BLOOMFIELD PUBLIC LIBRARY
MCMAHON WINTONBURY LIBRARY

SCHEMATIC DESIGN REPORT
March 30, 2022

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1. Geotechnical Report; Welti Geotechnical, P.C.
2. Existing Drawings McMahon Wintonbury Library – Available Upon Request
ARCHITECTURAL NARRATIVE

The McMahon Library project is a renovation/addition project expanding the existing library toward Blue Hills Avenue. The primary structure and masonry cladding of the existing library will remain in place with select exterior finishes, all interior wall configurations, all interior finishes and fixtures to be reconfigured/replaced with new. New window openings will be created and existing windows will be replaced with new. A new rear entrance canopy will be added. The existing roof will be replaced up to the structural deck. All wall and roof assemblies will be made to meet current energy code. A large portion of the new addition will be constructed of floor to ceiling curtain wall on the main elevation facing Blue Hills with clerestory windows on all other elevations. Along this main elevation is an interior/external bench. Roof overhangs and fritted ICU on the upper portion of the curtain wall will provide shade and minimize heat gain in the new addition. This portion of the new addition will house an entry vestibule, dedicated adult reading area with electric fireplace, and small café. Additionally, a smaller masonry addition will be constructed to house a new community room to be used both during and after library hours. There will be some exterior site modifications, including updates in the parking lot at the rear of the building, landscaping updates including a outdoor reading room directly adjacent from the children’s area.

SCOPE OF WORK - OUTLINE SPECIFICATIONS

Division 2 – Existing Conditions

1. Selective Demolition: Demolition of select areas of buildings on the site, refer to drawings
2. Site Demolition: Remove utilities where indicated on the drawings, pavement and other site improvements.
3. Hazardous materials: Refer to Hazardous Building Materials Inspection Reports prepared by SLR.

Division 3 – Concrete

1. Structural Concrete: See structural narrative.

Division 4 – Masonry

1. Typical Exterior Wall Construction: 4” exterior face brick (match existing brick), air space, 3” rigid insulation, fluid applied membrane air and vapor barrier, 8” metal studs and 5/8” gypsum wall board.
2. 2” Blue stone slabs, (Thermal finish) at adult room bench (interior and exterior), surround of electric fireplace, refer to drawings
Division 5 – Metals

1. Structural Steel Framing and Metal Decking: See Structural Narrative.
2. Cold formed Metal Framing: 18-gauge steel studs at exterior wall assembly; stud framing for interior partitions in sizes as indicated on the drawings.
3. Metal Fabrications: Loose lintels, roof access ladders, rear entrance exterior canopy, Lintels of exterior window and door openings.
4. Metal Soffit panels: Powder coated flush face low profile aluminum metal panel with conceal fasteners Exterior overhang of new addition and over existing roof structure as noted in drawings.

Division 6 – Wood and Plastics

1. Rough Carpentry: Blocking, curbs, backing panels.
2. Interior Finish Carpentry: Rapidly renewable wood products at window sills.
3. Interior Architectural Woodwork: Clear finish bamboo AWI custom grade wood veneer on wheat board with w/solid surface tops. Certified sustainable hardwood trim and veneer.

Division 7 – Thermal and Moisture Protection

1. Thermal Insulation:
   a. Perimeter Slab and Foundation Wall: 2” – R10 extruded polystyrene board.
   b. Cavity Wall: 3” – R15 or 4” – R20 extruded polystyrene board.
   c. Roof: 5” minimum – R20 extruded polystyrene.
2. Modified Bituminous Sheet Air Barrier: In cavity wall.
3. EPDM roofing: White with min SRI 78: At low slope roof areas not visible from grade, metal fascia along roof edge.
4. Roof Drains: Within roof area, connected to internal storm water piping, plus overflow outlets.
5. Roof Hatches: 1 unit for access to roof with ladder access, refer to drawings
6. Penetration Firestop Systems: At rated assemblies, UL listed systems where required by code.

Division 8 – Doors and Windows

1. Metal Doors and Frames:
   b. Interior Doors: 18-gauge.
   d. Interior Frames: 16-gauge.
2. Flush Wood Doors: 1 3/4” solid core maple, certified sustainable.
3. Aluminum Framed Entrances and Storefront: Thermally broken EFCO or equal.
4. Aluminum Curtain Wall: Thermally broken EFCO, 8” Deep +/-, with integrated steel to minimize profile depth or equal.
6. Aluminum Windows: Thermally broken, EFCO or equal.
7. Hardware: Heavy commercial grade.
9. Custom sliding closure perforated powder coated metal on metal subframe door at café, no header track using commercial grade hardware. Recessed floor track
10. Card Readers: at all exterior doors
11. Glazing:
   a. Insulated Glass: 1” thick Low-E, high performance. U-0.375 (COG U-0.25), SHGC 0.39. Exterior glazing up to 60” above floor to be tempered/laminated glass.
   b. Fritted Insulated Glass: 1” thick Low-E, high performance. U-0.375 (COG U-0.25), SHGC 0.39. Exterior glazing up to 60” above floor to be tempered/laminated glass.
   c. Tempered Glass: ¼” at interior applications.
12. Access Doors and Frames: Painted steel, where required at ceilings to access mechanical equipment.

Division 9 – Finishes (see also Finish Schedule below)

1. Drywall: 5/8” typical.
2. Flooring:
   a. Sealed Concrete Floor at Lower Level.
   b. Carpet Tile.
   c. Ceramic Tile: 2x2 on floors, base and walls (toilet rooms).
   d. Epoxy painted floors.
3. Ceilings (refer also to reflected ceiling plans):
   a. Acoustical Tile: 2’x2’ ¼” USG Mars ClimaPlus or equal (NRC not less than 0.65).
   b. Grid: Face, Capped, Double-web steel suspension system.
   c. Wood Slat Ceiling: where indicated on ceiling plans, above Community room, Childrens’ area and service desk. Linea solid wood continuous plank system with Linea PET backer or equally acoustically rated wood slat ceiling, access panels as noted in drawings will utilize caddy clip system with stagger joints
   d. Wood Ceiling Panels: Front vestibule Library, hardwood veneer plywood, concealed fasteners, dim (tbd)
   e. Painted Gypsum Wall Board: Toilet Rooms.
4. Painting: Low VOC Paints:
   a. Walls: Latex Eggshell.
   b. HM Doors and Frames: Oil Semi-Gloss.
   c. Drywall Ceilings: Latex Flat.
   d. Toilet Room Ceilings: Epoxy paint.
5. Acoustic panels: Linea solid wood continuous grill system with Linea PET backer or equal. Located in Adult area as indicated on drawings
6. Wood Wall Panels: Front vestibule Library, hardwood veneer plywood concealed fasteners, dim (tbd)
Division 10 – Specialties

1. Visual Display Surfaces:
   a. Tack boards: Made of waste cork and linoleum with backboards of certified formaldehyde-free plywood.
   b. White Boards: TBD.
2. Display Cases: TBD.
3. Electronic Display: TBD.
4. Signage:
   a. Exterior, Building Identification: Raised 3-dimensional metal lettering with concealed fasteners, dimension, tbd. Located on both sides of building, see exterior elevations.
   b. Interior, ADA-compliant room identification.
   c. Interior, commemorative plaque and area designations.
5. Toilet Partitions: Phenolic resin, floor mounted and overhead braced.
6. Toilet and Bath Accessories:
   a. Electric hand dryers.
   b. Dual type toilet paper dispensers, soap dispensers, sanitary napkin disposal units, grab bars, mirrors, utility hooks.
   c. Baby changing stations.
7. Fire Extinguishers, Cabinets, and Accessories: no ozone depleting substances.
8. Manufactured Electric Fireplace: European Home E1560, 2 sided left handed glass corner.
9. Flag Pole: Wall mounted, final location TBD.
10. Recessed Art hanging rail as noted in drawing, Taikya or equal.
11. Metal Lockers: In Staff Area.

Division 11 – Equipment

1. Library Book Return: One Thru-wall type, Kingsley or similar, One free standing exterior type.
2. Projection Screen: 12 ft w. ceiling recessed, electric screen in Community Room.
3. Residential Appliances: Countertop microwave and under counter refrigerator.

Division 12 – Furnishings

1. Window Shades: Roller Shades, motorized, single roll units typical. Double shade with black out roller shade in Community Room.
2. Entrance Floor Mats and Frames: Recessed, roll-up vinyl-acrylic tread rail, hinged mat with aluminum frame, in vestibules.

Division 13 – Special Construction – Not Used.

Division 14 – Conveying Systems – Not Used.
Division 32 – Exterior Improvements

1. Prefabricated exterior canopy. Painted galvanized steel structure at rear entry.
2. Reclad with new metal panel, exterior roof structure.

FINISH SCHEDULE

First Floor

Vestibule Front
- Floor: Recessed walk-off mat with porcelain tile base (stone source gray or eq)
- Walls: Wood panel, all elevations, refer to drawings
- Ceiling: Wood panel
- Lighting: Recessed round down fixtures

Vestibule Rear
- Floor: Recessed walk-off mat with porcelain tile base (stone source gray or eq)
- Walls: Existing brick (to be cleaned)
- Ceiling: Painted gypsum wall board.
- Lighting: Recessed round down fixtures

Staff Offices and Work Areas
- Floor: Carpet Tile.
- Walls: Painted gypsum wall board.
- Ceiling: 2x2 acoustic tiles in suspended grid.

Service Desk Areas
- Floor: Bolon woven flooring (elements silk)
- Walls: Painted gypsum wall board, Existing brick (to be cleaned, refer to drawings
- Ceiling: Linea solid wood continuous plank system with Linea PET backer or equal
- Specialties: Custom free-standing millwork entry desk.
- Lighting: Frosted linear fixture compatible with wood slat ceiling system

Community Room
- Floor: Linoleum with rubber base.
- Walls: Painted gypsum wall board.
- Ceiling: Linea solid wood continuous plank system with Linea PET backer or equal
- Specialties: Acoustic panels at ceiling, Projection Screens.
- Lighting: Frosted linear fixture compatible with wood slat ceiling system
Café
Floor:  Linoleum with rubber base.
Walls:  Painted gypsum wall board.
Ceiling:  Painted gypsum wall board.
Lighting:  Day-o-lite round series, ADL-RO4-DI

Custodial and Storage Rooms
Floor:  Epoxy floor and base.
Walls:  Epoxy paint on gypsum wall board.
Ceiling:  2x2 acoustic tiles in suspended grid.
Specialties:  Mop rack and shelf.

Adult Area
Floor:  Bolon woven flooring (elements silk)
Walls:  Painted gypsum wall board/ Linea solid wood continuous grill system with Linea PET backer or equal, existing brick (to be cleaned), New brick, refer to the drawings.
Ceiling:  As shown on reflected ceiling plans.
Specialties:  Acoustic wood panels over brick walls as noted in drawings, custom millwork shelving, masonry bluestone lintel for fireplace
Lighting:  Day-o-lite round series, ADL-RO4-DI

Teen Center/Children’s Areas
Floor:  Carpet Tile.
Walls:  Painted gypsum wall board on all walls (including existing ptd CMU wall), existing brick (to be cleaned)
Ceiling:  As shown on reflected ceiling plans, (Painted gypsum wall board, Linea solid wood continuous plank system with Linea PET backer or equal
Specialties:  Full wall graphic mural as noted in drawings.
Frosted linear fixture compatible with wood slat ceiling system, refer to drawings.

Toilet Rooms
Floor:  Ceramic tile floor and base.
Walls:  Ceramic tile.
Ceiling:  Painted gypsum wall board.
Specialties:  Toilet partitions and accessories.
Lighting:  Recessed round down fixtures
SITE / LANDSCAPE ARCHITECTURAL NARRATIVE

SCOPE OF WORK - OUTLINE SPECIFICATIONS

The following outlines the scope of work for the new construction:

Roadways and Vehicular Circulation
• Bituminous concrete pavement shall consist of 2-inch thick bituminous concrete wearing course over a 2-inch thick binder course installed on 6 inch depth compacted processed aggregate base material (CT DOT Form 818, Section M.05.01).
• Site curbing shall be precast concrete curbs, 6 inches wide by 18 inches high, on 6 inch depth compacted processed gravel base and composed of 3500 psi air-entrained concrete.
• Pavement sections are subject to modification based on any additional information or revisions that may be provided by the Geotechnical Engineer.

Sidewalks and Pedestrian Circulation
• Concrete pavement (pedestrian) shall consist of 5 inch thick 4500 psi air-entrained concrete reinforced with epoxy coated welded wire fabric on 8 inch depth compacted processed aggregate base (CT DOT Form 818, Section M.05.01).
• Finish: broom finish.
• Expansion joints (16’ o.c. max.) and control joints (4’ o.c. max.) shall be provided in all concrete paving. All expansion joints shall be doweled and sealed. Control joints shall be tooled joints.
• Detectable warning pavers shall be cast-in-place cast iron (dipped finish) at all curb ramps.
• Pavers shall be 2 ½ inches thick 5000 psi concrete pavers. Pavers shall be set on sand setting bed over concrete pavement base with holes drilled for drainage and polymeric sand swept joints. Aluminum edge restraint shall be installed where pavers meet lawn or plant bed conditions.
• Heavy duty pavers shall be 3 inches thick 5000 psi concrete pavers. Pavers shall be set on sand setting bed over concrete pavement base with holes drilled for drainage and polymeric sand swept joints. Aluminum edge restraint shall be installed where pavers meet lawn or plant bed conditions.
• Pavement sections are subject to modification based on any additional information or revisions that may be provided by the Geotechnical Engineer.

Site Furnishings
• Benches shall be placed at various locations on the library site (entrances and reading garden). Bench design will be complementary to the building architecture/features. There shall be two types of material: 1. Aluminum frame with wood seat and back, permanently anchored and 2. Precast concrete organic form, permanently anchored. Provide an allowance for: (5) five aluminum/wood benches. Length: 6 feet. Provide an allowance for: (17) precast concrete seat pods, (5) organic form precast concrete benches (form of benches shown on plans within children’s reading garden).
Landscape Amenities and Equipment

- Maintenance Strip: 900 sf with a 2” depth of flexible porous pavement system and 4” of 3/4” process aggregate base shall be placed where shown on plans. Maintenance strip shall be bordered by flush concrete curbing where abutting lawn or plant bed conditions.

Landscaping

- Shade trees, ornamental trees and shrubs, perennials and groundcovers are incorporated throughout the library site, as shown on the Site Plan.
  - Shade Trees:
    - Size: 4 – 4 1/2” caliper.
    - Qty: 25.
  - Multi-stem River Birch:
    - Size: 10-12’ height.
    - Qty: 3.
  - Ornamental Trees:
    - Size: 4” – 4 1/2” caliper.
    - Qty: 9.
  - Emerald Green Arborvitae:
    - Size: 7-8’ height.
    - Qty: 14.
  - Shrubs:
    - Size: 24”-30” height.
    - Qty: 206 deciduous shrubs, 206 evergreen shrubs.
  - Perennials/Groundcover:
    - Size: #1 container.
    - Qty: 902.
- Plant bed mix: 18 inch depth, mix of screened topsoil and compost.
- All lawn areas shall be provided with 6 inch depth of screened and amended topsoil.
- Landscape edgings shall be used where plant beds abut lawn areas. Material: aluminum, mill finish.
- Mulch: 3 inch depth for trees and shrubs, 2 inch depth for perennial and groundcover beds. Material: double shredded hardwood bark, natural color, un-dyed.
CIVIL NARRATIVE

General

The new systems will be designed in accordance with the requirements of the following codes and standards:

- State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction Form 818
- Town of Bloomfield, Connecticut

Available Utilities

The available utilities are as follows: Electric (Eversource), telephone (Frontier Communications and Comcast), Water (The Metropolitan District), Gas (Connecticut Natural Gas), and Sanitary Sewer (The Metropolitan District).

Schematic Storm Water Management Approach

Currently, storm runoff from the site passes overland across the existing parking lot to Rockwell Avenue which is then picked up by a series of catch basins, the front courtyard area along Blue Hills Avenue flows to a yard drain which is then conveyed to the storm drainage system within the road. The existing building drainage is shown on a compiled map to have a discharge to a swale located to the southeast of the property just south of the parking.

Storm runoff from the improved areas and proposed building addition will be collected by a series of yard drains, catch basins and roof drainage systems. The proposed improvements are currently determined to have an increase in the amount of impervious surface and therefore a storm water detention system will be required to mitigate peak flows. To accommodate the need for detention, an above ground detention basin is proposed on the eastern side of the site prior to discharge into the drain system within Rockwell Avenue. Additionally, underground detention will be provided to mitigate the peak flow increase along Blue Hills Avenue with a subsequent discharge to the drainage system within Blue Hills Ave. Water quality measures will also be provided, a water quality unit will be installed prior to the above ground detention basin to provide greater water quality than exists on-site today. The detention basin will also provide retention storage of the first 1” storm (“first flush”) of runoff and therefore also cover the required CT DEEP groundwater recharge volume.

Best Management Practices will be adhered to for treatment of storm water for pollutant removal. The BMP’s may include catch basin hoods/deep sumps, vegetated swales, hydrodynamic separators, etc.

Additional measures and storm water routing will be developed as the design progresses.
Schematic Utility Services

Water mapping indicates that the library is served by an existing water main that is located along Blue Hills Avenue. New fire protection and domestic services are proposed to connect into this main along with a new meter pit to be coordinated with the Metropolitan District.

Gas mapping indicates that the gas meters are located at the southeastern corner of the building, due to the proposed addition, the gas meter will require relocation and it is assumed that this will also require a new service be brought in from the main within Blue Hills Avenue. The gas service and meter shall be coordinated for relocation and redistribution with Connecticut Natural Gas (CNG).

The existing 8” PVC sanitary sewer trunk line runs west to east along Rockwell Avenue culminating at the intersection with Blue Hills Avenue. The existing 6” PVC sanitary line serving the existing building is assumed to be replaced in its entirety as the building addition is proposed directly on top of it. Modifications to the existing manhole where the service discharges are not anticipated at this time.

Materials:

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<tr>
<th>Domestic Water and Fire Protection Piping</th>
<th>Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end, AWWA C110, ductile- or gray-iron standard pattern, thickness class 54. Shall meet The Metropolitan District standards. All joints shall be restrained with mechanical retainer glands and tie rods with Mega-Lug type clamps, or approved equivalent. Gaskets: AWWA C111, rubber. Detectable warning tape shall be installed over the piping.</th>
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<td>Sanitary Manholes</td>
<td>Precast Manhole: ASTM C 913; designed according to ASTM C 890 for A-16 (ASSHTO HS20-44), heavy-traffic, structural loading; of depth, shape, and dimensions indicated, with provision for sealant joints. Minimum diameter of 4 feet. Shall meet The Metropolitan District standards. Joint Sealant: ASTM C 990, bitumen or butyl rubber. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection. Frame and Cover: 24-inch ID by 7- to 9-inch riser, with 4-inch minimum-width flange and 26-inch diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to</td>
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<td><strong>SANITARY SEWER</strong>. Material: ASTM A 48/A 48M, Class 35 gray iron unless otherwise indicate</td>
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<td><strong>Storm Piping</strong></td>
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<td><strong>Storm Manholes</strong></td>
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<td>Precast Manhole: ASTM C 913; designed according to ASTM C 890 for A-16 (ASSHTO HS20-44), heavy-traffic, structural loading; of depth, shape, and dimensions indicated, with provision for sealant joints. Minimum diameter of 4 feet. Joint Sealant: ASTM C 990, bitumen or butyl rubber. Resilient Pipe Connectors: ASTM C 923, cast or fitted into manhole walls, for each pipe connection. Frame and Cover: 24-inch ID by 7- to 9-inch riser, with 4-inch-minimum-width flange and 26-inch-diameter cover. Include indented top design with lettering cast into cover, using wording equivalent to &quot;STORM&quot;. Material: ASTM A 48/A 48M, Class 35 gray iron unless otherwise indicate</td>
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<td><strong>Catch Basins</strong></td>
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<td>Precast Concrete Catch Basins: ASTM C 913, precast, reinforced concrete; designed according to ASTM C 890 for A-16 (ASSHTO HS20-44), heavy-traffic, structural loading; of depth, shape, and dimensions indicated, with provision for joint sealants.</td>
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<tr>
<td><strong>Yard Drains</strong></td>
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<td>Cast-Iron Area Drains: ASME A112.6.3 gray-iron square body with anchor flange and square grate. Top-Loading Classification: Heavy Duty.</td>
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STRUCTURAL NARRATIVE

SCOPE OF WORK - OUTLINE SPECIFICATIONS
The following outlines the scope of work for the new construction:

GENERAL

All structures will be designed in accordance with the 2015 International Building Code/2018 Connecticut Supplement. The minimum design criteria as provided by the code, includes dead, live, and gravity loads, and wind and seismic loads. Dead loads consist of the weight of architectural, structural, mechanical, and electrical systems. Live, wind, and seismic loads are outlined in the “Design Criteria” following this narrative. The proposed structure shall be designed in accordance with the International Building Code (IBC) and Connecticut State Building Codes to withstand the applicable wind loads and roof loading from drifting of snow.

DESIGN BASIS

Soils Conditions: A geotechnical report provided by Welti Geotechnical P.C., dated March 3, 2022, specifying the excavation and backfilling requirements for foundations and retaining walls. The report recommends an Allowable Bearing Pressure of 4,000 psf. The foundations shall consist of continuous footings at the perimeter and spread footings at column locations.

Typical foundation walls (excluding retaining walls) are assumed to consist of 12” reinforced concrete walls on continuous 3’-0” wide x 1’-0” thick spread wall footings. Walls and footings shall be constructed using 4,500 psi concrete. All footings exposed to frost shall be placed a minimum of 3’-6” below finished grade. The wall reinforcing is assumed to consist of #5@16” o.c. vertical with matching footing dowels and #4@12” o.c. horizontal with (2)-#5 continuous horizontal bars top and bottom. The longitudinal footing reinforcing shall be (3)-#5 continuous. All wall reinforcing shall have Class “B” laps at splices and corner bars. New exterior columns will be supported on reinforced concrete piers supported on reinforced concrete spread footings. Interior columns will be supported on isolated reinforced concrete piers and isolated reinforced concrete spread footings. Any building retaining walls shall be designed during the subsequent design phases.

Typical Floor Slabs on Grade: The typical floor slabs on grade are assumed to be 5” thick normal weight concrete slab (3,500 psi) reinforced with 6x6-W2.9xW2x.9 welded wire fabric supported on continuous steel wire chairs. All Pre-K and Kindergarten Classroom, slabs on grade shall have radiant heat. Assume a double layer of welded wire fabric in spaces with radiant heat. Provide thickened slabs under all masonry partitions 6” or greater in thickness. All interior slabs shall be placed over a 15 mil vapor retarder on a compacted processed aggregate base material. All concrete for the slabs on grade shall have a moisture vapor reducing admixture to control the transmission of moisture vapors thru the slab. Floor depressions, as well as any areas of specialized floor finishes shall be located and specified by the Architect.
Library Store Slab Construction: Due to shallow headroom, the elevated slab above the Library Store shall consist of an 8” formed cast-in-place concrete one way slab with a double reinforcement matt of #5 at 12” on center.

Roof Construction (Steel Framing): The typical roof construction, shall consist of 20 gage, 1.5 inch galvanized metal roof deck on steel beams and/or joists, supported by steel girders, supported by steel columns. Selected roof areas will be designed with adequate load capacity to support future photo voltaic panels.

Structural Steel: Shall be fabricated and erected in accordance with the current AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings. During this early design phase, we would estimate the steel tonnage for the structure to be approximately 14 lbs. per square foot.

Lateral Load Resisting System: Based on the current architectural design, laterally stability shall be achieved utilizing either concentric steel braced frames or moment frames. The braced frames are assumed to consist of structural steel rectangular HSS sections spanning between steel columns at strategic locations to be coordinated during the design development and construction document phases.

END OF SECTION
DESIGN CRITERIA


2. Design Live Loads: Town of Brookfield
   Minimum Live Loads:
   - Assembly: 100 psf
   - Offices: 50 psf
   - Classrooms: 40 psf
   - Corridors (First floor): 100 psf
   - Lobbies: 100 psf
   - Partitions: 15 psf
   - P.V. Panels: 8 psf

   Snow Loads:
   - Roof, Flat Snow Load,
     \[ Pf = 0.7 \text{ Ce Ct I Pg} = 27 \text{ psf} \leq 30 \text{ psf min.} \]
     \[ (\text{Pg} = 35 \text{ psf}, \text{Ce} = 1.0, \text{Ct} = 1.0, I = 1.1) \]

   Snow Drift Load:
   - In accordance with Section 1608.7

   - Basic Wind Speed, \( V_{ult} \): 130 mph
   - \( V_{asd} \): 101 mph
   - Exposure Category: B
   - Risk Category: II
   - Mean Roof Height, \( h \): TBD

   - Seismic framing system – Ordinary Composite Braced Frames or Steel Moment Frames
     \[ S_s = 0.180 \]
     \[ S_1 = 0.064 \]
     \[ S_{ds} = 0.192 \]
     \[ S_{d1} = 0.102 \]
   - Risk Category III
   - Seismic Design Category = TBD
   - Importance Factor, \( I_s \) (Category III) = 1.25
   - Soil Site Class = D
   - Response Modification Factor, \( R \) = 3.0
   - Deflection Amplification Factor, \( C_d \) = 3.0
**Division 03 30 00 – Cast-In-Place Concrete:**
All cast-in-place concrete shall conform to ACI 301 "Specifications for Structural Concrete for Buildings", and ACI 318 "Building Code Requirements for Reinforced Concrete".

1. **Reinforcing bars:** ASTM A615, Grade 60
2. **Welded wire fabric:** ASTM A185
3. **Portland cement:** ASTM C150, Type I.
4. **Aggregates:** ASTM C33
5. **Water:** clean, free from deleterious amounts of acid, alkalis and organic materials.
6. **Admixtures:**
   - Air-entraining admixture: ASTM C260
   - Water reducing, accelerating, high range water reducing admixtures: ASTM C494
7. **Concrete:**
   - Slabs on grade: 3500 psi (no air entrainment) at 28 days. Water-cement ratio shall not exceed 0.50 by weight. Air content 6 percent by volume. Include moisture vapor reducing admixture in design mix.
   - Foundations: 4500 psi at 28 days, with air-entraining admixture. Concrete subject to de-icers shall have water-cement ratio not exceeding 0.40.

**Division 05 12 00 – Structural Steel:**
1. **Structural steel:** in accordance with the current AISC Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings.
2. **Fabricator Qualifications:** A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU, or is accredited by the IAS.
3. **Installer Qualifications:** A qualified Installer who participates in the AISC Quality Certification Program, is designated an AISC-Certified Erector.
4. **All welding:** by welders holding active welding certificates only.
5. **Structural steel:** ASTM A36
6. **Welding electrodes:** E70XX
7. **High strength bolts:** ASTM A325
8. **Shop welding, field welding, and high strength bolting:** laboratory controlled.

**Division 05 12 13 – Architecturally Exposed Structural Steel:**
1. **Fabricator Qualifications:** A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU, or is accredited by the IAS. Fabricator Inspection Program for Structural Steel (AC 172) and is experienced in fabricating AESS similar to that indicated on this Project.
2. **Installer Qualifications:** A qualified Installer who participates in the AISC Quality Certification Program, is designated an AISC-Certified Erector and is experienced in erecting AESS similar to that indicated on this Project.
3. Comply with requirements of ANSI/AISC 303, Sections 1 through 9 and as modified in Section 10, "Architecturally Exposed Structural Steel."

4. Build mockups of AESS to set quality standards for fabrication and installation.

5. Comply with requirements of ANSI/AISC 303, Sections 1 through 9 and as modified in Section 10, "Architecturally Exposed Structural Steel."

**Division 05 30 00 – Metal Deck:**

1. **Metal roof deck:** 1 1/2" deep, 20 gage, galvanized steel roof deck with nesting side seams.

2. Manufacture and install in accordance with Steel Deck Institute Design Specifications and Code of Recommended Standard Practice. Manufacturer: Member of SDI.

3. Form metal from hot dipped galvanizing sheet conforming to ASTM A446-76, Grade A, with zinc coating conforming to ASTM A525-76, Coating Designation G-60.

4. **Installation and fastening:** Conform to SDI Tentative Recommendations for Design of Steel Deck Diaphragms.

5. **Shear connectors:** stud type conforming to ASTM A 108, Grade 1015 or 1020. Dimensions and tolerances in accordance with figure 4.22.1 of the AWS "Structural Welding Code - Steel".
   - An arc shield (ferrule) of heat resistant ceramic or other suitable material shall be furnished with each shear connector.
   - A suitable deoxidizing and arc stabilizing flux for welding shall be furnished with each shear connector.

**Division 05 51 00 – Cold Formed Metal Framing:**

1. **Structural Performance:** Provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.
   - Design Loads: Wind Loads: per ASCE-07-10
   - Cold-Formed Steel Framing, General: Design according to AISI's "Standard for Cold-Formed Steel Framing - General Provisions."

2. **Recycled Content of Steel Products:** Provide products with an average recycled content of steel products so post-consumer recycled content plus one-half of pre-consumer recycled content is not less than 25 percent.
   - Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows.
     a. Grade: As required by structural performance
     b. Coating: G60.

3. **Exterior Non-Load-Bearing Wall Framing**
   - **Steel Studs:** Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
     a. Minimum Base-Metal Thickness: 0.0428 inch.
Mechanical, Electrical & Plumbing Narrative

I. EXECUTIVE SUMMARY
RZ Design Associates has been retained by TSKP Studios to provide a design for the mechanical, electrical and plumbing for the addition and renovation to the McMahon Library in Bloomfield, CT. The existing building is located at 1015 Blue Hills Ave. The addition and renovation will be approximately 9,200 ft². This study includes recommendations for Heating, Ventilation and Cooling, Plumbing, and Electrical Systems.

II. APPLICABLE CODES AND STANDARDS
The mechanical, electrical, plumbing, and fire protection systems will be provided in conformance with the requirements of the following codes and regulations and all applicable local authority requirements.
A. 2018 Connecticut State Building Code
C. 2015 International Mechanical Code
D. 2015 International Plumbing Code
F. NFPA, All applicable code sections, Latest Version
G. ASHRAE 90.1-2010
H. ASHRAE 62.1
I. 2017 National Electric Code

III. PLUMBING SYSTEMS
1. Existing incoming water service and all branch piping to be removed. A new 2-inch domestic water service shall be provided to serve the domestic water demands of the facility. The new domestic water service shall be supplied from the existing water main in the street. The new water service equipment shall include water meter, isolation valves, pressure reducing valve, reduced pressure backflow preventer, strainer and bypass and shall meet all current code requirements and the requirements of the MDC. This new water meter assembly shall meter all water use for the entire library.

2. All existing domestic water system and piping to be removed. New domestic hot water, cold water and re-circulating hot water piping shall be provided to serve the plumbing fixtures and equipment throughout the building. All domestic piping shall be Type L copper conforming to ASTM B 88 with sweat fittings using 95/5 solder. All domestic water piping shall be insulated with rigid molded, noncombustible glass fiber insulation conforming to ASTM C335. All domestic water piping throughout the building shall be installed above ceilings and concealed within wall cavities.

3. A high efficiency electric heat pump style hot water heater shall be provided for the domestic hot water.

4. All above-slab sanitary, waste and vent piping in the existing building will be replaced throughout. It is recommended that the existing sanitary sewer piping below floor be investigated to determine its condition and if replacement is warranted. New sanitary, waste, and vent piping for all new plumbing fixtures. Sanitary, waste and vent piping shall be plain
end cast iron with stainless steel clamp and shield assemblies conforming to ASTM B 42 for above ground piping. Buried piping shall be ASTM D2665 PVC with solvent cement joints conforming to ASTM D2855 with ASTM D2564 solvent cement. All sanitary waste and vent piping shall be concealed within chases and walls where ever possible. Waste services shall exit the building below slab at multiple locations to be coordinated with the civil engineer. All sanitary waste shall be piped to the municipal waste water systems. Vent piping shall exit the building through the roof with a 4” diameter pipe and shall extend a minimum of 12” above the finished roofline.

5. All existing roof drains on the existing building will be replaced. New roof drains and interior storm drainage piping will be provided on the new additions and connected to the site storm water system via new storm sewer piping. Overflow will be handled by scuppers where possible, otherwise overflow drains will be provided and shall terminate at a location visible to the building’s maintenance staff. Backwater valves shall be provided on all storm mains as they exit the building.

6. Existing gas service and all associated gas piping to building shall be removed. Provide a new natural gas meter and pressure regulator sized to provide the new total connected load and pressure requirements for the library equipment. New piping within the building shall be installed to supply gas to the new hot water heating boilers, and new mechanical equipment. Natural gas piping shall be Schedule 40, ASTM A53 black steel with ASME B16.3 or ASTM A234 fitting with threaded joints for piping 2” and smaller and welded joints for piping 2-1/2” and larger. Installation of the natural gas system shall conform to the requirements of the Connecticut Gas and Equipment Code and NFPA 54.

7. Building will be LEED certified. All fixtures will be low flow. Additional metering will be provided for the domestic hot water system.

8. All plumbing fixtures required to be accessible shall be in accordance with the Americans with Disabilities Act (ADA), 504 and UFAS standards.

   a) Water closets shall be wall hung, vitreous china, low consumption (high efficiency 1.28 gallon per flush water closets), by American Standard or approved equal. Flush valves shall be sensor operated, by Sloan or approved equal.

   b) Lavatories shall be wall hung type, vitreous china, by American Standard or approved equal. Faucets shall be low consumption 0.5 gpm, battery operated, by Symmons or approved equal.

   c) ADA sinks in shall be countertop mounted, stainless steel with offset drain fittings as manufactured by Elkay or approved equal. ADA compliant faucet with extra long single lever handle and swing spout shall be provided and shall be as manufactured by Symmons or approved equal.

   d) Wall hangers for water closets and lavatories shall be heavy duty adjustable height type installed within chase spaces provided behind fixtures, by J.R. Smith or approved equal.

   e) Water coolers shall be stainless steel, two-tier, ADA style, vandal resistant manufactured by Elkay or approved equal.

   f) Mop basins shall be floor mounted, 24”x24”, molded stone, with wall mounted faucet & trim, by Fiat or approved equal.

   g) Cast iron floor drains shall be installed at all group toilet rooms. Heavy-duty cast iron floor drains shall be installed in all mechanical rooms. Floor drains shall be by J.R. Smith or approved equal. Trap guards shall be provided for floor drains.

   h) All roof areas shall have primary/secondary roof drains by J.R. Smith, cast iron, with dome
strainer or approved equal.

i) Lockable hose bibs with vacuum breakers shall be installed in all group toilet rooms, by Woodford or approved equal.

j) Lockable wall hydrants with vacuum breakers shall be installed on exterior walls every 100 feet. Wall hydrants shall be non-freeze type by Woodford or approved equal.

IV. MECHANICAL SYSTEMS:

Demolition

1. The existing HVAC rooftop unit and curb to be removed. Penetration in roof shall be patched and sealed to accommodate new equipment and orientation. All associated ductwork, diffusers, grilles, supports and accessories to be removed.

2. Toilet exhaust fan and curb to be removed. Penetration in roof shall be patched and sealed to accommodate new equipment. All associated ductwork, grilles, supports and controls to be removed.

3. Existing electric baseboard radiation and cabinet heaters to be removed. All associated controls, supports and accessories shall be removed.

General Mechanical

1. Heating, air conditioning and ventilation will be provided for the entire facility. The system will be designed to provide 75 °F during cooling and 70 °F during heating. Ventilation and exhaust will be provided in accordance with the current Connecticut State Building Code (2015 International Mechanical Code) and ASHRAE Standard 62.1, Ventilation for Acceptable Indoor Air Quality. Ductwork will be sized in accordance with the acoustic consultant’s recommendations with a maximum of 0.8” pressure drop per 100 feet of ductwork; piping will be sized for a maximum head loss of 4 ft per 100 feet of piping.

2. This will be a LEED credited project and measures will be taken to achieve this including energy metering, demand control ventilation, MERV 13 filtration, refrigeration management, acoustic considerations and enhanced thermal comfort.

3. The Variable Refrigerant Flow (VRF) system will be provided with dedicated system controls that shall provide temperature control for the terminal units. The VRF controls system shall be integrated with the BMS system for monitoring and temperature override control.

4. A Building Management System (BMS) will be provided to control and monitor mechanical and electrical systems.

   a) The BMS system shall include a dedicated computer with custom graphics display, color printer, modem and be capable of controlling from a remote location.

   b) The BMS shall provide temperature control for all HVAC systems with exception to the VRF terminal units and condensers. The BMS shall monitor the VRF system and have temperature setpoint capabilities.

   c) The system shall be programmed for occupied/unoccupied control for the dedicated outdoor air handling equipment, as well as an override feature for spaces that would be used when the system is typically inactive.

   d) The BMS shall be available from any Web browser, given that proper authorization
is achieved.

V. **Cooling Plant**

Variable Refrigerant Volume and Dedicated Outdoor Air Handling Unit

1. The cooling for the building will be done with a Variable Refrigerant Flow (VRF) system. The system should include a 2,400 CFM dedicated outdoor air system (DOAS), Valen model VX-112 or equivalent, with a DX cooling coil and a hot glycol heating coil. The condenser for the DX coil will be remote mounted on the roof. The DOAS unit will be ducted directly into the VRF terminal units, and provide ventilation air to the spaces. The DOAS will exhaust from the toilet rooms as well as general exhaust in the space, and have an enthalpy wheel to recover the energy from the space. Duct smoke dampers and smoke detectors will be located at each shaft penetration, and communicate with the fire alarm system.

2. Mounted on the roof will be approximately 28 Tons of air cooled roof mounted VRF heat recovery condensing units Mitsubishi model PURY or equivalent. There will be a total of 1 VRF condensing unit, and 1 condensing unit for the DOAS dx coil. These VRF condenser will be piped to heat recover boxes located inside the building, which are then piped to the indoor terminal units. The heat recovery boxes will have a dedicated condensate drain and connect to the nearest sanitary drain.

3. The indoor spaces will be served by a combination of concealed ducted, cassette type and wall concealed indoor terminal units, Mitsubishi model PEFY, PLFY, PFFY or equivalent. The indoor units will be capable of both heating and cooling. The units shall be supported from adequate structure and proper access provided for service and maintenance. A temperature sensor shall be provided for each indoor unit to maintain individual control. The indoor units will each have a condensate drain line and connect to the nearest sanitary drain.

VI. **Heating Plant**

Condensing Gas Boilers

1. The heating plant will consist of two wall mounted gas fired boilers, Lochinvar model WHB085N or equivalent. The boilers will be arranged in a primary, secondary loop configuration and the fluid will be hot water with 40% propylene glycol. The primary pumps with be a factory provided 10 GPM constant speed circulating pump, model UPML-110 or equivalent and the secondary pumps will be fully redundant 12 GPM in line pumps, Bell and Gossett ECO XL 36-45 or equivalent, that each have a dedicated VFD. The pumps will distribute hot glycol to perimeter radiators, cabinet unit heaters and the DOAS heating coil. The boiler will operate on an outdoor air reset schedule, reducing the boiler temperature as the outdoor temperature rises. The boilers will each have exhaust and intake pipes and be vented out the side of the building.

2. The perimeter spaces with large window areas will be served with pedestal fin tube radiators to offset the heating loss. Vestibules will be served with cabinet unit heaters and perimeter mechanical spaces will be served with unit heaters.

3. Primary heat in the spaces will be done with the VRF terminal units. When additional heat is required, the baseboard radiators will supplement the VRF system.
VII. Materials and Methods:

1. General:
   e) The mechanical contractor shall furnish and install all temperature control wiring, interlock wiring and equipment control wiring for the equipment furnished under this division.
   f) All work shall be carried out in conjunction with other trades and full cooperation shall be given in order that all work may proceed with a minimum of delay and interference.
   g) After completion of the work, but before substantial completion, test, adjust and balance all air and water systems in accordance with either AABC, NEBB, or TABB standards.
   h) Provide a complete set of as-built drawings reflecting as installed conditions. As-built drawings shall indicate all installed conditions of systems within this discipline. Drawings shall be of similar scale as the construction documents and include details as necessary to clearly reflect the installed condition.
   i) Firestopping shall be provided around mechanical penetrations in accordance with fire stopping requirements. System shall be capable of maintaining against flame and gases, shall be UL listed and comply with ASTM E814.
   j) Building will be designed to meet the minimum ventilation requirements of the current ASHRAE 62.1 using the Ventilation Rate Procedure for mechanical systems.

2. Ductwork:
   a) Ductwork shall be fabricated from hot-dipped galvanized steel sheet conforming to ASTM a653, with g60 coating. Exhaust ductwork serving toilet/shower spaces shall be aluminum sheet alloy 3003-h14, ASTM b 209, aluminum connectors and bar stock: alloy 6061-t6 or of equivalent strength.
   b) Fabricate, support, install and seal in accordance with SMACNA HVAC duct construction standards - metal and flexible, and as indicated. Provide duct material, gauges, reinforcing and sealing for operating pressures indicated.
   c) Access doors shall be provided under this section as required to provide access to fire and smoke dampers, controls, humidifiers, coils alves, etc., which are located in ducts.
   d) Faced fiberglass duct wrap shall be applied externally to all concealed ducts in accordance with manufacturers instructions. Duct wrap to be 1.5 pcf density with k value of 0.27 at 75 deg f, equal to Owens Corning type 100 or equivalent.
   e) Apply 1" acoustical duct liner and liner board to the inside of ducts and plenums as specified and as called for on drawings. Acoustical liner shall be 2.0 pcf density with k value of 0.26 at 75 deg f, equal to Manville permacote linacoustic-hp or equivalent.

3. Hot Glycol Piping
   a) Schedule 40 black steel pipe conforming to ASTM a53, with welded, threaded or grooved joints.
   b) Fittings: ASTM a234 wrought steel welding type fittings, ASTM b16.3 malleable iron threaded fittings, or grooved fittings and mechanical couplings.
c) Fittings 2” and under shall be threaded, fittings 2-1/2” and over shall be welded or grooved.

d) Piping 2” and smaller may be ASTM b88 type k drawn copper with soldered fittings or copper press fittings.

e) Provide rigid molded, noncombustible fiberglass pipe insulation with white kraft paper vapor barrier jacket and self-sealing lap joint and butt strips. Insulation shall be 1.5pcf density with k value of 0.24 at 75 deg f. Insulation shall be rated for operating temperatures from 0 deg f to 850 deg f and be equivalent to Owens Corning ASJ-SSL II or equivalent.

f) Fittings shall be covered with flexible fiberglass insulation and zeston pvc fitting covers. Insulation thickness shall be in conformance with the international energy code.

g) All insulation materials, including jackets and adhesives, shall meet the requirements of NFPA 90a, according to ASTM test e-84, NFPA 255 and ul 723, having a flame-spread rating of not over 25, a smoke-developed rating of not over 50 and a fuel-contributed rating of not over 50.

4. Refrigerant Piping
   a) Drawn (rigid) copper tube shall be type ACR, r410 rated, ASTM b280, h58 temper, clean, dry and capped. Fittings shall be ASME b16.22 wrought copper. Joints shall be brazed with AWS a5.8 bcup silver / phosphorus / copper alloy.
   b) Annealed (soft) copper tube shall be type acr, r410 rated, ASTM b280, o60 temper, clean, dry and capped. Fittings shall be ASME 16.22 wrought copper. Joints shall be flared or brazed with AWS a5.8 bcup silver / phosphorus / copper alloy.
   c) Insulation shall be flexible elastomeric. Insulation thickness shall be in conformance with the international energy code.

5. Low Pressure Condensate:
   a) Pipe: schedule 80 black steel pipe conforming to ASTM a53, with welded or threaded joints.
   b) Fittings: ASTM a234 wrought steel welding type fittings or ASTM b16.3 malleable iron threaded fittings.
   c) Fittings 2” and under shall be threaded, fittings 2-1/2” and over shall be welded.

6. Pipe Hangers and Supports
   a) All hanger, support and anchor types or model numbers specified herein are based on Grinnell or acceptable equivalent. Supports shall conform to mss-sp-69 and ANSI b31.1. Wire and/or strap hangers will not be acceptable.
   b) Hangers for pipe sizes two (2”) inches and smaller shall be light-duty, clevis-type hangers, #65. For copper pipes two (2”) inches and smaller, use ct-69 copper band hangers or ct-65 copper plated clevis.

VIII. ELECTRICAL SYSTEMS

Demolition scope:
1. All the existing electrical work within the building shall be demolished in its entirety. Electrical demolition work includes but not limited to panelboards, disconnects, power outlets, light fixtures, low voltage data & telephone devices, fire alarm devices, backboxes, conduits, any associated line voltage wiring & low voltage control wiring etc.
2. The existing facility also had roof mounted solar panels generating solar power & meter
associated with it is located next to the utility meter on the building exterior. All the electrical work associated with this system shall be demolished completely.

XIII. **Electrical Service:**
1. Existing electrical utility service (600Amp, 208Y/120V, 3phase, 4 wire) shall be reused to serve the renovation & additions to this facility.

2. This facility shall be approximately 9,000 square foot in size after renovations & additions with an anticipated load density to be a minimum of 15 watts/square foot.

3. The new electric service equipment shall feature a service entrance rated, surface mounted 600Amp fused Disconnect switch, 600Amp surface mounted Main distribution panel.
   a) Underground service entrance conduits are existing to remain. New feeders shall be provided.
   b) Grounding & Bonding shall be provided as required per NEC
   c) All new conductors shall be copper.

4. The building shall have solar panels mounted on roof (design by others). Provide (2) -4” Conduits from roof to Main electrical room for interconnection between solar system & breaker assigned for it in the main distribution panel.

XIV. **Electrical Distribution**
1. The building shall be provided with panelboards and feeders arranged to efficiently distribute power to key areas of the building and its equipment. This shall include but not be limited to:
   HVAC, Plumbing equipment, lighting, receptacles, data telecommunications network equipment, security equipment, fire alarm equipment, AV, sound system and technology equipment, etc.

2. Branch circuits shall be installed in EMT conduit. EMT conduit shall be used to the first device in a branch circuit and shall be used in all masonry or CMU partitions. Type MC cable shall be allowed but limited to concealed spaces above finished ceilings or in drywall type partitions after EMT connection has been provided to the first device. The following provisions shall be included:
   a) Electrical Outlets shall be provided as required based on furniture layout & programming requirements. Refer to electrical SD plans for preliminary Layout of electrical fixtures.
   b) Circuits for all HVAC equipment as required. 120 volt wiring to control panels, control transformers, etc shall be provided by the electrician while low voltage control wire shall be provided under Division 23.
   c) Circuits for all plumbing equipment.
   d) Circuits for the Fire Alarm, Access Control, Surveillance, Data Network, Audio/Sound and Security equipment shall be provided as required.
   e) Circuits for office equipment as required.
   f) Circuits for electric water coolers as required.
g) Duplex tamper resistant receptacles every 20'-0" in corridors for housekeeping.

h) Maintenance GFCI and weatherproof outlets located on the roof within 25ft of HVAC rooftop equipment.

i) Exterior wall mounted outlets where directed by the owner.

j) Boiler emergency shutdown buttons will be located at the door(s) to the boiler room.

XV. **Lighting Systems**

1. Typical design illumination levels for ambient lighting shall include:
   
a) 15fc average - Corridors, toilet rooms & storage rooms

b) 35 - 50fc average – Community Room, Adult Area, Teen Center, Learning Lab, Children’s Area, offices and utility rooms.

c) 30fc average – All other areas not listed above

2. The following fixtures will be provided:
   
a) 5’ long pendant mounted direct/indirect decorative linear LED fixtures with extruded aluminum housings to be installed in areas without ceilings having exposed structure. Quantities of fixtures shall be designed to provide the requisite footcandle levels. Fixtures will be arranged parallel and perpendicular to building lines and normally parallel to the largest area of vertical fenestration to promote daylight harvesting design.

b) Decorative style round pendants will be designed in open areas in renovation space with high ceilings.

c) Direct/indirect volumetric style acrylic lensed 2’ x 2’ recessed mounted LED fixtures will be designed in office/work areas, and other select areas with acoustical tile suspended ceilings.

d) 2’ x 4’ recessed LED fixtures on 8x8 centers in large rooms with acoustical tile suspended ceiling.

e) 2’ x 2’ recessed LED fixtures on 12'-0" centers in corridors.

f) Perimeter mounted recessed linear LED light fixtures in all bathrooms.

g) 4-foot industrial LED fixtures with wire guards in all electric rooms, mechanical spaces and unfinished areas without suspended ceilings.

h) Accent, exterior building mounted, and feature lighting that has aesthetic appeal to directly compliment the architecture will be provided as selected by the Architect, in areas such as corridors, main lobby, exterior facade, etc.

3. Daylight sensors and dimming control shall be provided in all open areas with sufficient daylight contribution to promote daylight harvesting as required by the applicable energy conservation code requirements. Any rooms that have applicable vertical fenestration that exceeds 30% of the total wall area shall be considered daylight zones. Fixtures within 15'-0” of the fenestration shall be dimmed via a daylight sensor. The remaining rows of lights
will have the ability to be manually step-dimmed to 50% light output by the occupants via a momentary pushbutton switch. There will be one master on/off toggle switch for all the lighting in select rooms. This will allow turning off the lights and overriding the sensors. Multi-zone controls for the scenario outlined above will be facilitated by the design of a local stand-alone lighting control module.

4. Occupancy sensors shall be provided in all lit areas except in utility rooms and other rooms or areas exempted by code. Controls shall be either auto-on (occupancy mode) or manual-on (vacancy mode) depending upon the room application. Lighting will initially operate up to 50% of total brightness and the occupant will be required to manipulate controls for full brightness, if desired.

5. Corridor lighting shall remain on during occupied hours, but will be controlled by occupancy sensors during unoccupied times. This will require communication with the building management system.

6. All lighting fixtures specified shall be those recognized and listed with the Design Lights Consortium (DLC), wherever possible.

7. All egress doors shall have emergency egress illumination for the area of exit discharge as determined by the egress code analysis plan. Exterior lighting will be provided at each egress door. Typical fixture shall be LED with remote mounted battery ballast.

8. Emergency lighting shall be accomplished using emergency inverters/batteries installed integral to selected lighting fixtures to promote minimum .1 footcandles illumination along all paths of egress. Where integral emergency batteries are not practical for the lighting fixtures in a certain area, self-contained emergency twin lamp style fixtures or an external inverter providing AC power to the light fixtures, will be provided.

9. Exit signs will be self-contained, universal mounted, LED illuminated, edge-lit, low energy usage fixtures with integral emergency batteries.

10. Illuminated exit signs with the International Symbol of Accessibility shall be provided where required by code.

XVI. **Low Voltage Systems**

1. There is an existing underground conduit routed to existing electrical room for Telephone, Fiber Optic and Cable Television services. Coordinate with Technology Consultant and provide any new conduits if required.

2. Raceway, power and grounding provisions will be provided throughout the building in conformance with all requirements of the owner furnished low voltage communication and monitoring systems. The systems shall include: data network, fiber optic distribution, copper telephone distribution, coax video or cable TV distribution, audio-visual systems, access control/card reader systems, surveillance camera systems, security/intrusion detection systems. We are anticipating that the owner will make available progress drawings of each specific low voltage system noted above that identifies major components and point of use for coordination by the engineer.

3. Single stall toilets will be provided with local emergency call for aid system that includes pull cord and buzzer/light mounted above the door to the toilet.
XVII. **Fire Alarm System**

1. The building will be provided with a new intelligent addressable type fire alarm system in compliance with code requirements and ADA regulations. Horn/strobe style annunciation will promote evacuation throughout the building. The system shall be provided with a fire alarm control panel to contact the preferred Central Station monitoring company through a digital dialer. Manual pull stations shall be installed in the egress paths at exterior doors. Audible and visual signaling devices shall be installed in all habitable rooms, corridors, toilets, etc. Visual-only signaling devices shall be installed in all conference rooms, work rooms, etc. The system shall include the following equipment:

2. Remote annunciator mounted at main entry doors or at the preferred location of the local Fire Prevention Bureau.

3. Horn/strobe indicating appliances will provide occupant notification in conformance with NFPA 72 with approximately one device per room.

4. Smoke detection shall be provided in all storage rooms and any rooms that are infrequently used. Heat detection will be provided in the boiler room via 190 degree detectors.

5. Manual pull stations at ends of corridors, egress doors, and no further apart than 200 feet.

6. (2) Duct smoke detectors for each air-handling unit (Capacity >=2,000 cfm), (1) in the supply, and (1) in the return duct.

7. Signal to BMS system for fan shut-down, and damper actuation on alarm condition.

8. (2) dedicated phone lines for fire alarm panel central station communication extended from the telephone demarcation board.

9. All fire alarm system wiring will be fire alarm MC cable. EMT conduit with type THHN wire shall be provided where exposed. Metal clad cable shall be allowed where concealed.

10. Carbon Monoxide detectors in rooms or just outside rooms where fossil fuels are being burned such as the boiler room.

XVIII. **Materials and Methods**

1. Include the following basic materials and methods of construction:

   a) Wiring will be THHN/THWN copper, installed in EMT conduit to first device or exposed and MC cable for and remainder of circuit, and concealed work.

   b) Receptacles shall be specification grade, NEMA 5-20R etc.

   c) Disconnect switches will be fusible heavy-duty type. NEMA 1 or 3R as required for the installation location.

   d) Circuit breakers will be fixed element, thermal magnetic type (Size <225Amp Rating).

   e) Circuit breakers >225Amps shall have Adjustable electronic trip settings.

   f) Panelboards will contain copper bussing, with hinged door-in-door trim.
g) Branch circuit breakers shall be bolt-on type.

h) All conduits, circuits and devices will be labeled.

i) Conduits below slabs will be schedule 40 PVC, with rigid steel conduit sweeps.
TOPOGRAPHIC SURVEY, LAND NOW OR FORMERLY OF TOWN OF BLOOMFIELD, VOLUME 25, PAGE 455, AND PREPARED BY DELTA SURVEYING SERVICES, LLC

2. THIS PLAN IS A SCHEMATIC REPRESENTATION OF POTENTIAL UTILITIES, THEIR CONFIGURATIONS, AND CONSTRUCTION. CALL "CALL BEFORE YOU DIG", 1-800-922-4455. ALL UTILITY LOCATIONS THAT DO NOT MATCH THE VERTICAL OR HORIZONTAL CONTROL SHOWN ON THE PLANS SHALL IMMEDIATELY BE ADJUSTED.

5. ALL DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. ANY deviances shall be brought to the attention of the engineer prior to the execution of work. The engineer will not be held liable for costs incurred to change the plans.

8. ALL GRAVITY SANITARY SEWER PIPE SHALL BE POLYVINYL CHLORIDE (PVC) UNLESS OTHERWISE SPECIFIED.

9. ALL CONSTRUCTION MATERIALS AND METHODS SHALL CONFORM TO THE TOWN OF FARMINGTON TRANSPORTATION STANDARD SPECIFICATIONS FOR ROADS, BRIDGES, AND INCIDENTAL CONSTRUCTION, FORM 818 AND ADDENDUMS.

10. THE PLANS REQUIRE A CONTRACTOR'S WORKING KNOWLEDGE OF LOCAL, MUNICIPAL, WATER AUTHORITY, AND LOCAL REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE EXECUTION OF WORK. THE ENGINEER WILL NOT BE HELD LIABLE FOR COSTS INCURRED TO CHANGE THE PLANS.

12. SYMBOL DELINEATED TEST PITS TO BE PERFORMED BY THE CONTRACTOR TO VERIFY LOCATION OF UTILITIES.

EROSION CONTROL NOTES

CONTRACTOR RESPONSIBILITIES

1. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS FOR UTILITY REMOVAL AS INDICATED.

3. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS FOR UTILITY REMOVAL AS INDICATED.

4. A COPY OF ALL PLANS AND REVISIONS, AND THE SEDIMENT AND EROSION CONTROL PLAN SHALL BE MAINTAINED ON-SITE AT ALL TIMES DURING CONSTRUCTION.

5. BACKFILL AND COMPACT ALL AREAS OF REMOVED SUB-SURFACE UTILITIES WITH STRUCTURAL FILL.

6. ALL UTILITIES NOT SHOWN TO BE REMOVED SHALL HAVE SERVICE MAINTAINED AND SHALL BE RECONNECTED TO THE WATER MAIN OR GAS MAIN AT THE CONTRACTOR'S EXPENSE.

7. SEE PLANS PROVIDED BY RICHTER AND CEGAN, INC. FOR SITE REMOVALS.

8. SEE PLANS PROVIDED BY MEP FOR ALL ELECTRICAL AND TELECOMMUNICATIONS REMOVALS.
STORM WATER MAINTENANCE PROGRAM

A. CATCH BASINS/YARD DRAINS

CATCH BASINS ARE DESIGNED WITH 2-FOOT MINIMUM DEPTH SUMPS FOR THE PURPOSE OF COLLECTING COARSE SEDIMENT. ALL CATCH BASINS SHOULD BE INSPECTED TWO TIMES PER YEAR, TYPICALLY WHEN THE SITE IS SWEPT IN THE SPRING AFTER WINTER SANDING AND IN THE FALL AFTER ALL THE LEAVES HAVE FALLEN. SITE SWEEPING SHALL BE PROVIDED BETWEEN APRIL 15 AND MAY 15 EACH SPRING.

SEDIMENT SHOULD BE REMOVED WHEN IT EXTENDS TO WITHIN 6 INCHES OF THE OUTLET PIPE INVERT OR CONVENIENT METHOD. THE SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED OFF-SITE LOCATION IN ACCORDANCE WITH TOWN AND STATE REQUIREMENTS.

THE PARKING AREA AND ROADWAY SHALL BE SWEPT ANNUALLY. SWEEPING SHOULD OCCUR IN THE SPRING MOWING: THE UPPER STAGE, SIDE SLOPES, AND EMBANKMENT OF STORMWATER PONDS MUST BE MOWED AT INTERVALS AS RECOMMENDED BY THE LOCAL AGRICULTURAL PROFESSIONAL. OCTOBER.

B. INSPECTIONS:  BASINS SHOULD BE INSPECTED TWICE PER YEAR(SPRING AND FALL) TO ENSURE THAT THE STRUCTURE OPERATES IN THE MANNER ORIGINALLY INTENDED. WHEN POSSIBLE, INSPECTIONS SHOULD BE CARRIED OUT WITH DESIGN PLANS IN HAND.

THE FLOW PATH SHOULD BE CHECKED FOR EROSION PROBLEMS. OTHER PROBLEMS THAT SHOULD BE CHECKED FOR INCLUDE SUBSIDENCE, OUTLET WATER TURBIDITY, BANK/BED/OUTLET EROSION, CRACKING, OR TREE GROWTH ON THE EMBANKMENT; THE ACCUMULATION OF SEDIMENT AROUND THE OUTLET; THE ADEQUACY OF UPSTREAM/DOWNSTREAM CHANNEL EROSION CONTROL MEASURES; AND MODIFICATIONS TO THE BASIN OR ITS CONTRIBUTING WATERSHED THAT MAY INFLUENCE BASIN PERFORMANCE. INSPECTIONS SHOULD BE CARRIED OUT WITH DESIGN PLANS IN HAND.

ACCUMULATED SEDIMENT MUST BE REMOVED FROM THE BASIN EVERY 5 YEARS AFTER ONE HALF(12"±) OF THE SEDIMENT STORAGE CAPACITY IN THE FOREBAY HAS BEEN FILLED, AFTER 4 INCHES OF SEDIMENT HAS ACCUMULATED IN THE MAIN PORTION OF THE BASIN, OR SHALL DELINEATE INCHES UP FROM THE BOTTOM OF THE BASIN SO THE DEPTH OF SEDIMENT CAN EASILY BE MEASURED. MORE FREQUENT SPOT CLEANOUTS MAY BE NEEDED AROUND THE OUTLET CONTROL DEVICE OR THE SEDIMENT FOREBAY. SEDIMENT REMOVAL OPERATIONS ARE RELATIVELY SIMPLE. FRONT-END LOADERS, BACKHOES, OR VACUUM TRUCKS CAN BE USED TO REMOVE THE ACCUMULATED SEDIMENT FOLLOWED BY MANUAL REMOVAL OF SEDIMENT DEPOSITED AROUND THE OUTLET CONTROL DEVICE. THE SEDIMENT SHALL BE DISPOSED OF IN AN APPROVED OFF-SITE LOCATION IN ACCORDANCE WITH TOWN AND STATE REQUIREMENTS. THE DISTURBED AREA SHOULD BE IMMEDIATELY SEEDED WITH APPROPRIATE GRASS SEED AND MULCHED WITH HAY AFTER REMOVAL OPERATIONS ARE COMPLETED TO PREVENT THE OUTLET CONTROL DEVICE FROM CLOGGING.

FERTILIZER SHOULD BE MINIMIZED AND APPLIED USING PRUDENT APPLICATION PROCESSES.
SOIL EROSION AND SEDIMENT CONTROL NARRATIVE

1. PURPOSE AND DESCRIPTION OF PROJECT

A.) RENOVATION OF AN EXISTING LIBRARY.

B.) DISTURBED AREA: ±1.6 AC.

2. IDENTIFICATION OF EROSION AND SEDIMENT CONTROL CONCERNS

A.) CUTS AND FILLS ASSOCIATED WITH CONSTRUCTION.

3. IDENTIFICATION OF OTHER POSSIBLE PERMITS

THE PERMITS REQUIRED FOR THE PROJECT ARE PLANNING AND ZONING PERMITS.

4. RESPONSIBLE PARTY

TBD

NRCS SOIL TYPES

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 SCITICO, SHAKER, MAYBID SOILS</td>
<td></td>
</tr>
<tr>
<td>28B ELMRIDGE FINE SANDY LOAM, 3-8% SLOPES</td>
<td></td>
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<tr>
<td>306 UDORTHENTS - URBAN LAND COMPLEX</td>
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EROSION CONTROL LEGEND

[Diagram elements and markings]

PROGRESS C3.0
PERMANENT VEGETATIVE COVER

CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE SITE. IT WILL BE APPLIED TO ALL CONSTRUCTION AREAS SUBJECT TO EROSION WHERE CONTRACTOR SHALL LIMIT, INSOFAR AS POSSIBLE, THE SURFACE AREA OF EARTH CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO

1. TOPSOIL SHOULD HAVE PHYSICAL, CHEMICAL, AND BIOLOGICAL CHARACTERISTICS FAVORABLE TO THE GROWTH OF PLANTS.
2. TOPSOIL SHOULD HAVE A SANDY OR LOAMY TEXTURE.
3. TOPSOIL SHOULD BE RELATIVELY FREE OF SUBSOIL MATERIAL AND MUST BE FREE OF RESIDUES OF CHEMICAL PESTICIDES, HERBICIDES, PETROLEUM PRODUCTS, OR SMALL AMOUNTS OF SEDIMENT FROM SMALL DISTURBED AREAS.
4. INSPECTION SHALL BE FREQUENT (AT MINIMUM MONTHLY AND BEFORE AND AFTER CONSTRUCTION):  
   - REDUCE THE TRACKING OF SEDIMENT OFF-SITE
   - PROTECT SENSITIVE SLOPES OR SOILS FROM ENTERING STORM DRAINAGE SYSTEM.
   - RIPPED BAG
   - DECREASE VELOCITY OF SHEET FLOW
   - PROTECT SENSITIVE SLOPES OR SOILS ONTO PAVED SURFACES.
   - EVIDENCE OF SIGNIFICANT FLOWS EVADING CAPTURE
   - REPETITIVE FAILURE

DEBRIS FROM INLET PROTECTION

OTHER SECTIONS OF ROADWAY HAVE PERIODIC ADDITION OF STONE, OR LENGTHENING OF ENTRANCE MAY BE REQUIRED AS NOTED

HAY Bale INSTALLATION

Vesicular Tracings of Paved

CONSTRUCTION ENTRANCE PAD

COVER GRASS AND LEGUME SEED WITH NOT MORE THAN 1/4 INCH OF SOIL WITH MATERIAL:

1. SEDIMENT AND EROSION CONTROL DETAILS AND SPECIFICATIONS

EROSION CONTROL MAINTENANCE INTERVALS

**CONSTRUCTION ENTRANCE PAD INSTALLATION**

1. SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING CONDITIONS
2. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.
3. DISTANCE FROM WETLANDS, WATERCOURSES, DRAINAGE WAYS AND STEEP SLOPES BETWEEN SECTIONS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF TWO FEET (2').

OTHER SEDIMENTS FROM LEAVING THE SITE.

SILT FENCE MAY BE REMOVED AFTER 30 DAYS IF NOT REQUIRED.

TEMPORARY SOIL STOCKPILE

2. BALED HAY EROSION BARRIERS AND GEOTEXTILE FENCE SHALL BE INSTALLED AT BALES.

3. DISTANCE FROM WETLANDS, WATERCOURSES, DRAINAGE WAYS AND STEEP SLOPES

STABILIZED.

DUMP STRAP

FILTER FABRIC TUCKED

INLET PROTECTION BUT TO SCALE

CATCH BASIN IN A DEPRESSION

CONSTRUCTION ENTRANCE PAD INSTALLATION

REMOVAL FROM INLET

4. MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC. BELOW).

DUMP STRAP

DUMP STRAP

INLET PROTECTION BUT TO SCALE

SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC. BELOW).

WATERCOURSES, OR WATERBODIES.

g. PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE

h. THE SEEDING DATES (SEE VEGETATIVE COVER SELECTION & MULCHING SPEC.

b. THE CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN TWO WIDTH = W

2. SPREAD TOPSOIL UNIFORMLY TO A DEPTH OF AT LEAST FOUR INCHES (4"), OR TO THE MATERIAL:

a. 1. TOPSOIL SHALL BE SPREAD OVER ALL EXPOSED AREAS IN ORDER TO PROVIDE A SOIL MEDIUM HAVING FAVORABLE CHARACTERISTICS FOR THE ESTABLISHMENT, GROWTH, AND MAINTENANCE OF VEGETATION.
2. TOPSOIL SHOULD HAVE A SANDY OR LOAMY TEXTURE.
3. TOPSOIL SHOULD BE RELATIVELY FREE OF SUBSOIL MATERIAL AND MUST BE FREE OF RESIDUES OF CHEMICAL PESTICIDES, HERBICIDES, PETROLEUM PRODUCTS, OR SMALL AMOUNTS OF SEDIMENT FROM SMALL DISTURBED AREAS.
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   - EVIDENCE OF SIGNIFICANT FLOWS EVADING CAPTURE
   - REPETITIVE FAILURE

PERMANENT VEGETATIVE COVER SELECTION AND MULCHING

- REDUCE THE TRACKING OF SEDIMENT OFF-SITE
- PROTECT SENSITIVE SLOPES OR SOILS ONTO PAVED SURFACES.
- EVIDENCE OF SIGNIFICANT FLOWS EVADING CAPTURE
- REPETITIVE FAILURE

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DEBRIS FROM INLET PROTECTION

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SILT FENCE MAY BE REMOVED AFTER MORE THAN 30 DAYS IF NOT REQUIRED.
ALL AREA DRAIN GRATES SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED

1. WHEN CATCH BASIN IS SET IN CONCRETE PAVEMENT. THE 1/2" SLOPE ON THE TOP SURFACE

2. PIPE AS SPECIFIED

3. CASTINGS ARE FURNISHED WITH A BLACK PAINT.

4. MATERIAL SHALL CONFORM TO ASTM A48 - CLASS 30B.

5. CASTINGS ARE FURNISHED WITH A BLACK PAINT.

6. ALL JOINTS SHALL HAVE RUBBER GASKETS IN ACCORDANCE WITH ASTM SPEC. C-361

7. CASTINGS ARE FURNISHED WITH A BLACK PAINT.

8. THEMED (HEAVY TRAFFIC) DOT RATING

9. AS NOTED

10. SPECIAL FOUNDATION IF ORDERED BY ENGINEER

11. 1. WHEN CATCH BASIN IS SET IN CONCRETE PAVEMENT. THE 1/2" SLOPE ON THE TOP SURFACE

12. 1. CASTINGS ARE FURNISHED WITH A BLACK PAINT.

13. 1. CASTINGS ARE FURNISHED WITH A BLACK PAINT.
PROGRESS
NOTES:

1. ADDITIONAL TREE PRESERVATION MEASURES REQUIRED DURING DEMOLITION AND CONSTRUCTION AT AND AROUND EXISTING 15" SYCAMORE AND 6" MEMORIAL DOGWOOD.

SITE ILLUSTRATIVE LEGEND:

- PAVING ON CONCRETE BASE
- HEAVY DUTY PAVING ON CONCRETE BASE
- CONCRETE BASE
- SANITARY SEWER EASEMENT
- FLEXIBLE POROUS PAVEMENT MATERIAL
- PERMEABLE PAVER BASEMENT
- SANITARY SEWER EASEMENT
- FLEXIBLE POROUS PAVEMENT MATERIAL
- SANITARY SEWER EASEMENT
- FLEXIBLE POROUS PAVEMENT MATERIAL
- SANITARY SEWER EASEMENT
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SANITARY SEWER EASEMENT
SEE NOTE #5
STORM DRAINAGE EASEMENT
SEE NOTE #6

AREA
149,531 S.F.
3.433 Acres

ROCKWELL AVENUE

BLUE HILLS AVENUE (ROUTE 187)

RENOVATED
LIBRARY
BUILDING

PROPOSED
ADDITION

25' FRONT YARD

10' SIDE YARD

10' SIDE YARD

25' FRONT YARD

DECIDUOUS SHADE TREE
4-4 1/2" CAL.

MULTI-STEM RIVER BIRCH
10-12' HT.

DECIDUOUS ORNAMENTAL TREE
4-4 1/2" CAL.

DECIDUOUS SHrubS
24-30"

EVERGREEN SHRUBS
24-30"

PERENNIALS / GROUNDCOVER
#1 CONTAINER

EMERALD GREEN ARBORVITAE HEDGE
7-8' HT.

EXISTING DECIDUOUS TREE
EXISTING EVERGREEN TREE

PLANT SCHEDULE

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>QUANTITY</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECIDUOUS SHADE TREE</td>
<td>25</td>
<td>4-4 1/2&quot; CAL.</td>
</tr>
<tr>
<td>MULTI-STEM RIVER BIRCH</td>
<td>3</td>
<td>10-12' HT.</td>
</tr>
<tr>
<td>DECIDUOUS ORNAMENTAL TREE</td>
<td>9</td>
<td>4-4 1/2&quot; CAL.</td>
</tr>
<tr>
<td>DECIDUOUS SHrubS</td>
<td>206</td>
<td>24-30&quot;</td>
</tr>
<tr>
<td>EVERGREEN SHRUBS</td>
<td>206</td>
<td>24-30&quot;</td>
</tr>
<tr>
<td>PERENNIALS / GROUNDCOVER</td>
<td>902</td>
<td>#1 CONTAINER</td>
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</tbody>
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PLANTING LEGEND

- DECIDUOUS SHADE TREE
- MULTI-STEM RIVER BIRCH
- DECIDUOUS ORNAMENTAL TREE
- DECIDUOUS SHrubS
- EVERGREEN SHRUBS
- PERENNIALS / GROUNDCOVER
- EMERALD GREEN ARBORVITAE HEDGE
- STORM SLOPE SEED MIX
- PROPERTY LINE

BLOOMFIELD PUBLIC LIBRARY
LIBRARY ADDITIONS & RENOVATIONS
1015 BLUE HILLS AVE.
BLOOMFIELD, CT 06002

McMAHON WINTONBURY LIBRARY ADDITIONS & RENOVATIONS

PLANTING SCHEDULES

CUSTOM OBJECTS

SCALE: 1" = 20' - 0"

PROGRESS

L-003
1. TYPICAL ROOF CONSTRUCTION: 1 1/2"X20GA. GALVANIZED TYPE "B" METAL ROOF DECK, EX. W27X84

2. 601 FOR ALL ROOF FRAMES AT OPENINGS. COORDINATE ALL OPENING LOCATIONS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.

3. REFER TO GENERAL NOTES FOR FASTENING REQUIREMENTS.

4. INDICATES MOMENT CONNECTION, REFER TO TYPICAL DETAILS ON DRAWING S-601 PRIOR TO SUBMITTING SHOP DRAWINGS.
1. TYPICAL EXTERIOR LOOSE LINTEL

2. TYPICAL HUNG ANGLE DETAIL

3. TYPICAL RELIEVING ANGLE

4. TYPICAL LEDGER BOLTING DETAIL

5. TYPICAL SUPPORTED SLAB DETAILS

6. TYPICAL FLOOR OPENING DETAIL

7. TYPICAL ROOF FRAME OPENING DETAIL (W BEAM)

8. PIPE PENETRATION DETAIL

9. TYPICAL MOMENT CONNECTION DETAIL

10. TYPICAL MOMENT CONNECTION DETAIL

11. TYPICAL WF OUTRIGGER DETAIL

TYPICAL THRU PLATE CONNECTION DETAIL

TYPICAL BRIDGING DETAIL

REFER TO PLAN
FIRST FLOOR MECHANICAL DEMOLITION PLAN
FIRST FLOOR MECHANICAL DUCT PLAN
**ELECTRICAL DEMOLITION NOTES**

1. **NOTICE TO CONTRACTOR:** The Contractors shall not use the use of any equipment except those shown on the schematic design drawings. All other equipment must be removed from the job site prior to the start of construction. The Contractor must provide a schedule of equipment removal, including trade, job number, and quantity, to the Owner/Architect for approval. The Contractor shall also provide a list of all equipment to be removed, including trade, description, and quantity, to the Owner/Architect for approval.

2. All equipment mentioned must be removed from the job site prior to the start of construction. The Contractor shall provide a schedule of equipment removal, including trade, job number, and quantity, to the Owner/Architect for approval. The Contractor shall also provide a list of all equipment to be removed, including trade, description, and quantity, to the Owner/Architect for approval.

3. **ALL SYSTEMS TO BE REMOVED**

4. **Dimensions and locations shown are approximate and may vary from actual conditions.**

5. **The Contractor shall follow the electrical demolition plan shown on the schematic design drawings. All systems to be removed shall be removed back to the point of source. The Contractor shall make sure that the electrical systems are properly labeled and identified. The Contractor shall also provide a list of all equipment to be removed, including trade, description, and quantity, to the Owner/Architect for approval.**

6. **The Contractor shall ensure that all electrical systems are properly labeled and identified. The Contractor shall also provide a list of all equipment to be removed, including trade, description, and quantity, to the Owner/Architect for approval.**

7. **The Contractor shall be responsible for the removal of all electrical systems. The Contractor shall also provide a list of all equipment to be removed, including trade, description, and quantity, to the Owner/Architect for approval.**

8. **The Contractor shall be responsible for the removal of all electrical systems. The Contractor shall also provide a list of all equipment to be removed, including trade, description, and quantity, to the Owner/Architect for approval.**

9. **The Contractor shall be responsible for the removal of all electrical systems. The Contractor shall also provide a list of all equipment to be removed, including trade, description, and quantity, to the Owner/Architect for approval.**

10. **The Contractor shall be responsible for the removal of all electrical systems. The Contractor shall also provide a list of all equipment to be removed, including trade, description, and quantity, to the Owner/Architect for approval.**

**LIGHTING PLAN**

**COMPONENTS TO DEMOLISH:**

- All existing lighting fixtures
- All existing switches, control sensors, feeders, conduits
- All existing mechanical, electrical, and plumbing systems
- All existing doors, windows, and partitions

**REFERENCE:**

- Architectural Demolition Drawings
- Demolition Specifications

**DATE:** 03/30/2022

**LOCATION:** Bloomfield, CT 06002

**ARCHITECT:** Bloomfield Public Library

**CONTRACTOR:** McMahon Wintonbury Libraries Addition & Renovations

**PROJECT:** 1015 Blue Hills Ave.

**STATE PROJ. NO.:** 750 Old Main Street

**P: (860) 436-4336**

**ED1.01**
3. ALL SALVAGEABLE MATERIALS OR EQUIPMENT TO BE REMOVED SHALL BE TURNED OVER TO THE OWNER AT THE END OF THE DEMOLITION PROJECT. THE CONTRACTOR SHALL OBTAIN EXISTING ELECTRICAL DRAWINGS FROM THE OWNER IF AVAILABLE TO HELP WITH PROPER COORDINATION AND COORDINATION WITH OTHER TRADES. SHOULD THE CONTRACTOR ENCOUNTER, DURING DEMOLITION OF EXISTING WALLS OR CHASES, ANY WIRING OR CONDUIT WHICH MIGHT REMAIN IN PLACE, IMMEDIATELY GIVE NOTICE TO THE ENGINEER, GENERAL CONTRACTOR OR CONSTRUCTION MANAGER TO DETERMINE IF A SYSTEM OR AREA MUST REMAIN ACTIVE, IMMEDIATELY GIVE NOTICE TO THE ENGINEER, GENERAL CONTRACTOR OR CONSTRUCTION MANAGER TO DETERMINE IF A SYSTEM OR AREA MUST REMAIN ACTIVE TO SERVE ADJACENT SPACES DURING CONSTRUCTION. SHOULD THE PROJECT ENCOUNTER ANY EXISTING SYSTEMS IN ADVANCE WITH OWNER’S DESIGNATED REPRESENTATIVE. THIS SHALL INCLUDE SERVICES (E.G., METER ASSOCIATED WITH ELECTRIC METER BOXES, CONDUITS, WIRING) BACK TO THE SOURCE.

4. ALL EQUIPMENT, AND ASSOCIATED WIRING, CONDUITS INDICATED TO BE REMOVED OR RELOCATED, SHALL BE DISCONNECTED AND REMOVED, INCLUDING HANGERS AND OTHER COMPONENTS. NO EQUIPMENT, WIRING OR EARTH FULLY FAMILIAR WITH THE EXISTING CONDITIONS AND THE DOCUMENTS OF OTHER TRADES UNDER WHICH THEIR WORK WILL BE PERFORMED. BEFORE SUBMITTING BID, THE CONTRACTOR SHALL VISIT THE JOB SITE AND BECOME FULLY FAMILIAR WITH THE SITE STORAGE OF REMOVED ITEMS WILL NOT BE NECESSARY.

5. EXISTING LOW VOLTAGE DEVICES (DATA, TELEPHONE, ETC) SHALL BE PROPERLY DISPOSED OF ALL DEMOLISHED EQUIPMENT IN COMPLIANCE WITH CODES AND REGULATIONS; THIS APPLIES TO BOTH THE TRADE CONTRACTOR AND SHALL BE TRANSPORTED FROM THE SITE. SITE STORAGE OF REMOVED ITEMS WILL NOT BE NECESSARY.

6. DISCONNECTED AND REMOVED, INCLUDING HANGERS AND OTHER COMPONENTS. NO EQUIPMENT, WIRING OR COMPONENT. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE ANY DAILY INTERRUPTIONS OR SHUTDOWNS OF THE ACTIVE SYSTEM. DEMOLITION DRAWINGS ARE STRICTLY DIAGRAMMATIC AND SHOW GENERAL ARRANGEMENT AND APPROXIMATE QUANTITY AND LOCATION(S) OF EXISTING EQUIPMENT, PANELS, CONDUITS, LIGHTING, ETC. TO BE REMOVED AND PROVIDE TEMPORARY SERVICES AND SYSTEM MODIFICATIONS TO ACCOMMODATE CONTINUOUS OPERATION OF THE SOURCE.

7. ALL THE EXISTING ELECTRICAL SYSTEMS (SOLAR PANELS, ELECTRIC METER) IN THE SOURCE WITH R OOF POWER PLAN-DEMOLITION. ELECTRIC METER TO BE MAINTAINED AND PROJECT SUITE 202 BLOOMFIELD PUBLIC LIBRARY

8. 1. EXISTING LOW VOLTAGE DEVICES (DATA, TELEPHONE, ETC) SHALL BE PROPERLY DISPOSED OF ALL DEMOLISHED EQUIPMENT IN COMPLIANCE WITH CODES AND REGULATIONS; THIS APPLIES TO BOTH THE TRADE CONTRACTOR AND SHALL BE TRANSPORTED FROM THE SITE. SITE STORAGE OF REMOVED ITEMS WILL NOT BE NECESSARY.

9. THIS SHALL INCLUDE SERVICES (E.G., METER ASSOCIATED WITH ELECTRIC METER BOXES, CONDUITS, WIRING) BACK TO THE SOURCE.

10. ALL THE EXISTING ELECTRICAL WORK ASSOCIATED WITH EXISTING TO BE DEMOLISHED/RECHECKED SHALL BE DEMOLISHED BACK TO THE SOURCE.

11. EXISTING SOLAR SYSTEM FACP TO BE MAINTAINED AND PROJECT SUITE 202 BLOOMFIELD PUBLIC LIBRARY

12. THIS SHALL INCLUDE SERVICES (E.G., METER ASSOCIATED WITH ELECTRIC METER BOXES, CONDUITS, WIRING) BACK TO THE SOURCE.

13. ALL THE EXISTING ELECTRICAL WORK ASSOCIATED WITH EXISTING TO BE DEMOLISHED/RECHECKED SHALL BE DEMOLISHED BACK TO THE SOURCE.
1. PROVIDE TYPE OF RACEWAY OR CABLE AS INDICATED IN THE SPECIFICATIONS OR ON THE DRAWINGS.

- 2000A (6) 3#400KCMIL & 1#250KCMIL G (6) 3" (6) 3"
- 450A (2) 3#4/0 & 1#2G (2) 3"
- 250A 3#250KCMIL & 1#4G 2-1/2"
- 200A 3#3/0 & 1#6G 2"
- 125A 3#1/0 & 1#6G 1-1/2"
- 350A 3#500KCMIL & 1#3G 3"
- 15A 2#12 & 1#12G 3/4" 3#12 & 1#12G 3/4"
- 90A 2#2 & 1#8G 1-1/4" 3#2 & 1#8G 1-1/2"
- 30A 2#10 & 1#10G 3/4" 3#10 & 1#10G 3/4"

2. PROVIDE RECEPTACLE AT RTU SPACE. COORDINATE EXACT LOCATIONS AND WIRING REQUIREMENTS WITH SECURITY VENDOR.

3. MINIMUM SIZE CONDUIT IS 3/4" UNLESS OTHERWISE IN DICATED IN THE SPECIFICATIONS OR ON THE DRAWINGS.

4. PROVIDE SECURITY AND ACCESS CONTROL PANELS AND ASSOCIATE D WIRING BY OTHERS. PROVIDE DUPLEX RECEPTACLE AT RTU TO SENSE LOSS OF NORMAL POWER AND PROVIDE CONTINUOUS TRICKLE CHARGE, AND SHALL OPERATE AT A CURRENT OF 12V.

5. PROVIDE 120V TO ALL POWER SUPPLIES AS NEEDED TO POWER ELECTRIFIED HARDWARE (ELECTRIC STRIKES, EQUIPMENT COORDINATION NOTES)

6. PROVIDE 120V TO ALL POWER SUPPLIES AS NEEDED TO POWER ELECTRIFIED HARDWARE (ELECTRIC STRIKES, EQUIPMENT COORDINATION NOTES)

7. PROVIDE SECURITY AND ACCESS CONTROL PANELS AND ASSOCIATE D WIRING BY OTHERS. PROVIDE DUPLEX RECEPTACLE AT RTU SPACE. COORDINATE EXACT LOCATIONS AND WIRING REQUIREMENTS WITH SECURITY VENDOR.
EXISTING INTEGRATED PIPING TO BE EXAMINED
EXISTING UNDERSLAB PIPING TO BE REMOVED IN ITS ENTIRETY.
ASSOCIATED PIPING TO BE REMOVED AND CAPPED BACK TO REMAIN.

FIRST FLOOR PLUMBING DEMOLITION PLAN

STATE PROJ. NO. DATE PURPOSE
APPROVED BY

750 OLD MAIN STREET
March 3, 2022

Ms. Nancy P. Haynes
Purchasing and Risk Manager
Town of Bloomfield
800 Bloomfield Avenue
Bloomfield, CT 06002

Re: Geotechnical Study for Proposed Addition to McMahon Library, 1015 Blue Hills Avenue, Bloomfield, CT

Dear Ms. Haynes:

1.0 Herewith are the data from the test borings taken at the above referenced site. Two borings were drilled at the proposed building addition to a maximum depth of 51 feet. The borings locations are shown on the attached plan. The borings were drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.

2.0 The Subject Project will include the construction of a one story slab on grade building addition with a footprint about 2,000 sf. The finished floor will match the floor level of the existing building at Elev. 125. The existing grades in the proposed building addition footprint range from about Elev.124 to Elev.125.

3.0 The Geologic Origin of the natural inorganic soils on the site is from glacial lake deposits to about 50 feet below grade. These deposits consist generally of stratified sands to about 20 feet overlying silt or clayey silt to the top of the weathered rock at 49 feet.

3.1 The Soils Cross Section from the borings is generally as follows:

   Topsoil to 5" to 13"

   FILL, fine to medium SAND, trace Silt and Glass; or fine to coarse SAND, little Silt and Gravel to 2 to 3 feet, medium compact

   Fine to medium SAND, trace to little Silt to 20 feet, medium compact

   SILT, trace to little fine Sand to 26 feet
Varved SILT and CLAY to 49 feet, medium stiff

Weathered Bedrock to 51+ feet, very dense

3.2 The Water Table was at 9 feet below the existing grades at the completion of the borings.

4.0 The Criteria for Foundation Type and Loading are as follows:

1. The maximum total settlement should not exceed 3/4" and the maximum differential settlement should not exceed ½ the maximum settlement over a length of 50 feet.

2. The Foundations and Structures must address the seismic section of the building code.

3. The Slab at Grade floors must not settle differentially more than ½" in excess of the structure subsidence.

4.1 Regarding item 2 (above), the seismic site soil profile classification is “D”. The mapped MCE spectral response acceleration values for Bloomfield, CT are $S_1 = 0.064$ for one second period and $S_8 = 0.180$ for short period. For transfer of ground shear on crushed stone atop the silt/fine sand soils the ultimate friction factor can be 0.60.

5.0 Regarding Foundation Type, the building can be supported on spread footings. The footings should be on the natural inorganic soils at frost protection depth, or on a controlled fill placed after the removal of any existing fill, topsoil and subsoils. Controlled fills should conform to section 6.0 below and should extend horizontally beyond the footings for a distance equal to at least the depth of fill beneath the footings. Based on the borings footings will fall on fine to medium sand with trace to little silt. It is recommended that the footings be place a 4" layer of 3/8" crushed stone atop the natural sands.

5.1 The Allowable Bearing Pressure on the crushed stone atop natural soils or on controlled fill can be 4,000 psf. The allowable loading can be increased by 1/3 for seismic or wind loading. At retaining walls the maximum pressure on the toe can be 50% higher than the average pressure, cited above.

5.2 The Lateral Soil Loading (static) on retaining walls that are part of the building should be based on at-rest pressure using the at-rest coefficient cited in the table below. Lateral soil loading on retaining walls apart from the building can be designed with active pressure using the coefficient cited below for level backfill. The ultimate sliding coefficient for concrete on the crushed stone atop natural soils or on controlled fill is 0.60.

5.3 The Frost Protection Depth is 3.5 feet below the finish grades in areas, which are exposed to weather.

5.4 Summary of Foundation Design Parameters:
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowable Bearing Pressure</td>
<td>4,000 psf</td>
</tr>
<tr>
<td>Soil Unit Weight (Backfill) *</td>
<td>125 pcf</td>
</tr>
<tr>
<td>Internal Friction Angle (Backfill) *</td>
<td>34°</td>
</tr>
<tr>
<td>At-Rest Pressure Coefficient, $K_o$</td>
<td>0.45</td>
</tr>
<tr>
<td>Active Pressure Coefficient, $K_a$ (level backfill)</td>
<td>0.28</td>
</tr>
<tr>
<td>Ultimate Sliding Coefficient, concrete on crushed stone over soil or rock</td>
<td>0.60</td>
</tr>
<tr>
<td>Seismic Site Soil Profile Classification</td>
<td>D</td>
</tr>
<tr>
<td>Mapped MCE Spectral Response Acceleration for one second period, $S_1$</td>
<td>0.064</td>
</tr>
<tr>
<td>Mapped MCE Spectral Response Acceleration for short period, $S_s$</td>
<td>0.180</td>
</tr>
<tr>
<td>Frost Protection Depth</td>
<td>3.5 feet</td>
</tr>
</tbody>
</table>

* Backfill material conforming to section 6.0 below

6.0 Regarding **Controlled Fill, Backfill for Retaining Walls and Excavations at Columns and Walls, plus Slab at Grade Underlayment** (to 6" below the slab bottom) the material should conform to the following or be 3/8" crushed stone:

<table>
<thead>
<tr>
<th>Percent Passing</th>
<th>Sieve Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>3.5&quot;</td>
</tr>
<tr>
<td>50 - 100</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>25 - 75</td>
<td>No.4</td>
</tr>
</tbody>
</table>

The fraction, passing the No.4 sieve should have less than 15%, passing the No. 200 sieve.

All backfill and fill must be compacted to at least 95% of modified optimum density.

6.0.1 All topsoil and existing fills should be removed under slabs on grade. There should be a minimum of 18" of controlled fill beneath the slab on grade. This should include 12" of material conforming to the gradation in section 6.0 above. The 6" immediately beneath the slab on grade should be with 3/4" processed aggregate base conforming to the gradation cited below. This material
should be compacted at least 95% of modified optimum density (ASTM 1557D) to provide a sub
grade modulus equal to at least 250 pci. A vapor retarder is required beneath the slab on grade floors.

<table>
<thead>
<tr>
<th>Percent Passing</th>
<th>Sieve Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>1.25&quot;</td>
</tr>
<tr>
<td>90 - 100</td>
<td>1&quot;</td>
</tr>
<tr>
<td>75 - 100</td>
<td>3/4&quot;</td>
</tr>
<tr>
<td>10 - 35</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>3 - 12</td>
<td>No. 100</td>
</tr>
<tr>
<td>0 - 5</td>
<td>No 200</td>
</tr>
</tbody>
</table>

7.0 Regarding Earthwork, excavations in the natural soils will fall in OSHA Class C. This will that
excavations, which are unshored and exceed 5 feet in height, should be cut back to slopes less than
34° from the horizontal (1.5H:1V).

8.0 This report has been prepared for specific application to the subject project in accordance with
generally accepted soil and foundation engineering practices. No other warranty, express or implied,
is made. In the event that any changes in the nature, design and location of structures are planned,
the conclusions and recommendations contained in this report should not be considered valid unless
the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained
from referenced explorations. The extent of variations between explorations may not become evident
until construction. If variations then appear evident, it will be necessary to re-evaluate the
recommendations of this report.

Welti Geotechnical, P.C., should perform a general review of the final design and specifications in
order that geotechnical design recommendations may be properly interpreted and implemented as
they were intended.

If you have any questions, please call our office.

Very truly yours,

Max Welti
Max Welti, P.E.
President, Welti Geotechnical, P.C.

Clarence Welti
Clarence Welti Ph.D., P. E.
Vice President
APPENDIX

BORING LOCATION PLAN
+
TEST BORING LOGS
## Soil Test Report

**Client:** Town of Bloomfield

**Project Name:** Addition to McMahon Library

**Location:** 1015 Blue Hills Avenue, Bloomfield, CT

**Driller:** T. Czmyr

**Inspector:** Sheet 1 of 2

### Test Details
- **Type:** HSA
- **Casing:** SS
- **Size I.D.:** 3.75" / 1.375" ( Hammer Wt.: 140lbs, Finish Date: 3/2/22)
- **Surface Elev.:** 124
- **Drill Offset:** 30" from N. Coordinate at 9.0' after 0 hours

### Ground Water Observations
- **Start Date:** 3/2/22
- **Hammer Fall:** 30" ( Finish Date: 3/2/22)

### Sample Table

<table>
<thead>
<tr>
<th>Depth</th>
<th>No.</th>
<th>Blows/6&quot;</th>
<th>Borehole Elev.</th>
<th>Stratum Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>3-6-20-26</td>
<td>0.0'-2.0'</td>
<td>TOPSOIL</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>BR. FINE-MED. SAND, TRACE SILT - FILL</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>RED/BR. FINE-CRS. SAND, SAND, LITTLE SILT &amp; GRAVEL - FILL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>20-20-21-25</td>
<td>2.0'-4.0'</td>
<td>BR. FINE-MED. SAND, TRACE TO LITTLE SILT</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>21-21-20-26</td>
<td>4.0'-6.0'</td>
<td>GREY SILT, TRACE FINE SAND</td>
<td>20.0</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>5-5-7</td>
<td>10.0'-11.5'</td>
<td>GREY/BR. VARVED SILT AND CLAY</td>
<td>26.0</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>4-4-8</td>
<td>15.0'-16.5'</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>15</td>
<td>6</td>
<td>4-10-14</td>
<td>20.0'-21.5'</td>
<td></td>
<td>105</td>
</tr>
<tr>
<td>20</td>
<td>7</td>
<td>3-3-4</td>
<td>25.0'-26.5'</td>
<td>GREY/BR. VARVED SILT AND CLAY</td>
<td>95</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td>GREY SILT, TRACE FINE SAND</td>
<td>90</td>
</tr>
<tr>
<td>30</td>
<td>8</td>
<td>2-3-4</td>
<td>30.0'-31.5'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Legend:**
- **Columns (A):** D=DRY, A=AUGER, C=CORE, U=UNDISTURBED PISTON, S=SPLIT SPOON
- **Proportions Used:** Trace=0-10%, Little=10-20%, Some=20-35%, And=35-50%

**Sample Type:**
- **D=DRY**
- **A=AUGER**
- **C=CORE**
- **U=UNDISTURBED PISTON**
- **S=SPLIT SPOON**
<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE</th>
<th>STRATUM DESCRIPTION</th>
<th>REMARKS</th>
<th>ELEV.</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.0'-36.5'</td>
<td>9</td>
<td>2-3-4</td>
<td>35.0'-36.5'</td>
<td></td>
</tr>
<tr>
<td>40.0'-41.5'</td>
<td>10</td>
<td>2-2-2</td>
<td>40.0'-41.5'</td>
<td></td>
</tr>
<tr>
<td>45.0'-46.5'</td>
<td>11</td>
<td>2-1-2</td>
<td>45.0'-46.5'</td>
<td></td>
</tr>
<tr>
<td>50.0'-51.2'</td>
<td>12</td>
<td>12-20-60</td>
<td>50.0'-51.2'</td>
<td>WEATHERED ROCK 49.0</td>
</tr>
<tr>
<td>51.3</td>
<td>BOTTOM OF BORING @ 51.3'</td>
<td></td>
<td>51.3</td>
<td></td>
</tr>
</tbody>
</table>

**LEGEND: COL. A:**

**SAMPLE TYPE:** D=DRY  A=AUGER  C=CORE  U=UNDISTURBED PISTON  S=SPLIT SPOON

**PROPORTIONS USED:** TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

**DRILLER:** T. CZMYR

**INSPECTOR:**

**SHEET 2 OF 2**

**HOLE NO. B-1**
<table>
<thead>
<tr>
<th>DEPTH</th>
<th>SAMPLE</th>
<th>A</th>
<th>STRATUM DESCRIPTION + REMARKS</th>
<th>ELEV.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>3-3-5-4</td>
<td>0.0'-2.0' TOPSOIL</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3-2-3-8</td>
<td>2.0'-4.0'</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>7-8-10-14</td>
<td>4.0'-6.0' BR.FINE-MED.SAND, TRACE SILT &amp; GLASS - FILL</td>
<td>115</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>4-9-13</td>
<td>10.0'-11.5'</td>
<td>110</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>6-9-8</td>
<td>15.0'-16.5'</td>
<td>105</td>
</tr>
<tr>
<td>15</td>
<td>6</td>
<td>6-8-13</td>
<td>20.0'-21.5'</td>
<td>100</td>
</tr>
<tr>
<td>20</td>
<td>6</td>
<td>6-8-13</td>
<td>20.0'-21.5' GREY/BR.SILT, LITTLE FINE SAND</td>
<td>95</td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td>BOTTOM OF BORING @ 21.5'</td>
<td>90</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LEGEND: COL A:
SAMPLE TYPE: D=DRY  A=AUGER  C=CORE  U=UNDISTURBED PISTON  S=SPLIT SPOON
PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%

DRILLER: T. CZMYR
INSPECTOR:

SHEET 1 OF 1  HOLE NO. B-2