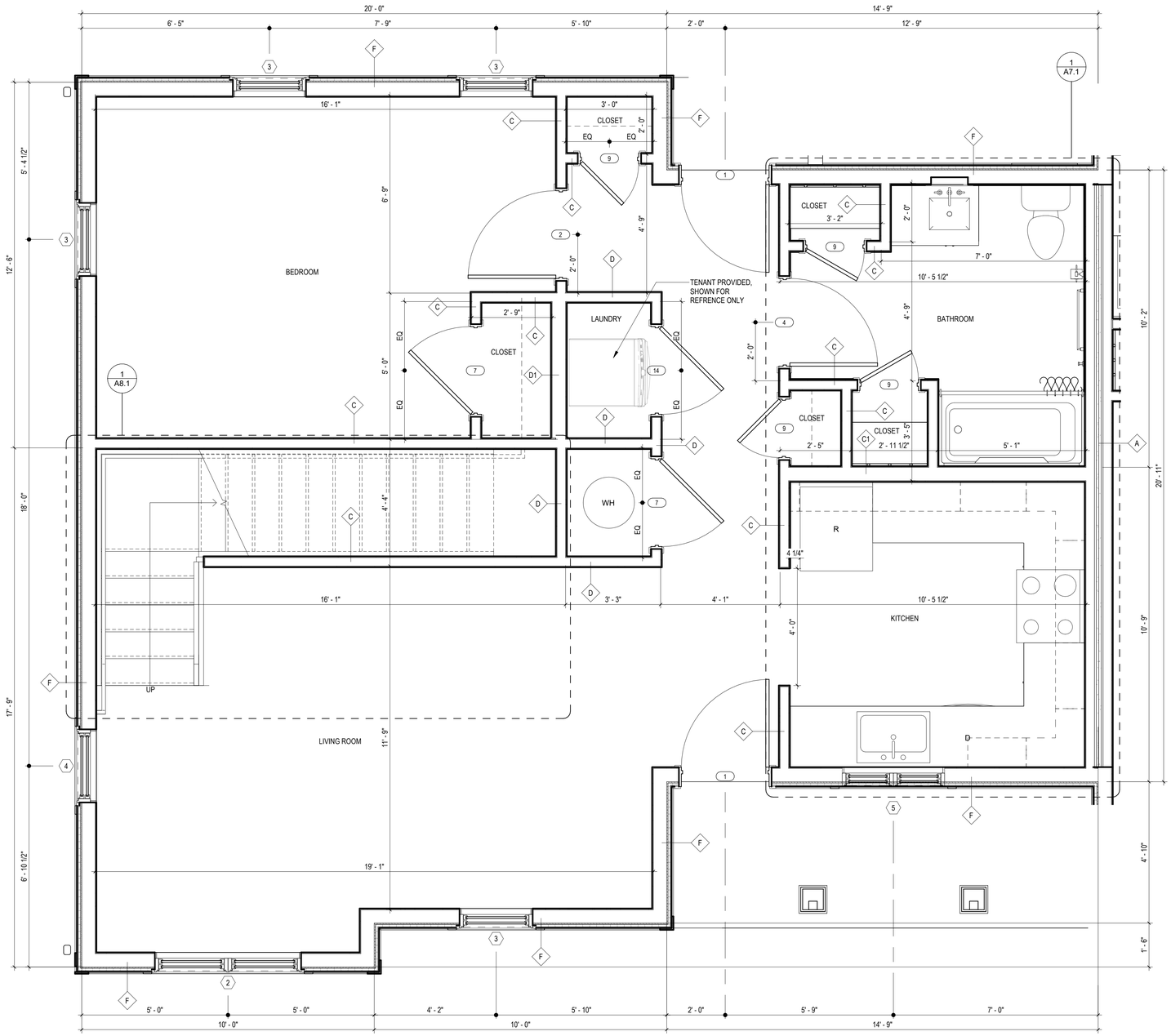
Issue Dates:

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PLAN DETAILS

A6.0



1 A6.1 **FIRST FLOOR PLAN - UNIT TYPE 1**
1/2" = 1'-0"

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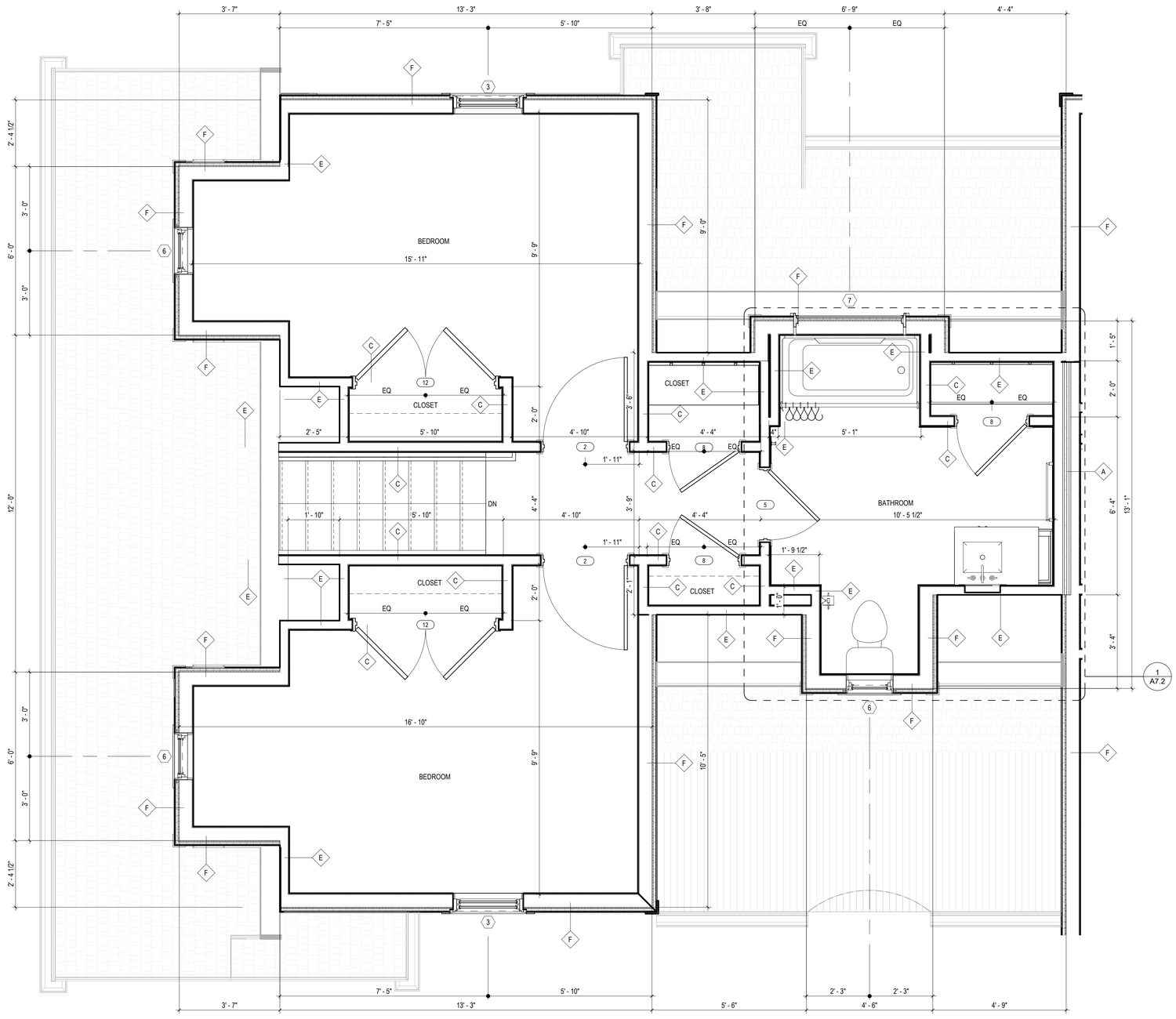
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ENLARGED UNIT PLANS - UNIT TYPE 1

A6.1

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1 A6.2 **SECOND FLOOR PLAN - UNIT TYPE 1**
1/2" = 1'-0"

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Project #: **2386**

Revision 1	Date 1

Revisions

Issue Dates:

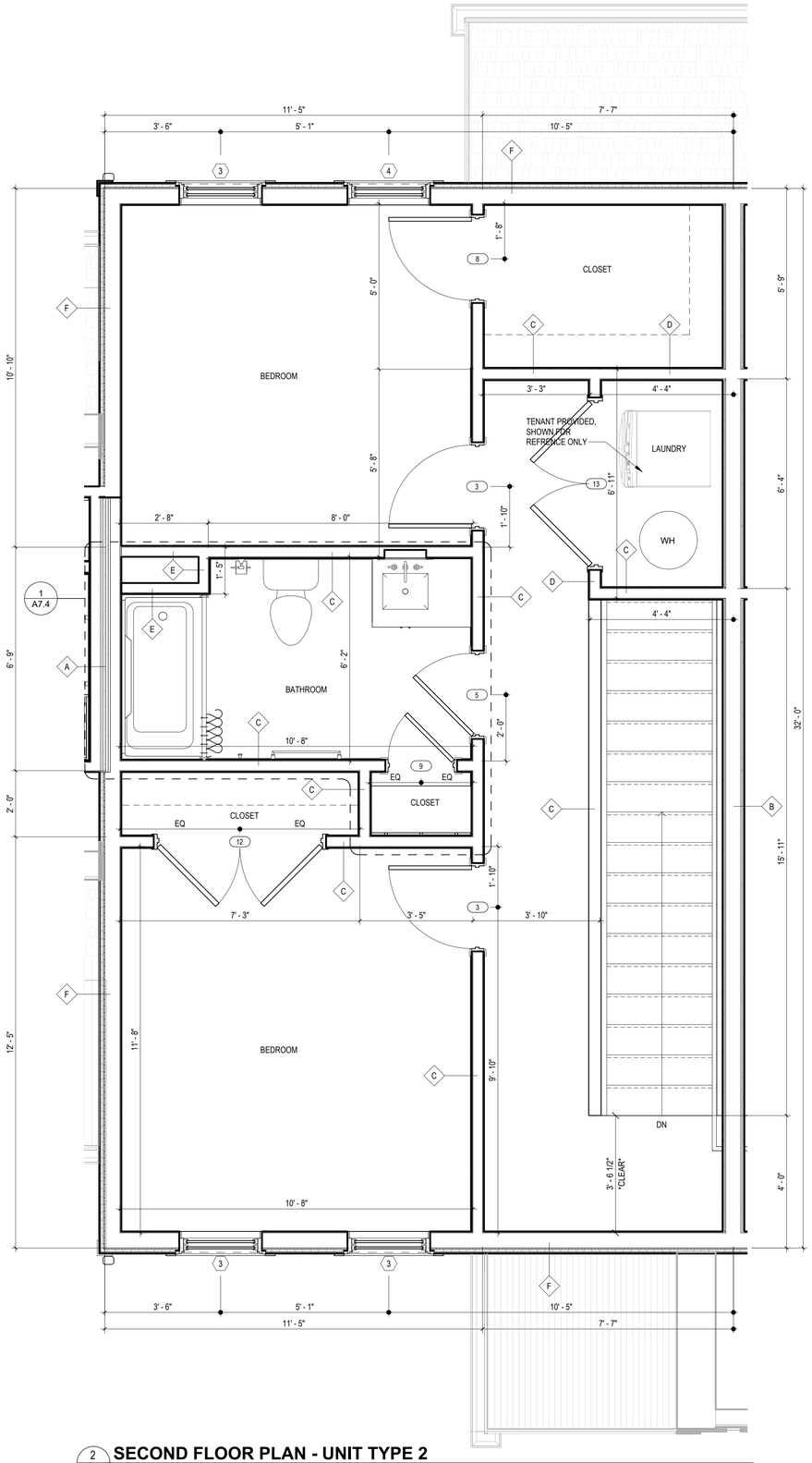
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BID DOCUMENTS
APRIL 28, 2026

ENLARGED UNIT PLANS - UNIT TYPE 1

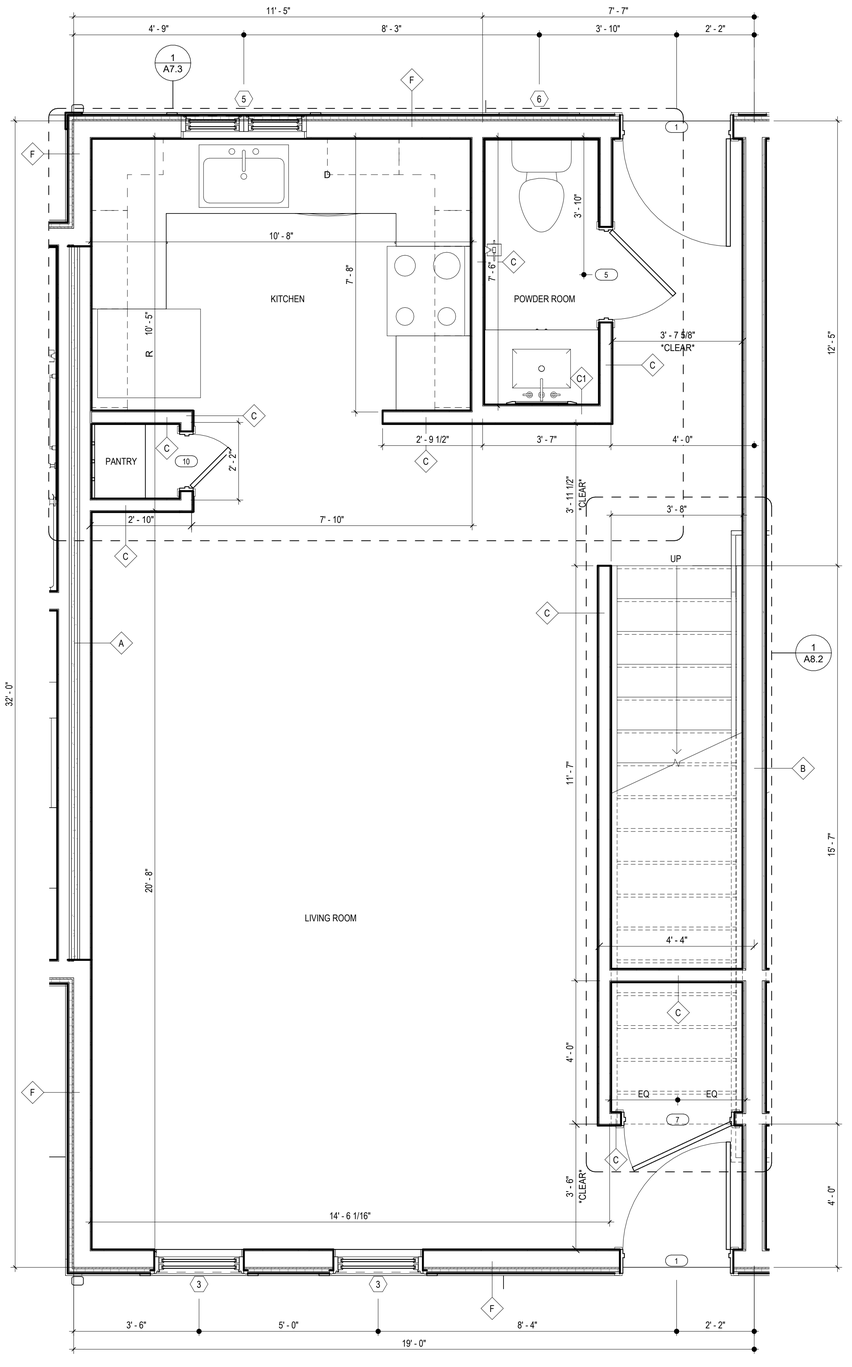
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2 A6.3 **SECOND FLOOR PLAN - UNIT TYPE 2**

1/2" = 1'-0"



1 A6.3 **FIRST FLOOR PLAN - UNIT TYPE 2**

1/2" = 1'-0"

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Project #: **2386**

Revision 1	Date 1

Revisions

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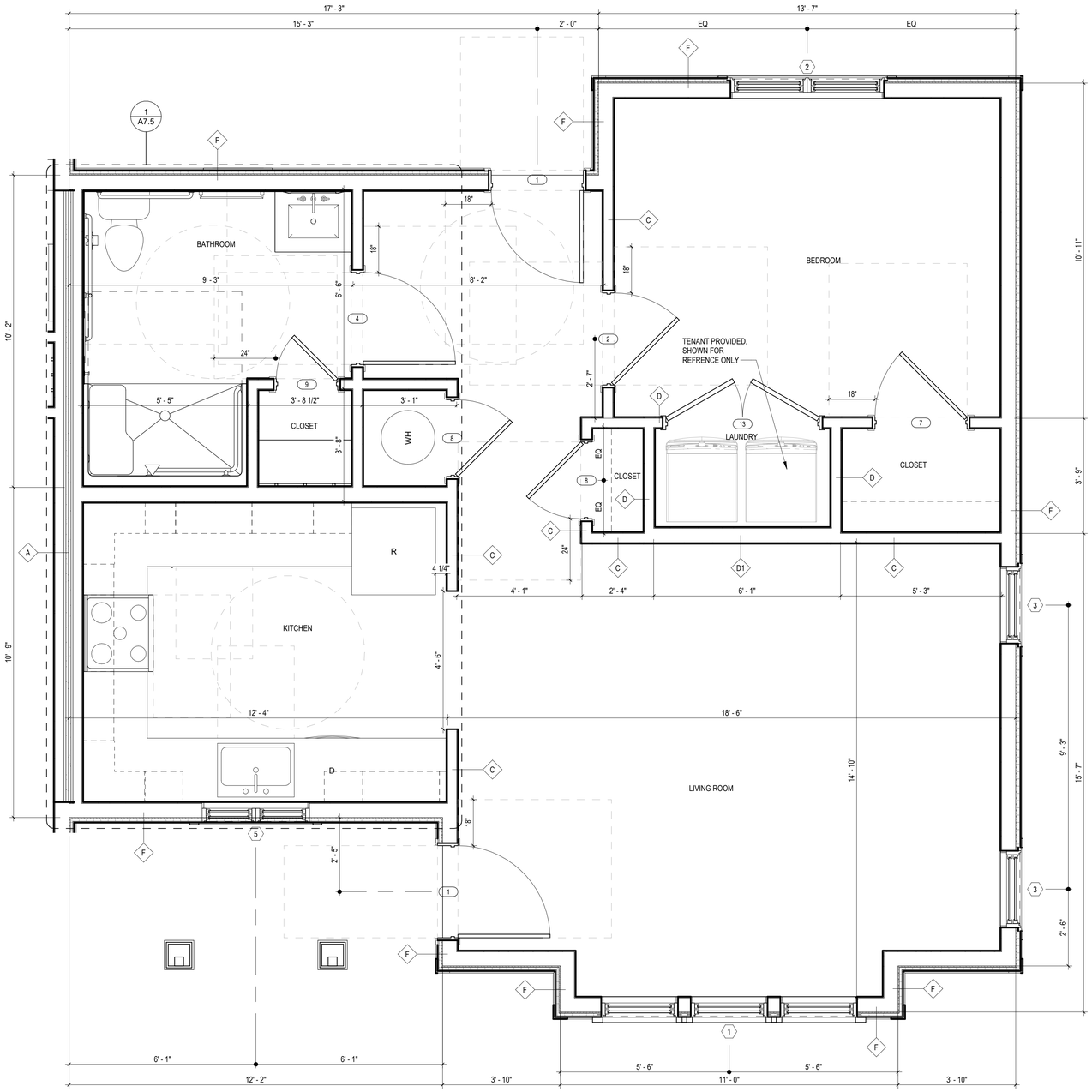
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ENLARGED UNIT PLANS - UNIT TYPE 2

A6.3

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1 A6.4 **FIRST FLOOR PLAN - UNIT TYPE 3 ADA**
1/2" = 1'-0"

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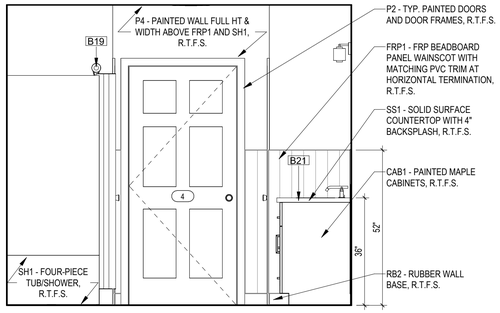
Revisions

Issue Dates:

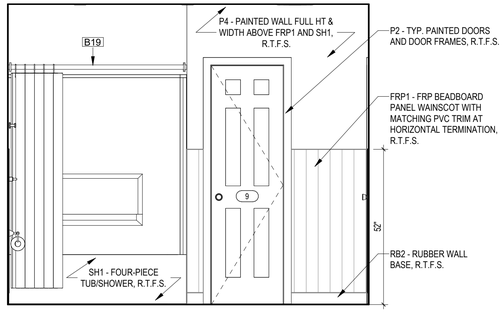
BID DOCUMENTS
APRIL 28, 2026

ENLARGED UNIT PLANS - UNIT TYPE 3

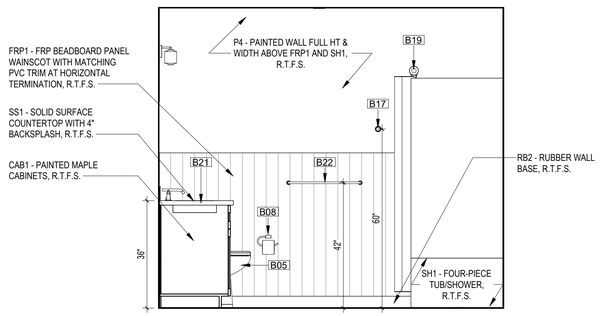
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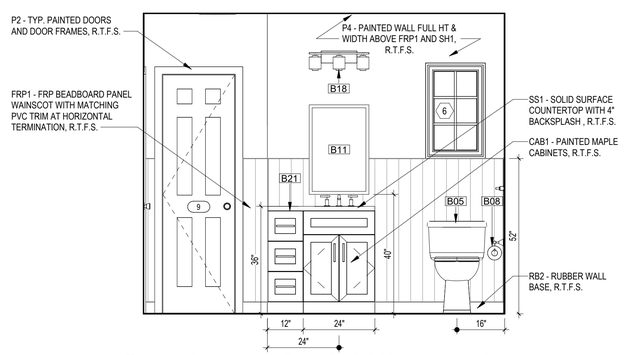
8 A7.1 **UNIT TYPE 1 - BATHROOM ELEVATION 4**
1/2" = 1'-0"



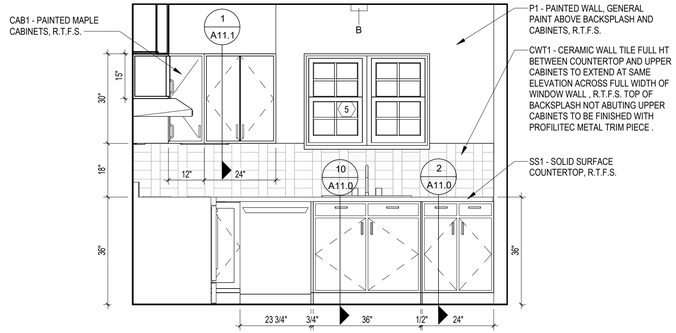
7 A7.1 **UNIT TYPE 1 - BATHROOM ELEVATION 3**
1/2" = 1'-0"



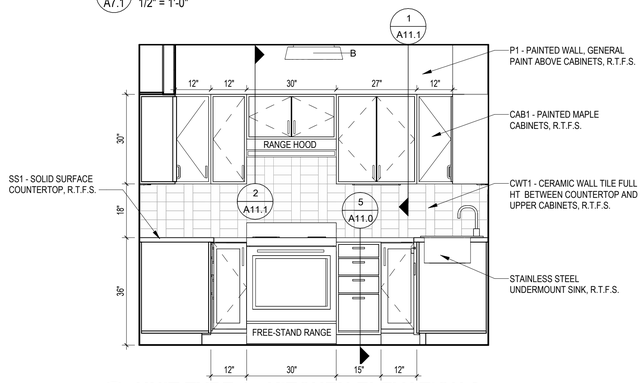
6 A7.1 **UNIT TYPE 1 - BATHROOM ELEVATION 2**
1/2" = 1'-0"



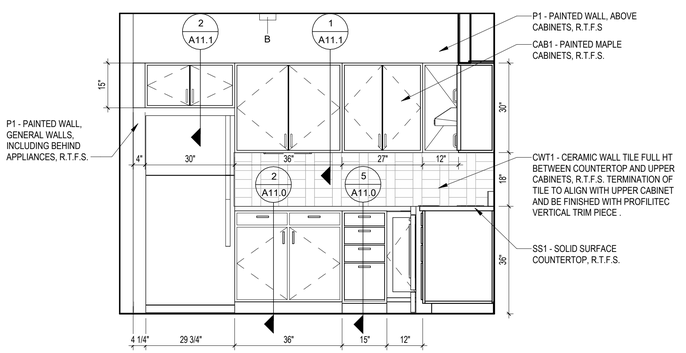
5 A7.1 **UNIT TYPE 1 - BATHROOM ELEVATION 1**
1/2" = 1'-0"



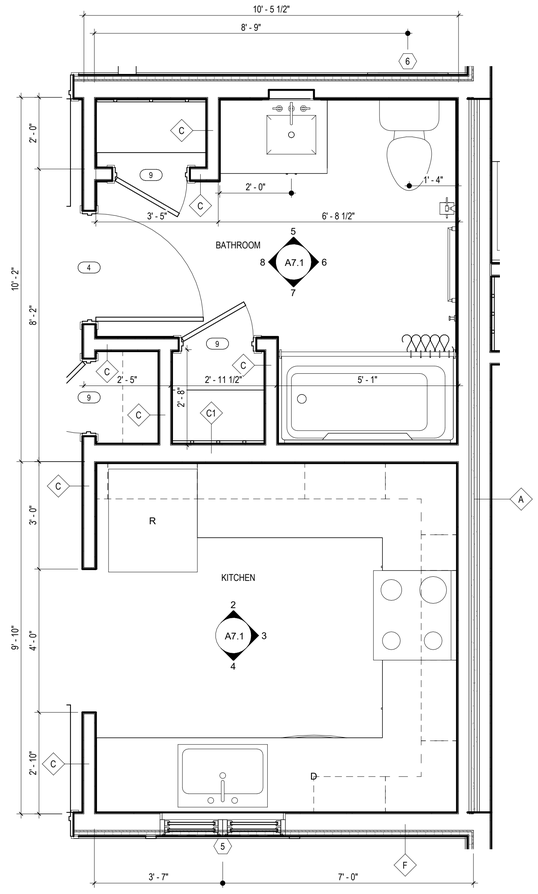
4 A7.1 **UNIT TYPE 1 - KITCHEN ELEVATION 3**
1/2" = 1'-0"



3 A7.1 **UNIT TYPE 1 - KITCHEN ELEVATION 2**
1/2" = 1'-0"



2 A7.1 **UNIT TYPE 1 - KITCHEN ELEVATION 1**
1/2" = 1'-0"



1 A7.1 **UNIT TYPE 1 - ENLARGED KITCHEN & BATHROOM PLAN**
1/2" = 1'-0"

GENERAL NOTES

1. COORDINATE OUTLETS WITH BACKSPLASH, TOP OF OUTLETS OVER THE COUNTERTOP TO BE 44" ABOVE FINISHED FLOOR.
2. INTERIOR ELEVATION DIMENSIONS TAKEN TO FACE OF GYPSUM WALLBOARD.
3. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING CABINETRY, TYPICAL.
4. IF FILLER EXCEEDS 3" INCREASE CABINETS TO NEXT SIZE.
5. PROVIDE BLOCKING FOR ALL ACCESSORIES COORDINATE WITH TYPICAL MOUNTING HEIGHTS UNLESS OTHERWISE NOTED.
6. PROVIDE BLOCKING FOR FUTURE TYPICAL TOILET, SHOWER, AND BATH GRAB-BAR LOCATION IN ***ALL*** UNITS COORDINATE WITH TYPICAL MOUNTING HEIGHTS ON G1.0 UNLESS OTHERWISE NOTED.

BATHROOM KEYNOTE LEGEND

Key Value	Keynote Text
B01	18" VERTICAL GRAB BAR
B02	36" GRAB BAR
B03	42" GRAB BAR
B04	FIXED TILTED MIRROR 24"W x 32"H
B05	FLOOR MOUNTED TOILET
B08	TOILET TISSUE HOLDER
B09	ADA BATHROOM SINK WITH SKIRT
B11	MEDICINE CABINET
B17	WALL MOUNTED ROBE HOOK
B18	VANITY LIGHT FIXTURE, REFER TO LIGHTING SPEC
B19	SHOWER ROD AND CURTAIN RODS
B20	HAND TOWEL RING, REFER TO ARCH SPEC
B21	VANITY WITH BATHROOM SINK
B22	WALL MOUNTED TOWEL BAR

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: **2386**

Revisions

Issue Dates:

N

BID DOCUMENTS
APRIL 28, 2026

ENLARGED PLANS & ELEVATIONS - UNIT TYPE 1

A7.1

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GENERAL NOTES

1. COORDINATE OUTLETS WITH BACKSPLASH, TOP OF OUTLETS OVER THE COUNTERTOP TO BE 44" ABOVE FINISHED FLOOR.

2. INTERIOR ELEVATION DIMENSIONS TAKEN TO FACE OF GYPSUM WALLBOARD.

3. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING CABINETRY, TYPICAL.

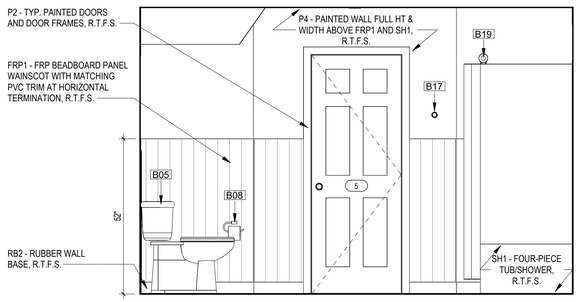
4. IF FILLER EXCEEDS 3" INCREASE CABINETS TO NEXT SIZE.

5. PROVIDE BLOCKING FOR ALL ACCESSORIES COORDINATE WITH TYPICAL MOUNTING HEIGHTS UNLESS OTHERWISE NOTED.

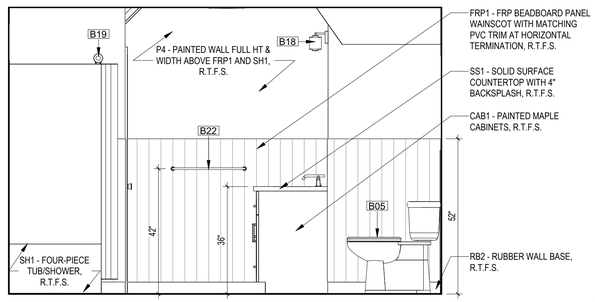
6. PROVIDE BLOCKING FOR FUTURE TYPICAL TOILET, SHOWER, AND BATH GRAB-BAR LOCATION IN ***ALL*** UNITS COORDINATE WITH TYPICAL MOUNTING HEIGHTS ON G1.0 UNLESS OTHERWISE NOTED.

BATHROOM KEYNOTE LEGEND

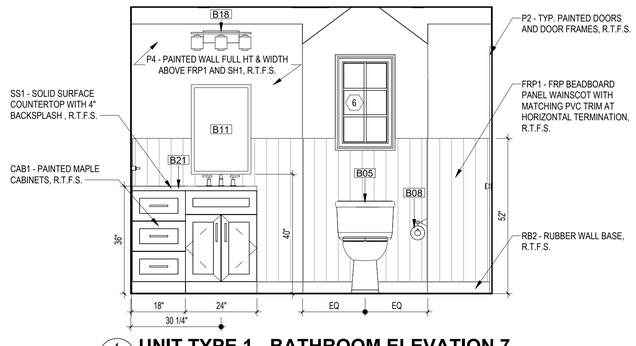
Key Value	Keynote Text
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B03	42" GRAB BAR
B04	FIXED TILTED MIRROR 24"W x 32"H
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B08	TOILET TISSUE HOLDER
B09	ADA BATHROOM SINK WITH SKIRT
B11	MEDICINE CABINET
B17	WALL MOUNTED ROBE HOOK
B18	VANITY LIGHT FIXTURE, REFER TO LIGHTING SPEC
B19	SHOWER ROD AND CURTAIN RODS
B20	HAND TOWEL RING, REFER TO ARCH SPEC
B21	VANITY WITH BATHROOM SINK
B22	WALL MOUNTED TOWEL BAR



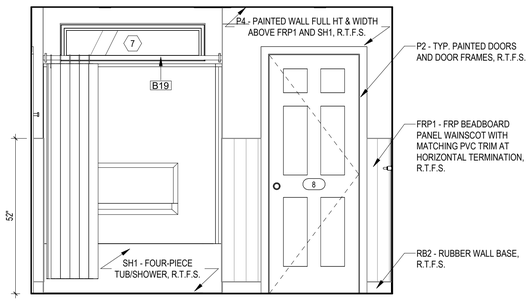
5 A7.2 **UNIT TYPE 1 - BATHROOM ELEVATION 8**
1/2" = 1'-0"



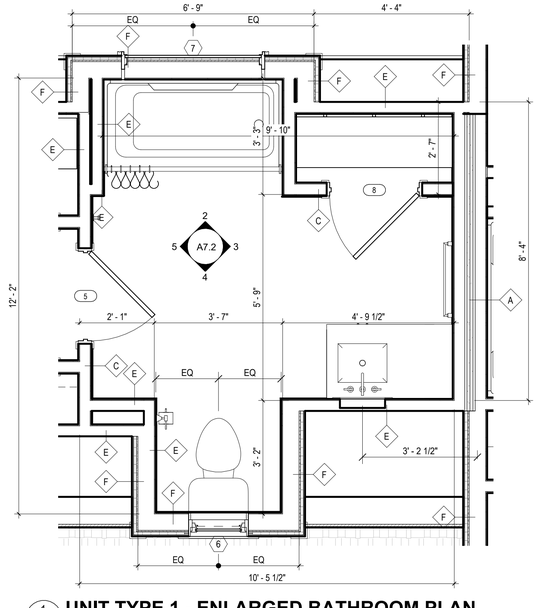
3 A7.2 **UNIT TYPE 1 - BATHROOM ELEVATION 6**
1/2" = 1'-0"



4 A7.2 **UNIT TYPE 1 - BATHROOM ELEVATION 7**
1/2" = 1'-0"



2 A7.2 **UNIT TYPE 1 - BATHROOM ELEVATION 5**
1/2" = 1'-0"



1 A7.2 **UNIT TYPE 1 - ENLARGED BATHROOM PLAN**
1/2" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

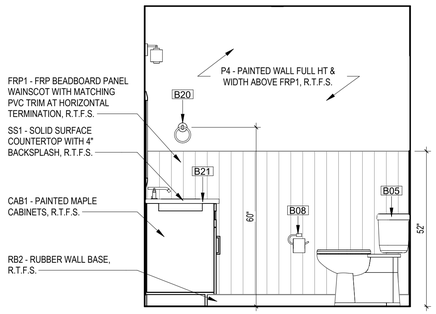
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APRIL 28, 2026

ENLARGED PLANS & ELEVATIONS - UNIT TYPE 1

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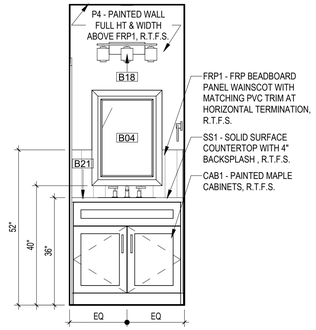
8 A7.3 **UNIT TYPE 2 - POWDER ROOM ELEVATION 4**
1/2" = 1'-0"

GENERAL NOTES

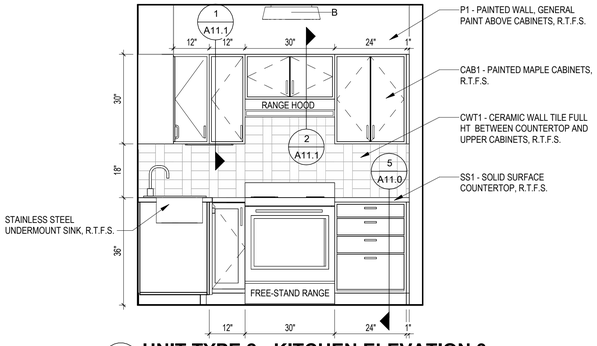
1. COORDINATE OUTLETS WITH BACKSPLASH, TOP OF OUTLETS OVER THE COUNTERTOP TO BE 44" ABOVE FINISHED FLOOR.
2. INTERIOR ELEVATION DIMENSIONS TAKEN TO FACE OF GYPSUM WALLBOARD.
3. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING CABINETRY, TYPICAL.
4. IF FILLER EXCEEDS 3" INCREASE CABINETS TO NEXT SIZE.
5. PROVIDE BLOCKING FOR ALL ACCESSORIES COORDINATE WITH TYPICAL MOUNTING HEIGHTS UNLESS OTHERWISE NOTED.
6. PROVIDE BLOCKING FOR FUTURE TYPICAL TOILET, SHOWER, AND BATH GRAB-BAR LOCATION IN ***ALL*** UNITS COORDINATE WITH TYPICAL MOUNTING HEIGHTS ON G1.0 UNLESS OTHERWISE NOTED.

BATHROOM KEYNOTE LEGEND

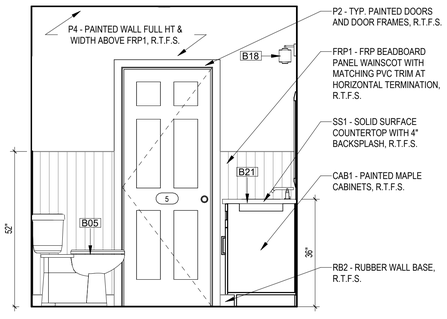
Key Value	Keynote Text
B01	18" VERTICAL GRAB BAR
B02	36" GRAB BAR
B03	42" GRAB BAR
B04	FIXED TILTED MIRROR 24"W x 32"H
B05	FLOOR MOUNTED TOILET
B08	TOILET TISSUE HOLDER
B09	ADA BATHROOM SINK WITH SKIRT
B11	MEDICINE CABINET
B17	WALL MOUNTED ROBE HOOK
B18	VANITY LIGHT FIXTURE, REFER TO LIGHTING SPEC
B19	SHOWER ROD AND CURTAIN RODS
B20	HAND TOWEL RING, REFER TO ARCH SPEC
B21	VANITY WITH BATHROOM SINK
B22	WALL MOUNTED TOWEL BAR



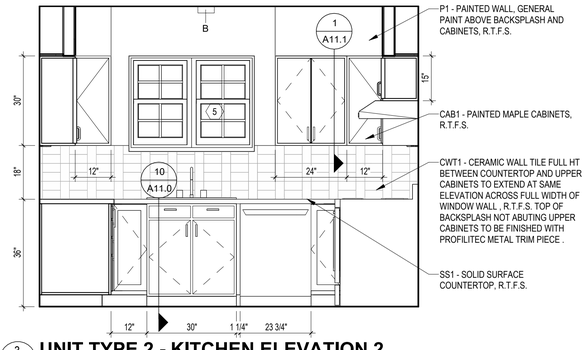
7 A7.3 **UNIT TYPE 2 - POWDER ROOM ELEVATION 3**
1/2" = 1'-0"



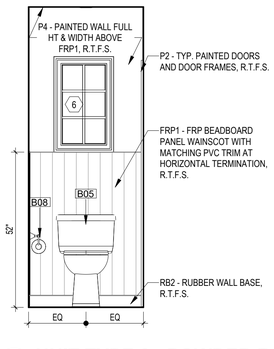
4 A7.3 **UNIT TYPE 2 - KITCHEN ELEVATION 3**
1/2" = 1'-0"



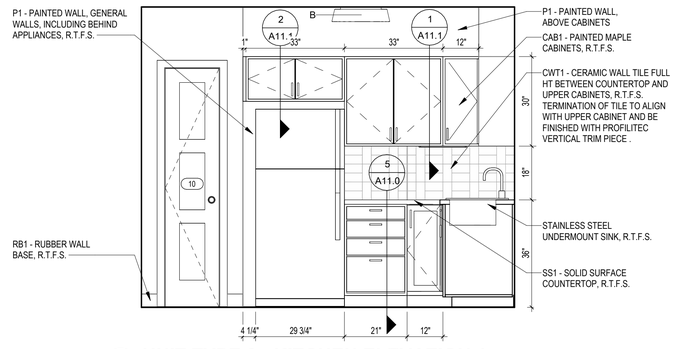
6 A7.3 **UNIT TYPE 2 - POWDER ROOM ELEVATION 2**
1/2" = 1'-0"



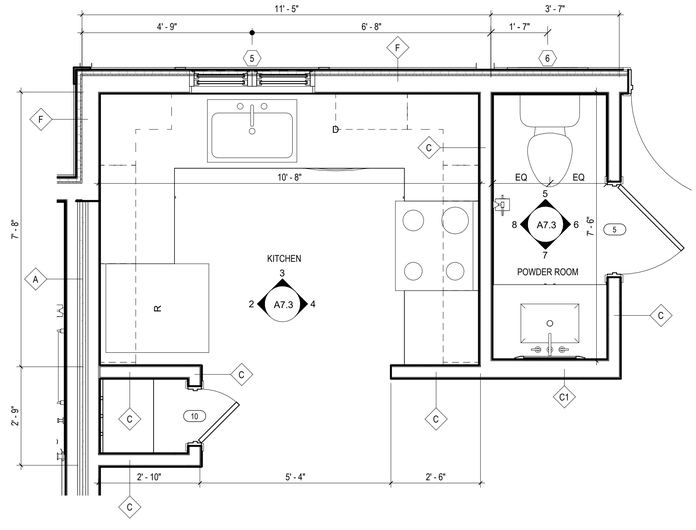
3 A7.3 **UNIT TYPE 2 - KITCHEN ELEVATION 2**
1/2" = 1'-0"



5 A7.3 **UNIT TYPE 2 - POWDER ROOM ELEVATION 1**
1/2" = 1'-0"



2 A7.3 **UNIT TYPE 2 - KITCHEN ELEVATION 1**
1/2" = 1'-0"



UNIT TYPE 2 - ENLARGED KITCHEN & POWDER ROOM PLAN
1 A7.3 1/2" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: **2386**

Revisions

Issue Dates:

N

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APRIL 28, 2026

ENLARGED PLANS & ELEVATIONS - UNIT TYPE 2

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GENERAL NOTES

1. COORDINATE OUTLETS WITH BACKSPLASH, TOP OF OUTLETS OVER THE COUNTERTOP TO BE 44" ABOVE FINISHED FLOOR.

2. INTERIOR ELEVATION DIMENSIONS TAKEN TO FACE OF GYPSUM WALLBOARD.

3. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING CABINETRY, TYPICAL.

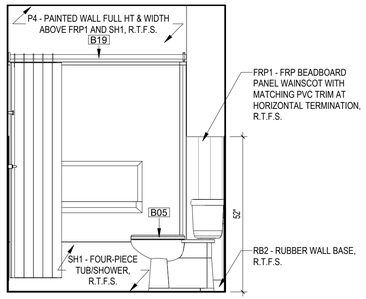
4. IF FILLER EXCEEDS 3" INCREASE CABINETS TO NEXT SIZE.

5. PROVIDE BLOCKING FOR ALL ACCESSORIES COORDINATE WITH TYPICAL MOUNTING HEIGHTS UNLESS OTHERWISE NOTED.

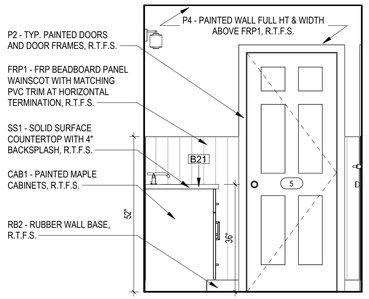
6. PROVIDE BLOCKING FOR FUTURE TYPICAL TOILET, SHOWER, AND BATH GRAB-BAR LOCATION IN ***ALL*** UNITS COORDINATE WITH TYPICAL MOUNTING HEIGHTS ON G1.0 UNLESS OTHERWISE NOTED.

BATHROOM KEYNOTE LEGEND

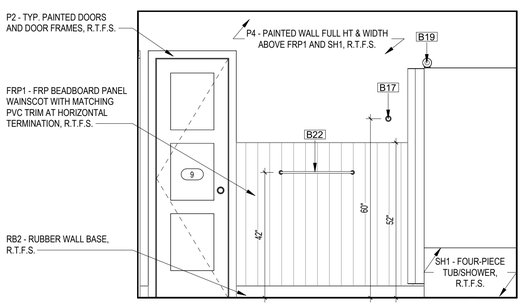
Key Value	Keynote Text
B01	18" VERTICAL GRAB BAR
B02	36" GRAB BAR
B03	42" GRAB BAR
B04	FIXED TILTED MIRROR 24"W x 32"H
B05	FLOOR MOUNTED TOILET
B08	TOILET TISSUE HOLDER
B09	ADA BATHROOM SINK WITH SKIRT
B11	MEDICINE CABINET
B17	WALL MOUNTED ROBE HOOK
B18	VANITY LIGHT FIXTURE, REFER TO LIGHTING SPEC
B19	SHOWER ROD AND CURTAIN RODS
B20	HAND TOWEL RING, REFER TO ARCH SPEC
B21	VANITY WITH BATHROOM SINK
B22	WALL MOUNTED TOWEL BAR



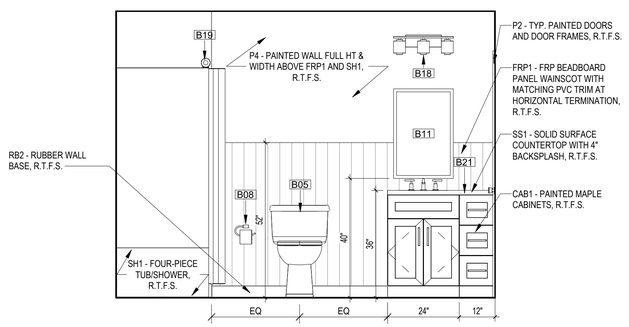
5 A7.4 **UNIT TYPE 2 - BATHROOM ELEVATION 4**
1/2" = 1'-0"



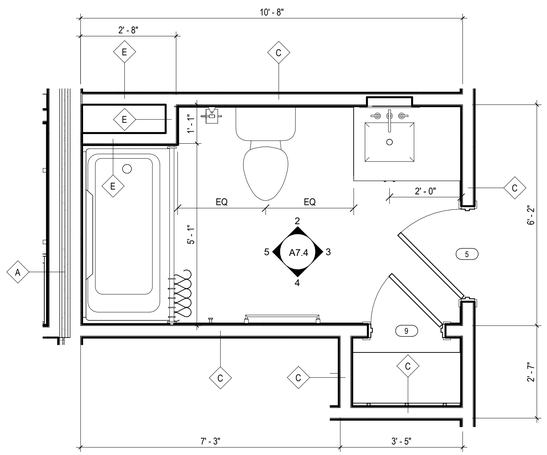
3 A7.4 **UNIT TYPE 2 - BATHROOM ELEVATION 2**
1/2" = 1'-0"



4 A7.4 **UNIT TYPE 2 - BATHROOM ELEVATION 3**
1/2" = 1'-0"



2 A7.4 **UNIT TYPE 2 - BATHROOM ELEVATION 1**
1/2" = 1'-0"



1 A7.4 **UNIT TYPE 2 - ENLARGED BATHROOM PLAN**
1/2" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revisions

Issue Dates:

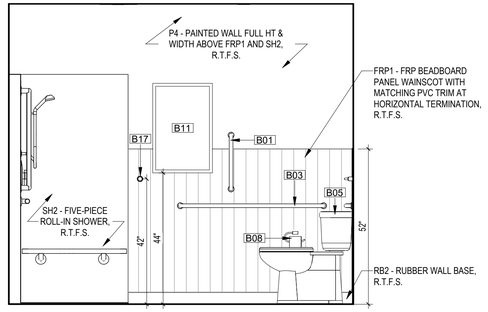
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BID DOCUMENTS
APRIL 28, 2026

ENLARGED PLANS & ELEVATIONS - UNIT TYPE 2

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8 A7.5 **UNIT TYPE 3 ADA - BATHROOM ELEVATION 4**
1/2" = 1'-0"

GENERAL NOTES

1. COORDINATE OUTLETS WITH BACKSPLASH, TOP OF OUTLETS OVER THE COUNTERTOP TO BE 44" ABOVE FINISHED FLOOR.

2. INTERIOR ELEVATION DIMENSIONS TAKEN TO FACE OF GYPSUM WALLBOARD.

3. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD BEFORE ORDERING CABINETRY, TYPICAL.

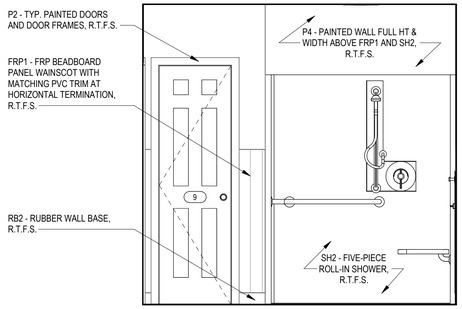
4. IF FILLER EXCEEDS 3" INCREASE CABINETS TO NEXT SIZE.

5. PROVIDE BLOCKING FOR ALL ACCESSORIES COORDINATE WITH TYPICAL MOUNTING HEIGHTS UNLESS OTHERWISE NOTED.

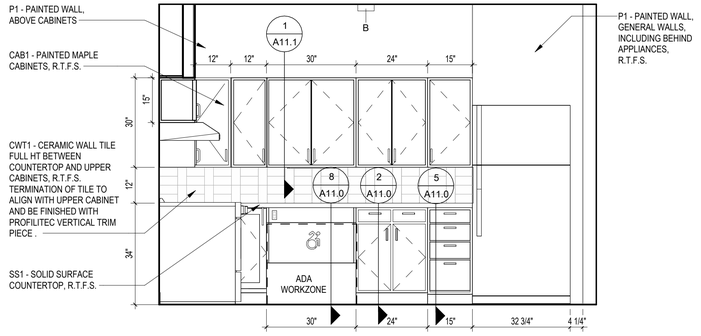
6. PROVIDE BLOCKING FOR FUTURE TYPICAL TOILET, SHOWER, AND BATH GRAB-BAR LOCATION IN ***ALL*** UNITS COORDINATE WITH TYPICAL MOUNTING HEIGHTS ON G1.0 UNLESS OTHERWISE NOTED.

BATHROOM KEYNOTE LEGEND

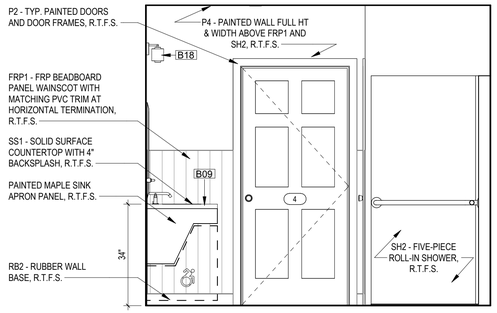
Key Value	Keynote Text
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B02	36" GRAB BAR
B03	42" GRAB BAR
B04	FIXED TILTED MIRROR 24"W x 32"H
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B08	TOILET TISSUE HOLDER
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B11	MEDICINE CABINET
B17	WALL MOUNTED ROBE HOOK
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B19	SHOWER ROD AND CURTAIN RODS
B20	HAND TOWEL RING, REFER TO ARCH SPEC
B21	VANITY WITH BATHROOM SINK
B22	WALL MOUNTED TOWEL BAR



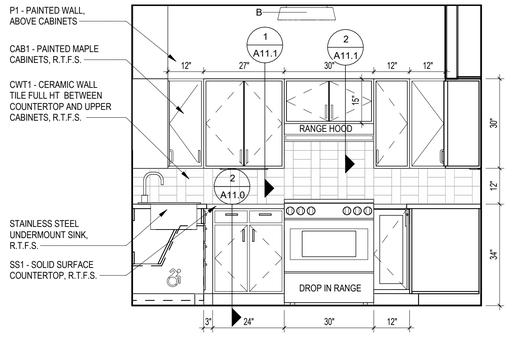
7 A7.5 **UNIT TYPE 3 ADA - BATHROOM ELEVATION 3**
1/2" = 1'-0"



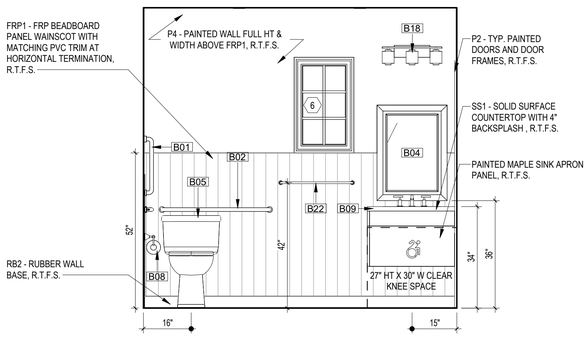
4 A7.5 **UNIT TYPE 3 ADA - KITCHEN ELEVATION 3**
1/2" = 1'-0"



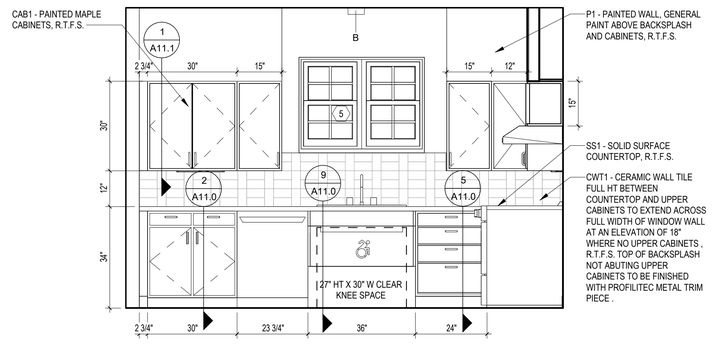
6 A7.5 **UNIT TYPE 3 ADA - BATHROOM ELEVATION 2**
1/2" = 1'-0"



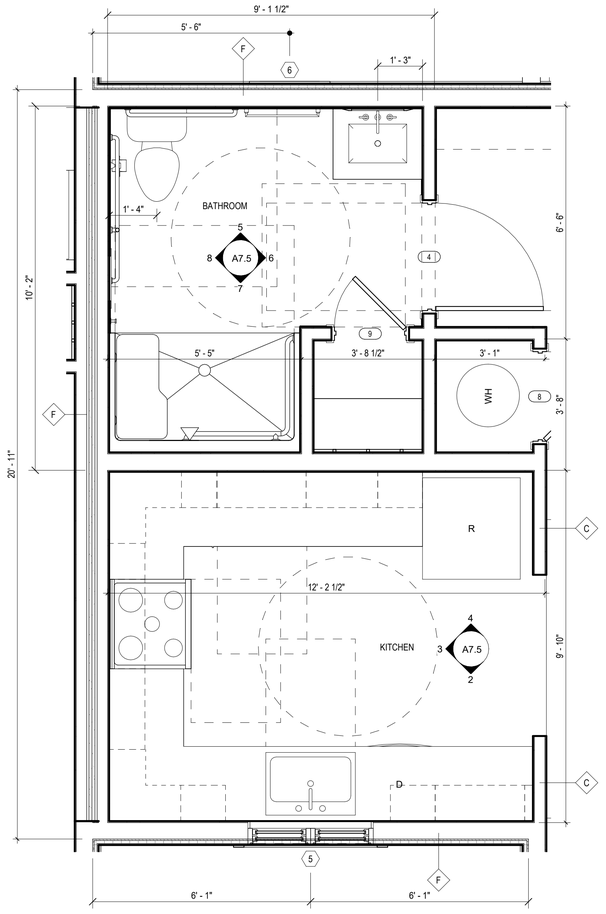
3 A7.5 **UNIT TYPE 3 ADA - KITCHEN ELEVATION 2**
1/2" = 1'-0"



5 A7.5 **UNIT TYPE 3 ADA - BATHROOM ELEVATION 1**
1/2" = 1'-0"



2 A7.5 **UNIT TYPE 3 ADA - KITCHEN ELEVATION 1**
1/2" = 1'-0"



1 A7.5 **UNIT TYPE 3 ADA - ENLARGED KITCHEN & BATHROOM PLAN**
1/2" = 1'-0"

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LITCHFIELD, CT

Project #: 2386

Revisions

Issue Dates:

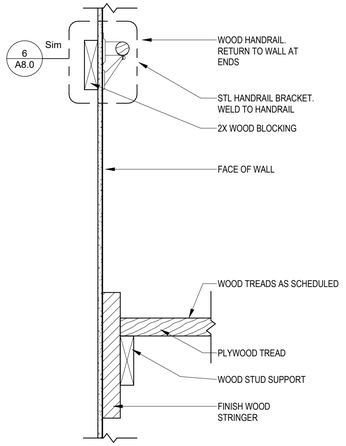
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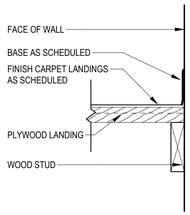
ENLARGED PLANS & ELEVATIONS - UNIT TYPE 3

A7.5

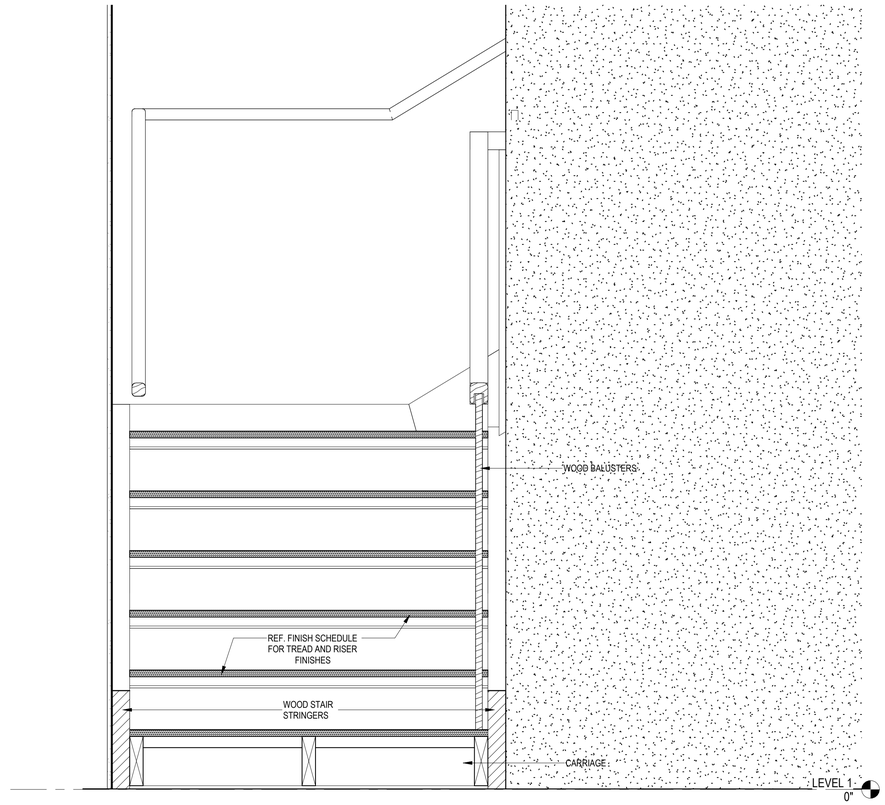
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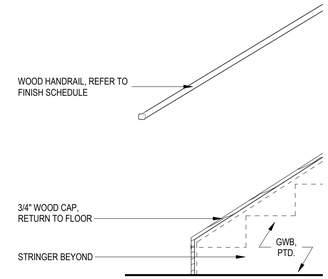
8 A8.0 **STRINGER AND HANDRAIL @ WALL**
1 1/2" = 1'-0"



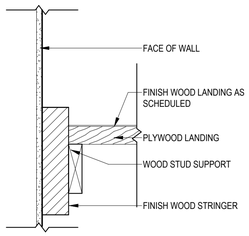
5 A8.0 **LANDING DETAIL @ WALL**
1 1/2" = 1'-0"



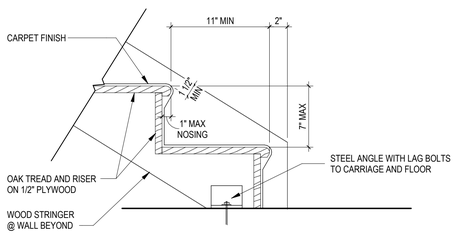
2 A8.0 **STAIR DETAIL @ TREAD**
1 1/2" = 1'-0"



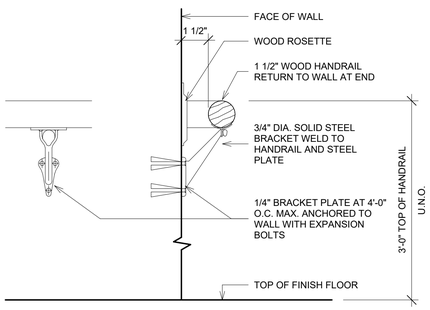
7 A8.0 **STARTING NEWEL AND RAIL ELEVATION**
3/4" = 1'-0"



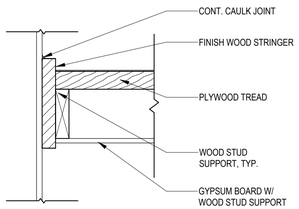
4 A8.0 **INTERMEDIATE LANDING DETAIL**
1 1/2" = 1'-0"



1 A8.0 **STAIR TREAD - RISER - WOOD**
1 1/2" = 1'-0"



6 A8.0 **STAIR HANDRAIL**
3" = 1'-0"



3 A8.0 **STAIR TREAD - RISER - WOOD SECTION**
1 1/2" = 1'-0"

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LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

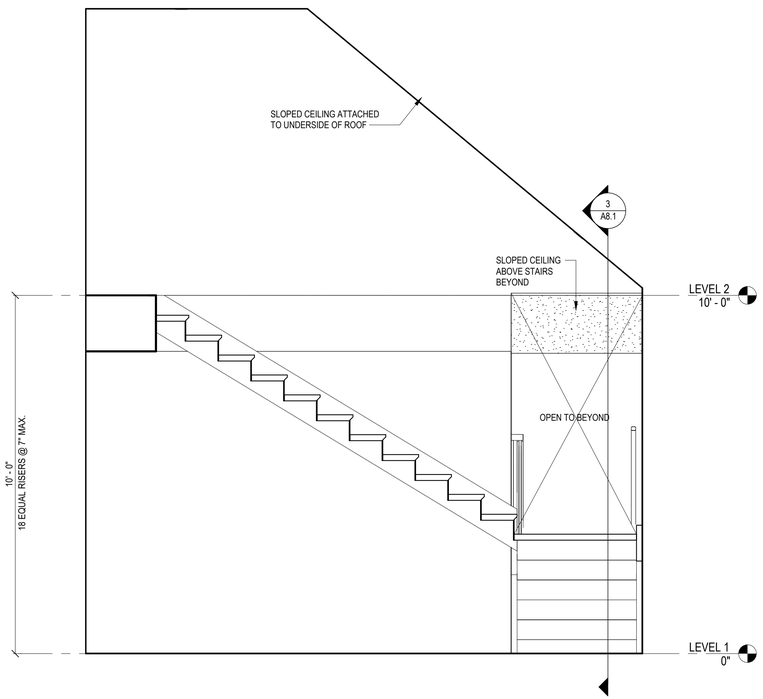
Issue Dates:

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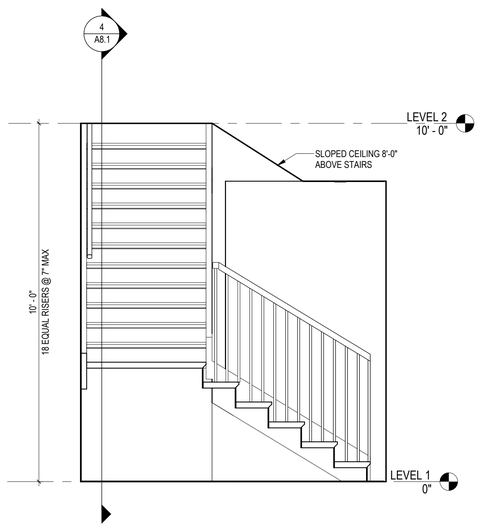
STAIR PLANS & DETAILS

A8.0

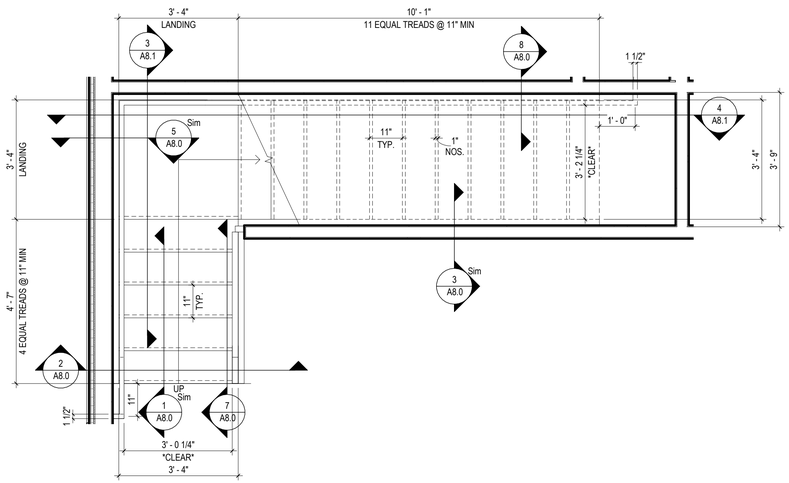
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4 A8.1 **UNIT TYPE 1 - STAIRS SECTION 2**
1/2" = 1'-0"



3 A8.1 **UNIT TYPE 1 - STAIRS SECTION 1**
1/2" = 1'-0"



1 A8.1 **UNIT TYPE 1 - FIRST TO SECOND FLOOR STAIRS**
1/2" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

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LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

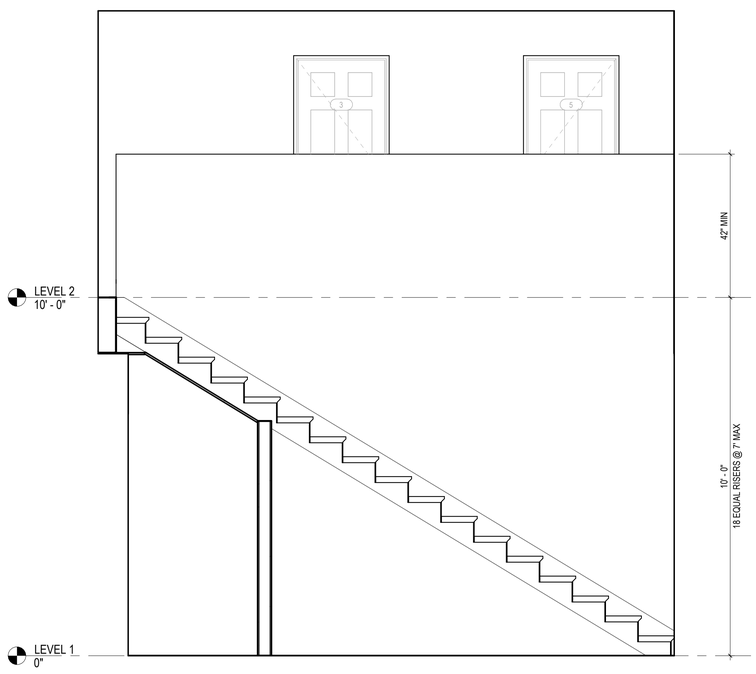
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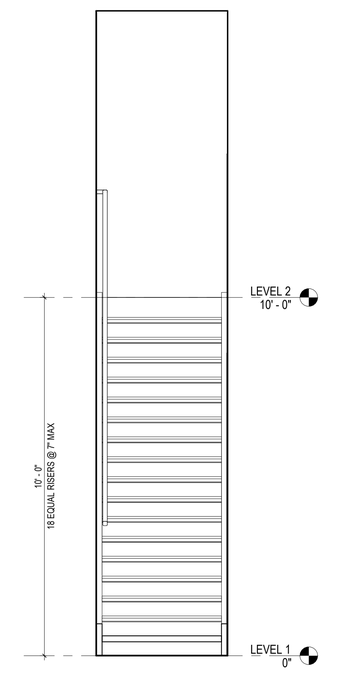
STAIR PLANS & SECTIONS - UNIT TYPE 1

A8.1

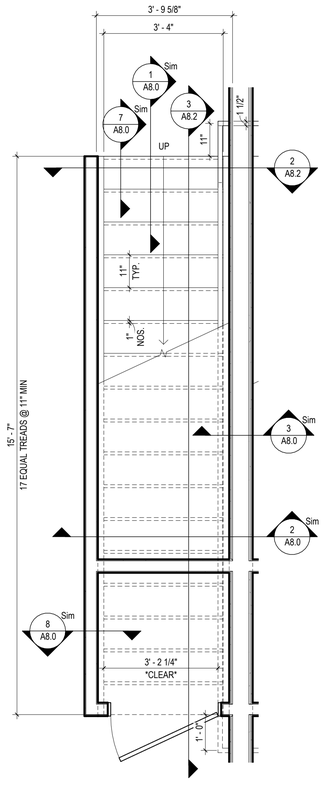
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3 A8.2 **UNIT TYPE 2 - STAIRS SECTION**
1/2" = 1'-0"



2 A8.2 **Section 4**
1/2" = 1'-0"



1 A8.2 **UNIT TYPE 2 - FIRST FLOOR STAIRS**
1/2" = 1'-0"

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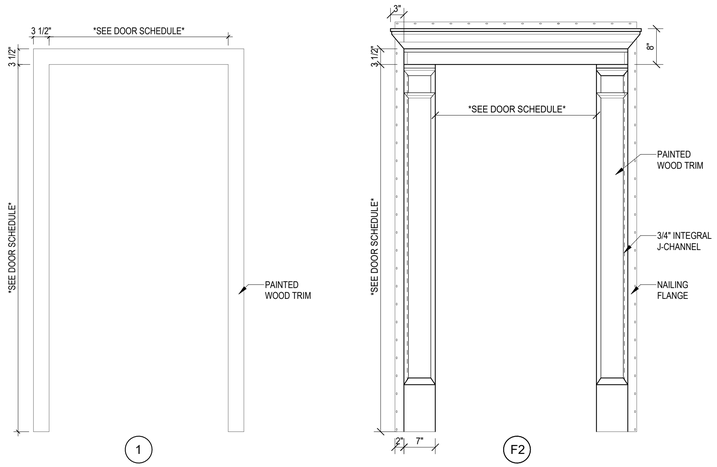
STAIR PLANS & SECTIONS - UNIT TYPE 2

A8.2

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DOOR SCHEDULE

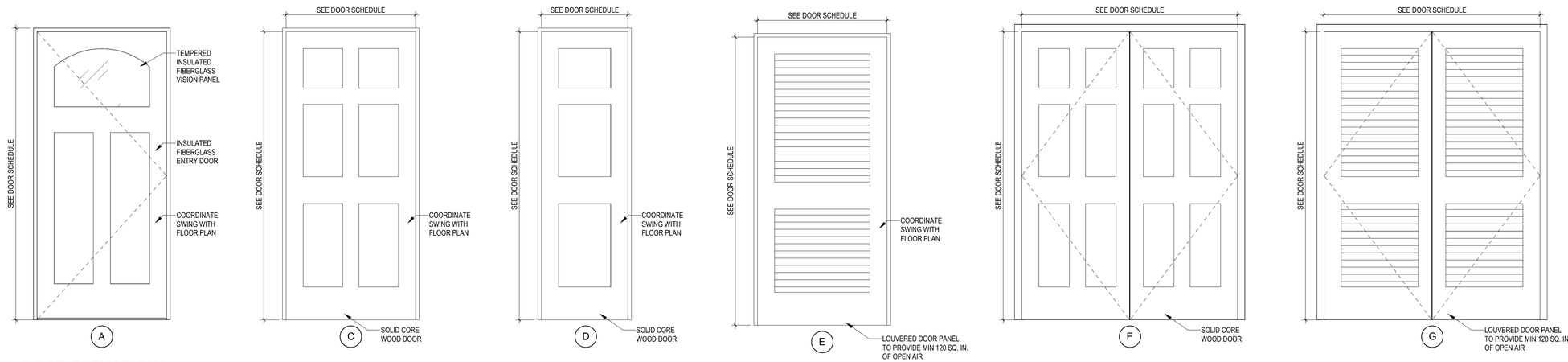
DOOR #	DESCRIPTION	DOUBLE LEAF DOOR	DOOR					HARDWARE		FRAME					RATING		COMMENTS
			WIDTH	HEIGHT	TYPE	MATERIAL	GLAZING	SET #	ADA	TYPE	MATERIAL	HEAD	JAMB	SILL	UL	STC	
1	EXTERIOR ENTRY		3' - 0"	6' - 8"	A	FGL	●	1	●	F2	WD	H-3	J-1	S-1			WALL STOP @ MAIN ENTRY DOOR ONLY-FOR BACK ENTRY DOOR USE DETAILS FOR HEAD 7/A9.1 & JAMB 8/A9.1
2	BEDROOM		3' - 0"	6' - 8"	C	WOOD		2	●	F1	WD	H-2	J-2	S-2			WALL STOP @ BEDROOM DOOR ONLY
3	BEDROOM		2' - 6"	6' - 8"	C	WOOD		2	●	F1	WD	H-2	J-2	S-2			WALL STOP @ BEDROOM DOOR ONLY
4	BATHROOM		3' - 0"	6' - 8"	C	WOOD		2	●	F1	WD	H-2	J-2	S-2			
5	BATHROOM		2' - 6"	6' - 8"	C	WOOD		2	●	F1	WD	H-2	J-2	S-2			
7	CLOSET		3' - 0"	6' - 8"	C	WOOD		3	●	F1	WD	H-2	J-2	S-2			
8	CLOSET		2' - 6"	6' - 8"	C	WOOD		3	●	F1	WD	H-2	J-2	S-2			
9	CLOSET		2' - 0"	6' - 8"	D	WOOD		3	●	F1	WD	H-2	J-2	S-2			
10	CLOSET		1' - 6"	6' - 8"	D	WOOD		3	●	F1	WD	H-2	J-2	S-2			
12	CLOSET	●	5' - 0"	6' - 8"	F	WOOD		4	●	F1	WD	H-2	J-2	S-2			
13	LAUNDRY	●	5' - 0"	6' - 8"	G	WOOD		4	●	F1	WD	H-2	J-2	S-2			LOUVERED
14	LAUNDRY		3' - 0"	6' - 8"	E	WOOD		3	●	F1	WD	H-2	J-2	S-2			LOUVERED



@ EXTERIOR DOORS

1 A9.0 **DOOR FRAME TYPE**

3/4" = 1'-0"



DOOR ELEVATIONS

3/4" = 1'-0"

DOOR NOTES:

1. SEE SPECIFICATIONS FOR DESCRIPTION OF HARDWARE ABBREVIATIONS.
2. DOOR SCHEDULE DOES NOT INDICATE QUANTITIES OF DOORS, DOORS WITH SIMILAR CHARACTERISTIC HAVE BEEN TAGGED WITH THE SAME DOOR TAGS. G.C. SHALL BE RESPONSIBLE FOR QUANTIFYING THE NUMBER OF DOORS. FIELD VERIFY DOOR SIZES PRIOR TO ORDERING.
3. G.C. SHALL REVEW AND VERIFY ALL HARDWARE FUNCTIONS WITH THE OWNER PRIOR TO PLACING THE ORDER
4. S.C = SOLID CORE
   H.M = HOLLOW METAL
   DB-1 = WALL BASE MOUNTED DOOR BUMPER
   PT = PRIME AND PAINT
5. ALL DOOR THRESHOLDS SHALL BE HANDICAP ACCESSIBLE WITH A 1:2 SLOPED BEVEL AT EACH EDGE. THRESHOLD HEIGHT TO BE LESS THAN OR EQUAL TO 1/2".
6. ALL NEW DOOR LATCHES SHALL BE ADA LEVER TYPE.
7. PROVIDE KICKPLATESS ON PUSH SIDE ONLY FOR ALL DOORS SCHEDULED TO RECIEVE KICKPLATES
8. ALL DOOR OPERATING HARDWARE SHALL BE MOUNTED 34" MINIMUM AND 48" MAXIMUM ABOVE FINISH FLOOR.
9. PROVIDE ALL DOOR SILENCERS AT ALL H.M. DOOR FRAMES
10. OPERATING FORCE TO OPEN DOORS SHALL NOT EXCEED 5 LBS
11. PROVIDE "PASSAGE" HARDWARE FUNTCION AT ALL CLOSETS.
12. PROVIDE MASTER KEYING FOR ALL LOCKSETS TO MATCH BUILDING STANDARDS.
13. ALL DEADBOLT LATCHES SHALL BE MOUNTED WITH 48" ABOVE FINISH FLOOR
14. PROVIDE UNIT NUMBERS ON ALL ENTRY DOORS PER OWNERS REQUIREMENTS AND NUMBERING SYSTEM.
15. ALL ACCESSIBLE DOORS TO MEET ICC/ANSI A117.1-2003 REQUIREMENTS
16. ALL ENTRY DOORS TO HAVE SECURITY LATCH
17. FILL ALL SHIM SPACE WITH EXPANDING FOAM INSULATION
18. PROVIDE AIR SEALING AT ALL DOORS AND WINDOWS.

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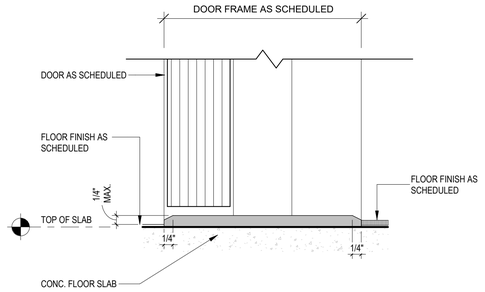
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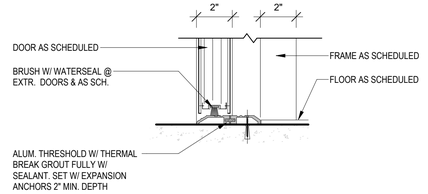
DOOR SCHEDULE & ELEVATIONS

A9.0

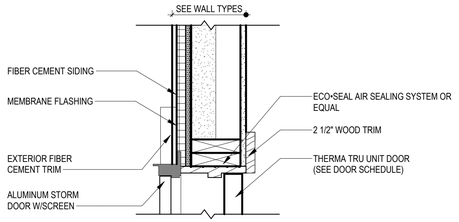
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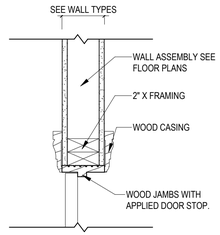
6 A9.1 **SILL DETAIL S-2**
6" = 1'-0"



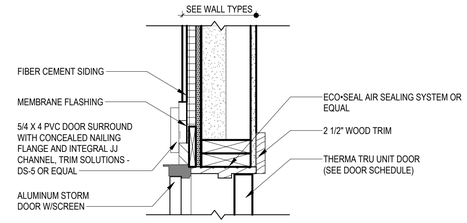
3 A9.1 **SILL DETAIL S-1**
3" = 1'-0"



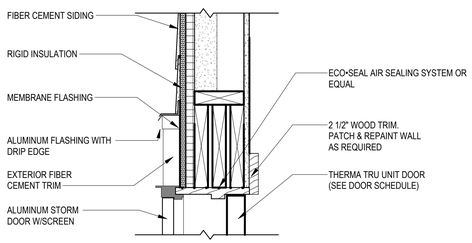
8 A9.1 **EXTERIOR DOOR JAMB J-3**
1 1/2" = 1'-0"



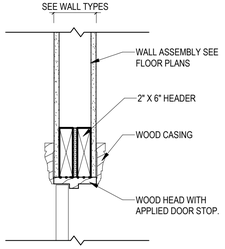
5 A9.1 **INTERIOR DOOR JAMB DETAIL J-2**
1 1/2" = 1'-0"



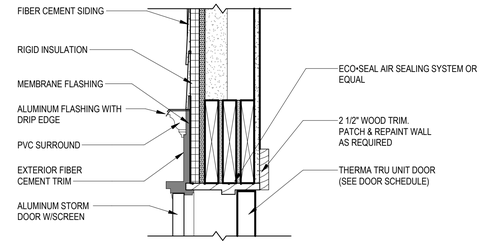
2 A9.1 **EXTERIOR DOOR JAMB J-1**
1 1/2" = 1'-0"



7 A9.1 **EXTERIOR DOOR HEAD H-3**
1 1/2" = 1'-0"



4 A9.1 **INTERIOR DOOR HEAD DETAIL H-2**
1 1/2" = 1'-0"



1 A9.1 **EXTERIOR DOOR HEAD H-1**
1 1/2" = 1'-0"

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LITCHFIELD, CT

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Revision 1	Date 1

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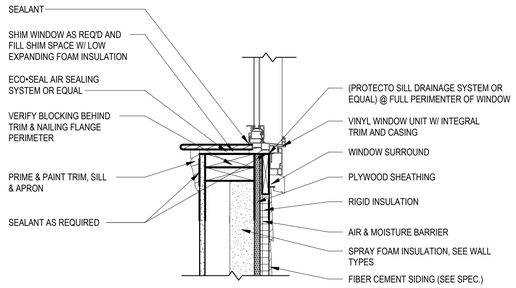
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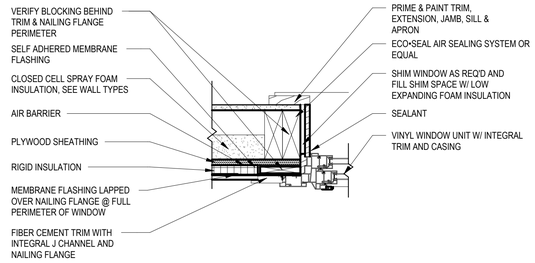
DOOR DETAILS

A9.1

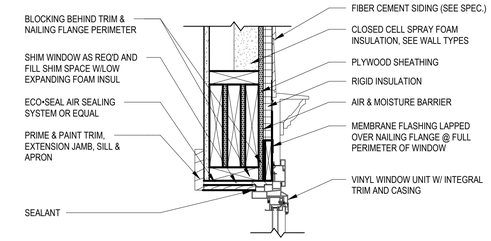
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4 S-1 WINDOW SILL DETAIL
A9.2 1 1/2" = 1'-0"



3 J-1 WINDOW JAMB DETAIL
A9.2 1 1/2" = 1'-0"

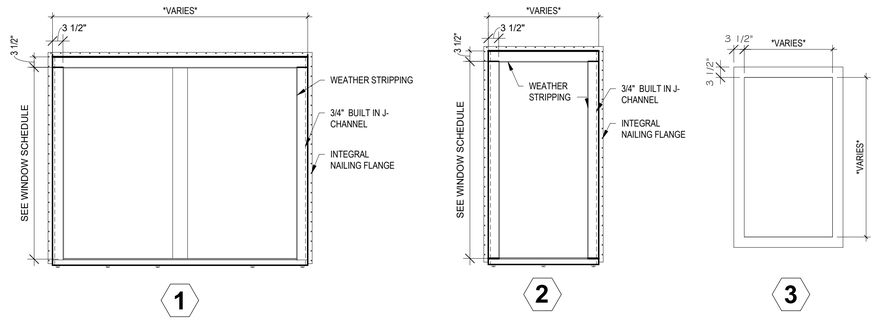


2 H-1 WINDOW HEADER
A9.2 1 1/2" = 1'-0"

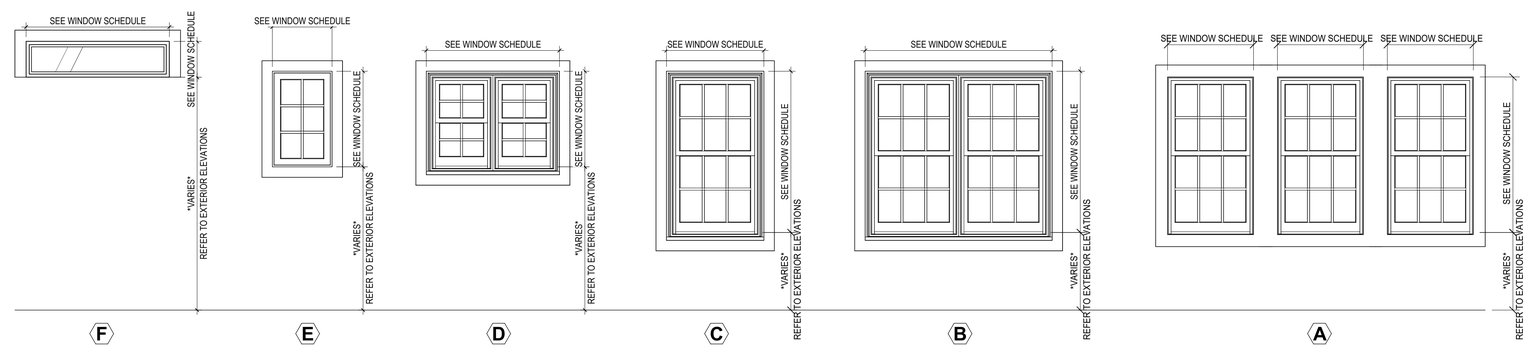
WINDOW SCHEDULE								
WINDOW #	TYPE	WIDTH	HEIGHT	HEAD DETAIL	JAMB DETAIL	SILL DETAIL	TRIM DETAIL	COMMENTS
1	A	2' - 6"	4' - 6"	1/A9.3	2/A9.3	3/A9.3	1	FACTORY MULLED
2	B	5' - 0"	4' - 6"	1/A9.3	2/A9.3	3/A9.3	1	FACTORY MULLED
3	C	2' - 6"	4' - 6"	1/A9.3	2/A9.3	3/A9.3	2	
4	C	2' - 6"	4' - 6"	1/A9.3	2/A9.3	3/A9.3	2	TEMPERED
5	D	3' - 6"	2' - 8"	1/A9.3	2/A9.3	3/A9.3	3	FACTORY MULLED
6	E	1' - 8"	2' - 8"	1/A9.3	2/A9.3	3/A9.3	3	
7	F	4' - 0"	1' - 0"	1/A9.3	2/A9.3	3/A9.3	3	

WINDOW NOTES:

1. INSULATE SHIM SPACE AROUND FULL PERIMETER OF ALL WINDOW UNITS WITH MINIMAL EXPANDING FOAM INSULATION.
2. WINDOW SIZES ARE APPOINTED FOR PURPOSES OF BIDDING AND ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL OPENINGS PRIOR TO BIDDING, ORDERING & CONSTRUCTION.
3. WINDOWS ARE TO HAVE FULL SCREEN (VINYL).
4. WINDOW GRIDS ARE TO BE BETWEEN GLASS PANES, CLOR TO MATCH EXTERIOR FRAME.
5. PROVIDE AIR SEALING AT ALL DOORS AND WINDOWS.



1 WINDOW TRIM DETAILS
A9.2 1/2" = 1'-0"



WINDOW ELEVATIONS
1/2" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

RIVER BEND

LITCHFIELD, CT

Project #: 2386

Revision 1	Date 1

Revisions

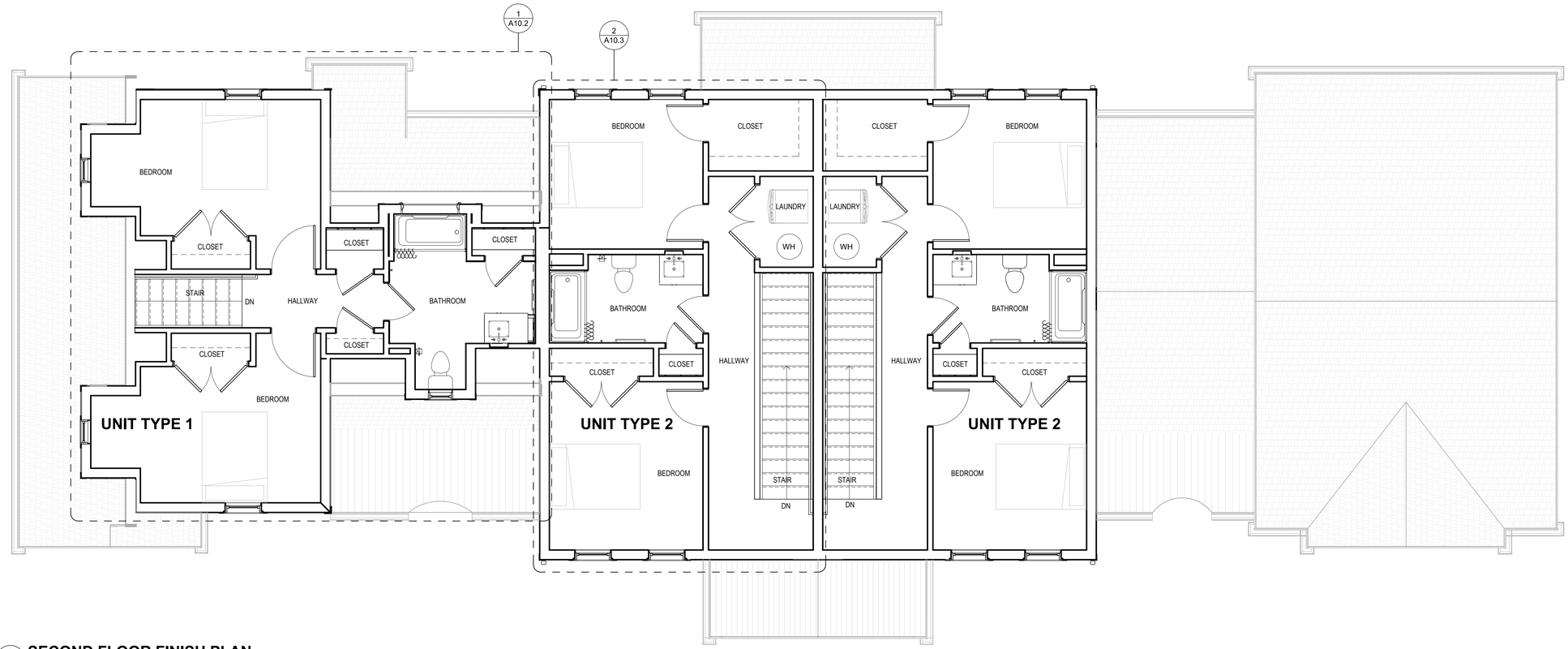
Issue Dates:

BID DOCUMENTS
APRIL 28, 2026

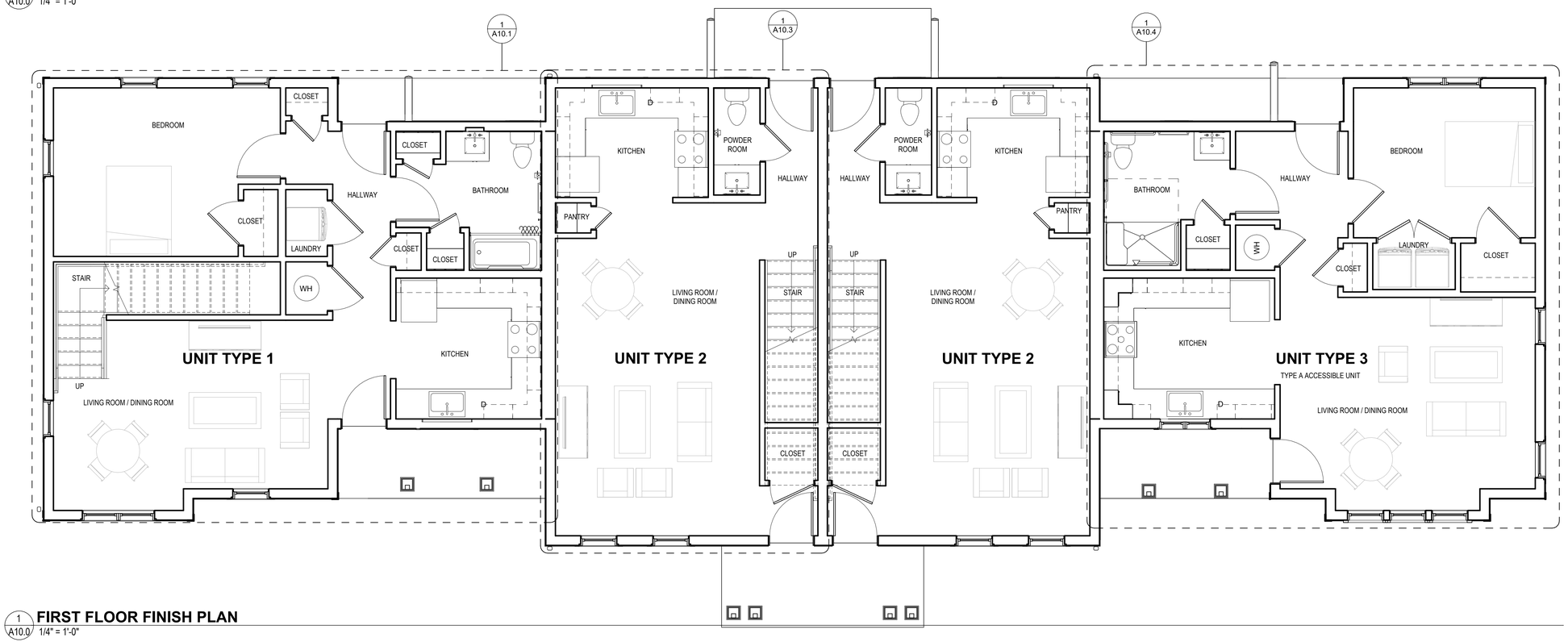
WINDOW SCHEDULE, ELEVATIONS AND DETAILS

A9.2

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2 A10.0 **SECOND FLOOR FINISH PLAN**
1/4" = 1'-0"



1 A10.0 **FIRST FLOOR FINISH PLAN**
1/4" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

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Project #: **2386**

Revision 1	Date 1

Revisions

Issue Dates:

N

BID DOCUMENTS
APRIL 28, 2026

FINISH FLOOR PLANS

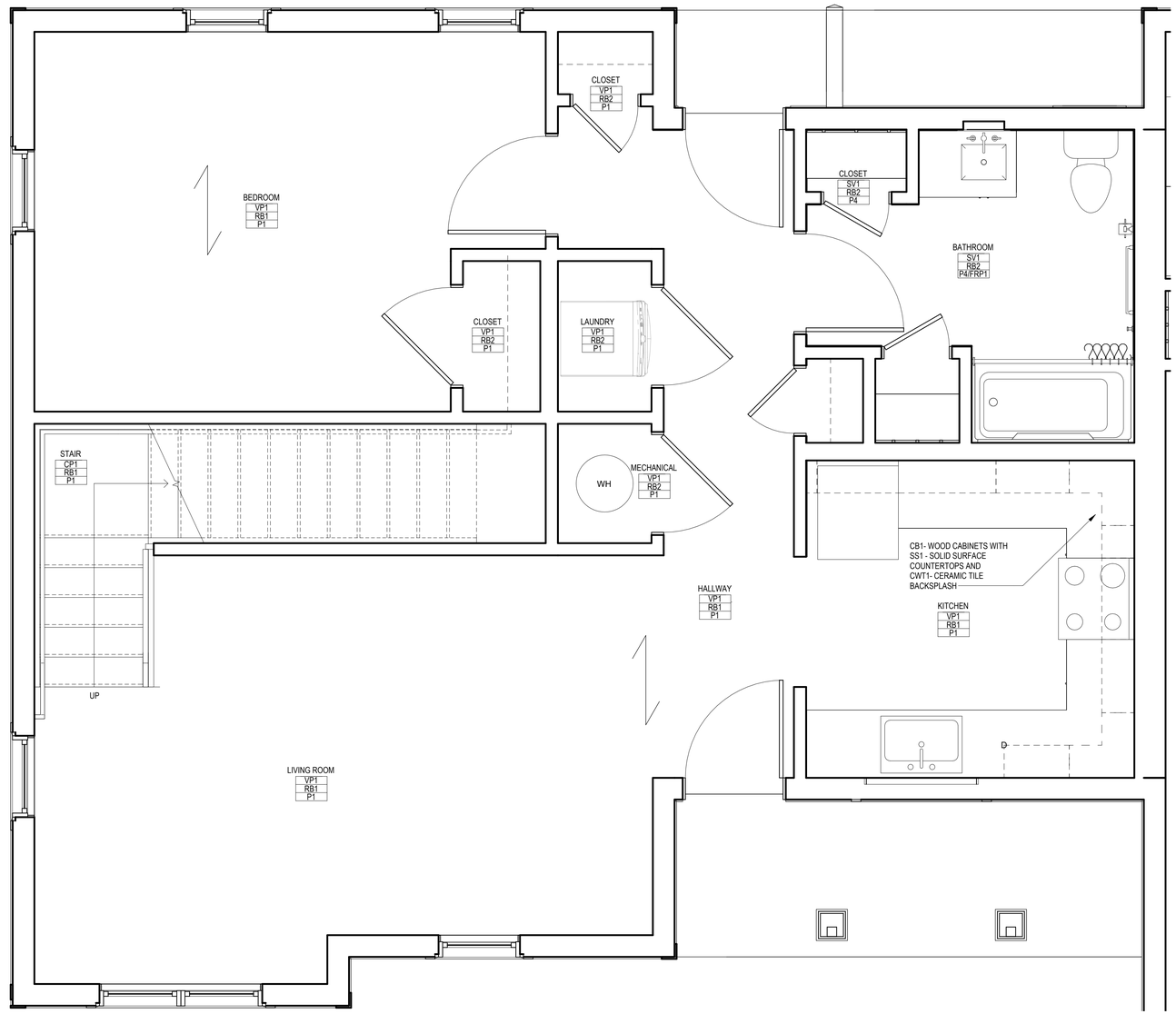
A10.0

FINISH LEGEND

ROOM NAME
GENERAL FLOORING
GENERAL BASE
GENERAL WALL FINISH

GENERAL NOTES:

1. REFER TO SPECIFICATION DOCUMENT FOR PRODUCT DETAILS.
2. DEVIATION FROM GENERAL FINISHES NOTATED WITH LEADER LINES AS APPLICABLE. – — — –
3. R.T.F.S - REFER TO FINISH SCHEDULE



1 A10.1 **FIRST FLOOR FINISH PLAN - UNIT TYPE 1**
1/2" = 1'-0"

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Project #: **2386**

Revisions

Issue Dates:

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APRIL 28, 2026

FINISH FLOOR PLANS - UNIT TYPE 1

A10.1

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FINISH LEGEND

ROOM NAME
GENERAL FLOORING
GENERAL BASE
GENERAL WALL FINISH

GENERAL NOTES:

1. REFER TO SPECIFICATION DOCUMENT FOR PRODUCT DETAILS.
2. DEVIATION FROM GENERAL FINISHES NOTATED WITH LEADER LINES AS APPLICABLE. – — — –
3. R.T.F.S - REFER TO FINISH SCHEDULE



1 A10.2 **SECOND FLOOR FINISH PLAN - UNIT TYPE 1**
1/2" = 1'-0"

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Revisions

Issue Dates:

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APRIL 28, 2026

FINISH FLOOR PLANS - UNIT TYPE 1

A10.2

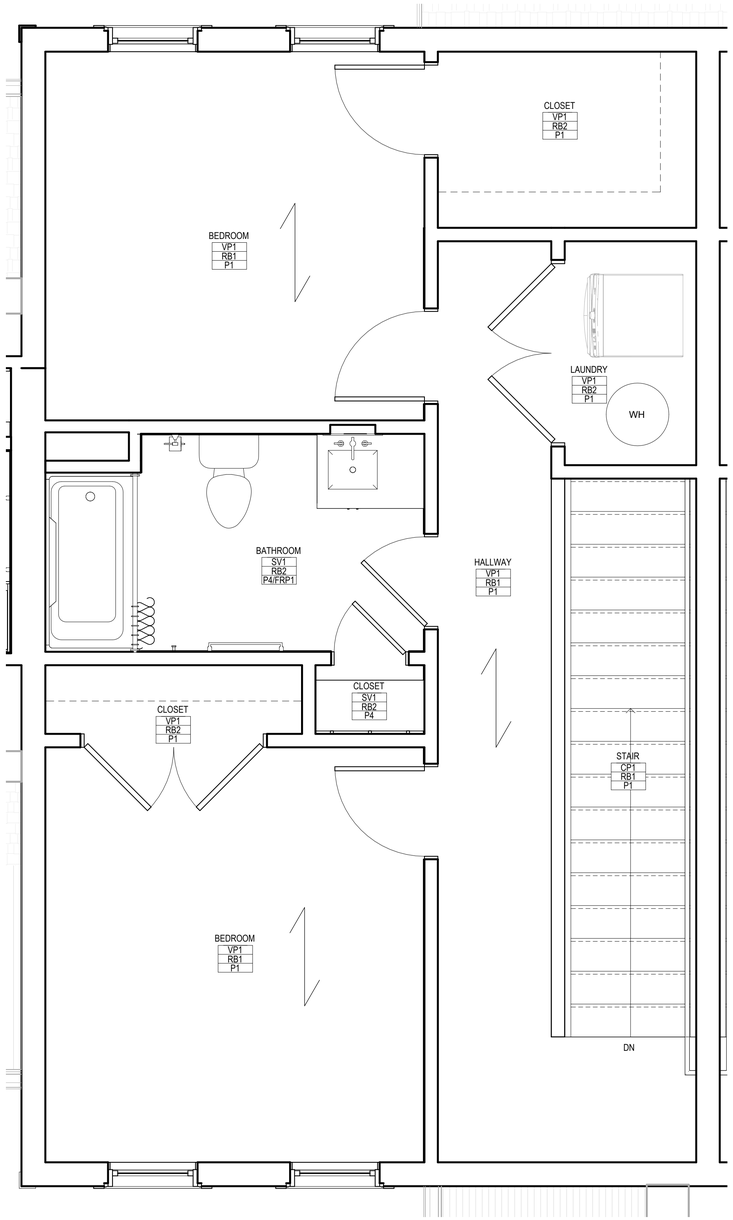
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FINISH LEGEND

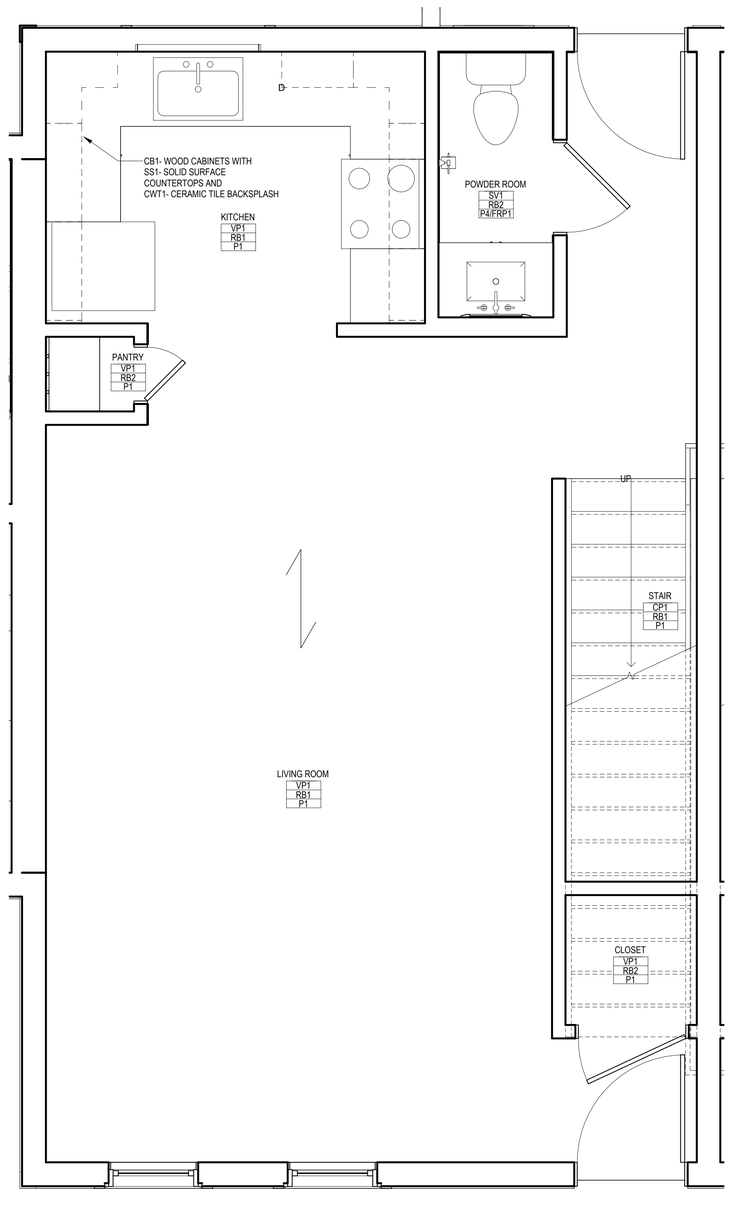
ROOM NAME
GENERAL FLOORING
GENERAL BASE
GENERAL WALL FINISH

GENERAL NOTES:

1. REFER TO SPECIFICATION DOCUMENT FOR PRODUCT DETAILS.
2. DEVIATION FROM GENERAL FINISHES NOTATED WITH LEADER LINES AS APPLICABLE. – — — –
3. R.T.F.S - REFER TO FINISH SCHEDULE



2 A10.3 **SECOND FLOOR FINISH PLAN - UNIT TYPE 2**
1/2" = 1'-0"



1 A10.3 **FIRST FLOOR FINISH PLAN - UNIT TYPE 2**
1/2" = 1'-0"

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Project #: 2386

Revision 1	Date 1

Revisions

Issue Dates:

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APRIL 28, 2026

FINISH FLOOR PLANS - UNIT TYPE 2

A10.3

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FINISH LEGEND

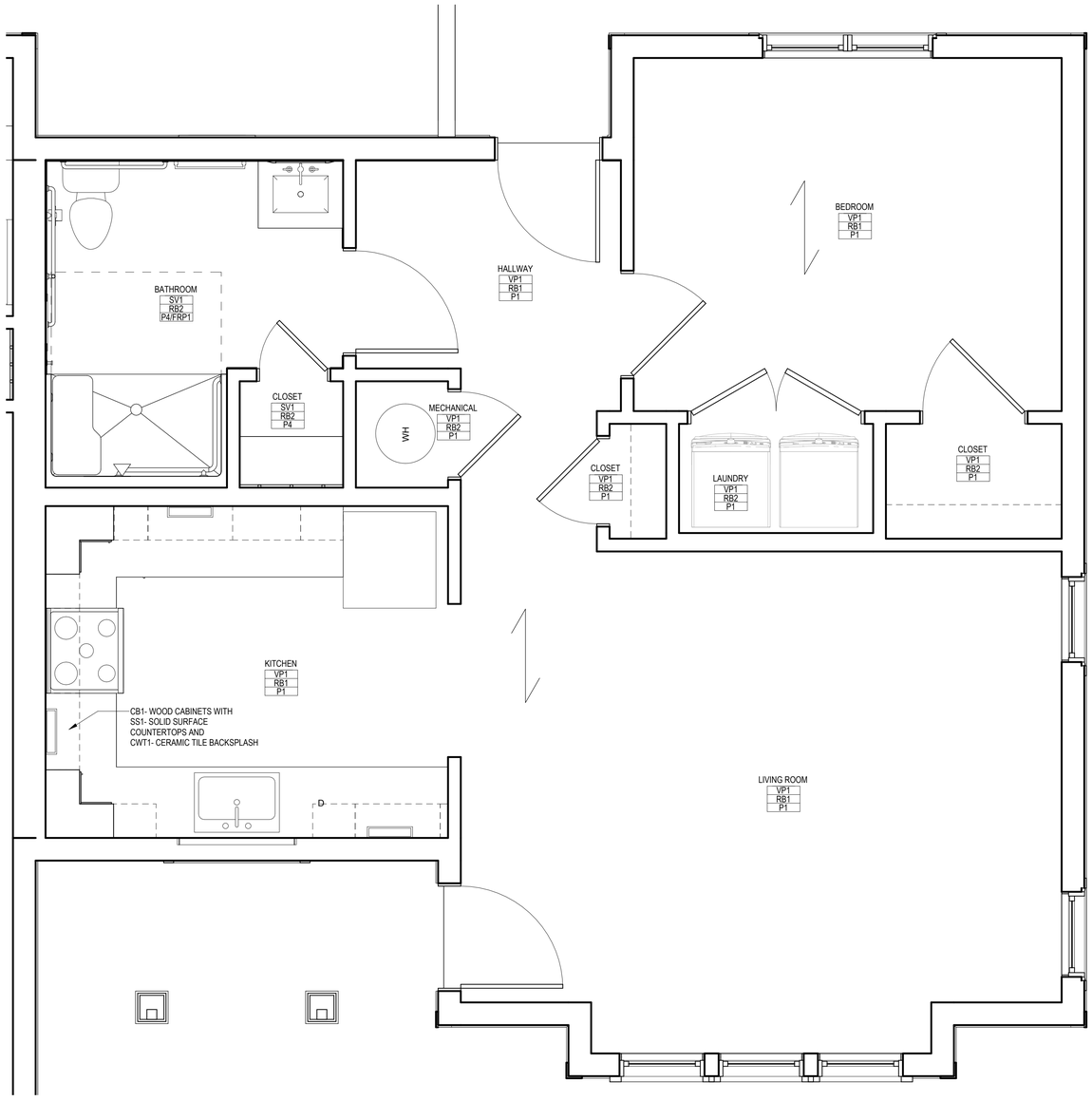
ROOM NAME
GENERAL FLOORING
GENERAL BASE
GENERAL WALL FINISH

GENERAL NOTES:

1. REFER TO SPECIFICATION DOCUMENT FOR PRODUCT DETAILS.

2. DEVIATION FROM GENERAL FINISHES NOTATED WITH LEADER LINES AS APPLICABLE. – — — –

3. R.T.F.S - REFER TO FINISH SCHEDULE



1 A10.4 **FIRST FLOOR FINISH PLAN - UNIT TYPE 3 ADA**
1/2" = 1'-0"

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Project #: 2386

Revisions

Issue Dates:

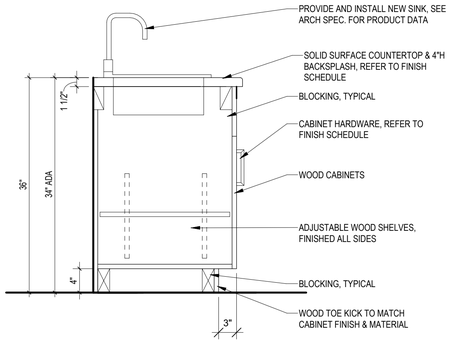
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BID DOCUMENTS
APRIL 28, 2026

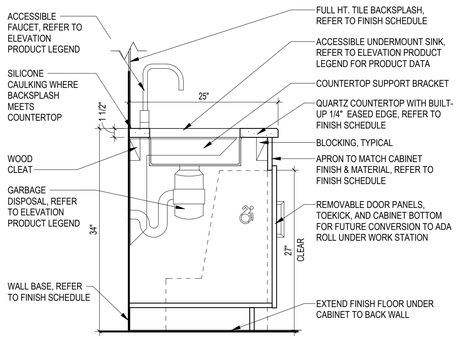
FINISH FLOOR PLANS - UNIT TYPE 3

A10.4

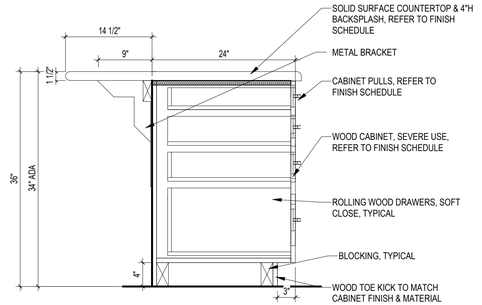
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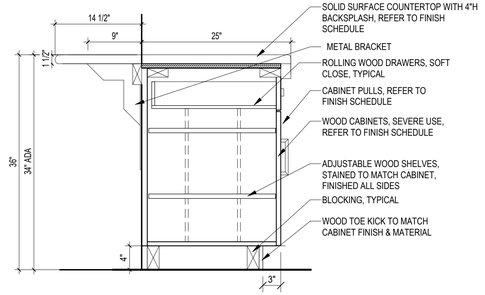
10 A11.0 **TYPICAL BASE CABINET WITH SINK**
1" = 1'-0"



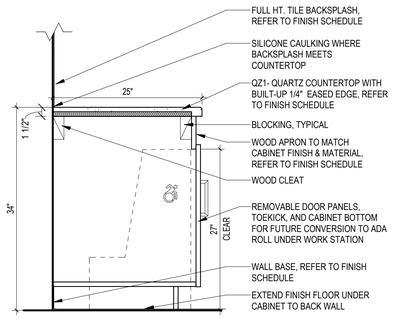
9 A11.0 **ADA SINK MILLWORK DETAIL**
1" = 1'-0"



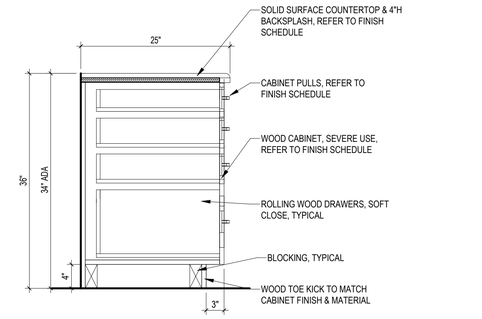
6 A11.0 **TYPICAL 4 DRAWER BASE CABINET WITH OVERHANG**
1" = 1'-0"



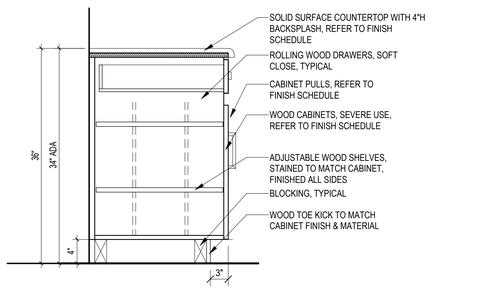
3 A11.0 **TYPICAL BASE CABINET WITH OVERHANG**
1" = 1'-0"



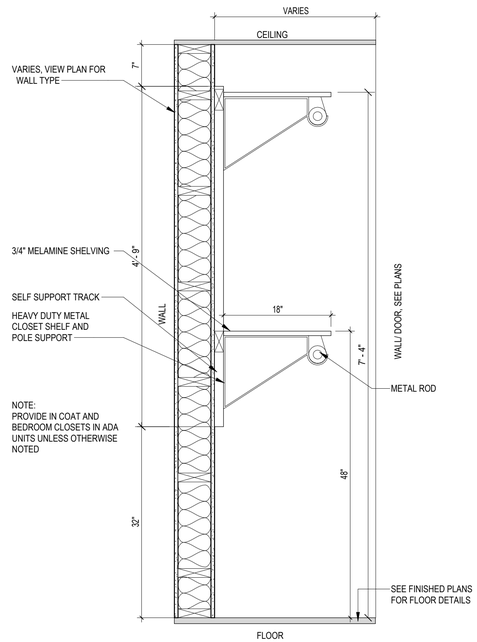
8 A11.0 **ADA WORKZONE MILLWORK DETAIL**
1" = 1'-0"



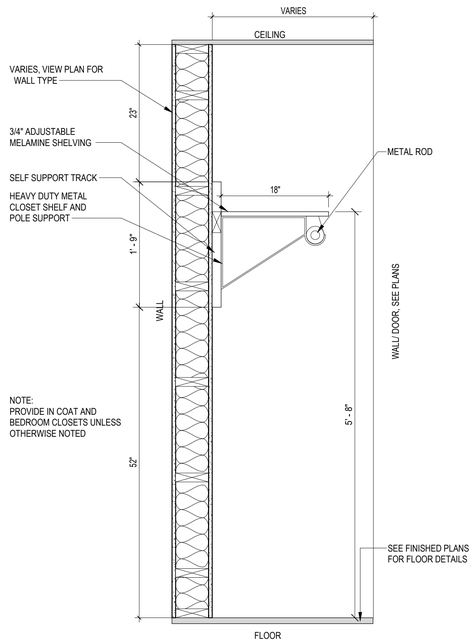
5 A11.0 **TYPICAL 4 DRAWER BASE CABINET**
1" = 1'-0"



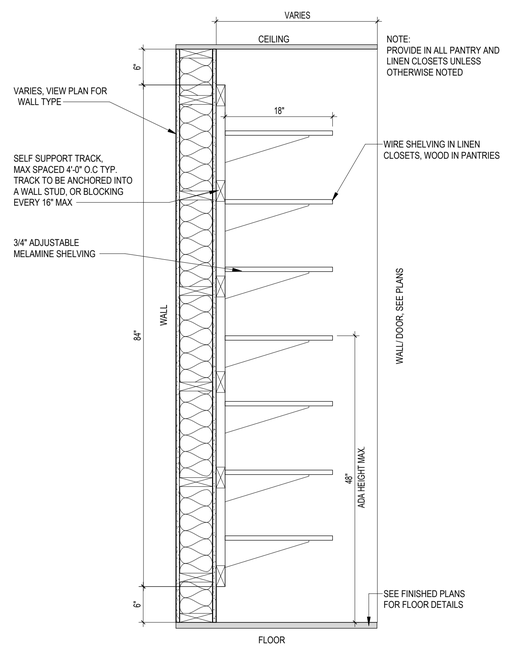
2 A11.0 **TYPICAL BASE CABINET**
1" = 1'-0"



7 A11.0 **ADA ROD SHELF CLOSET**
1" = 1'-0"



4 A11.0 **ROD SHELF CLOSET**
1" = 1'-0"



1 A11.0 **PANTRY & LINEN CLOSET DETAIL**
1" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

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Project #: 2386

Revisions

Issue Dates:

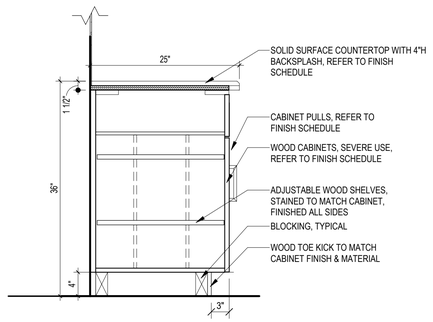
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APRIL 28, 2026

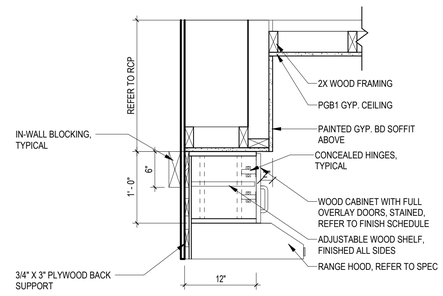
CASEWORK

A11.0

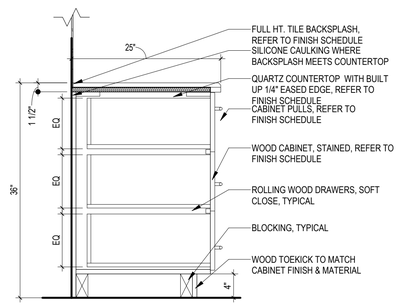
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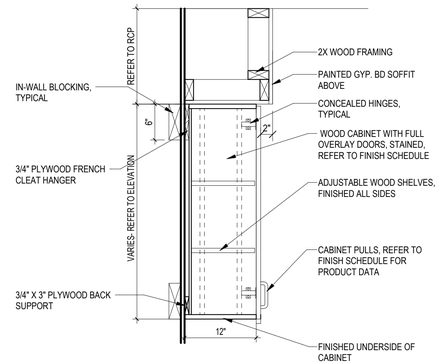
3 A11.1 **VANITY BASE CABINET**
1" = 1'-0"



2 A11.1 **UPPER CABINET HOOD RANGE**
1" = 1'-0"



4 A11.1 **VANITY BASE CABINET WITH DRAWERS**
1" = 1'-0"



1 A11.1 **UPPER CABINET**
1" = 1'-0"

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NEW HOUSING DEVELOPMENT AT:

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Project #: **2386**

Revisions

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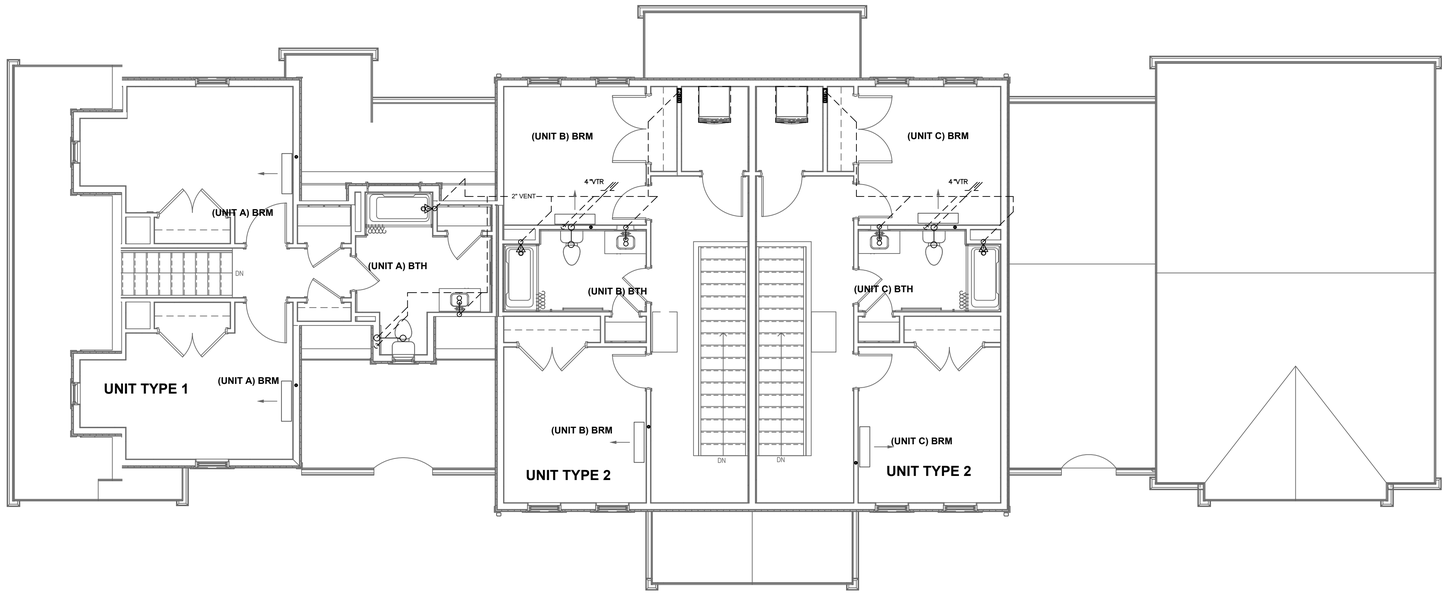
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APRIL 28, 2026

CASEWORK

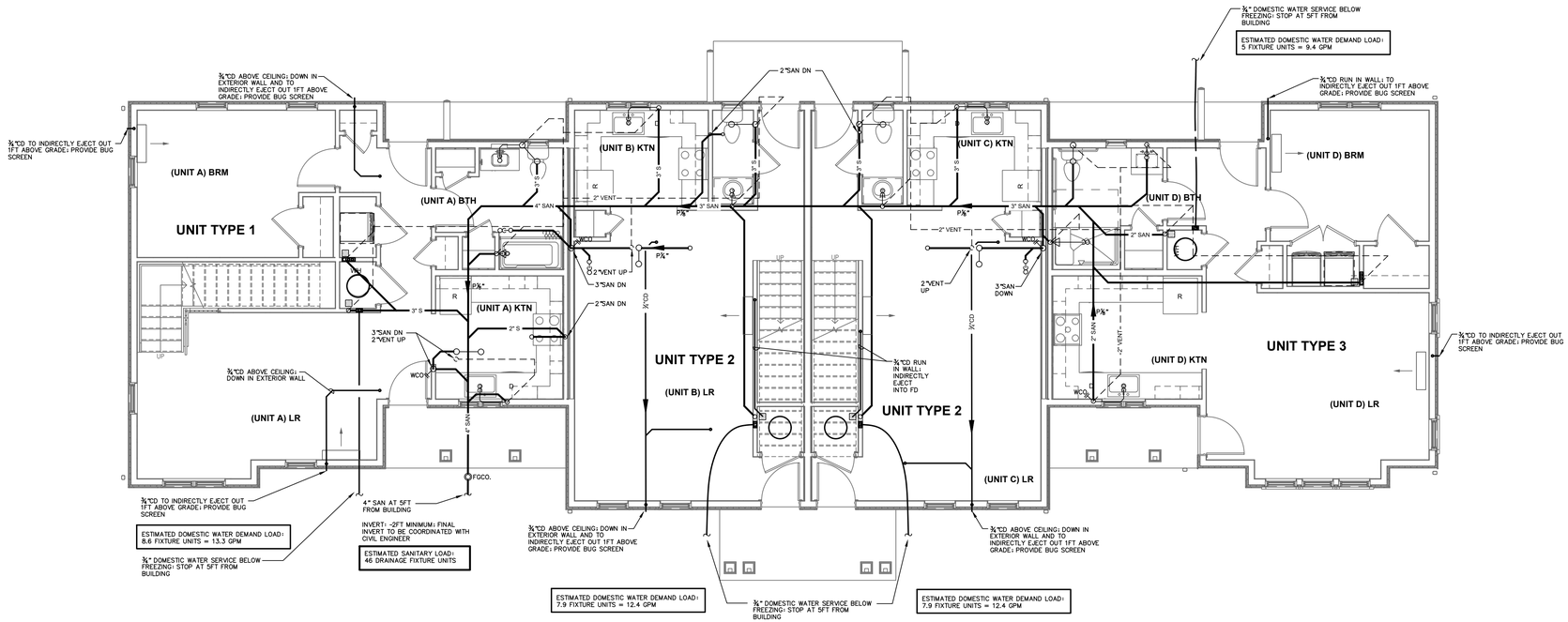
A11.1

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NOTE FOR ON SITE GENERATOR:
¾" HIGH PRESSURE PROPANE LINE FROM TANK TO METER AT GENERATOR ON SITE; PROVIDE MAXITROL PRESSURE REDUCER MODEL #325-7A

2 P1.1 **LEVEL 2**
¼" = 1'-0"



1 P1.1 **LEVEL 1**
¼" = 1'-0"

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West Simsbury, CT 06092 • (860) 651-1949 • fax (860) 651-1957
www.acornengineers.com

PROJECT DESCRIPTION:

LITCHFIELD HOUSING
LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

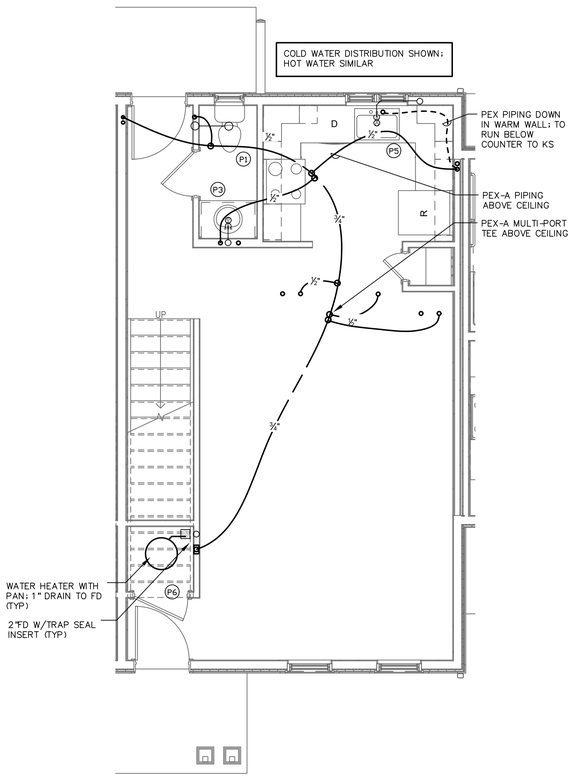
Issue Dates:

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04/28/2026

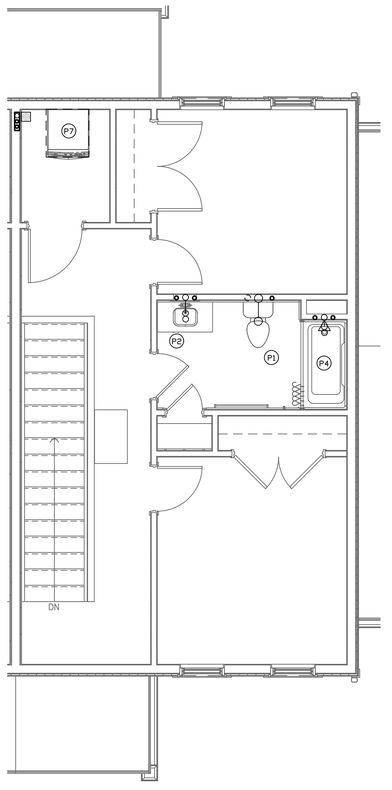
FLOOR PLAN PLUMBING

P1.1



1 P2.0 TYPICAL UNIT C FIRST FLOOR

¼" = 1'-0"



2 P2.0 TYPICAL UNIT C SECOND FLOOR

¼" = 1'-0"

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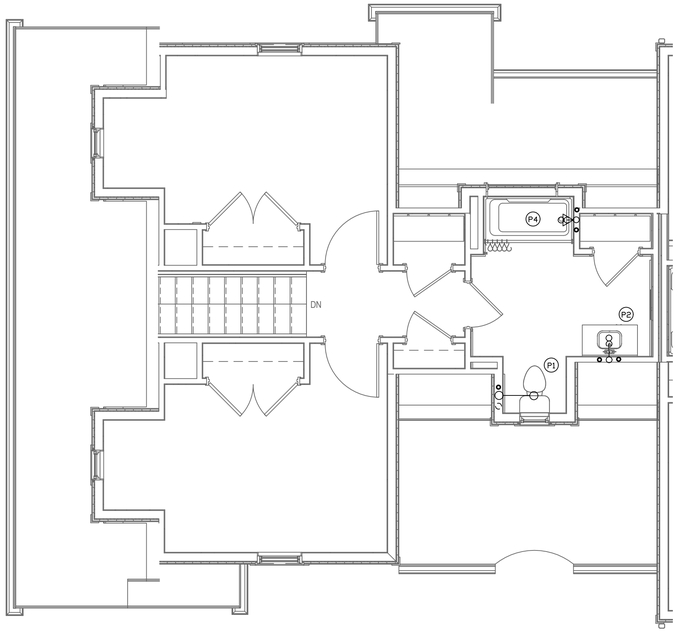
Issue Dates:

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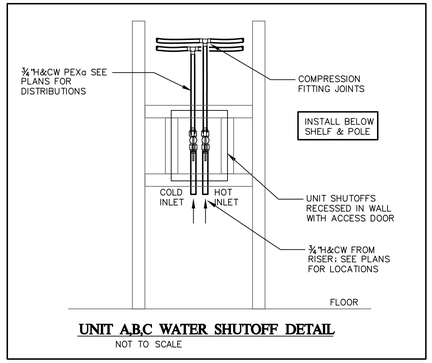
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04/28/2026

TYPICAL UNIT PLAN- PLUMBING

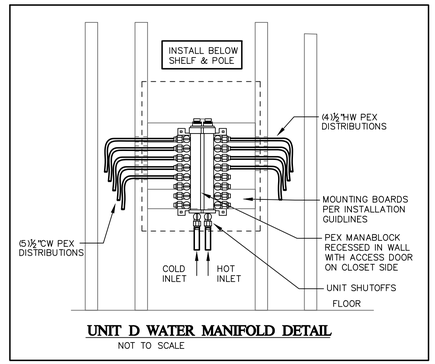
P2.0



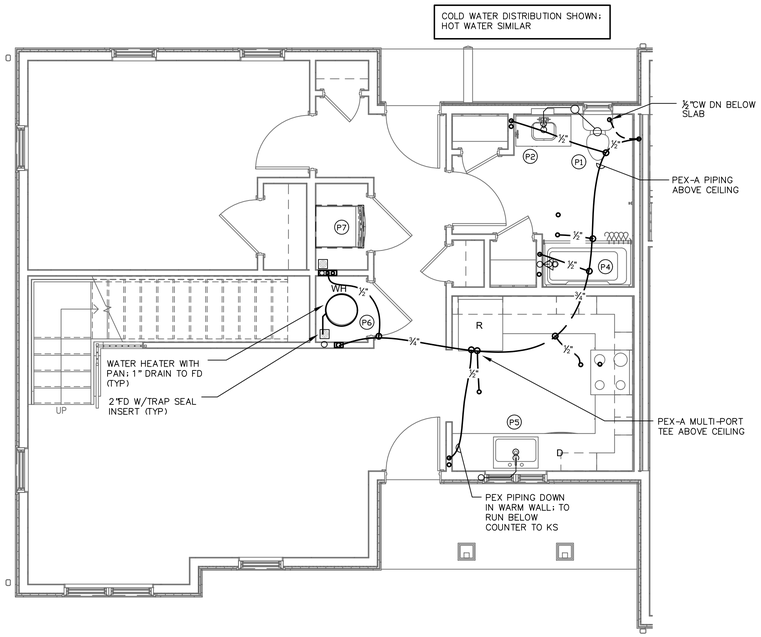
3 P2.1 **TYPICAL UNIT A SECOND FLOOR**
¼" = 1'-0"



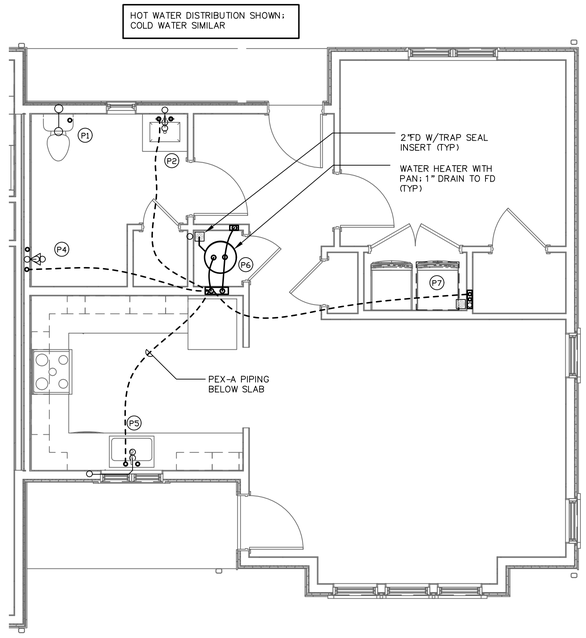
UNIT A,B,C WATER SHUTOFF DETAIL
NOT TO SCALE



UNIT D WATER MANIFOLD DETAIL
NOT TO SCALE



4 P2.1 **TYPICAL UNIT A FIRST FLOOR**
¼" = 1'-0"



5 P2.1 **TYPICAL UNIT D FIRST FLOOR**
¼" = 1'-0"

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LITCHFIELD, CT

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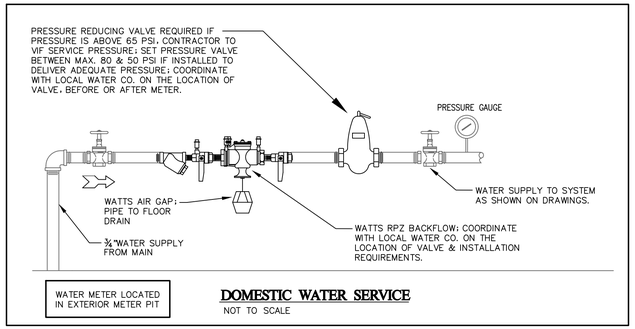
Issue Dates:

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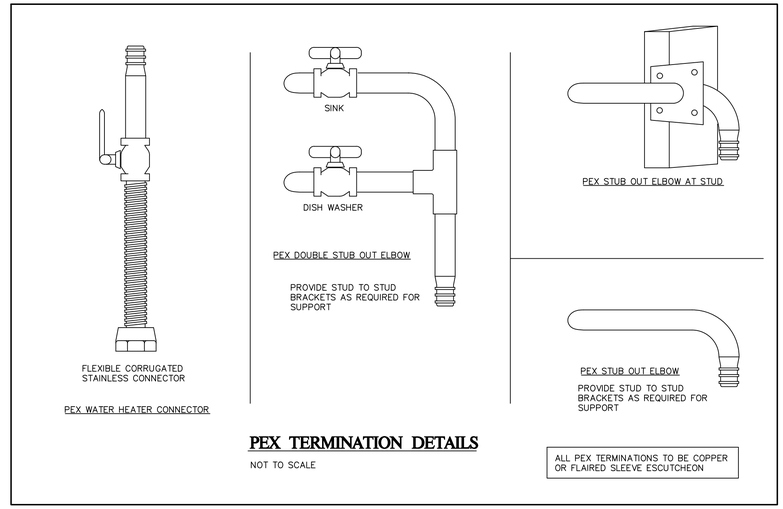
TYPICAL UNIT PLAN- PLUMBING

P2.1



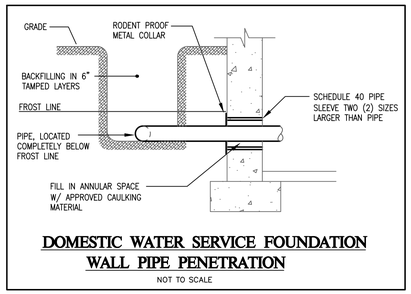
DOMESTIC WATER SERVICE

NOT TO SCALE



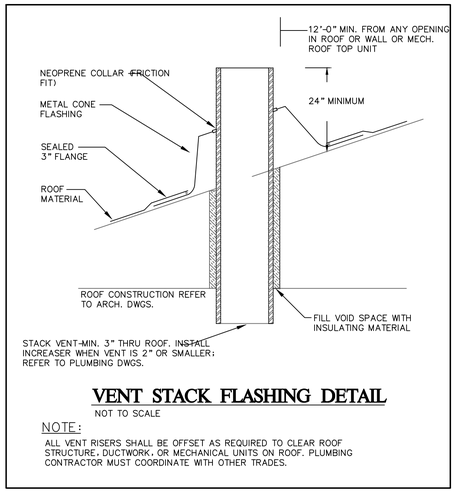
PEX TERMINATION DETAILS

NOT TO SCALE



DOMESTIC WATER SERVICE FOUNDATION WALL PIPE PENETRATION

NOT TO SCALE

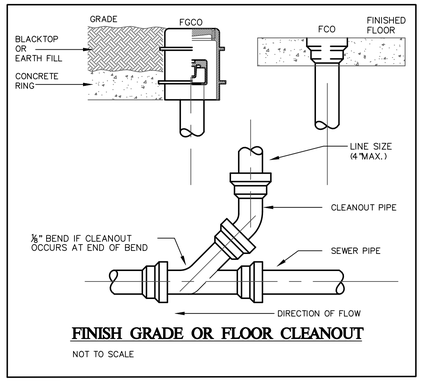


VENT STACK FLASHING DETAIL

NOT TO SCALE

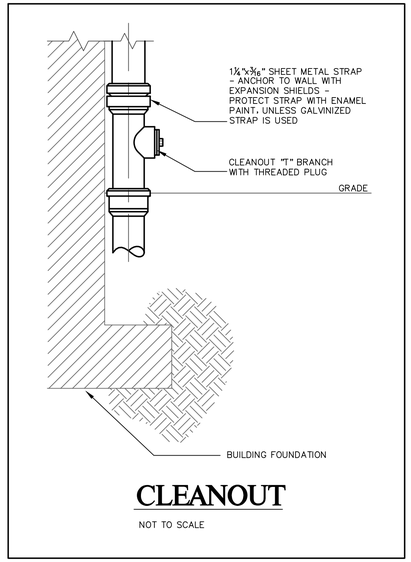
NOTE:

ALL VENT RISERS SHALL BE OFFSET AS REQUIRED TO CLEAR ROOF STRUCTURE, DUCTWORK, OR MECHANICAL UNITS ON ROOF. PLUMBING CONTRACTOR MUST COORDINATE WITH OTHER TRADES.



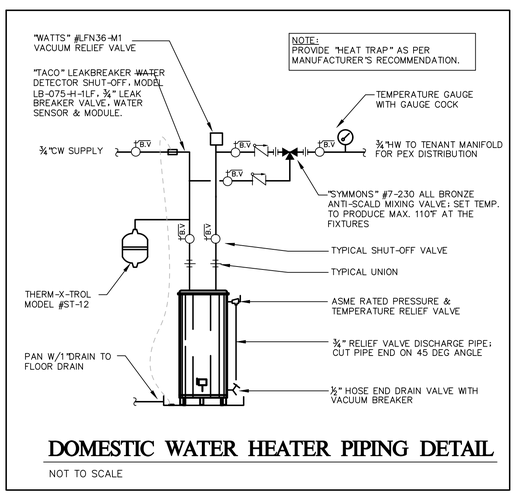
FINISH GRADE OR FLOOR CLEANOUT

NOT TO SCALE



CLEANOUT

NOT TO SCALE



DOMESTIC WATER HEATER PIPING DETAIL

NOT TO SCALE

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PROJECT DESCRIPTION:

LITCHFIELD HOUSING

LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

Issue Dates:

N

BID DOCUMENTS
04/28/2026

DETAILS - PLUMBING

P3.0

PLUMBING NOTES: NOTES PERTAIN TO ALL DRAWINGS

1. ALL PLUMBING WORK TO BE IN ACCORDANCE WITH THE LOCAL PLUMBING CODE.
2. ALL WATER PIPING TO BE WITHIN THE HEATED ENVELOPE OF BUILDING. CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO FIXTURES. BRANCH PLUMBING PIPES TO HAVE STOPS & TRAPS W/ESCUTCHEONS.
3. ALL PLUMBING PIPING TO BE CONCEALED ABOVE CEILINGS OR IN WALLS UNLESS NOTED OTHERWISE ON PLANS.
4. PIPING AS SHOWN IS ONLY DIAGRAMMATICALLY PRESENTED; CONTRACTOR IS TO COORDINATE WITH OTHER TRADES AND STRUCTURAL ELEMENTS. CONTRACTOR SHALL ALSO FURNISH ALL REQUIRED EQUIPMENT NECESSARY FOR A COMPLETE INSTALLATION.
5. ALL PENETRATIONS OF RATED ASSEMBLIES TO BE SEALED WITH APPROVED FIRE RATED CAULK; FIRE PENETRATION SYSTEMS SHALL MEET THE UL LISTING FOR EXISTING WALL OR FLOOR CONSTRUCTION.
6. PROVIDE ACCESS DOORS AS NEEDED FOR ALL SHUT-OFF VALVES AND COMPONENTS NEEDING ACCESS; COORDINATE WITH GENERAL CONTRACTOR.
7. SEE ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHTS.
8. INSULATE EXPOSED PIPING BELOW HANDICAP LAVATORIES AND SINKS.
9. PROVIDE DEEP SEAL "P" TRAP ON EACH UNIT'S CONDENSATE LINE; PROVIDE FUNNELS AT FLOOR DRAINS & TRAP SEAL INSERTS.
10. PROVIDE WATER HAMMER ARRESTERS ON ANY QUICK CLOSING FIXTURES OR EQUIPMENT WHERE REQUIRED.
11. ALL FIXTURE WATER TERMINATIONS TO BE COPPER & THROUGH THE WALLS (UNLESS ON AN EXTERIOR WALL OR NEXT TO UNCONDITIONED SPACES), THEN THROUGH FLOOR TO BE PERMITTED) AND HAVE ESCUTCHEON PLATES. ROUGH OPENINGS TO BE FILLED WITH EXPANDING FOAM SO CAVITY IS COMPLETELY SEALED BEHIND ESCUTCHEONS.
12. ALL OVERHEAD PIPING AT BASEMENT CEILING TO START AS HIGH AS POSSIBLE TO MAXIMIZE CLEARANCE BELOW.

SCHEDULE OF SIZING FOR ROUGHING FOR PLUMBING FIXTURES

WATER CLOSET- TANK TYPE	½"CW	3"S	2"V
LAVATORY SINK	⅜"H&CW	1½"W	1½"V
TUB / SHOWER	½"H&CW	1½"W	1½"V
SHOWER	½"H&CW	2"W	1½"V
KITCHEN SINK	½"H&CW	1½"W	1½"V
LAUNDRY BOX	½"H&CW	2"W	1½"V
HOSE BIB	¾"CW	-------	-------

SYMBOL LIST

•	—— – ——	COLD WATER PIPE (CW)
•	—— — ——	HOT WATER PIPE (HW) (110°F)
•	—— – – ——	HOT WATER RECIRCULATION PIPE (HWR) (110°F)
•	—— – – – ——	HOT WATER PIPE (140°F)
•	– – – – – –	HOT WATER CIRCULATION PIPE (140°F)
•	—— S ——	SANITARY PIPE (BROKEN LINE IS BELOW FLOOR)
•	—— GW ——	GREASE WASTE
•	—— ST ——	STORM PIPE
•	— EMST —	EMERGENCY STORM PIPE
•	– – – – –	VENT PIPE (V)
•	—— CD ——	CONDENSATE / DRY PIPE
•	——◄——	DIRECTION OF FLOW
•	WCO ——|	WALL CLEANOUT
•	——⊣——	CHECK VALVE
•	W.S.	WASTE STACK
•	V.S.	VENT STACK
•	S.S.	SOIL STACK
•	V.T.R.	VENT THROUGH ROOF
•		GATE VALVE
•	BALL VALVE	
•	—— G ——	GAS PIPE
•		GAS SHUT OFF
•	VB	VACUUM BREAKER
•	BF	BACKFLOW PREVENTER
•		PRESSURE REDUCING VALVE
•		BALANCING VALVE
•		WATER HAMMER ARRESTER
•	H.B.	HOSE BIBB (NON-FREEZE WHEN INDICATED)
•	F.S.	FLOOR SINK
•		FLOOR SINK FROM ABOVE
•	F.D.	FLOOR DRAIN
•		FLOOR DRAIN FROM ABOVE
•	FCO	FLOOR CLEANOUT
•	FGCO	FINISH GRADE CLEANOUT
•	BWV	BACK WATER VALVE
•		PUMP
•		CONNECTION INTO EXISTING
•	(VIF)	VERIFY IN FIELD
•	(TYP.)	TYPICAL
•	(EX)	EXISTING

PLUMBING SPECIFICATIONS

II. PLUMBING SPECIFICATIONS

1.01 SCOPE

A. All plumbing equipment, materials and accessories necessary to complete the plumbing system as shown on drawings and described, or as required to put the system in operation, are a part of this Contract.

B. Work shall include furnishing all labor and materials, equipment, and tools necessary to install a complete plumbing system as shown on Drawings and/or called for in the specifications, including all pipe valves, fittings, fixtures, drains, insulation, miscellaneous specialties and accessories. Contractor, to identify in field all main sanitary, vent, cold water and hot water in order to connect new plumbing lines.

C. The plumbing system for the building shall consist of, but not be limited to, the following:

1. A complete gravity sanitary system, vent and drain pipes to be connected into the sanitary/vent system.
2. A complete system of hot and cold water piping system to fixtures.
3. Insulation of piping, as hereinafter described.
4. A complete gas system of piping to all gas fired appliances.

1.02 SOIL, WASTE, VENT AND DRAINAGE LINES

A. All offsets shall be made at an angle of not more than 45 degrees, and all horizontal runs shall have a pitch of not less than ⅛" to the foot (¼" for piping under 3"). Branch, waste and vent connections shall be run to the house drain or vent stacks as shown on the Drawings. Vertical vent pipes may be connected to a stacks as shown on the Drawings. Vertical vent pipes may be connected to a one main vent riser above fixtures serving other fixtures, the vent line shall be extended 3 ft. above the floor on which the fixtures are located vent line before being connected to the other vent lines, so as to prevent the use of any vent line as a waste.

B. All changes in pipe size shall be made with reducing fittings or recessed reducers, Y-fittings, and ⅛" or ⅙" bends or combination Y- and ⅛" bends shall be used where possible.

C. Sanitary long sweep bends and T's shall be used for connections to branch lines for fixtures and on vertical runs on pipe. Long turn fittings shall be used wherever conditions permit. Long sweep fittings shall be used on all horizontal to vertical runs.

D. Soil, waste, and vent branch piping installed above floor slab in walls shall be plastic pipe type "PVC" Schedule 40 with fittings. Joints to be solvent-cemented. Soil & waste piping installed below floor slab shall be plastic pipe type "PVC" Schedule 40 with fittings. Joints to be solvent-cemented. (Contractor to use plenum rated materials as required.)

1.03 CLEANOUTS

A. The plumbing contractor shall provide cleanouts, of same size as line served up to 4", at changes in direction of drain lines of 90 degrees or more, and elsewhere as required by the Plumbing Code.

B. Cleanouts shall have raised heads and shall be located and installed so that they may be readily accessible and removable for cleaning lines.

1.04 WATER PIPING

A. Plumbing contractor shall supply and install valves, a complete system of hot and cold water piping, plumbing fixtures, etc., all as shown on Plumbing Drawings.

B. Hot and cold water piping shall be hard drawn copper tubing Type "L". Joints to be 95-5 solder.

C. Hot and cold water piping shall be PEX-A tubing with compression joints and fittings.

D. Pipe sizes shall be not less than sized indicated on Drawings and specified herein.

1.05 GAS PIPING

A. Exposed Gas piping shall be schedule 40 black steel pipe.

B. Concealed Gas piping shall be corrugated stainless flexible piping.

B. Plumbing contractor shall commence with gas pipe to equipment as shown on plans. Plumbing contractor shall be responsible for any charges for the complete gas service.

1.06 CONNECTIONS TO FIXTURES

A. All branches from mains shall be equipped with stop and waste valves.

B. Connections shall be made from the top of the mains, unless otherwise specified. Branches shall drain toward the mains. The piping installation shall be so arranged that the entire system can be drained through accessible valves at low points. The plumbing contractor shall provide the necessary valves.

1.07 UNIONS

A. Where union connections are installed on pipe 1½" in diameter and smaller, they shall be of brass composition "B".

B. All piping shall be provided at intervals with unions to permit alterations and repairs.

1.08 VALVES

A. The entire plumbing system shall be provided with valves, so located that they may be operated, repaired and/or replaced with a minimum of effort.

B. The following list of valves is intended only as a guide to the plumbing contractor: (ALL DOMESTIC VALVES TO BE (LF) - LEAD FREE)

1. Ball Valves, ¼" - 4" - WATTS FBV-3C Series.
2. Gate Valves, ¼" - 4" - WATTS LFWGV Series.
3. Stop and Waste Valves, 1" and smaller - WATTS Series LFSS & LFSWS.

C. Valves shall be Crane, Jenkins, Red & White or Nibco, located as shown on Drawings, and on all branch mains.

1.09 PIPE SUPPORTS

A. Piping shall be supported form the building structure by means of approved hangers and supports. Pipeline shall be supported to maintain required grading and pitching of lines to prevent vibration and to secure piping in place, and shall be so arranged as to provide for expansion and contraction.

B. The spacing of hangers shall not be greater than 4 ft. center to center for pipe smaller than 1".

C. Vertical lines shall be adequately supported at their bases by a suitable hanger in place with the horizontal line near the riser.

D. Hangers for copper tubing shall be copper plated, equal to Grinnell No. 97 CP. All other hangers shall be adjustable clevis hangers. Hanger rods shall have machine threads.

1.10 PIPE SLEEVES AND RECESSES

A. The plumbing contractor shall furnish and install sleeves in connection with all piping passing through masonry. Plumbing contractor shall be responsible for location, setting and anchoring of sleeves in a substantial manner so that they will not be displaced. Plumbing pipes run in sleeves shall be made Fireproof by Contractor. Fire protection system shall meet the UL listing for existing wall or floor construction.

B. Where recesses are required for piping, the plumbing contractor shall instruct the various trades as to sizes and locations required in advance of construction.

1.11 ESCUTCHEONS

A. Where un-insulated, exposed pipes pass through floors, finished walls, or finished ceilings, they shall be fitted with neat, heavy spun or stamped escutcheons, firmly secured to pipes. Escutcheons shall be of sufficient outside diameter to amply cover the sleeve openings for pipes. Escutcheons shall be nonferrous metal, chromium plated.

1.12 INSULATION OF PIPING

A. All insulation and covering on pipe and tubing to meet the IBC2021 for flame spread index.

B. Hot Water Lines: (Per IECC) All hot water pipes shall be insulated with closed cell elastomeric insulation, R-3 minimum thickness, as manufactured by Armstrong Corporation, Johns-Manville, or approved thermal equal.

C. Cold Water Lines: (Per IECC) All cold water pipes, including horizontal and vertical runs, shall be insulated with closed cell elastomeric insulation, ½" thick, with factory applied vapor barrier jacket, as manufactured by Armstrong Corporation, Johns-Manville, or approved thermal equal.

1.13 PLUMBING FIXTURES - GENERAL REQUIREMENTS

A. Plumbing contractor shall furnish and install all fixtures in accordance with the Drawings and with the schedule.

B. Where escutcheons are not furnished with plumbing fixtures, the plumbing contractor shall supply them.

C. Each fixture shall be separately trapped, using the type and size of trap required by the Plumbing Code.

D. Unless otherwise specified, faucets and all exposed fittings shall be chromium plated.

E. All low voltage wire for fixtures and or faucets shall be provided and installed by contractor.

F. The Owner and the Architect shall be the final judges as to whether fixtures fulfill the requirements of the specifications and as to whether they are of a suitable quality.

1.14 INSTALLATION

A. Plumbing contractor shall furnish, set, seal and connect all fixtures and accessories shown and specified, including all necessary supports, connections, fittings and parts required to fully complete the plumbing installation.

1.15 ACCESS DOORS

A. Where access doors in walls or ceilings are required for valves, traps, etc., they shall be of flush type with anchor, frame and hinged panel as manufactured by Milcor or Zurn. Access doors shall be furnished by plumbing contractor to the General Contractor who will install them.

1.16 TESTING AND START-UP

A. Test all drainage piping hydraulically, including vents to a minimum of 10 feet head for 2 hours without leakage or any drop in water level.

B. Test all hot and cold water piping hydraulically to 150 psig for 24 hours without leaks or loss of pressure.

C. Flush all piping to remove all dirt and debris before starting up any system.

D. Check the water flow at faucet. Run full flow tests for each system and correct any noise, vibration, or water hammer.

E. Perform disinfection of domestic water piping system, as required by Code.

F. Test the final gas distribution entirely as per Code.

FIXTURE SCHEDULE

P1 FIXTURE: "TOTO", Drake Two-Piece High-Efficiency Tornado Flush Elongated Toilet, Model #CST776CEG#(G), (Right trip lever / Cefiontect glaze), Vitreous china, 14 15/16" Regular Height, 1.28 Gal. flush, Elongated bowl, Floor mounted (12" Rough-in), Floor outlet. Provide Braided supplies, stops & escutcheons.

Seat: "CENTOCO" #1600-001 Residential Elongated bowl, closed front seat with cover.

P2 FIXTURE: "TOTO", Undermount Lavatory, Model #LT587 Vitreous china, size: 19"x15" with overflow. Provide braided supplies, stops & escutcheons, 1¼" 17 gauge chrome P-trap.

Trim: "PIONEER" Single handle lavatory faucet w/pop-up drain, Model #3LG260H, Chrome finish faucet with ½ GPM aerator accessory.

P3 FIXTURE: "Kohler", Bryant, Self-rimming lavatory, Model #K-2699-4 Vitreous china, 4" center holes. Provide braided supplies, stops & escutcheons, 1¼" 17ga chrome P-trap, Front overflow, 20⅜"x16½" size.

Trim: "PIONEER" Single handle lavatory faucet w/pop-up drain, Model #3LG260H, Chrome finish faucet with ½ GPM aerator accessory.

P4 FIXTURE: "Comfortdesigns", AcrylX One-piece ADA Tub/Shower with simulated tile finish, Model #XST 6032TS-BASE-FWB (LESS ADA TRIM), size OD 60"x33"x77", Provided with 19 gauge SS curtain rod & full wood blocking.

Trim: "PIONEER" Legacy, Single Handle Shower Trim Set, Model #T-4LG100, Chrome finish, 1.75 gpm shower head with arm & escutcheon, tub spout.

Valve #V-2400B, Pressure balanced valve, inlet stops, Provide drain assembly.

P5 FIXTURE: "Elkay", Lustertone Series Undermount Countertop Single Bowl Sink, Model ELUH2416, 18 Gauge Stainless Steel with rear drain, size: 26½"L x 18½"W x 8"D, Provide braided supplies, stops & escutcheons, 1½" 17ga chrome P-trap, Provide In-Sink-Erator Model Badger 5 (½hp) Provide with rated cord & plug.

Trim: "PIONEER" Legacy, Single handle pull-down kitchen faucet, Model #2LG250, Single Hole, Chrome finish kitchen faucet, swing spout with 1.5 gpm flow rate.

P6 "Rheem", Model #XE40T06ST45U1, Performance Electric Water Heater, 40 Gallon Nominal Capacity, Non-Simultaneous double element operation, single-phase, 240V, 4500/4500 Watt, 21 GPH recovery at 90°F temperature rise, glass lined, thick permafoam insulation, anode protection and a T&P relief valve. Tall Model , Dimensions: Height - 60¾", Diameter - 19½", UEF = .93
Provide "Oatey" Aluminum pan w/1"drain (Pan to be 4" larger than unit).

P7 "PPP" Metal Laundry Box, Model #MM-500 MLB. With water control valve for automatic washing machines, water hammer arrestors, ½" copper tubing and 2" drain. Provide pan -Oatey" Model #34067, 27" x 28" Plastic pan with 1" drain connection.

Provide Fire Rated Models as required at locations with rated walls.

FD Commercial Floor Drain - "Sioux Chief" Adjustable On-Grade Floor Drain #832-25P-SR-V, Sch. 40 Hub Connection 2x3 with Stainless Steel ring & strainer top. Provide trap shield inserts or ½"trap primer connection (see plans for types).

FD Commercial Floor Drain - "Sioux Chief" Halo Adjustable Floor Drain with Deck Flange, #822-M-F3DSR, Clamping collar, 3" No-Hub, round stainless steel strainer, Provide trap shield inserts or ½"trap primer connection (see plans for types).

WCO "J.R. Smith" #4400 Series-U Duco C.I. Spigot Ferrule with cast bronze taper thread plug. Chrome plated bronze round frame and vandal proof screws.

HBE ANSI/ASSE 1019: Non-freeze, self-draining type with chrome plated hose thread spout, removable key and integral vacuum breaker. Hydrant shall be Model #25C an manufactured by Woodford or approval equal.

FCO Floor Cleanout - "Sioux Chief" #834-(3A)or(4A) SR, Sch. 40 Hub Connection with Stainless Steel round adjustable top.

Commercial Floor Drain - "Sioux Chief" Halo Adjustable Floor Drain with Deck Flange, #822-M-F3DSR, Clamping collar, 3" No-Hub, round stainless steel strainer, Provide trap shield inserts or ½"trap primer connection (see plans for types).

FGCO "J.R. Smith" #4250 Series Duco C.I. cleanout and double flanged housing with heavy duty secured scoriated cover with lifting device.

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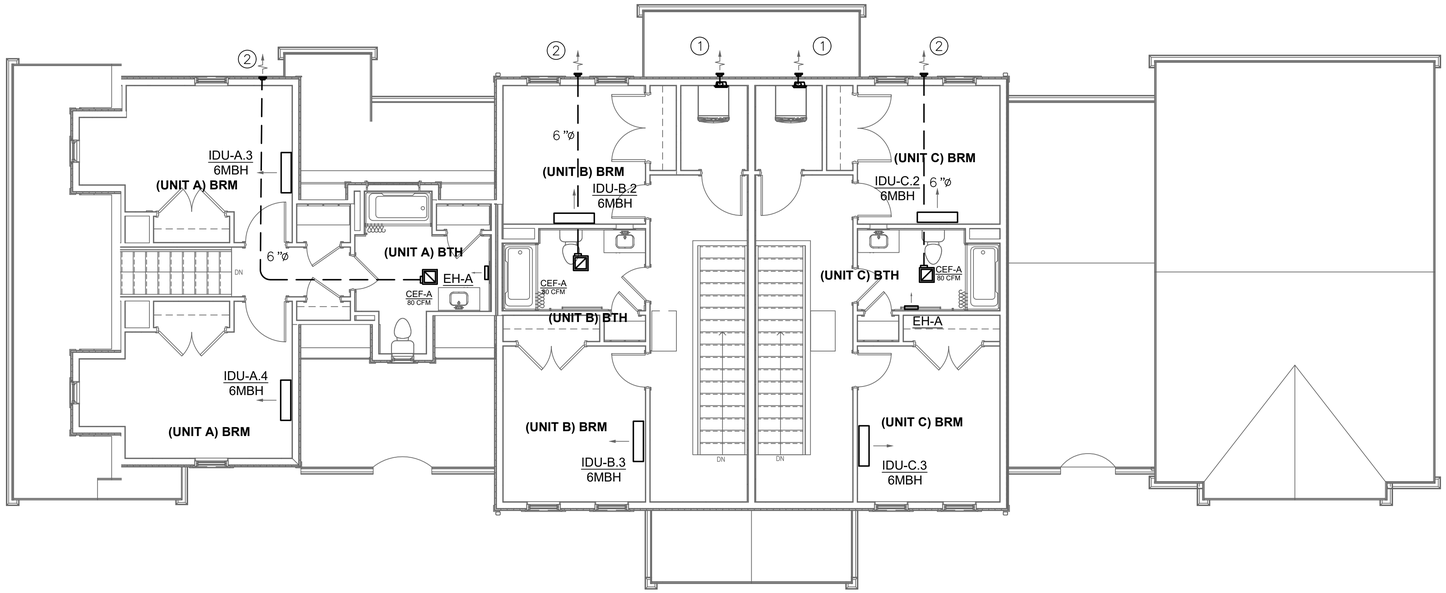
Issue Dates:

N

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Plumbing Specifications & Notes

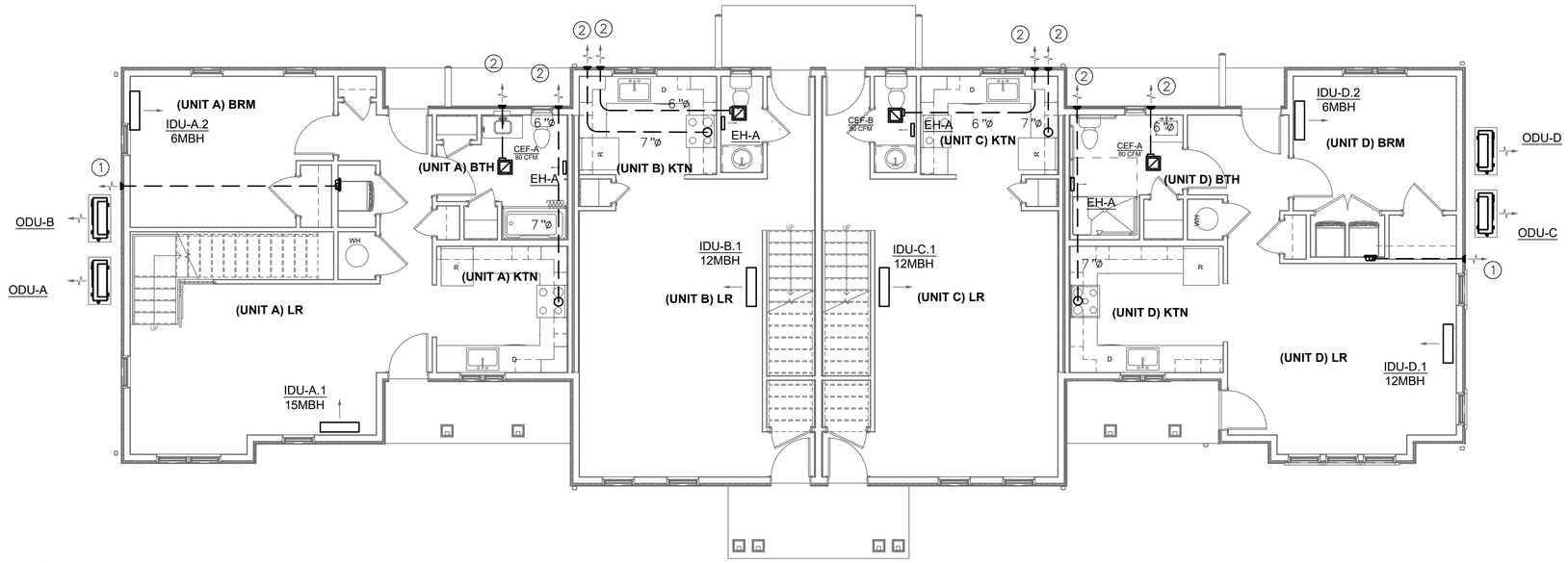
P4.0



2 / A1.1 **LEVEL 2**
3/16" = 1'-0"

MECHANICAL DRAWING KEYNOTES:

1. DRYER WALL VENT MODEL DWV4. MATCH COLOR TO EXTERIOR WALL.
2. GREENHECK 6" HOODED WALL CAP MODEL WC6. MATCH COLOR TO EXTERIOR WALL.



1 / A1.1 **LEVEL 1**
3/16" = 1'-0"

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MECHANICAL FLOOR PLANS

M1.1

EXHAUST FAN SCHEDULE

TAG	MANUFACTURER/MODEL	CFM	ESP in. WC	HP	WATTS	RPM	VOLTS/Ø	SOUND DATA	WEIGHT LBS	CONTROL	SERVICE	ACCESSORIES
CEF-A	PANASONIC FV-0511VKL2	80	0.25	-	5.3	1113	120/1	0.4 SONES	10	SWITCH	FULL BATHROOM	1
CEF-B	PANASONIC FV-0511VKL2	50	0.25	-	3.2	918	120/1	0.5 SONES	10	SWITCH	HALF BATHROOM	1

NOTES:
1. SELECTION BASED ON PANASONIC. ACCEPTABLE APPROVED EQUIVALENTS BY BROAN, GREENHECK & COOK.
2. MOTORS 1 HP AND ABOVE SHALL BE PREMIUM EFFICIENCY.
3. CEILING FANS INSTALLED IN KITCHENS SHALL BE 6 FEET MINIMUM FROM COOKING EQUIPMENT, FOLLOW MANUFACTURER'S INSTALLATION MANUAL

ACCESSORIES:
1. PROVIDE CEILING RADIATION DAMPER.

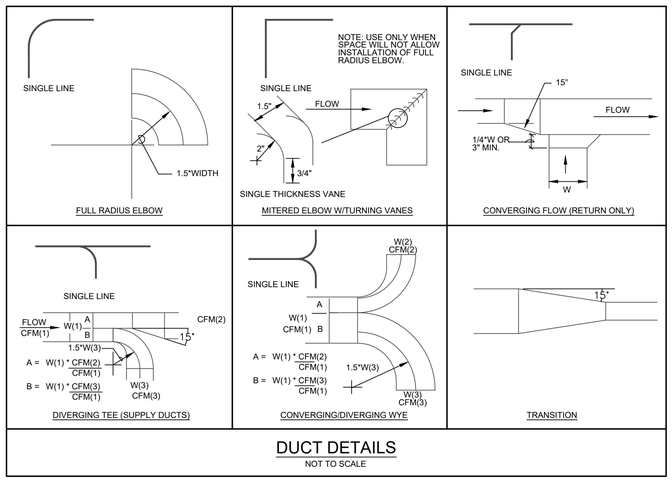
ELECTRIC HEATER SCHEDULE

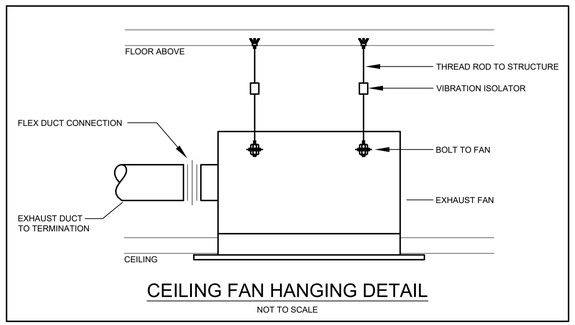
TAG	MANUFACTURER/MODEL	CFM	VOLTS	PHASE	POWER KW	ELEMENT LENGTH FEET	AMPS	ACCESSORIES
EH-A	QMARK 25126	-	120	1	0.5	2.5	4.2	BUILT-IN THERMOSTAT OR DOUBLE POLE LINE VOLTAGE THERMOSTAT.

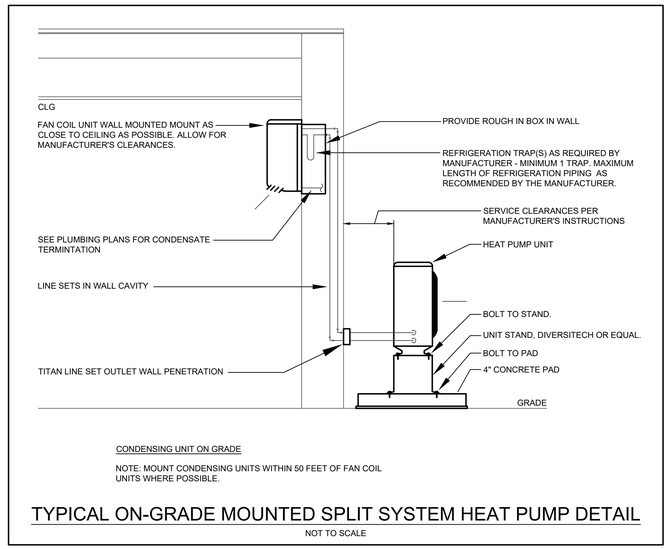
NOTES:
1. SELECTIONS BASED ON QMARK. EQUIVALENT MANUFACTURES BY INDEECO & BERKO.
2. HEATERS IN RATED STAIRWELLS TO BE SURFACE MOUNTED.
3. HEATERS OVER 3.5 KW TO BE PROVIDED WITH PROGRAMMABLE THERMOSTATS IN ENERGY STAR CERTIFIED BUILDINGS.

SYMBOLS LIST

AD	ACCESS DOOR
BC	BRANCH CONTROLLER
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
BTU/H or BTUH	BRITISH THERMAL UNIT PER HOUR
CD	CONDENSATE
CEF	CEILING EXHAUST FAN
CFM	CUBIC FEET PER MINUTE
COP	COEFFICIENT OF PERFORMANCE
DB	DRY BULB & DRYER BOX
DN	DOWN
EA	EXHAUST AIR
EDB	ENTERING AIR DRY BULB
EER	ENERGY EFFICIENCY RATIO
EH	ELECTRIC HEATER
E.S.P.	EXTERNAL STATIC PRESSURE
EWB	ENTERING AIR WET BULB
EXH	EXHAUST
FA	FRESH AIR
FLA	FULL LOAD AMPS
GPM	GALLONS PER MINUTE
HP	HORSEPOWER or HEAT PUMP
IDU	INDOOR UNIT
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
IN.W.G. / IN.W.C.	INCHES WATER GAUGE / INCHES WATER COLUMN
KW	KILOWATTS
LDB	LEAVING AIR DRY BULB
LWD	LEAVING AIR WET BULB
MBH	1,000 BTU/H's
MCA	MINIMUM CIRCUIT AMPS
MOP / MOCP	MAXIMUM OVER-CURRENT PROTECTION
OA	OUTDOOR AIR
ODU	OUTDOOR UNIT
REFRIG	REFRIGERANT
RET	RETURN
SEER	SEASON ENERGY EFFICIENCY RATIO
SUP	SUPPLY
TOD	TOP OF DUCT
T.S.P.	TOTAL STATIC PRESSURE
VRF	VARIABLE REFRIGERANT FLOW
WPD	WATER PRESSURE DROP
MD	MOTORIZED DAMPER
VD	VOLUME DAMPER
FSD	FIRE SMOKE DAMPER
FD	FIRE DAMPER
T	THERMOSTAT, MOUNT 54" AFF
OR	SUPPLY OR FRESH AIR DUCT (UP/DOWN)
OR	RETURN OR EXHAUST AIR DUCT (UP/DOWN)
	ELBOW, TURNED DN
	ELBOW, TURNED UP
	CONNECT TO EXISTING
	NEW EQUIPMENT
	NEW DUCT
	EXHAUST DUCT
	REMOVE
	EXISTING TO REMAIN
	NEW FLEX DUCT
R	REFRIGERANT PIPE
12x8	DUCT SIZE (WIDTH x HEIGHT) IN INCHES
8"Ø	ROUND DUCT SIZE (DIAMETER) IN INCHES
	CEILING EXHAUST FAN
	DRYER BOOSTER FAN
	SUPPLY DIFFUSER W/ AIR FLOW DIRECTION & RETURN GRILLE. SEE SCHEDULE FOR INFO.
	2 WAY DIFFUSER (BLOCK OFF FLOW IN DIRECTION OF HATCHED AREAS)
CEF-A 30 CFM	FAN TAG CONTINUOUS CFM FLOW
D-9X9 170 CFM	DIFFUSER TYPE & SIZE TOTAL CFM







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PROJECT DESCRIPTION:

LITCHFIELD HOUSING
LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

Issue Dates:

N

BID DOCUMENTS
04/28/2026

MECHANICAL DETAILS

M2.1

MITSUBISHI ELECTRIC TRANE HVAC US: CITY MULTI VRF INDOOR UNIT SCHEDULE

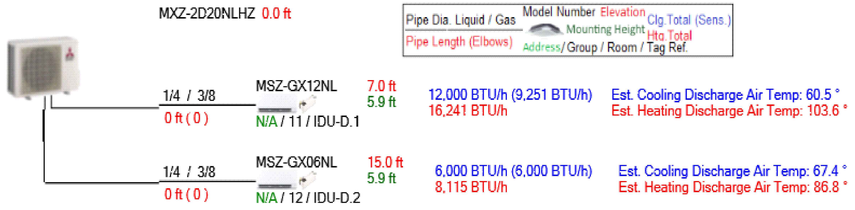
System Tag	Room Name	Tag Reference	M-NET Address	Model	Type	Nominal Cooling Capacity (BTU/h)	Nominal Heating Capacity (BTU/h)	Cooling Design Entering Temp DB/WB (°F) / [Water in temp]	Heating Design Entering Temp DB/WB (°F) / [Water in temp]	Corrected Capacity						Estimated Cooling Coil LAT (°F) / [LWT]	Estimated Heating Coil LAT (°F) / [LWT]	Refrig Pipe Dim Liquid/Suction (inch)	Fan Speed Setting	Peak Fan Airflow (cfm) / [Design gpm G(US)/min]	Max Fan ESP Setting 208V/230V (IN WG)	Voltage / Phase	Power Cooling 208V/230V (kW)	Power Heating 208V/230V (kW)	Electrical MCA/MFS	Condensate Removal Rate (gal/hr)	Notes / Options
										Cooling Diversity Full/Partial (See Note 5, 6)	Cooling Total Capacity (BTU/h)	Cooling Sensible Capacity (BTU/h)	Heating Diversity Full/Partial (See Note 5, 6)	Heating Capacity (BTU/h)												
ODU-A		IDU-A.1	1	PKFY-L15NLMU-A	Wall - Mounted	15,000	17,000	80.0/67.0	70	FULL DEMAND	15,020.1	9,901.0	FULL DEMAND	16,992.7	53.5	114.6	1/4 / 1/2	HIGH	353		208/230V/1-phase	0.04	0.03	0.24/0.24/15	1.86	1, 2, 3, 4
ODU-A		IDU-A.2	2	PKFY-L06NLMU-A	Wall - Mounted	6,000	6,700	80.0/67.0	70	FULL DEMAND	6,008.1	4,257.2	FULL DEMAND	6,697.1	58.9	102.5	1/4 / 1/2	HIGH	191		208/230V/1-phase	0.02	0.01	0.24/0.24/15	0.74	1, 2, 3, 4
ODU-A		IDU-A.3	3	PKFY-L06NLMU-A	Wall - Mounted	6,000	6,700	80.0/67.0	70	FULL DEMAND	6,008.1	4,257.2	FULL DEMAND	6,697.1	58.9	102.5	1/4 / 1/2	HIGH	191		208/230V/1-phase	0.02	0.01	0.24/0.24/15	0.74	1, 2, 3, 4
ODU-A		IDU-A.4	4	PKFY-L06NLMU-A	Wall - Mounted	6,000	6,700	80.0/67.0	70	FULL DEMAND	6,008.1	4,257.2	FULL DEMAND	6,697.1	58.9	102.5	1/4 / 1/2	HIGH	191		208/230V/1-phase	0.02	0.01	0.24/0.24/15	0.74	1, 2, 3, 4
ODU-B		IDU-B.1	N/A	MSZ-GX12NL	Wall - Mounted	11,000	12,500	80.0/67.0	70	FULL DEMAND	11,000.0	8,862.8	FULL DEMAND	14,569.7	61.3	100.1	1/4 / 3/8	HIGH	448		208/230V/1-phase			Powered by Outdoor	0.22	1, 2, 3, 4
ODU-B		IDU-B.2	N/A	MSZ-GX06NL	Wall - Mounted	5,500	6,250	80.0/67.0	70	FULL DEMAND	5,500.0	5,500.0	FULL DEMAND	7,284.9	68.4	85.1	1/4 / 3/8	HIGH	448		208/230V/1-phase			Powered by Outdoor	0.68	1, 2, 3, 4
ODU-B		IDU-B.3	N/A	MSZ-GX06NL	Wall - Mounted	5,500	6,250	80.0/67.0	70	FULL DEMAND	5,500.0	5,500.0	FULL DEMAND	7,284.9	68.4	85.1	1/4 / 3/8	HIGH	448		208/230V/1-phase			Powered by Outdoor	0.68	1, 2, 3, 4
ODU-C		IDU-C.1	N/A	MSZ-GX12NL	Wall - Mounted	11,000	12,500	80.0/67.0	70	FULL DEMAND	11,000.0	8,862.8	FULL DEMAND	14,569.7	61.3	100.1	1/4 / 3/8	HIGH	448		208/230V/1-phase			Powered by Outdoor	0.22	1, 2, 3, 4
ODU-C		IDU-C.2	N/A	MSZ-GX06NL	Wall - Mounted	5,500	6,250	80.0/67.0	70	FULL DEMAND	5,500.0	5,500.0	FULL DEMAND	7,284.9	68.4	85.1	1/4 / 3/8	HIGH	448		208/230V/1-phase			Powered by Outdoor	0.68	1, 2, 3, 4
ODU-C		IDU-C.3	N/A	MSZ-GX06NL	Wall - Mounted	5,500	6,250	80.0/67.0	70	FULL DEMAND	5,500.0	5,500.0	FULL DEMAND	7,284.9	68.4	85.1	1/4 / 3/8	HIGH	448		208/230V/1-phase			Powered by Outdoor	0.68	1, 2, 3, 4
ODU-D		IDU-D.1	N/A	MSZ-GX12NL	Wall - Mounted	12,000	14,670	80.0/67.0	70	FULL DEMAND	12,000.0	9,250.9	FULL DEMAND	16,241.2	60.5	103.6	1/4 / 3/8	HIGH	448		208/230V/1-phase			Powered by Outdoor	0.35	1, 2, 3, 4
ODU-D		IDU-D.2	N/A	MSZ-GX06NL	Wall - Mounted	6,000	7,330	80.0/67.0	70	FULL DEMAND	6,000.0	6,000.0	FULL DEMAND	8,115.0	67.4	86.8	1/4 / 3/8	HIGH	448		208/230V/1-phase			Powered by Outdoor	0.74	1, 2, 3, 4

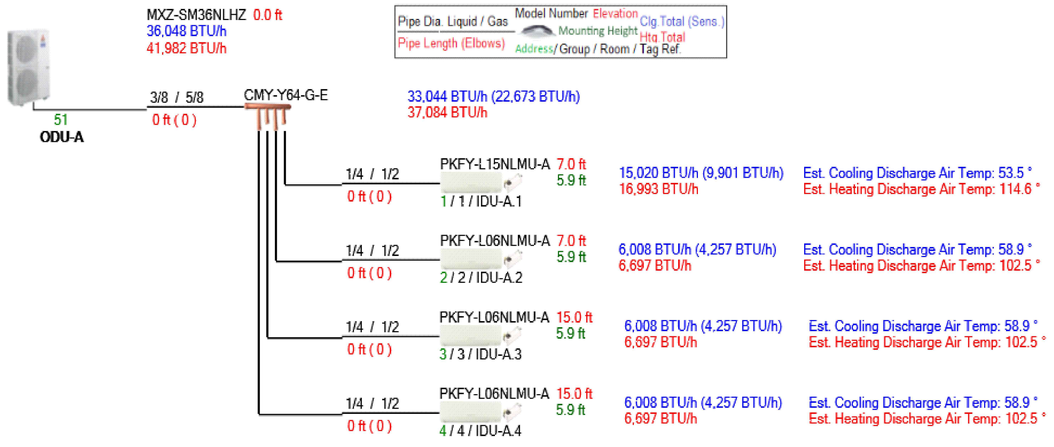
Notes & Options:
1 Nominal cooling capacities are based on indoor coil EAT of 80/67°F (DB/WB), outdoor of 95°F (DB)
2 Nominal heating capacities are based on indoor coil EAT of 70°F (DB), outdoor of 43°F (WB)
3 See outdoor unit schedule for outdoor ambient conditions, connected capacity, and other factors associated with corrected capacities
4 See schematic piping/control diagram for indication of required indoor unit remote controllers, system controllers, and integration devices.
5 Full demand corrected capacity includes de-rate associated with indoor vs. outdoor connected capacity indicated on outdoor unit schedule for associated system.
Partial corrected capacity assumes sufficient diversity exists such that the connected capacity de-rate does not apply.
It is the designer's responsibility to ensure "Diamond System Builder" is set in the appropriate output capacity setting (full demand/partial demand) prior to generating this
6 It is recommended to always base heating corrected capacity on full demand.

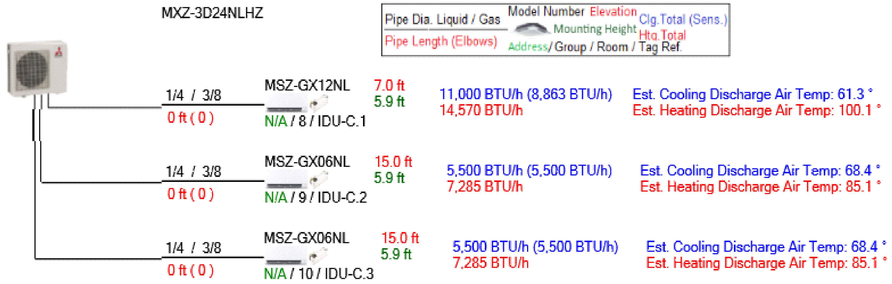
MITSUBISHI ELECTRIC TRANE HVAC US: CITY MULTI VRF OUTDOOR UNIT SCHEDULE

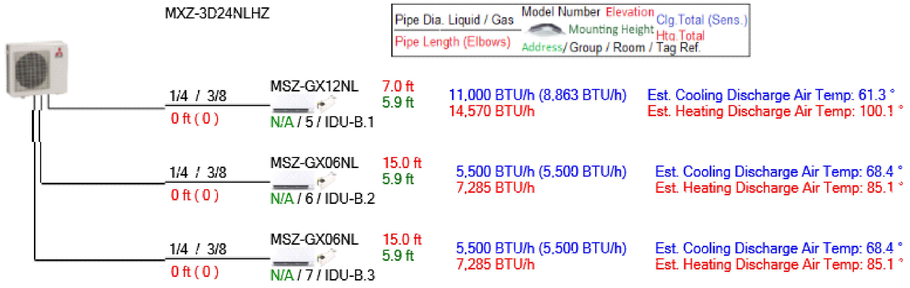
System Tag	Tag Reference	M-NET Address	Model Number	Modules	Nominal Cooling Capacity (BTU/h)	Nominal Heating Capacity (BTU/h)	Cooling Efficiency (I)EER [SEER]	EER2 [SEER2]	Heating COP @ 47°F [HSPF]	Nom System Connected Capacity (% of NOM)	Design Cooling Outdoor Temp DB (°F)	Design Heating Outdoor Temp WB (°F)	Max Pipe Length from BC or 1st Joint (feet)	Corrected Cooling Total Capacity (BTU/h)	Corrected Heating Capacity (BTU/h)	Inverter Driven Compressor Type / Quantity	Preliminary Added Field Charge (See Note 5)	Electrical-Per Module 208/230 or [460V]				Notes / Options
																		Voltage / Phase	MCA 208/230 or [460V]	RFS	MOCP	
ODU-A	ODU-A	51	MXZ-SM36NLHZ	P36	36,000	42,000	0	12.7 [20.35]	3.850	91.7 %	95.0	43.0	0.0	36,048.3	41,982.1	SCROLL/1	11.1	208/230V / 1-phase	45	40	80	1, 2, 3, 4, 5
ODU-B	ODU-B	N/A	MXZ-3D24NLHZ		22,000	25,000	0 [0]	13 [20]	3.5 [10]	100.0 %	95.0	43.0	0.0	22,000.0	29,139.5		0.0	208/230V / 1-phase		40		1, 2, 3, 4, 5
ODU-C	ODU-C	N/A	MXZ-3D24NLHZ		22,000	25,000	0 [0]	13 [20]	3.5 [10]	100.0 %	95.0	43.0	0.0	22,000.0	29,139.5		0.0	208/230V / 1-phase		40		1, 2, 3, 4, 5
ODU-D	ODU-D	N/A	MXZ-2D20NLHZ		18,000	22,000	0 [0]	13.5 [19.3]	4 [10]	90.0 %	95.0	43.0	0.0	18,000.0	24,356.2		0.0	208/230V / 1-phase		40		1, 2, 3, 4, 5

Notes & Options:
1 Nominal cooling capacities are based on indoor coil EAT of 80/67°F (DB/WB), outdoor of 95°F (DB)
2 Nominal heating capacities are based on indoor coil EAT of 70°F (DB), outdoor of 43°F (WB)
3 Efficiency values for EER, IEER, COP are based on AHRI 1230 test method for mixture of ducted & non-ducted indoor units.
4 For systems with multiple modules, refrigerant pipe dimensions indicate total system combined piping downstream of module twinning.
5 Added field charge listed is in addition to factory charge, this must be updated based upon final as-built piping layout.









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PROJECT DESCRIPTION:

LITCHFIELD HOUSING
LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

Issue Dates:

BID DOCUMENTS
04/28/2026

HEAT PUMP SCHEDULES & DETAILS

M2.2

MECHANICAL SPECIFICATIONS

HVAC SPECIFICATIONS

PART 1 - GENERAL

1.01 GENERAL

Architect's General Conditions are a part of this Division. All work shall be done in strict accordance with all applicable Codes and Regulations of local and State Agencies and utility companies. This Contractor shall bear the cost of all fees, permits, licenses and taxes and any utility company charges in connection with the work.

1.02 SCOPE

Provide a complete HVAC system and all other equipment as shown on the Drawings and herein specified, including but not limited to:

Ductwork and Accessories
Insulation
Ceiling Exhaust Fans
Electric Heaters
Mini Split Heat Pumps
Programmable Thermostats
Air Balancing and Testing

System shall be complete in all respects, tested, accepted and ready to operate.

1.03 SUBMITTALS

Submit six (6) copies of manufacturer's drawings of the following to the Architect for approval:

Ductwork and Accessories
Insulation
Ceiling Exhaust Fans
Electric Heaters
Mini Split Heat Pumps
Programmable Thermostats
Air Balancing and Testing

Submit information on any other equipment to be used when requested by the Architect or the Engineer.

Submit six (6) copies of ductwork shop drawings showing clearances with structural members and major equipment of other trades.

1.04 GUARANTEE

Materials, equipment and workmanship shall have standard warranty against defects in material and workmanship. Any failure due to defective or improper material, equipment, workmanship or design shall be made good, forthwith, by and at the expense of the Contractor, including any damage done to areas, materials and other systems resulting from this failure. Guarantee period shall extend for one year from the Date of Acceptance.

The HVAC Contractor shall provide a guarantee covering all material and workmanship for 1 year following the Date of Acceptance.

1.05 DEFINITION:

As used on Contract Documents, the term "to provide" shall mean "to furnish, install and connect completely in the specified or approved manner the item or material described."

1.06 OPERATING AND MAINTENANCE INSTRUCTIONS

Upon completion of the project, the HVAC Contractor shall fully instruct the Owner in the operation, adjustment and maintenance of all equipment and systems furnished.
The HVAC Contractor shall provide the Owner with three (3) sets of complete maintenance and operating instructions, and technical data, in booklet form, of all equipment and devices furnished in the Contract.

1.07 CONTRACTOR'S INSPECTION

Contract Drawings are diagrammatic and do NOT show every required fittings, etc. The Contractor shall familiarize himself with the existing site conditions, prior to submitting a bid, and shall include all equipment and accessories necessary for complete and operational systems.

The HVAC Contractor shall examine the Architectural Drawings and the drawings and specifications of other trades to determine the extent of work. The HVAC Contractor shall visit the site and become familiar with the project and local conditions before submitting a Bid. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the Contract. If so directed by the Architect or Engineer, the HVAC Contractor shall, without extra charge, make reasonable modifications in the layout to prevent conflict with those of other trades and for proper installation of work. Refer to the Architect's Reflected Ceiling Plan for exact location of air diffusers, registers and grilles. The Contractor shall coordinate locations of equipment with all trades before starting construction. Any modifications to the equipment layout required for installation shall be performed at no additional cost to the Owner.

1.08 ARRANGEMENT OF WORK:

Work shall be coordinated between trades to prevent unnecessary interference. Work shall present a neat coordinated appearance. Install work as necessary to provide maximum possible headroom, adequate clearance and ready access for inspection, operation, safe maintenance and repair, and Code conformance. Where space appears inadequate, consult the Owner before proceeding with installation.

1.09 INSURANCE:

Furnish insurance certificates required by the Owner.

1.10 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS:

Obtain and pay for permits, inspections, licenses and certificates required. Work of this Contract shall meet State Building Code, State Fire Safety Code and other laws, rules and regulations of local, State and Federal authorities: National Fire Protection Association #90A and #90B; BOCA Mechanical & Plumbing Codes; National Electrical Code; and local utility company requirements. Pay utility company backcharges. Equipment, materials and components listed UL Product Directories, shall bear UL labels.

1.11 FILTERS AND STRAINERS:

Any equipment which operates with filters or strainers shall have filters and strainers installed at all times.

1.12 WORK BY OTHERS:
The HVAC Contractor shall install all motors provided under the HVAC Contract ready for wiring by the Electrical Contractor and shall furnish and deliver to the Electrical Contractor wiring diagrams for all motor starters for installation and wiring. The HVAC Contractor shall furnish motor starters, relays and all temperature control equipment to the Electrical Contractor for installation and wiring. The General Contractor shall perform all excavation, backfill, chases, openings, cutting, patching and finish work.

1.13 FIELD MEASUREMENTS

The HVAC Contractor shall verify in the field all measurements necessary for the work. Verify thermostat locations with the Owner before installation.

The HVAC Contractor shall coordinate supply and return ductwork locations with structure, conduits and piping of other trades.

1.14 WORKMANSHIP:

Equipment and materials shall be new, of first quality, selected and arranged to fit properly into spaces indicated. Install equipment and materials in accordance with manufacturer's recommendations.

1.15 COORDINATION WITH OWNER:

All work shall be scheduled with the Owner. Interruptions in the Owner's access to the site shall be subject to Owner limitations of date and duration.

1.16 OPERATION OF SERVICES AND UTILITIES:

Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Owner as to date, time of day, and duration before any service is interrupted. Notify the Owner of estimated duration of shutdown period at least ten days in advance of proposed shutdown.

1.17 PROTECTION:

Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material or damaging water. Protect existing property, equipment and finishes from damage. Repair, to original condition, existing property that has been damaged during execution of the work.

1.18 CLEANING:

Work site must be kept clean. Rubbish, debris and leftover or excess materials shall be removed daily.

1.19 LUBRICATION:

No equipment shall be operated for temporary service or testing without proper lubrication. Items requiring lubrication shall be left freshly and fully lubricated at time of substantial completion. Furnish Owner with one (1) complete new set of any special lubrication devices required for servicing, e.g., grease guns, fittings and adapters.

1.20 PAINTING:

Mechanical and electrical equipment and materials shall have prime coat and standard manufacturer's finish. Painting of finished surfaces (excluding ceilings) shall be one coat primer and two coats vinyl base semi-gloss paint. Painting of ceiling shall be one coat primer and two coats flat white paint. Primer shall be omitted on repainting of existing surfaces.

1.21 CUTTING AND PATCHING:

Areas disturbed by new construction or demolition shall be patched and repaired to match existing conditions. Patch painting of ceilings shall include painting of entire ceiling of room involved. Patch painting of other surfaces shall be to nearest cut-off point.

1.22 WATERPROOFING:

Provide necessary sleeves, caulking and flashing required to make openings waterproof.

1.23 FIREPROOFING:

At closing of each working day, provide temporary firestopping in every opening cut between floors and through fire-rated partitions. Permanent firestops shall be provided around sleeves and at other permanent openings through fire-rated partitions and floors, as required. Materials used for fire stopping shall be Class A "Incombustible" with firestopping capabilities equal to that of adjacent construction.

1.24 BASES AND SUPPORTS:

Provide necessary supports, pads, bases and piers required. Equipment shall be securely attached to building structure in acceptable manner. Attachments shall be of strong and durable nature, as determined by the Owner.

1.25 ACCESS:

Provide adequately sized access doors, for access to concealed equipment and components requiring servicing or inspection. Doors shall have fire ratings equal to construction in which they are located.

1.26 TESTS:

Perform tests required by the Owner, legal authorities and agencies. Each piece of equipment, including motors and controls, shall be operated continuously for minimum one-hour test. Correct all defects appearing during tests, and repeat tests until no defects are disclosed. Final tests shall be made in the Owner's presence.

1.27 SEISMIC REQUIREMENTS:

Submit four (4) copies of a final inspection report which includes: sealed certification by a Structural Engineer with P.E. registration in the state in which the project is located, that:

Engineer has reviewed the project.
Engineer has approved the use of the devices for the particular applications.
The devices satisfy Specification- and Code-mandated seismic criteria.

PART 2 - PRODUCTS
2.01 MATERIALS AND METHODS

Piping:

Cooling coil condensate drain piping shall be Type "M" copper with wrought copper pressure fittings and 95/5 solder. Use 45 degree lateral type fittings and long sweep elbows. No tees or short radius elbows will be allowed.

Water system piping shall be run level. Take-offs shall be made from the bottom of the main or at 45 degrees from the bottom of the main. Provide drain valves at all low points; manual air vents at all high points. Use eccentric reducers on horizontal lines, flush to top of the pipe.

Provide unions and shut-off valves at all equipment, coils, etc.

All piping shall be supported in a manner to prevent vibration or sagging. In no case shall the hanger spacing exceed the distances listed in the BOCA National Mechanical Code.

Refrigerant piping shall be Type L refrigerant service copper. 3/4" outside dimensions or smaller may be soft drawn meeting ASTM BS280. Larger sizes shall be hard drawn meeting ASTM B88.62 ACR. Fitting shall be wrought or forged copper solder pattern for hard drawn tube meeting ANSI B16.26.SAE. Joints on all lines shall be brazed with 45% silver brazing alloy.

Valves:

Gate (2-1/2" and smaller): Jenkins #990, Nibco #T-111, Stockham #100.
Gate (3" and larger): Jenkins #651-C, Nibco #F-617-0, Stockham #G-623.
Globe: Jenkins #106-A, Nibco #T-235, Stockham #B-22.
Check (for base-mounted pump discharge): Milwaukee #1400, Nibco #W-960, Stockham #WG-970.
Check (2" and smaller): Jenkins #352, Nibco #T-433-Y, Hammond #B946.
Check (2-1/2" and larger): Jenkins #295, Nibco #F91 8, Hammond #R1124.
Ball Valves: Jenkins #900-T, Apollo #70-100, Jamesbury #A11TT.
Butterfly: Stockham #LD-711, Keystone #AR-2.
Balancing: Armstrong CBV or Bell & Gossett "Circuit Setter".
Hose Bibb Drain: Nibco #74, Central Brass #548.

Ductwork:

All ductwork and accessories shall be constructed, fabricated and installed in accordance with the latest SMACNA Standards manuals for low pressure ducts, fire damper installations and flexible ductwork.

Flexible ducts to air outlets shall be Flexible Ductwork-Buckley Flexmaster Aluminum Triple-lock, UL Listed, Class 1 air duct with 1 inch thick fiberglass insulation and polyethylene jacket.

Note: Where the static pressure or maximum velocity of a supply, return or exhaust duct system exceeds the standard pressure classifications given above, the ductwork shall be constructed to the pressure class which exceeds that system's pressure.

Install adequate balancing; e.g., volume dampers, extractors, etc., as required to balance each system to its design airflows.

Furnish and install UL listed fire dampers and access doors at all duct penetrations of walls, floors, partitions, etc., that are required to have a fire resistance rating. Fire dampers, sleeves, access doors, etc., shall be constructed and installed in conformance to the manufacturer's instructions, NFPA 90A and the Building Official.

Insulation Systems:

Piping systems shall be insulated in accordance with the following schedule (all conforming to IECC-2021):

Low Pressure Condensate Piping:
3/4" through 2" pipe: 1" fiberglass
2-1/2" through 4" pipe: 1-1/2" fiberglass
In concealed areas not within return air plenums: 3/4" thick expanded rubber insulation may be used on lines up to 2" diameter.
Piping exposed on roof, hot water, chilled water and heat recovery piping:
All sizes: 3" thick expanded cellular glass or 1-1/2" thick urethane foam pipe insulation. Provide watertight aluminum jacket with fitting and valve covers.
Insulate refrigeration piping with glass fiber insulation with minimum density of 3-1/2 pcf and maximum K value of 0.25 @ 75 degree F:
Manville "Micro-lok", Owens-Corning "Pipe Insulation SSL-2", Knauf "Pipe Insulation", or equal. 1" and smaller - 1" thickness: 1-1/4" and larger - 1-1/2" thickness: Type FG.
Insulate all cooling coil condensate piping with 1/2" thick, fiberglass pipe insulation, rated for use in return air plenum. Seal all joints. Miter insulation at all tees and elbows. Insulation to have vapor seal jacket.
Insulate all chilled water pump casings with 1" thick expanded rubber insulation. Install insulation such that an effective vapor barrier is formed to prevent condensation.
Refrigerant piping to be pre jacketed type insulation, minimum ½" thick.
Piping insulation shall run continuous through all pipe hangers. Protect insulation with 12" long sheet metal insulation protection saddles. Under saddles of piping 1-1/2" or larger, substitute rigid/calcium silicate insulation inserts for the specified insulation and of the same thickness as the specified insulation.
Maintain the integrity of all piping vapor barriers. Should condensation develop on any pipe, fitting, etc., the Contractor shall correct the vapor barrier break and replace any insulation damaged by moisture.

Duct System Insulation:

Duct systems shall be insulated in accordance with the locally enforced codes (all conforming to IECC-2021):
Concealed air conditioning supply, return & outside air duct systems shall be insulated with 1-1/2" (minimum R-6) thick fiberglass duct wrap with continuous vapor barrier.
Insulate exposed air conditioning supply, return & outside air ductwork and all insulated air ducts in mechanical rooms with 3" (minimum R-12) thick, rigid foil-faced fiberglass duct insulation.
Insulate all exhaust air ductwork on cold side of dampers, all plenums connected to louvers with 2" thick, rigid foil-faced fiberglass duct insulation.
Acoustical lining, where shown, shall be nominal 1" thick fiberglass duct liner, unless otherwise indicated.
Make-up air and exhaust air ducts exposed on roof to be insulated with 3" fiberglass insulation. Use either 3" thick acoustical duct liner or 2" rigid fiberglass board with 2" acoustical liner on duct inside face.
Kitchen exhaust to be project specific.

2.02 EXHAUST FANS

Ceiling mounted exhaust air fan shall be of the centrifugal direct drive type. The fan housing shall be constructed of heavy gauge galvanized steel. The housing interior shall be lined with 1 inch acoustical insulation. The outlet duct collar shall include an aluminum backdraft damper and shall be spring loaded. Grille shall be constructed of high impact polystyrene and shall be non-yellowing, access for wiring shall be external. The motor disconnect shall be internal and of the plug in type. The motor shall be mounted on vibration isolators. The fan wheel shall be the forward curved centrifugal type and dynamically balanced. Fan shall be amca certified for sound and air performance and shall be UL listed.

2.03 DIFFUSERS AND REGISTERS

Drawings based on products manufactured by Price. Terminals manufactured by Metalaire, Barber-Colman, and Anemostat will be considered. Diffusers and registers shall be tested in accordance with ANSI/ASHRAE Standard 70-1991. Base terminal application on space noise criteria (NC) of 30 maximum. Terminal finish shall be white, except where noted to be selected by the Architect. The finish shall be an anodic acrylic paint baked at 315 F for 30 minutes. The pencil hardness shall be HB to H. The paint shall also pass the ASTM D-2794 Reverse Impact Cracking Test with a 50 inch pound force applied. The paint must pass a 250-hour ASTM-870 water immersion test.

2.04 ELECTRIC HEATERS

HEATER ASSEMBLY: The heater assembly which fits into the back box shall consist of a fan panel upon which is mounted all of the operational parts of the heater.

HEATING ELEMENT: The heating element shall be of the non-glowing design consisting of a special resistance wire enclosed in a steel sheath to which steel plate fins are copper brazed. It shall be warranted for 5 years.

FAN AND MOTOR: Fan shall be five-bladed aluminum. Fan motor shall be totally enclosed.

FAN DELAY SWITCH: Fan control shall be of bi-metallic, snap-action type and shall activate fan after heating element reaches operating temperature. The fan shall continue to operate after the thermostat is satisfied and until the heating element is cool.

THERMOSTAT: The tamper-proof thermostat shall be of the bi-metallic snap-action type with enclosed contacts. It shall be completely concealed behind the front cover to become tamper proof.

THERMAL CUTOUT: A manual-reset thermal cutout shall be built into the system to shut off the heater in the event of overheating.

POWER ON/OFF SWITCH: A double-pole, single throw ON/OFF switch shall be mounted on the back box for positive disconnect of power supply. It will be completely concealed behind the front grille panel.

PNEUMATIC/ELECTRIC SWITCH: An optional pneumatic/electric switch shall be available for use with energy management systems employing pneumatic pressure devices for controlling comfort levels and set-back operations.

LOW VOLTAGE RELAYS: 24-volt and 120 volt low voltage relays shall be available as optional equipment to control 208, 240 or 277 volt heaters in conjunction with central energy control systems. The built-in thermostat can then be used as one of the thermostats in an automatic night set back operation.

BACK BOX: The back box shall be designed for duty as a recessed rough-in box in either masonry or frame installations, and is also used with the surface mounting frame in surface mounting installations. The back box shall be 20-gauge galvanized steel and shall contain knockouts through which power leads are brought.

FRONT PANEL: The front panel shall be of the bar grille type and shall be constructed of 16-gauge cold-rolled steel, welded into a uniform grille to direct the warmed air toward the The front grille shall be surrounded by a decorative satin-finish aluminum "picture" frame.

THREE PIECE DESIGN: The heater shall be made up of a back box, a heater assembly and a front panel.

2.04 MINI SPLIT HEAT PUMP

INDOOR UNIT
General:
The wall-mounted indoor unit shall be factory assembled, wired and run tested. Contained within the unit shall be all factory wiring, piping, electronic modulating linear expansion device, control circuit board and fan motor. The unit shall have a self-diagnostic function, 3-minute time delay mechanism, an auto restart function, and a test run switch. Indoor unit and refrigerant pipes shall be charged with dehydrated air before shipment from the factory.

Unit Cabinet:
All casings, regardless of model size, shall have the same Munsell 1.0Y 9.2/0.4 white finish. Multi directional drain and refrigerant piping offering four (4) directions for refrigerant piping and two (2) directions for draining are required. There shall be a separate back plate which secures the unit firmly to the wall.

Fan:
The indoor fan shall be statically and dynamically balanced to run on a single motor with permanently lubricated bearings. A manual adjustable guide vane shall be provided with the ability to change the airflow from side to side (left to right). An integral, motorized, multi-position, horizontal air sweep vane shall provide for uniform air distribution, up and down. Vane shall have 5 selectable positions plus AUTO (Controls position based upon mode, microprocessor shall automatically determine the vane angle to provide the optimum room temperature distribution) and SWING (Continuously moves up and down). In OFF mode the horizontal vane shall return to the closed position. The indoor unit shall include an AUTO fan setting capable of maximizing energy efficiency by adjusting the fan speed based on the difference between controller set-point and space temperature. The indoor fan shall be capable of five (5) speed settings, Low, Mid1, Mid2, High and Auto.

Filter:
Return air shall be filtered by means of an easily removable, washable filter.

Coil:
The indoor unit coil shall be of nonferrous construction with smooth plate fins on copper tubing. The tubing shall have inner groves for high efficiency heat exchange. All tube joints shall be brazed with silver alloy. The coils shall be pressure tested at the factory. A sloped, corrosion resistant condensate pan with drain shall be provided under the coil. A drain pan level switch (SS610E), designed to connect to the control board, shall be provided, if required, and installed in the condensate pan to prevent condensate from overflowing.

Electrical:
The unit electrical power shall be 208-230 volts, 1-phase, 60 hertz. The system shall be equipped with A-Control - a system directing that the indoor unit be powered directly from the outdoor unit using a 3-wire, 14 gauge AWG connections plus ground. The indoor unit shall not have any supplemental electrical heat elements.

Controls:
The unit shall include an IR receiver for wireless remote control flexibility Indoor unit shall compensate for the higher temperature sensed by the return air sensor compared to the temperature at level of the occupant when in HEAT mode. Disabling of compensation shall be possible for individual units to accommodate instances when compensation is not required. Control board shall include contacts for control of external heat source. External heat may be energized as second stage when the space temperature is 1.8°F from set point.

OUTDOOR UNIT
General:
Outdoor units are specifically designed to work with the wall mounted, ducted, 4-way cassette, ceiling suspended and multi-position air handler indoor units. The connected indoor unit shall be of the same capacity as the outdoor unit. The outdoor units must have a thermally fused powder coated finish. The outdoor unit shall be completely factory assembled, piped and wired. Each unit shall be run tested at the factory. If an alternate manufacturer is selected, any additional material, cost, and labor to install additional lines shall be incurred by the contractor. Contractor responsible for ensuring alternative brand compatibility in terms of availability, physical dimensions, weight, electrical requirements, etc. Outdoor unit shall have a sound rating no higher than 53 dB(A). If an alternate manufacturer is selected, any additional material, cost, and labor to meet published sound levels shall be incurred by the contractor. Refrigerant lines from the outdoor unit to the indoor units shall be insulated in accordance with the installation manual. The outdoor unit shall meet performance requirements per schedule and be within piping limitations & acceptable ambient temperature ranges as described in respective manufacturers' published product catalogs. Non-published product capabilities or performance data are not acceptable. Four-legged outdoor unit mounting systems shall be provided by manufacturer. Stand shall be made from 7 gauge plate steel with thermally fused polyester powder coat finish that meets ASTM D3451-06 standards. Stands shall be provided with galvanized mounting hardware and meets all ASCE 7 overturning safety requirement.

Unit Cabinet:
The casing shall be fabricated of galvanized steel, bonderized, finished with an electrostatically applied, thermally fused acrylic or polyester powder coating for corrosion protection. Assembly hardware shall be cadmium plated for weather resistance. Cabinet color shall be Munsell 3Y 7.8/1.1. Easy access shall be afforded to all serviceable parts by means of removable panel sections. Two (2) mild steel mounting feet, traverse mounted across the cabinet base pan, welded mount, providing four (4) slotted mounting holes shall be furnished. Assembly shall withstand lateral wind gust up to 155 MPH to meet applicable weather codes.The casing(s) shall be fabricated of galvanized steel, bonderized and finished. Outdoor unit components shall be coated with the Seacoast Protection Coating (Brine Spray - BS coating) to protect components from premature corrosion due to a seacoast environment. Coating shall be applied to components before original outdoor unit assembly to ensure manufacturer quality standards are not compromised and shall meet the following minimum requirements:Acrylic-Polyester Resin coating on External Panels, Acrylic Resin coating on External Panel Base, Support Plate and Compressor Cover, Anti-Corrosion, Hydrophilic coating on heat exchanger fins, Anti-Humidification paint coating on printed circuit boards. The outdoor unit shall be tested in compliance with JRA9002 such that no unusual rust shall develop after 960 hours of salt spray testing. Panels on the outdoor unit shall be scratch free at system startup. If a scratch occurs the salt spray protection is compromised and the panel should be replaced immediately

Fan:
1, 1.5, 2 and 2.5 ton units shall be furnished with a single direct drive propeller type fan. 3, 3.5 ton units shall be furnished with a two (2) direct drive propeller type fans. The outdoor unit fan motor(s) shall be a direct current (DC) motor and have permanently lubricated bearings. The fan motor shall be mounted for quiet operation. The fan shall be provided with a raised guard to prevent contact with moving parts. The outdoor unit shall have horizontal discharge airflow.

Refrigerant and Refrigerant Piping
R454B refrigerant shall be required for systems. Polyolester (POE) oil—widely available and used in conventional domestic systems—shall be required. Prior to bidding, manufacturers using alternate oil types shall submit material safety data sheets (MSDS) and comparison of hygroscopic properties for alternate oil with list of local suppliers stocking alternate oil for approval at least two weeks prior to bidding. Refrigerant piping shall be phosphorus deoxidized copper (copper and copper alloy seamless pipes) of sufficient radial thickness as defined by the equipment manufacturer and installed in accordance with manufacturer recommendations. All refrigerant piping must be insulated with ½" closed cell, CFC-free foam insulation with flame-Spread Index of less than 25 and a smoke-development Index of less than 50 as tested by ASTM E 84 and CAN / ULC S-102. R value of insulation must be at least 3. Refrigerant line sizing shall be in accordance with manufacturer specifications.

Coil:
The outdoor unit coil shall be of nonferrous construction with lanced or corrugated plate fins on copper tubing. The coil shall be protected with an integral metal guard. Refrigerant flow from the outdoor unit shall be regulated by means of an electronically controlled, precision, linear expansion valve. All refrigerant lines between outdoor and indoor units shall be of annealed, refrigeration grade copper tubing, ARC Type, meeting ASTM B280 requirements, individually insulated in twin-tube, flexible, closed-cell, CFC-free (ozone depletion potential of zero), elastomeric material for the insulation of refrigerant pipes and tubes with thermal conductivity equal to or better than 0.27 BTU-inch/hour per Sq Ft / °F, a water vapor transmission equal to or better than 0.08 Perm-inch and superior fire ratings such that insulation will not contribute significantly to fire and up to 1" thick insulation shall have a Flame-Spread Index of less than 25 and a Smoke-development Index of less than 50 as tested by ASTM E 84 and CAN / ULC S-102. All refrigerant connections between outdoor and indoor units shall be flare type.

Compressor:
The compressor shall be a high performance, hermetic, inverter driven, variable speed, dual rotary Type. The compressor motor shall be direct current (DC) type equipped with a factory supplied and installed inverter drive package. The compressor will be equipped with internal thermal overload protection. To prevent liquid from accumulating in the compressor during the off cycle, a minimal amount of current shall be automatically, intermittently applied to the compressor motor windings to maintain sufficient heat to vaporize any refrigerant. No crankcase heater is to be used. Filters, sight glasses, and traps shall not be used, and no additional refrigerant oil shall be required. The compressor shall be mounted so as to avoid the transmission of vibration. The outdoor unit shall have an accumulator and high pressure safety switch.

Electrical:
The outdoor unit electrical power supply shall be 208/230 volts, 1-phase, 60 hertz. The unit shall be capable of satisfactory operation within voltage limits of 198 volts to 253 volts. The outdoor unit shall be controlled by microprocessors located in the indoor unit and outdoor unit. A 12 to 24 volt DC data stream shall communicate between the units providing all necessary information for full function control. The outdoor unit shall be equipped with Pulse Amplitude Modulation (PAM) compressor inverter drive control for maximum efficiency with minimum power consumption.

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PROJECT DESCRIPTION:

LITCHFIELD HOUSING
LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

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N

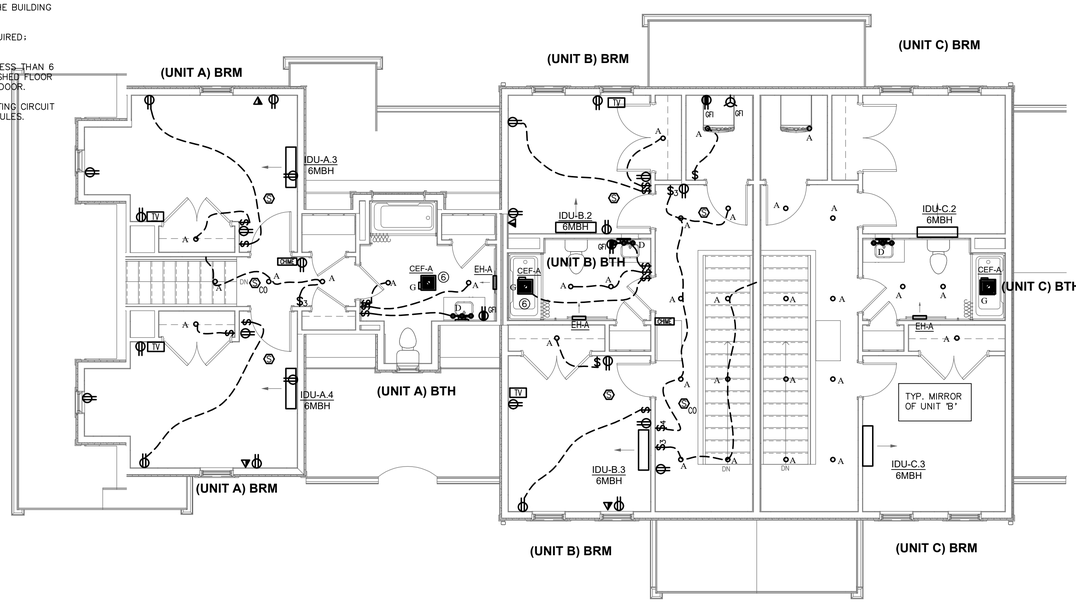
BID DOCUMENTS
04/28/2026

MECHANICAL SPECIFICATIONS

M3.1

ELECTRICAL LIGHTING NOTES:

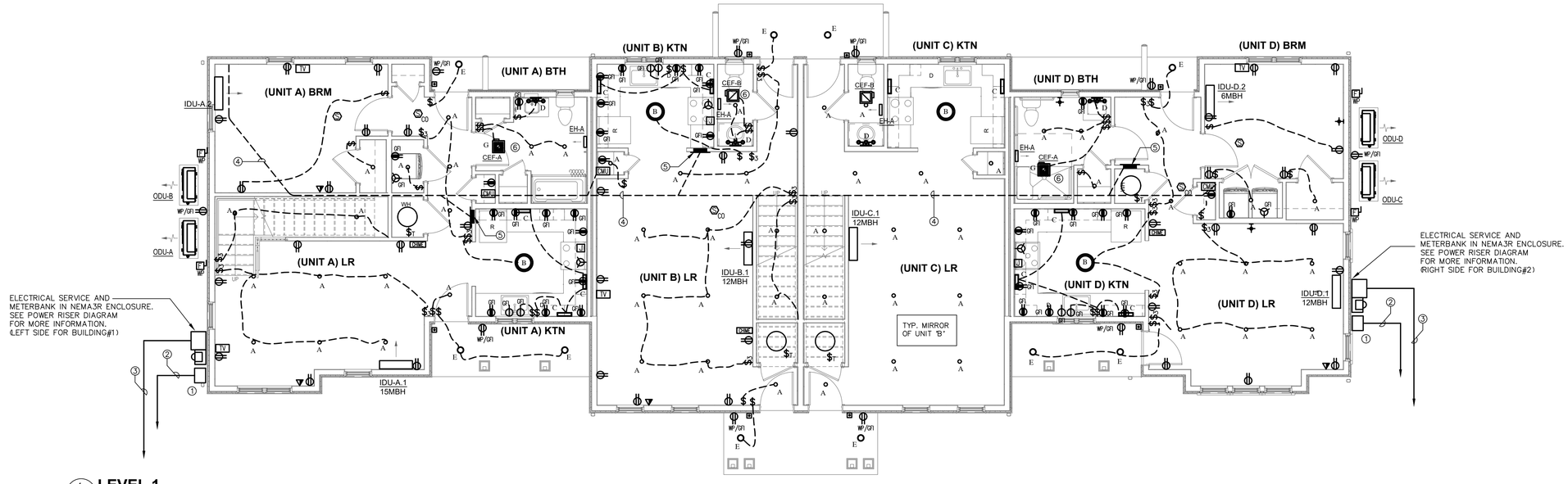
1. REFER TO ARCHITECTURAL REFLECTIVE CEILING PLANS FOR EXACT LOCATIONS OF CEILING MOUNTED LIGHT FIXTURES. REFER TO ARCHITECTURAL ELEVATIONS FOR MOUNTING HEIGHT OF WALL MOUNTED LIGHT FIXTURES INDOORS AND OUTDOORS.
2. ALL LIGHT FIXTURES IN CEILING SHALL BE BRACED TO THE BUILDING STRUCTURE AND NOT TO THE CEILING.
3. PROVIDE IC HOUSING FOR LIGHTING FIXTURE WHERE REQUIRED: COORDINATE WITH ARCHITECTURAL PLANS.
4. FLOOR PROXIMITY EXIT SIGNS SHALL BE MOUNTED NOT LESS THAN 6 INCHES AND NO MORE THAN 18 INCHES ABOVE THE FINISHED FLOOR AND WITH THE NEAREST EDGE WITHIN 4 INCHES OF THE DOOR.
5. STAIRWELL LIGHTS SHALL BE CONNECTED TO SAME LIGHTING CIRCUIT BOTTOM OF STAIRWELL TO TOP. REFER TO PANEL SCHEDULES.



2 E1.1 **LEVEL 2**
3/16" = 1'-0"

HVAC SUBCONTRACTOR SHALL FURNISH COMMUNICATION/POWER CABLE BETWEEN HEAT PUMP ODU AND EACH IDU. ELECTRICAL CONTRACTOR SHALL INSTALL AND CONNECT THIS CABLE IN ACCORDANCE WITH CODE AND INSPECTOR REQUIREMENTS. COORDINATE ROUTING WITH HVAC LINESETS AND EQUIPMENT LOCATIONS.

KEYED NOTES	
①	PROPOSED TEL/DATA DEMARC BOX IN NEMA3R ENCLOSURE. COORDINATE EXACT LOCATION IN FIELD AND COORDINATE WITH LOCAL UTILITY.
②	PROPOSED 3-4" CONDUITS FOR TEL/DATA PER UTILITY CO REQUIREMENTS. COORDINATE EXACT LOCATION AND ROUTE IN FIELD.
③	SECONDARY CABLE IN UNDERGROUND CONDUIT/S TO UTILITY TRANSFORMER. SEE CIVIL DRAWING SHEET C-X FOR EXACT ROUTE OF SECONDARY AND LOCATION OF TRANSFORMER.
④	PROPOSED 2" UNDERSLAB PVC SCH 80 CONDUIT FOR EACH APARTMENT LOADCENTER FEEDER AND ANOTHER 2"C FOR TEL/DATA. COORDINATE EXACT ROUTE IN FIELD.
⑤	PROPOSED LOCATION OF LOADCENTER IN EACH APARTMENT AND COMPACT MEDIA ENCLOSURE LOCATE DIN CLOSET. SEE TYPICAL UNIT PLAN FOR MORE INFORMATION.
⑥	PROVIDE UNSWITCHED POWER TO EXHAUST FAN FOR 24/7 ON AT LOW CFM AND A SWITCH FOR HIGH CFM OPERATION. COORDINATE WITH HVAC PLAN FOR FAN SPEED.



1 E1.1 **LEVEL 1**
3/16" = 1'-0"

ELECTRICAL POWER NOTES:

1. ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL AND 2022 CT STATE BUILDING CODES AND ALL APPLICABLE AMENDMENTS.
2. ALL WORK IS NEW UNLESS OTHERWISE NOTED.
3. REFER TO ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND LOCATIONS. VERIFY WITH ARCHITECTURAL PLANS AND COORDINATE WITH THE GENERAL CONTRACTOR PRIOR TO ROUGH-IN. NOTIFY THE ARCHITECT/G.C. OF ANY DISCREPANCIES IF DISCREPANCIES ARE NOTED. DO NOT PROCEED WITHOUT ARCHITECTURAL APPROVAL.
4. HVAC AND PLUMBING EQUIPMENT ARE SHOWN FOR REFERENCE ONLY. E.C. SHALL COORDINATE EXACT LOCATIONS AND POWER REQUIREMENTS OF APPLICABLE HVAC AND PLUMBING EQUIPMENT WITH MECHANICAL DRAWINGS. E.C. SHALL MAKE ALL FINAL CONNECTIONS TO ALL CONTROLS, OWNER-SUPPLIED EQUIPMENT, MECHANICAL AND PLUMBING EQUIPMENT AS NEEDED.
5. E.C. SHALL PROVIDE DISCONNECT SWITCHES AND STARTERS AS REQUIRED FOR ALL EQUIPMENT WHERE THE DISCONNECT SWITCH IS NOT PROVIDED WITH THE EQUIPMENT OR BY OTHERS.
6. E.C. SHALL SUPPLY AND INSTALL FEEDERS, FUSES AND CIRCUIT BREAKERS TO MATCH THE NAME-PLATE RATING OF ALL EQUIPMENT. THIS SHALL BE INCLUDED IN THE INITIAL BID PROPOSAL AND NO EXTRAS WILL BE ACCEPTED.
7. ELECTRICAL OUTLET PLATE GASKETS SHALL BE INSTALLED IN ALL RECEPTACLES, SWITCHES OR OTHER ELECTRICAL BOXES IN WALLS SEPARATING CONDITIONED AND UNCONDITIONED SPACE.
8. ALL HOMERUNS TO PANELBOARDS DESIGNATED SHALL CONSIST OF 2#12 AWG & 1#12 GROUND IN 3/4" CONDUIT TO PANEL LABELED AT THE HOMERUN SYMBOL UNLESS OTHERWISE NOTED.
9. CONNECT ALL BATHROOM EXHAUST FANS TO ASSOCIATED LIGHT SWITCH UNLESS OTHERWISE NOTED.
10. ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO HVAC CONTROL PANELS AND OTHER DEVICES REQUIRING 120V POWER AND ABOVE; COORDINATE ALL REQUIREMENTS WITH DIV 15
11. ALL CIRCUITS BACK TO PANEL SHALL REQUIRE 20A-1 POLE BREAKERS UNLESS OTHERWISE NOTED
12. PROVIDE REQUIRED POWER FOR DOOR BELL CHIME/PUSH BOTTON FROM NEAREST GENERAL RECEPTACLE.
13. HEIGHT OF UNIT PANELS IN HC AND HC ADAPTABLE UNITS SHALL BE 48" AFF TO HIGHEST BREAKER.
14. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS OF PLUGS AND LIGHTS IN BATHROOMS.
15. PROVIDE TWO SINGLE RECEPTACLES UNDER SINK FOR DISHWASHER AND DISPOSAL. CONNECT EACH TO INDIVIDUAL GFCI CIRCUIT BREAKER.
16. PROVIDE AFCI TYPE BREAKERS FOR ALL 120 VOLT 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES IN DWELLING UNITS AS DIRECTED PER NEC.
17. PROVIDE TAMPER PROOF OUTLETS FOR ALL 15A AND 20A CIRCUITS €XCLUDING OUTLETS LOCATED IN DEDICATED SPACES IE REFRIGERATORS, DISHWASHER, WASHING MACHINES AND THE LIKE) IN LIVING SPACES OF DWELLING UNITS, CHILD CARES AREAS AND EDUCATIONAL AREAS.
18. PROVIDE GFI RECEPTACLES FOR ALL 15A AND 20A CIRCUITS IN DWELLING UNIT KITCHENS, BATHROOMS AND LAUNDRY AREAS.
19. ALL 15-AND 20 AMPERE 125- AND 250-VOLT NON-LOCKING TYPE RECEPTACLES SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES. 2020 NFPA 70 NEC 406.12(5).
20. ELECTRICAL PANEL AND OTHER DISCONNECTING MEANS NEED UNIQUE IDENTIFIERS. 2020 NFPA NEC 110.22(A).
21. PROVIDE CODE COMPLIANCE WIRING BETWEEN OUTDOOR AND INDOOR HEAT PUMP UNITS PER MANUFACTURE'S SPECIFICATION. COORDINATE WITH HVAC SUB FOR ALL POWER REQUIREMENTS.

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PROJECT DESCRIPTION:

LITCHFIELD HOUSING
LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

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04/28/2026

ELECTRICAL FLOOR PLANS

E1.1

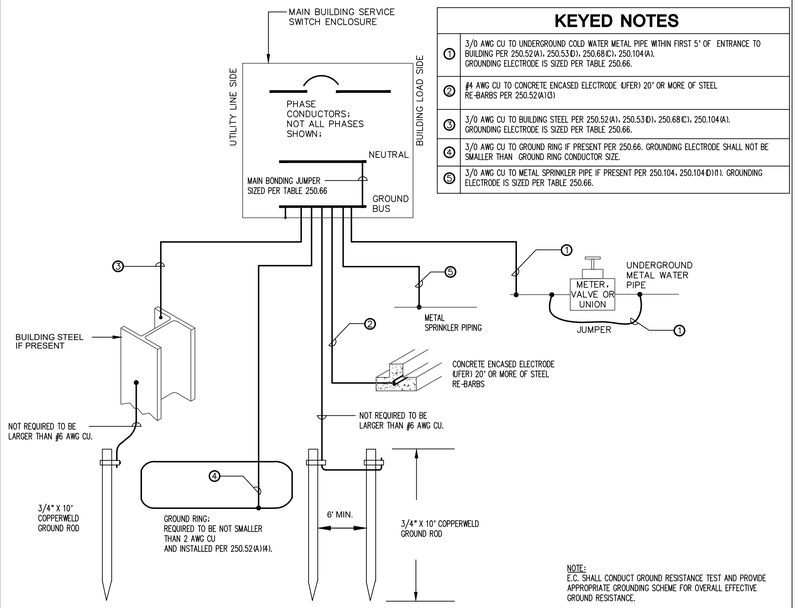
NOTE:

GROUND RING AND TWO (2) GROUNDING RODS SHALL SERVE AS MAIN SYSTEM GROUND WHEN CONDITIONS ALLOW WHILE BONDING TOGETHER ALL OTHER SYSTEMS TO SERVICE GROUNDING SYSTEMS PER NEC. WHERE CONDITIONS DO NOT ALLOW E.C. SHALL PROVIDE OTHER GROUNDING ELECTRODES PER ARTICLE 250.22. IN ALL THREE PRIMARY GROUNDING ELECTRODES SHALL BE UTILIZED UPON COMPLETION WITH ALL SYSTEMS BONDED TOGETHER.

ALL OTHER METAL PARTS LIKE INTERNAL CU PLUMBING, MAIN SPRINKLER PIPE, WATER MAIN, GAS PIPES ETC SHALL BE BONDED WITH MAIN SERVICE GROUNDING WITH APPROPRIATE GROUNDING CONDUCTOR SIZED PER NEC TABLE 250.66.

THE GROUND RODS SHALL BE INSTALLED SUCH THAT AT LEAST 10 FEET OF LENGTH IS IN CONTACT WITH THE SOIL. IT SHALL BE DRIVEN TO A DEPTH OF NOT LESS THAN 10 FEET EXCEPT THAT, WHERE ROCK BOTTOM IS ENCOUNTERED, THE ROD SHALL BE DRIVEN AT AN OBLIQUE ANGLE NOT TO EXCEED 45 DEGREES FROM THE VERTICAL OR SHALL BE BURIED IN A TRENCH THAT IS AT LEAST 2 1/2' DEEP.

CONNECT MAIN SERVICE GROUNDING BUS TO BUILDING STEEL IF APPLICABLE. BUILDINGS WITHOUT STEEL STRUCTURE SHALL HAVE COPPER GROUNDING DIRECTLY CONNECTED TO GROUNDING GRID SYSTEM.



KEYED NOTES

1	3/0 AWG CU TO UNDERGROUND COLD WATER METAL PIPE WITHIN FIRST 5' OF ENTRANCE TO BUILDING PER 250.52(A), 250.53(D), 250.68(C), 250.104(A). GROUNDING ELECTRODE IS SIZED PER TABLE 250.66.
2	#4 AWG CU TO CONCRETE ENCASED ELECTRODE (UFER) 20' OR MORE OF STEEL RE-BARBS PER 250.52(A)(3)
3	3/0 AWG CU TO BUILDING STEEL PER 250.52(A), 250.53(D), 250.68(C), 250.104(A). GROUNDING ELECTRODE IS SIZED PER TABLE 250.66.
4	3/0 AWG CU TO GROUND RING IF PRESENT PER 250.66. GROUNDING ELECTRODE SHALL NOT BE SMALLER THAN GROUND RING CONDUCTOR SIZE.
5	3/0 AWG CU TO METAL SPRINKLER PIPE IF PRESENT PER 250.104, 250.104(D)(1). GROUNDING ELECTRODE IS SIZED PER TABLE 250.66.

NOTE:
E.C. SHALL CONDUCT GROUND RESISTANCE TEST AND PROVIDE APPROPRIATE GROUNDING SCHEME FOR OVERALL EFFECTIVE GROUND RESISTANCE.

BUILDING ELECTRICAL SERVICE GROUNDING AND BONDING DETAIL

NO SCALE

FEEDER SIZING CHART

(REFER TO FEEDER LEGEND FOR APPLICATION OF THIS CHART)

AMPERAGE	NUMBER PARALLEL SETS	PHASE CONDUCTORS		NEUTRAL CONDUCTOR(S)		GROUND CONDUCTOR(S)		RACEWAY SIZE	
		COPPER	AL	STANDARD	ALUMINUM	COPPER	ALUMINUM	COPPER	ALUM
50	1	(3) #8	—	(1) #8	—	(1) #10	—	1"	—
60	1	(3) #6	(3) #4	(1) #6	(1) #4	(1) #10	(1) #8	1 1/4"	1 1/4"
70	1	(3) #4	(3) #3	(1) #4	(1) #3	(1) #8	(1) #6	1 1/4"	1 1/2"
80	1	(3) #4	(3) #2	(1) #4	(1) #2	(1) #8	(1) #6	1 1/4"	1 1/2"
90	1	(3) #3	(3) #2	(1) #3	(1) #2	(1) #8	(1) #6	1 1/2"	2"
100	1	(3) #3	(3) #1	(1) #3	(1) #1	(1) #8	(1) #6	1 1/2"	2"
110	1	(3) #2	(3) #1/0	(1) #2	(1) #1/0	(1) #6	(1) #4	2"	2"
125	1	(3) #1	(3) #2/0	(1) #1	(1) #2/0	(1) #6	(1) #4	2"	2"
150	1	(3) #1/0	(3) #3/0	(1) #1/0	(1) #3/0	(1) #6	(1) #4	2"	2 1/2"
175	1	(3) #2/0	(3) #4/0	(1) #2/0	(1) #4/0	(1) #6	(1) #4	2 1/2"	2 1/2"
200	1	(3) #3/0	(3) #250	(1) #3/0	(1) #250	(1) #6	(1) #4	2 1/2"	3"
225	1	(3) #4/0	(3) #300	(1) #4/0	(1) #300	(1) #4	(1) #2	3"	4"
250	1	(3) #250	(3) #350	(1) #250	(1) #350	(1) #4	(1) #2	3"	4"
300	1	(3) #350	(3) #500	(1) #350	(1) #500	(1) #4	(1) #2	4"	4"
350	1C/2AL	(3) #500	(3) #4/0	(1) #500	(1) #4/0	(1) #3	(1) #1	4"	4"
400	2	(3) #3/0	(3) #250	(1) #3/0	(1) #250	(1) #3	(1) #1	4"	4"
450	2	(3) #4/0	(3) #300	(1) #4/0	(1) #300	(1) #2	(1) #1/0	4"	4"
500	2	(3) #250	(3) #350	(1) #250	(1) #350	(1) #2	(1) #1/0	4"	4"
600	2	(3) #350	(3) #500	(1) #350	(1) #500	(1) #1/0	(1) #2/0	4"	4"
700	2C/3AL	(3) #500	(3) #350	(1) #500	(1) #350	(1) #1/0	(1) #2/0	4"	4"
800	2C/3AL	(3) #600	(3) #400	(1) #600	(1) #400	(1) #1/0	(1) #3/0	4"	4"
1000	3C/4AL	(3) #400	(3) #350	(1) #400	(1) #350	(1) #2/0	(1) #4/0	4"	4"
1200	4	(3) #350	(3) #500	(1) #350	(1) #500	(1) #3/0	(1) #250	4"	4"
1600	5C/6AL	(3) #400	(3) #400	(1) #400	(1) #400	(1) #4/0	(1) #350	4"	4"
2000	6C/7AL	(3) #500	(3) #500	(1) #500	(1) #500	(1) #250	(1) #400	4"	4"
2500	7C/9AL	(3) #500	(3) #500	(1) #500	(1) #500	(1) #350	(1) #600	4"	4"
3000	8C/10AL	(3) #500	(3) #500	(1) #500	(1) #500	(1) #400	(1) #600	4"	4"

FEEDER LEGEND

NOTE:
SEE FEEDER SIZING CHART FOR SIZE OF NEUTRAL AND GROUNDING CONDUCTORS BASED ON AMPERAGE OF FEEDER. COORDINATE FEEDER LENGTH/SIZE WITH VOLTAGE DROP IN FIELD PER NEC

INDICATES AMPERAGE OF FEEDER UTILIZING THHN/THWN CONDUCTORS. SEE FEEDER SIZING CHART FOR SIZING OF PHASE CONDUCTORS AND RACEWAY.

xxxxA
xN | xG

INDICATES QUANTITY OF NEUTRAL CONDUCTORS PER PARALLEL SET:
-N = NO NEUTRALS
1N = ONE STANDARD NEUTRAL
2N = OVERSIZED NEUTRAL

INDICATES QUANTITY OF GROUND CONDUCTORS PER PARALLEL SET:
-G = NO GROUNDING CONDUCTORS
1G = ONE EQUIPMENT GROUNDING CONDUCTOR
2G = ONE EQUIPMENT GROUNDING CONDUCTOR AND ONE ISOLATED GROUND CONDUCTOR

EXAMPLE:

250A
1N | 1G
= (3) #250 KCMIL, (1) #250 KCMIL NEUTRAL, (1) #4 EQUIPMENT GROUND, (1) 3" RACEWAY

SERVICE EQUIPMENT, DISTRIBUTION SYSTEM NOTES

THE ELECTRICAL CONTRACTOR (EC) SHALL INCLUDE THE COST AND TIME TO COMPLY WITH ALL OF THE FOLLOWING REQUIREMENTS IN THEIR BID.

1. AIC RATING: ALL SERVICE EQUIPMENT SHALL HAVE AN AMPERE INTERRUPTING CAPACITY (AIC) RATING GREATER THAN THE AVAILABLE UTILITY FAULT CURRENT AT THE SERVICE TERMINALS.
2. ENGINEERING STUDIES : THE CONTRACTOR SHALL PROVIDE A COMPLETE SHORT CIRCUIT, COORDINATION, AND ARC FLASH STUDY FOR THE ENGINEER'S REVIEW AND APPROVAL ALONG WITH EQUIPMENT SUBMITTALS.
3. EQUIPMENT ADJUSTMENT : BASED ON THE FINAL UTILITY FAULT CURRENT DATA AND THE APPROVED COORDINATION STUDY, THE CONTRACTOR SHALL MODIFY OR ADJUST THE AIC RATING OF ALL AFFECTED EQUIPMENT AS REQUIRED.
4. ARC FLASH LABELING : THE MAIN DISCONNECT AND CT CABINET MUST BE PROVIDED WITH DURABLE, MACHINE-PRINTED LABELS INDICATING THE NOMINAL VOLTAGE, AIC RATING, REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE), AND ALL OTHER ARC FLASH HAZARD INFORMATION REQUIRED BY CODE.
5. ARC REDUCTION SYSTEM LABELING: FOR ANY EQUIPMENT THAT UTILIZES AN ARC REDUCTION MAINTENANCE SYSTEM (ARMS) OR SIMILAR PROTECTION, THE LABEL MUST ALSO INCLUDE THE INCIDENT ENERGY VALUES ≥ (CAL/CM) FOR BOTH NORMAL OPERATION AND WHEN THE ARC REDUCTION SYSTEM IS ENGAGED.

GROUNDING ELECTRODE CONDUCTOR FOR AC SYSTEMS

SIZE OF LARGEST UNGROUNDED SERVICE-ENTRANCE CONDUCTOR OR EQUIVALENT AREA FOR PARALLEL CONDUCTORS (AWG/KCMIL)		SIZE OF GROUNDING ELECTRODE CONDUCTOR (AWG/KCMIL)	
COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM	COPPER	ALUMINUM OR COPPER-CLAD ALUMINUM
2 OR SMALLER	1/0 OR SMALLER	8	6
1 OR 1/0	2/0 OR 3/0	6	4
2/0 OR 3/0	4/0 OR 250	4	2
OVER 3/0 THROUGH 350	OVER 250 THROUGH 500	2	1/0
OVER 350 THROUGH 600	OVER 500 THROUGH 900	1/0	3/0
OVER 600 THROUGH 1100	OVER 900 THROUGH 1750	2/0	4/0
OVER 1100	OVER 1750	3/0	250

NOTE:
REFER TO NEC FOR FURTHER REFERENCES.

VOLTAGE DROP SCHEDULE

120 VOLT BRANCH CIRCUITS UP TO 8 AMPS

RUN DISTANCE IN FEET	WIRE SIZE AWG
1' - 120'	#12
121' - 210'	#10
211' - 320'	#8
321' - 500'	#6

120 VOLT BRANCH CIRCUITS 9 AMPS TO 14 AMPS

RUN DISTANCE IN FEET	WIRE SIZE AWG
1' - 70'	#12
71' - 120'	#10
121' - 180'	#8
181' - 280'	#6

208 VOLT BRANCH CIRCUITS UP TO 14 AMPS

RUN DISTANCE IN FEET	WIRE SIZE AWG
1' - 125'	#12
126' - 210'	#10
211' - 320'	#8
321' - 500'	#6

277 VOLT BRANCH CIRCUITS UP TO 14 AMPS

RUN DISTANCE IN FEET	WIRE SIZE AWG
1' - 170'	#12
171' - 280'	#10
281' - 420'	#8
421' - 670'	#6

WIRE SIZES INDICATED IN PANEL SCHEDULES ARE MINIMUM WIRE SIZES. CONTRACTOR SHALL UPSIZE WIRES BASED ON LOAD AND LENGTH OF RUN AS INDICATED IN SCHEDULE ABOVE.

	PROJECT NO:		25154		PANEL:	UNIT		DATE:		12/17/25	
	LOCATION:		UNIT		MOUNTING:	FLUSH		FEED:		TOP	
	VOLTAGE:		120/240		SOURCE:	METER		BUS AMP:		125	
	WIRE:		3		CONDUIT:	2"		BRKR:		125	
	PHASE:		1		FEEDER:	#1		GROUND:		#6	
TYPE	CKT	LOAD DESCRIPTION	WATTS	CB AMP		CB AMP	WATTS	LOAD DESCRIPTION	CKT	TYPE	
GFI	1	RANGE	4000	50/2P	A	30/2P	2500	DRYER	2	GFI	
	3	!!	4000		B		2500	!!	4		
GFI/AF	5	SMALL APPLIANCE	1500	20	A	20	1500	SMALL APPLIANCE	6	GFI/AF	
GFI/AF	7	REFRIGERATOR	750	20	B	20	1200	DISHWASHER	8	GFI/AF	
GFI/AF	9	WASHER	1200	20	A	20	750	DISPOSAL	10	GFI/AF	
GFI/AF	11	LIVING ROOM RECEPTACLES	900	20	B	20	540	DINING ROOM RECEPTACLES	12	GFI/AF	
AF	13	BEDROOM RECEPTACLES	900	20	A	20	900	BEDROOM RECEPTACLES	14	GFI	
GFI	15	BATH RECEPTACLE	1500	20	B	20	500	LIGHTS	16	GFI/AF	
GFI/AF	17	GENERAL RECEP/DBF	540	20	A	20	500	LIGHTS	18	GFI/AF	
GFI	19	HOOD	1500	20	B	20	900	BEDROOM RECEPTACLES	20	AF	
GFI	21	24/7 CEF	200	20	A	20	1500	EH-A & B	22	GFI	
	23			20	B	20A/2P	200	IDU'S	24		
	25			20	A		200	!!	26		
GFI	27	WATER HEATER	2250	30/2P	B	40/2P	2250	COOLING	28		
	29	!!	2250		A		2250	COORD BRK WITH DIV 16	30		
	TOTAL WATTS/PH:		A= 20690		B= 18990			TOTAL WATTS:	39680		
								TOTAL AMPS:	165		

NOTES:
1. VERIFY BREAKERS WITH NAMEPLATE RATINGS OF EQUIPMENT IN FIELD.
2. PROVIDE SIX (6) 20A-1P SPARE BREAKERS.
3. PROVIDE FULL COPPER BUSSING.
4. VERIFY BREAKER TYPES WITH LOCAL AND STATE CODES.
5. PROVIDE INTEGRAL SURGE PROTECTION FOR PANEL.
6. GFI - GROUND FAULT CIRCUIT INTERRUPTER; AF - ARC-FAULT

MINIMUM WIRE & CONDUIT SIZES FOR CIRCUIT BREAKERS AND FUSES

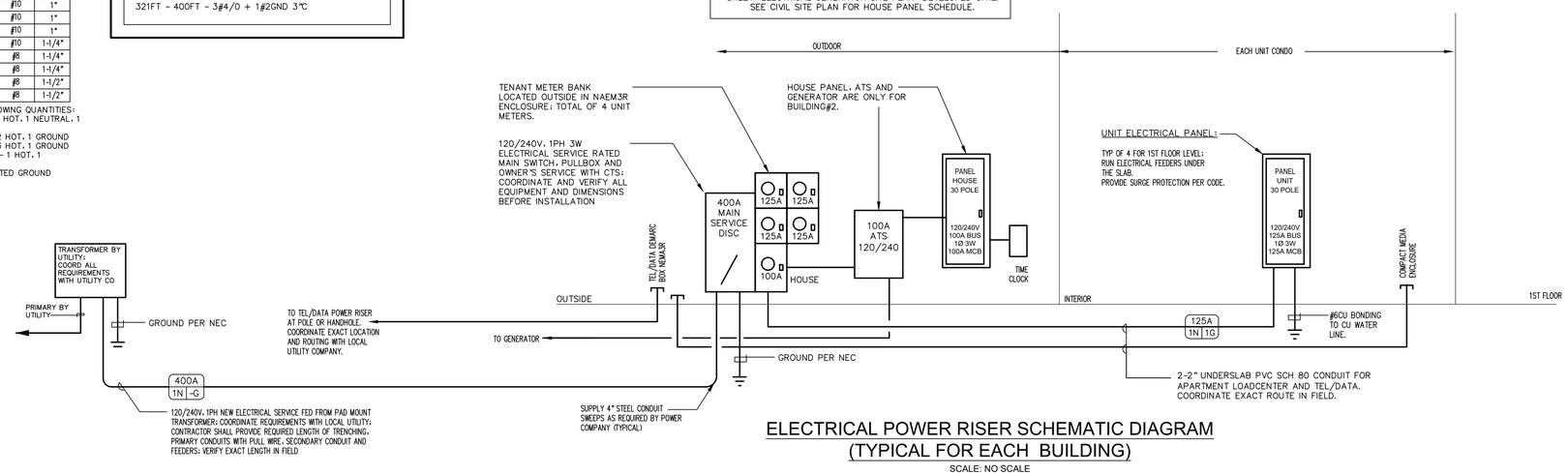
AMPS	CONDUCTOR	GROUND	CONDUIT
15	#12	#12	3/4"
20	#12	#12	3/4"
25	#10	#10	3/4"
30	#10	#10	3/4"
35	#8	#10	1"
40	#8	#10	1"
45	#8	#10	1"
50	#8	#10	1"
60	#6	#10	1-1/4"
70	#4	#8	1-1/4"
80	#4	#8	1-1/4"
90	#3	#8	1-1/2"
100	#3	#8	1-1/2"

PROVIDE THE FOLLOWING QUANTITIES:
1 POLE CIRCUIT - 1 HOT, 1 NEUTRAL, 1 GROUND
2 POLE CIRCUIT - 2 HOT, 1 GROUND
3 POLE CIRCUIT - 3 HOT, 1 GROUND
1 POLE 1G CIRCUIT - 1 HOT, 1 NEUTRAL, 1 GROUND, 1 ISOLATED GROUND

125A UNIT PANEL CU FEEDER VOLTAGE DROPS:

UNDER 160FT - 3#1AWG + 1#6GND 2℃
161FT TO 210FT - 3#1/0 + 1#4GND 2℃
211FT TO 250FT - 3#2/0 + 1#4GND 2-1/2℃
251FT - 320FT - 3#3/0 + 1#3GND 2-1/2℃
321FT - 400FT - 3#4/0 + 1#2GND 3℃

ATS, GENERATOR AND PUMP ETC DESIGNED BY CIVIL.
SEE CIVIL DRAWINGS FOR EXACT LOCATION AND SIZING.
EC SHALL INCLUDE ALL ELECTRIC WORK ASSOCIATED WITH THIS PUMP AND GENERATOR.
EC SHALL CARRY COST FOR ALL CONDUITS, CABLE ETC PER SHEET "ELECTRICAL GENERATOR SITE PLAN" DEVELOPED CIVIL.
SEE CIVIL SITE PLAN FOR HOUSE PANEL SCHEDULE.



ELECTRICAL POWER RISER SCHEMATIC DIAGRAM (TYPICAL FOR EACH BUILDING)

SCALE: NO SCALE

QA+M architecture
QufsenberryArcarfMalfk
195 Scott Swamp Road
Farmington, CT 06032
qamarch.com

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PROJECT DESCRIPTION:

LITCHFIELD HOUSING

LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

Issue Dates:

BID DOCUMENTS
04/28/2026

ELECTRICAL POWER RISER DIAGRAM AND DETAIL

E2.0

LIGHTING FIXTURES SCHEDULES

TYPE A - AFX TUCK LOW PROFILE RECESSED DOWN LIGHT TUCF SERIES, TUCF04LAJD1WH

TYPE B - AFX DUNCAN LED CEILING DUNF SERIES, DUNF20LAJUDBKWH

TYPE C - AFX NOBLE PRO LED LINE VOLTAGE TASK LIGHTING NLLP2 SERIES, NLLP2-14WH

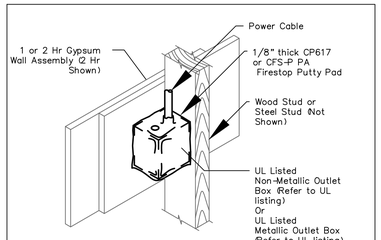
TYPE D - AFX SYDNEY LED VANITY SYDV SERIES, SYDV2107LAJUDSN

TYPE E - AFX TUCK LOW PROFILE RECESSED DOWN LIGHT TUCF SERIES, TUCF06LAJD1WH

TYPE F - EFFICIENT LIGHTING INTERIOR PENDANT, EL-5012

TYPE G - FAN / LIGHT

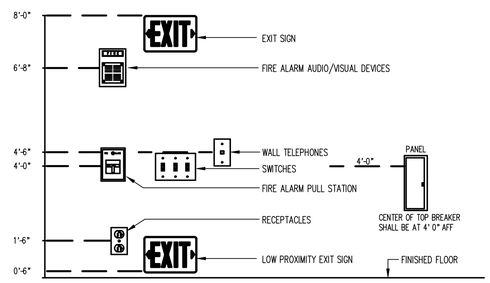
TYPE J - AFX VASARI LED OUTDOOR SCONCE VSRW SERIES, VSRW0412L30D1BK



STAIRWELL WALL PROTECTIVE MATERIALS | NTS

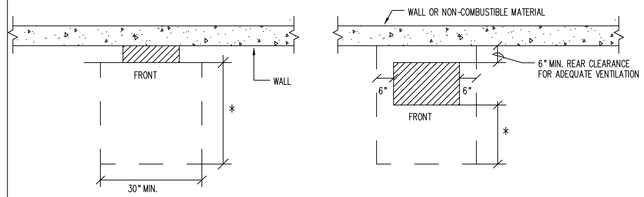
ELECTRICAL SYMBOL LIST

	DUPLEX RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET MOUNTED ABOVE COUNTERTOP
	SINGLE RECEPTACLE OUTLET
	SPECIAL PURPOSES OUTLET; 208/240 VOLT
	TYPICAL LIGHTING FIXTURES (see schedule)
	TYPICAL LIGHTING FIXTURES WITH BATTERY BACKUP (see schedule)
$ $3 $4 $O	WALL SWITCH; 3 DENOTES THREE-WAY; 4 DENOTES FOUR-WAY; O DENOTES OCCUPANCY SENSOR
	WIRE CONCEALED IN WALLS OR CEILING
	SWITCHED CIRCUIT
	HOMERUN TO SERVICE PANEL; NUMBER OF WIRES INDICATED
$T	SERVICE DISCONNECT SWITCH
TV	ROUGHING FOR TELEVISION; PROVIDE CONDUIT AND PULLED WIRE STUBBED ABOVE CEILING TO ACCESSIBLE LOCATION TELEVISION LOCATION; PROVIDE CABLE PER UTILITY COMPANY SPECIFICATIONS PULLED FROM BUILDING DEMARC TO BOX IN WALL WITH COVER PLATE; REFER TO SPECIFICATIONS FOR FURTHER DETAIL
	EXIT SIGN WITH BATTERY BACKUP (see schedule)
	CALL-FOR-AID DOME LIGHT
E	CALL-FOR-AID PULL STATION
	CIRCUIT BREAKER PANEL BOARD - VOLTAGE NOTED
	EMERGENCY LIGHT WITH BATTERY PACK
T	TRANSFORMER
F	DISCONNECT SWITCH
T	THERMOSTAT
J	JUNCTION BOX
	REMOTE EMERGENCY HEAD
	EMERGENCY BATTERY
CMU	COMPACT STRUCTURED MEDIA ENCLOSURE
CH	DOOR BELL PUSH BUTTON & CHIME
AV	AUDIO VISUAL ALERT SYSTEM EQUAL TO "ADA 121" FROM HOUSING DEVICES INC. SYSTEM ACTIVATED BY DOORBELL PUSH BUTTON;
RM	ADA 121 AUDIO VISUAL ALERT REMOTE UNIT FROM HOUSING DEVICES INC. SYSTEM ACTIVATED BY DOORBELL PUSH BUTTON;
GFI	GROUND FAULT CIRCUIT INTERRUPTER
WP	WEATHERPROOF
	STROBE LIGHT
	TELEPHONE OUTLET; PROVIDE CABLE PER UTILITY COMPANY SPECIFICATIONS FROM BUILDING DERMARC TO BOX IN WALL WITH COVER PLATE. TYPICAL TO ALL PHONE LOCATIONS; REFER TO SPECIFICATION FOR FURTHER DETAIL
	DATA OUTLET; PROVIDE DATA CABLE PER OWNER REQUIREMENTS FROM BUILDING PATCH PANEL TO BOX IN WALL WITH COVER PLATE. TYPICAL TO ALL DATA LOCATIONS; REFER TO SPECIFICATION FOR FURTHER DETAIL
	DUPLEX TELEPHONE/DATA OUTLET; PROVIDE CABLE PER UTILITY COMPANY SPECIFICATIONS FROM BUILDING DEMARC TO BOX IN WALL WITH COVER PLATE. TYPICAL TO ALL PHONE LOCATIONS; PROVIDE DATA CABLE PER OWNER REQUIREMENTS FROM BUILDING PATCH PANEL TO BOX IN WALL WITH COVER PLATE. TYPICAL TO ALL DATA LOCATIONS; REFER TO SPECIFICATION FOR FURTHER DETAIL
S	STAND ALONE INTERCONNECTED, BATTERY BACK-UP 120 VOLT SMOKE DETECTOR; U DENOTES UNIT SMOKE; CO DENOTES UNIT COMBINATION CO/SMOKE DETECTOR



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.

TYPICAL DEVICE MOUNTING HEIGHTS DETAIL | NTS



WALL MOUNTED PANELS

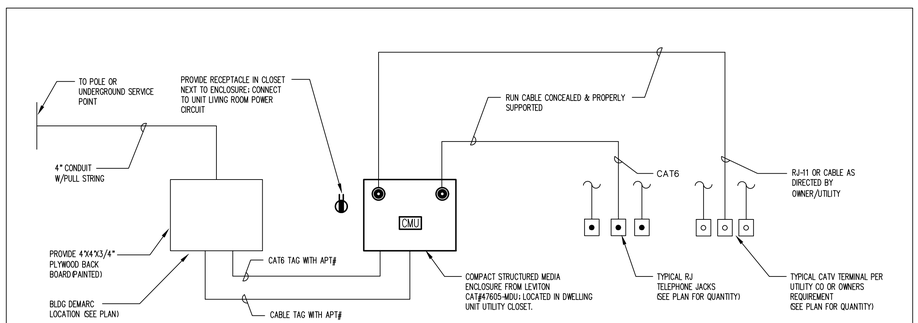
(INCLUDING POWER PANELS, CONTACTORS, CONTROL CABINETS, DISCONNECT SWITCHES, MOTOR STARTERS, TIME CLOCK AND SIMILAR ELECTRIC EQUIPMENT)

FLOOR MOUNTED TRANSFORMER

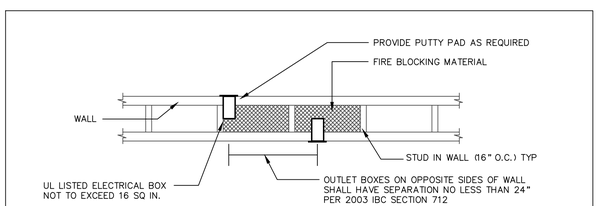
* MINIMUM WORKING CLEARANCE (IN THE DIRECTION OF ACCESS TO LIVE PARTS) REQUIRED BY N.E.C. 110-16(a), CONDITION 2:
  - 3 FT. FOR 0-150 VOLT TO GROUND ELECTRIC EQUIPMENT
  - 3 1/2 FT. FOR 150-600 VOLT TO GROUND ELECTRIC EQUIPMENT

THE MINIMUM HEADROOM OF WORKING SPACE SHALL BE 6 1/2 FT.

REQUIRED CLEARANCE FOR ELECTRICAL EQUIPMENT | NTS



TEL & CATV SCHEMATIC | NTS



RECEPTACLE LOCATION DETAIL | NTS

ELECTRICAL GENERAL NOTES:

1. ALL WORK SHALL BE DONE IN COMPLIANCE WITH THE 2020 EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL AND 2022 CT STATE BUILDING CODES AND ALL APPLICABLE AMENDMENTS.
2. E.C. SHALL OBTAIN AND PAY FOR BOTH ROUGH AND FINAL INSPECTION AND OBTAIN A CERTIFICATE OF "ELECTRICAL INSPECTION". THIS CERTIFICATE SHALL BE PRESENTED WITH REQUEST FOR FINAL PAYMENT.
3. IT IS THE INTENT OF THESE PLANS TO PROVIDE A COMPLETE AND OPERATING ELECTRICAL SYSTEM. THE E.C. SHALL FURNISH AND INSTALL ALL WIRING, CONDUIT, EQUIPMENT, MATERIAL, ETC. AS REQUIRED., EXCEPT WHERE SPECIFICALLY NOTED AS BEING FURNISHED BY OTHERS. SHOULD THERE BE ANY QUESTIONS CONCERNING RESPONSIBILITY, THE QUESTIONS SHALL BE SETTLED BEFORE BID SUBMISSION AND CONTRACT SIGNING. NO EXTRA CHARGES WILL BE ALLOWED.
4. THE E.C. SHALL COORDINATE ALL PHASING OF WORK WITH THE ARCHITECT, GENERAL CONTRACTOR AND/OR OWNER OF THE PROJECT.
5. REFER TO THE ARCHITECTURAL DRAWINGS FOR SPECIFIC DETAILS, ARRANGEMENTS, MOUNTING HEIGHTS, CEILING CONSTRUCTION, ETC. ALL COLORS AND FINISHES TO BE SELECTED BY THE ARCHITECT.
6. ALL ELECTRICAL EQUIPMENT SHALL BE SEISMICALLY SUPPORTED AS REQUIRED BY THE LOCAL AND STATE BUILDING CODE.
7. ALL NECESSARY MOUNTING HARDWARE, HANGERS, BRACKETS, RAILS, YOKES, STEMS, CHAINS, ETC. SHALL BE FURNISHED AND INSTALLED BY E.C.
8. ALL HOMERUNS TO PANELBOARDS DESIGNATED SHALL CONSIST OF 2#12 AWG & 1#12 GROUND IN 3/4" CONDUIT TO PANEL LABELED AT THE HOMERUN SYMBOL UNLESS OTHERWISE NOTED.
9. ALL WIRING INSTALLED UNDER THIS CONTRACT SHALL BE TESTED FOR PROPER CONNECTIONS AND SHORT CIRCUITS PRIOR TO THE TURNING OVER OF WORK AS A COMPLETE UNIT.
10. ALL CONDUITS PASSING THROUGH PARTITIONS ARE TO BE APPROPRIATELY SLEEVED AND SEALED.
11. E.C. SHALL GUARANTEE ALL MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL AND FINAL ACCEPTANCE.
12. ALL CONDUIT AND WIRING SHALL BE RUN CONCEALED IN WALLS, FLOORS AND CEILINGS UNLESS OTHERWISE NOTED TO BE EXPOSED.
13. ALL WIRING SHALL BE TYPE THWN OR THW UNLESS OTHERWISE NOTED. FOR CONDUCTORS LARGER THAN #6 AWG, TYPE XHHW WILL BE ACCEPTED.
14. CONDUCTORS SIZED #10 AWG AND SMALLER WITHIN A CABLE ASSEMBLY (NM SHEATHED CABLE; METAL CLAD; ARMORED CABLE) SHALL BE SOLID WIRE CONDUCTORS. CONDUCTORS SIZED LARGER THAN #10 AWG IN SUCH ASSEMBLIES SHALL BE STRANDED TYPE. COMMUNICATIONS AND CONTROL WIRE SHALL BE #14 GAUGE STRANDED, SHIELDED UNLESS OTHERWISE DIRECTED BY INSTALLATION MANUALS AND STANDARDS.
15. ALL CIRCUITS BACK TO PANEL SHALL REQUIRE 20A-1 POLE BREAKERS UNLESS OTHERWISE NOTED
16. ALL DRAWINGS ARE SCHEMATIC IN NATURE; ALL DEVICES SHALL BE INSTALLED IN ALL AREAS AND LIVING SPACES PER NEC AND SHALL BE DIMENSIONED IN FIELD TO MEET PROPER CODES; ALL DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION DURING BID PROCESS AND/OR ADJUSTED IN FIELD DURING CONSTRUCTION
17. ALL WORK IS NEW UNLESS OTHERWISE NOTED.

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www.acornengineers.com

PROJECT DESCRIPTION:

LITCHFIELD HOUSING

LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

Issue Dates:

N

BID DOCUMENTS
04/28/2026

ELECTRICAL DETAILS

E2.1

1.01 GENERAL

Architect's General Conditions are a part of this Division. All work shall be done in strict accordance with all applicable Codes and Regulations of local and State Agencies and utility companies. This Contractor shall bear the cost of all fees, permits, licenses and taxes and any utility company charges in connection with the work.

1.02 SCOPE

Furnish all labor, materials, appliances, fixtures, tools, equipment, and services pertaining to the complete installation and construction of the project's electrical systems. System shall be complete in all respects, tested, accepted and ready to operate.

1.03 SUBMITTALS

Submit six (6) copies of manufacturer's drawings of the following to the Architect for approval:

Submit information on any other equipment to be used when requested by the Architect or the Engineer.

1.04 GUARANTEE

Materials, equipment and workmanship shall have standard warranty against defects in material and workmanship. Any failure due to defective or improper material, equipment, workmanship or design shall be made good, forthwith, by and at the expense of the Contractor, including any damage done to areas, materials and other systems resulting from this failure. Guarantee period shall extend for one (1) year from the Date of Acceptance.

1.05 DEFINITION:

As used on Contract Documents, the term "to provide" shall mean "to furnish, install and connect completely in the specified or approved manner the item or material described."

1.06 OPERATING AND MAINTENANCE INSTRUCTIONS

Upon completion of the project, the Electrical Contractor shall fully instruct the Owner in the operation, adjustment and maintenance of all equipment and systems furnished.
The Electrical Contractor shall provide the Owner with three (3) sets of complete maintenance and operating instructions, and technical data, in booklet form, of all equipment and devices furnished in the Contract.

1.07 CONTRACTOR'S INSPECTION

Contract Drawings are diagrammatic and do NOT show every required device, conductor, etc. The Contractor shall familiarize himself with the existing site conditions, prior to submitting a bid, and shall include all equipment and accessories necessary for complete and operational systems.

The Electrical Contractor shall examine the Architectural Drawings, the drawings and specifications of other trades to determine the extent of work. The Electrical Contractor shall visit the site and become familiar with the project and local conditions before submitting a bid. Drawings are diagrammatic and indicate the general arrangement of systems and work included in the Contract. If so directed by the Architect or Engineer, the Electrical Contractor shall, without extra charge, make reasonable modifications in the layout to prevent conflict with those of other trades and for proper installation of work. Refer to the Architect's Reflected Ceiling Plan for exact location of air diffusers, registers and grilles. The Contractor shall coordinate locations of equipment with all trades before starting construction. Any modifications to the equipment layout required for installation shall be performed at no additional cost to the Owner.

1.08 ARRANGEMENT OF WORK:

Work shall be coordinated between trades to prevent unnecessary interference. Work shall present a neat coordinated appearance. Install work as necessary to provide maximum possible headroom, adequate clearance and ready access for inspection, operation, Code conformance, safe maintenance and repair. Where space appears inadequate, consult the Owner before proceeding with installation.

1.09 INSURANCE:

Furnish insurance certificates required by the Owner.

1.10 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS:

Obtain and pay for permits, inspections, licenses and certificates required. Work of this Contract shall meet State Building Code, State Fire Safety Code and other laws, rules and regulations of local, State and Federal authorities; National Fire Protection Association #90A and #90B; Mechanical & Plumbing Codes; 2020 National Electrical Code; and local utility company requirements. Pay utility company back charges. Equipment, materials and components listed UL Product Directories, shall bear UL labels.

1.11 WORK BY OTHERS:

The Electrical Contractor shall wire all motors provided under the HVAC Contract. The HVAC Contractor shall install all motors ready for wiring by the Electrical Contractor and shall furnish and deliver to the Electrical Contractor wiring diagrams for all motor starters for installation and wiring. The HVAC Contractor shall furnish motor starters, relays and all temperature control equipment to the Electrical Contractor for installation and wiring. The General Contractor shall perform all excavation, backfill, chases, openings, cutting, patching and finish work.

1.12 FIELD MEASUREMENTS

The Electrical Contractor shall verify in the field all measurements necessary for the work. Verify the mounting heights of receptacles and fixtures with the Architect before installation.

The Electrical Contractor shall coordinate his work with structure, ceilings, ductwork and piping of other trades.

1.13 WORKMANSHIP:

Equipment and materials shall be new, of first quality, selected and arranged to fit properly into spaces indicated. Install equipment and materials in accordance with manufacturer's recommendations.

1.14 COORDINATION WITH OWNER:

All work shall be scheduled with the Owner. Interruptions in the Owner's access to the site shall be subject to Owner limitations of date and duration.

1.15 OPERATION OF SERVICES AND UTILITIES:

Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Owner as to date, time of day, and duration before any service is interrupted. Notify the Owner of estimated duration of shutdown period at least ten days in advance of proposed shutdown.

1.16 PROTECTION:

Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material or damaging water. Protect existing property, equipment and finishes from damage. Repair, to original condition, existing property that has been damaged during execution of the work.

1.17 CLEANING:

Work site must be kept clean. Rubbish, debris and leftover or excess materials shall be removed daily.

1.18 PAINTING:

Electrical equipment and materials shall have prime coat and standard manufacturer's finish. Painting of finished surfaces (excluding ceilings) shall be one coat primer and two coats vinyl base semi-gloss paint. Painting of ceiling shall be one coat primer and two coats flat white paint. Primer shall be omitted on repainting of existing surfaces.

1.19 CUTTING AND PATCHING:

Areas disturbed by new construction or demolition shall be patched and repaired to match existing conditions. Patch painting of ceilings shall include painting of entire ceiling of room involved. Patch painting of other surfaces shall be to nearest cut-off point.

1.20 WATERPROOFING:

Provide necessary sleeves, caulking and flashing required to make openings waterproof.

1.21 FIREPROOFING:

At closing of each working day, provide temporary firestopping in every opening cut between floors and through fire rated partitions. Permanent firestops shall be provided around sleeves and at other permanent openings through fire rated partitions and floors, as required. Materials used for fire stopping shall be Class A "incombustible" with firestopping capabilities equal to that of adjacent construction.

1.22 BASES AND SUPPORTS:

Provide necessary supports, pads, bases and piers required. Equipment shall be securely attached to building structure in acceptable manner. Attachments shall be of strong and durable nature, as determined by the Owner.

1.23 ACCESS:

Provide adequately sized access doors for access to concealed equipment and components requiring servicing or inspection. Doors shall have fire ratings equal to construction in which they are located.

1.24 TESTS:

Perform tests required by the Owner, legal authorities and agencies.

1.25 SEISMIC REQUIREMENTS:

Submit four (4) copies of a final inspection report which includes: sealed certification by a Structural Engineer with P.E. registration in the state in which the project is located, that:

Engineer has reviewed the project.
Engineer has approved the use of the devices for the particular applications.
The devices satisfy Specification and Code mandated seismic criteria.

1.26 ELECTRICAL IDENTIFICATION:

Provide wire markers on each conductor in panelboard gutters, pull boxes, and at load connection. Identify with branch circuit or feeder number for power and lighting circuits, and with control wire number as indicated on equipment manufacturer's shop drawings for control wiring.

Provide neatly typed directory in door of each branch circuit panelboard identifying each circuit, its use, and breaker size. Prepare directory only after all circuit adjusting for phase balancing has been completed.

Provide typed legend of circuits in each main circuit board and distribution panel.

PART 2 - PRODUCTS

2.01 RACEWAYS

Flexible steel conduit shall have an integral bond wire for grounding. Liquid-tight flexible conduit shall be used where flexibility and protection from liquids, vapors, or solids is needed.

Aluminum conduit and fittings will not be allowed unless specifically noted on drawings.

A. Rigid Metal Conduit and Fittings:

Rigid Steel Conduit: ANSI C80.1-2005.

Fittings and Conduit Bodies: ANSI/NEMA FB 2.10-2003; threaded type, material to match conduit.

B. Intermediate Metal Conduit (IMC) and Fittings:

Conduit: Galvanized steel. ANSI C80.3-2005

Fittings and Conduit Bodies: ANSI/NEMA FB 2.10-2013; use fittings and conduit bodies specified above for rigid steel conduit.

C. Electrical Metallic Tubing (EMT).

Electrical Metallic Tubing. ANSI C80.6-2005

Fittings and Conduit Bodies: Material to Match.

D. Liquidtight Flexible Conduit and Fittings:

Conduit: Flexible metal conduit with PVC jacket.

Fittings and Conduit Bodies: ANSI/NEMA FB 2.20-2012.

E. Surface Metal Raceways:

As manufactured by Wiremold, Inc., type and size as indicated on Drawings.

F. PVC Raceways:

As installed per Article 352 of the NEC.

G. Conduit Supports:

Conduit Clamps, Straps, and Supports: Steel or malleable iron.

2.02 SLEEVES

Through fire rated building elements: UL approved for the application and rating.

Through new construction: 18 gage galvanized sheet metal, flush with surface on both sides.

Through existing construction: Neatly core-bored hole or schedule 40 steel pipe sleeve, securely mortared into place.

Wet Locations: Extend sleeve 2" above finished floor. If hole is core-bored, provide sheet metal collar sealed to opening, extending 2" above floor.

2.03 WIRE AND CABLE

Thermoplastic - insulated Building Wire: NEMA WC 70.

Rubber-insulated Building Wire: NEMA WC 70.

Feeders and Branch Circuits Larger Than 6 AWG: Copper, stranded conductor, 600 volt insulation, THW, THHN/THWN.

Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, THW OR THHN/THWN, stranded conductor.
Control Circuits: Copper, stranded conductor 600 volt insulation, THW, THHN, THWN, XHHW.

Wire sizes #14 and larger shall be stranded. All sizes called for in the specifications or on the plans are American Wire Gauge sizes. Conductors shall be copper, unless noted differently.

All wire shall be factory color-coded with a separate color for phase, switch and neutral used consistently throughout. The neutral wire of all branch circuits shall be white. Green shall be used for equipment grounding conductors. Feeders shall be phase color coded at all access points.

The use of MC or SER cable for panel feeders is acceptable where concealed. Exposed feeders shall be run in EMT or RGC.

The use of MC cable for panel feeders is prohibited. Use appropriate type of rigid metal raceway.

The use of MC cable and NM cable is acceptable as allowed by code or as unless otherwise noted elsewhere. Where MC or NM cable is permitted under this specification, its use shall be governed by Article 330 and 334, respectively of the National Electric Code and approved by authorities having jurisdiction.

Cables are required to be installed per NEC. All installation shall be coordinated with construction types and NEC requirements. Coordinate types of construction with Architectural plans and specifications. Install cables in conduit where required by NEC.

Provide plenum rated cable where required. Coordinate with Div. 15.

All wiring for branch circuits and grounding shall be provided and installed per NEC requirements. Any discrepancies to said requirements on drawings shall be verified during bid process with Engineer.

Remote Control and Signal Cable:

A. Control Cable for Class 1 Remote Control and Signal Circuits: Copper conductor, 600 volt insulation, rated 90 degree C. individual conductors twisted together, and covered with an overall PVC jacket.

B. Control Cable for Class 2 or Class 3 Remote Control and Signal Circuits: Copper conductor, 300 volt insulation, rated 90 degree C, individual conductors twisted together, and covered with a PVC jacket; UL listed.

2.04 BRANCH CIRCUITS

Provide all conduits, outlets, wiring for all power, lighting, control, equipment, motor, and special systems in the project.

All Electrical work on the project shall be provided under this Division unless specifically stated elsewhere.

2.05 GROUNDING CONDUCTORS

Furnish grounding conductors as indicated on drawings. All metallic parts of the system, including conduit, raceways, supports, switchboards, transformer neutrals, cabinets, and equipment shall be grounded in accordance with the National Electrical Code, and as indicated on the drawings. Separate insulated grounding conductor shall be installed in all conduits and in cable assemblies for all branch circuits and feeders. Outer metal jacket of cables or raceways shall not be used as the only method of grounding.

Distribution systems shall be provided with a separate grounding conductor for each three-phase feeder, for each branch circuit having a three phase protective device.

Required grounding conductor shall be installed in raceway with related phase and/or neutral conductors. Equipment grounding conductors are indicated on drawings. Where not indicated, they shall be provided in accordance with Table 250-122 of the NEC.

Grounding system shall have a resistance of not greater than 3 ohms and shall be measured before equipment is placed in operation.

Ground connectors shall be clamp type and bolts, nuts, lock washer and other components shall insure a permanent, corrosion resistant assembly. Connectors shall be as manufactured by Burndy, Ilsco, or Greaves.

Equipment grounding system shall be connected to ground rod grid for system grounding. Install grounding conductor to ground rod grounding system for telephone service. Ground rods copper clad steel, 3/4" diameter, not less than 10'-0" long.

2.06 SWITCHES AND RECEPTACLES

Switches:

1. 20 Amp - 1P, Hubbell #CBS120-I.
2. 20 Amp - 2P, Hubbell #CBS220-I.
3. 20 Amp - 3-Way, Hubbell #CBS320-I.
4. 20 Amp - 4-Way, Hubbell #CBS420-I
5. 20 Amp - With Pilot Light, Hubbell #1221-IL.

Receptacles: Specification Grade duplex, three wire, 125 volt, grounding:

1. 20 Amp - Hubbell #5462-I - Ivory.

Face Plates: (With the required number of gangs): Smooth thermoplastic (color selected by Architect) or satin finish stainless 203/204.

Face Plates: (Wet or Damp Locations) Cast aluminum, gasketed, with double lift covers, Hubbell #5205WO.

2.07 GROUND FAULT INTERRUPTER RECEPTACLES

Duplex, 20A, 125 volt AC, specification grade Ivory, NEMA WD 6-2002, NEMA 5-20R, Hubbell #GFTR20-IU.

Face Plates: (Wet or Damp Locations) Cast aluminum, vertical, gasketed, in-use cover Hubbell #WP826

2.08 OUTLET BOXES

Outlet boxes and covers shall be pressed steel, except as noted, and protected against corrosion with zinc applied by the electric galvanizing, hot dipping or sherardizing process.

Outlet boxes shall be of sizes and type to accommodate:

1. Structural conditions.
2. Size and number of raceways and conductors or cable entering.
3. Device or fixture for which required.

Outside lighting outlets shall have galvanized or cadmium plated cast iron boxes with gaskets, drilled and tapped to take fixture specified for these locations.

Floor boxes where shown on plans shall be adjustable, watertight, cast iron, with brass cover and flange to match floor finish. Box shall be drilled and tapped to accommodate entering conduits and furnished with power or low tension pedestal head as indicated. Furnish in Steel City, National or equal.

Cast Boxes: Cast ferallоy, deep type, gasketed cover, threaded hubs.

2.09 PULL AND JUNCTION BOXES

Sheet Metal Boxes: ANSI/NEMA OS 3-2012; galvanized steel.

Sheet Metal Boxes larger than 12 Inches in any Dimension to be hinged enclosure.

Cast Metal Boxes for Outdoor and Wet Location Installations: NEMA 250; Type 4 and Type 6, flat_flanged, surface-mounted junction box, UL listed as raintight. Galvanized cast iron box and cover with ground flange, neoprene gasket, and stainless steel cover screws.

2.10 BOXES AND FITTINGS

Outlet boxes and fittings shall be installed at each outlet switch or junction point of conduit.

Outlet boxes shall be as manufactured by Steel City, National or Raco.

2.11 PANELBOARDS

Acceptable manufacturers: Square D, Westinghouse and Siemens.

Apartment Panelboard manufacturers: Leviton, Square D, Siemens.

Panels: Surface or flush mounted as indicated on the Drawings, complete with panel trim having concealed hinges and trim mounting screws. Provide locking door with flush catch.

Tube: Galvanized.

Keys: Provide two keys for each panel. Make keys interchangeable for panels of same voltage.

120/240 Volt Panelboards: 1 phase, 3 wire, solid neutral design with sequence style bussing and full capacity neutral, composed of an assembly of bolt-in-place molded case automatic circuit breakers with thermal and magnetic trip and trip free position separate from either ON or OFF positions. Provide common simultaneous trip for 2 pole breakers. Verify AIC ratings with local utility.

2.12 ENCLOSED CIRCUIT BREAKERS

Molded-Case Circuit Breaker: NEMA AB 1, with interrupting capacity to meet available fault currents.

Provide shunt-trip breakers for all kitchen equipment located under kitchen hood.

2.13 DISCONNECT SWITCHES

Acceptable manufacturers: Square D, Westinghouse and Siemens.

Motor and circuit disconnects shall have an Underwriters' Laboratory label.

Coordinate AIC ratings with local utility.

Single Phase Disconnect Switches: Two pole toggle switch and one pole thermo switches. Shall be rated to protect equipment.

Contractor shall coordinate with equipment served by each disconnect to verify the need for a fused element in the disconnect. Provide such whenever required or recommended by the manufacturer of the equipment served.

2.14 LIGHTING

Furnish and install lighting fixtures, lighting equipment and lamps and/or tubes for all lighting outlets as shown on the plans and listed on the fixture schedule.

Furnish and install all mounting accessories, brackets, stems, etc., required for the complete installation of the lighting fixtures.

Fixture wire shall be in strict compliance with the latest National Electrical Code. No fixture wiring shall be smaller than #12 AWG. Wiring shall be protected with tape or tubing at all points where abrasion is liable to occur. All wiring shall be concealed within fixture construction.

Lighting shall be LED unless otherwise noted. Provide lamps and drivers as listed in the lighting fixture schedule or equals if equals are allowed.

2.15 EMERGENCY LIGHTING UNITS

Provide fully automatic operation on power failure. Supply 6 volt power with minimum operating time of 1-1/2 hours with both 10 watt sealed beams on.

Provide nickel cadmium battery rated at 16 ampere hours, fully automatic charger with automatic high and low rates, built-in test switch, local sealed beam lights, transfer relay, high rate charge indicator, battery state indicator, and mounting brackets.

PART 3 - EXECUTION

3.01 FIRE STOPS

All penetrations through fire rated walls, ceilings or floors in which raceways and wiring pass shall be sealed with a UL approved fire-stop fitting classified for an hourly rating equal to the rating of the wall, ceiling or floor.

3.02 NOT USED

3.03 SUPPORT INSTALLATION

Fasten hanger rods, conduit clamps, and outlet and junction boxes to building structure using precast insert system, expansion anchors, preset inserts or beam clamps.

Use expansion anchors or preset inserts in solid masonry walls, self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.

Do not use powder-actuated anchors.

Do not drill structural steel or concrete members.

Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

In wet locations install free-standing electrical equipment on concrete pads.

Install surface-mounted cabinets and panelboards with minimum of four anchors. Provide steel channel supports to stand cabinet one inch off wall.

Bridge studs top and bottom with channels to support flush-mounted cabinets and panelboards in stud walls.

3.04 GENERAL WIRING METHODS

Use no wire smaller than 12 AWG for power and lighting circuits, and no smaller than 14 AWG for control wiring.

Use 10 AWG conductor for 20 ampere, 120 volt branch circuit home runs longer than 75 feet, and for 20 ampere.

Place an equal number of conductors for each phase of a circuit in same raceway or cable.

Splice only in junction or outlet boxes.

Neatly train and lace wiring inside boxes, equipment, and panelboards.

Make Conductor lengths for parallel circuits equal.

All wires and cables shall be continuous from origin to destination without running splices. At the end of these wires and cables, a sufficient slack shall be left as may be required for making proper connections.

No grease or other component which contains acids shall be used in pulling wires and cables.

Where solid conductors are to be connected directly to the devices without the use of lugs, such as occurs at lighting switches and plug receptacles, the wire shall be formed into a loop to fit around the screw.

3.05 WIRING INSTALLATION IN RACEWAYS

Pull all conductors into a raceway at the same time. Use UL listed wire pulling lubricate for pulling 4 AWG and larger wires.

Install wire in raceway after all mechanical work likely to injure conductors has been completed.

Completely and thoroughly swab raceway system before installing conductors.

3.06 CABLE INSTALLATION

Provide protection for exposed cables where subject to damage.

Support cables above accessible ceilings do not rest on ceiling tiles. Use spring metal clips or cable ties to support cables from structure. Include bridle rings or drive rings.

Use suitable cable fittings and connectors.

Use solderless pressure connectors with insulating covers for copper wire splices and taps, 8 AWG and smaller. For 10 AWG and smaller, use insulated spring wire connectors with plastic caps.

Use split bolt connectors for copper wire splices and taps, 6 AWG and larger. Tape uninsulated conductors and connectors with electrical tape to 150 percent of the insulation value of conductor.

Thoroughly clean wires before installing lugs and connectors.

Make splices, taps and terminations to carry full ampacity of conductors without perceptible temperature rise.

Terminate spare conductors with electrical tape.

3.07 FIELD QUALITY CONTROL

Inspect wire and cable for physical damage and proper connection.

Torque test conductor connections and terminations to manufacturer's recommended values.

Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

Conduits must be swabbed out and made thoroughly dry before pulling wire and cable.

3.08 HANGERS AND ATTACHMENTS

In general, the following methods of fastening of supports to building structure shall be used.

Bolts and expansion shields to be used in concrete slabs where weight does not exceed 100 pounds per fastening.

Inserts to be used in lightweight concrete structural slabs where weight does not exceed 300 pounds per fastening.

Inserts to be used in heavyweight concrete structural slabs where weight does not exceed 500 pounds per fastening.

Where the aforementioned fastening methods are not applicable or where inserts have for any reason not been provided, supply a steel (template 1/4" thick with area required) with thru-bolt for each fastening. Fishplate assembly shall be chased into slab and grouted flush with top of slab.

Provide such channel or angle iron members as may be necessary to bridge between structural steel and receive supports for fastening. Such auxiliary steel shall be welded to the structural steel.

Supporting racks of angle iron, flat iron and channel iron members shall be provided for electrical work indicated as being supported from walls where such walls are found to be incapable of supporting the weight.

Where provided, supporting racks shall be rigidly bolted or welded together and adequately braced to provide a substantial structure. Racks shall be of ample size to provide for a workmanlike arrangement of all equipment thereon.

No metal enclosures of equipment, etc. for surface installation shall be mounted directly on any wall. Provide flat bar members for a minimum of 1/4" space between the wall and metal enclosure shall be installed.

3.09 LOCATION OF OUTLETS

Coordinate work with other trades so that exact roughing locations are available for all devices and equipment.

Locations shown on drawings are subject to modification due to conditions arising during construction. Such changes shall be executed as part of the work of this Section. Verify locations shown on drawings with Architect and/or Owner, correcting discrepancies as they arise, all at no additional cost to the Owner.

Outlets in equipment spaces shall be roughed after final location of piping and equipment has been established.

Dimensions scaled from Electrical or Mechanical Drawings shall not be relied on in locating outlets. Use only Architectural Drawings for the determination of measurement of work in the field.

3.10 RACEWAY INSTALLATION

Exposed raceways passing through walls, floors or ceilings shall be fitted with escutcheon plates.

Installation of raceways shall not weaken the building elements, and shall not affect their fire resistance rating.

Install conduit and raceways plumb and level, parallel to lines of building. All conduits and raceways to be concealed, except as noted on the Drawings. Conduits that cannot be concealed shall be brought to the attention of the Architect so he can render an alternate conduit method. Use of surface mounted raceways shall be approved only by Architect and Engineer.

Cut conduit square using a saw or pipe cutter; de-burr cut ends.

Bring conduit to the shoulder of fittings and couplings and fasten securely.

Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations.

Install no more than the equivalent of four 90-degree bends between boxes.

Use conduit fittings to make sharp changes in direction, as around beams.

Use hydraulic bender or factory elbows for bends in conduit larger than 2 inch size.

Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

Provide No. 12 AWG insulated conductor or suitable pull string in empty conduit, except sleeves and nipples.

Install expansion joints where conduit crosses building expansion joints.

Where conduit penetrates fire-rated walls and floors, provide mechanical firestop fittings with UL listed fire rating equal to wall or floor rating.

3.11 CIRCUITING

Connect each device, fixture or equipment item to the appropriate poles of the proper panel.

Arrange branch circuits to balance the loads on the phases of the panel feeder. Where 120 volt, 3 or 4 wire circuits are indicated, the circuit shall consist of separate phases and a common neutral. Maximum phase unbalance shall not exceed 10%.

3.12 GROUNDING CABLES

Lay grounding cables slack to prevent damage. Connections to have bright, clean, metal contact. Connections to be readily accessible for inspection and for checking resistance of ground system.

3.15 CONDUIT SIZING, ARRANGEMENT, AND SUPPORT

Size conduit for conductor type and number installed, 3/4 inch minimum size.

Arrange conduit to maintain headroom and present a neat appearance.

Route exposed conduit and conduit above accessible ceilings, parallel and perpendicular to walls and adjacent piping.

Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

Arrange conduit supports to prevent distortion or alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers.

Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

Support conduit at a maximum of 10 feet on center. Refer to the following articles of the NEC:

1.	Intermediate Metal Conduit:	Art 342.30
2.	Rigid Metal Conduit:	Art 344.30
3.	Electrical Metallic Tubing:	Art 358.30
4.	Rigid Polyvinyl Chloride Conduit:	Art 352.30

All conduits and cable assemblies are to be concealed unless otherwise noted.

3.16 CONTINUITY

Complete raceway systems shall become metallically continuous and shall be thoroughly grounded in accordance with requirements of the National electrical Code and its latest revisions.

3.17 CONDUIT/RACEWAY SCHEDULE

Wet Interior Locations: Rigid steel.

Dry Concealed Locations: EMT.

Dry Exposed Locations: Rigid steel or IMT, surface metal raceways.

3.18 DEVICE INSTALLATION

Install wall switches 48 inches above floor, OFF position down.

Install wall dimmers 48 inches above floor. Separate adjacent dimmers as instructed by manufacturer to prevent a requirement for derating of dimmers. Do not use common neutrals.

Install convenience receptacles 18 inches above floor, 6 inches above countersS backsplash grounding pole on bottom.

Install specific-use receptacles at heights shown on Contract Drawings.

Install decorative plates on switch, receptacle, and blank outlets in finished are areas, using jumbo size plates for outlets installed in masonry walls.

Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface-mounted outlets.

Install devices and wall plates flush and level.

Verify all mounting heights with architectural drawings.

Coordinate device locations with architectural details.

3.19 COORDINATION OF BOX LOCATIONS

Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.

Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of boxes and outlets prior to rough-in.

Locate and install boxes to allow access.

Locate and install to maintain headroom and to present a neat appearance.

Locate boxes in masonry walls to require minimum cutting. Coordinate masonry cutting to achieve neat openings for boxes.

Provide knockout closures for unused openings.

Support boxes independently of conduit except for cast boxes that are connected to two rigid metal conduits, both supported within 12 inches of box.

Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.

Align wall-mounted outlet boxes for switches, and similar devices.

Boxes shall set plumb and true in building surface and furnished with suitable plaster rings where so required.

3.20 PULL AND JUNCTION BOX INSTALLATION

Locate pull boxes and junction boxes above accessible ceilings or in unfinished areas.

Support pull and junction boxes independent of conduit.

3.21 PANELBOARD INSTALLATION

Provide mounting brackets, busbar drilling, and filler pieces for unused spaces.

Prepare and affix typewritten directory to inside cover of panelboard indicating loads controlled by each circuit.

3.22 LIGHTING

Verify all ceiling types and construction before ordering lighting fixtures to confirm that final ceilings approved for installation and the lighting fixtures are compatible to each other in all respects.

Lighting fixtures shall not be installed until finished coat of paint has been applied to ceilings and walls and allowed to dry thoroughly. Any fixtures, reflectors, or glassware broken prior to the time of final inspection must be restored without cost to the Owner. Just prior to occupancy, all fixtures shall be relamped with new lamps, if needed.

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ISSUED FOR REVIEW ONLY

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PROJECT DESCRIPTION:

LITCHFIELD HOUSING

LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

Issue Dates:

N

BID DOCUMENTS
04/28/2026

ELECTRICAL SPECIFICATIONS

E3.0

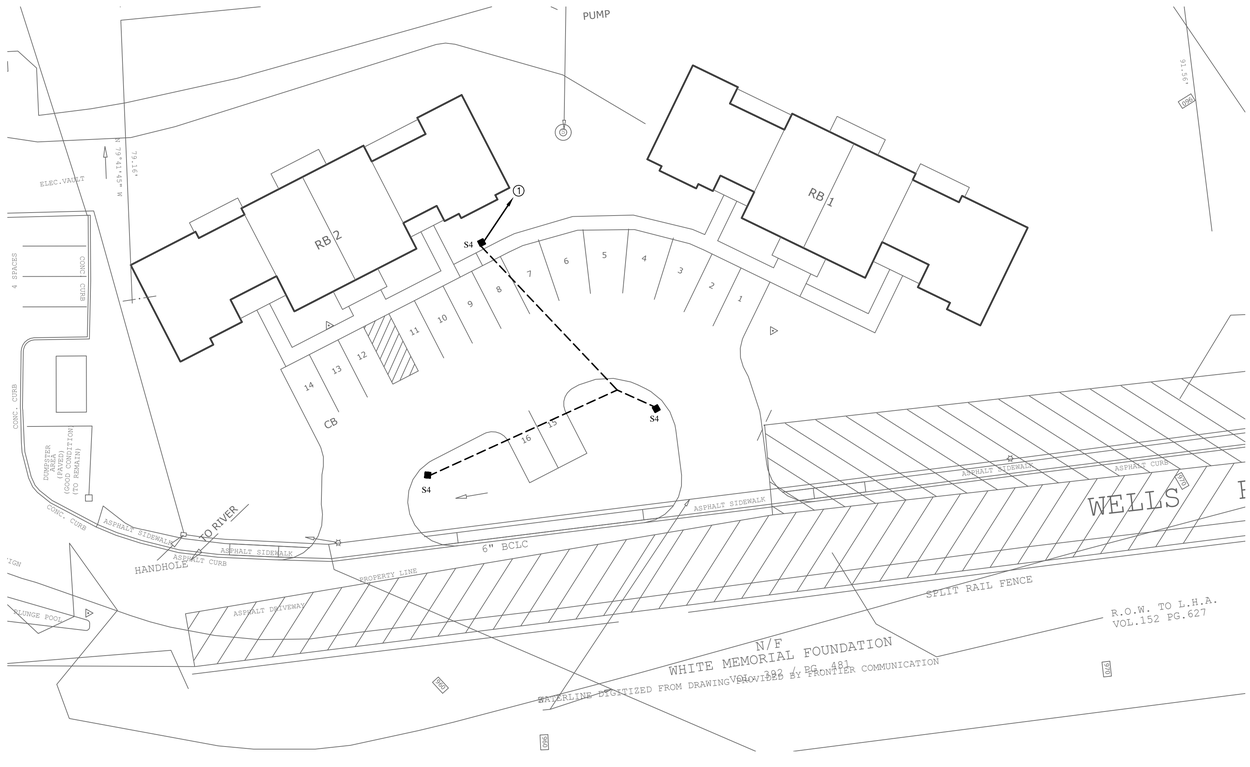
Luminaire Schedule						
Qty	Label	Luminaire Watts	Total Watts	Arrangement	LLF	Description
3	S4	67.3	201.9	Single	0.858	Sternberg PT-1843LED-CSA-x-16L30T4-MDL016 Mounted on 12FT Pole

Calculation Summary							
Label	Units	Avg	Max	Min	Avg/Min	Max/Min	Grid Height
Site	Fc	0.53	4.2	0.0	N.A.	N.A.	0
Parking & Drive Lane	Fc	1.71	4.2	0.5	3.42	8.40	

KEYED NOTES

①	CONNECT SITE LIGHTING CIRCUIT TO BUILDING 2 HOUSE PANEL VIA TIME CLOCK. PROVIDE #10 WIRES IN 3/4"C. PROVIDE PHOTOCELL OVERRIDE FOR CONTROL.

REFER TO CIVIL ENGINEER SITE LIGHTING AND PHOTOMETRIC PLAN FOR ALL SITE LIGHTING FIXTURES MAKE/MODEL, MOUNTING HEIGHT AND EXACT LOCATION. COORDINATE WITH CIVIL PLAN.



1 SITE LIGHTING PLAN
SE1.0 1" = 20'

Specification Sheet

Solana™
SL635-U0x Medium Arm Mount

Project Name _____ **Qty** _____

Type _____ **Catalog / Part Number** _____





7 Year Warranty

Mounting Configuration

Sweep Wrap Arm, Single · Sweep Arm Side Mount, Single · Sweep Arm Side Mount, Double · Angle Support Arm, Single · Angle Support Arm, Double · Horizontal 2 Pipe Arm, Single · Horizontal 2 Pipe Arm, Double · Archway Arm, Single · Archway Arm, Double

Description

The Solana™ Arm Mount Luminaire's stylish design is a perfect accent for urban settings. The subtle, yet sophisticated look enhances the impact of any project. The Solana's wide array of optics, lenses and distributions makes this an easy choice for a variety of commercial institutional and municipal projects.

Features

Mounting Configuration	**1-U01S:** Sweep Wrap Arm, Single **1-U01:** Sweep Arm Side Mount, Single **2-U01:** Sweep Arm Side Mount, Double **1-U02:** Angle Support Arm, Single **2-U02:** Angle Support Arm, Double **1-U03:** Horizontal 2 Pipe Arm, Single **2-U03:** Horizontal 2 Pipe Arm, Double **1-U04:** Archway Arm, Single **2-U04:** Archway Arm, Double
Optional Control Receptacle	**R7:** 7-Pin control receptacle only
Optional Control	**PE:** Twist-Lock Photocontrol (120V-277V) **PE4:** Twist-Lock Photocontrol (347V-480V) **SC:** Shorting Cap **PEC:** Electronic Button Photocontrol (120V-277V) **PEC4:** Electronic Button Photocontrol (480V)
Optional Fuse	**FHD:** Double Fuse and Holder
Optional House Side Shield	**HSS:** 120° House Side Shield **BLOC:** Back Light Optical Control
Optional Fixed Dimming Resistor Board	**FDRB:** Fixed Dimming Resistor Board

Physical

Arm Assembly Size	**P4:** 4" diameter arm assembly **P5:** 5" diameter arm assembly
Fixture	**SL635:** Medium Solana Arm Mount

Sternberg reserves the right to make changes to this product at any time without prior notice and such modification shall be effective immediately.
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PROJECT DESCRIPTION:

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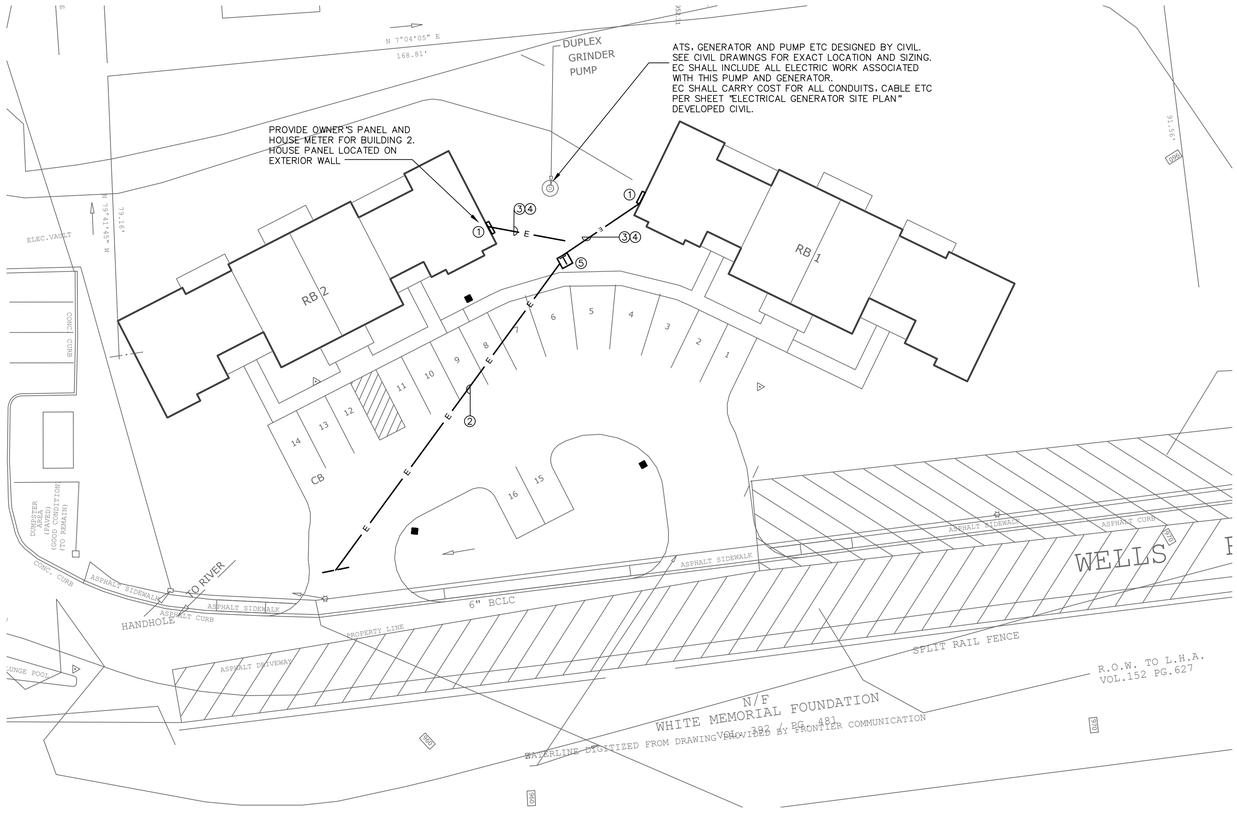
Issue Dates:

N

BID DOCUMENTS
04/28/2026

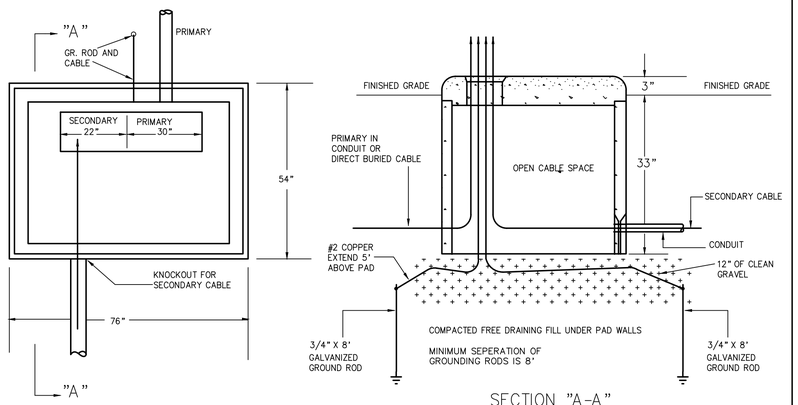
SITE LIGHTING PLAN

SE-1.0



SITE ELECTRICAL PLAN
1" = 20'

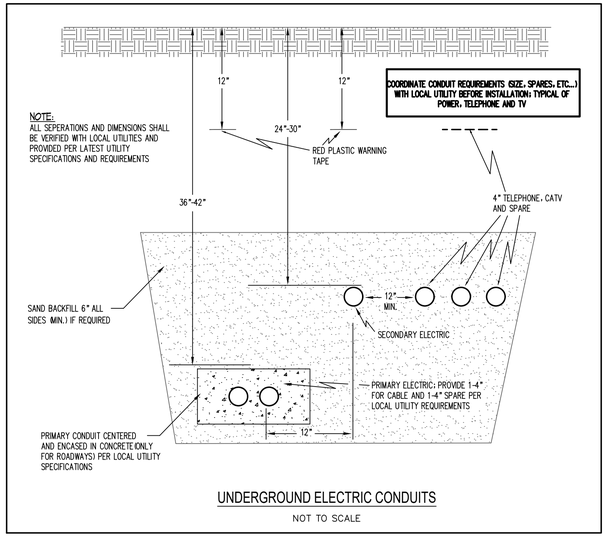
NOTE: CONFIRM PAD SIZE WITH LOCAL UTILITY



SECTION "A-A"

CONCRETE TRANSFORMER PAD DETAIL

N.T.S.



UNDERGROUND ELECTRIC CONDUITS

NOT TO SCALE

KEYED NOTES

①	PROPOSED LOCATION OF BUILDING ELECTRICAL SERVICE MAIN AND METERBANKS IN NEMA3R ENCLOSURE.
②	2-4" UNDERGROUND UTILITY PRIMARY CONDUIT/S. COORDINATE W/LOCAL UTILITY FOR EXACT ROUTE AND LOCATION OF PRIMARY RISER.
③	UNDERGROUND SECONDARY CONDUIT/S AND SERVICE CABLES PER UTILITY CO. PROVIDE CONCRETE EASEMENT AS REQUIRED BY UTILITY CO.
④	3-4" UNDERGROUND CONDUITS FOR CABLE TV AND TEL/DATA FROM LOCAL UTILITY SERVICE POLE OR HANDHOLE. SEE CIVIL SITE UTILITY PLAN FOR MORE INFORMATION.
⑤	PROPOSED LOCATION OF UTILITY TRANSFORMER. COORDINATE AND CONFIRM FINAL LOCATION WITH LOCAL UTILITY DURING SITE DEVELOPMENT AND COORDINATION. CONFIRM AND COORDINATE PRIMARY CONNECTION WITH LOCAL UTILITY.

SITE ELECTRICAL NOTES

1. ALL WORK IS NEW UNLESS OTHERWISE NOTED.
2. THE ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ALL REQUIREMENTS, LOCATIONS AND ROUTING WITH LOCAL UTILITIES BEFORE INSTALLING ANY EQUIPMENT AND ASSOCIATED WIRING AND DEVICES TO UTILITY EQUIPMENT.
3. PROVIDE THREE (3) 4" CONDUIT FOR TELEPHONE, CATV AND SPARE WITH PULL WIRE TO MAIN ELECTRICAL SERVICE LOCATION.
4. PROVIDE 4" PRIMARY CONDUIT AND ONE (1) SPARE 4" PRIMARY CONDUIT WITH PULL WIRE PER UTILITY. VERIFY AND COORDINATE ALL LOCATIONS WITH LOCAL UTILITIES BEFORE INSTALLATION.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE TRANSFORMER PAD PER LOCAL UTILITY REQUIREMENTS. REFER TO TRANSFORMER PAD DETAIL FOR FURTHER INFORMATION.
6. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR TRENCHING FOR UTILITY CONDUIT AND EV CONDUITS AS REQUIRED. COORDINATE TO BE MADE WITH LOCAL UTILITIES AND CIVIL SITE PLANS.

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PROJECT DESCRIPTION:

LITCHFIELD HOUSING

LITCHFIELD, CT

Project #: **PROJECT #**

Revisions

Issue Dates:

N

BID DOCUMENTS
04/28/2026

SITE ELECTRICAL PLAN

SE-2.0