GENERAL STRUCTURAL NOTES
PART 1 – GENERAL REQUIREMENTS AND DESIGN CRITERIA

1.1 GENERAL
A. Refer to project specifications for detailed requirements for material and workmanship.
B. Unless otherwise noted, details, sections and notes contained in the structural contract documents shall be considered typical for all similar conditions even if not explicitly referenced.
C. The contractor shall submit a single dimensioned and coordinated drawing for each level showing the locations of all sleeves and openings required by all trades prior to initiating any work.
D. Loads imposed on the base building structure and temporary conditions intended to accommodate construction means and methods are not explicitly considered in this design. The contractor shall advise the Engineer of Record regarding construction loads and temporary conditions imposed on the building structure and shall compensate the Engineer of Record for reviewing these conditions.

1.2 ELEVATIONS & DIMENSIONS
A. All dimensions, elevations and conditions shall be verified in the field by the contractors and any discrepancies shall be brought to the attention of the Engineer of Record for clarification before proceeding with the affected part of the work. Dimensions and elevations noted in the contract documents as (+/–) and all field conditions shall be verified in the field (V.I.F.) by the contractors prior to the submissions of shop drawings. Upon receipt of shop drawings, the engineer has the right to assume that all field dimensions, elevations and conditions have been verified by the contractors and that the shop drawings accurately reflect such verifications unless stated otherwise on the shop drawings.

1.3 BUILDING CODES AND REFERENCED STANDARDS
A. International Building Code 2009 with Massachusetts Amendments (8th Edition)
B. ASCE/SEI 7–05, Minimum Design Loads for Buildings and Other Structures

1.4 DESIGN LOADS
A. Dead Loads:
All permanent stationary construction including mechanical equipment and their weights where noted on the structural drawings.
B. Floor Live loads (uniform/concentrated)
Where appropriate, these loads have been reduced in accordance with Section 1607.9 of the Building Code.

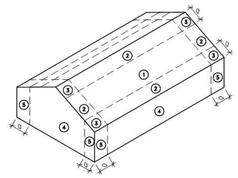
		Uniform/Concentrated
1.	Public Space	100 psf
2.	Exits (not reducible)	100 psf
3.	Roof	30 psf

C. Roof Snow Load Parameters. Where appropriate, drifting snow loads have been considered in accordance with Section 1610.6 of the Building Code.

1.	Ground Snow Load, P_g	55 psf
2.	Flat Roof Snow Loads, P_f	46 psf
3.	Sloped Roof Snow Loads, P_s	46 psf
4.	Snow Exposure Factor, C_e	1.0
5.	Snow Load Importance Factor, I_s	1.0
6.	Thermal Factor, C_t	1.2

D. Wind Load Parameters

1.	Basic Wind Speed, V	100 mph
2.	Wind Importance Factor, I_w	1.0
3.	Wind Exposure	C
4.	Internal Pressure Coefficient	±0.18
5.	Design Wind Pressure: Components and Cladding for open structures or parapets as applicable. See table below for metal panel facial on existing buildings.	



Notes:
1. The "a" distance is equal to the minimum of 10% of the least horizontal distance or 0.4*h, but not less than 3ft or 4% of the least horizontal dimension.
2. Positive indicates pressure to the building surface, negative indicates suction to the building surface.
3. h is the mean roof height.
4. Linear interpolation of table is not permitted see ASCE 7 for more information.

Component and Cladding Wind Loads (PSF)

Area (SF)	Zone 1 Positive	Zone 1 Negative	Zone 2 Positive	Zone 2 Negative	Zone 3 Positive	Zone 3 Negative	Zone 4 Positive	Zone 4 Negative	Zone 5 Positive	Zone 5 Negative
≤10	10	–24	10	–42	10	–62	25	–27	25	–33
▲100	10	–17	10	–20	10	–20	–	–	–	–
≥500	–	–	–	–	–	–	18	–20	18	–20

E. Seismic Load Parameters.

1.	Seismic Importance Factor, I_E	1.00
2.	Spectral Response Acceleration, S_S	0.27
3.	Spectral Response Acceleration, S_1	0.07
4.	Site Class	
5.	Spectral Response Coefficient, S_{DS}	0.284
6.	Spectral Response Coefficient, S_{D1}	0.110
7.	Seismic Design Category	B
8.	Response Modification Factor, R	3
9.	Overstrength Factor, Ω	3
10.	Deflection Amplification Factor, C_d	3
11.	Seismic Force Resisting System	
	a. Building 1: Attached to existing building	
	b. Building 1 Gate: Cantilever Columns	
	c. Building 3: Steel Moment Frames not specifically detailed for seismic resistance	
	d. Building 5: Attached to existing building	
	e. Building 7: Attached to existing building	
12.	Analysis Procedure	
	a. Equivalent Lateral Force	

1.5 LATERAL LOAD RESISTING SYSTEM
A. All lateral load resistance and stability of the building in the completed structure is provided by braced frames and cantilevered columns, framed in each orthogonal direction (see plan sheets, S1.XX series, for location and see lateral system elevation sheets, S2.XX series, for frame elevations. The brace frame columns are also highlighted in the column schedule, S3.XX series). The composite metal deck and concrete floors serve as horizontal diaphragms that distribute the lateral wind and seismic forces horizontally to the vertical braced frames. The vertical braced frames carry the applied lateral loads to the building foundation.

PART 2 – FOUNDATIONS

2.1 REFERENCE GEOTECHNICAL REPORT
14. Foundation design is in accordance with the recommendations provided by the preliminary geotechnical report from Haley and Aldrich dated 30 July 2015.

2.2 FOUNDATION DESIGN PARAMETERS
A. Spread Footings:
1. Footings are designed for a maximum allowable bearing pressure of 1 TSF.
B. Timber Piles
1. See section 7 of General Notes.

2.3 EXCAVATION
A. All foundation excavation to be inspected by the Geotechnical Engineer.
B. The elevations shown on the drawings are anticipated and actual elevations are to be established in the field by the Geotechnical Engineer, but in no case shall the bottom of spread footings or grade beams be located less than 4 feet below the lowest adjacent surface exposed to freezing and 1 foot 6 inches below the bottom of the floor slab for interior spaces.

2.4 BACKFILL UNDER SLAB ON GRADE
A. Backfill where required below slabs with first a layer of 18 in of approved granular soil placed compacted to 95% density at optimum moisture content as defined by ASTM D1557, Method D and then in 10 to 12 in layers of approved granular soil placed compacted to 95% density at optimum moisture content as defined by ASTM D1557, Method D.

2.5 BACKFILL AGAINST WALLS AND GRADE BEAMS
A. Do not backfill against walls until wall concrete is at full design strength.
B. Backfill per Geotechnical Report.
C. Foundation walls shall have all permanent horizontal construction in place and at full design strength prior to backfilling walls.

2.6 FOUNDATION PLACEMENT AND PROTECTION
A. Do not place foundation concrete in water or on frozen ground.
B. Protect in–place foundations and slabs from frost penetration until the project is complete. Do not use salt or chloride compounds to de–ice the site.

PART 3 – CONCRETE WORK

3.1 CONCRETE MIX PROPERTIES

		28 day strength	W/C	Air Content (Max.)
A.	Element			
1.	Slabs–on–grade (exterior)	5,000 psi	0.40	6% +/– 1.5
2.	Slabs–on–grade (interior)	4,000 psi	0.40	as mixed
3.	Footings	4,000 psi	0.45	5% +/– 1.5
4.	Foundation walls and pilasters	4,000 psi	0.45	5% +/– 1.5
5.	Foundation piers	4,000 psi	0.45	5% +/– 1.5
B.	Portland Cement:	ASTM C150, Type II.		
C.	Density			
1.	Normal weight = 145 pcf			

3.2 BASE PLATE GROUT:
A. 8,000 psi 28–day compressive strength.

3.3 STEEL REINFORCEMENT
A. ASTM A615 Grade 60, deformed.
B. ASTM A497 welded wire reinforcement (Use flat sheets only).
C. Do not tack or spot–weld crossing bars.
D. Epoxy–Coated Reinforcing Bars: ASTM A615, Grade 60, deformed bars, ASTM A 775, epoxy coated, with less than 2 percent damaged coating in each 12–inch (300–mm) bar length.

3.4 REINFORCEMENT AT OPENINGS
A. U.O.N., provide (2)–#6 at each side of all openings in walls and slabs and extend 2 ft–6 in. beyond the opening or as detailed, except vertical bars at sides of openings in walls are to extend from floor to floor.
B. Bars may be moved aside at openings or sleeves, but do not cut or omit.

3.5 SPLICING OF REINFORCEMENT:
A. As shown on the typical details. Provide a lap of 8 in or 1½ spaces, whichever is larger, for WWR.
B. Tie wires together at lap.
C. All horizontal bars are continuous. Terminate with standard hook and splice with a tension lap splice.

3.6 MINIMUM REINFORCEMENT
A. Reinforce all walls with at least #4@12 in. each way each face and (2)–#6 each edge.
B. In slabs, provide at least 0.0018 times the area of concrete in each direction.

3.7 REINFORCEMENT SHOP DRAWINGS
A. Submit for approval, complete bending and placing details of all reinforcement including welded wire reinforcement, indicating position of splices.
B. Include accessory drawings.

3.8 MINIMUM CONCRETE CLEAR COVER

A.	Concrete placed against earth	3 in.
B.	Slabs–on–grade bottom	3 in.
C.	Slabs–on–grade top	2 in.
D.	Formed concrete exposed to earth, water or weather	2 in.
E.	Piers and pilasters (transverse reinforcement)	2 in.

3.9 POST–INSTALLED ANCHORS
A. Expansion Anchors: Hilti kwik Bolt TZ.
1. Install per Hilti installation recommendations.
2. Provide standard depth of embedment as listed by Hilti, U.O.N.
3. Provide Stainless Steel anchors and hardware in all exterior applications.

B. Adhesive Anchors in Concrete: Hilti HIT HY–200 Injection Adhesive Anchors
1. Install per Hilti installation recommendations.
2. Provide standard depth of embedment as listed by Hilti, U.O.N.
3. Do not use in an overhead application.
4. Provide Stainless Steel anchors and hardware in all exterior applications.
C. Adhesive Anchors in Brick and Masonry: Hilti HIT HY–70 Injection Adhesive Anchors
1. Install per Hilti installation recommendations.
2. Provide standard depth of embedment as listed by Hilti, U.O.N.
3. Do not use in an overhead application.
4. Provide Stainless Steel anchors and hardware in all exterior applications.

3.10 EXISTING SURFACE TREATMENT
A. Roughen all existing concrete surfaces common with new concrete to amplitude of ¼ inch.
B. Existing concrete shall be considered concrete on this job at construction joints or where a secondary pour is required.

3.11 HOUSEKEEPING PADS AND CURBS
A. Pads and curbs may be shown on plan in certain instances for reference only. See Architectural and Mechanical Drawings and Specifications and coordinate with equipment manufacturer's requirements and location.
B. Provide the same concrete as base slab, U.O.N.

3.12 CONCRETE REPAIR
A. Cracks in concrete
1. Assume 100 linear feet of concrete will require routing and sealing.
2. Provide a unit price for this work.

3.13 STANDARD SPECIFICATIONS
A. CRSI Manual of Standard Practice
B. ACI 318–05 – Building Code Requirements for Structural Concrete
C. Follow the latest recommendations and specifications of the American Concrete Institute:
1. ACI 301 Specifications for Structural Concrete
2. ACI 302 Concrete Floor and Slab Construction
3. ACI 304 Guide for Measuring, Mixing, Transporting and Placing Concrete
4. ACI 305 Hot Weather Concreting
5. ACI 306 Cold Weather Concreting
6. ACI 315 ACI Detailing Manual
7. ACI 347 Guide to Formwork for Concrete

PART 4 – STRUCTURAL STEEL

4.1 STRUCTURAL SHAPES
A. Wide Flange Shapes ASTM A992 (Fy = 50 ksi)
B. Hollow Structural Sections ASTM A500, Gr. B (Fy = 46 ksi)
C. Angles ASTM A36, U.O.N. (Fy = 36 ksi)
D. Channels ASTM A36, U.O.N. (Fy = 36 ksi)
E. Plate ASTM A36, U.O.N. (Fy = 36 ksi)
F. Pipe ASTM A53, Type E, Grade B or ASTM A501 (Fy=42ksi)

4.2 BOLTED CONNECTIONS
A. ASTM A325 and A490.

4.3 ANCHOR RODS
A. ASTM F1554 Grade 55 bolts (U.O.N.) with Supplementary Requirement S1 (weldability).

4.4 WELDING ELECTRODES
A. Conform to AWS Specifications for electrodes based on welding process and the type and grade of steel. E70XX electrodes (MIN.) for fillet welds.

4.5 FABRICATION
A. Shop fabricate to greatest extent possible by welding including beam stiffeners, column caps and bases, holes and connections.
B. Submit complete shop drawings from field dimensions for the Architect's approval of all structural steel prior to fabrication.

4.6 ERECTION
A. Provide anchor rods, steel wedges, threaded screws or shims to support and plumb all columns.
B. Grout solid under base plates immediately after columns are plumb.
C. Provide bearing plates and wall anchors or anchor rods for all beams resting on concrete and all other necessary connecting hardware.
D. Set anchor rods using template.
E. Do not field cut or field modify any structural steel without prior written approval by architect for each specific case.
F. The building frame relies on the concrete slabs at strength and on the fully fastened roof deck for overall stability.

4.7 PAINT
A. Shop prime all steel not encased in concrete or not fireproofed.
B. See Architectural Drawings and Specifications for finish coat requirements.

4.8 HOT–DIP GALVANIZING
A. All steel, including but not limited to structural members, connection materials and misc. metals, that is exposed to the exterior elements (weather) shall be hot–dip galvanized. All field welds, or areas where hot–dip galvanizing is damaged, shall be touched–up with a zinc–rich paint ("cold galvanizing") after steel is completely installed.

4.9 FRAMING
A. Beams are equally spaced, U.O.N.
B. Cantilevered beams are same size as back span, U.O.N.
C. Bolt patterns shown on details illustrate the concept of the connection and do not necessarily show the actually number and arrangement of the bolts in the connection, unless specifically detailed.

4.10 STANDARD SPECIFICATIONS AND REFERENCE STANDARDS
A. AISC 360–05 Specification for Structural Steel Buildings
B. AISC 341–05 Seismic Provisions for Structural Steel Buildings, Including Supplement No.1
C. AWS D1.1–04 Structural Welding Code – Steel

PART 5 – STEEL DECK

5.1 STEEL DECK
A. Provide roof deck made from galvanized steel with minimum yield strength of 80 ksi.
B. See Drawings and Specifications for gauge and profile.
C. Provide sheet metal pour stops with thickness based on SDI criteria (SDI Publication #31); 14 gauge min. thickness.
D. All Steel Deck and supporting members are sized and spaced assuming at least a two span condition for the metal deck. The steel deck supplier, installer and general contractor shall coordinate installation and shoring requirements for single span deck.

5.2 STANDARD SPECIFICATIONS
A. AISC 360–05 – Specification for Structural Steel Buildings Part 16, Chapter I.
B. AISI S100–07 – North American Specification for the Design of Cold–Formed Structural Steel Members.
C. SDI C1.0–2006 Standard for Composite Steel Floor Deck
D. AWS Structural Welding Code D1.3 1998 – Structural Welding Code – Sheet Steel
E. Align deck flutes from sheet to sheet.

PART 6 – WOOD FRAMING

6.1 SAWN LUMBER
A. All lumber to be Spruce–Pine–Fir (NLGA) #2 or better and Kiln Dried.

6.2 WOOD–PRESERVATIVE–TREATED LUMBER
A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC3b for exterior construction not in contact with ground.
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
B. Application: Treat all rough carpentry and the following unless otherwise indicated.
C. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below–grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches (460 mm) above the ground in crawlspaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs–on–grade.

6.3 LAMINATE VENEER LUMBER (LVL)
A. By Boise Cascade or approved equal.
B. Structural Properties
1. Fb min = 2600 psi
2. Fv min = 285 psi
3. E min = 1,900,000 psi.
C. INSTALLATION
1. Follow manufacturer's installation instructions.
2. For top loaded multiple assemblies use manufacturer's recommendations.
3. For side loaded double and triple assemblies use 3 rows 16d @ 12" o.c.
4. For side loaded quadruple assemblies use 2 rows of ½ inch diameter bolts @ 12" o.c.

6.4 PLYWOOD
A. Roof sheathing: ¾" inch APA Rated sheathing, Exposure 1, veneer plywood

6.5 FASTENERS
A. Nails: Galvanized common wire.
B. Bolts: ASTM A307 for all wood–to–wood connections.
C. Screws: ASME B18.6.1 for all wood–to–wood and wood–to–steel connections U.O.N.
D. Connectors: Simpson Strong–tie or approved equal.

6.6 NAILING SCHEDULE:
Conform to Massachusetts State Building Code, 8th Edition

6.7 TYPICAL CONSTRUCTION NOTES:
A. Built–up posts designated thus n–2x, where n is the number of 2x members.
B. Lay plywood with face grain parallel to span, stagger all joints.
C. Nail new plywood roof sheathing with 8d @ 12" o.c. (4" o.c. along panel edges).
D. Keep LVL lumber dry while stored on site.

6.8 CONNECTOR SCHEDULE:
Use prefabricated connection hardware at all locations where members frame into the sides of supports. Use skewed hangers where appropriate. All joists are to be connected with Simpson Strong–tie HU Heavy Duty (14 ga) joist hangers using the manufacturer's recommended fasteners. All beams are to be connected with Simpson Strong–tie hangers according to the following table using the manufacturer's recommended fasteners. All beams to be connected using bearing connections where possible. Beams Hangers shown are top flange hangers. In locations where face mount hangers are required, notify Engineer.

Beam Size	Model No.	Design Reaction
(2) 2x6	HU26–2TF	3000#
(2) 2x8	HU28–2TF	3500#
(2) 2x10	HU210–2TF	4000#
(2) 2x12	HU212–2TF	4200#
(3) 2x10	HU210–3TF	4000#
(3) 2x12	HU212–3TF	4500#

6.9 STANDARD SPECIFICATIONS
A. AF&PA NDS–05 – National Design Specification for Wood Construction with 2005 Supplement.

PART 7 – TIMBER FOUNDATION PILES

7.1 GENERAL
A. Provide, locate and install timber piles to support the proposed storage structure at the locations shown on the Pile Location and Foundation Plan, Figure 1.
B. Piles based on preliminary geotechnical recommendations from Haley and Aldrich dated 30 July 2015.
1. Pile capacity 5 tons minimum.

7.2 MATERIAL
A. Piles shall be 16" tip natural taper, conforming to ASTM D–25 Timber Foundation Piles, pressure–treated to 0.80 pcf CCA retention in accordance with AWPA C3.
B. Piles used shall be identified with a quality mark by an approved inspection agency certified by the American Lumber Standards Committee (ALSC).
C. An original certificate from the lumber supplier attesting to the conformance of the piles supplied with the above specification, shall be provided by the Contractor to the Engineer prior to their installation.

7.3 PILE INSTALLATION
A. Piles shall be driven to a minimum embedment of TDB below the present ground surface. Hammer driving energy shall be 20,000 ft–lbs. This specified energy combination must be verified by the Engineer.
B. Piles shall be installed at the locations shown on the pile location plans.
C. In accordance with Mass. Building Code, 8th edition, Inspection: the Engineer shall be present while piles are being driven to observe all work in connection with piles. The Contractor may perform work only in the presence of the Engineer, unless otherwise directed by the Geotechnical Consultant.

7.4 SUBMITTALS
A. The Contractor shall submit to the Engineer for review, complete details of the proposed driving equipment.

7.5 MEASUREMENT
A. Piles shall be measured and paid for based on a per–pile basis, assuming a 45ft–long pile.

SYMBOL LEGEND
- BEAM TO BEAM CANTILEVER MOMENT CONNECTION
- STANDARD BEAM CONNECTION
- DIRECTION OF DECK SPAN
- (#) NUMBER OF HEADED SHEAR STUDS
- SLAB OR ROOF DECK OPENING
- SLAB STEP/CHANGE IN ELEVATION

ABBREVIATIONS:

WORD or PHRASE	ABBREVIATION	WORD or PHRASE	ABBREVIATION
ASD	Allowable Stress Design	Jt	Joint
Alt.	Alternate		
ACI	American Concrete Institute	K	Kip (1,000 pounds)
AISC	American Institute of Steel Construction	Ksf	Kips/Square Foot
AISI	American Iron and Steel Institute	LE	Left End
		LW	Lightweight
ASTM	American Society for Testing and Materials	LWC	Lightweight Concrete
		LRFD	Load & Resistance Factor Design
AWS	American Welding Society		
AB	Anchor Bolt	LLH	Long Leg Horizontal
Arch.	Architect	LLV	Long Leg Vertical
@	At	LP	Low Point
B or Bot.	Bottom	Max.	Maximum
BEW	Bottom Each Way	Mech.	Mechanical
		MEP+T	Mechanical, Electrical, Plumbing and Technology
CEP	Central Energy Plant	Min.	Minimum
CIP	Cast–in–Place		
CG	Center of Gravity		
Ctrd.	Centered	NF	Near Face
℄	Centerline	NIC	Not In Contract
Clr.	Clear	NWC	Normal Weight Concrete
Col.	Column	NTS	Not to Scale
Conc.	Concrete	No. or #	Number
CMU	Concrete Masonry Unit		
CRSI	Concrete Reinforcing Steel Institute	OC	On Center
		O.D.	Outer Diameter
Const.	Construction		
Const. Jt. or CJ	Construction Joint	Pl. or ℙ	Plate
Cont.	Continuous	PLF	Pounds/Linear Foot
		PVC	Polyvinyl Chloride
Det.	Detail	Psf	Pounds/Square Foot
Dia. or ø	Diameter	Psi	Pounds/Square Inch
Dim.	Dimension	P/C	Pre–cast
Dir.	Direction		
Dwls	Dowels	Ref.	Reference
Dn	Down	Reinf.	Reinforce or Reinforcement
Dwg	Drawing	RE	Right End
		RD	Roof Drain
Ea.	Each		
EE	Each End	Sect.	Section
EF	Each Face	SC	Shear Connector or Slip Critical Bolt
ES	Each Side		
EW	Each Way	SCJ	Slab Control Joint
El.	Elevation	SH	Shear Head
Elev.	Elevator	SLV	Short Leg Vertical
EOS	Edge of Slab	Sim.	Similar
EOR	Engineer of Record	SJI	Steel Joist Institute
EP	Embed Plate	SOG	Slab–on–Grade
Eq.	Equal	Sq.	Square
Exp. Bolt	Expansion Bolt	SS	Stainless Steel
Exp. Jt or EJ	Expansion Joint	Std	Standard
Ext.	Exterior	Stl	Steel
		SDI	Steel Deck Institute
FF	Far Face	Stiff.	Stiffener
Ft or '	Feet	Str.	Structural
Fin.	Finish	Sym.	Symmetrical
Fin. Fl.	Finish Floor		
Fl.	Floor	T	Top
FD	Floor Drain	T&B	Top & Bottom
FP	Full Penetration Weld	TOC	Top of Concrete
FS	Footing Steps	TOS	Top of Steel
		TOW	Top of Wall
Galv.	Galvanized	Typ.	Typical
Ga	Gauge		
Gr.	Grade	UON	Unless Otherwise Noted
GB	Grade Beam		
		V or Vert.	Vertical
HP	High Point	VEF	Vertical Each Face
HSS	Hollow Structural Section	VIF	Vertical Inside Face
H or Horiz.	Horizontal	VIF	Verify in Field
HEF	Horizontal Each Face	VOF	Vertical Outside Face
HIF	Horizontal Inside Face		
HOF	Horizontal Outside Face	WWR	Welded Wire Reinforcement
		WP	Working Point
In. or "	Inch		
Incl.	Inclusive or Including		
Info.	Information		

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LEXINGTON, MA 02421
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NITSCH ENGINEERING
2 CENTRAL SQUARE, SUITE 40
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617-338-0063

HARDWARE CONSULTANT
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MAYNARD, MA 01754
781-899-8822

LANDSCAPE DESIGN
BROWN, RICHARDSON, & ROWE
3 POST OFFICE SQUARE, 3RD FLOOR
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617-542-8552

LIGHTING CONSULTANTS
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REVISIONS

NUMBER	DESCRIPTION	DATE

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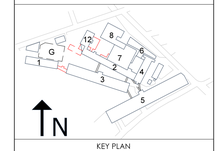

KEY PLAN

DATE.....10/19/2015
SCALE.....
DRAWN BY.....MAT
PROJECT NUMBER.....SAR15A.00

DRAWING TITLE
GENERAL NOTES

S-000
DRAWING NUMBER